

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)

Platform	
Platform Owner	DELL
Brand Name	DELL
Model Name	P178G
Project Name	Oasis13 CS
ODM	Wistron Corporation
Target Launch Date	2022/10/21
Antenna	
Manufacturer	Wistron Corporation
Part Number	■ Tx1/Rx1 Antenna WWAN Main: 08RVPD
	■ Rx2 Antenna WWAN Aux: 08RVPD
	■ Rx3 Antenna MIMO3: 0C75WW
	■ TX2/Rx4 Antenna MIMO2: 0C75WW
Module	
With WWAN Module	Fibocom FM350 GL
(Check Box)	

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

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:08RVPD) Tx1/ Rx1 Antenna	Wistron Corporation	PIFA	(1)Cable P/N: SY113SLL (2)Cable length: 275mm diameter: 1.13mm 50 ohm Coaxial (3)Connector P/N: I-PEX MHF4	617-698MHz	617-698MHz	617-698MHz	617-698MHz
				-3.31 dBi (peak)	-2.99 dBi (peak)	3.50 max	0.33 dBi (peak)
				698-821MHz	698-821MHz	698-821MHz	698-821MHz
				-0.68 dBi (peak)	-0.33 dBi (peak)	3.50 max	0.35 dBi (peak)
				824-960MHz	824-960MHz	824-960MHz	824-960MHz
				-1.35 dBi (peak)	-0.96 dBi (peak)	3.50 max	0.39 dBi (peak)
				1452-1515MHz	1452-1515MHz	1452-1515MHz	1452-1515MHz
				-1.18 dBi (peak)	-0.68 dBi (peak)	3.50 max	0.50 dBi (peak)
				1710-2200MHz	1710-2200MHz	1710-2200MHz	1710-2200MHz
(P/N:08RVPD) Rx2 Antenna	Wistron Corporation	PIFA	(1)Cable P/N: SY113SLL (2)Cable length: 510mm diameter: 1.13mm 50 ohm Coaxial (3)Connector P/N: I-PEX MHF4	0.73 dBi (peak)	1.33 dBi (peak)	3.50 max	0.60 dBi (peak)
				2300-2690MHz	2300-2690MHz	2300-2690MHz	2300-2690MHz
				1.99 dBi (peak)	2.67 dBi (peak)	3.50 max	0.68 dBi (peak)
				3300-3800MHz	3300-3800MHz	3300-3800MHz	3300-3800MHz
				-0.78 dBi (peak)	0.04 dBi (peak)	3.50 max	0.82 dBi (peak)
				4200-5000MHz	4200-5000MHz	4200-5000MHz	4200-5000MHz
				-5.09 dBi (peak)	-4.36 dBi (peak)	3.50 max	0.96 dBi (peak)
				5150-5925MHz	5150-5925MHz	5150-5925MHz	5150-5925MHz
				-1.63 dBi (peak)	-0.59 dBi (peak)	3.50 max	1.03 dBi (peak)
(P/N:08RVPD) Rx2 Antenna	Wistron Corporation	PIFA	(1)Cable P/N: SY113SLL (2)Cable length: 510mm diameter: 1.13mm 50 ohm Coaxial (3)Connector P/N: I-PEX MHF4	617-698MHz	617-698MHz	617-698MHz	617-698MHz
				-3.19 dBi (peak)	-2.60 dBi (peak)	3.50 max	0.59 dBi (peak)
				698-821MHz	698-821MHz	698-821MHz	698-821MHz
				-0.92 dBi (peak)	-0.27 dBi (peak)	3.50 max	0.65 dBi (peak)
				716-821MHz	716-821MHz	716-821MHz	716-821MHz
				-0.92 dBi (peak)	-0.27 dBi (peak)	3.50 max	0.65 dBi (peak)
				824-960MHz	824-960MHz	824-960MHz	824-960MHz
				-2.11 dBi (peak)	-1.40 dBi (peak)	3.50 max	0.71 dBi (peak)
				1452-1515MHz	1452-1515MHz	1452-1515MHz	1452-1515MHz
(P/N:08RVPD) Rx2 Antenna	Wistron Corporation	PIFA	(1)Cable P/N: SY113SLL (2)Cable length: 510mm diameter: 1.13mm 50 ohm Coaxial (3)Connector P/N: I-PEX MHF4	-1.81 dBi (peak)	-0.90 dBi (peak)	3.50 max	0.91 dBi (peak)
				1557-1610 MHz	1557-1610 MHz	1557-1610 MHz	1557-1610 MHz
				-2.41 dBi (peak)	-1.47 dBi (peak)	3.50 max	0.94 dBi (peak)
(P/N:08RVPD) Rx2 Antenna	Wistron Corporation	PIFA	(1)Cable P/N: SY113SLL (2)Cable length: 510mm diameter: 1.13mm 50 ohm Coaxial (3)Connector P/N: I-PEX MHF4	1805-2200MHz	1805-2200MHz	1805-2200MHz	1805-2200MHz
				-2.41 dBi (peak)	-1.47 dBi (peak)	3.50 max	0.94 dBi (peak)

				-0.27 dBi (peak)	0.84 dBi (peak)	3.50 max	1.11 dBi (peak)
				2300-2690MHz	2300-2690MHz	2300-2690MHz	2300-2690MHz
				1.95 dBi (peak)	1.95 dBi (peak)	3.50 max	1.24 dBi (peak)
				3300-3800MHz	3300-3800MHz	3300-3800MHz	3300-3800MHz
				-0.53 dBi (peak)	0.97 dBi (peak)	3.50 max	1.50 dBi (peak)
				4200-5000MHz	4200-5000MHz	4200-5000MHz	4200-5000MHz
				-6.11 dBi (peak)	-4.36 dBi (peak)	3.50 max	1.76 dBi (peak)
				5150-5925MHz	5150-5925MHz	5150-5925MHz	5150-5925MHz
				-2.45 dBi (peak)	-0.56 dBi (peak)	3.50 max	1.89 dBi (peak)

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
				1.81 dBi (peak)	2.24 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	2.47 dBi (peak)	2.95 dBi (peak)	3.50 max	0.48 dBi (peak)
				3300-3800MHz	3300-3800MHz	3300-3800MHz	3300-3800MHz
				-0.19 dBi (peak)	0.38 dBi (peak)	3.50 max	0.58 dBi (peak)
				4200-5000MHz	4200-5000MHz	4200-5000MHz	4200-5000MHz
				1.95 dBi (peak)	2.63 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
				-4.39 dBi (peak)	-3.66 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	1.93 dBi (peak)	2.81 dBi (peak)	3.50 max	0.88 dBi (peak)
				2300-2690MHz	2300-2690MHz	2300-2690MHz	2300-2690MHz
				1.96 dBi (peak)	2.94 dBi (peak)	3.50 max	0.98 dBi (peak)
				3300-3800MHz	3300-3800MHz	3300-3800MHz	3300-3800MHz
				0.94 dBi (peak)	2.13 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
				1.56 dBi (peak)	2.95 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	-7.84	-9.54	-3.01	-5.12				
634.5	-5.40	-7.07	-2.60	-4.17				
652	-3.61	-5.57	-3.31	-4.43				
663	-2.99	-5.04						
680.5	-3.00	-4.59						
698	-1.34	-3.28						
703	-1.02	-2.37						
707.5	-0.88	-2.10						
716	-0.86	-1.74						
717	-0.90	-1.70	-2.44	-1.81				
722.5	-0.93	-1.37	-2.26	-1.38				
725.5	-2.42	-3.61						
728	-2.27	-3.27	-2.17	-0.89				
729	-2.23	-3.15	-2.10	-0.84				
737.5	-2.09	-2.14	-1.35	-0.67				
746	-2.07	-1.02	-0.70	-0.56				
748	-2.06	-0.90						
751	-2.04	-0.77	-0.46	-0.52				
756	-1.96	-0.66	-0.30	-0.49				
758	-1.74	-0.63	-0.27	-0.52				
763	-1.19	-0.53	-0.32	-0.52				
768	-0.94	-0.41	-0.48	-0.60				
777	-0.71	-0.33						
780.5	-0.64	-0.37	-1.15	-1.67				
782	-0.64	-0.41						
787	-0.79	-0.60						
788	-0.79	-0.64						
791	-5.49	-4.13	-1.90	-2.86				
793	-5.35	-4.00						
798	-1.40	-1.22						
803	-1.58	-1.74	-3.06	-4.10				
806	-1.84	-1.99	-3.41	-4.31				
814	-4.19	-3.94						
815	-4.10	-3.91						
821	-3.65	-3.53	-4.19	-5.10				
823	-3.53	-3.44						
824	-3.50	-3.37						

830	-3.25	-2.87						
831.5	-3.21	-2.75						
832	-3.19	-2.72						
835	-3.05	-2.49						
836.5	-2.96	-2.39						
838	-2.87	-2.28						
840	-2.76	-2.16						
845	-2.56	-1.90						
847	-2.51	-1.80						
849	-2.44	-1.70						
859	-2.63	-1.51	-3.24	-2.91				
860	-2.65	-1.51	-3.27	-2.80				
862	-2.44	-1.48						
868	-2.32	-1.22	-3.71	-1.99				
869	-2.28	-1.16	-3.79	-1.92				
875	-2.22	-0.96	-3.88	-1.63				
876.5	-2.27	-0.97	-3.78	-1.64				
880	-3.42	-4.17	-4.25	-2.02				
881.5	-3.36	-4.05	-4.21	-2.05				
883	-3.22	-1.40	-4.16	-2.11				
885	-3.35	-1.46	-4.09	-2.16				
890	-3.69	-1.60	-4.00	-2.32				
894	-3.77	-1.75	-3.94	-2.48				
897.5	-2.69	-3.21						
915	-2.12	-2.43						
925	-1.89	-2.14	-2.48	-1.40				
942.5	-1.89	-1.75	-2.24	-2.23				
960	-2.97	-2.65	-3.51	-3.68				
1427.9								
1447.9								
1452	-0.68	-3.30	-0.90	-3.48			-5.36	-5.56
1455.4								
1462.9								
1474	-1.42	-3.15	-1.51	-4.37			-4.38	-4.53
1496	-2.50	-3.01	-2.63	-3.05			-3.66	-4.06
1510.9								
1557			-1.89	-3.67				
1561			-1.77	-3.73				
1565			-1.67	-3.80				
1573			-1.57	-4.05				
1575			-1.54	-4.10				
1577			-1.52	-4.11				
1594			-1.49	-4.33				

1602			-1.47	-4.32				
1610			-1.47	-4.22				

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	-0.55	-0.90					0.29	2.81
1732.5	-0.38	-1.29					-0.21	2.23
1745	-0.75	-1.52					-0.91	1.72
1747.5	-0.87	-1.58					-1.03	1.60
1749.9	-0.97	-1.65						
1755	-1.24	-1.74					-1.41	1.36
1767.4	-1.69	-2.22						
1780	-1.95	-3.19					-1.33	0.71
1784.9	-1.95	-3.19					-1.33	0.71
1805	-2.39	-3.98	-0.79	-1.55	0.88	1.99	-0.49	0.77
1842.5	-2.67	-3.30	-0.61	-2.10	-0.59	0.55	-0.10	0.42
1844.9	-2.74	-3.30	-0.56	-2.26				
1850	-2.25	-0.39					-0.13	0.23
1862.4	-1.92	-0.25	-0.44	-2.25				
1880	-1.39	-0.21	-0.58	-1.60	-1.19	0.34	0.26	-0.44
1882.5	-1.30	-0.18					0.43	-0.50
1900	-0.81	-0.04	-0.58	-1.09				
1910	-0.66	0.05					1.27	-0.33
1915	-0.62	0.09					1.23	-0.32
1920	-0.61	0.18	-1.27	-0.99			1.16	-0.29
1930	-0.54	0.29	-1.89	-0.72	-0.91	1.28	0.94	-0.31
1950	-0.37	0.58					0.31	-0.52
1960	-0.41	0.70	-0.18	0.03	-0.61	1.41	0.15	-0.77
1962.5	-0.33	0.77	-0.05	0.14	-0.60	1.44	0.12	-0.75
1980	0.15	0.43					0.08	-0.83
1990	0.40	-0.12	0.77	-0.12	-0.55	1.44	-0.07	-0.86
1995	0.51	-0.34	0.84	-0.07	-0.53	1.45	-0.14	-0.88
2010	0.36	-1.07	0.60	0.07	-1.05	1.03	-0.78	-1.36
2018	0.33	-1.16	0.54	0.23	-1.03	0.92	-1.06	-1.47
2025	0.37	-1.15	0.47	0.44	-0.98	0.91	-1.26	-1.58
2110	0.17	-1.19	-0.37	0.69	-1.26	0.54	-0.03	-0.87
2132.5	-0.09	-1.50	-0.24	0.62	-1.67	0.85	-0.78	-1.44
2140	-0.23	-1.55	-0.26	0.53	-1.79	0.97	-1.15	-1.44
2155	-0.17	-1.30	-0.27	0.40	-1.80	1.38	-0.95	-1.07
2170	-0.11	-1.26	-0.19	0.44	-1.85	1.70	-0.72	-0.51
2200	1.33	-0.90	-0.13	0.81	-2.55	2.24	0.30	-0.22
2300	2.67	0.23	-0.93	1.95	-1.63	2.72	2.94	0.24

2305	2.48	0.12					2.93	0.19
2310	2.27	-0.01					2.82	0.12
2315	2.08	-0.17					2.60	0.03
2350	1.94	-1.10	-2.38	0.55	-3.10	0.88	1.53	-0.60
2355	1.95	-1.09	-2.24	0.41	-3.08	0.76	1.47	-0.63
2360	1.86	-1.11	-2.31	0.18	-3.06	0.59	1.33	-0.72
2400	1.55	-0.46	-2.55	-0.26	-4.21	0.59	0.82	-1.30
2496	1.33	-0.20	-0.64	-0.41	-3.31	1.94	2.48	-0.54
2500	1.18	-0.34					2.34	-0.64
2535	1.84	-0.53			-2.81	2.21	1.98	-0.52
2570	1.83	-0.62	-1.64	-1.39	-2.23	2.31	1.37	0.15
2593	1.68	-0.56	-2.39	-1.48	-1.65	2.37	1.02	0.42
2595	1.65	-0.49	-2.49	-1.53	-1.59	2.39	0.96	0.48
2620	1.55	-0.35	-3.18	-1.56	-0.70	2.46	0.79	0.68
2655	1.35	-0.30	-3.05	-1.32	-0.74	2.77	0.80	-0.27
2690	0.72	-0.39	-2.46	-0.49	-0.62	2.95	1.98	-0.30
3300	-0.85	-0.86	0.16	0.97	-1.53	0.37	1.02	-2.84
3400	-2.12	-2.78	-1.30	0.84	-0.55	0.29	2.13	-2.52
3500	-1.83	-0.06	-3.80	-0.08	-3.20	-0.88	1.24	0.97
3550	-1.65	-0.13	-3.35	-1.09	-3.11	-2.15	-0.05	0.49
3600	-1.69	-0.58	-3.37	-2.02	-1.29	-1.23	-2.40	-1.05
3625	-1.06	-0.57	-3.15	-1.91	-0.72	-0.68	-2.35	-2.02
3700	0.04	-0.78	-2.63	-0.67	-0.81	-0.21	-0.77	-3.34
3750	-1.69	-2.28	-3.04	-0.86	-1.24	0.38	0.09	-4.63
3800	-1.81	-2.78	-2.71	-0.74	-2.49	0.20	0.93	-4.82
4200	-4.81	-4.82	-8.29	-7.01	-3.97	-1.00	2.95	-1.09
4400	-6.07	-5.60	-4.36	-5.20	-4.71	-2.77	-0.23	-2.67
4700	-4.81	-5.90	-4.43	-5.06	1.55	1.59	-2.76	0.08
5000	-5.74	-4.13	-7.33	-4.86	0.30	2.63	-0.84	-0.58
5150	-3.33	-1.76	-3.13	-4.16				
5537.5	-2.50	-2.29	-2.54	-0.56				
5925	-0.59	-1.73	-5.12	-5.73				

Tx1/Rx1 Antenna Dimensioned Drawing:



Tx1/Rx1 (Front)-Near

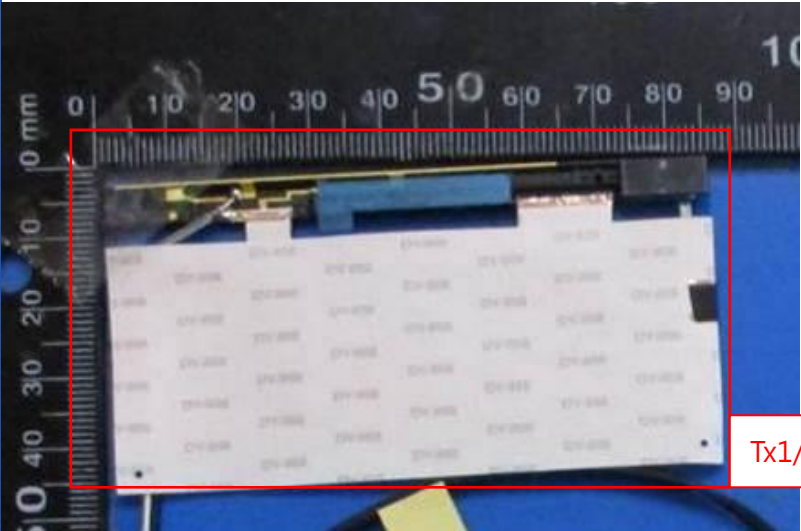


Tx1/Rx1 (Back)-Far



Tx1/Rx1

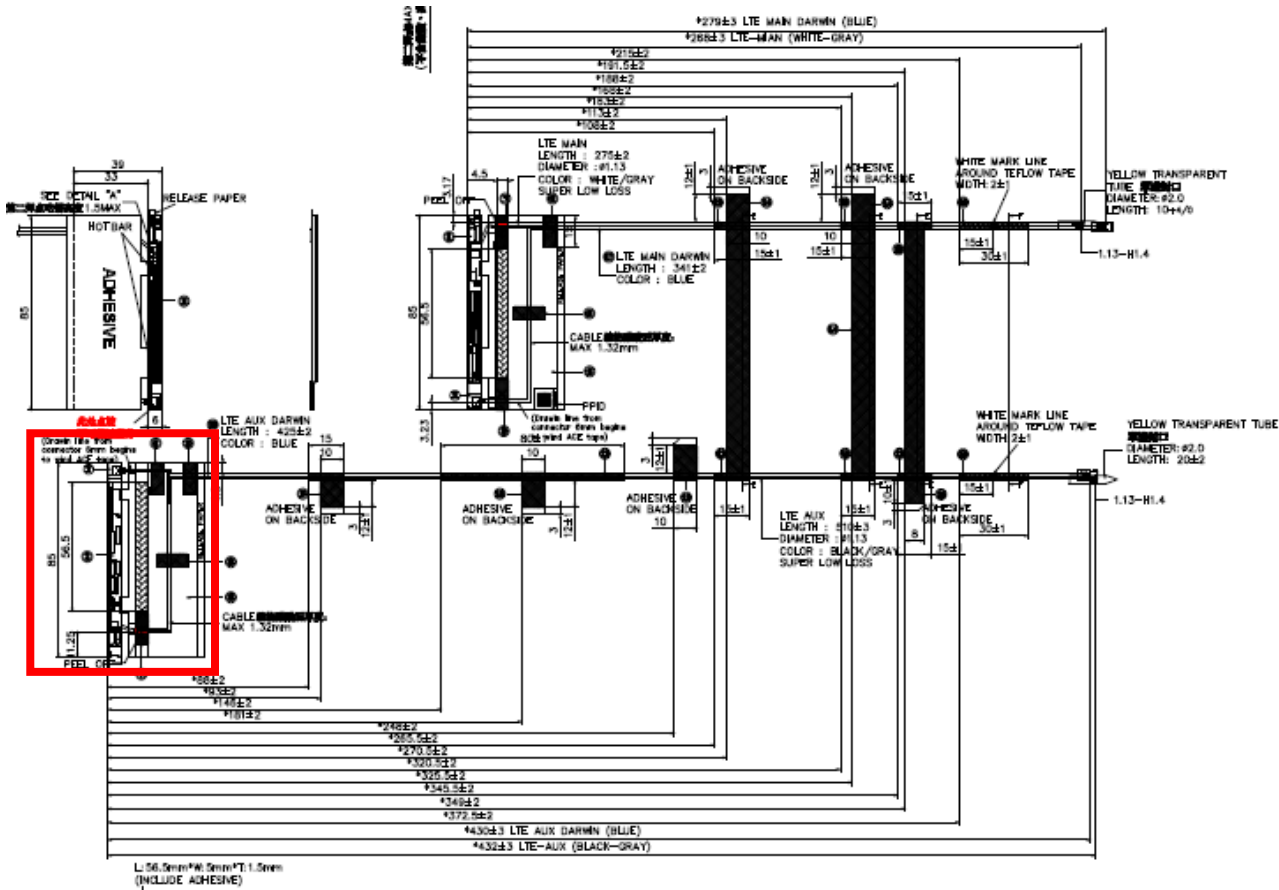
Tx1/Rx1 (Front)-Near



Tx1/Rx1

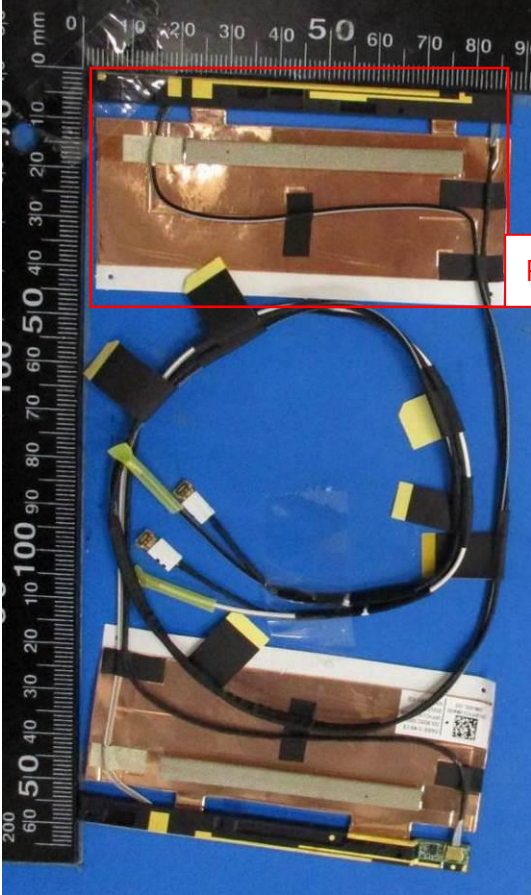
Include a dimensioned photo and dimensioned drawing of Rx2 antenna here.

Rx2 Antenna Dimensioned Drawing:



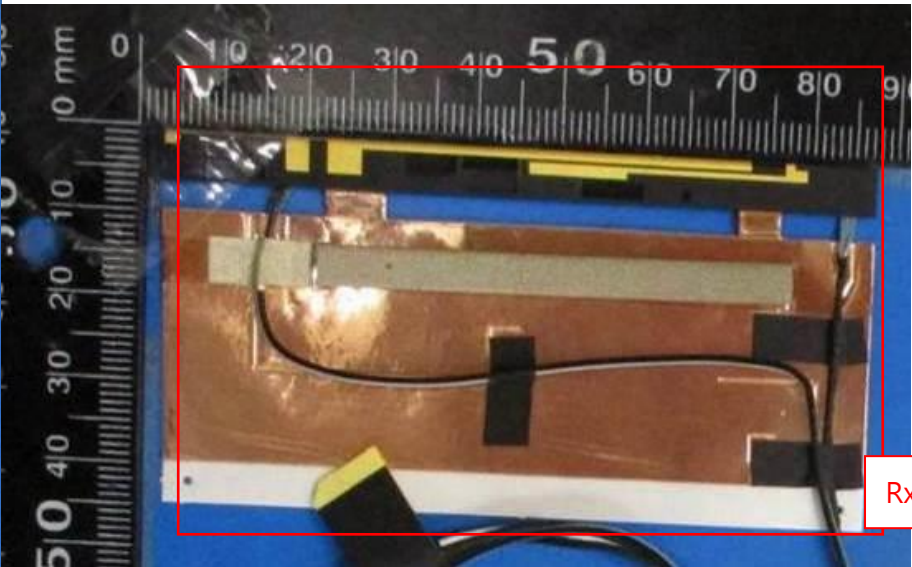
Rx2 Antenna Photo:

Rx2(Front)-Far



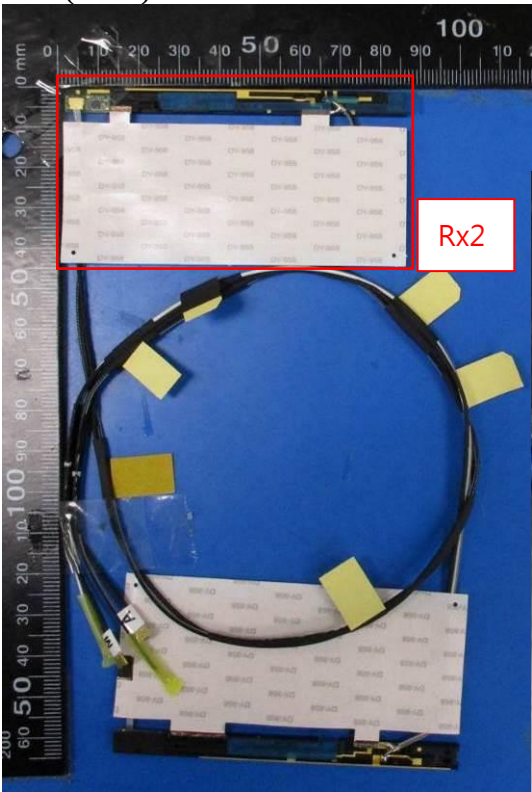
Rx2

Rx2 (Front)-Near

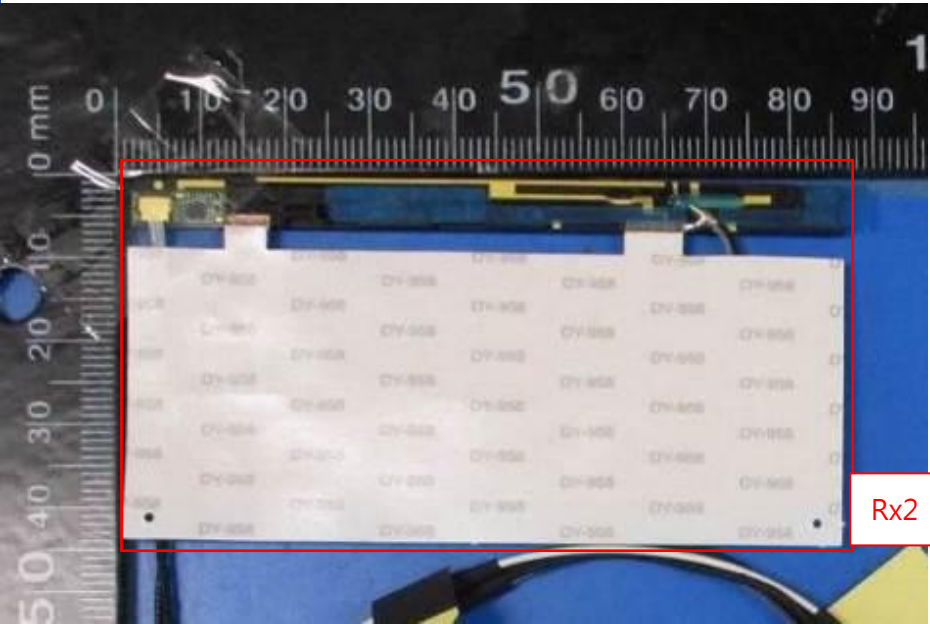


Rx2

Rx2 (Back)-Far

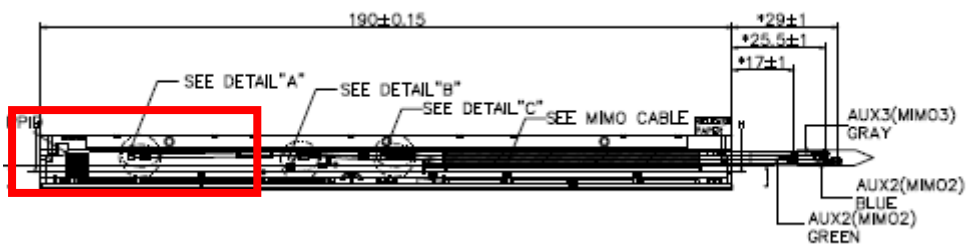


Rx2 (Front)-Near



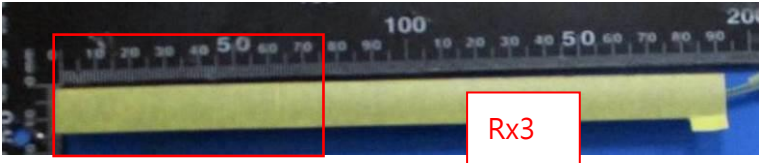
Include a dimensioned photo and dimensioned drawing of Rx3 antenna here.

