Radio Frequency Antennas Projects

TEDAP®

ATC
AIR TRAFFIC CONTROL

R&D ENGINEERING PROJECT PROTOTYPE WIMAX WIRELESS COMMUNICATONS RAILWAYS TRANSPORT PMR PRIVATE MOBILE RADIO TACTICAL AIR TRAFFIC CONTROL R&D ENGINEERING PROJECT PROTOTYPE WIMAX WIRELESS COMMUNICATONS RAILWAYS TRANSPORT PMR PRIVATE MOBILERADIO TACTICAL AIR TRAFFIC CONTROL R&D ENGINEERING PROJECT PROTOTYPE WIMAX WIRELESS COMMUNICATONS RAILWAYS TRANSPORT PMR PRIVATE MOBILE RADIO TACTICAL AIR TRAFFIC CONTROL

POLO ITALIANO ANTENNE GUGLIELMO MARCONI

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Lea Unimisieme Usa S.O.L. Università di Siena

2013/2014

www.tedap.eu

TEDAP RADIO FREQUENCY ANTENNAS PROJECTS SRL IS THE EXCLUSIVE WORLDWIDE RESELLER FOR ANTENNA BRANDS

TEDAP NETWORK (RETE D'IMPRESE), with an official joint management is now a market leader in the design, production and supply of products of radio transmission equipment.

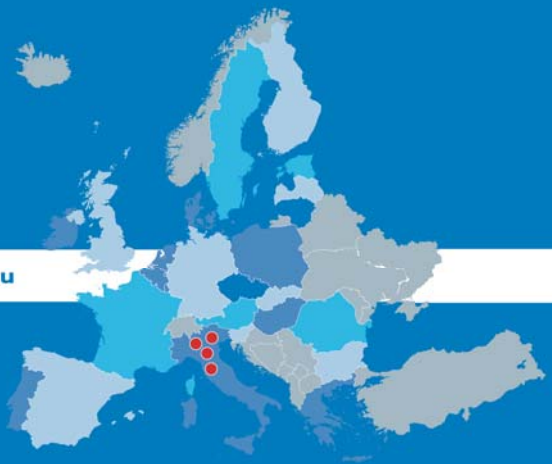
POLO ITALIANO ANTENNE GUGLIELMO MARCONI

TEDAP's portofolio serves this main market segments:

- **AIR TRAFFIC CONTROL;**
- **TACTICAL;**
- **PMR PRIVATE MOBILE RADIO;**
- **RAILWAYS / TRANSPORT;**
- **WIMAX / WIRELESS COMMUNICATIONS;**
- **R&D ENGINEERING / PROJECT / PROTOTYPE.**

TEDAP has BRANCHES across Europe: for this reason, we are sure that professional radio operators and system integrators will find the best solution to any of their needs in our wide range of catalogue offers.
Per i mercati più importanti avremmo una joint commerciale (**TEDAP DOMESTIC**) con i partners locali tecnici / commerciali.
All **TEDAP** products can be made and/or readapted anyway to the needs or the specific requests of our Clients. **TEDAP**'s European vision in the communications market enables our clients to appreciate our results in research, thanks to trials and creativity, which underlie our wide production range. All **TEDAP** products are the result of the cooperation between experts from universities and multinational companies. **TEDAP**'s production process is fully "made in Europe": it guarantees the top quality of its components, precise manufacturing and attention to detail, in order to meet the need for high quality and durable products.
Every **TEDAP** item undergoes strict quality controls, in full compliance with the requirements of the **ISO 9001:2008 standard**.

TEDAP®



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STANDARD OMNIDIRECTIONAL ANTENNAS

HARD ENVIRONMENTAL SITE HES ANTENNAS

DE-ICING SYSTEM ANTENNAS

ANTENNAS WITH OBSTRUCTION LIGHT

ANTENNAS AVL AVM AIRPORT 1090 MHz

DIRECTIVE, PANEL ANTENNAS
AND OMNI MODULES

STANDARD ATC FILTERS, COMBINERS
AND COMPONENTS

SPECIAL AUTOMATIC FILTERS

EXAMPLES OF COMBINERS

VHF OMNI ANTENNA

108 ÷ 156 MHz, 2 dBi

T01110401
T01110407

ATC

TEDAP offers a very wide range of wireless products
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	108 ÷ 156
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi)	2
Pattern Horizontal Plane Vertical Plane (degree)	 omni ± 0.5 dB 80 ± 5
Continuous Max Power (W)	500
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

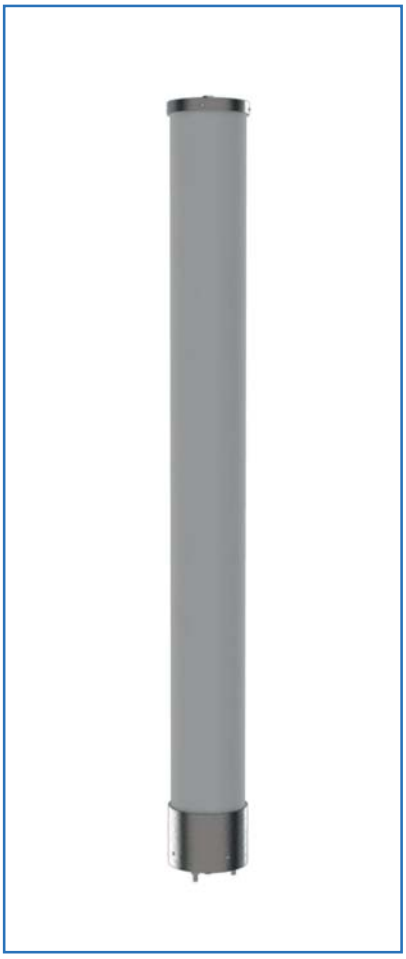
Mechanical Specifications	
Connector	Nf
Dimensions (mm) Length Radome diameter	 1300 Ø 137.5
Colour	RAL 7035 (grey)
Weight (Kg)	7
Wind load @ 150 Km/h (N)	204
Radome	Fiberglass
Mounting T01110401 T01110407	 3 x M8 screws by bracket

DESCRIPTION:

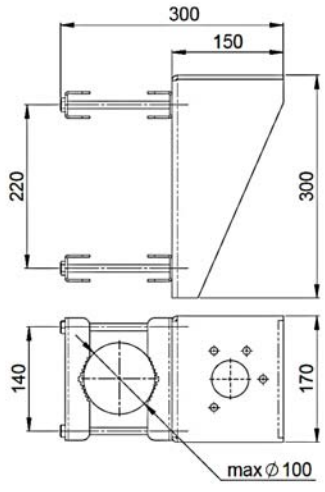
The VHF coaxial dipole is a vertically polarized omnidirectional antenna.

SPECIAL FEATURES:

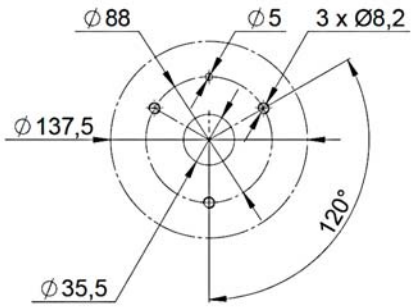
- Broadband: 108 ÷ 156 MHz
- Nr. input: 1
- Omnidirectional radiation
- High power: 500 W
- Protected against lightning
- Very rugged construction
- Wind resistance up to 200 km/h



Mounting T01110407
(Bracket code T16040021)



Mounting T01110401



T01110401-DS REV. 00
Date: 01/06/2011

By TELSA

VHF OMNI ANTENNA

118 ÷ 137 MHz, 2 dBi

T01110402

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	118 ÷ 137
Impedance (Ω)	50
VSWR	≤ 1.5
Polarization	linear vertical
Gain (dBi)	2
Pattern Horizontal Plane Vertical Plane (degree)	 omni ± 1 dB 65 ± 5
Continuous Max Power (W)	500
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

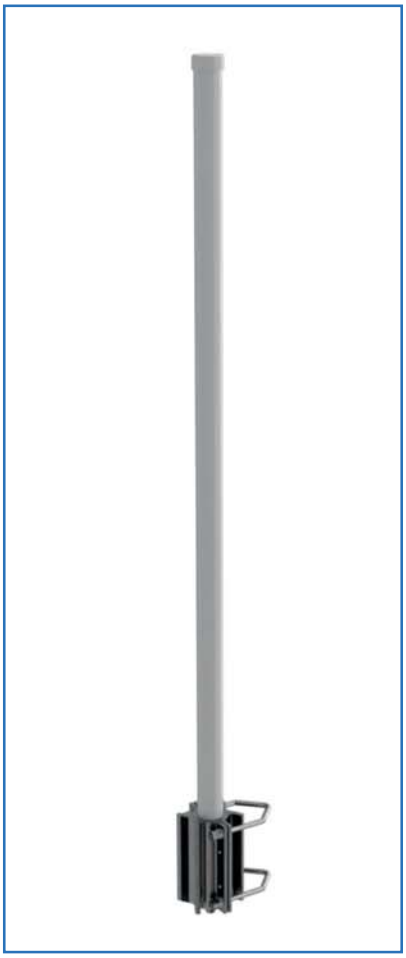
Mechanical Specifications	
Connector	Nf
Dimensions (mm) Length Radome diameter	 1349 Ø 40
Colour	RAL 7035 (grey)
Weight (Kg)	3
Wind load @ 150 Km/h (N)	63
Radome	Fiberglass
Mounting	on pole Ø 40÷60 mm

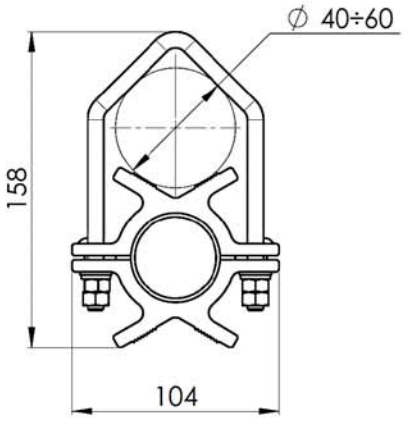
DESCRIPTION:

The VHF coaxial dipole is a vertically polarized omnidirectional antenna suitable for civil aviation.

SPECIAL FEATURES:

- Broadband: 118 ÷ 137 MHz
- Nr. input: 1
- Omnidirectional radiation
- High power: 500 W
- Protected against lightning





VHF GROUND PLANE DIPOLE

118 ÷ 137 MHz, 2 dBi

T01110403

ATC

TEDAP offers a very wide range of wireless products
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	118 ÷ 137
Impedance (Ω)	50
VSWR	< 1.5
Polarization	linear vertical
Gain (dBi)	2
Pattern Horizontal Plane Vertical Plane (degree)	 omni ± 0.5 dB 80 ± 5
Continuous Max Power (W)	100
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

Mechanical Specifications	
Connector	Nf
Dimensions (mm) Length Radome diameter	 780 Ø 40
Colour	RAL 7035 (grey)
Weight (Kg)	2.5
Wind load @ 150 Km/h (N)	23
Radome	Fiberglass
Mounting	on pole Ø 40÷60 mm

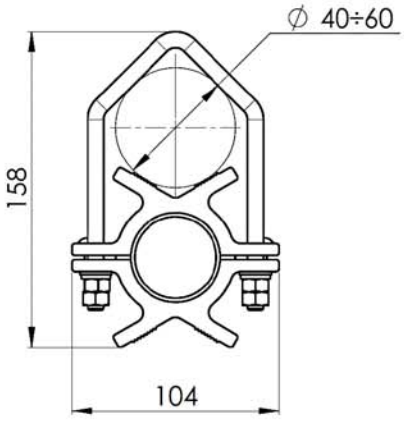
DESCRIPTION:

The VHF coaxial dipole is a vertically polarized omnidirectional antenna suitable for civil aviation and for mobile and semi stationary applications specially on ships.

This antenna has a high suppression of current flow on the outside cables.

SPECIAL FEATURES:

- Broadband: 118 ÷ 137 MHz
- Nr. input: 1
- Omnidirectional radiation
- High power: 100 W
- Protected against lightning
- Very rugged construction



By TELSA

T01110403-DS REV. 00
Date: 01/06/2011

UHF OMNI ANTENNA

225 ÷ 400 MHz, 2 dBi

T01110601
T01110607

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi)	2
Pattern Horizontal Plane Vertical Plane (degree)	 omni ± 0.5 dB 80 ± 5
Continuous Max Power (W)	500
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

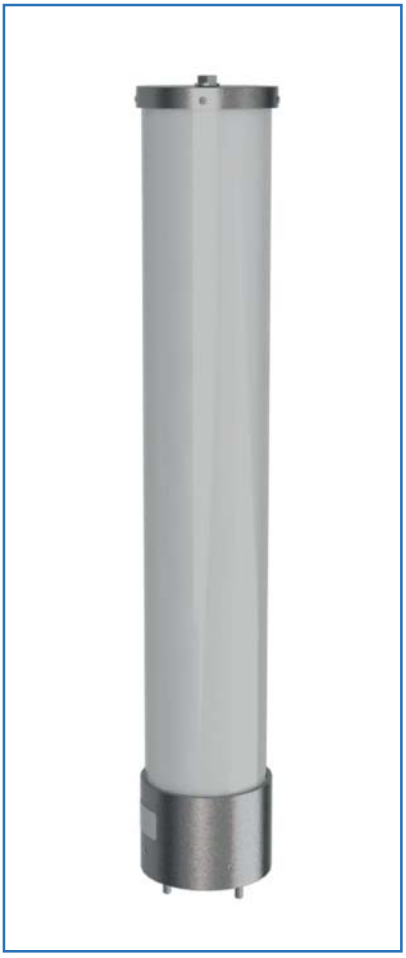
Mechanical Specifications	
Connector	Nf
Dimensions (mm) Length Radome diameter	 840 Ø 137.5
Colour	RAL 7035 (grey)
Weight (Kg)	4.7
Wind load @ 150 Km/h (N)	121
Radome	Fiberglass
Mounting T01110601 T01110607	 3 x M8 screws bracket

DESCRIPTION:

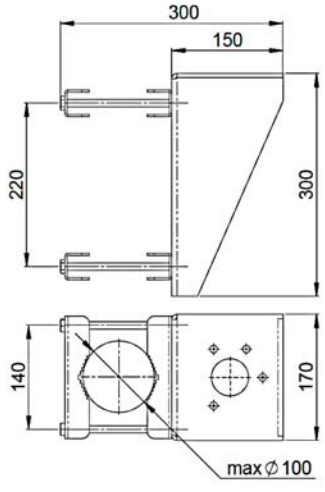
The UHF coaxial dipole is a vertically polarized omnidirectional antenna.

SPECIAL FEATURES:

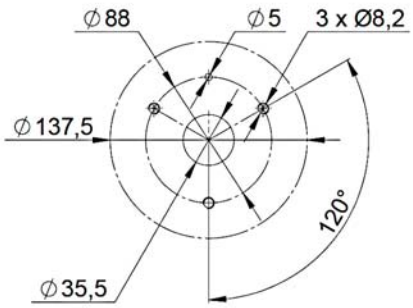
- Broadband: 225 ÷ 400 MHz
- Nr. input: 1
- Omnidirectional radiation
- High power: 500 W
- Protected against lightning
- Very rugged construction
- Wind resistance up to 200 km/h



Mounting T01110607
(Bracket code T16040021)



Mounting T01110601



By TELSA

VHF OMNI MULTIPLE ANTENNA

108 ÷ 156 MHz, 2 dipoles

T01120403
T01120405

ATC

TEDAP offers a very wide range of wireless products
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	108 ÷ 156
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi) T01120403 T01120405	 2 4.5
Pattern Horizontal Plane Vertical Plane (degree) T01120403 T01120405	 omni ± 1 dB 80 ± 5 30 ± 4
Isolation (dB) between inputs T01120403 T01120405	 ≥ 27 n.a.
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

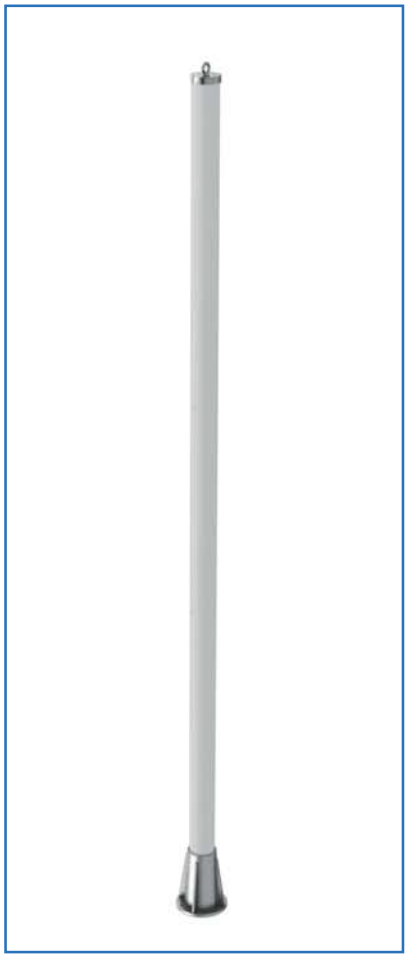
Mechanical Specifications	
Connector T01120403 T01120405	 2 Nf 1 Nf
Dimensions (mm) Length Radome diameter	 4370 Ø 127
Colour	RAL 7035 (grey)
Weight (Kg)	32
Wind load @ 150 Km/h (N)	651
Radome	Fiberglass
Mounting	flange Ø 265 mm

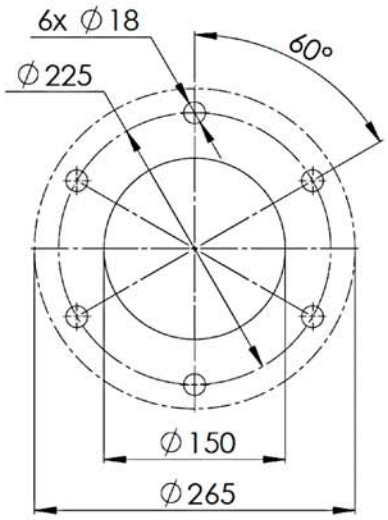
DESCRIPTION:

Collinear antenna with two elements isolated or coupled in a common fiberglass radome.
Suitable for multichannels base stations.

SPECIAL FEATURES:

- Broadband: 108÷156 MHz
- Nr. input: 1 or 2
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction





VHF/UHF OMNI MULTIPLE ANTENNA

108 ÷ 156 MHz / 225 ÷ 400 MHz, 2 dBi, 2 dipoles

T01121601

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications		
Frequency Band (MHz)	VHF	108 ÷ 156
	UHF	225 ÷ 400
Impedance (Ω)		50
VSWR		≤ 2
Polarization		linear vertical
Gain (dBi)		2
Pattern Horizontal Plane Vertical Plane (degree)		 omni ± 1 dB 80 ± 5
Isolation (dB) between inputs		≥ 27
Continuous Max Power (W)		200
Op. Temp. Range (°C)		- 40 ÷ 70
Lightning Protection		DC grounded

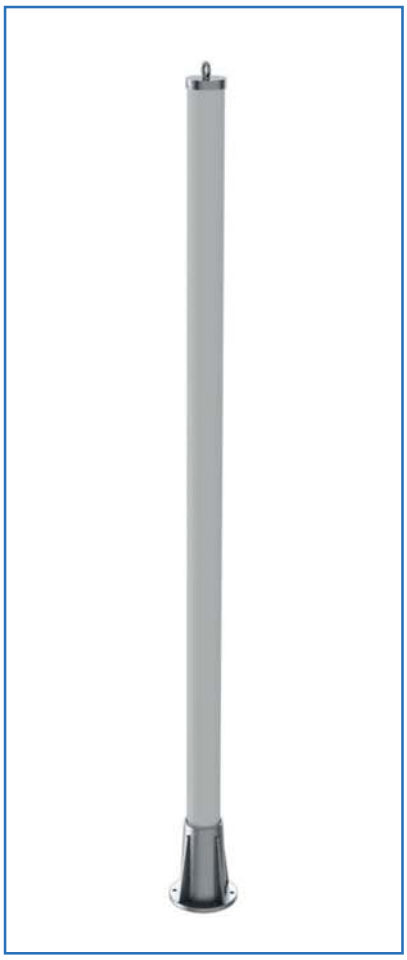
Mechanical Specifications	
Connector	2 Nf
Dimensions (mm) Length Radome diameter	 3270 Ø 127
Colour	RAL 7035 (grey)
Weight (Kg)	26
Wind load @ 150 Km/h (N)	490
Radome	Fiberglass
Mounting	flange Ø 265 mm

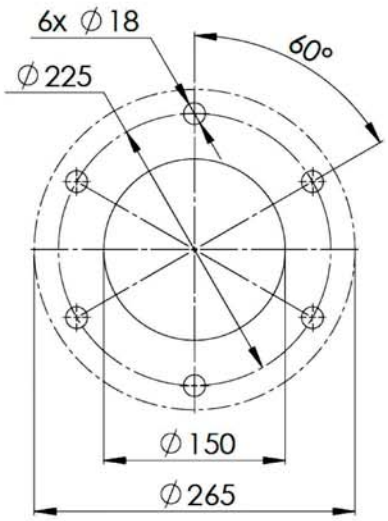
DESCRIPTION:

Collinear antenna with two isolated elments isolated inside the radome to connect one VHF and one UHF radio.
Suitable to be installed in standard sites.

