Radio Frequency Antennas Projects

TEDAP®

RAILWAYS AND TRANSPORT

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

λεα LEANTENNE

TELSA

RAC

Lea Unimedia 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.

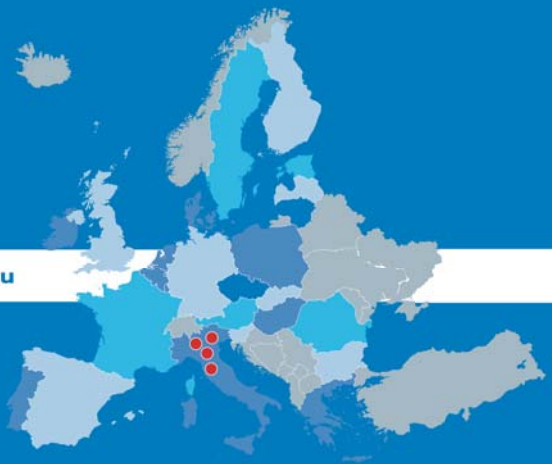
POLO ITALIANO ANTENNE GUGLIELMO MARCONI

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®



www.tedap.eu

LOW PROFILE FOR BUSES, METRO

RAILWAY MASS TRANSPORTATION
AND HIGH SPEED TRAINS

RAILWAYS ACCESSORIES

PANEL GSM-R AMTEMMAS

LOW SILHOUETTE VEHICULAR ANTENNA

152 ÷ 174 MHz

R-V 030 NH

RAILWAYS TRANSPORT

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

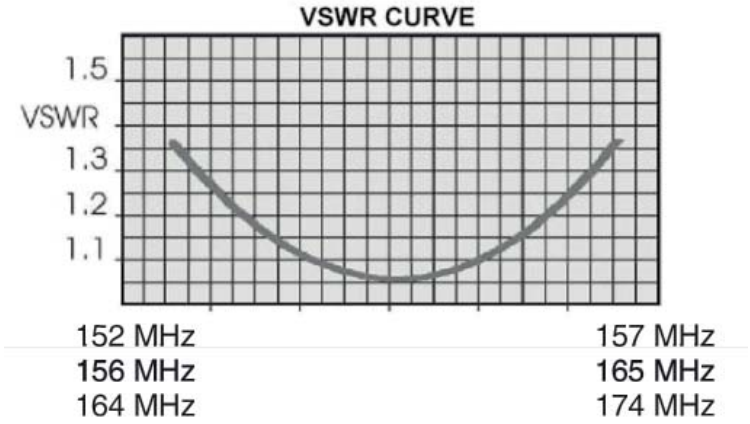
Electrical Specifications

Frequency Band (MHz)	152 ÷ 157
Or	155 ÷ 165
Or	164 ÷ 174
Impedance (Ω)	50
VSWR	<1:1.5
Gain (dB)	> -1 dBd
Max rated power (W)	100
Polarization	vertical

Mechanical Specifications

Dimensions (mm)	115x160x410
Total weight (kg)	2.3
Mounting hole	In conformity with FEDERTRASPORTI 00104/5
Body material	Aluminium alloy DIN 3-2315
Radome material	Fiberglass with GEL-COAT polyester varnish
Type of connection	N female
Op. temperature range (°C)	-35° to +80

VSWR



By RAC

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MULTIBAND VEHICULAR ANTENNA WITH VHF, GSM, GPS AND 2,4 MHz

R-V 032 NH

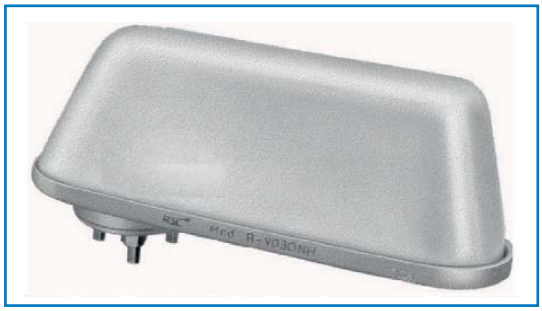
RAILWAYS TRANSPORT

LOW PROFILE FOR BUSES, METRO

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

Electrical Specifications

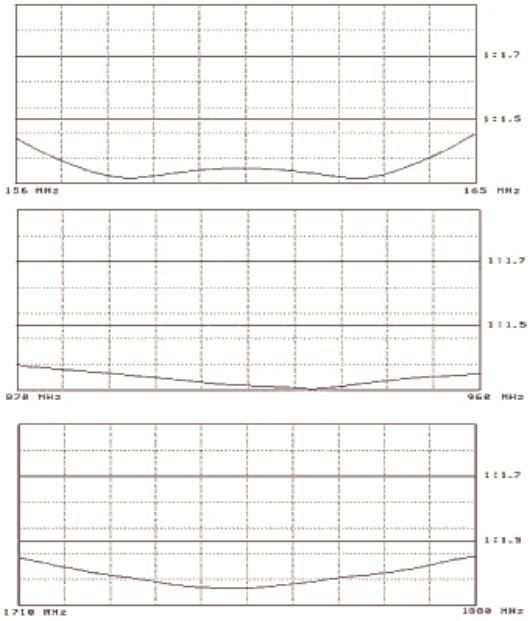
Frequency Band (MHz) (Mod. A)	152 ÷ 157
(Mod. B.)	156 ÷ 165
(Mod. C)	164 ÷ 174
VSWR	<1:1.5
Gain (dB)	> -1 dBd
Max rated power (W)	8
Polarization	vertical



Mechanical Specifications

Dimensions (mm)	115x160x410
Total weight (kg)	2.3
Mounting hole	In conformity with FEDERTRASPORTI 00104/5
Body material	Aluminium alloy DIN 3-2315
Radome material	Fiberglass with GEL-COAT polyester varnish
Type of connection	N female
Op. temperature range (°C)	-35° to +80

VSWR



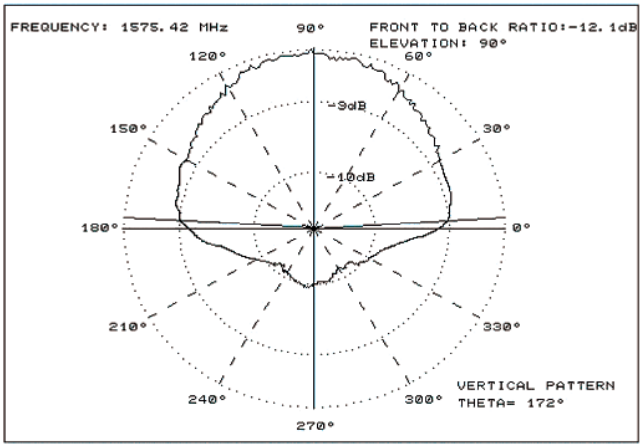
GSM Specifications	
Frequency Band (MHz)	870-960 / 1710-1880
VSWR (900 MHz)	<1:1.5
VSWR (1800 MHz)	<1:1.5
Polarization	vertical
Gain (dB)	2 dBd at 900 and 1800 MHz

GPS BAND	
Type	Planar Patch
Frequency Band (MHz)	1575.42
Impedance (Ω)	50
VSWR	<1:1.5
Gain	+4.5 dBic zenith
Polarization	right hand circular
Beamwidth -3dB	172°

GPS AMPLIFIER	
Type	A FIL 27
Voltage	5 V dc
Current	20 mA
Tipical Gain (dB)	27 dB
Noise factor (dB)	< 1:1.5
Impedance (Ω)	50
Input VSWR	<1:2
Output VSWR	<1:1.5
Reverse isolation	>48 dB
Output compr. point	1 dBm

2,4 MHz Specifications	
Frequency Band (MHz)	2400-2485
VSWR	<1:1.5
Max rated power (W)	25
Polarization	vertical
Gain (dB)	0 dBd

GPS Radiation Pattern



By RAC

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OMNIDIRECTIONAL MOBILE ANTENNA

380 ÷ 430 MHz

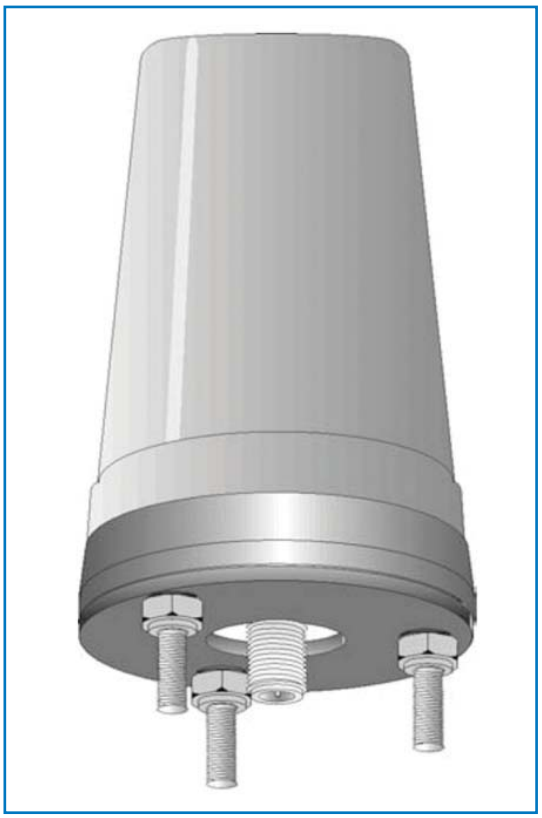
LP 383

RAILWAYS TRANSPORT

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

Electrical Specifications

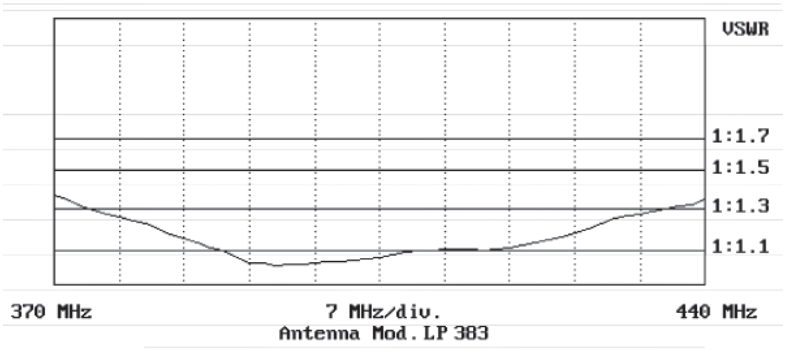
Type	1/4
Frequency Band (MHz)	380 ÷ 430
Impedance (Ω)	50
VSWR	<1:1.5
Gain (dB)	0 dBd
Max rated power (W)	200 Watt cont. 400 Watt peak
Polarization	vertical



Mechanical Specifications

Dimensions (mm)	160x104
Net weight (kg)	abt. 0.8
Mounting hole	In conformity with FEDERTRASPORTI 00104/5
Body treatment	Alodine 1200
Type of connection	N female 90°
Op. temperature range (°C)	-35° to +80°

VSWR



By λεα LEANTENNE

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OMNIDIRECTIONAL MOBILE ANTENNA WITH GPS

380 ÷ 430 MHz

LP 383-G

RAILWAYS TRANSPORT

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

LOW PROFILE FOR BUSES, METRO

Electrical Specifications

Type	1/4
Frequency Band (MHz)	380 ÷ 430
Impedance (Ω)	50
VSWR	<1:1.5
Gain (dB)	0 dBd
Max rated power (W)	25
Polarization	vertical

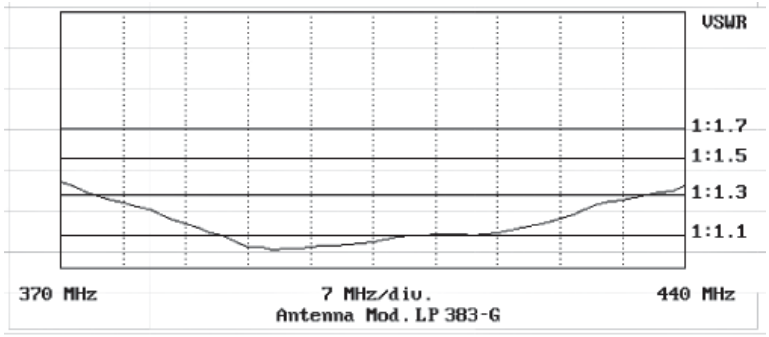
Mechanical Specifications

Dimensions (mm)	160x104
weight (kg)	abt. 0.85
Mounting hole	In conformity with FEDER-TRASPORTI 00104/5
Body material	Alodine 1200
Type of connection - UHF	N female
Type of connection - GPS	SMA female with cable
Op. temperature range (°C)	-35° to +80°

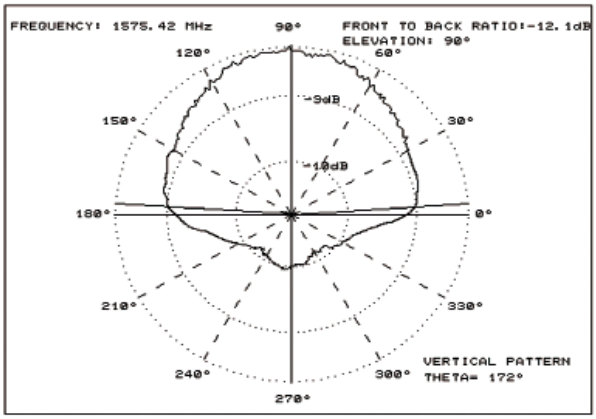
GPS BAND	
Type	Planar Patch
Frequency Band (MHz)	1575.42
Impedance (Ω)	50
VSWR	<1:1.5
Gain	+4.5 dBic zenith
Polarization	right hand circular
Beamwidth -3dB	172°

GPS AMPLIFIER	
Type	A FIL 27
Voltage	5 V dc
Current	20 mA
Tipical Gain (dB)	27 dB
Noise factor (dB)	< 1:1.5
Impedance (Ω)	50
Input VSWR	<1:2
Output VSWR	<1:1.5
Reverse isolation	>48 dB
Output compr. point	1 dBm

VSWR



GPS Radiation Pattern



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LOW PROFILE FOR BUSES, METRO

THREE BAND OMNIDIRECTIONAL MOBILE ANTENNA WITH GPS

LP 383-9-18-G

RAILWAYS TRANSPORT

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

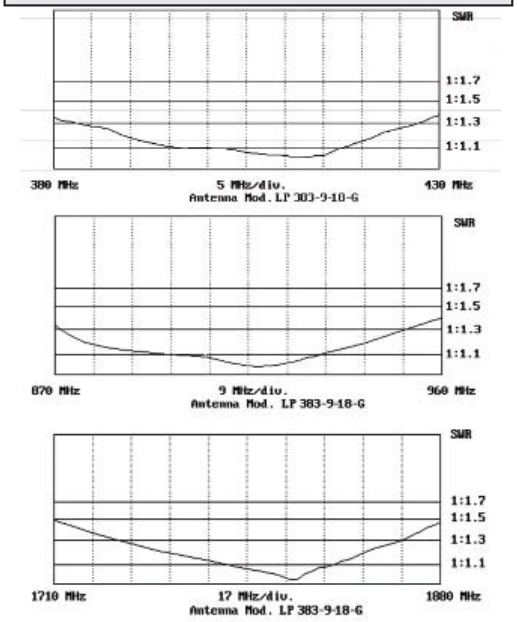
Electrical Specifications

Type	1/4
Frequency Band (MHz)	380 ÷ 430 (TETRA)
	870 ÷ 960 (GSM)
	1710 ÷ 1880 (DCS)
Impedance (Ω)	50
VSWR	<1:1.5
Maximum rated RF power	25 Watt for 400 MHz
	8 Watt for 900 MHz
Gain (dB)	0 dBd
Polarization	vertical

Mechanical Specifications

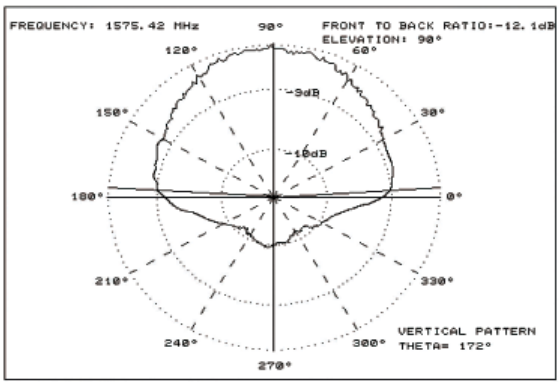
Dimensions (mm)	160x104
Net weight (kg)	abt. 0.8
Mounting hole	In conformity with FEDER-TRASPORTI 00104/5
Body material	Alodine 1200
Type of connection - UHF	N female or N female 90°
Type of connection - GPS	SMA female with cable
Op. temperature range (°C)	-35° to +80°

