

Regulatory WWAN Antenna Information

(English Language Required for Intel Regulatory Review / Approval)

(OEM/ODM or antenna vendor is required to complete this document with platform antenna information.
Remove Intel references and make this your own document)

<u>Platform</u>	
<u>Platform Owner</u>	DELL
<u>Brand Name</u>	DELL
<u>Model Name</u>	P179G
<u>Project Name</u>	2in1
<u>ODM</u>	Wistron Corporation
<u>Target Launch Date</u>	2022/10/24
<u>Antenna</u>	
<u>Manufacturer</u>	Wistron Corporation
<u>Part Number</u>	■ Tx1/Rx1 <u>Antenna</u> WWAN Main: 0J3HG6
	■ Rx2 Antenna WWAN Aux: 0J3HG6
	■ Rx3 Antenna MIMO3: 0C75WW
	■ TX2/Rx4 Antenna MIMO2: 0C75WW
<u>Module</u>	
<u>With WWAN Module</u>	Fibocom FM350 GL
<u>(Check Box)</u>	

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 antenna (Peak Gain W/ cable loss) *	Required	Required	Required	Required	Required
	1E OR 1F, 1G, 1H					
1F	Tx1, Tx2 antenna (Peak Gain only) *	Required	Required	Required	Required	Required
1G	VSWR of cable including connector	Required	Required	Required	Required	Required
1H	Tx1, Tx2 antenna (Cable loss W/ connector) *	Required	Required	Required	Required	Required
2	Dimensioned Photographs <u>and</u> Drawings of Tx1, Tx2, and 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). 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)
(P/N: 0J3HG6) Tx1/ Rx1 Antenna	Wistron Corporation	PIFA	(1)Cable P/N: SY113SLL (2)Cable length: 378mm diameter: 1.13mm 50 ohm Coaxial (3)Connector P/N: I-PEX MHF4	617-698MHz -4.01 dBi (peak)	617-698MHz -3.55 dBi (peak)	617-698MHz 3.50 max	617-698MHz 0.46 dBi (peak)
				698-821MHz -0.19 dBi (peak)	698-821MHz 0.31 dBi (peak)	698-821MHz 3.50 max	698-821MHz 0.50 dBi (peak)
				824-960MHz -1.99 dBi (peak)	824-960MHz -1.43 dBi (peak)	824-960MHz 3.50 max	824-960MHz 0.55 dBi (peak)
				1452-1515MHz -2.19 dBi (peak)	1452-1515MHz -1.48 dBi (peak)	1452-1515MHz 3.50 max	1452-1515MHz 0.71 dBi (peak)
				1710-2200MHz -0.42 dBi (peak)	1710-2200MHz 0.44 dBi (peak)	1710-2200MHz 3.50 max	1710-2200MHz 0.86 dBi (peak)
				2300-2690MHz -1.12 dBi (peak)	2300-2690MHz -0.16 dBi (peak)	2300-2690MHz 3.50 max	2300-2690MHz 0.96 dBi (peak)
				3300-3800MHz -3.90 dBi (peak)	3300-3800MHz -2.74 dBi (peak)	3300-3800MHz 3.50 max	3300-3800MHz 1.16 dBi (peak)
				4200-5000MHz -3.41 dBi (peak)	4200-5000MHz -3.60 dBi (peak)	4200-5000MHz 3.50 max	4200-5000MHz 1.36 dBi (peak)
				5150-5925MHz -2.12 dBi (peak)	5150-5925MHz -0.65 dBi (peak)	5150-5925MHz 3.50 max	5150-5925MHz 1.47 dBi (peak)
(P/N: 0J3HG6) Rx2 Antenna	Wistron Corporation	PIFA	(1)Cable P/N: SY113SLL (2)Cable length: 522mm diameter: 1.13mm 50 ohm Coaxial (3)Connector P/N: I-PEX MHF4	617-698MHz -2.72 dBi (peak)	617-698MHz -2.08 dBi (peak)	617-698MHz 3.50 max	617-698MHz 0.63 dBi (peak)
				698-821MHz -0.39 dBi (peak)	698-821MHz 0.29 dBi (peak)	698-821MHz 3.50 max	698-821MHz 0.69 dBi (peak)
				716-821MHz -0.39 dBi (peak)	716-821MHz 0.29 dBi (peak)	716-821MHz 3.50 max	716-821MHz 0.69 dBi (peak)
				824-960MHz -1.42 dBi (peak)	824-960MHz -0.66 dBi (peak)	824-960MHz 3.50 max	824-960MHz 0.76 dBi (peak)
				1452-1515MHz -1.74 dBi (peak)	1452-1515MHz -0.77 dBi (peak)	1452-1515MHz 3.50 max	1452-1515MHz 0.97 dBi (peak)
				1557-1610 MHz -2.70 dBi (peak)	1557-1610 MHz -1.70 dBi (peak)	1557-1610 MHz 3.50 max	1557-1610 MHz 1.00 dBi (peak)

				1805-2200MHz -0.14 dBi (peak)	1805-2200MHz 1.04 dBi (peak)	1805-2200MHz 3.50 max	1805-2200MHz 1.18 dBi (peak)
				2300-2690MHz 1.34 dBi (peak)	2300-2690MHz 1.34 dBi (peak)	2300-2690MHz 3.50 max	2300-2690MHz 1.32 dBi (peak)
				3300-3800MHz -2.68 dBi (peak)	3300-3800MHz -1.09 dBi (peak)	3300-3800MHz 3.50 max	3300-3800MHz 1.59 dBi (peak)
				4200-5000MHz -5.47 dBi (peak)	4200-5000MHz -3.60 dBi (peak)	4200-5000MHz 3.50 max	4200-5000MHz 1.87 dBi (peak)
				5150-5925MHz -4.69 dBi (peak)	5150-5925MHz -2.67 dBi (peak)	5150-5925MHz 3.50 max	5150-5925MHz 2.01 dBi (peak)

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)
(P/N: 0C75WW) Rx3 Antenna	Wistron Corporation	PIFA	(1)Cable P/N: SY113SLL (2)Cable length: 191.5 mm diameter: 1.13mm 50 ohm Coaxial (3)Connector P/N: I-PEX MHF4	1452-1515MHz	1452-1515MHz	1452-1515MHz	1452-1515MHz
				dBi (peak)	dBi (peak)	max	dBi (peak)
				1805-2200MHz	1805-2200MHz	1805-2200MHz	1805-2200MHz
				1.99 dBi (peak)	2.41 dBi (peak)	3.50 max	0.43 dBi (peak)
				2300-2690MHz	2300-2690MHz	2300-2690MHz	2300-2690MHz
(P/N: 0C75WW) Tx2/Rx4 Antenna	Wistron Corporation	PIFA	(1)Cable P/N: SY113SLL (2)Cable length: 126.5mm diameter: 1.13mm 50 ohm Coaxial (3)Connector P/N: I-PEX MHF4	2.51 dBi (peak)	2.98 dBi (peak)	3.50 max	0.48 dBi (peak)
				3300-3800MHz	3300-3800MHz	3300-3800MHz	3300-3800MHz
				-0.32 dBi (peak)	0.26 dBi (peak)	3.50 max	0.58 dBi (peak)
				4200-5000MHz	4200-5000MHz	4200-5000MHz	4200-5000MHz
				1.06 dBi (peak)	1.74 dBi (peak)	3.50 max	0.68 dBi (peak)
(P/N: 0C75WW) Tx2/Rx4 Antenna	Wistron Corporation	PIFA	(1)Cable P/N: SY113SLL (2)Cable length: 126.5mm diameter: 1.13mm 50 ohm Coaxial (3)Connector P/N: I-PEX MHF4	1452-1515MHz	1452-1515MHz	1452-1515MHz	1452-1515MHz
				-4.78 dBi (peak)	-4.06 dBi (peak)	3.50 max	0.72 dBi (peak)
				1557-1610 MHz	1557-1610 MHz	1557-1610 MHz	1557-1610 MHz
				dBi (peak)	dBi (peak)	max	dBi (peak)
				1710-2200MHz	1710-2200MHz	1710-2200MHz	1710-2200MHz
(P/N: 0C75WW) Tx2/Rx4 Antenna	Wistron Corporation	PIFA	(1)Cable P/N: SY113SLL (2)Cable length: 126.5mm diameter: 1.13mm 50 ohm Coaxial (3)Connector P/N: I-PEX MHF4	-0.77 dBi (peak)	0.11 dBi (peak)	3.50 max	0.88 dBi (peak)
				2300-2690MHzzz	2300-2690MHzzz	2300-2690MHzzz	2300-2690MHzzz
				1.25 dBi (peak)	2.24 dBi (peak)	3.50 max	0.98 dBi (peak)
				3300-3800MHz	3300-3800MHz	3300-3800MHz	3300-3800MHz
				-0.05 dBi (peak)	1.14 dBi (peak)	3.50 max	1.19 dBi (peak)
(P/N: 0C75WW) Tx2/Rx4 Antenna	Wistron Corporation	PIFA	(1)Cable P/N: SY113SLL (2)Cable length: 126.5mm diameter: 1.13mm 50 ohm Coaxial (3)Connector P/N: I-PEX MHF4	4200-5000MHz	4200-5000MHz	4200-5000MHz	4200-5000MHz
				-0.32 dBi (peak)	1.07 dBi (peak)	3.50 max	1.39 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(I):
Low and middle band

	Tx1/Rx1 antenna		Rx2 antenna		Rx3 antenna(MIMO3)		Tx2/Rx4antenna (MIMO2)	
Frequency (MHz)	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
	(dBi)	(dBi)	(dBi)	(dBi)	(dBi)	(dBi)	(dBi)	(dBi)
617	-10.18	-11.53	-3.55	-4.06				
634.5	-8.91	-8.88	-2.31	-2.90				
652	-7.04	-6.78	-2.08	-2.94				
663	-5.37	-5.49						
680.5	-3.55	-4.13						
698	-4.07	-4.45						
703	-3.92	-3.96						
707.5	-3.86	-3.57						
716	-3.01	-1.68						
717	-2.89	-1.46	-3.72	-2.18				
722.5	-2.20	-0.49	-3.95	-2.19				
725.5	-4.58	-2.64						
728	-4.30	-2.34	-4.22	-2.03				
729	-4.19	-2.22	-4.29	-2.03				
737.5	-3.65	-1.34	-3.86	-1.81				
746	-2.66	-0.42	-2.46	-1.08				
748	-2.45	-0.26						
751	-2.21	-0.06	-2.14	-0.84				
756	-1.98	0.15	-1.35	-0.78				
758	-1.94	0.20	-0.99	-0.80				
763	-1.63	0.31	-0.17	-0.82				
768	-1.67	0.16	0.29	-0.86				
777	-1.47	-0.71						
780.5	-1.31	-1.04	0.19	-0.58				
782	-1.28	-1.14						
787	-1.45	-1.63						
788	-1.53	-1.69						
791	-3.33	-2.15	-0.79	-1.30				
793	-3.33	-1.97						
798	-3.23	-2.86						
803	-3.42	-3.64	-2.25	-2.62				
806	-3.42	-3.52	-2.77	-2.54				
814	-3.05	-2.54						
815	-3.09	-2.74						
821	-3.51	-2.71	-4.07	-2.89				
823	-3.38	-2.71						
824	-3.33	-2.73						

830	-3.30	-2.68						
831.5	-3.35	-2.63						
832	-3.38	-2.64						
835	-3.63	-2.51						
836.5	-3.76	-2.42						
838	-3.70	-2.37						
840	-3.50	-2.30						
845	-3.11	-2.17						
847	-3.01	-2.16						
849	-2.89	-2.12						
859	-2.53	-2.41	-0.80	-1.16				
860	-2.53	-2.41	-0.75	-1.11				
862	-2.48	-2.48						
868	-2.50	-2.72	-0.66	-1.11				
869	-2.48	-2.72	-0.67	-1.11				
875	-2.58	-2.83	-0.81	-1.33				
876.5	-2.61	-2.81	-0.86	-1.43				
880	-3.88	-2.20	-1.61	-1.87				
881.5	-3.88	-2.21	-1.66	-1.84				
883	-3.49	-3.32	-1.68	-1.86				
885	-3.56	-3.36	-1.72	-1.89				
890	-3.77	-3.48	-1.80	-2.01				
894	-3.94	-3.54	-1.85	-2.17				
897.5	-3.88	-2.46						
915	-3.51	-1.43						
925	-3.28	-1.46	-0.93	-2.00				
942.5	-3.55	-2.72	-0.73	-1.93				
960	-4.63	-3.96	-2.03	-2.44				
1427.9								
1447.9								
1452	-1.63	-4.38	-0.77	-2.20			-5.43	-4.99
1455.4								
1462.9								
1474	-1.48	-4.15	-2.11	-1.84			-5.25	-4.87
1496	-2.25	-3.77	-3.21	-1.87			-4.06	-5.00
1510.9								
1557			-2.08	-3.51				
1561			-2.06	-3.58				
1565			-2.00	-3.73				
1573			-1.95	-4.12				
1575			-1.93	-4.08				
1577			-1.89	-3.88				
1594			-1.70	-2.66				

1602			-1.78	-2.45				
1610			-1.87	-2.42				

High band

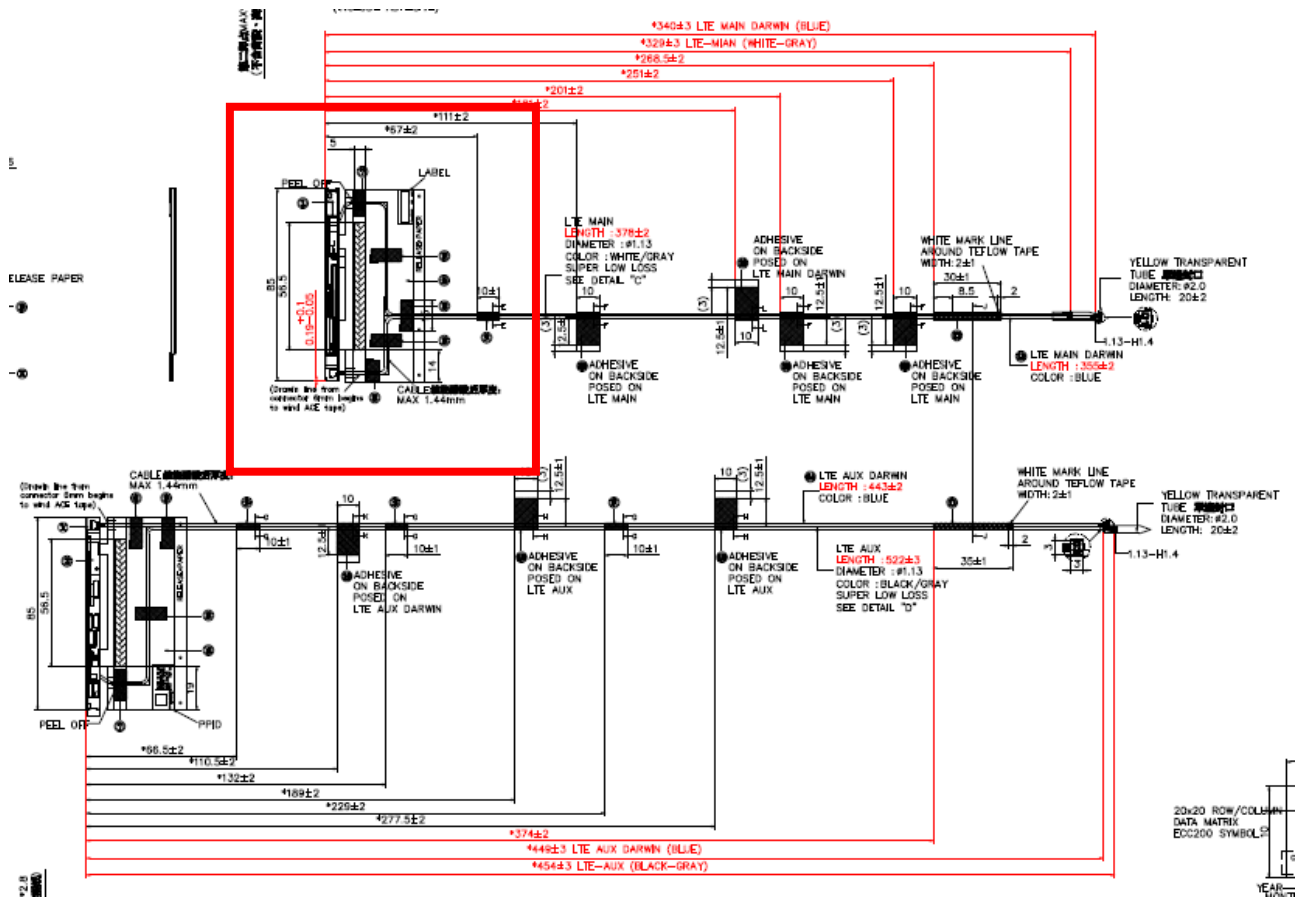
	Tx1/Rx1 antenna		Rx2 antenna		Rx3 antenna(MIMO3)		Tx2/Rx4antenna (MIMO2)	
Frequency (MHz)	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
	(dBi)	(dBi)	(dBi)	(dBi)	(dBi)	(dBi)	(dBi)	(dBi)
1710	-0.06	-2.65					-1.12	0.11
1732.5	0.20	-2.52					-0.64	-0.56
1745	0.44	-2.58					-0.32	-0.51
1747.5	0.43	-2.60					-0.29	-0.53
1749.9	0.42	-2.67						
1755	0.36	-2.88					-0.24	-0.77
1767.4	0.02	-3.59						
1780	-0.31	-4.37					-0.92	-1.79
1784.9	-0.31	-4.37					-0.92	-1.79
1805	-0.53	-4.39	-2.73	-2.37	-0.03	0.38	-3.28	-3.13
1842.5	-0.83	-4.68	-2.96	-1.73	-0.30	-0.18	-3.99	-2.62
1844.9	-0.87	-4.68	-2.79	-1.51				
1850	-4.11	-3.55					-3.88	-2.65
1862.4	-3.50	-3.33	-1.74	-1.38				
1880	-2.62	-3.21	-1.34	-1.36	0.36	-0.57	-3.41	-2.88
1882.5	-2.55	-3.22					-3.33	-2.91
1900	-2.07	-3.06	-0.38	-1.59				
1910	-1.94	-2.78					-2.02	-2.18
1915	-1.90	-2.75					-1.91	-2.05
1920	-1.85	-2.62	0.09	-0.85			-1.85	-1.67
1930	-1.74	-2.47	0.19	-0.37	1.71	0.94	-2.00	-1.09
1950	-1.44	-1.92					-1.79	-0.54
1960	-1.34	-1.62	-0.07	0.55	1.22	1.02	-1.47	-0.79
1962.5	-1.27	-1.53	-0.02	0.64	1.19	1.03	-1.32	-0.75
1980	-0.81	-0.98					-1.14	-1.04
1990	-0.63	-0.82	0.07	0.87	0.15	0.89	-1.12	-1.59
1995	-0.54	-0.81	-0.04	0.94	0.12	0.97	-1.20	-1.89
2010	-0.92	-1.25	-0.91	0.81	-0.28	0.51	-2.02	-2.90
2018	-1.08	-1.51	-1.35	0.96	-0.39	0.45	-2.30	-2.86
2025	-1.22	-1.74	-1.69	1.04	-0.47	0.42	-2.57	-2.63
2110	-0.72	-2.39	-0.44	-0.51	-0.99	-1.95	-0.49	-2.21
2132.5	-0.39	-2.47	-0.61	-0.72	-0.90	-2.10	-1.13	-2.37
2140	-0.33	-2.67	-0.84	-0.85	-0.95	-2.11	-1.32	-2.43
2155	-0.60	-3.21	-1.32	-1.17	-0.49	-1.58	-1.81	-2.87
2170	-1.17	-3.48	-1.74	-1.30	0.70	-1.42	-2.30	-2.74
2200	-0.45	-2.74	-2.11	-0.79	2.41	-1.25	-0.01	-0.42
2300	-0.16	-1.24	-0.83	-0.05	2.98	1.58	1.76	0.87

2305	-0.21	-1.33					1.54	0.94
2310	-0.33	-1.31					1.24	0.92
2315	-0.30	-1.35					1.03	0.86
2350	-0.31	-1.63	-3.95	-0.81	1.72	1.65	-0.57	-0.44
2355	-0.40	-1.68	-3.93	-0.77	1.57	1.65	-0.62	-0.57
2360	-0.56	-1.77	-3.74	-0.74	1.34	1.59	-0.71	-0.81
2400	-1.58	-1.39	-3.09	-0.44	0.91	1.03	-0.11	0.25
2496	-1.33	-2.10	-0.66	-0.62	2.09	-0.60	2.13	0.20
2500	-1.36	-2.26					2.24	0.20
2535	-2.06	-2.98			2.19	-0.31	1.97	-0.70
2570	-2.54	-2.53	-1.28	0.24	2.29	-0.57	0.32	-0.55
2593	-3.07	-2.25	-2.24	0.60	2.06	-1.21	-0.39	-0.25
2595	-3.15	-2.23	-2.38	0.61	2.00	-1.24	-0.48	-0.21
2620	-3.90	-2.48	-3.51	0.99	1.87	-1.23	-0.47	0.22
2655	-3.59	-2.22	-3.55	1.34	2.00	-1.24	-0.68	0.25
2690	-2.95	-2.53	-2.41	0.35	1.70	-1.07	-0.67	0.51
3300	-2.74	-3.15	-2.20	-1.09	-0.76	0.26	1.05	-3.98
3400	-4.80	-5.09	-2.51	-2.65	-1.25	-1.14	0.48	1.14
3500	-4.95	-3.03	-4.82	-3.39	-1.35	-1.95	-1.25	-0.37
3550	-5.91	-3.93	-3.96	-2.82	-1.83	-1.71	-0.87	-2.52
3600	-5.86	-3.31	-2.93	-3.25	-0.28	-0.70	-0.36	-3.24
3625	-4.86	-2.91	-2.30	-3.08	0.17	-0.31	-0.33	-3.43
3700	-4.73	-3.06	-2.73	-3.45	-1.89	-0.54	-1.20	-3.71
3750	-5.57	-3.35	-3.08	-3.94	-3.24	-1.38	-3.21	-3.80
3800	-5.23	-3.42	-4.40	-4.81	-2.35	-2.26	-3.39	-2.80
4200	-4.41	-5.13	-9.76	-8.22	1.74	-1.22	1.07	-0.62
4400	-4.33	-3.41	-4.18	-3.60	-2.36	-4.52	-1.93	-2.20
4700	-3.26	-2.73	-6.55	-6.65	0.25	-4.50	-1.43	0.44
5000	-2.05	-2.11	-6.36	-6.13	-3.02	-3.66	-2.21	-3.76
5150	-2.50	-1.89	-3.49	-6.30				
5537.5	-3.04	-0.65	-3.77	-2.67				
5925	-6.81	-4.05	-4.67	-4.69				

Section 2. Dimensioned Photos or Drawings of Antennas

Include a dimensioned photo and dimensioned drawing of Tx1/Rx1 antenna here.

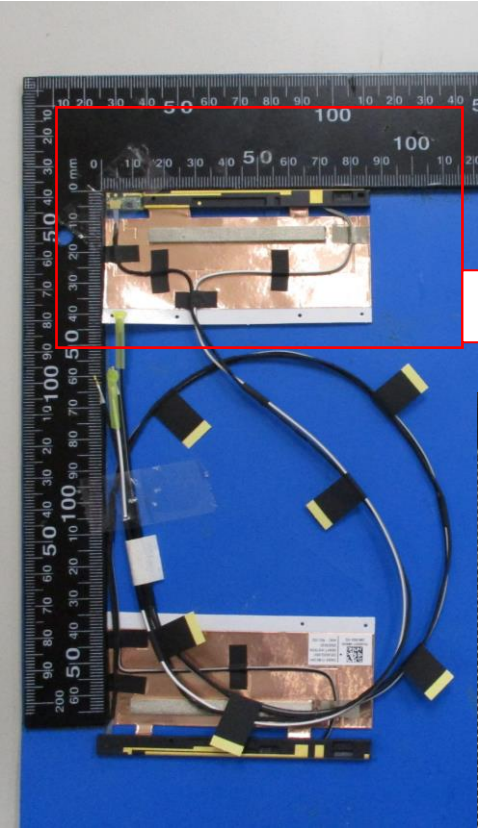
Tx1/Rx1 Antenna Dimensioned Drawing:



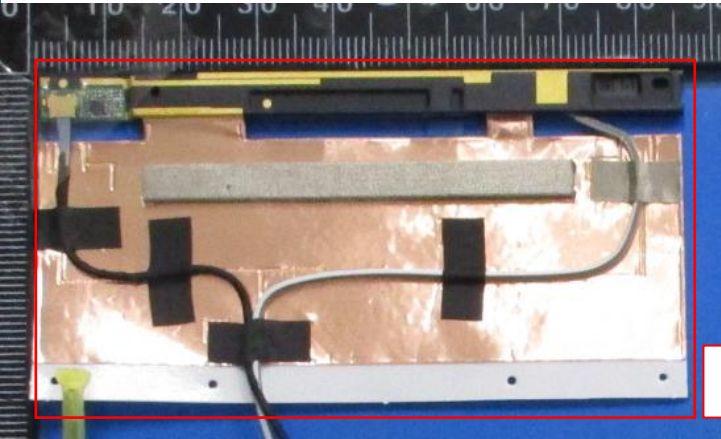
Tx1/Rx1 Antenna Photo:

Tx1/Rx1(Front)-Far

Tx1/Rx1 (Front)-Near

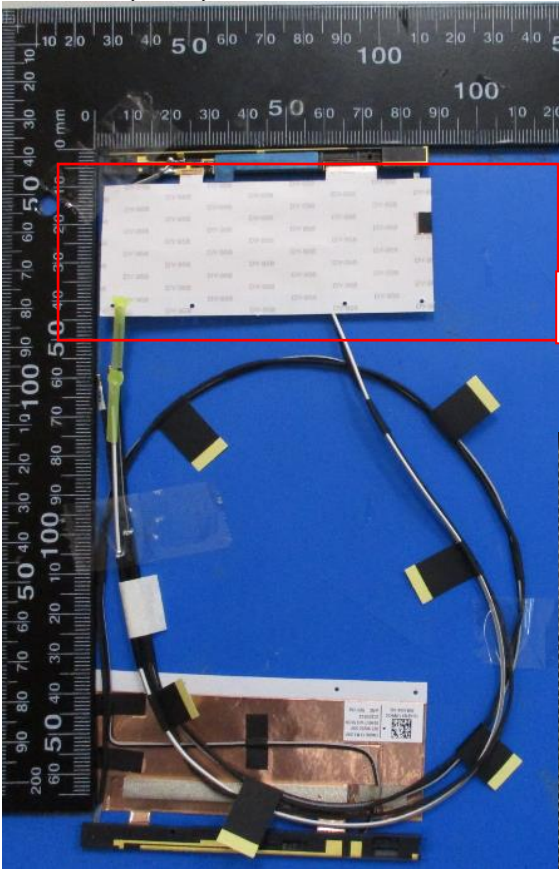


Tx1/Rx1



Tx1/Rx1

Tx1/Rx1 (Back)-Far



Tx1/Rx1

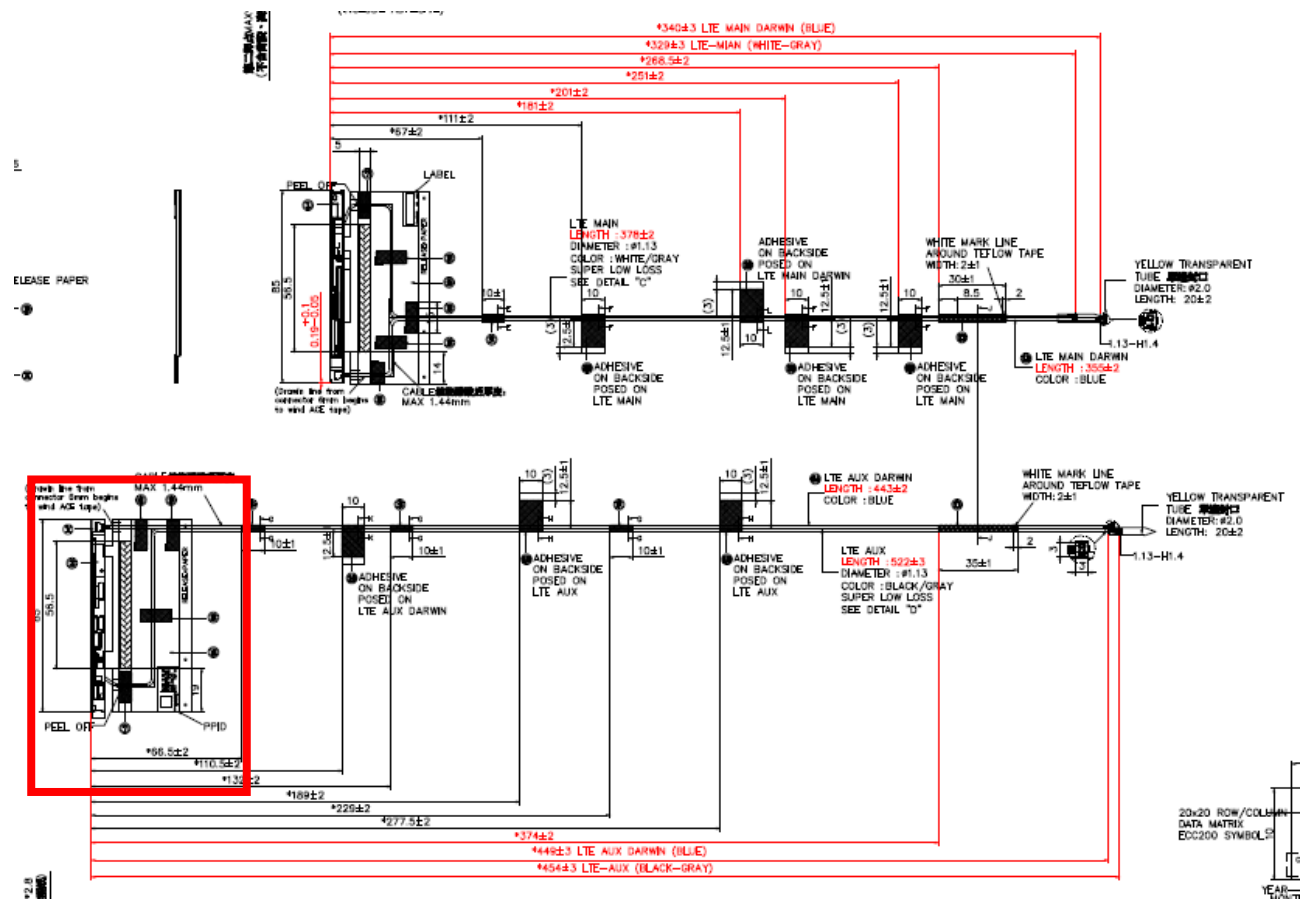
Tx1/Rx1 (Front)-Near



Tx1/Rx1

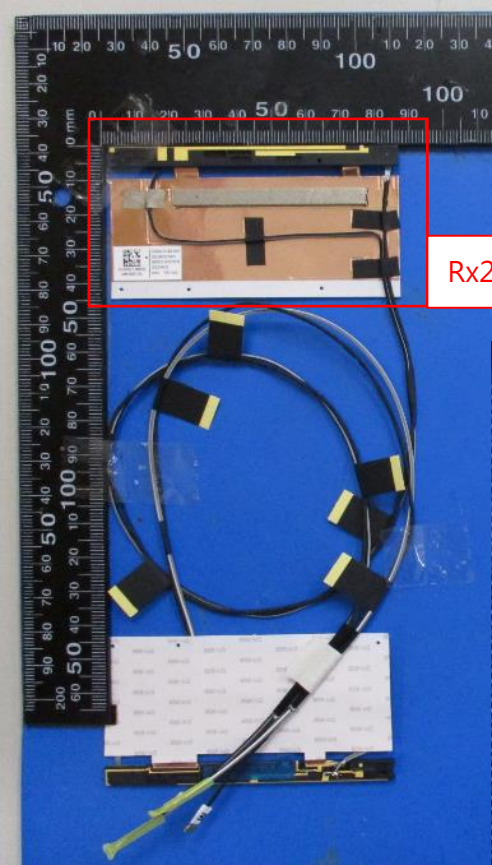
Include a dimensioned photo and dimensioned drawing of Rx2 antenna here.

Rx2 Antenna Dimensioned Drawing:

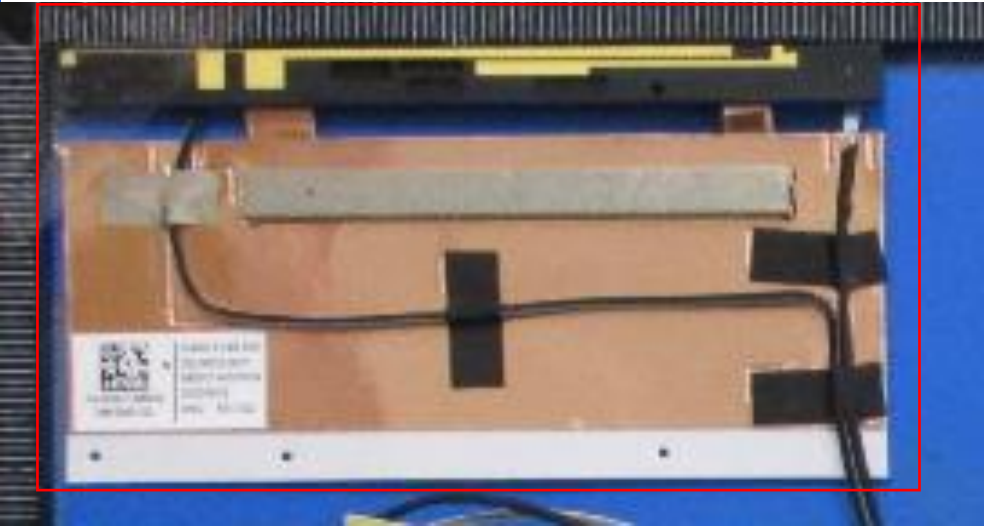


Rx2 Antenna Photo:

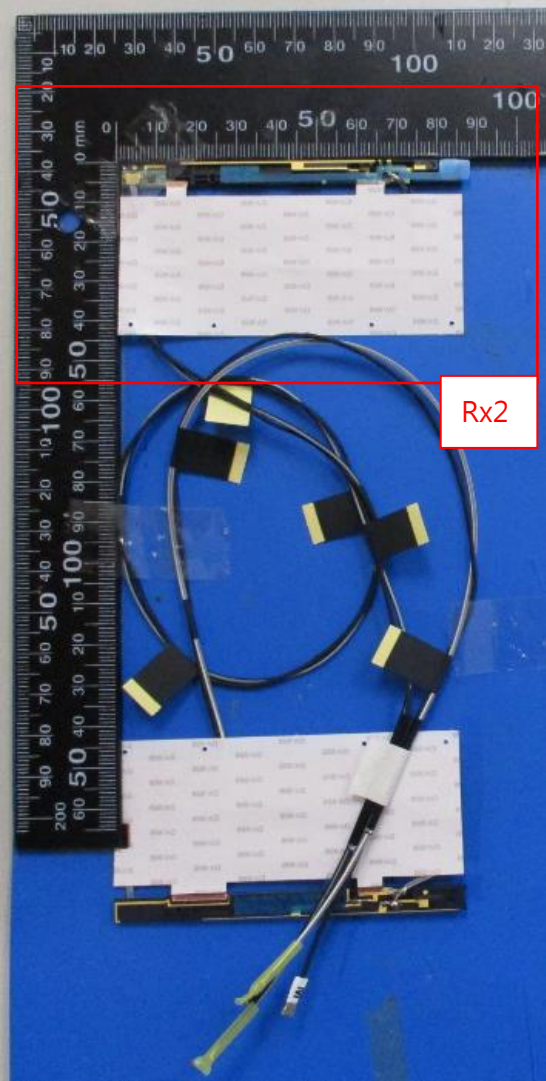
Rx2(Front)-Far



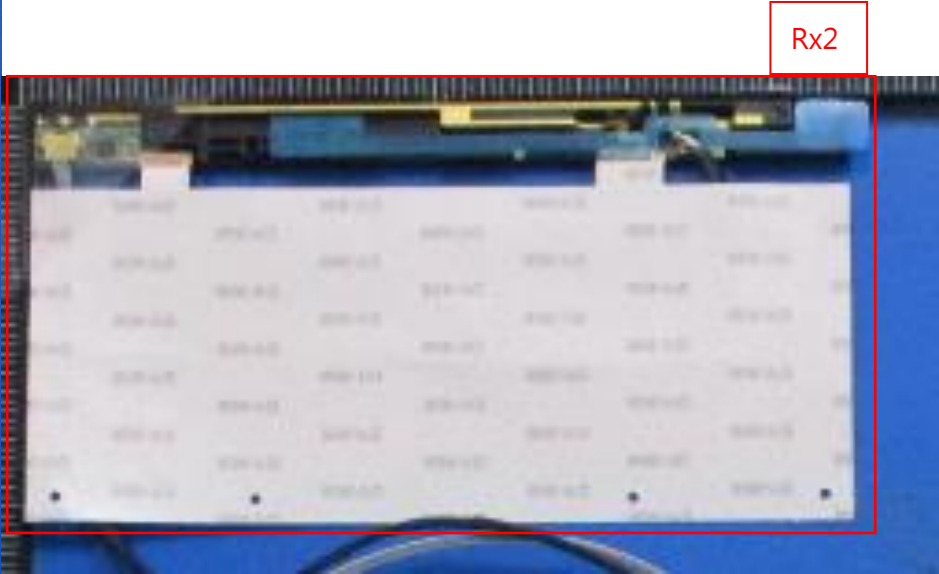
Rx2 (Front)-Near



Rx2 (Back)-Far

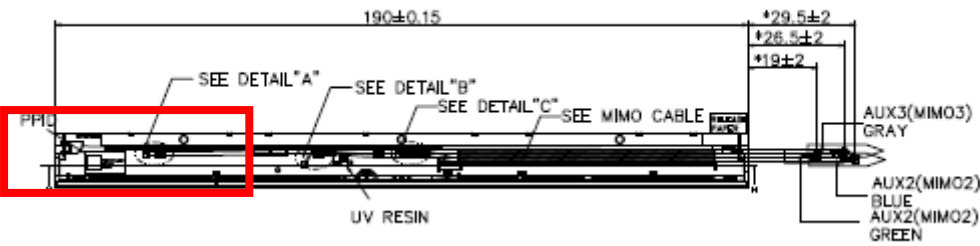


Rx2 (Front)-Near



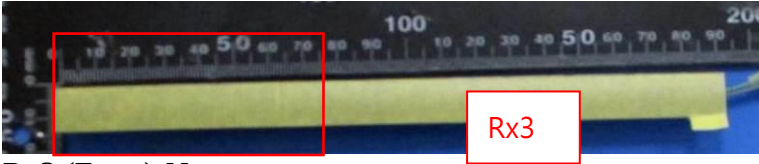
Include a dimensioned photo and dimensioned drawing of Rx3 antenna here.

Rx3 Antenna Dimensioned Drawing:

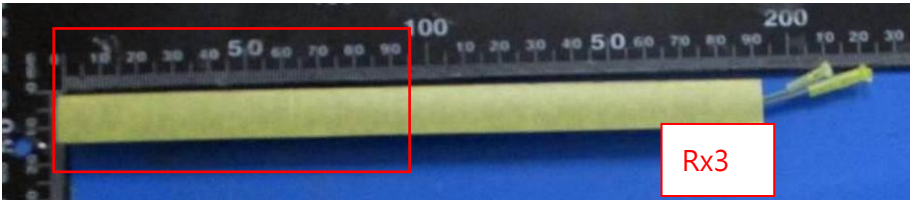


Rx3 Antenna Photo:

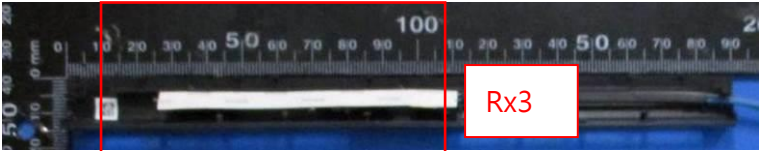
Rx3(Front)-Far



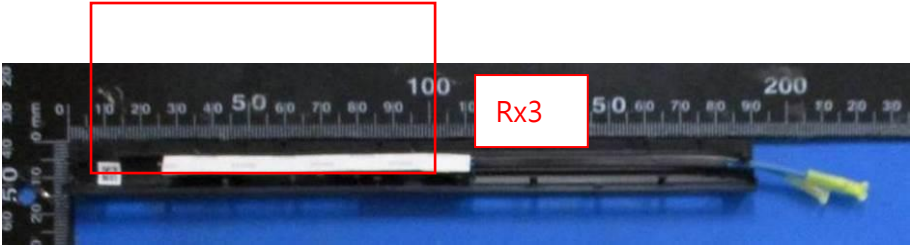
Rx3 (Front)-Near



Rx3 (Back)-Far

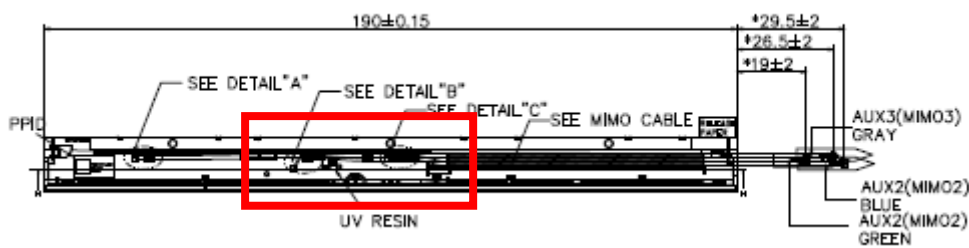


Rx3 (Back) Near



Include a dimensioned photo and dimensioned drawing of Tx2/Rx4 antenna here.

Tx2/Rx4 Antenna Dimensioned Drawing:

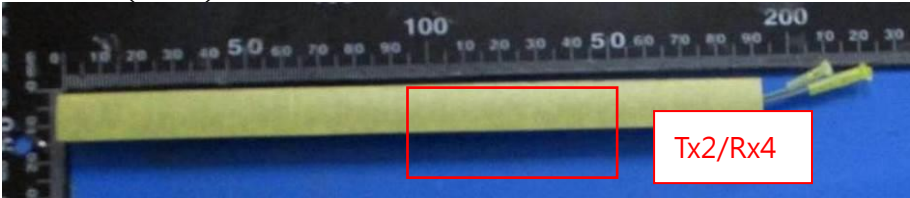


Tx2/Rx4 Antenna Photo:

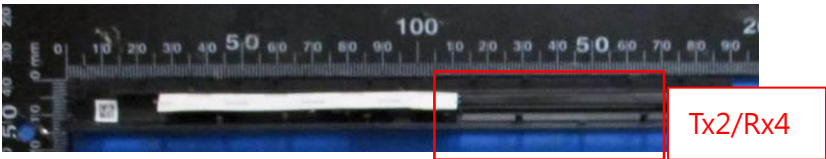
Tx2/Rx4(Front)-Far



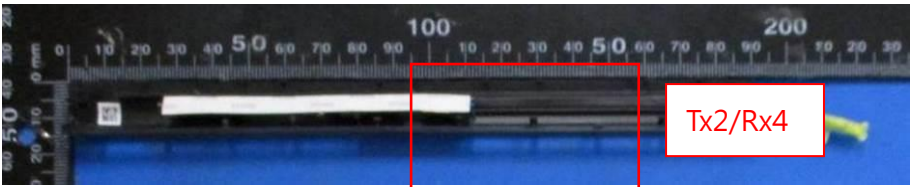
Tx2/Rx4 (Front)-Near



Tx2/Rx4 (Back)-Far

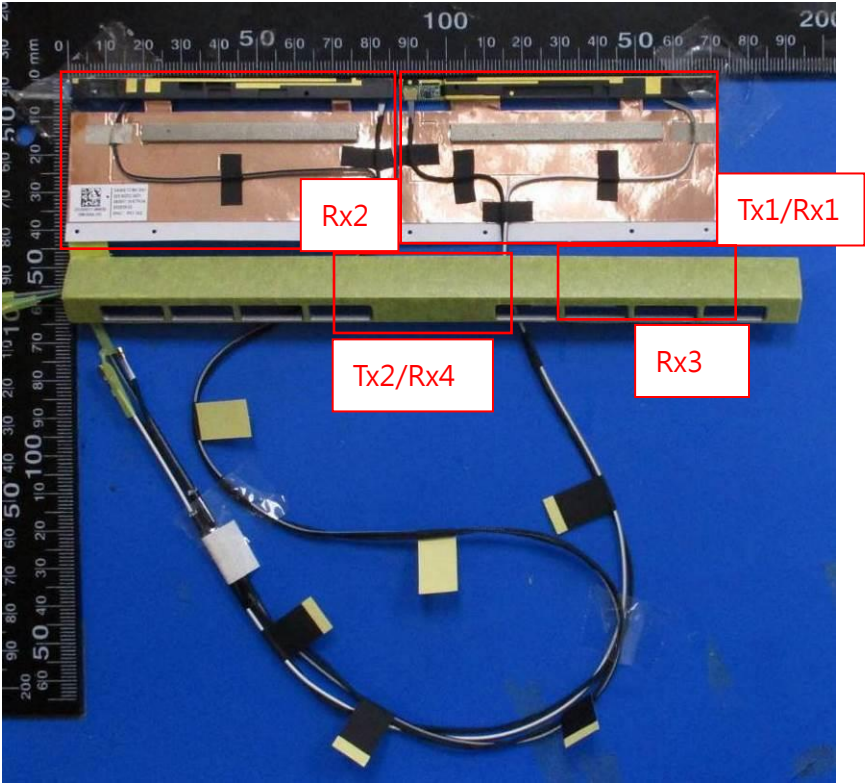


Tx2/Rx4 (Back)-Near



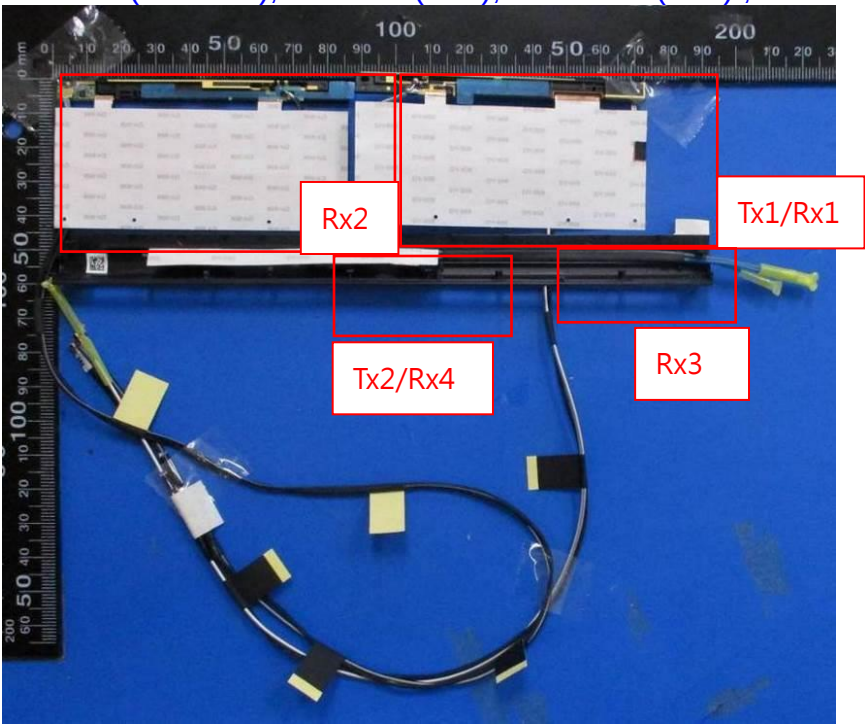
Include front view photo of all 2 antennas here.

Antenna Manufacturer: Wistron
Antenna Part Number:
0J3HG6 (Tx1/Rx1), 0J3HG6 (Rx2), 0C75WW (Rx3) , 0C75WW (Tx2/Rx4)



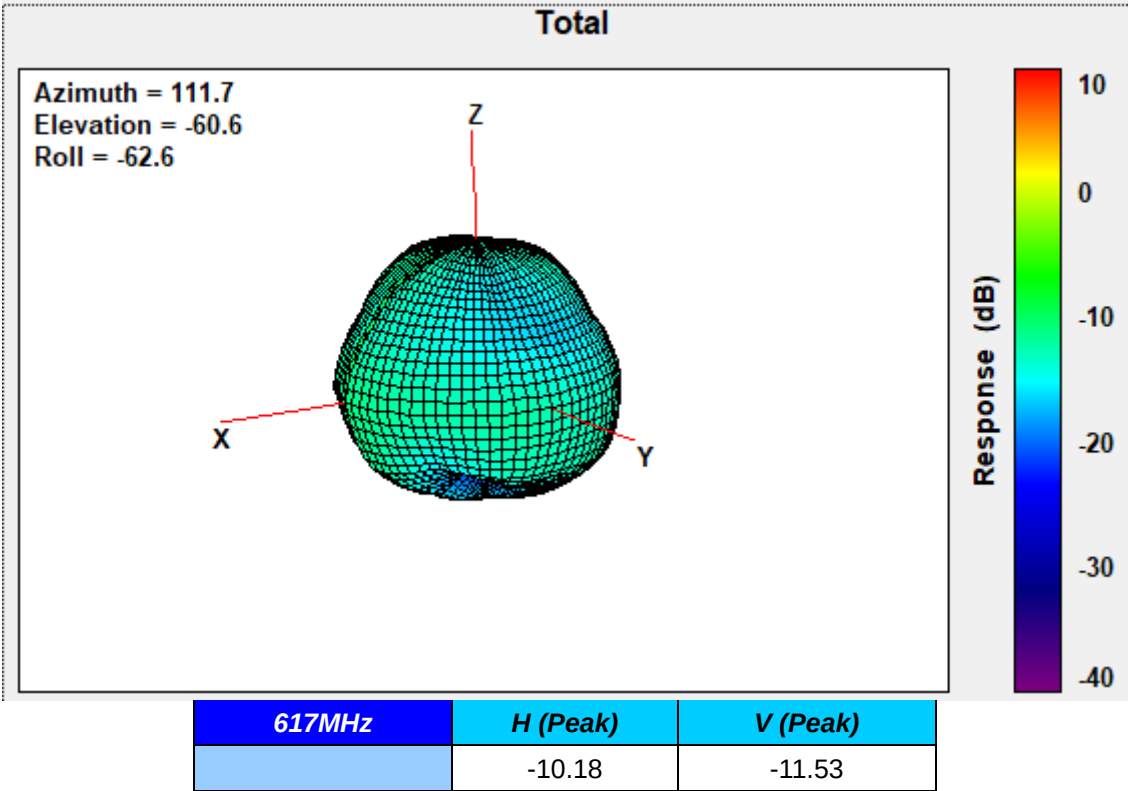
Include back view photo of all 2 antennas here.

Antenna Manufacturer: Wistron
Antenna Part Number:
0J3HG6 (Tx1/Rx1), 0J3HG6 (Rx2), 0C75WW (Rx3) , 0C75WW (Tx2/Rx4)

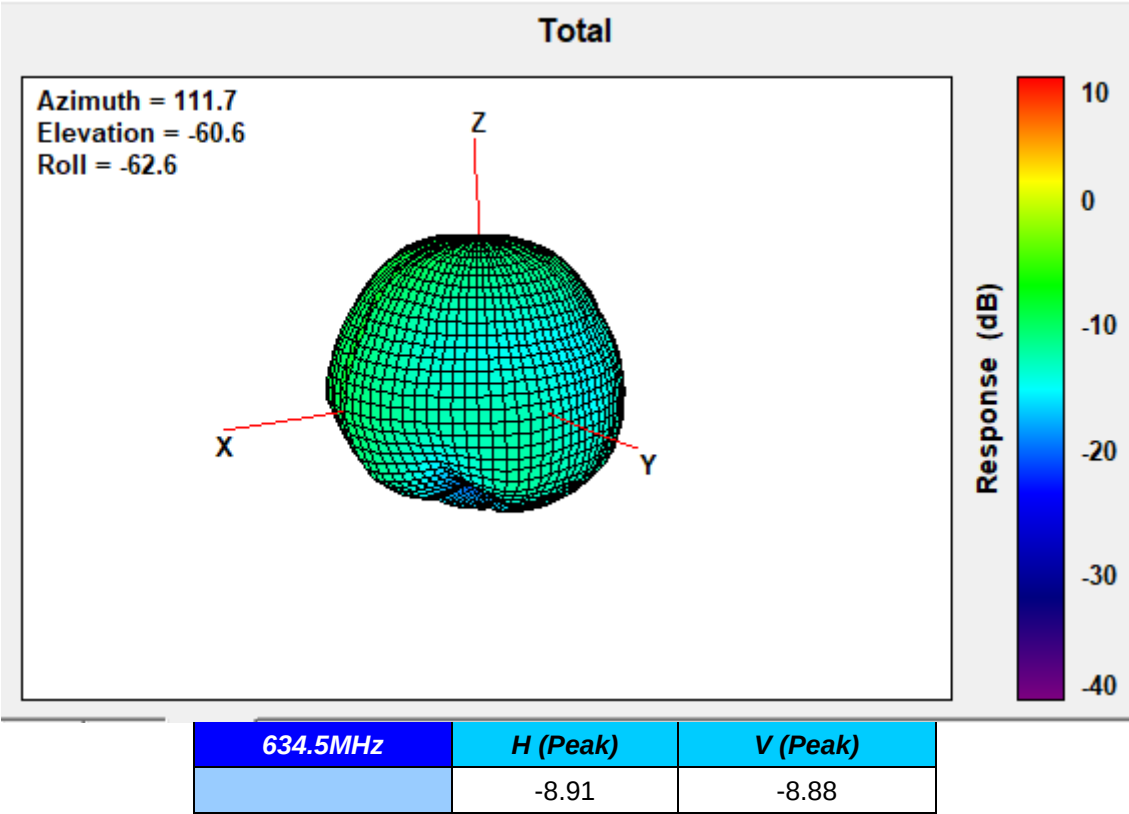


Section 3. Radiation characteristics of antennae Loaded in Host Platform
WWAN Main Antenna (Tx1/Rx1)

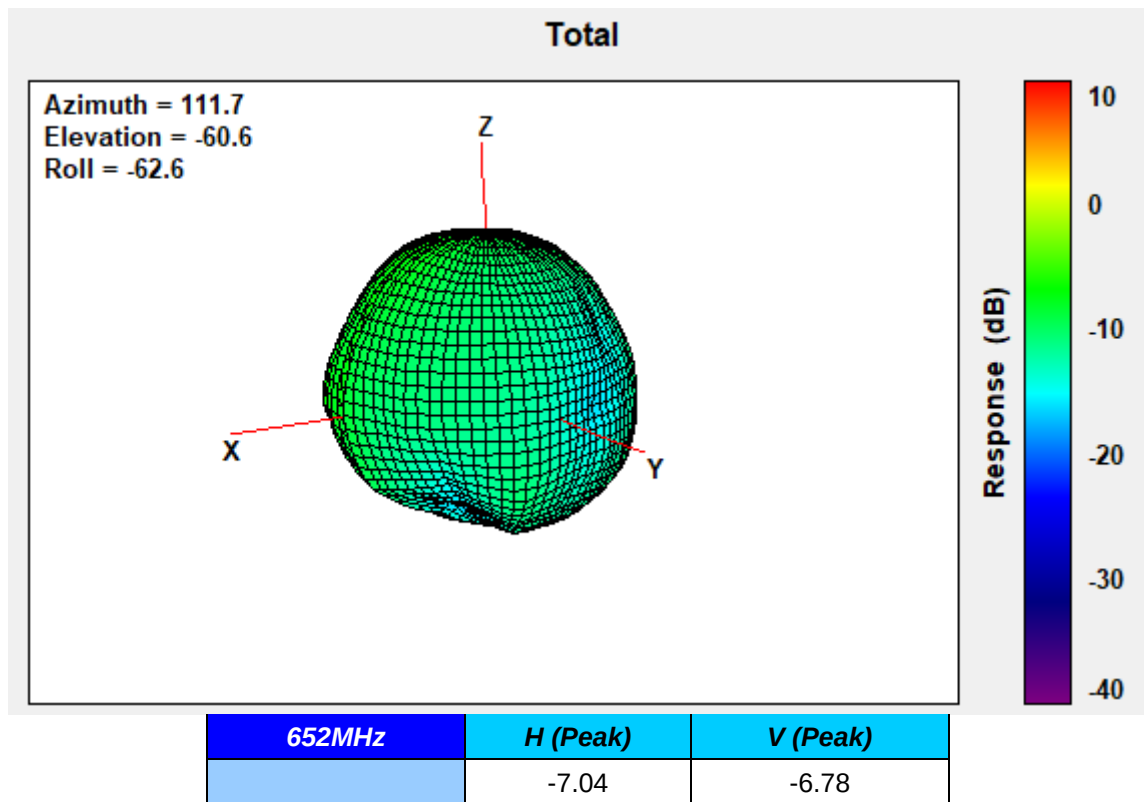
617MHz



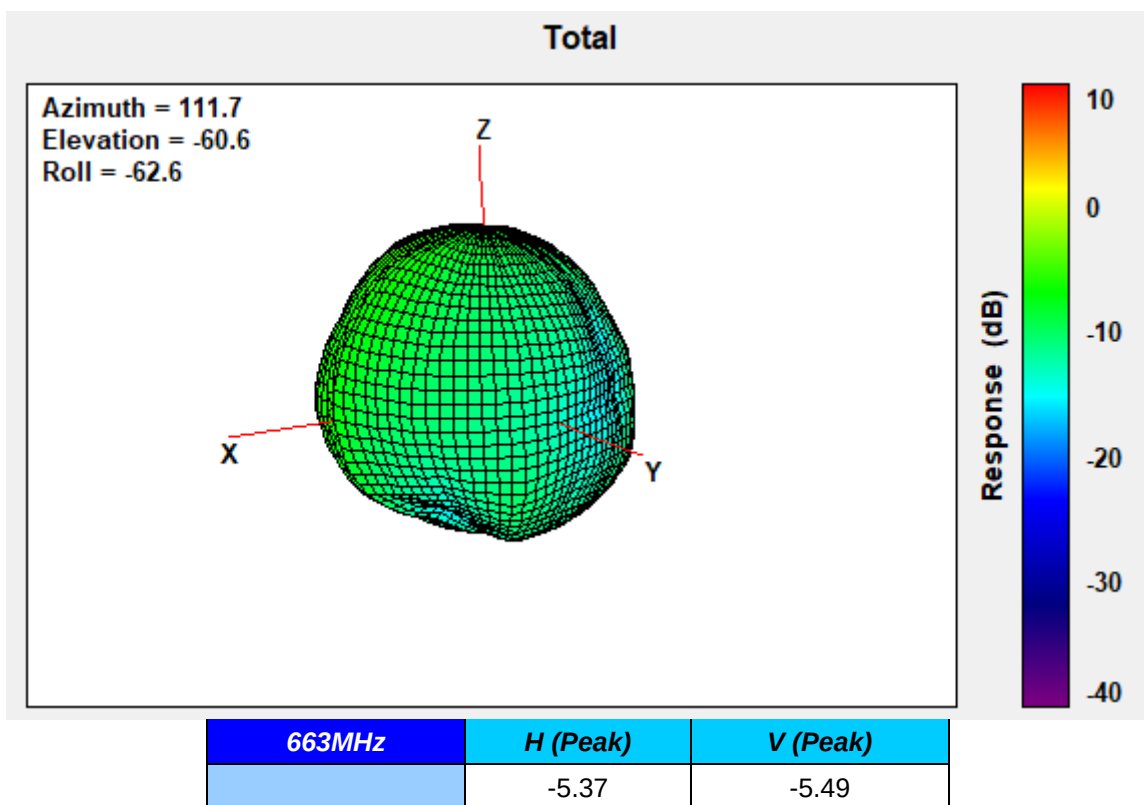
634.5MHz

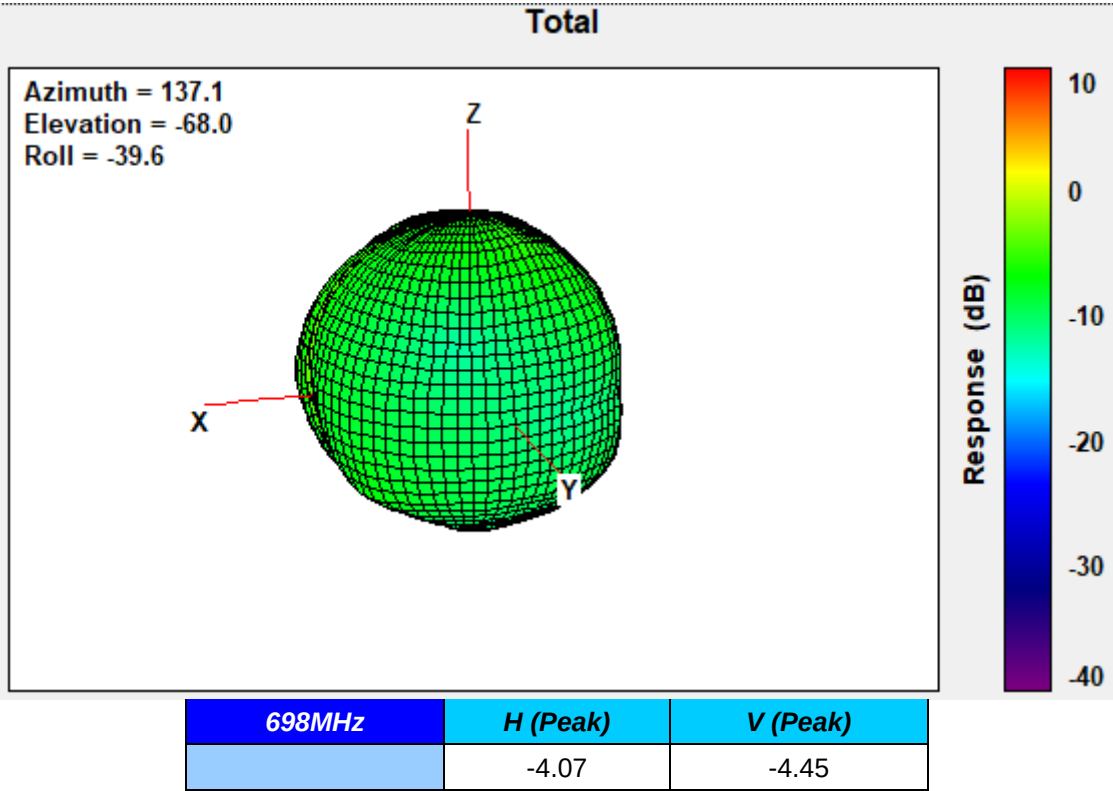
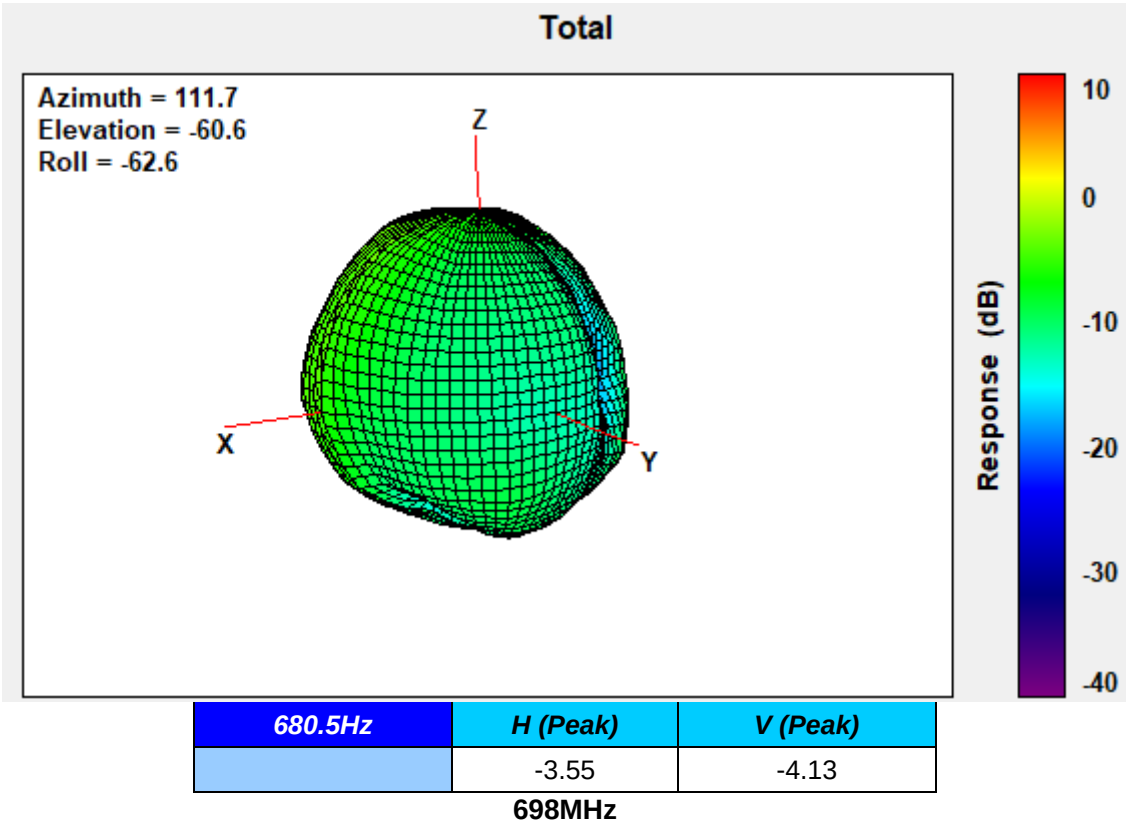


652MHz

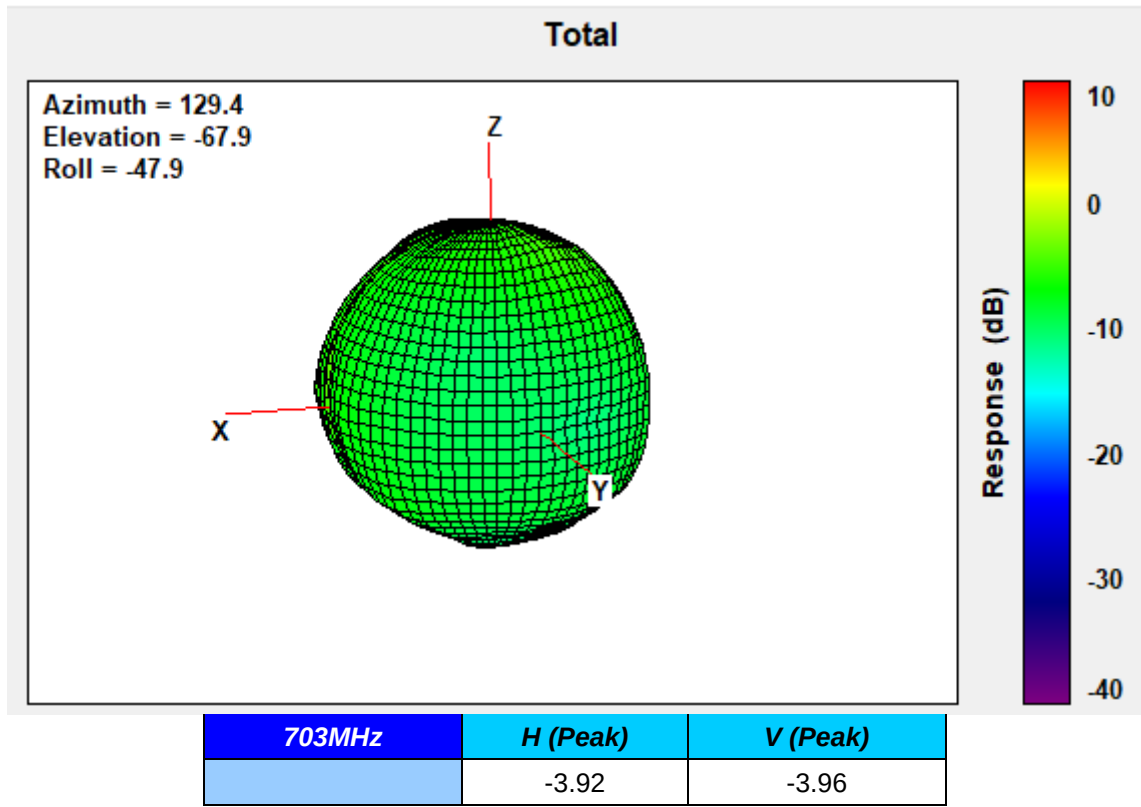


663MHz

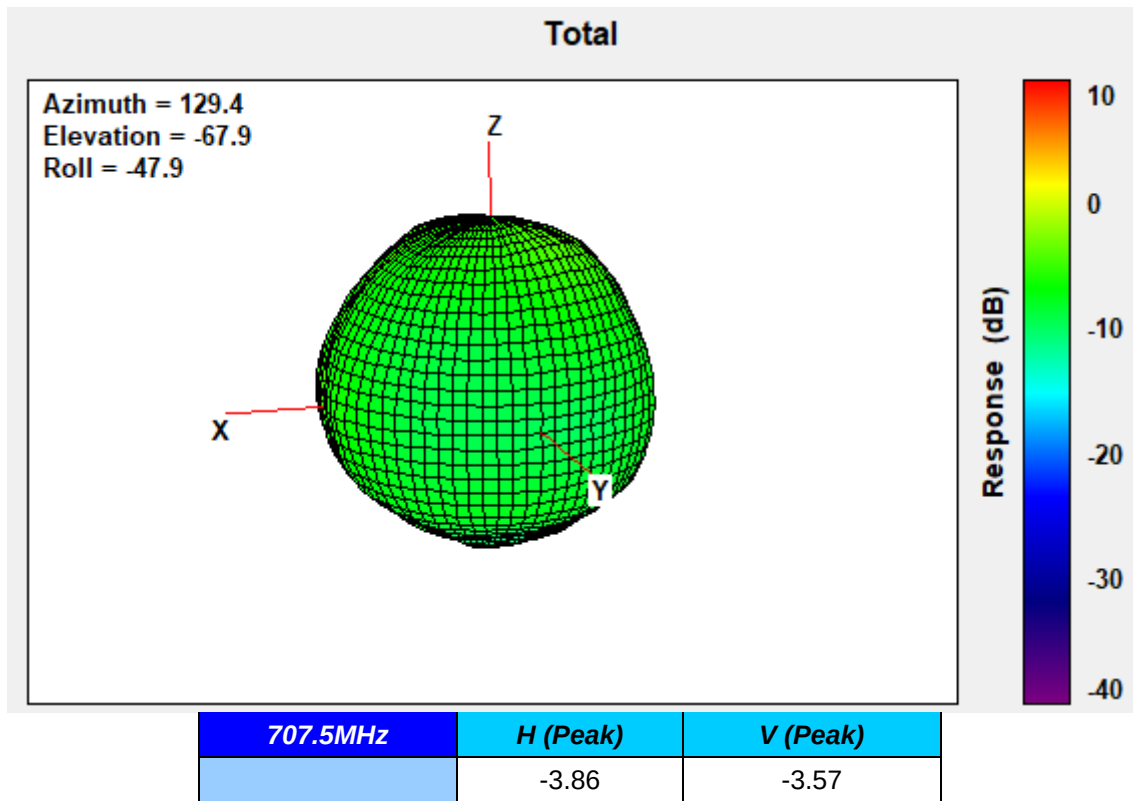




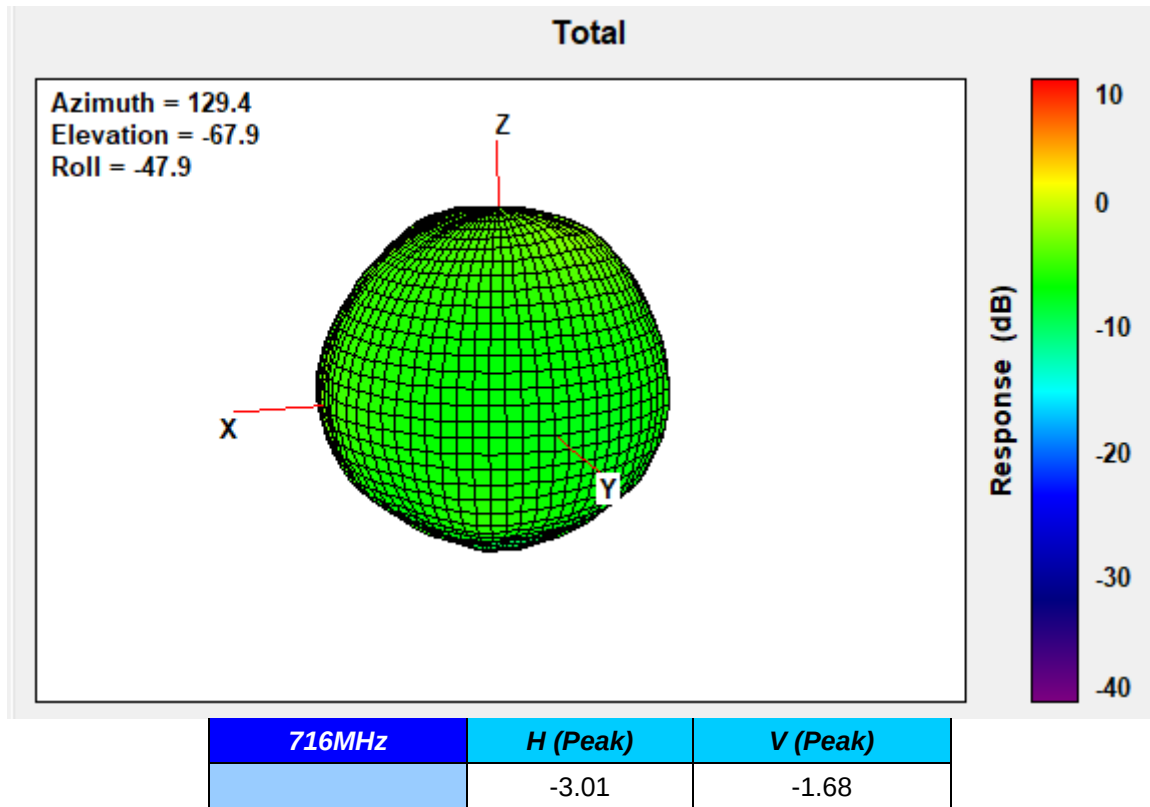
703MHz



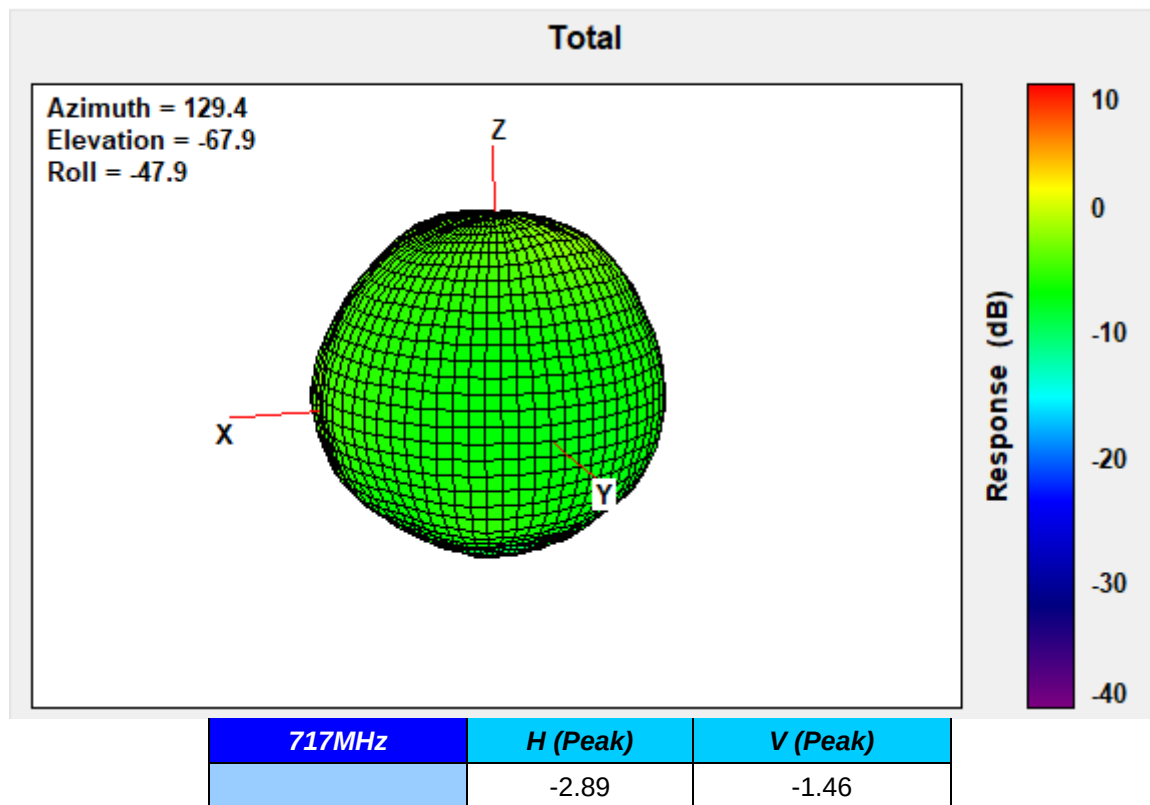
707.5MHz

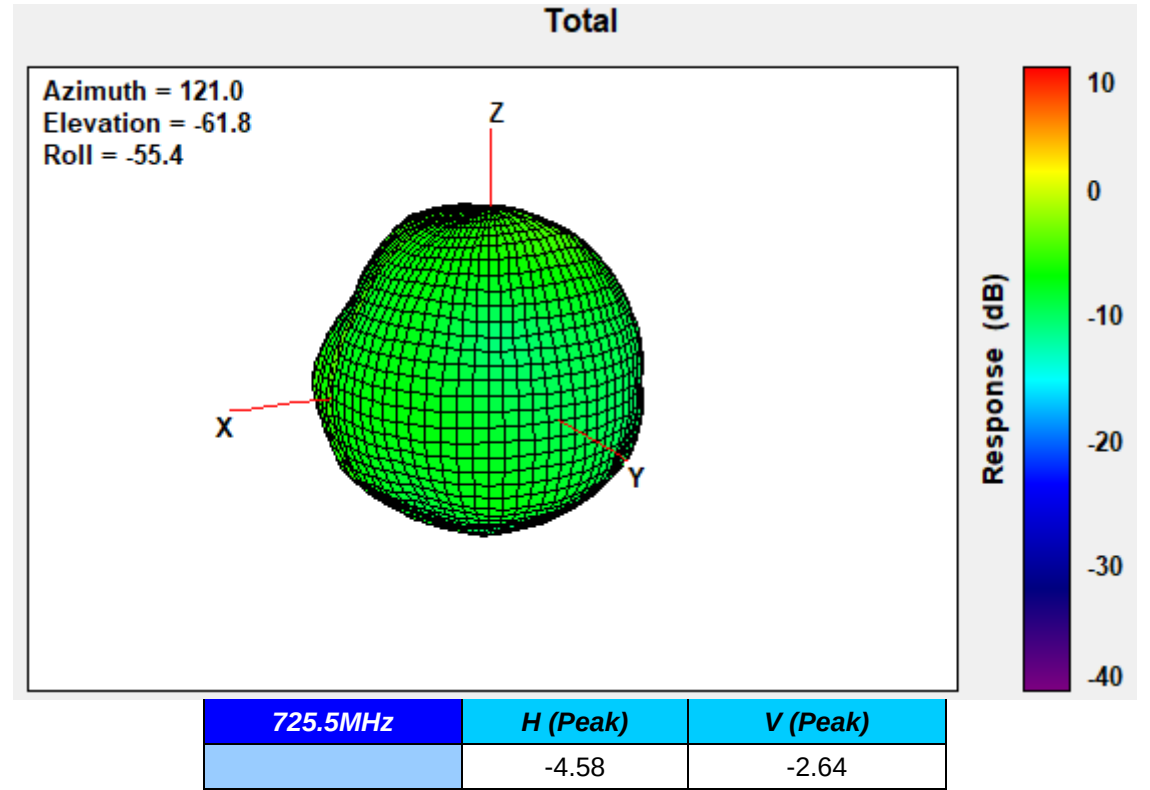
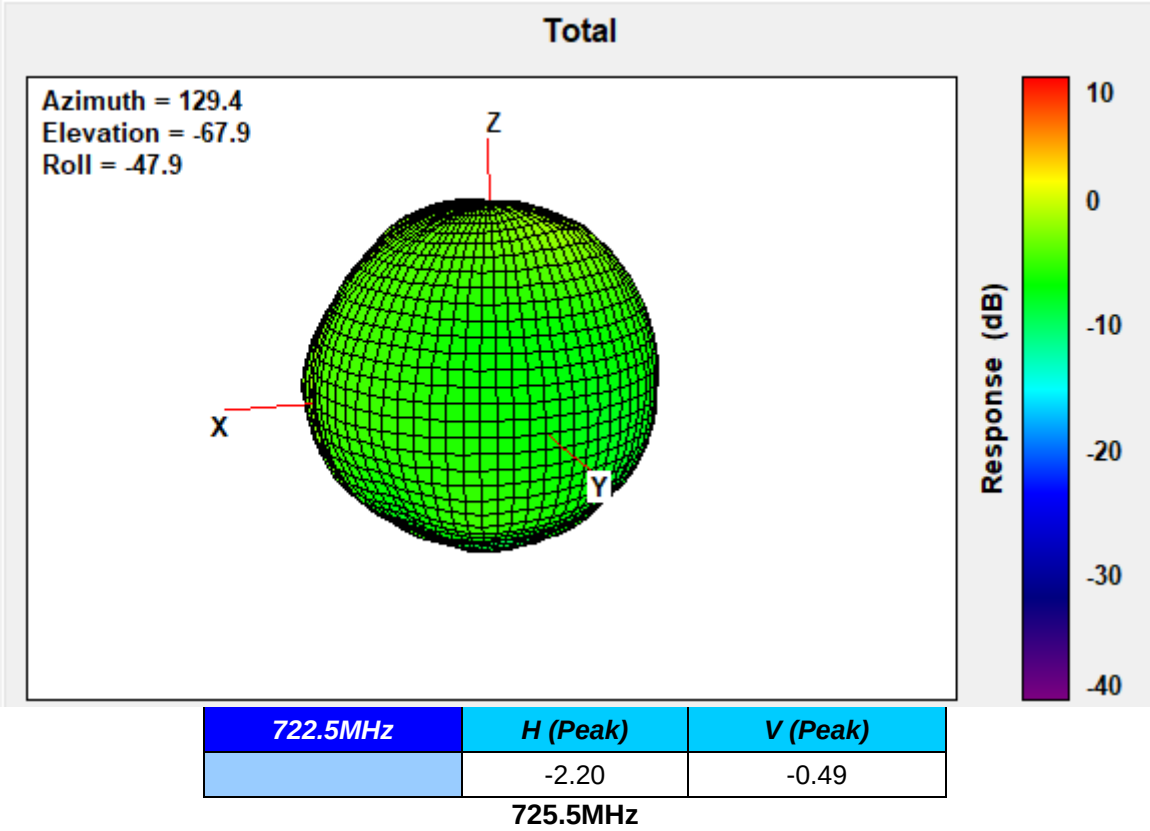


716MHz

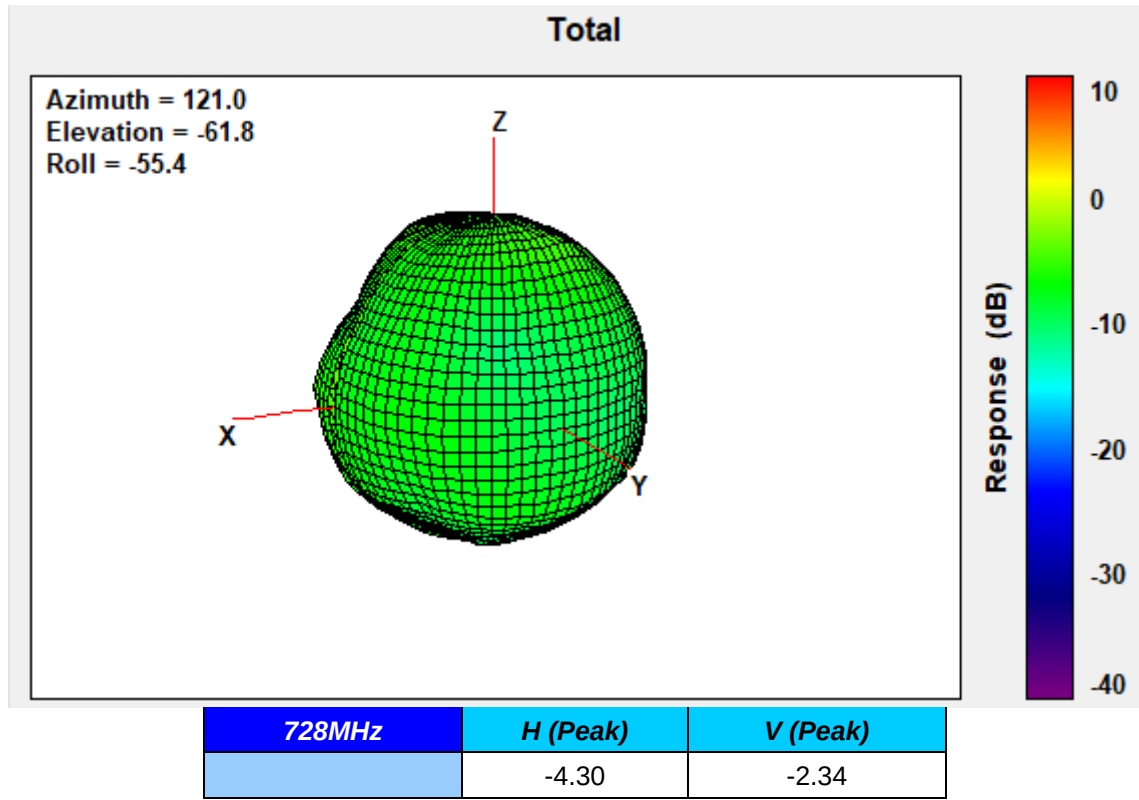


717MHz

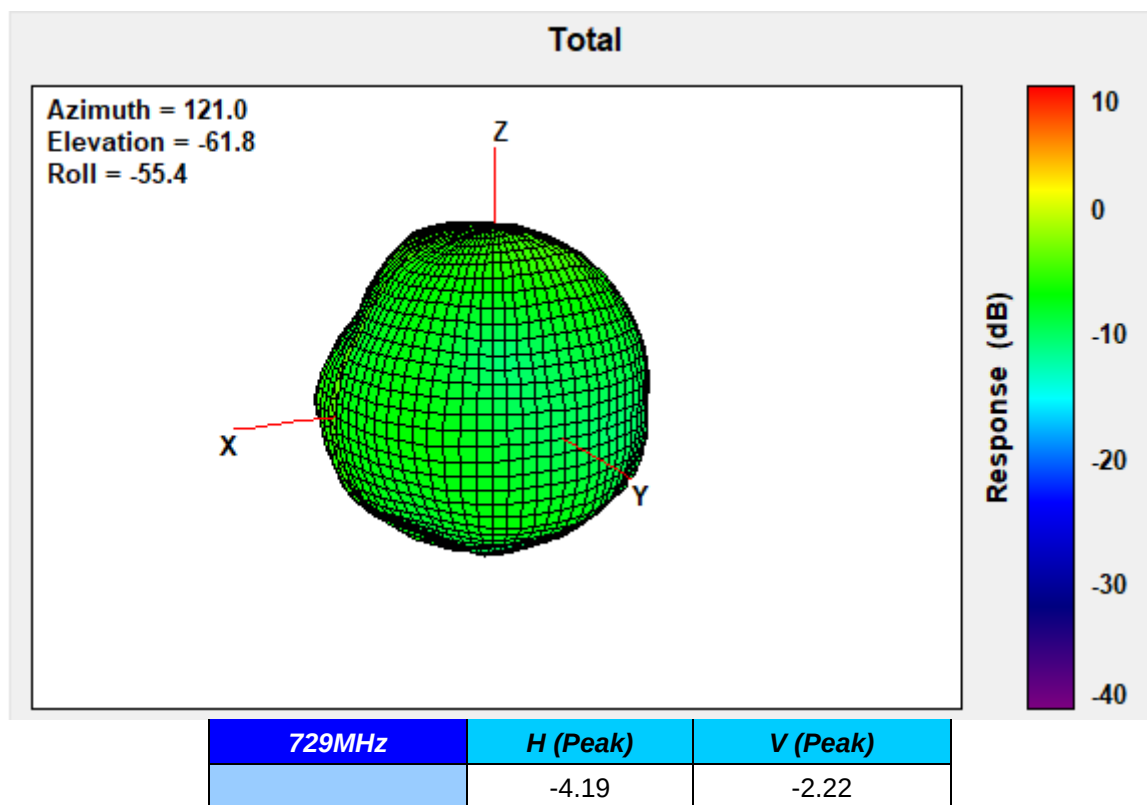




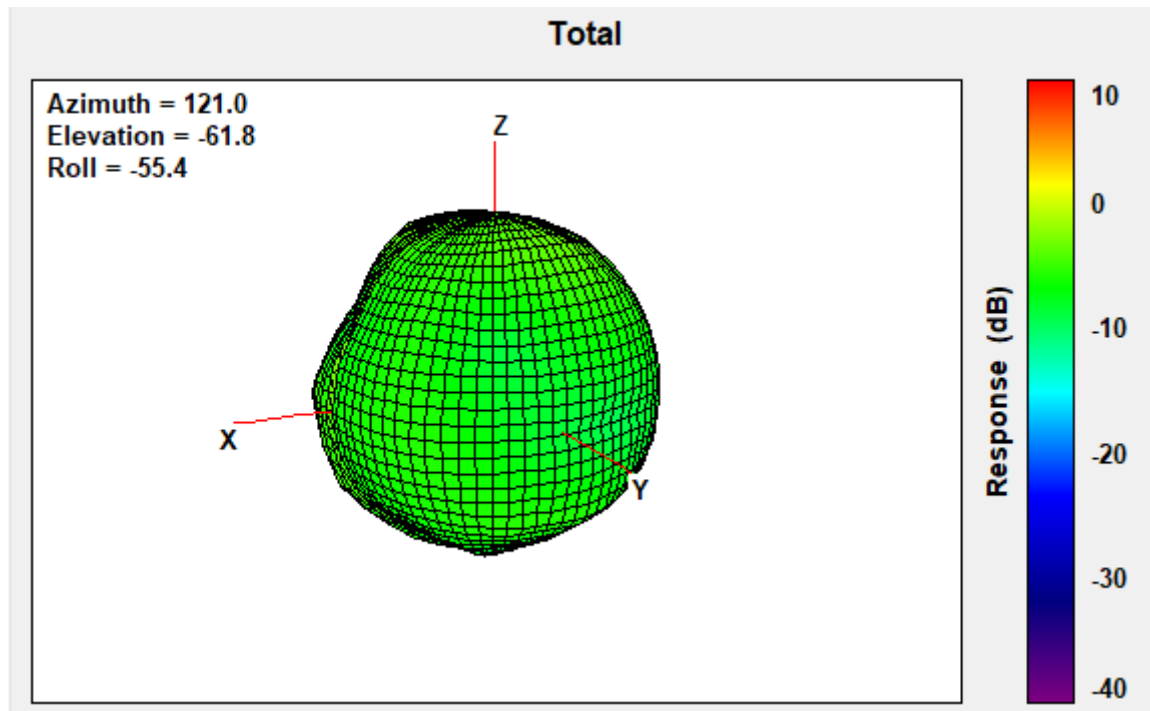
728MHz



729MHz

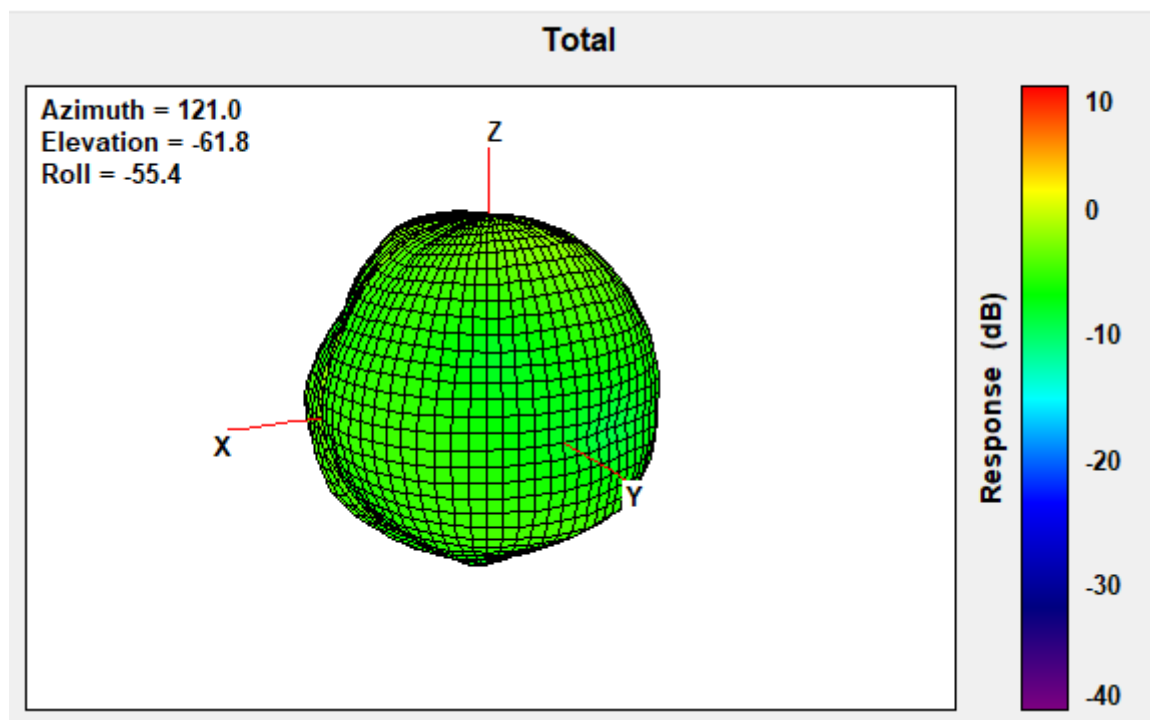


737.5MHz



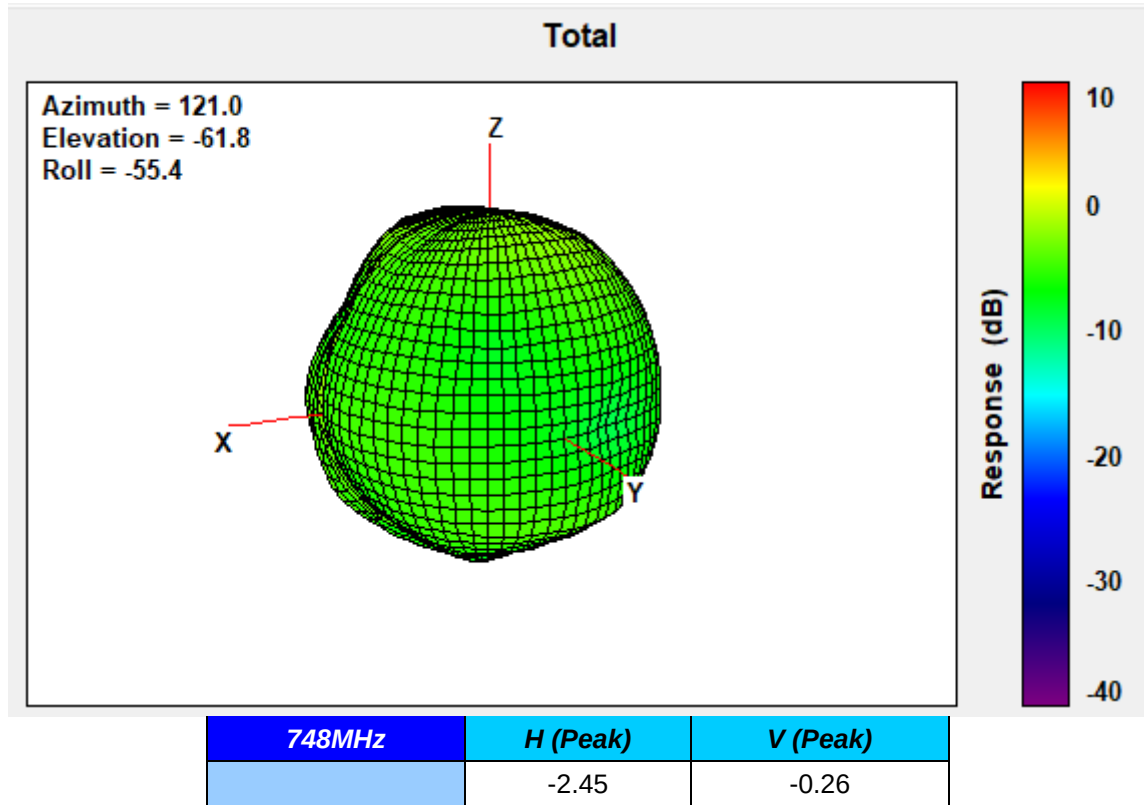
737.5MHz	H (Peak)	V (Peak)
	-3.65	-1.34

746MHz

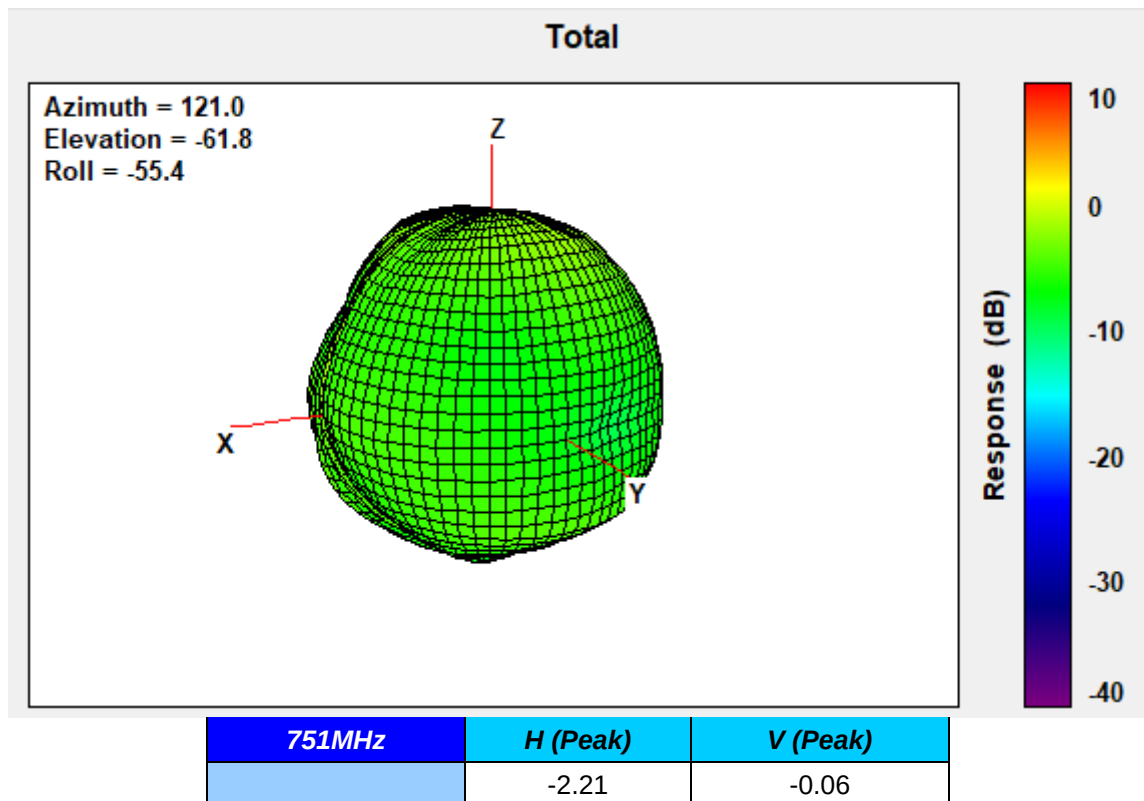


746MHz	H (Peak)	V (Peak)
	-2.66	-0.42

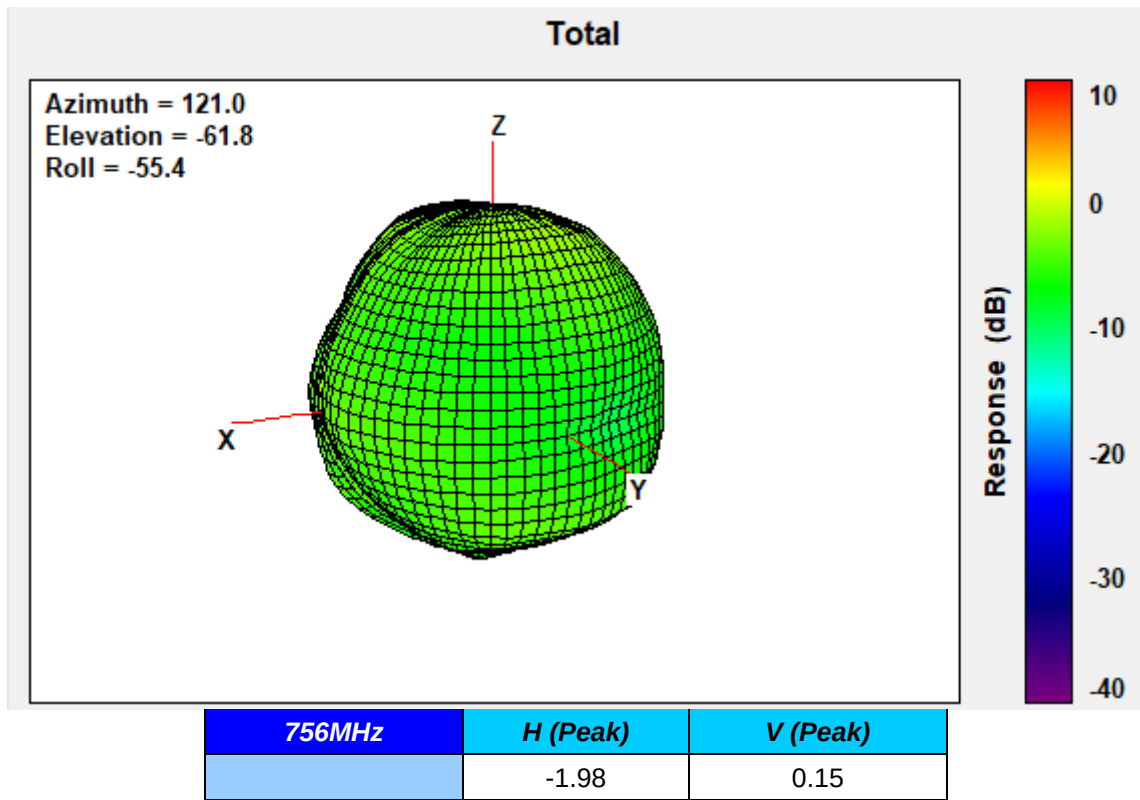
748MHz



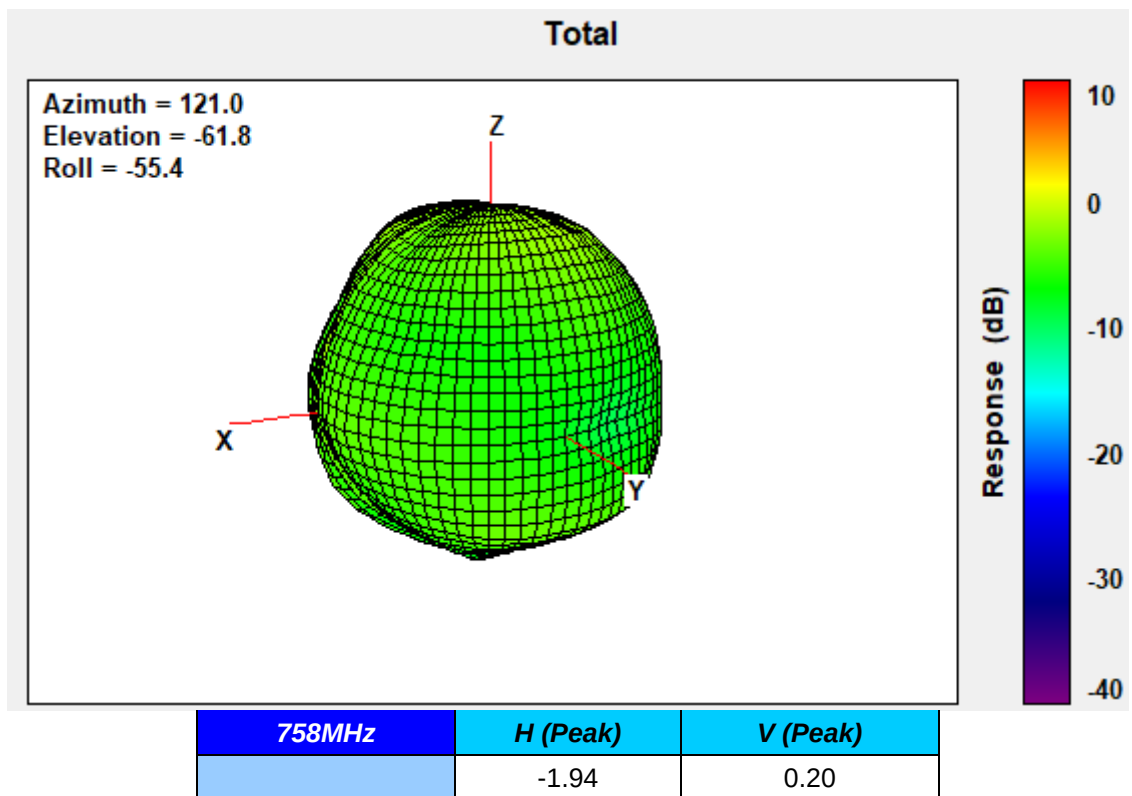
751MHz



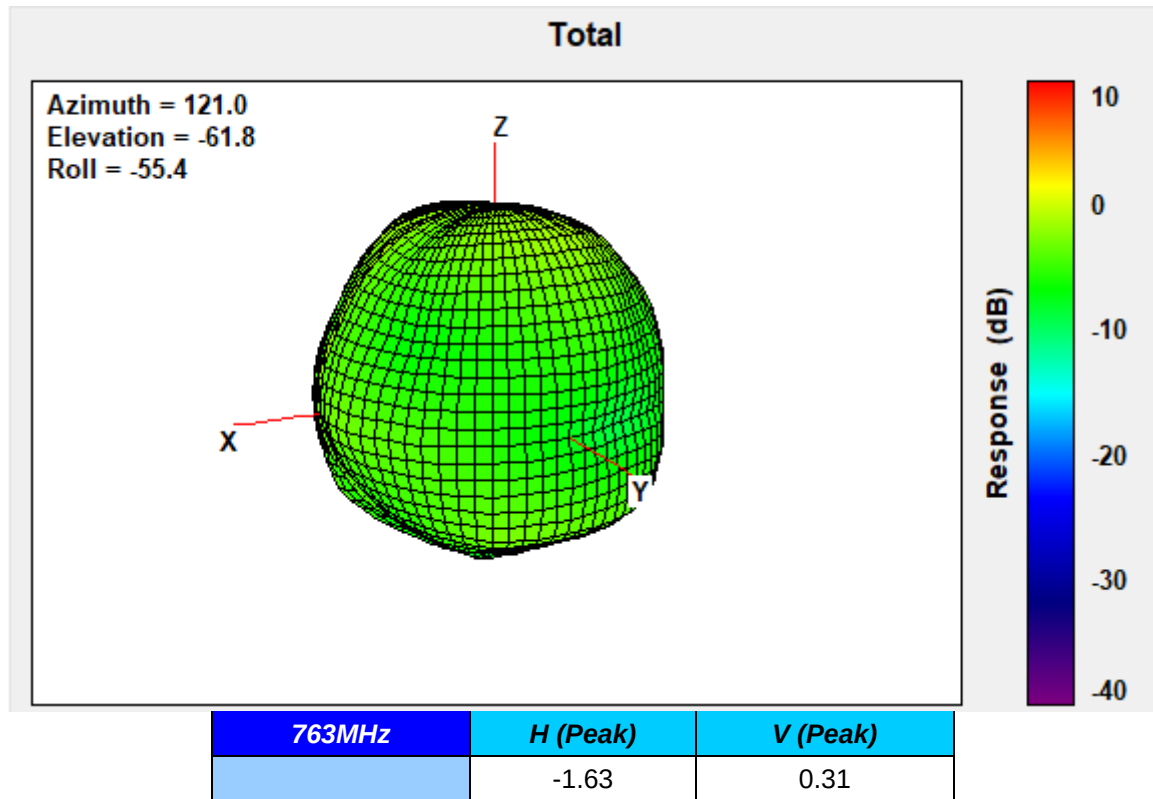
756MHz



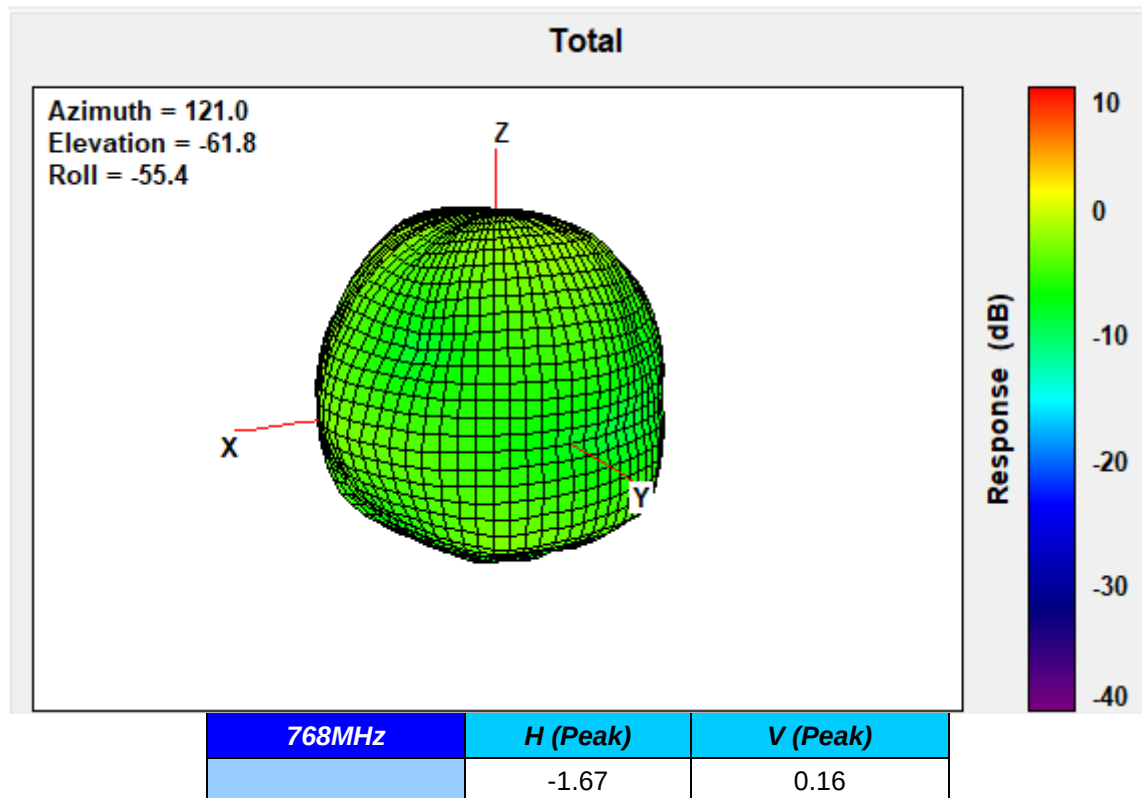
758MHz



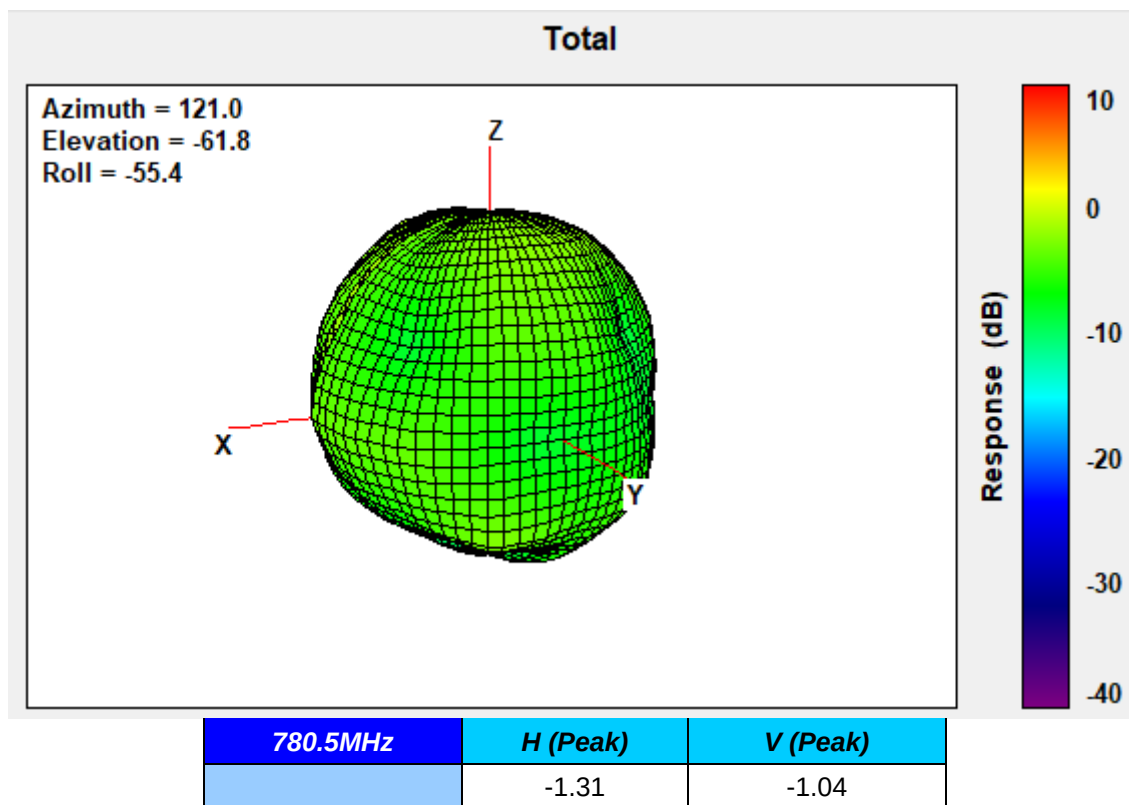
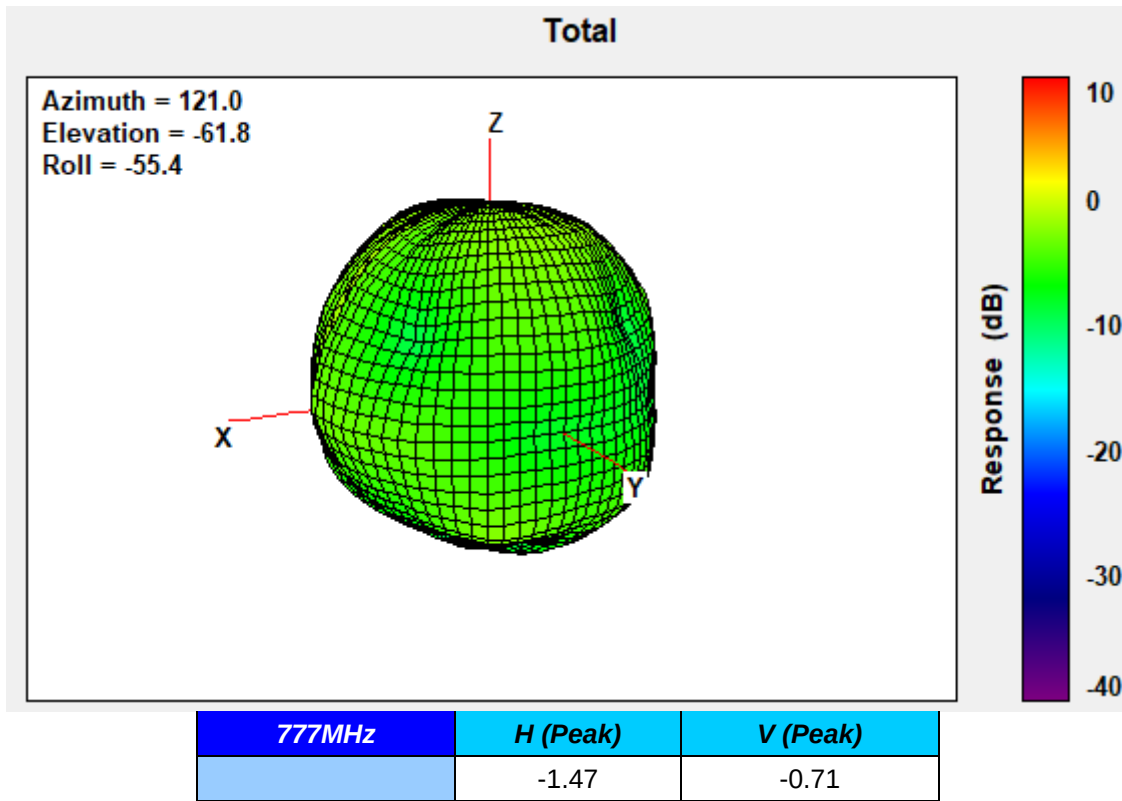
763MHz



