

ANTENNAS

# **GENERAL** **CATALOG**

**F.M. ANTENNA SYSTEMS  
& ACCESSORIES**



**Telecomunicazioni  
Ferrara**

antenne e componenti  
alta frequenza

## PRODUCT WARRANTY

Any product of Telecomunicazioni Ferrara is covered by a 12 (twelve) month warranty (standard). Telecomunicazioni Ferrara S.r.l. extends to the original end-user purchaser all manufacturers warranties which are transferrable and all claims are to be made directly to Telecomunicazioni Ferrara per indicated procedures.

Warranty shall not include:

1. Connectors;
2. Re-shipment of the unit to Telecomunicazioni Ferrara for repair purposes;
3. Any unauthorized repair/modification;
4. Incidental/consequential damages as a result of any defect;
5. Nominal non-incidental defects;
6. Re-shipment costs or insurance of the unit or replacement units/parts;

Any damage to the goods must be reported to the carrier in writing on the shipment receipt.

Any discrepancy or damage discovered subsequent to delivery, shall be reported to Telecomunicazioni Ferrara within 5 (five) days from delivery date.

To claim your rights under this warranty, you should follow this procedure:

- Contact the dealer or distributor where you purchased the unit. Describe the problem and, so that a possible easy solution can be detected. Dealers and Distributors are supplied with all the information about problems that may occur and usually they can repair the unit quicker than what the manufacturer could do. Very often installing errors are discovered by dealers.
- If your dealer cannot help you, contact Telecomunicazioni Ferrara and explain the problem. If it is decided to return the unit to the factory, Telecomunicazioni Ferrara will mail you a regular authorization with all the necessary instructions to send back the goods.
- When you receive the authorization, you can return the unit. Pack it carefully for the shipment, preferably using the original packing and seal the package perfectly. **DO NOT RETURN UNITS WITHOUT OUR AUTHORIZATION AS THEY WILL BE REFUSED.**

Be sure to enclose a written technical report where mention all the problems found and a copy of your original invoice establishing the starting date of the warranty.

Replacement and warranty parts may be ordered from the following address:



Telecomunicazioni Ferrara S.r.l.  
Via Dei Calzolari, 156  
44036 Francolino (Ferrara)  
ITALY  
Tel.: +39 0532 72.40.33  
Fax: +39 0532 72.48.19  
E-Mail: [info@telecfe.it](mailto:info@telecfe.it)

be sure to include the equipment model and serial number as well as part description and part number.

### CUSTOMER SERVICE AND TECHNICAL ASSISTANCE

The technical assistance is available from Telecomunicazioni Ferrara S.r.l. by letter or prepaid telephone or telegram. Equipment requiring repair or over haul should be sent by common carrier, prepaid, insured and well protect. Do not mail equipment. We can assume no liability for inbound damage and necessary repairs become the obligation of the shipper. Prior arrangement is necessary. Contact the dealer or distributor with all the informations about problems that may occur and usually they can repair the unit quicker than what the manufacturer could do. Very often installing errors discovered by dealers.

If your dealer cannot help you, contact Telecomunicazioni Ferrara S.r.l. in Francolino (FE) and explain the problem. If it is decided to return the unit to the factory, Telecomunicazioni Ferrara will mail you a regular authorization with all the necessary instructions to send back the goods.



# **GENERAL** **CATALOG**

## **F.M. ANTENNA SYSTEMS & ACCESSORIES**

FM BAND ANTENNAS

LINK ANTENNAS

BAND I ANTENNAS

FM BAND PASS FILTERS

FM COMBINERS

ACCESSORIES

CABLES



# **GENERAL** — **CATALOG**

BROAD BAND HORIZONTAL  
AND VERTICAL  
POLARIZATION ANTENNAS

---

BROAD BAND CIRCULAR  
POLARIZATION ANTENNAS

---

TUNED HORIZONTAL  
AND VERTICAL  
POLARIZATION ANTENNAS

---

TUNED CIRCULAR  
POLARIZATION ANTENNAS

---

## Model AJ1 FENA

### BROADBAND LOW COST DIPOLE

### LOW WEIGHT HIGHT PERFORMANCE

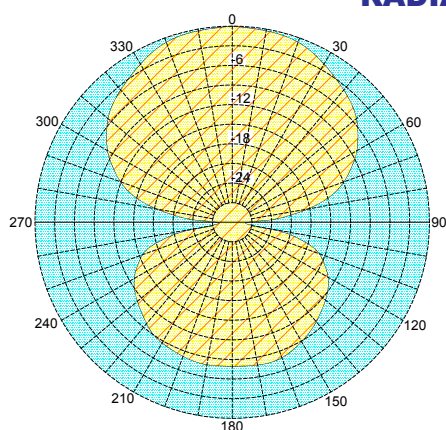
- Model AJ1FENA – AJ1FEA6 – AJ1FEA7
- Band II dipole
- Broadband 87.5÷108 MHz
- 2 dBd gain
- Vertical polarization
- Omni directional pattern
- Aluminium anticorodal



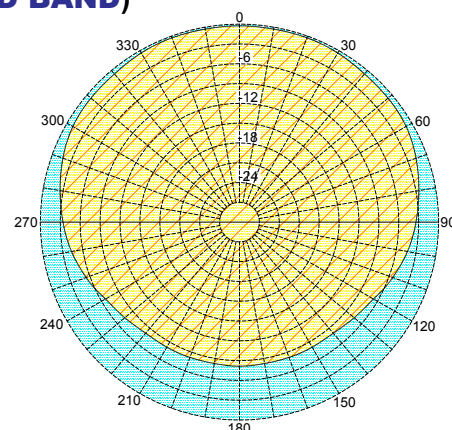
ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	N (AJ1FENA) – 7/16 female (AJ1FEA6) – 7/8 EIA (AJ1FEA7)
Max Power	800W (N) – 2KW (7/16" - 7/8" EIA)
VSWR	≤ 1.35:1
Polarization	Vertical
Gain	2 dB (referred to half-wave dipole) at 98 MHz
Pattern	Omni directional ± 1.5 dB in free space Omni directional ± 3 dB with 100mm diameter pole
Lightning protection	All metal parts DC grounded

MECHANICAL DATA	
Dimensions	1400x900x50 mm
Weight	4 kg with hardware mounting
Wind surface	0.05m2
Wind load	9.8 kg (wind speed at 160 km/h – without radome)
Max wind velocity	220 km/h.
Materials	External parts: Aluminium anticorodal Internal parts: brass Radome: fiberglass (optional)
Icing protection	Feed point radome (optional)
Radome (optional)	Color white
Mounting	With special pipe clamps 40÷110 mm diameter

### RADIATION PATTERN (MID BAND)

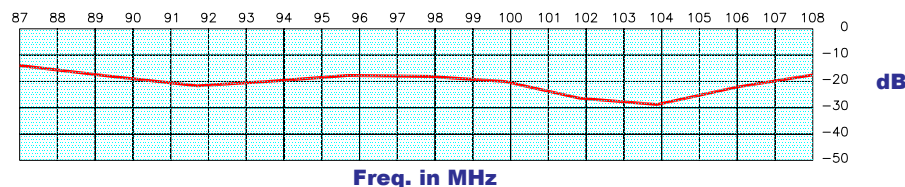


E-plane



H-plane

### Return Loss



"These specifications are subject to change without notice"



## Broad Band Low Cost Antenna Systems with the AJ1FENA

### Omni - directional pattern

#### ELECTRICAL DATA

Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.35:1 Max
Polarization	Vertical
Gain	According to requirement
Horizontal pattern	Any type according to the customer requirements
Vertical pattern	Null fill, beam tilt and special requirements on demand
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

#### MECHANICAL DATA

Height of array	Subject to number of bays ( refer to table )
Total net weight	Refer to table
Wind load	Refer to table
Pressurizable	Yes (on demand)
Radome colour	White (optional)
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required

#### TECHNICAL DATA

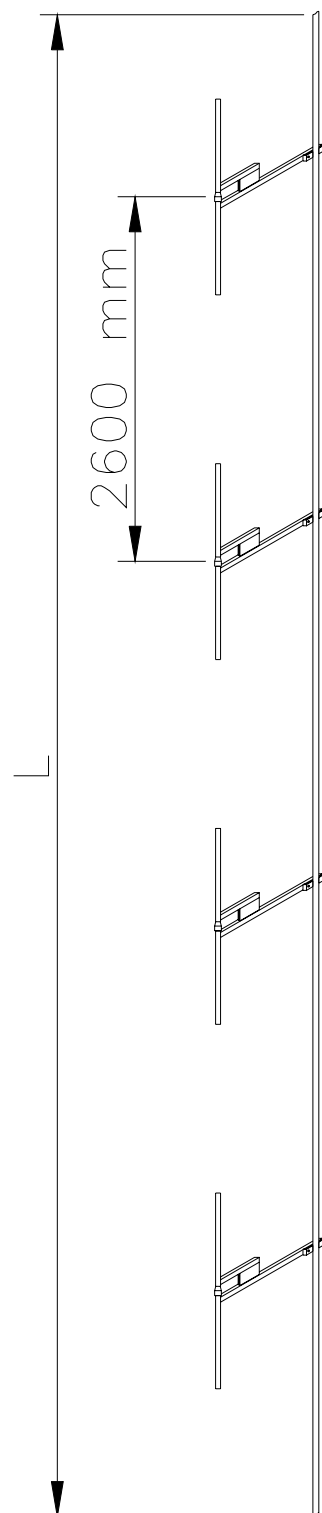
Number of bays	Dipole per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg
		dB	times			
1	1	2.0	1.6	4	1.4	9.8
2	1	5.0	3.2	8	4.0	19.6
4	1	8.0	6.3	16	9.2	39.2
6	1	9.8	9.5	24	14.4	58.8
8	1	11.0	12.7	32	19.6	78.4

<sup>1</sup> Referred to half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

<sup>3</sup> Systems comprise: antennas, cables and splitter – for more details look on catalog – different versions on demand

- Gain is provided for vertical polarisation.
- When antenna is pole mounted on the top of a tower the horizontally polarized radiation pattern is omni - directional.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing are provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- A length of five ft(1.6mt) of pipe is required above the top bay and below the bottom bay to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.



## Model AJ 1 FEN BROADBAND LOW COST DIPOLE

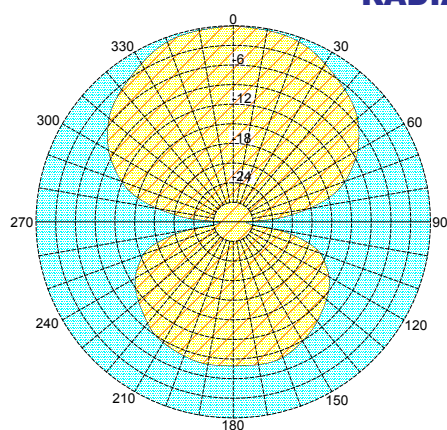
- Model A1JFEN – AJ1FE6 – AJ1FE7
- Band II dipole
- Broadband 87.5÷108 MHz
- 2 dBd gain
- Vertical polarization
- Omni directional pattern
- Hot-dip galvanized steel



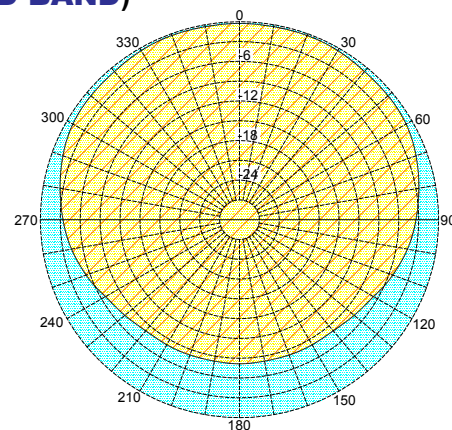
ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	N (AJ1FEN) – 7/16 female (AJ1FE6) – 7/8 EIA (AJ1FE7)
Max Power	800W (N) – 2KW (7/16" - 7/8" EIA)
VSWR	≤ 1.35:1
Polarization	Vertical
Gain	2 dB (referred to half-wave dipole) at 98 MHz
Pattern	Omni directional ± 1.5 dB in free space Omni directional ± 3 dB with 100mm diameter pole
Lightning protection	All metal parts DC grounded

MECHANICAL DATA	
Dimensions	1400x900x50 mm
Weight	7 kg with hardware mounting
Wind surface	0.05m <sup>2</sup>
Wind load	9.8 kg (wind speed at 160 km/h – without radome)
Max wind velocity	220 km/h.
Materials	External parts: Hot-dip galvanized steel Internal parts: brass Radome: fiberglass (optional)
Icing protection	Feed point radome (optional)
Radome (optional)	Color white
Mounting	With special pipe clamps 40±110 mm diameter

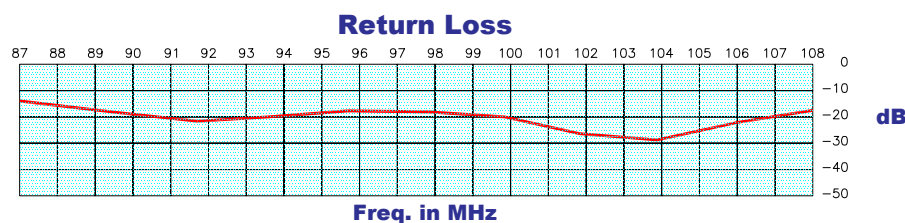
### RADIATION PATTERN (MID BAND)



E-plane



H-plane



"These specifications are subject to change without notice"

## Broad Band Low Cost Antenna Systems with the AJ1FEN

### Omni - directional pattern

#### ELECTRICAL DATA

Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.35:1 Max
Polarization	Vertical
Gain	According to requirement
Horizontal pattern	Any type according to the customer requirements
Vertical pattern	Null fill, beam tilt and special requirements on demand
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

#### MECHANICAL DATA

Height of array	Subject to number of bays ( refer to table )
Total net weight	Refer to table
Wind load	Refer to table
Pressurizable	Yes (on demand)
Radome colour	White (optional)
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required

#### TECHNICAL DATA

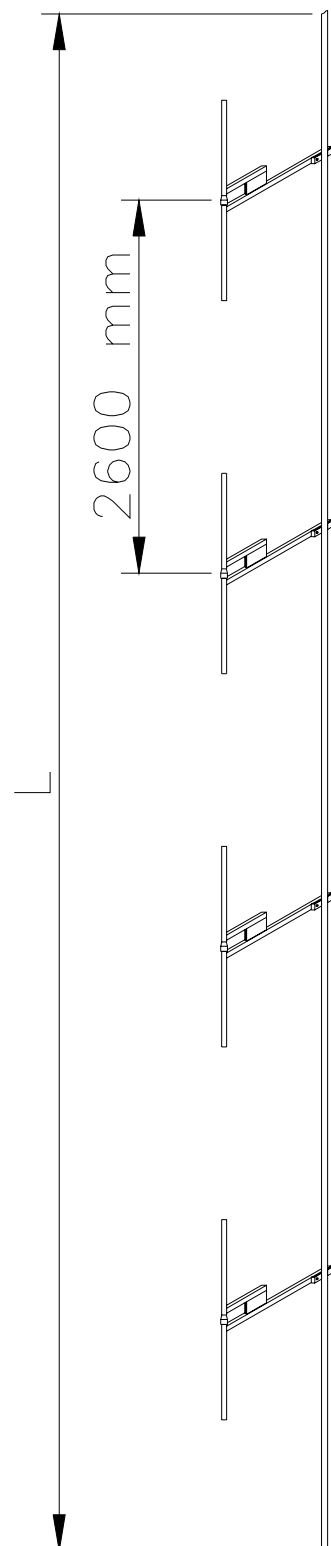
Number of bays	Dipole per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg
		dB	times			
1	1	2.0	1.6	7	1.4	9.8
2	1	5.0	3.2	14	4.0	19.6
4	1	8.0	6.3	28	9.2	39.2
6	1	9.8	9.5	42	14.4	58.8
8	1	11.0	12.7	56	19.6	78.4

<sup>1</sup> Referred to half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

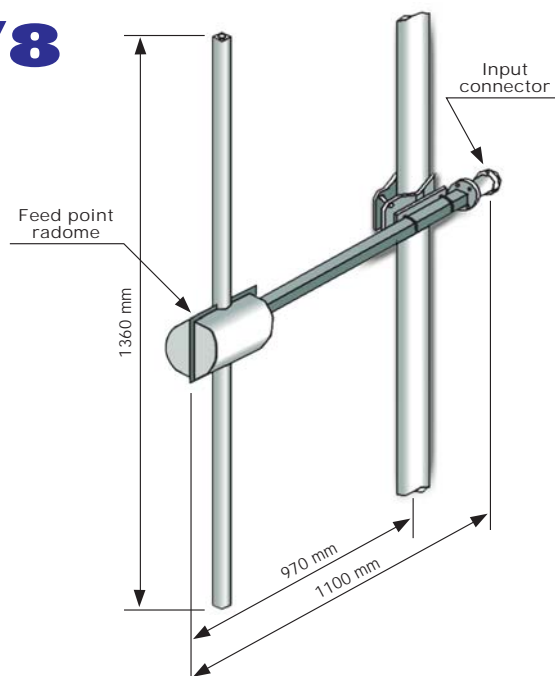
<sup>3</sup> Systems comprise: antennas, cables and splitter – for more details look on catalog – different versions on demand

- Gain is provided for vertical polarisation.
- When antenna is pole mounted on the top of a tower the horizontally polarized radiation pattern is omni - directional.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing are provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- A length of five ft(1.6mt) of pipe is required above the top bay and below the bottom bay to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.



# Model AJ1 F – AJ1 F 7/8

- Band II dipole
- Broadband 87.5÷108 MHz
- 1,5 dB gain
- Vertical polarization
- Omni directional pattern
- Stainless steel AISI 304

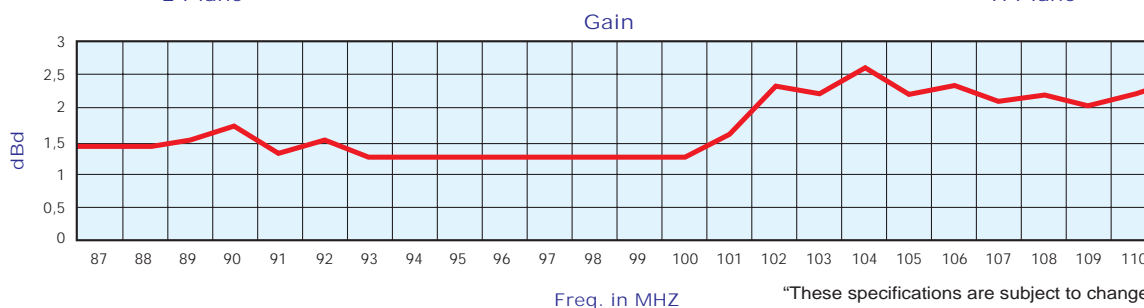
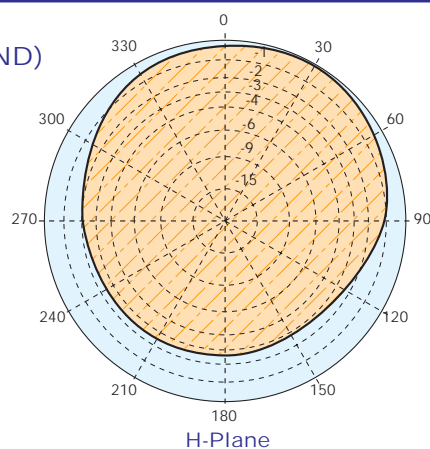
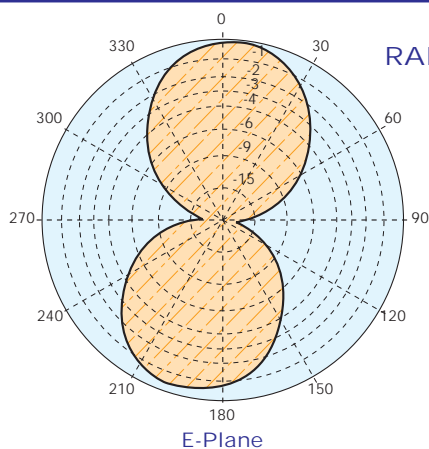


## ELECTRICAL DATA

Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	N or 7/16" female or 7/8" EIA
Max Power	800W (N) – 2KW (7/16") – 3.5KW (7/8" EIA)
VSWR	≤ 1.35:1
Polarization	Vertical
Gain	See table (referred to half-wave dipole)
Pattern	Omni directional ± 1.5 dB in free space Omni directional ± 3 dB with 100mm dia. pole
Lightning protection	All metal parts DC grounded

## MECHANICAL DATA

Dimensions	1360x1100x180 mm
Weight	9 kg with hardware mounting
Wind surface	0.06 m <sup>2</sup>
Wind load	10.1 kg (wind speed at 160 km/h – without radome)
Max wind velocity	220 km/h.
Materials	External parts: stainless steel Internal parts: passivated aluminium Radome: fiberglass (option)
Icing protection	Feed point radome (optional)
Radome	Optional
Mounting	With special pipe clamps 50÷110 mm dia.



"These specifications are subject to change without notice"



# Model AJ1F – AJ1F 7/8

Radiations systems with AJ1F antenna

Omni-directional pattern

ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.35:1 Max
Polarization	Vertical
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

MECHANICAL DATA	
Height of array	Subject to number of bays ( refer to table )
Total net weight	Refer to table
Wind load	Refer to table
Pressurizable	Yes (on request)
Radome	Optional
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required

## TECHNICAL DATA

Number of bays	Dipole per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg	COLLINEARS SYSTEMS <sup>3</sup>			
		dB	times				2 KW	4 KW	6 KW	10 KW
1	1	1.5	1.4	9	1.4	10.1	AJ1F	AJ1F	-	-
2	1	4.5	2.8	18	4.0	20.2	AJ1FX22	AJ1FX24	AJ1FX26	-
4	1	7.5	5.6	36	9.2	40.4	AJ1FX42	AJ1FX44	AJ1FX46	AJ1FX410
6	1	9.3	8.4	54	14.5	60.6	AJ1FX62	AJ1FX64	-	AJ1FX610
8	1	10.5	11.3	72	20.0	80.8	AJ1FX82	AJ1FX84	AJ1FX86	AJ1FX810

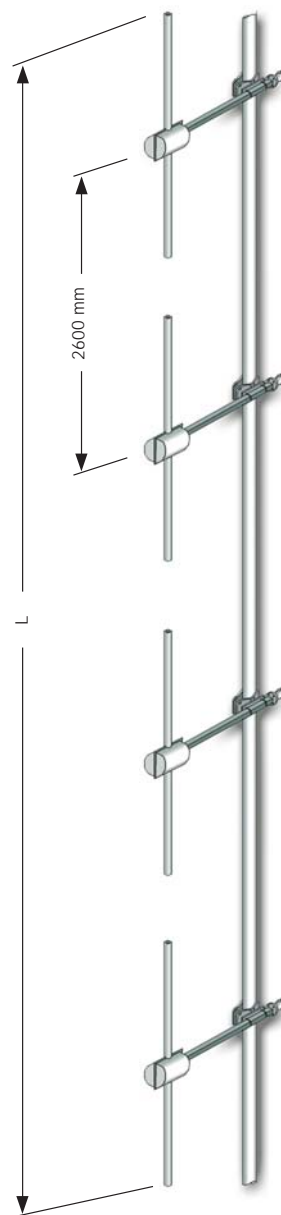
<sup>1</sup> Referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

<sup>3</sup> The systems comprised: antennas, cables and splitter – for more details to see catalog – different version on request.

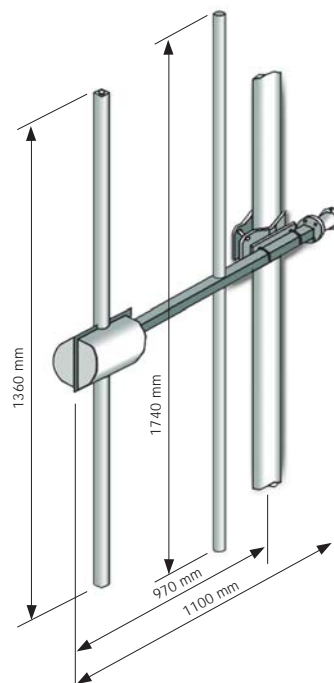
- Gain is provided for vertical polarization.
- When antenna is pole mounted on the top a tower the horizontally polarized radiation pattern is omni - directional.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"



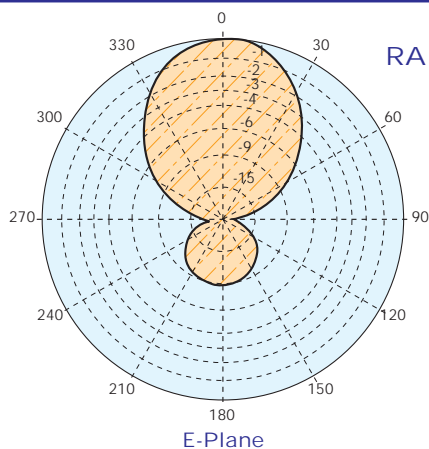
## Model AJ2

- Band II
- Broadband 87.5÷108 MHz
- Demountable
- Vertical or Horizontal polarization
- Stainless steel AISI 304
- Pressurizable on request

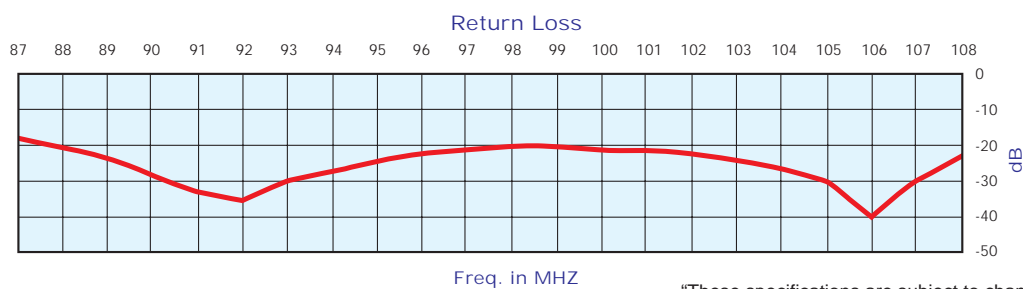
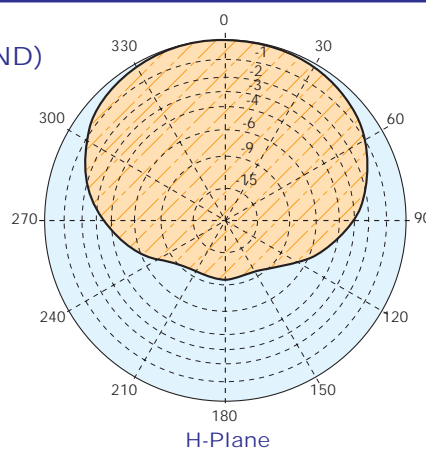


ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	N or 7/16" or 7/8" EIA
Max Power	800W (N) – 2KW (7/16") – 3.5KW (7/8" EIA)
VSWR	≤ 1.3:1
Polarization	Horizontal or Vertical
Gain	2.5 dB (referred to half-wave dipole)
Half power beam width	E plane ± 32° H plane ± 80°
Lightning protection	All metal parts DC grounded

MECHANICAL DATA	
Dimensions	1740x1100x180 mm
Weight	11.5 kg with hardware mounting
Wind surface	0.14 m <sup>2</sup>
Wind load	20.1 kg (wind speed at 160 km/h – without radome)
Max wind velocity	200 km/h.
Materials	External parts: stainless steel Internal parts: passivated aluminium Radome: fiberglass (option)
Icing protection	Feed point radome (optional)
Radome	Optional
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)



"These specifications are subject to change without notice"

## Radiations systems with AJ2 yagi antenna

### Directional pattern

ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.3:1 Max
Polarization	Horizontal or Vertical
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

MECHANICAL DATA	
Height of array	Subject to number of bays ( refer to table )
Total net weight	Refer to table
Wind load	Refer to table
Pressurizable	Yes (on request)
Radome	Optional
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required

### TECHNICAL DATA

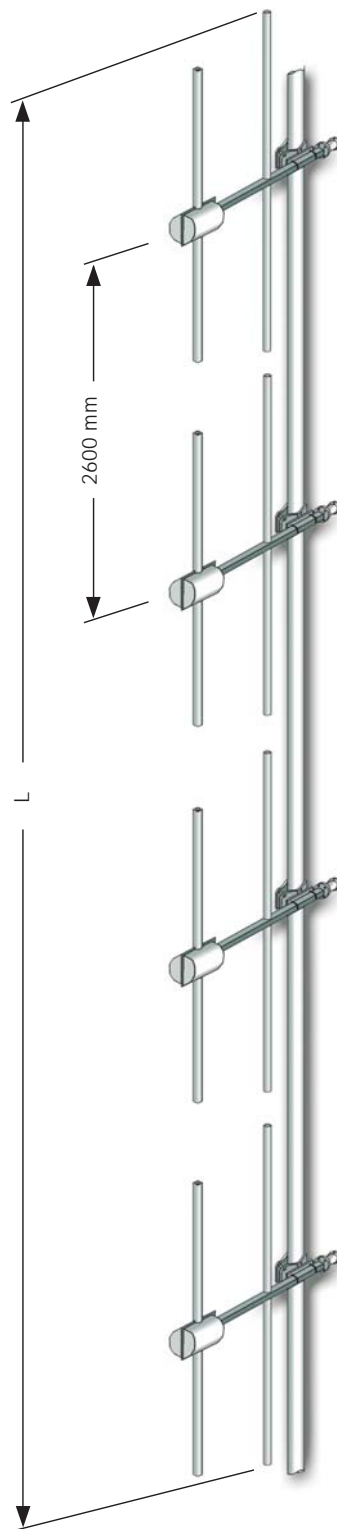
Number of bays	Dipole per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg
		dB	times			
2	1	5.5	3.5	23	4.4	40.2
4	1	8.5	7.1	46	9.6	80.4
6	1	10.3	10.7	69	14.8	120.6
8	1	11.5	14.2	92	20.0	160.8
12	1	13.3	21.4	138	30.5	241.2

<sup>1</sup> Referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

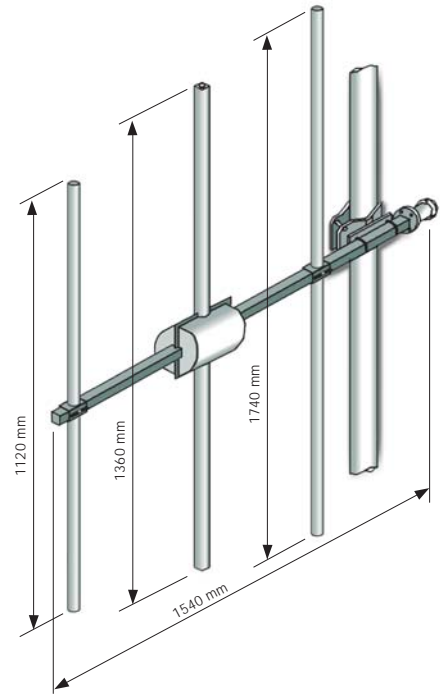
- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"



## Model AJ3

- Band II
- Broadband 87.5÷108 MHz
- Demountable
- Vertical or Horizontal polarization
- Stainless steel AISI 304
- Pressurizable on request

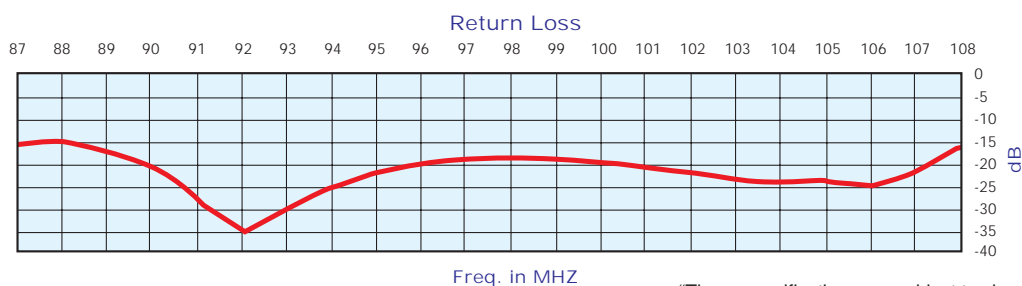
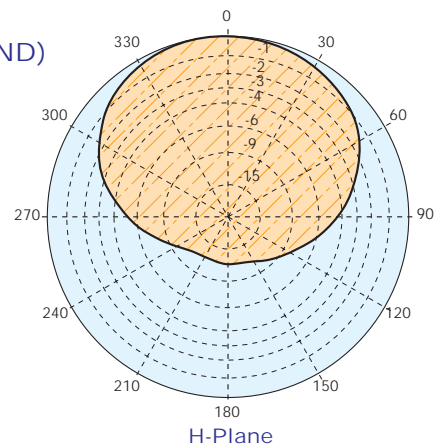
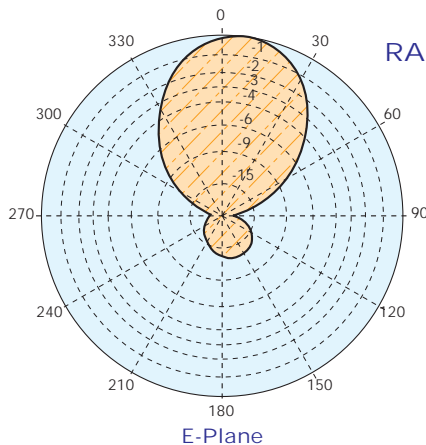


### ELECTRICAL DATA

Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	N or 7/16" or 7/8" EIA
Max Power	800W (N) – 2KW (7/16") – 3.5KW (7/8" EIA)
VSWR	≤ 1.35:1
Polarization	Horizontal or Vertical
Gain	4.0 dB (referred to half-wave dipole)
Half power beam width	E plane ± 32° H plane ± 68°
Lightning protection	All metal parts DC grounded

### MECHANICAL DATA

Dimensions	1540x1780x180 mm
Weight	13.5 kg with hardware mounting
Wind surface	0.18 m <sup>2</sup>
Wind load	26.7 kg (wind speed at 160 km/h – without radome)
Max wind velocity	200 km/h.
Materials	External parts: stainless steel Internal parts: passivated aluminium Radome: fiberglass (option)
Icing protection	Feed point radome (optional)
Radome	Optional
Mounting	With special pipe clamps 50÷110 mm dia.



"These specifications are subject to change without notice"



## Radiations systems with AJ3 yagi antenna

### Directional pattern

ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.3:1 Max
Polarization	Horizontal or Vertical
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

MECHANICAL DATA	
Height of array	Subject to number of bays (refer to table)
Total net weight	Refer to table
Wind load	Refer to table
Pressurizable	Yes (on request)
Radome	Optional
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required

### TECHNICAL DATA

Number of bays	Dipole per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg	COLLINEARS SYSTEMS <sup>3</sup>			
		dB	times				2 KW	4 KW	6 KW	10 KW
2	1	7.0	5.0	27	4.4	53.4	AJ3X22	AJ3X24	AJ3X26	-
4	1	10.0	10.0	54	9.6	106.8	AJ3X42	AJ3X44	AJ3X46	AJ3X410
6	1	11.8	15.0	81	14.8	160.2	AJ3X62	AJ3X64	-	AJ3X610
8	1	13.0	20.0	108	20.0	213.6	AJ3X82	AJ3X84	AJ3X86	AJ3X810
12	1	14.8	30.1	138	30.5	320.4	-	-	-	-

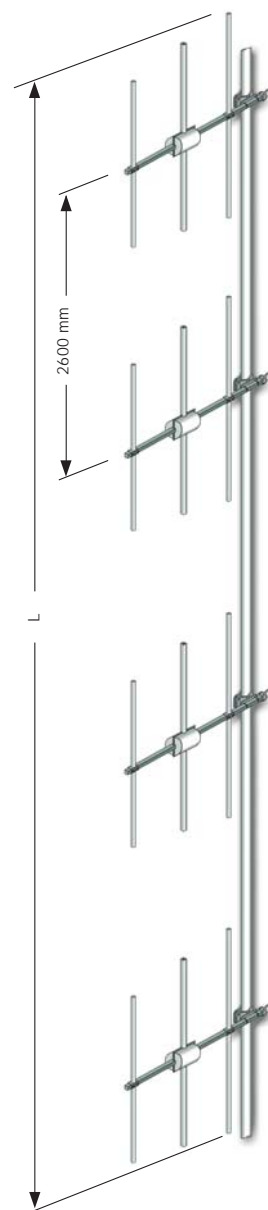
<sup>1</sup> Referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

<sup>3</sup> The systems comprised: antennas, cables and splitter – for more details to see catalog – different version on request.

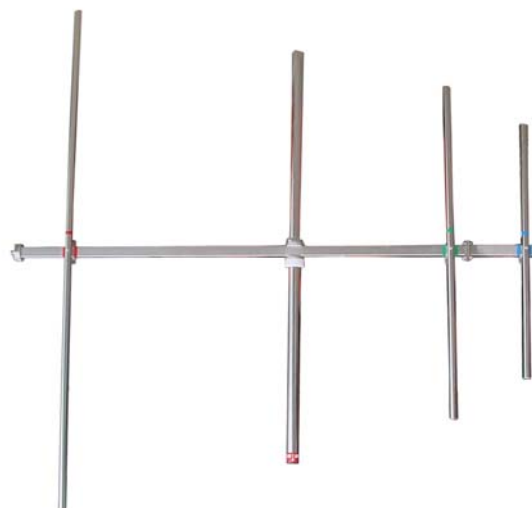
- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"



## Model : AJ4

- **Band II**
- **Broadband 87.5÷108 MHz**
- **Demountable**
- **Vertical or Horizontal polarization**
- **Stainless steel AISI 304**
- **Pressurizable on request**



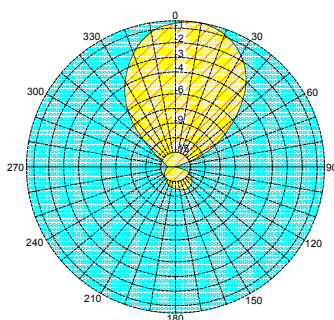
### ELECTRICAL DATA

Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	N or 7/16" or 7/8" EIA
Max Power	800W (N)–2KW (7/16")–3.5KW (7/8" EIA)
VSWR	≤ 1.35:1
Polarization	Horizontal or Vertical
Gain	5.0 dB (referred to half-wave dipole)
Half power beam width	E plane ± 30° H plane ± 62°
Lightning protection	All metal parts DC grounded

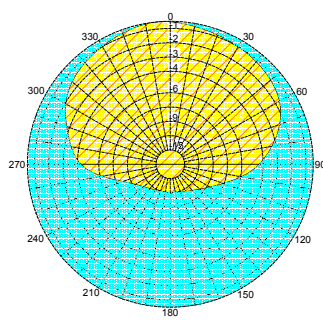
### MECHANICAL DATA

Dimensions	1786x1740x180 mm
Weight	16.5 Kg with hardware mounting
Wind surface	0.21 m <sup>2</sup>
Wind load	31.1 Kg (wind speed at 160 km/h – without radome)
Max wind velocity	200 Km/h
Materials	External parts: stainless steel Internal parts: passivated aluminium Radome : fiberglass (option)
Icing protection	Feed point radome
Radome color	White (optional)
Mounting	With special pipe clamps 50 ÷ 110 mm dia.

### RADIATION PATTERN (MID BAND)

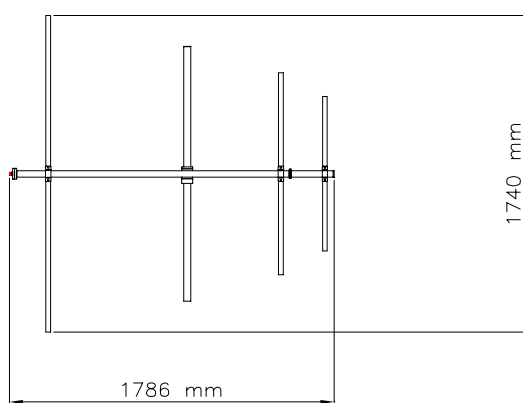


**E-plane**

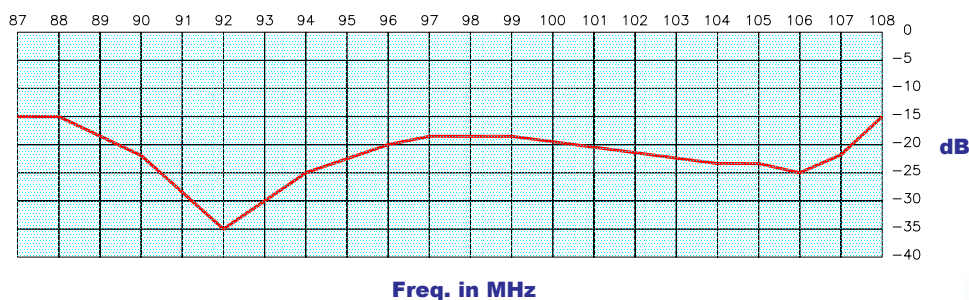


**H-plane**

### DIMENSIONS



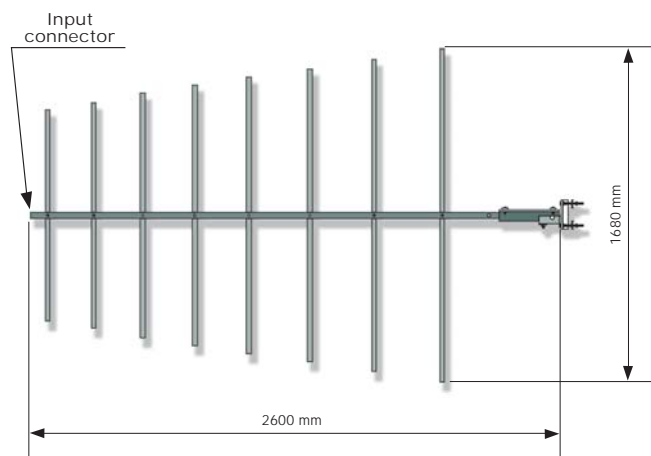
### Return Loss



Freq. in MHz

## Models: LGPRD-LGPRD/I-LGPRD/S

- Band II
- Broadband 87.5÷108 MHz
- Demountable
- Vertical or Horizontal polarization

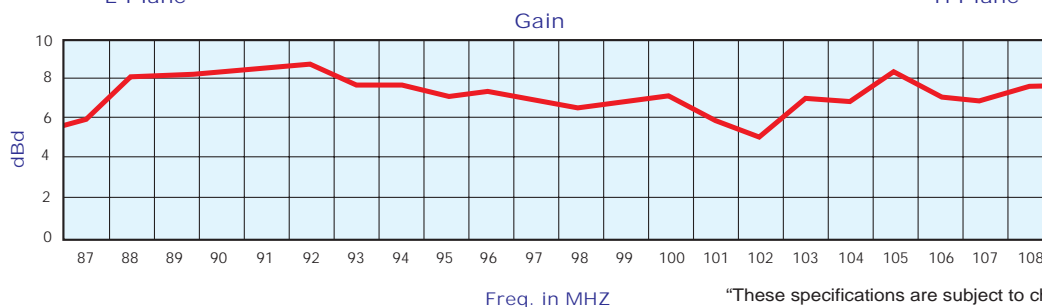
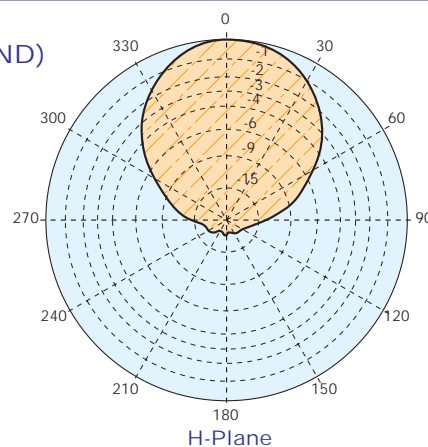
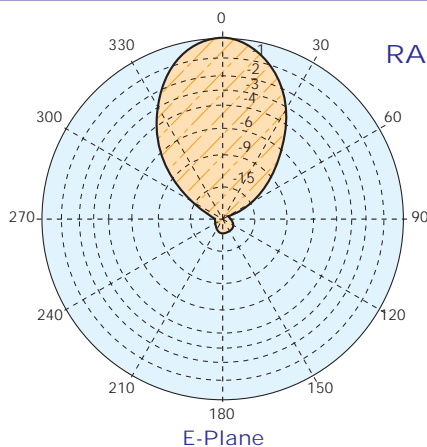


### ELECTRICAL DATA

Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	N or 7/16" or 7/8" EIA
Max Power	800W (N) – 2KW (7/16") – 2.5KW (7/8" EIA)
VSWR	≤ 1.4:1
Polarization	Horizontal or Vertical
Gain	7.0 dB (referred to half-wave dipole)
Half power beam width	E plane ± 30° H plane ± 45°
Lightning protection	All metal parts DC grounded

### MECHANICAL DATA

Dimensions	2600x1680x150 mm
Weight	15.0 kg
Wind surface	0.27 m <sup>2</sup>
Wind load	41 kg (wind speed at 160 km/h)
Max wind velocity	140 km/h.
Materials	LGPRD: Aluminium LGPRD/I: Stainless steel LGPRD/S: Welded version
Mounting	With special pipe clamps 50÷110 mm dia.



"These specifications are subject to change without notice"

# Models: LGPRD-LGPRD/I-LGPRD/S

Radiations systems with LGPRD yagi antenna

Directional pattern

ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.4:1 Max
Polarization	Horizontal or Vertical
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

MECHANICAL DATA	
Height of array	Subject to number of bays (refer to table)
Total net weight	Refer to table
Wind load	Refer to table
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required

## TECHNICAL DATA

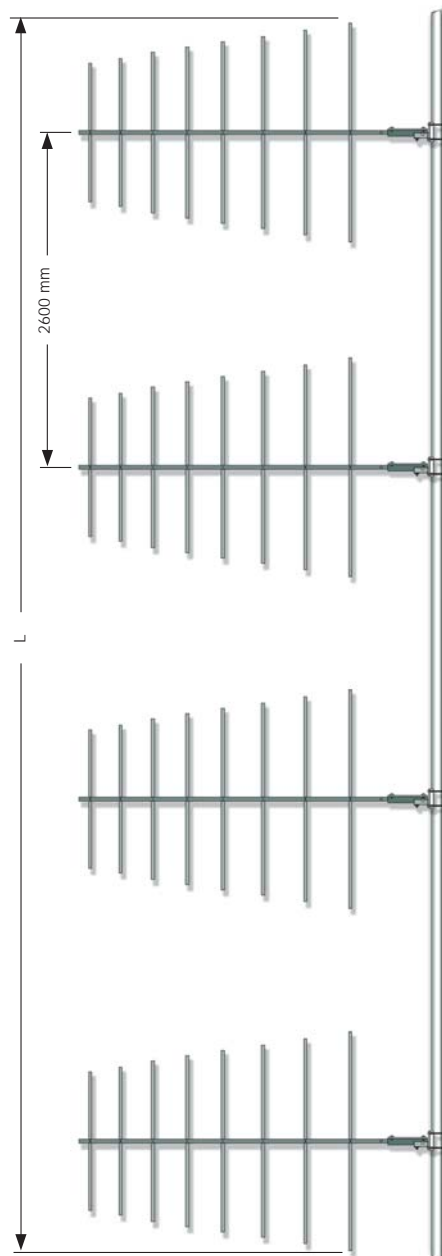
Number of bays	Dipole per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg
		dB	times			
2	1	10.0	10.0	30	4.3	82.0
4	1	13.0	20.0	60	9.5	164.0
6	1	14.8	30.0	90	14.7	246.0
8	1	16.0	40.0	120	20.0	328.0
12	1	17.8	60.0	180	30.3	492.0

<sup>1</sup> Referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"





## Model: LGPRDSPEC

- **Band II**
- **Broadband 87.5÷108 MHz**
- **Demountable (Welding option)**
- **Vertical or Horizontal polarization**

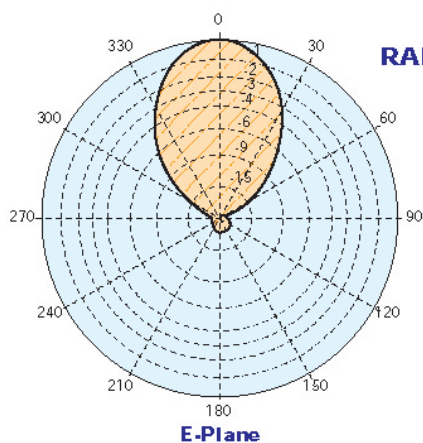


### ELECTRICAL DATA

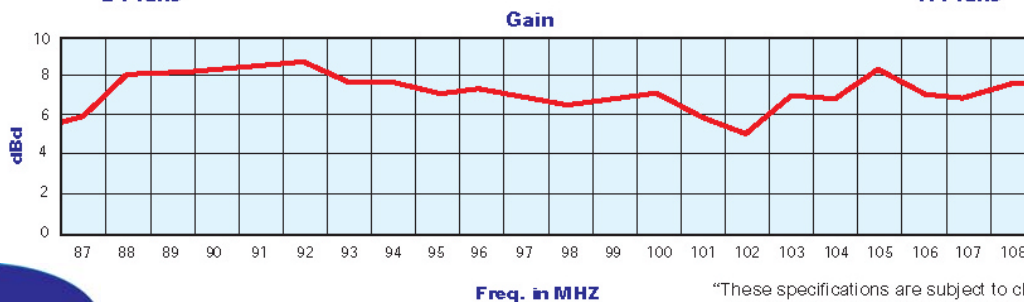
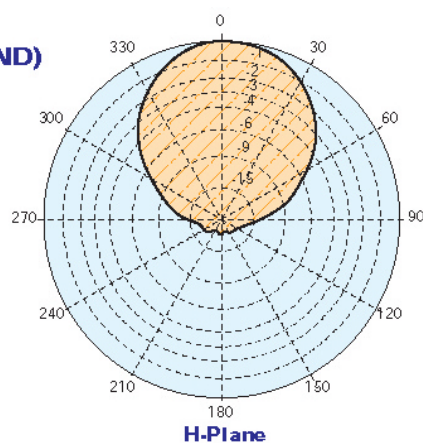
<b>Frequency range</b>	87.5÷108 MHz
<b>Impedance</b>	50 Ohm
<b>Connectors</b>	N or 7/16" or 7/8" EIA
<b>Max Power</b>	800W (N) – 1200W (7/16" – 7/8" EIA)
<b>VSWR</b>	≤ 1.35:1
<b>Polarization</b>	Horizontal or Vertical
<b>Gain</b>	5 dB (referred to half-wave dipole)
<b>Half power beam width</b>	E plane ± 37° H plane ± 60°
<b>Lightning protection</b>	All metal parts DC grounded

### MECHANICAL DATA

<b>Dimensions</b>	2240x1470x40 mm (88.2x57.9x1.6 inch)
<b>Weight</b>	7 Kg (with clamp)
<b>Wind surface</b>	0.21 m <sup>2</sup>
<b>Wind load</b>	31,1 kg (wind speed at 160 km/h)
<b>Max wind velocity</b>	140 km/h.
<b>Materials</b>	Aluminium
<b>Mounting</b>	With special pipe clamps 50 ÷ 110 mm dia.
<b>Colour</b>	Enamel Gray Ral 7001



**RADIATION PATTERN (MID BAND)**



"These specifications are subject to change without notice"

Radiations systems with LGPRDSPEC antenna

Directional pattern

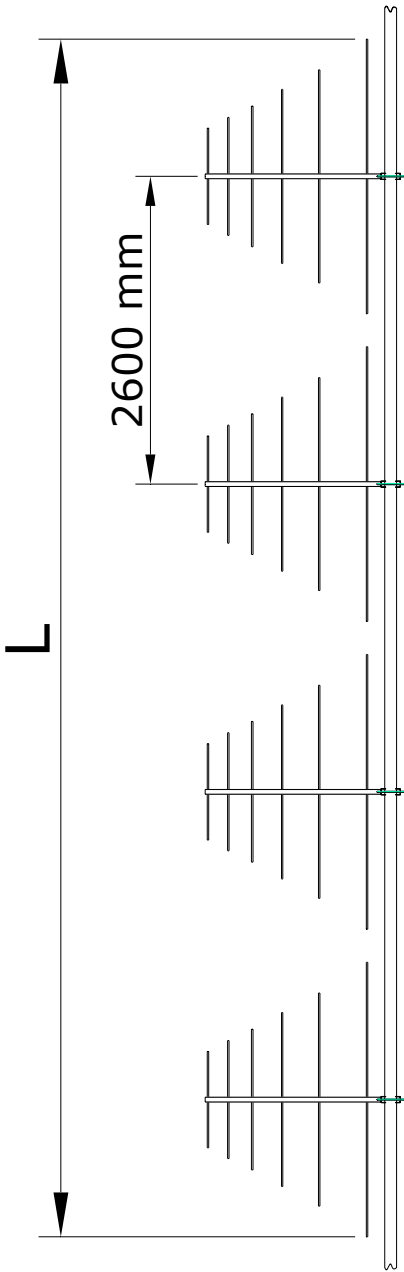
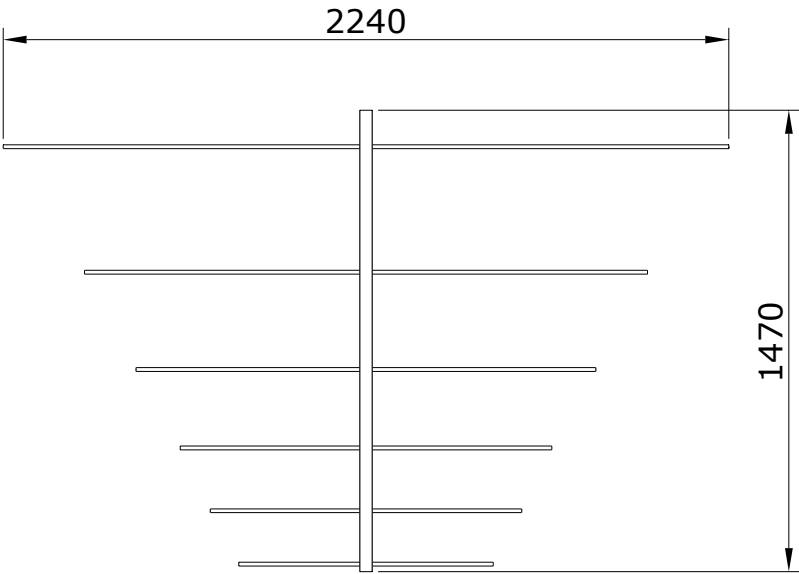
ELECTRICAL DATA

Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.35:1 Max
Polarization	Horizontal or Vertical
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

<sup>1</sup> referred to a half wave dipole. Attenuation of connecting cables not taken into account..

<sup>2</sup> without mounting hardware

DIMENSIONS



- Gain is provided for vertical polarisation.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

## Models : DPA10

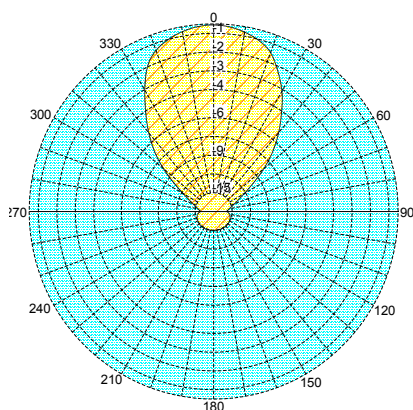
- Band II panel
- Broadband 87.5÷108 MHz
- Demountable
- Vertical or Horizontal polarization
- Stainless steel AISI 304
- Directional pattern



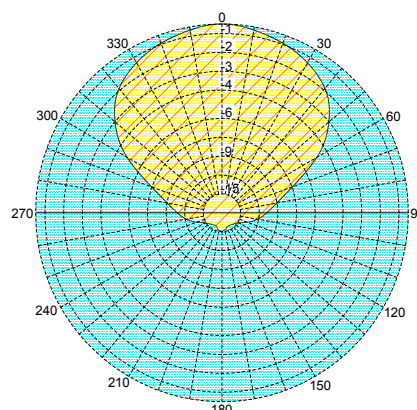
	87.5÷108 MHz
	50 Ohm
	7/8" EIA
	5KW (7/8" EIA)
	≤ 1.25:1
	Horizontal or Vertical
	4.5 dB (referred to half-wave dipole)
	E plane ± 32° H plane ± 58°
	All metal parts DC grounded

	1400x1000x2000 mm
	32 Kg ref. stainless steel
	0.13 m <sup>2</sup> (side) 0.56 m <sup>2</sup> (front)
<b>Wind load</b> <b>Max wind velocity</b>	108 kg (front - wind speed at 160 km/h) 200 km/h.
	Reflector: hot dip. galvanized Dipole: stainless steel Internal parts: passivated aluminium Radome: fiberglass
	Feed point radome
	White (optional) With special pipe clamps 50 ÷ 110 mm dia.

### RADIATION PATTERN (MID BAND)

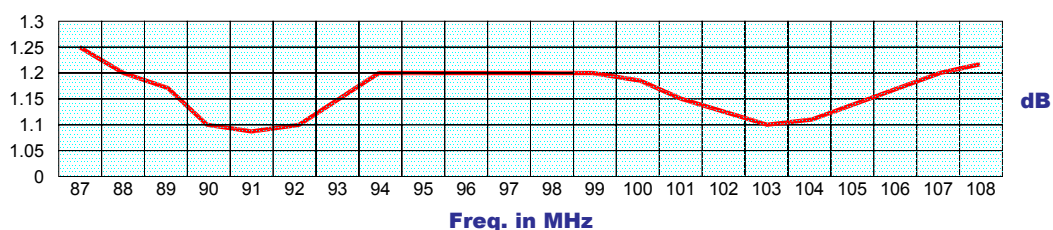


E-plane



H-plane

### VSWR



## Radiations systems with DPA10 antenna

### Directional pattern

#### ELECTRICAL DATA

Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.25:1 Max
Polarization	Horizontal or Vertical
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

#### MECHANICAL DATA

Height of array	Subject to number of bays ( refer to table )
Total net weight	Refer to table
Wind load	Refer to table
Pressurizable	Yes (on request)
Radome colour	White (optional)
Mounting hardware	Hot dip galvanized steel clamps (option)
Shipping	As required

#### TECHNICAL DATA

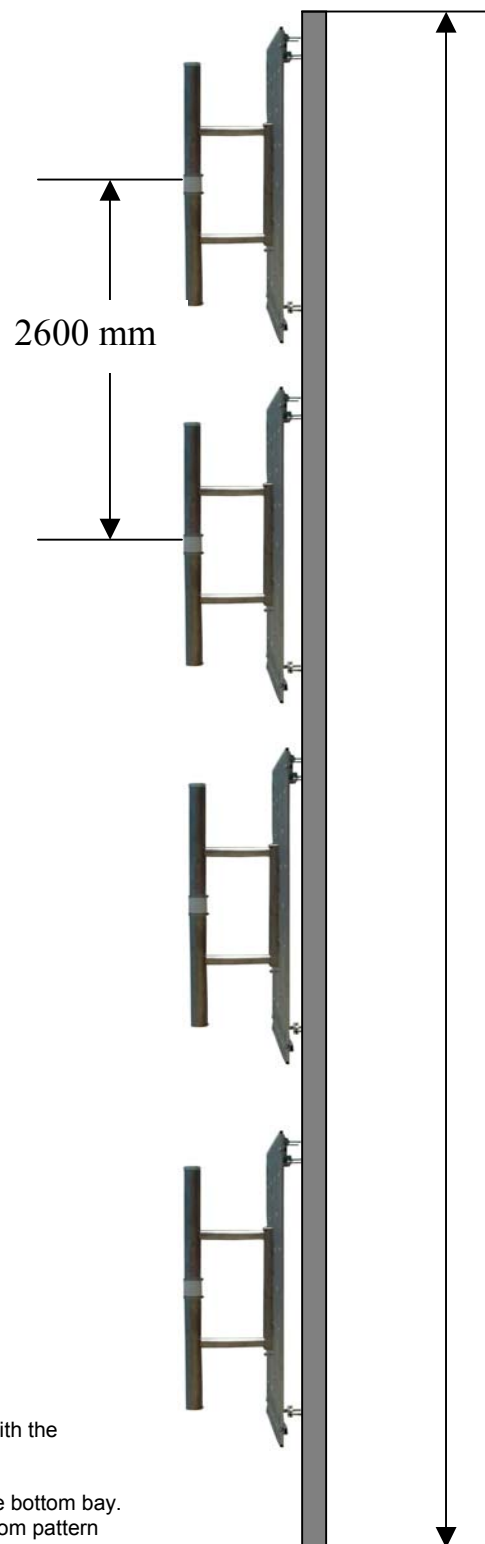
Number of bays	Dipole per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg
		dB	times			
2	1	7.5	5.6	64	4.6	216
4	1	10.5	11.3	128	9.8	432
6	1	12.3	16.9	192	15.0	678
8	1	13.5	22.5	256	20.2	864
12	1	15.3	33.8	384	30.6	1296

<sup>1</sup> referred to a half wave dipole. Attenuation of connecting cables not taken into account..

<sup>2</sup> without mounting hardware

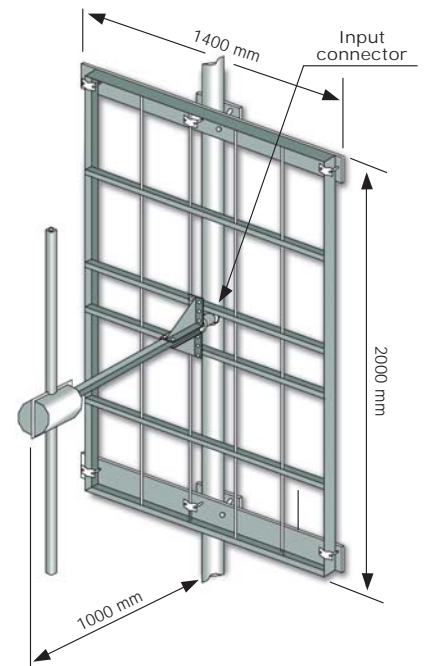
<sup>3</sup> the systems comprised: antennas, cables and splitter – for more details to see catalog different version on request

- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.



## Model DPA1

- Band II panel
- Broadband 87.5÷108 MHz
- Demountable
- Vertical or Horizontal polarization
- Stainless steel AISI 304
- Directional pattern

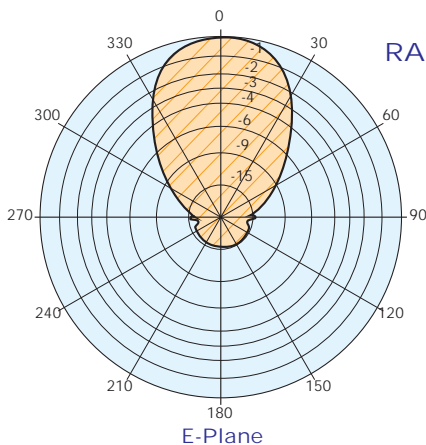


### ELECTRICAL DATA

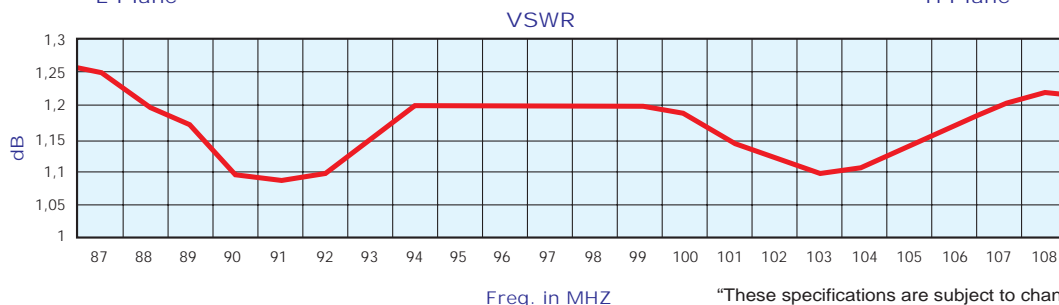
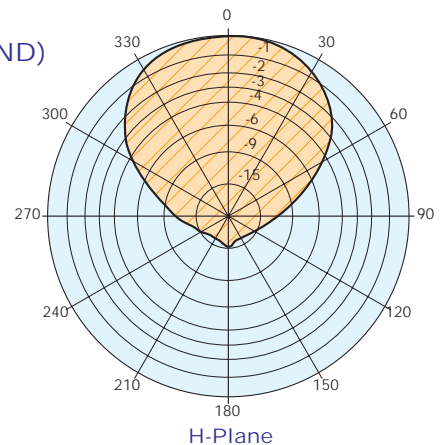
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	N or 7/16" or 7/8" EIA
Max Power	800W (N) – 2KW (7/16") – 3.5KW (7/8" EIA)
VSWR	≤ 1.25:1
Polarization	Horizontal or Vertical
Gain	4.5 dB (referred to half-wave dipole)
Half power beam width	E plane ± 38° H plane ± 68°
Lightning protection	All metal parts DC grounded

### MECHANICAL DATA

Dimensions	1400x1000x2000 mm
Weight	32 kg ref. stainless steel
Wind surface	0.13 m <sup>2</sup> (side) 0.56 m <sup>2</sup> (front)
Wind load	108 kg (front - wind speed at 160 km/h)
Max wind velocity	200 km/h.
Materials	Reflector: hot dip. galvanized Dipole: stainless steel Internal parts: passivated aluminium Radome: fiberglass (option)
Icing protection	Feed point radome (optional)
Radome	Optional
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)



"These specifications are subject to change without notice"



## Radiations systems with DPA1 antenna

### Directional pattern

ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.25:1 Max
Polarization	Horizontal or Vertical
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

MECHANICAL DATA	
Height of array	Subject to number of bays ( refer to table )
Total net weight	Refer to table
Wind load	Refer to table
Pressurizable	Yes (on request)
Radome	Optional
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required

### TECHNICAL DATA

Number of bays	Panels per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg	COLLINEARS SYSTEMS <sup>3</sup>			
		dB	times				2 KW	4 KW	6 KW	10 KW
2	1	7.5	5.6	64	4.6	216	DPA1X22	DPA1X24	DPA1X26	-
4	1	10.5	11.3	128	9.8	432	DPA1X42	DPA1X44	DPA1X46	DPA1X410
6	1	12.3	16.9	192	15.0	678	DPA1X62	DPA1X64	-	DPA1X610
8	1	13.5	22.5	256	20.2	864	DPA1X82	DPA1X84	DPA1X86	DPA1X810
12	1	15.3	33.8	384	30.6	1296	-	-	-	-

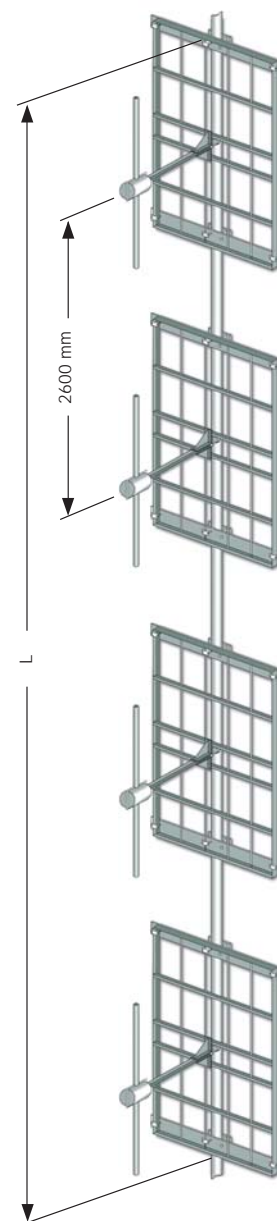
<sup>1</sup> Referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

<sup>3</sup> The systems comprised: antennas, cables and splitter – for more details to see catalog – different version on request.

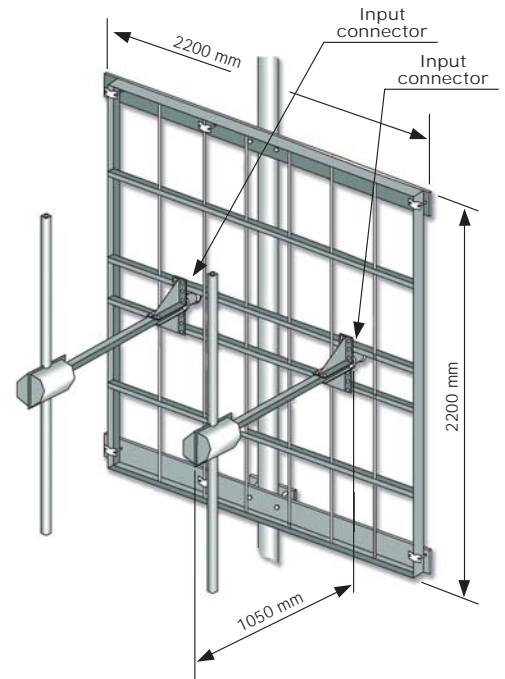
- Gain is provided for vertical polarization.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"



## Model DPA2V

- Band II panel
- Broadband 87.5÷108 MHz
- Demountable
- Vertical polarization
- Directional pattern
- Suitable as a component in various array

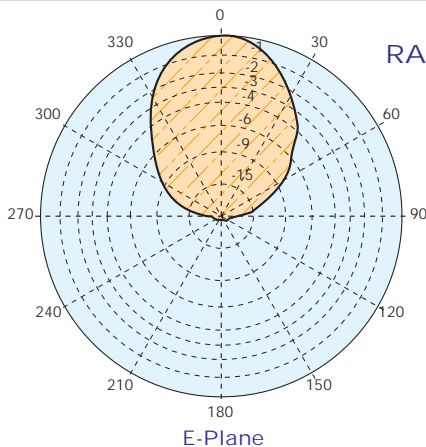


### ELECTRICAL DATA

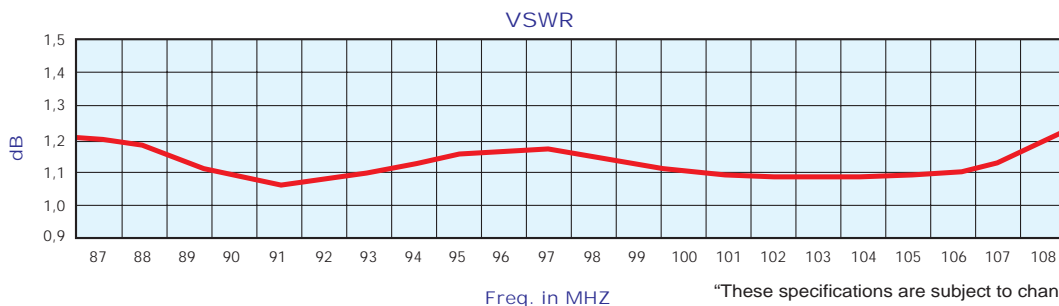
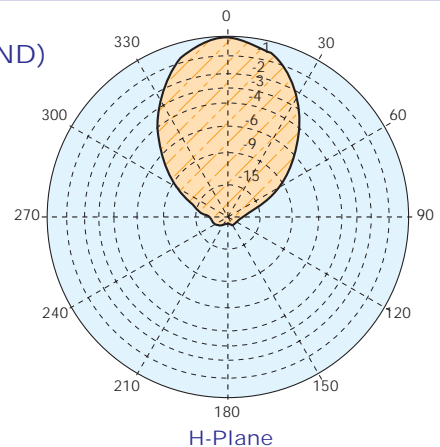
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	Two input connectors Type N or 7/16" or 7/8" EIA
Max Power	2x800W (N) – 2x2KW (7/16") 2x3.5KW (7/8" EIA)
VSWR	≤ 1.35:1
Polarization	Vertical
Gain	7.5 dB (referred to half-wave dipole)
Half power beam width	E plane ± 35° H plane ± 32°
Lightning protection	All metal parts DC grounded

### MECHANICAL DATA

Dimensions	2200x2200x1050 mm
Weight	79 kg ref. stainless steel
Wind surface	0.90 m <sup>2</sup> (side) 0.22 m <sup>2</sup> (front)
Wind load	173,7 kg (front - wind speed at 200 km/h)
Max wind velocity	200 km/h.
Materials	Reflector: hot dip. galvanized Dipole: stainless steel Internal parts: passivated aluminium Radome: fiberglass (option)
Icing protection	Feed point radome (optional)
Radome	Optional
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)



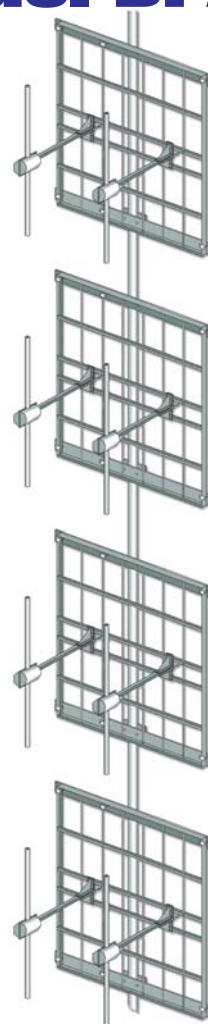
"These specifications are subject to change without notice"

Radiations systems with DPA2V panel  
 Omnidirectional or directional pattern  
 Balanced or unbalanced splitting power  
 High power system  
 Broadband 87.5÷108 MHz

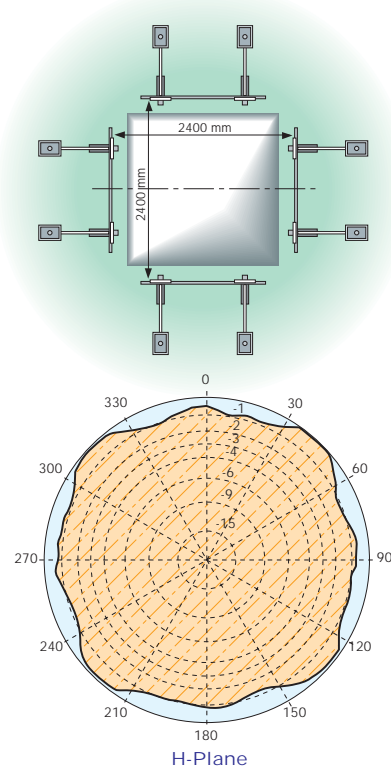
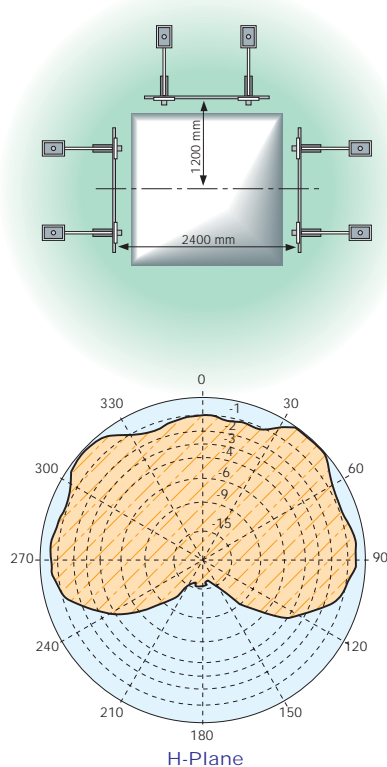
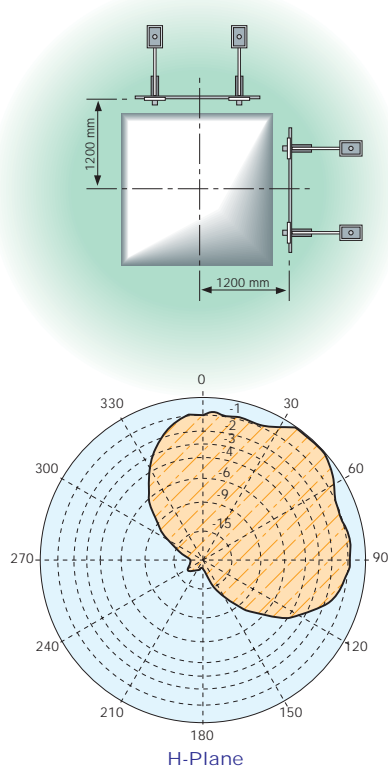
## Model DPA2V

ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.35:1 Max
Polarization	Vertical
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

MECHANICAL DATA	
Height of array	Subject to number of bays ( refer to table )
Total net weight	Refer to table
Wind load	Refer to table
Pressurizable	Yes (on request)
Radome	Optional
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required



HORIZONTAL PATTERNS WITH 2, 3 AND 4 FACES AT 98 MHz

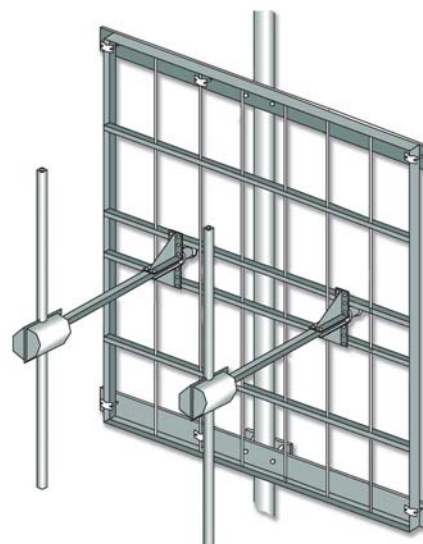


"These specifications are subject to change without notice"

## Model DPA2V

### TECHNICAL DATA

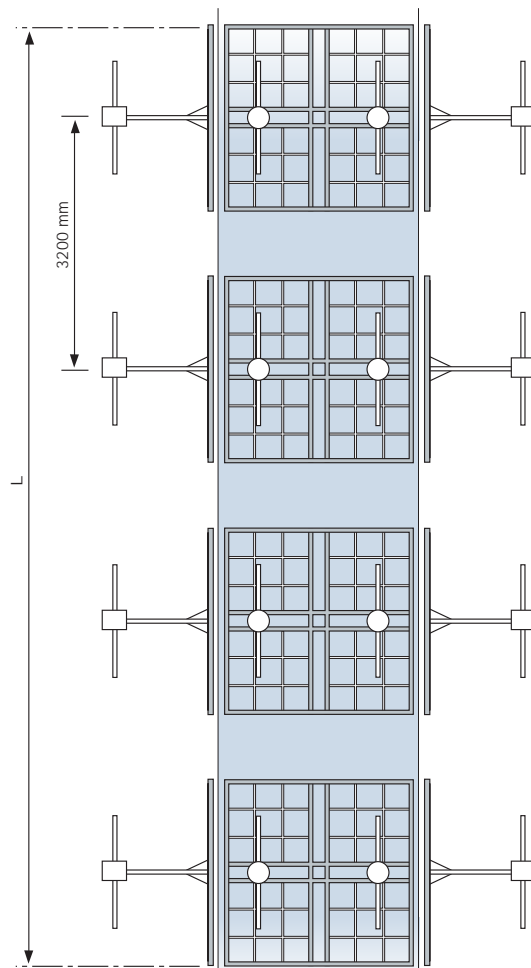
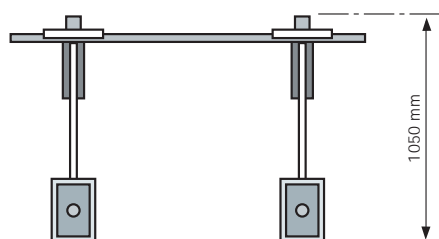
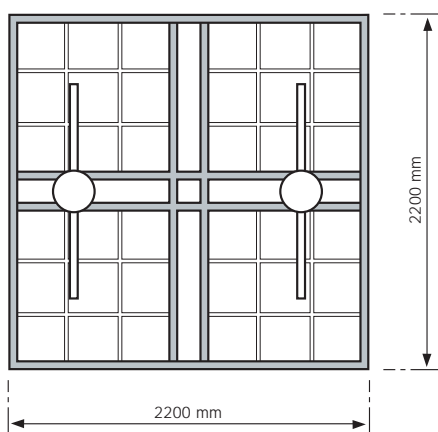
Number of bays	Panels per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load <sup>3</sup> (v=160 km/h) kg
		dB	times			
1	2	5.1	3.2	158	2.2	210
	3	3.1	2.0	237		259
	4	2.0	1.6	316		303
2	1	10.8	12.0	158	5.4	348
	2	8.1	6.5	316		402
	3	6.1	4.1	474		518
	4	5.2	3.3	632		606
4	1	13.9	25.5	316	11.8	695
	2	11.1	12.9	632		804
	3	9.3	8.5	984		1036
	4	8.1	6.5	1264		1212
6	1	15.5	35.5	474	18.2	1044
	2	12.9	19.5	984		1206
	3	10.8	12.0	1422		1554
	4	9.6	9.1	1896		1818
8	1	17.1	51.3	632	24.6	1390
	2	14.2	26.3	1264		1608
	3	12.1	16.2	1896		2072
	4	11.2	13.2	2528		2424



<sup>1</sup> Referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

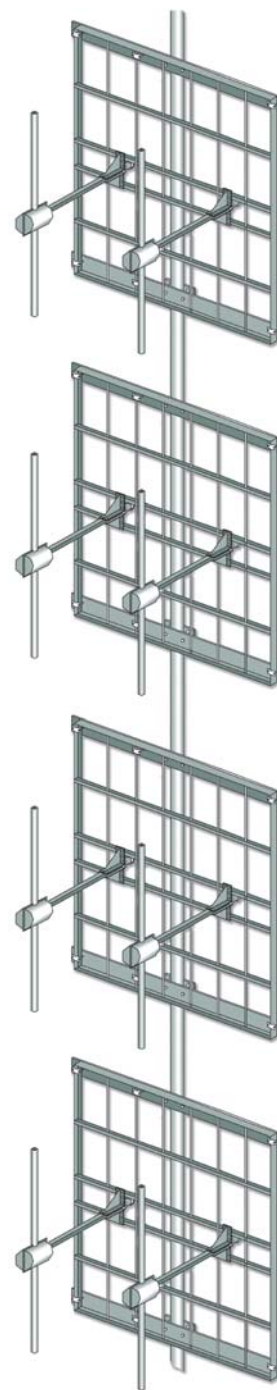
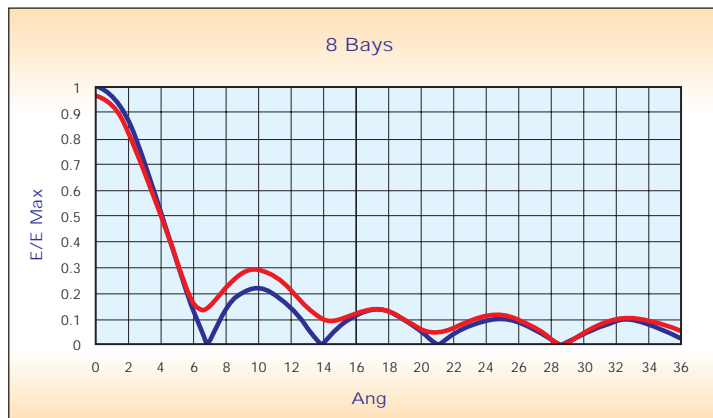
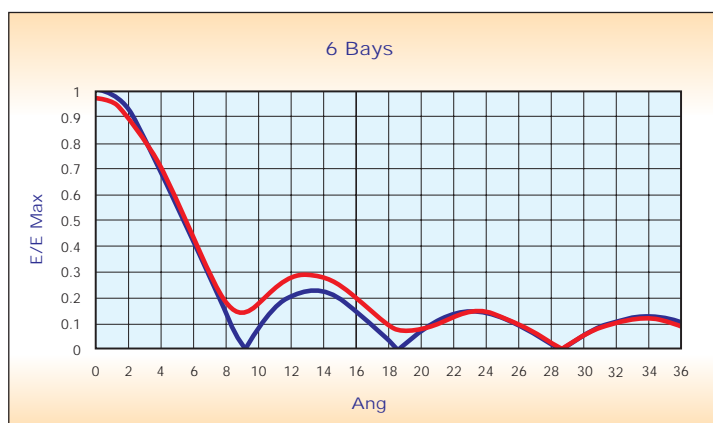
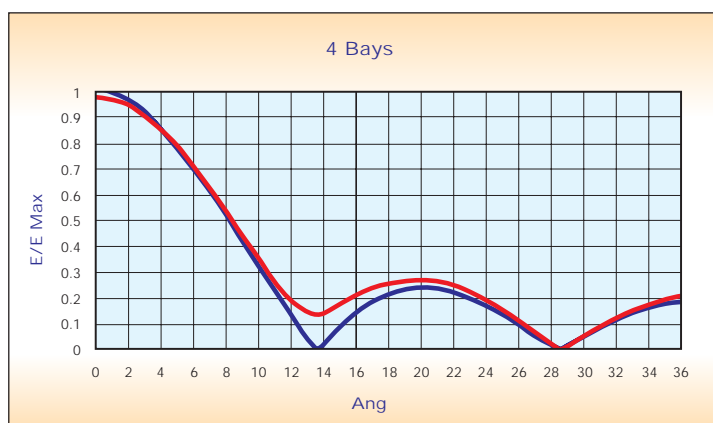
<sup>3</sup> According to the tower type, for more details contact us.



"These specifications are subject to change without notice"

### VERTICAL PATTERN

— Without null fill  
— With null fill and beam tilt

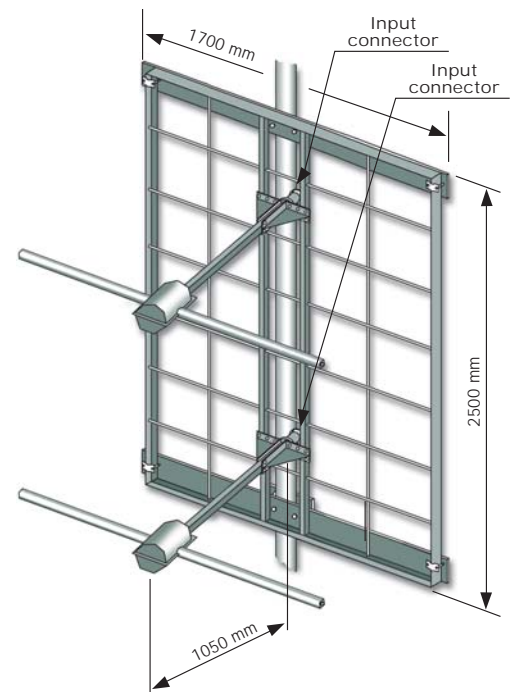


- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

## Model DPA2H

- Band II panel
- Broadband 87.5÷108 MHz
- Demountable
- Horizontal polarization
- Directional pattern
- Suitable as a component in various array

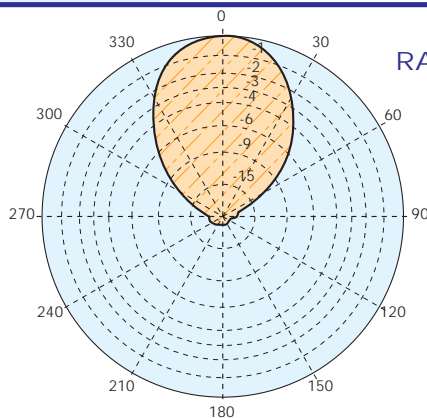


### ELECTRICAL DATA

Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	Two input connectors Type N or 7/16" or 7/8" EIA
Max Power	2x800W (N) – 2x2KW (7/16") 2x3.5KW (7/8" EIA)
VSWR	≤ 1.3:1
Polarization	Horizontal
Gain	7.5 dB (referred to half-wave dipole)
Half power beam width	E plane ± 35° H plane ± 28°
Lightning protection	All metal parts DC grounded

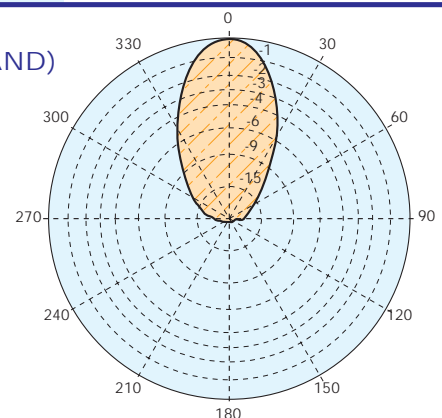
### MECHANICAL DATA

Dimensions	2500x1700x1050 mm
Weight	75 kg
Wind surface	0.77 m <sup>2</sup> (front) 0.13 m <sup>2</sup> (side)
Wind load	148 kg (front - wind speed at 160 km/h)
Max wind velocity	200 km/h.
Materials	Reflector: hot dip. galvanized steel Radiating dipoles: stainless steel Internal parts: passivated aluminium Radome: fiberglass (option)
Icing protection	Feed point radome (optional)
Radome	Optional
Mounting	With special pipe clamps 50÷110 mm dia.

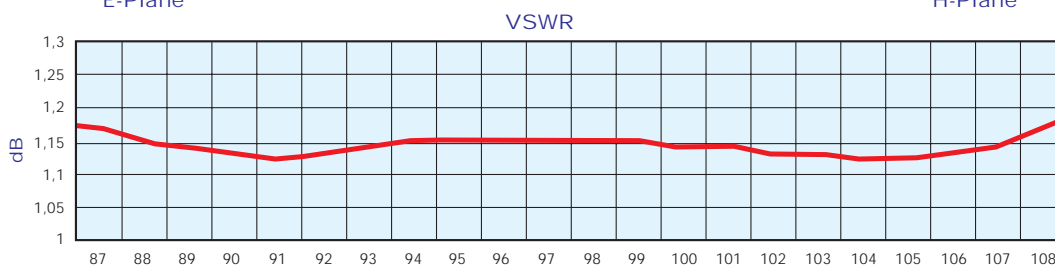


E-Plane

### RADIATION PATTERN (MID BAND)



H-Plane



Freq. in MHz

"These specifications are subject to change without notice"



Radiations systems with DPA2H panel  
 Omnidirectional or directional pattern  
 Balanced or unbalanced splitting power  
 High power system  
 Broadband 87.5÷108 MHz

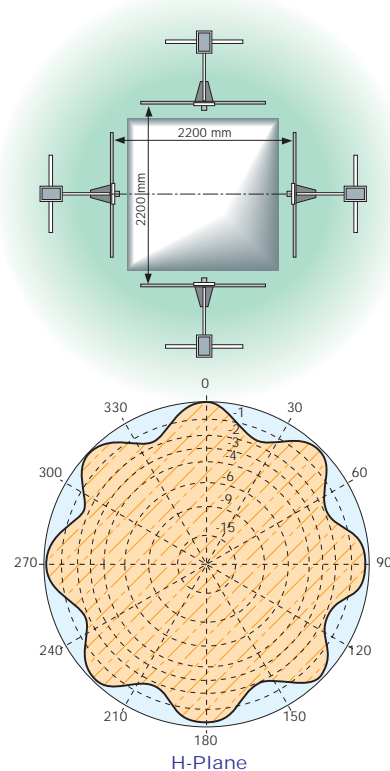
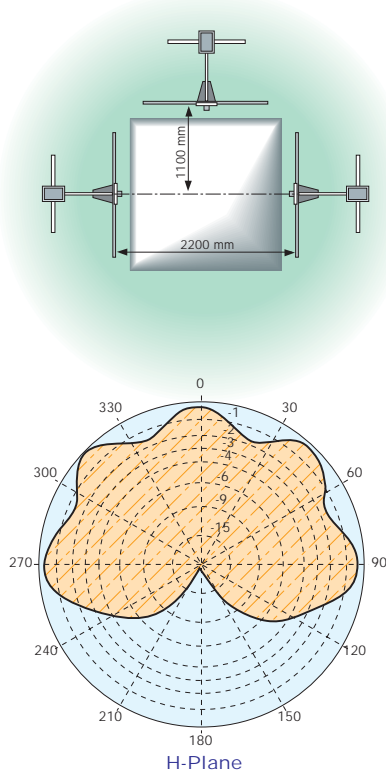
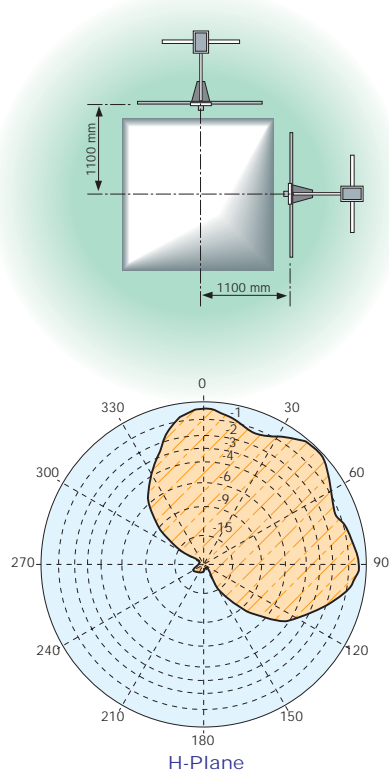
## Model DPA2H

ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.3:1 Max
Polarization	Horizontal
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

MECHANICAL DATA	
Height of array	Subject to number of bays ( refer to table )
Total net weight	Refer to table
Wind load	Refer to table
Pressurizable	Yes
Radome	Optional
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required



### HORIZONTAL PATTERNS WITH 2, 3 AND 4 FACES AT 98 MHz

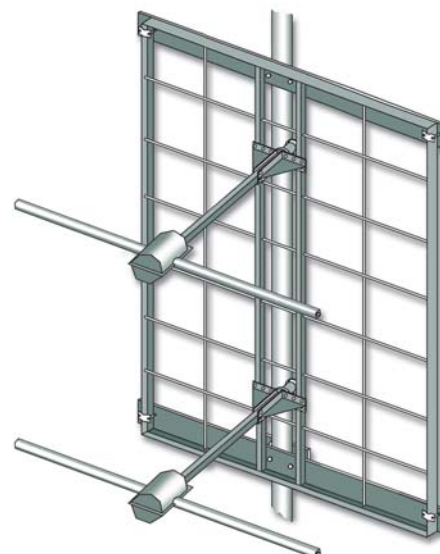


"These specifications are subject to change without notice"

## Model DPA2H

### TECHNICAL DATA

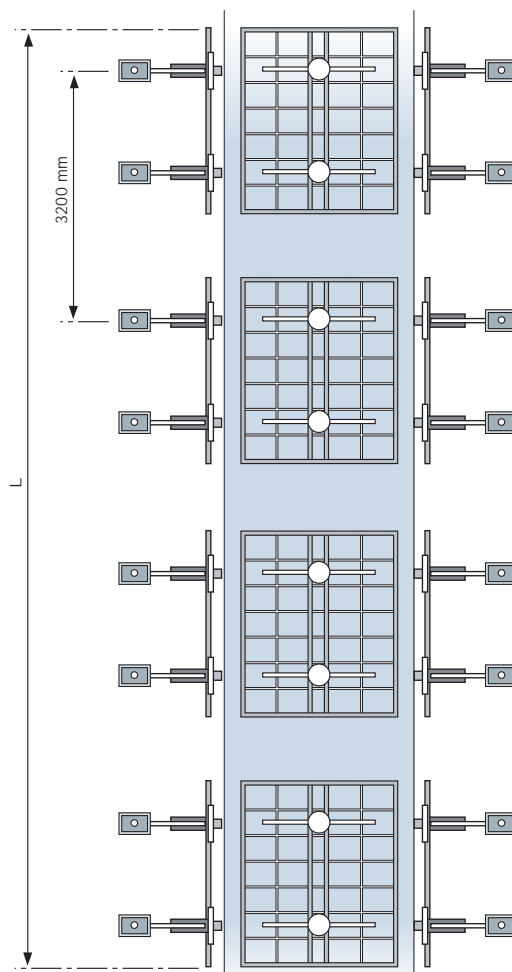
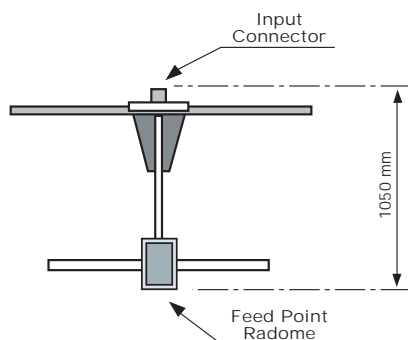
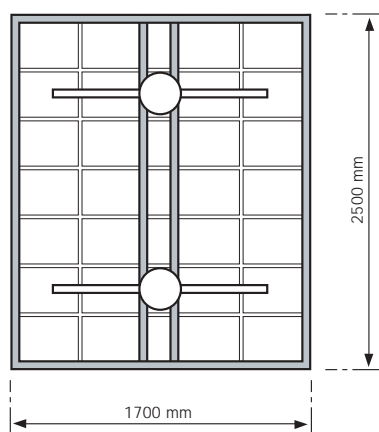
Number of bays	Panels per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load <sup>3</sup> (v=160 km/h) kg
		dB	times			
1	2	4.9	3.1	150	2.5	174
	3	2.8	2.1	225		199
	4	1.3	1.6	300		236
2	1	10.5	13.2	150	5.7	196
	2	7.8	6.5	300		348
	3	5.9	4.5	450		398
	4	4.3	3.3	600		472
4	1	13.5	26.2	300	12.1	592
	2	10.8	13.2	600		696
	3	8.9	9.2	900		796
	4	7.3	6.7	1200		944
6	1	15.3	39.8	450	18.5	888
	2	12.6	20.0	900		1044
	3	10.7	13.7	1350		1194
	4	9.1	10.0	1800		1416
8	1	15.9	55.0	600	24.9	1184
	2	13.8	27.6	1200		1392
	3	11.9	18.3	1800		1592
	4	10.3	13.7	2400		1888



<sup>1</sup> Referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

<sup>3</sup> According to the tower type, for more details contact us.

