NANEA80X37PUVCGM6C302A0F

GNSS & LTE MIMO Active External Antenna

9001:2015 CERTIFIED

ROHS/REACH COMPLIANT HALOGEN FREE

NIC Components Corp.

Description

The NANEA80X37PUVCGM6C302A0F is an External Active antenna designed for GNSS+ LTE & MIMO applications. It operates within the frequency ranges of LTE 698-960MHz, 1710-2690MHz, 3300-3800MHz making it perfect for Vehicle Navigation, Fleet Management & Telematics.

Features

- GNSS + LTE MIMO protocol
- Waterproof (IP67)
- Six-band Frequency
- Customizable Cable & Connectors
- Excellent Out of Band Rejection, Up to 55dB
- 27dBi Active Peak Gain
- RoHS Complaint

Part Number Breakdown

NANE A 80x37 P U VCG M 6 C 302 A0 F

- NANE — Series
- A — Active Status
- 80x37 — Dimensions
- P — Puck Antenna
- U — Internal Production Code
- VCG — Protocol Code
- M — MIMO
- 6 — Number of Frequency Bands
- C — Cabled Antenna
- 302 — Cable length (in mm)
- A0 — Cable & Connector Format Codes
- F — RoHS Compliant

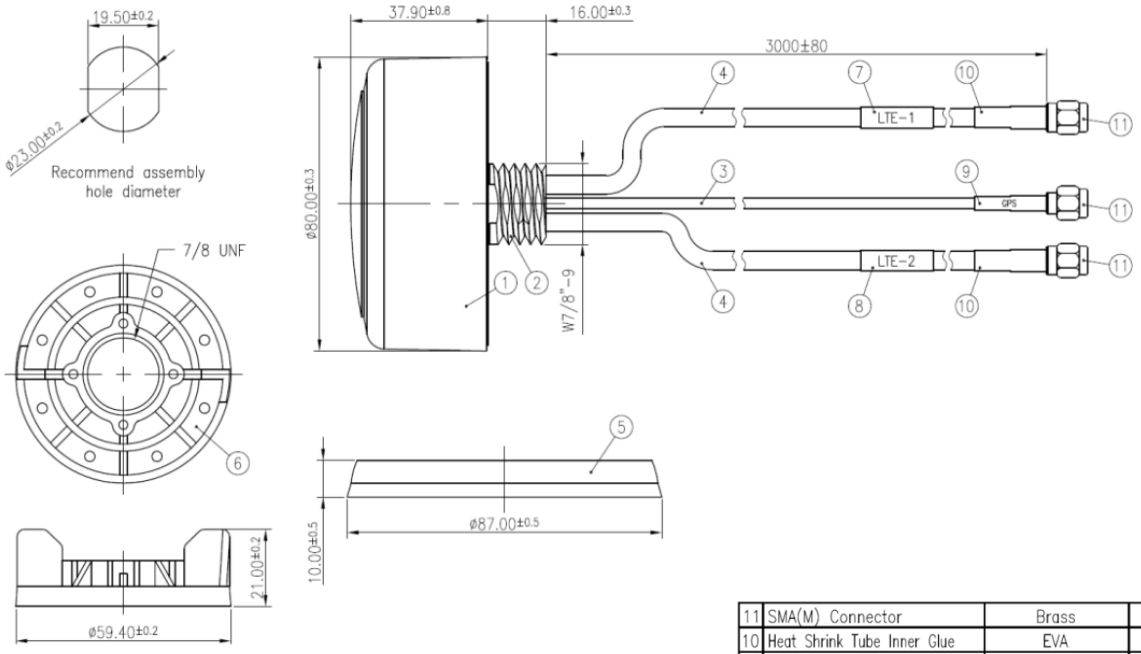
Assembly Ref	Protocol	Connector Type	Cable Type	Cable Length
A0	GNSS	SMA Male	H100	3000 mm
	LTE		SNC 200	

Specifications

Electrical								
GPS & Glonass Antenna								
Application Bands		BeiDou		GPS		GLONASS		
Frequency Range		1561 MHz		1575.42 MHz		1602 MHz		
Efficiency		49.89 %		42.76 %		58.61 %		
Average Gain(dBi)		-3.02		-3.69		-2.32		
Peak Gain (dBi)		1.21		1.21		1.44		
VSWR		< 3						
Return Loss (dB)		< -6						
Polarization		RHCP						
Impedance		50 Ω						
Active Antenna								
Application Bands		BeiDou		GPS		GLONASS		
Frequencies (MHz)		1561 ± 2.046		1575.42 ± 1.023		1602 ± 5		
Gain (dB)		27		27		27		
Noise Figure (dB)		0.98		0.98		0.92		
Operation Voltage (V)		3.3 ~ 5						
Current Consumption (typ.)		9.0 mA						
Output Impedance		50 Ω						
Out of Band Rejection								
Frequencies (MHz)		600 ~ 1300		1300 ~ 1530		1650 ~ 3000		
Out of Band Rejection (dB)		55		30		30		
ESD Protection		+/- 8 KV (direct discharge) +/- 15 K V (air discharge)						
LTE Antenna MIMO 1								
Application Bands		LTE 700	GSM 850/900	DCS	PCS	UMTS1	LTE2600	5G NR Band
Frequencies (MHz)		698 ~ 824	824 ~ 960	1710 ~ 1880	1850 ~ 1990	1920 ~ 2170	2300 ~ 2690	3300 ~ 3800
Efficiency (%)	**30cm**	54.99	52.87	72.31	70.69	60.00	53.46	51.05
	1m	53.49	51.29	69.38	67.76	57.33	51.46	47.97
	2m	48.78	46.33	60.43	58.87	49.27	42.80	37.62
	3m	44.49	41.85	52.63	51.14	42.34	35.60	30.58
	5m	37.01	34.15	39.92	38.60	31.27	24.21	20.94

Average Gain (dBi)	**30cm**	**-2.60**	**-2.77**	**-1.41**	**-1.51**	**-2.22**	**-2.72**	**-2.92**
	1m	-2.72	-2.90	-1.59	-1.69	-2.42	-2.89	-3.19
	2m	-3.12	-3.34	-2.19	-2.30	-3.07	-3.69	-4.25
	3m	-3.52	-3.78	-2.79	-2.91	-3.73	-4.49	-5.15
	5m	-4.32	-4.67	-3.99	-4.13	-5.05	-6.16	-6.79
Peak Gain (dBi)	**30cm**	2.49	2.90	6.07	6.48	5.64	5.25	4.27
	1m	2.37	2.77	5.89	6.30	5.44	5.09	4.00
	2m	1.97	2.32	5.29	5.69	4.78	4.29	3.02
	3m	1.57	1.88	4.69	5.08	4.12	3.49	2.12
	5m	0.77	1.00	3.49	3.85	2.80	1.81	0.40
V.S.W.R		< 3.57						
Return Loss (dB)		< -5						
Test Condition		Free Space						
Polarization		Linear						
Impedance(Ω)		50 Ω						
LTE Antenna MIMO 2								
Application Bands		LTE 700	GSM 850/900	DCS	PCS	UMTS1	LTE2600	5G NR Band
Frequencies (MHz)		698 ~ 824	824 ~ 960	1710 ~ 1880	1850 ~ 1990	1920 ~ 2170	2300 ~ 2690	3300 ~ 3800
Efficiency (%)	**30cm**	40.88	44.37	56.41	61.08	61.09	57.90	53.37
	1m	39.77	43.04	54.12	58.55	58.38	54.79	50.16
	2m	36.27	38.87	47.13	50.87	50.17	45.51	39.90
	3m	33.08	35.12	41.05	44.19	43.11	37.91	32.12
	5m	27.51	28.65	31.14	33.35	31.84	26.22	21.89
Average Gain (dBi)	**30cm**	-3.88	-3.53	-2.49	-2.14	-2.14	-2.37	-2.73
	1m	-4.00	-3.66	-2.67	-2.32	-2.34	-2.61	-3.00
	2m	-4.40	-4.10	-3.27	-2.94	-3.00	-3.42	-3.99
	3m	-4.80	-4.55	-3.87	-3.55	-3.65	-4.21	-4.93
	5m	-5.60	-5.43	-5.07	-4.77	-4.97	-5.81	-6.60
Peak Gain (dBi)	**30cm**	1.54	1.81	5.71	6.02	5.86	5.07	3.25
	1m	1.42	1.68	5.53	5.84	5.67	4.83	2.98
	2m	1.02	1.24	4.93	5.23	5.01	3.98	2.18
	3m	0.62	0.80	4.33	4.62	4.35	3.13	1.33
	5m	-0.18	-0.09	3.13	3.39	3.03	1.63	-0.62
V.S.W.R		< 3.57		< 3				
Return Loss (dB)		< -5		< - 6				
Test Condition		Free Space						
Polarization		Linear						
Impedance(Ω)		50 Ω						
Environmental								
Operating Temperature		-40°C~+85°C						
Storage Temperature		-40°C~+85°C						
Humidity		95% Non condensing						
Casting		PC + PBT						
Waterproof		IP67						
RoHS Compliant		Yes						

Dimensions



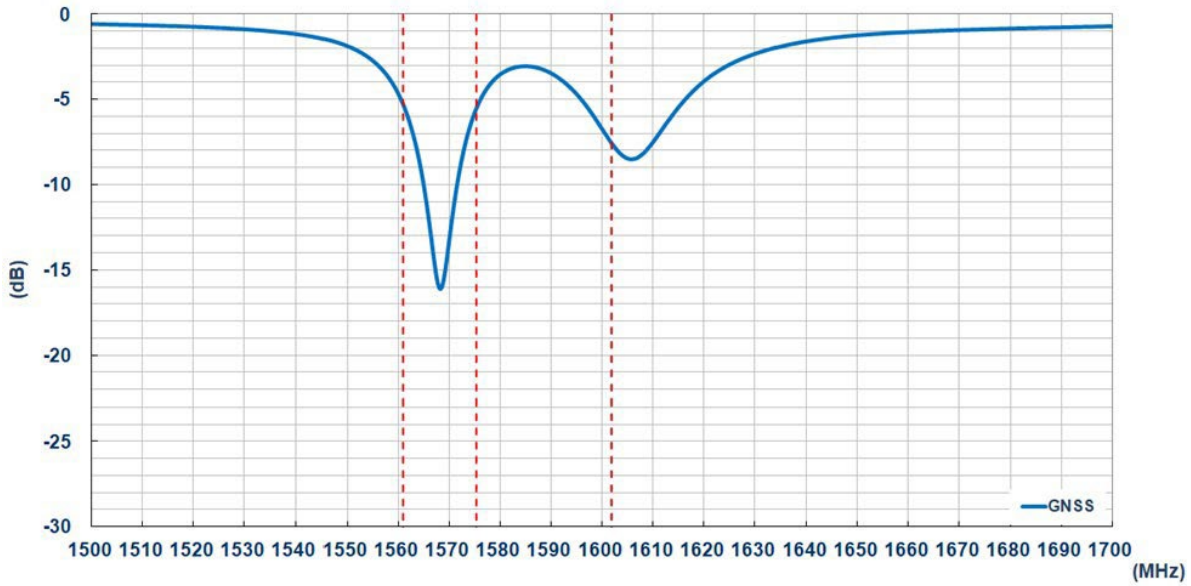
No	NAME	MATERIAL	FINISH	Q'TY
11	SMA(M) Connector	Brass	Au plating	3
10	Heat Shrink Tube Inner Glue	EVA	Black	2
9	GPS Heat Shrink Tube	CTMS	Blue	1
8	LTE-2 Heat Shrink Tube	CTMS	White	1
7	LTE-1 Heat Shrink Tube	CTMS	White	1
6	Nut	PC+PBT	Black	1
5	Gasket	Silicone	Black	1
4	Cable SNC-200	PVC	Black	2
3	Cable H100	PVC	Black	1
2	Bottom Base	Zinc Alloy	Ni Plated	1
1	Top Housing	PC+PBT	Black	1