Rx3 Antenna Dimensioned Drawing:

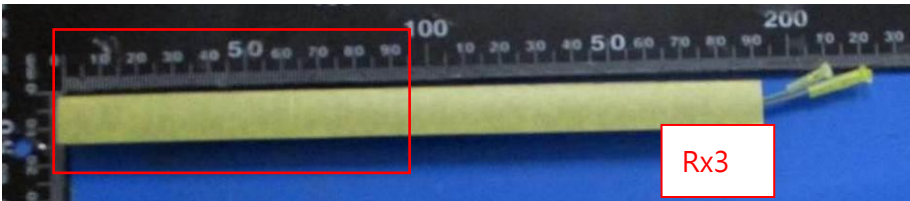


Rx3 Antenna Photo:

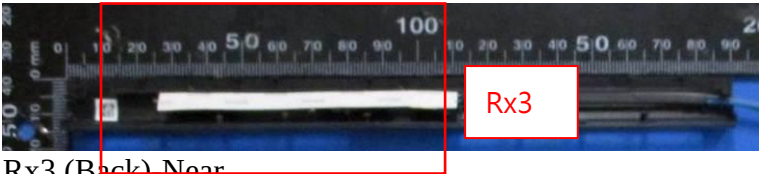
Rx3(Front)-Far



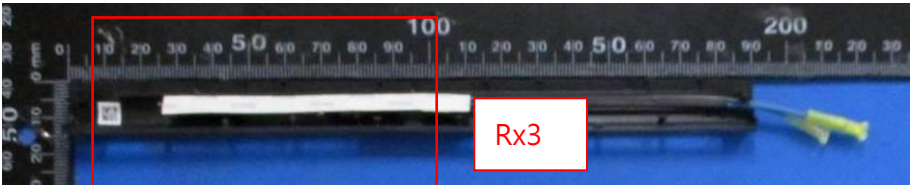
Rx3 (Front)-Near



Rx3 (Back)-Far

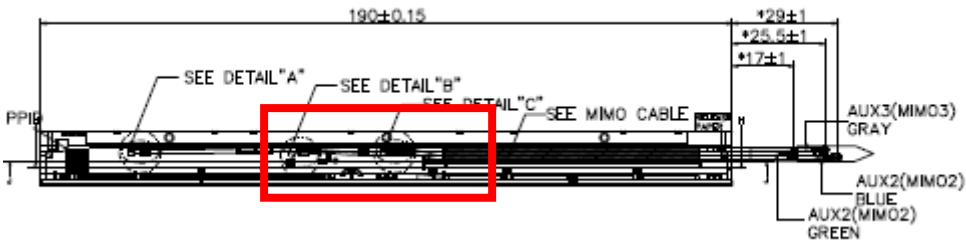


Rx3 (Back)-Near



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

Tx2/Rx4 Antenna Dimensioned Drawing:

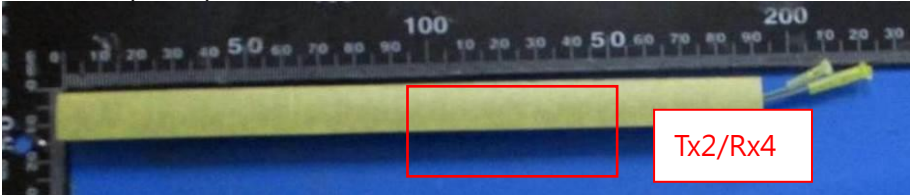


Tx2/Rx4 Antenna Photo:

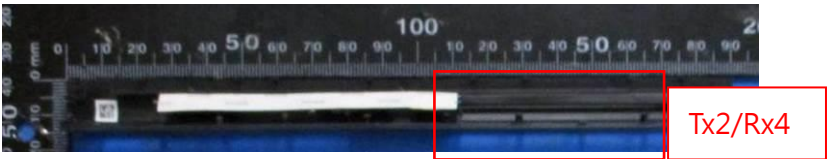
Tx2/Rx4(Front)-Far



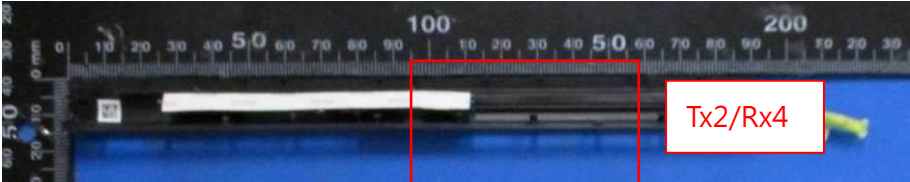
Tx2/Rx4 (Front)-Near



Tx2/Rx4 (Back)-Far



Tx2/Rx4 (Back)-Near

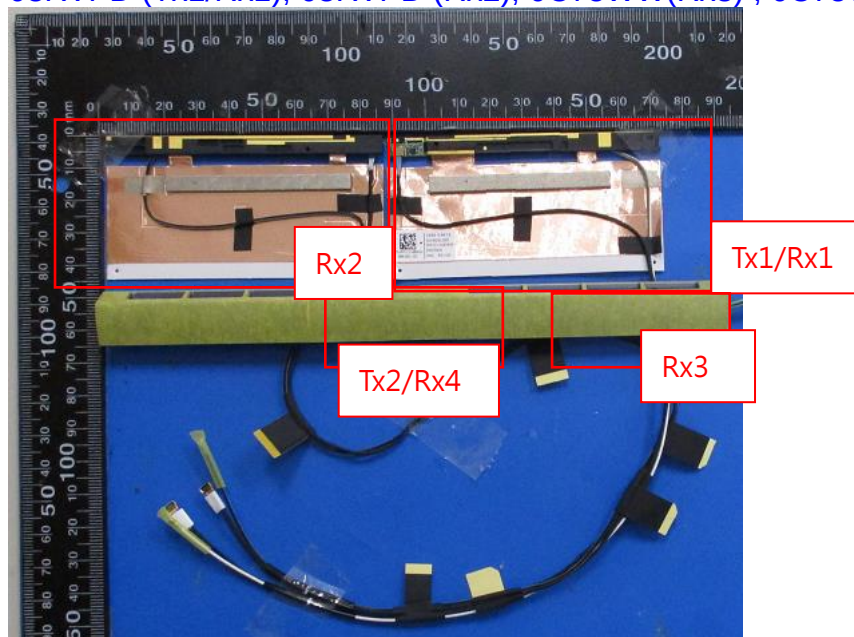


Include front view photo of all 2 antennas here.

Antenna Manufacturer: Wiseron

Antenna Part Number:

08RVPD (Tx1/Rx1), 08RVPD (Rx2), 0C75WW(Rx3) , 0C75WW (Tx2/Rx4)

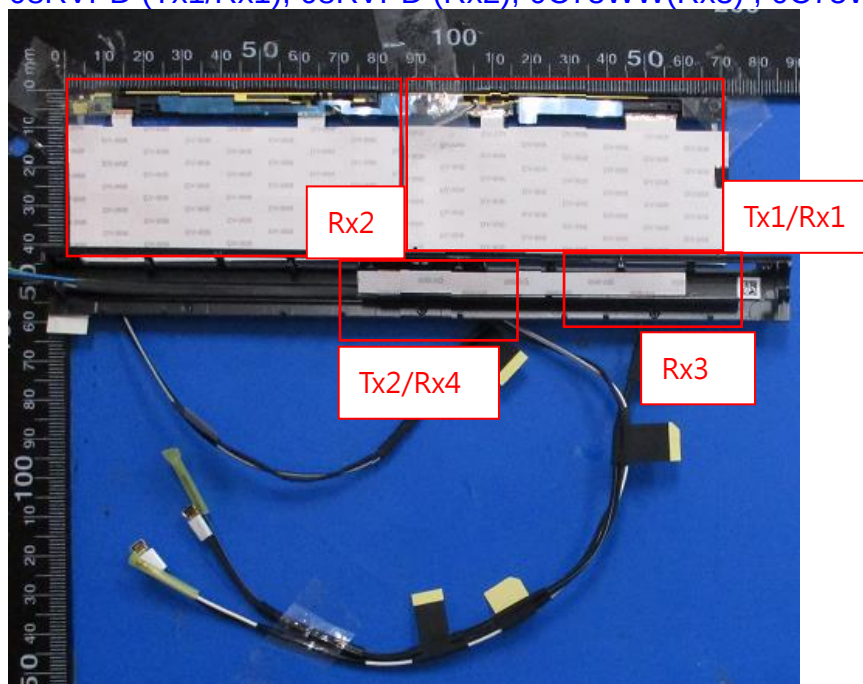


Include back view photo of all 2 antennas here.

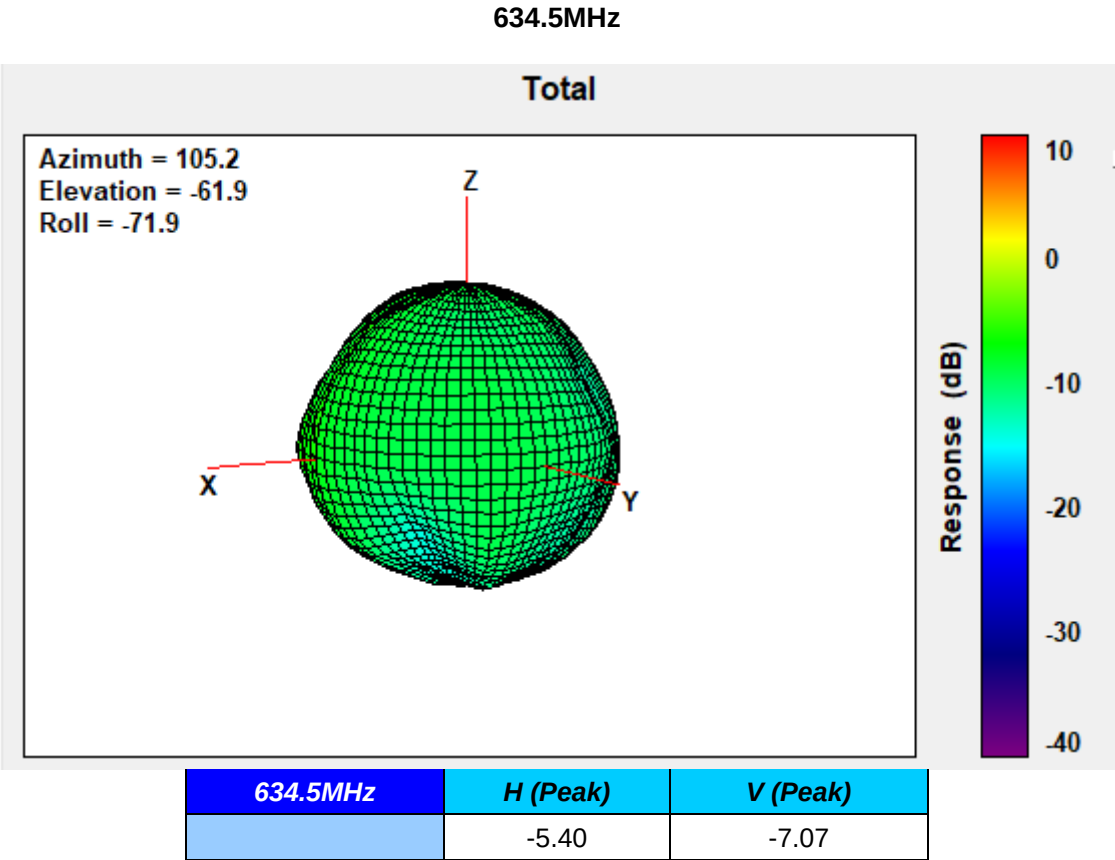
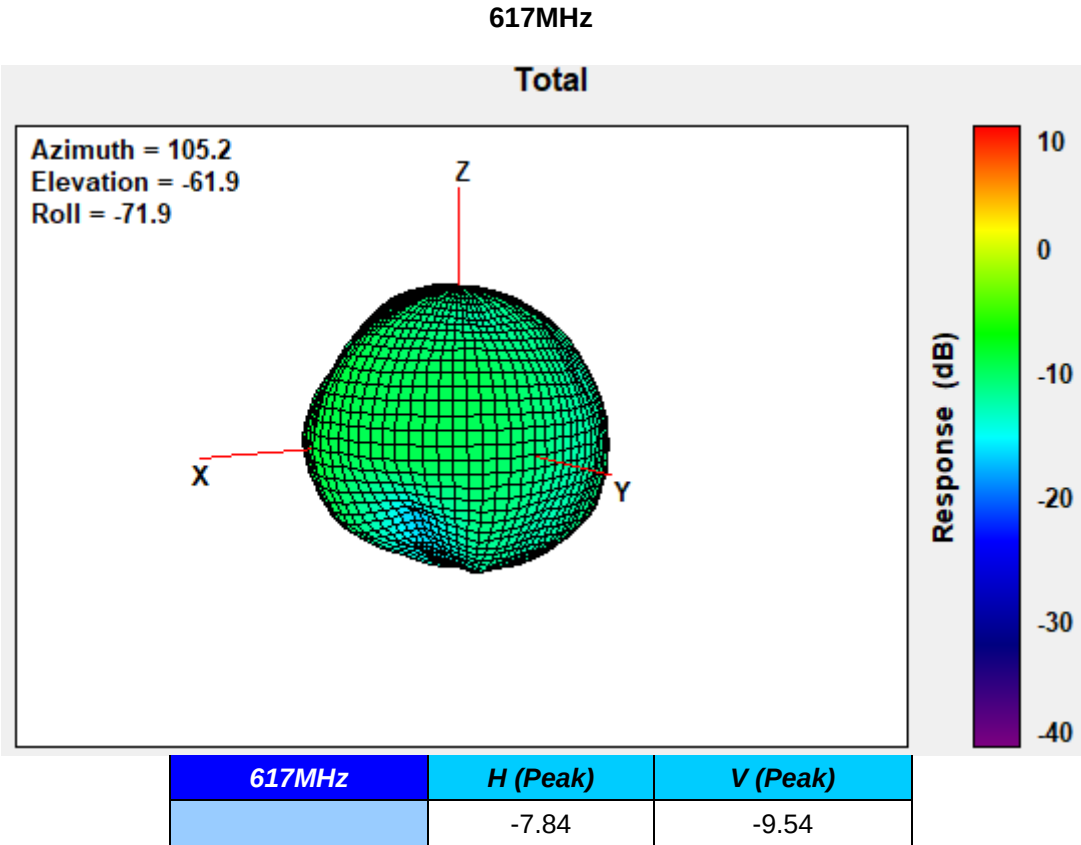
Antenna Manufacturer: Wiseron

Antenna Part Number:

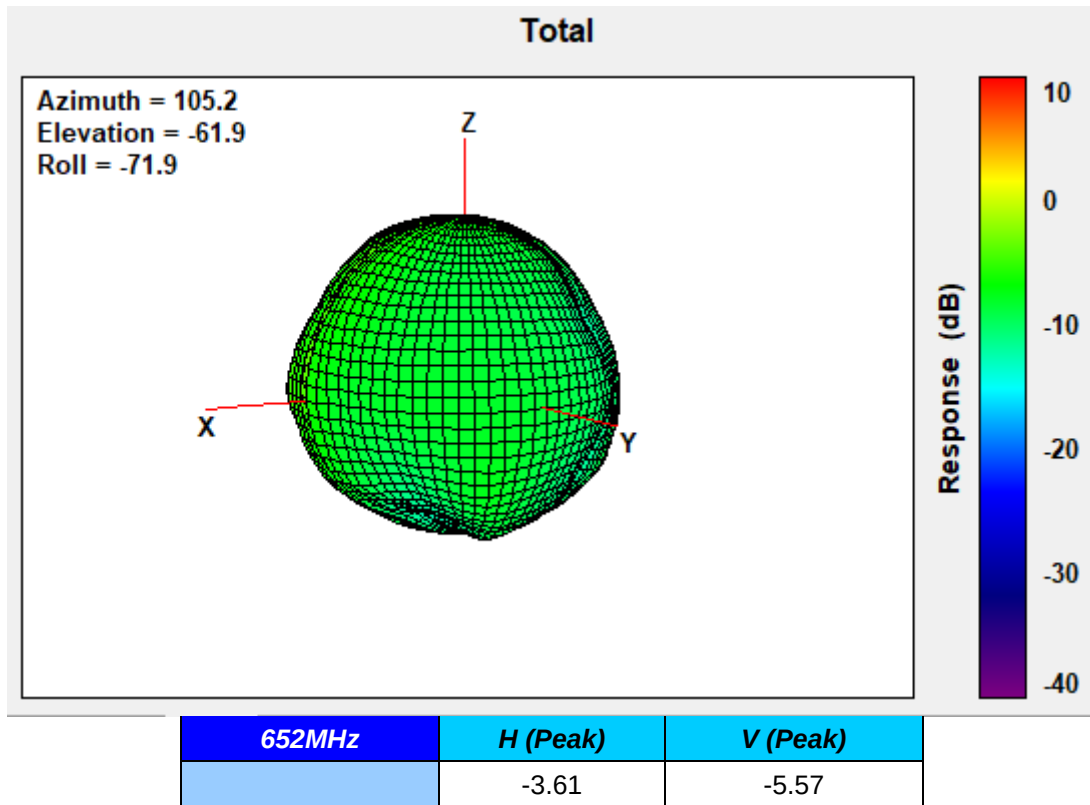
08RVPD (Tx1/Rx1), 08RVPD (Rx2), 0C75WW(Rx3) , 0C75WW (Tx2/Rx4)



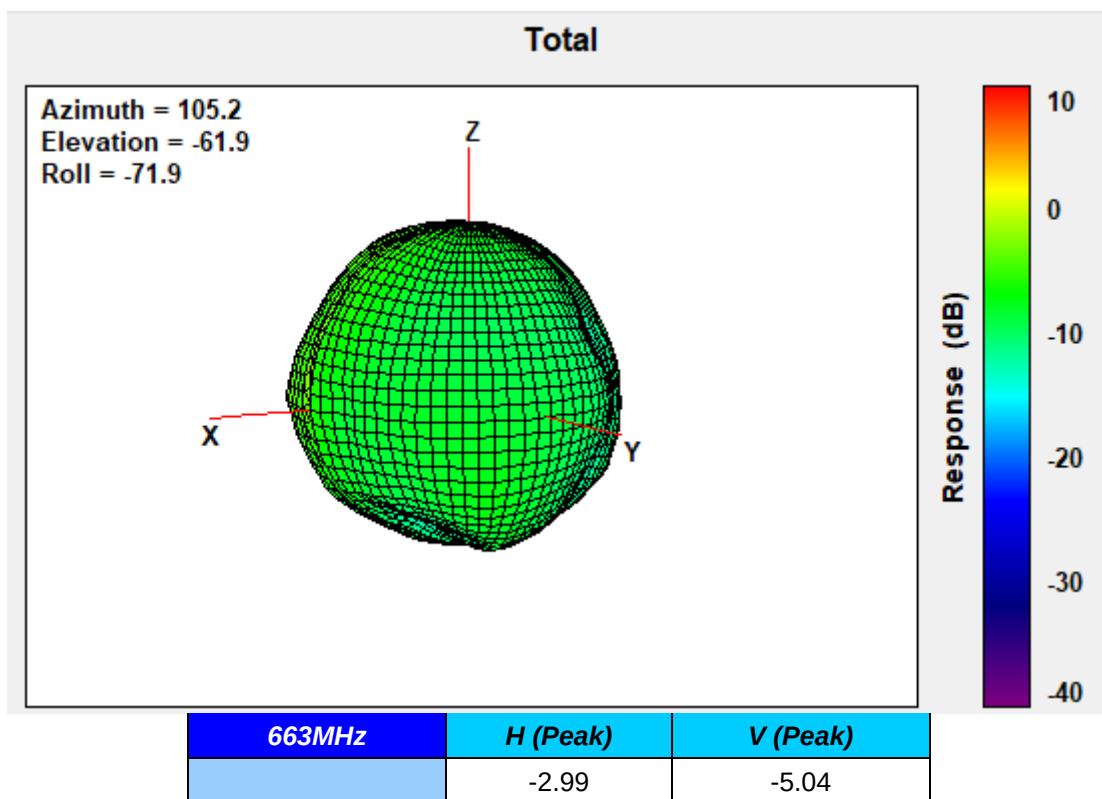
Section 3. Radiation characteristics of antennae Loaded in Host Platform
WWAN Main Antenna (Tx1/Rx1)



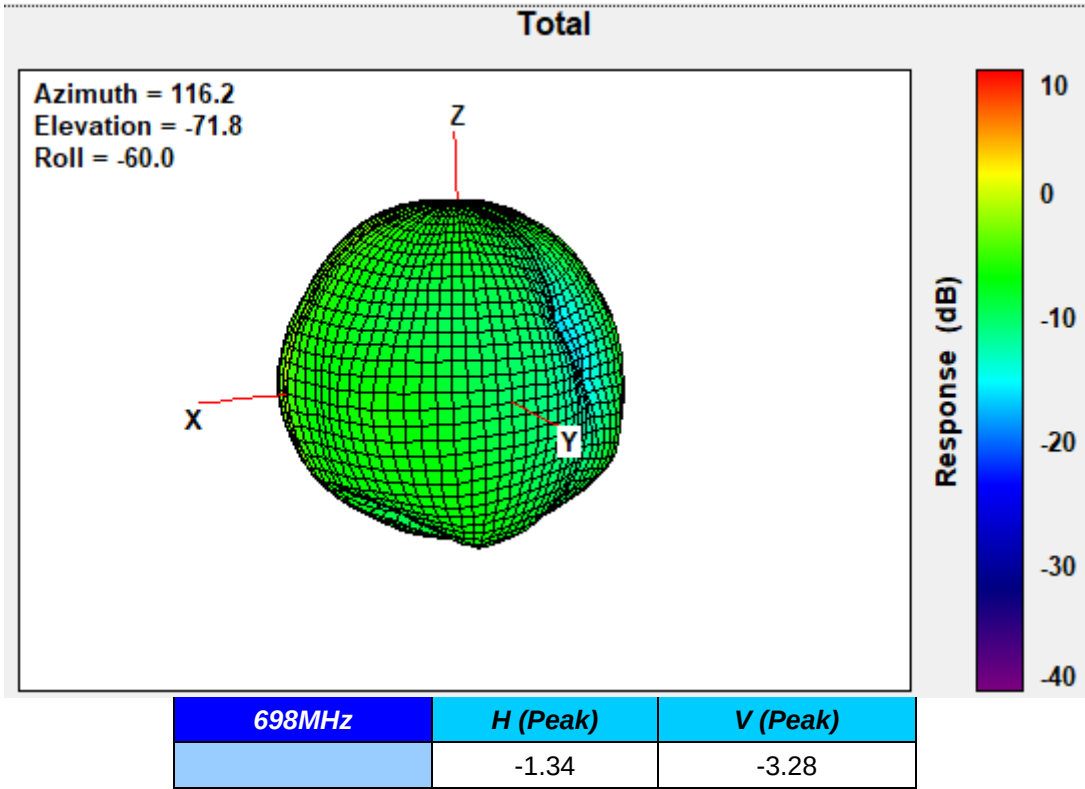
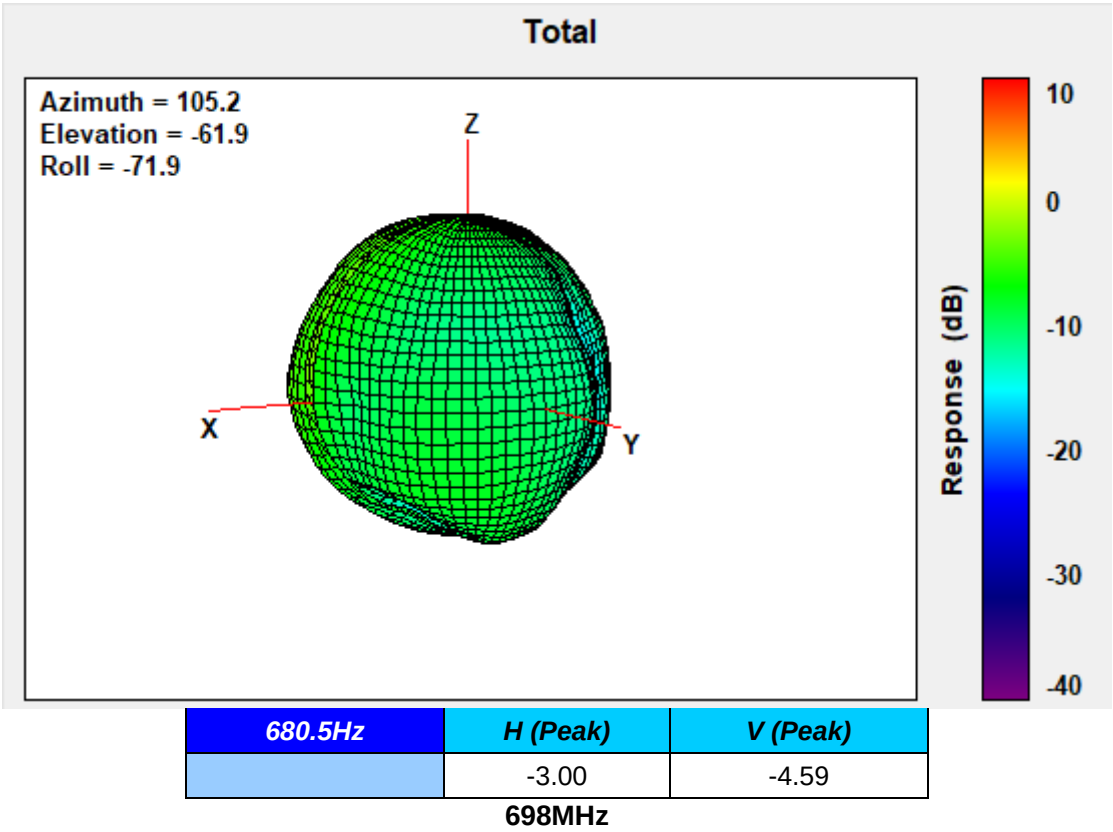
652MHz



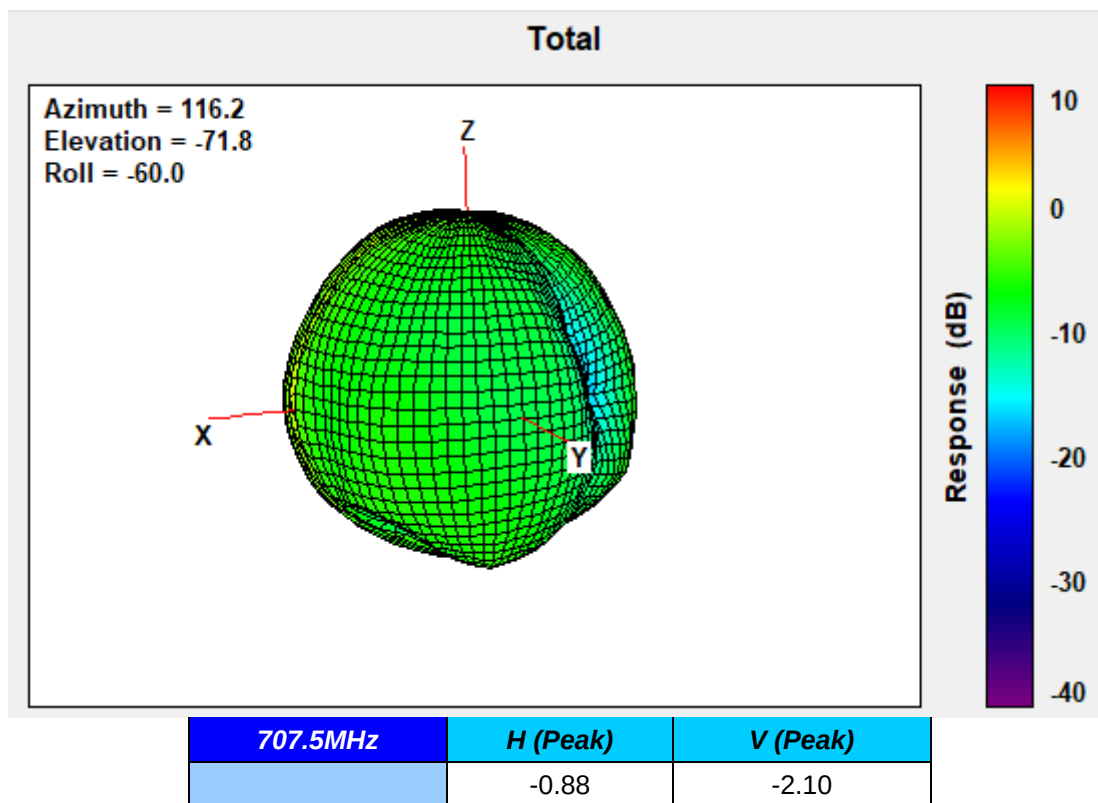
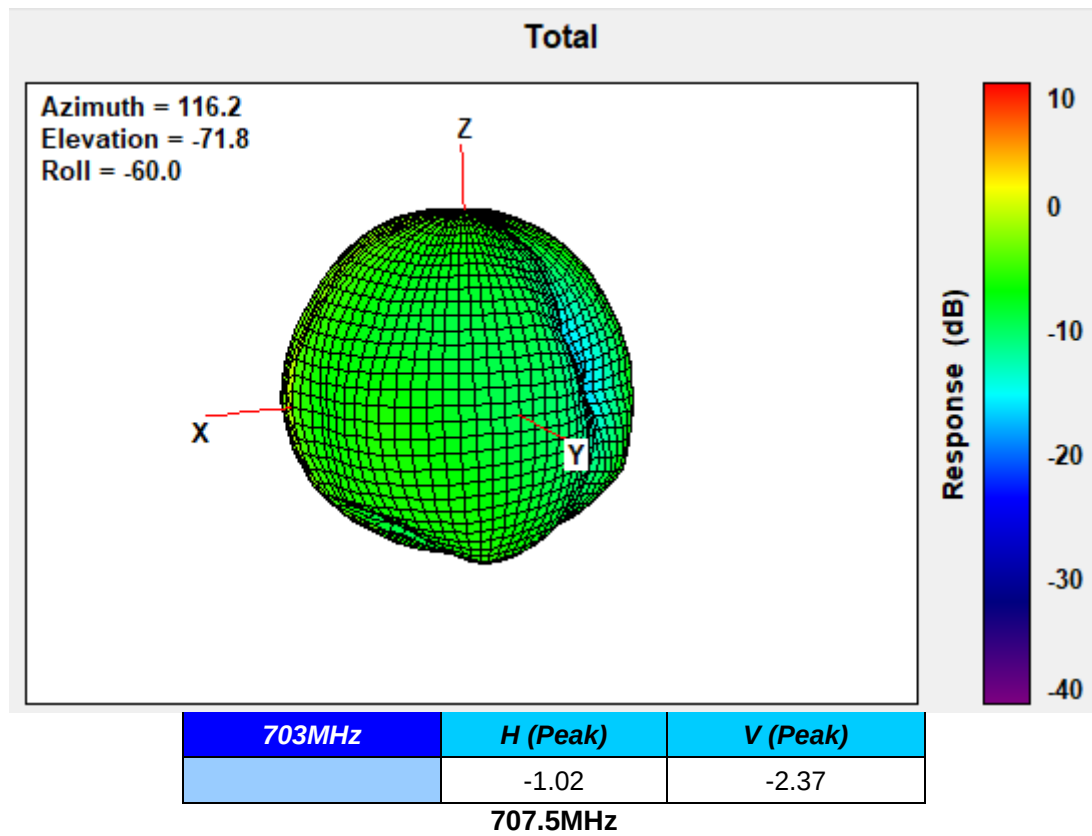
663MHz