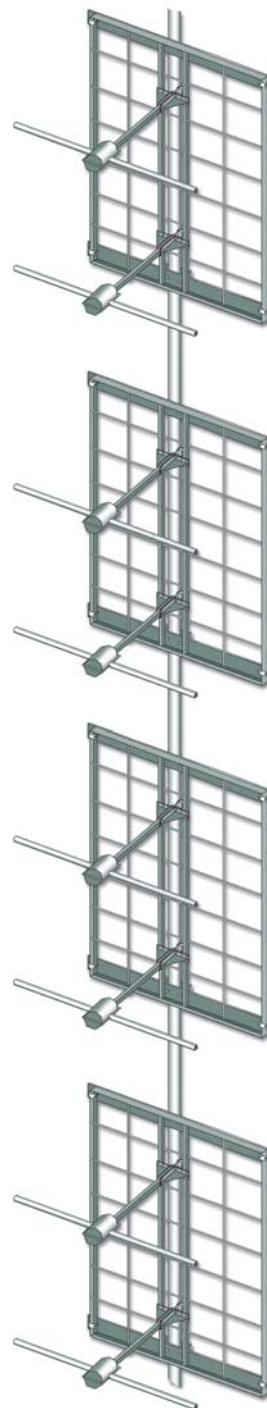
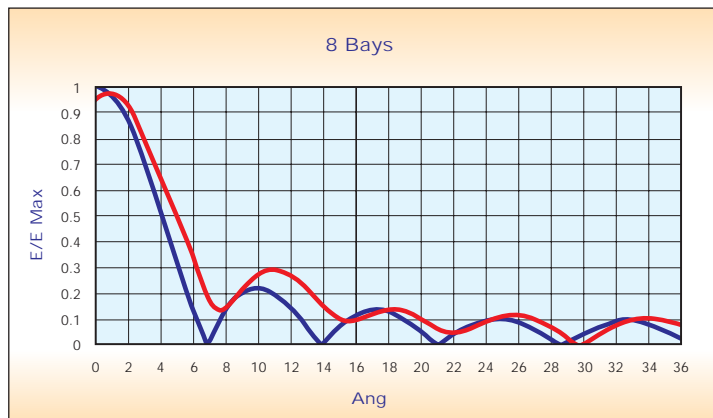
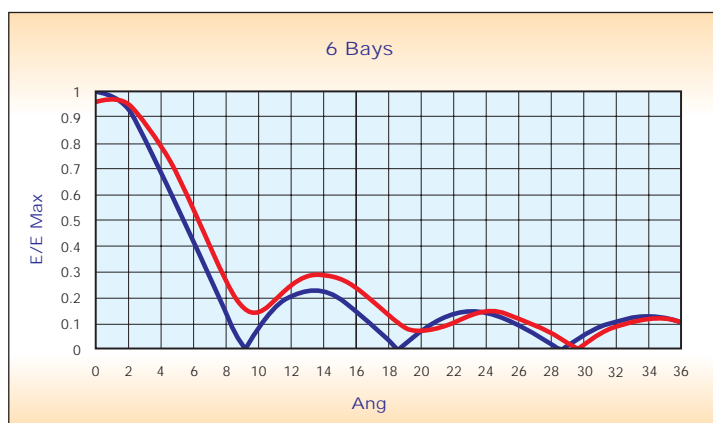
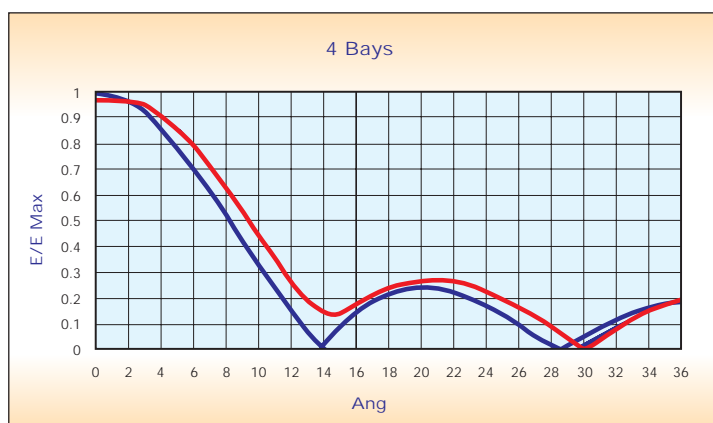


"These specifications are subject to change without notice"

## Model DPA2H

### VERTICAL PATTERN

— Without null fill  
— With null fill and beam tilt

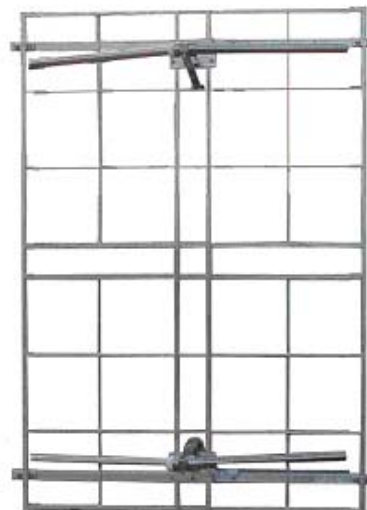


- Gain is provided for horizontal polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

## Model : DPA2HT

- **Band II panel**
- **Broadband 87.5÷108 MHz**
- **Demountable**
- **Horizontal polarization**
- **Directional pattern**
- **Suitable as a component in various arrays**



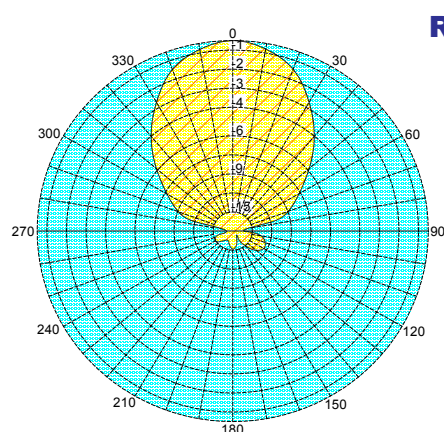
### ELECTRICAL DATA

Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	Two input connectors of type 7/8" EIA
Max Power	5KW
VSWR	≤ 1.2:1
Polarization	Horizontal
Gain	6.5 dB (referred to half-wave dipole)
Half power beamwidth:	E plane ± 40° H plane ± 28
Lightning protection	All metal parts DC grounded

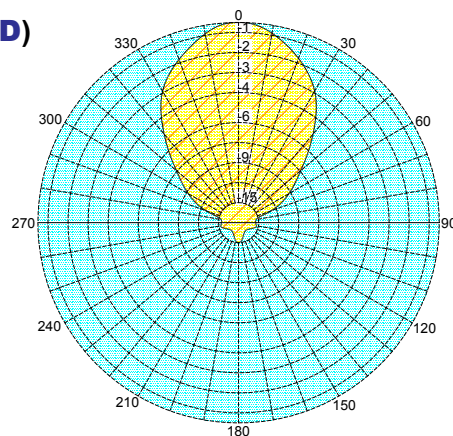
### MECHANICAL DATA

Dimensions	2500x1800x1050 mm
Weight	75 Kg
Wind surface	0.75 m <sup>2</sup> (front) 0.18 m <sup>2</sup> (side)
Wind load Max wind velocity	148 kg (wind speed at 160 km/h) 200 km/h.
Materials	Reflector: hot dip galvanized steel Radiating dipoles: stainless steel Internal parts: passivated aluminium Radome: fibreglass (option)
Icing protection	Feed point radome
Radome color	White (optional) With special pipe clamps 50 ÷ 110 mm dia.

### RADIATION PATTERN (MID BAND)

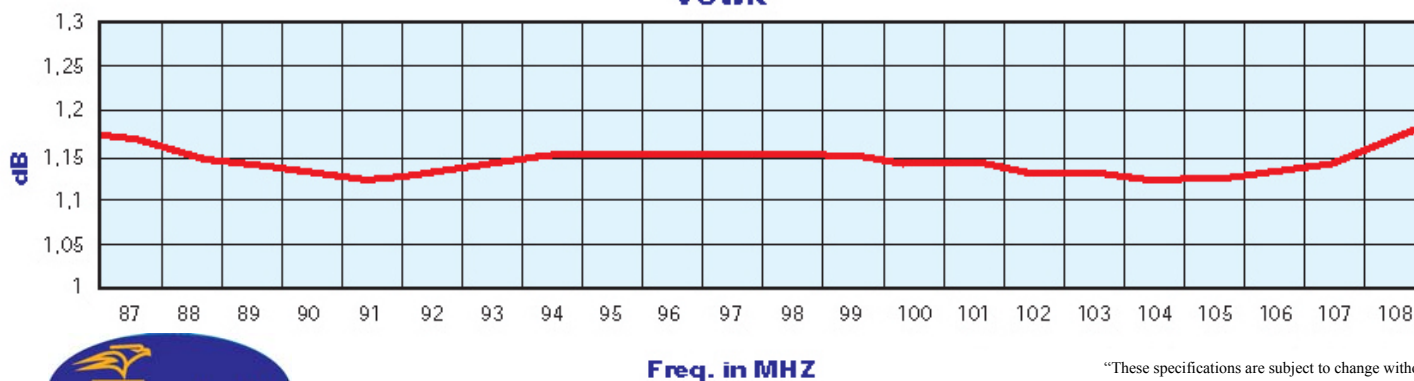


**E-plane**



**H-plane**

### VSWR



## Radiations systems with DPA2HT panel

### Omnidirectional or directional pattern

### Balanced or unbalanced splitting power

### High power systems

### Broadband: 87.5÷108 MHz

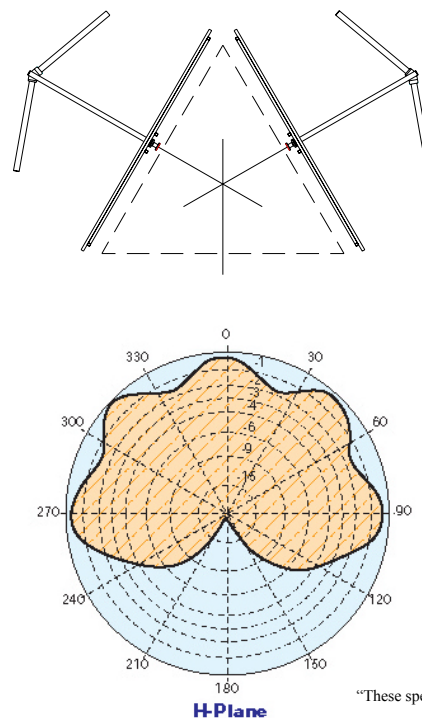
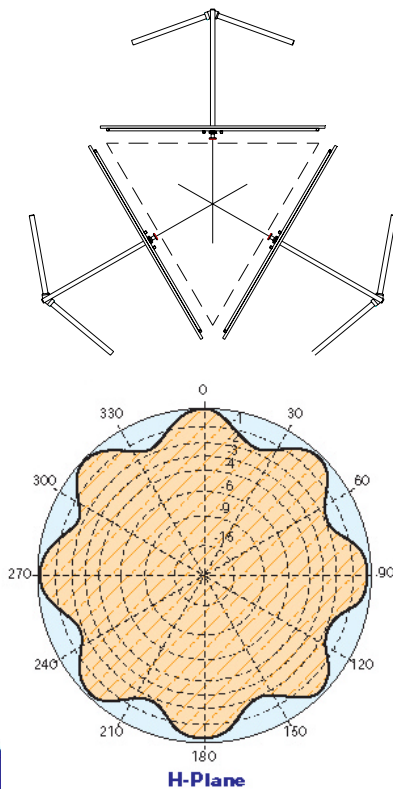
#### ELECTRICAL DATA

Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.2:1 Max
Polarization	Horizontal
Gain	According to requirement
Horizontal pattern	Any type according to requirement
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

#### MECHANICAL DATA

Height of array	Subject to number of bays (refer to table)
Total net weight	Refer to table
Wind load	Refer to table
Pressurizable	Yes
Radome color	White (optional)
Mounting hardware	Hot dip galvanized steel (option)
Shipping	As required

### Horizontal patterns With 2 and 3 faces at 98 MHz



"These specifications are subject to change without notice"

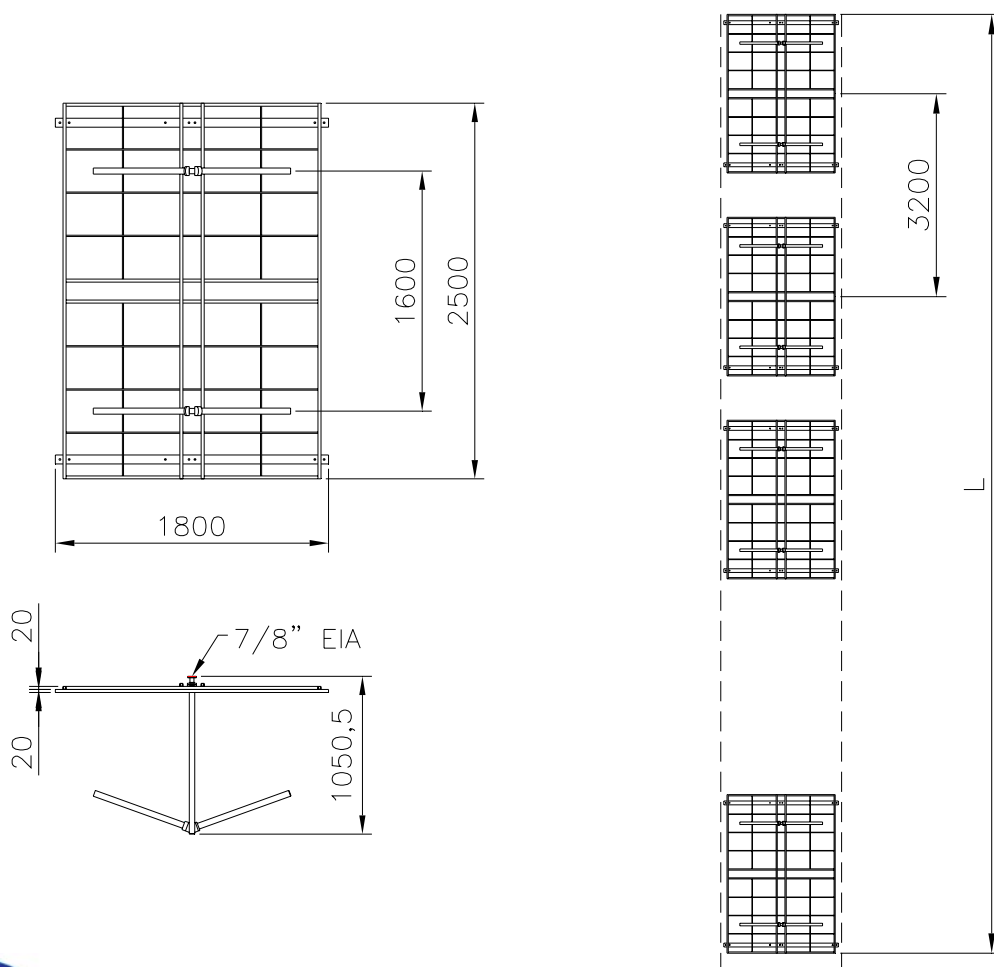
## TECHNICAL DATA

Number of bays	Panels per bay			Weight <sup>2</sup> kg	Antenna height L m	Wind load <sup>3</sup> (v=160 km/h) kg
		dB	times			
1	2	3.31	2.14	150	2.5	216
	3	1.62	1.45	225		324
2	1	9.52	8.95	150	5.7	216
	2	6.51	4.48	300		432
	3	4.83	3.04	450		648
4	1	12.72	18.71	300	12.1	432
	2	9.71	9.34	600		864
	3	8.01	6.32	900		1296
6	1	14.52	28.31	450	18.5	648
	2	11.52	14.19	900		1296
	3	9.81	9.57	1350		1944
8	1	15.82	38.19	600	22.4	864
	2	12.81	19.01	1200		1728
	3	11.12	12.94	1800		2592

<sup>1</sup> referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> without mounting hardware

<sup>3</sup> according to the tower type, for more details contact us

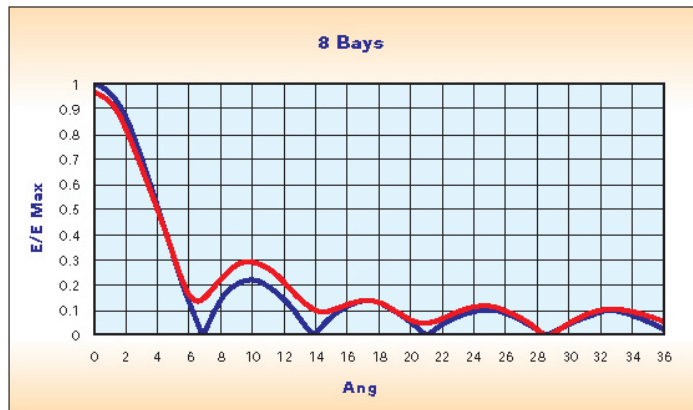
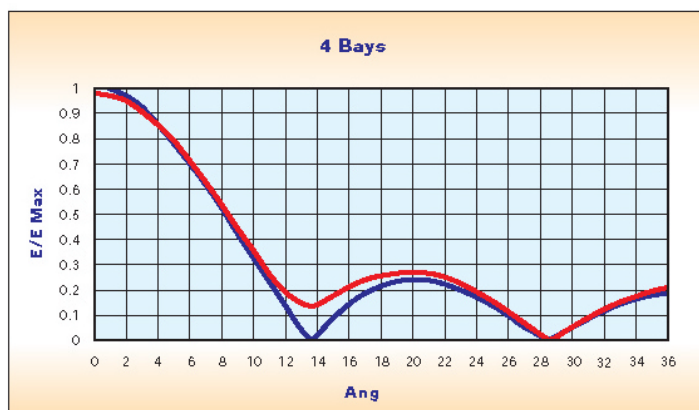
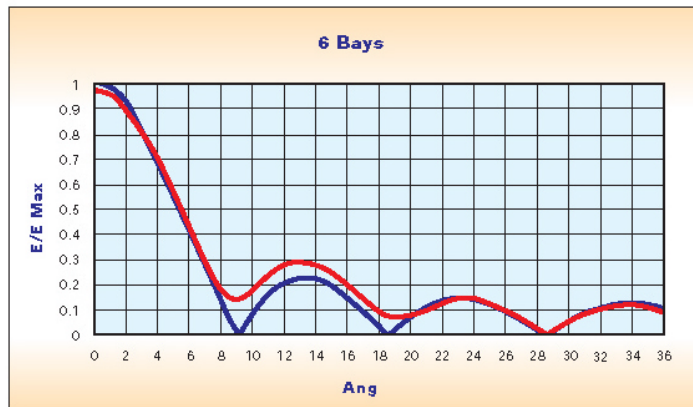
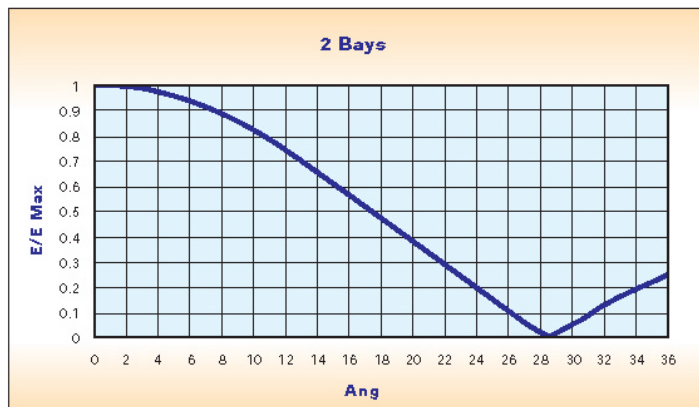


"These specifications are subject to change without notice"



## VERTICAL PATTERN — Without null fill

— With null fill and beam tilt



- Gain is provided for horizontal polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

# Model DPC4

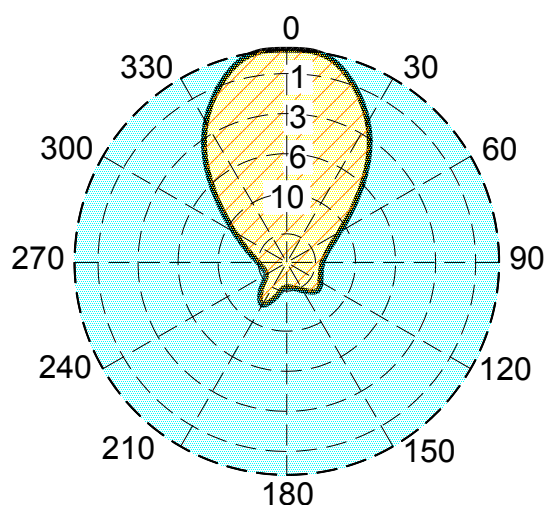
- Band II panel
- Broadband 87.5÷108 MHz
- Demountable
- Circular polarization
- Directional pattern
- Suitable as a component in various array
- Dipole Inox AISI304



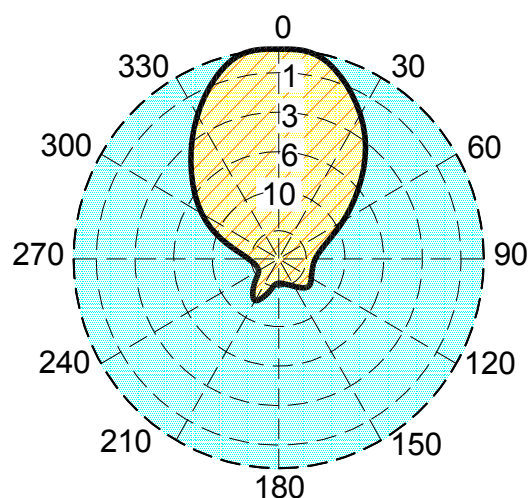
ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	Four input connectors Type 7/8" EIA or 7/16" DIN
Max Power	20KW (5KW for each input)
VSWR	≤ 1.2 in circular polarization max.
Polarization	Circular
Gain	4.5 dB (referred to half wave dipole: Circular polarization) 7.5 dB (referred to half-wave dipole: Linear polarization)
Half power beam width	E plane ± 32° (Vertical) H plane ± 30° (Horizontal)
Lightning protection	All metal parts DC grounded

MECHANICAL DATA	
Dimensions	2200x2200x1050 mm
Weight	95 Kg
Wind surface	0.960 m <sup>2</sup>
Wind load Max wind velocity	187 kg (wind speed at 150 km/h) 220 km/h. (Safety factor → 2)
Materials	Reflector: hot dip galvanized steel Dipole: stainless steel AISI304 Internal parts: anticorodal aluminium Radome: fiberglass (option)
Icing protection	Feed point radome
Radome color	White (optional)
Mounting	Directly on supporting mast

## RADIATION PATTERN (MID BAND)



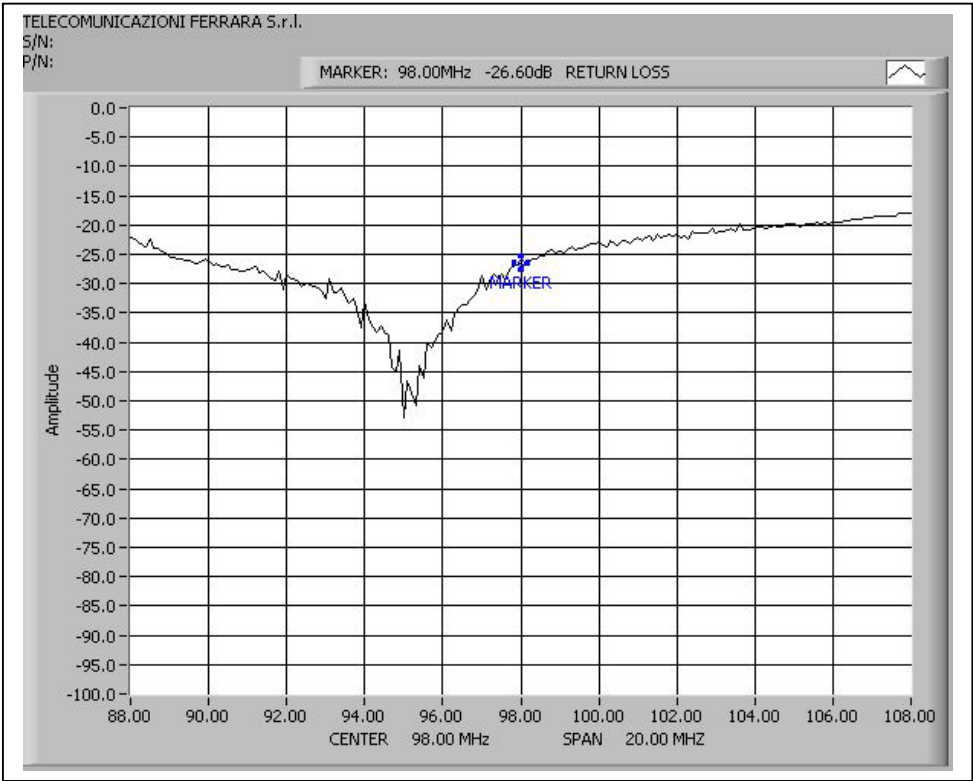
**E-plane**



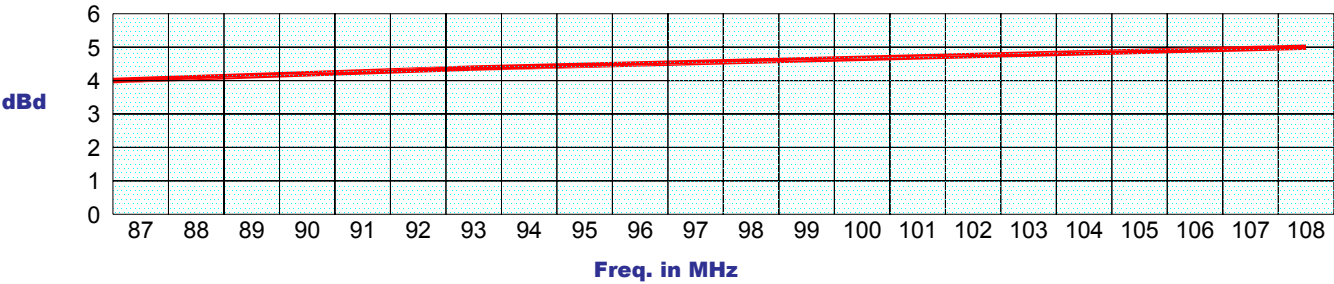
**H-plane**

"These specifications are subject to change without notice"

RETURN LOSS



GAIN



“These specifications are subject to change without notice”

## Panel Circular Polarization directional pattern

**Broadband 87.5÷108 MHz**

**High power system**

**Omni-directional or directional pattern**

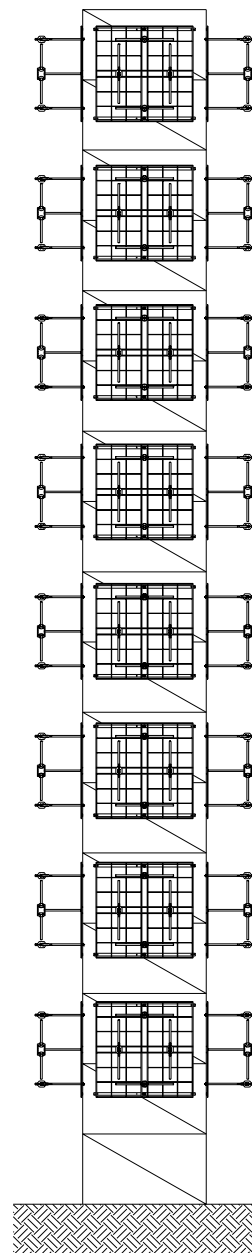
**Balanced or unbalanced splitting power**

### ELECTRICAL DATA

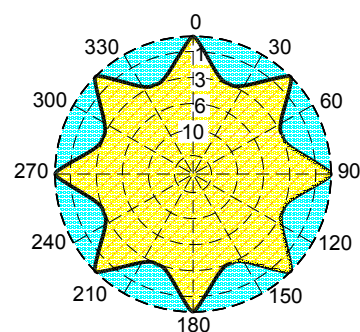
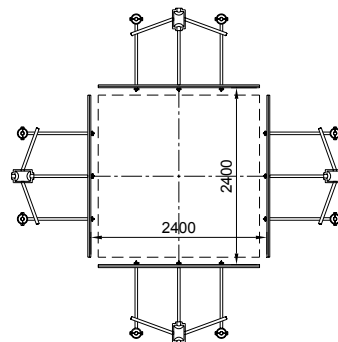
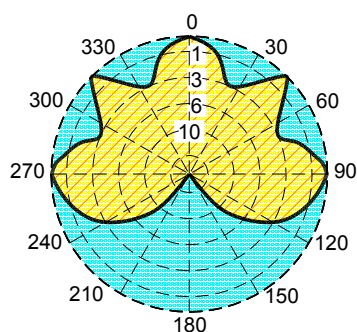
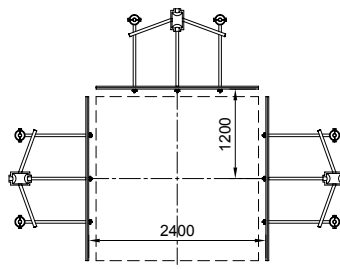
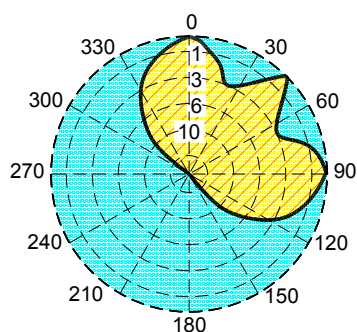
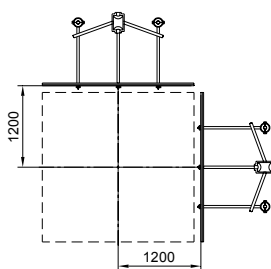
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.15 (throughout the frequency range (Lower figures for individual channels on request)
Polarization	Circular
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power (option)

### MECHANICAL DATA

Height of array	Subject to number of bays ( refer to table )
Total net weight	Refer to table
Wind load	Refer to table
Pressurizable	Yes (on request)
Radome colour	White (optional)
Mounting hardware	Hot dip galvanized steel clamps (option)
Shipping	As required



### Horizontal Patterns with 2, 3 and 4 faces at 98 MHz



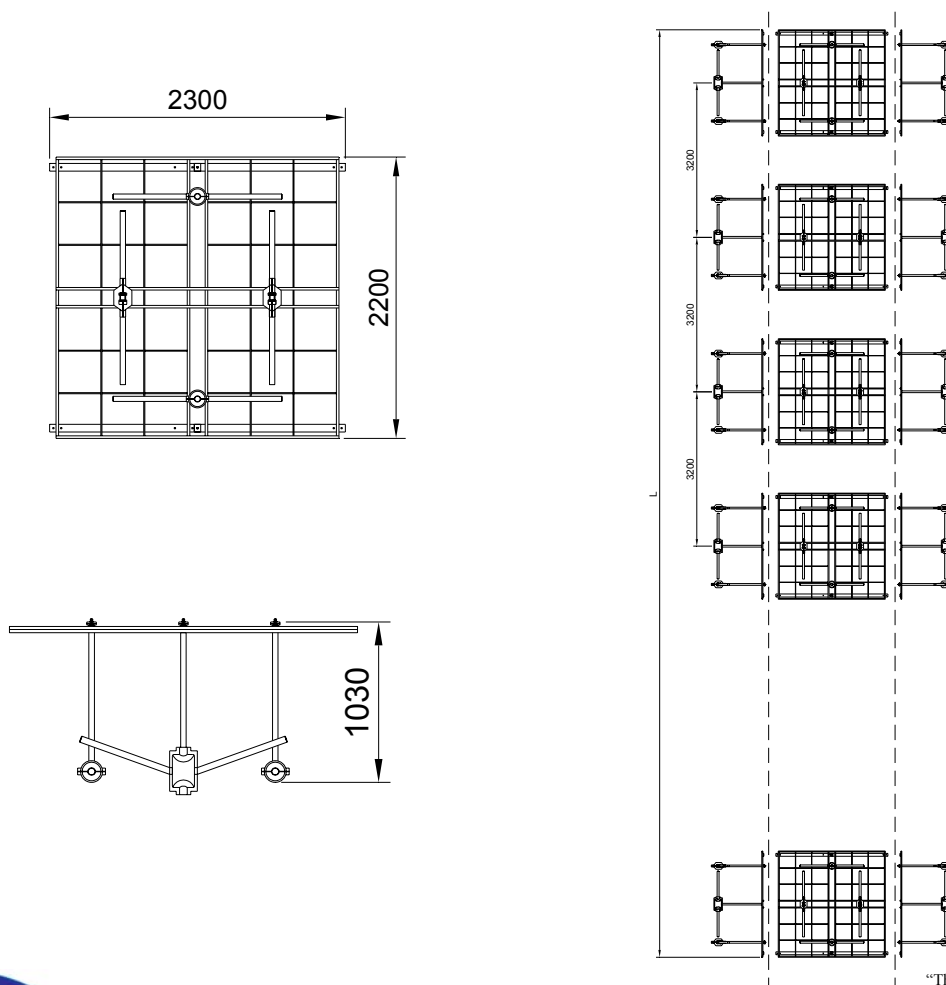
## TECHNICAL DATA

Number of bays	Panels per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load <sup>3</sup> (v=150 km/h) kg
		dB	times			
1	2	1.85	1.53	210	2.2	296
	3	0.3	1.01	340		370
	4	-0.65	0.86	440		440
2	1	7.5	5.62	210	5.4	376
	2	5.0	3.16	440		592
	3	3.35	2.16	790		740
	4	2.45	1.76	880		880
4	1	10.5	11.22	752	11.8	752
	2	7.8	6.03	1184		1184
	3	6.3	4.27	1480		1480
	4	5.55	3.59	1760		1760
6	1	12.3	16.98	1128	18.2	1128
	2	9.9	9.77	1776		1776
	3	8.4	6.92	2220		2220
	4	6.95	4.96	2640		2640
8	1	13.7	23.44	1504	26.6	1504
	2	10.95	12.45	2368		2368
	3	9.5	8.91	2960		2960
	4	8.5	7.08	3520		3520

<sup>1</sup> referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> without mounting hardware

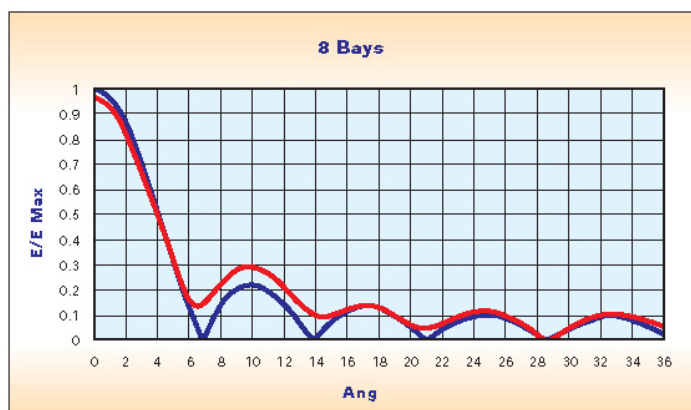
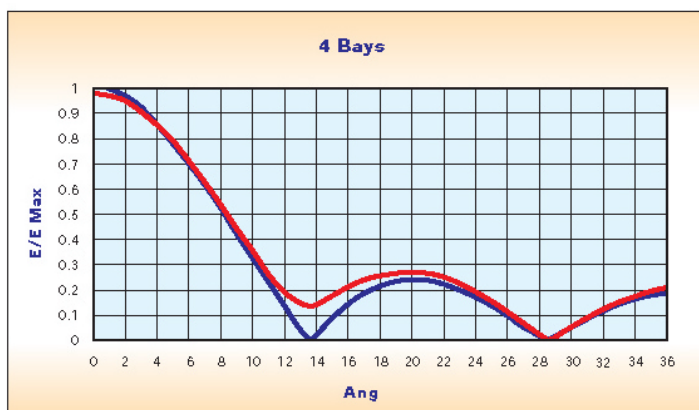
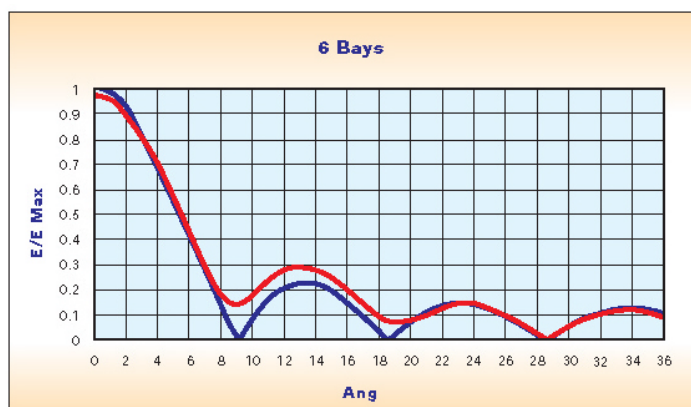
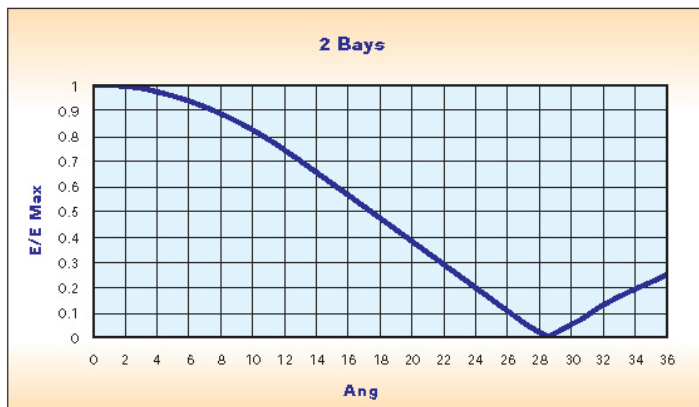
<sup>3</sup> according to the tower type, for more details contact us



"These specifications are subject to change without notice"

## VERTICAL PATTERN — Without null fill

— With null fill and beam tilt



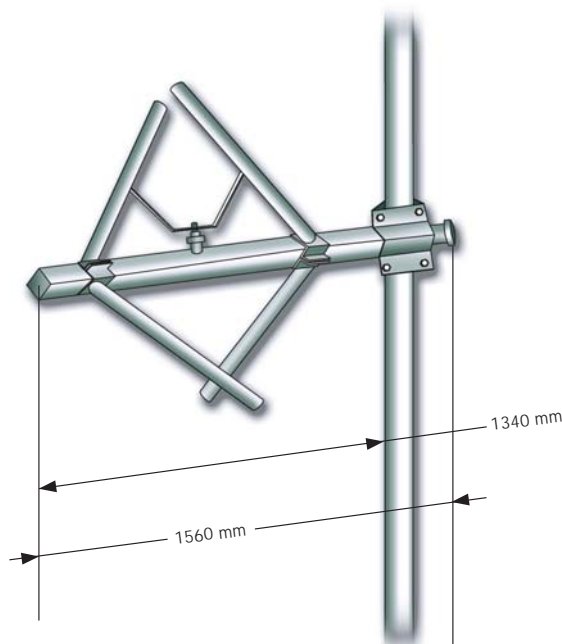
- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"



## Model ACP1

- Band II
- Broadband 87.5÷108 MHz
- Demountable
- Circular polarization
- Stainless steel AISI 304
- Pressurizable on request

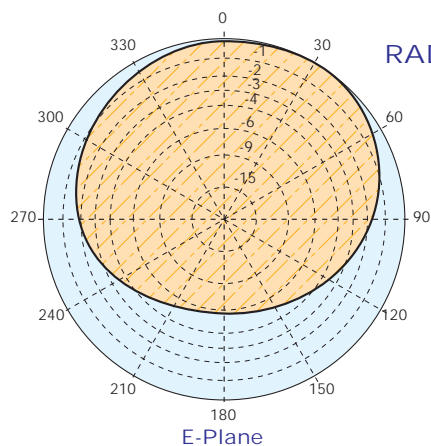


### ELECTRICAL DATA

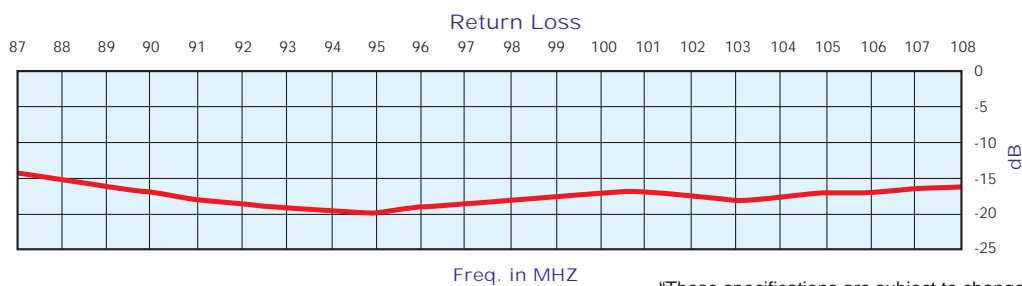
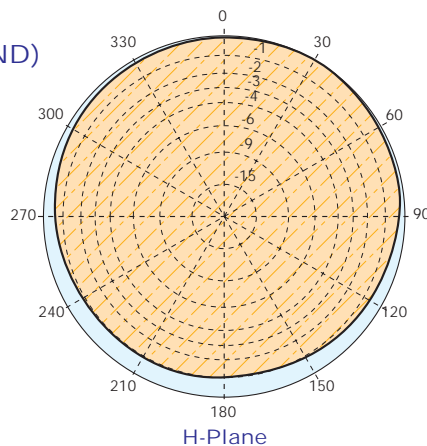
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	N or 7/16" or 7/8" EIA
Max Power	800W (N) – 2KW (7/16") – 3KW (7/8" EIA)
VSWR	≤ 1.4:1
Polarization	Circular
Gain	Refer to table
Pattern	Omni directional ± 1.5 dB in free space Omni directional ± 3 dB with 100mm dia. pole
Lightning protection	All metal parts DC grounded

### MECHANICAL DATA

Dimensions	1560x1150x1150 mm
Weight	13 kg
Wind surface	0.19 m <sup>2</sup> (side) 0.13 m <sup>2</sup> (front)
Wind load	31.1 kg (side - wind speed at 160 km/h)
Max wind velocity	220 km/h.
Materials	External parts: stainless steel Internal parts: aluminium treated
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)



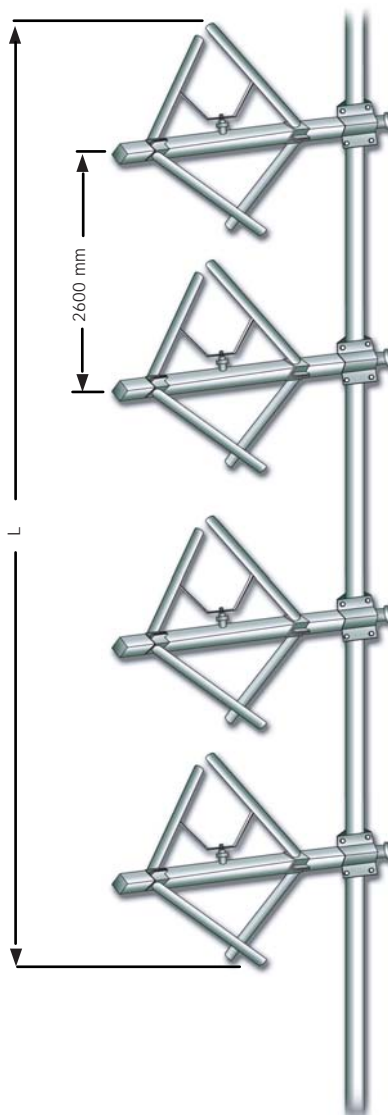
"These specifications are subject to change without notice"

## Radiations systems with ACP1 antenna

### Omnidirectional patterns

ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.4:1 Max
Polarization	Circular/Elliptical
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

MECHANICAL DATA	
Height of array	Subject to number of bays ( refer to table )
Total net weight	Refer to table
Wind load	Refer to table
Pressurizable	Yes (on request)
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required



#### TECHNICAL DATA (1 Wave)

Number of bays	Dipole per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg	SYSTEMS MODELS <sup>3</sup>			
		dB	times				2 KW	4 KW	6 KW	10 KW
2	1	1.50	1.40	26	3.8	62.2	ACP1X22	ACP1X24	ACP1X26	-
3	1	3.30	2.10	39	6.4	93.3	-	-	-	-
4	1	4.50	2.80	52	9.0	124.4	ACP1X42	ACP1X44	ACP1X46	ACP1X410
6	1	6.30	4.20	78	14.2	186.6	ACP1X62	ACP1X64	-	ACP1X610
8	1	7.50	5.70	104	19.4	248.8	ACP1X82	ACP1X84	ACP1X86	ACP1X810
12	1	9.30	8.50	156	29.8	373.2	-	-	-	-

<sup>1</sup> Referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

<sup>3</sup> The systems comprised: antennas, cables and splitter – for more details to see catalog – different version on request.

- Gain is provided for vertical polarization.
- When antenna is pole mounted on the top a tower the horizontally polarized radiation pattern is omni - directional.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

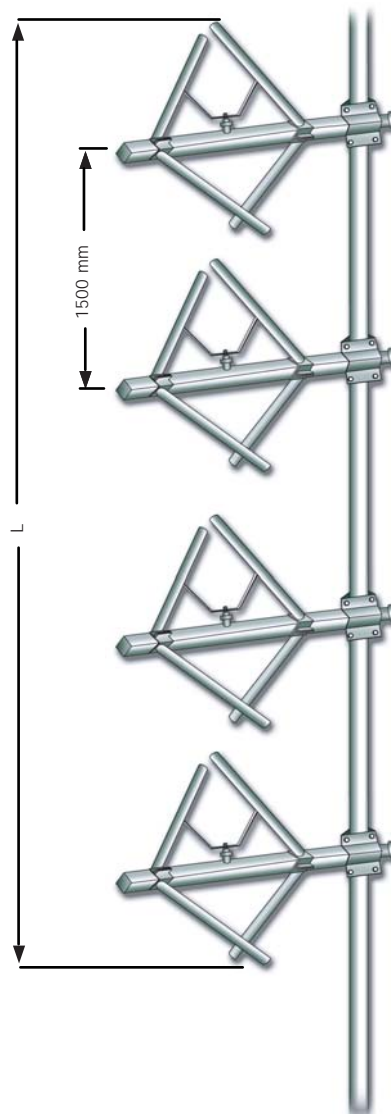
"These specifications are subject to change without notice"

## Radiations systems with ACP1 antenna

### Omnidirectional patterns

ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.4:1 Max
Polarization	Circular/Elliptical
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

MECHANICAL DATA	
Height of array	Subject to number of bays ( refer to table )
Total net weight	Refer to table
Wind load	Refer to table
Pressurizable	Yes (on request)
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required



#### TECHNICAL DATA (1/2 Wave)

Number of bays	Dipole per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg	SYSTEMS MODELS <sup>3</sup>			
		dB	times				2 KW	4 KW	6 KW	10 KW
2	1	-1.50	0.71	26	2.65	62.2	ACP1X22	ACP1X24	ACP1X26	-
3	1	0.27	1.06	39	4.15	93.3	-	-	-	-
4	1	1.50	1.42	52	5.65	124.4	ACP1X42	ACP1X44	ACP1X46	ACP1X410
6	1	3.28	2.13	78	8.65	186.6	ACP1X62	ACP1X64	-	ACP1X610
8	1	4.50	2.84	104	11.65	248.8	ACP1X82	ACP1X84	ACP1X86	ACP1X810
12	1	6.29	4.26	156	17.65	373.2	-	-	-	-

<sup>1</sup> Referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

<sup>3</sup> The systems comprised: antennas, cables and splitter – for more details to see catalog – different version on request.

- Gain is provided for vertical polarization.
- When antenna is pole mounted on the top a tower the horizontally polarized radiation pattern is omni - directional.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

# Model: ACP1 HP

- Band II dipole
- Broadband 87.5÷108 MHz
- Circular polarization
- Stainless steel AISI 304
- Pressurizable on request



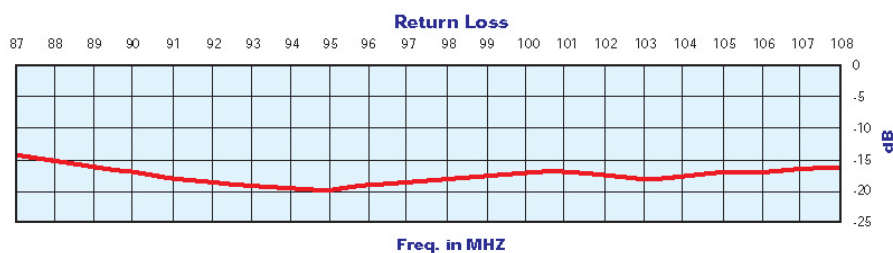
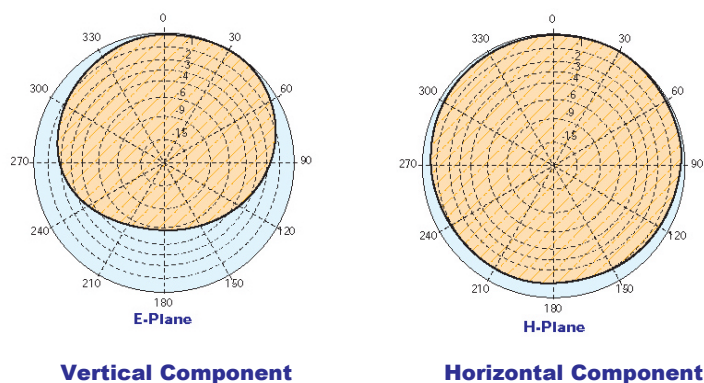
## ELECTRICAL DATA

Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	1+5/8" – 7/8"
Max Power	7 KW with 1+5/8" connector 5 KW with 7/8" connector
VSWR	≤ 1.4:1
Polarization	Circular
Gain	Refer to table
Pattern:	Omnidirectional ± 1.5 dB in free space Omnidirectional ± 3 dB with 100 mm diameter pole
Lightning protection	All metal parts DC grounded

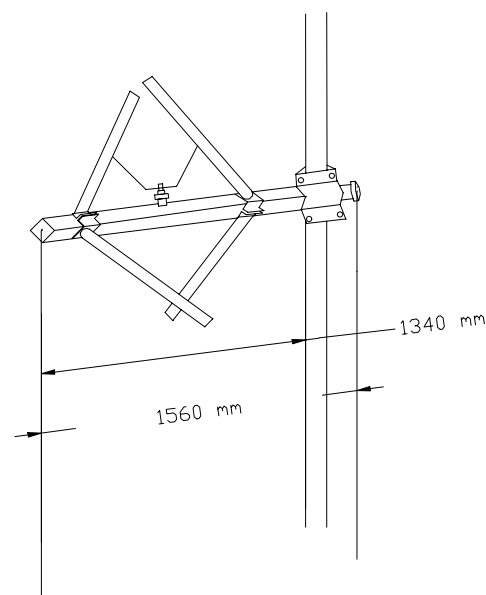
## MECHANICAL DATA

Dimensions	1560x1150x1150 mm
Weight	22 Kg
Wind surface	0.4 m <sup>2</sup>
Wind load	79 kg (side - wind speed at 160 km/h)
Max wind velocity	200 km/h.
Materials	External parts (stainless steel) Internal parts (aluminium treated) Radome: fibreglass
Icing protection	Feed point radome (option)
Radome color	White (optional)
Mounting	With special pipe clamps 50 ÷ 110 mm dia.

## RADIATION PATTERN (MID BAND)



## DIMENSIONS



"These specifications are subject to change without notice"

## Radiations Systems with ACP1HP antenna

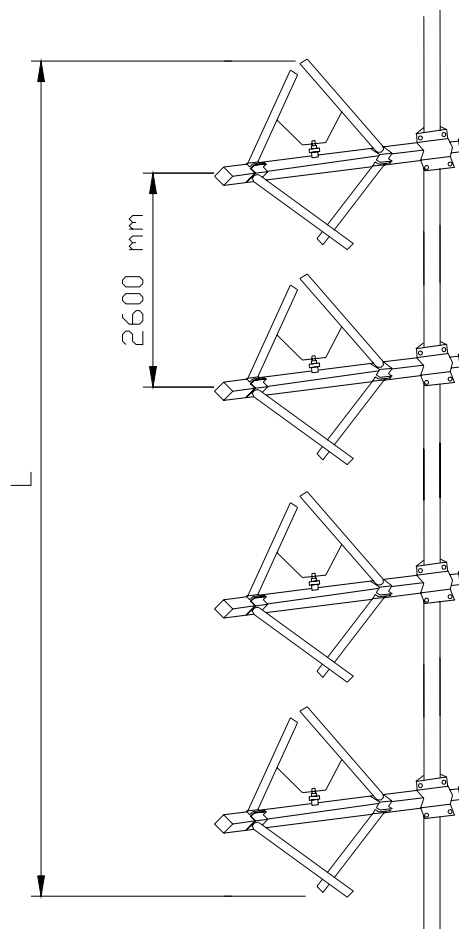
### Omnidirectional patterns

#### ELECTRICAL DATA

	87.5÷108 MHz
	50 Ohm
	EIA flange according to system power rating
	≤ 1.4:1 Max
	Circular
	According to requirement
	Any type according to requirements
	Null fill, beam tilt and special requirements to order
	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

#### MECHANICAL DATA

	Subject to number of bays ( refer to table )
	Refer to table
	Refer to table
	Yes (on request)
	White (optional)
	Hot dip galvanized steel clamps
	As required



#### TECHNICAL DATA

Number of bays	Dipole per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg
		dB	times			
2	1	1.5	1.4	44	3.8	158
3	1	3.2	2.1	66	6.4	237
4	1	4.5	2.8	88	9.0	316
6	1	6.2	4.2	132	14.2	474
8	1	7.5	5.6	176	19.4	632
12	1	9.2	8.4	264	29.8	948

<sup>1</sup> referred to a half wave dipole. Attenuation of connecting cables not taken into account total gain.

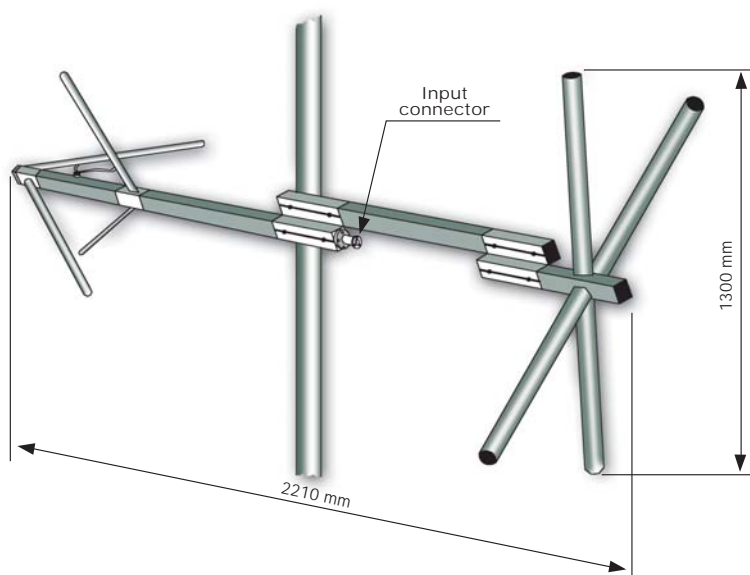
<sup>2</sup> without mounting hardware (cables and dividers are not included)

- Gain is provided for one polarization.
- When antenna is pole mounted on the top of a tower the horizontally polarized radiation pattern is omni - directional.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

## Model ACP2

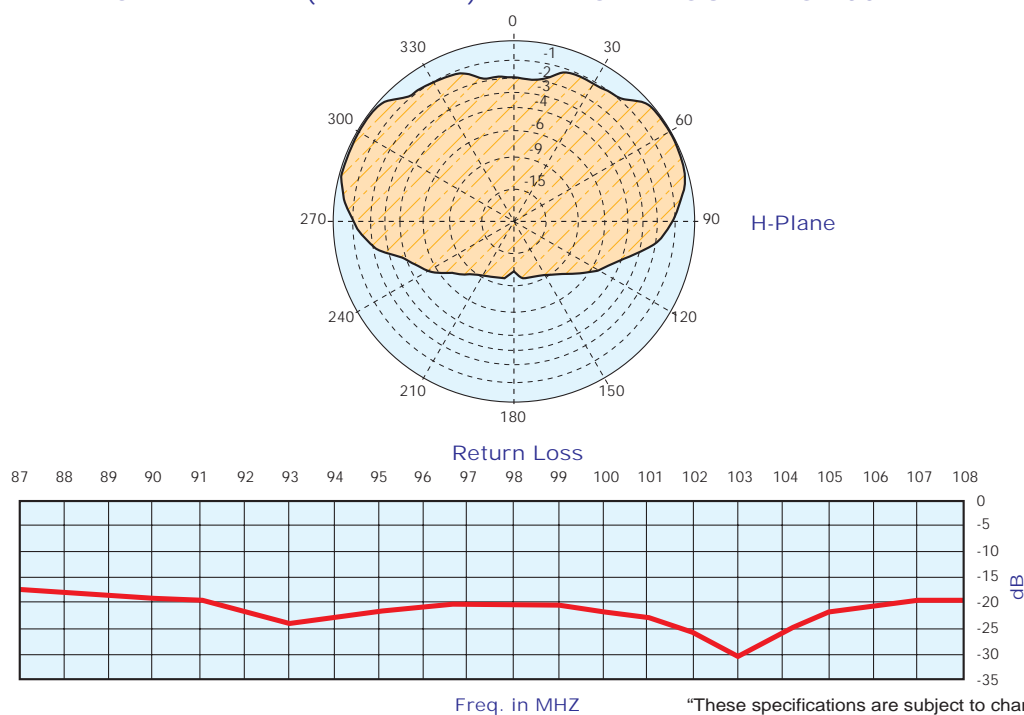
- Band II
- Broadband 87.5÷108 MHz
- Circular polarization
- Stainless steel AISI 304
- Pressurizzabile on request



ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	N or 7/16" or 7/8" EIA
Max Power	800W (N) – 2KW (7/16") – 3KW (7/8" EIA)
VSWR	≤ 1.35:1
Polarization	Circular
Gain	-0.5 dB (ref. to half wave dipole)
Lightning protection	All metal parts DC grounded

MECHANICAL DATA	
Dimensions	2210x1300x1300 mm
Weight	20 kg
Wind surface	0.32 m <sup>2</sup> (side) 0.23 m <sup>2</sup> (front)
Wind load	46.7 kg (side - wind speed at 160 km/h)
Max wind velocity	160 km/h.
Materials	External parts: stainless steel Internal parts: aluminium treated
Mounting	With special pipe clamps 50÷110 mm dia.

RADIATION PATTERN (MID BAND) WITH POLE MOUNTING 100mm DIAMETER



"These specifications are subject to change without notice"



## Radiations systems with ACP2 antenna

### Collinears systems

ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.35:1 Max
Polarization	Circular
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

MECHANICAL DATA	
Height of array	Subject to number of bays ( refer to table )
Total net weight	Refer to table
Wind load	Refer to table
Pressurizable	Yes (on request)
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required

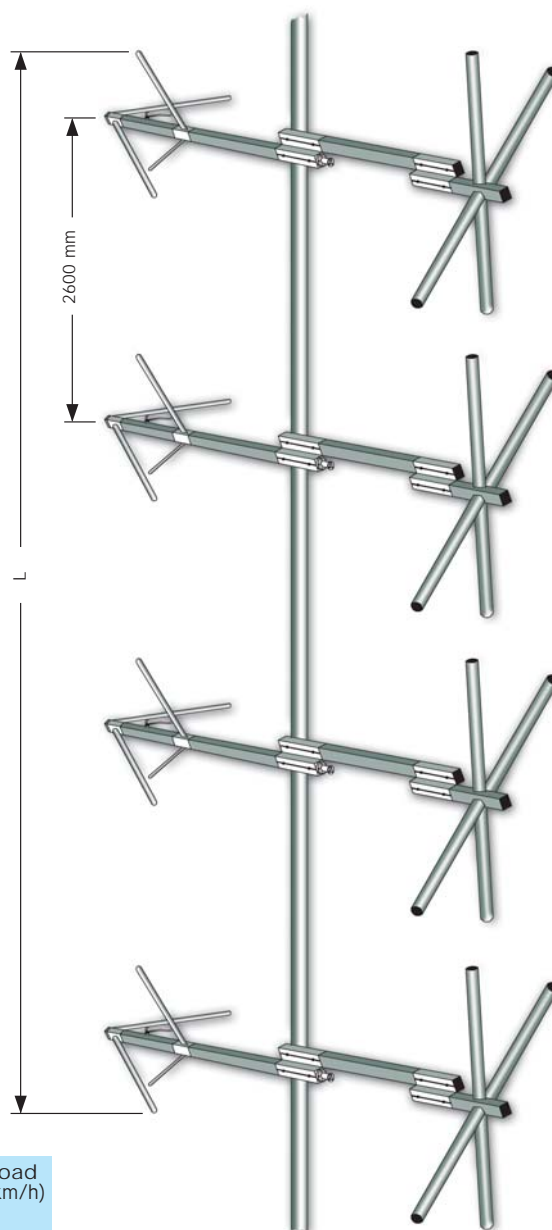
### TECHNICAL DATA

Number of bays	Dipole per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg
		dB	times			
2	1	3.50	1.41	40	3.9	93.4
3	1	5.26	2.12	60	6.5	140.1
4	1	6.50	2.81	80	9.1	186.8
6	1	8.27	4.22	120	14.3	280.2
8	1	9.50	5.62	160	19.5	373.6

<sup>1</sup> Referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

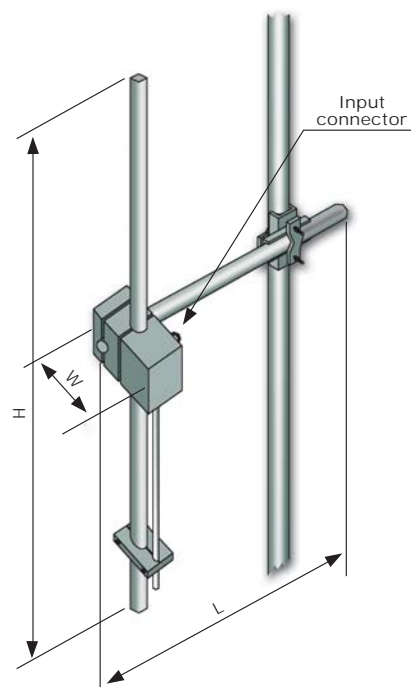
- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6m) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.



"These specifications are subject to change without notice"

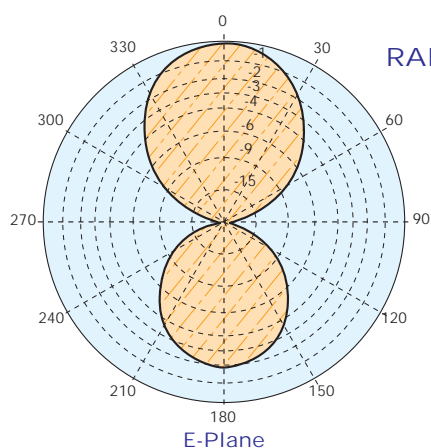
# Model AJ1E – AJ1EBI – AJ1E/INOX – AJ1E/IT

- High Power Version (H.P.)
- FM Band 87.5÷108 MHz
- Suitable for VHF, Band I and OIRT Band
- Gamma Match Tuned
- Omni directional pattern
- Vertical polarization
- Light - Low Cost - Demountable

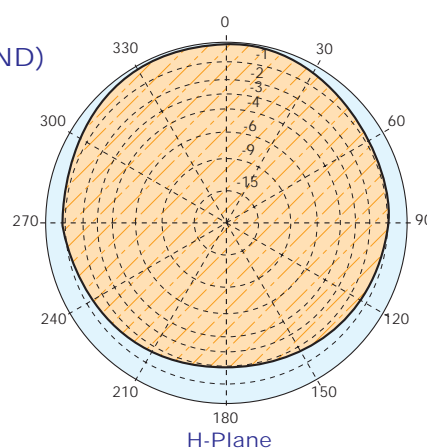


ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	N or 7/16" female or 7/8" EIA
Max Power	650W (N) – 1300W (7/16" – H.P. Version)
VSWR	≤ 1.1:1 in the operating channel
Polarization	Vertical
Gain	1 dB (referred to half-wave dipole)
Pattern	Omni directional ± 1.5 dB in free space Omni directional ± 3 dB with 100mm dia. pole
Lightning protection	No DC grounded

MECHANICAL DATA	
Dimensions	According to the working frequency 1380 (H) x 760 (L) x 100 (W) mm at 98 MHz
Weight	According to the working frequency (aluminium or stainless steel)
Wind surface	0.05 m <sup>2</sup> (at 98 MHz)
Wind load	6.7 kg (wind speed at 160 km/h)
Max wind velocity	200 km/h (AJ1E/IT model)
Materials	AJ1E: Aluminium elements and boom AJ1EBI: Aluminium elements and inox boom AJ1E/INOX: Stainless steel elements and boom AJ1E/IT: Stainless steel elements and boom Tig Welded Version Teflon insulator Radome: fiberglass (option)
Icing protection	Feed point radome (optional)
Radome	Optional
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)



"These specifications are subject to change without notice"

# Model AJ1E – AJ1EBI – AJ1E/INOX – AJ1E/IT

Radiations systems with AJ1E antenna

Omni-directional pattern

ELECTRICAL DATA	
Frequency range	87.5+108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.1:1 Max
Polarization	Vertical
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

MECHANICAL DATA	
Height of array	Subject to number of bays ( refer to table )
Total net weight	According to the working frequency
Wind load	Refer to table (at 98 MHz)
Pressurizable	No
Radome	Optional
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required

## TECHNICAL DATA

Number of bays	Dipole per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg	COLLINEARS SYSTEMS <sup>3</sup>				
		dB	times				800 W	1 KW	2 KW	3 KW	5 KW
1	1	1.0	1.2	-	1.4	6.7	AJ1E	AJ1E(HP)	-	-	-
2	1	4.0	2.5	-	4.0	13.5	-	AJ1EX21	-	-	-
4	1	7.0	5.0	-	9.2	27.0	AJ1EX41	-	AJ1EX42	AJ1EX43	-
6	1	8.8	8.5	-	14.4	40.5	AJ1EX61	-	AJ1EX62	AJ1EX63	-
8	1	10.0	10.0	-	19.6	54	AJ1EX81	-	AJ1EX82	-	AJ1EX85

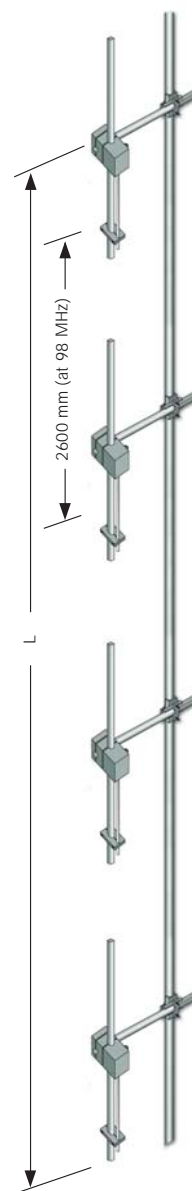
<sup>1</sup> Referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

<sup>3</sup> The systems comprised: antennas, cables and splitter – for more details to see catalog – different version on request.

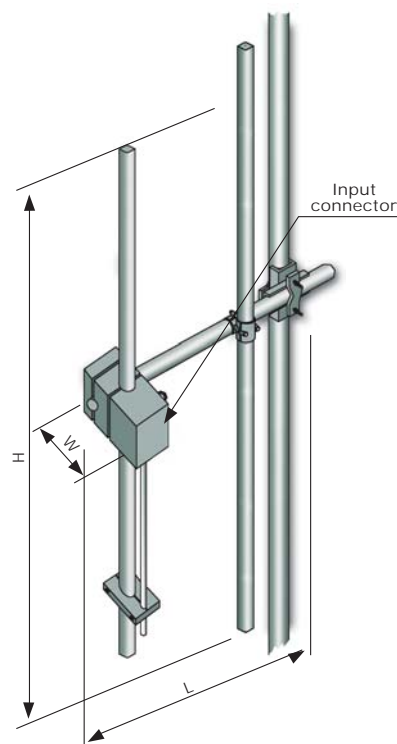
- Gain is provided for vertical polarization.
- When antenna is pole mounted on the top a tower the horizontally polarized radiation pattern is omni - directional.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"



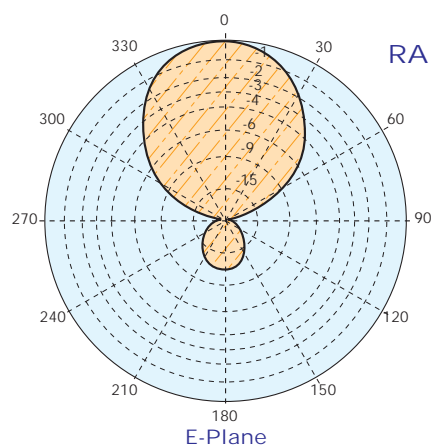
# Model AJ2E – AJ2EBI – AJ2E/INOX – AJ2E/IT

- High Power Version (H.P.)
- FM Band 87.5÷108 MHz
- Suitable for VHF, Band I and OIRT Band
- Gamma Match Tuned
- Directional pattern
- Vertical or horizontal polarization
- Light - Low Cost - Demountable

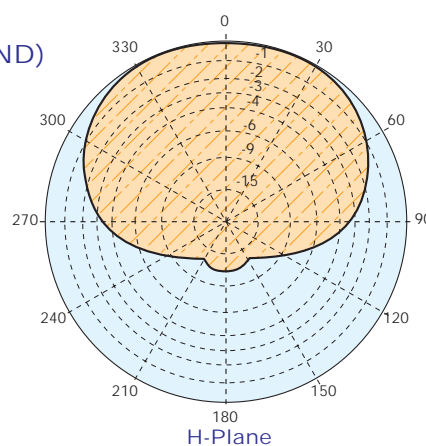


ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	N or 7/16" female or 7/8" EIA
Max Power	650W (N) – 1300W (7/16" – H.P. Version)
VSWR	≤ 1.1:1 in the operating channel
Polarization	Vertical or horizontal
Gain	5 dB (referred to half-wave dipole)
Pattern	E plane ± 40° H plane ± 90°
Lightning protection	No DC grounded

MECHANICAL DATA	
Dimensions	According to the working frequency 1500 (H) x 860 (L) x 100 (W) mm at 98 MHz
Weight	According to the working frequency (aluminium or stainless steel)
Wind surface	0.093 m <sup>2</sup> (at 98 MHz)
Wind load	12.1 kg (wind speed at 160 km/h)
Max wind velocity	200 km/h (AJ2E/IT model)
Materials	AJ2E: Aluminium elements and boom AJ2EBI: Aluminium elements and stainless steel boom AJ2E/INOX: Stainless steel elements and boom AJ2E/IT: Stainless steel elements and boom Tig Welded Version Teflon insulator Radome: fiberglass (option)
Icing protection	Feed point radome (optional)
Radome	Optional
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)



"These specifications are subject to change without notice"

# Model AJ2E – AJ2EBI – AJ2E/INOX – AJ2E/IT

Radiations systems with AJ2E antenna

Collinears systems

ELECTRICAL DATA	
Frequency range	87.5+108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.1:1 Max
Polarization	Vertical
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

MECHANICAL DATA	
Height of array	Subject to number of bays ( refer to table )
Total net weight	According to the working frequency
Wind load	Refer to table (at 98 MHz)
Pressurizable	No
Radome	Optional
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required

## TECHNICAL DATA

Number of bays	Dipole per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg	COLLINEARS SYSTEMS <sup>3</sup>				
		dB	times				800 W	1 KW	2 KW	3 KW	5 KW
1	1	5.0	3.1	-	1.5	12.1	AJ2E	AJ2E(HP)	-	-	-
2	1	8.0	6.3	-	4.1	24.2	-	AJ2EX21	-	-	-
4	1	11.0	12.7	-	9.3	48.4	AJ2EX41	-	AJ2EX42	AJ2EX43	-
6	1	12.8	18.9	-	14.5	72.6	AJ2EX61	-	AJ2EX62	AJ2EX63	-
8	1	14.0	25.2	-	19.7	96.8	AJ2EX81	-	AJ2EX82	-	AJ2EX85

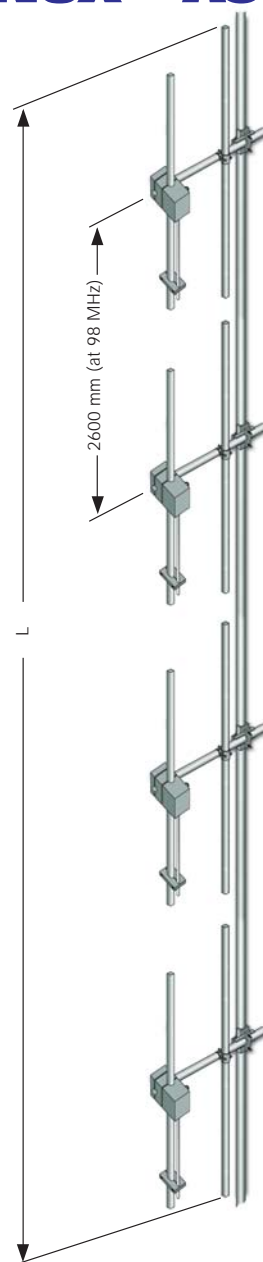
<sup>1</sup> Referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

<sup>3</sup> The systems comprised: antennas, cables and splitter – for more details to see catalog – different version on request.

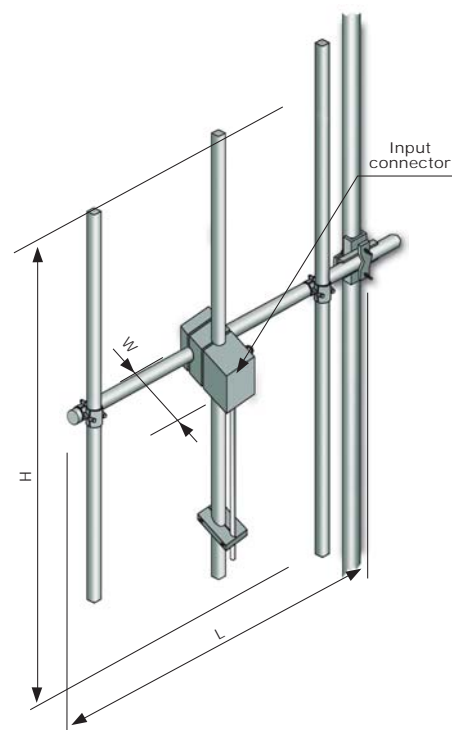
- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"



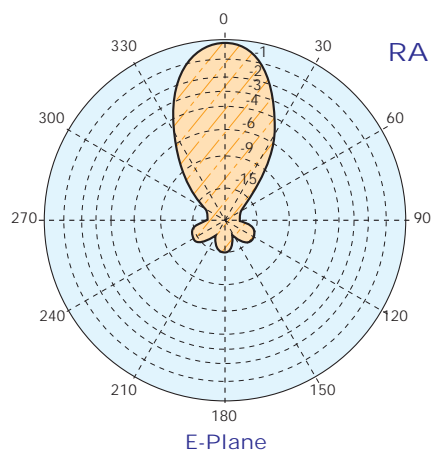
# Model AJ3E – AJ3EBI – AJ3E/INOX – AJ3E/IT

- High Power Version (H.P.)
- FM Band 87.5÷108 MHz
- Suitable for VHF, Band I and OIRT Band
- Gamma Match Tuned
- Directional pattern
- Vertical or horizontal polarization
- Light - Low Cost - Demountable

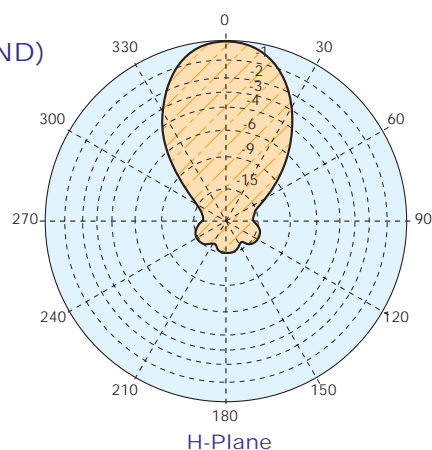


ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	N or 7/16" female or 7/8" EIA
Max Power	650W (N) – 1300W (7/16" – H.P. Version)
VSWR	≤ 1.1:1 in the operating channel
Polarization	Vertical or horizontal
Gain	7 dB (referred to half-wave dipole)
Pattern	E plane ± 25° H plane ± 30°
Lightning protection	No DC grounded

MECHANICAL DATA	
Dimensions	According to the working frequency 1500 (H) x 1480 (L) x 100 (W) mm at 98 MHz
Weight	According to the working frequency (aluminium or stainless steel)
Wind surface	0.14 m <sup>2</sup> (at 98 MHz)
Wind load	18 kg (wind speed at 160 km/h)
Max wind velocity	200 km/h (AJ3E/IT model)
Materials	AJ3E: Aluminium elements and boom AJ3EBI: Aluminium elements and stainless steel boom AJ3E/INOX: Stainless steel elements and boom AJ3E/IT: Stainless steel elements and boom Tig Welded Version Teflon insulator Radome: fiberglass (option)
Icing protection	Feed point radome (optional)
Radome	Optional
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)



"These specifications are subject to change without notice"



# Model AJ3E – AJ3EBI – AJ3E/INOX – AJ3E/IT

Radiations systems with AJ3E antenna

Collinears systems

ELECTRICAL DATA	
Frequency range	87.5+108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.1:1 Max
Polarization	Vertical
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

MECHANICAL DATA	
Height of array	Subject to number of bays ( refer to table )
Total net weight	According to the working frequency
Wind load	Refer to table (at 98 MHz)
Pressurizable	No
Radome	Optional
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required

## TECHNICAL DATA

Number of bays	Dipole per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg	COLLINEARS SYSTEMS <sup>3</sup>				
		dB	times				800 W	1 KW	2 KW	3 KW	5 KW
1	1	7.0	5.0	-	1.5	18	AJ3E	AJ3E(HP)	-	-	-
2	1	10.0	10.0	-	4.1	36	-	AJ3EX21	-	-	-
4	1	13.0	20.0	-	9.3	72	AJ3EX41	-	AJ3EX42	AJ3EX43	-
6	1	14.8	30.0	-	14.5	108	AJ3EX61	-	AJ3EX62	AJ3EX63	-
8	1	16.0	40.0	-	19.7	144	AJ3EX81	-	AJ3EX82	-	AJ3EX85

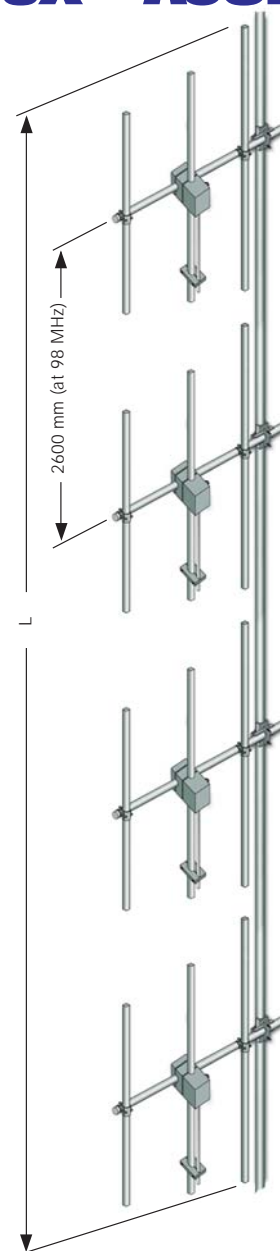
<sup>1</sup> Referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

<sup>3</sup> The systems comprised: antennas, cables and splitter – for more details to see catalog – different version on request.

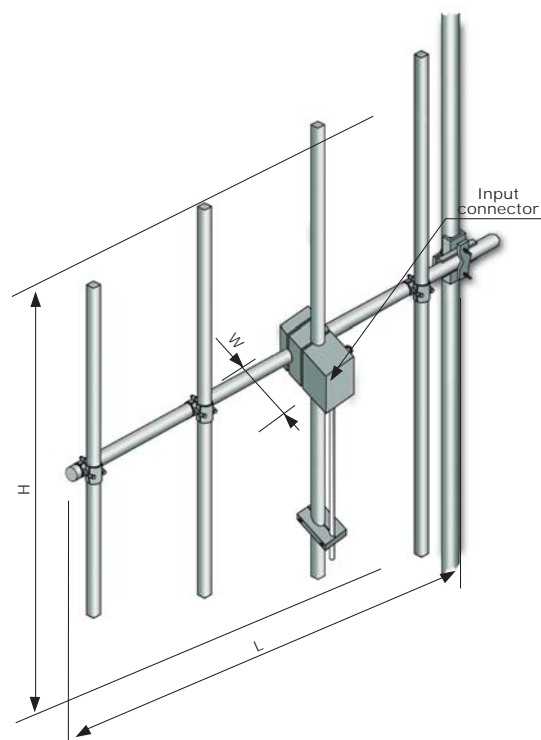
- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"



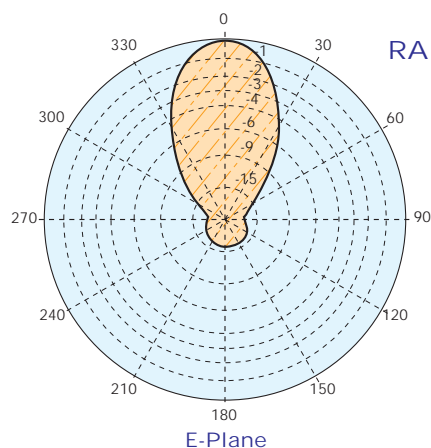
# Model AJ4E – AJ4EBI – AJ4E/INOX – AJ4E/IT

- High Power Version (H.P.)
- FM Band 87.5÷108 MHz
- Suitable for VHF, Band I and OIRT Band
- Gamma Match Tuned
- Directional pattern
- Vertical or horizontal polarization
- Light - Low Cost - Demountable

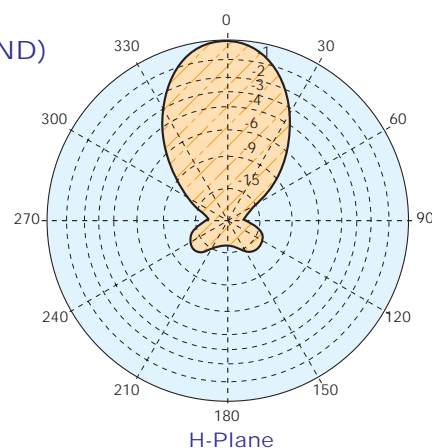


ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	N or 7/16" female or 7/8" EIA
Max Power	650W (N) – 1300W (7/16" – H.P. Version)
VSWR	≤ 1.1:1 in the operating channel
Polarization	Vertical or horizontal
Gain	8 dB (referred to half-wave dipole)
Pattern	E plane ± 25° H plane ± 30°
Lightning protection	No DC grounded

MECHANICAL DATA	
Dimensions	According to the working frequency 1500 (H) x 2090 (L) x 100 (W) mm at 98 MHz
Weight	According to the working frequency (aluminium or stainless steel)
Wind surface	0.18 m <sup>2</sup> (at 98 MHz)
Wind load	23.3 kg (wind speed at 160 km/h)
Max wind velocity	180 km/h (AJ4E/IT model)
Materials	AJ4E: Aluminium elements and boom AJ4EBI: Aluminium elements and stainless steel boom AJ4E/INOX: Stainless steel elements and boom AJ4E/IT: Stainless steel elements and boom Tig Welded Version Teflon insulator Radome: fiberglass (option)
Icing protection	Feed point radome (optional)
Radome	Optional
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)



"These specifications are subject to change without notice"

# Model AJ4E – AJ4EBI – AJ4E/INOX – AJ4E/IT

Radiations systems with AJ4E antenna

Collinears systems

ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.1:1 Max
Polarization	Vertical
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

MECHANICAL DATA	
Height of array	Subject to number of bays ( refer to table )
Total net weight	According to the working frequency
Wind load	Refer to table (at 98 MHz)
Pressurizable	No
Radome	Optional
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required

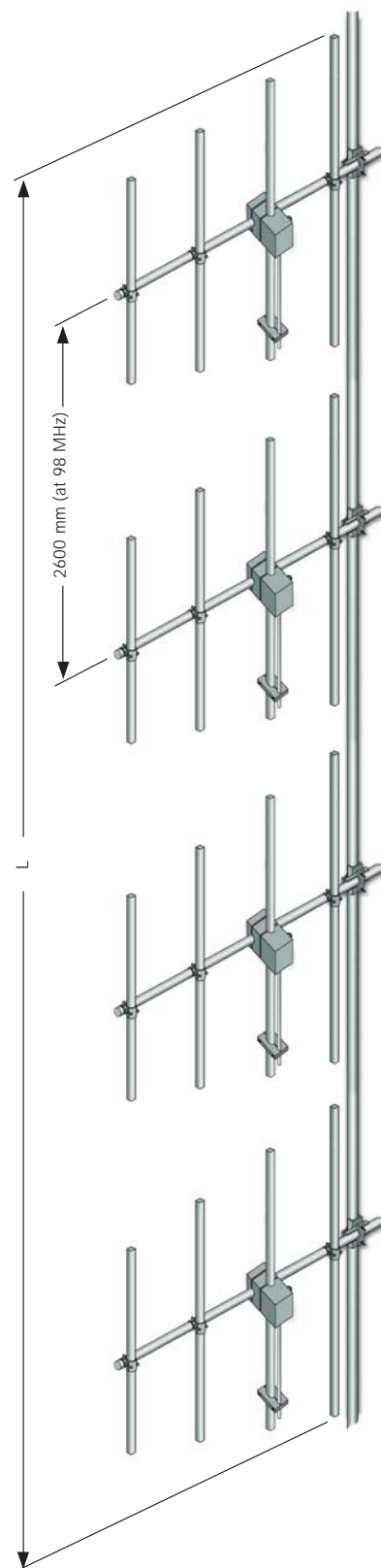
TECHNICAL DATA						
Number of bays	Dipole per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg
		dB	times			
1	1	8.0	6.3	-	1.5	23.3
2	1	11.0	12.6	-	4.1	46.6
4	1	14.0	25.2	-	9.3	93.2
6	1	15.8	37.8	-	14.5	139.8
8	1	17.0	50.4	-	19.7	186.4

<sup>1</sup> Referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

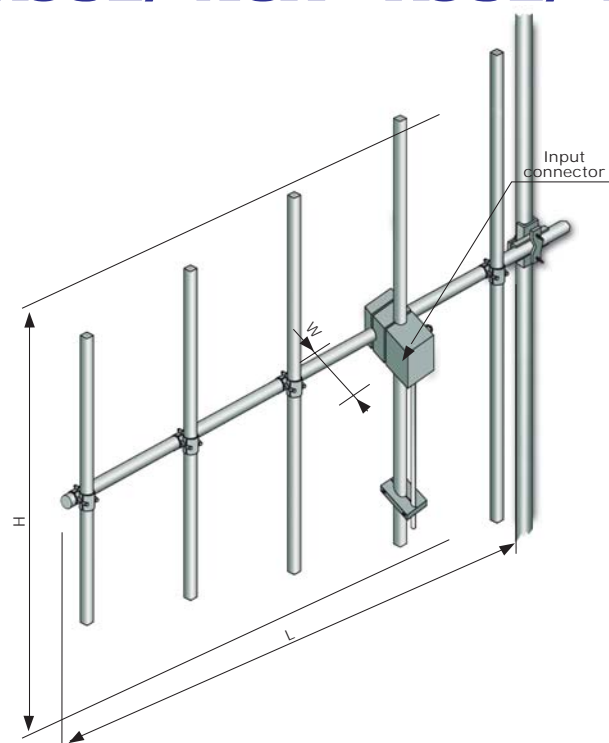
- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"



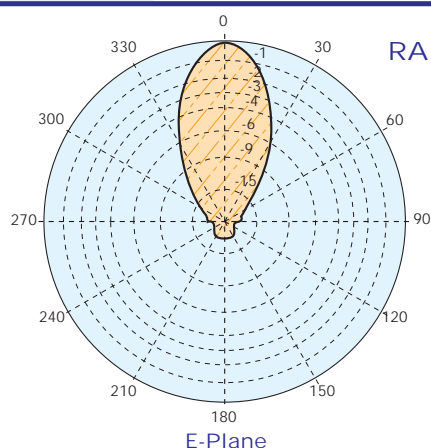
# Model AJ5E – AJ5EBI – AJ5E/INOX – AJ5E/IT

- High Power Version (H.P.)
- FM Band 87.5÷108 MHz
- Suitable for VHF, Band I and OIRT Band
- Gamma Match Tuned
- Directional pattern
- Vertical or horizontal polarization
- Light - Low Cost - Demountable

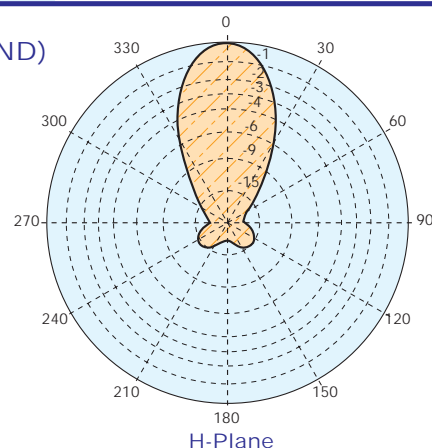


ELECTRICAL DATA	
Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	N or 7/16" female or 7/8" EIA
Max Power	650W (N) – 1300W (7/16" – H.P. Version)
VSWR	≤ 1.1:1 in the operating channel
Polarization	Vertical or horizontal
Gain	9.5 dB (referred to half-wave dipole)
Pattern	E plane ± 20° H plane ± 22°
Lightning protection	No DC grounded

MECHANICAL DATA	
Dimensions	According to the working frequency 1500 (H) x 2700 (L) x 100 (W) mm at 98 MHz
Weight	According to the working frequency (aluminium or stainless steel)
Wind surface	0.23 m <sup>2</sup> (at 98 MHz)
Wind load	30 kg (wind speed at 160 km/h)
Max wind velocity	160 km/h (AJ5E/IT model)
Materials	AJ5E: Aluminium elements and boom AJ5EBI: Aluminium elements and stainless steel boom AJ5E/INOX: Stainless steel elements and boom AJ5E/IT: Stainless steel elements and boom Tig Welded Version Teflon insulator Radome: fiberglass (option)
Icing protection	Feed point radome (optional)
Radome	Optional
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)



"These specifications are subject to change without notice"

# Model AJ5E – AJ5EBI – AJ5E/INOX – AJ5E/IT

Radiations systems with AJ5E antenna

Collinears systems

ELECTRICAL DATA	
Frequency range	87.5+108 MHz
Impedance	50 Ohm
Connector	EIA flange according to system power rating
VSWR	≤ 1.1:1 Max
Polarization	Vertical
Gain	According to requirement
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

MECHANICAL DATA	
Height of array	Subject to number of bays ( refer to table )
Total net weight	According to the working frequency
Wind load	Refer to table (at 98 MHz)
Pressurizable	No
Radome	Optional
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required

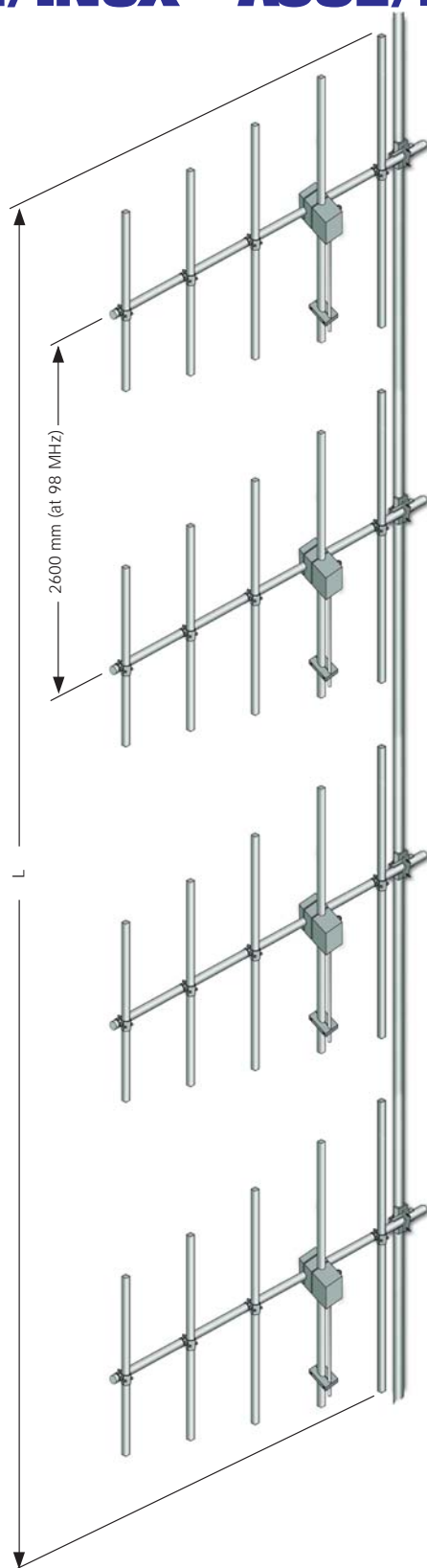
TECHNICAL DATA						
Number of bays	Dipole per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg
		dB	times			
1	1	9.5	8.9	-	1.5	30
2	1	12.5	17.8	-	4.1	60
4	1	15.5	35.6	-	9.3	120
6	1	17.3	53.4	-	14.5	180
8	1	18.5	71.3	-	19.7	240

<sup>1</sup> Referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

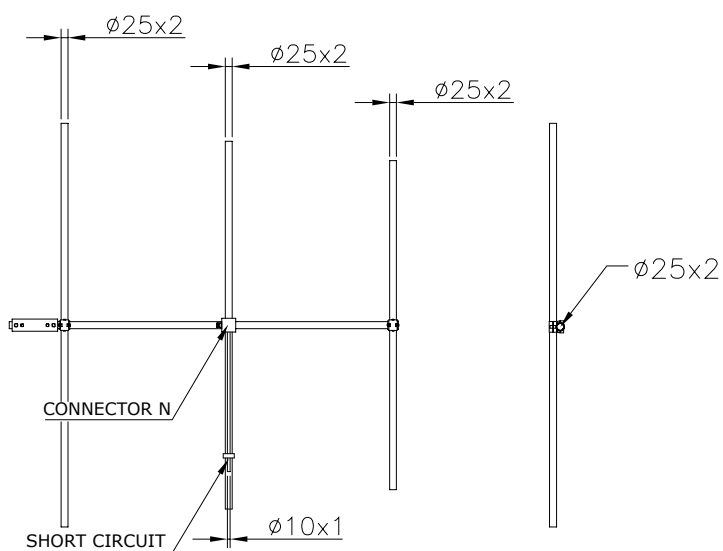
- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"



# DETAILED LIST TUNED ANTENNA

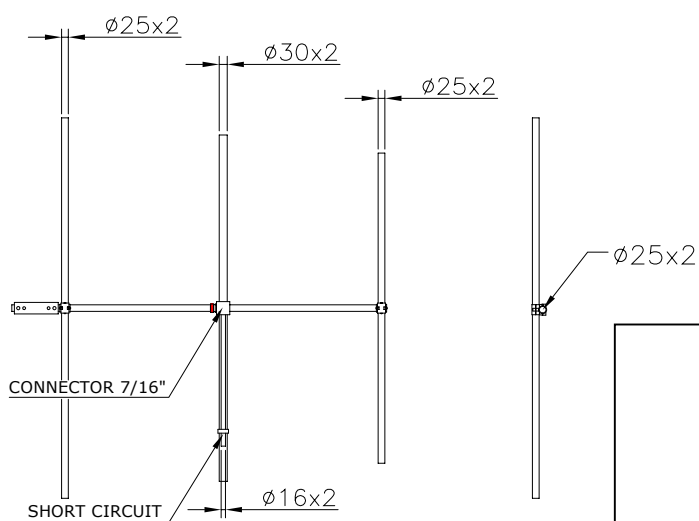
## STANDARD VERSION ALUMINIUM/INOX CONNECTOR N



EXAMPLE WITH 3 ELEMENTS



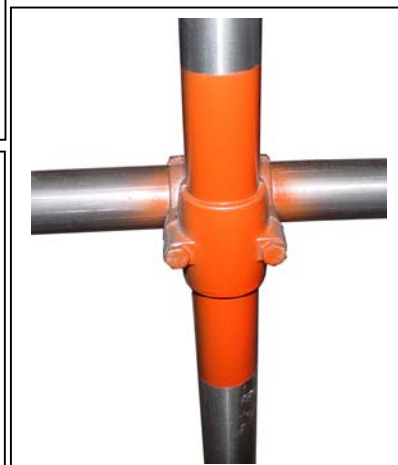
## STANDARD VERSION ALUMINIUM/INOX CONNECTOR 7/16" – 7/8"