Antenna Electrical Properties:

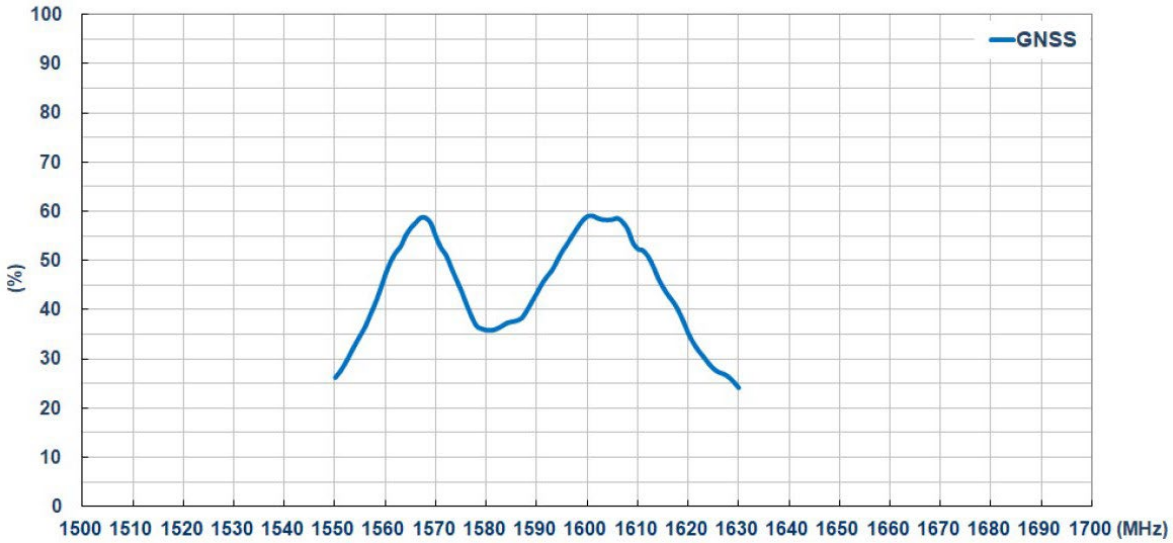
Testing Condition: Free Space

GNSS

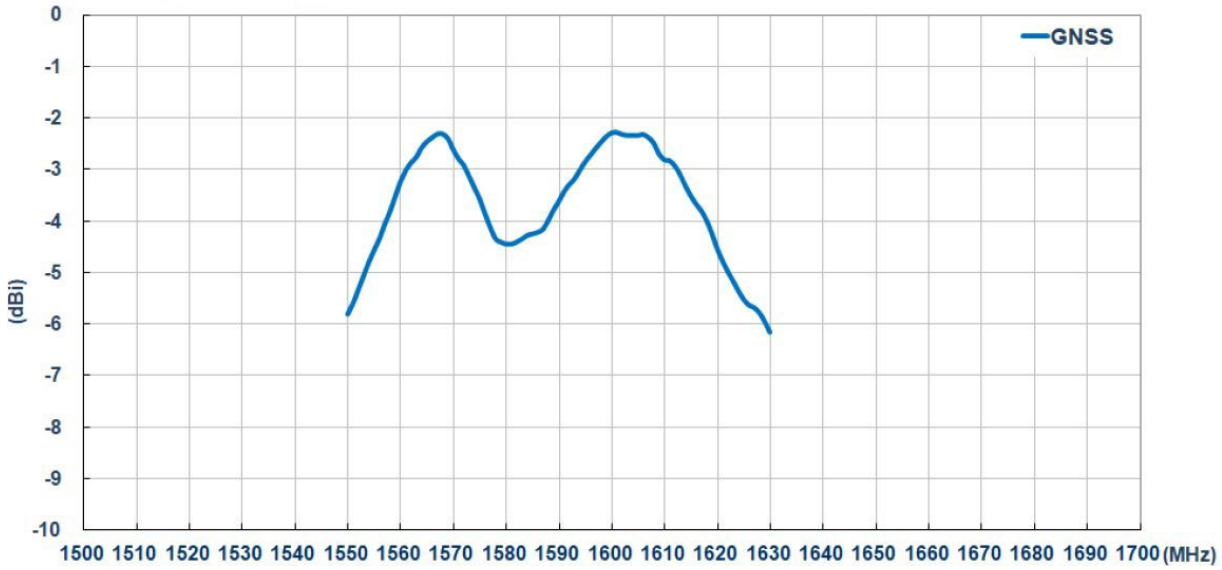
S11 (dB)



Efficiency (%)

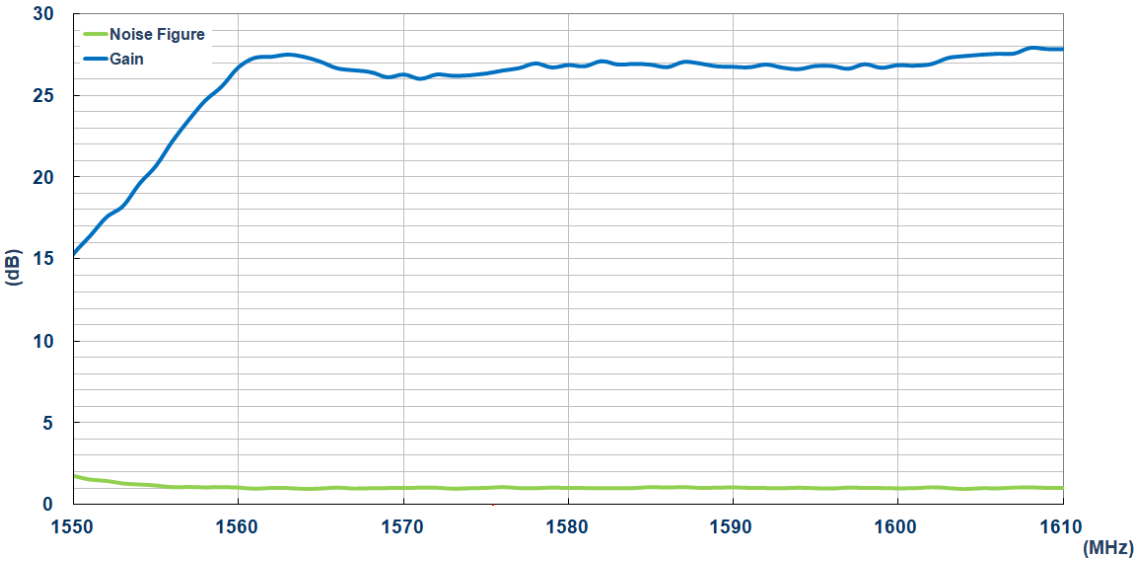


Average Gain (dBi)

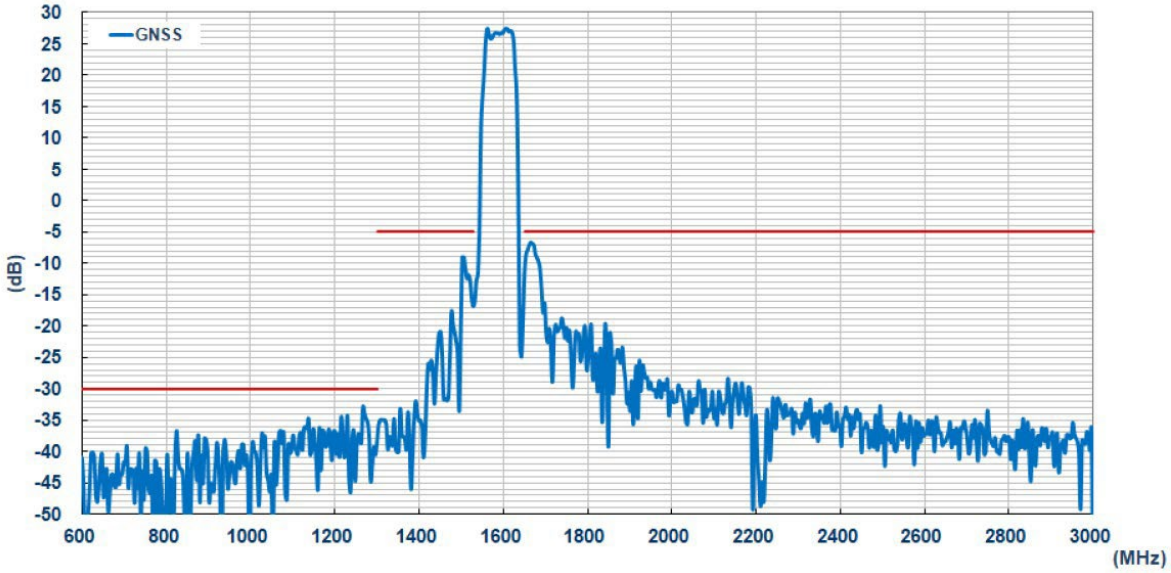


Peak Gain (dBi)

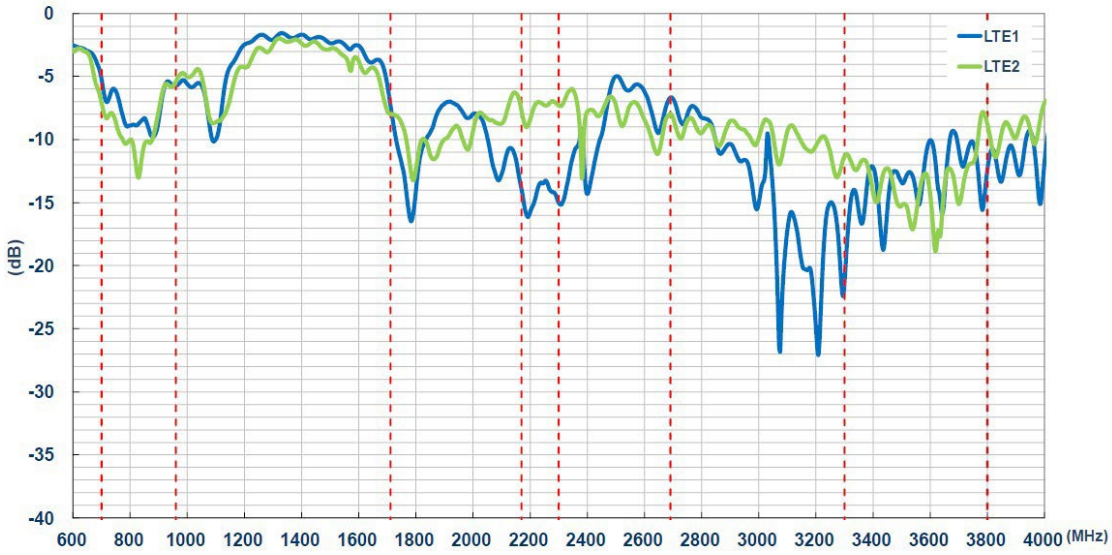
Noise Figure & Gain (dB)