VSWR



GPS BAND	
Type	Planar Patch
Frequency Band (MHz)	1575.42
Impedance (Ω)	50
VSWR	<1:1.5
Gain	+4.5 dBic zenith
Polarization	right hand circular
Beamwidth -3dB	172°
GPS AMPLIFIER	
Type	A FIL 27
Voltage	5 V dc
Current	20 mA
Tipical Gain (dB)	27 dB
Noise factor (dB)	< 1:1.5
Impedance (Ω)	50
Input VSWR	<1:2
Output VSWR	<1:1.5
Reverse isolation	>48 dB
Output compr. point	1 dBm

Radiation Pattern



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OMNIDIRECTIONAL MOBILE ANTENNA

400 ÷ 470 MHz

LP 403

RAILWAYS TRANSPORT

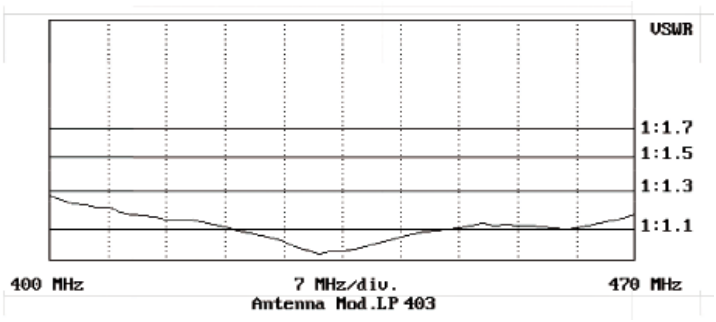
TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

LOW PROFILE FOR BUSES, METRO

Electrical Specifications	
Type	1/4
Frequency Band (MHz)	400 ÷ 470
Impedance (Ω)	50
VSWR	<1:1.5
Gain (dB)	0 dBd
Max rated power (W)	200 Watt cont.400 Watt peak
Polarization	vertical

Mechanical Specifications	
Dimensions (mm)	160x104
weight (kg)	abt. 0.8
Mounting hole	In conformity with FEDERTRASPORTI 00104/5
Body material	Alodine 1200
Type of connection	N female
Op. temperature range (°C)	-35° to +80°

VSWR



By λεα LEANTENNE

OMNIDIRECTIONAL MOBILE ANTENNA WITH GPS

400 ÷ 470 MHz

LP 403-G

RAILWAYS TRANSPORT

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

Electrical Specifications

Type	1/4
Frequency Band (MHz)	400 ÷ 470
Impedance (Ω)	50
VSWR	<1:1.5
Maximum rated RF power	25 Watt
Gain (dB)	0 dBd over 1/4 wave
Polarization	vertical

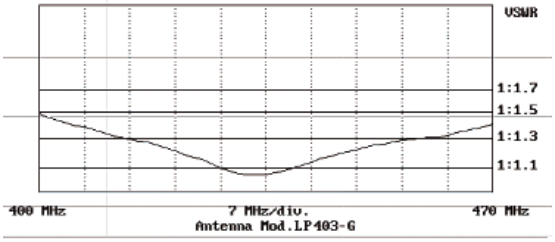
Mechanical Specifications

Dimensions (mm)	160x104
Net weight (kg)	abt. 0.8
Mounting hole	In conformity with FEDERTRA-SPORTI 00104/5
Body material	Alodine 1200
Connectors	Silver plated brass
Type of connection - UHF	N female
Type of connection - GPS	SMA female with cable
Op. temperature range (°C)	-35° to +80°

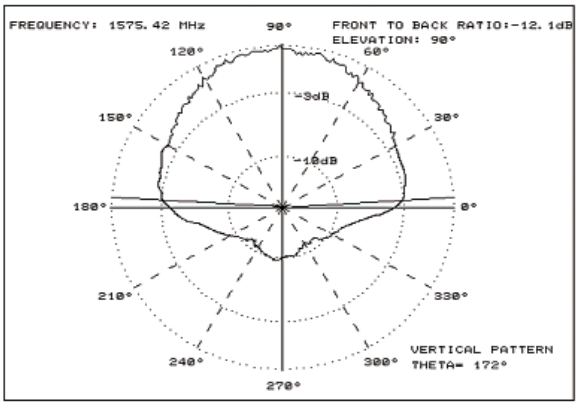
GPS BAND	
Type	Planar Patch
Frequency Band (MHz)	1575.42
Impedance (Ω)	50
VSWR	<1:1.5
Gain	+4.5 dBic zenith
Polarization	right hand circular
Beamwidth -3dB	172°

GPS AMPLIFIER	
Type	A FIL 27
Voltage	5 V dc
Current	20 mA
Tipical Gain (dB)	27 dB
Noise factor (dB)	< 1:1.5
Impedance (Ω)	50
Input VSWR	<1:2
Output VSWR	<1:1.5
Reverse isolation	>48 dB
Output compr. point	1 dBm

VSWR



GPS Radiation Pattern



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DUALBAND OMNIDIRECTIONAL MOBILE ANTENNA

400 ÷ 470 MHz / 876 ÷ 960 MHz and 1575.42 MHz

LP 403-9-G

RAILWAYS TRANSPORT

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

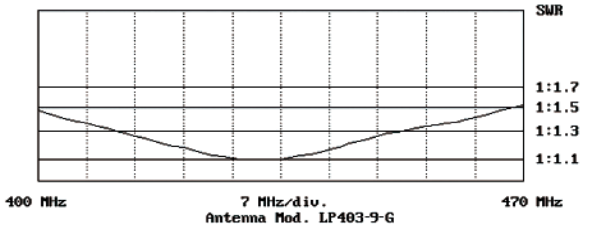
Electrical Specifications

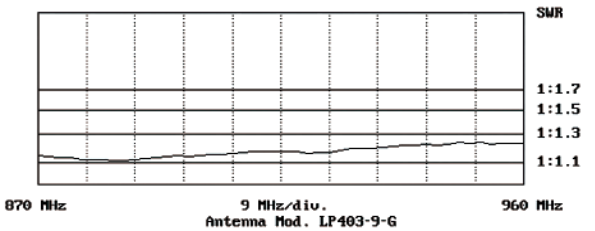
Type	1/4
Frequency Band (MHz)	400 ÷ 470
	876 ÷ 960
Impedance (Ω)	50
VSWR	<1:1.5
Maximum rated RF power	25 Watt for 400 MHz
	8 Watt for 900 MHz
Gain (dB)	0 dBd
Polarization	vertical

Mechanical Specifications

Dimensions (mm)	160x104
Net weight (kg)	abt. 0.8
Mounting hole	In conformity with FEDERTRA-SPORTI 00104/5
Body material	Alodine 1200
Connectors	Silver plated brass
Type of connection - UHF	N female
Type of connection - GPS	SMA female with cable
Op. temperature range (°C)	-35° to +80°

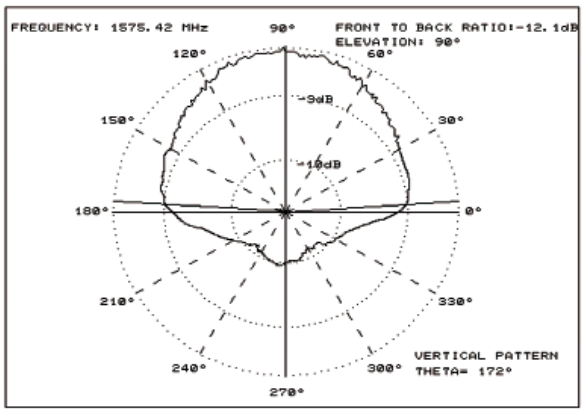
VSWR





GPS BAND	
Type	Planar Patch
Frequency Band (MHz)	1575.42
Impedance (Ω)	50
VSWR	<1:1.5
Gain	+4.5 dBic zenith
Polarization	right hand circular
Beamwidth -3dB	172°
GPS AMPLIFIER	
Type	A FIL 27
Voltage	5 V dc
Current	20 mA
Tipical Gain (dB)	27 dB
Noise factor (dB)	< 1:1.5
Impedance (Ω)	50
Input VSWR	<1:2
Output VSWR	<1:1.5
Reverse isolation	>48 dB
Output compr. point	1 dBm

GPS Radiation Pattern



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LOW PROFILE FOR BUSES, METRO

THREE BAND OMNIDIRECTIONAL MOBILE ANTENNA WITH GPS

LP 403-9-18-G

RAILWAYS TRANSPORT

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

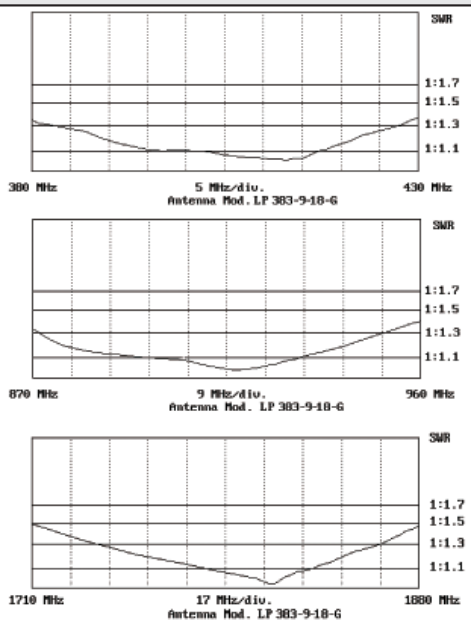
Electrical Specifications

Type	1/4
Frequency Band (MHz)	380 ÷ 430
	870 ÷ 960
	1710 ÷ 1880
Impedance (Ω)	50
VSWR	<1:1.5
Maximum rated RF power	25 Watt for 400 MHz
	8 Watt for 900 MHz
Gain (dB)	0 dBd over 1/4 wave
Polarization	vertical

Mechanical Specifications

Dimensions (mm)	160x104
Net weight (kg)	abt. 0.8
Mounting hole	In conformity with FEDERTRASPORTI 00104/5
Body material	Alodine 1200
Type of connection - UHF	N female
Op. temperature range (°C)	-35° to +80°

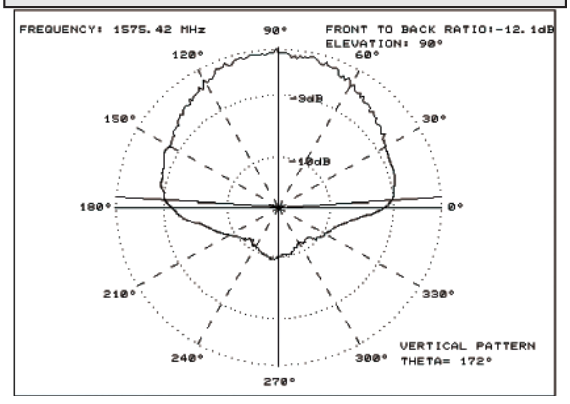
VSWR



GPS BAND	
Type	Planar Patch
Frequency Band (MHz)	1575.42
Impedance (Ω)	50
VSWR	<1:1.5
Gain	+4.5 dBic zenith
Polarization	right hand circular
Beamwidth -3dB	172°

GPS AMPLIFIER	
Type	A FIL 27
Voltage	5 V dc
Current	20 mA
Tipical Gain (dB)	27 dB
Noise factor (dB)	< 1:1.5
Impedance (Ω)	50
Input VSWR	<1:2
Output VSWR	<1:1.5
Reverse isolation	>48 dB
Output compr. point	1 dBm

GPS Radiation Pattern



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DUALBAND OMNIDIRECTIONAL MOBILE ANTENA WITH GPS

435 ÷ 485 MHz and 2400 ÷ 2485 MHz

LP 403-24-G

RAILWAYS TRANSPORT

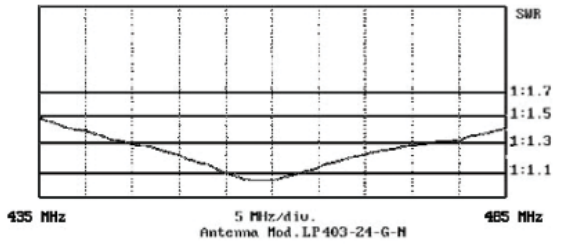
TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

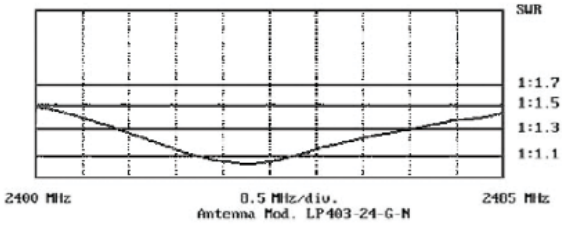
LOW PROFILE FOR BUSES, METRO

Electrical Specifications	
Type	1/4
Frequency Band (MHz)	435 ÷ 485
	2400 ÷ 2485
Impedance (Ω)	50
VSWR	<1:1.7
Maximum rated RF power	30 Watt
Gain (dB)	0 dBd
Polarization	vertical

Mechanical Specifications	
Dimensions (mm)	160x104
Net weight (kg)	abt. 0.8
Mounting hole	In conformity with FEDERTRA-SPORTI 00104/5
Body material	Alodine 1200
Type of connection - UHF	SMA female with cable
Type of connection - GPS	SMA female with cable
Op. temperature range (°C)	-35° to +80°

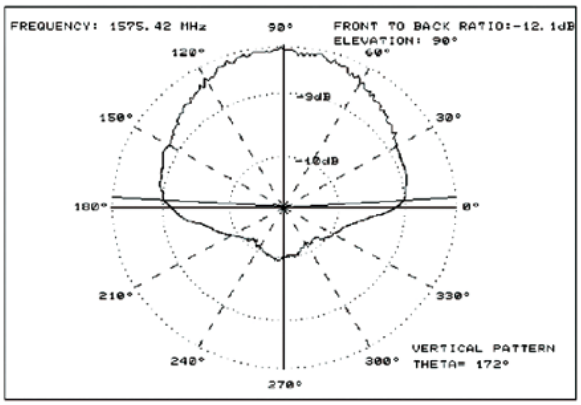
VSWR





GPS BAND	
Type	Planar Patch
Frequency Band (MHz)	1575.42
Impedance (Ω)	50
VSWR	<1:1.5
Gain	+4.5 dBic zenith
Polarization	right hand circular
Beamwidth -3dB	172°
GPS AMPLIFIER	
Type	A FIL 27
Voltage	5 V dc
Current	20 mA
Tipical Gain (dB)	27 dB
Noise factor (dB)	< 1:1.5
Impedance (Ω)	50
Input VSWR	<1:2
Output VSWR	<1:1.5
Reverse isolation	>48 dB
Output compr. point	1 dBm

GPS Radiation Pattern



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OMNIDIRECTIONAL MOBILE ANTENNA

870 ÷ 960 MHz

LP 903

RAILWAYS TRANSPORT

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

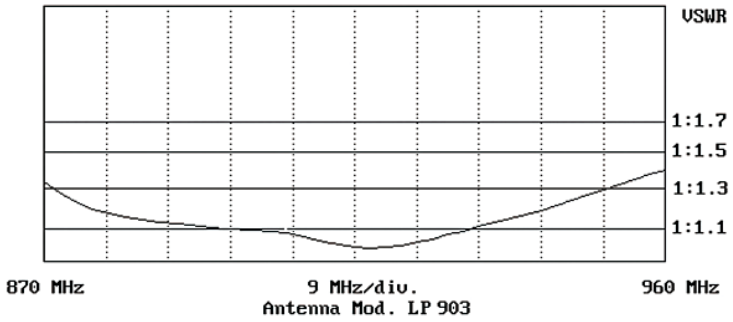
Electrical Specifications

Type	1/4
Frequency Band (MHz)	870 ÷ 960
Impedance (Ω)	50
VSWR	<1:1.5
Gain (dB)	0 dBd
Max rated power (W)	200 Watt cont. 400 Watt peak
Polarization	vertical

Mechanical Specifications

Dimensions (mm)	60x104
weight (kg)	abt. 0.5
Mounting hole	In conformity with FEDERTRASPORTI 00104/5
Body material	Alodine 1200
Type of connection	N female
Op. temperature range (°C)	-35° to +80°

VSWR



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OMNIDIRECTIONAL MOBILE ANTENNA WITH GPS

870 ÷ 960 MHz

LP 903-G

RAILWAYS TRANSPORT

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

Electrical Specifications

Type	1/4
Frequency Band (MHz)	870 ÷ 960
Impedance (Ω)	50
VSWR	<1:1.5
Gain (dB)	0 dBd
Max rated power (W)	8 Watt
Polarization	vertical