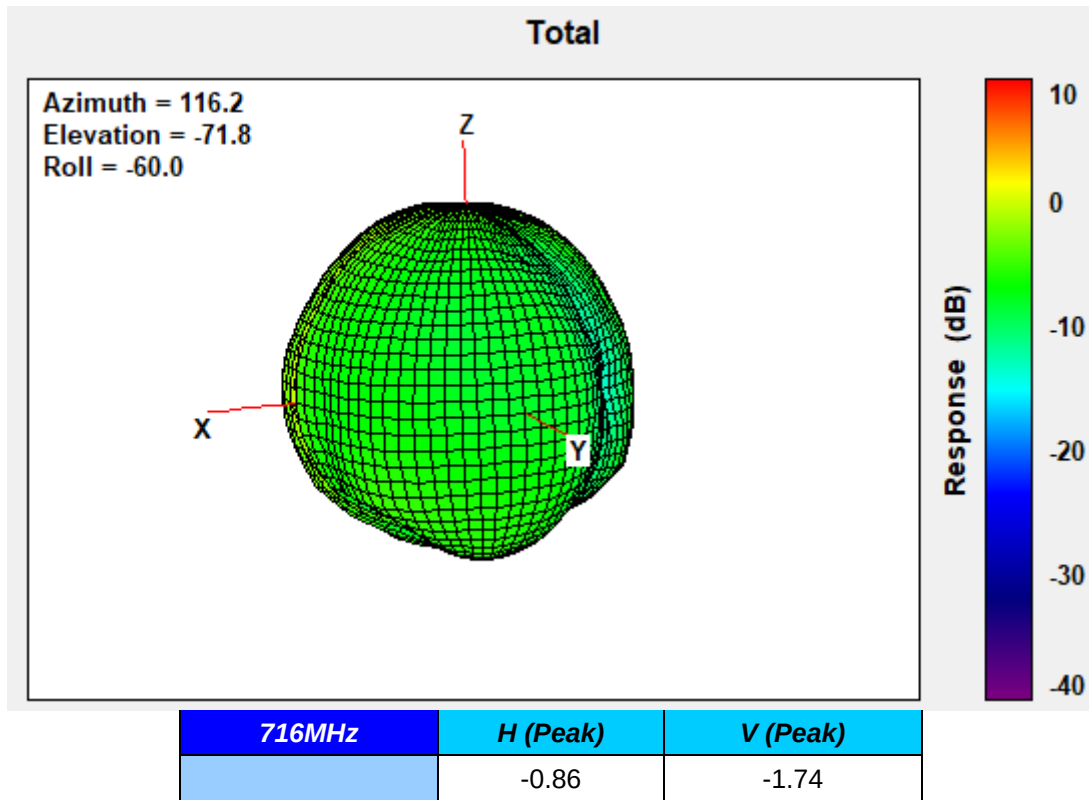
680.5MHz



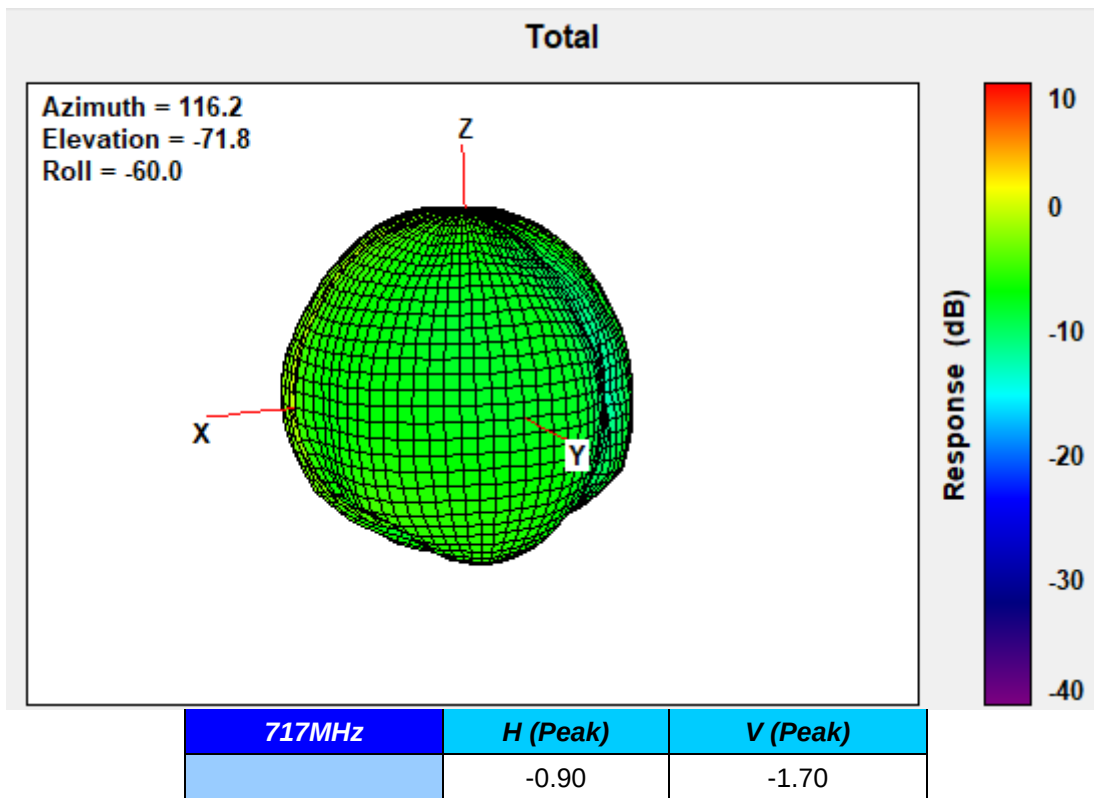
703MHz



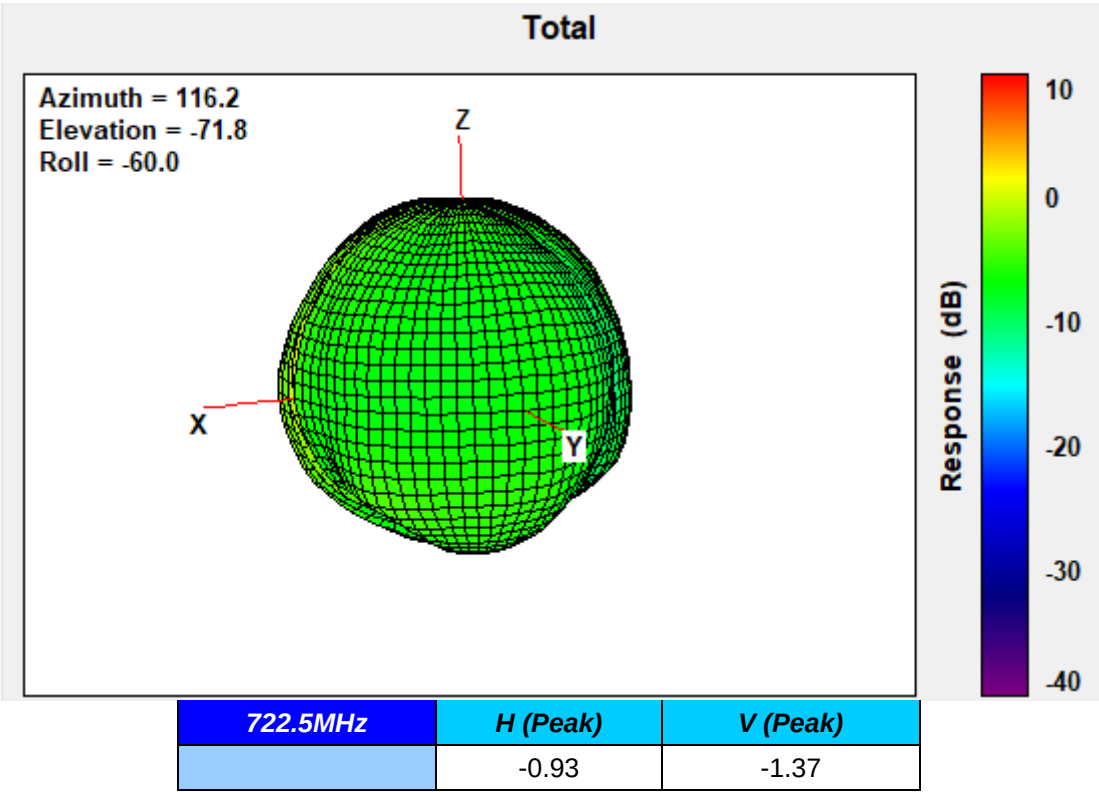
716MHz



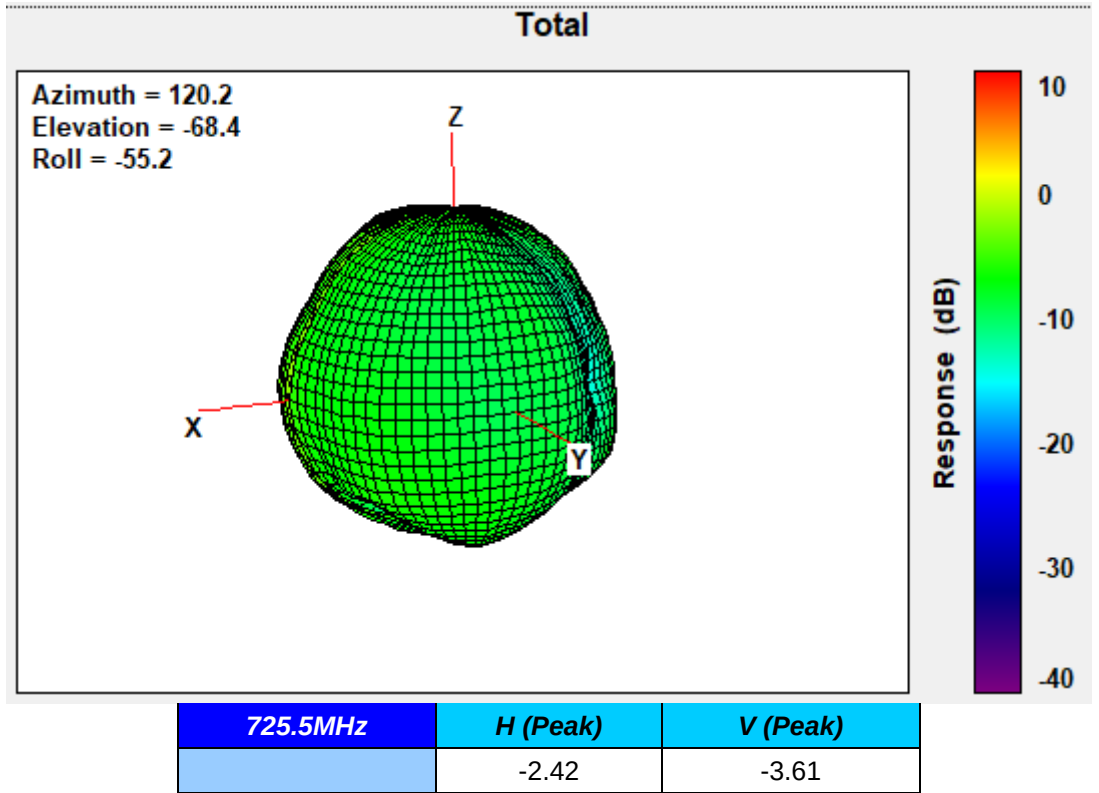
717MHz



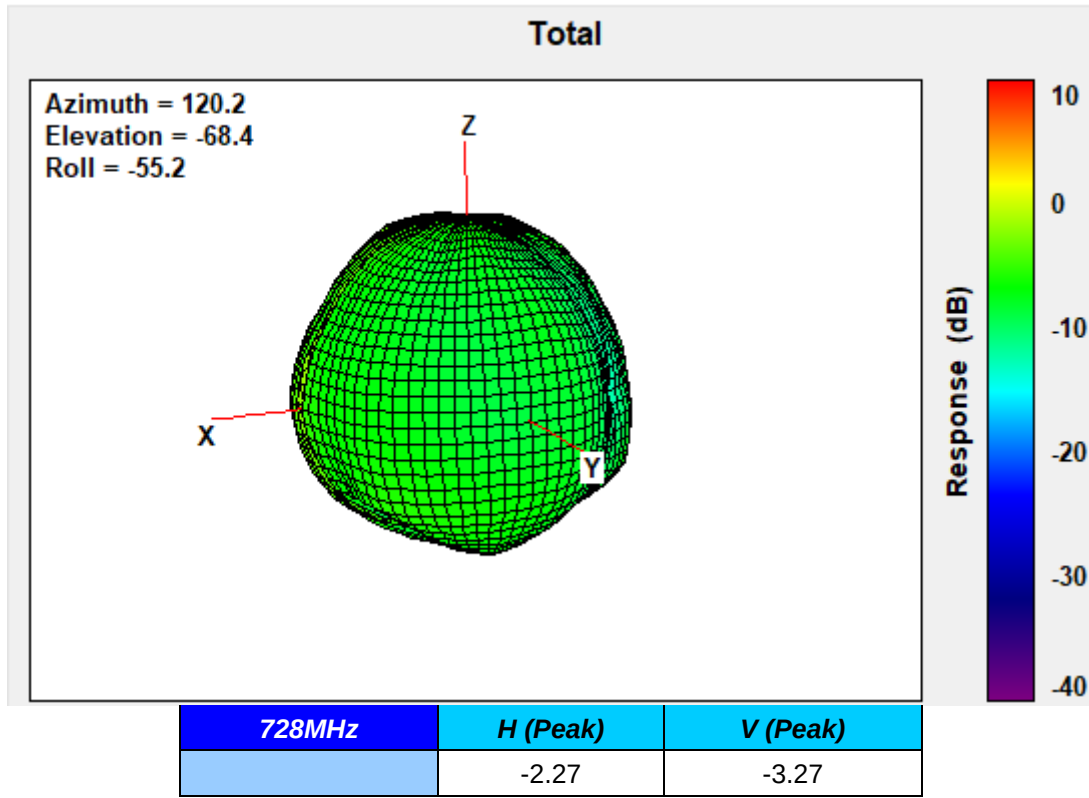
722.5MHz



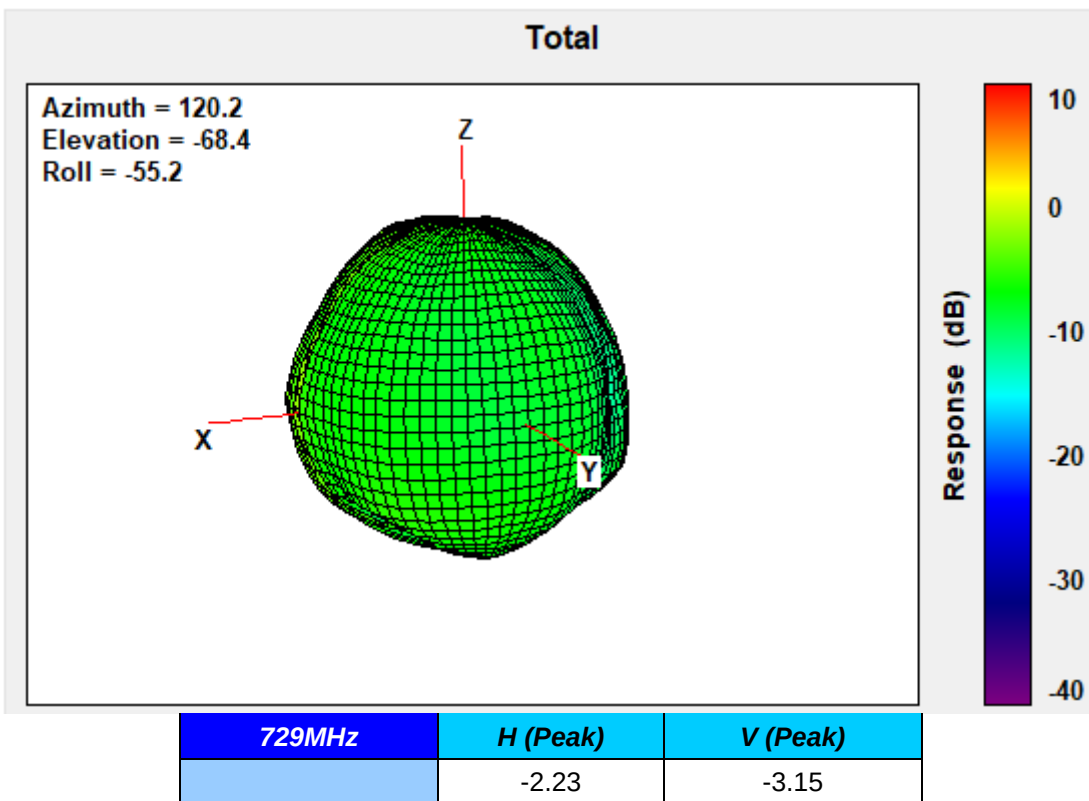
725.5MHz



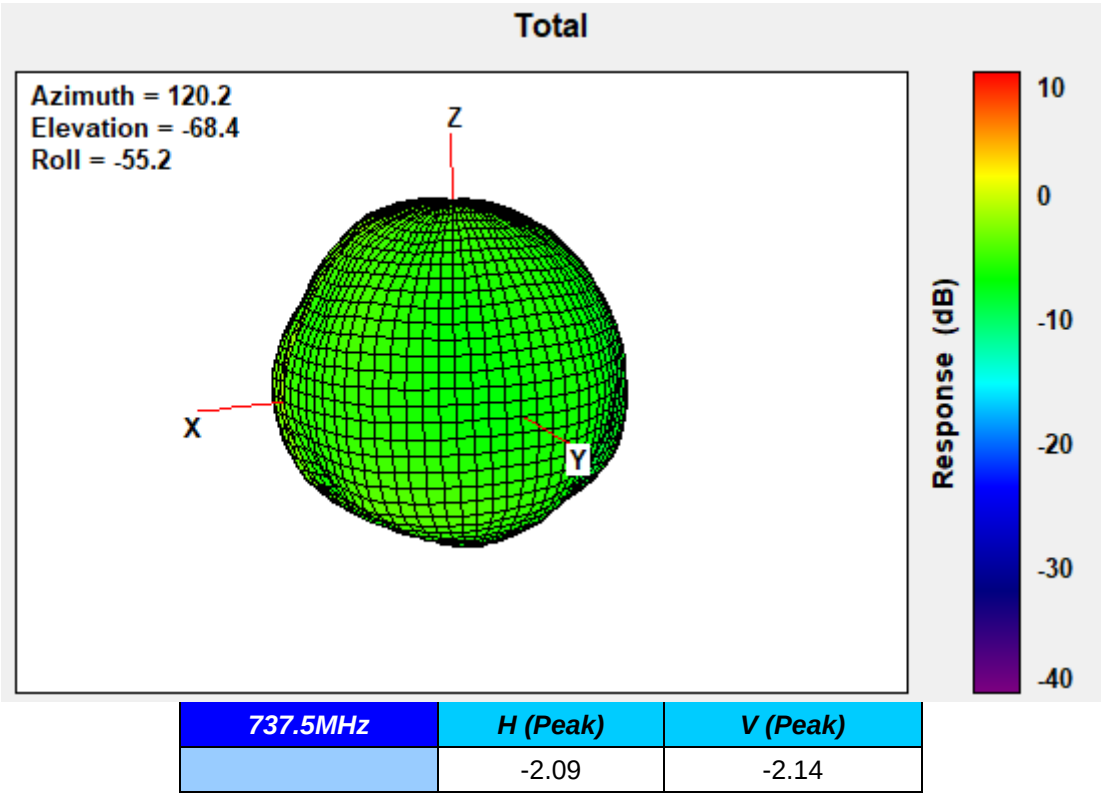
728MHz



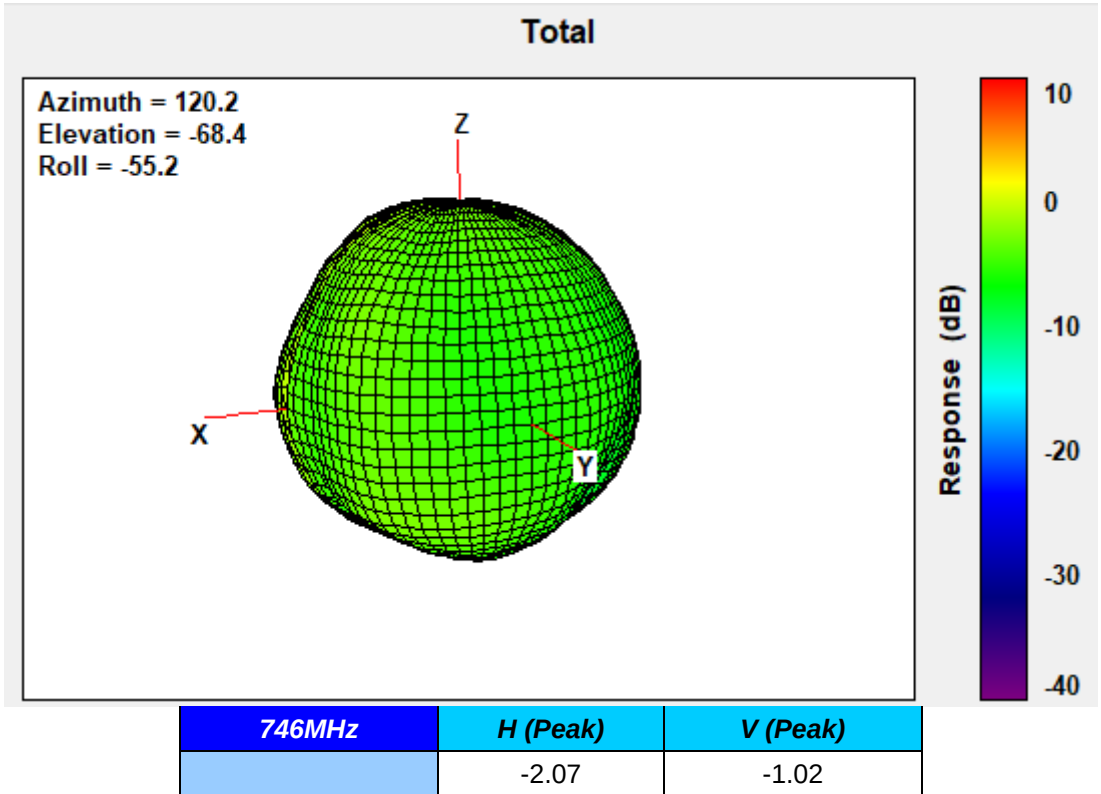
729MHz



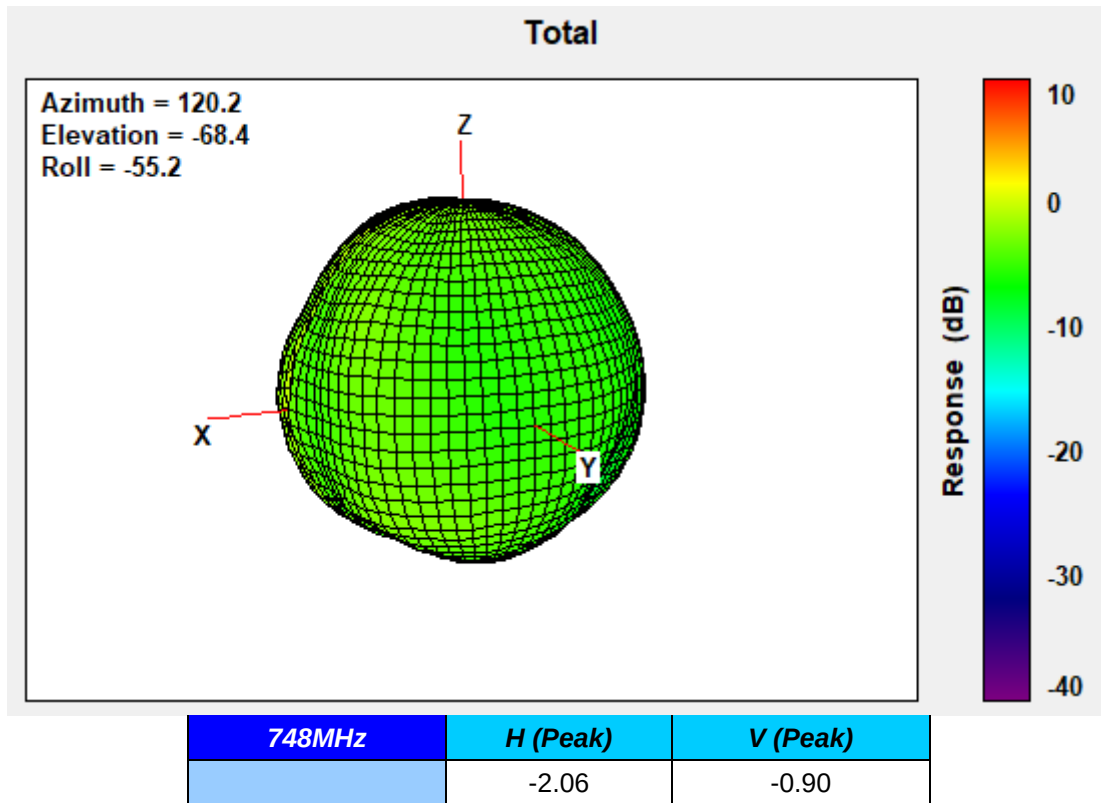
737.5MHz



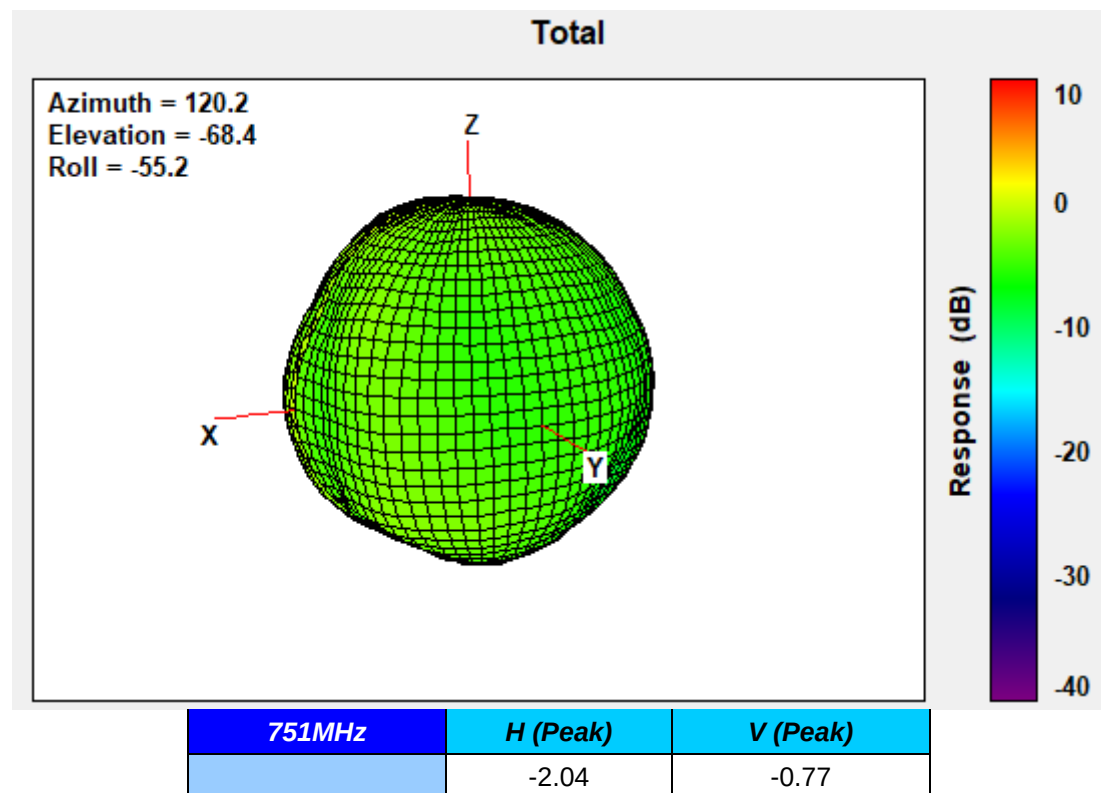
746MHz



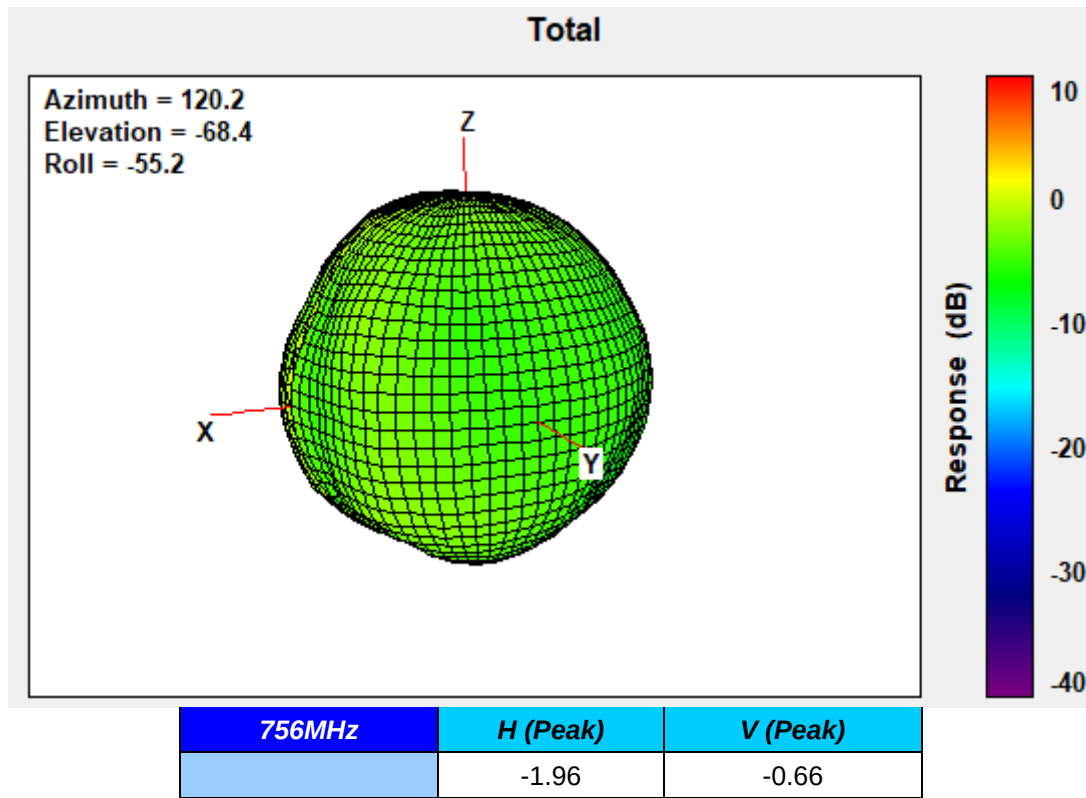
748MHz



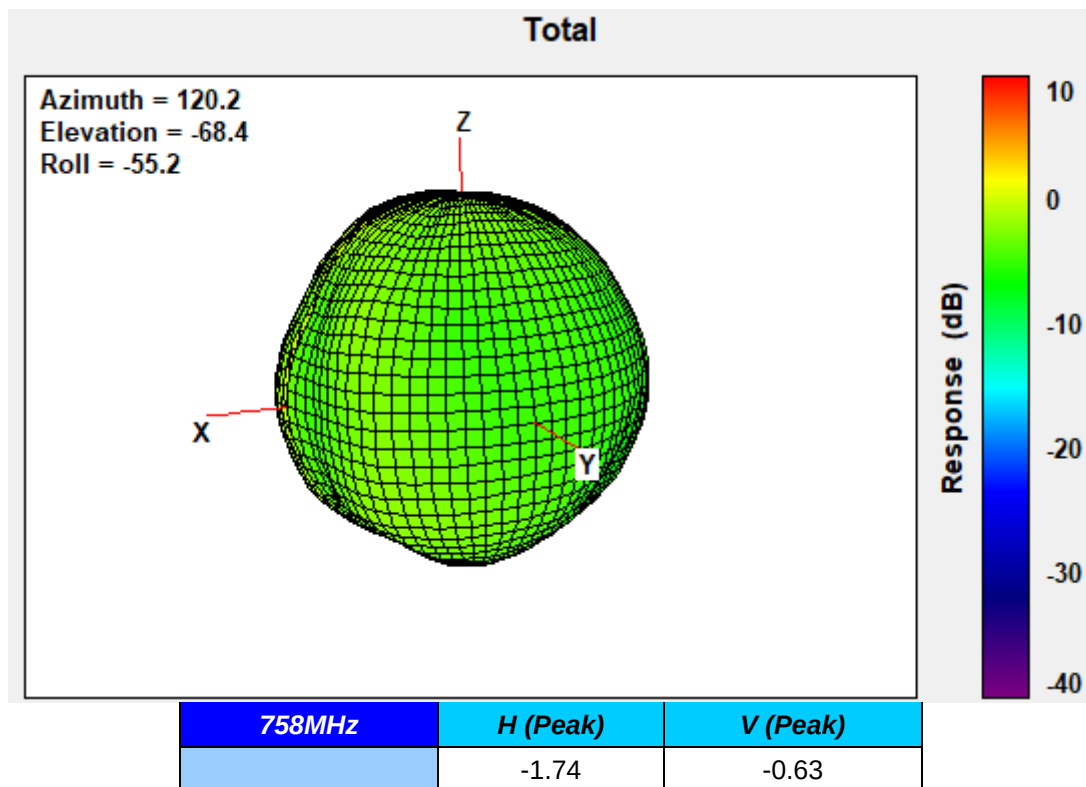
751MHz



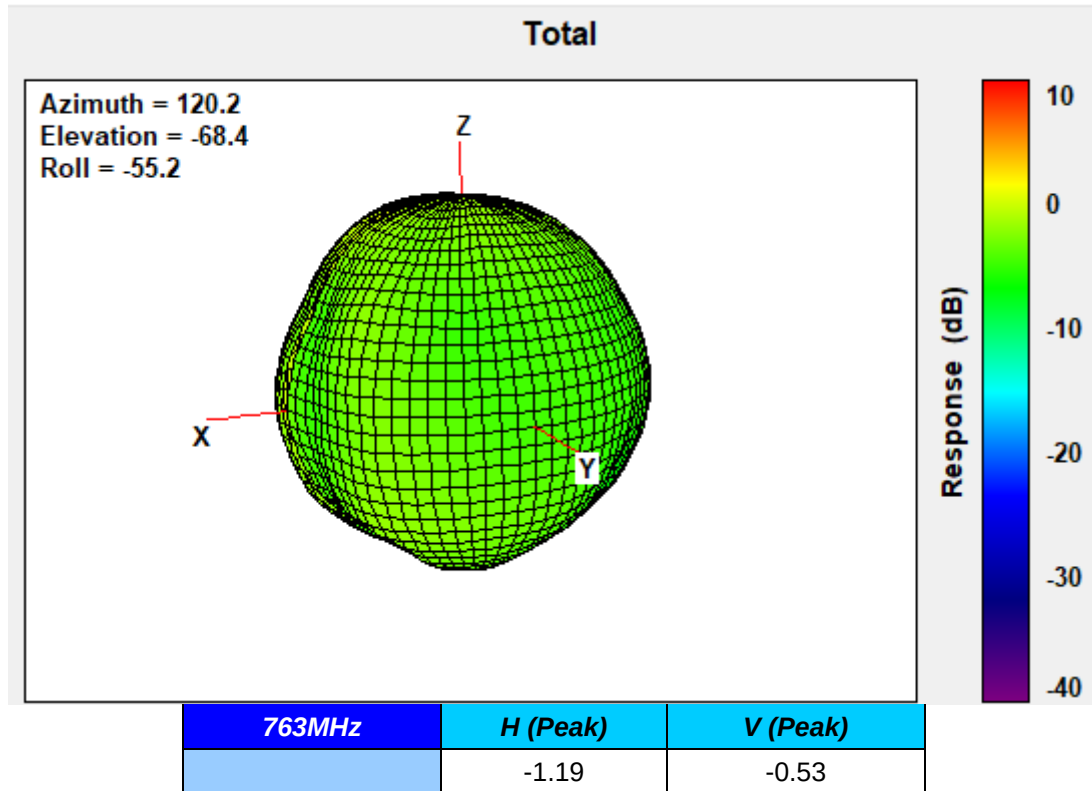
756MHz



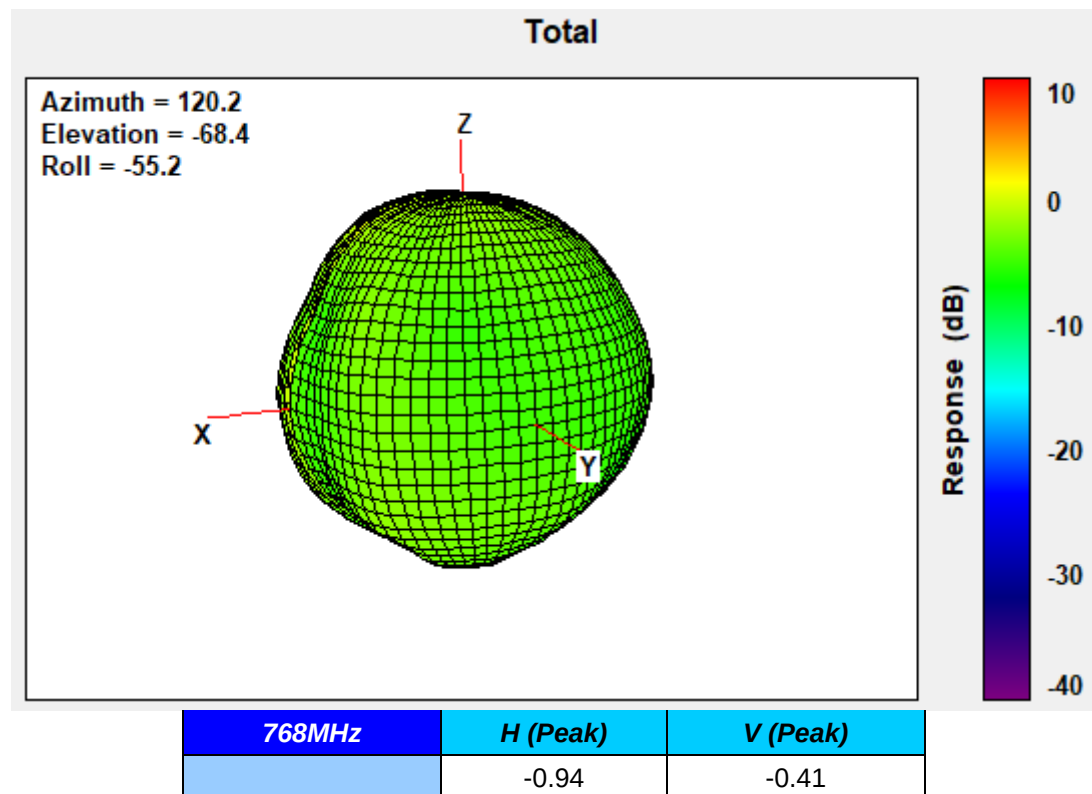
758MHz



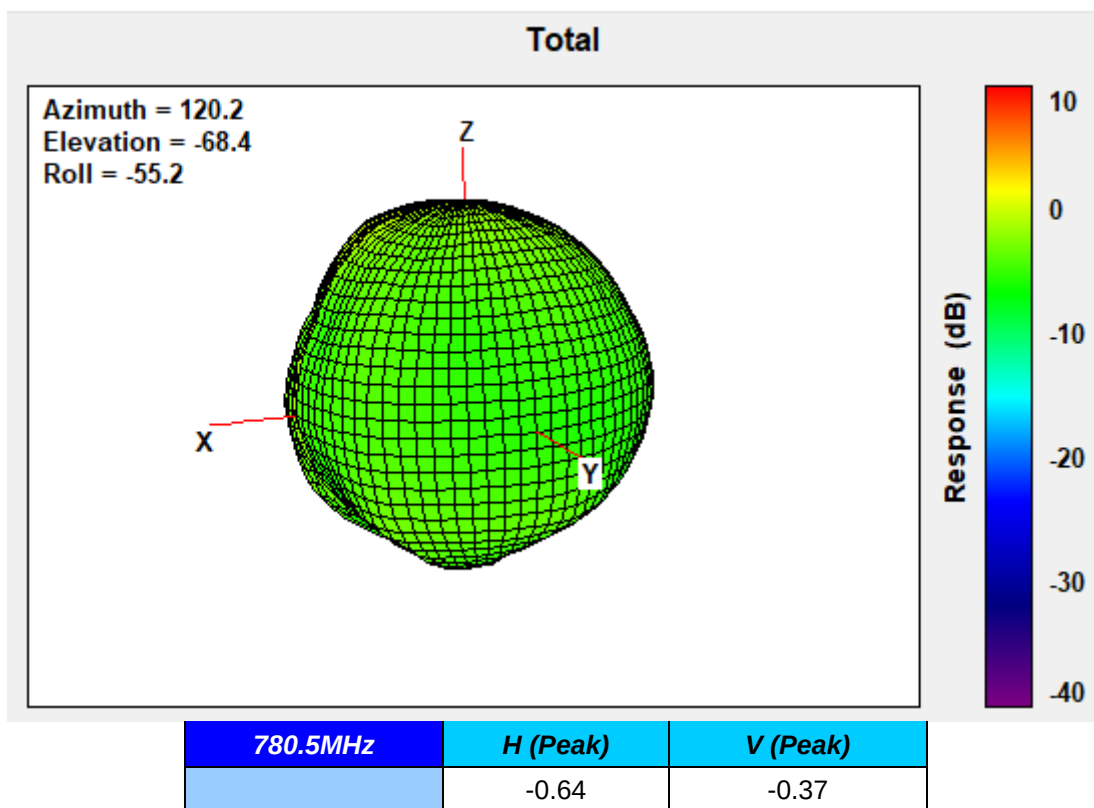
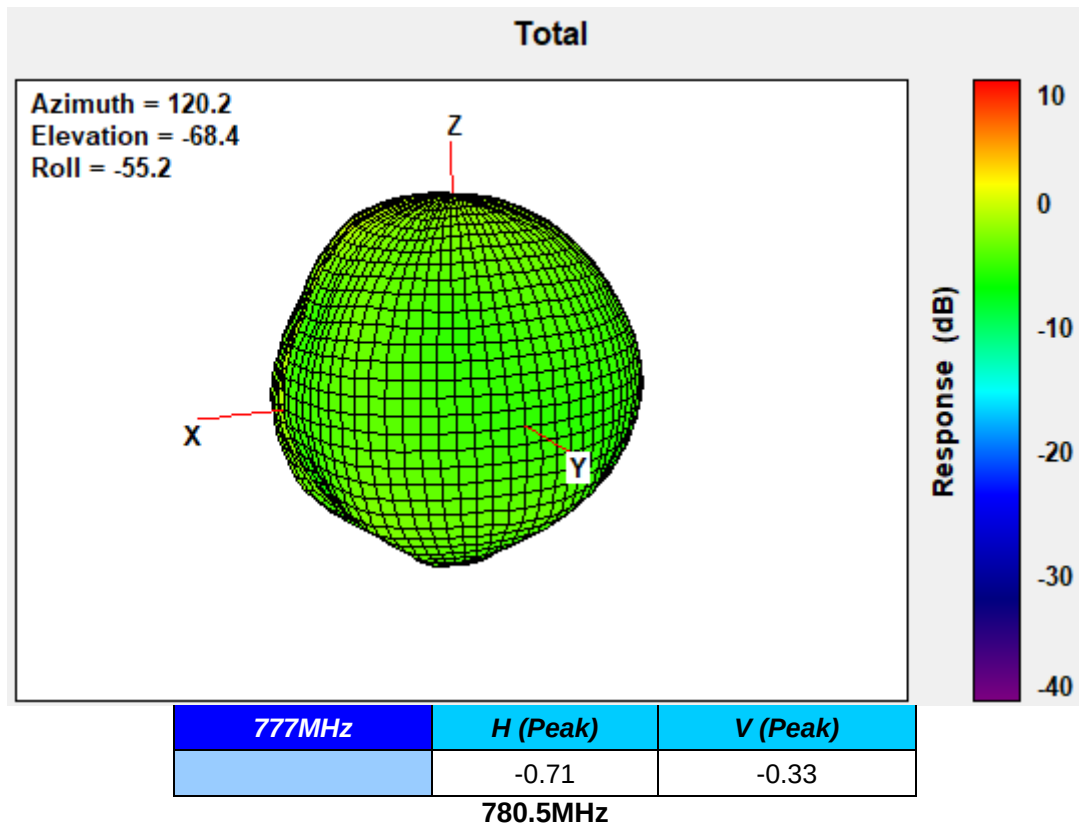
763MHz