SPECIAL FEATURES:

- Dual band: 108÷156 MHz
  225÷400 MHz
- Nr. input: 2 (1 VHF, 1 UHF)
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction





T01121601-DS REV. 00
Date: 01/06/2011

By TELSA

UHF OMNI MULTIPLE ANTENNA

225 ÷ 400 MHz, 2 dBi, 2 dipoles

T01120601

ATC

TEDAP offers a very wide range of wireless products
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi)	2
Pattern Horizontal Plane Vertical Plane (degree)	 omni ± 1 dB 80 ± 5
Isolation (dB) between inputs	≥ 27
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

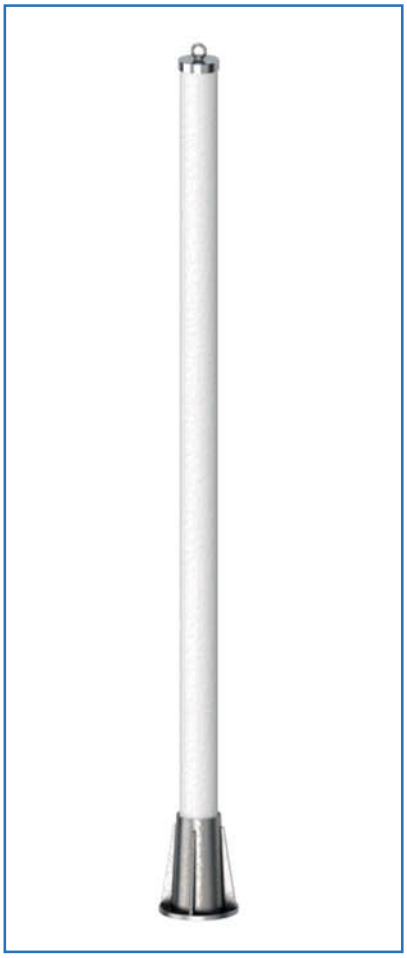
Mechanical Specifications	
RF Connector	2 Nf
Dimensions (mm) Length Radome diameter	 2954 Ø 127
Colour	RAL 7035 (grey)
Weight (Kg)	23
Wind load @ 150 Km/h (N)	410
Radome	Fiberglass
Mounting	flange Ø 265 mm

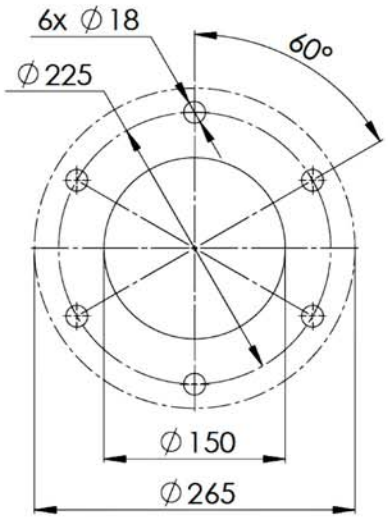
DESCRIPTION:

Collinear antenna with two isolated elements in a common fiberglass radome.
Suitable to be installed in standard sites.

SPECIAL FEATURES:

- Broadband: 225÷400 MHz
- Nr. inputs: 2
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction





T01120601-DS REV. 00
Date: 01/06/2011

By TELSA

VHF OMNI MULTIPLE ANTENNA

108 ÷ 156 MHz, 3 Inputs, 2 dBi Gain

T01130401

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	108 ÷ 156
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi)	2
Pattern Horizontal Plane Vertical Plane (degree)	 omni ±0.5 dB 80 ± 5
Isolation (dB) between inputs	≥ 27
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

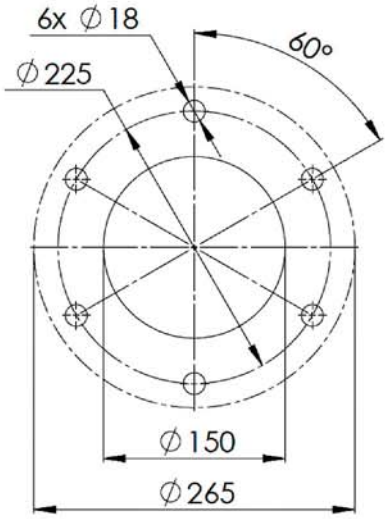
Mechanical Specifications	
RF Connector	3 Nf
Dimensions (mm) Length Radome diameter	 6130 Ø 127
Colour	RAL 7035 (grey)
Weight (Kg)	35
Wind load @ 150 Km/h (N)	670
Radome	Fiberglass
Mounting	flange Ø 265 mm

DESCRIPTION:

Collinear antenna with three isolated elements in a common fiberglass radome.
Suitable to be installed in standard sites.

SPECIAL FEATURES:

- Broadband: 108÷156 MHz
- Nr. input: 3
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction



T01130401-DS REV. 00
Date: 16/09/2011

By TELSA

UHF OMNI MULTIPLE ANTENNA

225 ÷ 400 MHz, 3 Inputs, 2 dBi Gain

T01130601

ATC

TEDAP offers a very wide range of wireless products
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi)	2
Pattern Horizontal Plane Vertical Plane (degree)	 omni ±0.5 dB 80 ± 5
Isolation (dB) between inputs	≥ 27
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

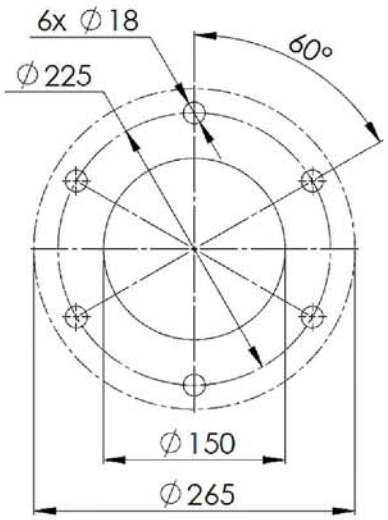
Mechanical Specifications	
RF Connector	3 Nf
Dimensions (mm) Length Radome diameter	 3350 Ø 127
Colour	RAL 7035 (grey)
Weight (Kg)	25
Wind load @ 150 Km/h (N)	495
Radome	Fiberglass
Mounting	flange Ø 265 mm

DESCRIPTION:

Collinear antenna with three isolated elements in a common fiberglass radome.
Suitable to be installed in standard sites.

SPECIAL FEATURES:

- Broadband: 225÷400 MHz
- Nr. input: 3
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction



T01130601-DS REV. 00
Date: 19/09/2011

By TELSA

UHF/VHF/UHF OMNI MULTIPLE ANTENNA

108 ÷ 156 MHz / 225 ÷ 400 MHz, 2 dBi

T01131601

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications

Frequency Band (MHz)	VHF	108 ÷ 156
	UHF	225 ÷ 400
Impedance (Ω)		50
VSWR		≤ 2
Polarization		linear vertical
Gain (dBi)		2
Pattern Horizontal Plane Vertical Plane (degree)		 omni ± 1 dB 80 ± 5
Isolation (dB) between inputs		≥ 27
Continuous Max Power (W)		200
Op. Temp. Range (°C)		- 40 ÷ 70
Lightning Protection		DC grounded

Mechanical Specifications

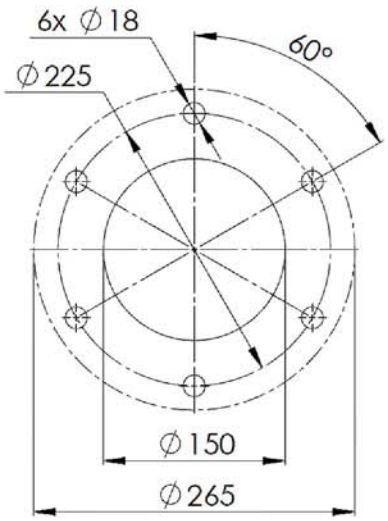
RF Connector	3 Nf
Dimensions (mm) Length Radome diameter	 4340 Ø 127
Colour	RAL 7035 (grey)
Weight (Kg)	29
Wind load @ 150 Km/h (N)	656
Radome	Fiberglass
Mounting	flange Ø 265 mm

DESCRIPTION:

Collinear antenna with three isolated elements in a common fiberglass radome.
Suitable to be installed on standard sites.
Dual band antenna operating in both VHF and UHF frequency ranges.

SPECIAL FEATURES:

- Dual band: 108÷156 MHz
  225÷400 MHz
- Nr. input: 3 (1 VHF, 2 UHF)
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction



T01131601-DS REV. 00
Date: 01/06/2011

By TELSA

UHF OMNI MULTIPLE ANTENNA

225 ÷ 400 MHz, 4 dipoles

T01140607
T01140608
T01140609

ATC

TEDAP offers a very wide range of wireless products
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi)	
T01140607	2
T01140608	4.5
T01140609	7.5
Pattern	
Horizontal Plane	omni ± 1 dB
Vertical Plane (degree)	
T01140607	80 ± 5
T01140608	35 ± 4
T01140609	16 ± 3
Isolation (dB) between inputs	
T01140607	≥ 27
T01140608	≥ 30
T01140609	n.a.
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

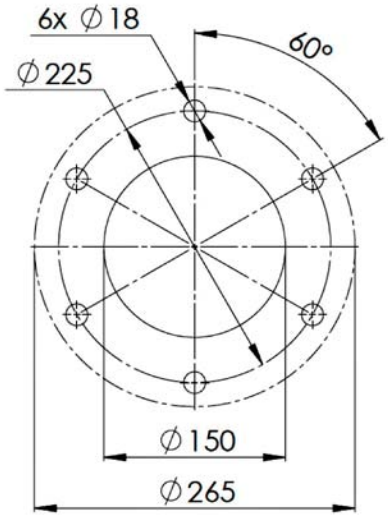
Mechanical Specifications	
Connector	
T01140607	4 Nf
T01140608	2 Nf
T01140609	1 Nf
Dimensions (mm)	
Length	4070
Radome diameter	Ø 127
Colour	RAL 7035 (grey)
Weight (Kg)	32
Wind load @ 150 Km/h (N)	830
Radome	Fiberglass
Mounting	flange Ø 265 mm

DESCRIPTION:

Collinear antenna with four elements isolated or coupled in a common fiberglass radome.
Suitable for multichannel base stations.

SPECIAL FEATURES:

- Broadband: 225÷400 MHz
- Nr. inputs: 1, 2, 4
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction



T01140607-DS REV. 00
Date: 01/06/2011

By TELSA

VHF/UHF/VHF OMNI MULTIPLE ANTENNA

108 ÷ 156 MHz / 225 ÷ 400 MHz, 2 dBi

T01131602

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications

Frequency Band (MHz)	VHF	108 ÷ 156
	UHF	225 ÷ 400
Impedance (Ω)		50
VSWR		≤ 2
Polarization		linear vertical
Gain (dBi)		2
Pattern Horizontal Plane Vertical Plane (degree)		 omni ± 1 dB 80 ± 5
Isolation (dB) between inputs		≥ 27
Continuous Max Power (W)		200
Op. Temp. Range (°C)		- 40 ÷ 70
Lightning Protection		DC grounded

Mechanical Specifications

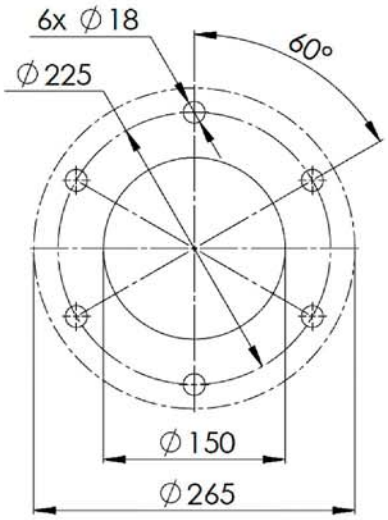
RF Connector	3 Nf
Dimensions (mm) Length Radome diameter	 5380 Ø 127
Colour	RAL 7035 (grey)
Weight (Kg)	33
Wind load @ 150 Km/h (N)	820
Radome	Fiberglass
Mounting	flange Ø 265 mm

DESCRIPTION:

Collinear antenna with three isolated elements in a common fiberglass radome.
Suitable to be installed on standard sites.
Dual band antenna operating in both VHF and UHF frequency ranges.

SPECIAL FEATURES:

- Dual band: 108÷156 MHz
  225÷400 MHz
- Nr. input: 3 (2 VHF, 1 UHF)
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction



T01131602-DS REV. 00
Date: 01/06/2011

By TELSA

VHF OMNI MULTIPLE ANTENNA

108 ÷ 156 MHz, 2 dipoles, hard environmental site

T01120410
T01120411

ATC

TEDAP offers a very wide range of wireless products
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	108 ÷ 156
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi) T01120410 T01120411	 2 4.5
Pattern Horizontal Plane Vertical Plane (degree) T01120410 T01120411	 omni ± 1 dB 80 ± 5 30 ± 4
Isolation (dB) between inputs T01120410 T01120411	 ≥ 27 n.a.
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

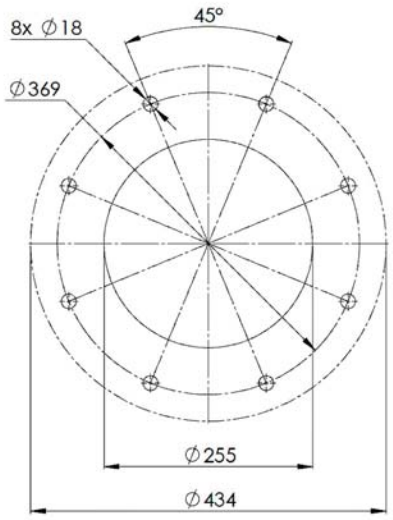
Mechanical Specifications	
Connector T01120410 T01120411	 2 Nf 1 Nf
Dimensions (mm) Length Radome diameter	 4820 Ø 135÷202
Colour	RAL 7035 (grey)
Weight (Kg)	79
Wind load @ 150 Km/h (N)	1190
Radome	Fiberglass
Mounting	flange Ø 434 mm

DESCRIPTION:

Special collinear antennas suitable for hard environmental sites.
This antenna has been optimized for operating under extreme ambiental conditions: ice, wind and low temperature with a strikingly robust design.
The external radome is a conic structure made in thickfiberglass extrusion and the base flange is molded in aluminum.

SPECIAL FEATURES:

- Broadband: 108÷156 MHz
- Nr. input: 1 or 2
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction
- Hard environmental site
- Wind resistance up to 200 km/h



T01120410-DS REV. 00
Date: 01/06/2011

By TELSA

VHF OMNI MULTIPLE ANTENNA

108 ÷ 156 MHz, 2 dipoles, 40 dB isolation

T01130404

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

HARD ENVIRONMENTAL SITE
HES ANTENNAS

Electrical Specifications	
Frequency Band (MHz)	108 ÷ 156
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi)	2
Pattern Horizontal Plane Vertical Plane (degree)	 omni ± 1 dB 80 ± 5
Isolation (dB) between inputs	≥ 40
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

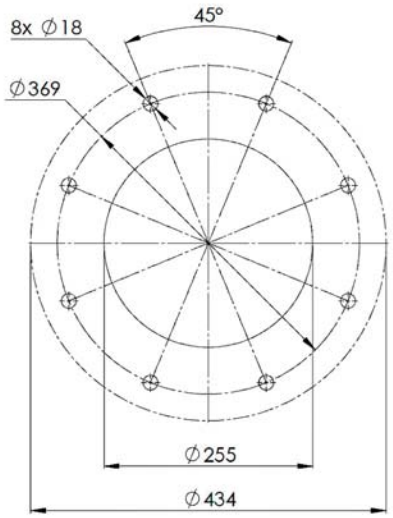
Mechanical Specifications	
Connector	2 Nf
Dimensions (mm) Length Radome diameter	 6140 Ø 118÷202
Colour	RAL 7035 (grey)
Weight (Kg)	83
Wind load @ 150 Km/h (N)	1220
Radome	Fiberglass
Mounting	flange Ø 434 mm

DESCRIPTION:

Special collinear antennas suitable for hard environmental sites.
This antenna guarantees more than 40 dB isolation between ports instead of the standard 27 dB.
This antenna has been designed to withstand at the extreme ambiental conditions: ice, wind and temperature.
The external radome is a conic structure made in thick fiberglass extrusion, and the base flange is molded in aluminum.

SPECIAL FEATURES:

- Broadband: 108÷156 MHz
- Nr. input: 2
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction
- Hard environmental site
- High isolation: ≥ 40 dB
- Wind resistance up to 200 km/h



T01130404-DS REV. 00
Date: 01/06/2011

By TELSA

UHF OMNI MULTIPLE ANTENNA

225 ÷ 400 MHz, 4 dipoles, hard environmental site

T01140604
T01140605
T01140606

ATC

TEDAP offers a very wide range of wireless products
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi)	
T01140604	2
T01140605	4.5
T01140606	7.5
Pattern	
Horizontal Plane	omni ± 1 dB
Vertical Plane (degree)	
T01140604	80 ± 5
T01140605	35 ± 4
T01140606	16 ± 3
Isolation (dB) between inputs	
T01140604	≥ 27
T01140605	≥ 30
T01140606	n.a.
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

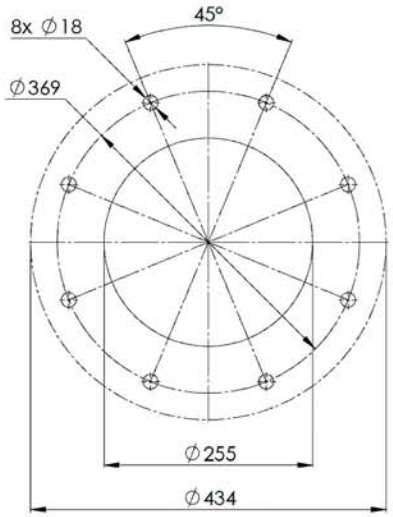
Mechanical Specifications	
Connector	
T01140604	4 Nf
T01140605	2 Nf
T01140606	1 Nf
Dimensions (mm)	
Length	4820
Radome diameter	Ø 130÷202
Colour	RAL 7035 (grey)
Weight (Kg)	81
Wind load @ 150 Km/h (N)	1190
Radome	Fiberglass
Mounting	flange Ø 434 mm

DESCRIPTION:

Special collinear antennas suitable for hard environmental sites.
This antenna has been optimized for operating under extreme ambiental conditions: ice, wind and low temperature with a strikingly robust design.
The external radome is a conic structure made in thickfiberglass extrusion and the base flange is molded in aluminum.

SPECIAL FEATURES:

- Broadband: 225÷400 MHz
- Nr. input: 1, 2, 4
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction
- Wind resistance up to 200 km/h



T01140604-DS REV. 00
Date: 01/06/2011

By TELSA

VHF OMNI MULTIPLE ANTENNA

108 ÷ 156 MHz, 4 dipoles, hard environmental site

T01140401
T01140405
T01140406

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

HARD ENVIRONMENTAL SITE HES ANTENNAS

Electrical Specifications	
Frequency Band (MHz)	108 ÷ 156
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi) T01140401 T01140405 T01140406	 2 4.5 7.5
Pattern Horizontal Plane Vertical Plane (degree) T01140401 T01140405 T01140406	 omni ± 1 dB 80 ± 5 30 ± 4 13 ± 3
Isolation (dB) between inputs T01140401 T01140405 T01140406	 ≥ 27 ≥ 30 /
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

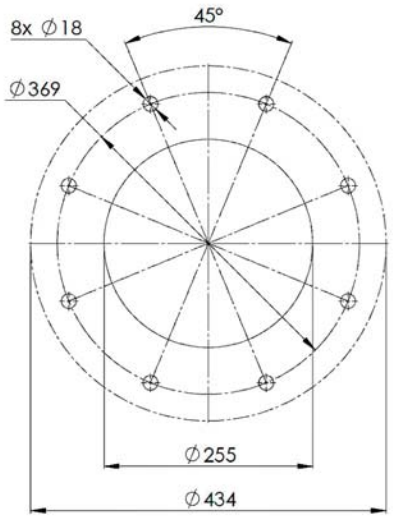
Mechanical Specifications	
Connector T01140401 T01140405 T01140406	 4 Nf 2 Nf 1 Nf
Dimensions (mm) Length Radome diameter	 8126 Ø 77÷202
Colour	RAL 7035 (grey)
Weight (Kg)	96
Wind load @ 150 Km/h (N)	1380
Radome	Fiberglass
Mounting	flange Ø 434 mm

DESCRIPTION:

Special collinear antennas suitable for hard environmental sites.
This antenna has been optimized for operating under extreme ambiental conditions: ice, wind and low temperature with a strikingly robust design.
The external radome is a conic structure made in thickfiberglass extrusion and the base flange is molded in aluminum.

SPECIAL FEATURES:

- Broadband: 108÷156 MHz
- Nr. input: 1, 2, 4
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction
- Wind resistance up to 200 km/h



T01140401-DS REV. 00
Date: 01/06/2011

By TELSA

VHF/UHF DUALBAND OMNI ANTENNA

118 ÷ 156 MHz / 225 ÷ 400 MHz, 2 Inputs, 40 dB isolation

T01143002

ATC

TEDAP offers a very wide range of wireless products
Our products can be tailored according to the customer's need.