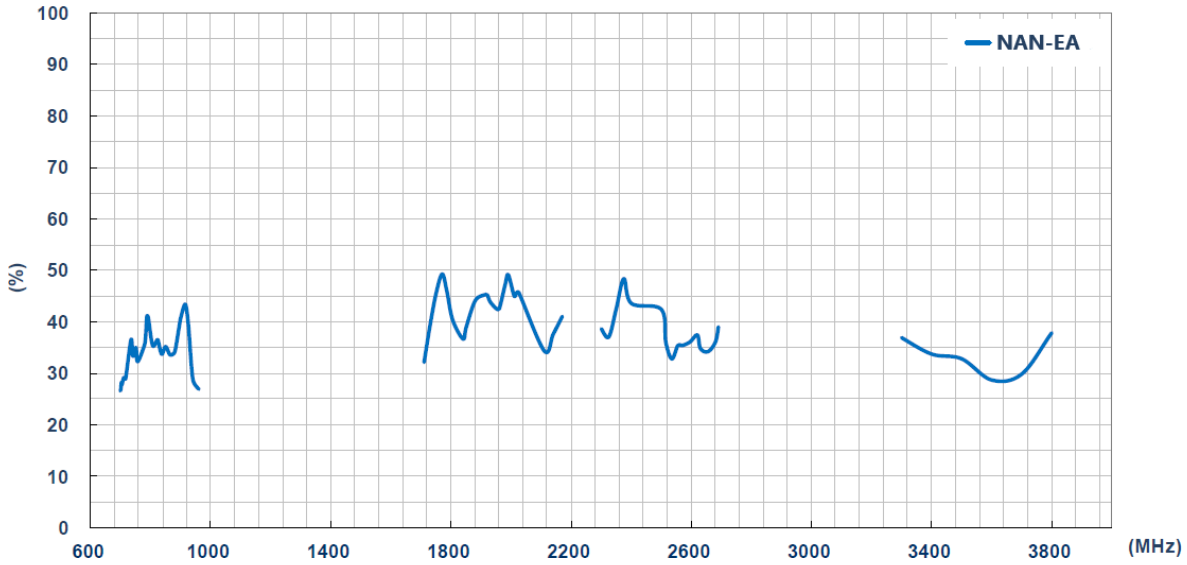
Out of Band Rejection (dB)