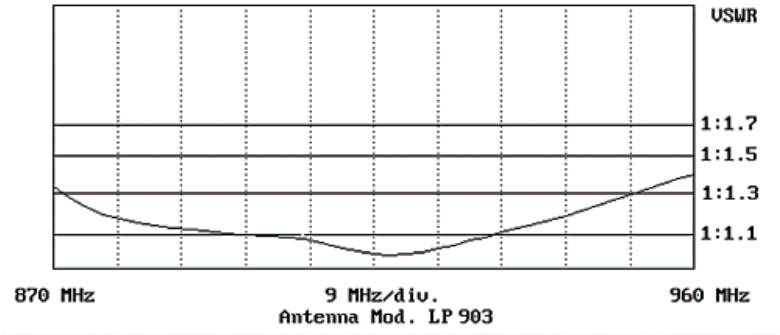
Mechanical Specifications

Dimensions (mm)	60x104
weight (kg)	abt. 0.8
Mounting hole	In conformity with FEDERTRASPORTI 00104/5
Body material	Alodine 1200
Type of connection - UHF	N female
Type of connection - GPS	SMA female with cable
Op. temperature range (°C)	-35° to +80°

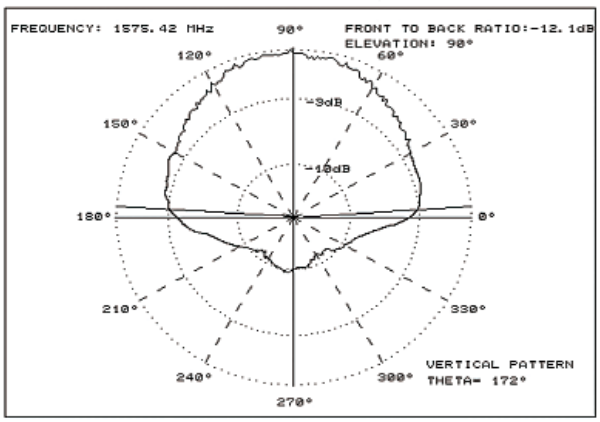
GPS BAND	
Type	Planar Patch
Frequency Band (MHz)	1575.42
Impedance (Ω)	50
VSWR	<1:1.5
Gain	+4.5 dBic zenith
Polarization	right hand circular
Beamwidth -3dB	172°

GPS AMPLIFIER	
Type	A FIL 27
Voltage	5 V dc
Current	20 mA
Tipical Gain (dB)	27 dB
Noise factor (dB)	< 1:1.5
Impedance (Ω)	50
Input VSWR	<1:2
Output VSWR	<1:1.5
Reverse isolation	>48 dB
Output compr. point	1 dBm

VSWR



GPS Radiation Pattern



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DUALBAND OMNIDIRECTIOANL MOBILE ANTENNA WITH GPS

870 ÷ 960 MHz and 1710 ÷ 1880 MHz

LP 903-18-G

RAILWAYS TRANSPORT

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

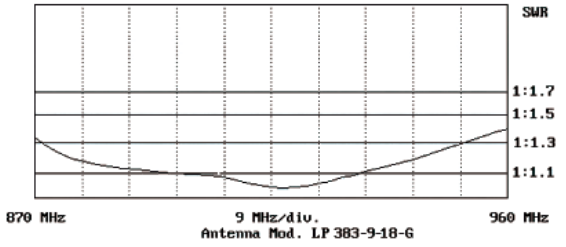
Electrical Specifications

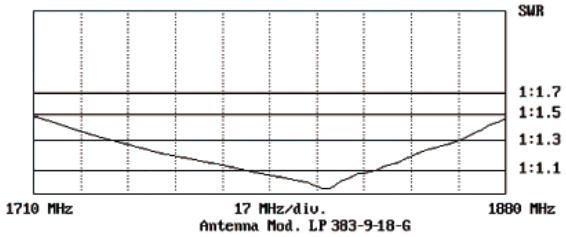
Type	1/4
Frequency Band (MHz)	870 ÷ 960
	1710 ÷ 1880
Impedance (Ω)	50
VSWR	<1:1.5
Gain (dB)	0 dBd 900 MHz
	2 dBd 1800 MHz
Max rated power (W)	25 Watt for 400 MHz
Polarization	vertical

Mechanical Specifications

Dimensions (mm)	160x104
weight (kg)	abt. 0.8
Mounting hole	In conformity with FEDERTRASPORTI 00104/5
Body material	Alodine 1200
Type of connection - UHF	N female
Type of connection - GPS	SMA female with cable
Op. temperature range (°C)	-35° to +80°

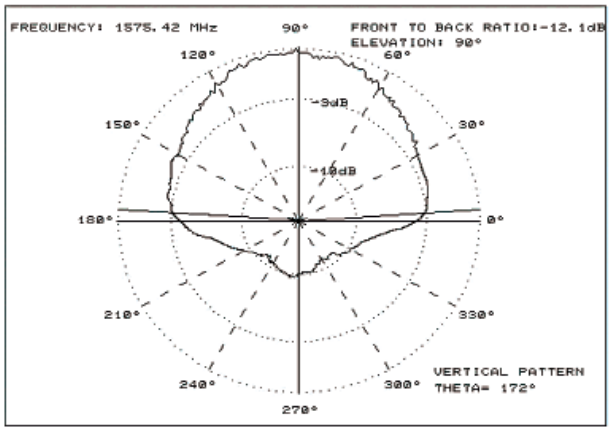
VSWR





GPS BAND	
Type	Planar Patch
Frequency Band (MHz)	1575.42
Impedance (Ω)	50
VSWR	<1:1.5
Gain	+4.5 dBic zenith
Polarization	right hand circular
Beamwidth -3dB	172°
GPS AMPLIFIER	
Type	A FIL 27
Voltage	5 V dc
Current	20 mA
Tipical Gain (dB)	27 dB
Noise factor (dB)	< 1:1.5
Impedance (Ω)	50
Input VSWR	<1:2
Output VSWR	<1:1.5
Reverse isolation	>48 dB
Output compr. point	1 dBm

GPS Radiation Pattern



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OMNIDIRECTIONAL MOBILE ANTENNA WITH GPS

900 - 1800 - 2400 MHz

LP 903-18-24-G

RAILWAYS TRANSPORT

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

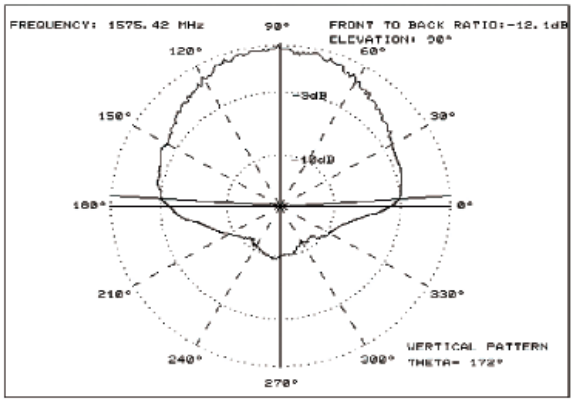
LOW PROFILE FOR BUSES, METRO

Electrical Specifications	
Type	1/4
Frequency Band (MHz)	900 - 1800 - 2400
Impedance (Ω)	50
VSWR	<1:1.7
Maximum rated RF power	25 Watt
Gain (dB)	0 dBd (900 and 1800 MHz)
	1.7 dBd (2400 MHz)
Polarization	vertical

Mechanical Specifications	
Dimensions (mm)	160x104
Net weight (kg)	abt. 0.85
Mounting hole	In conformity with FEDERTRASPORTI 00104/5
Body material	Alodine 1200
Type of connection - UHF	N female
Type of connection - GPS	SMA female with cable
Op. temperature range (°C)	-35° to +80°

GPS BAND	
Type	Planar Patch
Frequency Band (MHz)	1575.42
Impedance (Ω)	50
VSWR	<1:1.5
Gain	+4.5 dBic zenith
Polarization	right hand circular
Beamwidth -3dB	172°
GPS AMPLIFIER	
Type	A FIL 27
Voltage	5 V dc
Current	20 mA
Tipical Gain (dB)	27 dB
Noise factor (dB)	< 1:1.5
Impedance (Ω)	50
Input VSWR	<1:2
Output VSWR	<1:1.5
Reverse isolation	>48 dB
Output compr. point	1 dBm

GPS Radiation Pattern



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OMNIDIRECTIONAL MOBILE ANTENNA

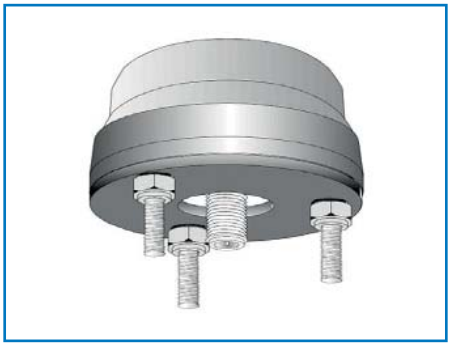
2400 ÷ 2485 MHz

LP 2403

RAILWAYS TRANSPORT

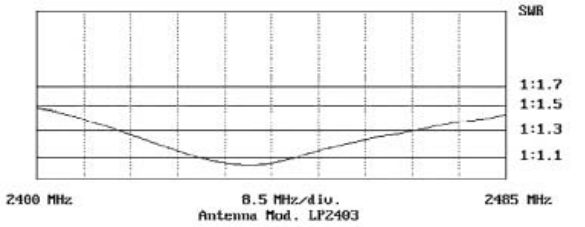
TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

Electrical Specifications	
Type	1/4
Frequency Band (MHz)	900 - 1800 - 2400
Impedance (Ω)	50
VSWR	<1:1.7
Maximum rated RF power	25 Watt
Gain (dB)	0 dBd (900 and 1800 MHz)
	1.7 dBd (2400 MHz)
Polarization	vertical



Mechanical Specifications	
Dimensions (mm)	160x104
Net weight (kg)	abt. 0.85
Mounting hole	In conformity with FEDERTRASPORTI 00104/5
Body material	Alodine 1200
Type of connection - UHF	N female
Type of connection - GPS	SMA female with cable
Op. temperature range (°C)	-35° to +80°

VSWR



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OMNIDIRECTIONAL MOBILE ANTENNA WITH GPS

2400 ÷ 2485 MHz

LP 2403-G

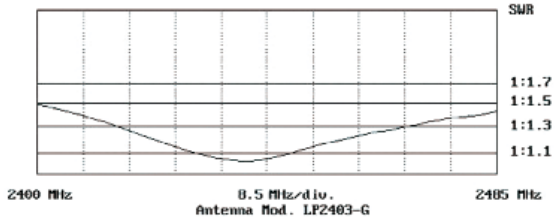
RAILWAYS TRANSPORT

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

Electrical Specifications	
Type	1/4
Frequency Band (MHz)	870 ÷ 960
Impedance (Ω)	50
VSWR	<1:1.5
Gain (dB)	0 dBd 900 MHz
	2 dBd 1800 MHz
Max rated power (W)	25 Watt for 400 MHz
Polarization	vertical

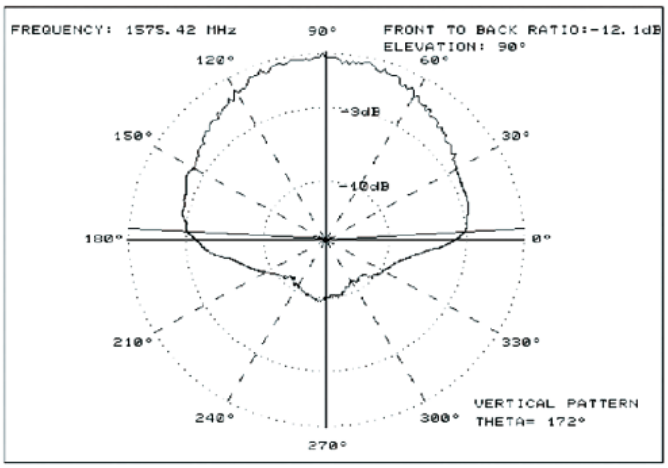
Mechanical Specifications	
Dimensions (mm)	160x104
weight (kg)	abt. 0.8
Mounting hole	In conformity with FEDERTRASPORTI 00104/5
Body material	Alodine 1200
Type of connection - UHF	N female
Type of connection - GPS	SMA female with cable
Op. temperature range (°C)	-35° to +80°

VSWR



GPS BAND	
Type	Planar Patch
Frequency Band (MHz)	1575.42
Impedance (Ω)	50
VSWR	<1:1.5
Gain	+4.5 dBic zenith
Polarization	right hand circular
Beamwidth -3dB	172°
GPS AMPLIFIER	
Type	A FIL 27
Voltage	5 V dc
Current	20 mA
Tipical Gain (dB)	27 dB
Noise factor (dB)	< 1:1.5
Impedance (Ω)	50
Input VSWR	<1:2
Output VSWR	<1:1.5
Reverse isolation	>48 dB
Output compr. point	1 dBm

GPS Radiation Pattern



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MOBILE ACTIVE GPS ANTENNA

1575.42 MHz

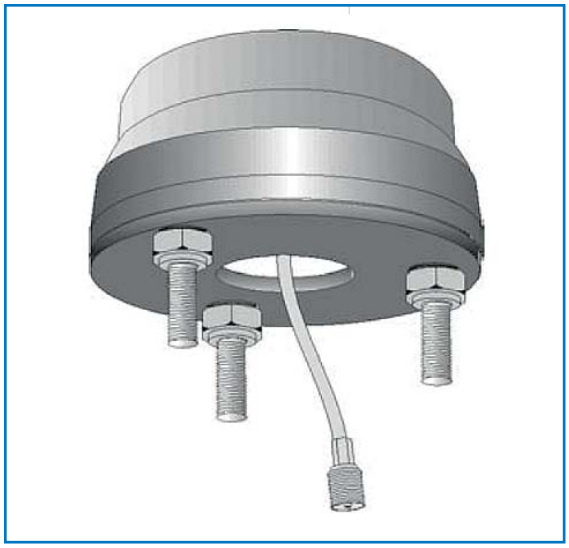
LP GPS-3

RAILWAYS TRANSPORT

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

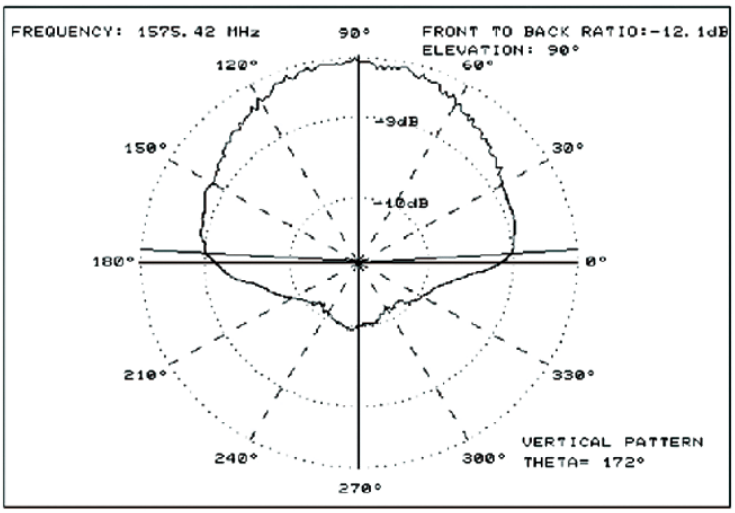
Mechanical Specifications

Dimensions (mm)	60x104
Net weight (kg)	abt. 0.8
Mounting hole	In conformity with FEDERTRASPORTI 00104/5
Type of connection - GPS	SMA female with cable
Op. temperature range (°C)	-35° to +80°



GPS BAND	
Type	Planar Patch
Frequency Band (MHz)	1575.42
Impedance (Ω)	50
VSWR	<1:1.5
Gain	+4.5 dBic zenith
Polarization	right hand circular
Beamwidth -3dB	172°
GPS AMPLIFIER	
Type	A FIL 27
Voltage	5 V dc
Current	20 mA
Tipical Gain (dB)	27 dB
Noise factor (dB)	< 1:1.5
Impedance (Ω)	50
Input VSWR	<1:2
Output VSWR	<1:1.5
Reverse isolation	>48 dB
Output compr. point	1 dBm

GPS Radiation Pattern



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MONOBAND VHF ANTENNA

155 ÷ 165 MHz

MFD2

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	155 ÷ 165
Impedance (Ω)	50
VSWR	<1.7
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

Mechanical Specifications	
Dimensions (mm)	360x80x145
Total weight (kg)	0.9
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 1500x1500 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

MFD2 4 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.

Approved by: SNCF, SNCB, TRENITALIA

DUALBAND VHF-RST ANTENNA

146 ÷ 165 MHz, 410 ÷ 470 MHz

BTFRD2

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	146 ÷ 165
	410 ÷ 470
Impedance (Ω)	50
VSWR	<2.1
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical

Mechanical Specifications	
Dimensions (mm)	360x80x145
Total weight (kg)	0.8
Mounting	on metallic surface (350x350 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

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Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 350x350 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.