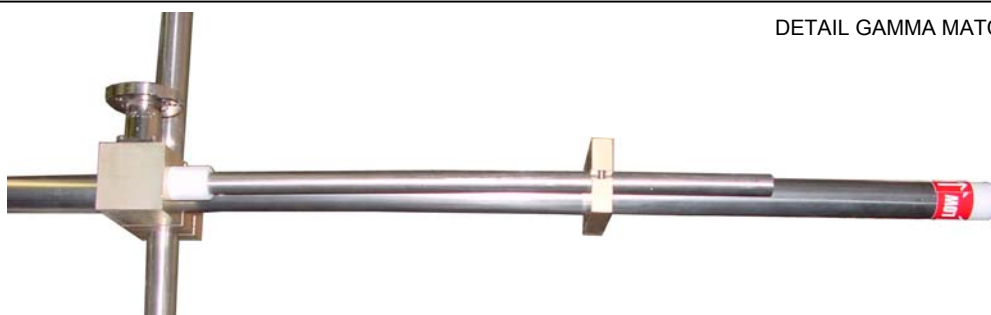
EXAMPLE WITH 3 ELEMENTS



←  
DETAIL ELEMENTS ↓

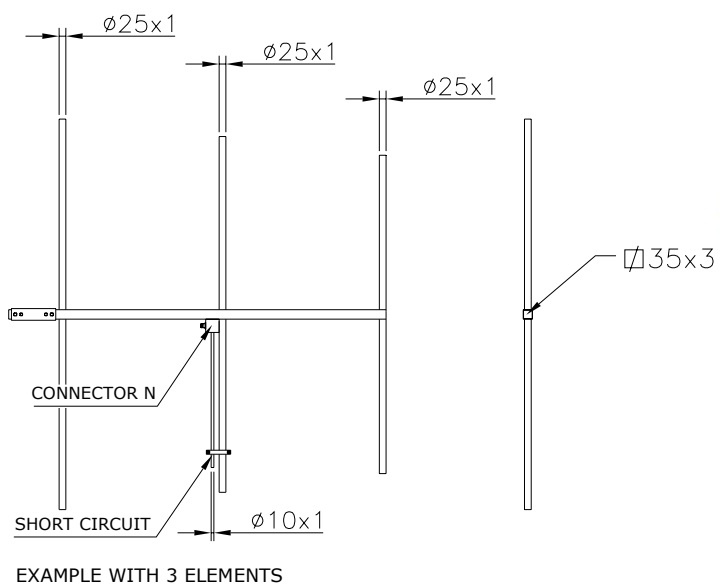


DETAIL GAMMA MATCH





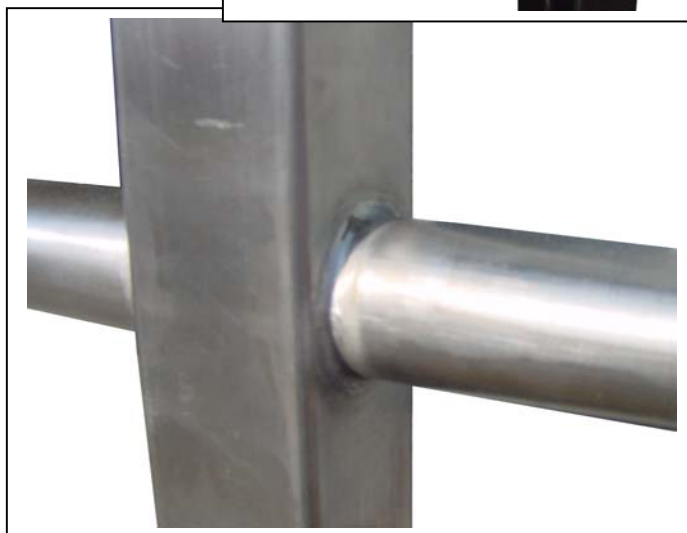
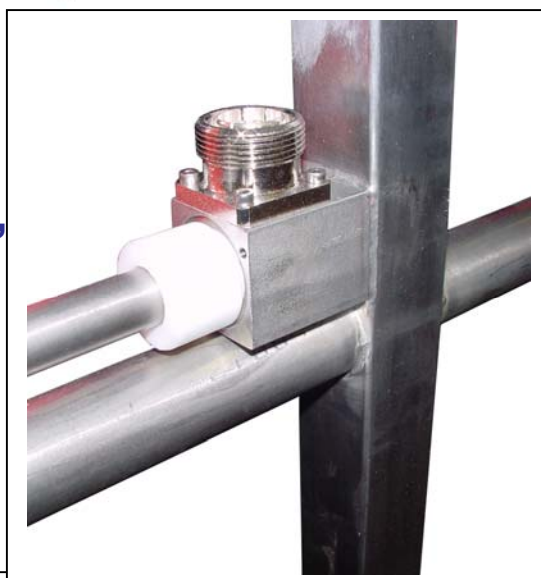
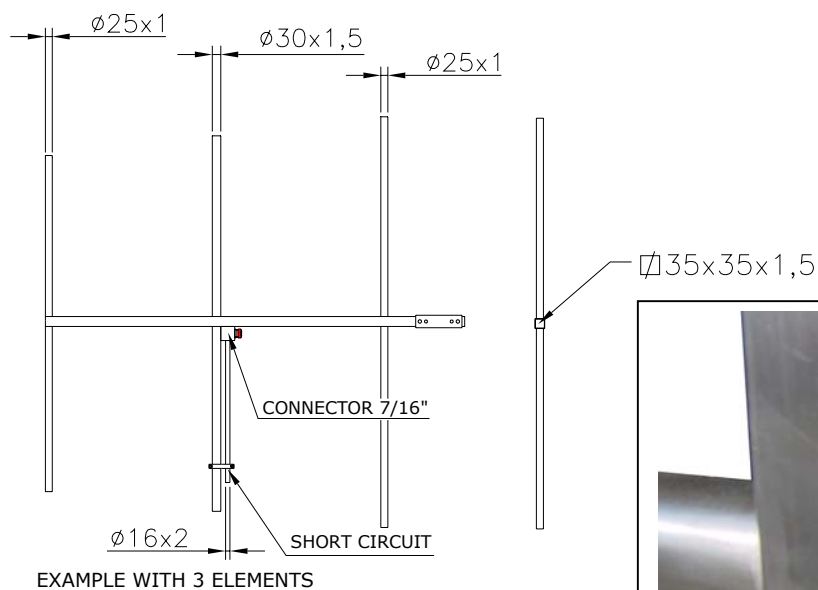
## WELDED VERSION INOX CONNECTOR N



DETAIL CONNECTOR (7/16")

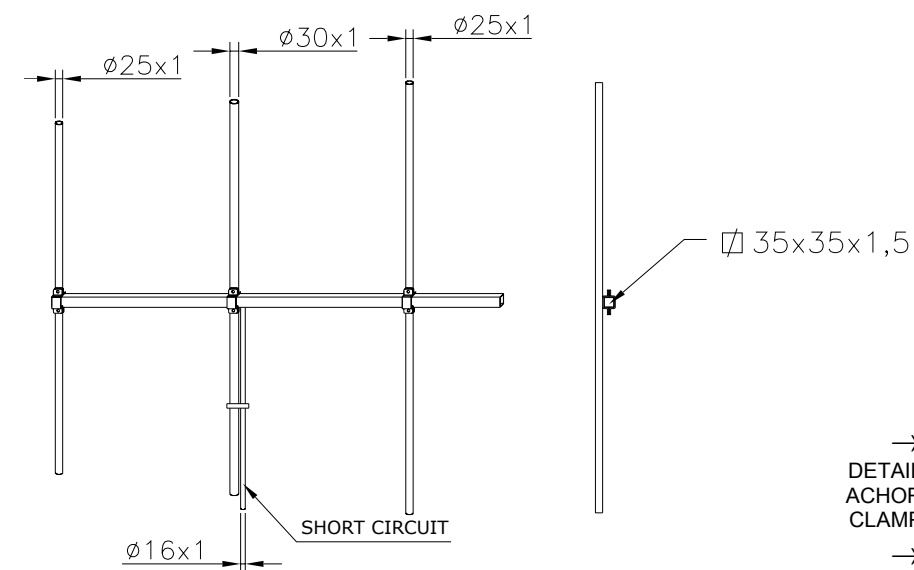


## WELDED VERSION INOX CONNECTOR 7/16"



↑ DETAIL WELDED ELEMENT

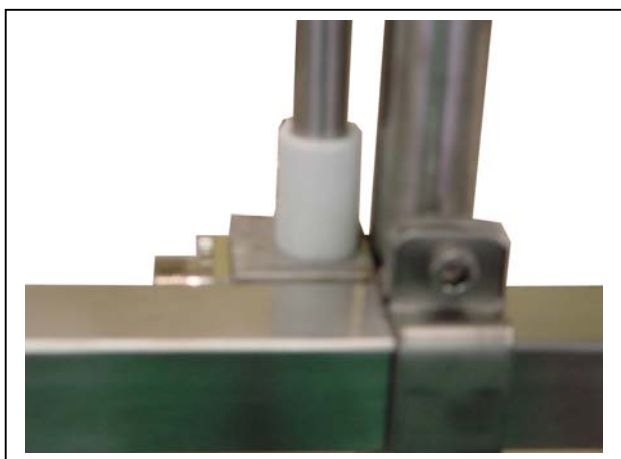
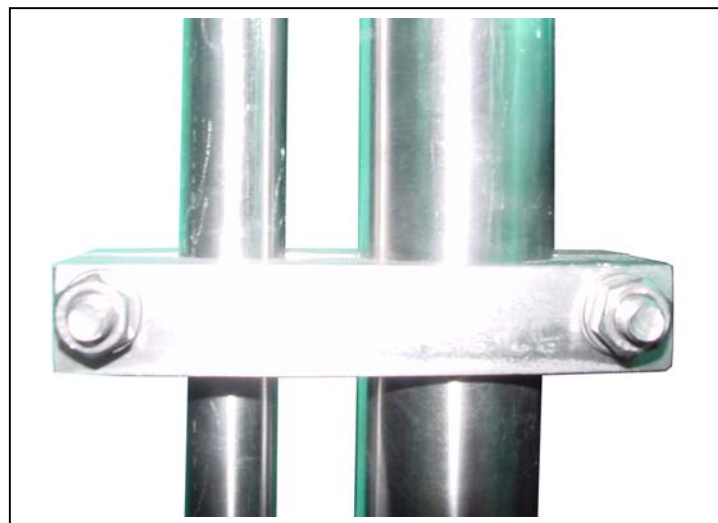
## DEMOUNTABLE VERSION INOX CONNECTOR N 7/16"



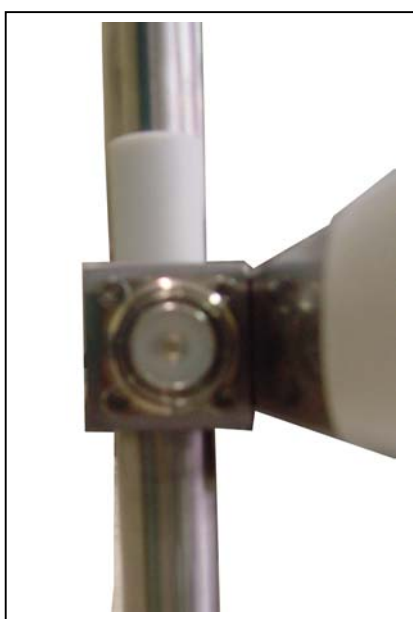
→  
DETAIL  
ANCHOR  
CLAMP  
→



DETAIL GAMMA MATCH ↓



↑  
DETAIL  
CONNECTOR (7/16")  
←

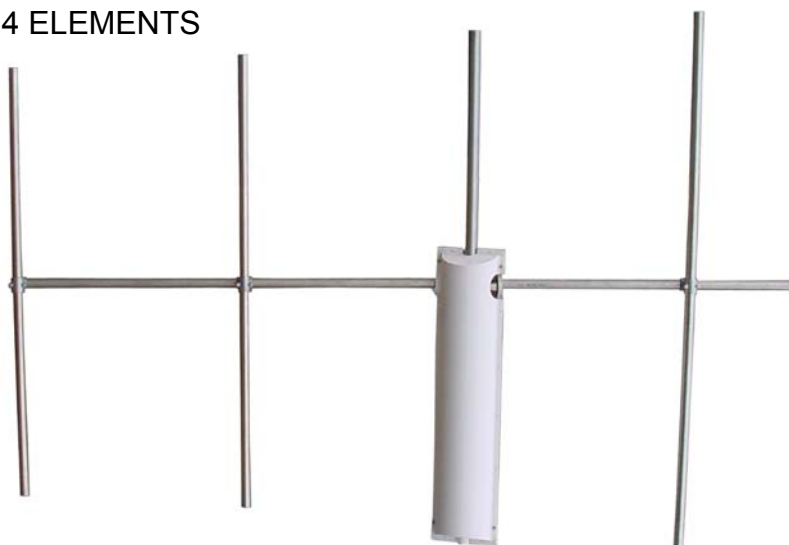


**DEMOUNTABLE: PARTICULAR VERSION INOX**



## OPTION RADOME

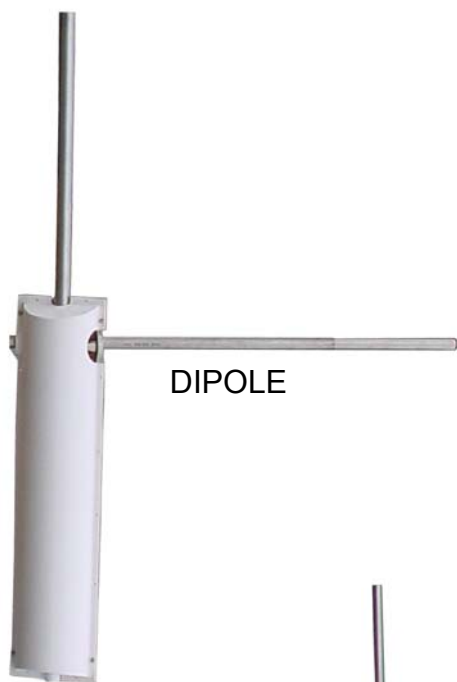
4 ELEMENTS



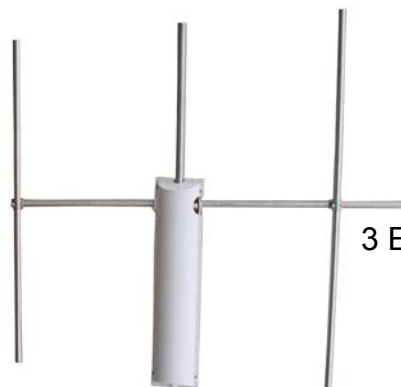
2 ELEMENTS



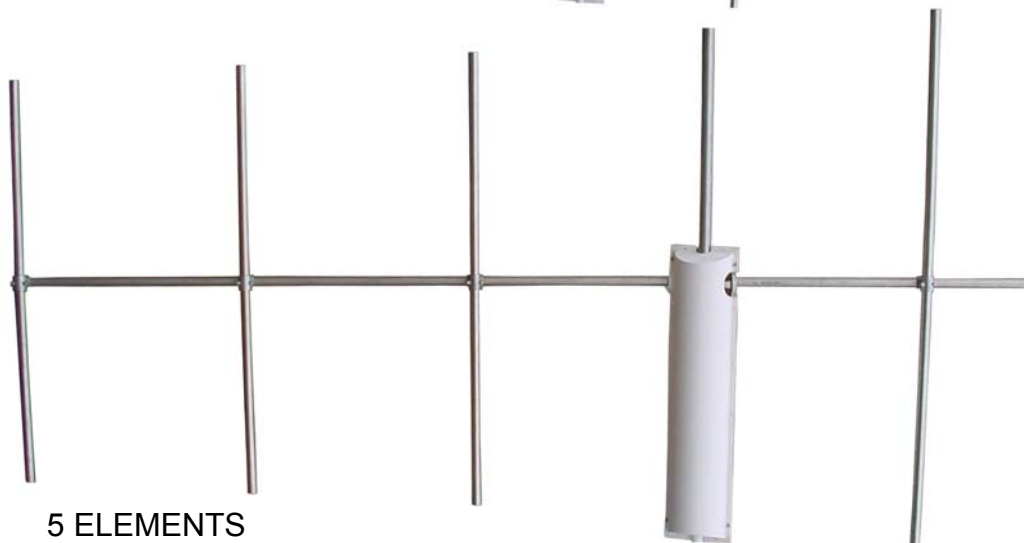
DIPOLE



3 ELEMENTS



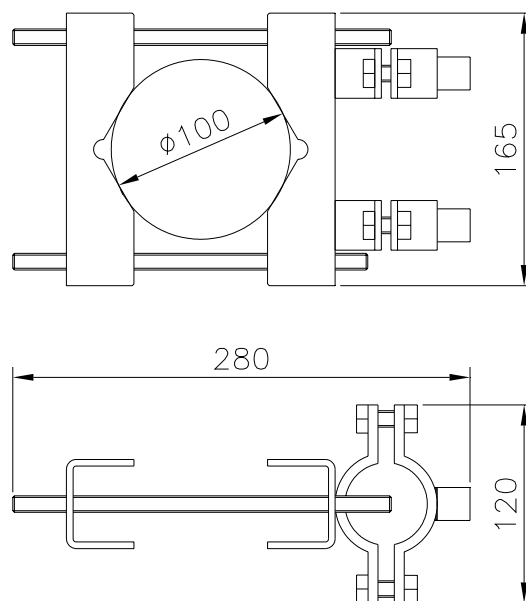
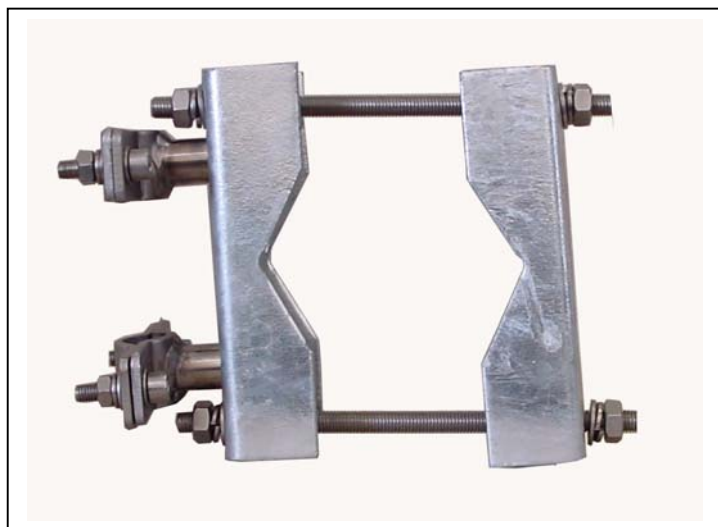
5 ELEMENTS



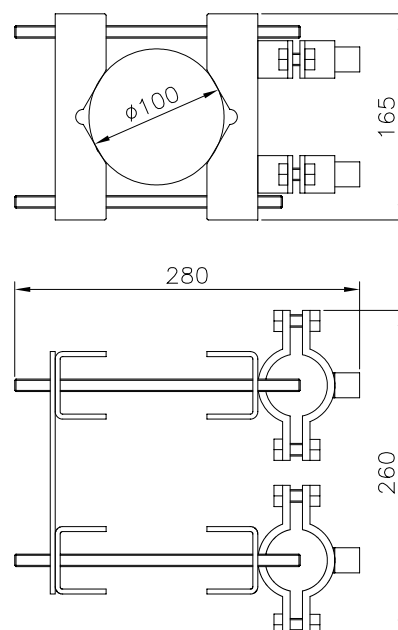
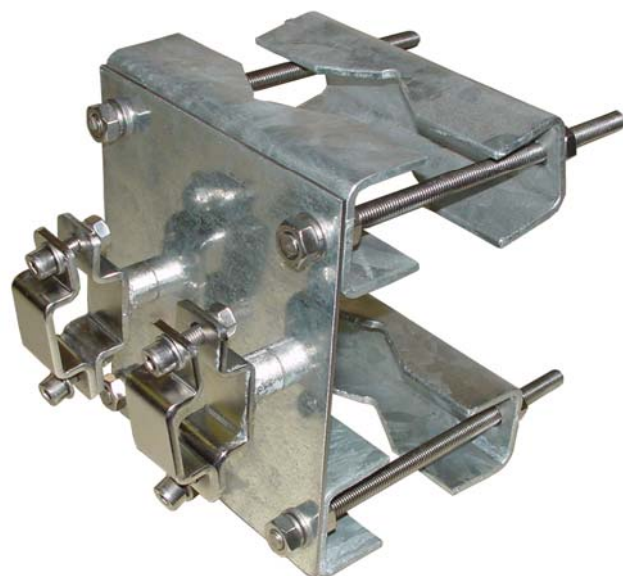
"These specifications are subject to change without notice"

# SUPPORT

## STANDARD CLAMP



## REINFORCED CLAMP (DOUBLE CLAMP)



## Model : ACP0H

- **Band II**
- **FM Band 87.5÷108 MHz**
- **Horizontal Polarization**
- **Omnidirectional Pattern**
- **Tuned antenna**
- **No Pressurization Needed**
- **Economical**
- **Digital Ready**
- **Stainless steel AISI 304**



### ELECTRICAL DATA

Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	N female
Max Power	700W
VSWR $\pm 100\text{KHz}$	$\leq 1.1:1$
Polarization	Horizontal
Gain	-0.3 dB (ref.to to half wave dipole)
Pattern	Omnidirectional $\pm 1.5$ dB with 100 mm dia. pole
Lightning protection	All metal parts DC grounded

### MECHANICAL DATA

Dimensions	360x360x100 mm
Net Weight	2 Kg without clamp
Wind surface	0.0384 m <sup>2</sup>
Wind load	6,5 kg (wind speed at 160 km/h)
Max wind velocity	220 km/h.
Materials	External parts: stainless steel, Plexiglas Internal parts: silver plated brass
Mounting	With special pipe clamps 50 ÷ 110 mm dia.

## Radiations systems with ACP0H antenna

### Collinear systems

#### MECHANICAL DATA

Height of array	Subject to number of bays (refer to table)
Total net weight	Refer to table
Wind load	Refer to table
Pressurizable	Yes (on request)
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required

#### ELECTRICAL DATA

Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	N female
VSWR $\pm 100\text{KHz}$	1.1:1 in the operating channel
Polarization	Horizontal
Gain	Refer to table
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power.



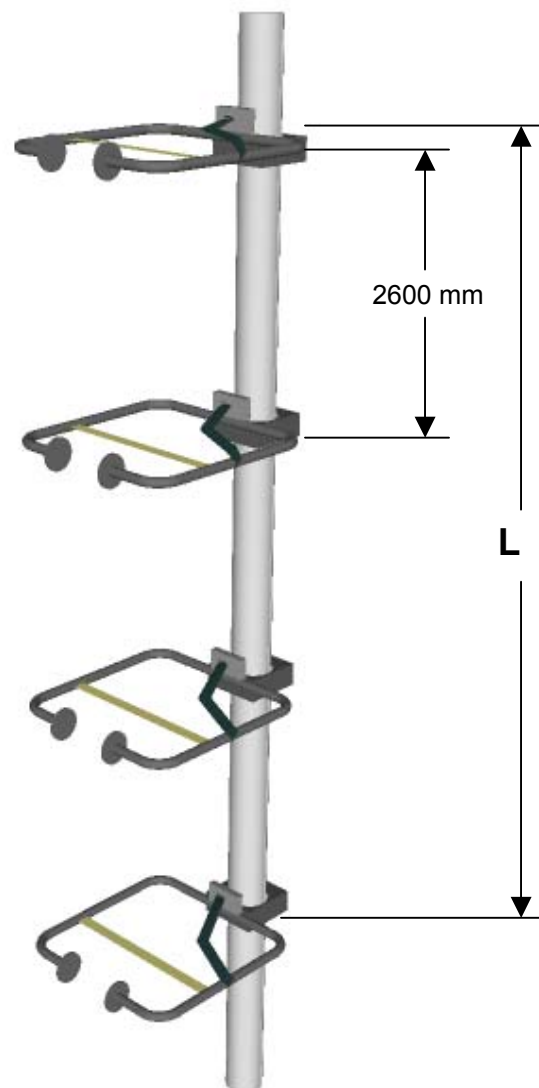
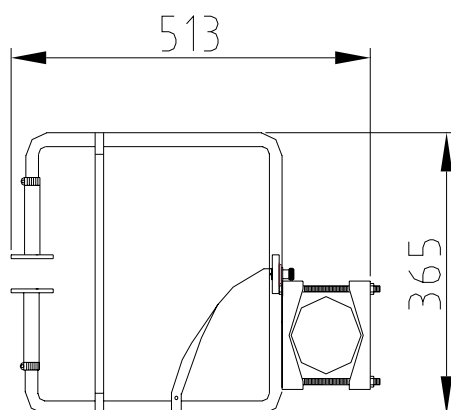
## TECHNICAL DATA

of bays	Dipoles per bay	Gain <sup>1</sup>				(v=160 km/h) kg
		dB				
	1	2.7	1.8	4		13.0
	1	4.5	2.8	6		19.5
	1	5.7	3.7	8		26.0
	1	7.5	5.6	12		39.0
	1	8.7	7.5	16		52.0

<sup>1</sup> referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> without mounting hardware

## DIMENSIONS



- Gain is provided for Horizontal polarization.
- When antenna is pole mounted on the top a tower the horizontally polarized radiation pattern is omni - directional.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

## Model : ACPO

- **Band II**
- **FM Band 87.5÷108 MHz**
- **Tuned antenna**
- **True circular polarization**
- **Stainless steel AISI 304**



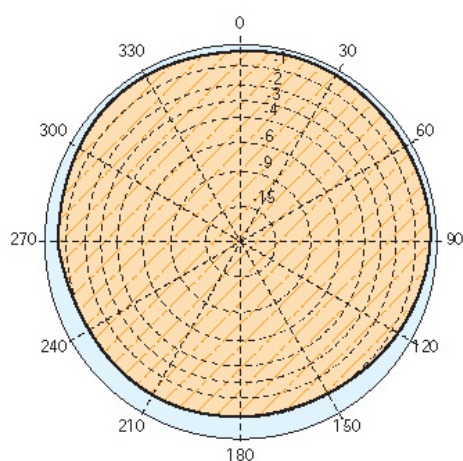
### ELECTRICAL DATA

Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	N female
Max Power	800W (N female)
VSWR $\pm$ 100KHz	$\leq 1.1:1$
Polarization	Right circular
Gain	-3.4 dB
Pattern	Omnidirectional $\pm 1.5$ dB in free space Omnidirectional $\pm 3$ dB with 100 mm dia. pole
Lightning protection	All metal parts DC grounded

### MECHANICAL DATA

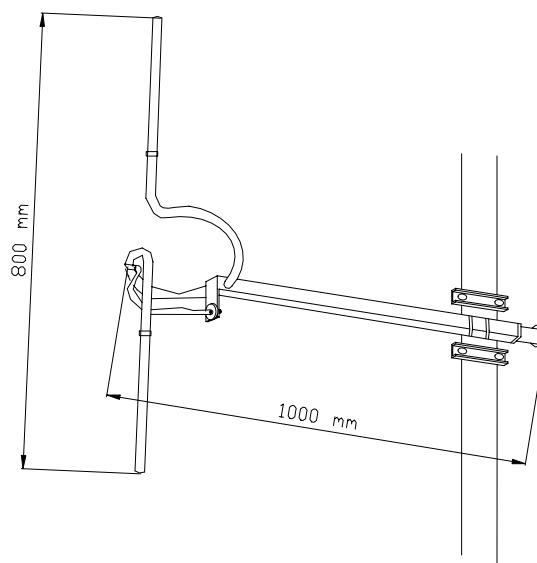
Dimensions	1000x300x800 mm
Net Weight	3 Kg without clamp 5.5 Kg with clamp
Wind surface	0.036 m <sup>2</sup>
Wind load	6 kg (wind speed at 160 km/h)
Max wind velocity	220 km/h.
Materials	External parts: stainless steel Internal parts: silver plated brass
Mounting	With special pipe clamps 50 ÷ 110 mm dia.

### RADIATION PATTERN (MID BAND)



**H-plane**

### DIMENSIONS



# Model ACP0

Radiations systems with ACP0 antenna

Collinears systems

ELECTRICAL DATA	
Frequency range	87.5+108 MHz
Impedance	50 Ohm
Connector	N female
VSWR	≤ 1.1:1 in the operating channel
Polarization	Circular
Gain	Refer to table
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

MECHANICAL DATA	
Height of array	Subject to number of bays (refer to table)
Total net weight	According to the working frequency
Wind load	Refer to table (at 98 MHz)
Pressurizable	No
Mounting hardware	Hot dip galvanized steel clamps (option)
Shipping	As required

## TECHNICAL DATA

Number of bays	Dipole per bay	Gain <sup>1</sup>		Weight <sup>2</sup> kg	Antenna height L m	Wind load (v=160 km/h) kg	Pipe Length m	Tower space m	COLLINEARS SYSTEMS <sup>3</sup>				
		dB	times						800 W	1 KW	2 KW	3 KW	5 KW
1	1	-3.4	0.46	5.5	1.4	6	3.1	10	ACP0	-	-	-	-
2	1	-0.0	0.99	11.0	4.0	12	6.1	20	-	ACP0X21	-	-	-
3	1	1.9	1.55	16.5	9.2	18	9.1	30	-	-	-	-	-
4	1	3.2	2.12	22.0	14.4	24	12.2	40	ACP0X41	-	ACP0X42	ACP0X43	-
5	1	4.3	2.70	27.5	19.6	30	15.2	50	-	-	-	-	-
6	1	5.2	3.28	33.0	9.2	36	18.3	60	ACP0X61	-	ACP0X62	ACP0X63	-
8	1	6.5	4.40	44.0	14.4	48	24.4	80	ACP0X81	-	ACP0X82	-	ACP0X85
12	1	8.4	6.85	66.0	19.6	72	36.6	120	-	-	-	-	-

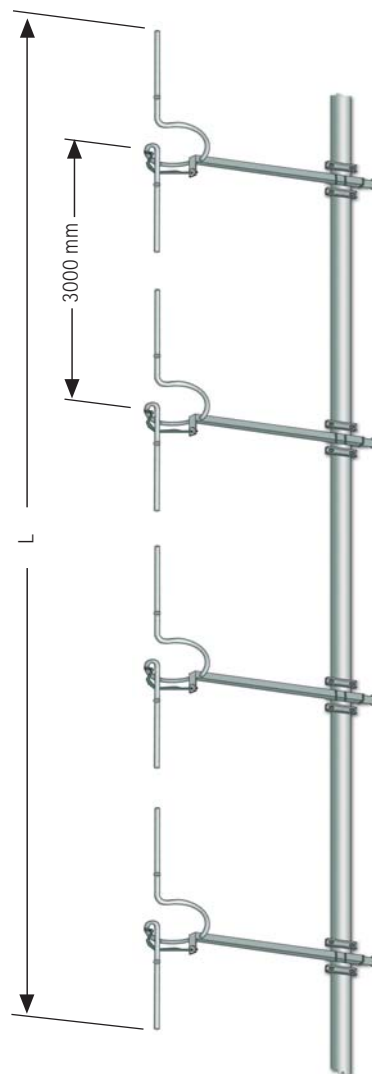
<sup>1</sup> Referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> Without mounting hardware.

<sup>3</sup> The systems comprised: antennas, cables and splitter – for more details to see catalog – different version on request.

- Gain is provided for vertical polarization.
- When antenna is pole mounted on the top a tower the horizontally polarized radiation pattern is omni - directional.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"



## Model : ACP0HP

- **Band II**
- **FM Band 87.5÷108 MHz**
- **True Circular Polarization**
- **Tuned antenna**
- **Economical**
- **Digital Ready**
- **Stainless steel AISI 304**
- **Adjustable Fine-Matching Transformer (OPTION)**



### ELECTRICAL DATA

Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connectors	7/8" (3KW) or 7/16" (2KW)
Max Power	3 KW
VSWR $\pm 100\text{KHz}$	$\leq 1.1:1$
Polarization	Right Circular
Gain	-3.4 dB (referred to half wave dipole)
Azimuth Pattern Circularity:	Omnidirectional $\pm 1.5$ dB in free space Omnidirectional $\pm 3$ dB with 100 mm dia. pole
Lightning protection	All metal parts DC grounded

### MECHANICAL DATA

Dimensions	1200x375x775 (HxWxL) mm
Net Weight	6 Kg without clamp 8,5 Kg with clamp
Wind surface	0.072 m <sup>2</sup>
Wind load	11.5 kg (wind speed at 160 km/h) Side
Max wind velocity	220 km/h.
Materials	External parts: stainless steel, plexiglas Internal parts: silver plated brass
Mounting	With special pipe clamps 50 ÷ 110 mm dia.

## Radiations systems with ACP0HP antenna - Collinear systems

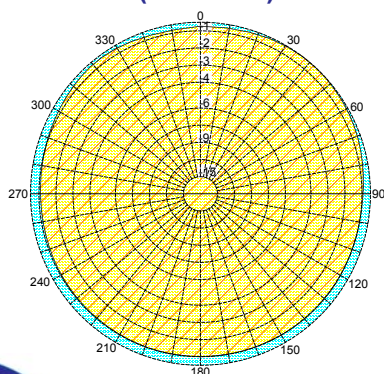
### MECHANICAL DATA

Height of array	Subject to number of bays ( refer to table )
Total net weight	Refer to table
Wind load	Refer to table
Pressurizable	Yes (on request)
Mounting hardware	Hot dip galvanized steel clamps
Shipping	As required

### ELECTRICAL DATA

Frequency range	87.5÷108 MHz
Impedance	50 Ohm
Connector	N female
VSWR $\pm 100\text{KHz}$	1.1:1 in the operating channel
Polarization	Circular
Gain	Refer to table
Horizontal pattern	Any type according to requirements
Vertical pattern	Null fill, beam tilt and special requirements to order
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

### RADIATION PATTERN FREE SPACE (MID BAND)



## TECHNICAL DATA (FULL-WAVE-SPACED)

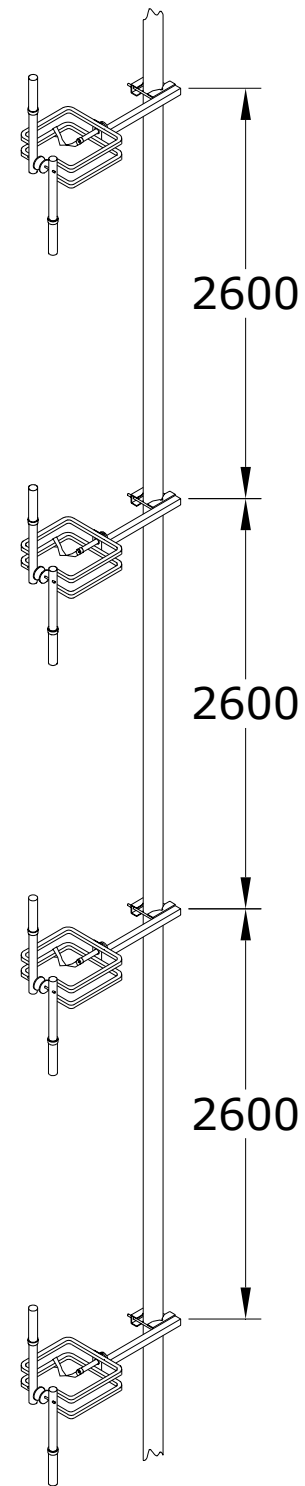
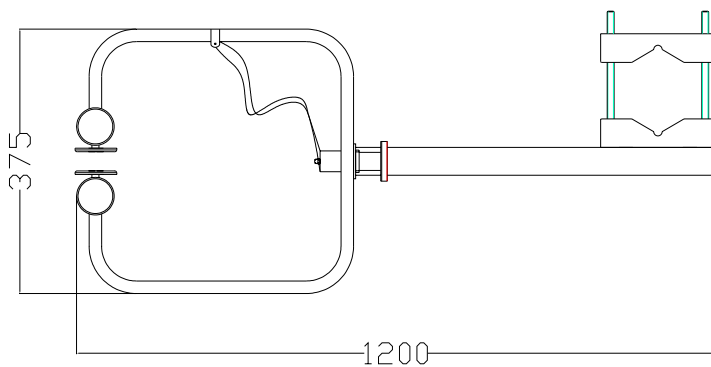
Number of bays	Dipoles per bay	Gain <sup>1</sup>		Weight <sup>2</sup> Kg	Antenna height L m	Wind load (v=160 km/h) kg
		dB	times			
1	1	-3.4	0.5	6	---	11.5
2	1	0.0	1.0	12	3.6	23
4	1	3.2	2.1	24	8.8	46
6	1	5.2	3.3	36	14.0	69
8	1	6.5	4.5	48	21.8	92
12	1	8.4	6.9	72	29.6	138

<sup>1</sup> referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> without mounting hardware

<sup>3</sup> without radome

## DIMENSIONS



- Gain is provided for Horizontal polarization.
- When antenna is pole mounted on the top of a tower the horizontally polarized radiation pattern is omni - directional.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- Five ft (1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.





# GENERAL CATALOG

200÷300 MHz ANTENNAS 42

300÷500 MHz ANTENNAS 44

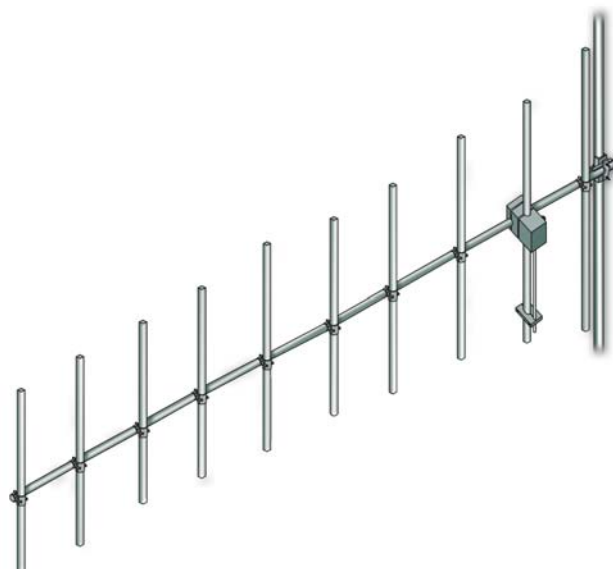
900 MHz PANEL ANTENNA 46

1.6 GHz ANTENNAS  
(Yagi and Panel) 47

2.5 GHz ANTENNAS  
(Yagi and Panel) 49

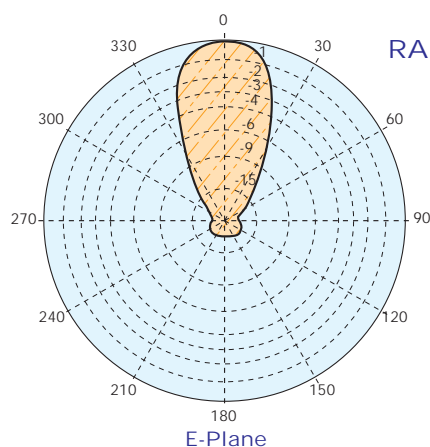
# Model AR102 – AR102I – AR102IS

- Yagi Antenna
- 200÷300 MHz
- Gamma Match Tuned
- Vertical or Horizontal polarization
- Directional Pattern

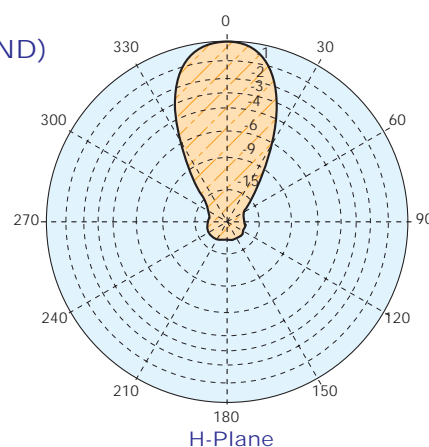


ELECTRICAL DATA	
Frequency range	200÷300 MHz
Impedance	50 Ohm
Connectors	N
Max Power	300W (N)
VSWR	≤ 1.1:1 in the working frequency
Polarization	Horizontal or Vertical
Gain	12 dB (referred to half-wave dipole)
Pattern	E plane ± 20° H plane ± 22°

MECHANICAL DATA	
Dimensions	According to the working frequency (2400 x 590 x 50 mm at 250 MHz)
Weight	According to the working frequency and material used (aluminium or stainless steel)
Wind surface	0.17 m <sup>2</sup> (at 250 MHz)
Wind load	22 kg (wind speed at 160 km/h)
Max wind velocity	120 km/h (AR102I / AR102IS)
Materials	AR102: Aluminium elements and stainless steel boom AR102I: Stainless steel elements and boom AR102IS: Stainless steel elements and boom Tig Welded Teflon insulator
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)

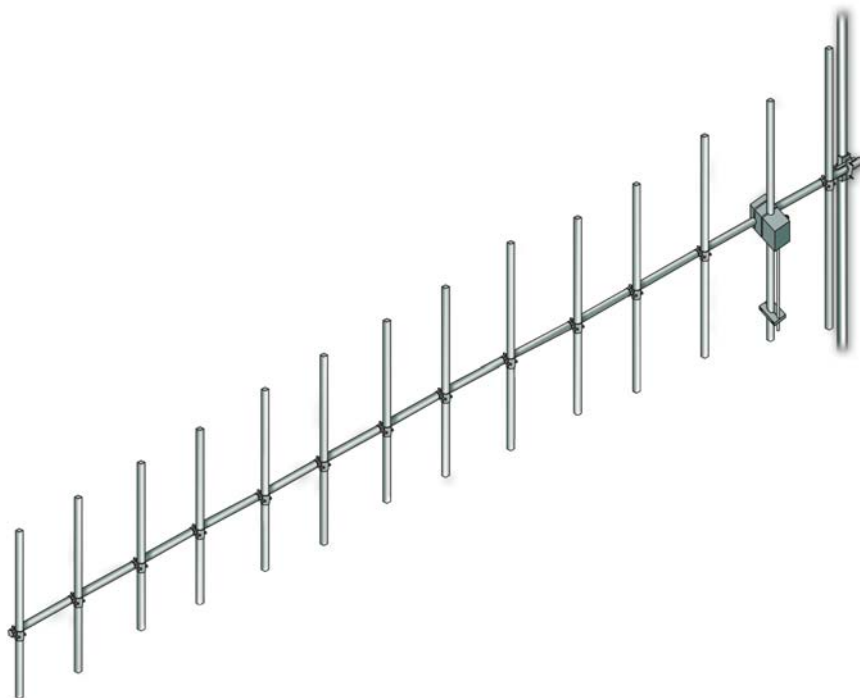


- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Actual values vary with the specific installation. Contact us for more details of your installation.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

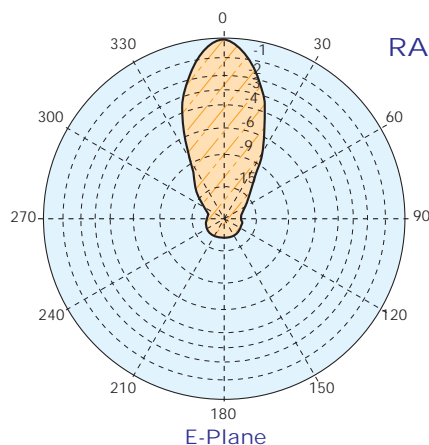
# Model AR142 – AR142I – AR142IS

- Yagi Antenna
- 200÷300 MHz
- Gamma Match Tuned
- Vertical or Horizontal polarization
- Directional Pattern

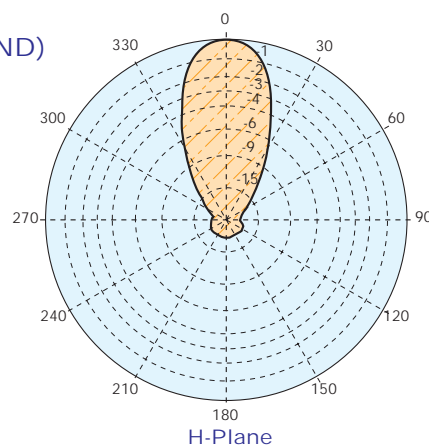


ELECTRICAL DATA	
Frequency range	200÷300 MHz
Impedance	50 Ohm
Connectors	N
Max Power	300W (N)
VSWR	≤ 1.1:1 in the working frequency
Polarization	Horizontal or Vertical
Gain	13 dB (referred to half-wave dipole)
Pattern	E plane ± 18° H plane ± 20°

MECHANICAL DATA	
Dimensions	According to the working frequency (3360 x 590 x 50 mm at 250 MHz)
Weight	According to the working frequency and material used (aluminium or stainless steel)
Wind surface	0.22 m <sup>2</sup> (at 250 MHz)
Wind load	28.5 kg (wind speed at 160 km/h)
Max wind velocity	100 km/h (AR142I / AR142IS)
Materials	AR142: Aluminium elements and stainless steel boom AR142I: Stainless steel elements and boom AR142IS: Stainless steel elements and boom Tig Welded Teflon insulator
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)

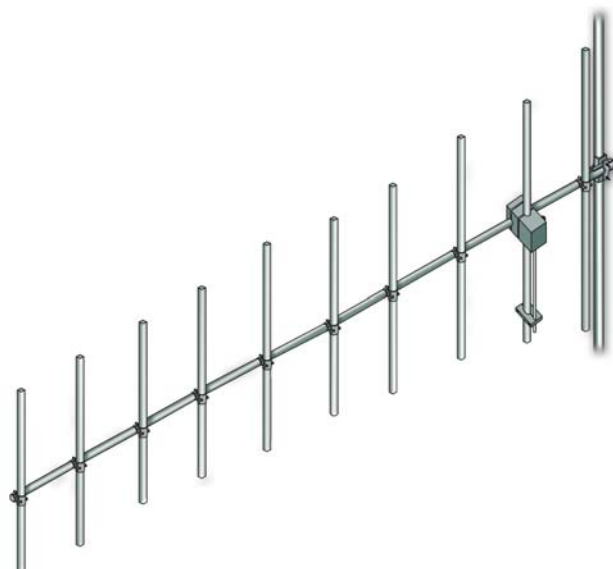


- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Actual values vary with the specific installation. Contact us for more details of your installation.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

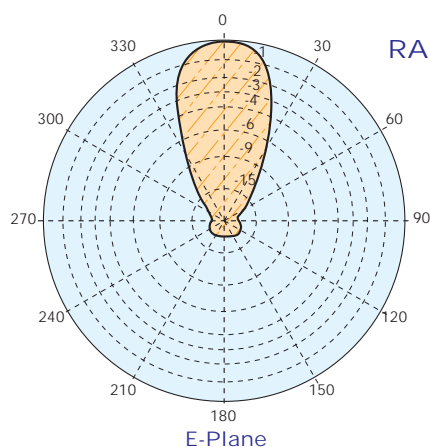
# Model AR10 – AR10I – AR10IS

- Yagi Antenna
- 300÷500 MHz
- Gamma Match Tuned
- Vertical or Horizontal polarization
- Directional Pattern

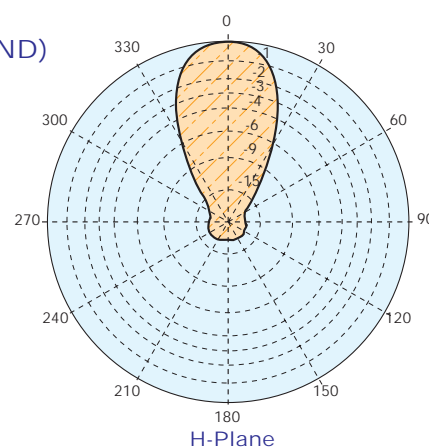


ELECTRICAL DATA	
Frequency range	300÷500 MHz
Impedance	50 Ohm
Connectors	N
Max Power	300W (N)
VSWR	≤ 1.1:1 in the working frequency
Polarization	Horizontal or Vertical
Gain	12 dB (referred to half-wave dipole)
Pattern	E plane ± 20° H plane ± 22°

MECHANICAL DATA	
Dimensions	According to the working frequency (1650 x 380 x 50 mm at 385 MHz)
Weight	According to the working frequency and material used (aluminium or stainless steel)
Wind surface	0.1 m <sup>2</sup> (at 385 MHz)
Wind load	13 kg (wind speed at 160 km/h)
Max wind velocity	200 km/h (AR10I / AR10IS)
Materials	AR10: Aluminium elements and stainless steel boom AR10I: Stainless steel elements and boom AR10IS: Stainless steel elements and boom Tig Welded Teflon insulator
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)

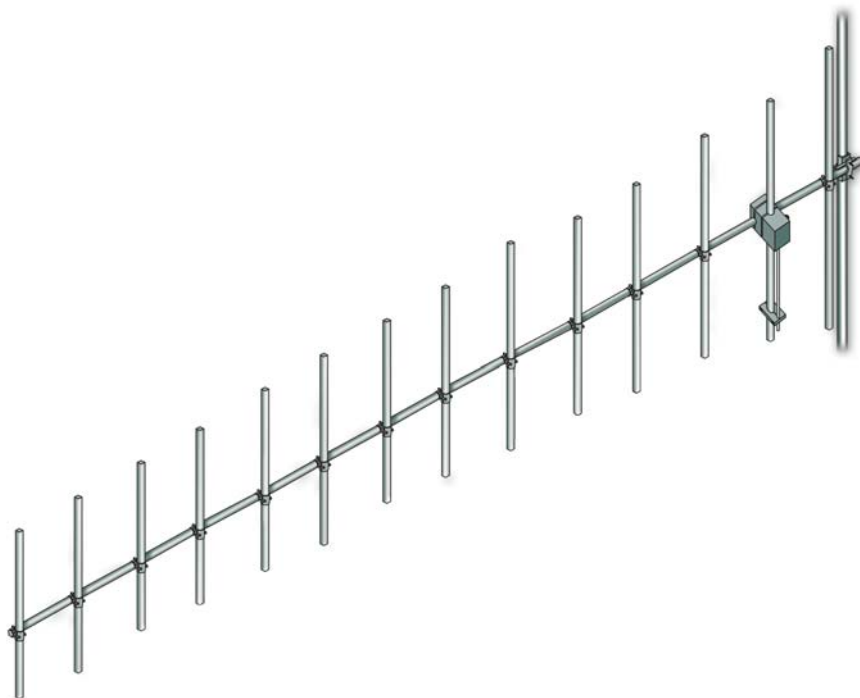


- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Actual values vary with the specific installation. Contact us for more details of your installation.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

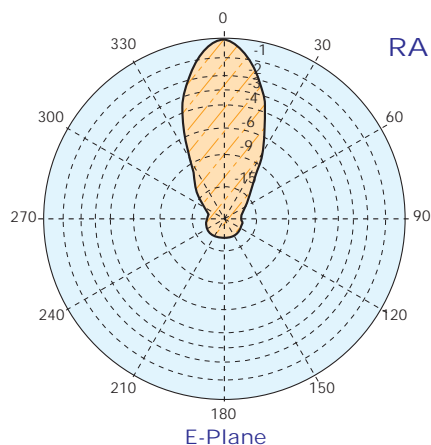
# Model AR14 – AR14I – AR14IS

- Yagi Antenna
- 200÷300 MHz
- Gamma Match Tuned
- Vertical or Horizontal polarization
- Directional Pattern

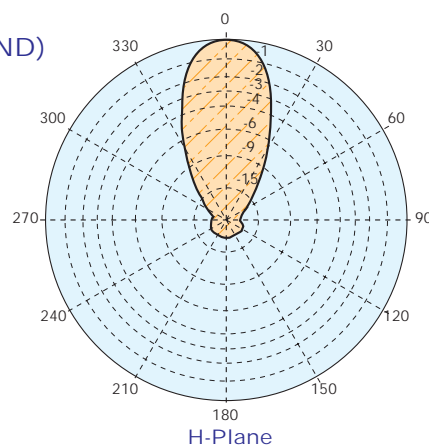


ELECTRICAL DATA	
Frequency range	300÷500 MHz
Impedance	50 Ohm
Connectors	N
Max Power	300W (N)
VSWR	≤ 1.1:1 in the working frequency
Polarization	Horizontal or Vertical
Gain	13 dB (referred to half-wave dipole)
Pattern	E plane ± 18° H plane ± 20°

MECHANICAL DATA	
Dimensions	According to the working frequency (2270 x 380 x 50 mm at 385 MHz)
Weight	According to the working frequency and material used (aluminium or stainless steel)
Wind surface	0.13 m <sup>2</sup> (at 385 MHz)
Wind load	17 kg (wind speed at 160 km/h)
Max wind velocity	200 km/h (AR14I / AR14IS)
Materials	AR14: Aluminium elements and stainless steel boom AR14I: Stainless steel elements and boom AR14IS: Stainless steel elements and boom Tig Welded Teflon insulator
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)



- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Actual values vary with the specific installation. Contact us for more details of your installation.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

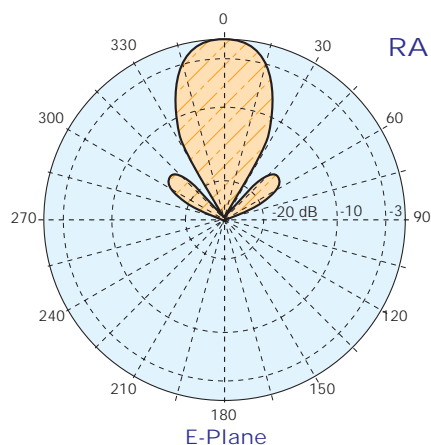
## Model PA90

- Link Panel Antenna
- 870÷960 MHz
- Vertical or Horizontal polarization
- Directional Pattern

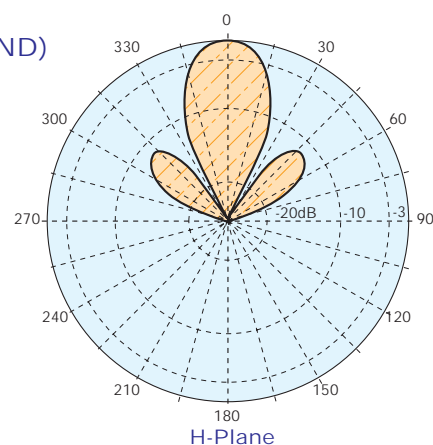


ELECTRICAL DATA	
Frequency range	870÷960 MHz
Impedance	50 Ohm
Connectors	N
Max Power	100W (N)
VSWR	≤ 1.5:1
Polarization	Horizontal or Vertical
Gain	12.5 dB (referred to half-wave dipole)
Half power beam width	E plane ± 15° H plane ± 13°
Lightning protection	All metal parts DC grounded

MECHANICAL DATA	
Dimensions	600 x 600 x 130 mm
Weight	3 Kg
Wind surface	0.3 m <sup>2</sup>
Wind load	45 kg (wind speed at 160 km/h)
Max wind velocity	200 km/h
Materials	Internal parts: passivated aluminium, brass Clamp: hot dip galvanized steel Radome: PST
Icing protection	Radome
Radome color	White
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)



- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Actual values vary with the specific installation. Contact us for more details of your installation.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

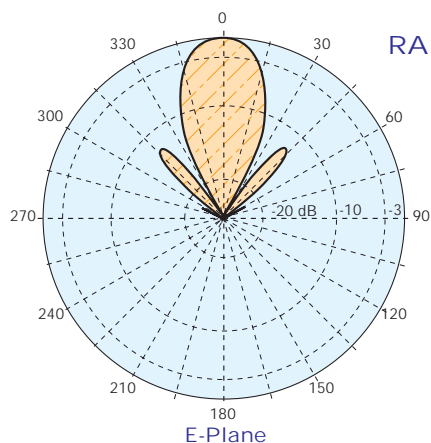


- Yagi Link Antenna
- 1.6 GHz
- Vertical or Horizontal polarization
- Directional Pattern

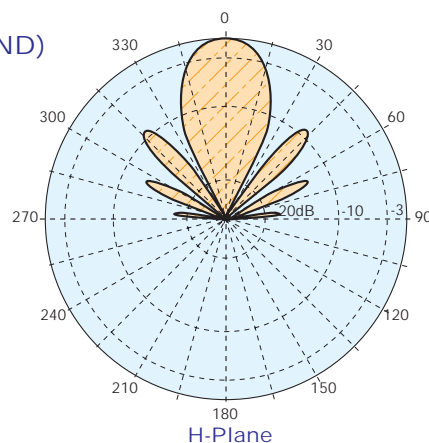


ELECTRICAL DATA	
Frequency range	1635+1735 MHz
Impedance	50 Ohm
Connectors	N
Max Power	100W (N)
VSWR	≤ 1.5:1
Polarization	Horizontal or Vertical
Gain	12.5 dB (referred to half-wave dipole)
Half power beam width	E plane ± 13° H plane ± 15°
Lightning protection	All metal parts DC grounded

MECHANICAL DATA	
Dimensions	565 x 160 x 160 mm
Weight	2.4 Kg
Wind surface	0.1 m <sup>2</sup>
Wind load	13.5 kg (wind speed at 160 km/h)
Max wind velocity	200 km/h
Materials	Internal parts: passivated aluminium, brass Clamp: hot dip galvanized steel Radome: Plastic
Icing protection	Radome
Radome color	White
Mounting	With special pipe clamps 50+110 mm dia.



RADIATION PATTERN (MID BAND)



- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Actual values vary with the specific installation. Contact us for more details of your installation.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

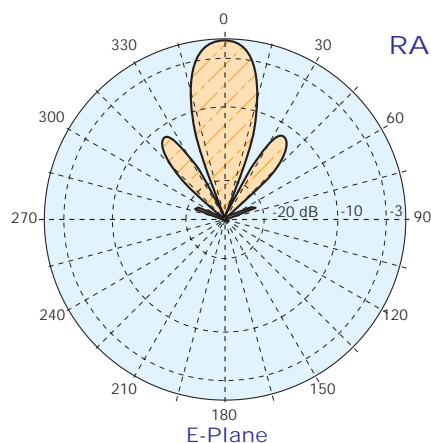
# Model PA16

- Link Panel Antenna
- 1.6 GHz
- Vertical or Horizontal polarization
- Directional Pattern

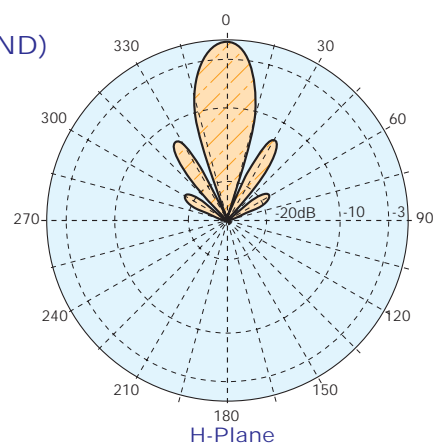


ELECTRICAL DATA	
Frequency range	1630+1740 MHz
Impedance	50 Ohm
Connectors	N
Max Power	100W (N)
VSWR	≤ 1.5:1
Polarization	Horizontal or Vertical
Gain	15 dB (referred to half-wave dipole)
Half power beam width	E plane ± 10° H plane ± 10°
Lightning protection	All metal parts DC grounded

MECHANICAL DATA	
Dimensions	485 x 485 x 80 mm
Weight	3 Kg
Wind surface	0.23 m <sup>2</sup>
Wind load	45 kg (wind speed at 160 km/h)
Max wind velocity	200 km/h
Materials	Internal parts: passivated aluminium, brass Clamp: hot dip galvanized steel Radome: PST
Icing protection	Radome
Radome color	White
Mounting	With special pipe clamps 50+110 mm dia.



RADIATION PATTERN (MID BAND)



- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Actual values vary with the specific installation. Contact us for more details of your installation.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

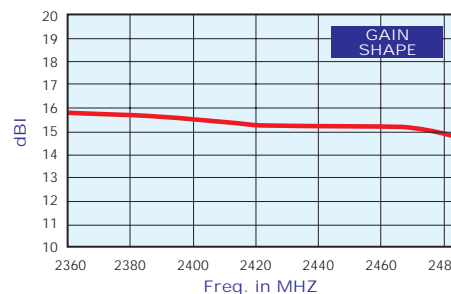
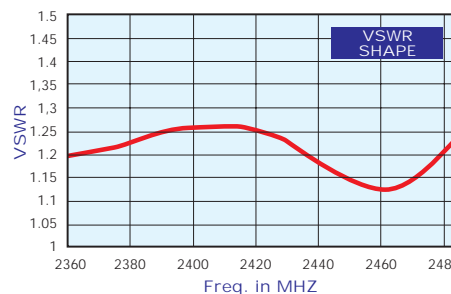
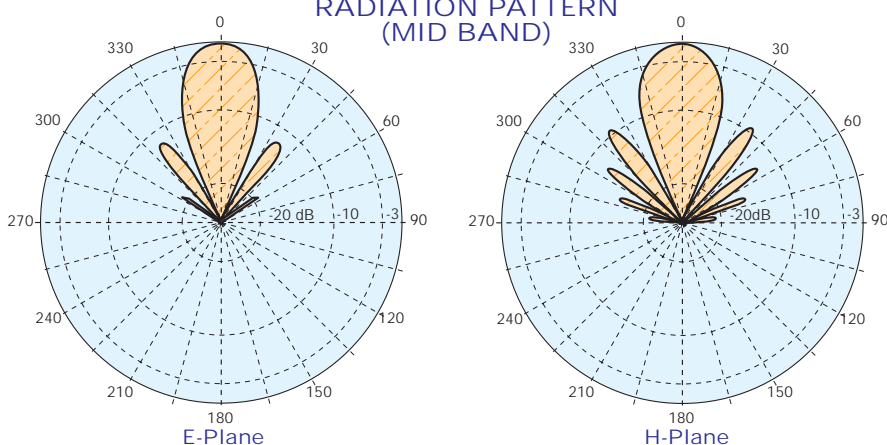
- Yagi Link Antenna
- 2.4 GHz
- Vertical or Horizontal polarization
- Directional Pattern



ELECTRICAL DATA	
Frequency range	2360+2485 MHz
Impedance	50 Ohm
Connectors	N
Max Power	100W (N)
VSWR	≤ 1.5:1
Polarization	Horizontal or Vertical
Gain	13 dB (referred to half-wave dipole)
Half power beam width	E plane ± 13° H plane ± 14°
Lightning protection	All metal parts DC grounded

MECHANICAL DATA	
Dimensions	565 x 160 x 160 mm
Weight	2.4 Kg
Wind surface	0.1 m <sup>2</sup>
Wind load	13.5 kg (wind speed at 160 km/h)
Max wind velocity	200 km/h
Materials	Internal parts: passivated aluminium, brass Clamp: hot dip galvanized steel Radome: Plastic
Icing protection	Radome
Radome color	White
Mounting	With special pipe clamps 50+110 mm dia.

**RADIATION PATTERN (MID BAND)**



- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Actual values vary with the specific installation. Contact us for more details of your installation.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

# Model PA24

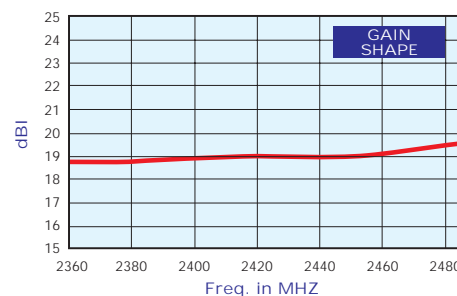
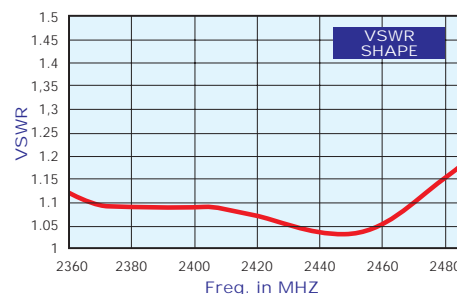
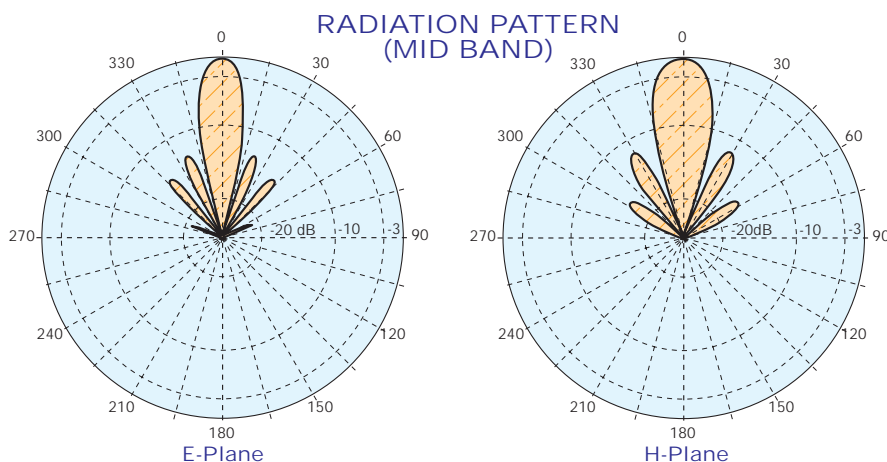
- Link Panel Antenna
- 2.4 GHz
- Vertical or Horizontal polarization
- Directional Pattern



ELECTRICAL DATA	
Frequency range	2360+2485 MHz
Impedance	50 Ohm
Connectors	N
Max Power	100W (N)
VSWR	≤ 1.5:1
Polarization	Horizontal or Vertical
Gain	16.5 dB (referred to half-wave dipole)
Half power beam width	E plane ± 10° H plane ± 10°
Lightning protection	All metal parts DC grounded

MECHANICAL DATA	
Dimensions	478 x 478 x 60 mm
Weight	3 Kg
Wind surface	0.23 m <sup>2</sup>
Wind load	44 kg (wind speed at 160 km/h)
Max wind velocity	200 km/h
Materials	Internal parts: passivated aluminium Clamp: hot dip galvanized steel Radome: PST
Icing protection	Radome
Radome color	White
Mounting	With special pipe clamps 50+110 mm dia.

**RADIATION PATTERN (MID BAND)**



- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Actual values vary with the specific installation. Contact us for more details of your installation.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

## Model : PUHF 1

- **Bandwidth 470 ÷ 860 MHz**
- **TV antenna**
- **4 dipoles antenna with panel reflector and protection radome**
- **Suitable for directional, semi-directional or omnidirectional UHF stacked-array systems**
- **Directional antenna**



**Horizontal polarization**

### ELECTRICAL DATA

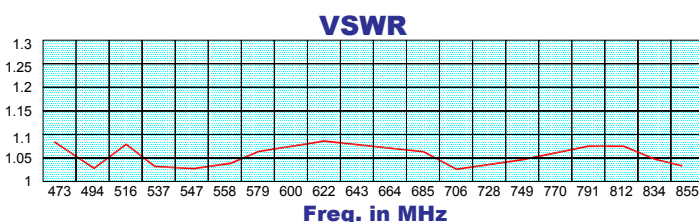
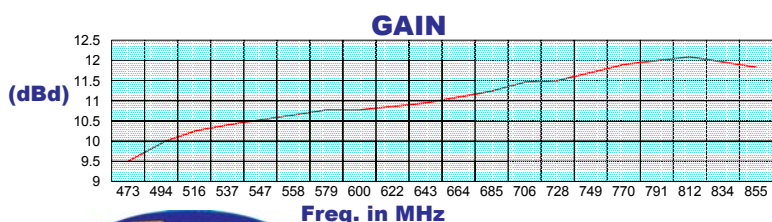
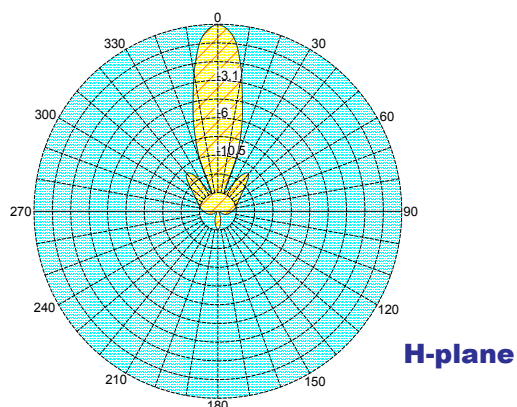
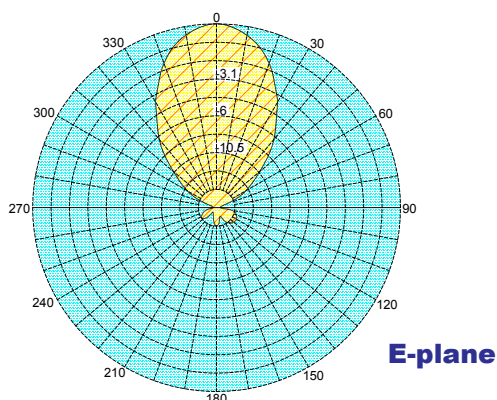
Frequency range	470 ÷ 860 MHz
Impedance	50 Ohm
Connectors	7/16" female input connector (7/8" EIA on request)
Max Power	1000W - 7/16" 2500W with 7/8" flange
VSWR	≤ 1.13:1
Polarization	Horizontal
Gain	9.55 dBd (11.7 dBi) - (470 MHz) 11.0 dBd (13.2 dBi) - (630 MHz) 12.0 dBd (14.1 dBi) - (860 MHz)
Half power beam width	E plane ± 60° at -3dB H plane ± 25° at -3dB
Lightning protection	DC grounded dipoles

### MECHANICAL DATA

Dimensions	1000x450x270 mm (HxLxW) 1070x530x360 mm (Packing size)
Weight	14 Kg (17 Kg including packing)
Wind surface	0.45 m <sup>2</sup> (front) 0.25 m <sup>2</sup> (side)
Wind load	89 Kg (wind speed at 160 km/h)*
Max wind velocity	200 km/h*
Materials	Panel reflector and bolts: stainless steel Lines and Dipole: silver-plated copper and brass Silicone – O-rings – Teflon insulator Radome: fiberglass
Icing protection	Fiberglass radome
Radome color	White
Mounting	4 holes threaded M8 at 980x85 mm spacing, or through tilttable or fix mounting brackets for poles (optionals)

\* Antenna wind load is calculated for 100 Mph (160 Km/h) per EIA-222-F standard

### RADIATION PATTERN (MID BAND)



"These specifications are subject to change without notice"

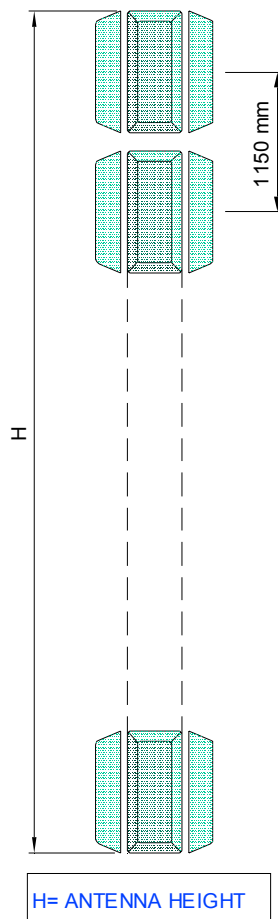
- Radiations systems with PUHF1 antenna
- Omnidirectional or directional pattern
- Balanced or unbalanced splitting power

## ELECTRICAL DATA

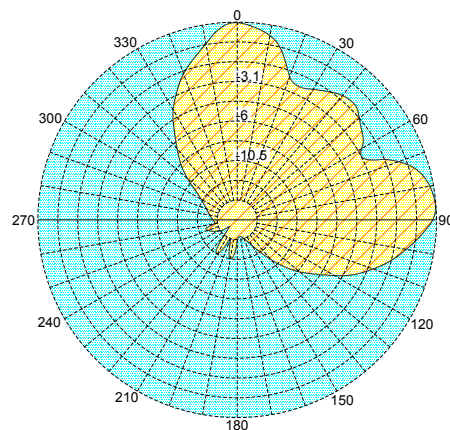
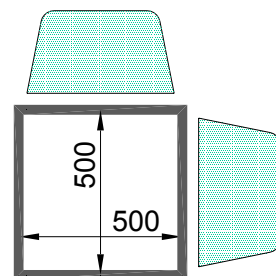
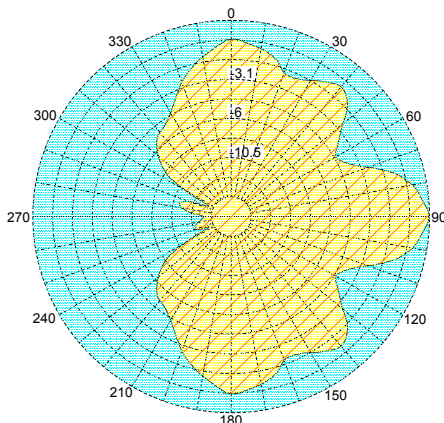
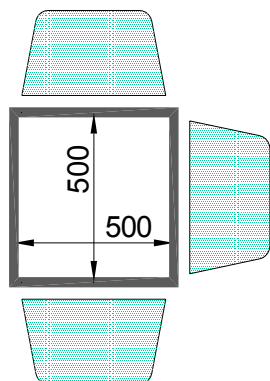
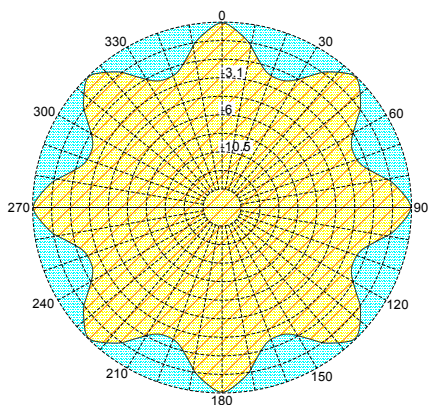
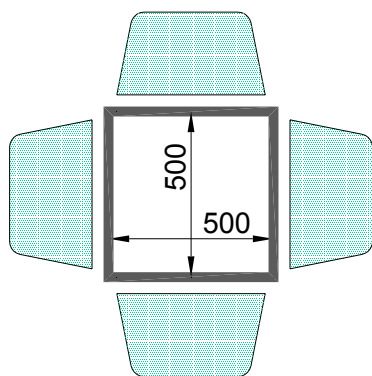
Frequency range	470 ÷ 860 MHz
Impedance	50 Ohm
Connector	7/16" female input connector (N female or 7/8" EIA on request)
VSWR	≤ 1.13:1 Max
Polarization	Horizontal
Gain	Refer to table
Horizontal pattern	Directional, omni-directional or customer designed
Other facilities	The antenna system can be supplied in split feed with two equal half antennas. Each half can accept full power

## MECHANICAL DATA

Height of array	Subject to number of bays ( refer to table )
Total net weight	Refer to table
Wind load	Refer to table
Radome color	White
Mounting hardware	4 holes threated M8 at 980x85 mm spacing, or through tilttable or fix mounting brackets for poles (optionals)
Shipping	As required



## Horizontal Patterns with 2, 3 and 4 faces at Mid Band



"These specifications are subject to change without notice"



## TECHNICAL DATA

Number of bays	Panels per bay	Gain <sup>1</sup> 470 MHz		Gain <sup>1</sup> 630 MHz		Gain <sup>1</sup> 860 MHz		Weight <sup>2</sup> kg	Antenna height H m	Wind load <sup>3</sup> (v=160 km/h) kg
		dB	times	dB	times	dB	times			
1	2	6.5	4.46	7.8	6.02	9.5	8.91	35	1.0	256
	3	5.0	3.16	5.8	3.80	7.7	5.89	50		313
	4	3.2	2.09	4.6	2.88	6.1	4.07	65		303
2	1	12.5	17.78	13.9	24.55	14.8	3.20	35	2.15	178
	2	9.5	8.91	10.8	12.02	12.5	17.78	65		382
	3	8.0	6.30	8.8	7.58	10.7	11.75	102		468
	4	6.2	4.17	7.6	5.75	9.1	8.13	130		453
4	1	15.5	35.48	16.9	48.90	17.8	60.25	65	4.45	356
	2	12.5	17.78	13.8	23.99	15.5	35.48	130		570
	3	11.0	12.59	11.8	15.13	13.7	23.44	188		698
	4	9.2	8.31	10.6	11.48	12.1	16.22	250		677
6	1	17.3	53.70	18.7	74.13	19.5	89.12	102	6.75	534
	2	14.3	26.91	15.6	36.30	17.9	61.66	188		851
	3	12.7	18.62	13.6	22.90	15.5	35.48	275		1048
	4	11.0	12.59	12.4	17.37	13.8	23.99	360		1015
8	1	18.5	70.79	19.9	97.72	20.8	120.23	130	9.05	712
	2	15.5	35.48	16.8	47.86	18.5	70.79	250		1135
	3	14.0	25.11	14.8	30.19	16.7	46.77	360		1397
	4	12.2	16.59	13.6	22.9	15.1	32.36	490		1354
12	1	20.3	107.15	21.7	147.91	22.5	177.83	188	13.65	1068
	2	17.3	53.70	18.6	72.44	20.2	104.71	360		1700
	3	15.7	37.15	16.6	45.71	18.5	70.79	550		2096
	4	14.0	25.11	15.4	34.67	16.8	47.86	730		2030
16	1	21.5	141.25	22.9	194.98	25.5	354.81	130	18.25	1424
	2	18.5	70.79	19.8	95.50	21.5	141.25	490		2270
	3	17.0	50.11	17.8	60.25	19.7	93.32	730		2795
	4	15.2	33.11	16.6	45.70	18.1	64.56	960		2707

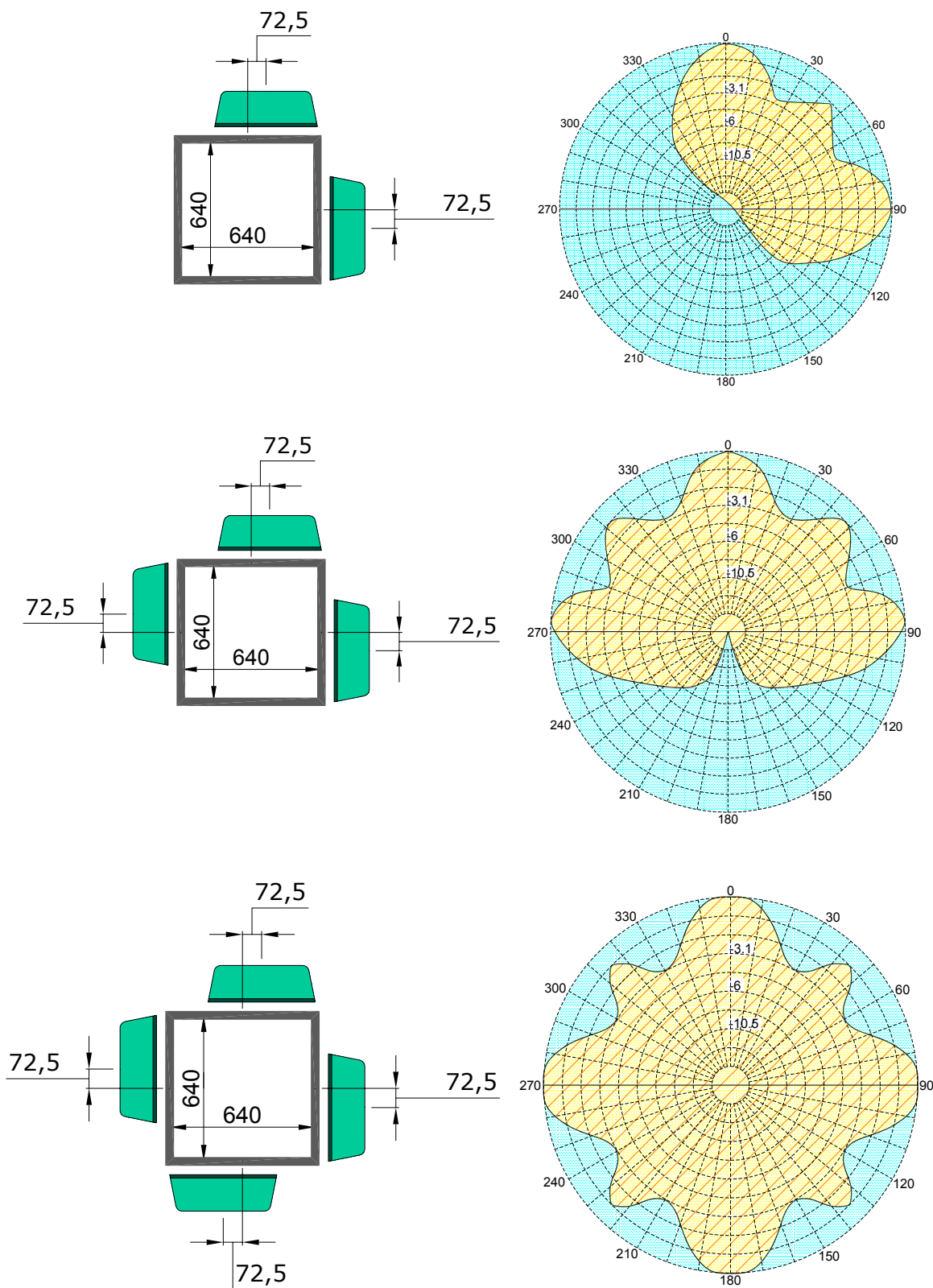
<sup>1</sup> referred to a half wave dipole. Attenuation of connecting cables not taken into account.

<sup>2</sup> without mounting hardware

<sup>3</sup> according to the tower type, for more details contact us

"These specifications are subject to change without notice"

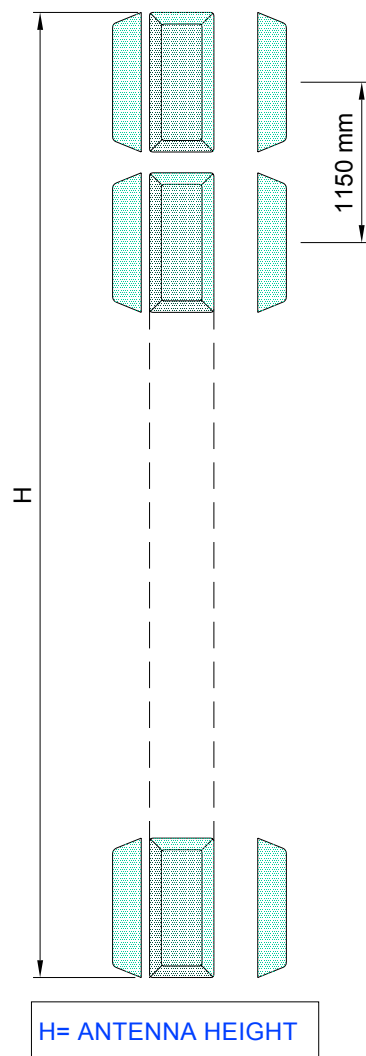
## Horizontal Patterns with offset 2, 3 and 4 faces at Mid Band (650 MHz)



"These specifications are subject to change without notice"

**TECHNICAL DATA AT MID BAND (650 MHz)**

Number of bays	Panels per bay	Gain <sup>(1)</sup>		Weight <sup>(2)</sup> kg	Antenna height H m	Windload/kg (V=150 km/h)	
		dB	times			Without cylinder	With cylinder Ø 1,65 m
2	1	15.1	32.8	30	2.15	131	310
	2	12.2	16.6	60		192	
	3	10.3	10.9	90		253	
	4	9.1	8.2	120		288	
4	1	18.3	68.1	60	4.45	262	650
	2	15.3	34	120		384	
	3	13.5	22.6	180		506	
	4	12.3	17	230		577	
6	1	20	101.2	90	6.75	393	1000
	2	17	50.6	180		576	
	3	15.3	33.7	260		760	
	4	14	25.3	350		866	
8	1	21.3	136.4	120	9.05	524	1350
	2	18.3	68.2	230		768	
	3	16.6	45.4	360		1015	
	4	15.3	34.1	460		1160	
10	1	22.3	172	150	11.35	655	1650
	2	19.3	86.1	300		960	
	3	17.6	57.3	430		1270	
	4	16.3	43	600		1450	
12	1	23	204	200	13.65	786	2000
	2	20.1	102	360		1152	
	3	18.3	68	520		1520	
	4	17.1	51	700		1730	
16	1	24.3	273.2	250	18.25	1048	2650
	2	21.3	136.6	480		1540	
	3	19.6	91	720		2030	
	4	18.4	68.3	920		2315	



“These specifications are subject to change without notice”

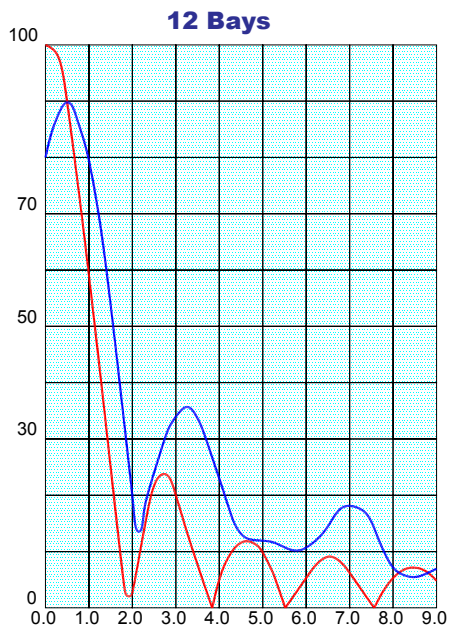
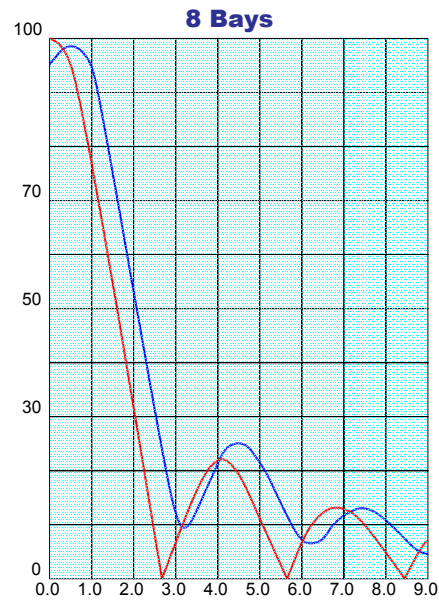
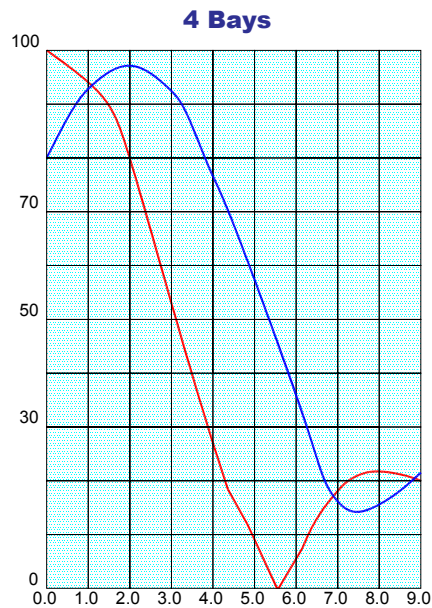
## VERTICAL PATTERN



Without null fill



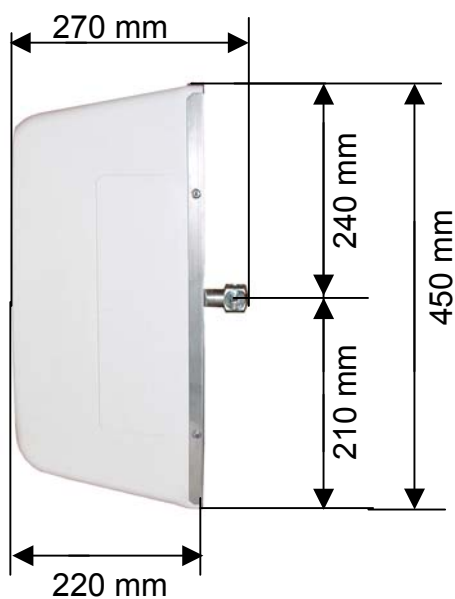
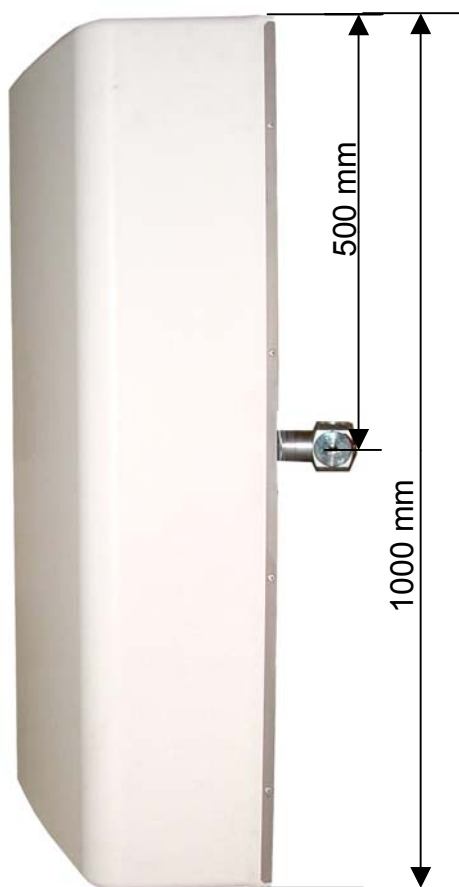
With null fill and beam tilt



- ♦ Gain is provided for horizontal polarization.
- ♦ If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- ♦ Vertical tower space, wind load and weight numbers given are typical. Actual values vary with the specific installation. Contact us for more details of your installation.
- ♦ Gain will be reduced if null fill, beam tilt or special wavelength spacing is provided.
- ♦ Antenna radiation aperture is the distance from the centre of the top bay to the centre of the bottom bay.
- ♦ Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-F standard.

"These specifications are subject to change without notice"

**PANEL DIMENSION**



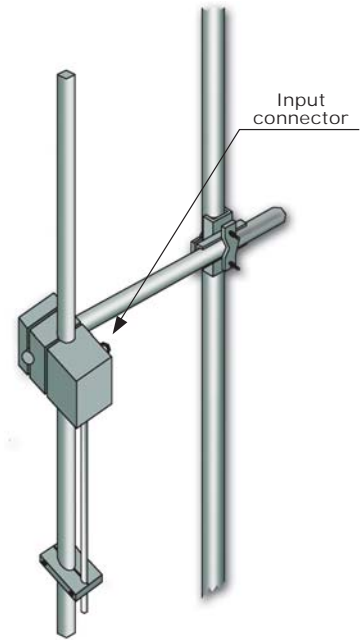
# GENERAL CATALOG

45÷70 MHz YAGI ANTENNAS 52



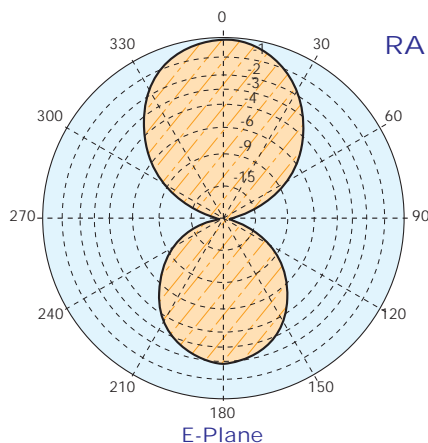
## Model AJ1 EIBI

- 45÷70 MHz
- Gamma Match Tuned
- Omni Directional Pattern
- Vertical or horizontal polarization
- Light - Low Cost - Demountable

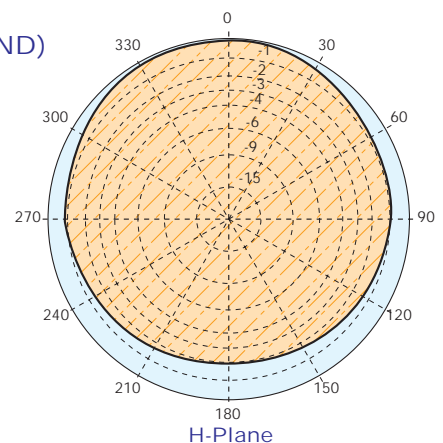


ELECTRICAL DATA	
Frequency range	45÷70 MHz
Impedance	50 Ohm
Connectors	N
Max Power	650W (High Power on request)
VSWR	≤ 1.1:1 in the operating channel
Polarization	Vertical or horizontal
Gain	1 dB (referred to half-wave dipole)
Pattern	Omni directional ± 1.5 dB in free space Omni directional ± 3 dB with 100mm dia. pole
Lightning protection	No DC grounded

MECHANICAL DATA	
Dimensions	According to the working frequency
Weight	According to the working frequency
Wind surface	According to the working frequency
Wind load	According to the working frequency
Max wind velocity	According to the working frequency
Materials	AJ1EIBI: Stainless steel elements and boom (Aluminium elements and stainless steel boom on request) Teflon insulator
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)

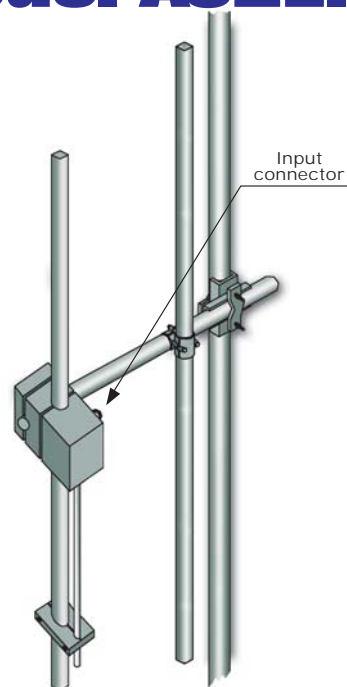


- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Actual values vary with the specific installation. Contact us for more details of your installation.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

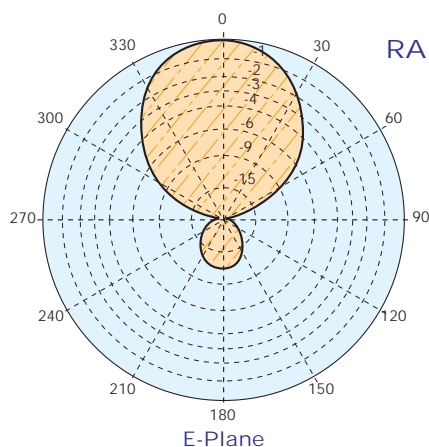
# Model AJ2EIBI

- 45÷70 MHz
- Gamma Match Tuned
- Vertical or horizontal polarization
- Light - Low Cost - Demountable

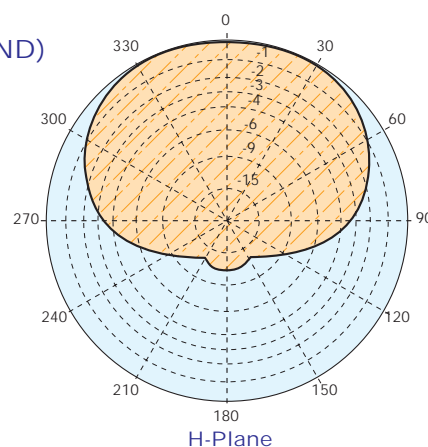


ELECTRICAL DATA	
Frequency range	45÷70 MHz
Impedance	50 Ohm
Connectors	N
Max Power	650W (High Power on request)
VSWR	≤ 1.1:1 in the operating channel
Polarization	Vertical or horizontal
Gain	5 dB (referred to half-wave dipole)
Pattern	E plane ± 40° H plane ± 90°
Lightning protection	No DC grounded

MECHANICAL DATA	
Dimensions	According to the working frequency
Weight	According to the working frequency
Wind surface	According to the working frequency
Wind load	According to the working frequency
Max wind velocity	According to the working frequency
Materials	AJ2EIBI: Stainless steel elements and boom (Aluminium elements and stainless steel boom on request) Teflon insulator
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)

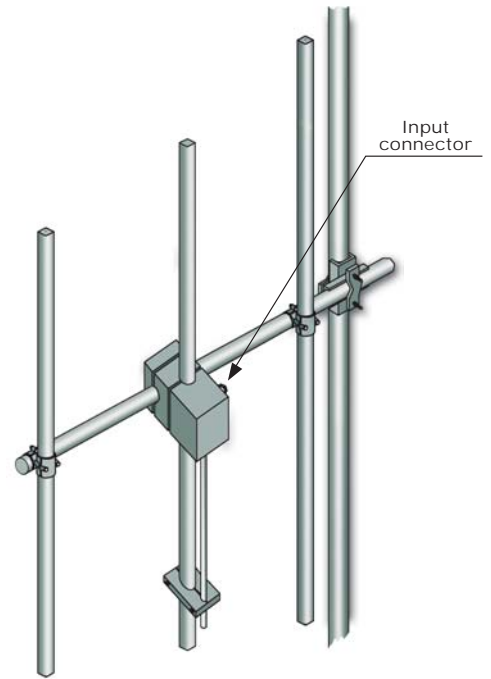


- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Actual values vary with the specific installation. Contact us for more details of your installation.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

## Model AJ3EIBI

- 45÷70 MHz
- Gamma Match Tuned
- Vertical or horizontal polarization
- Light - Low Cost - Demountable

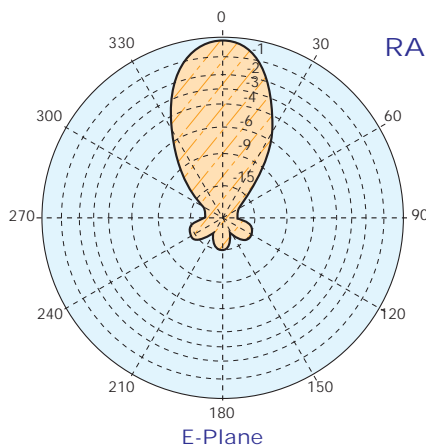


### ELECTRICAL DATA

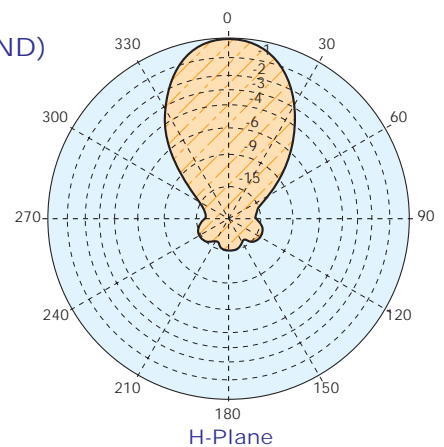
Frequency range	45÷70 MHz
Impedance	50 Ohm
Connectors	N
Max Power	650W (High Power on request)
VSWR	≤ 1.1:1 in the operating channel
Polarization	Vertical or horizontal
Gain	7 dB (referred to half-wave dipole)
Pattern	E plane ± 25° H plane ± 30°
Lightning protection	No DC grounded

### MECHANICAL DATA

Dimensions	According to the working frequency
Weight	According to the working frequency
Wind surface	According to the working frequency
Wind load	According to the working frequency
Max wind velocity	According to the working frequency
Materials	AJ3EIBI: Stainless steel elements and boom (Aluminium elements and stainless steel boom on request) Teflon insulator
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)

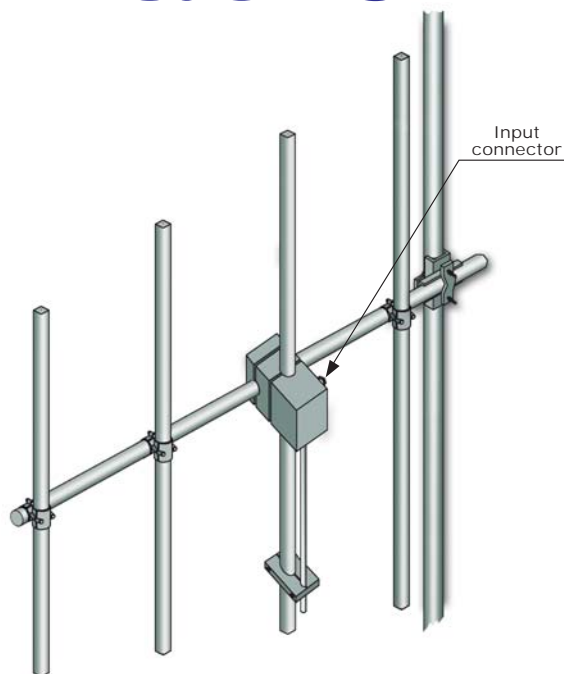


- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Actual values vary with the specific installation. Contact us for more details of your installation.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

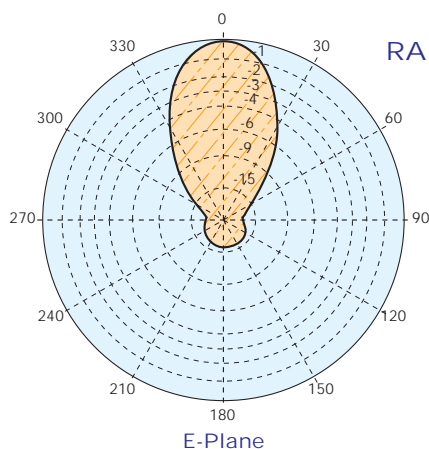
# Model AJ4EIBI

- 45÷70 MHz
- Gamma Match Tuned
- Vertical or horizontal polarization
- Light - Low Cost - Demountable

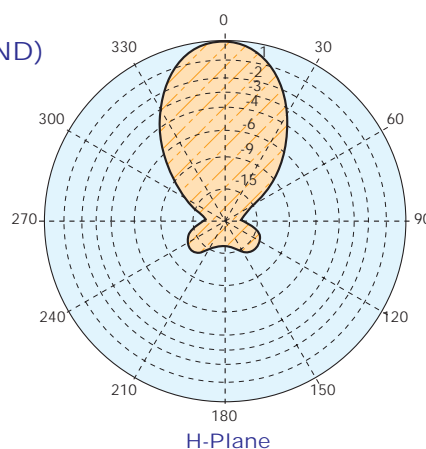


ELECTRICAL DATA	
Frequency range	45÷70 MHz
Impedance	50 Ohm
Connectors	N
Max Power	650W (High Power on request)
VSWR	≤ 1.1:1 in the operating channel
Polarization	Vertical or horizontal
Gain	8 dB (referred to half-wave dipole)
Pattern	E plane ± 25° H plane ± 30°
Lightning protection	No DC grounded

MECHANICAL DATA	
Dimensions	According to the working frequency
Weight	According to the working frequency
Wind surface	According to the working frequency
Wind load	According to the working frequency
Max wind velocity	According to the working frequency
Materials	AJ4EIBI: Stainless steel elements and boom (Aluminium elements and stainless steel boom on request) Teflon insulator
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)

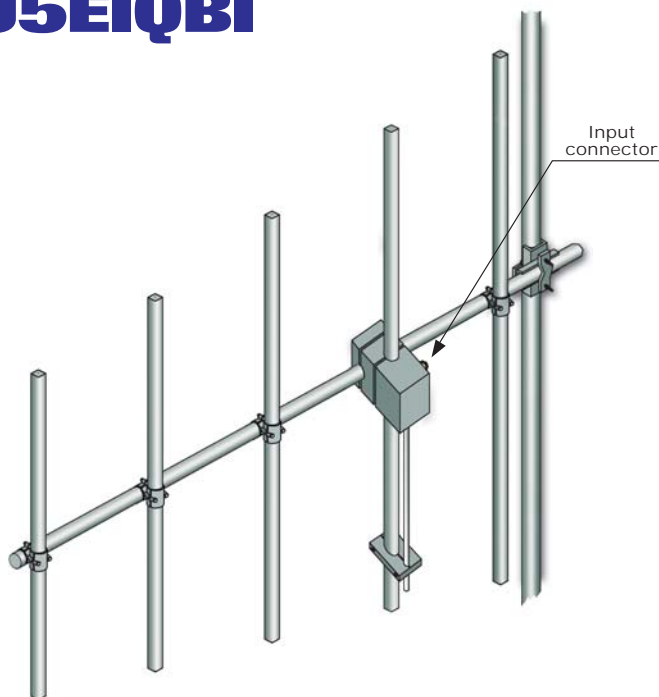


- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Actual values vary with the specific installation. Contact us for more details of your installation.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

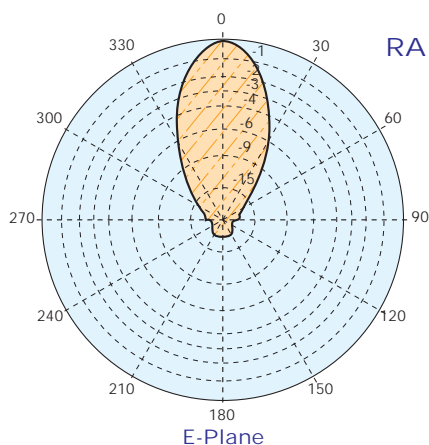
## Model AJ5EIBI - AJ5EIQBI

- 45÷70 MHz
- Gamma Match Tuned
- Vertical or horizontal polarization
- Light - Low Cost - Demountable

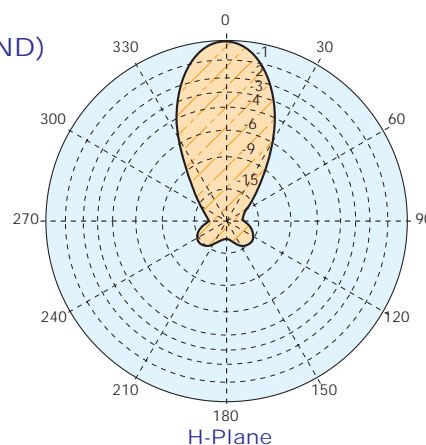


ELECTRICAL DATA	
Frequency range	45÷70 MHz
Impedance	50 Ohm
Connectors	N
Max Power	650W (High Power on request)
VSWR	≤ 1.1:1 in the operating channel
Polarization	Vertical or horizontal
Gain	9.5 dB (referred to half-wave dipole)
Pattern	E plane ± 20° H plane ± 22°
Lightning protection	No DC grounded

MECHANICAL DATA	
Dimensions	According to the working frequency
Weight	According to the working frequency
Wind surface	According to the working frequency
Wind load	According to the working frequency
Max wind velocity	According to the working frequency
Materials	AJ5EIBI: Stainless steel elements and boom (Aluminium elements and Stainless steel boom on request) AJ5EIQBI: Boom square (more resistant) Teflon insulator
Mounting	With special pipe clamps 50÷110 mm dia.