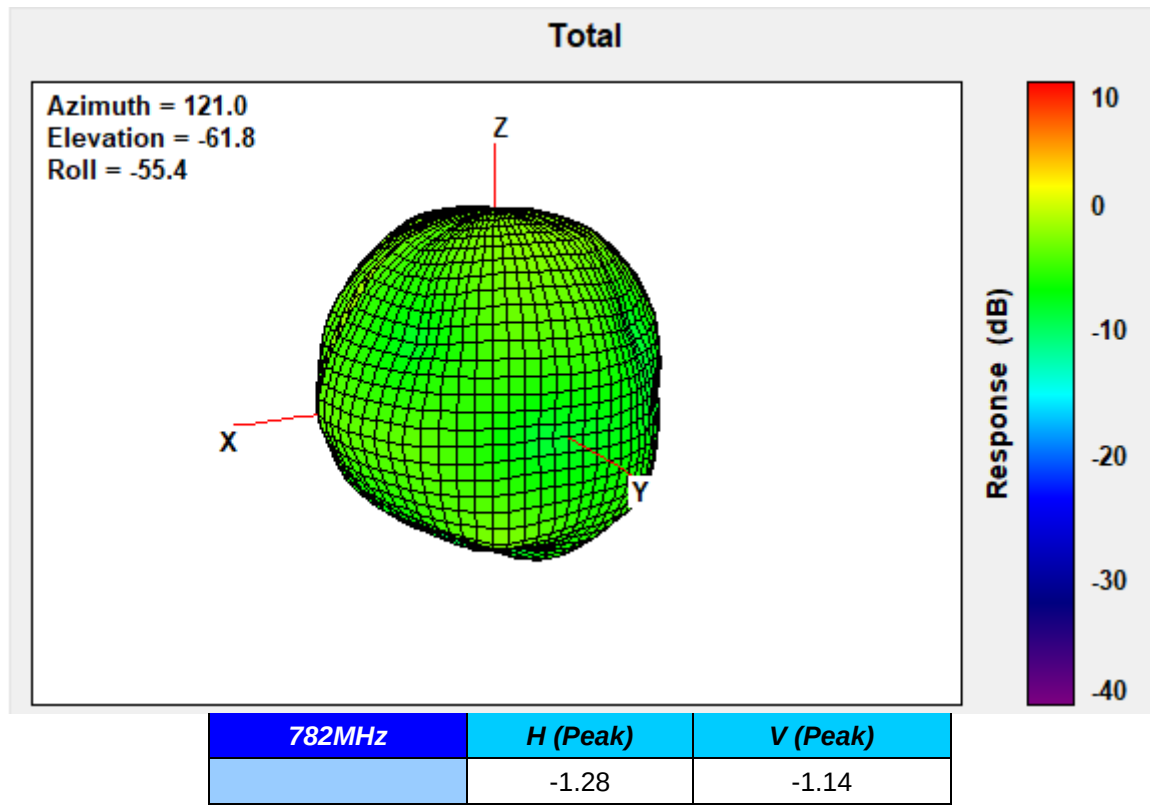
768MHz



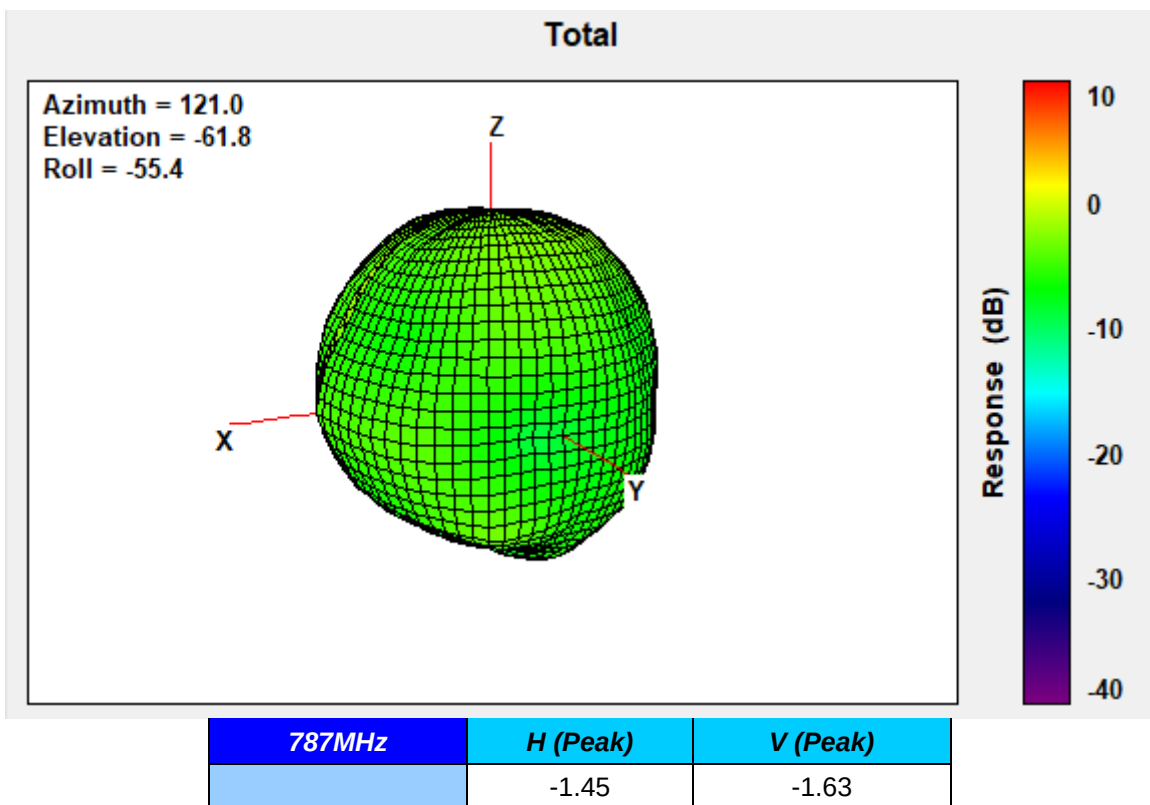
777MHz



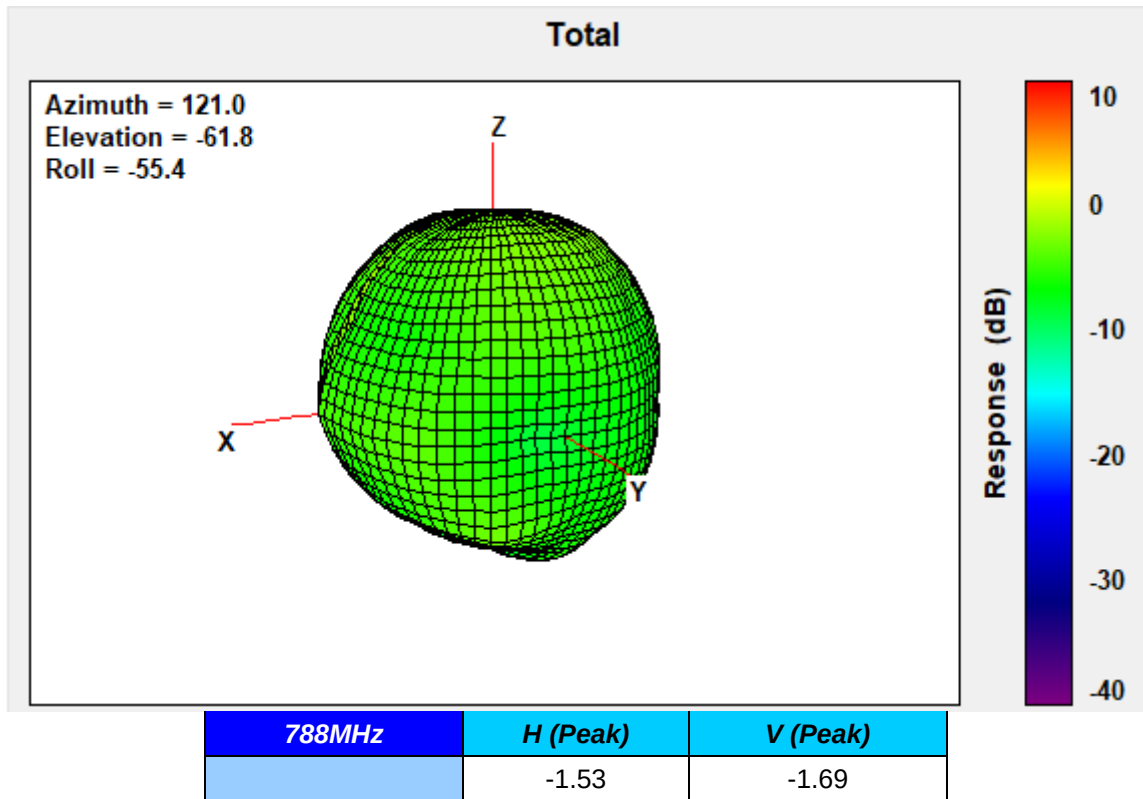
782MHz



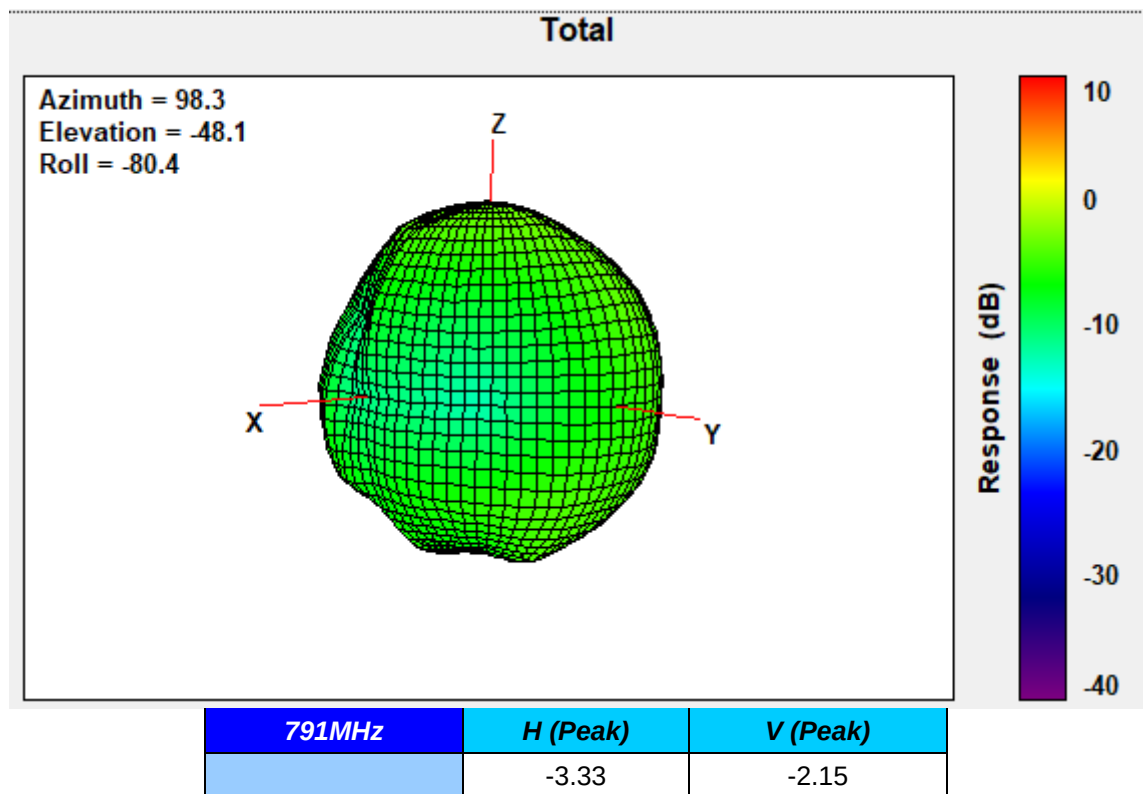
787MHz



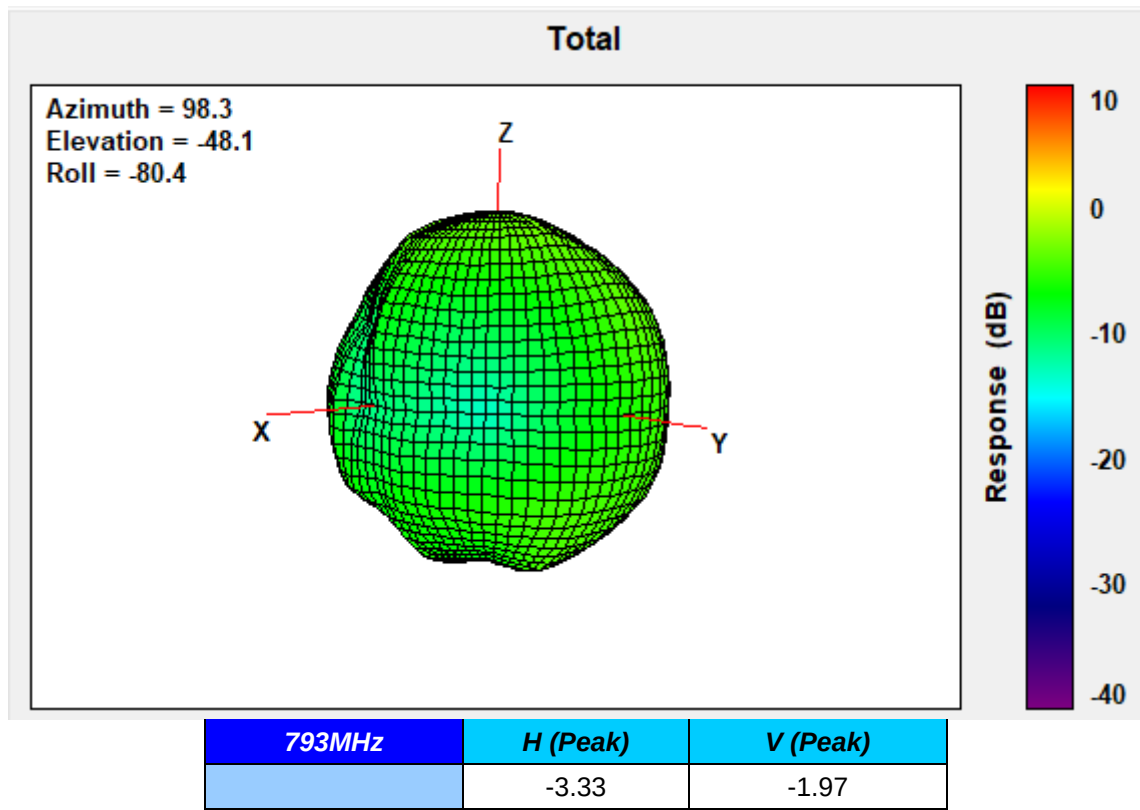
788MHz



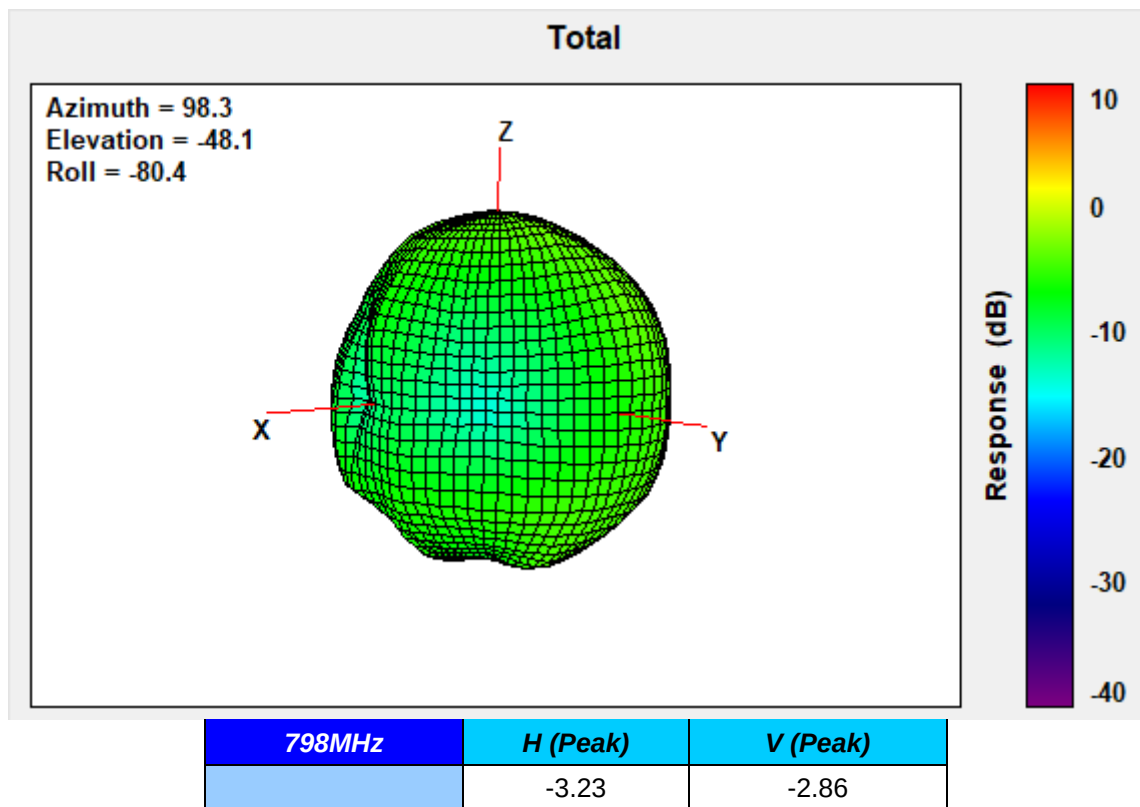
791MHz



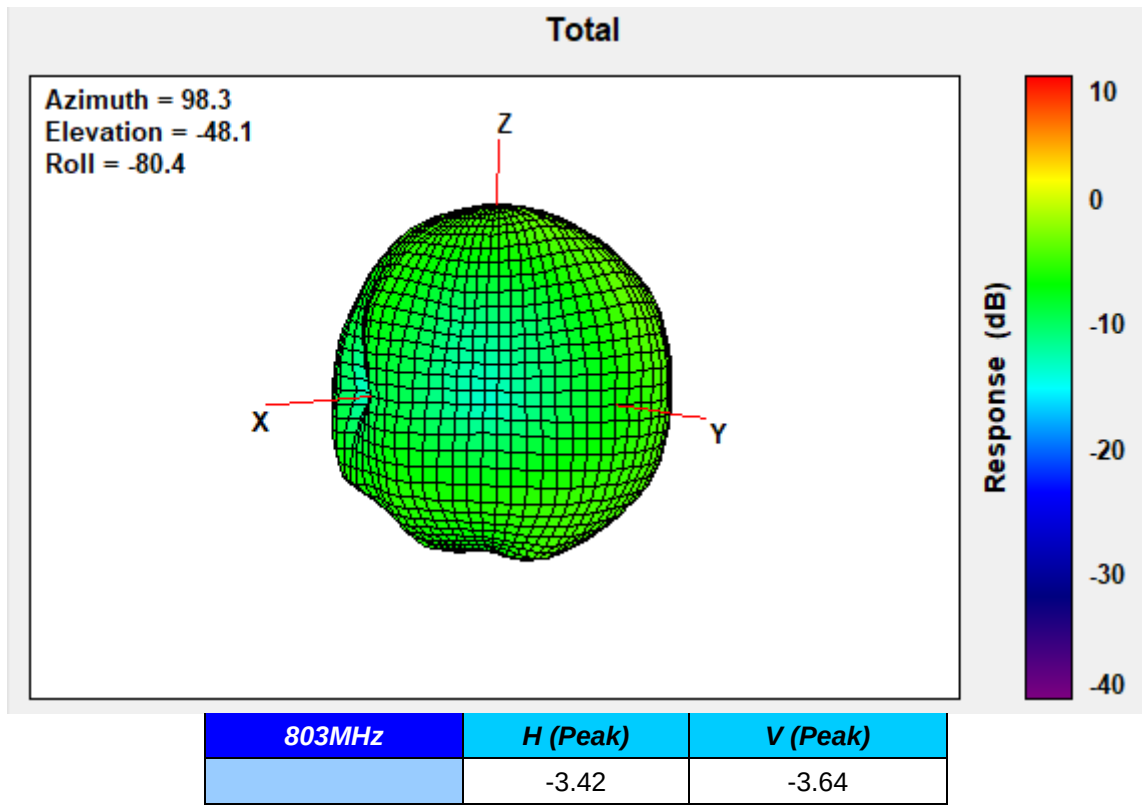
793MHz



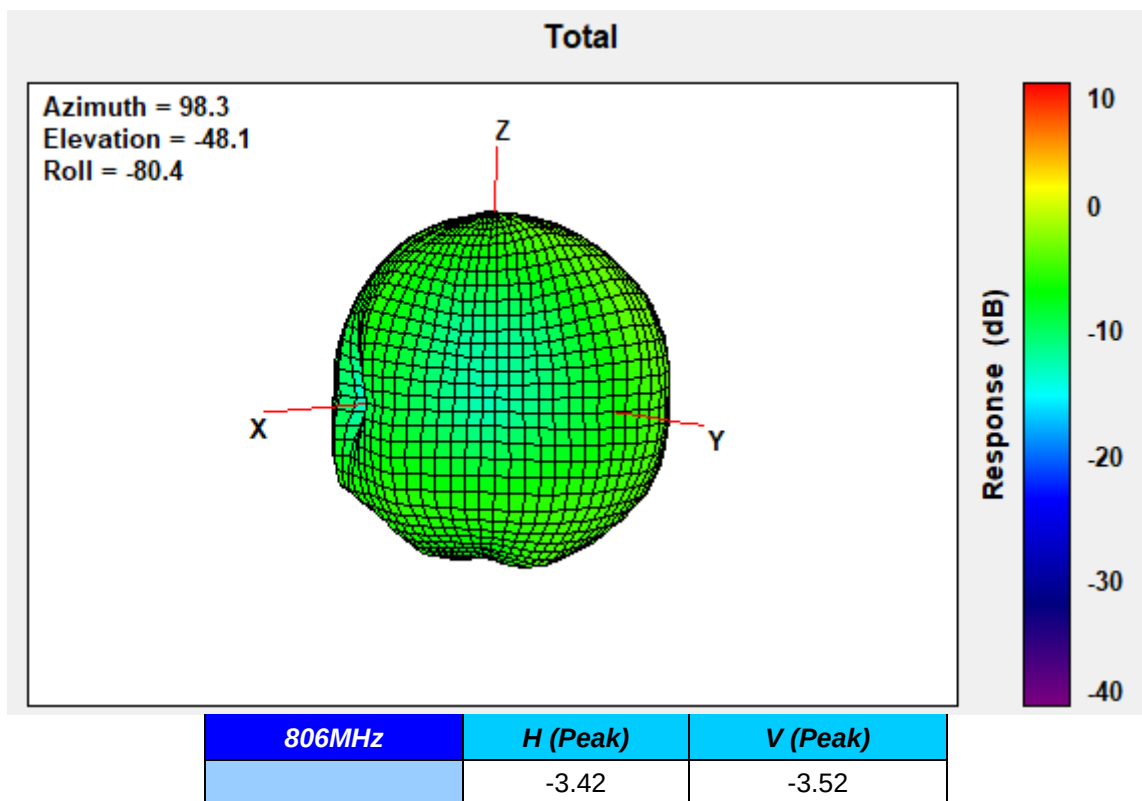
798MHz



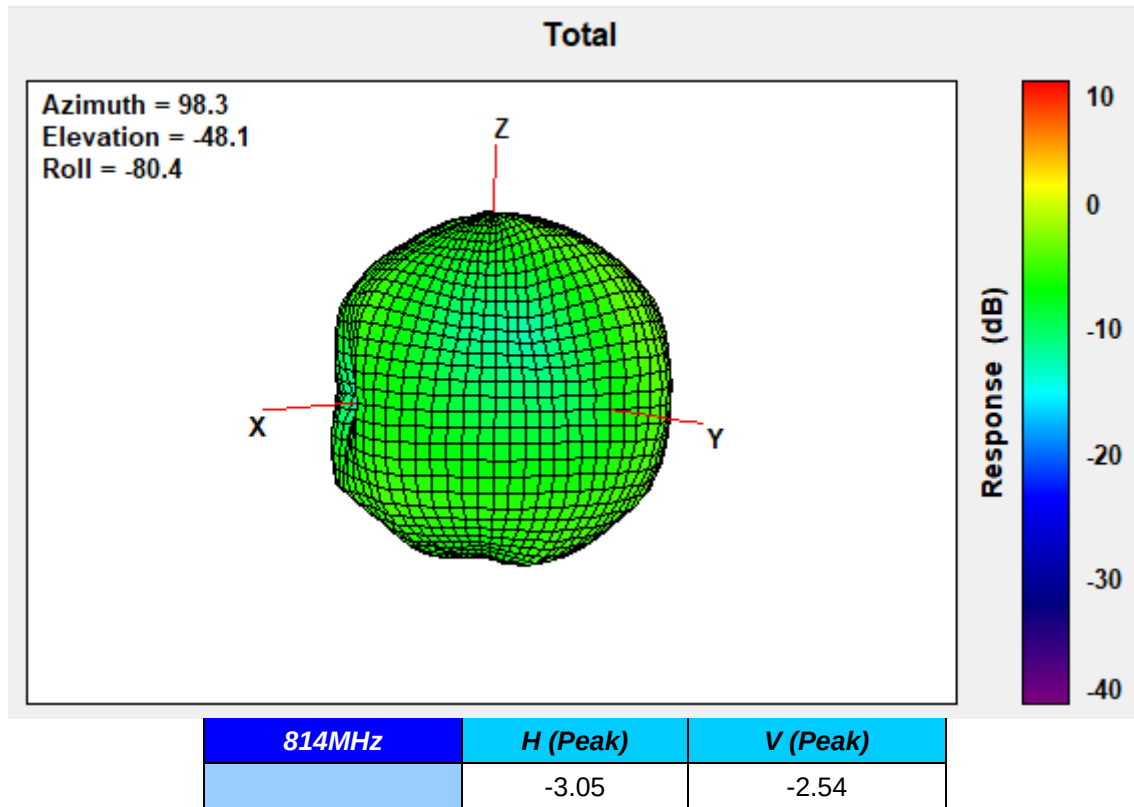
803MHz



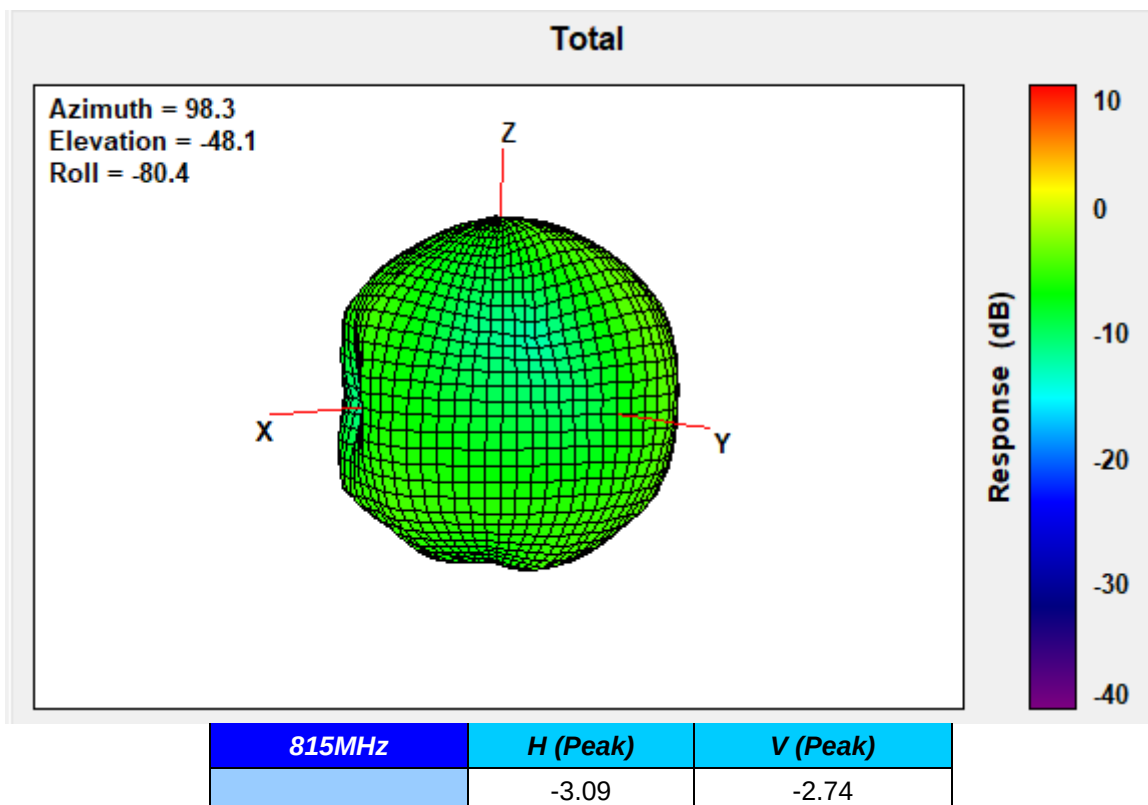
806MHz



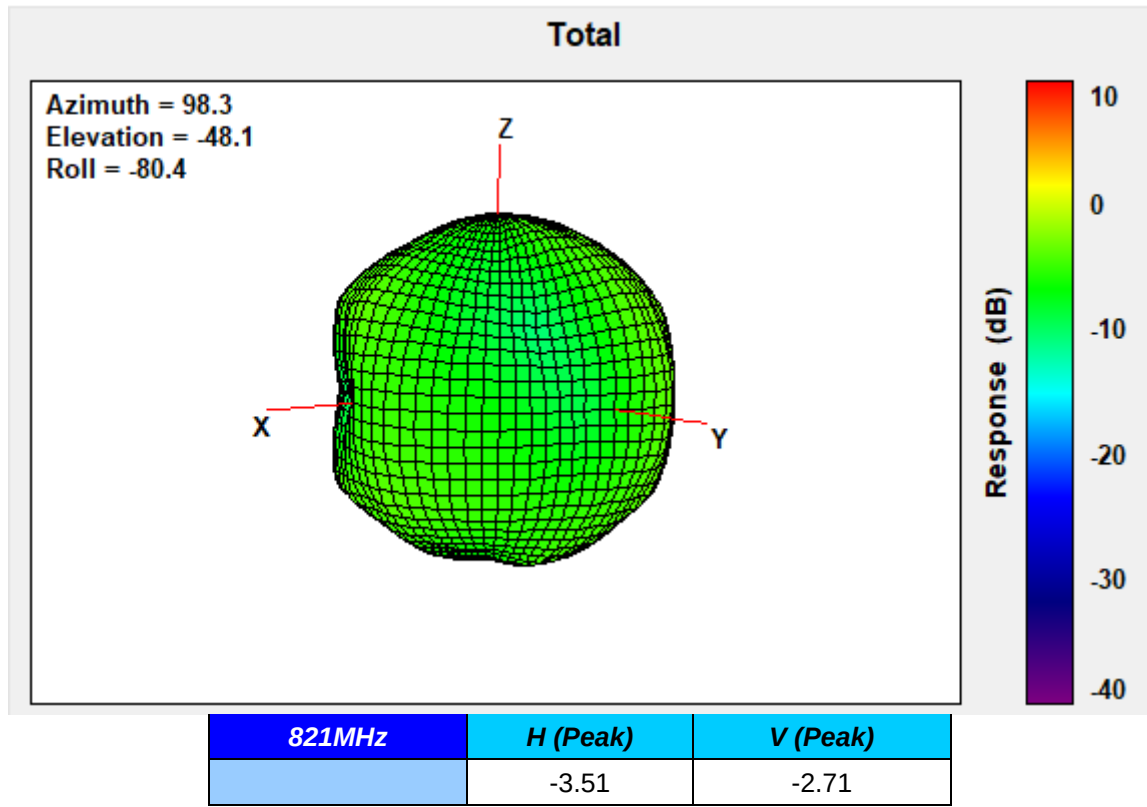
814MHz



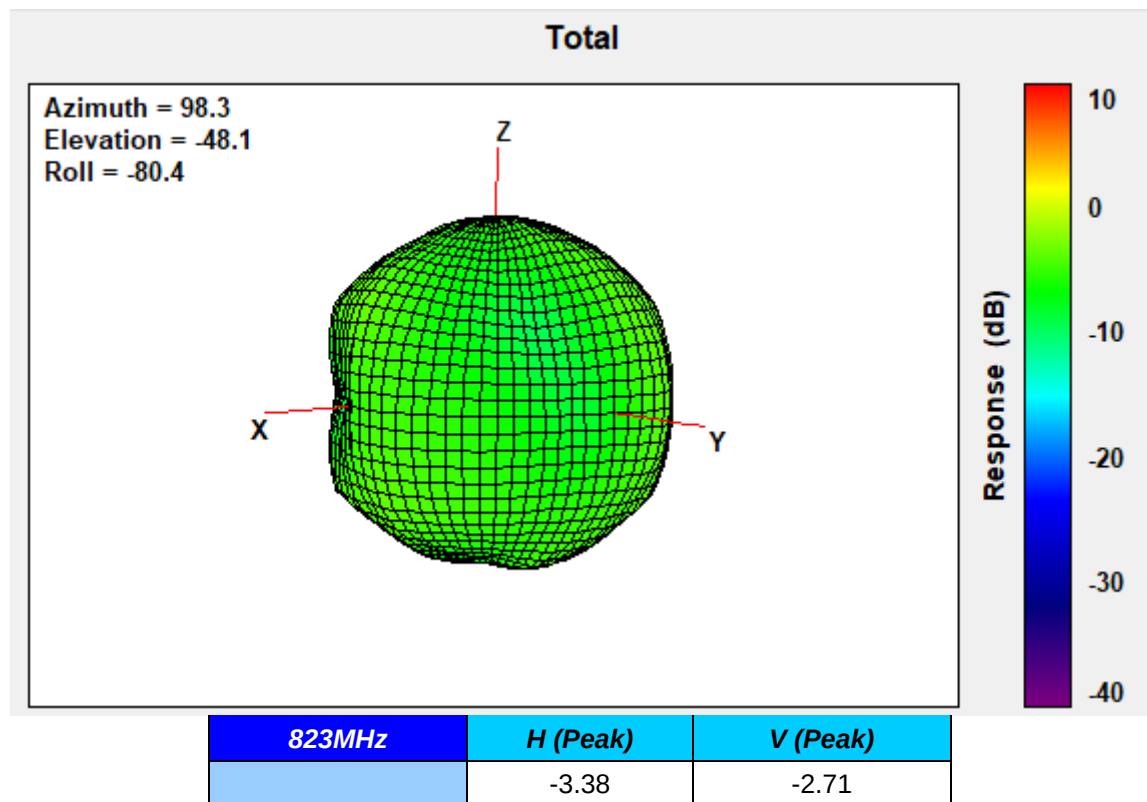
815MHz



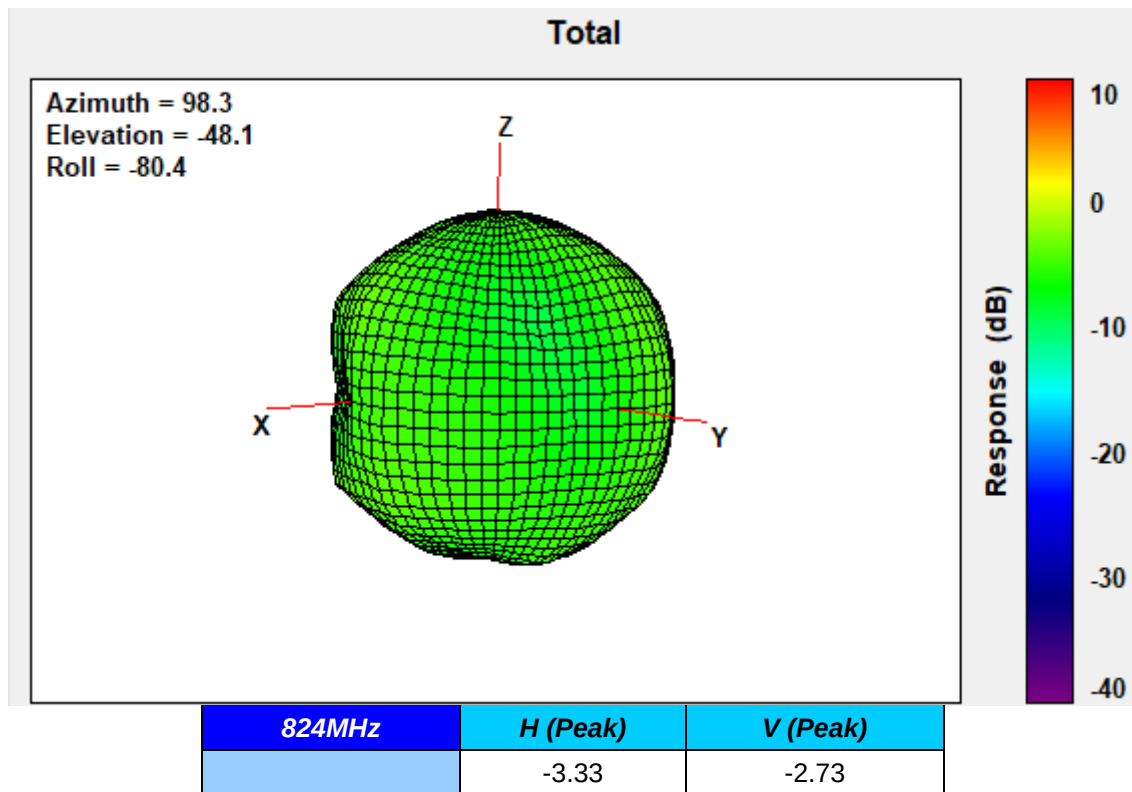
821MHz



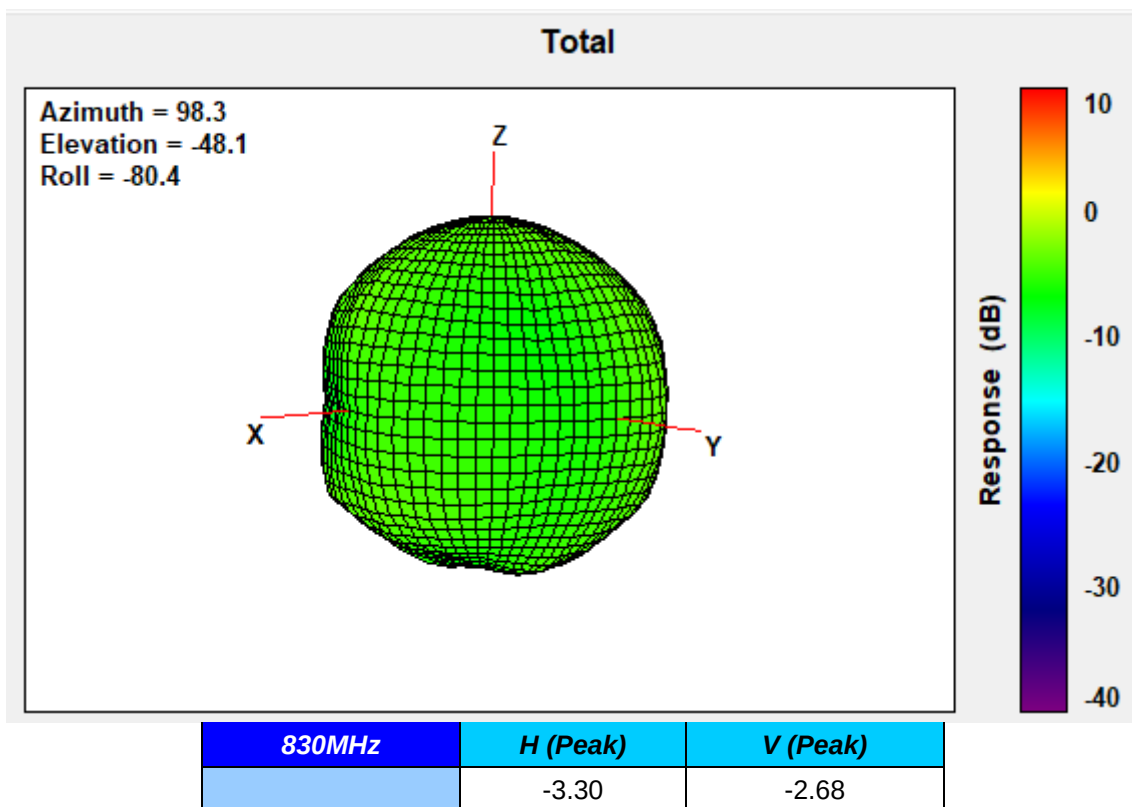
823MHz



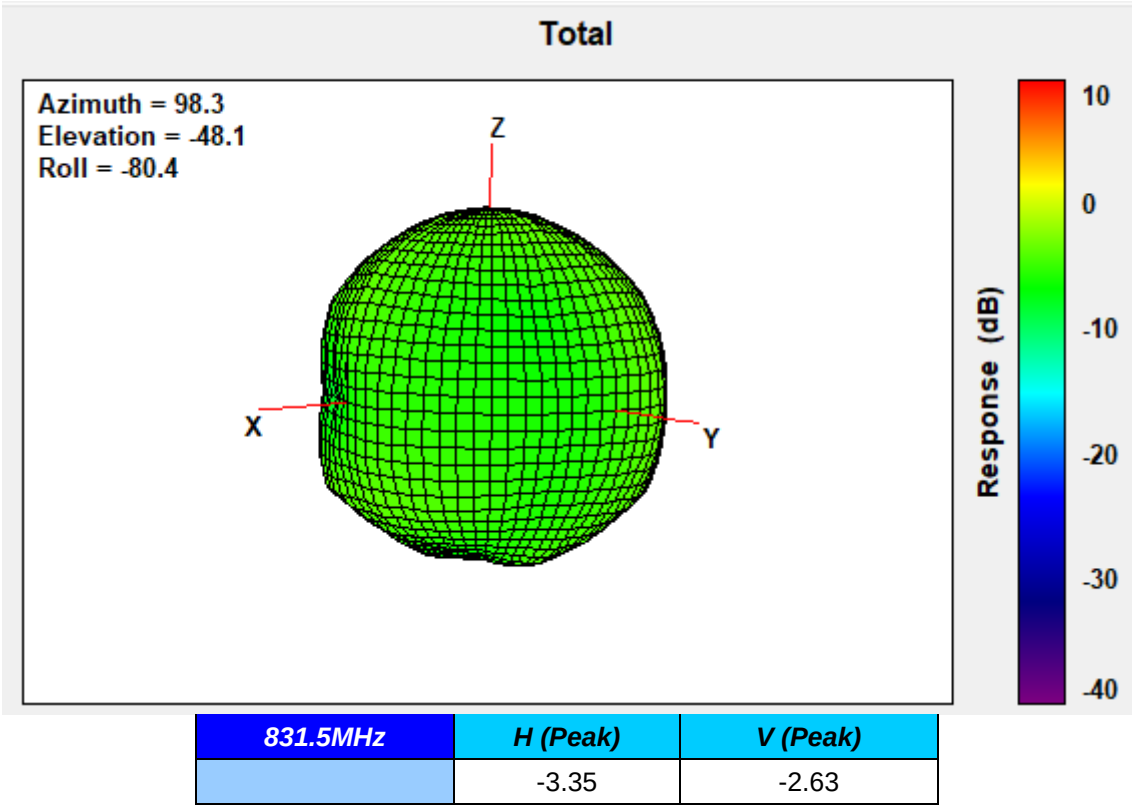
824MHz



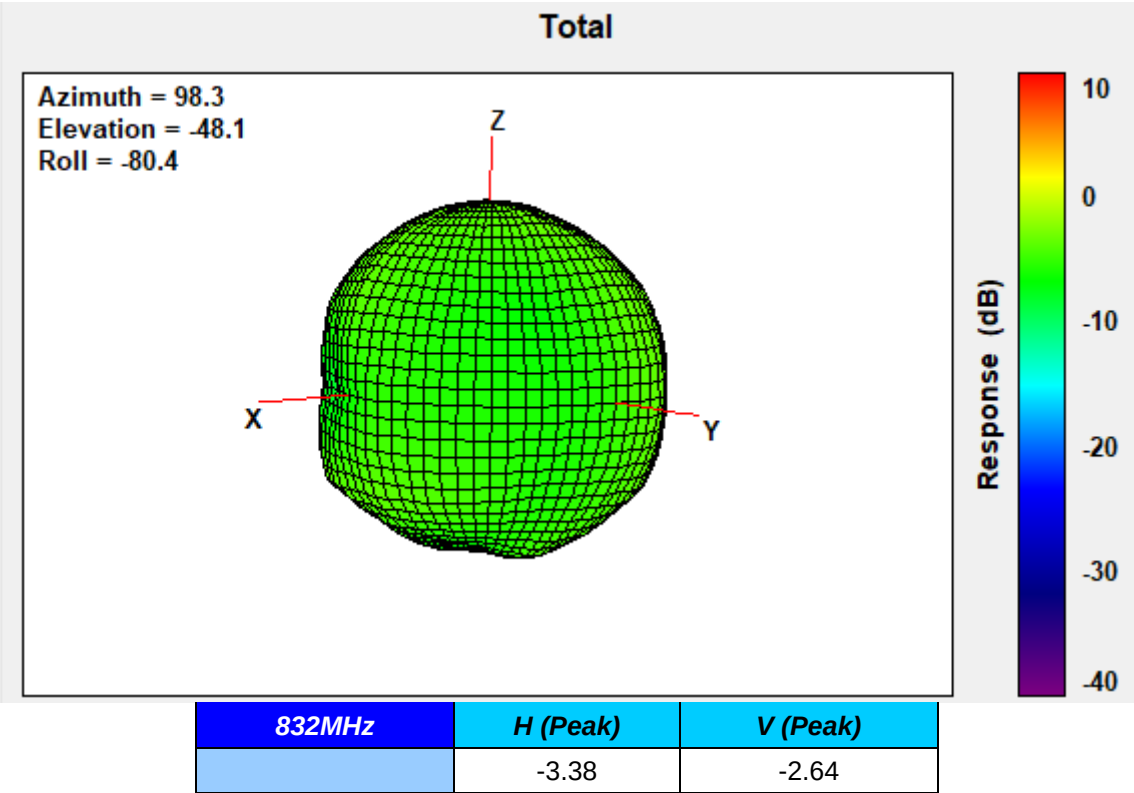
830MHz



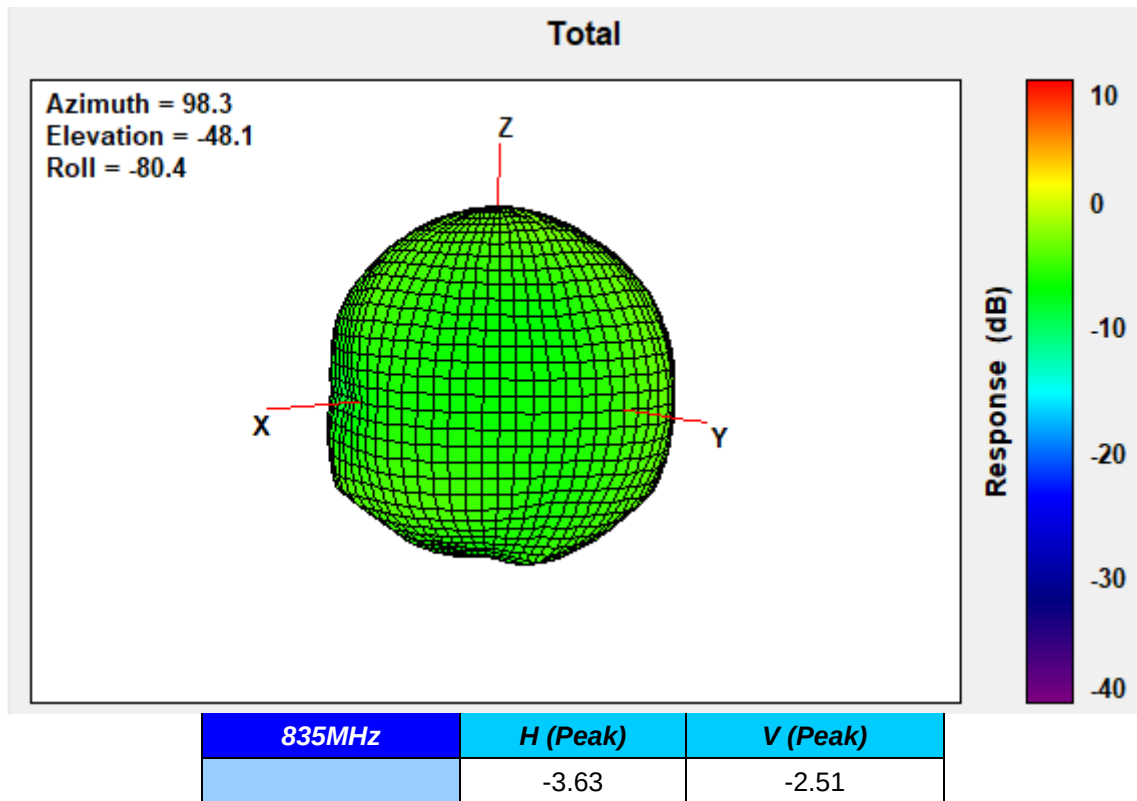
831.5MHz



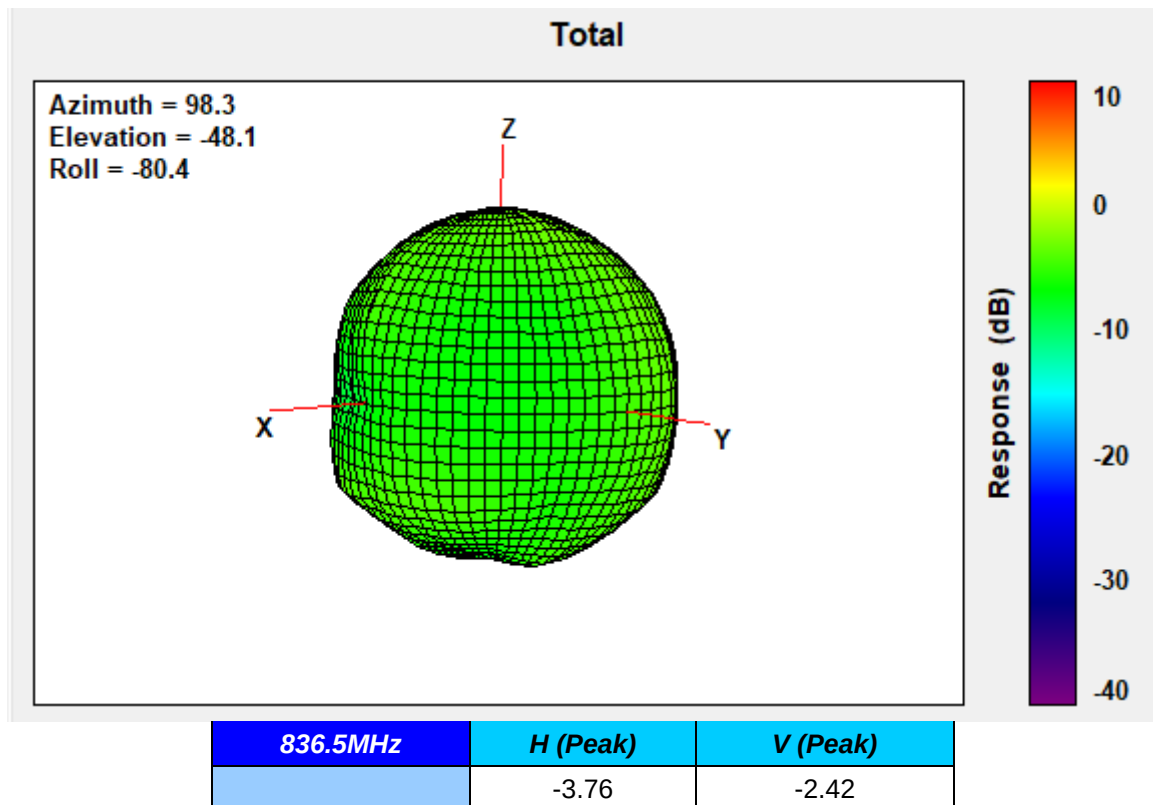
832MHz



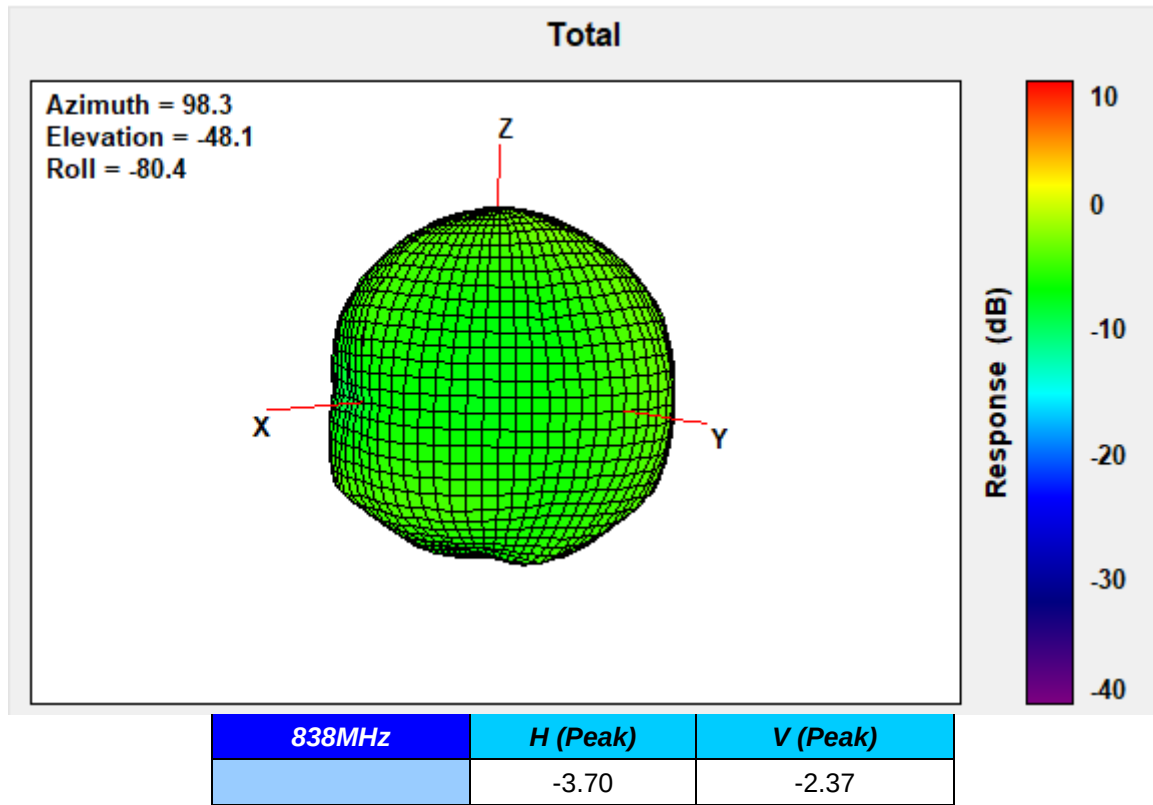
835MHz



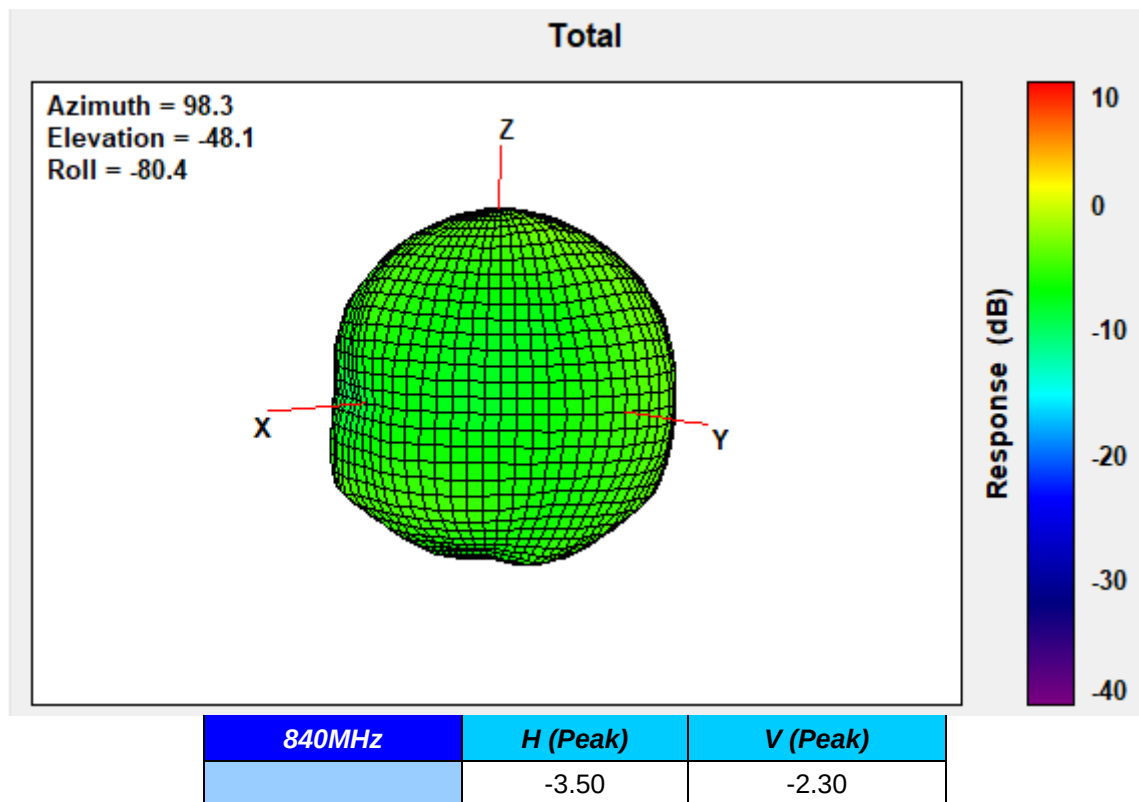
836.5MHz



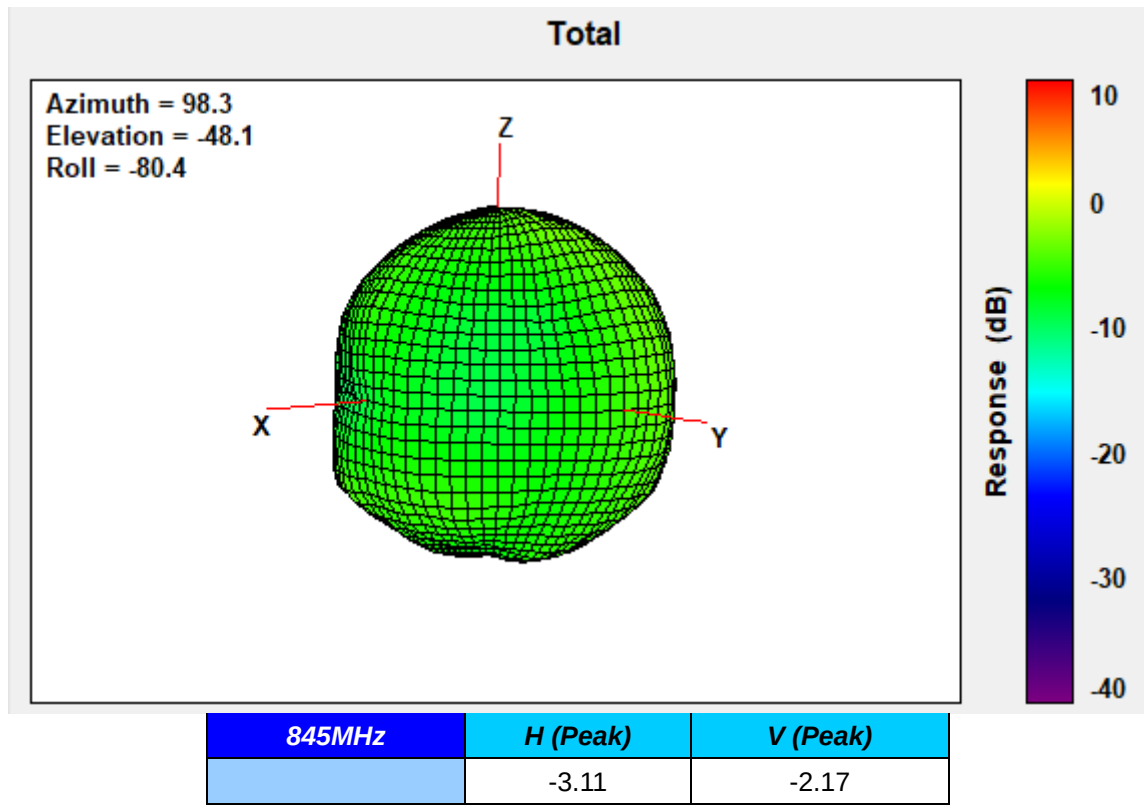
838MHz



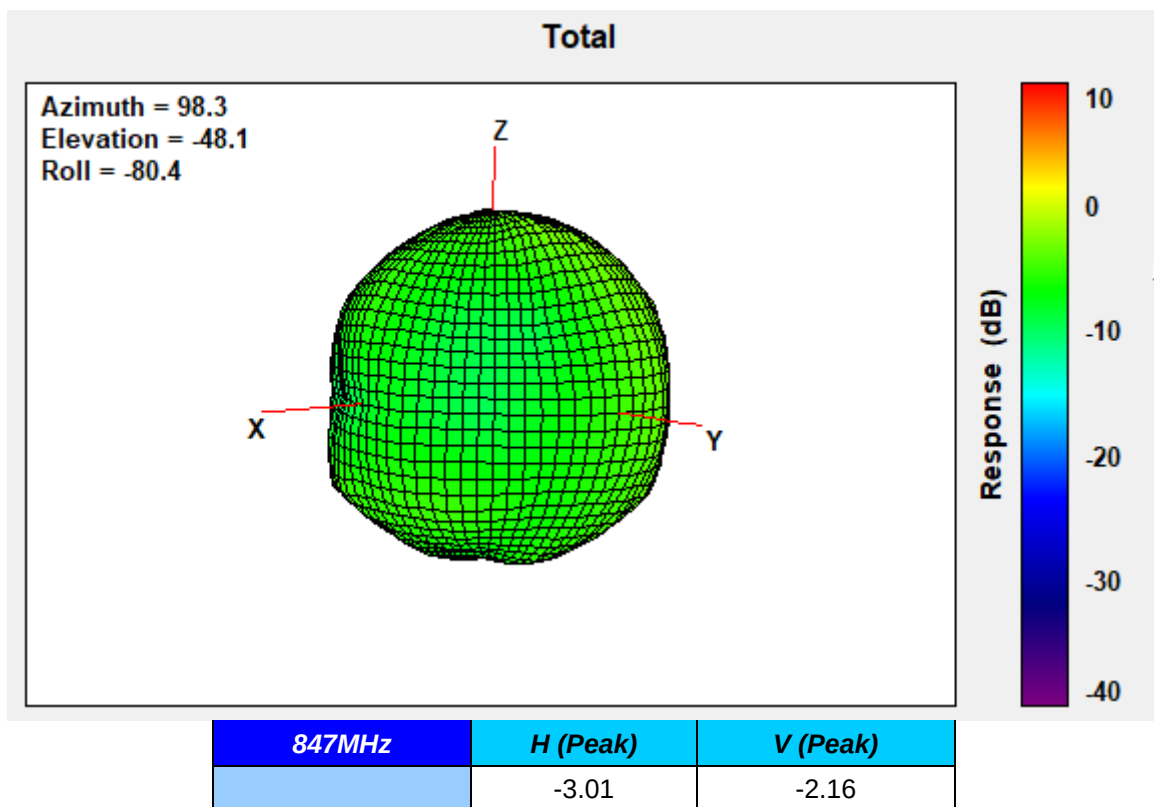
840MHz



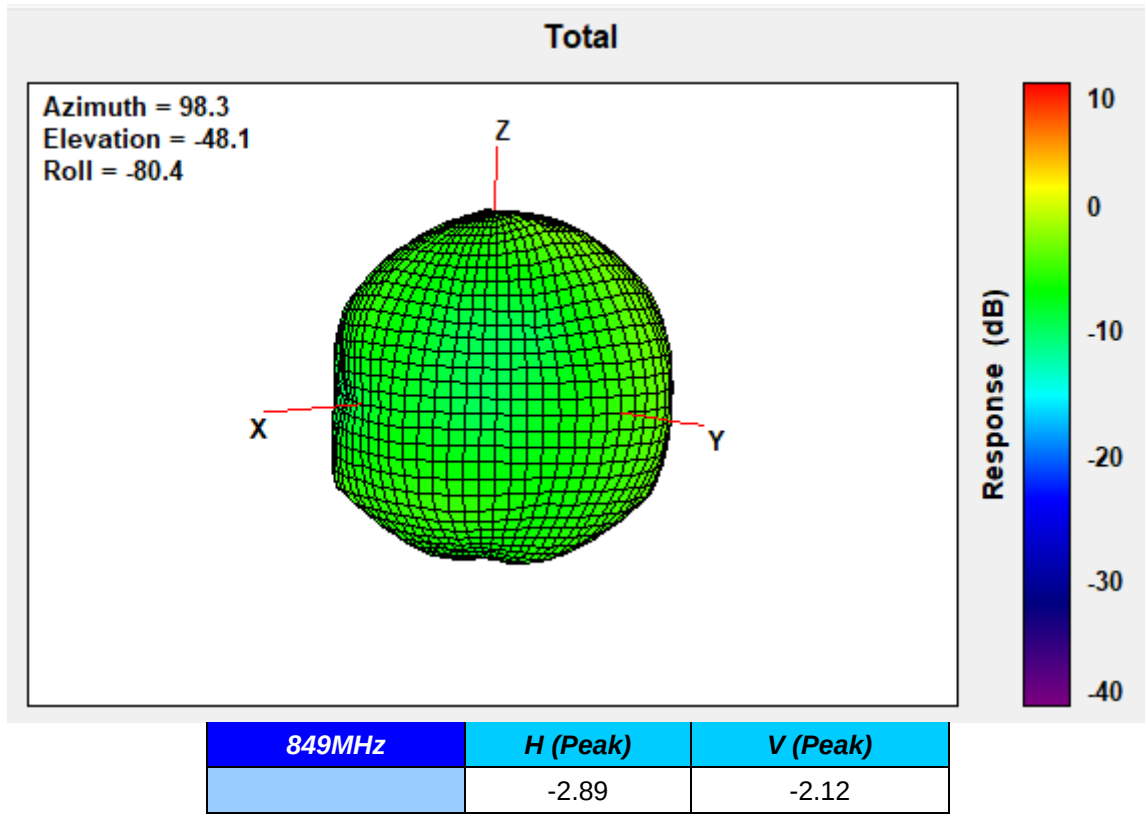
845MHz



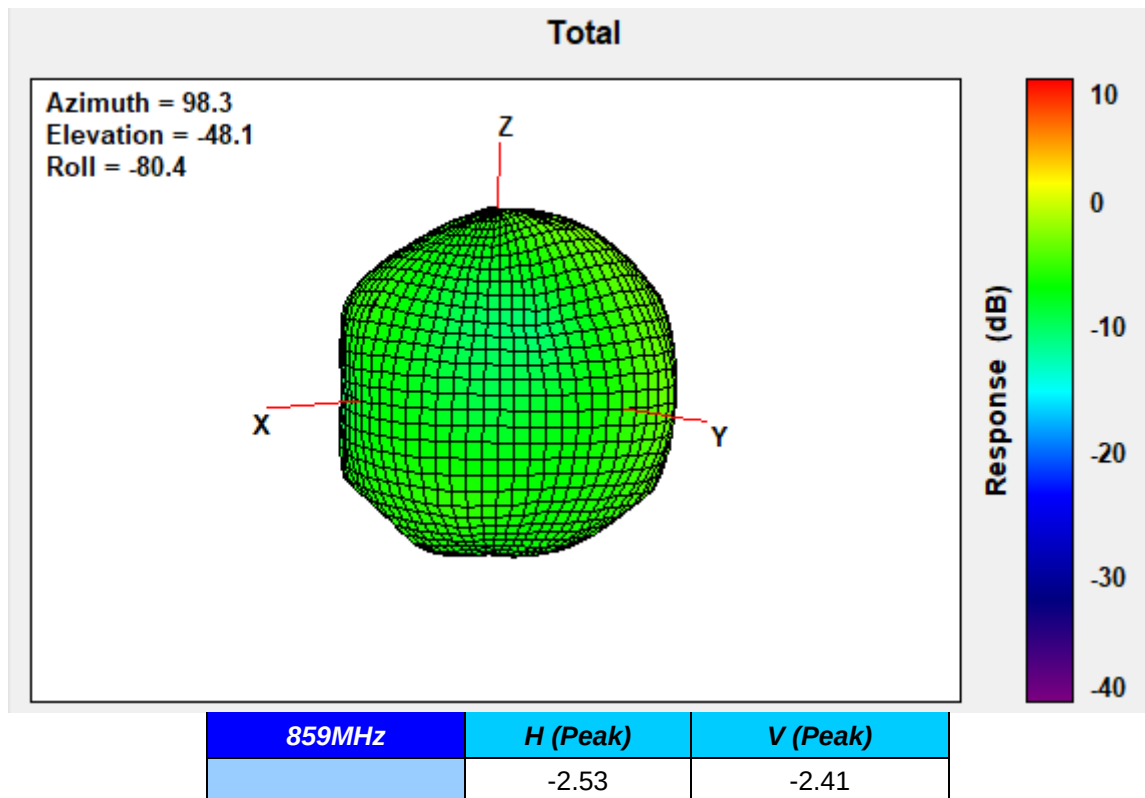
847MHz



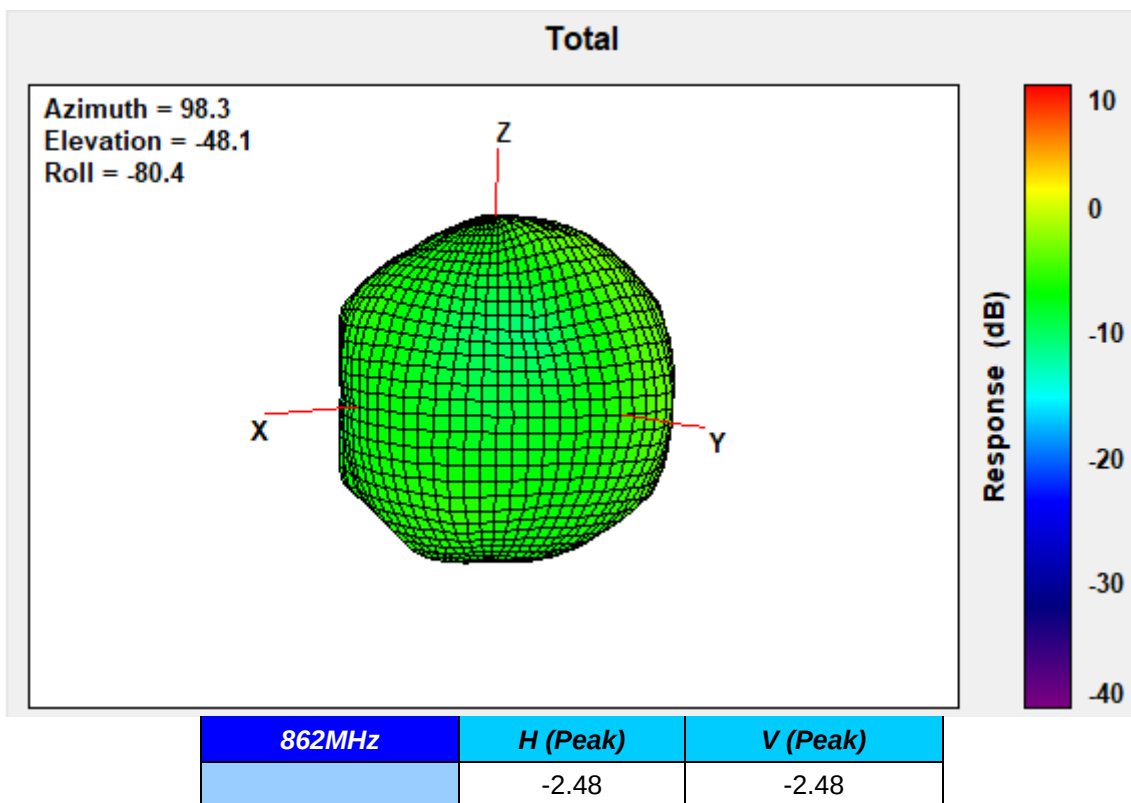
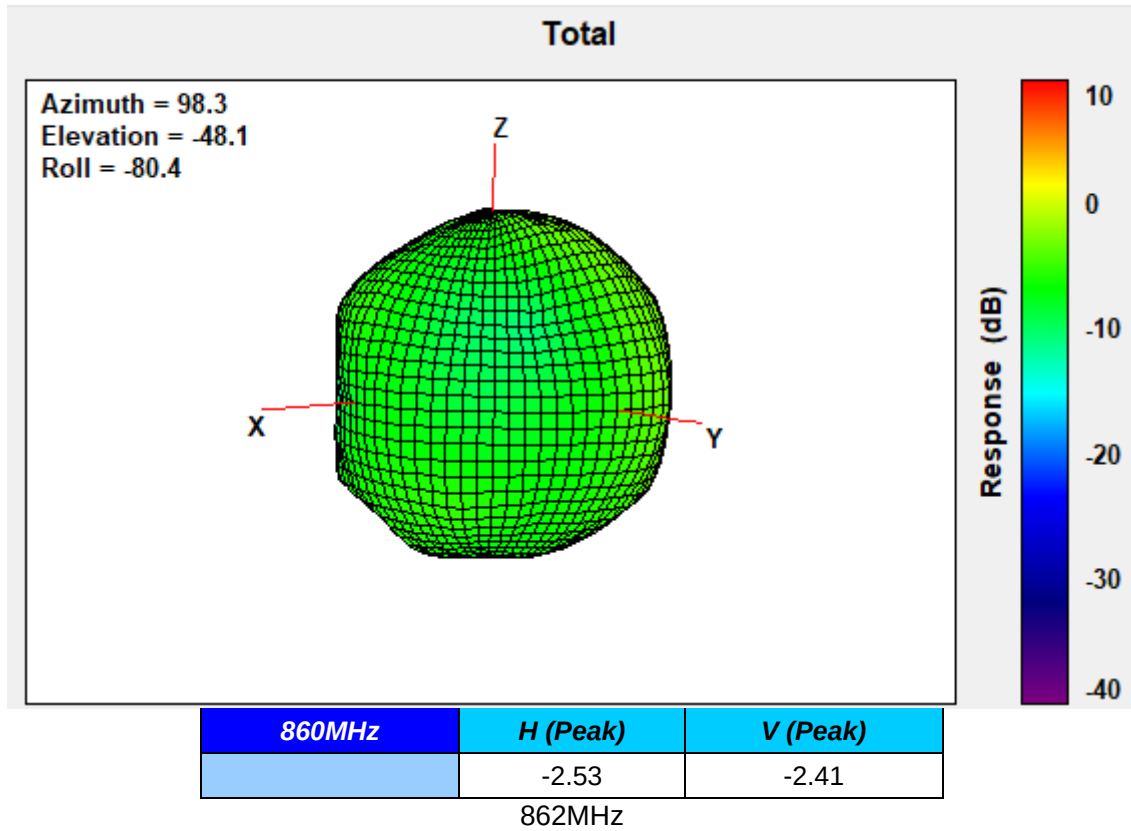
849MHz

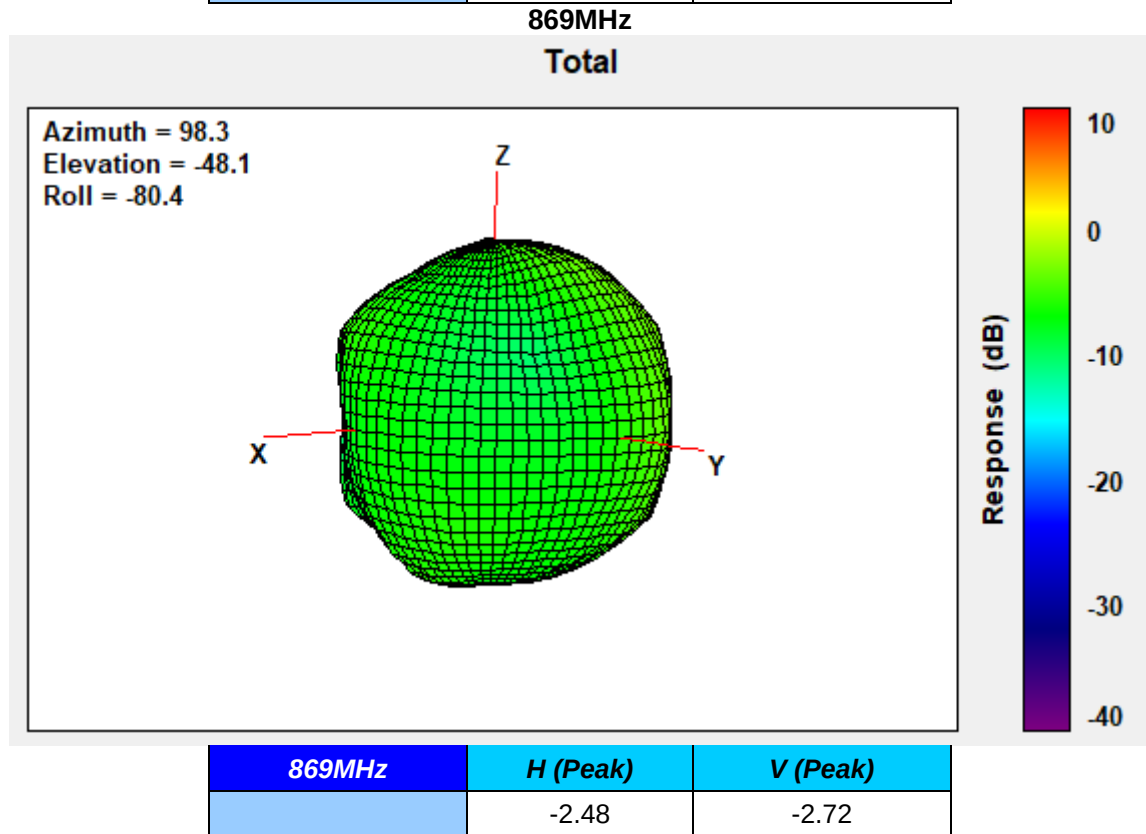
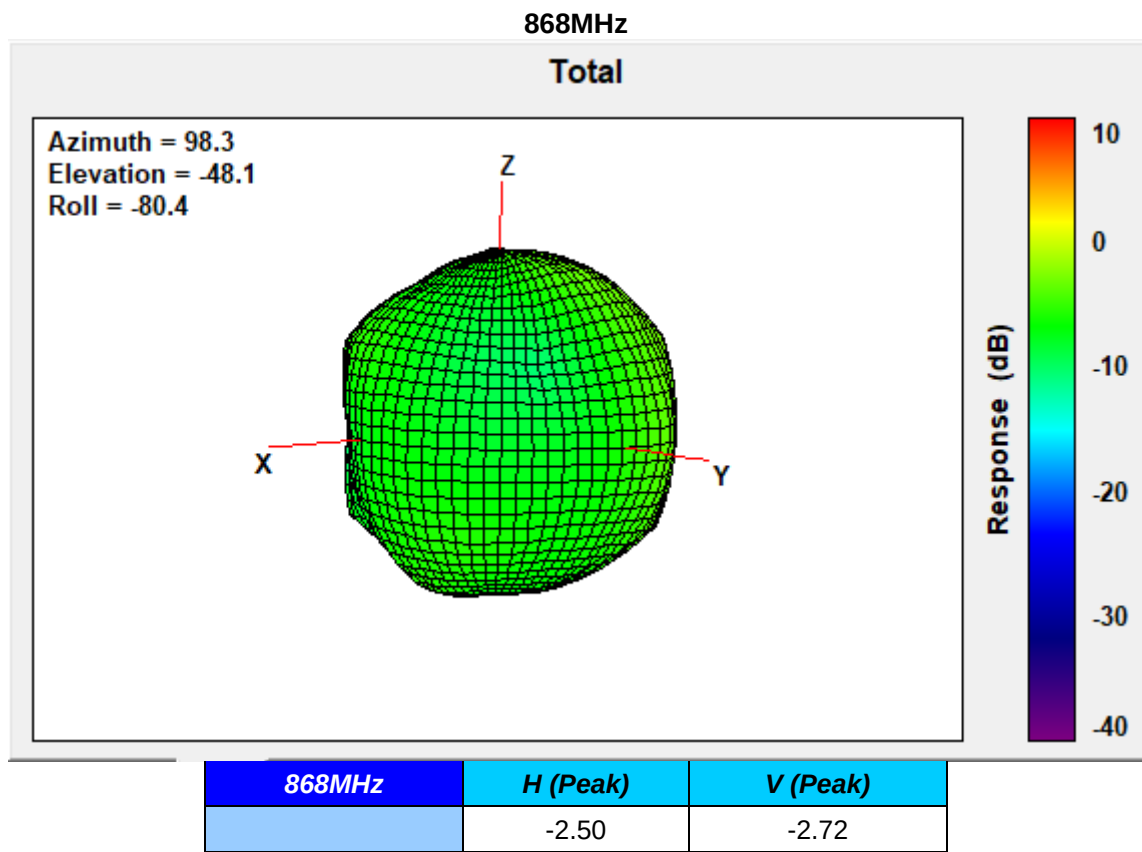


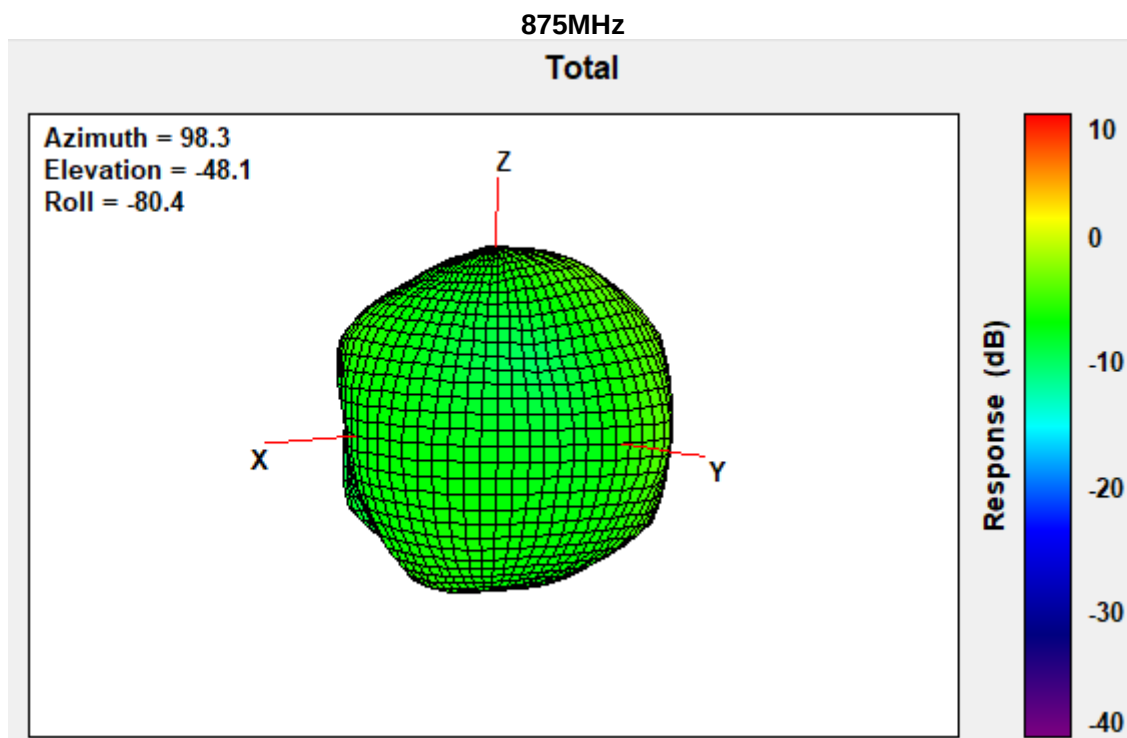
859MHz



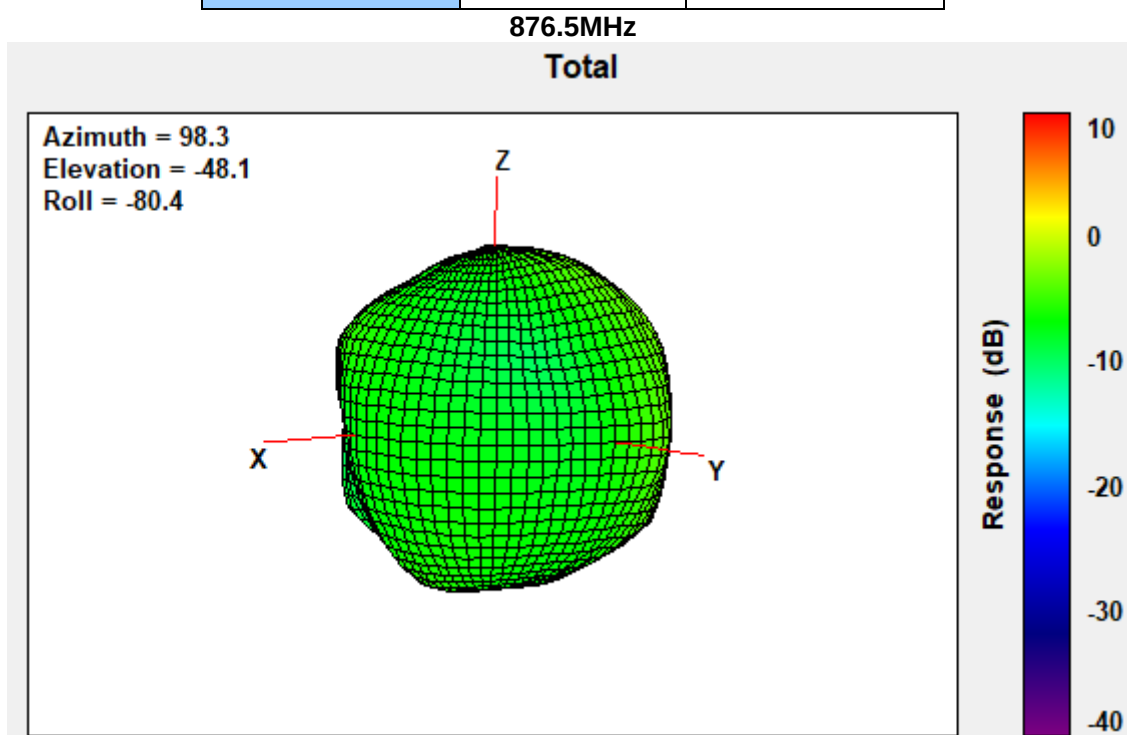
860MHz



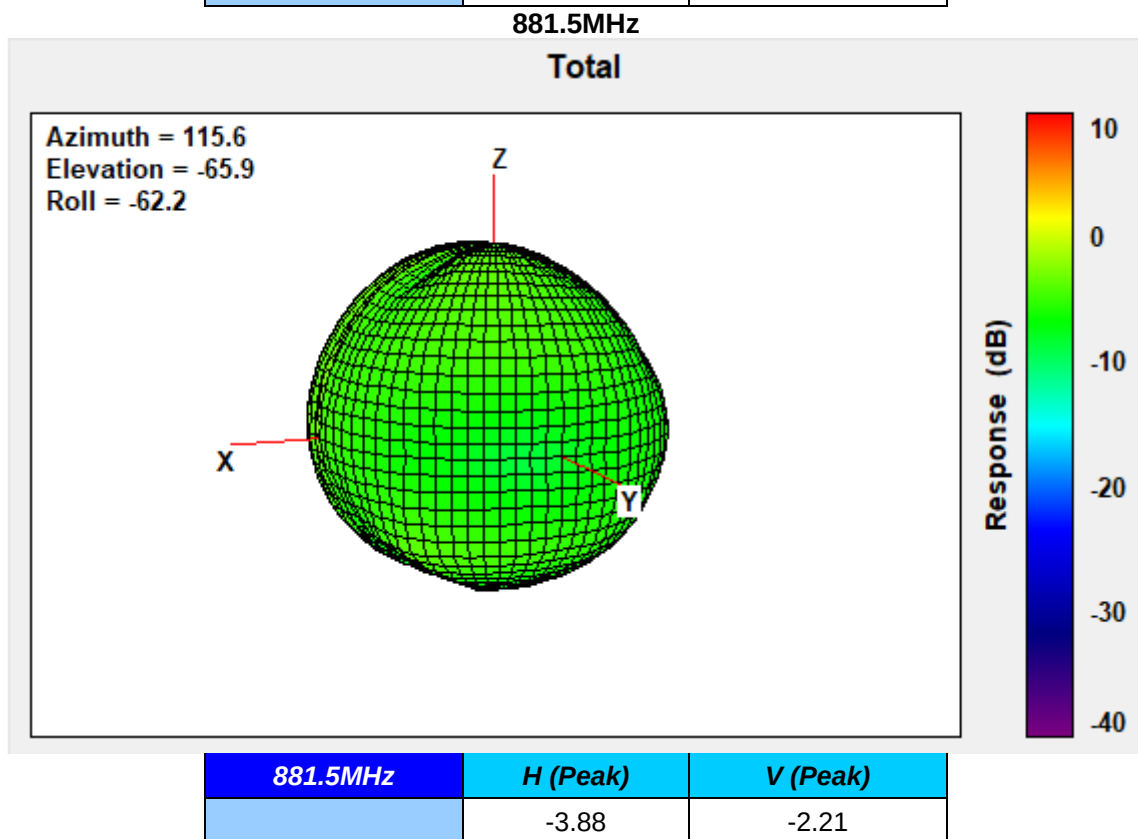
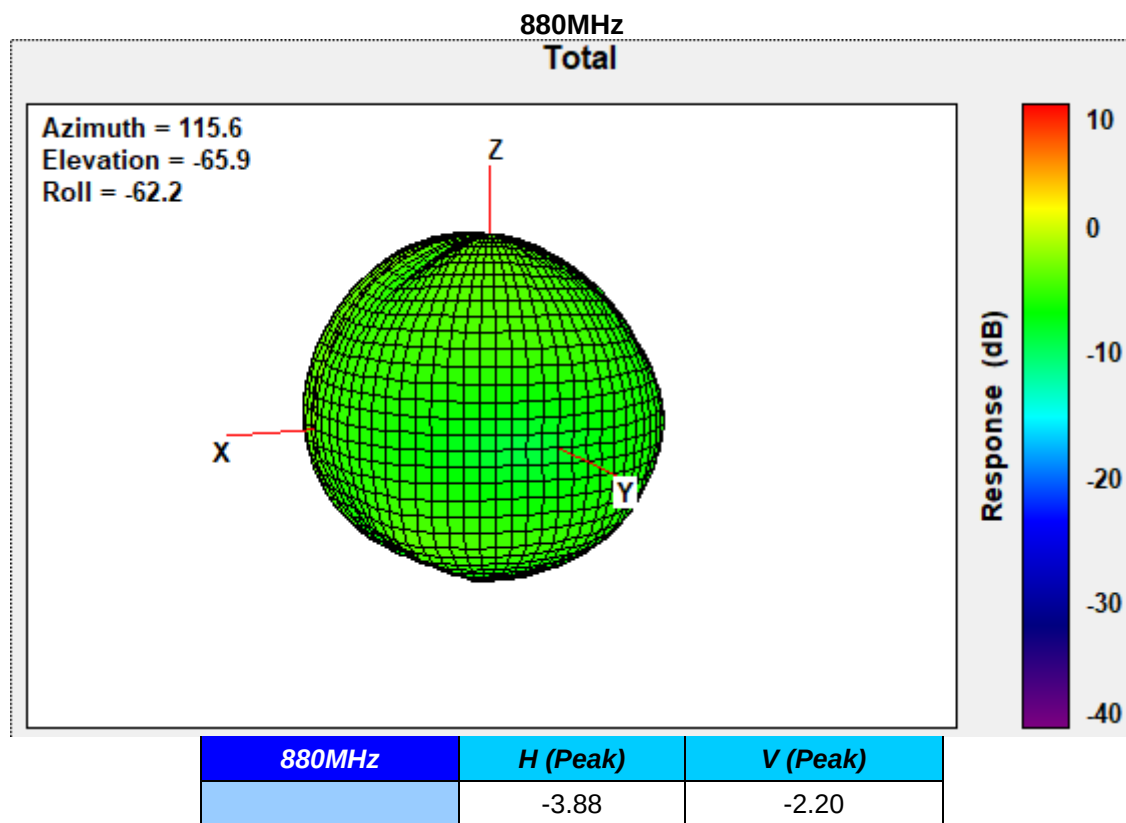




875MHz	H (Peak)	V (Peak)
	-2.58	-2.83



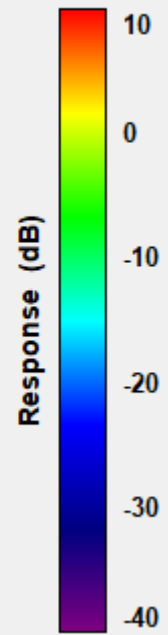
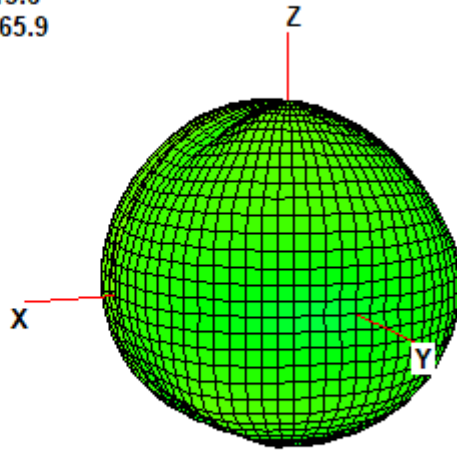
876.5MHz	H (Peak)	V (Peak)
	-2.61	-2.81



883MHz

Total

Azimuth = 115.6
Elevation = -65.9
Roll = -62.2

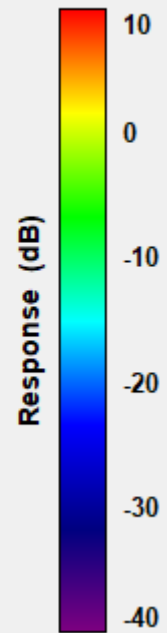
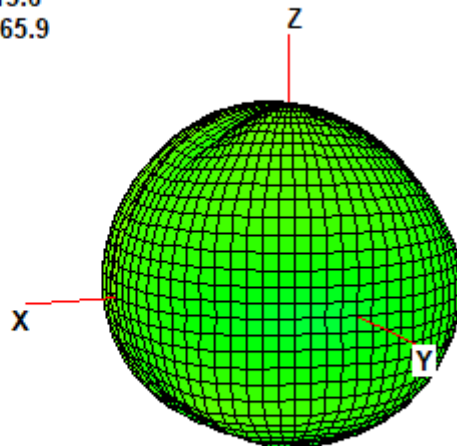


883MHz	H (Peak)	V (Peak)
	-3.49	-3.32

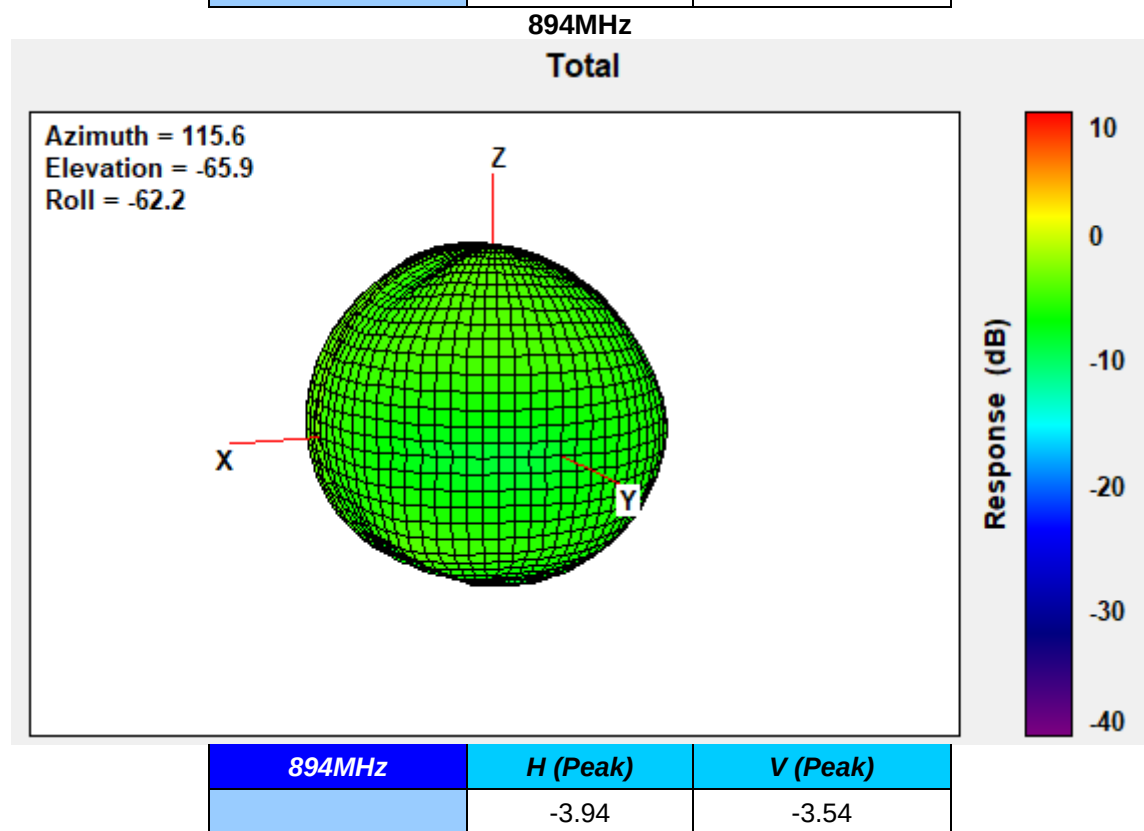
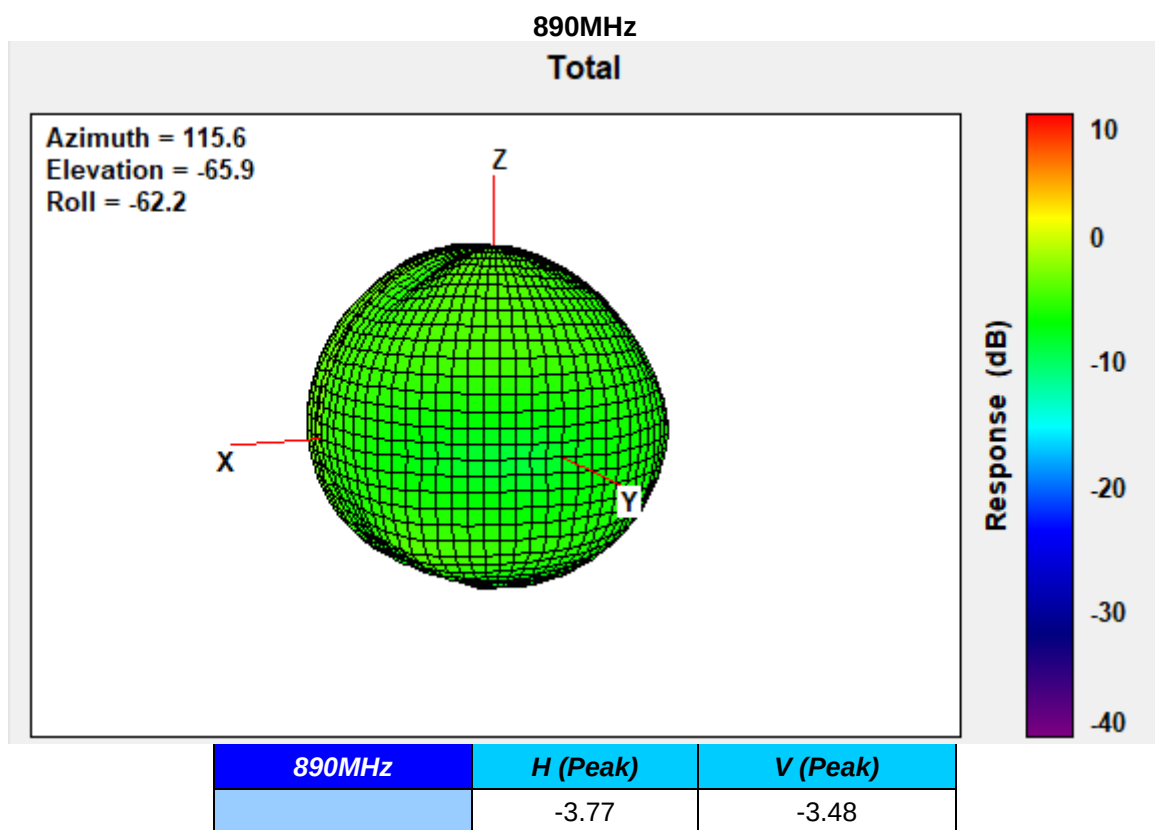
885MHz

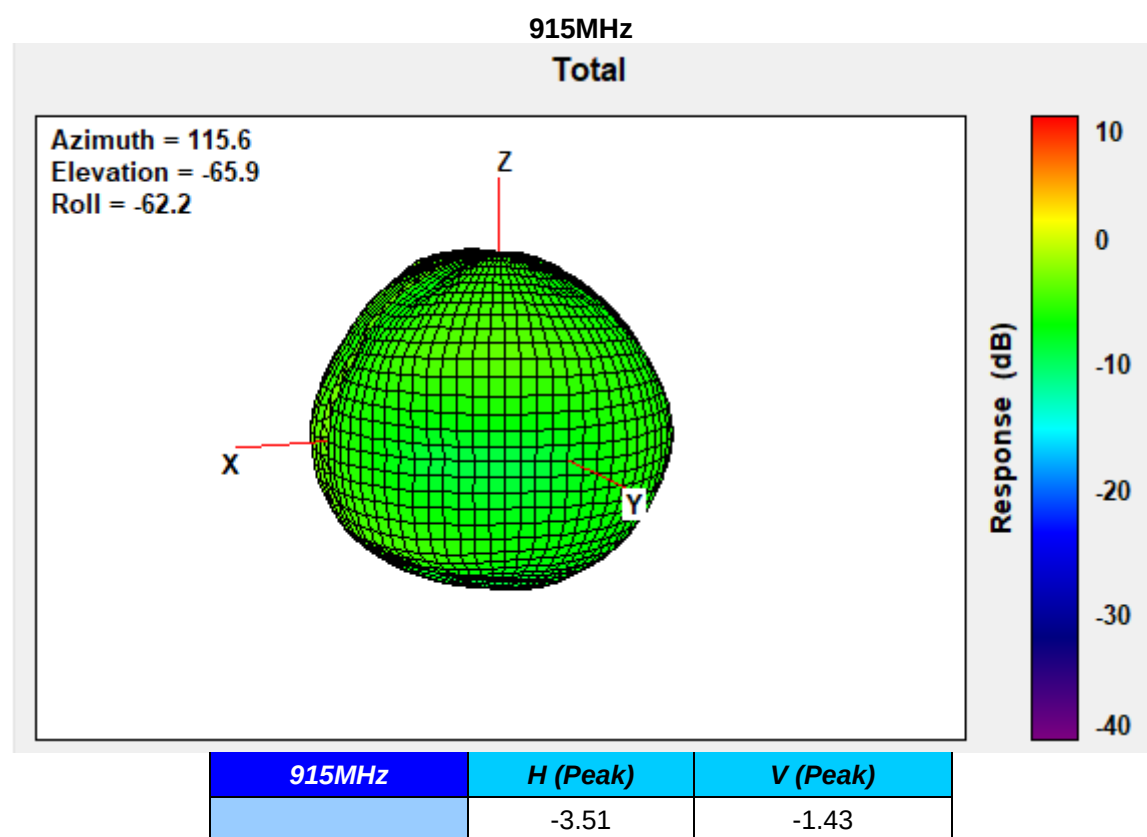
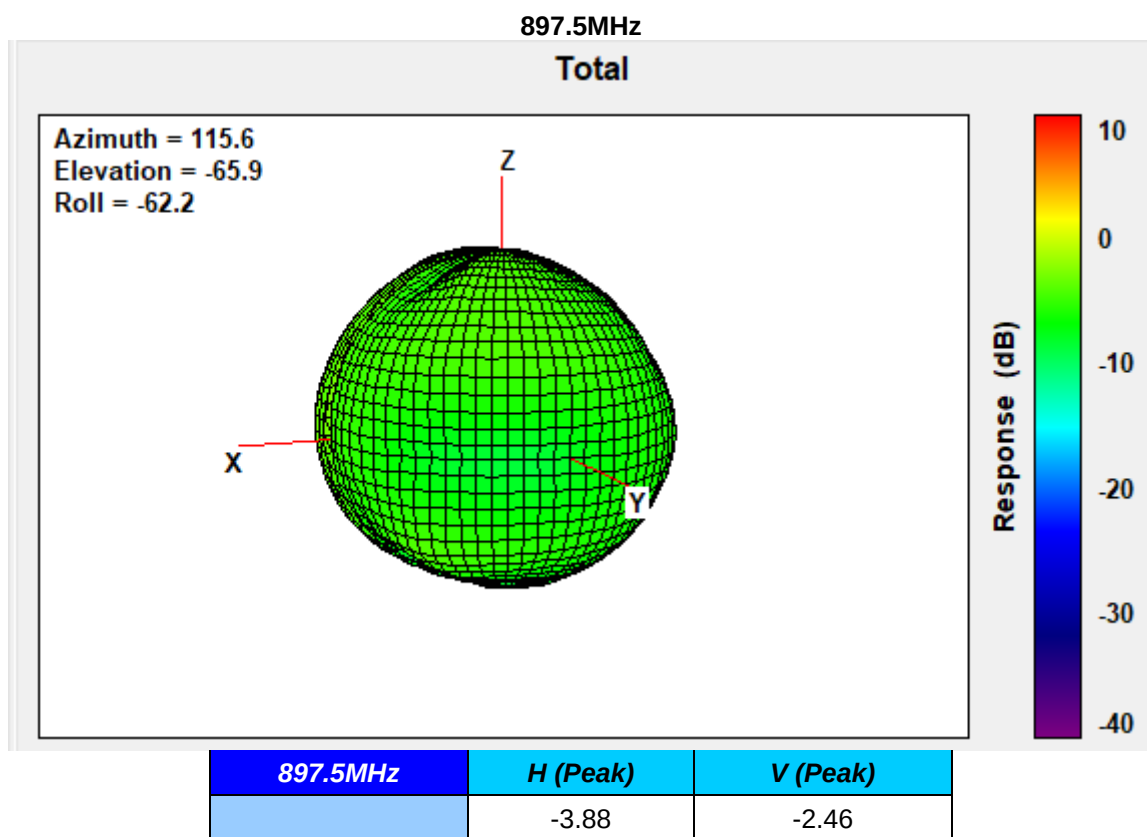
Total

Azimuth = 115.6
Elevation = -65.9
Roll = -62.2

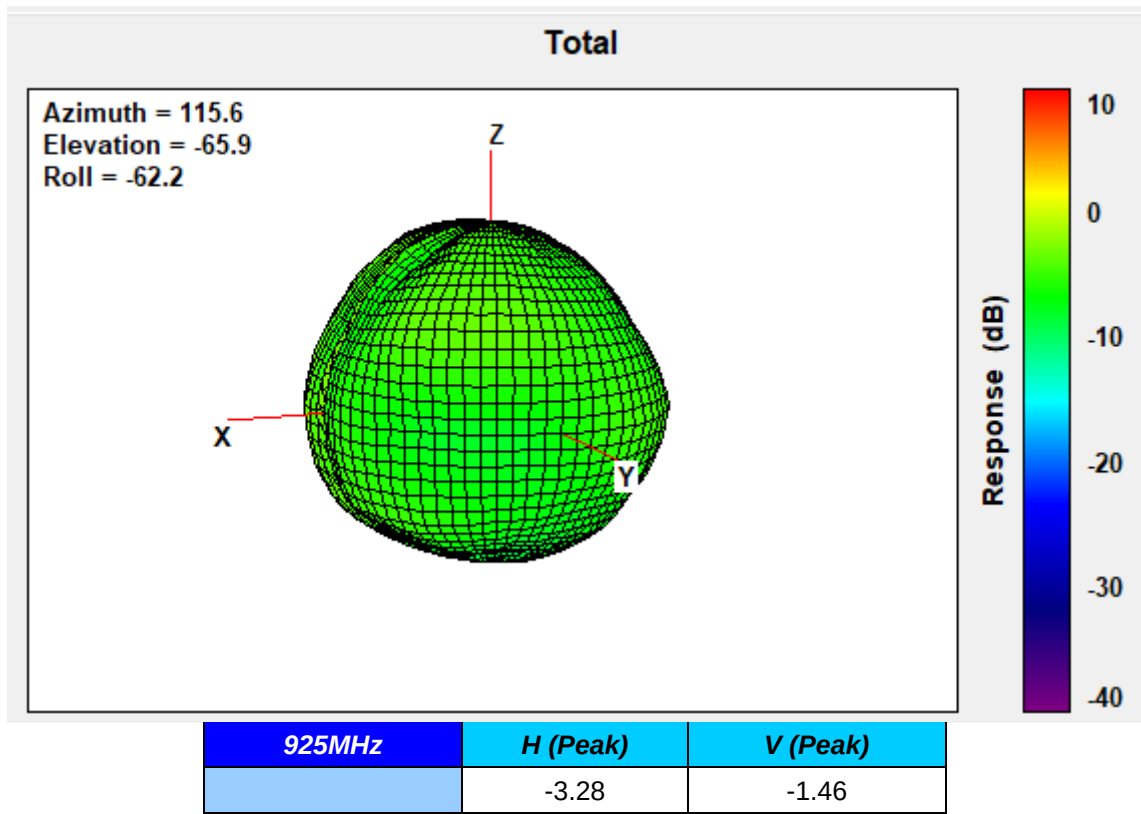


885MHz	H (Peak)	V (Peak)
	-3.56	-3.36

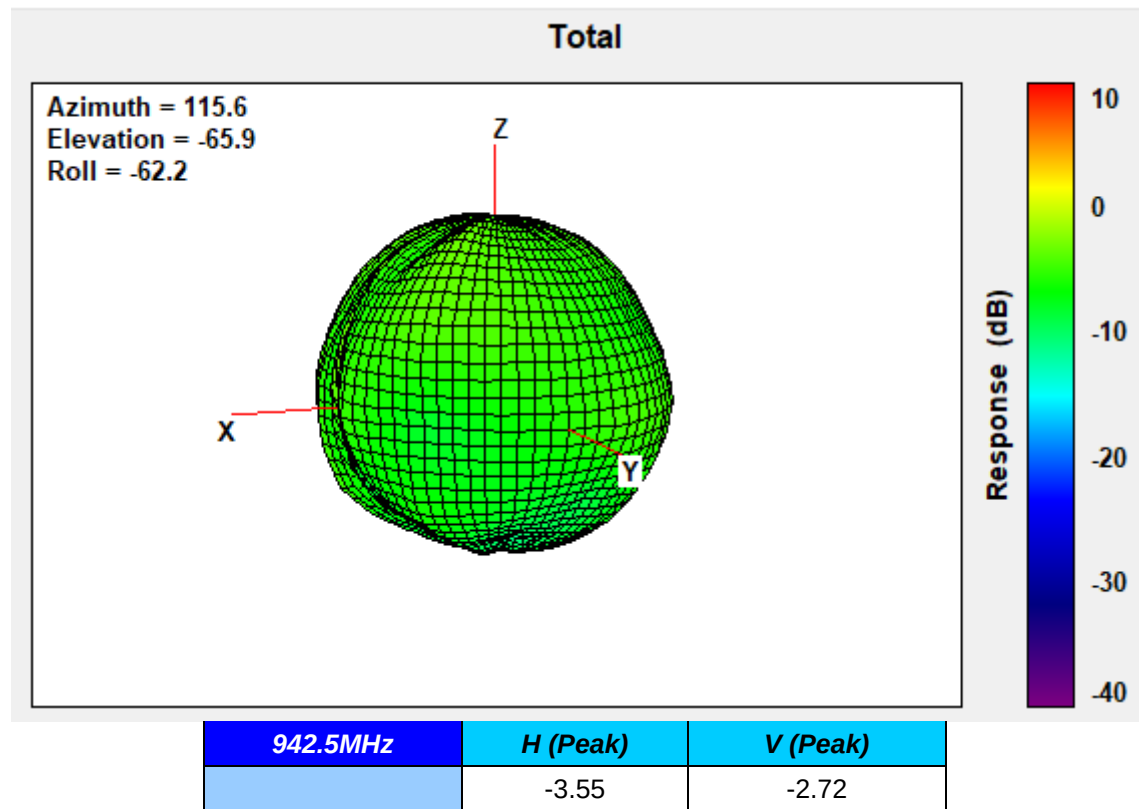


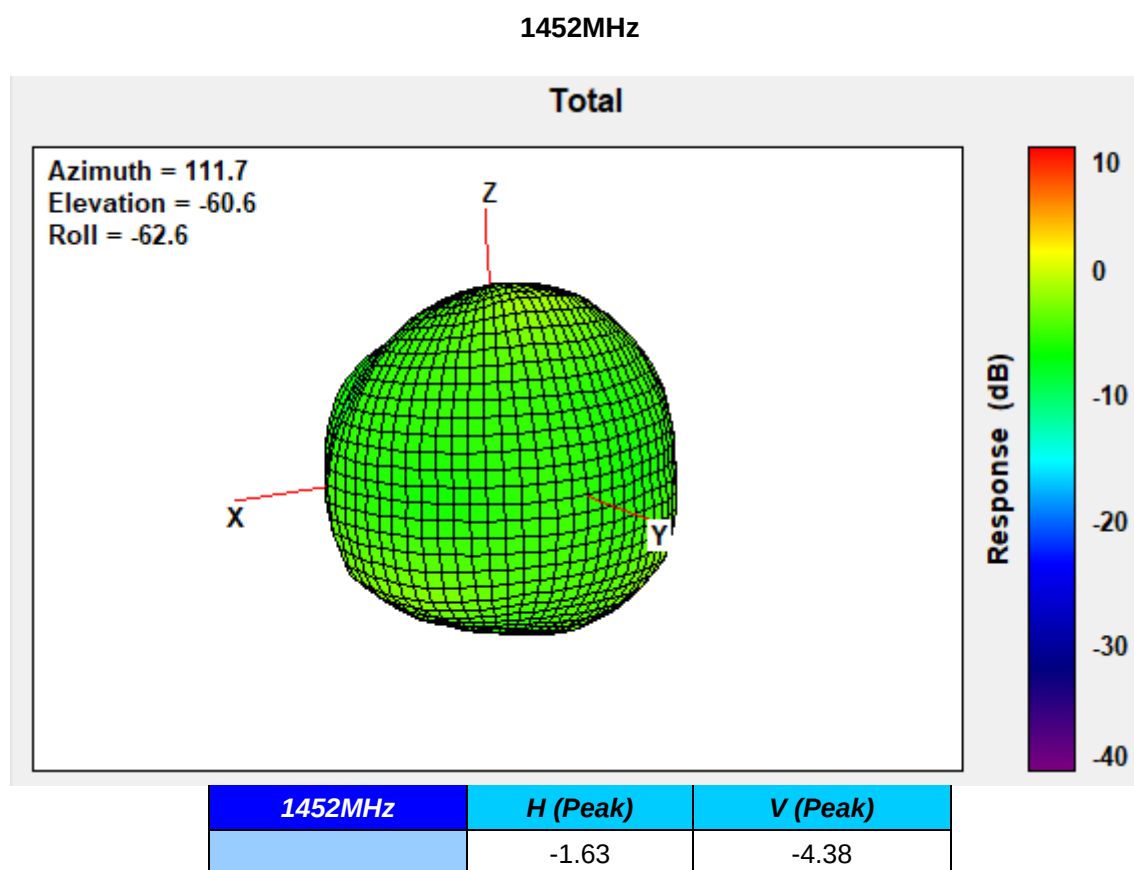
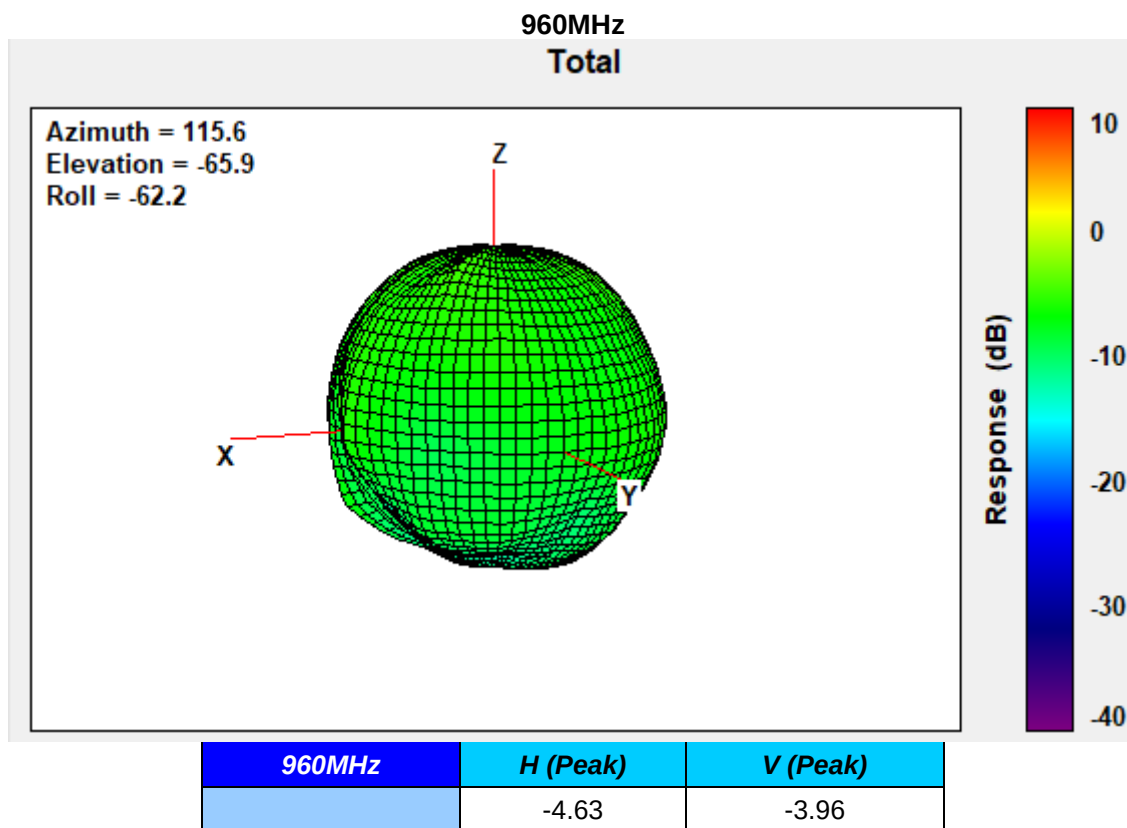