Approved by: SNCF, SNCB, TRENITALIA

DUALBAND VHF-RST ANTENNA

155 ÷ 165 MHz, 440 ÷ 470 MHz

BFRD2

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	155 ÷ 165
	440 ÷ 470
Impedance (Ω)	50
VSWR	<1.6:1
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical

Mechanical Specifications	
Dimensions (mm)	360x80x145
Total weight (kg)	0.8
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

By λεα LEANTENNE

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Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

BFRD2 4 holes flange: flange with 4 M10 studs included;
BFRD2-3V 3screwsflange: flangewith3screwsincluded, according to FEDERTRASPORTI 00104/5M;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.
Multiband: Our multi-band antennas can operate in several frequencies simultaneously, so they don't need demixer.
Advantage: amplifier included; there is no need of an external low noise amplifier GPS as the internal GPS is already amplified

Approved by: SNCF, SNCB, TRENITALIA

DUALBAND VHF-RST ANTENNA

146 ÷ 153 MHz, 1575.42 MHz

BFLD2

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	146 ÷ 165
	410 ÷ 470
Impedance (Ω)	50
VSWR	<2:1
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

Mechanical Specifications	
Dimensions (mm)	360x80x145
Total weight (kg)	0.8
Mounting	on metallic surface (350x350 mm mini-mum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

By λεα LEANTENNE

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Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 1500x1500 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

BFLD2 4 holes flange.

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system. **Multiband:** Our multi-band antennas can operate in several frequencies simultaneously. **Advantage:** amplifier included; there is no need of an external low noise amplifier GPS as the internal GPS is already amplified.

Approved by: SNCF, SNCB, TRENITALIA

MULTI-BAND VHF - L1 GPS - G1 GLONASS

151 ÷ 156 MHz, 1575.42 MHz, 1609 MHz

BFLG1RD2

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electric Characteristics

Frequency range:	151 ÷ 156
Input impedance:	50 Ω
Polarization	vertical
VSWR:	< 2.:1
Gain:	0 over λ/4 monopole
Maximum rated RF power:	30
GPS/GLONAS DIELECTRIC ANTENNA	
Frequency range G1 GLONASS:	1609 MHz
Input impedance:	50 Ω
Polarization	right hand circular
VSWR (GPS antenna without amplifier mounted on a conductive surface of dimensions 5x5 cm):	< 1.5:1
Medium gain (GPS antenna without amplifier) at zenith (90° of elevation):	from -2 to +1 dBic
LNA/FILTER	
Gain (without cable):	> 28 dB Typical
Noise figure:	< 1.5 dB
Power supply:	2.7 to 5 V
Consumption:	30 mA maximum

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

Mechanical Specifications

Dimensions (mm)	360x80x145
Total weight (kg)	0.8
Mounting	on metallic surface (1500x1500 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for VHF band TNC female for L1 GPS / G1 GLONASS
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

By λεα LEANTENNE

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Environmental Characteristics

ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 1500x1500 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system. **Advantage:** amplifier included; there is no need of an external low noise amplifier GPS/GLONASS as the internal GPS/GLONASS is already amplified.

Approved by: SNCF, SNCB, TRENITALIA

MONOBAND RST ANTENNA

410 ÷ 470 MHz

MTRD

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	410 ÷ 470
Impedance (Ω)	50
VSWR	<1.7:1
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

Mechanical Specifications	
Dimensions (mm)	140x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a mInimum size of 600x600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.
Multiband: Our multi-band antennas can operate in several frequencies simultaneously, so they don't need demixer.
Advantage: amplifier included; there is no need of an external low noise amplifier GPS as the internal GPS is already amplified.

Approved by: SNCF, SNCB, TRENITALIA

MONOBAND UHF* ANTENNA

440 ÷ 470 MHz

MRD

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	440 ÷ 470
Impedance (Ω)	50
VSWR	<1.7
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

Mechanical Specifications	
Dimensions (mm)	140x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

By λεα LEANTENNE

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Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

MRD 4 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.
***Advantage:** UHF frequency could be modified on customer's request
Approved by: SNCF, SNCB, TRENITALIA

DUALBAND UHF*- GSM/R ANTENNA

440 ÷ 470 and 876 ÷ 960 MHz

BRGD

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications

Frequency Band (MHz)	440 ÷ 470 876 ÷ 960
Impedance (Ω)	50
VSWR	<1.7
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical

Mechanical Specifications

Dimensions (mm)	140x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

By λεα LEANTENNE

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Environmental Characteristics

ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

BRGD 4 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.
***Advantage:** UHF frequency could be modified on customer's request

Approved by: SNCF, SNCB, TRENITALIA

DUALBAND UHF*- GSM/R ANTENNA

440 ÷ 470 and 876 ÷ 960 MHz

BRGI

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications

Frequency Band (MHz)	440 ÷ 470 876 ÷ 960
Impedance (Ω)	50
VSWR	<1.7
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

Mechanical Specifications

Dimensions (mm)	98x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

By λεα LEANTENNE

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Environmental Characteristics

ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 350x350 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

BRGI 4 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.
***Advantage:** UHF frequency could be modified on customer's request
Approved by: SNCF, SNCB, TRENITALIA

DUALBAND UHF*-GSM/R ANTENNA

440 ÷ 470 and 876 ÷ 960 MHz

BRGD2

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications

Frequency Band (MHz)	440 ÷ 470 876 ÷ 960
Impedance (Ω)	50
VSWR	<1.7
Gain (dB)	0 over λ/4 monopole for RST band 3 over λ/4 monopole for GSM/R band
Max rated power (W)	30
Polarization	vertical

Mechanical Specifications

Dimensions (mm)	360x80x145
Total weight (kg)	0.9
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

Patent n° 1548873
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By λεα LEANTENNE

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Environmental Characteristics

ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 1500x1500 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

BRGD2 4 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.
***Advantage:** UHF frequency could be modified on customer's request

Approved by: SNCF, SNCB, TRENITALIA

TRIBAND UHF*- GSM/R - GPS ANTENNA

440 ÷ 470 , 876 ÷ 960 and 1575.42 MHz

TRGLD

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications

Frequency Band (MHz)	440 ÷ 470 876 ÷ 960
Impedance (Ω)	50
VSWR	<1.7
Gain (dB) over λ/4 monopole	0 for RST band 3 for GSM/R band
Max rated power (W)	30
Polarization	vertical
GPS BAND	
Frequency Band (MHz)	1575.42 ±1
Impedance (Ω)	50
VSWR (GPS antenna without amplifier mounted on a conductive surface of dimensions 5x5 cm)	<1.5
Medium gain (dBic) (GPS antenna without amplifier) at zenith (90° of elevation)	-2 ÷ +1
Polaization	right hand circular
GPS AMPLIFIER	
Gain (dB)	> 27 (29 medium)
Noise factor (dB)	< 1.5 (1.2 medium)
Power supply (V)	5 ±40%
Consumption (mA)	23 ±3.5 (21 medium)

Mechanical Specifications

Dimensions (mm)	140x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for UHF and GSM/R TNC female for GPS (SMA female for 3V model)
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

By λεα LEANTENNE

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Environmental Characteristics

ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

TRGLD 4 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.

Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified.
***Advantage:** UHF frequency could be modified on customer's request

Approved by: SNCF, SNCB, TRENITALIA

TRIBAND UHF*- GSM/R - GPS ANTENNA

440 ÷ 470 , 876 ÷ 960 and 1575.42 MHz

TRGLI

RAILWAYS TRANSPORT

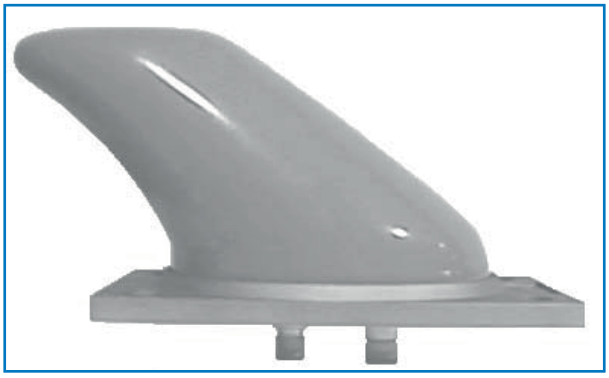
TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	440 ÷ 470 876 ÷ 960
Impedance (Ω)	50
VSWR	<1.7
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical
GPS BAND	
Frequency Band (MHz)	1575.42 ±1
Impedance (Ω)	50
VSWR (GPS antenna without amplifier mounted on a conductive surface of dimensions 5x5 cm)	<1.5
Medium gain (dBic) (GPS antenna without amplifier) at zenith (90° of elevation)	-2 ÷ +1
Polarization	right hand circular
GPS AMPLIFIER	
Gain (dB)	> 27 (29 medium)
Noise factor (dB)	< 1.5 (1.2 medium)
Power supply (V)	5 ±40%
Consumption (mA)	23 ±3.5 (21 medium)

Mechanical Specifications	
Dimensions (mm)	98x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for GSM/R and RST TNC female for GPS (SMA female for 3V model)
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.



By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

TRGLI 4 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.

Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified.
***Advantage:** UHF frequency could be modified on customer's request

Approved by: SNCF, SNCB, TRENITALIA

TRIBAND UHF – GSM – L1 GPS ANTENNA

456 ÷ 462 , 870 ÷ 960 and 1575.42 MHz

TRGLD1

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications

Frequency Band (MHz)	456 ÷ 462 870 ÷ 960
Impedance (Ω)	50
VSWR	<2:1
Gain (dB)	0 dB over λ/4 monopole
Max rated power (W)	30
Polarization	vertical
GPS BAND	
Frequency Band (MHz)	1575.42 ±1
Impedance (Ω)	50
VSWR (GPS antenna without amplifier mounted on a conductive surface of dimensions 5x5 cm)	<1.5:1
Medium gain (dBic) (GPS antenna without amplifier) at zenith (90° of elevation)	-2 ÷ +1
Polarization	right hand circular
GPS AMPLIFIER	
Gain (dB)	> 27 (29 medium)
Noise factor (dB)	< 1.5 (1.2 medium)
Power supply (V)	5 ±40%
Consumption (mA)	23 ±3.5 (21 medium)

Mechanical Specifications

Dimensions (mm)	70x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (800x800mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for UHF and GSM TNC female for GPS
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics

ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

TRGLD1 4 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.

Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified.
***Advantage:** UHF frequency could be modified on customer's request

Approved by: SNCF, SNCB, TRENITALIA

TRIBAND UHF*- GSM/R - GPS ANTENNA

440 ÷ 470 , 876 ÷ 960 and 1575.42 MHz

TRGLD2

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	440 ÷ 470 876 ÷ 960
Impedance (Ω)	50
VSWR	<1.7
Gain (dB) over λ/4 monopole	0 for RST band 3 for GSM/R band
Max rated power (W)	30
Polarization	vertical
GPS BAND	
Frequency Band (MHz)	1575.42 ±1
Impedance (Ω)	50
VSWR (GPS antenna without amplifier mounted on a conductive surface of dimensions 5x5 cm)	<1.5
Medium gain (dBic) (GPS antenna without amplifier) at zenith (90° of elevation)	-2 ÷ +1
Polaization	right hand circular
GPS AMPLIFIER	
Gain (dB)	> 27 (29 medium)
Noise factor (dB)	< 1.5 (1.2 medium)
Power supply (V)	5 ±40%
Consumption (mA)	23 ±3.5 (21 medium)

Mechanical Specifications	
Dimensions (mm)	360x80x145
Total weight (kg)	0.8
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for GSM/R and RST TNC female for GPS (SMA female for 3V model)
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

TRGLD2 4 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.

Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified.
***Advantage:** UHF frequency could be modified on customer's request

Approved by: SNCF, SNCB, TRENITALIA

MONOBAND GSM/R ANTENNA

876 ÷ 960 MHz

MGD

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	876 ÷ 960
Impedance (Ω)	50
VSWR	<1.7
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical

Mechanical Specifications	
Dimensions (mm)	140x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (350x350 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
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By λεα LEANTENNE

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Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 350x350 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

MGD 4 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.

Approved by: SNCF, SNCB, TRENITALIA

MONOBAND GSM/R ANTENNA

876 ÷ 960 MHz

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

MGI-K
MGI

RAILWAYS TRANSPORT

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	876 ÷ 960
Impedance (Ω)	50
VSWR	<1.7
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical

Mechanical Specifications	
Dimensions (mm)	98x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (350x350 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 350x350 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

MGI 4 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.

Approved by: SNCF, SNCB, TRENITALIA

MONOBAND GSM/R ANTENNA

874 ÷ 960 MHz

MGD1

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	874 ÷ 960
Impedance (Ω)	50
VSWR	<1.7:1
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

Mechanical Specifications	
Dimensions (mm)	70x80x145
Total weight (kg)	0.3
Mounting	on metallic surface (350x350 mm minimum)
Body material	Aluminium Surtec 650
Radome material	Lexan EXL 9330 Polycarbonate
Connectors	Silver plated brass
Type of connection	N female
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 350x350 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

MGD1 4 holes flange: flange with 4 M10 studs included.

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.

Approved by: SNCF, SNCB, TRENITALIA

MONOBAND GSM/R ANTENNA

876 ÷ 960 MHz

MGD2

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	876 ÷ 960
Impedance (Ω)	50
VSWR	<1.7
Gain (dB)	3 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical

Mechanical Specifications	
Dimensions (mm)	360x80x145
Total weight (kg)	0.8
Mounting	on metallic surface (350x350 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 350x350 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

MGD 24 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.

Approved by: SNCF, SNCB, TRENITALIA

DUALBAND GSM/R - GPS ANTENNA

876 ÷ 960 and 1575.42 MHz

BGLD

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	876 ÷ 960
Impedance (Ω)	50
VSWR	<1.7
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical
GPS BAND	
Frequency Band (MHz)	1575.42 ±1
Impedance (Ω)	50
VSWR (GPS antenna without amplifier mounted on a conductive surface of dimensions 5x5 cm)	<1.5
Medium gain (dBic) (GPS antenna without amplifier) at zenith (90° of elevation)	-2 ÷ +1
Polarization	right hand circular
GPS AMPLIFIER	
Gain (dB)	> 27 (29 medium)
Noise factor (dB)	< 1.5 (1.2 medium)
Power supply (V)	5 ±40%
Consumption (mA)	23 ±3.5 (21 medium)

Mechanical Specifications	
Dimensions (mm)	140x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for GSM/R TNC female for GPS (SMA female for 3V model)
Op. temperature range (°C)	-40° to +70
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

By λεα LEANTENNE

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Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

BGLD 4 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system. **Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified**

Approved by: SNCF, SNCB, TRENITALIA

DUALBAND GSM-R - GPS ANTENNA

876 ÷ 960 and 1575.42 MHz

BGLI

RAILWAYS TRANSPORT

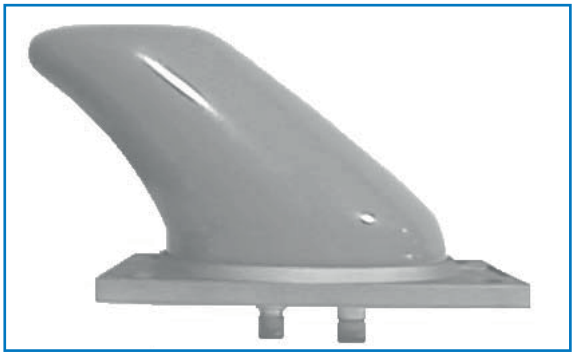
TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	876 ÷ 960
Impedance (Ω)	50
VSWR	<1.7
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical
GPS BAND	
Frequency Band (MHz)	1575.42 ±1
Impedance (Ω)	50
VSWR (GPS antenna without amplifier mounted on a conductive surface of dimensions 5x5 cm)	<1.5
Medium gain (dBic) (GPS antenna without amplifier) at zenith (90° of elevation)	-2 ÷ +1
Polarization	right hand circular
GPS AMPLIFIER	
Gain (dB)	> 27 (29 medium)
Noise factor (dB)	< 1.5 (1.2 medium)
Power supply (V)	5 ±40%
Consumption (mA)	23 ±3.5 (21 medium)

Mechanical Specifications	
Dimensions (mm)	98x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for GSM/R TNC female for GPS (SMA female for 3V model)
Op. temperature range (°C)	-40° to +70°
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.



By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

BGLI 4 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system. **Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified**

Approved by: SNCF, SNCB, TRENITALIA

DUALBAND GSM-R - GPS ANTENNA

876 ÷ 960 and 1575.42 MHz

BGLD1

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications

Frequency Band (MHz)	876 ÷ 960
Impedance (Ω)	50
VSWR	<1.8:1
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical
GPS BAND	
Frequency Band (MHz)	1574.42 ± 2
Impedance (Ω)	50
VSWR (GPS antenna without amplifier mounted on a conductive surface of dimensions 5x5 cm)	<1.5:1
Medium gain (dBic) (GPS antenna without amplifier) at zenith (90° of elevation)	-2 ÷ +1
at 0° of elevation	-18 dBi
axial ratio	from 2 to 3 dB
Polarization	right hand circular
GPS AMPLIFIER	
Gain (dB)	> 27 (29 medium)
Noise factor (dB)	< 1.5 (1.2 medium)
Power supply (V)	5 ±40%
Consumption (mA)	23 ±3.5 (21 medium)

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

Mechanical Specifications

Dimensions (mm)	140x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for GSM/R TNC female for GPS (SMA female for 3V model)
Op. temperature range (°C)	-40° to +70°
Reliability	above to 200,000 hours

By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics

ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

BGLD1 4 holes flange: flange with 4 M10 studs included.

