

Regulatory WWAN Antenna Information

Platform	
Platform Owner	DELL
Brand Name	DELL
Model Name	P126F
ODM	Compal
Antenna	
Manufacturer	WNC
Part Number	■ Tx1/Rx1 Antenna WWAN Main/AUX: 81ELA715.G51 (DC33002RU1L)
	■ MIMO2/3 Antenna WWAN: 81ELA715.G55 (DC33002RU3L)
Module	
With WWAN Module	
(Check Box)	L860-GL-16 (4G LTE) / FM350-GL (5G NR)

Antenna Sample / Antenna Data

Requirements for worldwide regulatory approval

Section	Description of Required OEM / ODM Antenna Information	US / IC	EU	Japan	Taiwan	S.Korea
1A	Part Number for Antenna only	Required	Required	Required	Required	Required
1B	Antenna Manufacturer Name	Required	Required	Required	Required	Required
1C	Description of Antenna Type	Required	N/A	N/A	N/A	N/A
1D	Part number of Antenna Assembly / cable impedance, length & diameter.	Required	Desired	Desired	Desired	Desired
1E	Tx1, Tx2 & Tx3 antenna (Peak Gain W/ cable loss) *	Required	Required	Required	Required	Required
	1E OR 1F, 1G, 1H					
1F	Tx1, Tx2 & Tx3 antenna (Peak Gain only) *	Required	Required	Required	Required	Required
1G	VSWR of cable including connector	Required	Required	Required	Required	Required
1H	Tx1, Tx2 & Tx3 antenna (Cable loss W/ connector) *	Required	Required	Required	Required	Required
2	Dimensioned Photographs <u>and</u> Drawings of Tx1, Tx2, and Tx3 (or Rx3) antennas	Required	Required	Required	Required	Required
3	Radiation patterns of antennas loaded in the host platform.	Required	Desired	Required	N/A	Required
4	Platform model name / number - correlated to antenna manufacturer and antenna part number	Required	Required	Desired	Required	Desired
5	Photograph(s) or Drawings showing location of antennas in platform. <u>(S. Korea requires photographs of antennas for approval submission).</u> <u>Taiwan requires pictures of each antenna type shown in the system.</u>	Required	Required	Desired	<u>Required (Photos)</u>	<u>Required (Photos)</u>
6	Mech. drawings / photos with dimensions of antenna locations and distance from end-user (For evaluation of SAR testing requirement).	Required	N/A	N/A	N/A	N/A
7	Photograph(s) or Drawings showing the location of all antennas (WLAN, other) and distance between those transmitting antennas. Information will be used to evaluate whether co-location testing is required.	Required	N/A	N/A	N/A	N/A
8	Local representative contact information for LMA/ PARS process.	Required	N/A	N/A	N/A	N/A

Antenna Information

Section 1. Antenna Assembly Specifications

1A	1B	1C	1D	1E	1F	1G	1H
Antenna Part Number	Manufacture	Antenna Type	Cable Assembly Part Number and Information	*Peak Gain W/ Cable loss (dBi)	Peak Gain w/o Cable Loss (dBi)	VSWR	Cable Loss (dBi)
Tx/Rx1 Antenna WNC P/N: 81ELA715.G51 Customer P/N DC33002RU1			Cable length: 346mm diameter: 1.13mm 50 ohm SLL Coaxial MAIN Connector: I-PEX PN:20565-001R-13	617-698MHz -3.04 dBi (peak)	617-698MHz -2.44 dBi (peak)	617-698MHz 3.50 max	617-698MHz dBi 0.6 (peak)
				698-821MHz -0.59 dBi (peak)	698-821MHz 0.01 dBi (peak)	698-821MHz 3.30 max	698-821MHz dBi 0.6 (peak)
				824-960MHz -1.81 dBi (peak)	824-960MHz -1.21 dBi (peak)	824-960MHz 3.30 max	824-960MHz dBi 0.6 (peak)
				1425-1515MHz -2.03 dBi (peak)	1425-1515MHz -1.27 dBi (peak)	1425-1515MHz 3.30 max	1425-1515MHz dBi 0.76 (peak)
				1710-2200MHz 1.48 dBi (peak)	1710-2200MHz 2.35 dBi (peak)	1710-2200MHz 3.30 max	1710-2200MHz dBi 0.87 (peak)
				2300-2690MHz 2.05 dBi (peak)	2300-2690MHz 3.02 dBi (peak)	2300-2690MHz 3.30 max	2300-2690MHz dBi 0.97 (peak)
				3400-3800MHz 0.34 dBi (peak)	3400-3800MHz 1.48 dBi (peak)	3400-3800MHz 3.30 max	3400-3800MHz dBi 1.14 (peak)
				4200-4700MHz 1.42 dBi (peak)	4200-4700MHz 2.75 dBi (peak)	4200-4700MHz 3.30 dBi (peak)	4200-4700MHz dBi 1.33 (peak)
				5150-5925MHz -0.85 dBi (peak)	5150-5925MHz 0.62 dBi (peak)	5150-5925MHz 3.30 max	5150-5925MHz dBi 1.47 (peak)
			Cable length: 588mm diameter: 1.13mm 50 ohm SLL Coaxial AUX Connector: I-PEX PN:20565-001R-13	617-698MHz -3.52 dBi (peak)	617-698MHz -2.5 dBi (peak)	617-698MHz 3.50 max	617-698MHz dBi 1.02 (peak)
				698-821MHz -0.89 dBi (peak)	698-821MHz 0.13 dBi (peak)	698-821MHz 3.50 max	698-821MHz dBi 1.02 (peak)
				824-960MHz -1.88 dBi (peak)	824-960MHz -0.84 dBi (peak)	824-960MHz 3.50 max	824-960MHz dBi 1.04 (peak)
				1425-1515MHz -2.21 dBi (peak)	1425-1515MHz -0.92 dBi (peak)	1425-1515MHz 3.50 max	1425-1515MHz dBi 1.29 (peak)
				1557-1610 MHz -2.89 dBi (peak)	1557-1610 MHz -1.58 dBi (peak)	1557-1610 MHz 3.50 max	1557-1610 MHz dBi 1.31 (peak)
				1805-2200MHz 0.13 dBi (peak)	1805-2200MHz 1.62 dBi (peak)	1805-2200MHz 3.50 max	1805-2200MHz dBi 1.49 (peak)
				2300-2690MHzzz 2.07 dBi (peak)	2300-2690MHzzz 3.72 dBi (peak)	2300-2690MHzzz 3.50 max	2300-2690MHzzz dBi 1.65 (peak)

				3400-3800MHz -0.12 dBi (peak)	3400-3800MHz 1.83 dBi (peak)	3400-3800MHz 3.50 max	3400-3800MHz 1.95 dBi (peak)
				4200-4700MHz -3.6 dBi (peak)	4200-4700MHz -1.33 dBi (peak)	4200-4700MHz 3.50 dBi (peak)	4200-4700MHz 2.27 dBi (peak)
				5150-5925MHz -2.43 dBi (peak)	5150-5925MHz 0.06 dBi (peak)	5150-5925MHz 3.50 max	5150-5925MHz 2.49 dBi (peak)

1A Antenna Part Number	1B Manufacture	1C Antenna Type	1D Cable Assembly Part Number and Information	1E *Peak Gain W/ Cable loss (dBi)	1F Peak Gain w/o Cable Loss (dBi)	1G VSWR	1H Cable Loss (dBi)
Antenna WNC P/N: 81ELA715.G55 Customer P/N: DC33002RU3L	WNC	Coupled	Cable length: 191mm diameter: 1.13mm 50 ohm LL Coaxial	1425-1515MHz -0.26 dBi (peak)	1425-1515MHz 0.22 dBi (peak)	1425-1515MHz 3.50 max	1425-1515MHz 0.48 dBi (peak)
				1710-2200MHz -0.25 dBi (peak)	1710-2200MHz 0.23 dBi (peak)	1710-2200MHz 3.50 max	1710-2200MHz 0.48 dBi (peak)
				2300-2690MHz -0.42 dBi (peak)	2300-2690MHz 0.12 dBi (peak)	2300-2690MHz 3.50 max	2300-2690MHz 0.54 dBi (peak)
				3400-3800MHz 0.85 dBi (peak)	3400-3800MHz 1.48 dBi (peak)	3400-3800MHz 3.50 max	3400-3800MHz 0.63 dBi (peak)
				4200-5000MHz -0.96 dBi (peak)	4200-5000MHz -0.22 dBi (peak)	4200-5000MHz 3.50 max	4200-5000MHz 0.74 dBi (peak)
	WNC	Coupled	Cable length: 261mm diameter: 1.13mm 50 ohm LL Coaxial	1805-2200MHz 2.87 dBi (peak)	1805-2200MHz 3.52 dBi (peak)	1805-2200MHz 3.50 max	1805-2200MHz 0.65 dBi (peak)
				2300-2690MHz 2.78 dBi (peak)	2300-2690MHz 3.51 dBi (peak)	2300-2690MHz 3.50 max	2300-2690MHz 0.73 dBi (peak)
				3400-3800MHz -0.59 dBi (peak)	3400-3800MHz 0.27 dBi (peak)	3400-3800MHz 3.50 max	3400-3800MHz 0.86 dBi (peak)
				4200-5000MHz -1.17 dBi (peak)	4200-5000MHz -0.15 dBi (peak)	4200-5000MHz 3.50 max	4200-5000MHz 1.02 dBi (peak)

- Antenna Peak Gain required being test in system basis.
- 1E frame contend absolutely peak antenna gain include H/V

Antenna Peak Gain Table: Low and middle band

Frequency (MHz)	TPx antenna		DRx antenna	
	Horizontal	Vertical	Horizontal	Vertical
	(dBi)	(dBi)	(dBi)	(dBi)
617	-9.42	-9.98	-4.17	-5.13
634.5	-6.96	-7.59	-3.52	-3.98
652	-4.42	-4.89	-4.53	-4.33
663	-3.32	-3.68		
680.5	-3.04	-3.14		
698	-3.03	-2.18		
703	-4.86	-4.11		
707.5	-4.54	-3.75		
717	-4.70	-3.66	-2.66	-1.87
725.5	-4.15	-3.08	-2.12	-1.20
748	-1.53	-0.90	-1.09	-0.89
756	-1.60	-0.59	-0.96	-1.16
768	-1.29	-0.81	-1.72	-2.09
777	-1.85	-1.26	-2.50	-2.17
782	-2.77	-1.21	-3.06	-2.57
787	-3.10	-1.07	-3.87	-2.95
791			-3.97	-3.91
806			-4.57	-4.11
814	-4.24	-1.95	-6.71	-5.50
821			-4.97	-5.04
824	-3.46	-2.36	-6.72	-4.86
832	-3.16	-2.79	-6.14	-3.96
836.5	-3.14	-2.87	-5.89	-3.51
849	-3.07	-2.64	-5.27	-2.62
862	-2.95	-2.69	-5.43	-3.32
880	-3.40	-1.95	-5.19	-3.27
897.5	-3.71	-1.81	-5.07	-2.84
915	-3.95	-2.32	-4.59	-1.89
925	-3.87	-2.73	-3.91	-1.88
960	-4.60	-4.05	-4.97	-2.75
1427.9	-2.14	-2.03	-2.66	-2.62
1447.9	-2.19	-2.63	-2.28	-3.00
1455.4	-2.47	-2.69	-2.25	-3.49
1462.9	-2.52	-2.65	-2.21	-3.58
1496	-2.98	-2.70	-3.63	-4.08
1510.9	-4.17	-3.27	-3.55	-4.20
1557			-5.45	-3.08

1575			-5.86	-3.04
1610			-5.18	-2.89

High band

	TPx antenna		DRx antenna	
Frequency (MHz)	Horizontal	Vertical	Horizontal	Vertical
	(dBi)	(dBi)	(dBi)	(dBi)
1710	0.61	-0.03		
1732.5	0.36	0.58		
1747.5	-0.54	0.72		
1755	-0.89	0.46		
1785	-1.35	-1.52		
1805	-2.03	-2.57	-1.35	0.13
1850	-1.59	-2.94	-2.01	-1.55
1880	-0.87	-2.06	-3.33	-2.41
1910	-0.94	-1.82	-2.57	-2.13
1920	-1.20	-1.89	-2.35	-1.88
1950	-2.62	-1.41	-2.56	-2.67
1980	-2.12	-0.90	-3.63	-3.43
2110	1.18	1.35	-3.06	-0.91
2200	1.41	1.48	-2.27	-0.21
2300	1.57	2.05	-0.27	2.00
2305	0.42	0.07	-0.35	0.94
2315	0.51	0.81	-0.36	0.71
2350	0.51	0.80	-0.70	0.22
2400	-0.85	1.88	-0.89	2.07
2500	0.54	1.96	-1.50	1.15
2570	-0.19	1.03	-0.58	1.51
2595	-0.47	0.79	-1.01	1.47
2620	-1.30	0.35	-1.40	1.13
2690	-2.75	-0.81	-1.74	0.77
3400	0.34	-2.13	-1.85	-1.65
3500	-3.78	-5.99	-3.35	-2.43
3600	-3.36	-4.07	-3.28	-1.41
3700	-5.05	-5.70	-2.19	-0.12
3800	-6.02	-5.07	-3.99	-1.53
4200	1.38	1.42	-6.81	-7.86
4400	-2.05	0.00	-5.38	-7.45
4700	0.41	-0.93	-3.60	-4.85
5150	-0.85	-2.44	-2.43	-2.50
5537.5	-3.32	-2.60	-2.66	-2.81
5925	-3.43	-2.36	-5.60	-6.29

	DRx2 antenna		DRx1 antenna	
Frequency (MHz)	Horizontal	Vertical	Horizontal	Vertical
	(dBi)	(dBi)	(dBi)	(dBi)
1452	-2.51	-1.82		
1472	-0.37	-0.74		
1496	-0.26	-0.51		
1710	0.70	0.64		
1732.5	0.98	0.45		
1747.5	0.40	-0.10		
1755	-0.10	-0.55		
1785	-3.30	-4.55		
1805	-3.73	-4.16	1.66	0.63
1850	-3.16	-0.84	2.59	0.85
1880	-1.87	-0.33	2.63	0.52
1910	-0.86	-0.95	2.80	0.13
1920	-0.58	-1.25	1.64	0.09
1950	-0.25	-1.60	2.87	-0.59
1980	-0.85	-2.10	1.67	-0.42
2110	-3.71	-2.16	0.90	-1.12
2200	-3.32	-2.28	1.57	-0.42
2300	-1.35	-2.66	1.33	0.46
2305	-1.40	-2.90	-0.35	0.56
2315	-1.47	-3.07	0.38	0.76
2350	-1.46	-3.34	0.18	0.31
2400	-2.62	-1.47	1.82	0.79
2500	-1.42	-1.15	2.78	-1.50
2570	-0.42	-1.48	2.06	-2.20
2595	-1.04	-3.10	1.33	-2.04
2620	-2.05	-4.08	1.25	-1.71
2690	-1.38	-1.67	2.42	-0.59
3400	-1.12	-2.97	-2.14	-3.46
3500	-1.01	-1.41	-4.13	-0.59
3600	0.85	-1.11	-5.37	-2.91
3700	-1.07	-3.22	-4.31	-2.96
3800	0.38	-3.91	-3.36	-2.49
4200	-3.32	-4.39	-2.80	-1.17
4400	-4.35	-1.96	-5.47	-3.80
4700	-3.47	-3.16	-3.49	-5.94
5000	-0.96	-1.80	-3.97	-3.58

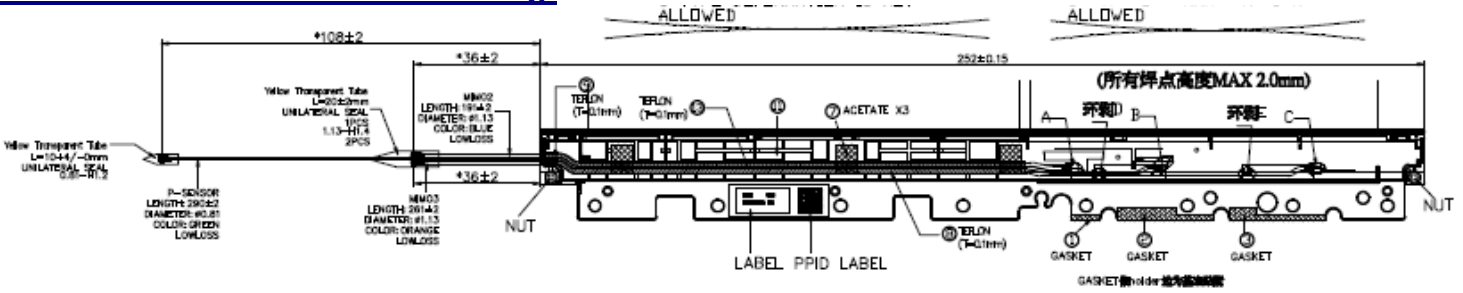
TPx Antenna Dimensioned Drawing:



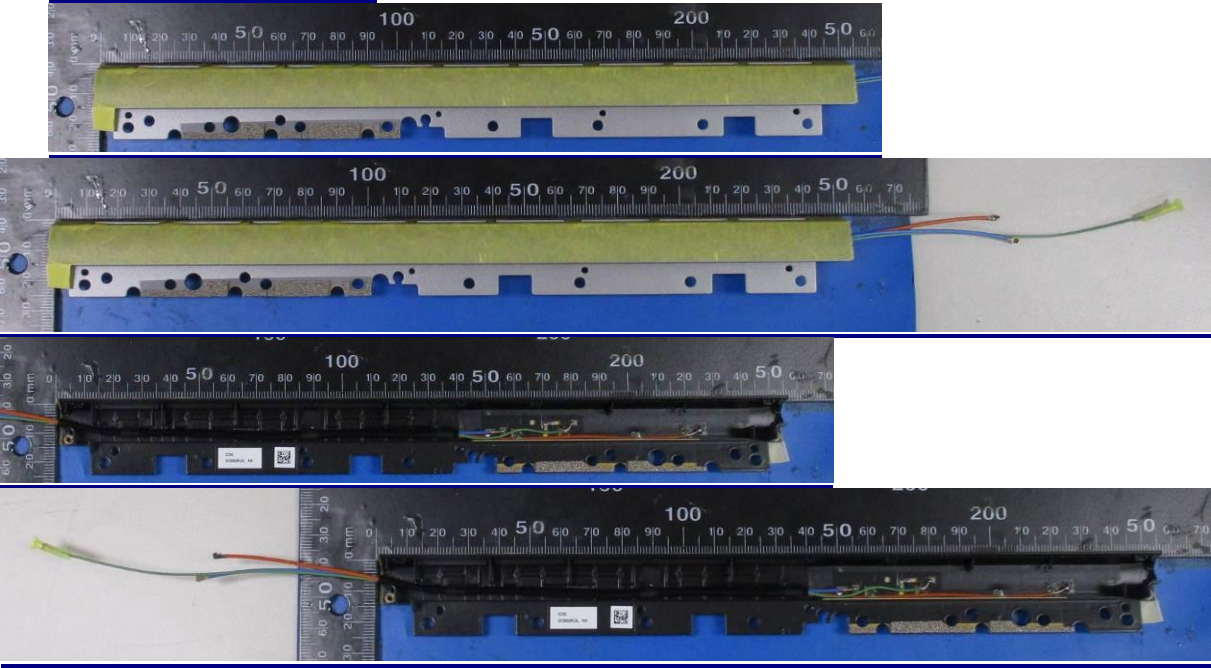
[illegible]

Include a dimensioned photo and dimensioned drawing of Aux antenna here.

DRx2 Antenna Dimensioned Drawing:

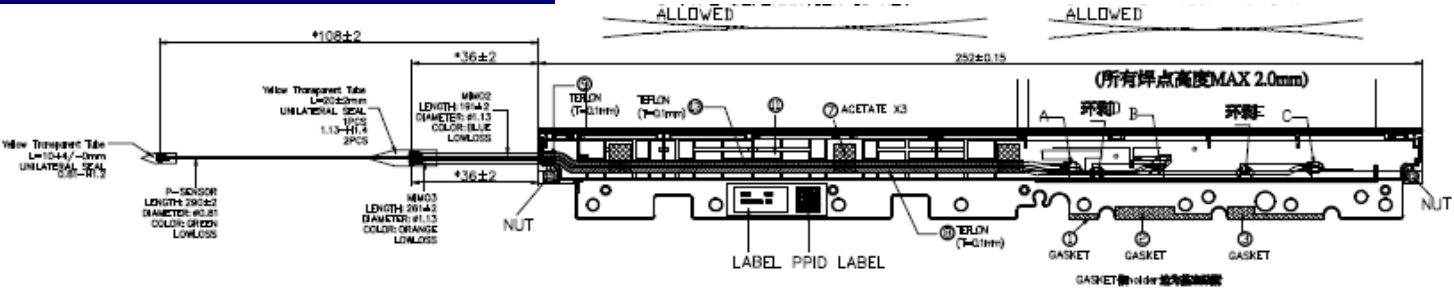


DRx2 Antenna Photo:

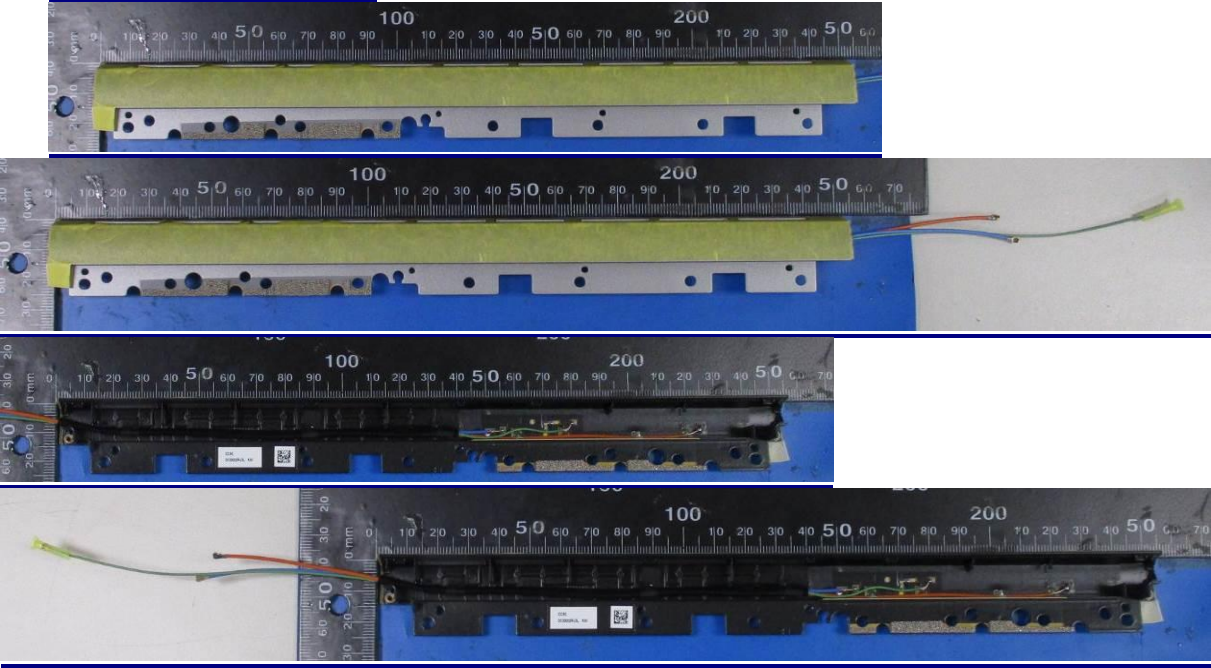


Include a dimensioned photo and dimensioned drawing of Aux antenna here.

DRx1 Antenna Dimensioned Drawing:



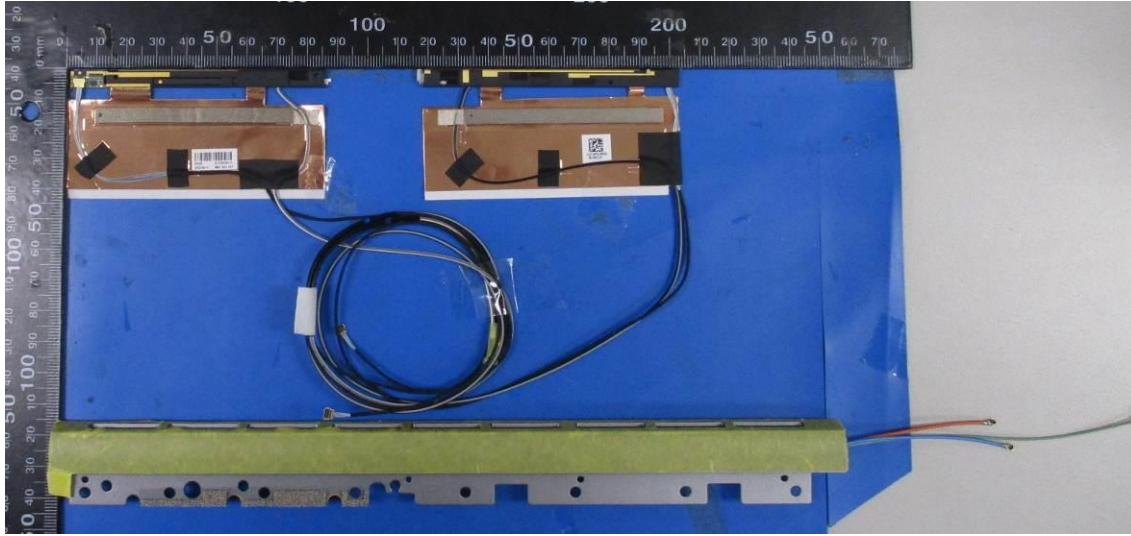
DRx1 Antenna Photo:



Include front view photo of all 2 antennas here.

Antenna Manufacturer: WNC

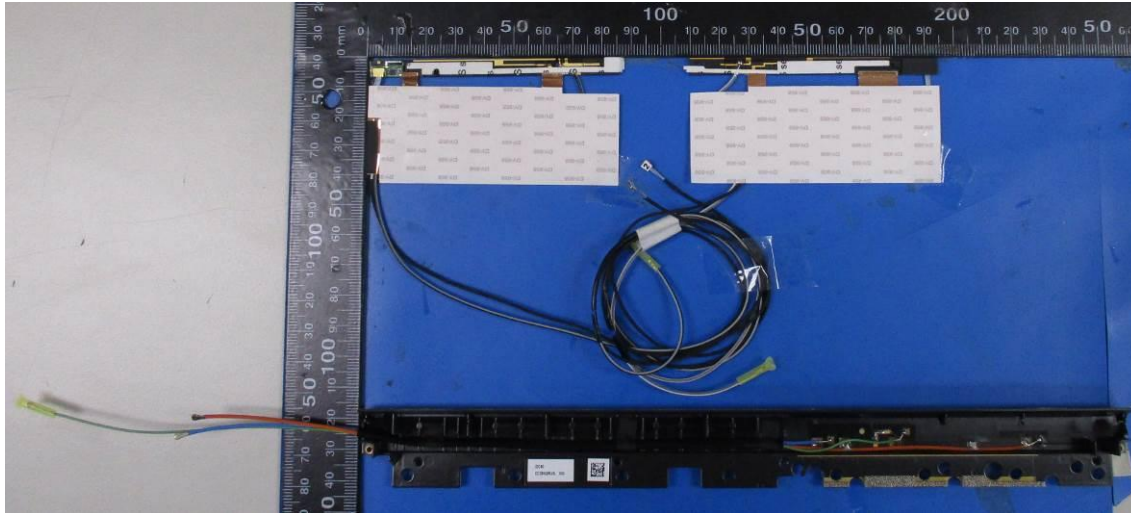
Antenna Part Number: DC33002RU1L(81ELA715.G51)/ DC33002RU3L(81ELA715.G55)



Include back view photo of all 2 antennas here.

Antenna Manufacturer: WNC

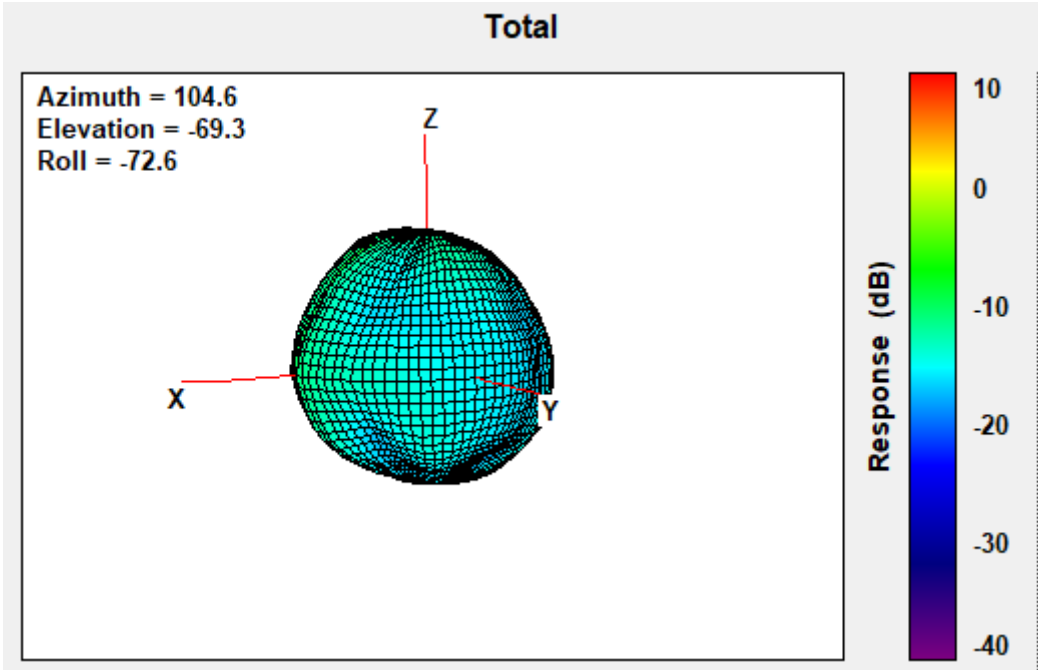
Antenna Part Number: DC33002RU1L(81ELA715.G51)/ DC33002RU3L(81ELA715.G55)



Note: antenna photo should include L type ruler

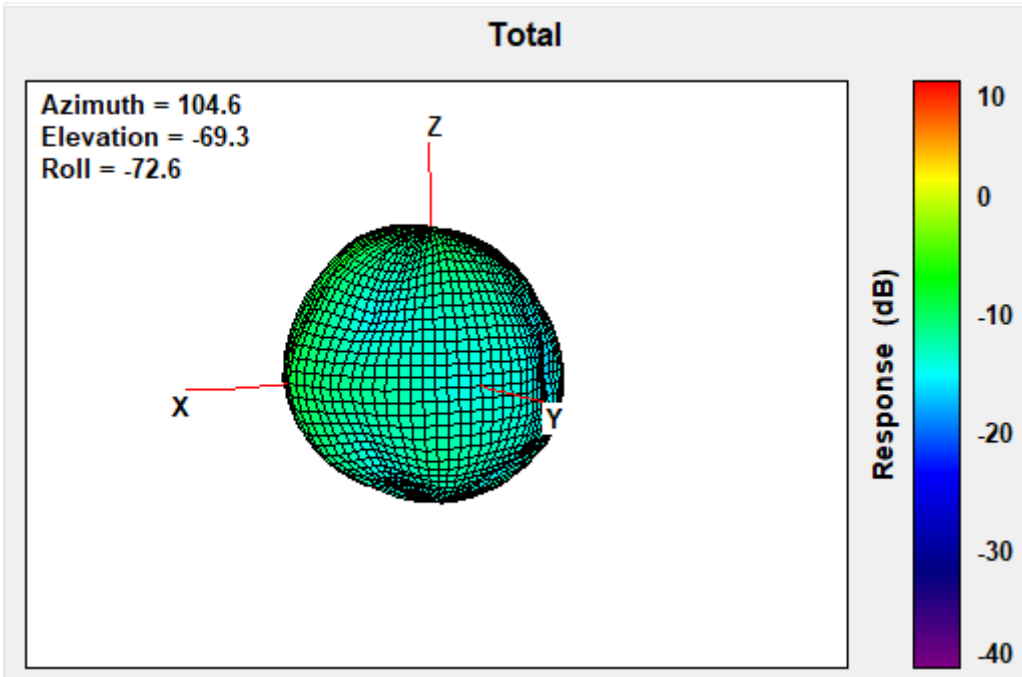
Section 3. Radiation characteristics of antennae Loaded in Host Platform
WWAN Main Antenna (TPx)

617MHz



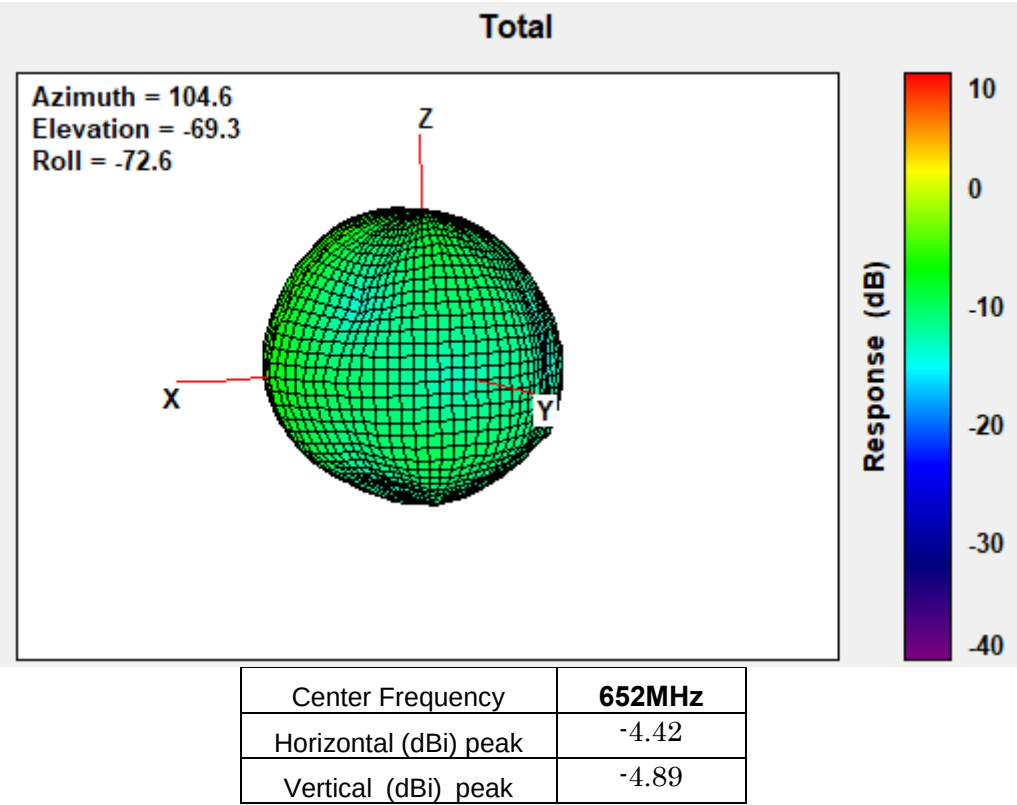
Center Frequency	617 MHz
Horizontal (dBi) peak	-9.42
Vertical (dBi) peak	-9.98

634.5MHz

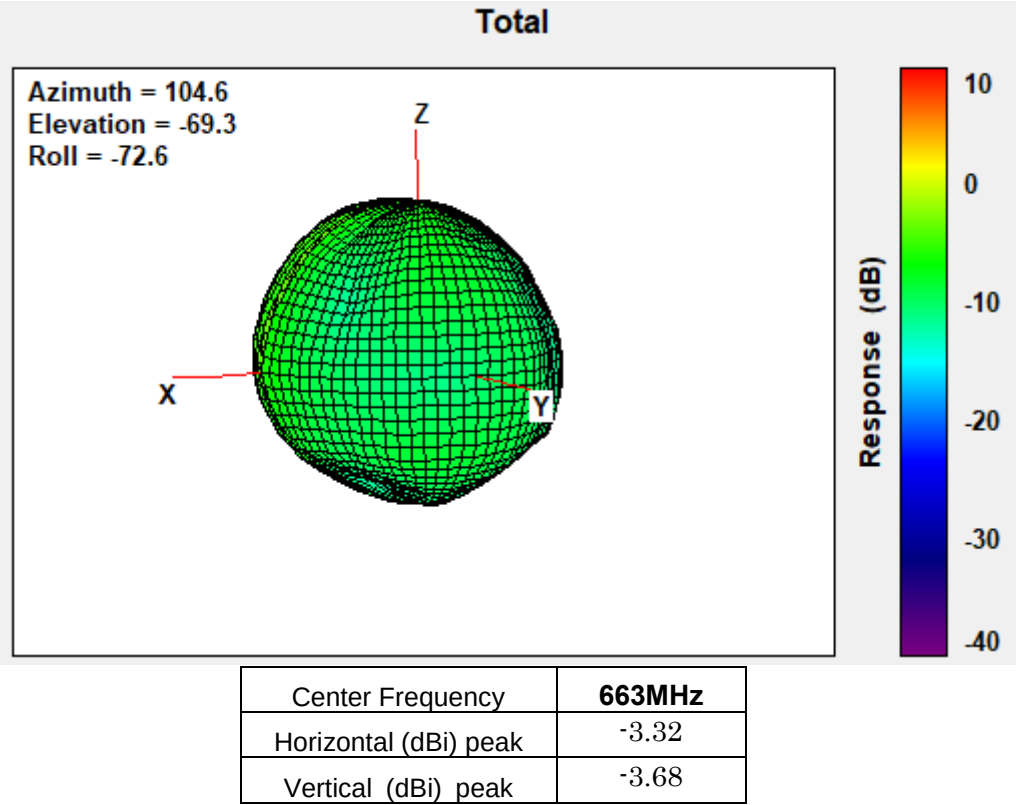


Center Frequency	634.5MHz
Horizontal (dBi) peak	-6.96
Vertical (dBi) peak	-7.59

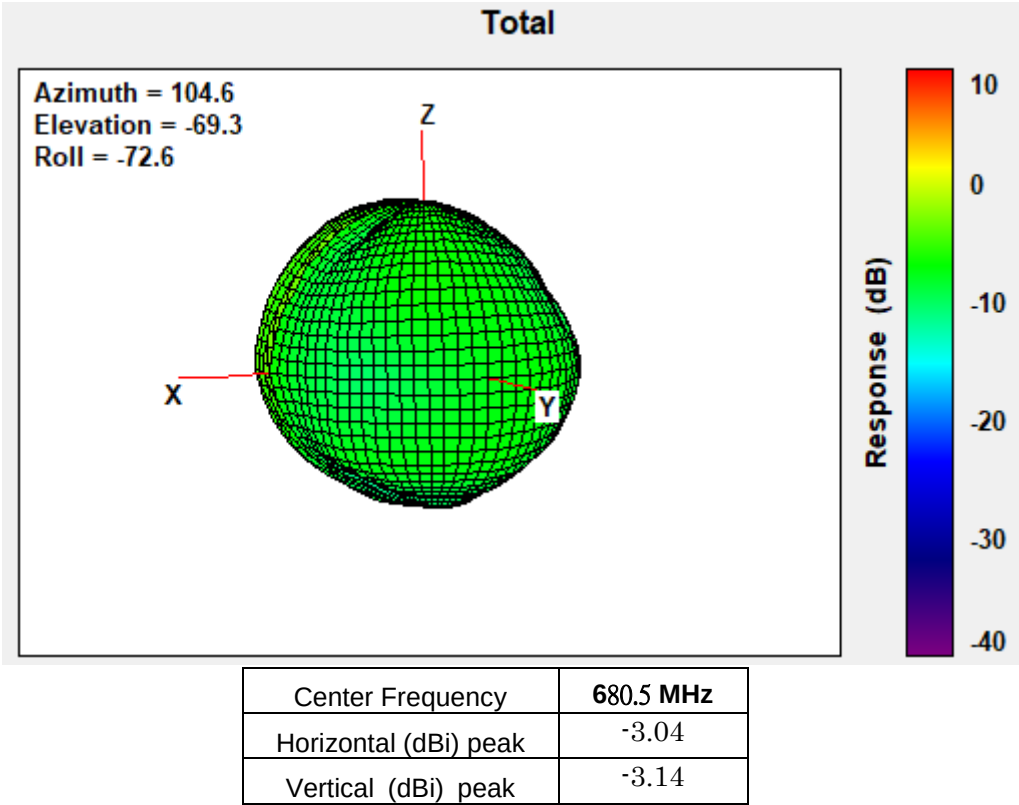
652MHz



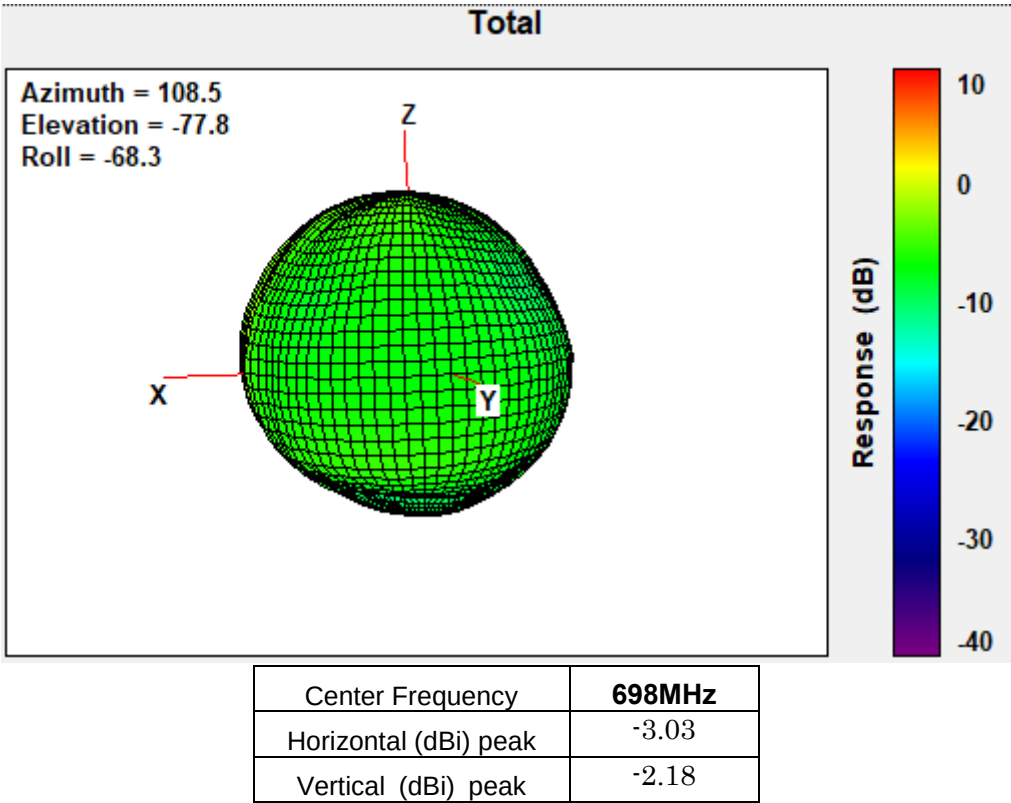
663MHz



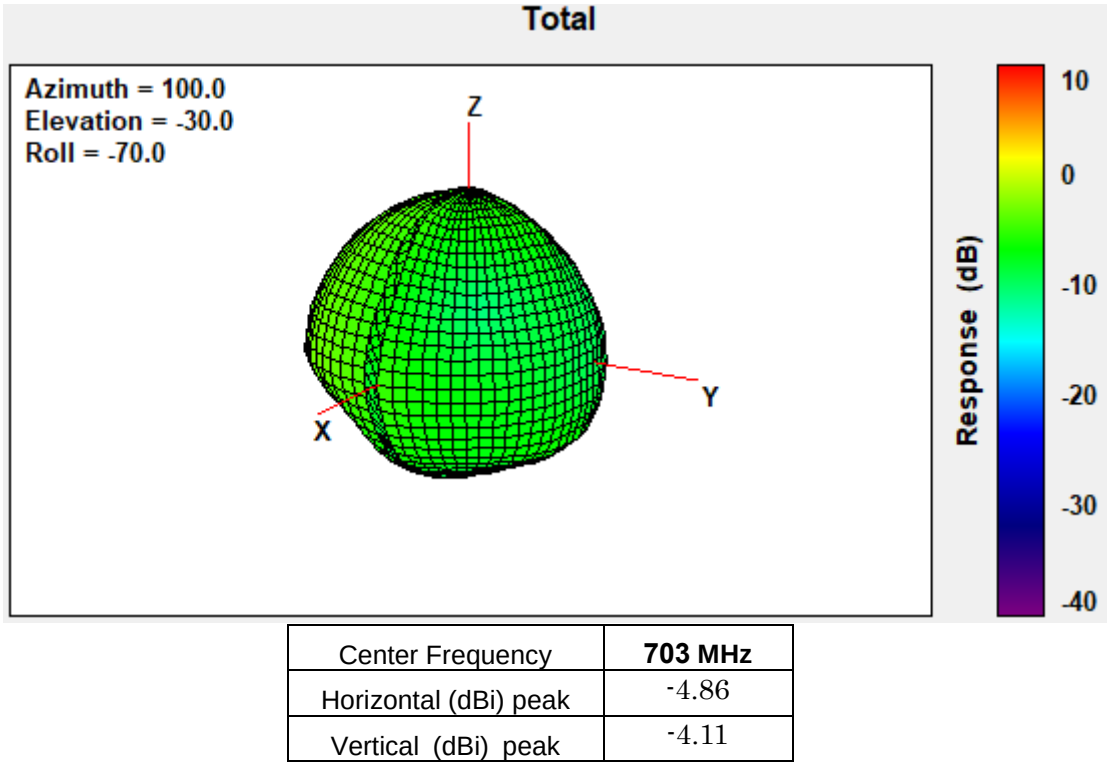
680.5MHz



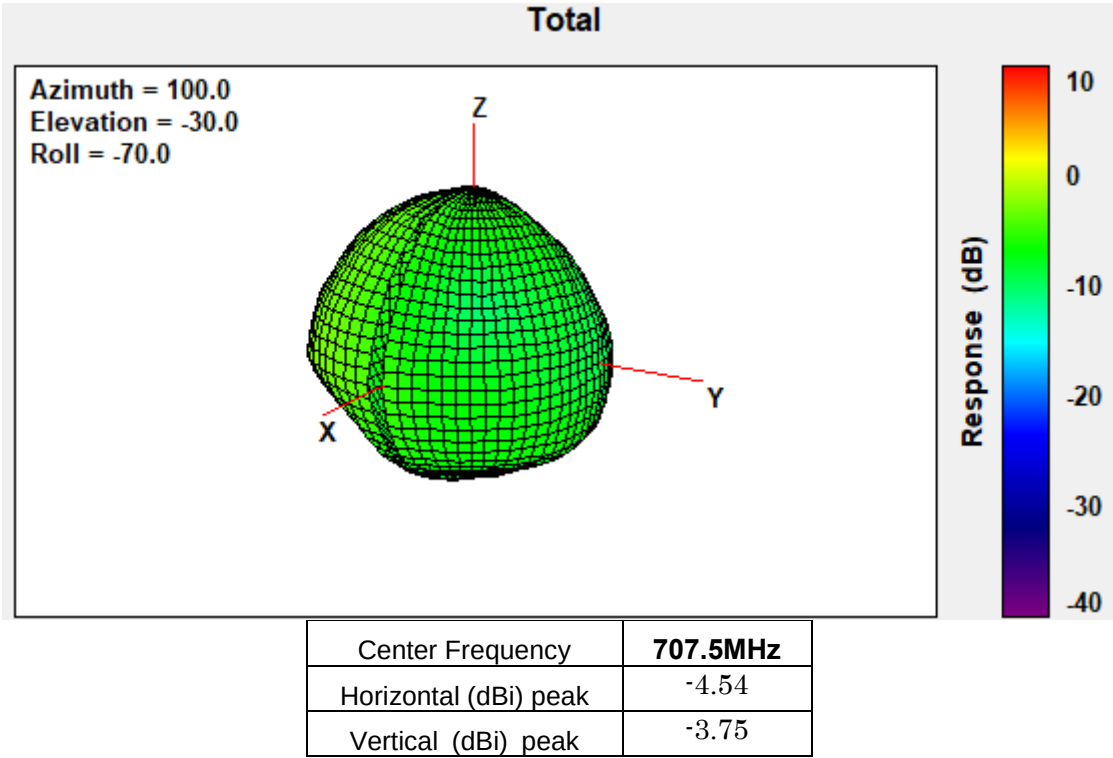
698MHz



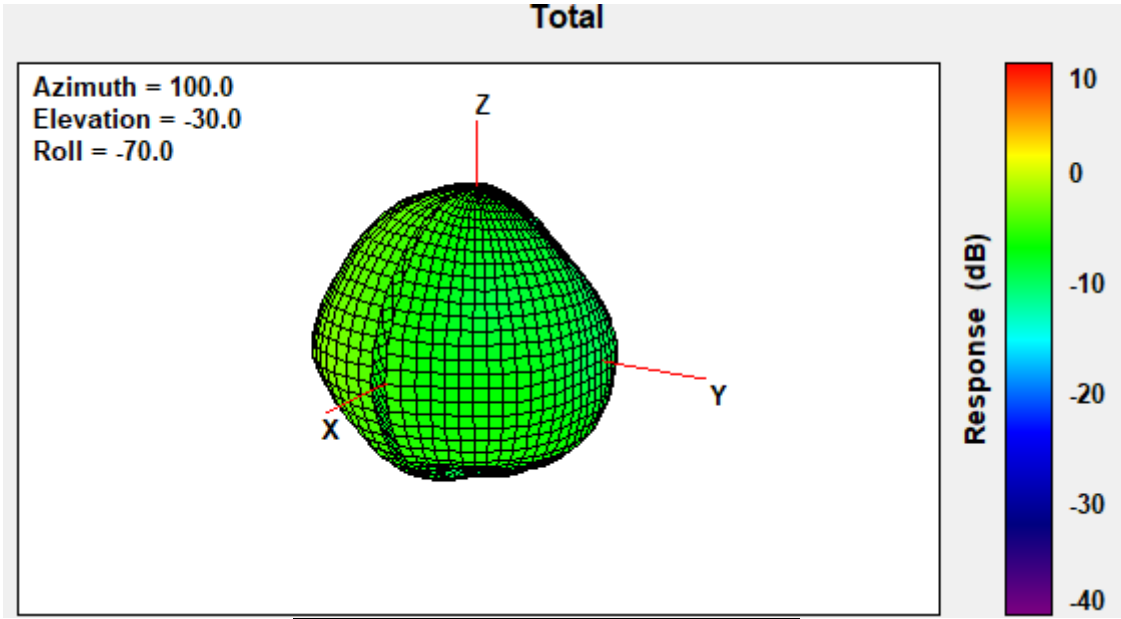
703MHz



707.5MHz

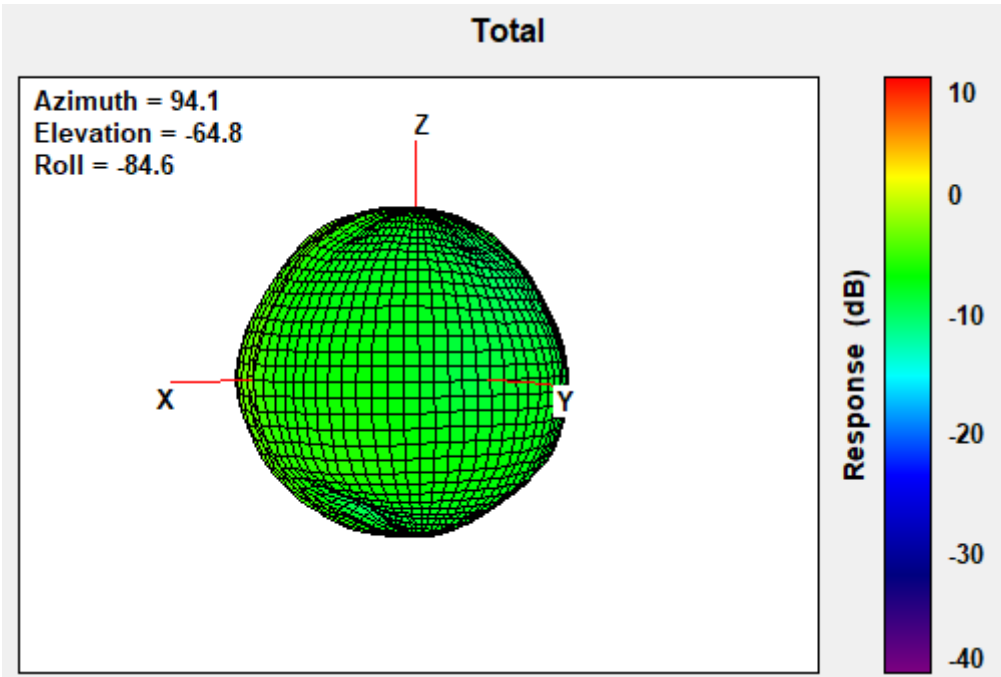


717 MHz



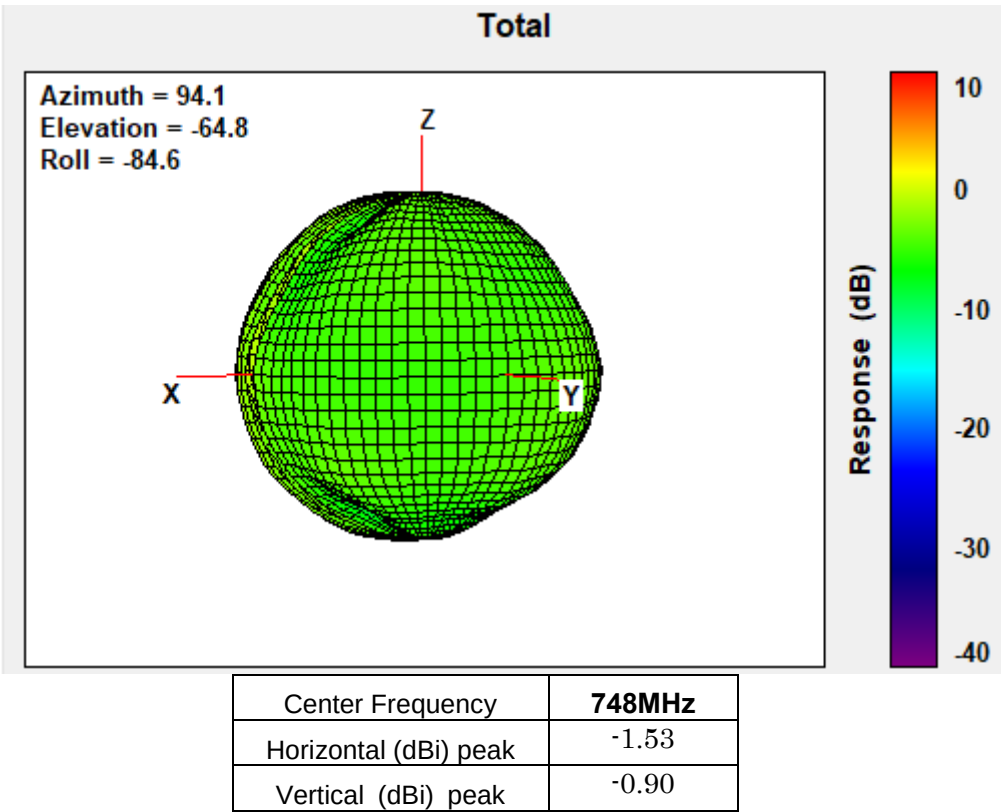
Center Frequency	717 MHz
Horizontal (dBi) peak	-4.70
Vertical (dBi) peak	-3.66

725.5MHz

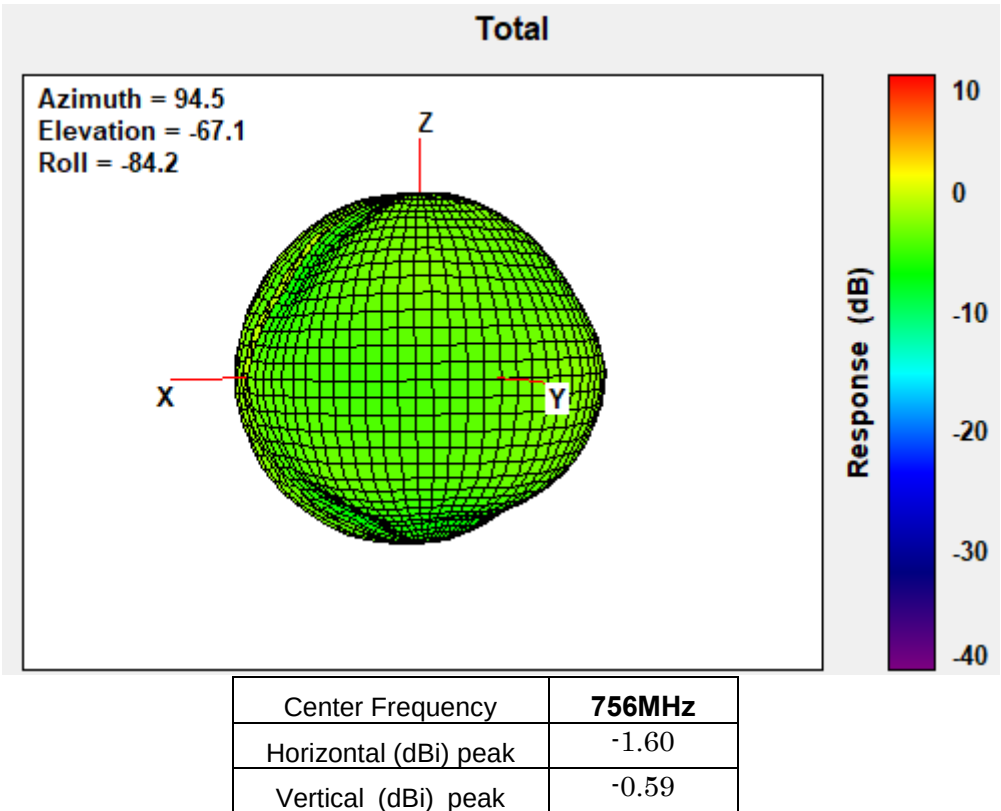


Center Frequency	725.5MHz
Horizontal (dBi) peak	-4.15
Vertical (dBi) peak	-3.08

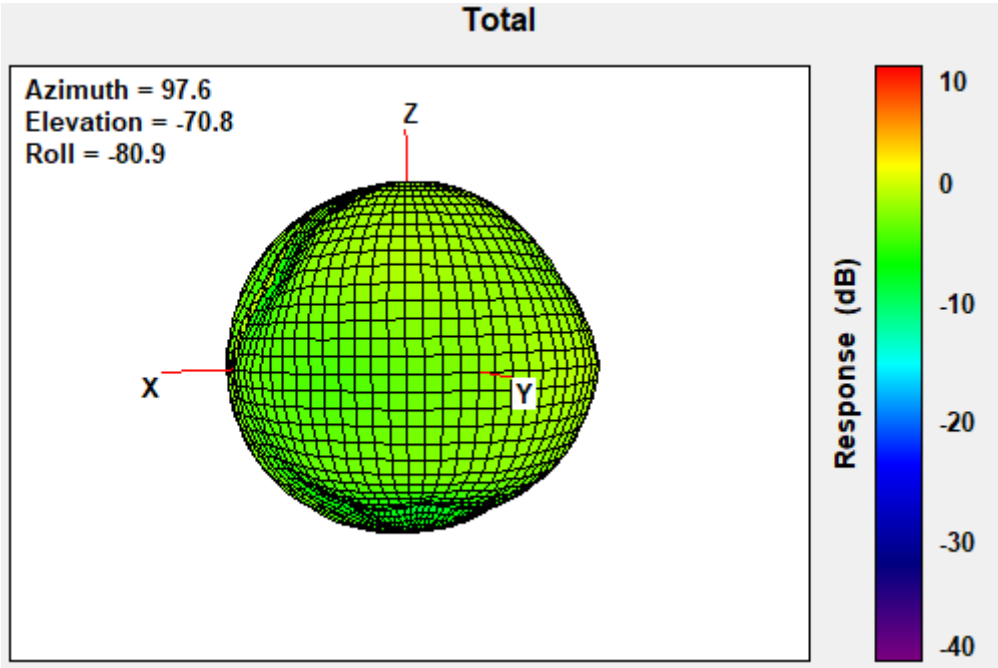
748MHz



756MHz

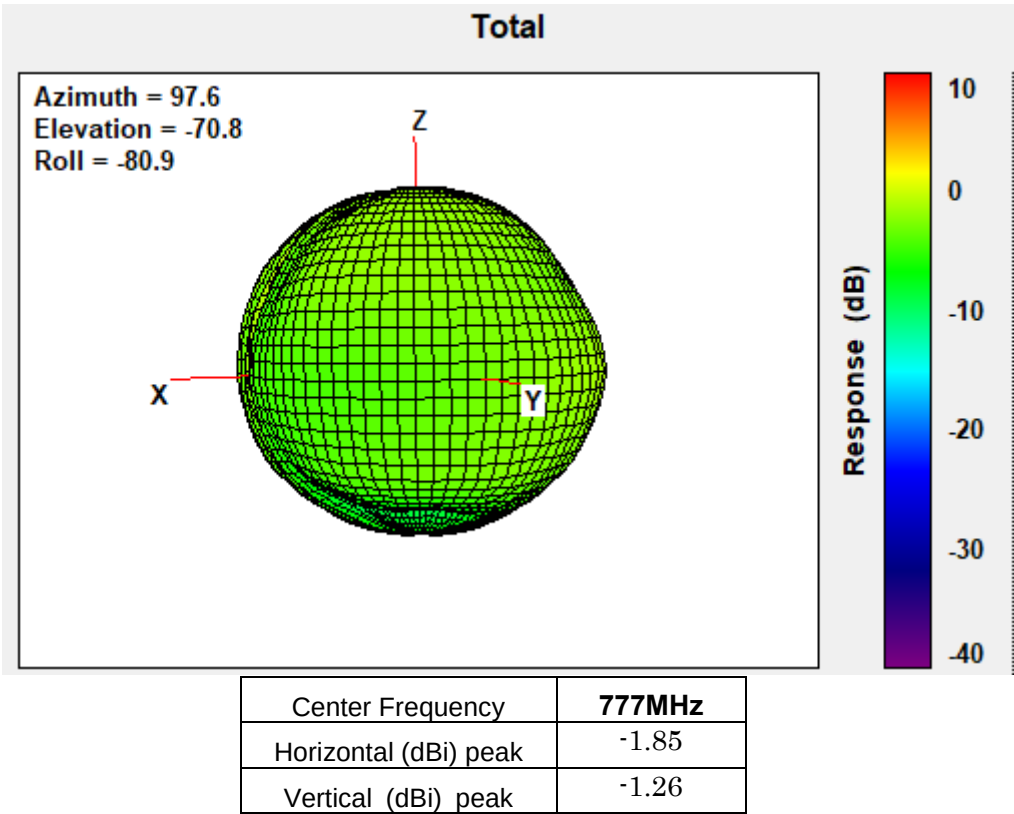


768MHz

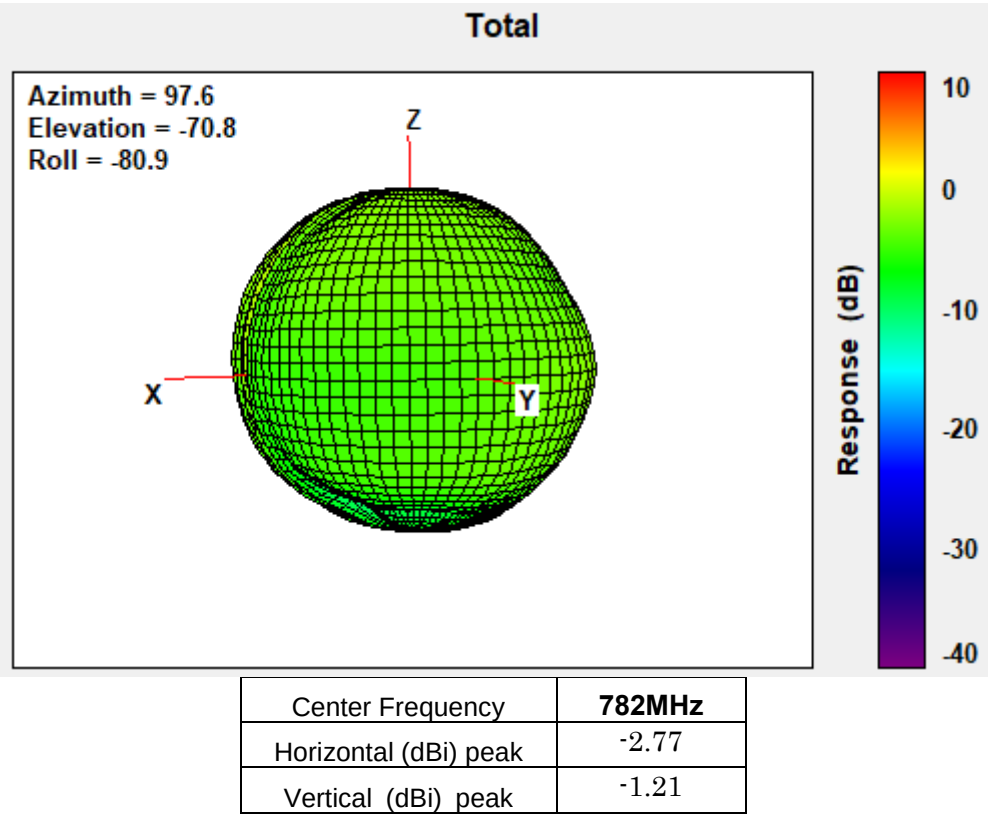


Center Frequency	768MHz
Horizontal (dBi) peak	-1.29
Vertical (dBi) peak	-0.81

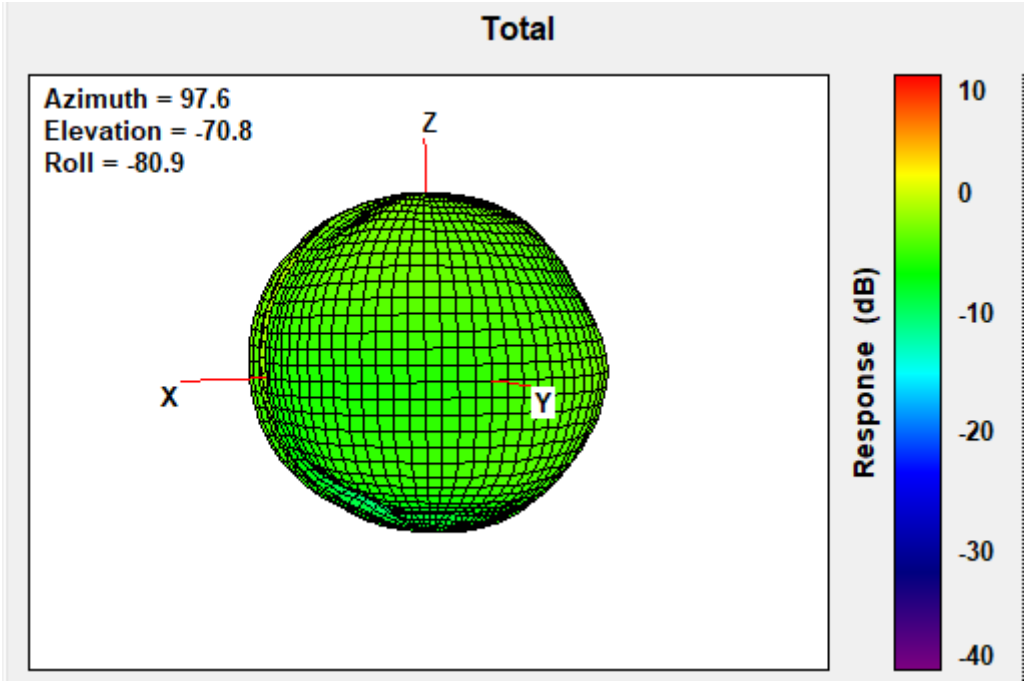
777MHz



782MHz

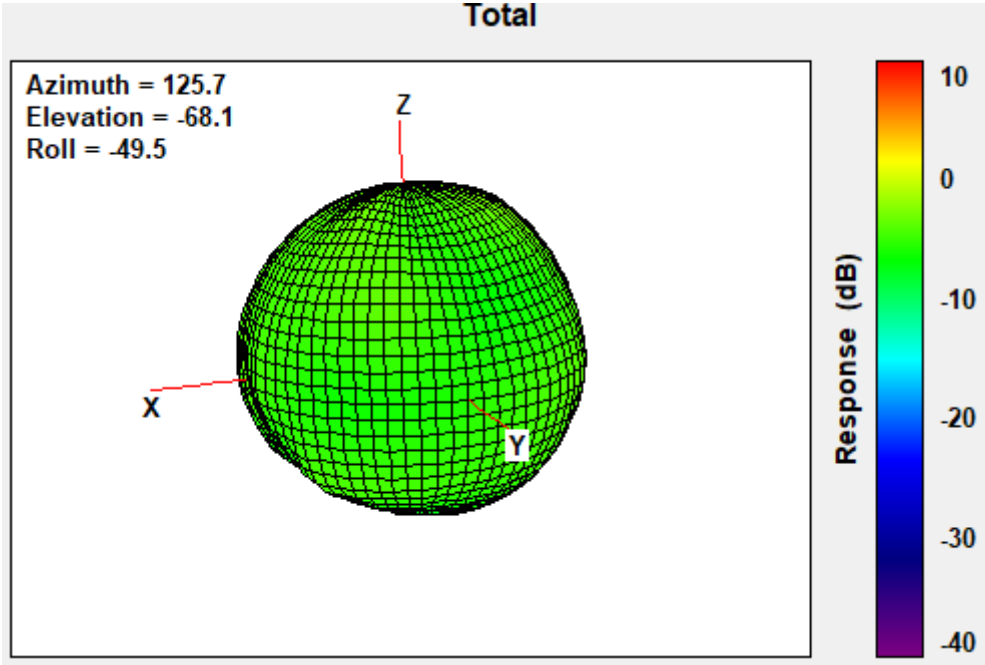


787MHz



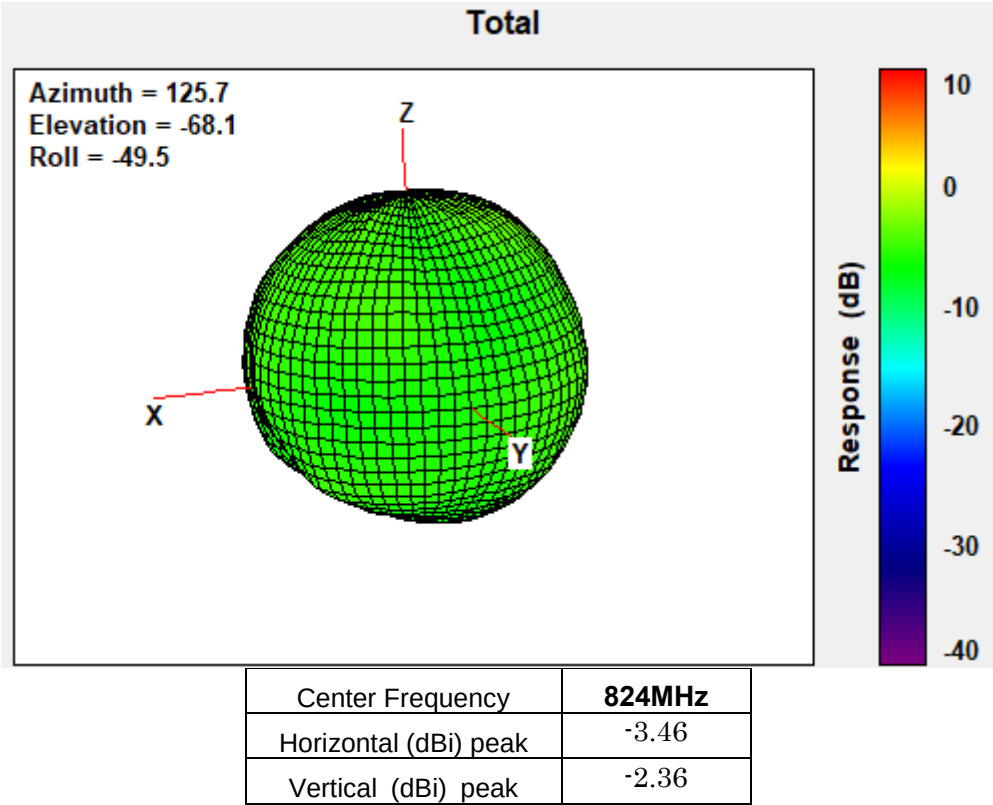
Center Frequency	787MHz
Horizontal (dBi) peak	-3.10
Vertical (dBi) peak	-1.07