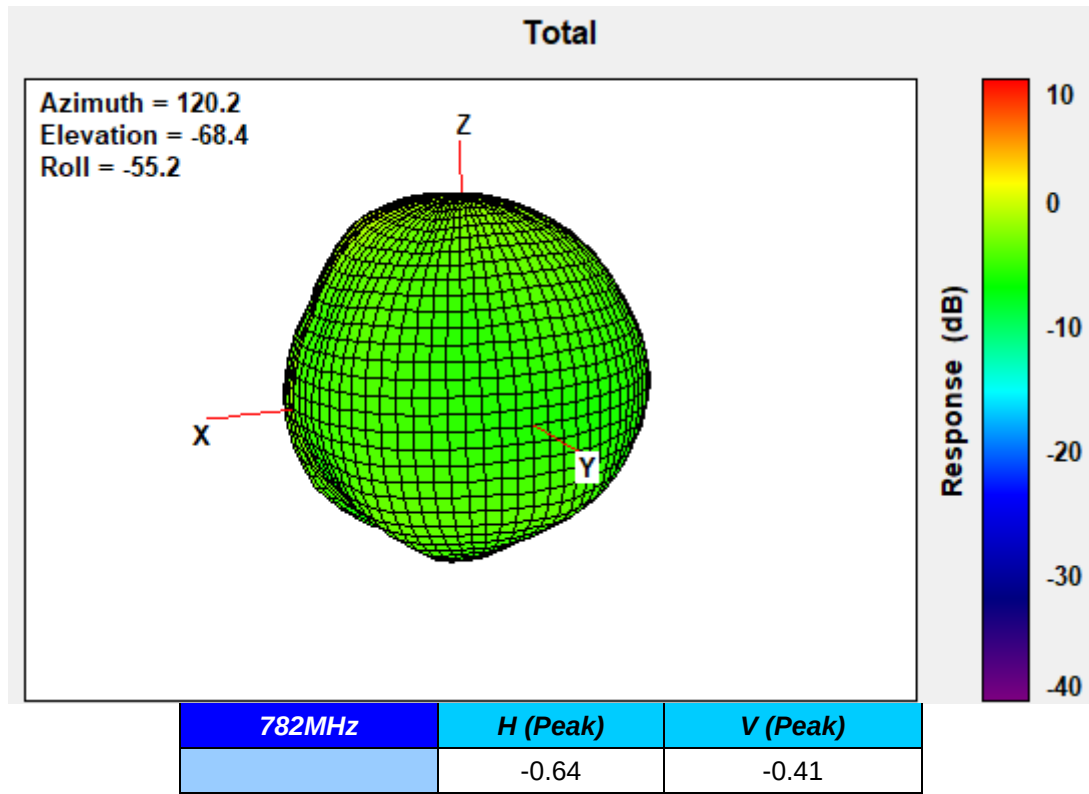
768MHz



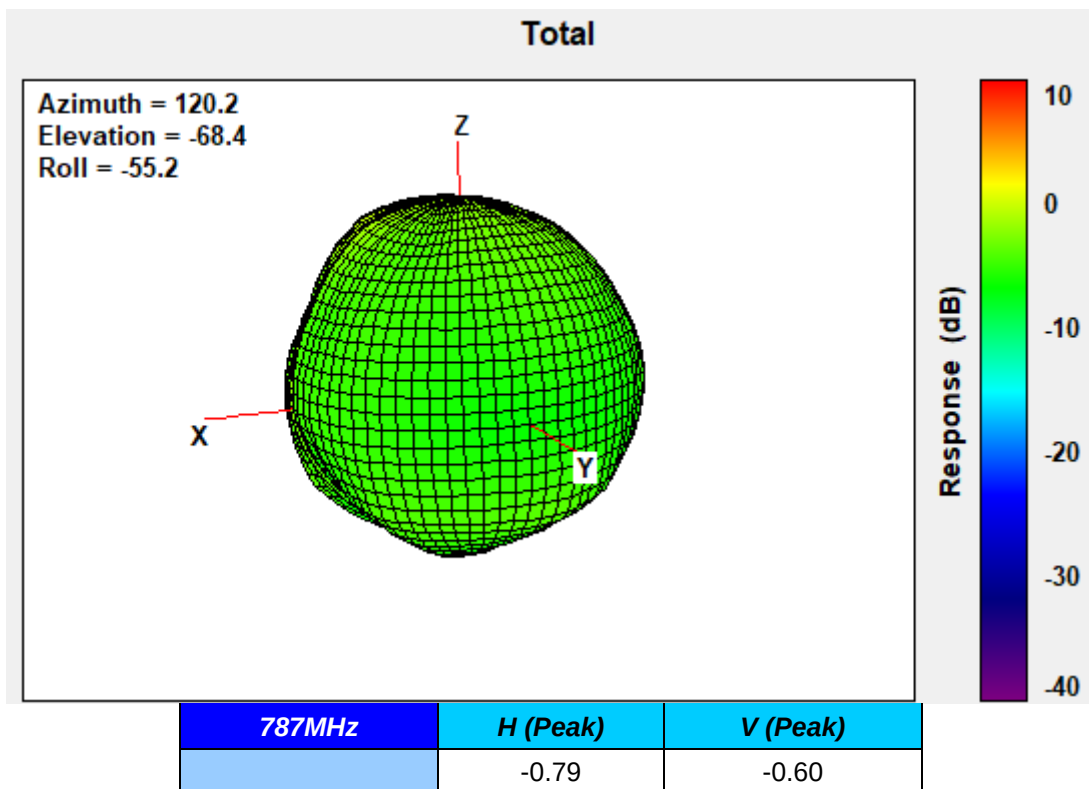
777MHz



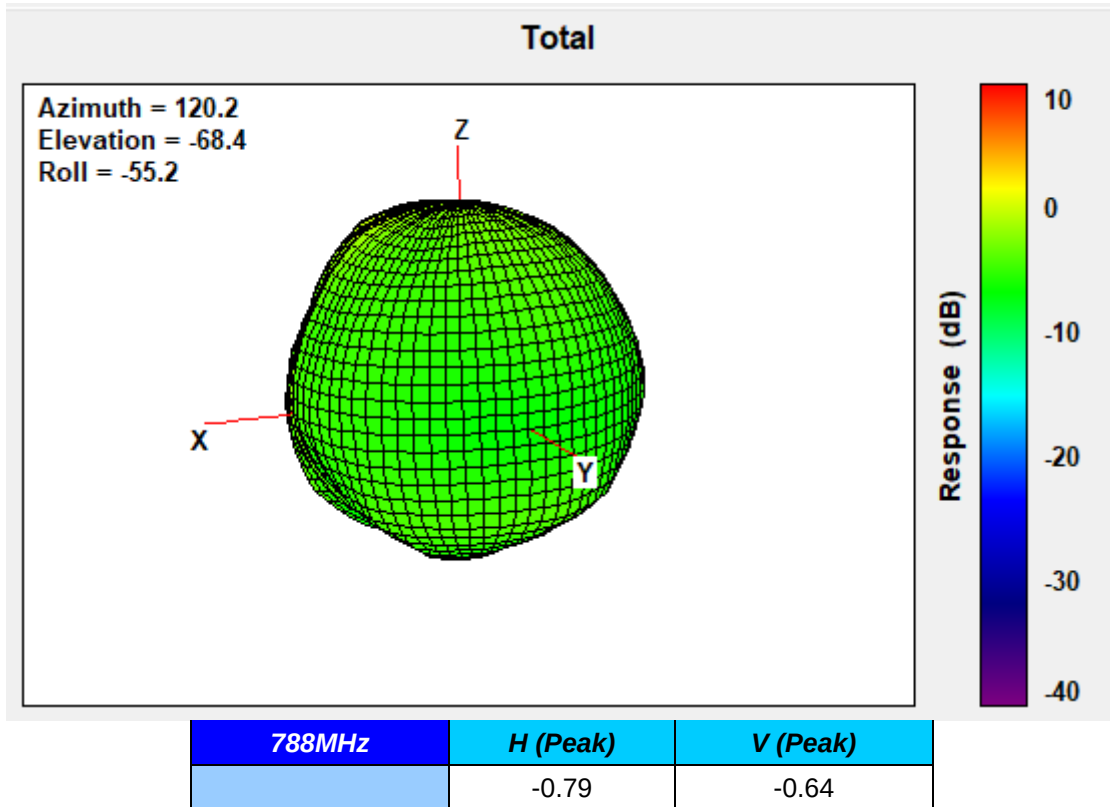
782MHz



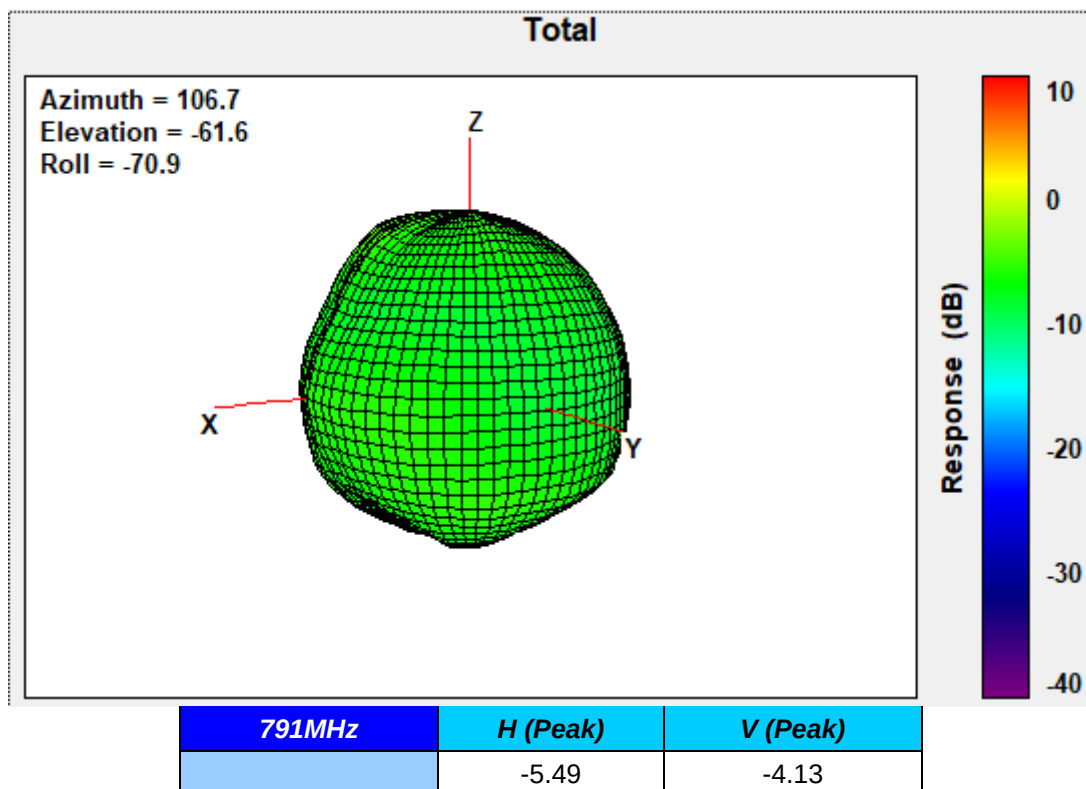
787MHz



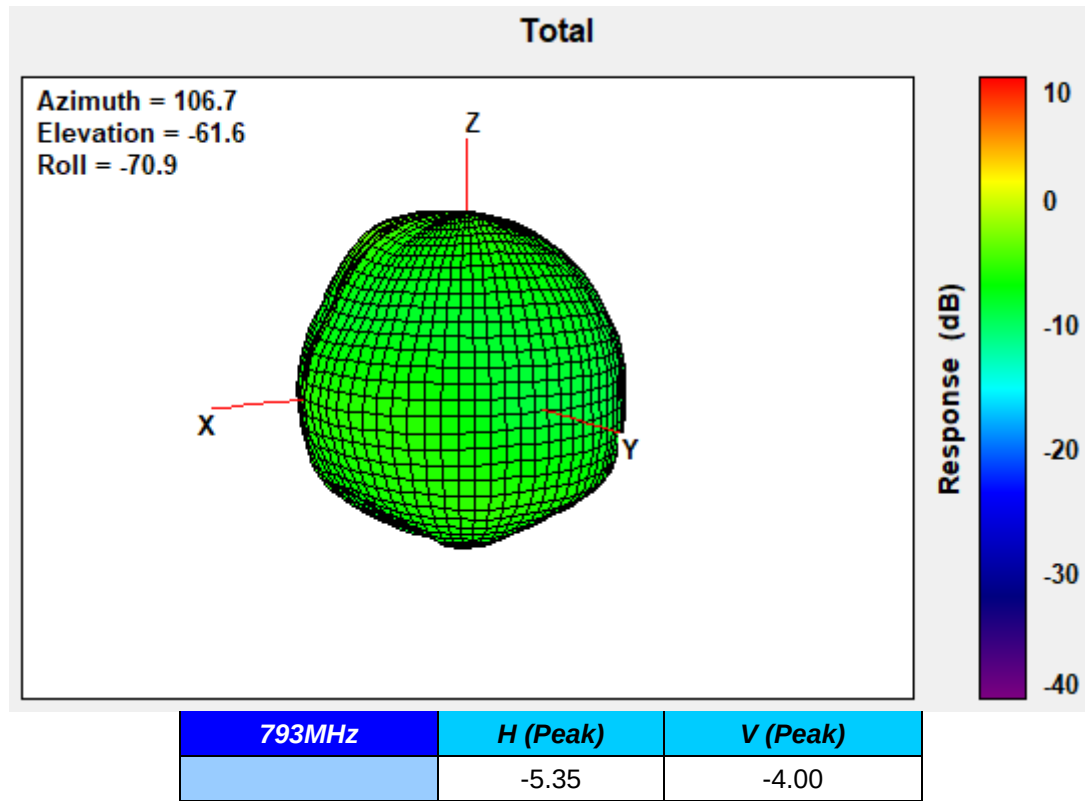
788MHz



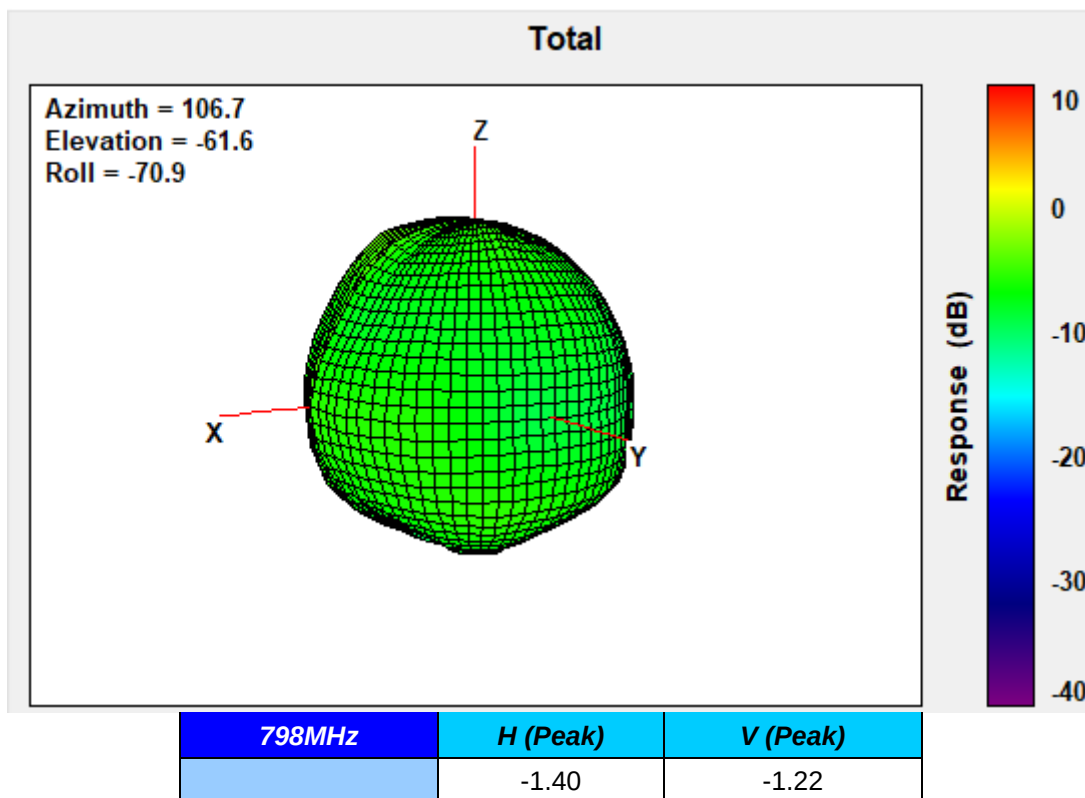
791MHz

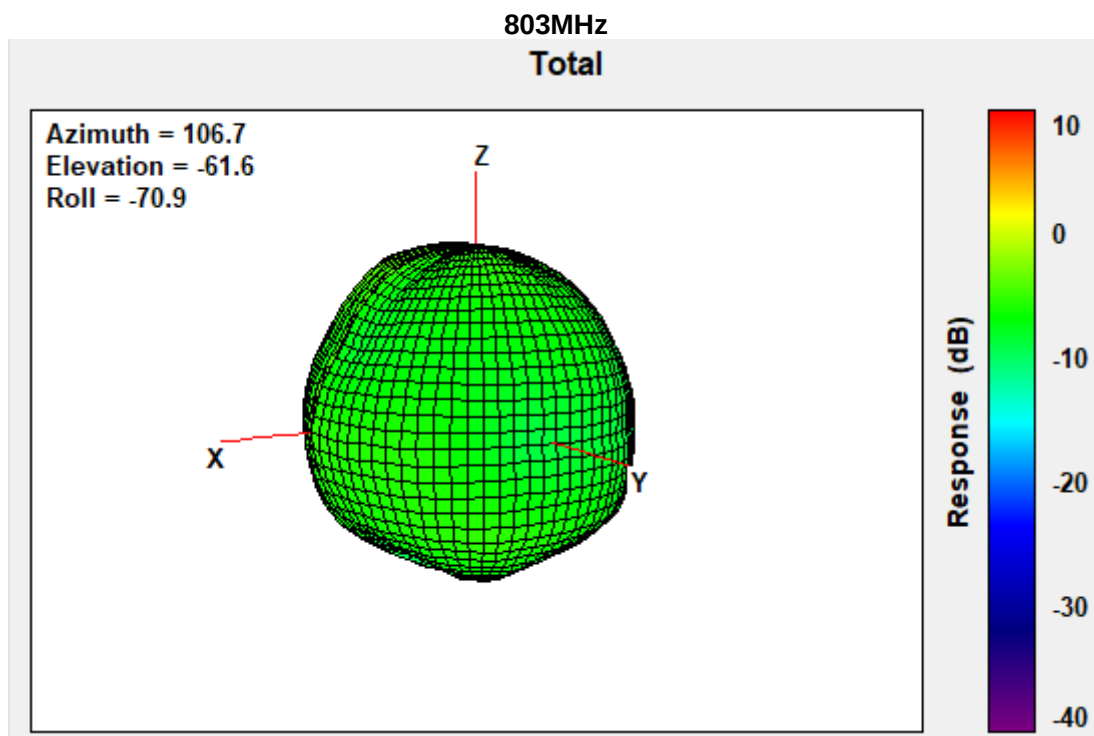


793MHz



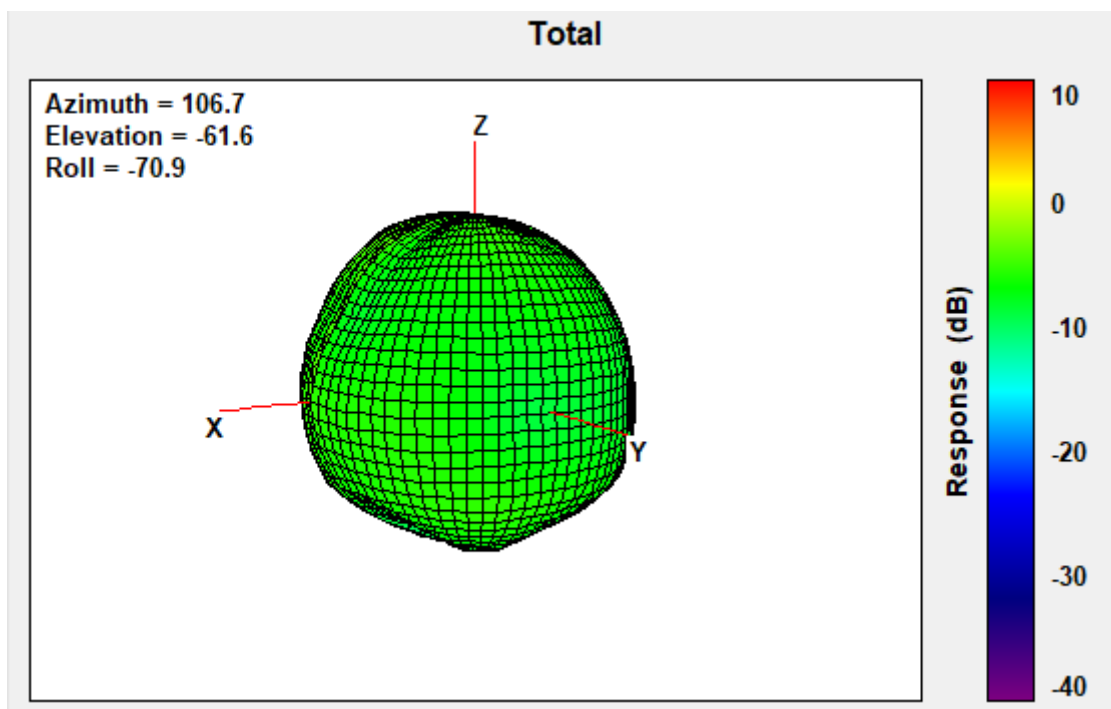
798MHz





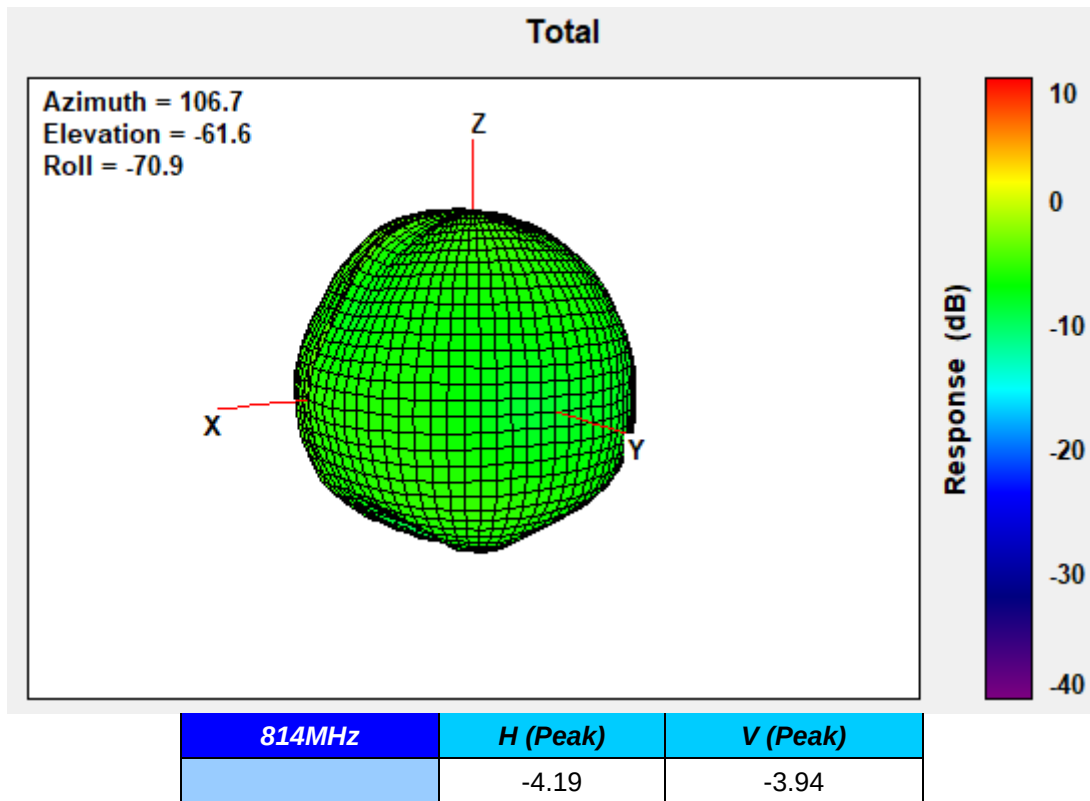
803MHz	H (Peak)	V (Peak)
	-1.58	-1.74

806MHz

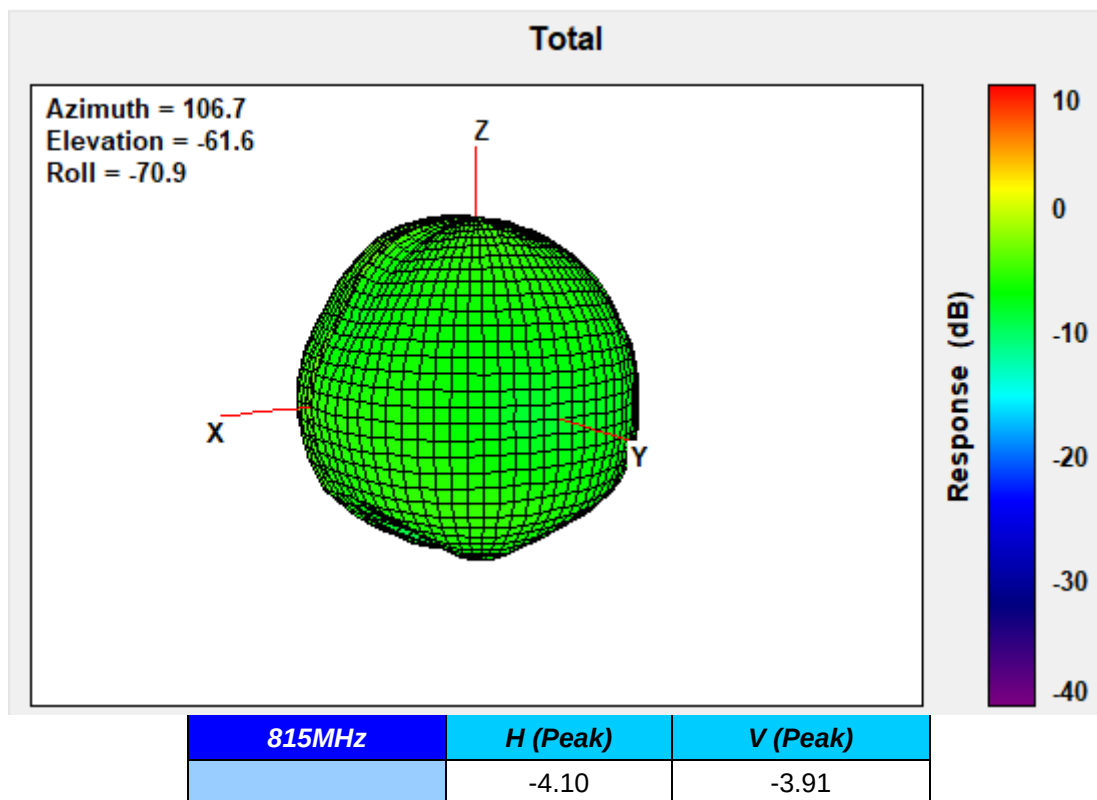


806MHz	H (Peak)	V (Peak)
	-1.84	-1.99

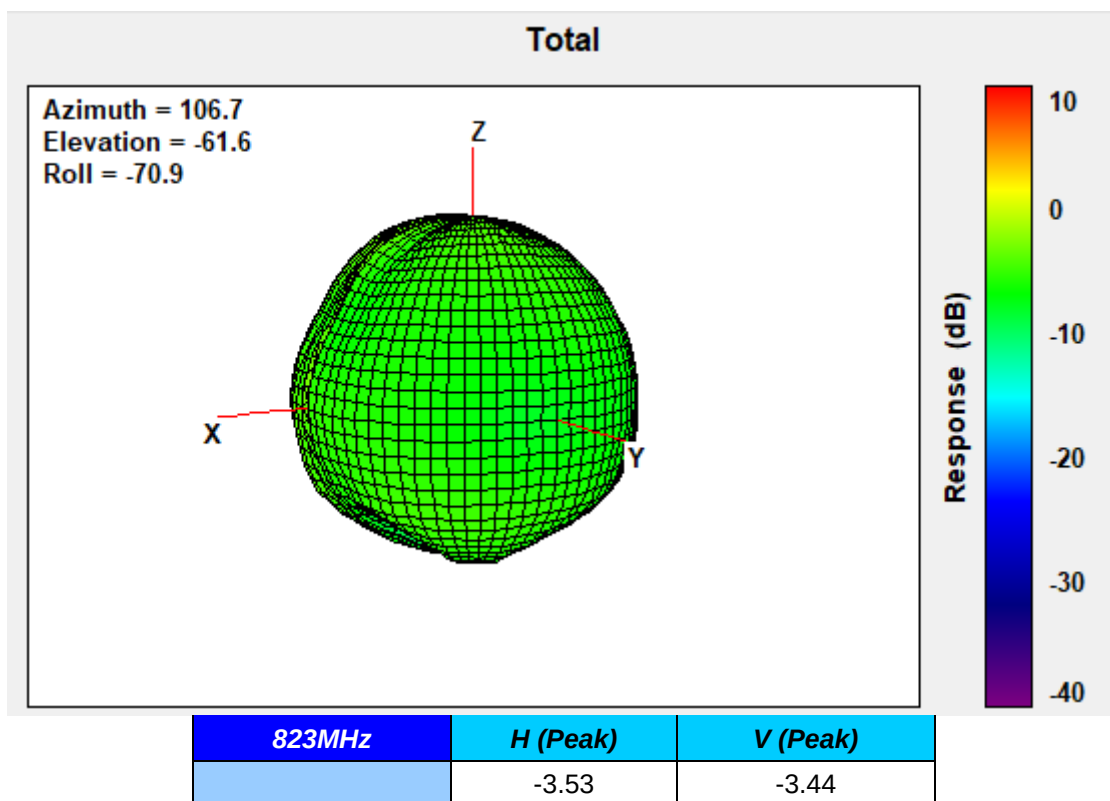
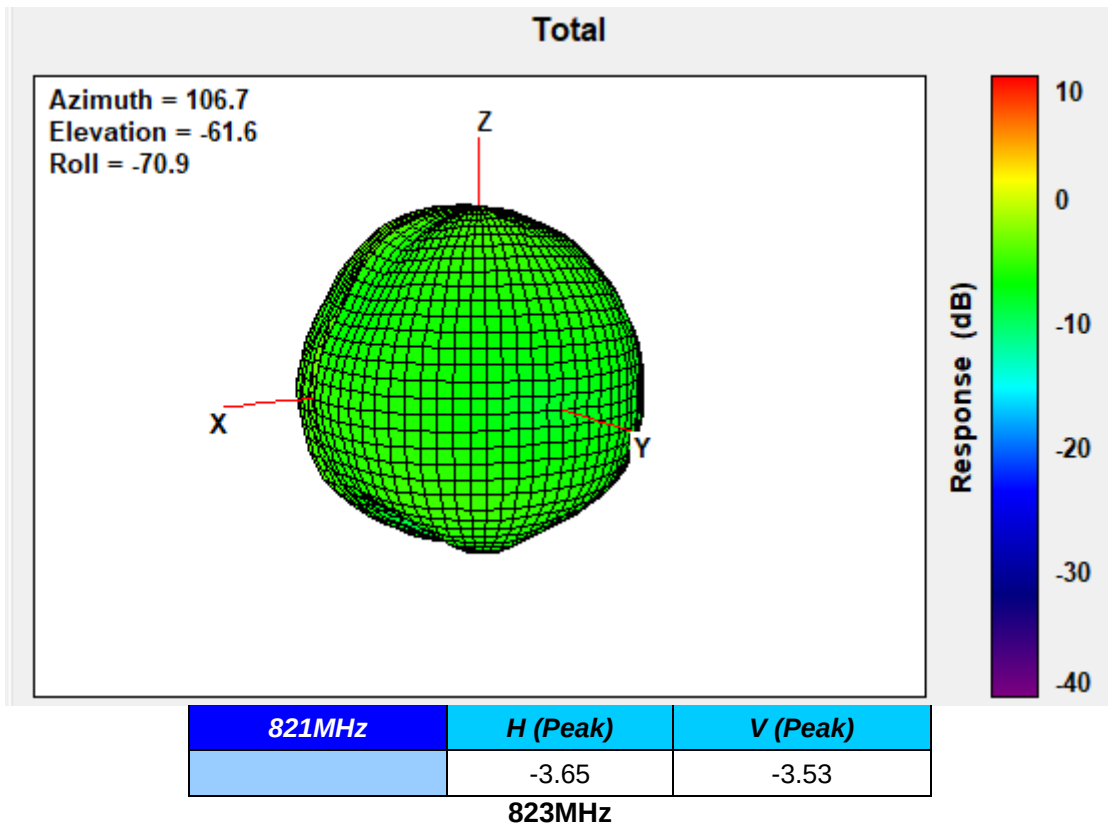
814MHz