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system. **Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified**

Approved by: SNCF, SNCB, TRENITALIA

DUALBAND GSM-R - GPS ANTENNA

876 ÷ 960 and 1575.42 MHz

BGLD2

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	876 ÷ 960
Impedance (Ω)	50
VSWR	<1.7
Gain (dB)	3 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical
GPS BAND	
Frequency Band (MHz)	1575.42 ±1
Impedance (Ω)	50
VSWR (GPS antenna without amplifier mounted on a conductive surface of dimensions 5x5 cm)	<1.5
Medium gain (dBic) (GPS antenna without amplifier) at zenith (90° of elevation)	-2 ÷ +1
Polarization	right hand circular
GPS AMPLIFIER	
Gain (dB)	> 27 (29 medium)
Noise factor (dB)	< 1.5 (1.2 medium)
Power supply (V)	5 ±40%
Consumption (mA)	23 ±3.5 (21 medium)

Mechanical Specifications	
Dimensions (mm)	360x80x145
Total weight (kg)	0.8
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for GSM/R TNC female for GPS (SMA female for 3V model)
Op. temperature range (°C)	-40° to +70°
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

BGLD2 4 holes flange: flange with 4 M10 studs included.

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system. **Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified**

Approved by: SNCF, SNCB, TRENITALIA

TRIBAND GSM - DCS - UMTS ANTENNA

870 ÷ 960, 1710 ÷ 1880, 1920 ÷ 2170 MHz

TDBUD

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications

Frequency Band (MHz)	870 ÷ 960 1710 ÷ 1880 1920 ÷ 2170
Impedance (Ω)	50
VSWR	<1.7
Gain (dB) over λ/4 monopole	0 for RST band 3 for GSM/R band
Max rated power (W)	30
Polarization	vertical

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

Mechanical Specifications

Dimensions (mm)	140x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (350x350 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female
Op. temperature range (°C)	-40° to +70°
Reliability	above to 200,000 hours

By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics

ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 350x350 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

TDBUD 4 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.

Approved by: SNCF, SNCB, TRENITALIA

TRIBAND GSM - DCS - GPS ANTENNA

870 ÷ 960, 1710 ÷ 1880 and 1575.42 MHz

TDBLD

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications

Frequency Band (MHz)	870 ÷ 960 1710 ÷ 1880
Impedance (Ω)	50
VSWR	<1.7
Gain (dB) over λ/4 monopole	0
Max rated power (W)	30
Polarization	vertical
GPS BAND	
Frequency Band (MHz)	1575.42 ±1
Impedance (Ω)	50
VSWR (GPS antenna without amplifier mounted on a conductive surface of dimensions 5x5 cm)	<1.5
Medium gain (dBic) (GPS antenna without amplifier) at zenith (90° of elevation)	-2 ÷ +1
Polarization	right hand circular
GPS AMPLIFIER	
Gain (dB)	> 27 (29 medium)
Noise factor (dB)	< 1.5 (1.2 medium)
Power supply (V)	5 ±40%
Consumption (mA)	23 ±3.5 (21 medium)

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

Mechanical Specifications

Dimensions (mm)	140x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for GSM and DCS TNC female for GPS (SMA female for 3V model)
Op. temperature range (°C)	-40° to +70°
Reliability	above to 200,000 hours

By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics

ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

TDBLD 4 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.

Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified.

Approved by: SNCF, SNCB, TRENITALIA

TRIBAND GSM-L1 GPS-WiFi ANTENNA

870 ÷ 960, 1575.42 and 2400 ÷ 2485 MHz

TLGWD1

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	870 ÷ 960 2400 ÷ 2485
Impedance (Ω)	50
VSWR	<1.7
Gain (dB) over λ/4 monopole	0
Max rated power (W)	30
Polarization	vertical
GPS BAND	
Frequency Band (MHz)	1575.42 ±1
Impedance (Ω)	50
VSWR (GPS antenna without amplifier mounted on a conductive surface of dimensions 5x5 cm)	<1.5
Medium gain (dBic) (GPS antenna without amplifier) at zenith (90° of elevation)	-2 ÷ +1
Polarization	right hand circular
GPS AMPLIFIER	
Gain (dB)	> 27 (29 medium)
Noise factor (dB)	< 1.5 (1.2 medium)
Power supply (V)	5 ±40%
Consumption (mA)	23 ±3.5 (21 medium)

Mechanical Specifications	
Dimensions (mm)	70x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for GSM and WiFi TNC female for GPS
Op. temperature range (°C)	-40° to +70°
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

TLGWD1 4 holes flange: flange with 4 M10 studs included.

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.

Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified.

Approved by: SNCF, SNCB, TRENITALIA

QUADRIBAND GSM-DCS- L1 GPS-UMTS ANTENNA

870 ÷ 960, 1710 ÷ 1880, 1575.42 and 1920 ÷ 2170 MHz

QDBLUD1

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications

Frequency Band (MHz)	870 ÷ 960 1710 ÷ 1880 1920 ÷ 2170
Impedance (Ω)	50
VSWR	<2
Gain (dB) over λ/4 monopole	0
Max rated power (W)	30
Polarization	vertical
GPS BAND	
Frequency Band (MHz)	1575.42 ±1
Impedance (Ω)	50
VSWR (GPS antenna without amplifier mounted on a conductive surface of dimensions 5x5 cm)	<1.5
Medium gain (dBic) (GPS antenna without amplifier) at zenith (90° of elevation)	-2 ÷ +1
Polarization	right hand circular
GPS AMPLIFIER	
Gain (dB)	> 27 (29 medium)
Noise factor (dB)	< 1.5 (1.2 medium)
Power supply (V)	5 ±40%
Consumption (mA)	23 ±3.5 (21 medium)

Mechanical Specifications

Dimensions (mm)	70x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for GSM, DCS and UMTS TNC female for GPS
Op. temperature range (°C)	-40° to +70°
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
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By λεα LEANTENNE

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Environmental Characteristics

ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

QDBLUD1 4 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.
Advantage: Our antennas can operate in several frequencies simultaneously, so they don't need demixer;
Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified.

Approved by: SNCF, SNCB, TRENITALIA

MONOBAND WiFi ANTENNA

2400 ÷ 2485 MHz

MWD1

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	2400 ÷ 2485
Impedance (Ω)	50
VSWR	<1.7
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical

Mechanical Specifications	
Dimensions (mm)	70x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (200x200 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female
Op. temperature range (°C)	-40° to +70°
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

By λεα LEANTENNE

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Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 200x200 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

MWD1 4 holes flange: flange with 4 M10 studs included;

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.

Approved by: SNCF, SNCB, TRENITALIA

BI-BAND GPS & WIFI ANTENNA

2400 ÷ 2485 MHz and 1574.42 MHz

BLWD1

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications

Frequency Band (MHz)	2400 ÷ 2485
Impedance (Ω)	50
VSWR	<1.7:1
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical
GPS BAND	
Frequency Band (MHz)	1574.42-1576.42
Impedance (Ω)	50
VSWR (GPS antenna without amplifier mounted on a conductive surface of dimensions 5x5 cm)	<1.5:1
Medium gain (dBic) (GPS antenna without amplifier) at zenith (90° of elevation)	-2 ÷ +1
at 0° of elevation	-18 dBi
axial ratio	to 2 at 3 dB
Polarization	right hand circular
GPS AMPLIFIER	
Gain (dB)	> 27 (29 medium)
Noise factor (dB)	< 1.5 (1.2 medium)
Power supply (V)	5 ±40%
Consumption (mA)	23 ±3.5 (21 medium)

Mechanical Specifications

Dimensions (mm)	70x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for GSM/R TNC female for GPS (SMA female for 3V model)
Op. temperature range (°C)	-40° to +70°
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

By λεα LEANTENNE

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Environmental Characteristics

ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

BLWD1 4 holes flange: flange with 4 M10 studs included.

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system. **Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified**

Approved by: SNCF, SNCB, TRENITALIA

MONOBAND WiFi ANTENNA

5150 ÷ 5875 MHz

M58D1

RAILWAYS TRANSPORT

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)	5150 ÷ 5875
Impedance (Ω)	50
VSWR	<1.7
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

Mechanical Specifications	
Dimensions (mm)	70x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (250x250 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female
Op. temperature range (°C)	-40° to +70°
Reliability	above to 200,000 hours

By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 250x250 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

M58D1 4 holes flange: flange with 4 M10 studs included;.

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system.

Approved by: SNCF, SNCB, TRENITALIA

DUALBANDS L1 GPS AND WIFI ANTENNA

5150 ÷ 5875 and 1575.42 MHz

BL58D1

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications	
Frequency Band (MHz)	5150 ÷ 5875
Impedance (Ω)	50
VSWR	<2:1
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical
GPS BAND	
Frequency Band (MHz)	1574.42-1576.42
Impedance (Ω)	50
VSWR (GPS antenna without amplifier mounted on a conductive surface of dimensions 5x5 cm)	<1.5
Medium gain (dBic) (GPS antenna without amplifier) at zenith (90° of elevation)	-2 ÷ +1
Polarization	right hand circular
GPS AMPLIFIER	
Gain (dB)	> 27 (29 medium)
Noise factor (dB)	< 1.5 (1.2 medium)
Power supply (V)	5 ±40%
Consumption (mA)	23 ±3.5 (21 medium)

Mechanical Specifications	
Dimensions (mm)	70x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for WiFi band TNC female for GPS (SMA female with cable in 3V model)
Op. temperature range (°C)	-40° to +70°
Reliability	above to 200,000 hours

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

By λεα LEANTENNE

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Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

BGLD 4 holes flange.

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system. **Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified**

Approved by: SNCF, SNCB, TRENITALIA

FIVE BANDS GSM/DCS/L1 GPS/G1 GLONASS/WIFI

870 ÷ 960 MHz, 1710 ÷ 1880 MHz, 1575.42 MHz, 1609 MHz, 2400 ÷ 2485 MHz

PDBLG1WD

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications

Frequency Band (MHz)	870 ÷ 960 1710 ÷ 1880 2400 ÷ 2485
Impedance (Ω)	50
VSWR	<2:1
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical
GPS/GLONASS DIELECTRIC ANTENNA	
Frequency Band (MHz)	L1 GPS: 1575.42 MHz G1 GLONASS: 1609 MHz
Impedance (Ω)	50
VSWR (with the antenna mounted on a conductive surface of dimensions 7x7 cm)	<1.5:1
Peak gain at zenith (with the antenna mounted on a conductive surface of dimensions 7x7 cm):	> 3dBi
Polarization	right hand circular
LNA/FILTER	
LNA Gain (without cable):	28 dB Typical
Noise factor (dB)	≤ 1.5 dB
Power supply (V)	2.7…5 V
Consumption (mA)	30 mA maximum

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

Mechanical Specifications

Dimensions (mm)	140x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (500 x 500 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for GSM, DCS, WiFi TNC female for L1 GPS and G1 GLONASS
Op. temperature range (°C)	-40° to +70°
Reliability	above to 200,000 hours

By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics

ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 500 x 500 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

PDBLG1WD 4 holes flange.

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system. **Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified**

Approved by: SNCF, SNCB, TRENITALIA

FIVE BANDS GSM/DCS/L1 GPS/UMTS/WLAN

870 ÷ 960 MHz, 1710 ÷ 1880 MHz, 1575.42 MHz, 1920 ÷ 2170 MHz, 2400 ÷ 2485 MHz

PDBLUWD/P

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications

Frequency Band (MHz)	870 ÷ 960 MHz GSM 1710 ÷ 1880 MHz DCS 1920 ÷ 2170 MHz UMTS 2400 ÷ 2485 MHz WLAN
Impedance (Ω)	50
VSWR	<1.7
Gain (dB)	0 over λ/4 monopole
Max rated power (W)	30
Polarization	vertical

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

Mechanical Specifications

Dimensions (mm)	140x80x145
Total weight (kg)	0.5
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for GSM, DCS, UMTS bands TNC female for L1 GPS band 200 mm of RG316 coaxial cable with SMA/F connector for WLAN band
Op. temperature range (°C)	-40° to +70°
Reliability	above to 200,000 hours

GPS BAND	
Frequency Band (MHz)	1575.42 ±1
Impedance (Ω)	50
VSWR (GPS antenna without amplifier mounted on a conductive surface of dimensions 5x5 cm)	<1.5
Medium gain (dBic) (GPS antenna without amplifier) at zenith (90° of elevation)	-2 ÷ +1
Polarization	right hand circular
GPS AMPLIFIER	
Gain (dB)	> 27 (29 medium)
Noise factor (dB)	< 1.5 (1.2 medium)
Power supply (V)	5 ±40%
Consumption (mA)	23 ±3.5 (21 medium)

By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics

ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600 x 600 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

PDBLUWD/P 4 holes flange.

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system. **Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified**

Approved by: SNCF, SNCB, TRENITALIA

MONOBAND GPS ANTENNA

1575.42 MHz

MLD1

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications

GPS BAND	
Frequency Band (MHz)	1574.42-1576.42
Impedance (Ω)	50
VSWR (GPS antenna without amplifier mounted on a conductive surface of dimensions 5x5 cm)	<1.5:1
Medium gain (dBic) (GPS antenna without amplifier) at zenith (90° of elevation)	-2 ÷ +1
Polarization	right hand circular
GPS AMPLIFIER	
Gain (dB)	> 27 (29 medium)
Noise factor (dB)	< 1.5 (1.2 medium)
Power supply (V)	5 ±40%
Consumption (mA)	23 ±3.5 (21 medium)

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

Mechanical Specifications

Dimensions (mm)	70x80x145
Total weight (kg)	0.3
Mounting	on metallic surface (250x250 mm minimum)
Body material	Alluminium Alodine 1200 or Surtec 650 treatment
Radome material	Lexan EXL 9330 Polycarbonate
Connectors	Silver plated brass
Type of connection	TNC female connector
Op. temperature range (°C)	-40° to +70°
Reliability	above to 200,000 hours

By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics

ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 250x250 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

Mounting with a hole of 16.5 mm of diameter

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system. **Advantage**: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified.

Approved by: SNCF, SNCB, TRENITALIA

MONOBAND GPS ANTENNA

1575.42 MHz

MLV

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electrical Specifications

GPS BAND	
Frequency Band (MHz)	1575.42 ±1
Impedance (Ω)	50
VSWR (GPS antenna without amplifier mounted on a conductive surface of dimensions 5x5 cm)	<1.5
Medium gain (dBic) (GPS antenna without amplifier) at zenith (90° of elevation)	-2 ÷ +1
Polarization	right hand circular
GPS AMPLIFIER	
Gain (dB)	> 27 (29 medium)
Noise factor (dB)	< 1.5 (1.2 medium)
Power supply (V)	5 ±40%
Consumption (mA)	23 ±3.5 (21 medium)

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

Mechanical Specifications

Dimensions (mm)	57x75 ø
Total weight (kg)	0.3
Mounting	on metallic surface (250x250 mm minimum)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female
Op. temperature range (°C)	-40° to +70°
Reliability	above to 200,000 hours

By λεα LEANTENNE

We reserve the right to modify these data without any notice

Environmental Characteristics

ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 250x250 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

Mounting with a hole of 16.5 mm of diameter

Grounding and high voltage protection: Our antennas have passed the strict SNCF's tests that approved our products as protected against lighting and high-tension voltage thanks to our patented DC and AC grounded system. **Advantage**: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified.