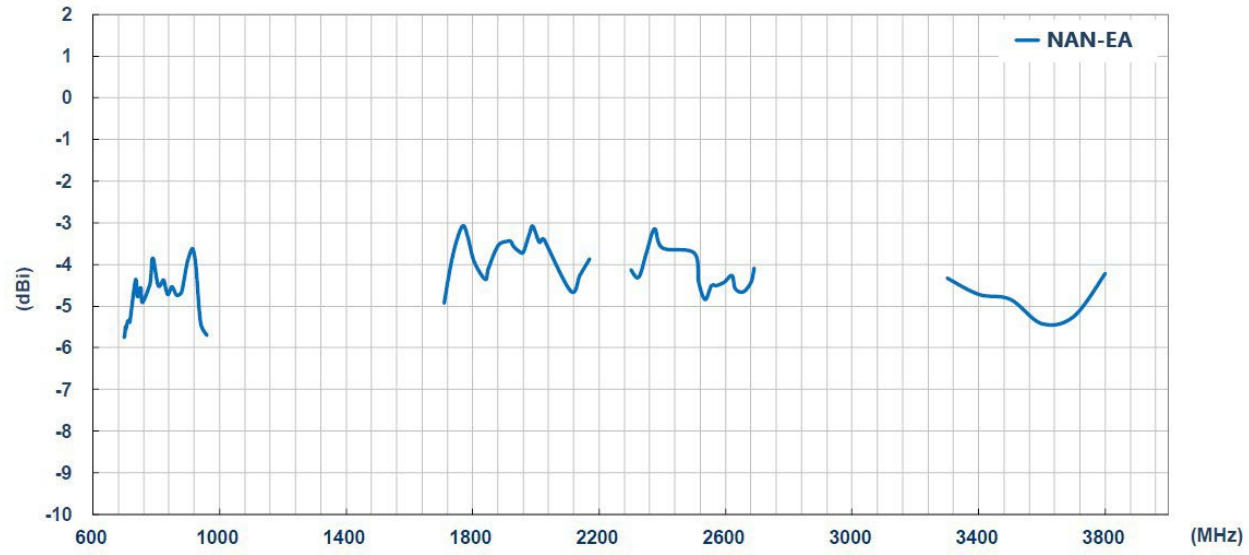
S11 (dB) – LTE1 & LTE2



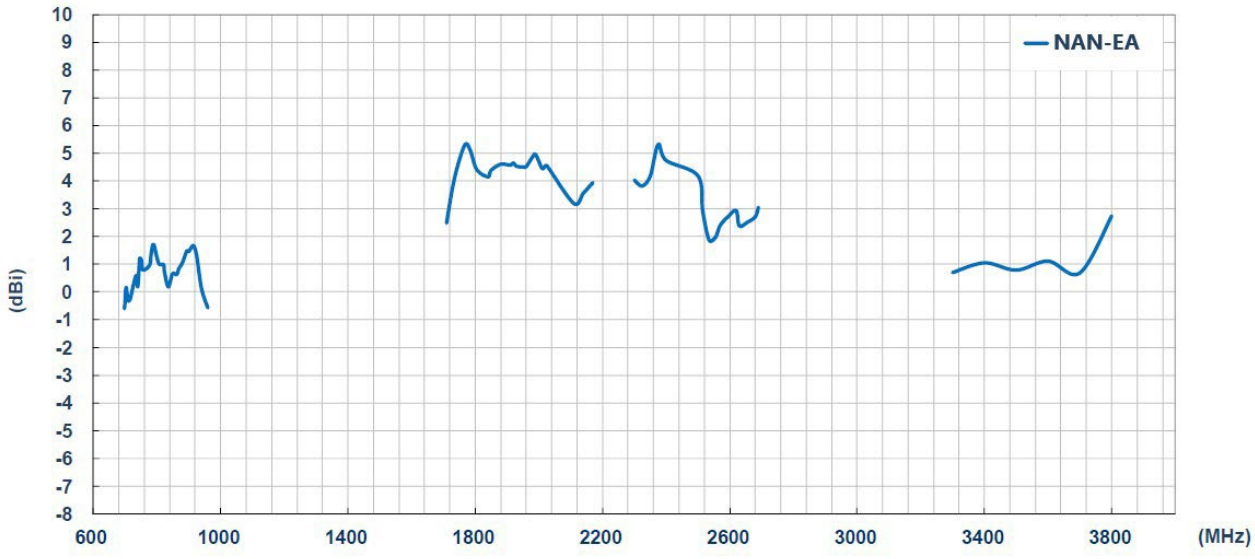
Efficiency (%)– LTE 1



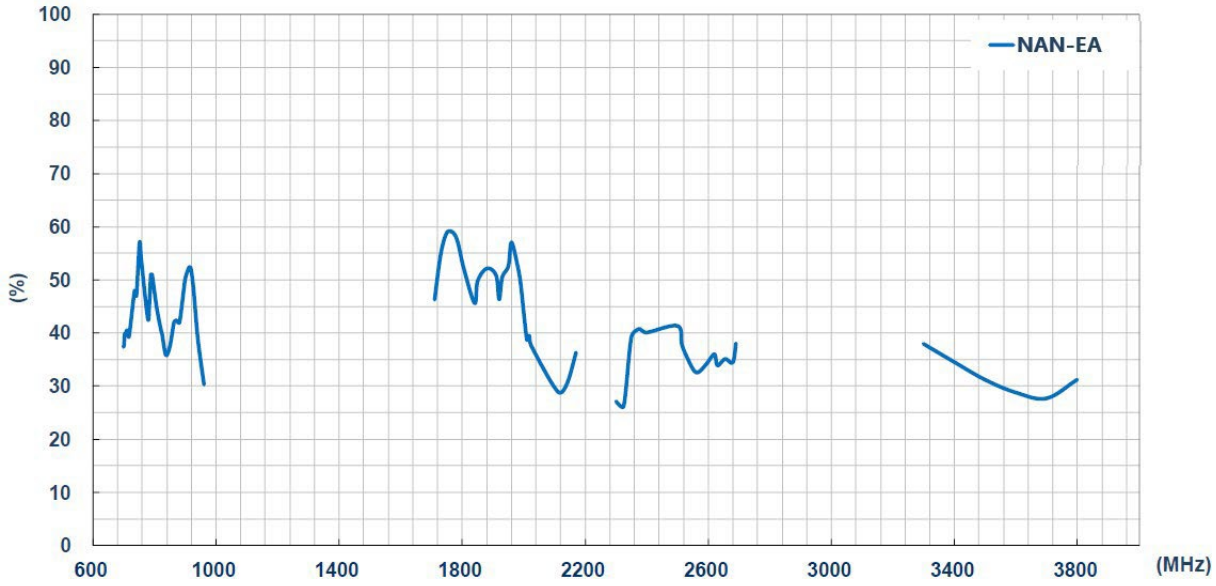
Average Gain (dBi) – LTE 1



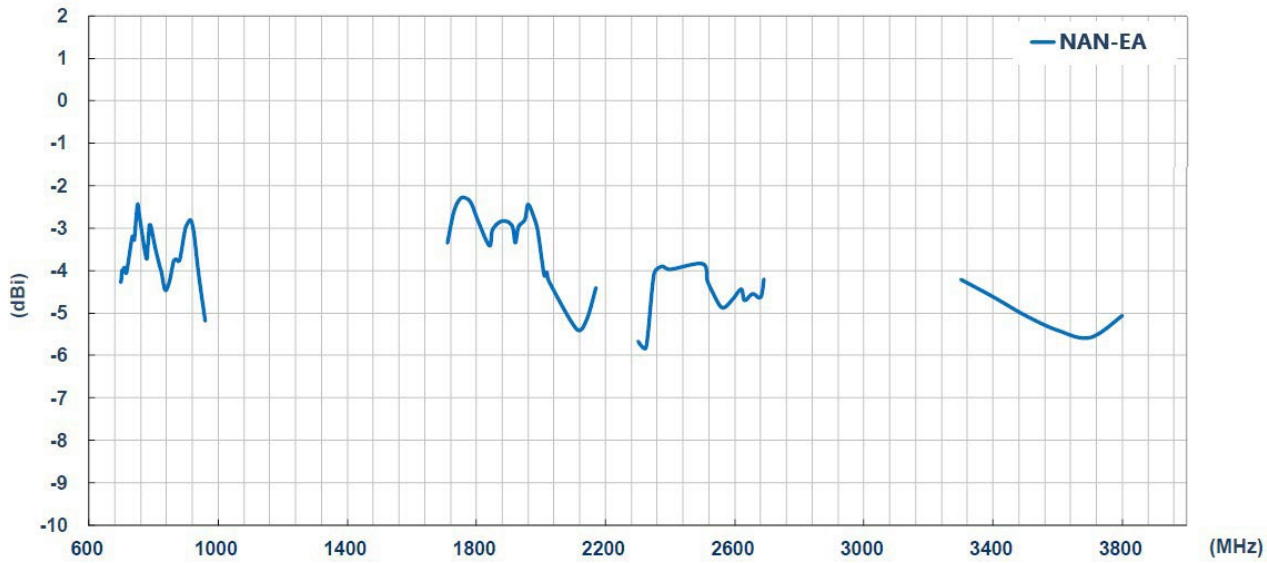
Peak Gain (dBi) – LTE 1



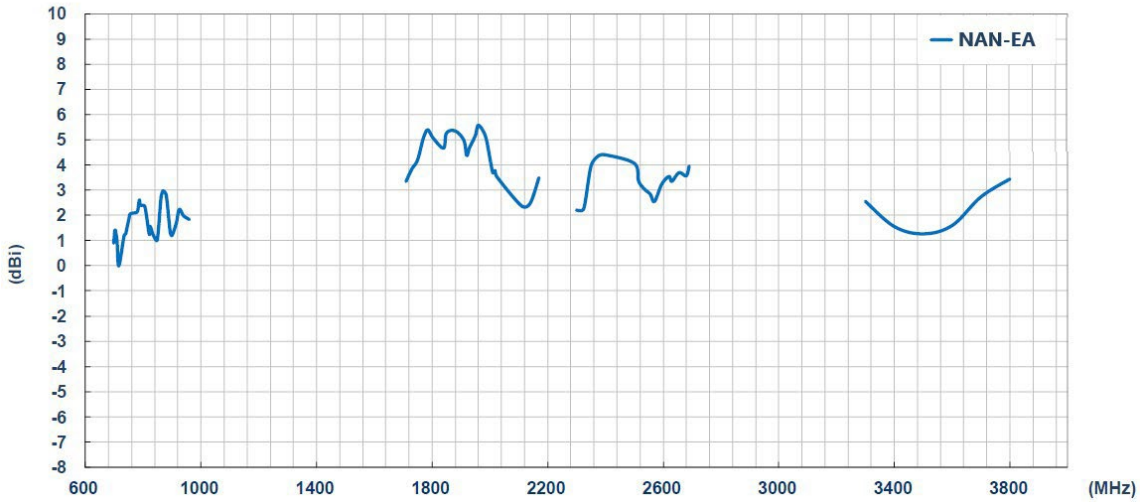
Efficiency (%)– LTE 2



Average Gain (dBi) – LTE 2



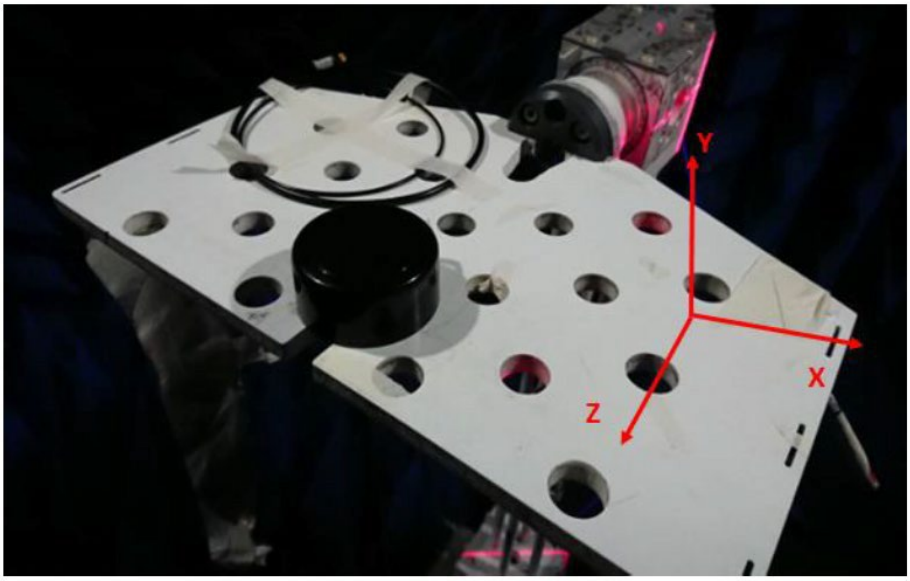
Peak Gain (dBi) – LTE 2



Antenna Radiation Pattern Measurement:

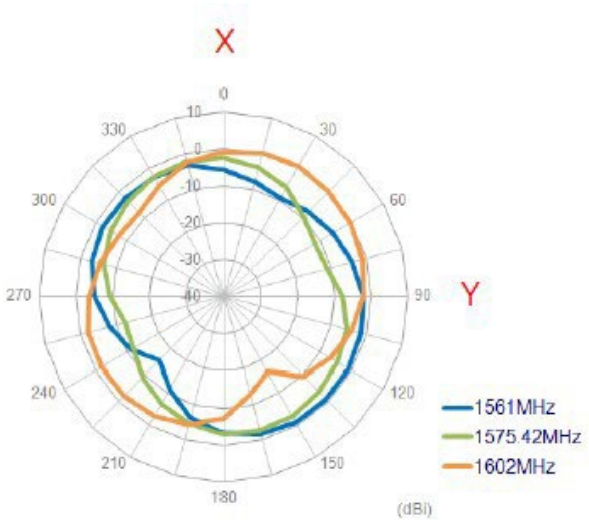
The antenna Radiation patterns are measured 3D anechoic chamber