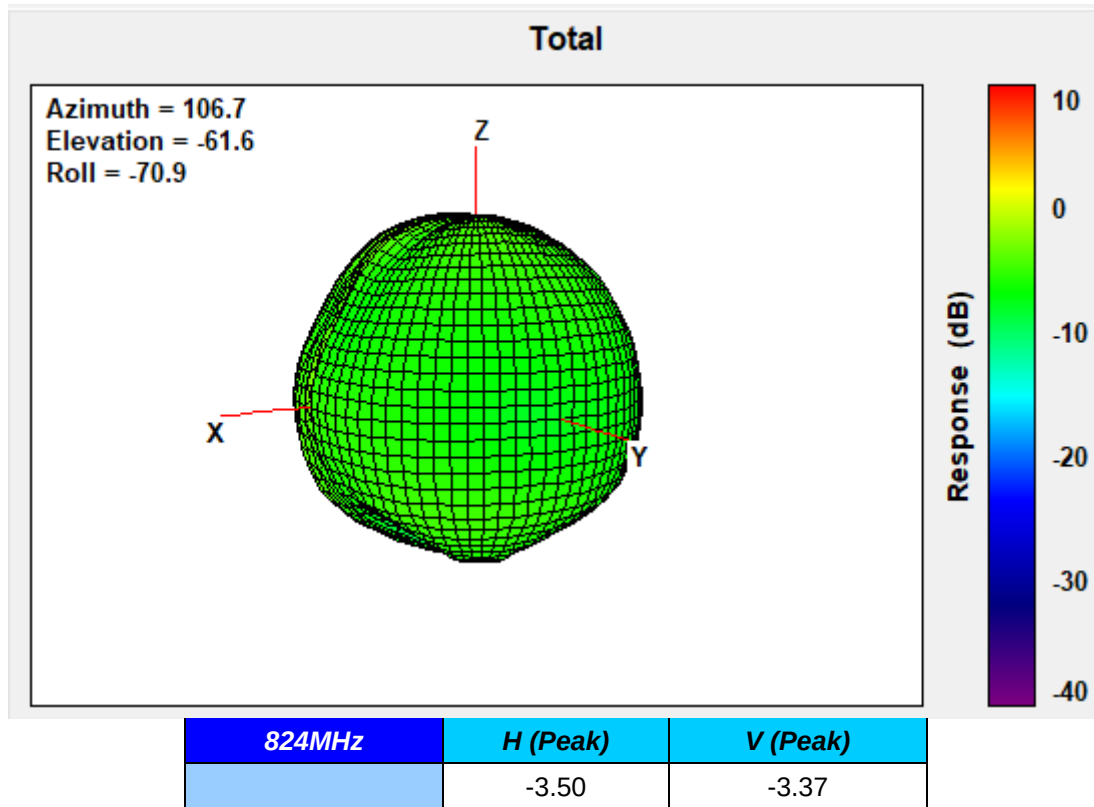
815MHz



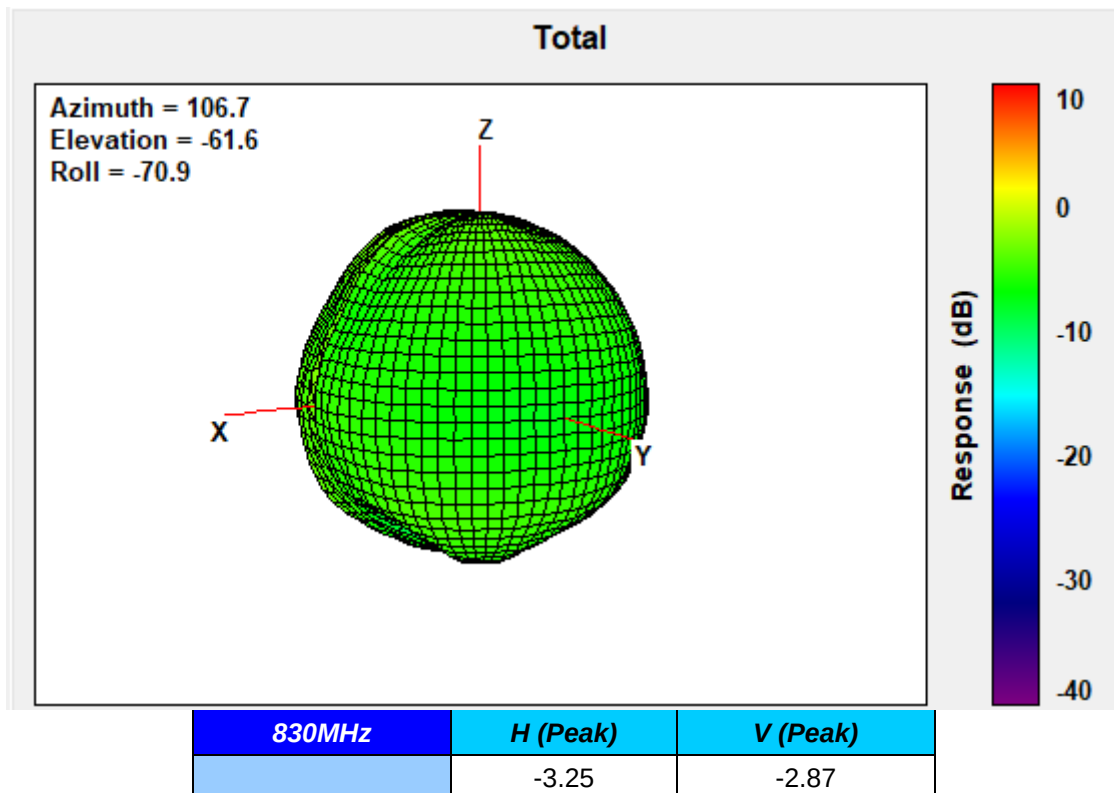
821MHz



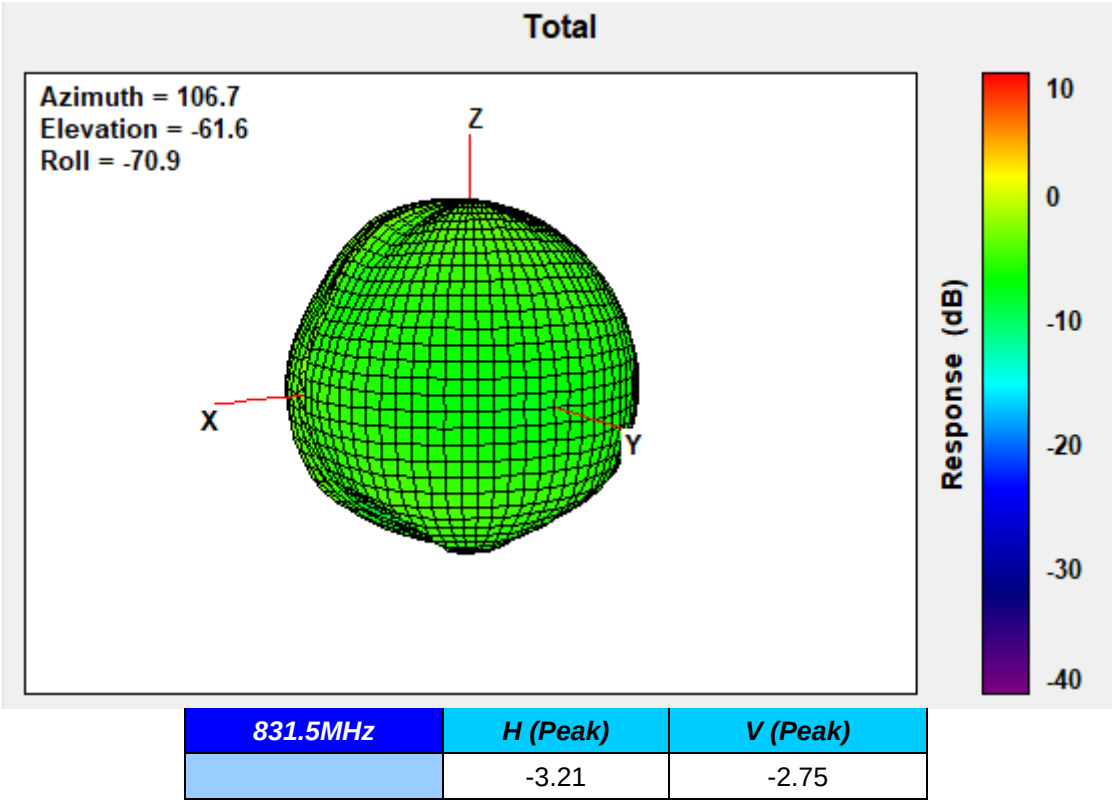
824MHz



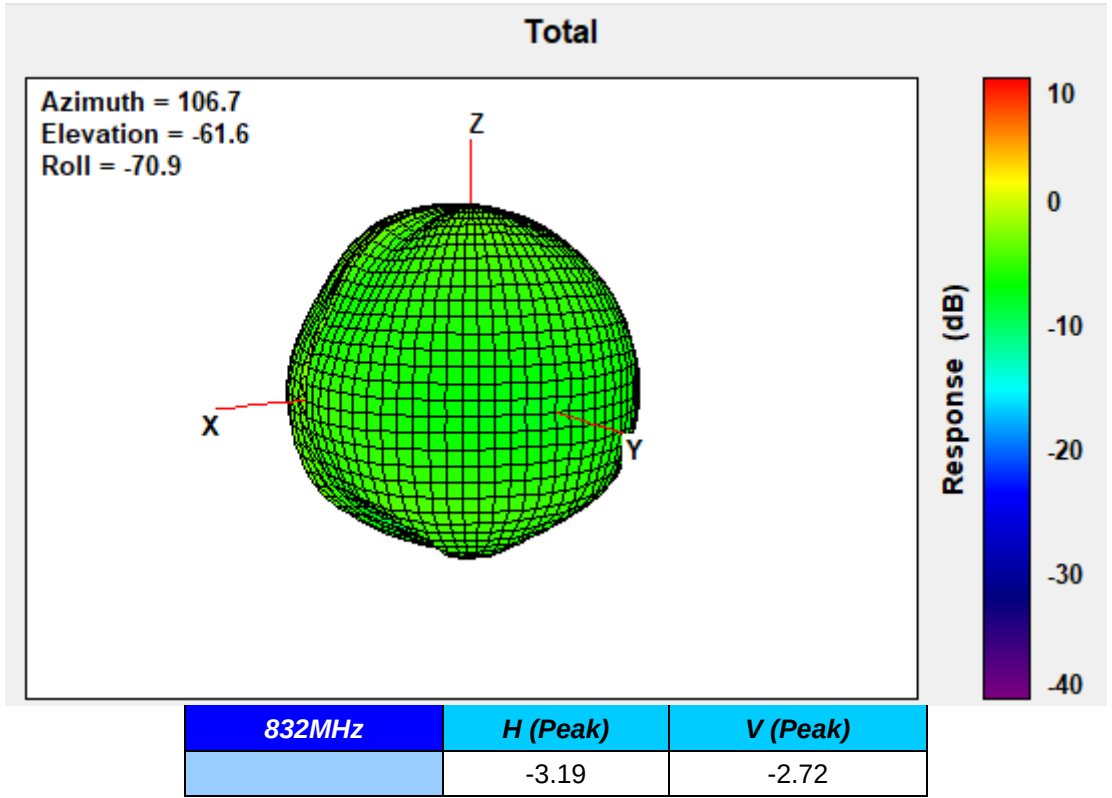
830MHz



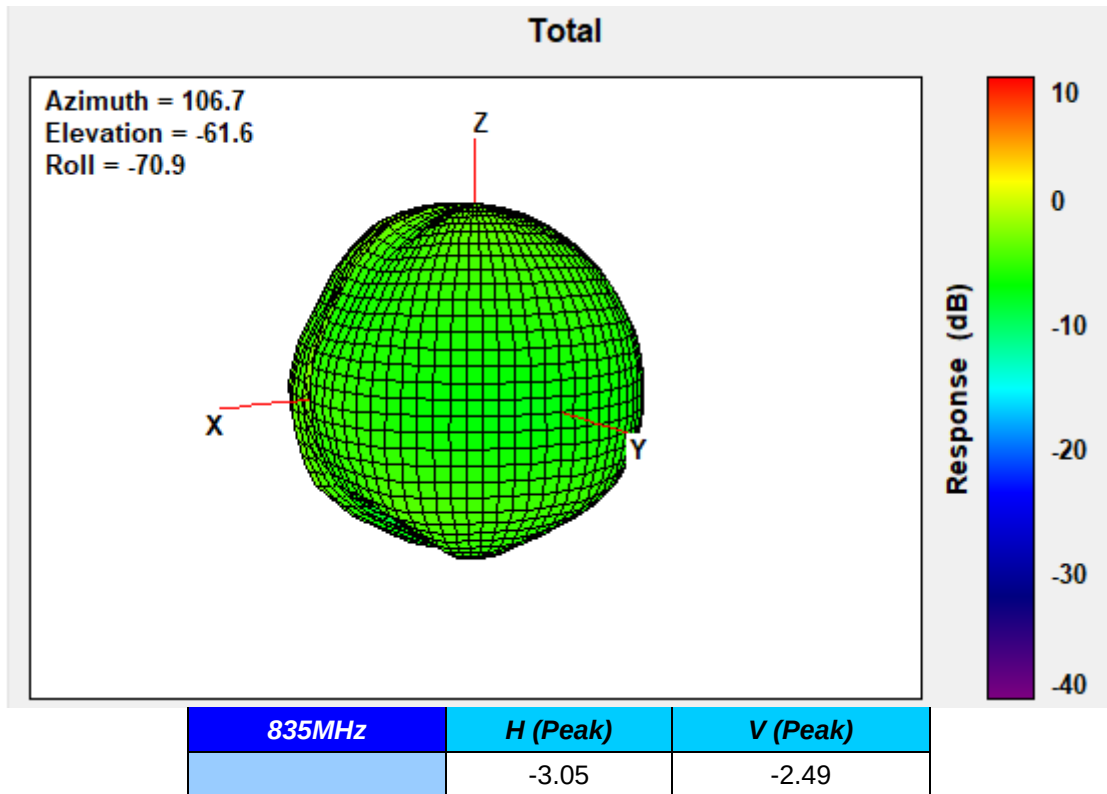
831.5MHz



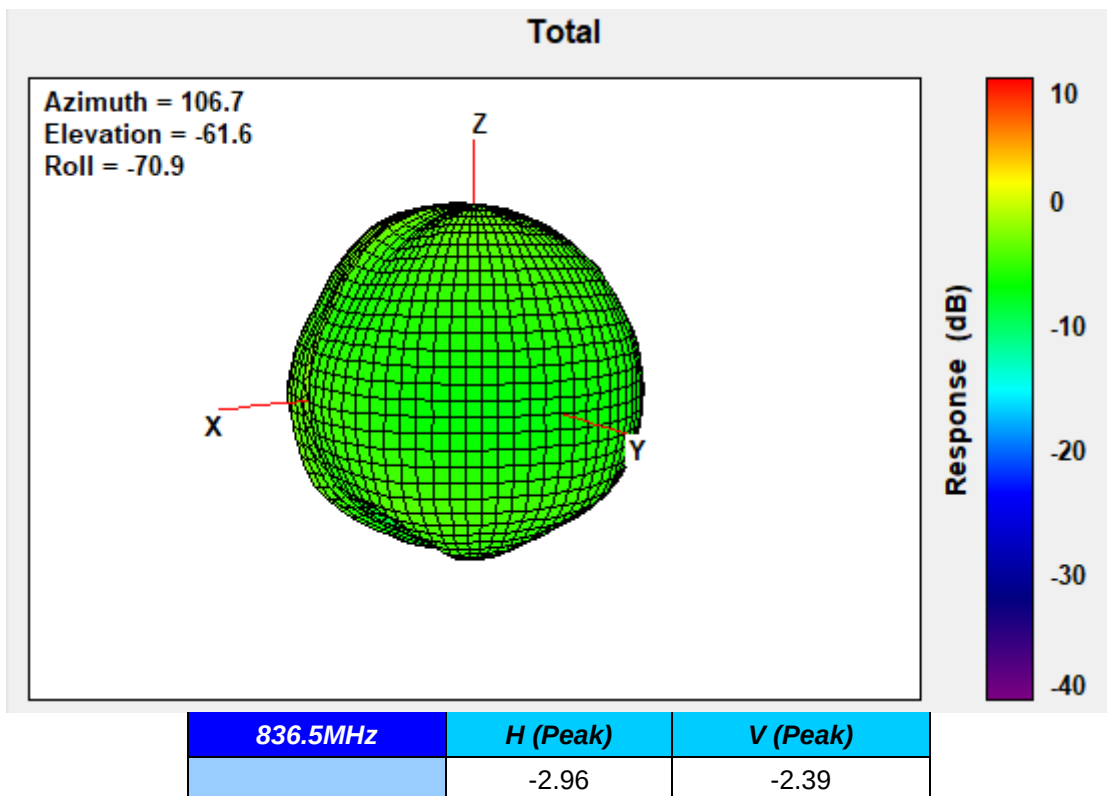
832MHz



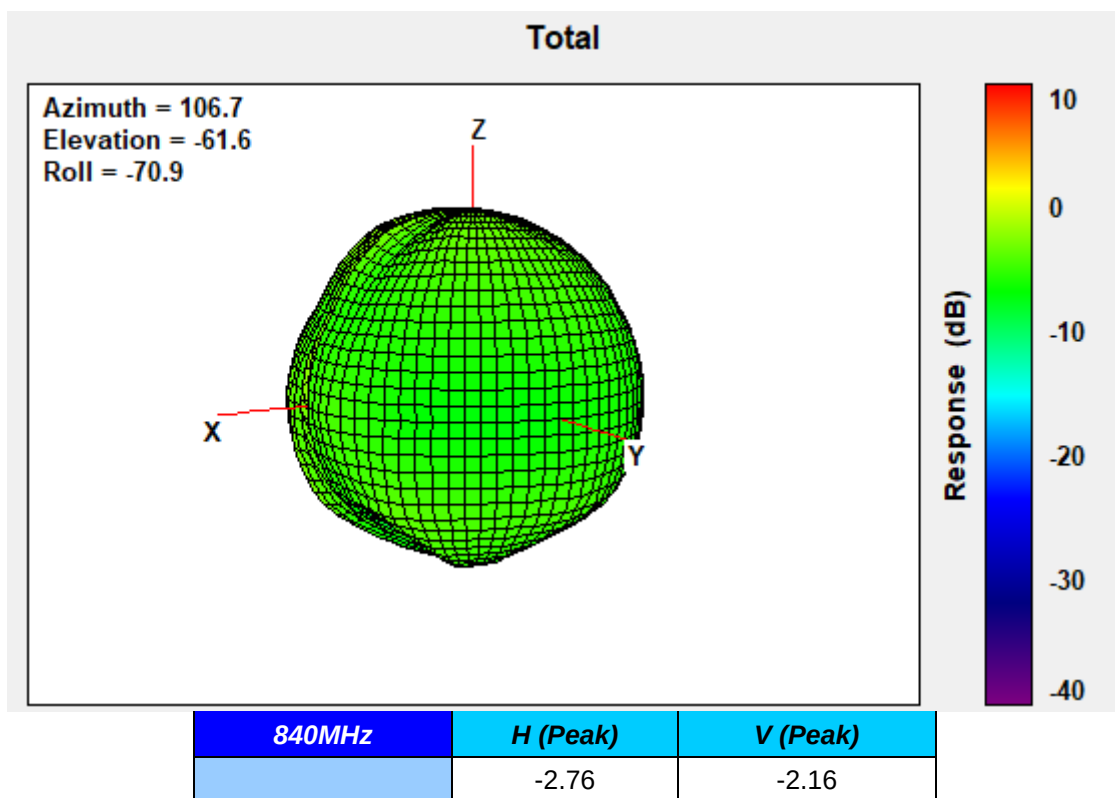
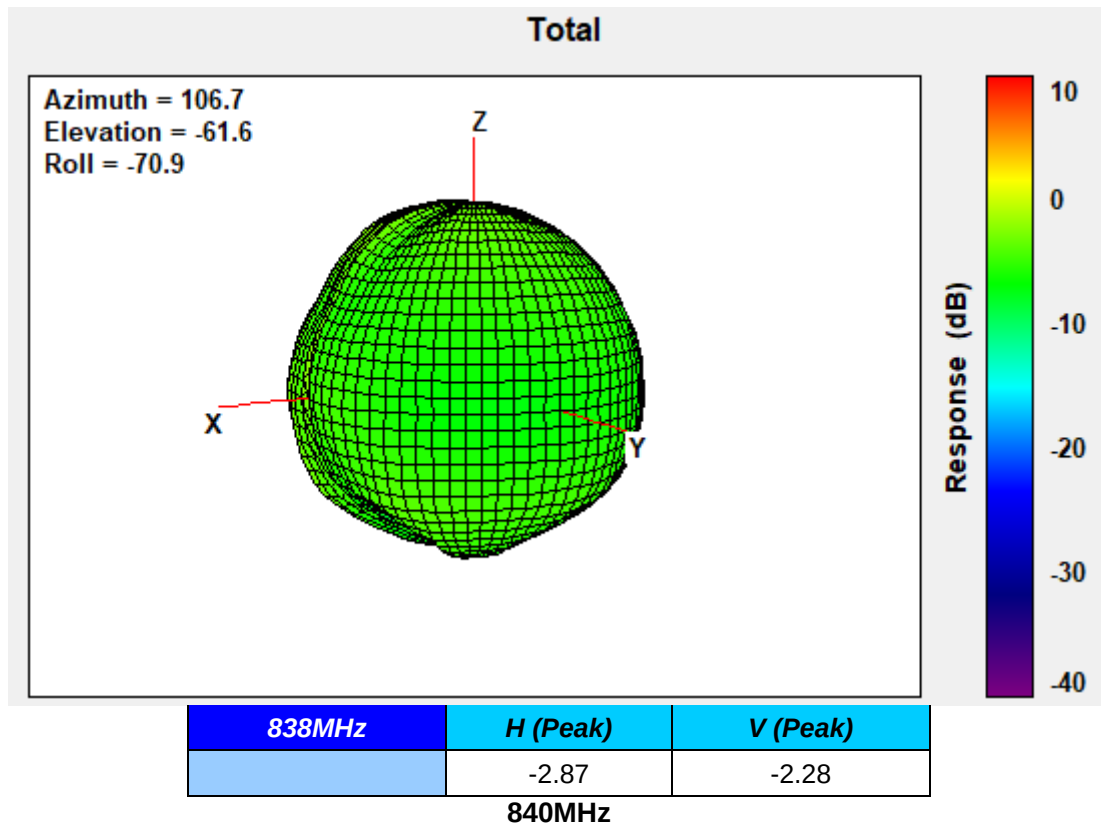
835MHz



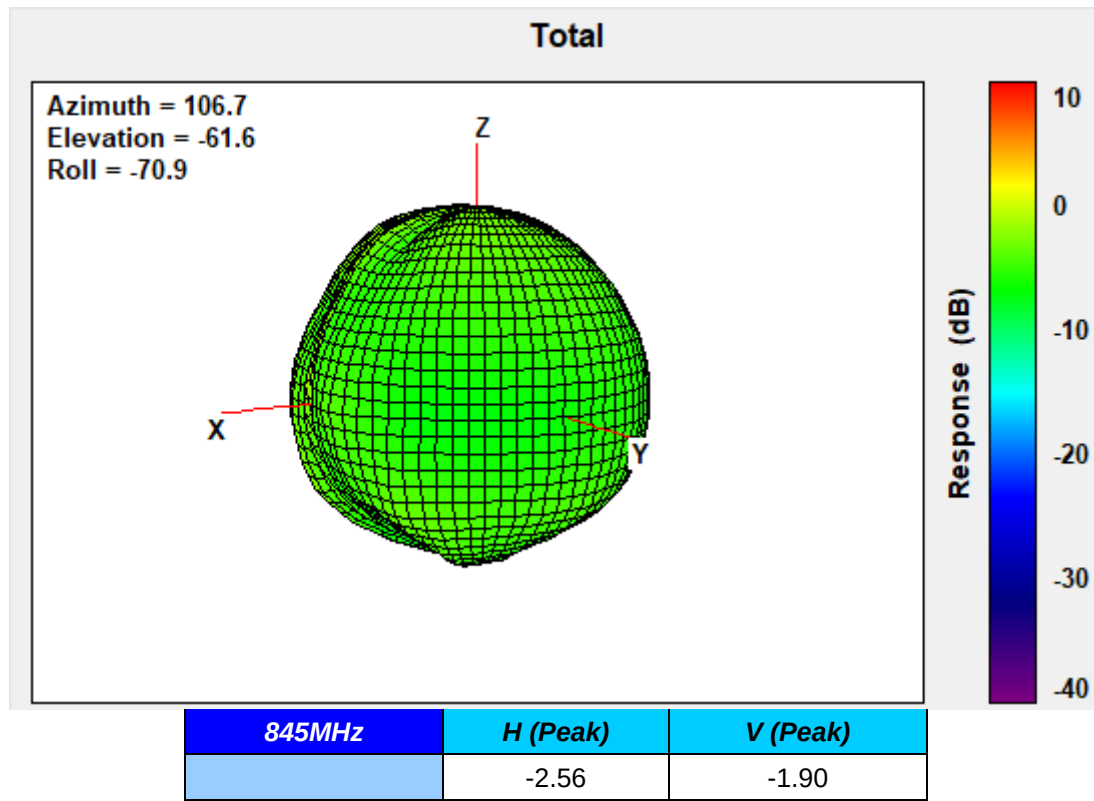
836.5MHz



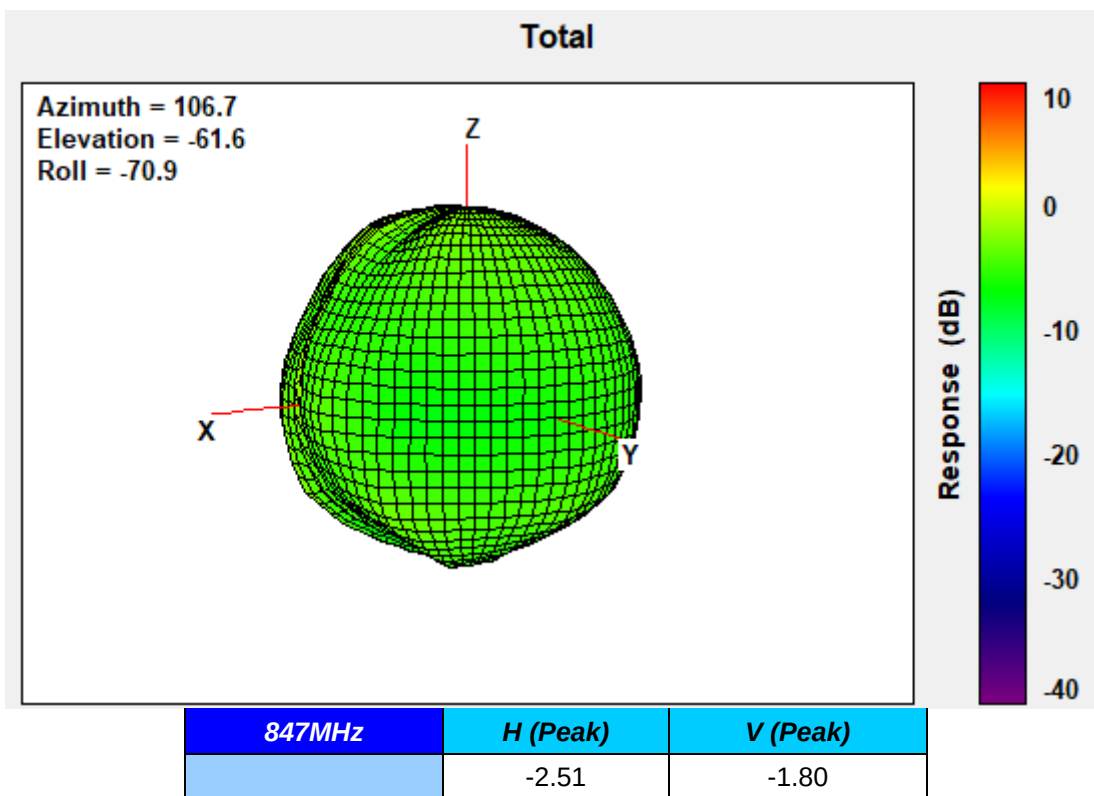
