

HF Antennas and Extras



Photo 36608-2

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Active Rod Antenna R&S® HE010; Power Supply Unit R&S® IN115

Brief description

Active rod antenna

The excellent characteristics of active receiving antennas are a result of carefully matching the passive antenna structure to the active circuitry.

- ◆ Wide frequency range
- ◆ Optimized for maximum dynamic range (high sensitivity, excellent large-signal characteristics)
- ◆ Small in size
- ◆ For use under extreme conditions (R&S HE010)
- ◆ High immunity to nearby lightning strikes
- ◆ Length of radiator adjustable (R&S HE011)

Power Supply Unit R&S IN110, R&S IN115

The Power Supply Units R&S IN110 and R&S IN115 power active receiving antennas via the inner conductor of the RF cable.

- ◆ AC supply or battery operation
- ◆ Short-circuit-proof
- ◆ Three DC-feed sections for up to three active antennas (R&S IN115)



Power Supply Unit R&S IN115 (photo 43887-1)

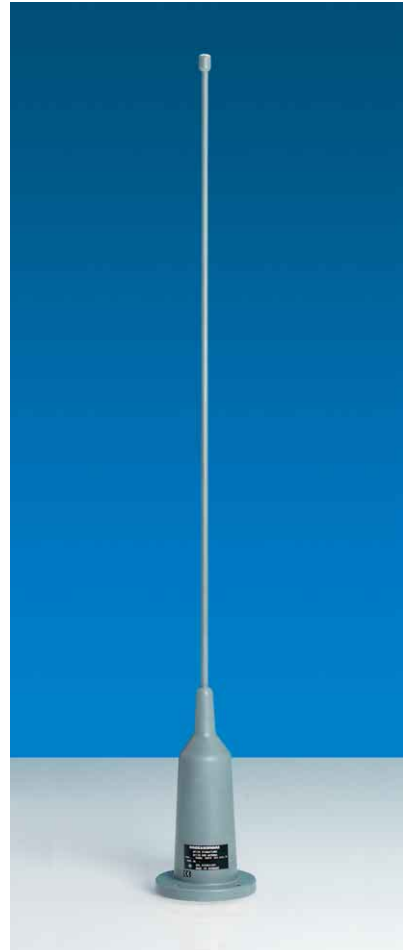


Photo 43901

Specifications

Frequency range	10 kHz to 80 (120) MHz
Impedance	50 Ω
VSWR 50 kHz to 120 MHz	<2
VSWR 10 kHz to 50 kHz	<3
Antenna factor	17 dB
Intercept point	
2nd order	≥50 dBm (60 dBm typ.)
3rd order	≥30 dBm
Crossmodulation	12 V/m up to 30 MHz, 6 V/m from 30 MHz to 80 MHz
Power supply	21 V to 26 V DC (Power Supply Unit R&S IN110 or R&S IN115 recommended)
Current drain	170 mA
Connector	N female
Permissible wind speed	188 km/h
Operating temp. range	-40°C to +65°C
Max. length with radiator	1000 mm
Max. diameter	120 mm
Weight	0.9 kg

Power Supply Unit

DC supply	24 V DC +35/-20%
AC supply	115/125/220/235 V AC ±10%, 50 VA max.
Output voltage	
with AC operation	3 × 24 V ±5%
with battery operation	3 × 18 V ±5%
Max. load current	500 mA/output
Short-circuit current	200 mA
RF frequency range	10 kHz to 1.3 GHz
Connectors	N female
Operating temp. range	-25°C to +55°C
Dimensions in mm	
W × H × D	170 × 125 × 350
Weight	5.5 kg

Ordering information

Active Rod Antenna	R&S HE010	0523.1414.13
Recommended extra		
Power Supply Unit	R&S IN115	4004.1707.02



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Active Antenna System R&S® HE016

10 kHz to 80 MHz (vertical)
600 kHz to 40 MHz (horizontal)
Omnidirectional reception also for horizontally polarized waves



Photo 43061

Brief description

This antenna system is a combination of the Active Rod Antenna R&S HE010 and two crossed HF dipole antennas. The two horizontal dipole antennas are combined via a 90° coupler to produce an omnidirectional antenna pattern for the reception of horizontally polarized signals.