814MHz

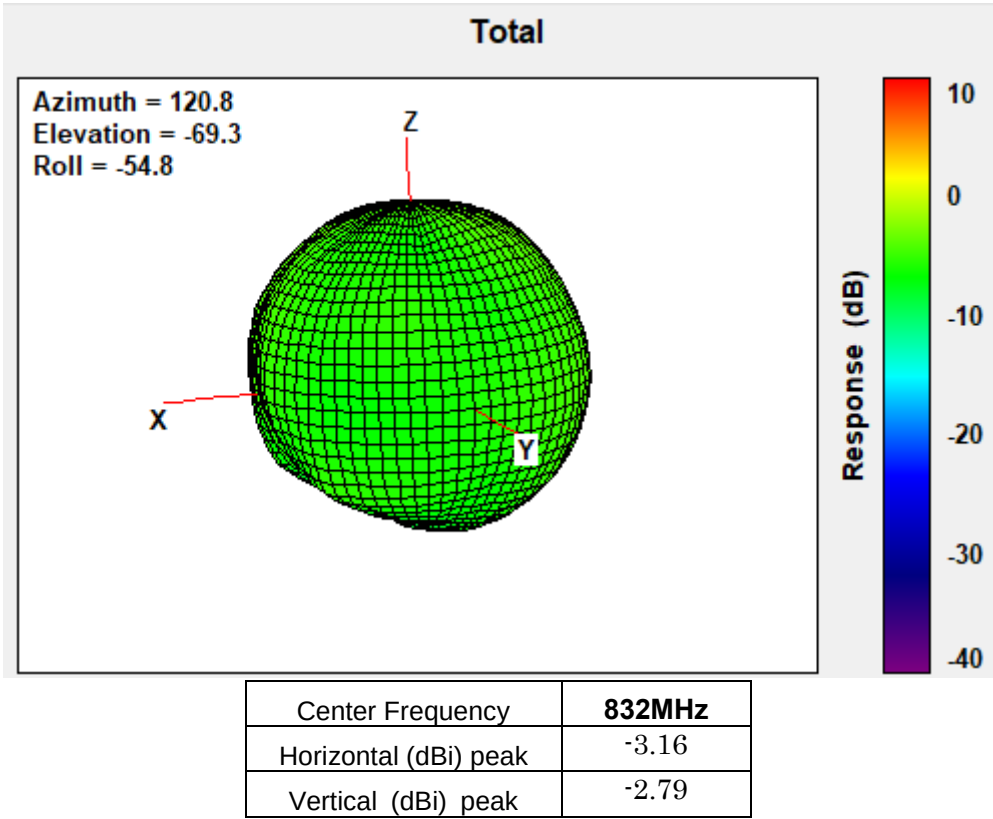


Center Frequency	814MHz
Horizontal (dBi) peak	-4.24
Vertical (dBi) peak	-1.95

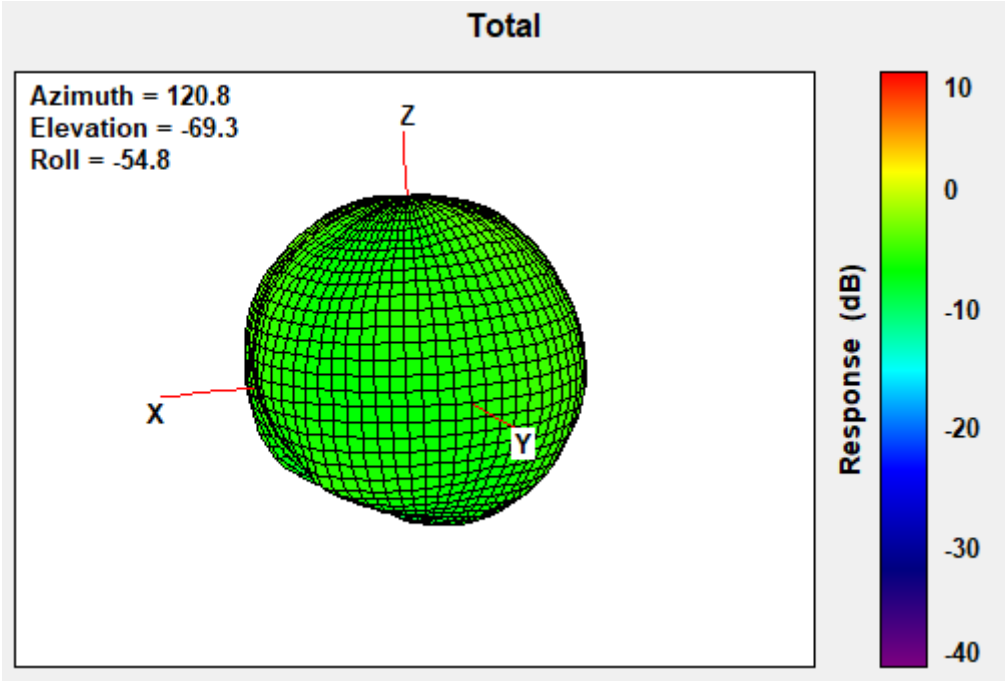
824MHz



832MHz

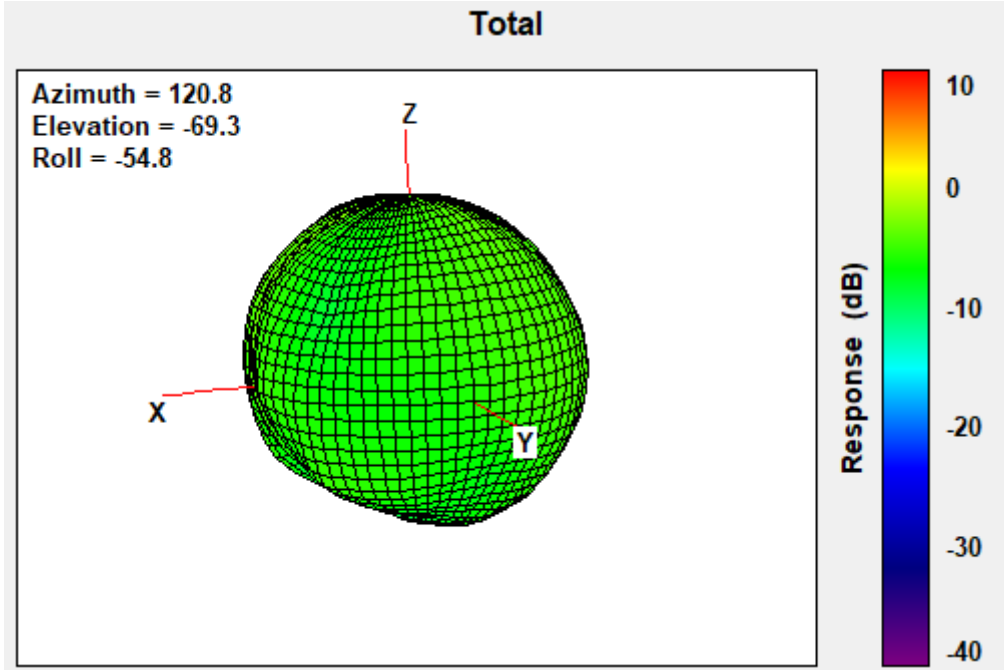


836.5MHz



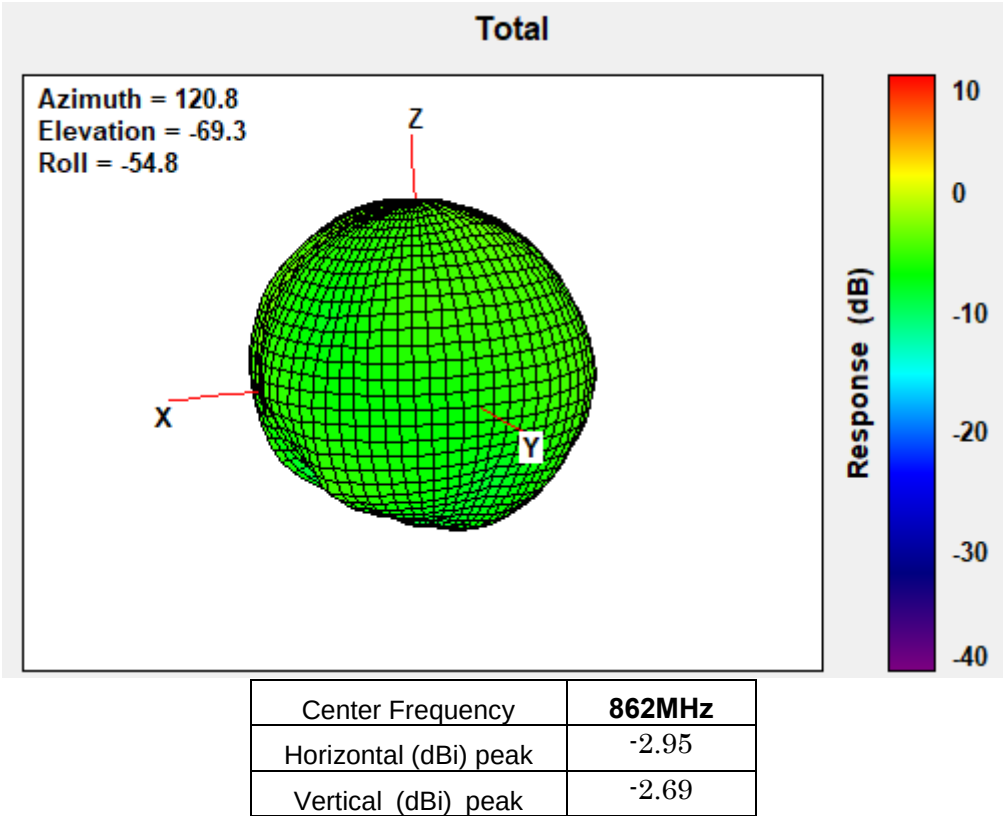
Center Frequency	836.5MHz
Horizontal (dBi) peak	-3.14
Vertical (dBi) peak	-2.87

849MHz

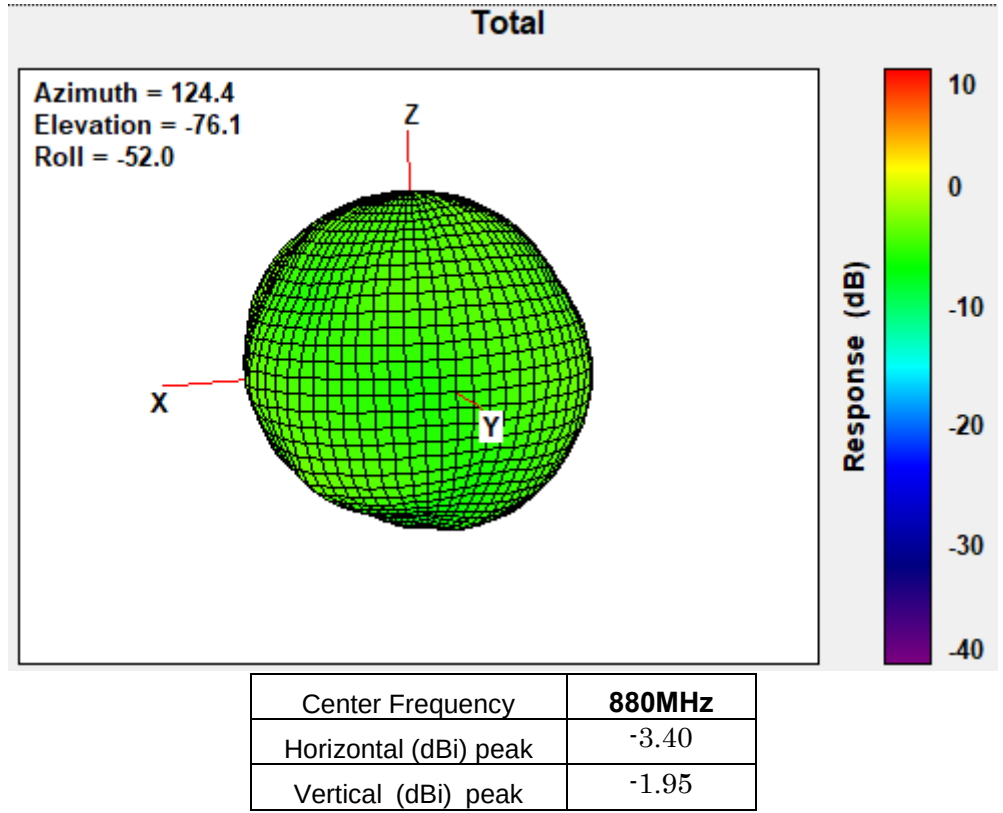


Center Frequency	849MHz
Horizontal (dBi) peak	-3.07
Vertical (dBi) peak	-2.64

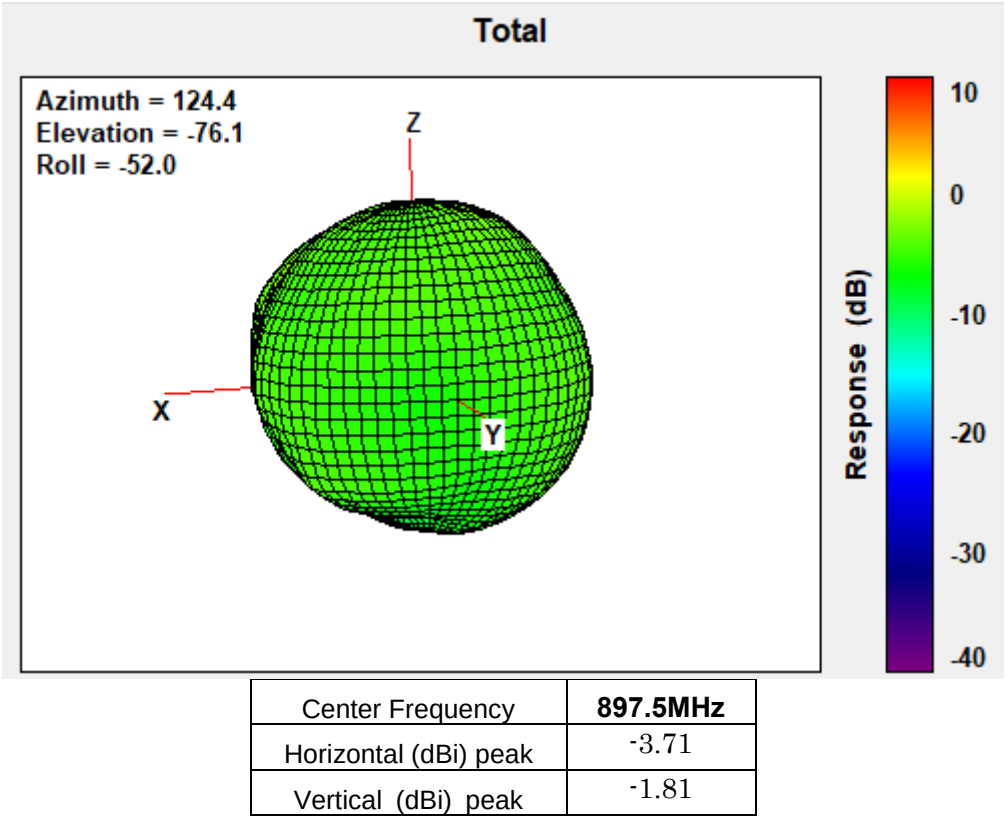
862MHz



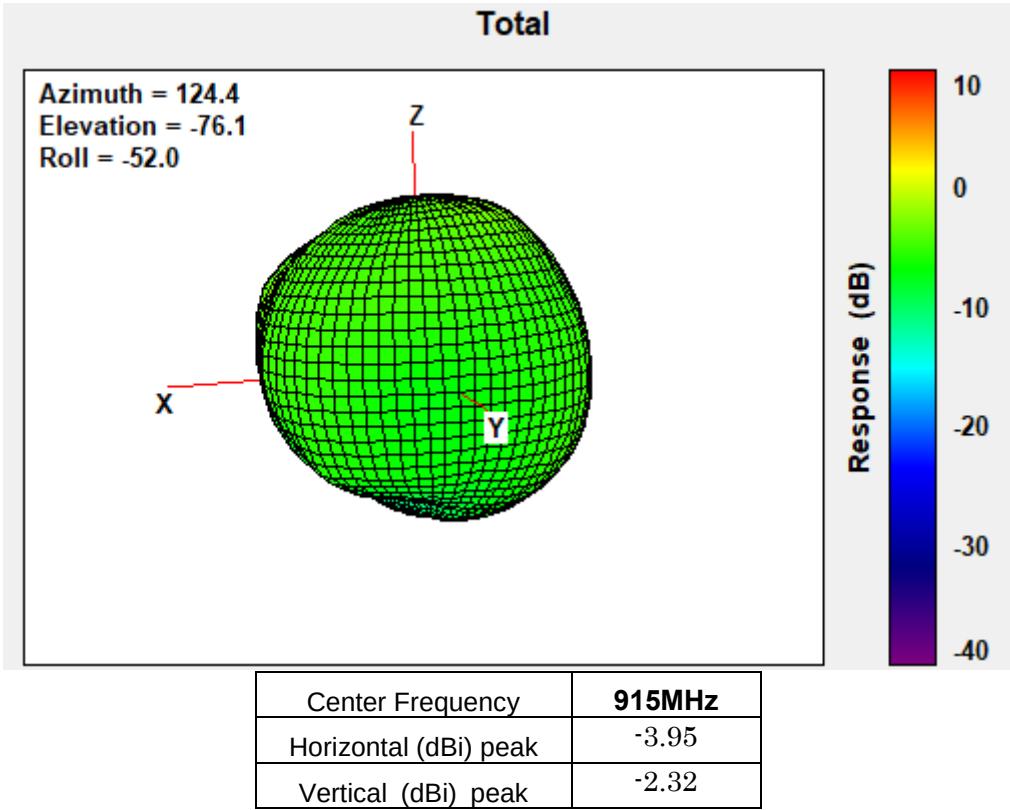
880MHz



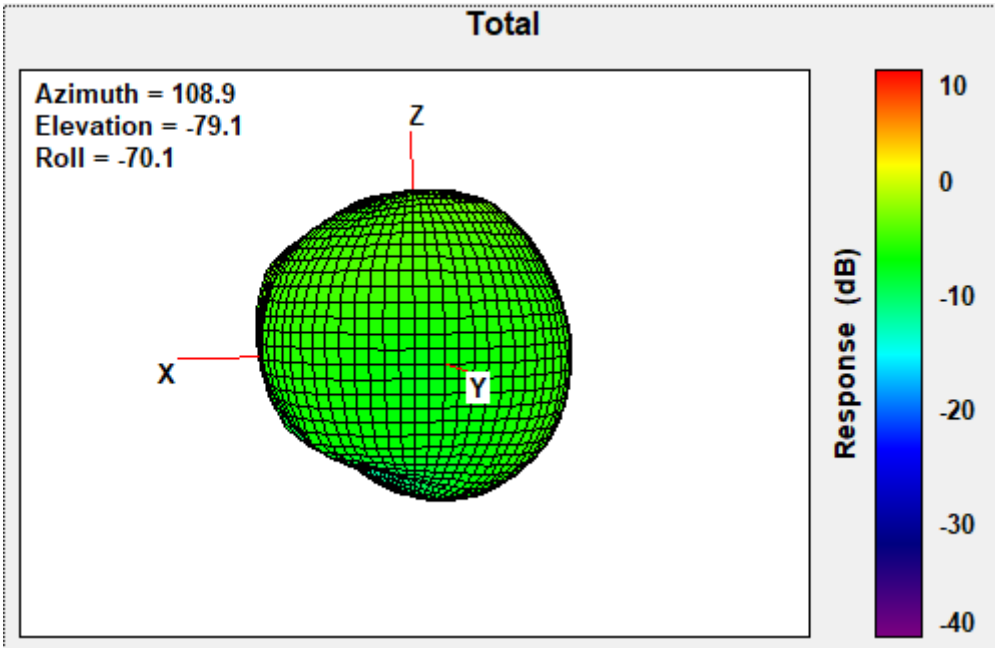
897.5MHz



915MHz

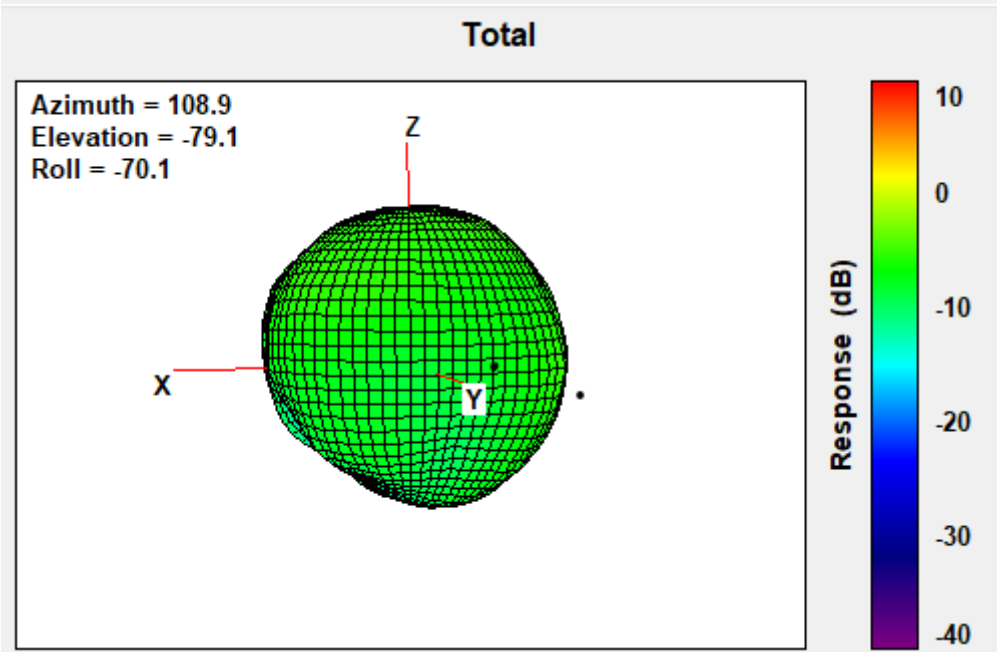


925MHz



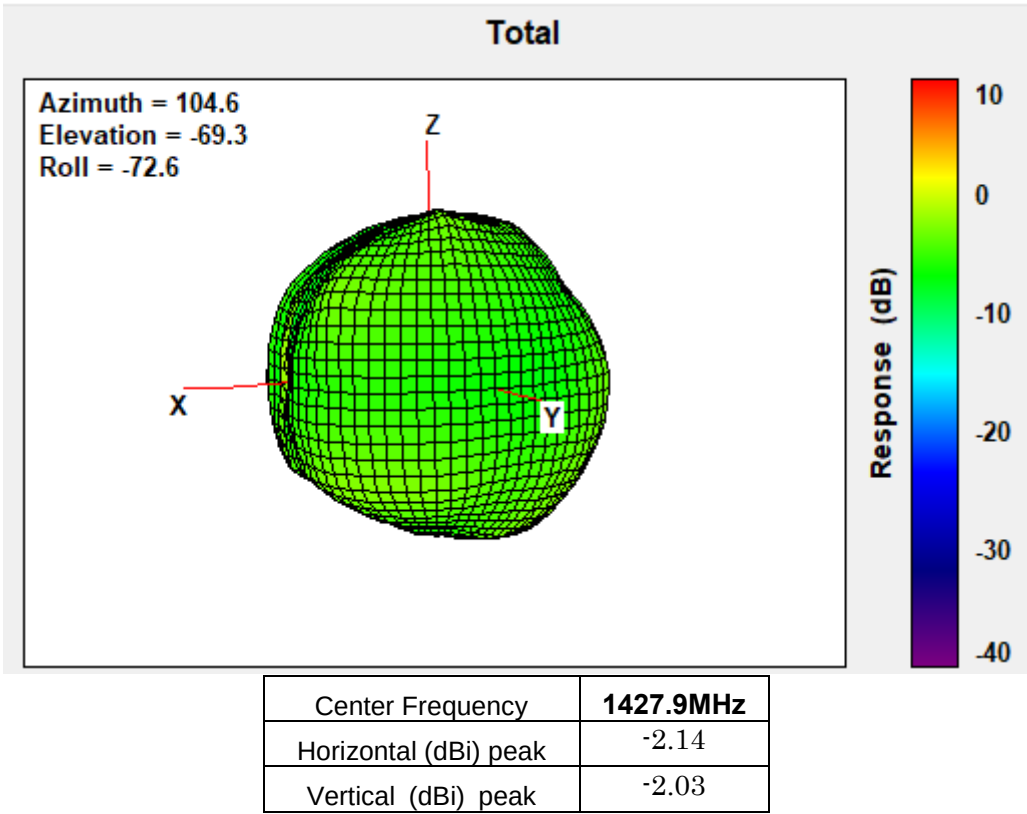
Center Frequency	925MHz
Horizontal (dBi) peak	-3.87
Vertical (dBi) peak	-2.73

960MHz

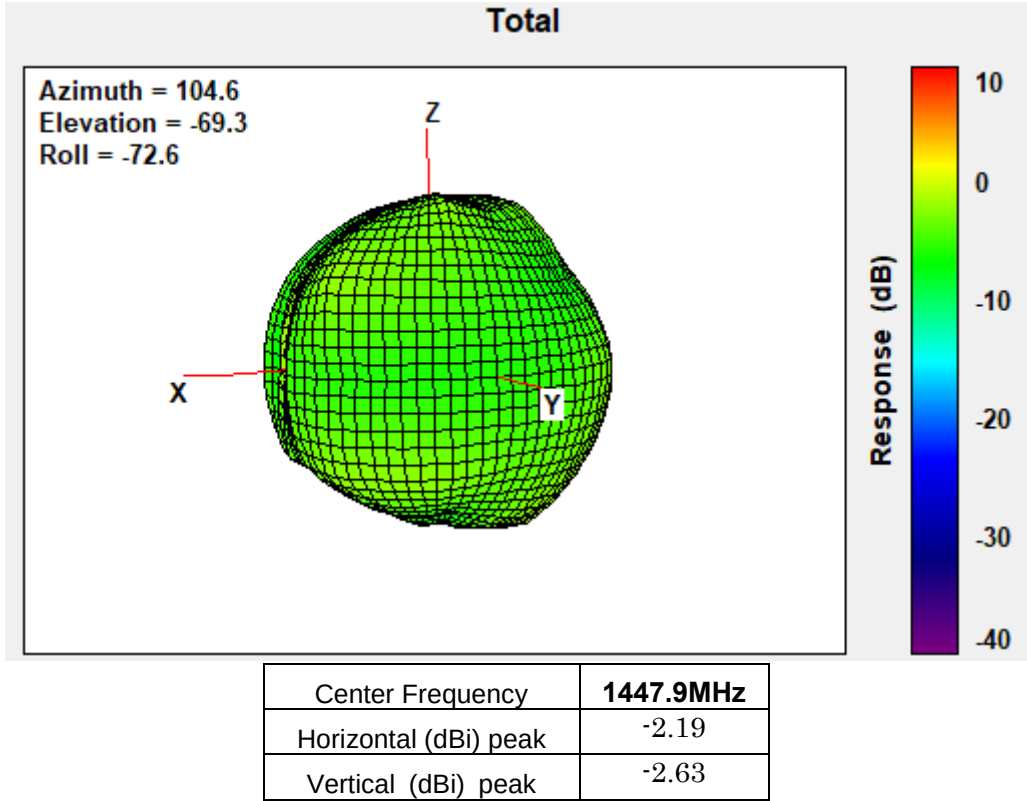


Center Frequency	960MHz
Horizontal (dBi) peak	-4.60
Vertical (dBi) peak	-4.05

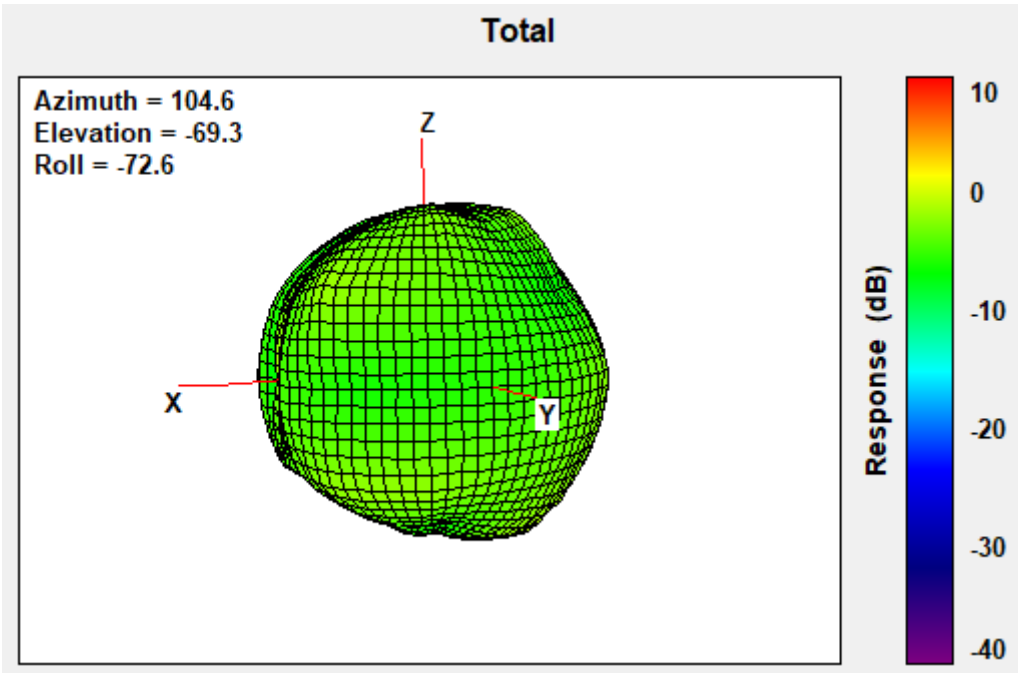
1427.9MHz



1447.9MHz

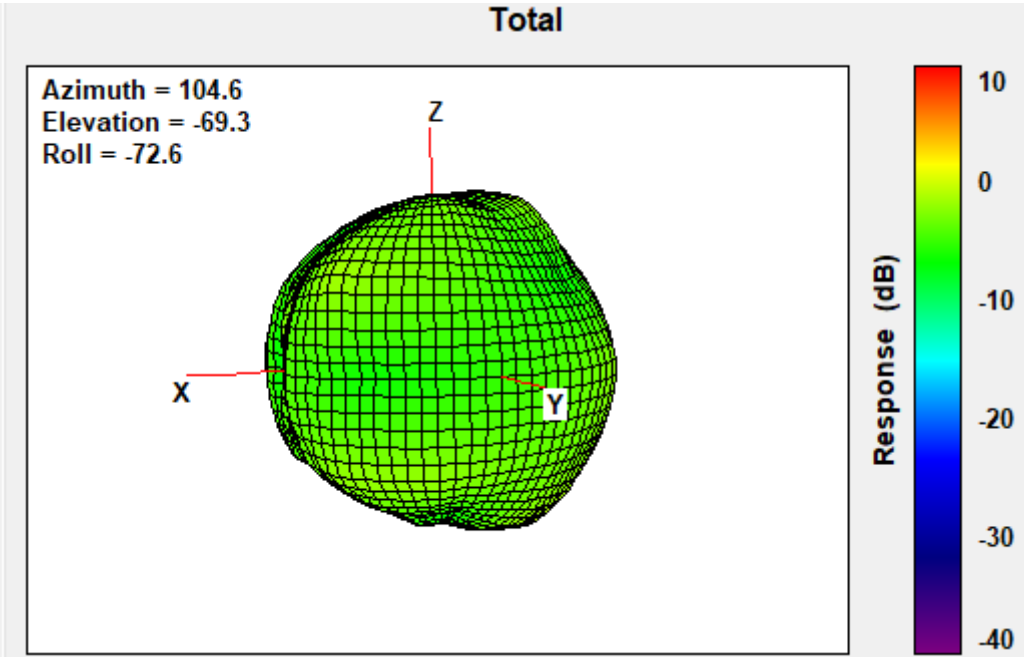


1455.4MHz



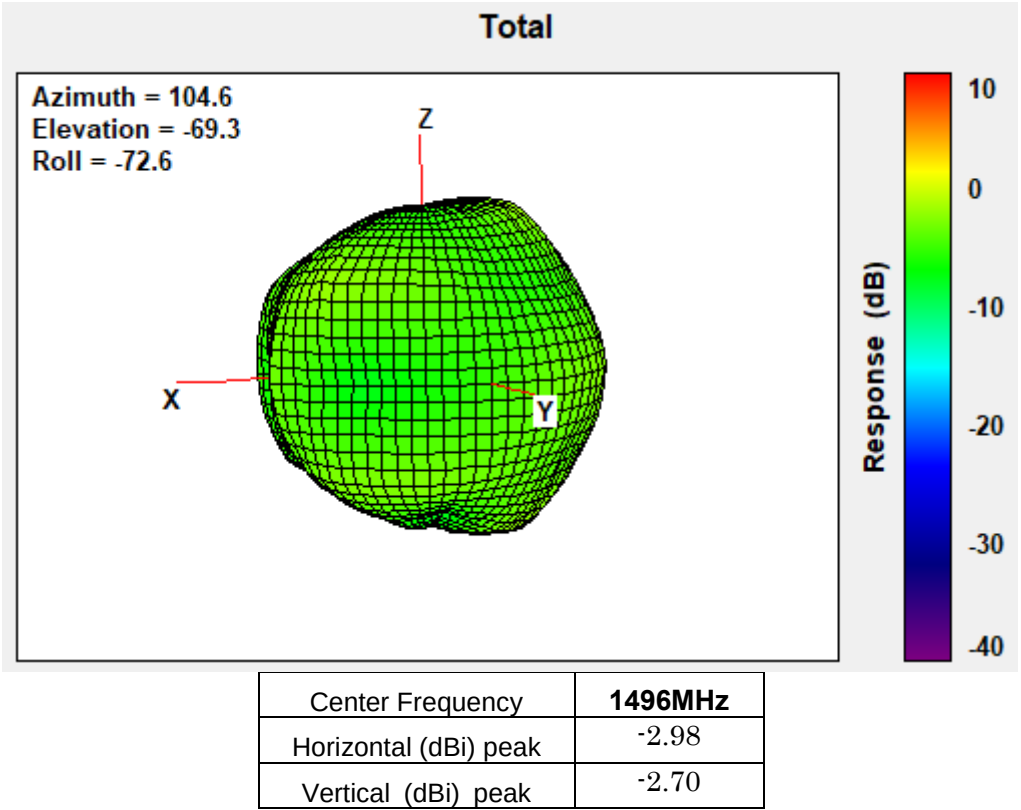
Center Frequency	1455.4MHz
Horizontal (dBi) peak	-2.47
Vertical (dBi) peak	-2.69

1462.9MHz

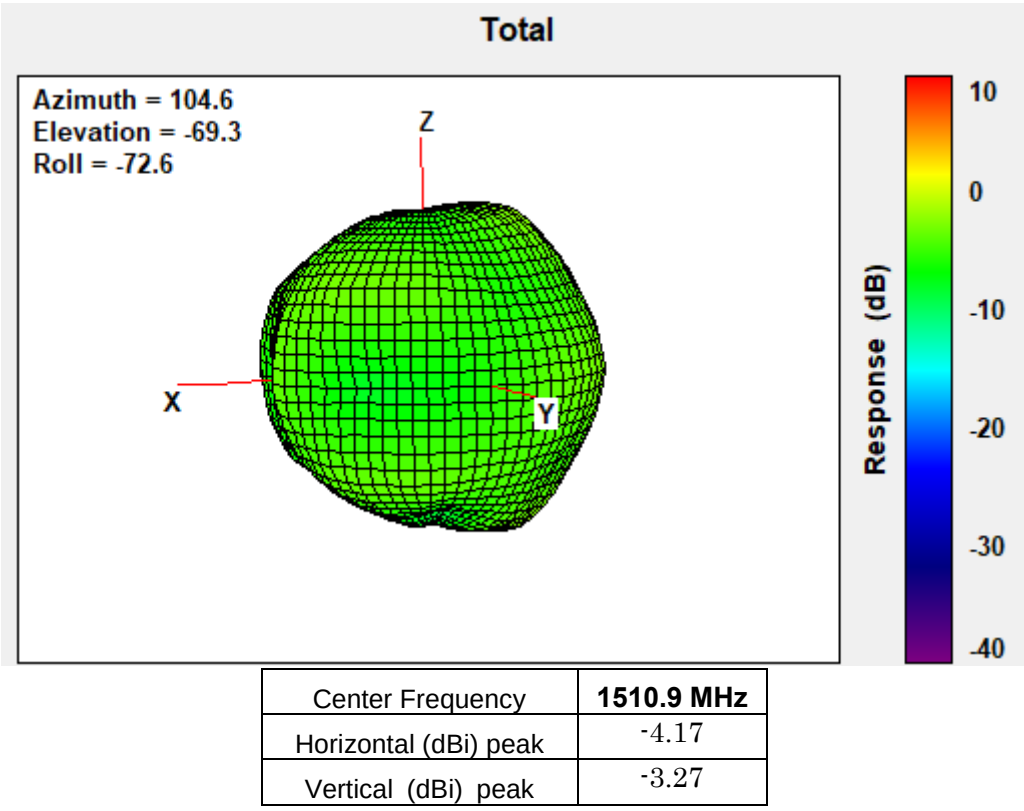


Center Frequency	1462.9MHz
Horizontal (dBi) peak	-2.52
Vertical (dBi) peak	-2.65

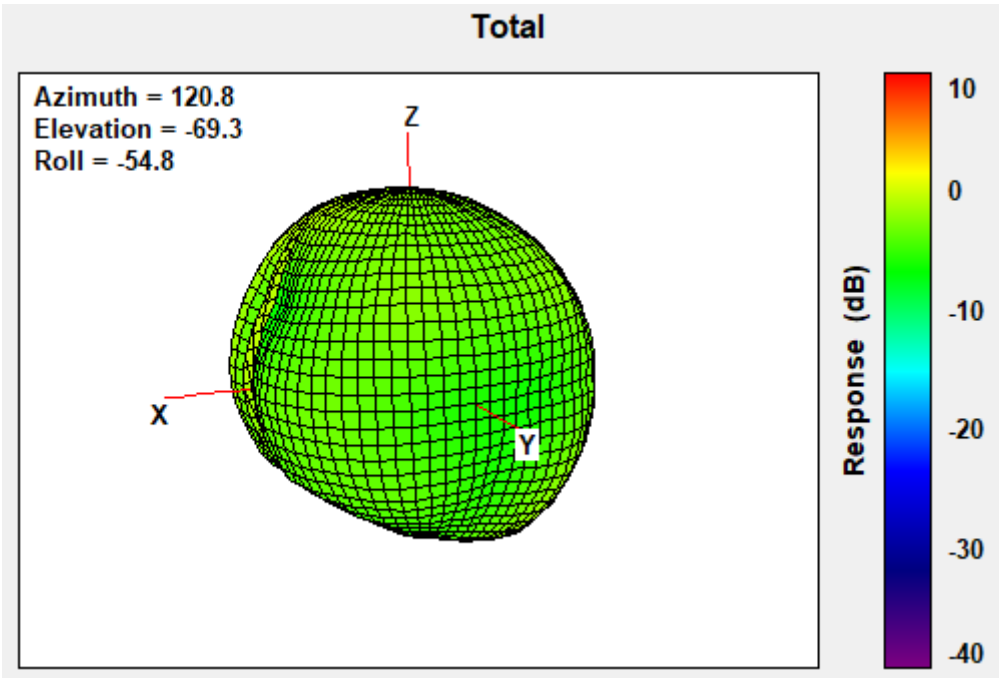
1496MHz



1510.9 MHz

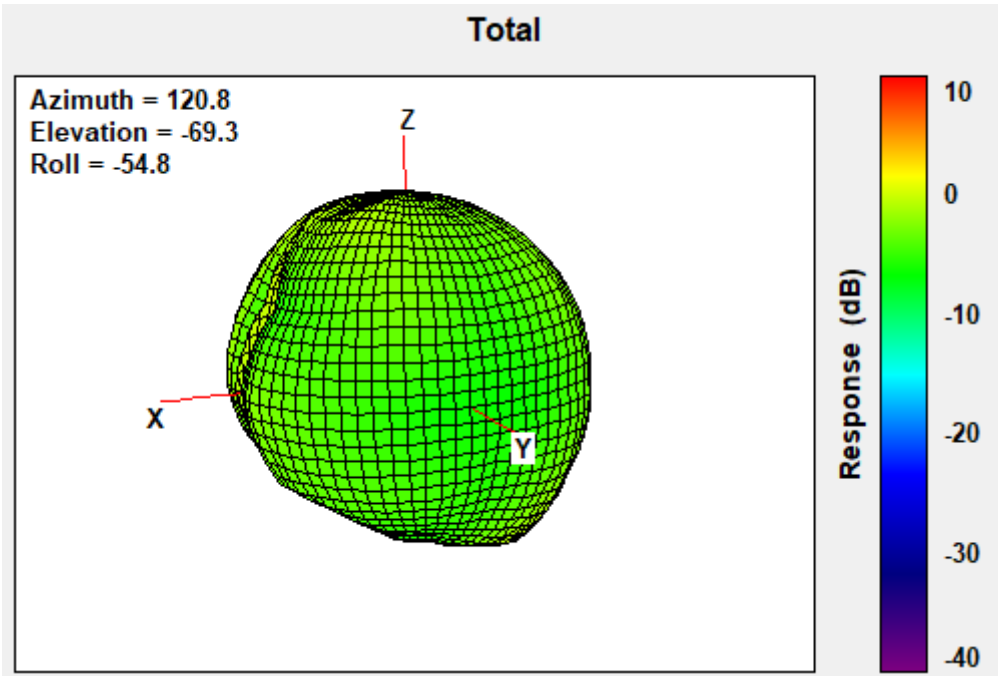


1710 MHz



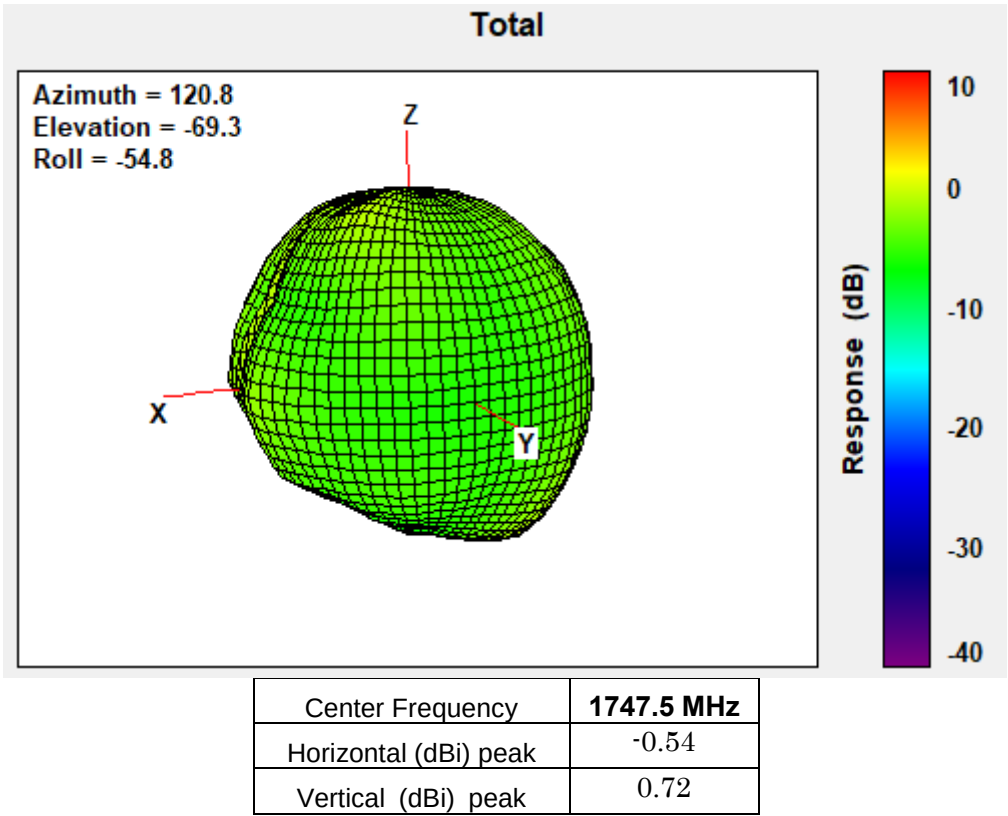
Center Frequency	1710 MHz
Horizontal (dBi) peak	0.61
Vertical (dBi) peak	-0.03

1732.5 MHz

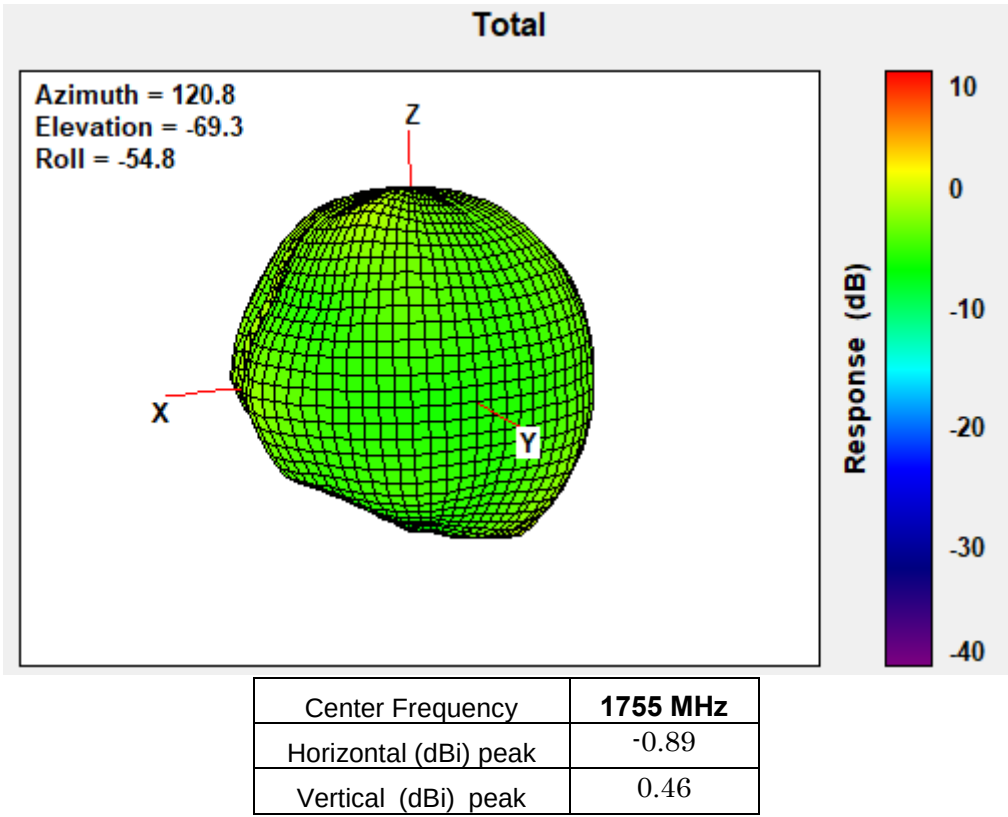


Center Frequency	1732.5 MHz
Horizontal (dBi) peak	0.36
Vertical (dBi) peak	0.58

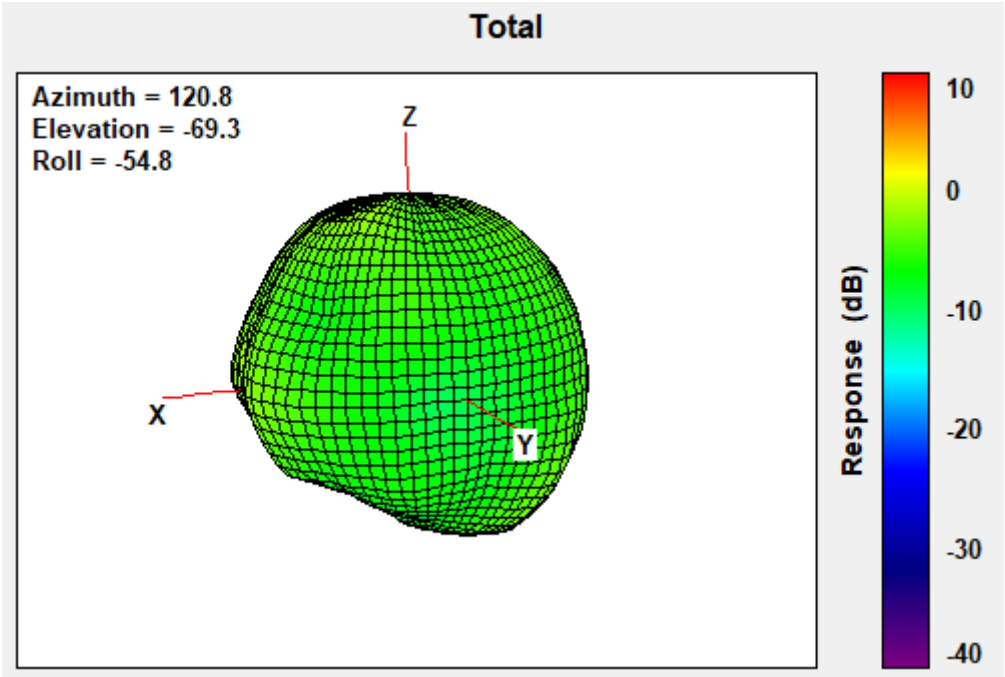
1747.5 MHz



1755 MHz

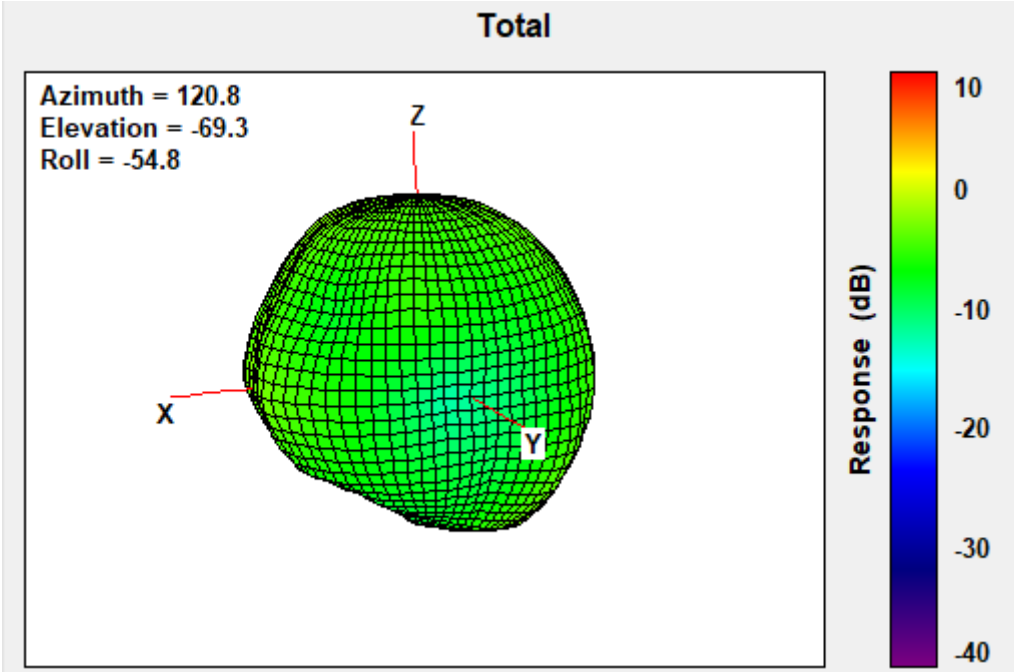


1785 MHz



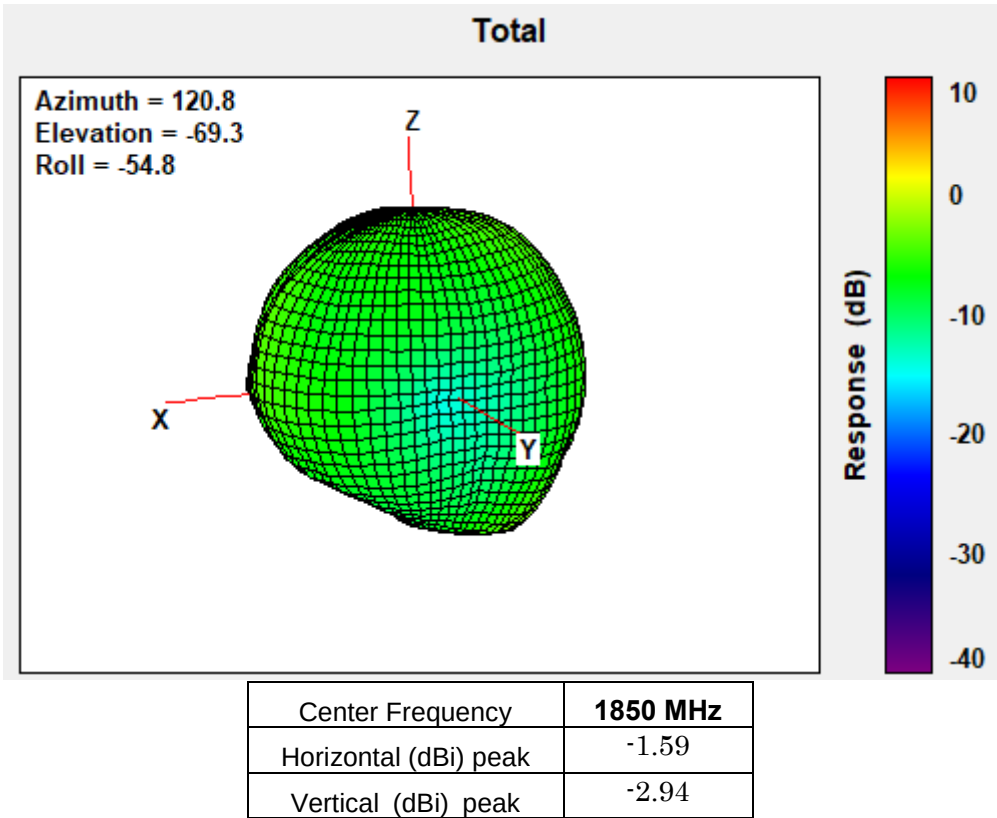
Center Frequency	1785 MHz
Horizontal (dBi) peak	-1.35
Vertical (dBi) peak	-1.52