Free Space

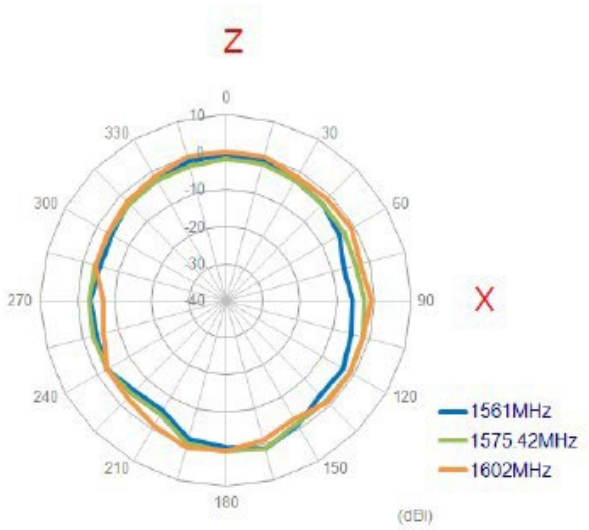


2D Radiation Patterns

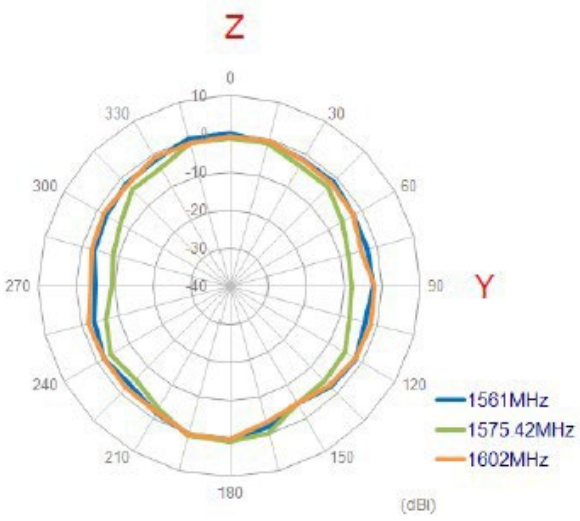
GNSS X-Y Plane



GNSS X-Z Plane

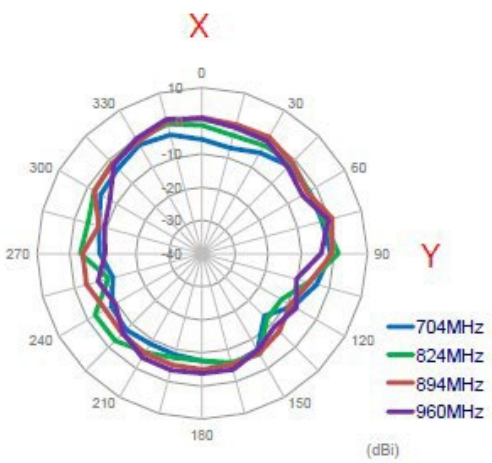


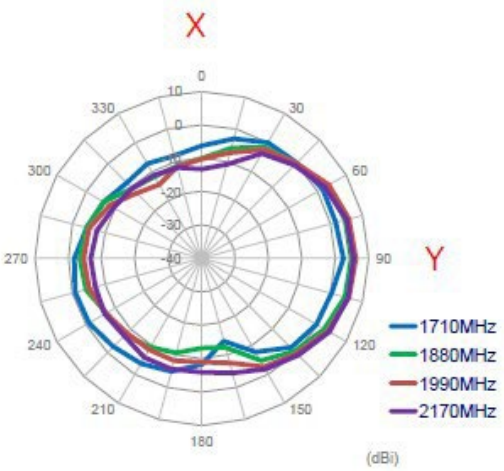
GNSS Y-Z Plane

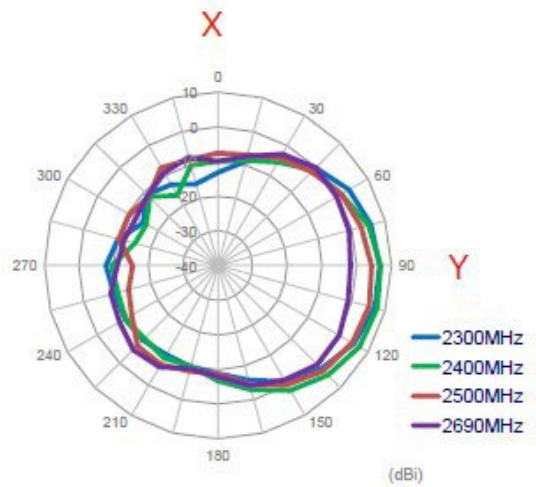


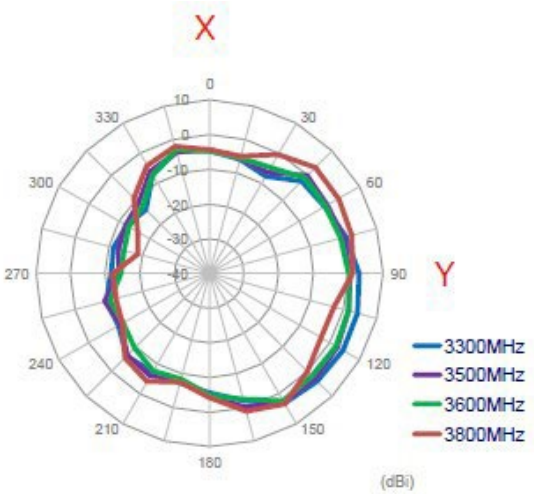
Free Space - LTE 1

X-Y Plane

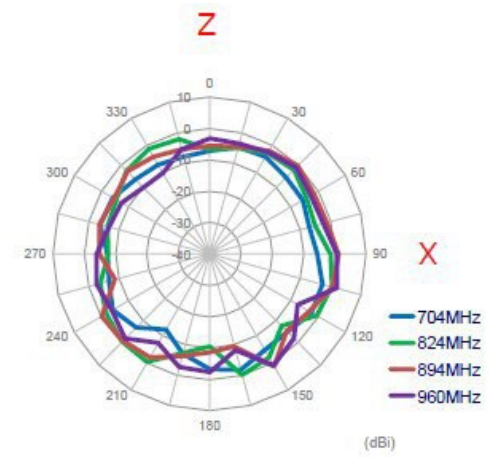


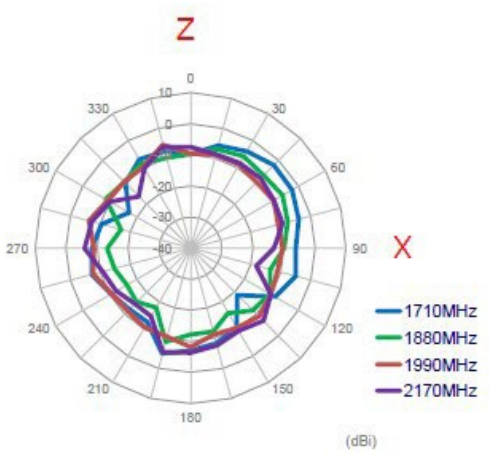


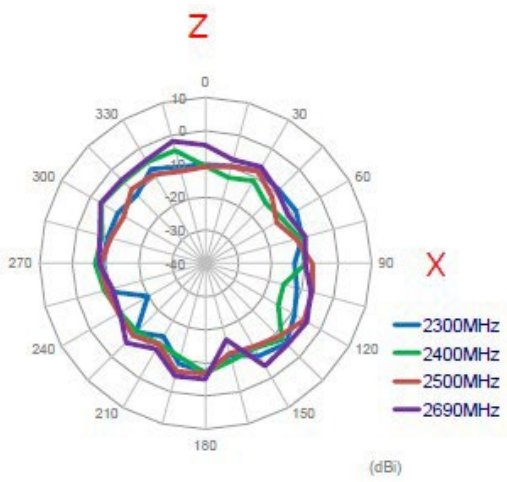


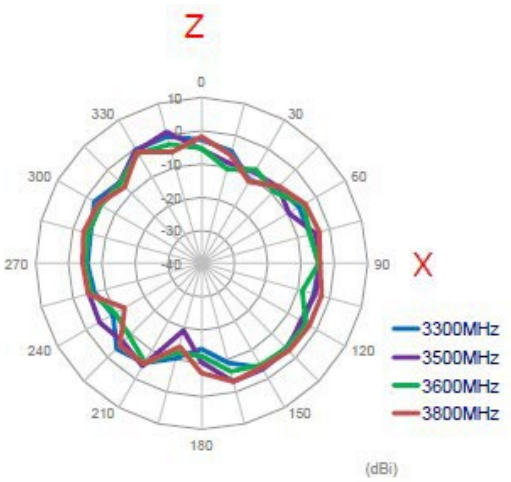


X-Z Plane

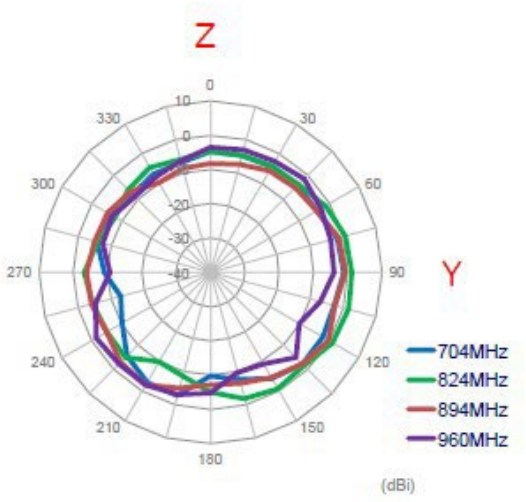

Z
X
704MHz
824MHz
894MHz
960MHz
(dBi)

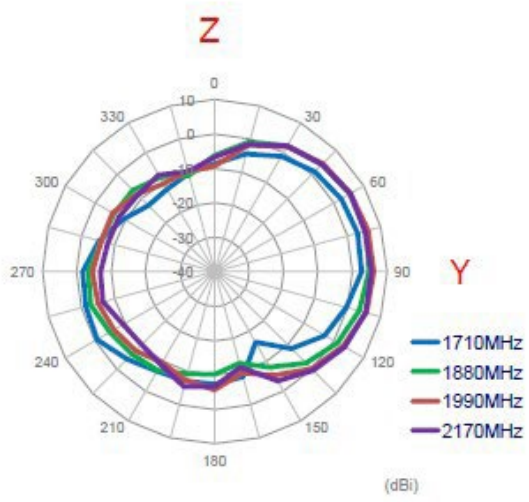

Z
X
1710MHz
1880MHz
1990MHz
2170MHz
(dBi)

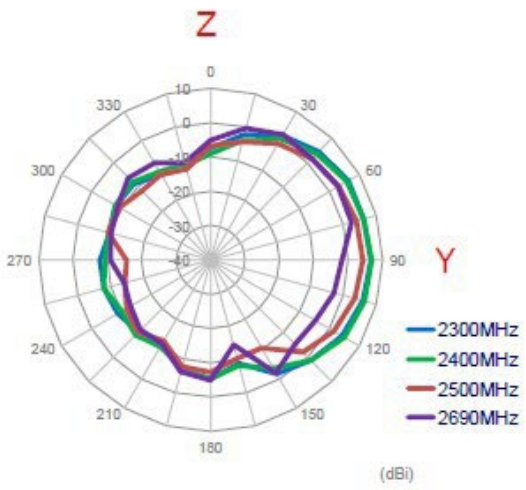

Z
X
2300MHz
2400MHz
2500MHz
2690MHz
(dBi)

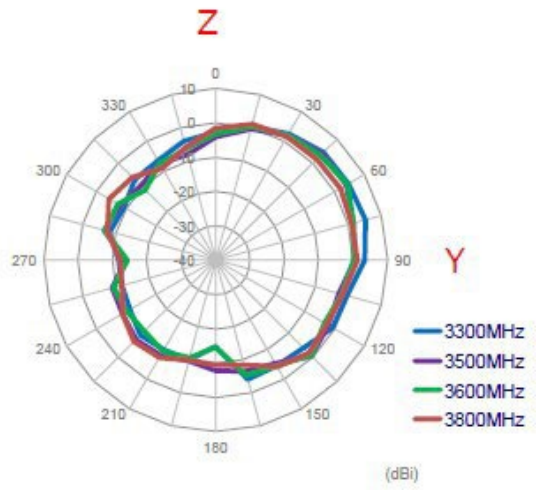

Z
X
3300MHz
3500MHz
3600MHz
3800MHz
(dBi)

Y-Z Plane


Z
Y
704MHz
824MHz
894MHz
960MHz
(dBi)

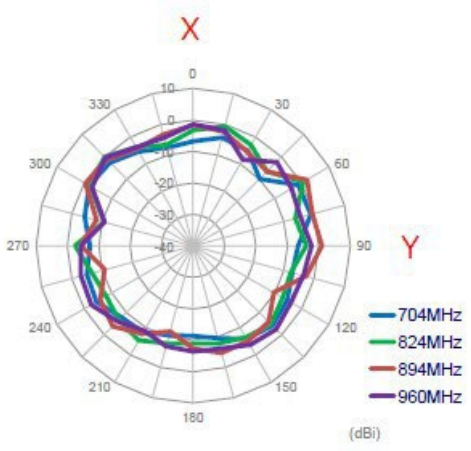

Z
Y
1710MHz
1880MHz
1990MHz
2170MHz
(dBi)

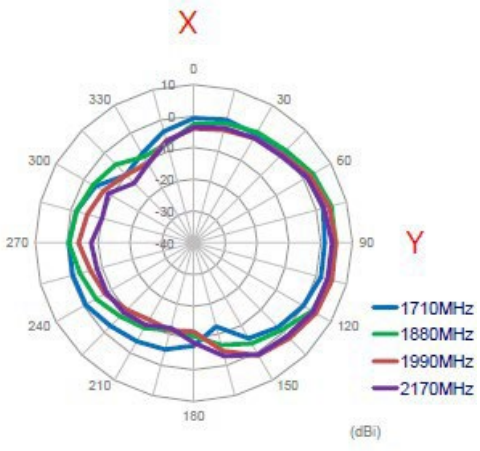

Z
Y
2300MHz
2400MHz
2500MHz
2690MHz
(dBi)

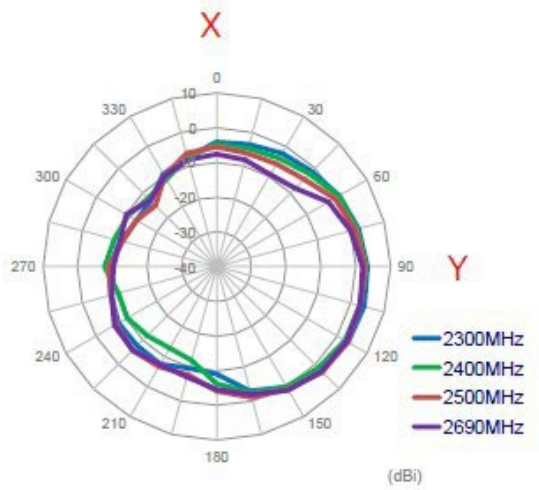

Z
Y
3300MHz
3500MHz
3600MHz
3800MHz
(dBi)