925MHz

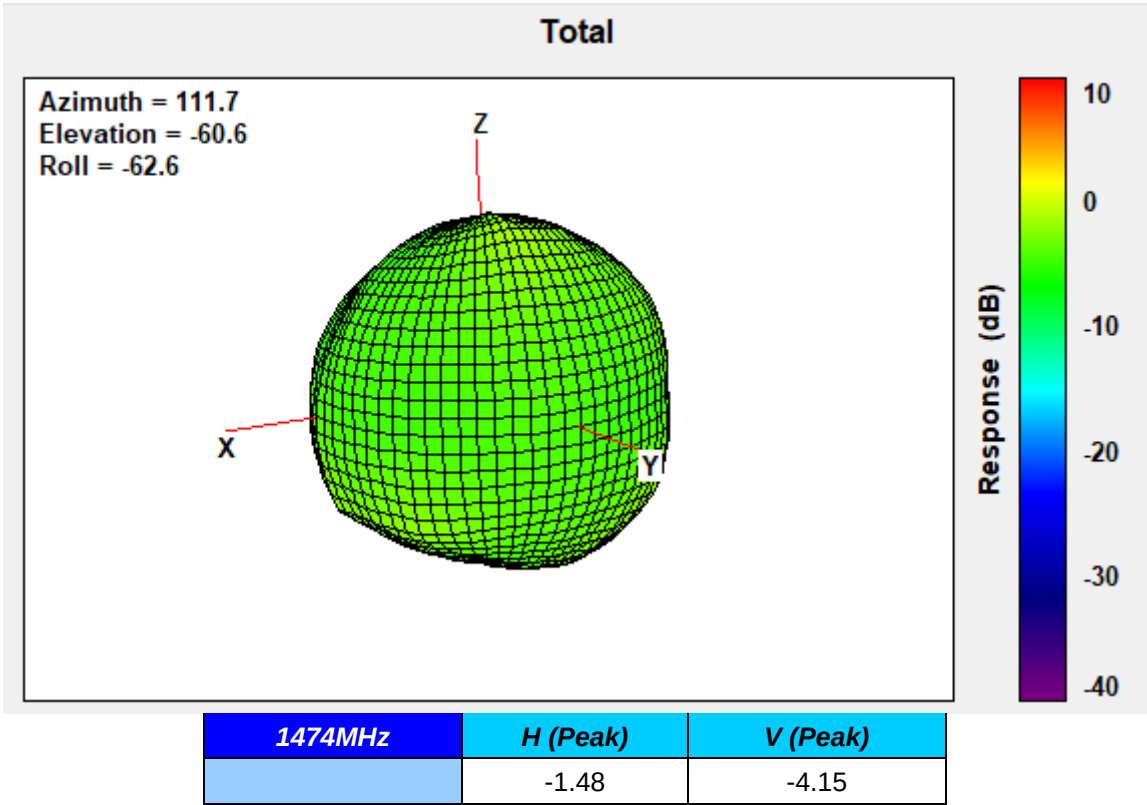


942.5MHz

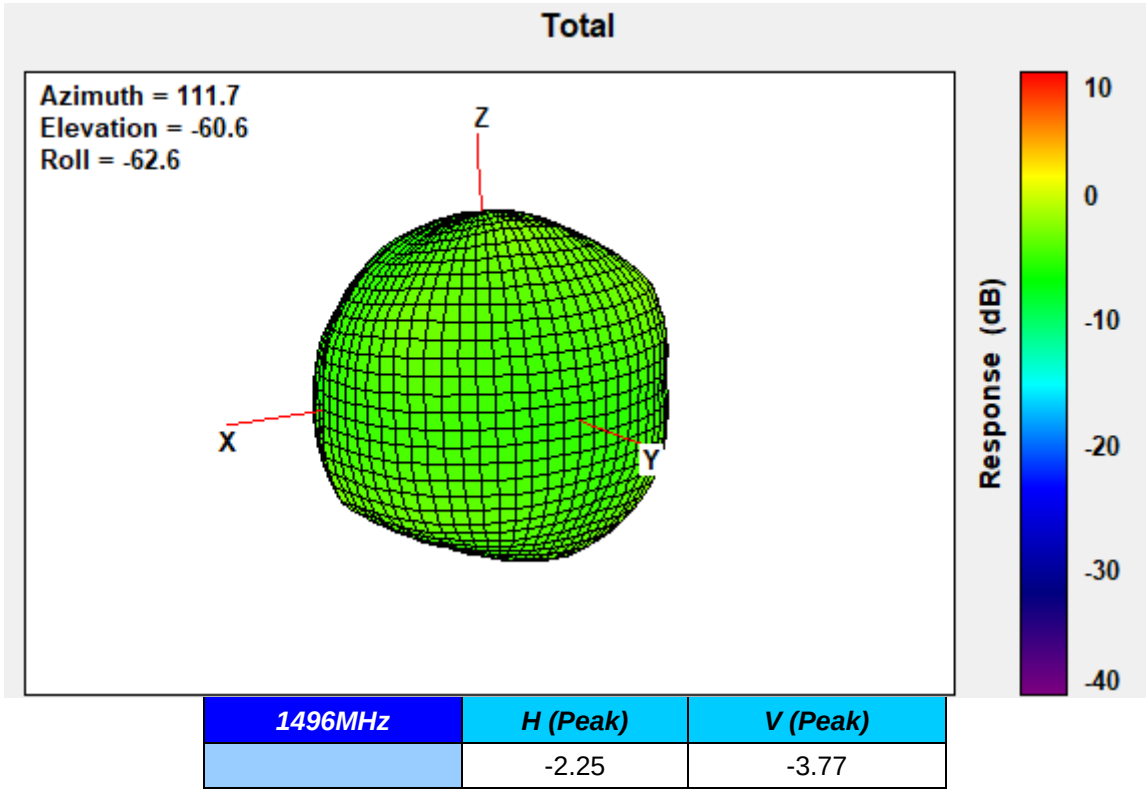




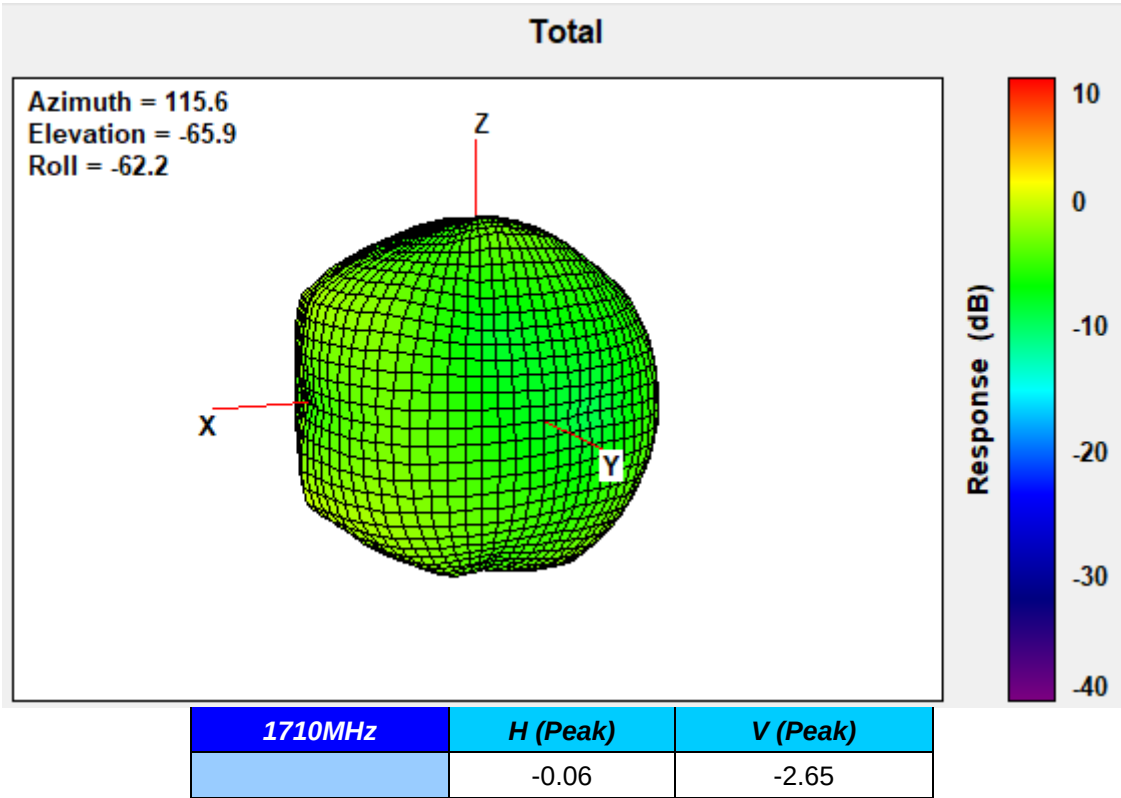
1474MHz



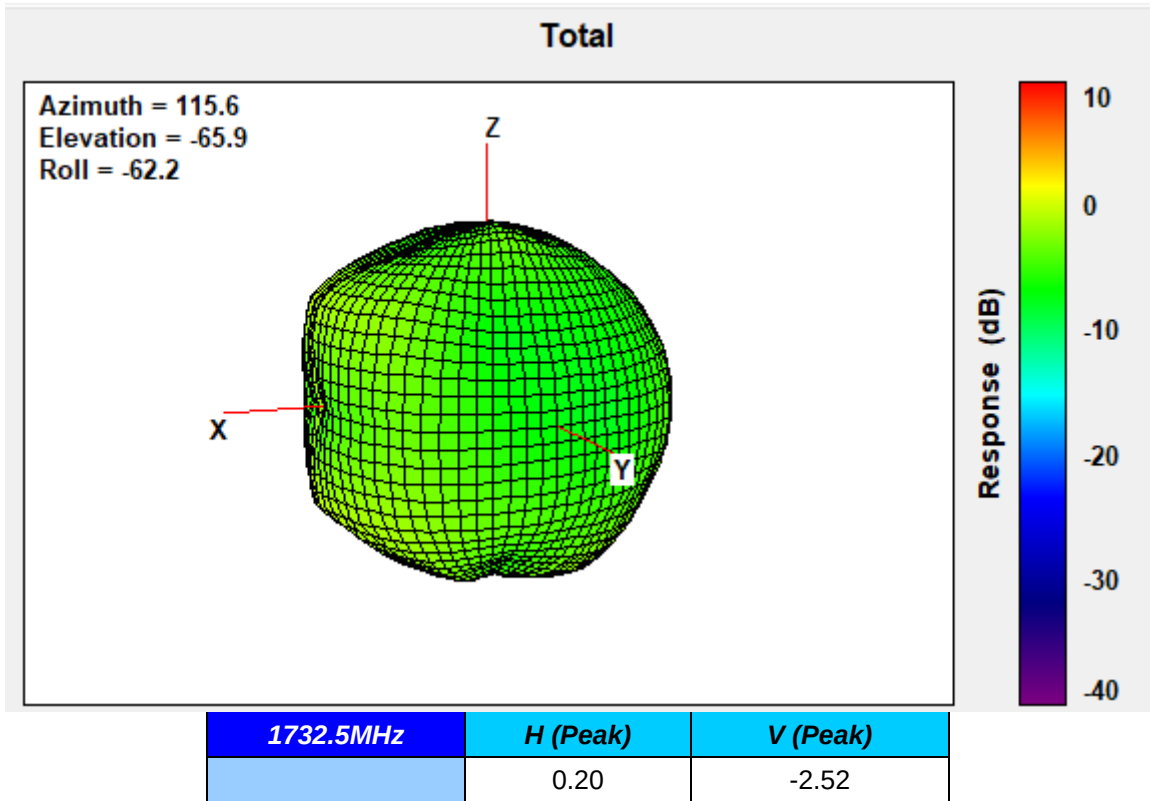
1496MHz



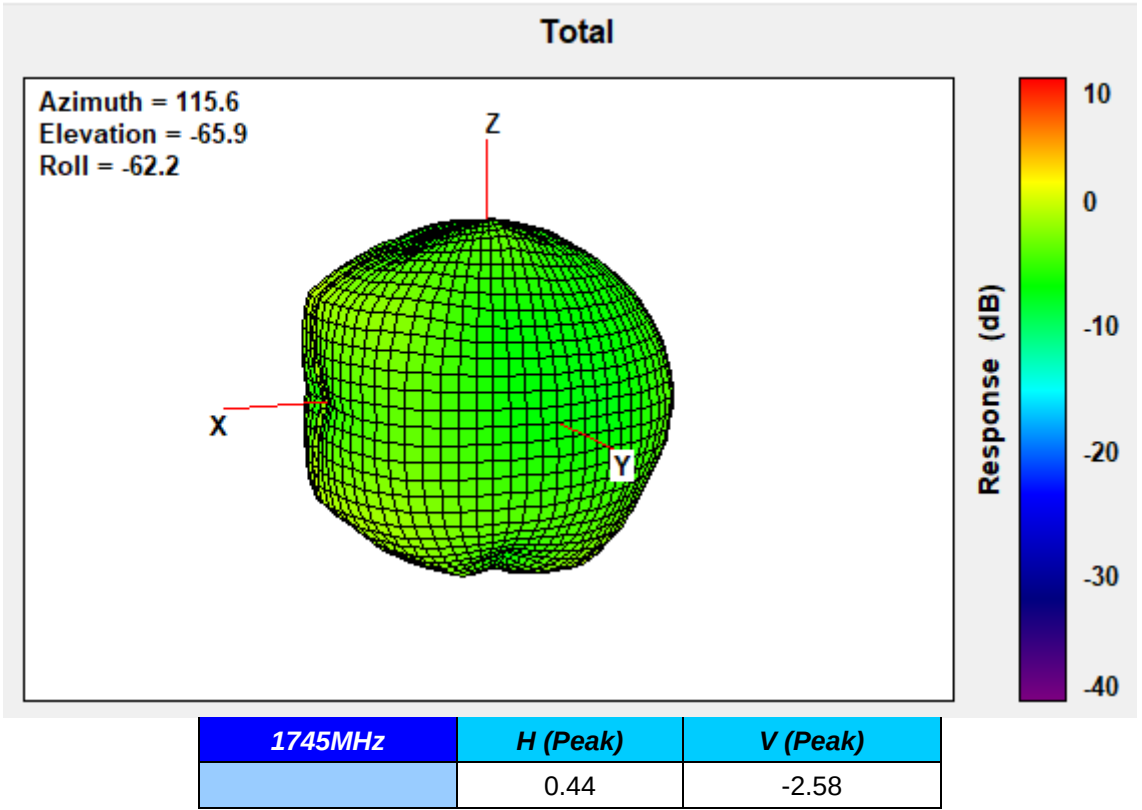
1710MHz



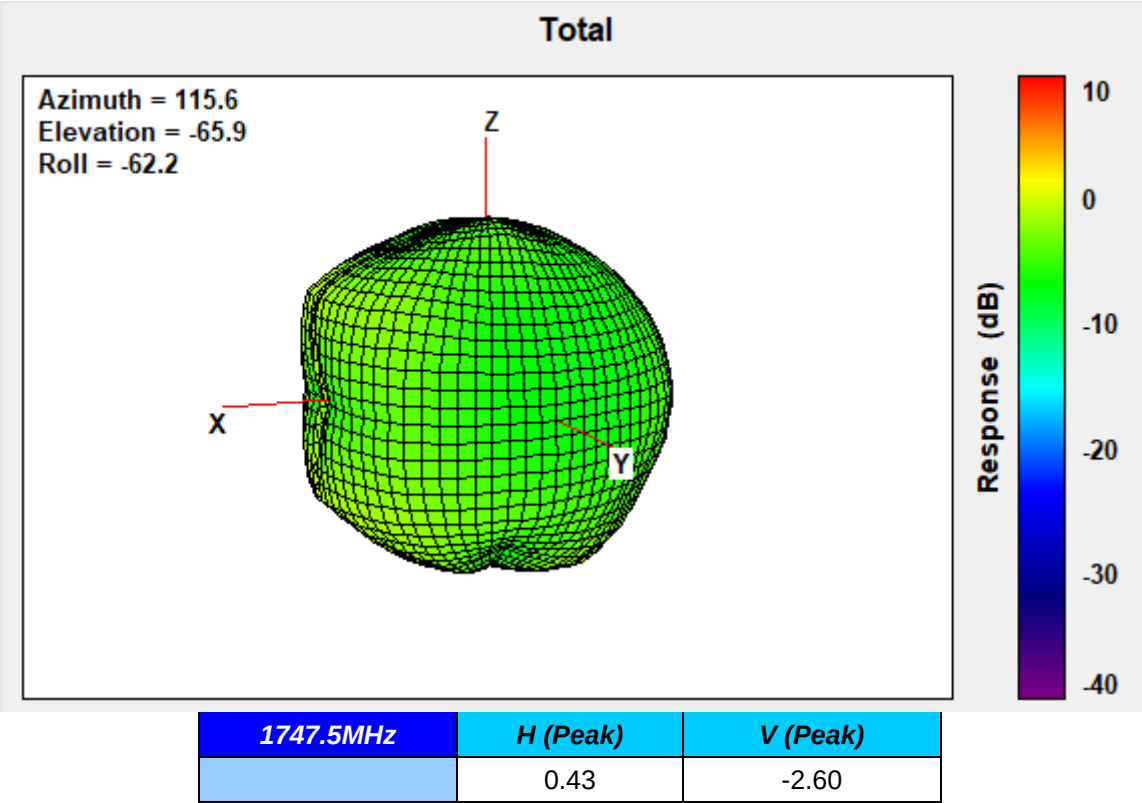
1732.5MHz



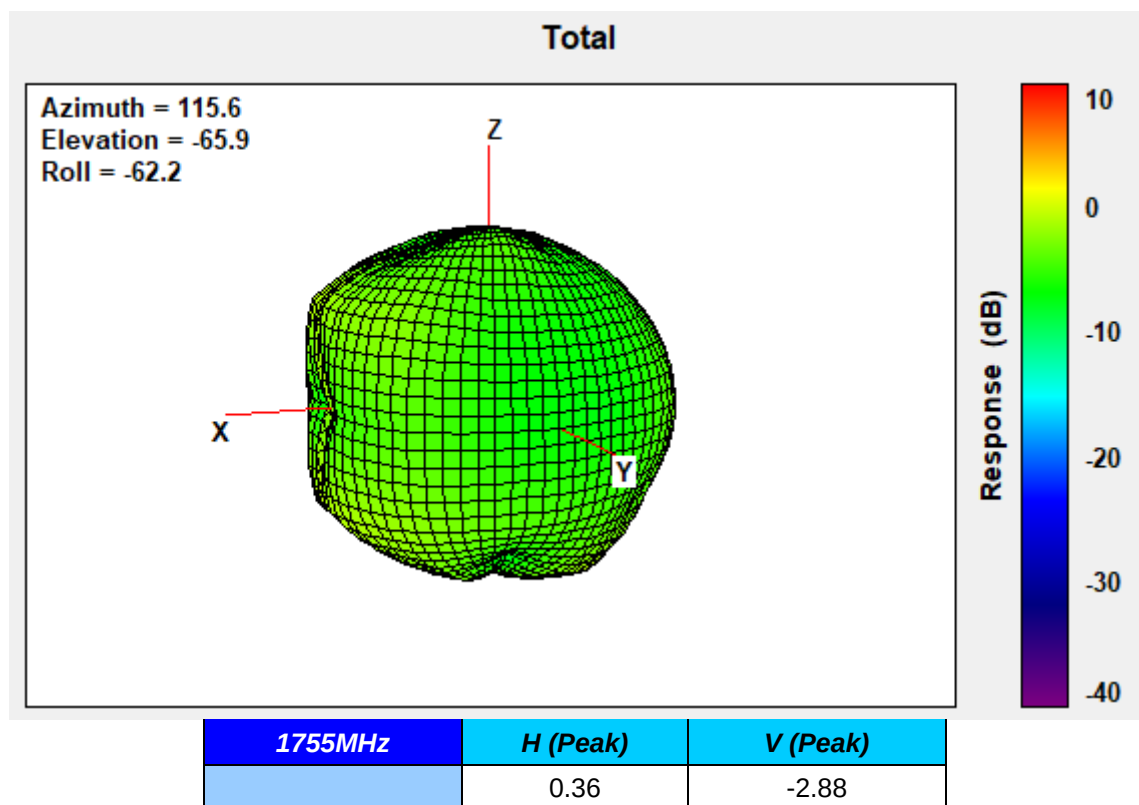
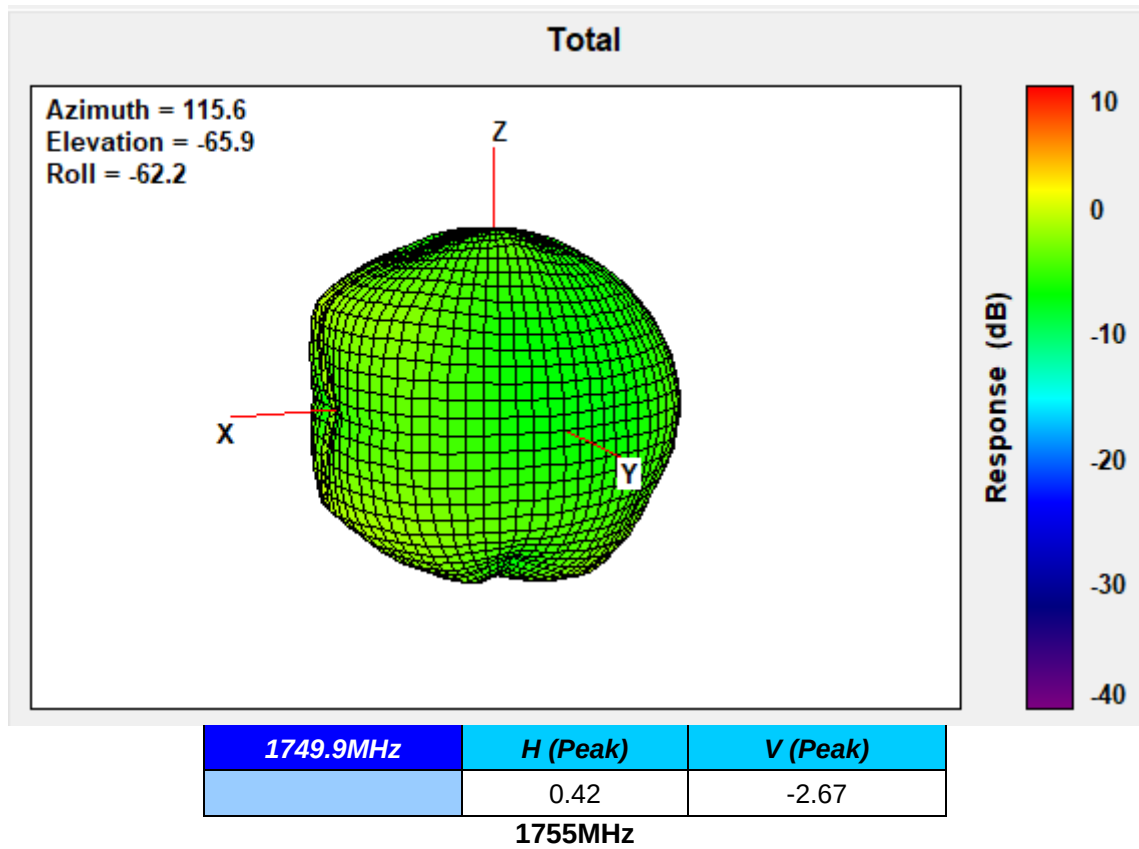
1745MHz



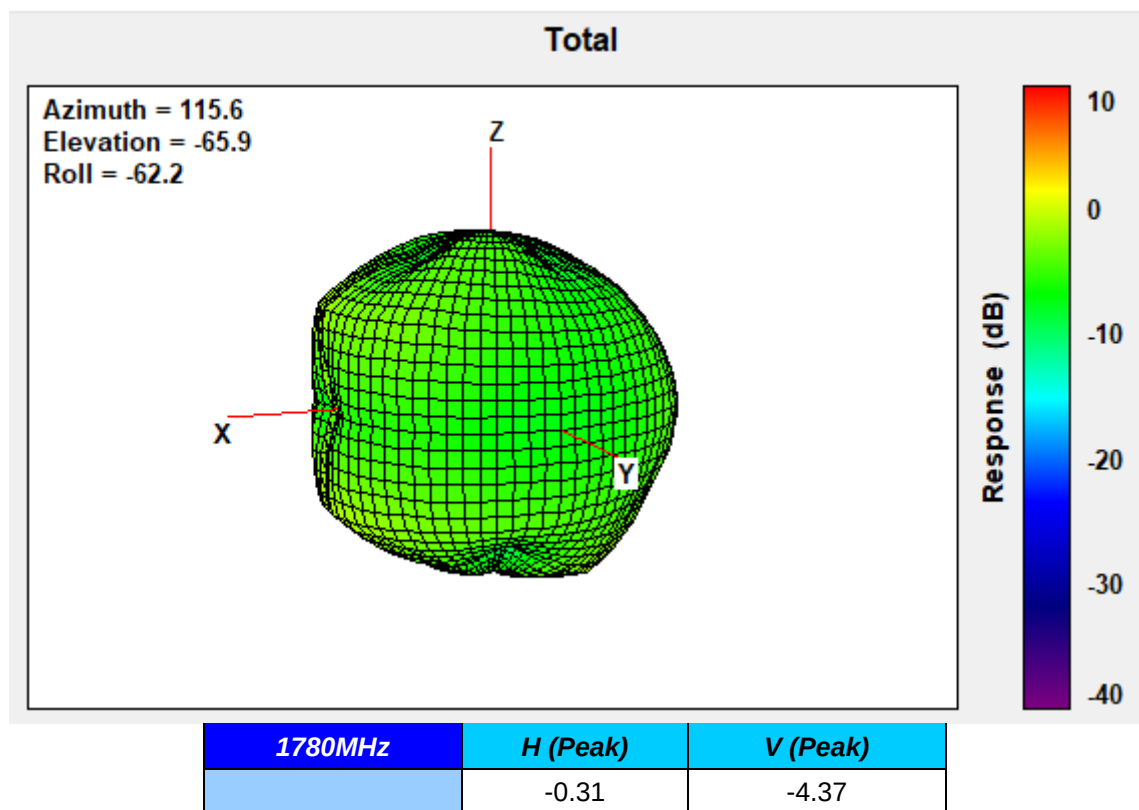
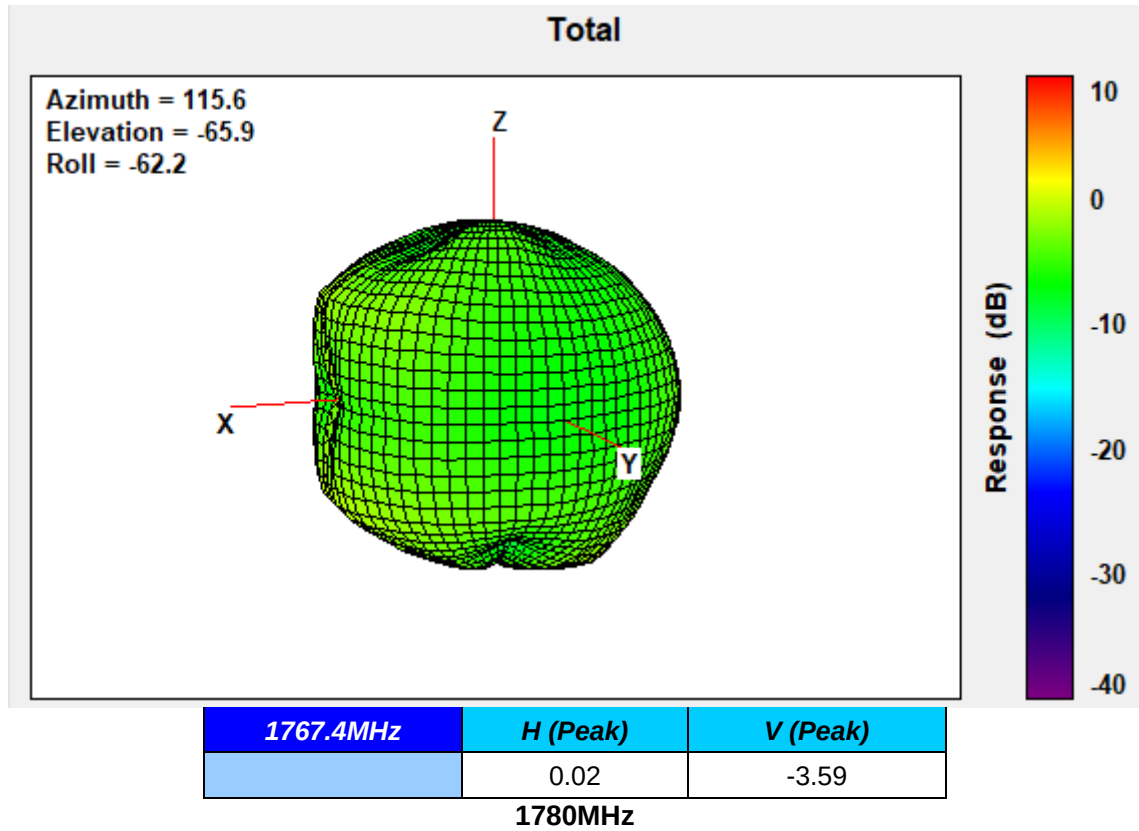
1747.5MHz



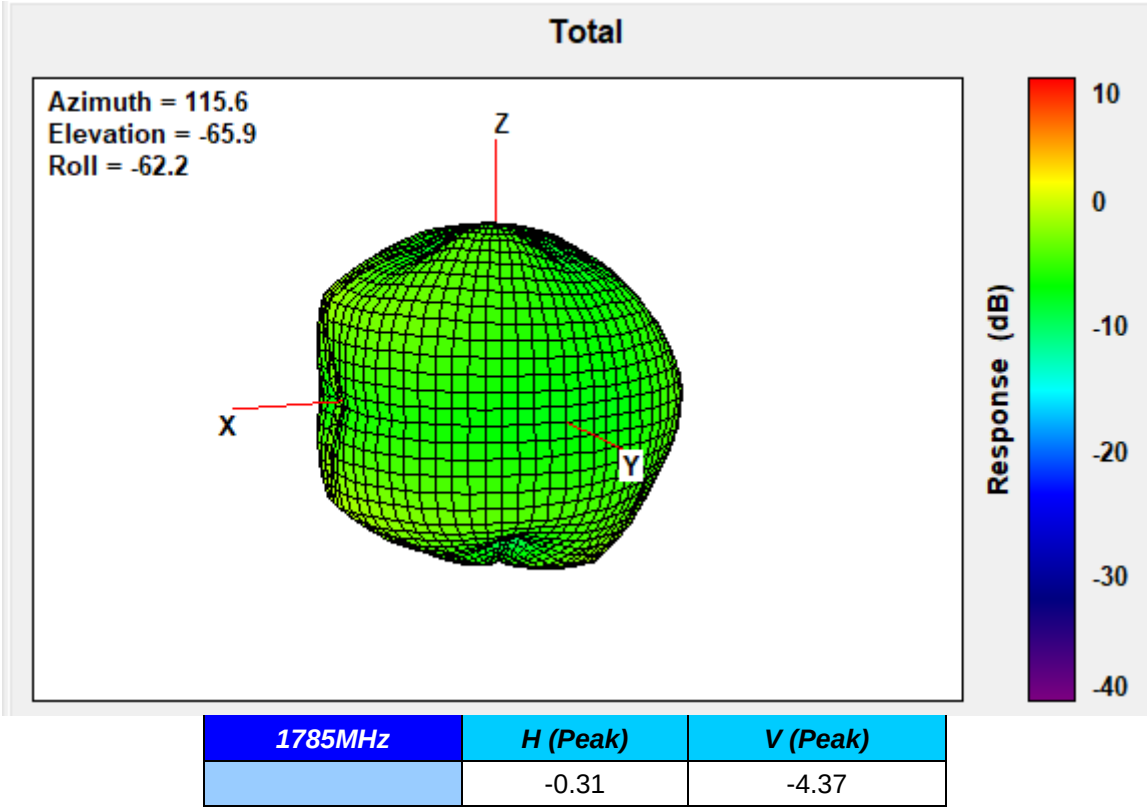
1749.9MHz



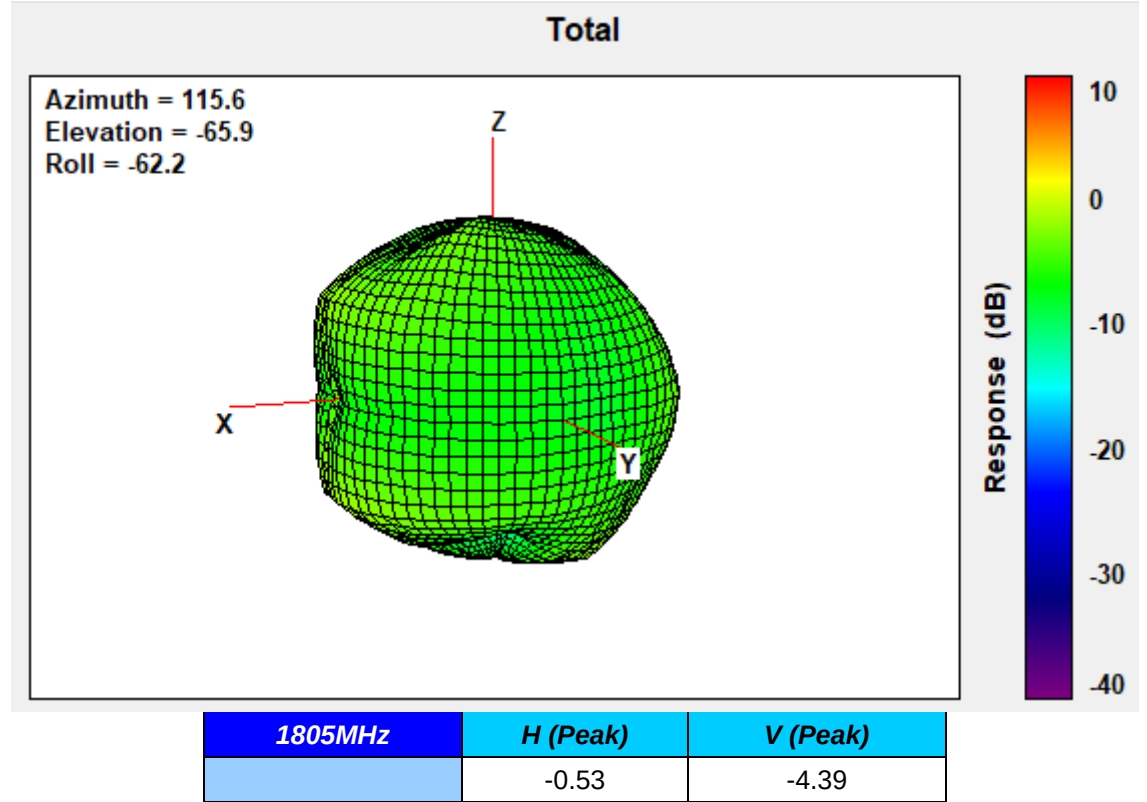
1767.4MHz



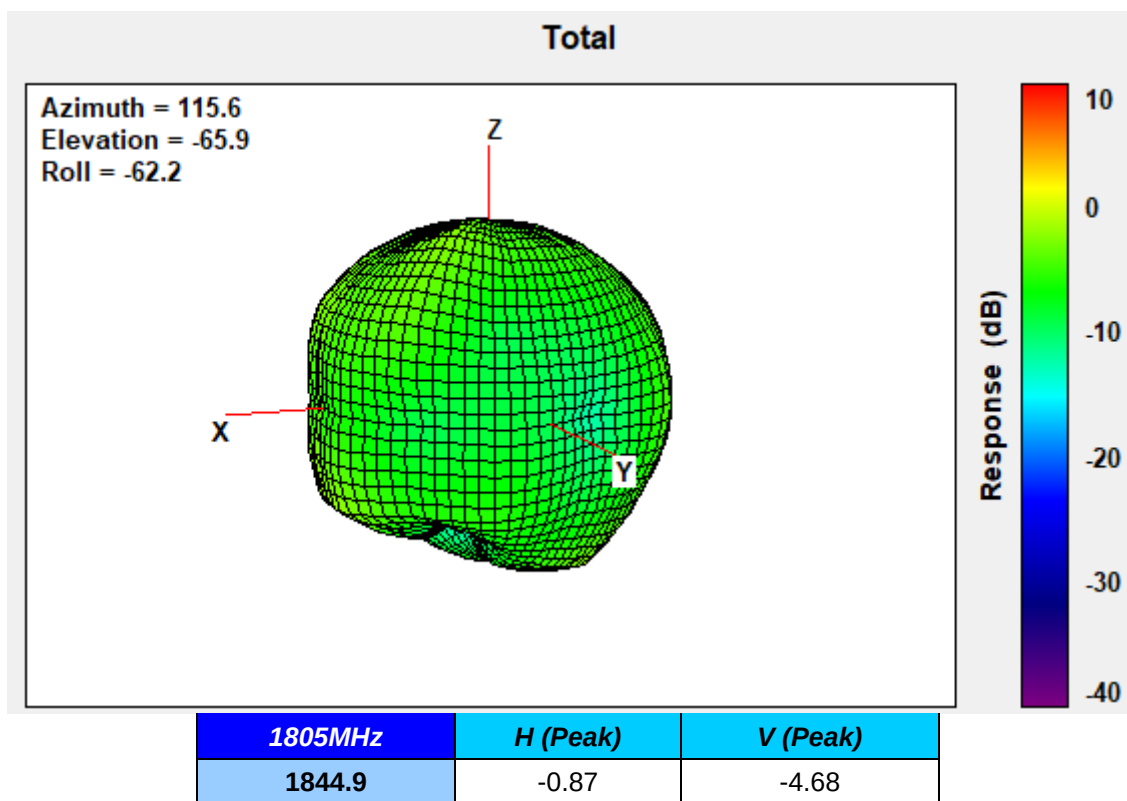
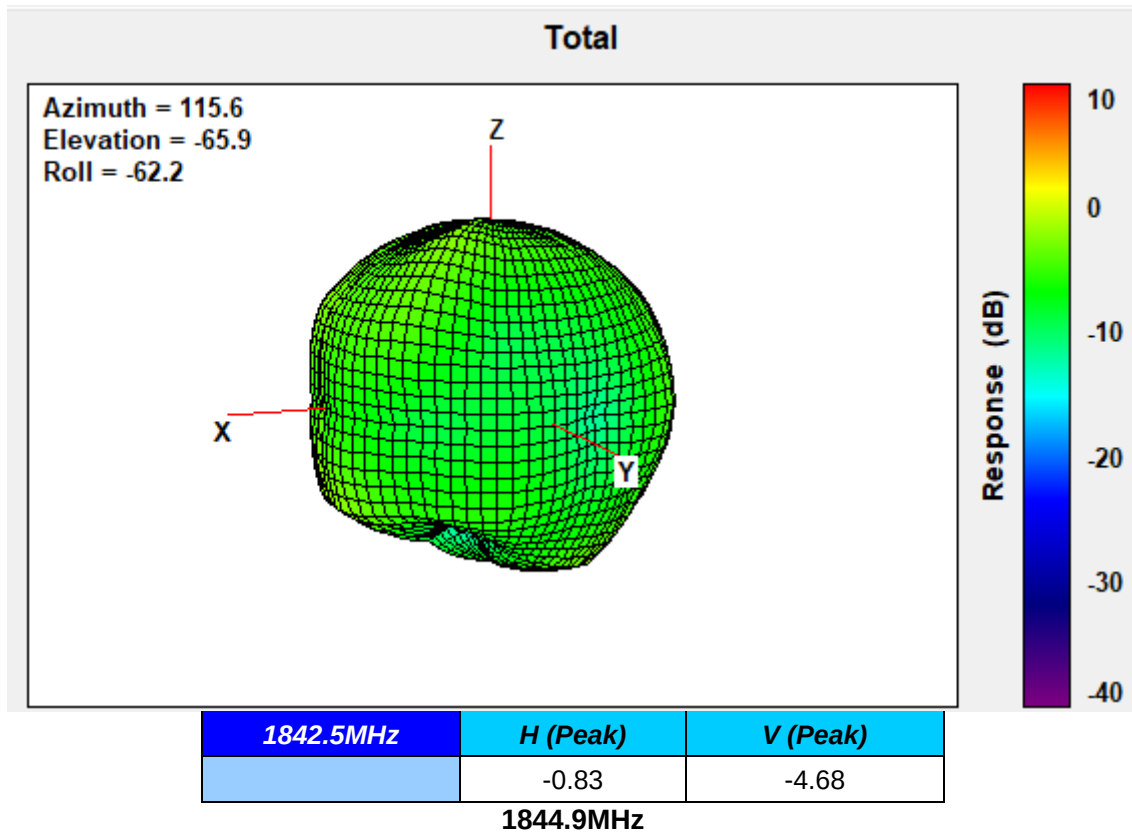
1785MHz