Approved by: SNCF, SNCB, TRENITALIA

MULTIBAND ROOF ANTENNA

GPRS&3G, LTE, WiMax and WiFi

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

ZEFIRO

RAILWAYS TRANSPORT

Electric Characterstics

GPRS&3G BANDS	
Frequency range:	
GSM 900:	880 - 960 MHz
GSM 1800:	1710 - 1880 MHz
UMTS:	1920 - 2170 MHz
Input impedance:	50 Ω
Polarization	vertical
VSWR:	< 2.0:1 for GSM 900 band
	< 1.7:1 for GSM 1800 and UMTS bands
Gain:	5 dBi for GSM 900 band
	6 dBi for GSM 1800 and UMTS bands
Maximum rated RF power:	30 W (minimum)
LTE BANDS	
Frequency range:	
	690 - 862 MHz
	2500 - 2690 MHz
Input impedance:	50 Ω
Polarization	vertical
VSWR:	< 2.0:1 for 690 - 862 MHz band
	< 1.7:1 for 2500 - 2690 MHz band
Gain :	5 dBi for 790 - 862 MHz band
	7 dBi for 2500 - 2690 MHz band
Maximum rated RF power:	30 W (minimum)
Wi-Max BANDS	
Frequency range:	
Wi-Max:	3400 - 3600 MHz
Wi-Max additional band:	3600 - 3800 MHz
Input impedance:	50 Ω
Polarization	vertical
VSWR:	< 2.0:1
Gain :	8 dBi
Maximum rated RF power:	30 W (minimum)
Wi-Fi BANDS	
Frequency range:	
	2400 - 2500 MHz
	5150 - 5875 MHz
Input impedance:	50 Ω
Polarization	vertical
VSWR:	< 1.7:1
Gain :	7 dBi for 2400 - 2500 MHz
	8 dBi for 5150 - 5875 MHz
Maximum rated RF power:	30 W (minimum)

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

By λεα LEANTENNE

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MULTIBAND ROOF ANTENNA

GPRS&3G, LTE, WiMax and WiFi

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Our products can be tailored according to the customer's need.

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RAILWAYS TRANSPORT

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Mechanical Specifications	
Dimensions (mm)	100 x 100 x 315
Total weight (kg)	1.7
Mounting	on metallic surface (optimum dimensions 600x600mm, suitable dimensions 350x350mm); the antenna works also on non-metallic surfaces
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for GPRS&3G, LTE, Wi-Max and WiFi bands
Op. temperature range (°C)	-40 to +80
Reliability	above to 200,000 hours

Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm (suitable dimensions are 350x350 mm); these dimensions could be reduced on client needs as the antenna works also on non-metallic surfaces. it's advisable to keep the mounting surface clean for a better electrical contact.
Mounting flange holes are indicated in the relevant mounting instruction document.

By λεα LEANTENNE

MULTIBAND ROOF ANTENNA

GPRS&3G, LTE, WiMax WiFi, L1 GPS and G1 GLONASS

ZEFIRO-G

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Electric Characteristics

GPRS&3G BANDS	
Frequency range:	
GSM 900:	880 - 960 MHz
GSM 1800:	1710 - 1880 MHz
UMTS:	1920 - 2170 MHz
Input impedance:	50 Ω
Polarization	vertical
VSWR:	< 2.0:1 for GSM 900 band
	< 1.7:1 for GSM 1800 and UMTS bands
Gain:	5 dBi for GSM 900 band
	6 dBi for GSM 1800 and UMTS bands
Maximum rated RF power:	30 W (minimum)
LTE BANDS	
Frequency range:	
	790 - 862 MHz
	2500 - 2690 MHz
Input impedance:	50 Ω
Polarization	vertical
VSWR:	< 2.0:1 for 790 - 862 MHz band
	< 1.7:1 for 2500 - 2690 MHz band
Gain :	5 dBi for 790 - 862 MHz band
	7 dBi for 2500 - 2690 MHz band
Maximum rated RF power:	30 W (minimum)
Wi-Max BANDS	
Frequency range:	
Wi-Max:	3400 - 3600 MHz
Wi-Max additional band:	3600 - 3800 MHz
Input impedance:	50 Ω
Polarization	vertical
VSWR:	< 2.0:1
Gain :	8 dBi
Maximum rated RF power:	30 W (minimum)
Wi-Fi BANDS	
Frequency range:	
	2400 - 2500 MHz
	5150 - 5875 MHz
Input impedance:	50 Ω
Polarization	vertical
VSWR:	< 1.7:1
Gain :	7 dBi for 2400 - 2500 MHz
	8 dBi for 5150 - 5875 MHz
Maximum rated RF power:	30 W (minimum)
GPS BAND	
Antenna type:	Active patch antenna
Frequency band:	1575.42 MHz ± 1.023MHz
VSWR:	≤ 2.0:1
Input impedance:	50 Ω
Polarization:	RHCP
Supply voltage:	3..5 VDC
Consumption current:	30mA maximum
Gain:	typical 26 dBi (29 dBic) @ 3.3 Vdc
	typical 29 dBi (32 dBic) @ 5 Vdc
Noise Figure:	2.0 dB maximum

Patent n° 1548873
Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.

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MULTIBAND ROOF ANTENNA

GPRS&3G, LTE, WiMax WiFi, L1 GPS and G1 GLONASS

ZEFIRO-G

RAILWAYS TRANSPORT

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

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

Mechanical Specifications	
Dimensions (mm)	100 x 100 x 315
Total weight (kg)	1.7
Mounting	on metallic surface (optimum dimensions 600x600mm, suitable dimensions 350x350mm); the antenna works also on non-metallic surfaces
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female for GPRS&3G, LTE, Wi-Max and WiFi bands TNC female for GPS band
Op. temperature range (°C)	-40 to +80
Reliability	above to 200,000 hours

Environmental Characteristics	
ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm (suitable dimensions are 350x350 mm); these dimensions could be reduced on client needs as the antenna works also on non-metallic surfaces. It's advisable to keep the mounting surface clean for a better electrical contact.
Mounting flange holes are indicated in the relevant mounting instruction document.

Advantage: Our antennas can operate in several frequencies simultaneously, so they don't need demixer;

Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already ampliefied.

By λεα LEANTENNE

MULTIBAND ROOF ANTENNA

UHF, CDMA, GPRS&3G, LTE, Wi-Max, WiFi AND L1 GPS

DOLPHIN-G

RAILWAYS TRANSPORT

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

Electric Characteristics	
UHF/ CDMA BAND	
Frequency range:	400 - 450MHz
Input impedance:	50 Ω
Polarization	vertical
VSWR:	< 2.0:1
Gain :	4dBi
Maximum rated RF power:	30 W (minimum)
GPRS&3G BANDS	
Frequency range:	
GSM 900:	876 - 960 MHz
GSM 1800:	1710 - 1880 MHz
GSM/PCS 1900:	1850 - 1990 MHz
UMTS:	1920 - 2170 MHz
Input impedance:	50 Ω
Polarization	vertical
VSWR:	< 2.0:1
Gain :	6 dBi for GSM 900 band
	6 dBi for GSM 1800, GSM/PCS 1900 and
	UMTS bands
Maximum rated RF power:	30 W (minimum)
LTE BANDS	
Frequency range:	690 - 862 MHz
	2500 - 2690 MHz
Input impedance:	50 Ω
Polarization	vertical
VSWR:	< 2.0:1
Gain:	5 dBi for 690 - 862 MHz band
	8 dBi for 2500 - 2690 MHz band
Maximum rated RF power:	30 W (minimum)
Wi-Max BANDS	
Frequency range:	3400 - 3600 MHz
Wi-Max:	3600 - 3800 MHz
Wi-Max additional band:	50 Ω
Input impedance:	vertical
Polarization	< 2.0:1
VSWR:	7.5 dBi
Gain :	30 W (minimum)
Maximum rated RF power	
Wi-Fi BANDS	
Frequency range:	3400 - 3600 MHz
	3600 - 3800 MHz
Input impedance:	50 Ω
Polarization	vertical
VSWR:	< 2.0:1
Gain :	7.5 dBi
Maximum rated RF power:	30 W (minimum)
GPS BAND	
Antenna type:	Active patch antenna
Frequency band:	1575.42 MHz ± 1.023MHz
VSWR:	≤ 2.0:1
Input impedance:	50 Ω
Polarization:	RHCP
Supply voltage:	3..5 VDC
Consumption current:	30mA maximum
Gain:	typical 26 dBi (29 dBic) @ 3.3 Vdc
	typical 29 dBi (32 dBic) @ 5 Vdc
Noise Figure:	2.0 dB maximum

Patent n° 1548873
Antenna for train with protective means against high voltages.
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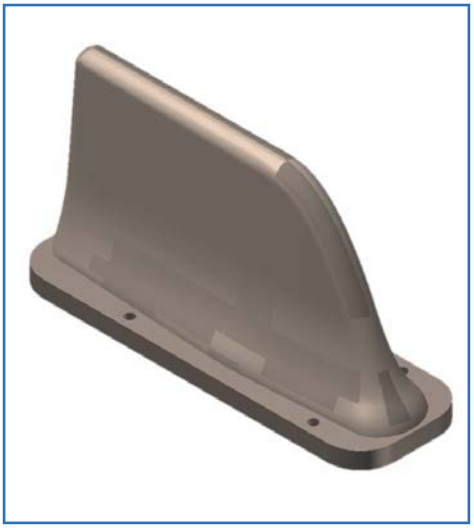

RAILWAY MASS TRANSPORTATION AND HIGH SPEED TRAINS

By λεα LEANTENNE

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MULTIBAND ROOF ANTENNA

UHF, CDMA, GPRS&3G, LTE, Wi-Max, WiFi AND L1 GPS

DOLPHIN-G

RAILWAYS TRANSPORT

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

Mechanical Specifications

Dimensions (mm)	170.5x100x315 mm (Height x Width x Depth)
Total weight (kg)	abt. 1.7 kg
Mounting	on metallic surface (minimum dimensions 600x600mm)
Body material	Aluminium with SURTEC 650 treatment
Radome material	High impact polycarbonate
Connectors	Silver plated brass
Type of connection	N female connector for UHF / CDMA, GPRS&3G, LTE, Wi-Max and WiFi bands TNC female connector for GPS band
Op. temperature range (°C)	40° to +85°C
Reliability	above to 200'000 hours

Environmental Characteristics

ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068	
Temperature conditions	-40°C, +70°C
Atmospheric pressure	-40°C, +70°C, 95% HR at 2000 mt
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h
MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818	
Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30 g, 30 g, 50 g, 30ms
Impacts	50 J
GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123	
Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31,5 kA / 10 ms – 15 kA / 100 ms (AC)

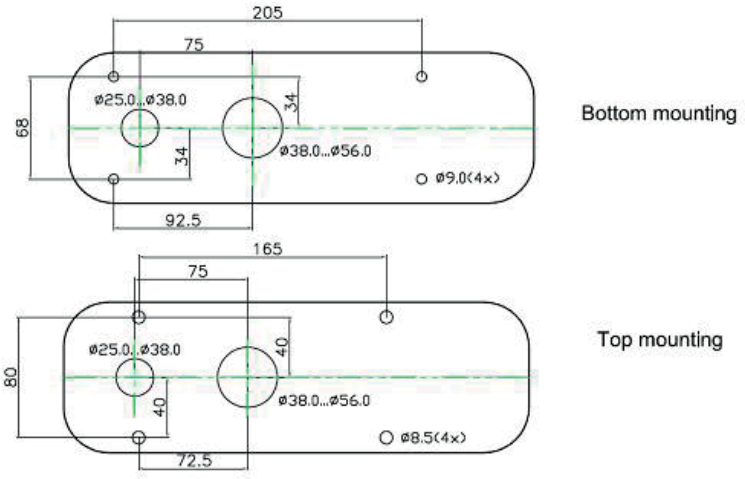
MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 600x600 mm ; it's advisable to keep the mounting surface clean for a better electrical contact.
Mounting flange holes are indicated in the relevant mounting instruction document.

Advantage: Our antennas can operate in several frequencies simultaneously, so they don't need demixer;

Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already ampliefied.

MOUNTING FLANGE



Bottom mounting

Top mounting

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DIPLEXER VHF - UHF

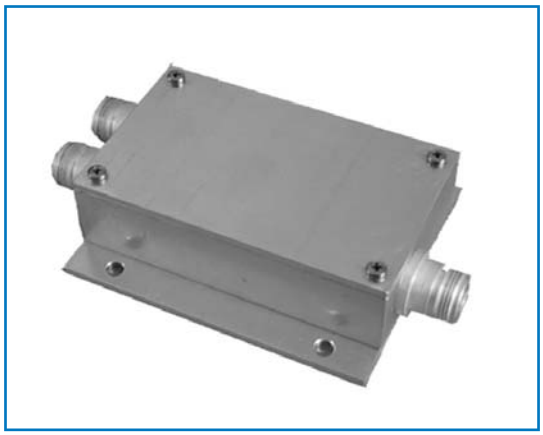
D1545-P

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

RAILWAYS AND TRANSPORT

Electrical Specifications

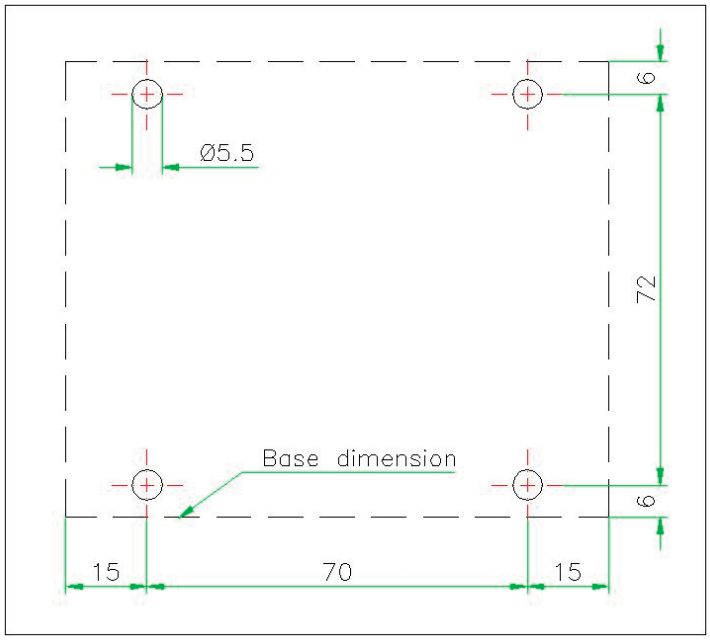
Frequency range (MHz)	VHF 100 -180 UHF 380 - 470
Impedance (Ω)	50
VSWR	<1.6
Insertion loss (dB)	<0.7 VHF <1.1 UHF
Rejection (dB)	>20
Isolation (dB)	>20
Maximum power (W)	10



Mechanical Specifications

Dimensions (mm)	84x134x32
Total weight (kg)	0.3
Body material	Aluminium with SURTEC 650 treatment
Connectors	Silver plated brass
Type of connection	N female

Mounting Flange



ACCESSORIES

By λεα LEANTENNE

DIPLEXER UHF - GSM

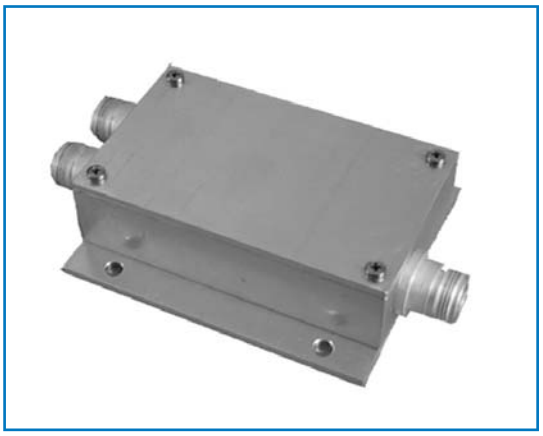
D49

RAILWAYS AND TRANSPORT

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

Electrical Specifications

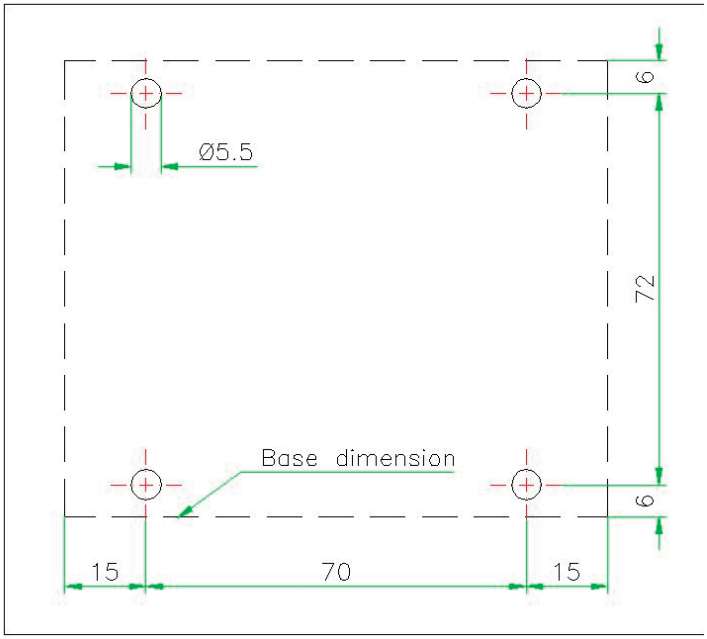
Frequency range (MHz)	UHF 380 - 470 GSM 870 - 960
Impedance (Ω)	50
VSWR	<1.6
Insertion loss (dB)	<0.7
Rejection (dB)	>38
Isolation (dB)	>38
Maximum power (W)	10