Electrical Specifications

Frequency Band (MHz) VHF UHF	 108÷156 225÷400
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi)	0 (duplexer and cables losses included)
Pattern Horizontal Plane Vertical Plane (degree)	 omni ± 1.5 dB 80 ± 5
Isolation (dB) between inputs	> 43
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

Mechanical Specifications

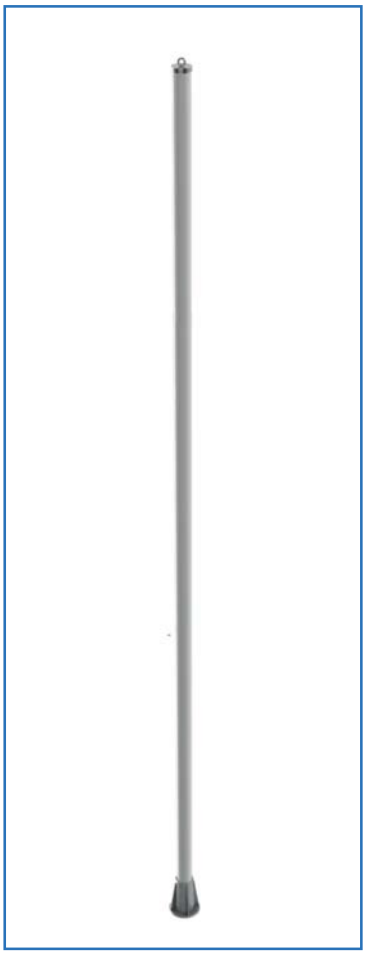
RF Connector	2 Nf
Dimensions (mm) Length Radome diameter	 7000 Ø 127
Colour	RAL 7035 (grey)
Weight (Kg)	45
Wind load @ 150 Km/h (N)	750
Radome	Fiberglass
Mounting	flange Ø 265 mm

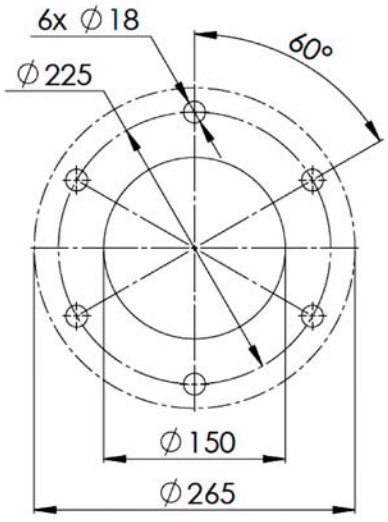
DESCRIPTION:

Collinear dualband antenna with 2 highly isolated inputs covering both VHF and UHF bands.
The antenna consists of two symmetrical sections enclosed in a thick fiberglass radome. Each section is a dualband antenna composed of two dipoles – one VHF and one UHF – duplexed to a single input.
This antenna guarantees more than 40 dB isolation between ports instead of the standard 27 dB.
Suitable to be installed in standard sites.

SPECIAL FEATURES:

- Dual band: 108÷156 MHz
  225÷400 MHz
- Nr. input: 2 (1 VHF, 1 UHF)
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction





By TELSA

T01143002-DS REV. 00
Date: 19/09/2011

UHF OMNI MULTIPLE ANTENNA

225 ÷ 400 MHz, 6 dipoles, hard environmental site

T01160601
T01160604

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

HARD ENVIRONMENTAL SITE HES ANTENNAS

Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi) T01160601 T01160604	 2 4.5
Pattern Horizontal Plane Vertical Plane (degree) T01160601 T01160604	 omni ± 1 dB 80 ± 5 35 ± 4
Isolation (dB) between inputs T01160601 T01160604	 ≥ 27 ≥ 30
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

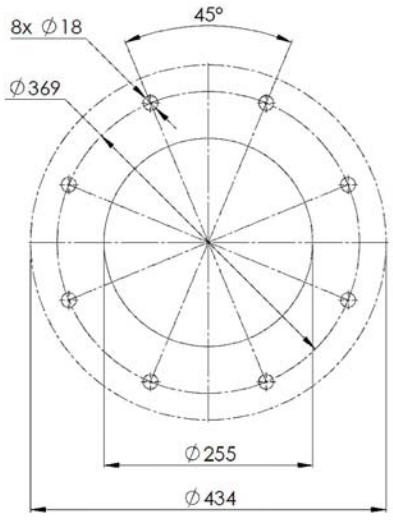
Mechanical Specifications	
Connector T01160601 T01160604	 6 Nf 3 Nf
Dimensions (mm) Length Radome diameter	 7130 Ø 85÷202
Colour	RAL 7035 (grey)
Weight (Kg)	95
Wind load @ 150 Km/h (N)	1340
Radome	Fiberglass
Mounting	flange Ø 434 mm

DESCRIPTION:

Special collinear antennas suitable for hard environmental sites.
This antenna has been optimized for operating under extreme ambiental conditions: ice, wind and low temperature with a strikingly robust design.
The external radome is a conic structure made in thickfiberglass extrusion and the base flange is molded in aluminum.
The 6 dipoles mounted inside the radome can be combined to achieve different high gain configurations or used singulary to connect up to 6 UHF radios to the some antenna.

SPECIAL FEATURES:

- Broadband: 225÷400 MHz
- Nr. input: 3, 6
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction
- Wind resistance up to 200 km/h



T01160601-DS REV. 00
Date: 30/07/2012

By TELSA

VHF OMNI MULTIPLE ANTENNA

108 ÷ 156 MHz, 2 dipoles, de-icing system integrated

T01120407
T01120408

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

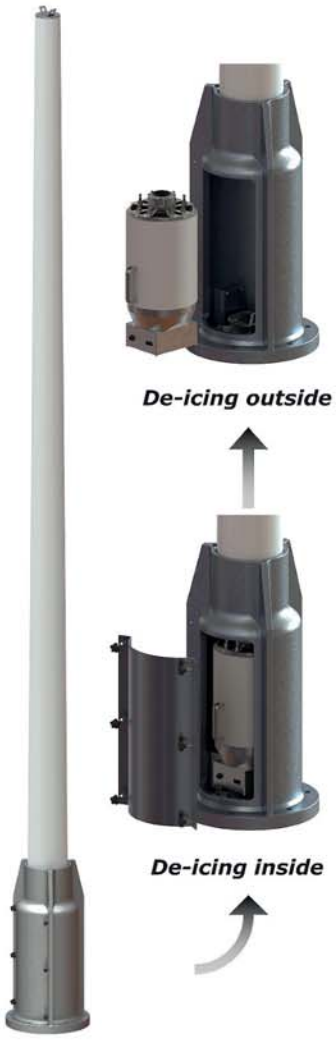
Electrical Specifications	
Frequency Band (MHz)	108 ÷ 156
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi) T01120407 T01120408	 2 4.5
Pattern Horizontal Plane Vertical Plane (degree) T01120407 T01120408	 omni ± 1 dB 80 ± 5 30 ± 4
Isolation (dB) between inputs T01120407 T01120408	 ≥ 27 n.a.
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

DESCRIPTION:

Special collinear antennas suitable for hard environmental sites.
Purposely designed to withstand extreme ambiental conditions: ice, wind and low temperature with integrated de-icing system.
This device can be easily removed directly on site for manteinance purposes.
The external radome is a conic structure made in thick fiberglass extrusion and the base flange is molded in aluminum.

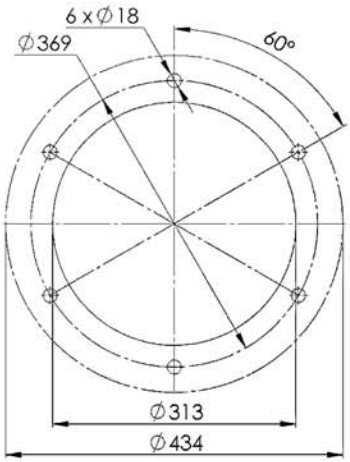
SPECIAL FEATURES:

- Broadband: 108÷156 MHz
- Nr. input: 1 or 2
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction
- Internal removable de-icing system



Mechanical Specifications	
Connector T01120407 T01120408	 2 Nf 1 Nf
Dimensions (mm) Length Radome diameter	 5425 Ø 131÷207
Colour	RAL 7035 (grey)
Weight (Kg)	98
Wind load @ 150 Km/h (N)	1288
Radome	fiberglass
Mounting	flange Ø 434 mm

De-Icing Specifications	
Peak Power (W)	4600
Feeding (V_{AC})	220
Peak Current (A)	21
Heater System	Hot Air Blower
Control Interface	RS485
Sensors: Internal External	 Temperature Temp. & Humidity
Interface Conn.	RJ45
Power Conn.	3+PE



By TELSA

T01120407-DS REV. 00
Date: 06/06/2011

VHF OMNI MULTIPLE ANTENNA

108 ÷ 156 MHz, 4 dipoles, de-icing system integrated

T01140408
T01140409
T01140410

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	108 ÷ 156
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi) T01140408 T01140409 T01140410	 2 4.5 7.5
Pattern Horizontal Plane Vertical Plane (degree) T01140408 T01140409 T01140410	 omni ± 1 dB 80 ± 5 30 ± 4 13 ± 3
Isolation (dB) between inputs T01140408 T01140409 T01140410	 ≥ 27 ≥ 30 n.a.
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

DESCRIPTION:

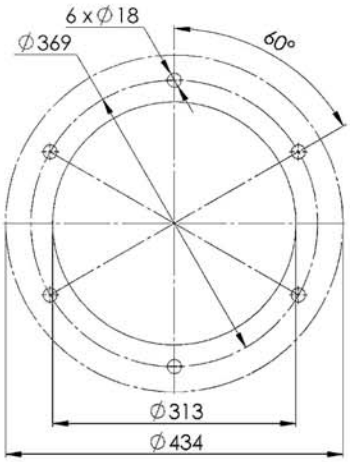
Special collinear antennas suitable for hard environmental sites.
Purposely designed to withstand extreme ambiental conditions: ice, wind and low temperature with integrated de-icing system.
This device can be easily removed directly on site for manteinance purposes.
The external radome is a conic structure made in thick fiberglass extrusion and the base flange is molded in aluminum.

SPECIAL FEATURES:

- Broadband: 108÷156 MHz
- Nr. input: 1, 2, 4
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction
- Internal removable de-icing system

Mechanical Specifications	
Connector T01140408 T01140409 T01140410	 4 Nf 2 Nf 1 Nf
Dimensions (mm) Length Radome diameter	 8080 Ø 100÷207
Colour	RAL 7035 (grey)
Weight (Kg)	115
Wind load @ 150 Km/h (N)	1615
Radome	fiberglass
Mounting	flange Ø 434 mm

De-Icing Specifications	
Peak Power (W)	4600
Feeding (V_{AC})	220
Peak Current (A)	21
Heater System	Hot Air Blower
Control Interface	RS485
Sensors: Internal External	 Temperature Temp. & Humidity
Interface Conn.	RJ45
Power Conn.	3+PE



T01140408-DS REV. 00
Date: 06/06/2011

By TELSA

UHF OMNI MULTIPLE ANTENNA

225 ÷ 400 MHz, 4 dipoles, de-icing system integrated

T01140601
T01140602
T01140603

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

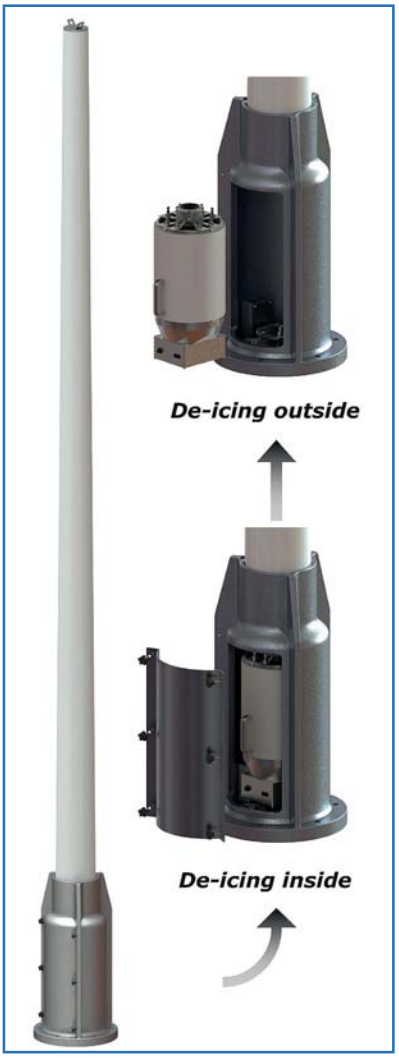
Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi) T01140601 T01140602 T01140603	 2 4.5 7.5
Pattern Horizontal Plane Vertical Plane (degree) T01140601 T01140602 T01140603	 omni ± 1 dB 80 ± 5 35 ± 4 16 ± 3
Isolation (dB) between inputs T01140601 T01140602 T01140603	 ≥ 27 ≥ 30 n.a.
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

DESCRIPTION:

Special collinear antennas suitable for hard environmental sites.
Purposely designed to withstand extreme ambiental conditions: ice, wind and low temperature with integrated de-icing system.
This device can be easily removed directly on site for manteinance purposes.
The external radome is a conic structure made in thick fiberglass extrusion and the base flange is molded in aluminum.

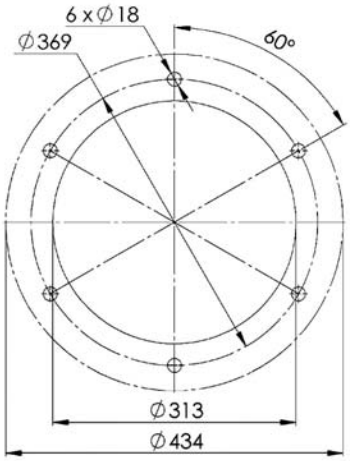
SPECIAL FEATURES:

- Broadband: 225÷400 MHz
- Nr. input: 1, 2, 4
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction
- Internal removable de-icing system



Mechanical Specifications	
Connector T01140601 T01140602 T01140603	 4 Nf 2 Nf 1 Nf
Dimensions (mm) Length Radome diameter	 5425 Ø 131÷207
Colour	RAL 7035 (grey)
Weight (Kg)	98
Wind load @ 150 Km/h (N)	1288
Radome	Fiberglass
Mounting	flange Ø 434 mm

De-Icing Specifications	
Peak Power (W)	4600
Feeding (V_{AC})	220
Peak Current (A)	21
Heater System	Hot Air Blower
Control Interface	RS485
Sensors: Internal External	 Temperature Temp. & Humidity
Interface Conn.	RJ45
Power Conn.	3+PE



UHF OMNI MULTIPLE ANTENNA

225 ÷ 400 MHz, 6 dipoles, de-icing system integrated

T01160602
T01160603

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi) T01160602 T01160603	 2 4.5
Pattern Horizontal Plane Vertical Plane (degree) T01160602 T01160603	 omni ± 1 dB 80 ± 5 35 ± 4
Isolation (dB) between inputs T01160602 T01160603	 ≥ 27 ≥ 30
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

DESCRIPTION:

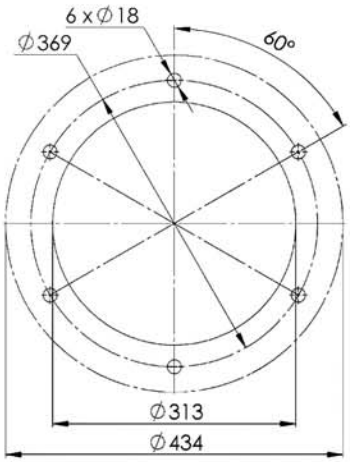
Special collinear antennas suitable for hard environmental sites.
Purposely designed to withstand extreme ambiental conditions: ice, wind and low temperature with integrated de-icing system.
This device can be easily removed directly on site for manteinance purposes.
The external radome is a conic structure made in thick fiberglass extrusion and the base flange is molded in aluminum.

SPECIAL FEATURES:

- Broadband: 225÷400 MHz
- Nr. input: 3, 6
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction
- Internal removable de-icing system

Mechanical Specifications	
Connector T01160602 T01160603	 6 Nf 3 Nf
Dimensions (mm) Length Radome diameter	 7750 Ø 100÷207
Colour	RAL 7035 (grey)
Weight (Kg)	110
Wind load @ 150 Km/h (N)	1580
Radome	fiberglass
Mounting	flange Ø 434 mm

De-Icing Specifications	
Peak Power (W)	4600
Feeding (V_{AC})	220
Peak Current (A)	21
Heater System	Hot Air Blower
Control Interface	RS485
Sensors: Internal External	 Temperature Temp. & Humidity
Interface Conn.	RJ45
Power Conn.	3+PE



T01160602-DS REV. 00
Date: 30/07/2012

By TELSA

VHF OMNI MULTIPLE ANTENNA

108 ÷ 156 MHz, 2 dBi, Obstruction Light Integrated

T01120413

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	108 ÷ 156
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear vertical
Gain (dBi)	2
Pattern Horizontal Plane Vertical Plane (degree)	 omni ± 1 dB 80 ± 5
Isolation (dB) between inputs	≥ 27
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded
Upper Fixed Obstruction Light	 Red
Power Supply (V_{AC})	220

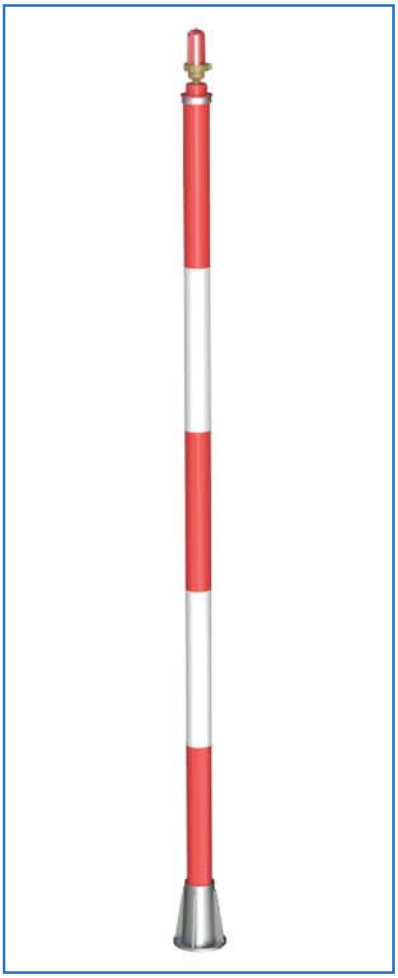
Mechanical Specifications	
RF Connector	2 Nf
Power Connector	3+PE male
Dimensions (mm) Length Radome diameter	 4600 Ø 127
Colour	red and white
Weight (Kg)	35
Wind load @ 150 Km/h (N)	650
Radome	Fiberglass
Mounting	flange Ø 265 mm

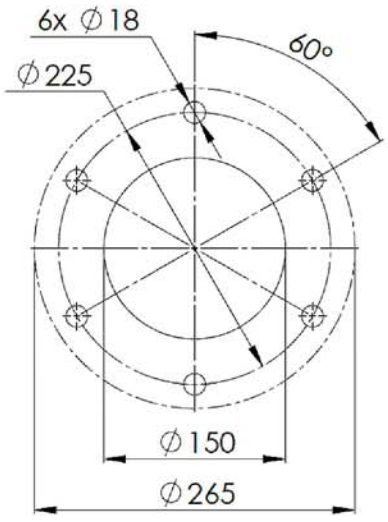
DESCRIPTION:

Special collinear antenna with two isolated elements inside the radome and obstruction light on the top. This red and white coloured antenna is suitable to be installed near airports or on high towers for obstruction purpose.

SPECIAL FEATURES:

- Broadband: 108÷156 MHz
- Nr. input: 2
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction
- Obstruction light integrated
- Red and white radome





By TELSA

T01120413-DS REV. 00
Date: 01/06/2011

VHF/UHF OMNI MULTIPLE ANTENNA

108 ÷ 156 MHz / 225 ÷ 400 MHz, 2 dBi, Obstruction Light Integrated

T01123002

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

ANTENNAS WITH OBSTRUCTION LIGHT

Electrical Specifications		
Frequency Band (MHz)	VHF	108 ÷ 156
	UHF	225 ÷ 400
Impedance (Ω)		50
VSWR		≤ 2
Polarization		linear vertical
Gain (dBi)		2
Pattern Horizontal Plane Vertical Plane (degree)		 omni ± 1 dB 80 ± 5
Isolation (dB) between inputs		≥ 27
Continuous Max Power (W)		200
Op. Temp. Range (°C)		- 40 ÷ 70
Lightning Protection		DC grounded
Upper Fixed Obstruction Light		Red
Power Supply (V_{AC})		220

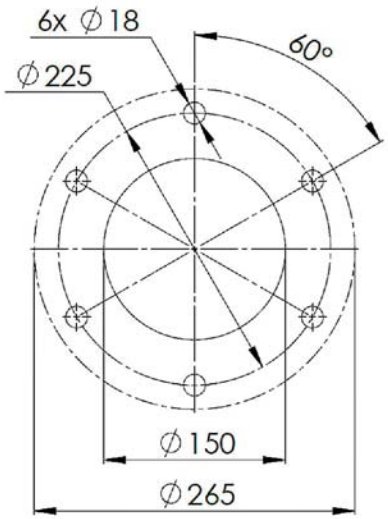
Mechanical Specifications	
RF Connector	2 Nf
Power Connector	3+PE male
Dimensions (mm) Length Radome diameter	 3500 Ø 127
Colour	red and white
Weight (Kg)	29
Wind load @ 150 Km/h (N)	490
Radome	Fiberglass
Mounting	flange Ø 265 mm

DESCRIPTION:

Special collinear antenna with two isolated elements inside the radome and obstruction light on the top.
This red and white coloured antenna is suitable to be installed near airports or on high towers for obstruction purpose.
It is a dual band antenna operating in both, VHF and UHF bands.