Special features

- ◆ Extremely small dimensions
- ◆ High sensitivity – same system sensitivity as comparable passive antennas with more than three times the size
- ◆ High linearity
- ◆ High immunity to nearby lightning strikes
- ◆ Optimum results under any receiving conditions with minimum space requirement
- ◆ Omnidirectional reception of horizontally and vertically polarized signals

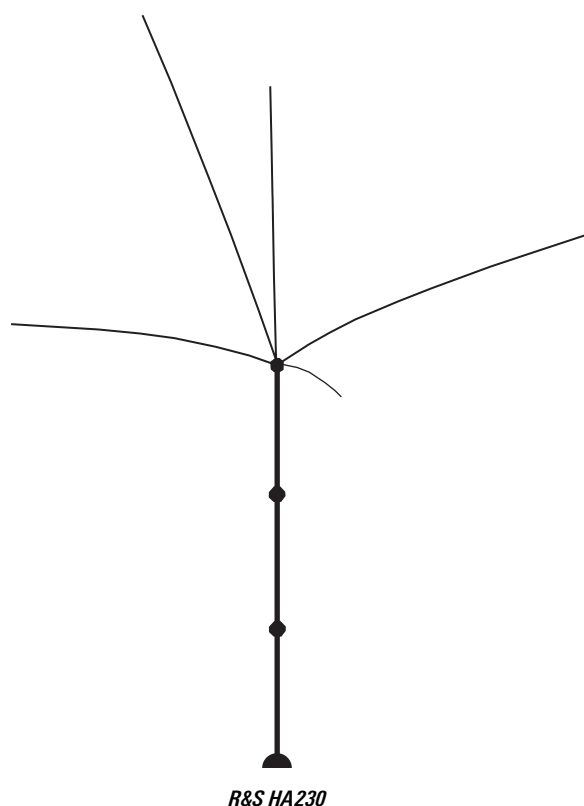
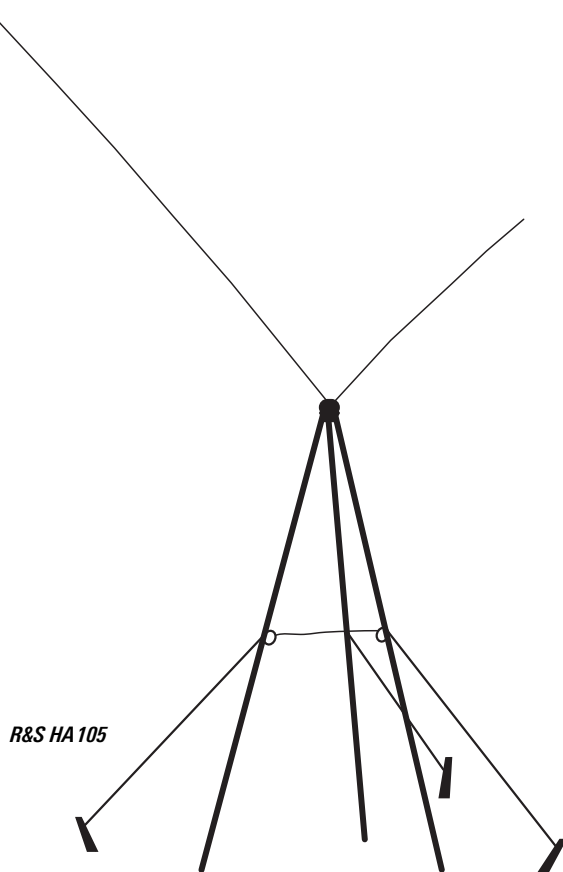
Specifications

Frequency range	
Vertical polarization	10 kHz to 80 (120) MHz
Horizontal polarization	600 kHz to 40 MHz
Nominal impedance	50 Ω
VSWR	<2 (10 kHz to 20 kHz: <3)
Intercept point	
2nd order	≥50 dBm up to 30 MHz
3rd order	≥30 dBm up to 30 MHz
Power supply	21 V to 26 V DC (460 mA)
Connector	2 × N female
Operating temperature range	−40 °C to +65 °C
Max. wind speed	188 km/h (without ice deposit)
Dimensions (dia. × H)	3 m × 1.4 m
Weight	3 kg

Ordering information

Active Antenna System	R&S HE016	4051.8504.02
Recommended extras		
Power Supply Unit	R&S IN115	4004.1707.02
6 m Plug-In Mast	R&S KM011	0273.9116.02

HF Receiving Antennas R&S[®] HA105, R&S[®] HA230



Brief description

Due to its small size and low weight, the HF Receiving Antenna R&S HA 105 is particularly suitable for use in mobile stations and on ships. The V-shaped arrangement of the radiators enables this antenna to be used for the reception of both horizontally and vertically polarized signals.

- ◆ Wide frequency range, small size
- ◆ Omnidirectional horizontal pattern for reception of high-angle signals
- ◆ Suitable for mobile and stationary use

The HF Receiving Antenna R&S HA230 is a versatile shortwave antenna for both horizontally and vertically polarized waves. Made up of electrically isolated and

decoupled individual elements, this antenna is particularly suitable for polarization-diversity reception.

