

# High Frequency Ceramic Solutions

7GHz Mini UWB Antenna, AEC-Q200 Qualified

P/N 7000AT18A1600E-AEC

Detail Specification: 2/18/2020

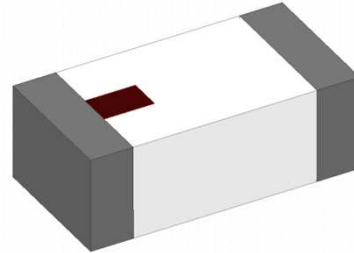
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Let us help you with the antenna design, optimization, and tuning!

<https://www.johansontechnology.com/ipc-antenna-services>

## General Specifications

Part Number	7000AT18A1600E-AEC
Frequency (GHz)	6.2 - 8.24
Avg. Rad Efficiency	92%
Peak Gain (dBi)	2.0 typ.
Average Gain (dBi)	-0.5 typ.
Return Loss (dB)	9.5 min.
Impedance	50 $\Omega$
Input Power	3 Watts max. (CW)



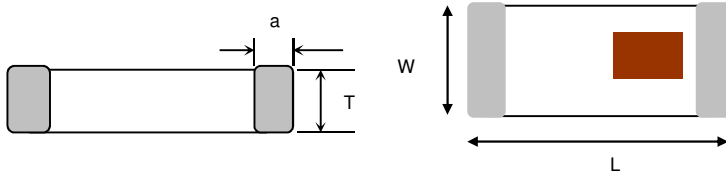
Recommended Storage Conditions and Period for unused T&R Product	+5 to +35°C Humidity 45 - 75% RH 18 months max.
Operating Temperature	-40 to +105°C
Reel Quantity	3,000

## Part Number Explanation

P/N Suffix	Packing Style	Bulk (loose)	Suffix = S	e.g. 7000AT18A1600S-AEC
		T & R	Suffix = E	e.g. 7000AT18A1600E-AEC
		100% Tin	Suffix = E or S	e.g. 7000AT18A1600(E or S)-AEC
	Evaluation Board	7000AT18A1600-EB1SMA (see page 2&3 for details)		

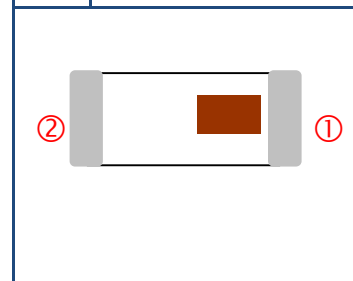
## Mechanical Dimensions

	In	mm
L	0.126 $\pm$ 0.008	3.20 $\pm$ 0.2
W	0.063 $\pm$ 0.008	1.60 $\pm$ 0.2
T	0.051 + 0.004/ -0.008	1.30 + 0.1 / -0.2
a	0.020 $\pm$ 0.012	0.50 $\pm$ 0.3