1805 MHz

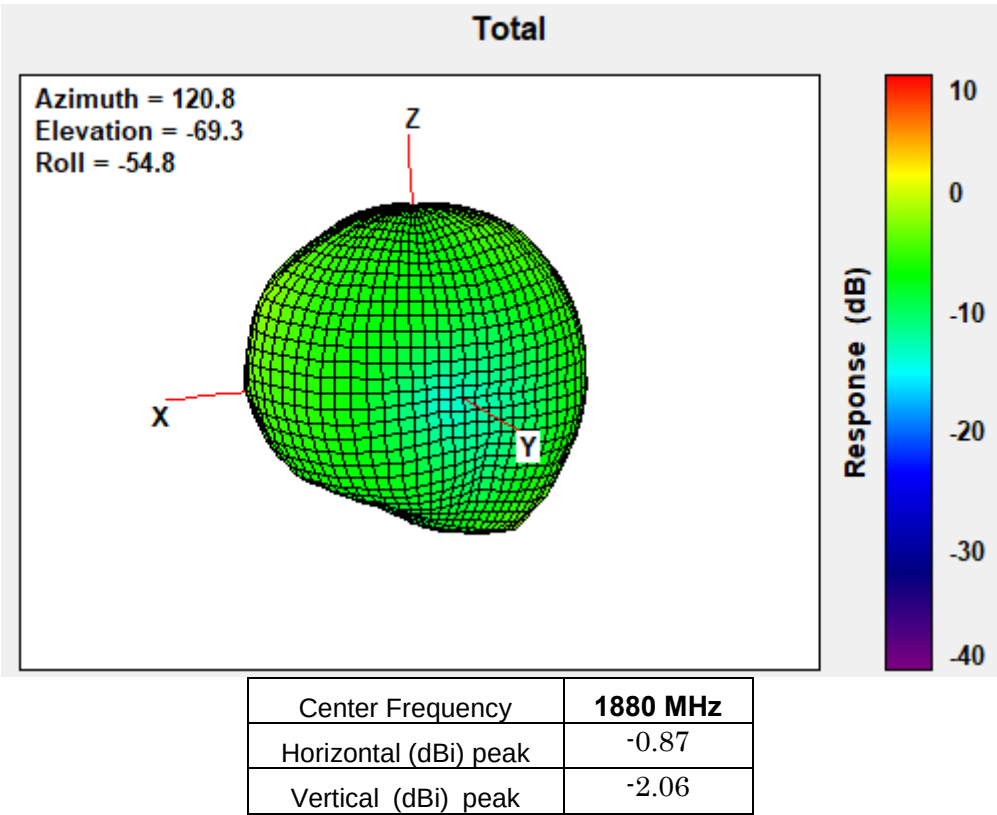


Center Frequency	1805 MHz
Horizontal (dBi) peak	-2.03
Vertical (dBi) peak	-2.57

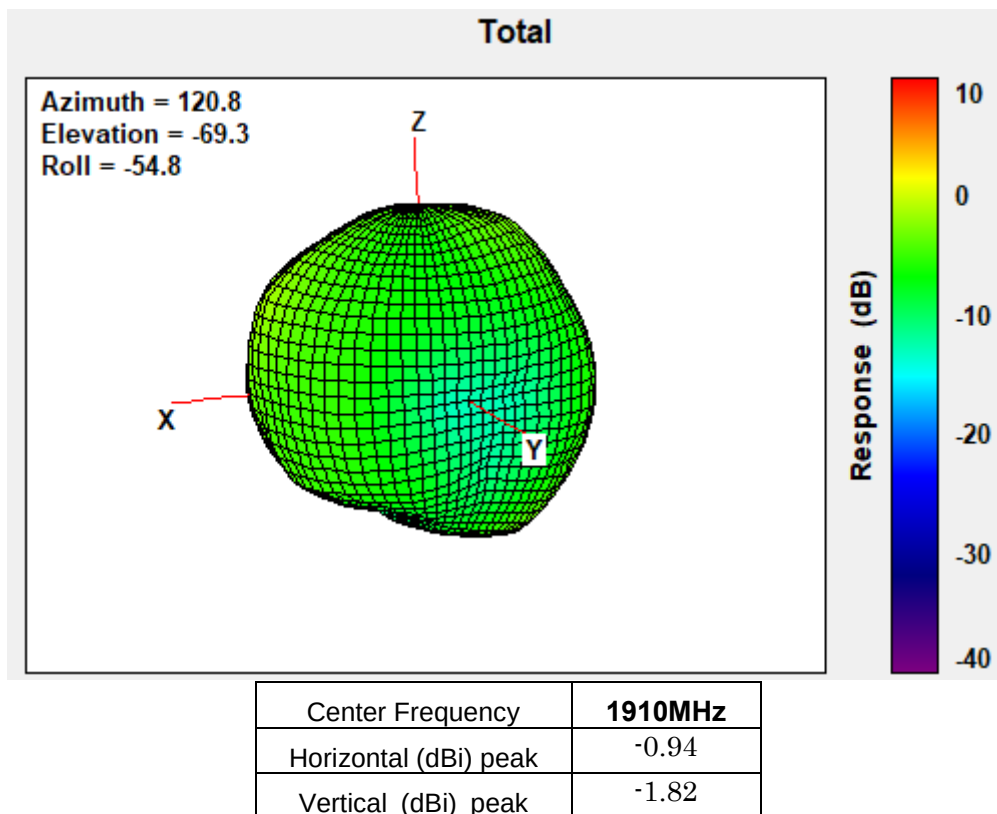
1850 MHz



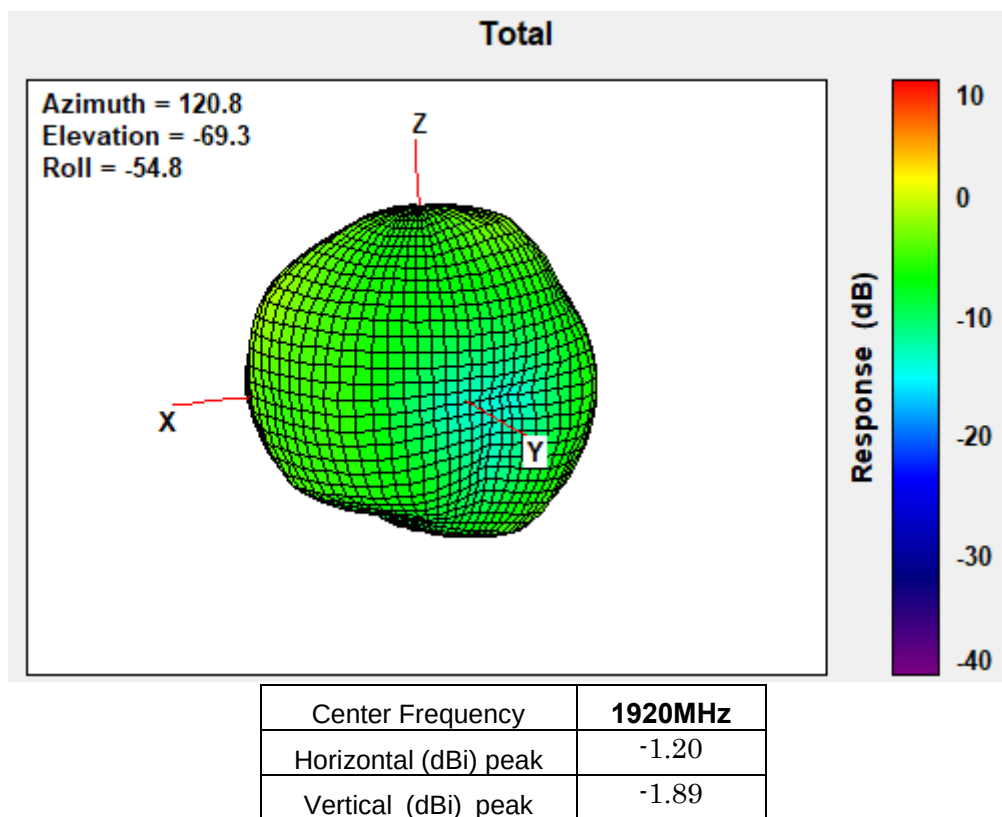
1880 MHz



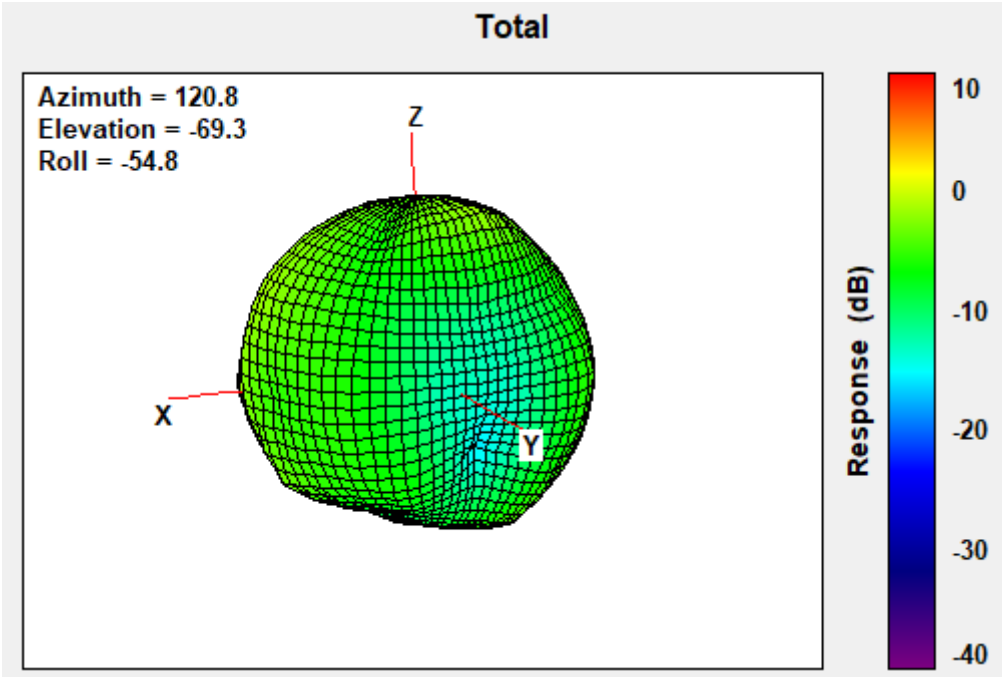
1910MHz



1920MHz

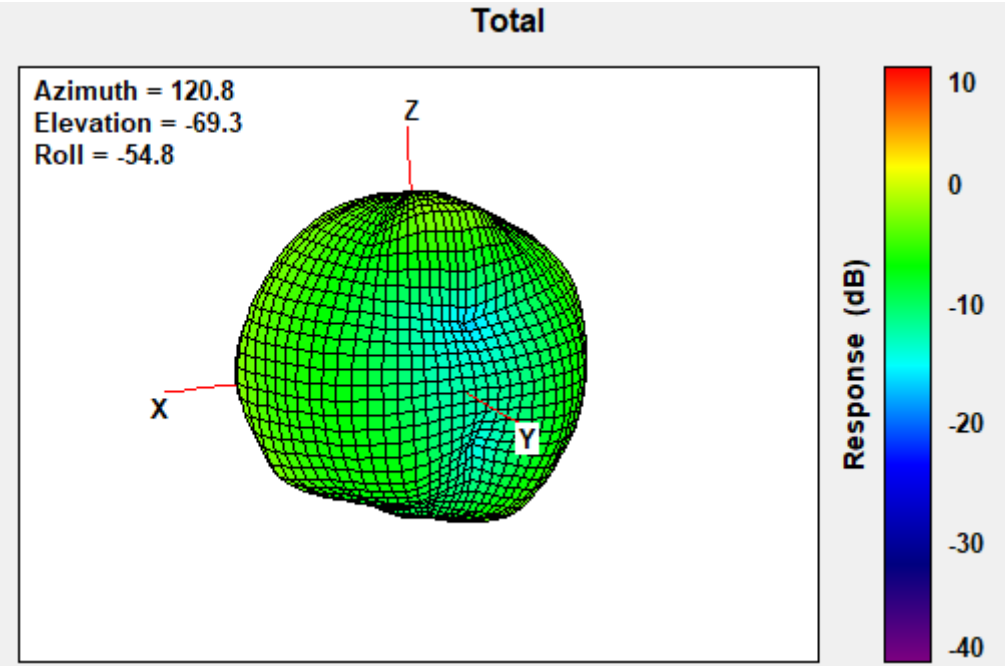


1950MHz



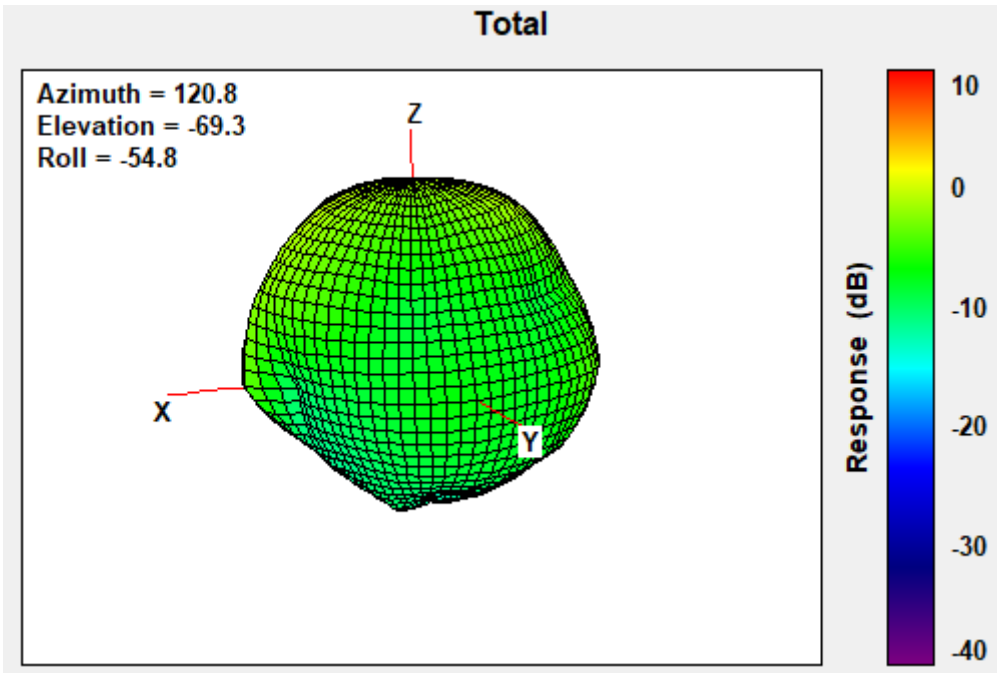
Center Frequency	1950MHz
Horizontal (dBi) peak	-2.62
Vertical (dBi) peak	-1.41

1980MHz



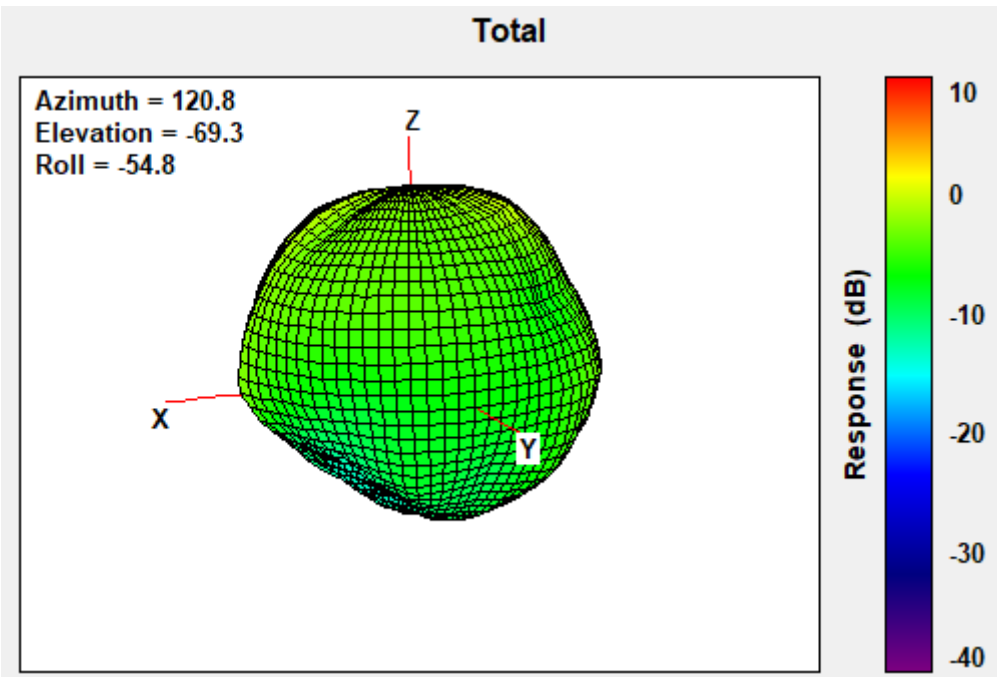
Center Frequency	1980MHz
Horizontal (dBi) peak	-2.12
Vertical (dBi) peak	-0.90

2110MHz



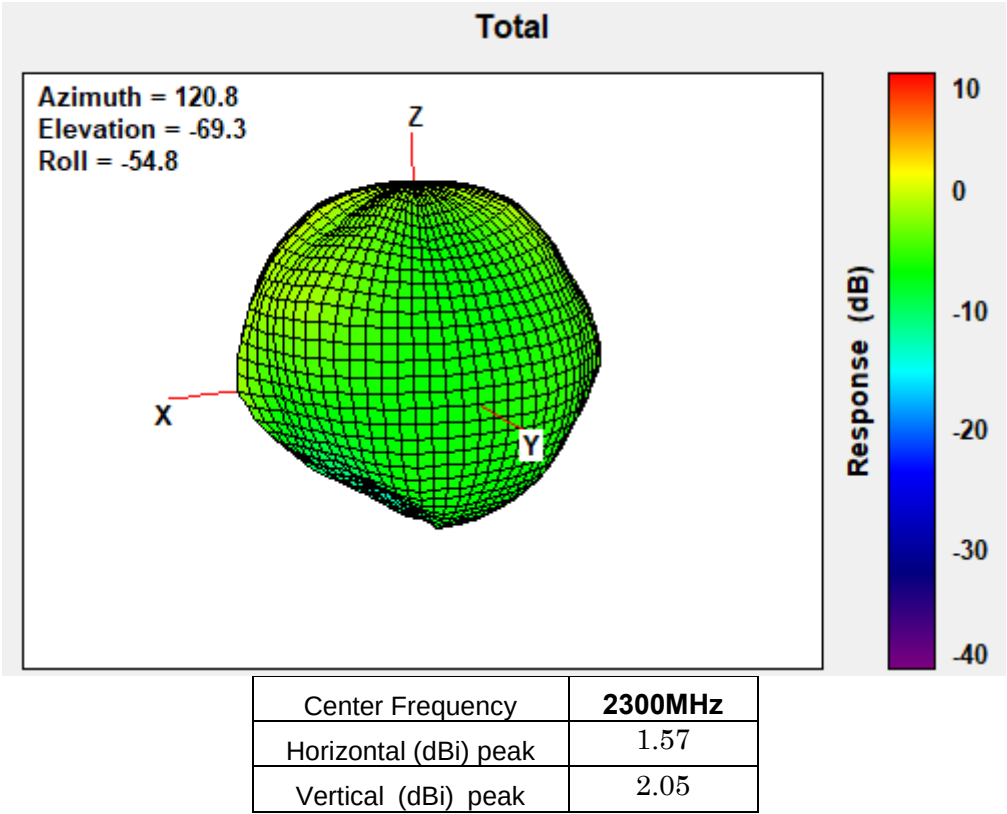
Center Frequency	2110MHz
Horizontal (dBi) peak	1.18
Vertical (dBi) peak	1.35

2200MHz

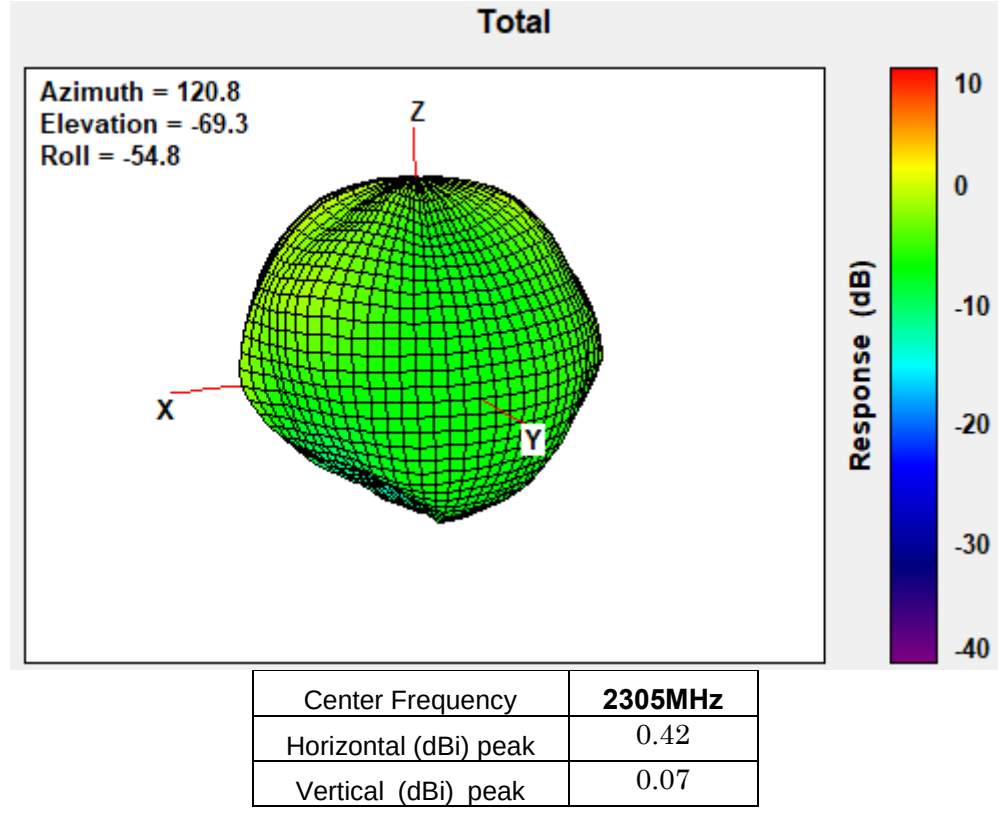


Center Frequency	2200MHz
Horizontal (dBi) peak	1.41
Vertical (dBi) peak	1.48

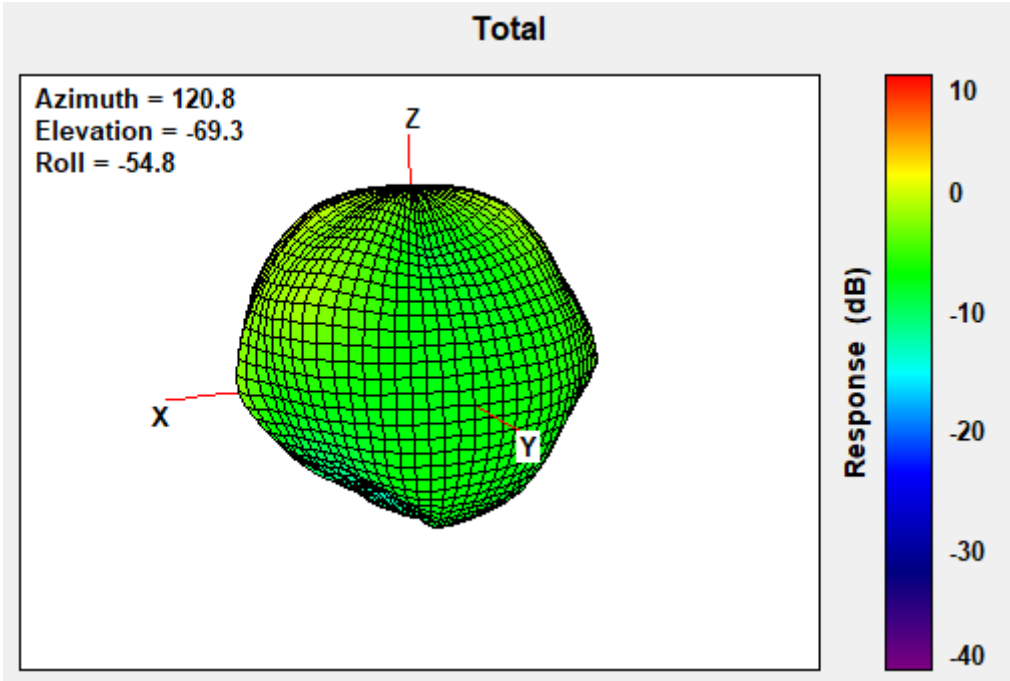
2300MHz



2305MHz

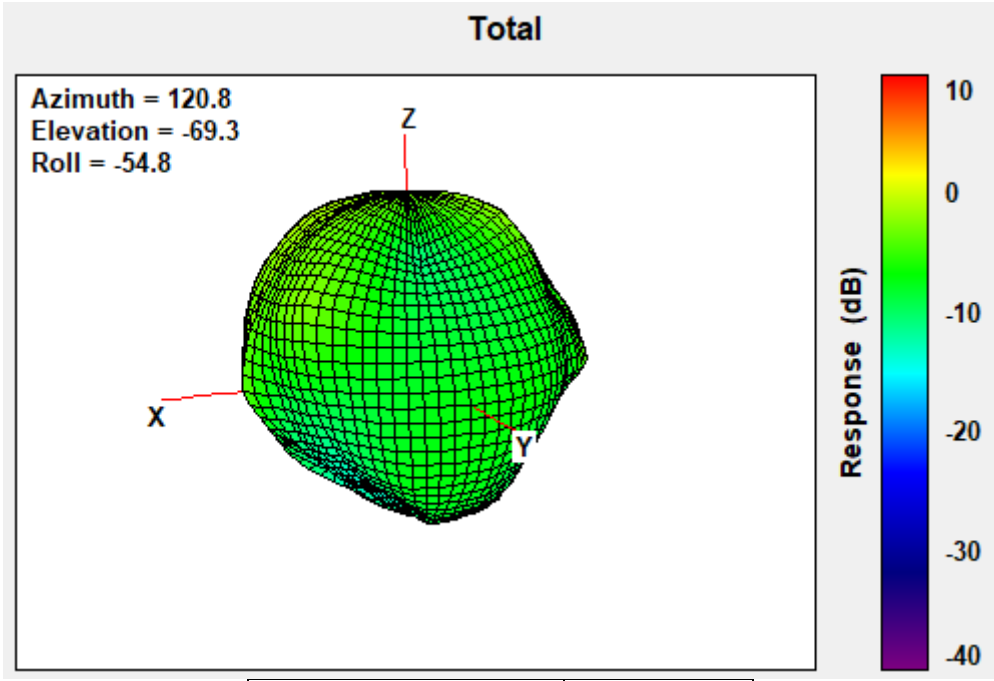


2315MHz



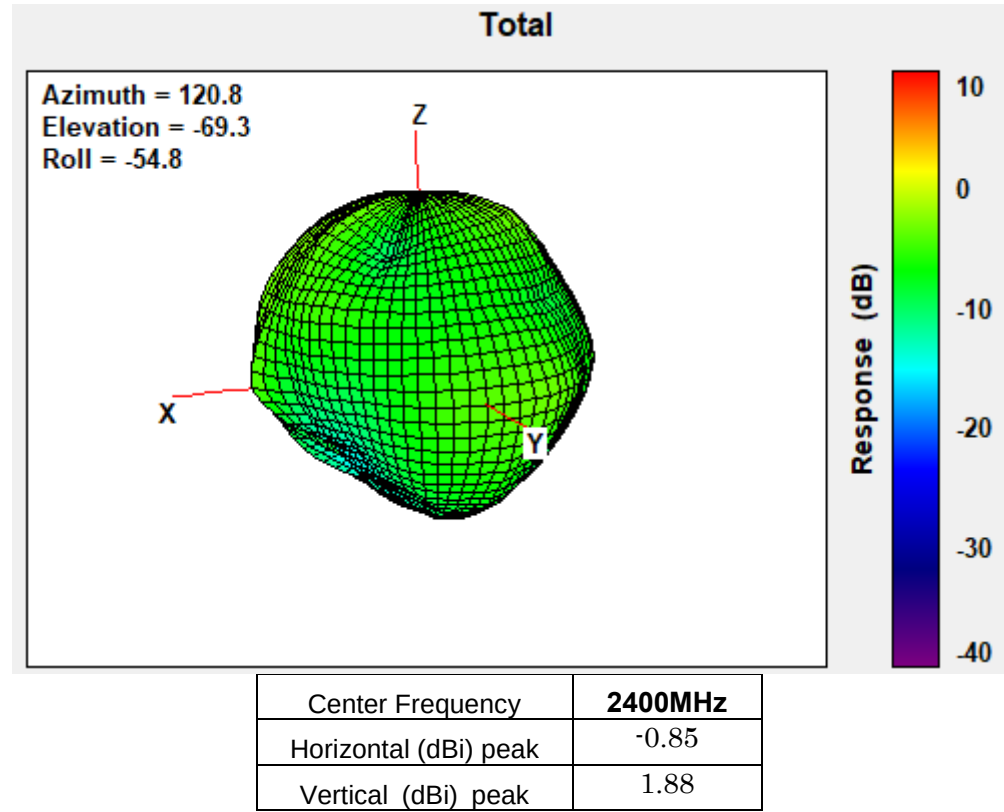
Center Frequency	2315MHz
Horizontal (dBi) peak	0.51
Vertical (dBi) peak	0.81

2350MHz

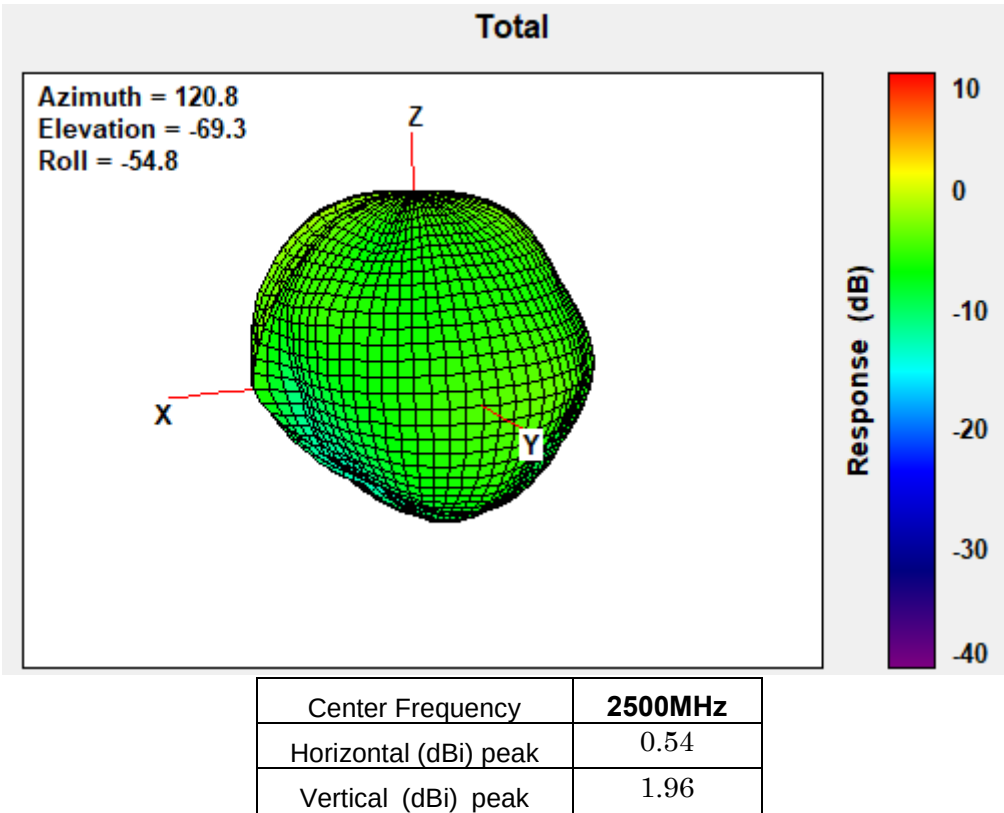


Center Frequency	2350MHz
Horizontal (dBi) peak	0.51
Vertical (dBi) peak	0.80

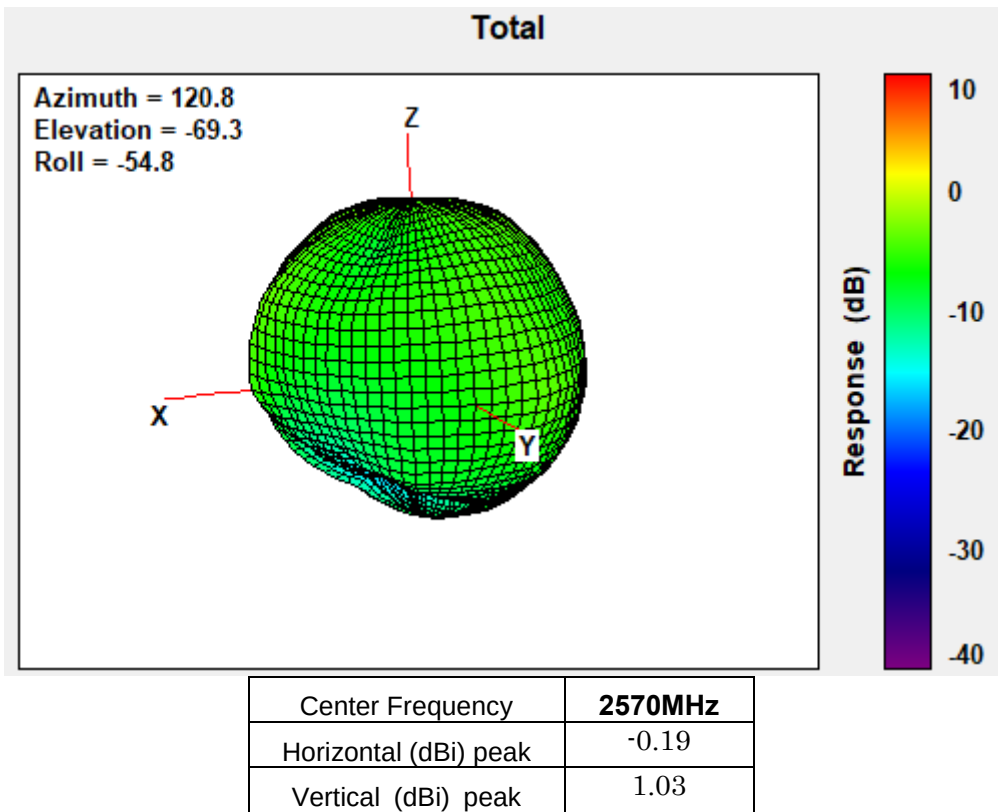
2400MHz



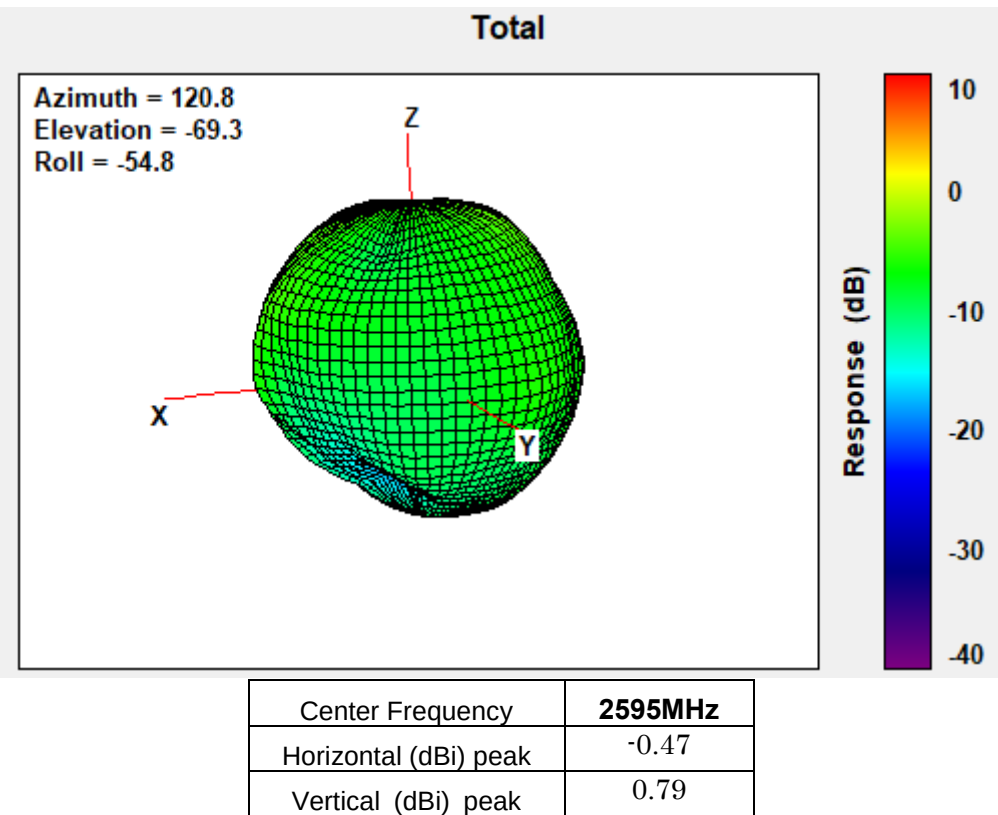
2500MHz



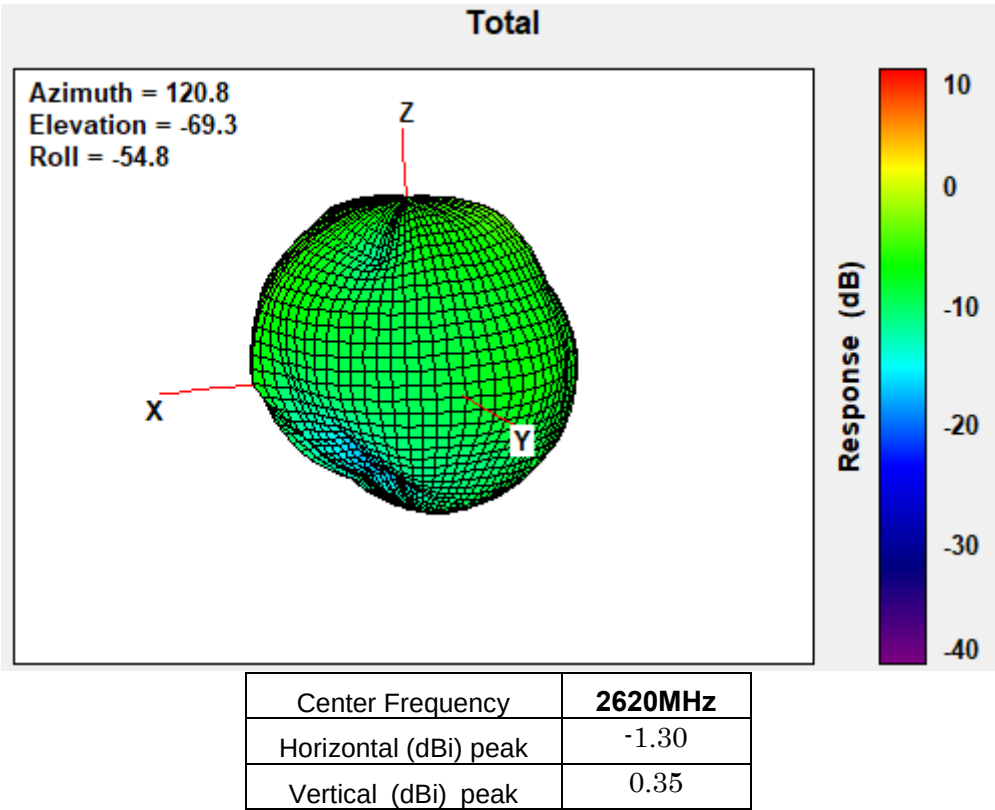
2570MHz



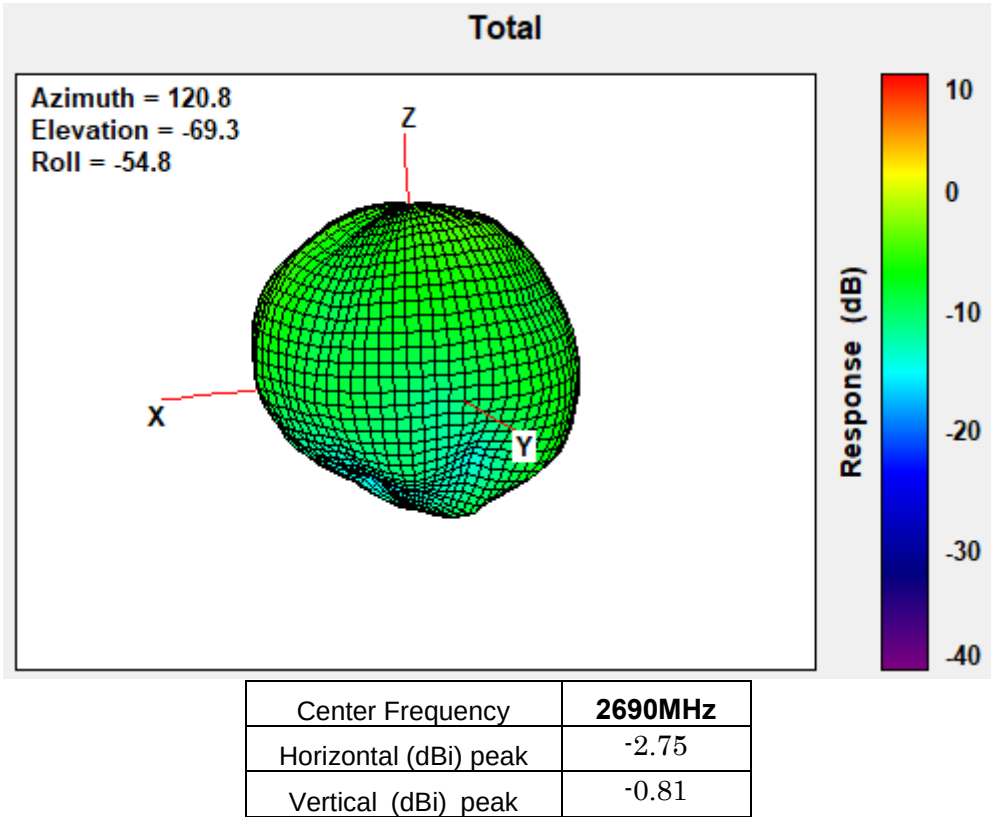
2595MHz



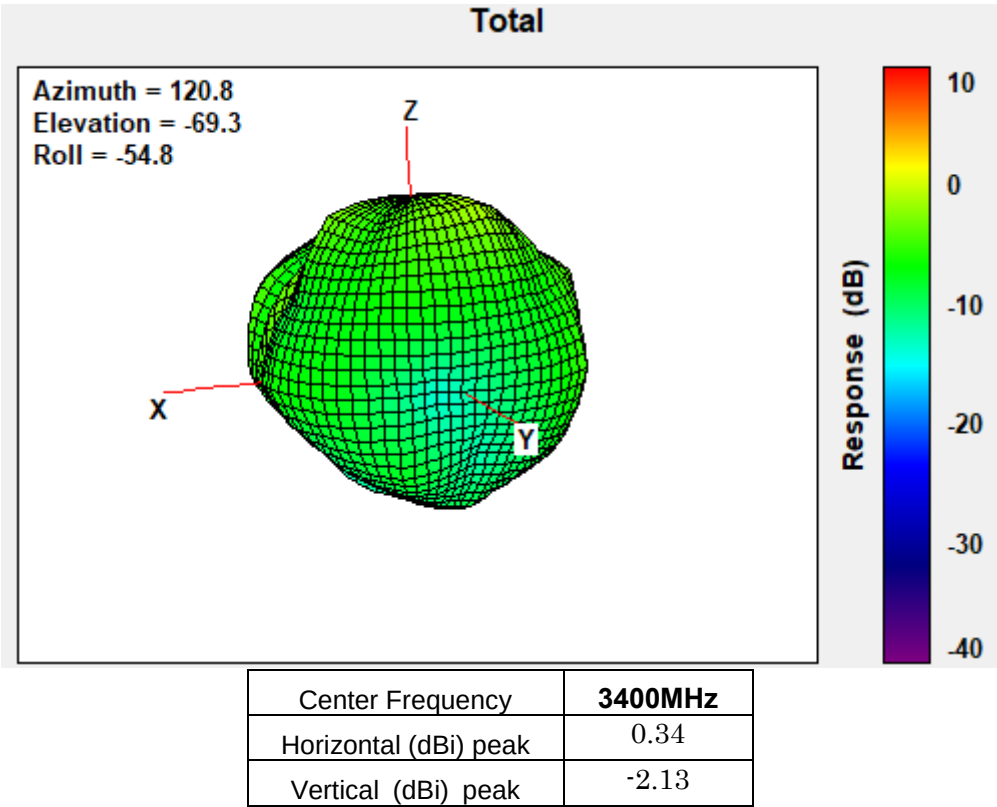
2620MHz



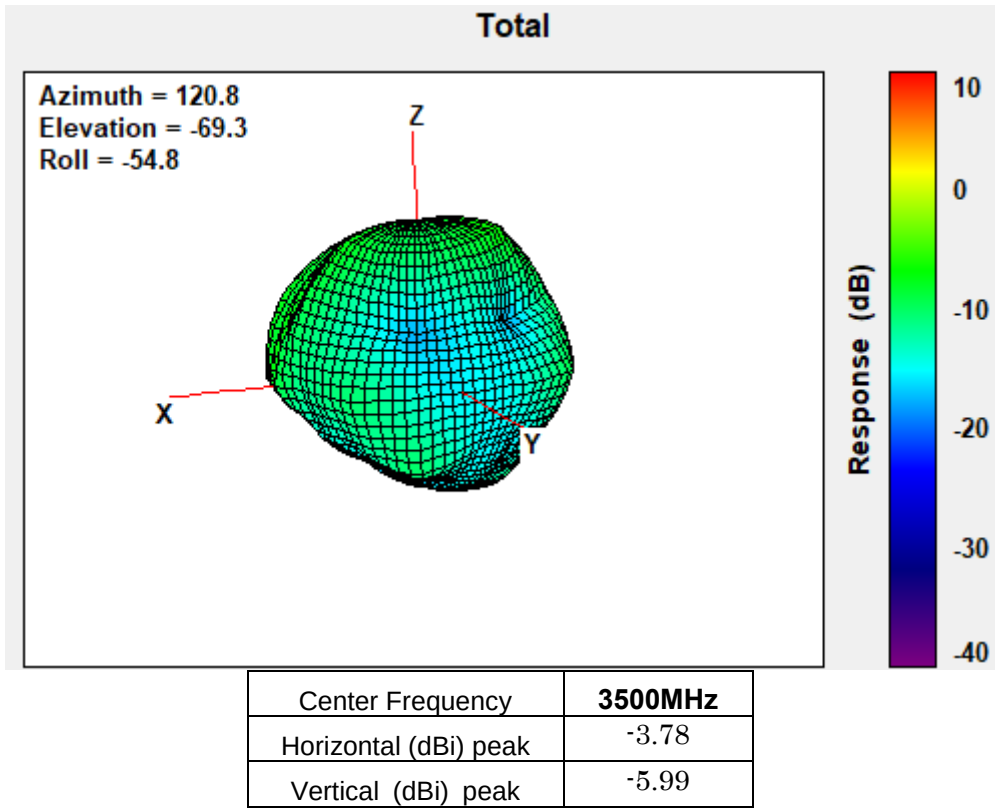
2690MHz



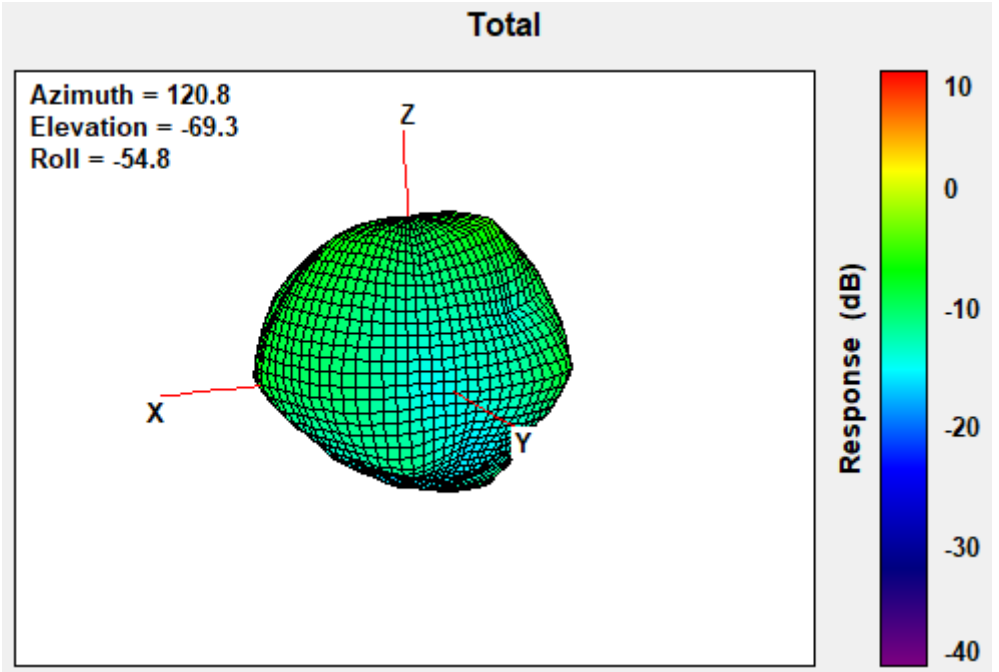
3400MHz



3500MHz

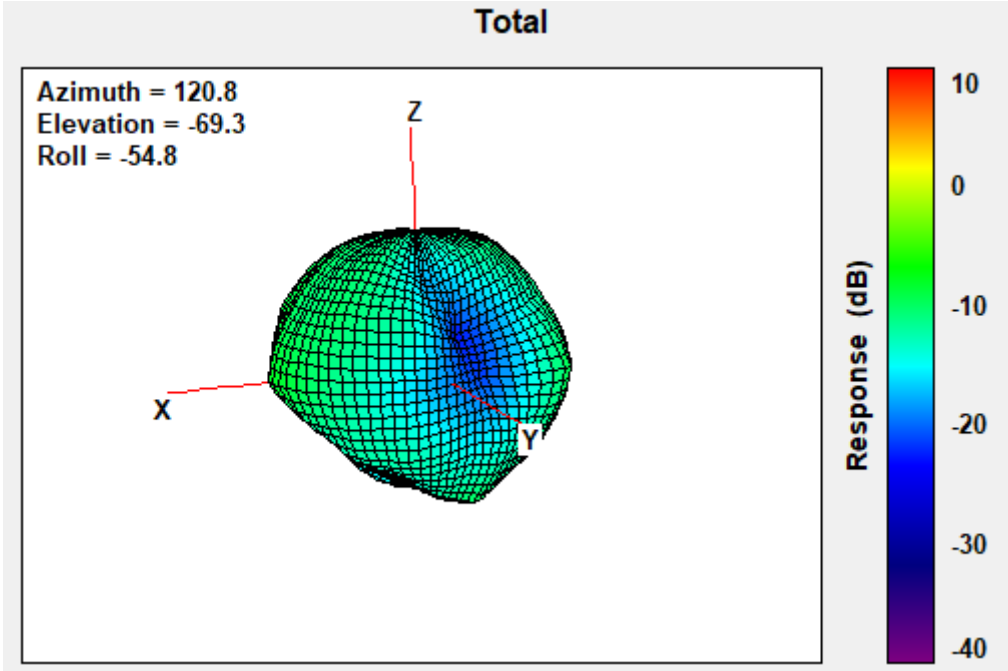


3600MHz



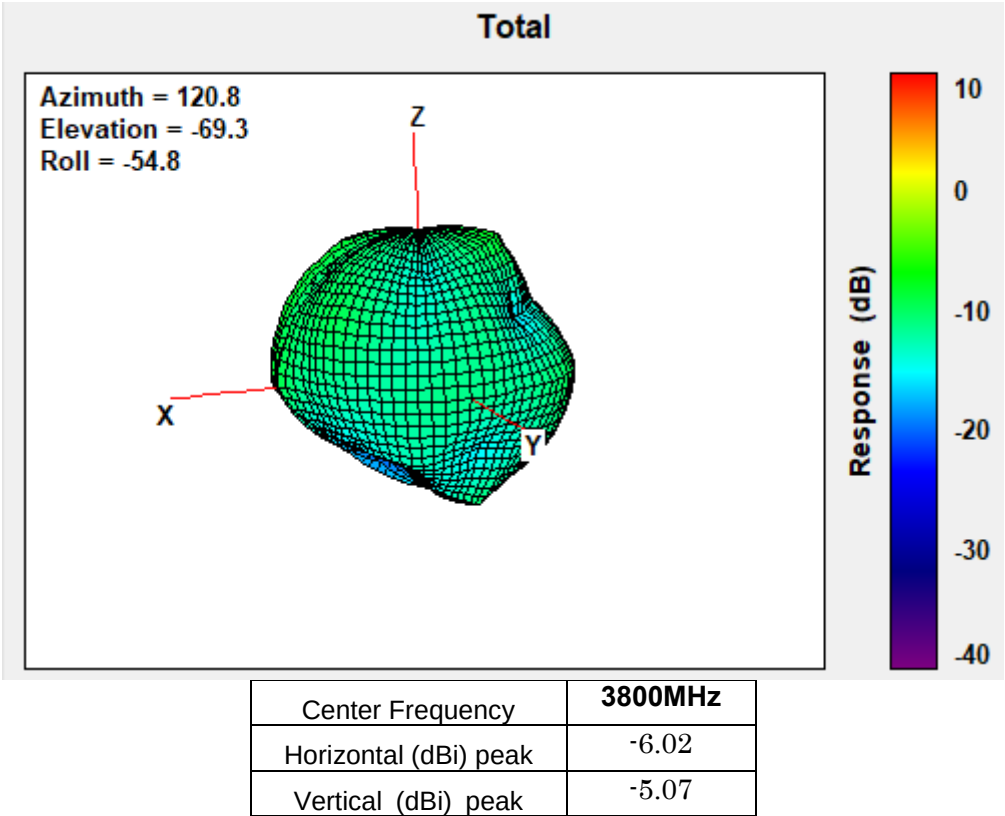
Center Frequency	3600MHz
Horizontal (dBi) peak	-3.36
Vertical (dBi) peak	-4.07

3700MHz

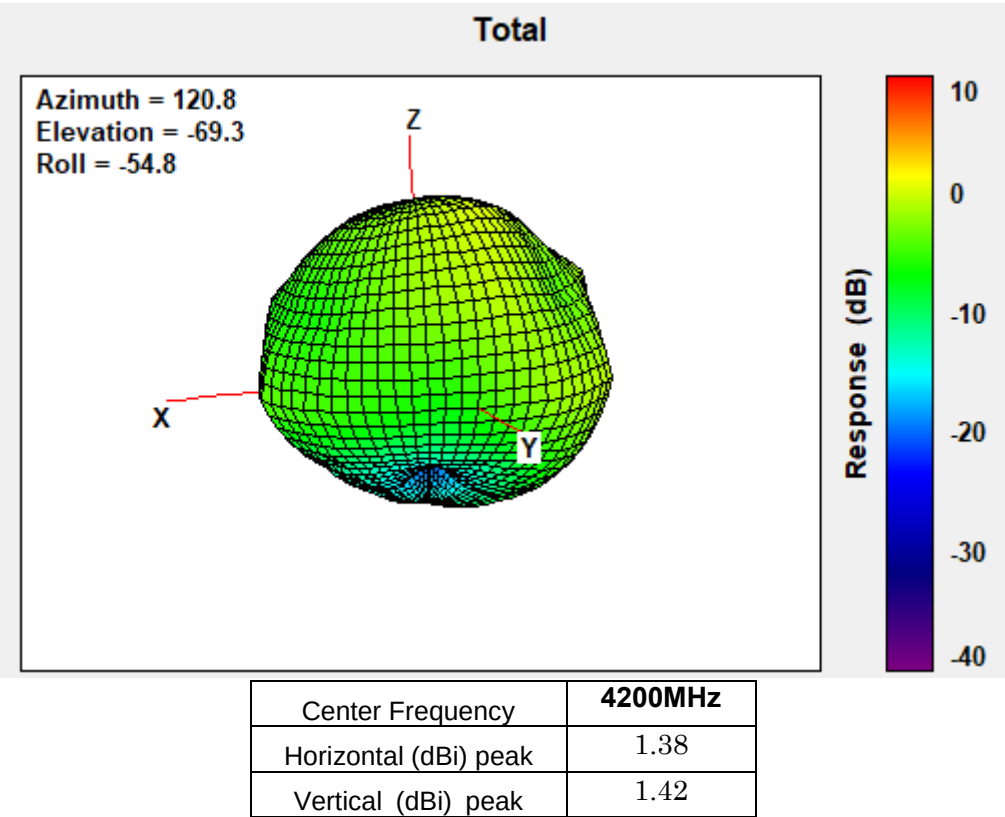


Center Frequency	3700MHz
Horizontal (dBi) peak	-5.05
Vertical (dBi) peak	-5.70

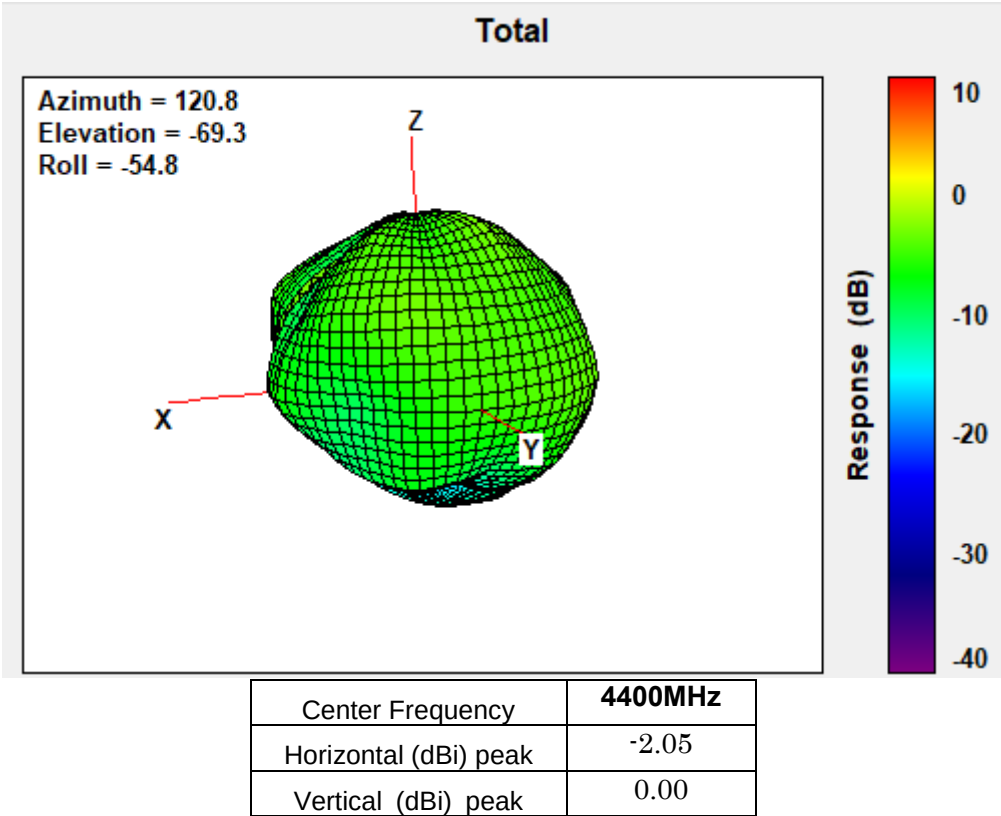
3800MHz



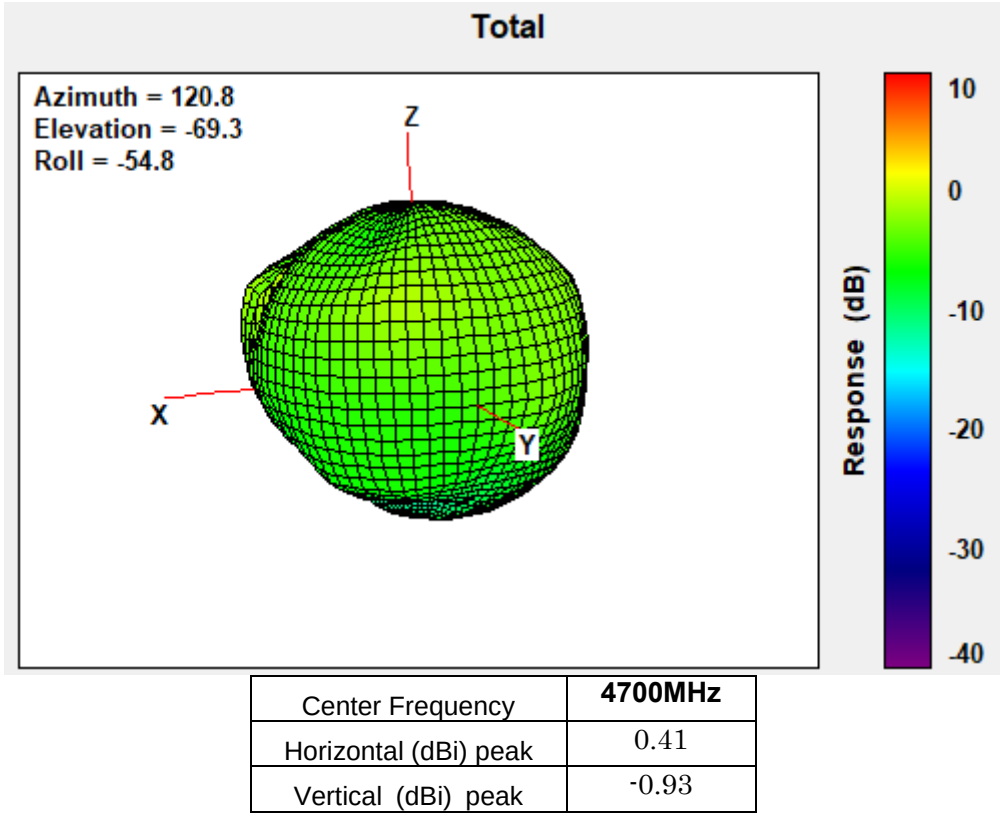
4200MHz



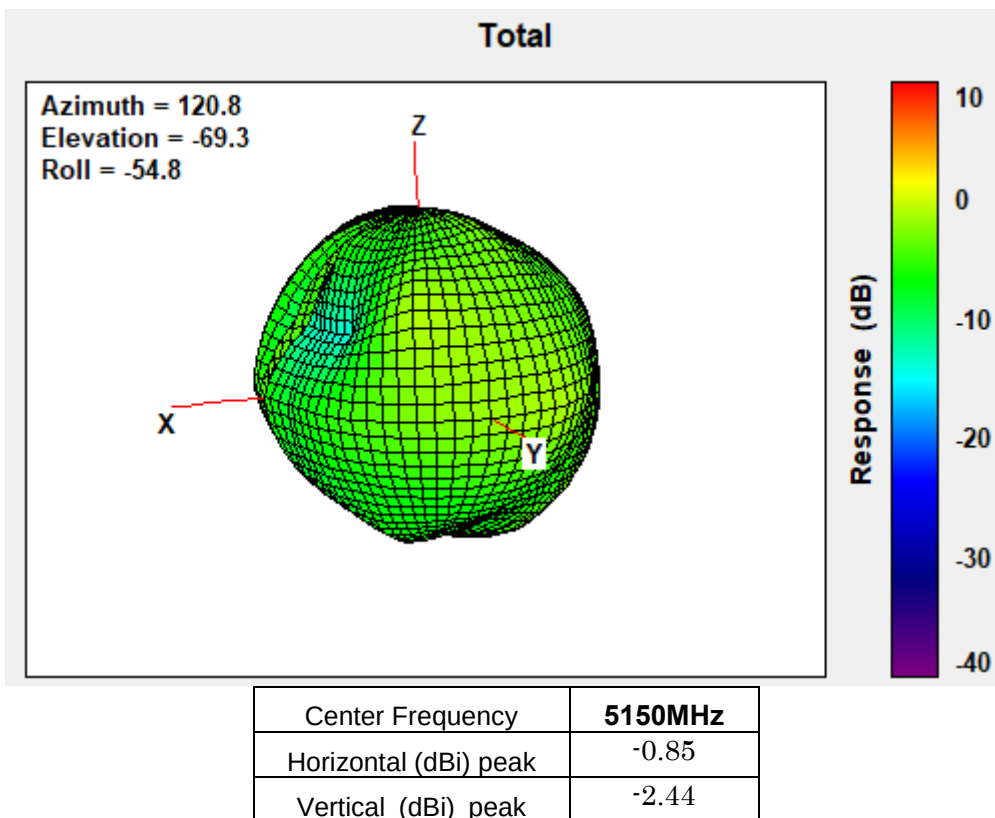
4400MHz



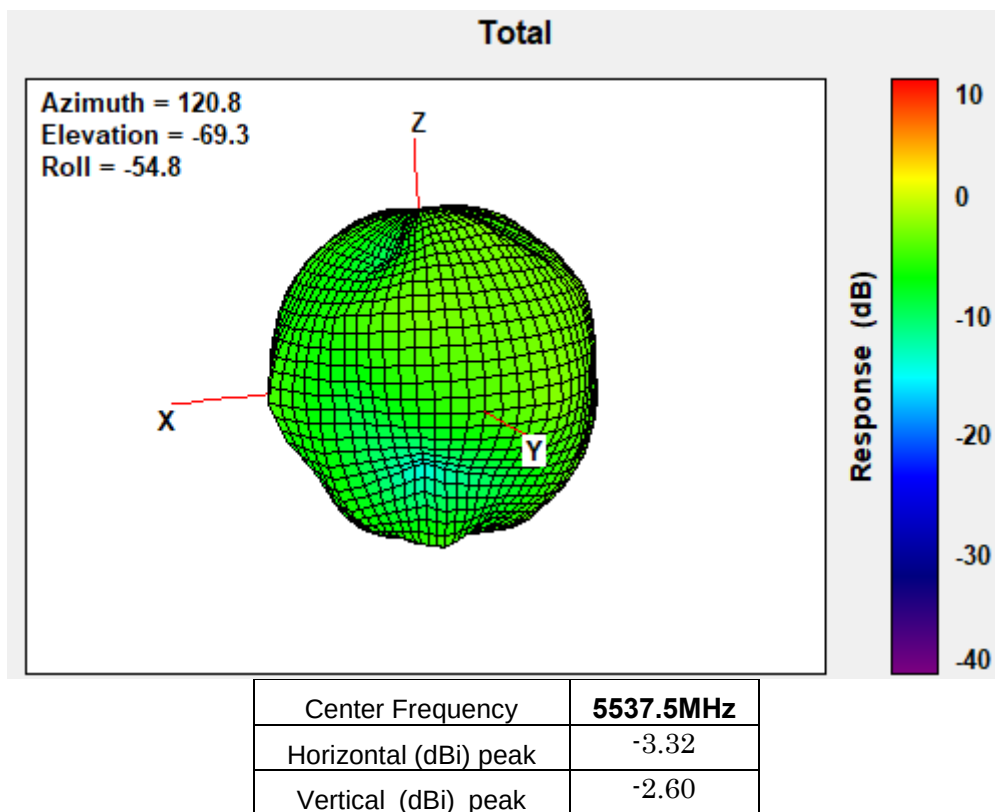
4700MHz



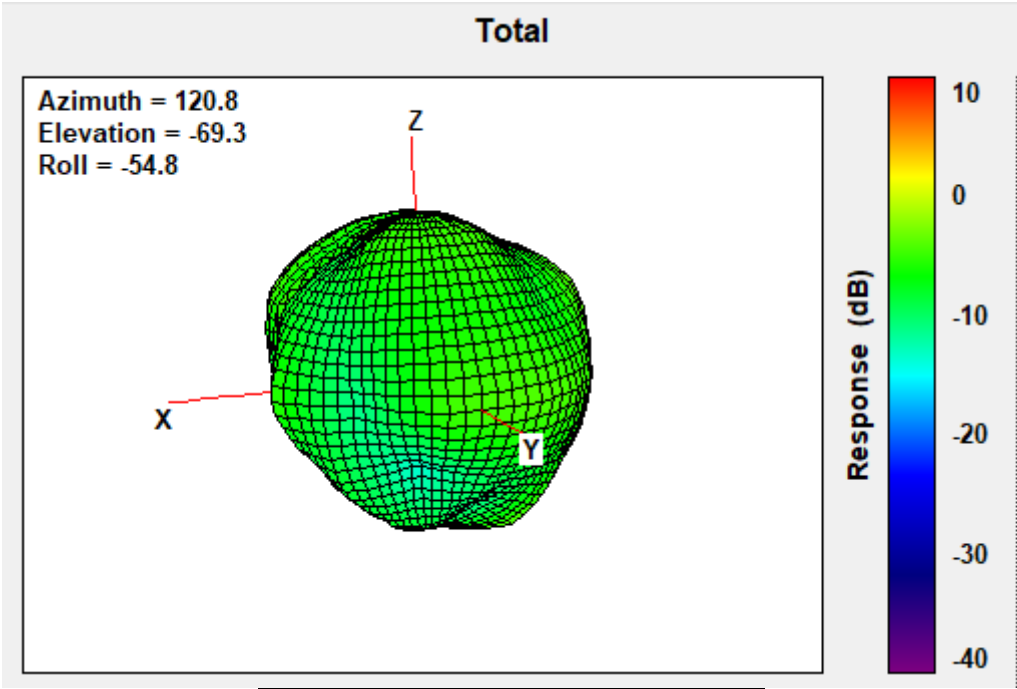
5150MHz



5537.5MHz



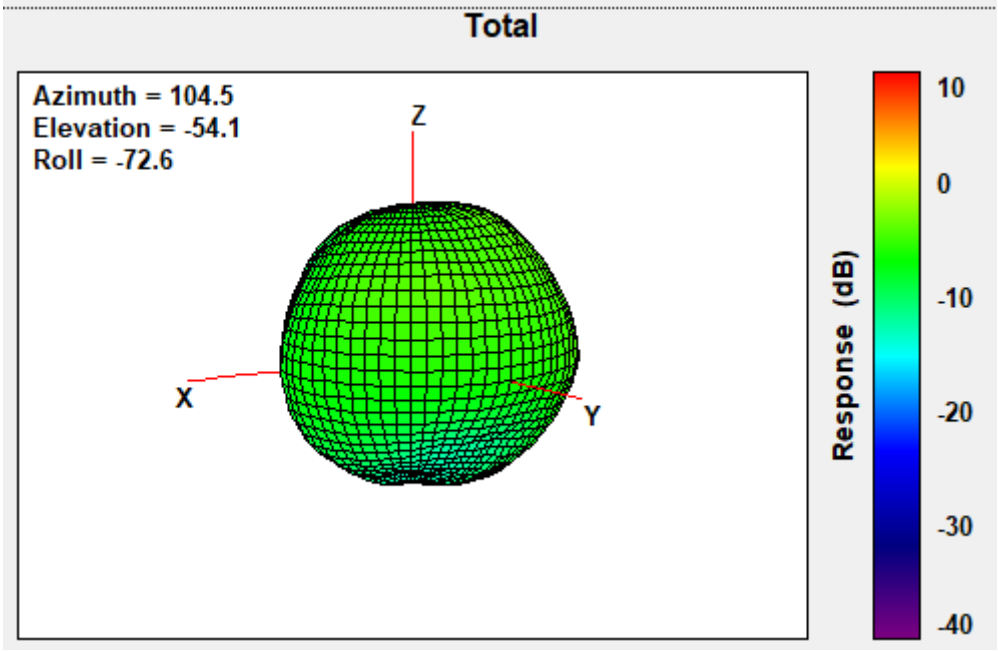
5925MHz



Center Frequency	5925MHz
Horizontal (dBi) peak	-3.43
Vertical (dBi) peak	-2.36

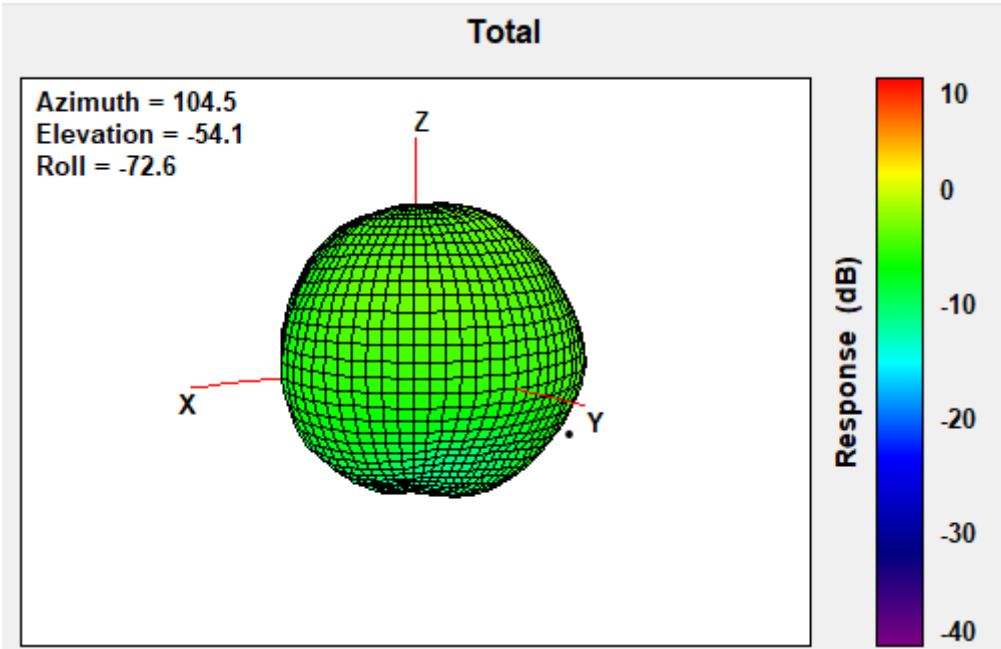
WWAN Aux Antenna (DRx)