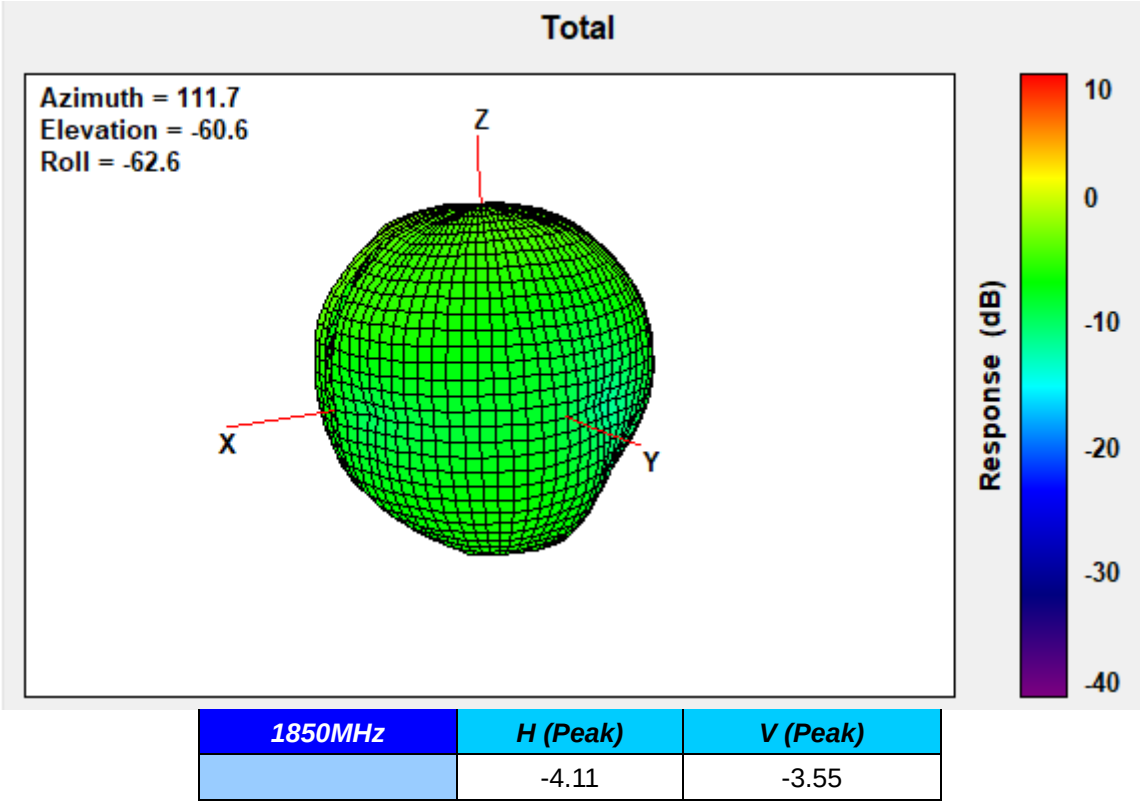
1805MHz



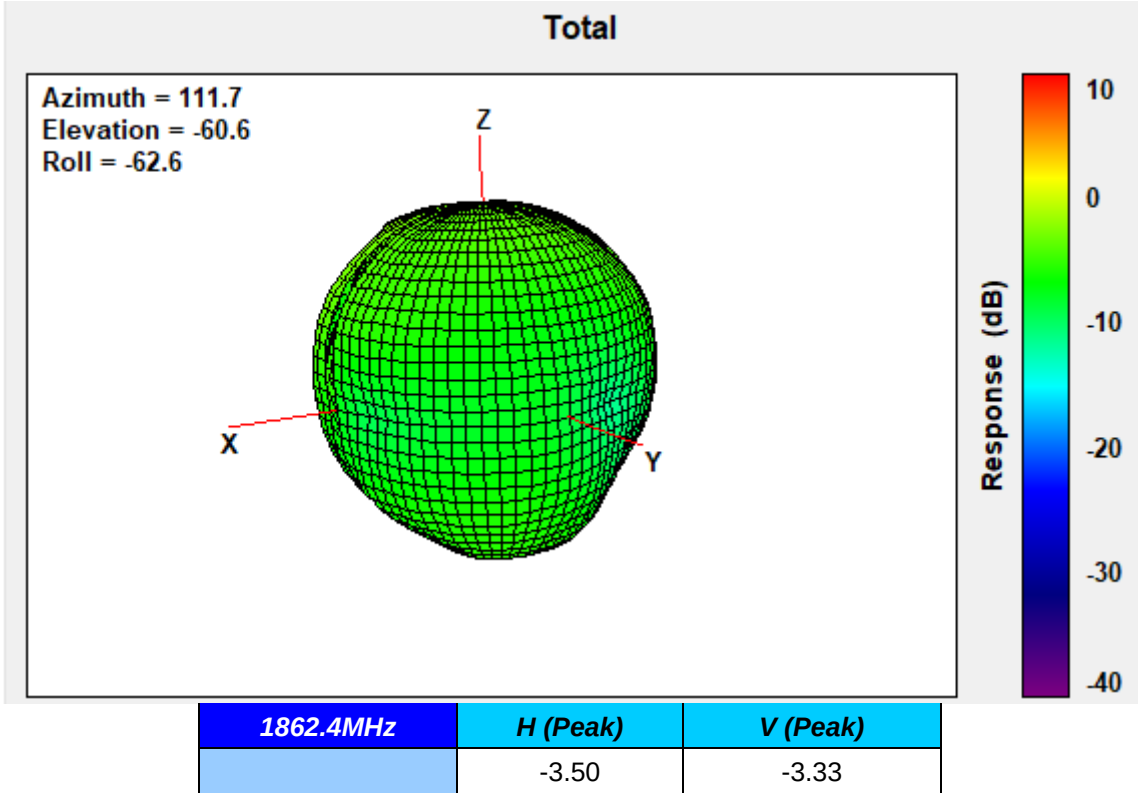
1842.5MHz



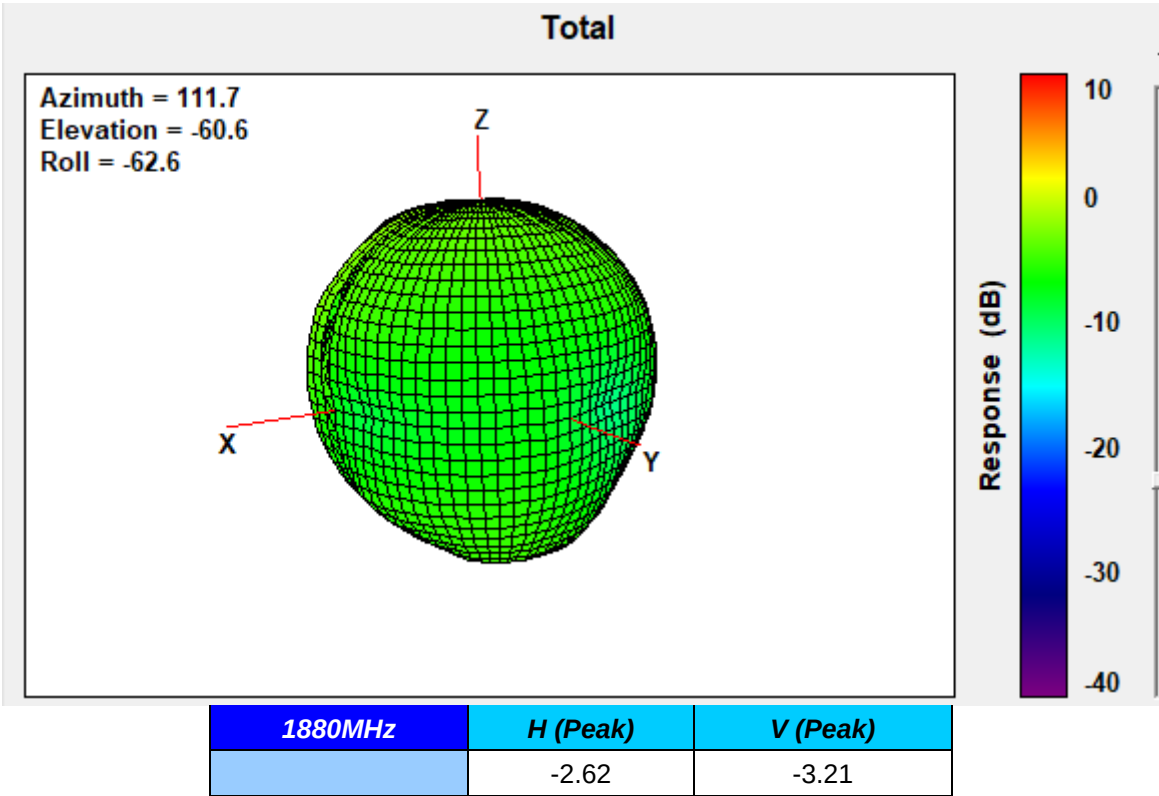
1850MHz



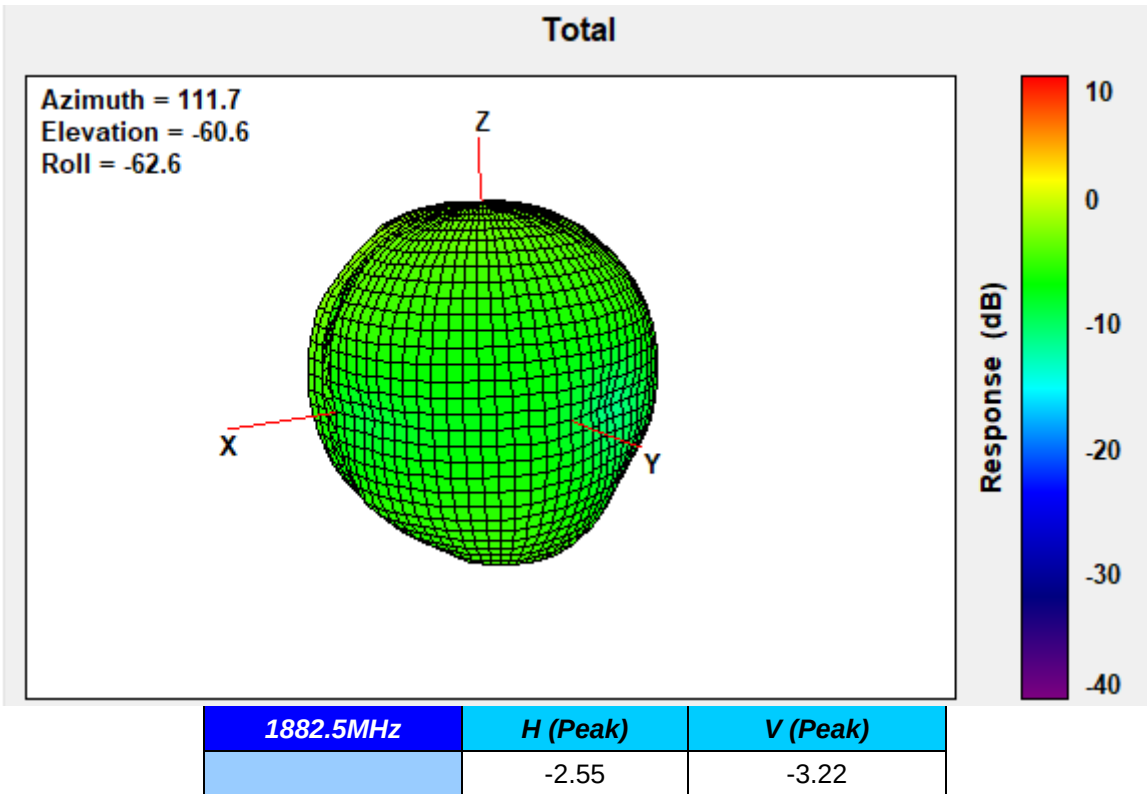
1862.4MHz



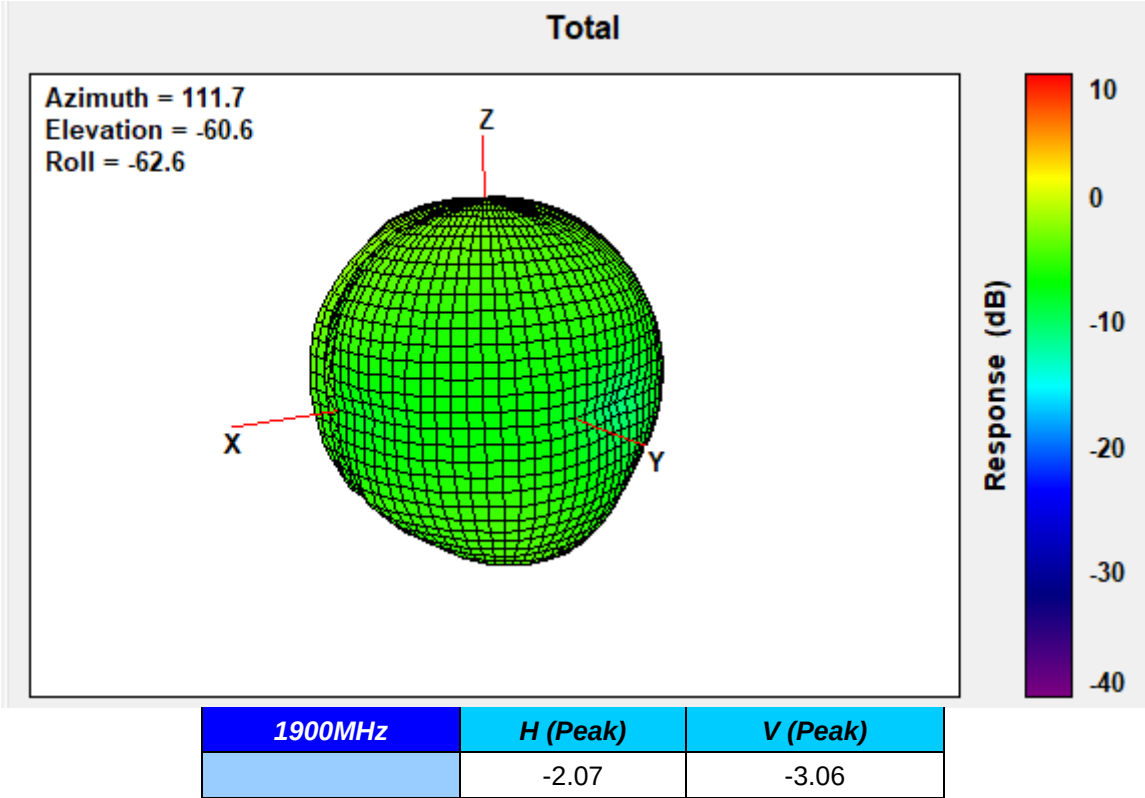
1880MHz



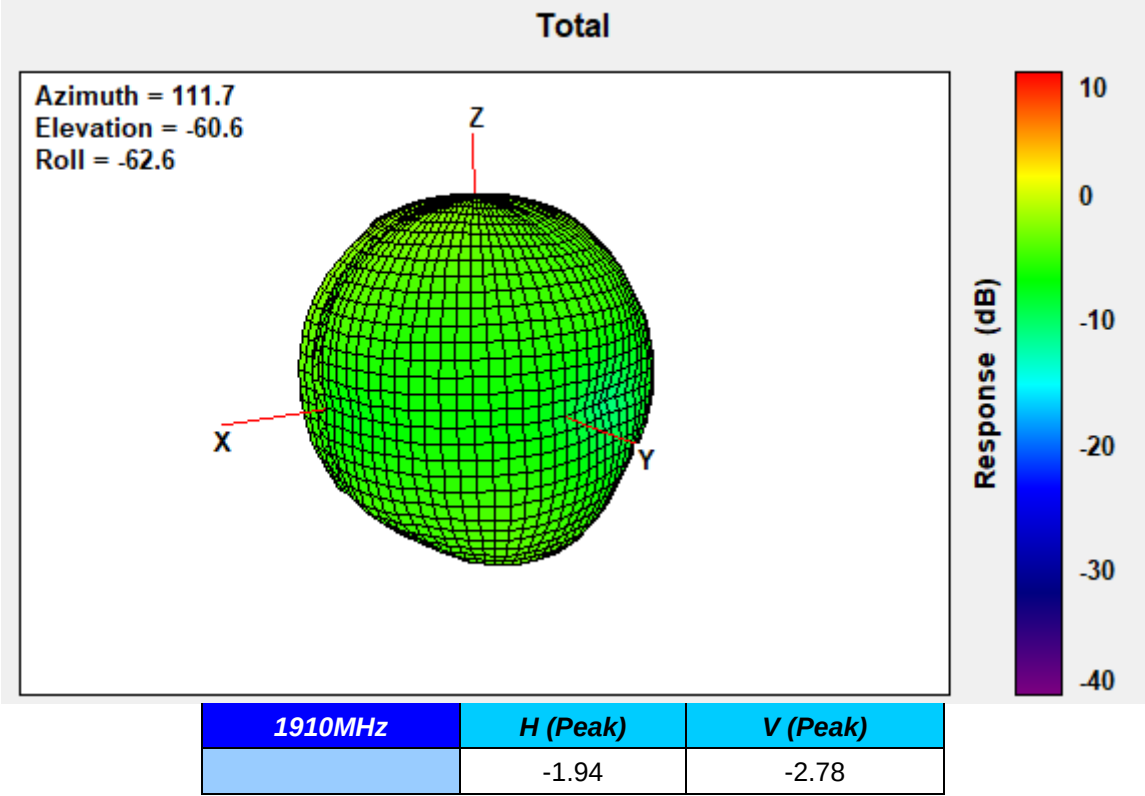
1882.5MHz



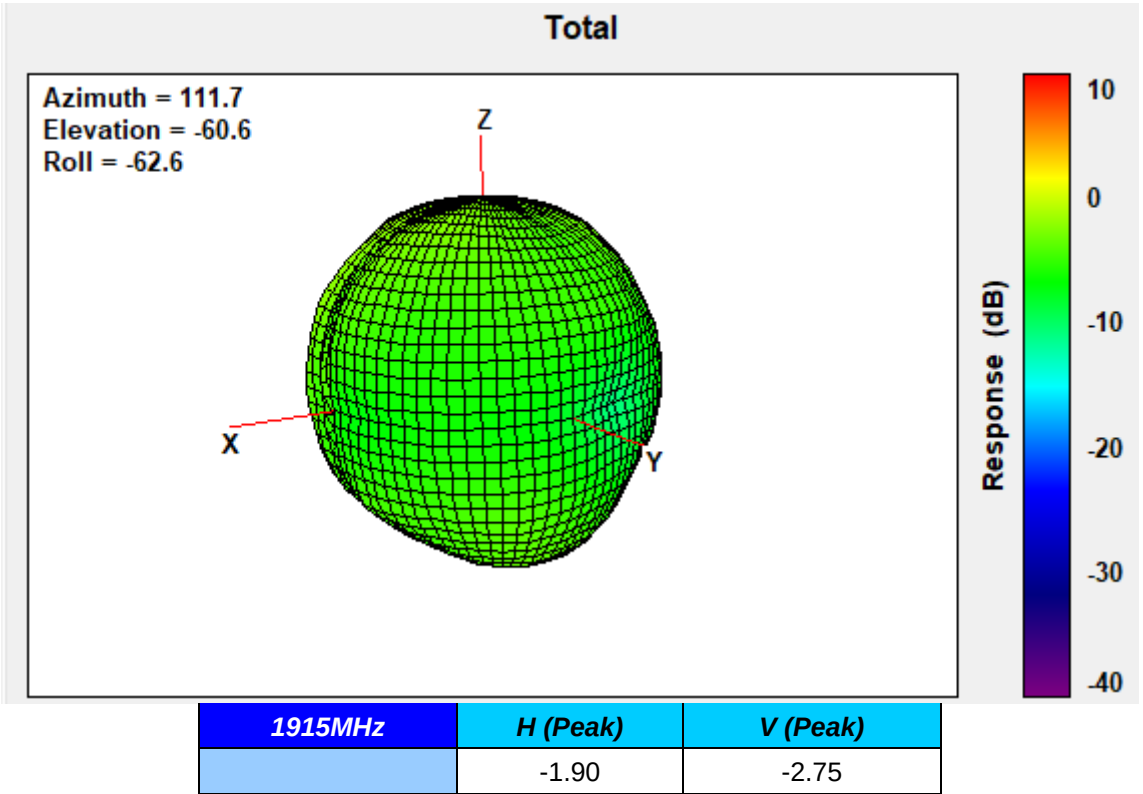
1900MHz



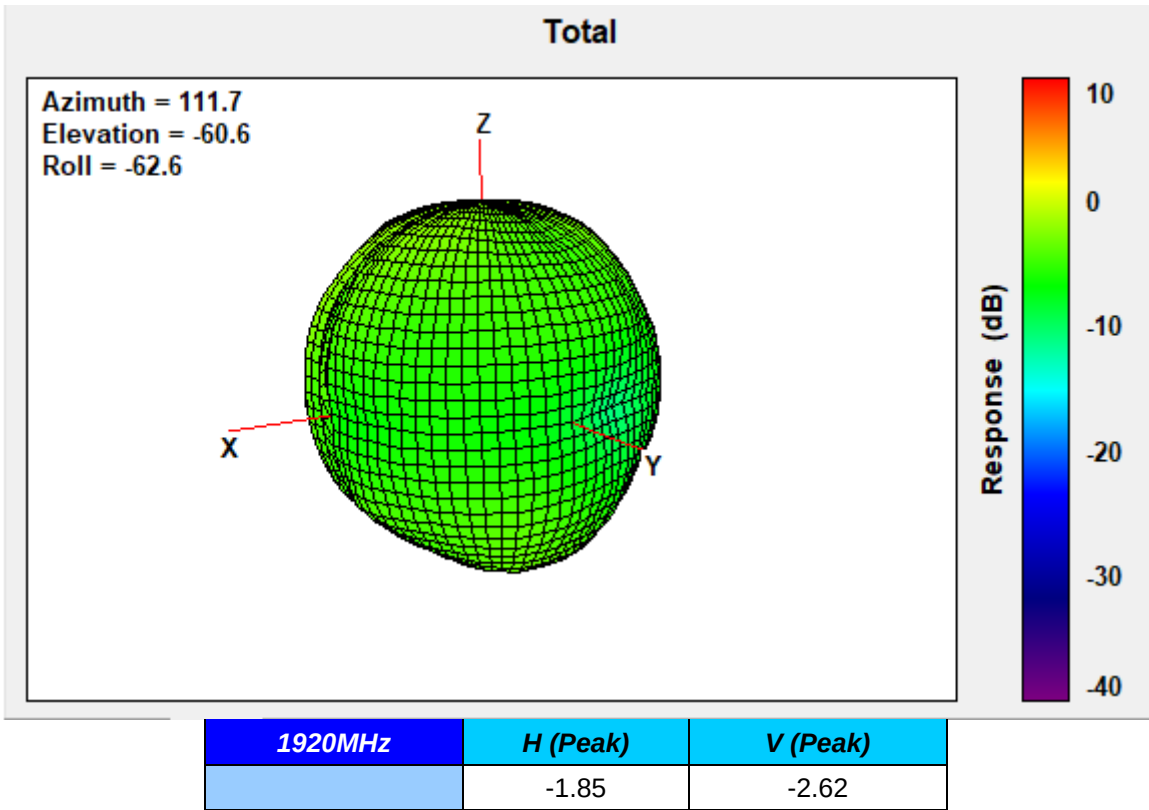
1910MHz



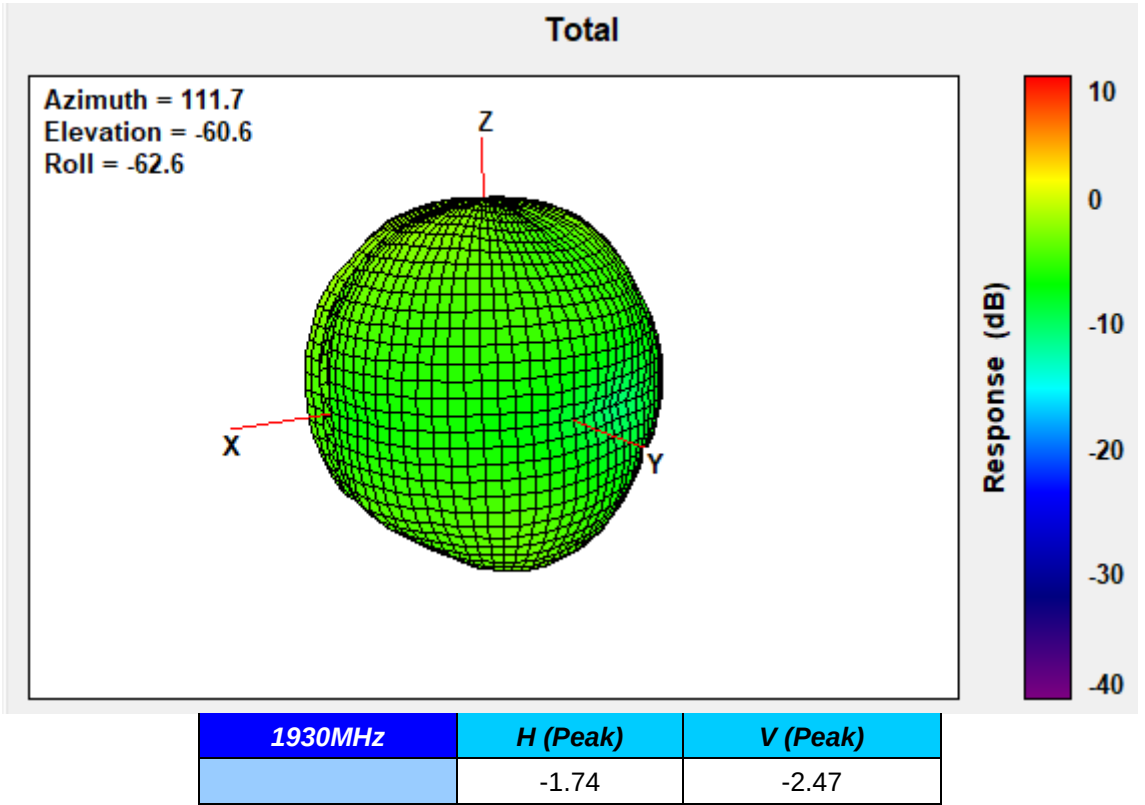
1915MHz



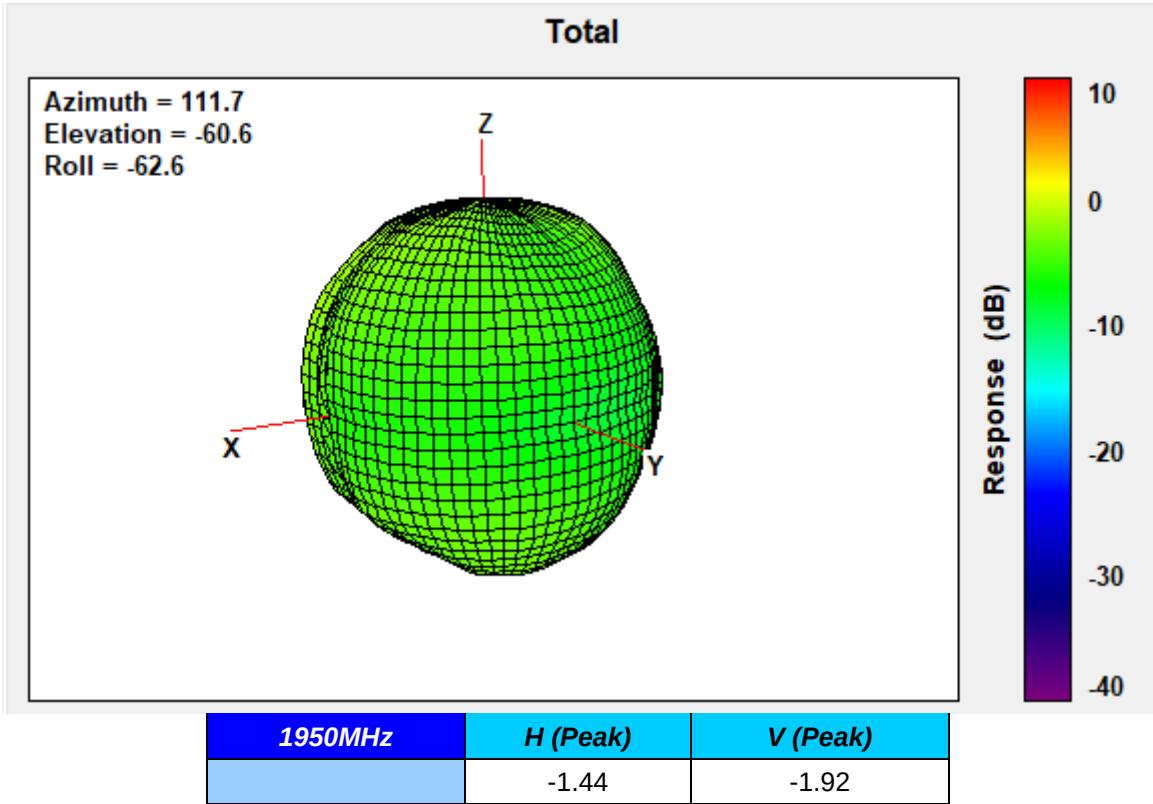
1920MHz



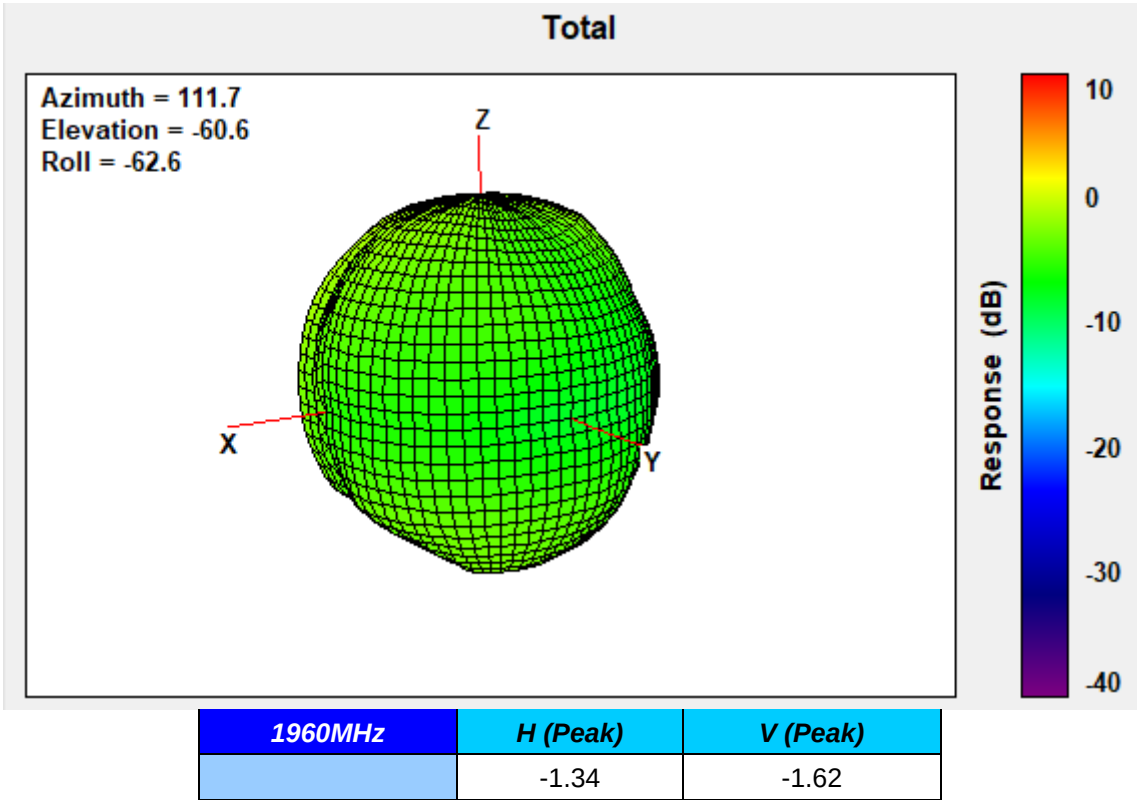
1930MHz



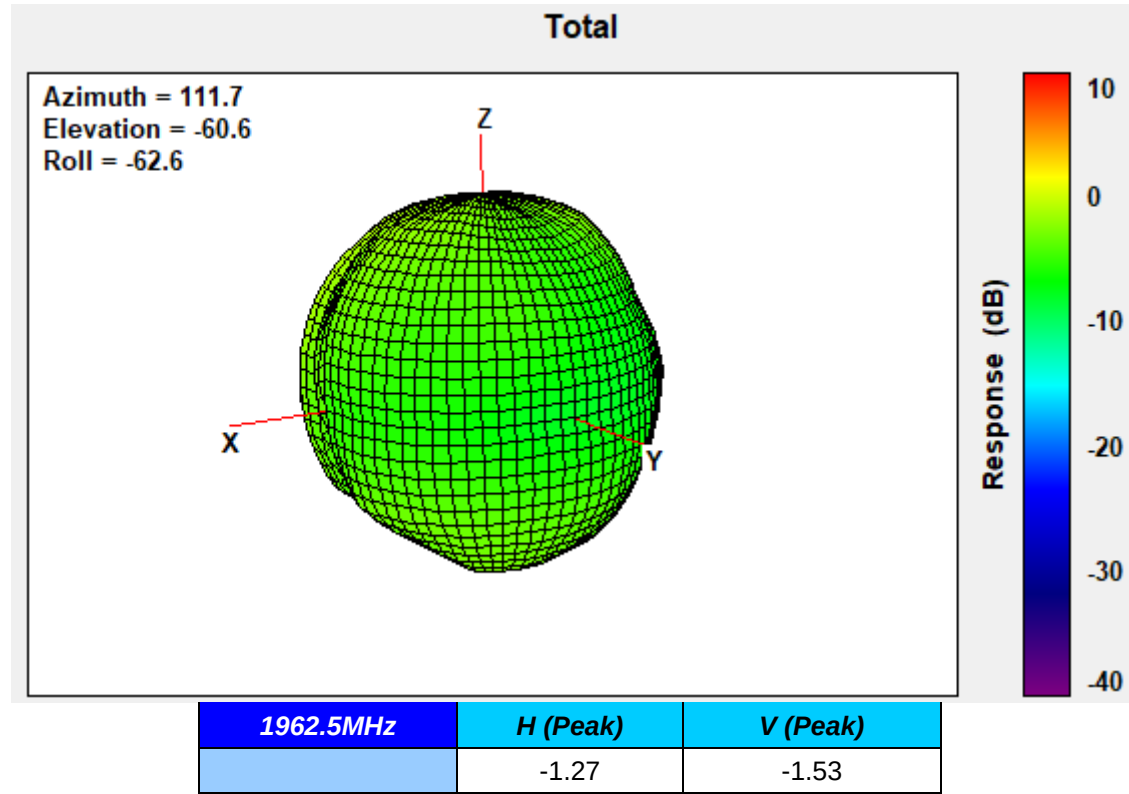
1950MHz



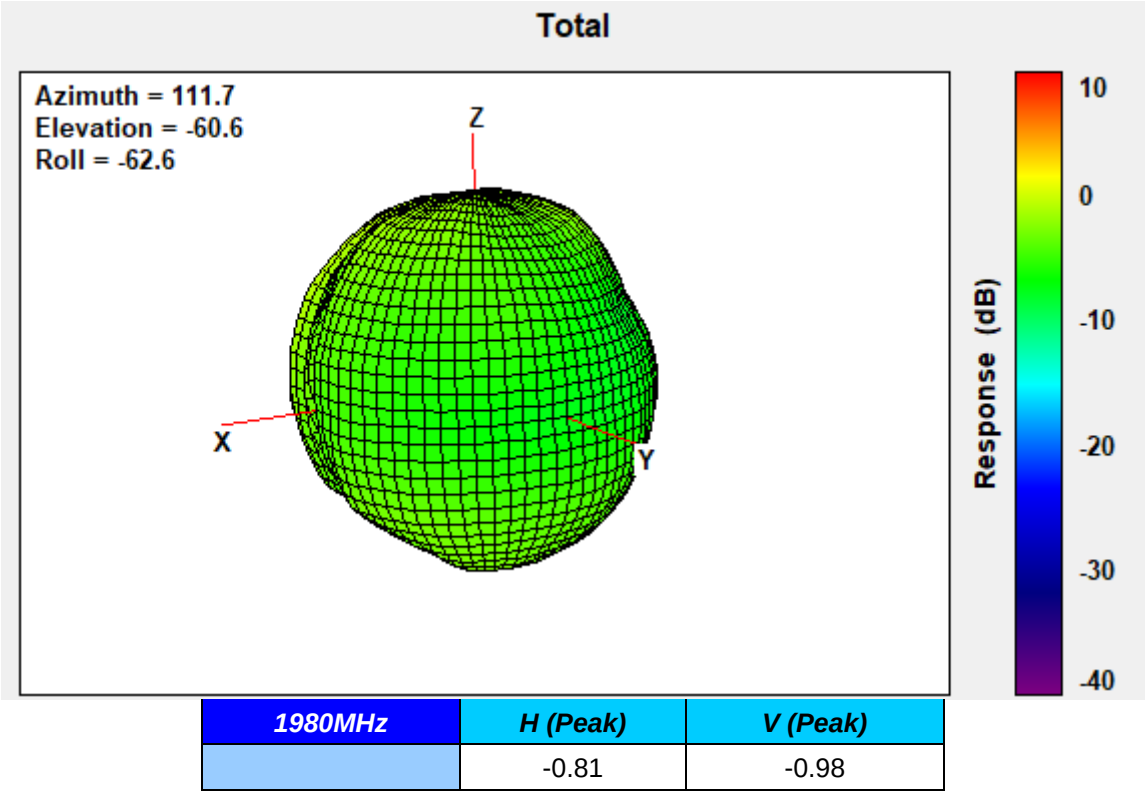
1960MHz



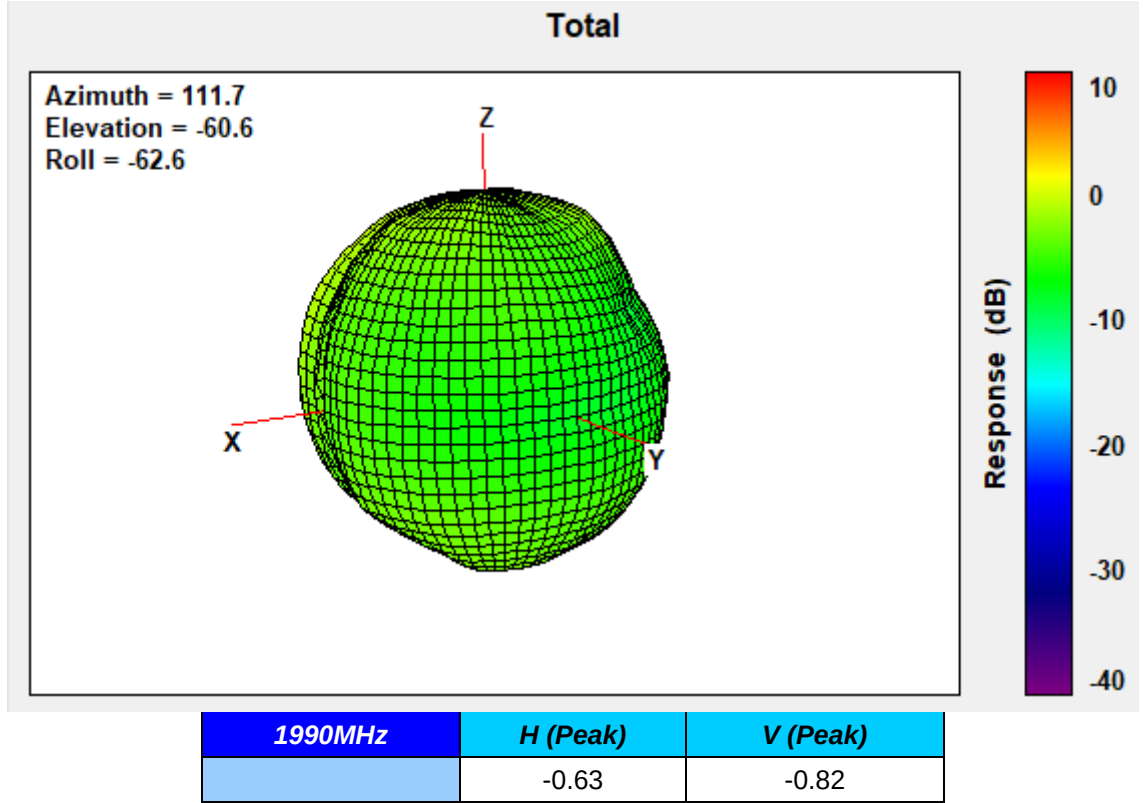
1962.5MHz



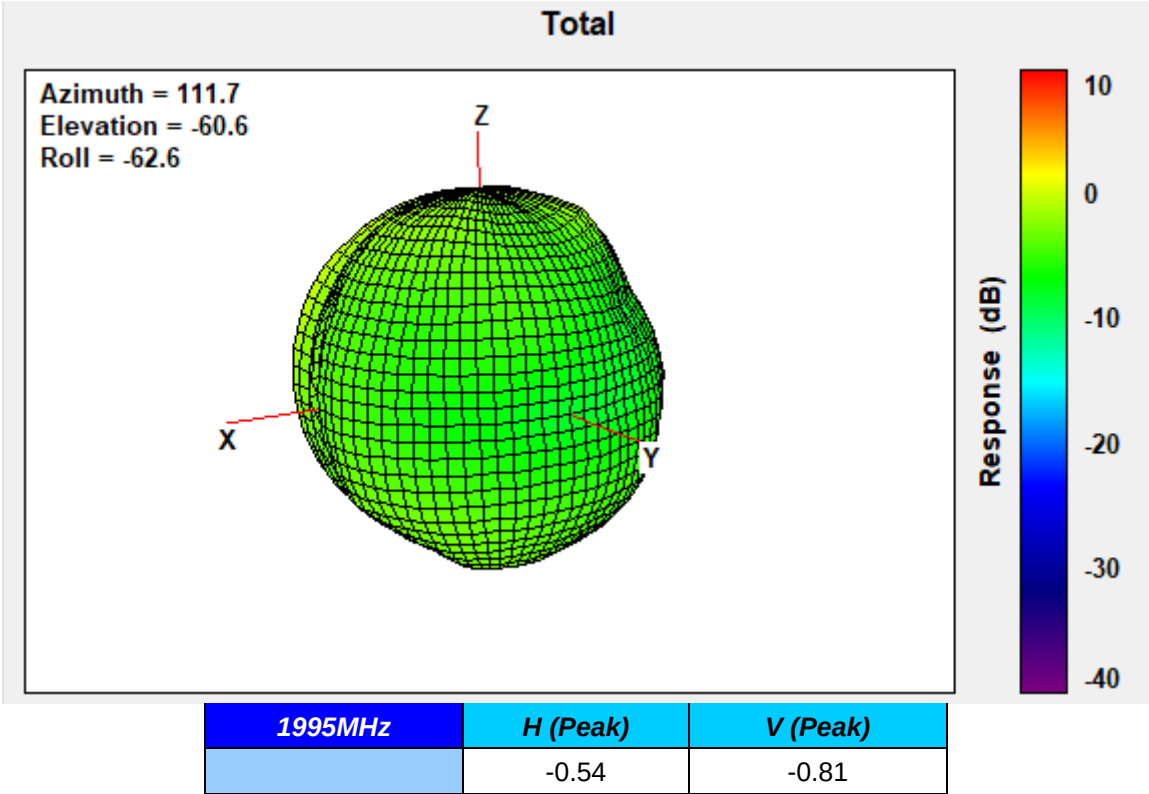
1980MHz



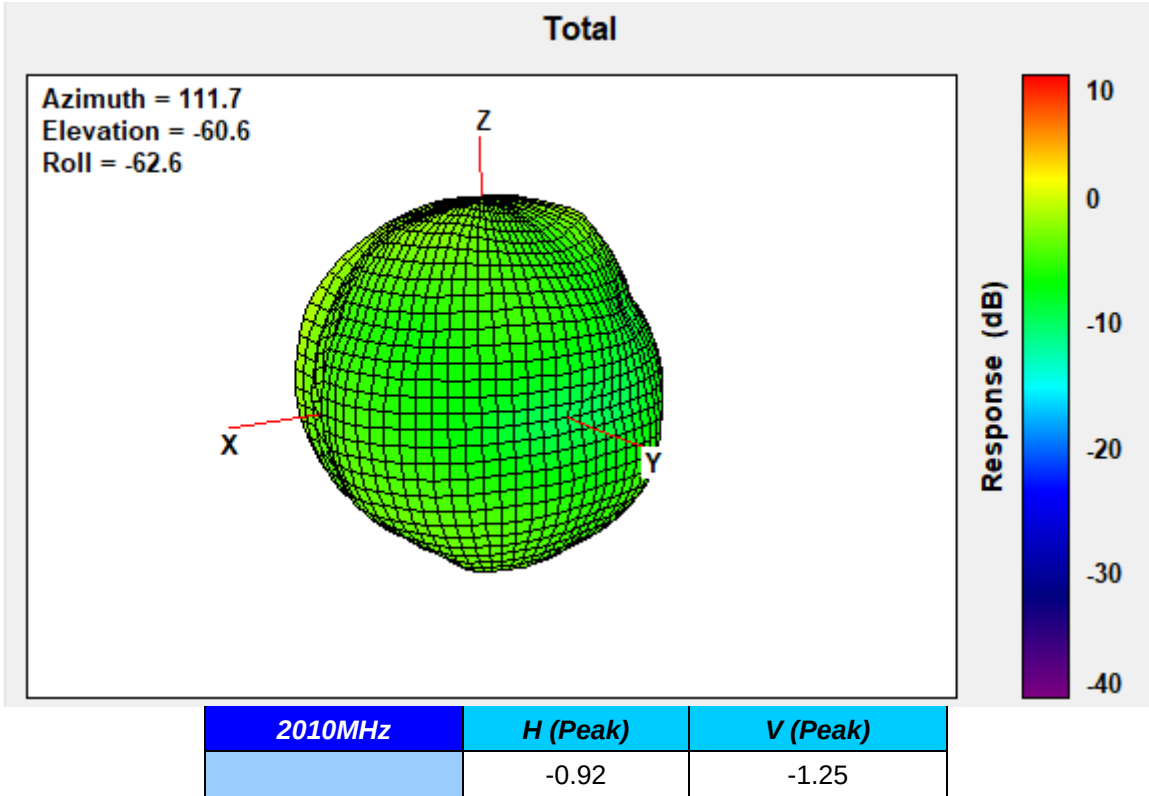
1990MHz



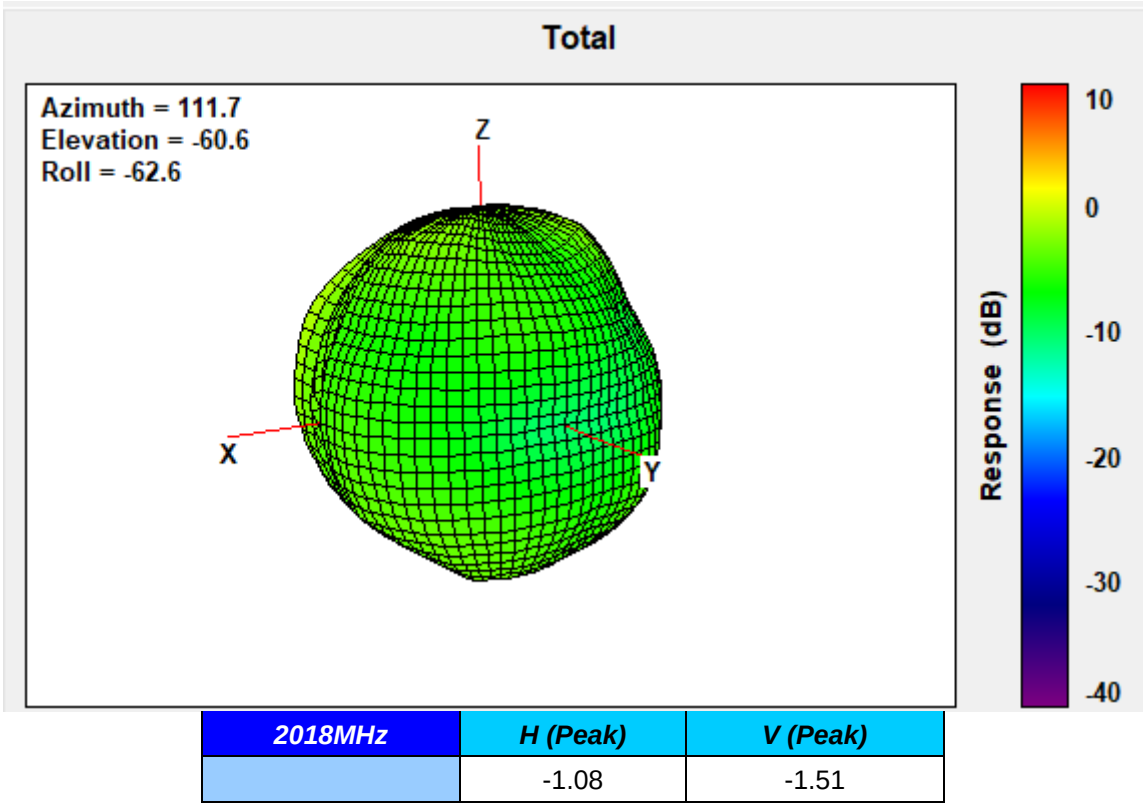
1995MHz



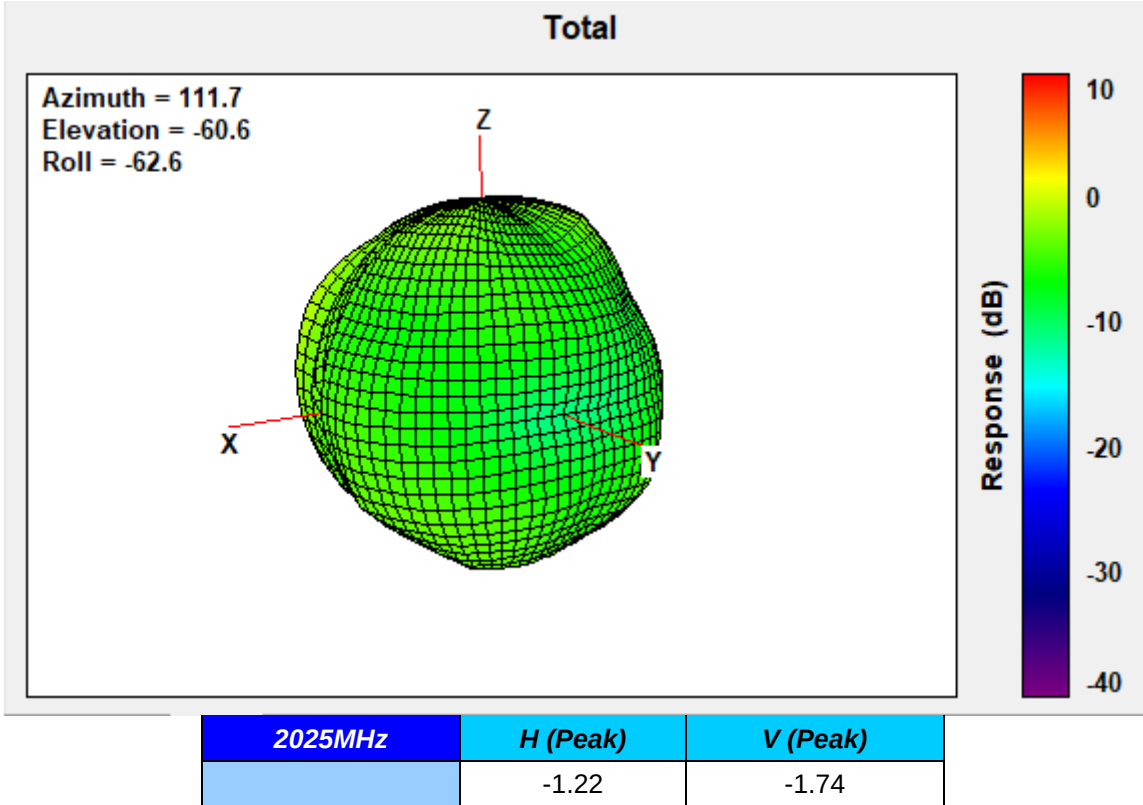
2010MHz



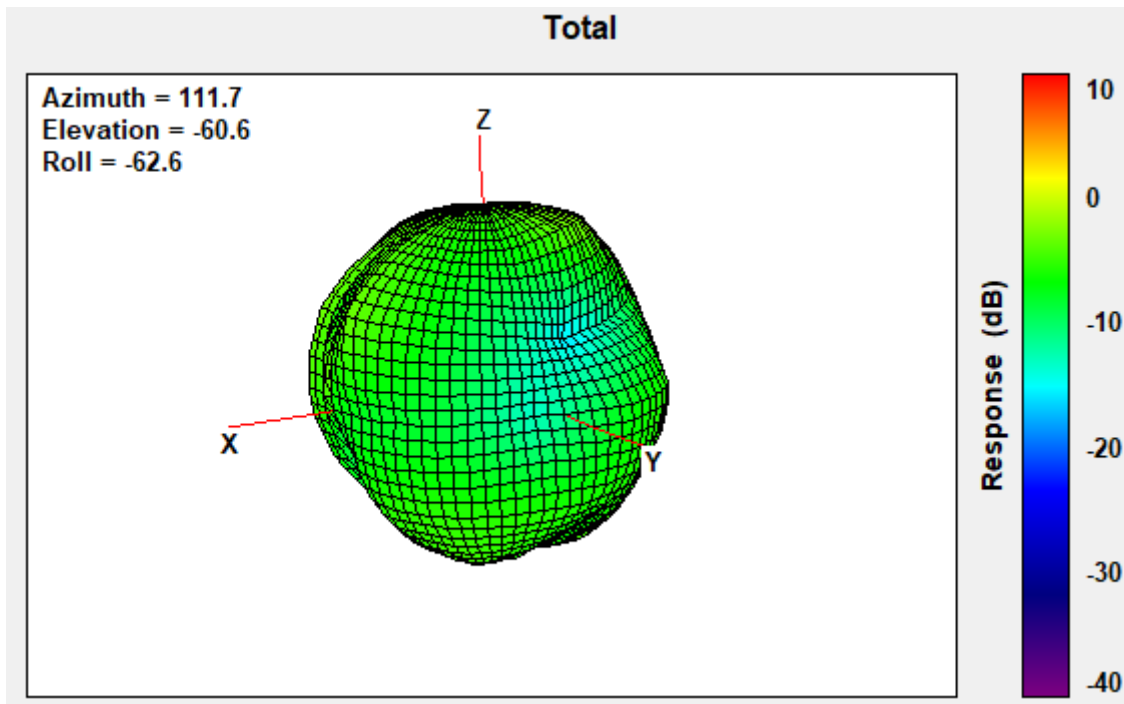
2018MHz



2025MHz

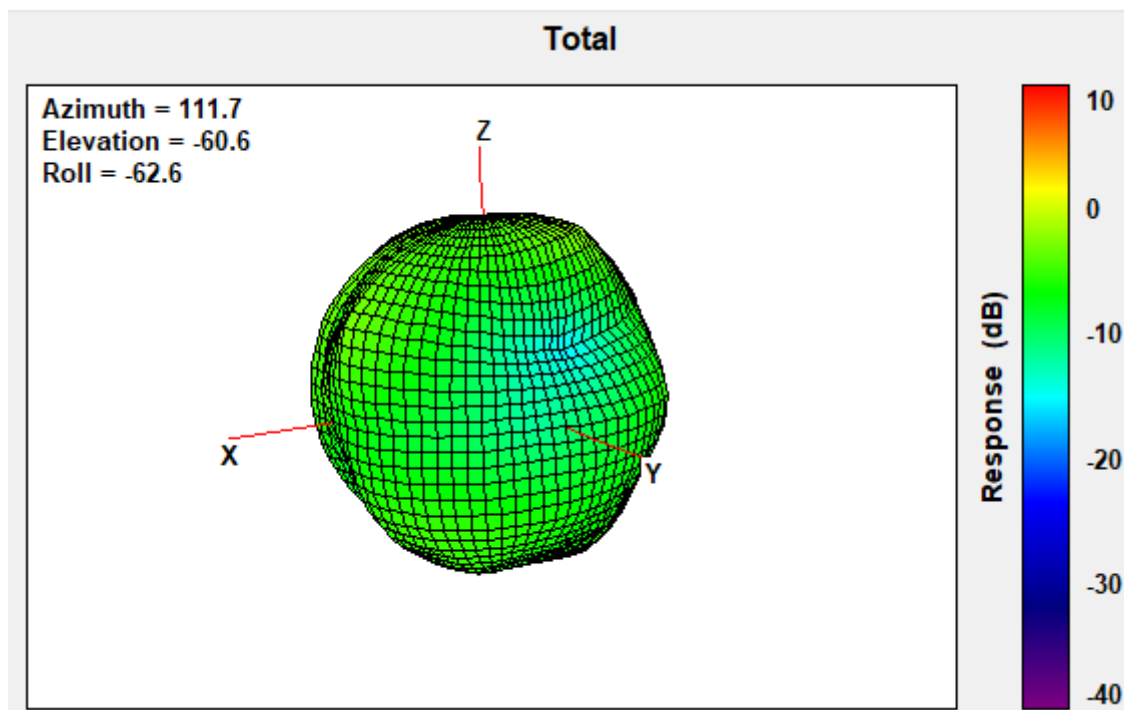


2110MHz



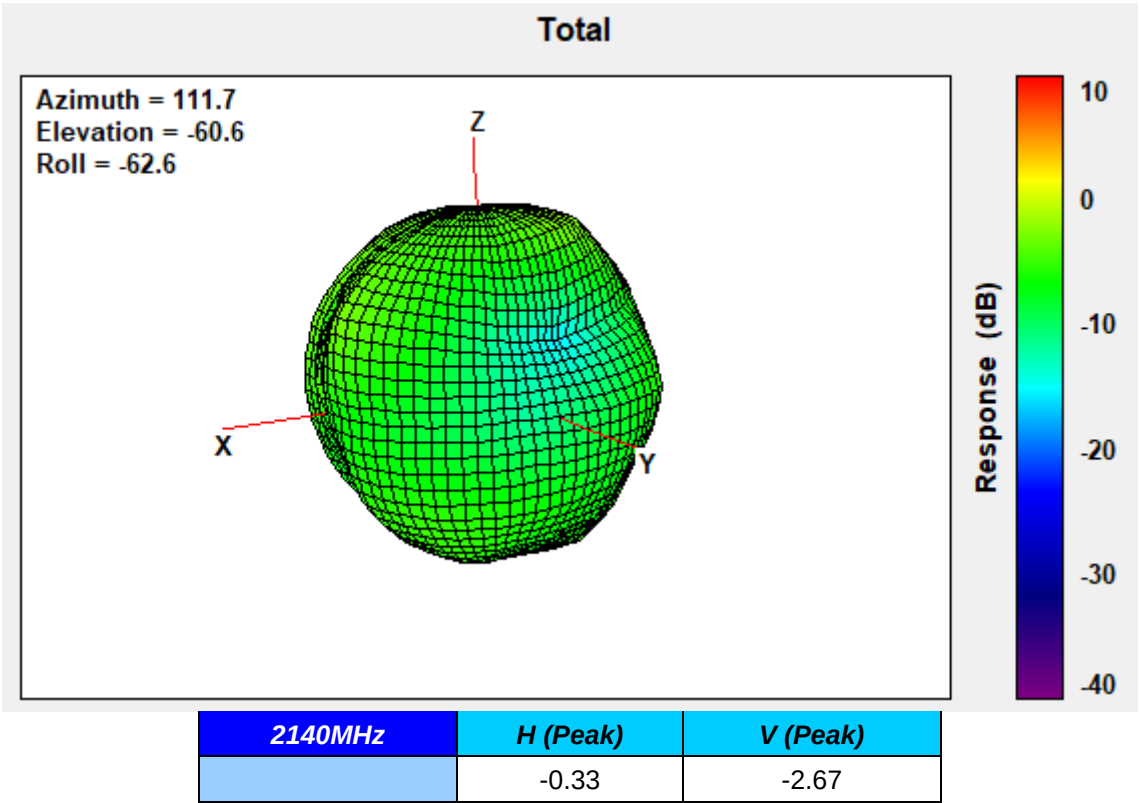
2110MHz	H (Peak)	V (Peak)
	-0.72	-2.39

2132.5MHz

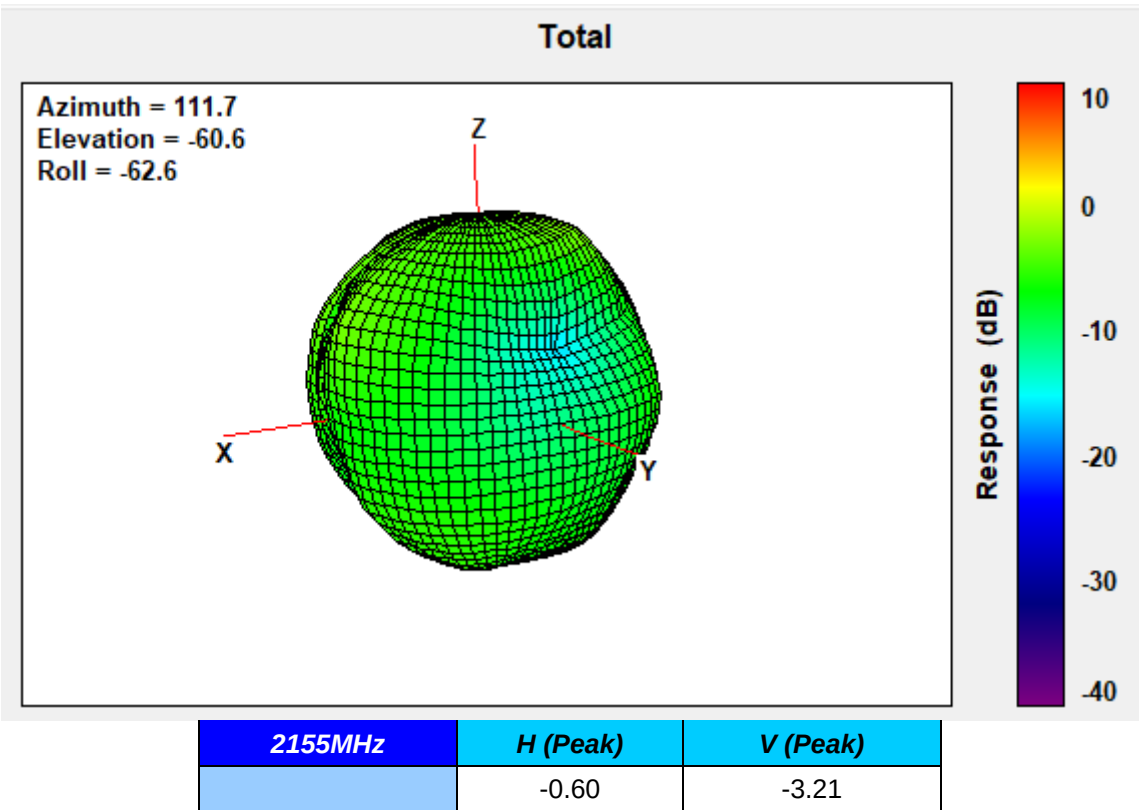


2132.5MHz	H (Peak)	V (Peak)
	-0.39	-2.47

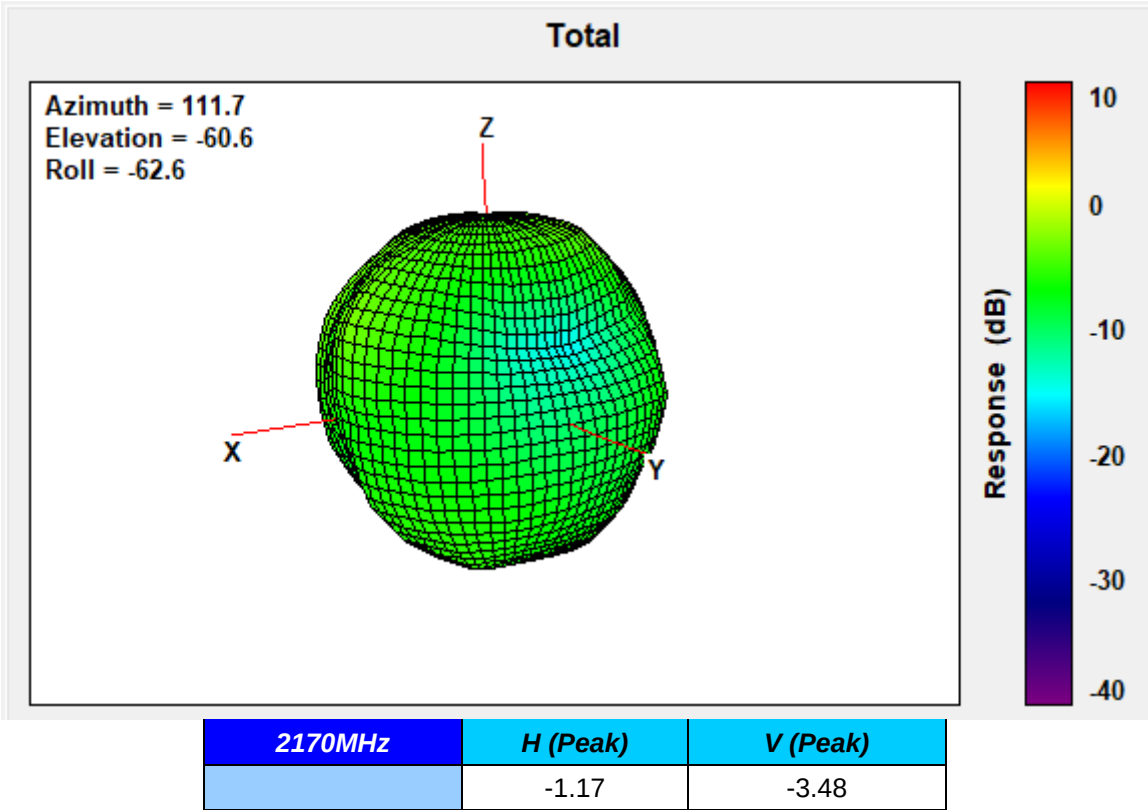
2140MHz



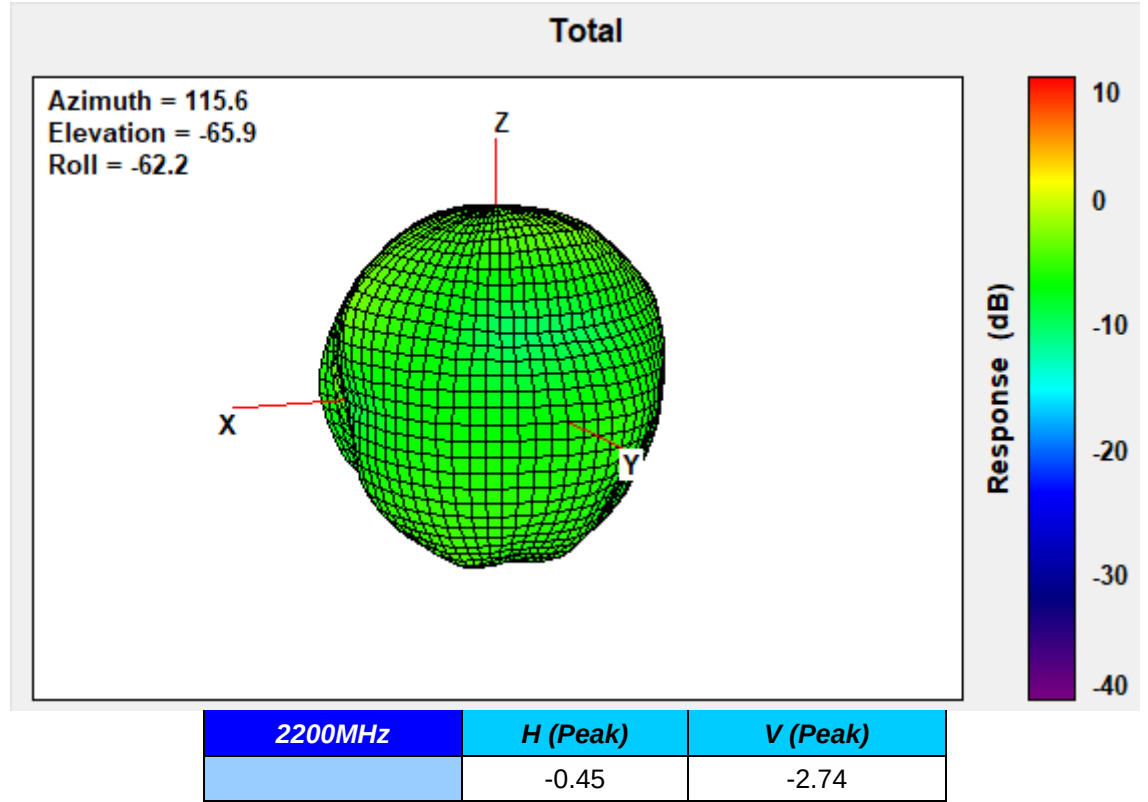
2155MHz



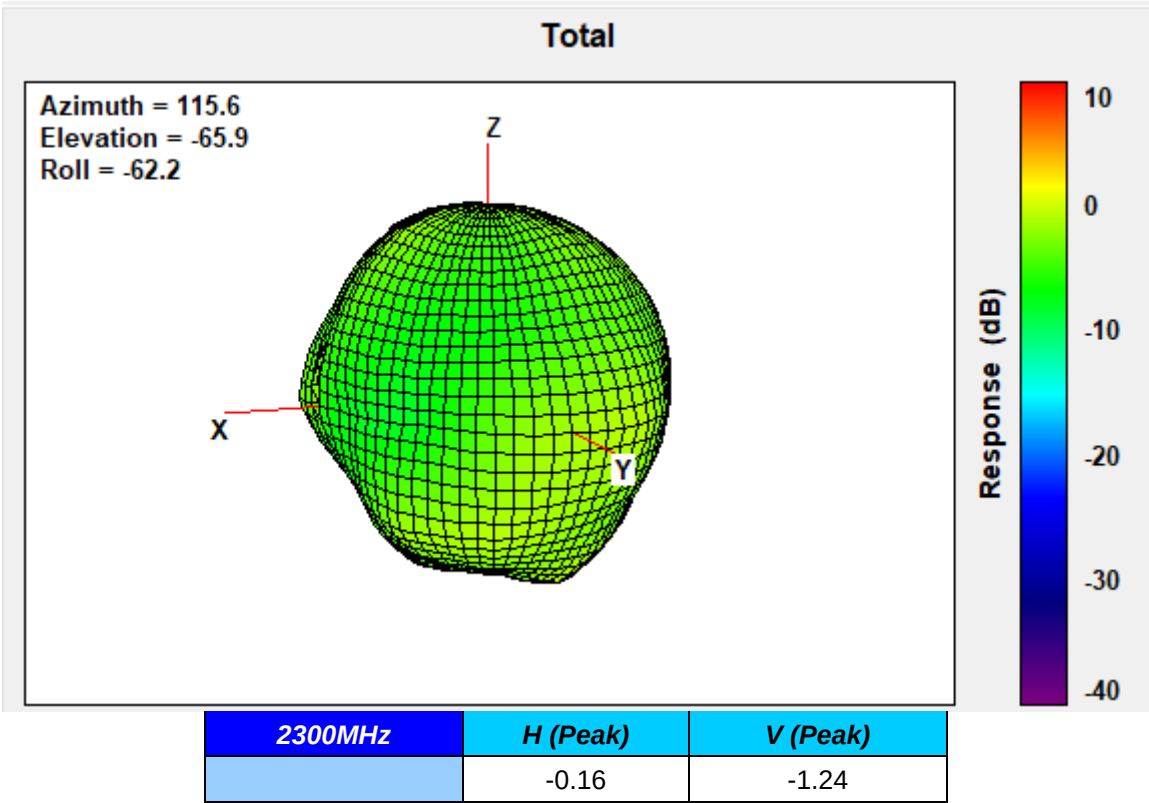
2170MHz



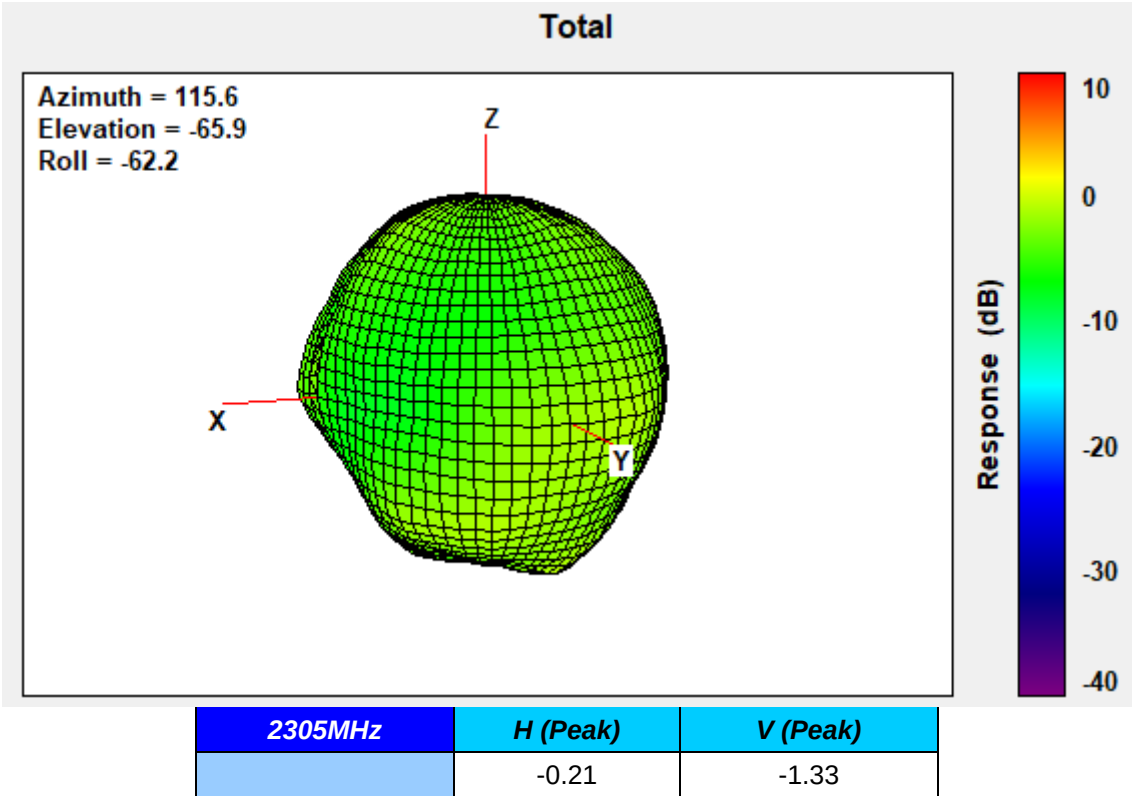
2200MHz



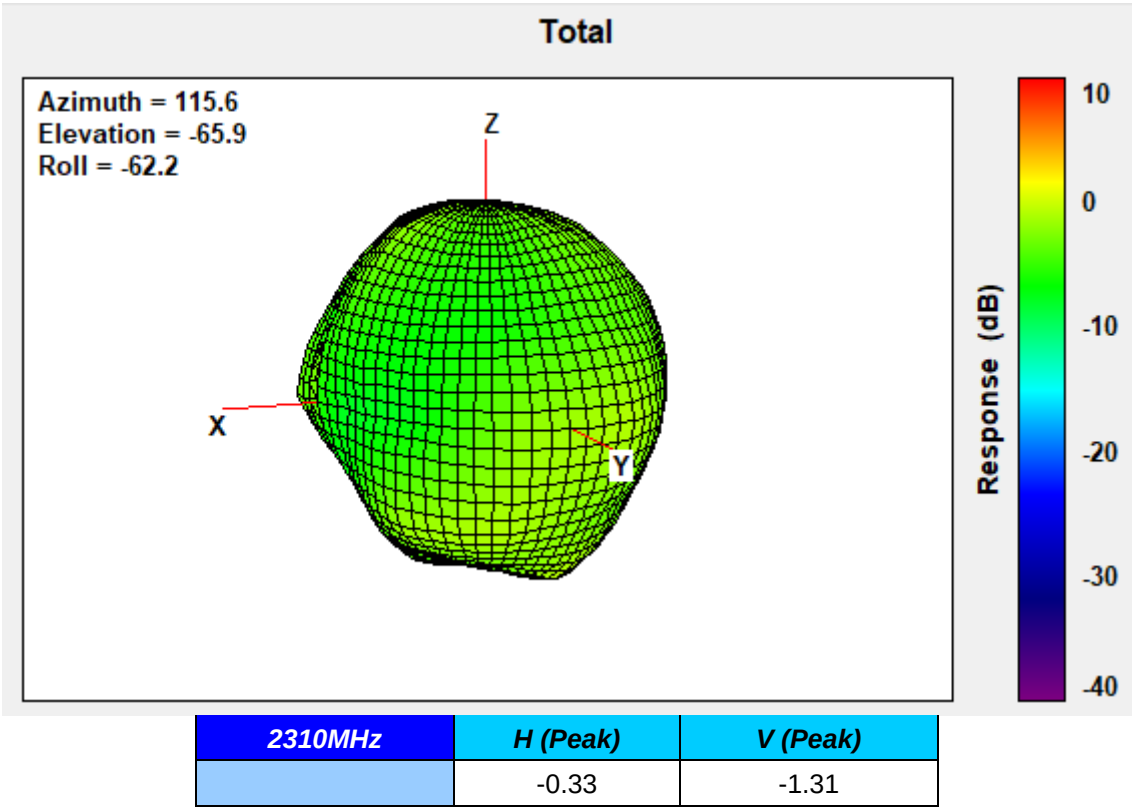
2300MHz



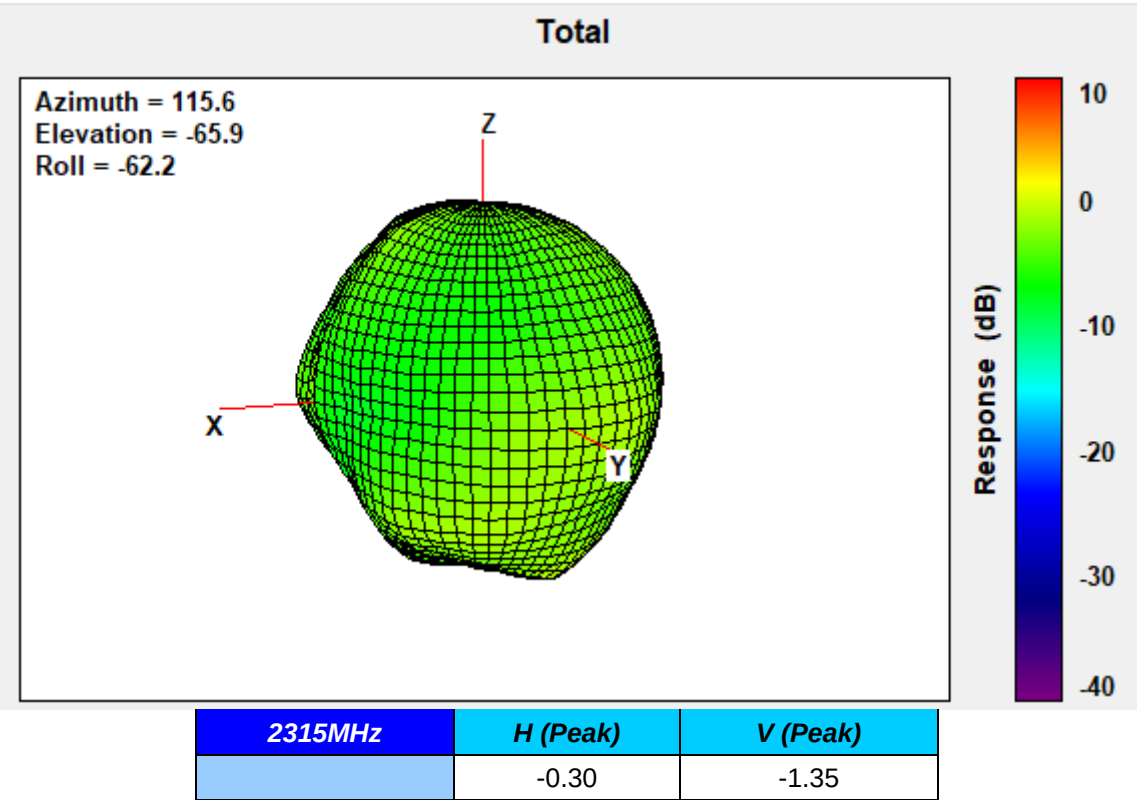
2305MHz



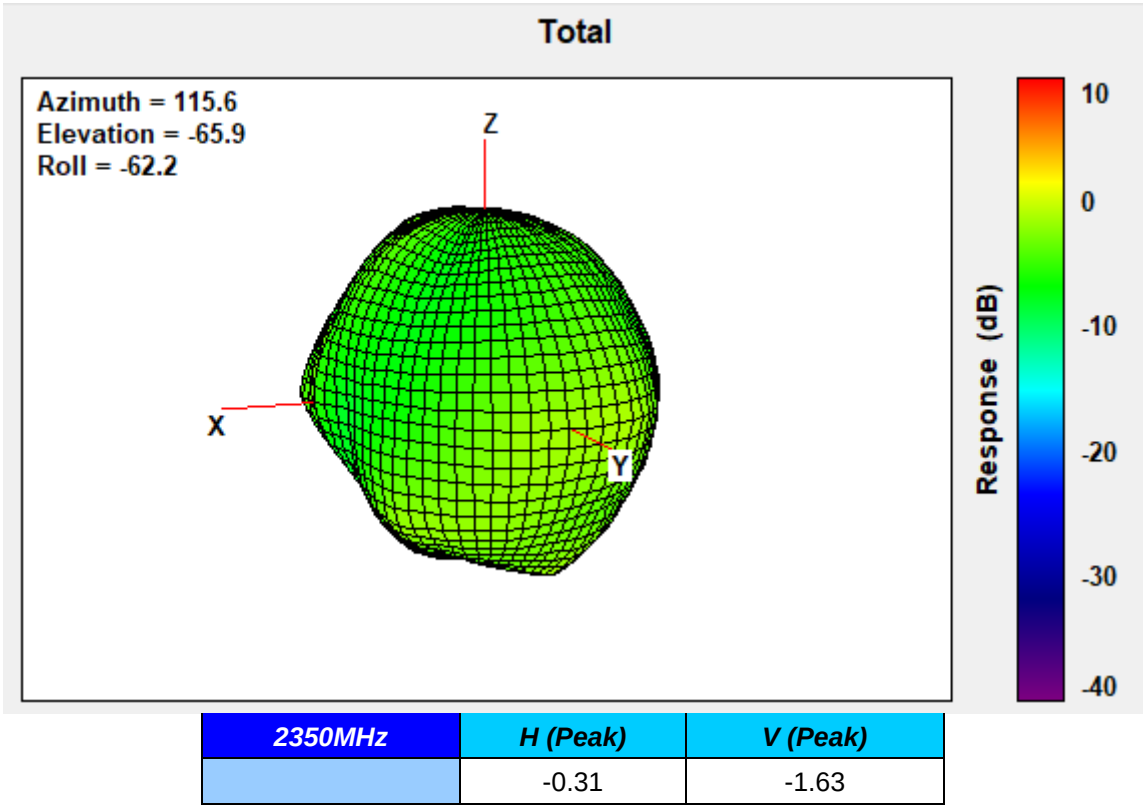
2310MHz



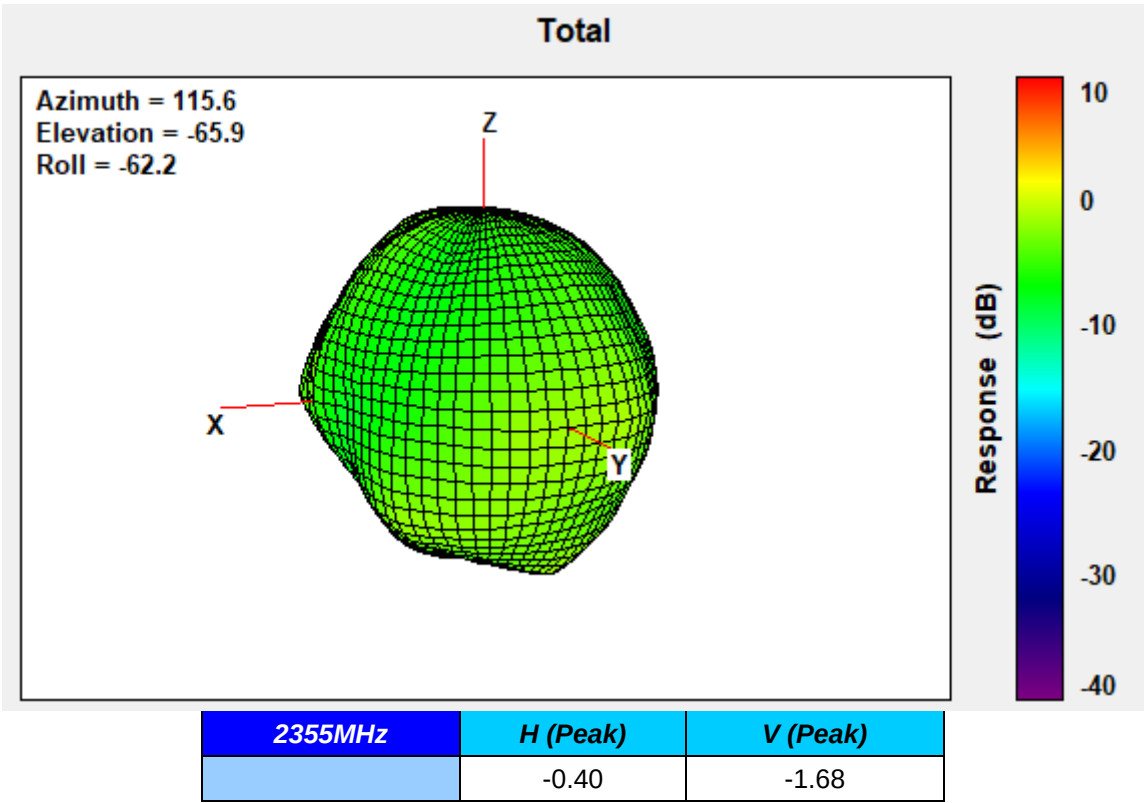
2315MHz



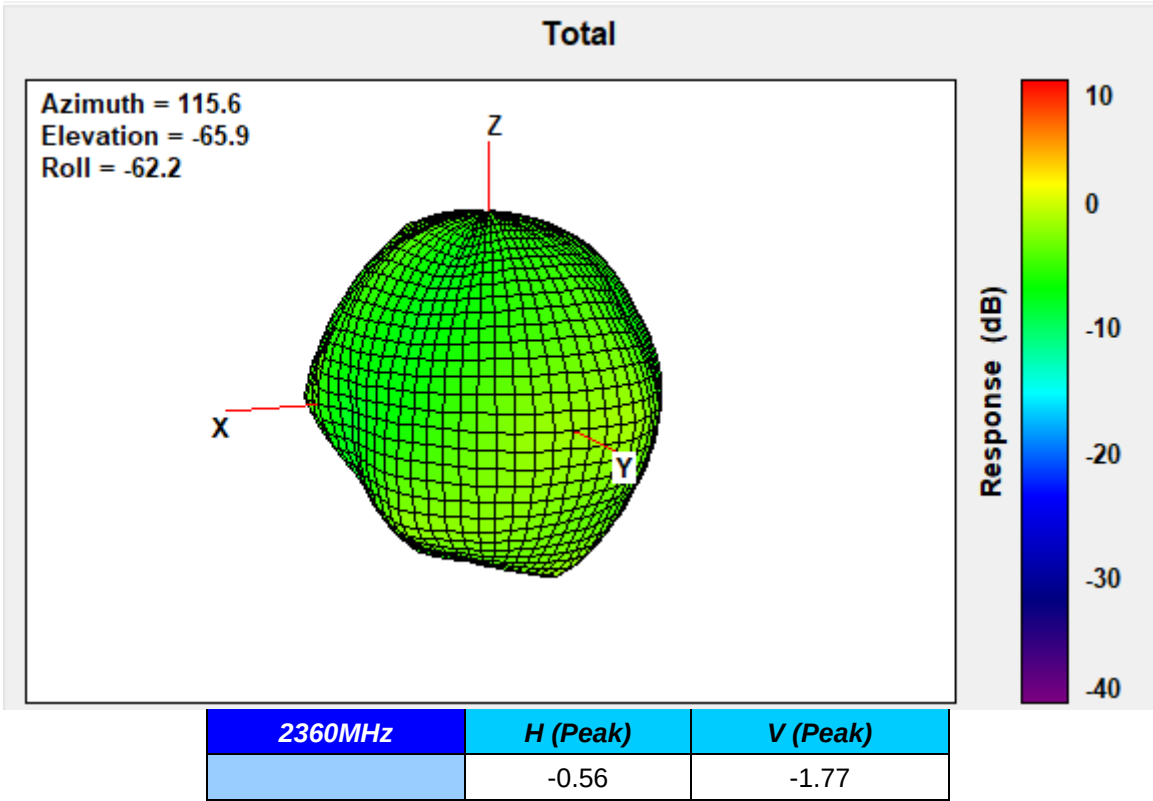
2350MHz



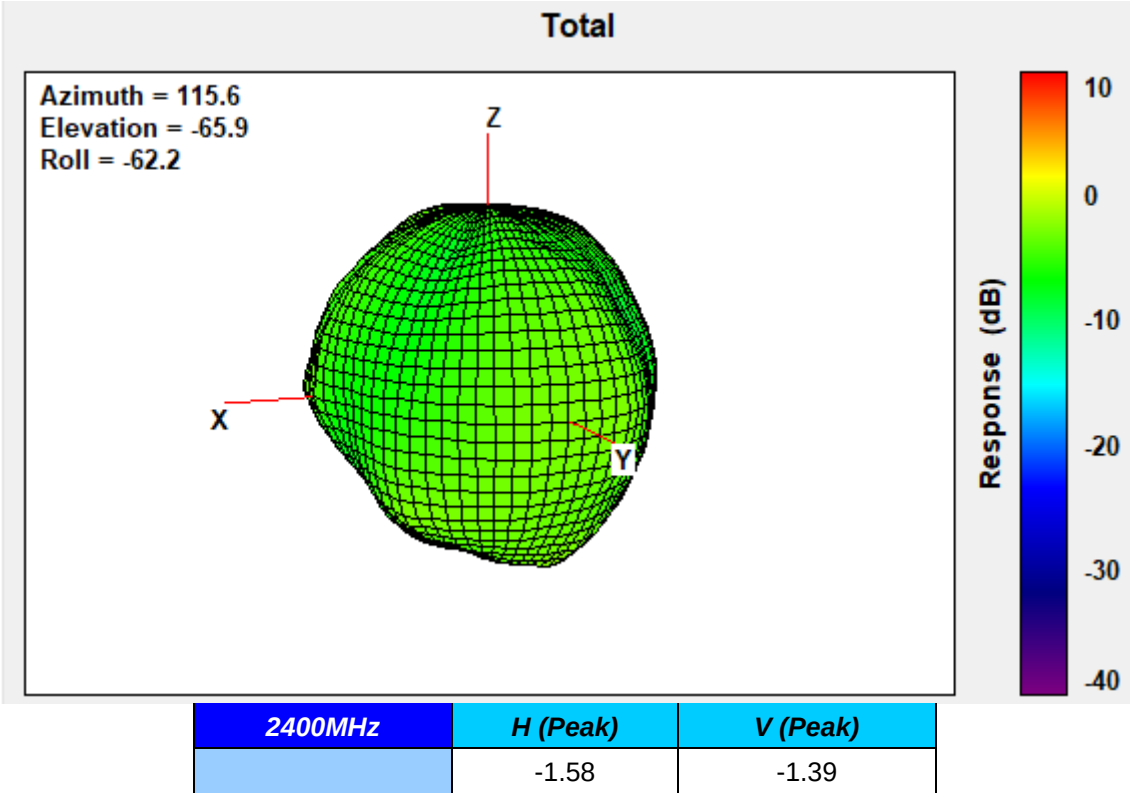
2355MHz



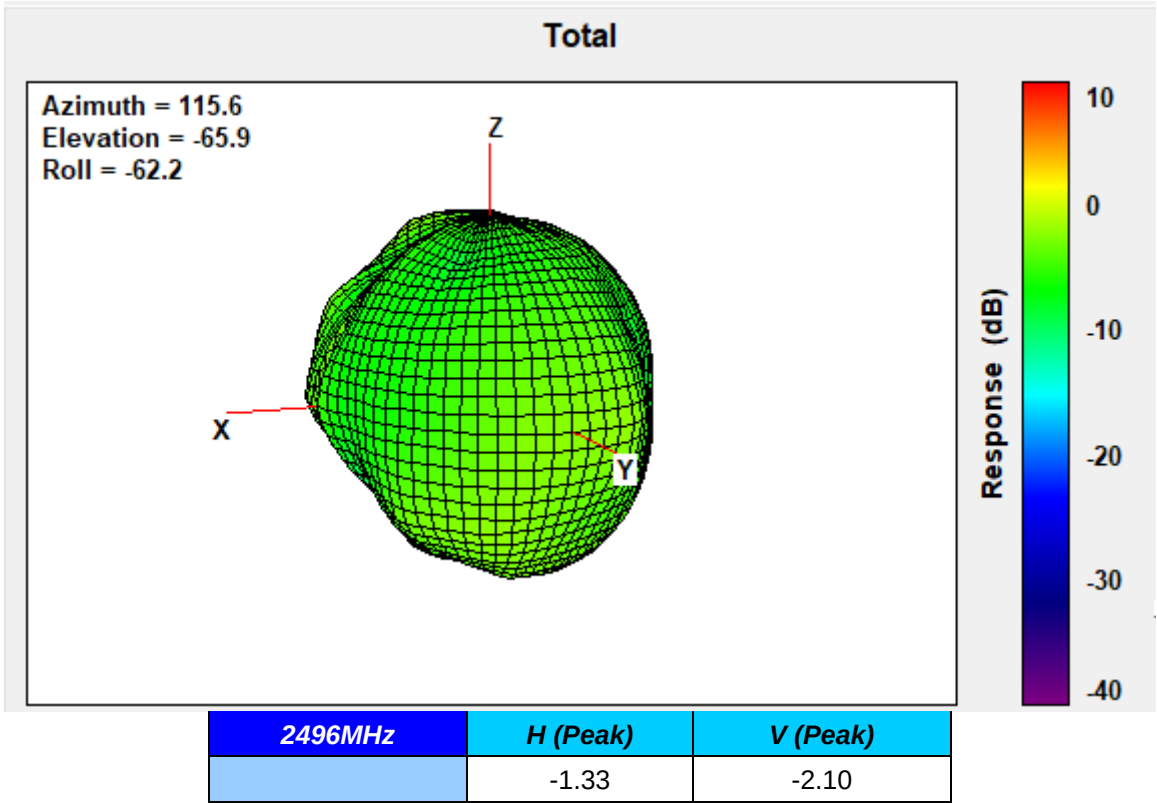
2360MHz



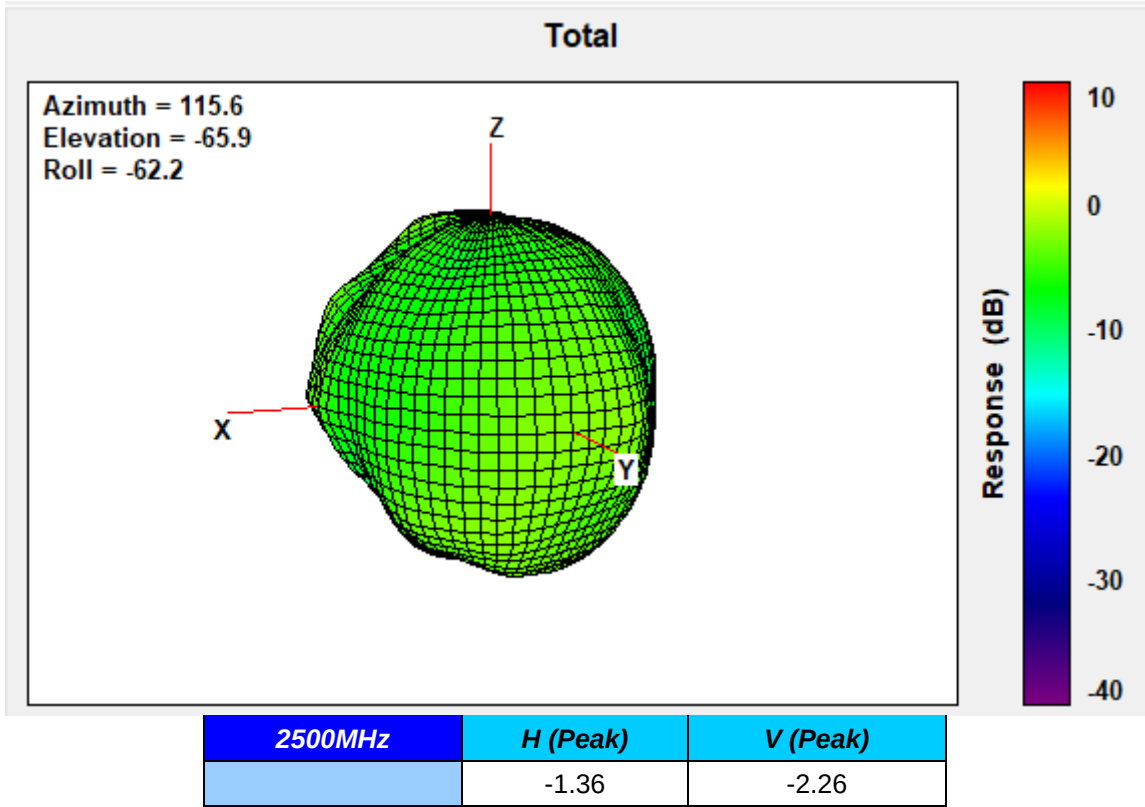
2400MHz



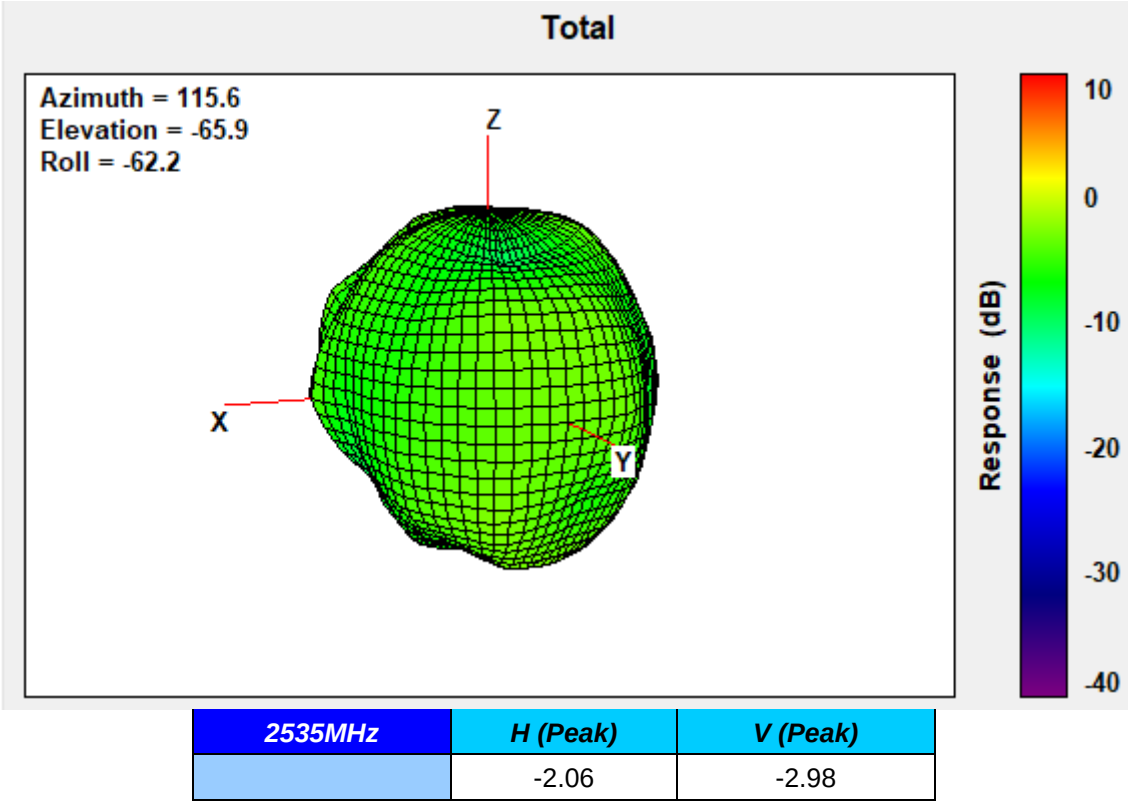
2496MHz



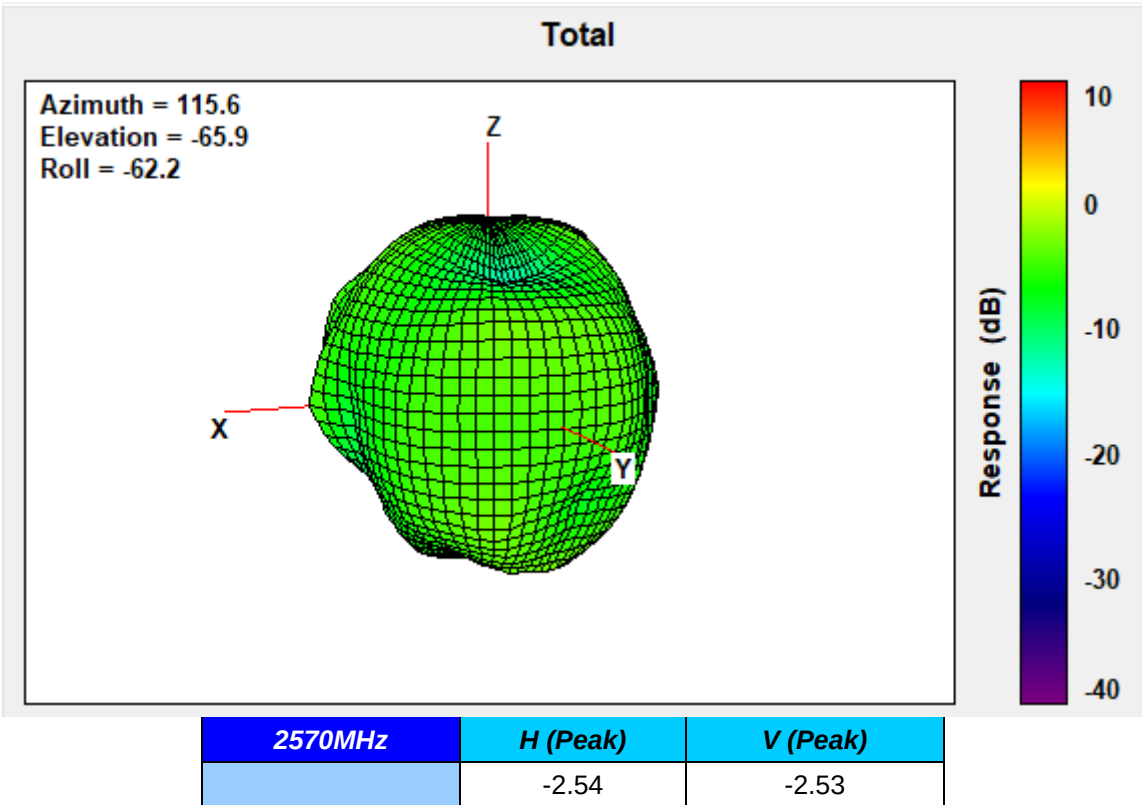
2500MHz



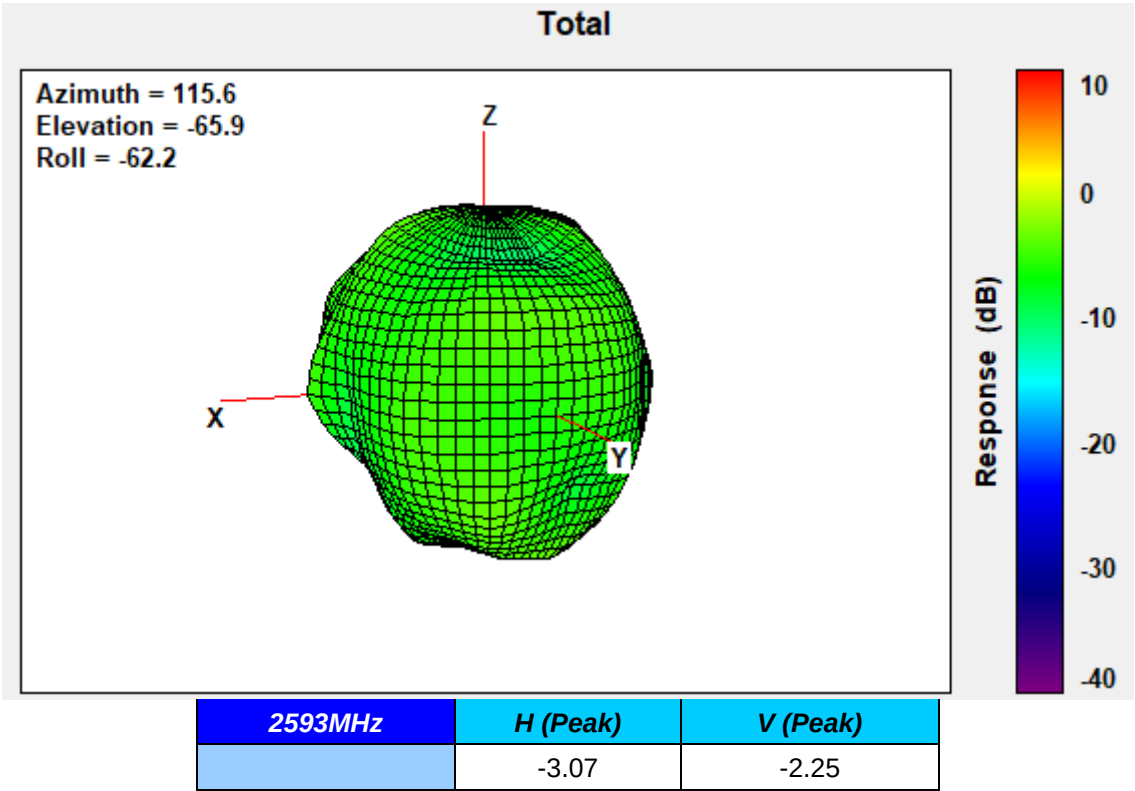
2535MHz



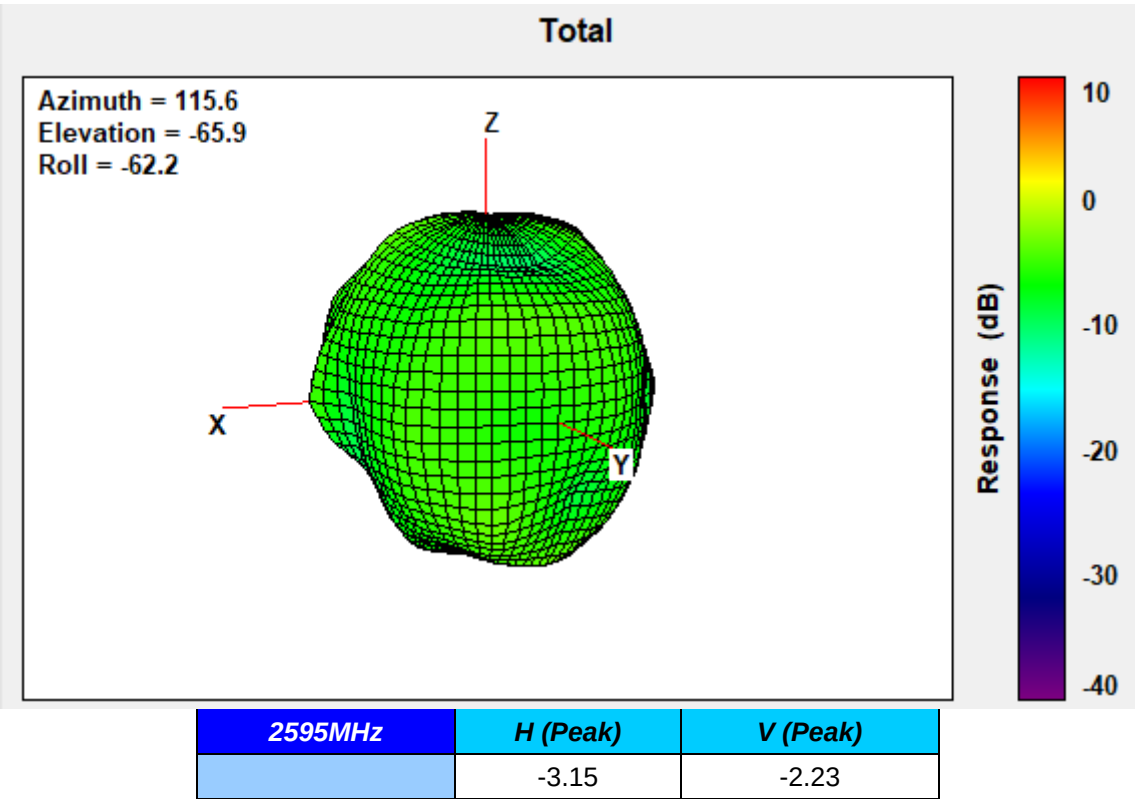
2570MHz



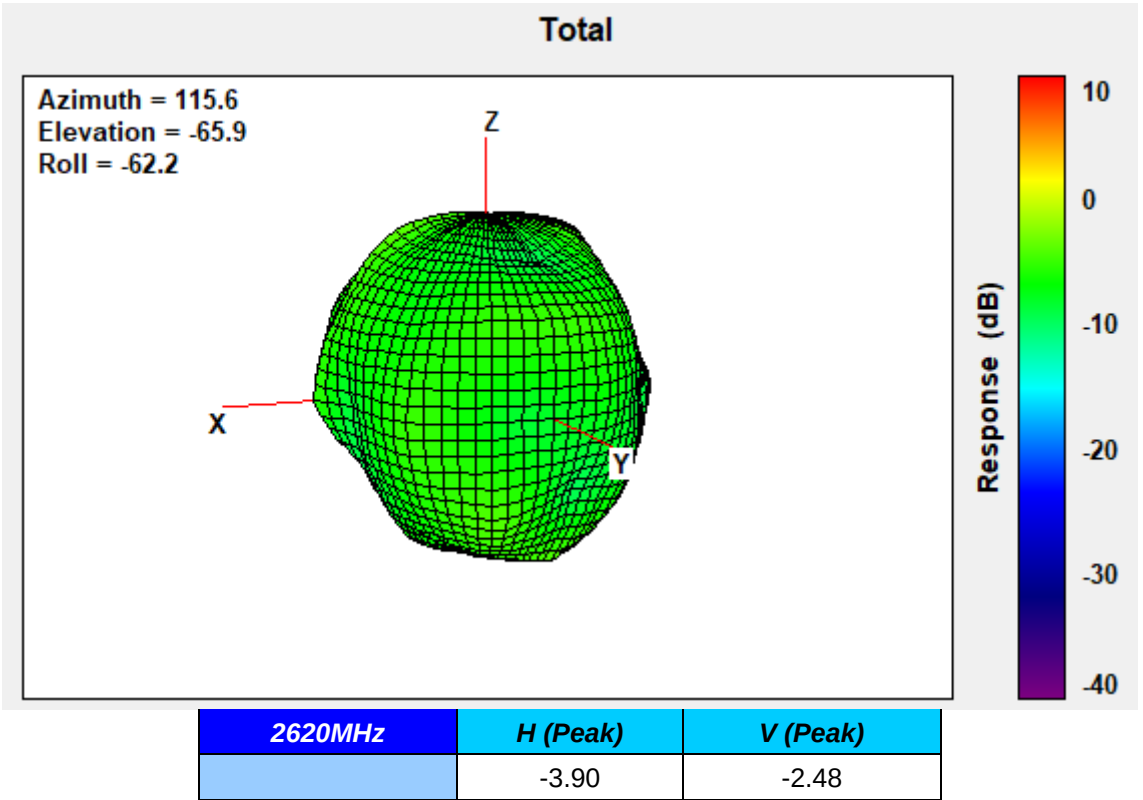
2593MHz



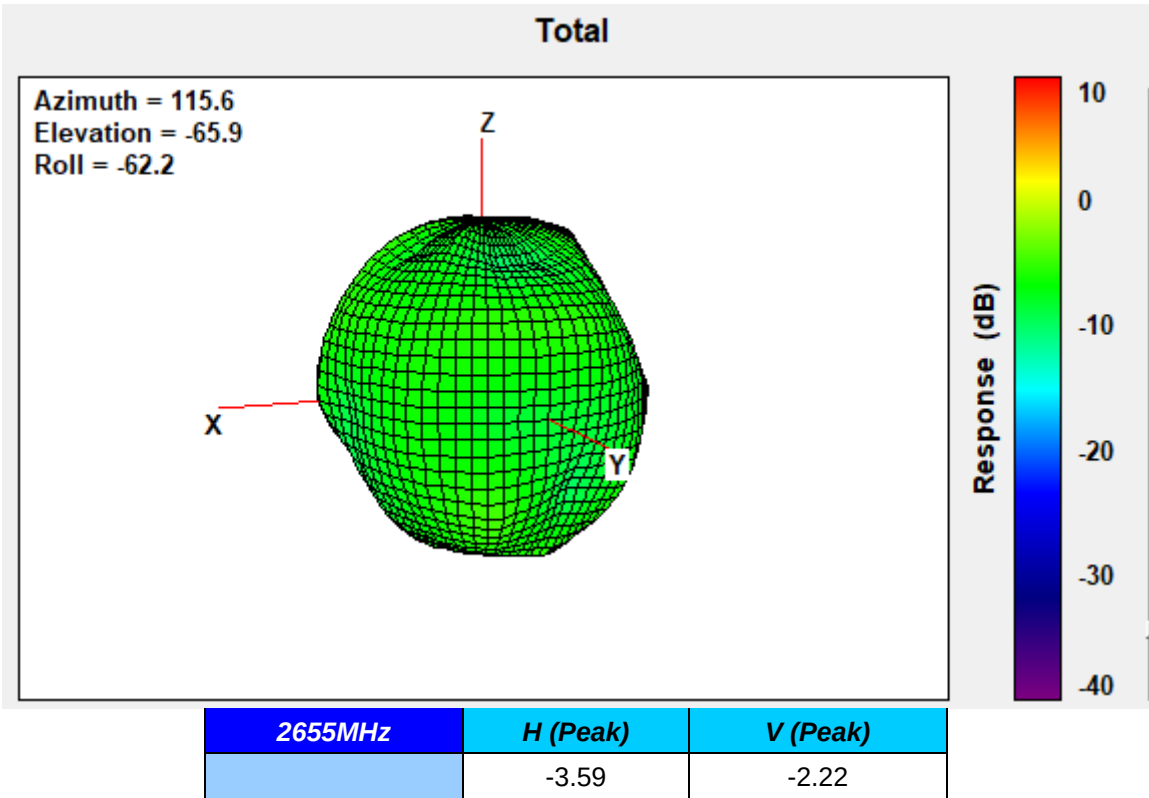
2595MHz



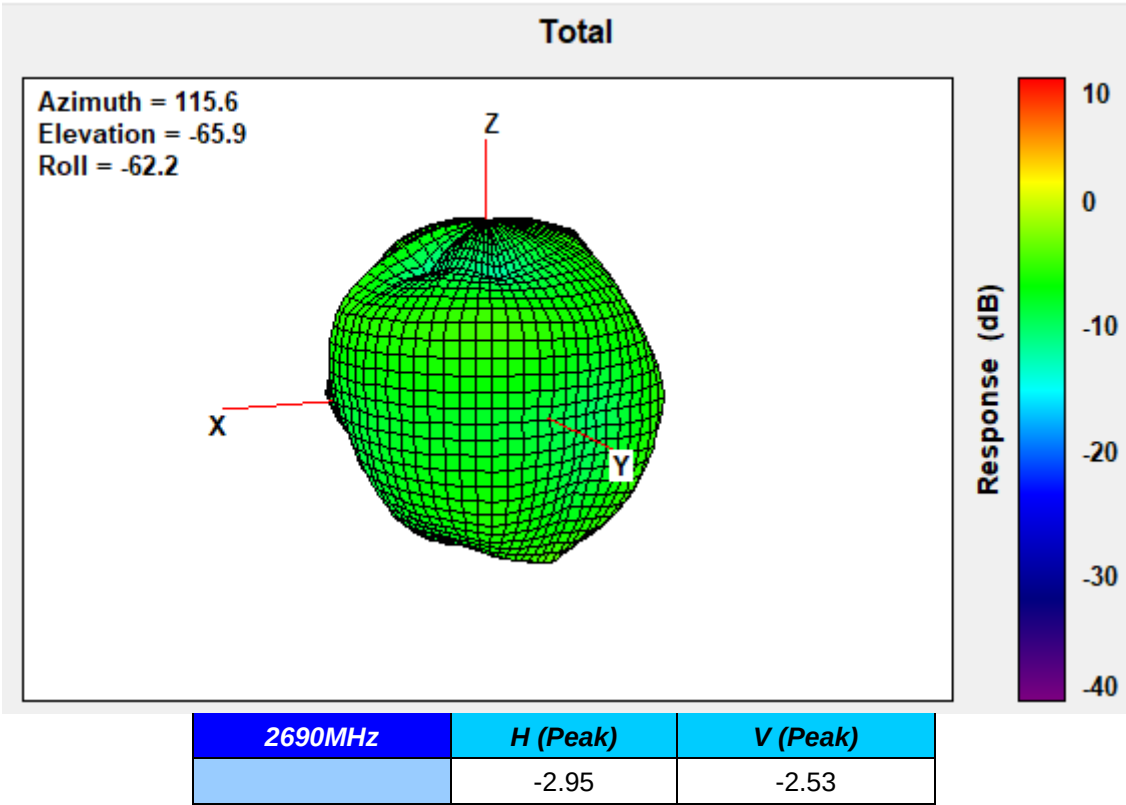
2620MHz



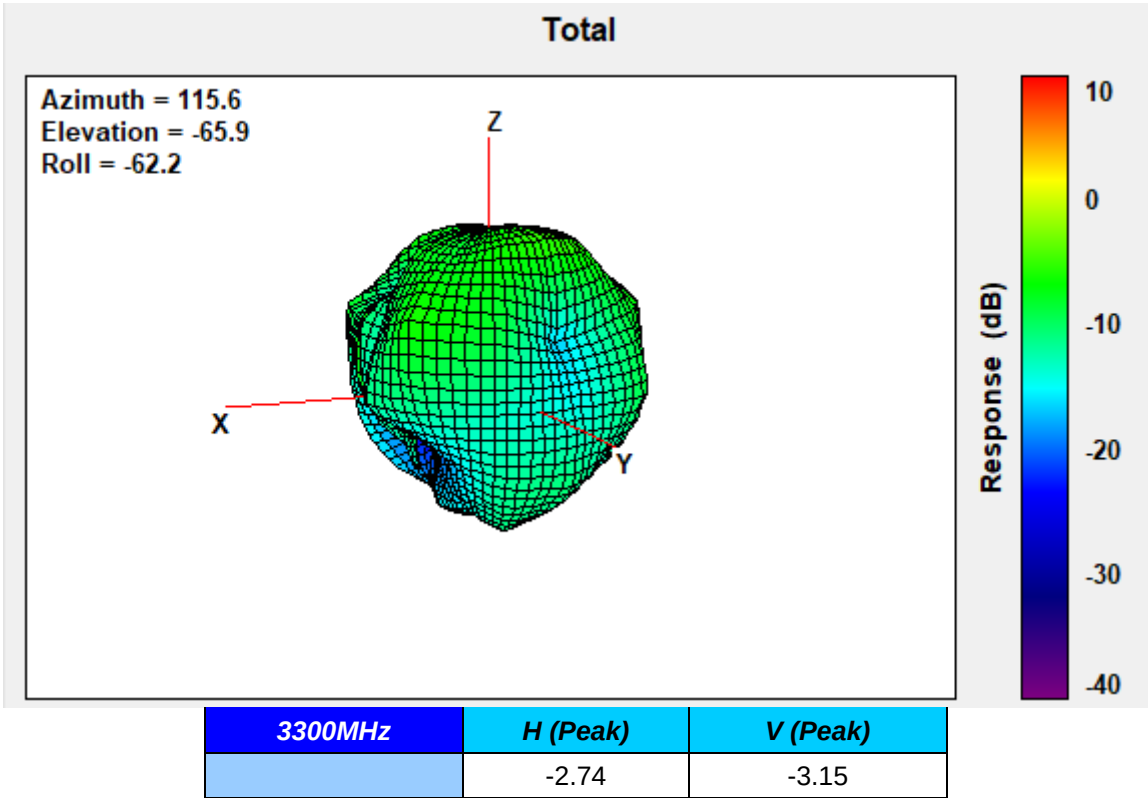
2655MHz



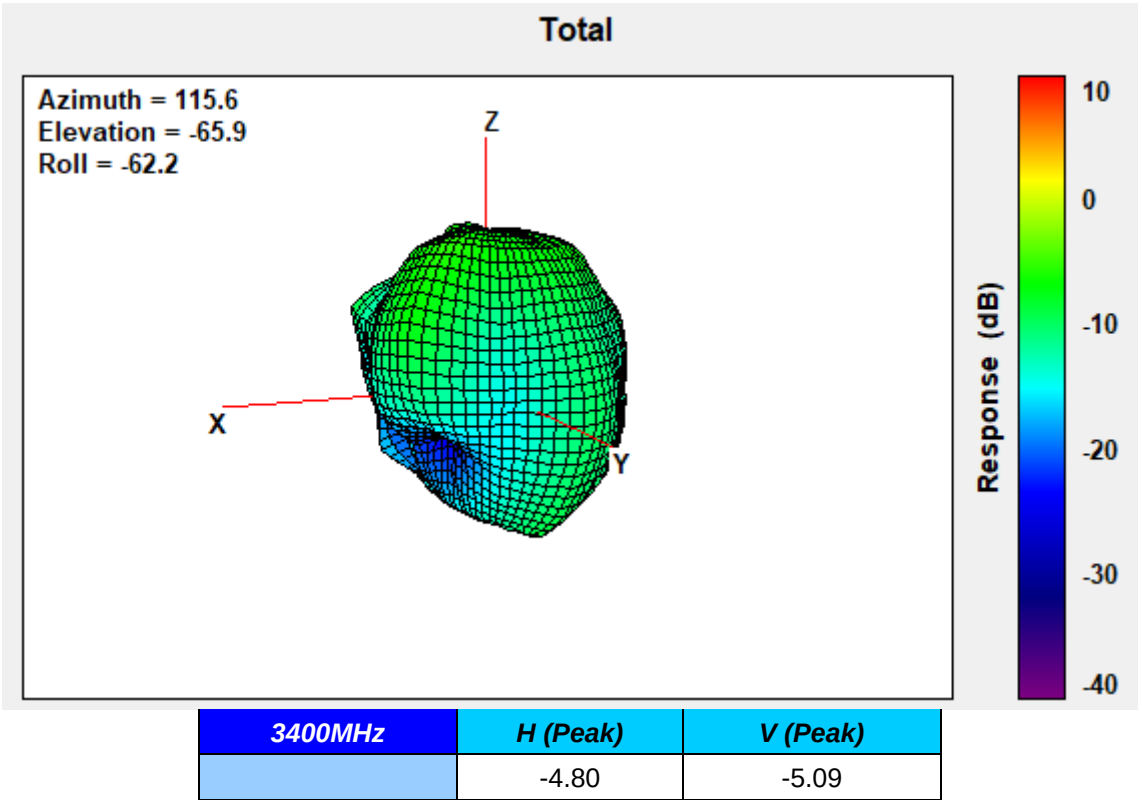
2690MHz



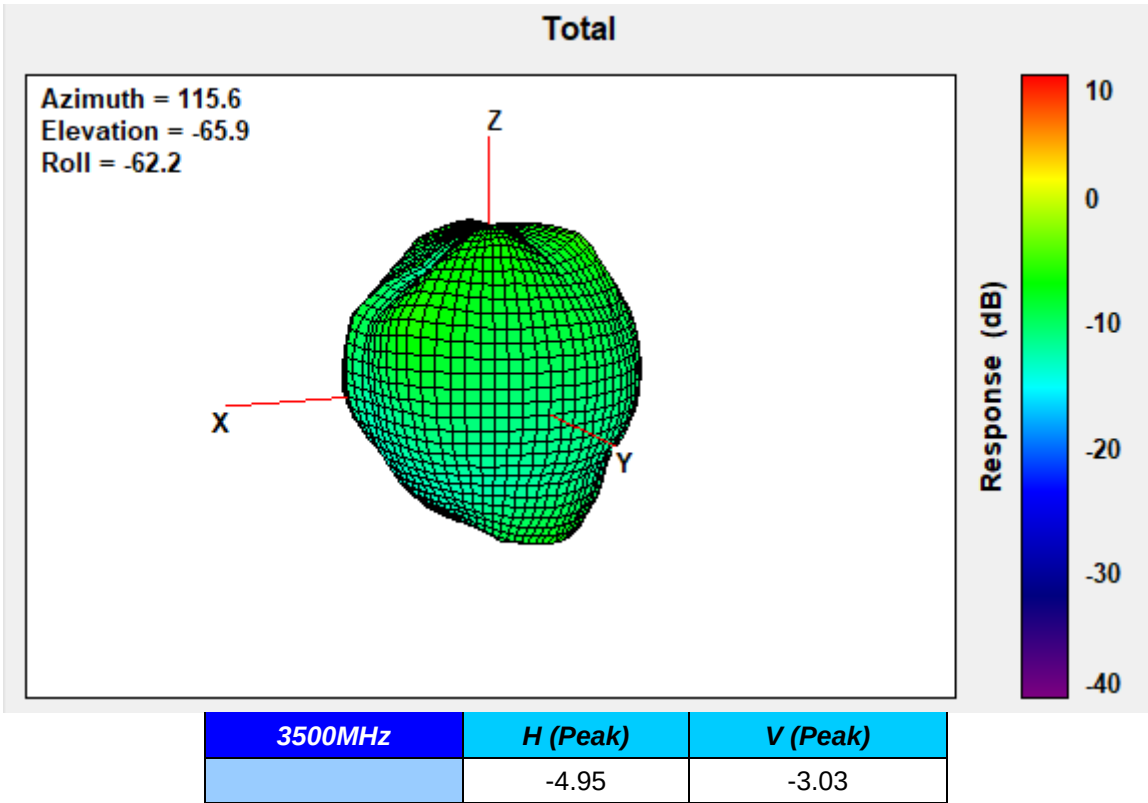
3300MHz



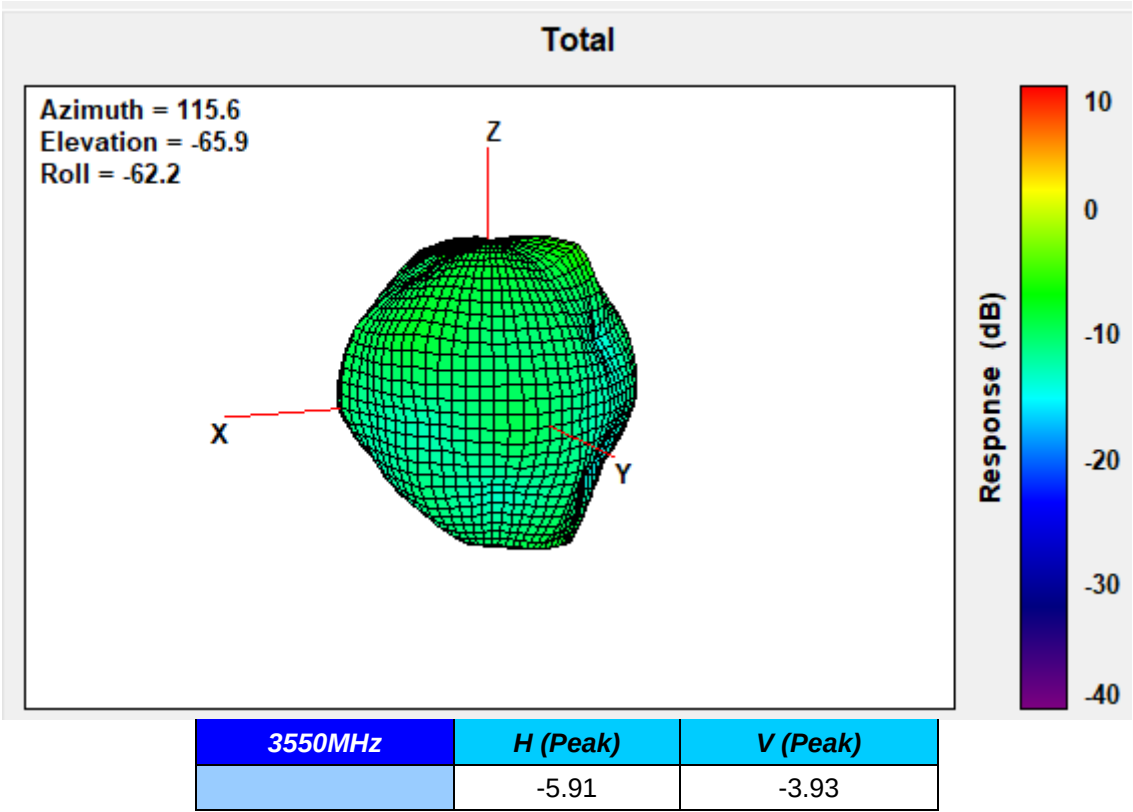
3400MHz



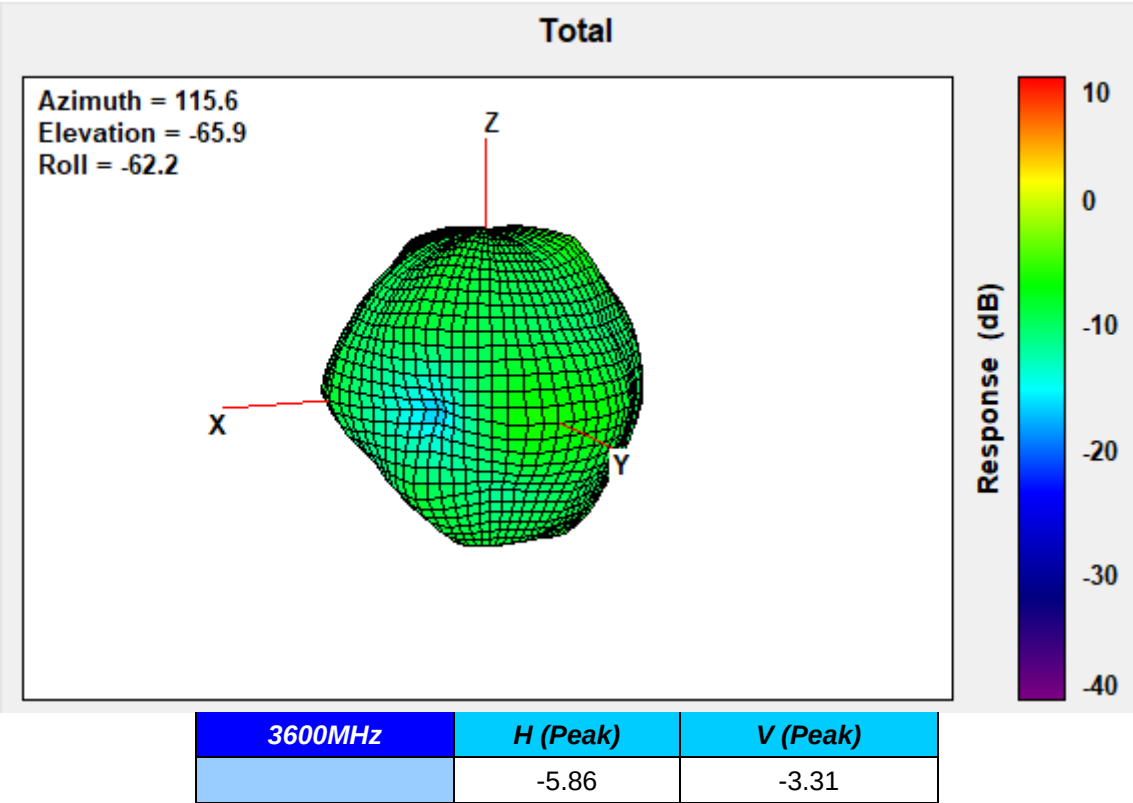
3500MHz



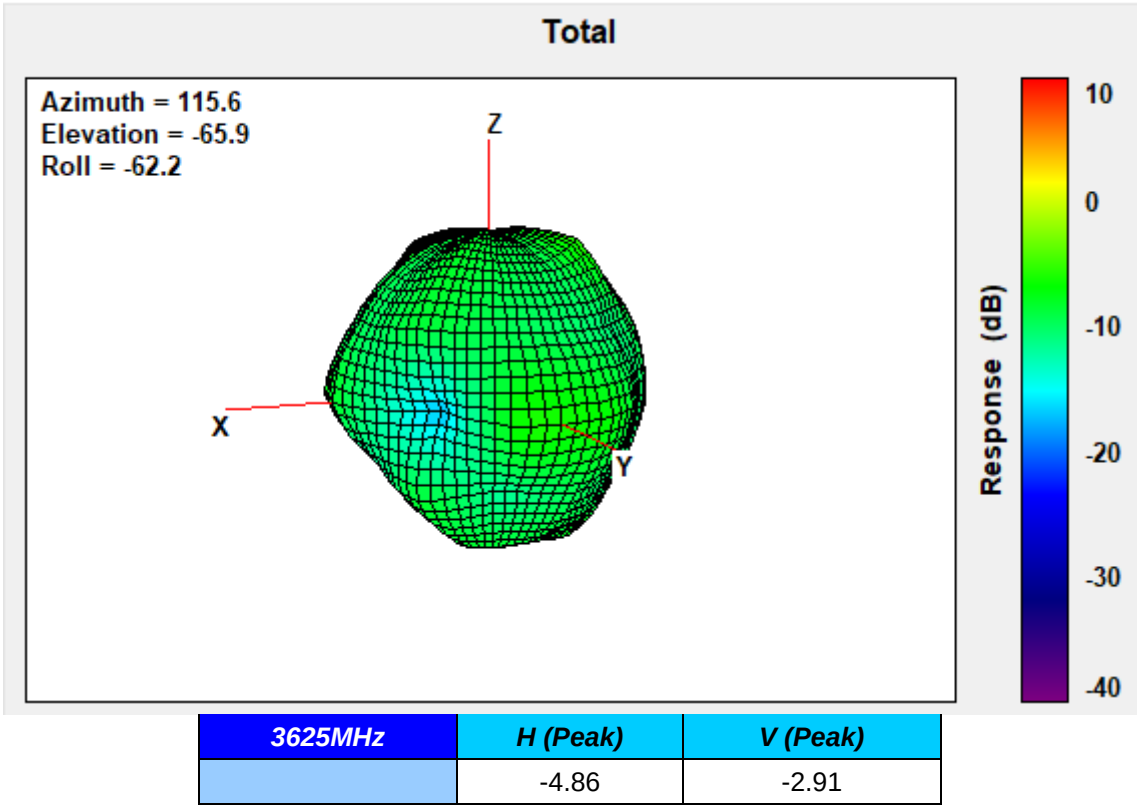
3550MHz



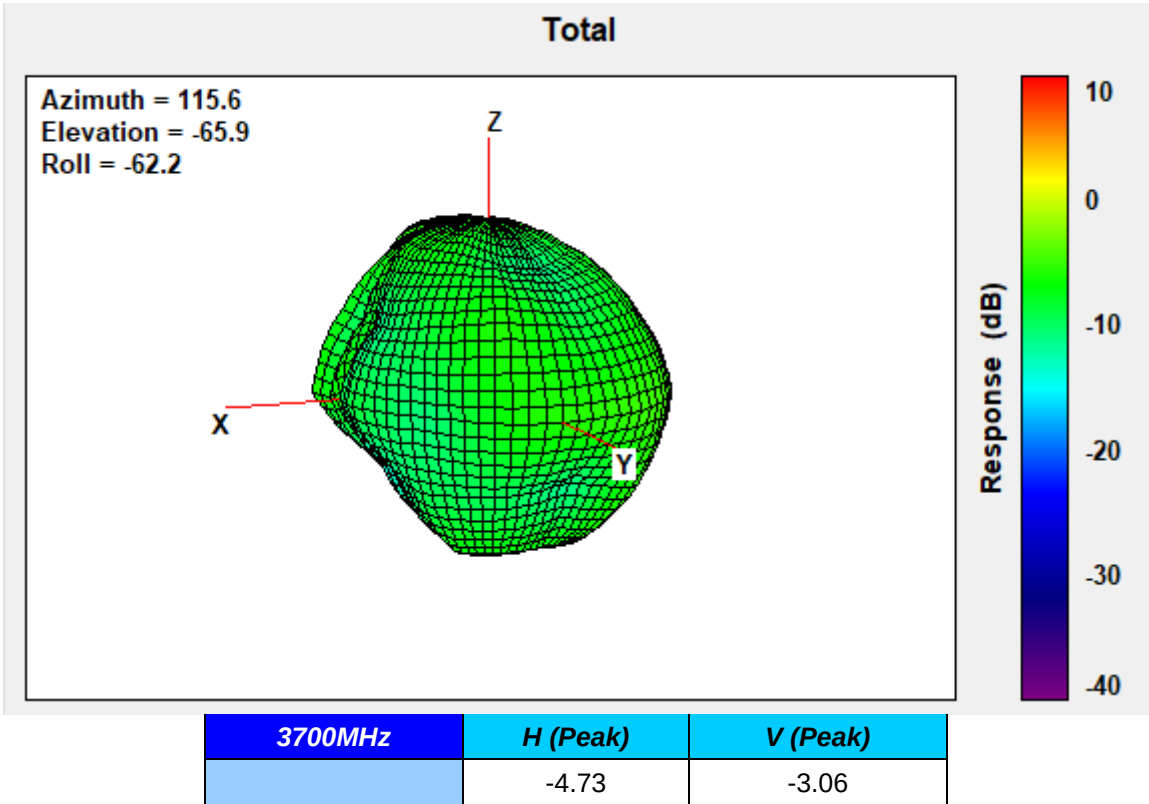
3600MHz



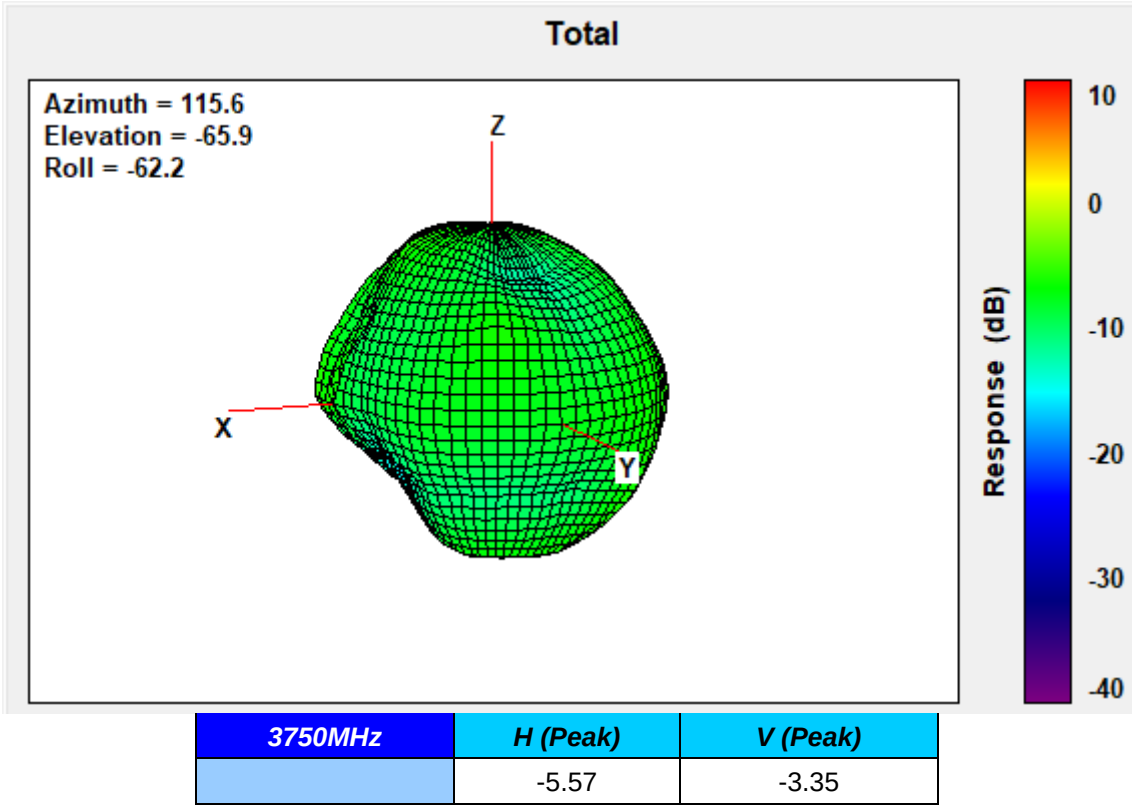
3625MHz



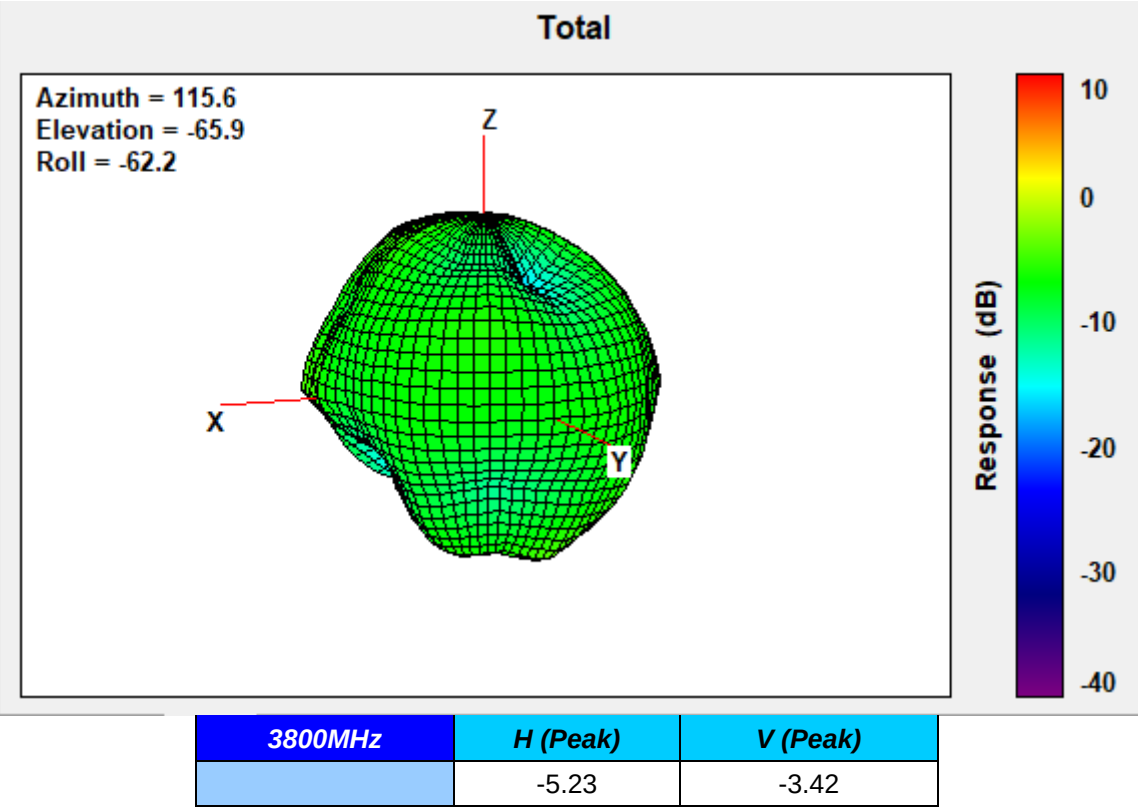
3700MHz



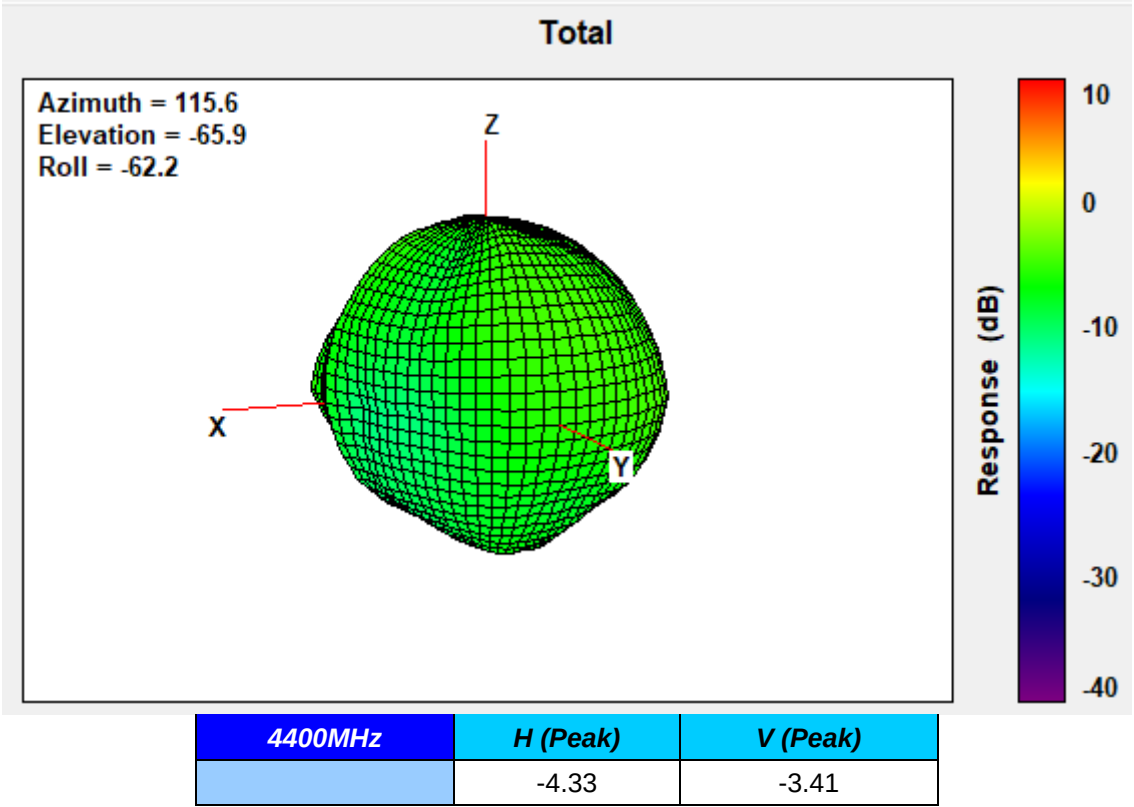
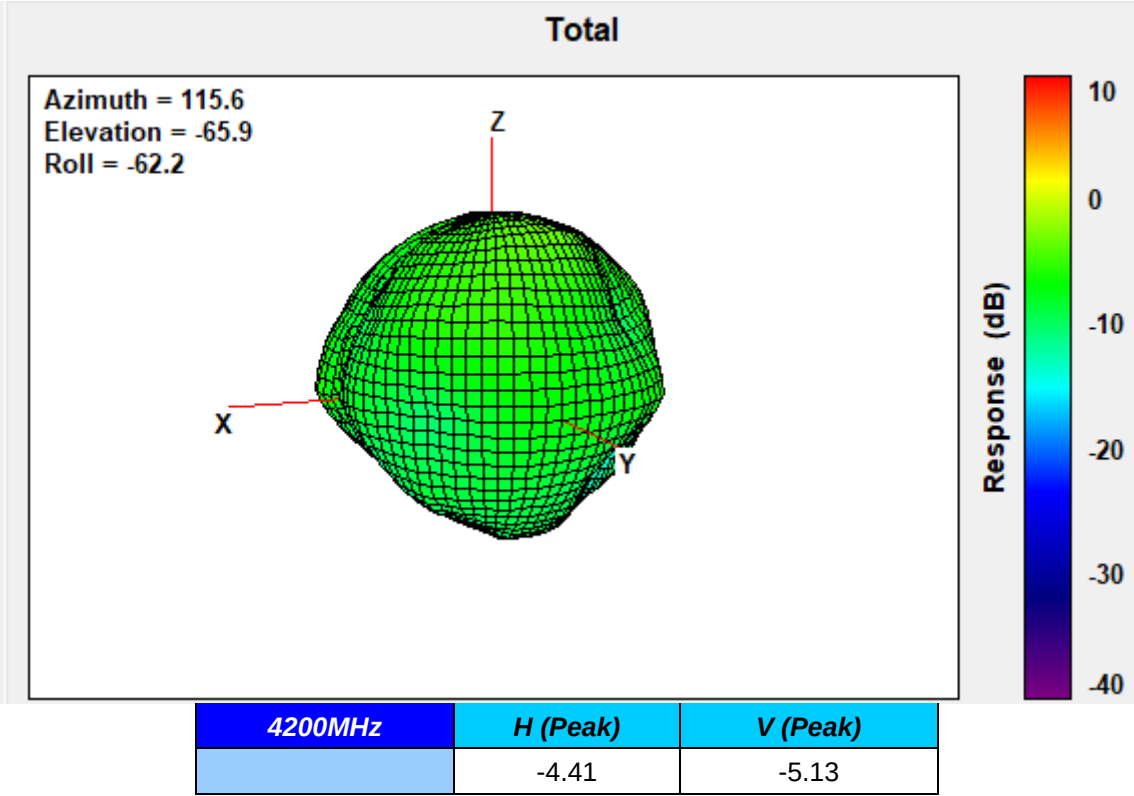
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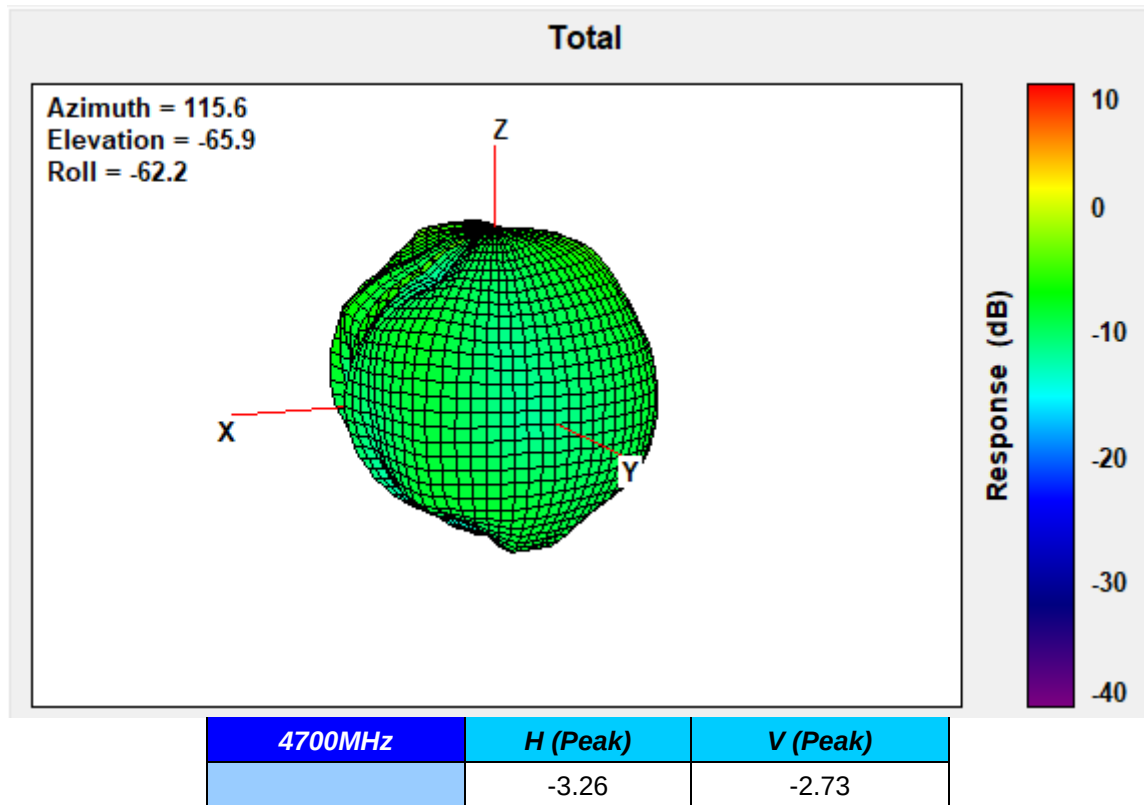
3800MHz



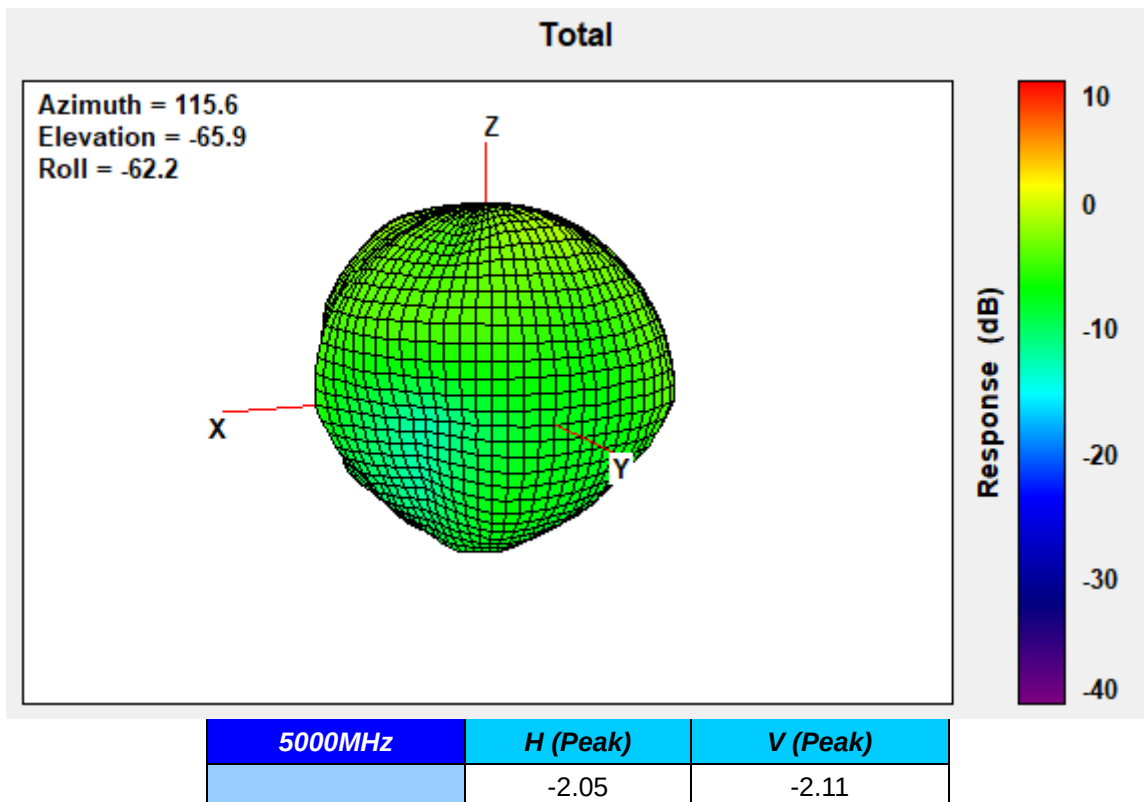
4200MHz



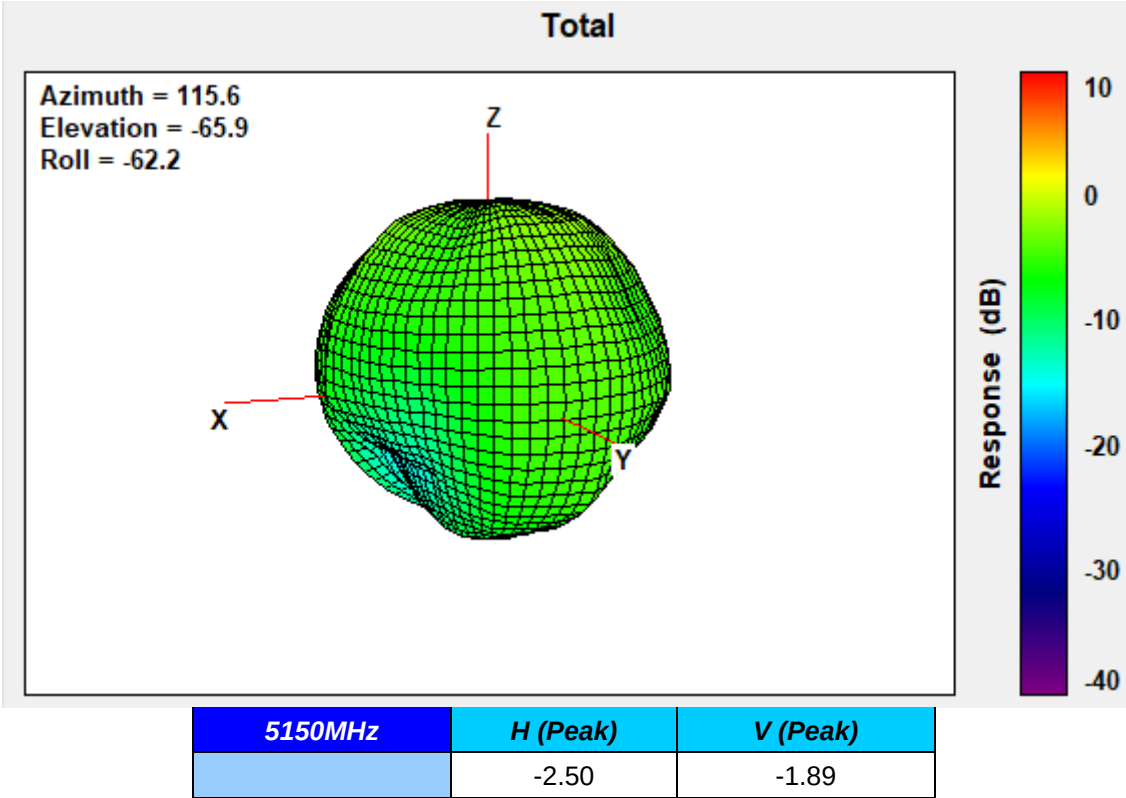
4700MHz



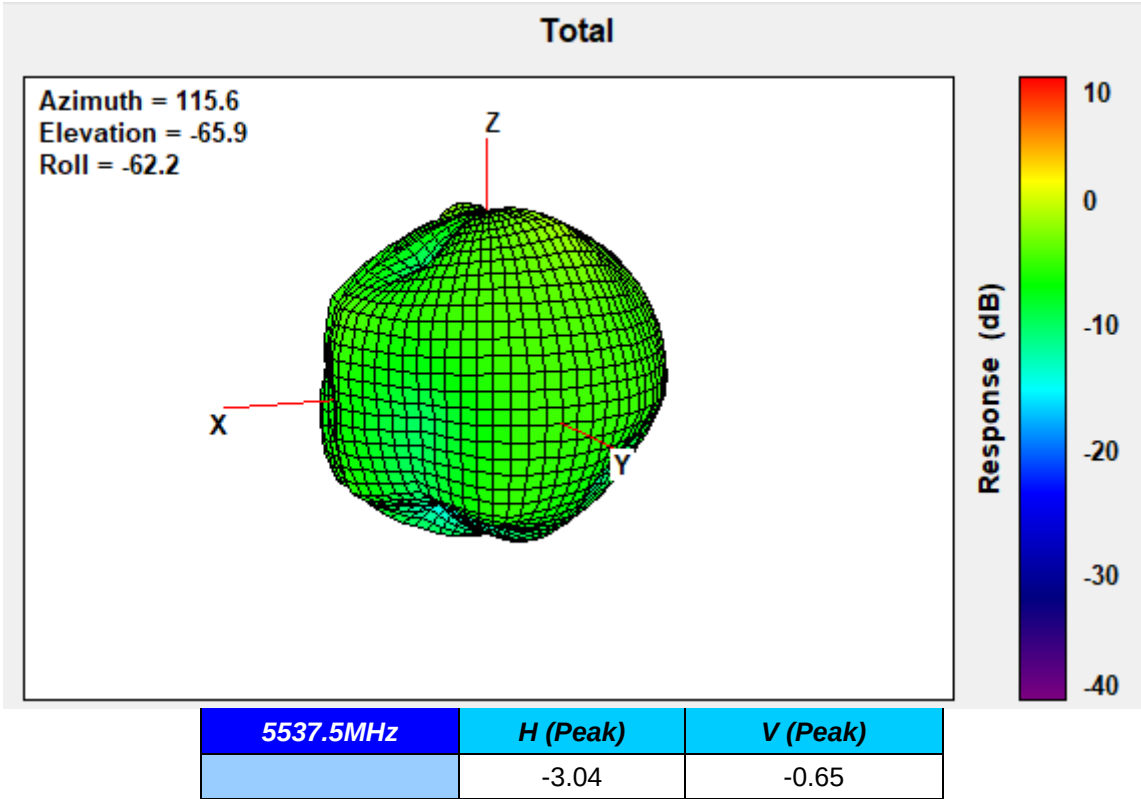
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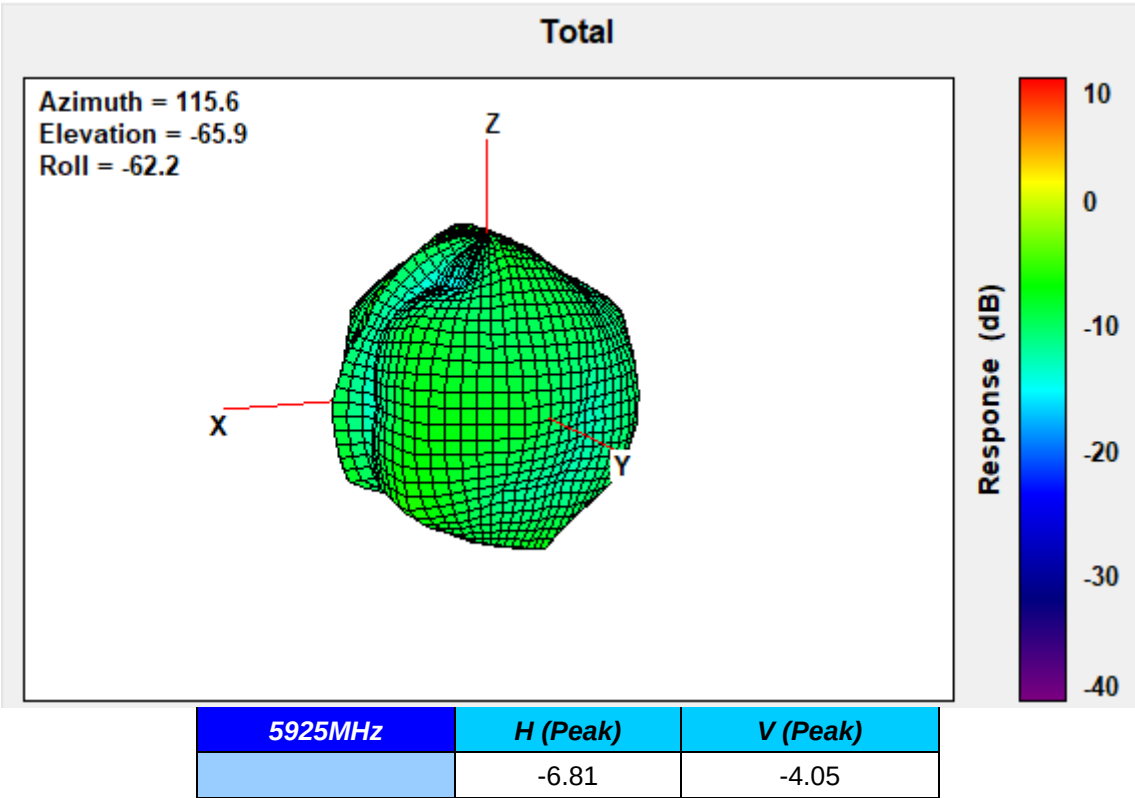


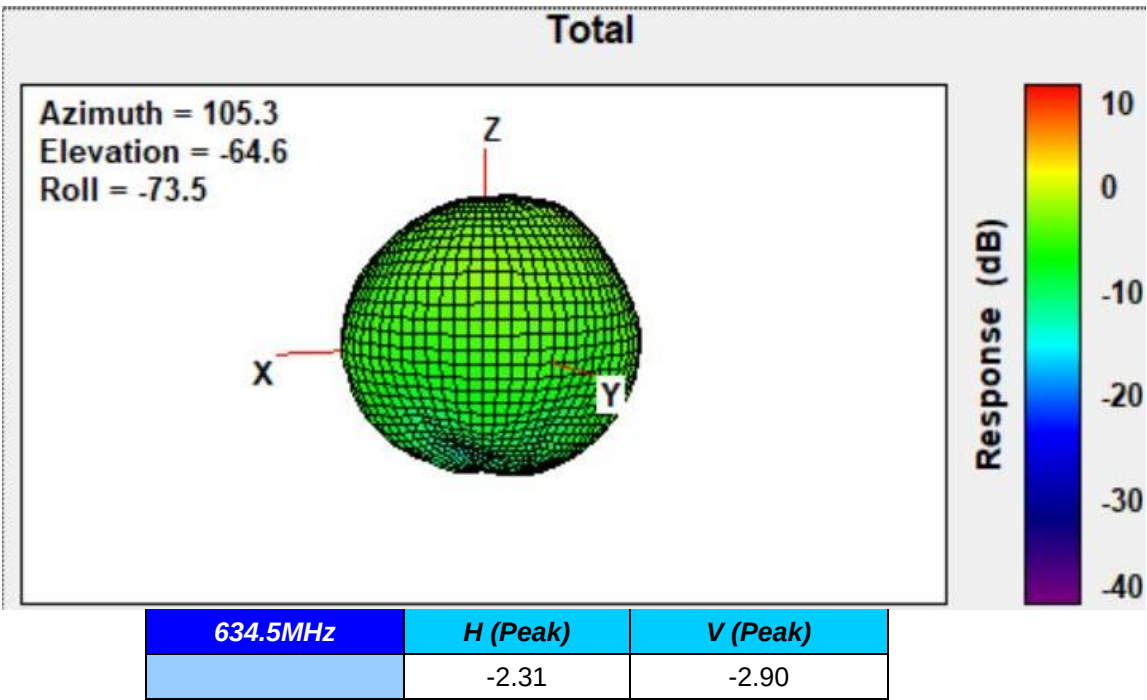
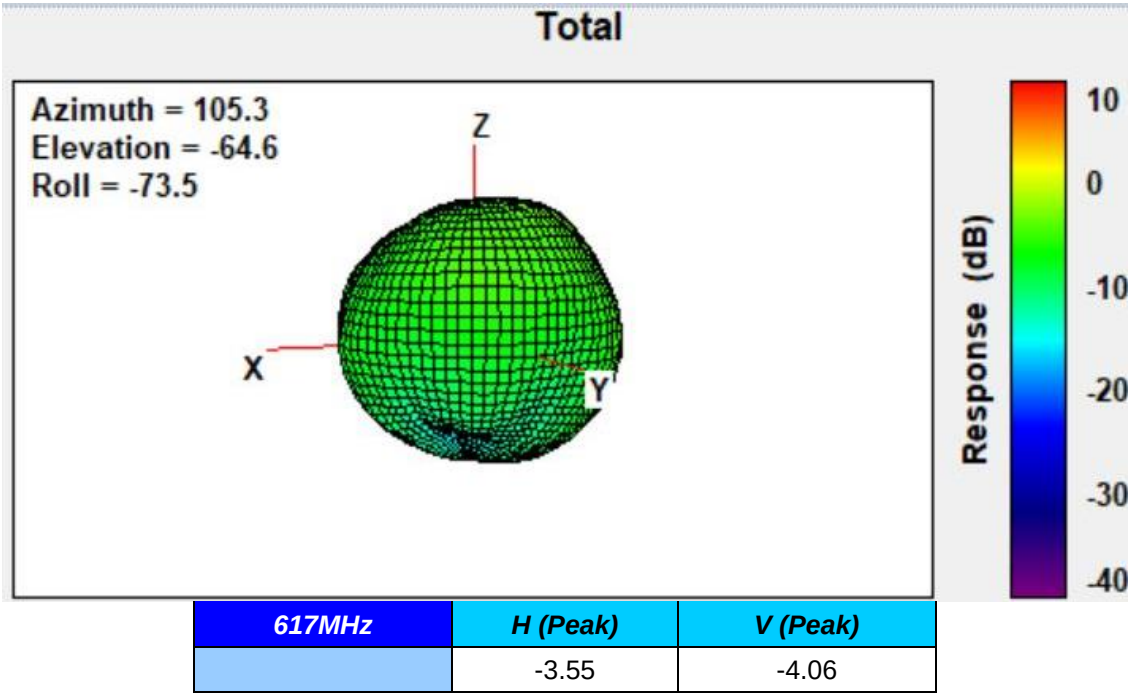
5150MHz



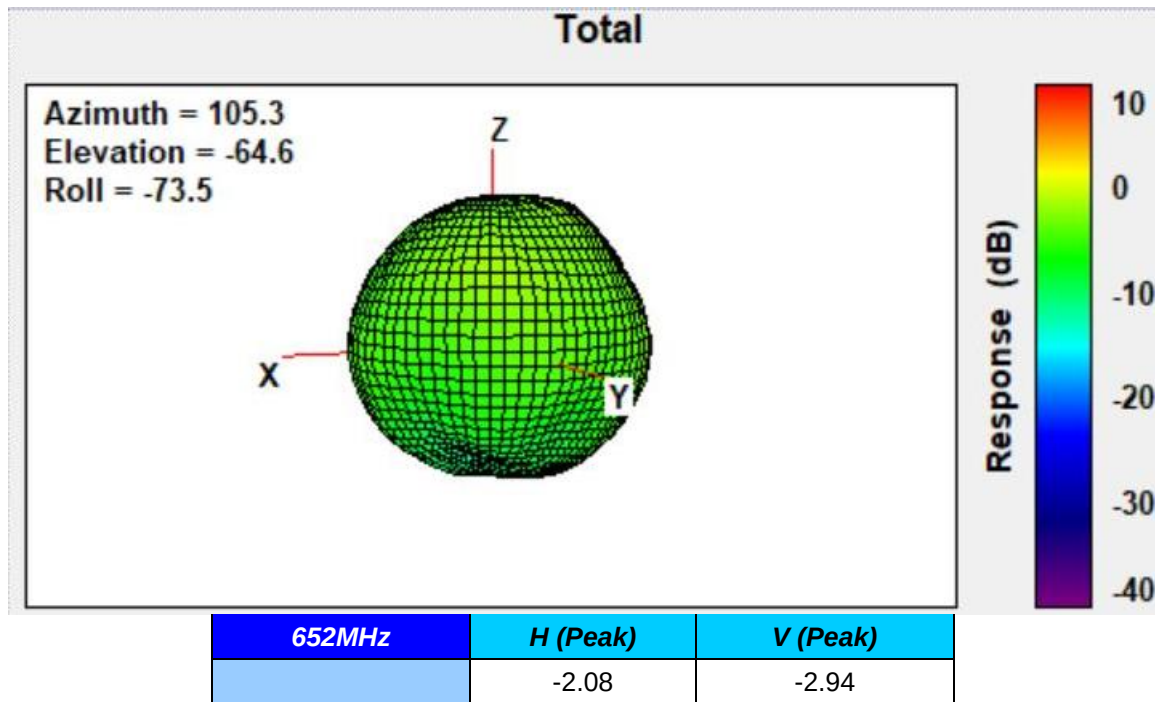
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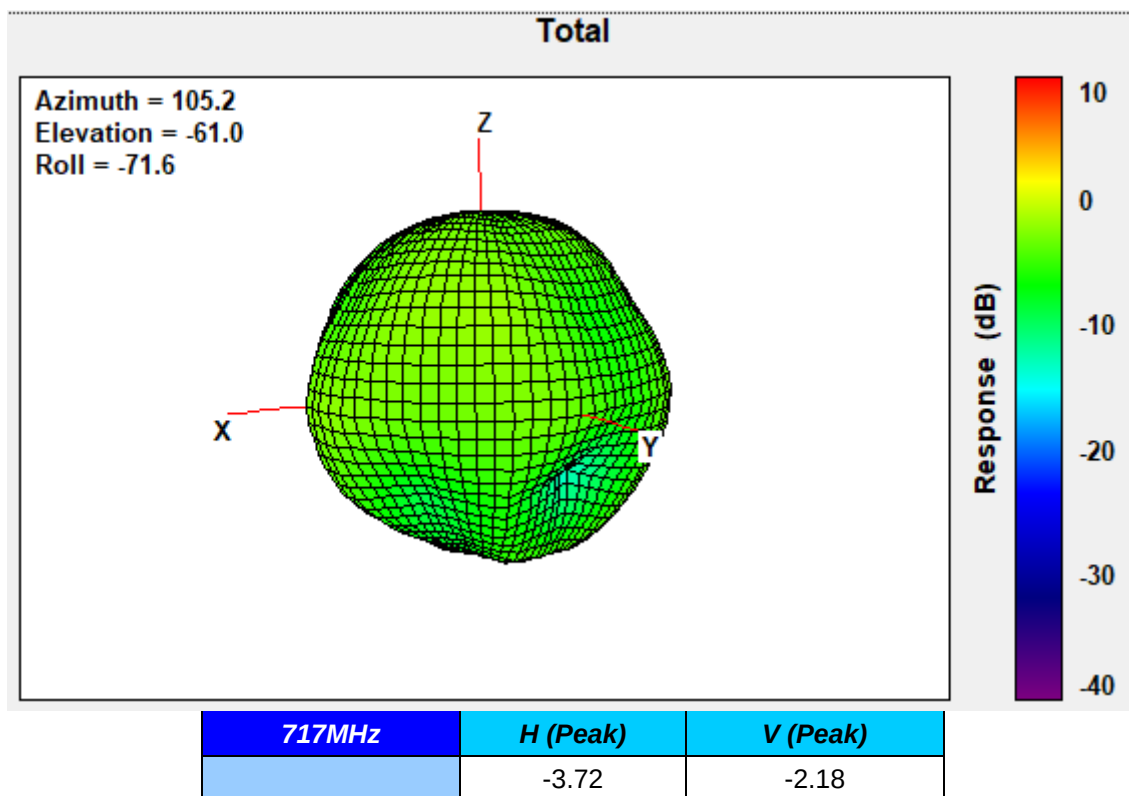




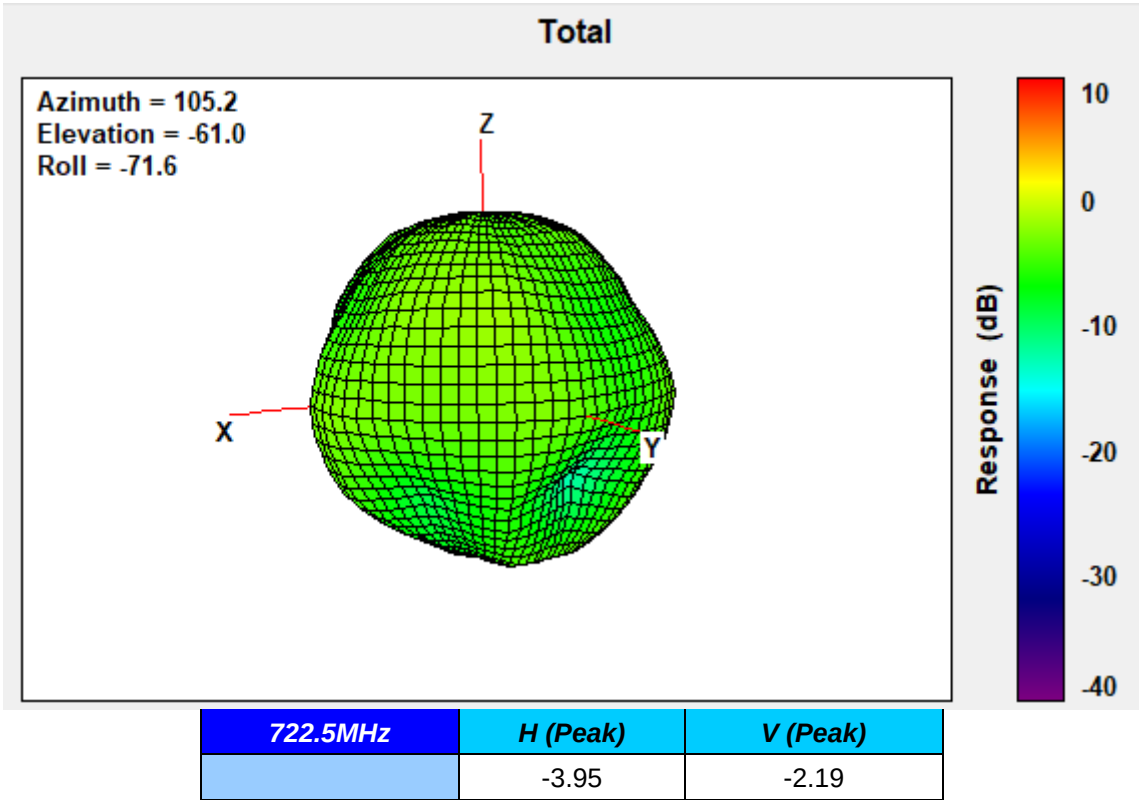
652MHz



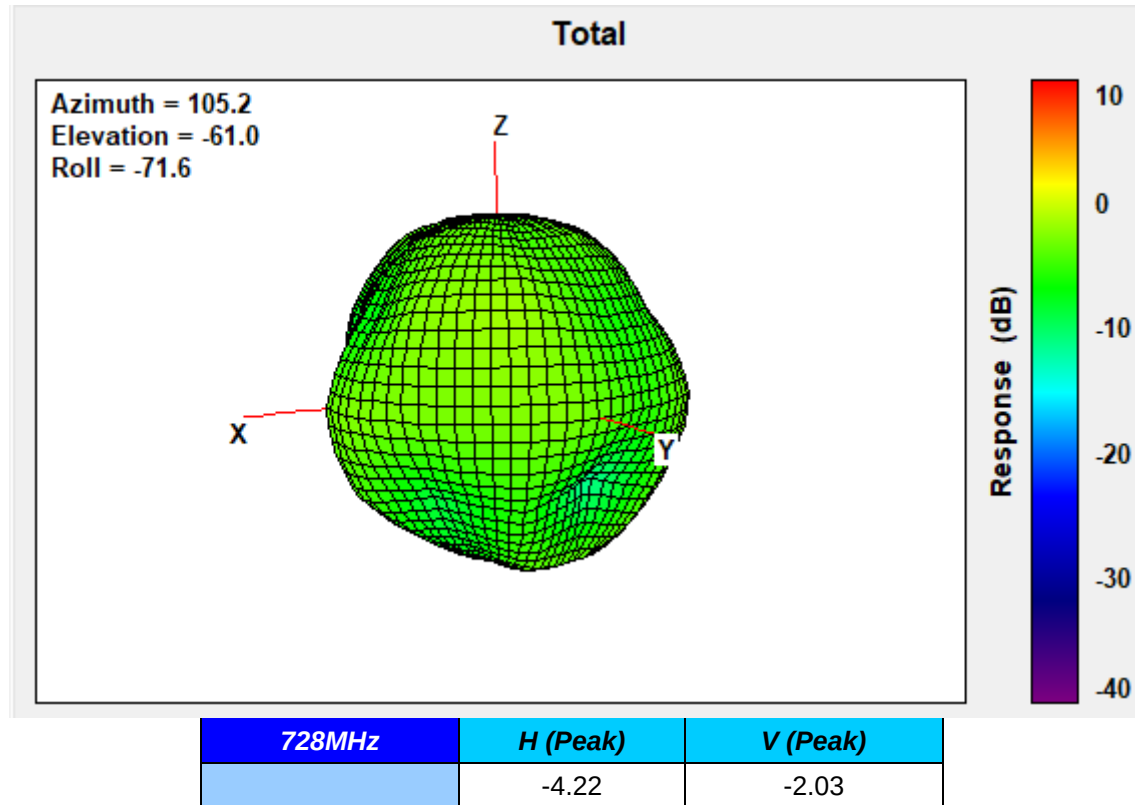
717MHz



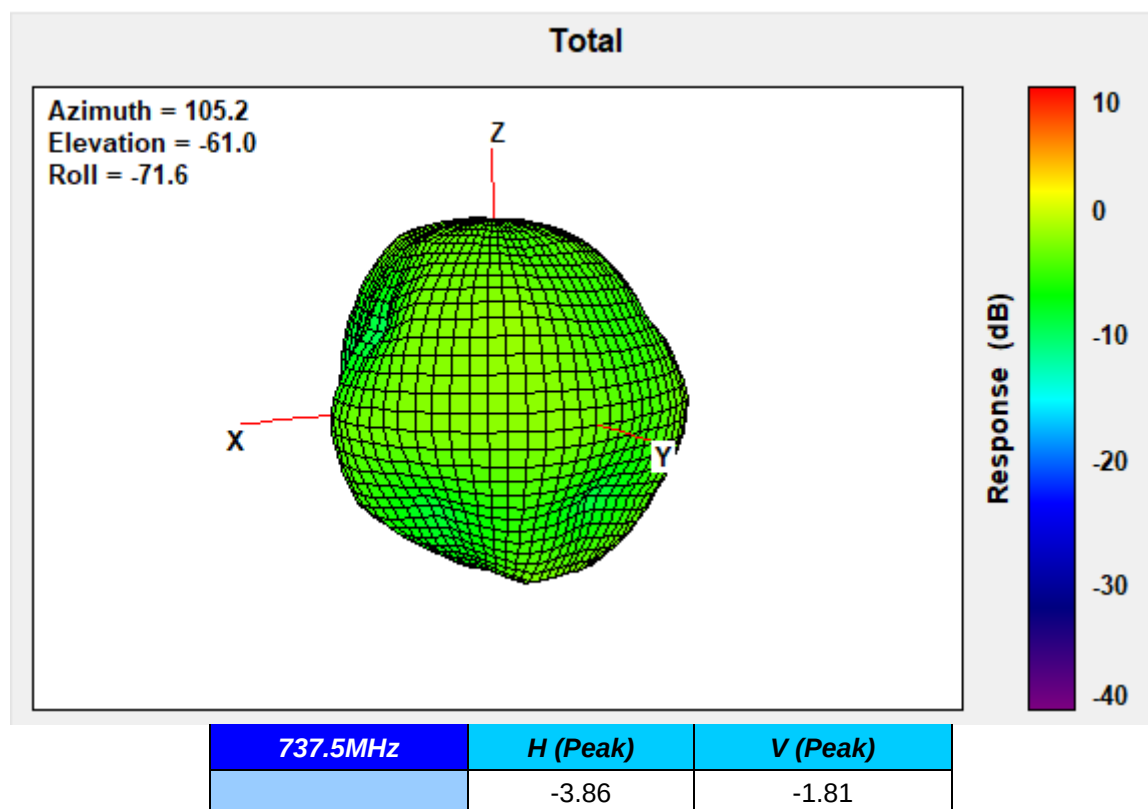
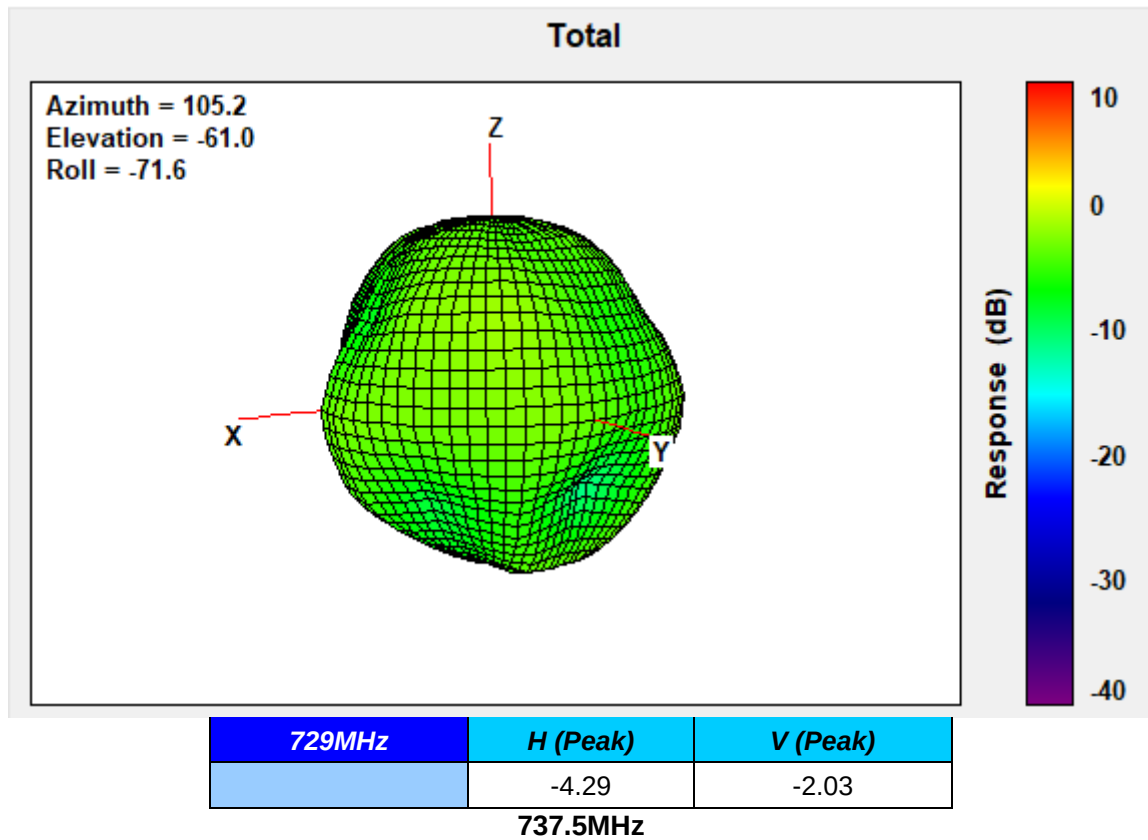
722.5MHz