## Terminal Configuration

No.	Function
1	FEED
2	NC



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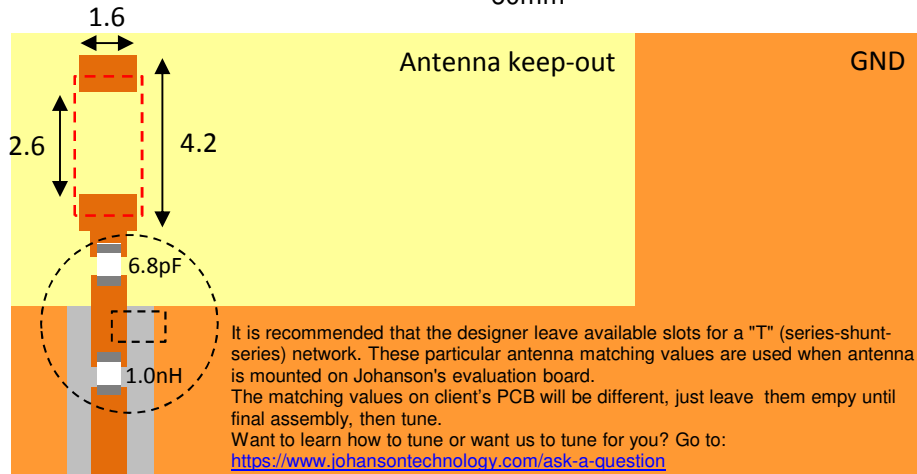
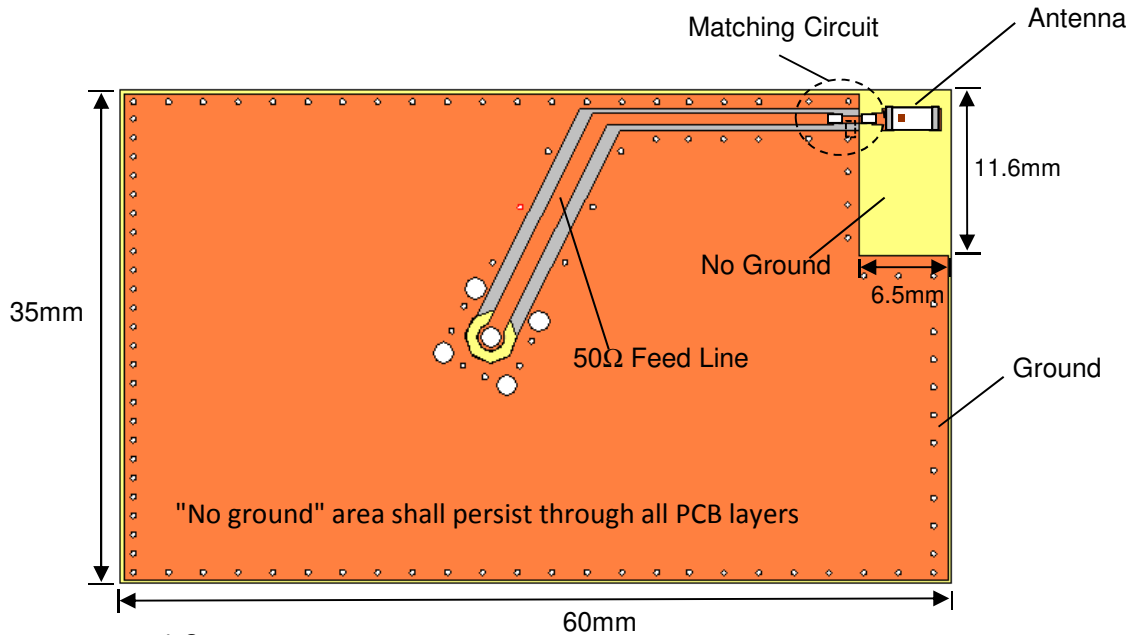
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## Mounting Considerations 1: Evaluation Board



To order a pre-tuned 50Ω EVB with a female SMA connector click here:

<https://www.johansontechnology.com/request-a-sample>

Reference p/n: 7000AT18A1600-EB1SMA

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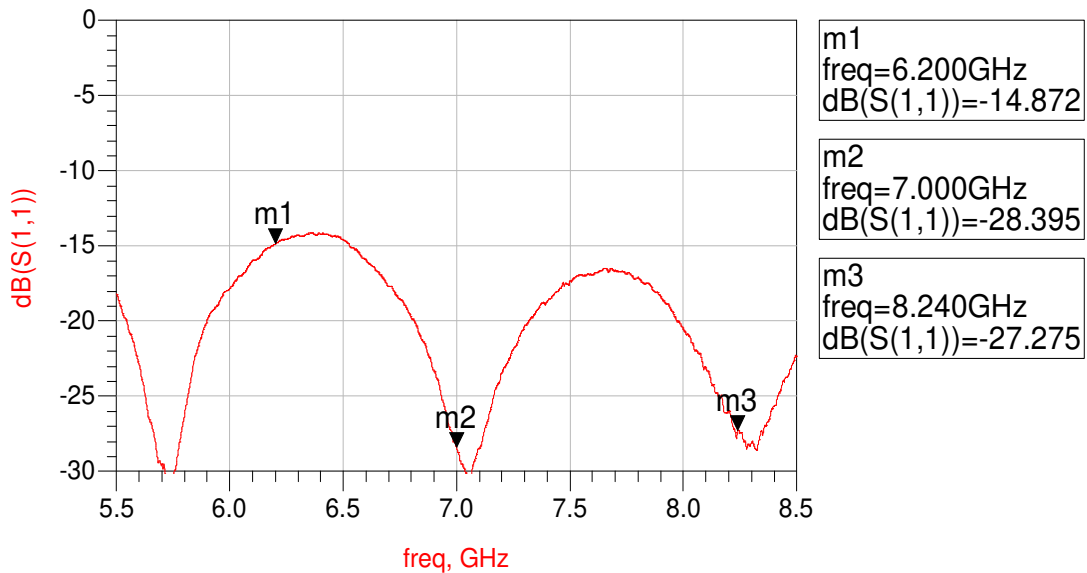
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## Mounting Considerations 1: Electrical Performance @25°C