RADIATION PATTERN (MID BAND)



- Gain is provided for vertical polarization.
- If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern and VSWR.
- Actual values vary with the specific installation. Contact us for more details of your installation.
- Five ft(1.6mt) of pipe required above the top bay and below the bottom bay for to protect from pattern interference by other antennas.
- Antenna wind load is calculated for 100 Mph (160Km/h) per EIA-222-C standard.

"These specifications are subject to change without notice"

# GENERAL CATALOG



- VARIOUS POWER

---

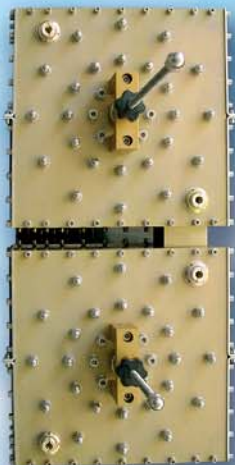


- FROM 300W TO 30KW  
POWER

---

- STANDARD CONFIGURATION  
OF 2 CAVITIES

---



- SPECIAL CONFIGURATION  
3 AND 4 CAVITIES

---

- LOW LOSS,  
HIGH ISOLATION

---



# MODEL FFC03

- **BAND-PASS FILTER**
- **FM BAND 87.5÷108 MHz**
- **BAND II**

**THESE ARE TWO STANDARD RESONANT CAVITY FILTERS, AND IN SPECIAL VERSION WITH 3 AND 4 IT.**  
**ALL THE MODELS ARE USED TO MAKE UP MIXERS WITH SEVERAL CHANNELS.**

The band pass filters was designed as an extension of our band pass combiner technology. Using our industry-leading square, octagonal, cavity filter design, the filter provides a one-time-buy filtering solution for the broadcaster located at multiple-user site. The filter isolates the transmission system to eliminate spurious emissions.

## TYPICAL SPECIFICATIONS

<b>Model</b>	FFC03
<b>Impedance</b>	50 ohm
<b>Frequency Range</b>	87.5-108 MHz
<b>VSWR ± 150 KHz</b>	1.1:1 Max
<b>Insertion Loss</b>	at $\int_0$ 0.6 dB Max
<b>Return Loss ± 150 KHz</b>	≤ -26dB
<b>Rejection</b>	per customer's requirements (Typical ± 1MHz it's even to -8dB)
<b>Connectors</b>	N Input-Output
<b>Max Power</b>	300 W
<b>Working Temperature</b>	-20°C ÷ +50°C
<b>Colour</b>	Enamel Gray Ral 7001
<b>Materials</b>	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. 12µm thickness)

## Features:

- Distortion – Free Transmission
- Standard configuration of 2 cavities
- Special configuration 3 and 4 cavities
- Low loss, high isolation
- Natural convection

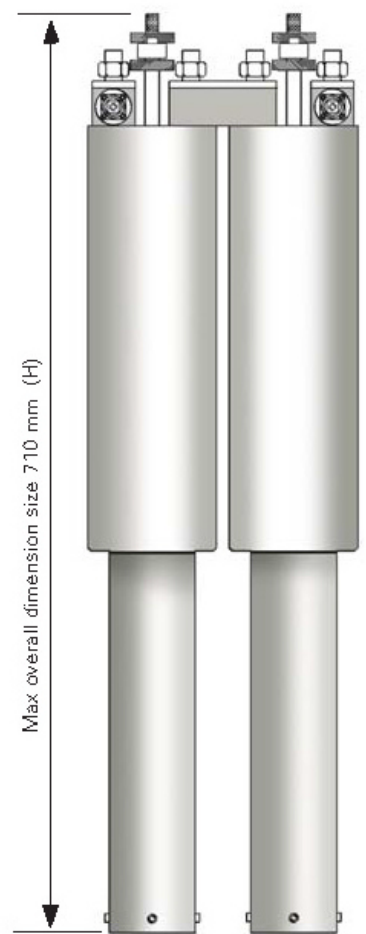
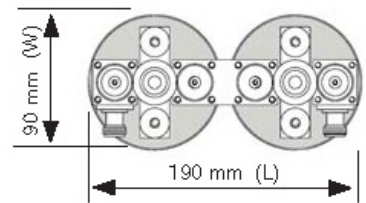
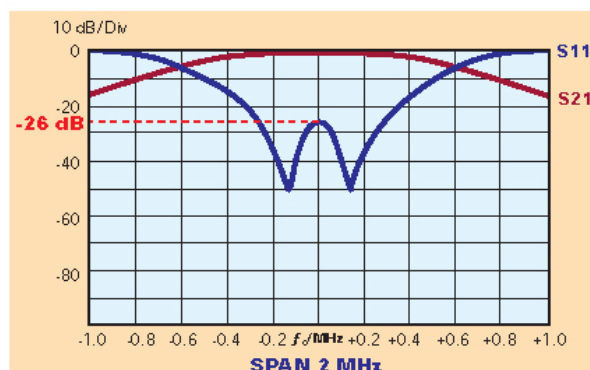
## No rack version

<b>Dimensions</b>	710(Max size)×190×90mm (28(Max size)×7.5×3.5 inch) (H×L×W)
<b>Net Weight</b>	≅ 6 Kg

## Rack version (optional)

<b>Panel Size</b>	2 HE (1 HE=44,45 mm)
<b>Net Weight</b>	≅ 6 Kg

Typical shape of a curves for S11 and S12 parameters



"These specifications are subject to change without notice"

## MODEL FFTC03

- **BAND-PASS FILTER**
- **FM BAND 87.5÷108 MHz**
- **BAND II**



VERSION WITH RACK (OPTION)

THESE ARE TWO STANDARD RESONANT CAVITY FILTERS, AND IN SPECIAL VERSION 4 IT.  
ALL THE MODELS ARE USED TO MAKE UP MIXERS WITH SEVERAL CHANNELS.

The band pass filters was designed as an extension of our band pass combiner technology. Using our industry-leading square, octagonal, cavity filter design, the filter provides a one-time-buy filtering solution for the broadcaster located at multiple-user site. The filter isolates the transmission system to eliminate spurious emissions.

### TYPICAL SPECIFICATIONS

Model	FFTC03
Impedance	50 ohm
Frequency Range	87.5-108 MHz
VSWR $\pm$ 150 KHz	1.1:1 Max
Insertion Loss	at $\int_0$ 0.8 dB Max
Return Loss $\pm$ 150 KHz	$\leq$ -26dB
Rejection	per customer's requirements (Typical $\pm$ 1MHz it's even to -8dB)
Connectors	N Input-Output
Max Power	300 W
Working Temperature	-20°C $\div$ +50°C
Colour	Enamel Gray Ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. 12 $\mu$ m thickness)

### Features:

- Distortion – Free Transmission
- Special configuration 4 cavities
- Low loss, high isolation
- Natural convection

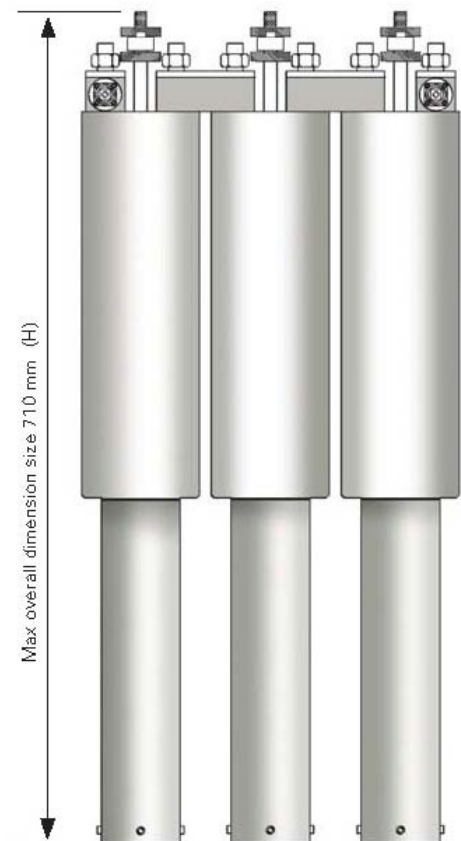
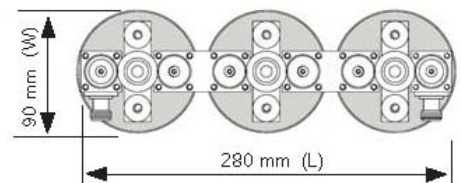
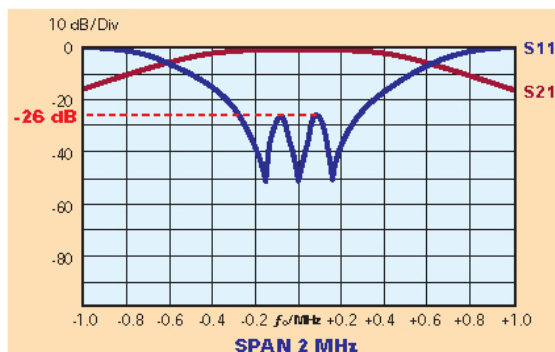
### No rack version

Dimensions	710(Max size)×280×90mm (28(Max size)×11×3.5 inch) (H×L×W)
Net Weight	$\cong$ 9 Kg (triple cavity)

### Rack version (optional)

Panel Size	2 HE (1 HE=44,45 mm)
Net Weight	$\cong$ 9 Kg (triple cavity)

Typical shape of a curves for S11 and S21 parameters



"These specifications are subject to change without notice"

## MODEL FFC05D

- **BAND-PASS FILTER**
- **FM BAND 87.5-108 MHz**
- **BAND II**



THESE ARE TWO STANDARD RESONANT CAVITY FILTERS.

ALL THE MODELS ARE USED TO MAKE UP MIXERS WITH SEVERAL CHANNELS.

The pass band filters was designed as an extension of our band pass combiner technology.

Using our industry-leading square, cavity filter design, the filter provides a one-time-buy filtering solution for the broadcaster located at multiple-user site.

The filter isolates the transmission system to eliminate spurious emissions.

### TYPICAL SPECIFICATIONS

Model	FFC05D
Impedance	50 ohm
Frequency Range	87.5-108 MHz
VSWR $\pm 150$ KHz	1.1:1 Max
Insertion Loss	at $f_0$ 0.35 dB Max
Return Loss $\pm 150$ KHz	$\leq -26$ dB
Rejection	per customer's requirements (Typical $\pm 1$ MHz it's even to $-8$ dB)
Connectors	N-7/16" Input-Output Option 7/8" EIA
Max Power	500W
Working Temperature	$-20^\circ\text{C} \div +50^\circ\text{C}$
Colour	Enamel Gray Ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. $12\mu\text{m}$ thickness)

### Features:

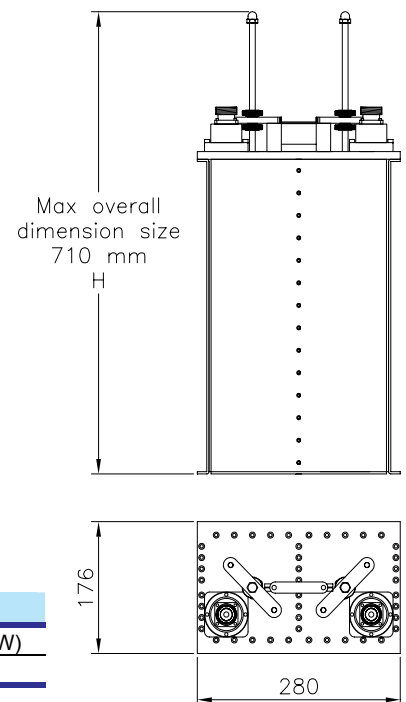
- Distortion – Free Transmission
- Standard configuration of 2 cavities
- Low loss, high isolation
- Natural convection

#### No rack version

Dimensions	710(Max size) $\times$ 280 $\times$ 176 mm (27.9(Max size) $\times$ 11.0 $\times$ 6.9 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong 17$ Kg

#### Rack version (optional)

Panel Size	4 HE (1 HE = 44,45 mm)
Net Weight	$\cong 18$ Kg



Typical shape of a curves for S11 and S21 parameters



"These specifications are subject to change without notice"

# MODEL FFC05

- **BAND-PASS FILTER**
- **FM BAND 87.5-108 MHz**
- **BAND II**



**THESE ARE THREE STANDARD RESONANT CAVITY FILTERS.**

**ALL THE MODELS ARE USED TO MAKE UP MIXERS WITH SEVERAL CHANNELS.**

Rack version (optional)

The pass band filters was designed as an extension of our band pass combiner technology.

Using our industry-leading square, cavity filter design, the filter provides a one-time-buy filtering solution for the broadcaster located at multiple-user site.

The filter isolates the transmission system to eliminate spurious emissions.

## TYPICAL SPECIFICATIONS

Model	FFC05
Impedance	50 ohm
Frequency Range	87.5-108 MHz
VSWR $\pm 150$ KHz	1.1:1 Max
Insertion Loss	at $f_0$ 0.58 dB Max
Return Loss $\pm 150$ KHz	$\leq -26$ dB
Rejection	per customer's requirements (Typical $\pm 1$ MHz it's even to $-14$ dB)
Connectors	N-7/16" Input-Output Option 7/8" EIA
Max Power	500W
Working Temperature	$-20^\circ\text{C} \div +50^\circ\text{C}$
Colour	Enamel Gray Ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. $12\mu\text{m}$ thickness)

## Features:

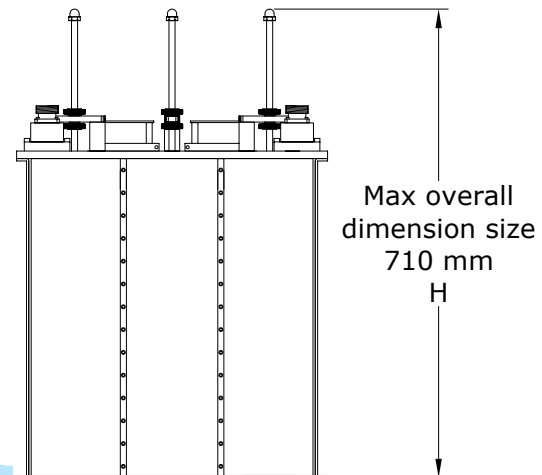
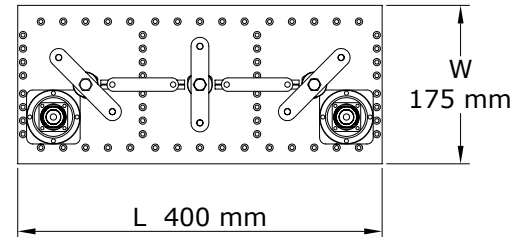
- Distortion – Free Transmission
- Standard configuration of 3 cavities
- Low loss, high isolation
- Natural convection

### No rack version

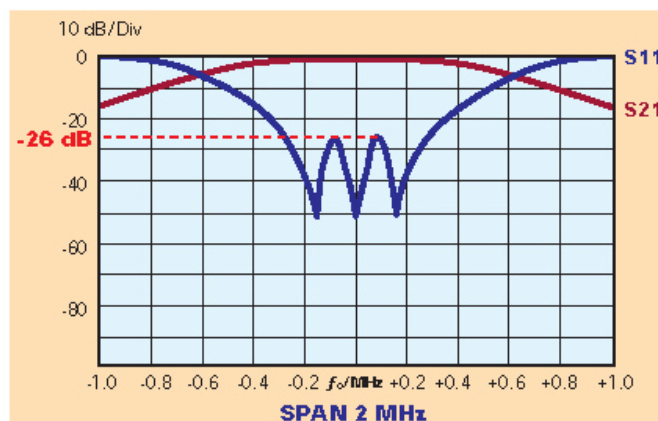
Dimensions	680(Max size) $\times$ 400 $\times$ 175 mm (26.8(Max size) $\times$ 15.7 $\times$ 6.9 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong 25$ Kg

### Rack version (optional)

Panel Size	4 HE (1 HE=44,45 mm)
Net Weight	$\cong 25$ Kg



Typical  
shape of a  
curves  
for S11  
and S12  
parameters



"These specifications are subject to change without notice"

# MODEL FFC08-FFC2-FFC2/78

- **BAND-PASS FILTER**
- **FM BAND 87.5-108 MHz**
- **BAND II**

**THESE ARE TWO STANDARD RESONANT CAVITY FILTERS, AND IN SPECIAL VERSION WITH 3 AND 4. ALL THE MODELS ARE USED TO MAKE UP MIXERS WITH SEVERAL CHANNELS.**

The pass band filters was designed as an extension of our band pass combiner technology. Using our industry-leading square, cavity filter design, the filter provides a one-time-buy filtering solution for the broadcaster located at multiple-user site. The filter isolates the transmission system to eliminate spurious emissions.



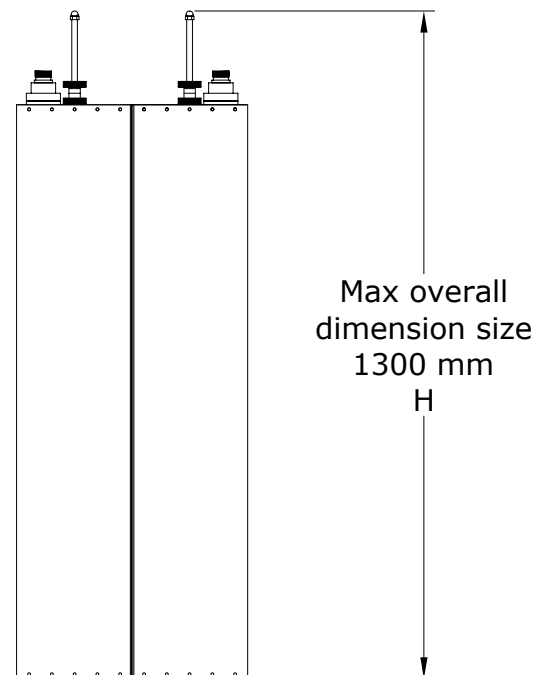
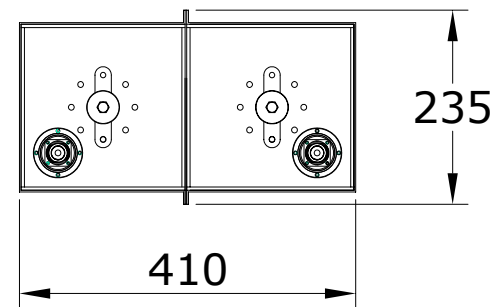
## TYPICAL SPECIFICATIONS

<b>Models</b>	FFC08-FFC2-FFC2/78
<b>Impedance</b>	50 ohm
<b>Frequency Range</b>	87.5-108 MHz
<b>VSWR <math>\pm</math> 150 KHz</b>	1.1:1 Max
<b>Insertion Loss</b>	at $f_0$ 0.28 dB Max
<b>Return Loss <math>\pm</math> 150 KHz</b>	$\leq -26$ dB
<b>Rejection</b>	per customer's requirements (Typical $\pm$ 1MHz it's even to $-14$ dB)
<b>Connectors</b>	FFC08 - N Input-Output FFC2 - 7/16" Input-Output FFC2/78 - 7/8" EIA Input-Output
<b>Max Power</b>	2KW (FFC2-FFC2/78) 800 Watts (FFC08)
<b>Working Temperature</b>	$-20^{\circ}\text{C} \div +50^{\circ}\text{C}$
<b>Colour</b>	Enamel Gray Ral 7001
<b>Materials</b>	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min $12\mu\text{m}$ thickness)

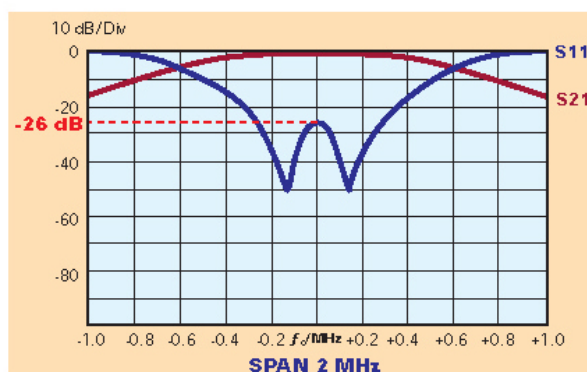
## Features:

- Distortion – Free Transmission
- Standard configuration of 2 cavities
- Special configuration 3 and 4 cavities
- Low loss, high isolation
- Natural convection

<b>Dimensions</b>	1300(Max size) $\times$ 410 $\times$ 235 mm (51.2(Max size) $\times$ 16.1 $\times$ 9.2 inch) (H $\times$ L $\times$ W)
<b>Net Weight</b>	$\cong$ 20 Kg (double cavity)



Typical shape of a curves for S11 and S21 parameters





## MODEL FFC08I-FFC2I-FFC2I/78

- **BAND-PASS FILTER**
- **FM BAND 87.5-108 MHz**
- **BAND II**

**THESE ARE TWO STANDARD RESONANT CAVITY FILTERS, AND IN SPECIAL VERSION WITH 3 AND 4. ALL THE MODELS ARE USED TO MAKE UP MIXERS WITH SEVERAL CHANNELS.**

The pass band filters was designed as an extension of our band pass combiner technology. Using our industry-leading square, cavity filter design, the filter provides a one-time-buy filtering solution for the broadcaster located at multiple-user site. The filter isolates the transmission system to eliminate spurious emissions.

### TYPICAL SPECIFICATIONS

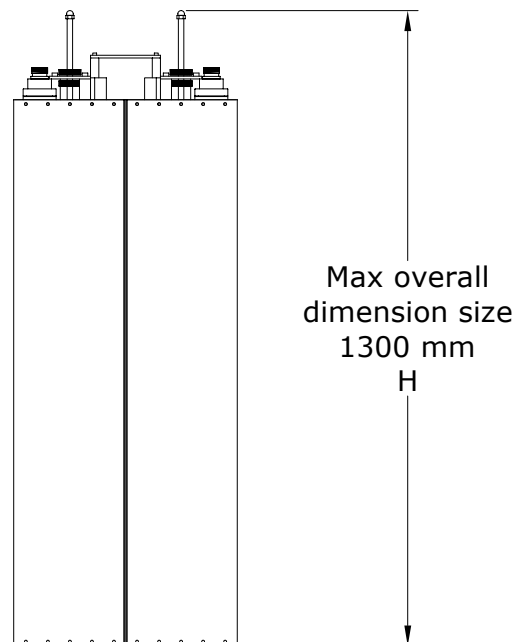
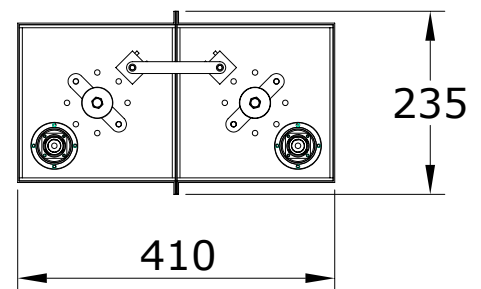
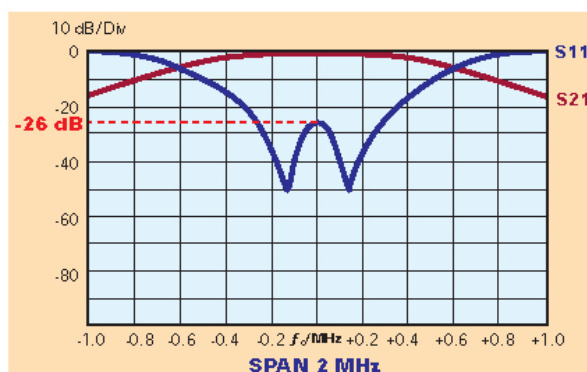
<b>Models</b>	FFC08I-FFC2I-FFC2I/78
<b>Impedance</b>	50 ohm
<b>Frequency Range</b>	87.5-108 MHz
<b>VSWR <math>\pm</math> 150 KHz</b>	1.1:1 Max
<b>Insertion Loss</b>	at $f_0$ 0.28 dB Max
<b>Return Loss <math>\pm</math> 150 KHz</b>	$\leq -26$ dB
<b>Rejection</b>	per customer's requirements (Typical $\pm$ 1MHz it's even to $-14$ dB)
<b>Connectors</b>	FFC08I - N Input-Output FFC2I - 7/16" Input-Output FFC2I/78 - 7/8" EIA Input-Output
<b>Max Power</b>	2KW (FFC2I-FFC2I/78) 800 Watts (FFC08I)
<b>Working Temperature</b>	$-20^{\circ}\text{C} \div +50^{\circ}\text{C}$
<b>Colour</b>	Enamel Gray Ral 7001
<b>Materials</b>	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min $12\mu\text{m}$ thickness)

### Features:

- Distortion – Free Transmission
- Standard configuration of 2 cavities
- Special configuration 3 and 4 cavities
- Low loss, high isolation
- Natural convection

<b>Dimensions</b>	1300(Max size) $\times$ 410 $\times$ 235 mm (51.2(Max size) $\times$ 16.1 $\times$ 9.2 inch) (H $\times$ L $\times$ W)
	Net Weight 20 Kg (double cavity)

Typical shape of a curves for S11 and S21 parameters



"These specifications are subject to change without notice"



## Model FFC2R

- **DOUBLE CAVITY**
- **BAND-PASS FILTER**
- **FM BAND 87.5-108 MHz**
- **BAND II**
- **OPTION: RACK MOUNTING**



Version with Rack option

This Band Pass Filter has been designed as an extension of our Band Pass Combiner Technology. Using our industry-leading square, cavity filter design, this filter provides a one-time-buy filtering solution for the broadcaster located at multiple-user site. This filter isolates the transmission system to eliminate spurious emissions.

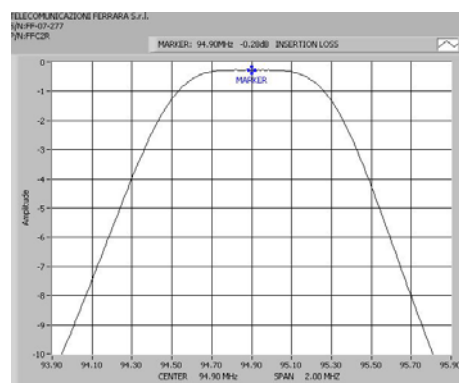
### TYPICAL SPECIFICATIONS

<b>Models</b>	FFC2R
<b>Impedance</b>	50 ohm
<b>Frequency Range</b>	87.5-108 MHz
<b>VSWR <math>\pm</math> 150 KHz</b>	1.1:1 Max
<b>Insertion Loss</b>	at $f_0$ 0.25 dB Max
<b>Return Loss <math>\pm</math> 150 KHz</b>	$\leq -26$ dB
<b>Rejection</b>	12 dB @ $\pm$ 1MHz ADJUST
<b>Connectors</b>	7/16" Input/Output (Option 7/8")
<b>Max Power</b>	2 KW
<b>Working Temperature</b>	-20°C $\div$ +50°C
<b>Colour</b>	Enamel Gray Ral 7001
<b>Materials</b>	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12 $\mu$ m thickness)

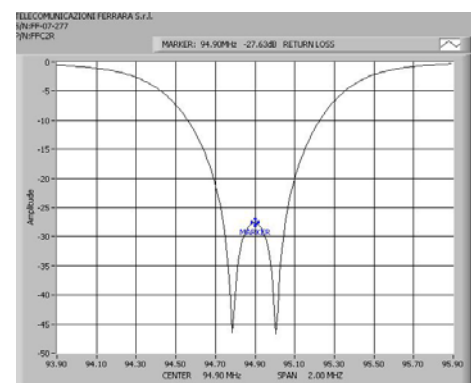
### Features:

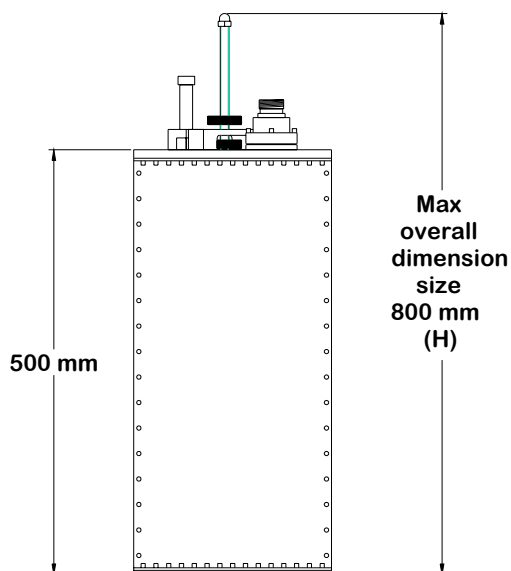
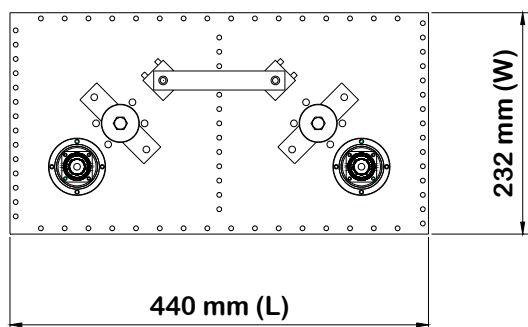
- **Distortion – Free Transmission**
- **Low Loss, High Isolation**
- **Natural Convection**
- **Rack Mounting (Option from Panel 6HE)**

**Example of  
Return Loss**



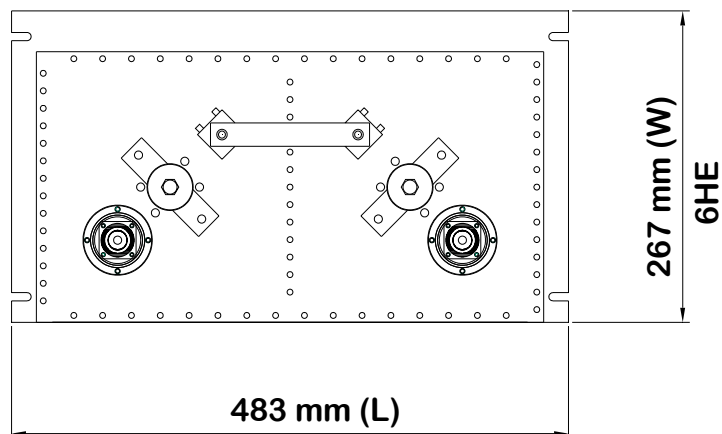
**Example of  
Insertion Loss**



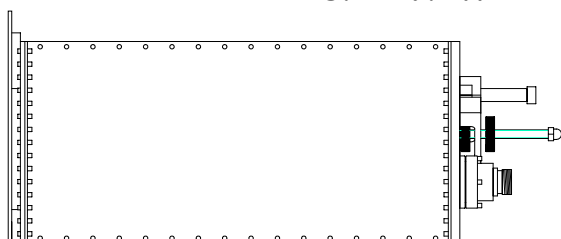


## Rack version

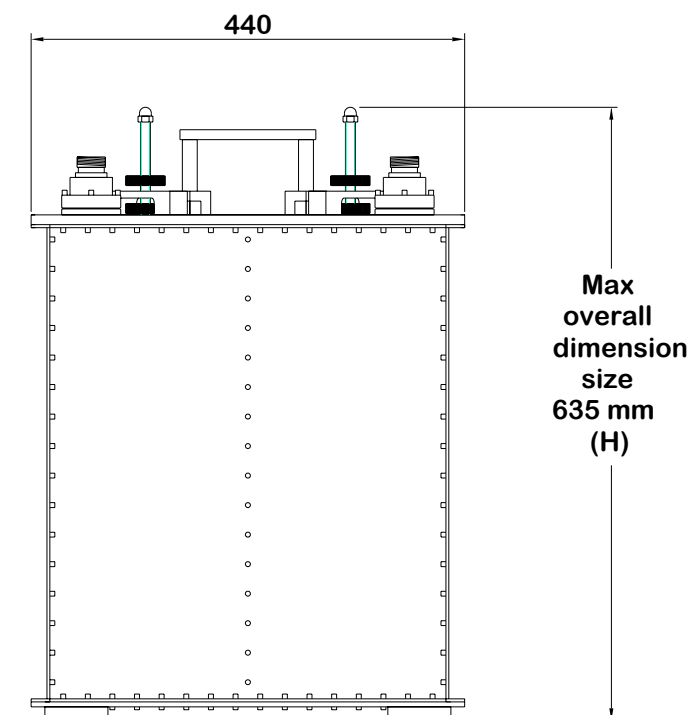
### REAR VIEW



### SIDE VIEW



### TOP VIEW



<b>Dimensions</b>	800 (Max size) × 440 × 232 mm (31.5 (Max size) × 17.3 × 9.1 inch) (H×L×W)
<b>Net Weight</b>	≅ 9 Kg Standard - ≅ 10 Kg Rack Version
	635 (Max size) × 483 × 267 mm (25 (Max size) × 19 × 10.5 inch) (H×L×W)

## MODEL FFC3

- **BAND-PASS FILTER**
- **FM BAND 87.5÷108 MHz**
- **BAND II**



THESE ARE TWO STANDARD RESONANT CAVITY FILTERS, AND IN THE SPECIAL VERSION WITH 3 AND 4.  
ALL THE MODELS ARE USED TO MAKE UP MIXERS WITH SEVERAL CHANNELS.

The pass band filters was designed as an extension of our band pass combiner technology. Using our industry-leading square, cavity filter design, the filter provides a one-time-buy filtering solution for the broadcaster located at multiple-user site.

The filter isolates the transmission system to eliminate spurious emissions.

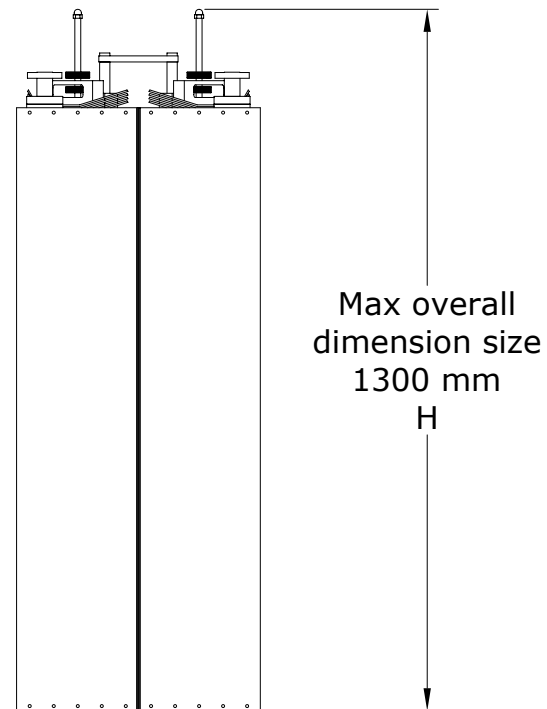
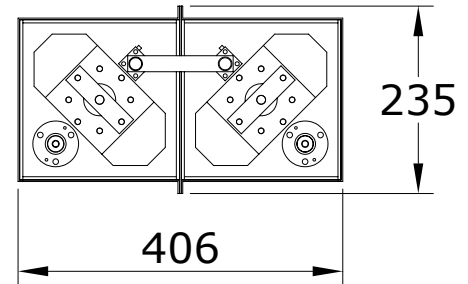
### TYPICAL SPECIFICATIONS

Model	FFC3
Impedance	50 ohm
Frequency Range	87.5-108 MHz
VSWR $\pm$ 150 KHz	1.1:1 Max
Insertion Loss	at $f_0$ 0.20 dB Max
Return Loss $\pm$ 150 KHz	$\leq -26$ dB
Rejection	per customer's requirements (Typical $\pm$ 1MHz it's even to $-14$ dB)
Connectors	7/8" EIA Input-Output
Max Power	3KW
Working Temperature	$-20^{\circ}\text{C} \div +50^{\circ}\text{C}$
Colour	Enamel Gray Ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. 12 $\mu\text{m}$ thickness)

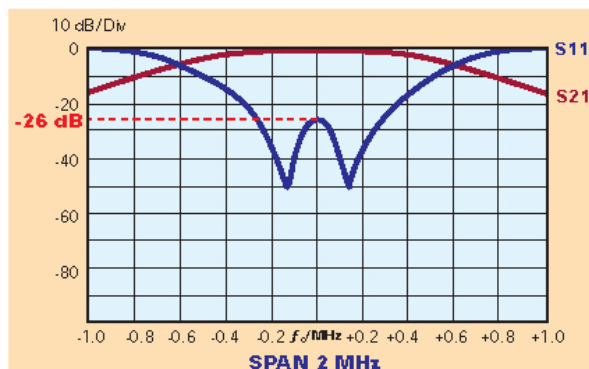
### Features:

- Distortion – Free Transmission
- Standard configuration of 2 cavities
- Special configuration 3 and 4 cavities
- Low loss, high isolation
- Natural convection

Dimensions	1300(Max size)×406×235 mm (51.2(Max size)×16.0×9.2 inch) (H×L×W)
Net Weight	$\cong$ 25 Kg (double cavity)

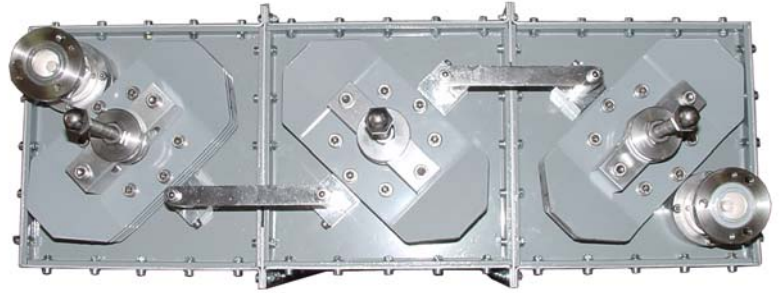


Typical shape of a curves for S11 and S21 parameters



## MODEL FFTC3

- **BAND-PASS FILTER**
- **FM BAND 87.5÷108 MHz**
- **BAND II**



THESE ARE THREE STANDARD RESONANT CAVITY FILTERS, AND IN THE SPECIAL VERSION WITH 4.  
ALL THE MODELS ARE USED TO MAKE UP MIXERS WITH SEVERAL CHANNELS.

The pass band filters was designed as an extension of our band pass combiner technology. Using our industry-leading square, cavity filter design, the filter provides a one-time-buy filtering solution for the broadcaster located at multiple-user site.

The filter isolates the transmission system to eliminate spurious emissions.

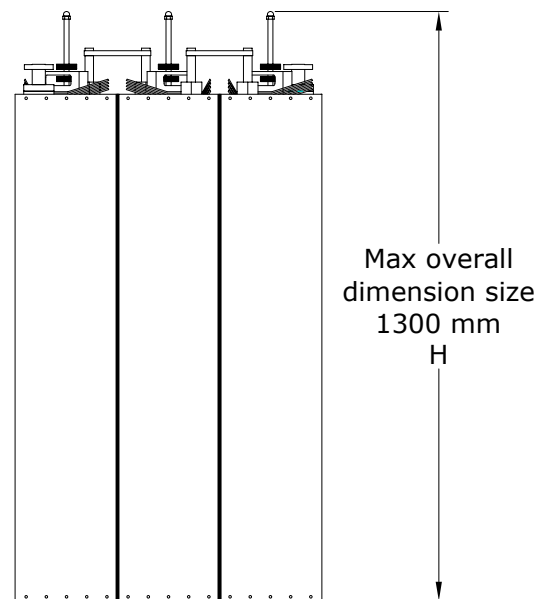
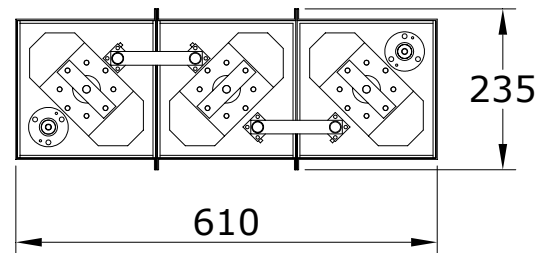
### TYPICAL SPECIFICATIONS

Model	FFTC3
Impedance	50 ohm
Frequency Range	87.5-108 MHz
VSWR $\pm$ 150 KHz	1.1:1 Max
Insertion Loss	at $f_0$ 0.35 dB Max
Return Loss $\pm$ 150 KHz	$\leq -26$ dB
Rejection	per customer's requirements (Typical $\pm$ 1MHz it's even to $-16$ dB)
Connectors	7/8" EIA Input-Output (Opt. 1+5/8")
Max Power	3KW
Working Temperature	$-20^{\circ}\text{C} \div +50^{\circ}\text{C}$
Colour	Enamel Gray Ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. 12 $\mu\text{m}$ thickness)

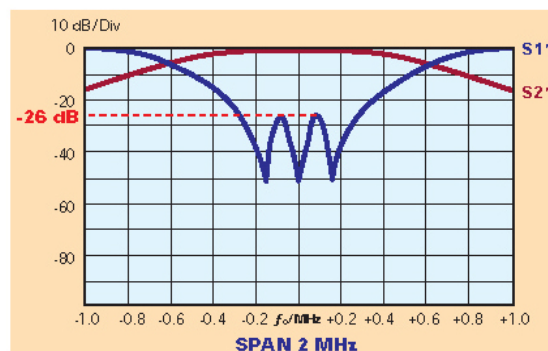
### Features:

- Distortion – Free Transmission
- Standard configuration of 3 cavities
- Special configuration 4 cavities
- Low loss, high isolation
- Natural convection

Dimensions	1300(Max size)×610×235 mm (51.2(Max size)×24.0×9.2 inch) (H×L×W)
Net Weight	$\approx$ 37 Kg (triple cavity)



Typical shape of a curves for S11 and S21 parameters



## MODEL FFC5

- **BAND-PASS FILTER**
- **FM BAND 87.5-108 MHz**
- **BAND II**

THESE ARE TWO STANDARD RESONANT CAVITY FILTERS, AND IN THE SPECIAL VERSION WITH 3 AND 4.

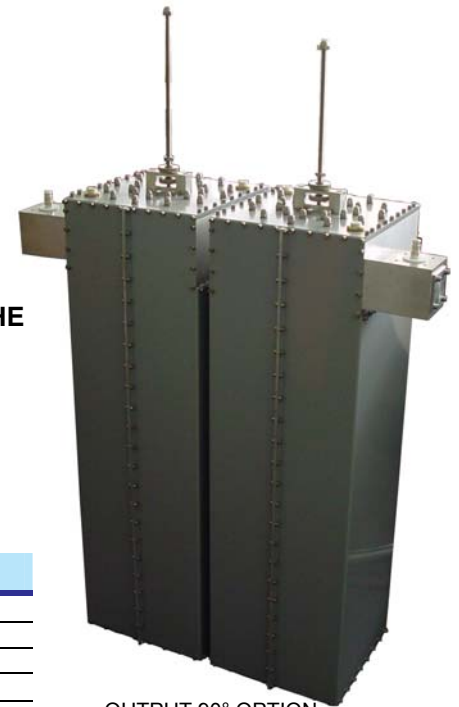
ALL THE MODELS ARE USED TO MAKE UP MIXERS WITH SEVERAL CHANNELS.

The pass band filters was designed as an extension of our band pass combiner technology. Using our industry-leading square, cavity filter design, the filter provides a one-time-buy filtering solution for the broadcaster located at multiple-user site.

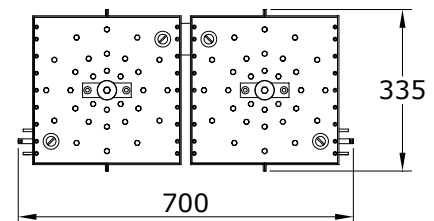
The filter isolates the transmission system to eliminate spurious emissions.

### TYPICAL SPECIFICATIONS

Model	FFC5
Impedance	50 Ohm
Frequency Range	87.5-108 MHz
VSWR $\pm 150$ KHz	1.1:1 max
Insertion Loss	$\leq 0.15$ dB
Return Loss $\pm 150$ KHz	$\leq -26$ dB
Rejection	per customer's requirements (Typical $\pm 1$ MHz it's even to $-14$ dB)
Connectors	1+5/8" Input - Output
Max Power	5 KW
Working Temperature	$-20^{\circ}\text{C} \div +50^{\circ}\text{C}$
Colour	Enamel Gray ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. $12\mu\text{m}$ thickness)



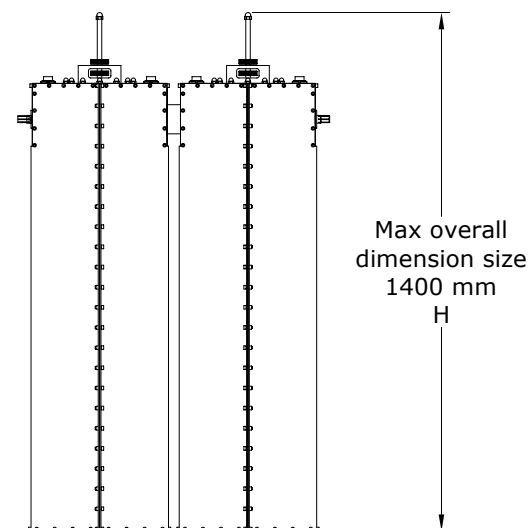
OUTPUT 90° OPTION



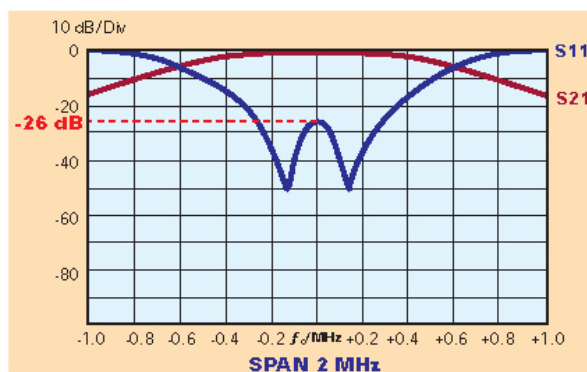
### Features:

- Modular design
- Distortion – Free Transmission
- Standard configuration of 2 cavities
- Special configuration 3 and 4 cavities
- Low loss, high isolation
- Natural convection

Dimensions	1400(Max size)×700×335 mm (55.1(Max size)×27.6×13.2 inch) (H×L×W)
Net Weight	$\cong 45$ Kg (double cavity)



Typical shape of a curves for S11 and S21 parameters





## MODEL FFC10/C

- **BAND-PASS FILTER**
- **FM BAND 87.5-108 MHz**
- **BAND II**

THESE ARE TWO STANDARD RESONANT CAVITY FILTERS, AND IN THE SPECIAL VERSION WITH 3 AND 4.

ALL THE MODELS ARE USED TO MAKE UP MIXERS WITH SEVERAL CHANNELS.

The pass band filters was designed as an extension of our band pass combiner technology. Using our industry-leading square, cavity filter design, the filter provides a one-time-buy filtering solution for the broadcaster located at multiple-user site.

The filter isolates the transmission system to eliminate spurious emissions.

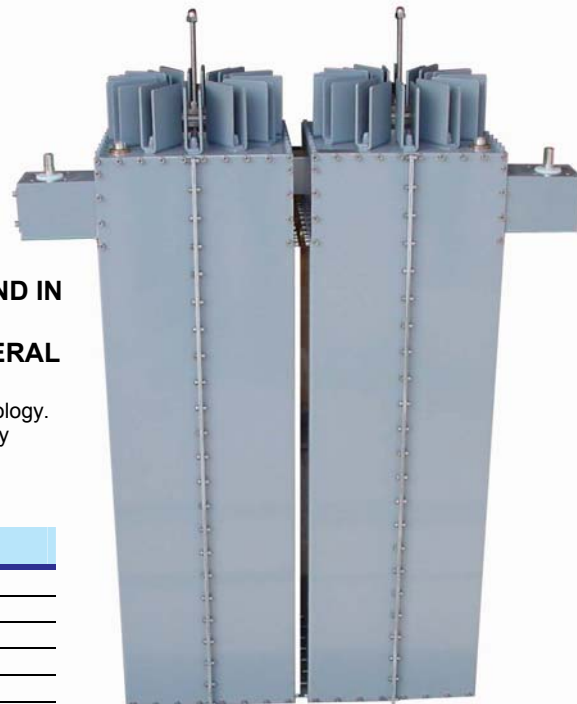
### TYPICAL SPECIFICATIONS

Model	FFC10/C (compact version)
Impedance	50 ohm
Frequency Range	87.5-108 MHz
VSWR $\pm 150$ KHz	1.1:1 max
Insertion Loss	$\leq 0.15$ dB
Return Loss $\pm 150$ KHz	$\leq -26$ dB
Rejection	per customer's requirements (Typical $\pm 1$ MHz it's even to $-14$ dB)
Connectors	1+5/8" Input – Output (Option 3+1/8")
Max Power	10 KW
Working Temperature	$-20^{\circ}\text{C} \div +50^{\circ}\text{C}$
Colour	Enamel Gray Ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12 $\mu\text{m}$ thickness)

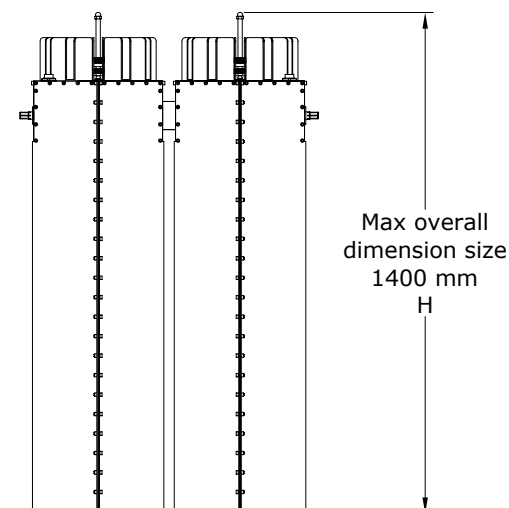
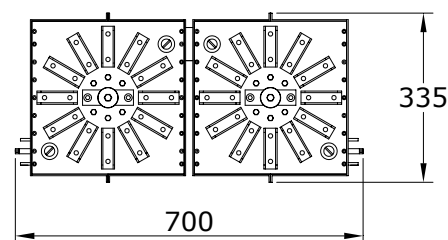
### Features:

- Modular design
- Distortion – Free Transmission
- Standard configuration of 2 cavities
- Special configuration 3 and 4 cavities
- Low loss, high isolation
- Forced air cooling

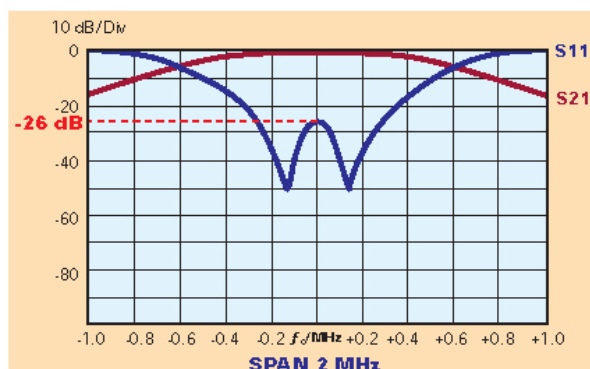
Dimensions	1400(Max size)×700×335 mm (55.1(Max size)×27.5×13.2 inch) (H×L×W)
Net Weight	$\cong 46$ Kg (double cavity)



OUTPUT 90° OPTION



Typical shape of a curves for S11 and S21 parameters





## Model FFC10

- Band-Pass Filter
- FM Band 87.5÷108 MHz
- Band II



THESE ARE TWO STANDARD RESONANT CAVITY FILTERS, AND IN THE SPECIAL VERSION WITH 3 AND 4.

ALL THE MODELS ARE USED TO MAKE UP MIXERS WITH SEVERAL CHANNELS.

The band pass filters was designed as an extension of our band pass combiner technology.

Using our industry-leading squarecavity filter design, the filter provides a one-time-buy filtering solution for the broadcaster located at multiple-user site.

The filter isolates the transmission system to eliminate spurious emissions.

### TYPICAL SPECIFICATIONS

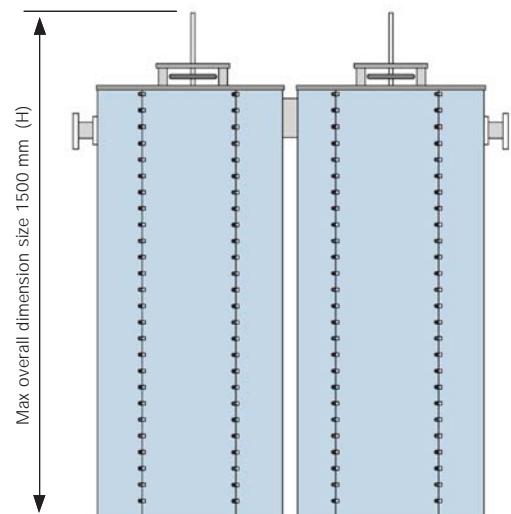
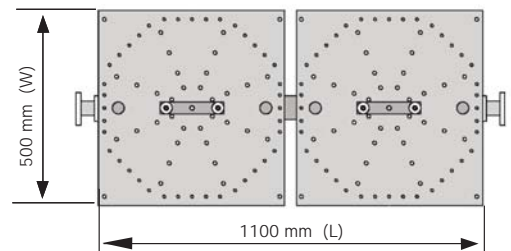
Model	FFC10
Impedance	50 Ohm
Frequency Range	87.5÷108 MHz
VSWR $\pm 150$ KHz	1.1:1 Max
Insertion Loss	$\leq 0.1$ dB
Return Loss $\pm 150$ KHz	$\leq -26$ dB
Rejection	per customer's requirements (Typical $\pm 1$ MHz it's even to $-14$ dB)
Connectors	1+5/8" Input-Output (Option 3+1/8")
Max Power	10 KW
Working Temperature	$-20^{\circ}\text{C} \div +50^{\circ}\text{C}$
Colour	Enamel gray ral 7001
Materials	Aluminium, silver brass, copper, PTFE, stainless steel, silver plated (min $12\mu$ thickness)

### Features:

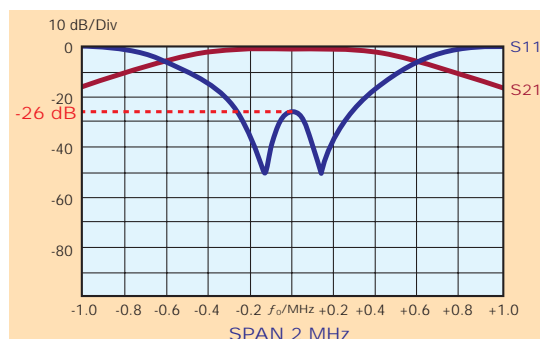
- Modular design
- Distortion – Free Transmission
- Standard configuration of 2 cavities
- Special configuration 3 and 4 cavities
- Low loss, high isolation
- Natural convection

### No Rack Version

Dimensions	1500 (Max size) x 1100 x 500 mm (59-Max Size-X43.3x19.7 inch) (HxLxW)
Net Weight	$\cong 60$ Kg (double cavity)



Typical shape of a curves for S11 and S21 parameters



"These specifications are subject to change without notice"

## MODEL FFC20

- **BAND-PASS FILTER**
- **FM BAND 87.5-108 MHz**
- **BAND II**



OUTPUT 90° OPTION

**THESE ARE TWO STANDARD RESONANT CAVITY FILTERS, AND IN SPECIAL VERSION WITH 3 AND 4.**

**ALL THE MODELS ARE USED TO MAKE UP MIXERS WITH SEVERAL CHANNELS.**

The pass band filters was designed as an extension of our band pass combiner technology. Using our industry-leading square, cavity filter design, the filter provides a one-time-buy filtering solution for the broadcaster located at multiple-user site.

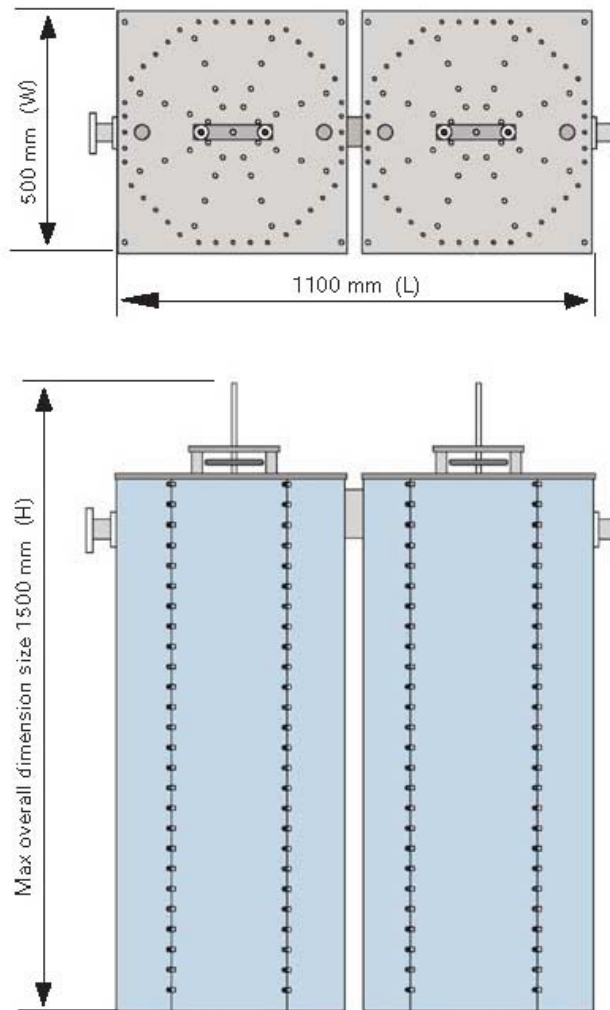
The filter isolates the transmission system to eliminate spurious emissions.

### TYPICAL SPECIFICATIONS

<b>Model</b>	FFC20
<b>Impedance</b>	50 ohm
<b>Frequency Range</b>	87.5-108 MHz
<b>VSWR <math>\pm</math> 150 KHz</b>	1.1:1 max
<b>Insertion Loss</b>	$\leq 0.1$ dB
<b>Return Loss <math>\pm</math> 150 KHz</b>	$\leq -26$ dB
<b>Rejection</b>	per customer's requirements (Typical $\pm 1$ MHz it's even to $-14$ dB)
<b>Connectors</b>	3+1/8" Input - Output
<b>Max Power</b>	20 KW
<b>Working Temperature</b>	$-20^{\circ}\text{C} \div +50^{\circ}\text{C}$
<b>Colour</b>	Enamel Gray Ral 7001
<b>Materials</b>	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. $12\mu\text{m}$ thickness)

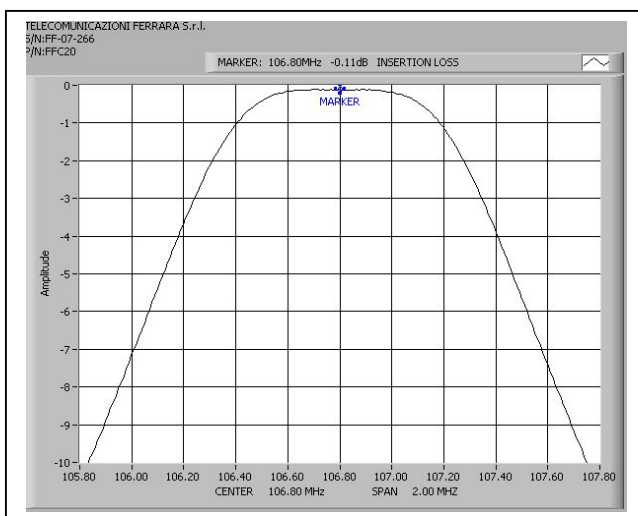
### Features:

- **Modular design**
- **Distortion – Free Transmission**
- **Standard configuration of 2 cavities**
- **Special configuration 3 and 4 cavities**
- **Low loss, high isolation**
- **Natural convection**

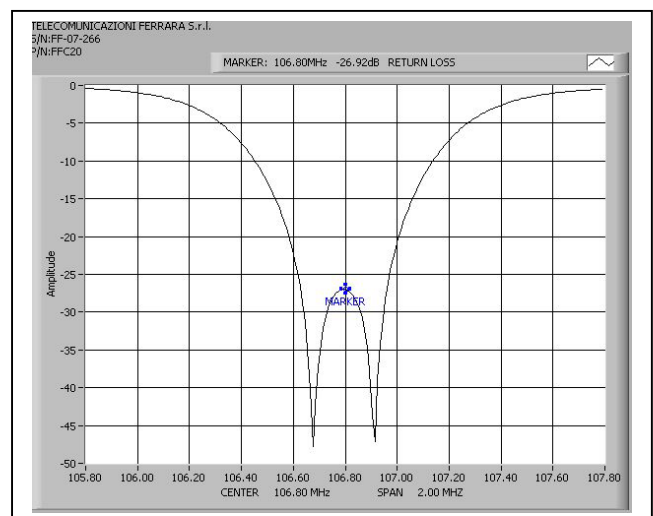


<b>Dimensions</b>	1500(Max size)×1100×490 mm (59.0(Max size)×43.3×19.3 inch) (H×L×W)
<b>Net Weight</b>	≅ 60 Kg (double cavity)

**Example of  
Return Loss**



**Example of  
Insertion Loss**



## MODEL FFC30

- **BAND-PASS FILTER**
- **FM BAND 87.5-108 MHz**
- **BAND II**



OUTPUT 90° OPTION

**THESE ARE TWO STANDARD RESONANT CAVITY FILTERS, AND IN SPECIAL VERSION WITH 3 AND 4.**

**ALL THE MODELS ARE USED TO MAKE UP MIXERS WITH SEVERAL CHANNELS.**

The pass band filters was designed as an extension of our band pass combiner technology. Using our industry-leading square, cavity filter design, the filter provides a one-time-buy filtering solution for the broadcaster located at multiple-user site.

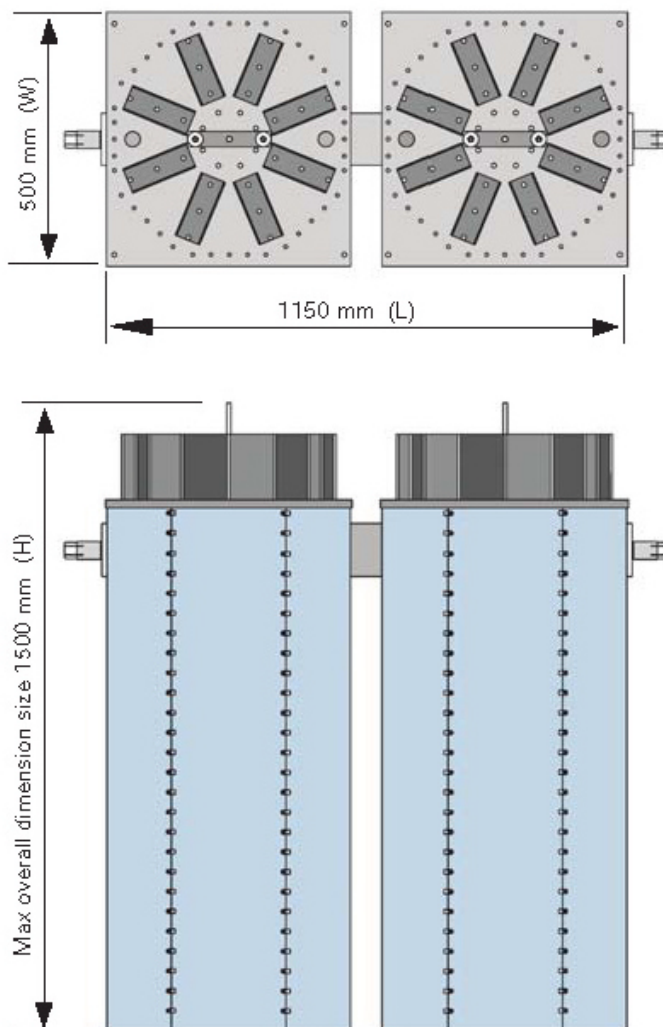
The filter isolates the transmission system to eliminate spurious emissions.

### TYPICAL SPECIFICATIONS

Model	FFC30
Impedance	50 ohm
Frequency Range	87.5-108 MHz
VSWR $\pm$ 150 KHz	1.1:1 max
Insertion Loss	$\leq$ 0.1 dB
Return Loss $\pm$ 150 KHz	$\leq$ -26 dB
Rejection	per customer's requirements (Typical $\pm$ 1MHz it's even to -14dB)
Connectors	3+1/8" Input - Output
Max Power	35 KW
Working Temperature	-20°C $\div$ +50°C
Colour	Enamel Gray Ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. 12 $\mu$ m thickness)

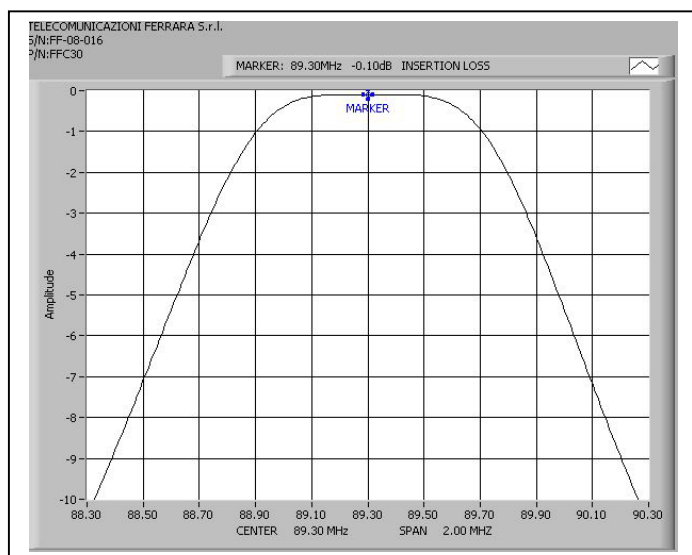
### Features:

- **Modular design**
- **Distortion – Free Transmission**
- **Standard configuration of 2 cavities**
- **Special configuration 3 and 4 cavities**
- **Low loss, high isolation**
- **Natural convection**

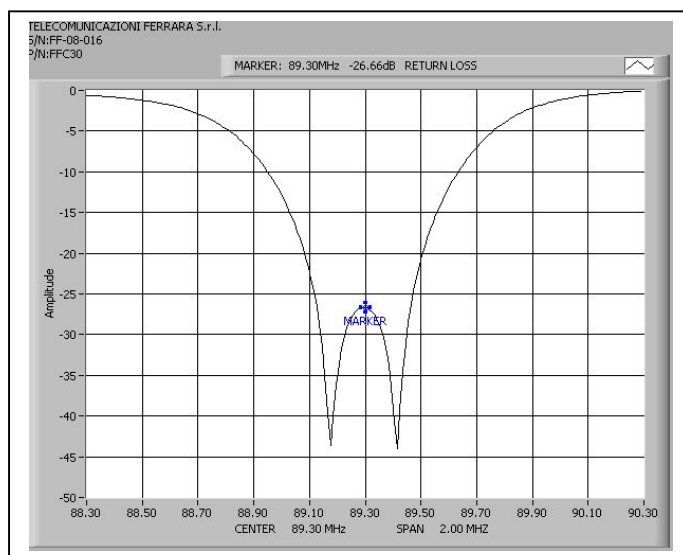


<b>Dimensions</b>	1500(Max size)×1150×500 mm (59.0(Max size)×45.3×19.7 inch) (H×L×W)
	≅ 58 Kg (double cavity)

**Example of  
Return Loss**



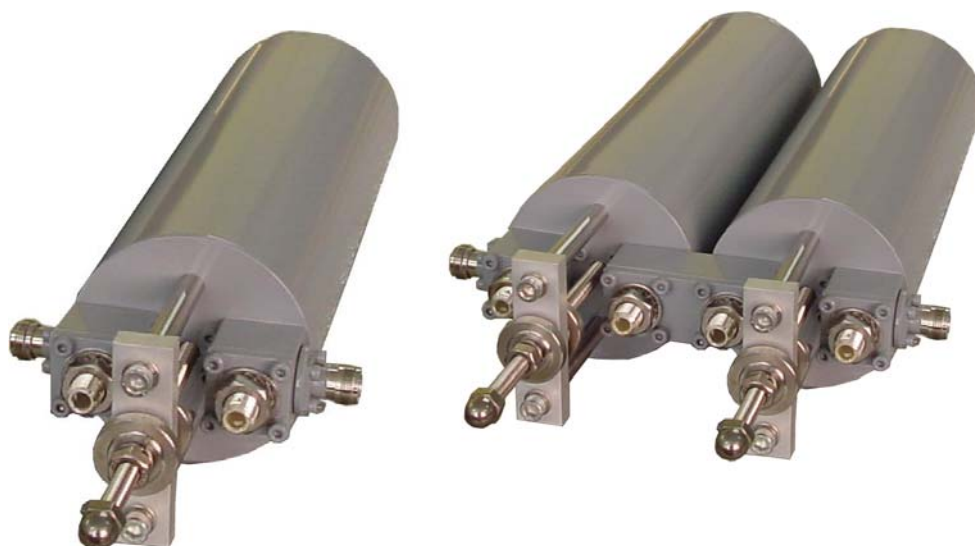
**Example of  
Insertion Loss**



"These specifications are subject to change without notice"

# **MODEL FFC03 VHF (DOUBLE) FFCS03 VHF (SINGLE) FFCT03 VHF (TRIPLE)**

- **BAND-PASS FILTER**
- **BAND VHF 200-300 MHz**



THESE ARE TWO STANDARD RESONANT CAVITY FILTERS, AND IN SPECIAL VERSION WITH 3 AND 4 IT.

ALL THE MODELS ARE USED TO MAKE UP MIXERS WITH SEVERAL CHANNELS.

The band pass filters was designed as an extension of our band pass combiner technology.

Using our industry-leading square, octagonal, cavity filter design, the filter provides a one-time-buy filtering solution for the broadcaster located at multiple-user site.

The filter isolates the transmission system to eliminate spurious emissions.

## **TYPICAL SPECIFICATIONS**

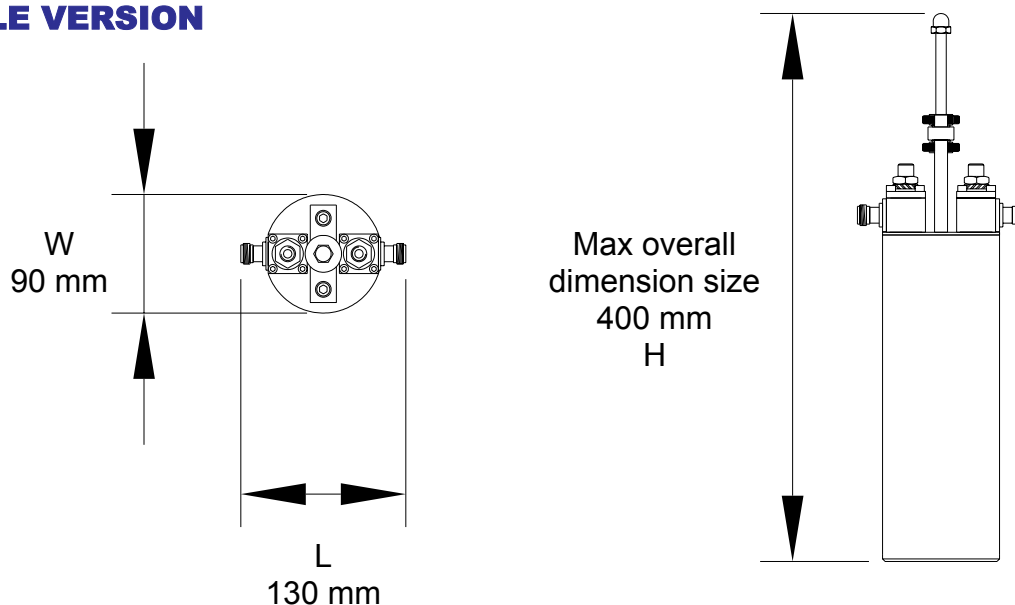
<b>Model</b>	FFC03 VHF (FFCS03 VHF – FFCT03 VHF)
<b>Impedance</b>	50 ohm
<b>Frequency Range</b>	200-500 MHz
<b>VSWR</b>	1.1:1 Max
<b>Insertion Loss</b>	at $f_0$ 0.4 dB (Typical Single)
<b>Return Loss <math>\pm 150</math> KHz</b>	$\leq -26$ dB
<b>Rejection</b>	per customer's requirements (Typical $\pm 1$ MHz it's even to $-8$ dB) (Double)
<b>Connectors</b>	N Input-Output
<b>Max Power</b>	200 W
<b>Working Temperature</b>	$-30^{\circ}\text{C} \div +60^{\circ}\text{C}$
<b>Colour</b>	Enamel Gray Ral 7001
<b>Materials</b>	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12 $\mu$ m thickness)

## **Features:**

- **Distortion – Free Transmission**
- **Standard configuration of 2 cavities**
- **Special configuration 4 cavities or Notch**
- **Low loss, high isolation**
- **Natural convection**



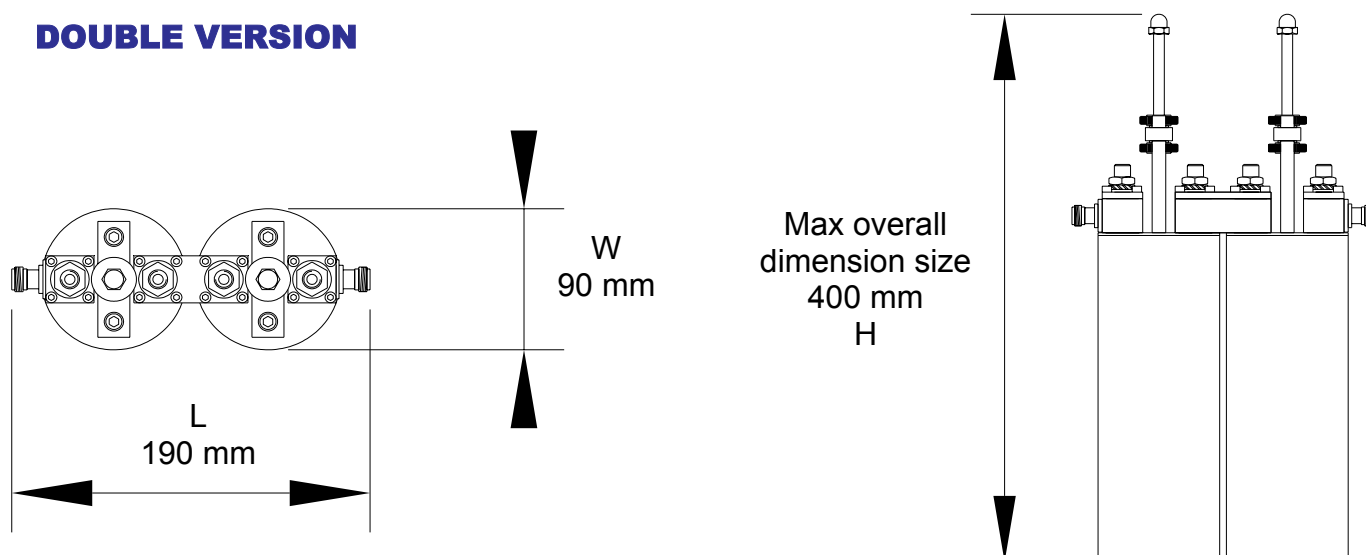
## SINGLE VERSION



### No rack version

<b>Dimensions</b>	400(Max size)×130×90mm (15,7(Max size)×5.1×3.5 inch) (H×L×W)
<b>Net Weight</b>	≅ 2,5 Kg (Double)

## DOUBLE VERSION



### No rack version

<b>Dimensions</b>	400(Max size)×190×90mm (15,7(Max size)×7.5×3.5 inch) (H×L×W)
<b>Net Weight</b>	≅ 5 Kg (Double)

### Rack version (optional)

<b>Panel Size</b>	2 HE (1 HE=44,45 mm)
<b>Net Weight</b>	≅ 5,2 Kg (Double)

# MODEL FFOC2-UHF

- **UHF BAND-PASS FILTER**
- **BAND UHF 474 - 862 MHz**
- **Poles Elliptical Response**



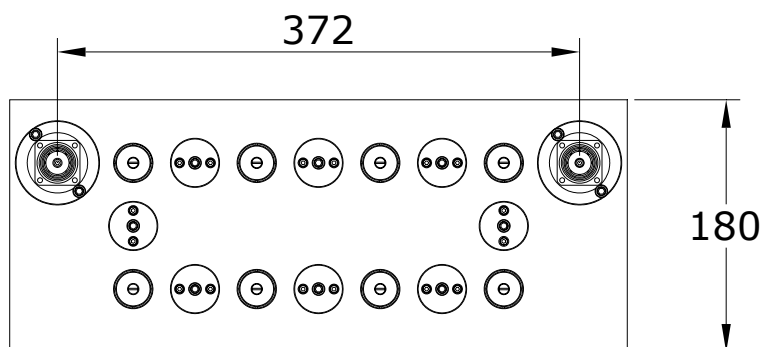
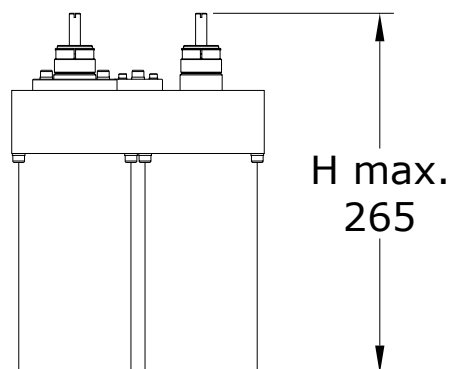
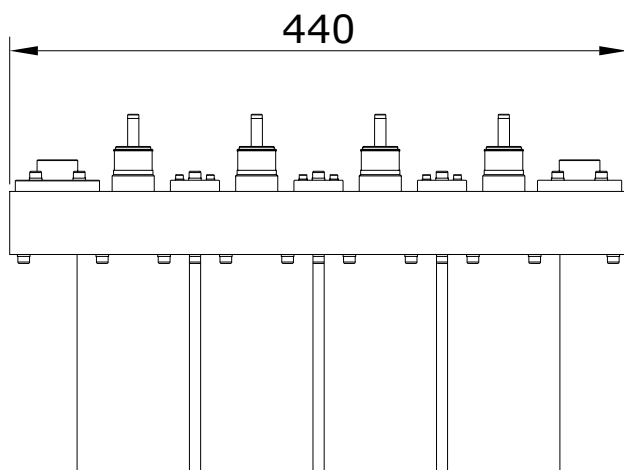
These are four standard resonant cavity filters.  
All the models are used to make up mixers with several channels.  
The band pass filters was designed as an extension of our band pass combiner technology.  
Using our industry-leading square, octagonal, cavity filter design, the filter provides a one-time-buy filtering solution for the broadcaster located at multiple-user site.  
The filter isolates the transmission system to eliminate spurious emissions.

## TYPICAL SPECIFICATIONS

<b>Model</b>	FFOC2-VHF
<b>Impedance</b>	50 ohm
<b>Frequency Range</b>	474 - 862 MHz
<b>VSWR <math>\pm</math> 150 KHz</b>	1.1:1 Max
<b>Insertion Loss</b>	at $f_0$ < 0.26 dB @ V.C. Ch. 69 at $f_0$ < 0.24 dB @ V.C. Ch. 21
<b>Return Loss <math>\pm</math> 150 KHz</b>	> 28 dB
<b>Group Delay Variation</b>	< 30 nS
<b>Bandwith</b>	6 to 8 MHz
<b>Selectivity</b>	> 40 dB @ V.C. -5,5/+11 MHz > 25 dB @ V.C. +11/+16,5 MHz
<b>Connectors</b>	7/16" (In - Out)
<b>Max Power</b>	2 KW
<b>Working Temperature</b>	-20°C $\div$ +50°C
<b>Temperature Stability</b>	< 4 kHz / K
<b>Colour</b>	Enamel Gray Ral 7001
<b>Materials</b>	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. 12 $\mu$ m thickness)

## Features:

- **UHF 3 KW analog and 1 digital RMS TV output filter**
- **3D electromagnetic CAD exclusive design**
- **4 poles elliptical response: two transmission zeros for IMD suppression**
- **Foreshorten combine resonators structure; iris couplings with fine bandwidth regulation**
- **High selectivity and low loss (Typ. 0.22 dB @ V.C. Ch. 69 G)**
- **Exclusive thermal compensation technology providing high temperature stability (< 4 kHz/K)**
- **Very compact, lightweight (9.1 kg) and extremely reliable**



## No rack version

Dimensions	265(Max size)×440×180mm (10,4(Max size)×17.3×7.1 inch) (H×L×W)
Net Weight	≅ 10 Kg.

## Rack version (optional)

Panel Size	1 HE (1 HE=44,45 mm)
Net Weight	≅ 11 Kg

## Model FFQC2-UHF

- **UHF BAND-PASS FILTER**
- **Band UHF 474 - 862 MHz**
- **Poles Elliptical Response**



These are four standard resonant cavity filters.

All the models are used to make up mixers with several channels.

The band pass filters was designed as an extension of our band pass combiner technology.

Using our industry-leading square, octagonal, cavity filter design, the filter provides a one-time-buy filtering solution for the broadcaster located at multiple-user site.

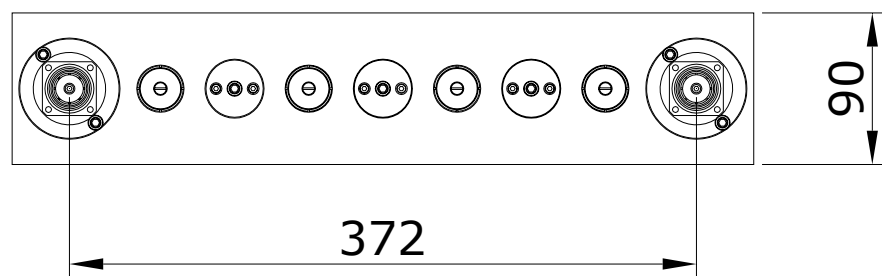
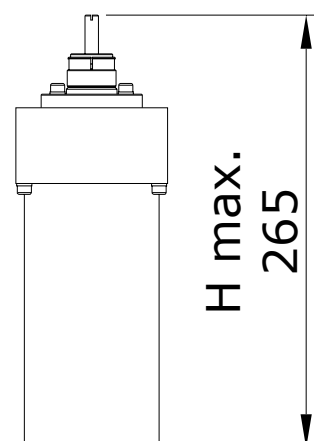
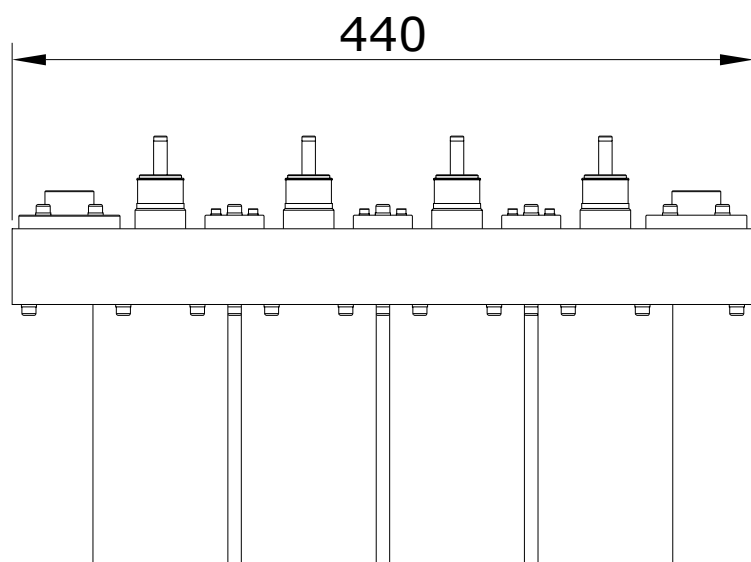
The filter isolates the transmission system to eliminate spurious emissions.

### TYPICAL SPECIFICATIONS

<b>Model</b>	FFQC2-UHF
<b>Impedance</b>	50 ohm
<b>Frequency Range</b>	474 - 862 MHz
<b>VSWR ± 150 KHz</b>	1.1:1 Max
<b>Insertion Loss</b>	at $f_0$ < 0.26 dB @ V.C. Ch. 69 at $f_0$ < 0.24 dB @ V.C. Ch. 21
<b>Return Loss ± 150 KHz</b>	> 28 dB
<b>Group Delay Variation</b>	< 30 nS
<b>Bandwith</b>	6 to 8 MHz
<b>Selectivity</b>	> 40 dB @ V.C. -5,5/+11 MHz > 25 dB @ V.C. +11/+16,5 MHz
<b>Connectors</b>	7/16" (In – Out)
<b>Max Power</b>	2 KW
<b>Working Temperature</b>	-20°C ÷ +50°C
<b>Temperature Stability</b>	< 4 kHz / K
<b>Colour</b>	Enamel Gray Ral 7001
<b>Materials</b>	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. 12µm thickness)

### Features:

- **UHF 2 KW analog and 1 digital RMS TV output filter**
- **3D electromagnetic CAD exclusive design**
- **4 poles elliptical response: two transmission zeros for IMD suppression**
- **Foreshorten combine resonators structure; iris couplings with fine bandwidth regulation**
- **High selectivity and low loss (Typ. 0.22 dB @ V.C. Ch. 69 G)**
- **Exclusive thermal compensation technology providing high temperature stability (< 4 kHz/K)**
- **Very compact, lightweight (9.1 kg) and extremely reliable**



## No rack version

Dimensions	265(Max size)×440×90mm (10,4(Max size)×17.3×3.5 inch) (H×L×W)
Net Weight	≅5 Kg.

## Rack version (optional)

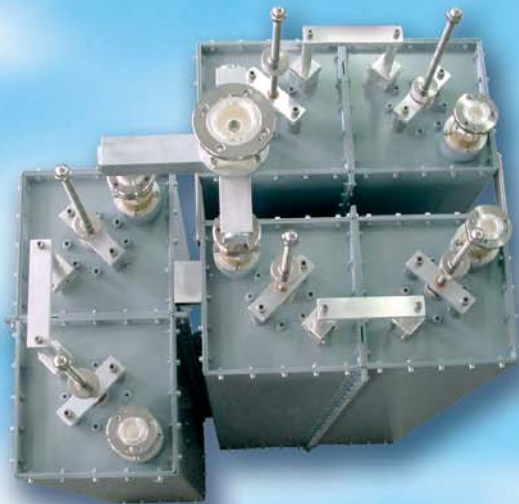
Panel Size	1 HE (1 HE=44,45 mm)
Net Weight	≅ 5,5 Kg

"These specifications are subject to change without notice"

# GENERAL CATALOG



STAR POINT DIPLEXER 70



STAR POINT TRIPLEXER 82

STAR POINT TETRAPLEXER 90

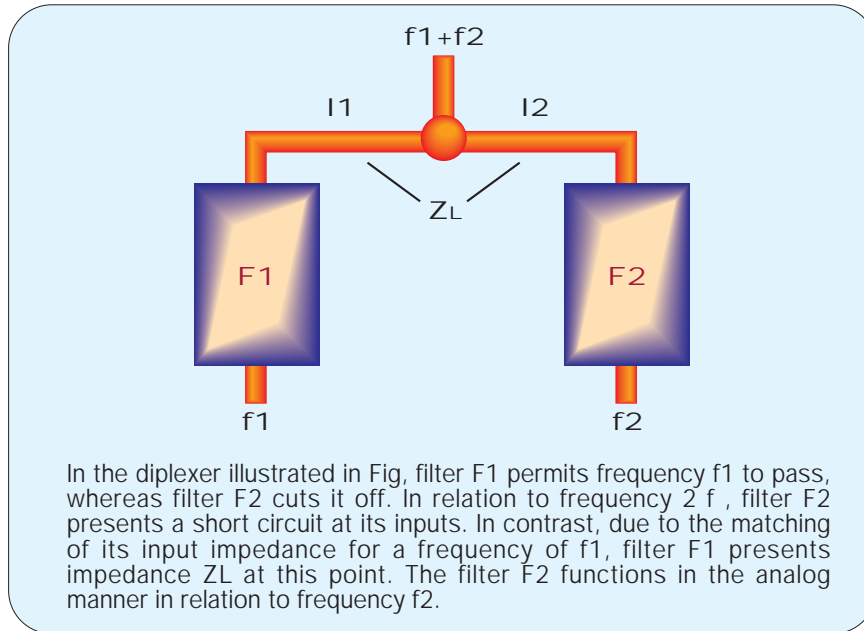


DOUBLE BALANCED  
BRIDGE DIPLEXER 98



## Description of Star-Point Diplexer

- A star-point diplexer is made by parallel circuiting two band pass filters having different pass bands. Care must be taken, however, to ensure that the impedance transformed by the one band pass filter at the junction point does not affect the pass band of the other filter.



The diplexing filter, consisting of two filters and a junction point, has two narrow band inputs corresponding to the pass band characteristics of the filters.



Diplexer  
mounting rack.