SPECIAL FEATURES:

- Dual band: 108÷156 MHz
  225÷400 MHz
- Nr. input: 2 (1 VHF, 1 UHF)
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction
- Obstruction light integrated
- Red and white radome



T01123002-DS REV. 00
Date: 01/06/2011

By TELSA

UHF/VHF/UHF OMNI MULTIPLE ANTENNA

108 ÷ 156 MHz / 225 ÷ 400 MHz, 2 dBi, Obstruction Light Integrated

T01133003

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications		
Frequency Band (MHz)	VHF	108 ÷ 156
	UHF	225 ÷ 400
Impedance (Ω)		50
VSWR		≤ 2
Polarization		linear vertical
Gain (dBi)		2
Pattern Horizontal Plane Vertical Plane (degree)		 omni ± 1 dB 80 ± 5
Isolation (dB) between inputs		≥ 27
Continuous Max Power (W)		200
Op. Temp. Range (°C)		- 40 ÷ 70
Lightning Protection		DC grounded
Upper Fixed Obstruction Light		Red
Power Supply (V_{AC})		220

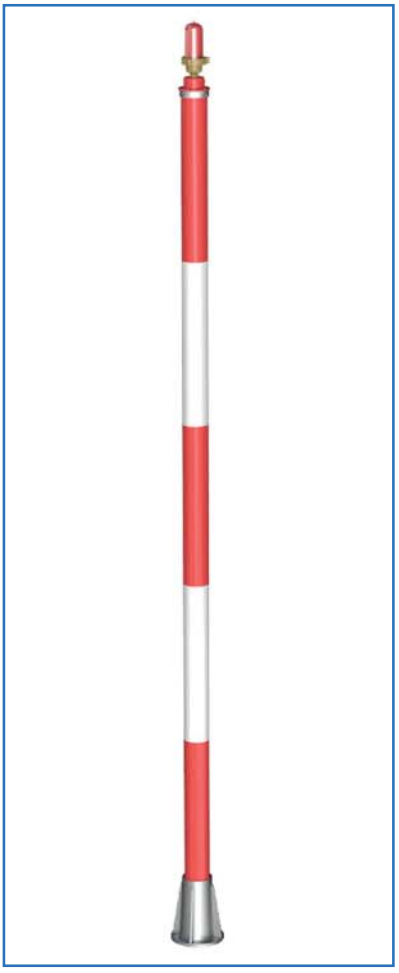
Mechanical Specifications	
RF Connector	3 Nf
Power Connector	3+PE male
Dimensions (mm) Length Radome diameter	 4600 Ø 127
Colour	red and white
Weight (Kg)	36
Wind load @ 150 Km/h (N)	656
Radome	Fiberglass
Mounting	flange Ø 265 mm

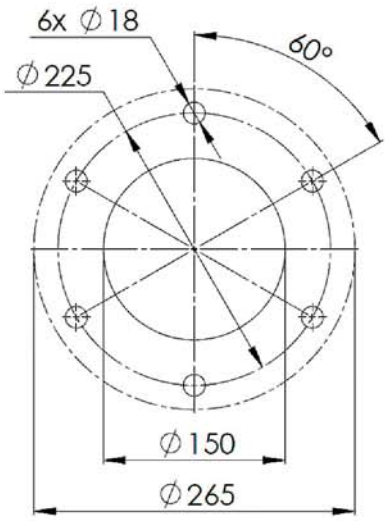
DESCRIPTION:

Special collinear antenna with three isolated elements inside the radome and obstruction light on the top.
This red and white coloured antenna is suitable to be installed near airports or on high towers for obstruction purposes.
It is a dual band antenna operating in both VHF and UHF bands.

SPECIAL FEATURES:

- Dual band: 108÷156 MHz
  225÷400 MHz
- Nr. input: 3 (2 VHF, 1 UHF)
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction
- Obstruction light integrated
- Red and white radome





By TELSA

T01133003-DS REV. 00
Date: 01/06/2011

VHF/UHF/VHF OMNI MULTIPLE ANTENNA

108 ÷ 156 MHz / 225 ÷ 400 MHz, 2 dBi, Obstruction Light Integrated

T01133004

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

ANTENNAS WITH OBSTRUCTION LIGHT

Electrical Specifications

Frequency Band (MHz)	VHF	108 ÷ 156
	UHF	225 ÷ 400
Impedance (Ω)		50
VSWR		≤ 2
Polarization		linear vertical
Gain (dBi)		2
Pattern Horizontal Plane Vertical Plane (degree)		 omni ± 1 dB 80 ± 5
Isolation (dB) between inputs		≥ 27
Continuous Max Power (W)		200
Op. Temp. Range (°C)		- 40 ÷ 70
Lightning Protection		DC grounded
Upper Fixed Obstruction Light		Red
Power Supply (V_{AC})		220

Mechanical Specifications

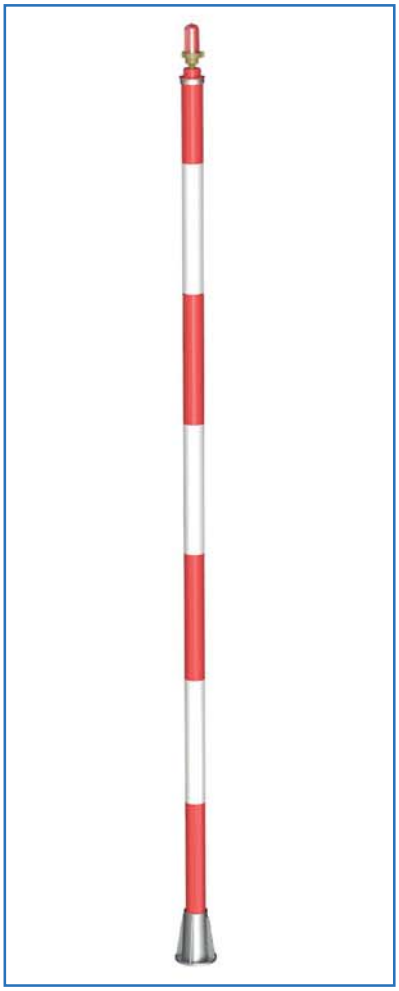
RF Connector	3 Nf
Power Connector	3+PE male
Dimensions (mm) Length Radome diameter	 5670 Ø 127
Colour	red and white
Weight (Kg)	41
Wind load @ 150 Km/h (N)	820
Radome	Fiberglass
Mounting	flange Ø 265 mm

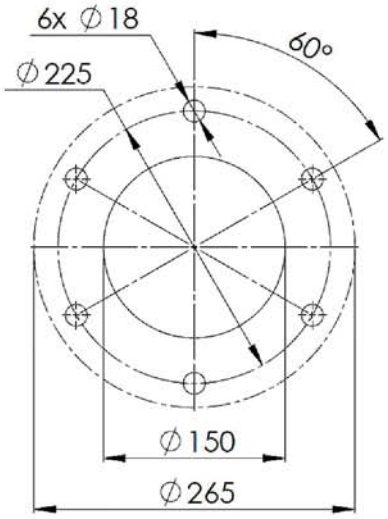
DESCRIPTION:

Special collinear antenna with three isolated elements inside the radome and obstruction light on the top.
This red and white coloured antenna is suitable to be installed near airports or on high towers for obstruction purposes.
It is a dual band antenna operating in both VHF and UHF bands.

SPECIAL FEATURES:

- Dual band: 108÷156 MHz
  225÷400 MHz
- Nr. input: 3 (2 VHF, 1 UHF)
- Omnidirectional radiation
- High power: 200 W
- Protected against lightning
- Very rugged construction
- Obstruction light integrated
- Red and white radome





By TELSA

T01133004-DS REV. 00
Date: 01/06/2011

Omnidirectional Mobile Antenna with 1090 MHz and GPS

LP 1093-G-N

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Mechanical Specifications

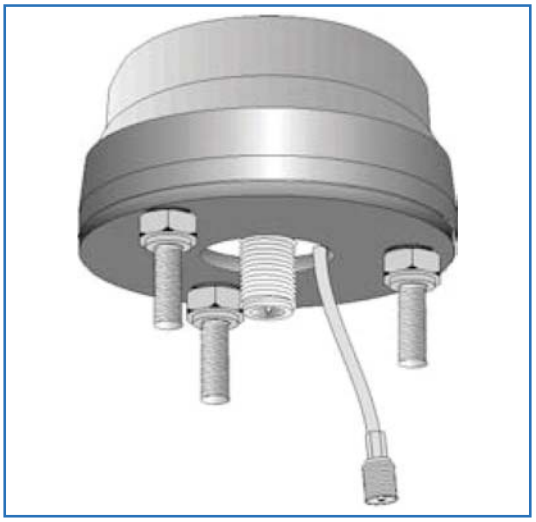
Type of connection (1090 MHz)	N female
Type of connection (GPS)	SMA female with cable
Mounting hole (mm)	In coformity with FEDERTRASPORTI 00104/5
Body treatment	Alodine 1200
Dimensions (mm)	Ø 104 x 60
Net weight (g)	670
Working Temperature (°C)	-40 ÷ +85

GPS Specifications (Antenna)

Type	Planar patch
Frequency (MHz)	1575,42
V.S.W.R.	< 1.5 : 1
Impedance (Ω)	50
Polarization	Right Circular
Gain	+4.5 dBic zenith
Beamwidth -3dB	172°

GPS Specifications (Amplifier)

Type	A FIL 27
Voltage	5 V dc
Current	20 mA
Typical gain	27 dB
Noise figure	< 1.5 dB
Impedance (Ω)	50
Input V.S.W.R.	< 2 : 1
Output V.S.W.R.	< 1,5 : 1
Reverse isolation	>48 dB
Output compr. point	1 dBm



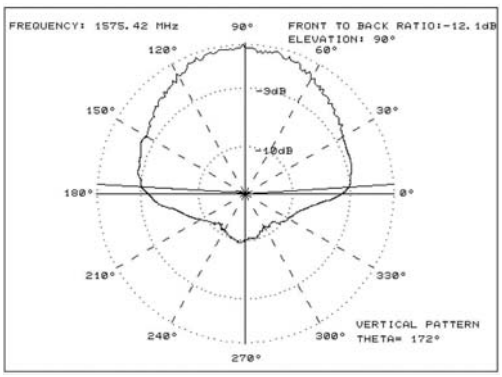
DESCRIPTION:

Expoxy radomized antenna.
With DC grounded lighting protection.

Electrical Specifications

Type	1/4 λ
Frequency Band (MHz)	1090
Impedance (Ω)	50
V.S.W.R. at resonant frequency	< 1.3 : 1
Gain (dBd)	0 dBd over 1/4 λ
Polarization	vertical

Radiation Pattern



By λεα LEANTENNE

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Omnidirectional Mobile Antenna and GPS with magnetic mount

SF 1090-G

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications (L BAND)

Type	Monopole
Frequency Band (MHz)	1090 ± 1
Impedance (Ω)	50
V.S.W.R. at resonant frequency	< 1.25 (measured with respect to ref. ground)
Gain (dBd)	0 (reffered to the quarter-wave antenna)
	elevation ripple ±1 dB
Maximum rated RF power	30 Watt
Polarization	vertical or horizontal

Electrical Specifications (GPS BAND)

Type	Active patch
Frequency (MHz)	1575,42 ± 3
V.S.W.R.	< 2
Impedance (Ω)	50
Polarization	Right Circular
Antenna Gain	1 dBi min. (70x70 mm ground plane)
LNA Gain	29 dB typ. (5V dc power supply)
Noise Figure	2 dB max (5V dc power supply)
Attenuation	28 dB min @ 1572 ± 100 MHz
Consumption current	30 mA max.
Operating voltage	3 ÷ 5 V dc

Mechanical Specifications

Type of connection (1090 MHz)	2 m of RG 174 + SMA male (L Band and GPS Band)
Radome material	Policarbonate
Dimensions (mm)	Magnetic mount: Ø120x40 mm Antenna: Ø36x115 mm
Net weight (g)	1000
Working Temperature (°C)	-35 ÷ +80

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Directional VHF Base Antenna

73,5 ÷ 76,5 MHz

SY 054

ATC

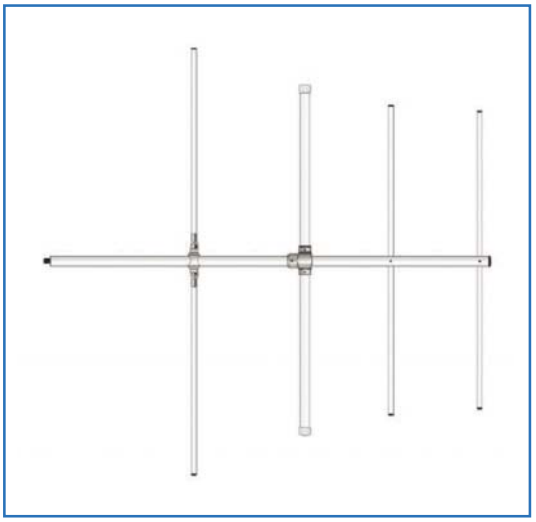
TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications

Type	4 el. yagi
Frequency Band (MHz)	73.5 ÷ 76.5
Impedance (Ω)	50
V.S.W.R. at resonant frequency	< 1 : 1.5
Beamwidth -3 dB	H plane 64° - E plane 113°
Maximum rated RF power	200 Watt
Gain (dBd)	5
Polarization	vertical or horizontal

Mechanical Specifications

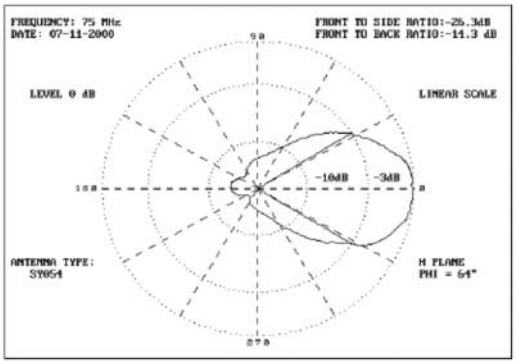
Type of connection (1090 MHz)	N female
Mounting hole (mm)	From 30 to 62 mm master tube
Boom material	Anodized Aluminium
Elements material	Anodized Aluminium
Dimensions (mm)	2405 mm x 2100 mm
Net weight (g)	7000
Wind resistance	120 Km/h



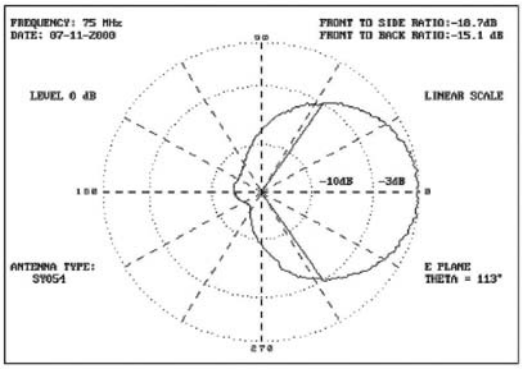
DESCRIPTION:

4 elements yagi antenna with fiberglass covered radiator and lighting protection.

Horizontal Pattern



Vertical Pattern



By λεα LEANTENNE

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Directional VHF Base Antenna

110 ÷ 120 MHz

SY 153A

ATC

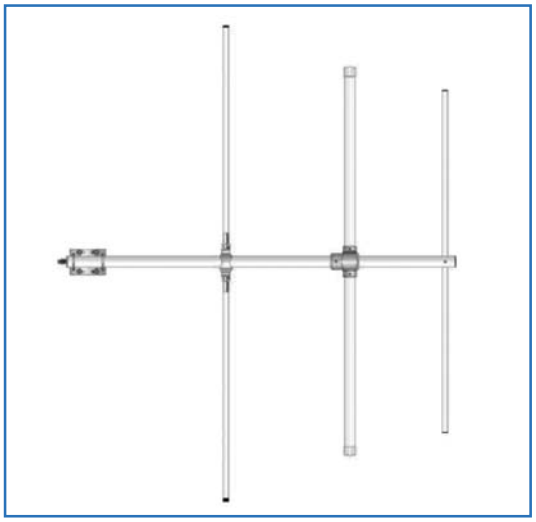
TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications

Type	3 el. yagi
Frequency Band (MHz)	110 ÷ 120
Impedance (Ω)	50
V.S.W.R. at resonant frequency	< 1 : 1.5
Beamwidth -3 dB	H plane 70° - E plane 142°
Maximum rated RF power	200 Watt
Gain (dBd)	5.5
Polarization	vertical or horizontal

Mechanical Specifications

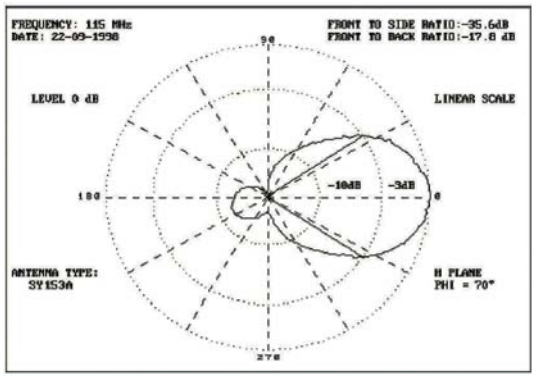
Type of connection (1090 MHz)	N female
Mounting hole (mm)	From 30 to 62 mm master tube
Boom material	Anodized Aluminium
Elements material	Anodized Aluminium
Dimensions (mm)	1430 mm x 1430 mm
Net weight (g)	4000
Wind resistance	120 Km/h



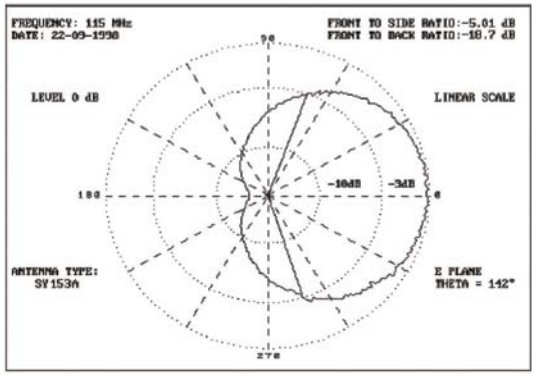
DESCRIPTION:

3 elements yagi antenna with fiberglass covered radiator and lighting protection.

Horizontal Pattern



Vertical Pattern



DIRECTIVE, PANEL ANTENNAS AND OMNI MODULES

By λεα LEANTENNE

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UHF PANEL ANTENNA

225 ÷ 400 MHz, Circular Polarization

T01240602
T01240603

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Impedance (Ω)	50
VSWR	1.5
Polarization	RHCP
Gain (dBi)	10
Pattern Horizontal Plane (degree) Vertical Plane (degree)	 70 40
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

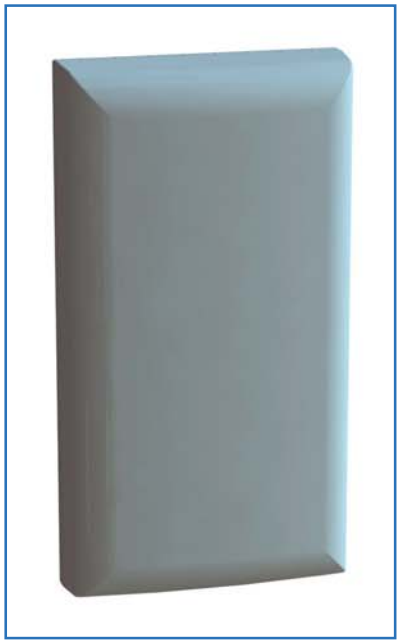
Mechanical Specifications	
Connector	Nf
Dimensions (mm)	1290 x 700 x 240
Colour T01240602 T01240603	 grey 26373 storm grey
Weight (Kg)	25
Wind load @ 150 Km/h (N)	1086
Radome	Fiberglass
Mounting	4 holes M10 x 20 or clamps

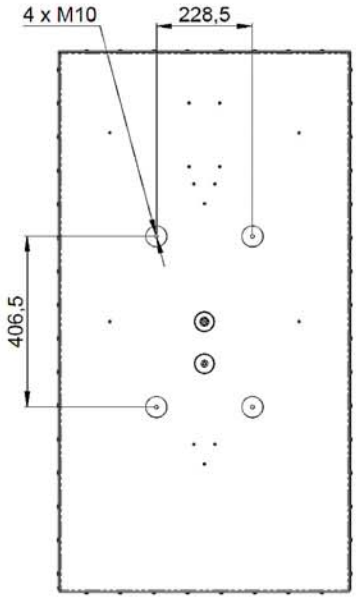
DESCRIPTION:

Circular polarized antenna with sectorial pattern.
The panel is composed of two sections of cross dipoles.
Suitable for marine application due to a rugged construction and IP 66.
A special fixing adapter allows to install it on the platform balance of ships for satellite communications or with bracket can be installed on mast.
The antenna is suitable to be installed on mast with mounting brackts or by means of a special fixing adapter, on the platforms balance for satellite communications.