838MHz



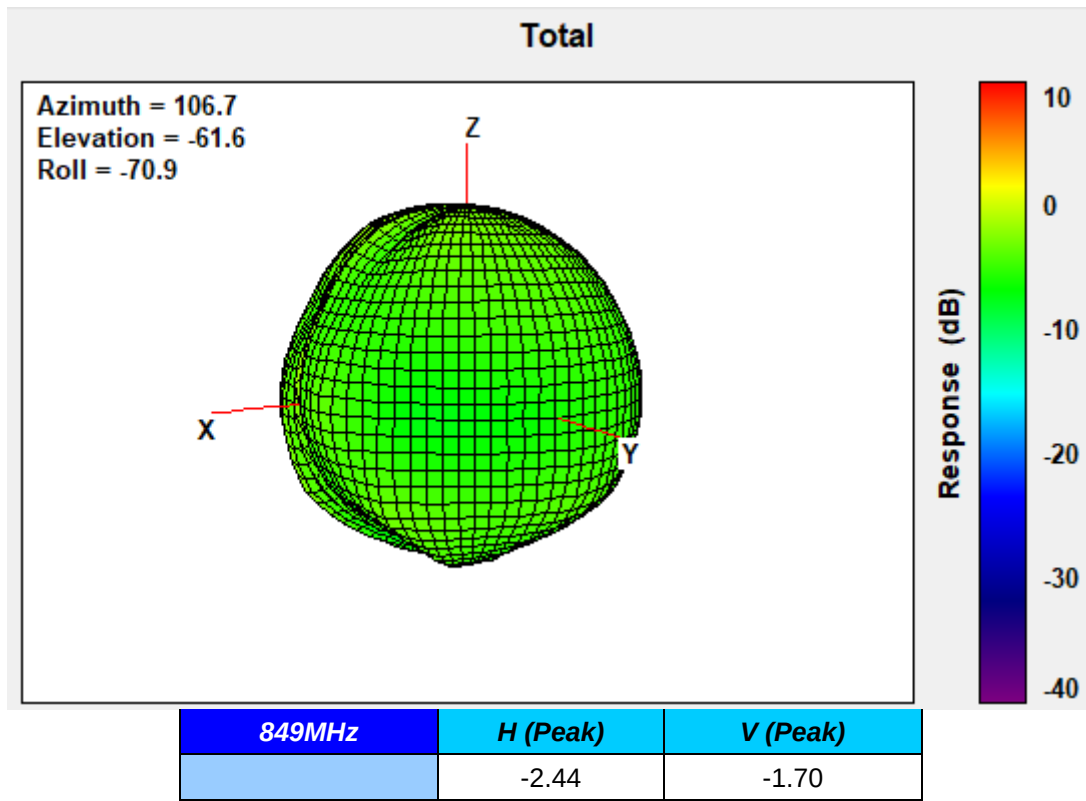
845MHz



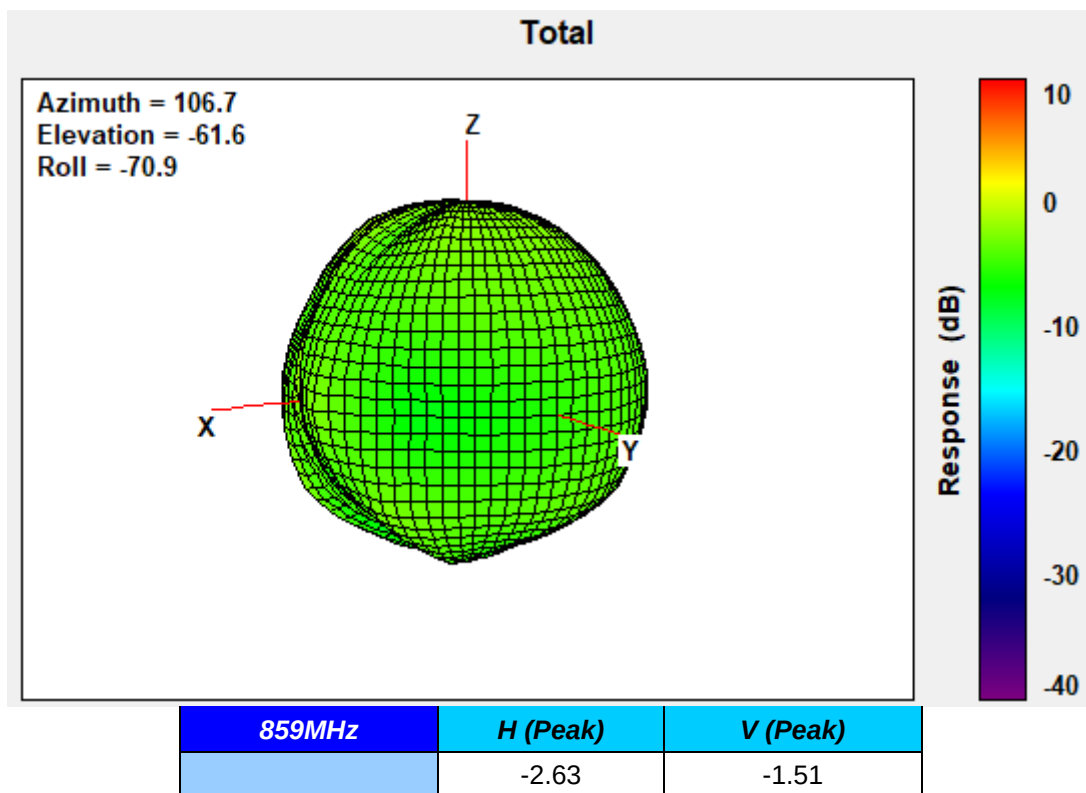
847MHz



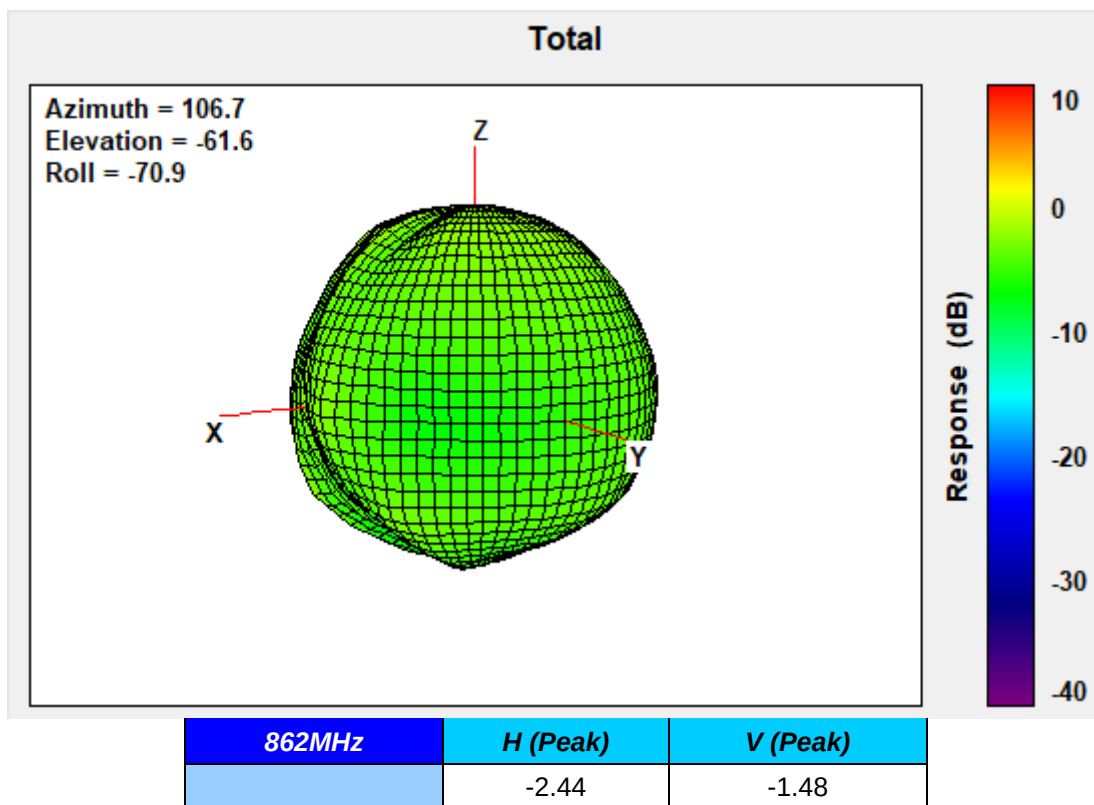
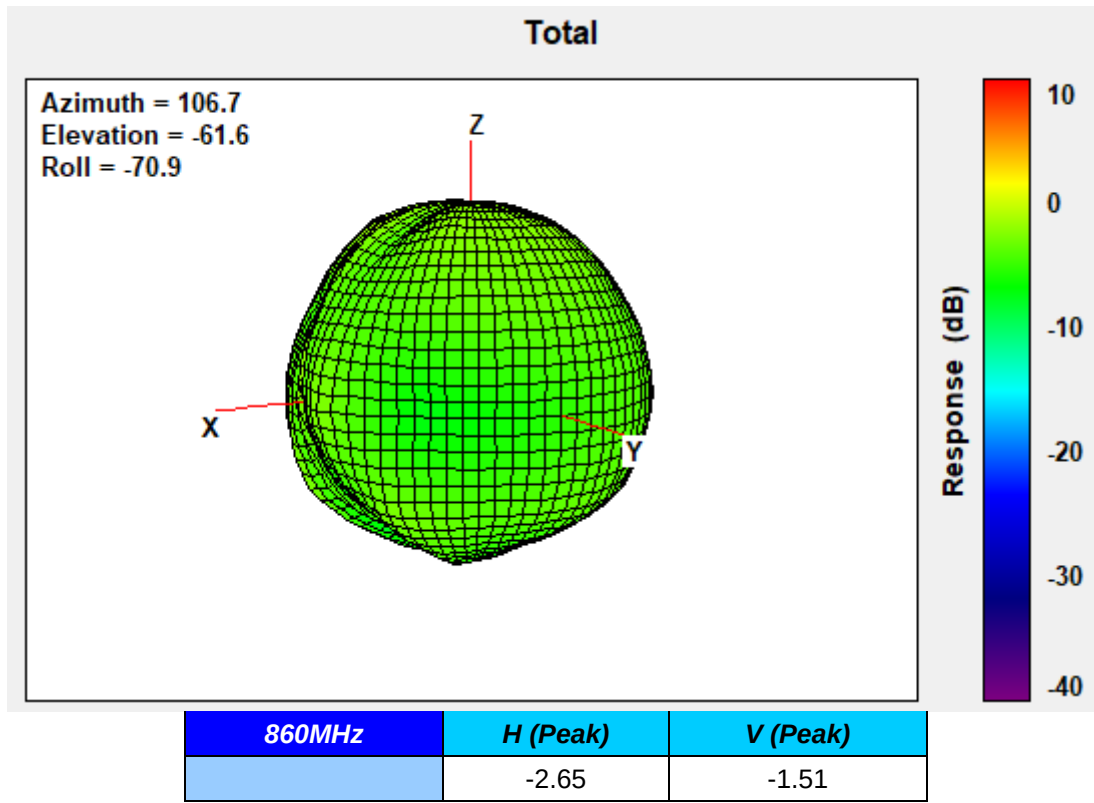
849MHz



859MHz



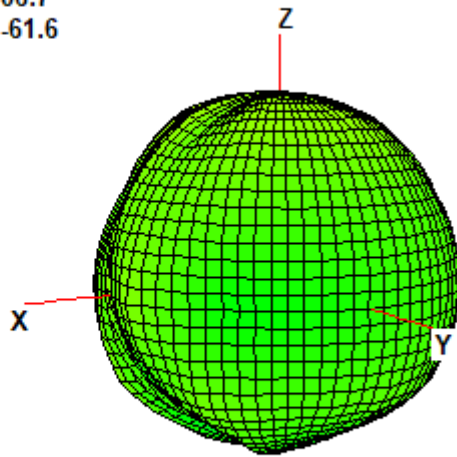
860MHz



868MHz

Total

Azimuth = 106.7
Elevation = -61.6
Roll = -70.9

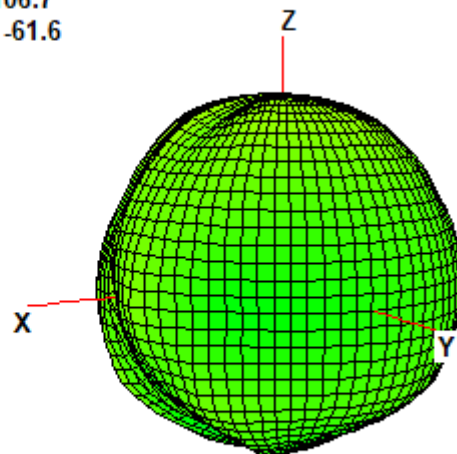


868MHz	H (Peak)	V (Peak)
	-2.32	-1.22

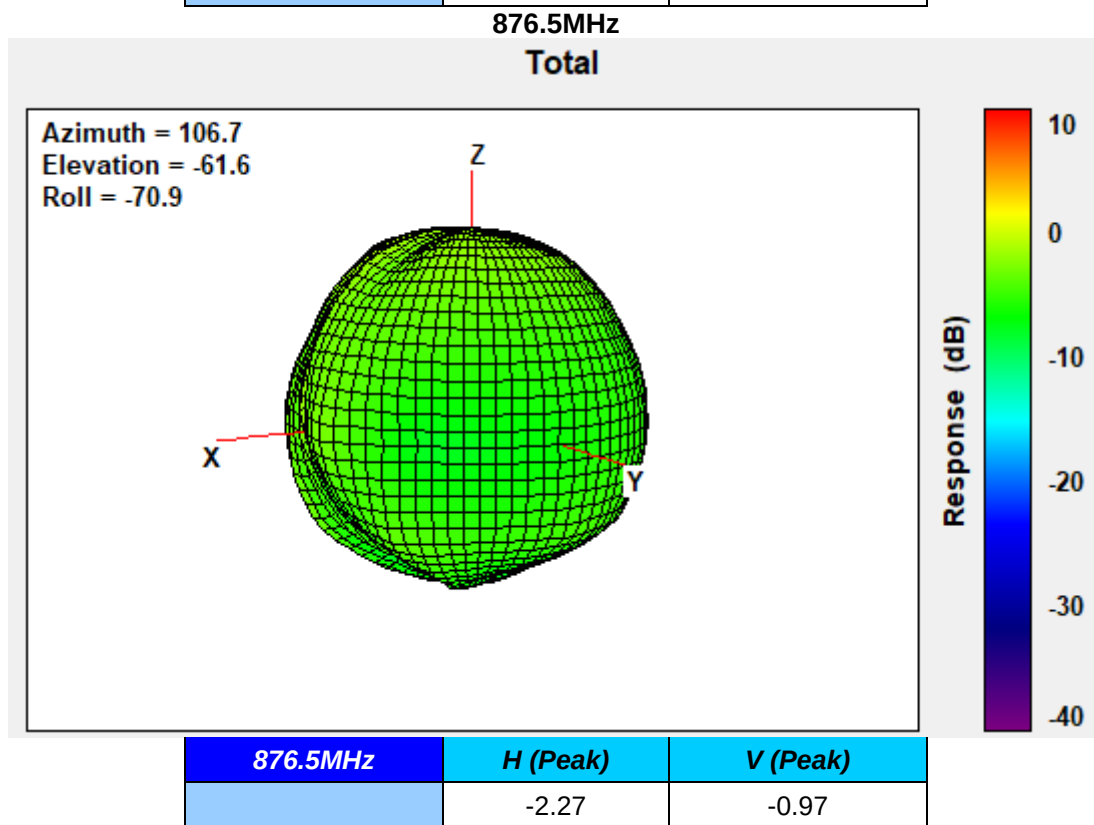
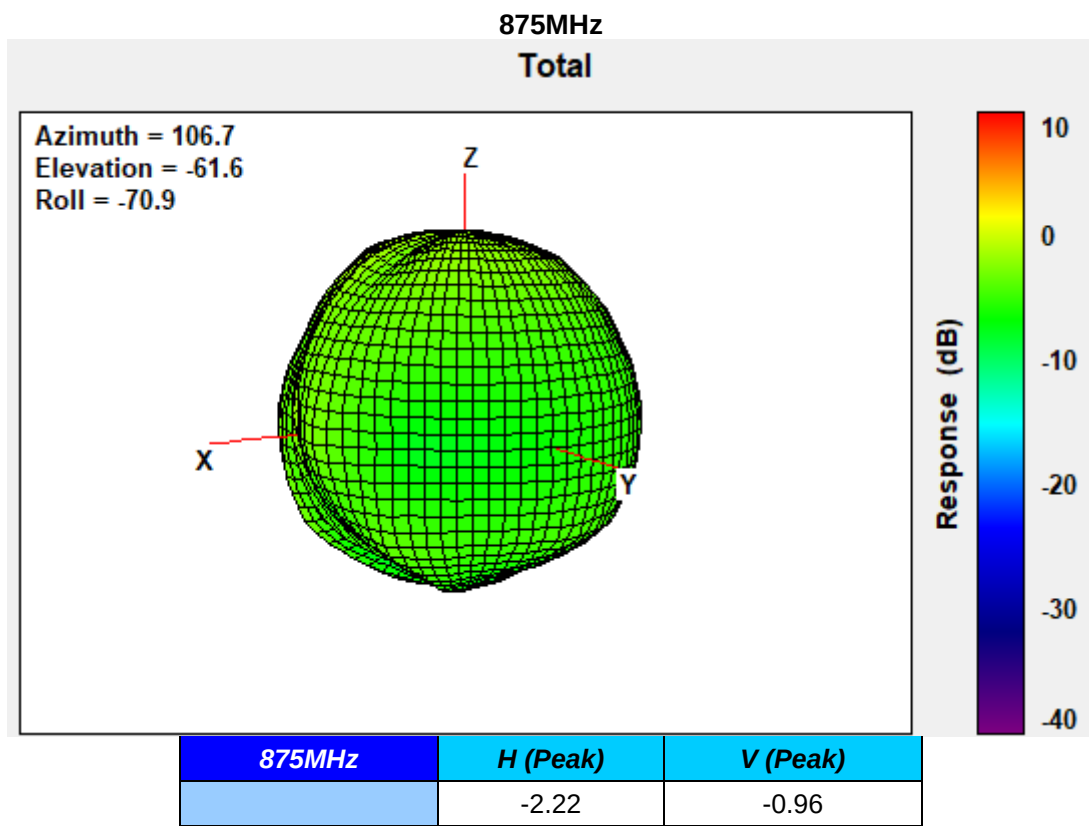
869MHz