Measured Return Loss



Would you like the antenna layout? Have antenna tuning issues?  
Please contact us if you have any questions regarding the implementation of this antenna in your PCB's layout. We'll be happy to guide you to maximize the antenna's performance.

Contact our applications engineers at:

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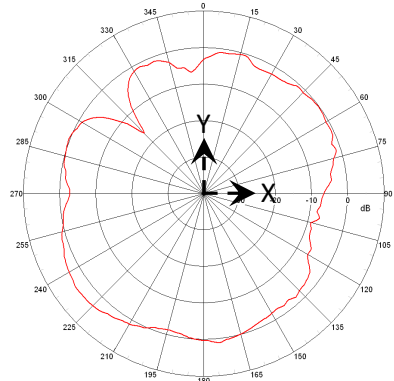
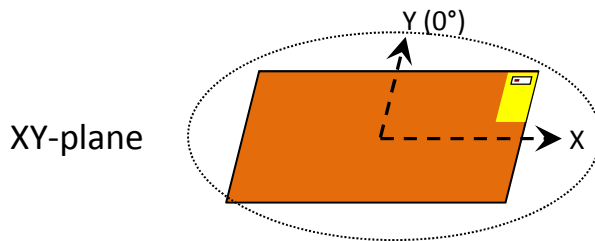
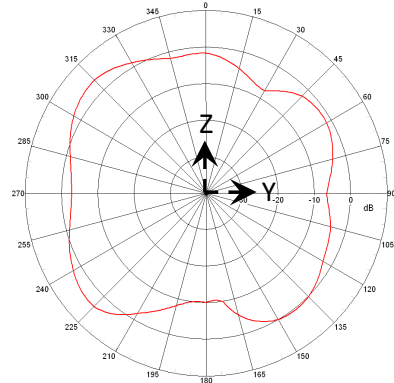
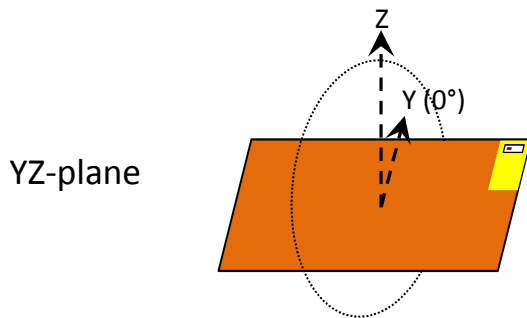
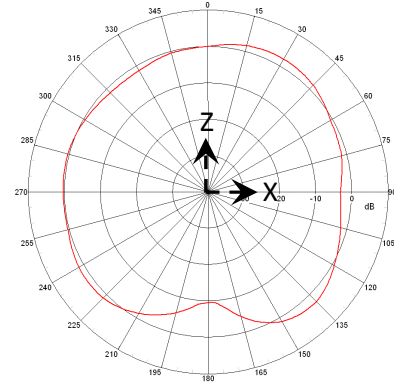
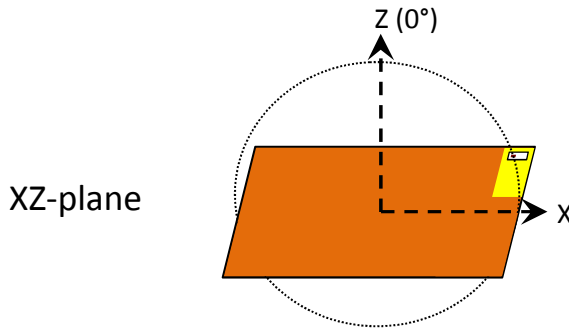
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## Mounting Considerations 1: Antenna Performance