## MODEL FDCSDC03

- COMBINER 2 CHANNELS
- TYPE STAR POINT
- FM BAND 87.5÷108 MHz
- BAND II
- OPTION

Model	Input Connector	Output Connector	Power Input	Power Output
FDCSDC03-1	N	7/16"	300W	600W
FDCSDC03-2	N	7/8"	300W	600W

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each n tuned transmitter frequency to witch it's connected. The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

### TYPICAL SPECIFICATIONS

Model	FDCSDC03 – Type STAR POINT
Impedance	50 Ohm
Frequency Range	87.5-108 MHz
VSWR $\pm 150$ KHz	1.1:1 max
Insertion Loss	at $\int_0$ 0.8 dB typical
	$\leq -26$ dB
	$\geq 30$ dB
Isolation $\pm 1.4$ MHz	$\geq 27$ dB (~1dB insertion loss)
	2
	1
	Input N female
	Output N (See table)
	300W x 2 Channels
	-20°C ÷ +50°C
	Enamel Gray Ral 7001
	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12µm thickness)

### Features:

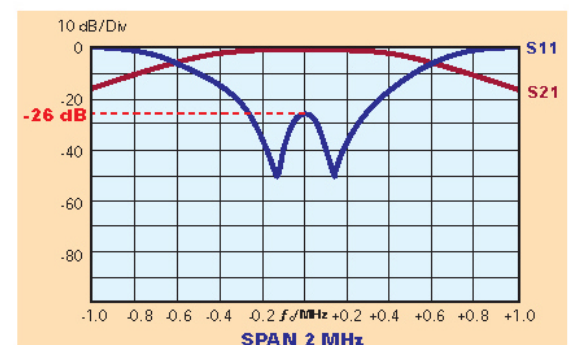
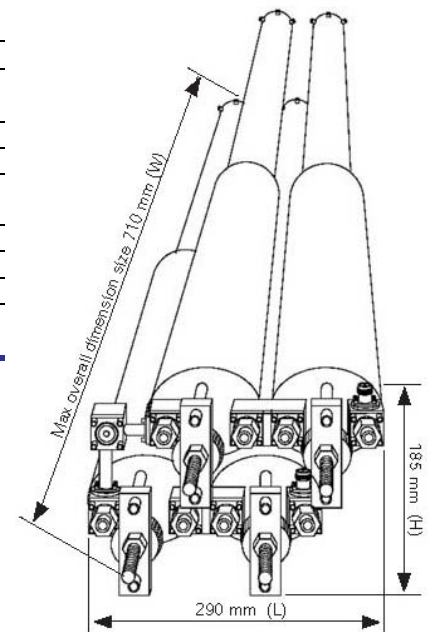
- Distortion – Free Transmission
- Starpoint system with pass stop
- Low loss, high isolation
- Natural convection
- Option whit Rack

#### No rack version

Dimensions	185×290×710 mm (7.3×11.4×28 inch) (H×L×W)
Net Weight	≅ 12 Kg

#### Rack version (optional)

Panel Size	6 HE (1 HE=44,45 mm)
Net Weight	≅ 12 Kg



Typical shape of a curves for S11 and S12 parameters for single filter

"These specifications are subject to change without notice"

## MODEL FDCSTC03

- COMBINER 2 CHANNELS
- TYPE STAR POINT
- FM BAND 87.5÷108 MHz
- BAND II
- OPTION

Model	Input Connector	Output Connector	Power Input	Power Output
FDCSTC03-1	N	7/16"	300W	600W
FDCSTC03-2	N	7/8"	300W	600W



VERSION WITH OPTION RACK

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each n tuned transmitter frequency to witch it's connected. The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

### TYPICAL SPECIFICATIONS

Model	FDCSTC03 – Type STAR POINT
Impedance	50 Ohm
Frequency Range	87.5-108 MHz
VSWR $\pm 150$ KHz	1.1:1 max
Insertion Loss	at $\int_0$ 0.8 dB typical
Return Loss $\pm 150$ KHz	$\leq -26$ dB
Isolation $\pm 2.5$ MHz	$\geq 30$ dB
Isolation $\pm 1.4$ MHz	$\geq 27$ dB (~1dB insertion loss)
Input Number	2
Output Number	1
Connectors standard	Input N female Output N (See table)
Max Power	300W x 2 Channels
Working Temperature	-20°C ÷ +50°C
Colour	Enamel Gray Ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12µm thickness)

### Features:

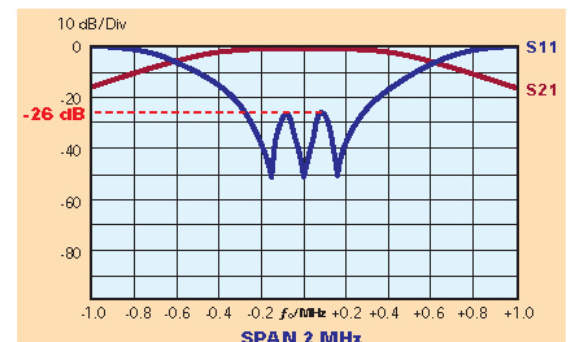
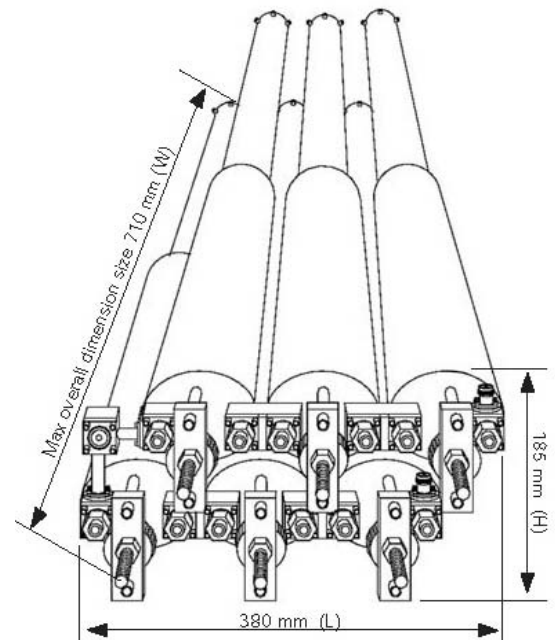
- Distortion – Free Transmission
- Starpoint system with pass stop
- Low loss, high isolation
- Natural convection
- Option whit Rack

#### No rack version

Dimensions	185×380×710 mm (7.3×11.4×28 inch) (H×L×W)
Net Weight	≅ 18 Kg (triple cavity)

#### Rack version (optional)

Panel Size	8 HE (1 HE=44,45 mm)
Net Weight	≅ 18 Kg (triple cavity)



Typical shape of a curves for S11 and S12 parameters for single filter

"These specifications are subject to change without notice"

# MODEL FDCSTC05

- **COMBINER 2 CHANNELS**
- **TYPE STAR POINT**
- **RACK VERSION OPTION**
- **FM BAND 87.5÷108 MHz**
- **BAND II**
- **OPTION**

Model	Input Connector	Output Connector	Power Input	Power Output
FDCSTC05-1	7/16"	7/16"	600W	1200W
FDCSTC05-2	7/16"	7/8"	600W	1200W

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected. The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

## TYPICAL SPECIFICATIONS

Model	FDCSTC05 – Type STAR POINT		
Impedance	50 Ohm		
Frequency Range	87.5-108 MHz		
VSWR $\pm 150$ KHz	1.1:1 max		
Insertion Loss	at $f_0$ 0.65 dB max		
Return Loss $\pm 150$ KHz	$\leq -26$ dB		
Isolation $\pm 1.6$ MHz	$\geq 30$ dB		
No. Input	2		
No. Output	1		
Connectors standard	Input N	Output 7/16	(See table)
Max Power	600 W $\times$ 2 CHANNELS		
Working Temperature	$-20^{\circ}\text{C} \div +50^{\circ}\text{C}$		
Colour	Enamel Gray Ral 7001		
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12 $\mu\text{m}$ thickness)		

## Features:

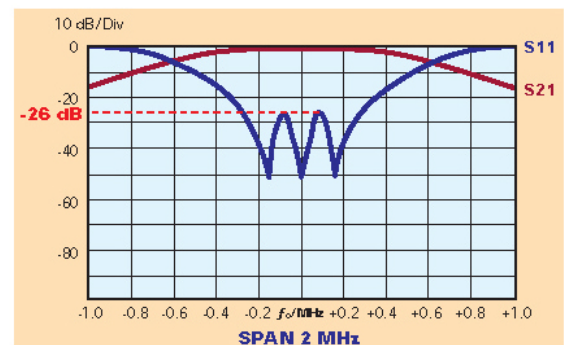
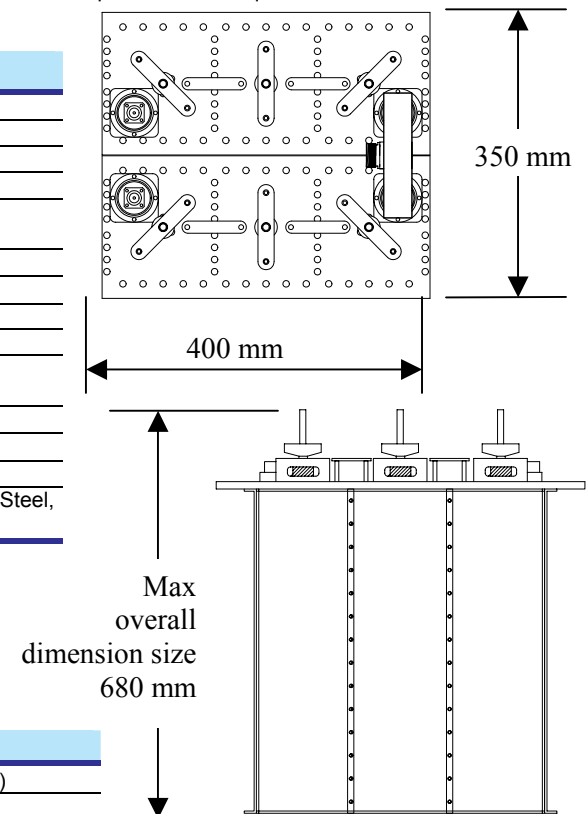
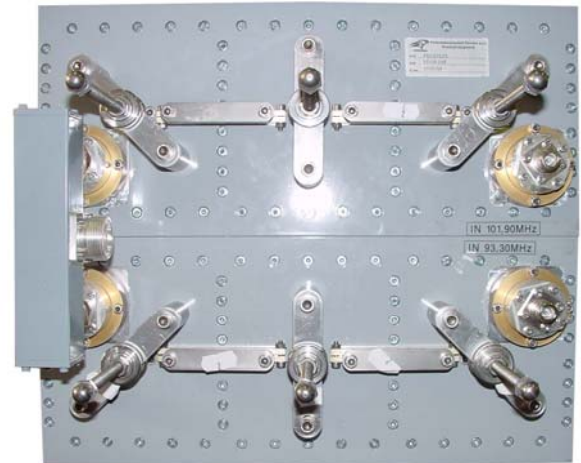
- Distortion – Free Transmission
- Low loss, high isolation
- Natural convection

## Standard version

Dimensions	400 $\times$ 350 $\times$ 680 mm (15.7 $\times$ 13.8 $\times$ 26.8 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong$ 40 Kg

## Rack version (optional)

Panel Size	8 HE (1 HE=44,45 mm)
Net Weight	$\cong$ 40 Kg



Typical shape of a curves for S11 and S12 parameters for single filter

“These specifications are subject to change without notice”



# MODEL FDCSDC2R

- **COMBINER 2 CHANNEL**
- **TYPE STAR POINT**
- **FM BAND 87.5-108 MHz**
- **BAND II**
- **RACK VERSION (option)**
- **OPTION**

Model	Input Connector	Output Connector	Power Input	Power Output
FDCSDC2R-1	N	7/16"	600W	1200W
FDCSDC2R-2	N	7/8"	600W	1200W
FDCSDC2R-3	7/16"	7/16"	1KW	2KW
FDCSDC2R-4	7/16"	7/8"	2KW	4KW
FDCSDC2R-5	7/8"	1+5/8"	2KW	4KW

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each on tuned

transmitter frequency to witch it's connected.

The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

## TYPICAL SPECIFICATIONS

Model	FDCSDC2R
Impedance	50 Ohm
Frequency Range	87.5-108 MHz
VSWR $\pm 150$ KHz	1:1.1 max
Insertion Loss	at $f_0$ 0.25 dB max
Return Loss $\pm 150$ KHz	$\leq -26$ dB
Isolation $\pm 1.5$ MHz	$\geq 30$ dB
Input Number	2
Output Number	1
Standard Connectors	Input 7/8" (See table) Output 7/8"
Max Power	2KW $\times$ 2 CHANNELS
Working Temperature	-20°C $\div$ +50°C
Colour	Enamel Gray Ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12 $\mu$ m thickness)

## Features:

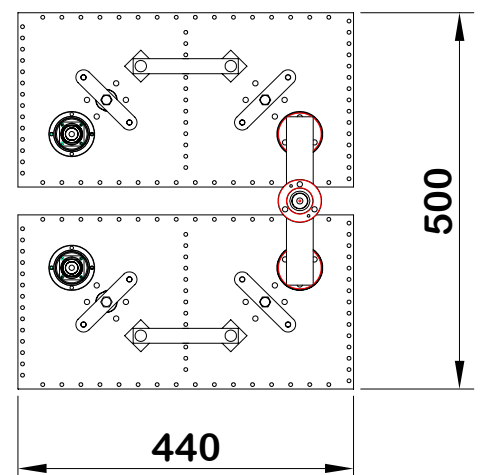
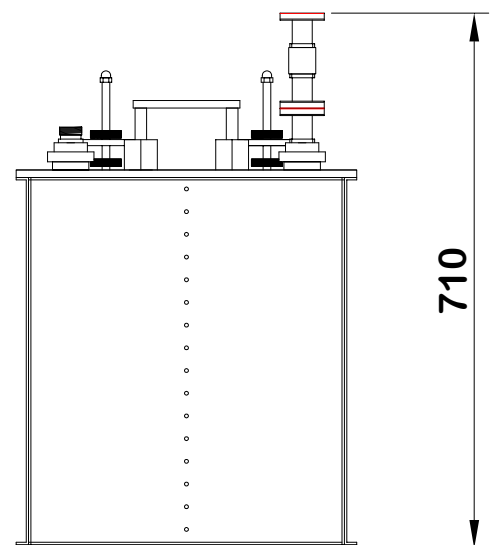
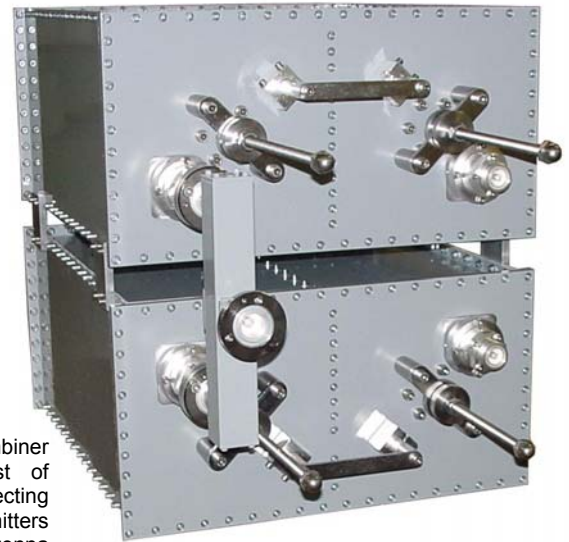
- Distortion – Free Transmission
- Star point system with double pass-band cavity filters (standard configurations)
- Star point system with pass stop
- Low loss, high isolation
- Natural convection
- Option Group delay equalizer

### STANDARD VERSION (FDCSDC2-#10)

Dimensions	710(Max size) $\times$ 500 $\times$ 440 mm (27.9 (Max size) $\times$ 16.7 $\times$ 17.3 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong$ 40 Kg

### VERSION WITH RACK (FDCSDC2R)

Dimensions	12 HE (714(H max) $\times$ 534 $\times$ 483 mm (28.1 (Max size) $\times$ 21.0 $\times$ 19.0 inch)) (H $\times$ L $\times$ W)
Net Weight	$\cong$ 42 Kg



"These specifications are subject to change without notice"

# MODEL FDCSDC2

- **COMBINER 2 CHANNEL**
- **TYPE STAR POINT**
- **FM BAND 87.5-108 MHz**
- **BAND II**
- **OPTION**

Model	Input Connector	Output Connector	Power Input	Power Output
FDCSDC2-1	N	7/16"	600W	1200W
FDCSDC2-2	N	7/8"	600W	1200W
FDCSDC2-3	7/16"	7/16"	1KW	2KW
FDCSDC2-4	7/16"	7/8"	2KW	4KW
FDCSDC2-5	7/8"	1+5/8"	2KW	4KW

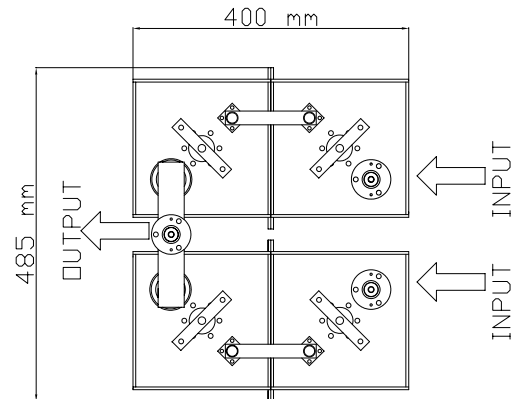
The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass

filters, each on tuned transmitter frequency to witch it's connected. The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.



## TYPICAL SPECIFICATIONS

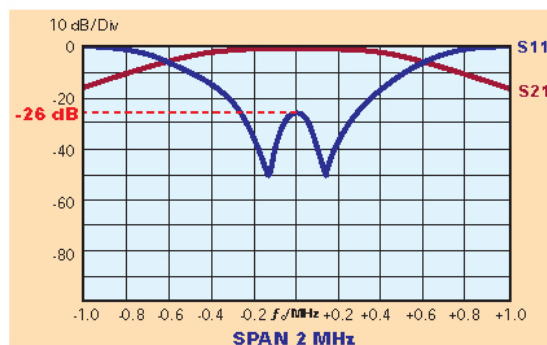
Model	FDCSDC2 – Type STAR POINT		
Impedance	50 Ohm		
Frequency Range	87.5-108 MHz		
VSWR $\pm 150$ KHz	1:1.1 max		
Insertion Loss	at $f_0$ 0.25 dB max		
Return Loss $\pm 150$ KHz	$\leq -26$ dB		
Isolation $\pm 2$ MHz	$\geq 30$ dB		
No. of input	2		
No. of output	1		
Connectors standard	Input 7/8" (See table) Output 7/8"		
Max Power	2KW $\times$ 2 CHANNELS		
Working Temperature	$-20^\circ\text{C} \div +50^\circ\text{C}$		
Colour	Enamel Gray Ral 7001		
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. 12 $\mu\text{m}$ thickness)		



## Features:

- Distortion – Free Transmission
- Star-point system with double pass-band cavity filters (standard configurations)
- Star-point system with triple pass-band cavity filters
- Star-point system with pass stop
- Low loss, high isolation
- Natural convection
- Option Group delay equalizer

Dimensions	1300(Max size) $\times$ 485 $\times$ 400 mm (51.2(Max size) $\times$ 19.09 $\times$ 15.74 inch) (H $\times$ L $\times$ W)
Net Weight	$\approx$ 45 Kg



"These specifications are subject to change without notice"



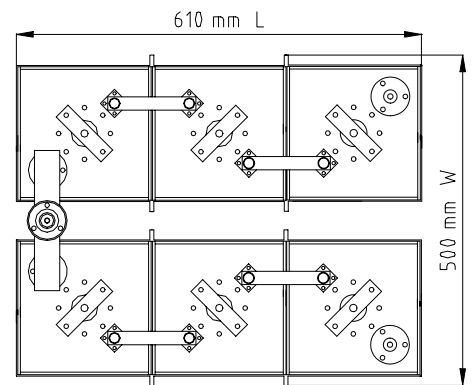
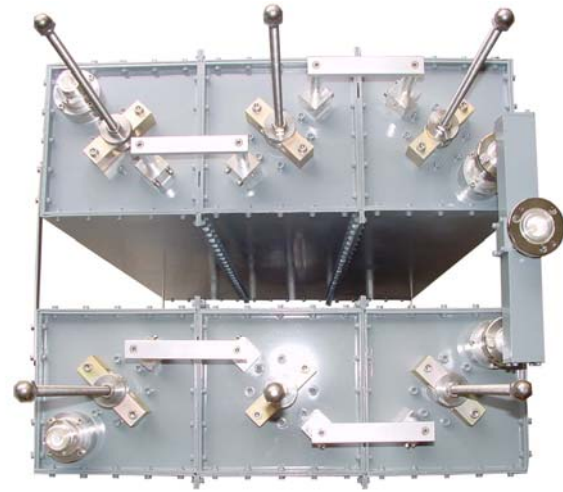
# MODEL FDCSTC2

- COMBINER 2 CHANNEL
- TYPE STAR POINT
- FM BAND 87.5-108 MHz
- BAND II
- OPTION

Model	Input Connector	Output Connector	Power Input	Power Output
FDCSTC2-1	N	7/16"	600W	1200W
FDCSTC2-2	N	7/8"	600W	1200W
FDCSTC2-3	7/16"	7/16"	1KW	2KW
FDCSTC2-4	7/16"	7/8"	2KW	4KW
FDCSTC2-5	7/8"	1+5/8"	2KW	4KW

to witch it's connected. The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each on tuned transmitter frequency



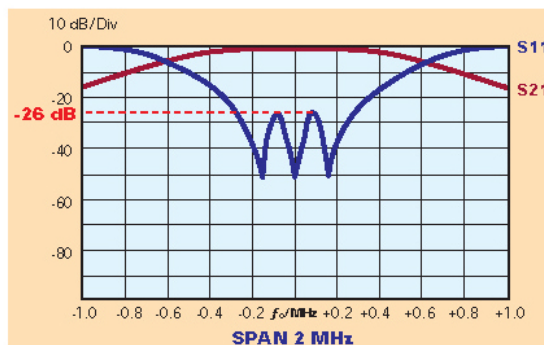
## TYPICAL SPECIFICATIONS

Model	FDCSTC2 – Type STAR POINT		
Impedance	50 Ohm		
Frequency Range	87.5-108 MHz		
VSWR $\pm 150$ KHz	1.1:1 max		
Return Loss $\pm 150$ KHz	$\leq -26$ dB		
Insertion Loss	at $f_0$ 0.45 dB max		
Isolation $\pm 1.0$ MHz	$\geq 30$ dB		
Insertion Loss	at $f_0$ 0.33 dB max		
Isolation $\pm 1.5$ MHz	$\geq 35$ dB		
No. of Input	2		
No. of Output	1		
Connectors Standard	Input 7/8" Output EIA 7/8" (See table)		
Max Power	2KW $\times$ 2 Channels		
Working Temperature	$-20^\circ\text{C} \div +50^\circ\text{C}$		
Colour	Enamel Gray Ral 7001		
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12 $\mu\text{m}$ thickness)		

## Features:

- Distortion – Free Transmission
- Star-point system with triple pass-band cavity filters (standard configurations)
- Star-point system with quadruple pass-band cavity filters
- Star-point system with pass stop
- Low loss, high isolation
- Natural convection
- Option Group delay equalizer

Dimensions	1300(Maz size) $\times$ 610 $\times$ 500 mm (51.2(Max size) $\times$ 24.0 $\times$ 19.7 inch) (H $\times$ L $\times$ W)
Net Weight	$\approx$ 65 Kg



Typical shape of a curves for S11 and S12 parameters for single filter

"These specifications are subject to change without notice"

# MODEL FDCSDC3

- **COMBINER 2 CHANNELS**
- **TYPE STAR POINT**
- **FM BAND 87.5÷108 MHz**
- **BAND II**
- **OPTION**

Model	Input Connector	Output Connector	Power Input	Power Output
FDCSDC3-1	7/8"	7/8"	2.5KW	5KW
FDCSDC3-2	1+5/8"	1+5/8"	3KW	6KW

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected.

The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

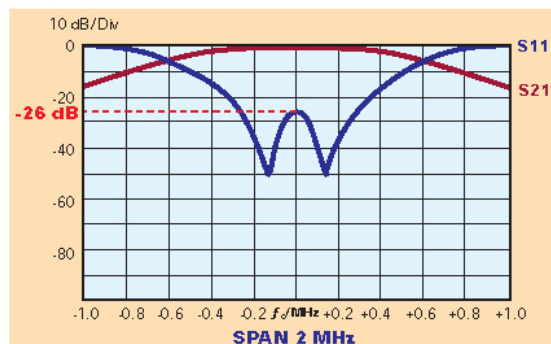
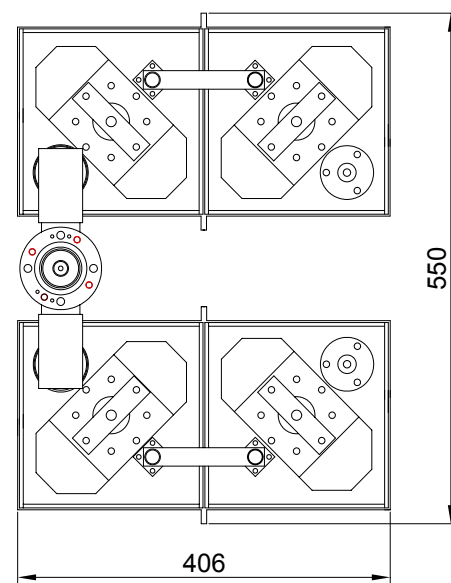
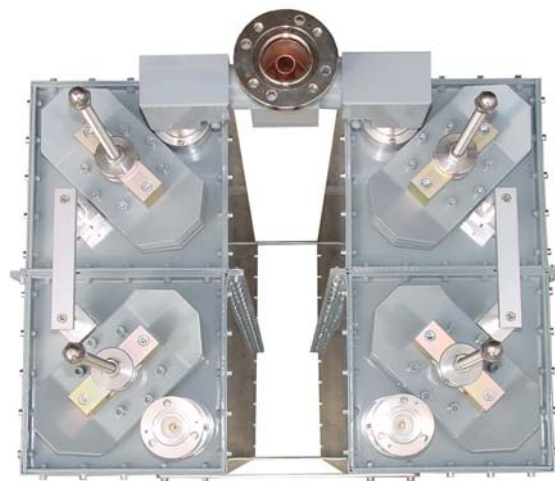
## TYPICAL SPECIFICATIONS

Model	FDCSDC3 – Type STAR POINT		
Impedance	50 Ohm		
Frequency Range	87.5-108 MHz		
VSWR $\pm 150$ KHz	1.1:1 max		
Insertion Loss	at $f_0$ 0.25 dB max		
Return Loss $\pm 150$ KHz	$\leq -26$ dB		
Isolation $\pm 1.5$ MHz	$\geq 30$ dB		
Input Number	2		
Output Number	1		
Connectors Standard	Input 7/8"	Output 1+5/8"	(See table)
Max Power	3KW X 2 Channel		
Working Temperature	$-20^\circ\text{C} \div +50^\circ\text{C}$		
Colour	Enamel Gray Ral 7001		
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12 $\mu\text{m}$ thickness)		

## Features:

- Distortion – Free Transmission
- Star-point system with double pass-band cavity filters (standard configurations)
- Star-point system with triple pass-band cavity filters
- Low loss, high isolation
- Natural convection

Dimensions	1300(Max size)×550×406 mm (51.2(Max size)×21.6×16.0 inch) (H×L×W)
Net Weight	$\cong 45$ Kg (double cavity)



Typical shape of a curves for S11 and S12 parameters for single filter

"These specifications are subject to change without notice"

# MODEL FDCSTC3

- **COMBINER 2 CHANNELS**
- **TYPE STAR POINT**
- **FM BAND 87.5÷108 MHz**
- **BAND II**
- **OPTION**

Model	Input Connector	Output Connector	Power Input	Power Output
FDCSTC3-1	7/8"	7/8"	2.5KW	5KW
FDCSTC3-2	1+5/8"	1+5/8"	3KW	6KW

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through

suitable band pass filters, each on tuned transmitter frequency to witch it's connected.

The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

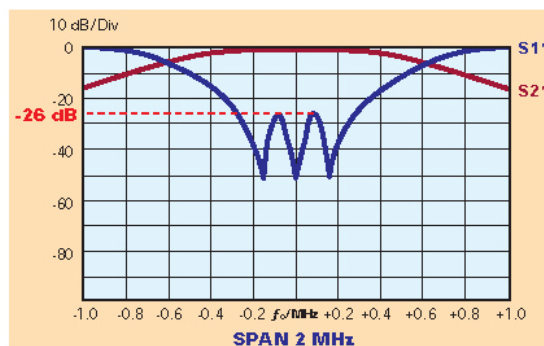
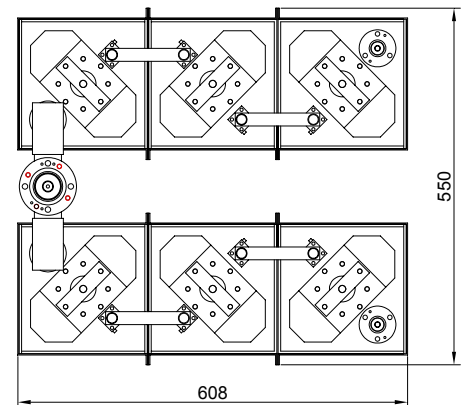
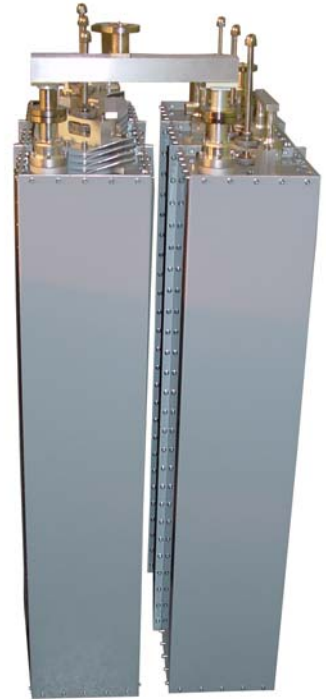
## TYPICAL SPECIFICATIONS

Model	FDCSTC3 – Type STAR POINT		
Impedance	50 Ohm		
Frequency Range	87.5-108 MHz		
VSWR ±150 KHz	1.1:1 max		
Return Loss ±150Khz	≤ -26dB		
Insertion Loss Isolation ±1.2MHz	at $f_0$ 0.45 dB max ≥ 30 dB		
Insertion Loss Isolation ±1.5MHz	at $f_0$ 0.33 dB max ≥ 30 dB		
No. of Input	2		
No. of Output	1		
Connectors Standard	Input 7/8" Output 1+5/8"	(See table)	
Max Power	3KW × 2 Channels		
Working Temperature	-20°C ÷ +50°C		
Colour	Enamel Gray Ral 7001		
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12µm thickness)		

## Features:

- Distortion Free Transmission
- Star-point system with double pass-band cavity filters (standard configurations)
- Star-point system with triple pass-band cavity filters
- Star-point system with pass stop
- Low loss, high isolation
- Natural convection
- Option Group Delay equalizer

Dimensions	1300(Max size) $\times$ 608 $\times$ 550 mm (51.2(Max size) $\times$ 24.0 $\times$ 19.7 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong 75$ Kg



Typical shape of a curves for S11 and S12 parameters for single filter

"These specifications are subject to change without notice"

# MODEL FDCSDC5

- **COMBINER 2 CHANNELS**
- **TYPE STAR POINT**
- **FM BAND 87.5÷108 MHz**
- **BAND II**
- **OPTION**

Model	Input Connector	Output Connector	Power Input	Power Output
FDCSDC5-1	7/8"	1+5/8"	5KW	10KW
FDCSDC5-2	1+5/8"	3+1/8"	5KW	10KW

The star combiner basically consist of parallel connecting several transmitters to a single antenna

system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected.

The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

## TYPICAL SPECIFICATIONS

Model	FDCSDC5 – Type STAR POINT
Impedance	50 Ohm
Frequency Range	87.5-108 MHz
VSWR ±150KHz	1.1:1 max
Insertion Loss	at $f_0$ 0.15 dB max
Return Loss ±150 KHz	≤ -26dB
Isolation ±1.8 MHz	≥ 30 dB
No. of input	2
No. of output	1
Connectors Standard	1+5/8" Input-Output (See table)
Max Power	5KW × 2 Channels
Working Temperature	-20°C ÷ +50°C
Colour	Enamel Gray Ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12µm thickness)

## Features:

- Distortion – Free Transmission
- Starpoint system with double pass-band cavity filters (standard configurations)
- Starpoint system with triple pass-band cavity filters
- Starpoint system with pass stop
- Low loss, high isolation
- Natural convection
- Option Group delay equalizer

### STANDARD VERSION

Dimensions	1400(Max size)×780×810 mm (55.1(Max size)×30.7×31.9 inch) (H×L×W)
Net Weight	≅ 90 Kg

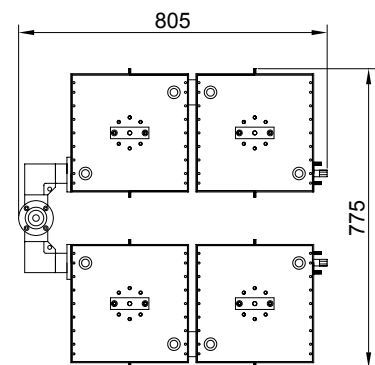
### OUT 3+1/8" VERSION

Dimensions	1400(Max size)×830×800 mm (55.1(Max size)×32.6×31.5 inch) (H×L×W)
Net Weight	≅ 90 Kg

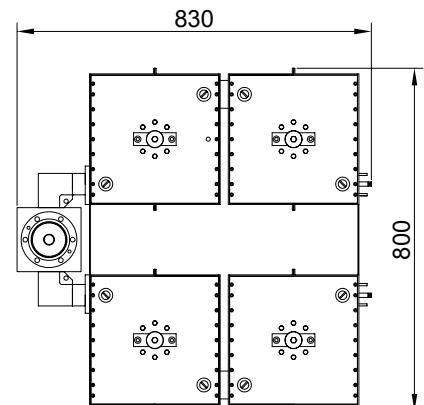
### SPECIAL VERSION

Dimensions	2320(Max size)×936×332 mm (91.3(Max size)×36.8×13.1 inch) (H×L×W)
Net Weight	≅ 200 Kg

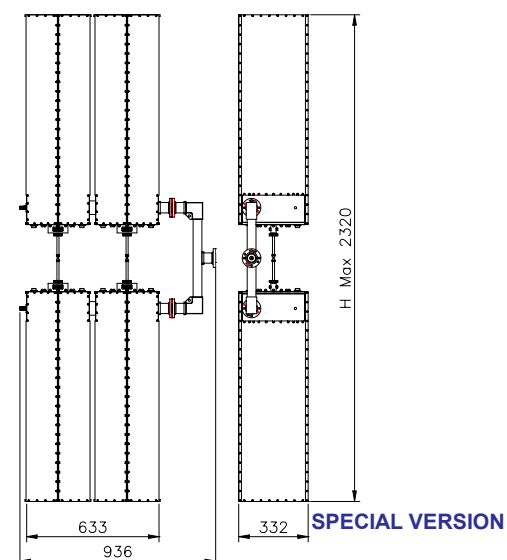
"These specifications are subject to change without notice"



**STANDARD VERSION**



**OUT 3+1/8" VERSION**



**SPECIAL VERSION**

# MODEL FDCSDC10

- **COMBINER 2 CHANNELS**
- **TYPE STAR POINT**
- **FM BAND 87.5÷108 MHz**
- **BAND II**

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected.

The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

TYPICAL SPECIFICATIONS	
Model	FDCSDC10 – Type STAR POINT
Impedance	50 Ohm
Frequency Range	87.5-108 MHz
VSWR $\pm 150$ KHz	1.1:1 max
Insertion Loss	at $f_0$ 0.1 dB max
Return Loss $\pm 150$ KHz	$\leq -26$ dB
Isolation $\pm 1.5$ MHz	$\geq 30$ dB
Input Number	2
Output Number	1
Connectors	Input 1+5/8" Output 3+1/8"
Max Power	10KW $\times$ 2 Channels
Working Temperature	-20°C $\div$ +50°C
Colour	Enamel Gray Ral 7001
Materials	Aluminium, Bass, Copper, PTFE, Stainless Steel, Silvering (min 12 $\mu$ m thickness)

## Features:

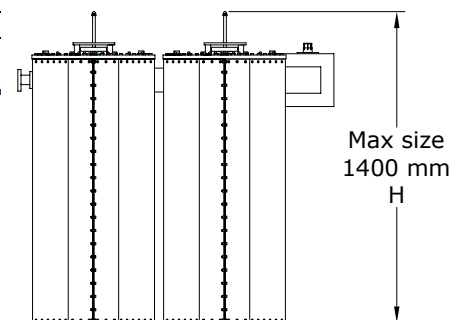
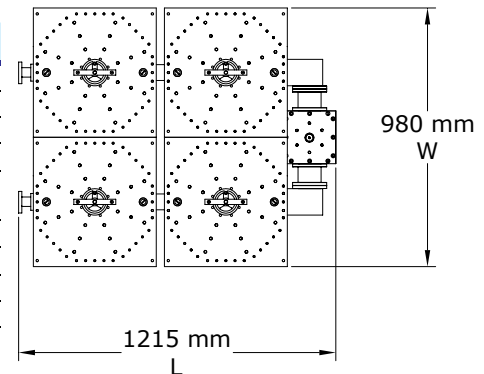
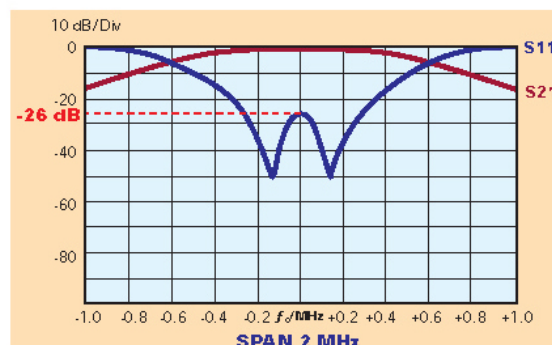
- Distortion – Free Transmission
- Star-point system with double pass-band cavity filters (standard configurations)
- Star-point system with triple pass-band cavity filters
- Star-point system with pass stop
- Low loss, high isolation
- Natural convection
- Option Group delay equalizer

## STANDARD CONFIGURATION

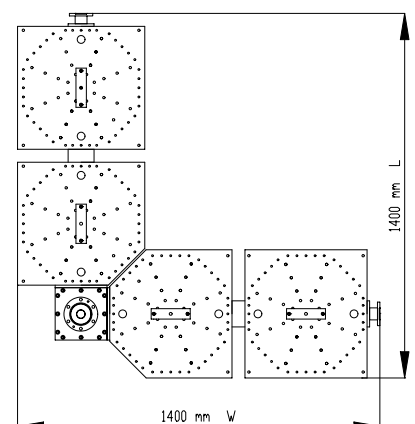
Dimensions	1400(Max size) $\times$ 1215 $\times$ 980 mm (55.1(Max size) $\times$ 47.8 $\times$ 38.6 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong$ 150 Kg (double cavity)

## OPTIONAL CONFIGURATION

Dimensions	1400(Max size) $\times$ 1400 $\times$ 1400 mm (55.1(Max size) $\times$ 55.1 $\times$ 55.1 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong$ 150 Kg (double cavity)



**STANDARD CONFIGURATION**



**OPTIONAL CONFIGURATION**

"These specifications are subject to change without notice"



## MODEL FDCSDC20

- COMBINER 2 CHANNELS
- TYPE STAR POINT
- FM BAND 87.5÷108 MHz
- BAND II

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected.

The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

### TYPICAL SPECIFICATIONS

Model	FDCSDC20 – Type STAR POINT
Impedance	50 Ohm
Frequency Range	87.5-108 MHz
VSWR $\pm 150$ KHz	1.1:1 max
Insertion Loss	at $f_0$ 0.1 dB max
Return Loss $\pm 150$ KHz	$\leq -26$ dB
Isolation $\pm 1.5$ MHz	$\geq 30$ dB
Input Number	2
Output Number	1
Connectors	Input 3+1/8" Output 3+1/8"
Max Power	20KW $\times$ 2 Channels
Working Temperature	-20°C $\div$ +50°C
Colour	Enamel Gray Ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min.12 $\mu$ m thickness)

### Features:

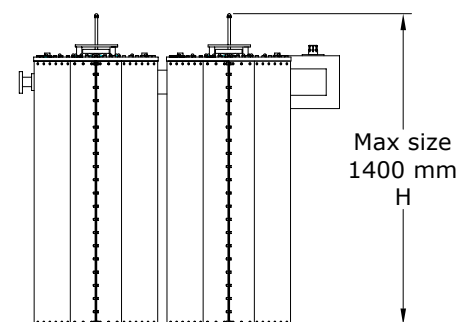
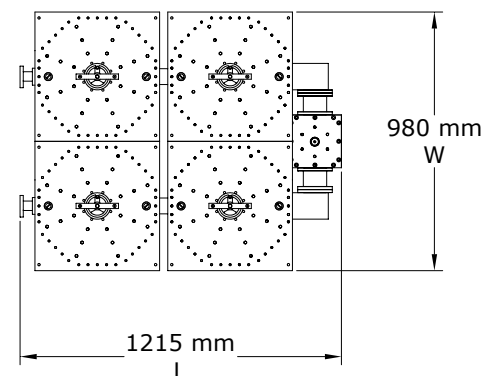
- Distortion – Free Transmission
- Star point system with double pass-band cavity filters (standard configurations)
- Star point system with triple pass-band cavity filters
- Star point system with pass stop
- Low loss, high isolation
- Natural convection
- Option Group delay equalizer

### STANDARD CONFIGURATION

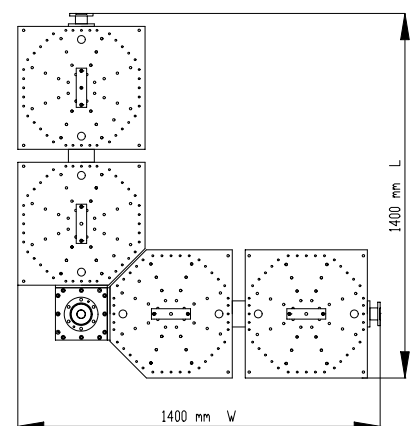
Dimensions	1400(Max size) $\times$ 1215 $\times$ 980 mm (55.1(Max size) $\times$ 47.8 $\times$ 38.6 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong$ 150 Kg (double cavity)

### OPTIONAL CONFIGURATION

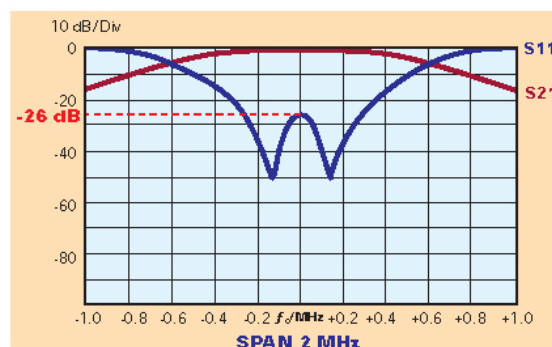
Dimensions	1400(Max size) $\times$ 1400 $\times$ 1400 mm (55.1(Max size) $\times$ 55.1 $\times$ 55.1 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong$ 150 Kg (double cavity)



STANDARD CONFIGURATION



OPTIONAL CONFIGURATION



Typical shape of a curves for S11 and S12 parameters for single filter

"These specifications are subject to change without notice"



## MODEL FDCSDC30

- COMBINER 2 CHANNELS
- TYPE STAR POINT
- FM BAND 87.5÷108 MHz
- BAND II

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected.

The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

### TYPICAL SPECIFICATIONS

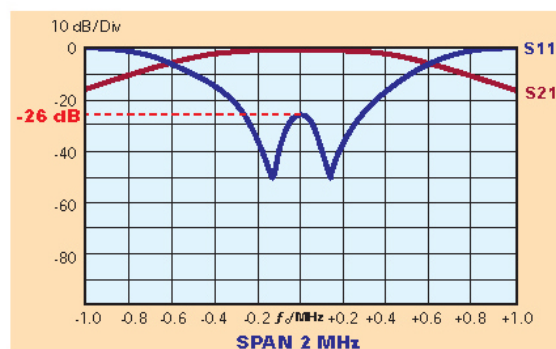
Model	FDCSDC30 – Type STAR POINT
Impedance	50 Ohm
Frequency Range	87.5-108 MHz
VSWR $\pm 150$ KHz	1.1:1 max
Insertion Loss	at $f_0$ 0.1 dB max
Return Loss $\pm 150$ KHz	$\leq -26$ dB
Isolation $\pm 1.5$ MHz	$\geq 30$ dB
No. of Input	2
No. of Output	1
Connectors	Input 3+1/8" Output 4+1/2" (Opt.6+1/8")
Max Power	30KW $\times$ 2 CHANNELS
Working Temperature	-20°C $\div$ +50°C
Colour	Enamel Gray Ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12 $\mu$ m thickness)

### Features:

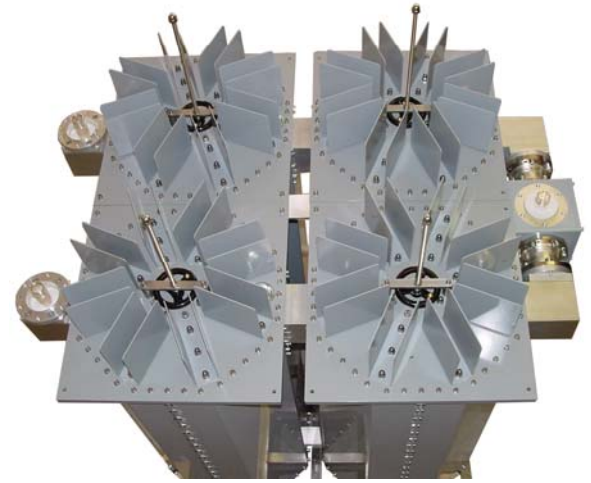
- Distortion – Free Transmission
- Star-point system with triple pass-band cavity filters
- Star-point system with pass stop
- Low loss, high isolation
- Natural convection

Dimensions	1400(Max size) $\times$ 2350 $\times$ 490 mm (55.1(Max size) $\times$ 92.5 $\times$ 19.3 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong$ 120 Kg (double cavity)

Dimensions	1400(Max size) $\times$ 1340 $\times$ 1340 mm (55.1(Max size) $\times$ 52.8 $\times$ 52.8 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong$ 120 Kg (double cavity)

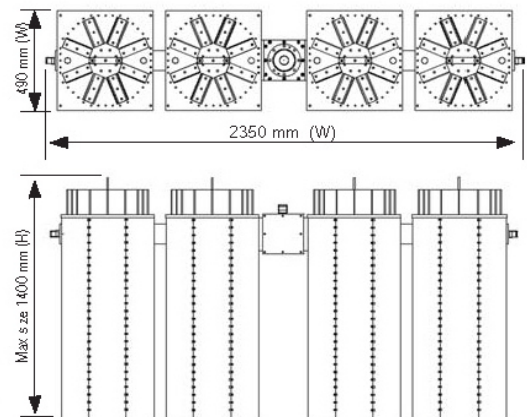


Typical shape of a curves for S11 and S12 parameters for single filter

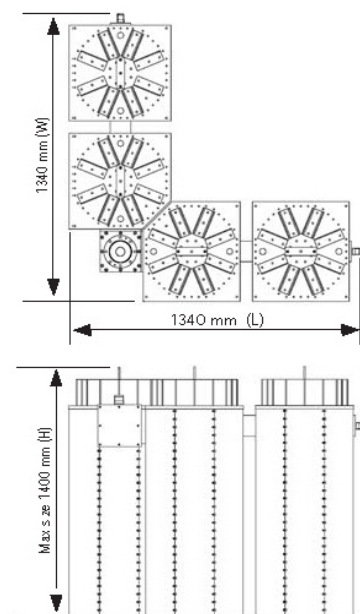


SPECIAL VERSION WITH OUTPUT CONNECTOR 3+1/8"

### Standard Configuration



### Optional Configuration



# MODEL FTCSDC03

- COMBINER 3 CHANNELS
- TYPE STAR POINT
- FM BAND 87.5÷108 MHz
- BAND II
- OPTION rack mounting

Model	Input Connector	Output Connector	Power Input	Power Output
FTCSDC03-1	N	N	200W	600W
FTCSDC03-2	N	7/8"	300W	900W

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected.

The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

## TYPICAL SPECIFICATIONS

Model	FTCSDC03 – Type STAR POINT		
Impedance	50 Ohm		
Frequency Range	87.5-108 MHz		
VSWR ±150 KHz	1.1:1 max		
Insertion Loss	at $f_0$ 0.6 - 0.7 dB max		
Return Loss ±150Khz	≤ -26 dB		
Isolation ±2.5MHz	≥ 30 dB		
Input Number	3		
Output Number	1		
Connectors Standard	Input N female Output 7/16" (See table)		
Max Power	300W X 3 Channels (Out 900W)		
Working Temperature	-20°C ÷ +50°C		
Colour	Enamel Gray Ral 7001		
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12µm thickness)		

## Features:

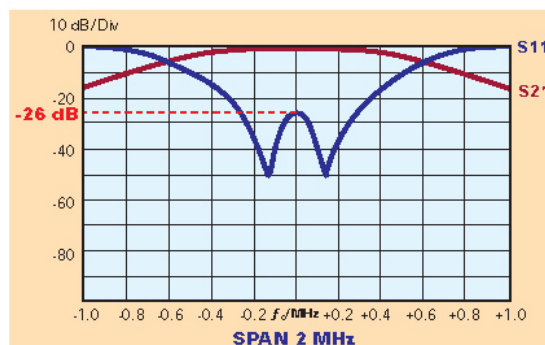
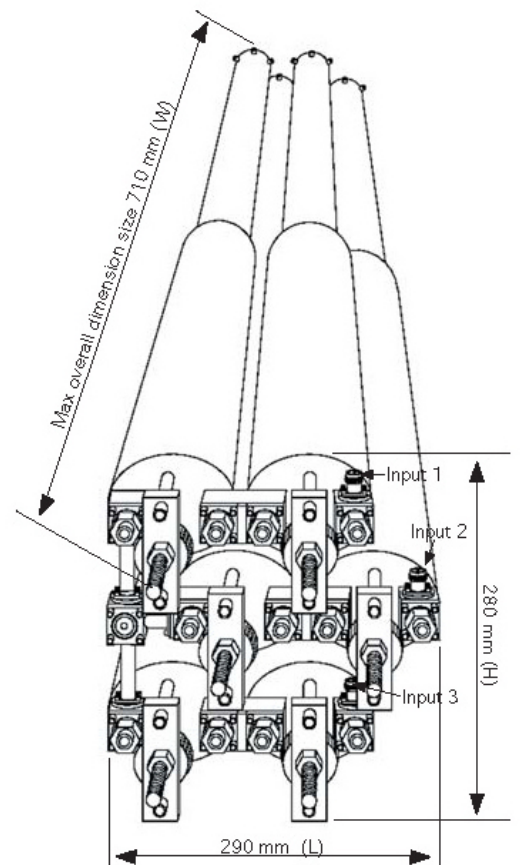
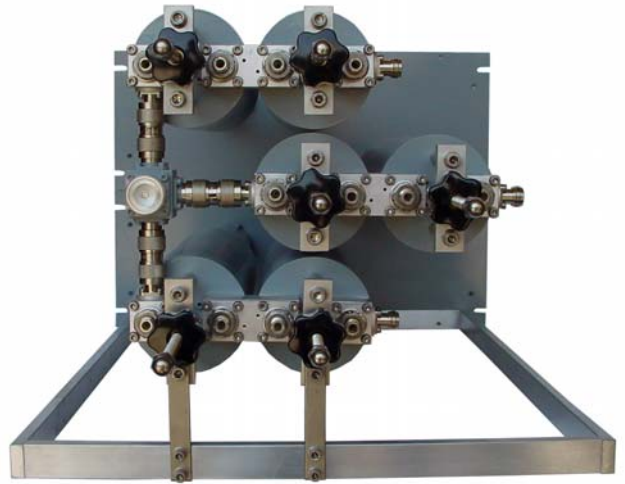
- Distortion – Free Transmission
- Star-point system with Band Pass double cavity filters
- Low loss, high isolation
- Natural convection
- Rack Version Option

### No rack version

Dimensions	280×290×710 mm (11×11.4×28 inch) (H×L×W)
Net Weight	≅ 18 Kg

### Rack version (optional)

Panel Size	7 HE (1 HE=44,45 mm)
Net Weight	≅ 18 Kg



Typical shape of a curves for S11 and S12 parameters for single filter

"These specifications are subject to change without notice"

# MODEL FTCSTC03

- **COMBINER 3 CHANNELS**
- **TYPE STAR POINT**
- **FM BAND 87.5÷108 MHz**
- **BAND II**
- **RACK VERSION OPTION**
- **OPTION**

Model	Input Connector	Output Connector	Power Input	Power Output
FTCSTC03-1	N	N	200W	600W
FTCSTC03-2	N	7/8"	300W	900W

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected. The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.



RACK VERSION (OPTION)

## TYPICAL SPECIFICATIONS

Model	FTCSTC03 – Type STAR POINT
Impedance	50 Ohm
Frequency Range	87.5-108 MHz
VSWR ±150KHz	1.1:1 max
Insertion Loss	at $f_0$ 0.8 dB max (triple cavity)
Return Loss ±150KHz	≤ -26 dB
Isolation ±2MHz	≥ 30 dB
Input Number	3
Output Number	1
Connectors	Input N female Output 7/16" (opt. 7/8" EIA)
Max Power	300 W X 3 Channels
Working Temperature	-20°C ÷ +50°C
Colour	Enamel gray ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. 12µm thickness)

## Features:

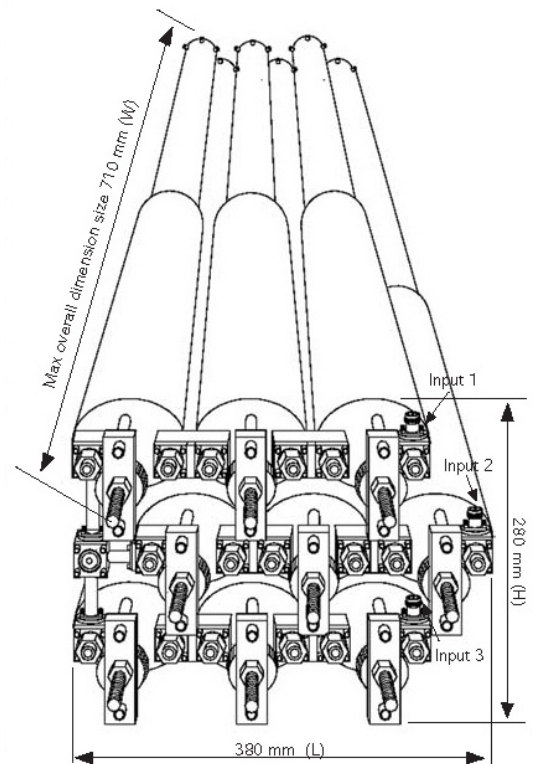
- Distortion – Free Transmission
- Star point system with double pass-band cavity filters
- Star point system with triple pass-band cavity filters (standard configurations)
- Star point system with pass stop
- Low loss, high isolation
- Natural convection
- OPTION Group delay equaliser – Equipment Rack Mounting

### No rack version

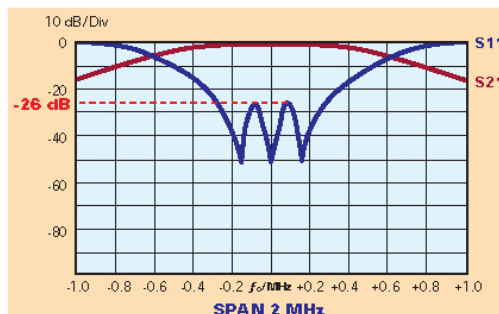
Dimensions	280×380×710 mm (280×15×28 inch) (H×L×W)
Weight	≅ 27 Kg (triple cavity)

### Rack version (optional)

Panel Size	8 HE (1 HE=44,45 mm)
Weight	≅ 27 Kg (triple cavity)



Typical shape of a curves for S11 and S21 parameters for single filter

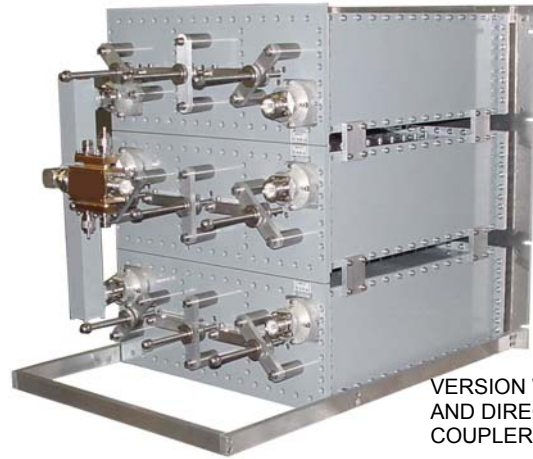


"These specifications are subject to change without notice"



## MODEL FTCSTC05

- COMBINER 3 CHANNELS
- TYPE STAR POINT
- RACK VERSION OPTION
- FM BAND 87.5÷108 MHz
- BAND II
- OPTION



VERSION WITH RACK AND DIRECTIONAL COUPLER (OPTIONS)

Model	Input Connector	Output Connector	Power Input	Power Output
FTCSTC05-1	7/16"	7/16"	600W	1800W
FTCSTC05-2	7/16"	7/8"	600W	1800W

The star point combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected. The parallel connection is obtained by means of coaxial

lines of determined length, so as provide for adequate isolation between transmitters.

### TYPICAL SPECIFICATIONS

Model	FTCSTC05 – Type STAR POINT		
Impedance	50 Ohm		
Frequency Range	87.5-108 MHz		
VSWR $\pm 150$ KHz	1.1:1 max		
Insertion Loss	at $f_0$ 0.65 dB max		
Return Loss $\pm 150$ KHz	$\leq -26$ dB		
Isolation $\pm 2.5$ MHz	$\geq 30$ dB		
Input Number	3		
Output Number	1		
Connectors Standard	Input N	Output 7/16"	(See table)
Max Power	600 W X 3 Channels		
Working Temperature	$-20^{\circ}\text{C} \div +50^{\circ}\text{C}$		
Colour	Enamel Gray Ral 7001		
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. 12 $\mu\text{m}$ thickness).		

### Features:

- Distortion – Free Transmission
- Star point system with triple pass-band cavity filters
- Star point system with pass stop
- Low loss, high isolation
- Natural convection
- Modular design
- OPTION Group delay equaliser

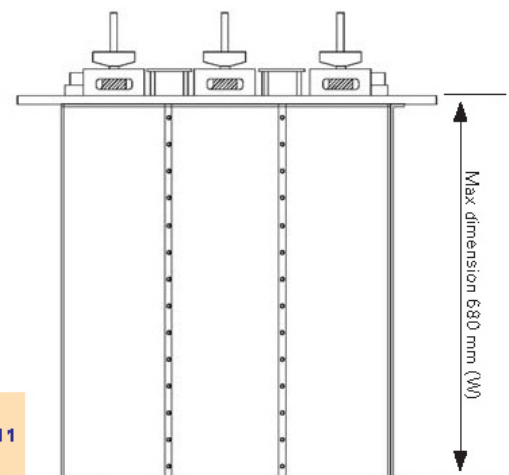
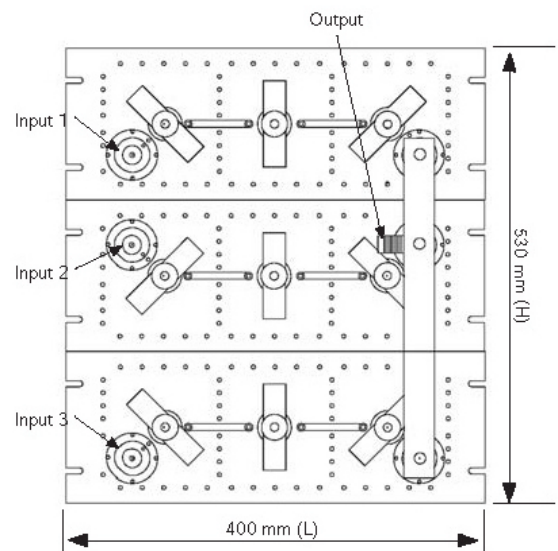
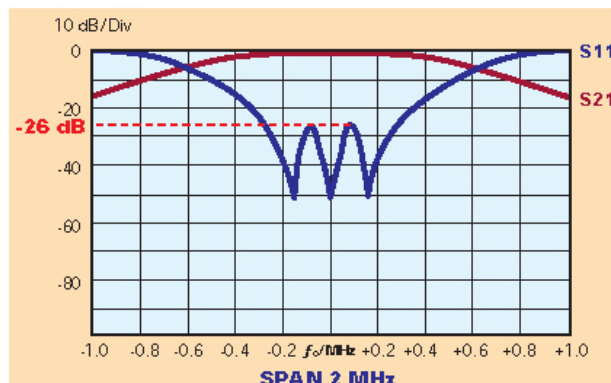
### No rack version

Dimensions	530×400×680 mm (20.8×15.7×26.8 inch) (H×L×W)
Net Weight	$\approx 70$ Kg

### Rack version (optional)

Panel Size	12 HE (1 HE=44,45 mm)
Net Weight	$\approx 70$ Kg

Typical shape of a curves for S11 and S21 parameters



"These specifications are subject to change without notice"

## MODEL FTCSDC2

- COMBINER 3 CHANNELS
- TYPE STAR POINT
- FM BAND 87.5÷108 MHz
- BAND II
- OPTION

Model	Input Connector	Output Connector	Power Input	Power Output
FTCSDC2-1	N	7/16"	600W	1800W
FTCSDC2-2	N	7/8"	600W	1800W
FTCSDC2-3	7/16"	7/16"	600W	1800W
FTCSDC2-4	7/16"	7/8"	1.5KW	4.5KW
FTCSDC2-5	7/8"	7/8"	1.5KW	4.5KW

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each on tuned transmitter frequency to witch it's

connected. The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

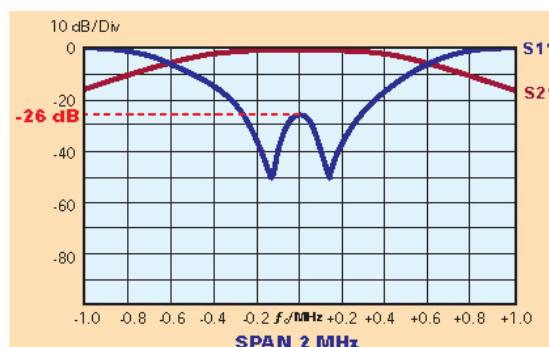
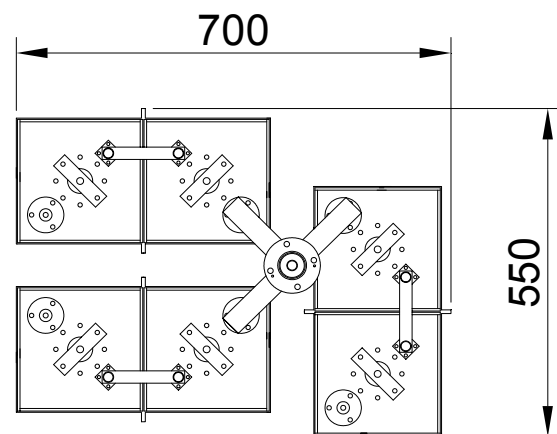
### TYPICAL SPECIFICATIONS

Models	FTCSDC2 – Type STAR POINT	
Impedance	50 Ohm	
Frequency Range	87.5-108 MHz	
VSWR $\pm 150$ KHz	1.1:1 max	
Insertion Loss	at $f_0$ 0.28 dB max	
Return Loss $\pm 150$ KHz	$\leq -26$ dB	
Isolation $\pm 2.5$ MHz	$\geq 30$ dB	
No. of Input	3	
No. of Output	1	
Connectors Standard	Input 7/8" Output EIA 1+5/8" (See table)	
Max Power	2 KW x 3 Channels	
Working Temperature	$-20^\circ\text{C} \div +50^\circ\text{C}$	
Colour	Enamel Gray Ral 7001	
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12 $\mu\text{m}$ thickness)	

### Features:

- Distortion – Free Transmission
- Star point system with double pass-band cavity filters (standard configurations)
- Star point system with triple pass-band cavity filters
- Star point system with pass stop
- Low loss, high isolation
- Natural convection
- Option Group delay equalizer

Dimensions	1300(Max size)×700×550 mm (51.2(Max size)×27.5×21.6 inch) (H×L×W)
Net Weight	≅ 63 Kg



Typical shape of a curves for S11 and S12 parameters for single filter

"These specifications are subject to change without notice"

# MODEL FTCSDC2R

- **COMBINER 3 CHANNEL**
- **TYPE STAR POINT**
- **FM BAND 87.5-108 MHz**
- **BAND II**
- **RACK VERSION (option)**
- **OPTION**

Model	Input Connector	Output Connector	Power Input	Power Output
FTCSDC2R-1	N	7/16"	600W	1.8KW
FTCSDC2R-2	N	7/8"	600W	1.8KW
FTCSDC2R-3	7/16"	7/16"	660W	2KW
FTCSDC2R-4	7/16"	7/8"	1650W	5KW
FTCSDC2R-5	7/8"	7/8"	1650W	5KW

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each on

tuned transmitter frequency to witch it's connected.

The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

## TYPICAL SPECIFICATIONS

Model	FTCSDC2R		
Impedance	50 Ohm		
Frequency Range	87.5-108 MHz		
VSWR $\pm 150$ KHz	1:1.1 max		
Insertion Loss	at $f_0$ 0.25 dB max		
Return Loss $\pm 150$ KHz	$\leq -26$ dB		
Isolation $\pm 1.5$ MHz	$\geq 30$ dB		
Input Number	3		
Output Number	1		
Connectors Standard	Input 7/8" Output 7/8" (See table)		
Max Power	2KW $\times$ 3 CHANNELS		
Working Temperature	$-20^\circ\text{C} \div +50^\circ\text{C}$		
Colour	Enamel Gray Ral 7001		
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12 $\mu\text{m}$ thickness)		

## Features:

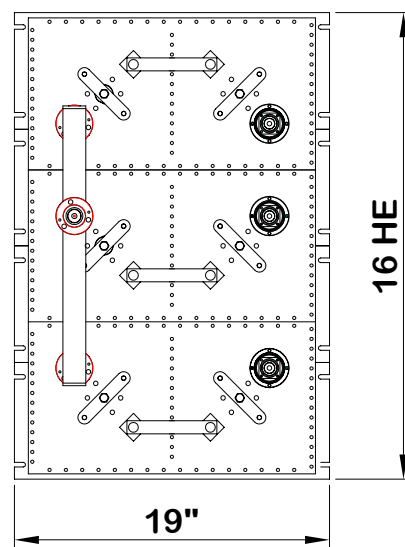
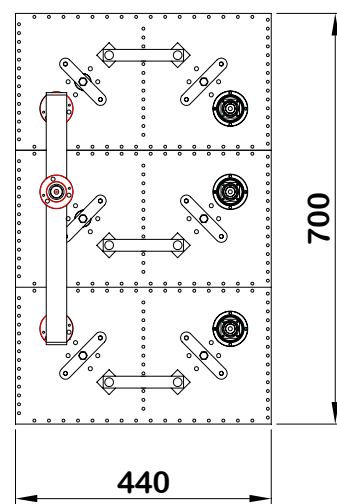
- Distortion – Free Transmission
- Star point system with double pass-band cavity filters
- Star point system with pass stop
- Low loss, high isolation
- Natural convection
- Option Group delay equalizer
- Rack version Option

## STANDARD VERSION

Dimensions	710(Max size) $\times$ 700 $\times$ 440mm (27.9(Max size) $\times$ 27.6 $\times$ 17.3 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong$ 60 Kg

## VERSION WITH RACK

Dimensions	16 HE (714(H max) (28.1 (Max size) inch))
Net Weight	$\cong$ 62 Kg



"These specifications are subject to change without notice"



## MODEL FTCSTC2

- COMBINER 3 CHANNELS
- TYPE STAR POINT
- FM BAND 87.5÷108 MHz
- BAND II
- OPTION

Model	Input Connector	Output Connector	Power Input	Power Output
FTCSTC2-1	N	7/16"	600W	1800W
FTCSTC2-2	N	7/8"	600W	1800W
FTCSTC2-3	7/16"	7/16"	660W	2KW
FTCSTC2-4	7/16"	7/8"	1600W	5KW
FTCSTC2-5	7/8"	1+5/8"	2KW	6KW

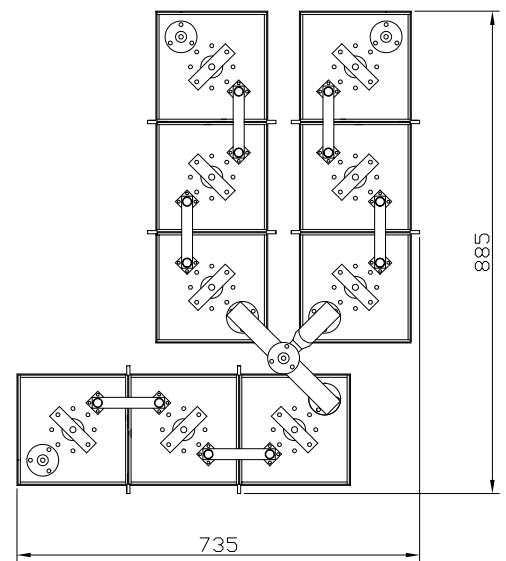
tuned transmitter frequency to witch it's connected.

The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each on

### TYPICAL SPECIFICATIONS

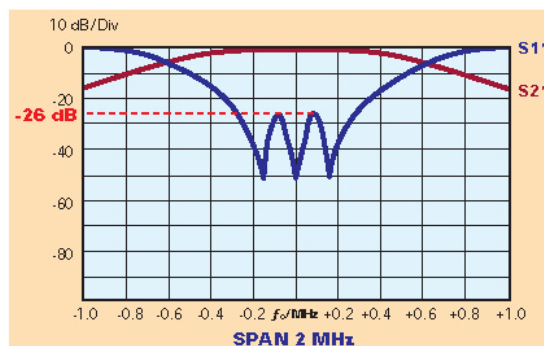
Models	FTCSTC3 – Type STAR POINT	
Impedance	50 Ohm	
Frequency Range	87.5-108 MHz	
VSWR $\pm 150$ KHz	1.1:1 max	
Insertion Loss	at $f_0$ 0.35 dB max	
Return Loss $\pm 150$ KHz	$\leq -26$ dB	
Isolation $\pm 1.2$ MHz	$\geq 30$ dB	
No. of Input	3	
No. of Output	1	
Connectors Standard	Input 7/8"	(See table)
	Output 1+5/8"	
Max Power	2KW x 3 Channels	
Working Temperature	$-20^{\circ}\text{C} \div +50^{\circ}\text{C}$	
Colour	Enamel gray ral 7001	
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. 12 $\mu\text{m}$ thickness)	



### Features:

- Distortion – Free Transmission
- Star-point system with pass stop
- Low loss, high isolation
- Natural convection
- Option Group delay equalizer

Dimensions	1300(Max size)×735×885 mm (51.2(Max size)×28.9×34.8 inch) (H×L×W)
Net Weight	≅ 116 Kg



Typical shape of a curves for S11 and S12 parameters for single filter

"These specifications are subject to change without notice"

# MODEL FTCSDC3

- **COMBINER 3 CHANNELS**
- **TYPE STAR POINT**
- **FM BAND 87.5÷108 MHz**
- **BAND II**
- **OPTION**

Model	Input Connector	Output Connector	Power Input	Power Output
FTCSDC3-1	7/8"	7/8"	1.6KW	5KW
FTCSDC3-2	1+5/8"	1+5/8"	3KW	9KW

The star combiner basically consist of parallel

connecting several transmitters to a single antenna system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected.  
The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

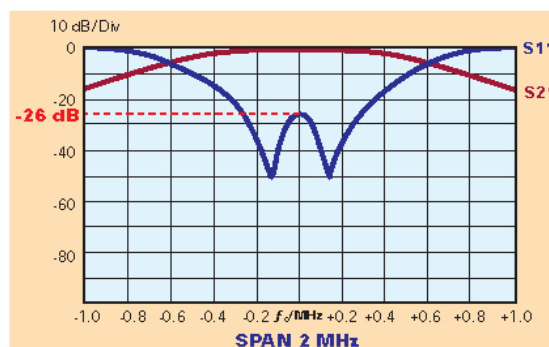
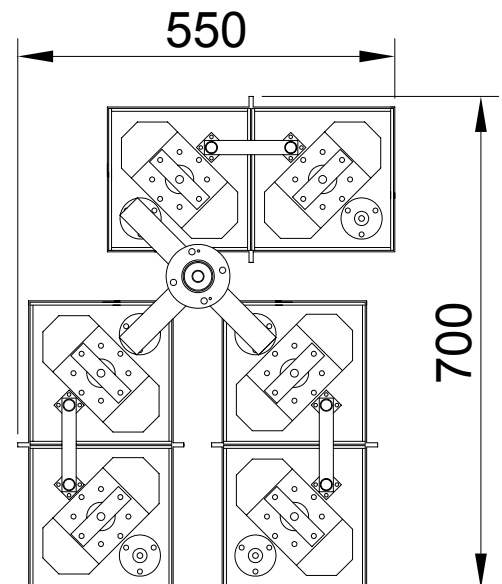
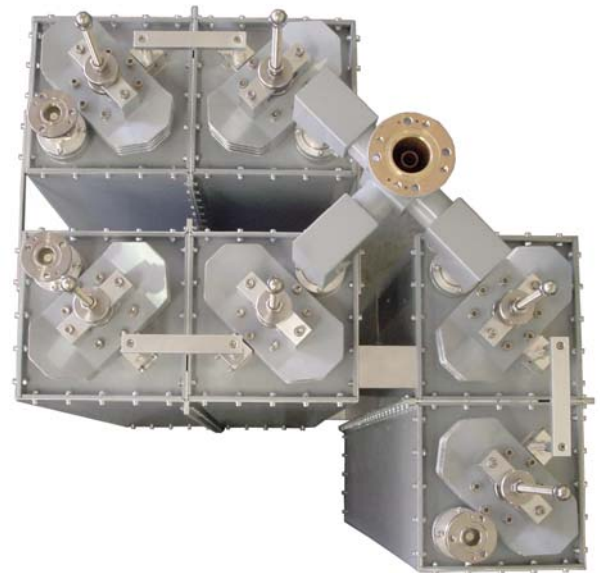
## TYPICAL SPECIFICATIONS

<b>Models</b>	FTCSDC3– Type STAR POINT
<b>Impedance</b>	50 Ohm
<b>Frequency Range</b>	87.5-108 MHz
<b>VSWR ±150KHz</b>	1.1:1 max
<b>Insertion Loss</b>	at $f_0$ 0.25 dB max
<b>Return Loss ±150KHz</b>	≤ -26dB
<b>Isolation ±2.0MHz</b>	≥ 30 dB
<b>No. of Input</b>	3
<b>No. of Output</b>	1
<b>Connectors Standard</b>	Input EIA 7/8" Output EIA 1+5/8" (See table)
<b>Max Power</b>	3KW X 3 Channels
<b>Working Temperature</b>	-20°C ÷ +50°C
<b>Colour</b>	Enamel Gray Ral 7001
<b>Materials</b>	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12µm thickness)

## Features:

- Distortion – Free Transmission
- Star-point system with pass stop
- Low loss, high isolation
- Natural convection
- Option Group delay equalizer

<b>Dimensions</b>	1300(Max size)×700×550 mm (51.2(Max size)×27.5×21.6 inch) (H×L×W)
<b>Net Weight</b>	≅ 75 Kg



Typical shape of a curves for S11 and S12 parameters for single filter

"These specifications are subject to change without notice"

# MODEL FTCSTC3

- **COMBINER 3 CHANNELS**
- **TYPE STAR POINT**
- **FM BAND 87.5÷108 MHz**
- **BAND II**
- **OPTION**

Model	Input Connector	Output Connector	Power Input	Power Output
FTCSTC3-1	7/8"	7/8"	1.6KW	5KW
FTCSTC3-2	1+5/8"	1+5/8"	3KW	9KW

The star combiner basically consist of parallel connecting several transmitters to a single antenna

system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected.

The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

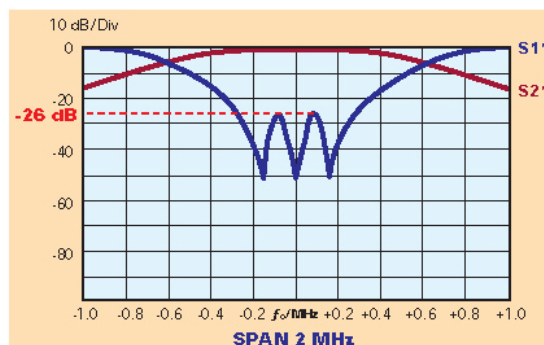
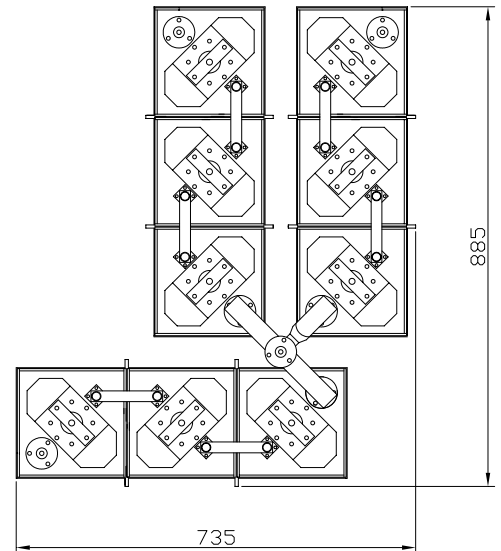
## TYPICAL SPECIFICATIONS

Models	FTCSTC3 – Type STAR POINT		
Impedance	50 Ohm		
Frequency Range	87.5-108 MHz		
VSWR ±150KHz	1.1:1 max		
Insertion Loss	at $f_0$ 0.35 dB max		
Return Loss ±150KHz	≤ -26dB		
Isolation ±1.2 MHz	≥ 30 dB		
No. of Input	3		
No. of Output	1		
Connectors Standard	Input 7/8" Output 1+5/8"	(See table)	
Max Power	3KW x 3 Channels		
Working Temperature	-20°C ÷ +50°C		
Colour	Enamel gray ral 7001		
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. 12µm thickness)		

## Features:

- Distortion – Free Transmission
- Star-point system with pass stop
- Low loss, high isolation
- Natural convection
- Option Group delay equalizer

<b>Dimensions</b>	1300(Max size)×735×885 mm (51.2(Max size)×28.9×34.8 inch) (H×L×W)
<b>Net Weight</b>	≅ 116 Kg



Typical shape of a curves for S11 and S12 parameters for single filter

"These specifications are subject to change without notice"

# MODEL FTCSDC5

- **COMBINER 3 CHANNELS**
- **TYPE STAR POINT**
- **FM BAND 87.5÷108 MHz**
- **BAND II**
- **OPTION**

Model	Input Connector	Output Connector	Power Input	Power Output
FDCSDC5-1	7/8"	1+5/8"	5KW	15KW
FDCSDC5-2	1+5/8"	1+5/8"	5KW	15KW

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through

suitable band pass filters, each on tuned transmitter frequency to witch it's connected.  
The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

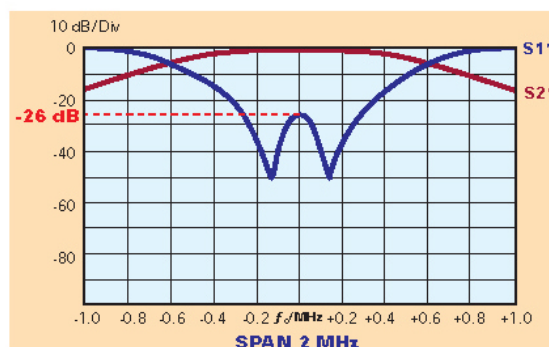
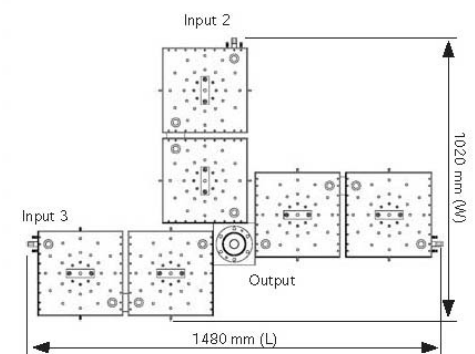
## TYPICAL SPECIFICATIONS

Model	FTCSDC5 – Type STAR POINT		
Impedance	50 Ohm		
Frequency Range	87.5-108 MHz		
VSWR $\pm 150$ KHz	1.1:1 max		
Insertion Loss	at $f_0$ 0.15 dB max		
Return Loss $\pm 150$ KHz	$\leq -26$ dB		
Isolation $\pm 1.5$ MHz	$\geq 30$ dB		
Input Number	3		
Output Number	1		
Connectors Standard	Input 1+5/8" Output 3+1/8" (See table)		
Max Power	5KW $\times$ 3 Channels		
Working Temperature	$-20^\circ\text{C} \div +50^\circ\text{C}$		
Colour	Enamel gray ral 7001		
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12 $\mu\text{m}$ thickness)		

## Features:

- Distortion – Free Transmission
- Star point system with double pass-band cavity filters
- Star point system with triple pass-band cavity filters (standard configurations)
- Star point system with pass stop
- Low loss, high isolation
- Natural convection
- OPTION Group delay equaliser

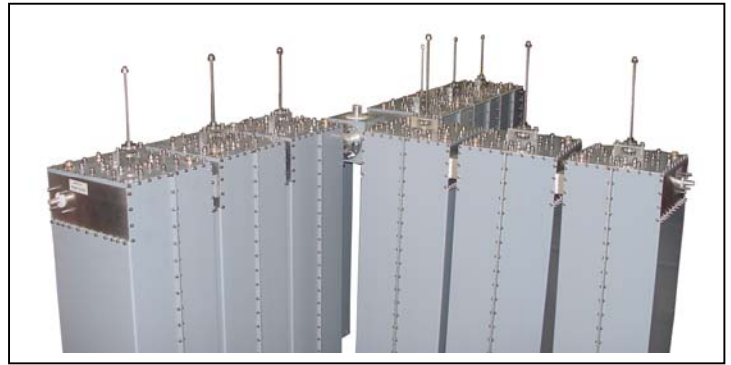
Dimensions	1400(Max size) $\times$ 1480 $\times$ 1020 mm (55.1(Max size) $\times$ 58.3 $\times$ 40.2 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong$ 140 Kg



Typical shape of a curves for S11 and S12 parameters for single filter

## MODEL FTCSTC5

- COMBINER 3 CHANNELS
- TYPE STAR POINT
- FM BAND 87.5÷108 MHz
- BAND II
- OPTION



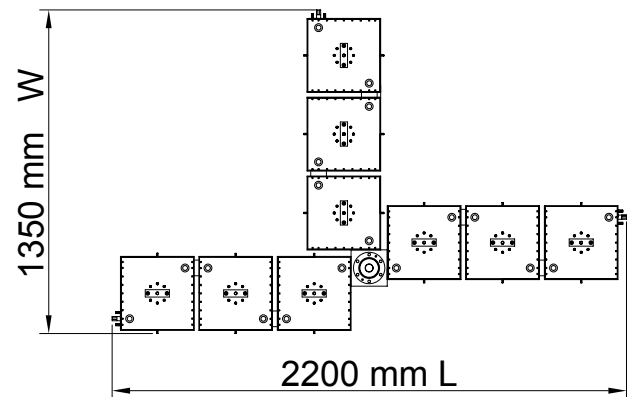
Model	Input Connector	Output Connector	Power Input	Power Output
FTCSTC5-1	7/8"	1+5/8"	4KW	12KW
FTCSTC5-2	1+5/8"	1+5/8"	4KW	12KW

The star combiner basically consist of parallel connecting

several transmitters to a single antenna system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected.  
The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

### TYPICAL SPECIFICATIONS

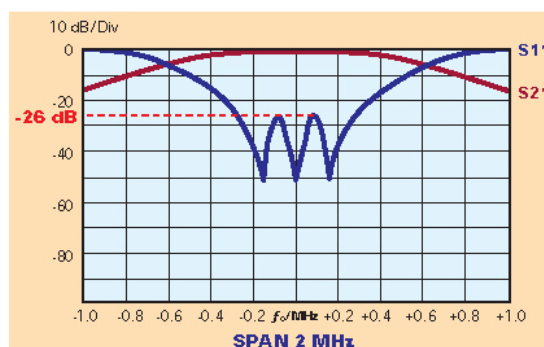
Model	FTCSTC5 – Type STAR POINT		
Impedance	50 Ohm		
Frequency Range	87.5-108 MHz		
VSWR $\pm 150$ KHz	1.1:1 max		
Insertion Loss	at $f_0$ 0.25 dB max		
Return Loss $\pm 150$ KHz	$\leq -26$ dB		
Isolation $\pm 1$ MHz	$\geq 30$ dB		
Input Number	3		
Output Number	1		
Connectors Standard	Input 1+5/8" Output 3+1/8" (See table)		
Max Power	5KW $\times$ 3 Channels		
Working Temperature	$-20^\circ\text{C} \div +50^\circ\text{C}$		
Colour	Enamel Gray Ral 7001		
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12 $\mu\text{m}$ thickness)		



### Features:

- Distortion – Free Transmission
- Star point system with pass stop
- Low loss, high isolation
- Natural convection
- OPTION Group delay equaliser

Dimensions	1400(Max size) $\times$ 2200 $\times$ 1350 mm (55.1(Max size) $\times$ 86.6 $\times$ 53.2 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong 185$ Kg



Typical shape of a curves for S11 and S12 parameters for single filter

"These specifications are subject to change without notice"



# MODEL FTCSDC10

- **COMBINER 3 CHANNELS**
- **TYPE STAR POINT**
- **FM BAND 87.5-108 MHz**
- **BAND II**
- **OPTION**



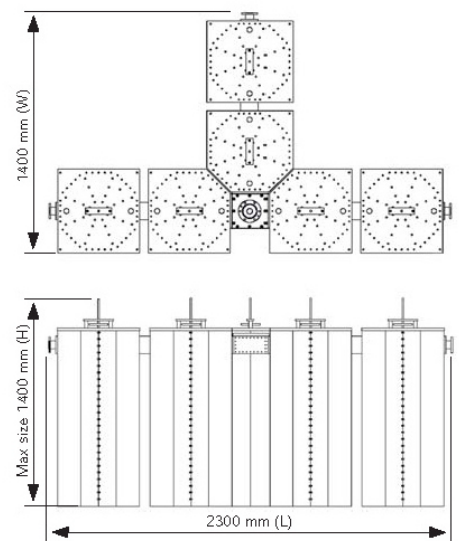
Model	Input Connector	Output Connector	Power Input	Power Output
FTCSDC10-1	1+5/8"	3+1/8"	10KW	30KW

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected.

The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

## TYPICAL SPECIFICATIONS

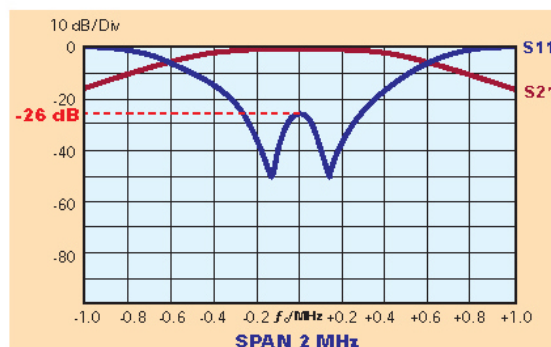
Model	FTCSDC10 – Type STAR POINT		
Impedance	50 Ohm		
Frequency Range	87.5-108 MHz		
VSWR $\pm 150$ KHz	1.1:1max		
Insertion Loss	at $f_0$ 0.1 dB max		
Return Loss $\pm 150$ KHz	$\leq -26$ dB		
Isolation $\pm 1.5$ MHz	$\geq 30$ dB		
N° of input	3		
N° of output	1		
Connectors Standard	Input 1+5/8"	Output 3+1/8"	(See table)
Max Power	10KW $\times$ 3 Channels		
Working Temperature	$-20^\circ\text{C} \div +50^\circ\text{C}$		
Colour	Enamel gray ral 7001		
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12 $\mu\text{m}$ thickness)		



## Features:

- Distortion – Free Transmission
- Star-point system with double pass-band cavity filters (standard configurations)
- Star-point system with triple pass-band cavity filters
- Star-point system with pass stop
- Low loss, high isolation
- Natural convection
- Option Group delay equalizer

Dimensions	1400(Max size) $\times$ 2300 $\times$ 1400 mm (55.1(Max size) $\times$ 90.6 $\times$ 55.1 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong$ 185 Kg



Typical shape of a curves for S11 and S12 parameters for single filter

"These specifications are subject to change without notice"



# MODEL FTCSTC10

- **COMBINER 3 CHANNELS**
- **TYPE STAR POINT**
- **FM BAND 87.5-108 MHz**
- **BAND II**

Model	Input Connector	Output Connector	Power Input	Power Output
FTCSTC10-1	1+5/8"	3+1/8"	10KW	30KW

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable bandpass filters, each on tuned transmitter frequency to witch it's connected. The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.



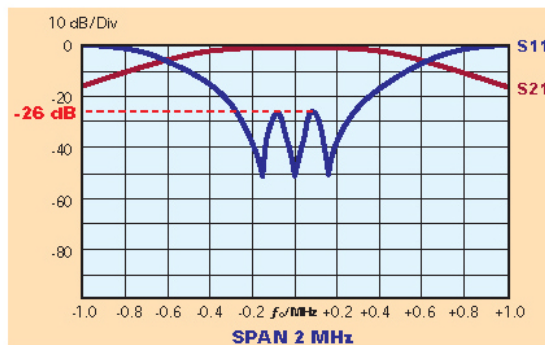
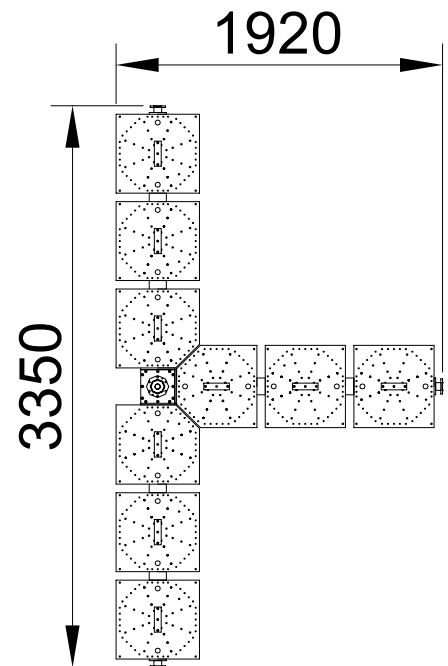
## TYPICAL SPECIFICATIONS

Model	FTCSTC10 – Type STAR POINT		
Impedance	50 Ohm		
Frequency Range	87.5-108 MHz		
VSWR $\pm 150\text{KHz}$	1.1:1max		
Insertion Loss	at $f_0$ 0.25 dB max		
Return Loss $\pm 150\text{KHz}$	$\leq -26\text{dB}$		
Isolation $\pm 1\text{MHz}$	$\geq 30\text{ dB}$		
Input Number	3		
Output Number	1		
Connectors standard	Input-Output 3+1/8" (See table)		
Max Power	10KW $\times$ 3 Channels		
Working Temperature	$-20^\circ\text{C} \div +50^\circ\text{C}$		
Colour	Enamel gray ral 7001		
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min $12\mu\text{m}$ thickness)		

## Features:

- Distortion – Free Transmission
- Starpoint system with triple pass-band cavity filters
- Starpoint system with pass stop
- Low loss, high isolation
- Natural convection
- Option Group delay equalizer

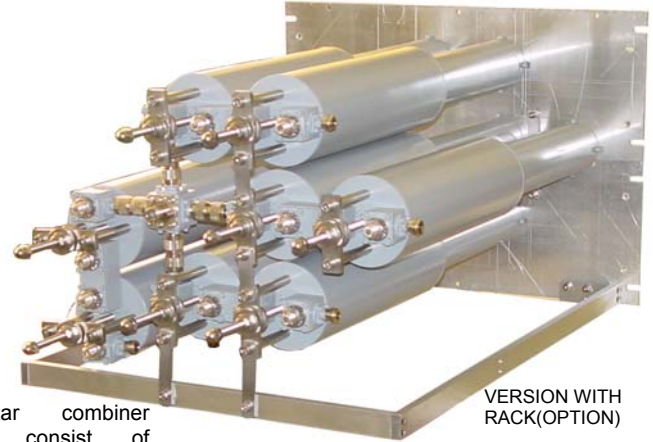
Dimensions	1400(Max size) $\times$ 3350 $\times$ 1920mm (55.1(Max size) $\times$ 131.9 $\times$ 75.6inch) (H $\times$ L $\times$ W)
Net Weight	$\cong$ 270 Kg



Typical shape of a curves for S11 and S12 parameters for single filter

# MODEL FQCSDC03

- COMBINER 4 CHANNELS
- TYPE STAR POINT
- RACK VERSION OPTION
- FM BAND 87.5-108 MHz
- BAND II
- OPTION



VERSION WITH RACK(OPTION)

Model	Input Connector	Output Connector	Power Input	Power Output
FQCSDC03-1	N	N	150W	600W
FQCSDC03-2	N	7/8"	200W	800W

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band

pass filters, each on tuned transmitter frequency to witch it's connected.

The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

## TYPICAL SPECIFICATIONS

Model	FQCSDC03 – Type STAR POINT		
Impedance	50 Ohm		
Frequency Range	87.5-108 MHz		
VSWR $\pm 150\text{Khz}$	1.1:1 max		
Insertion Loss	at $f_0$ 0.6 dB max		
Return Loss $\pm 150\text{Khz}$	$\leq -26$ dB		
Isolation $\pm 2.5\text{MHz}$	$\geq 30$ dB		
No. of Input	4		
No. of Output	1		
Connectors Standard	Input N female Output 7/16"	(See table)	
Max Power	200 W $\times$ 4 Channels (800W)		
Working Temperature	$-20^{\circ}\text{C} \div +50^{\circ}\text{C}$		
Colour	Enamel Gray Ral 7001		
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. $12\mu\text{m}$ thickness)		

## Features:

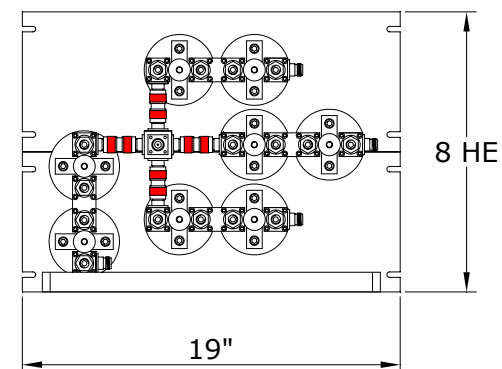
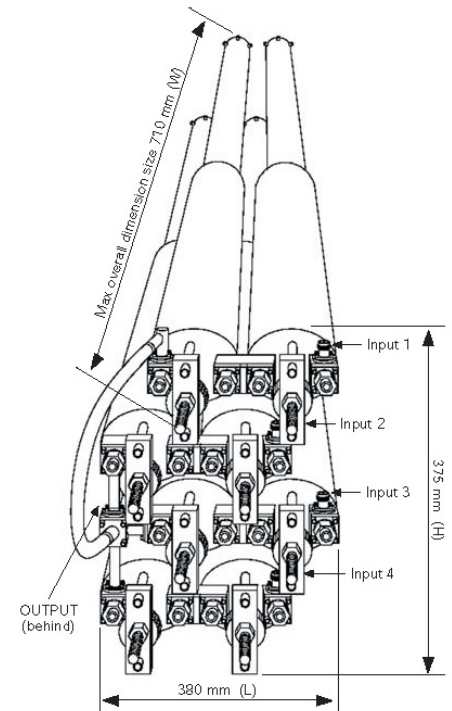
- Distortion – Free Transmission
- Star point system with double pass-band cavity filters (standard configurations)
- Star point system with triple pass-band cavity filters
- Star point system with pass stop
- Low loss, high isolation
- Natural convection
- OPTION Group delay equaliser

### No Rack Version

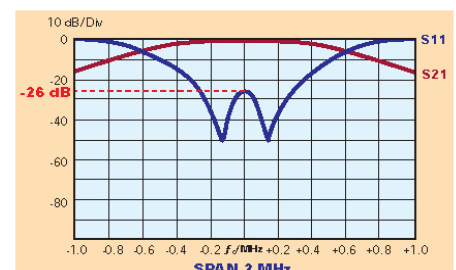
Dimension	375 x 290 x 710 mm (14.8 x 11.4 x 28 inch) (HxLxW)
Net Weight	$\cong 24$ Kg

### Rack Version

Panel Size	8 HE (1 HE=44,45 mm)
Weight	$\cong 24$ Kg



Typical shape of a curves for S11 and S12 parameters for single filter



"These specifications are subject to change without notice"

# MODEL FQCSTC03

- 4 CHANNELS COMBINER
- STAR POINT TYPE
- FM BAND: 87.5÷108 MHz
- BAND II
- OPTION rack mounting

Model	Input Connector	Output Connector	Power Input	Power Output
FQCSTC03-1	N	7/16"	300W	1200W
FQCSTC03-2	N	7/8"	300W	1200W

The Star

Point combiner basically consists of a parallel connection of several transmitters to a single antenna system through suitable band pass filters, each one tuned on the transmitter frequency to which it's connected.

## TYPICAL SPECIFICATIONS

Model	FQCSTC03 – Type Star Point		
Impedance	50 Ohm		
Frequency Range	87.5-108 MHz		
VSWR ±150Khz	1.1:1 max		
Insertion Loss	at $f_0$ 0.8 dB max		
Return Loss ±150Khz	≤ -26 dB		
Isolation ±2MHz	≥ 30 dB		
Number of Inputs	4		
Number of Outputs	1		
Standard Connectors	Input N female Output N	(See table)	
Max Power	150 W x 4 Channels		
Working Temperature	-20°C ÷ +50°C		
Colour	Enamel Gray Ral 7001		
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. 12µm thickness)		

## Features:

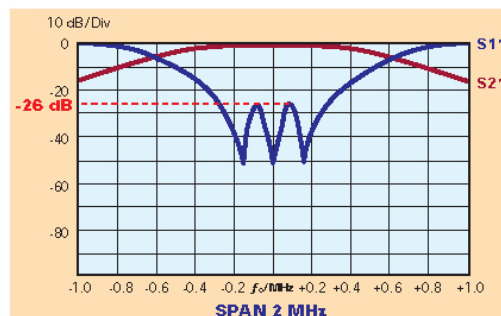
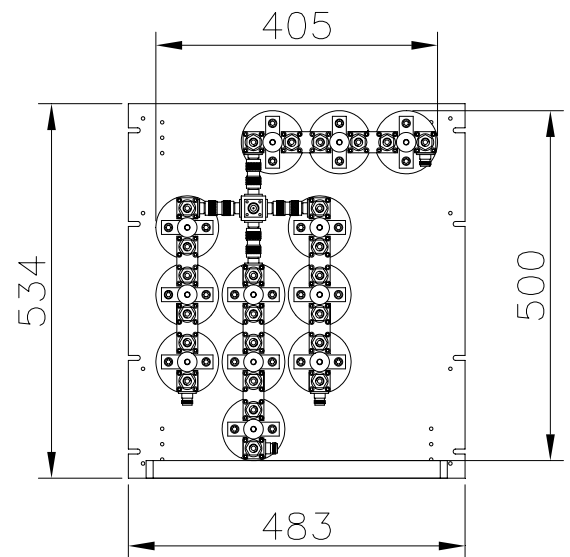
- Distortion – Free Transmission
- Triple Band-Pass Cavity filters
- Low Loss, High Isolation
- Natural convection
- Option whit Rack

### No rack version

Dimensions	405×500×710 mm (15.9×19.7×28 inch) (H×L×W)
Weight	$\cong 36$ Kg

### Rack Version

Panel Size	8 HE (1 HE=44,45 mm) (534×483 mm (21×19 inch))
Weight	$\cong 36$ Kg



Typical shape of a curves for S11 and S12 parameters for single filter

"These specifications are subject to change without notice"

# MODEL FQCSTC05

- **COMBINER 4 CHANNELS**
- **STAR POINT**
- **FM BAND 87.5÷108 MHz**
- **BAND II**
- **RACK VERSION**
- **OPTION**

Model	Input Connector	Output Connector	Power Input	Power Output
FQCSTC05-1	7/16"	7/16"	500W	2KW
FQCSTC05-2	7/16"	7/8"	500W	2KW

The star point combiner basically consist of parallel connecting several transmitters to a

single antenna system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected.

The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

## TYPICAL SPECIFICATIONS

Model	FQCSTC05 – Type STAR POINT		
Impedance	50 Ohm		
Frequency Range	87.5-108 MHz		
VSWR ±150KHz	1.1:1 max		
Insertion Loss	at fo 0.65 dB max		
Return Loss ±150Khz	≤ -26 dB		
Isolation ±2MHz	≥ 30 dB		
No. Input	4		
No. Output	1		
Standard Connectors	Input N	(See table)	
	Output 7/16"		
Max Power	500 W X 4 Channels		
Working Temperature	-20° ÷ +50°		
Colour	Enamel Gray Ral 7001		
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12µm thickness).		

## Features:

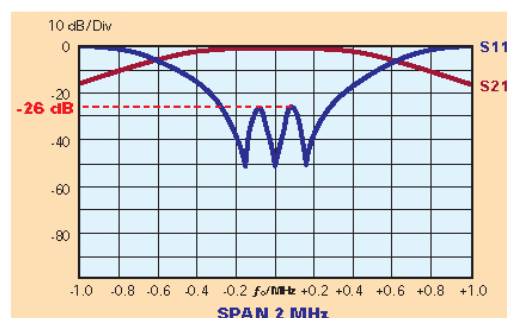
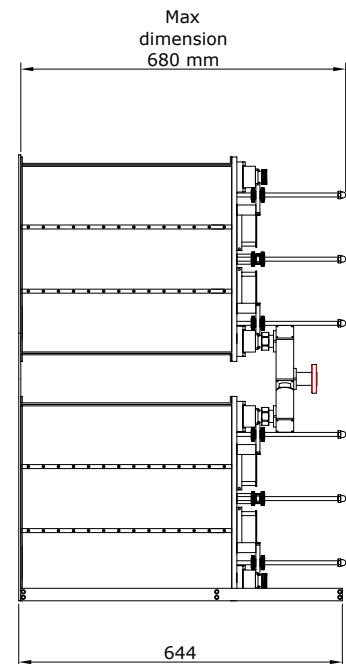
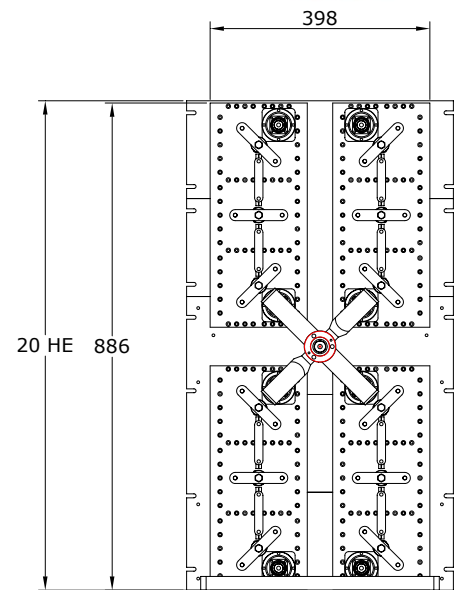
- Star-point system with triple pass-band cavity filters
- Star-point system with pass stop
- Low loss, high isolation
- Natural convection
- Modular design

## Rack size

Panel Size	20 HE (1 HE=44,45 mm)
------------	-----------------------

## Combiner size

Dimensions	886×398×680 mm (34.9×15.7×26.8 inch) (H×L×W)
Net Weight	$\cong 106$ Kg (including hardware mounting Rack)



Typical shape of a curves for S11 and S12 parameters for single filter

"These specifications are subject to change without notice"



# MODEL FQCSDC3

- **COMBINER 4 CHANNELS**
- **TYPE STAR POINT**
- **FM BAND 87.5÷108 MHz**
- **BAND II**
- **OPTION**

Model	Input Connector	Output Connector	Power Input	Power Output
FDCSDC3-1	7/8"	7/8"	1.6KW	5KW
FDCSDC3-2	1+5/8"	1+5/8"	3KW	12KW

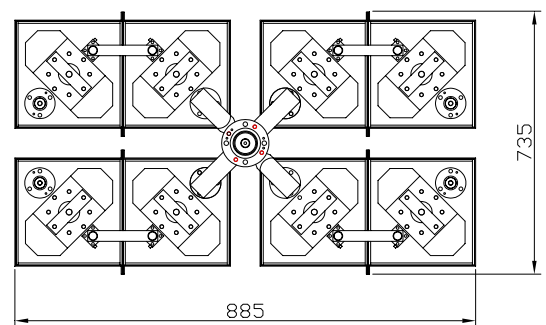
The star combiner basically consist of parallel connecting several transmitters to a single antenna

system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected.