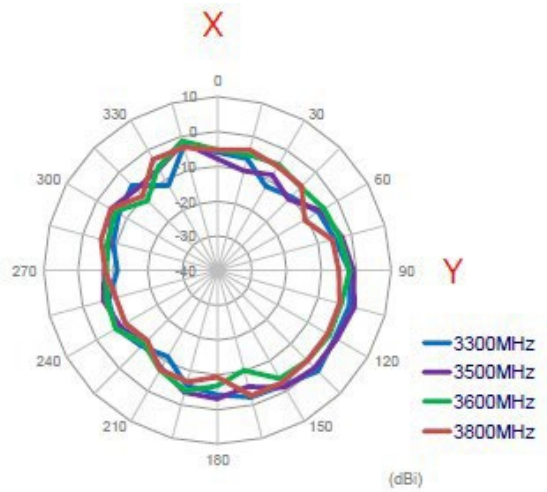
Free Space - LTE 2

X-Y Plane

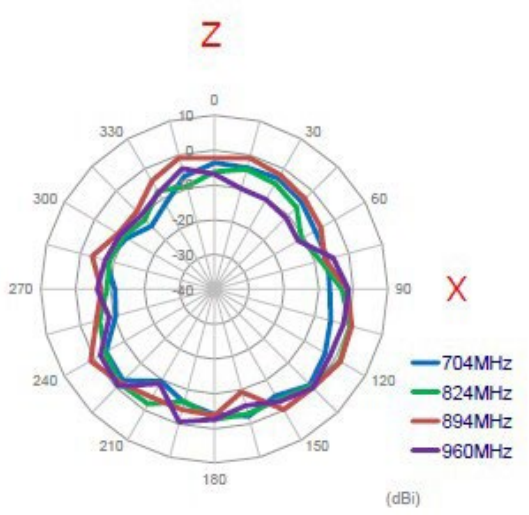


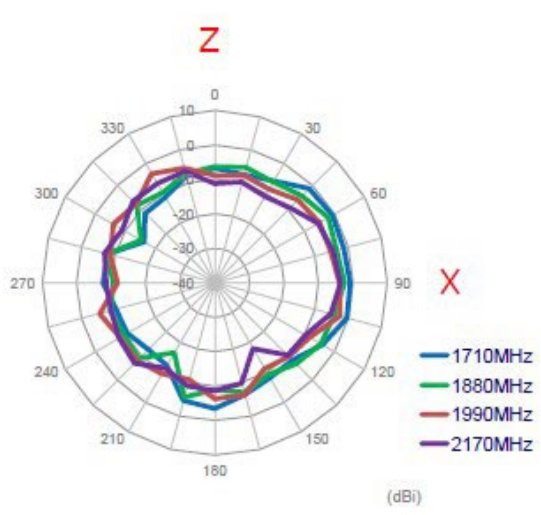


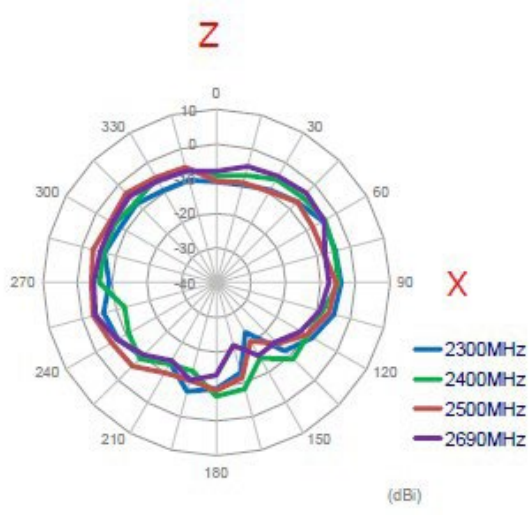


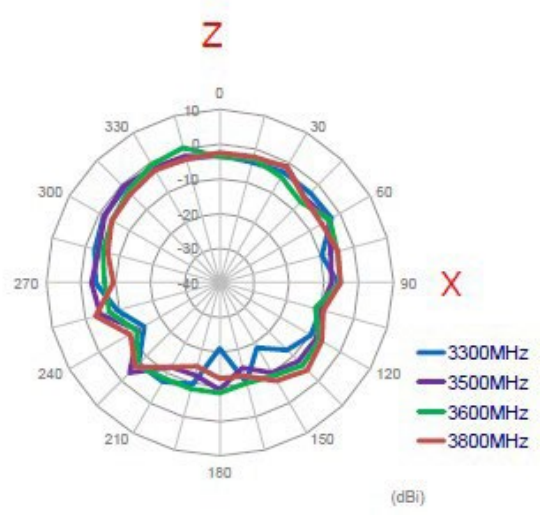


X-Z Plane

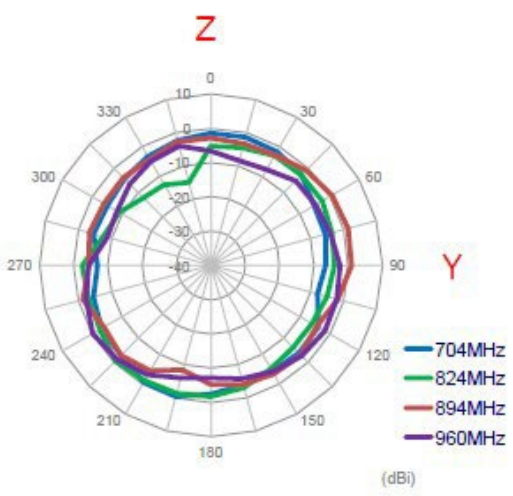

Z
X
704MHz
824MHz
894MHz
960MHz
(dBi)

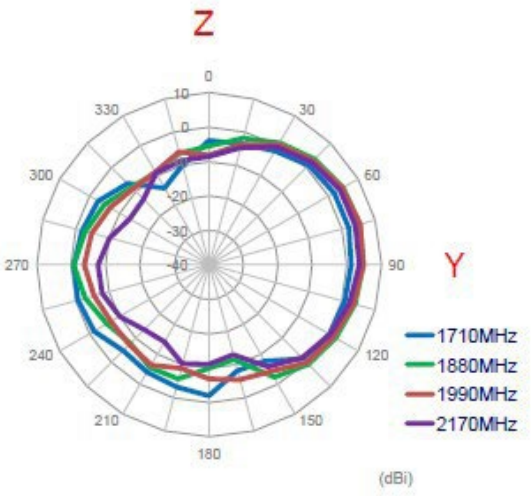

Z
X
1710MHz
1880MHz
1990MHz
2170MHz
(dBi)

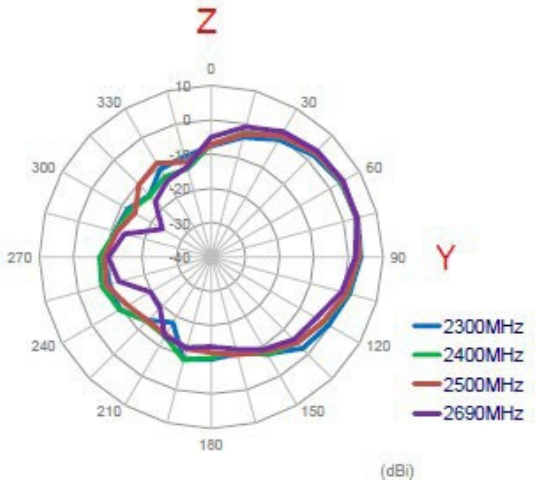

Z
X
2300MHz
2400MHz
2500MHz
2690MHz
(dBi)

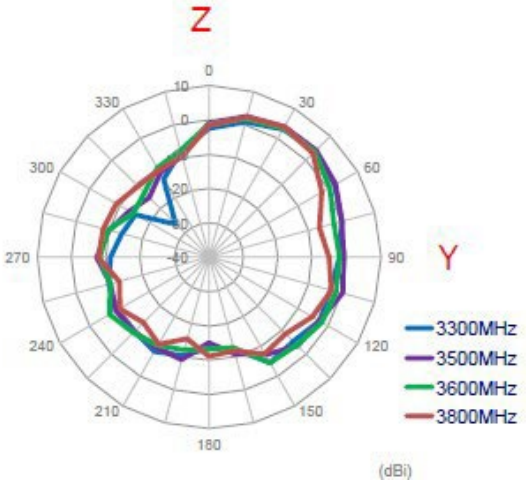

Z
X
3300MHz
3500MHz
3600MHz
3800MHz
(dBi)

Y-Z Plane


Z
Y
704MHz
824MHz
894MHz
960MHz
(dBi)


Z
Y
1710MHz
1880MHz
1990MHz
2170MHz
(dBi)

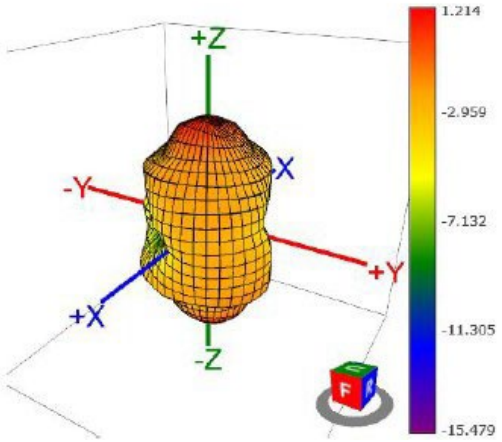

Z
Y
2300MHz
2400MHz
2500MHz
2690MHz
(dBi)


Z
Y
3300MHz
3500MHz
3600MHz
3800MHz
(dBi)