Typical 2D radiation patterns @ 7.0GHz



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**Antenna tuning, optimization, and validation services:**

<https://www.johansontechnology.com/ipc-antenna-services>

**For more antennas and to download measured S-parameters, go to:**

<https://www.johansontechnology.com/antennas>

**Soldering Information**

<https://www.johansontechnology.com/ipcsoldering-profile>

**MSL Info**

<https://www.johansontechnology.com/msl-rating>

**Packaging Information**

<https://www.johansontechnology.com/tape-reel-packaging>

**For layout review contact our applications team at:**

<https://www.johansontechnology.com/ask-a-question>

**RoHS Compliance**

<https://www.johansontechnology.com/rohs-compliance>

Need help designing the antenna in? Use our antenna design services!

<https://www.johansontechnology.com/ipc-antenna-services>

We provide 2 free layout reviews and if you need us to tune and characterize the antenna on your product (inside anechoic chamber) we can do that too. Small lab fee may apply for the latter.

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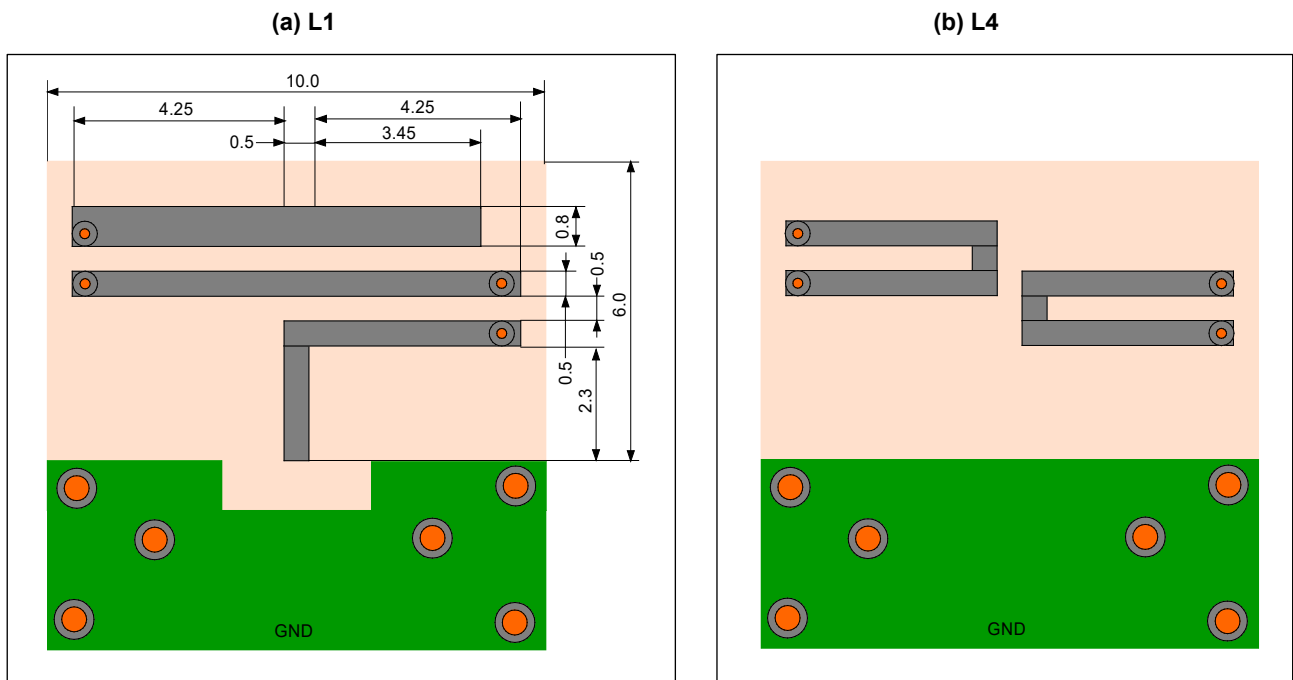