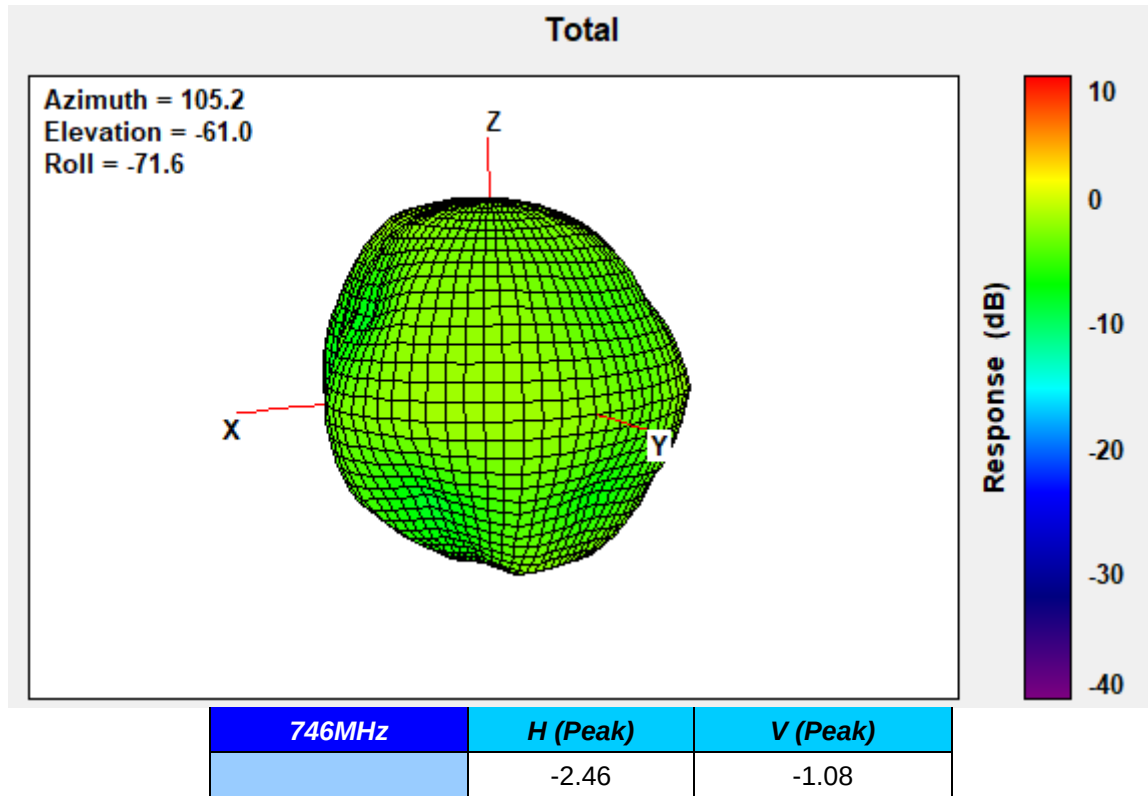
728MHz



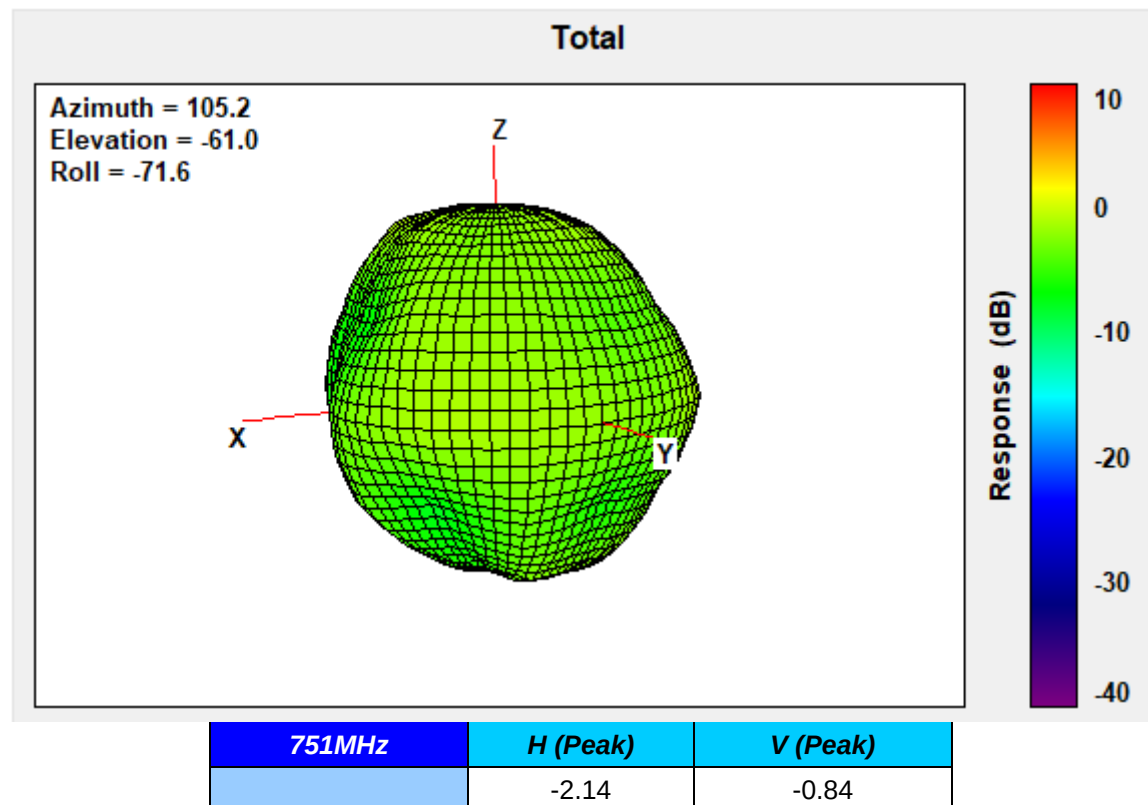
729MHz



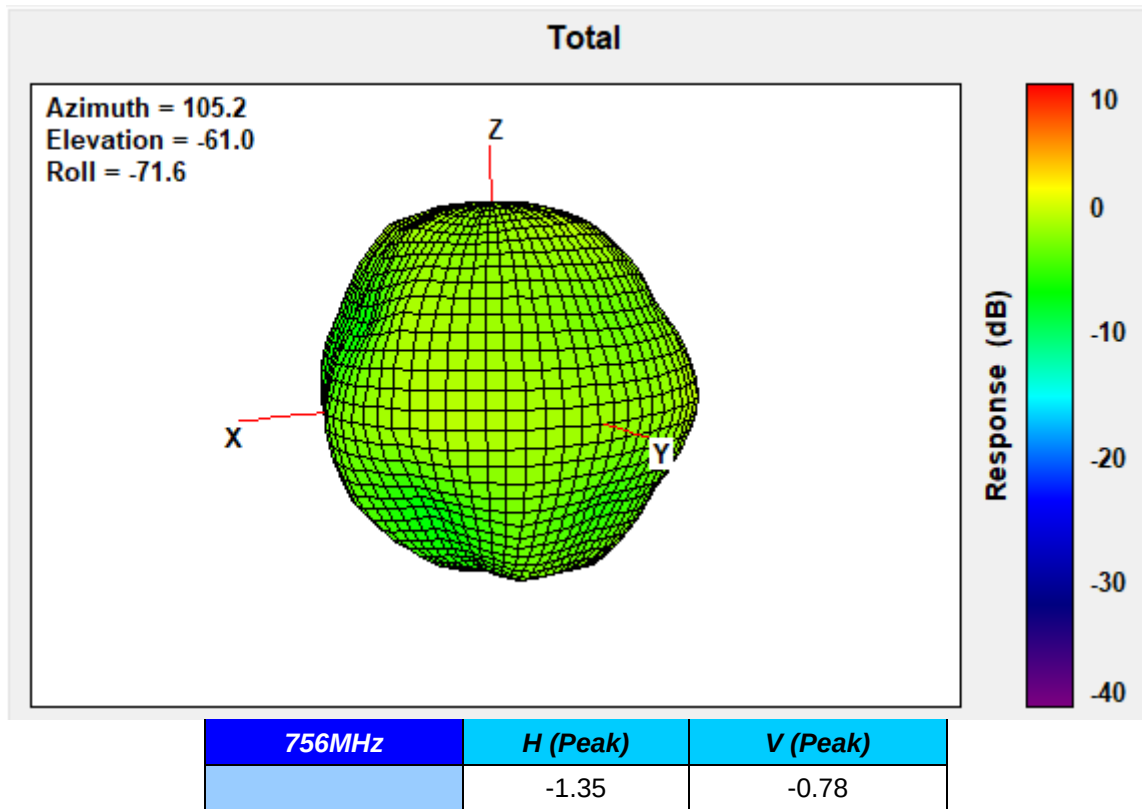
746MHz



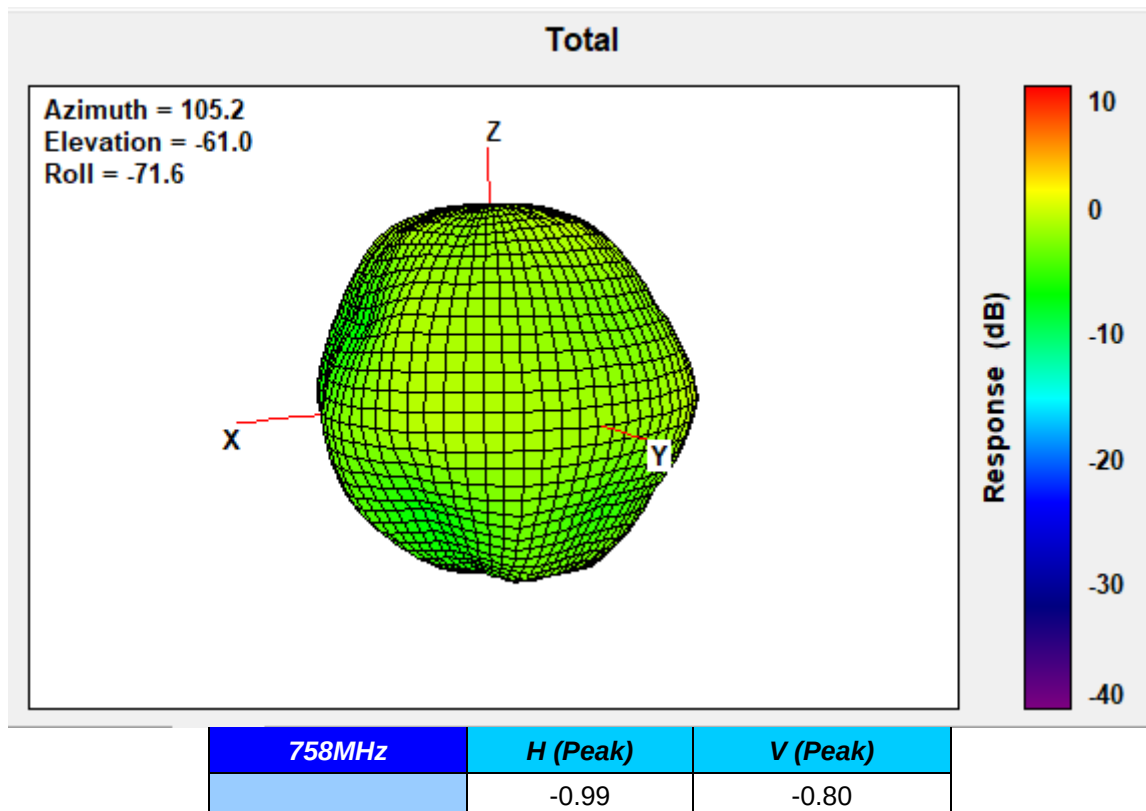
751MHz



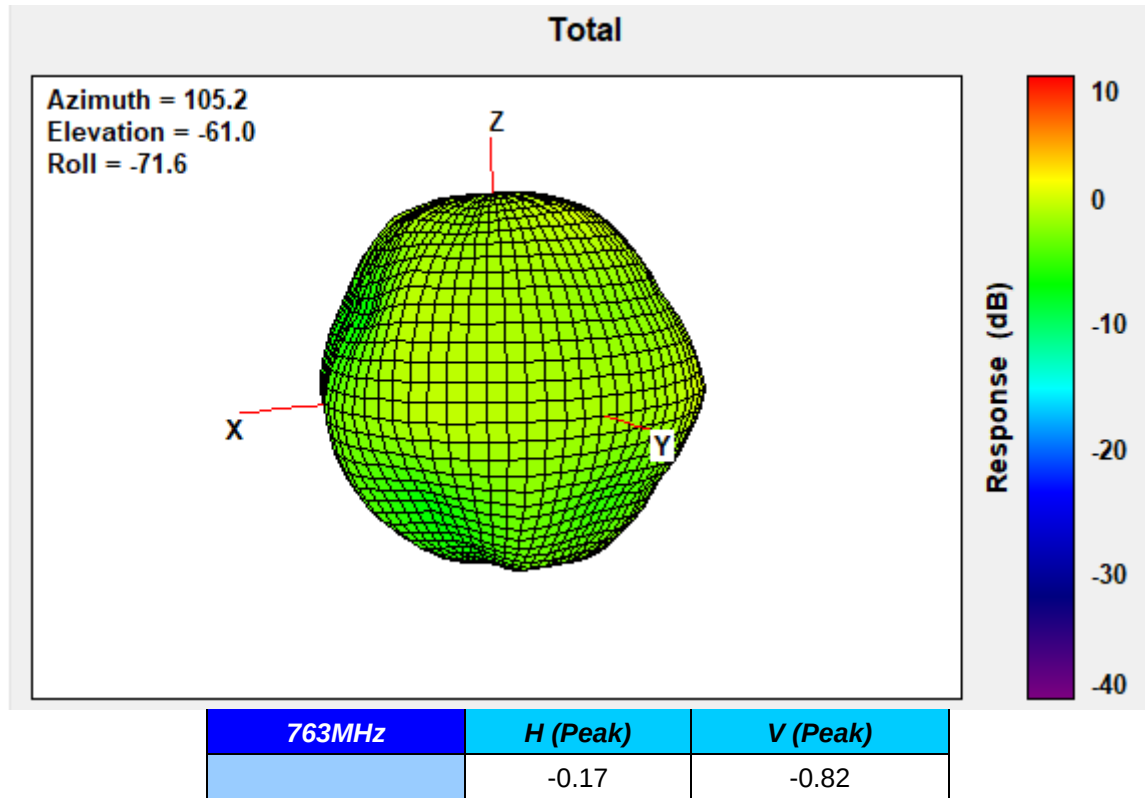
756MHz



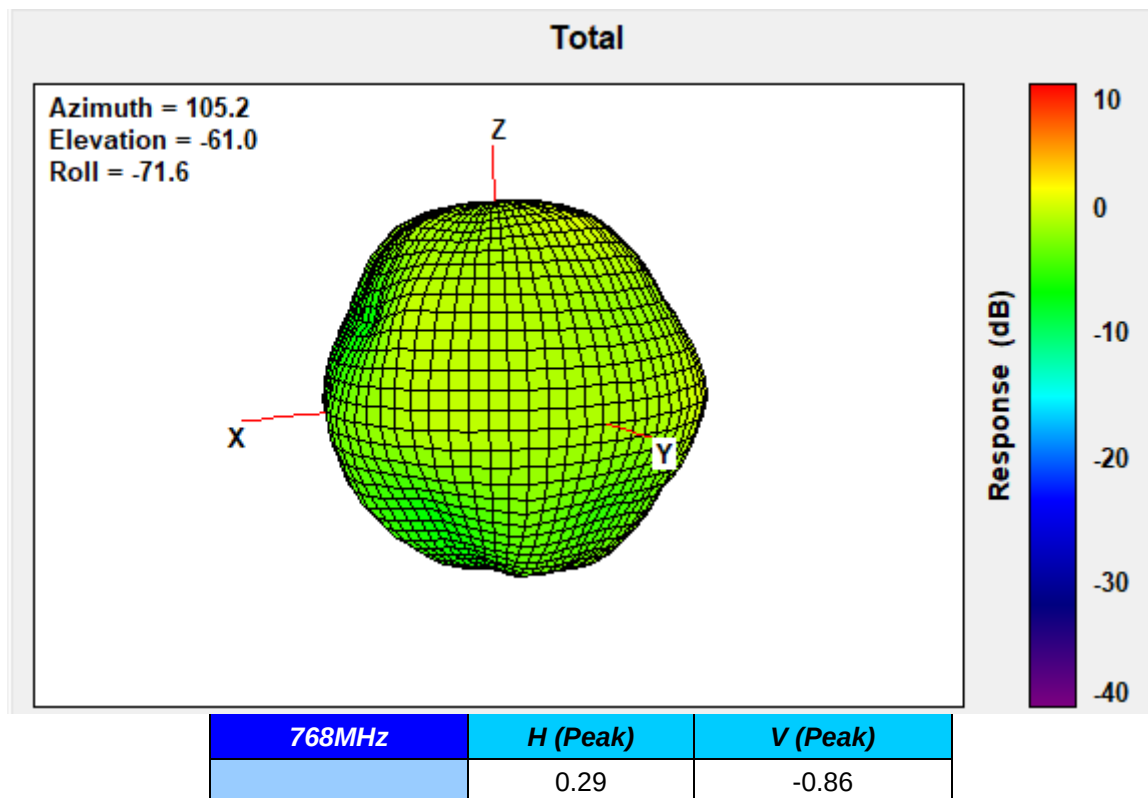
758MHz



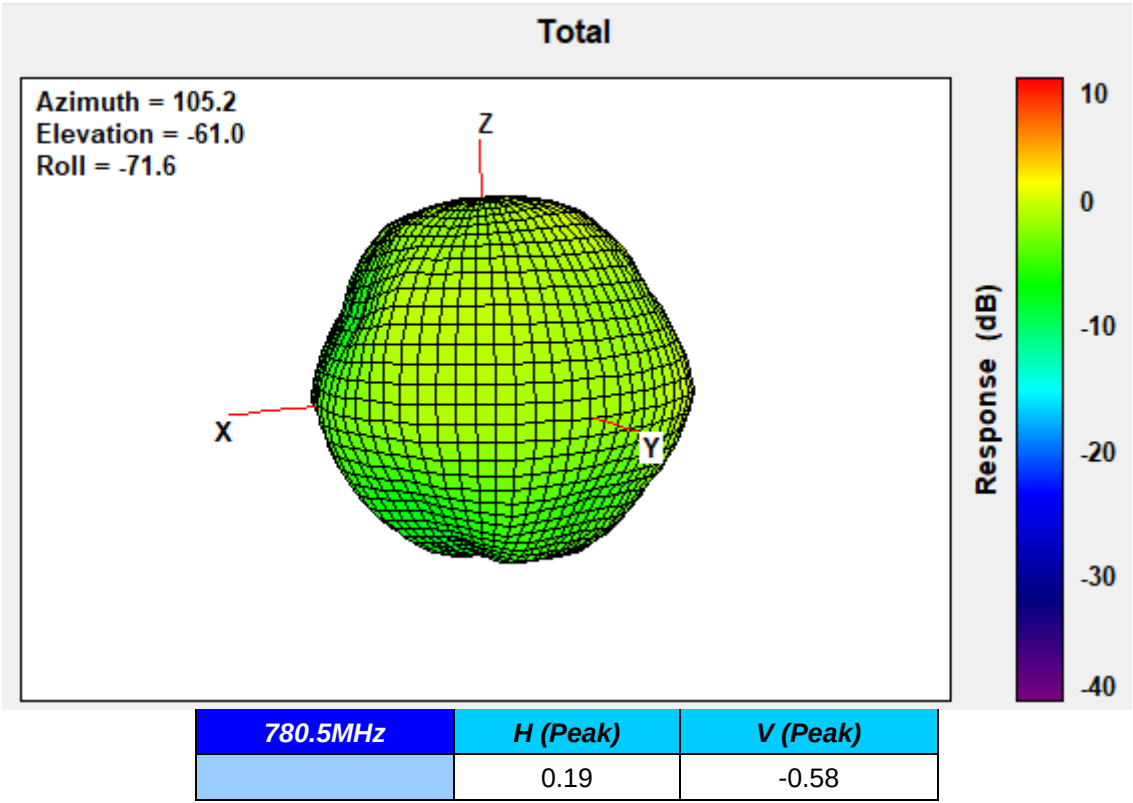
763MHz



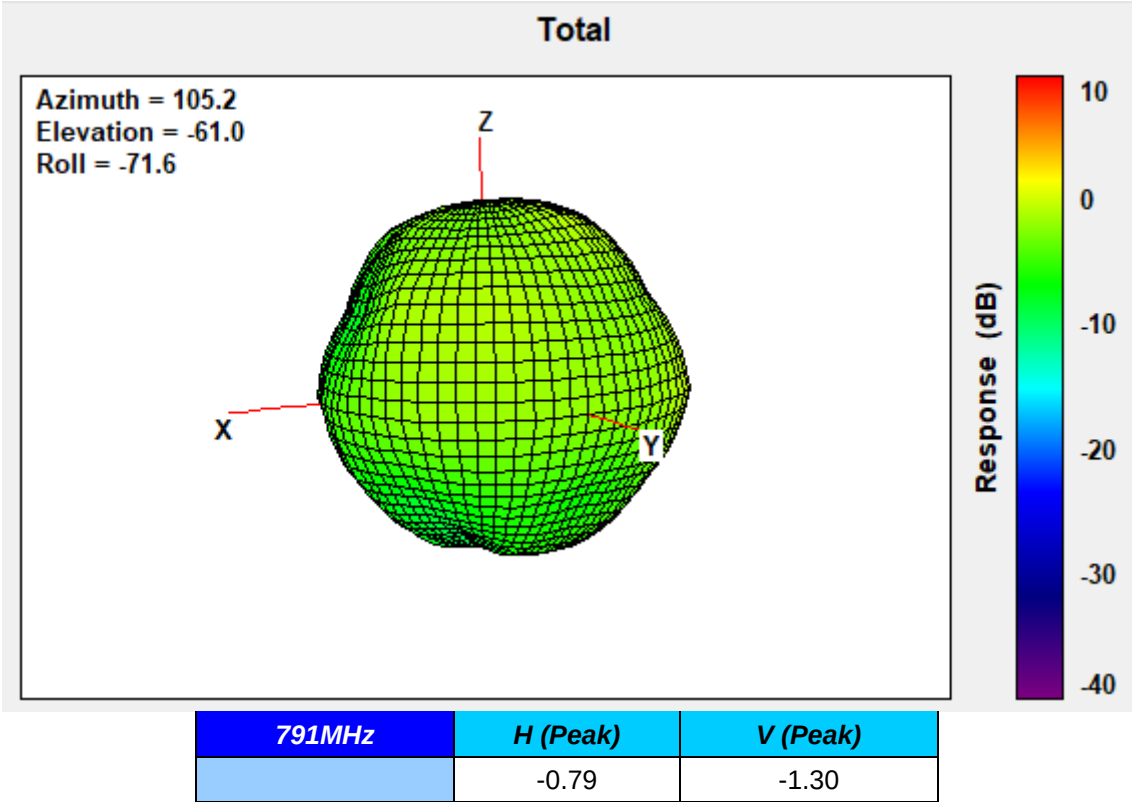
768MHz



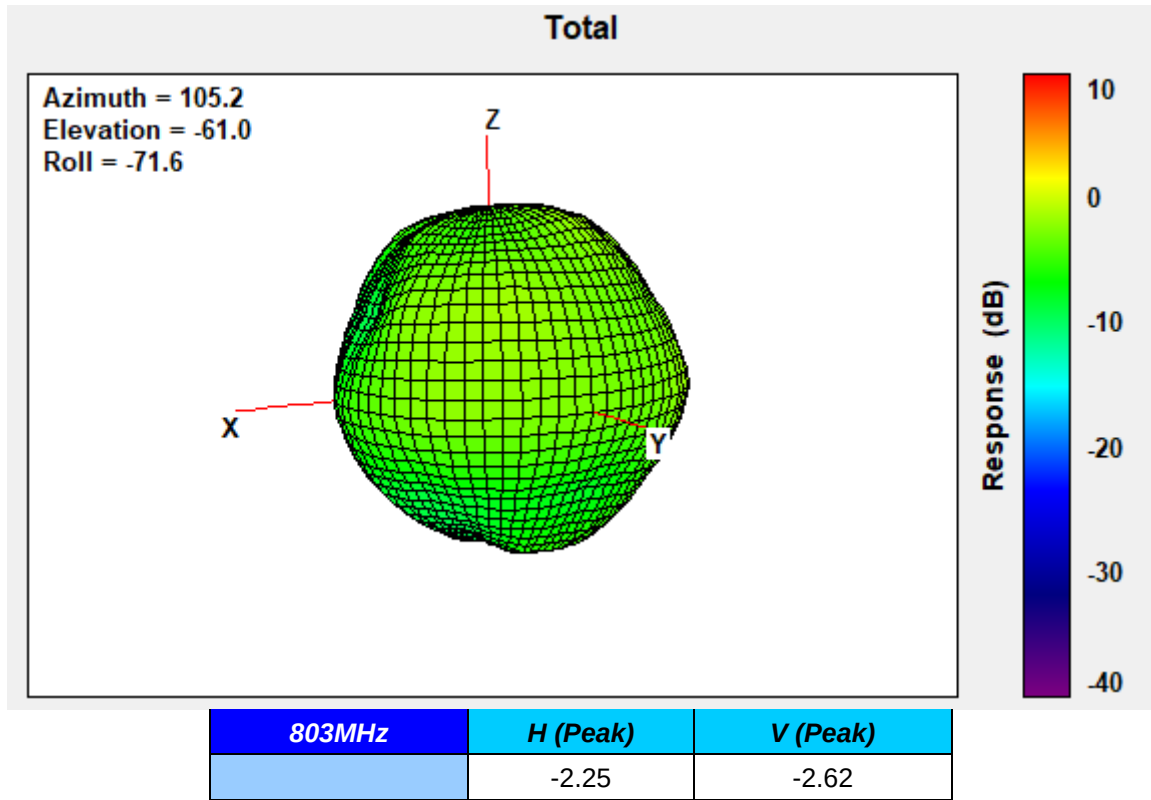
780.5MHz



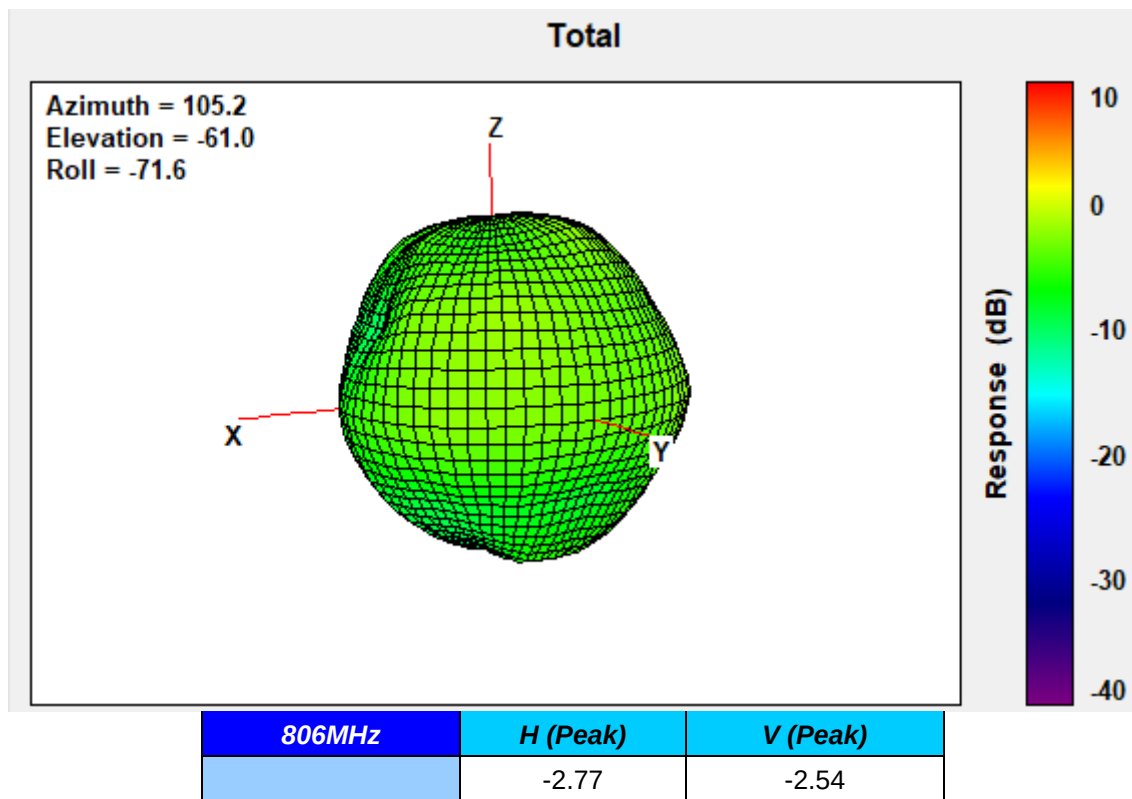
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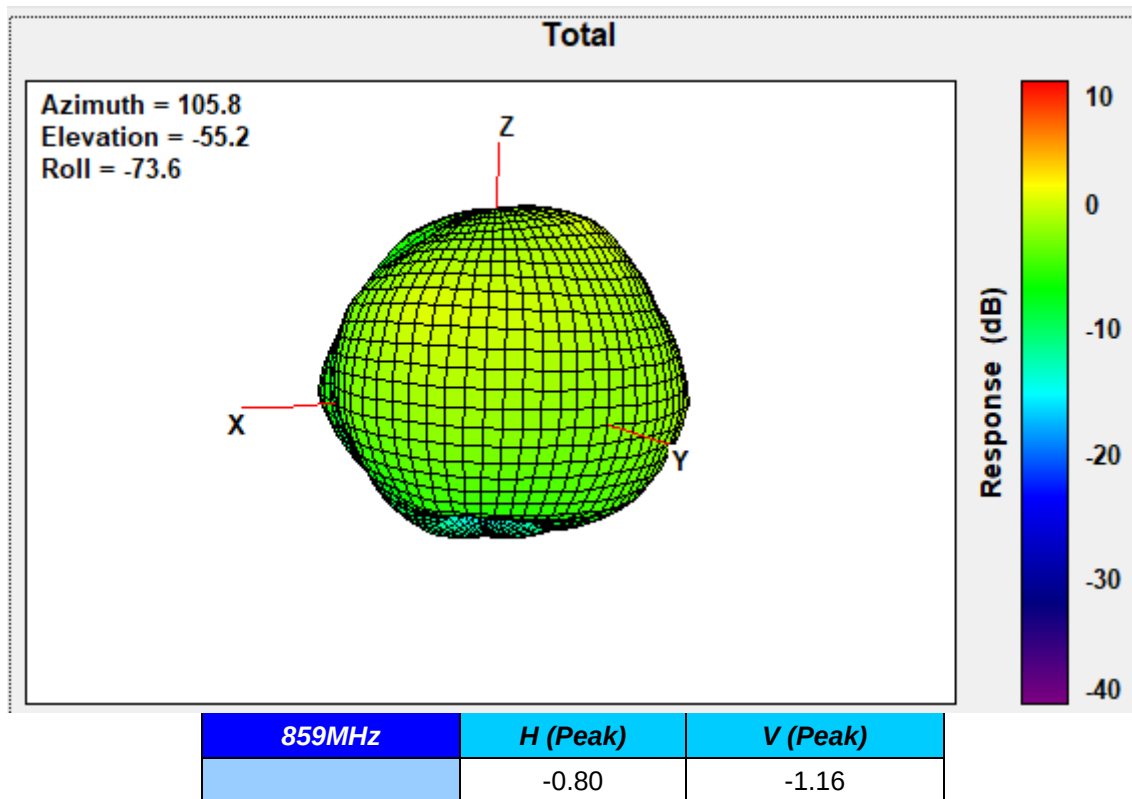
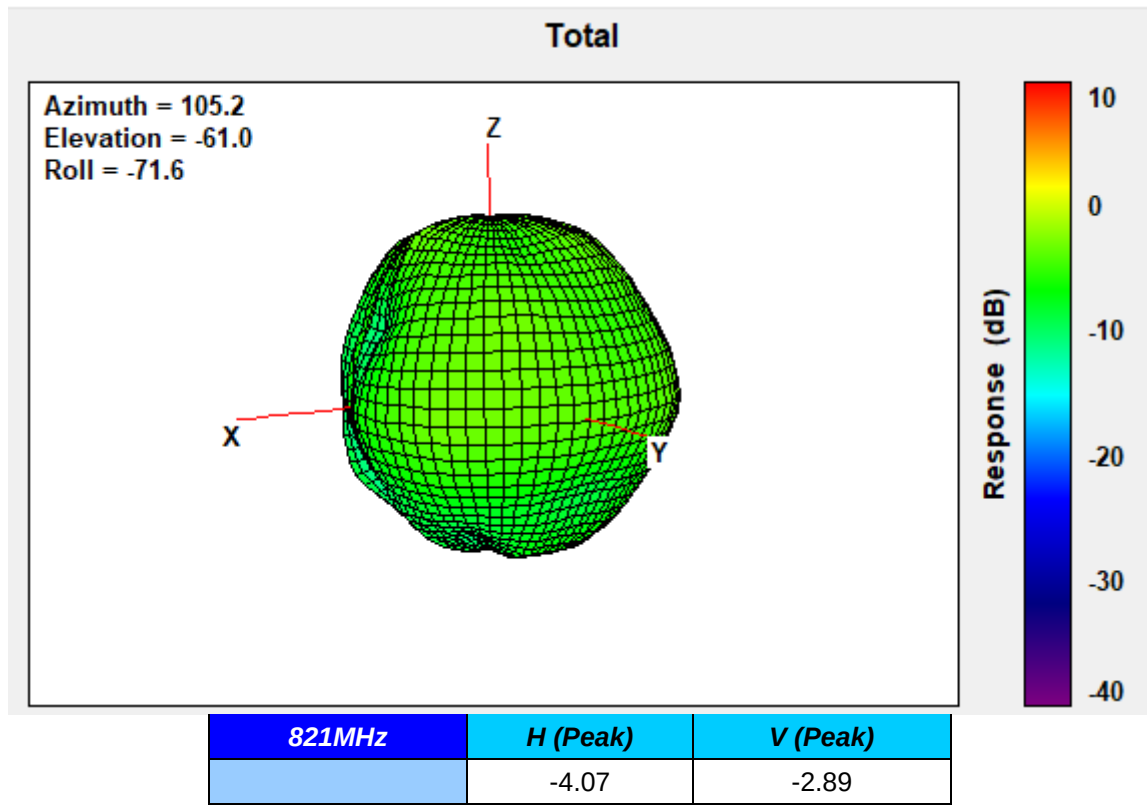


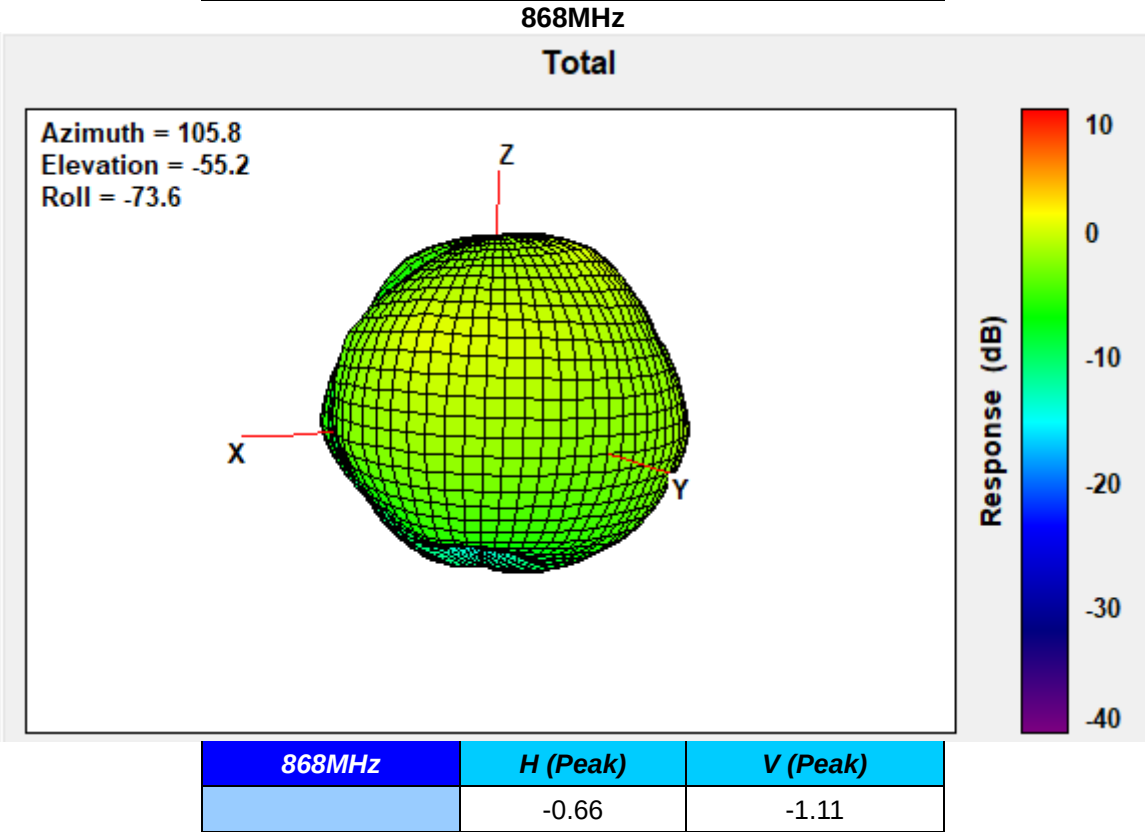
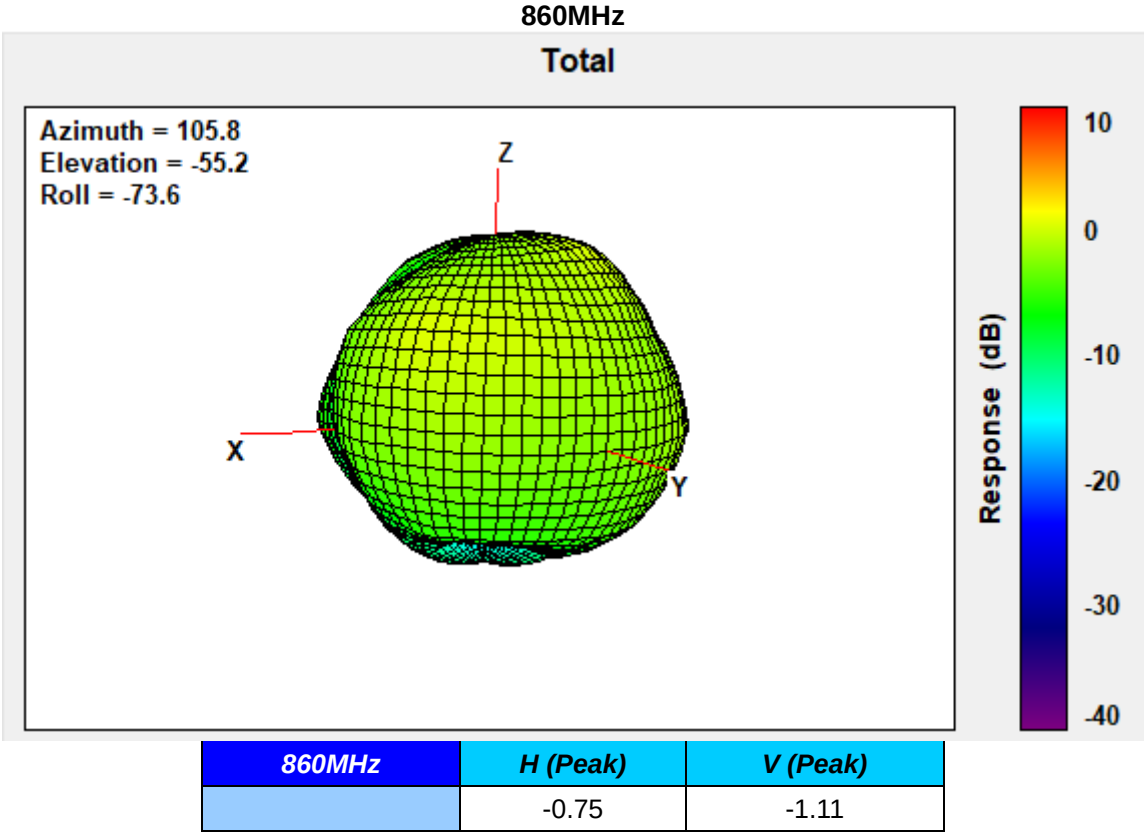
803MHz

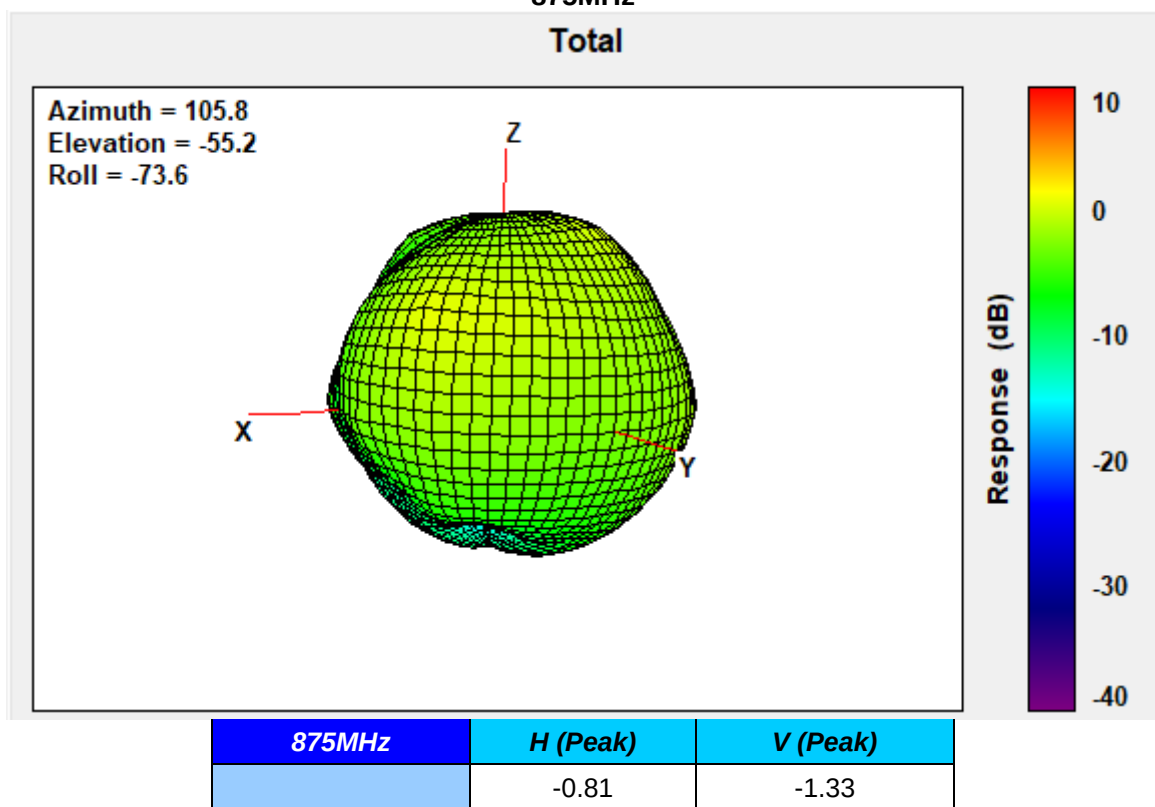
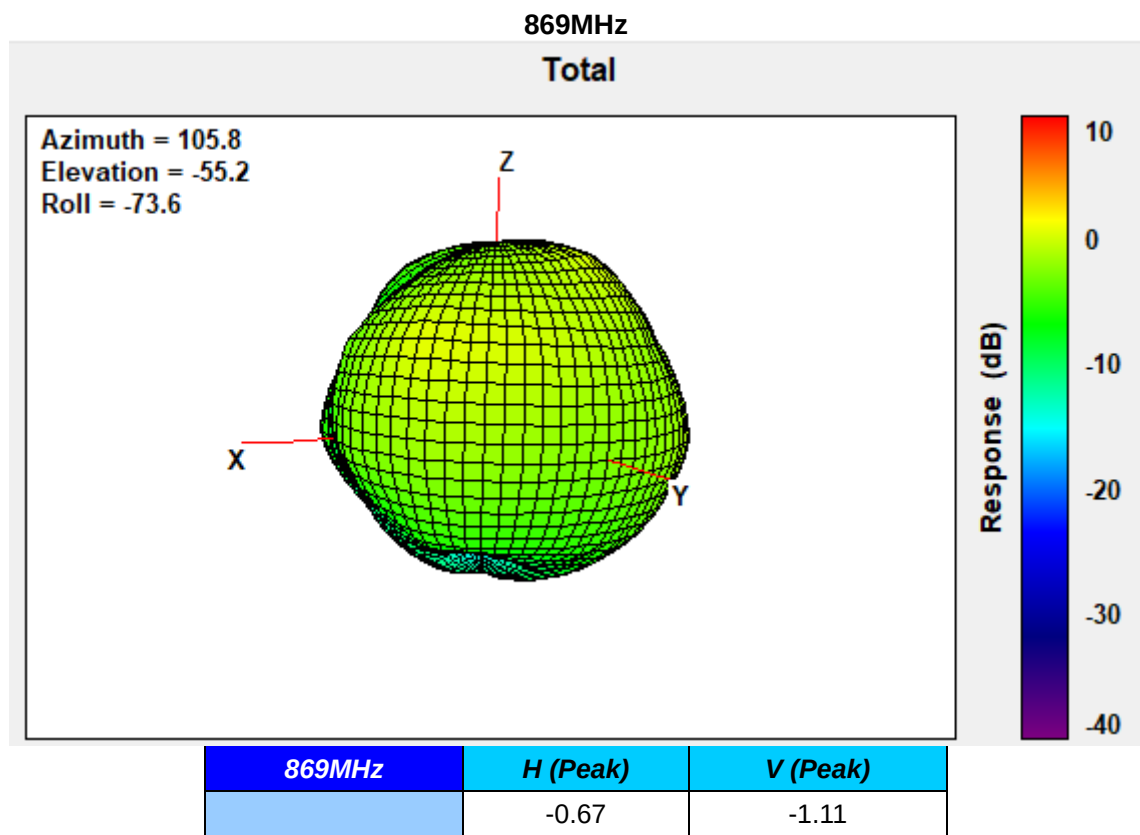


806MHz





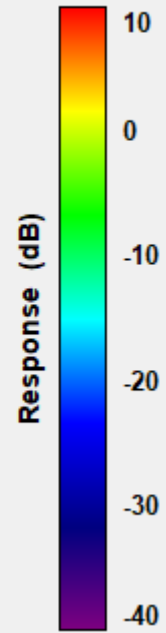
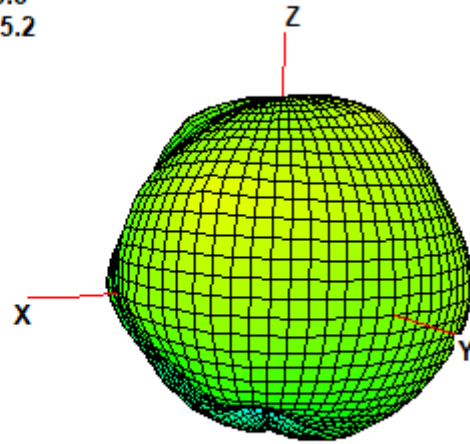




876.5MHz

Total

Azimuth = 105.8
Elevation = -55.2
Roll = -73.6

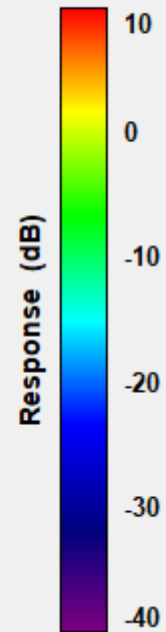
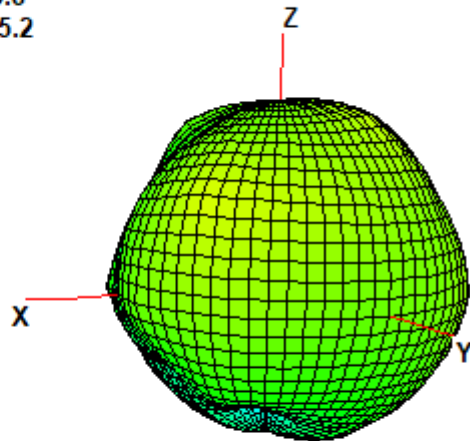


876.5MHz	H (Peak)	V (Peak)
	-0.86	-1.43

880MHz

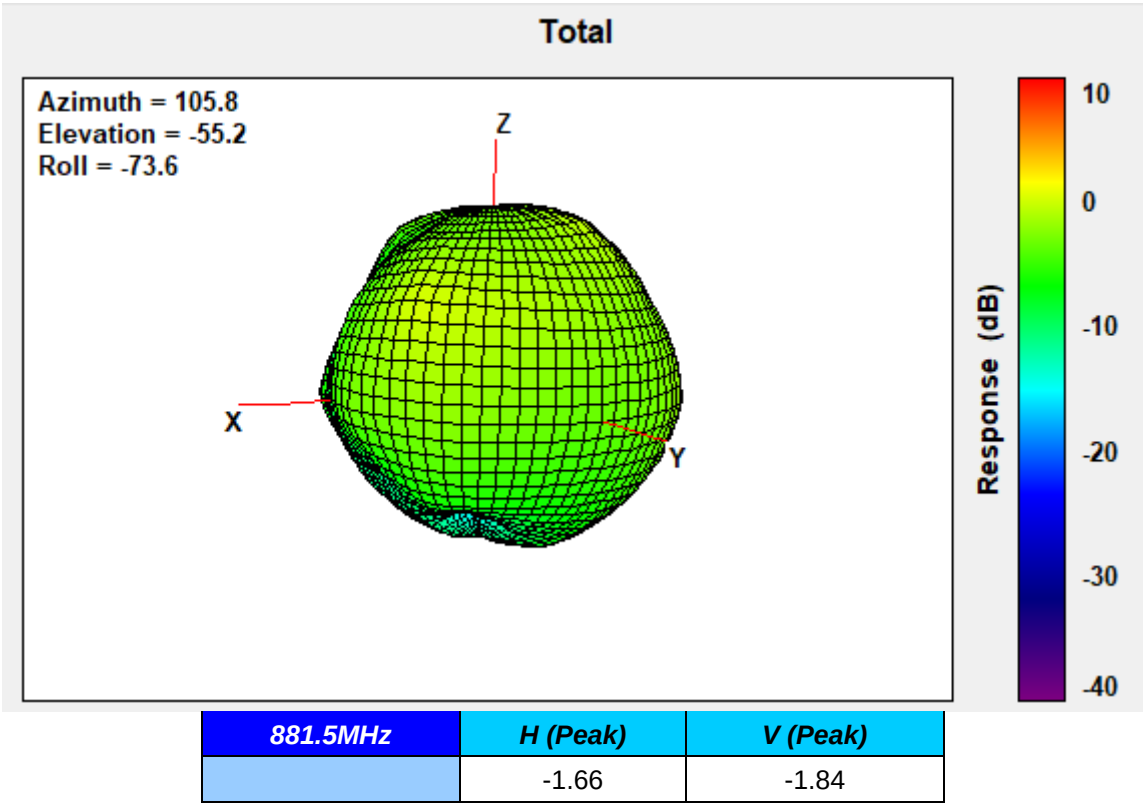
Total

Azimuth = 105.8
Elevation = -55.2
Roll = -73.6

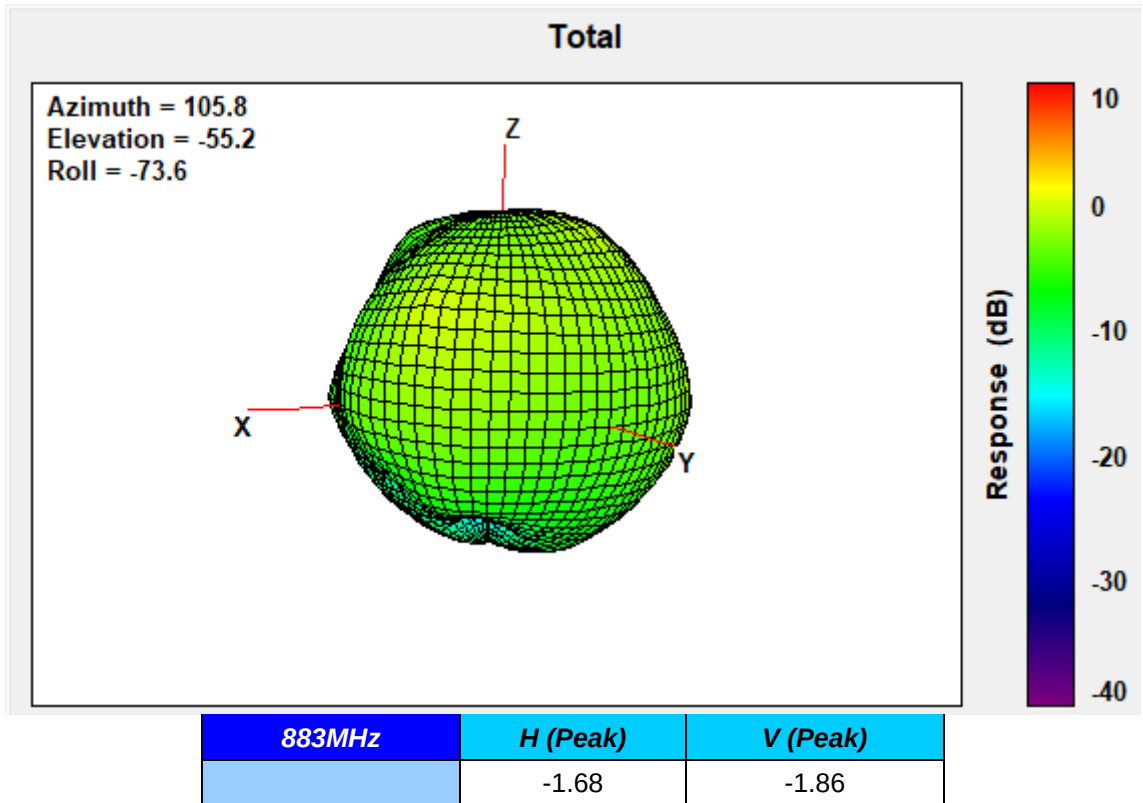


880MHz	H (Peak)	V (Peak)
	-1.61	-1.87

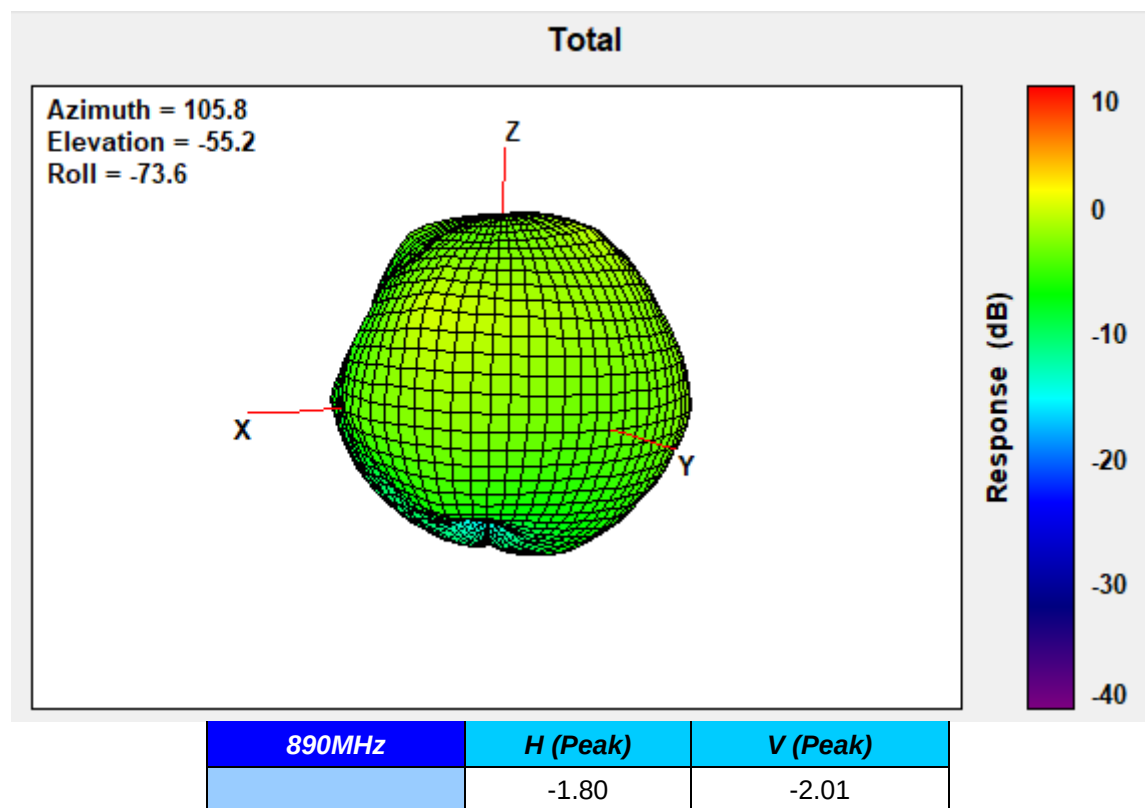
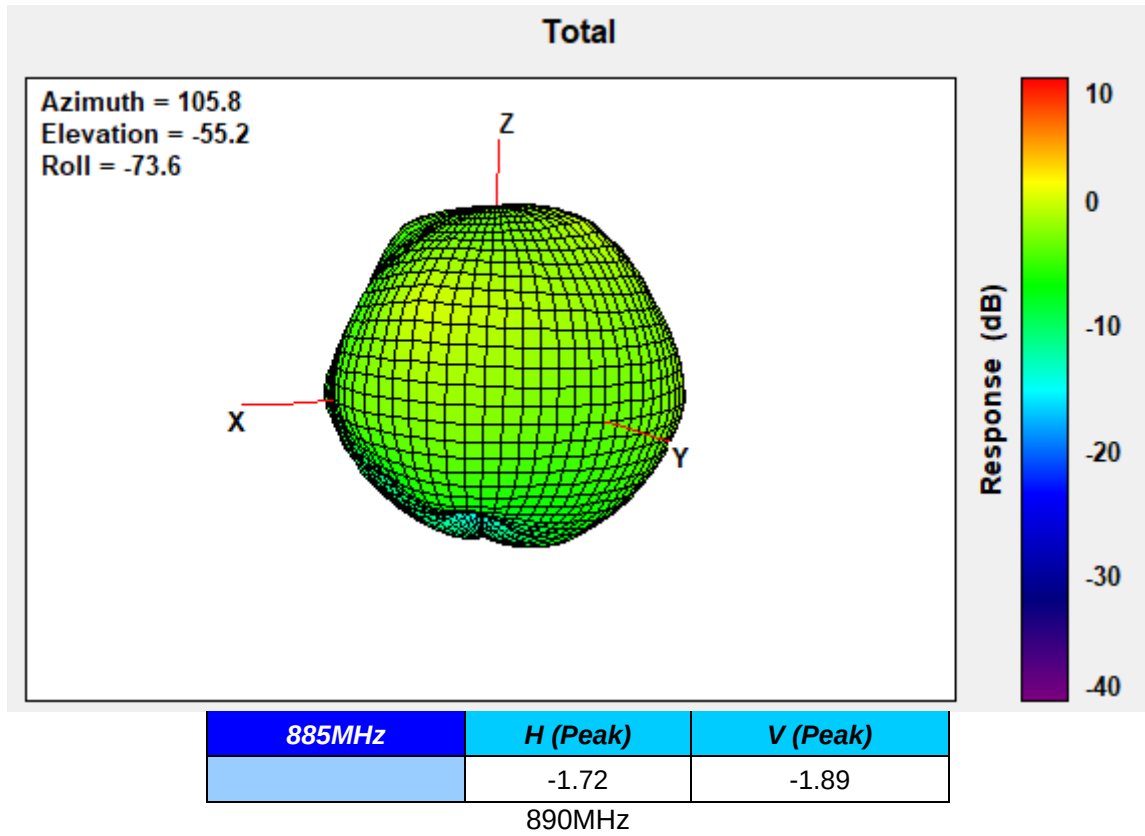
881.5MHz

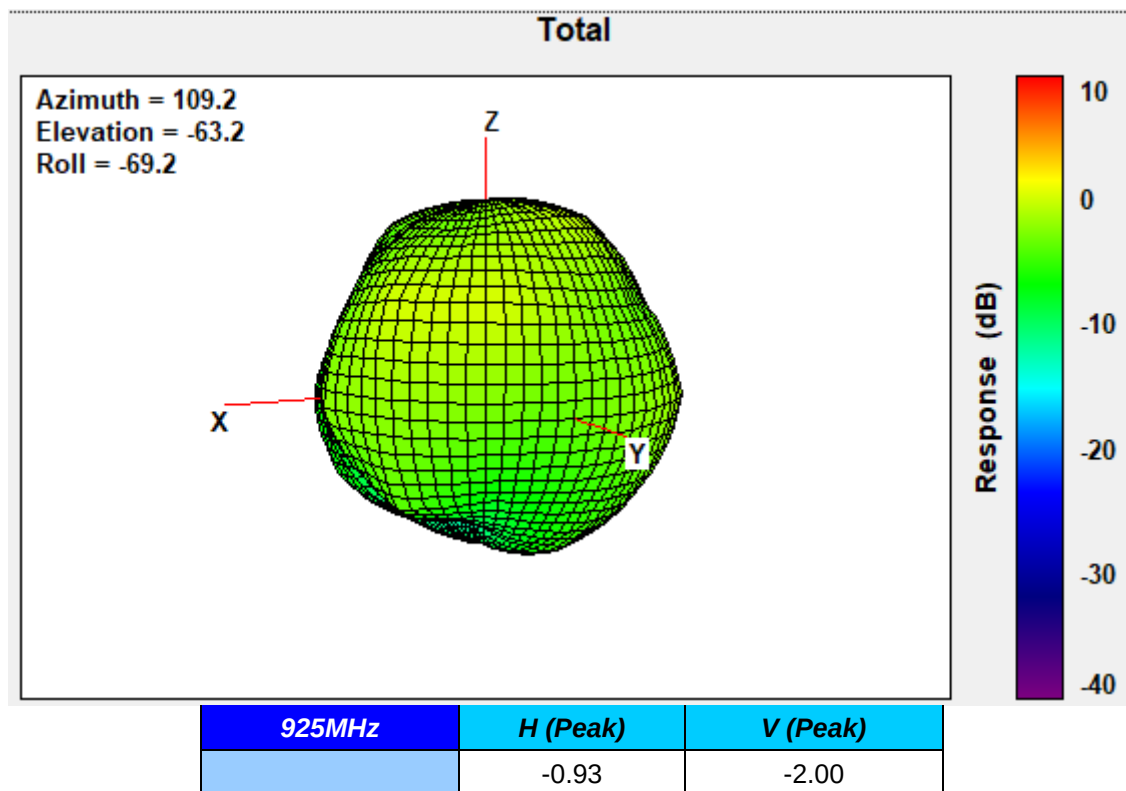
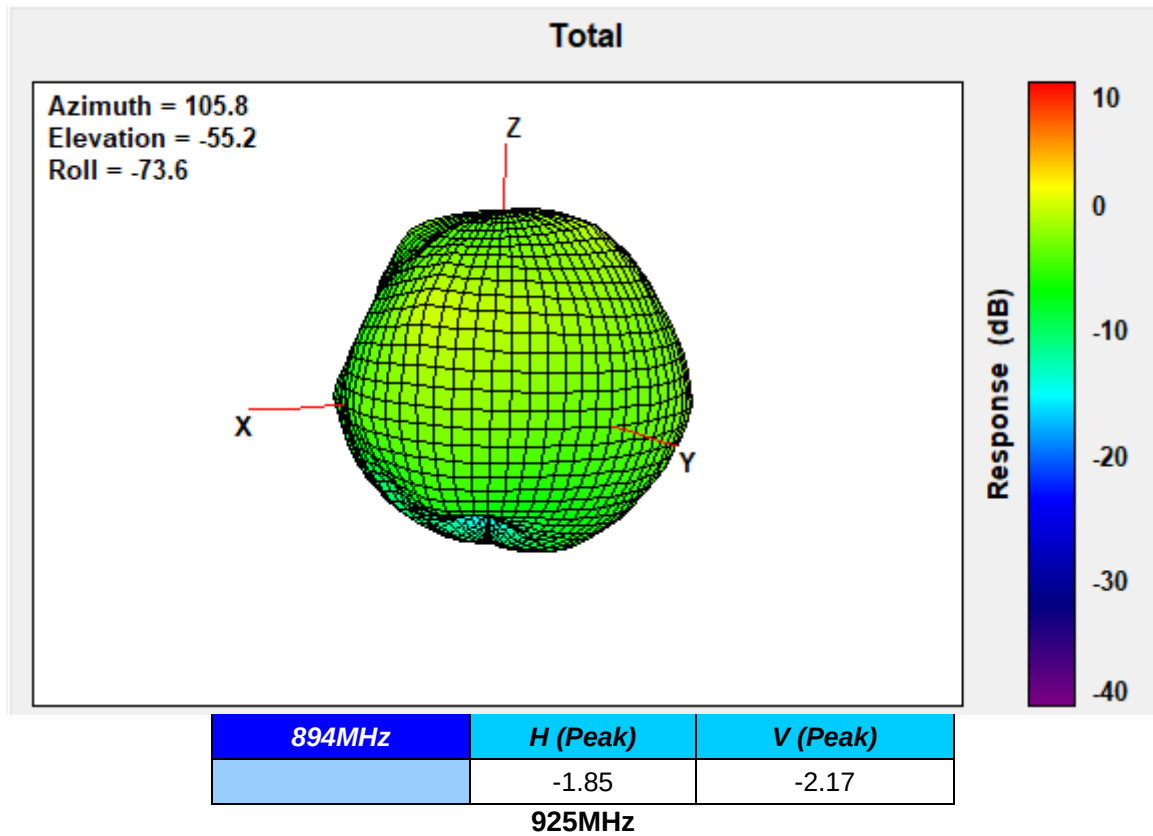