617MHz



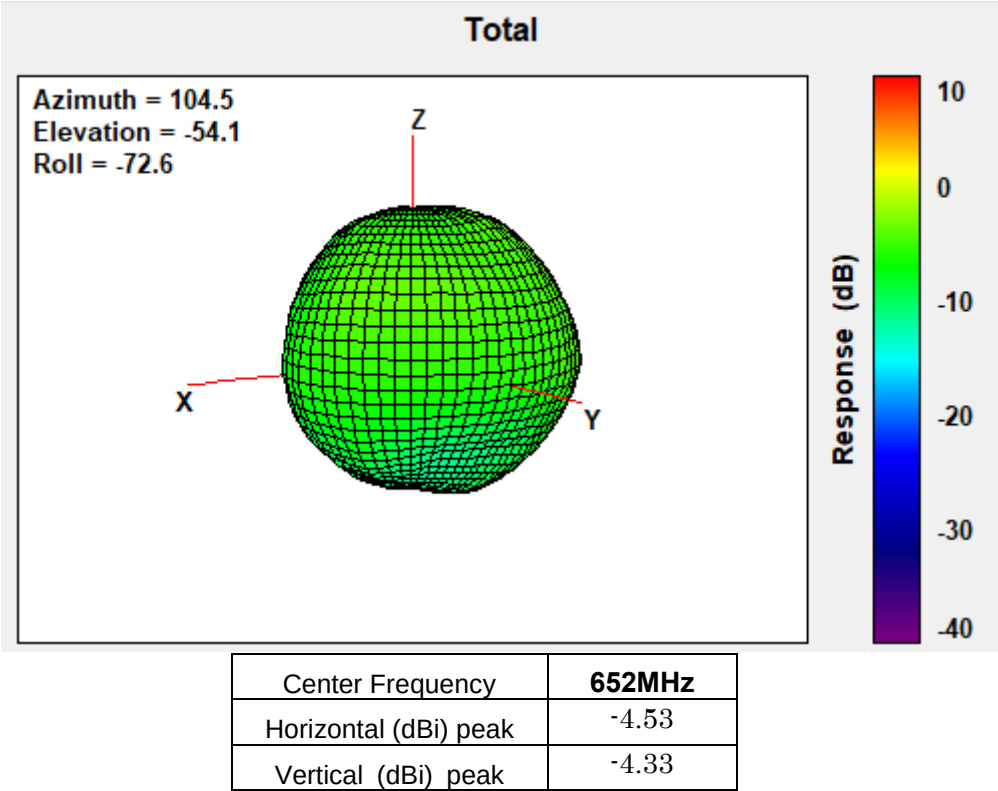
Center Frequency	617MHz
Horizontal (dBi) peak	-4.17
Vertical (dBi) peak	-5.13

634MHz

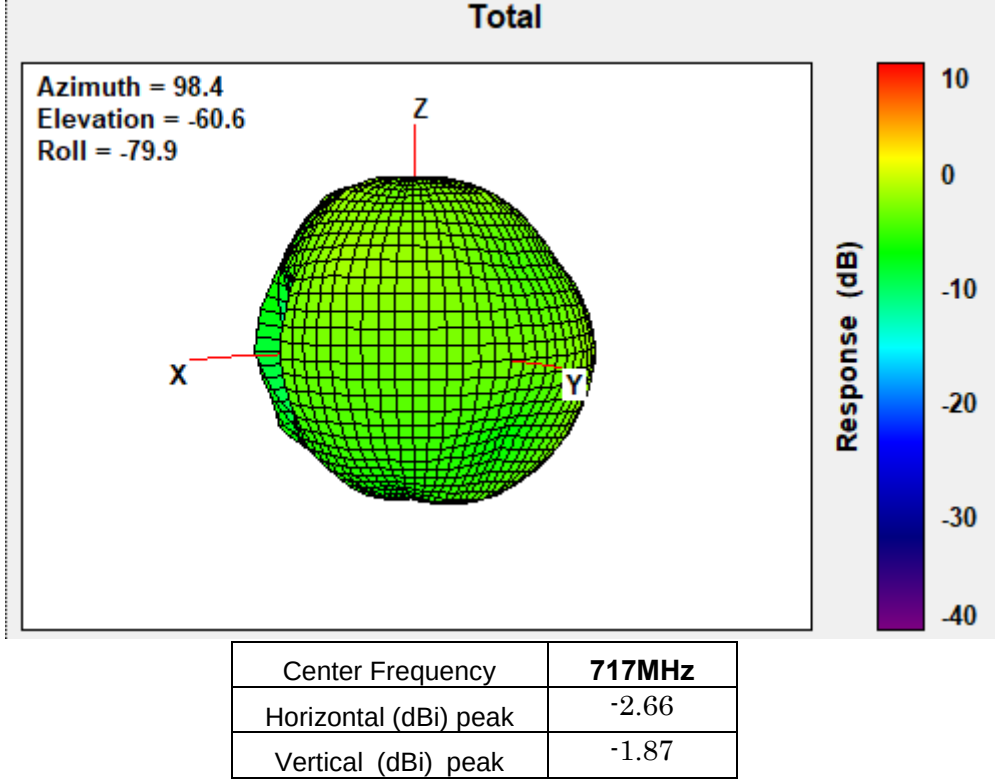


Center Frequency	634MHz
Horizontal (dBi) peak	-3.52
Vertical (dBi) peak	-3.98

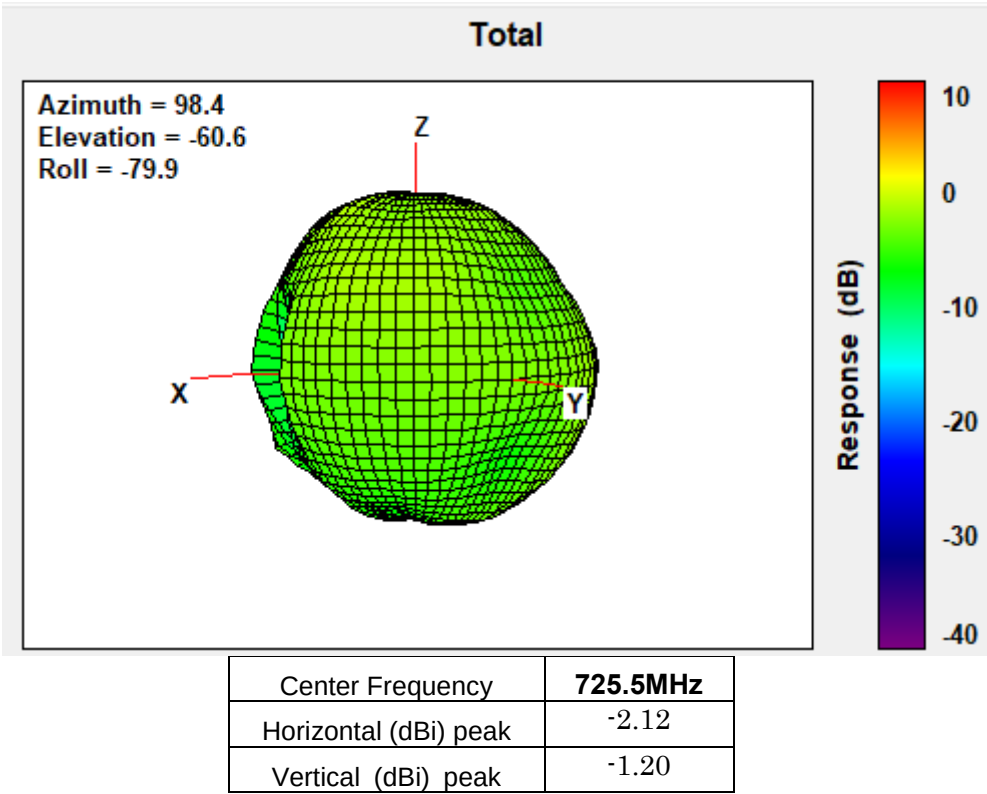
652MHz



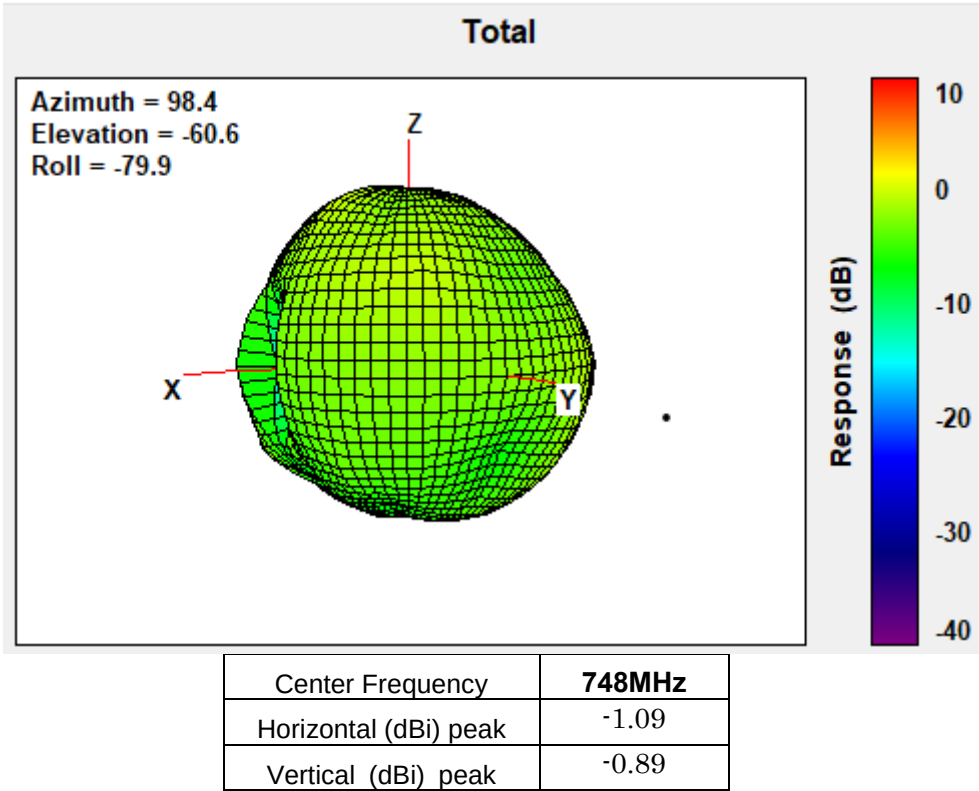
717MHz



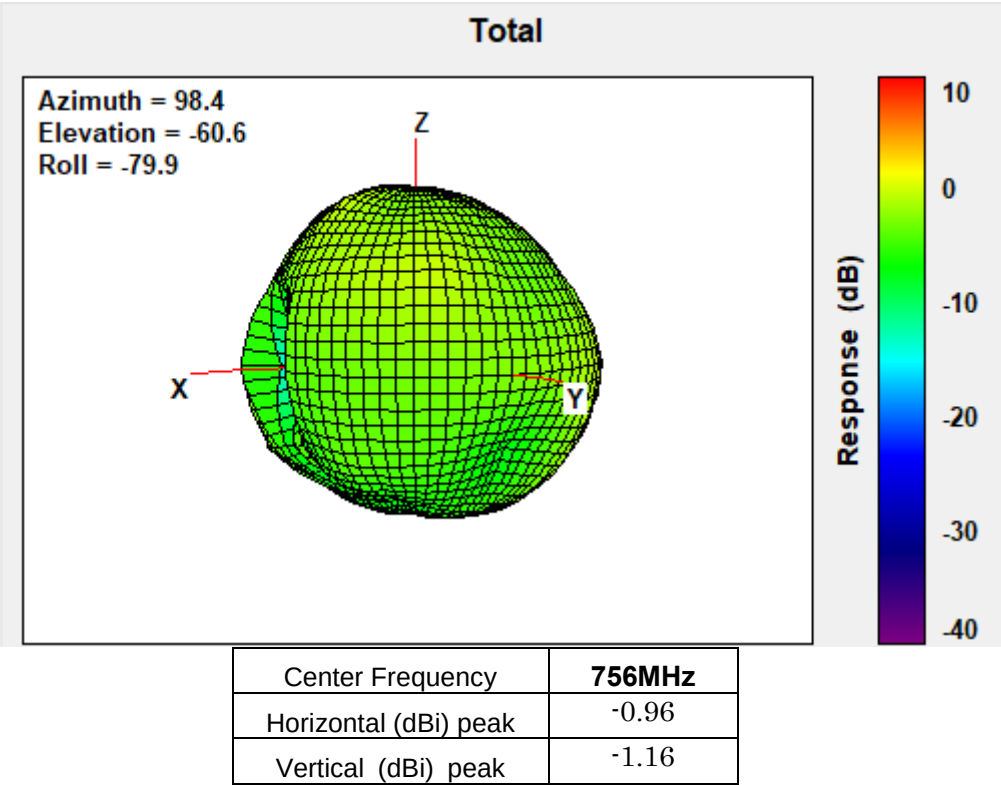
725.5MHz



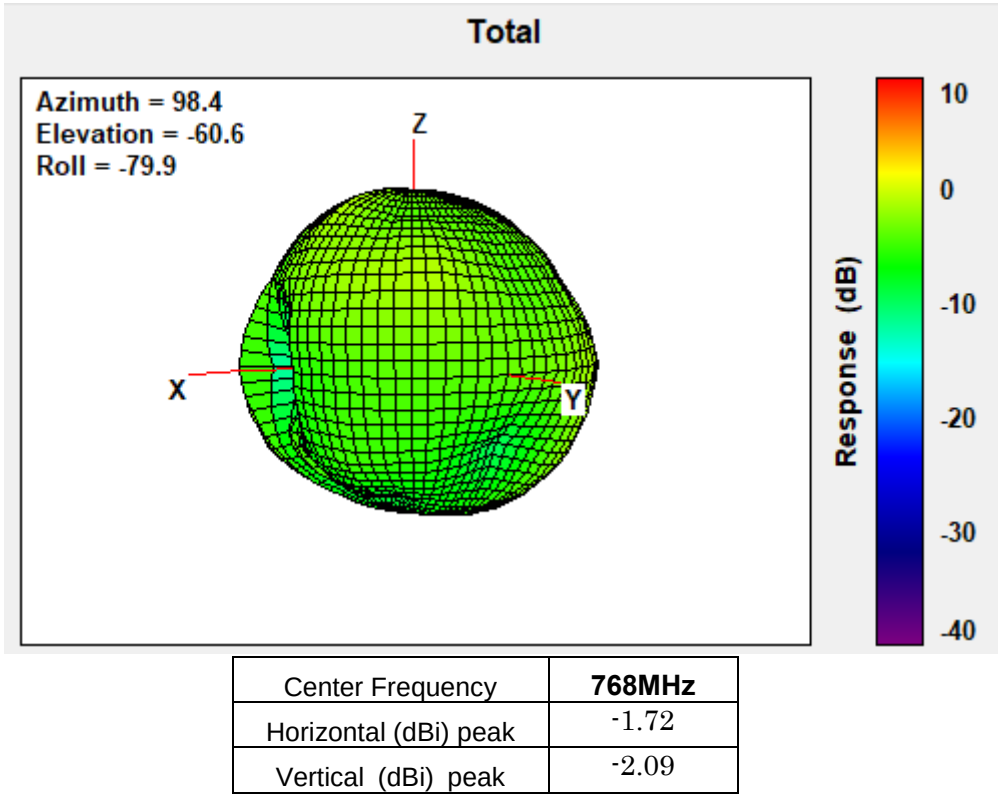
748MHz



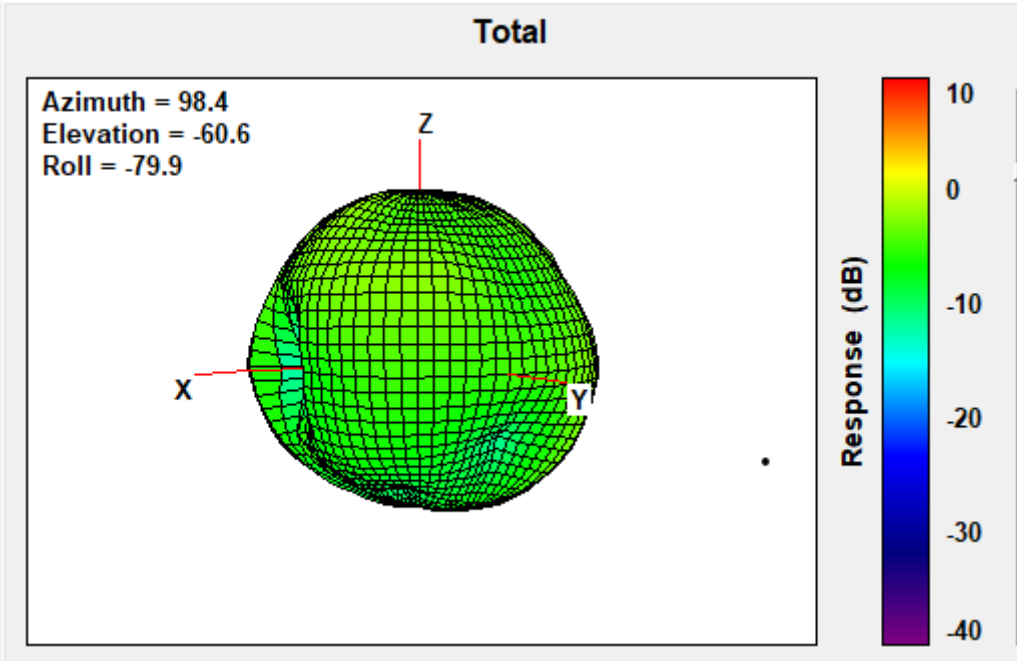
756MHz



768MHz

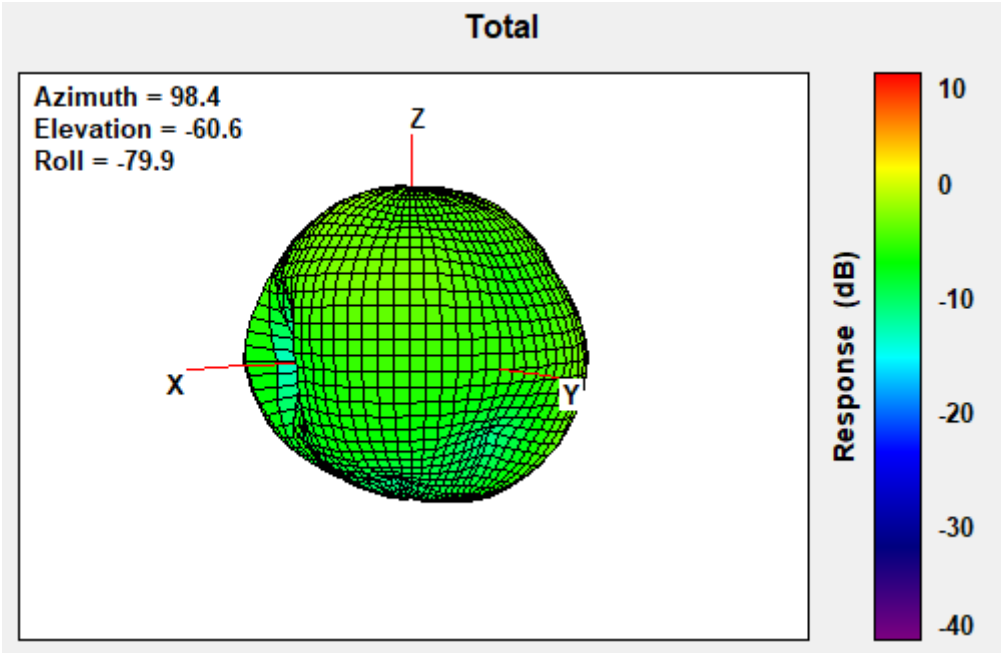


777MHz



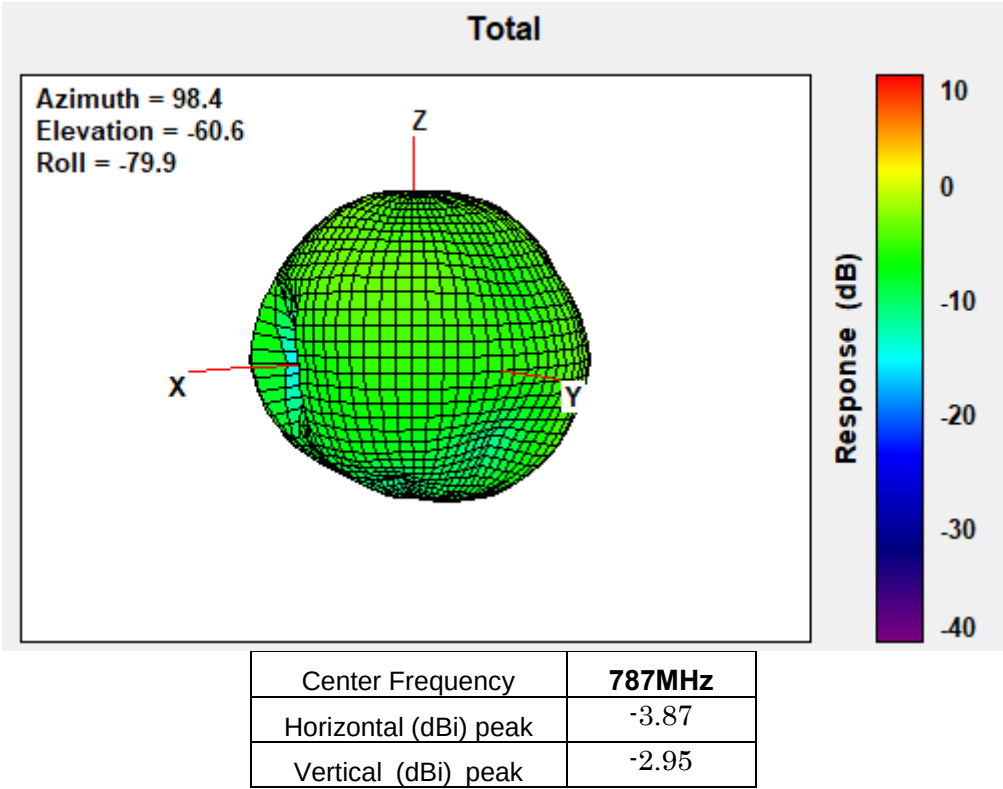
Center Frequency	777MHz
Horizontal (dBi) peak	-2.50
Vertical (dBi) peak	-2.17

782MHz

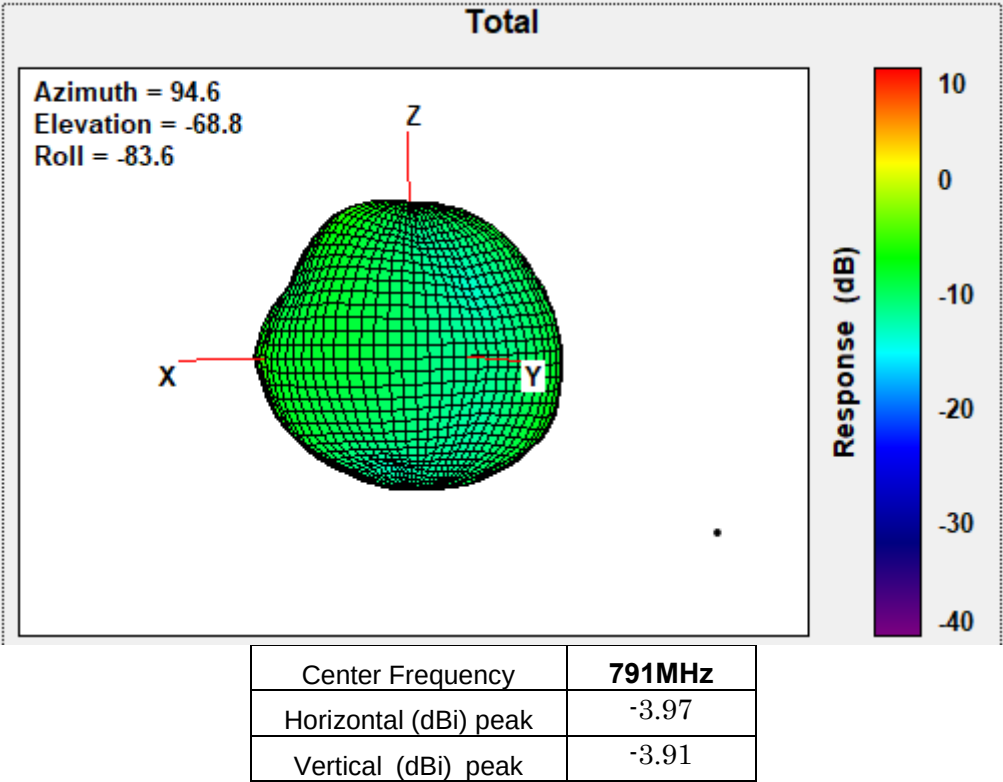


Center Frequency	782MHz
Horizontal (dBi) peak	-3.06
Vertical (dBi) peak	-2.57

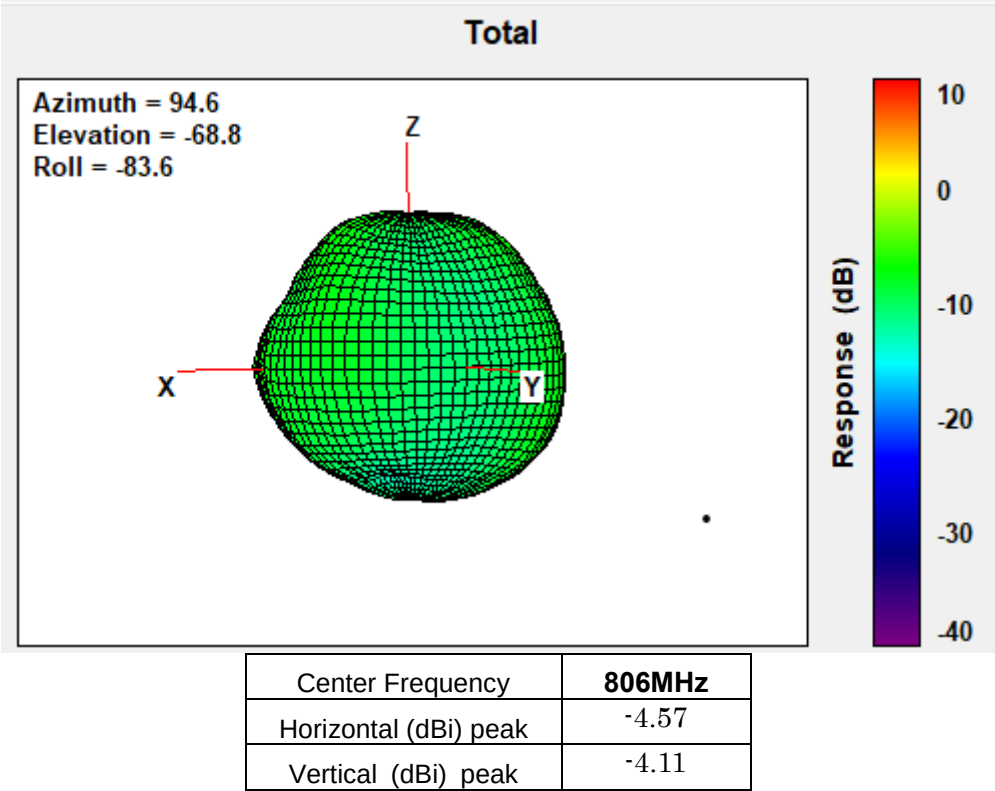
787MHz



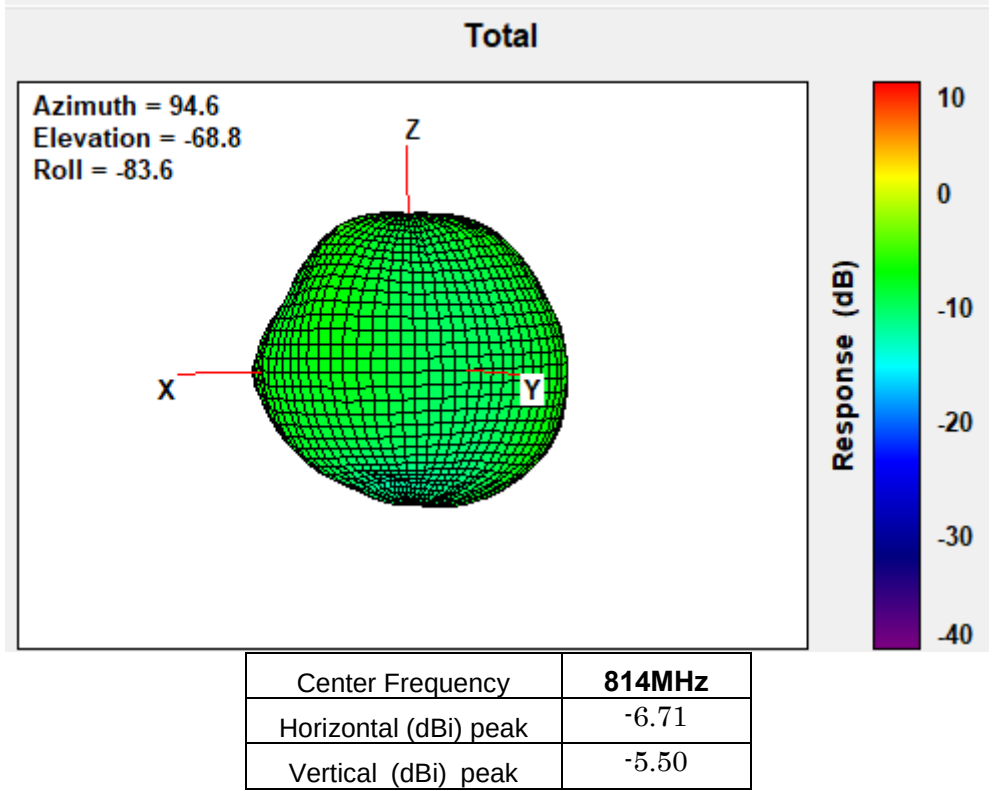
791MHz



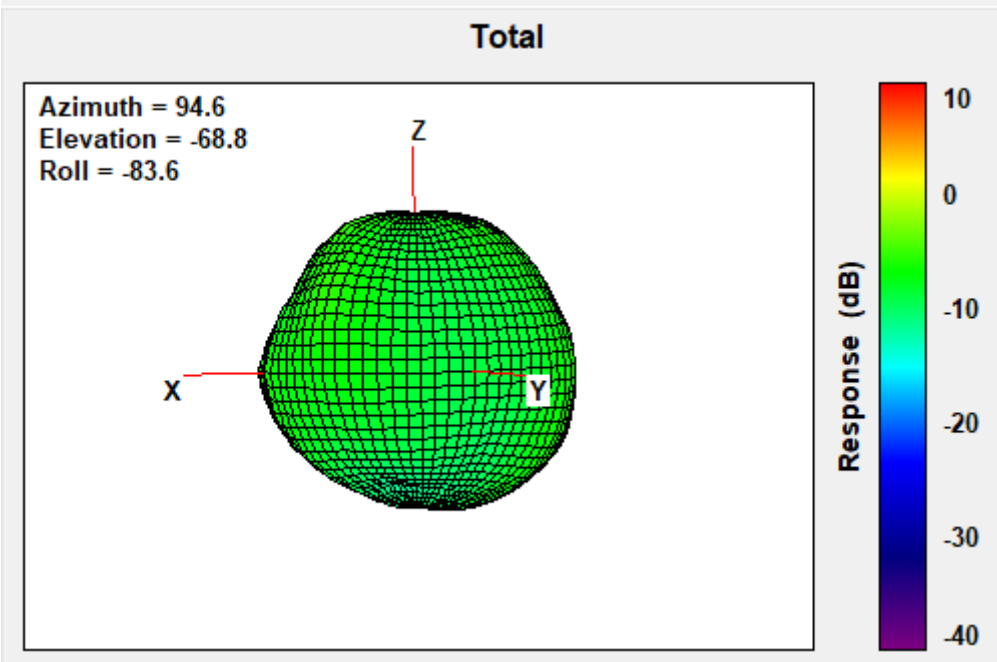
806MHz



814MHz

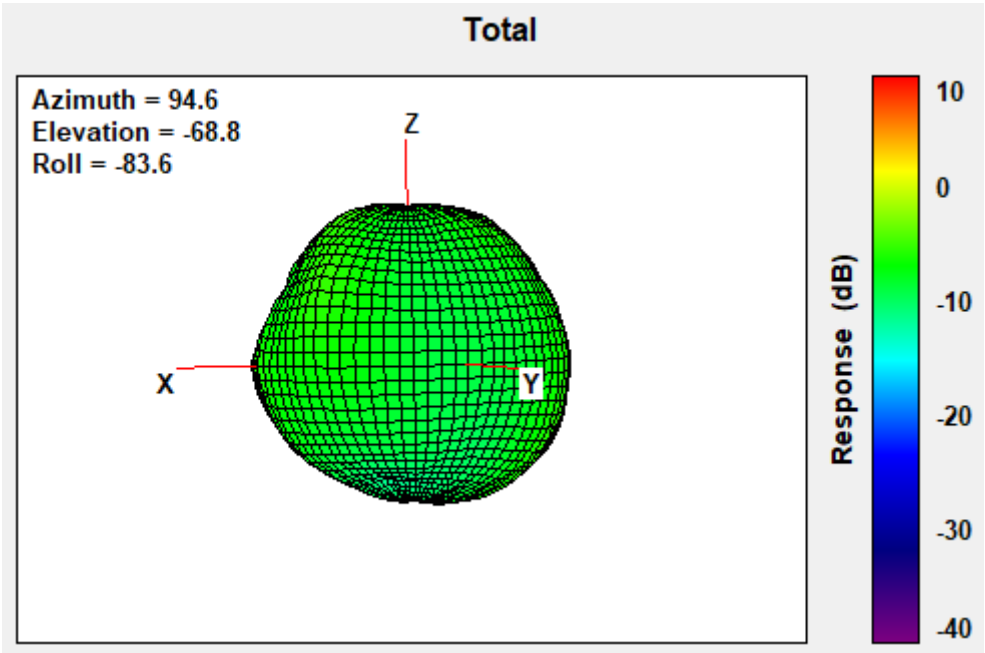


821MHz



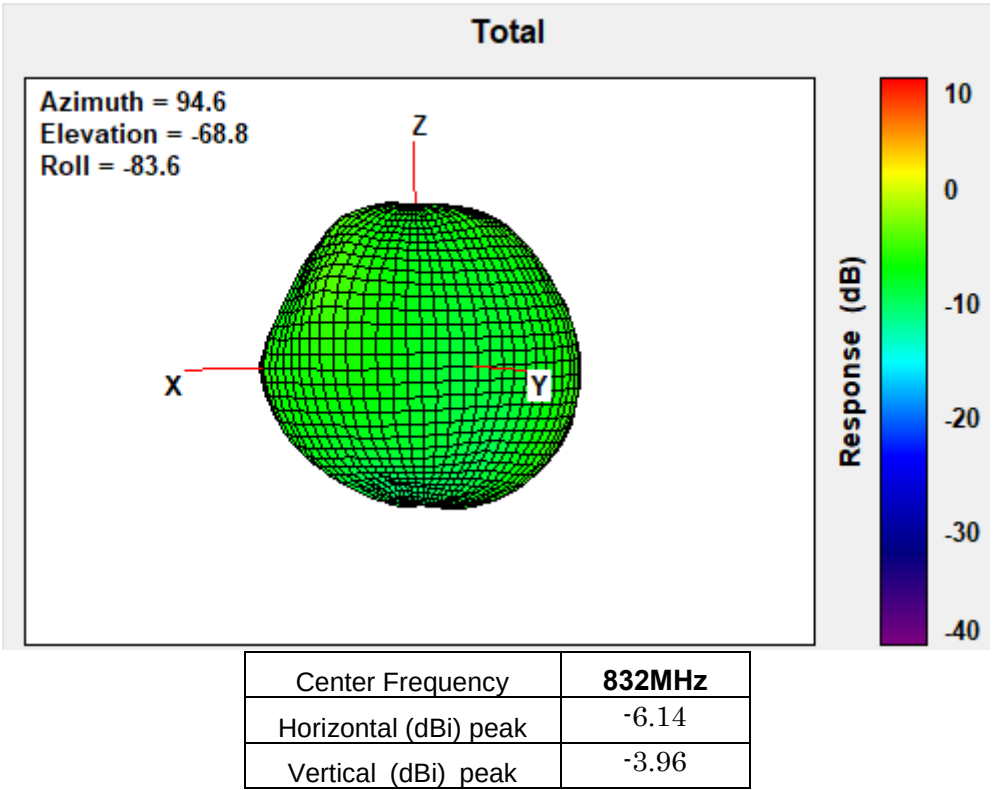
Center Frequency	821MHz
Horizontal (dBi) peak	-4.97
Vertical (dBi) peak	-5.04