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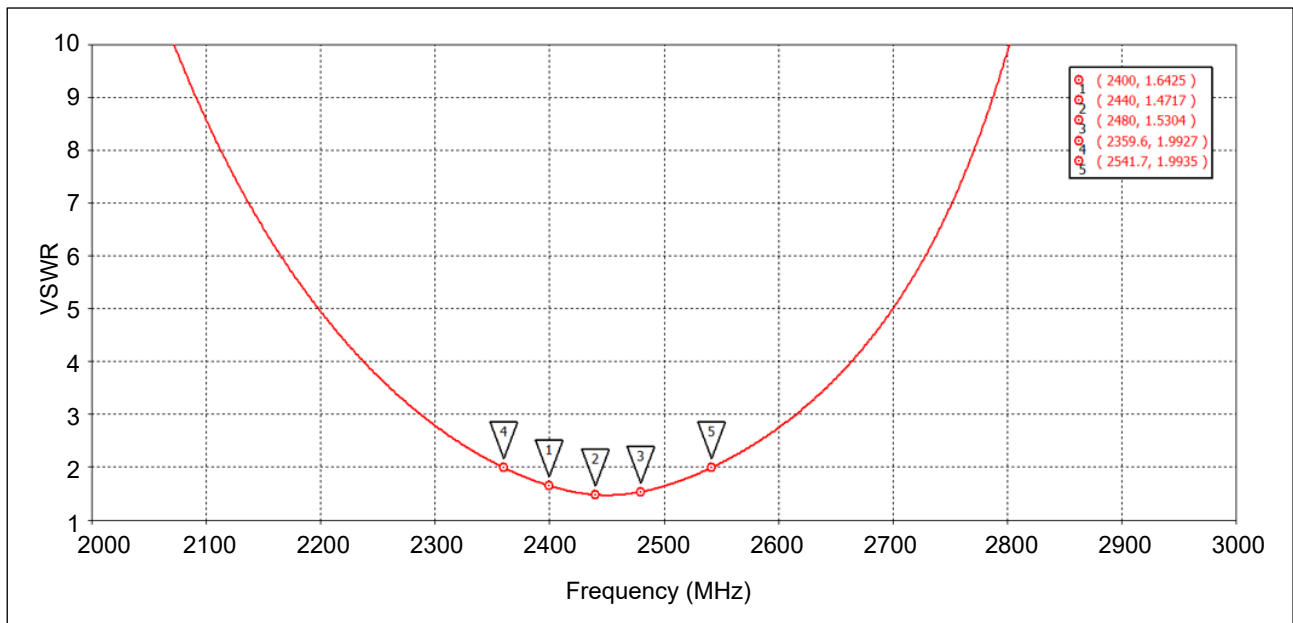
5.3.3 Dimensions of the Antenna Elements

Figure 5-12. Dimensions of the Antenna Elements



5.3.4 VSWR and Emission Characteristics

Figure 5-13. VSWR Characteristic



## ID100-GTI-Qx1BA\_Rev0.2 안테나 성능 시험

- 시험일시: 2022년 7월 4일

- 시험장소: 서울시 용산구 원효로 41길 29 한국전파진흥협회 전자파기술원 휴대폰 챔버

### 1) 시료 준비



### 2) 안테나 챔버 사양



■ Type: Rectangular, System : 주식회사 엠티지(대한민국)

