

HIRA : Half Impulse Radiating Antenna



The HIRA180S is an ultra-wideband half radiating antenna using a ground plane as an electromagnetic mirror. This antenna produces a very narrow beam in the boresight direction. The advantage of this construction compared to a full paraboloidal reflector antenna is a better ruggedness, a broader frequency range and a good return loss.

Connected to a 75 kV, 115 ps pulse generator, the antenna can theoretically produce 41 kV/m at a distance of 10 m. The antenna can be oriented in every direction. In a receive mode, its output voltage is proportional to the incident E-field.

This antenna is designed for immunity tests on electronic equipment, buried object identification, wideband jammers, wideband source for vulnerability studies via transfer function measurements, etc.



SPECIFICATIONS	
Type	HIRA180S
Reflector diameter	180 cm
Reflector type	Half paraboloid
Frequency range	100 MHz - 6 GHz
Gain	Frequency dependent
Polarization	Vertical
rE values (see note 1)	110 kV (for a 115 ps rise time / 20 kV pulser) 415 kV (for a 115 ps rise time / 75 kV pulser) 19 kV (for a 1 ns rise time / 30 kV pulser)
Maximum input peak voltage	75 kV (for pulses shorter than 1 ns)
Maximum input power	160 W (continuous)
S11	Better than 9.5 dB, up to 2.5 GHz
Input impedance	50 Ω
Connector	HVM50K female (proprietary)
Overall dimensions	230 x 185 x 225 cm (L x H x W)
Weight	85 kg

Note 1: The rE value is a theoretical value. In the reality, the field could be lower due to losses in the cable, in the impedance transformer, in the voltage divider (if used), in the antenna, etc. The measurements have shown that a difference between the theoretical and measured field can be roughly 20 to 50 %.

Ordering information

TYPE	DESCRIPTION
HIRA180S	Orientable half impulse radiating antenna (HIRA), diameter: 180 cm, frequency range : 100 MHz - 6 GHz, max. input voltage : 75 kV (for pulses shorter than 1ns), proprietary HVM50K (f) connector
HVK50-O-200	High voltage coaxial cable, length : 2 m, maximum 75 kV for 1ns pulses, connectors : HVM50K (m) - open end.
	More connection means (HV connectors and cable assemblies) are proposed in the data sheet HVM50K.