824MHz

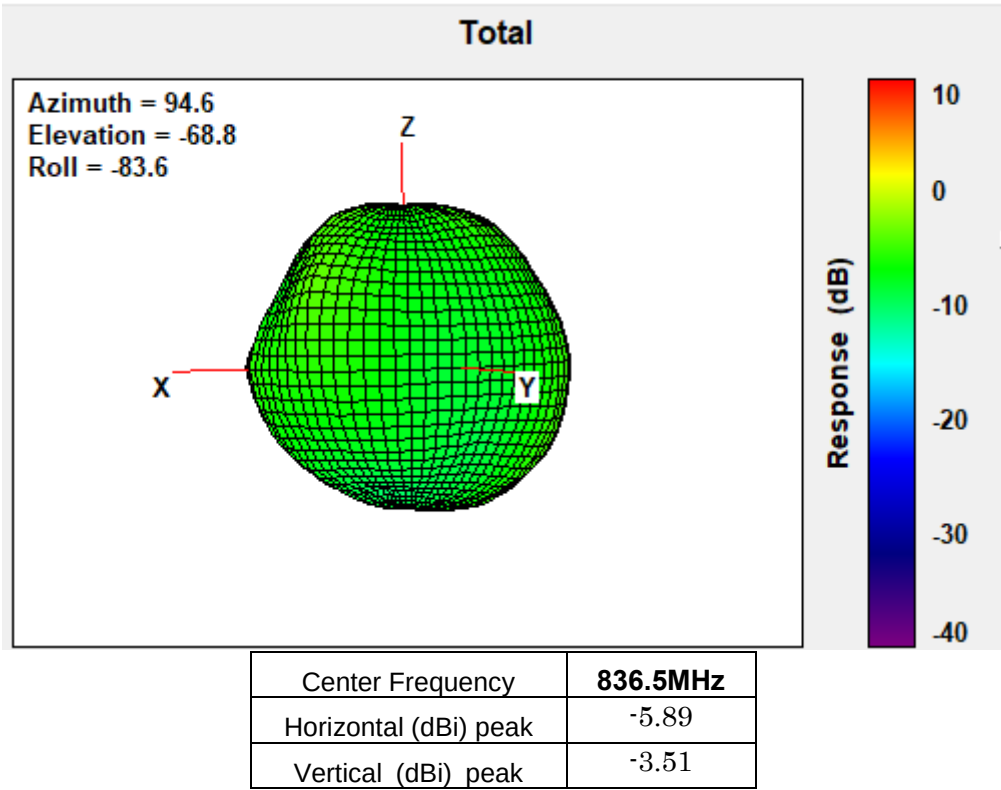


Center Frequency	824MHz
Horizontal (dBi) peak	-6.72
Vertical (dBi) peak	-4.86

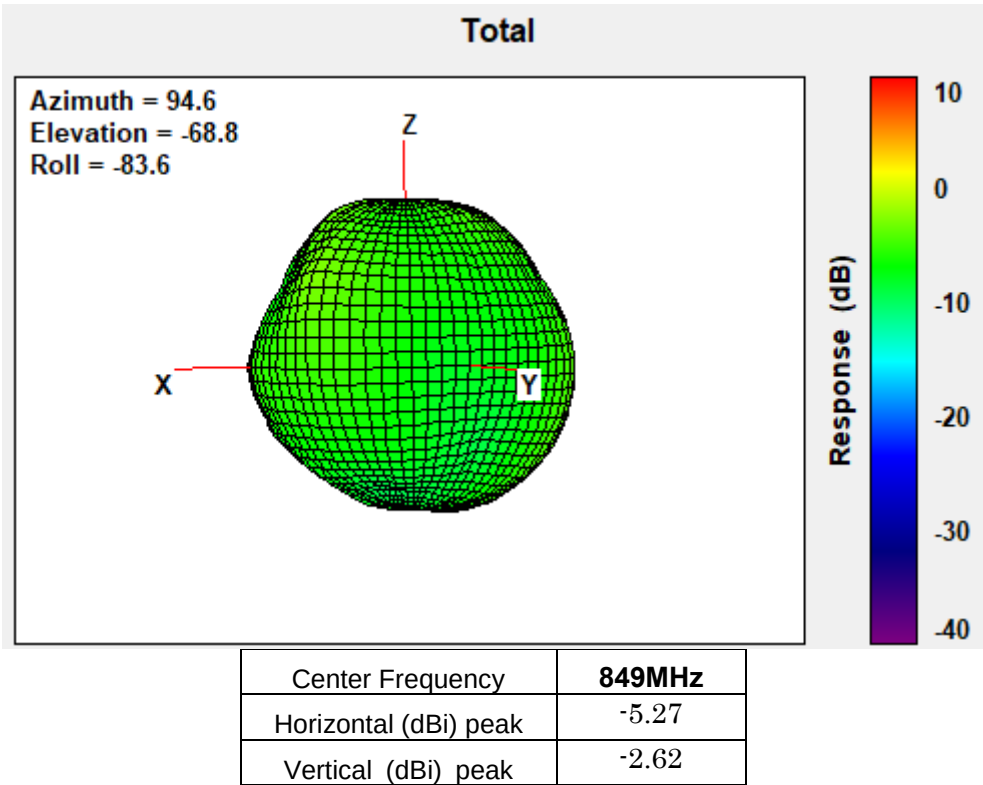
832MHz



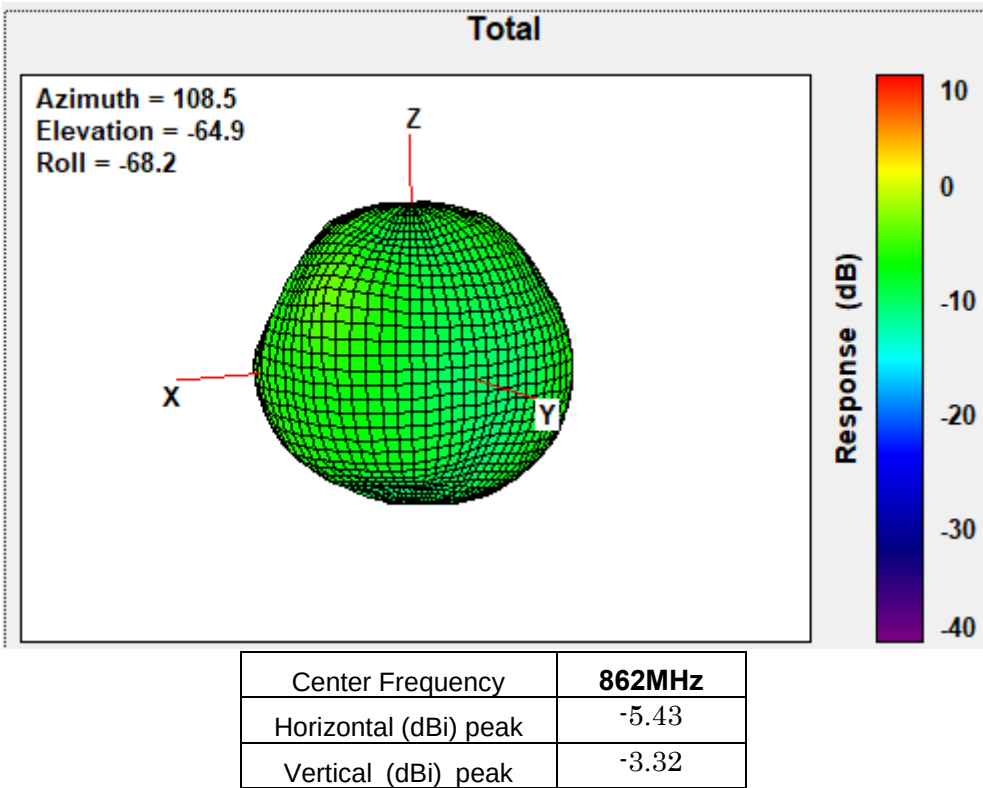
836.5MHz



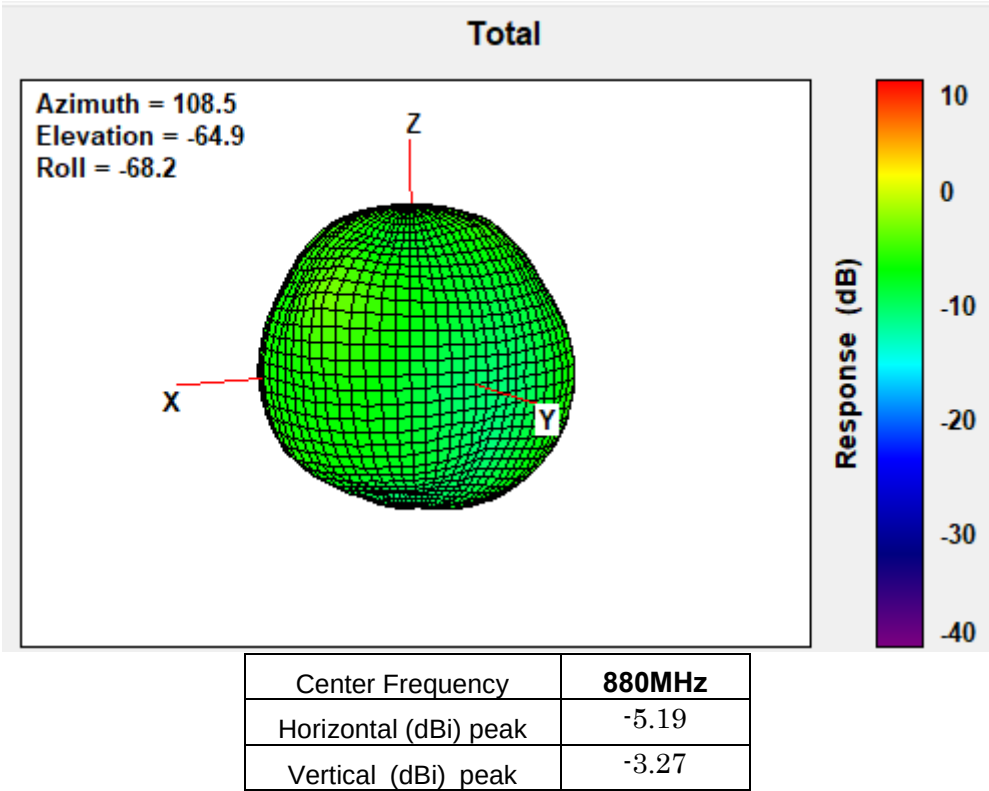
849MHz



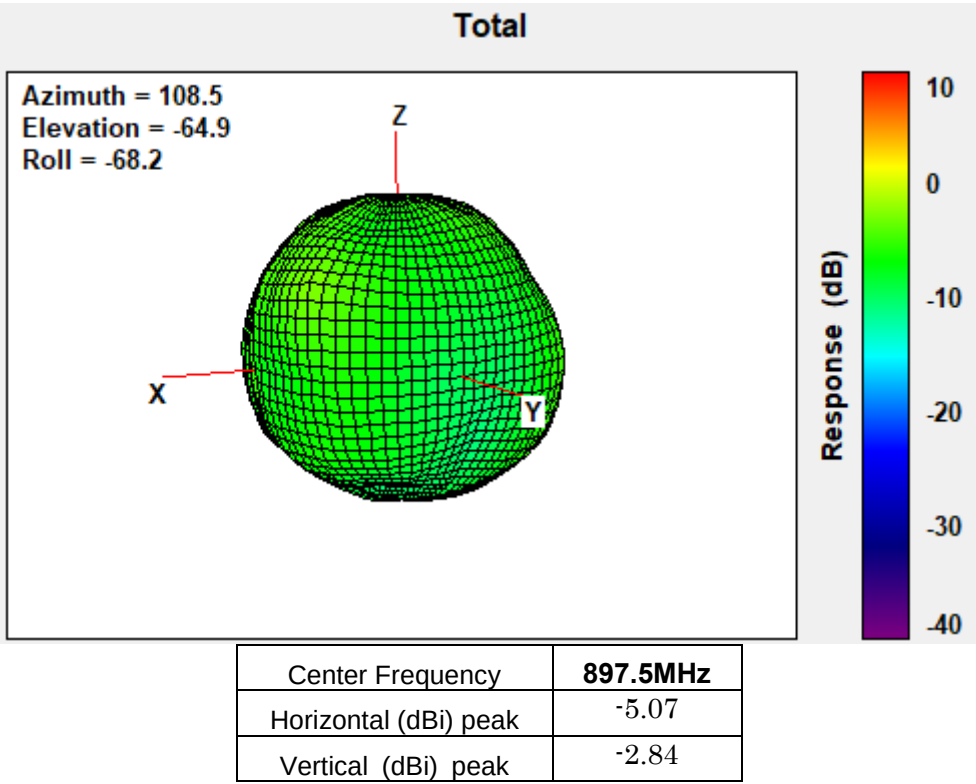
862MHz



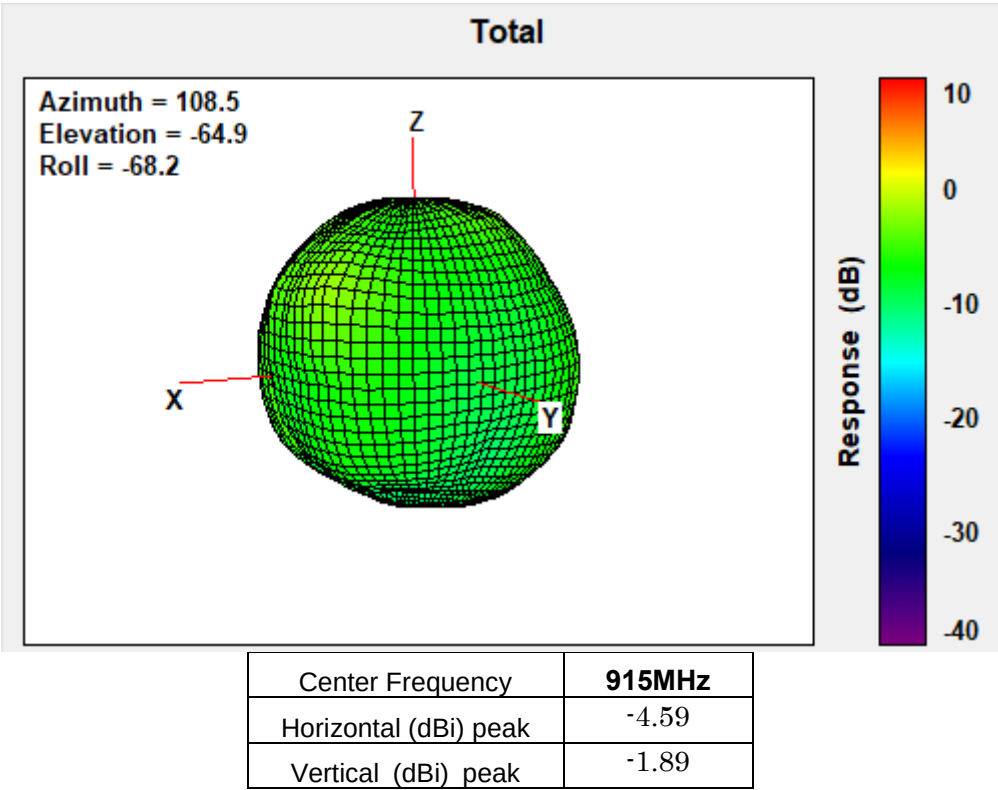
880MHz



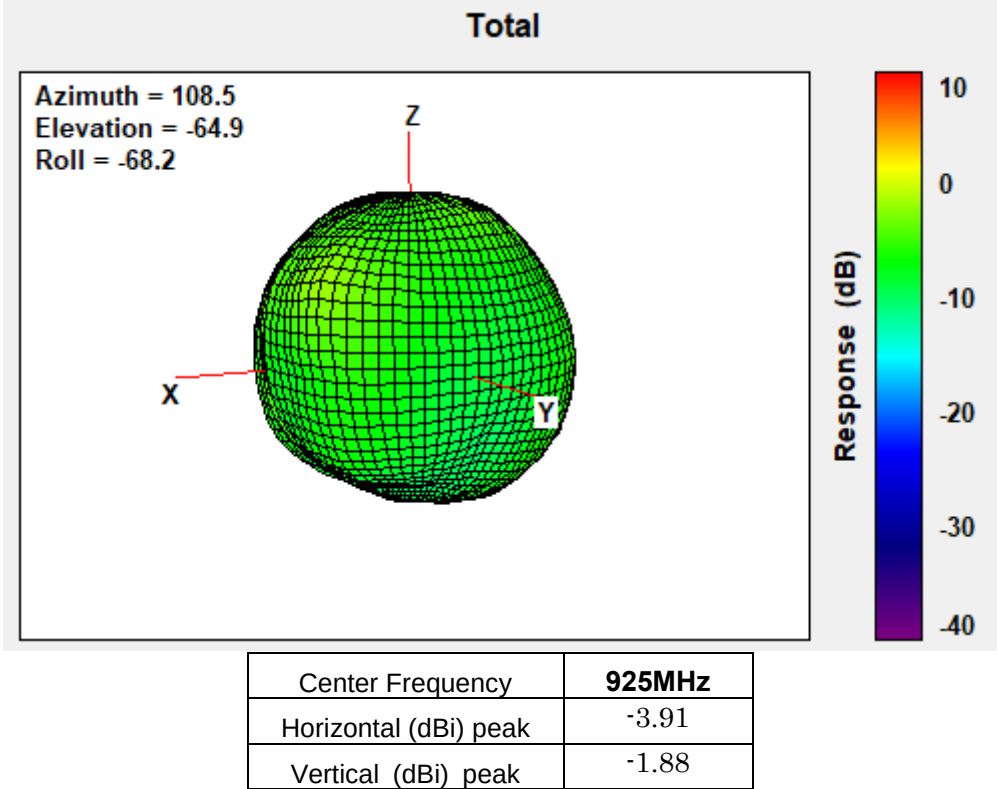
897.5MHz



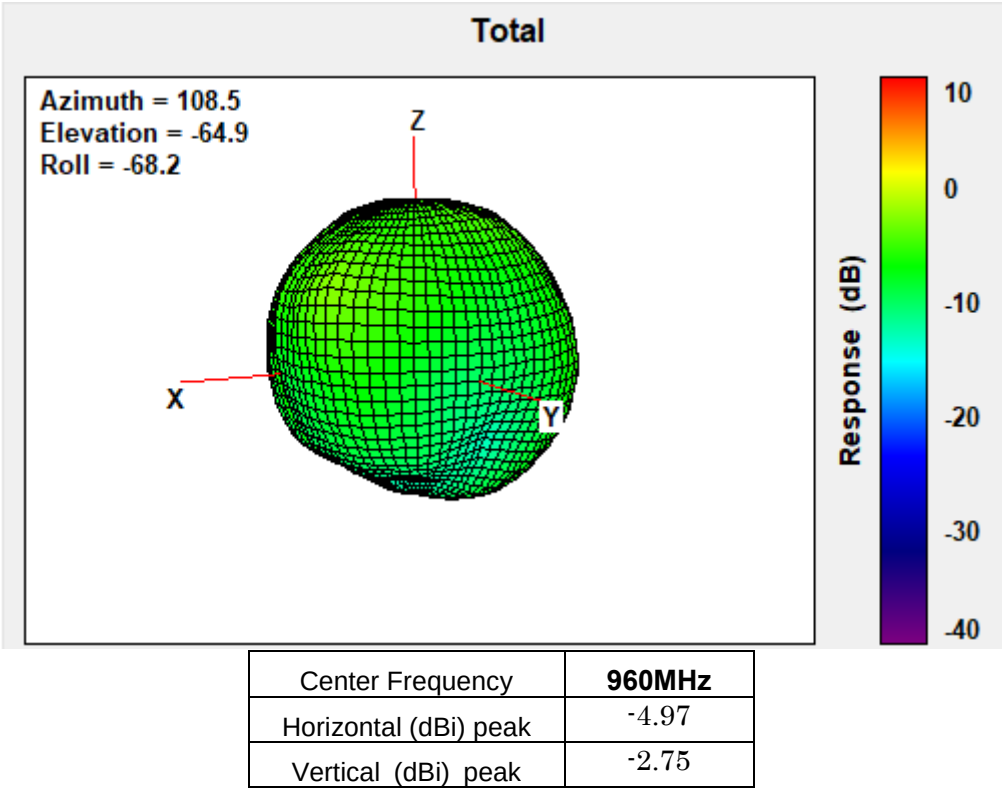
915MHz



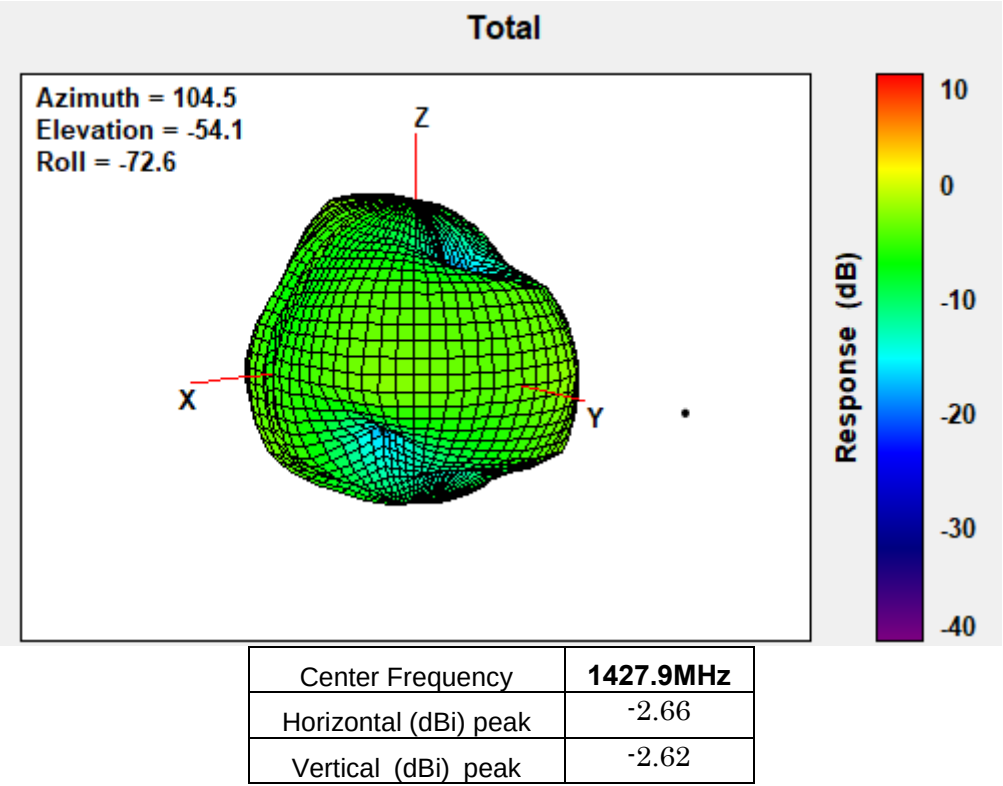
925MHz



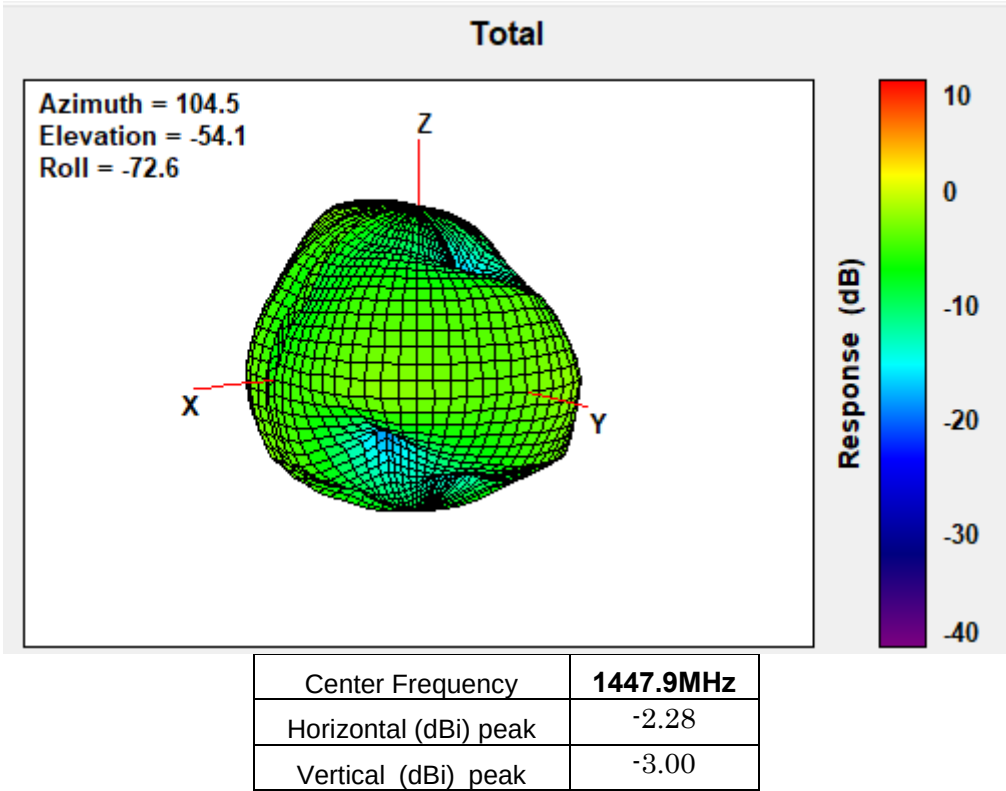
960MHz



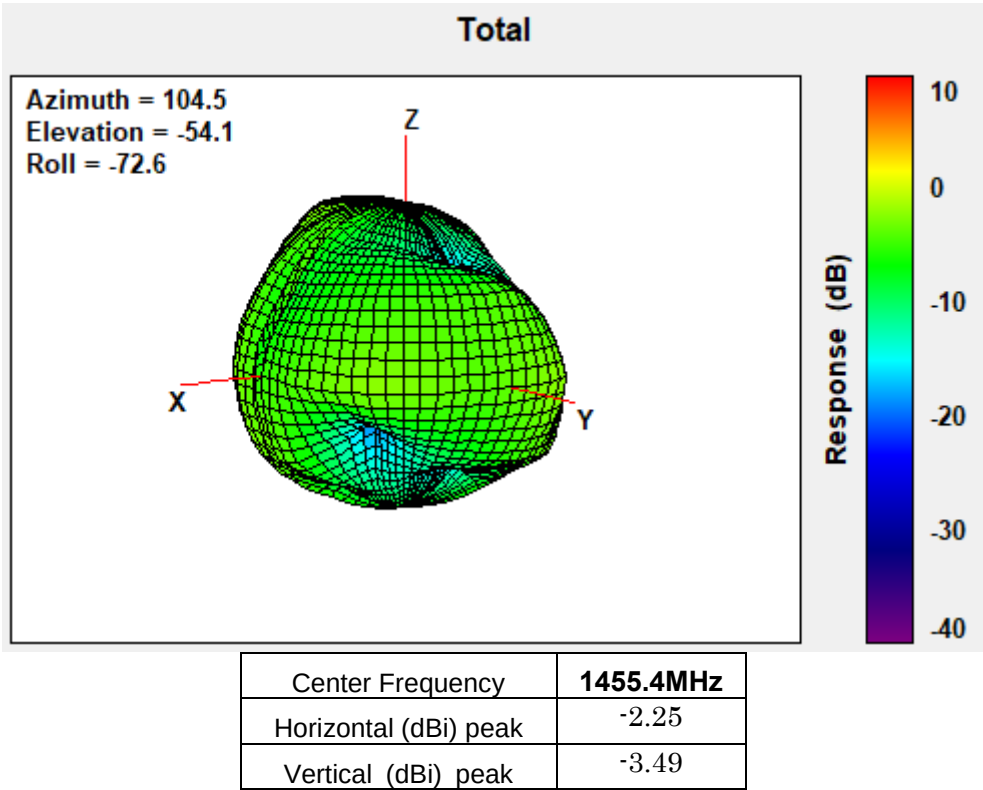
1427.9MHz



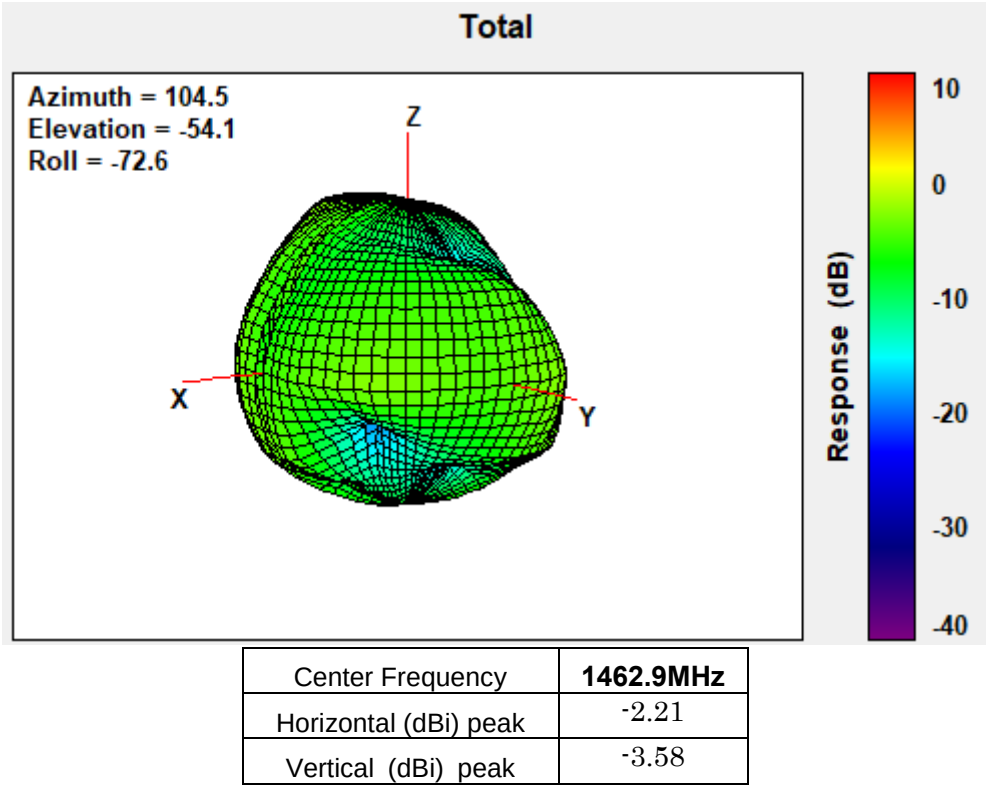
1447.9MHz



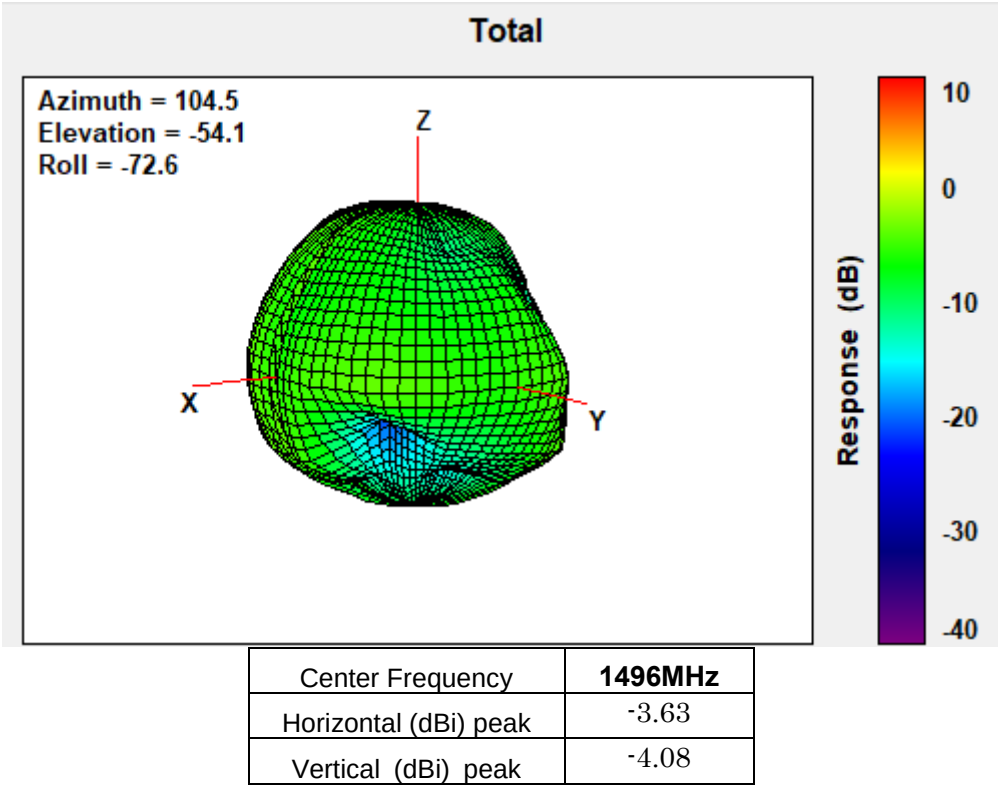
1455.4MHz



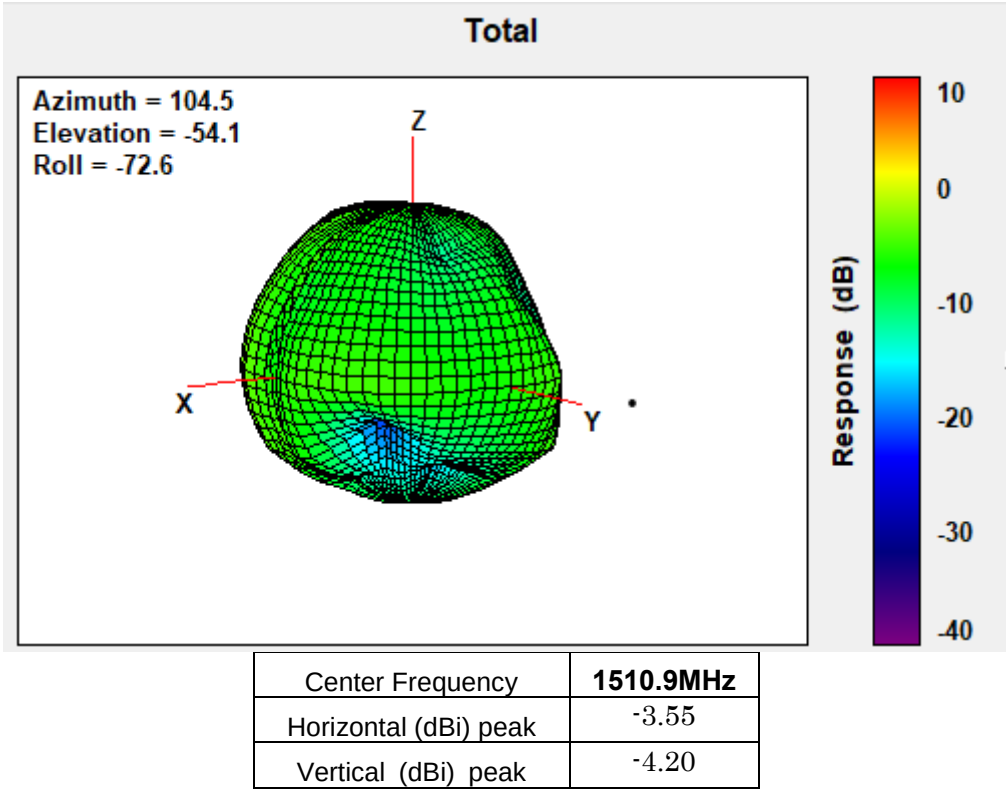
1462.9MHz



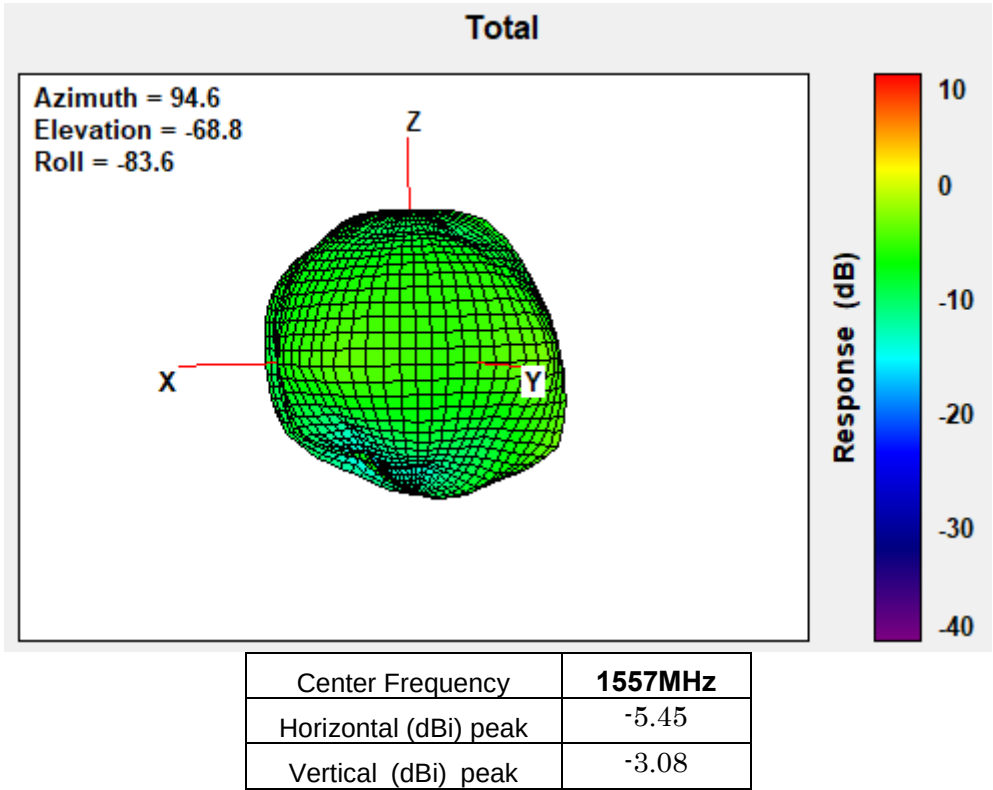
1496MHz



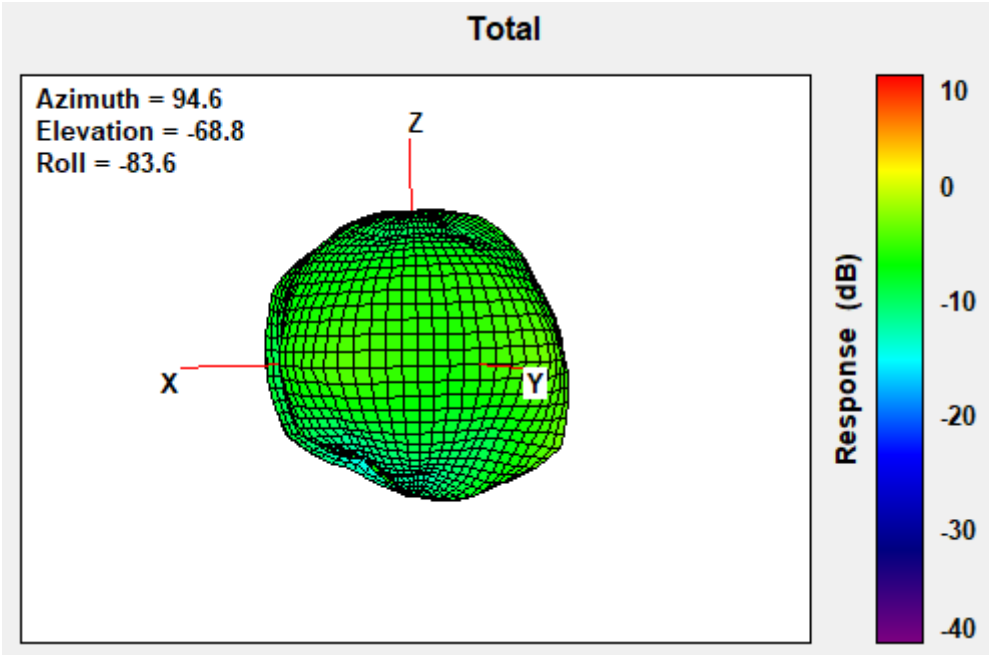
1510.9MHz



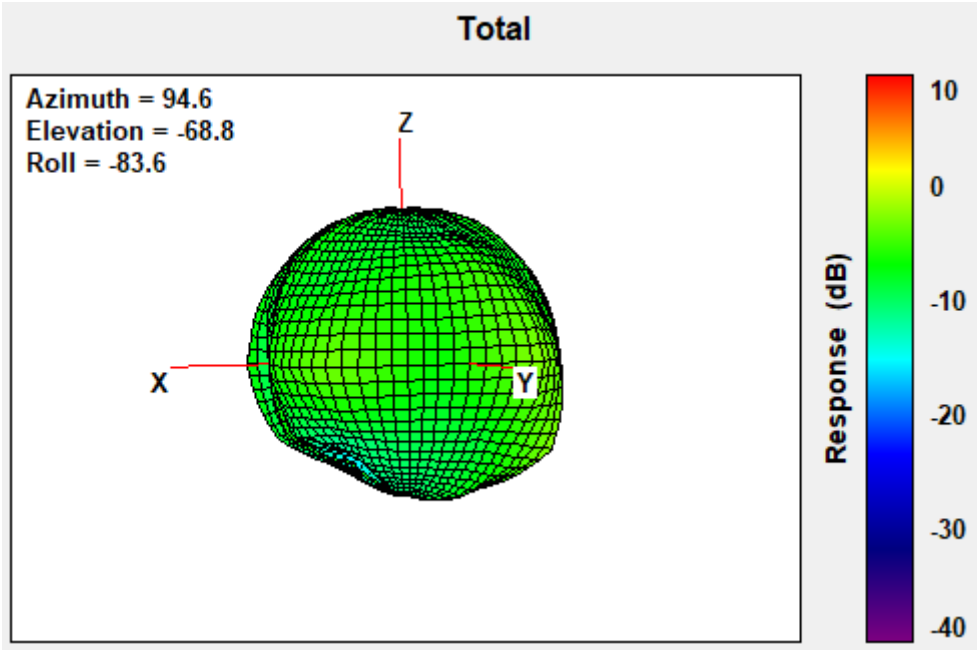
1557MHz



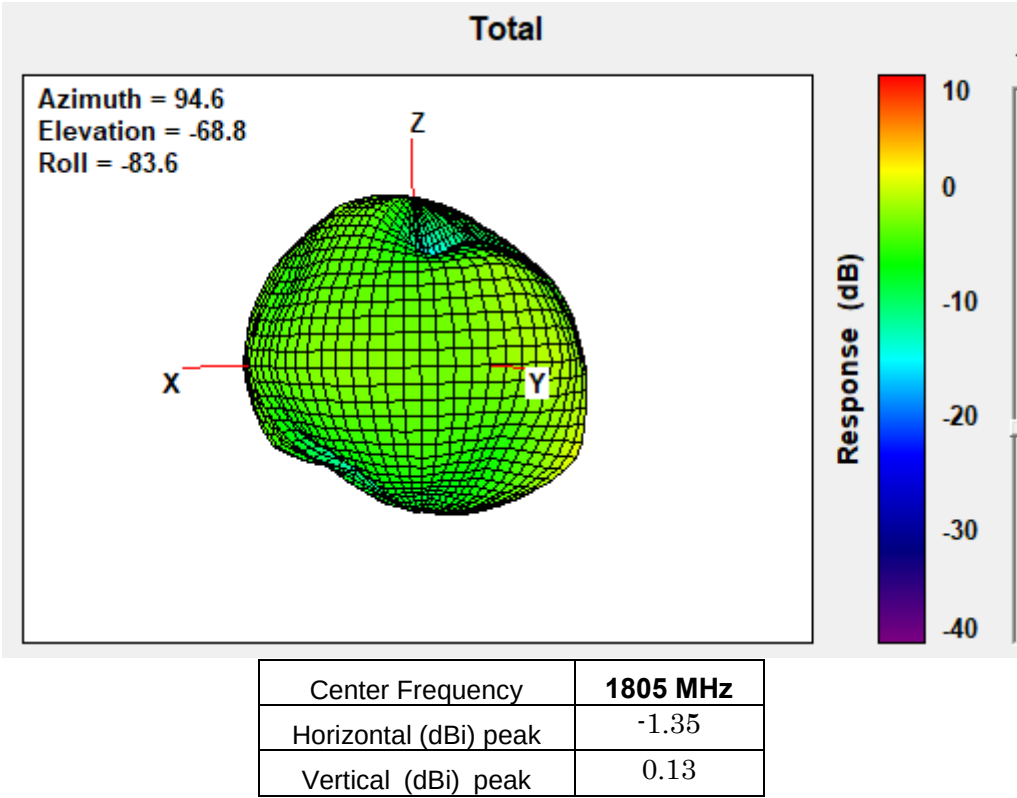
1575MHz



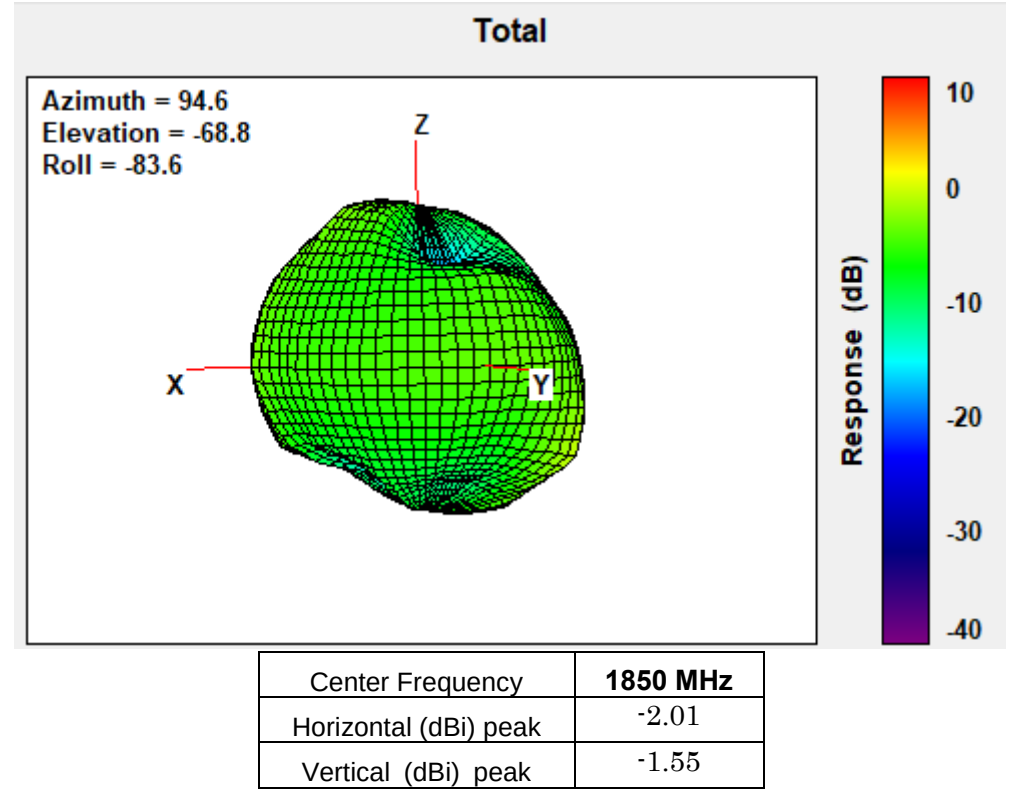
1610MHz



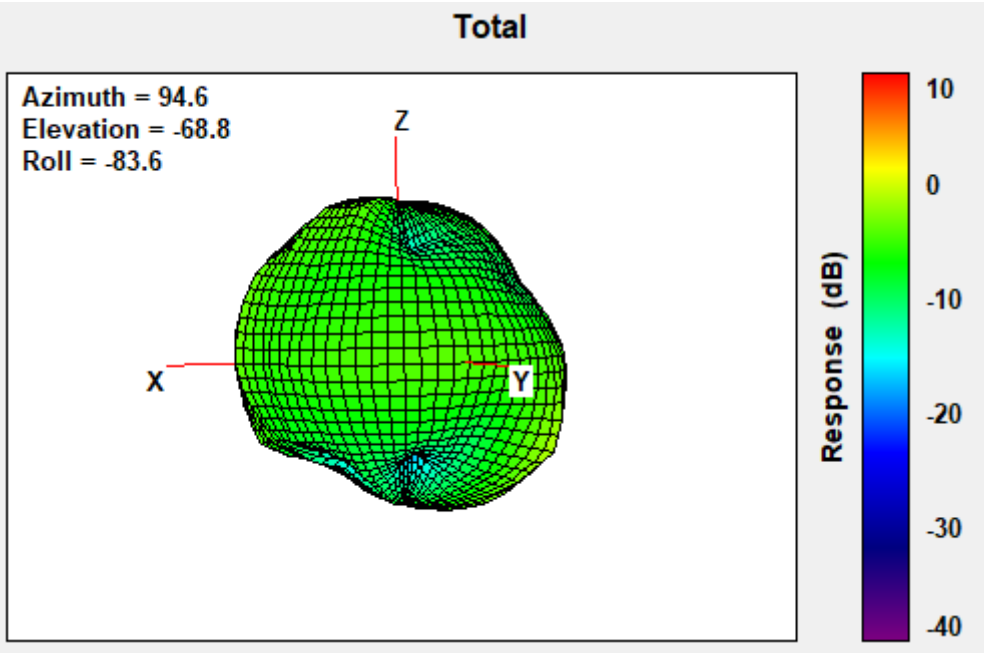
1805 MHz



1850 MHz

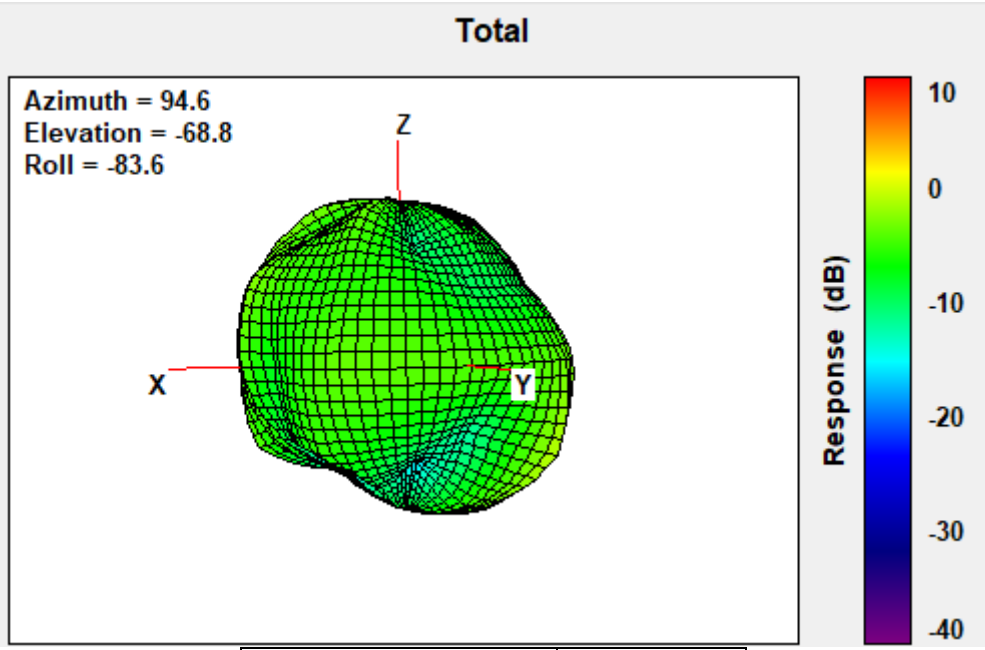


1880 MHz



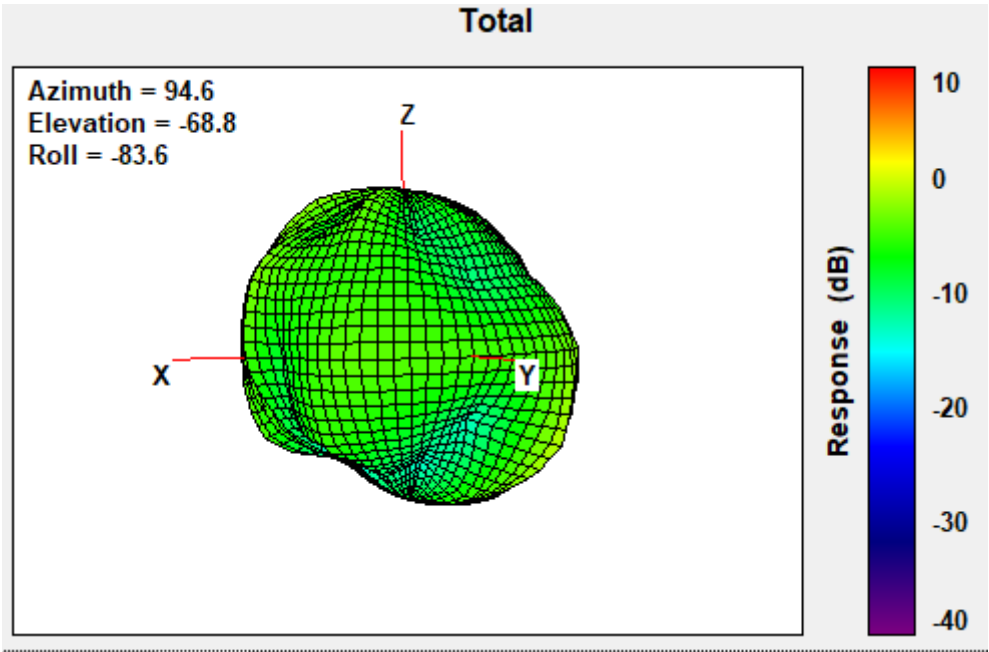
Center Frequency	1880 MHz
Horizontal (dBi) peak	-3.33
Vertical (dBi) peak	-2.41

1910MHz



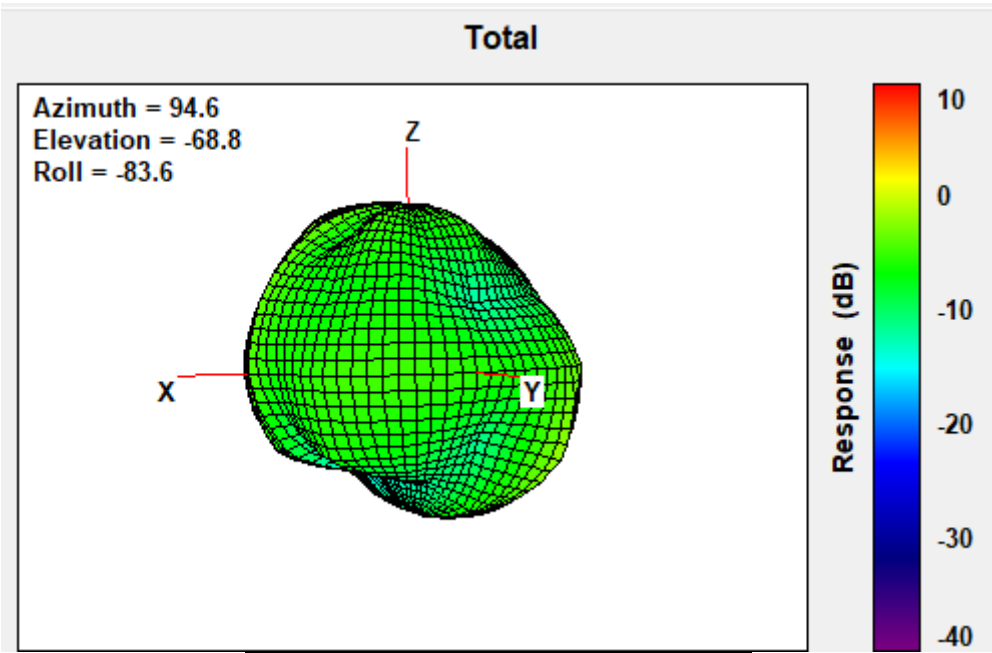
Center Frequency	1910MHz
Horizontal (dBi) peak	-2.57
Vertical (dBi) peak	-2.13

1920MHz



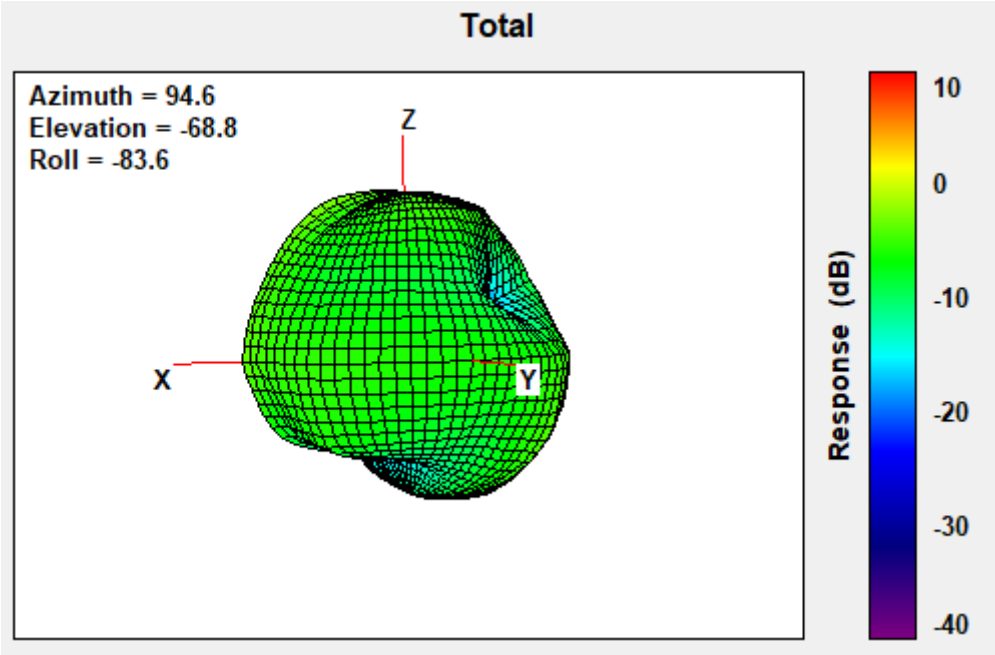
Center Frequency	1920MHz
Horizontal (dBi) peak	-2.35
Vertical (dBi) peak	-1.88

1950MHz



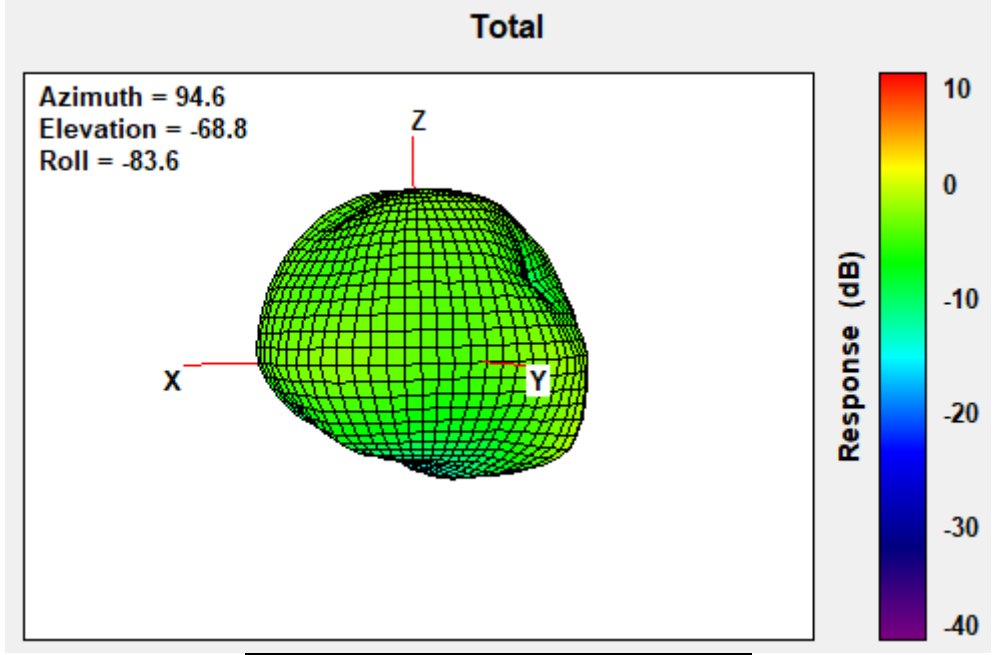
Center Frequency	1950MHz
Horizontal (dBi) peak	-2.56
Vertical (dBi) peak	-2.67

1980MHz



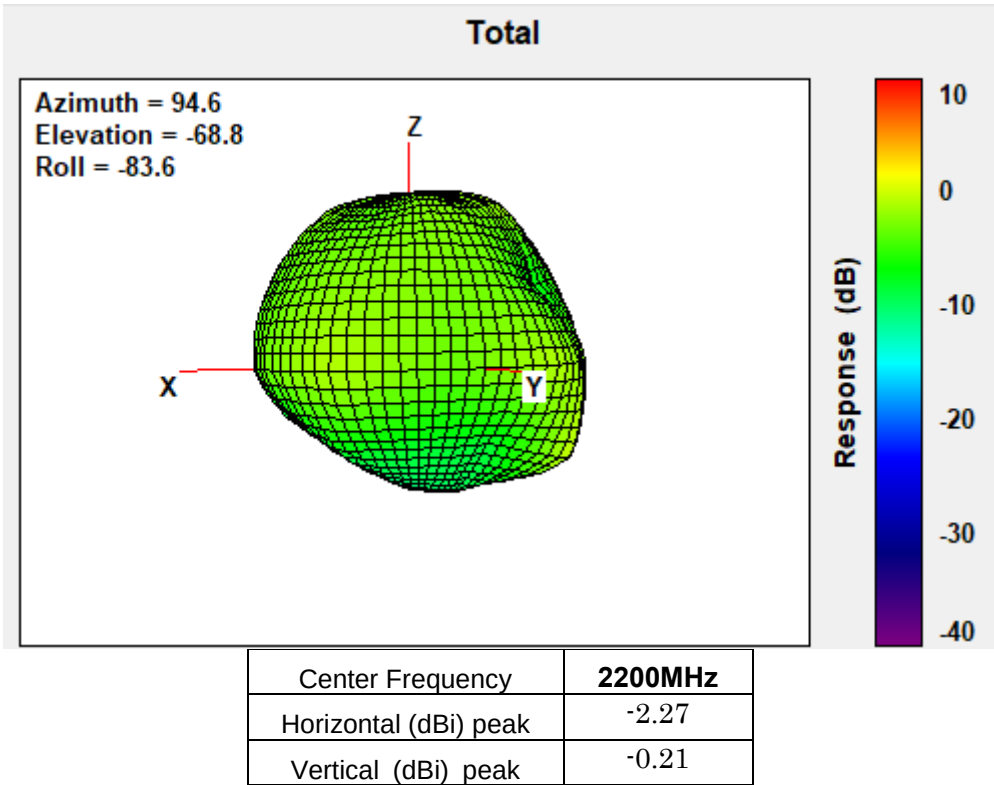
Center Frequency	1980MHz
Horizontal (dBi) peak	-3.63
Vertical (dBi) peak	-3.43

2110MHz

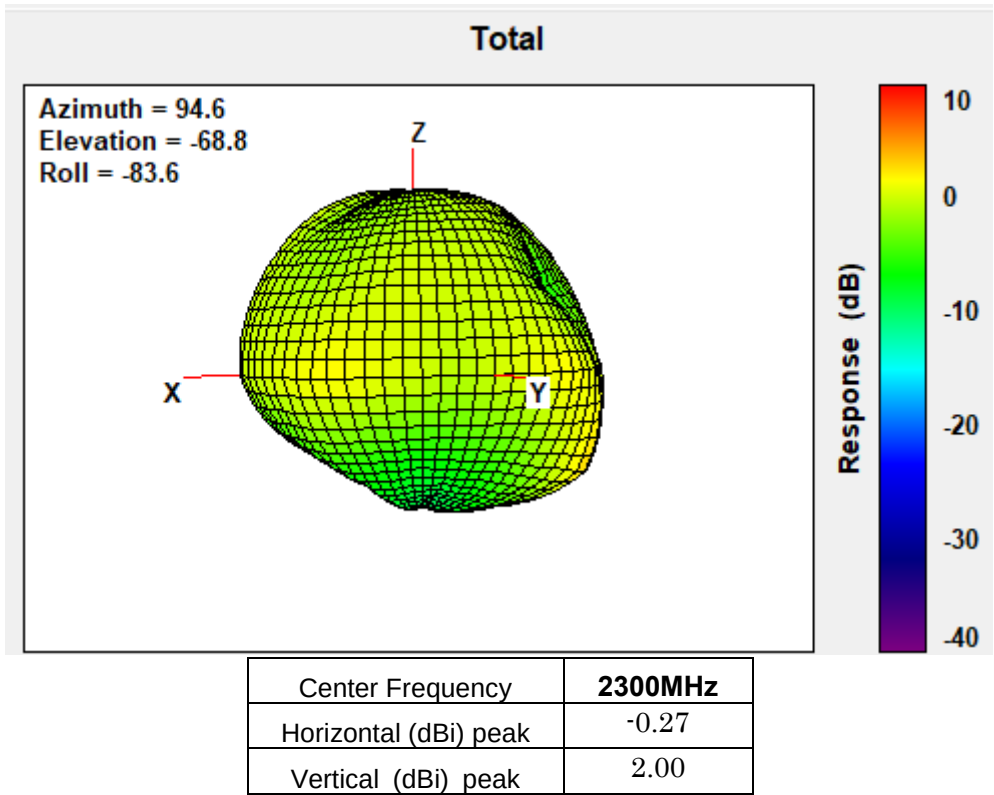


Center Frequency	2110MHz
Horizontal (dBi) peak	-3.06
Vertical (dBi) peak	-0.91

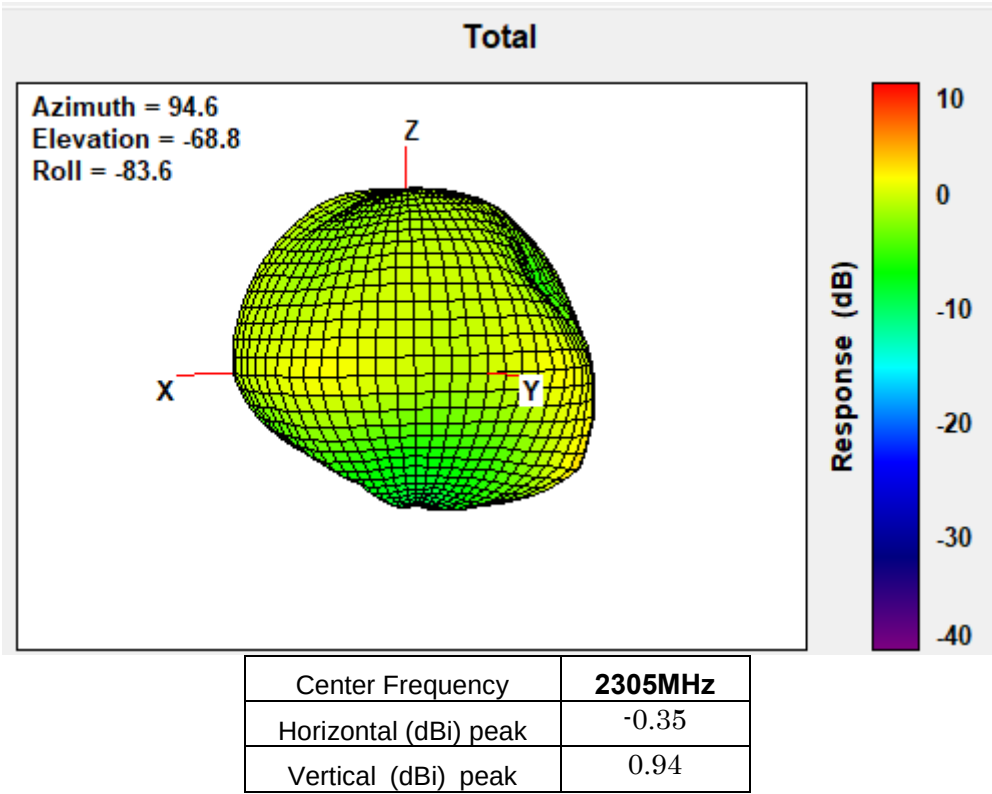
2200MHz



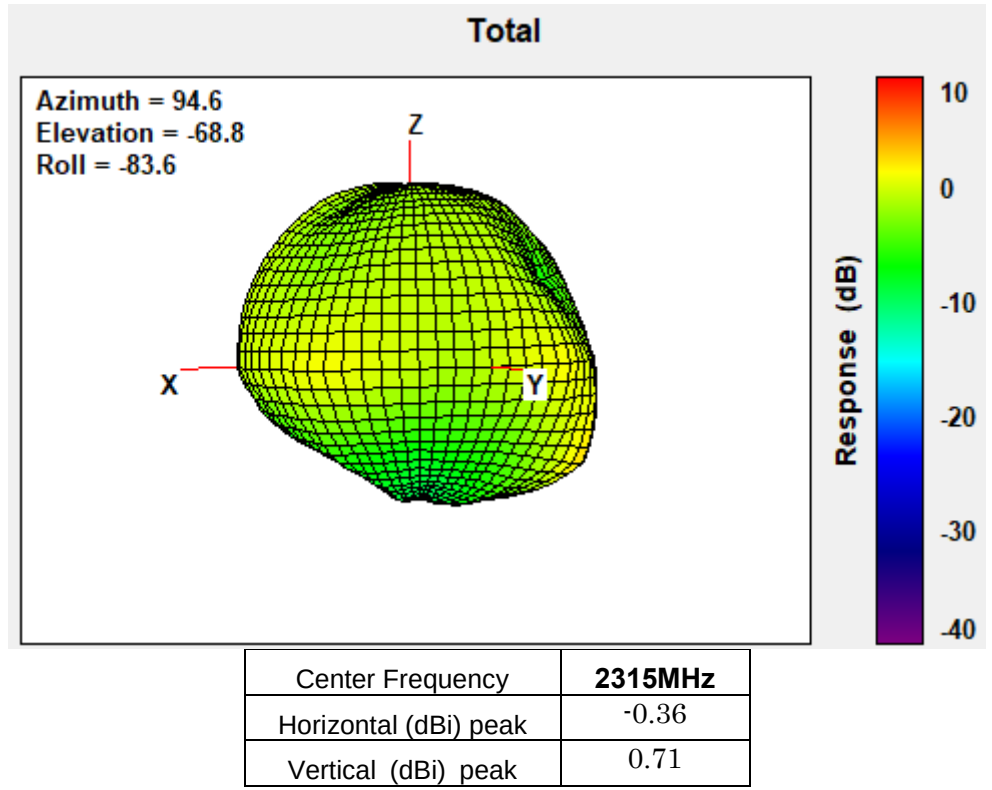
2300MHz



2305MHz

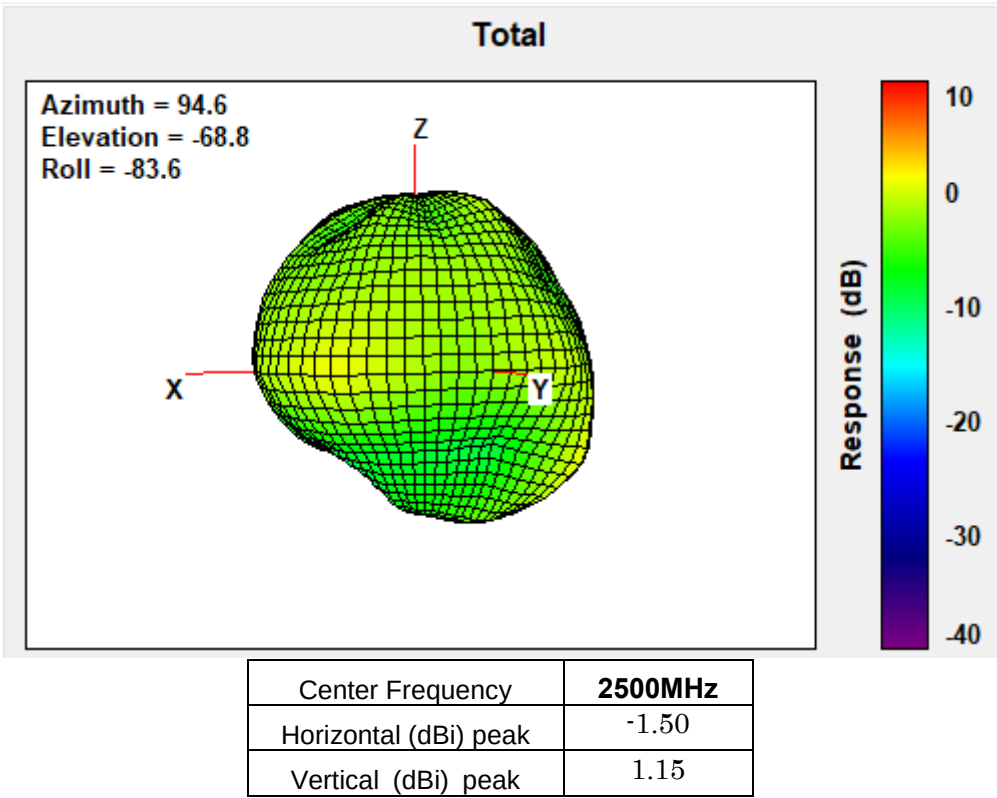


2315MHz

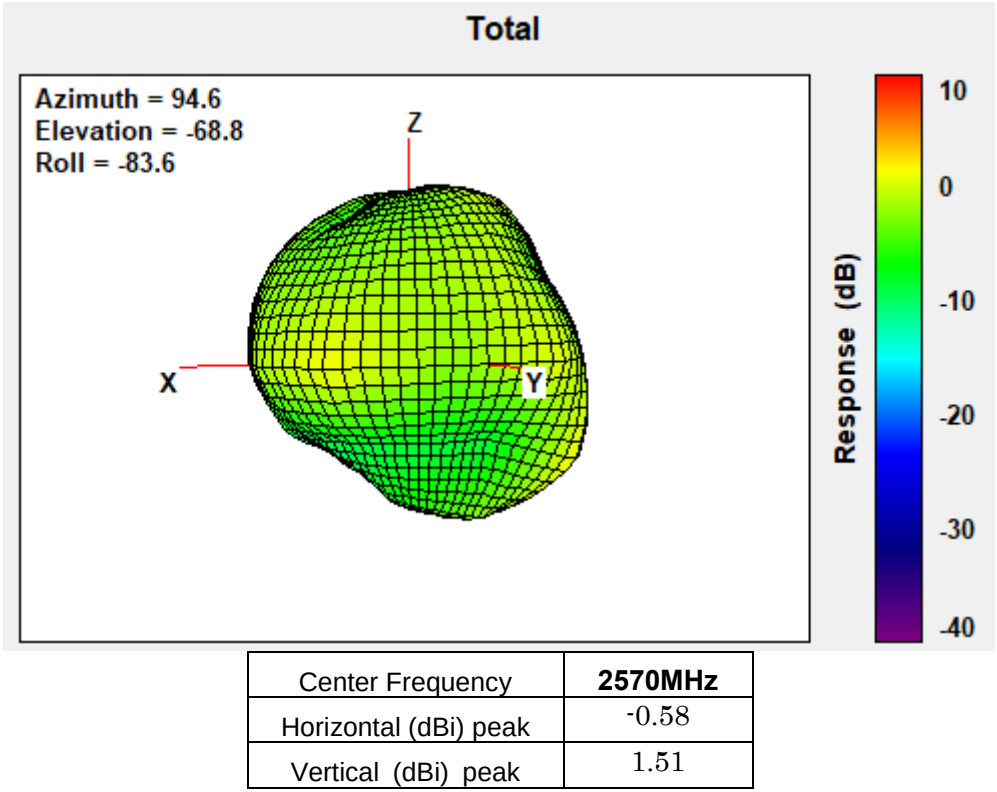




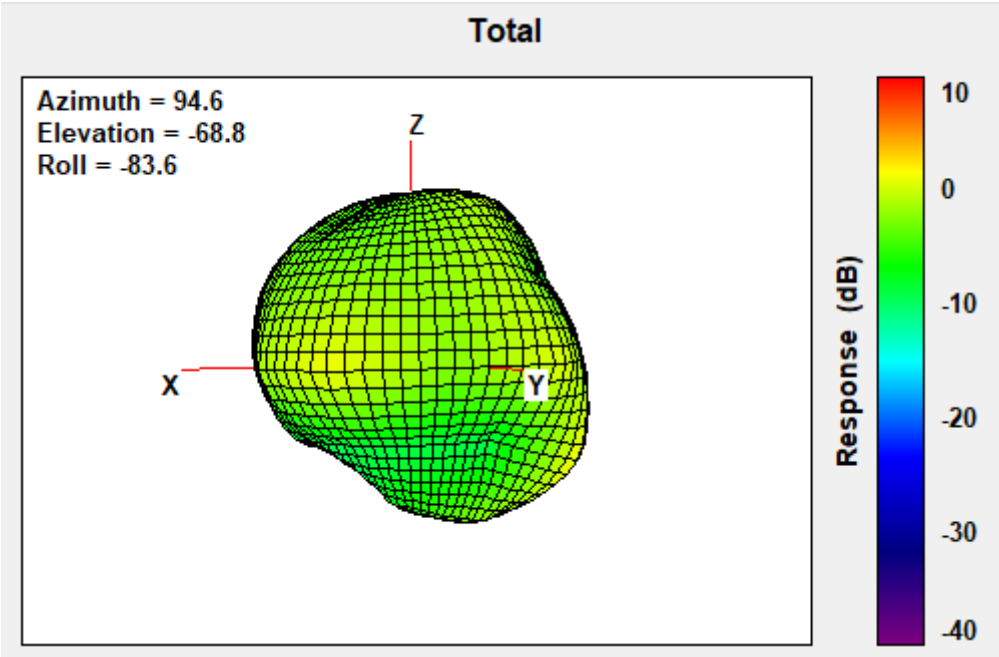
2500MHz



2570MHz

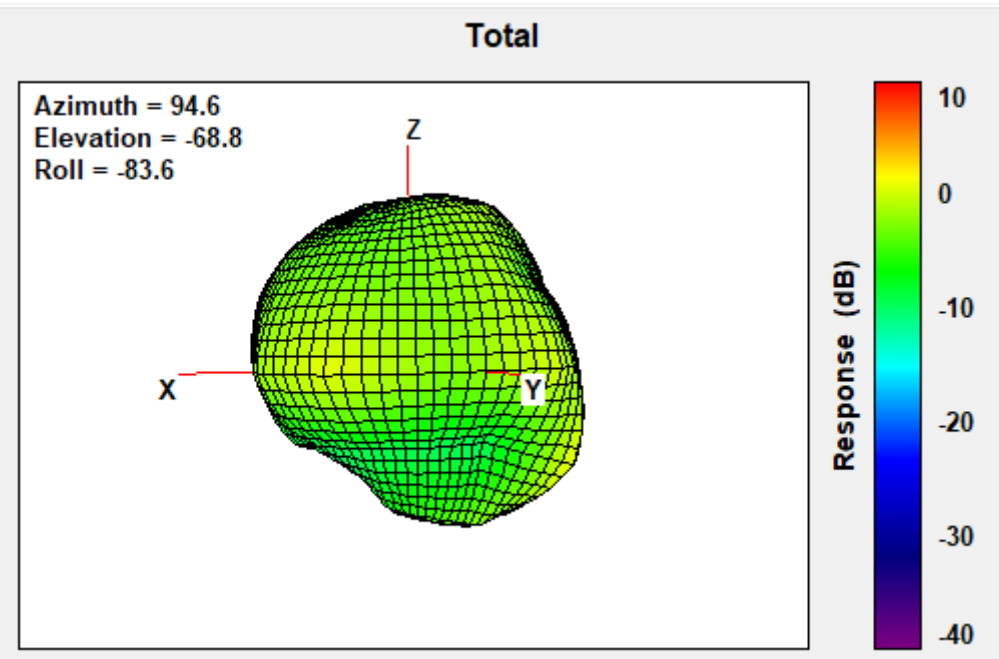


2595MHz



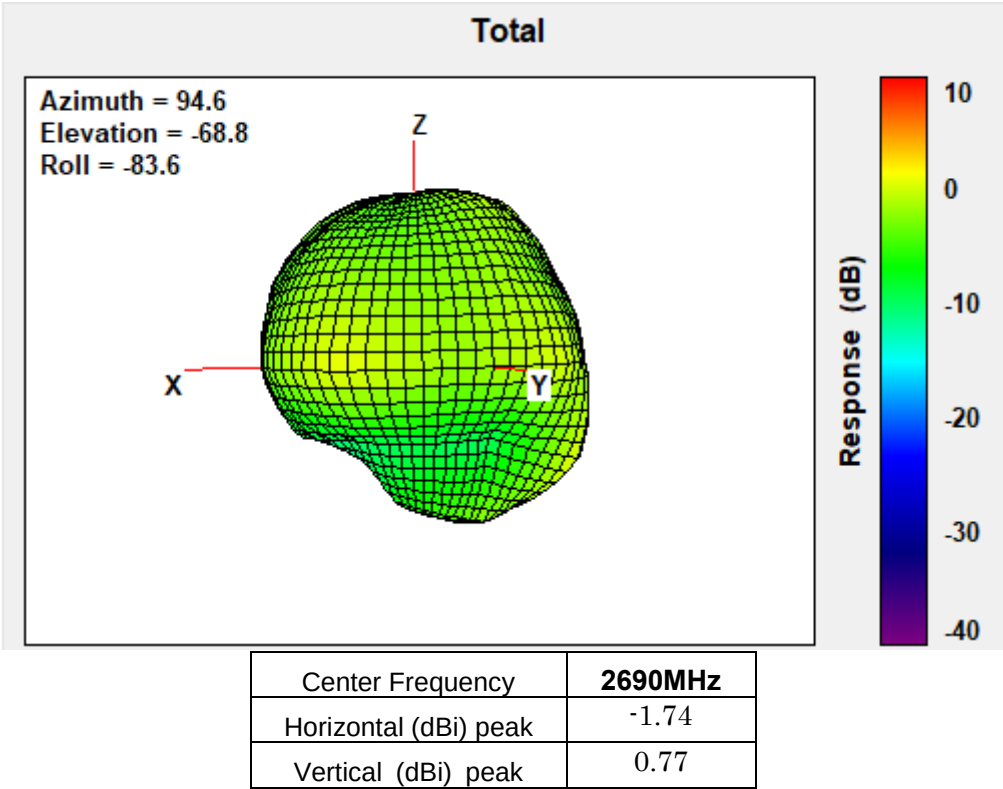
Center Frequency	2595MHz
Horizontal (dBi) peak	-1.01
Vertical (dBi) peak	1.47