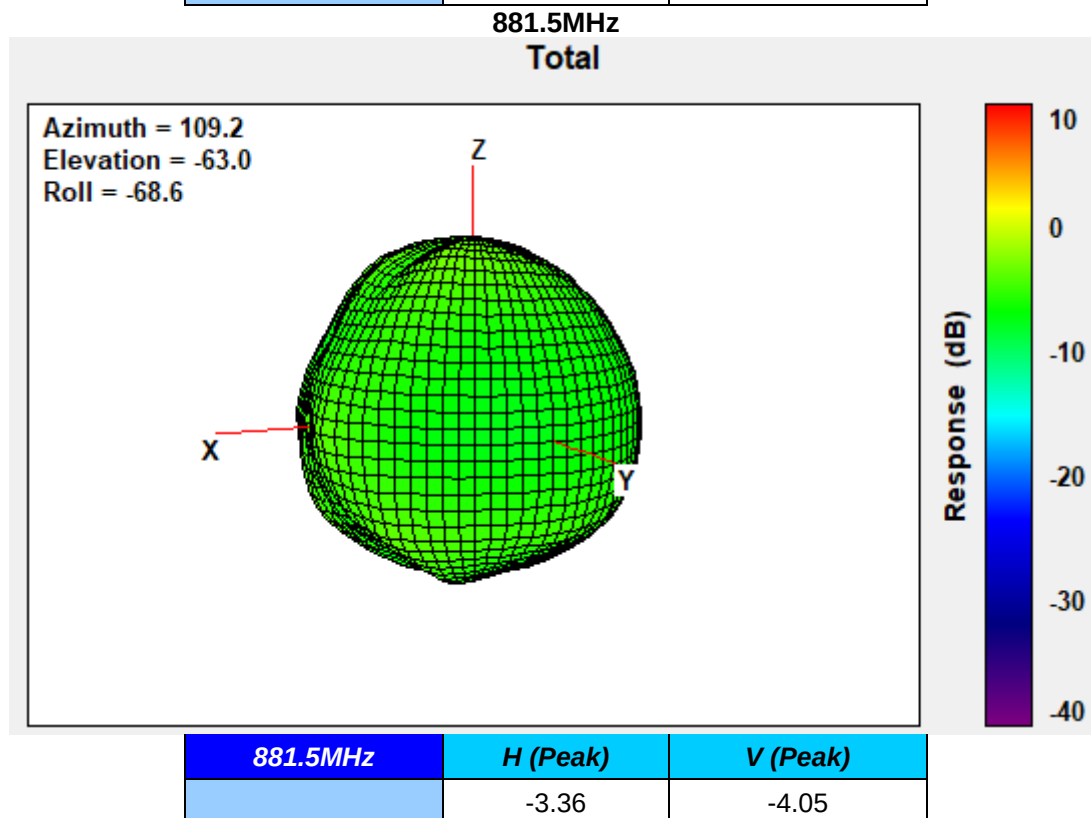
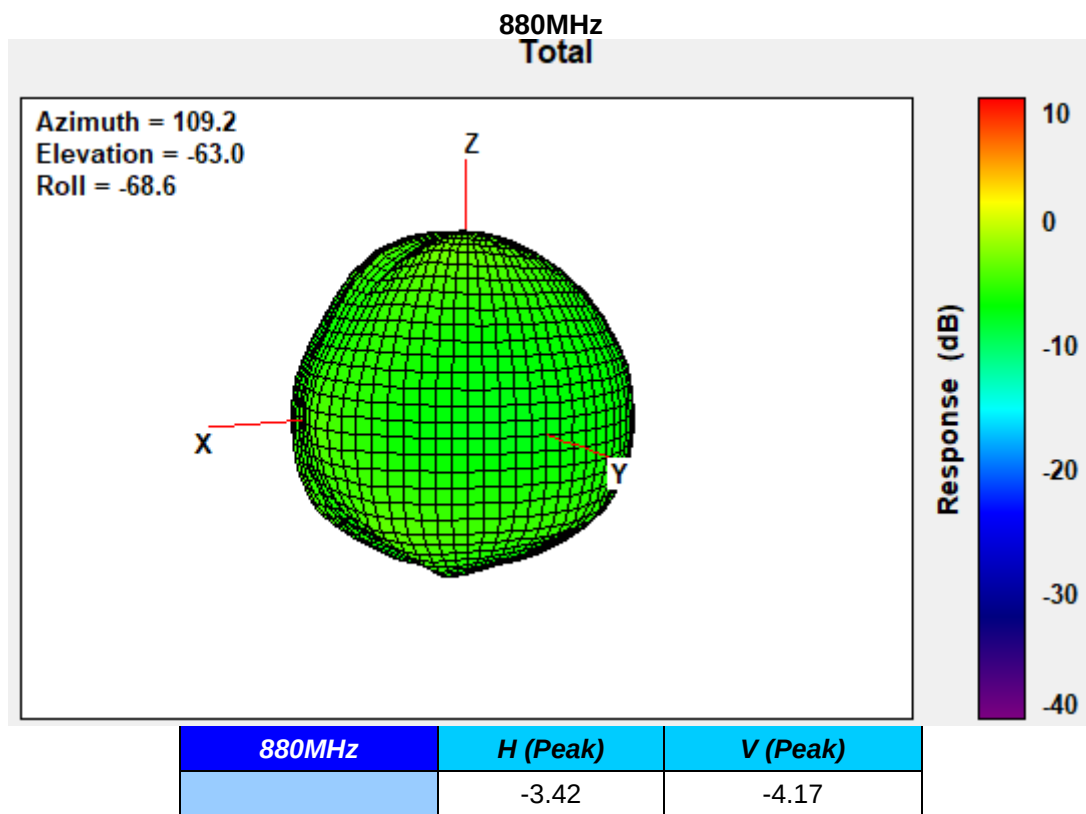
Total

Azimuth = 106.7
Elevation = -61.6
Roll = -70.9



869MHz	H (Peak)	V (Peak)
	-2.28	-1.16

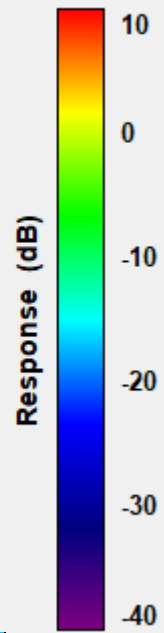
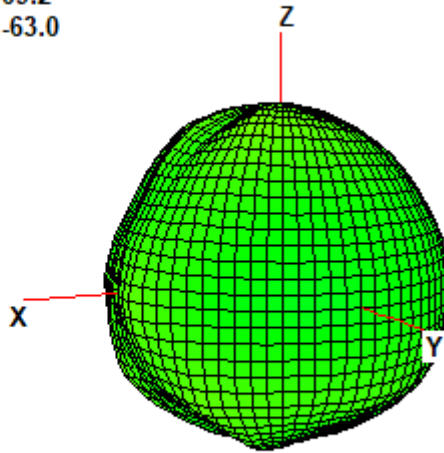




883MHz

Total

Azimuth = 109.2
Elevation = -63.0
Roll = -68.6

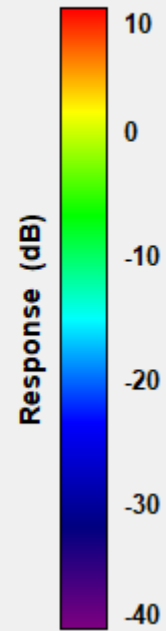
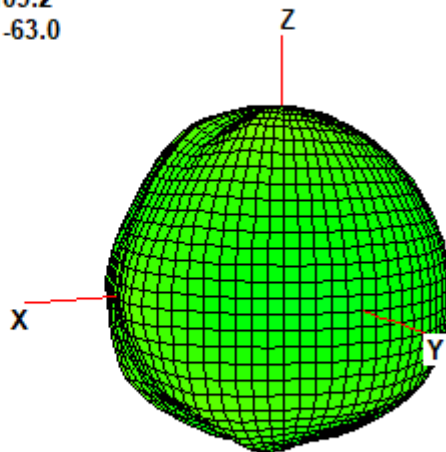


883MHz	H (Peak)	V (Peak)
	-3.22	-1.40

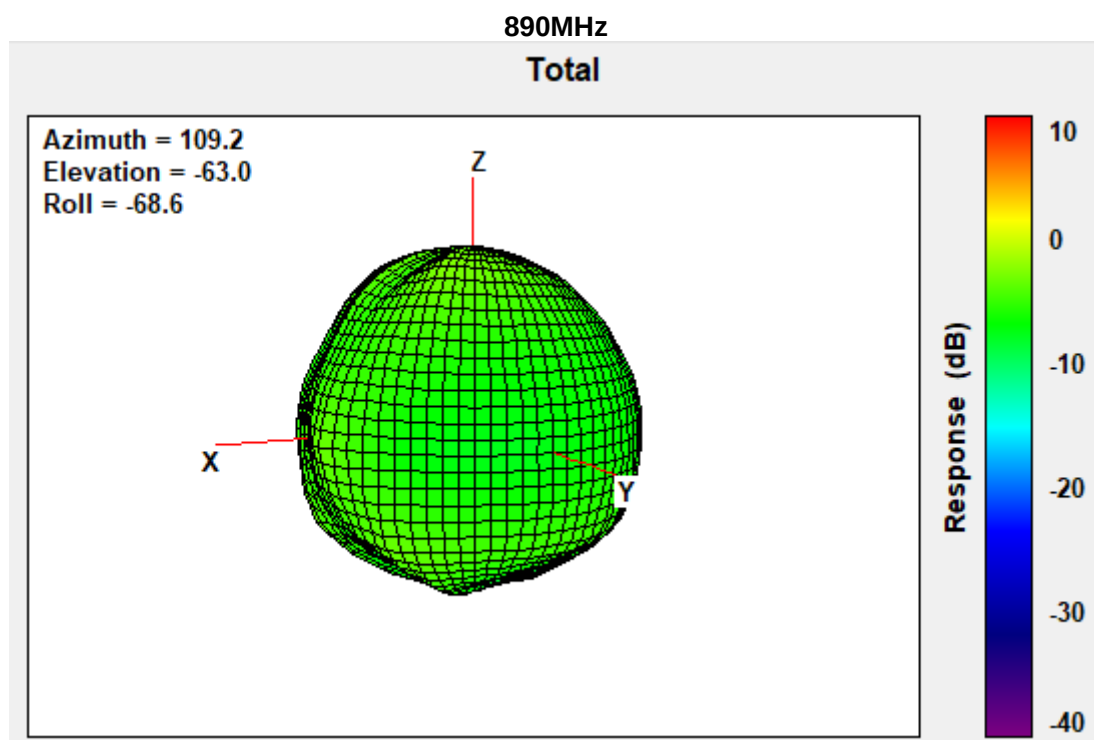
885MHz

Total

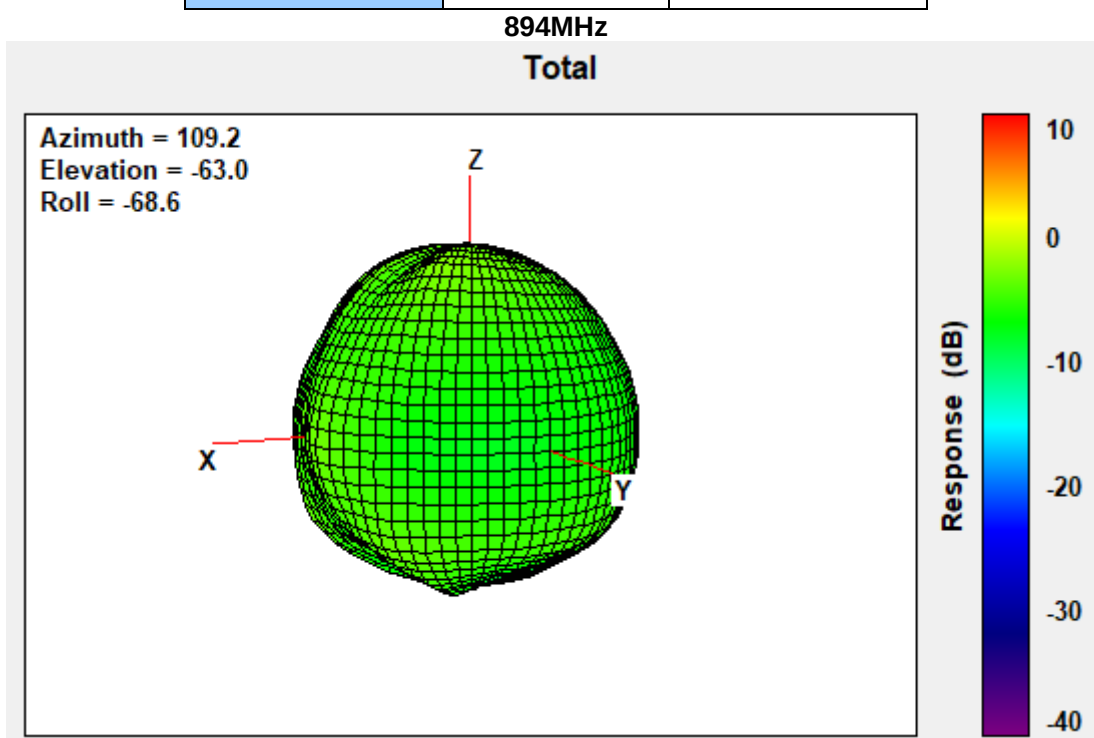
Azimuth = 109.2
Elevation = -63.0
Roll = -68.6



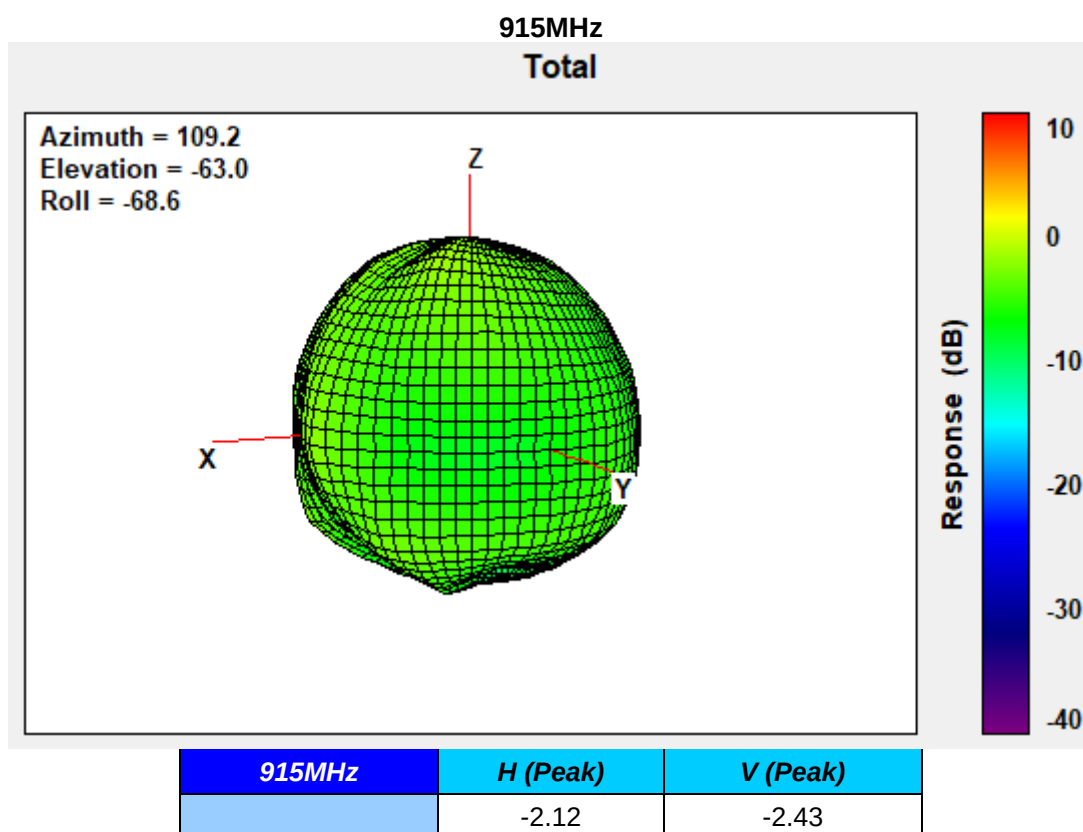
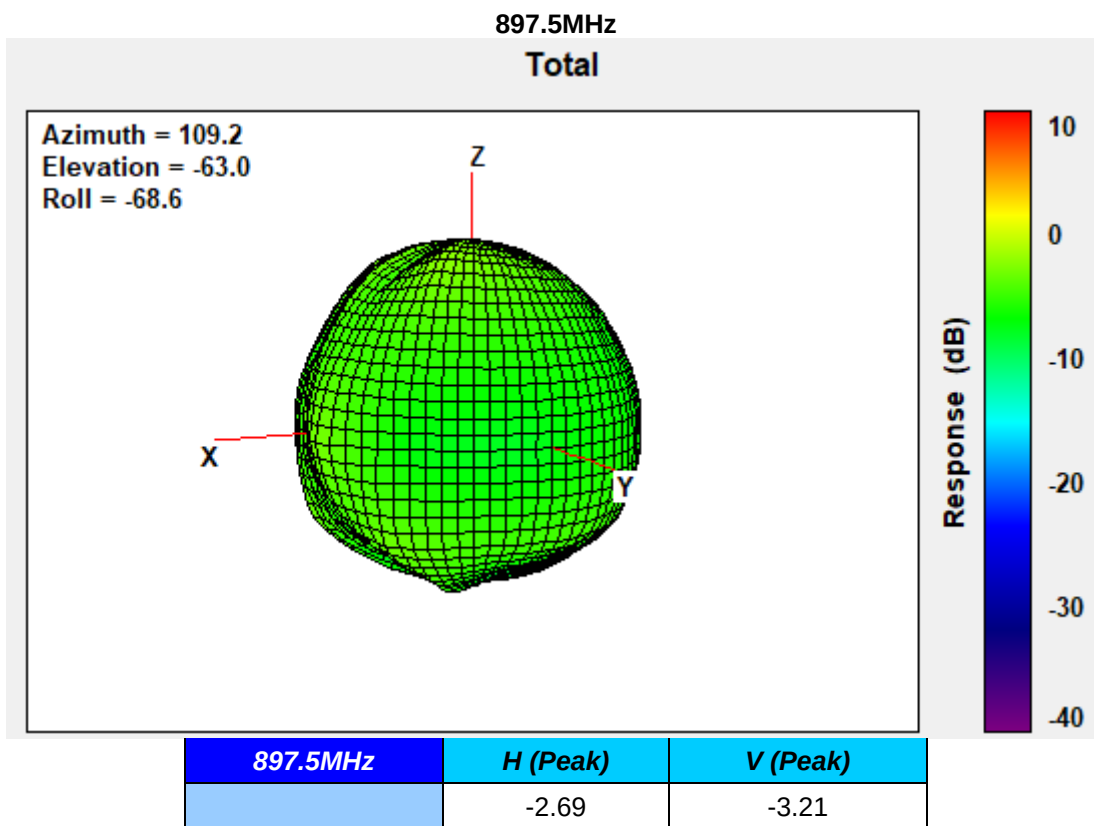
885MHz	H (Peak)	V (Peak)
	-3.35	-1.46



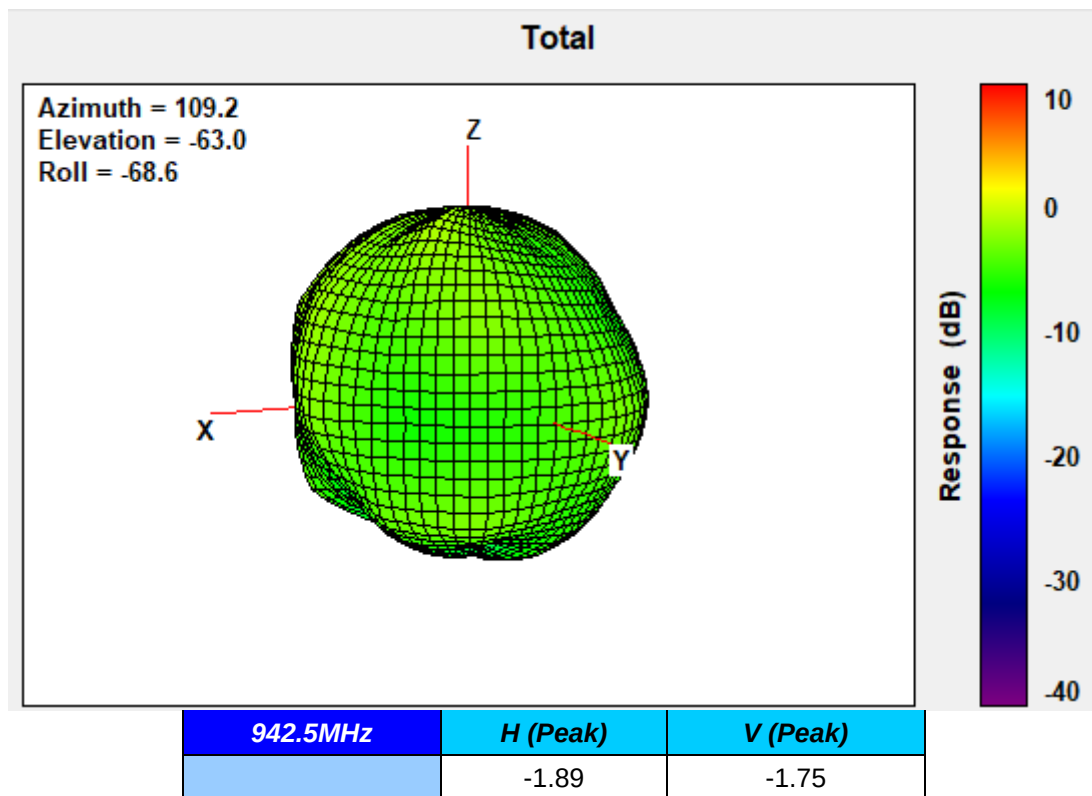
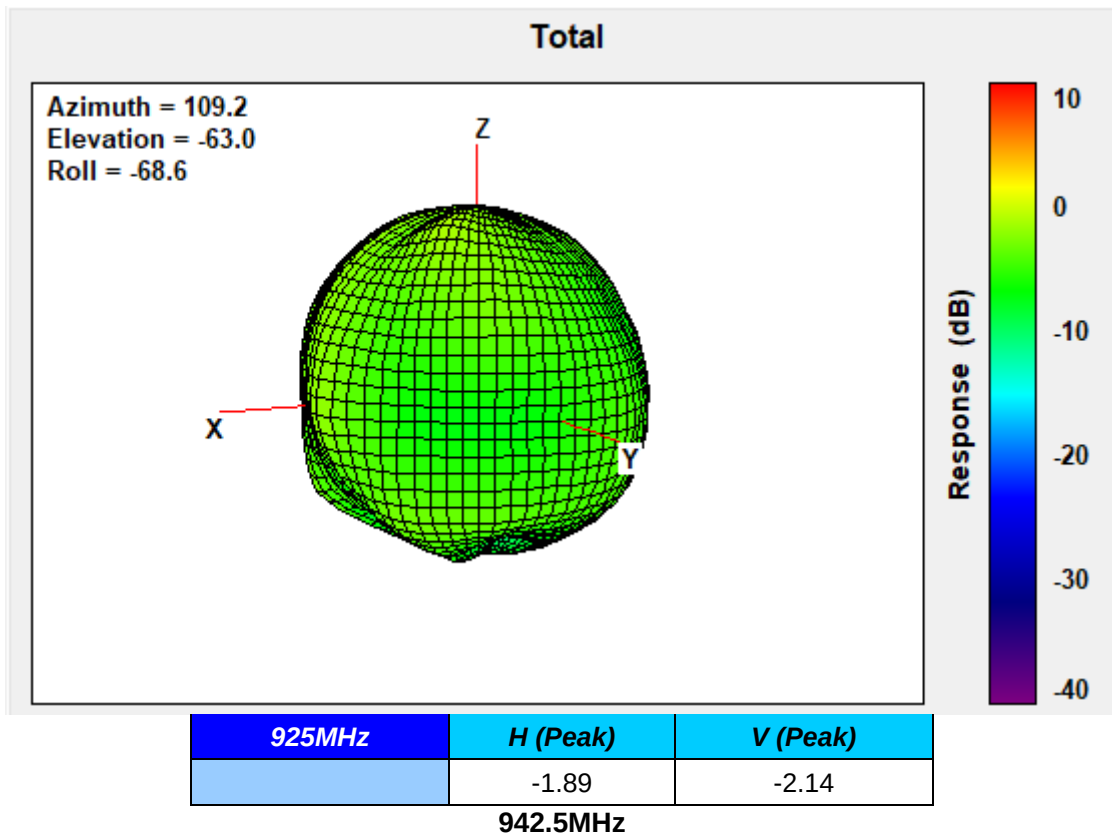
890MHz	H (Peak)	V (Peak)
	-3.69	-1.60

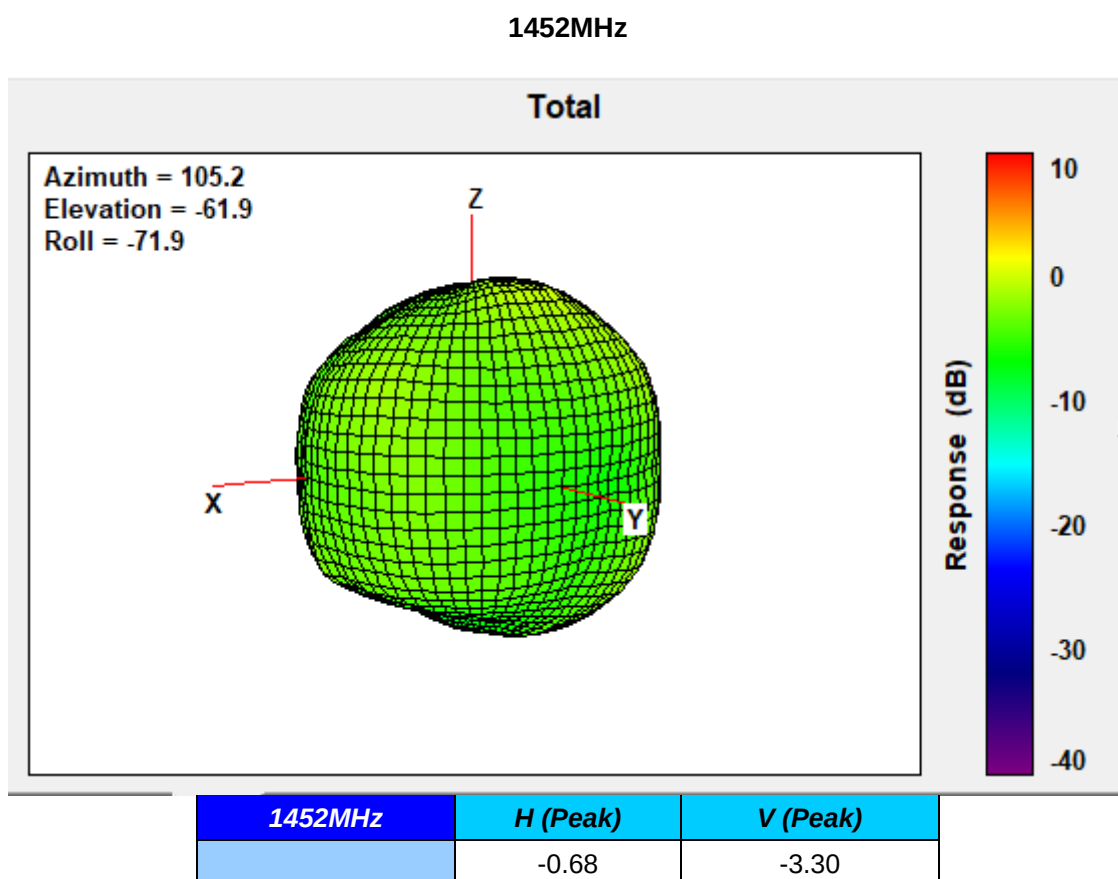
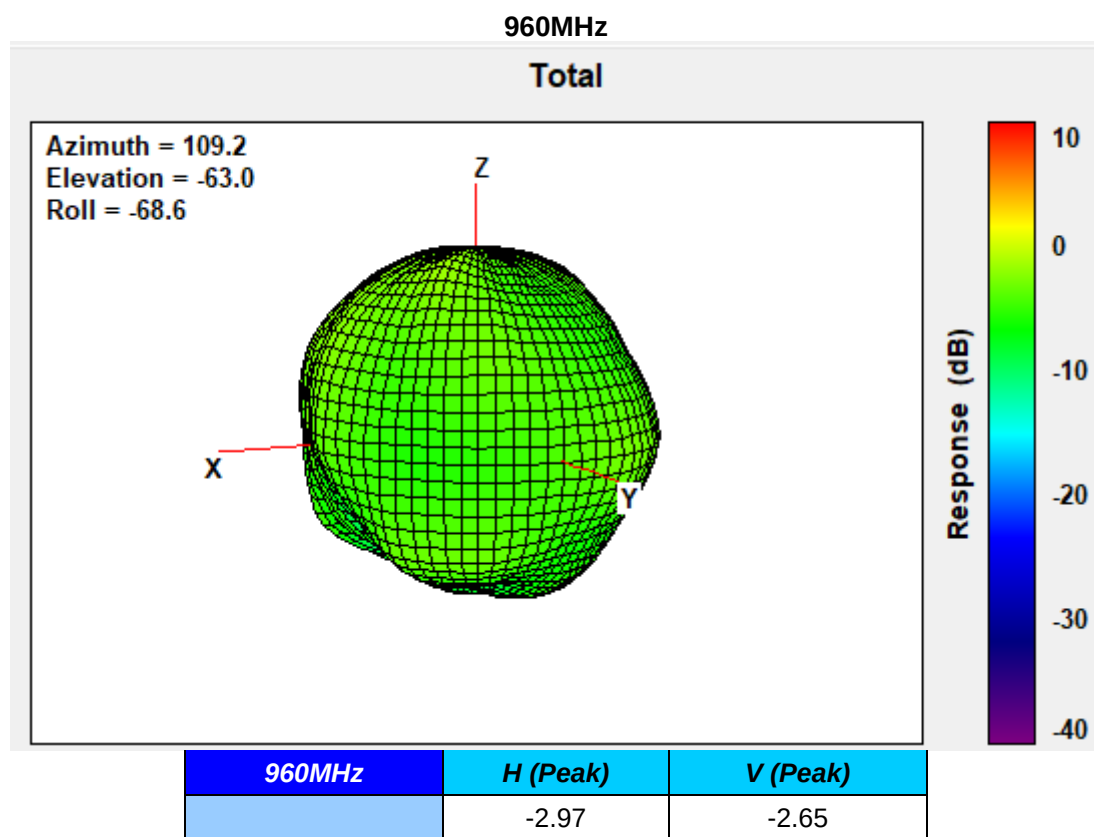