The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

## TYPICAL SPECIFICATIONS

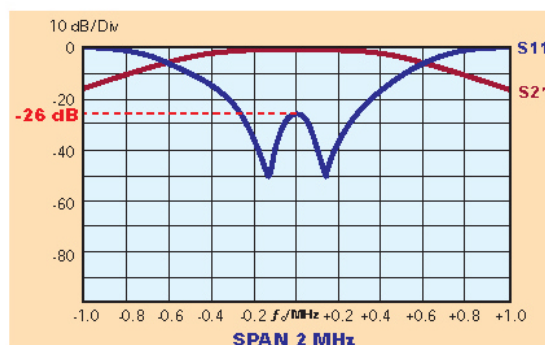
Model	FQCSDC3 – Type STAR POINT
Impedance	50 Ohm
Frequency Range	87.5-108 MHz
VSWR $\pm 150$ KHz	1.1:1 max
Insertion Loss	at $f_0$ 0.25 dB max
Return Loss $\pm 150$ KHz	$\leq -26$ dB
Isolation $\pm 2$ MHz	$\geq 30$ dB
Input Number	4
Output Number	1
Connectors	Input 7/8" Output 1+5/8"
Max Power	3KW $\times$ 4 Channel
Working Temperature	-20°C $\div$ +50°C
Colour	Enamel Gray Ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12 $\mu$ m thickness)



## Features:

- Distortion – Free Transmission
- Star point system with double pass-band cavity filters (standard configurations)
- Star point system with triple pass-band cavity filters
- Star point system with pass stop
- Low loss, high isolation
- Natural convection
- Option Group Delay equalizer

Dimensions	1300(Max size) $\times$ 885 $\times$ 735 mm (51.2(Max size) $\times$ 34.8 $\times$ 28.9 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong$ 110 Kg



Typical shape of a curves for S11 and S12 parameters for single filter

"These specifications are subject to change without notice"

# MODEL FQCSTC3

- **COMBINER 4 CHANNELS**
- **TYPE STAR POINT**
- **FM BAND 87.5÷108 MHz**
- **BAND II**
- **OPTION**

Model	Input Connector	Output Connector	Power Input	Power Output
FQCSTC3-1	7/8"	7/8"	1.6KW	5KW
FQCSTC3-2	1+5/8"	1+5/8"	3KW	12KW

The star combiner basically consist of parallel connecting several transmitters to a single antenna

system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected.

The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

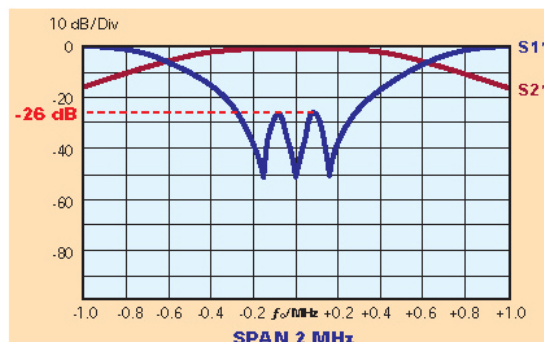
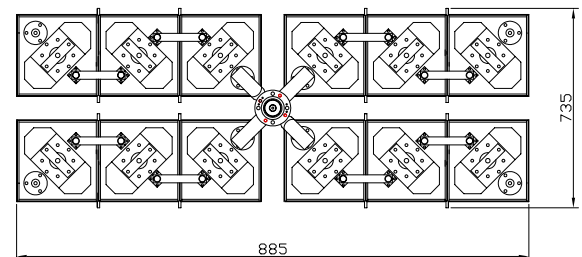
## TYPICAL SPECIFICATIONS

Model	FQCSTC3 – Type STAR POINT
Impedance	50 Ohm
Frequency Range	87.5-108 MHz
VSWR ±150 KHz	1.1:1 max
Insertion Loss	at $f_0$ 0.35 dB max
Return Loss ±150Khz	≤ -26dB
Isolation ±1.2 MHz	≥ 30 dB
No. of Input	4
No. of Output	1
Connectors	Input 7/8" Output 1+5/8"
Max Power	3KW × 4 Channel
Working Temperature	-20°C ÷ +50°C
Colour	Enamel gray ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. 12µm thickness)

## Features:

- Distortion – Free Transmission
- Star-point system with pass stop
- Low loss, high isolation
- Natural convection
- Option Group Delay equalizer

Dimensions	1300(Max size)×885×735 mm (51.2(Max size)×34.8×28.9 inch) (H×L×W)
Net Weight	≅ 150 Kg



Typical shape of a curves for S11 and S12 parameters for single filter

“These specifications are subject to change without notice”



## MODEL FQCSDC5

- COMBINER 4 CHANNELS
- TYPE STAR POINT
- FM BAND 87.5÷108 MHz
- BAND II
- OPTION

Model	Input Connector	Output Connector	Power Input	Power Output
FQCSDC5-1	7/8"	1+5/8"	5KW	10KW
FQCSDC5-2	1+5/8"	3+1/8"	5KW	10KW

The star combiner basically consist of parallel connecting several transmitters to a single antenna

system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected.  
The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

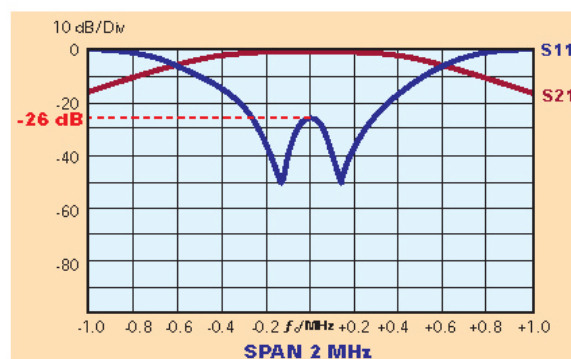
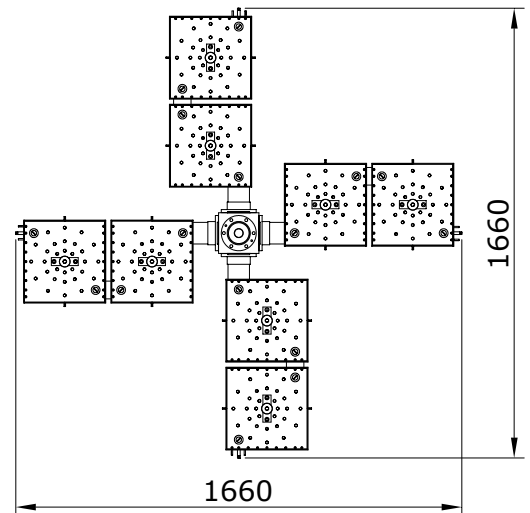
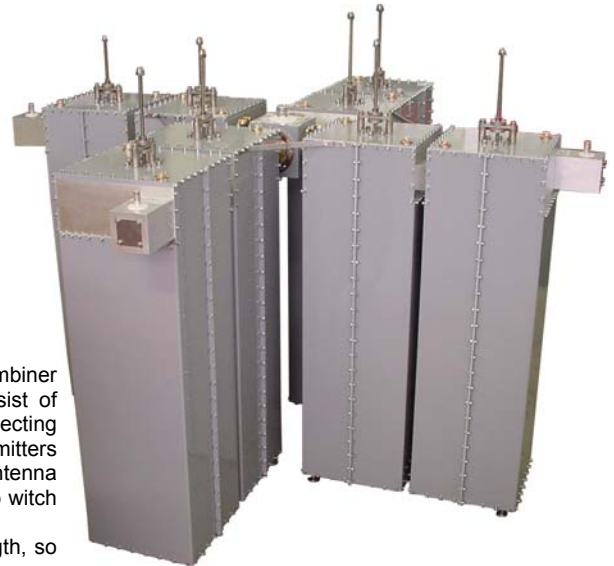
### TYPICAL SPECIFICATIONS

Model	FQCSDC5 – Type STAR POINT
Impedance	50 Ohm
Frequency Range	87.5-108 MHz
VSWR $\pm 150$ KHz	1.1:1 max
Insertion Loss	at $f_0$ 0.15 dB max
Return Loss $\pm 150$ KHz	$\leq -26$ dB
Isolation $\pm 2$ MHz	$\geq 30$ dB
No. of Input	4
No. of Output	1
Connectors	Input 1+5/8" Output 3+1/8"
Max Power	6KW $\times$ 4 Channels
Working Temperature	-20°C $\div$ +50°C
Colour	Enamel gray ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. 12 $\mu$ m thickness)

### Features:

- Distortion – Free Transmission
- Low loss, high isolation
- Natural convection

Dimensions	1400(Max size) $\times$ 1660 $\times$ 1660 mm (55.1(Max size) $\times$ 65.3 $\times$ 65.3 inch) (H $\times$ L $\times$ W)
Net Weight	$\approx$ 180 Kg



Typical shape of a curves for S11 and S12 parameters for single filter

## MODEL FQCSTC5

- COMBINER 4 CHANNELS
- TYPE STAR POINT
- FM BAND 87.5÷108 MHz
- BAND II
- OPTION



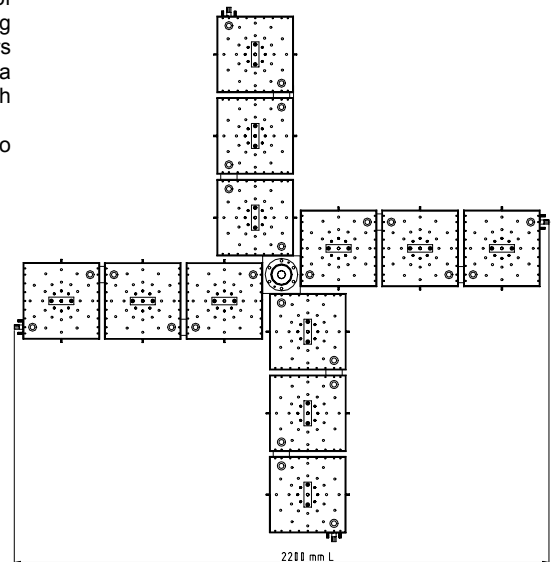
Model	Input Connector	Output Connector	Power Input	Power Output
FQCSTC5-1	7/8"	1+5/8"	3KW	12KW
FQCSTC5-2	1+5/8"	1+5/8"	3KW	12KW

The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected.

The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

### TYPICAL SPECIFICATIONS

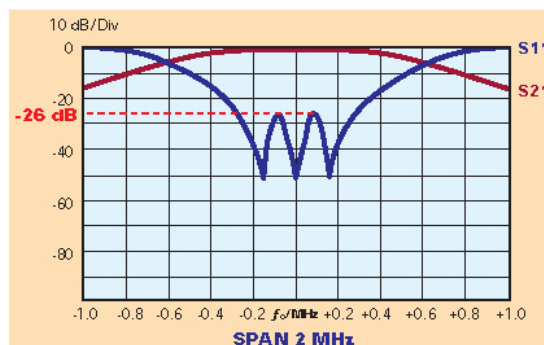
Model	FQCSTC5 – Type STAR POINT
Impedance	50 Ohm
Frequency Range	87.5-108 MHz
VSWR $\pm 150$ KHz	1.1:1 max
Insertion Loss	at $f_0$ 0.25 dB max
Return Loss $\pm 150$ KHz	$\leq -26$ dB
Isolation $\pm 1$ MHz	$\geq 30$ dB
Input Number	4
Output Number	1
Standard Connectors	Input 1+5/8" Output 3+1/8"
Max Power	5KW $\times$ 4 Channels
Working Temperature	-20°C $\div$ +50°C
Colour	Enamel gray ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12 $\mu$ m thickness)



### Features:

- Distortion – Free Transmission
- Star-point system with pass stop
- Low loss, high isolation
- Natural convection
- OPTION Group delay equaliser

Dimensions	1400(Max size) $\times$ 2200 $\times$ 2200 mm (55.1(Max size) $\times$ 86.6 $\times$ 86.6 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong$ 260 Kg



Typical shape of a curves for S11 and S12 parameters for single filter

“These specifications are subject to change without notice”

# MODEL FQCSDC10

- **COMBINER 4 CHANNELS**
- **TYPE STAR POINT**
- **FM BAND 87.5÷108 MHz**
- **BAND II**



The star combiner basically consist of parallel connecting several transmitters to a single antenna system through suitable band pass filters, each on tuned transmitter frequency to witch it's connected.

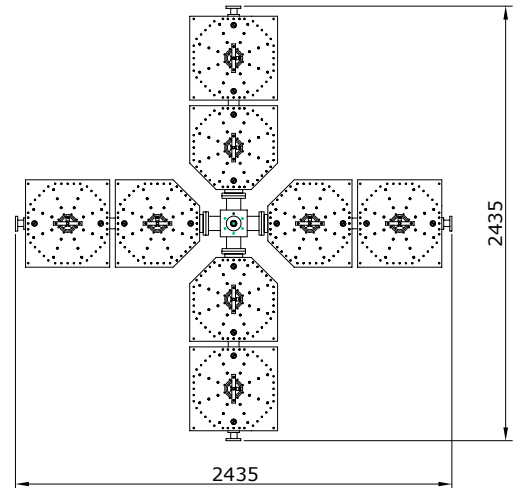
The parallel connection is obtained by means of coaxial lines of determined length, so as provide for adequate isolation between transmitters.

## TYPICAL SPECIFICATIONS

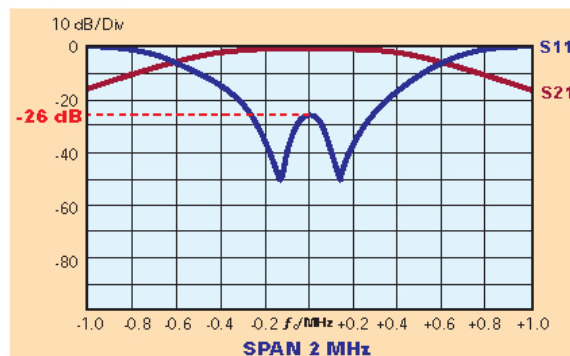
Model	FQCSDC10 – Type STAR POINT
Impedance	50 Ohm
Frequency Range	87.5-108 MHz
VSWR $\pm 150$ KHz	1.1:1max
Insertion Loss	at $f_0$ 0.1 dB max
Return Loss $\pm 150$ KHz	$\leq -26$ dB
Isolation $\pm 1.5$ MHz	$\geq 30$ dB
Input Number	4
Output Number	1
Connectors	Input 1+5/8" (Opt. 3+1/8") Output 3+1/8" (Opt. 4+1/2")
Max Power	10KW $\times$ 4 Channels
Working Temperature	-20°C $\div$ +50°C
Colour	Enamel gray ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12 $\mu$ m thickness)

## Features:

- Distortion – Free Transmission
- Star point system with double pass-band cavity filters (standard configurations)
- Star point system with triple pass-band cavity filters
- Star point system with pass stop
- Low loss, high isolation
- Natural convection
- Option Group delay equalizer



Dimensions	1400(Max size) $\times$ 2435 $\times$ 2435 mm (55.1(Max size) $\times$ 95.8 $\times$ 95.8 inch) (H $\times$ L $\times$ W)
Net Weight	$\cong$ 240 Kg

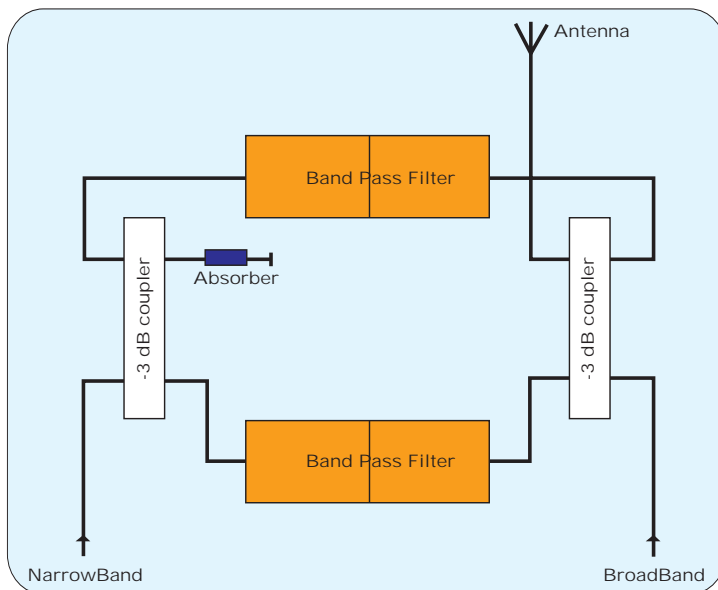


Typical shape of a curves for S11 and S12 parameters for single filter

## Description of a Double Balanced Bridge

The double balanced bridge consists of units, each comprising two band pass filters, two 3 dB couplers and a dummy resistor (absorber).

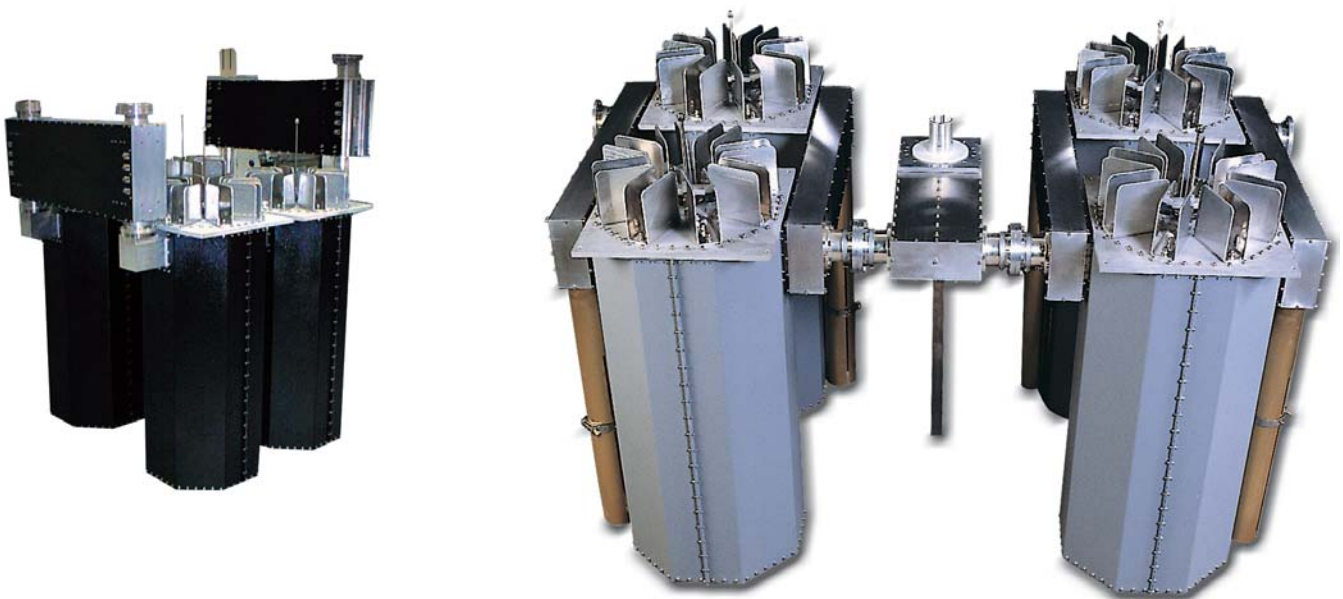
- One of both inputs has a narrow band characteristic, while the remaining input features a broadband characteristic.
- Frequency independent input impedance
- The frequency at the broadband input can be varied without retuning of the pass-band cavity filters.
- The broadband input can be used as spare input for expansion without requiring modification of the existing pass-band cavity filters.
- If only narrow band input is being used, an extremely high coupling attenuation (directional coupler attenuation plus filter attenuation) can be achieved for very small frequency spacings.



The double bridge filter is factory tuned. When ordering, please specify the desired operating channel for the narrow band input. The broadband input accepts, however, any frequency range. The devices can also be tuned by the customer.

Detailed instructions and adjustment tools are supplied with each unit.

Schematic block of double bridge diplexer



# Model FDDPDC03

- Combiner 2 Channels
- Double Balanced Bridge
- FM Band 87.5÷108 Mhz
- Band II

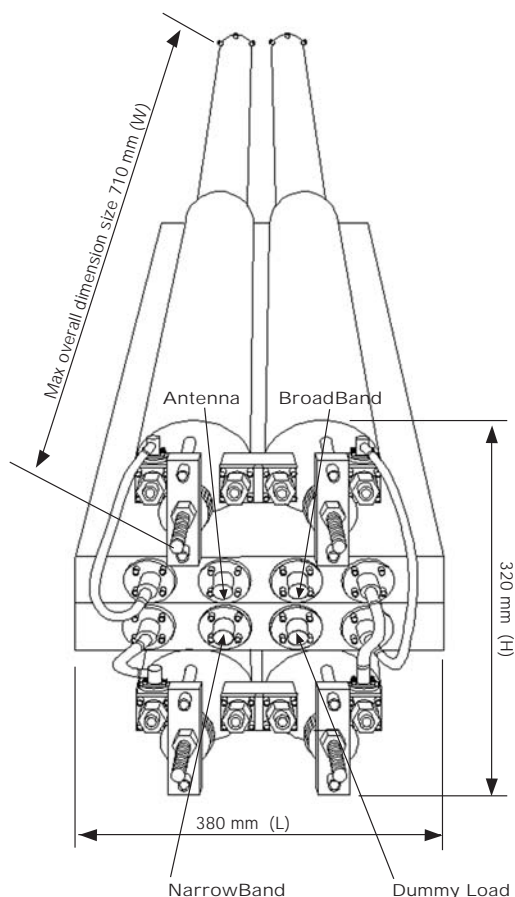
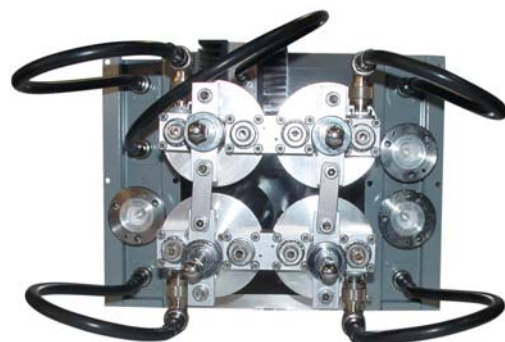
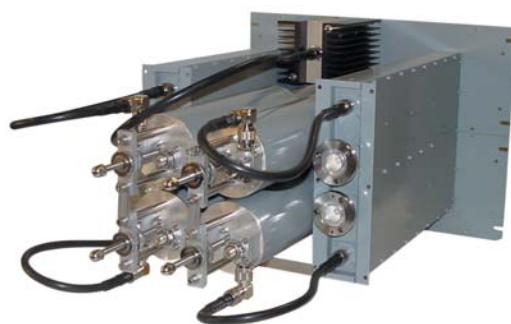
The double balanced bridge system consist of two band-pass filter, two -3dB coupler and a absorber. One of both inputs has a narrow-band characteristic (complying with the pass-band functions of the bandpass filters), while the remaining input features a broadband characteristic within the operating frequency range of -3dB couplers, both inputs exhibits a frequency independent load impedance to the RF source.

TYPICAL SPECIFICATIONS	
Model	FDDPDC03 – Type DOUBLE BRIDGE
Impedance	50 Ohm
Frequency Range	87.5÷108 MHz
VSWR ±150 KHz	1.1:1 Max
Insertion Loss	at $f_0$ 0.65 dB Max (Narrow Band Input) 0.1 dB Max (Broad Band Input)
Return Loss ±150 KHz	≤ -26 dB
Isolation ±2 MHz	> 30 dB
No. of input	2 (NarrowBand+BroadBand)
No. of output	1
Connectors	Input N Female Output N or 7/16"
Max Power	300 W X 2 CHANNELS
Working Temperature	-20°C ÷ +50°C
Colour	Silver
Materials	Aluminium, silver brass, copper, PTFE, stainless steel, silver plated (min 12μ thickness)

## Features:

- Distortion – Free Transmission
- Double Balanced Bridge system with double pass-band cavity filters
- Double Balanced Bridge system with triple pass-band cavity filters (standard configurations)
- Double Balanced Bridge system with pass stop
- Low loss, high isolation
- Natural convection
- Option: Group delay equaliser
- Frequency independent input impedance
- The frequency at the broadband input can be varied without retuning of the pass-band cavity filters.

No Rack Version	
Dimensions	320 x 280 x 710 mm (12.6 x 15 x 28 (Max size) inch) (HxLxW)
Net Weight	≈ 21 Kg
Rack Version (optional)	
Panel Size	8 HE (1 HE = 44.45 mm)
Net Weight	≈ 21 Kg



"These specifications are subject to change without notice"



# Model FDDPTC03

- Combiner 2 Channels
- Double Balanced Bridge
- FM Band 87.5÷108 Mhz
- Band II

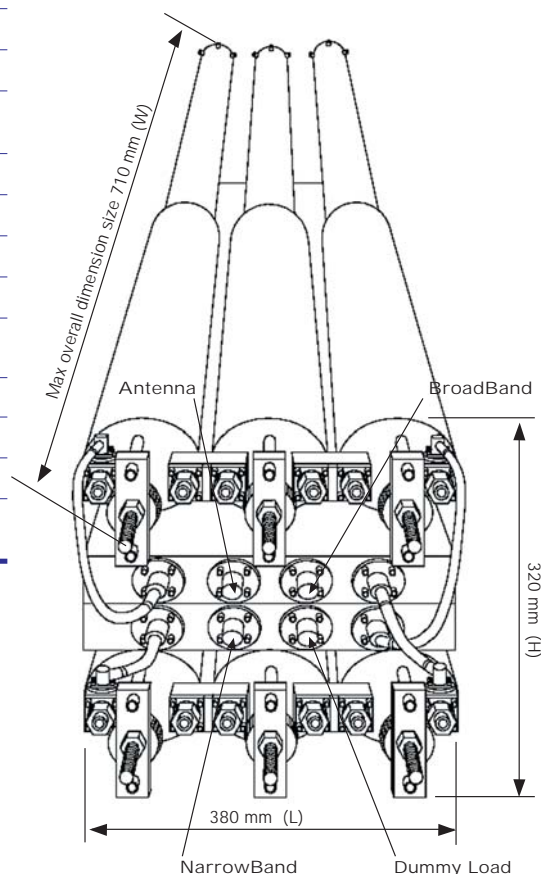
The double balanced bridge system consist of two band-pass filter, two -3dB coupler and a absorber. One of both inputs has a narrow-band characteristic (complying with the pass-band functions of the bandpass filters), while the remaining input features a broadband characteristic within the operating frequency range of -3dB couplers, both inputs exhibits a frequency independent load impedance to the RF source.

## TYPICAL SPECIFICATIONS

Model	FDDPTC03 – Type DOUBLE BRIDGE
Impedance	50 Ohm
Frequency Range	87.5÷108 MHz
VSWR ±150 KHz	1.1:1 Max
Insertion Loss	at $f_0$ 0.8 dB Max (Narrow Band Input) 0.1 dB Max (Broad Band Input)
Return Loss ±150 KHz	≤ -26 dB
Isolation ±1.8 MHz	> 30 dB
No. of input	2 (NarrowBand+BroadBand)
No. of output	1
Connectors	Input N Female Output N or 7/16"
Max Power	300 W X 2 CHANNELS
Working Temperature	-20°C ÷ +50°C
Colour	Enamel gray ral 7001
Materials	Aluminium, silver brass, copper, PTFE, stainless steel, silver plated (min 12μ thickness)

## Features:

- Distortion – Free Transmission
- Double Balanced Bridge system with double pass-band cavity filters
- Double Balanced Bridge system with triple pass-band cavity filters
- Double Balanced Bridge system with pass stop
- Low loss, high isolation
- Natural convection
- Option: Group delay equalizer
- Frequency independent input impedance
- The frequency at the broadband input can be varied without retuning of the pass-band cavity filters.



## No Rack Version

Dimensions	320 x 280 x 710 mm (12.6 x 15 x 28 (Max size) inch) (HxLxW)
Net Weight	≈ 27 Kg (triple cavity)

## Rack Version (optional)

Panel Size	8 HE (1 HE = 44.45 mm)
Net Weight	≈ 27 Kg (triple cavity)

"These specifications are subject to change without notice"



## MODEL FDDPTC05

- **Combiner 2 Channels**
- **Double Balanced Bridge**
- **FM Band: 87.5÷108 MHz**
- **Band II**

The Double Balanced Bridge System consists of two Band-Pass Filters, two -3dB Couplers and an Absorber. One of the inputs has a narrow-band characteristic (complying with the band-pass functions of the band-pass filters), while the other input has a broadband characteristic within the operating frequency range of -3dB couplers. Both inputs exhibit a frequency independent load impedance to the RF source.

### TYPICAL SPECIFICATIONS

<b>Model</b>	FDDPTC05AA – Double Bridge Type
<b>Impedance</b>	50 Ohm
<b>Frequency Range</b>	87.5-108 MHz
<b>VSWR ± 150 KHz</b>	1.1:1 max
<b>Insertion Loss</b>	at $f_0$ 0.65 dB Max Narrow Band Input at $f_0$ 0.1 dB Max Broad Band Input
<b>Return Loss ± 150 KHz</b>	≤ -26 dB
<b>Isolation ± 1.2 MHz</b>	N/B → B/B ≥ 30 dB B/B → N/B ≥ 40 dB
<b>Number of Inputs</b>	2
<b>Number of Outputs</b>	1
<b>Connectors</b>	Narrow Band Input N female (Opt. 7/16") Broad Band Input N female (Opt. 7/16" – 7/8") Output N (Opt. 7/16" – 7/8")
<b>Max Power</b>	Narrow Band Input 1000 W Broad Band Input 3KW
<b>Working Temperature</b>	-20°C ÷ +50°C
<b>Colour</b>	Enamel Gray Ral 7001
<b>Materials</b>	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12µm thickness)

### Features:

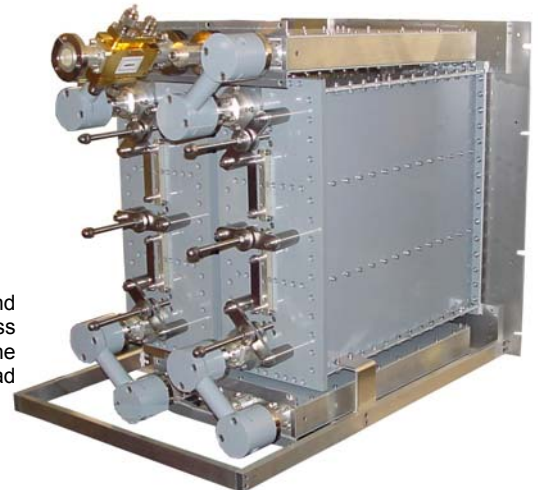
- Distortion – Free Transmission
- Double Balanced Bridge
- Frequency Independent Input Impedance
- Low Loss, High Isolation
- Natural Convection
- Frequency at broadband input can be varied without retuning band-pass cavity filters
- Broadband input can be used as spare input for expansion without requiring modifications of existing band-pass cavity filters
- If narrow band input is the only one being used, an extremely high coupling attenuation (directional coupler attenuation plus filter attenuation) can be achieved for very small frequency spacing

### No rack version

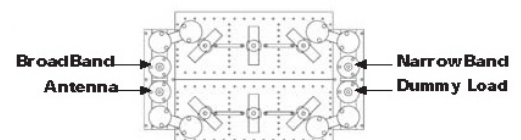
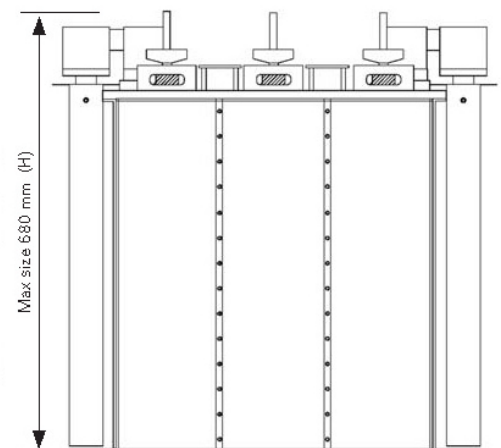
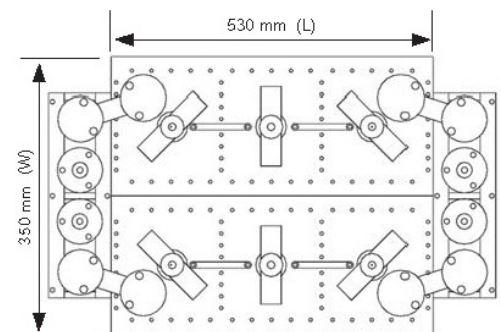
<b>Dimensions</b>	680(Max size)×530×350 mm (26.8(Max size)×20.9×13.8 inch) (H×L×W)
<b>Net Weight</b>	≅ 60 Kg

### Rack version (optional)

<b>Dimensions</b>	12 HE (1 HE=44.45 mm)
<b>Net Weight</b>	≅ 60 Kg



VERSION WITH RACK AND COUPLER (OPTION)



# Model FDDPDC1-5.5 - FDDPDC2-5.5

- Combiner 2 Channels
- Double Balanced Bridge
- FM Band 87.5÷108 Mhz
- Band II

The double balanced bridge system consist of two band-pass filter, two -3dB coupler and a absorber. One of both inputs has a narrow-band characteristic (complying with the pass-band functions of the bandpass filters), while the remaining input features a broadband characteristic within the operating frequency range of -3dB couplers, both inputs exhibits a frequency independent load impedance to the RF source.



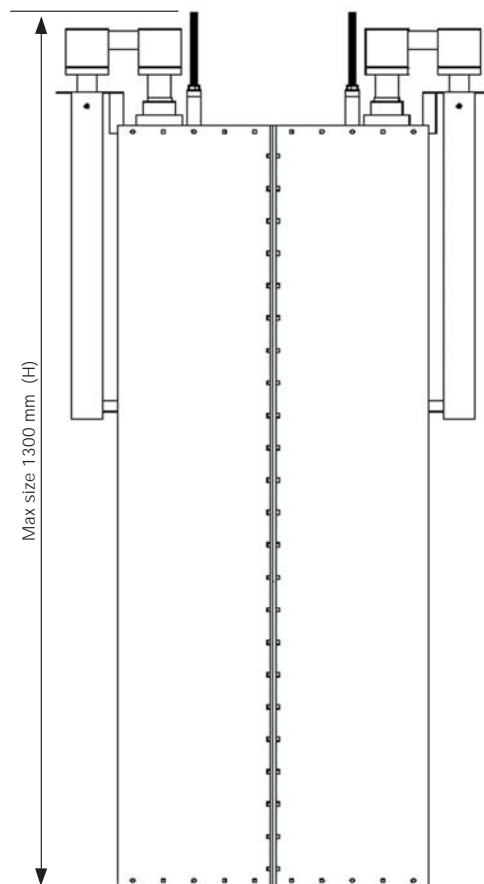
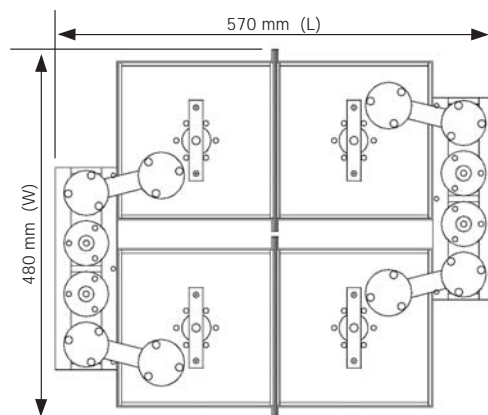
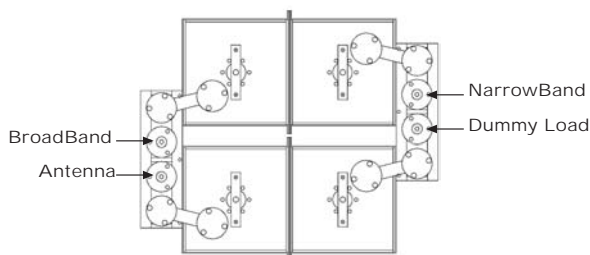
## TYPICAL SPECIFICATIONS

Model	FDDPDC1-5.5 - FDDPDC2-5.5 – Type DOUBLE BRIDGE
Impedance	50 Ohm
Frequency Range	87.5÷108 MHz
VSWR ±150 KHz	1.1:1 Max
Insertion Loss	at $f_0$ 0.3 dB Max (Narrow Band Input) 0.1 dB Max (Broad Band Input)
Return Loss ±150 KHz	≤ -26 dB
Isolation ±1.5 MHz	> 32 dB
No. of input	2 (NarrowBand+BroadBand)
No. of output	1
Connectors	Input 7/16" (FDDPDC1-5.5) Input 7/8" EIA (FDDPDC2-5.5) 7/8" EIA Output
Max Power	1000 W x 2 Channels (FDDPDC1-5.5) 2000 W x 2 Channels (FDDPDC2-5.5)
Working Temperature	-20°C + +50°C
Colour	Enamel gray ral 7001
Materials	Aluminium, silver brass, copper, PTFE, stainless steel, silver plated (min 12μ thickness)

## Features:

- Distortion – Free Transmission
- Double Balanced Bridge system with pass stop
- Frequency independent input impedance
- The frequency at the broadband input can be varied without retuning of the pass-band cavity filters.
- The broadband input can be used as spare input for expansion without requiring modification of the existing pass-band cavity filters

Dimensions	1300(Max size) x 570 x 480 mm (51.2(Max size) x 22.4 x 18.9 inch) (H x L x W)
Net Weight	≅ 50 Kg



"These specifications are subject to change without notice"

# Model FDDPTC1-5.5 - FDDPTC2-5.5

- Combiner 2 Channels
- Double Balanced Bridge
- FM Band 87.5÷108 Mhz
- Band II

The double balanced bridge system consist of two band-pass filter, two -3dB coupler and a absorber. One of both inputs has a narrow-band characteristic (complying with the pass-band functions of the bandpass filters), while the remaining input features a broadband characteristic within the operating frequency range of -3dB couplers, both inputs exhibits a frequency independent load impedance to the RF source.

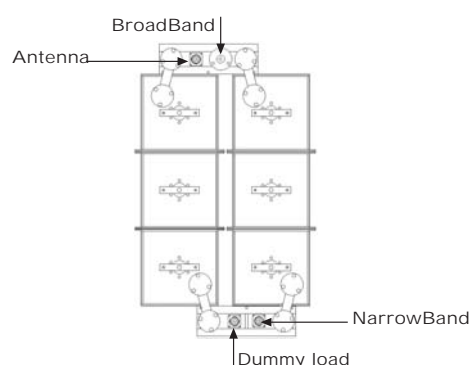
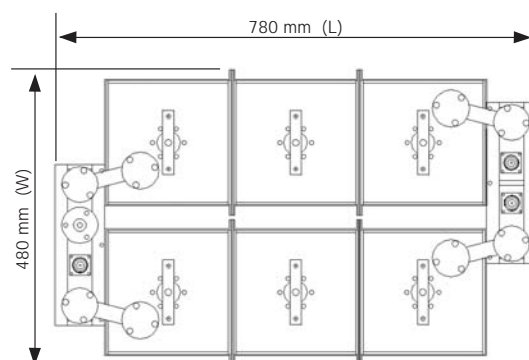
## TYPICAL SPECIFICATIONS

Model	FDDPTC1-5.5 - FDDPTC2-5.5 – Type DOUBLE BRIDGE
Impedance	50 Ohm
Frequency Range	87.5÷108 MHz
VSWR ±150 KHz	1.1:1 Max
Insertion Loss	at $f_0$ 0.45 dB Max (Narrow Band Input) 0.1 dB Max (Broad Band Input)
Return Loss ±150 KHz	≤ -26 dB
Isolation ±1.2 MHz	> 30 dB
No. of input	2 (NarrowBand+BroadBand)
No. of output	1
Connectors	Input 7/16" (FDDPDC1-5.5) Input 7/8" EIA (FDDPDC2-5.5) 7/8" EIA Output
Max Power	1000 W 2 Channels (FDDPDC1-5.5) 2000 W 2 Channels (FDDPDC2-5.5)
Working Temperature	-20°C ÷ +50°C
Colour	Enamel gray ral 7001
Materials	Aluminium, silver brass, copper, PTFE, stainless steel, silver plated (min 12μ thickness)

## Features:

- Distortion – Free Transmission
- Double Balanced Bridge system with pass stop
- Frequency independent input impedance
- The frequency at the broadband input can be varied without retuning of the pass-band cavity filters.
- The broadband input can be used as spare input for expansion without requiring modification of the existing pass-band cavity filters
- If only narrow band input is being used, an extremely high coupling attenuation (directional coupler attenuation plus filter attenuation) can be achieved for very small frequency spacings.
- Low loss, high isolation
- Natural convection
- Option: Group delay equaliser

Dimensions	1300(Max size) x 780 x 480 mm (51.2(Max size) x 22.4 x 18.9 inch) (H x L x W)
Net Weight	≈ 70 Kg



"These specifications are subject to change without notice"

# Model FDDPDC2-5.15

- Combiner 2 Channels
- Double Balanced Bridge
- FM Band 87.5÷108 Mhz
- Band II

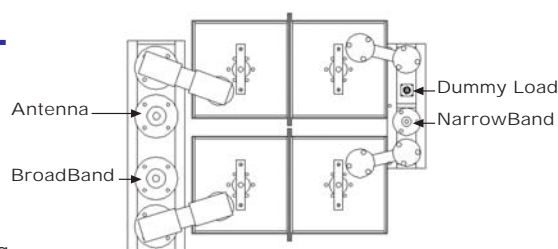
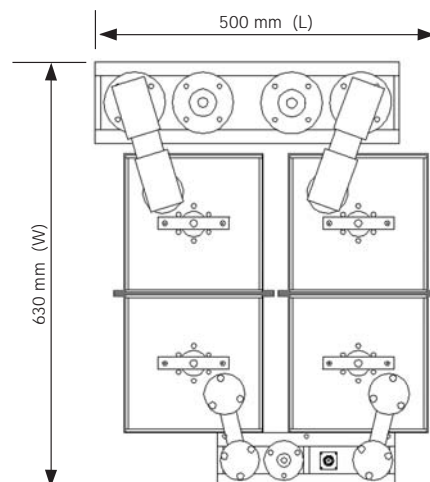
The double balanced bridge system consist of two band-pass filter, two -3dB coupler and a absorber. One of both inputs has a narrow-band characteristic (complying with the pass-band functions of the bandpass filters), while the remaining input features a broadband characteristic within the operating frequency range of -3dB couplers, both inputs exhibits a frequency independent load impedance to the RF source.

## TYPICAL SPECIFICATIONS

Model	FDDPDC2-5.15 – Type DOUBLE BRIDGE
Impedance	50 Ohm
Frequency Range	87.5÷108 MHz
VSWR $\pm 150$ KHz	1.1:1 Max
Insertion Loss	at $f_0$ 0.3 dB Max (Narrow Band Input) 0.08 dB Max (Broad Band Input)
Return Loss $\pm 150$ KHz	$\leq -26$ dB
Isolation $\pm 1.5$ MHz	$> 32$ dB
No. of input	2 (NarrowBand+BroadBand)
No. of output	1
Connectors	Input 7/8" NarrowBand Input 1+5/8" BroadBand Output 1+5/8"
Max Power	4 KW NarrowBand 8 KW BroadBand
Working Temperature	-20°C + +50°C
Colour	Enamel gray ral 7001
Materials	Aluminium, silver brass, copper, PTFE, stainless steel, silver plated (min 12 $\mu$ thickness)

## Features:

- Distortion – Free Transmission
- Double Balanced Bridge system with pass stop
- Frequency independent input impedance
- The frequency at the broadband input can be varied without retuning of the pass-band cavity filters.
- The broadband input can be used as spare input for expansion without requiring modification of the existing pass-band cavity filters



Dimensions	1300(Max size) x 630 x 500 mm (51.2(Max size) x 24.8 x 19.7 inch) (H x L x W)
Net Weight	$\cong 52$ Kg

"These specifications are subject to change without notice"

## Model FDDPDC3-5.15

- Combiner 2 Channels
- Double Balanced Bridge
- FM Band 87.5÷108 Mhz
- Band II

The double balanced bridge system consist of two band-pass filter, two -3dB coupler and a absorber. One of both inputs has a narrow-band characteristic (complying with the pass-band functions of the bandpass filters), while the remaining input features a broadband characteristic within the operating frequency range of -3dB couplers, both inputs exhibits a frequency independent load impedance to the RF source.

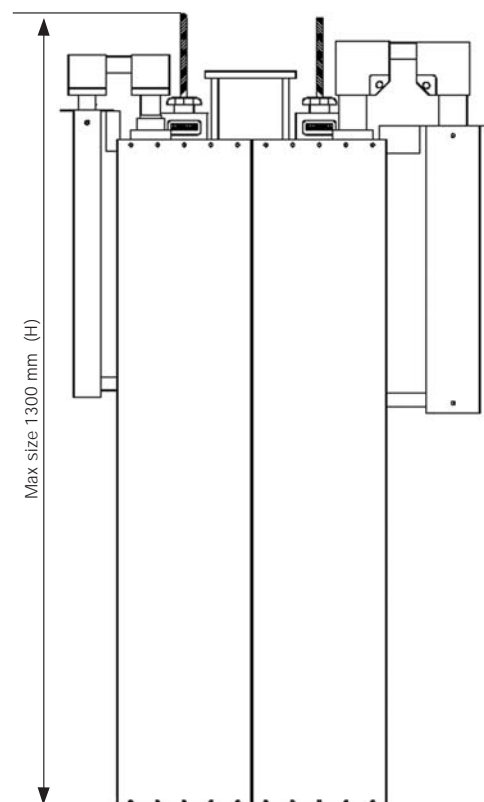
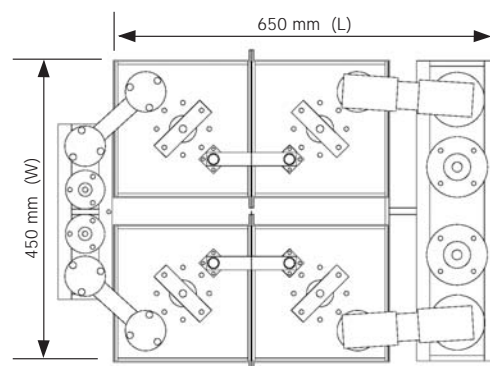
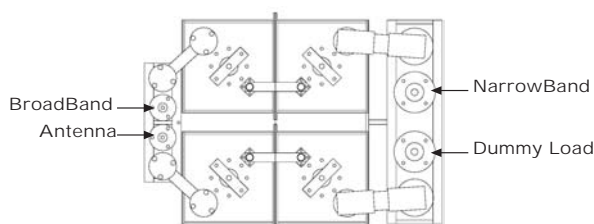
### TYPICAL SPECIFICATIONS

Model	FDDPDC3-5.15 – Type DOUBLE BRIDGE
Impedance	50 Ohm
Frequency Range	87.5÷108 MHz
VSWR $\pm 150$ KHz	1.1:1 Max
Insertion Loss	at $f_0$ 0.25 dB Max (Narrow Band Input) 0.1 dB Max (Broad Band Input)
Return Loss $\pm 150$ KHz	$\leq -26$ dB
Isolation $\pm 1.2$ MHz	$> 32$ dB
No. of input	2 (NarrowBand+BroadBand)
No. of output	1
Connectors	7/8" EIA Narrow Band Input 1+5/8" Broad Band Input 1+5/8" Output
Max Power	4 KW on narrow-band - 8 KW on broadband
Working Temperature	-20°C + +50°C
Colour	Enamel gray ral 7001
Materials	Aluminium, silver brass, copper, PTFE, stainless steel, silver plated (min 12 $\mu$ thickness)

### Features:

- Distortion – Free Transmission
- Double Balanced Bridge system with pass stop
- Frequency independent input impedance
- The frequency at the broadband input can be varied without retuning of the pass-band cavity filters.
- The broadband input can be used as spare input for expansion without requiring modification of the existing pass-band cavity filters

Dimensions	1300(Max size) x 650 x 450 mm (51.2(Max size) x 25.5 x 17.7 inch) (H x L x W)
Net Weight	$\cong 65$ Kg



"These specifications are subject to change without notice"

# Model FDDPTC1-5.5/F-FDDPTC2-5.5/F

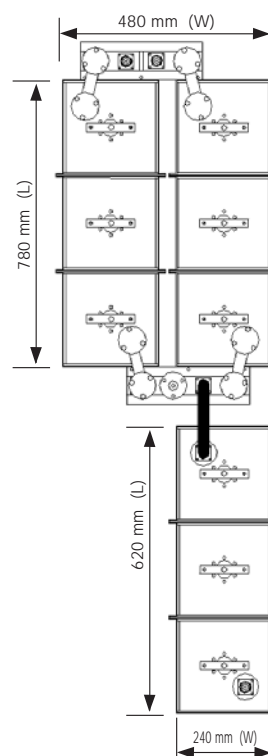
- Combiner 2 Channels
- Double Balanced Bridge
- FM Band 87.5÷108 Mhz
- Band II

The double balanced bridge system consist of two band-pass filter, two -3dB coupler and a absorber. One of both inputs has a narrow-band characteristic (complying with the pass-band functions of the bandpass filters), while the remaining input features a broadband characteristic within the operating frequency range of -3dB couplers, both inputs exhibits a frequency independent load impedance to the RF source.

TYPICAL SPECIFICATIONS	
Model	FDDPTC1-5.5/F-FDDPTC2-5.5/F – Type DOUBLE BRIDGE
Impedance	50 Ohm
Frequency Range	87.5÷108 MHz
VSWR ±150 KHz	1.1:1 Max
Insertion Loss	at $f_0$ 0.45 dB Max on input 1 at $f_0$ 0.45 dB Max on input 2
Return Loss ±150 KHz	≤ -26 dB
Isolation ±1.5 MHz	From input 1 to input 2 33 dB From input 2 to input 1 43 dB
No. of input	2
Connectors	Input 7/16" (FDDPDC1-5.5/F) Input 7/8" EIA (FDDPDC2-5.5/F) 7/8" EIA Output
Max Power	1000 W 2 Channels (FDDPDC1-5.5/F) 2000 W 2 Channels (FDDPDC2-5.5/F)
Working Temperature	-20°C + +50°C
Colour	Enamel gray ral 7001
Materials	Aluminium, silver brass, copper, PTFE, stainless steel, silver plated (min 12μ thickness)

## Features:

- Distortion – Free Transmission
- Double Balanced Bridge system with pass stop
- Frequency independent input impedance
- The frequency at the broadband input can be varied without retuning of the pass-band cavity filters.
- The broadband input can be used as spare input for expansion without requiring modification of the existing pass-band cavity filters
- If only narrow band input is being used, an extremely high coupling attenuation (directional coupler attenuation plus filter attenuation) can be achieved for very small frequency spacings.
- Low loss, high isolation
- Natural convection
- Option: Group delay equaliser



Double Bridge Dimensions	1300(Max size) x 780 x 480 mm (51.2(Max size) x 22.4 x 18.9 inch) (H x L x W)
Double Bridge Net Weight	70 Kg
Filter Dimensions	1300(Max size) x 610 x 235 mm (51.2(Max size) x 22.4 x 18.9 inch) (H x L x W)
Filter Net Weight	35 Kg

"These specifications are subject to change without notice"



## Model FDDPDC5-15.45

- Combiner 2 Channels
- Double Balanced Bridge
- FM Band 87.5÷108 Mhz
- Band II

The double balanced bridge system consist of two band-pass filter, two -3dB coupler and a absorber. One of both inputs has a narrow-band characteristic (complying with the pass-band functions of the bandpass filters), while the remaining input features a broadband characteristic within the operating frequency range of -3dB couplers, both inputs exhibits a frequency independent load impedance to the RF source.

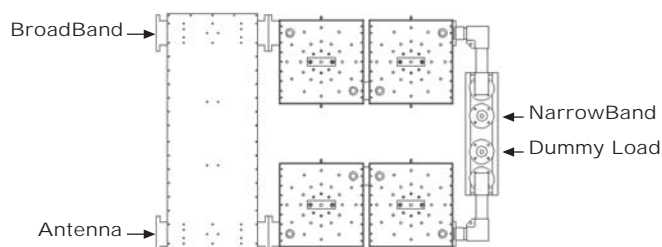
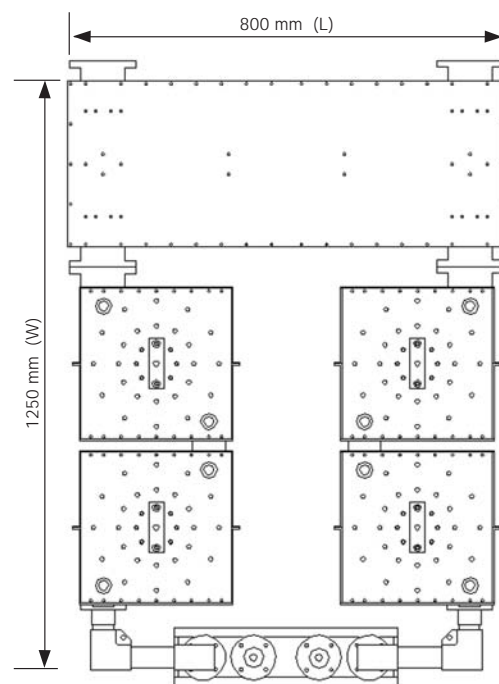
### TYPICAL SPECIFICATIONS

Model	FDDPDC5-15.45 – Type DOUBLE BRIDGE
Impedance	50 Ohm
Frequency Range	87.5÷108 MHz
VSWR ±150 KHz	1.1:1 Max
Insertion Loss	at $f_0$ 0.25 dB Max (Narrow Band Input) 0.1 dB Max (Broad Band Input)
Return Loss ±150 KHz	≤ -26 dB
Isolation ±1.5 MHz	> 32 dB
No. of input	2 (NarrowBand+BroadBand)
No. of output	1
Connectors	NarrowBand Input 1+5/8" (Opt 7/8" EIA) BroadBand Input 3+1/8" Output 3+1/8" (Opt. 4+1/8")
Max Power	10KW on NarrowBand Input 30KW on BroadBand Input (only 4+1/8" output connector)
Working Temperature	-20°C + +50°C
Colour	Enamel gray ral 7001
Materials	Aluminium, silver brass, copper, PTFE, stainless steel, silver plated (min 12μ thickness)

### Features:

- Distortion – Free Transmission
- Double Balanced Bridge system with pass stop
- Frequency independent input impedance
- The frequency at the broadband input can be varied without retuning of the pass-band cavity filters.
- The broadband input can be used as spare input for expansion without requiring modification of the existing pass-band cavity filters

Dimensions	1400(Max size) x 1250 x 880 mm (55.1(Max size) x 49.2 x 34.6 inch) (H x L x W)
Net Weight	≅ 115 Kg



"These specifications are subject to change without notice"

## Model FTDPTC05

- Combiner 3 Channels
- Double Balanced Bridge
- FM Band 87.5÷108 Mhz
- Band II

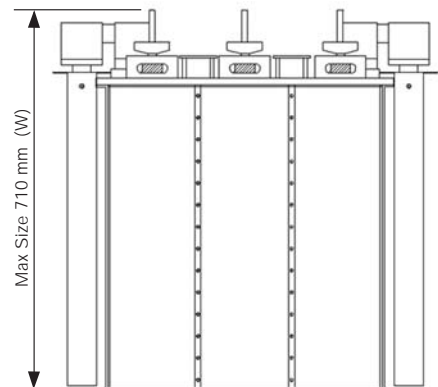
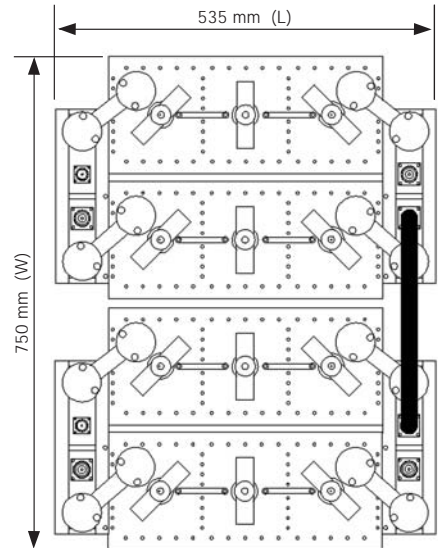
The double balanced bridge system consist of two band-pass filter, two -3dB coupler and a absorber. One of both inputs has a narrow-band characteristic (complying with the pass-band functions of the bandpass filters), while the remaining input features a broadband characteristic within the operating frequency range of -3dB couplers, both inputs exhibits a frequency independent load impedance to the RF source.

### TYPICAL SPECIFICATIONS

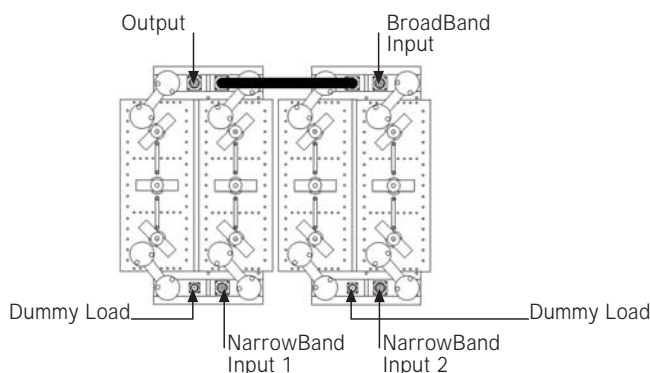
Model	FTDPTC05 – Type DOUBLE BRIDGE
Impedance	50 Ohm
Frequency Range	87.5÷108 MHz
VSWR ±150 KHz	1.1:1 Max
Insertion Loss	at $f_c$ 0.65 dB Max (Narrow Band Input 1) at $f_c$ 0.75 dB Max (Narrow Band Input 2) 0.1 dB Max (Broad Band Input)
Return Loss ±150 KHz	≤ -26 dB
Isolation ±1.2 MHz	> 32 dB
No. of input	3 (2 NarrowBand+1 BroadBand)
No. of output	1
Connectors	N Input (Opt. 7/16") 7/16" Output (Opt. 7/8")
Max Power	600 W x 3 Channels
Working Temperature	-20°C + +50°C
Colour	Enamel gray ral 7001
Materials	Aluminium, silver brass, copper, PTFE, stainless steel, silver plated (min 12μ thickness)

### Features:

- Modular System
- Double Balanced Bridge system with pass stop
- Frequency independent input impedance
- Low loss, high isolation
- Natural convection
- Option: Group delay equaliser



Dimensions	710(Max size) x 750 x 535 mm (28(Max size) x 29.5 x 21 inch) (H x L x W)
Net Weight	≈ 120 Kg



"These specifications are subject to change without notice"

## Model FTDPDC2/1

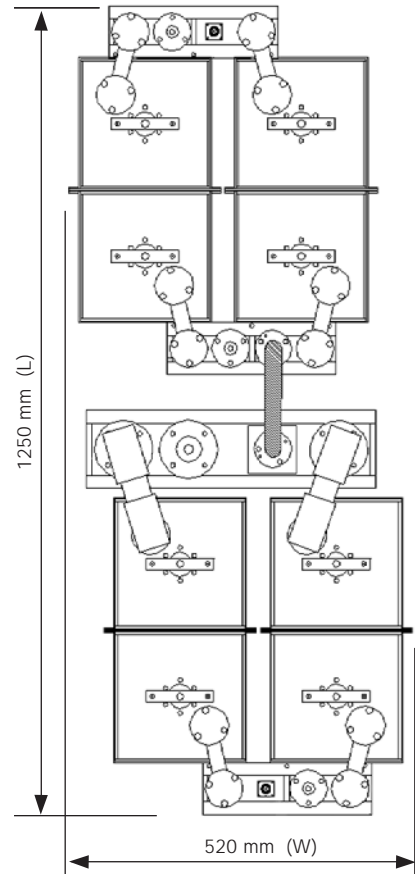
- Combiner 3 Channels
- Double Balanced Bridge
- FM Band 87.5÷108 Mhz
- Band II

The double balanced bridge system consist of two band-pass filter, two -3dB coupler and a absorber. One of both inputs has a narrow-band characteristic (complying with the pass-band functions of the bandpass filters), while the remaining input features a broadband characteristic within the operating frequency range of -3dB couplers, both inputs exhibits a frequency independent load impedance to the RF source.

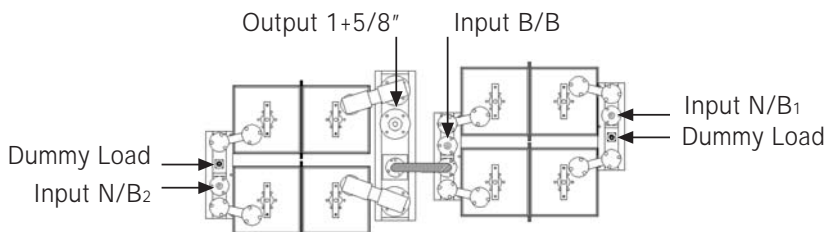
TYPICAL SPECIFICATIONS	
Model	FTDPDC2/1 – Type DOUBLE BRIDGE
Impedance	50 Ohm
Frequency Range	87.5÷108 MHz
VSWR ±150 KHz	1.1:1 Max
Insertion Loss	at $f_0$ 0.5 dB Max (Narrow Band Input 1) at $f_0$ 0.4 dB Max (Narrow Band Input 2) 0.08 dB Max (Broad Band Input)
Return Loss ±150 KHz	≤ -26 dB
Isolation ±1.2 MHz	> 32 dB
No. of input	3 (2 NarrowBand+1 BroadBand)
No. of output	1
Connectors	7/8" Input (Opt. 7/16") 1+5/8" Output
Max Power	BroadBand Input + NarrowBand Input 1 5KW NarrowBand Input 2 5KW
Working Temperature	-20°C + +50°C
Colour	Enamel gray ral 7001
Materials	Aluminium, silver brass, copper, PTFE, stainless steel, silver plated (min 12μ thickness)

### Features:

- Modular System
- Double Balanced Bridge system with pass stop
- Frequency independent input impedance
- Low loss, high isolation
- Natural convection
- Option: Group delay equaliser



Dimensions	1300(Max size) x 1250 x 520 mm (51.2(Max size) x 49.2 x 20.5 inch) (H x L x W)
Net Weight	≈ 105 Kg



"These specifications are subject to change without notice"

- Combiner 4 Channels
- Double Balanced Bridge
- FM Band 87.5÷108 Mhz
- Band II

The double balanced bridge system consist of two band-pass filter, two -3dB coupler and a absorber. One of both inputs has a narrow-band characteristic (complying with the pass-band functions of the bandpass filters), while the remaining input features a broadband characteristic within the operating frequency range of -3dB couplers, both inputs exhibits a frequency independent load impedance to the RF source.

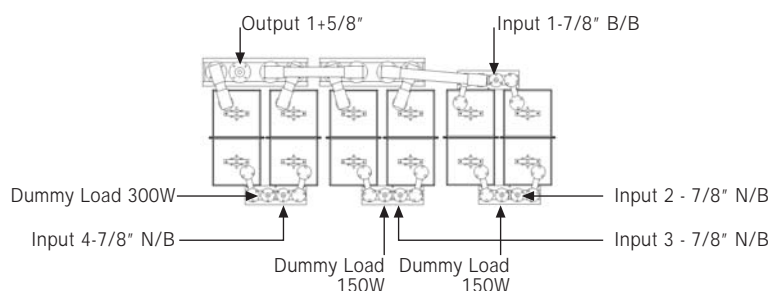
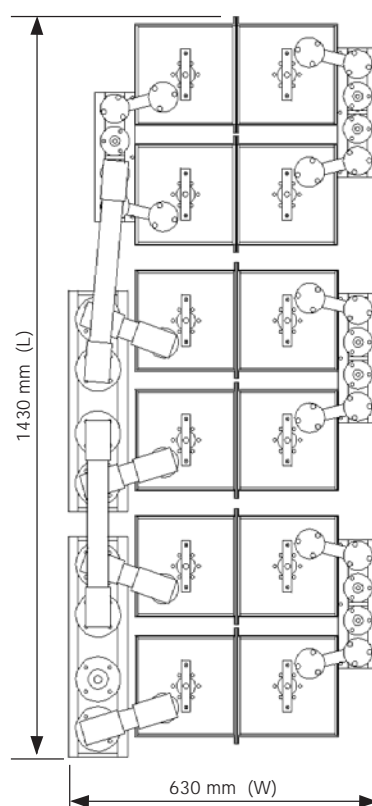
#### TYPICAL SPECIFICATIONS

Model	FQDPDC2 – Type DOUBLE BRIDGE
Impedance	50 Ohm
Frequency Range	87.5÷108 MHz
VSWR ±150 KHz	1.1:1 Max
Insertion Loss	at $f_0$ 0.5 dB Max (Narrow Band Input 2) at $f_0$ 0.4 dB Max (Narrow Band Input 3) at $f_0$ 0.3 dB Max (Narrow Band Input 4) 0.2 dB Max (Broad Band Input 1)
Return Loss ±150 KHz	≤ -26 dB
Isolation ±1.5 MHz	> 32 dB
No. of input	4 (3 NarrowBand + 1 BroadBand)
No. of output	1
Connectors	7/8" EIA Narrow Band Input 7/8" eia Broad Band Input 1+5/8" Output
Max Power	3 KW x 4 Channels
Working Temperature	-20°C + +50°C
Colour	Enamel gray ral 7001
Materials	Aluminium, silver brass, copper, PTFE, stainless steel, silver plated (min 12μ thickness)

#### Features:

- Distortion – Free Transmission
- Double Balanced Bridge system with pass stop
- Frequency independent input impedance
- The frequency at the broadband input can be varied without retuning of the pass-band cavity filters.
- The broadband input can be used as spare input for expansion without requiring modification of the existing pass-band cavity filters

Dimensions	1400(Max size) x 1430 x 630 mm (55.1(Max size) x 56.3 x 24.8 inch) (H x L x W)
Net Weight	≅ 145 Kg



"These specifications are subject to change without notice"

## Model FQDPTC03

- Combiner 4 Channels
- Double Balanced Bridge
- FM Band 87.5÷108 Mhz
- Band II

The double balanced bridge system consist of two band-pass filter, two -3dB coupler and a absorber. One of both inputs has a narrow-band characteristic (complying with the pass-band functions of the bandpass filters), while the remaining input features a broadband characteristic within the operating frequency range of -3dB couplers, both inputs exhibits a frequency independent load impedance to the RF source.

### TYPICAL SPECIFICATIONS

Model	FQDPTC03 – Type DOUBLE BRIDGE
Impedance	50 Ohm
Frequency Range	87.5÷108 MHz
VSWR ±150 KHz	1.1:1 Max
Insertion Loss	at $f_0$ 1.2 dB max (Narrow Band Input 1) at $f_0$ 1.1 dB max (Narrow Band Input 2) at $f_0$ 1.0 dB max (Narrow Band Input 3) 0.3 dB Max (Broad Band Input)
Return Loss ±150 KHz	≤ -26 dB
Isolation ±1.8 MHz	> 32 dB
No. of input	4 (3 NarrowBand+BroadBand)
No. of output	1
Connectors	Input N female Output N or 7/16"
Max Power	150 W x 4 Channels
Working Temperature	-20°C + +50°C
Colour	Enamel gray ral 7001
Materials	Aluminium, silver brass, copper, PTFE, stainless steel, silver plated (min 12μ thickness)

### Features:

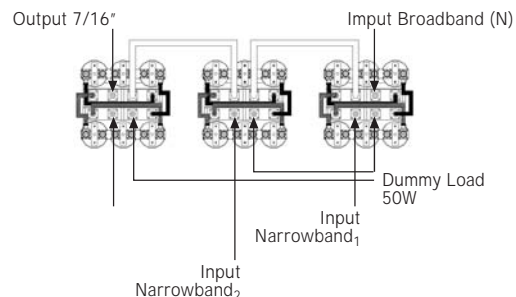
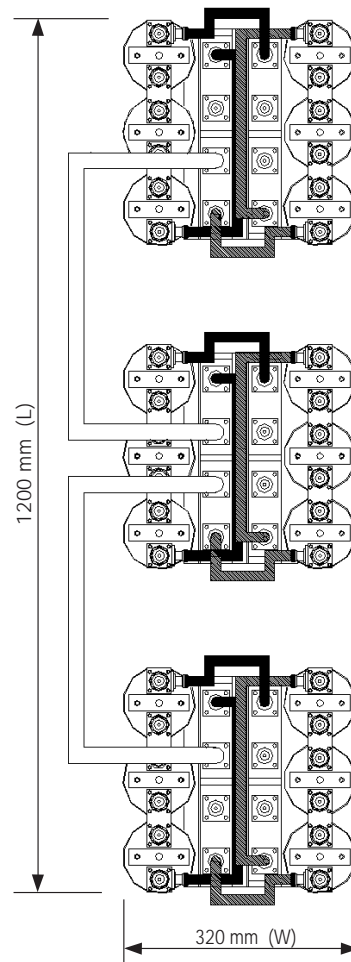
- Distortion – Free Transmission
- Double Balanced Bridge system with double pass-band cavity filters
- Double Balanced Bridge system with triple pass-band cavity filters (standard configurations)
- Double Balanced Bridge system with pass stop
- Low loss, high isolation
- Natural convection
- Option: Group delay equaliser
- Frequency independent input impedance

### No Rack Version

Dimensions	710(Max size) x 1200 x 320mm (28.0(Max size) x 47.2 x 12.6inch) (H x L x W)
Net Weight	≈ 81 Kg

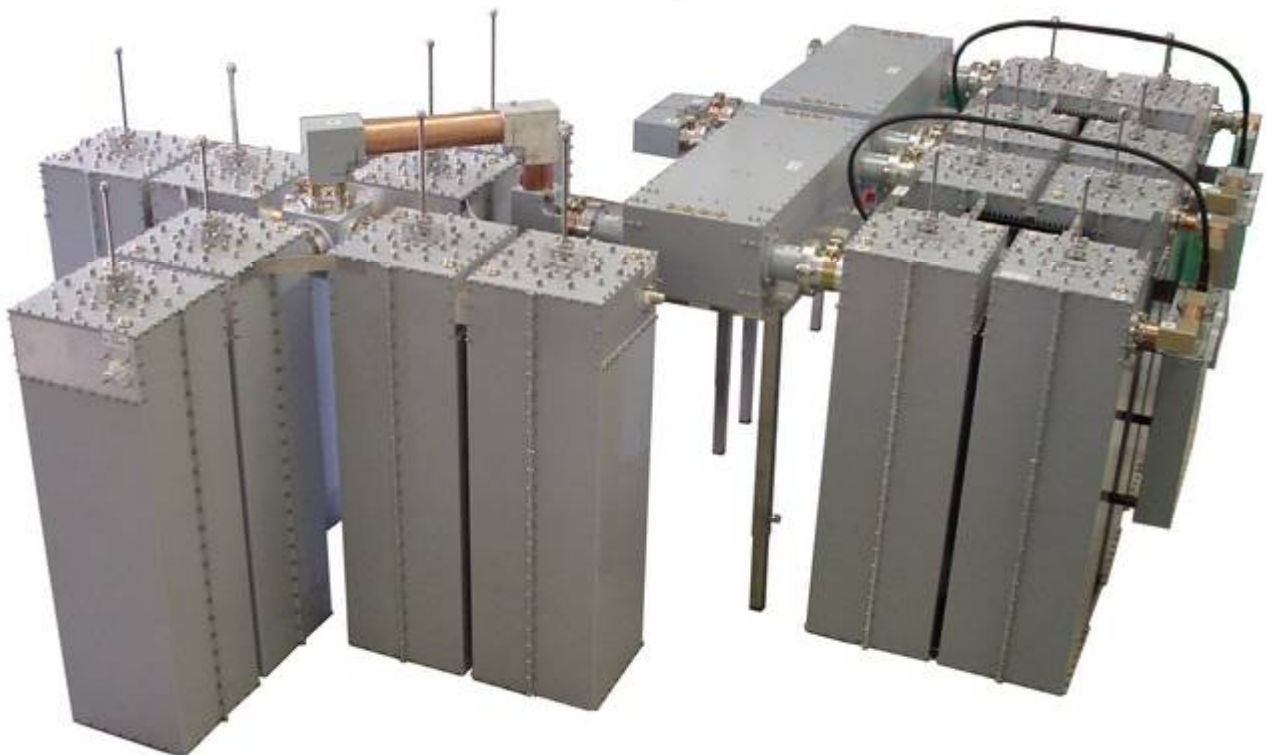
### Rack Version (optional)

Panel Size	24 HE (1 HE = 44.45 mm)
Net Weight	≈ 82 Kg

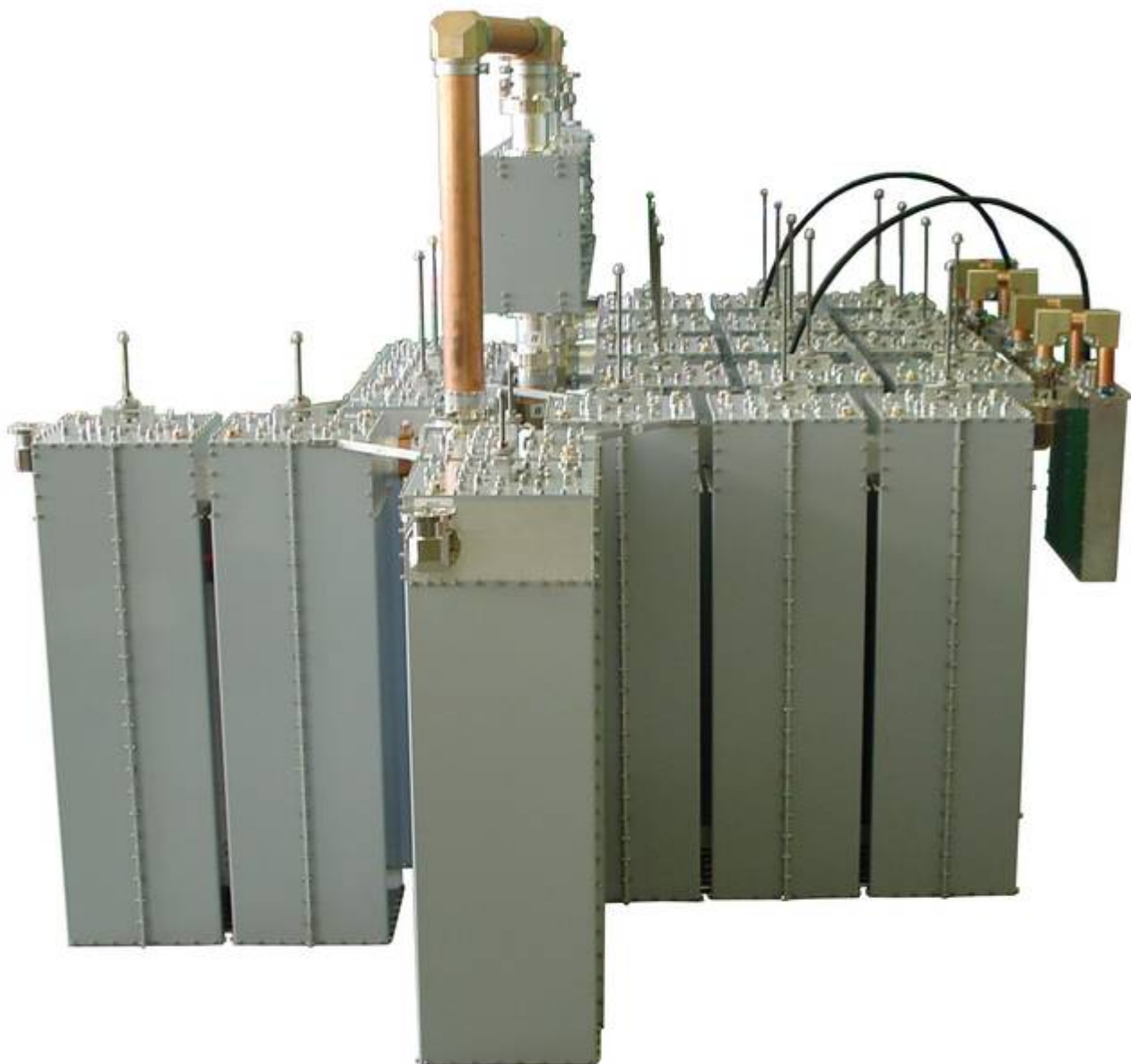
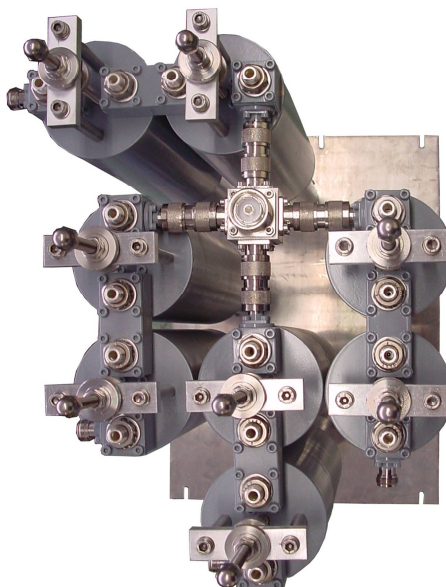
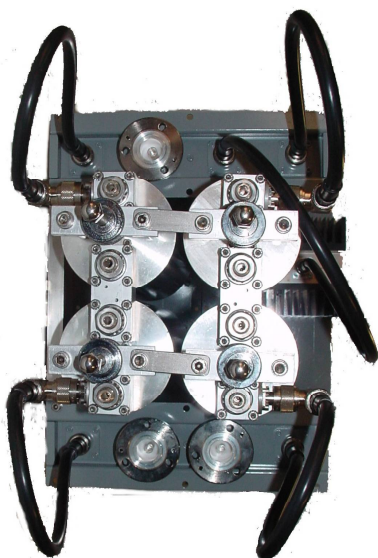
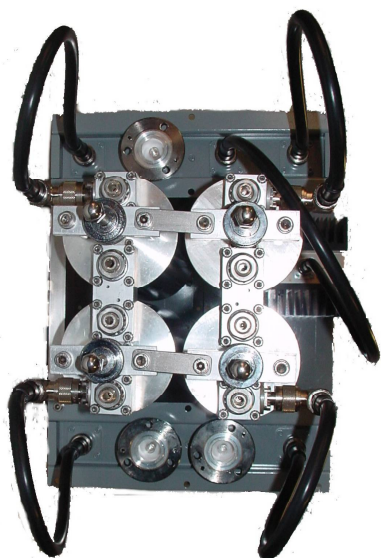


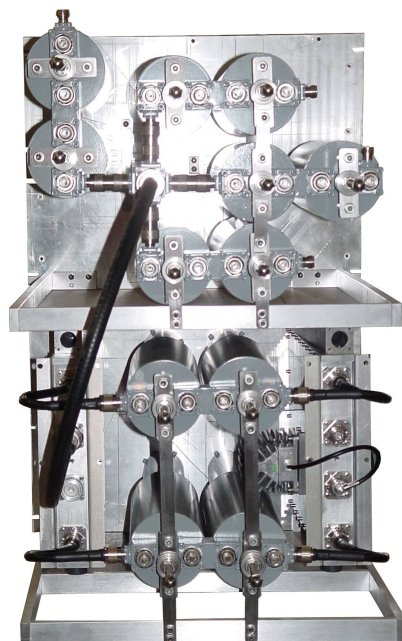
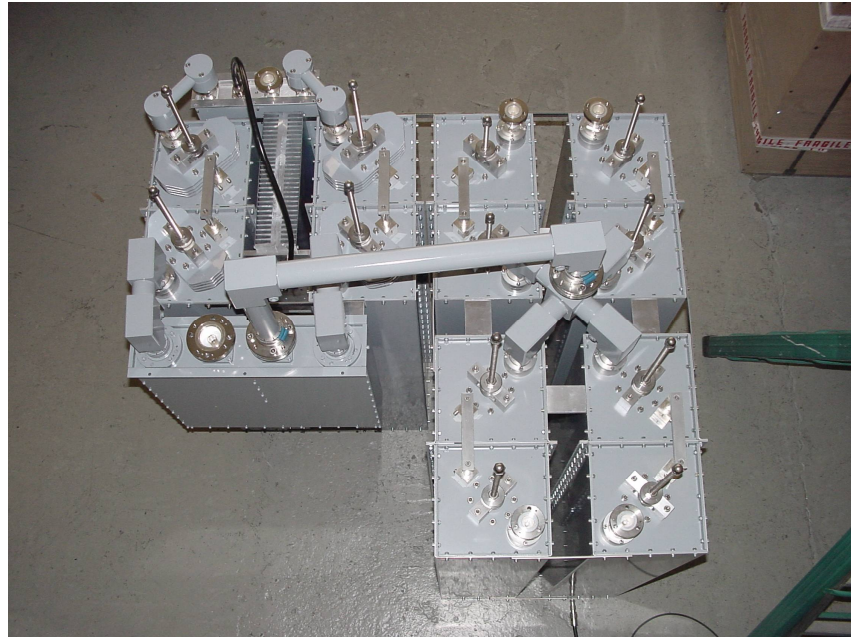
"These specifications are subject to change without notice"

## VARIOUS COMBINERS

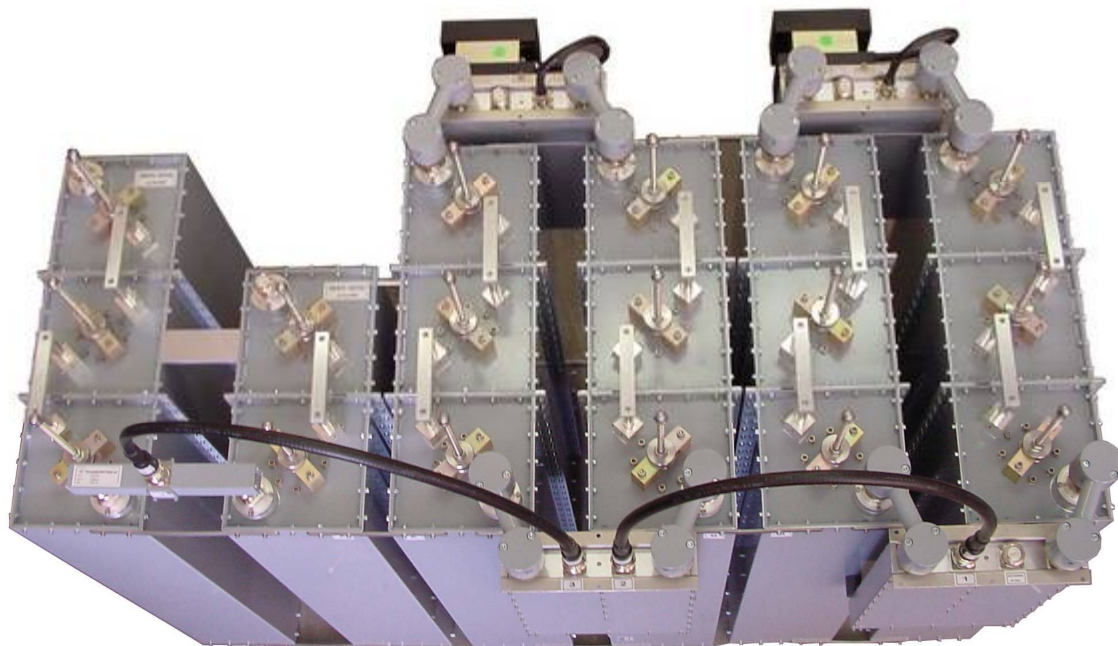


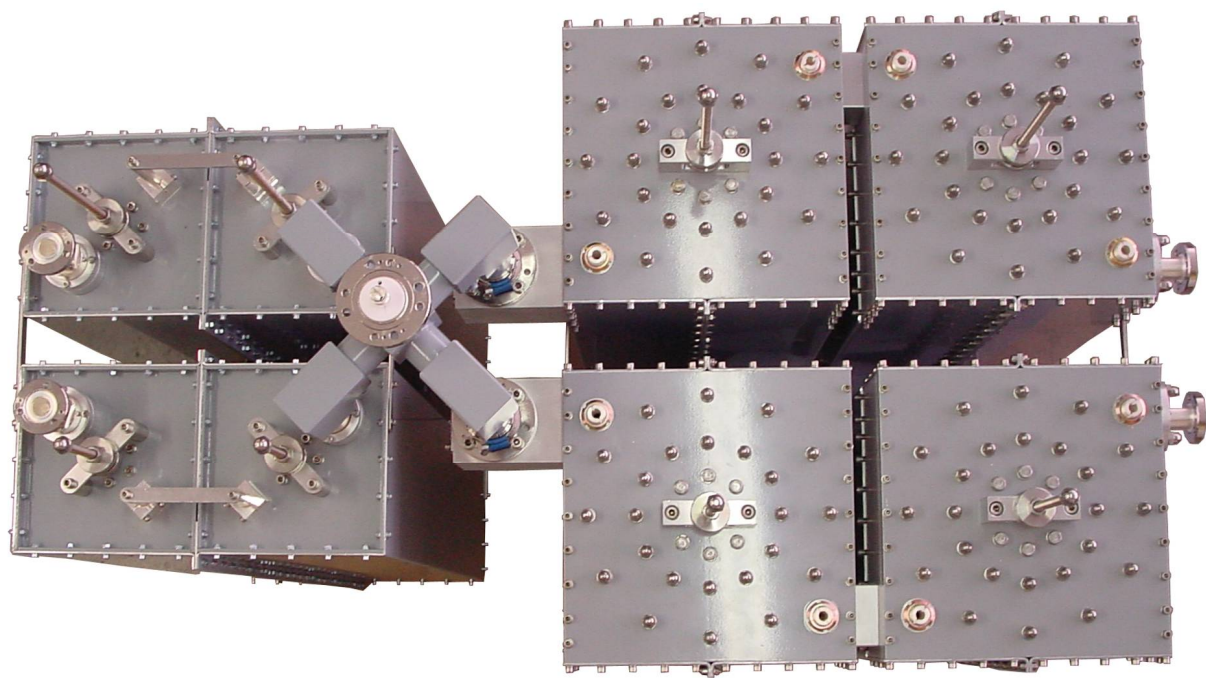














# GENERAL CATALOG

SPLITTERS

114

RF POWER HIJACKER

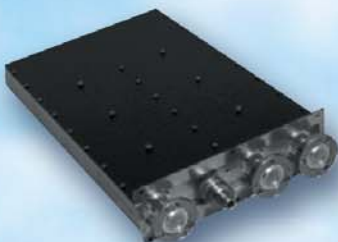
117

FINE MATCHER

119

FM 3dB COUPLERS

120



# SPLITTER FM

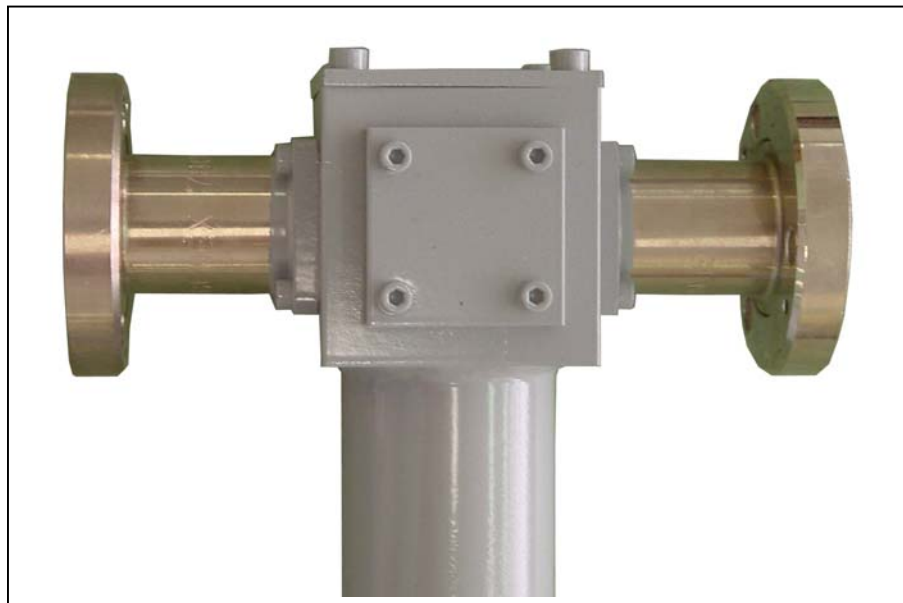
- FM BAND 87.5÷108 MHz
- Special version with unequal power splitting
- Pressurizable on request
- Option Clamps (minimum 2 for Splitter)

TYPICAL SPECIFICATIONS	
	50 Ohm
	87.5-108 MHz
	1.05:1 Max
	0.05 dB Max
	N-7/16"-7/8"-1+5/8"-3+1/8"-4+1/8"
	In according to the working power
	From 100 Watts to 40 KW
	In according to the model
	2-8 (In according to the model)
	1600 mm
	From 40 to 120 mm
	In according to the working power
	With special pipe clamp
	-20°C ÷ +50°C
	Enamel gray ral 7001
	Aluminium, Brass, Copper, PTFE, Stainless Steel,
	Silvering (min 12µ thickness)

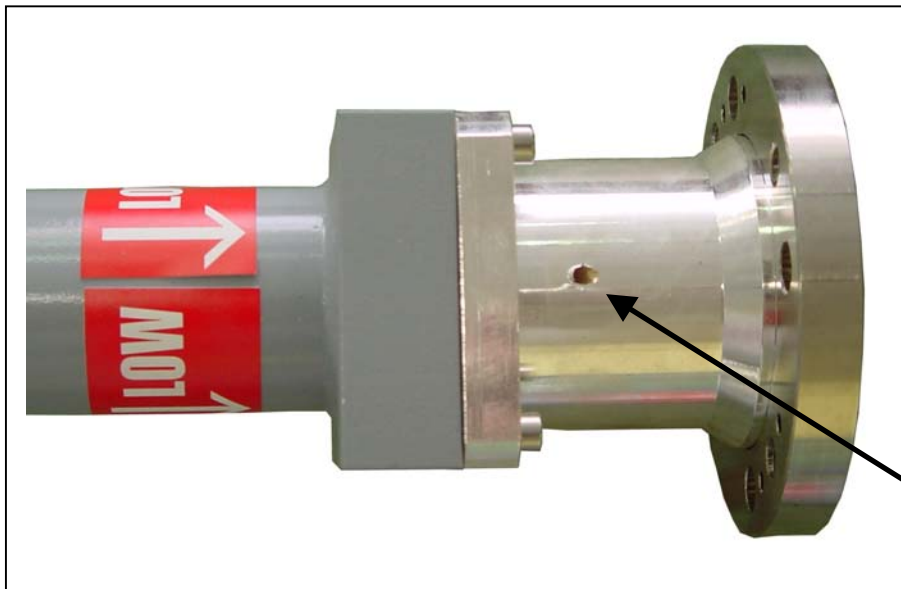




EXAMPLE OF CONNECTOR OUTPUT 7/8”:



EXAMPLE OF CONNECTOR INPUT 1+5/8”:



DISCHARGING  
HOLE

**EXAMPLE OF CONNECTOR INPUT 7/8”:**



# UNBALANCED SPLITTER

- Unbalanced Splitter
- FM Band 87.5 ÷ 108 MHz
- Pressurizable on request

## TYPICAL SPECIFICATIONS

Model	According to type
Impedance	50 Ohm
Frequency Range	87,5 - 108 MHz
VSWR	1.05 : 1 Max
Insertion Loss	0.05 dB Max
Connectors	According to type
Max Power Input	From 100W to 40 KW
Working Temperature	-20°C ÷ +50°C
Colour	Enamel Gray Ral 7001
Materials	Brass, Copper, PTFE, Stainless steel, Silvering (min. 8µm thickness)

IN 1+5/8" OUT 8 7/8" →



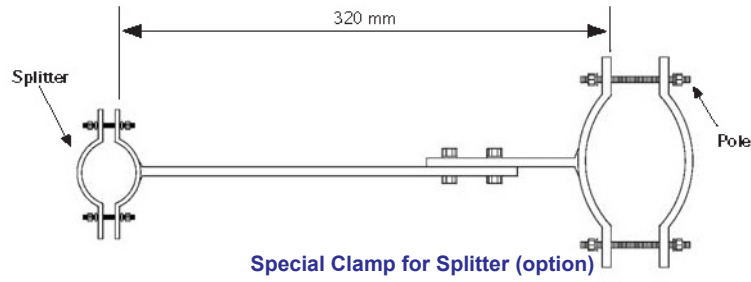
← IN 3+1/8" OUT 12 7/8"



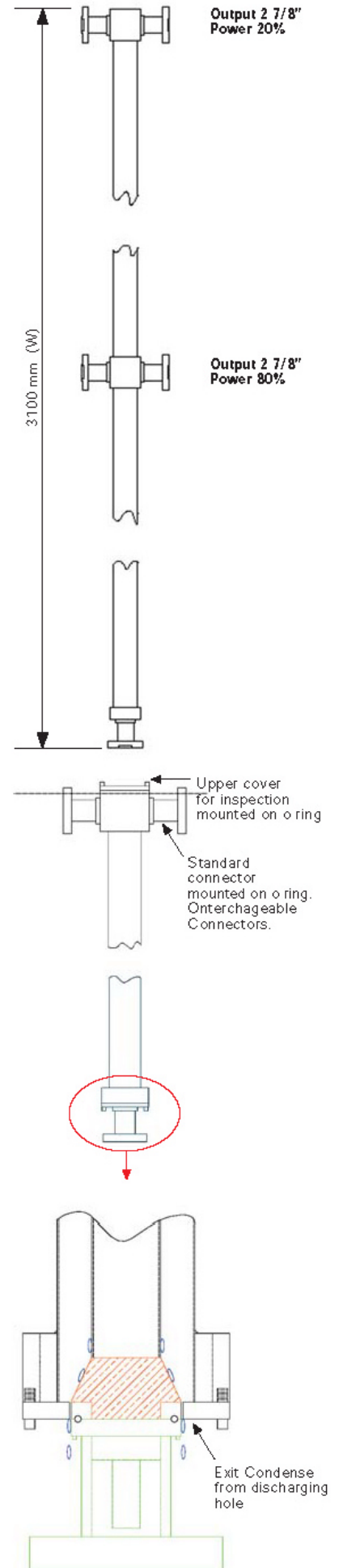
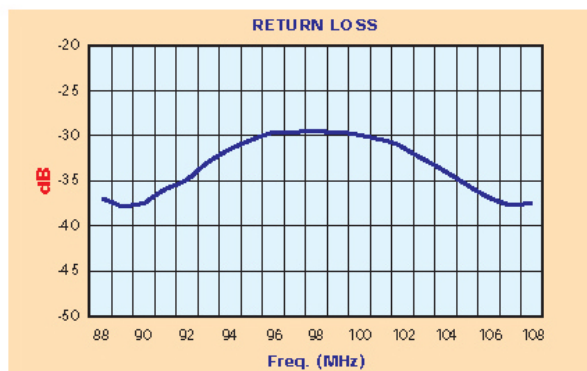
← IN 1+5/8" OUT 4 7/16"



EXAMPLE OF UNBALANCED SPLITTER



Typical return loss curve for splitter model DV/47/8-7/8



"These specifications are subject to change without notice"

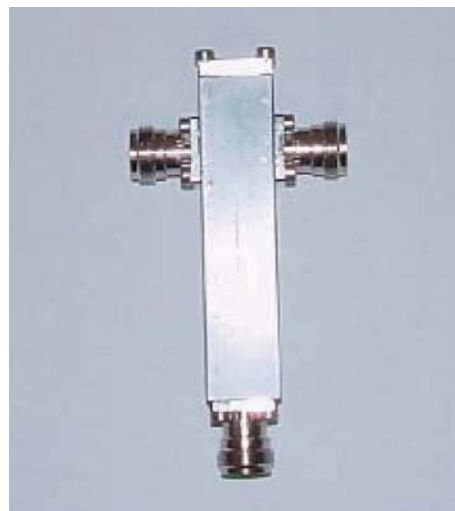


## Model DV/2 LINK

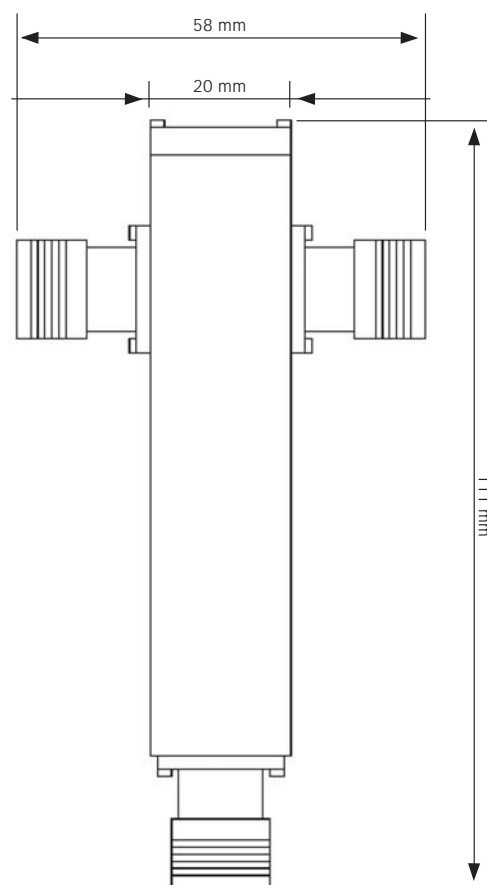
- Splitter
- For to connect several antennas
- Band 2360÷2485 Mhz

### TYPICAL SPECIFICATIONS

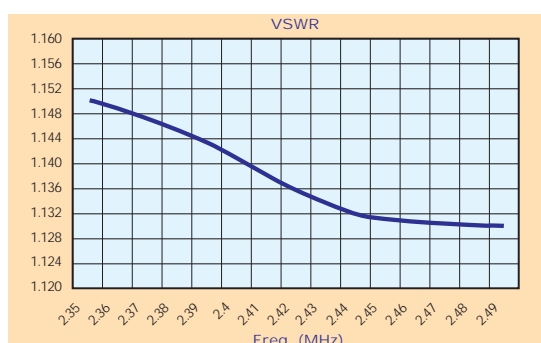
Model	DV/2 LINK
Impedance	50 Ohm
Frequency Range	2360÷2485 MHz
VSWR	1.15:1 Max
Insertion Loss	0.08 dB Max
Connectors	N Input-Output
Max Power	100 Watts
Working Temperature	-20°C + +50°C
Colour	Enamel gray ral 7001
Materials	Aluminium, silver brass, copper, PTFE, stainless steel, silver plated (min 12μ thickness)



Dimensions	1300(Max size) x 650 x 450 mm (51.2(Max size) x 25.5 x 17.7 inch) (H x L x W)
Net Weight	≅ 0.15 Kg



Typical curve for VSWR



"These specifications are subject to change without notice"

# SPLITTER UHF

- UHF BAND 470÷860 MHz
- Special version with unequal power splitting
- Pressurizable on request

## TYPICAL SPECIFICATIONS

Impedance	50 Ohm
Frequency Range	470-860 MHz
VSWR	<1.05 in each frequency range
Insertion Loss	0.05 dB Max
RF-Connectors	Female N, DIN 7/16, or EIA-flange 7/8", 1+5/8", 3+1/8", 4+1/2", 6+1/8"
Max Power Input	According to depending on connectors
Number of outputs	2-8 (In according to the model.)
Length approx.	Approx. 550 mm
Diameter external tube	From 40 to 120 mm In according to the working power
Mounting	With special pipe clamp
Working Temperature	-20°C ÷ +50°C
Colour	Enamel Gray Ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless steel, Silvering (min 12µm thickness)



IN 7/8" OUT 4 7/8" ↑



← IN 7/8" OUT 6 7/8"

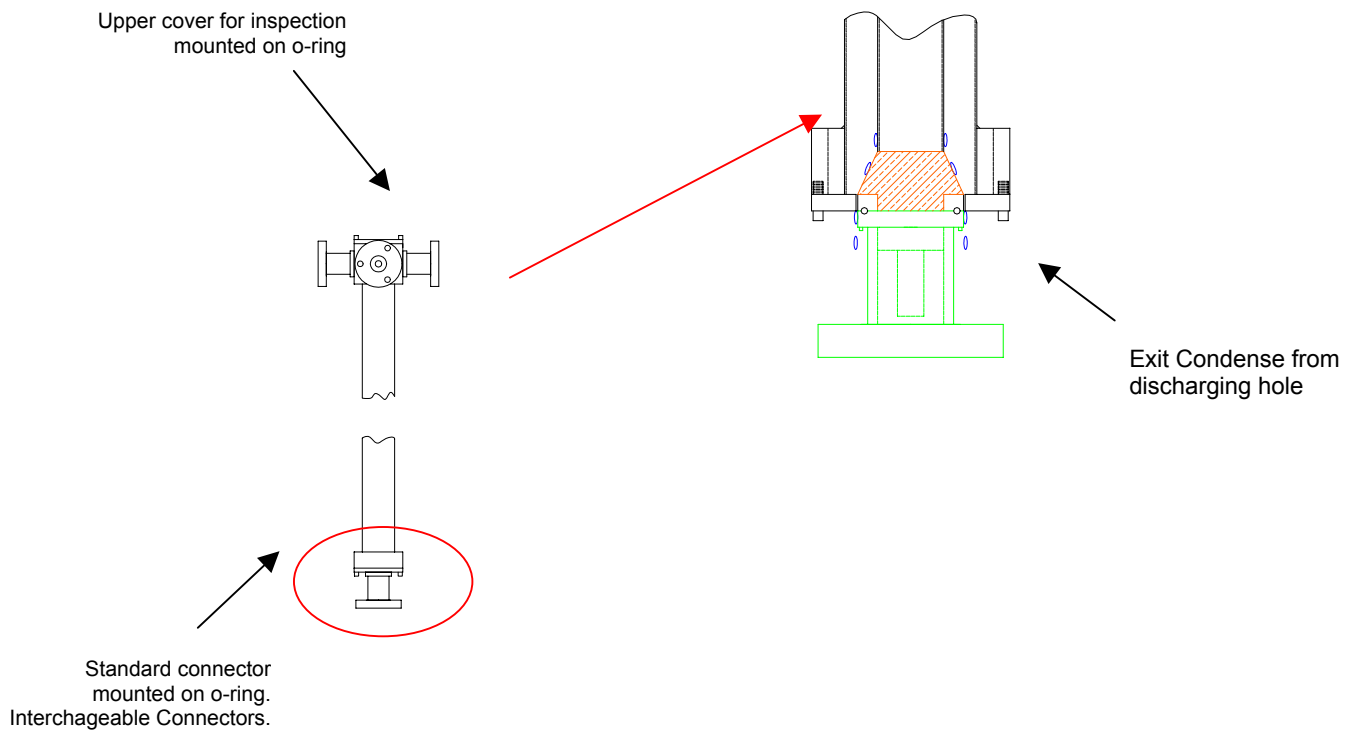
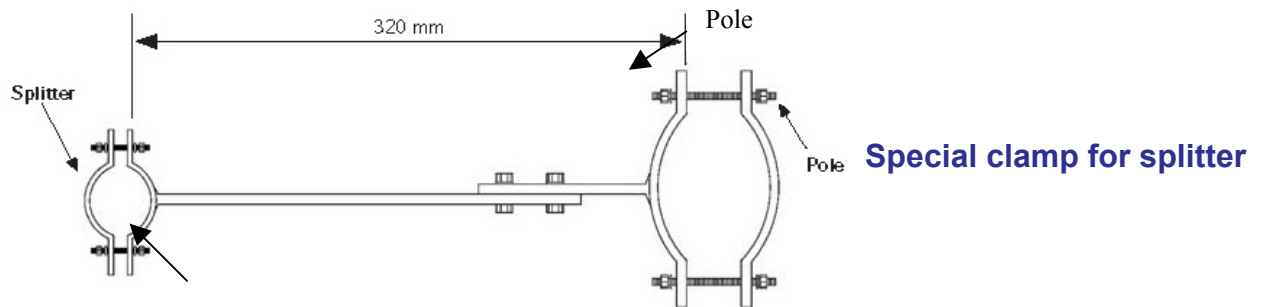


← IN 7/8" OUT 6 7/16"

EXAMPLES OF SPLITTERS

## SPECIALS VERSIONS

BAND	LENGHT
Band I 47-88 MHz	Approx. 2400 mm
Band III 174-230 MHz	Approx. 850 mm
Band IV V 470-860 MHz	Approx. 550 mm



# Model HIJACKER5KW-HIJACKER30KW

## • RF Power HIJACKER

## • FM Band 87.5 ÷ 108 MHz

## • Band II

### Presentation

**RF Power Hijacker** is a passive device that is inserted between a FM broadcast radio transmitter and its main antenna. Its main function is to shunt a part of the available power on to an auxiliary antenna.