2620MHz

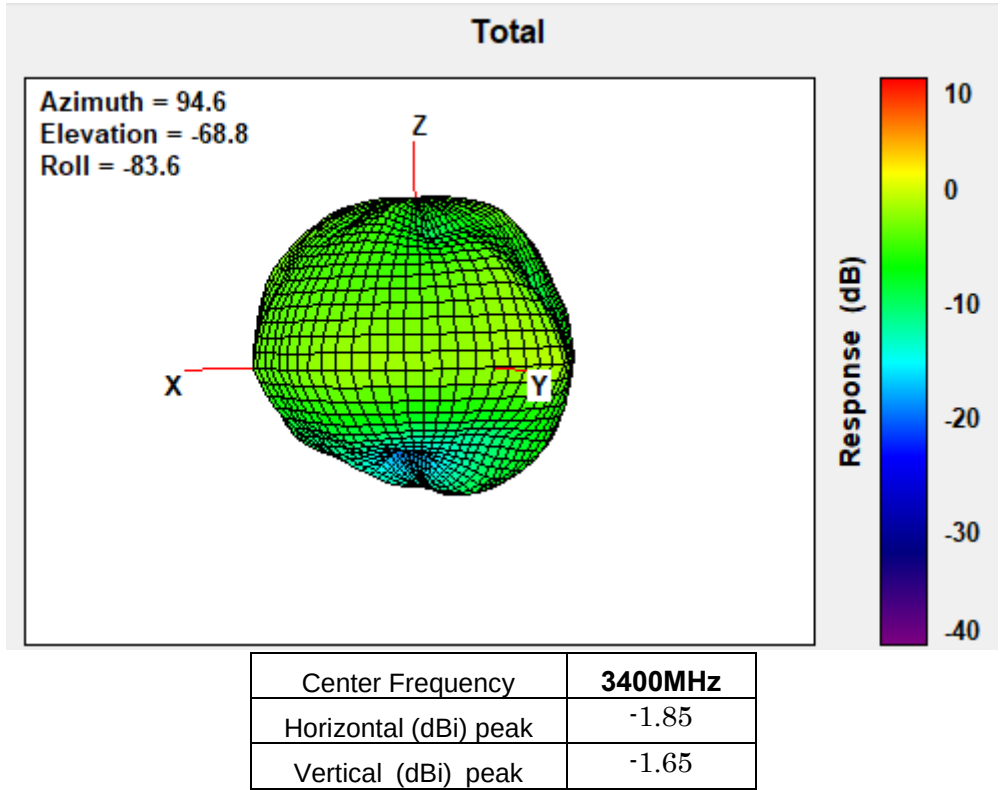


Center Frequency	2620MHz
Horizontal (dBi) peak	-1.40
Vertical (dBi) peak	1.13

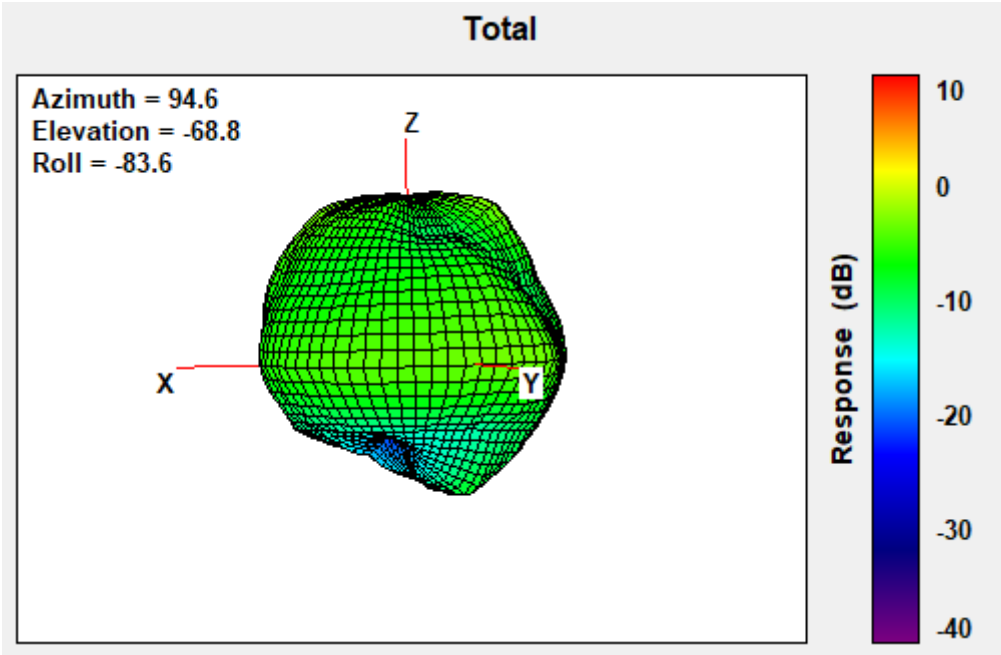
2690MHz



3400MHz

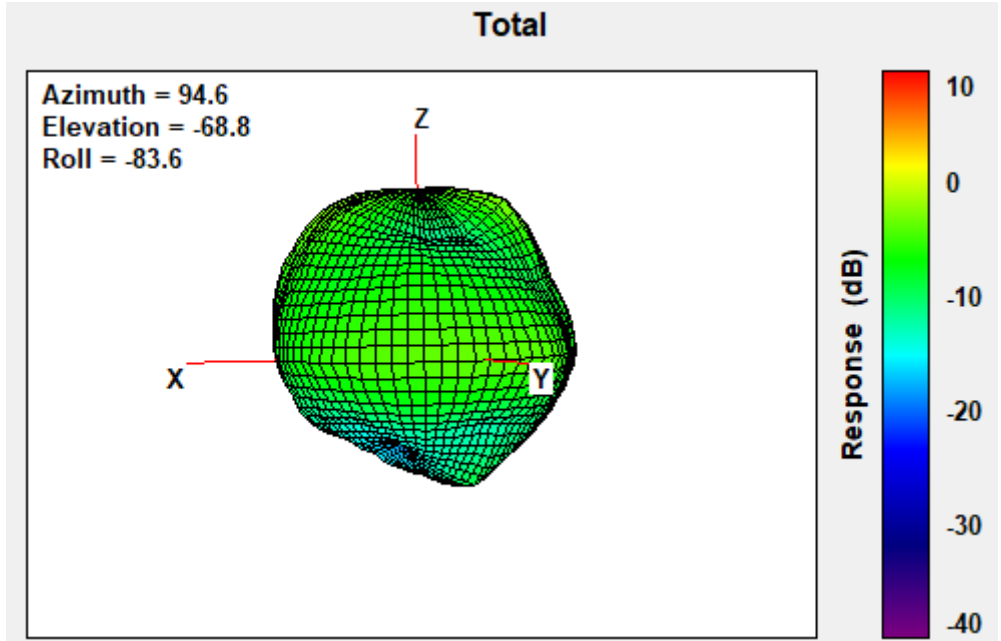


3500MHz



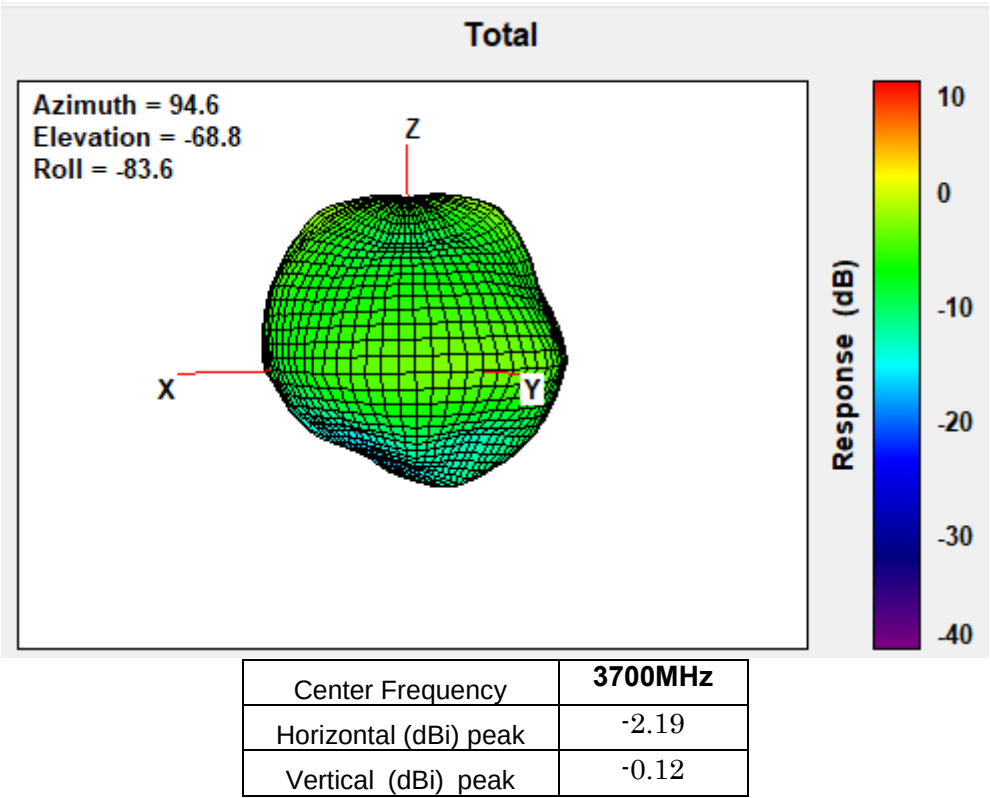
Center Frequency	3500MHz
Horizontal (dBi) peak	-3.35
Vertical (dBi) peak	-2.43

3600MHz

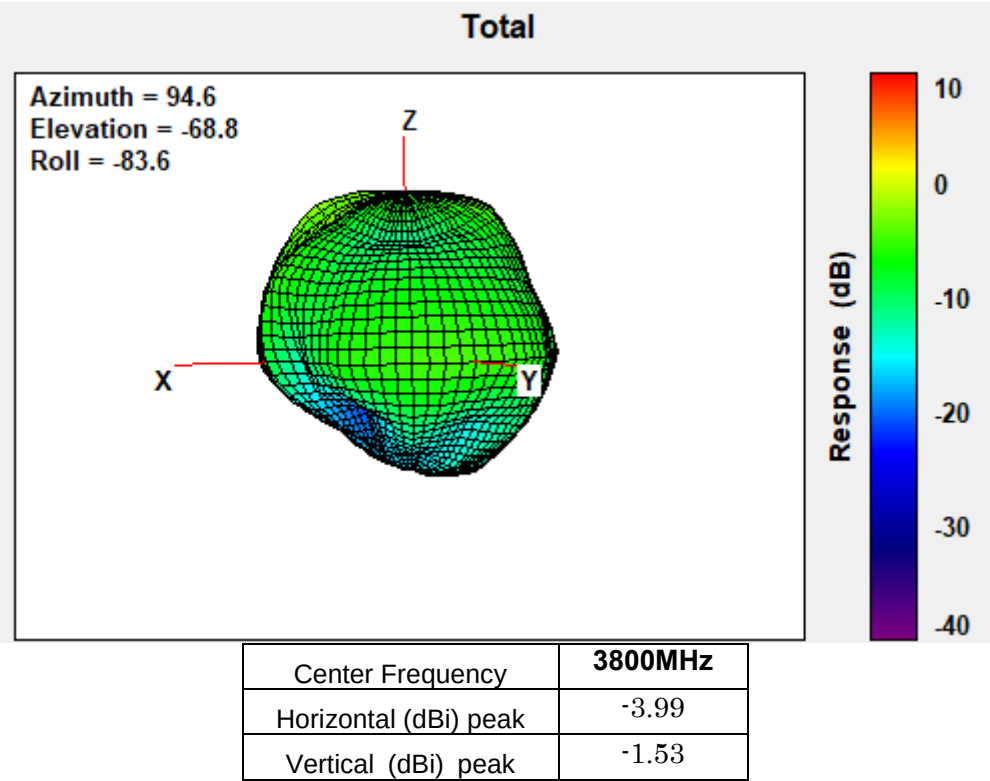


Center Frequency	3600MHz
Horizontal (dBi) peak	-3.28
Vertical (dBi) peak	-1.41

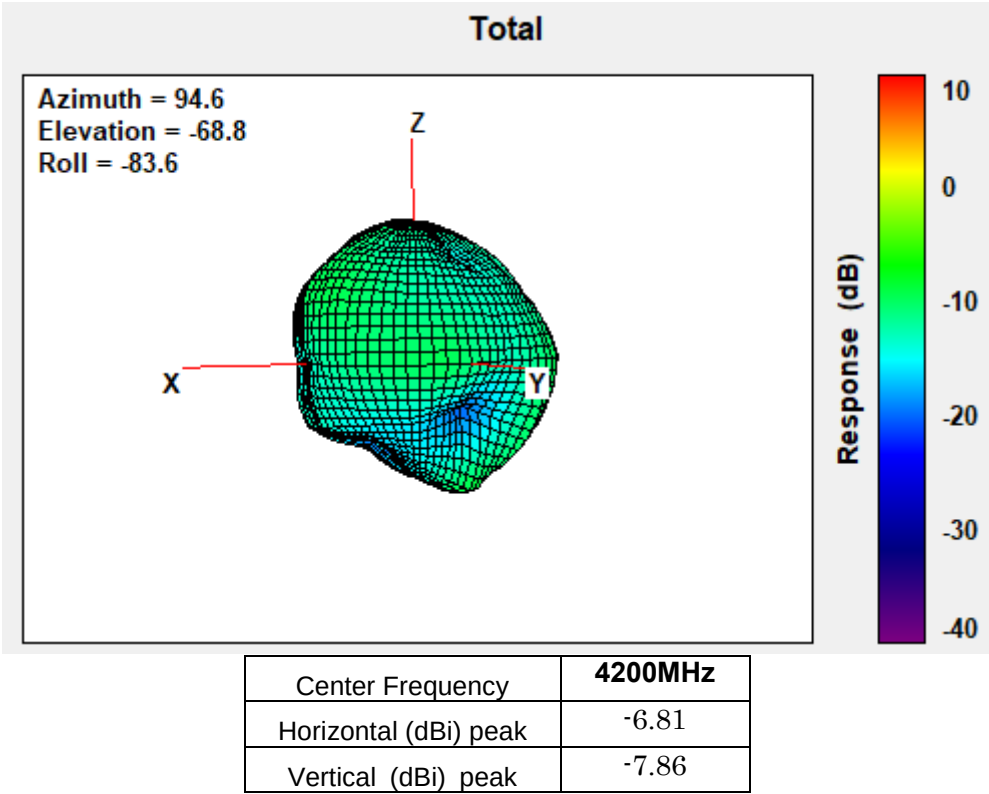
3700MHz



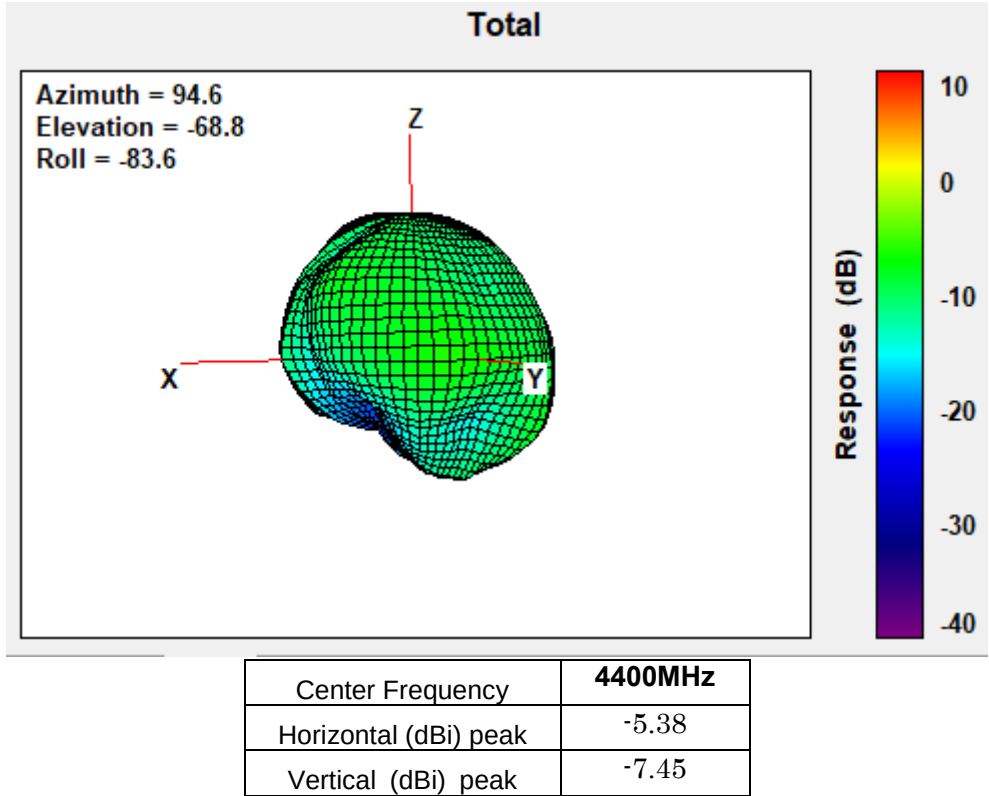
3800MHz



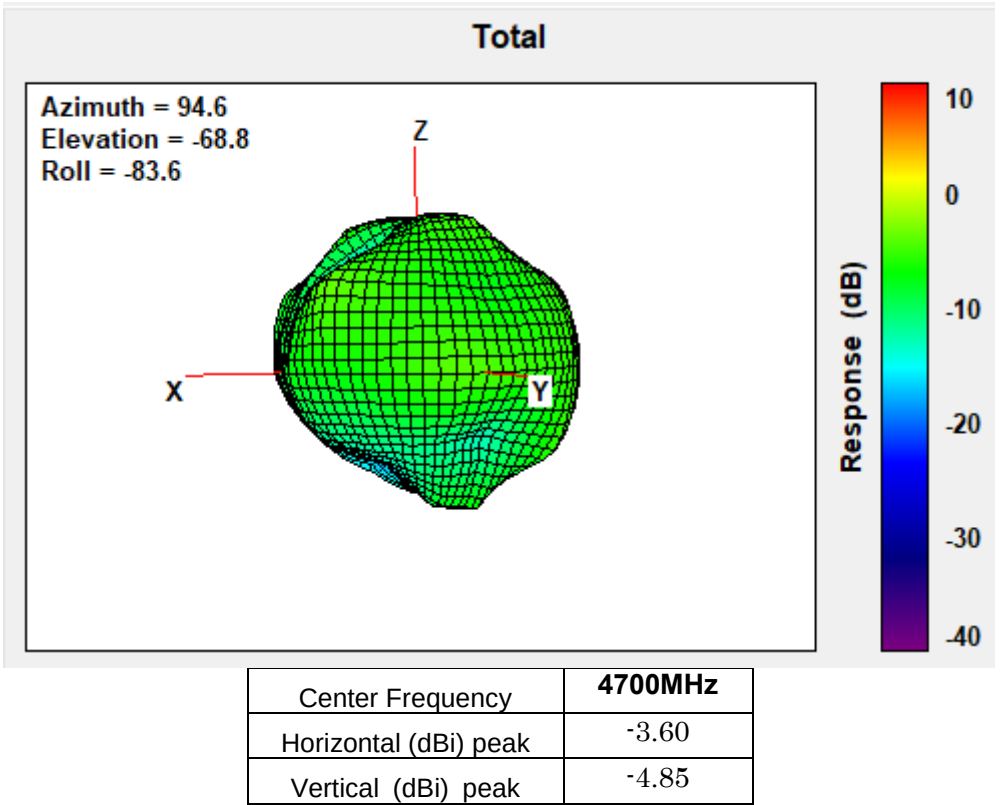
4200MHz



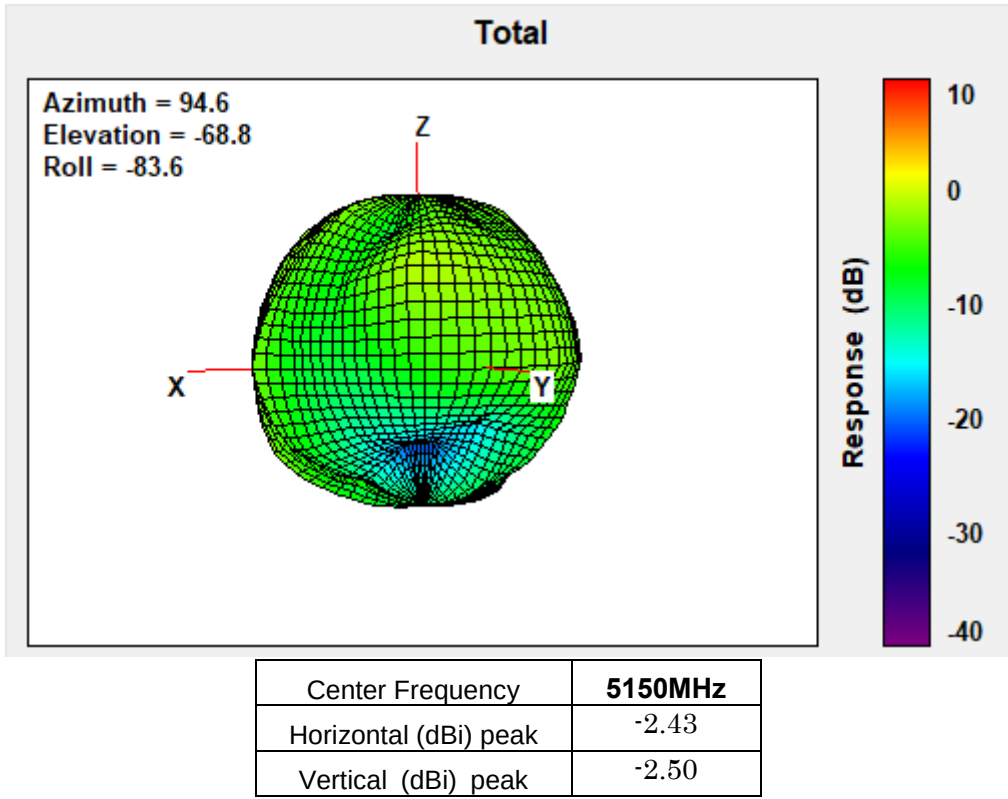
4400MHz



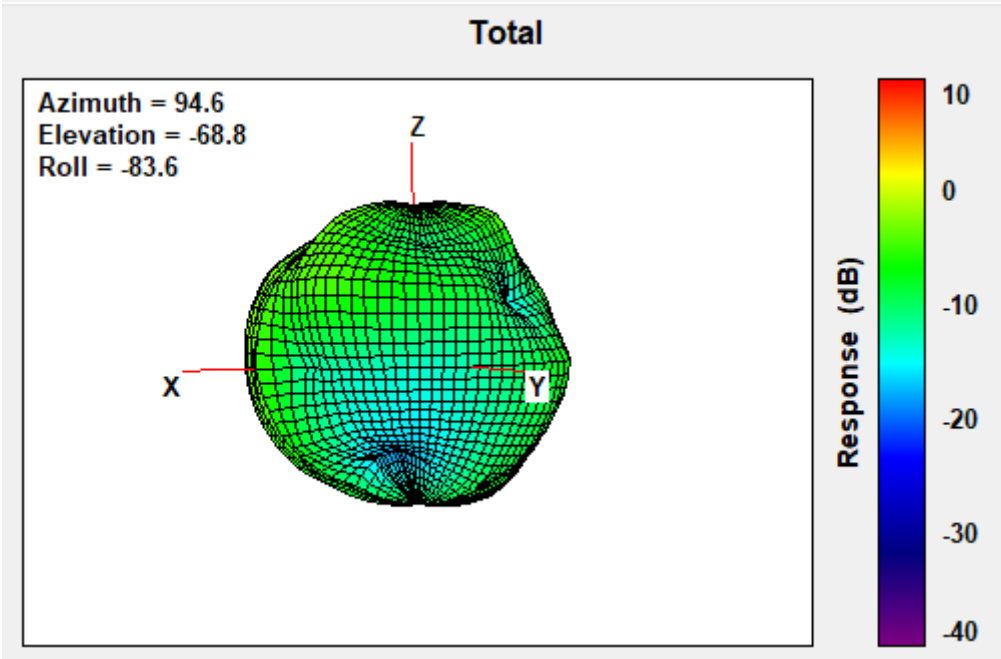
4700MHz



5150MHz

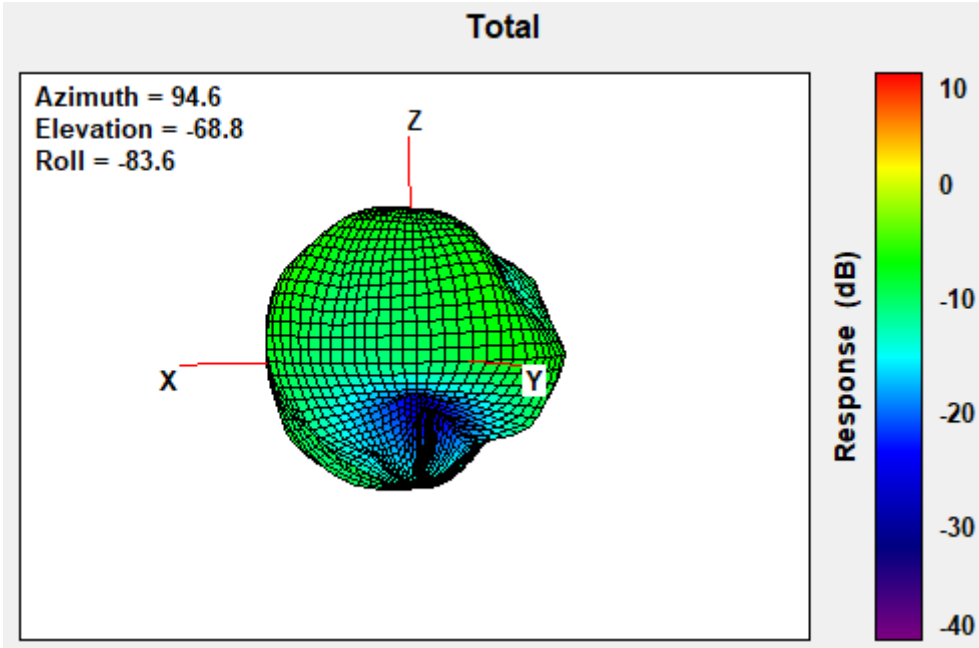


5537.5MHz



Center Frequency	5537.5MHz
Horizontal (dBi) peak	-2.66
Vertical (dBi) peak	-2.81

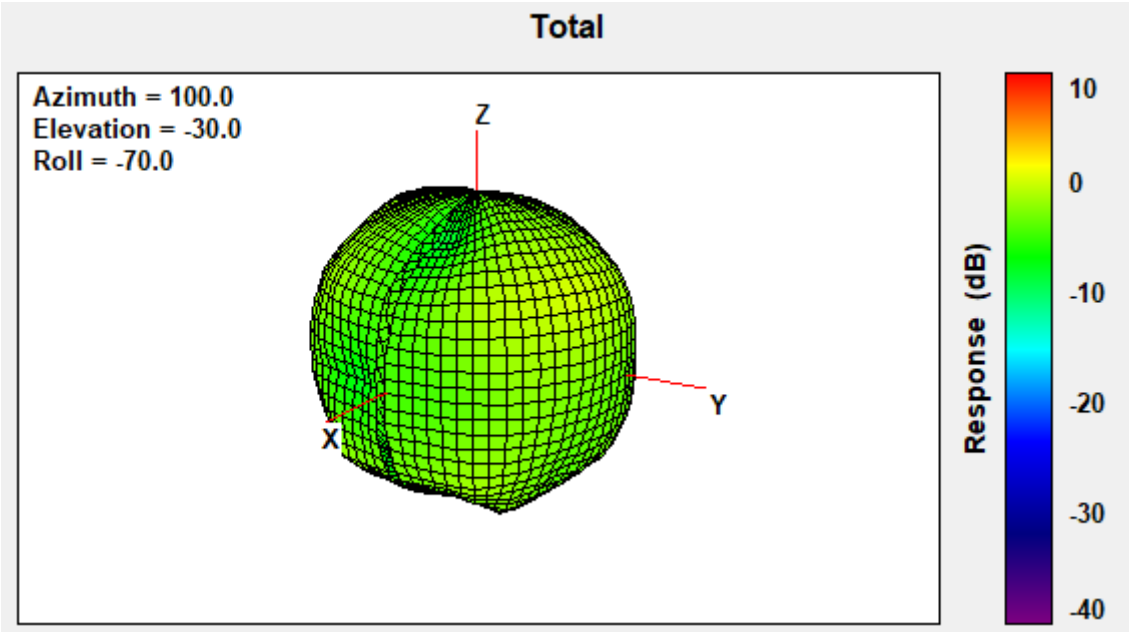
5925MHz



Center Frequency	5925MHz
Horizontal (dBi) peak	-5.60
Vertical (dBi) peak	-6.29

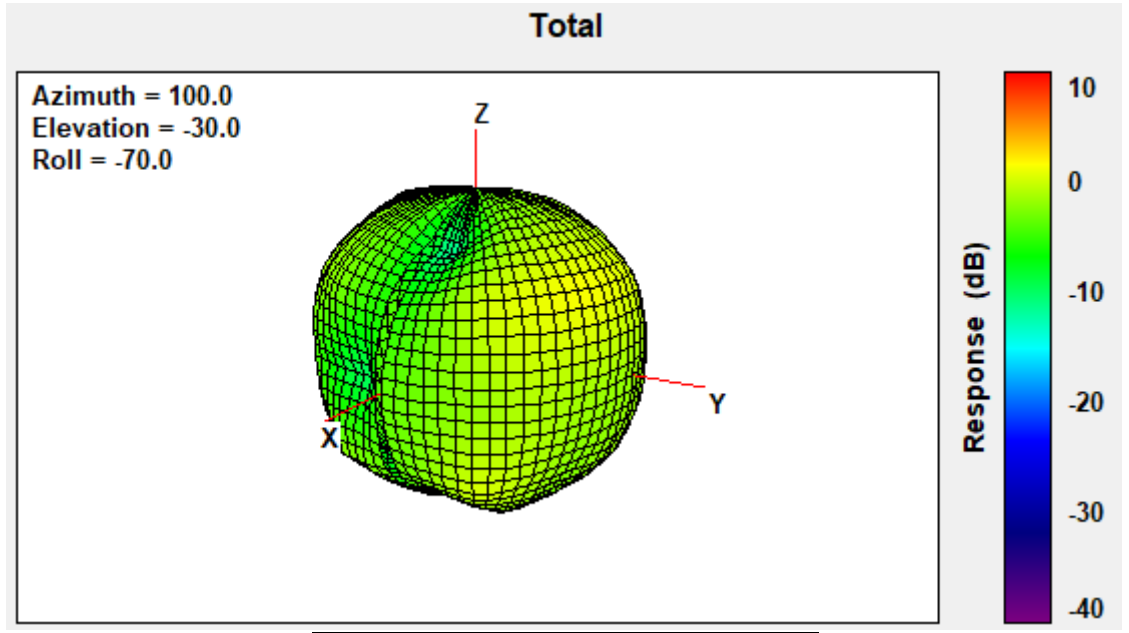
MIMO2 Antenna (DRx2)

1452 MHz



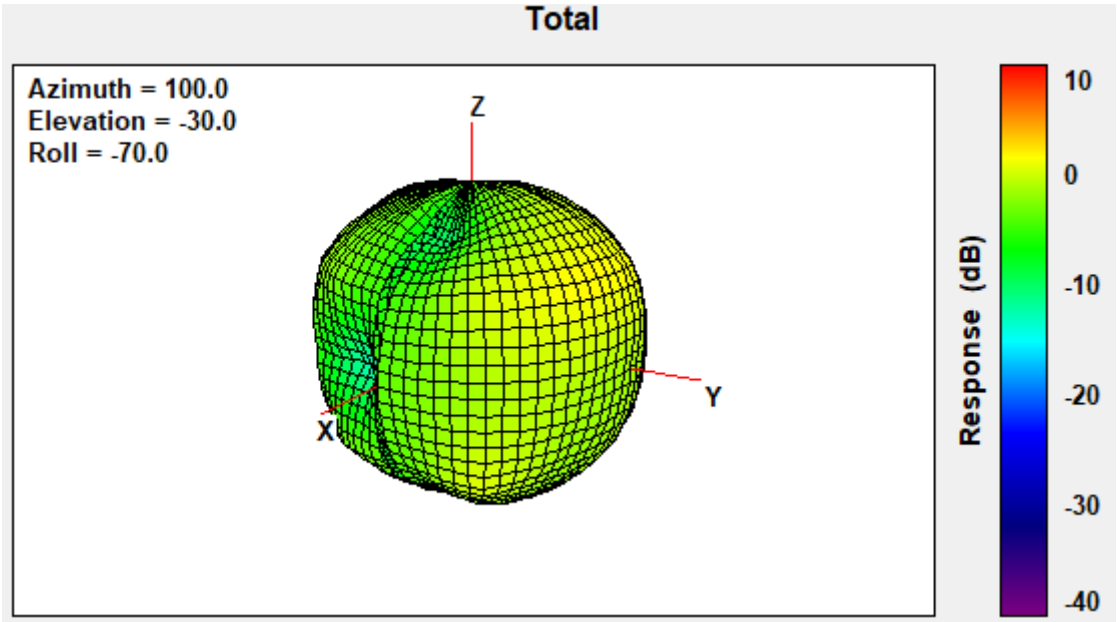
Center Frequency	1452 MHz
Horizontal (dBi) peak	-2.51
Vertical (dBi) peak	-1.82

1474 MHz



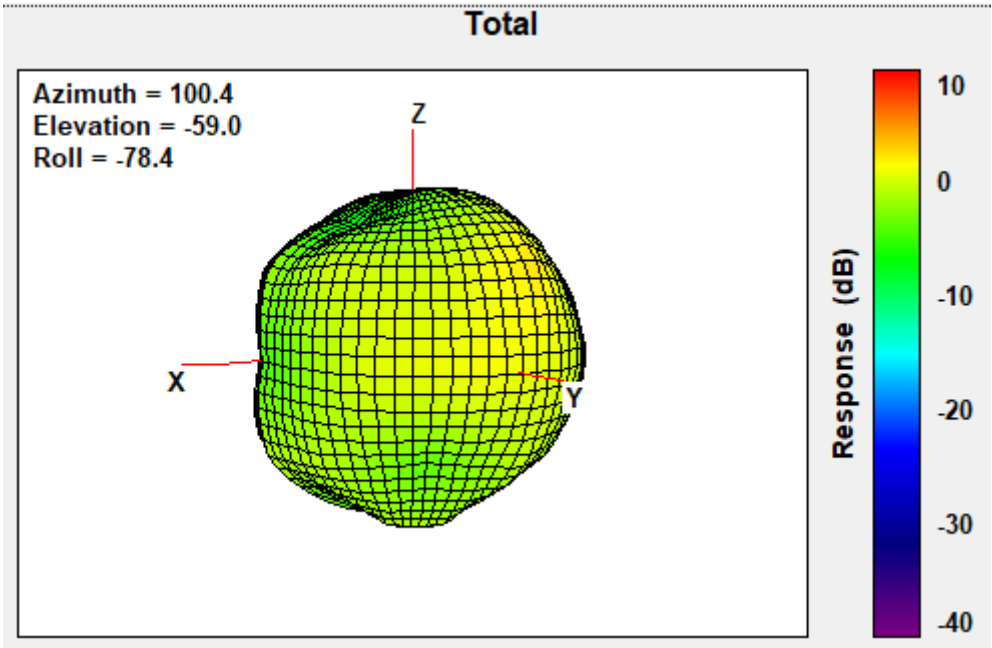
Center Frequency	1472 MHz
Horizontal (dBi) peak	-0.37
Vertical (dBi) peak	-0.74

1496 MHz



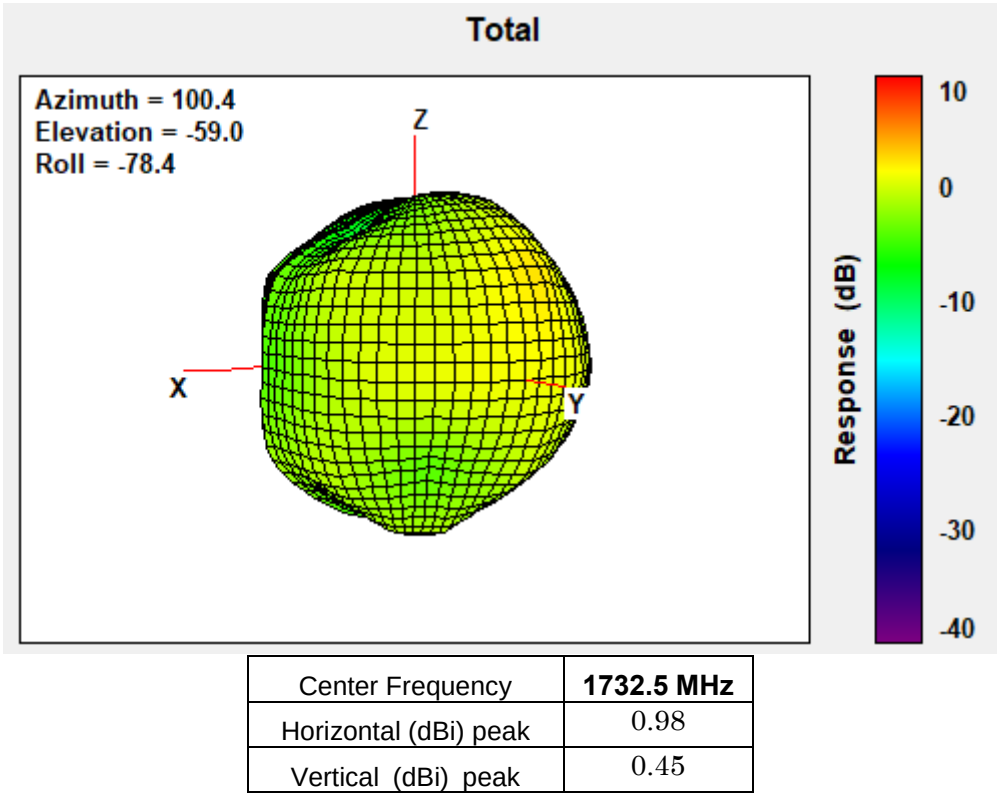
Center Frequency	1496 MHz
Horizontal (dBi) peak	-0.26
Vertical (dBi) peak	-0.51