883MHz

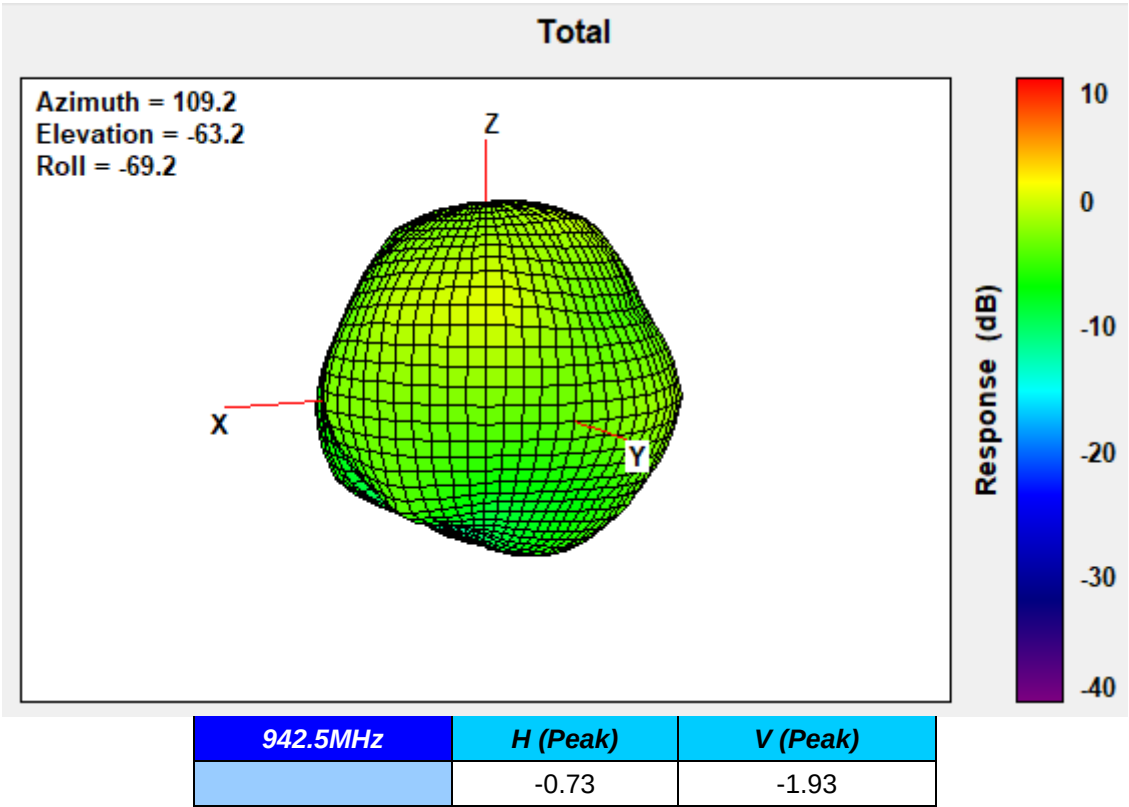


885MHz

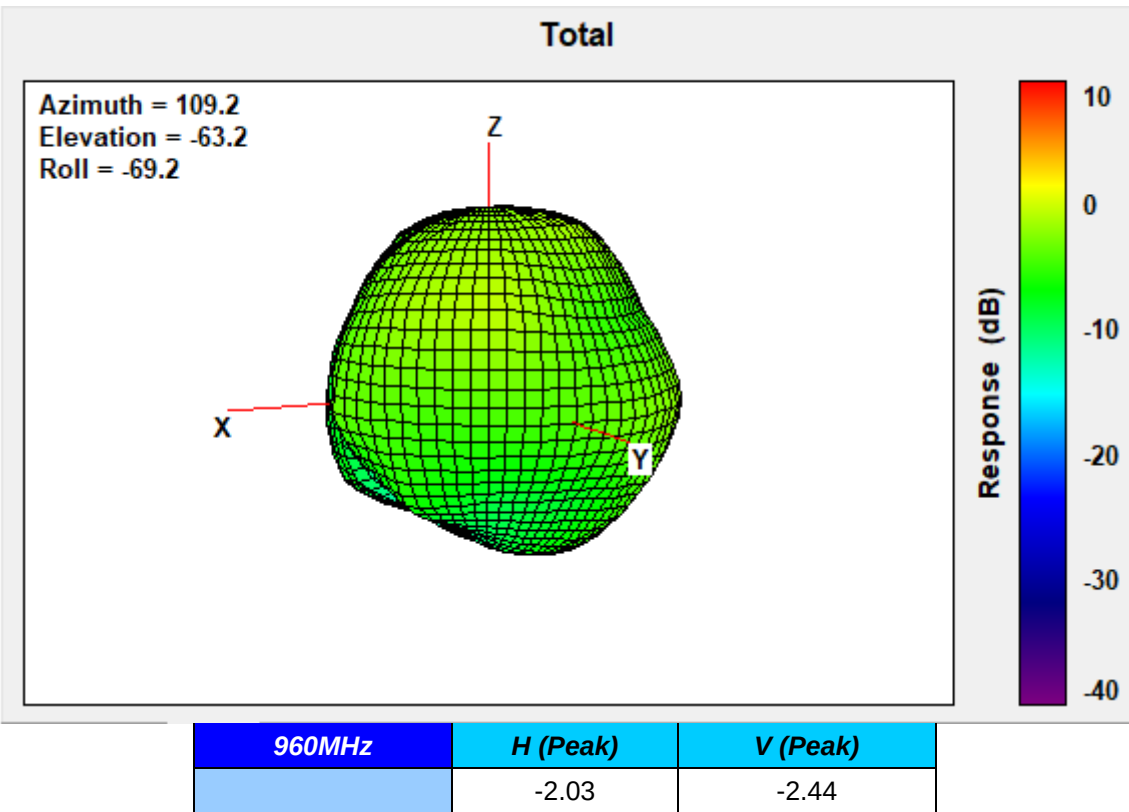




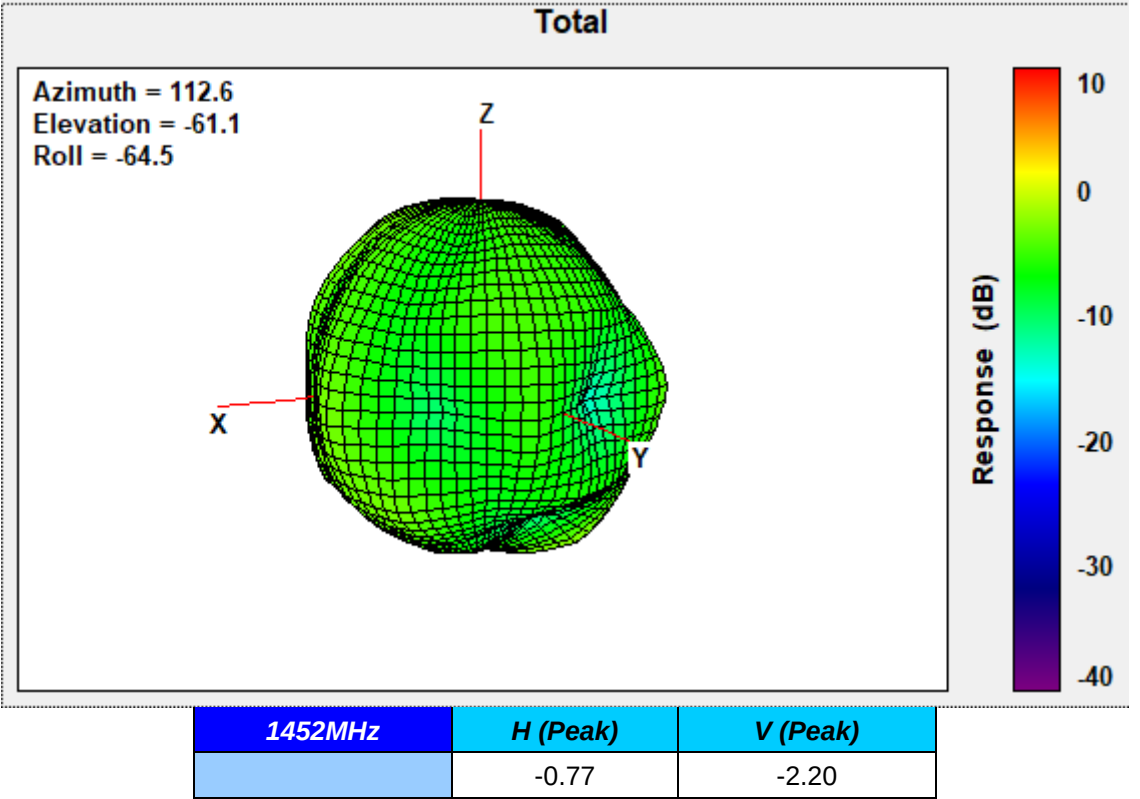
942.5MHz



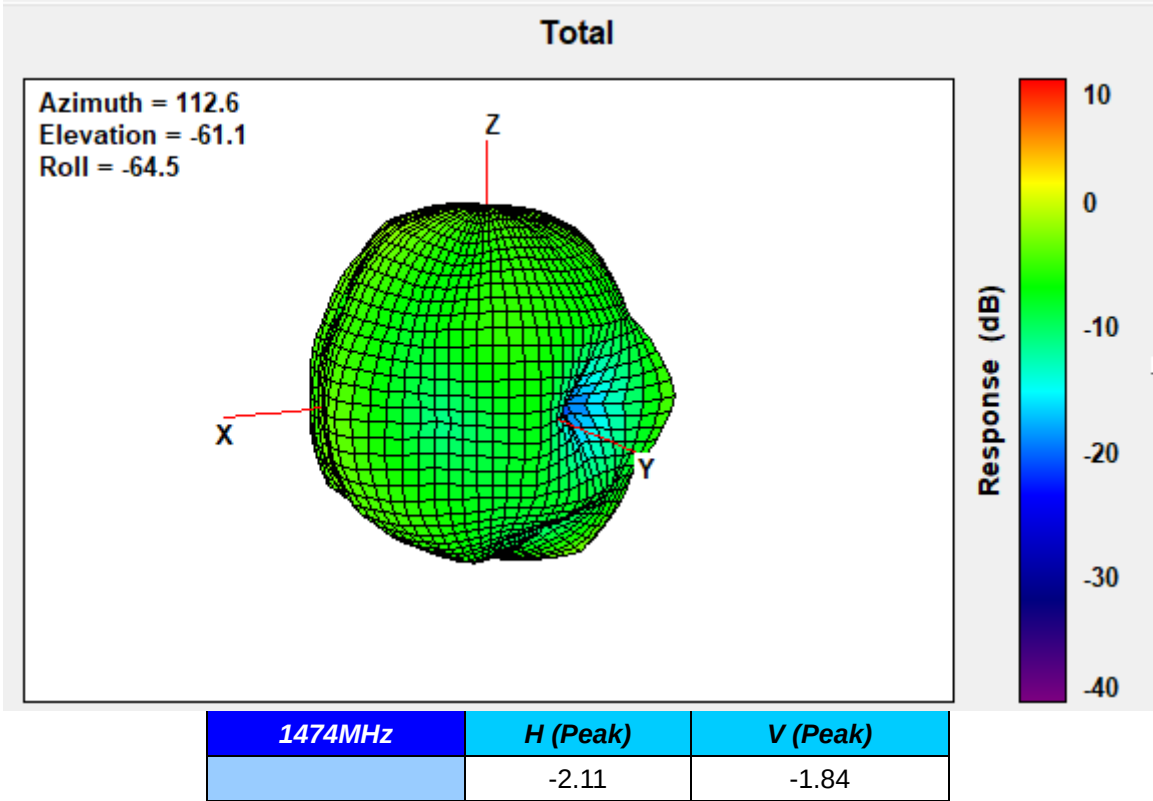
960MHz



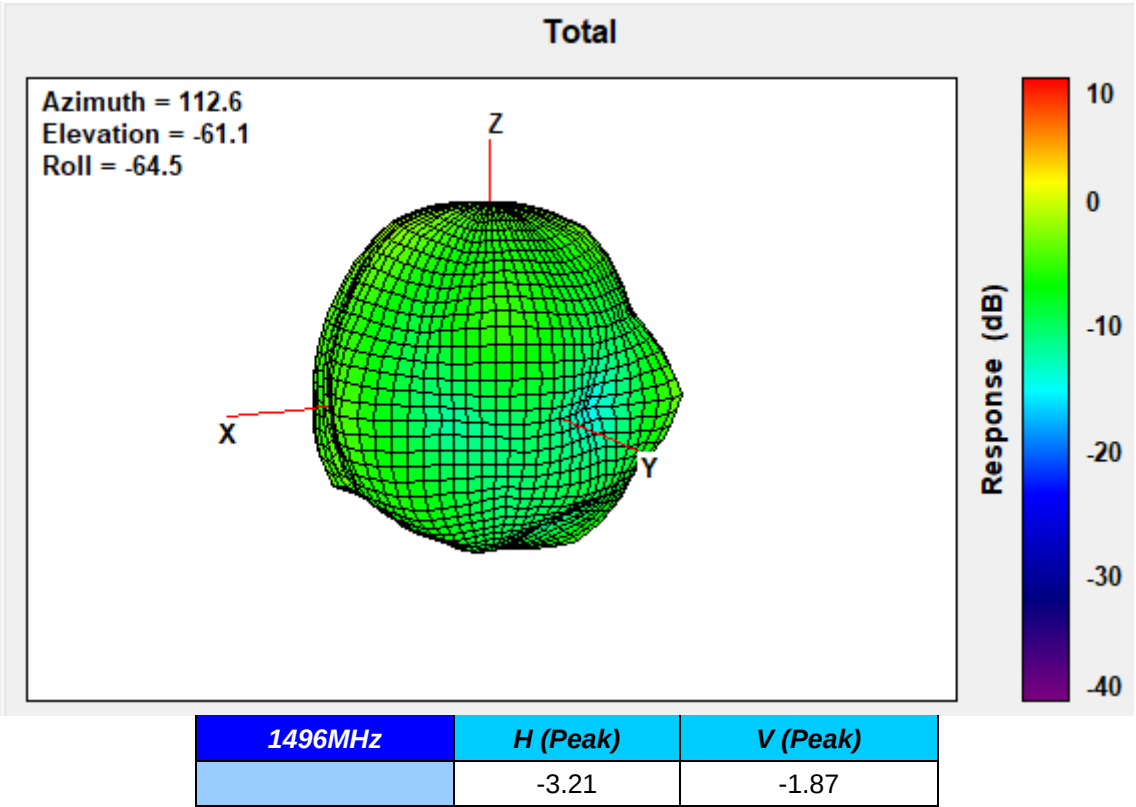
1452MHz



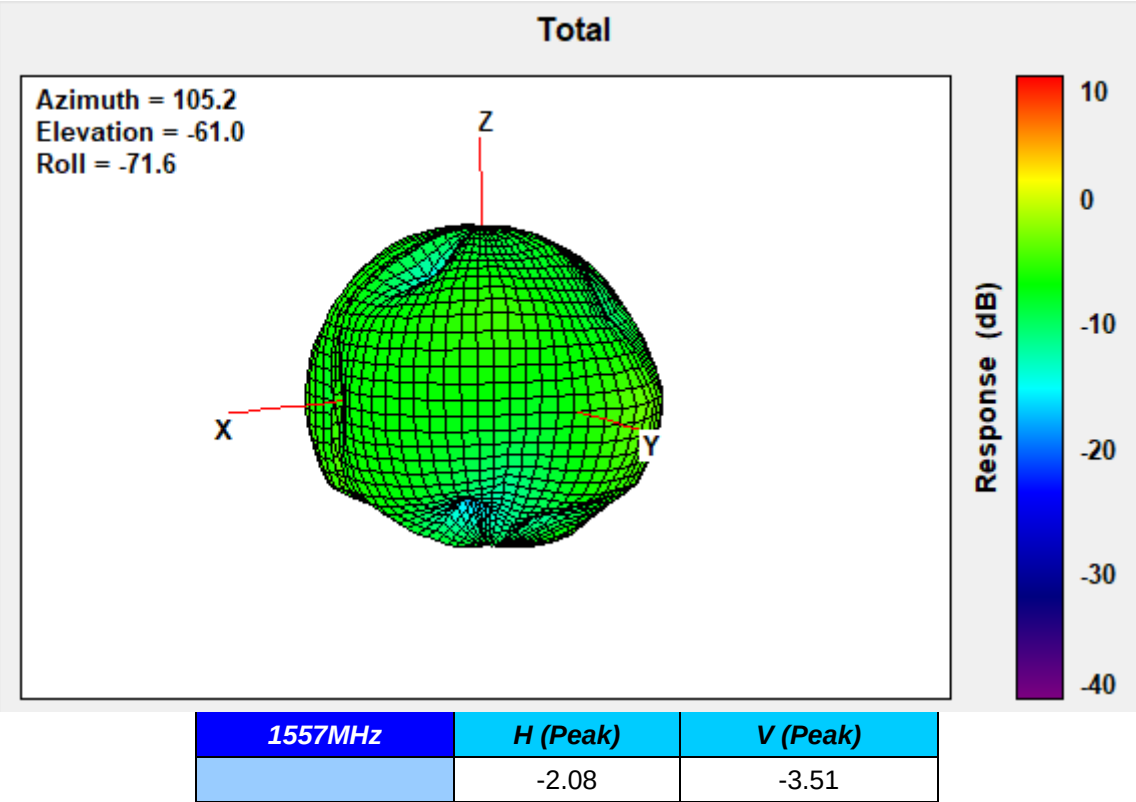
1474MHz



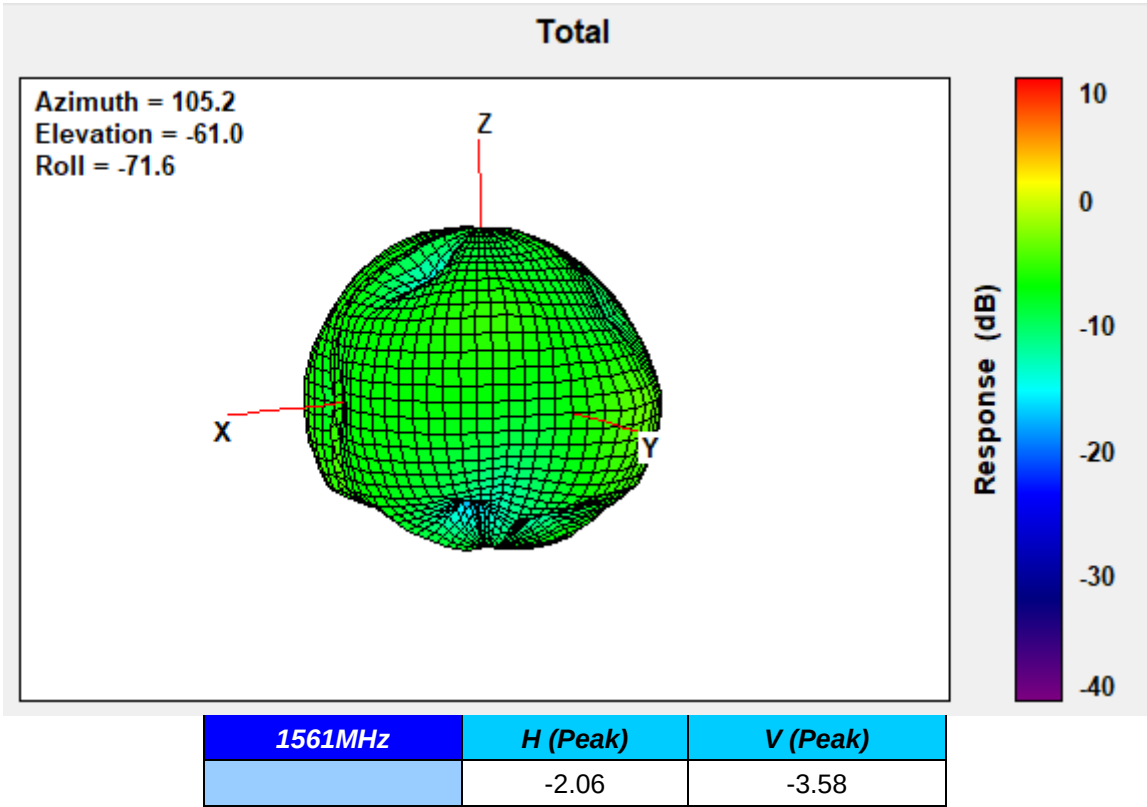
1496MHz



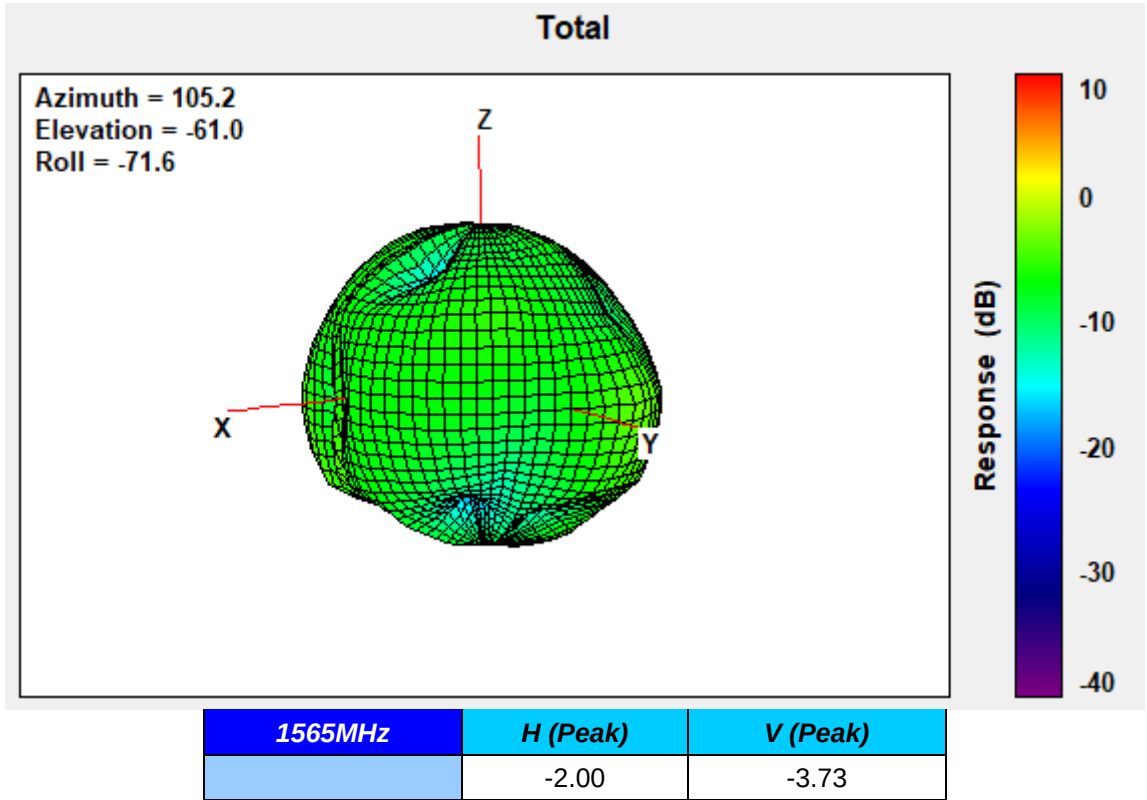
1557MHz



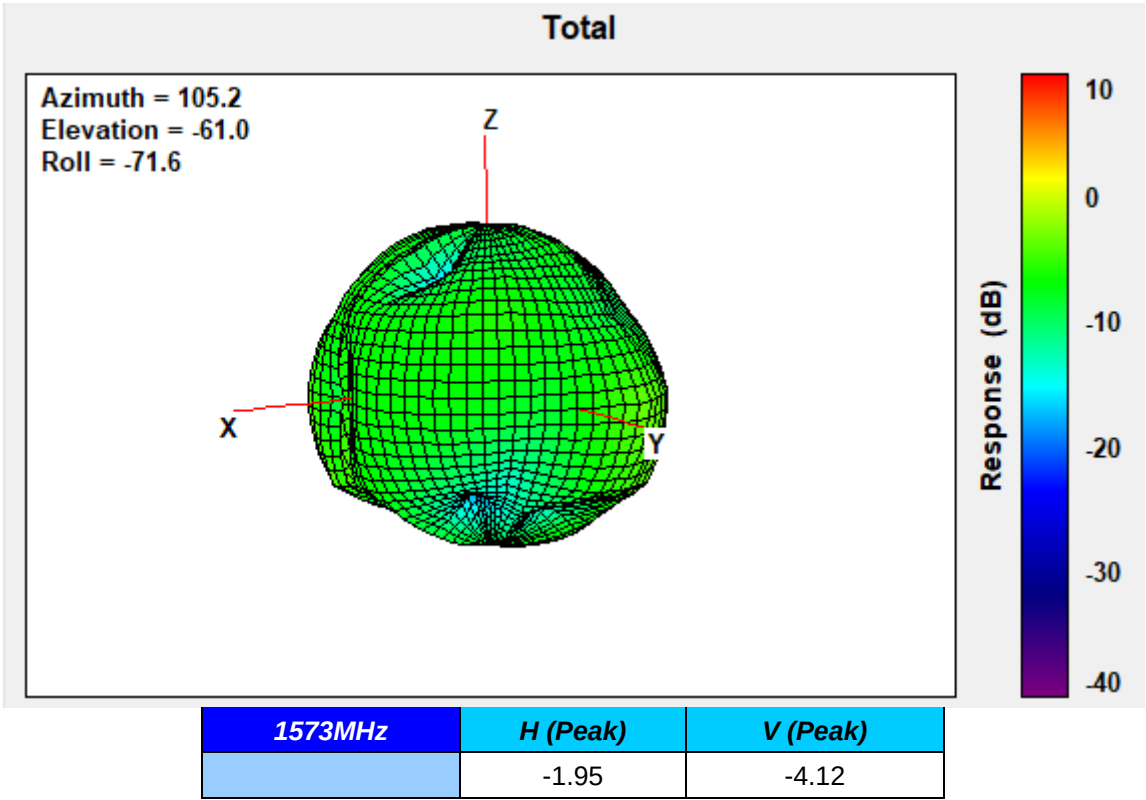
1561MHz



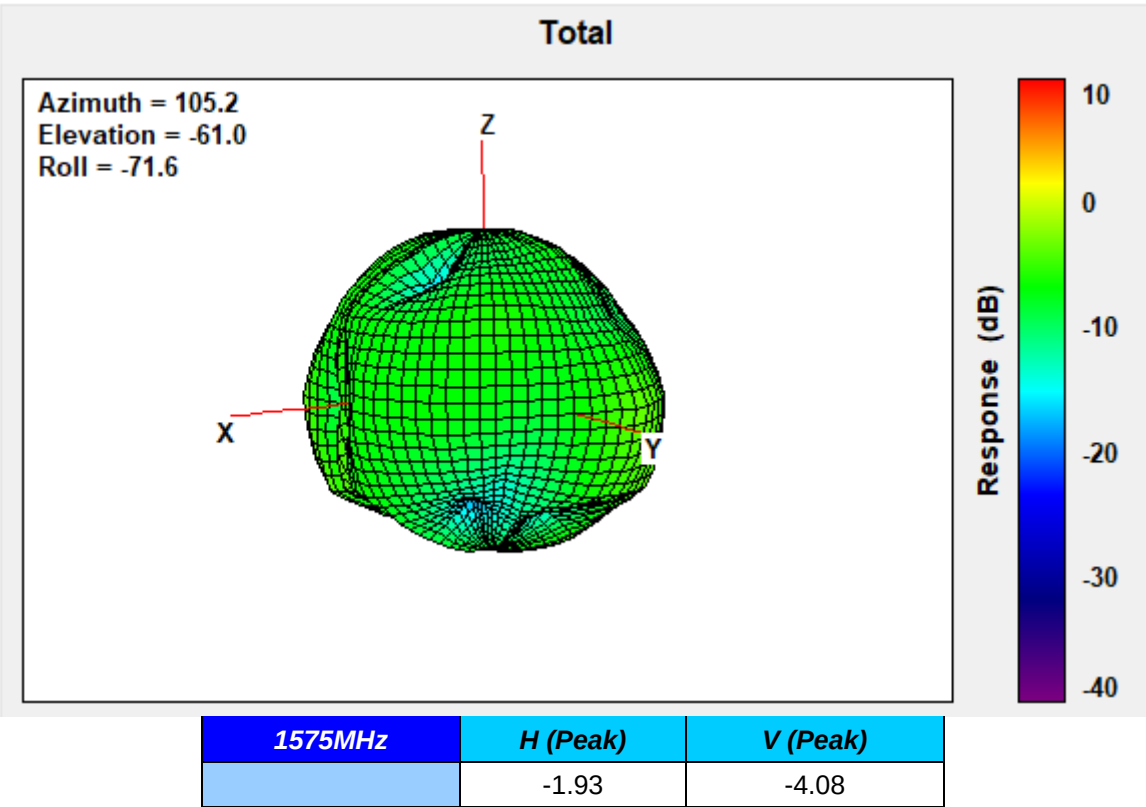
1565MHz



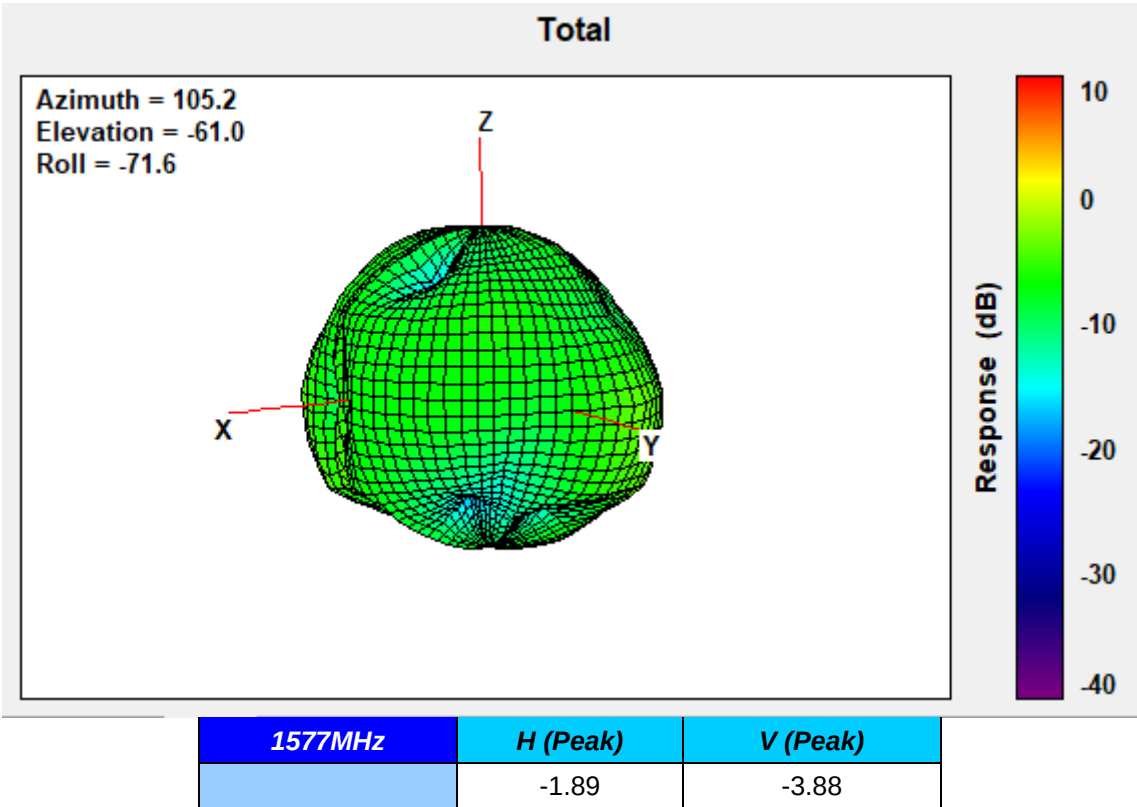
1573MHz



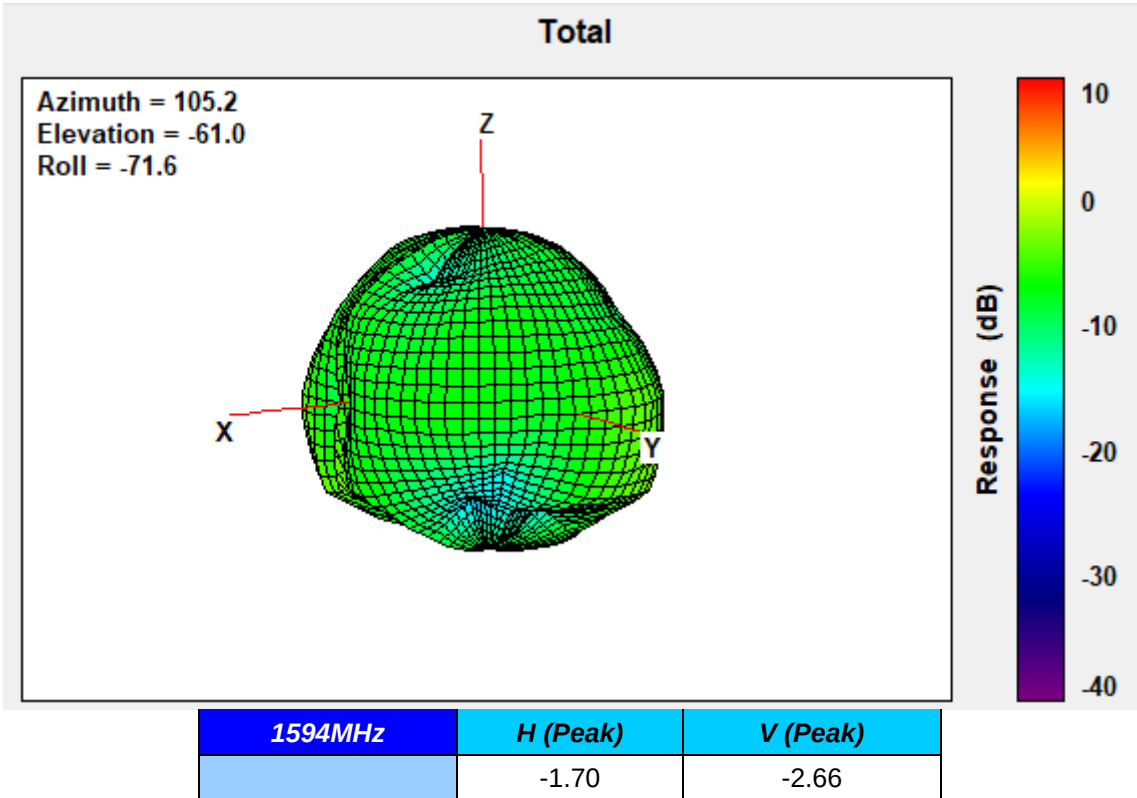
1575MHz



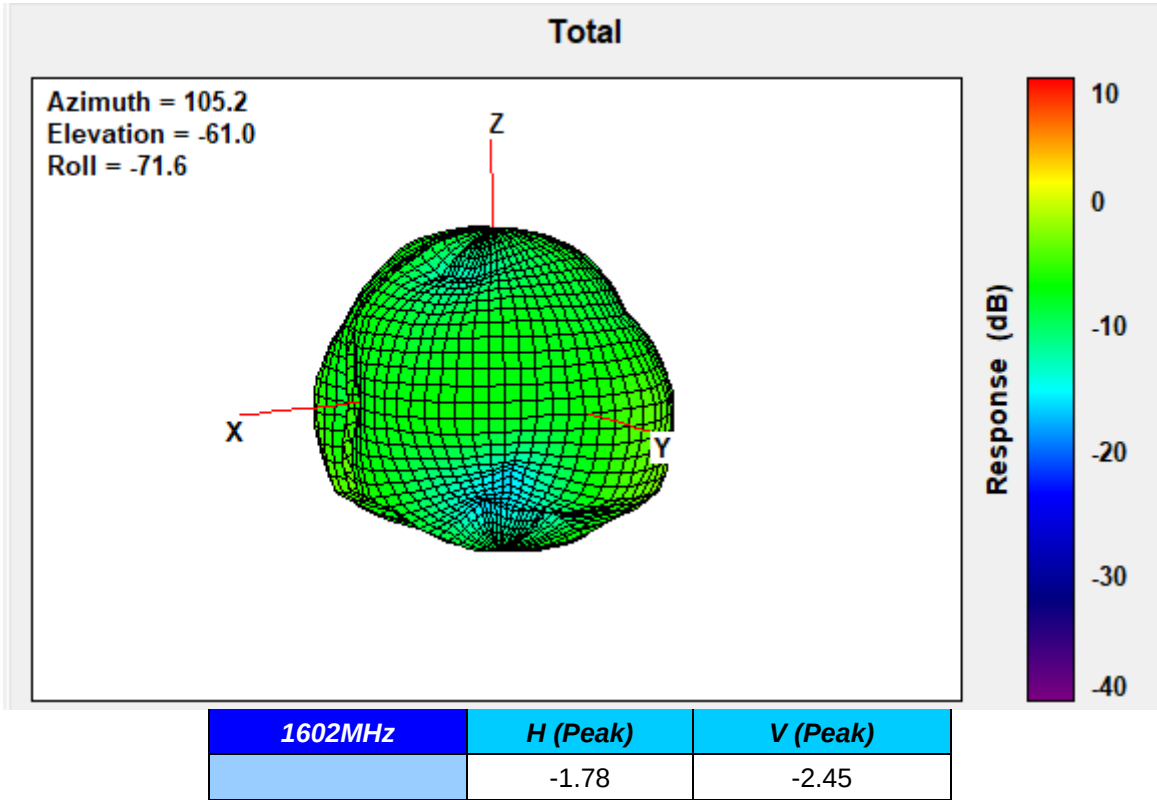
1577MHz



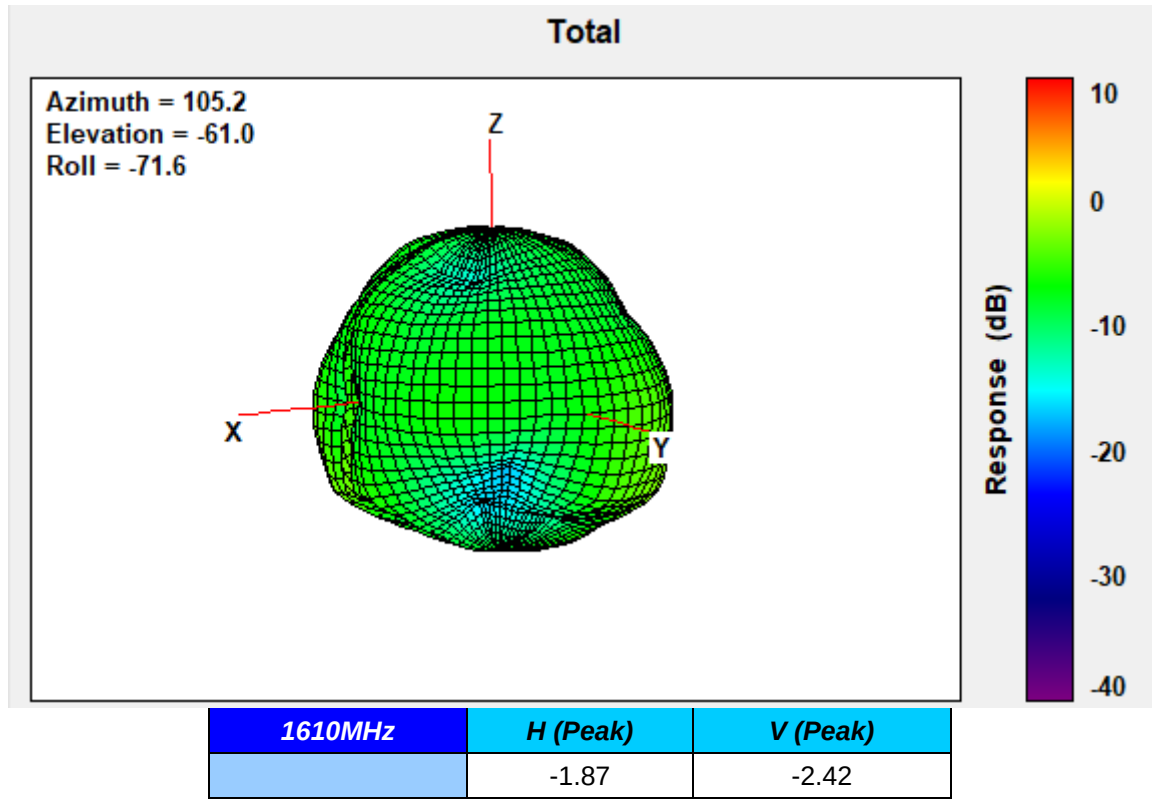
1594MHz



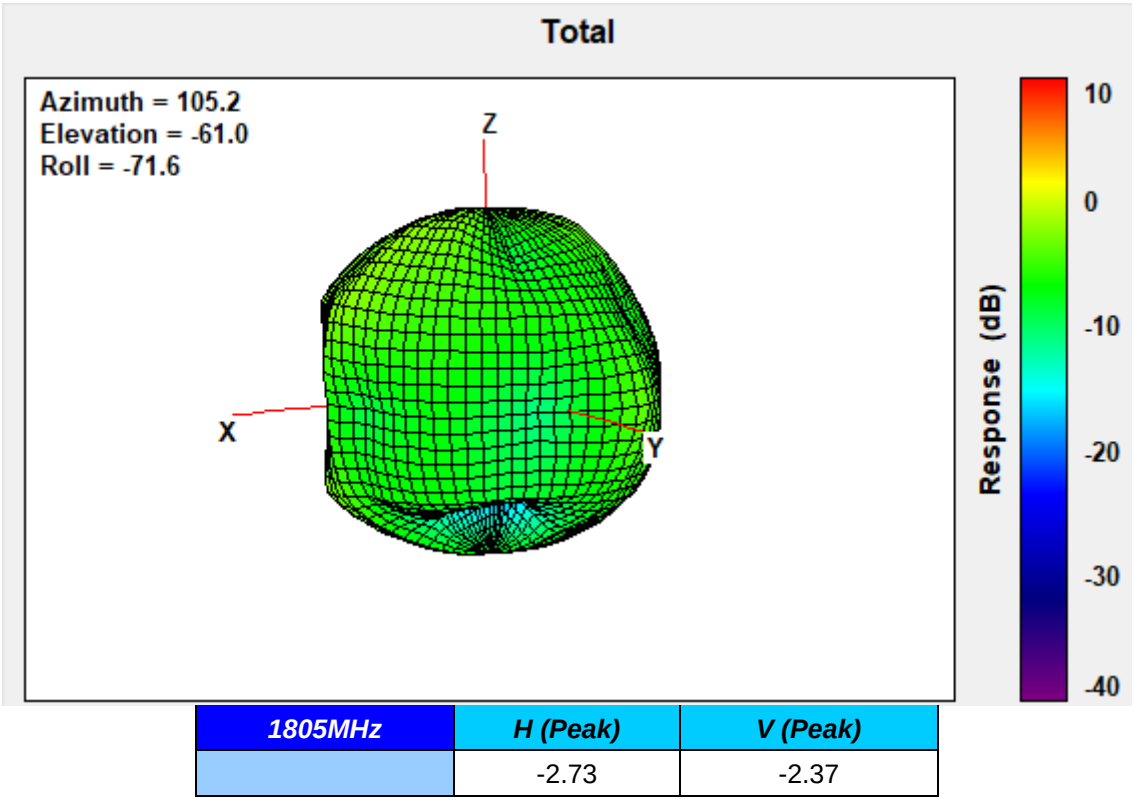
1602MHz



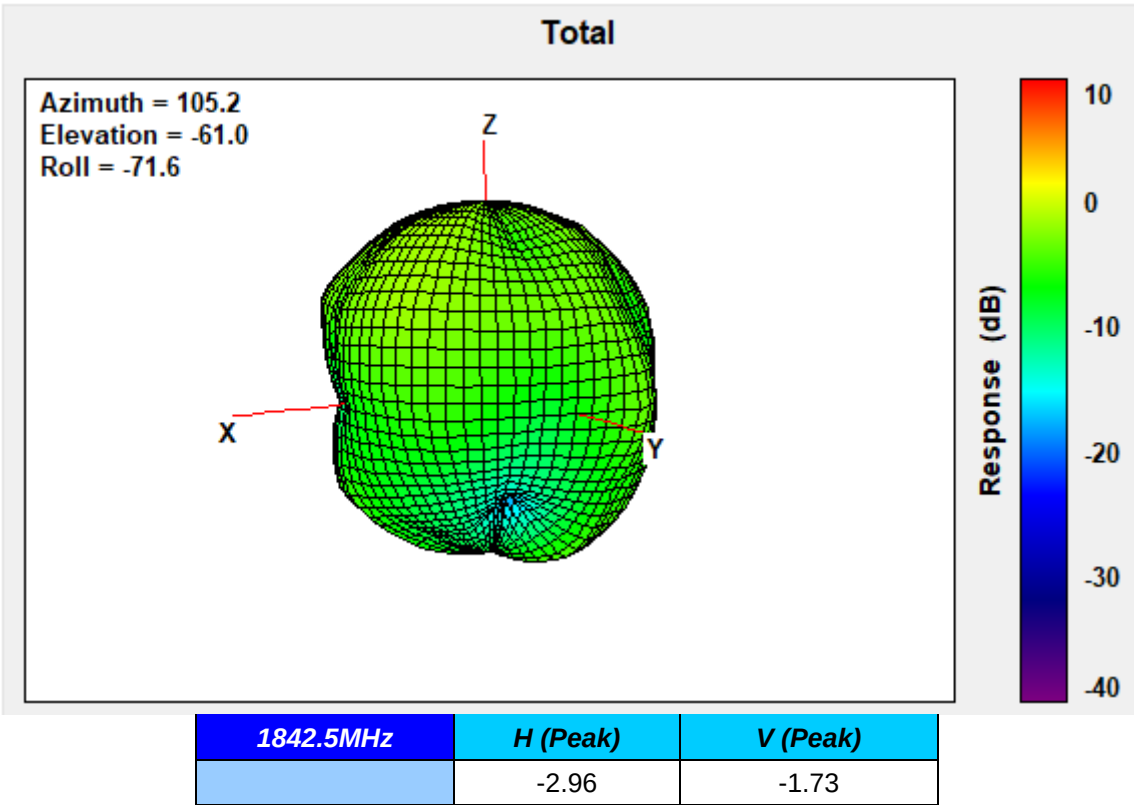
1610MHz



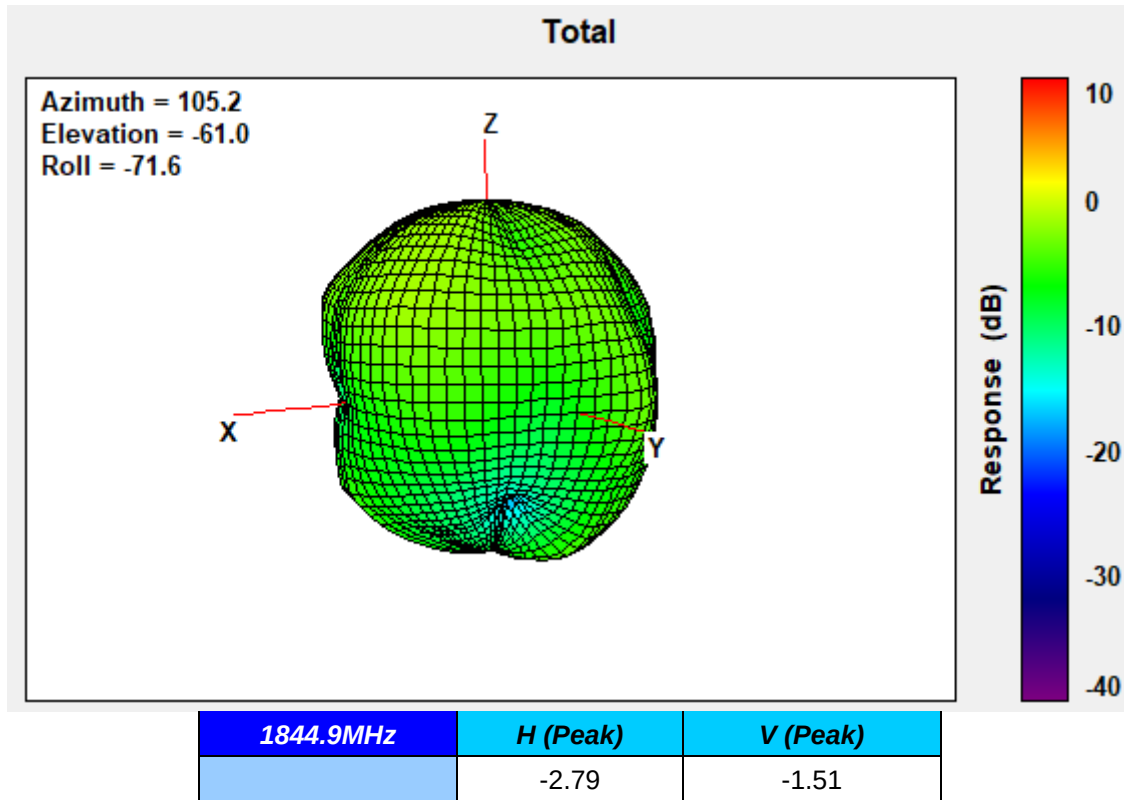
1805MHz



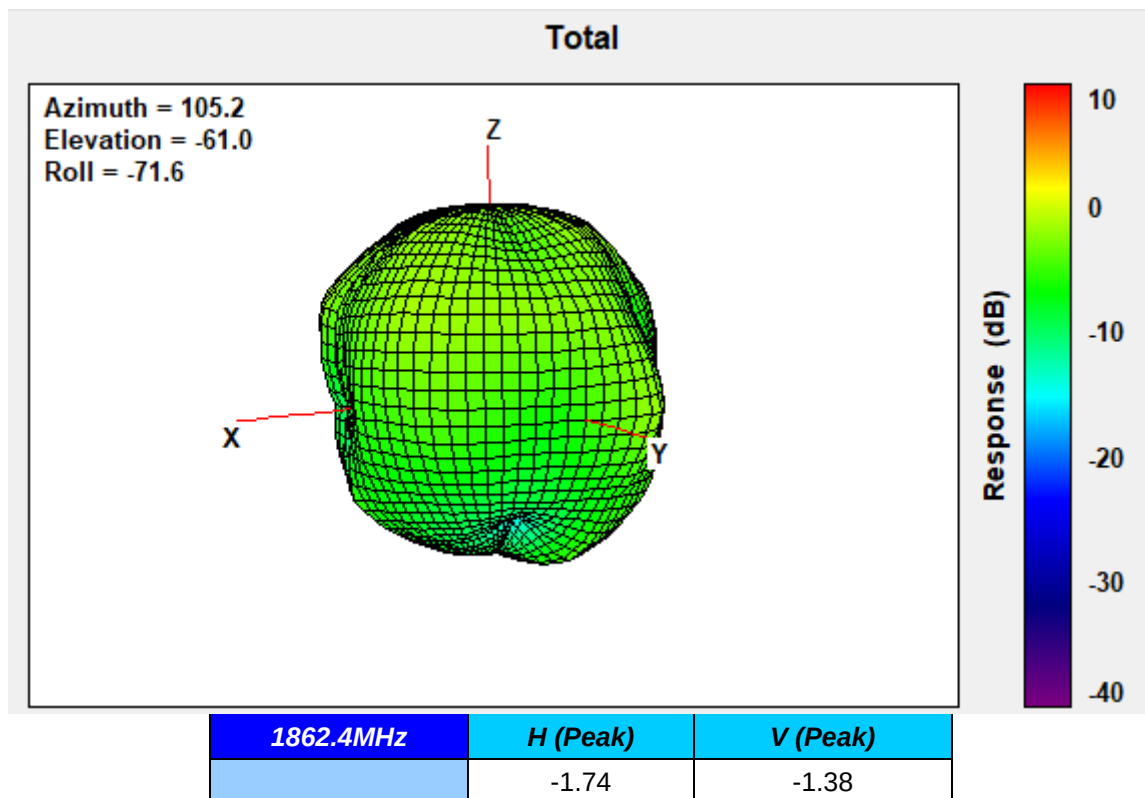
1842.5MHz



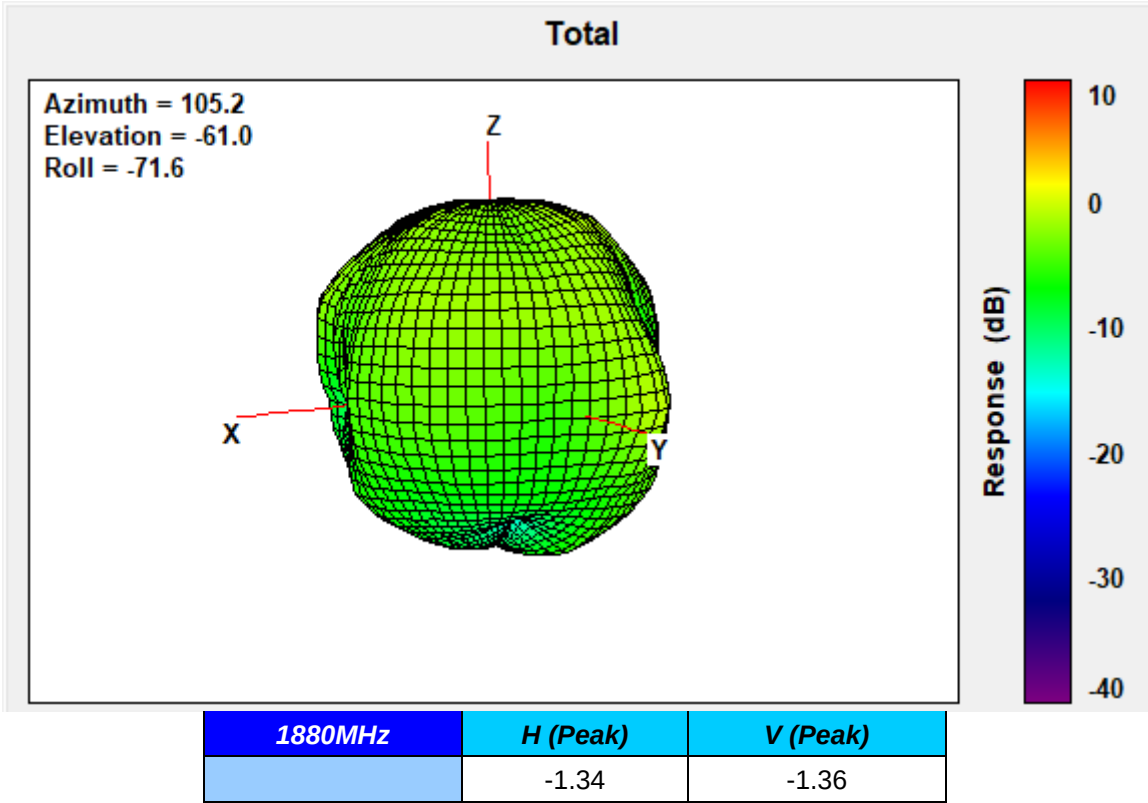
1844.9MHz



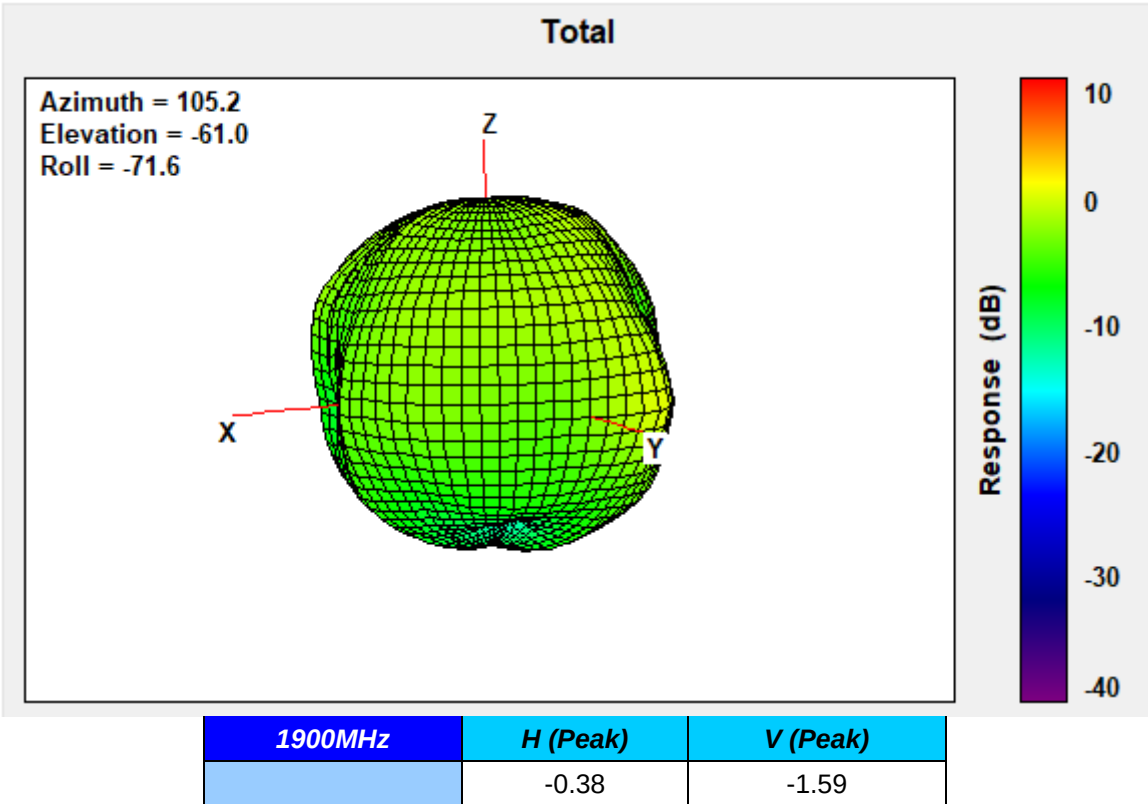
1862.4MHz



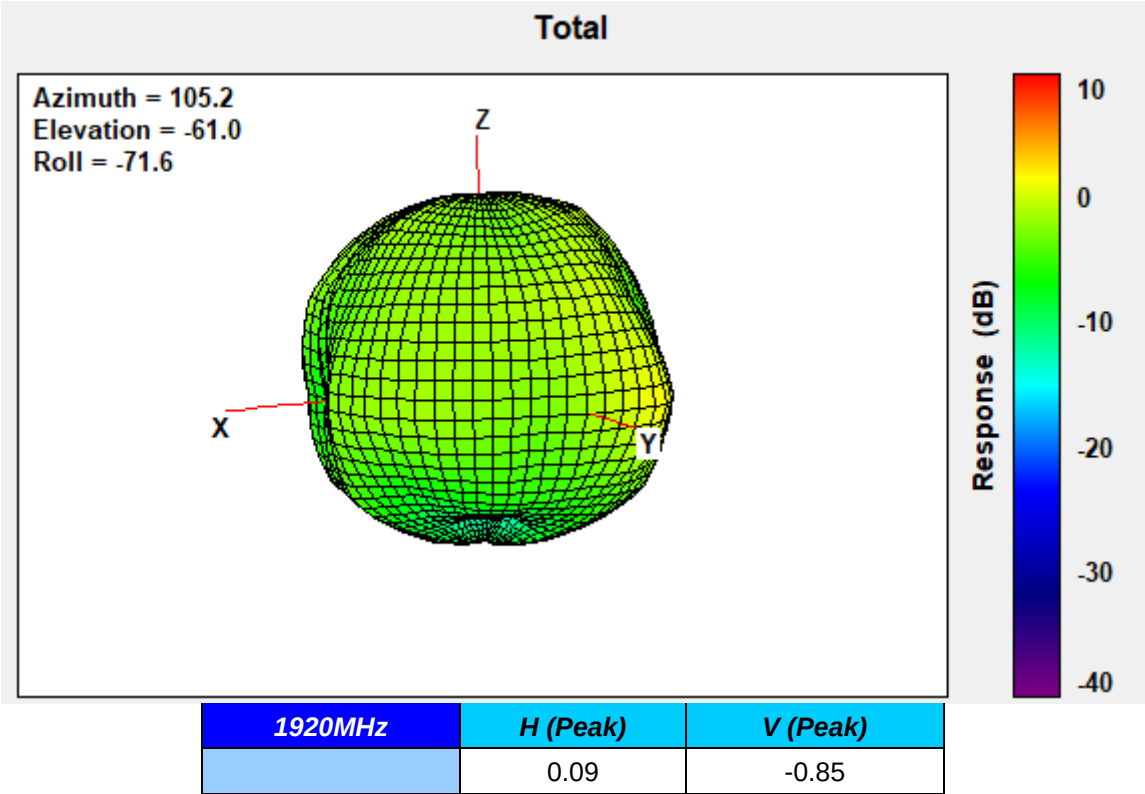
1880MHz



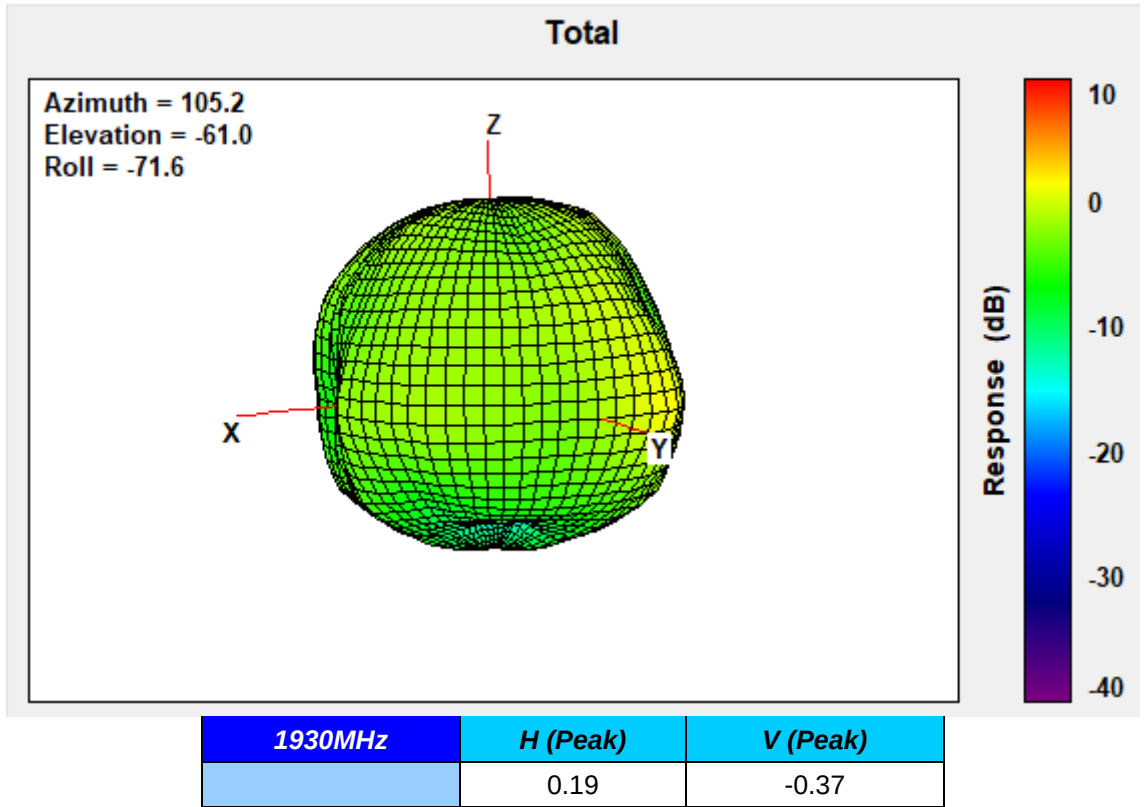
1900MHz



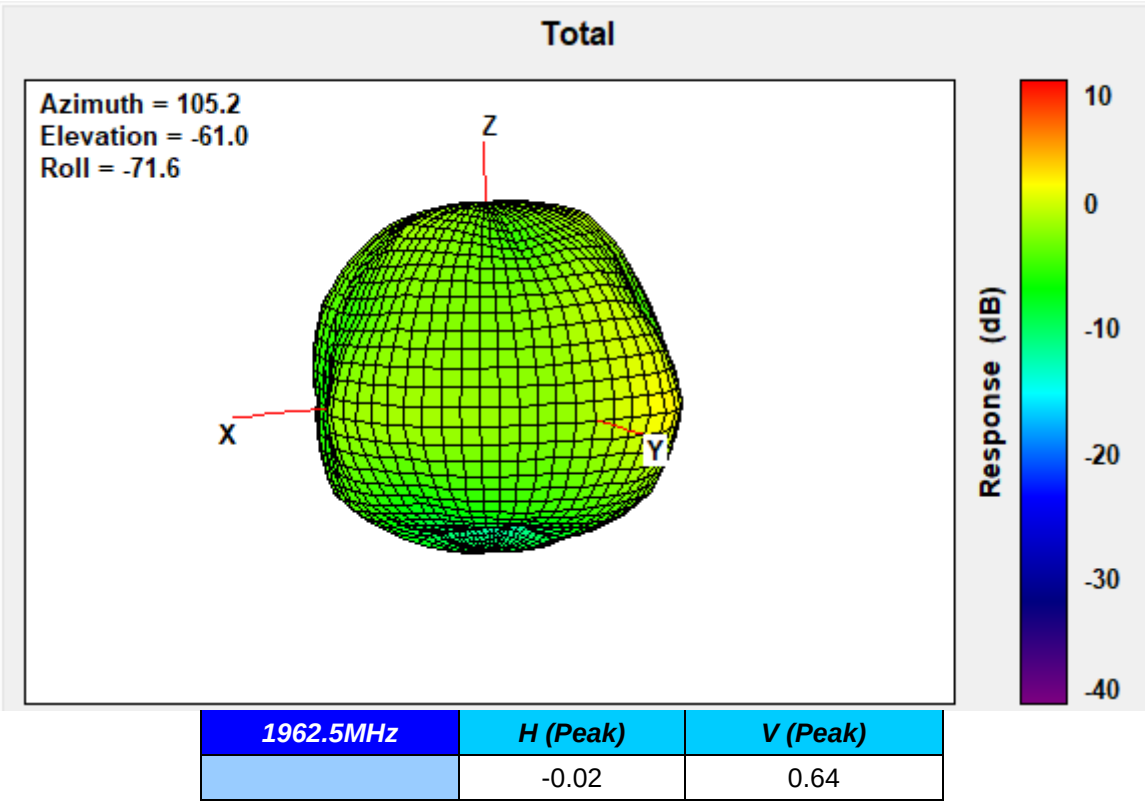
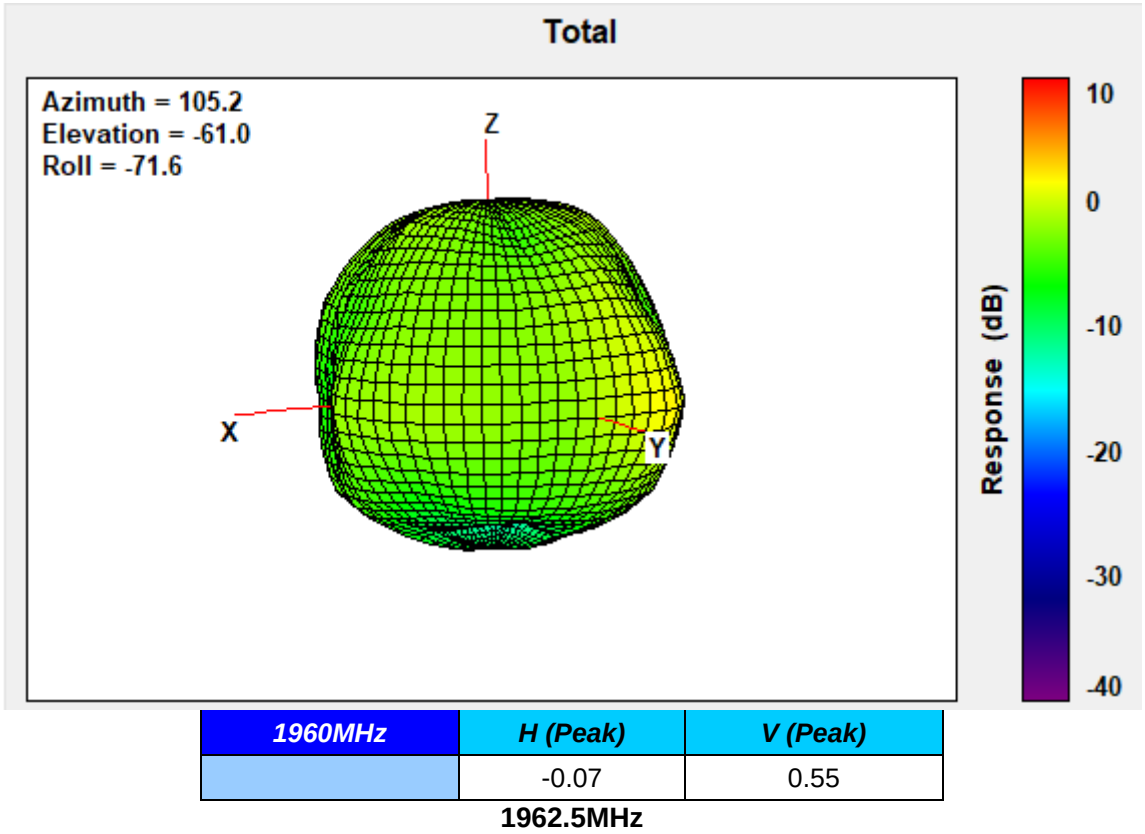
1920MHz



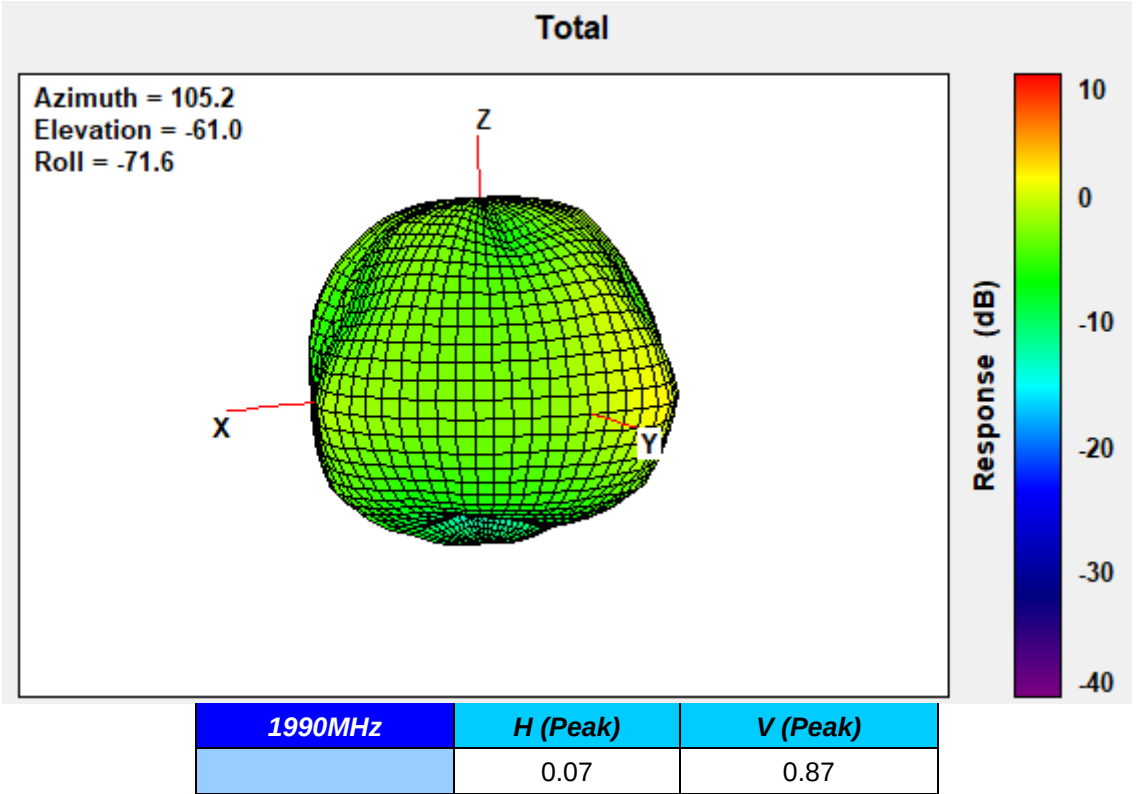
1930MHz



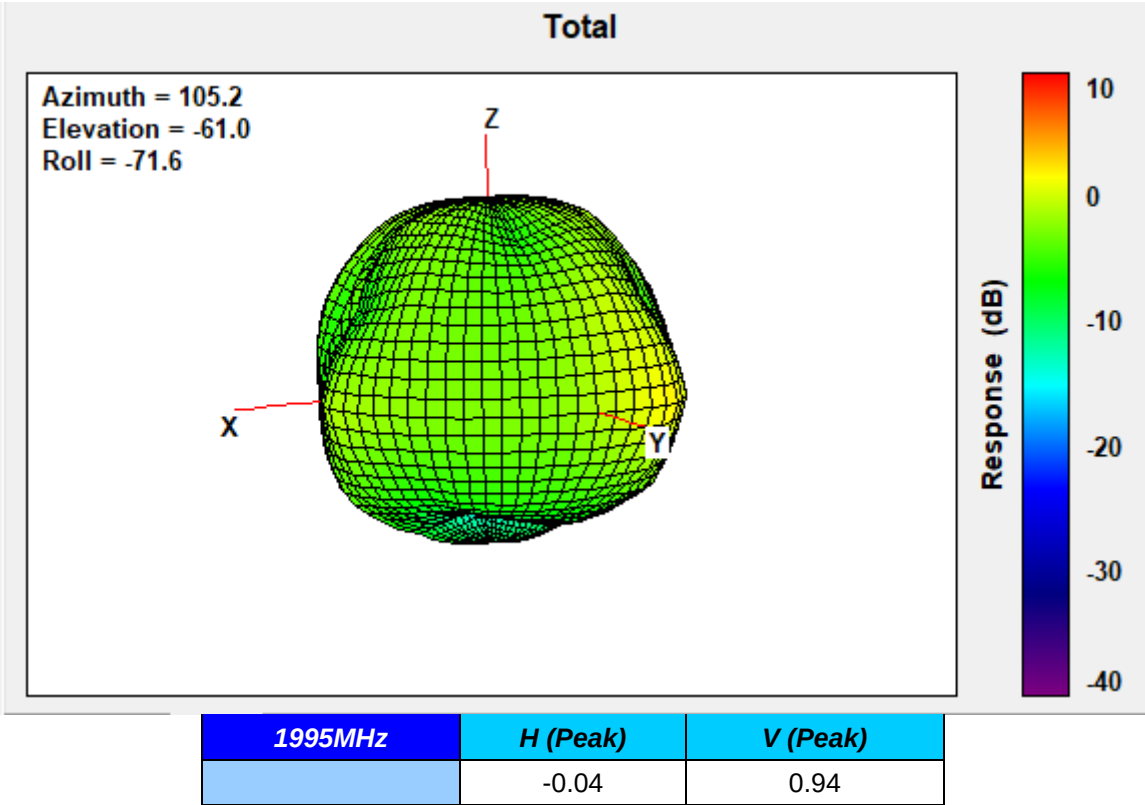
1960MHz



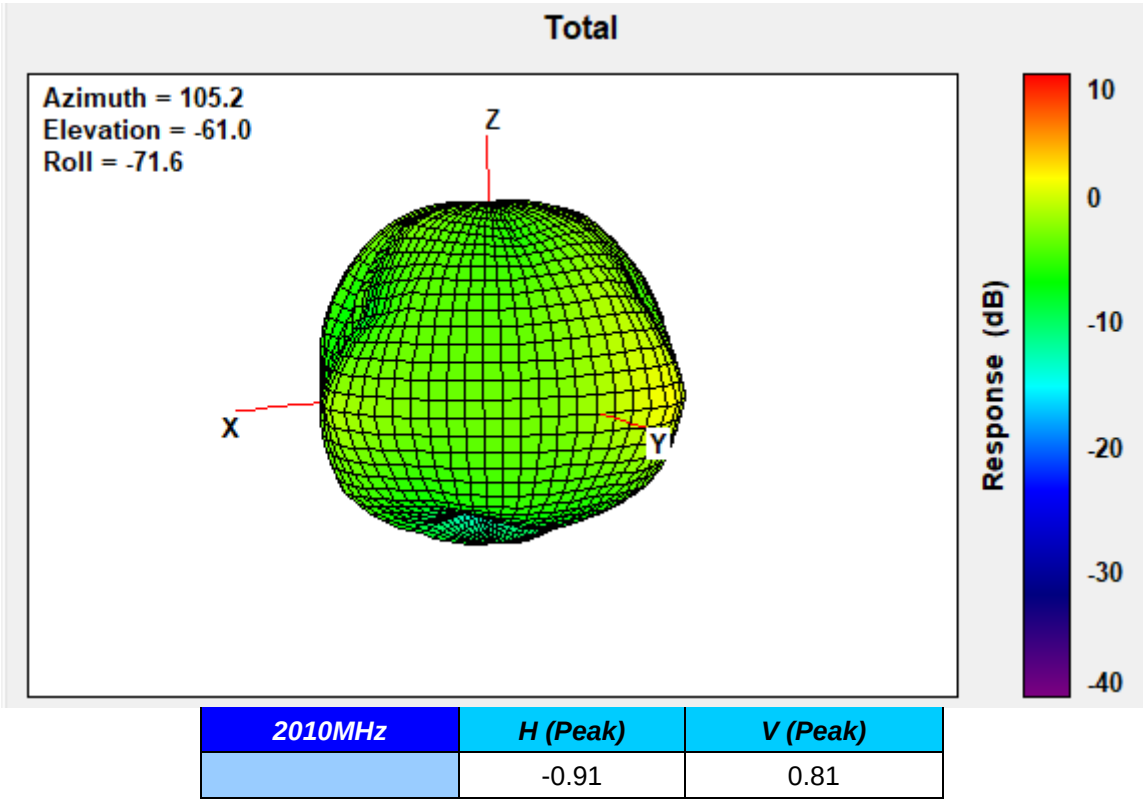
1990MHz



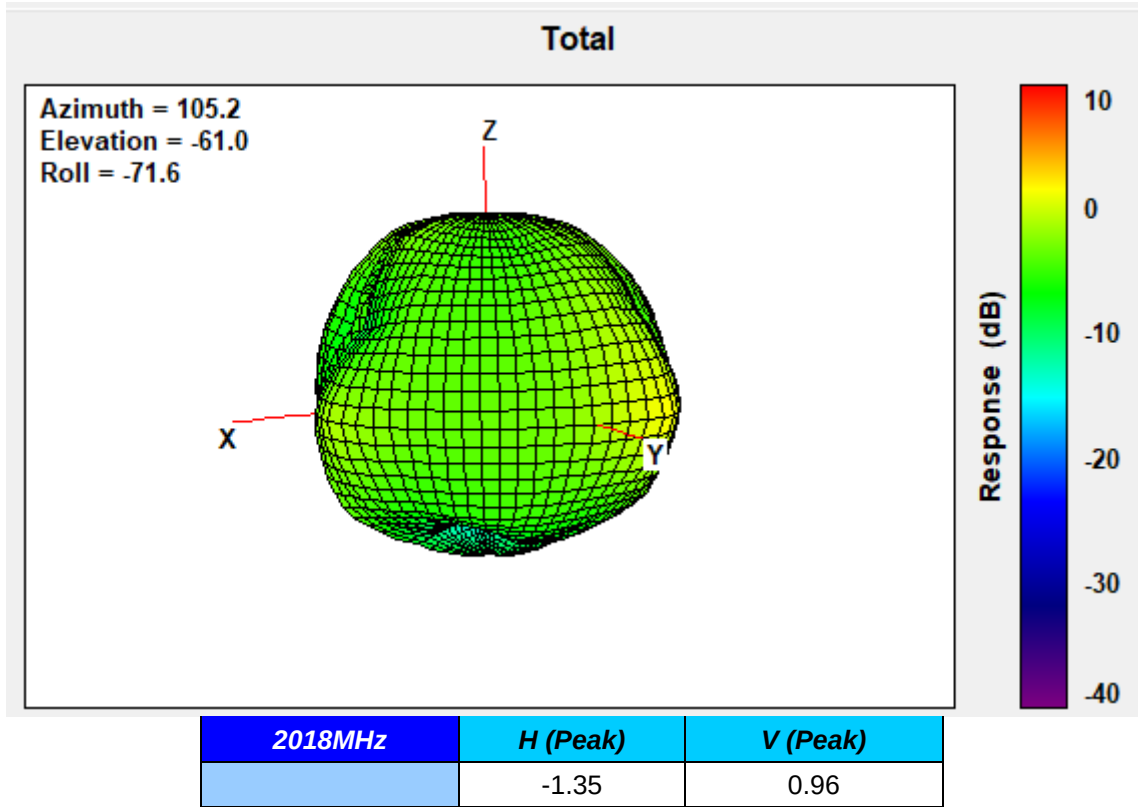
1995MHz

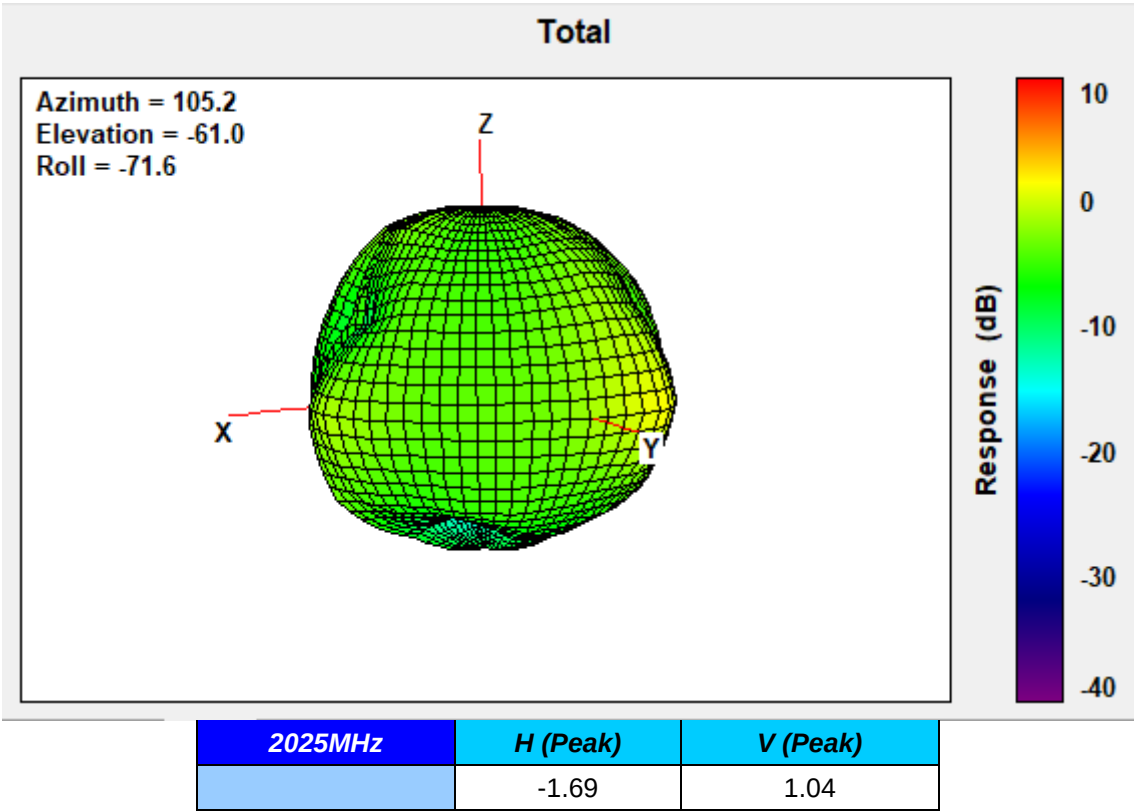


2010MHz

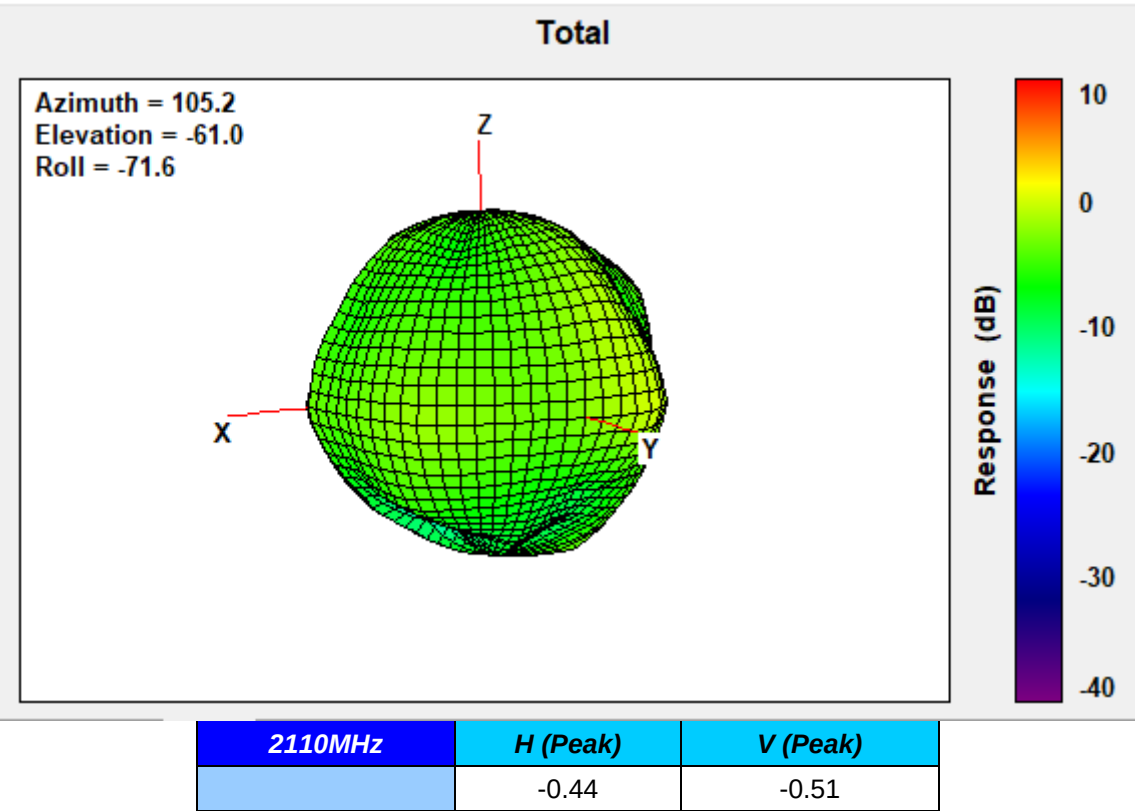


2018MHz

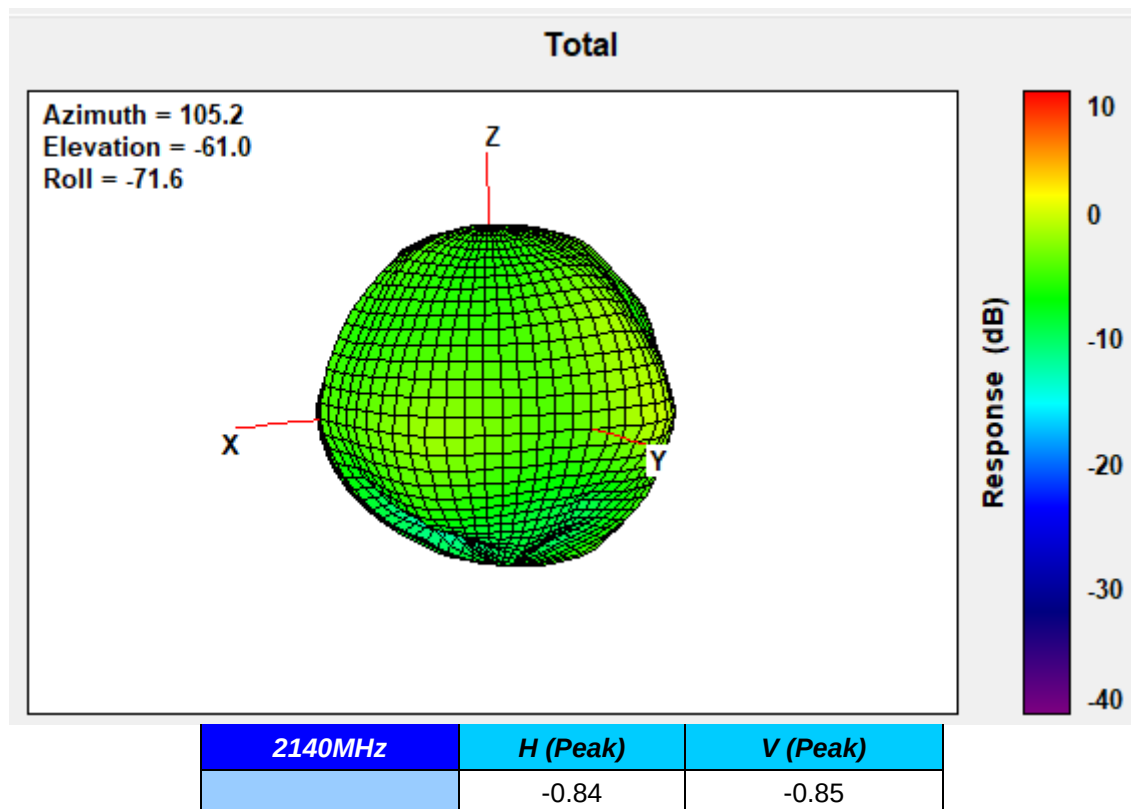
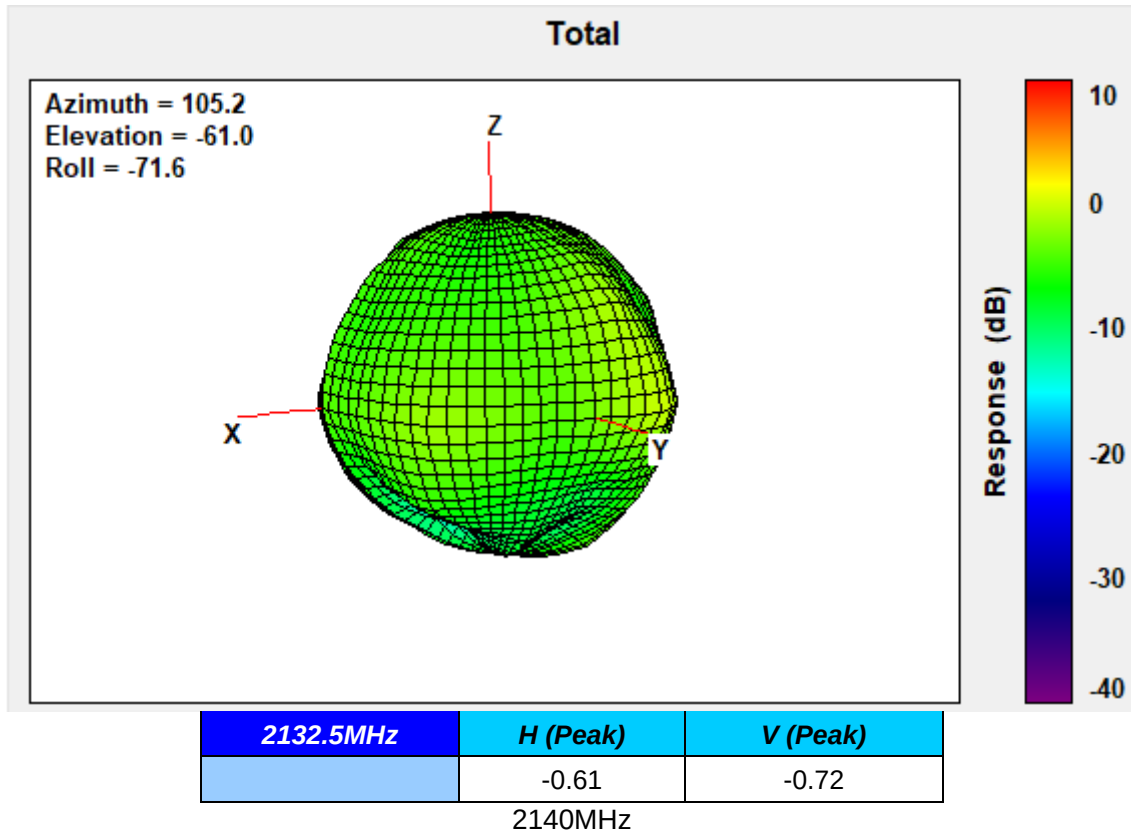




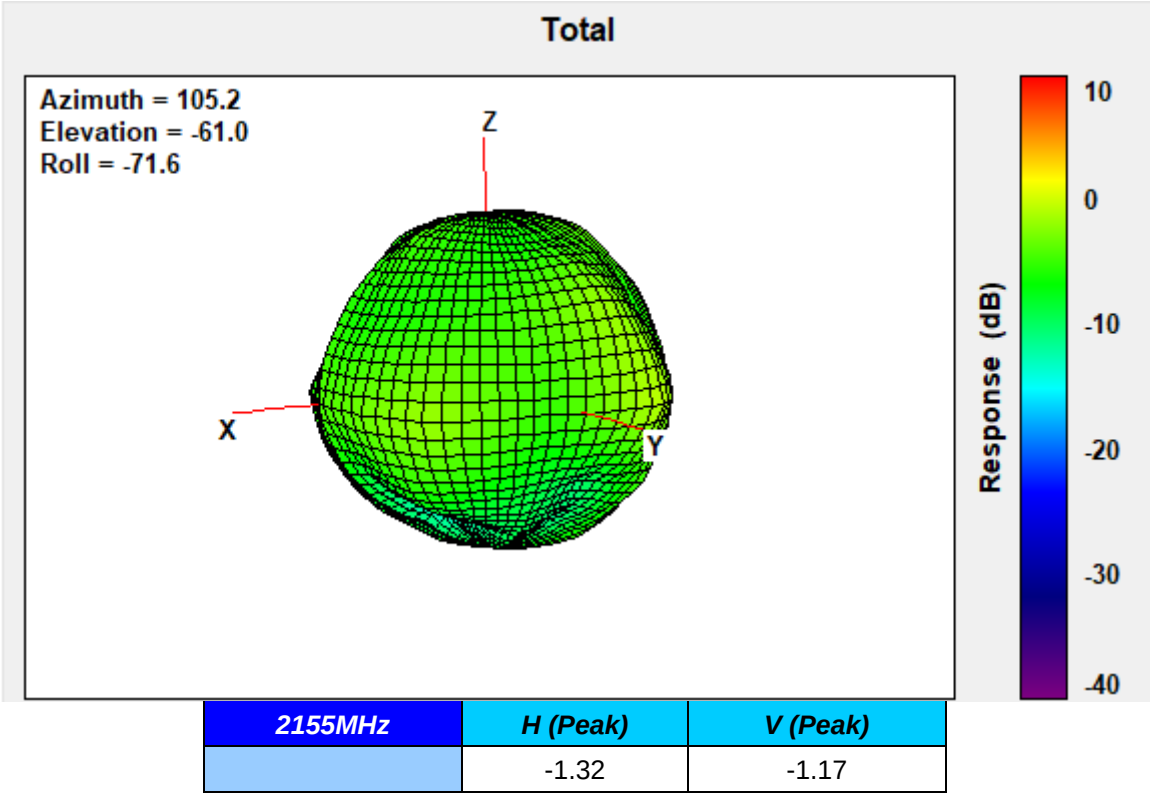
2110MHz



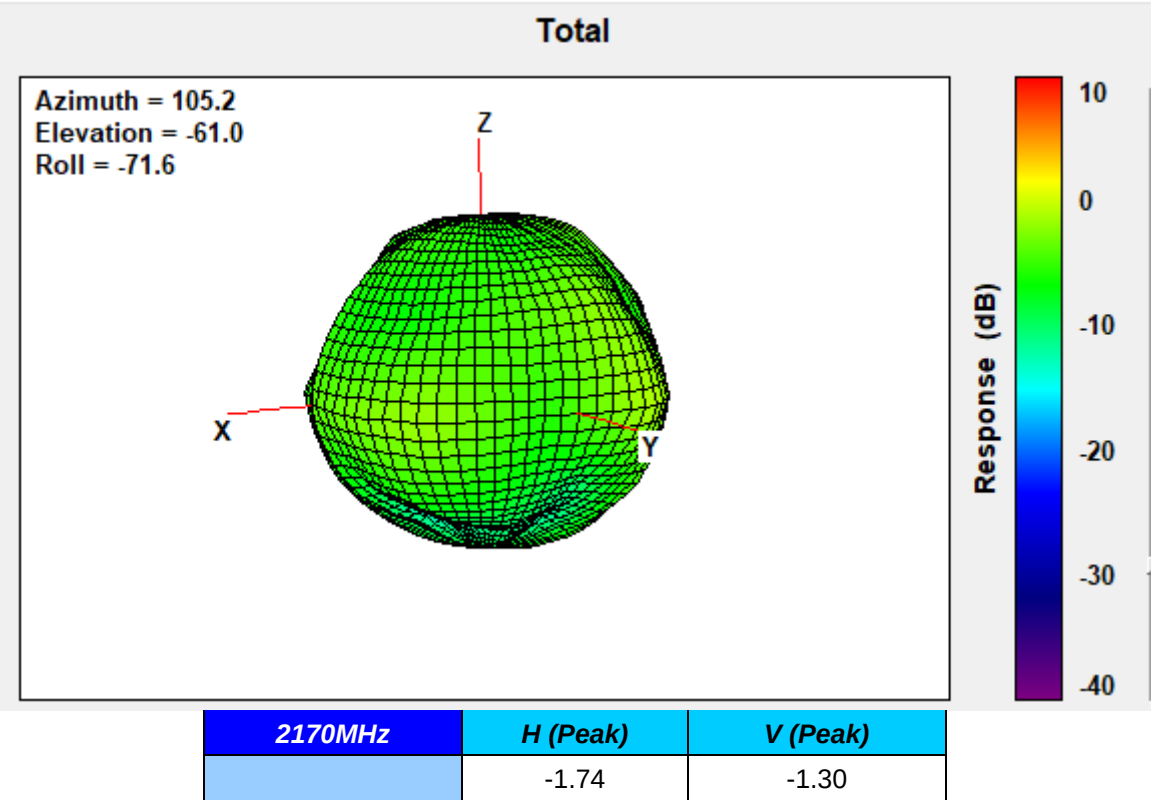
2132.5MHz



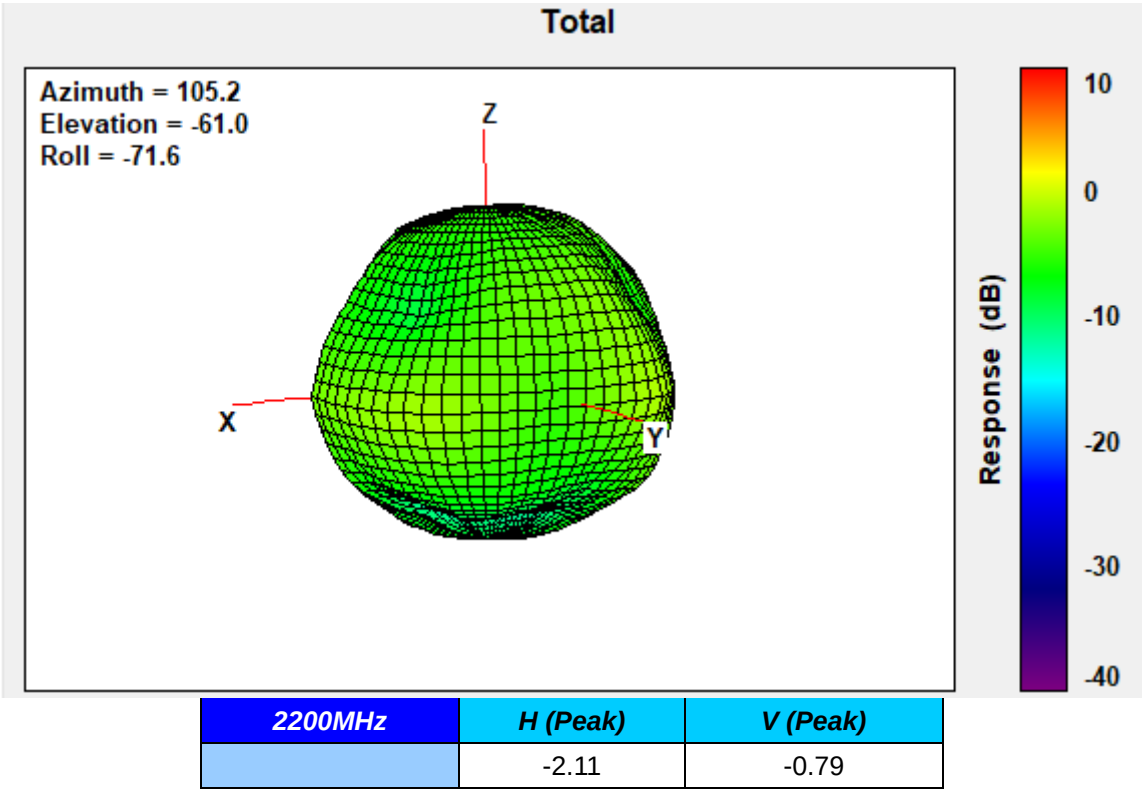
2155MHz



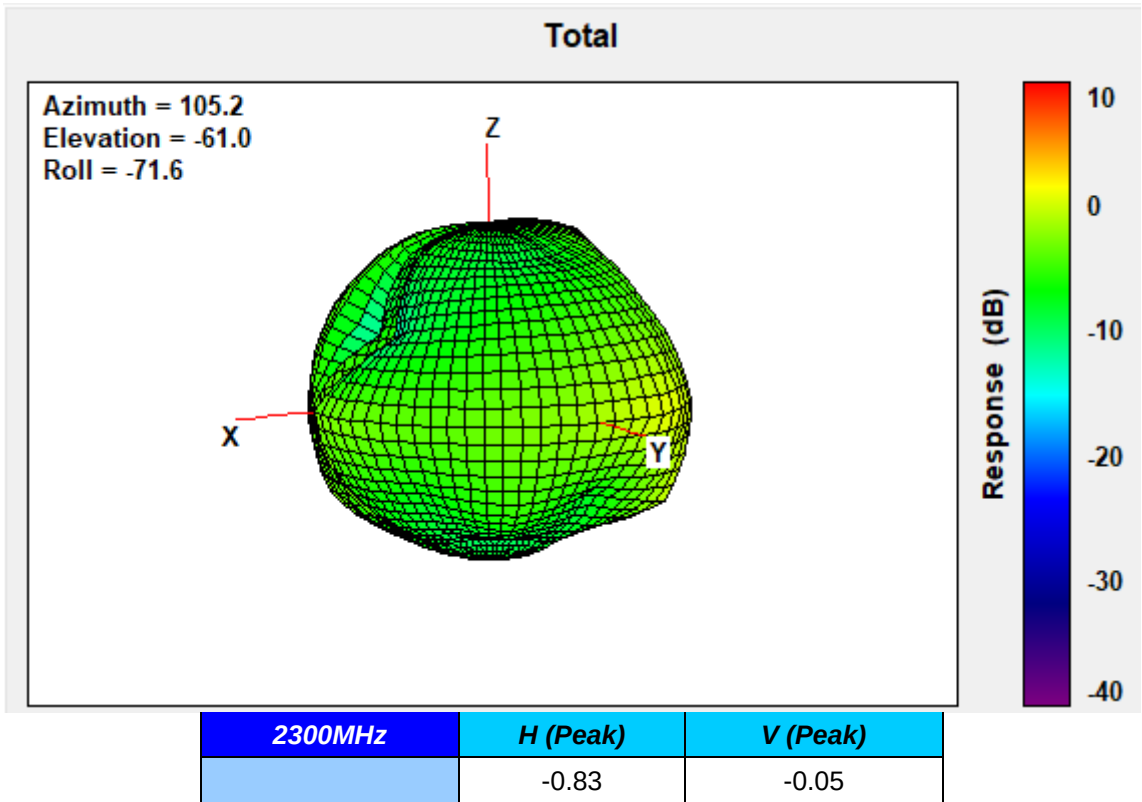
2170MHz



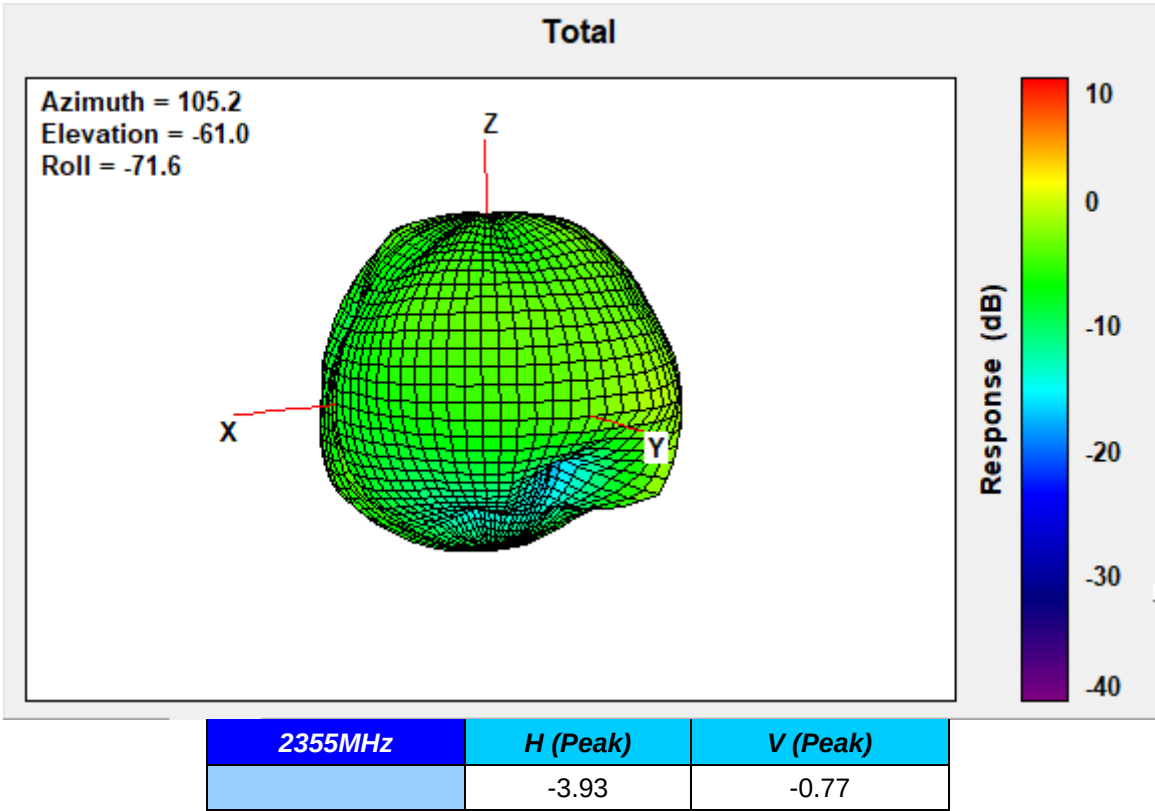
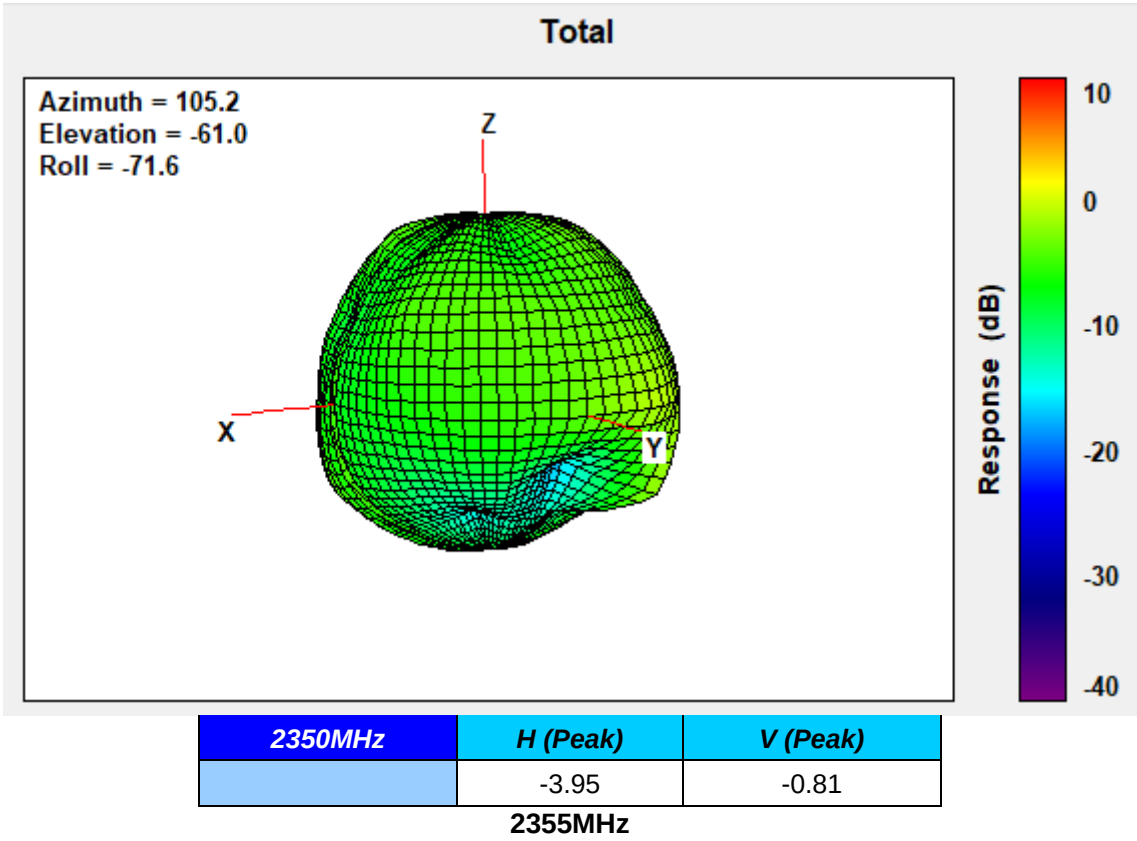
2200MHz