■ 장비사양

- Chamber Size: 5.5(L) X 5.5(W) X 5.0(H)m

- Path Length : 2.94m

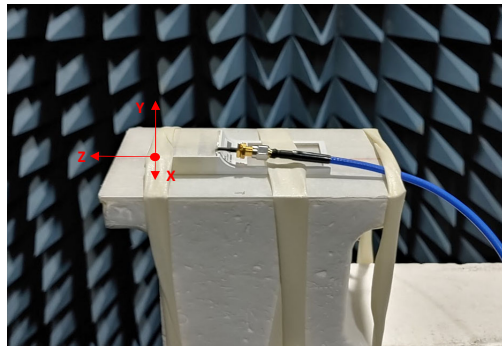
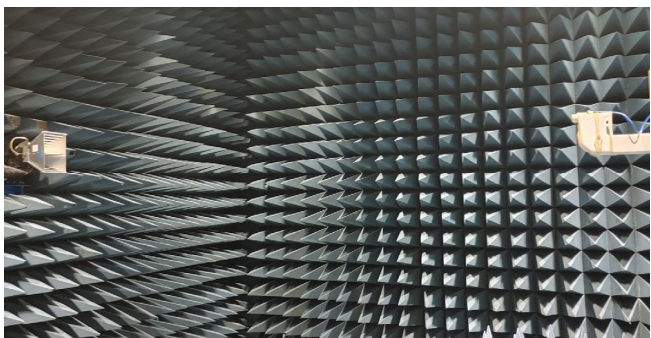
- Frequency Range: 0.7 to 8GHz (Far Field)

- Quiet Zone : 0.8m X 0.8m @ 800MHz

■ 기타

- 측정장비 : R&C ZVA24 Network Analyzer

### 3) 시험 사진



4) 시험 결과

■ Measuring frequency : 2.402GHz(37ch), 2.426GHz(38ch), 2.480GHz(39ch)

- Theta-pol(H) Peak value

$\theta$ -Pol(H)

Freq.[GHz]	Eff.[%]	Avg.[dBi]	Peak[dBi]	$\theta$ [deg]	$\varphi$ [deg]	
2.402	30.52	-5.15		2	165	240
2.405	29.28	-5.33	1.81	165	240	
2.426	28.85	-5.4	1.48	165	240	
2.48	22.69	-6.44	1.01	165	240	

- Phi-pol(V) Peak value

$\varphi$ -Pol(V)

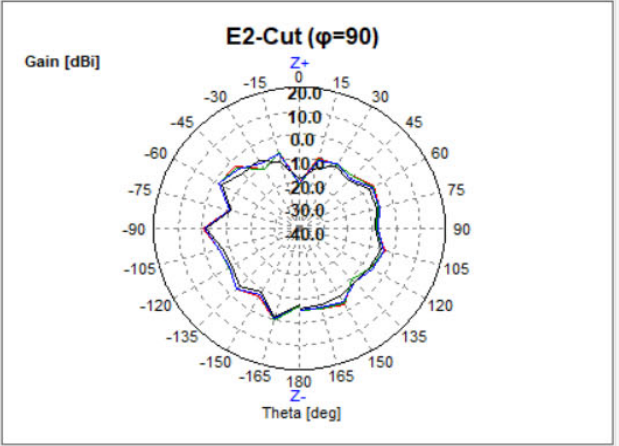
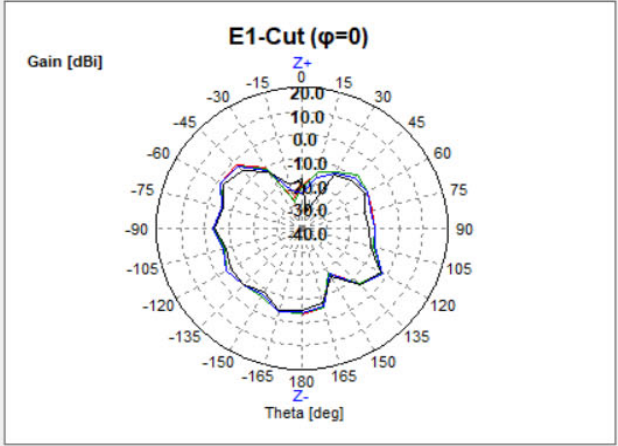
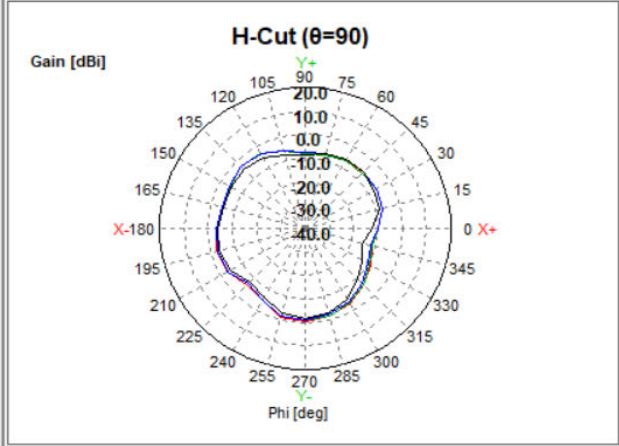
Freq.[GHz]	Eff.[%]	Avg.[dBi]	Peak[dBi]	$\theta$ [deg]	$\varphi$ [deg]
2.402	14.17	-8.49	0.48	165	195
2.405	13.57	-8.67	0.23	165	195
2.426	12.77	-8.94	0.01	165	195
2.48	10.36	-9.85	-0.83	165	195