1710 MHz

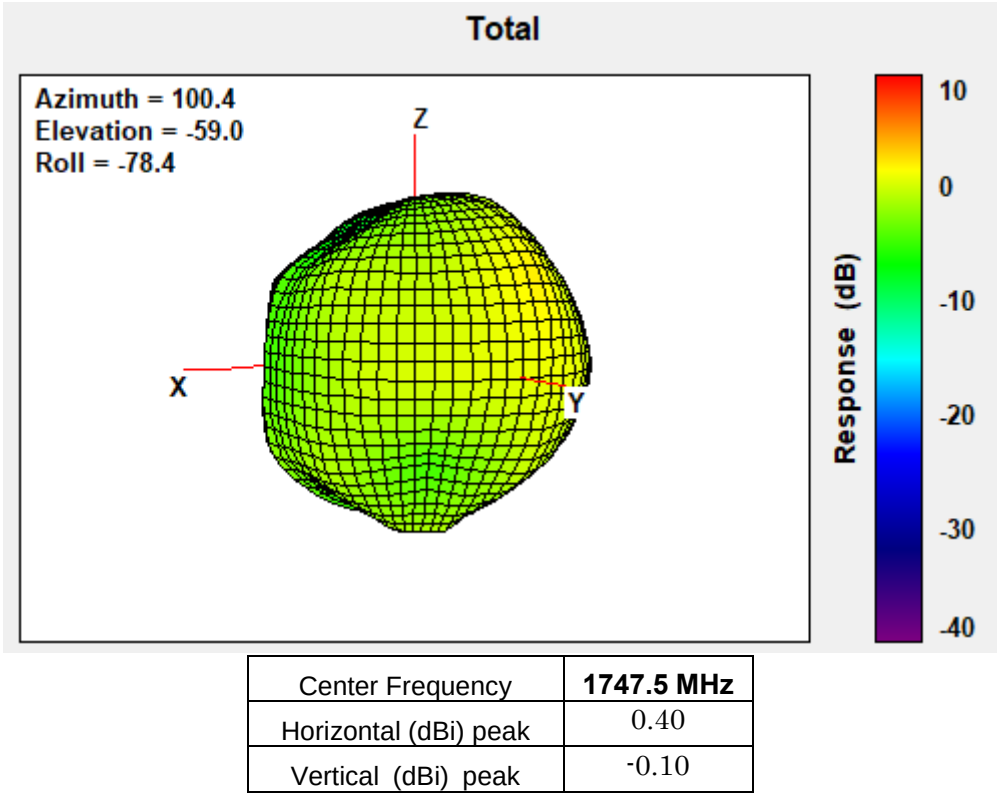


Center Frequency	1710 MHz
Horizontal (dBi) peak	0.70
Vertical (dBi) peak	0.64

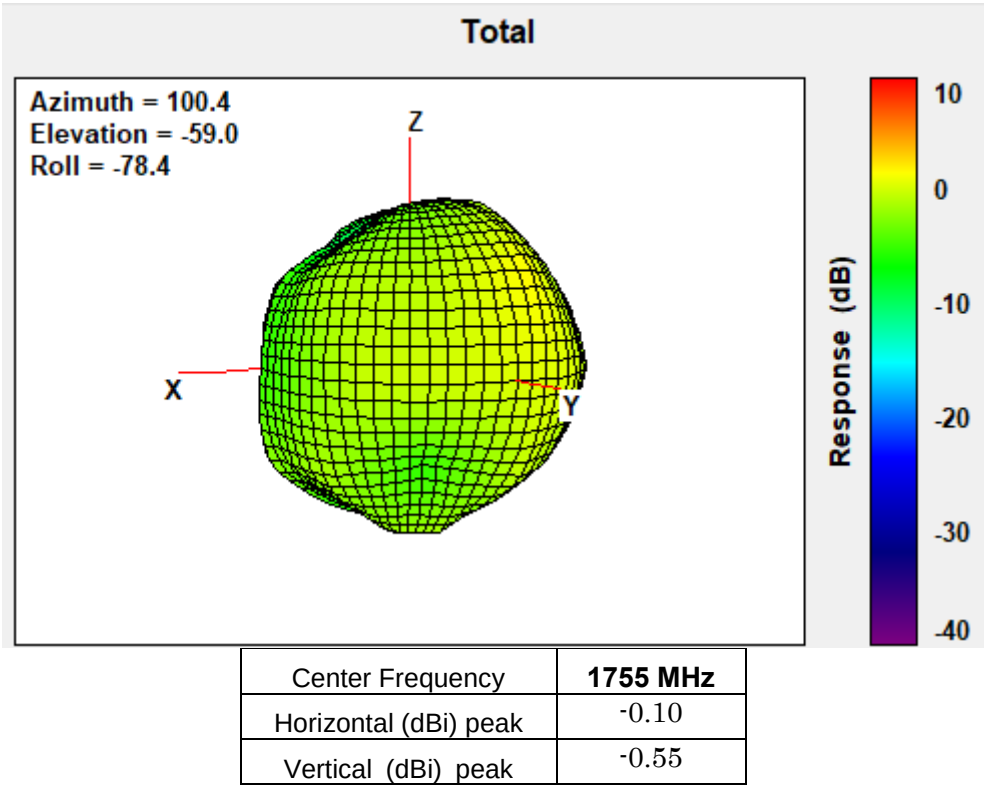
1732.5 MHz



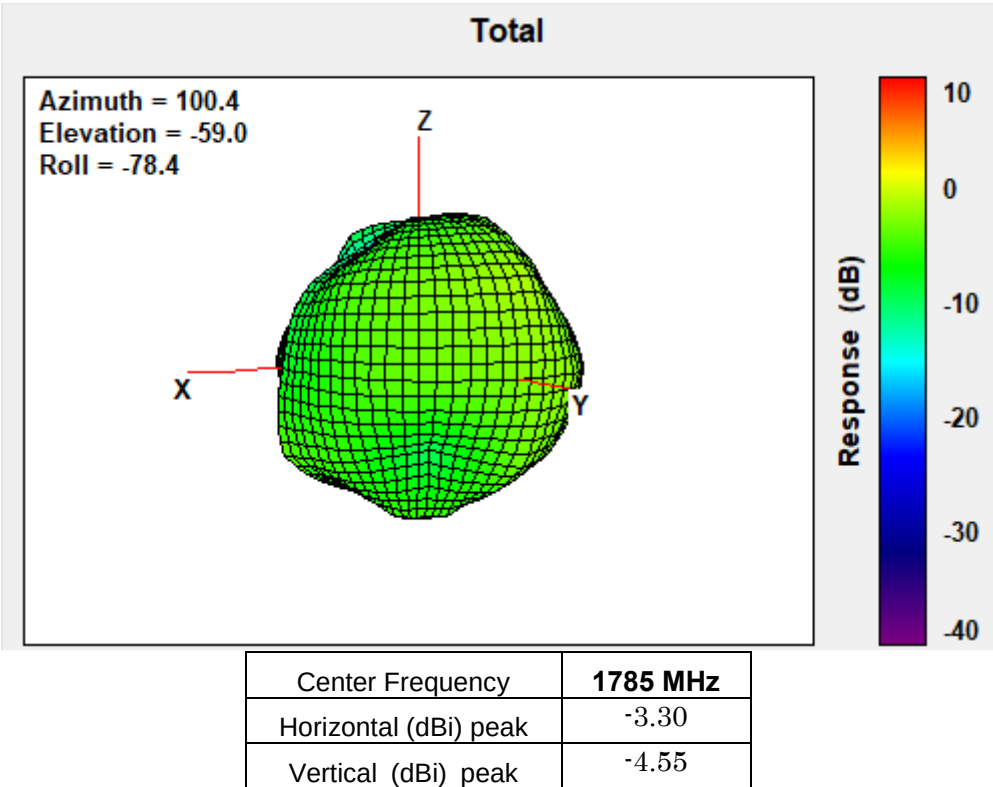
1747.5 MHz



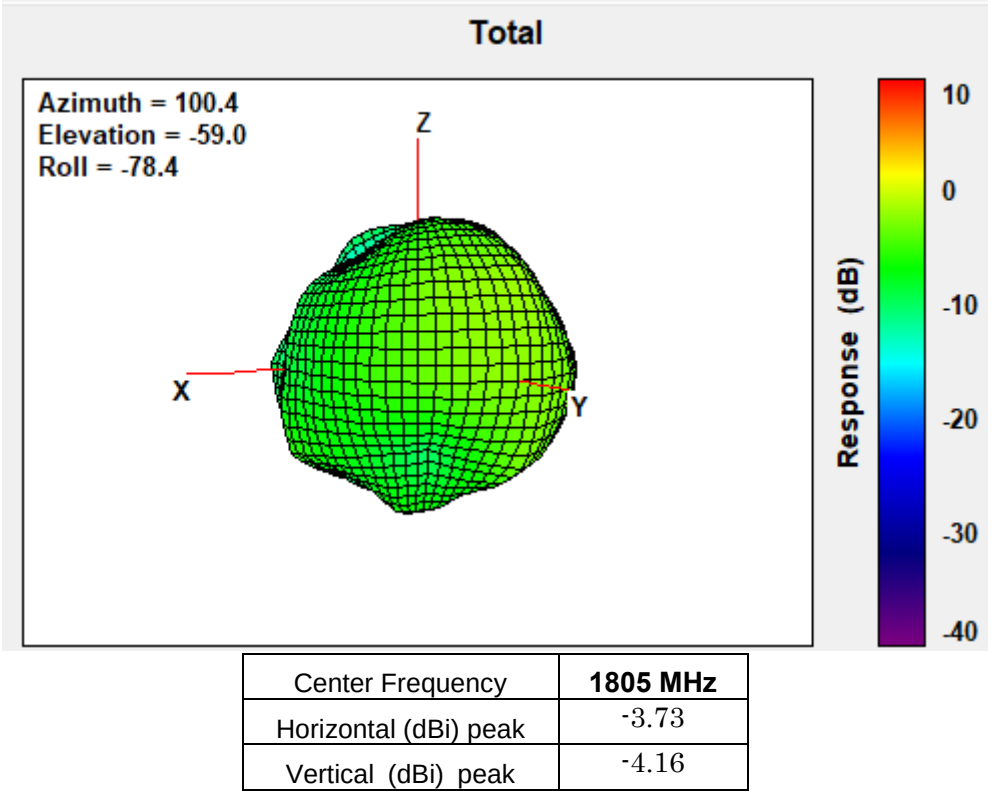
1755 MHz



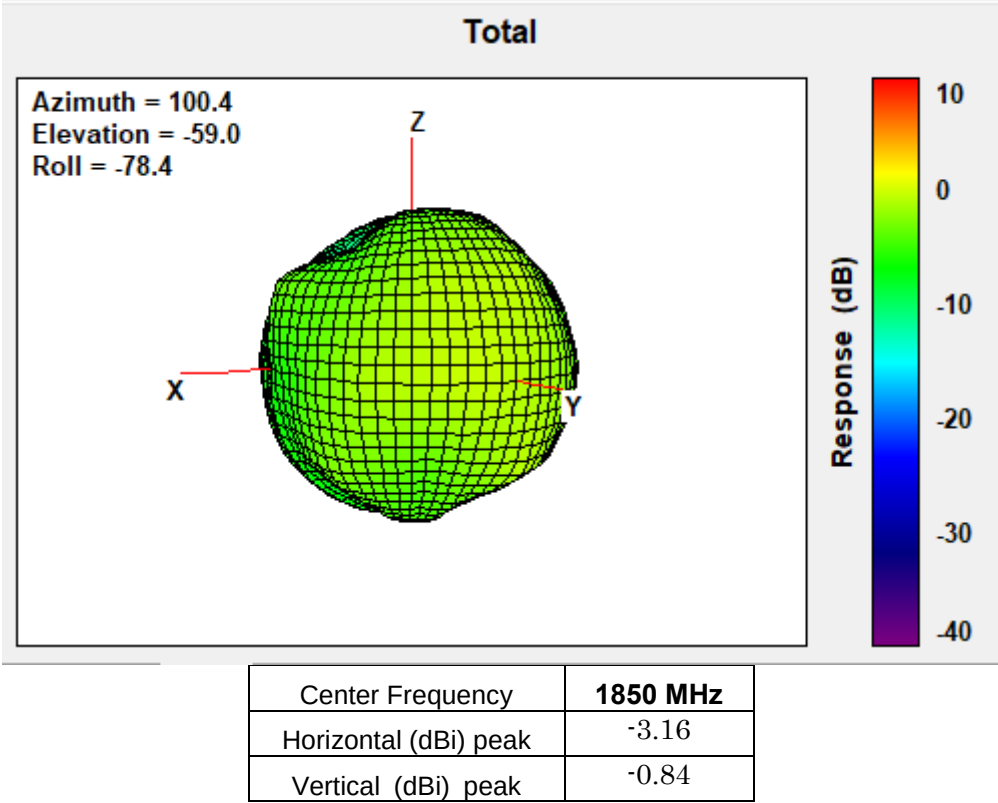
1785 MHz



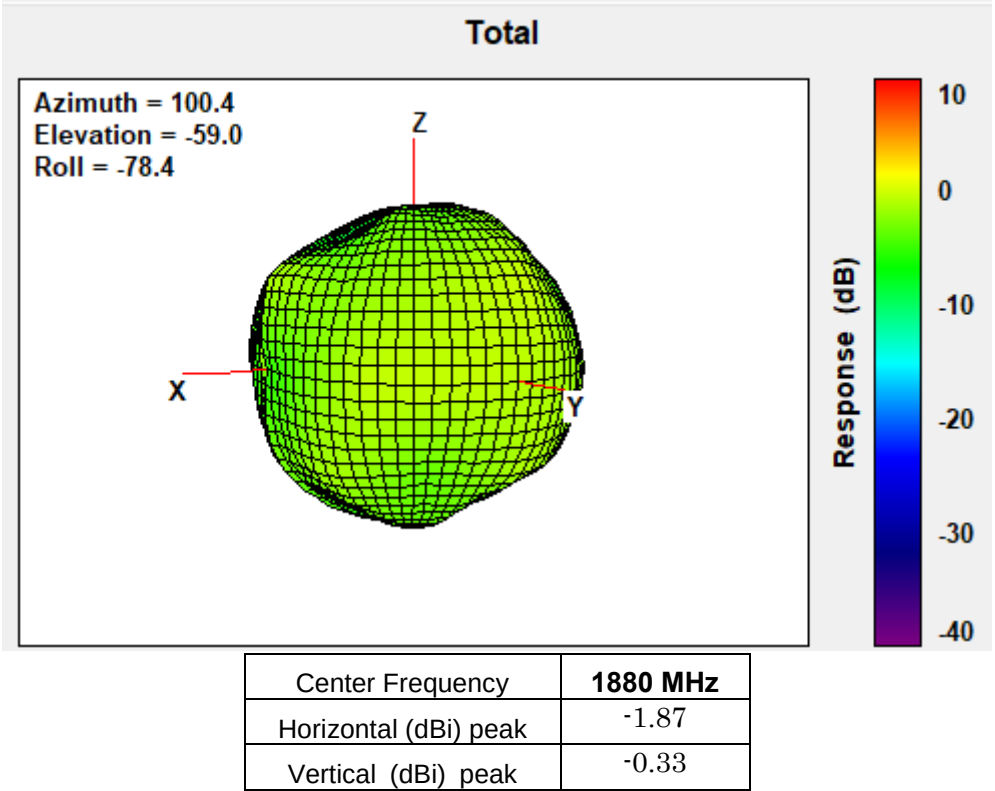
1805 MHz



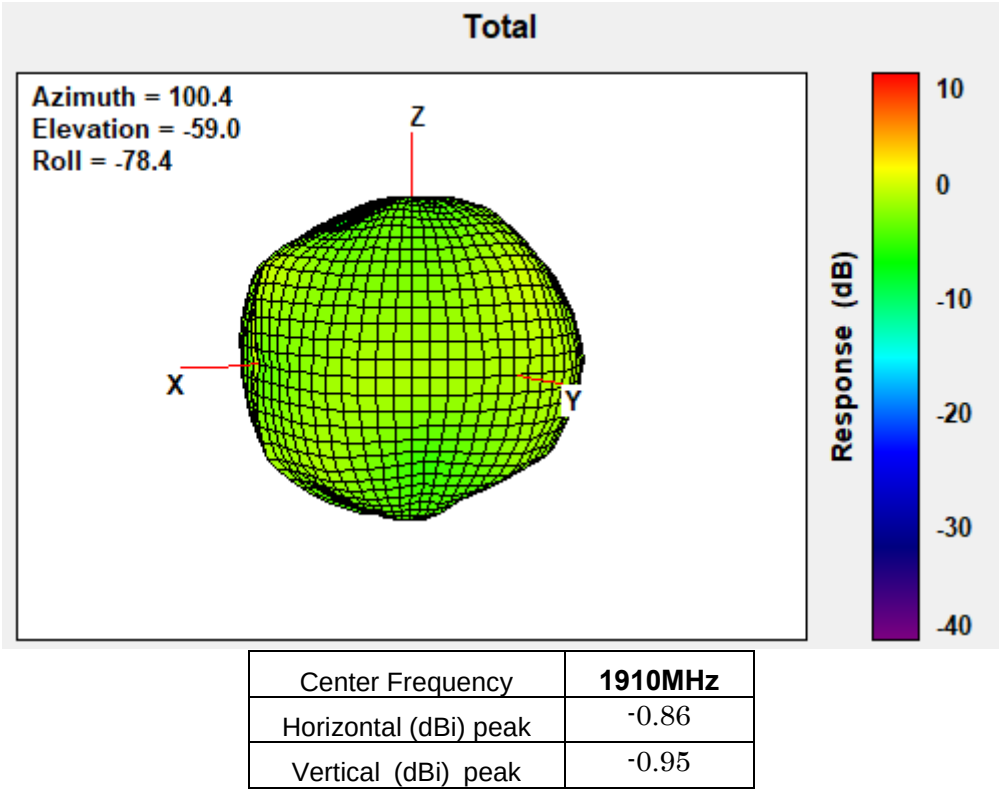
1850 MHz



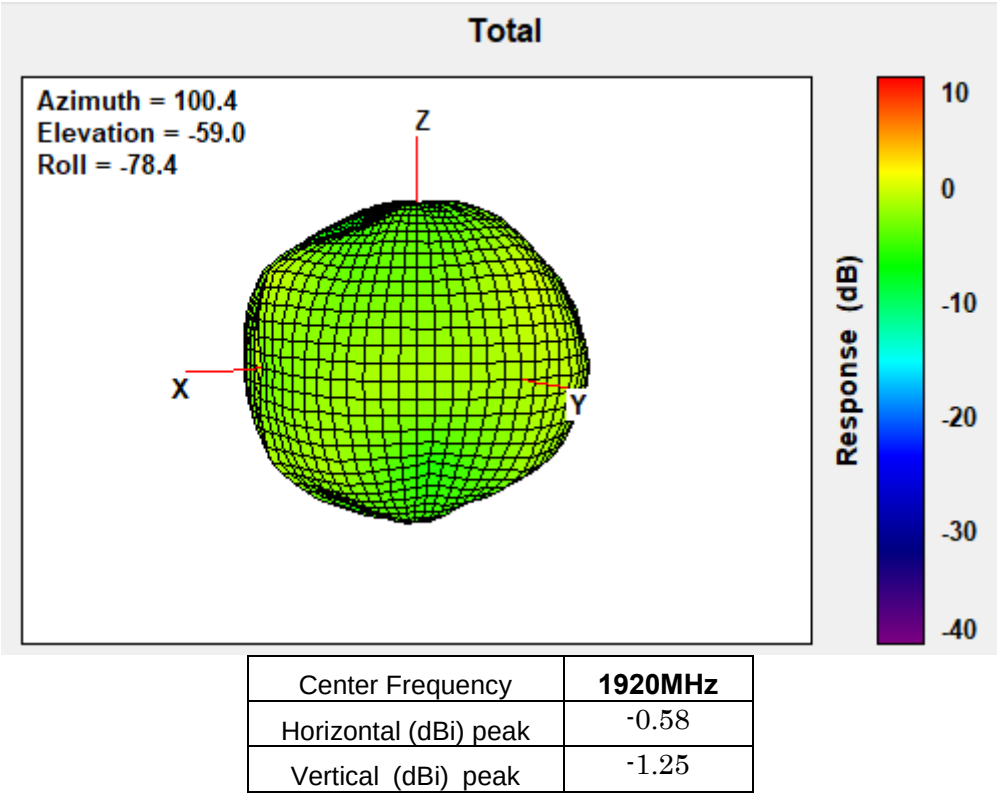
1880 MHz



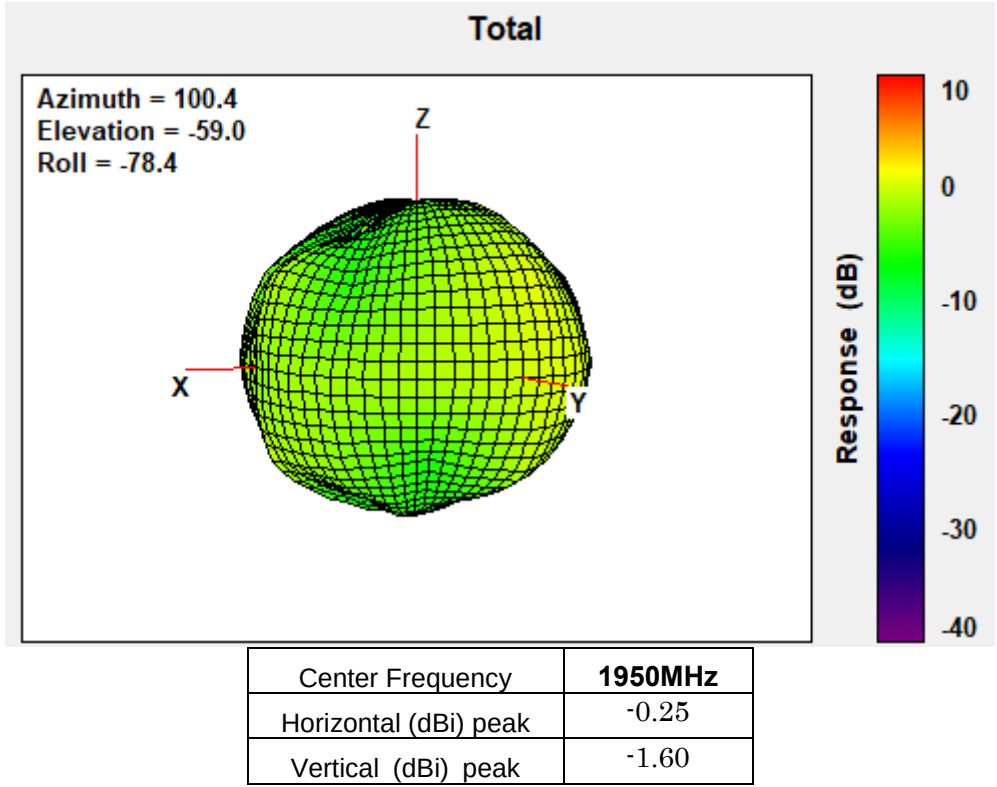
1910MHz



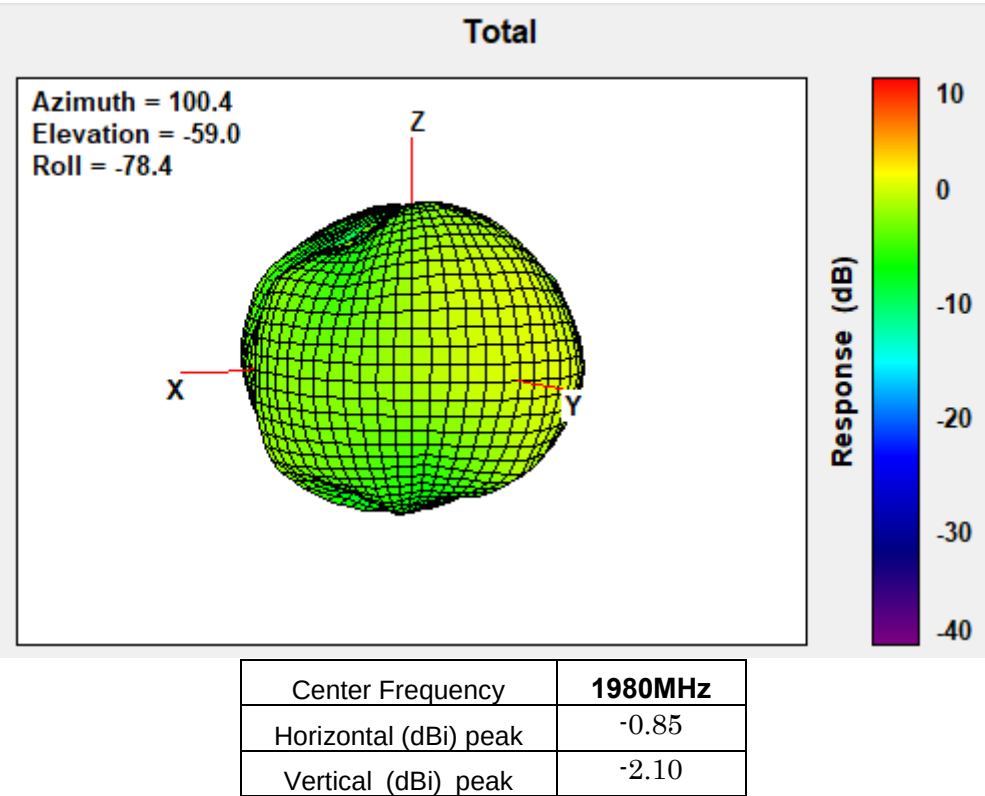
1920MHz



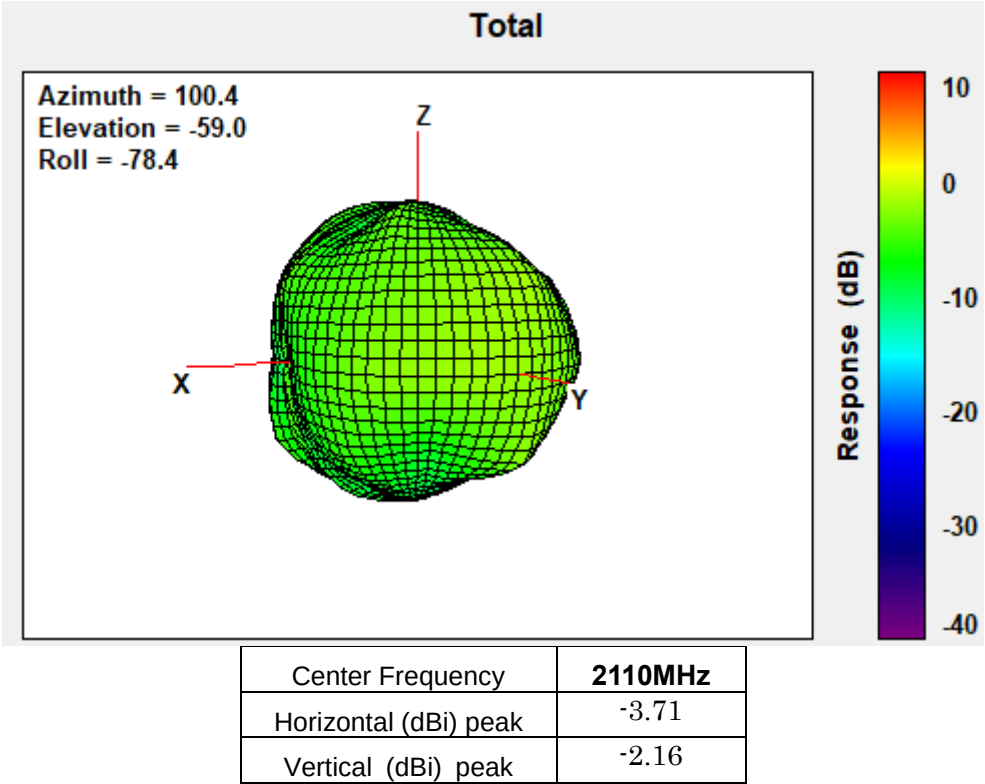
1950MHz



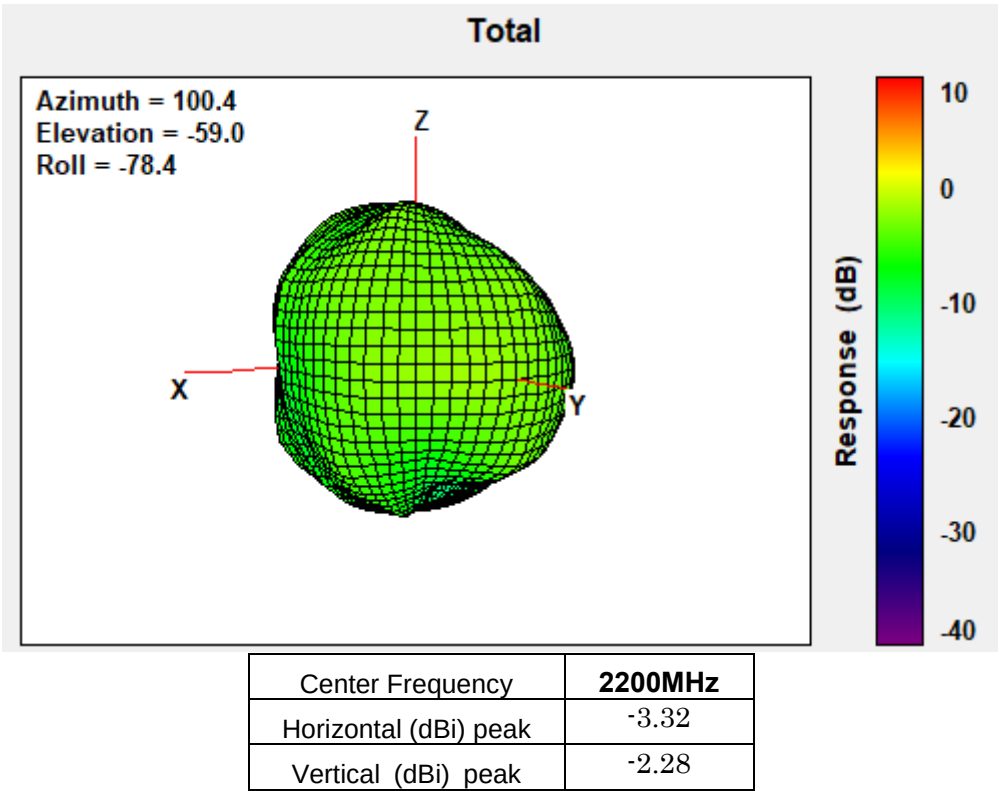
1980MHz



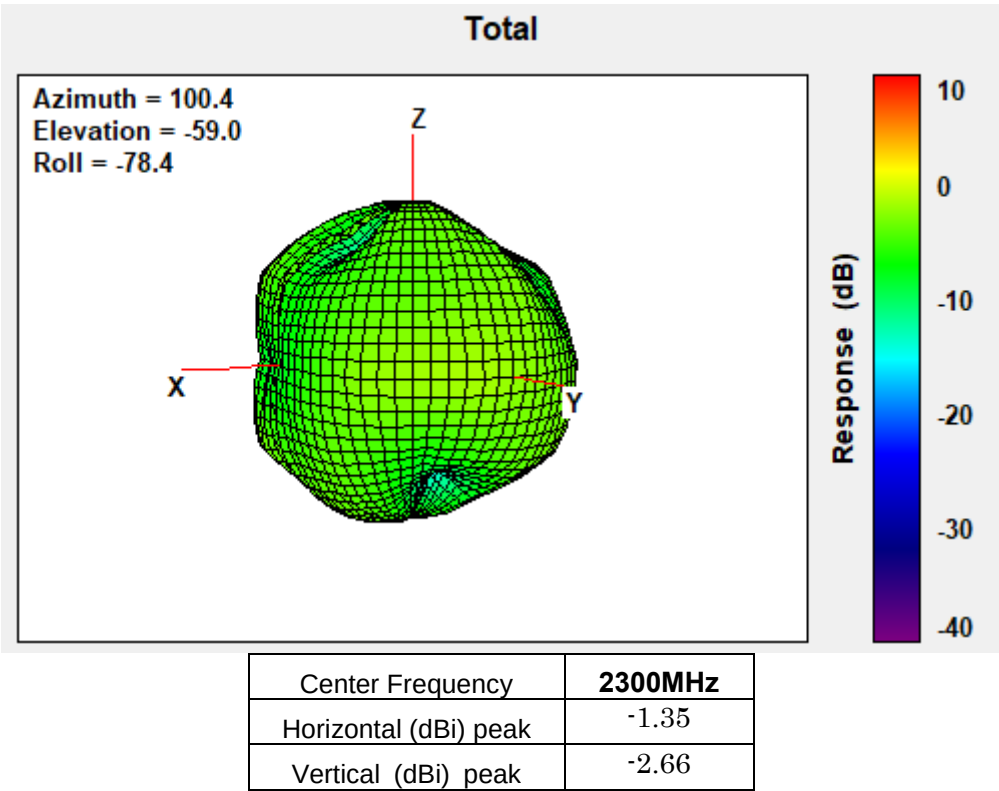
2110MHz



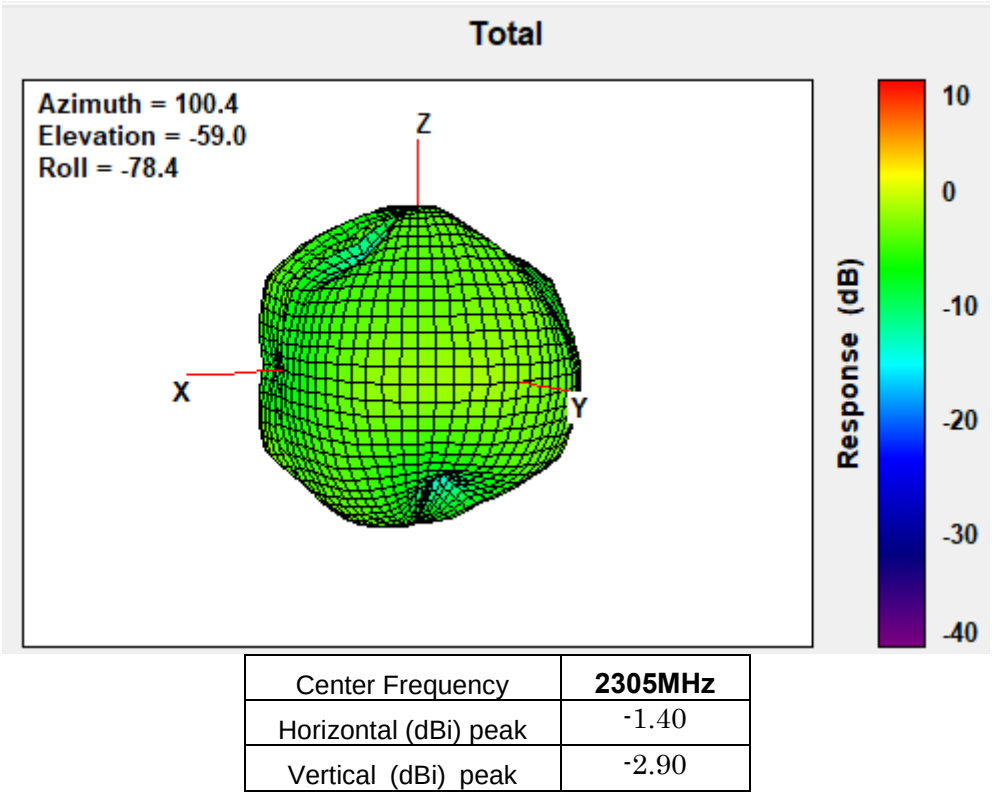
2200MHz



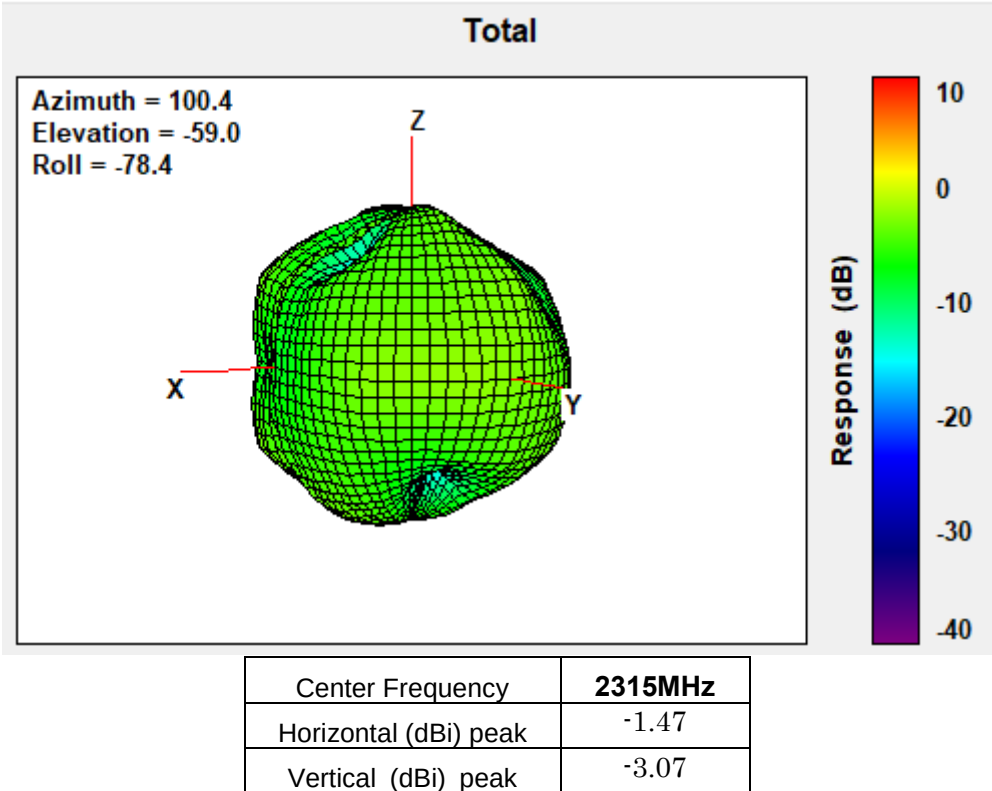
2300MHz

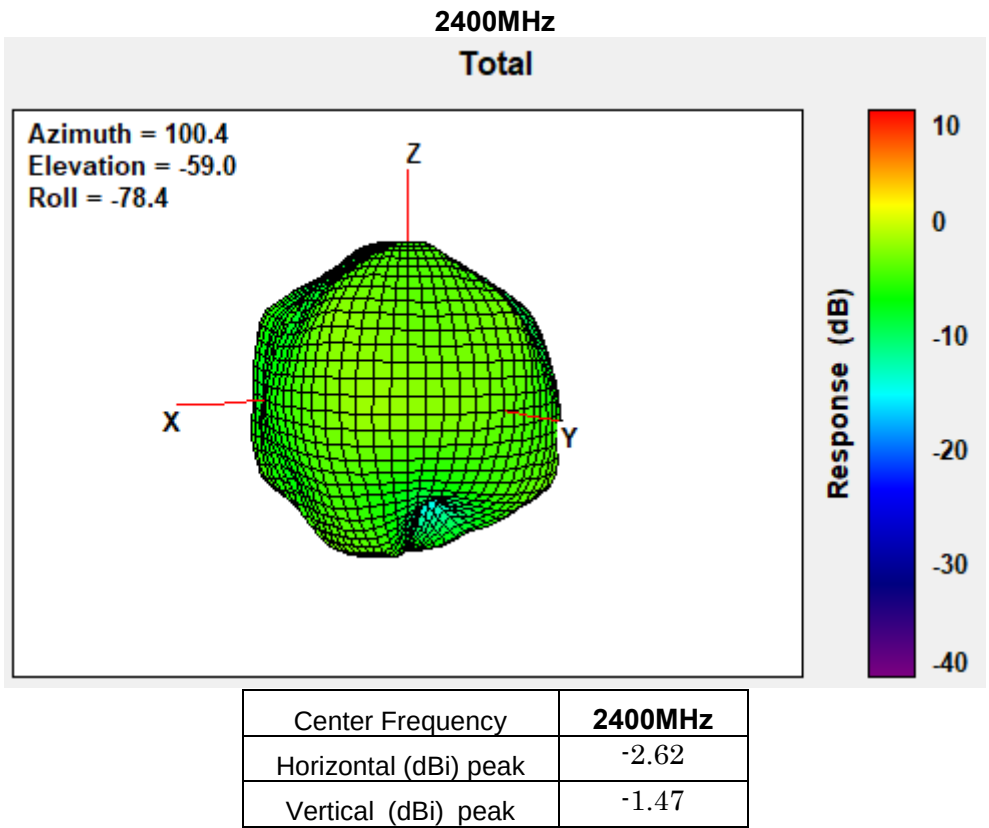
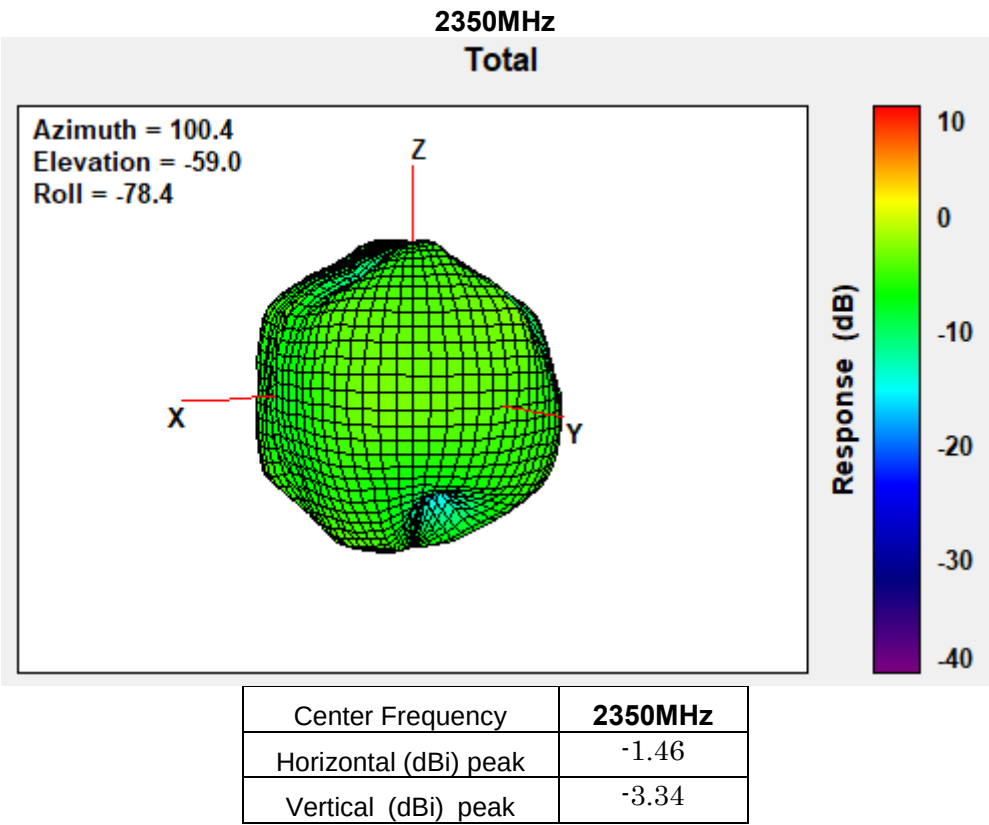


2305MHz

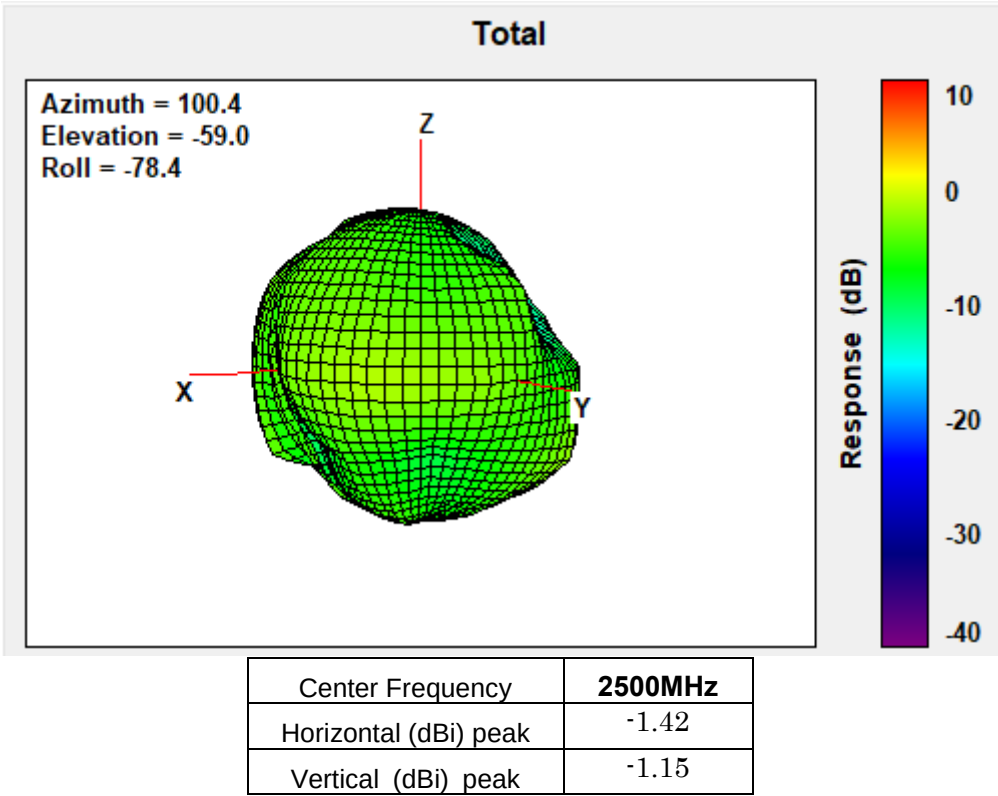


2315MHz

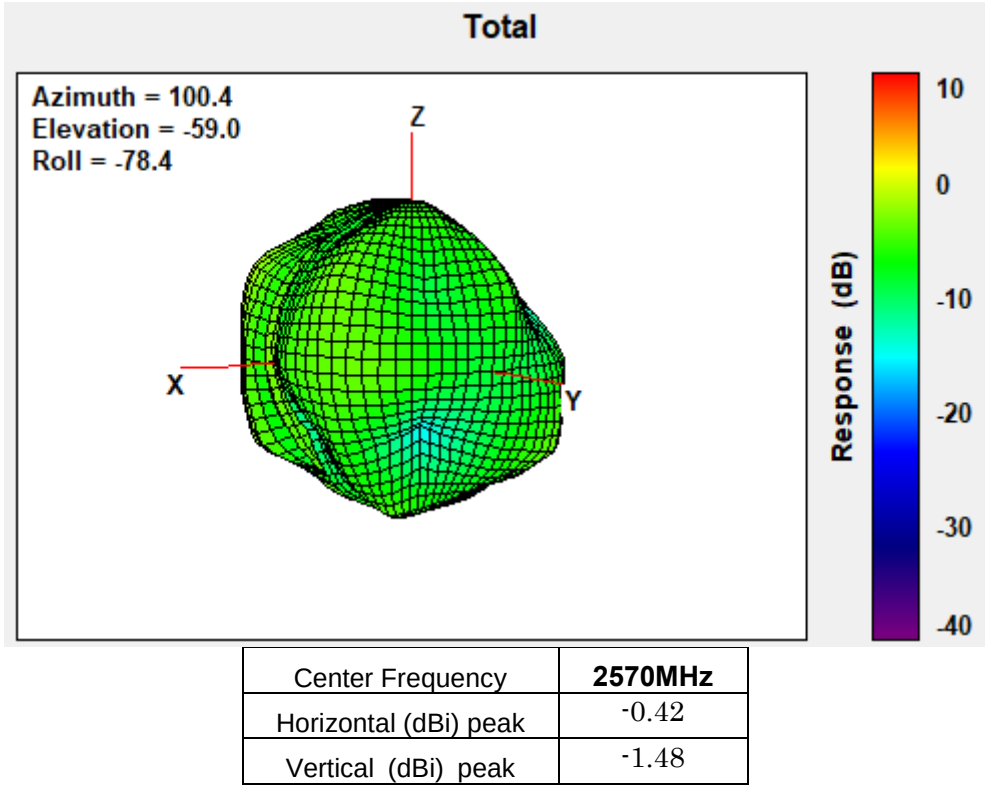


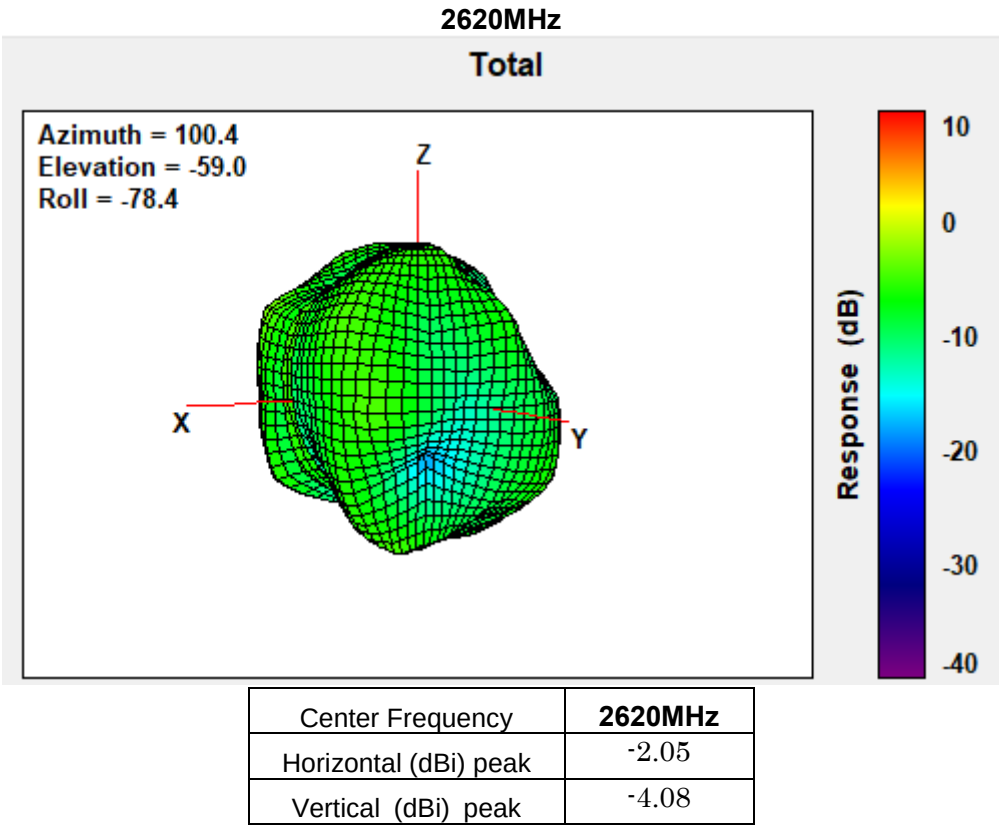
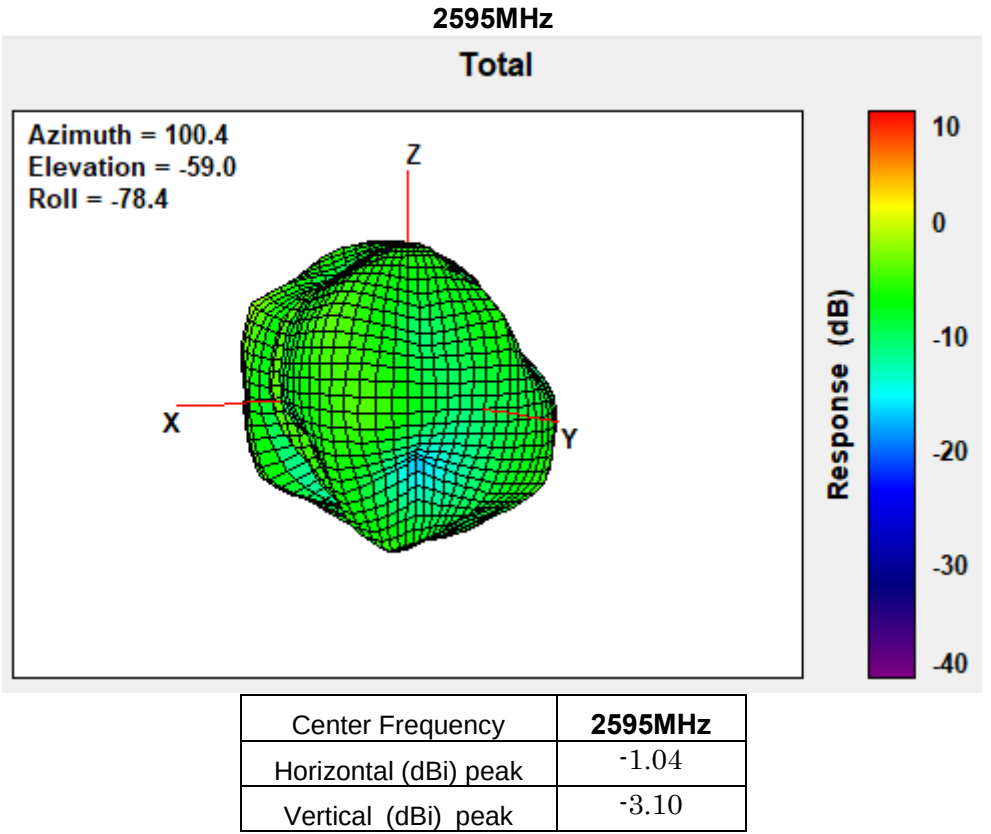


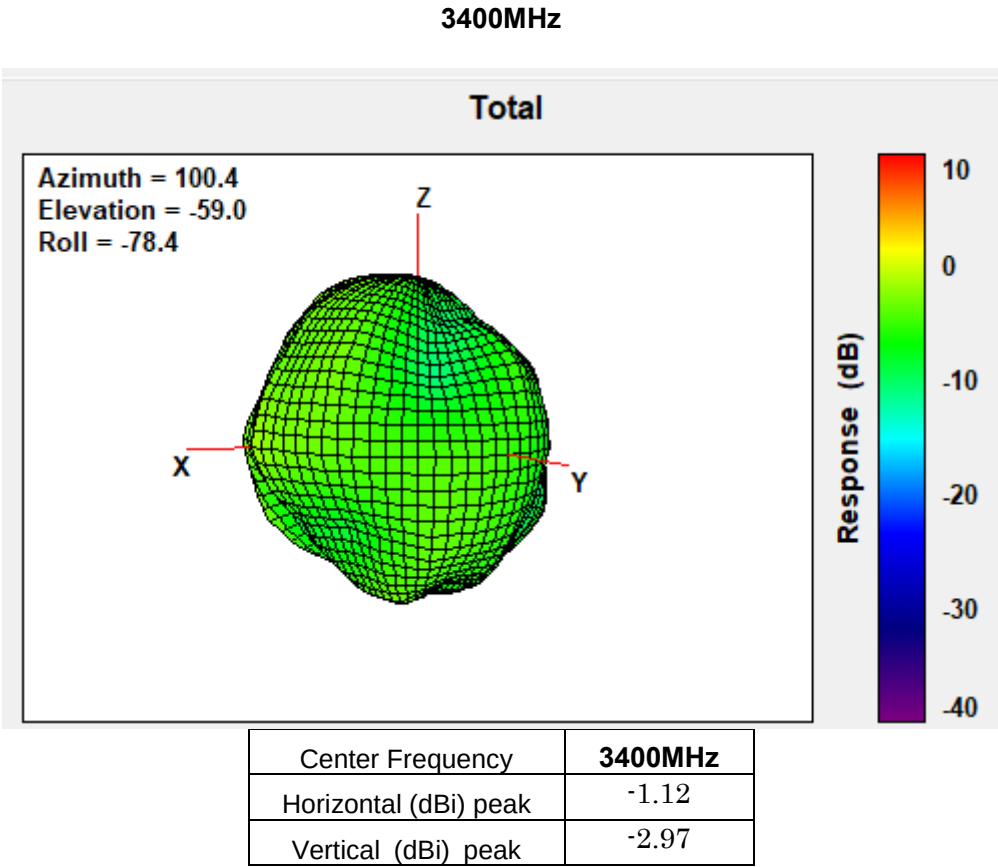
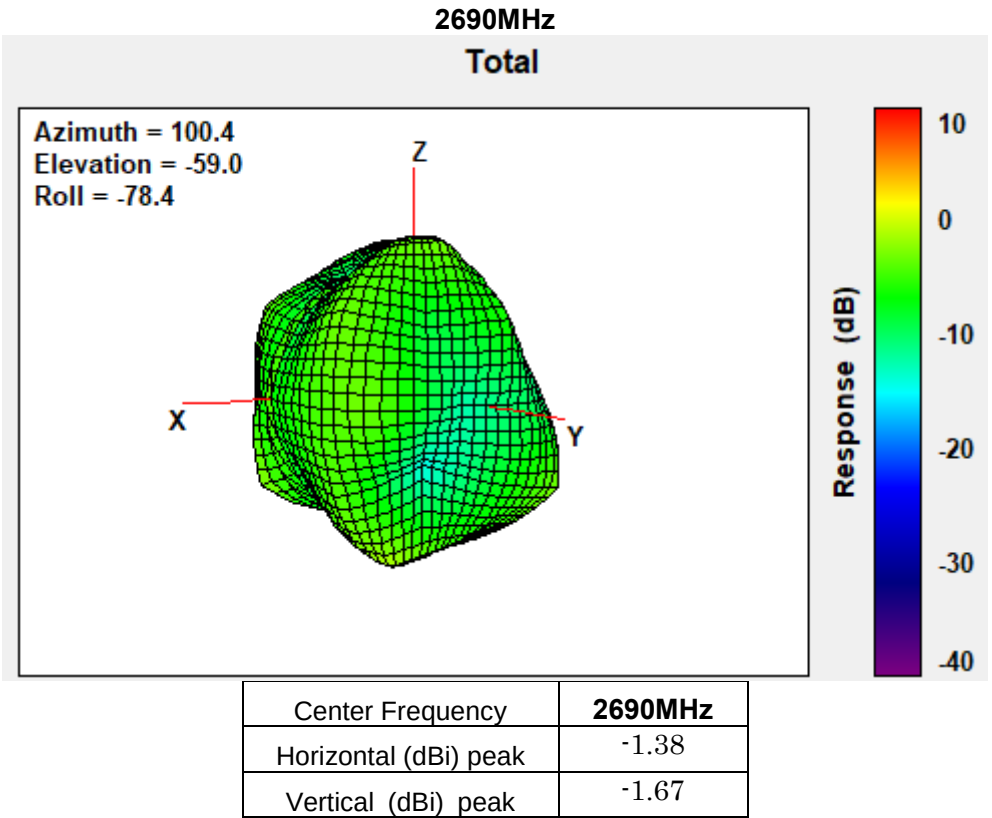
2500MHz



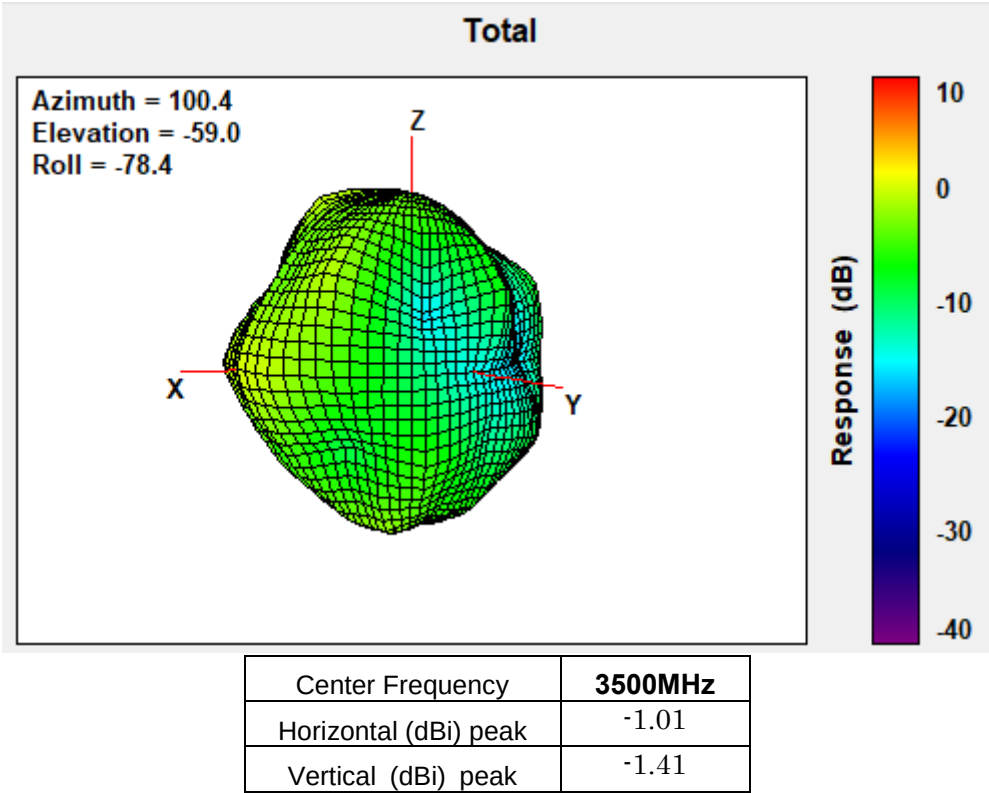
2570MHz



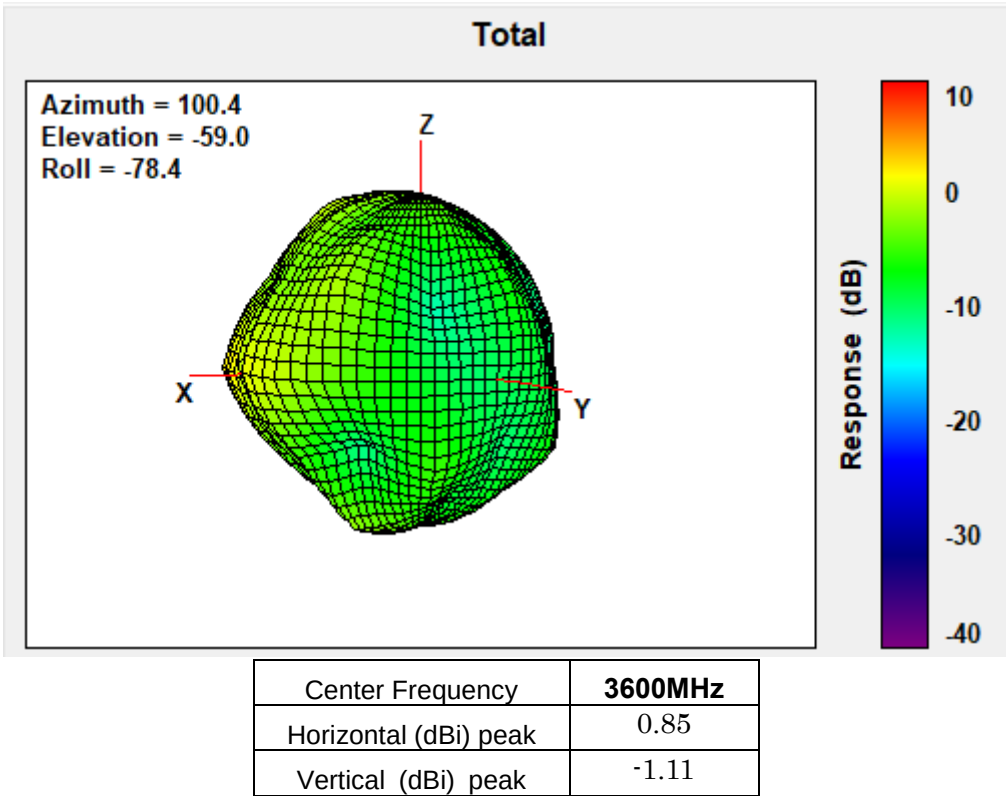




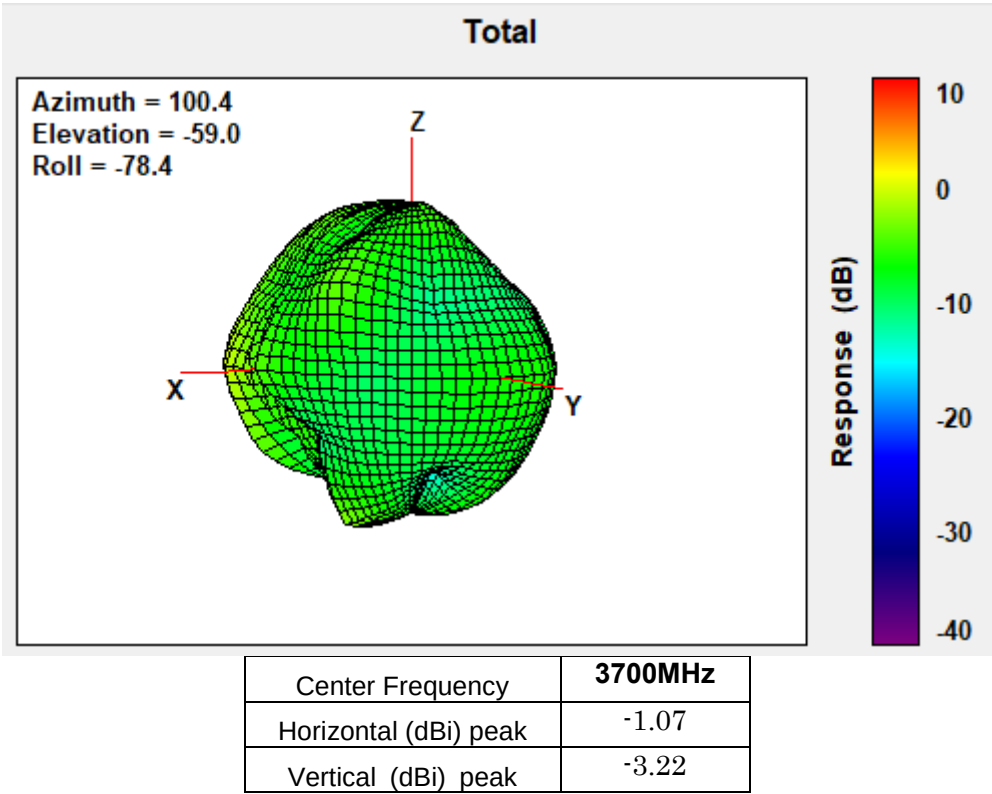
3500MHz



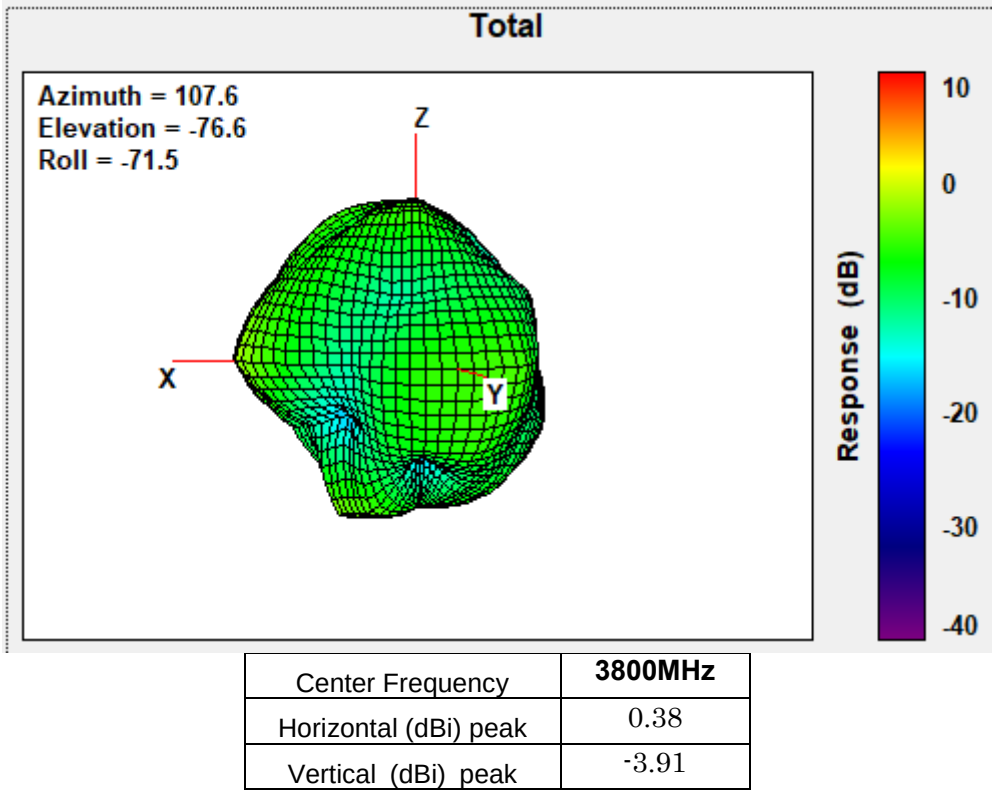
3600MHz



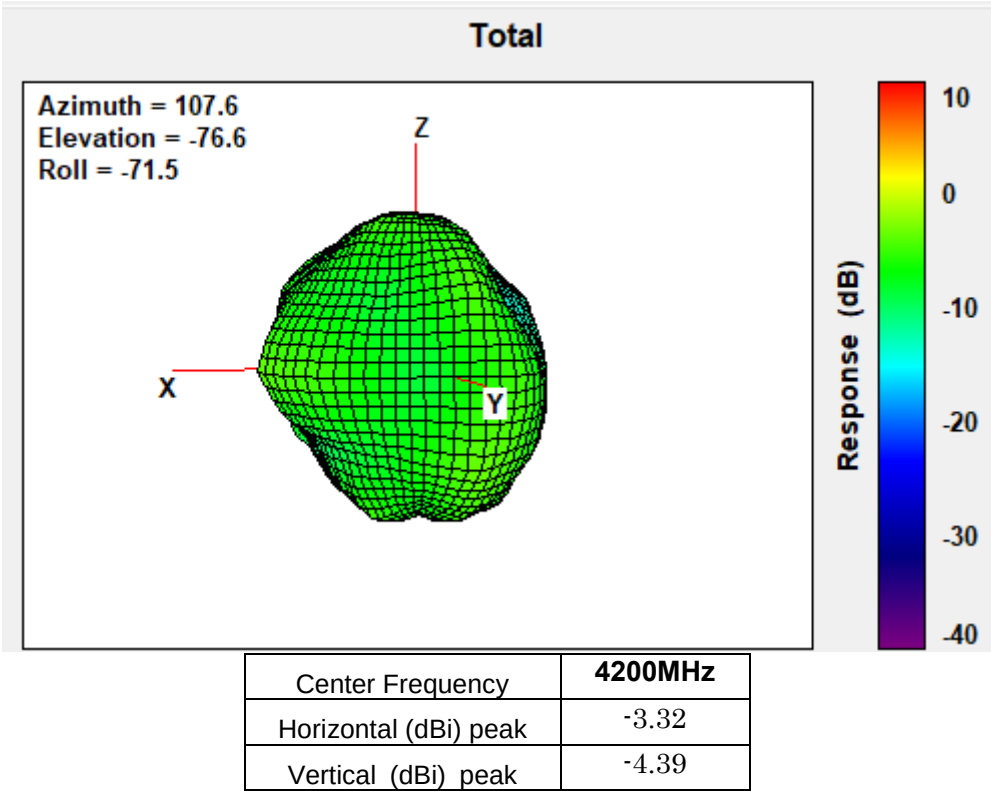
3700MHz



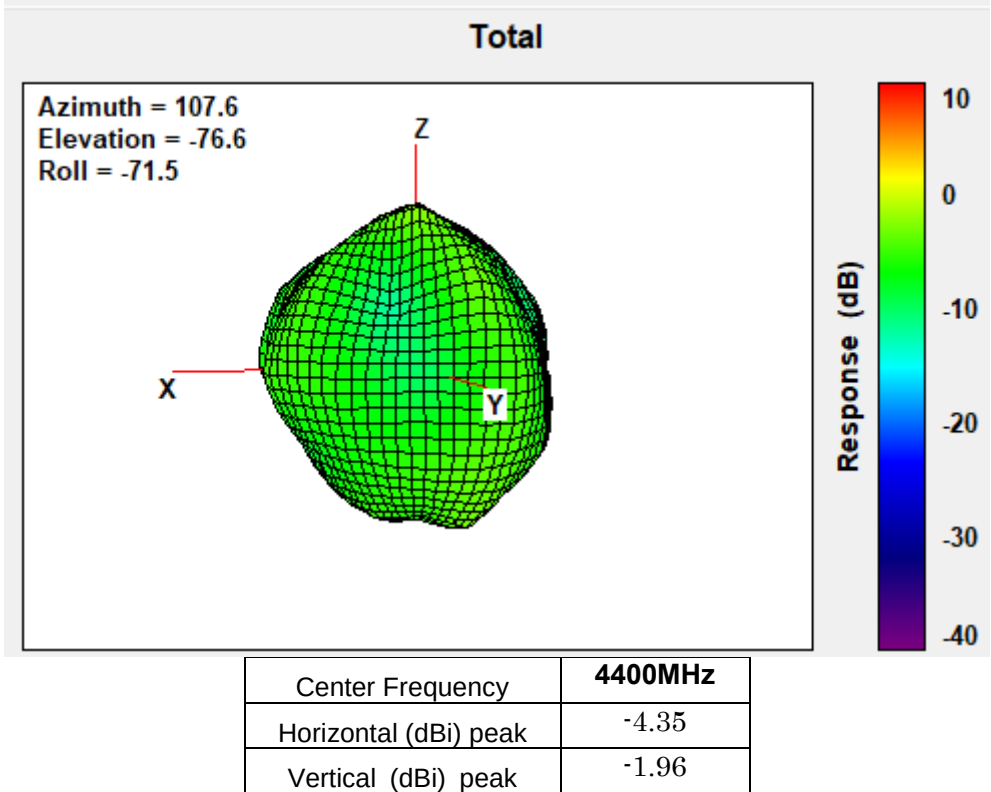
3800MHz



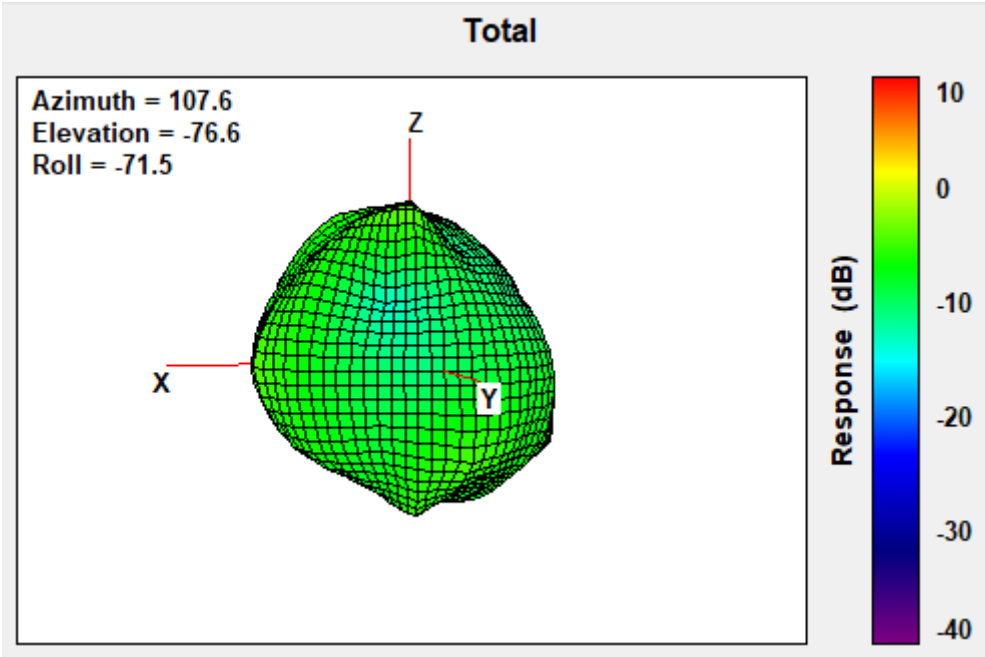
4200MHz



4400MHz

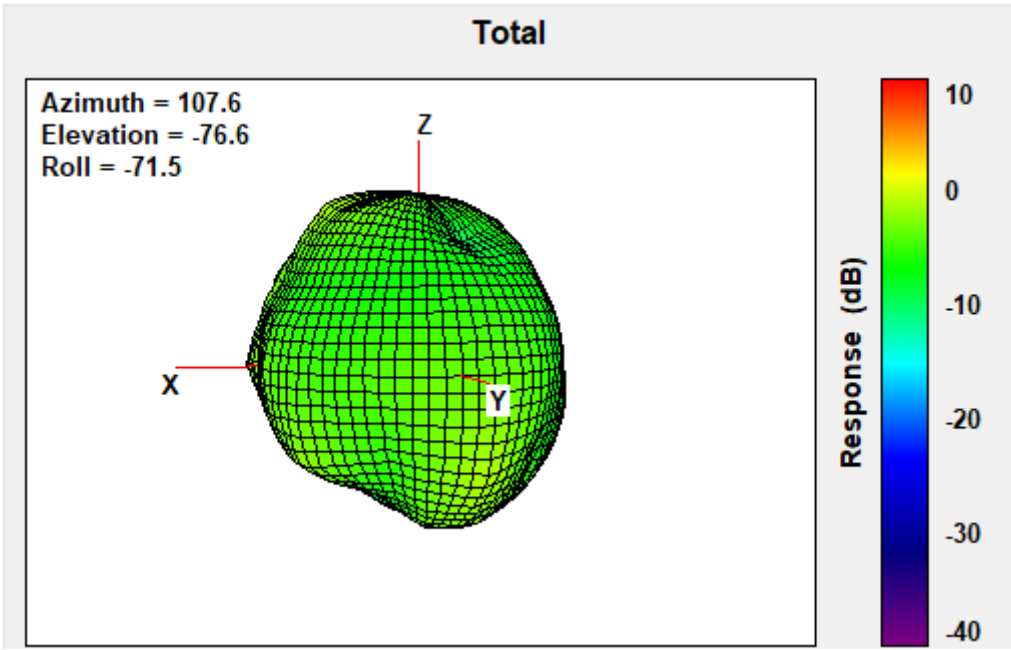


4700MHz



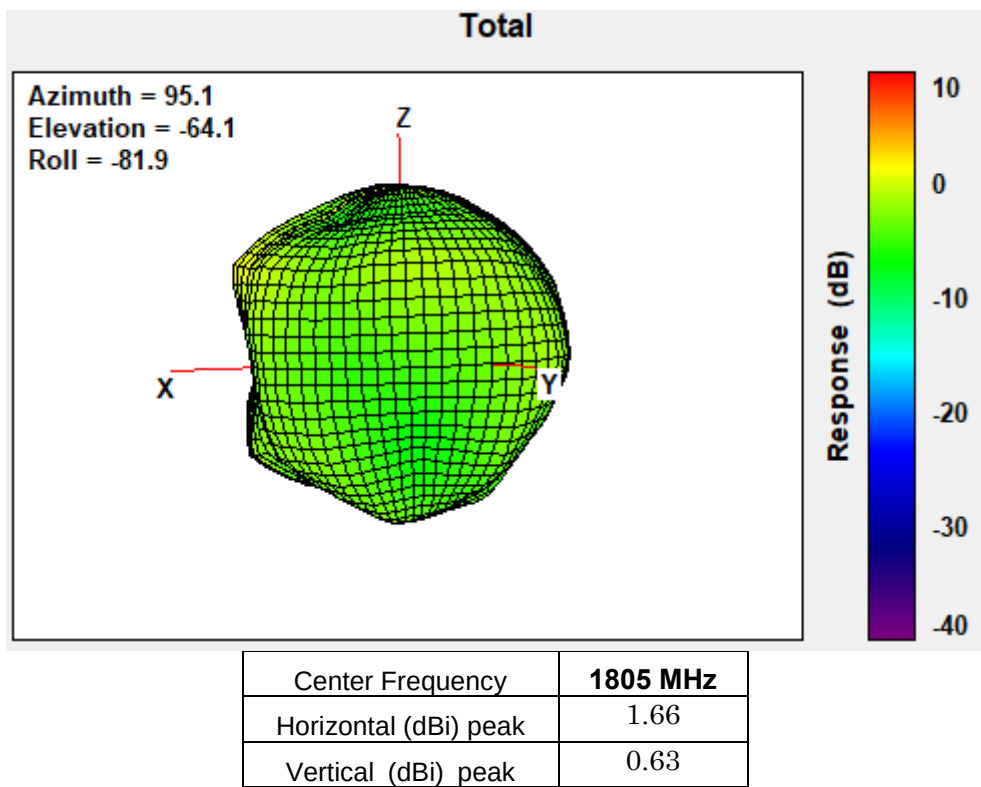
Center Frequency	4700MHz
Horizontal (dBi) peak	-3.47
Vertical (dBi) peak	-3.16

5000MHz

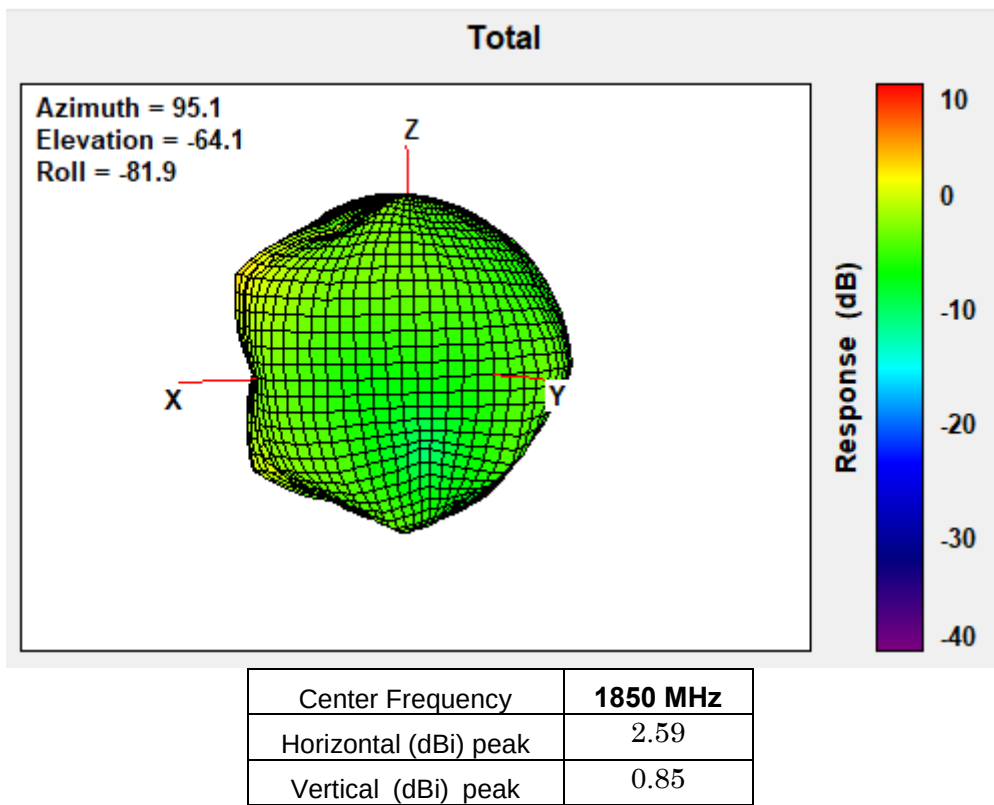


Center Frequency	5000MHz
Horizontal (dBi) peak	-0.96
Vertical (dBi) peak	-1.80

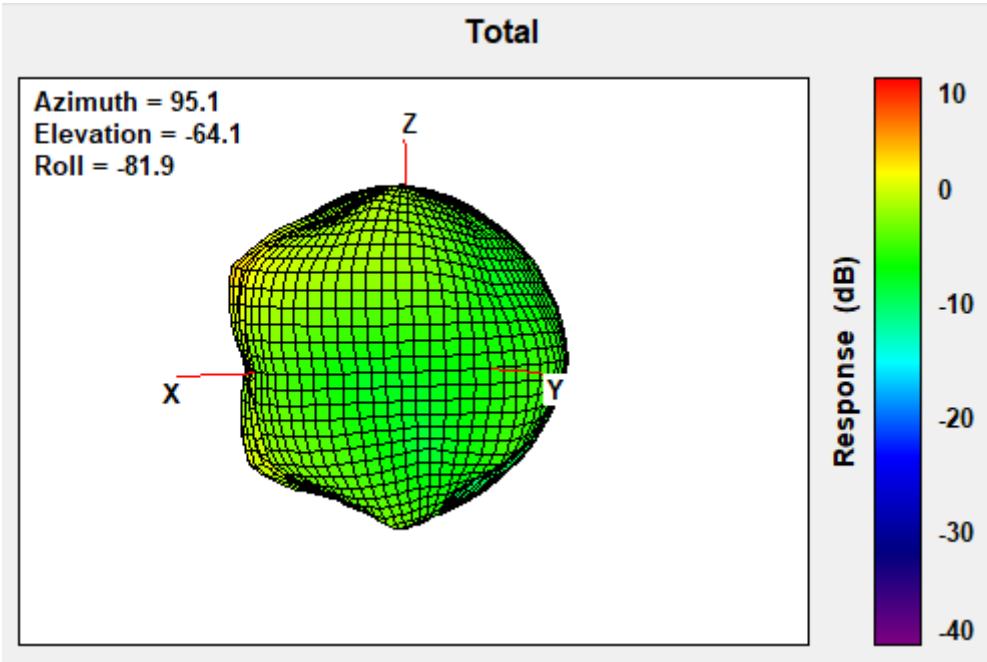
1805 MHz



1850 MHz

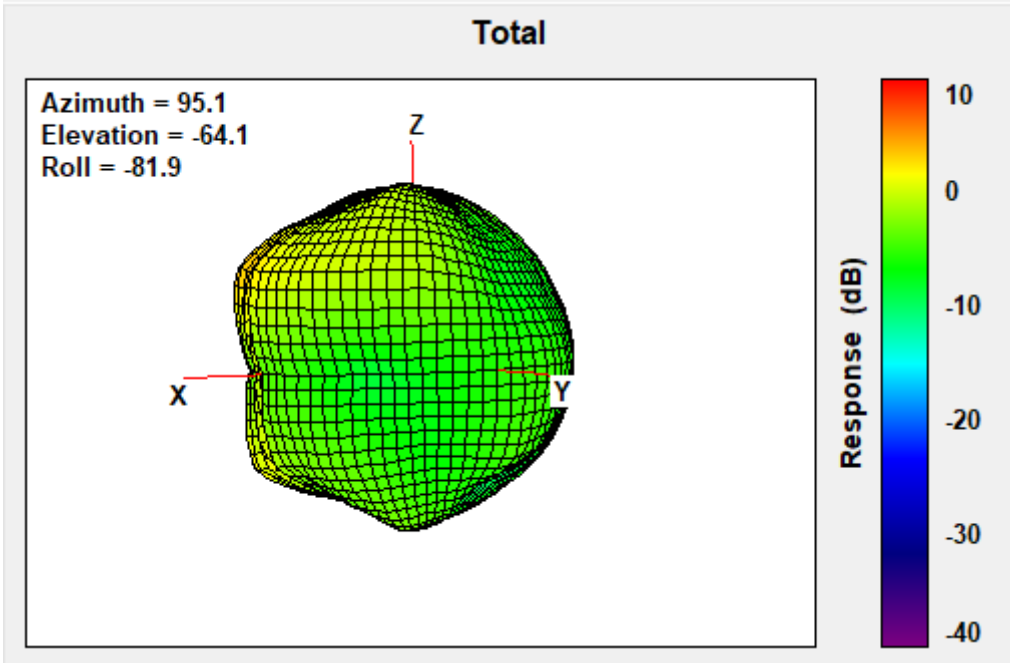


1880 MHz



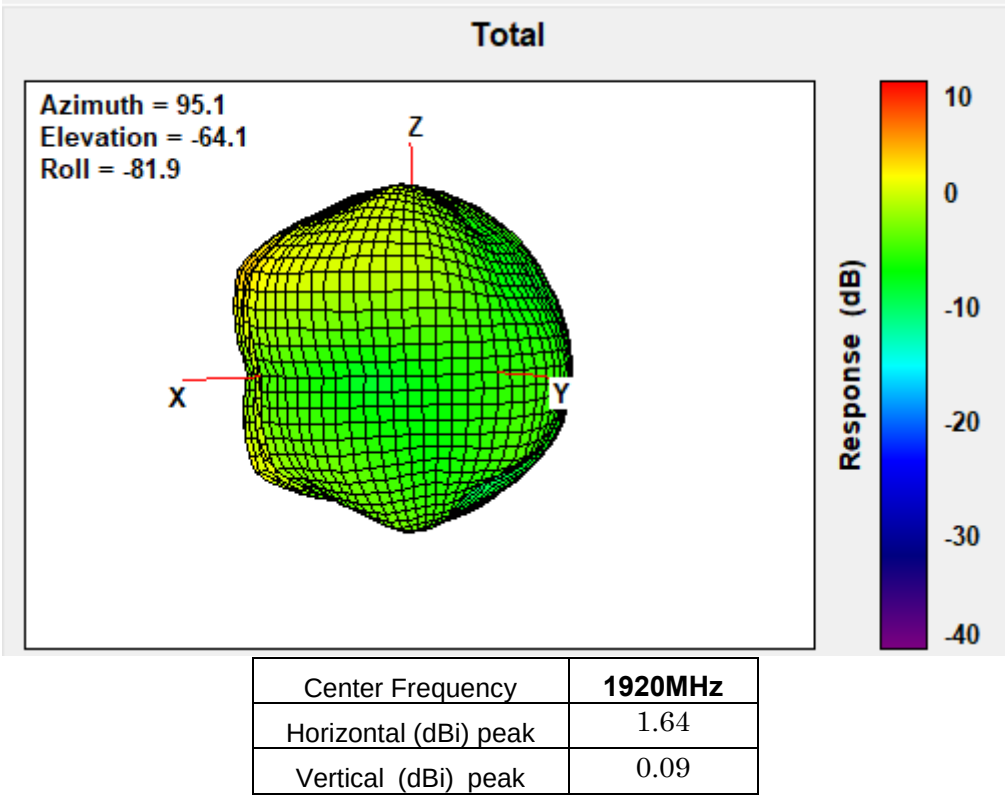
Center Frequency	1880 MHz
Horizontal (dBi) peak	2.63
Vertical (dBi) peak	0.52