- ◆ Individual radiators for horizontal and vertical polarization
- ◆ Suitable for polarization-diversity reception
- ◆ For mobile and stationary use

Specifications

	R&S HA105/1/50	R&S HA230/403
Frequency range	1.5 MHz to 30 MHz	1.5 MHz to 30 MHz
Polarization	horizontal and vertical	horizontal and vertical
Nominal impedance	50 Ω	50 Ω
Connector	N female	3 × N female
Weight	14 kg (with stand)	85 kg
Particularly suitable for	mobile use	stationary use
Length of radiators	3.5 m	5 m
Height	5.5 m (incl. mast)	11 m

Ordering information

HF Receiving Antenna 0111.5816.11 0101.1176.02

HF Dipole R&S® HX002

Brief description

HF dipole

The HF Dipole R&S HX002 permits optimum coverage of all distance ranges and is designed for both transmission and reception.

The fully automatic tuning unit integrated in the antenna provides perfect matching to the transmitting system.

- ◆ No skip zone
- ◆ Omnidirectional coverage with both low- and high-angle radiation (NVIS)
- ◆ Operational close to neighbouring antennas due to selectivity of integrated antenna tuner
- ◆ Fully automatic operation
- ◆ Silent tuning possible
- ◆ Single-mast installation, e.g. compact roof mounting

*R&S HX002
(photo 35834-4)*



Specifications

Frequency range	2 MHz to 30 MHz
Nominal impedance	50 Ω
VSWR	≤1.5, ≤1.1 typ.
Permissible input power	1.15 kW CW and PEP
Tuning time	
Without retuning	70 ms to 500 ms
Silent tuning (with R&S HF850 or process controller)	≤60 ms, 56 ms typ.
With retuning	2 s typ.
First tuning	<15 s typ.
Efficiency at 2 MHz	>20%
Efficiency at 5 MHz to 30 MHz	>75%
Power supply	21 V to 32 V DC (6 A max., 2.5 A at 28 V)
Connector	N female

Permissible wind speed	150 km/h (without ice desposit)
Operating temperature range	−30°C to +50°C
Dimensions	
Length of dipole	10 m
Height	1.13 m
Tuning unit (L × W)	0.51 m × 0.51 m
Weight	103 kg
MTBF	6.500 h

Ordering information

HF Dipole	R&S HX002	0682.3010.24
Recommended extras		
Frequency Range Extension (down to 1.6 MHz)	R&S HX002F	4017.9053.02



Photo 41579

1.5 MHz to 30 MHz

Coverage over all distances, suitable for both transmission and reception

Brief description

The HF Dipole R&S HX002A1 provides good coverage over all distances. In contrast to rod antennas, it features high transmission reliability especially over short and medium distances due to NVIS radiation which eliminates the skip zone of vertical antennas.

The antenna can easily be integrated into existing systems since no control line is required. All the control signals and the ATU supply are fed via the coaxial cable.

The HF Dipole R&S HX002A1 can be connected directly to the HF Transceivers R&S XK2100. For connection to other transceivers, the Junction Unit R&S GX002A1 is available to provide power supply and tuning control.

Special features

- ◆ No skip zone
- ◆ Omnidirectional coverage with high-angle radiation (NVIS)
- ◆ Only little separation from neighbouring antennas required
- ◆ Automatic adaptive operation
- ◆ No control line required
- ◆ Silent tuning
- ◆ Single-mast installation

Specifications

Frequency range	1.5 MHz to 30 MHz
Polarization	horizontal
Nominal impedance	50 Ω
VSWR	≤1.5, ≤1.3 typ.
Max. input power	150 W PEP/100 W CW
Tuning time	200 ms typ.
Initial tuning	≤6 s, 3 s typ.
Silent tuning	≤30 ms
Tuning power	30 W to 100 W
with R&S GX002A1	50 W to 100 W
Power supply	via R&S GX002A1
AC supply	100/120/230 V ±10 %, 47 Hz to 63 Hz (100 VA)
Battery	+22 V to +32 V, 2.5 A typ. at +24 V
Connector	N female
Operating temperature range	−25 °C to +55 °C

Max. wind speed	188 km/h (without ice deposit)
Wind load (at 188 km/h)	960 N
Dipole length	10 m
Weight	35 kg
MTBF	8.000 h

Ordering information

HF Dipole	R&S HX002A1	4031.8009.02
Recommended extras		
Junction Unit	R&S GX002A1	4031.9005.02
5 m Tiltable Mast for roofmounting	R&S KM002A1	4035.7359.02
Auxiliary Mast for R&S KM002A1	R&S HX002Z1	4031.7002.02
15 m Lattice Mast	R&S KM451B2	4028.3400.02
Mast Adapter for 15 m Mast	R&S KM451Z5	4039.8308.02



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Naval HF Dipole R&S[®] HX002M1

Epecially designed for shipboard communication

Photo 42826

Brief description

The Naval HF Dipole R&S HX002M1 enables optimum coverage over all distance ranges. It is particularly advantageous for radiocommunication over short and medium distances, since below 1000 km rod antennas cannot guarantee sufficient transmission reliability because of their skip zone.

