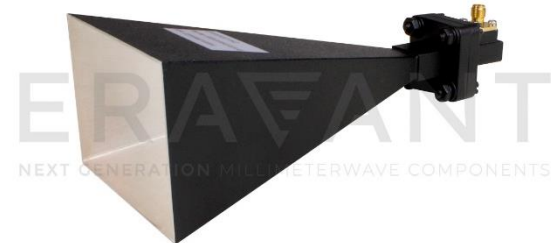


## SAR-2018-51SF-R3 & SAR-2018-51SM-R3

### WR-51 Pyramidal Horn Antenna, 20 dBi Gain with SMA Type Coax Input

**SAR-2018-51SF-R3 & SAR-2018-51SM-R3** K-band are pyramidal horn antenna(s) with a right angle (90°) SMA type coax connector to cover the frequency range of 14.5 GHz to 22 GHz. The antenna offers 20 dBi nominal gain and a typical half power beamwidth of 17 degrees on the E-plane and 19 degrees on the H-plane. The antenna supports linear polarized waveforms.



#### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency Range	14.5 GHz		22 GHz
Gain		20 dBi	
Polarization		Linear	
3 dB Beamwidth, E-Plane		17°	
3 dB Beamwidth, H-Plane		19°	
Sidelobes, E-Plane		-13 dB	
Sidelobes, H-Plane		-36 dB	
Return Loss		18 dB	
Power Handling			50 W (CW)
Specification Temperature		+25°C	
Operating Temperature	-40°C		+85°C

#### Mechanical Specifications:

Item	Specification
Antenna Port	SMA Type Female for Model Number: SAR-2018-51SF-R3 SMA Type Male for Model Number: SAR-2018-51SM-R3
Material	Copper
Finish	Anti-Corrosion Paint
Weight	9.74 Oz
Size	6.57" (L) X 3.15" (W) X 2.20" (H)
Outline	AR-5C1-R-H1

#### ECCN

EAR99

#### FEATURES

- Inline Configuration
- Linear Polarization
- DC Short Circuit at Input

#### APPLICATIONS

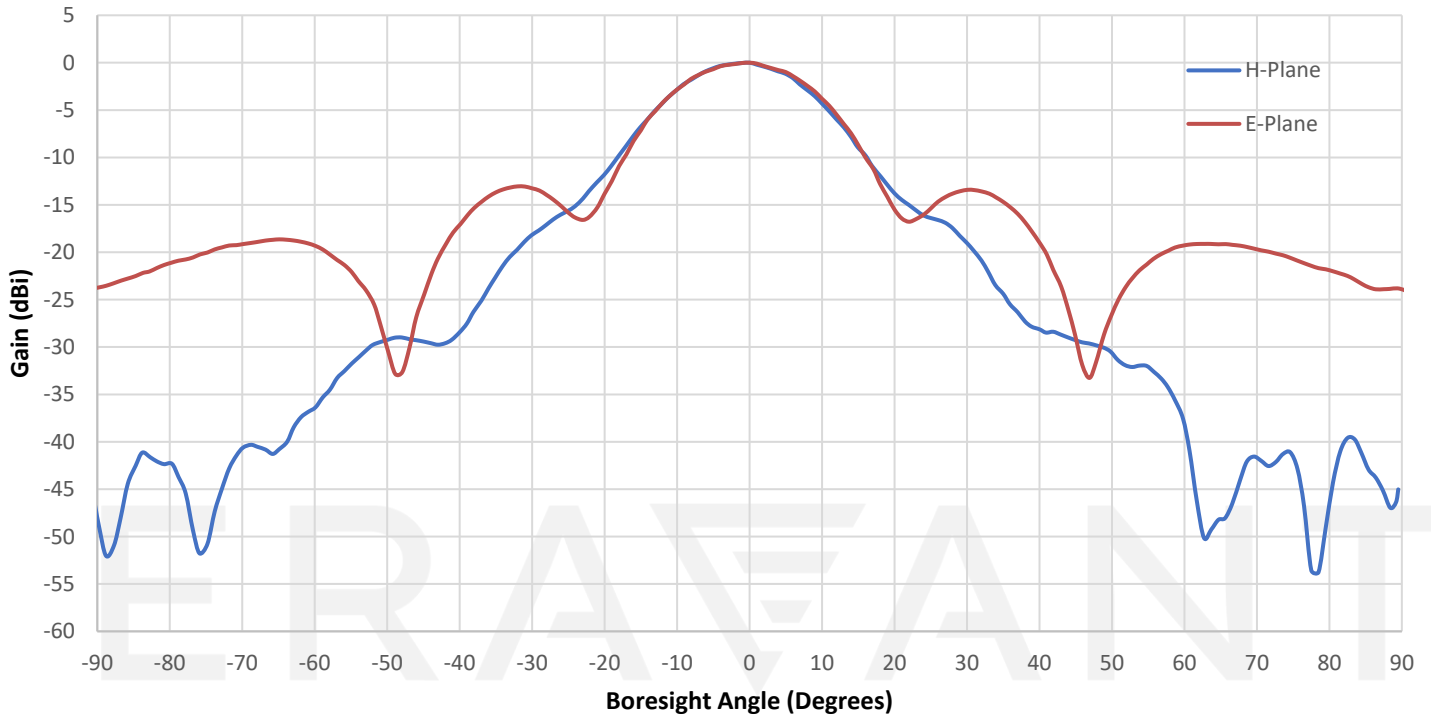
- Antenna Ranges
- Antenna Gain Measurements
- System Setups