**RF Power Hijacker** is designed for indoor placement, preferably in the transmitter's shelter.

### Possible applications

- Diminution of the signal strength in a specific direction to reduce the interference against other broadcasters, or to avoid transmitting in other countries
  - Signal enhancement in the direction where the preferred audience reside
  - Adjustable horizontal radiation pattern rotation, to move the signal power to zones having variable population density
  - Adjustment of the vertical radiation pattern, to modify the reached audience area
  - RF power switching between two antennas without transmission interruption
  - Removal of intermodulation for transmitters with near antennas
  - Elimination with electrical uncoupling of interference for a receiving system.
- In all the cases in that it is desirable to have signal power branching with adjustable power and phase.

### TYPICAL SPECIFICATIONS

Model	HIJACKER5KW	HIJACKER30KW
Frequency Range	87.5-108 MHz	87.5-108 MHz
VSWR	≤ 1.1:1 Max	≤ 1.1:1 Max
Return Loss	≤ -26dB	≤ -26dB
Connectors	Input/Output 7/8"	Input/Output 3+1/8"
Max Power	5 KW	30 KW

### GENERAL SPECIFICATIONS

Working Temperature	-20°C ÷ +50°C
Colour	Enamel Gray Ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12µm thickness)

### Description

**RF Power Hijacker** features 4 connectors and 2 regulators. The connectors are used to join the device to:

1. FM transmitter
2. Main antenna
3. Auxiliary antenna
4. Dummy Load

The first regulator adjusts the power distribution among the antennas, while the second one regulates the phase shift between the output signals.

The role of the dummy load is to dissipate possible reflected power in the system, this avoiding the transmitter being affected by it. The dummy load should not be needed for a well tuned and working system, but its presence guarantees better stability in the behaviour of the device.

### Working principle

**RF Power Hijacker** consists of four functional parts:

1. Input signal splitter with fixed power ratio
2. A variable phase shifter
3. A signal combiner with fixed power ratio
4. A second variable phase shifter

The transmitted RF power is first divided by the power splitter. One of the outputs of the splitter is connected to one of the inputs of the combiner with a 50 Ohm transmission line. The other output is routed via the first phase shifter to the second input of the combiner. The last output of the input splitter is closed on a dummy load. The combiner has two output connectors: one is connected to the main antenna, while the other goes through the second phase adjuster to the auxiliary antenna. The phase shift between the signals at the combiner input determines the power ratio at the combiner output. The transmission line joining the splitter output with the combiner input determines the maximum range of the power ratio. The role of the dummy load is to dissipate possible reflected power in the system. The total loss of RF Power Hijacker is restricted to the insertion losses of the single components, as the total energy in the system is conserved and just divided in a determined way.

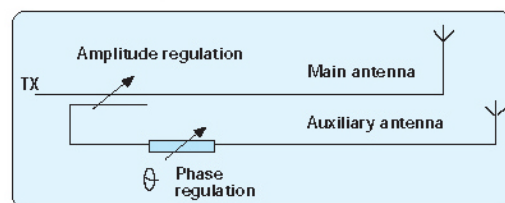


HIJACKER30KW



HIJACKER5KW

### Scheme of principle



## Model HIJACKER5KW-HIJACKER30KW

### Installation

The setup of RF Power Hijacker requires appropriate study and design. The installation location shall permit the operator to comfortably perform the needed regulations: the preferred location is nearby the transmitter, even if there is no need to monitor its parameters during the setup of the system.

There is no requirement about the length of the cable connecting the transmitter with RF Power Hijacker. The initial setup is completed once the main and auxiliary antennas and the dummy load are connected.

The power that is dissipated by the dummy load is of little importance unless an antenna malfunction arises: it is up to the system engineer to evaluate the probability and type of the problems that could affect the antenna system, and to plan out the rating and positioning of the dummy load as a function of it.

### Setup directions

The adjustment of RF Power Hijacker requires the collaboration of an operator that will manoeuvre the regulators of the device and of a second operator whose role is to monitor the effect in the field and to drive the operator on site towards the desired result. The operators will therefore be in radio or telephone contact.

Due to the very nature of the system, RF Power Hijacker cannot be factory-preset, and the best choice is just to request the device to be set with minimum power directed to the auxiliary antenna.

The typical regulation process consists of a succession of iterations until the desired result is obtained.

The first step of each iteration is to raise the amount of power directed to the auxiliary antenna: the operator in the field will notice the effect of this operation measuring the received field strength.

Then, the operator on site will vary the phase of the auxiliary signal along the whole range, while the operator in the field monitors the corresponding variations in the received field. If the phase regulation doesn't give satisfactory results, the amount of power shunted to the auxiliary antenna is increased, beginning a new iteration.

Model	Dimension	Net Weight
HIJACKER5KW	1500(min)+2500(max)x430x260 mm (59.1(min)+98.4(max)x16.9x10.2 inch) (HxLxW)	≈ 25 Kg
HIJACKER30KW	1700(min)+2500(max)x550x350 mm (66.9(min)+98.4(max)x21.6x13.8 inch) (HxLxW)	≈ 30 Kg

### Theoretical considerations

Using two antennas to irradiate the RF signal produced by a single transmitter, always results in mutual influence in the radiated fields. RF Power Hijacker is helpful to shape the resulting pattern in an useful way from the broadcaster's point of view.

At the receiver, the combination of the signal gives two different effects: the first and useful one is the enhancement or suppression of signal strength due the phase shift that is regulated by RF Power Hijacker. The second one, due to the relative delay of the received signals, is the so called multipath interference, resulting in distortion in the received signal and unwanted AM in the field. To reduce the multipath effect, it is important to avoid the use of filters affecting only one of the transmission paths, and to keep the length of the antenna feeders as similar as possible. It should be noted that the multipath effect could also be present in the direction of the notch of the overall radiation pattern: in this case, the resulting signal would be a suppressed-carrier AM, with lateral spectral lines carrying more energy, the bigger the delay and the deeper the modulation level of the FM signal is.

A final consideration about the antennas to be used in conjunction with the RF Power Hijacker: in most cases, the main antenna is already installed, while the auxiliary one has to be chosen in view of the desired result. Since the auxiliary antenna shall normally irradiate a small part of the total transmitted power, it can be of smaller size. It's also important to take into account the whole radiation pattern of the selected auxiliary antenna, and to study its effect on the global radiated field of the system, to avoid the risk of unwanted side-effects affecting the main audience area.

### Application examples

#### Received interference suppression in a radio link

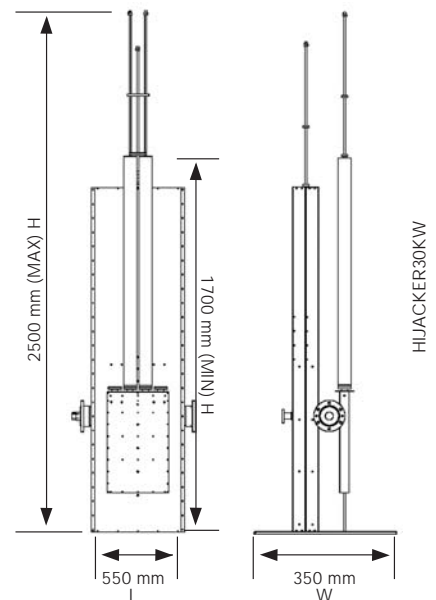
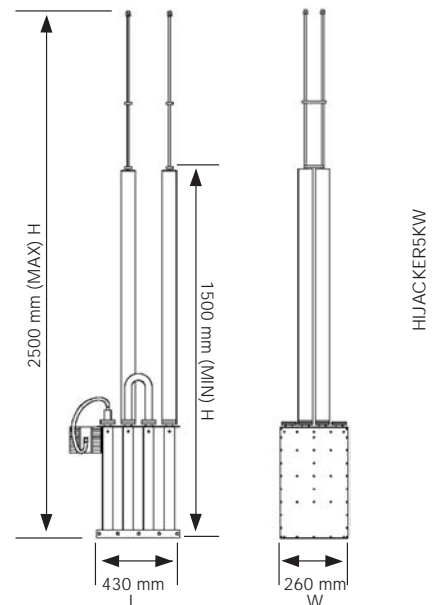
In some cases a radio link can suffer from interference induced by a signal arriving from a direction different from the one of the desired signal. If the normal anti-reflecting receiving system or reduced sidelobes antennas are not sufficient to bring the interference below the needed level, the RF Power Hijacker can be helpful as a sidelobe canceller.

In this configuration, an auxiliary directive antenna is installed with its main lobe pointed towards the interfering source. The received signal is then routed through the phase shifting channel of the RF Power Hijacker. Adjusting the provided regulators in a proper way, it is possible to render the contributions in the channels due to the interfering signal as having the same amplitude and opposite phase, thus obtaining suppression levels often well below 40 dB, compared to 20-25 dB permitted by traditional systems.

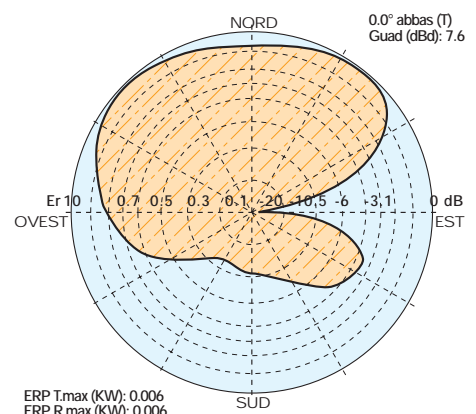
The system has a remarkable bandwidth, thanks to the maximum efficiency design of the circuit. The auxiliary antenna can be constituted by one or more elements in different configurations, to obtain the most suitable receiving pattern for the specific application.

#### Attenuation of the power transmitted in a certain direction

In this case, the desired effect is to reduce the interference caused by a transmitter in an area that is not intended to be served by it. The auxiliary antenna is pointed in the direction of the area to be protected, and fed with the signal shunted by the RF Power Hijacker. The regulations of the RF Power Hijacker will be adjusted so that the resulting radiation pattern will have a minimum in this direction, thanks to the main and auxiliary signals having opposite phase in the desired direction.



Example of antenna system comprising a main section of four collinear broadband fm dipoles pointed at 0°, and an auxiliary 5 elements yagi auxiliary antenna pointed at 90°, creating a null in the corresponding direction



"These specifications are subject to change without notice"

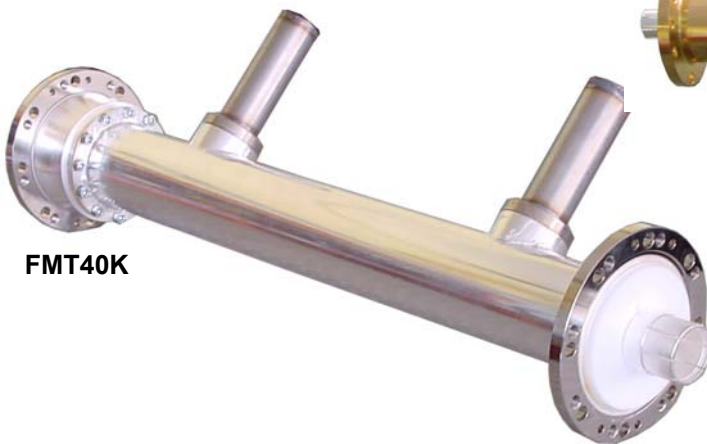


# MODEL FMT 12K-FMT30K-FMT40K

- FINE MATCHER
- FM BAND 87.5÷108 MHz
- Band II
- FINE TUNED ANTENNA FOR MINIMUM VSWR

**FMT12K**

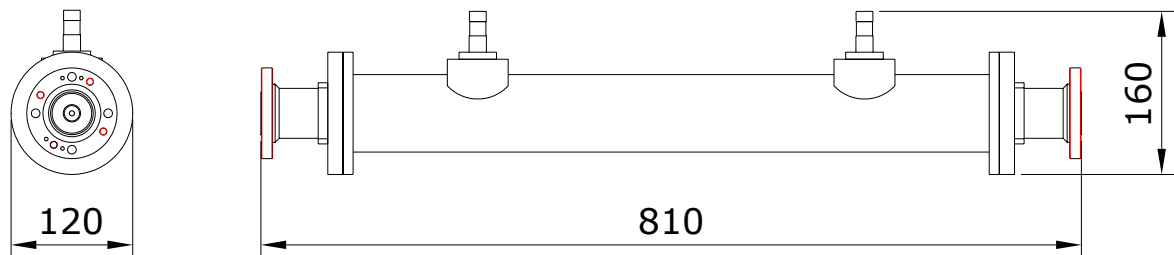
Although the TELECOMUNICAZIONI FERRARA antennas are tuned at the factory to provide a low standing wave ratio for the operating channel, when an antenna is mounted on a conductive metal object such as a tower or a pole its VSWR naturally increases. The fine matcher provides the user a quick and easy way to optimize the antenna for the absolute minimum VSWR and released signal degradation. With this device, tuning can be accomplished in a fraction of the time that it takes to tune competitive antennas without having to disassemble the feed-line. Tuning can even be accomplished without loss of system pressure.

**FMT30K****FMT40K**

## TYPICAL SPECIFICATIONS

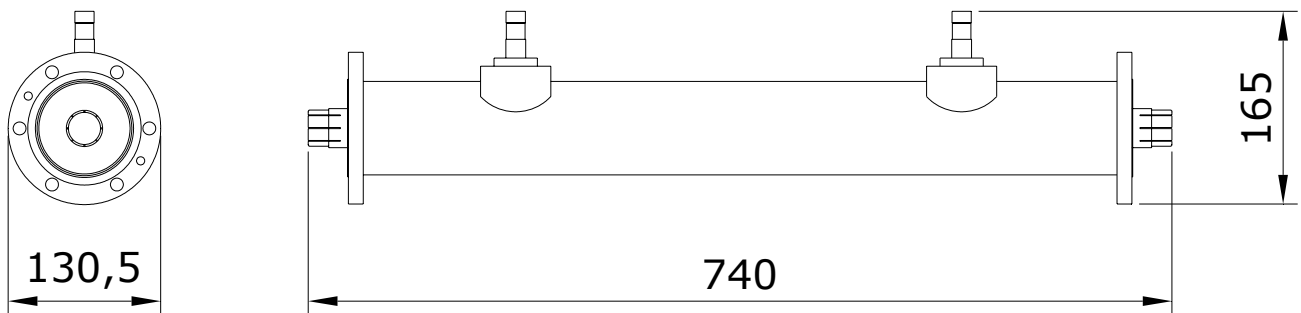
<b>Model</b>	FMT12K - FMT30K – FMT40K
<b>Impedance</b>	50 ohm
<b>Frequency Range</b>	87.5-108 MHz
<b>Insertion Loss</b>	0.05 dB Max
<b>Connectors</b>	Input-Output 1+5/8" (Opt. 7/8") FMT12K Input-Output 3+1/8" FMT30K Input-Output 4+1/2" FMT40K
<b>Max Power</b>	12-30-40KW
<b>Working Temperature</b>	-20°C ÷ +50°C
<b>Colour</b>	Enamel Gray Ral 7001
<b>Materials</b>	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12µm thickness)

## FINE MATCHER 12 KW (FMT12K)

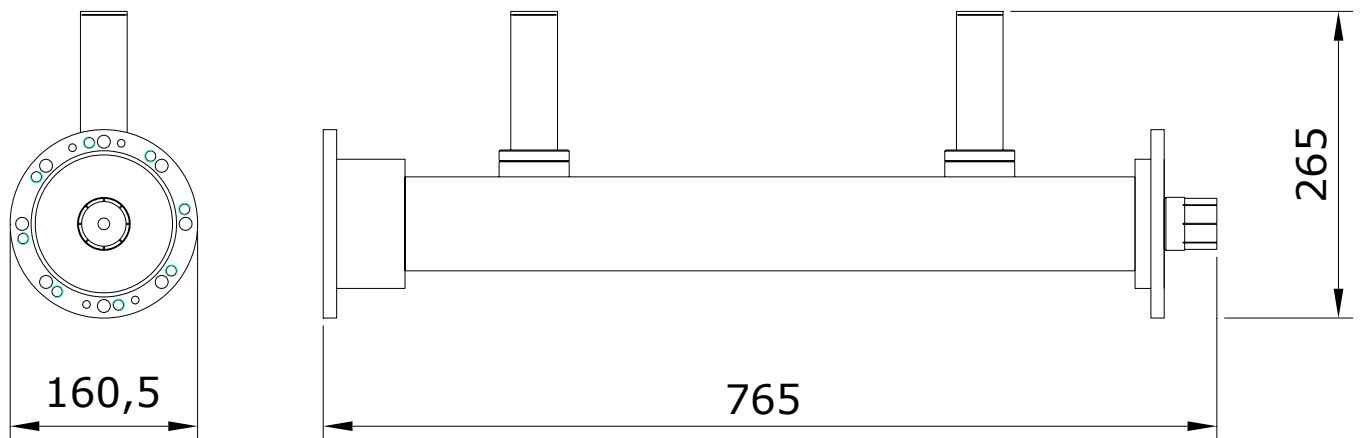


<b>Dimensions</b>	160× 810×120 mm (6.3×31.9×4.7 inch) (H×L×W)
<b>Net Weight</b>	≅ 15 Kg approx.

## FINE MATCHER 30 KW (FMT30K)



<b>Dimensions</b>	165×740×130,5 mm (6.5×29.1×5.1inch) (H×L×W)
<b>Net Weight</b>	≅ 15 Kg approx.

**FINE MATCHER 40 KW (FMT40K)**

<b>Dimensions</b>	265×765×160,5 mm (10.4×30.1×6.3 inch) (H×L×W)
<b>Net Weight</b>	≅ 20 Kg approx.

# IMPEDANCE TRANSFORMER

## 50Ω - 75Ω

- **FM BAND 87.5÷108 MHz**
- **Pressurizable on request**
- **Option Clamps (minimum 2 for Transformer)**

### TYPICAL SPECIFICATIONS

Impedance	50 Ohm
Frequency Range	87.5-108 MHz
VSWR	1.05:1 Max
Insertion Loss	0.05 dB Max
Connectors	N or 7/8"
Max Power Input	From 100 Watts to 5 KW In according to the model
Length approx.	735 mm (with conn. N) 785 mm (with conn. 7/8")
Diameter external tube	40 mm
Working Temperature	-20°C ÷ +50°C
Colour	Enamel Gray Ral 7001
Materials	Brass, Copper, PTFE, Silvering



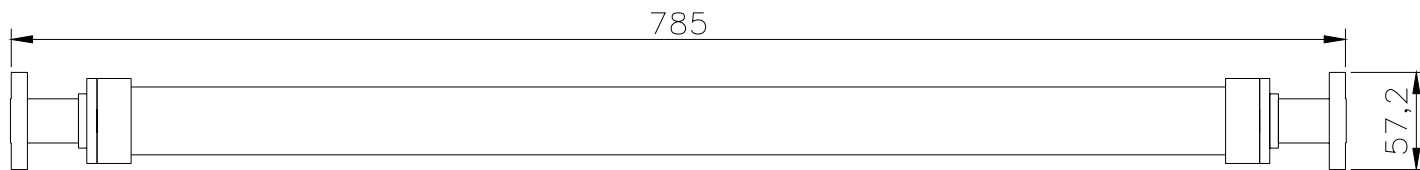
CONNECTOR N →

← CONNECTOR 7/8"

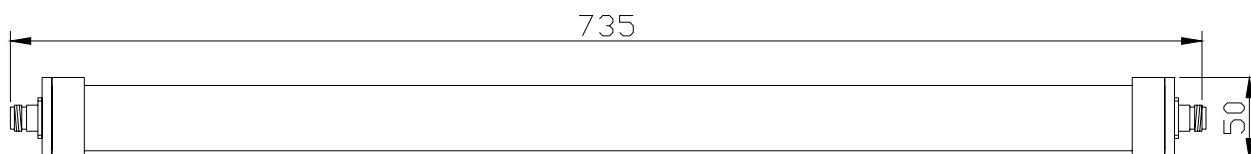


EXAMPLES OF IMPEDANCE TRANSFORMER

## Dimension

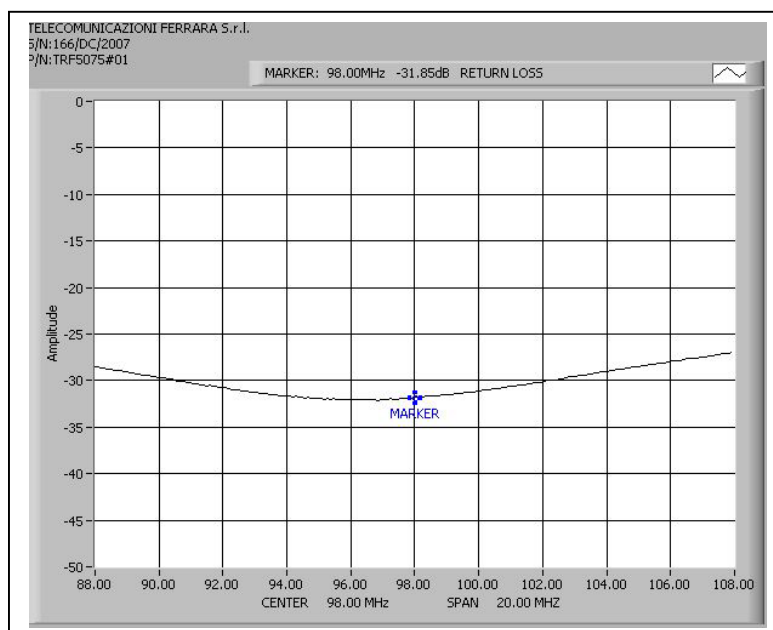


**Connector 7/8"**



**Connector N**

## Example of Return Loss





## MODEL : FFNOT05K - FFNOT2K FFNOT5K - FFNOT10K

- NOTCH FILTER
- FM BAND 87.5÷108 MHz
- BAND II

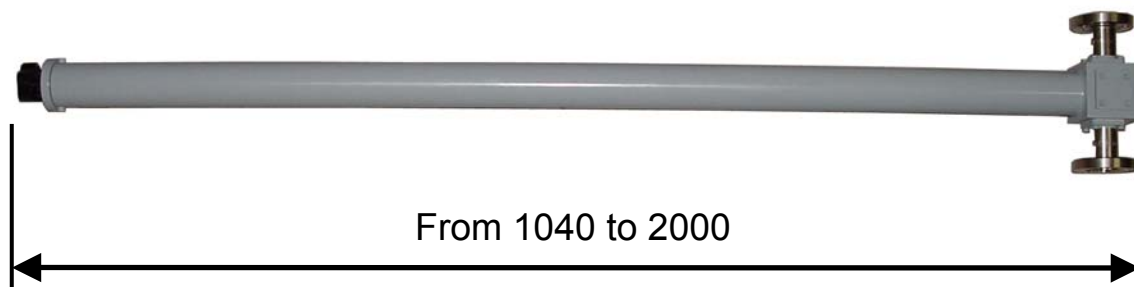


Notch filter is a STUB TUNERS to block 2<sup>th</sup> .

Models	Input Connector	Output Connector	Max. Power
FFNOT05K	N	N	500W
FFNOT2K	7/16"	7/16"	2KW
FFNOT5K	7/8"	7/8"	5KW
FFNOT10K	1+5/8"	1+5/8"	10KW

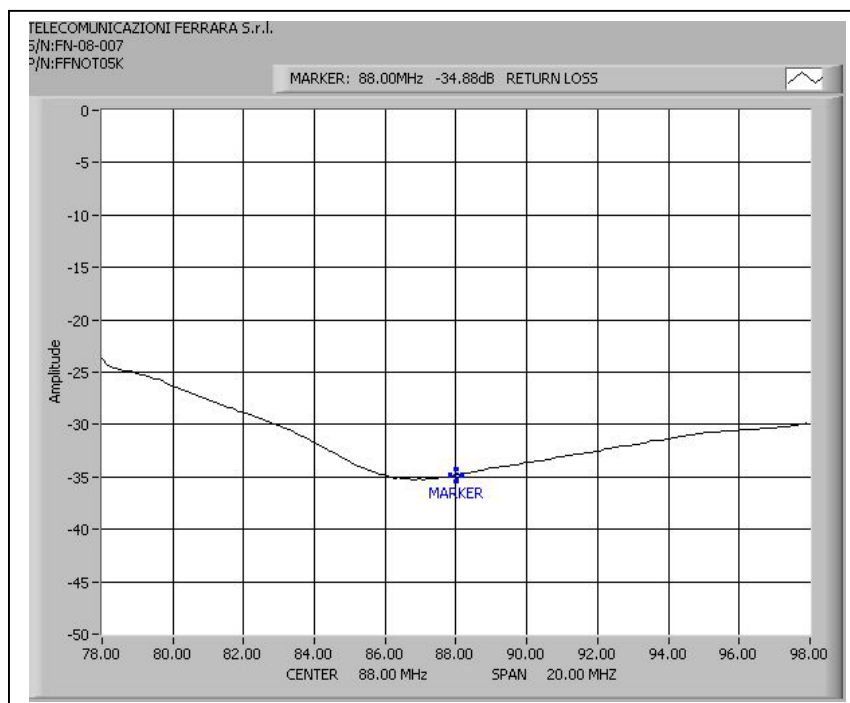
TYPICAL SPECIFICATIONS	
Impedance	50 Ohm
Frequency Range	87.5-108 MHz
VSWR $\pm$ 150 KHz	1.1:1 Max
Insertion Loss	at $f_0$ 0.05 dB Max
Attenuation 2 <sup>th</sup> harmonic	Typical -35dB
Working Temperature	-20°C ÷ +50°C
Colour	Enamel Gray Ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min. 12µm thickness)

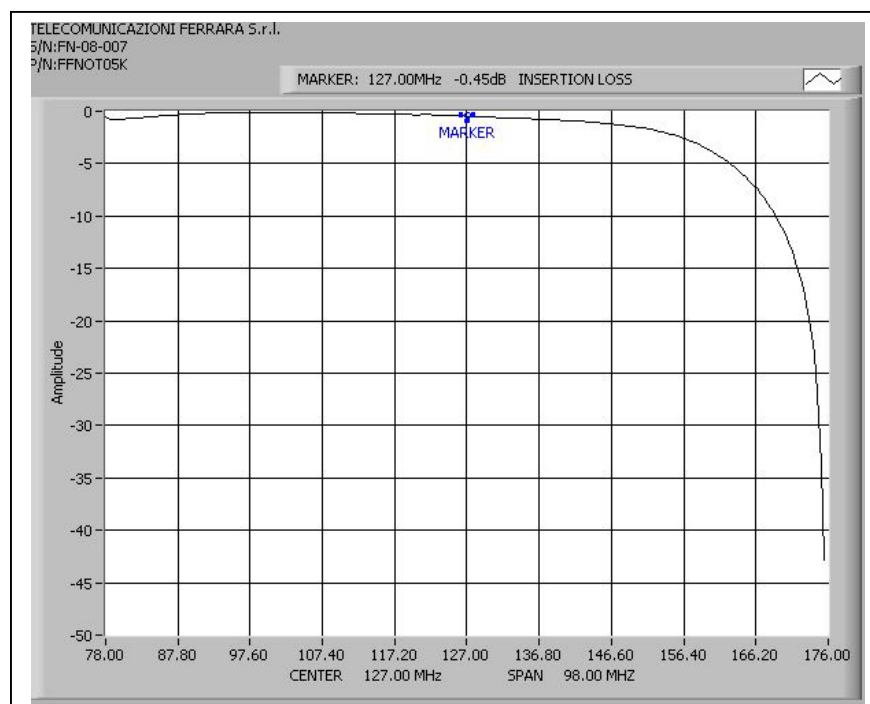
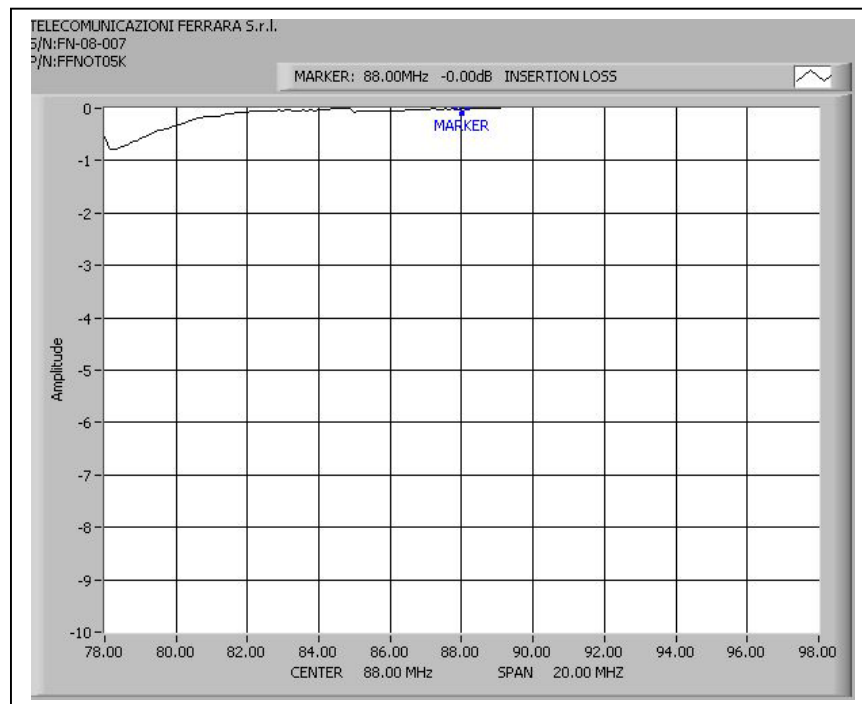
## DIMENSIONS



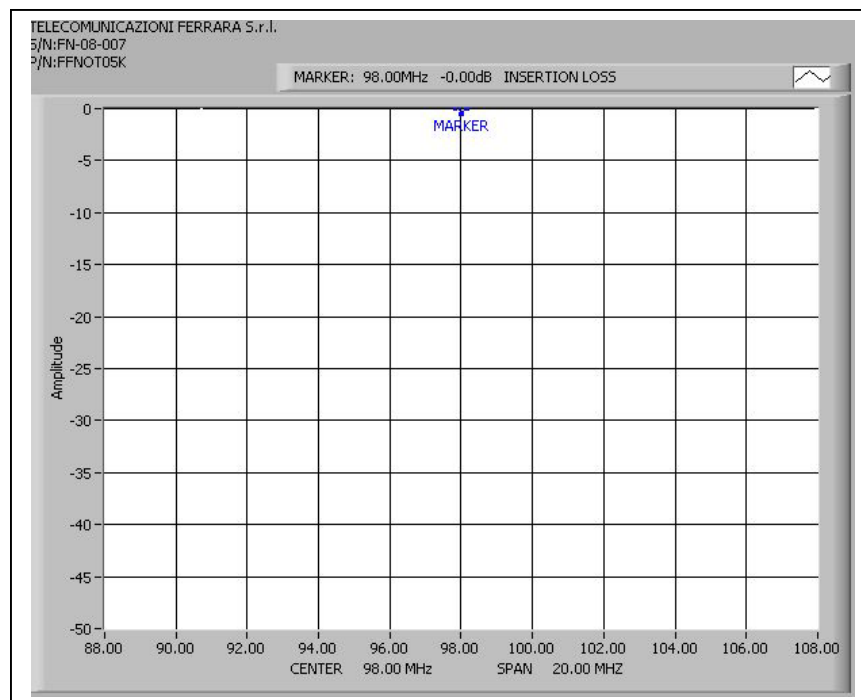
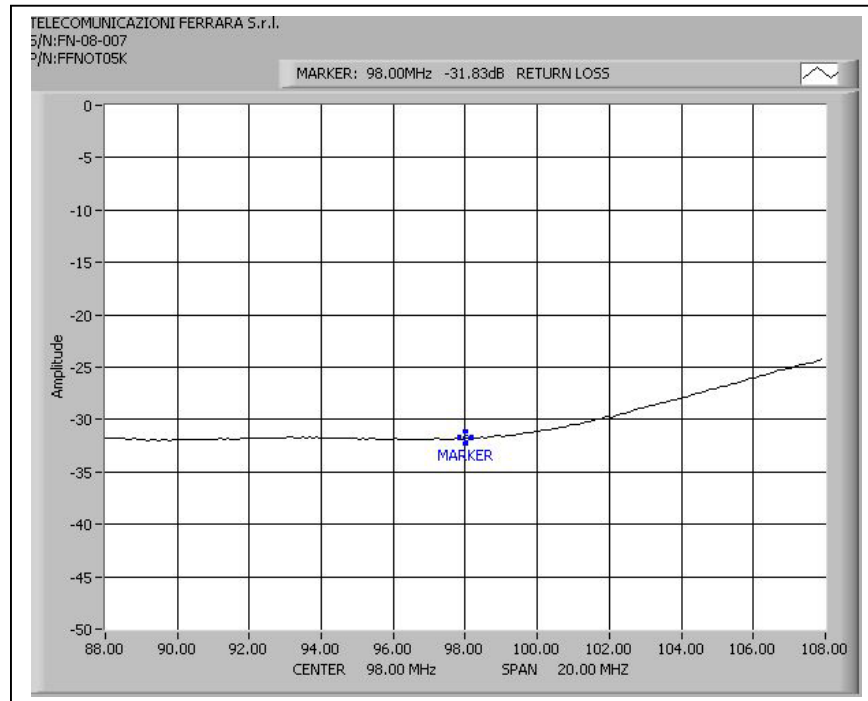
Models	Dimensions (H×L×W)		Weight
	mm	(inch)	
<b>FFNOT05K</b>	2000(Max size)×60×100	(78.74×2.4×2.4)	≅ 4 Kg
<b>FFNOT2K</b>	2000(Max size)×60×100	(78.74×2.4×2.4)	≅ 4 Kg
<b>FFNOT5K</b>	2000(Max size)×60×150	(78.74×2.4×2.4)	≅ 4 Kg
<b>FFNOT10K</b>	2000(Max size)×100×190	(78.74×3.9×7.5)	≅ 8 Kg

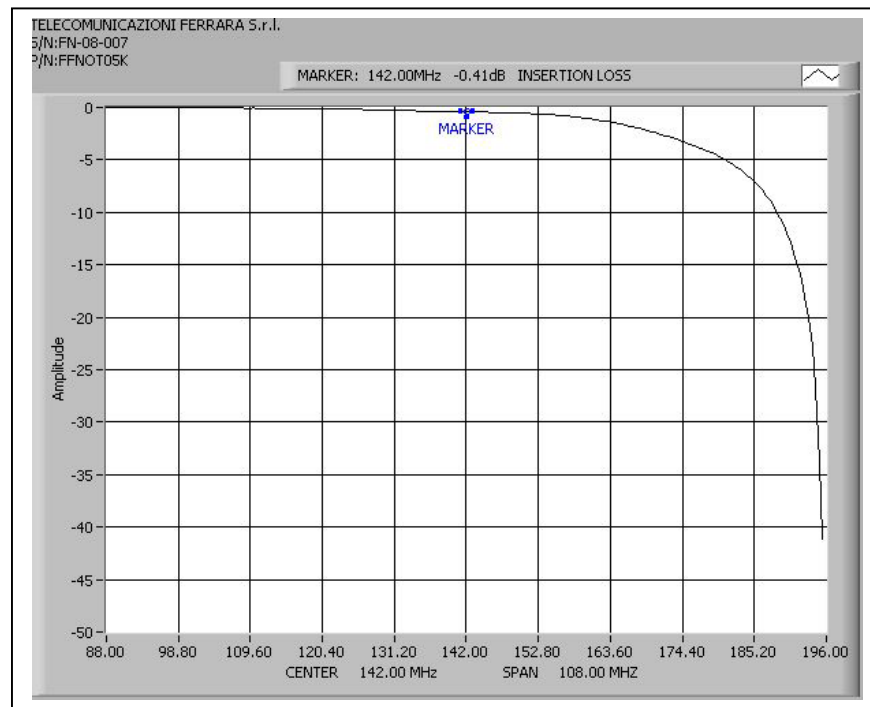
## DIAGRAMS FOR FREQUENCY 88,00 MHz



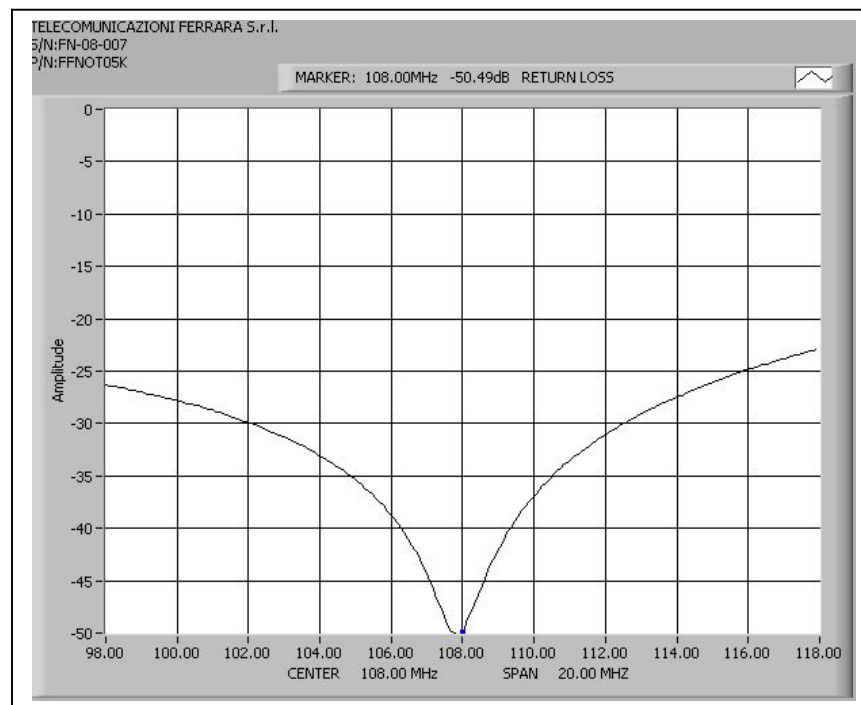


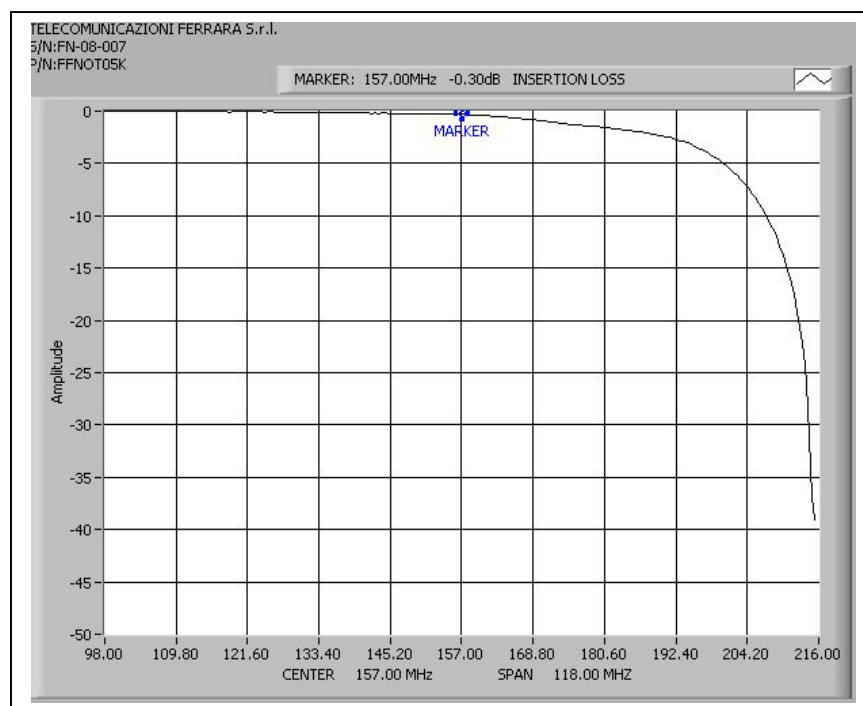
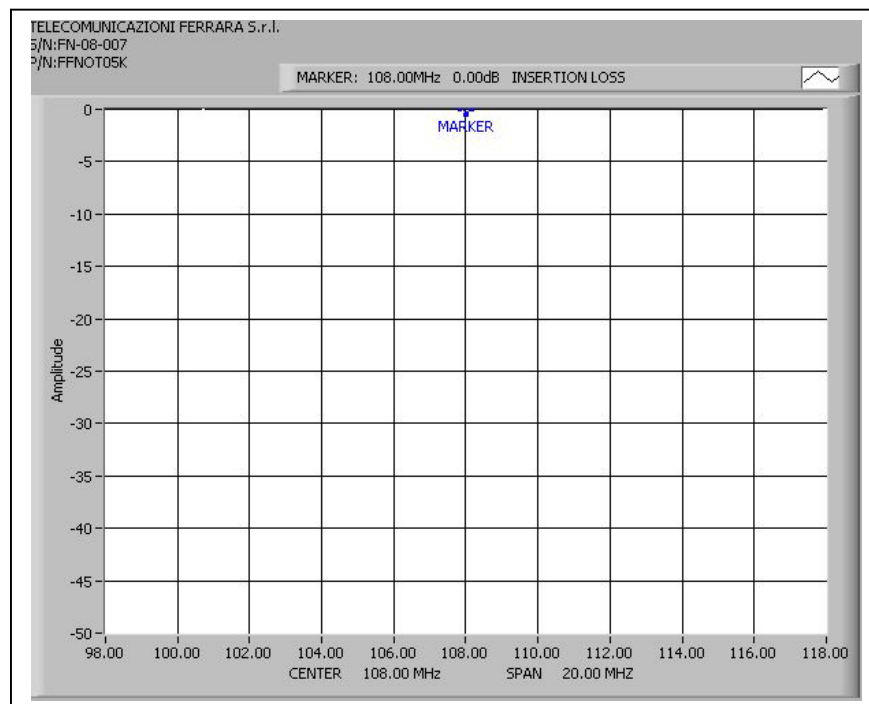
## DIAGRAMS FOR FREQUENCY 98,00 MHz





## DIAGRAMS FOR FREQUENCY 108,00 MHz







# **Model COUP3DB500W - COUP3DB2KW - COUP3DB5KW - COUP3DB10KW - COUP3DB20KW - COUP3DB45KW - COUP3DB80KW - COUP3DB120KW**

- **-3dB COUPLERS**
- **FM BAND 87.5-108 MHz**
- **BAND II**



Model: COUP3DB5KW

## **-3 dB couplers to realize double bridge combiner type**

### **GENERAL SPECIFICATIONS**

<b>Working Temperature</b>	-20°C ÷ +50°C
<b>Colour</b>	Enamel Gray ral 7001
<b>Materials</b>	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12µm thickness)

### **TYPICAL SPECIFICATIONS**

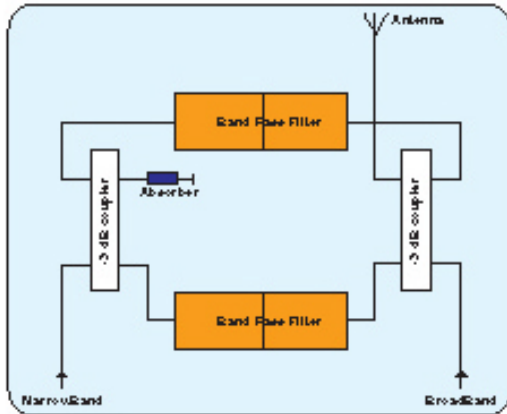
Model	COUP3DB500W	COUP3DB2KW	COUP3DB5KW	COUP3DB10KW
<b>Frequency Range</b>	87.5-108 MHz	87.5-108 MHz	87.5-108 MHz	87.5-108 MHz
<b>Directivity</b>	≥ 32dB	≥ 32dB	≥ 32dB	≥ 35dB
<b>Impedance</b>	50 ohm	50 ohm	50 ohm	50 ohm
<b>VSWR ± 150 KHz</b>	1:1.1 max	1:1.1 max	1:1.1 max	1:1.1 max
<b>Return Loss ± 150 KHz</b>	≤ -26 dB	≤ -26 dB	≤ -26 dB	≤ -26 dB
<b>Coupling</b>	-3 dB ± 0.25 dB	-3 dB ± 0.25 dB	-3 dB ± 0.25 dB	-3 dB ± 0.25 dB
<b>Connectors</b>	Input – Output N	Input N - Output 7/16"	Input – Output 7/8"	Input - Output 1+5/8"
<b>Max Power</b>	500 W	2 KW	5 KW	10 KW

### **TYPICAL SPECIFICATIONS**

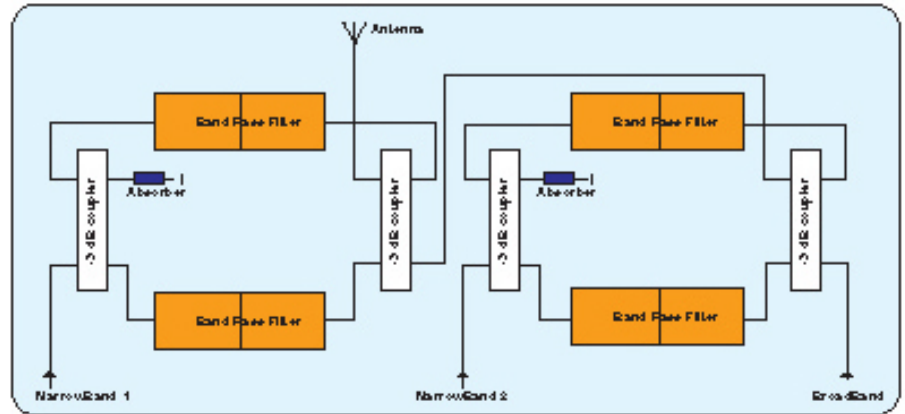
Model	COUP3DB20KW	COUP3DB45KW	COUP3DB80KW	COUP3DB120KW
<b>Frequency Range</b>	87.5-108 MHz	87.5-108 MHz	87.5-108 MHz	87.5-108 MHz
<b>Directivity</b>	≥ 35dB	≥ 35dB	≥ 35dB	≥ 35dB
<b>Impedance</b>	50 ohm	50 ohm	50 ohm	50 ohm
<b>VSWR ± 150 KHz</b>	1:1.1 max	1:1.1 max	1:1.1 max	1:1.1 max
<b>Return Loss ± 150 KHz</b>	≤ -26 dB	≤ -26 dB	≤ -26 dB	≤ -26 dB
<b>Coupling</b>	-3 dB ± 0.25 dB	-3 dB ± 0.25 dB	-3 dB ± 0.25 dB	-3 dB ± 0.25 dB
<b>Connectors</b>	Input 1+5/8" Output 3+1/8"	Input 3+1/8" Output 4+1/2"	Input – Output 4+1/2"	Input 4+1/2" Output 6+1/8"
<b>Max Power</b>	20 KW	45 KW	80 KW	120 KW

"These specifications are subject to change without notice"

## TYPICAL APPLICATIONS

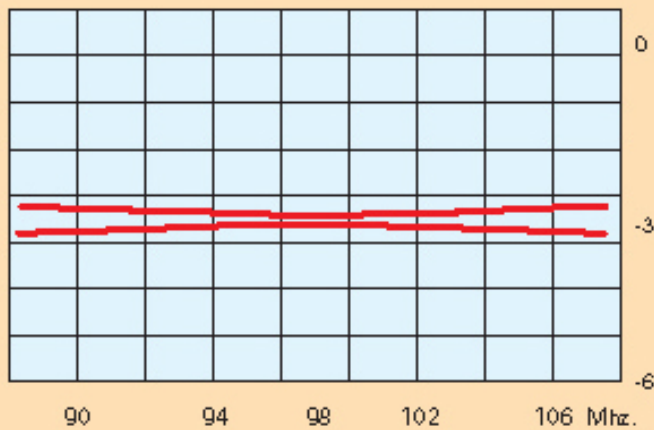


DIPLEXER

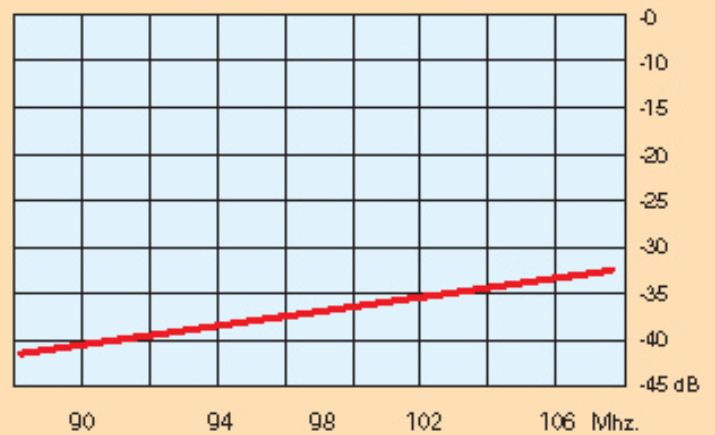


TRIPLEXER

## COUPLING MEASUREMENT



## DIRECTIVITY MEASUREMENT

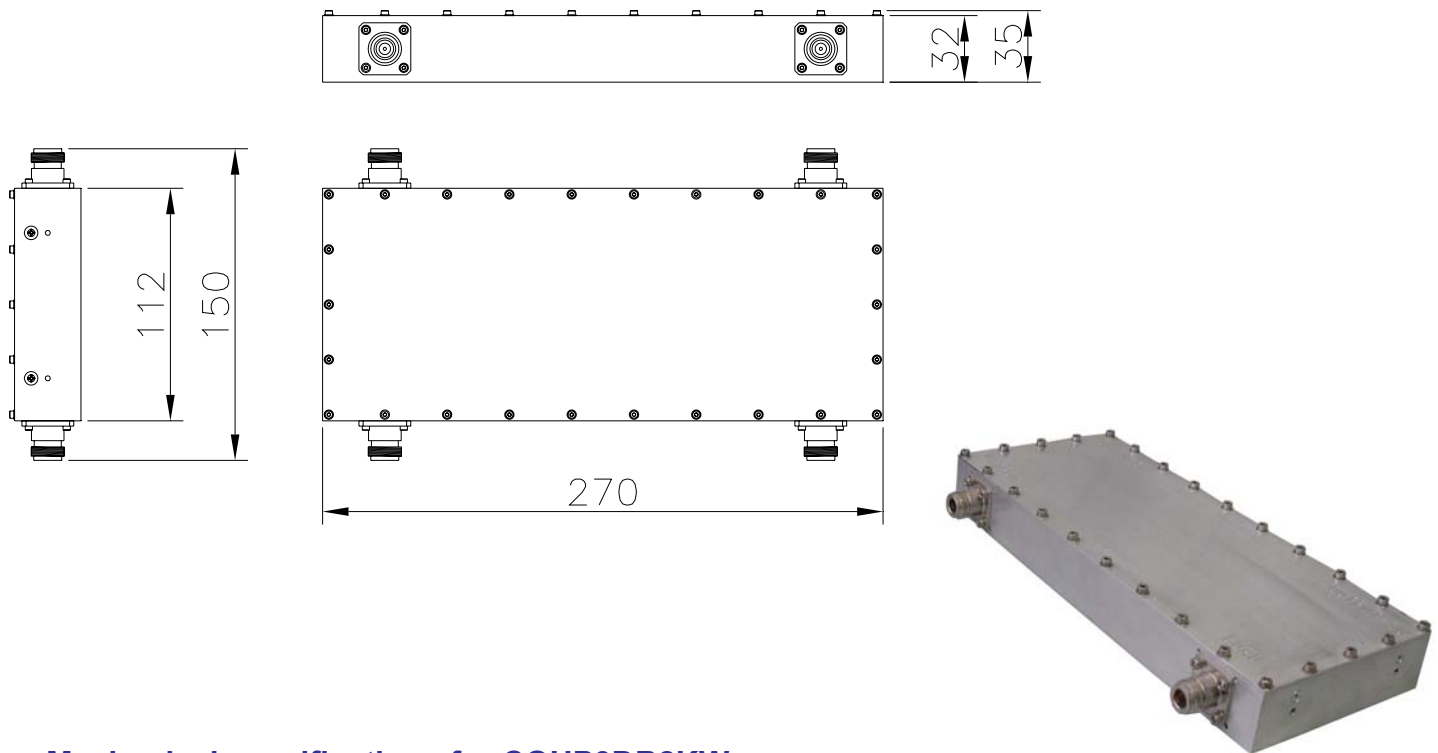


- Special version on request
- Possibility of interchange between the mouths

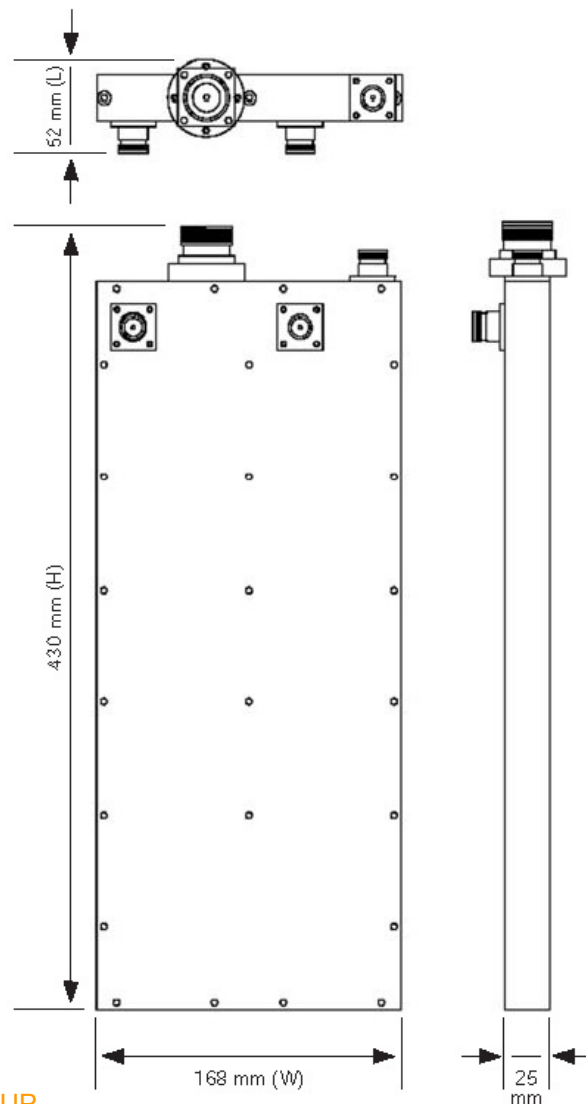
Model	Dimension	Net Weight
COUP3DB500W	270×150×32 mm (10.6×5.9×1.3 inch) (H×L×W)	≅ 2 Kg
COUP3DB2KW	430×168×52mm (16.9×6.6×2.0 inch) (H×L×W)	≅ 3 Kg
COUP3DB5KW	560×260×40 mm (22.0×10.2×1.6 inch) (H×L×W)	≅ 4 Kg
COUP3DB10KW	475×450×80 mm (18.7×17.7×3.1 inch) (H×L×W)	≅ 8 Kg
COUP3DB20KW	520×450×80 mm (20.5×17.7×3.1 inch) (H×L×W)	≅ 9 Kg
COUP3DB45KW	870×330×150 mm (34.2×13.0×5.9 inch) (H×L×W)	≅ 15 Kg
COUP3DB80KW	870×330×200 mm (34.3×13.0×7.9 inch) (H×L×W)	≅ 25 Kg
COUP3DB120KW	964×520×250 mm (37.9×20.7×9.8 inch) (H×L×W)	≅ 45 Kg

(Data approx.)

## Mechanical specifications for COUP3DB500W

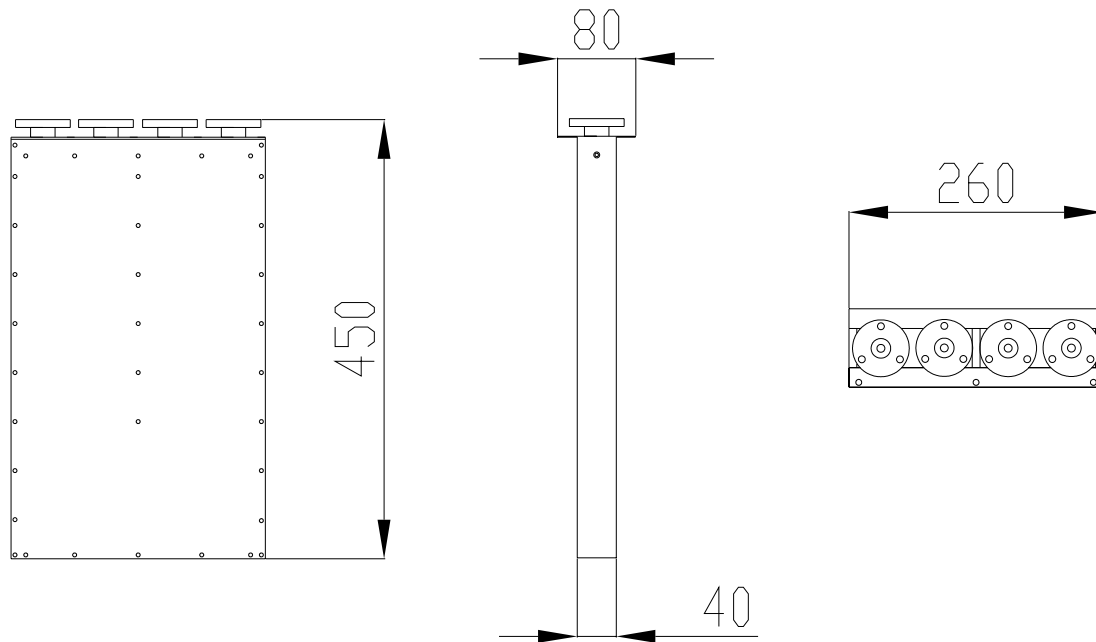


## Mechanical specifications for COUP3DB2KW



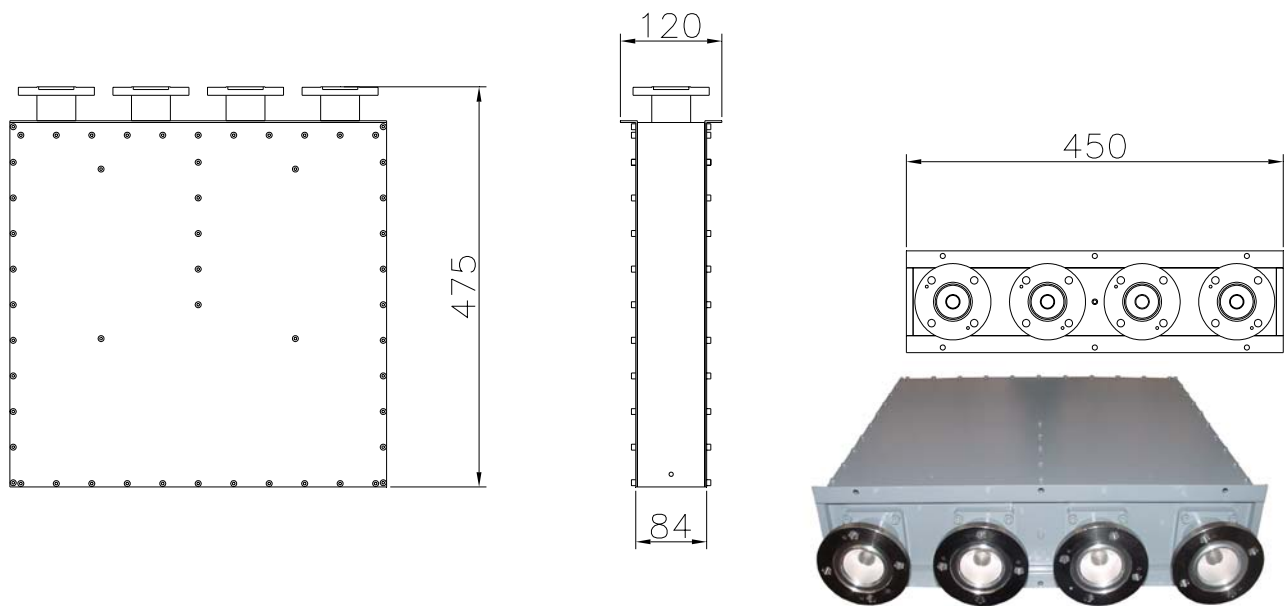
"These specifications are subject to change without notice"

## Mechanical specifications for COUP3DB5KW

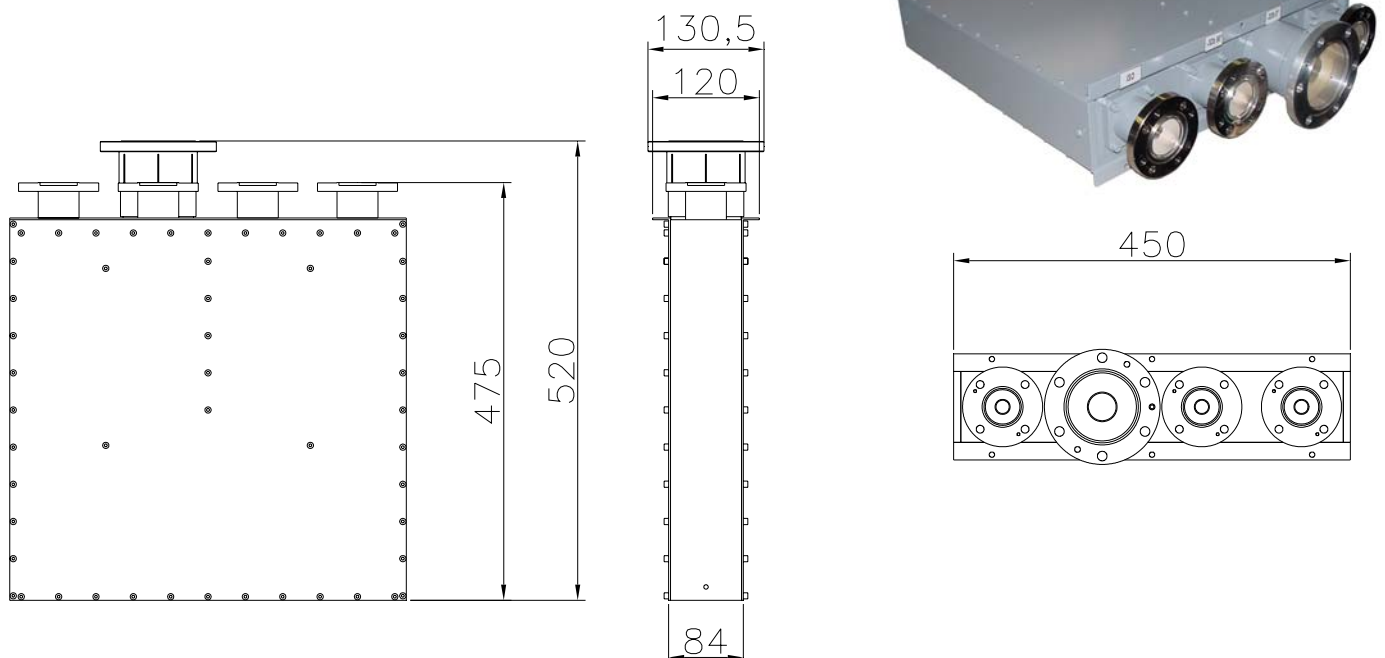


"These specifications are subject to change without notice"

## Mechanical specifications for COUP3DB10KW

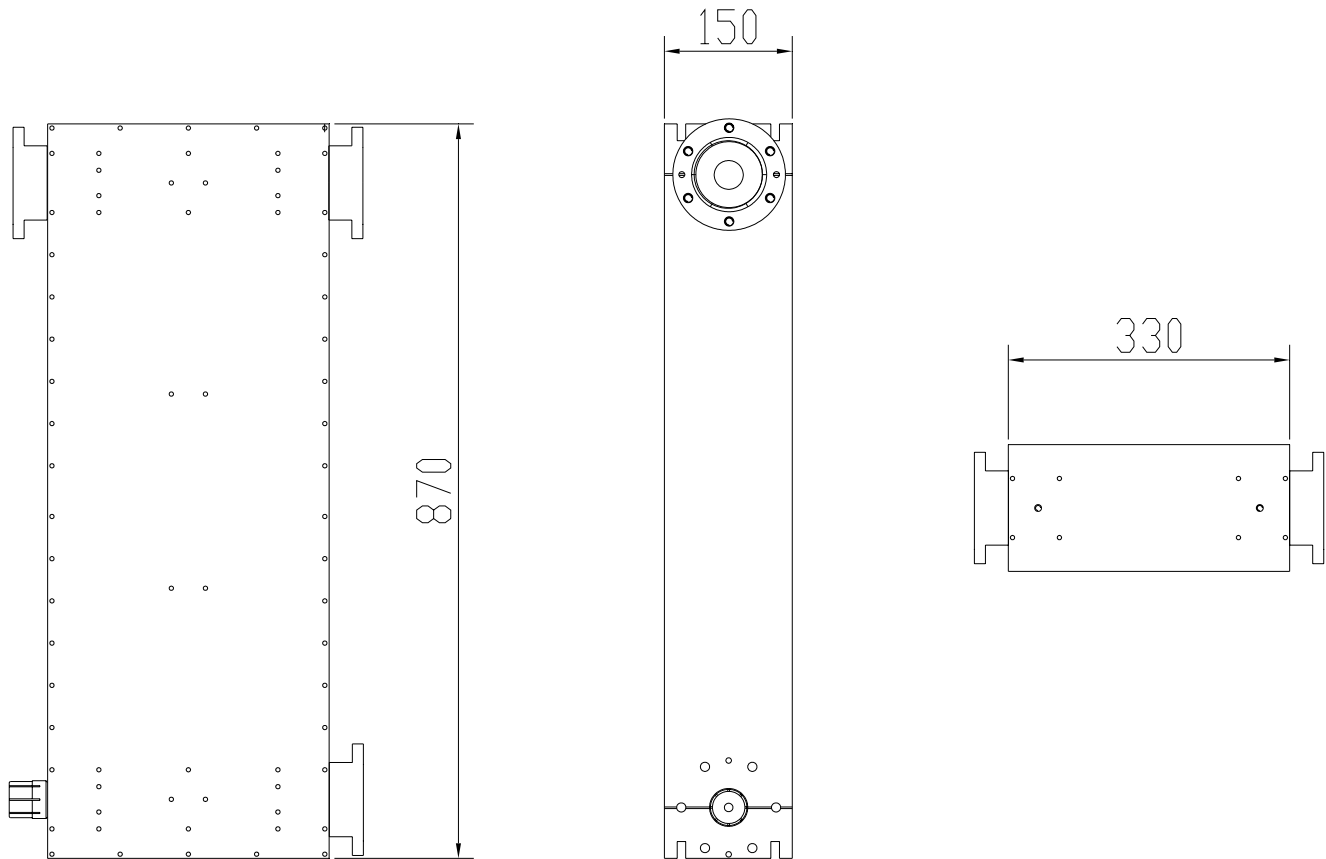


## Mechanical specifications for COUP3DB20KW



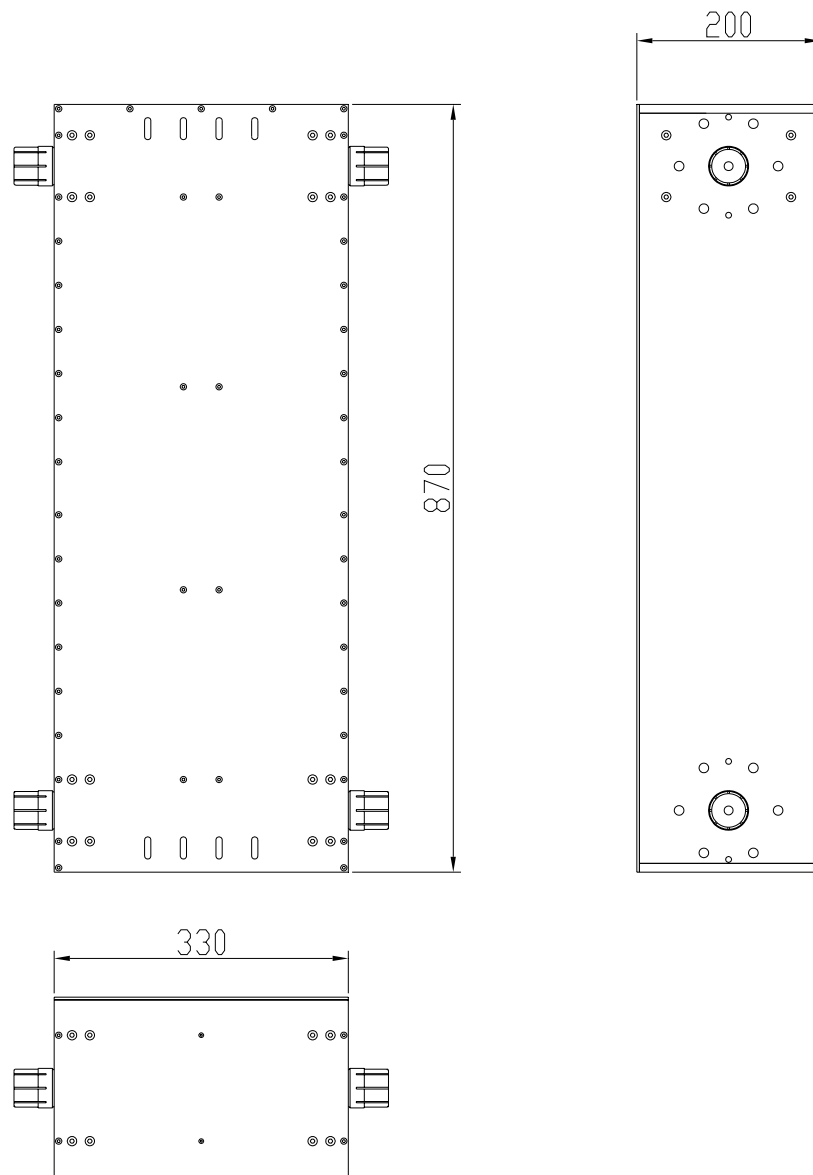
"These specifications are subject to change without notice"

## Mechanical specifications for COUP3DB45KW



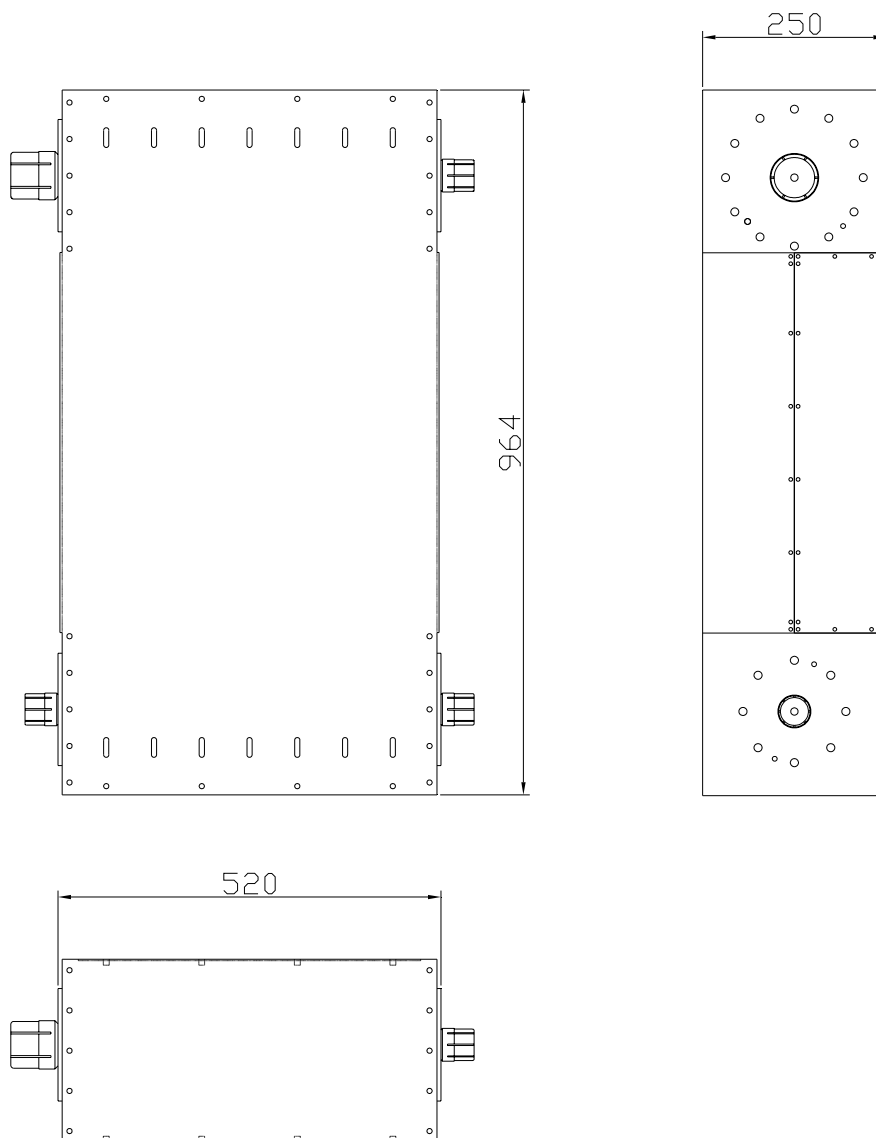


## Mechanical specifications for COUP3DB80KW



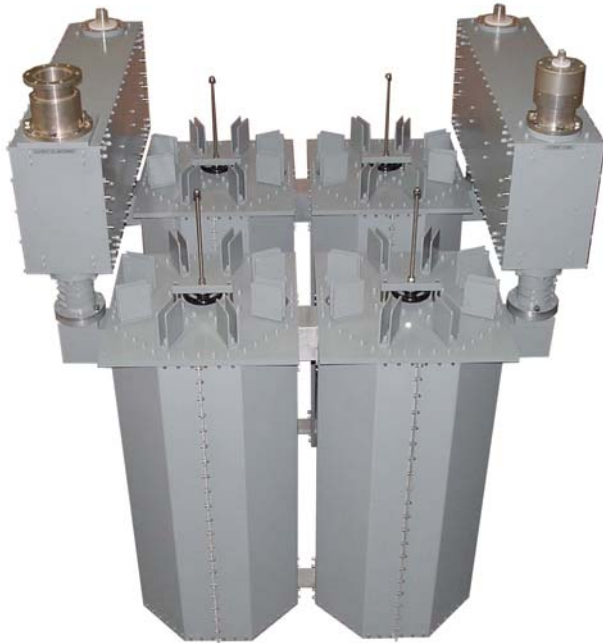
"These specifications are subject to change without notice"

## Mechanical specifications for COUP3DB120KW



"These specifications are subject to change without notice"

# Application



**COMBINER  
DOUBLE BRIDGE**



"These specifications are subject to change without notice"

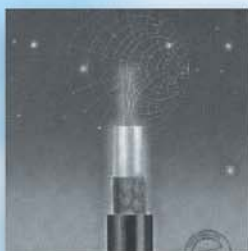


## SWITCH LESS COMBINER



# GENERAL CATALOG

CABLES and ACCESSORIES



## RG21 3 (RG21 3 COAXIAL CABLE)

F (MHz)	Attenuation* (dB/100m)	Maximum Average Power Rating* (W)
100	6.2	1000
200	8.8	700
500	14.0	400
1000	26.3	230

\*Average values



## RG21 4 (RG21 4 COAXIAL CABLE)

F (MHz)	Attenuation* (dB/100m)	Maximum Average Power Rating* (W)
100	7.5	800
200	11	550
500	17	350
1000	29	200

\*Average values



## RG21 8 (RG21 8 COAXIAL CABLE)

F (MHz)	Attenuation* (dB/100m)	Maximum Average Power Rating* (W)
100	3	3500
200	5	2300
500	8	1300
1000	14.5	780

\*Average values



"These specifications are subject to change without notice"



# CLX1/4" (foam 1/4" COAXIAL CABLE)

F (MHz)	Attenuation* (dB/100m)	Maximum Average Power Rating* (W)
100	4.5	1500
200	6	1200
500	10	700
1000	15	500

\*Average values



# CLX1/2" (foam 1/2" COAXIAL CABLE)

F (MHz)	Attenuation* (dB/100m)	Maximum Average Power Rating* (W)
100	2.3	3400
200	3.3	2000
500	5	1400
1000	7	900

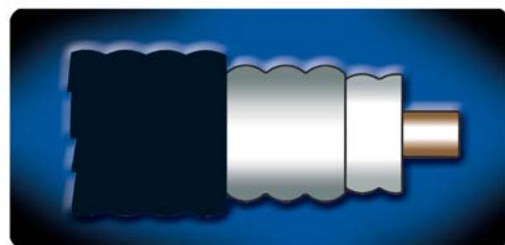
\*Average values



# CLX7/8" (foam 7/8" COAXIAL CABLE)

F (MHz)	Attenuation* (dB/100m)	Maximum Average Power Rating* (W)
100	1.2	7500
200	1.8	5200
500	3	3000
1000	4.5	1500

\*Average values

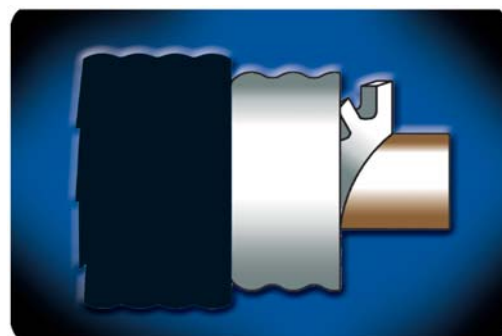


"These specifications are subject to change without notice"

**CLX1+5/8" (air 1+5/8" COAXIAL CABLE)**

F (MHz)	Attenuation* (dB/100m)	Maximum Average Power Rating* (W)
100	0.7	15000
200	0.9	11000
500	1.5	6500
1000	2.3	4200

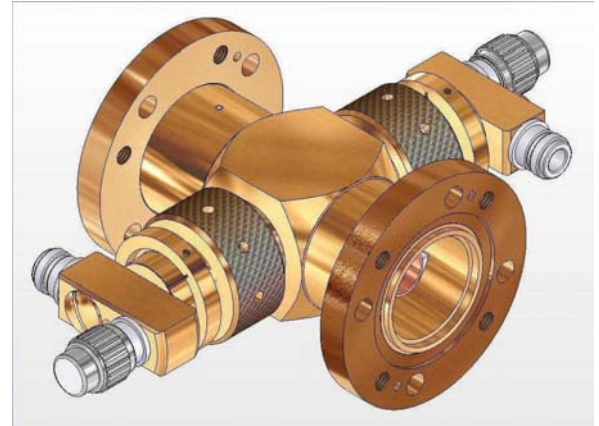
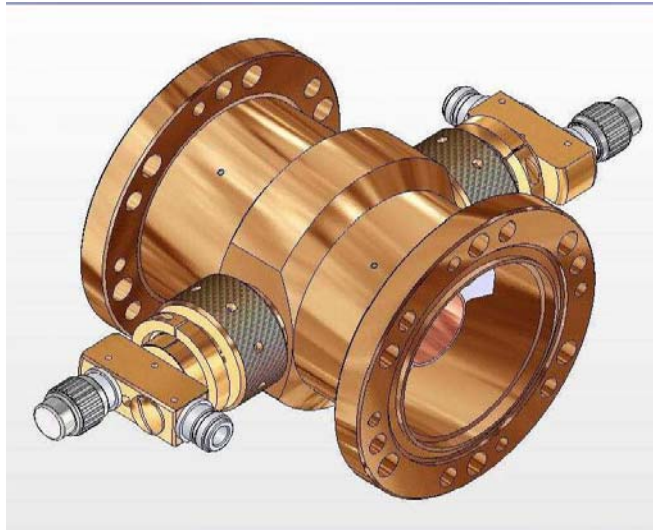
\*Average values



"These specifications are subject to change without notice"

# **MODEL DIR5-BB#01 - DIR13DD#01 - DIR30EE#01**

## **• DIRECTIONAL COUPLERS**



### **TYPICAL SPECIFICATIONS**

Model	DIR5-BB#01	DIR13DD#01	DIR30EE#01
Frequency Range	0,1 ÷ 860 MHz	0,1 ÷ 860 MHz	0,1 ÷ 860 MHz
Directivity	≥ 40dB	≥ 40dB	≥ 40dB
Impedance	50 ohm	50 ohm	50 ohm
Return Loss	≥ 30 dB	≥ 30 dB	≥ 30 dB
Coupling Factor	Settable	Settable	Settable
Working Temperature	-40 ÷ +60°C	-40 ÷ +60°C	-40 ÷ +60°C
Connectors	Input – Output 7/8"	Input - Output 1+5/8"	Input - Output 3+1/8"
Probe Connectors	"N" F	"N" F	"N" F
Max Power	5 KW	13 KW	30 KW

### **MATERIALS**

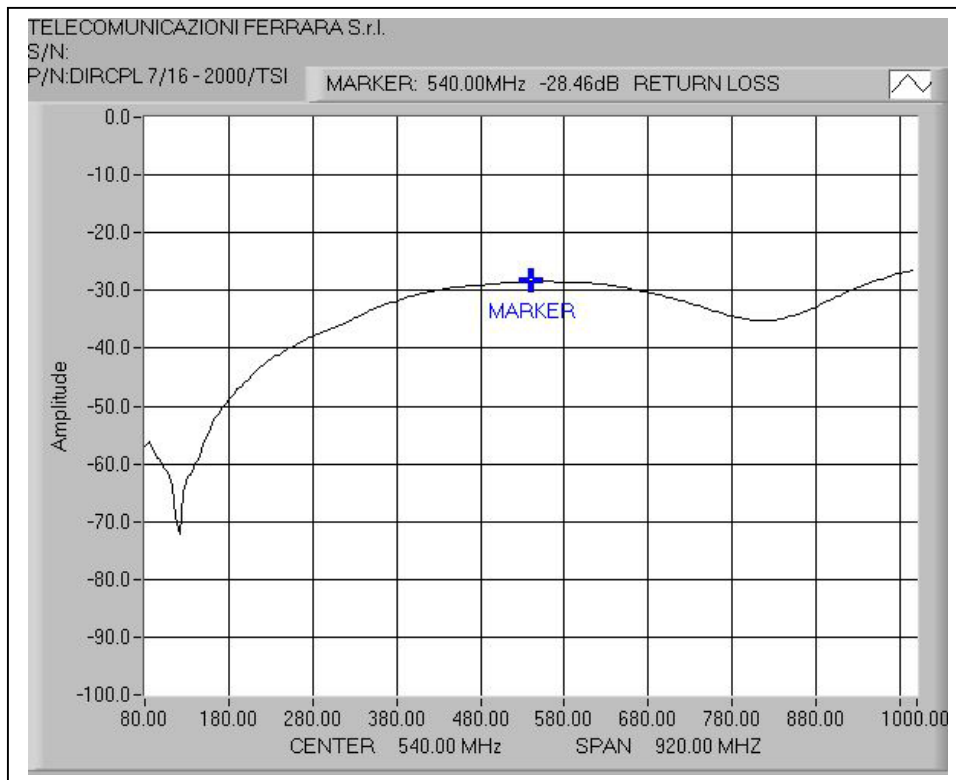
DIR5-BB#01	Aluminium, Brass, Diclad, Gilding and Silvering (min. 12µm thickness)
DIR13DD#01/DIR30EE#01	Nickel, Silver, PTFE

Model	Dimension	Net Weight
DIR5-BB#01	165×166×57 mm (6.5×6.5×2.2 inch) (H max.×L×W)	≅ 0,5 Kg
DIR13DD#01	249×130×130 mm (9.8×5.1×5.1 inch) (H×L×W)	≅ 3,5 Kg
DIR30EE#01	288×148×148 mm (11.3×5.8×5.8 inch) (H×L×W)	≅ 5,5 Kg

(Data approx.)