Mechanical Specifications

Dimensions (mm)	84x134x32
Total weight (kg)	0.3
Body material	Aluminium with SURTEC 650 treatment
Connectors	Silver plated brass
Type of connection	N female

Mounting Flange



ACCESSORIES

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DIPLEXER UHF-WLAN

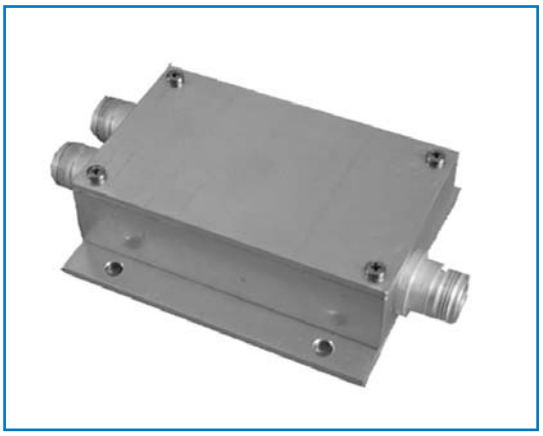
D4524

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

RAILWAYS AND TRANSPORT

Electrical Specifications

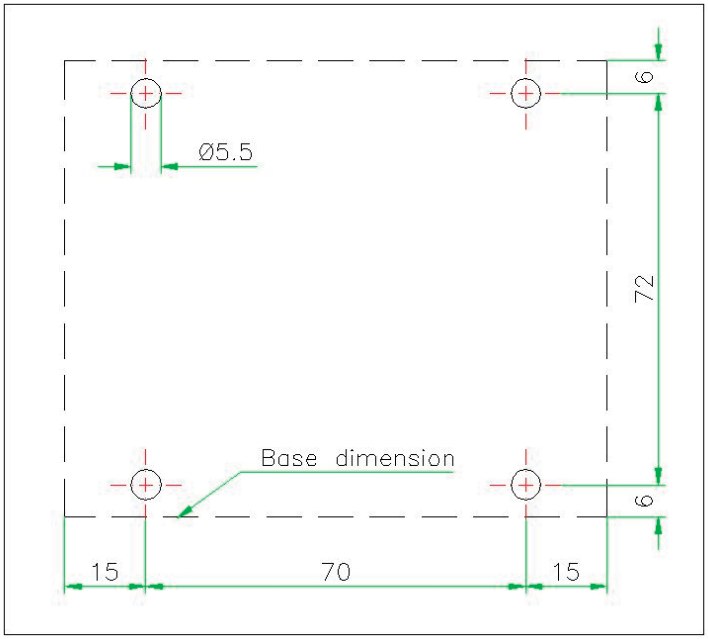
Frequency range (MHz)	UHF 380 - 470 WLAN 2400 - 2485
Impedance (Ω)	50
VSWR	<1.7
Insertion loss (dB)	<0.4 UHF <1.8 WLAN
Rejection (dB)	>20 UHF >30 WLAN
Isolation (dB)	>20 UHF >30 WLAN
Maximum power (W)	10



Mechanical Specifications

Dimensions (mm)	84x134x32
Total weight (kg)	0.3
Body material	Aluminium with SURTEC 650 treatment
Connectors	Silver plated brass
Type of connection	N female

Mounting Flange



ACCESSORIES

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DIPLEXER
GSM, DCS, UMTS-WLAN

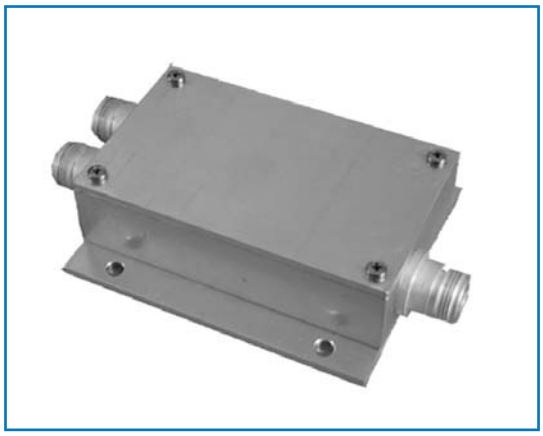
D224-P

RAILWAYS AND TRANSPORT

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

Electrical Specifications

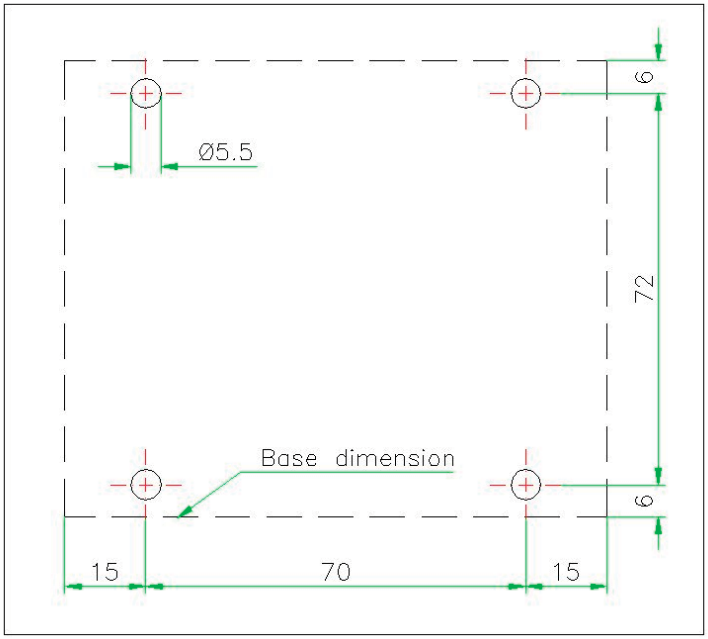
Frequency range (MHz)	GSM 870 - 960 DCS 1710 - 1880 UMTS 1920 - 2170 WLAN 2400 - 2485
Impedance (Ω)	50
VSWR	<1.8
Insertion loss (dB)	<0.7 GSM <1.1 DCS <1.6 UMTS <1.8 WLAN
Rejection (dB)	>30 GSM - DCS >20 UMTS >25 WLAN
Isolation (dB)	>30 GSM - DCS >20 UMTS >25 WLAN
Maximum power (W)	10



Mechanical Specifications

Dimensions (mm)	84x134x32
Total weight (kg)	0.3
Body material	Aluminium with SURTEC 650 treatment
Connectors	Silver plated brass
Type of connection	N female

Mounting Flange



ACCESSORIES

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DIPLEXER GSM-R, DCS, UMTS-WLAN

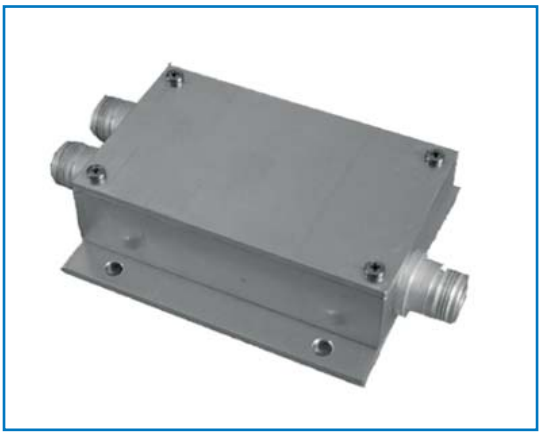
D2/2456-P

RAILWAYS AND TRANSPORT

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

Electrical Specifications

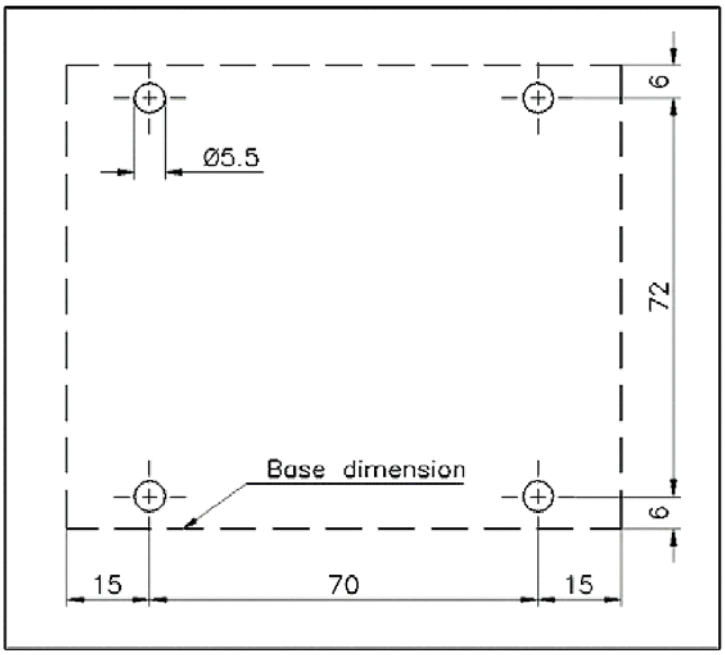
Frequency range (MHz)	GSM 870-960 DCS 1710-1880 UMTS 1920-2170 WLAN 2400-5600
Impedance (Ω)	50
VSWR	2<2:1
Insertion loss (dB)	<0.7 GSM <1.1 DCS <1.6 dB UMTS <1.8 dB WLAN
Rejection (dB)	>30 GSM-DCS >20 UMTS >25 WLAN
Isolation (dB)	>30 GSM-DCS >20 UMTS >25 WLAN
Maximum power (W)	10



Mechanical Specifications

Dimensions (mm)	84x134x32
Total weight (kg)	0.3
Body material	Aluminium with SURTEC 650 treatment
Connectors	Silver plated brass
Type of connection	N female

Mounting Flange



ACCESSORIES

By λεα LEANTENNE

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GSM-R SPURIOUS EMISSION SUPPRESSING NO RECIPROCAL FILTER

876 ÷ 880 MHz, 921 ÷ 925 MHz

91500121

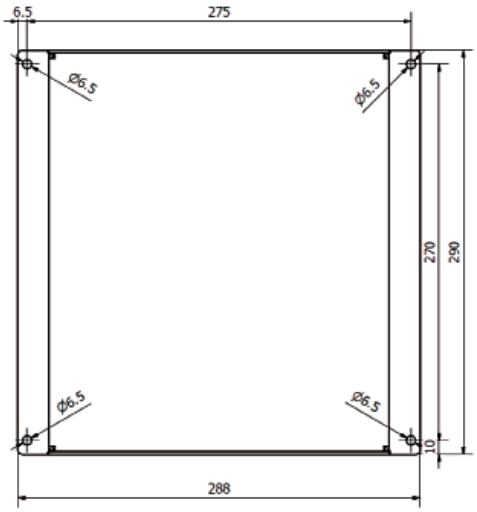
RAILWAYS AND TRANSPORT

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

Mechanical Specifications	
Dimensions (mm)	290x288x86.7
Total weight (kg)	2.5
Type of connection	N female
Op. temperature range (°C)	-40° to +85°

Electrical Specifications	
Frequency range (MHz)	876 ÷ 880 MHz 921 ÷ 925 MHz
Impedance (Ω)	50
VSWR	< 2:1
Insertion loss (dB) PORT1PORT2 GSM-R up-link 876 – 880 MHz PORT2 PORT1 GSM-R down-link 921 – 925 MHz	 5 4
Rejection (dB)	
PORT 1PORT2 GSM-R up-link 876 – 880 MHz	minimum rejection of 45 dB between 921 – 925 MHz for temperature range from -10 C° to +85 C° minimum rejection of 41 dB between 921 – 925 MHz for temperature range from -40 C° to -10 C°
PORT 2PORT1 GSM-R down-link 921 – 925 MHz	typical rejection of 25 dB (minimum 23.5 dB) between 876 - 880 MHz for temperature range from -10 C° to + 85 C° typical rejection of 23 dB (minimum 21.5 dB) between 876 - 880 MHz for temperature range from -40 C° to -10 C°
Maximum power (W)	30

Mounting Flange



By λεα LEANTENNE

We reserve the right to modify these data without any notice

GSM-EP SPURIOUS EMISSION SUPPRESSING NO RECIPROCAL FILTER

880 ÷ 915 MHz, 925 ÷ 960 MHz

91500122

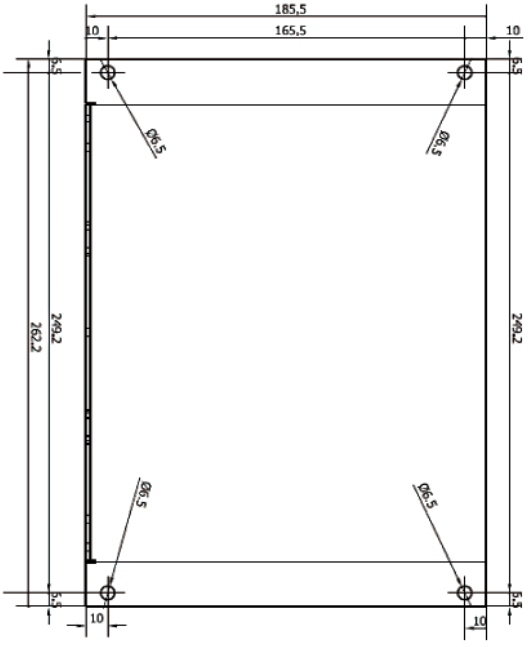
RAILWAYS AND TRANSPORT

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

Mechanical Specifications	
Dimensions (mm)	180x156x33
Total weight (kg)	0.9
Cavity material	Steel chassis and aluminium extruded cavities
Type of connection	N female

Electrical Specifications	
Frequency range (MHz)	880 ÷ 915 925 ÷ 960
Impedance (Ω)	50
VSWR	< 2 : 1
Insertion loss (dB) PORT1→PORT2 GSM-EP up-link 880 – 915 MHz PORT2 →PORT1 GSM-EP down-link 925 – 960 MHz	 8 5.2
Rejection (dB)	
PORT 1→PORT2 GSM-EP up-link 880 – 915 MHz	minimum rejection of 18 dB between 921 – 960 MHz
PORT 2→PORT1 GSM-EP down-link 925 – 960 MHz	minimum rejection of 25 dB between 876 – 915 MHz
Maximum power (W)	5

Mounting Flange



ACCESSORIES

By λεα LEANTENNE

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SIX CAVITIES GSM-R DUPLEXER

873 ÷ 880 MHz and 918 ÷ 925 MHz

91500126

RAILWAYS AND TRANSPORT

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

Electrical Specifications	
Frequency range (MHz)	873 ÷ 880 (up-link channel) 918 ÷ 925 (down-link channel)
Impedance (Ω)	50
VSWR	≤ 2
Insertion loss (dB)	<1
Rejection (dB)	
873 ÷ 880 MHz (up-link channel)	min.33 between 918 ÷ 925 MHz (down link channel)
918 ÷ 925 MHz (up-link channel)	min.45 between 873 ÷ 880 MHz (up-link channel)
Isolation (dB)	min.33 between 918 ÷ 925 MHz (down link channel) min.45 between 873 ÷ 880 MHz (up-link channel)
Frequensy stability (ppm/°C)	10
Maximum power (W)	50

Mechanical Specifications	
Dimensions (mm)	180x156x33
Total weight (kg)	0.9
Cavity material	Steel chassis and aluminium extruded cavities
Type of connection	N female

ACCESSORIES

By λεα LEANTENNE

GSM-R DUPLEXER

876 ÷ 960 MHz

T06210945

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

RAILWAYS AND TRANSPORT

Electrical Specifications	
Impedance (Ω)	50
Isolation (dB)	≥ 70
Maximum power (W)	40
Op. temperature range (°C)	-40° to +70°
Up-Link (TX) Section	
Frequency range (MHz)	876 ÷ 960
UIC Band (MHz)	876 ÷ 880
Insertion loss (dB)	
whole band	≤ 1.3
UIC Band	≤ 2
Return loss (dB)	≥ 18
Rejection (dB) of the RX section	≥ 70
Down-Link (RX) Section	
Frequency range (MHz)	921 ÷ 960
Insertion loss (dB)	≤ 2.2
Return loss (dB)	≥ 18
Rejection (dB) of the TX section	≥ 60

Mechanical Specifications	
Dimensions (mm)	272x51x95,5
Weight (kg)	2.2
Mounting	on metallic surface (600x600 mm minimum)
Body material	Aluminium alloy
Finishing	Silver plating
Vibrations	CEI EN61373 cat.1 class B
Salt spray	CEI EN50155
Type of connection	SMA female

Shipment Specifications	
Packing	cardboard box
Dimensions (mm)	350x300x250
Weight (kg)	3.3