■ Theta-pol(H) Graph

Summary      **Multiple Frequency**      Multiple Cut      3D-View      Reserved

No.	Freq.	θ-Pol(H)					H(θ=90)					E1(φ=0)				E2(φ=90)			
		Eff.[%]	Avg.[dBi]	Peak[dBi]	θ[deg]	φ[deg]	Avg.[dBi]	Peak[dBi]	φ[deg]	BW[deg]	Avg.[dBi]	Peak[dBi]	θ[deg]	BW[deg]	Avg.[dBi]	Peak[dBi]	θ[deg]	BW[deg]	
1	2.402	30.52	-5.15	2.00	165.00	240.00	-4.41	-0.51	270.00	56.27	-5.91	-1.19	-60.00	28.37	-4.90	0.40	-165.00	12.12	
2	2.405	29.28	-5.33	1.81	165.00	240.00	-4.58	-0.71	270.00	56.37	-6.11	-1.40	-60.00	28.17	-5.10	0.19	-165.00	12.09	
3	2.426	28.85	-5.40	1.48	165.00	240.00	-4.61	-0.93	270.00	56.43	-6.20	-1.50	-60.00	28.14	-5.28	-0.17	-165.00	12.43	
4	2.480	22.69	-6.44	1.01	165.00	240.00	-5.60	-1.75	270.00	51.24	-7.22	-2.34	-60.00	27.58	-6.43	-1.03	-165.00	12.47	



■ Phi-pol(V) Graph

Summary      **Multiple Frequency**      Multiple Cut      3D-View      Reserved

No.	Freq.	φ-Pol(V)					H(θ=90)					E1(φ=0)					E2(φ=90)				
		Eff.[%]	Avg.[dBi]	Peak[dBi]	θ[deg]	φ[deg]	Avg.[dBi]	Peak[dBi]	φ[deg]	BW[deg]	Avg.[dBi]	Peak[dBi]	θ[deg]	BW[deg]	Avg.[dBi]	Peak[dBi]	θ[deg]	BW[deg]			
1	2.402	14.17	-8.49	0.48	165.00	195.00	-8.11	-3.53	285.00	39.67	-7.08	-0.05	-165.00	18.83	-8.03	-2.44	-105.00	40.67			
2	2.405	13.57	-8.67	0.23	165.00	195.00	-8.32	-3.69	285.00	39.03	-7.29	-0.27	-165.00	18.90	-8.24	-2.68	-105.00	40.73			
3	2.426	12.77	-8.94	0.01	165.00	195.00	-8.60	-3.71	285.00	36.07	-7.54	-0.43	-165.00	18.45	-8.62	-3.26	-105.00	41.94			
4	2.480	10.36	-9.85	-0.83	165.00	195.00	-9.63	-4.66	285.00	32.93	-8.49	-1.28	-165.00	19.24	-9.78	-4.58	150.00	12.53			