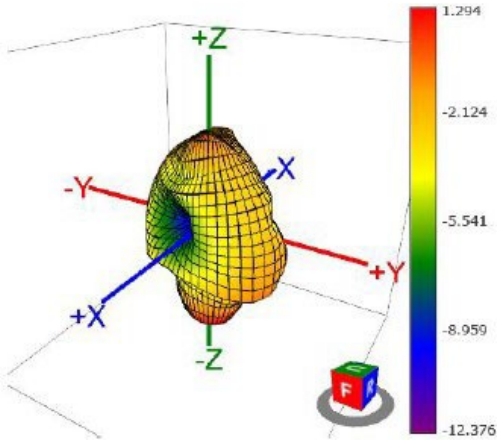
3D Radiation

GNSS

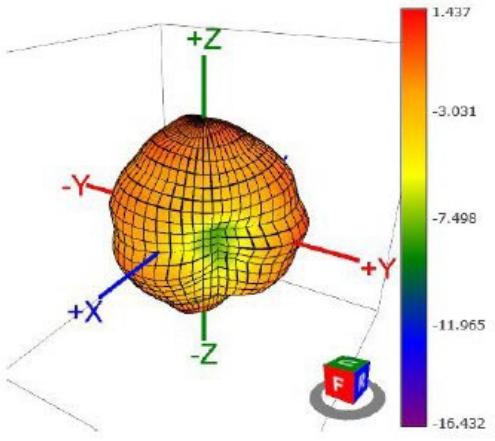
1561MHz



1575.42MHz

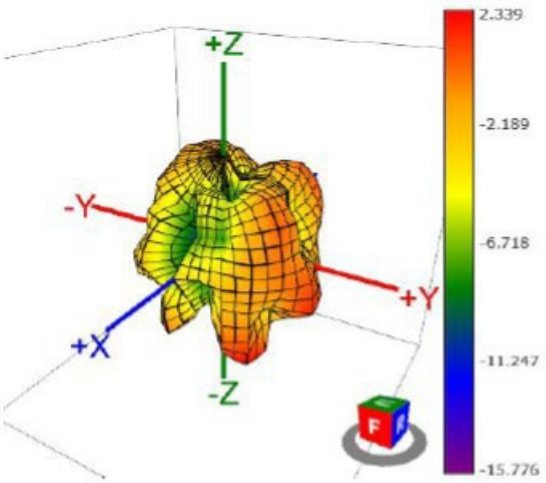


1602MHz

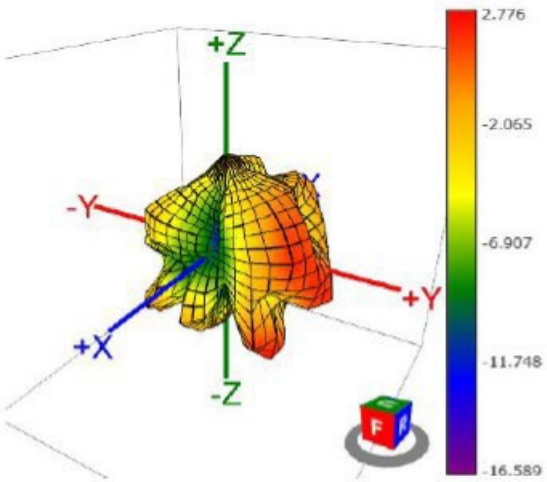


Free Space - LTE 1

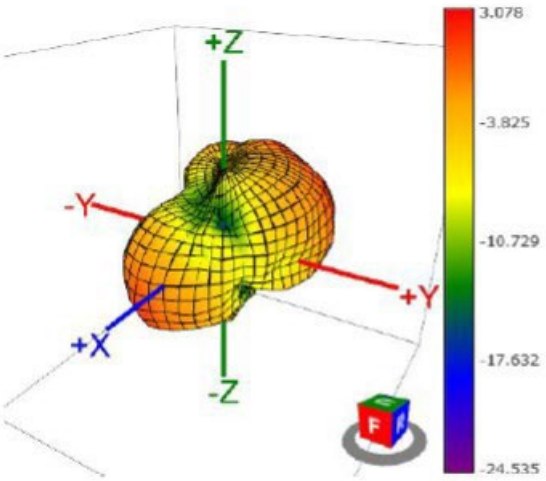
824MHz



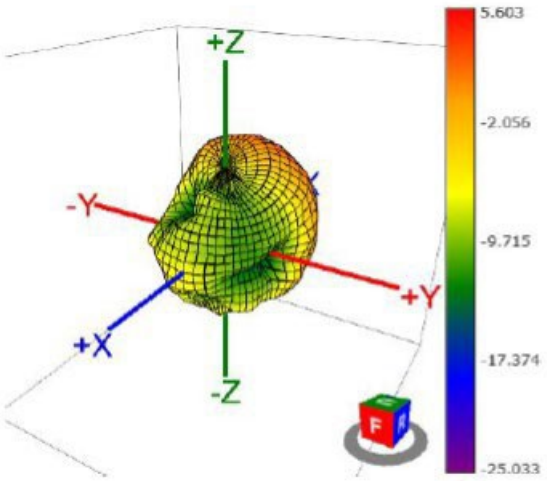
960MHz



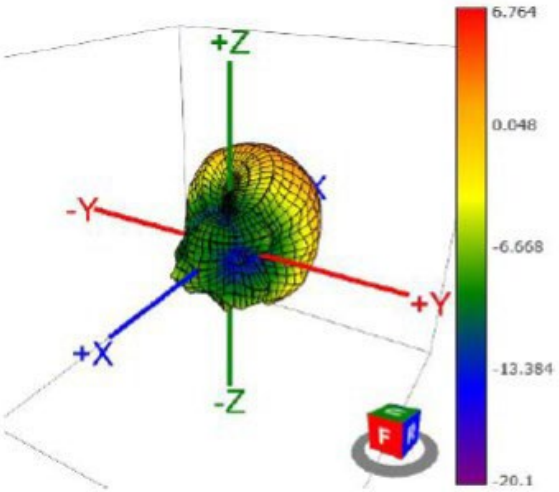
1710MHz



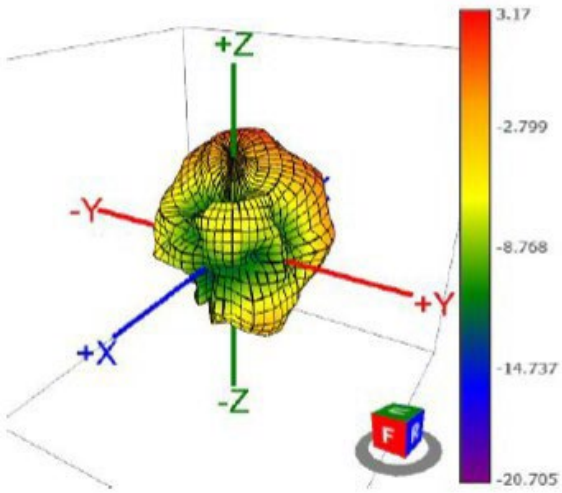
2170MHz



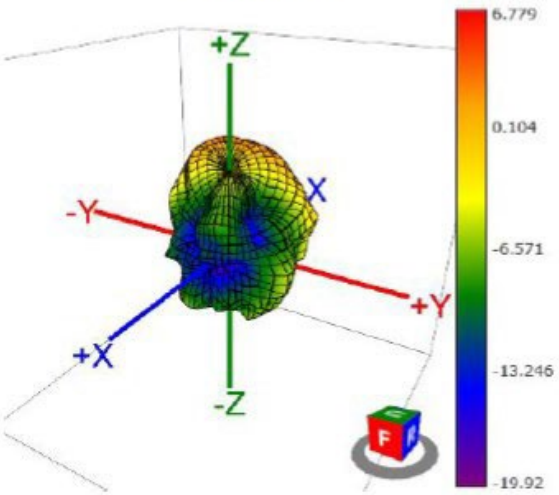
2300MHz



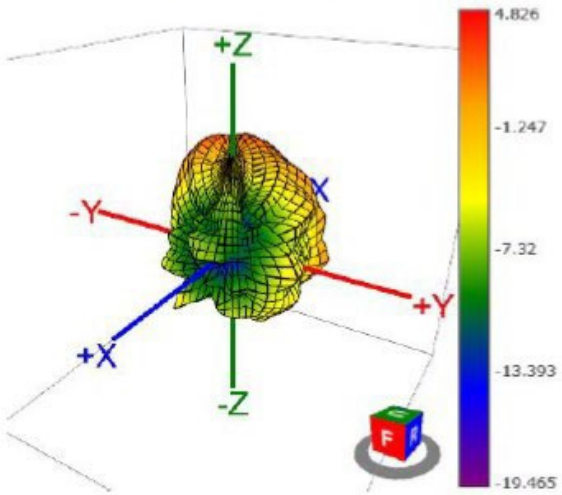
2690MHz



3300MHz

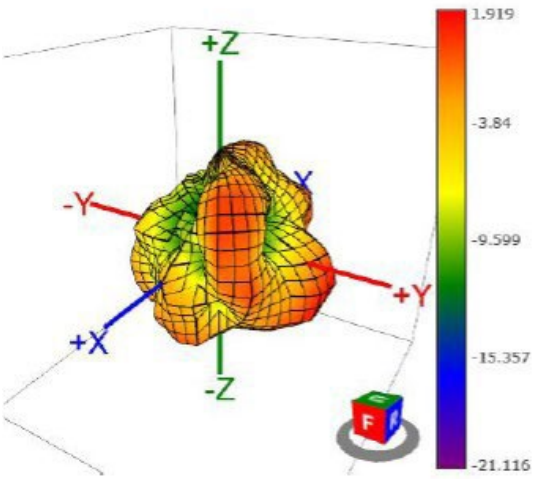


3600MHz

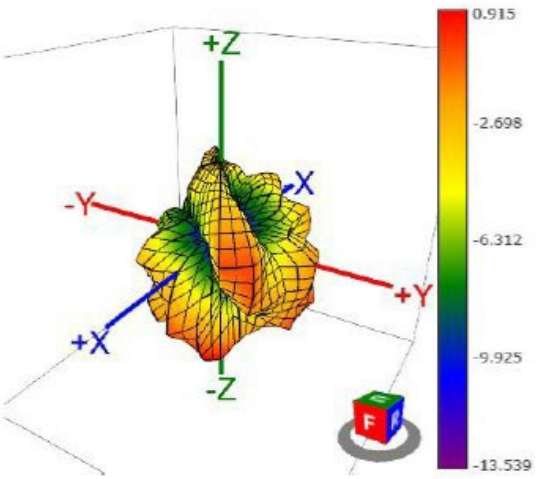


Free Space - LTE 2