The HF Dipole R&S HX002M1 provides high-angle radiation (NVIS: near vertical incident skywave) to ensure omnidirectional coverage at suitable frequencies, i.e. between 2 MHz and 8 MHz. The antenna operates below 2 MHz as a top-fed monopole, thus ensuring omnidirectional coverage with ground waves in the frequency range suitable for this purpose.

The HF Dipole R&S HX002M1 is designed for both transmission and reception. The fully automatic tuning unit, integrated in the antenna head, ensures continuous matching to the transmitting system with a VSWR of less than 1.5 if used in R&S XK2100 systems. No control signals are required from the transmitter for tuning.

Conventional antennas: the problems

Conventional antennas for operation on ships such as rod antennas and loop antennas often cause communication problems and are incompatible with other systems on the ship (EMI).

Rod antennas:

- ◆ Unfavourable radiation pattern over short and medium distances (skip zone)

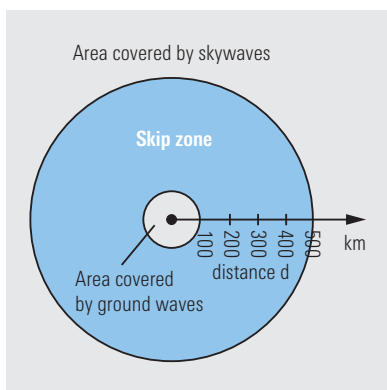
- ◆ Poor electromagnetic compatibility with other systems on board, since for rod antennas the ship's structure acts as a ground plane

Loop antennas:

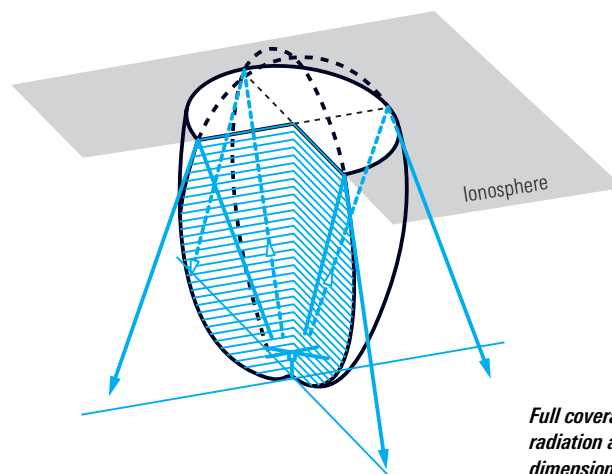
- ◆ Poor efficiency → low transmission reliability
- ◆ Small bandwidths

R&S HX002M1: the solution

The 150 W Dipole R&S HX002M1 solves such problems since the reactive power has been minimized in the antenna feed system. The antenna does not need a counterbalance – a particular advantage in GRP ships such as mine sweepers and patrol craft.



Skip zone at HF produced by vertically polarized antenna



Full coverage using high-angle radiation antenna (NVIS) with three-dimensional radiation pattern



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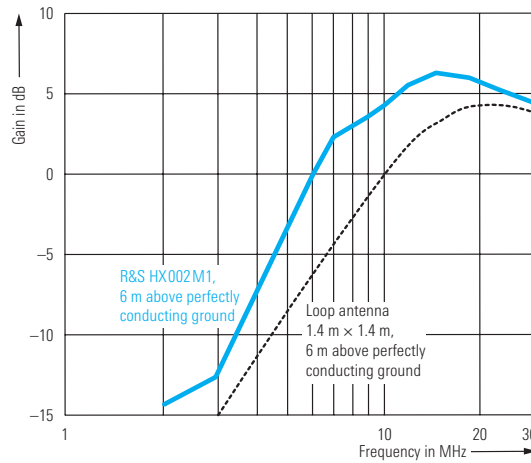
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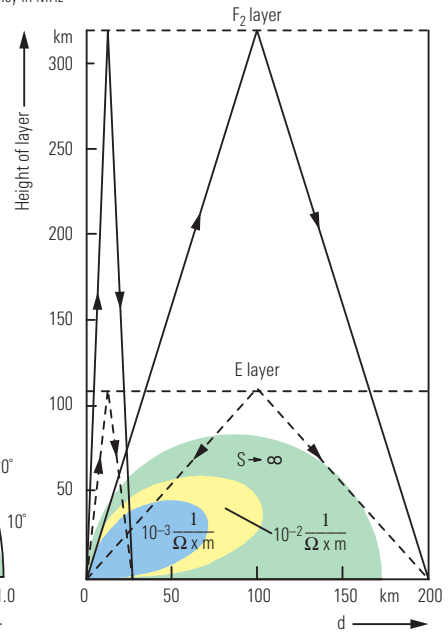
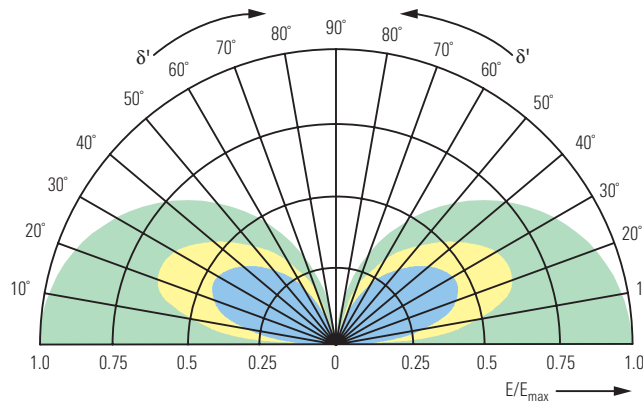
It has therefore the following features:

- ◆ No skip zone
- ◆ Compact design
- ◆ High efficiency
- ◆ No ground plane required
- ◆ Good EMC – even on GRP vessels



Gain of 150 W HF Dipole R&S HX002M1 compared to that of loop antenna

Vertical radiation pattern of $\lambda/4$ vertical antenna and transmission path for high-angle radiation



Specifications

Frequency range	1.5 MHz to 30 MHz
Max. permissible transmitting power	150 W PEP, 100 W CW
Input impedance	50 Ω nominal
SWR	<1.3 typ., max. 1.5
Gain	see diagram above
Tuning time	
Initial tuning	3 s typ., max. 6 s
Retuning	<0.2 s typ.
Silent tuning	<30 ms
Tuning power	
	30 W to 50 W
	50 W to 100 W with R&S GX002A1
RF connector	N female
Power supply	from R&S XK2100 or via R&S GX002A1
AC supply	100/120/220/230 V \pm 10 %
	47 Hz to 63 Hz (100 VA)
Battery	22 V to 32 V, approx. 2.5 A at 24 V
	23 V to 32 V when a 60 m cable of type RG213/U is used

Dimensions of ATU (H x W x D)	133 mm x 483 mm x 390 mm
Permissible wind speed	
without ice deposit	188 km/h
with radial ice deposit	130 km/h
Operating temperature range	-30°C to 55°C to MIL-STD-810E meth. 501.3 and 502.3
Storage temperature range	-40°C to 85°C to MIL-STD-810E meth. 501.3 and 502.3
Relative humidity	95 % up to 41°C, to MIL-STD-810E meth. 507.3
Resistance to vibration	to MIL-STD-810E meth. 514.4, random 80 Hz to 350 Hz, 0.04 g ² /Hz 20 Hz to 80 Hz, 3dB/octave 350 Hz to 2000 Hz, -6 dB/octave
Resistance to shock	40 g, spectrum 45 Hz to 2000 Hz acc. to MIL-STD-810E meth. 516.4
Resistance to salt fog	to MIL-STD-810E
Resistance to sand and dust	to MIL-STD-810E
EMP protection	lightning and NEMP protection integrated
EMC	to MIL-STD-461B

Mechanical data, environmental conditions

Dimensions	dipole length 5.2 m
Connection to mast	peg, 30 mm dia
Weight	approx. 34 kg

Ordering information

Naval HF Dipole	R&S HX002M1	4021.6003.02
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HF Rod Antennas R&S® HA104, R&S® HA175



R&S HA175 (photo 11116)

Brief description

The HF rod antennas are suitable for vertically polarized ground waves and low-angle skywaves. In conjunction with an antenna tuning unit, they can also be used for transmission.

- ◆ Sturdy construction
- ◆ Shock- and vibration-proof
- ◆ For mobile use (R&S HA104)
- ◆ For stationary and shipboard use (R&S HA175)

Specifications

	R&S HA104	R&S HA175
Frequency range	10 kHz to 30 MHz	10 kHz to 10 MHz
Reception	1.5 MHz to 30 MHz	1.5 MHz to 30 MHz
Transmission (with ATU)	vertical	vertical
Polarization	150 W CW and PEP	1 kW CW and PEP
Permissible input power	omnidirectional	omnidirectional
Horizontal pattern	screw terminal	screw terminal
Connector	150 km/h	185 km/h
Permissible wind speed	without ice desposit	without ice desposit
Height of antenna	5 m	7 m
Dismantling possible	yes	
Weight	4 kg	27 kg
		The antenna is available with base protection against salt deposits for shipboard use

Ordering information

HF Rod Antenna	0156.2039.02	0101.1101.02
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Mobile HF Antenna Systems R&S® AK501, R&S® AK501A4, R&S® AK503