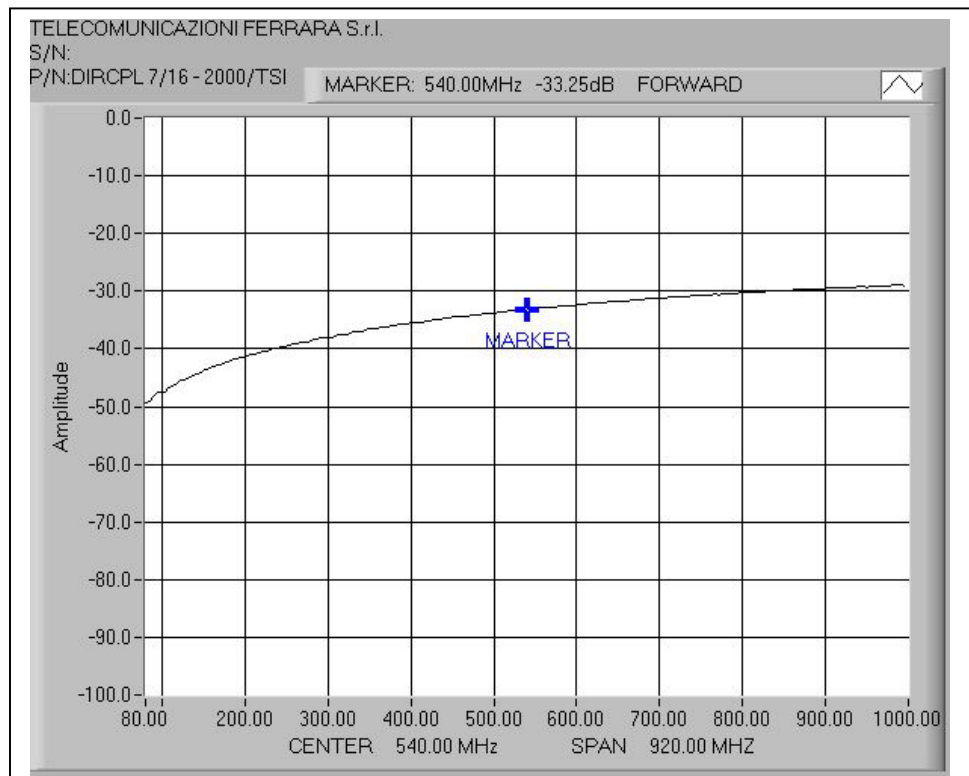
"These specifications are subject to change without notice"

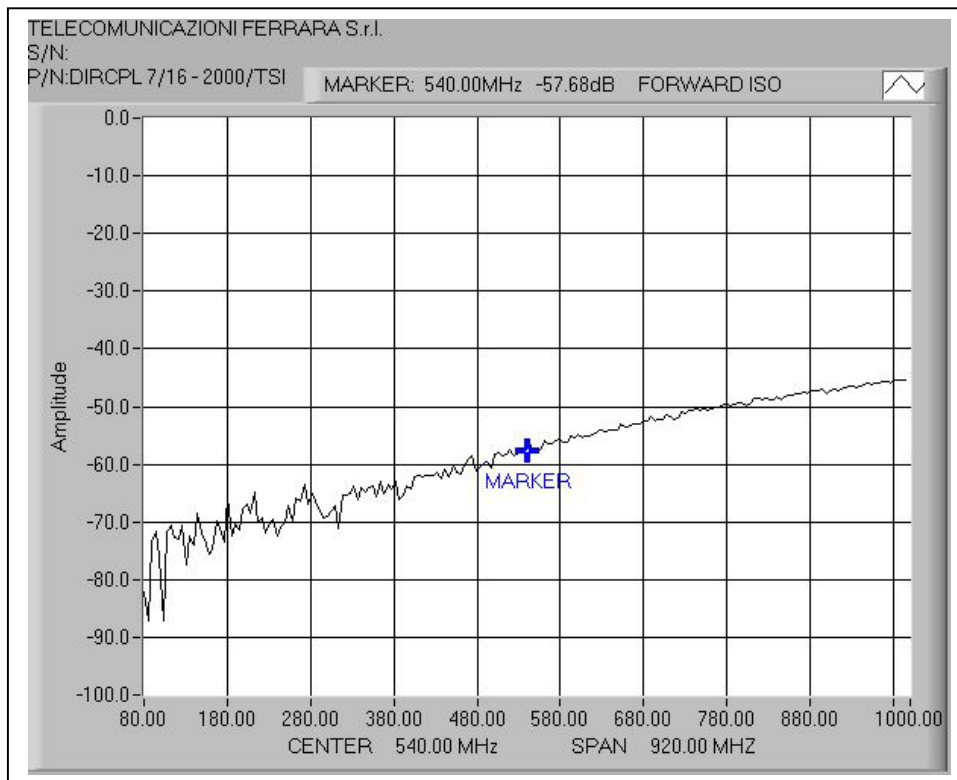
## EXAMPLE OF TYPICAL RESPONSES REFERRED MODEL DIR5-BB#01



**FULL FREQUENCY  
RANGE RETURN  
LOSS**

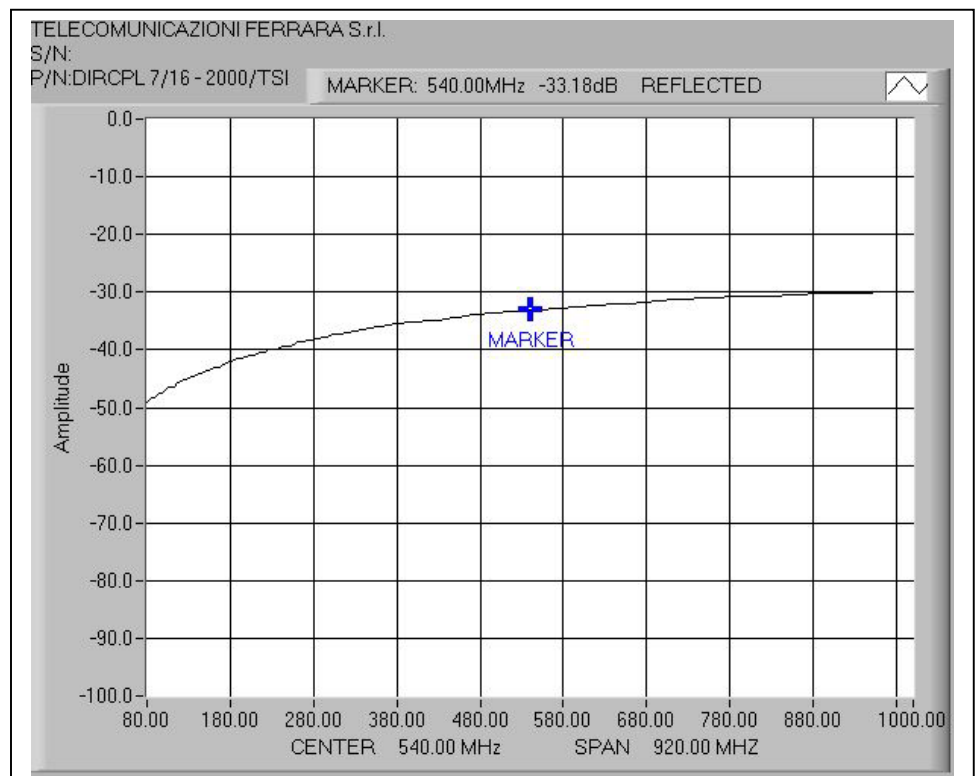
**FULL FREQUENCY  
RANGE FORWARD  
MEASUREMENT**



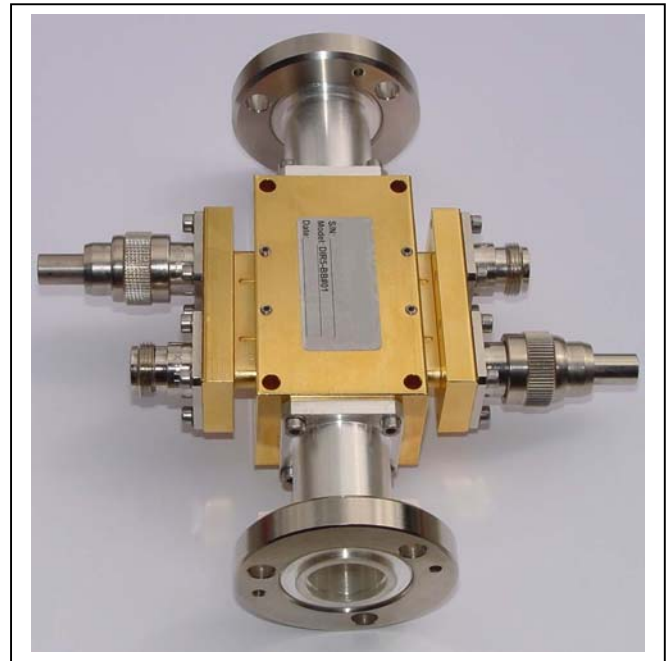
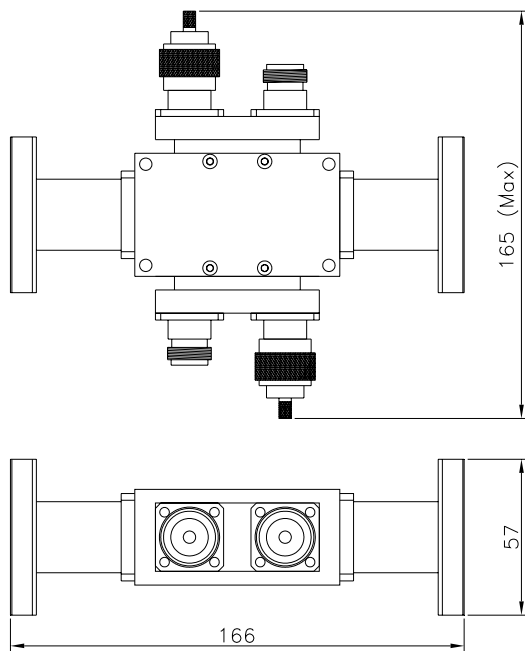


**FULL FREQUENCY  
RANGE FWD  
DIRECTIVITY  
MEASUREMENT**

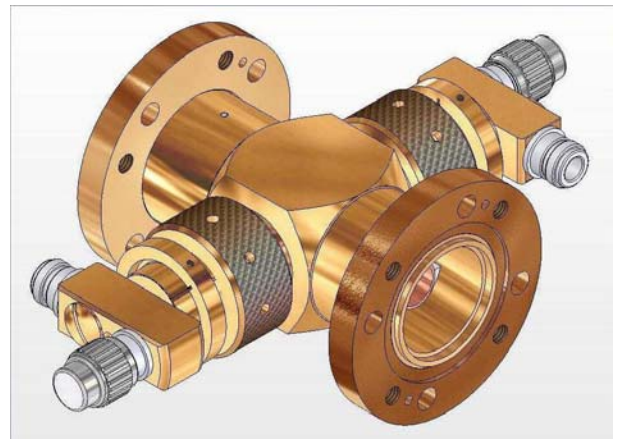
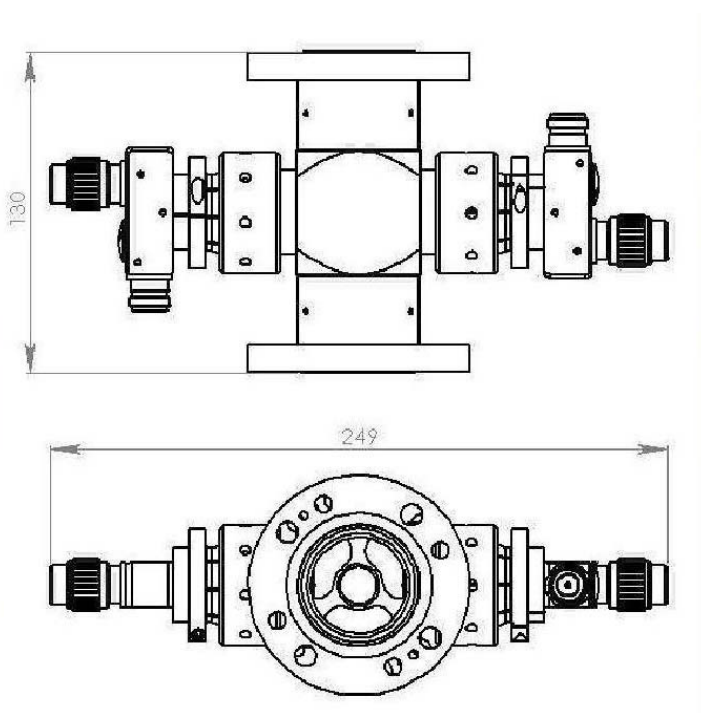
**FULL FREQUENCY  
RANGE REFLECTED  
MEASUREMENT**



## Mechanical specifications for DIR5-BB#01

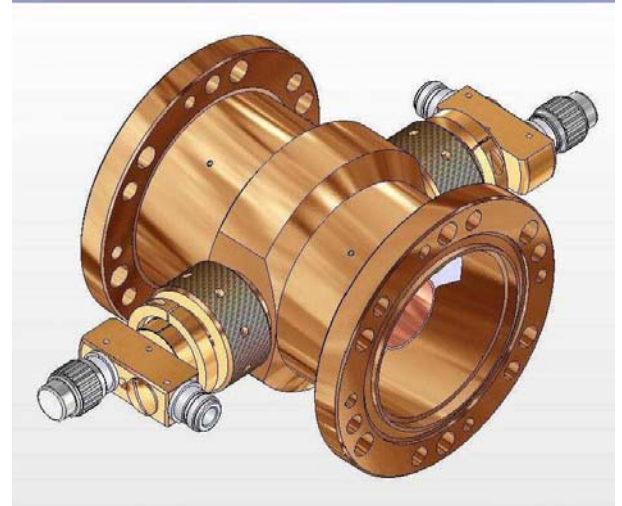
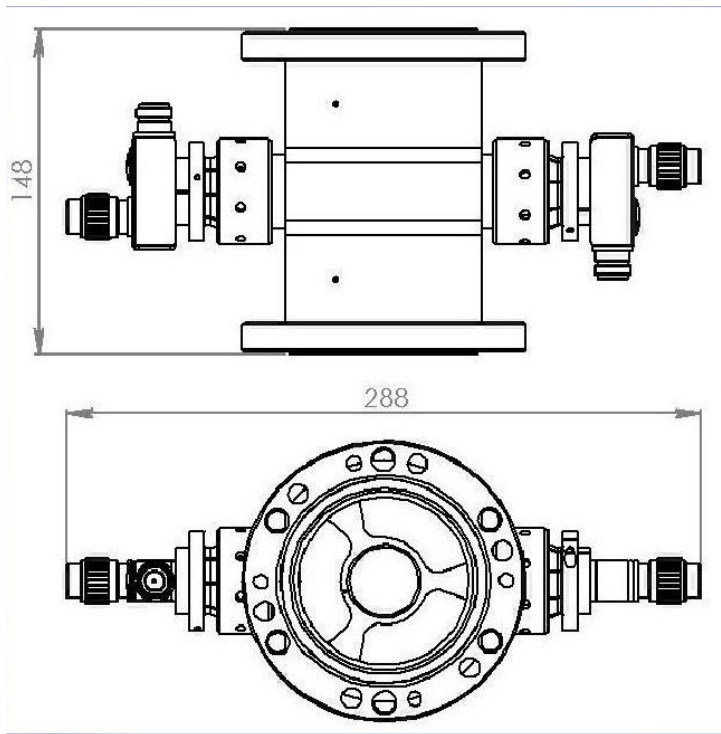


## Mechanical specifications for DIR13DD#01

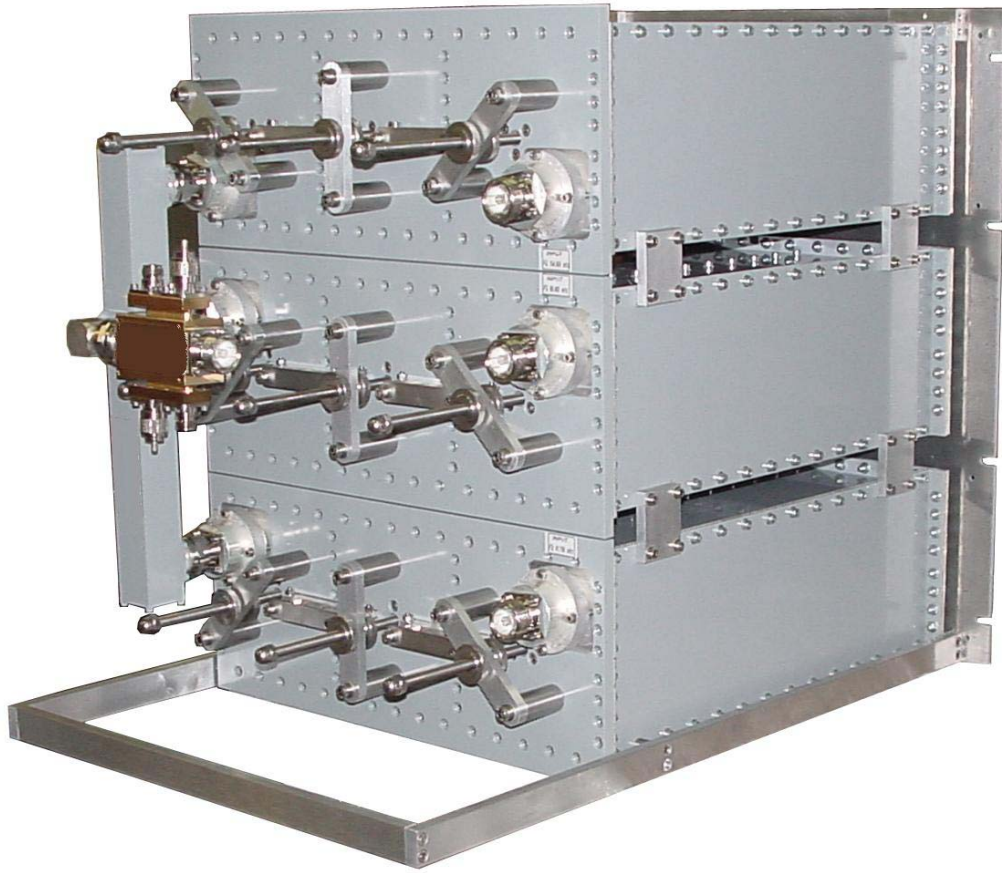


"These specifications are subject to change without notice"



**Mechanical specifications for DIR30EE#01**

## Example Application



**COMBINER**

# MODEL COUPSP05K - COUPSP1K - COUPSP2K - COUPSP12K - COUPSP40K - COUPSP60K

- STARPOINT
- FM BAND 87.5-108 MHz
- BAND II



COUPSP60K

## GENERAL SPECIFICATIONS

Working Temperature	-20°C ÷ +50°C
Colour	Enamel Gray ral 7001
Materials	Aluminium, Brass, Copper, PTFE, Stainless Steel, Silvering (min 12µm thickness)

## TYPICAL SPECIFICATIONS

Model	COUPSP05K	COUPSP1K	COUPSP2K	COUPSP12K
Frequency Range	87.5-108 MHz	87.5-108 MHz	87.5-108 MHz	87.5-108 MHz
Impedance	50 ohm	50 ohm	50 ohm	50 ohm
VSWR	1:1.1 max	1:1.1 max	1:1.1 max	1:1.1 max
Insertion Loss	0.02 dB	0.02 dB	0.02 dB	0.01 dB
Return Loss	≤ -30 dB	≤ -30 dB	≤ -30 dB	≤ -30 dB
N° Input	2 - 3 - 4	2 - 3 - 4	2 - 3 - 4	2 - 3 - 4
N° Output	1	1	1	1
Connectors	Input Nf Output Nf - 7/16" - 7/8"	Input Nf Output Nf - 7/16" - 7/8"	Input 7/16" - 7/8" Output 7/16" - 7/8" - 1+5/8"	Input - Output 1+5/8"
Max Power	800W	800W	2 KW with Out 7/16" 5 KW with Out 7/8" 10 KW with Out 1+5/8"	12 KW

## TYPICAL SPECIFICATIONS

Model	COUPSP40K	COUPSP60K
Frequency Range	87.5-108 MHz	87.5-108 MHz
Impedance	50 ohm	50 ohm
VSWR ± 150 KHz	1:1.1 max	1:1.1 max
Insertion Loss	0.01 dB	0.01 dB
Return Loss ± 150 KHz	≤ -30 dB	≤ -30 dB
N° Input	2 - 3 - 4	2 - 3 - 4
N° Output	1	1
Connectors	Input - Output 3+1/8"	Input - Output 4+1/2"
Max Power	40 KW	60 KW

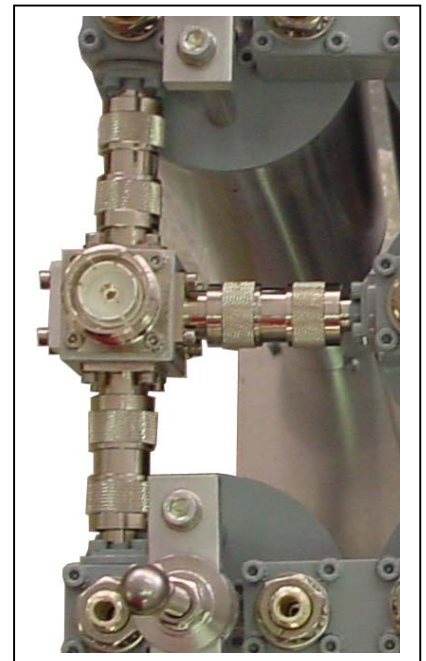
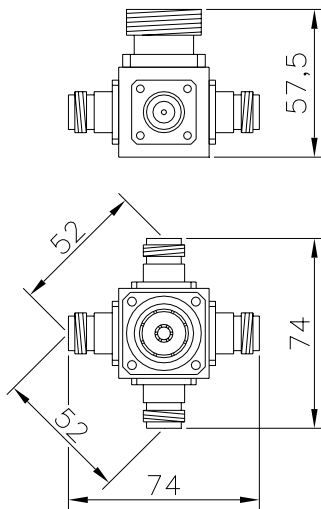


COUPSP12K

"These specifications are subject to change without notice"

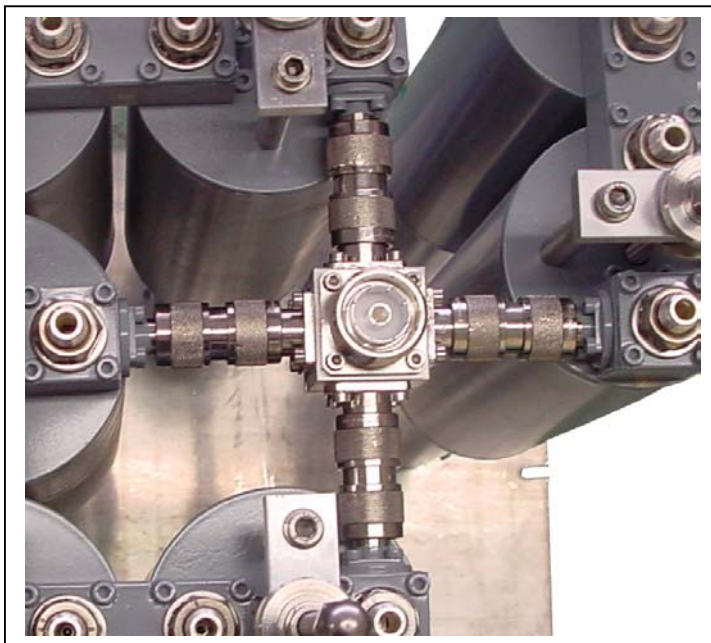
## Mechanical specifications for COUPSP05K

EXAMPLE WITH CONNECTORS  
IN 4 N - OUT 7/16"



EXAMPLE IN 3 Nf  
OUT 7/16"

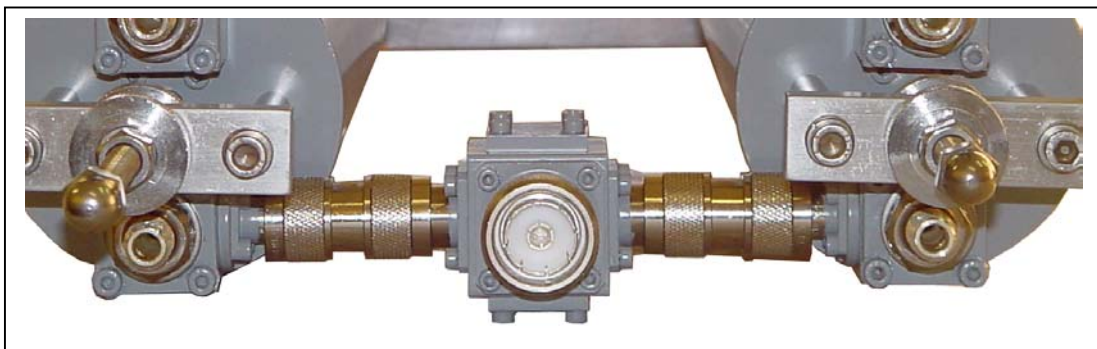
→



EXAMPLE IN 4 Nf  
OUT 7/16"

←

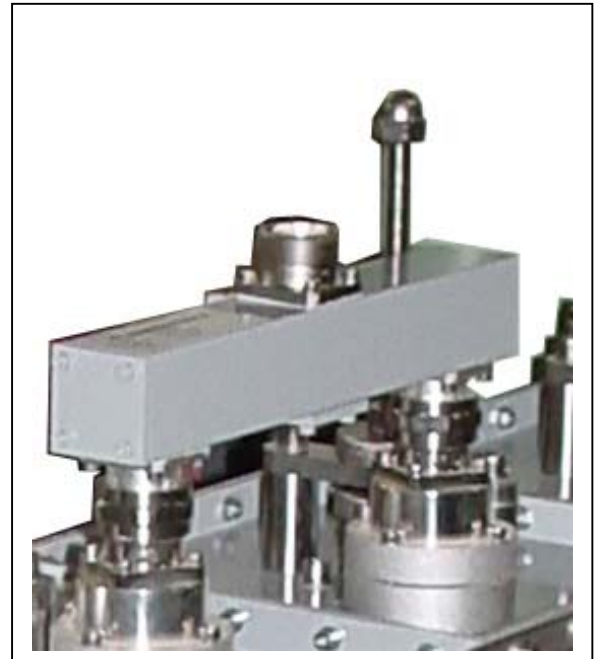
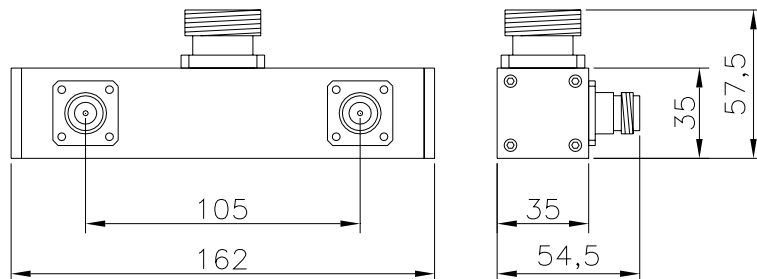
EXAMPLE IN 2 Nf - OUT 7/16" ↓





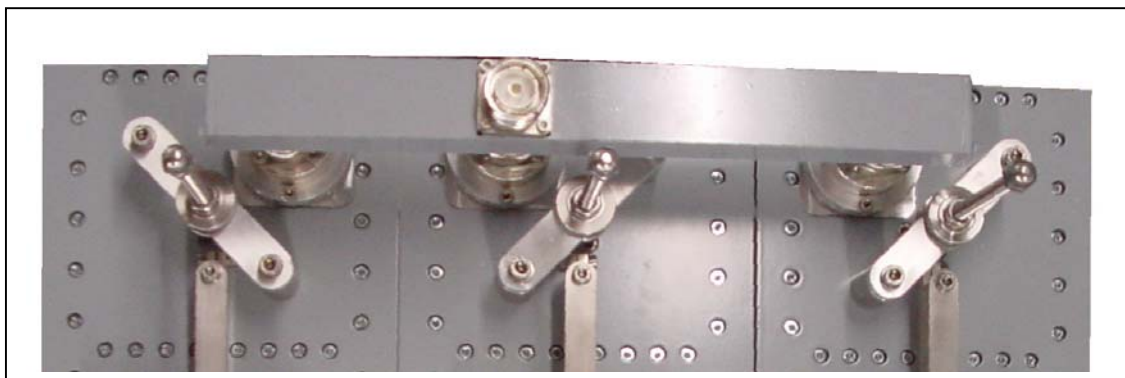
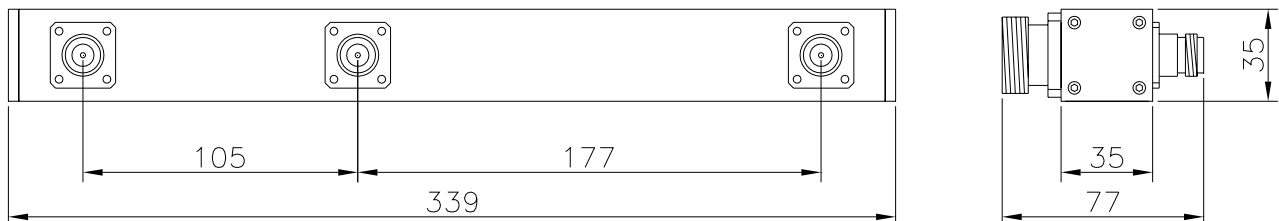
### Mechanical specifications for COUPSP1K (DIPLEXER VERSION)

EXAMPLE WITH CONNECTORS  
IN N - OUT 7/16"



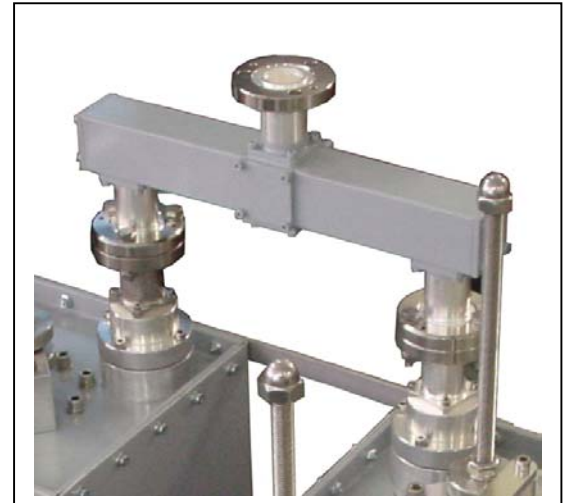
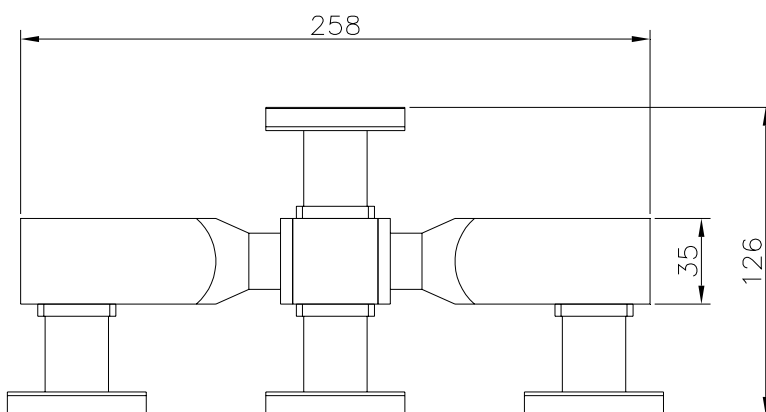
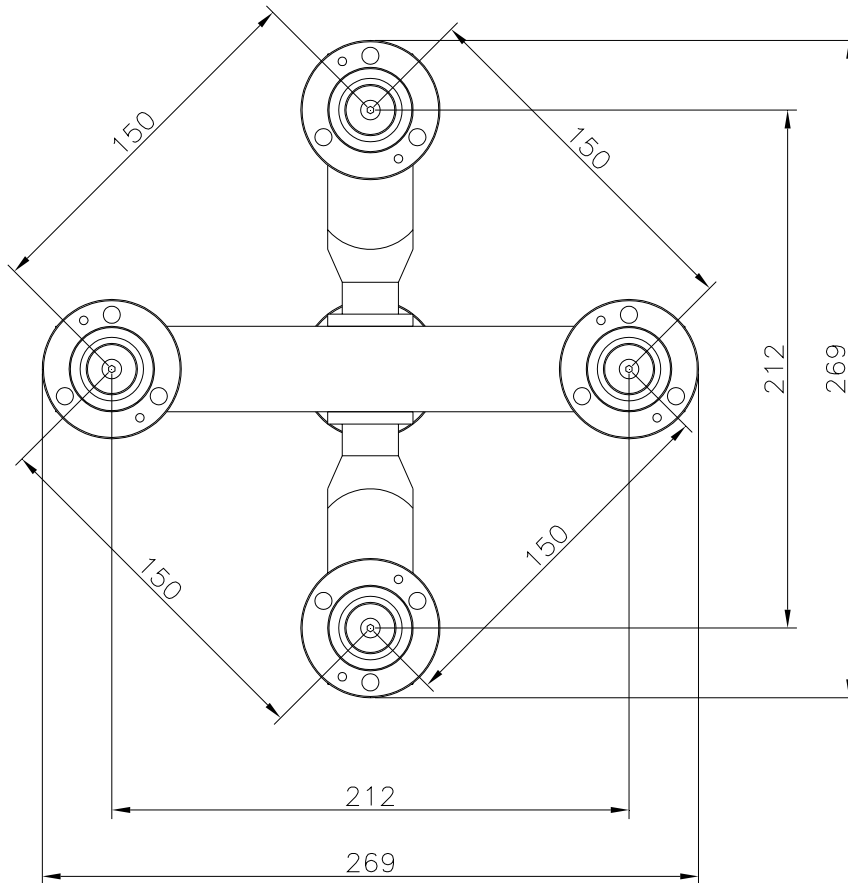
### Mechanical specifications for COUPSP1K (TRIPLEXER VERSION)

EXAMPLE WITH CONNECTORS  
IN N - OUT 7/16"

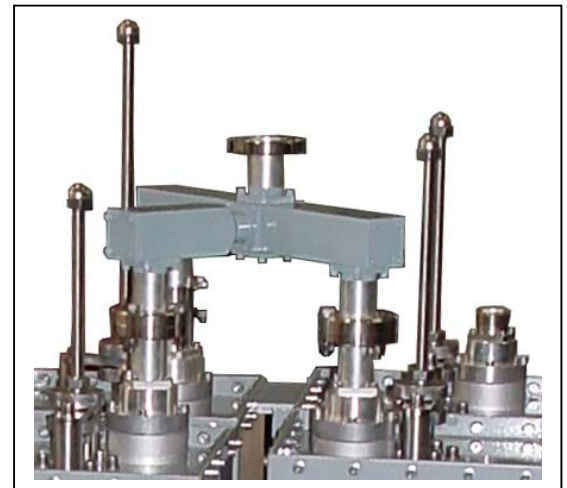


## Mechanical specifications for COUPSP2K (STANDARD VERSION)

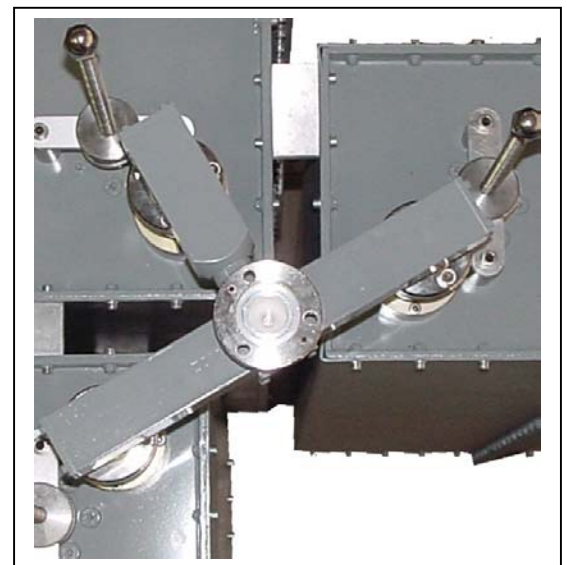
EXAMPLE WITH CONNECTORS  
IN 4 7/8" - OUT 7/8"



EXAMPLE IN 2 7/8" - OUT 7/8" ↑



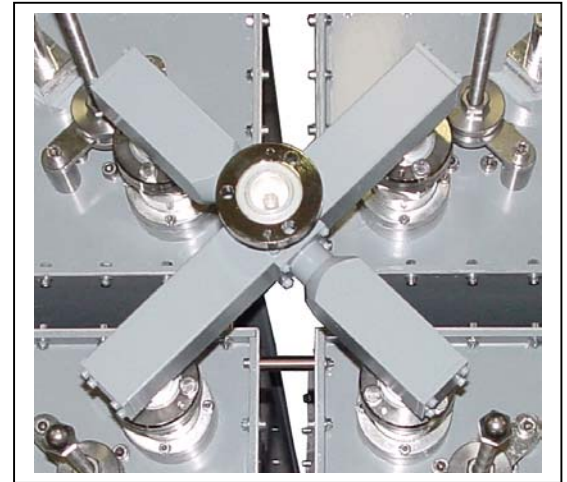
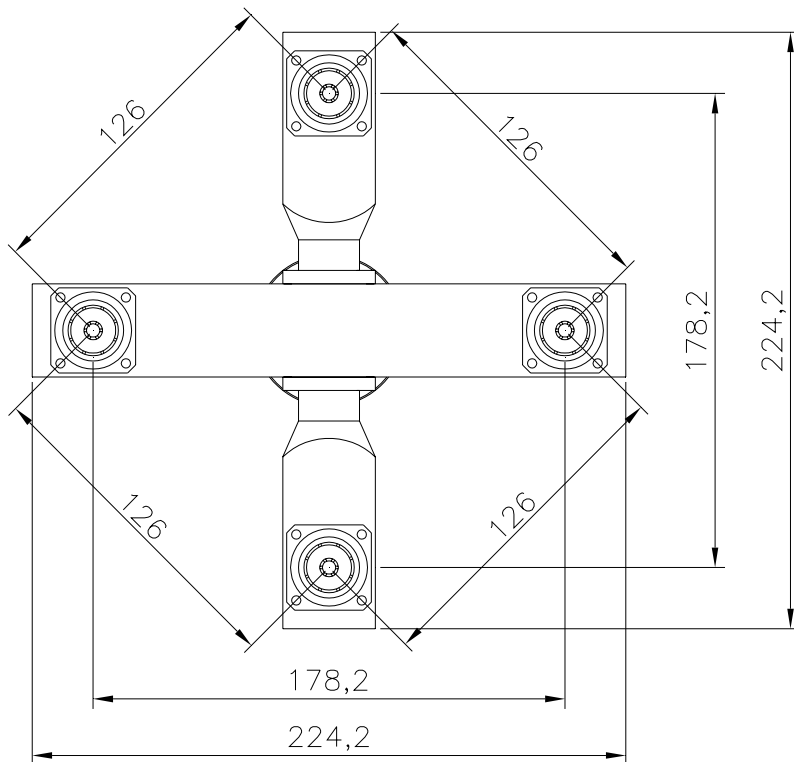
↓ EXAMPLE IN 3 7/8" - OUT 7/8" ↑



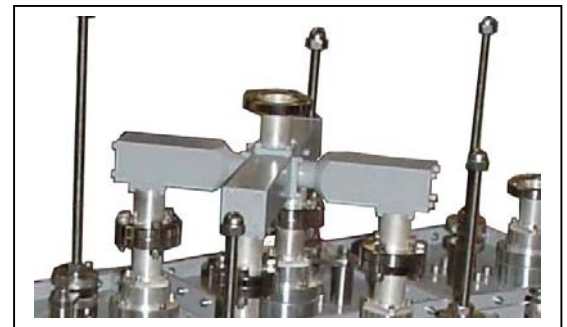


## Mechanical specifications for COUPSP2K (COMPACT VERSION)

EXAMPLE WITH CONNECTORS  
IN 4 7/16" - OUT 7/8"

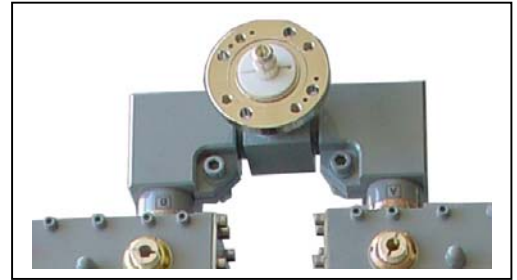
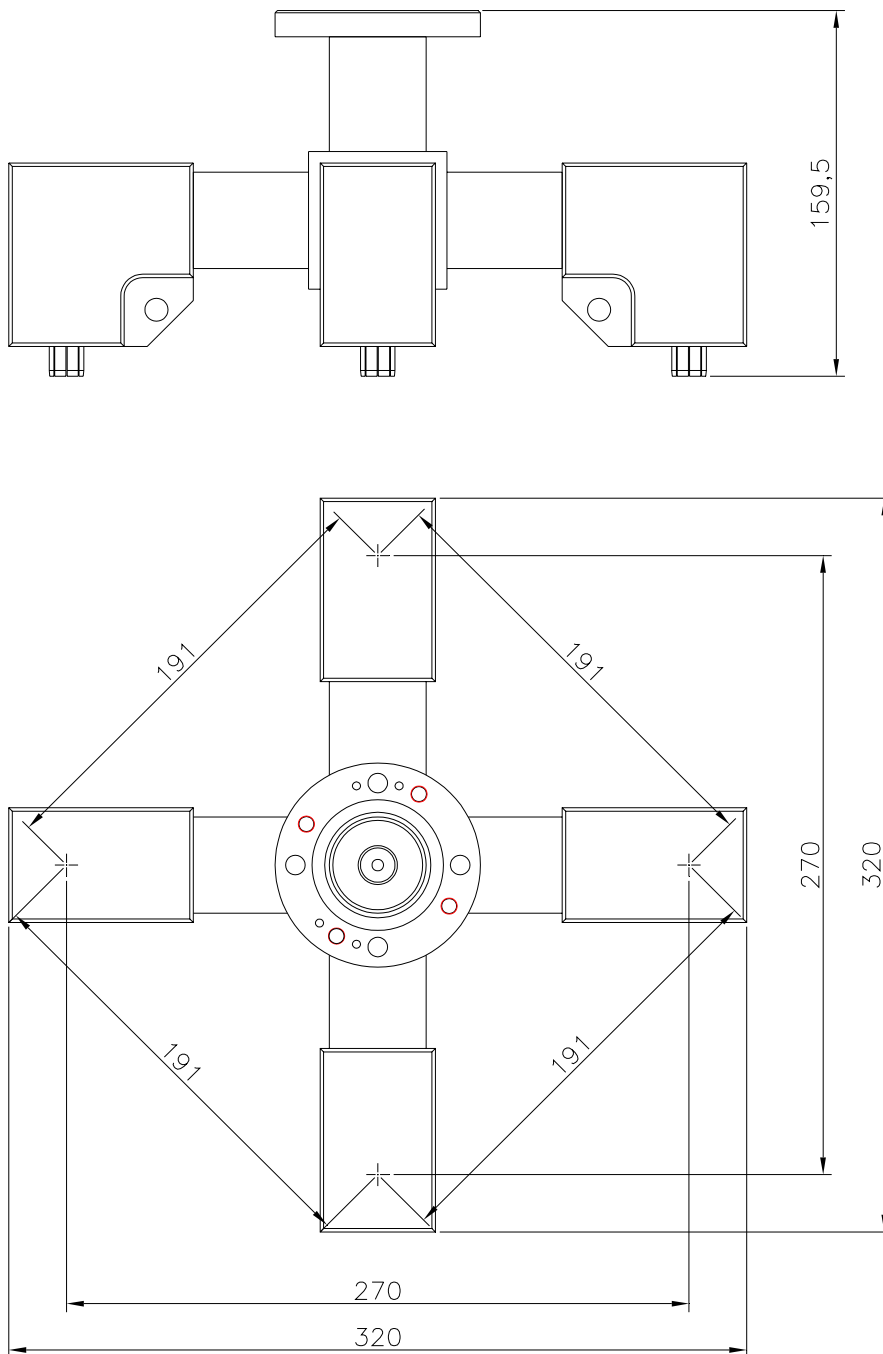


↓ EXAMPLE IN 4 7/8" - OUT 7/8" ↑

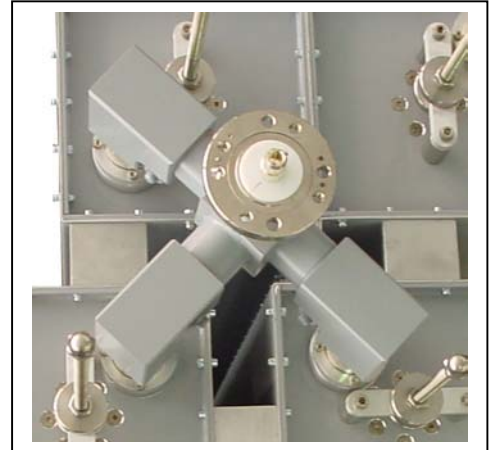
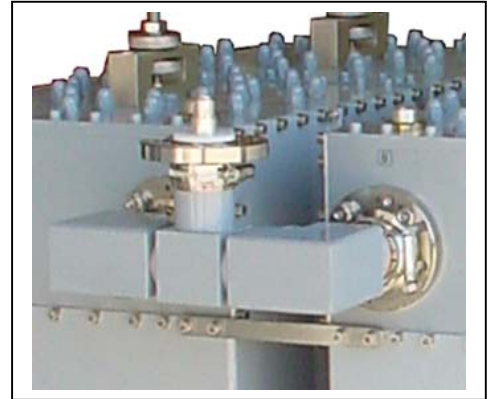


## Mechanical specifications for COUPSP12K

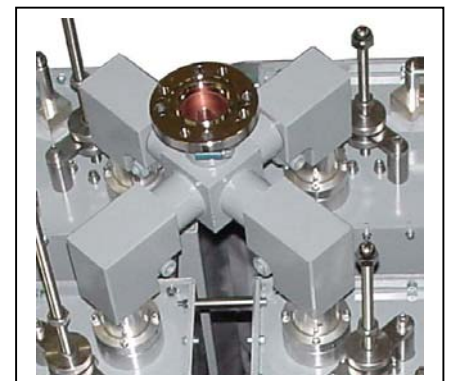
EXAMPLE WITH CONNECTORS  
IN 4 1+5/8" - OUT 1+5/8"



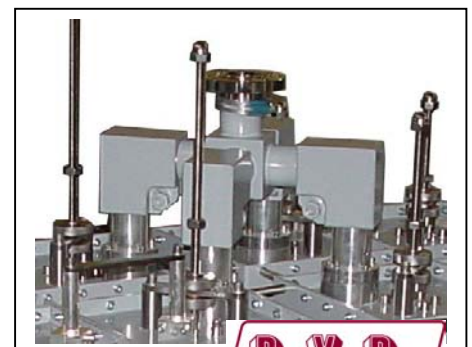
↓ EXAMPLE IN 2 1+5/8" - OUT 1+5/8" ↑



EXAMPLE IN 3 1+5/8" - OUT 1+5/8" ↑

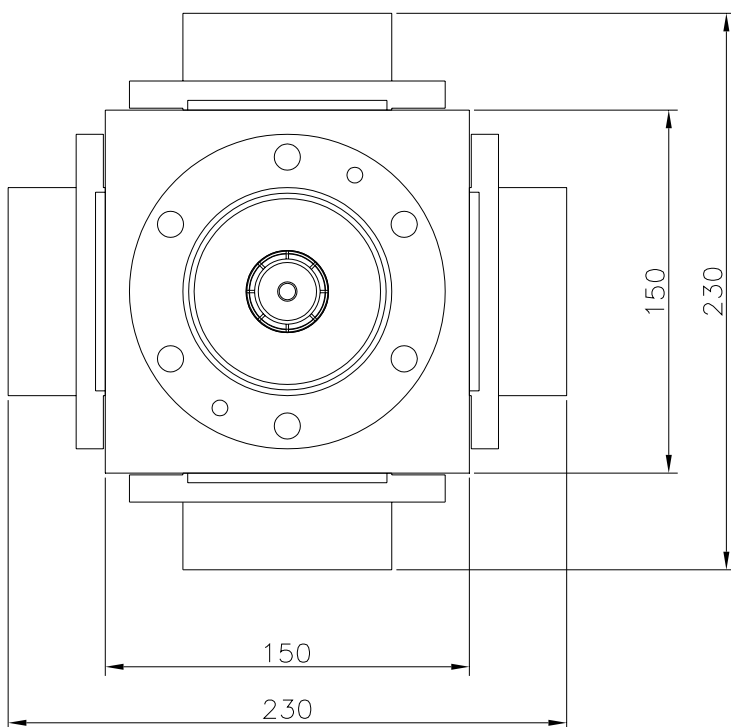
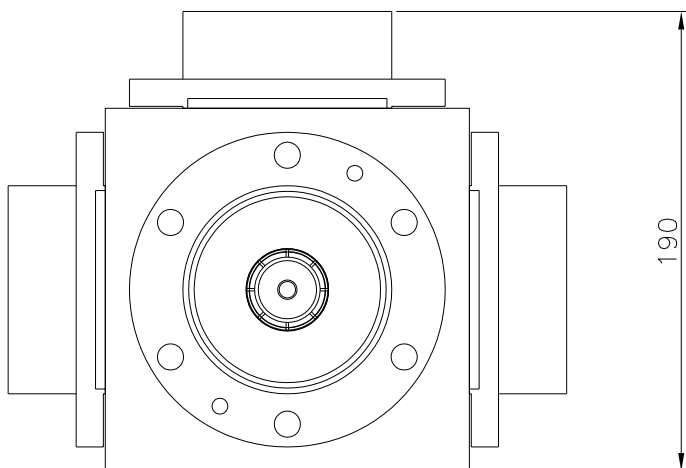


↓ EXAMPLE IN 4 1+5/8" - OUT 1+5/8" ↑



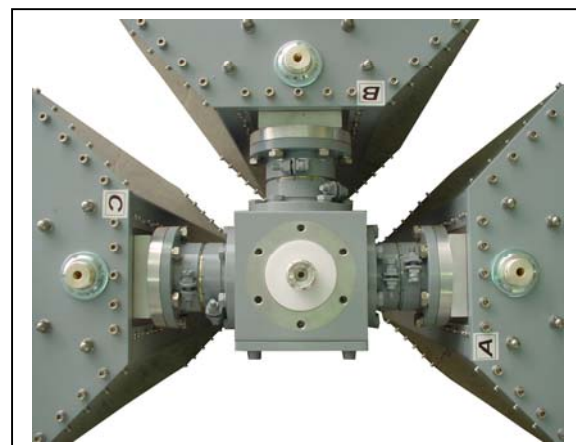
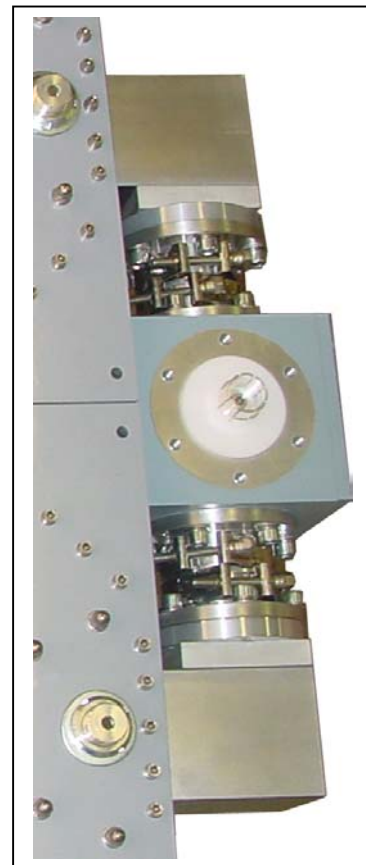
## Mechanical specifications for COUPSP40K

EXAMPLE WITH CONNECTORS  
IN  $4\ 3\frac{1}{8}"$  - OUT  $3\frac{1}{8}"$

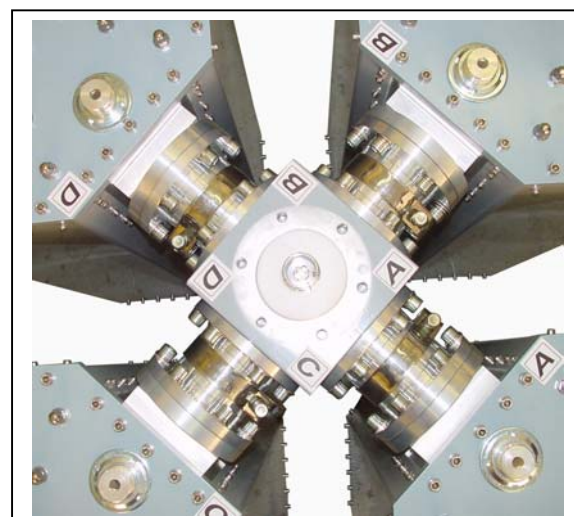


← EXAMPLE  
IN  $4\ 3\frac{1}{8}"$  - OUT  $3\frac{1}{8}"$  →

EXAMPLE  
IN  $2\ 3\frac{1}{8}"$  - OUT  $3\frac{1}{8}"$  →

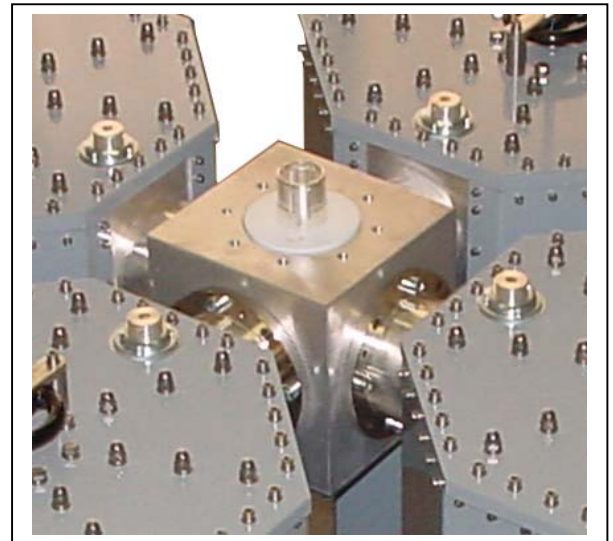
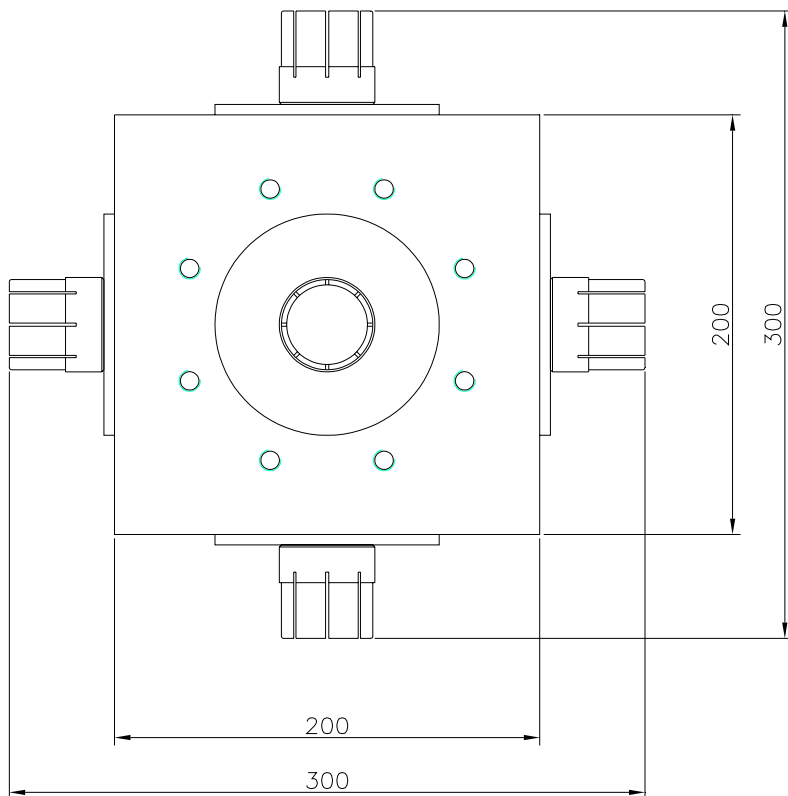
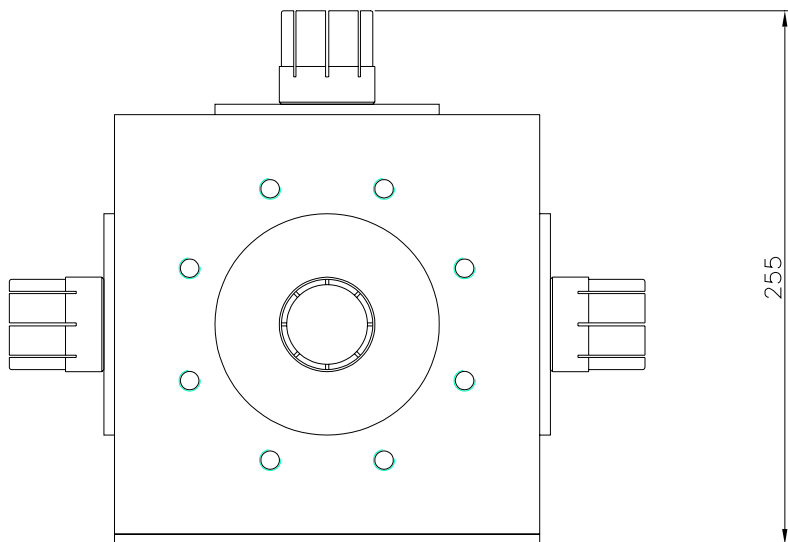


EXAMPLE IN  $3\ 3\frac{1}{8}"$  - OUT  $3\frac{1}{8}"$  ↑



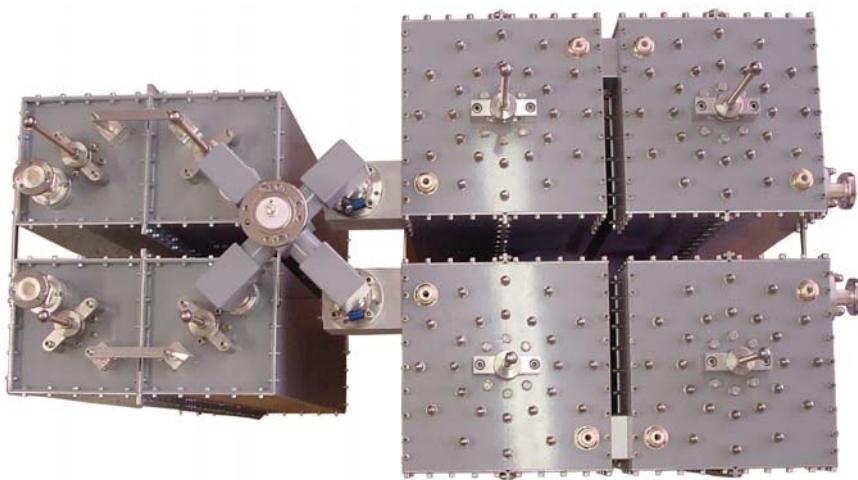
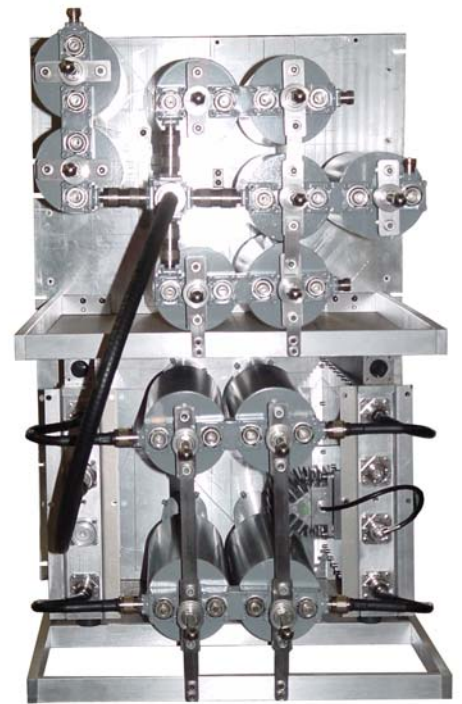
## Mechanical specifications for COUPSP60K

EXAMPLE WITHOUT FLANGE WITH CONNECTORS  
IN 4 4+1/2" - OUT 4+1/2"





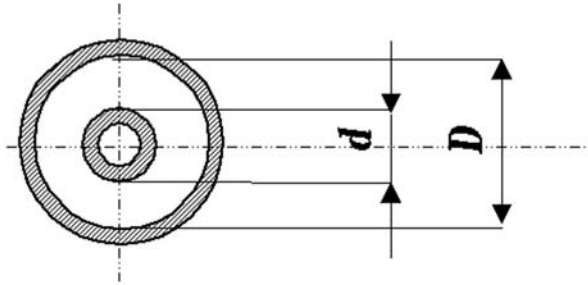
## Application



## EXAMPLE OF STARPOINT COMBINER

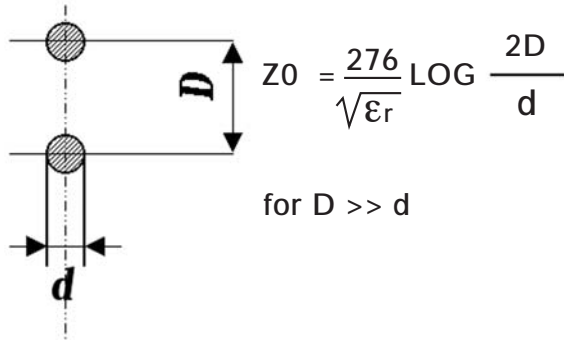
# GENERAL PURPOSE DATA AND TABLES

Coaxial cable line impedance:



$$Z_0 = \frac{138}{\sqrt{\epsilon_r}} \text{ LOG } \frac{D}{d}$$

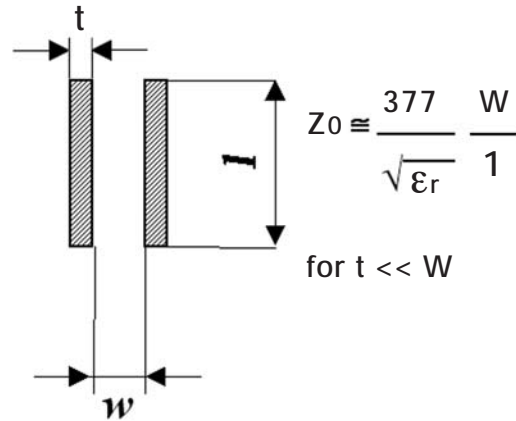
Bifilar line impedance:



$$Z_0 = \frac{276}{\sqrt{\epsilon_r}} \text{ LOG } \frac{2D}{d}$$

for  $D \gg d$

Flat



$$Z_0 \cong \frac{377}{\sqrt{\epsilon_r}} \frac{W}{1}$$

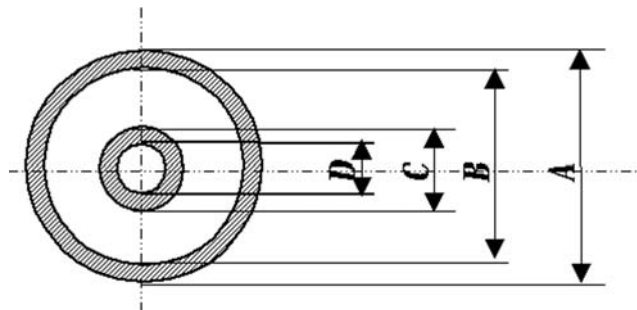
for  $t \ll W$

Frequency/air wave - length conversion formula:

$$\lambda = c/f$$

$\lambda$  = meters ;  $f$  = MHz ;  $c=300$

## Dimensions of 50 ohm coaxial rigid lines / EIA STANDARD



mm.	A		B		C		D	
Line	Ø	Tol.	Ø	Tol.	Ø	Tol.	Ø	Tol.
7/8"	22.22	±0.06	19.94	±0.06	8.66	±0.05	7.39	±0.05
1 5/8"	41.27	±0.07	38.78	±0.07	16.87	±0.06	14.93	±0.06
3 1/8"	79.4	±0.12	76.88	±0.12	33.4	±0.07	31.26	±0.07
4 1/8"	107	±0.15	104	±0.15	45	±0.1	43	±0.1
6 1/8"	155.57	±0.2	151.9	±0.2	66	±0.1	64	±0.1

"These specifications are subject to change without notice"



## Reflection coefficient table

$$VSWR = \frac{1+r}{1-r}$$

r = Reflection coefficient

$$RETURN LOSS = -20 \log r = -10 \log r^2$$

r<sup>2</sup> = Reflected to incident power ratio

VSWR	-20Log r -10Log r <sup>2</sup>	r	r <sup>2</sup>
∞	0	1.0000	1.0000
17.391	1	0.8913	0.7943
8.724	2	0.8943	0.631
5.848	3	0.7079	0.5012
4.419	4	0.631	0.3981
3.57	5	0.5623	0.3162
3.01	6	0.5012	0.2512
2.615	7	0.4467	0.1995
2.323	8	0.3981	0.1585
2.1	9	0.3548	0.1259
1.925	10	0.3162	0.1
1.785	11	0.2818	0.0794
1.671	12	0.2512	0.0631
1.577	13	0.2239	0.0501
1.499	14	0.1995	0.0398
1.433	15	0.1778	0.316
1.377	16	0.1585	0.0251
1.329	17	0.1413	0.02
1.288	18	0.1259	0.0158
1.253	19	0.1122	0.0126
1.222	20	0.1	0.01
1.196	21	0.0891	0.0079
1.173	22	0.0794	0.0063
1.152	23	0.0708	0.005
1.135	24	0.0631	0.004
1.119	25	0.0562	0.0032
1.106	26	0.0501	0.0025
1.094	27	0.0447	0.002
1.083	28	0.0398	0.0016
1.074	29	0.0355	0.0013
1.065	30	0.0316	0.001
1.058	31	0.0282	0.0008
1.052	32	0.0251	0.0006
1.046	33	0.0224	0.0005
1.041	34	0.02	0.0004
1.036	35	0.0178	0.0003
1.032	36	0.0158	0.0003
1.029	37	0.0141	0.0002
1.025	38	0.0126	0.0006
1.023	39	0.0112	0.0001
1.02	40	0.01	0.0001
1.018	41	0.0089	0.0001
1.016	42	0.0079	0.0001
1.014	43	0.0071	0.0001
1.013	44	0.0063	0
1.011	45	0.0056	0
1.01	46	0.005	0
1.009	47	0.0045	0
1.008	48	0.004	0
1.007	49	0.0035	0
1.006	50	0.0032	0
1.006	51	0.0028	0
1.005	52	0.0025	0
1.004	53	0.0022	0
1.004	54	0.002	0
1.004	55	0.0018	0
1.003	56	0.0016	0
1.003	57	0.0014	0
1.003	58	0.0013	0
1.002	59	0.0011	0
1.002	60	0.001	0

"These specifications are subject to change without notice"

Ratio (Down)		dB	Ratio (Up)	
Voltage	Power		Voltage	Power
1.0	1.0	0	1.0	1.0
0.989	0.977	0.1	1.012	1.023
0.977	0.955	0.2	1.023	1.047
0.966	0.933	0.3	1.035	1.072
0.955	0.912	0.4	1.047	1.096
0.944	0.891	0.5	1.059	1.122
0.933	0.871	0.6	1.072	1.148
0.923	0.851	0.7	1.084	1.175
0.912	0.832	0.8	1.096	1.202
0.902	0.813	0.9	1.109	1.23
0.891	0.794	1	1.122	1.259
0.871	0.759	1.2	1.148	1.318
0.851	0.724	1.4	1.175	1.38
0.832	0.692	1.6	1.202	1.445
0.813	0.661	1.8	1.23	1.514
0.794	0.631	2	1.259	1.585
0.776	0.603	2.2	1.288	1.66
0.759	0.575	2.4	1.318	1.738
0.741	0.55	2.6	1.349	1.82
0.724	0.525	2.8	1.38	1.905
0.708	0.501	3	1.413	1.995
0.668	0.447	3.5	1.496	2.239
0.631	0.398	4	1.585	2.512
0.596	0.355	4.5	1.679	2.818
0.562	0.316	5	1.778	3.162
0.531	0.282	5.5	1.884	3.548
0.501	0.251	6	1.995	3.981
0.447	0.2	7	2.239	5.012
0.398	0.158	8	2.512	6.31
0.355	0.126	9	2.818	7.943
0.316	0.1	10	3.162	10
0.282	0.079	11	3.548	12.589
0.251	0.063	12	3.981	15.849
0.224	0.05	13	4.467	19.953
0.2	0.04	14	5.012	25.119
0.178	0.032	15	5.623	31.623
0.158	0.025	16	6.31	39.811
0.141	0.02	17	7.079	50.119
0.126	0.016	18	7.943	63.096
0.112	0.013	19	8.913	49.443
0.1	0.01	20	10	100
0.0562	0.003	25	17.8	320
0.0316	0.001	30	31.6	1000
0.0178	0	35	56.2	3200
0.01	0	40	100	10000
0.0056	0	45	178	32000
0.0032	0	50	316	100000
0.001	0	60	1000	1000000
0.0003	0	70	3160	10000000
0.0001	0	80	10000	100000000
0	0	90	31600	1000000000
0	0	100	100000	10000000000

"These specifications are subject to change without notice"

## Conversion table dBm, watt, Volt / 50 ohm

<b>dBm</b>	<b>pW</b>	<b>μV</b>
-90	1	7.071
-89	1.259	7.934
-88	1.585	8.902
-87	1.995	9.988
-86	2.512	11.207
-85	3.162	12.574
-84	3.981	14.109
-83	5.012	15.83
-82	6.31	17.762
-81	7.943	19.929
-80	10	22.361
-79	12.589	25.089
-78	15.849	28.15
-77	19.953	31.585
-76	25.119	35.439
-75	31.623	39.764
-74	39.811	44.615
-73	50.119	50.059
-72	63.096	56.167
-71	79.433	63.021
-70	100	70.711
-69	125.893	79.339
-68	158.489	89.019
-67	199.526	99.881
-66	251.189	112.069
-65	316.228	125.743
-64	398.107	141.086
-63	501.187	158.301
-62	630.957	177.617
-61	794.328	199.29

<b>dBm</b>	<b>μW</b>	<b>mV</b>
-30	1	7.071
-29	1.259	7.934
-28	1.585	8.902
-27	1.995	9.988
-26	2.512	11.207
-25	3.162	12.574
-24	3.981	14.109
-23	5.012	15.83
-22	6.31	17.762
-21	7.943	19.929
-20	10	22.361
-19	12.589	25.089
-18	15.849	28.15
-17	19.953	31.585
-16	25.119	35.439
-15	31.623	39.764
-14	39.811	44.615
-13	50.119	50.059
-12	63.096	56.167
-11	79.433	63.021
-10	100	70.711
-9	125.893	79.339
-8	158.489	89.019
-7	199.526	99.881
-6	251.189	112.069
-5	316.228	125.743
-4	398.107	141.086
-3	501.187	158.301
-2	630.957	177.617
-1	794.328	199.29

<b>dBm</b>	<b>W</b>	<b>V</b>
30	1	7.071
31	1.259	7.934
32	1.585	8.902
33	1.995	9.988
34	2.512	11.207
35	3.162	12.574
36	3.981	14.109
37	5.012	15.83
38	6.31	17.762
39	7.943	19.929
40	10	22.361
41	12.589	25.089
42	15.849	28.15
43	19.953	31.585
44	25.119	35.439
45	31.623	39.764
46	39.811	44.615
47	50.119	50.059
48	63.096	56.167
49	79.433	63.021
50	100	70.711
51	125.893	79.339
52	158.489	89.019
53	199.526	99.881
54	251.189	112.069
55	316.228	125.743
56	398.107	141.086
57	501.187	158.301
58	630.957	177.617
59	794.328	199.29

<b>dBm</b>	<b>nW</b>	<b>μV</b>
-60	1	223.607
-59	1.259	250.891
-58	1.585	281.504
-57	1.995	315.853
-56	2.512	354.393
-55	3.162	397.635
-54	3.981	446.154
-53	5.012	500.593
-52	6.31	561.675
-51	7.943	630.21
-50	10	707.107
-49	12.589	793.387
-48	15.849	890.195
-47	19.953	998.815
-46	25.119	1120.689
-45	31.623	1257.433
-44	39.811	1410.864
-43	50.119	1583.015
-42	63.096	1776.172
-41	79.433	1992.898
-40	100	2236.068
-39	125.893	2508.91
-38	158.489	2815.043
-37	199.526	3158.53
-36	251.189	3543.929
-35	316.228	3976.354
-34	398.107	4461.542
-33	501.187	5005.933
-32	630.957	5616.749
-31	794.328	6302.096

<b>dBm</b>	<b>mW</b>	<b>mV</b>
0	1	223.607
1	1.259	250.891
2	1.585	281.504
3	1.995	315.853
4	2.512	354.393
5	3.162	397.635
6	3.981	446.154
7	5.012	500.593
8	6.31	561.675
9	7.943	630.21
10	10	707.107
11	12.589	793.387
12	15.849	890.195
13	19.953	998.815
14	25.119	1120.689
15	31.623	1257.433
16	39.811	1410.864
17	50.119	1583.015
18	63.096	1776.172
19	79.433	1992.898
20	100	2236.068
21	125.893	2508.91
22	158.489	2815.043
23	199.526	3158.53
24	251.189	3543.929
25	316.228	3976.354
26	398.107	4461.542
27	501.187	5005.933
28	630.957	5616.749
29	794.328	6302.096

<b>dBm</b>	<b>KW</b>	<b>V</b>
60	1	223.607
61	1.259	250.891
62	1.585	281.504
63	1.995	315.853
64	2.512	354.393
65	3.162	397.635
66	3.981	446.154
67	5.012	500.593
68	6.31	561.675
69	7.943	630.21
70	10	707.107
71	12.589	793.387
72	15.849	890.195
73	19.953	998.815
74	25.119	1120.689
75	31.623	1257.433
76	39.811	1410.864
77	50.119	1583.015
78	63.096	1776.172
79	79.433	1992.898
80	100	2236.068
81	125.893	2508.91
82	158.489	2815.043
83	199.526	3158.53
84	251.189	3543.929
85	316.228	3976.354
86	398.107	4461.542
87	501.187	5005.933
88	630.957	5616.749
89	794.328	6302.096
90	1000	7071.068

"These specifications are subject to change without notice"

Deviation ratios at which the carrier or side-band components have zero amplitude

Order of zero point	Deviat. Ratio		Deviat. Ratio	
	Carrier	1 <sup>ST</sup> pair side bands	2 <sup>ND</sup> pair side bands	3 <sup>RD</sup> pair side bands
1	2.405	3.832	5.136	6.390
2	5.520	7.016	8.417	9.761
3	8.654	10.173	11.620	13.015
4	11.792	13.324	14.796	16.223
5	14.931	16.471	17.960	19.409

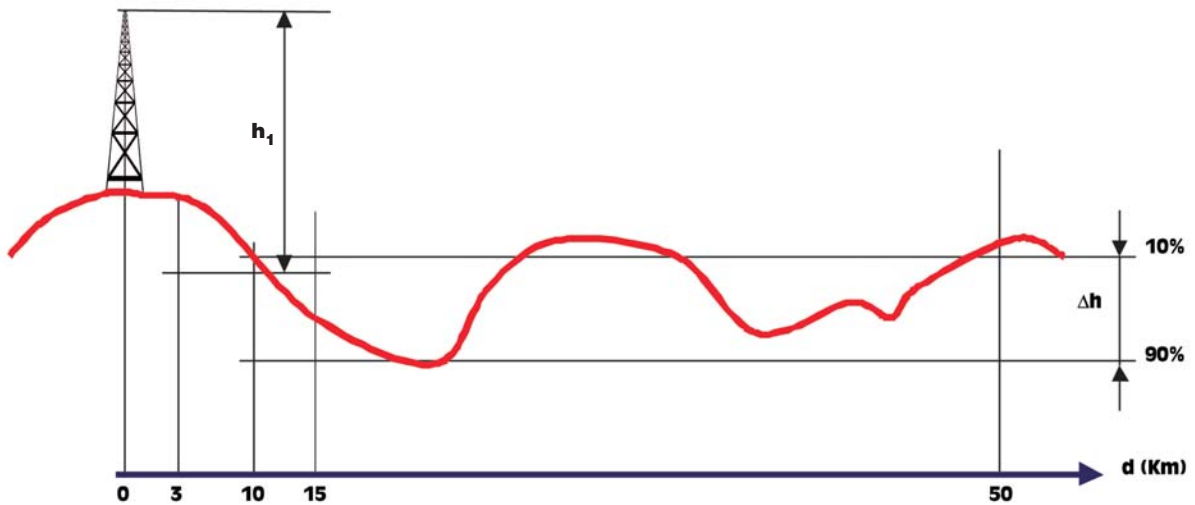
Modulating frequencies corresponding to deviations at which carrier amplitude is reduced to zero

Carrier 1 <sup>ST</sup> disappearance	Deviat Ratio 2.4048	Carrier 2 <sup>ND</sup> disappearance	Deviat Ratio 5.5201
Freq. deviation KHz	Modul Frequency Hz	Freq. deviation KHz	Modul Frequency Hz
1	416	5	907
2	831	10	1815
3	1247	15	2718
4	1663	20	3625
5	2079	25	4530
6	2494	30	5430
7	2911	35	6340
8	3326	40	7250
9	3742	45	8160
10	4158	50	9070
15	6237	55	9975
20	8316	60	10880
25	10395	65	11780
30	12480	70	12690
35	14550	75	13590

"These specifications are subject to change without notice"

# PROPAGATION CURVES ON EARTH SURFACE AS PER C.C.I.R. TABLES

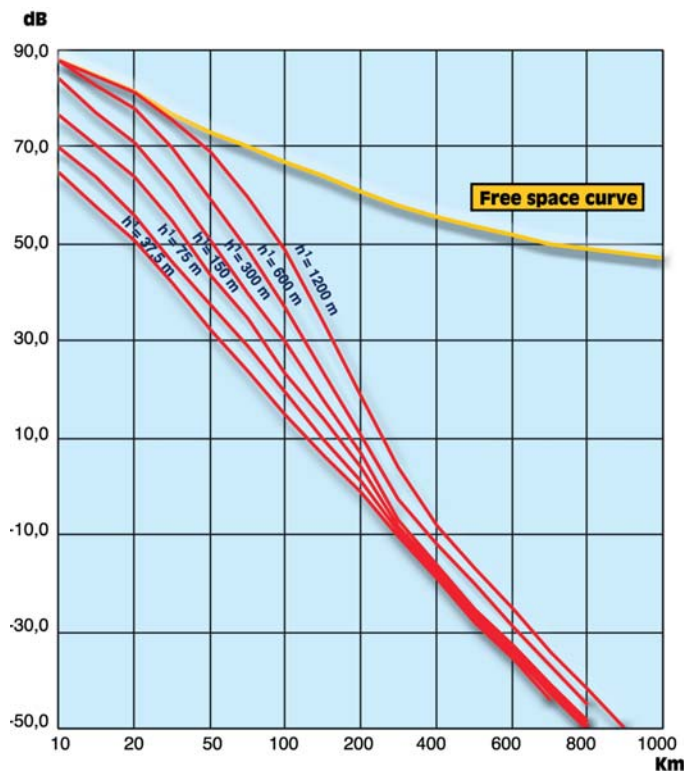
Rural areas = 48 dB $\mu$ V  
 Urban areas = 60 dB $\mu$ V  
 Large towns = 70 dB $\mu$ V



$h_1$  - Equivalent height of the transmitting antenna  
 (height of the antenna above the average level of the ground between distances of 3 Km and 15 Km from the transmitter).

$\Delta h$  - Average irregularity factor of the propagation terrain  
 (difference in the heights exceeded for 10% and 90% of the propagation path in the range 10 Km to 50 Km from the transmitter).

## FIELD STRENGTH FOR 1 KW e.r.p.



Frequency: 40 ÷ 250 MHz  
 $\Delta h = 50$  m.

"These specifications are subject to change without notice"

# EXAMPLE OF APPLICABLE CALCULATIONS WITH FORMULAS AND DATA

Project input:

Microwave radio-link between studio and transmitter freq. = 900 MHz.

d = 10 Km,  $H_1 = 90$  m (Height of transmitting antenna system).

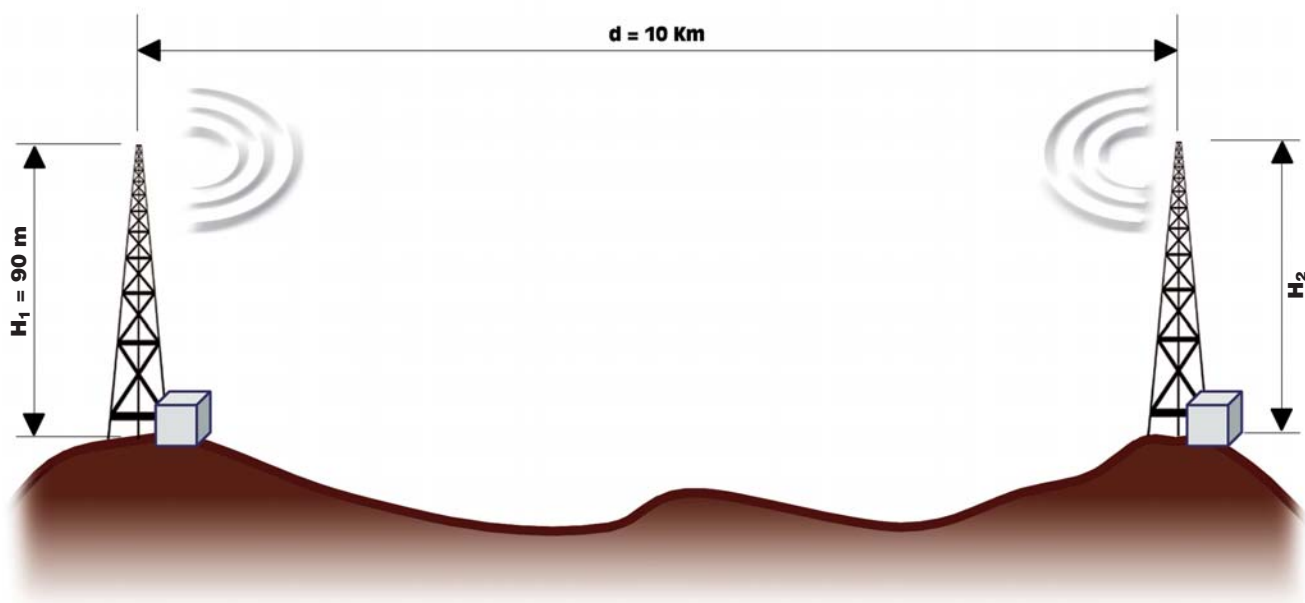
$H_2 = 90$  m (Height of receiving antenna system).

$P_t = 5$  W 37 dBm (Power of radio-link transmitter).

$P_{rmin} = -47$  dBm (Minimum received power) = 1 mV (50 Ohm).

The feeders are the coaxial cables 1/2" with 100 m. length.

The free-space attenuation is:  $\alpha_{dB} = 32.4 + 20 \log 900 + 20 \log 10 = 111.5$  dB



## Free-space attenuation (dB)

### Frequency work (MHz)

Distance (Km)	100	400	800	1000	1200	1400	1800	2000	2400
1	72.4	84.4	90.5	92.4	94	95.3	97.5	98.4	100
2	78.4	90.46	96.5	98.4	100	101.3	103.5	104.4	106
3	81.9	94	100	101.9	103.5	104.9	107	108	109.5
4	84.4	96.5	102.5	104.4	106	107.4	109.5	110.5	112
5	86.4	98.4	104.4	106.4	108	109.3	111.5	112.4	114
6	88	100	106.2	108	109.5	110.9	113	114	115.6
7	89.3	101.3	107.4	109.3	110.9	112.2	114.4	115.3	116.9
8	90.5	102.5	108.5	110.5	112	113.4	115.6	116.5	118
9	91.5	103.5	109.5	111.5	113	114.4	116.6	117.5	119
10	92.4	104.4	110.5	112.4	114	115.3	117.5	118.4	120
15	95.9	108	114	115.9	117.5	118.8	121	121.9	123.5
20	98.4	110.5	116.5	118.4	120	121.3	123.5	124.4	126
25	100.4	112.4	118.4	120.4	121.9	123.3	125.5	126.4	128
30	101.9	114	120	121.9	123.5	124.9	127	128	129.5
35	103.3	115.3	121.3	123.2	124.9	126.2	128.4	129.3	130.9
40	104.4	116.5	122.5	124.4	126	127.4	129.5	130.5	132

$ERP \text{ (dBm)} = P_t \text{ (dBm)} + G_t \text{ (dB)} - A_t \text{ (dB)} > P_{Rmin} + \alpha_{dB} - G_r \text{ (dB)} + A_r \text{ (dB)}$

$G_t, G_r$  = Gain of transmitting and receiving antenna

$A_t, A_r$  = Total attenuation of transmitting and receiving system (Typically they are the attenuations of feeders).

$A_t = A_r = 7$  dB

Then:  $G_t = G_r = 21$

This gain can be obtained with a 1.8 mt. parabolic antenna.

"These specifications are subject to change without notice"



## TABLES OF CONVERSION FOR MEASUREMENT UNITS

### EQUIVALENCE TABLE FOR LENGTH UNIT

Units	yd.	in.	ft.	cm.	m.	km.	stat. mile.	naut. mile.
1 yd	1	36	3	91.44	0.914	—	—	—
1 in	0.028	1	0.083	2.54	0.025	—	—	—
1 ft	0.333	12	1	30.48	0.305	—	—	—
1 cm	0.01	0.39	0.03	1	0.01	—	—	—
1 m	1.094	38.37	3.281	100	1	—	—	0.018
1 km	1094	—	3281	—	—	1	0.621	0.00054
1 stat. mile	1760	—	5280	—	1609	1.609	1	0.869
1 naut. mile	2027	—	6080	—	1852	1.852	1.152	1

in. = Inch; ft. = Foot; yd. = yard; stat. mile = statute mile; naut. mile = nautical mile..

### EQUIVALENCE TABLE FOR SQUARE UNIT

Units	sq. yard	sq. inch	sq. foot	cm. <sup>2</sup>	m <sup>2</sup>	km <sup>2</sup>	sq mile	acre	a	ha
1 square yard	1	1296	9	8361	0.8361	—	—	—	—	—
1 square inch	—	1	—	6.452	—	—	—	—	—	—
1 square foot	0.1111	144	1	929	0.0929	—	—	—	—	—
1 cm <sup>2</sup>	—	0.155	—	1	0.0001	—	—	—	—	—
1 m <sup>2</sup>	1.196	1550	10.76	10000	1	—	—	—	0.01	—
1 km <sup>2</sup>	—	—	—	—	—	1	0.3861	247.1	10000	100
1 square mile	—	—	—	—	—	2.59	1	640	—	259
1 acre	4850	—	43640	—	4050	—	0.0016	1	—	—
1 a	119.6	—	1076	—	100	—	—	0.0247	1	0.01
1 ha	—	—	—	—	10000	0.01	0.0039	2.47	100	1

### EQUIVALENCE TABLE FOR VOLUME UNIT

Units	cu. yard	cu. inch	cu. foot	cm. <sup>3</sup>	dm <sup>3</sup>	U.S. gallon	Imp.gallon	Imp. fl. oz.	U.S. fl. oz.	Imp. pint
1 cubic yard	1	46656	27	—	764.6	202	168.2	26909	25853	1345
1 cubic inch	—	1	—	16.39	0.0164	—	—	0.5768	0.5541	0.0288
1 cubic foot	0.0370	1728	1	—	28.32	7.481	6.232	996.6	957.5	49.83
1 cm <sup>3</sup>	—	0.061	—	1	0.001	—	—	0.0353	0.0338	—
1 dm <sup>3</sup>	—	61.02	0.035	1000	1	0.2642	0.22	35.2	33.81	1.76
1 US. gallon	—	231	0.1337	3785	3.785	1	0.8327	133.2	128	6.662
1 imp. gallon	—	277.4	0.1603	4546	4.546	1.201	1	160	153.7	8
1 imp. fl. oz.	—	1.734	—	28.41	0.0284	—	—	1	0.9607	0.05
US. fl. oz.	—	1.805	—	29.57	0.0296	—	—	1.041	1	0.052
1 imp. pint	—	34.68	0.02	568.2	0.5682	0.1501	0.125	20	19.21	1

### EQUIVALENCE TABLE FOR WEIGHT UNIT

Units	Lb.	Oz.	stone	g	kg	ton	U.S. cwt	Brit. cwt	U.S. ton	Brit. ton
1 pound	1	16	0.071	453.6	0.453	—	0.01	0.009	—	—
1 ounce	0.0625	1	0.004	28.35	0.028	—	—	—	—	—
1 stone	14	224	1	6350	6.35	0.0063	0.14	0.125	0.007	0.0063
1 g.	—	0.0353	—	1	0.001	—	—	—	—	—
1 kg.	2.205	35.27	0.157	1000	1	0.001	0.022	0.02	0.0011	0.001
1 ton.	2204.6	35274	157.47	—	1000	1	22.05	19.685	1.1023	0.9842
1 US hundredweight	100	1600	7.143	45359	45.36	0.0454	1	0.8929	0.05	0.0446
1 Brit. hundredweight	112	1792	8	50802	50.8	0.0508	1.12	1	0.056	0.05
1 US. ton	2000	32000	142.9	907190	907.2	0.907	20	17.841	1	0.8929
1 Brit. Ton	2240	35840	160	—	1016	1.016	11.2	20	1.12	1

"These specifications are subject to change without notice"

## CONVERSION TABLE OF INCHES INTO mm

n.	0	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16
0	0.0	1.6	3.2	4.8	6.4	7.9	9.5	11.1	12.7	14.3	15.9	17.5	19.1	20.6	22.2	23.8
1	25.4	27.0	28.6	30.2	31.7	33.3	34.9	36.5	38.1	39.7	41.3	42.9	44.4	46.0	47.6	49.2
2	50.8	52.4	54.0	55.6	57.1	58.7	60.3	61.9	63.5	65.1	66.7	68.3	69.8	71.4	73.0	74.6
3	76.2	77.8	79.4	81.0	82.5	84.4	85.7	87.3	88.9	90.5	92.4	93.7	95.2	96.8	98.4	100.0
4	101.6	103.2	104.8	106.4	108.0	109.5	111.1	112.7	114.3	115.9	117.5	119.1	120.7	122.2	123.8	125.4
5	127.0	128.6	130.2	131.8	133.4	134.9	136.5	138.1	139.7	141.3	142.9	144.5	146.1	147.6	149.2	150.8
6	152.4	154.0	155.6	157.2	158.8	160.3	161.9	163.5	165.1	166.7	168.3	169.9	171.5	173.0	174.6	176.2
7	177.8	179.4	181.0	182.6	184.2	185.7	187.3	188.9	190.5	192.1	193.7	195.3	196.9	198.4	200.0	201.6
8	203.2	204.8	206.4	208.0	209.6	211.1	212.7	214.3	215.9	217.5	219.1	220.7	222.3	223.8	225.4	227.0
9	228.6	230.2	231.8	233.4	235.0	236.5	238.1	239.7	241.3	242.9	244.5	246.1	247.7	249.2	250.8	252.4
10	254.0	255.6	257.2	258.8	260.4	261.9	263.5	265.1	266.7	268.3	269.9	271.5	273.1	274.6	276.2	277.8
11	279.4	281.0	282.6	284.2	285.7	287.3	288.9	290.5	292.1	293.7	295.3	296.9	298.4	300.0	301.6	303.2

## CONVERSION TABLE OF cm INTO INCHES

cm	0	1	2	3	4	5	6	7	8	9
0	—	0.3937	0.7874	1.1811	1.5748	1.9685	2.3622	2.7559	3.1496	3.5433
10	3.9370	4.3307	4.7244	5.1181	5.5118	5.9055	6.2992	6.6929	7.0866	7.4803
20	7.8740	8.2677	8.6614	9.0551	9.4488	9.8425	10.2362	10.6299	11.0236	11.4173
30	11.8110	12.2047	12.5984	12.9921	13.3858	13.7795	14.1732	14.5669	14.9606	15.3543
40	15.7480	16.1417	16.5354	16.9291	17.3228	17.7165	18.1103	18.5040	18.8977	19.2914
50	19.6851	20.0788	20.4725	20.8662	21.2599	21.6536	22.0473	22.4410	22.8347	23.2284
60	23.6221	24.0158	24.4095	24.8032	25.1969	25.5906	25.9843	26.3780	26.7717	27.1654
70	27.5591	27.9528	28.3465	28.7402	29.1339	29.5276	29.9213	30.3150	30.7087	31.1024
80	31.4961	31.8898	32.2835	32.6772	33.0709	33.4646	33.8583	34.2520	34.6457	35.0394
90	35.4331	35.8268	36.2205	36.6142	37.0079	37.4016	37.7953	38.1890	38.5827	38.9764
100	39.3701	39.7638	40.1575	40.5512	40.9449	41.3386	41.7323	42.1260	42.5197	42.9134

## CONVERSION TABLE OF SQUARE FEET INTO m<sup>2</sup>

P.q.	0	1	2	3	4	5	6	7	8	9
0	—	0.09290	0.18581	0.27871	0.37161	0.46451	0.55742	0.65032	0.74322	0.83613
10	0.92903	1.02193	1.11483	1.20774	1.30064	1.39354	1.48645	1.57935	1.67225	1.76515
20	1.85806	1.95096	2.04386	2.13677	2.22967	2.32257	2.41547	2.50838	2.60128	2.69418
30	2.78709	2.87999	2.97289	3.06579	3.15870	3.25160	3.34450	3.43741	3.53031	3.62321
40	3.71612	3.80902	3.90192	3.99482	4.08773	4.18063	4.27353	4.36644	4.45934	4.55224
50	4.64514	4.73805	4.83095	4.92385	5.01676	5.10966	5.20256	5.29546	5.38837	5.48127
60	5.57417	5.66708	5.75998	5.85288	5.94578	6.03869	6.13159	6.22449	6.31740	6.41030
70	6.50320	6.59610	6.68901	6.78191	6.87481	6.96772	7.06062	7.15352	7.24642	7.33933
80	7.43223	7.52513	7.61804	7.71094	7.80384	7.89674	7.98965	8.08255	8.17545	8.26836
90	8.36126	8.45416	8.54706	8.63997	8.73287	8.82577	8.91808	9.01158	9.10448	9.19738
100	9.29029	9.38319	9.47609	9.56900	9.66190	9.75480	9.84770	9.94061	10.0335	10.1264

## CONVERSION TABLE OF CUBIC YARDS INTO m<sup>3</sup>

Y.c.	0	1	2	3	4	5	6	7	8	9
0	—	0.76455	1.52911	2.29366	3.05821	3.82276	4.58732	5.35187	6.11642	6.88098
10	7.64553	8.41008	9.17463	9.93919	10.7037	11.4683	12.2338	12.9974	13.7620	14.5265
20	15.2911	16.0556	16.8202	17.5847	18.3493	19.1138	19.8784	20.6429	21.4075	21.1720
30	22.9366	23.7011	24.4657	25.2302	25.9948	26.7594	27.5239	28.2885	29.0530	29.8176
40	30.5831	31.3467	32.1112	32.8758	33.6403	34.4049	35.1694	35.9340	36.6985	37.4631
50	38.2276	38.9922	39.7568	40.5213	41.2859	42.0504	42.8150	43.5795	44.3441	45.1086
60	45.8732	46.6377	47.4023	48.1668	48.9314	49.6959	50.4605	51.2250	51.9896	52.7542
70	53.5187	54.2833	55.0478	55.8124	56.5769	57.3415	58.1060	58.8706	59.6351	60.3997
80	61.1642	61.9288	62.6933	63.4579	64.2224	64.9870	65.7515	66.5161	67.2807	68.0452
90	68.8098	69.5743	70.3389	71.1034	71.8680	72.6325	73.3971	74.1616	74.9262	75.6907
100	76.4553	77.2198	77.9844	78.7489	79.5135	80.2781	81.0426	81.8072	82.5717	83.3363

"These specifications are subject to change without notice"

## CONVERSION TABLE OF CUBIC FEET INTO dm<sup>3</sup>

P.c.	0	1	2	3	4	5	6	7	8	9
0	—	28.3168	56.6336	84.9504	113.267	141.584	169.901	198.218	226.534	254.851
10	283.168	311.485	339.802	368.118	396.435	424.752	453.069	481.386	509.702	538.019
20	566.336	594.653	622.970	651.286	679.603	707.920	736.237	764.554	792.870	821.187
30	849.504	877.821	906.138	934.454	962.771	991.088	1019.40	1047.72	1076.04	1104.36
40	1132.67	1160.99	1189.31	1217.62	1245.94	1274.26	1302.57	1330.89	1359.21	1387.52
50	1415.84	1444.16	1472.47	1500.79	1529.11	1557.42	1585.74	1614.06	1642.37	1670.69
60	1699.01	1727.32	1755.64	1783.96	1812.28	1840.59	1868.91	1897.23	1925.54	1953.86
70	1982.18	2010.49	2038.81	2067.13	2095.44	2123.76	2152.08	2180.39	2208.71	2237.03
80	2265.34	2293.66	2321.98	2350.29	2378.61	2406.93	2435.24	2463.56	2491.88	2520.20
90	2548.51	2576.83	2605.15	2633.46	2661.78	2690.10	2718.41	2746.73	2775.05	2803.36
100	2831.68	2860.00	2888.31	2916.63	2944.95	2973.26	3001.58	3029.90	3058.21	3086.53

## CONVERSION TABLE OF CUBIC FEET INTO dm<sup>3</sup>

P.c.	0	1	2	3	4	5	6	7	8	9
0	—	28.3168	56.6336	84.9504	113.267	141.584	169.901	198.218	226.534	254.851
10	283.168	311.485	339.802	368.118	396.435	424.752	453.069	481.386	509.702	538.019
20	566.336	594.653	622.970	651.286	679.603	707.920	736.237	764.554	792.870	821.187
30	849.504	877.821	906.138	934.454	962.771	991.088	1019.40	1047.72	1076.04	1104.36
40	1132.67	1160.99	1189.31	1217.62	1245.94	1274.26	1302.57	1330.89	1359.21	1387.52
50	1415.84	1444.16	1472.47	1500.79	1529.11	1557.42	1585.74	1614.06	1642.37	1670.69
60	1699.01	1727.32	1755.64	1783.96	1812.28	1840.59	1868.91	1897.23	1925.54	1953.86
70	1982.18	2010.49	2038.81	2067.13	2095.44	2123.76	2152.08	2180.39	2208.71	2237.03
80	2265.34	2293.66	2321.98	2350.29	2378.61	2406.93	2435.24	2463.56	2491.88	2520.20
90	2548.51	2576.83	2605.15	2633.46	2661.78	2690.10	2718.41	2746.73	2775.05	2803.36
100	2831.68	2860.00	2888.31	2916.63	2944.95	2973.26	3001.58	3029.90	3058.21	3086.53

## CONVERSION TABLE OF POUNDS INTO kg

Lbs.	0	1	2	3	4	5	6	7	8	9
0	—	0.4536	0.9072	1.3608	1.8144	2.2680	2.7216	3.1751	3.6287	4.0823
10	4.5359	4.9895	5.4431	5.8967	6.3503	6.8039	7.2575	7.7111	8.1647	8.6183
20	9.0719	9.5254	9.9790	10.4326	10.8862	11.3398	11.7934	12.2470	12.7006	13.1542
30	13.6078	14.0614	14.5150	14.9686	15.4222	15.8757	16.3293	16.7829	17.2365	17.6901
40	18.1437	18.5973	19.0509	19.5045	19.9581	20.4117	20.8653	21.3189	21.7724	22.2260
50	22.6796	23.1332	23.5868	24.0404	24.4940	24.9476	25.4012	25.8548	26.3084	26.7620
60	1699.01	1727.32	1755.64	1783.96	1812.28	1840.59	1868.91	1897.23	1925.54	1953.86
70	1982.18	2010.49	2038.81	2067.13	2095.44	2123.76	2152.08	2180.39	2208.71	2237.03
80	2265.34	2293.66	2321.98	2350.29	2378.61	2406.93	2435.24	2463.56	2491.88	2520.20
90	2548.51	2576.83	2605.15	2633.46	2661.78	2690.10	2718.41	2746.73	2775.05	2803.36
100	2831.68	2860.00	2888.31	2916.63	2944.95	2973.26	3001.58	3029.90	3058.21	3086.53

## CONVERSION TABLE OF kg INTO POUNDS

kg	0	1	2	3	4	5	6	7	8	9
0	—	2.205	4.409	6.614	8.818	11.023	13.228	15.432	17.637	19.842
10	22.046	24.251	26.455	28.660	30.865	33.069	35.274	37.479	39.683	41.888
20	44.092	46.297	48.502	50.706	52.911	55.116	57.320	59.525	61.729	63.934
30	66.139	68.343	70.548	72.752	74.957	77.162	79.366	81.571	83.766	85.980
40	88.185	90.389	92.594	94.799	97.003	99.208	101.413	103.617	105.822	108.026
50	110.231	112.436	114.640	116.845	119.050	121.254	123.456	125.663	127.868	130.073
60	132.228	134.482	136.686	138.891	141.096	143.300	145.505	147.710	149.914	152.169
70	154.323	156.528	158.733	160.937	163.142	165.341	167.551	169.756	171.960	174.165
80	176.370	178.574	180.779	182.983	185.188	187.393	189.597	191.802	194.007	196.211
90	198.416	200.620	202.825	205.030	207.234	209.439	211.044	213.848	216.052	218.257
100	220.462	222.667	224.871	227.076	229.281	231.485	233.690	235.894	238.099	240.304

"These specifications are subject to change without notice"

## CONVERSION TABLE OF POUNDS/SQUARE INTO kg/cm2

Lbs. p.q.	0	1	2	3	4	5	6	7	8	9
0	—	0.07031	0.14061	0.21092	0.28123	0.35154	0.42184	0.49215	0.56246	0.63276
10	0.70307	0.77338	0.84369	0.91399	0.98430	1.05461	1.12491	1.19522	1.26553	1.33584
20	1.40614	1.47645	1.54676	1.61706	1.68737	1.75768	1.82799	1.89829	1.96860	2.03891
30	2.10921	2.17952	2.24983	2.32014	2.39044	2.46075	2.53106	2.60136	2.67167	2.74198
40	2.81228	2.88259	2.95290	3.02321	3.09351	3.16382	3.23413	3.30443	3.37474	3.44505
50	3.51535	3.58566	3.65597	3.72628	3.79658	3.86689	3.93720	4.00750	4.07781	4.14812
60	4.21843	4.28873	4.35904	4.42935	4.49965	4.56996	4.64027	4.71058	4.78088	4.85119
70	4.92150	4.99180	5.06211	5.13242	5.20273	5.27303	5.34334	5.41365	5.48395	5.55426
80	5.62457	5.69488	5.76518	5.83549	5.90580	5.97610	6.04641	6.11672	6.18702	6.25733
90	6.32764	6.39795	6.46825	6.53856	6.60887	6.67917	6.74948	6.81979	6.89010	6.96040
100	7.03071	7.10102	7.17132	7.24163	7.31194	7.38225	7.45255	7.52286	7.59317	7.66347

## CONVERSION TABLE OF kg/cm2 INTO POUNDS/SQUARE

p.q. lbs.	0	1	2	3	4	5	6	7	8	9
0	—	14.223	28.447	42.670	56.893	71.117	85.340	99.563	113.787	128.010
10	142.233	156.456	170.680	184.903	199.126	213.350	227.573	241.796	256.020	270.243
20	284.466	298.690	312.913	327.136	341.360	355.583	369.806	384.030	398.253	412.476
30	426.699	440.923	455.146	469.369	483.593	497.816	512.039	526.263	540.486	554.709
40	568.933	583.156	597.379	611.603	625.826	640.049	654.272	668.496	682.719	696.942
50	711.166	725.389	739.612	753.836	768.059	782.282	796.506	810.729	824.952	839.176
60	853.399	867.622	881.846	896.069	910.292	924.515	938.739	952.962	967.185	981.409
70	995.632	1009.86	1024.08	1038.30	1052.53	1066.75	1080.97	1095.20	1109.42	1123.64
80	1137.87	1152.09	1166.31	1180.54	1194.76	1208.98	1223.21	1237.43	1251.65	1265.88
90	1280.10	1294.32	1308.54	1322.77	1336.99	1351.21	1365.44	1379.66	1393.88	1408.11
100	1422.33	1436.55	1450.78	1465.00	1479.22	1493.45	1507.67	1521.89	1536.12	1550.34

## EQUIVALENCE TABLE FOR VELOCITY UNITS

units	cm/s	km/h	miles/h	feet/s	feet/min.	knots
cm/s	1	0.036	0.02237	0.03281	1.9685	0.01943
km/h	27.78	1	0.6214	0.9113	54.68	0.5396
miles/h	44.70	1.609	1	1.467	88	0.8684
feet/s	30.48	1.097	0.6818	1	60	0.5921
feet/min	0.5080	0.01829	0.01136	0.01667	1	0.00987
knots	51.48	1.8532	1.1515	1.6889	101.34	1

## EQUIVALENCE TABLE FOR PRESSURE UNITS

units	mbar	bar	atm	at kg/cm2	mm Hg 0°C Torr	mm of water	Pounds for square inches
mbar	1	10 <sup>-3</sup>	9.87•10 <sup>-4</sup>	1.02•10 <sup>-2</sup>	0.75	10.2	1.45•10 <sup>-2</sup>
bar	103	1	0.987	1.02	750.1	10197	14.5
atm	1013	1.013	1	1.033	760	10332	14.7
at.	980.7	0.981	0.968	1	735.6	10 <sup>-4</sup>	14.22
mm Hg at 0°C Torr	1.3333	1.33•10 <sup>-3</sup>	0.3•10 <sup>-3</sup>	1.36•10 <sup>-3</sup>	1	13.6	1.93•10 <sup>-2</sup>
mm of water	9.8•10 <sup>-2</sup>	9.8•10 <sup>-5</sup>	9.68•103	104	7.4•10 <sup>-2</sup>	1	1.42•10 <sup>-3</sup>
Pounds for square inch.	68.94	6.9•10 <sup>-2</sup>	6.8•10 <sup>-2</sup>	7.03•10 <sup>-2</sup>	51.7	703.3	1

"These specifications are subject to change without notice"



Telecomunicazioni Ferrara srl  
Via dei Calzolari 156  
44036 Francolino Ferrara (FE) Italy  
Phone + 39 0532724033 FAX + 39 0532724819  
e-mail: [info@telecfe.it](mailto:info@telecfe.it)  
Web: <http://www.telecfe.it>