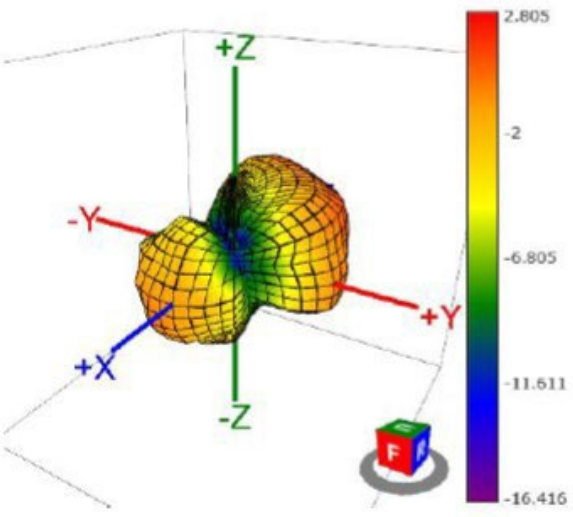
824MHz



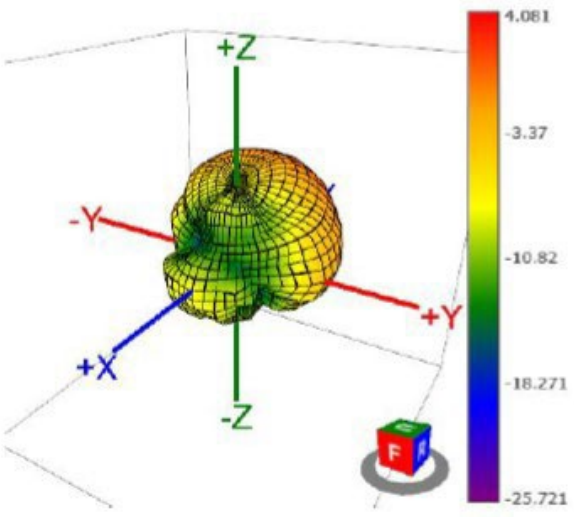
960MHz



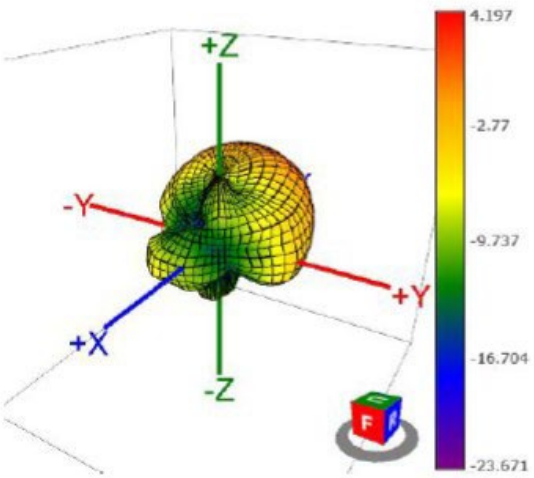
1710MHz



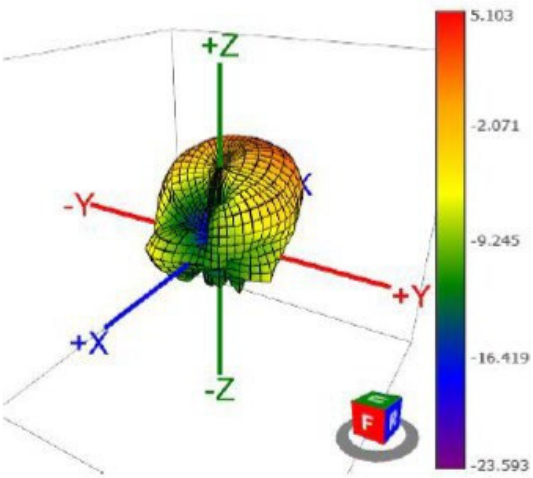
2170MHz



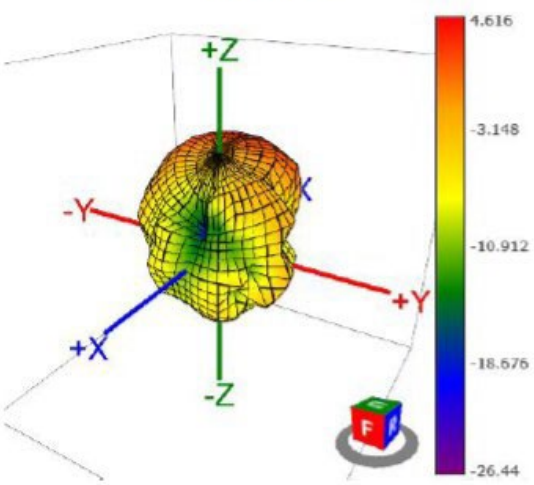
2300MHz



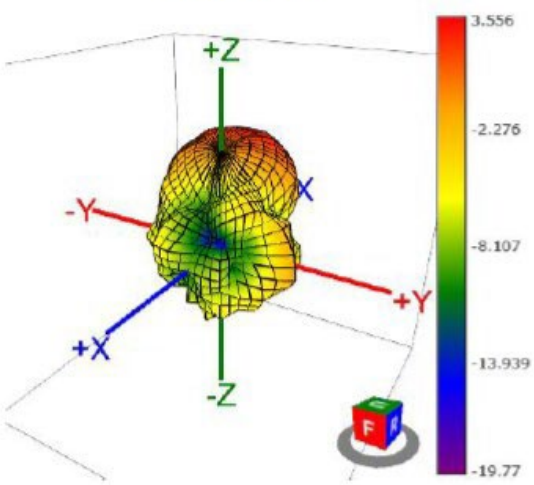
2690MHz



3300MHz

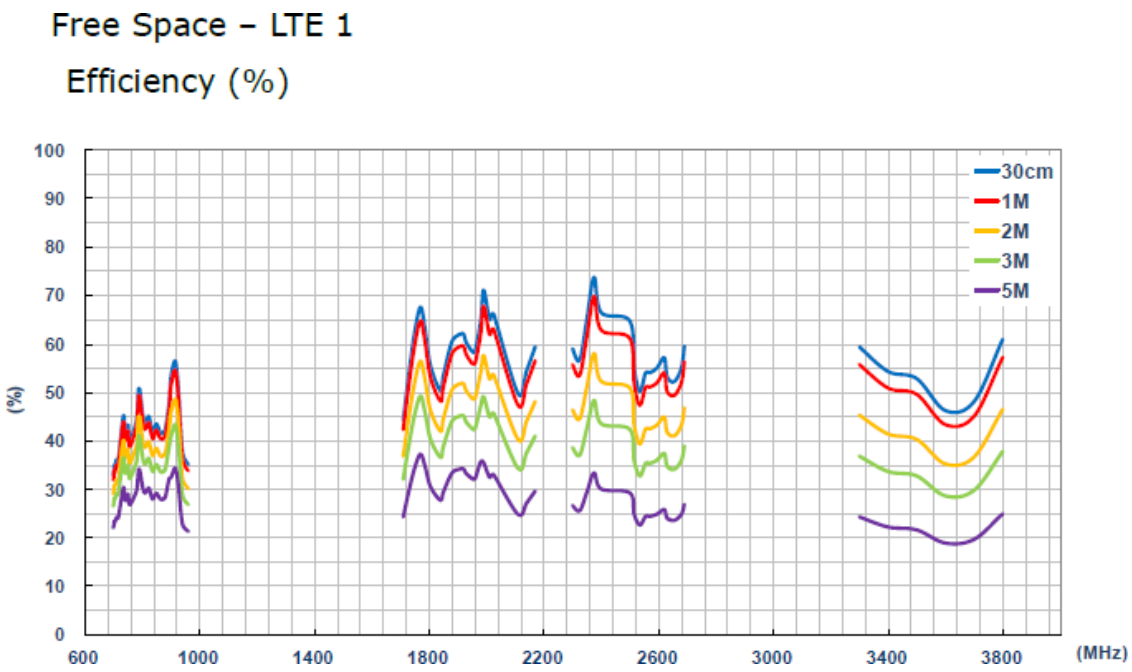


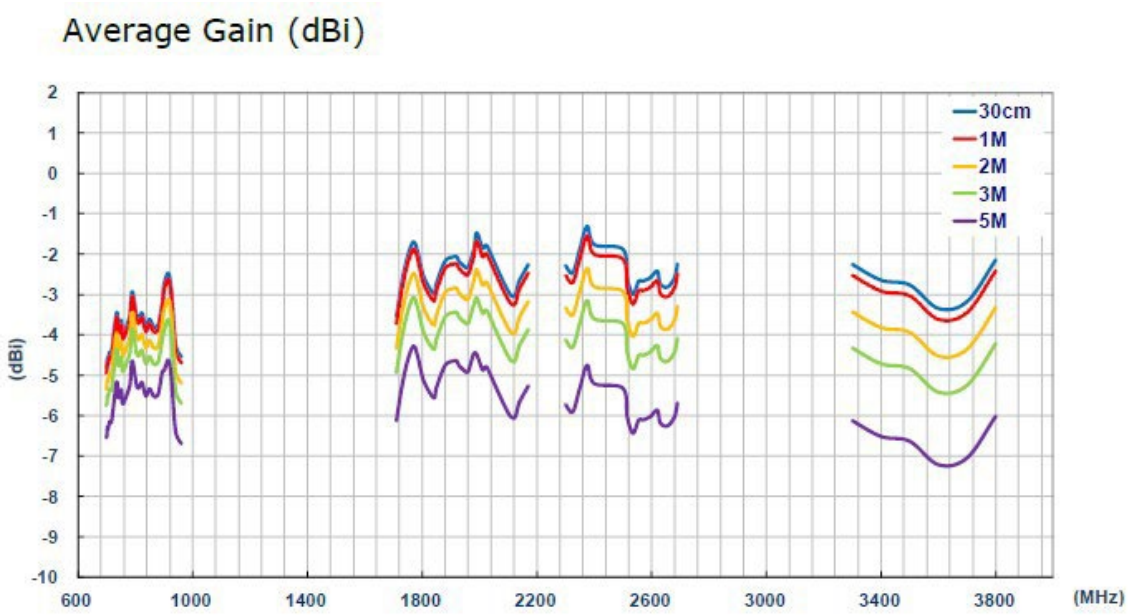
3600MHz



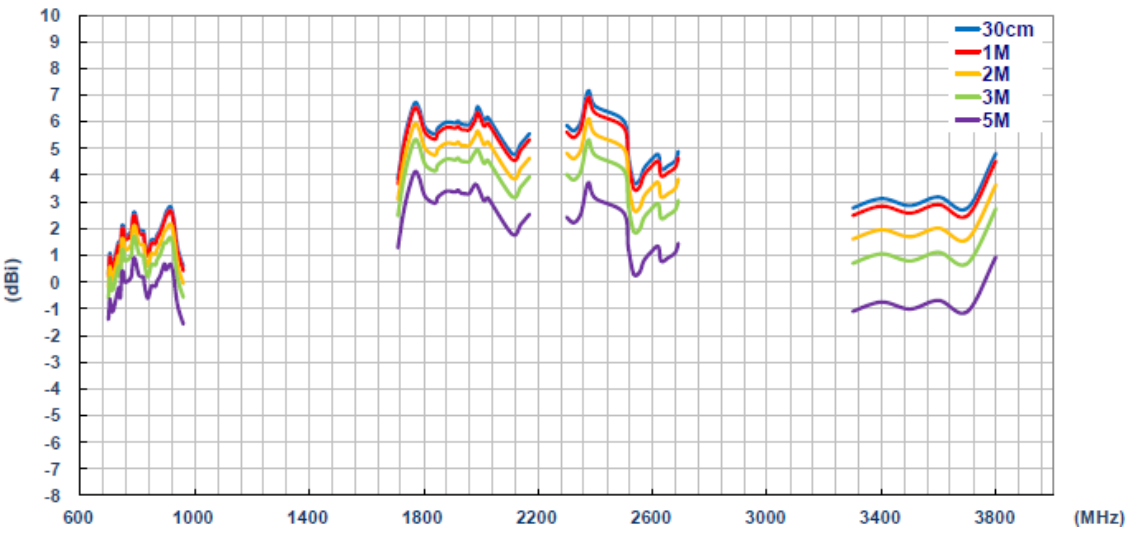
Antenna Performance

The performance with different cable lengths:



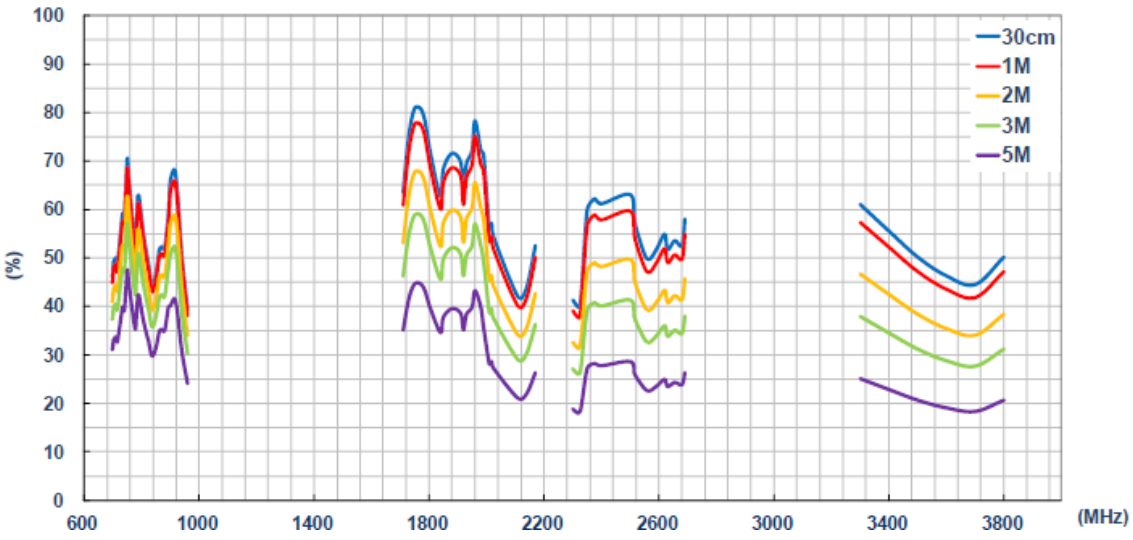


Peak Gain (dBi)

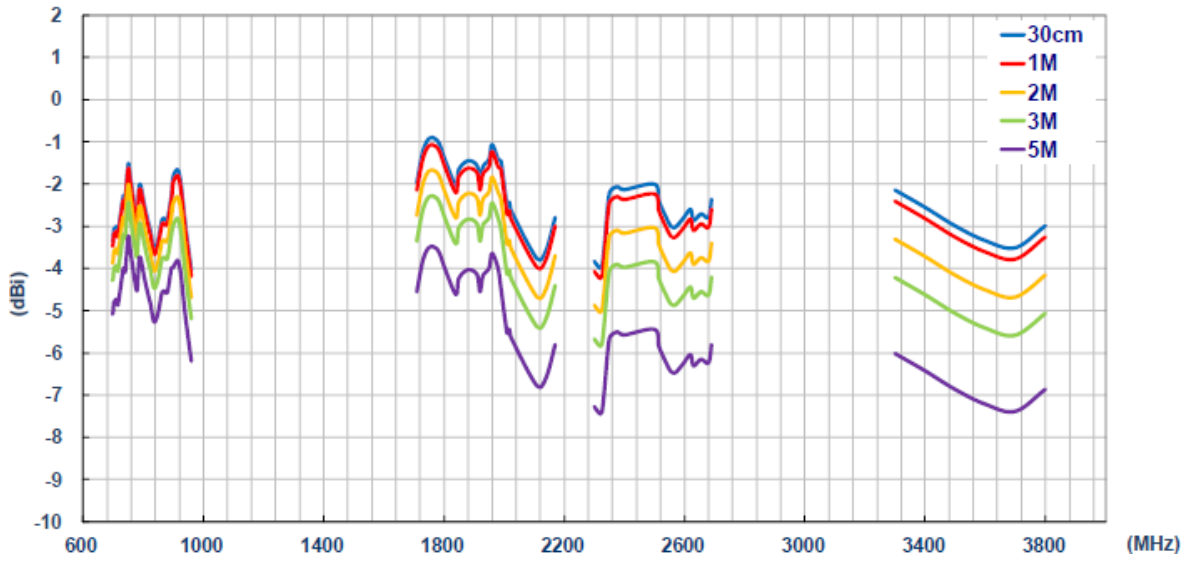


Free Space – LTE 2

Efficiency (%)



Average Gain (dBi)



Peak Gain (dBi)