R&S AK501 (photo 30646-1)



R&S AK503 (photo 33165-4)

Special features of R&S AK503

- ◆ Coverage of all distance ranges
- ◆ No skip zone
- ◆ Omnidirectional coverage with high-angle radiation (NVIS)
- ◆ Null fill-in plus omnidirectional coverage up to 1000 km
- ◆ Installation time approx. 10 min

Brief description

These HF antenna systems have been especially designed for mobile use. They combine short erection and disassembly times, little space requirement for installation and transportation with high-grade electrical characteristics. By optimum tailoring to the propagation conditions in the RF and shortwave range, the antenna systems ensure exceptionally high-quality mobile radiocommunication. The Antenna Systems R&S AK501 and R&S AK501A4 consist of two antennas (high-angle antenna and vertical antenna), which can be selected by remote control.

Special features of R&S AK501, R&S AK501A4

- ◆ Reliable radiocommunication over any distance, no skip zone
- ◆ Complete omnidirectional coverage even at medium distances due to null fill-in
- ◆ Fixed operation using high-angle antenna and vertical antenna as well as mobile operation using whip antenna



R&S AK501A4, disassembled (photo 31865-1)

Specifications

	R&S AK501	R&S AK501A4	R&S AK503
Frequency range	1.5 MHz to 30 MHz	1.5 MHz to 30 MHz	1.5 MHz to 30 MHz
Polarization, switchable	horizontal or vertical	horizontal or vertical	horizontal or vertical
Nominal impedance	50 Ω with ATU	50 Ω with ATU	50 Ω with ATU
VSWR	<1.5 with R&S FK859 (1.1 typ.)	depending on type of ATU	depending on type of ATU
Permissible input power	1.15 kW CW and PEP	400 W CW and PEP	150 W CW and PEP
Permissible wind speed	100 km/h (without ice)	100 km/h (without ice)	120 km/h (without ice)
Operating temperature range	-40°C to +55°C	-40°C to +55°C	-40°C to +55°C
Operating mode 1			1.5 MHz to 30 MHz optimized for 6 to 26 MHz for ground-wave communications and distances >2000 km by movable clamp
Operating mode 2			
Operating mode 3			
Mode selection			
Length of guy rope	57 m	46 m	35 m
Height	16.5 m	11.5 m	7 m to 11 m
Weight	30 kg	12 kg	6 kg

Ordering information

Mobile HF Antenna System	0280.4816.11	0425.8721.04	0448.3226.02
Recommended extras			
Antenna Tuning Unit R&S FK859		0682.1018.02	

Mobile TFD Broadband Antennas R&S[®] HD420, R&S[®] HD421

1.5 MHz to 30 MHz

For skywave transmission over short, medium and global distances

Brief description

The TFD (terminated folded dipole) antenna operates as a loop antenna on which travelling waves are generated by means of a termination. A tuning unit is not required to attain the specified VSWR. The antenna is configured as an inverted V so that only one antenna support is needed.

Where space is limited, the length of the antenna can be reduced considerably by using two lateral 4 m masts.

Signals are fed in at the highest point in the middle of the antenna via a transformer. Corresponding to its geometry, the TFD antenna radiates horizontally polarized waves and is thus suitable for transmission of skywaves over any distance.

Specifications

Frequency range	1.5 MHz to 30 MHz
Polarization	horizontal
Nominal impedance	50 Ω
VSWR	≤3 typ.
Max. input power	
R&S HD420	400 W
R&S HD421	1 kW
Connector	N female
Operating temperature range	−40 °C to +55 °C
Dimensions	
Length	approx. 90 m approx. 30 m with 2 × R&S KM420A2
Recommended height of feedpoint	approx. 10 m
Mechanical interface	for R&S KM420A1 and for 10 m tower from Geroh
Max. wind speed	180 km/h (without ice deposit) with R&S KM420A1 and 2 × R&S KM420A2
Weight (without mast)	
R&S HD420	13 kg
R&S HD421	17 kg

