

# BICONICAL ANTENNA FOR MICRO-WAVE FREQUENCIES – SAM-6, 1 – 6 GHz

for field strength radiation under free-space conditions, for example Site-VSWR measurements acc. to CISPR 16-1-4



## Description

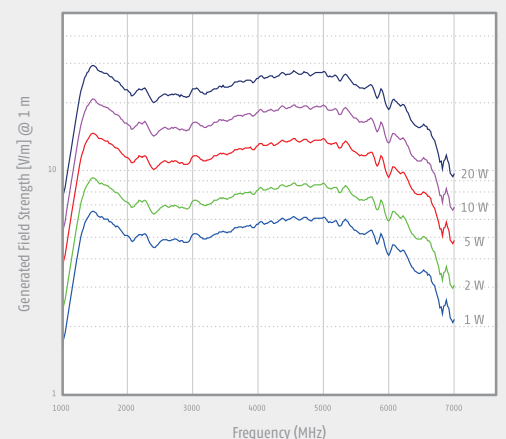
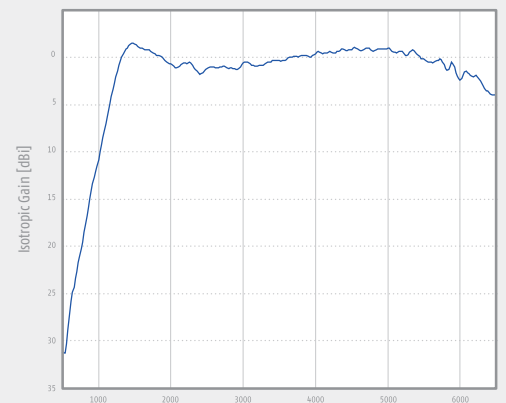
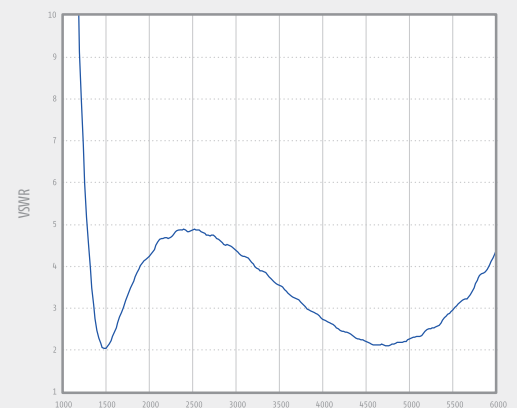
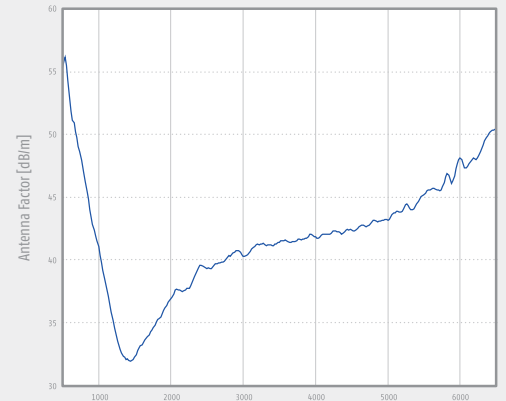
The SAM-6 has two main applications: A passive field probe for frequency selective measurements of the generated field according to EN 61000-4-3, including the measurement of the uniform area. A further application is the validation of fully anechoic rooms for measurements above 1 GHz according to the Site-VSWR method, described in CISPR 16-1-4. In conjunction with the SAM-18 a frequency range from 1 to 18 GHz can be covered with excellent antenna performance. Accepting some limitations (i.e. antenna factor and VSWR increase, symmetry reduction) the SAM-6 can be used from 0.5 GHz on. The validation of test sites with commonly used microwave antennas (e.g. log.-per. or horn antennas) leads to insufficient results, since these directive gain antennas with concentrated directional pattern do not take the test site characteristics into account.

## Application

The typical applications of the microwave biconical antenna are the evaluation of test sites, the (frequency selective) field strength measurement and the generation of defined field strength (e.g. ERP or EIRP). Thanks to the wide bandwidth there is no need for a time consuming change of the antenna elements as required when operating with tuned half-wave dipoles. The biconical elements allow a continuous sweep over the complete frequency range. Because of the dipole-like directional pattern, the fixed phase center and the high power handling capability the SAM-6 may replace tuned half-wave dipoles in many applications. The SAM-6 is not intended for emission testing with very low limits, horn and log.-per. antennas are better matched for this purpose because of their better antenna factor. A typical application of the SAM-6 is the use as a (highly linear) broad-band near field probe thanks to its small dimensions.