SPECIAL FEATURES:

- Broadband: 225÷400 MHz
- Nr. input: 1
- Gain: 10 dBi
- Circular polarization
- Sectorial pattern
- High power: 200 W
- Protected against lightning
- Very rugged construction
- IP 66
- Wind resistance up to 200 km/h





By TELSA

T01240602-DS REV. 00
Date: 01/06/2011

VHF PANEL ANTENNA

108 ÷ 156 MHz, 6 dBi, Linear Polarization

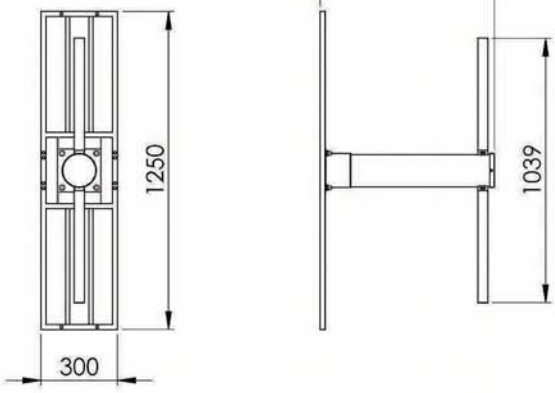
T01210403

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	108 ÷ 156
Impedance (Ω)	50
VSWR	≤2
Polarization	linear: vertical or horizontal
Gain (dBi)	6
Pattern Horizontal Plane Vertical Plane (degree)	 90 ± 3 60 ± 2
Continuous Max Power (W)	500
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

Mechanical Specifications	
Connector	Nf
Dimensions (mm)	1250x300x684
Weight (Kg)	~ 15
Wind Load @ 150 Km/h (N)	200
Material	Hot galvanized still, stainless stell, fiberglass
Mounting	on pole Ø 40÷120 mm



By TELSA

T01210403-DS REV. A0
Date: 15/07/2011

VHF PANEL ANTENNA

108 ÷ 156 MHz, 10 dBi, Linear Polarization

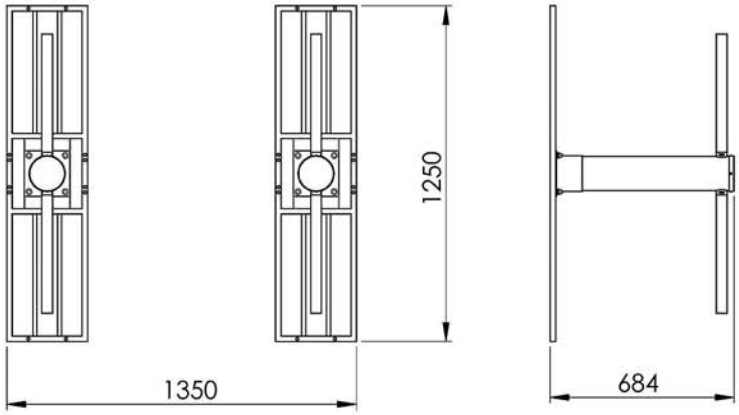
T01220403

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	108 ÷ 156
Impedance (Ω)	50
VSWR	≤2
Polarization	linear: vertical or horizontal
Gain (dBi)	10
Pattern Horizontal Plane Vertical Plane (degree)	 62 ± 3 60 ± 2
Continuous Max Power (W)	500
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

Mechanical Specifications	
Connector	Nf
Dimensions (mm)	1350x1250x684
Weight (Kg)	~ 33
Wind Load @ 150 Km/h (N)	400
Material	Hot galvanized still, stainless stell, fiberglass painted RAL 7039
Mounting	by brackets Ø 40÷120 mm



UHF PANEL ANTENNA

225 ÷ 400 MHz, 10 dBi, Linear Polarization

T01240606

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Impedance (Ω)	50
VSWR	1.5
Polarization	linear: vertical or horizontal
Gain (dBi)	10
Pattern Horizontal Plane Vertical Plane (degree)	 62 ± 3 61 ± 4
Continuous Max Power (W)	> 200
Op. Temp. Range (°C)	- 40 ÷ 70
Lightning Protection	DC grounded

Mechanical Specifications	
Connector	Nf
Dimensions (mm)	750x750x340
Weight (Kg)	~ 16
Wind Load @ 150 Km/h (N)	40
Material	Aluminum
Mounting	on pole Ø 40÷120 mm

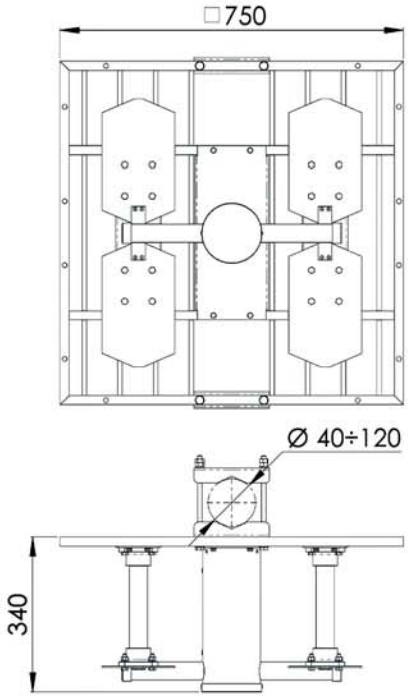
DESCRIPTION:

Broadband UHF Panel Antenna with 60° sectorial pattern in both horizontal and vertical plane. Suitable to be mounted on tower sides or on masts, it has been optimized for terrestrial applications.

Preeminent feature of this antenna is the possibility to connect more panels around a tower and achieve omnidirectional patterns, as well as many asymmetric or higher-gain configurations. This is typically extremely convenient when many antennas are already installed on a tower and only available space for further antennas is on tower sides.

SPECIAL FEATURES:

- Broadband: 225÷400 MHz
- Polarization: Vertical or Horizontal
- Sectorial Pattern: 60°
- Gain: 10 dBi
- Low Wind Area
- Suitable to form omnidirectional arrays



DIRECTIVE, PANEL ANTENNAS AND OMNI MODULES

VHF ANTENNAS SYSTEM

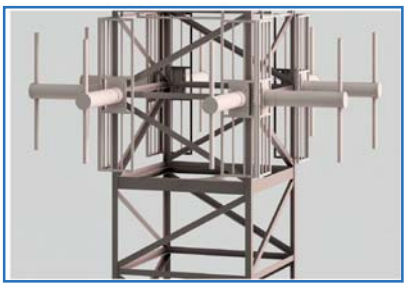
Omnidirectional pattern around the tower
108 ÷ 156 MHz

T023X040X

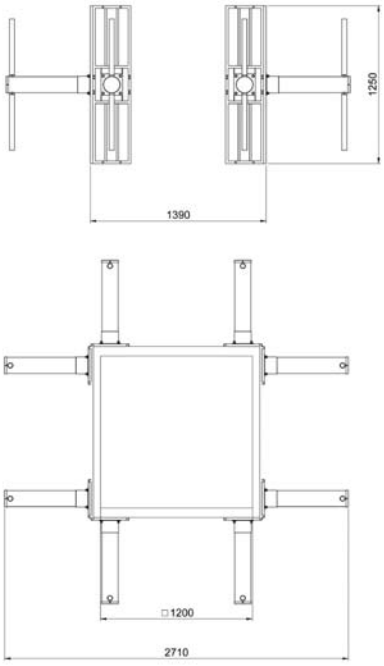
ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

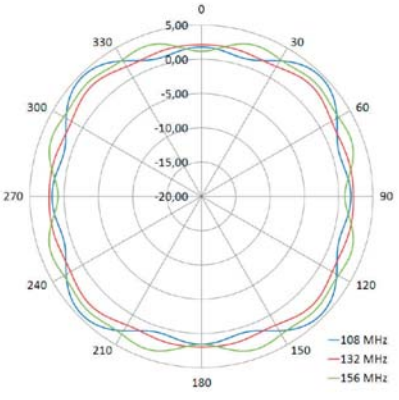
Electrical Specifications	
Frequency Band (MHz)	118 ÷ 156
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear: vertical
Pattern (Tower size:1,3÷2 Mt.)	
Horizontal Plane Continuous	omni ± 2 dB
Max Power (W)	500
Op. Temp. Range (°C)	-40 ÷ +70
Lightning Protection	DC grounded



Mechanical Specifications	
Connector	Nf
Material	Hot galvanized still, stainless stell, fiberglass and painted RAL 7039
Mounting	through 4 holes Ø 14 mm for each panel



Array Specifications						
n° Bays	Code	Gain (dBi)	Vertical Plane (degree)	Weight (Kg)	Wind Load @ 150 Km/h (N)	Antenna Height (m)
1	T02340402	2	55 ± 3	150	520	1.25
2	T02380402	5	25 ± 2	320	1040	3.5



T023X040X-DS REV. A0
Date: 05/12/2011

By TELSA

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UHF PANEL ANTENNAS MODULE

225 ÷ 400 MHz

T023X060X

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Impedance (Ω)	50
VSWR	< 1.5
Polarization	linear: vertical
Pattern Horizontal Plane	omni ± 2 dB
Continuous Max Power (W)	500
Op. Temp. Range (°C)	-40 ÷ +70
Lightning Protection	DC grounded

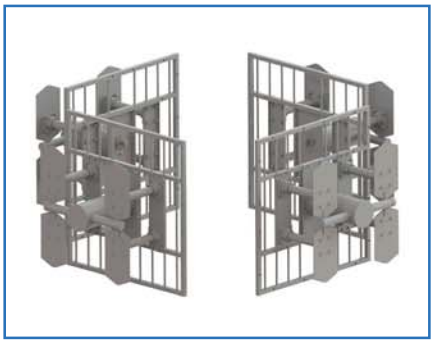
Mechanical Specifications	
Connector	Nf
Material	Aluminum
Mounting	through 4 terns of Ø 14 mm holes for each panel

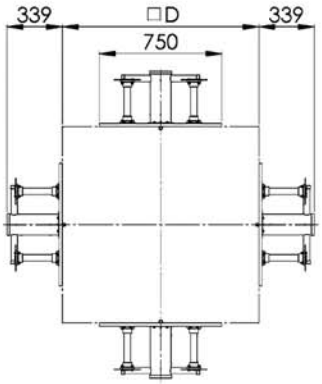
DESCRIPTION:

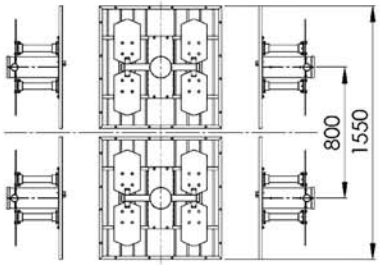
Multiple UHF panel antennas [T01240606] composed in arrays to achieve different omnidirectional patterns. Suitable to be mounted around towers or on masts, these solutions are optimized for terrestrial applications.
These systems are usually extremely convenient when many antennas are already installed on a tower and only available space for further antenna deployment is on tower sides.
Omnidirectional solutions with 2 dBi or higher gain for typical installations [illustrated in this data-sheet] have been standardized and can be ordered directly.
When instead asymmetric radiation patterns are to be achieved or installation site constraints call for ad hoc solutions, custom arrays are composed to adjust to the specific scenario. Typical such instances happen when the tower is so wide that the four-panel standard array solution cannot be employed or when wide sector directive patterns are needed.

SPECIAL FEATURES:

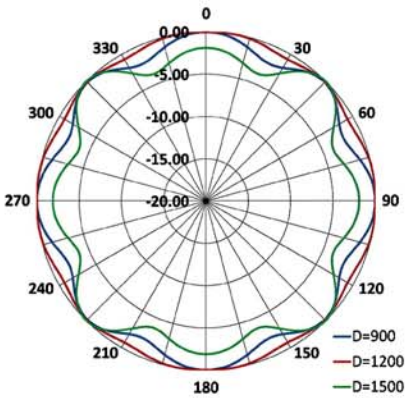
- Broadband: 225÷400 MHz
- Polarization: Vertical
- Different Gain solutions available
- Omnidirectional arrays
- Low Wind Area







General Specifications						
n° Bays	Code	Gain (dBi)	Vertical Plane (degree)	Weight (Kg)	Wind Load @ 150 Km/h (N)	Antenna Height (m)
1	T02340601	2	55 ± 3	67	60	0.75
2	T02380601	5	25 ± 2	138	120	1.55



T023X060X-DS REV. A1
Date: 05/12/2011

By TELSA

VHF/UHF BROADBAND ANTENNAS SYSTEM

Omnidirectional pattern around the tower
108 ÷ 156 MHz / 225 ÷ 400 MHz

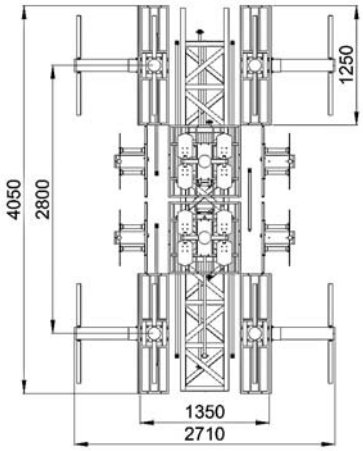
T0238300X

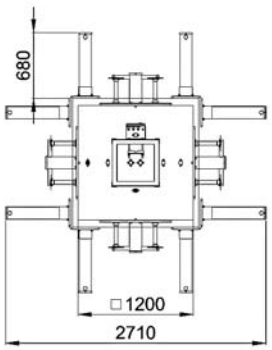
ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

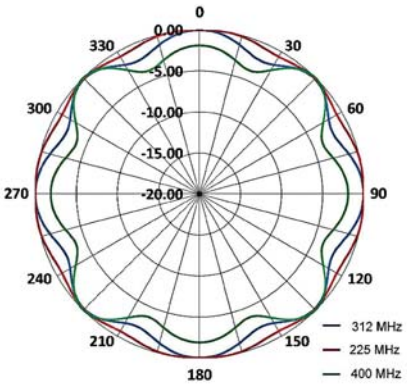
Electrical Specifications	
Frequency Band (MHz)	118 ÷ 156/225 ÷ 400
Impedance (Ω)	50
VSWR	≤ 2
Polarization	linear: vertical
Pattern (Tower size:1,3 Mt. max)	
Horizontal Plane	omni ± 3 dB
Continuous Max Power (W)	500
Op. Temp. Range (°C)	-40 ÷ +70
Lightning Protection	DC grounded

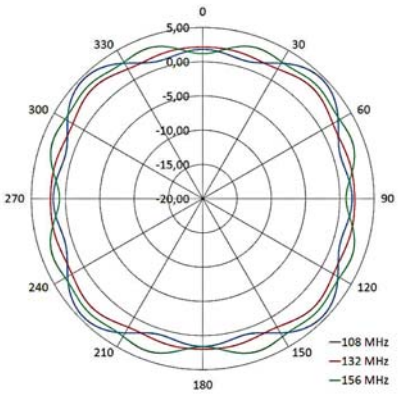
Mechanical Specifications	
Connector	Nf
Material	Hot galvanized still, stainless stell, fiberglass and painted RAL 7039
Mounting	through 4 holes Ø 14 mm for each panel





Array Specifications						
n° Bays	Code	Gain (dBi)	Vertical Plane (degree)	Weight (Kg)	Wind Load @ 150 Km/h (N)	Antenna Height (m)
1	T02283003	2	55 ± 3	217	1120	2.25
2	T02283002	5	25 ± 2	437	2240	4.5





T0238300X-DS REV. A0
Date: 05/12/2011

By TELSA

We reserve the right to modify these data without any notice

VHF PASS-REJECT CAVITY FILTER

Single Cavity Filter 118 ÷ 156 MHz

T05110424

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	118 ÷ 156
Insertion Loss (dB)	≤ 1.5
Return Loss (dB)	≥ 15
Max continuous Power @ 2dB Insertion Loss (W)	< 200
Impedance (Ω)	50
Op. Temp. Range (°C)	- 10 ÷ 55
Attenuation (single cavity) f_0 + 0.5 MHz (dB) f_0 - 0.5 MHz (dB)	 > 15 > 40

Mechanical Specifications	
Connectors	Nf
Max dimension (mm)	690 x 19' 'x 5U
Material	Aluminium
External Finishing	RAL 9005
Panel Finishing	RAL 5005
Weight (kg)	21.5

DESCRIPTION:

T05110424 is a high power Pass-Reject cavity Filter – a passband filter which also simultaneously notches a selected range of frequencies – tunable across the extended VHF frequency range [118-156 MHz]. All relevant parameters are suitable to be changed on site thanks to: two (input and output) adjustable loops, one knob for frequency tuning, and one screw for rejection tuning.
This filter features a 210 mm section square cavity, which grants extremely high Q with consequently very narrow pass/reject spacing. Large dimensions also guarantee high power handling [200 W] while tuning mechanism is internal and therefore filter's depth does not change with tuned frequency. This characteristic, distinguishing feature of all Telsa cavities, has an important practical advantage towards competitor's products, because it allows to use shorter cabinets.
T05110424 is also characterized by High frequency stability on temperature and power.
Multiple cavity versions are also available to achieve higher selectivity and attenuation.
These units are suitable to be mounted on a standard 5U x 19" rack, fitting two units.

STANDARD ATC FILTERS, COMBINERS AND COMPONENTS

By TELSA

T05110424-DS REV. 00
Date: 12/09/2011

VHF BAND PASS CAVITY FILTER

118 ÷ 156 MHz, Adjustable Loop

T05110432
T05110418
T05110428

ATC

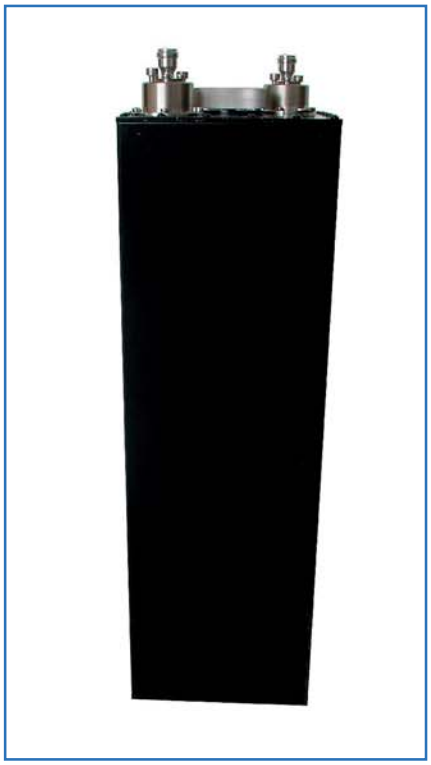
TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	118 ÷ 156
Insertion Loss with adjustable loop (dB)	0.5 ÷ 2
Return Loss (dB)	≥ 18
Max continuous Power (W)	< 200
Impedance (Ω)	50
Op. temp. range (°C)	- 10 ÷ 55

Mechanical Specifications	
Input Connector	Nf
Output Connector	Nf
Options	Mounting on rack standard 19"
Tuning Control	With internal mechanism to minimize overall sizes

DESCRIPTION:

High power single cavity filter with the best trade-off between Attenuation and Insertion Loss. On site re-tuning could not be easier: by moving the two adjustable loops, the operator regulates directly the Input/Output Return Loss / Attenuation of the filter without any impact on the pre-selected frequency. Also unskilled personnel can hence easily fine-tune filters directly on site. Further, tuning mechanism is internal and therefore filter's depth remains fixed when changing tuned frequency.
Three different cavity sizes [108/150/210 mm sections] are available to achieve the level of selectivity desired. All units are suitable to be mounted on standard 19" racks respectively of 3U, 4U, and 5U height. Interesting feature, is the possibility offered by the smallest cavities to fit up to four filters in a standard 19" rack. Front panels and racks are available as optional.



Part Number	Selectivity @ ± 500 KHz with 1dB insertion loss at mid band dB	Dimension (mm)	Weight (kg)
T05110432	≥ 10	108 x 108 x 519	3,5
T05110418	≥ 12	150 x 150 x 620	5
T05110428	≥ 16	210 x 210 x 660	6

UHF BAND PASS CAVITY FILTER

225 ÷ 400 MHz, Adjustable Loop

T05110617
T05110621
T05110625

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Insertion Loss with adjustable loop (dB)	0.5 ÷ 2
Return Loss (dB)	≥ 18
Max continuous Power (W)	< 200
Impedance (Ω)	50
Op. Temp. Range (°C)	- 10 ÷ 55

Mechanical Specifications	
Input Connector	Nf
Output Connector	Nf
Options	Mounting on rack standard 19"
Tuning Control	With internal mechanism to minimize overall sizes

DESCRIPTION:

Just like its homologous in the VHF band, this UHF high power single cavity filter features the best trade-off between Attenuation and Insertion Loss.
The internal tuning mechanism, together with the possibility to adjust the Input/Output coupling loops, make this cavity filter the best technical solution for UHF single channel filtering. By managing the two adjustable loops, in fact, any unskilled operator can regulate directly Return Loss and Attenuation without affecting previously set frequency. Further, filter's depth remains fixed when changing tuned frequency with great space optimization and reduction of overall volume.
Three different cavity sizes [108/150/210 mm sections] are available to achieve the level of selectivity desired. All units are suitable to be mounted on standard 19" racks, respectively of 3U, 4U, and 5U height. Interesting feature, is the possibility offered by the smallest cavities to fit up to four filters in a standard 19" rack. Front panels and racks are available for ordering as optional.

Part Number	Selectivity @ ± 1.2 MHz with 1dB insertion loss at mid band (dB)	Dimension (mm)	Weight (kg)
T05110625	≥ 13	108 x 108 x 486	2.8
T05110617	≥ 15	150 x 150 x 487	5
T05110621	≥ 17	210 x 210 x 475	6

STANDARD ATC FILTERS, COMBINERS AND COMPONENTS

By TELSA

T05110617-DS REV. 00
Date: 12/09/2011

VHF DUAL CAVITY BAND PASS FILTER

118 ÷ 156 MHz

T05120466
T05120442
T05120409

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	118 ÷ 156
Insertion Loss with adjustable loop (dB)	1 ÷ 3
Return Loss (dB)	≥ 18
Max continuous Power (W)	< 200
Impedance (Ω)	50
Op. Temp. Range (°C)	- 10 ÷ 55

Mechanical Specifications	
Input Connector	Nf
Output Connector	Nf
Panel Color	RAL 9005 (black)
Tuning Control	With internal mechanism to minimize overall sizes

DESCRIPTION:

When isolation between channels is a strong requirement, then Telsa dual cavity filters are the perfect solution.
Dual cavity filters are available in three standard configurations – featuring cavities of 108/150/210 mm sections – allowing to achieve different levels of Selectivity for a given value of Insertion Loss.
108 mm and 150 mm cavities are externally coupled, with two identical cavity filters connected with an RF cable; by removing the cable, the two cavities are therefore suitable to be employed as separate single cavity filters. 210 mm cavities are internally coupled to minimize losses but may not be used separately.
When stronger attenuation is required, then we offer the possibility either to upgrade to triple (or higher) cavity configurations or to employ Telsa high performance isolators, optimized electrically and mechanically for use with our filters.
Also dual cavity filters feature the clever internal tuning mechanism: by moving the two adjustable loops, the operator regulates directly the Input/Output Return Loss / Attenuation of the filter without affecting selected frequency, which remains fixed during this operation. Also unskilled personnel can hence easily re-tune filters directly on site.
Further, with Telsa internal tuning mechanism, filter's depth remains unaltered when changing tuned frequency with great space optimization and reduction of overall volume.
All units are suitable to be mounted on standard 19" racks respectively of 3U, 4U, and 5U height. Interesting feature, is the possibility offered by the smallest cavities to fit up to four units (ie two complete dual filters) in a standard 19" rack. Front panels and racks are included by default.