1910MHz

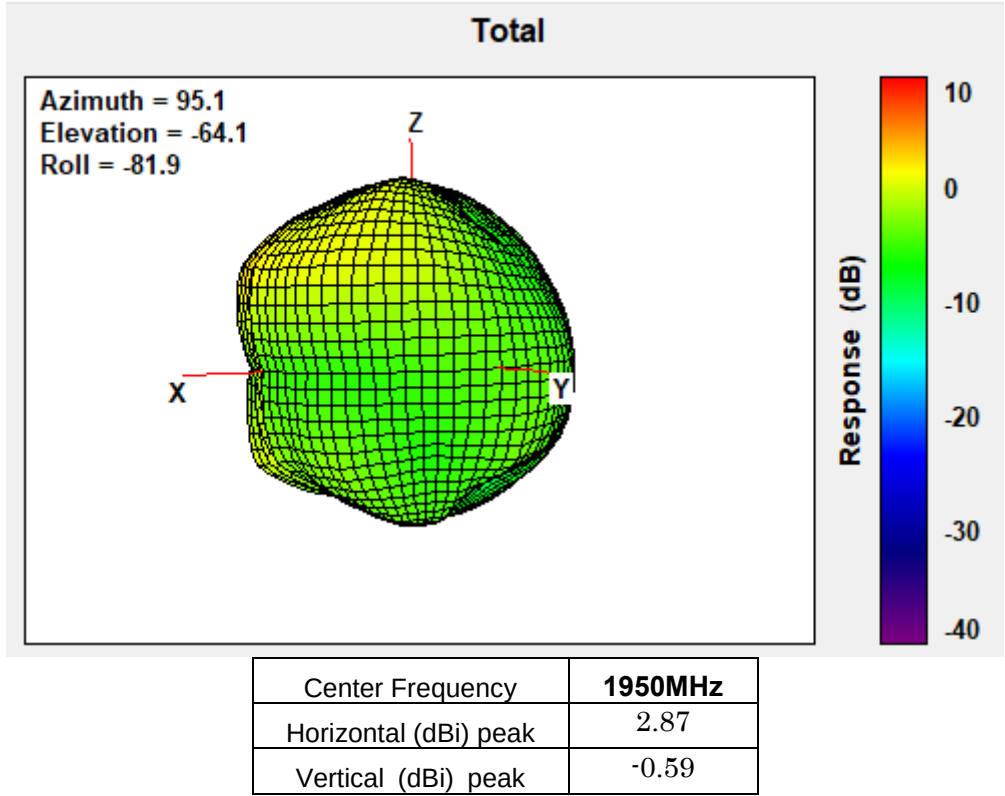


Center Frequency	1910MHz
Horizontal (dBi) peak	2.80
Vertical (dBi) peak	0.13

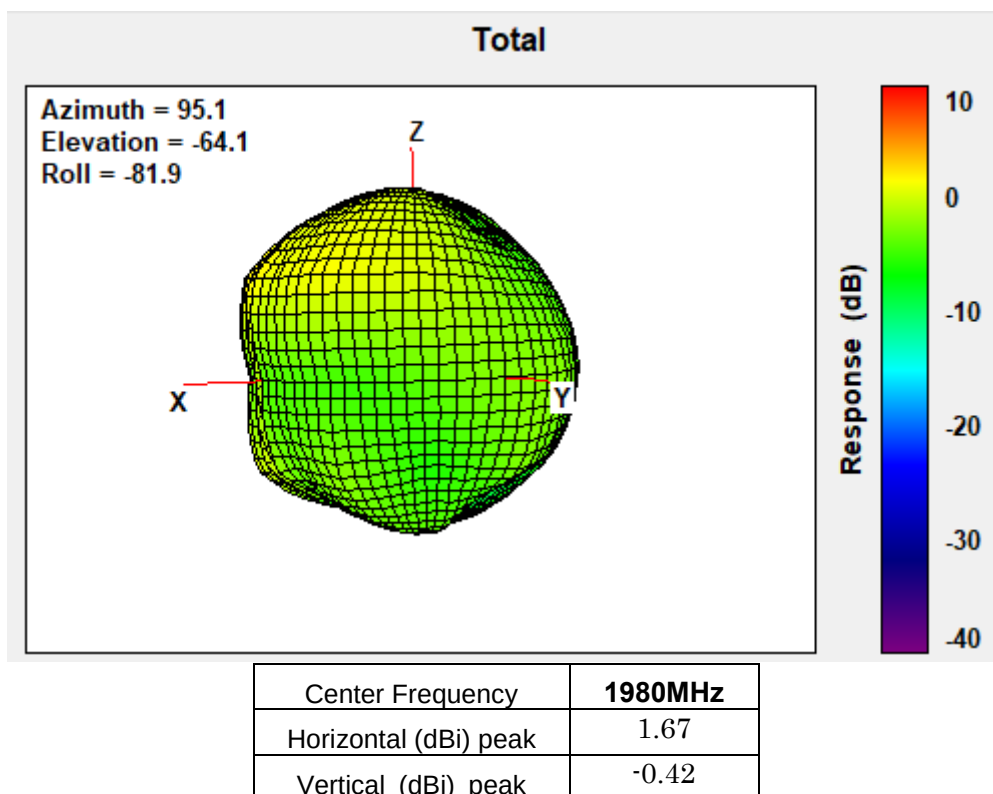
1920MHz



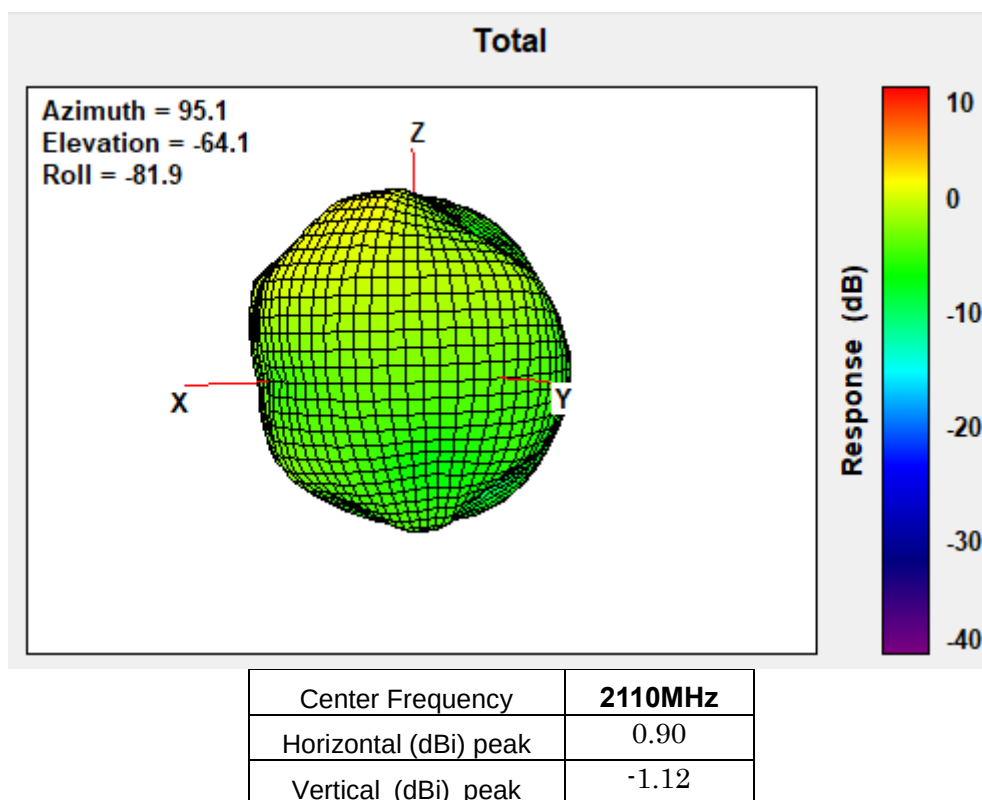
1950MHz



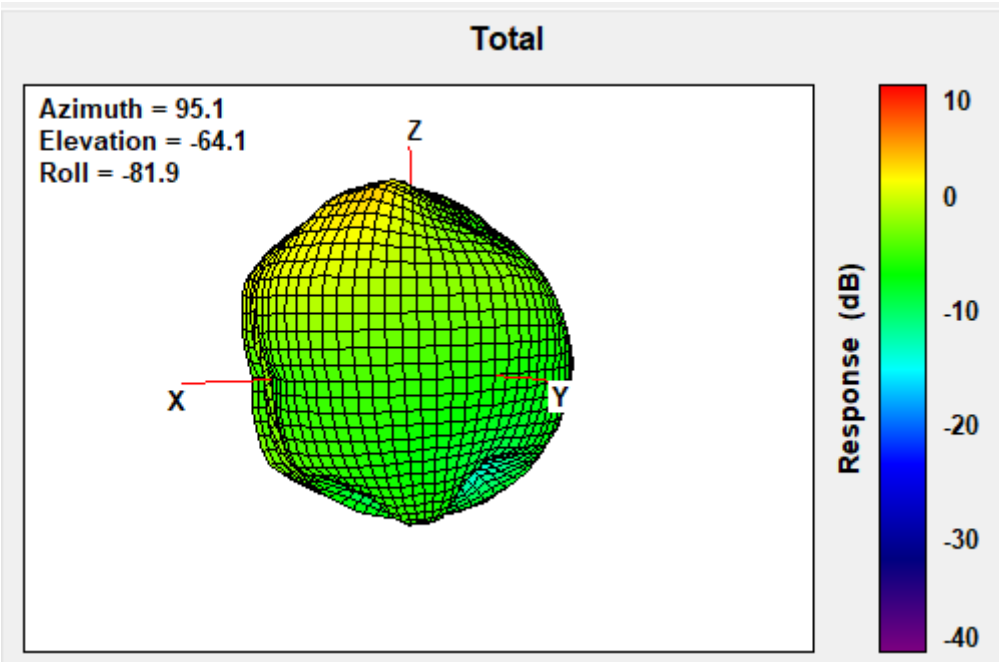
1980MHz



2110MHz

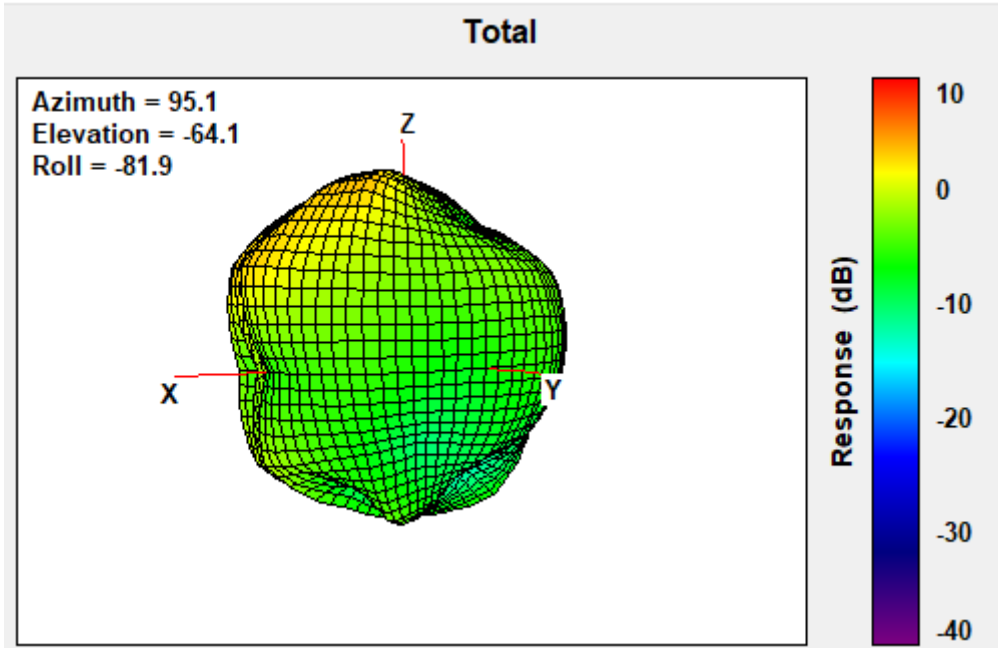


2200MHz



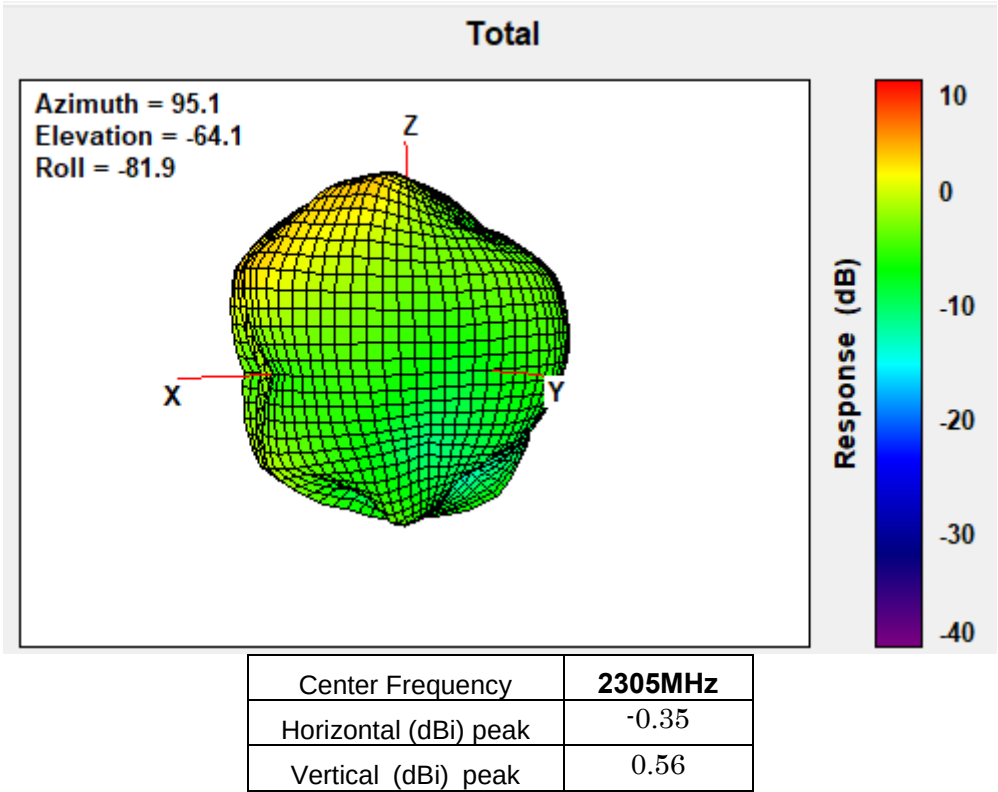
Center Frequency	2200MHz
Horizontal (dBi) peak	1.57
Vertical (dBi) peak	-0.42

2300MHz

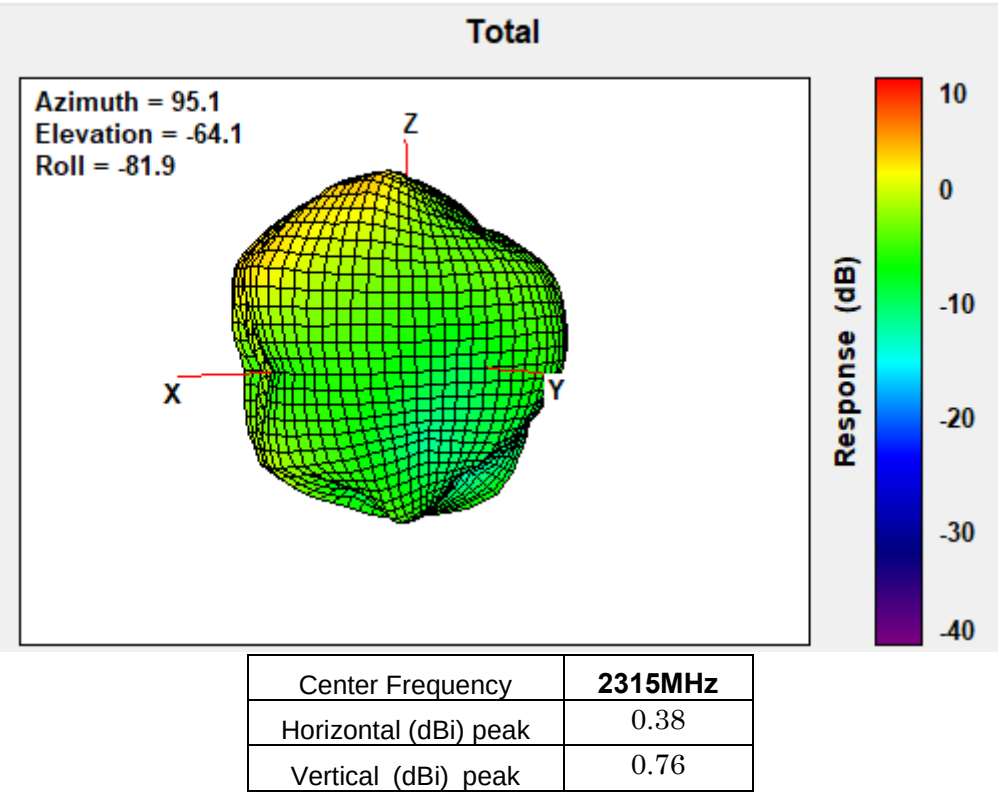


Center Frequency	2300MHz
Horizontal (dBi) peak	1.33
Vertical (dBi) peak	0.46

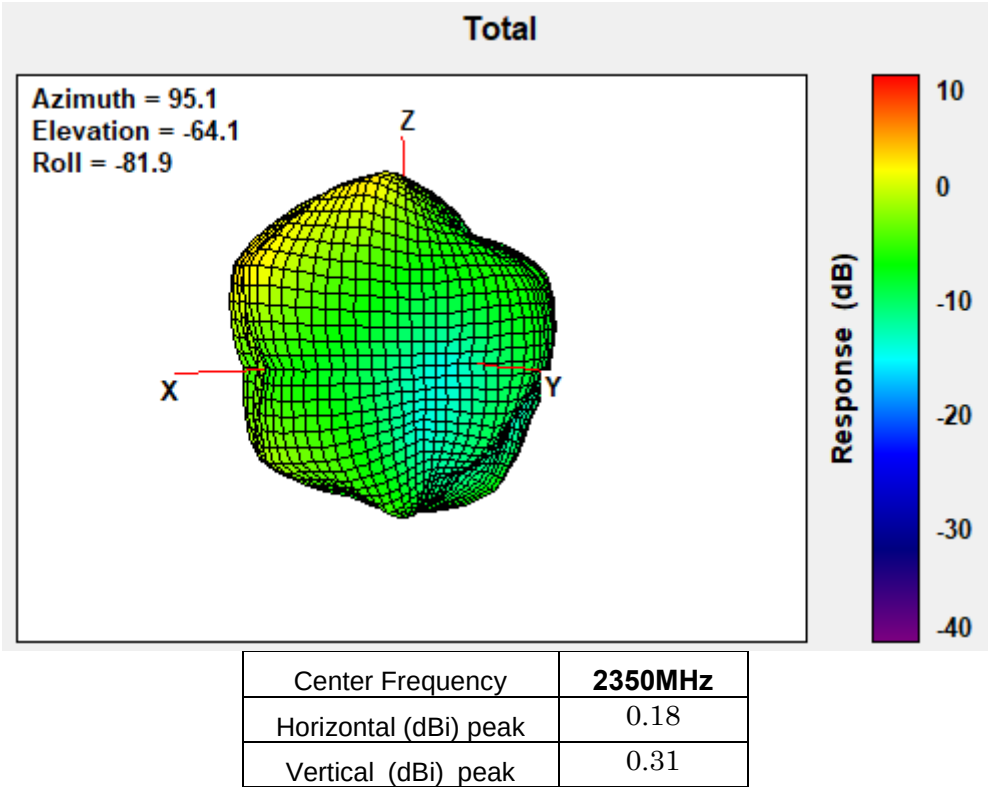
2305MHz



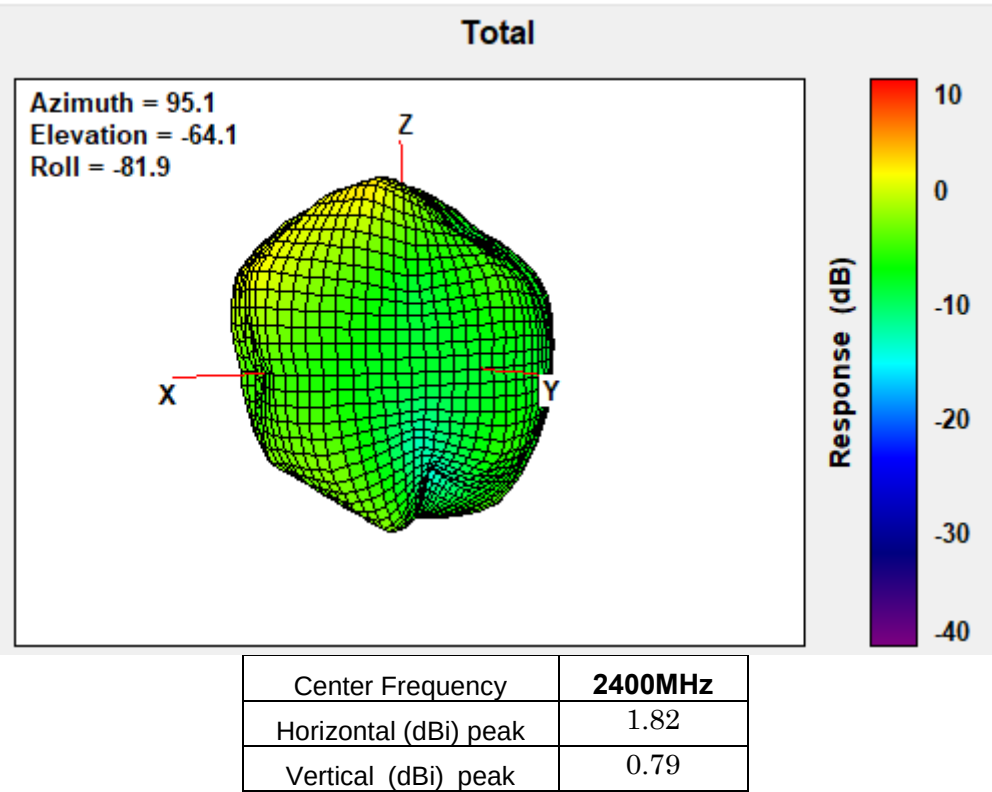
2315MHz



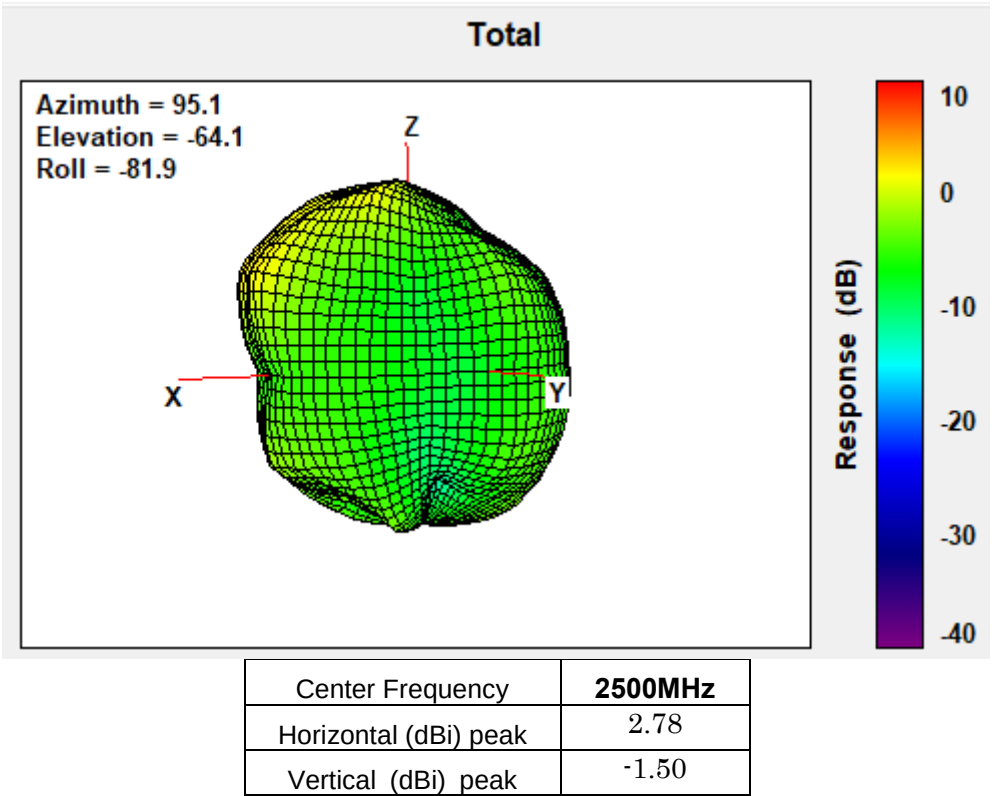
2350MHz



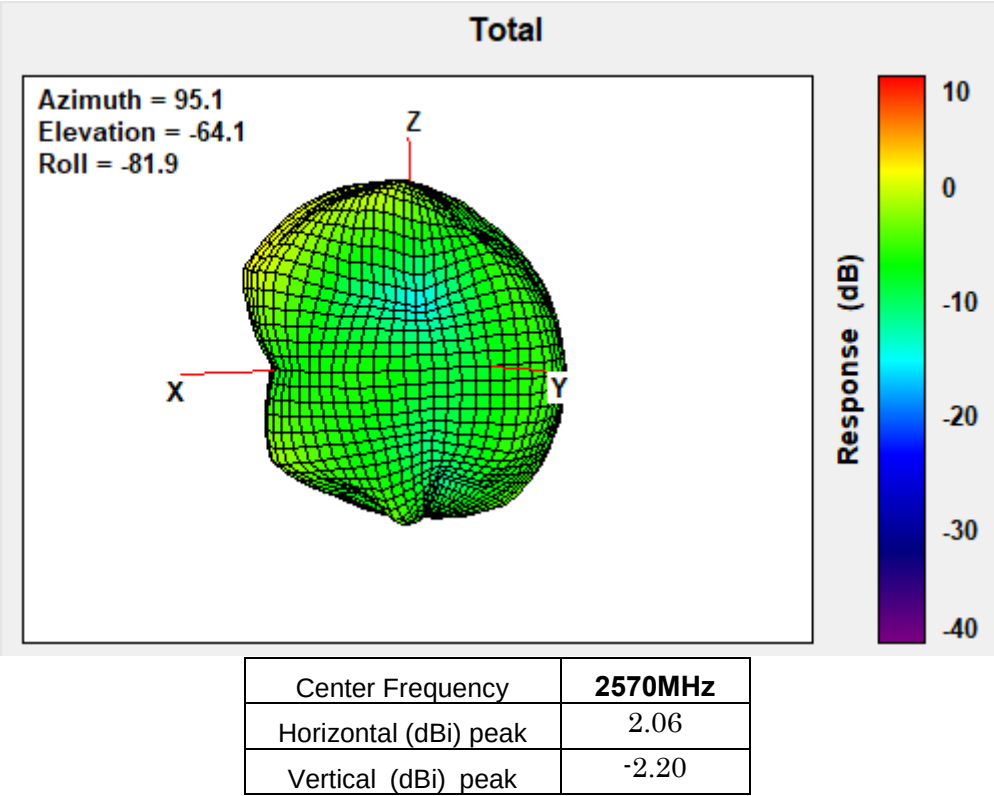
2400MHz



2500MHz

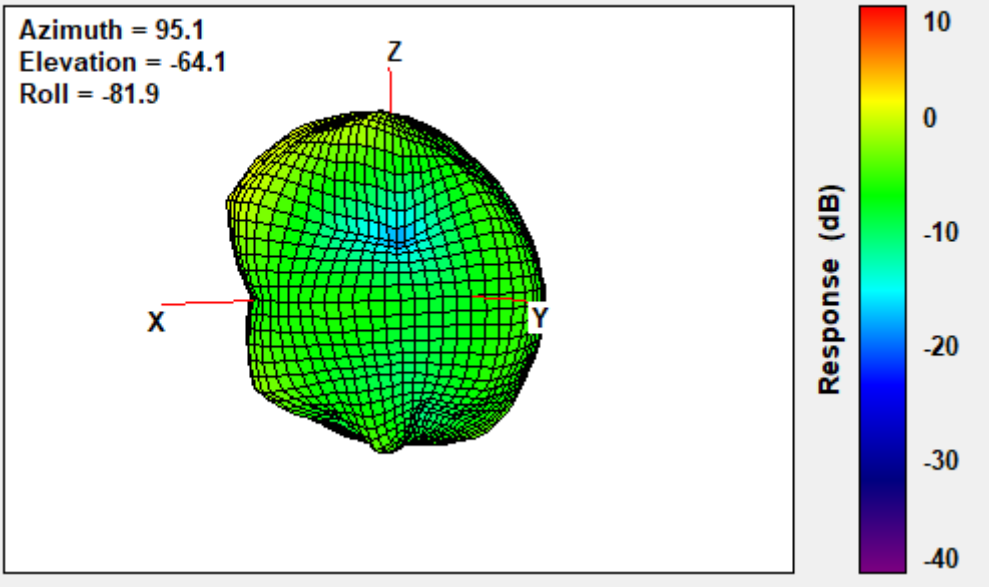


2570MHz



2595MHz

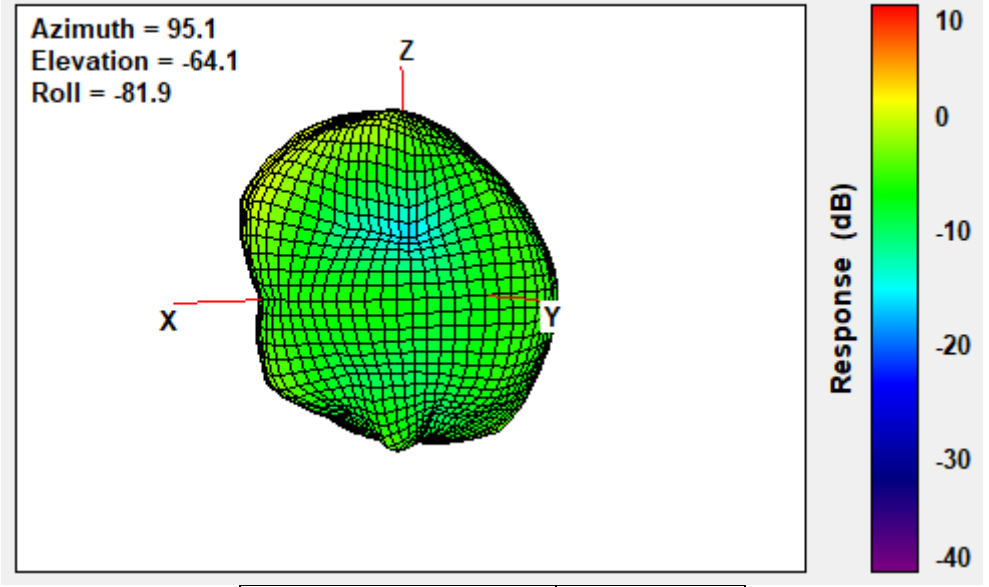
Total



Center Frequency	2595MHz
Horizontal (dBi) peak	1.33
Vertical (dBi) peak	-2.04

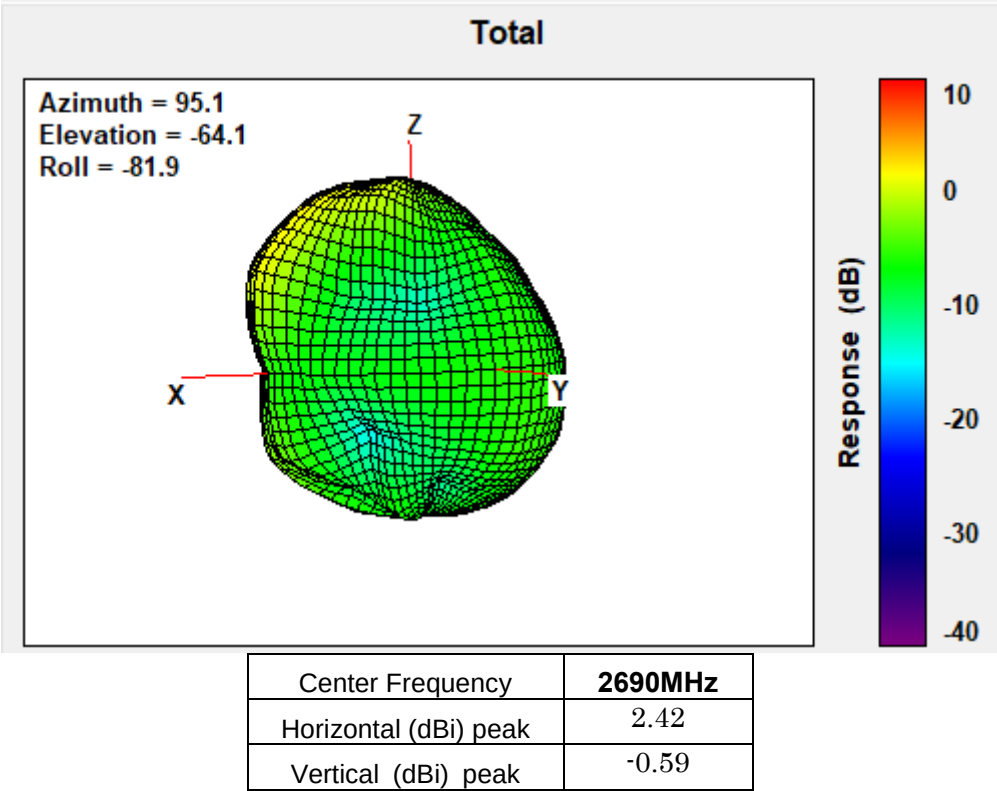
2620MHz

Total

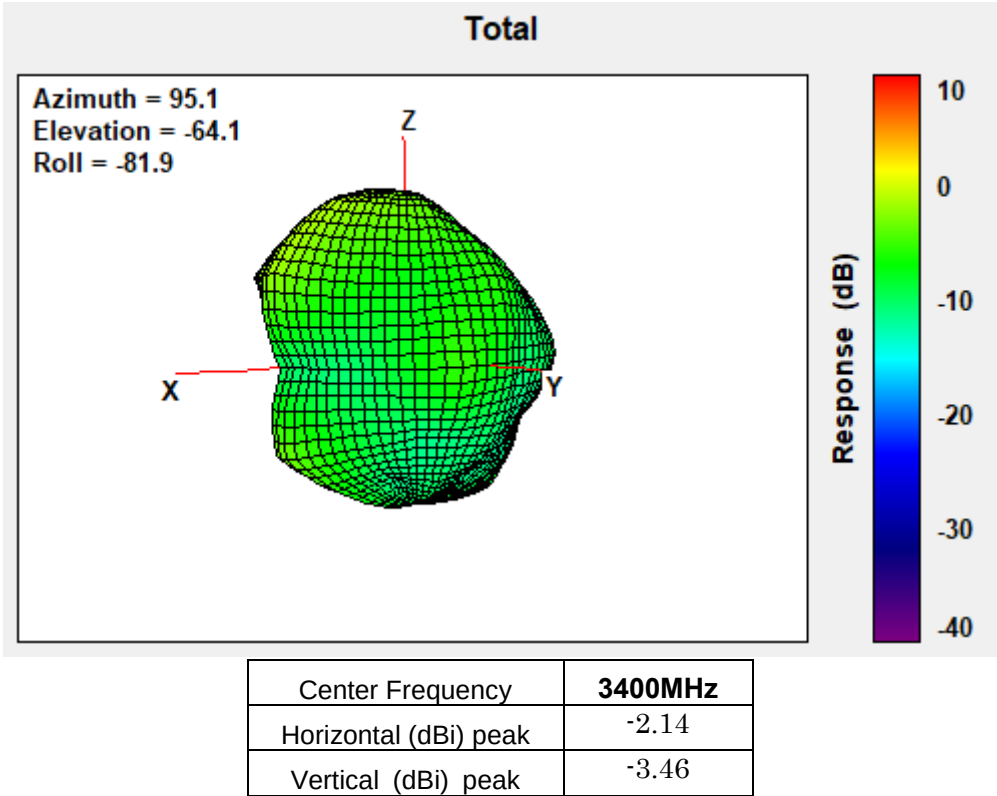


Center Frequency	2620MHz
Horizontal (dBi) peak	1.25
Vertical (dBi) peak	-1.71

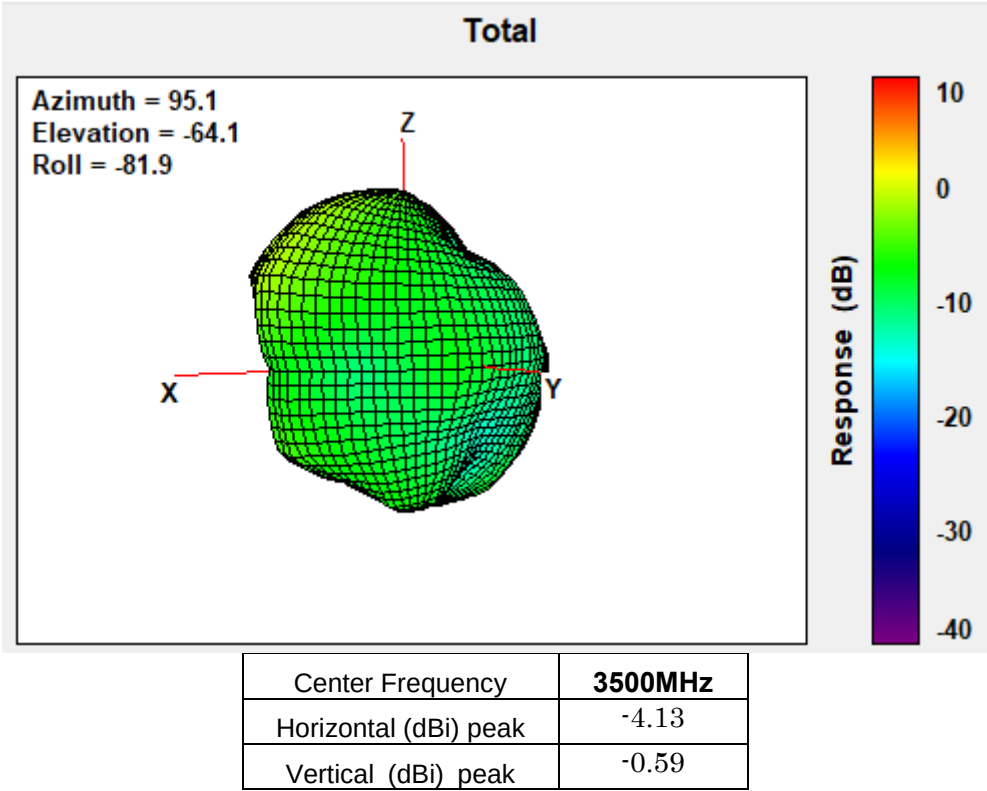
2690MHz



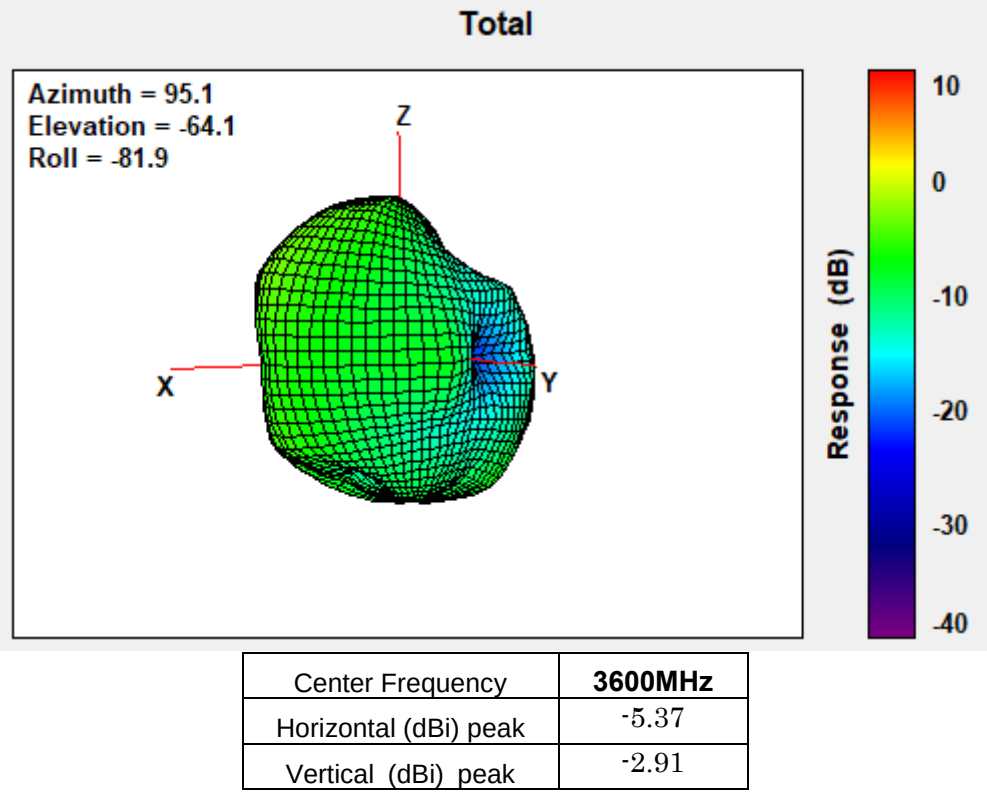
3400MHz



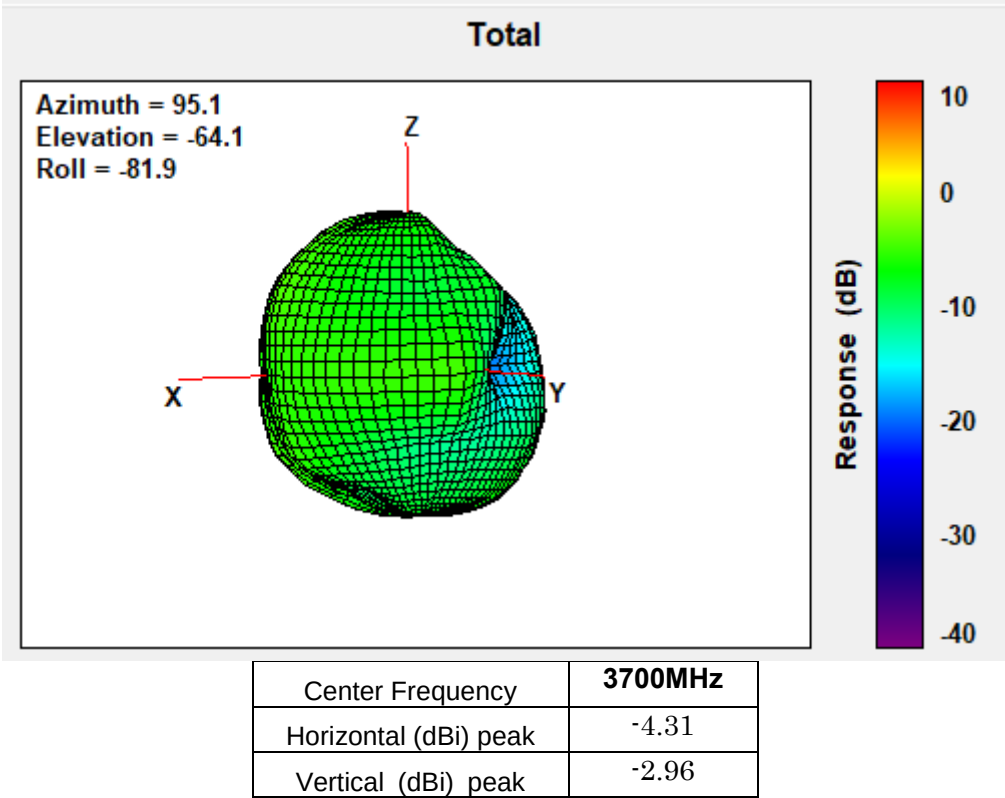
3500MHz



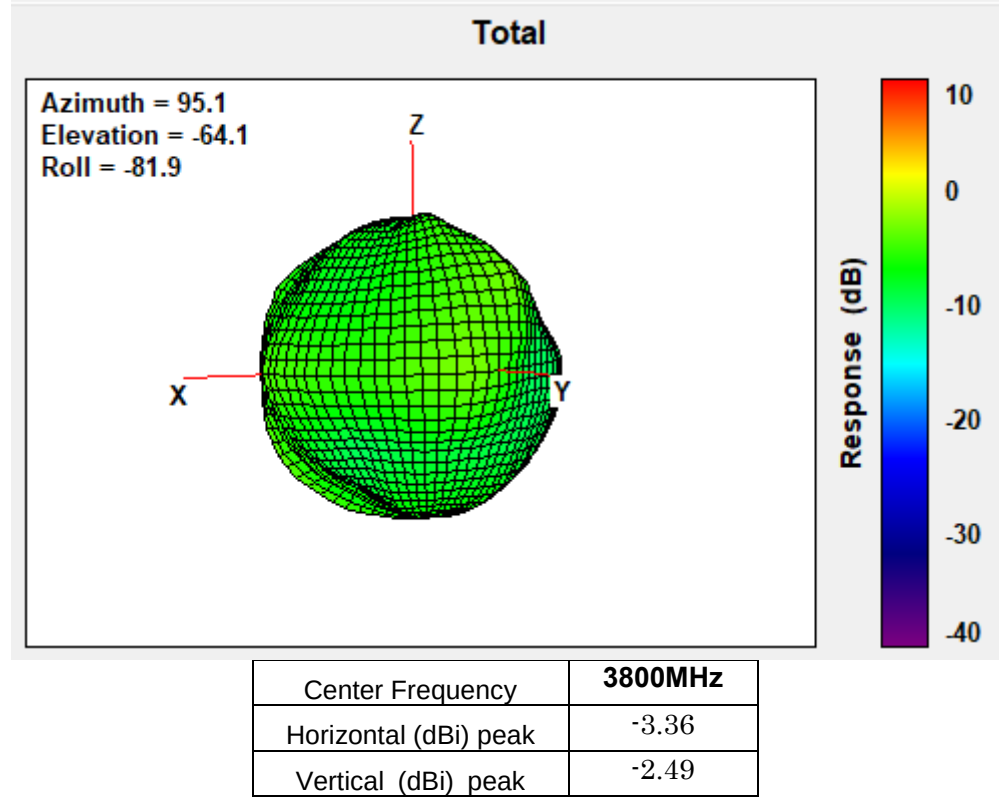
3600MHz



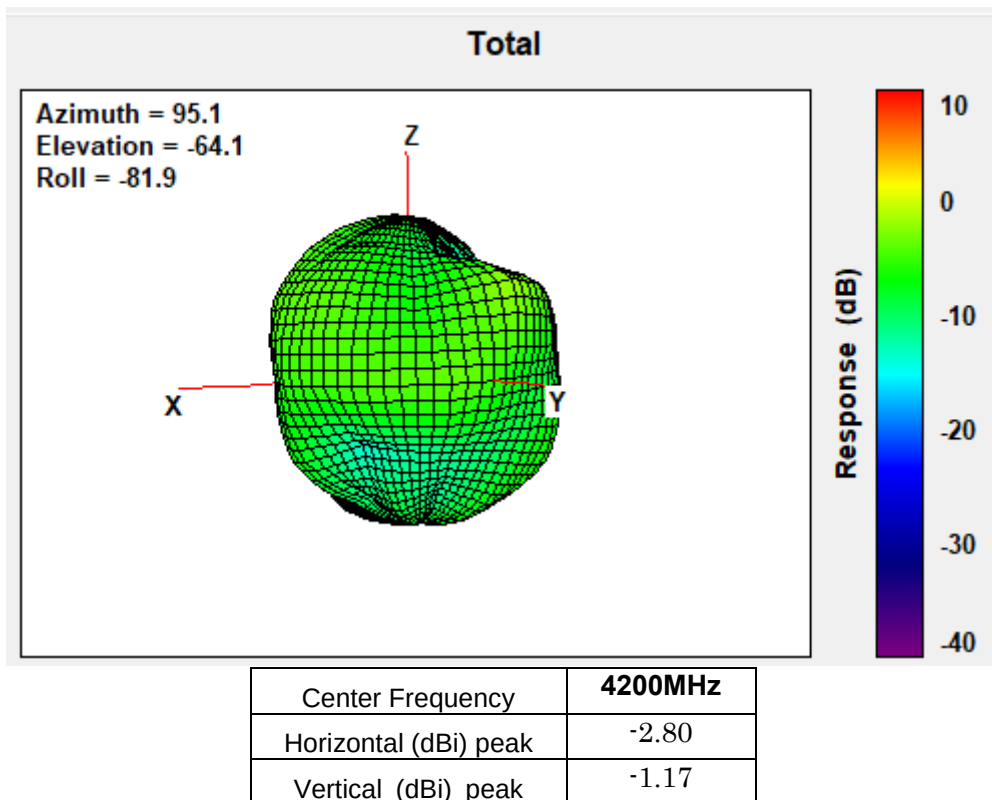
3700MHz



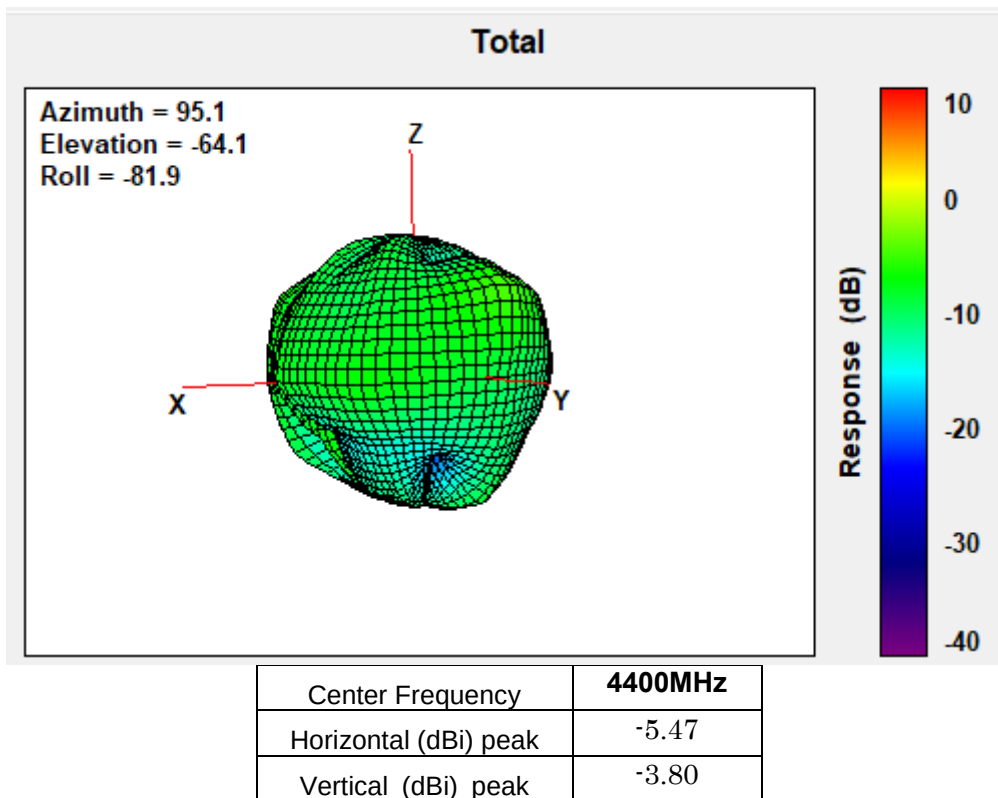
3800MHz



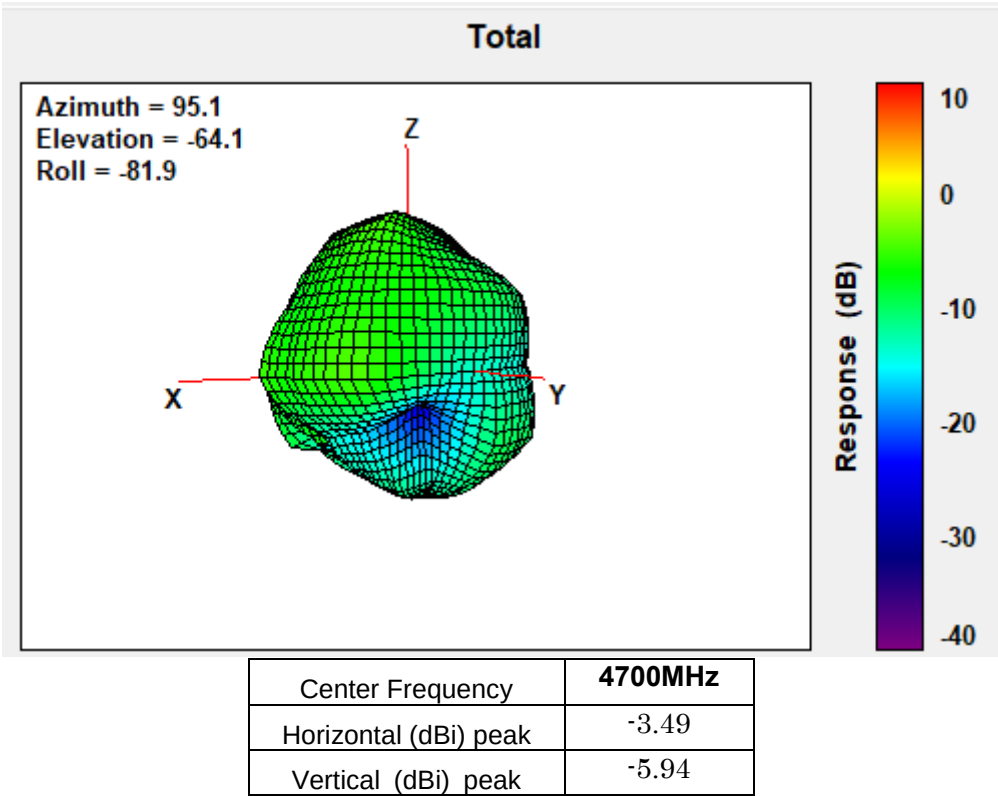
4200MHz



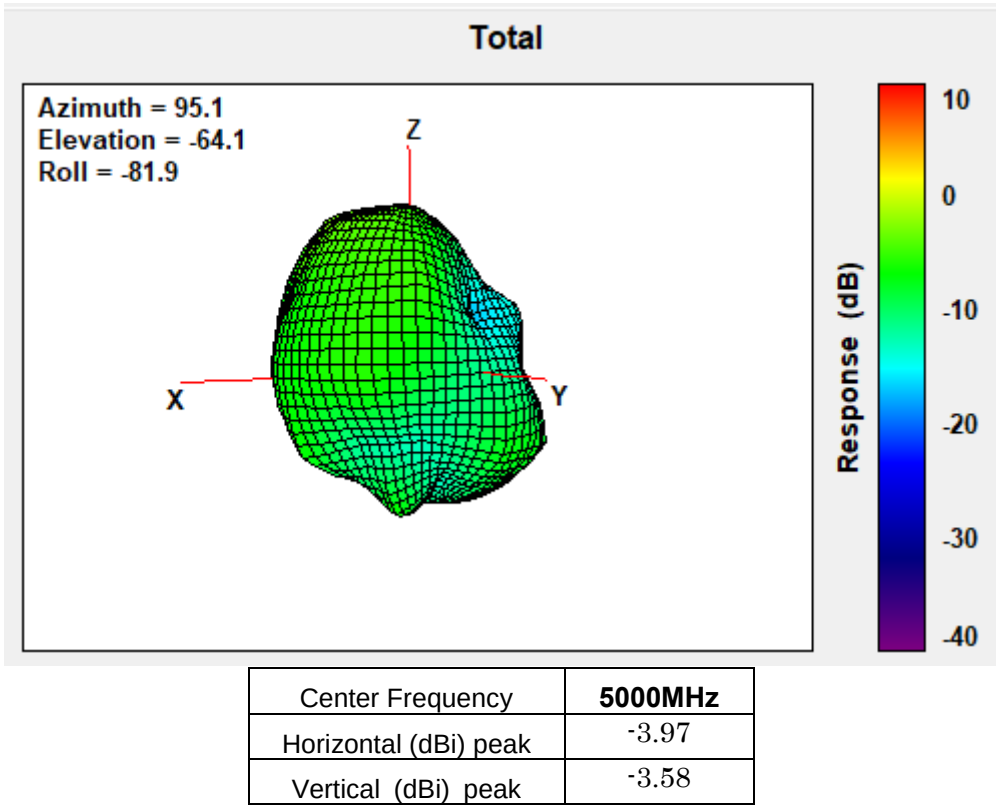
4400MHz



4700MHz

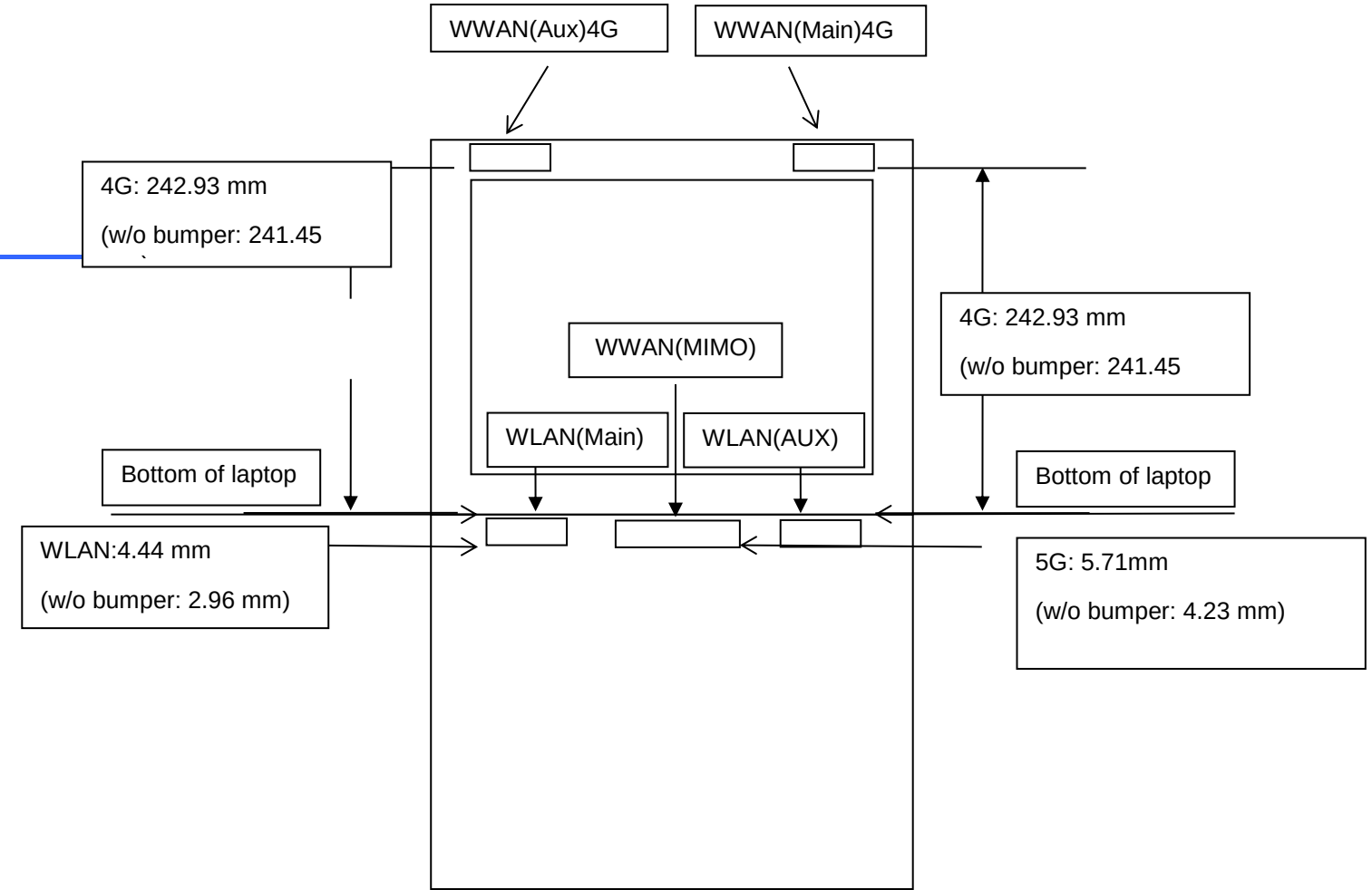


5000MHz



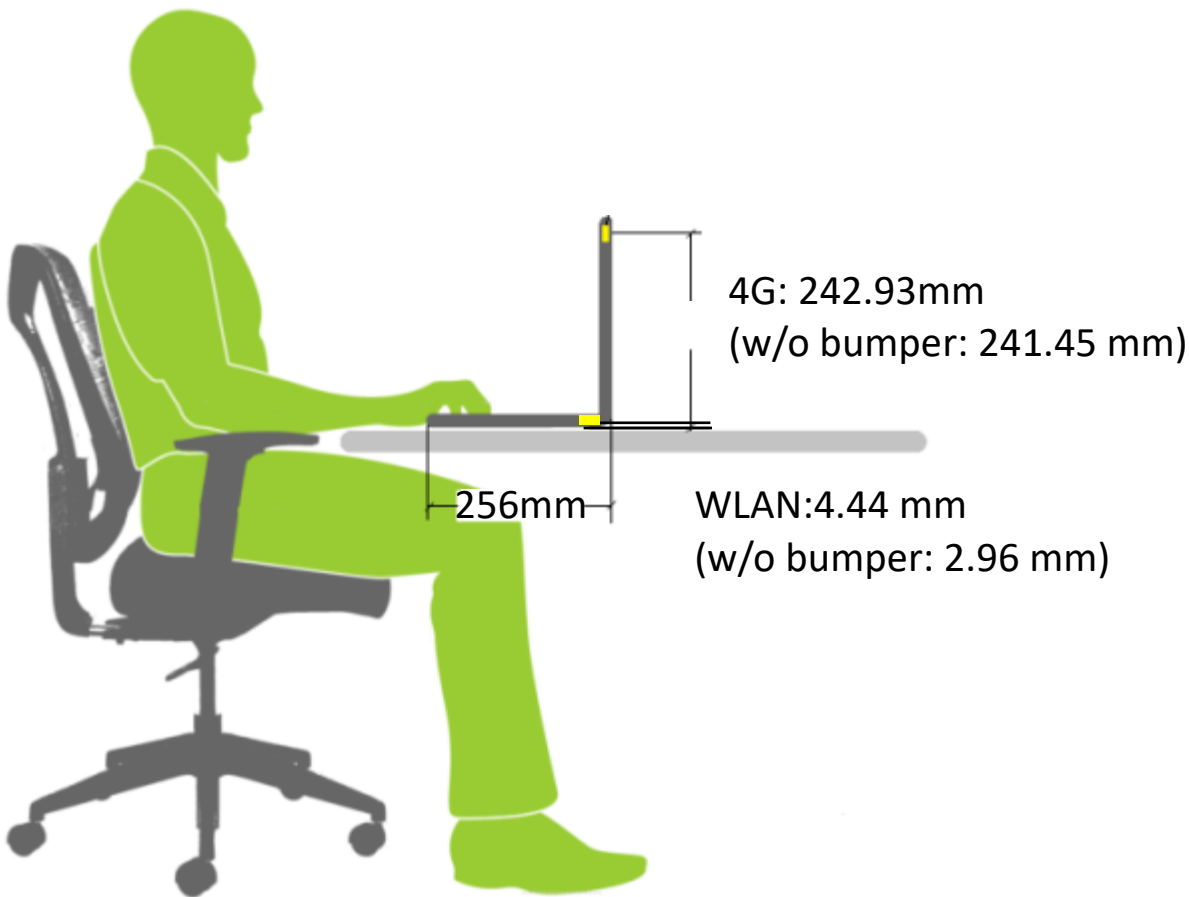
Section 4. Antenna Host Platform Location Information

Include a **dimensioned photo(s) or dimensioned drawing(s)** of Main and Aux antenna placements (measurements are not required for receive-only antenna). Any antenna that transmits must show dimensions to bottom of laptop. Provide a description of the materials that are used for supporting or surrounding transmit antennas; for example, non-conductive plastics vs. conductive coated plastic or metallic materials.



Section 5. Antenna dimensional information for SAR evaluation

Include a **dimensioned photo(s) or dimensioned drawing(s)** showing the distance (mm) between the transmit antennas and the user. For notebook/laptop hosts show lapheld position (example below). For tablet hosts show all orientations including lapheld, primary & secondary portrait, primary & secondary landscape positions. Include a description of any proximity sensors or power throttling implementations that limit or exclude use of any host orientation.



Section 6. Diagram Example of Co-Location Antenna Separation

Include a **dimensioned photo or dimensioned drawing** showing the distance (mm) between all WLAN transmit antennas and other co-located radiator transmit antenna such as Bluetooth, WWAN,..

(Note: Due to the evolving rules regarding co-location, each platform will need to be reviewed on a case by case basis)