By TELSA

GSM-R PANEL ANTENNA DUAL SLANT POLARIZATION 14 DBi

870 ÷ 960 MHz

T01290936

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RAILWAYS AND TRANSPORT

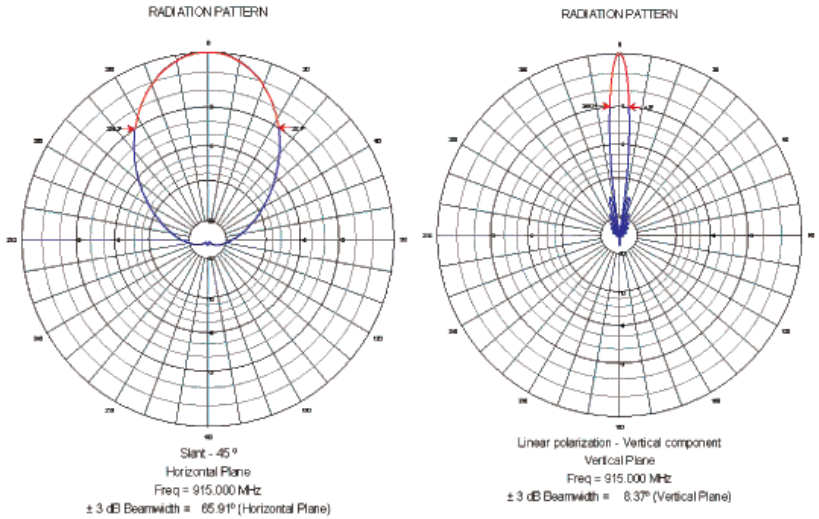
Electrical Specifications

Frequency Band (MHz)		870 ÷ 960
Impedance (Ω)		50
VSWR		<1.4
Gain (dB)		14
Polarization (deg)		± 45
HPBW (deg)	Horizontal plane	65 ± 3
	Vertical plane	16 ± 2
Front to Back ratio (dB)		>30
Isolation between ports (dB)		>30
Max rated power (W)		250@25°C
Intermodulation IM^{3rd} order (dBc) (2x43 dBm carrier)		<150
Op. temperature range (°C)		-40° to +70°
Lightning protection		DC grounded

Mechanical Specifications

Dimensions (mm)	1100x270x110
Weight (kg)	11
Mounting	Bracket for 40-120 mm
Colour	RAL 7035
Wind load @ 150 km/h (N)	360
Connectors (mm)	2x7/16 Female
Optional mechanical tilt	Down tilt kit T1604017
Environmental Tests according to:	ETSI 300-019-2

Radiation Pattern



By TELSA

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GSM-R PANEL ANTENNA DUAL SLANT POLARIZATION 17 DBi

870 ÷ 960 MHz

T01290902

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

RAILWAYS AND TRANSPORT

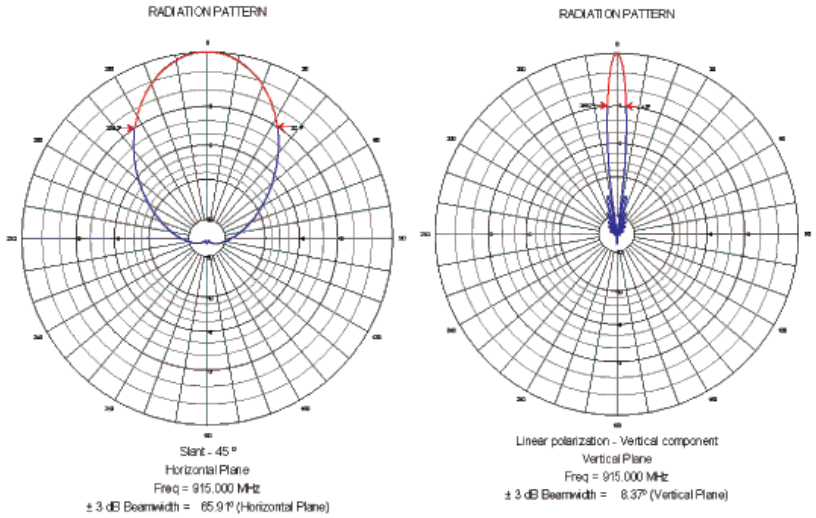
Electrical Specifications

Frequency Band (MHz)		870 ÷ 960
Impedance (Ω)		50
VSWR		<1.4
Gain (dB)		17
Polarization (deg)		± 45
HPBW (deg)	Horizontal plane	65 ± 3
	Vertical plane	7 ± 1
Front to Back ratio (dB)		>30
Isolation between ports (dB)		>30
Max rated power (W)		250@25°C
Intermodulation IM3rd order (dBc) (2x43 dBm carrier)		<150
Op. temperature range (°C)		-40° to +70°
Lightning protection		DC grounded

Mechanical Specifications

Dimensions (mm)	2200x270x110
Weight (kg)	22
Mounting	Bracket for 40-120 mm
Colour	RAL 7035
Wind load @ 150 km/h (N)	720
Connectors (mm)	2x7/16 Female
Optional mechanical tilt	Down tilt kit T1604017
Environmental Tests according to:	ETSI 300-019-2

Radiation Pattern



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GSM-R PANEL ANTENNA DUAL SLANT POLARIZATION 20 DBi

870 ÷ 960 MHz

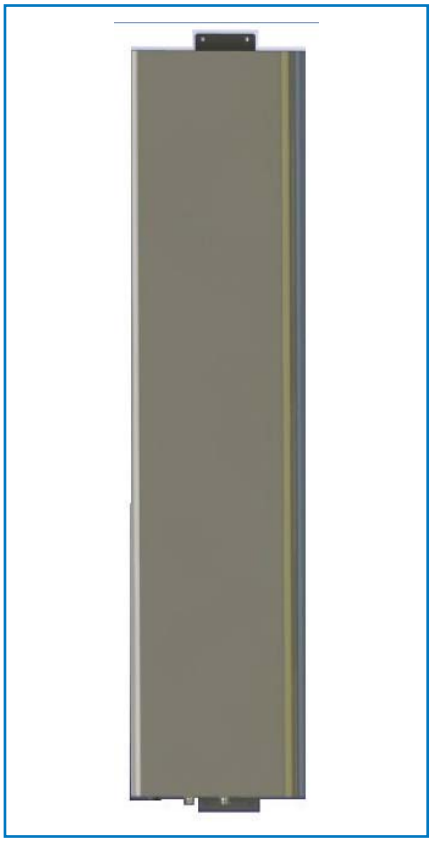
T01290914

RAILWAYS AND TRANSPORT

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

Electrical Specifications

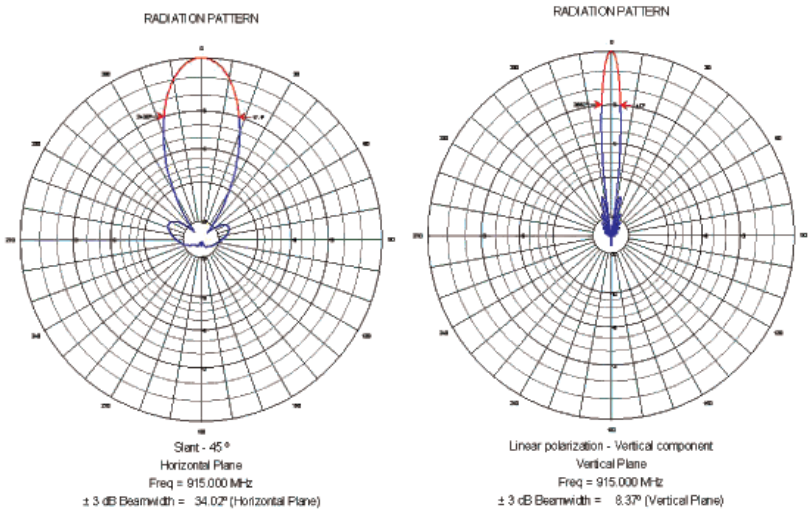
Frequency Band (MHz)		870 ÷ 960
Impedance (Ω)		50
VSWR		<1.4
Gain (dB)		20
Polarization (deg)		± 45
HPBW (deg)	Horizontal plane	33 ± 3
	Vertical plane	7 ± 1
Front to Back ratio (dB)		>30
Isolation between ports (dB)		>30
Max rated power (W)		250@25°C
Intermodulation IM3rd order (dBc) (2x43 dBm carrier)		<150
Op. temperature range (°C)		-40° to +70°
Lightning protection		DC grounded



Mechanical Specifications

Dimensions (mm)	2200x540x110
Weight (kg)	25
Mounting	Bracket for 40-120 mm
Colour	RAL 7035
Wind load @ 150 km/h (N)	1480
Connectors (mm)	2x7/16 Female
Optional mechanical tilt	Down tilt kit T1604017
Environmental Tests according to:	ETSI 300-019-2

Radiation Pattern



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DOWN TILT BRACKET 0°-10° FOR ANTENNA'S LENGTH: 1-2.5 MT

T16040007

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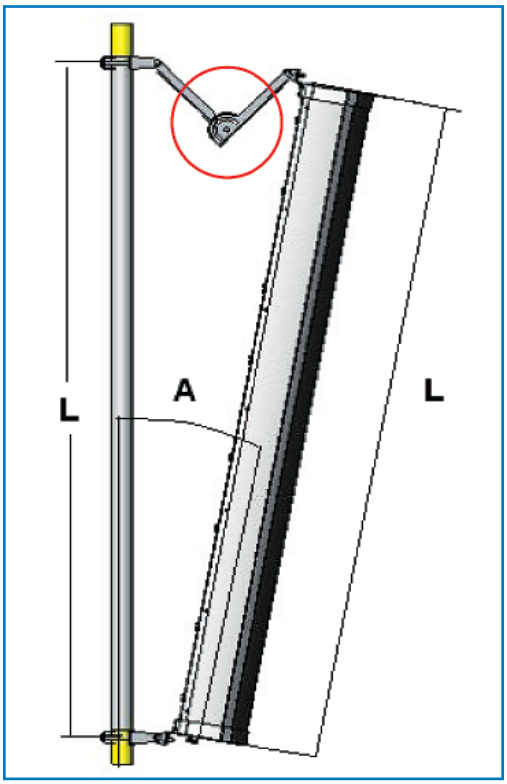
Our products can be tailored according to the customer's need.

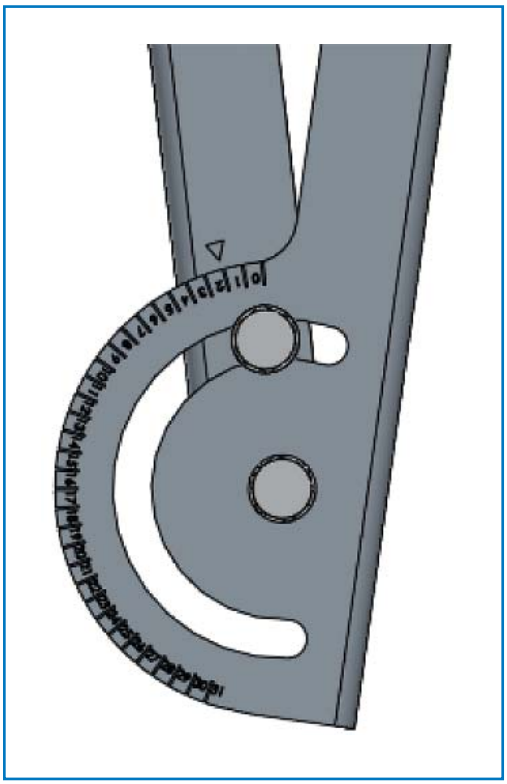
RAILWAYS AND TRANSPORT

DESCRIPTION:

The downtilt allows to change the antenna tilt from 0° to 10°. In order to regulate the antenna tilt at a desired angle, make the compass arm coincident with the corresponding notch on the graduate scale of the downtilt.

The correspondence between the notches on the graduate scale and the antenna tilt angles dipends on the antenna's lenght and is tabled on a label on the back of each antenna as shown in the picture.





Antenna Lenght L=1 mt	
Angle	Scale
0°	0
2°	0.5
4°	2
6°	3.5
8°	5.5
10°	7

Antenna Lenght L=2 mt	
Angle	Scale
0°	0
2°	2
4°	5
6°	8.5
8°	12
10°	16

Antenna Lenght L=2.5 mt	
Angle	Scale
0°	0
2°	3
4°	7
6°	11
8°	16
10°	22

Mechanical Specifications	
Material	INOX 304
Weight (kg)	5.5
For pole mounting	ø 40 ÷ 120 mm
Suitable for antennas	1 ÷ 2.5 mt lenght

By TELSA

EGSM-R HIGH POWER SPLITTER 2 WAYS FOR OUTDOOR

T07110902

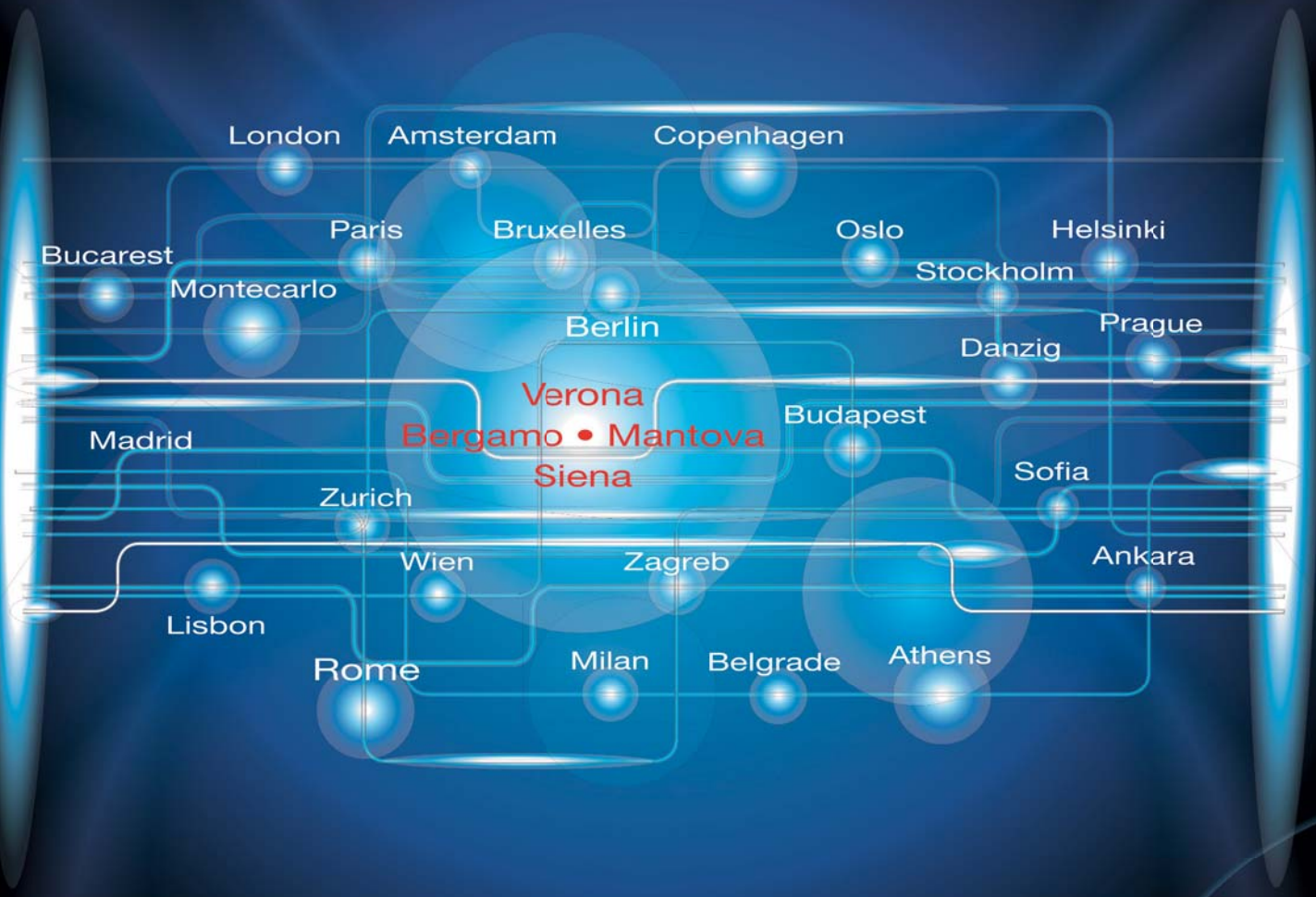
TEDAP offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

RAILWAYS AND TRANSPORT

Electrical Specifications	
Frequency Band (MHz)	870 ÷ 960
Impedance (Ω)	50
VSWR	1.3
Gain (dB)	20
Insertion loss (dB)	≤ 3.3
Isolation (dB)	≥ 25
Power handling	100 W db
Intermodulation IM^{3rd} order (dBc) (2x43 dBm carrier)	≥ 153 dBc
Op. temperature range (°C)	-20° to +70°
International protection	IP66

Mechanical Specifications	
Dimensions with brackets (mm)	92x58x184
Dimensions without brackets (mm)	84x45x108
Weight (kg)	3
Connectors (mm)	7/16 Female
Fixing	Clamps

Europe is our business area



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