Part Number	Selectivity @ ± 500 KHz with 2dB insertion loss at mid band dB	Dimension (mm)	Weight (kg)
T05120466	≥ 20	3U x 19" x 680	8
T05120442	≥ 25	4U x 19" x 686	11
T05120409	≥ 35	5U x 19" x 686	21.5

UHF DUAL CAVITY BAND PASS FILTER

225 ÷ 400 MHz

T05120629
T05120621
T05120601

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Insertion Loss with adjustable loop (dB)	1 ÷ 3
Return loss (dB)	≥ 18
Max continuous Power (W)	< 200
Impedance (Ω)	50
OperatingTemp. range (°C)	- 10 ÷ 5

Mechanical Specifications	
Input Connector	Nf
Output Connector	Nf
Panel Color	RAL 9005 (black)
Tuning Control	With internal mechanism to minimize overall sizes

DESCRIPTION:

When isolation between channels is a strong requirement, then Telsa dual cavity filters are the perfect solution.
Dual cavity filters are available in three standard configurations – featuring cavities of 108/150/210 mm sections – allowing to achieve different levels of Selectivity for a given value of Insertion Loss.
108 mm and 150 mm cavities are externally coupled, with two identical cavity filters connected with an RF cable; by removing the cable, the two cavities are therefore suitable to be employed as separate single cavity filters. 210 mm cavities are internally coupled to minimize losses but may not be used separately.
When stronger attenuation is required, then we offer the possibility either to upgrade to triple (or higher) cavity configurations or to employ Telsa high performance isolators, optimized electrically and mechanically for use with our filters.
Also dual cavity filters feature the clever internal tuning mechanism: by moving the two adjustable loops, the operator regulates directly the Input/Output Return Loss / Attenuation of the filter without affecting selected frequency which remains fixed during this operation. Also unskilled personnel can hence easily re-tune filters directly on site.
Further, with Telsa internal tuning mechanism, filter's depth remains unaltered when changing tuned frequency with great space optimization and reduction of overall volume.
All units are suitable to be mounted on standard 19" racks respectively of 3U, 4U, and 5U height. Interesting feature, is the possibility offered by the smallest cavities to fit up to four units (ie two complete dual filters) in a standard 19" rack. Front panels and racks are included by default.

Part Number	Selectivity @ ± 1.2 MHz with 2dB insertion loss at mid band (dB)	Dimension (mm)	Weight (kg)
T05120629	≥ 25	3U x 19" x 680	8
T05120621	≥ 30	4U x 19" x 550	10
T05120601	≥ 35	5U x 19" x 686	20

VHF AUTOMATIC CAVITY FILTER

118 ÷ 156 MHz

T05XX04XX

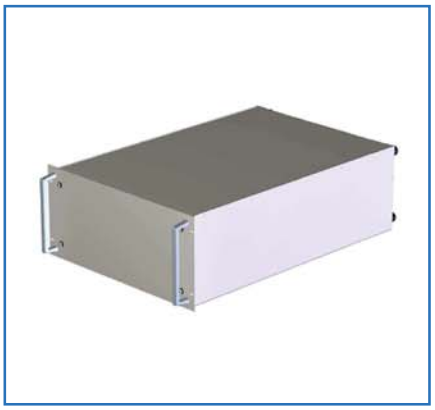
ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	118 ÷ 156
Impedance (Ω)	50
Tuning accuracy (KHz)	≤ 8
Channel spacing ICAO8.33 (KHz) ICAO25 (KHz)	 8.33 25
Return loss (dB)	≥ 10
Max continuous power (W)	200
Remote control interface	RS485
Maintenance interface	RS232
Thermal stability (ppm/°C)	3
Power supply main (V AC) stand-by (V DC)	 230(±20%) 21÷31
Electrical safety	IEC 60950-1 EN 60950-1
EMC	ETSI EN 301 489-22

DESCRIPTION:

TELSA VHF Automatic Filters are the perfect solution for emergency channels and in general for applications where filter frequency is not fixed but can vary across the VHF band. Many standard configurations are available with single of double cavities and with different cavity sizes to achieve the desired balance between Selectivity and Insertion Loss. In all cases, compact and rugged mechanical design and high reliability make these systems well fit also for demanding applications in harsh environments.
No internal loop retuning is required when channel frequency is changed either automatically by the radio or directly by the operator using the (optional) keypad on the front panel. Thanks to the internal tuning mechanism, filter's depth remains unaltered when tuning is performed with great space optimization and reduction of overall volume. All systems come by default in a standard 19" fully enclosed metal housing.
The protocol of the electronic board is proprietary and fully customizable to ensure seamless compatibility with customer radio.
These filters are also suitable to be combined to compose automatic combiners in double-bridge configuration with any number of channels.



Mechanical Specifications	
Maximum tuning time between fmin ÷ fmax (sec)	60 for T ≤ 0°C 25 for T > 0°C
Emergency mechanical tuning	by screwdriver
RF Connectors	N f
Panel colour	RAL7035
Operating enviroment	ETS 300 019-1-2 ETS 300 019-2-3 Class 3.1E
With extended temperature range (°C)	-10 ÷ +55
Transportation and handling	ETS 300 019-2-2 Class 2.2

Part Number	Filter Type	Insertion Loss (dB)	Selectivity (dB)	Current Consumption (mA)	Dimension (mm)	Weight (kg)
T05110438	Single Cavity 150	@118 MHz ≤ 1.2 @127.5 MHz ≤ 1 @156 MHz ≤ 0.9	Δ(f)≥ ±0.5% ≥ 11 Δ(f)≥ ±1% ≥ 17	stand-by ≤ 165 on tuning ≤ 230	4U x 19" x 600	12
T05120444	Double Cavity 150	@118 MHz ≤ 2.3 @127.5 MHz ≤ 2 @156 MHz ≤ 1.9	Δ(f)≥ ±0.5% ≥ 25 Δ(f)≥ ±1% ≥ 37	stand-by ≤ 165 on tuning ≤ 300	4U x 19" x 600	22
T05110434	Single Cavity 210	@118 MHz ≤ 1.2 @127.5 MHz ≤ 1 @156 MHz ≤ 1	Δ(f)≥ ±0.5% ≥ 11.5 Δ(f)≥ ±1% ≥ 17.5	stand-by ≤ 165 on tuning ≤ 230	5U x 19" x 685	14
T05120452	Double Cavity 210	@118 MHz ≤ 2.3 @127.5 MHz ≤ 2 @156 MHz ≤ 1.9	Δ(f)≥ ±0.5% ≥ 36 Δ(f)≥ ±1% ≥ 48	stand-by ≤ 165 on tuning ≤ 300	5U x 19" x 685	26

UHF AUTOMATIC CAVITY FILTER

225 ÷ 400 MHz

T05XX06XX

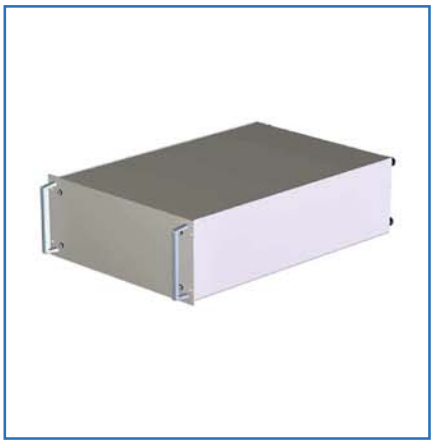
ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Impedance (Ω)	50
Tuning accuracy (KHz)	< 15
Channel spacing ICAO25 (KHz)	25
Return Loss (dB)	> 10
Max continuous power (W)	200
Op. Temp.vRange (°C)	- 10 ÷ 55
Remote control interface	RS485
Maintenance interface	RS232
Thermal stability (ppm/°C)	3
Power supply main (VAC) stand-by (VDC)	220(±20%) 21÷31
Electrical safety	IEN 60950-1 EN 60950-1
EMC	ETSI EN 301 489-22

DESCRIPTION:

TELSA UHF Automatic Filters are the perfect solution for emergency channels and in general for applications where filter frequency is not fixed but can vary across the UHF band. Many standard configurations are available with single of double cavities and with different cavity sizes to achieve the desired balance between Selectivity and Insertion Loss. In all cases, compact and rugged mechanical design and high reliability make these systems well fit also for demanding applications in harsh environments.
No internal loop retuning is required when channel frequency is changed either automatically by the radio or directly by the operator using the (optional) keypad on the front panel. Thanks to the internal tuning mechanism, filter's depth remains unaltered when tuning is performed with great space optimization and reduction of overall volume. All systems come by default in a standard 19" fully enclosed metal housing.
The protocol of the electronic board is proprietary and fully customizable to ensure seamless compatibility with customer radio.
These filters are also suitable to be combined to compose automatic combiners in double-bridge configuration with any number of channels.

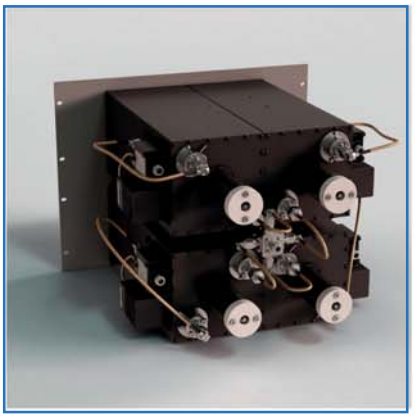


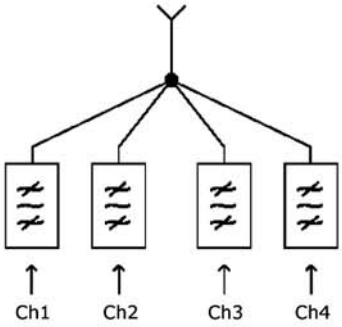
Mechanical Specifications	
Maximum tuning time (sec)	60 for T ≤ 0°C 25 for T > 0°C
Emergency mechanical tuning	by screwdriver
Connectors	Nf
Front panel colour	RAL7035 (grey)
Operating enviroment	ETS 300 019-1-2 ETS 300 019-2-3 Class 3.1E
With extended temperature range (°C)	-10 ÷ +55
Transportation and handling	ETSI 300 019-2-2 Class 2.2

Part Number	Filter Type	Insertion Loss (dB)	Selectivity (dB)	Current Consumption (mA)	Dimension (mm)	Weight (kg)
T05110630	Single Cavity 150	@225 MHz ≤ 1.3 @312.5 MHz ≤ 1 @400 MHz ≤ 1	Δ(f)≥ ±0.5% ≥ 16 Δ(f)≥ ±1% ≥ 22	stand-by ≤ 165 on tuning ≤ 230	4U x 19" x 600	12
T05120628	Double Cavity 150	@225 MHz ≤ 2.3 @312.5 MHz ≤ 2 @400 MHz ≤ 2.1	Δ(f)≥ ±0.5% ≥ 25 Δ(f)≥ ±1% ≥ 40	stand-by ≤ 165 on tuning ≤ 300	4U x 19" x 600	22
T05110626	Single Cavity 210	@225 MHz ≤ 1.3 @312.5 MHz ≤ 1 @400 MHz ≤ 1	Δ(f)≥ ±0.5% ≥ 17.5 Δ(f)≥ ±1% ≥ 22.5	stand-by ≤ 165 on tuning ≤ 230	5U x 19" x 500	14
T05120635	Double Cavity 210	@225 MHz ≤ 2.3 @312.5 MHz ≤ 2 @400 MHz ≤ 2.1	Δ(f)≥ ±0.5% ≥ 39.5 Δ(f)≥ ±1% ≥ 51.5	stand-by ≤ 165 on tuning ≤ 300	5U x 19" x 500	20

STAR POINT COMBINERS

TELSA offers a wide range of combiners realized in both star point and T-pass configuration. Low cost, compact design and remarkable RF performances are common features of these systems, which are ideally suited for applications involving fixed frequency channels. Depending on customer specifications TELSA recommends the use of 3 different square cavity sections (100, 150, 210 mm) to simultaneously achieve the desired balance of attenuation and Insertion Loss.
Standard selectivity combiners are made with a single cavity for each channel.
If stronger attenuation is required then double cavities may be used with or without isolator.





VHF Standard Selectivity

Number of Channels	Insertion Loss (dB)	Isolation @ 0.5% (dB)	Cavity Section (mm)	Mechanical Dimension
2	1.3	> 11	100	3U x 19"x 600mm
	1.3	> 13	150	4U x 19"x 550mm
	1.3	> 15	210	5U x 19"x 685mm
3	1.5	> 11	100	3U x 19"x 600mm
	1.5	> 13	150	8U x 19"x 550mm
	1.5	> 15	210	10U x 19"x 685mm
4	1.6	> 11	100	3U x 19"x 600mm
	1.6	> 13	150	8U x 19"x 550mm
	1.6	> 15	210	10U x 19"x 685mm
N	.....	.....	.....	.....

UHF Standard Selectivity

Number of Channels	Insertion Loss (dB)	Isolation @ 0.5% (dB)	Cavity Section (mm)	Mechanical Dimension
2	1.3	> 11	100	3U x 19"x 600mm
	1.3	> 13	150	4U x 19"x 550mm
	1.3	> 15	210	5U x 19"x 685mm
3	1.5	> 11	100	3U x 19"x 600mm
	1.5	> 13	150	8U x 19"x 550mm
	1.5	> 15	210	10U x 19"x 685mm
4	1.6	> 11	100	3U x 19"x 600mm
	1.6	> 13	150	8U x 19"x 550mm
	1.6	> 15	210	10U x 19"x 685mm
N	.....	.....	.....	.....

VHF High Selectivity

Number of Channels	Insertion Loss (dB)	Isolation @ 0.5% (dB)	Cavity Section (mm)	Mechanical Dimension
2	2.3	> 22	100	3U x 19"x 600mm
	2.3	> 26	150	8U x 19"x 550mm
	2.3	> 30	210	10U x 19"x 685mm
3	2.5	> 22	100	6U x 19"x 600mm
	2.5	> 26	150	12U x 19"x 550mm
	2.5	> 30	210	15U x 19"x 685mm
4	2.6	> 22	100	6U x 19"x 600mm
	2.6	> 26	150	16U x 19"x 550mm
	2.6	> 30	210	20U x 19"x 685mm
N	.....	.....	.....	.....

UHF High Selectivity

Number of Channels	Insertion Loss (dB)	Isolation @ 0.5% (dB)	Cavity Section (mm)	Mechanical Dimension
2	2.3	> 22	100	3U x 19"x 600mm
	2.3	> 26	150	8U x 19"x 550mm
	2.3	> 30	210	10U x 19"x 685mm
3	2.5	> 22	100	6U x 19"x 600mm
	2.5	> 26	150	12U x 19"x 550mm
	2.5	> 30	210	15U x 19"x 685mm
4	2.6	> 22	100	6U x 19"x 600mm
	2.6	> 26	150	16U x 19"x 550mm
	2.6	> 30	210	20U x 19"x 685mm
N	.....	.....	.....	.....

VHF & UHF Combiners in Double Bridge Configuration

T06XXXXXX

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

DOUBLE BRIDGE COMBINERS:

TELSA Double Bridge Combiners are the most flexible and reliable combining systems in the Air Traffic Control market.
This configuration provides state of the art performances with the best frequency response and isolation
attainable. Double bridge combiners have many advantages compared to standard T-pass or star-point configurations due to their intrinsic modularity. Each channel works in fact as a separate unit, with great benefits, such as:

- No need to re-perform all cable connections when changing frequency so retuning is much simpler and automatic tuning is particularly effective;
- Isolation between channels guaranties operational conditions even if a module (channel) breaks;
- High scalability: possibility to add channels by simply connecting new modules;
- Possibility to connect spare units and create redundancies to achieve maximum system reliability for military applications.

These features are valid for a general configuration based on the double bridge principle.
Depending on customer design / requirement (basically Inser¬tion Loss and Isolation between the closest channels) TELSA can recommend the optimal configuration among the different versions shown in the table below.
Standard Combiners are made with 4U Manual Cavity Filters and represent a good solution for applications involving fixed-frequency channels. One of the great possibilities offered by this configuration is to realize Double Bridge Combiners (for both VHF and UHF bands) using Automatic Filters (with single or double cavities) suitable to be interfaced with customer radios by means of Telsa proprietary developed com¬munication protocol. In Automatic Double Bridge Combiners, each frequency channel can then be changed directly by the radio at any time and across the whole band without any retuning of the filters: this possibility is of course barred in star point or T-pass combiners where cables connections are frequency dependent.

VHF Standard Selectivity

Part Number	Number of Channels	Insertion Loss (dB)	Isolation @ 1% (dB)	Mechanical Dimension
T06170401	2	1.7	> 40	8U
T06180403	3	2	> 40	12U
T06190403	4	2.3	> 40	16U
.....	.....	.....	.....	.....
T06XXXXXX	N	1.7 x N x 0,2	> 40	Nx4U

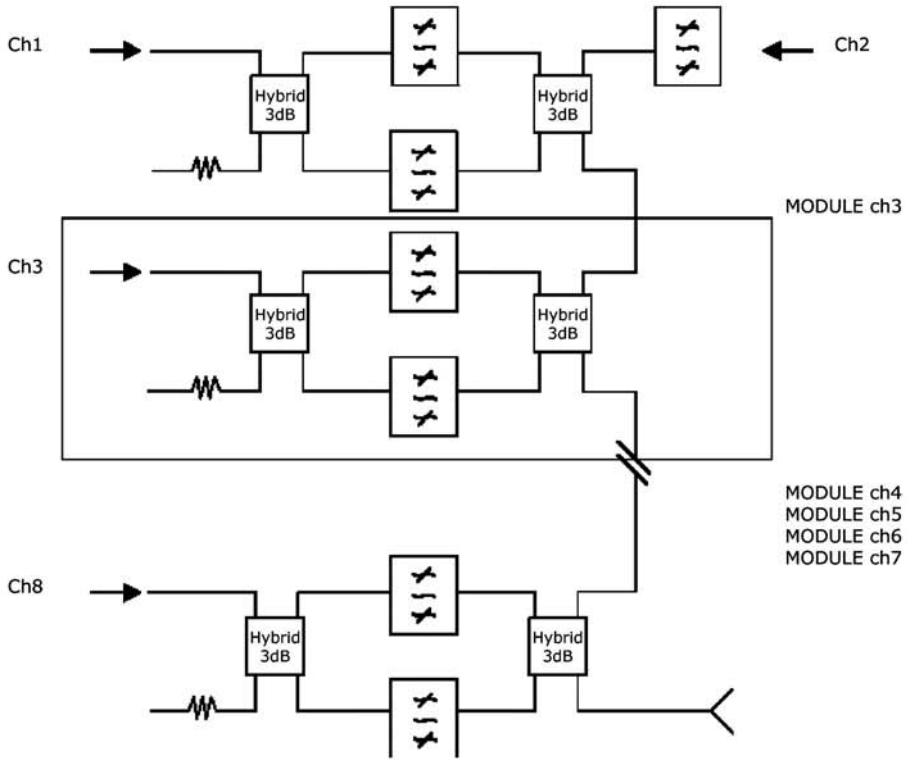
VHF High Selectivity

Part Number	Number of Channels	Insertion Loss (dB)	Isolation @ 1% (dB)	Mechanical Dimension
T06170403	2	2	> 60	12U
T06180404	3	2.3	> 60	20U
T06190405	4	2.6	> 60	28U
.....	.....	.....	.....	.....
T06XXXXXX	N	2 x N x 0,2	> 60	

T06XXXXXX-DS REV. 00
Date: 12/09/2011

By TELSA

DOUBLE BRIDGE



UHF Standard Selectivity

Part Number	Number of Channels	Insertion Loss (dB)	Isolation @ 1% (dB)	Mechanical Dimension
T06170604	2	1.7	> 40	8U
T06180605	3	2	> 40	12U
T06190605	4	2.3	> 40	16U
.....	.....	.....	.....	.....
T06XXXXXX	N	1.7 x N x 0,2	> 40	Nx4U

UHF High Selectivity

Part Number	Number of Channels	Insertion Loss (dB)	Isolation @ 1% (dB)	Mechanical Dimension
T06170603	2	2	> 60	12U
T06180604	3	2.3	> 60	20U
T06190604	4	2.6	> 60	28U
.....	.....	.....	.....	.....
T06XXXXXX	N	2 x N x 0,2	> 60	.....