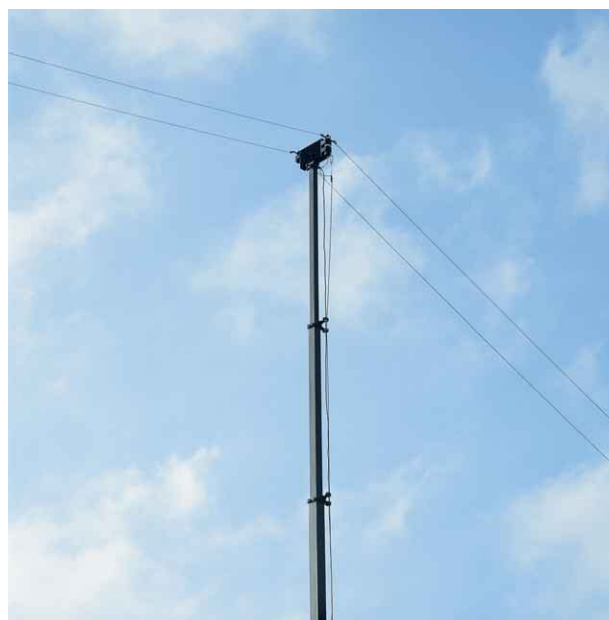


Photo 43262-1

Special features

- ◆ Broadband operation
- ◆ No tuning unit required
- ◆ Coverage of any distance
- ◆ Omnidirectional coverage through high-angle radiation (NVIS)
- ◆ Quick assembly/disassembly (approx. 30 min)
- ◆ Extremely favourable price
- ◆ Suitable for stationary use

Ordering information

Mobile TFD Broadband Antenna	R&S HD420	4053.2503.02
Mobile TFD Broadband Antenna	R&S HD421	4053.3500.02
Recommended extras		
Tiltable Mast 10 m	R&S KM420A1	4054.1023.00
Tiltable Mast 4 m	R&S KM420A2	4054.1423.00



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Mobile TFD Broadband Antennas R&S[®] HD520, R&S[®] HD521

1.5 MHz to 30 MHz

For skywave transmission over short, medium and global distances

Brief description

The TFD (terminated folded dipole) antenna operates as a loop antenna on which travelling waves are generated by means of a termination. A tuning unit is not required to attain the specified VSWR. The antenna is configured as an inverted V so that only one antenna support is needed. Signals are fed in at the highest point in the middle of the antenna via a transformer. As a protection against infrared detection, the termination is located in the shelter and connected to the antenna via a coaxial cable and a transformer. Corresponding to its geometry, the TFD antenna radiates horizontally polarized waves and is thus suitable for transmission of skywaves over any distance.

Special features

- ◆ Broadband operation
- ◆ No tuning unit required
- ◆ Coverage of any distance
- ◆ Omnidirectional coverage through high-angle radiation (NVIS)
- ◆ Quick assembly/disassembly (approx. 30 min)
- ◆ Protection against infrared detection

Specifications

Frequency range	1.5 MHz to 30 MHz
Polarization	horizontal
Nominal impedance	50 Ω
VSWR	≤2.4
Max. input power	
R&S HD520	150 W
R&S HD521	1 kW
Connector	N female
Operating temperature range	−40 °C to +55 °C
Dimensions	
Length	approx. 90 m
Recommended height of feedpoint	approx. 10 m
Mechanical interface	for 10 m tower from Geroh
Max. wind speed	108 km/h (without ice deposit)
Weight (without mast)	
R&S HD520	44 kg
R&S HD521	72 kg



Photo 42863-9

Ordering information

Mobile TFD Broadband Antenna	R&S HD 520	4050.2002.03
Mobile TFD Broadband Antenna	R&S HD 521	4050.1006.03

Recommended extra
10 m tower from Geroh



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Rotatable Log-Periodic Antenna System R&S® AK451

5 MHz to 30 MHz

For transmission and reception of horizontally polarized waves over medium to long distances

Brief description

The compact Rotatable Log-Periodic Antenna System R&S AK451 is used for the transmission and reception of horizontally polarized waves. Due to a transmission frequency range from 5 MHz to 30 MHz, the antenna system is particularly suitable for operation over medium to long distances despite its extremely small size. Reception is possible from 2 MHz, thus covering all distances.

Special features

- ◆ Extremely small dimensions (size of loaded log-periodic antenna for 6.2 MHz to 30 MHz)
- ◆ Transmission from 5 MHz, reception from 2 MHz
- ◆ Unrestricted half-wave elements leading to high antenna gain
- ◆ Easy and quick assembly
- ◆ Little maintenance required

Specifications

Frequency range	5 MHz to 30 MHz (reception 2 MHz to 30 MHz)
Polarization	horizontal
Nominal impedance	50 Ω
VSWR	≤2
Max. input power	1 kW
Gain	6 dBi to 12.5 dBi
Radius of rotation	8.3 m
Range of rotation	±(n × 360°)
Max. wind speed	180 km/h (without ice deposit)
MTBF	>100000 h
Dimensions	
Length of antenna	15 m
Width of antenna	16 m
Weight of antenna	260 kg



Ordering information

Rotable Log-Periodic Antenna System	R&S HL 451	0733.8507.02
Recommended extras		
Lattice Mast		
15 m (standard)	R&S KM 451B2	4028.3400.02
10 m (for rooftop mounting)	R&S KM 451B1	4028.3351.02
Antenna Rotator	R&S RD 130	4059.8503.02
Adaption Set/Rotary Joint	R&S RD 008Z1	0720.6400.02
Control Unit	R&S GB 130	4059.8755.02

Other configurations on request.