#### SUPPLEMENTAL DETAILS

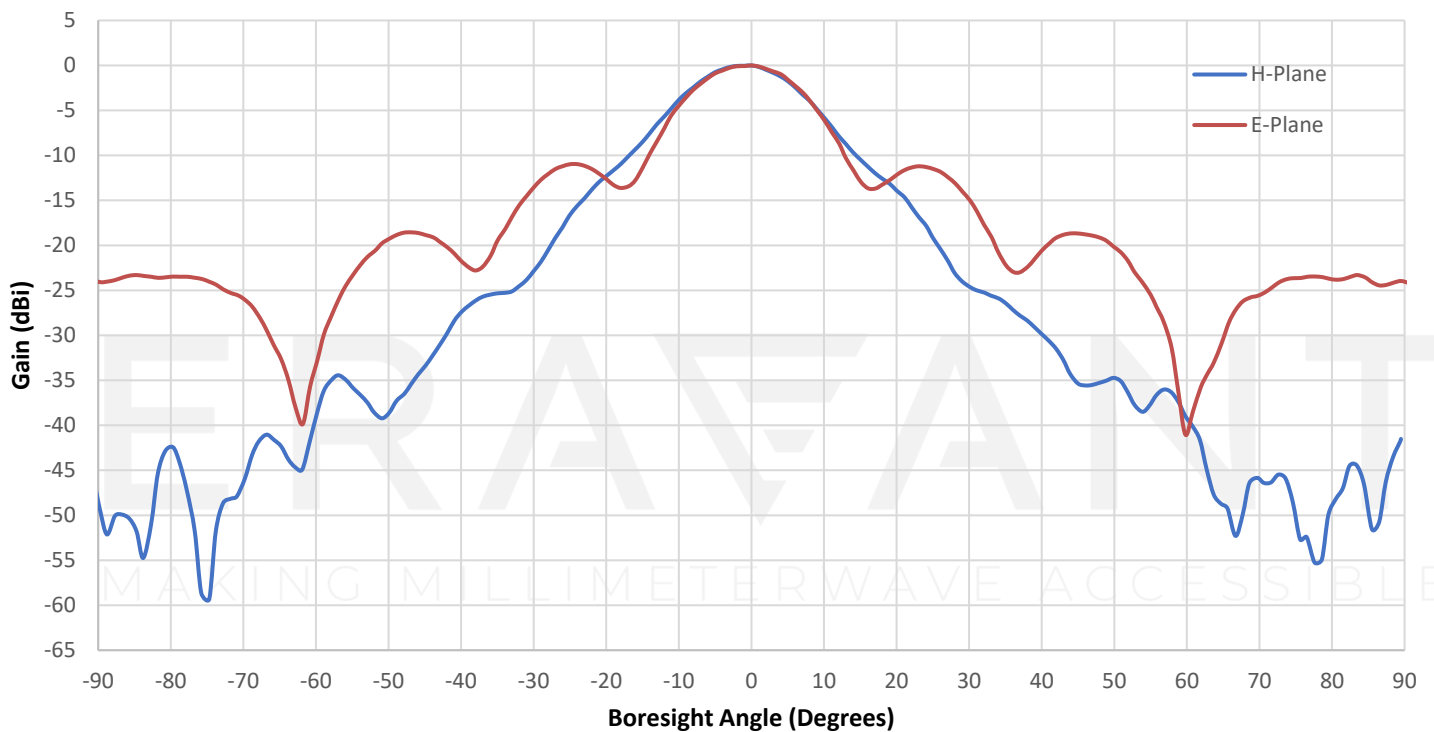


## SAR-2018-51SF-R3 & SAR-2018-51SM-R3

### Simulated Antenna Patterns @ 14.5 GHz

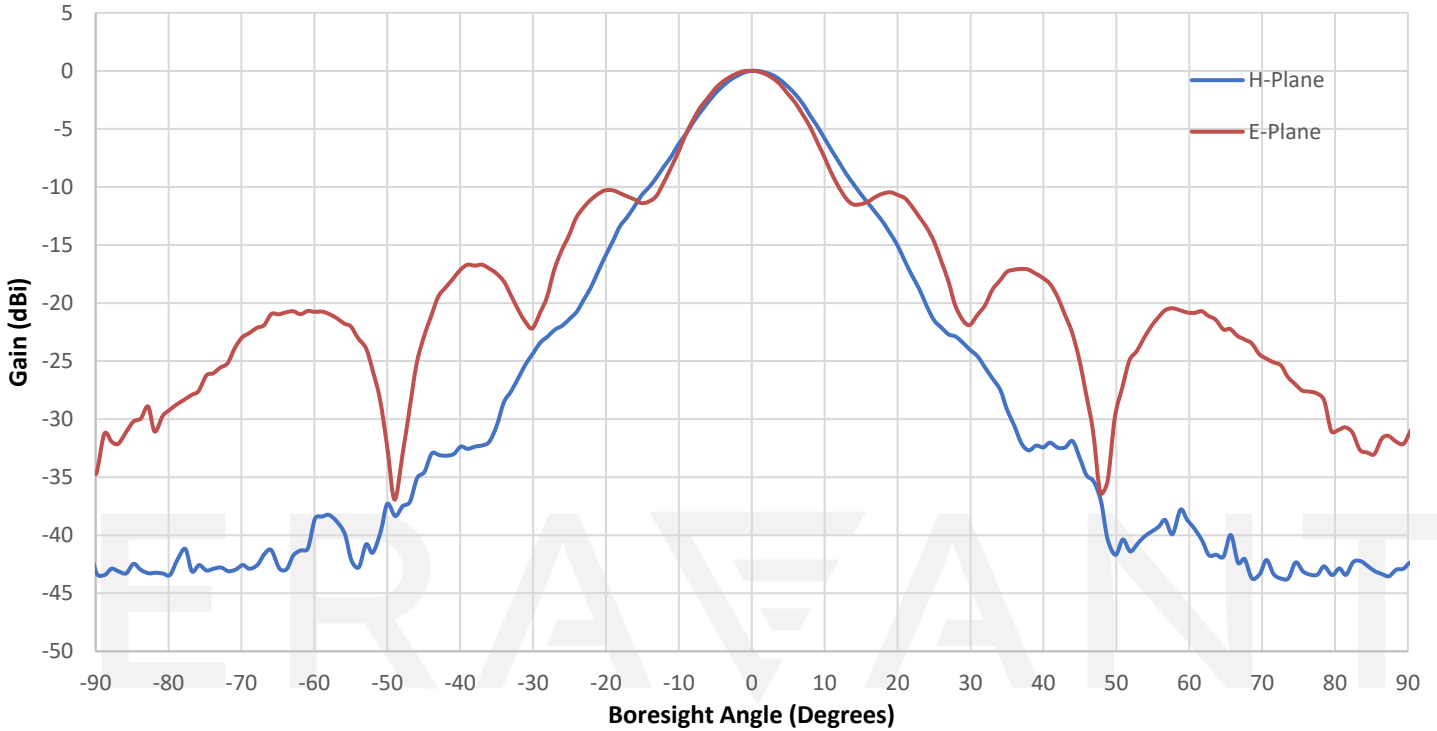


### Simulated Antenna Patterns @ 18.25 GHz

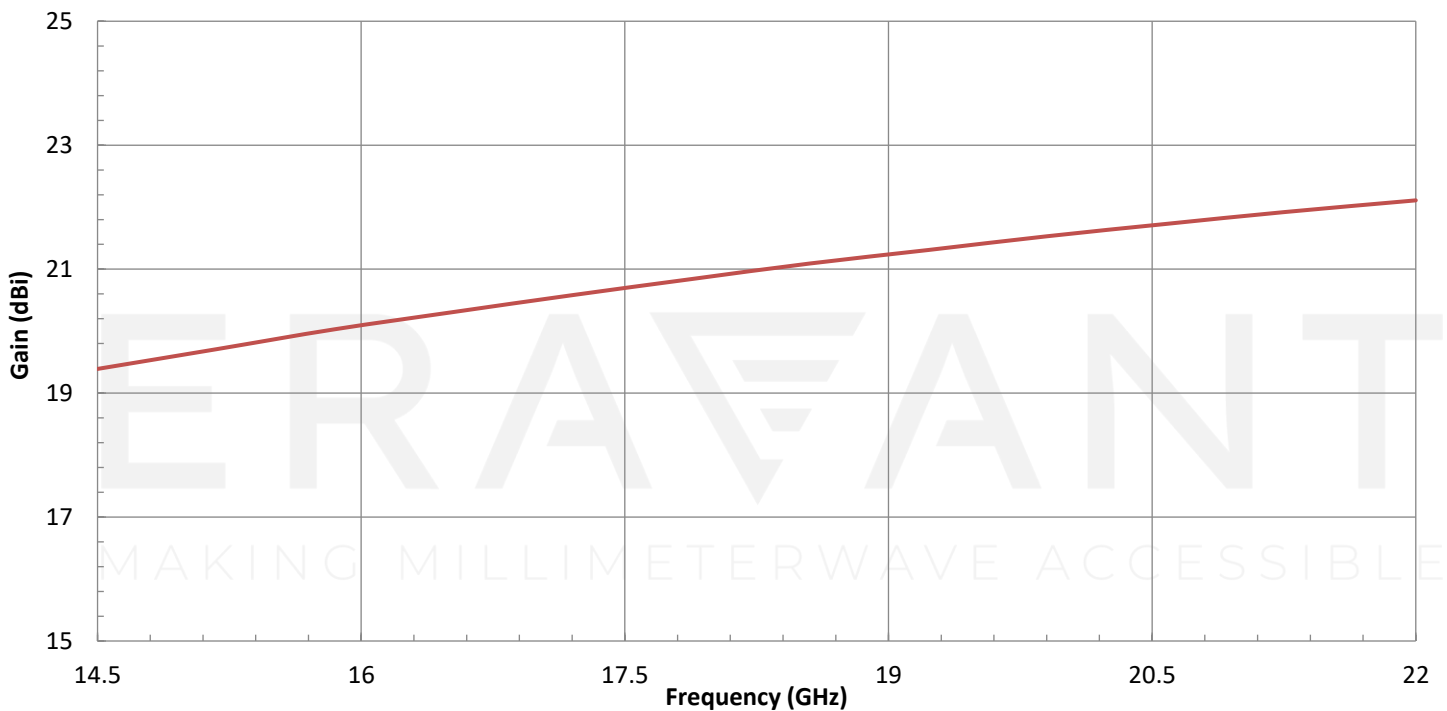


## SAR-2018-51SF-R3 & SAR-2018-51SM-R3

### Simulated Antenna Patterns @ 22 GHz



### Measured Gain vs. Frequency

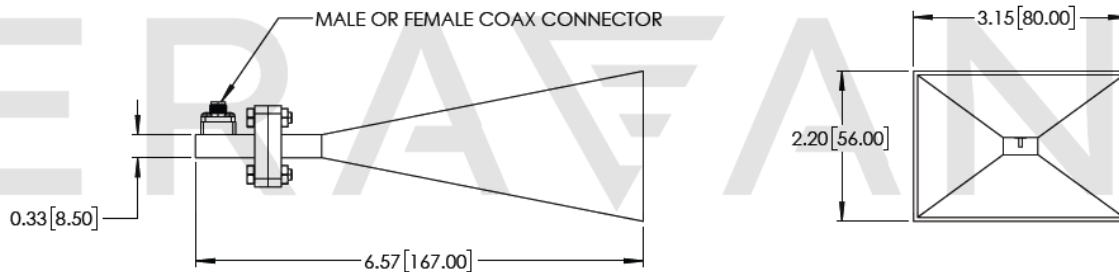
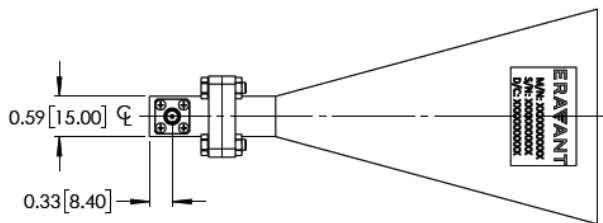


## SAR-2018-51SF-R3 & SAR-2018-51SM-R3

### Measured Gain vs. Frequency in Tabular Format

Frequency (GHz)	Gain (dB)	Frequency (GHz)	Gain (dB)
14.50	19.39	18.55	21.09
15.18	19.71	19.23	21.31
15.85	20.03	19.90	21.53
16.53	20.31	20.58	21.73
17.20	20.58	21.25	21.92
17.88	20.84	22	22.11

**Mechanical Outline:** Unless otherwise specified, all dimensions are in inches [millimeters]



#### NOTE:

- This antenna is a mature product. The reasons for only providing simulated data can be found in the following blog [here](#).
- Eravant reserves the right to change the information presented without notice.

#### CAUTION:

- Any foreign objects in the antenna will cause performance degradation and possible device damage.
- For 1.35 mm, 1.85 mm, 2.4 mm, 2.92 mm, and SMA connectors proper torque should be applied:  $8.0 \pm 0.15$  inch-pounds ( $0.90 \pm 0.02$  Nm). Torque wrench model [SCH-08008-S1](#) is highly recommended