VHF/UHF 2/4 Channels Hybrid Combiners

100 W per Channel, Optional Harmonics Suppression Kit

T060X0X0X

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications

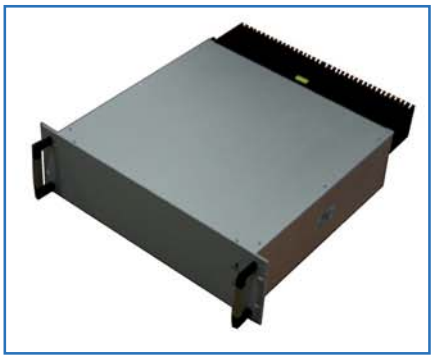
Impedance (Ω)		50
VSWR		< 1.5
Max continuous Input Power (W) all ports simultaneously		100
Power Supply (V_{AC})		230
Alarm (output with pull-up resistor)	VSWR default threshold	≥ 2
	alarm OFF(V)	≥ 10
	alarm ON (V)	< 1
Current Absorption (mA)		< 80
Harmonic Suppression (dBc)		≥ 55
Op. Temp. Range (°C)		-20 ÷ +55
Electrical Safety		EN 60950 EN 60215
EMI / EMC		ETSI EN 301 489-1 /-18

Harmonic Suppression Kit

Insertion Loss (dB)	+ 0.5
Harmonic Suppression (dBc)	+ 25

DESCRIPTION:

T060X0X0X are very high-power hybrid combiners capable of handling up to 100W per input. They represent the best technical solution in the market to combine up to 4 high power transmitters. The presence of isolators (with high IMD performances) ensures protection of Power Amplifiers in case the antenna breaks. Furthermore, such event is promptly evidenced by the VSWR meter, which generates an alarm signaled by a yellow LED on the front panel and also detectable on a pin of the SUB-D connector. Thanks to the employment of hybrids, all channels can be tuned– at 25 KHz steps – to any frequency across the UHF band without any constraint in terms of minimum distance between channels, which is a typical limitation of cavity combiners. A Harmonics Suppression Kit is available as optional.



Mechanical Specifications

RF Connectors	N f
Alarm Connectors	DIN 9 pin male
Dimensions	3U × 19" × 520mm
Front Panel Colour	RAL 7047
Relative Humidity	< 95% @ 40°C not condensing
Vibration	IEC 60068-2-6 0.3mm double amplitude 2g, 10 ÷ 55 Hz 1 octave / min total test period 30min
Shock	IEC 60068-2-27 30g for 11ms 18 shocks in 3 positions
MTBF (hours)	≥ 440000
Enviromental Conditions	IP20

General Specifications

Code	Frequency Band (MHz)	Max nº Channels	Insertion Loss (dB)	Weight (Kg)	Isolation (dB) Channel to Channel	Minimum Input Power for VSWR and Alarms (W)	IM3 < - 80 (dBc)
T06010402	VHF 118 ÷ 144	2	≤ 5	11.7	≥ 65	5	2 x 47 dBm
T06030404	VHF 118 ÷ 144	4	≤ 7.5	13.7	≥ 35	0.1	2 x 43 dBm
T06010605	UHF 225 ÷ 400	2	≤ 5	10.5	≥ 65	5	2 x 47 dBm
T06030605	UHF 225 ÷ 400	4	≤ 7.5	12.5	≥ 35	0.1	2 x 43 dBm

High Power 2 Channels UHF Hybrid Combiners

500 W per Channel

T06010606

ATC

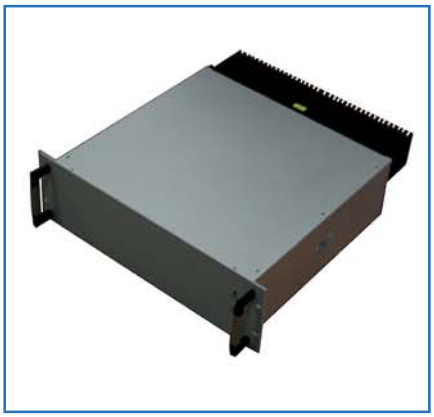
TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications

Frequency Band (MHz)		225 ÷ 400
Impedance (Ω)		50
Insertion Loss (dB)		≤ 3.5
VSWR		< 1.5
Isolation (dB) channel to channel with		≥ 25
Max continuous Input Power (W) all ports simultaneously		500
Power Supply (V_{AC}) -10% ÷ +15% @ 47 ÷ 63 Hz		230
Alarm (output with pull-up resistor)	VSWR default threshold	≥ 2+25%
	alarm OFF (V)	≥ 10
	alarm ON (V)	< 1
Minimum Input Power fior VSWR and alarms (W)		5
Current Absorption (mA)		< 80
IM3 (dBc) 2 × 47 dBm		< -80
Harmonic Suppression (dBc)		≥ 55
Op. Temp. Range (°C)		-20 ÷ 55
Electrical Safety		EN 60950 EN 60215
EMI / EMC		ETSI EN 301 489-1 /-18

DESCRIPTION:

T06010606 is an ultra high-power hybrid combiner capable of handling up to 500W per input.
It represents the best technical solution in the market to combine 2 high power transmitters. Breakings of antennas are promptly evidenced by the internal VSWR meter, which generates an alarm signaled by a yellow LED on the front panel and also detectable on a pin of the SUB-D connector.
Thanks to the employment of hybrids, all channels can be tuned– at 25 KHz steps – to any frequency across the UHF band without any constraint in terms of minimum distance between channels, which is a typical limitation of cavity combiners.



Mechanical Specifications

RF Connectors	N f
Alarm Connectors	DIN 9 pin male
Dimensions	3U × 19" × 520mm
Weight (Kg)	10.5
Front Panel Colour	RAL 7047
Relative Humidity	< 95% @ 40°C not condensing
Vibration	IEC 60068-2-6 0.3mm double amplitude 2g, 10 ÷ 55 Hz 1 octave / min total test period 30min
Shock	IEC 60068-2-27 30g for 11ms 18 shocks in 3 positions
MTBF (hours)	≥ 440000
Enviromental Conditions	IP20

VHF RECEIVER MULTICOUPLER 8 WAYS

118 ÷ 137 MHz

T13060401

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	118 ÷ 137
Impedance (Ω)	50
Nr. of outputs	8
Nr. of antenna ports	1
Nr. of power supply ports	2
Return Loss (all ports) (dB)	≥ 15
Noise figure (dB)	≤ 4
Gain (dB)	2 ± 1.5
Isolation (dB) between any 2 outputs	≥ 20
IP 3rd order (dBm)	≥ +25
Band rejection @10MHz (dB)	≥ 25
Power supply (V_{DC})	21.6 ÷ 31.2
Op. Temp. Range (°C)	-20 ÷ 50
Storage Temp. Range (°C)	40 ÷ 70
Op. Humidity Range (°C)	5% ÷ 90%
Storage Humidity Range (°C)	100%
Protection	IP 20

Mechanical Specifications	
Connectors	N f
Dimensions (mm)	19" x 1U x 385
Weight (Kg)	3.4

DESCRIPTION:

This receiver multicoupler allows to connect up to 8 channels to one common antenna in the 118-137 MHz VHF band.
The low noise figure [< 4 dB] and excellent intermodulation properties guarantee a high dynamic range and thereby enhanced receiving conditions. This is particularly significant in locations where transmitters are operated nearby.
Unused output ports should always be terminated with 50 Ohm loads to preserve gain flatness and specified inter-port isolation.

STANDARD ATC FILTERS, COMBINERS AND COMPONENTS

By TELSA

T13060401-DS REV. 00
Date: 12/09/2011

UHF RECEIVER MULTICOUPLER 8 WAYS

225 ÷ 400 MHz

T13060601

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Impedance (Ω)	50
Nr. of outputs	8
Nr. of antenna ports	1
Nr. of power supply ports	2
Return Loss (all ports) (dB)	≥ 15
Noise figure (dB)	≤ 4
Gain (dB)	4 ± 1.5
Isolation (btw any 2 outputs) (dB)	≥ 20
IP 3rd order (dBm)	≥ +30
Band rejection @50MHz (dB)	≥ 25
Power supply (VDC)	21.6 ÷ 31.2
Op. Temp. Range (°C)	-20 ÷ 50
Storage Temp. Range (°C)	40 ÷ 70
Op. Humidity Range (°C)	5% ÷ 90%
Storage Humidity Range (°C)	100%
Protection	IP20

Mechanical Specifications	
Connectors	Nf
Dimensions (mm)	19" x 1U x 385
Weight (Kg)	3.3

DESCRIPTION:

This receiver multicoupler allows to connect up to 8 channels to one common antenna in the 225-400 MHz UHF band.
The low noise figure [< 4 dB] and excellent intermodulation properties guarantee a high dynamic range and thereby enhanced receiving conditions. This is particularly significant in locations where transmitters are operated nearby.
Unused output ports should always be terminated with 50 Ohm loads to preserve gain flatness and specified inter-port isolation.

STANDARD ATC FILTERS, COMBINERS AND COMPONENTS

By TELSA

T13060601-DS REV. 00
Date: 12/09/2011

VHF - UHF Broadband Receiver Multicoupler 16 WAYS

230 VAC, 6 dB

T13083008

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	118 ÷ 400
Impedance (Ω)	50
Nr. of outputs	16 + 1
Nr. of antenna ports	2
VSWR overall ports	< 1.5
Noise figure (dB)	< 6
Gain (dB)	6 ± 1
Isolation (dB) between closer ports	> 25
Input IP 2nd order (dBm)	≥ 50
Input IP 3rd order (dBm)	≥ 22
Cross modulation AM m=0.6 Af=1kHz 2x-20dBm, -50dBm (dBm)	> 4
Power supply (VAC)	230
Max input power before damage (dBm)	+ 20
Current consumption (mA)	< 50
Op. Temp. Range (°C)	-20 ÷ 55
Electrical safety	EN 60950 EN 60215
EMI/EMC	ETSI EN 301 489-1/-18

Mechanical Specifications	
Connectors	Nf
Dimensions (mm)	19" x 2U x 276
Colour	RAL 7047
Weight (Kg)	4.2
Rel. humidity	< 95% @ 40°C not condensing
Vibration	IEC 60068-2-6 0.3mm dopuble amplitude 2g, 10÷55Hz 1octave/min total test period 30min
Shock	IEC 60068-2-27 30g for 11ms 18 shock in 3 position
MTBF (hours)	500 000

DESCRIPTION:

This broadband [118-400 MHz] receiver multicoupler allows to connect up to 16 channels to one common antenna in both VHF and UHF frequency bands. The low noise figure [< 8 dB] and excellent intermodulation properties guarantee a high dynamic range and thereby enhanced receiving conditions. This is particularly significant in locations where transmitters are operated nearby. Unused output ports should always be terminated with 50 Ohm loads to preserve gain flatness and specified inter-port isolation [> 25 dB]. The two isolated antenna ports [Input IP3 > 22 dBm] allow to connect a second antenna for redundancy purposes.
The multicoupler is 19" rack–mountable with only 2U height.

STANDARD ATC FILTERS, COMBINERS AND COMPONENTS

By TELSA

T13083008-DS REV. 00
Date: 11/10/2011

VHF CIRCULATOR

118 ÷ 156 MHz, 100 W

T19120402

ATC

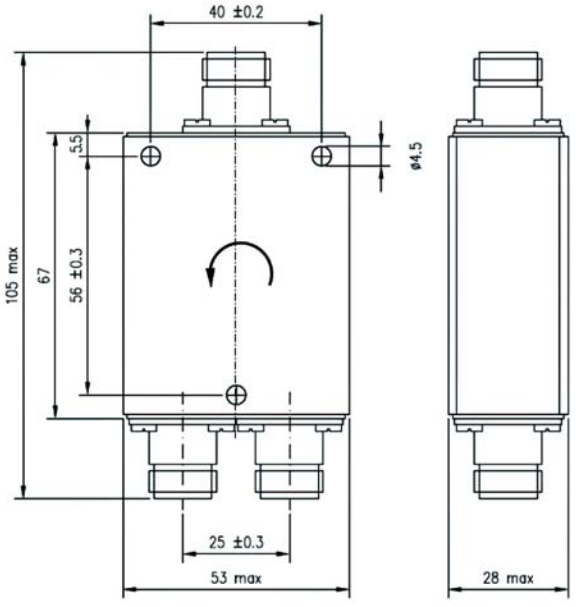
TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications		
Tuning Range (MHz)		118 ÷ 156
Impedance (Ω)		50
Return Loss input (dB) @	room temp.	> 19
	extreme temp.	> 16
Insertion Loss (dB) @	room temp.	≤0.6
	extreme temp.	≤0.7
Isolation (dB) @	room temp.	≥ 20
	extreme temp.	≥ 16
Continuous Max Power (W)		100
Op. Temp. Range (°C)		-20 ÷ 70

Mechanical Specifications	
Connector	3 × N f
Dimensions (mm)	101 × 28 × 53
Weight (g)	150
Finishing	Nickel plated

DESCRIPTION:

VHF circulators have two functions: on one side they increase coupling attenuation between transmitters and reduce products of intermodulation; on the other they prevent adverse effects to unmatched load impedance on amplifier performance.
Circulators are non-reciprocal devices with low insertion loss in the forward direction (indicated by the arrows) and high attenuation in the reverse direction.
The impedance at the input of the circulator is constant and independent of the impedance of the components following, since the reflected power at the output is passed to the absorber port (port without arrow). The latter must be terminated with an absorber – normally a dummy load – capable of absorbing and dissipating the maximum power reflected at output.
When higher isolation is required, Telsa Double Circulators can be used to achieve more than 40 dB Isolation with very reasonable insertion loss.



T19120402-DS REV. 00
Date: 12/09/2011

By TELSA

We reserve the right to modify these data without any notice

UHF CIRCULATOR

225 ÷ 400 MHz, 100 W

T19130601

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Tuning Range (MHz)	225 ÷ 400
Impedance (Ω)	50
Input VSWR	< 1.35
Insertion Loss (dB)	≤ 0.9
Isolation (dB)	≥ 17
Continuous Max Power (W)	100
Op. Temp. Range (°C)	-20 ÷ 70

Mechanical Specifications	
Connector	3 × N f
Dimensions (mm)	101 × 28 × 53
Weight (g)	150
Finishing	Nickel plated

DESCRIPTION:

UHF circulators have two functions: on one side they increase coupling attenuation between transmitters and reduce products of intermodulation; on the other they prevent adverse effects to unmatched load impedance on amplifier performance.
Circulators are non-reciprocal devices with low insertion loss in the forward direction (indicated by the arrows) and high attenuation in the reverse direction.
The impedance at the input of the circulator is constant and independent of the impedance of the components following, since the reflected power at the output is passed to the absorber port (port without arrow). The latter must be terminated with an absorber – normally a dummy load – capable of absorbing and dissipating the maximum power reflected at output.
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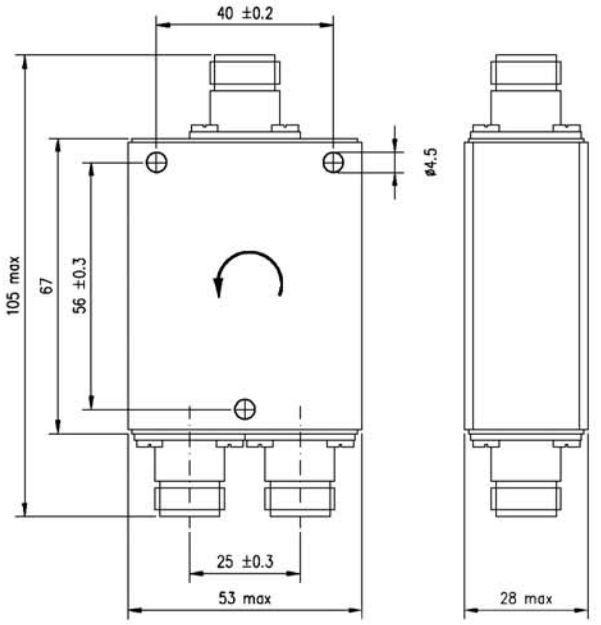


By TELSA

T19130601-DS REV. 00
Date: 12/09/2011

5W Dummy Load	
Description	Code
Connector Nf	T10130203
Connector Nm	T10130208
Dimensions (mm)	25x30x30
VSWR [0÷1GHz]	1 : 1.15
VSWR [1÷2GHz]	1 : 1.25

50W Dummy Load	
Description	Code
Connector Nf	T10130204
Connector Nm	T10130207
Dimensions (mm)	90x50x50
VSWR [0÷1GHz]	1 : 1.15
VSWR [1÷2GHz]	1 : 1.25

6W Dummy Load	
Description	Code
Connector Nf	T10110201
Connector Nm	T10110202
Dimensions (mm)	Ø30 x 45
VSWR [0÷1GHz]	1 : 1.1
VSWR [1÷2GHz]	1 : 1.2

100W Dummy Load	
Description	Code
Connector Nf	T10130205
Connector Nm	T10130206
Dimensions (mm)	147x70x70
VSWR [0÷1GHz]	1 : 1.15
VSWR [1÷2GHz]	1 : 1.25

15W Dummy Load	
Description	Code
Connector Nf	T10140104
Connector Nm	T10140103
Dimensions (mm)	Ø20 x 38
VSWR [0÷2GHz]	1 : 1.25

250W Dummy Load	
Description	Code
Connector Nf	T10100101
Connector Nm	T10100103
Dimensions (mm)	240x120x120
VSWR [0÷1GHz]	1 : 1.25

25W Dummy Load	
Description	Code
Connector Nf	T10130202
Connector Nm	T10130201
Dimensions (mm)	70x30x30
VSWR [0÷1GHz]	1 : 1.15
VSWR [1÷2GHz]	1 : 1.25

DUPLEXER VHF/UHF

118 ÷ 156 MHz / 225 ÷ 400 MHz

T06213003

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications		
Frequency Band (MHz)		118÷156 225÷400
Impedance (Ω)		50
Insertion Loss (dB)	VHF	≤ 0.2
	UHF	≤ 0.5
VSWR		< 1.5
Selectivity (dB)	VHF	> 50
	UHF	> 50
Operating Temp. Range (°C)		-10 ÷ +55
Max Continuous Power (W)		200

DESCRIPTION:

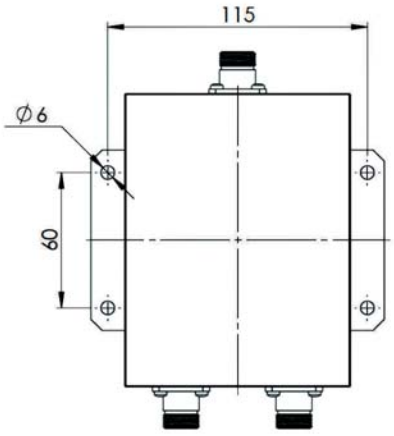
This duplexer is used to combine one VHF and one UHF signal to a single antenna.
Key features of this product are:

- Strong decoupling between VHF and UHF ports;
- Extremely compact design;
- High power handling.

T06213003 Telsa Duplexer has been tested for relevant MIL environmental standards.

Mechanical Specifications	
RF connectors	N f
Dimensions (mm)	130 × 100 × 40
Colour	FED STD 595 N°26307 dark grey
Weight (g)	400
Material	Alluminium

Environmental Specifications	
Humidity	MIL-STD-810F method 507.4
Vibration	MIL-STD-810F method 514.5
Salt spray	MIL-STD-810F method 509.4
Temperature Range	MIL-STD-810F methods 501.4 & 502.4



STANDARD ATC FILTERS, COMBINERS AND COMPONENTS

T06213003-DS REV. A0
Date: 12/09/2011

By TELSA

VHF -3dB HYBRID

118 ÷ 156 MHz

T09210404

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	118 ÷ 156
Impedance (Ω)	50
Insertion Loss (dB)	≤ 3.3
Return Loss (dB) all ports	> 20
Isolation (dB)	≥ 25
Max Continuous Power (W)	100
Op. Temp. Range (°C)	-10 ÷ +50

Mechanical Specifications	
Connector	4 x N f
Dimensions (mm)	302 × 65 × 52
Colour	RAL 9005 (black)
Weight (g)	832

DESCRIPTION:

Hybrid coupler is a passive device used with a few different applications. It is a type of directional coupler where the input power is equally divided between two output ports. It is designed for decoupled combining of two transmitters/receiver units with the same frequency range at 3dB loss, with frequency spacing as narrow as desired. It can also work as a combiner component to combine two signals to a common port or to split an incoming signal equally to two output ports. 3dB couplers are used also in Telsa combiners in Double Bridge Configuration.
In terms of functioning, the 3dB coupler has four ports, with the first and last decoupled from each other. When power is entered from the first port, it is equally divided between the second and third ports. The fourth port, which theoretically should be decoupled and therefore without power, is normally terminated with an absorber properly dimensioned for the mismatch between the second and third ports.

VHF -3dB HYBRID

225 ÷ 400 MHz

T09210605

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Impedance (Ω)	50
Return Loss (dB)	≥ 20
Insertion Loss (dB)	< 3.3
Isolation (dB)	> 25
Continuous Max Power (W)	200
Op. Temp. Range (°C)	- 10 ÷ 55

Mechanical Specifications	
Connector	4 × N f
Dimensions (mm)	154 × 65 × 52
Colour	RAL9005 (black)
Weight (Kg)	420

DESCRIPTION:

Hybrid coupler is a passive device used with a few different applications. It is a type of directional coupler where the input power is equally divided between two output ports. It is designed for decoupled combining of two transmitters/receiver units with the same frequency range at 3dB loss, with frequency spacing as narrow as desired. It can also work as a combiner component to combine two signals to a common port or to split an incoming signal equally to two output ports. 3dB couplers are used also in Telsa combiners in Double Bridge Configuration.
In terms of functioning, the 3dB coupler has four ports, with the first and last decoupled from each other. When power is entered from the first port, it is equally divided between the second and third ports. The fourth port, which theoretically should be decoupled and therefore without power, is normally terminated with an absorber properly dimensioned for the mismatch between the second and third ports.