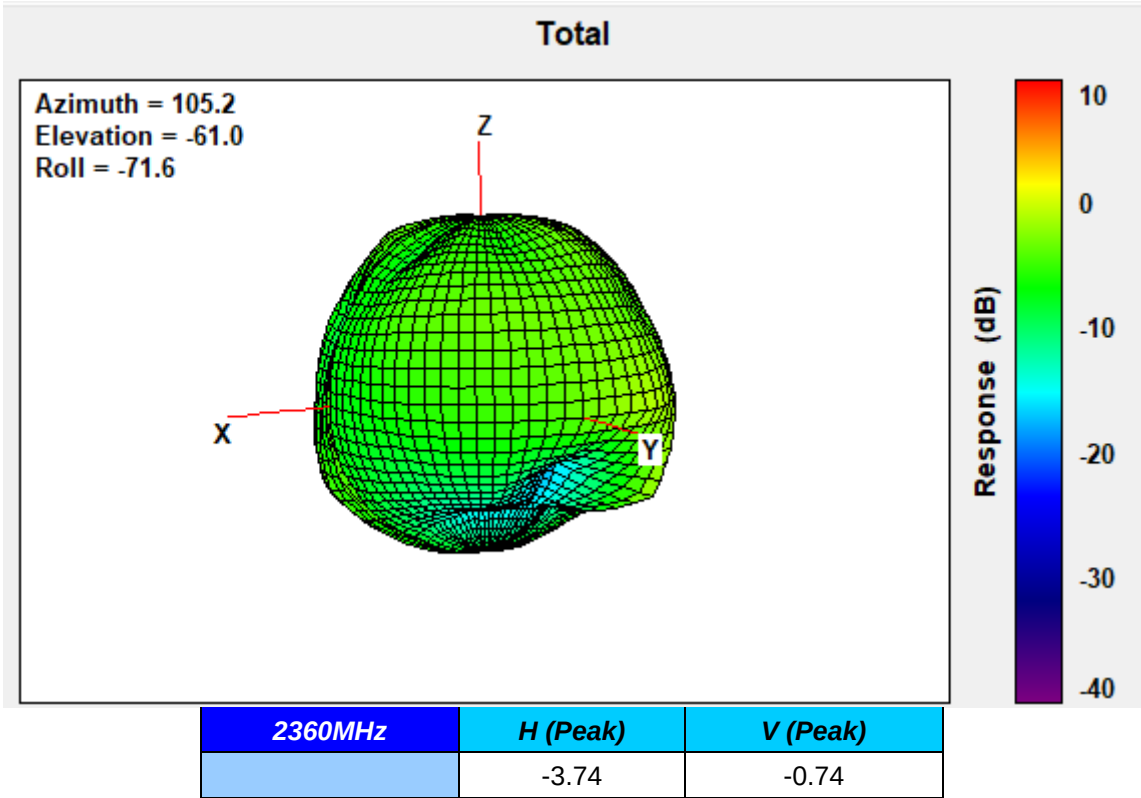
2300MHz



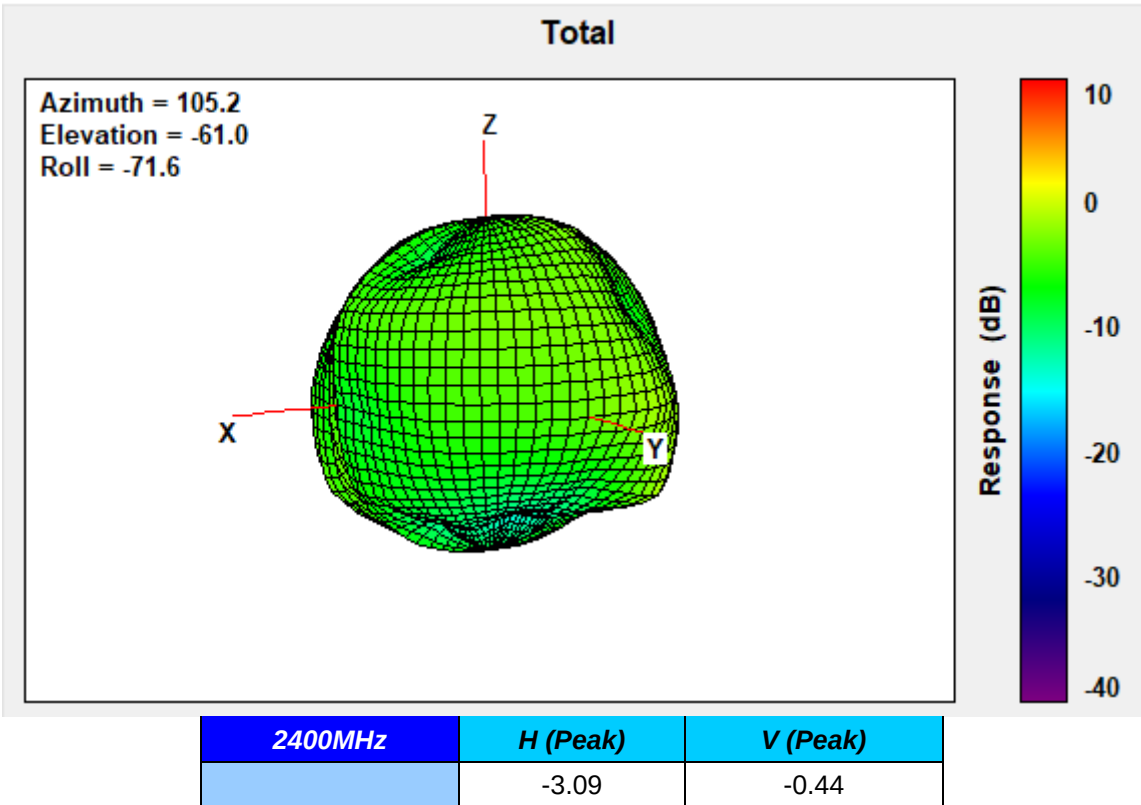
2350MHz



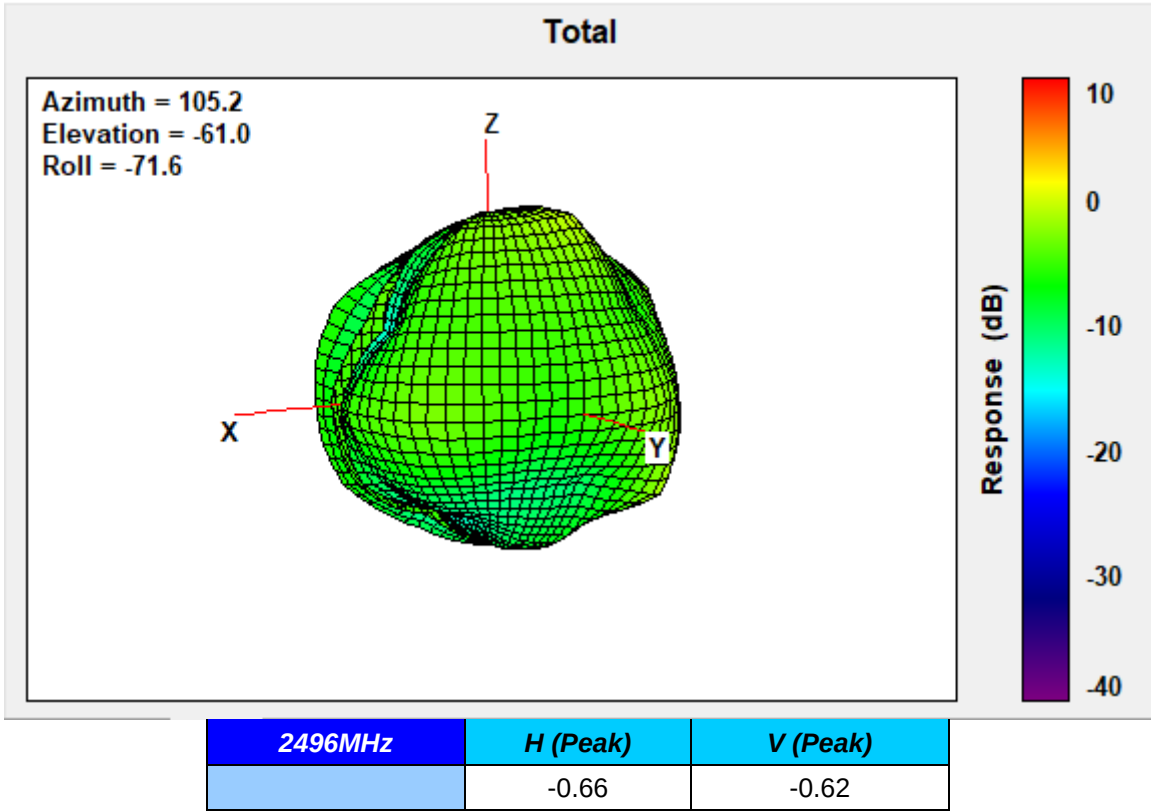
2360MHz



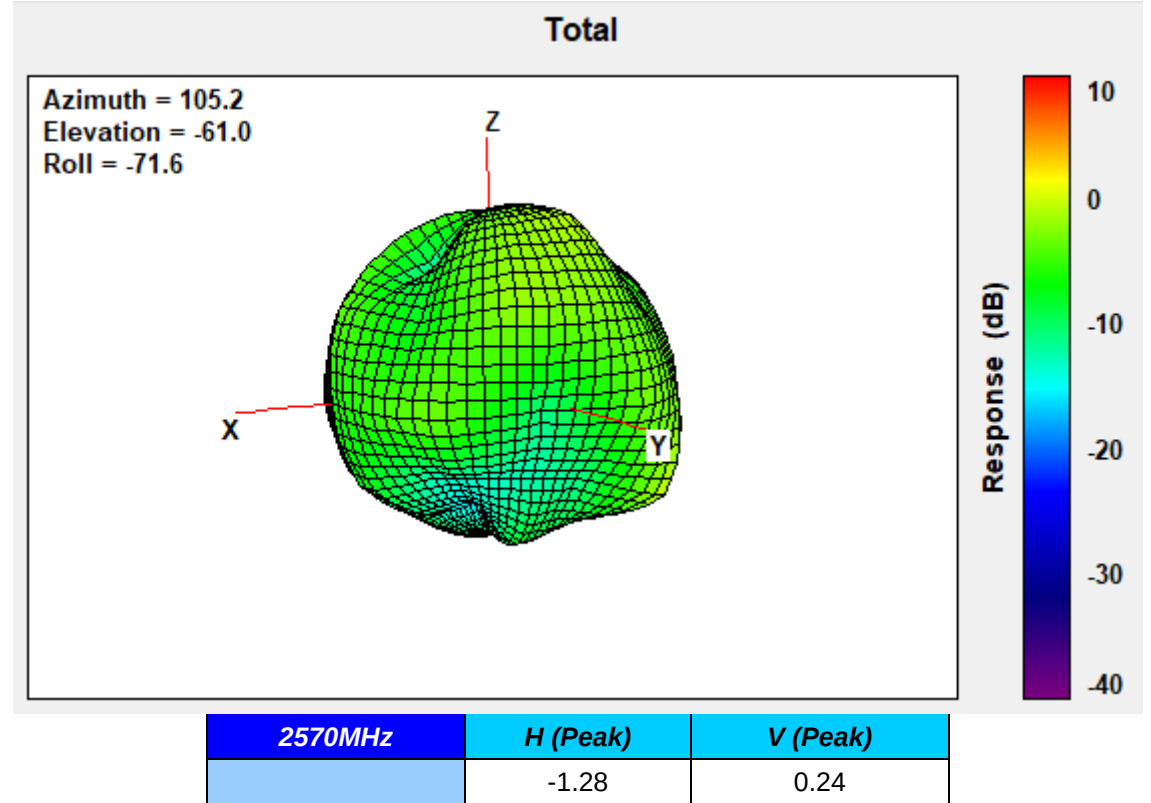
2400MHz



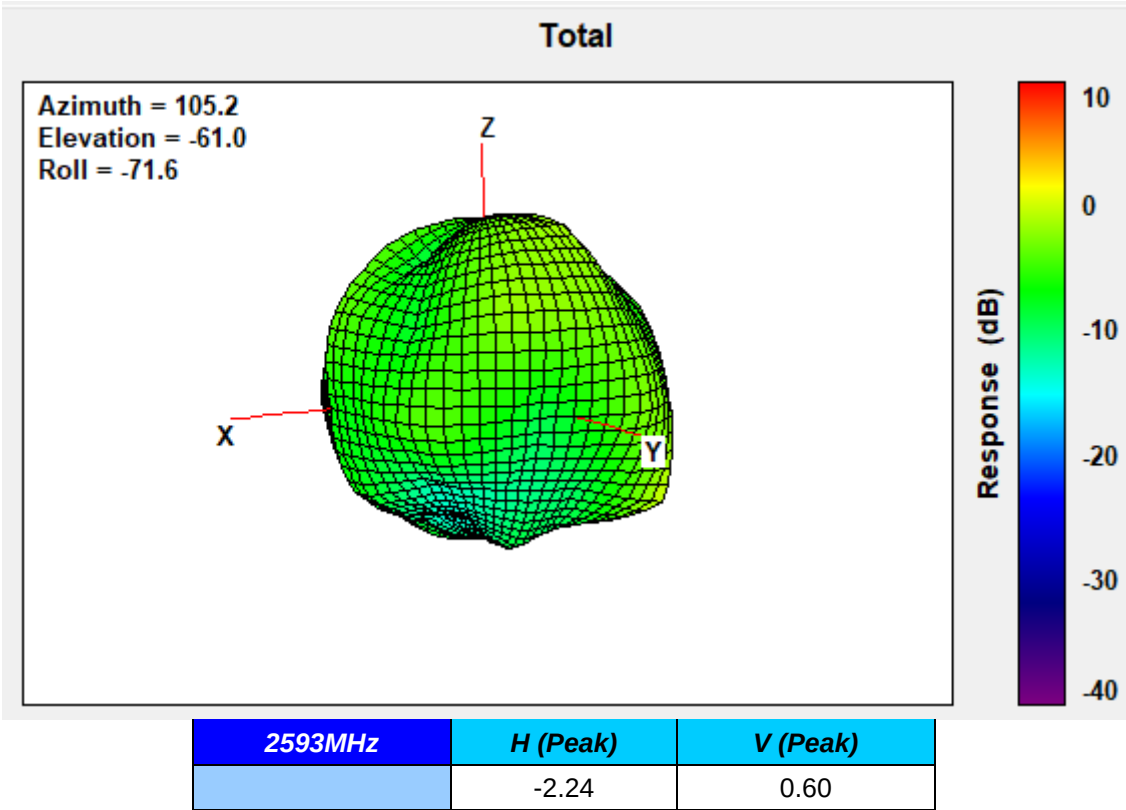
2496MHz



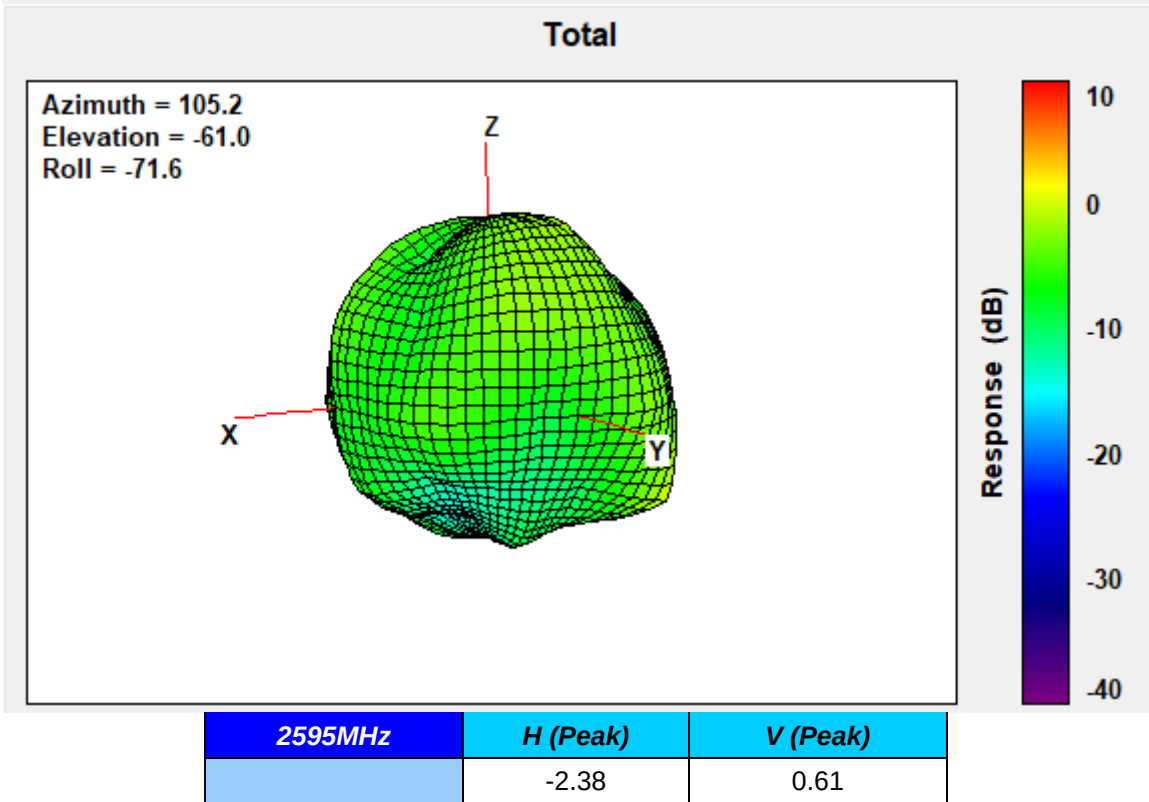
2570MHz



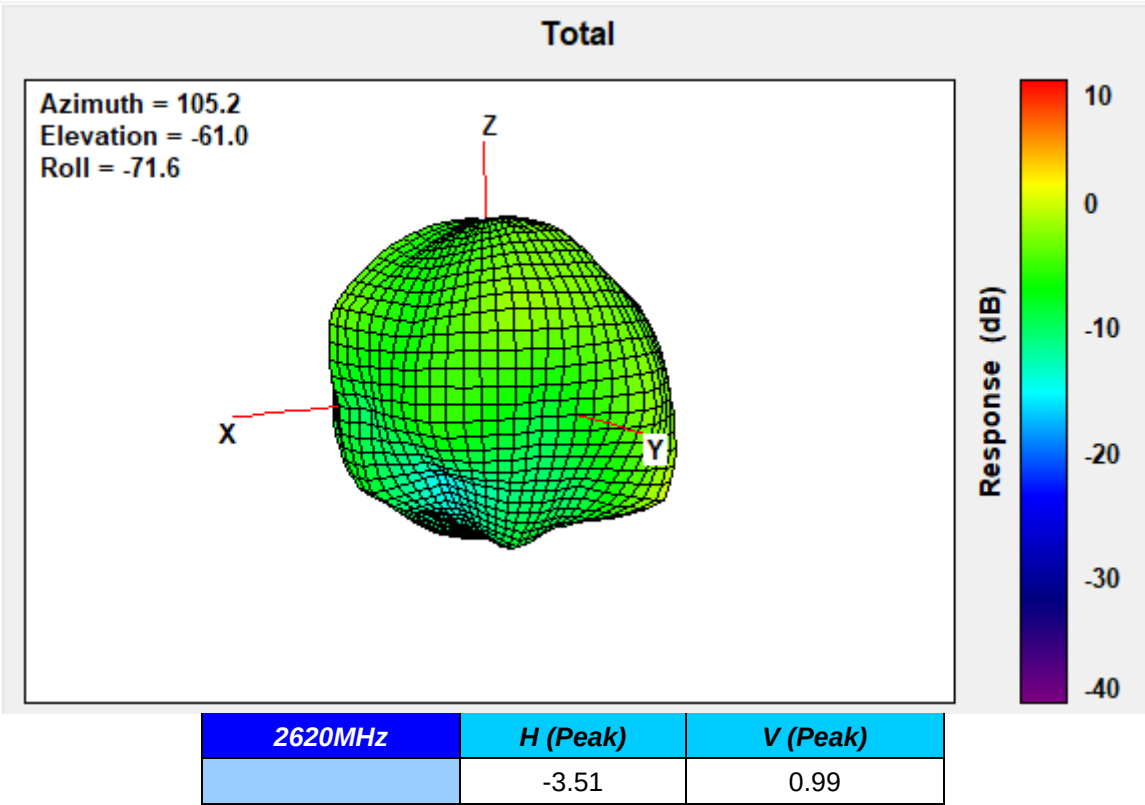
2593MHz



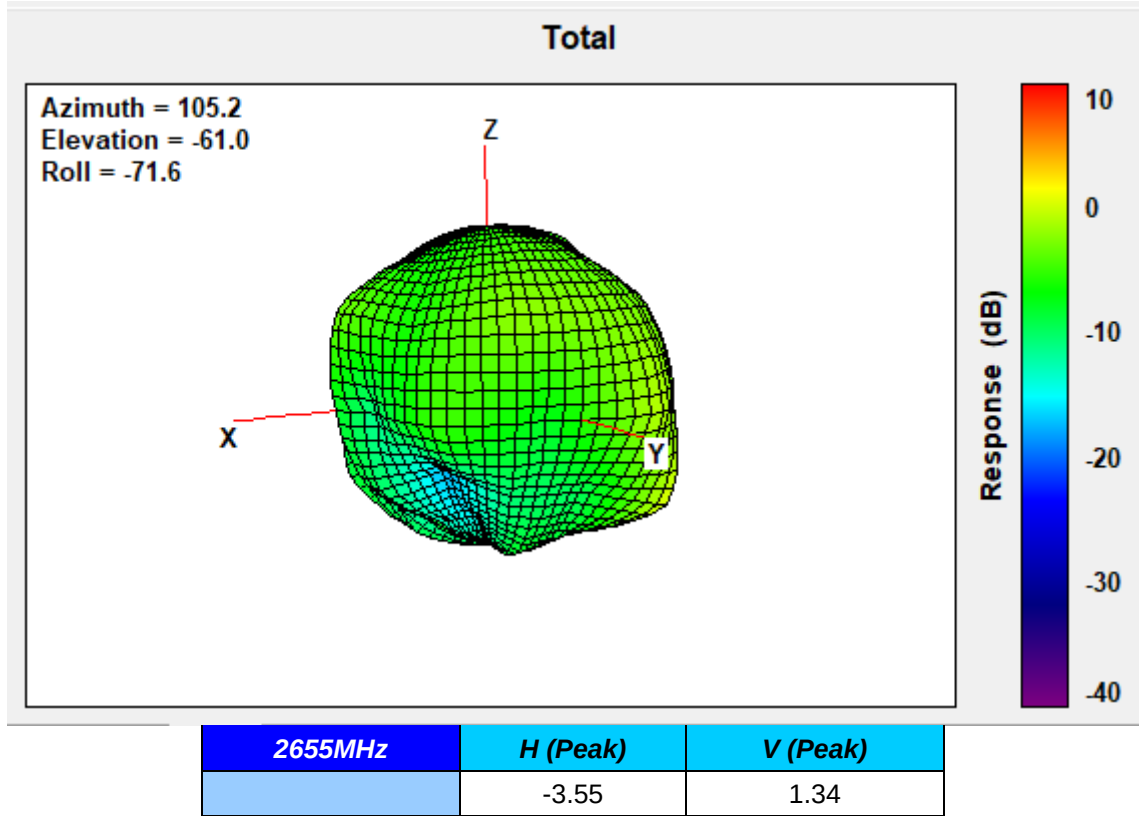
2595MHz



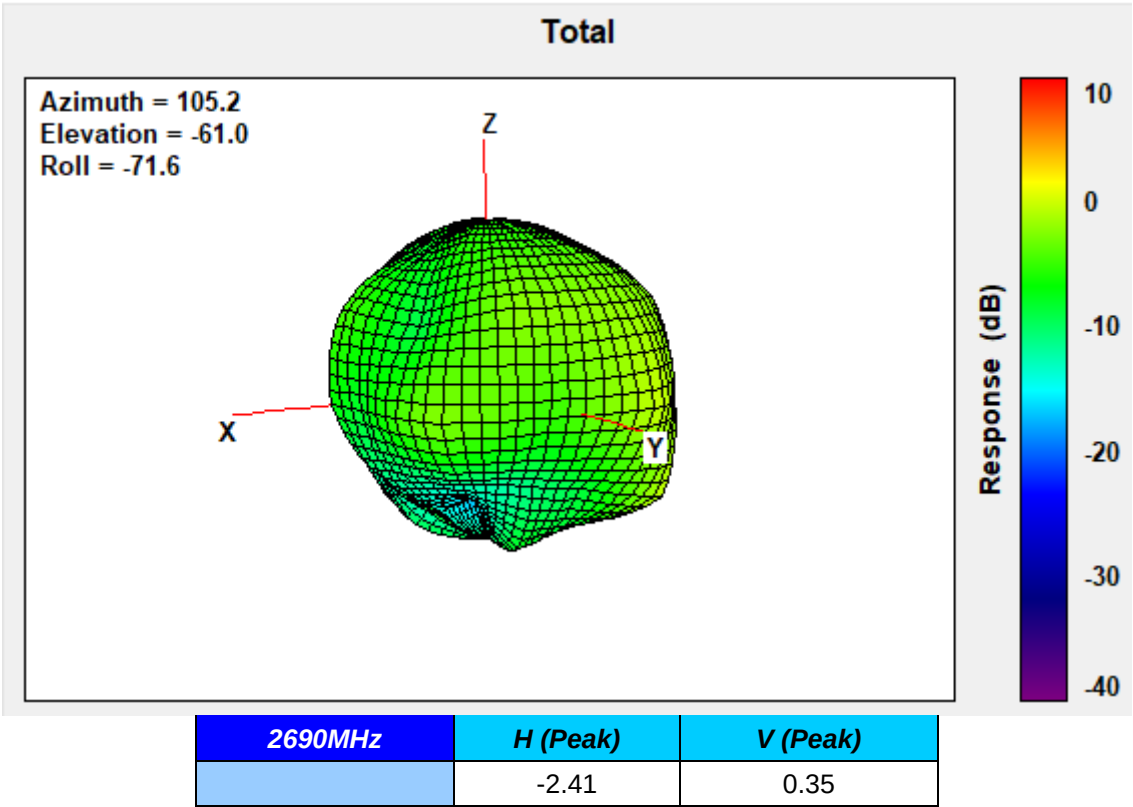
2620MHz



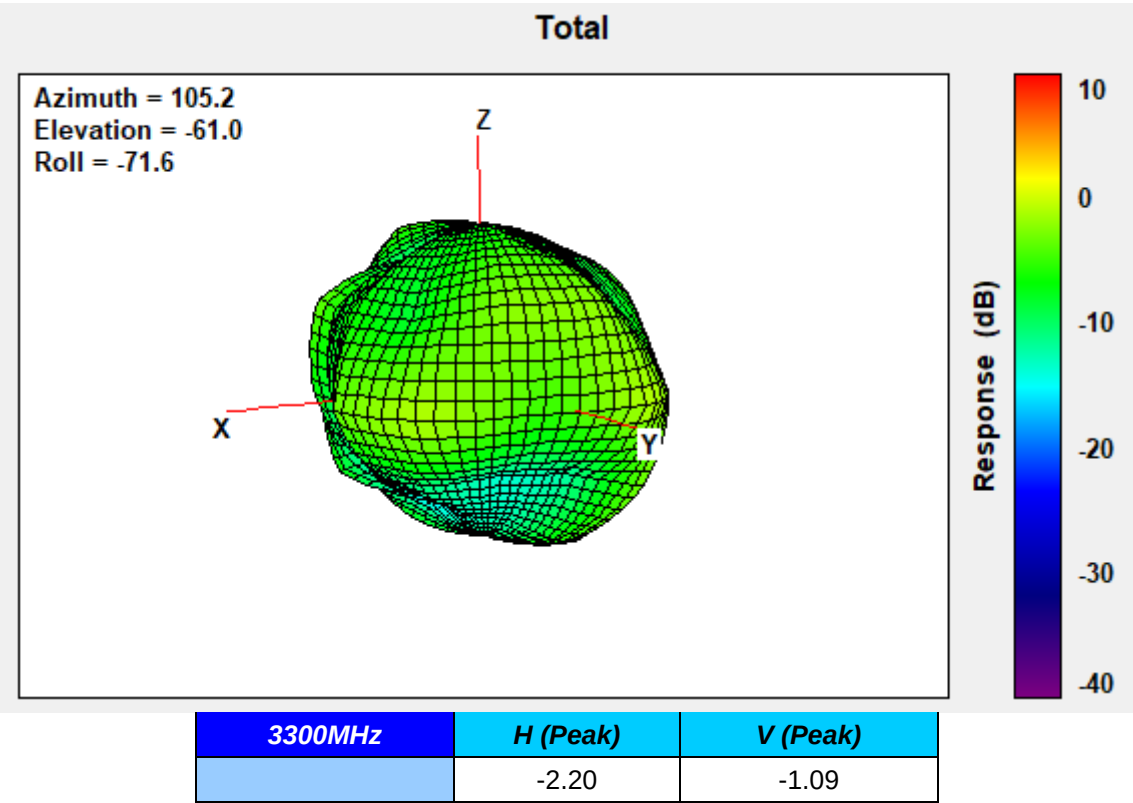
2655MHz



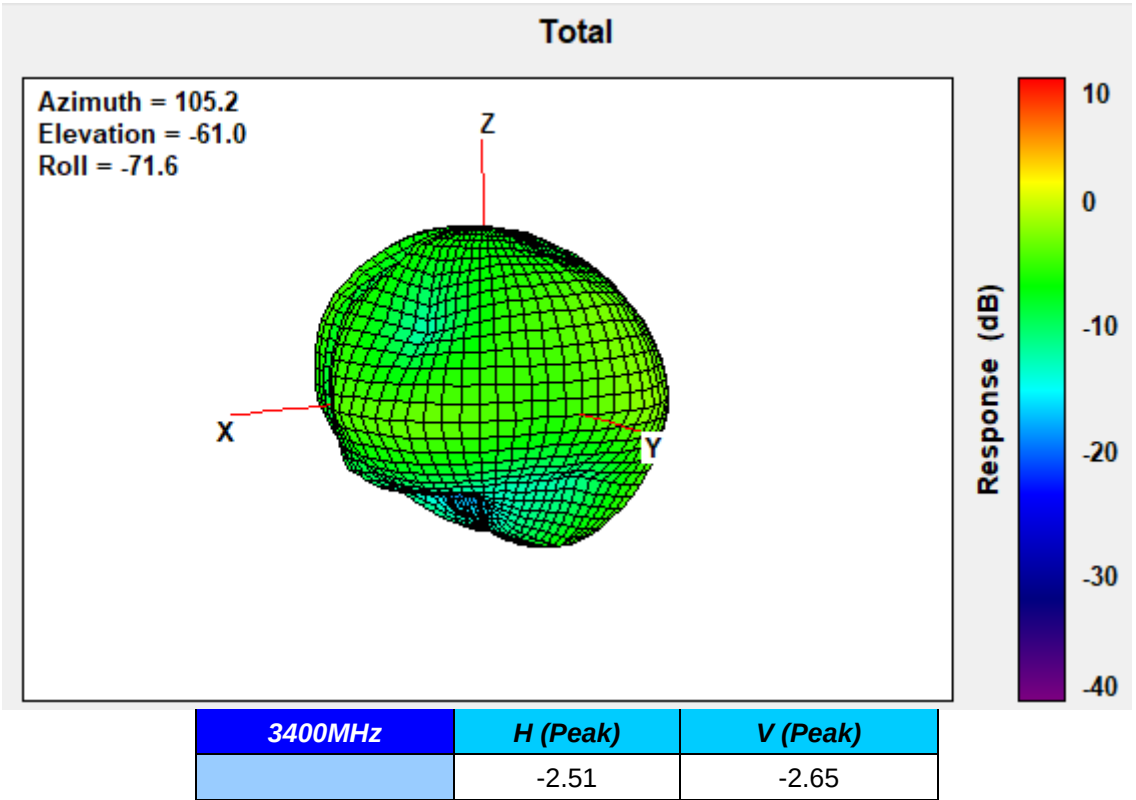
2690MHz



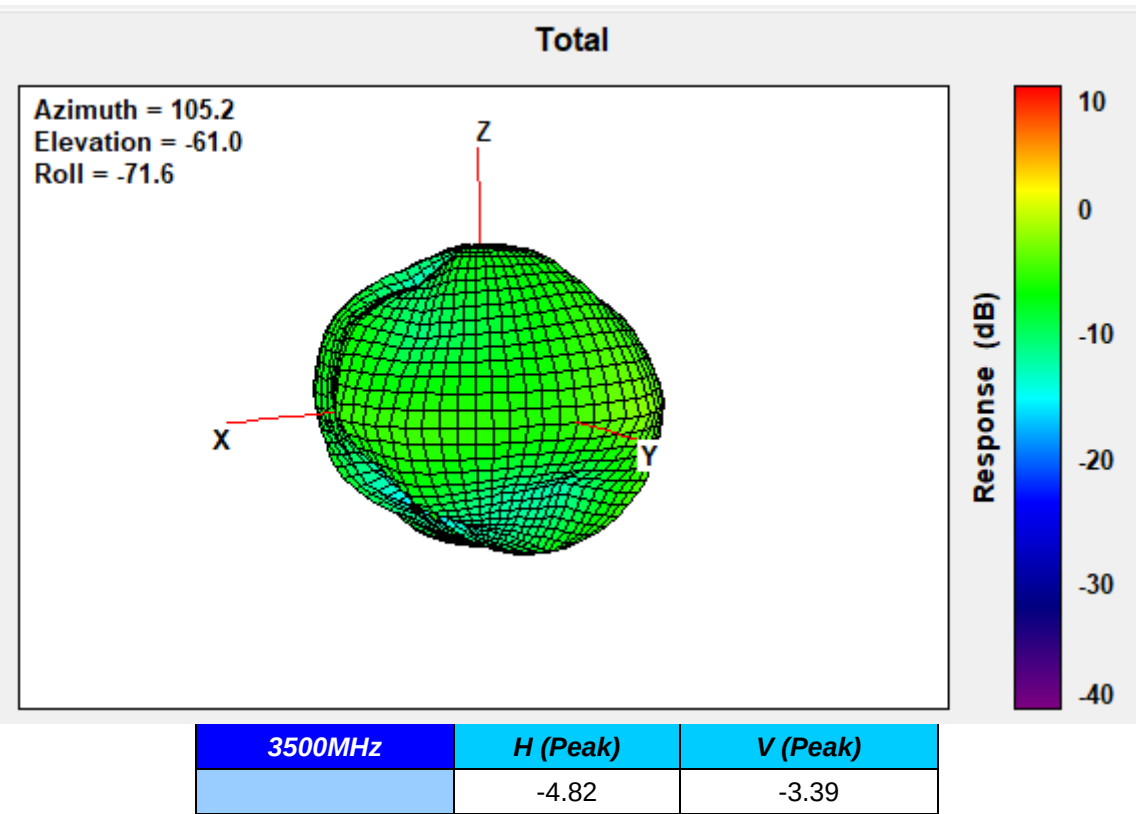
3300MHz



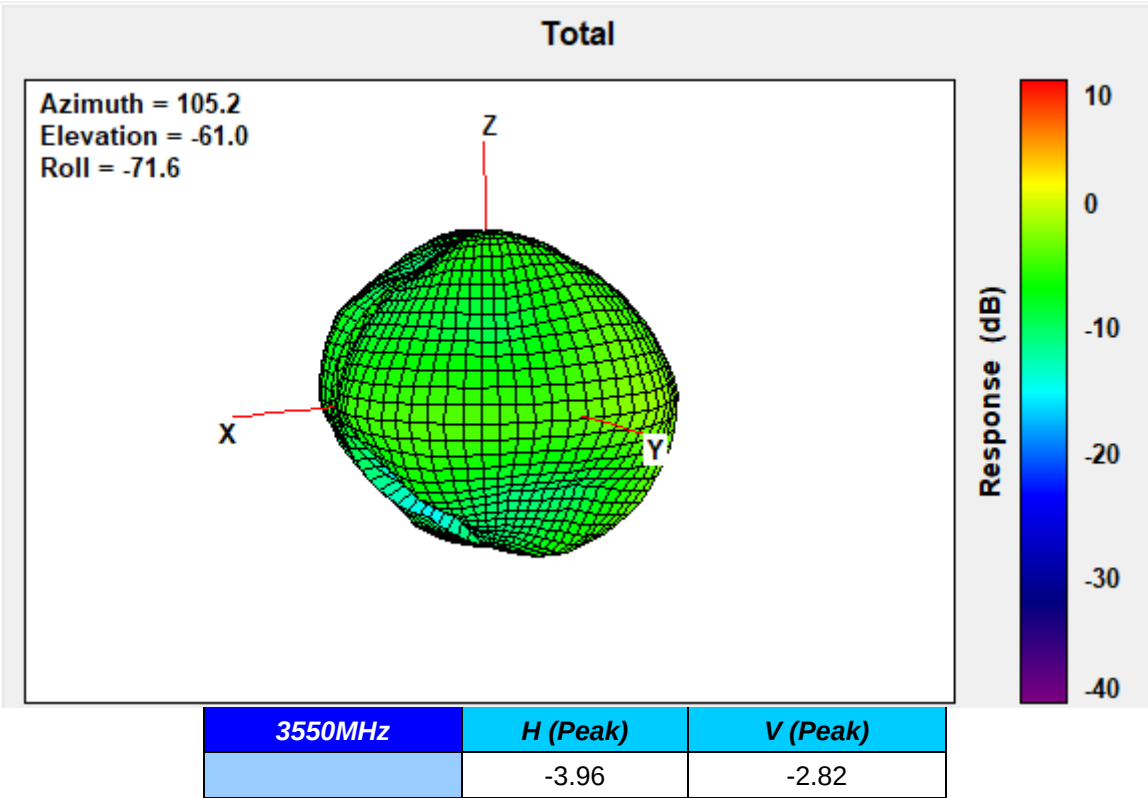
3400MHz



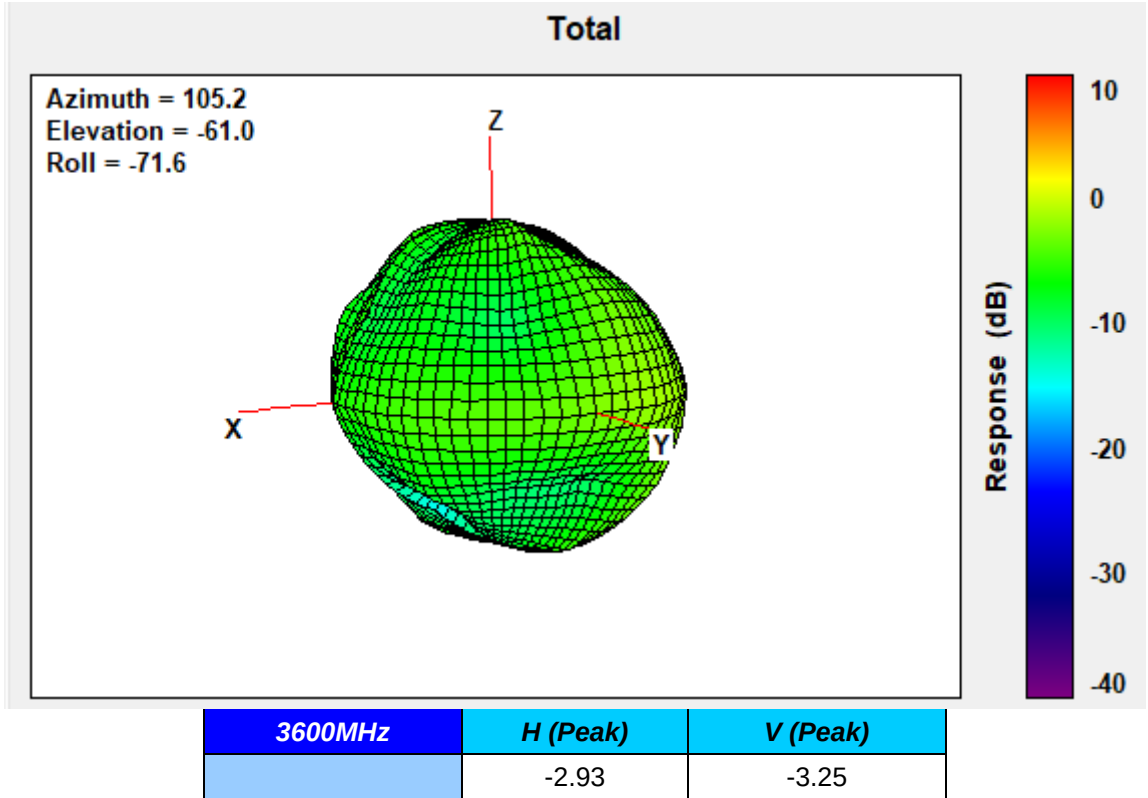
3500MHz



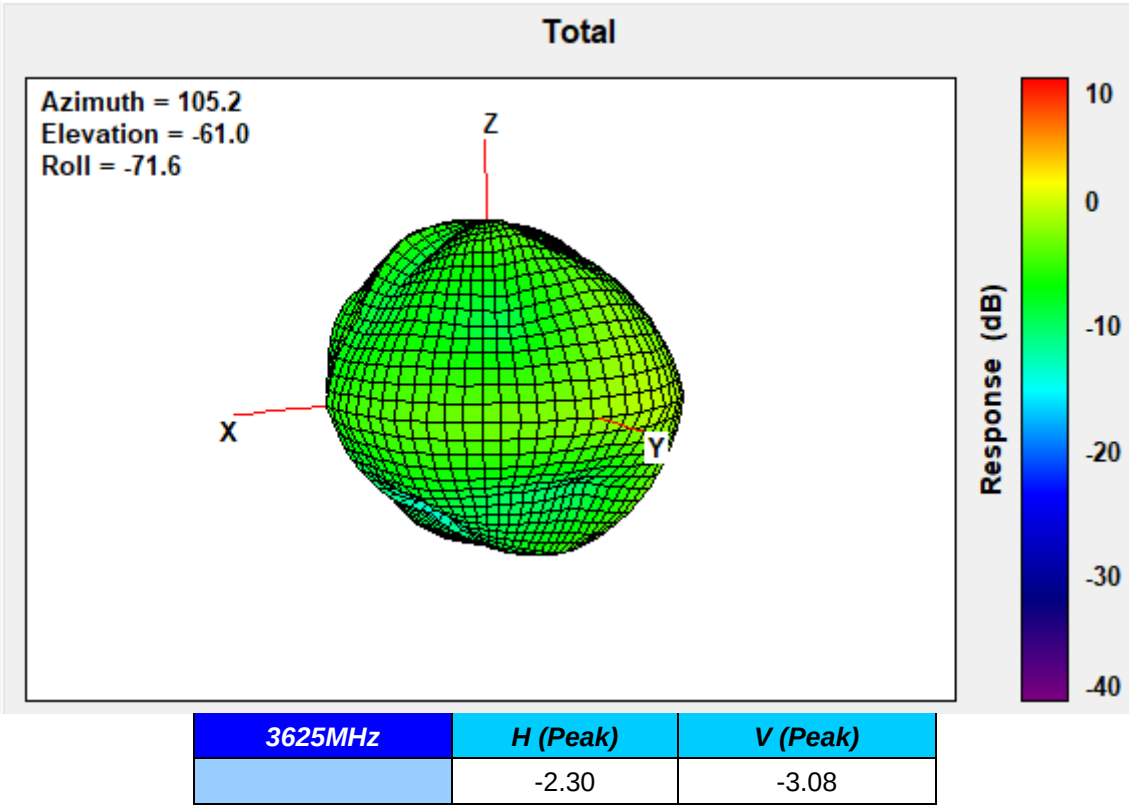
3550MHz



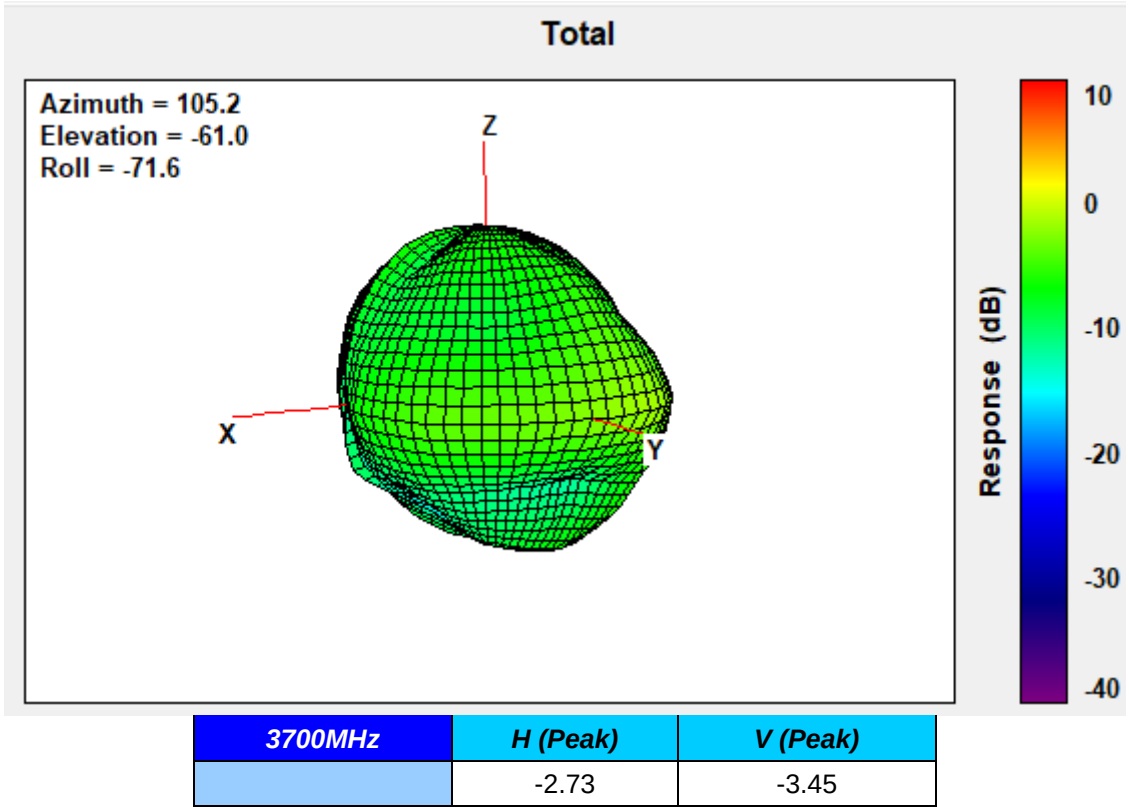
3600MHz



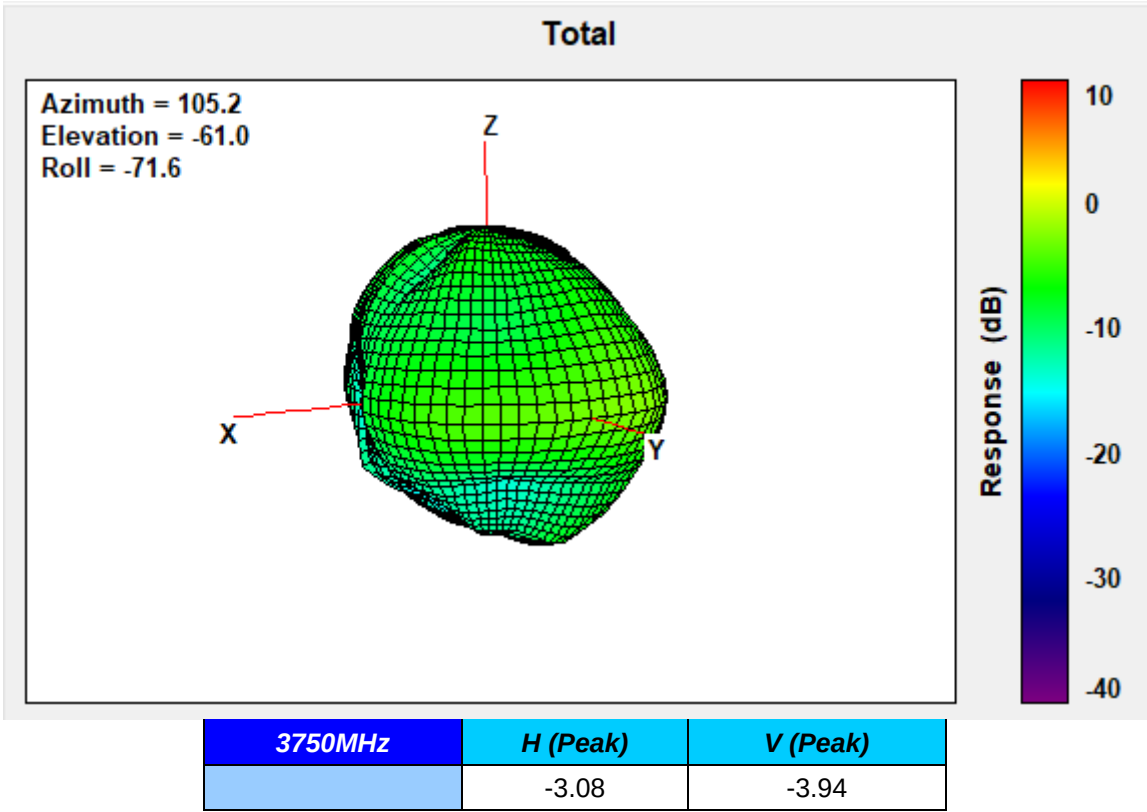
3625MHz



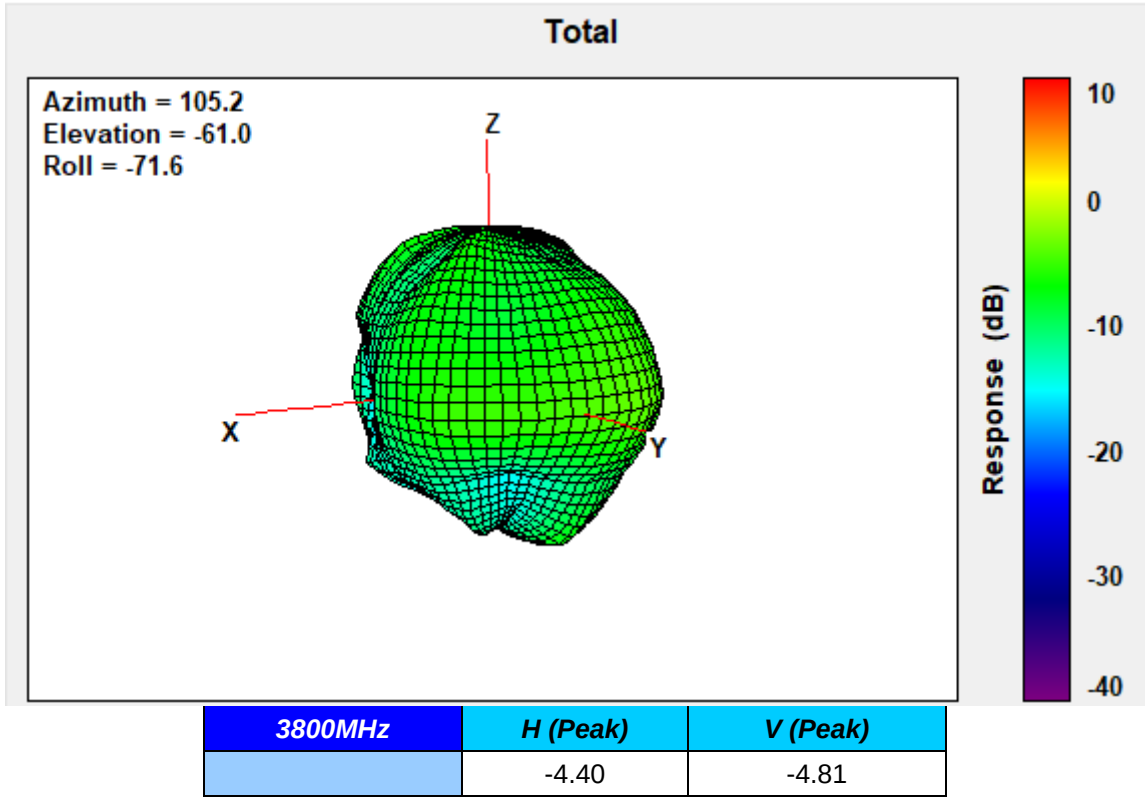
3700MHz



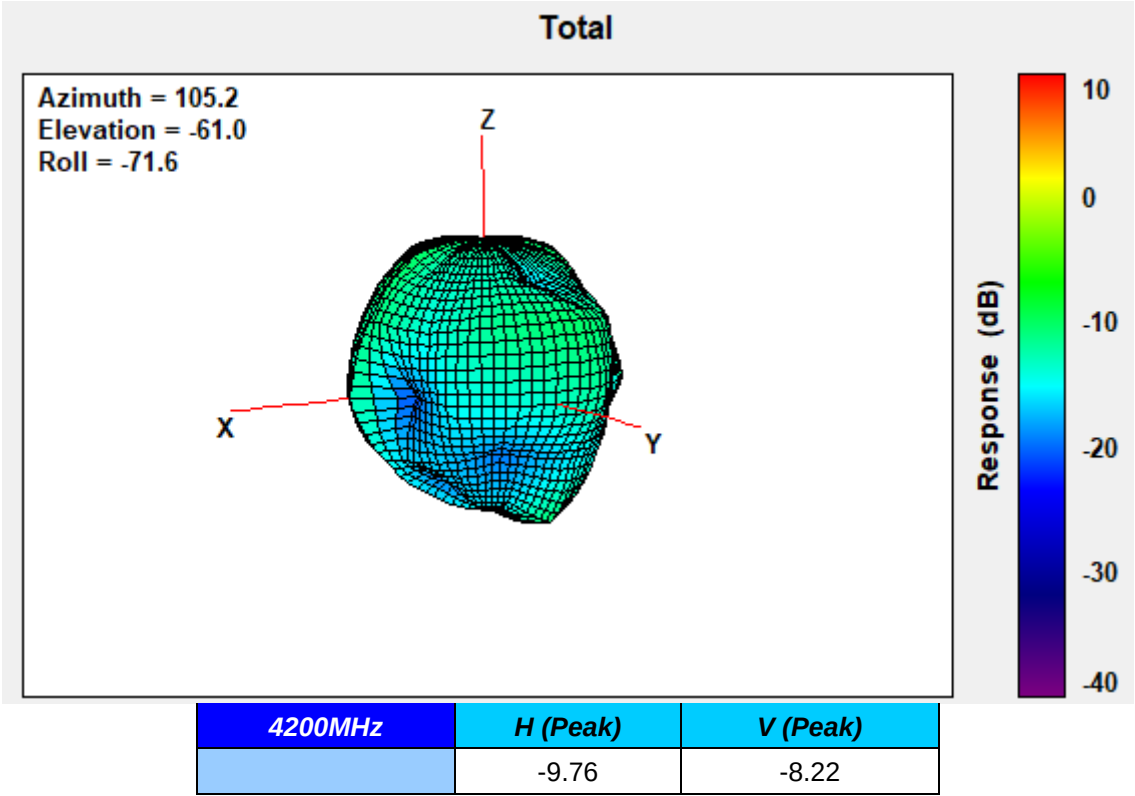
3750MHz



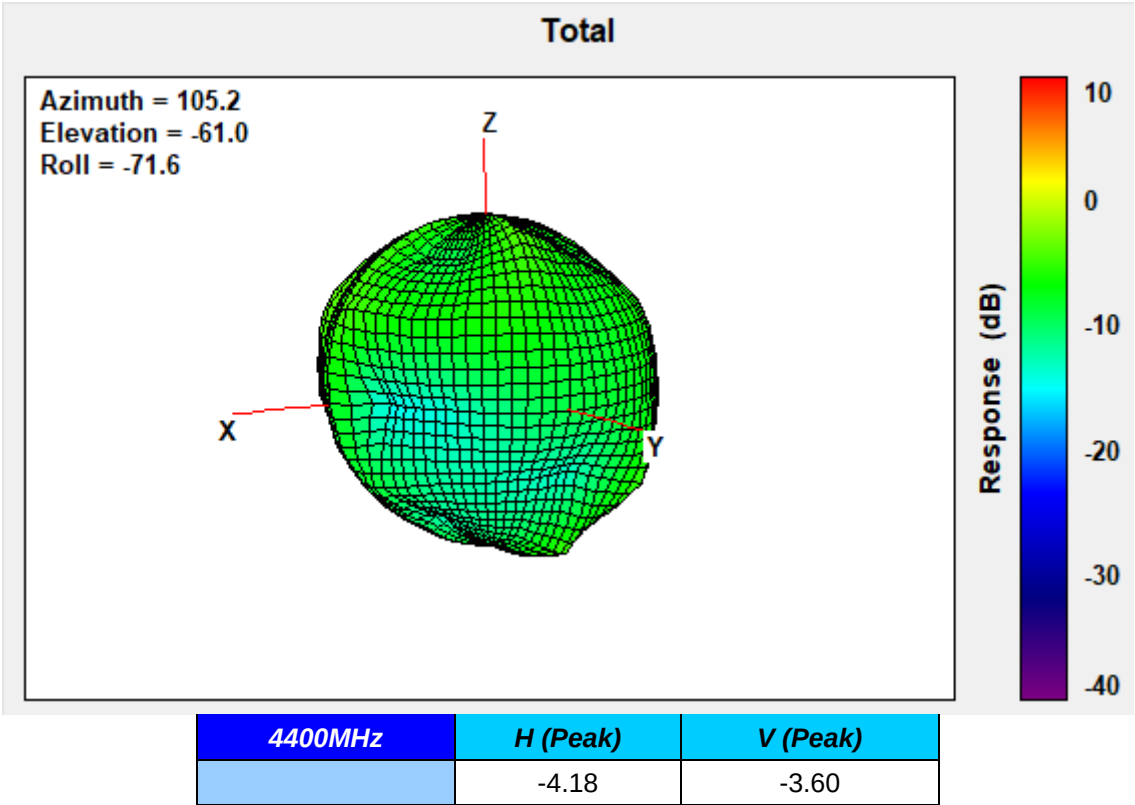
3800MHz



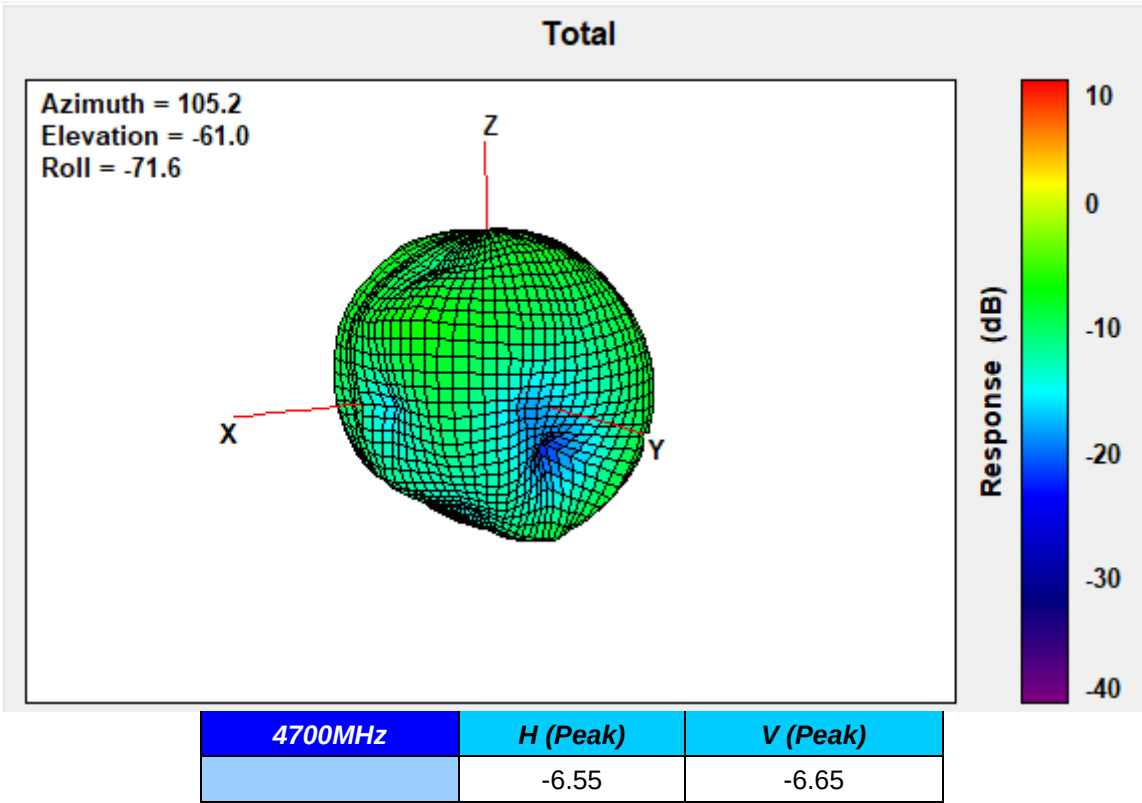
4200MHz



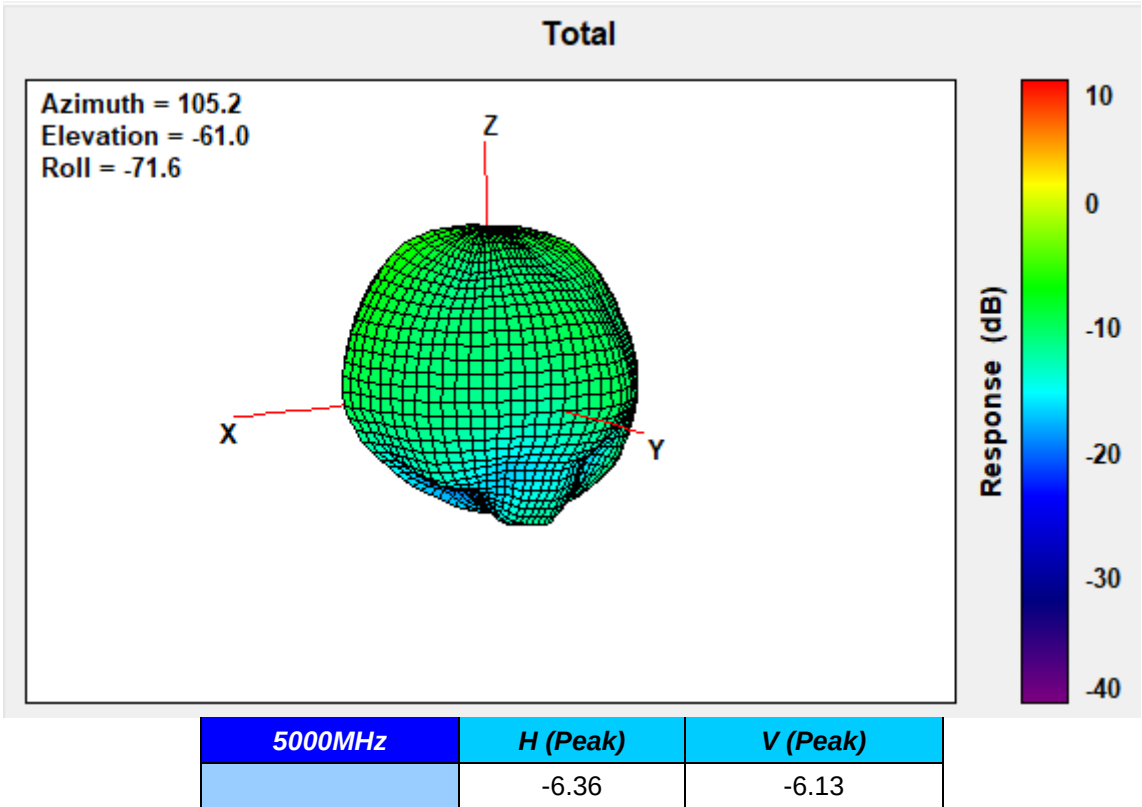
4400MHz



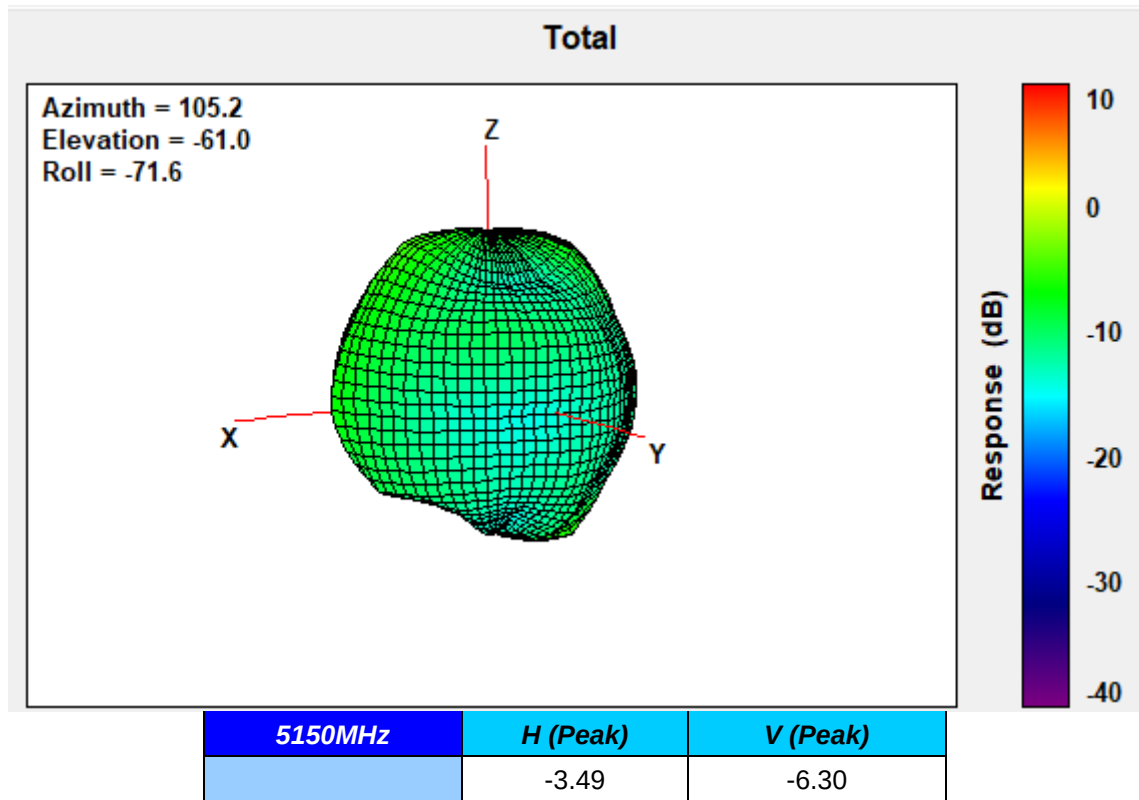
4700MHz



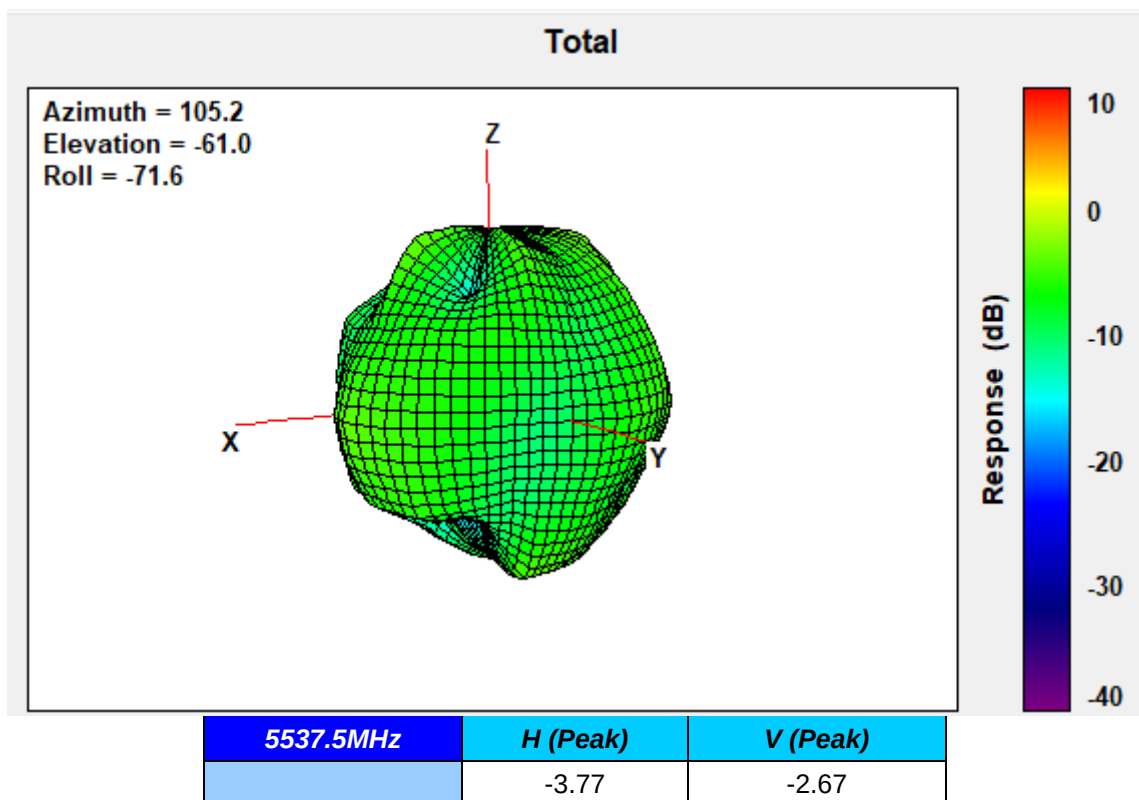
5000MHz

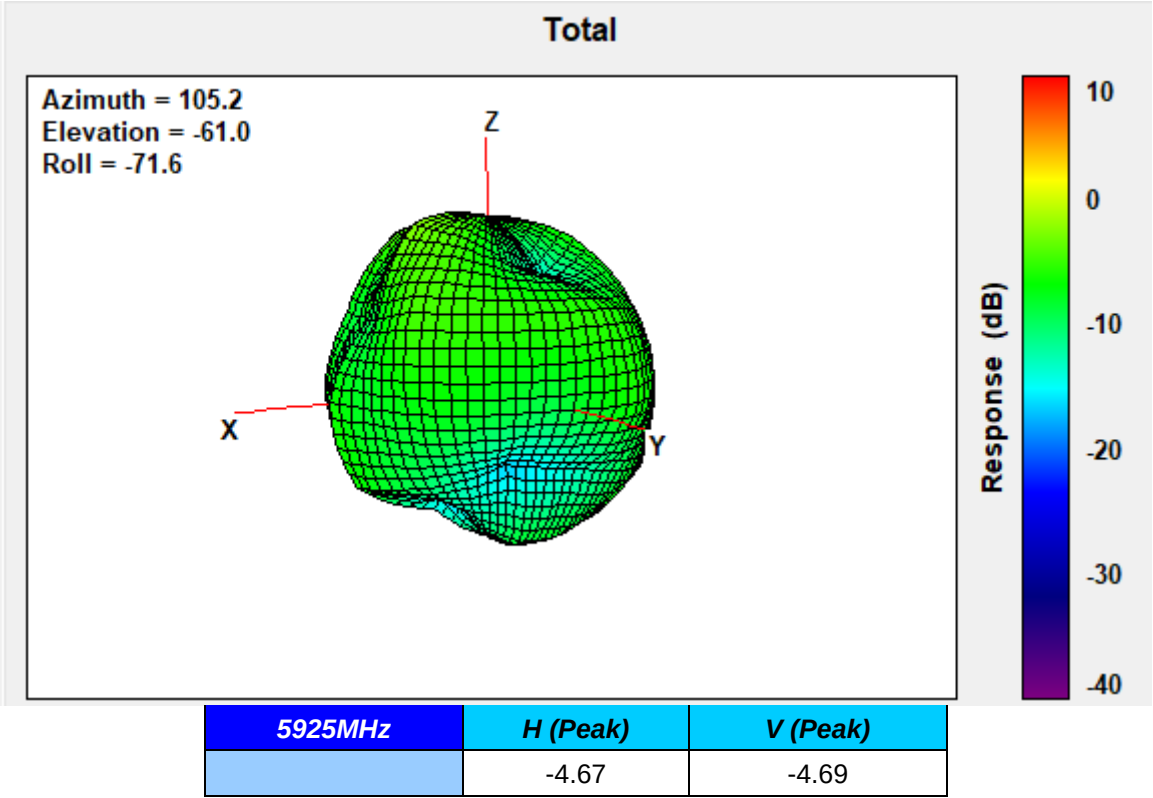


5150MHz

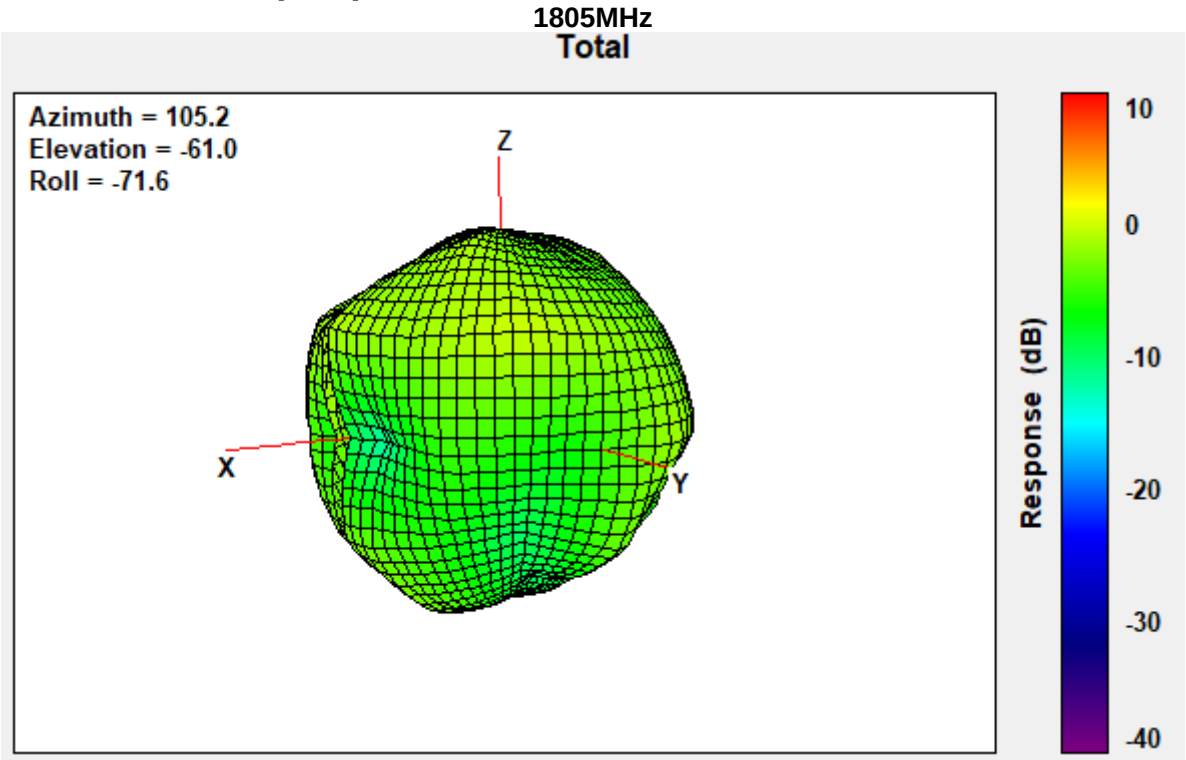


5537.5MHz

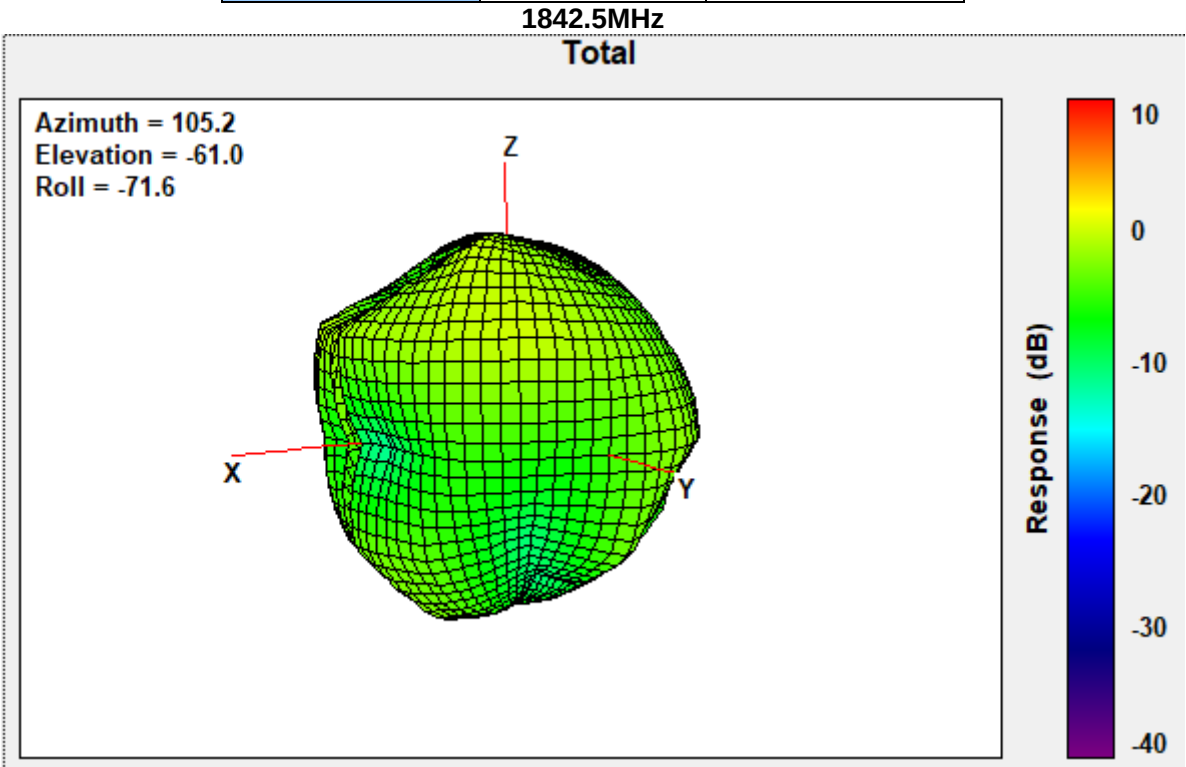




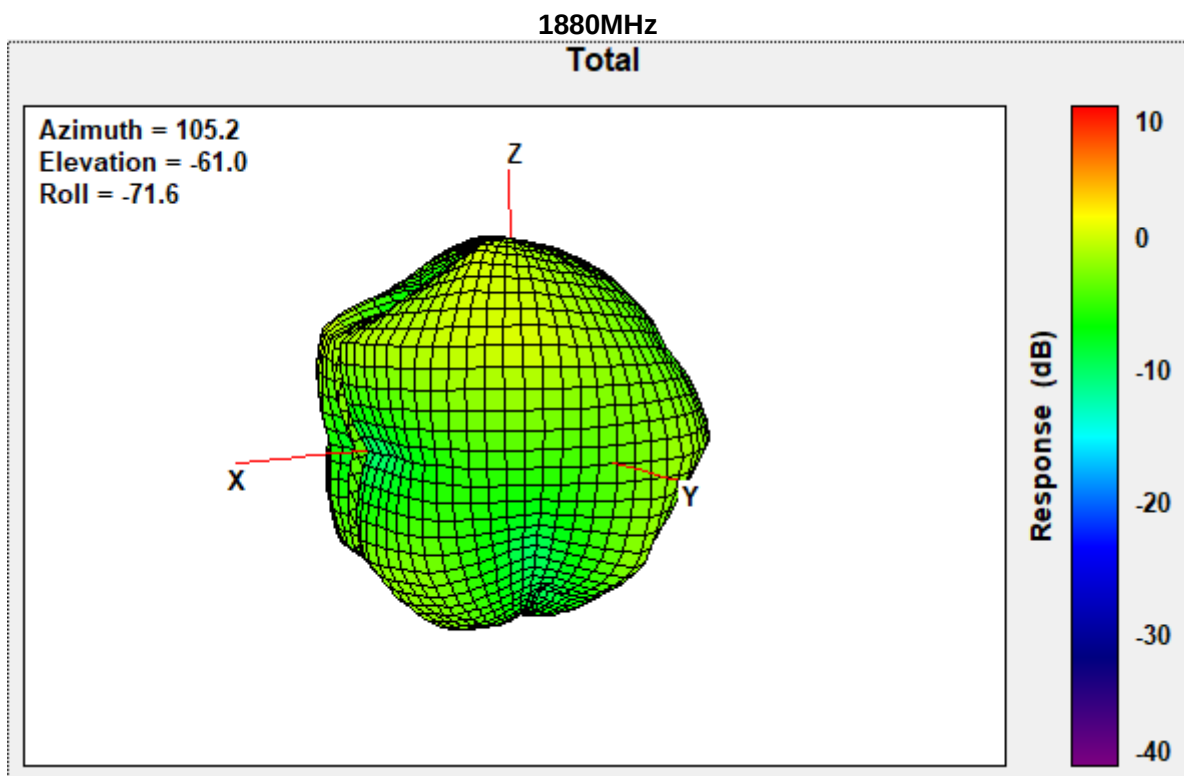
WWAN MIMO3 Antenna (Rx3)



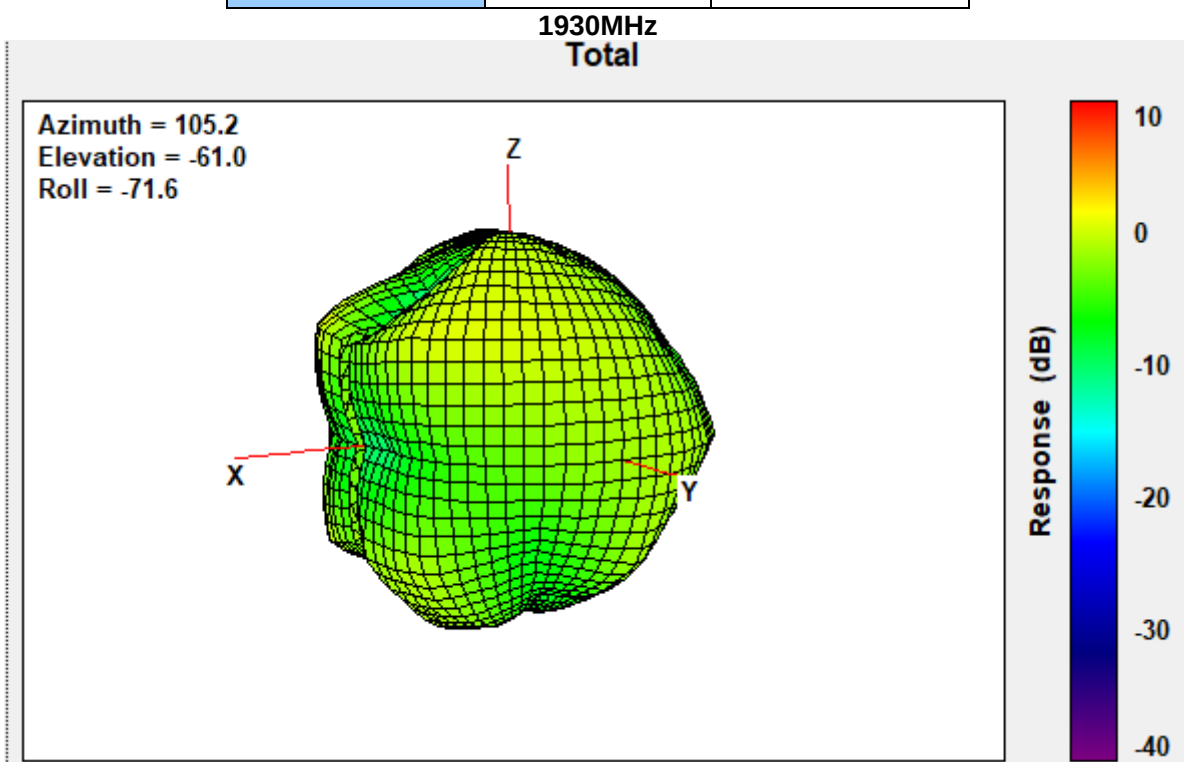
1805MHz	H (Peak)	V (Peak)
	-0.03	0.38



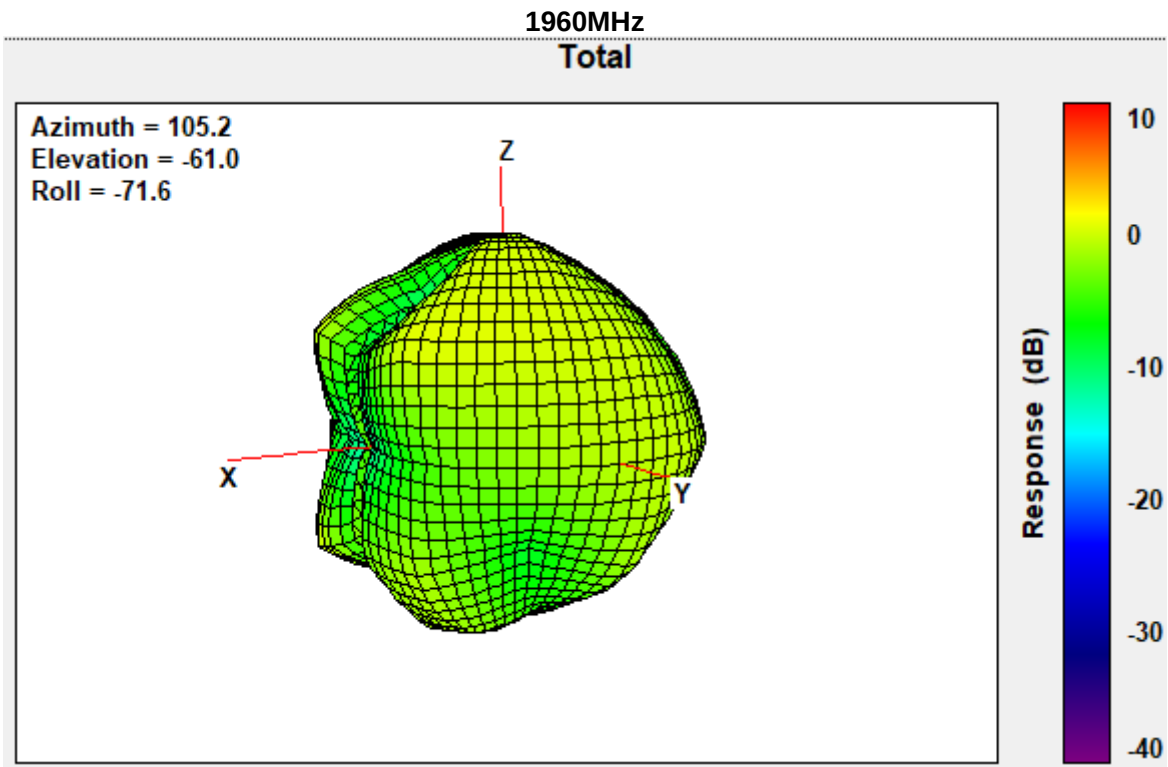
1842.5MHz	H (Peak)	V (Peak)
	-0.30	-0.18



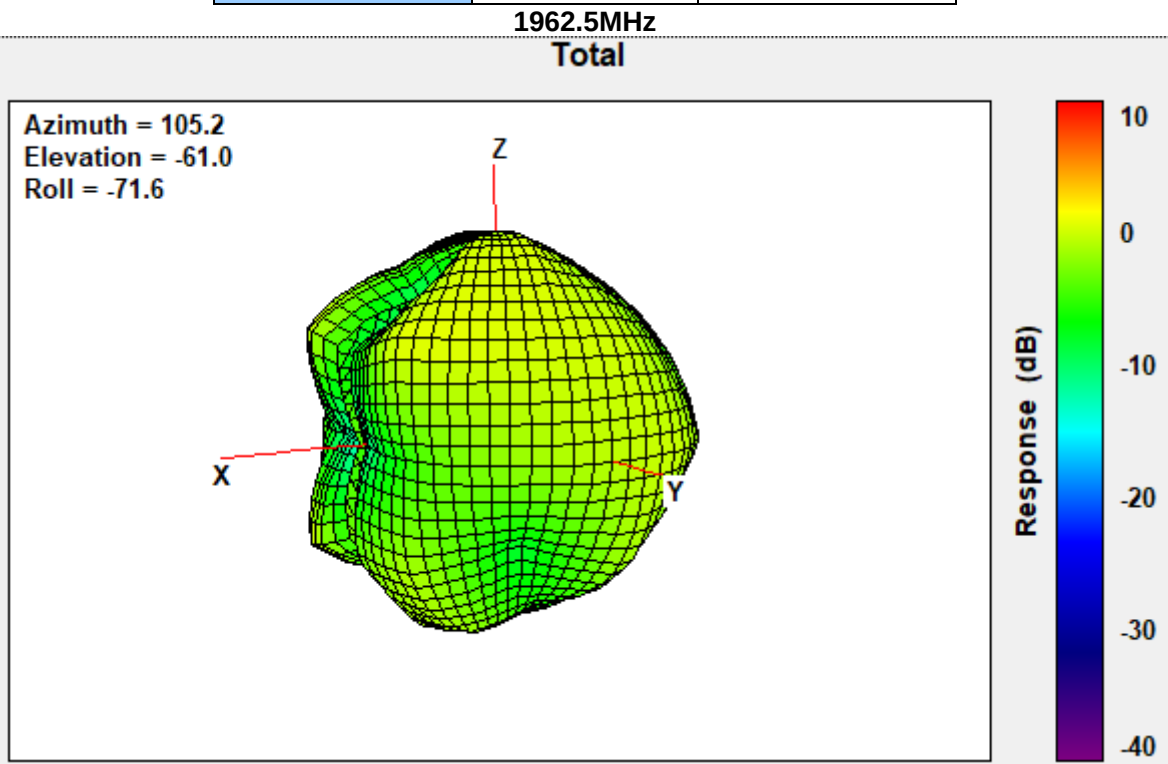
1880MHz	H (Peak)	V (Peak)
	0.36	-0.57



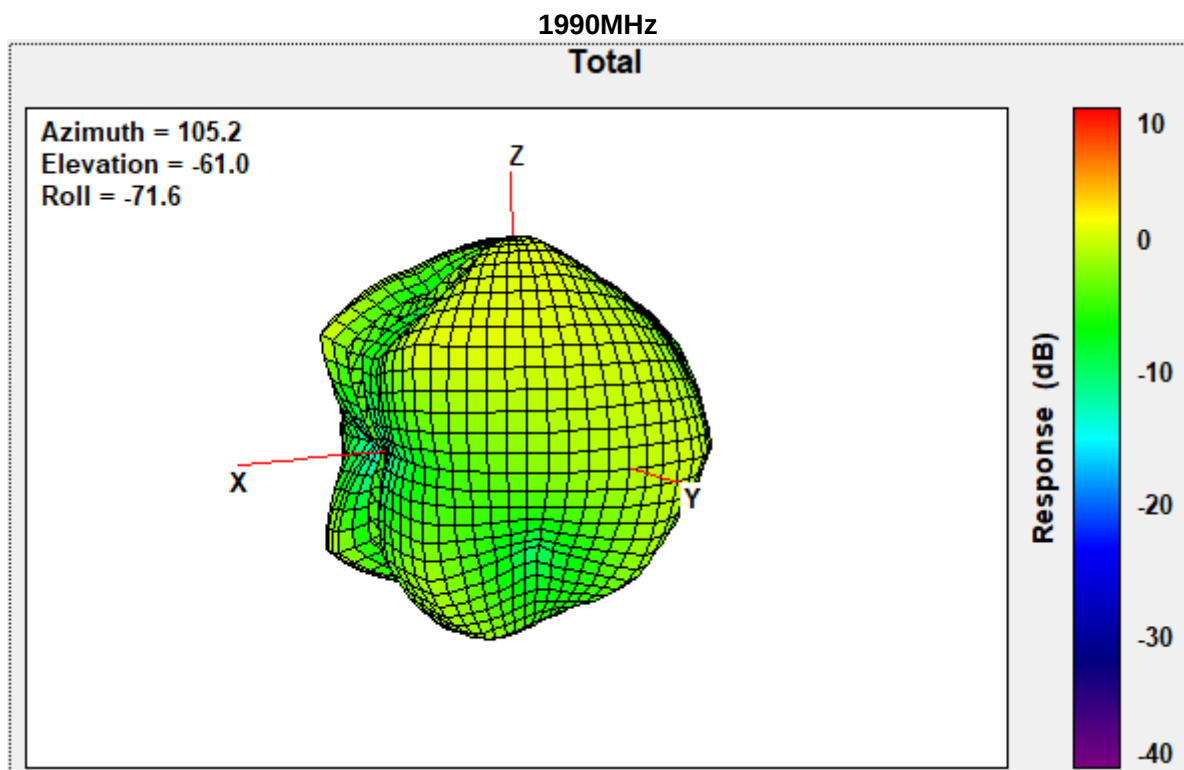
1930MHz	H (Peak)	V (Peak)
	1.71	0.94



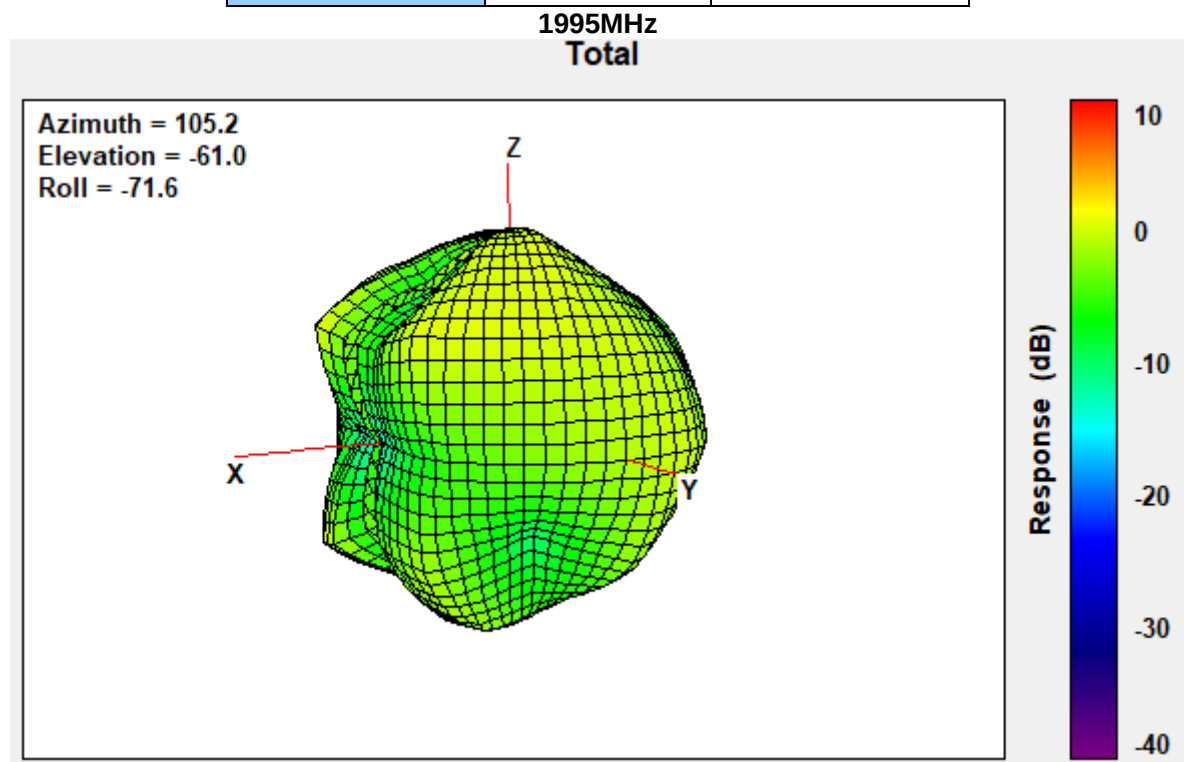
1960MHz	H (Peak)	V (Peak)
	1.22	1.02



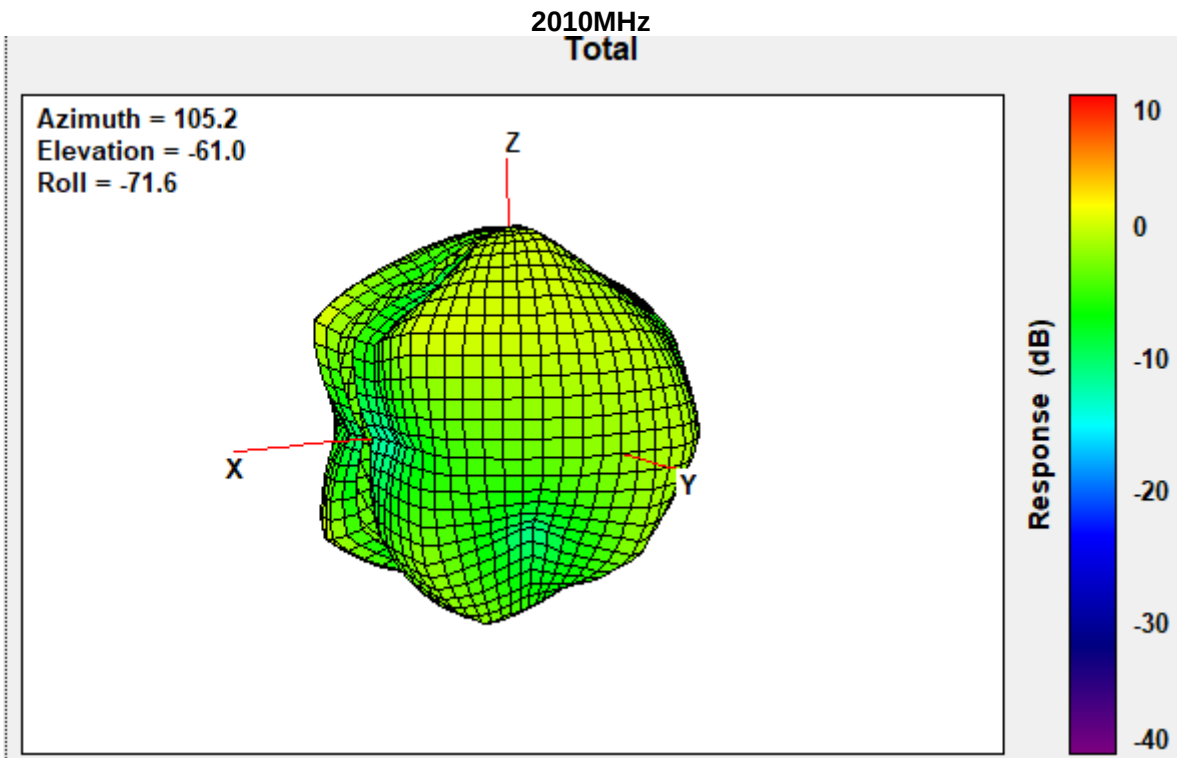
1962.5MHz	H (Peak)	V (Peak)
	1.19	1.03



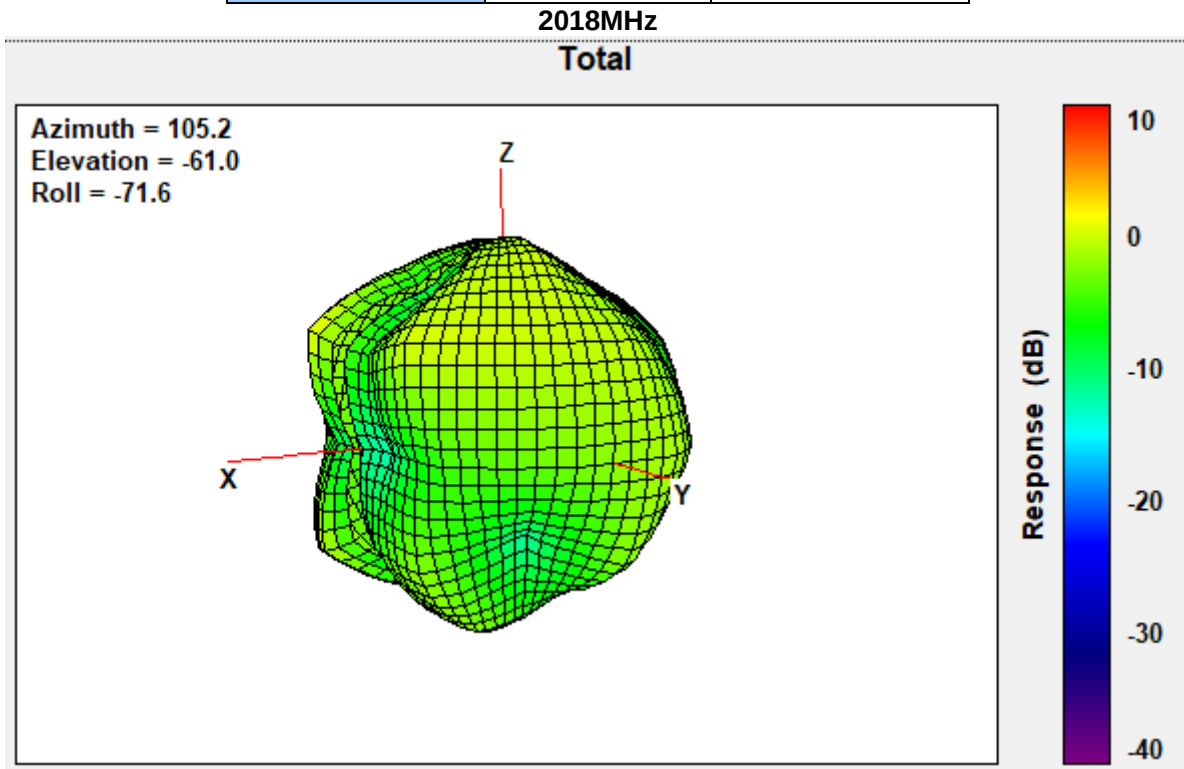
1990MHz	H (Peak)	V (Peak)
	0.15	0.89



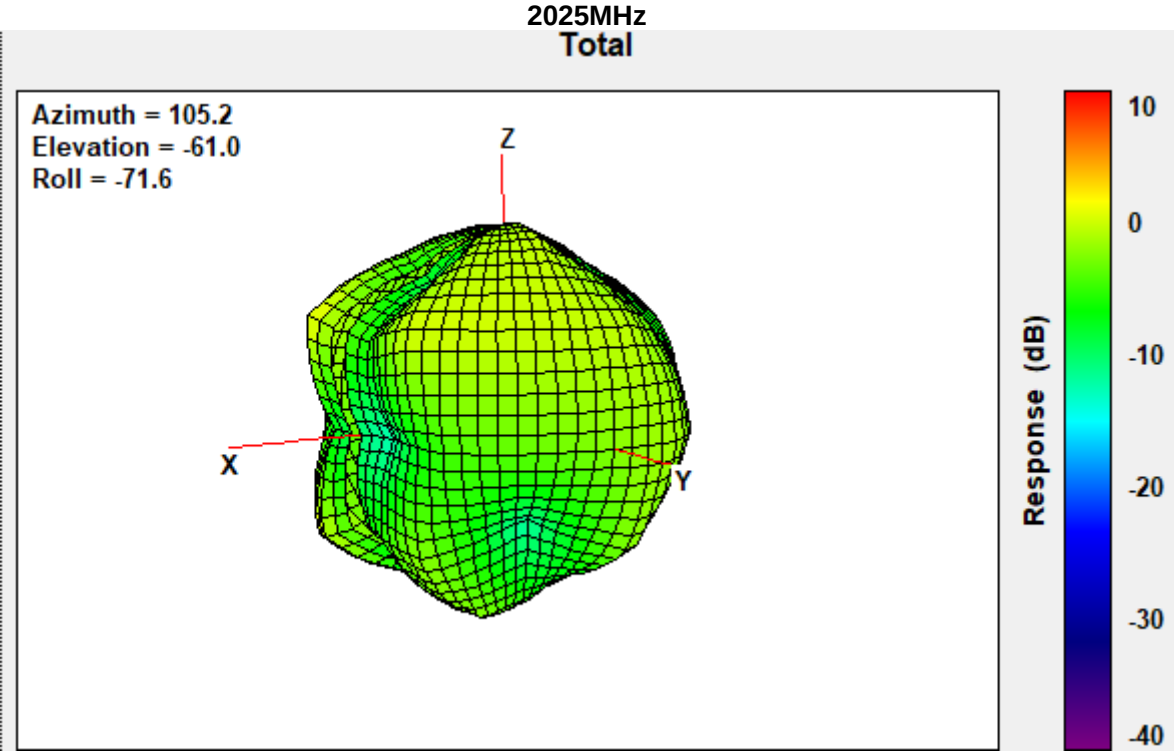
1995MHz	H (Peak)	V (Peak)
	0.12	0.97



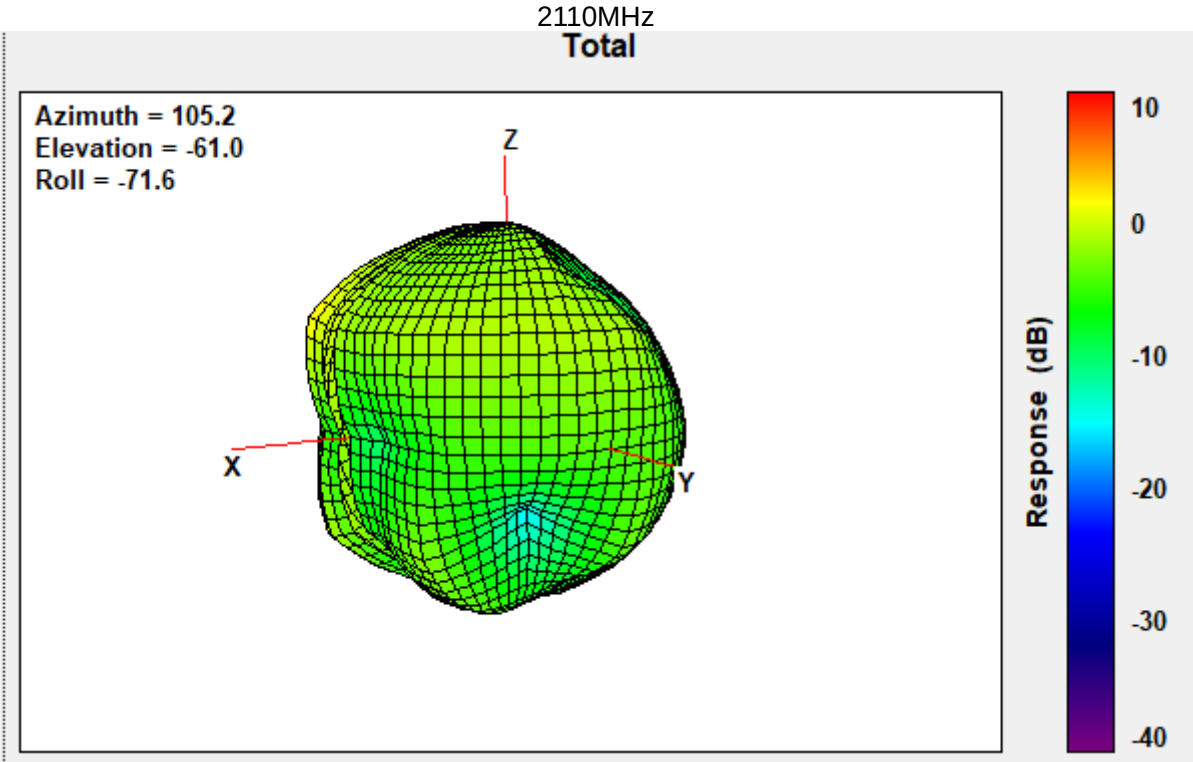
2010MHz	H (Peak)	V (Peak)
	-0.28	0.51



2018MHz	H (Peak)	V (Peak)
	-0.39	0.45



2025MHz	H (Peak)	V (Peak)
	-0.47	0.42

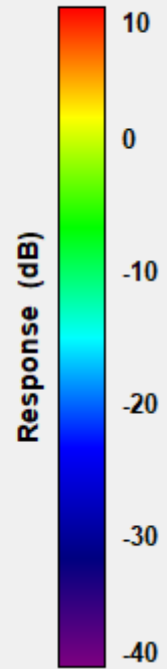
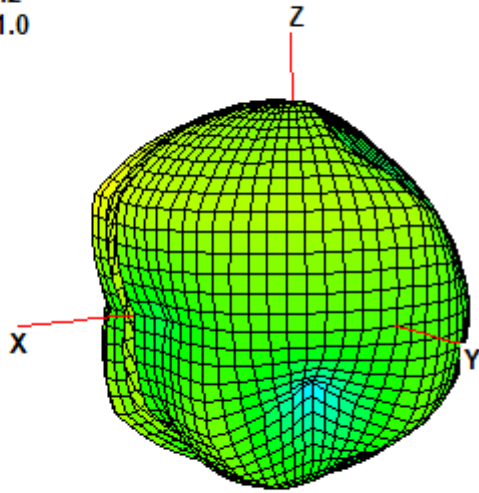


2110MHz	H (Peak)	V (Peak)
	-0.99	-1.95

2132.5MHz

Total

Azimuth = 105.2
Elevation = -61.0
Roll = -71.6

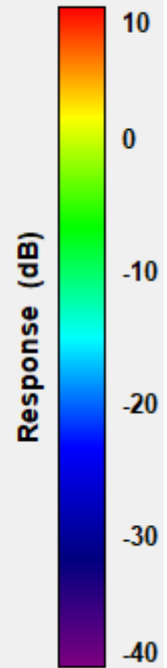
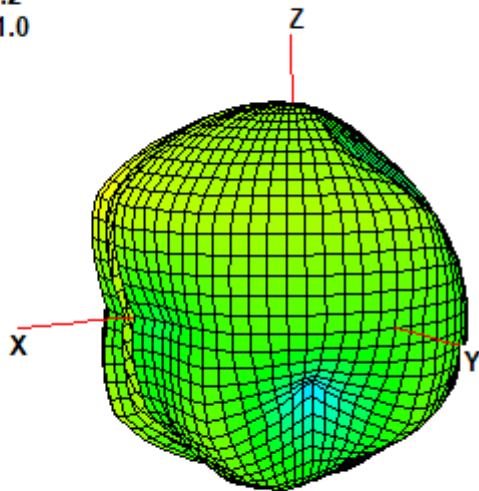


2132.5MHz	H (Peak)	V (Peak)
	-0.90	-2.10

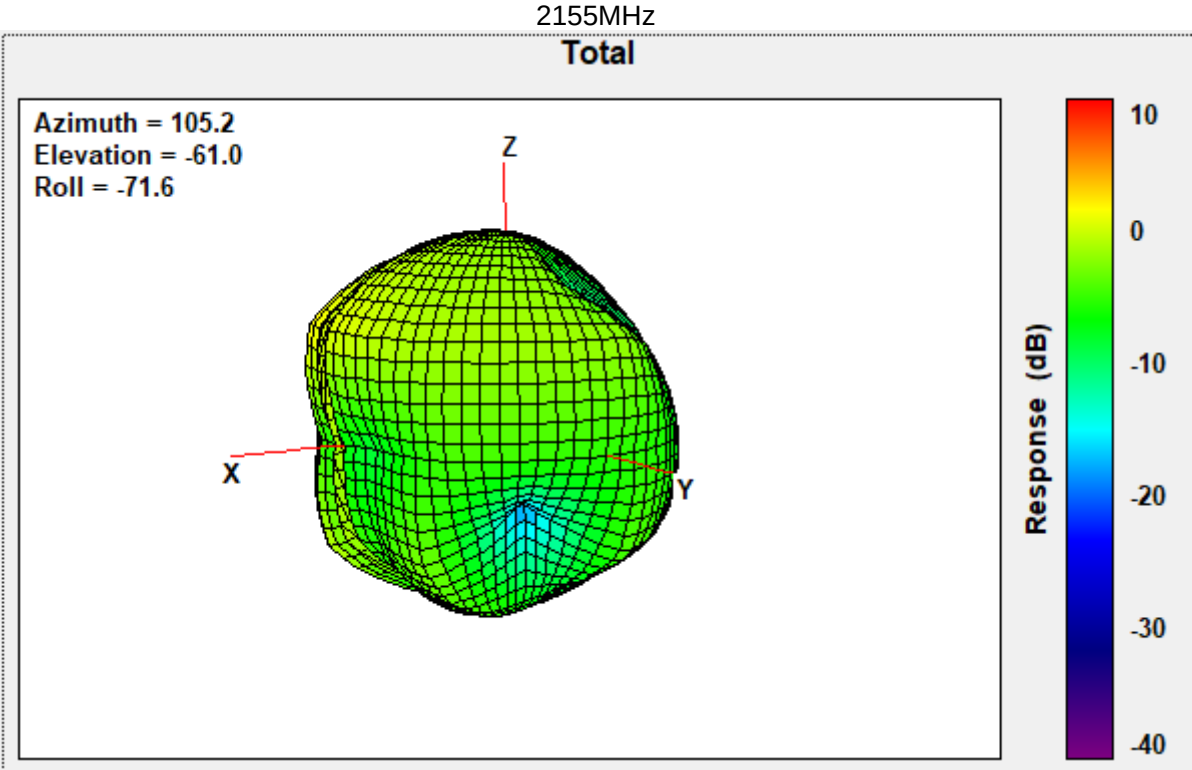
2140MHz

Total

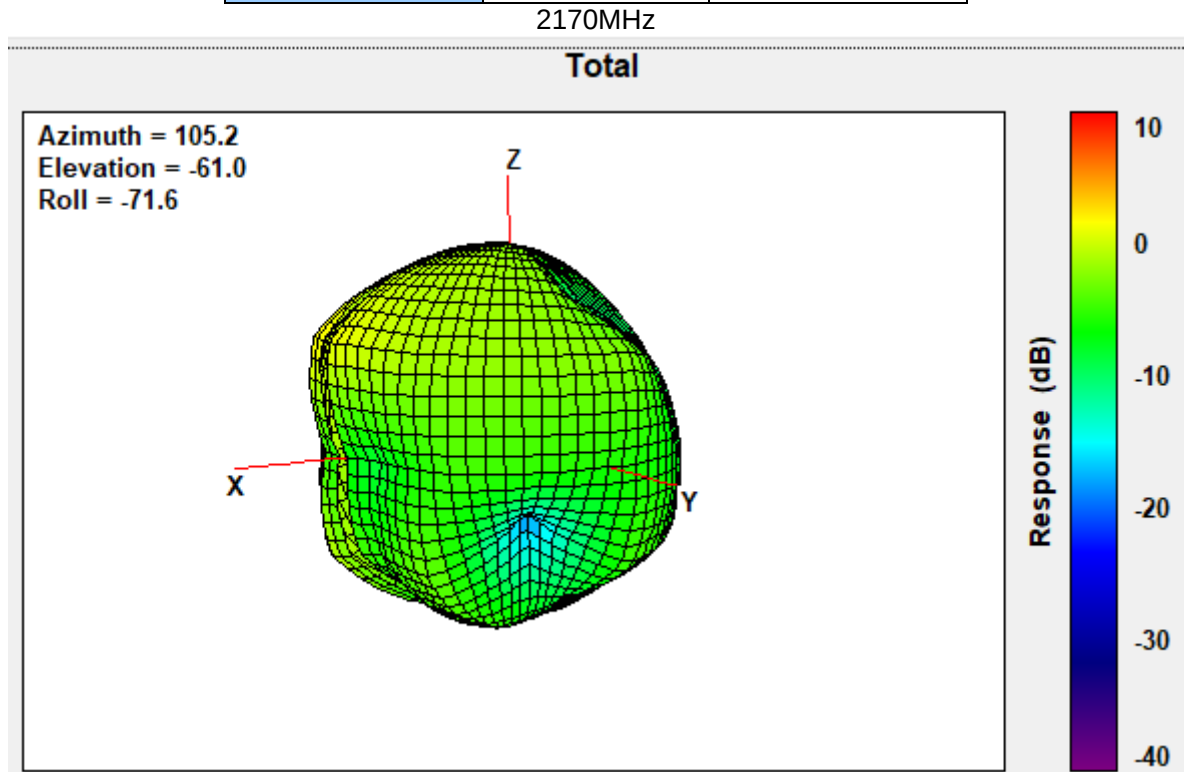
Azimuth = 105.2
Elevation = -61.0
Roll = -71.6



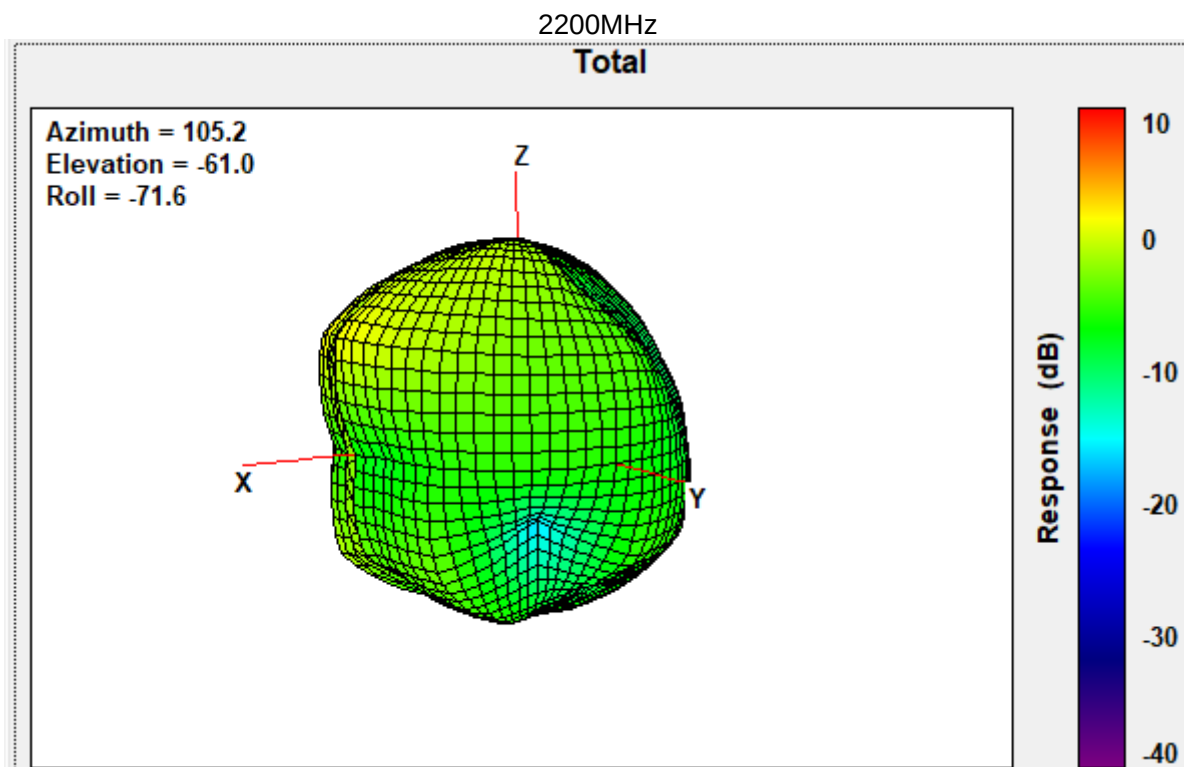
2140MHz	H (Peak)	V (Peak)
	-0.95	-2.11



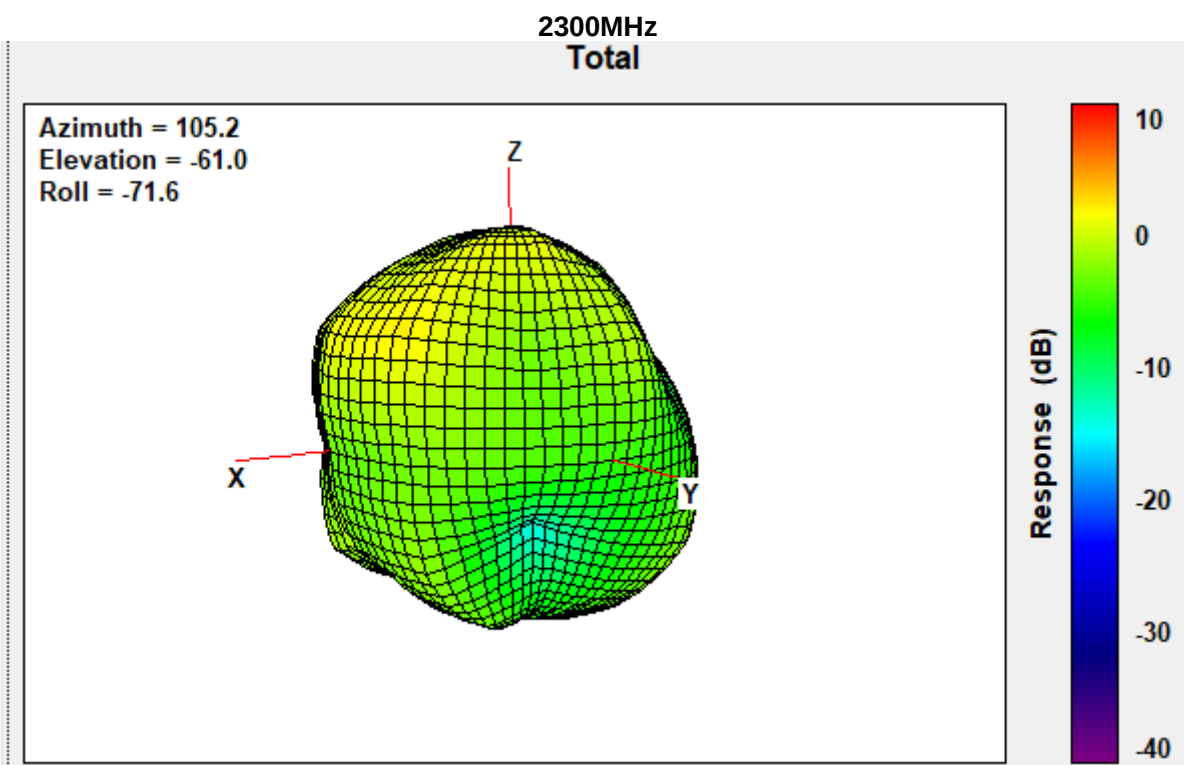
2155MHz	H (Peak)	V (Peak)
	-0.49	-1.58



2170MHz	H (Peak)	V (Peak)
	0.70	-1.42



2200MHz	H (Peak)	V (Peak)
	2.41	-1.25

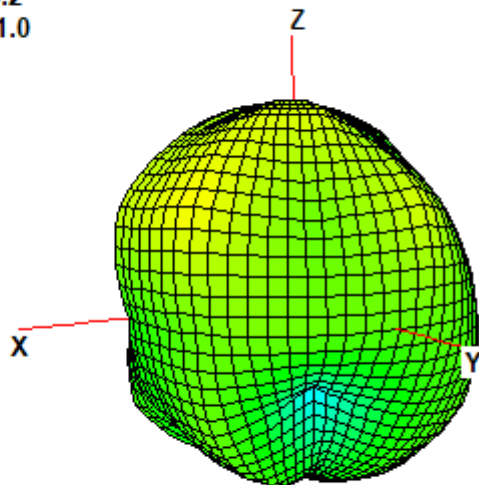


2300MHz	H (Peak)	V (Peak)
	2.98	1.58

2350MHz

Total

Azimuth = 105.2
Elevation = -61.0
Roll = -71.6

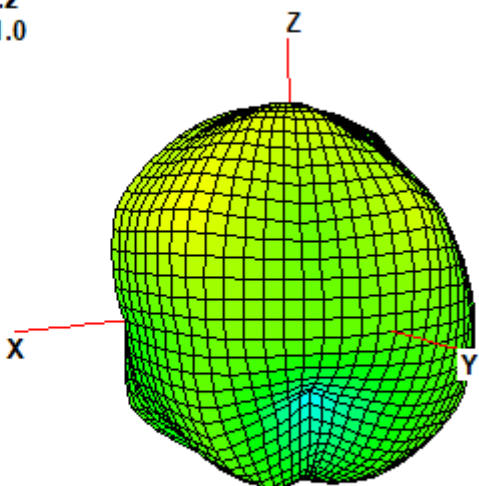


2350MHz	H (Peak)	V (Peak)
	1.72	1.65

2355MHz

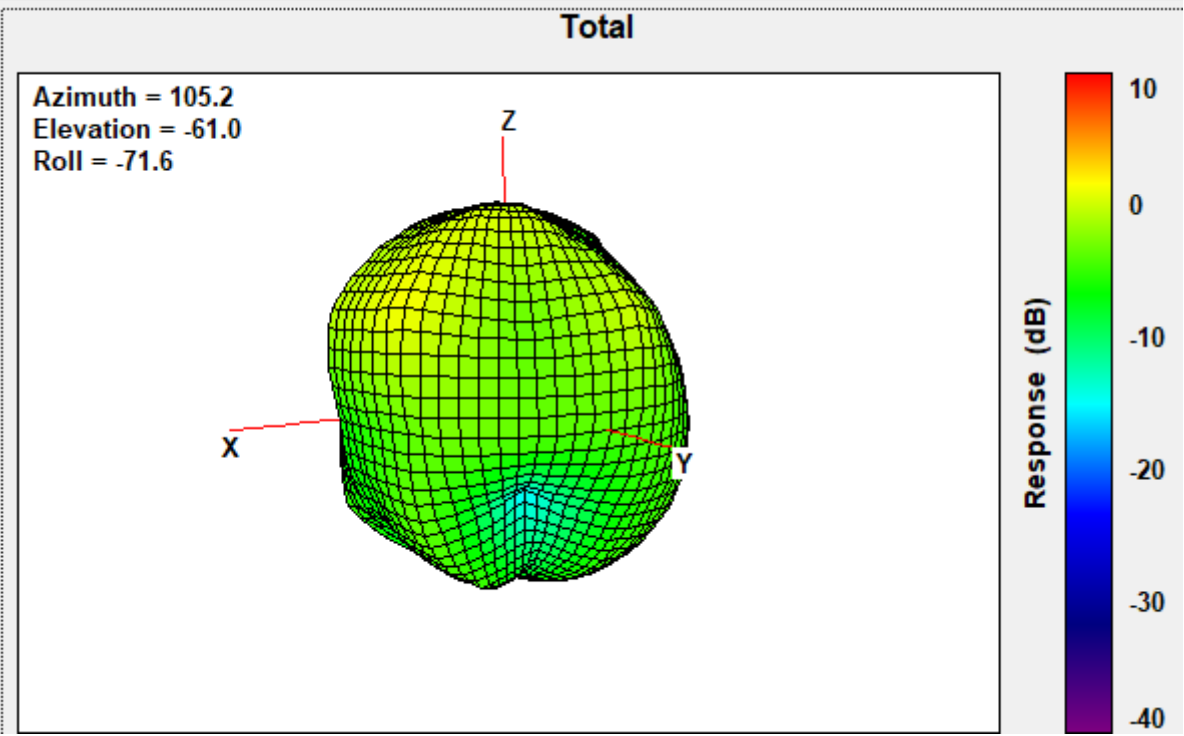
Total

Azimuth = 105.2
Elevation = -61.0
Roll = -71.6



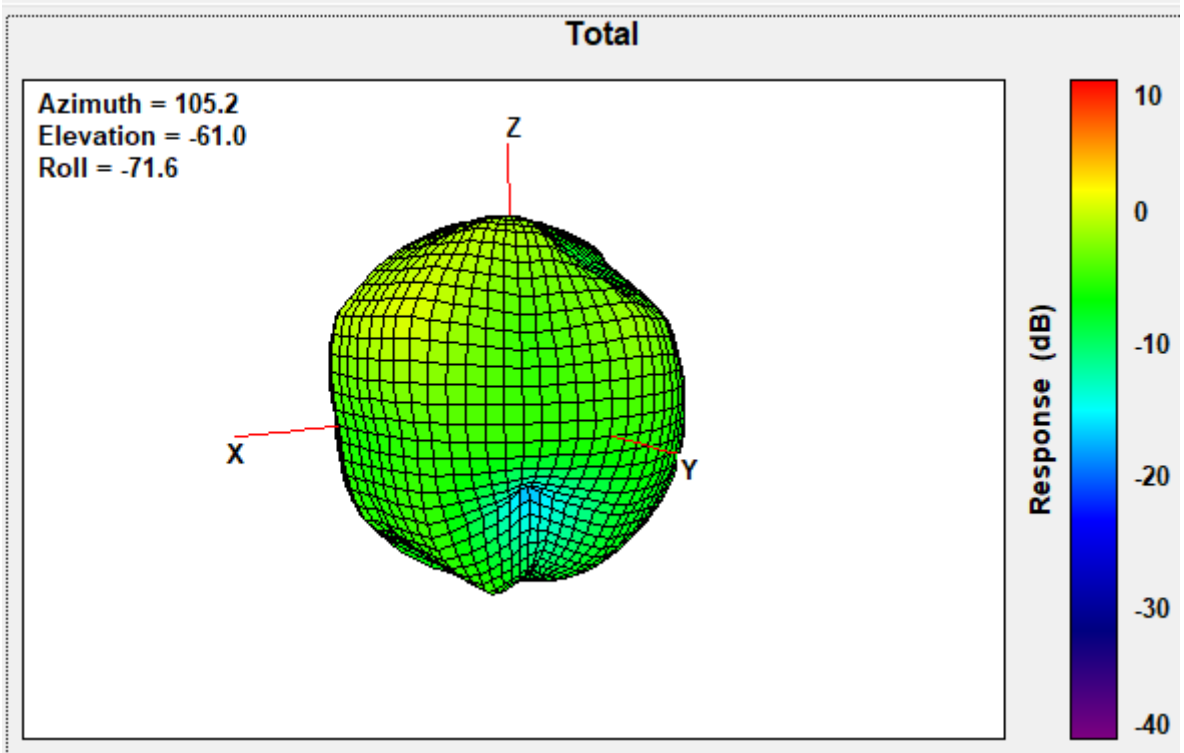
2355MHz	H (Peak)	V (Peak)
	1.57	1.65

2360MHz



2360MHz	H (Peak)	V (Peak)
	1.34	1.59

2400MHz

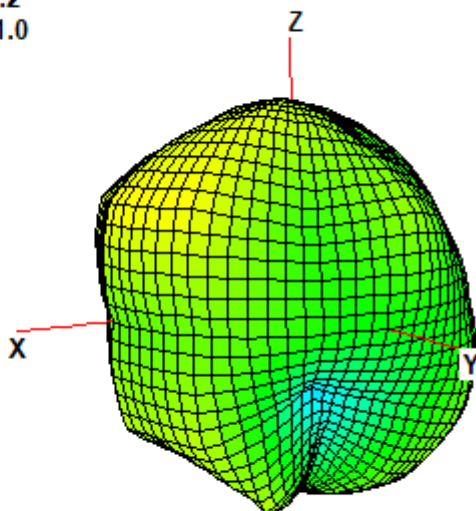


2400MHz	H (Peak)	V (Peak)
	0.91	1.03

2496MHz

Total

Azimuth = 105.2
Elevation = -61.0
Roll = -71.6



Response (dB)

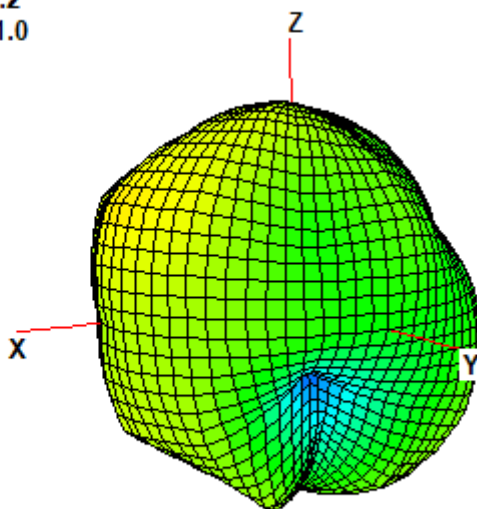
10
0
-10
-20
-30
-40

2496MHz	H (Peak)	V (Peak)
	2.09	-0.60

2535MHz

Total

Azimuth = 105.2
Elevation = -61.0
Roll = -71.6

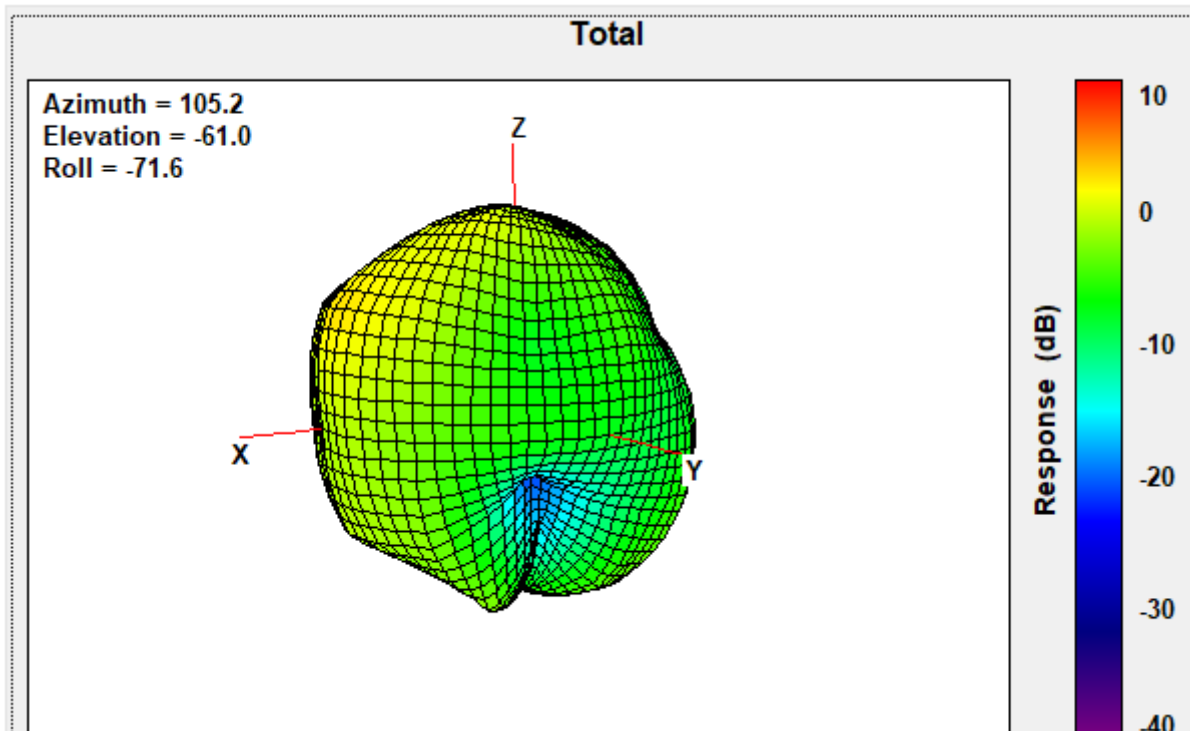


Response (dB)

10
0
-10
-20
-30
-40

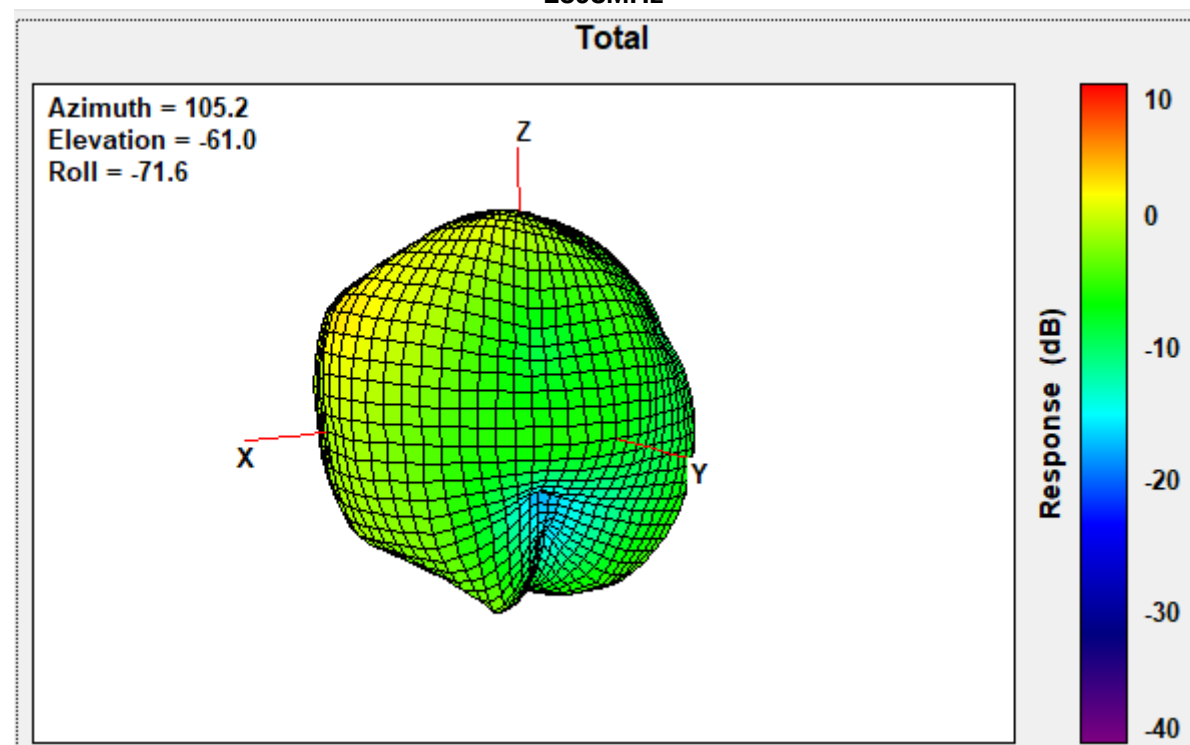
2535MHz	H (Peak)	V (Peak)
	2.19	-0.31

2570MHz



2570MHz	H (Peak)	V (Peak)
	2.29	-0.57

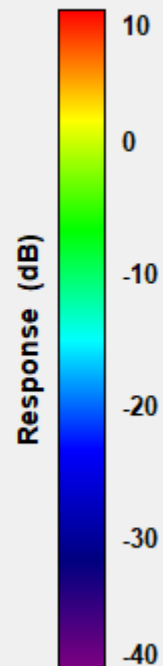
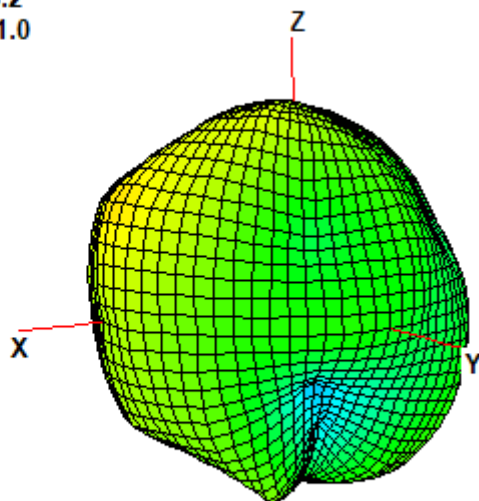
2593MHz



2593MHz	H (Peak)	V (Peak)
	2.06	-1.21

2595MHz Total

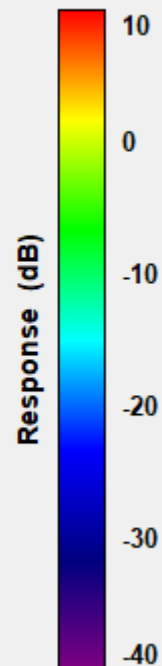
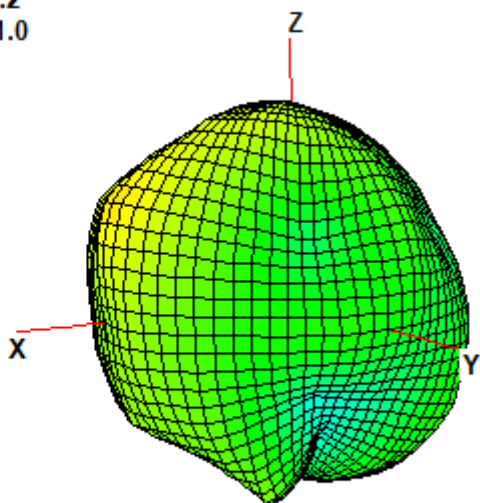
Azimuth = 105.2
Elevation = -61.0
Roll = -71.6



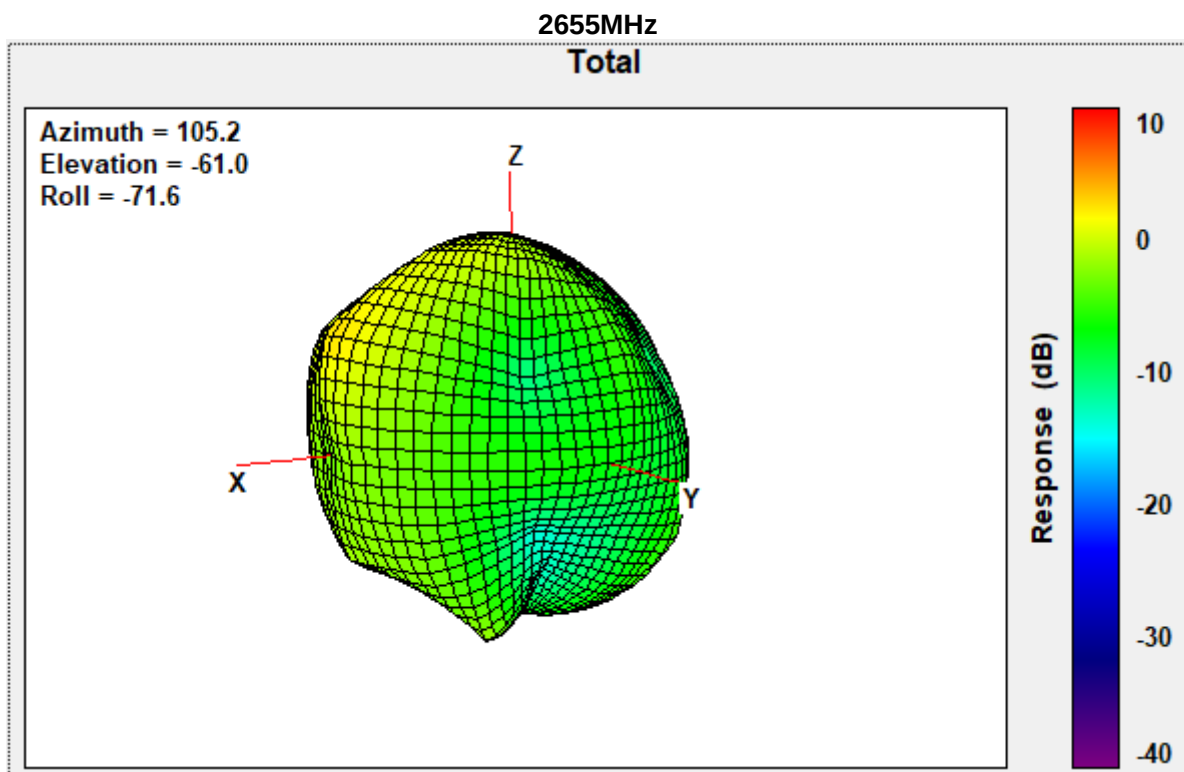
2595MHz	H (Peak)	V (Peak)
	2.00	-1.24

2620MHz Total

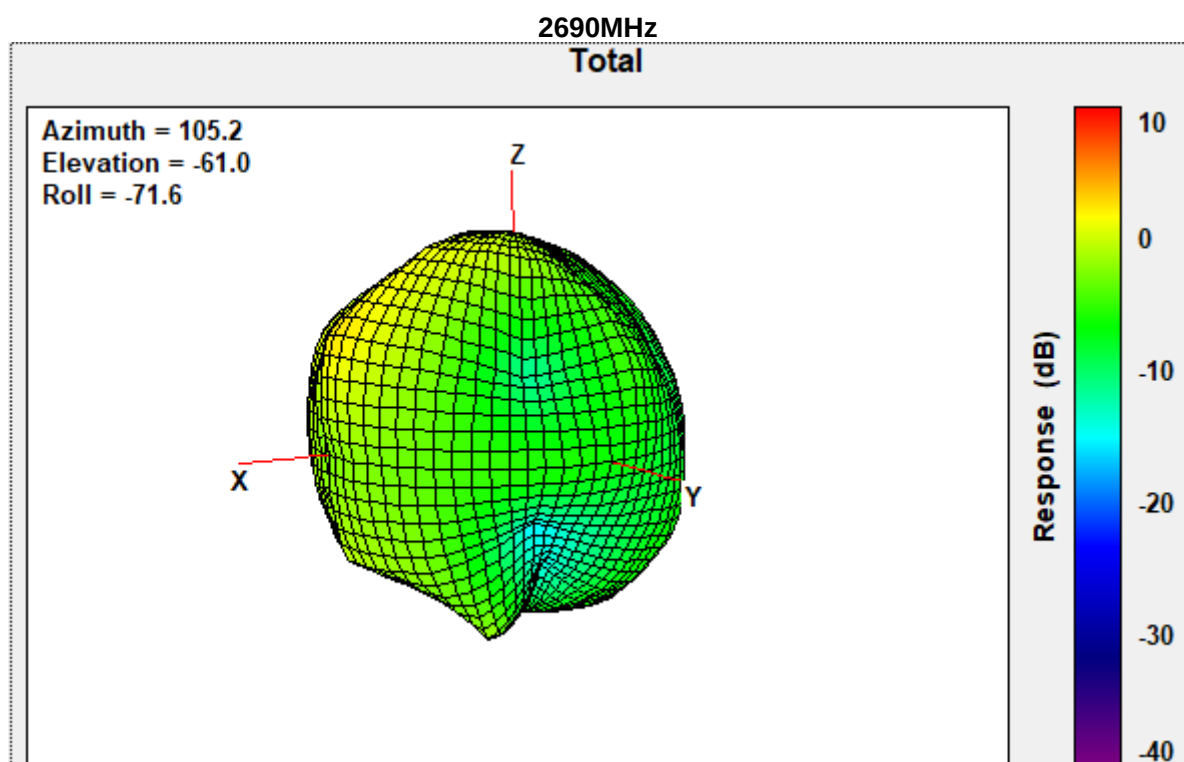
Azimuth = 105.2
Elevation = -61.0
Roll = -71.6



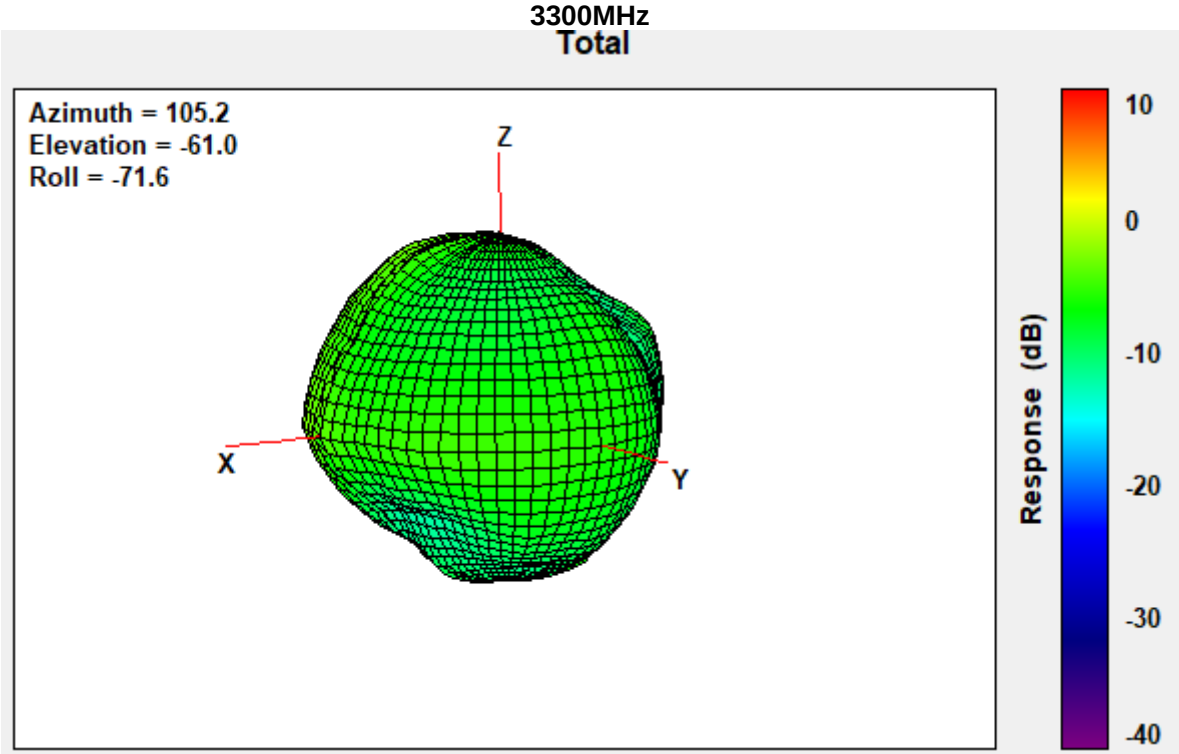
2620MHz	H (Peak)	V (Peak)
	1.87	-1.23



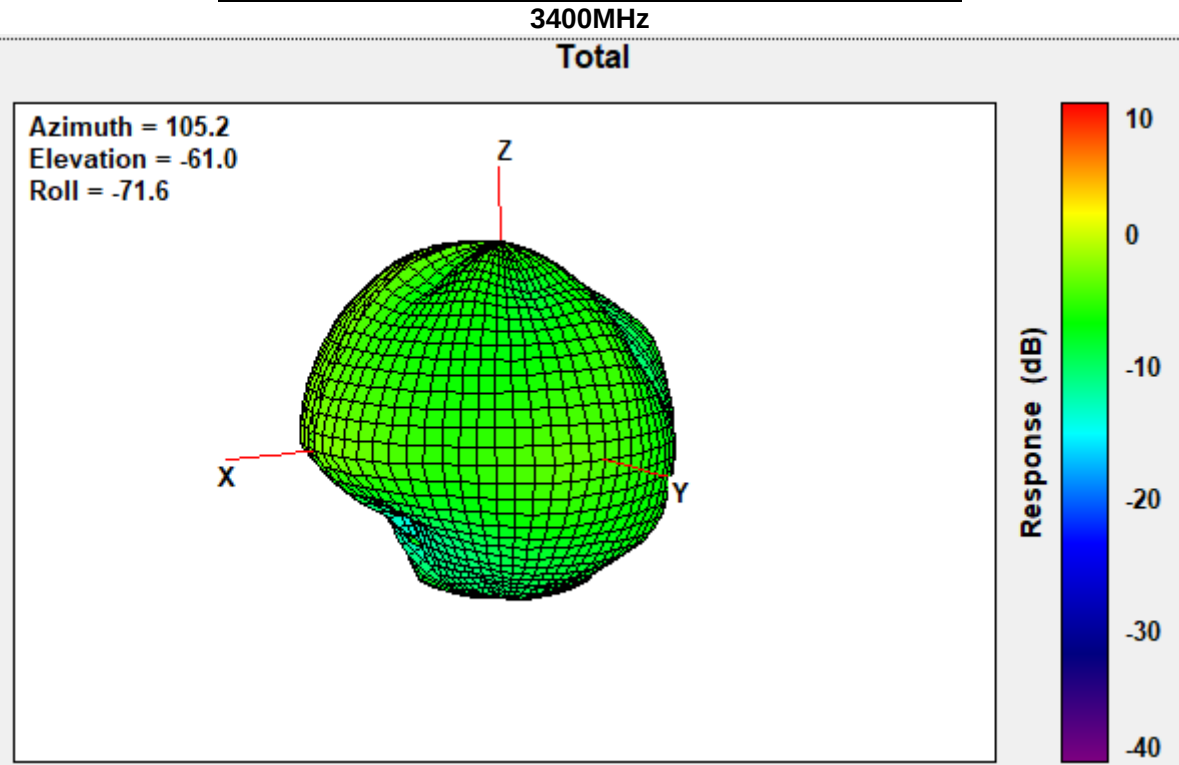
2655MHz	H (Peak)	V (Peak)
	2.00	-1.24



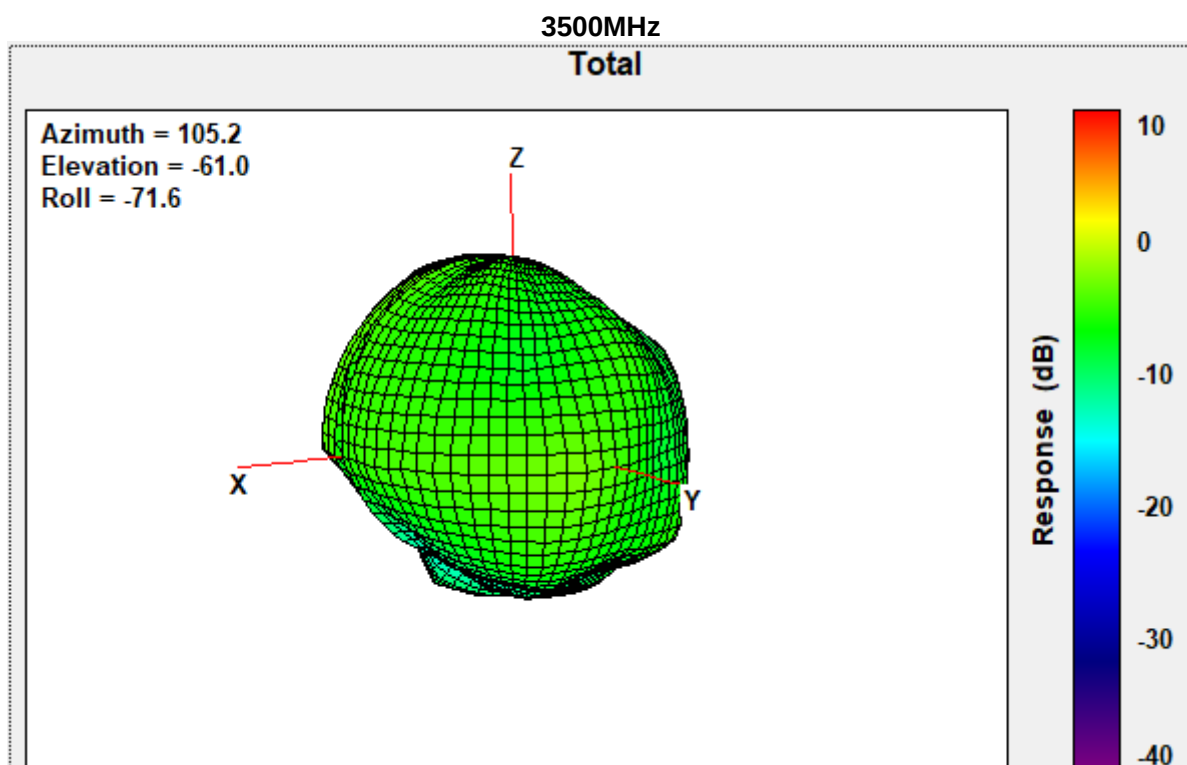
2690MHz	H (Peak)	V (Peak)
	1.70	-1.07



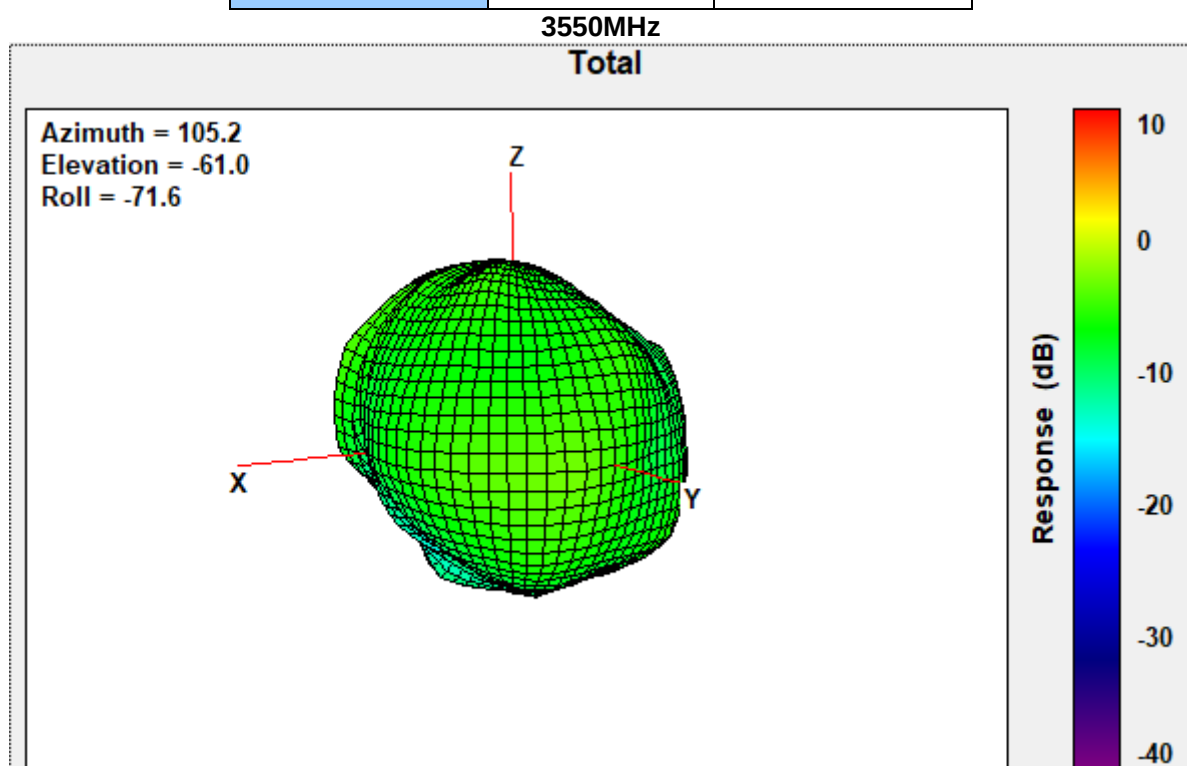
3300MHz	H (Peak)	V (Peak)
	-0.76	0.26



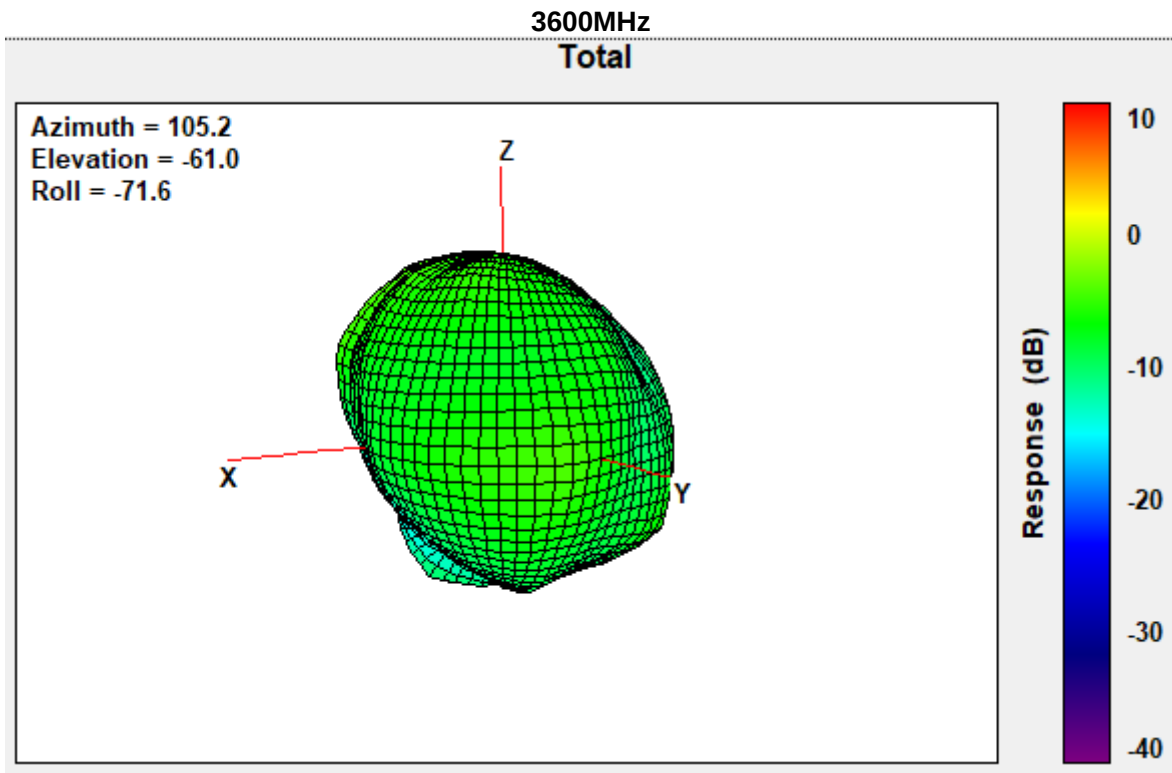
3400MHz	H (Peak)	V (Peak)
	-1.25	-1.14



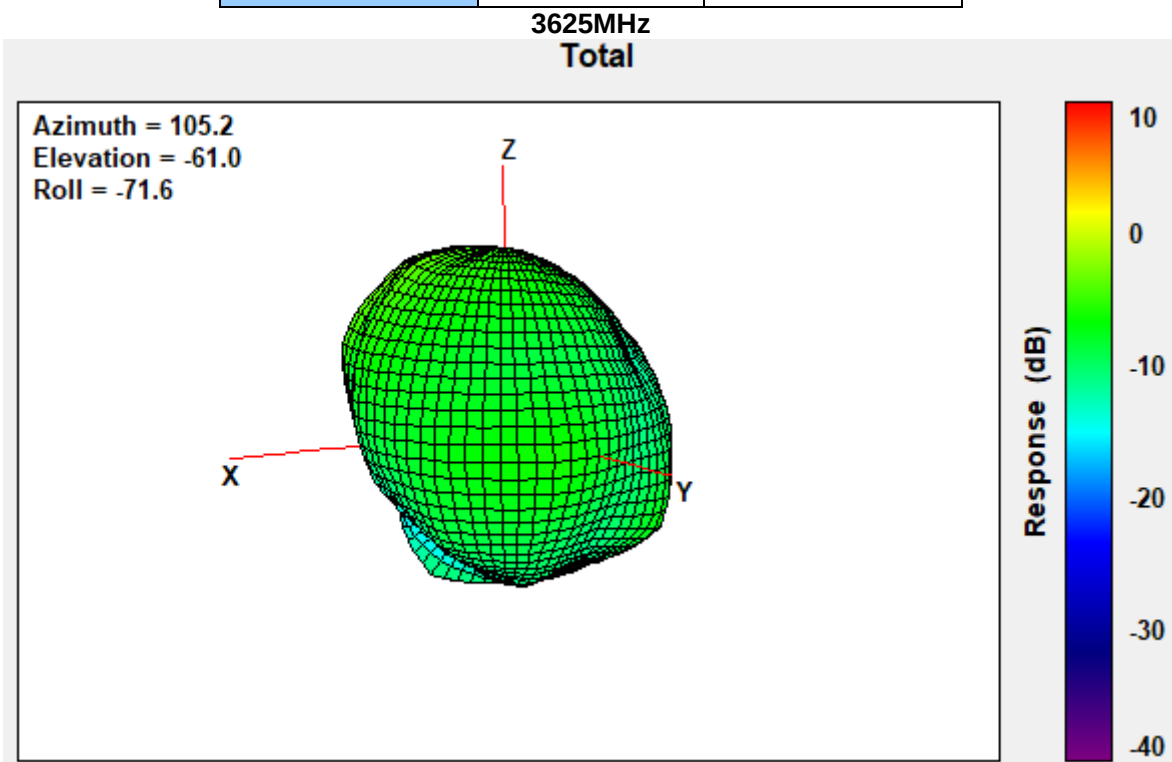
3500MHz	H (Peak)	V (Peak)
	-1.35	-1.95



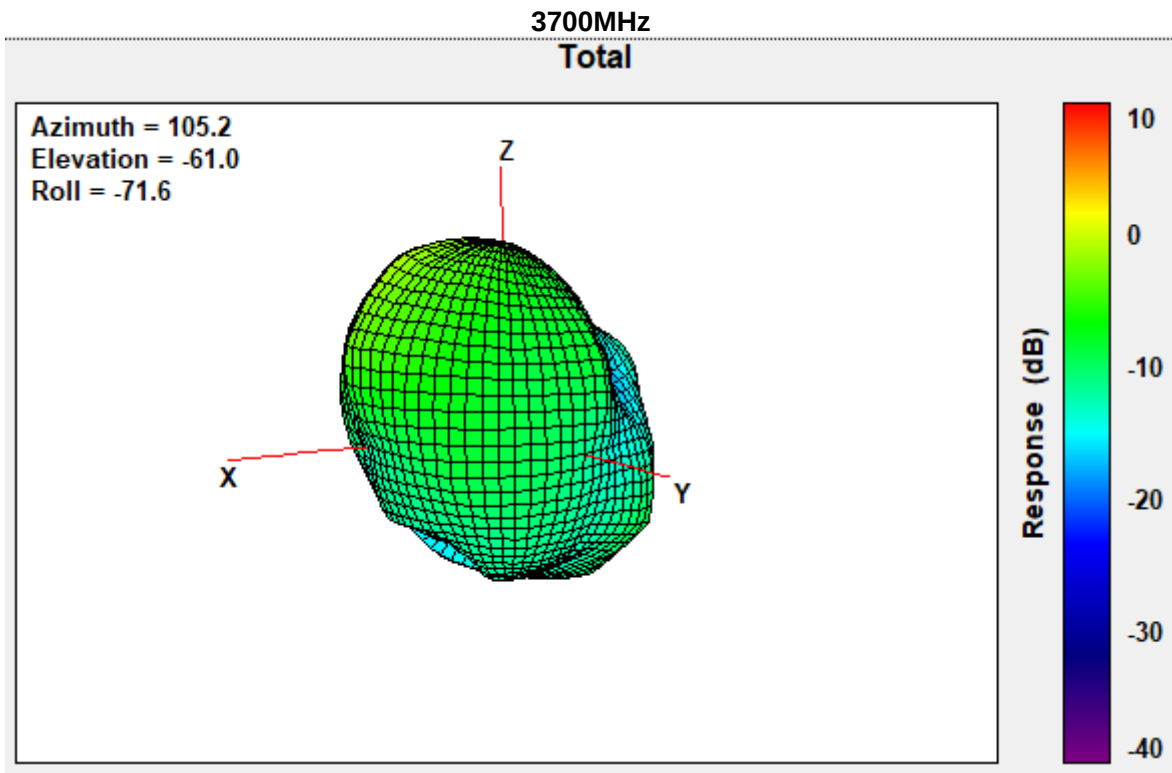
3550MHz	H (Peak)	V (Peak)
	-1.83	-1.71



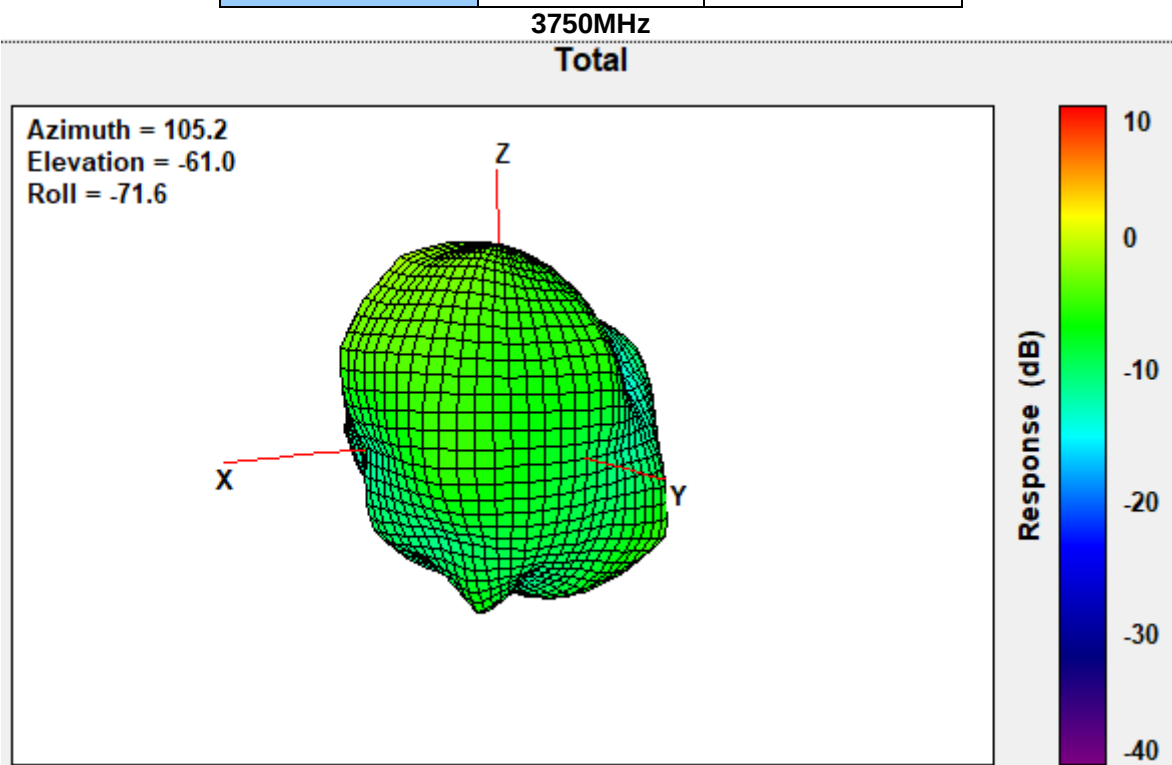
3600MHz	H (Peak)	V (Peak)
	-0.28	-0.70



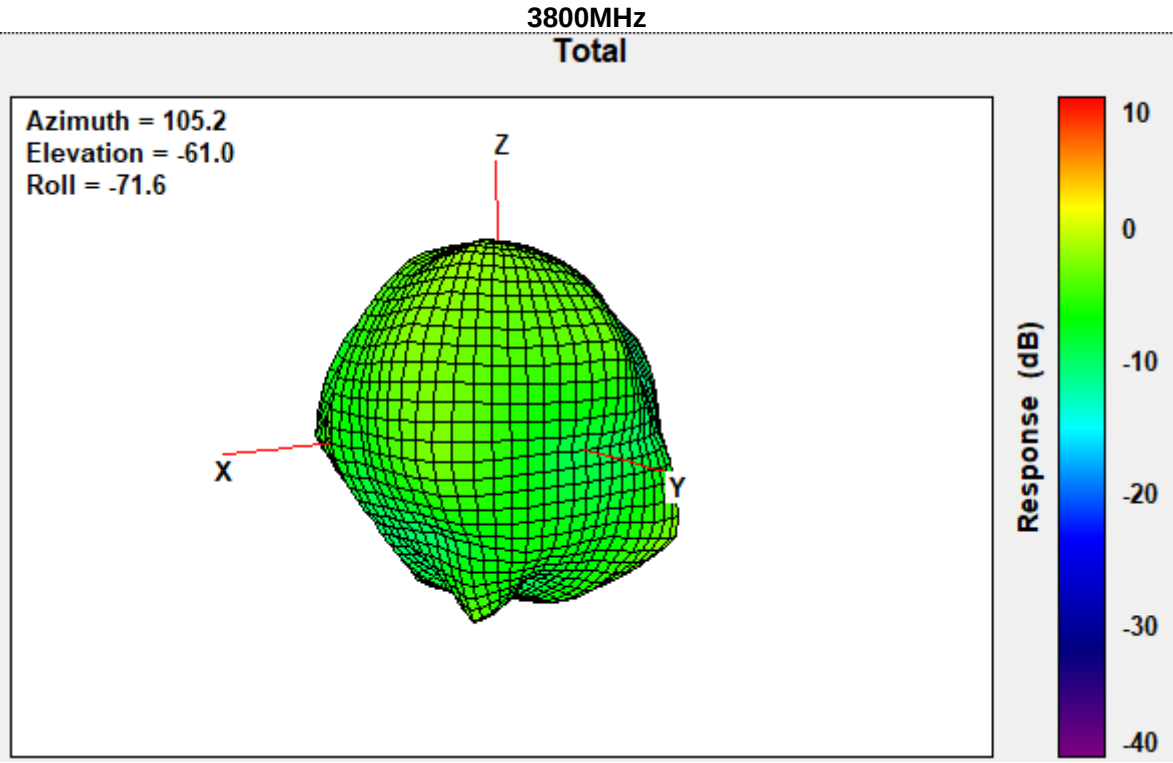
3625MHz	H (Peak)	V (Peak)
	0.17	-0.31



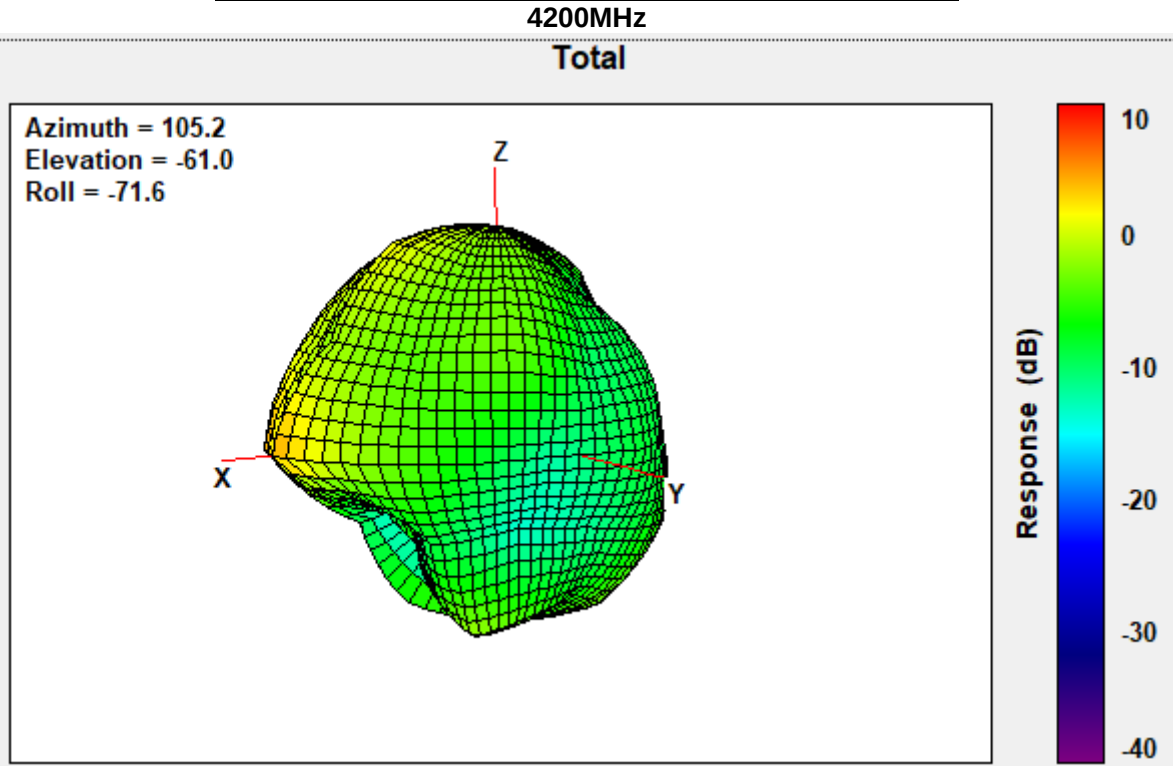
3700MHz	H (Peak)	V (Peak)
	-1.89	-0.54



3750MHz	H (Peak)	V (Peak)
	-3.24	-1.38



3800MHz	H (Peak)	V (Peak)
	-2.35	-2.26

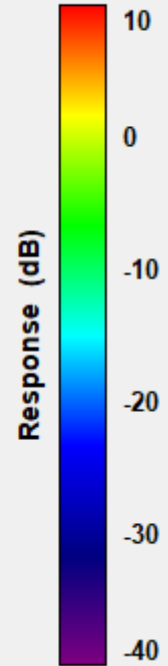
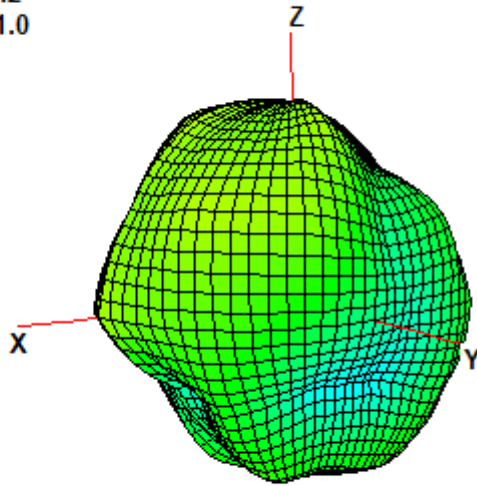