Rotatable Log-Periodic Antenna System R&S® AK471



Photo 43205-3

7 MHz to 30 MHz

For transmission and reception of horizontally polarized waves especially over long distances

Brief description

The compact Rotatable Log-Periodic Antenna System R&S AK471 is used for the transmission and reception of horizontally polarized waves. Due to its transmission frequency range from 7 MHz to 30 MHz it is used especially over long distances. Reception is possible from 3 MHz to 30 MHz, leading to coverage of almost all distances. Its low weight and small size make the antenna system ideal for installation on roofs.

Special features

- ◆ Extremely small dimensions
- ◆ Low weight
- ◆ Easy and quick assembly
- ◆ Little maintenance required

Specifications

Frequency range	7 MHz to 30 MHz (reception 3 MHz to 30 MHz)
Polarization	horizontal
Nominal impedance	50 Ω
VSWR	≤2
Max. input power	1 kW
Gain (with 15 m mast)	
7 MHz to 8 MHz	0 dBi to 6 dBi
8 MHz to 30 MHz	6 dBi to 12.5 dBi
Radius of rotation	5 m
Range of rotation	±(n × 360°)
Max. wind speed	180 km/h (without ice deposit)
MTBF	>100000 h
Dimensions	
Length of antenna	8.8 m
Width of antenna	11 m
Weight of antenna	100 kg

Ordering information

Rotatable Log-Periodic Antenna System	R&S HL 471	0755.3008.02
Recommended extras		
Lattice Mast		
15 m (standard)	R&S KM 451B2	4028.3400.02
10 m (for rooftop mounting)	R&S KM 451B1	4028.3351.02
Antenna Rotator	R&S RD 130	4059.8503.02
Adaption Set/Rotary Joint	R&S RD 008Z1	0720.6400.02
Control Unit	R&S GB 130	4059.8755.02

Other configurations on request.



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1 kW HF Postselector R&S® FK859X1

Brief description

This filter with a power rating of 1000 W is used together with the Transceivers R&S XK2500L and R&S XK2900L for suppressing mutual interference that may occur with co-sited transmit and receive antennas. Above all it is used for ship-board applications in order to meet co-

location requirements if space for antennas is limited. Connected between the transceiver and the ATU, the filter effectively suppresses spurious emissions due to its high selectivity of 30 dB (20 dB for $f_0 > 15$ MHz) at $f_0 \pm 10\%$. Tuning is digital by means of RF relays. The short tuning time

of 100 ms makes the R&S FK859X1 suitable also for frequency-agile systems. The frequency information is derived from the control line to the ATU which is looped through the filter. Alternatively, the frequency information can be derived directly from the RF signal.

Specifications

Frequency range	1.5 MHz to 30 MHz
Max. RF input power	1000 W CW and PEP
Input impedance	50 Ω
Max. VSWR	1.4:1
Stopband attenuation	
1.5 MHz to 15 MHz, $f_0 \pm 10\%$	>30 dB
15 MHz to 30 MHz, $f_0 \pm 10\%$	>20 dB
Operating temperature range	-25°C to +55°C
Storage temperature range	-40°C to +85°C

Dimensions (19" rackmount, W × H × D)	483 mm × 355 mm × 655 mm
Weight	37 kg
MTBF	5.600 h

Ordering information

1 kW HF Postselector	R&S FK859X1	6012.5498.02
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150 W HF Postselector R&S® FK2101X

Brief description

The R&S FK2101X is a postselector especially designed for the HF Transceiver R&S XK2100. Since the R&S XK2100 is capable of tuning without using a sepa-

rate control line to the ATU, the control data transmitted together with the RF signal is taken via a modem bypass in the R&S FK2101X. Featuring short tuning

time (<50 ms), the filter is suitable for frequency-agile applications. The filter is controlled via the External Control Interface R&S GV2110.

Specifications

Electrical data	
Frequency range	1.5 MHz to 29.999 MHz
Maximum input power	100 W + 1 dB CW 150 W + 1 dB PEP
Transmission loss	
without modem bypass	<1 dB
with modem bypass	<1.5 dB
Stopband attenuation	
1.5 MHz to 29.999 MHz, $f_0 \pm 10\%$	≥8 dB
Input impedance	50 Ω
Tuning time	50 ms
Power Supply (from R&S IN2100)	26.5 V
Current input	≤3 A

Mechanical and environmental data

Dimensions (W × H × D)	483 mm × 177 mm × 358 mm
Depth over all	413 mm
Weight	11 kg
Colour	RAL 7035
Safe shock load	30 g, 11 ms
Vibration	10 Hz to 55 Hz, 0.3 mm double amplifier

Ordering information

150 W HF Postselector	R&S FK2101X	6079.2010.02
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