STANDARD ATC FILTERS, COMBINERS AND COMPONENTS

VHF LOWPASS FILTER

118 ÷ 156 MHz

T05440401

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	118 ÷ 156
Impedance (Ω)	50
Insertion Loss (dB)	< 0.3
VSWR	< 1.4
Power handling (W)	100
Attenuation VHF: in 236÷500MHz (dB)	≥ 25
Op. Temp. Range (°C)	- 20 ÷ 55

Mechanical Specifications	
Connectors	Nf / Nm
Dimensions (without connectors) (mm)	40 x 104 x 33
Weight (g)	350
Mechanical test	According to ETS 300-019-1-3

DESCRIPTION:

Telsa Lowpass filters have been designed to handle power up to 100 W and are mostly employed for harmonics suppression especially when circulators are being used. Both VHF and UHF versions are available and provide more that 25 dB attenuation.

STANDARD ATC FILTERS, COMBINERS AND COMPONENTS

UHF LOWPASS FILTER

225 ÷ 400 MHz

T05460601

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Impedance (Ω)	50
Insertion Loss (dB)	< 0.3
VSWR	< 1.4
Power Handling (W)	100
Attenuation UHF : in 450÷900 MHz (dB)	≥ 25
Op. Temp. Range (°C)	- 20 ÷ 55

DESCRIPTION:

Telsa Lowpass filters have been designed to handle power up to 100 W and are mostly employed for harmonics suppression especially when circulators are being used. Both VHF and UHF versions are available and provide more that 25 dB attenuation.

Mechanical Specifications	
Connector	Nf / Nm
Dimensions (mm)	40 x 104 x 33
Weight (Kg)	350
Mechanical test	According to ETS 300-019-1-3

STANDARD ATC FILTERS, COMBINERS AND COMPONENTS

VSWR METER

100 ÷ 400 MHz

T11631406

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications		
Frequency Band (MHz)		100 ÷ 400
Impedance (Ω)		50
VSWR		1.25
Insertion Loss (dB)		≤ 0.1
Input Continuous Max Power (W)		250
Min. Power detected (mW)		500
Power Supply (V_{DC})		20 ÷ 40
Alarm Conditions	alarm on	≤ 1 V_{DC}
	alarm off	Power Supply
	adjustable threshold	VSWR = 2÷3.5 ±25%
	Factory VSWR threshold	2.3 ±25%
Op. Temp. Range (°C)		-10 ÷ 70

DESCRIPTION:

The VSWR Meter is used to detect any possible malfunctioning in the device, typically an antenna, to which it is connected. It measures VSWR value and sends an alarm when the latter exceeds a certain user defined threshold [adjustable from 1.5 to 4].

Mechanical Specifications	
Dimensions (mm)	110 × 28 × 70
Colour	RAL9005 (black)
Fixing Holes	4 × M2.5
Dimensions (mm)	Ø 35 × 38
Weight (g)	410
RF Connector	N f
Power Supply and Alarm Connector pin-out D-sub 9 poles f	
1	alarm output (active low)
3, 4	power supply
2, 7, 8	not connected
5, 6, 9	ground
4 pins male connector for LEDs 2.54mm Tyco AMPMODU	
1	ALARM LED + (A)
2	ALARM LED - (K)
3	POWER LED - (K)
4	POWER LED + (A)

BROADBAND AUTOMATIC FILTER

100 ÷ 400 MHz

T05123003

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications

Frequency Band (MHz)			100 ÷ 400
Impedance (Ω)			50
Return Loss (dB)			≥ 12
Insertion Loss (dB)			≤ 2.1
Selectivity (dB)	VHF band 100 ÷ 160 MHz	± 2 MHz	≥ 30
		± 5 MHz	≥ 50
		± 7 MHz	≥ 60
	band 160 ÷ 220 MHz	± 2.5 MHz	≥ 30
		± 6 MHz	≥ 50
		± 8 MHz	≥ 60
	UHF band 220 ÷ 400 MHz	± 3 MHz	≥ 30
		± 7 MHz	≥ 50
		± 11 MHz	≥ 60
Remote Control Interface			RS 422
Maintenance interface			RS 232
Current Consumption (mA) @ 230 V_{AC}	stand-by		≤ 165
	on tuning		≤ 230
Current Consumption (mA) @ 24 V_{DC}	stand-by		≤ 900
	on tuning		≤ 2000
Power Supply	main (V_{AC})		230 (±20%)
	stand-by (V_{DC})		21 ÷ 32
Max. Coninuous Power (W)			100
Electrical Safety			IEC 60950-1 EN 60950-1
EMC	ETSI EN		301 489-1 489-22

Mechanical Specifications

Maximum tuning time between f_{min} & f_{max} (s)	< 10
RF Connector	N f
Dimensions (mm)	4U × 19" × 300
Weight (Kg)	< 15
Panel Colour	RAL 7039
Operating Temperature Range (°C)	0 ÷ +55
Storage Temperature Range (°C)	-40 ÷ +75

DESCRIPTION:

This broadband automatic filter operates on the whole 100-400 MHz frequency band with strikingly constant passband across the entire range. Tuning is extremely fast [max 10 seconds] and performed through variable capacitors moved by a high-precision step motor controlled by a microprocessor. The protocol of the electronic board is proprietary and fully customizable to ensure seamless compatibility with customer radio.
Unique feature, distinguishing this product from any alternative currently available in the market, is that the 100-400 MHz band is covered continuously with one single filter instead of combining separate VHF and UHF filters. This has remarkable advantages, among which:

- no switch is employed;
- many radios need to be re-started when switching between VHF and UHF filters with consistent waste of time. This does not occur with Telsa broadband filter;
- it is ideal for maritime applications in the 160-220 MHz intermediate frequency band which is usually not covered;
- the unit is extremely compact and of reduced size.

Finally, these filters are suitable to be combined to create broadband combiners in double-bridge configuration with any number of channels [see T06993004 or T06033001 for actual examples].

T05123003-DS REV. 00
Date: 27/07/2011

By TELSA

VHF AUTOMATIC FILTER

VHF 100 ÷ 160 MHz

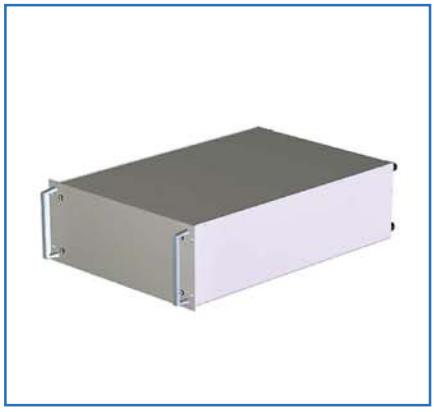
T05120475

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications

Frequency Band (MHz)		100 ÷ 160
Impedance (Ω)		50
Return Loss (dB)		≥ 12
Max Continuous Power (W)		200
Insertion Loss (dB)		≤ 1.5
Selectivity (dB) in VHF band 100÷160MHz	±1 MHz	≥ 20
	±2.5 MHz	≥ 40
	±4.5 MHz	≥ 50
Remote Control Interface with Integrated Bus Termination		RS 422
Maintenance interface		RS 232
Current Consumption (mA) @ 230 VAC	stand-by	≤ 165
	on tuning	≤ 230
Current Consumption (mA) @ 24 VDC	stand-by	≤ 650
	on tuning	≤ 1500
Power Supply	main (VAC)	230 (±20%)
	stand-by (VDC)	21÷32
Electrical Safety		IEC 60950-1 EN 60950-1
EMC	ETSI EN	301 489-1 489-22



Mechanical Specifications

Maximum tuning time between f_{min} ÷ f_{max} (sec)	<8
RF Connector	N f
Dimensions (mm)	4U x 19" x 550
Weight (Kg)	< 15
Panel Colour	RAL9005
Operating Temperature Range (°C)	-20 ÷ +55
Storage Temperature Range (°C)	-55 ÷ +75

Shipment Specifications

Filter Packaging Dimensions (mm)	720×600×300
Packed Filter Weight (Kg)	~ 17

T05120475-DS
REV. A0 Date: 15/01/2013
T46000805-MD Ed. 00

By TELSA

DUALBAND AUTOMATIC FILTER

VHF 100 ÷ 160 MHz / UHF 225 ÷ 400 MHz

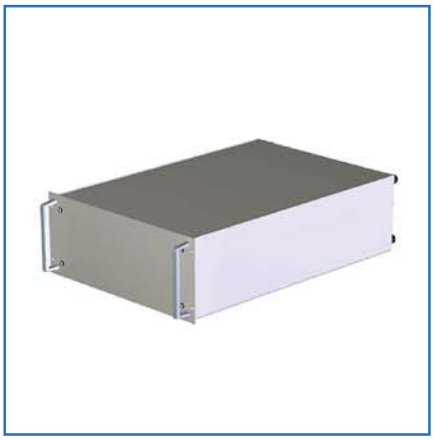
T05123007

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications

Frequency Band (MHz)		VHF : 100 ÷ 160 UHF : 225 ÷ 400
Impedance (Ω)		50
Return Loss (dB)		≥ 12
Max Continuous Power (W)		200
Insertion Loss (dB)		≤ 1.5
Selectivity (dB) in VHF band 100÷160MHz	±1 MHz	≥ 20
	±2.5 MHz	≥ 40
	±4.5 MHz	≥ 50
Selectivity (dB) in UHF band 220÷400MHz	±1.5 MHz	≥ 20
	±4 MHz	≥ 40
	±6.5 MHz	≥ 50
Remote Control Interface with Integrated Bus Termination		RS 422
Maintenance interface		RS 232
Current Consumption (mA) @ 230 VAC	stand-by	≤ 165
	on tuning	≤ 230
Current Consumption (mA) @ 24 VDC	stand-by	≤ 650
	on tuning	≤ 1500
Power Supply	main (VAC)	230 (±20%)
	stand-by (VDC)	21÷32
Electrical Safety		IEC 60950-1 EN 60950-1
EMC	ETSI EN	301 489-1 489-22



Mechanical Specifications

Maximum tuning time between f_{min} ÷ f_{max} (sec)	<8
RF Connector	N f
Dimensions (mm)	4U × 19" × 550
Weight (Kg)	< 23
Panel Colour	RAL9005
Cavity Colour	RAL7047
Operating Temperature Range (°C)	-20 ÷ +55
Storage Temperature Range (°C)	-55 ÷ +75

Shipment Specifications

Filter Packaging Dimensions (mm)	720×600×300
Packed Filter Weight (Kg)	~ 25

SPECIAL AUTOMATIC FILTERS

T05123007-DS
REV A0 Date: 15/01/2013
T46000805-MD Ed. 00

By TELSA

UHF AUTOMATIC FILTER

UHF 225 ÷ 400 MHz

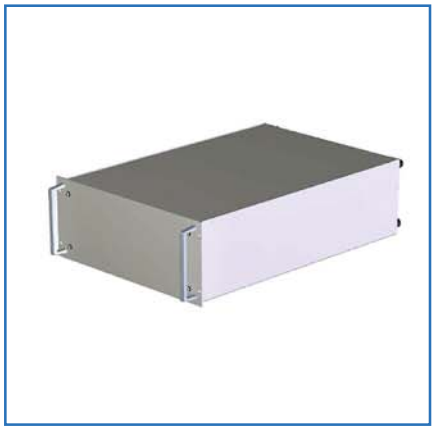
T05120670

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications

Frequency Band (MHz)		225÷ 400
Impedance (Ω)		50
Return Loss (dB)		≥ 12
Max Continuous Power (W)		200
Insertion Loss (dB)		≤ 1.5
Selectivity (dB) in VHF band 100÷160MHz	±1.5 MHz	≥ 20
	±4 MHz	≥ 40
	±6.5 MHz	≥ 50
Remote Control Interface with Integrated Bus Termination		RS 422
Maintenance interface		RS 232
Current Consumption (mA) @ 230 VAC	stand-by	≤ 165
	on tuning	≤ 230
Current Consumption (mA) @ 24 VDC	stand-by	≤ 650
	on tuning	≤ 1500
Power Supply	main (VAC)	230 (±20%)
	stand-by (VDC)	21÷32
Electrical Safety		IEC 60950-1 EN 60950-1
EMC	ETSI EN	301 489-1 489-22



Mechanical Specifications

Maximum tuning time between f_{min} ÷ f_{max} (sec)	<8
RF Connector	N f
Dimensions (mm)	4U × 19" × 550
Weight (Kg)	< 15
Panel Colour	RAL9005
Operating Temperature Range (°C)	-20 ÷ +55
Storage Temperature Range (°C)	-55 ÷ +75

Shipment Specifications

Filter Packaging Dimensions (mm)	720×600×300
Packed Filter Weight (Kg)	~ 17

SPECIAL AUTOMATIC FILTERS

T05120670-DS
REV. A0 Date: 15/01/2013
T46000805-MD Ed. 00

By TELSA

4 UHF Cavity Combiner Filter

225 ÷ 400 MHz

T06110610

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Frequency Band (MHz)	225 ÷ 400
Impedance (Ω)	50
Insertion Loss (dB)	≤ 2
Return Loss (dB)	≥ 18
Selectivity @ 3% of f_0 with an insertion loss of 1.5dB at f_0	> 30
Max Continuous Power (W)	> 100
Op. Temp.Range (°C)	-10 ÷ 55

Mechanical Specifications	
RF Connectors	N f
Dimensions	3U × 19" × 540 mm
Weight (Kg)	20.1
Panel Colour	TBD
Tuning Control	internal mechanism

DESCRIPTION:

T06110610 is an example of the many solutions Telsa can provide to compose multiple-channel combiners.
This 4-channel combiner in star-point configuration employs the smallest cavities of the three standard options available. The whole unit is ultra-compact [it fits in a 3U - 19" rack] and very cost effective. Insertion loss is minimized, but some minimum distance between contiguous channels must be kept. Isolators may be added when higher isolation is required.
Cable length has been studied and defined in order to allow for tuning on site. This means that the same cables are suitable for any frequency on which channels shall be tuned.

By TELSA

T06110610-DS REV. A0
Date: 12/09/2011

4 CHANNELS UHF COMBINER

Automatic Filter, Double Bridge Configuration

T06190617
T06190620

ATC

TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications

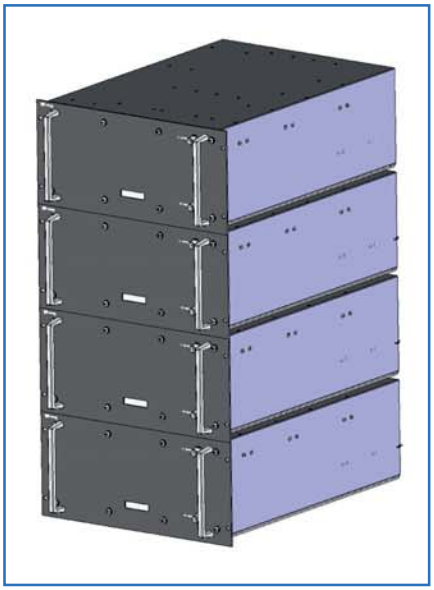
Frequency Band (MHz)		225 ÷ 400
Impedance (Ω)		50
Tuning Accuracy (KHz)		≤ 8
Channel Spacing (KHz)	ICAO8.33	8.33
	ICAO12.5	12.5
	ICAO25	25
Return Loss (dB)		≥ 12
Max Continuous Power (W)		100
Remote Control Interface with Integrated Bus Termination		RS 422
Maintenance interface		RS 232
Current Consumption (mA) @ 230 VAC	stand-by	≤ 165
	on tuning	≤ 300
Current Consumption @ 24 VDC	stand-by	≤ 75
	on tuning	≤ 900
Temperature Range (°C)		-10 ÷ +55
Power Supply	main (VAC)	110 ÷ 240 (28÷62Hz)
	stand-by (VDC)	21÷32 (2A)
Electrical Safety		IEC 60950-1 EN 60950-1
EMC	ETSI EN	301 489-1 489-22

DESCRIPTION:

These are two examples of 4-channel combiners in double bridge configuration developed for maritime military applications in the UHF band. The two systems, identical in most respects, epresent two of the many different combinations achievable of insertion loss and selectivity, where one exhibits standard selectivity and low I.L. and the other has high selectivity and consequently higher I.L..
Double bridge combiners have many advantages compared to standard T-pass or star-point configurations due to their intrinsic modularity. Each channel works in fact as a separate unit, with great benefits, such as:

- No need to re-perform all cable connections when changing frequency so retuning is much simpler and automatic tuning is particularly effective;
- Isolation between channels guaranties operational condtions even if a module (channel) is broken;
- High scalability: possibility to add channels by simply connecting new modules;
- Possibility to connect spare units and create redundancies to achieve maximum system reliability for military applications.

These units have been qualified to operate in maritime environments, with tests for salt fog, humidity, extended range temperature, dump-hit, drop, and vibration among others.
Starting from customer requirements, Telsa can recommend the best suited solution and optimize it for the specific application.



Mechanical Specifications

Maximum tuning time between f_{min} ÷ f_{max} (sec)		50
	@ T ≤ 5°C	90
RF Connector		N f
Dimensions (mm)		20U × 19" × 650
Panel Colour		RAL 7039
Operating Enviroment		ETS 300 019-1-2
		ETS 300 019-2-3
		Class 3.1E
Transportation and Handling		ETS 300 019-2-2 Class 2.2

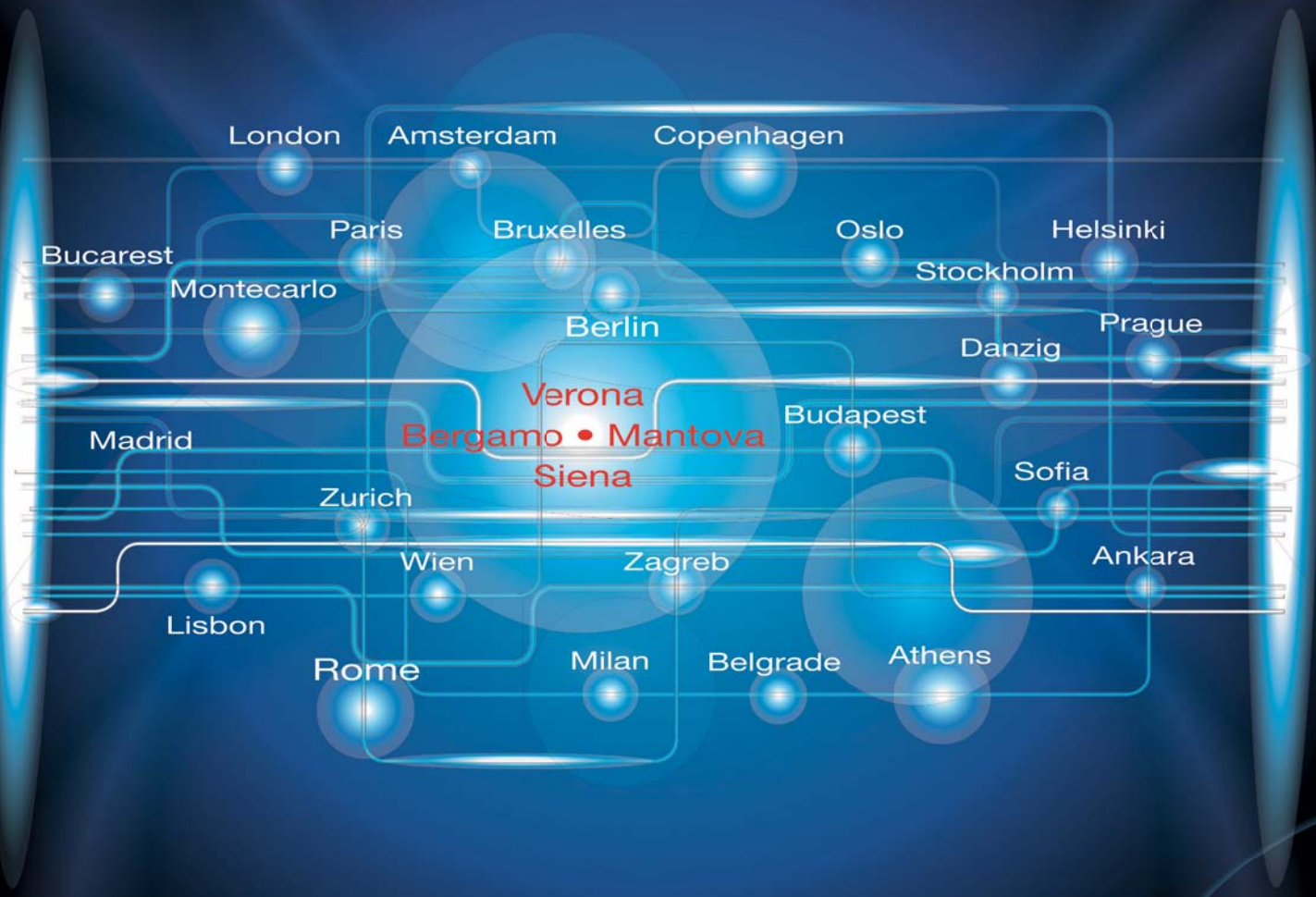
General Specifications

Code	Inserion Loss (dB)	Isolation (dB)		Weight (Kg) for each subrack
		± 0.5% separation	± 1% separation	
T06190617	≤ 4.2	≥ 43	≥ 55	25
T06190620	≤ 2.3	≥ 30	≥ 36	20

By TELSA

T06190617/20-DS REV. A0
Date: 27/07/2011

Europe is our business area



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