4200MHz	H (Peak)	V (Peak)
	1.74	-1.22

4400MHz

Total

Azimuth = 105.2
Elevation = -61.0
Roll = -71.6

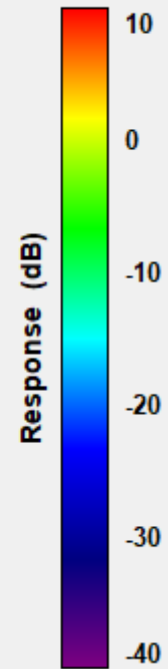
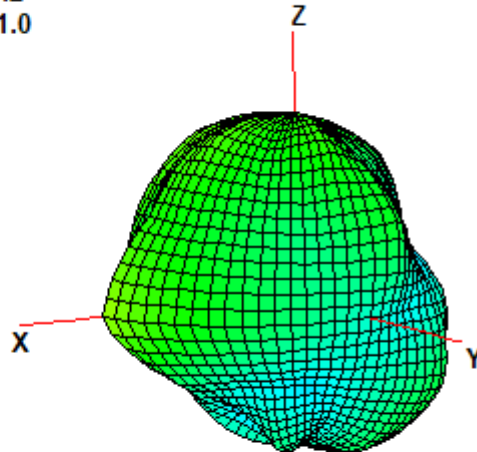


4400MHz	H (Peak)	V (Peak)
	-2.36	-4.52

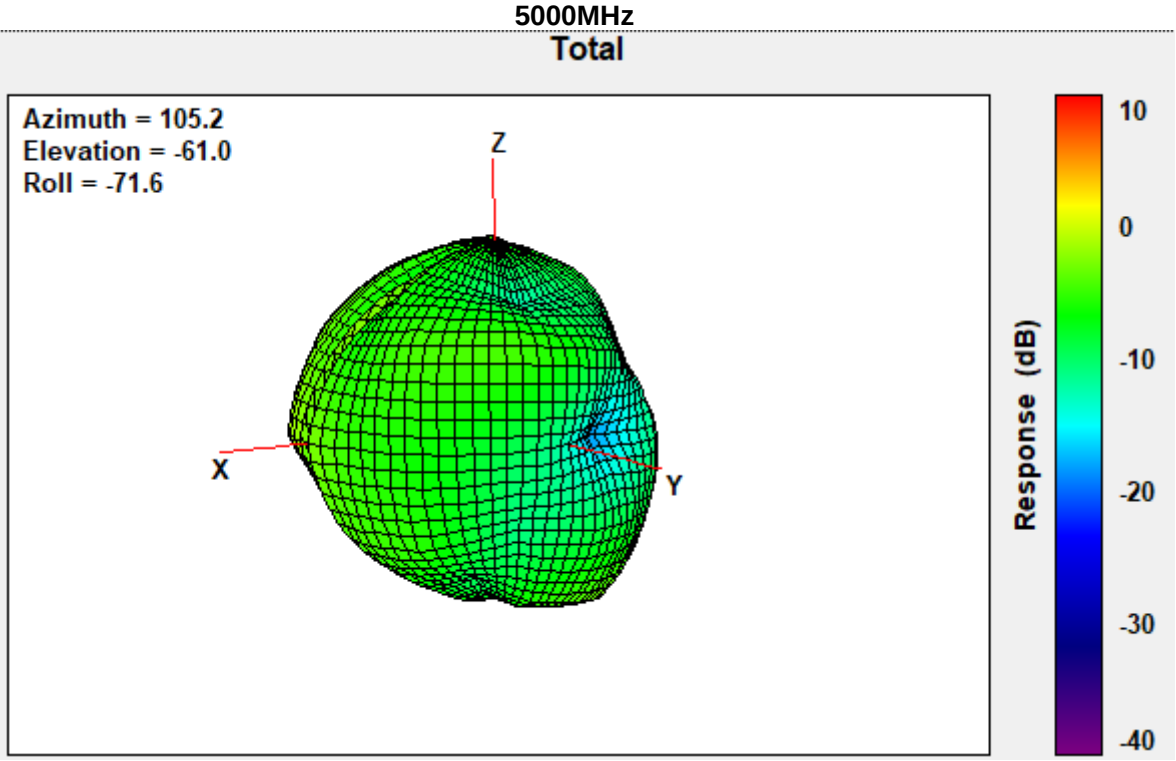
4700MHz

Total

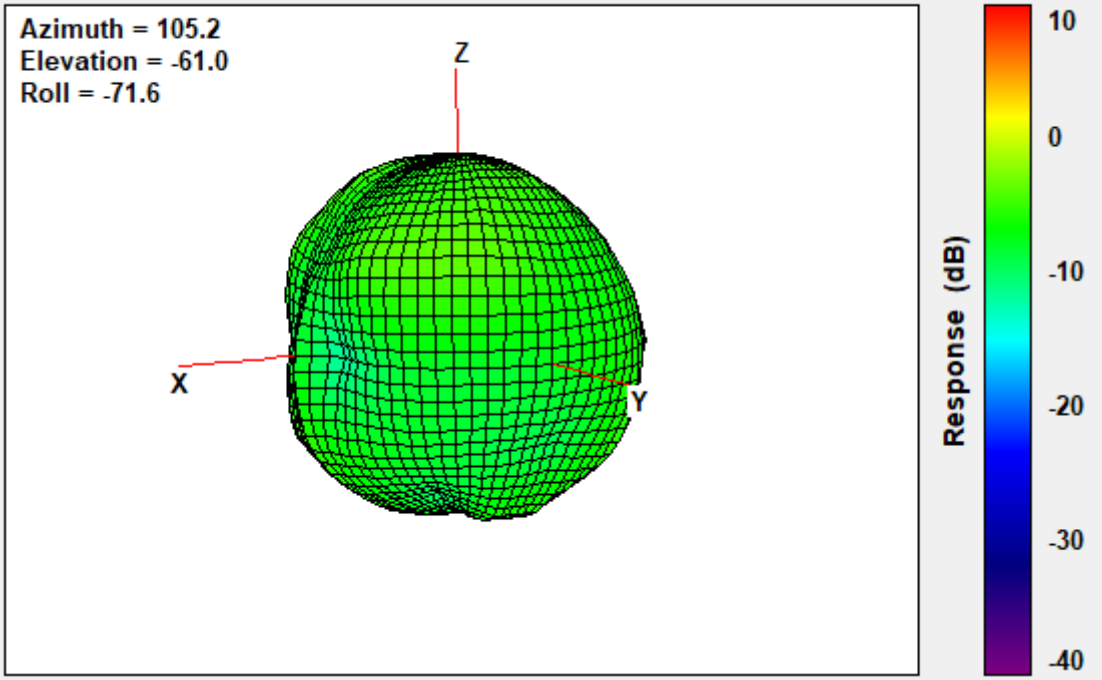
Azimuth = 105.2
Elevation = -61.0
Roll = -71.6



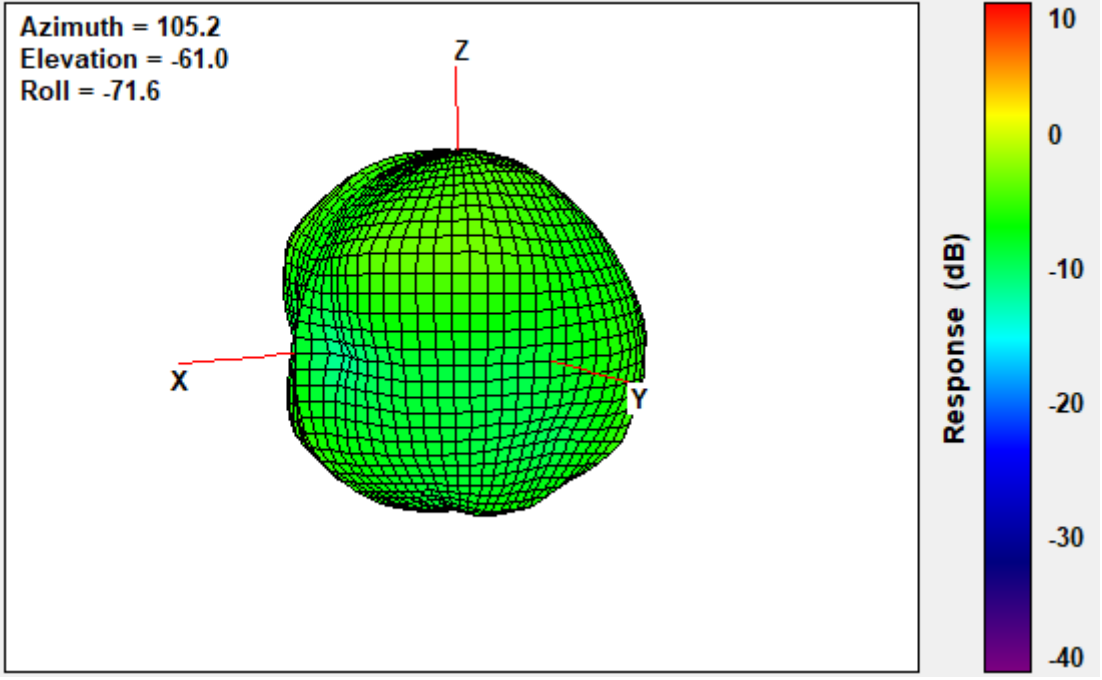
4700MHz	H (Peak)	V (Peak)
	0.25	-4.50



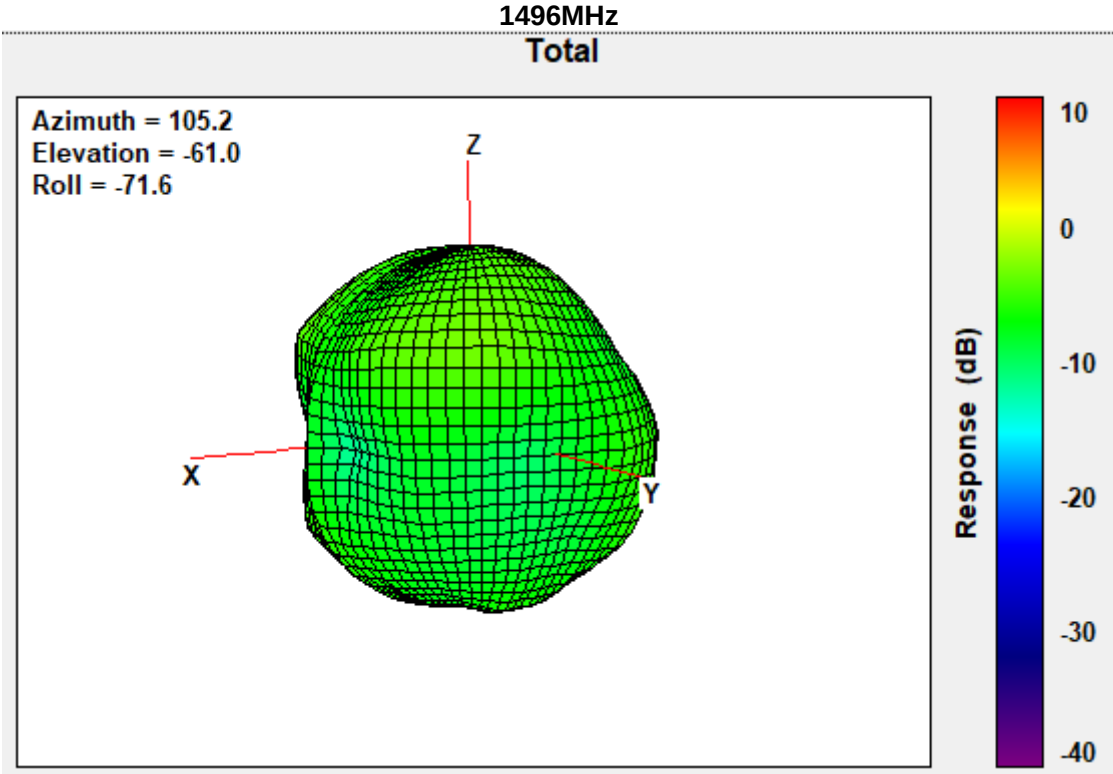
5000MHz	H (Peak)	V (Peak)
	-3.02	-3.66



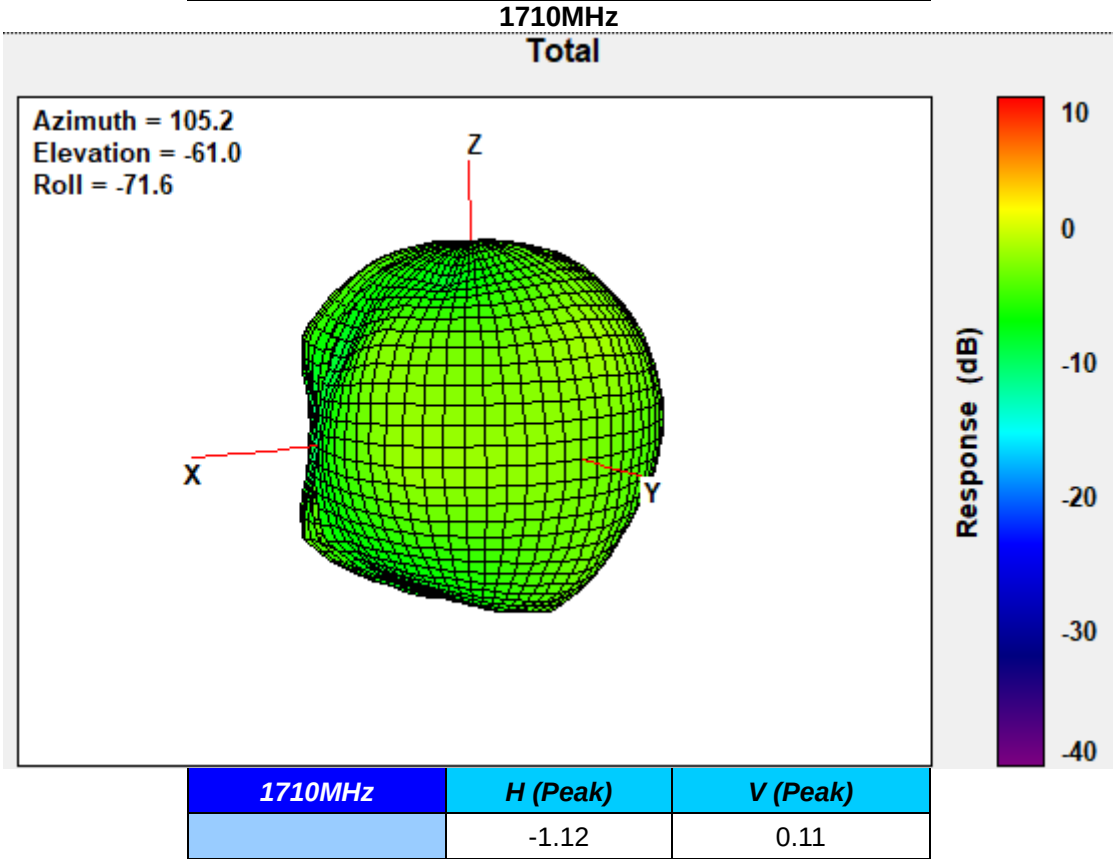
1452MHz	H (Peak)	V (Peak)
	-5.43	-4.99



1474MHz	H (Peak)	V (Peak)
	-5.25	-4.87



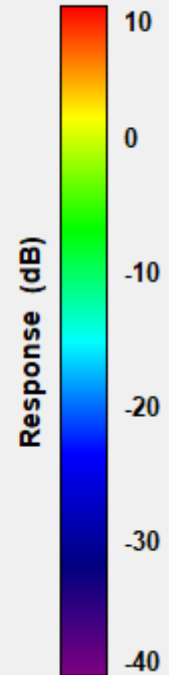
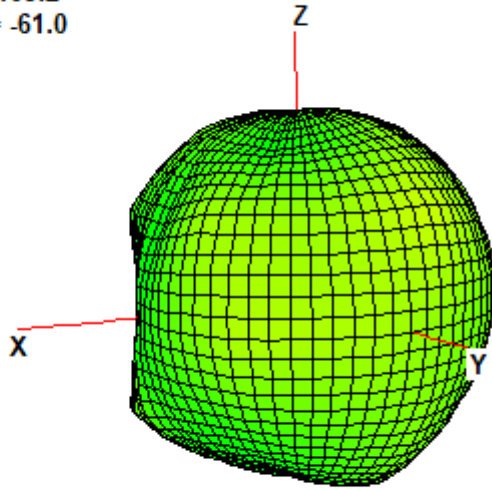
1496MHz	H (Peak)	V (Peak)
	-4.06	-5.00



1732.5MHz

Total

Azimuth = 105.2
Elevation = -61.0
Roll = -71.6

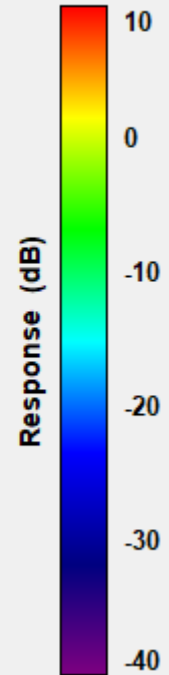
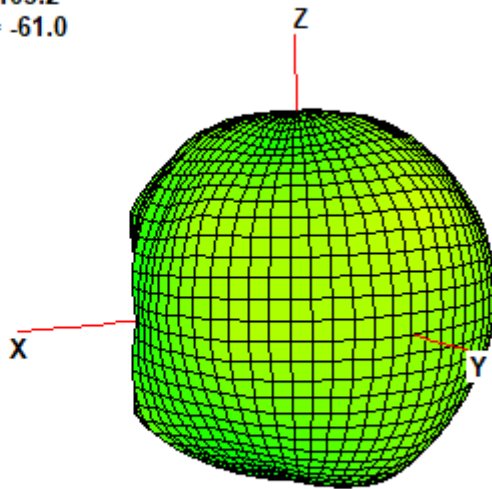


1732.5MHz	H (Peak)	V (Peak)
	-0.64	-0.56

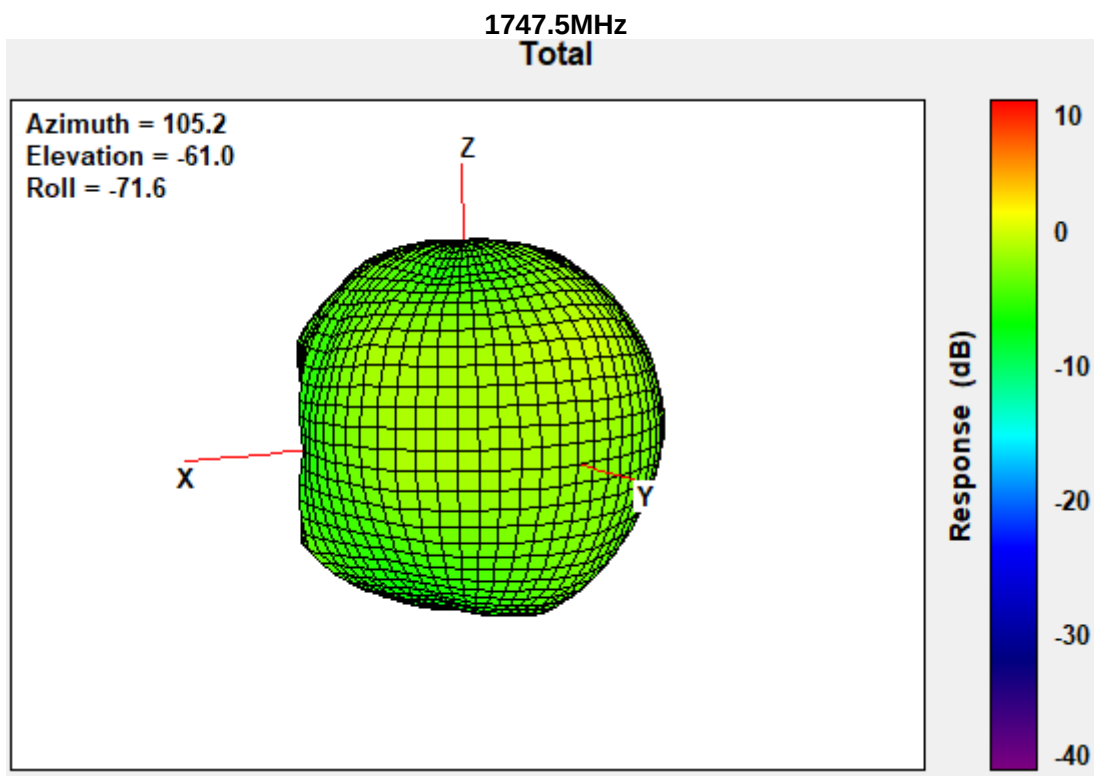
1745MHz

Total

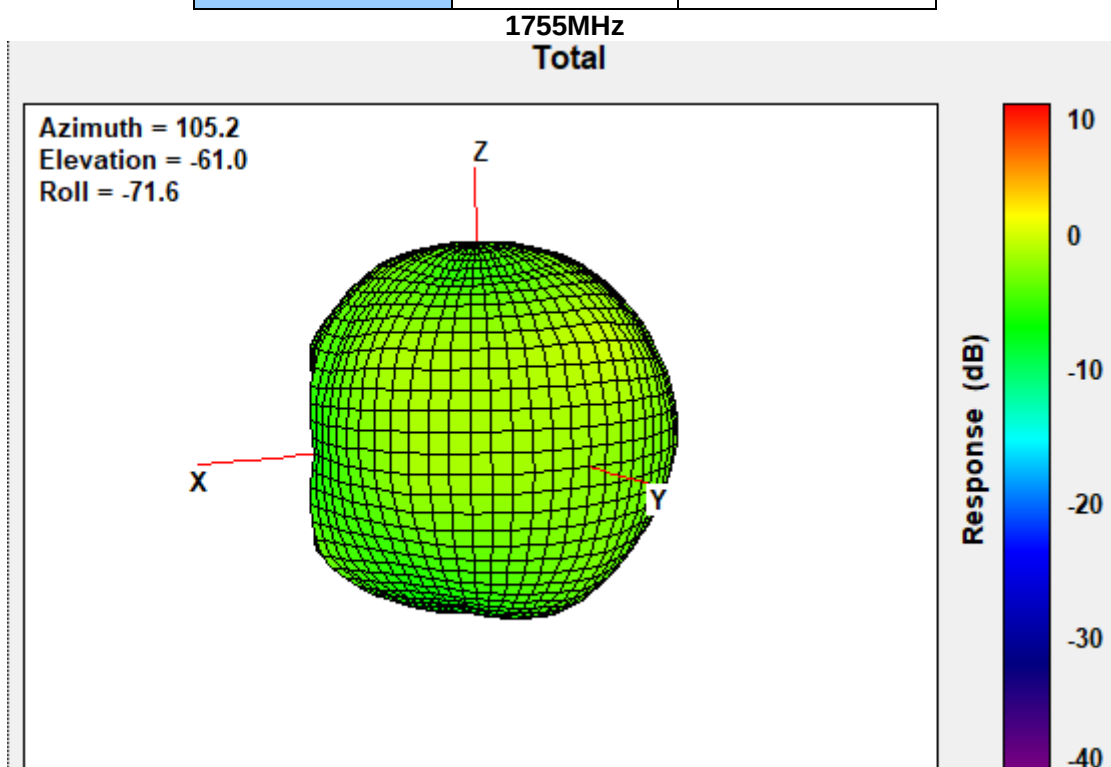
Azimuth = 105.2
Elevation = -61.0
Roll = -71.6



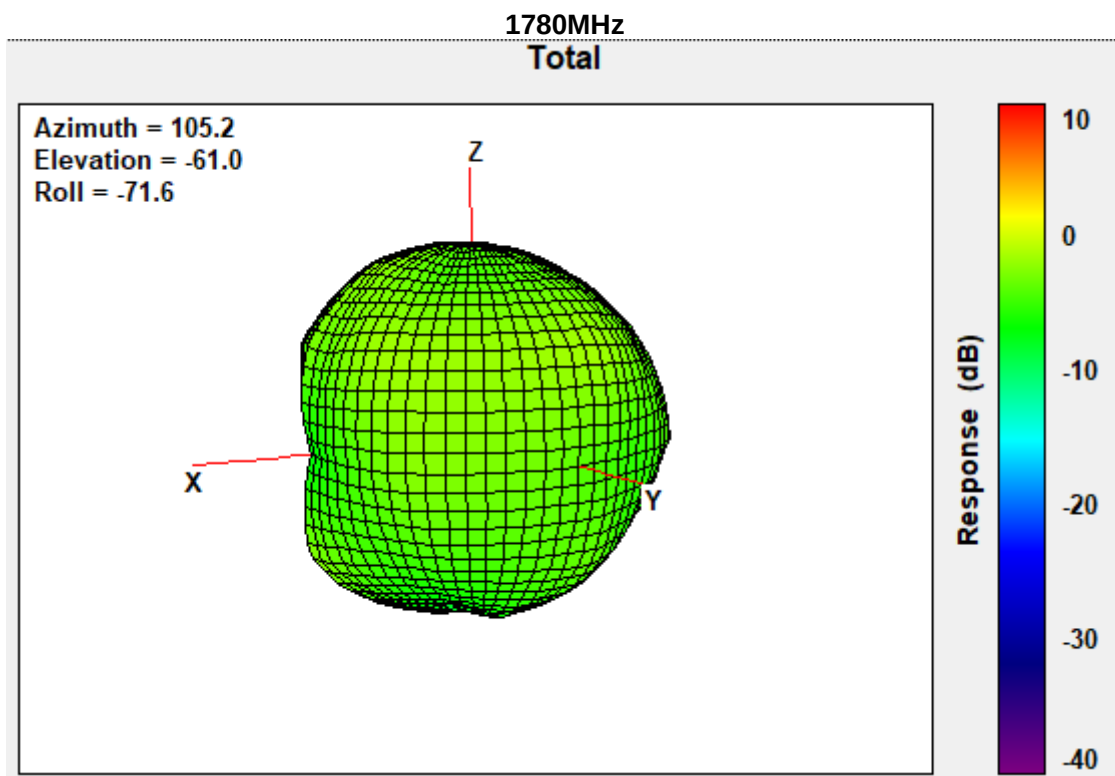
1745MHz	H (Peak)	V (Peak)
	-0.32	-0.51



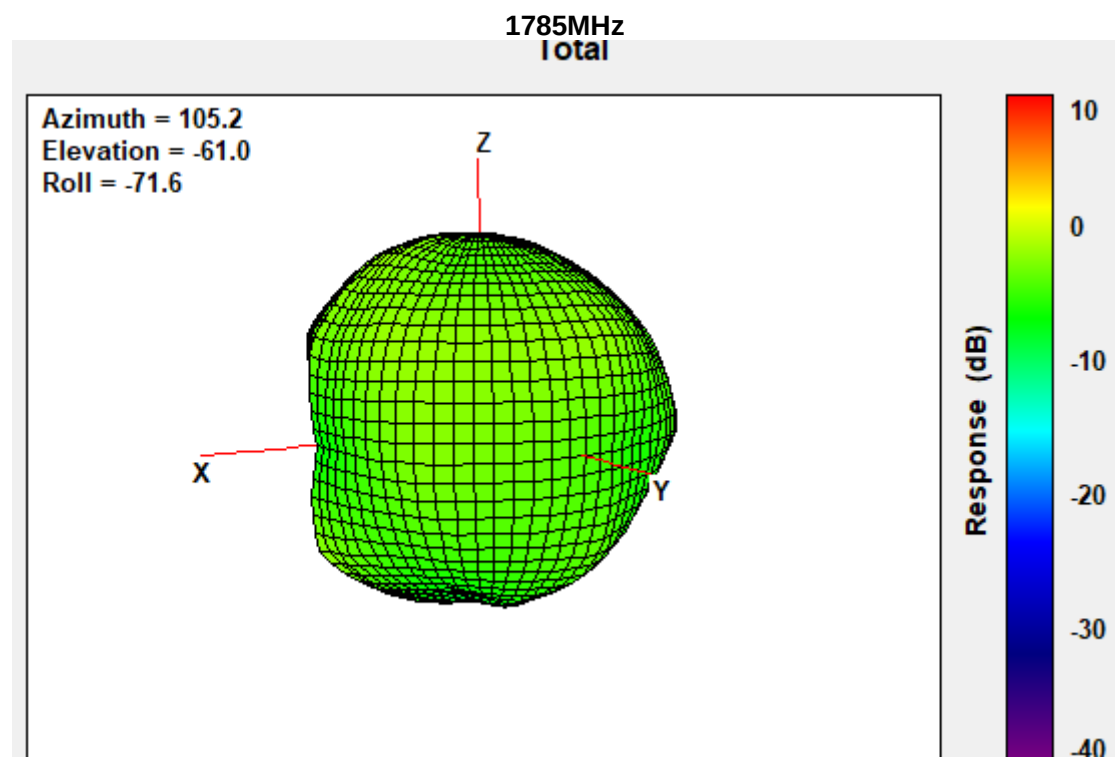
1747.5MHz	H (Peak)	V (Peak)
	-0.29	-0.53



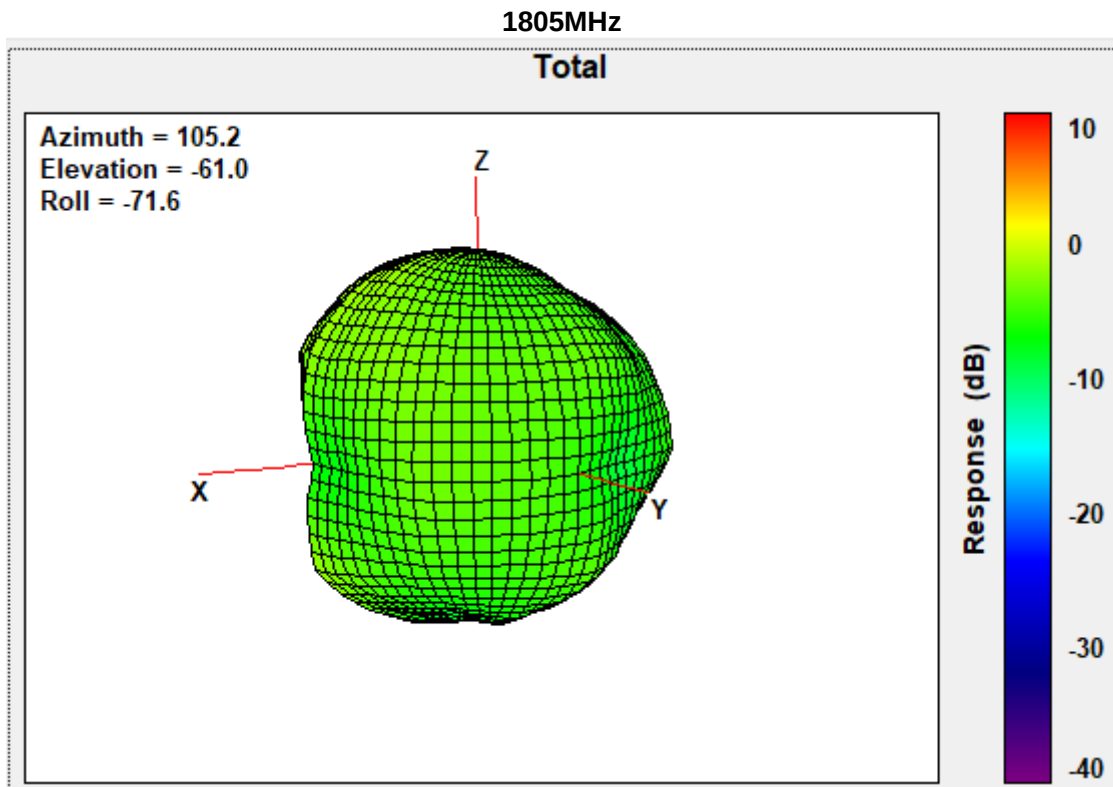
1755MHz	H (Peak)	V (Peak)
	-0.24	-0.77



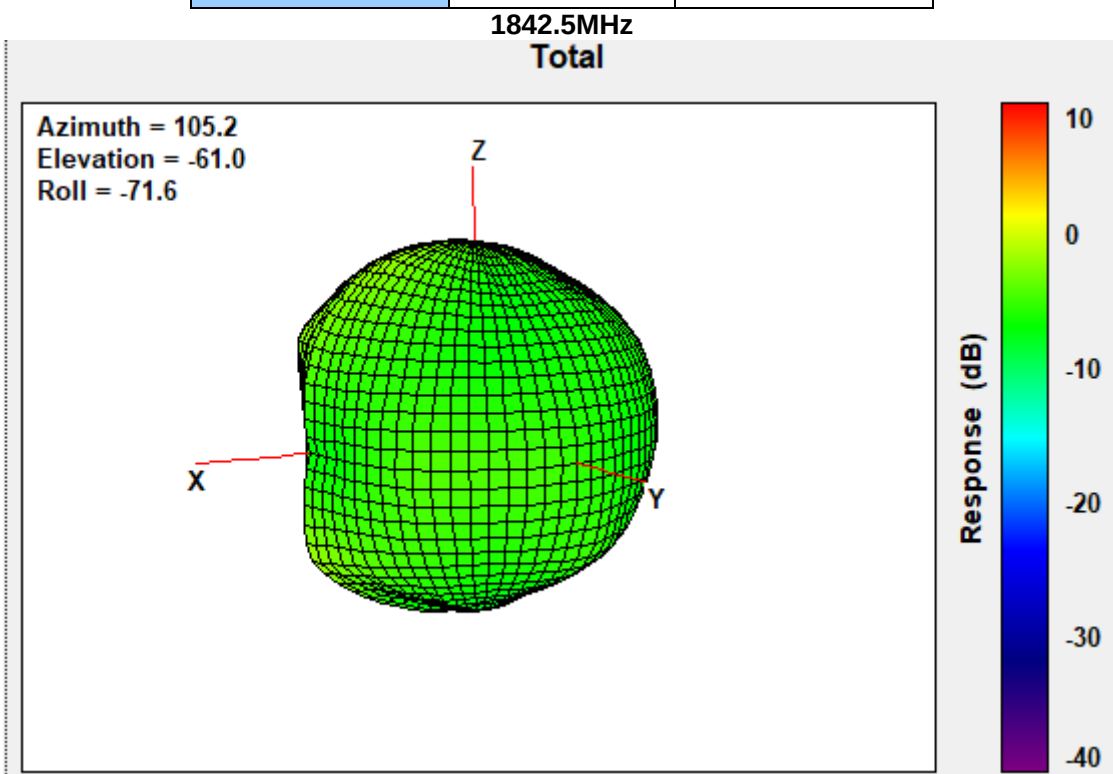
1780MHz	H (Peak)	V (Peak)
	-0.92	-1.79



1785MHz	H (Peak)	V (Peak)
	-0.92	-1.79



1805MHz	H (Peak)	V (Peak)
	-3.28	-3.13

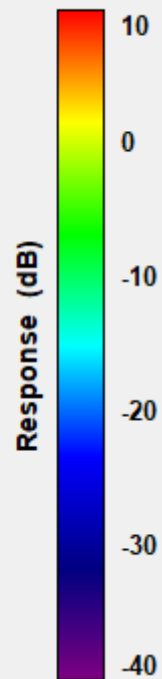
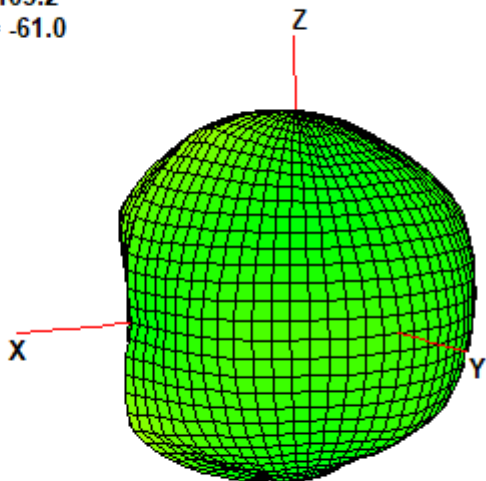


1842.5MHz	H (Peak)	V (Peak)
	-3.99	-2.62

1850MHz

Total

Azimuth = 105.2
Elevation = -61.0
Roll = -71.6

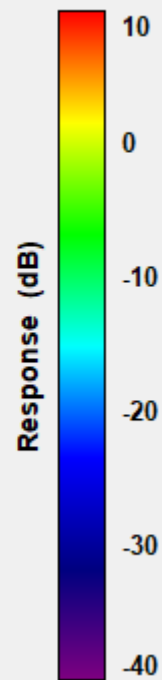
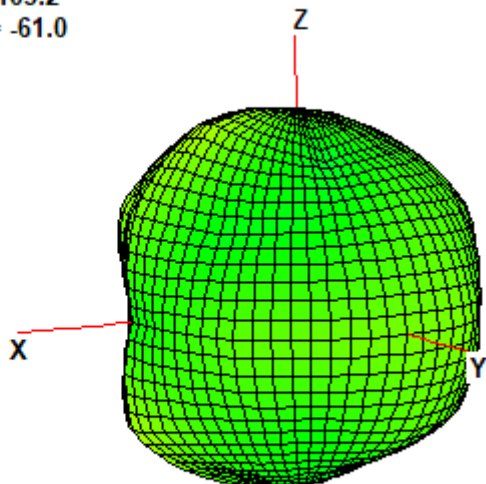


1850MHz	H (Peak)	V (Peak)
	-3.88	-2.65

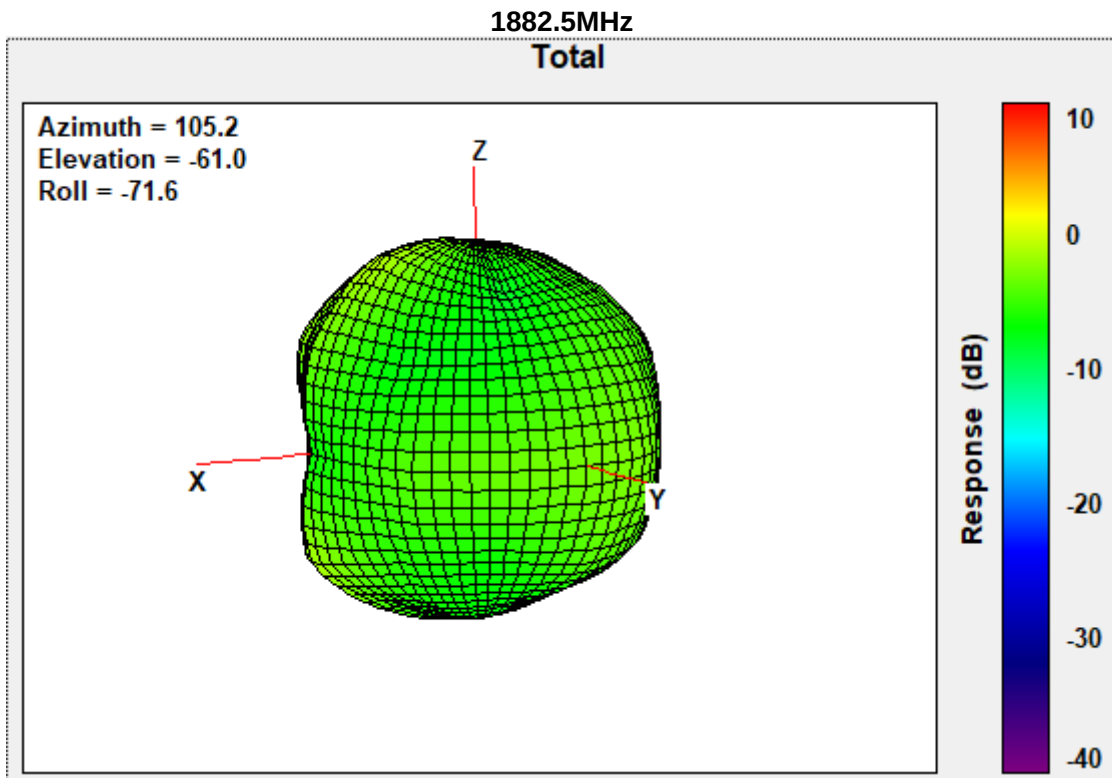
1880MHz

Total

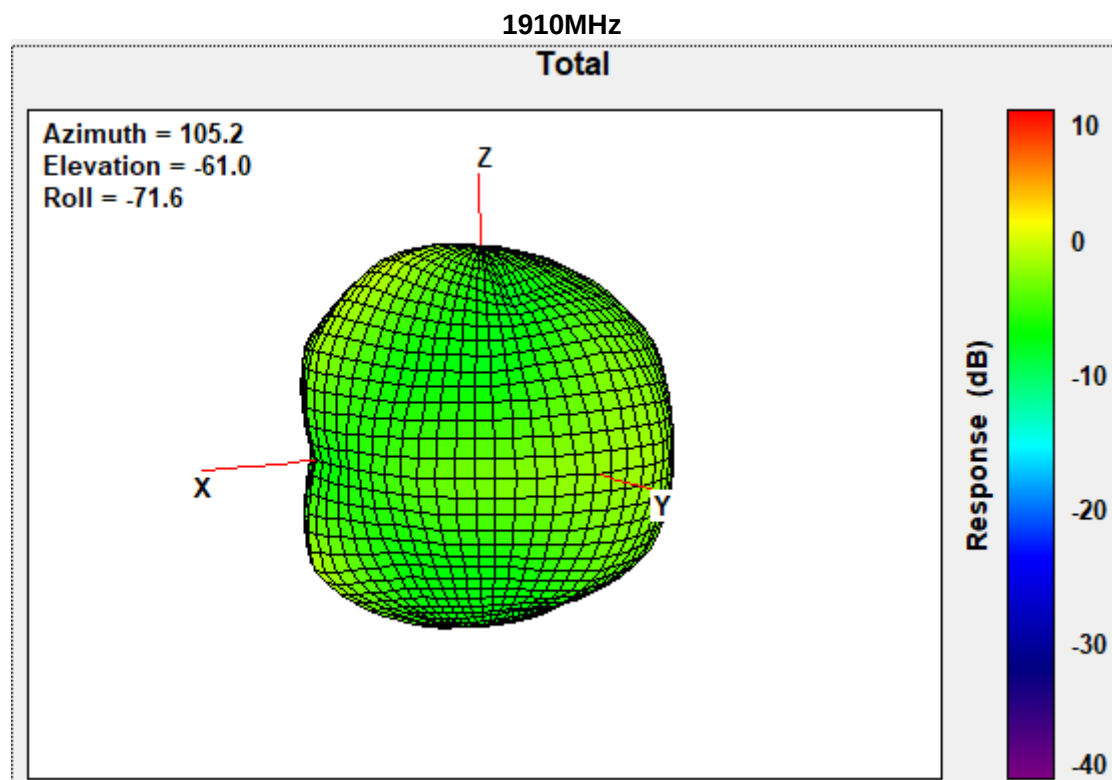
Azimuth = 105.2
Elevation = -61.0
Roll = -71.6



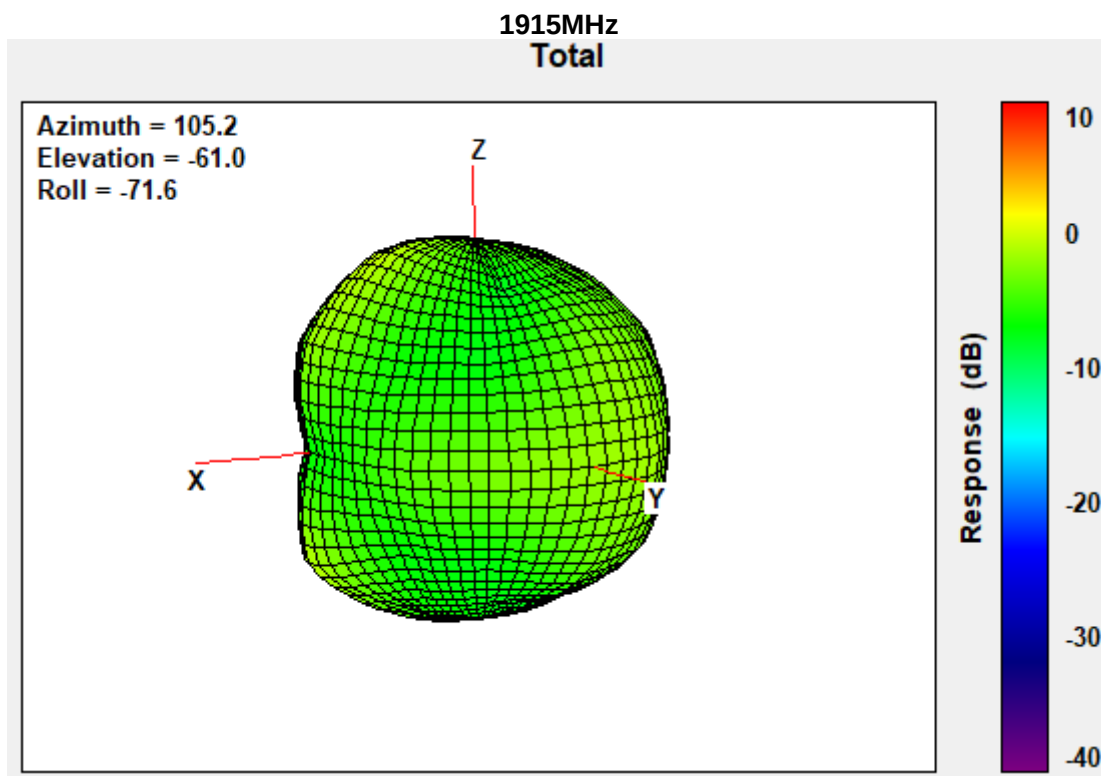
1880MHz	H (Peak)	V (Peak)
	-3.41	-2.88



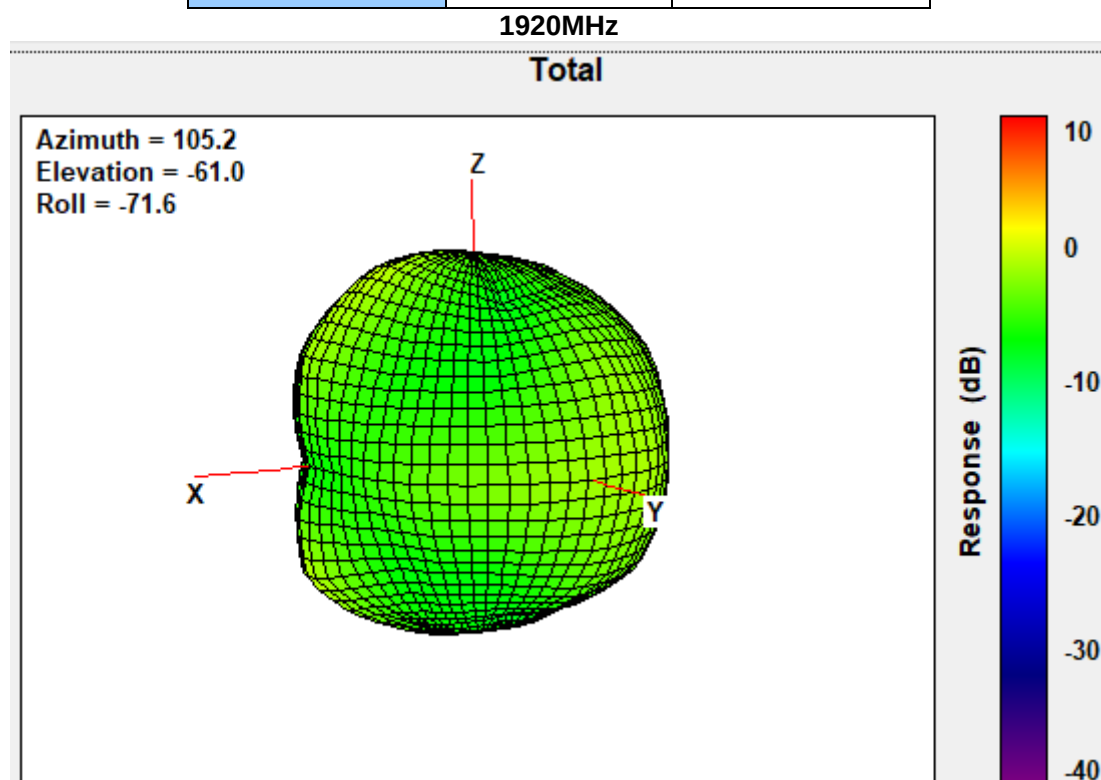
1882.5MHz	H (Peak)	V (Peak)
	-3.33	-2.91



1910MHz	H (Peak)	V (Peak)
	-2.02	-2.18



1915MHz	H (Peak)	V (Peak)
	-1.91	-2.05

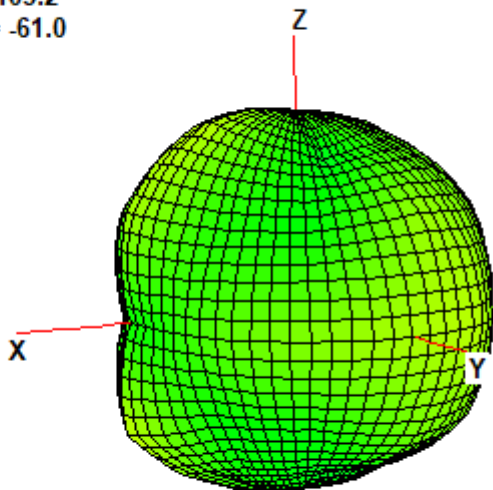


1920MHz	H (Peak)	V (Peak)
	-1.85	-1.67

1930MHz

Total

Azimuth = 105.2
Elevation = -61.0
Roll = -71.6

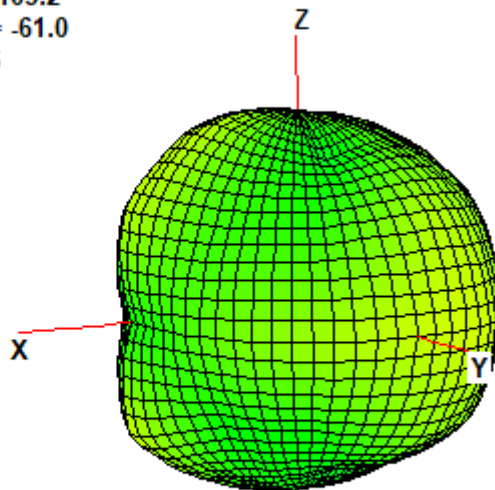


1930MHz	H (Peak)	V (Peak)
	-2.00	-1.09

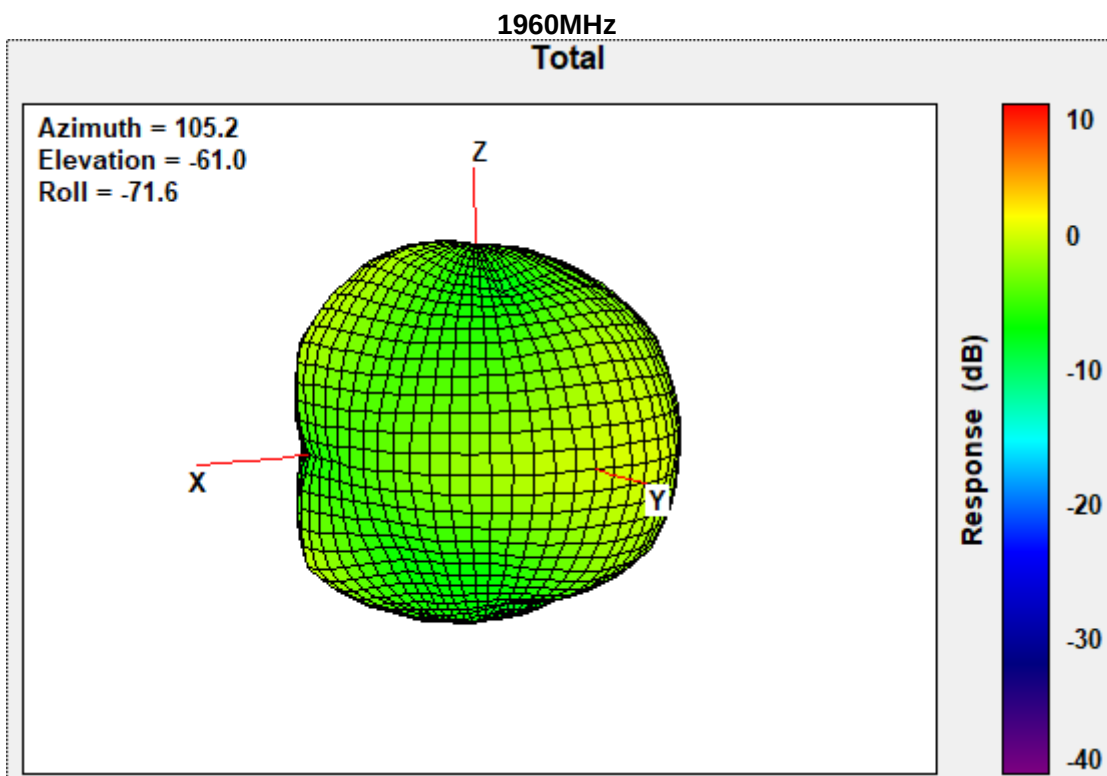
1950MHz

Total

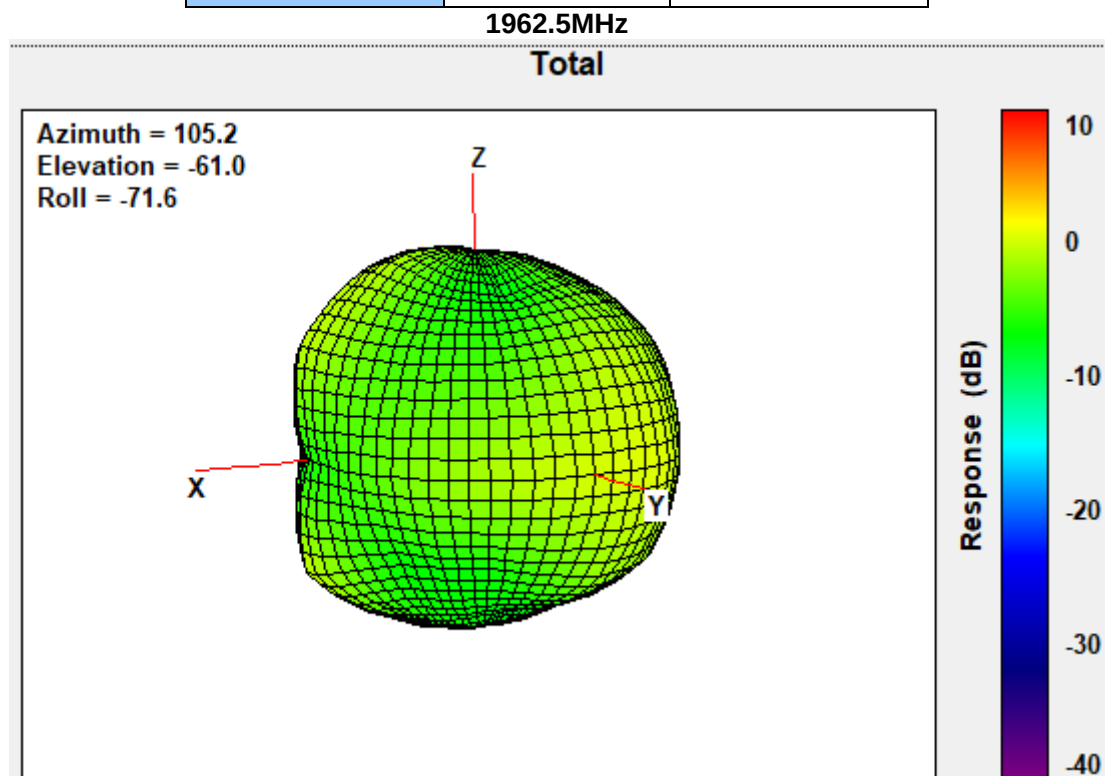
Azimuth = 105.2
Elevation = -61.0
Roll = -71.6



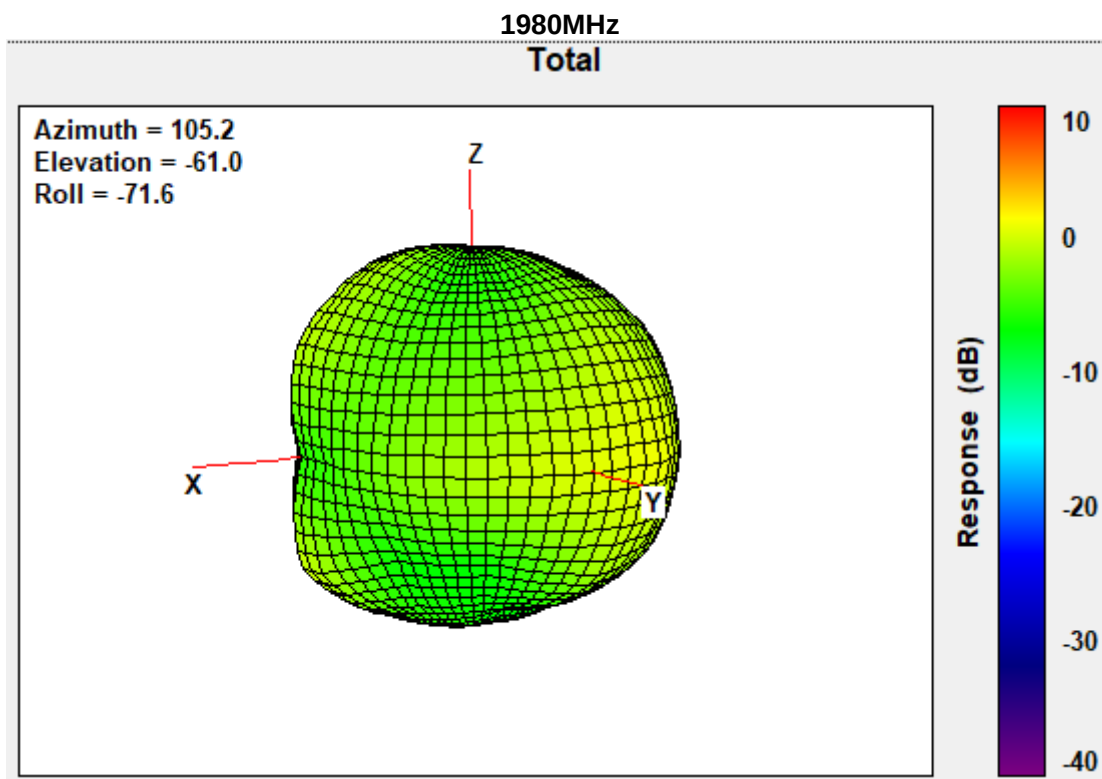
1950MHz	H (Peak)	V (Peak)
	-1.79	-0.54



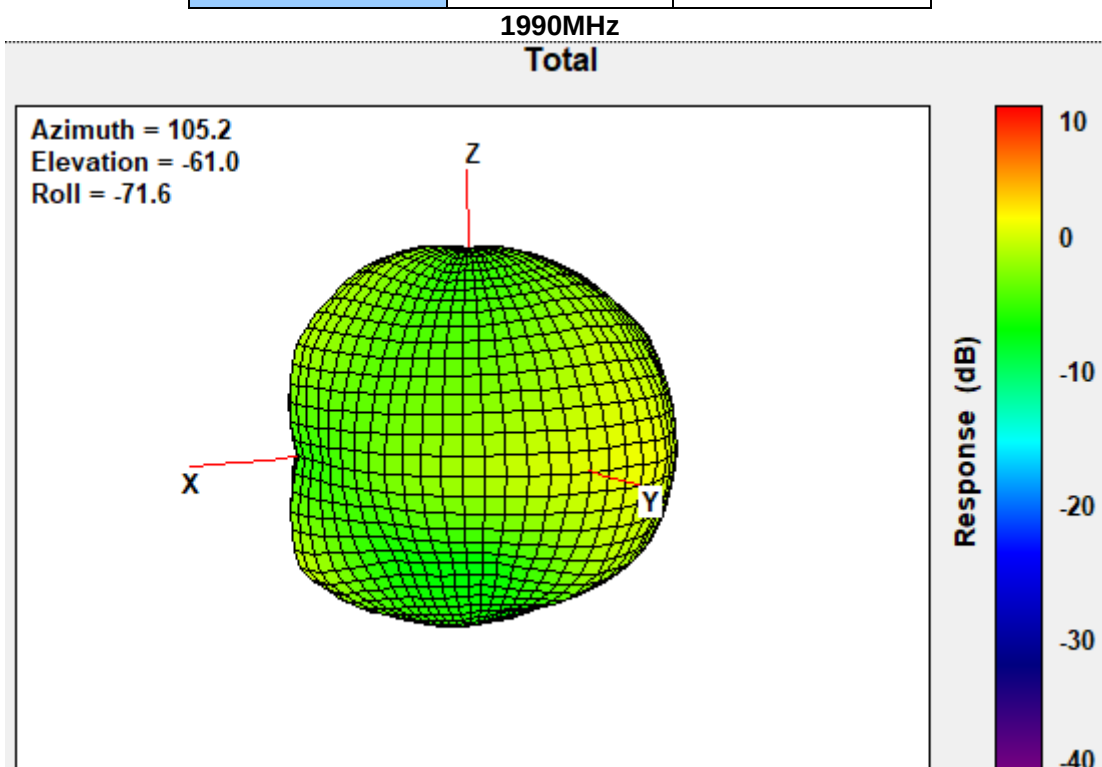
1960MHz	H (Peak)	V (Peak)
	-1.47	-0.79



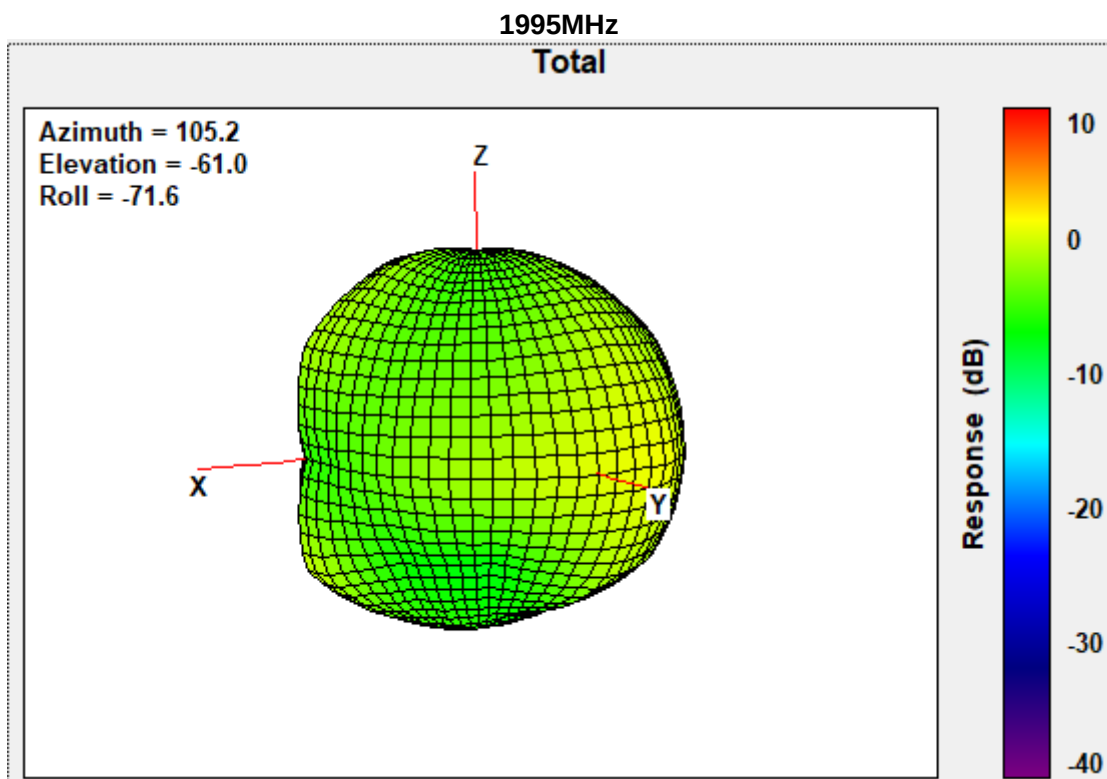
1962.5MHz	H (Peak)	V (Peak)
	-1.32	-0.75



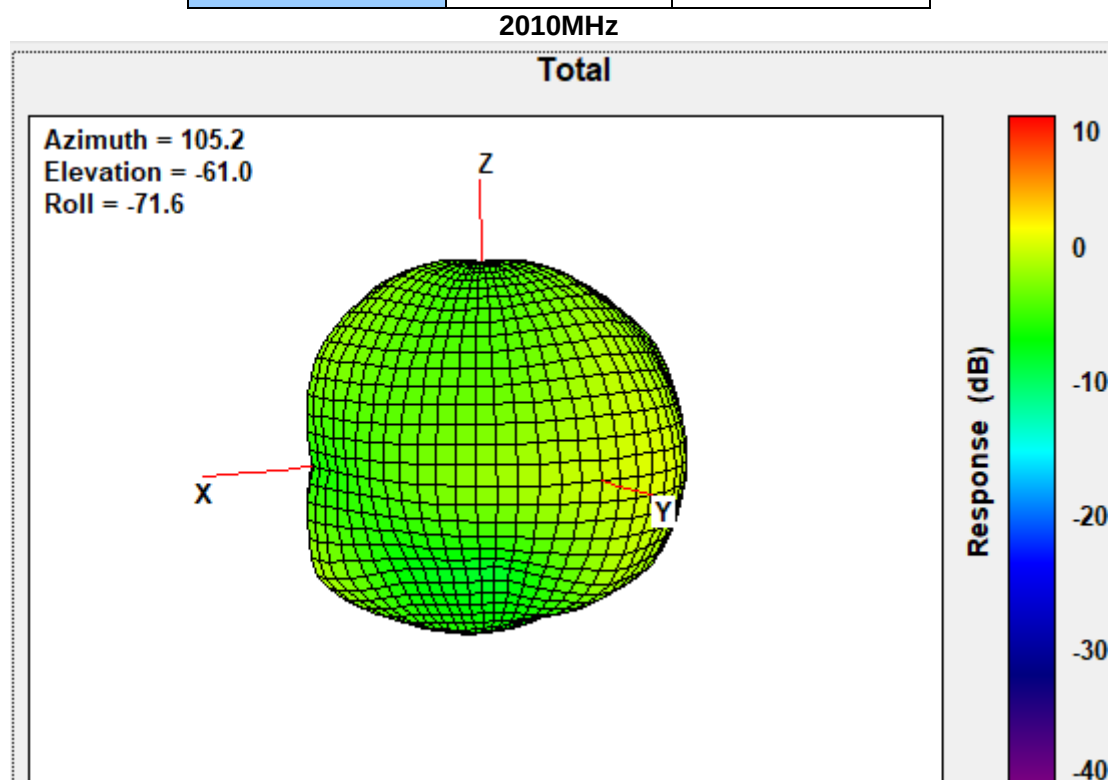
1980MHz	H (Peak)	V (Peak)
	-1.14	-1.04



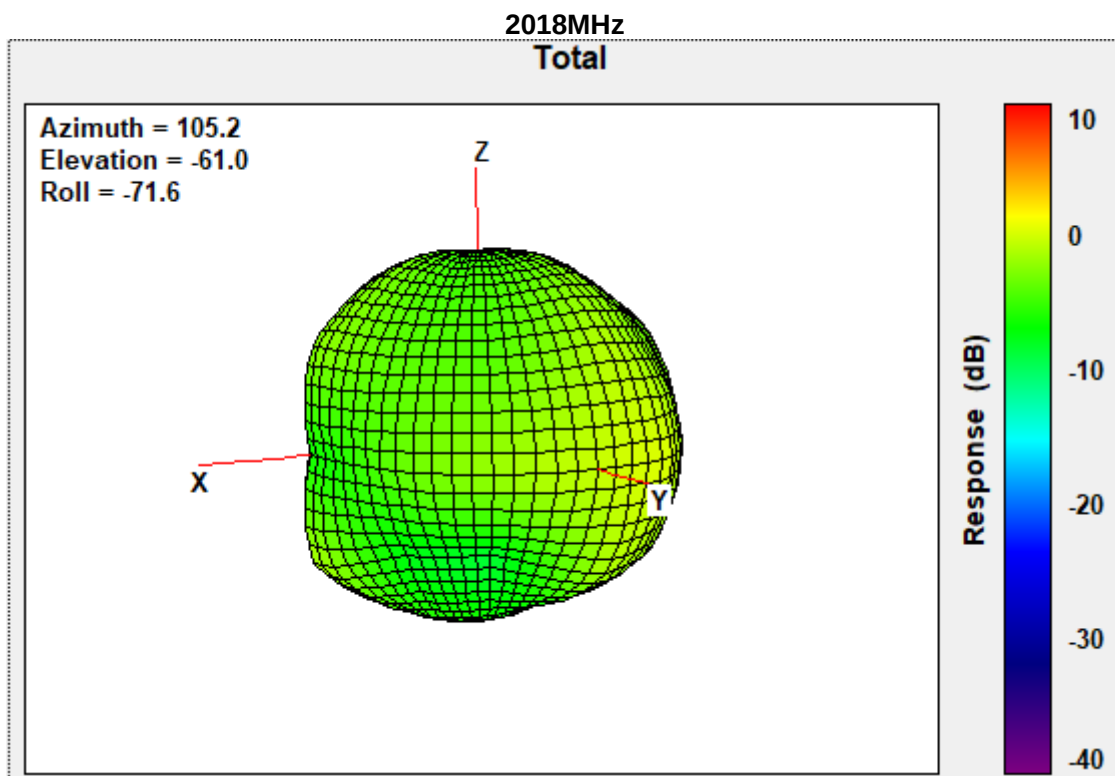
1990MHz	H (Peak)	V (Peak)
	-1.12	-1.59



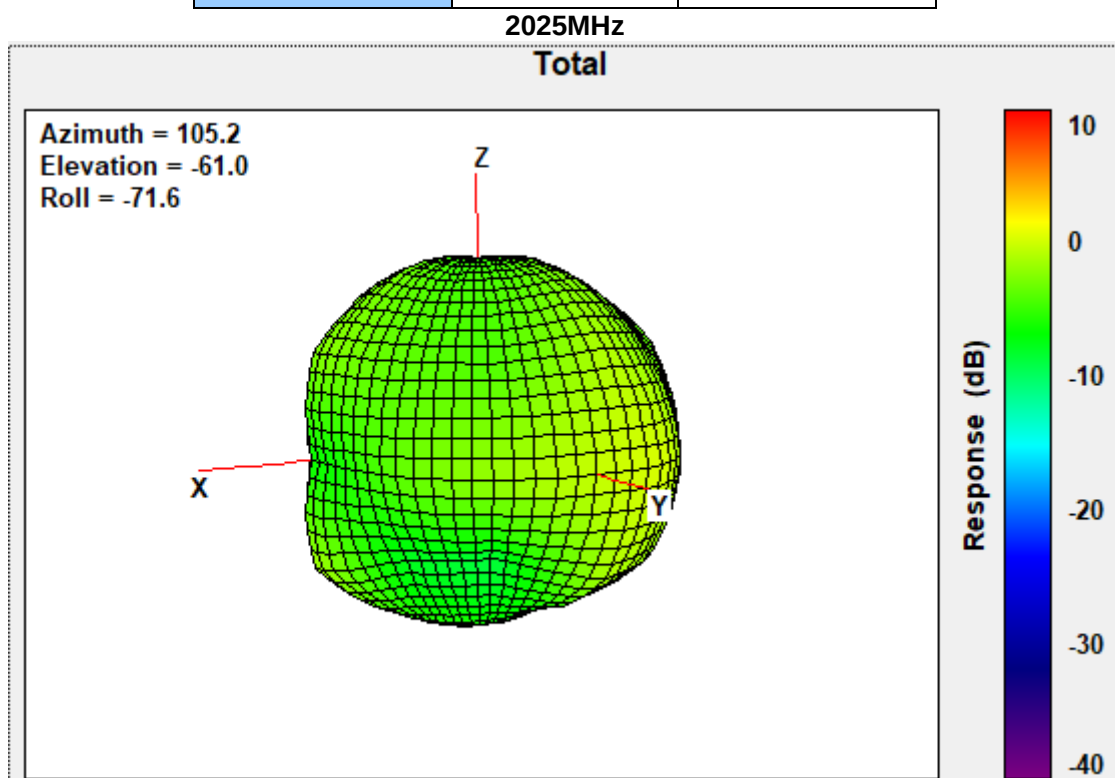
1995MHz	H (Peak)	V (Peak)
	-1.20	-1.89



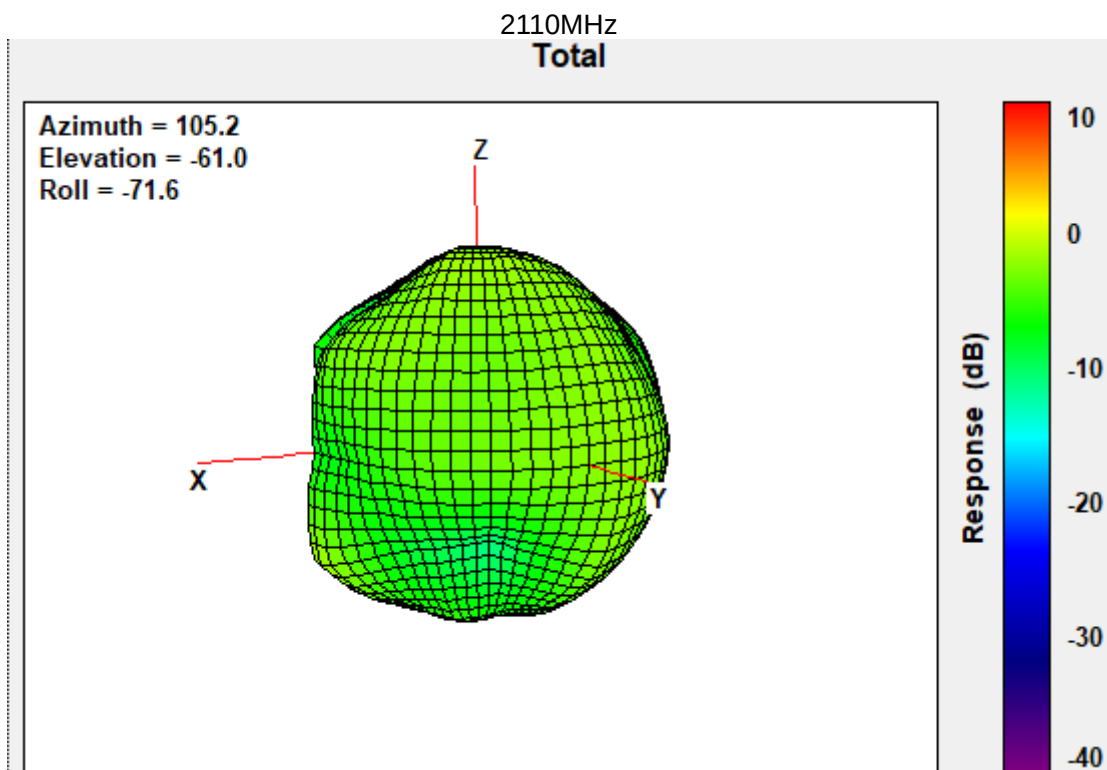
2010MHz	H (Peak)	V (Peak)
	-2.02	-2.90



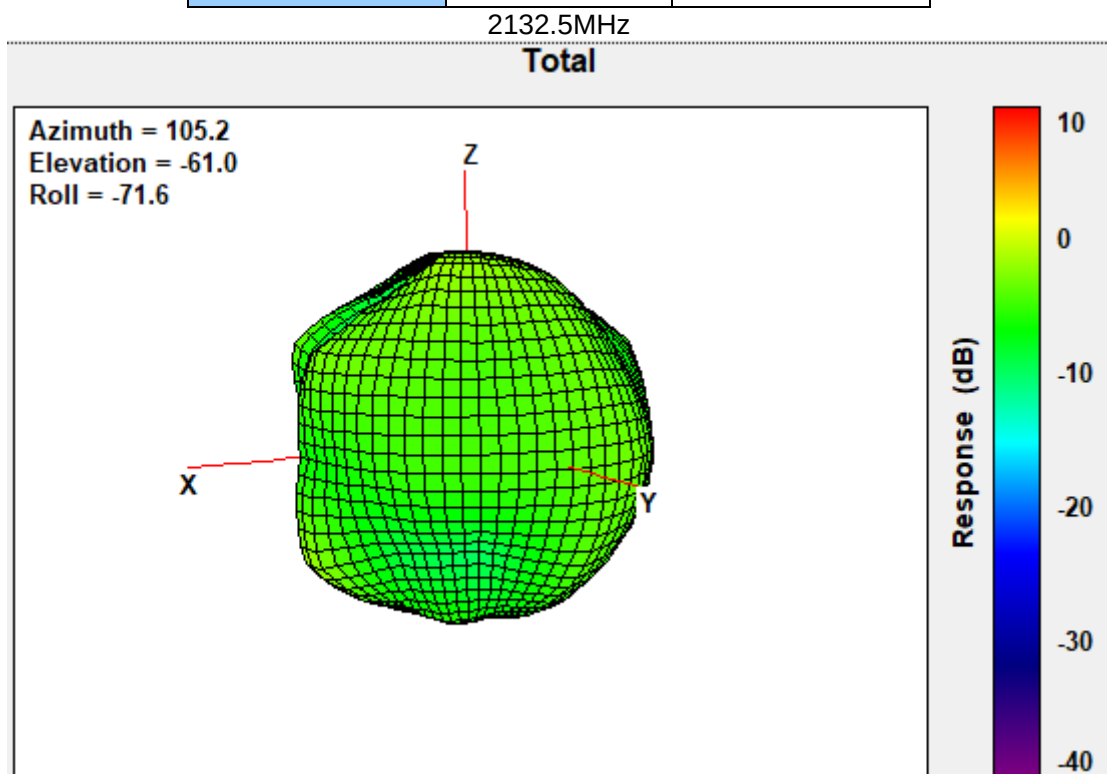
2018MHz	H (Peak)	V (Peak)
	-2.30	-2.86



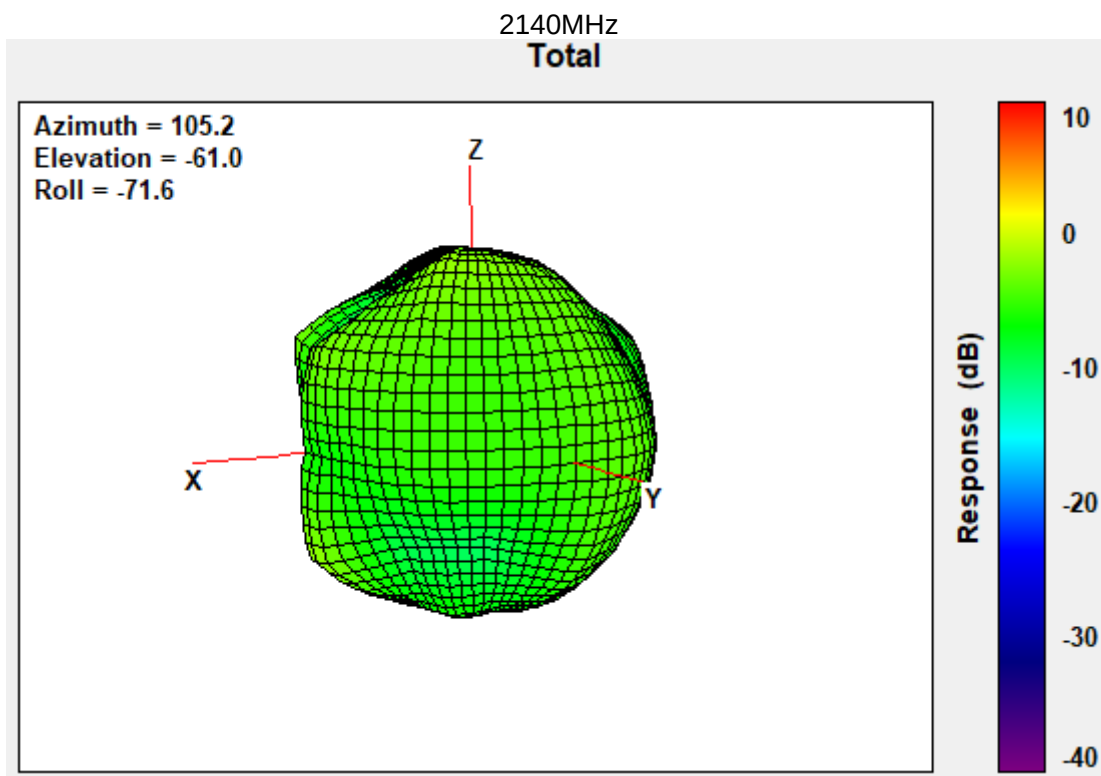
2025MHz	H (Peak)	V (Peak)
	-2.57	-2.63



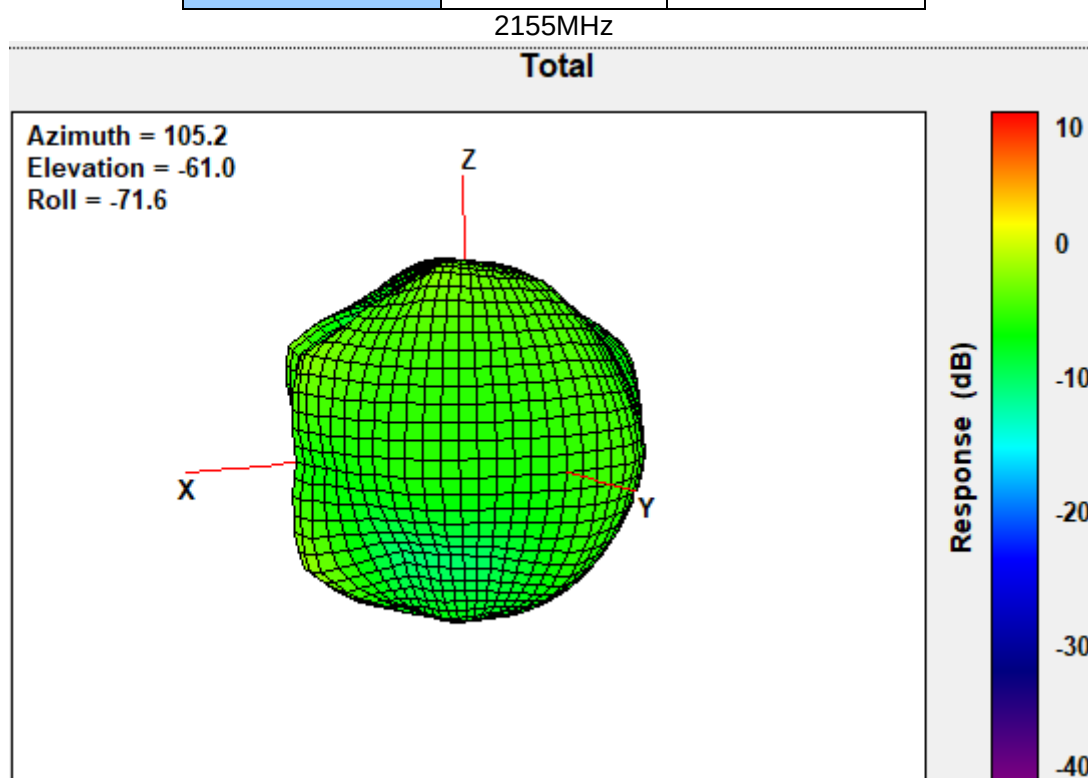
2110MHz	H (Peak)	V (Peak)
	-0.49	-2.21



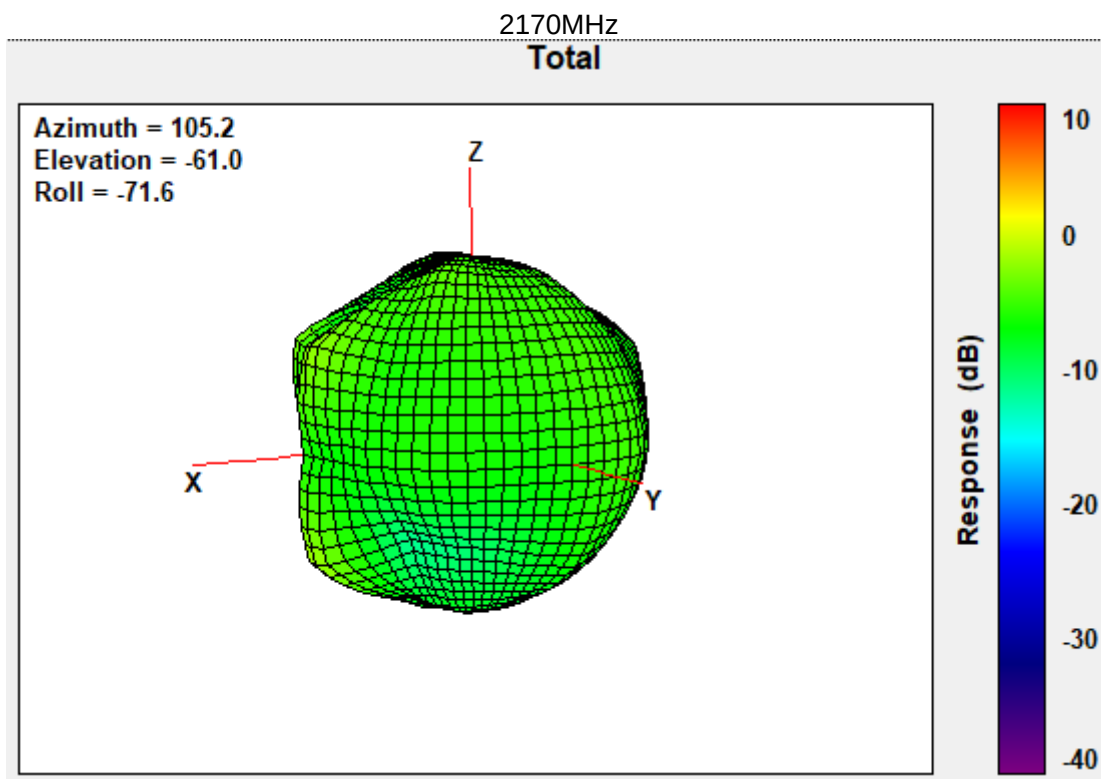
2132.5MHz	H (Peak)	V (Peak)
	-1.13	-2.37



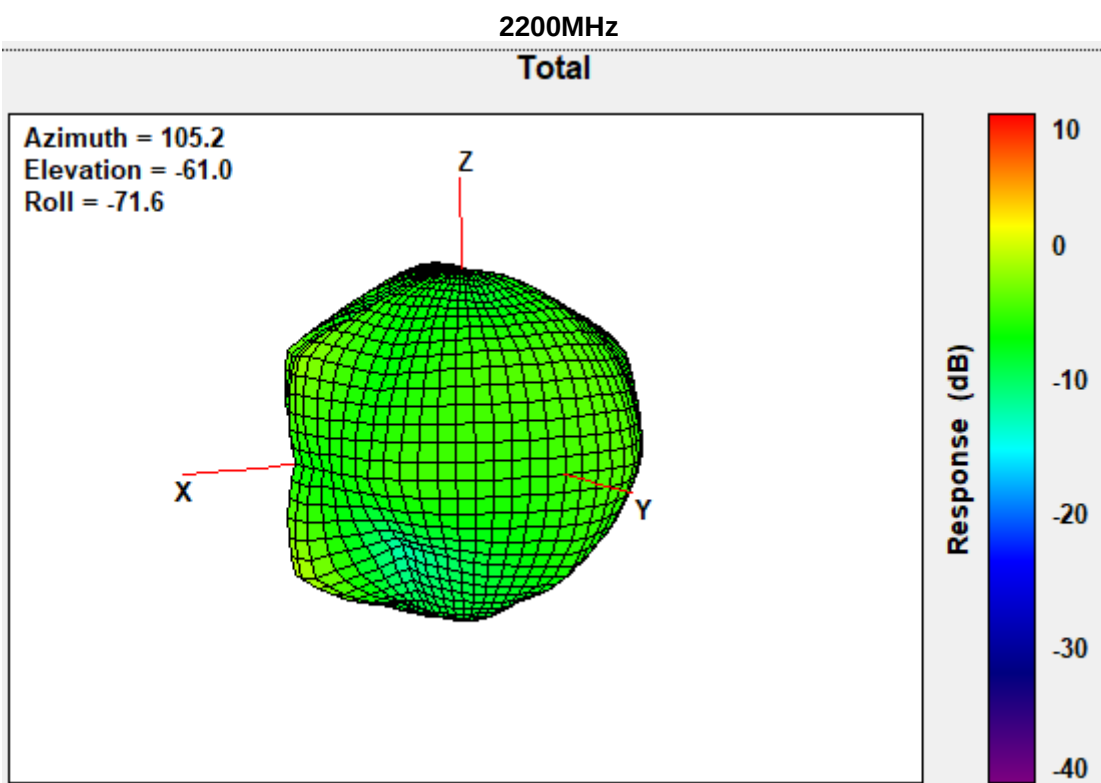
2140MHz	H (Peak)	V (Peak)
	-1.32	-2.43



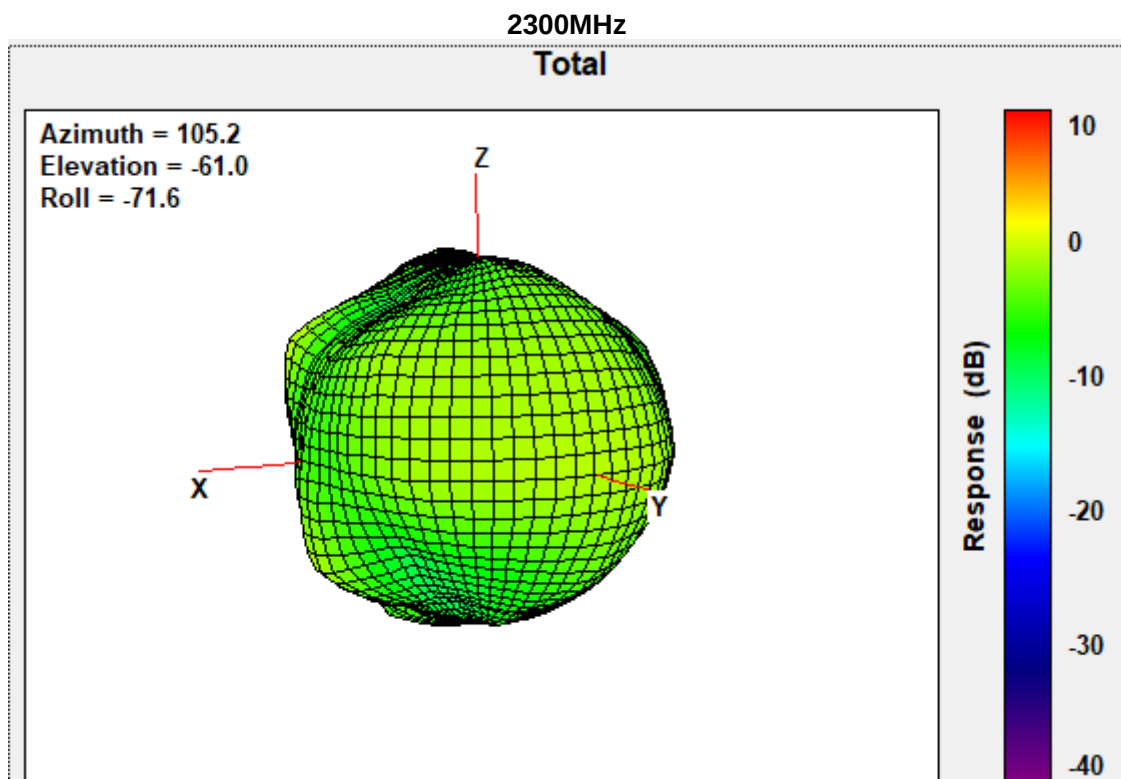
2155MHz	H (Peak)	V (Peak)
	-1.81	-2.87



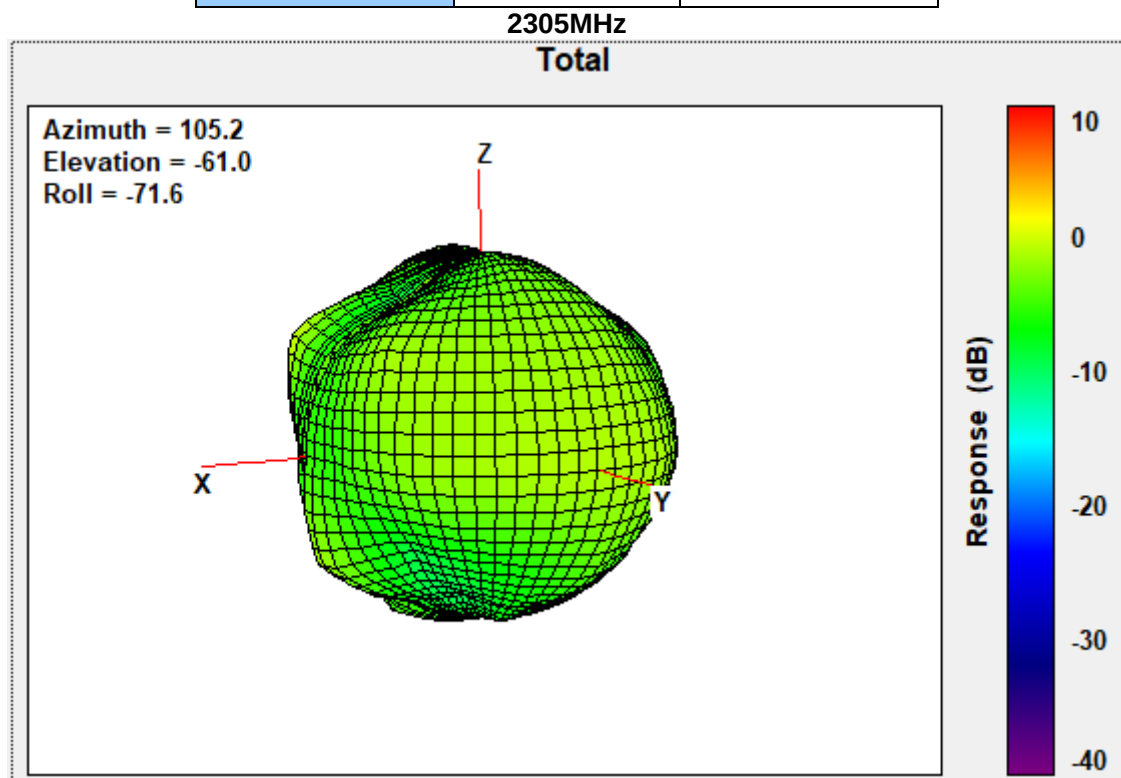
2170MHz	H (Peak)	V (Peak)
	-2.30	-2.74



2200MHz	H (Peak)	V (Peak)
	-0.01	-0.42



2300MHz	H (Peak)	V (Peak)
	1.76	0.87

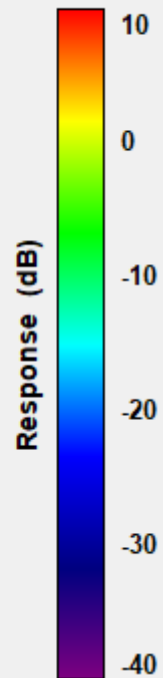
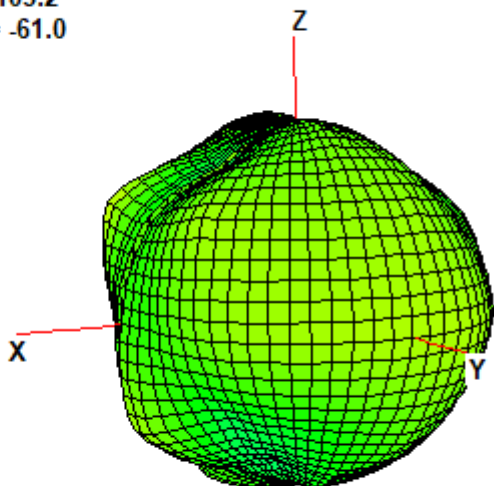


2305MHz	H (Peak)	V (Peak)
	1.54	0.94

2310MHz

Total

Azimuth = 105.2
Elevation = -61.0
Roll = -71.6

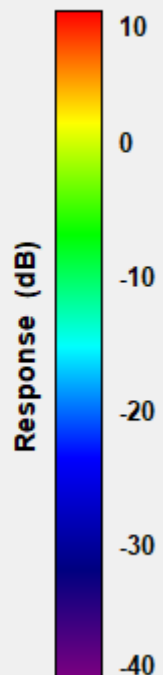
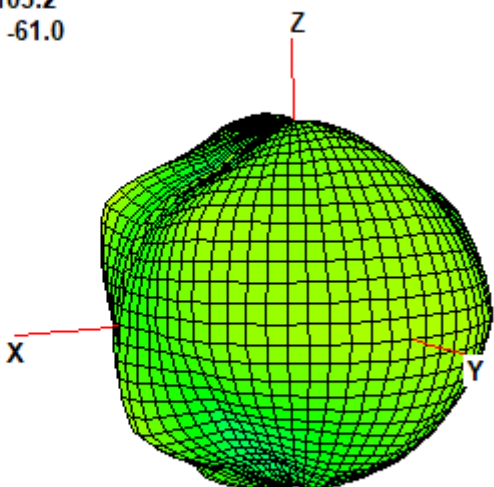


2310MHz	H (Peak)	V (Peak)
	1.24	0.92

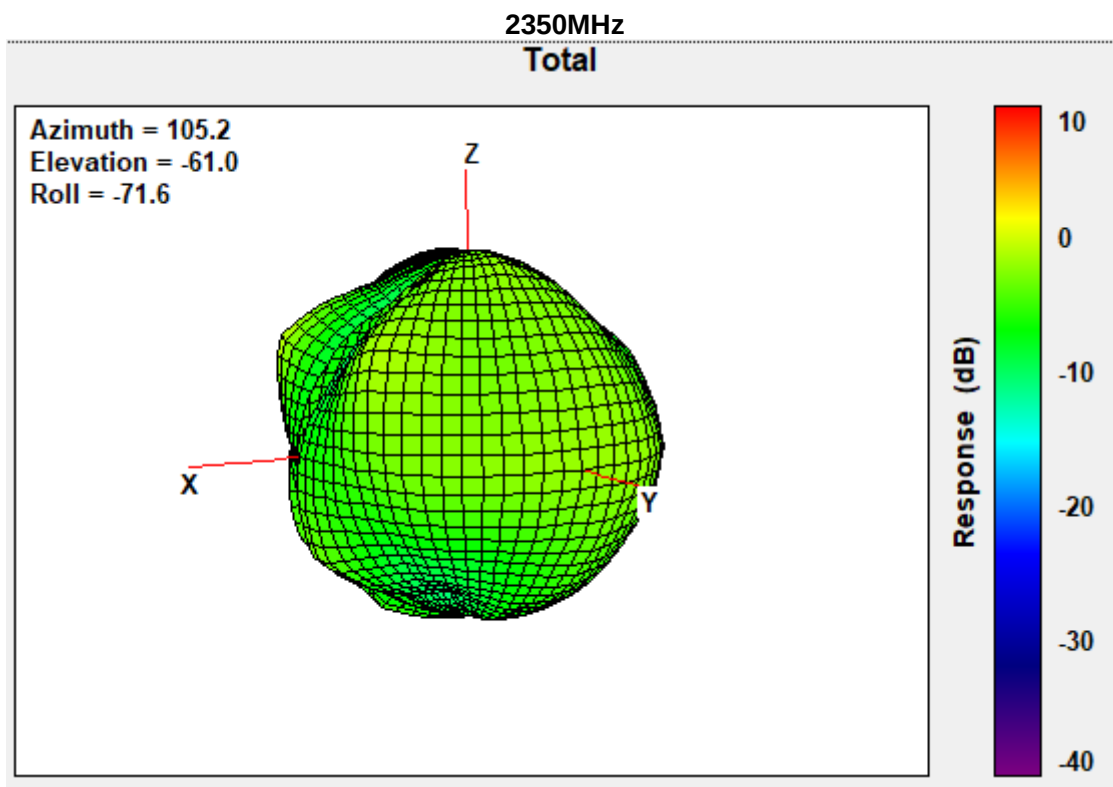
2315MHz

Total

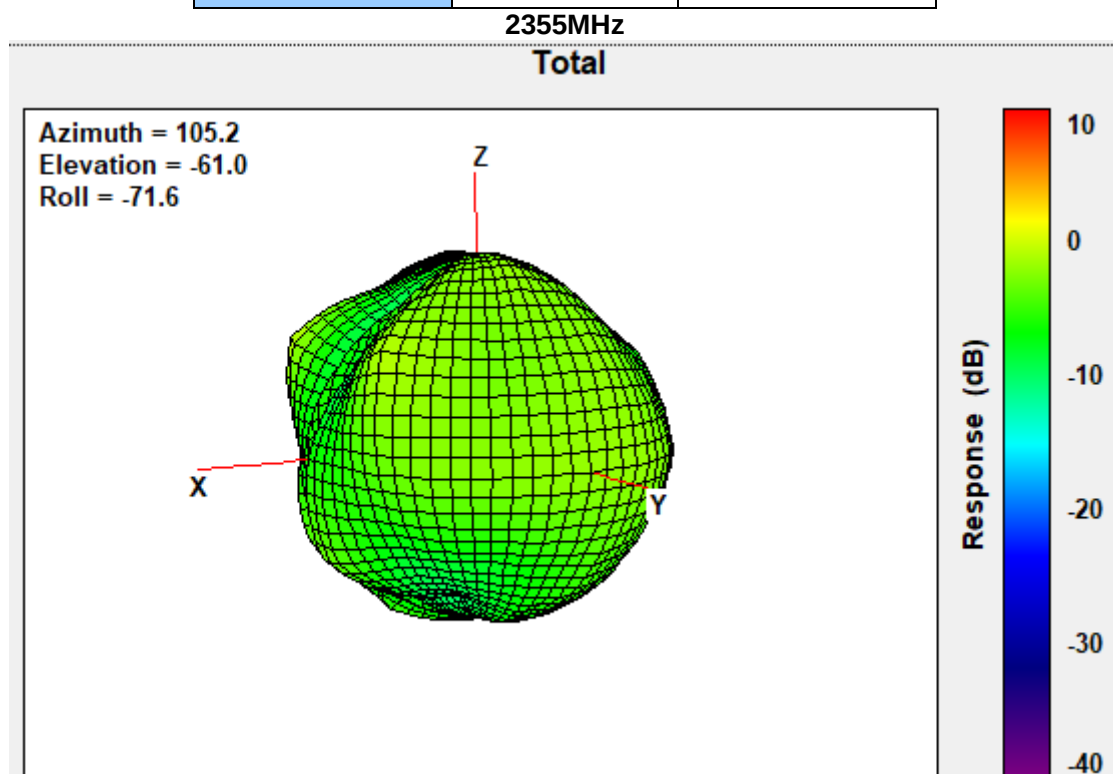
Azimuth = 105.2
Elevation = -61.0
Roll = -71.6



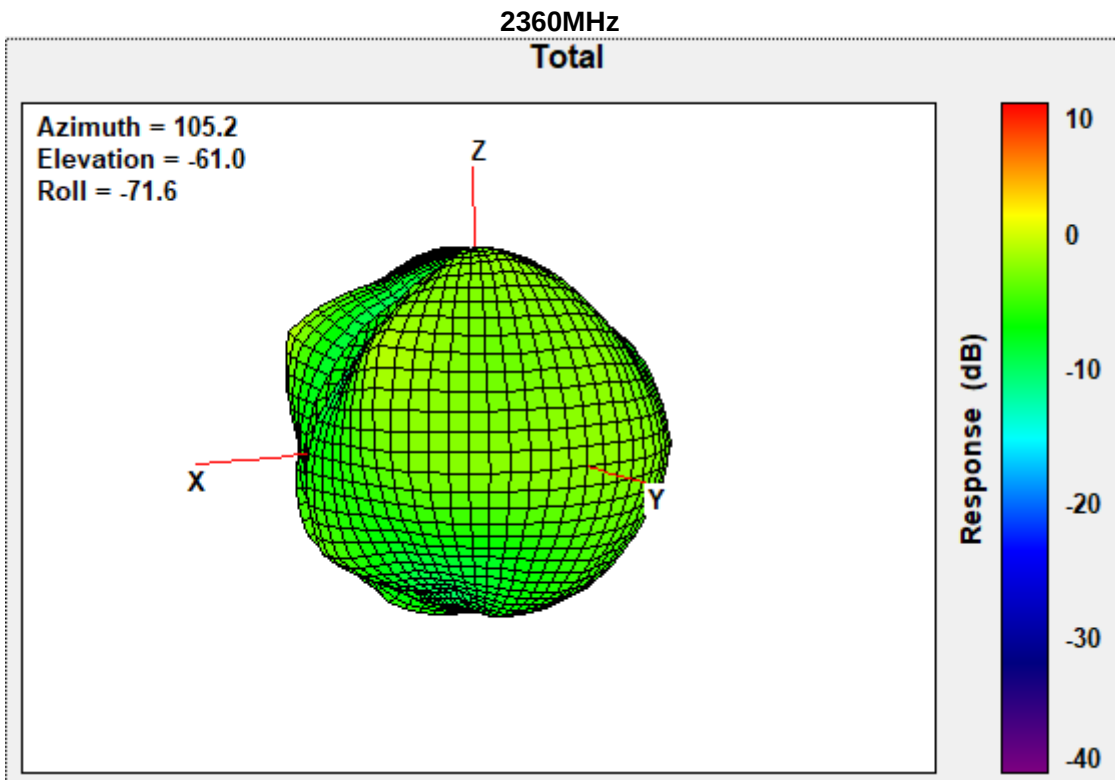
2315MHz	H (Peak)	V (Peak)
	1.03	0.86



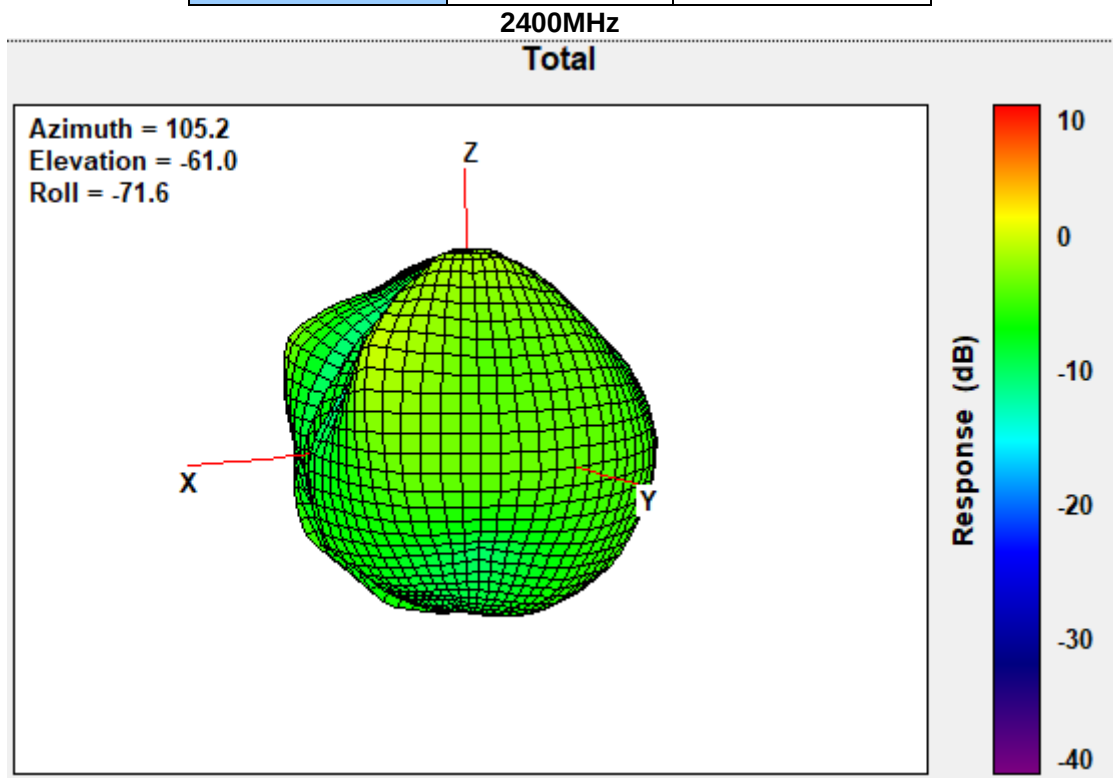
2350MHz	H (Peak)	V (Peak)
	-0.57	-0.44



2355MHz	H (Peak)	V (Peak)
	-0.62	-0.57



2360MHz	H (Peak)	V (Peak)
	-0.71	-0.81



2400MHz	H (Peak)	V (Peak)
	-0.11	0.25