### Technical specifications

Frequency range	1 GHz - 6 GHz
Max input power	20 W
N-connector, female	50 $\Omega$
Isotropic Gain (1 - 6 GHz)	typ. -10 ... +2 dBi
Antenna factor	32 ... 48 dB/m
SWR typical (1.3 - 6 GHz)	1.5 - 5
Balun (low loss)	1:1
Inversion symmetry (1 - 6 GHz)	typ. < 0.5 dB
Cross polarization rejection	< - 20 dB
Half-power beamwidth (E-plane):	84° - 45°
Mounting tube	LH = 560mm, d = 22mm
Index ring	LR = 190mm
Element length total	LE = 50mm
Element diameter	D = 28mm
Weight	400 g



# BICONICAL ANTENNA FOR MICRO-WAVE FREQUENCIES – SAM-18, 3 – 18 GHz

for field strength radiation under free-space conditions, for example Site-VSWR measurements acc. to CISPR 16-1-4

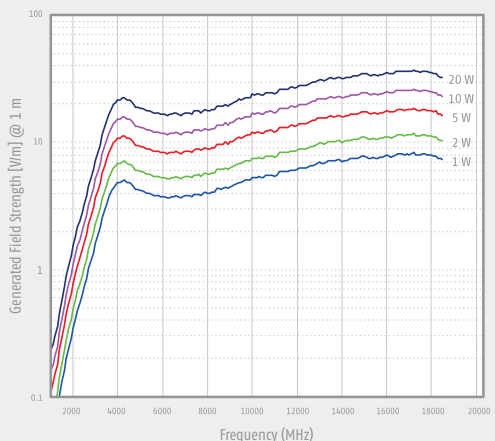
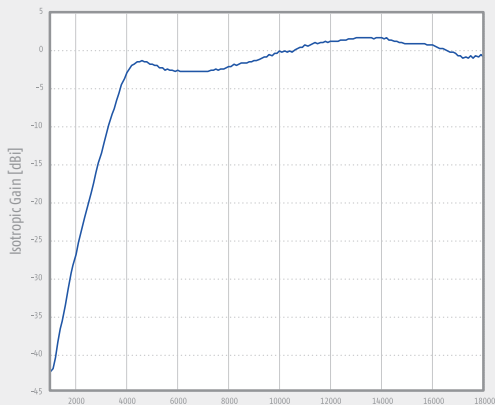
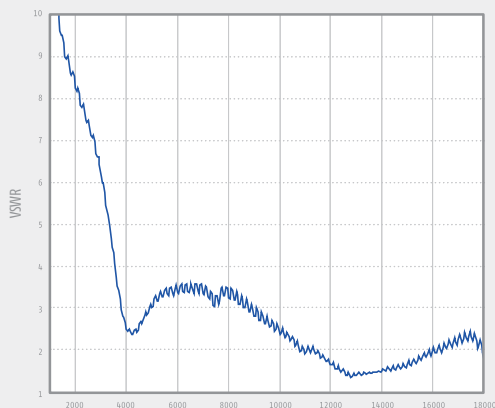
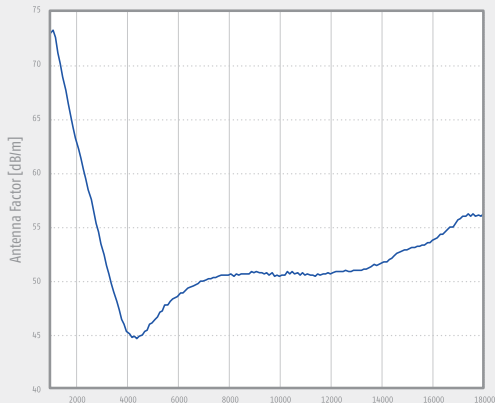


## Description

The SAM-18 was designed because of the worldwide unavailability of omnidirectional or dipole-like broadband antennas operating above 3 GHz. Accepting some limitations (i.e. antenna factor and VSWR increase, symmetry reduction) the SAM-18 can be used from 1 GHz on. The validation of test sites with commonly used microwave antennas (e.g. Log-per. or horn antennas) leads to insufficient results, since these directive gain antennas with concentrated directional pattern do not take the test site characteristics into account.

## Application

The typical applications of the microwave biconical antenna are the evaluation of test sites, the (frequency selective) field strength measurement and the generation of defined field strength (e.g. ERP or EIRP). Thanks to the wide bandwidth there is no need for a time consuming change of the antenna elements as required when operating with tuned half-wave dipoles. The biconical elements allow a continuous sweep over the complete frequency range. Because of the dipole-like directional pattern, the fixed phase center and the high power handling capability the SAM-18 may replace tuned half-wave dipoles in many applications. The SAM-18 is not intended for emission testing with very low limits, horn and log.-per. antennas are better matched for this purpose because of their better antenna factor. A typical application of the SAM-18 is the use as a (highly linear) broadband nearfield probe thanks to its small dimensions.



## Technical specifications

Frequency range	3 GHz - 18 GHz
Max input power	10 W
N-connector, female	50 Ω
Isotropic Gain (3.5 - 18 GHz)	typ. -4 ... +3 dBi
Antenna factor	43 ... 53 dB/m
SWR typical (4 - 18 GHz)	1.5 - 5
Balun (low loss)	1:1
Inversion symmetry (1 - 6 GHz)	typ. < 0.5 dB
Cross polarization rejection	< -20 dB
Half-power beamwidth (E-plane):	84° - 45°
Mounting tube	LH = 560mm, d = 22mm
Index ring	LR = 190mm
Element length total	LE = 20mm
Element diameter	D = 9mm
Weight	420 g