894MHz	H (Peak)	V (Peak)
	-3.77	-1.75

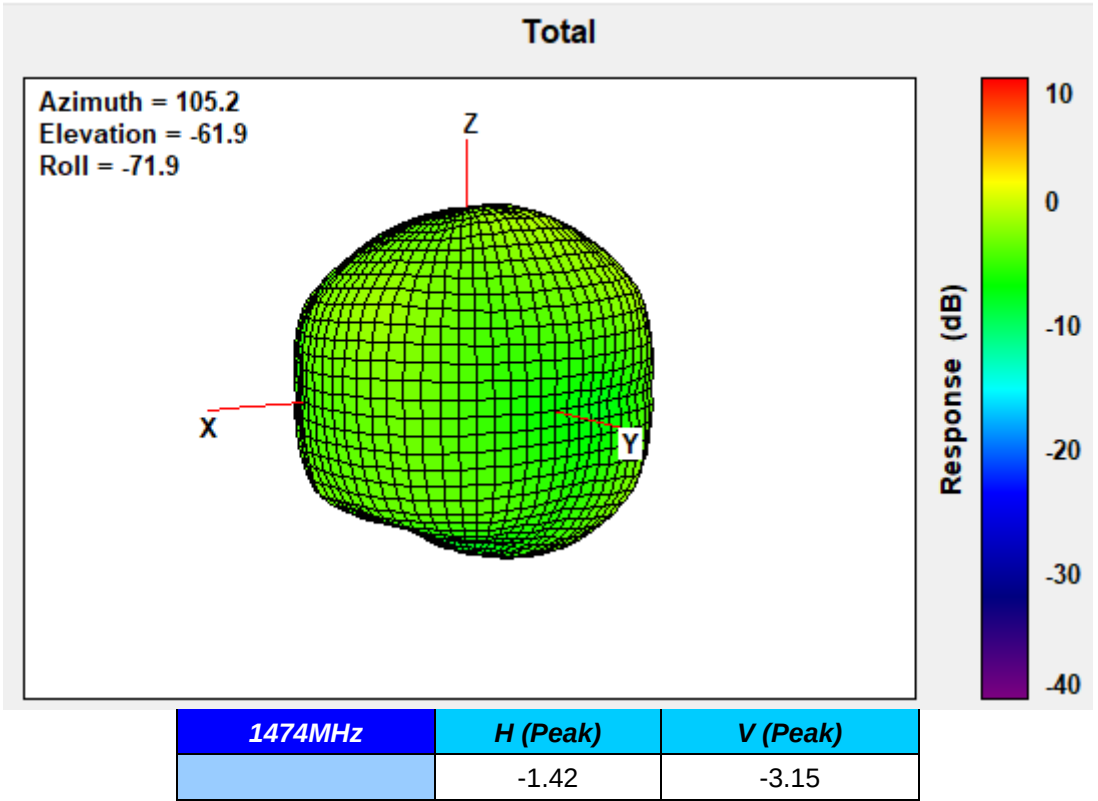


925MHz

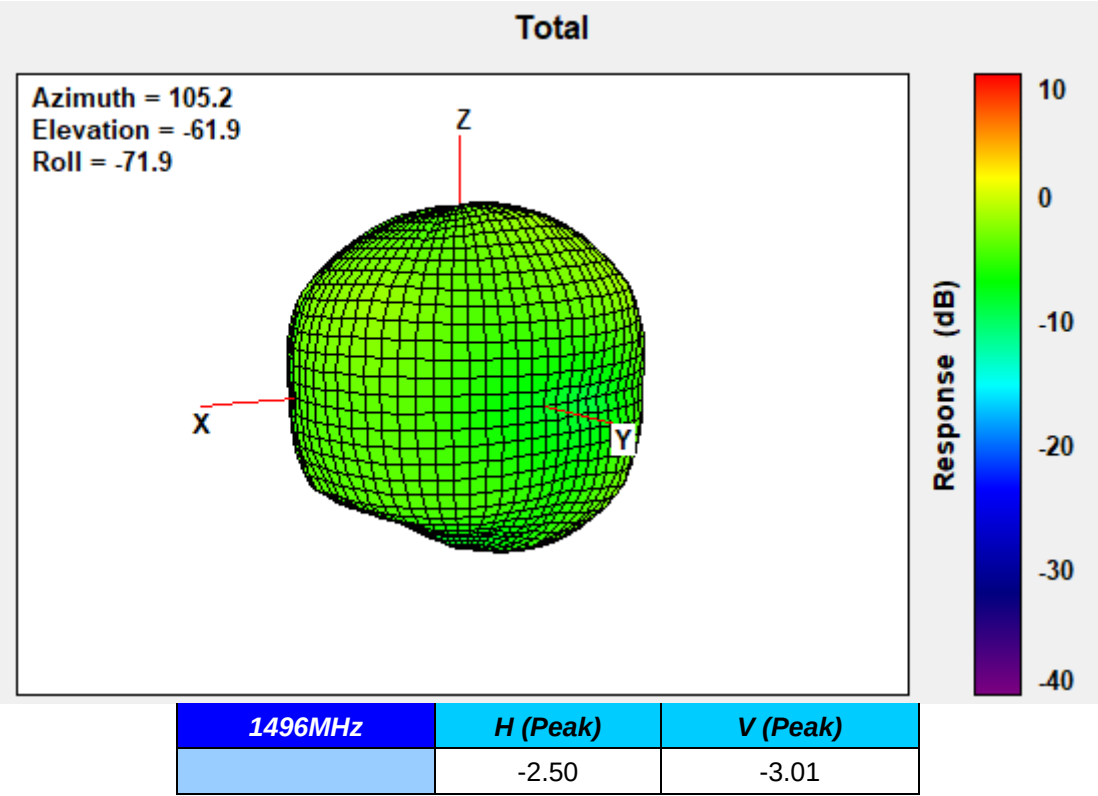




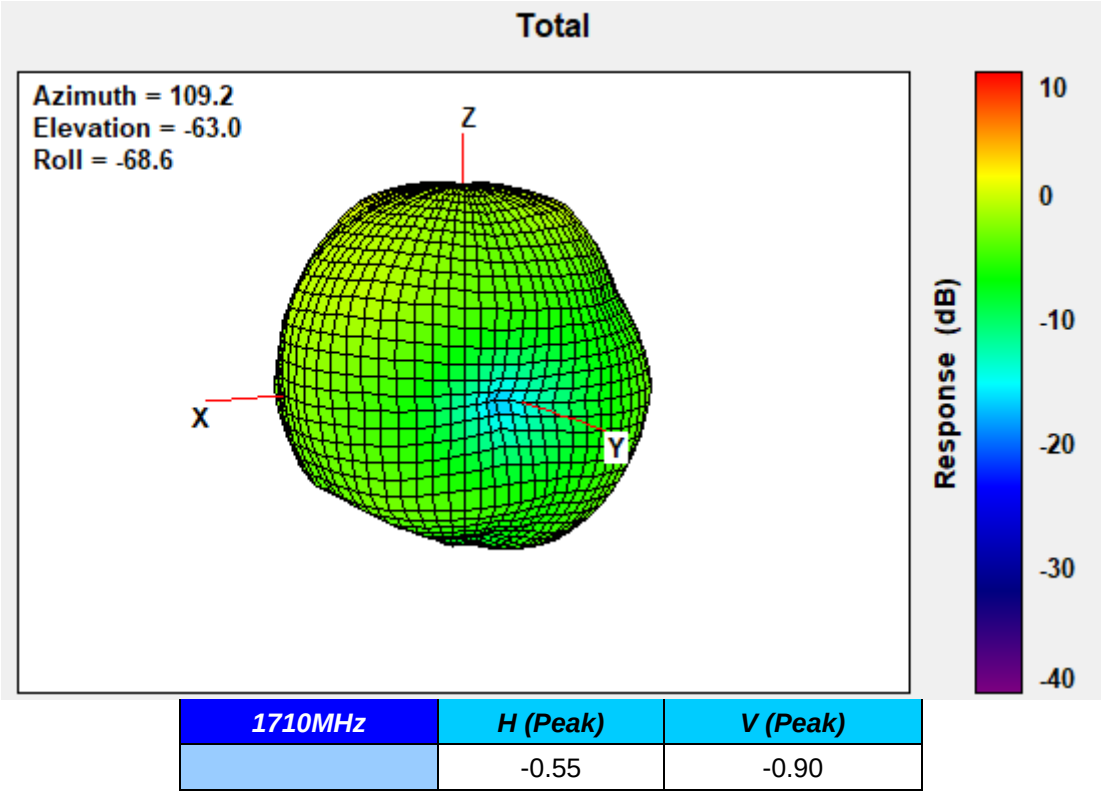
1474MHz



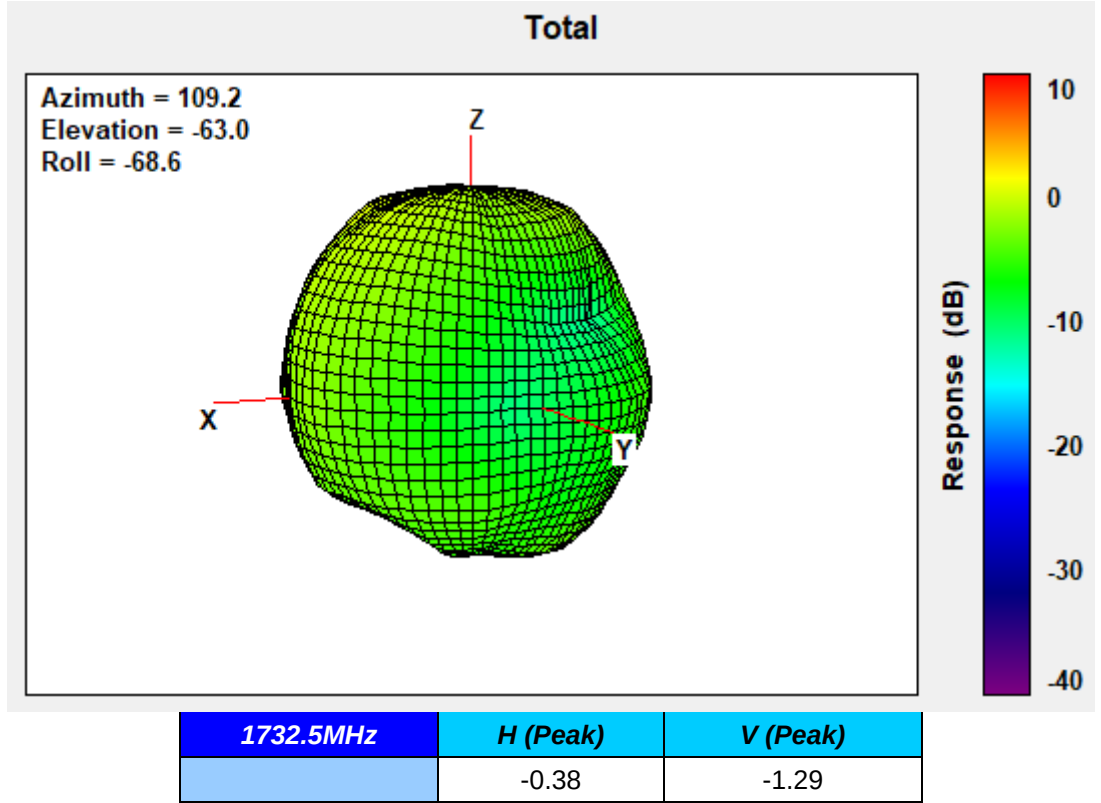
1496MHz



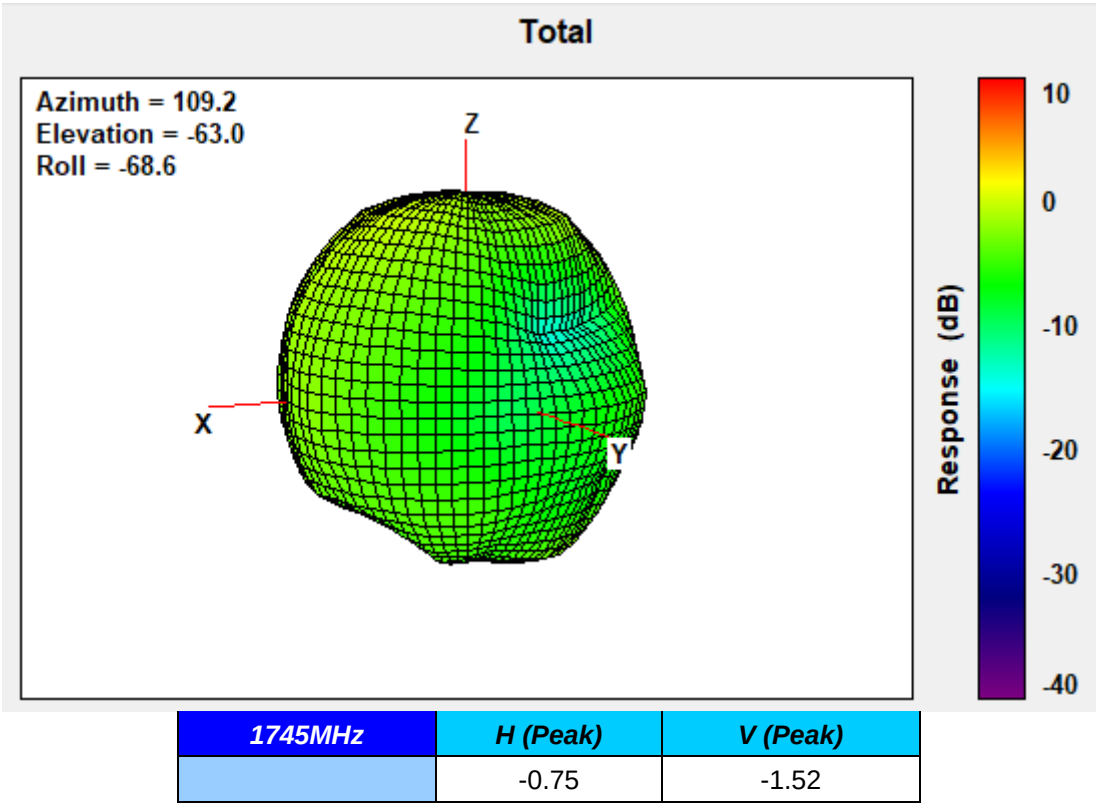
1710MHz



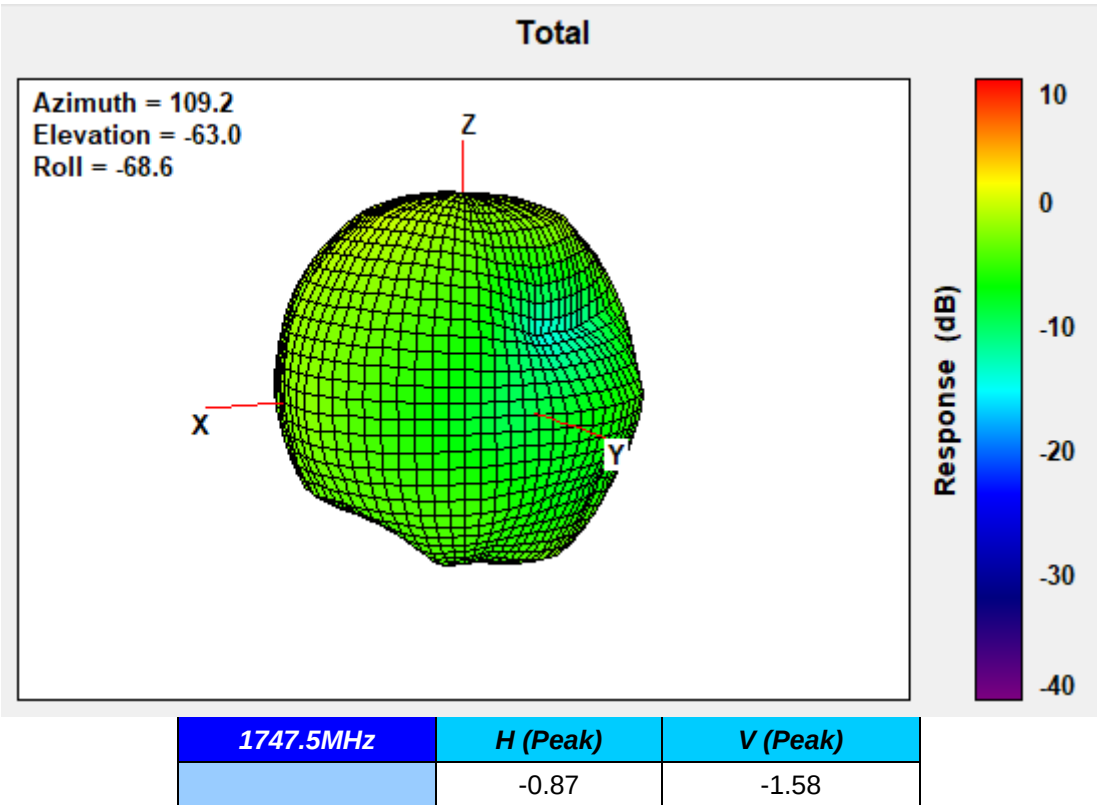
1732.5MHz



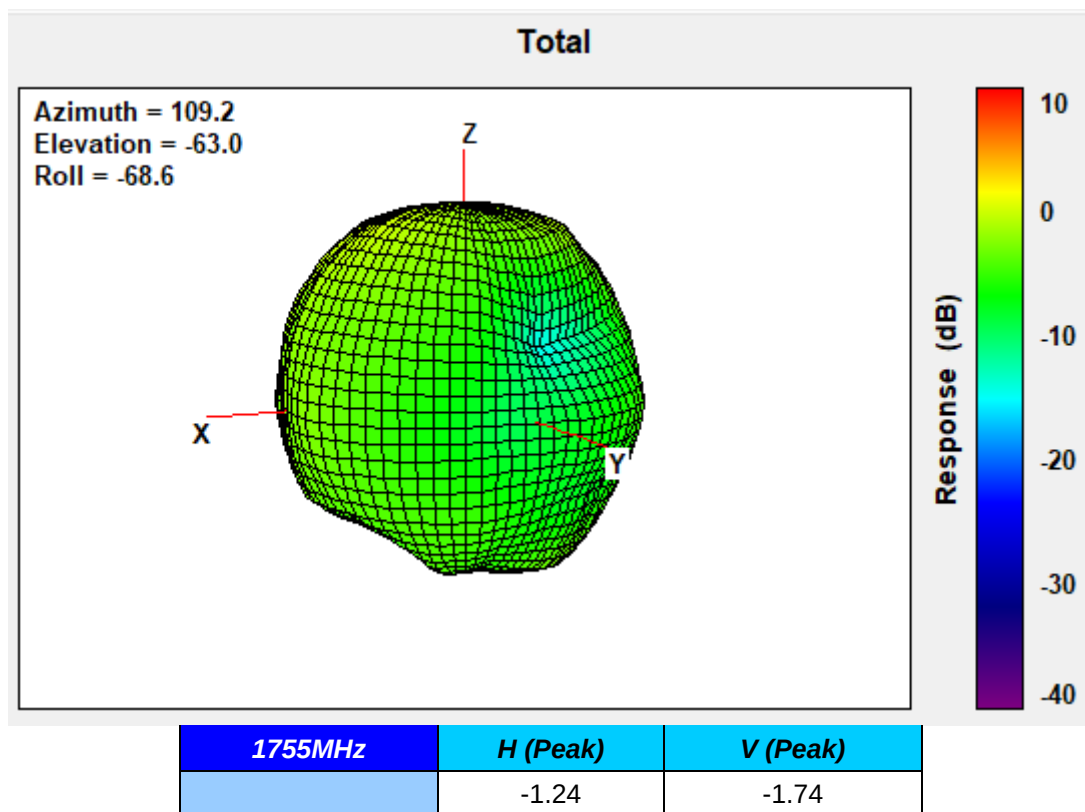
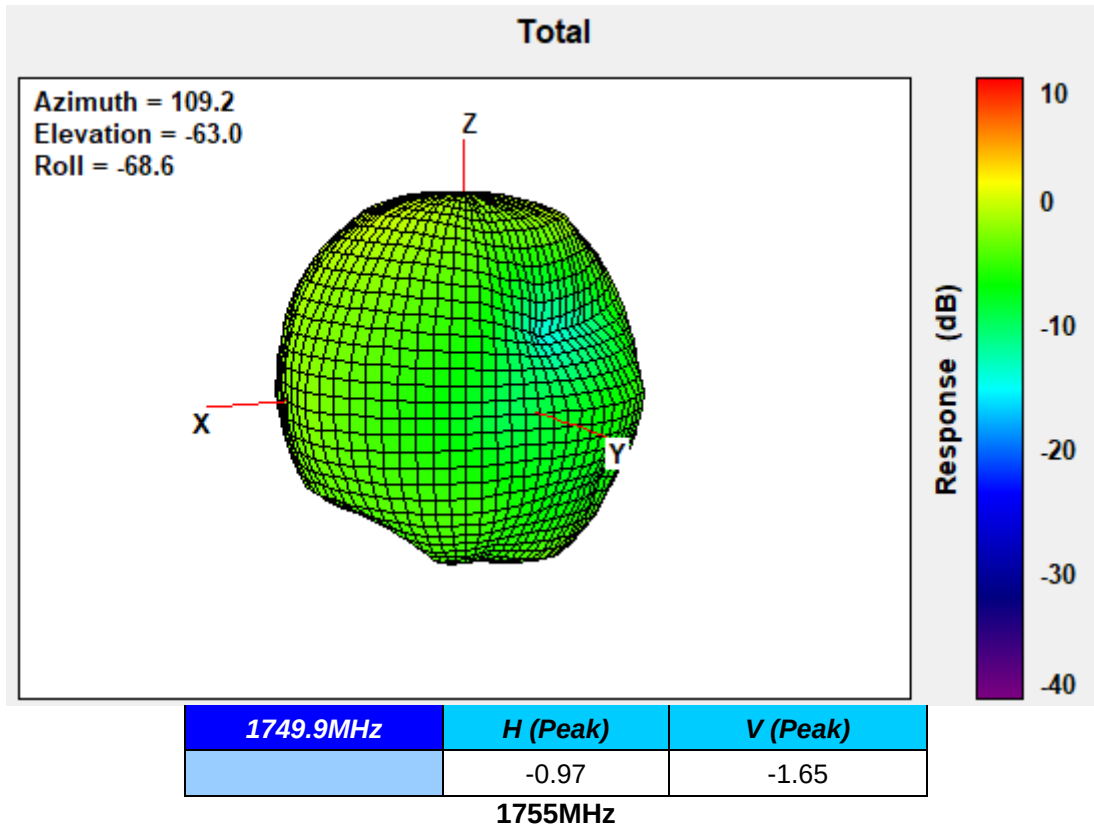
1745MHz



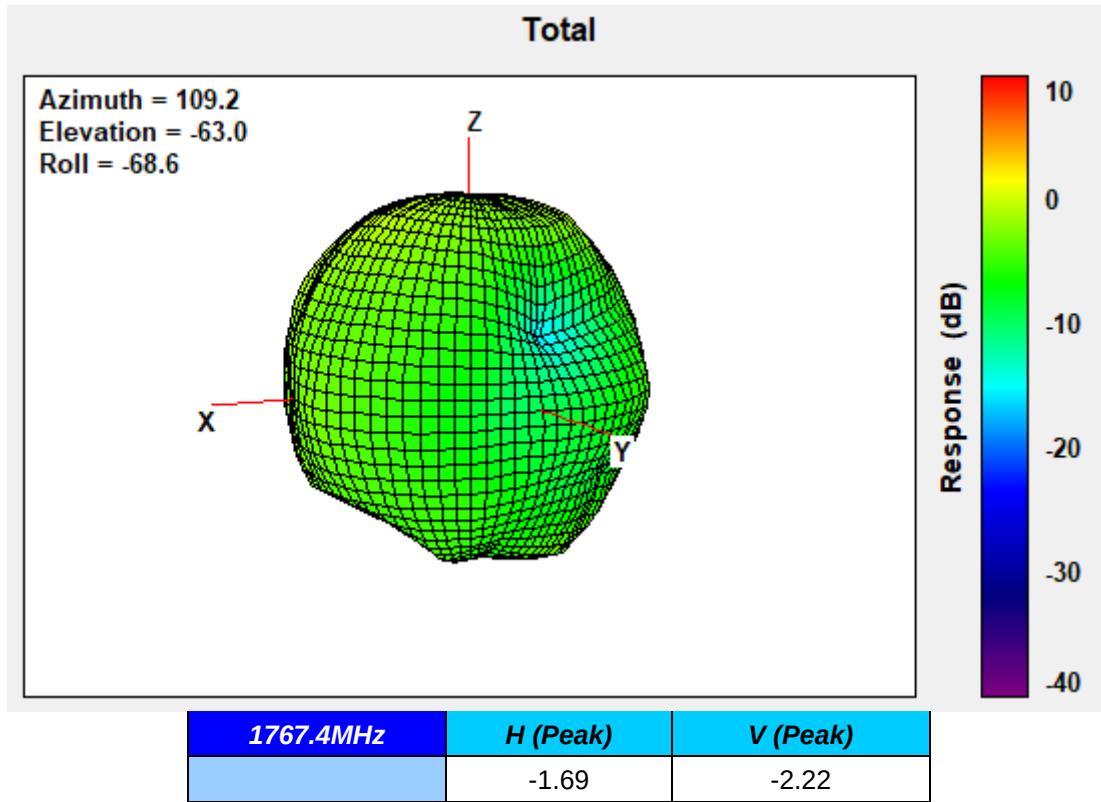
1747.5MHz



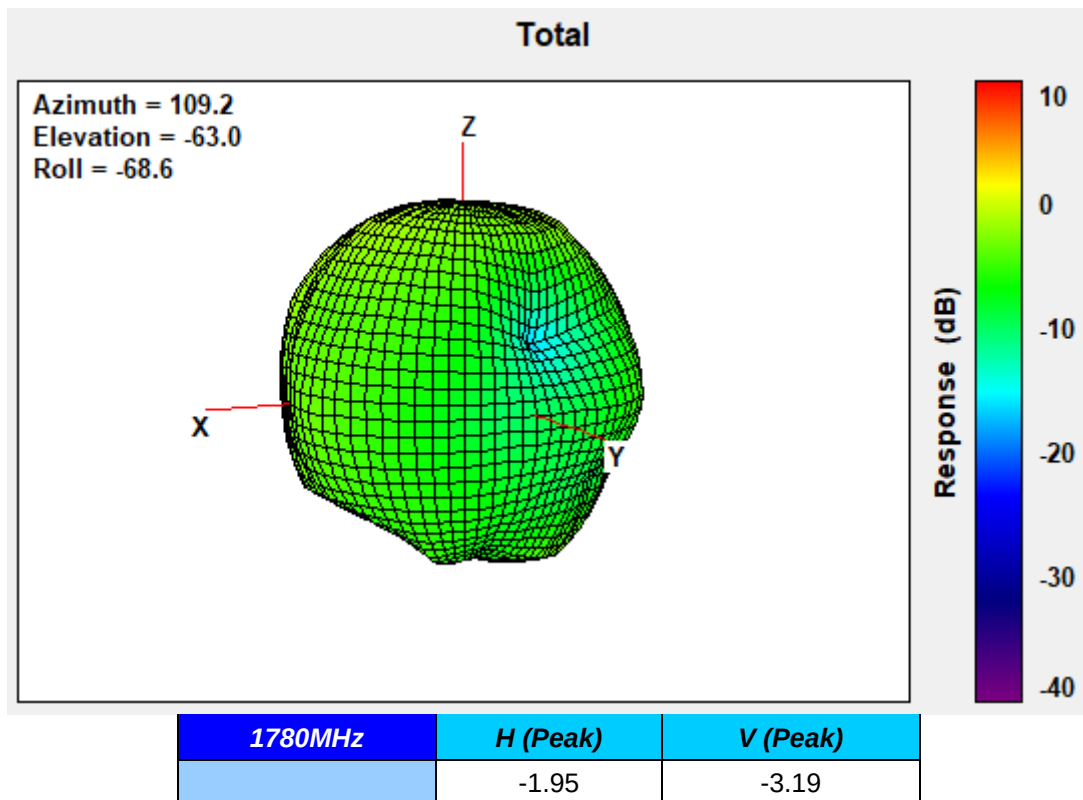
1749.9MHz



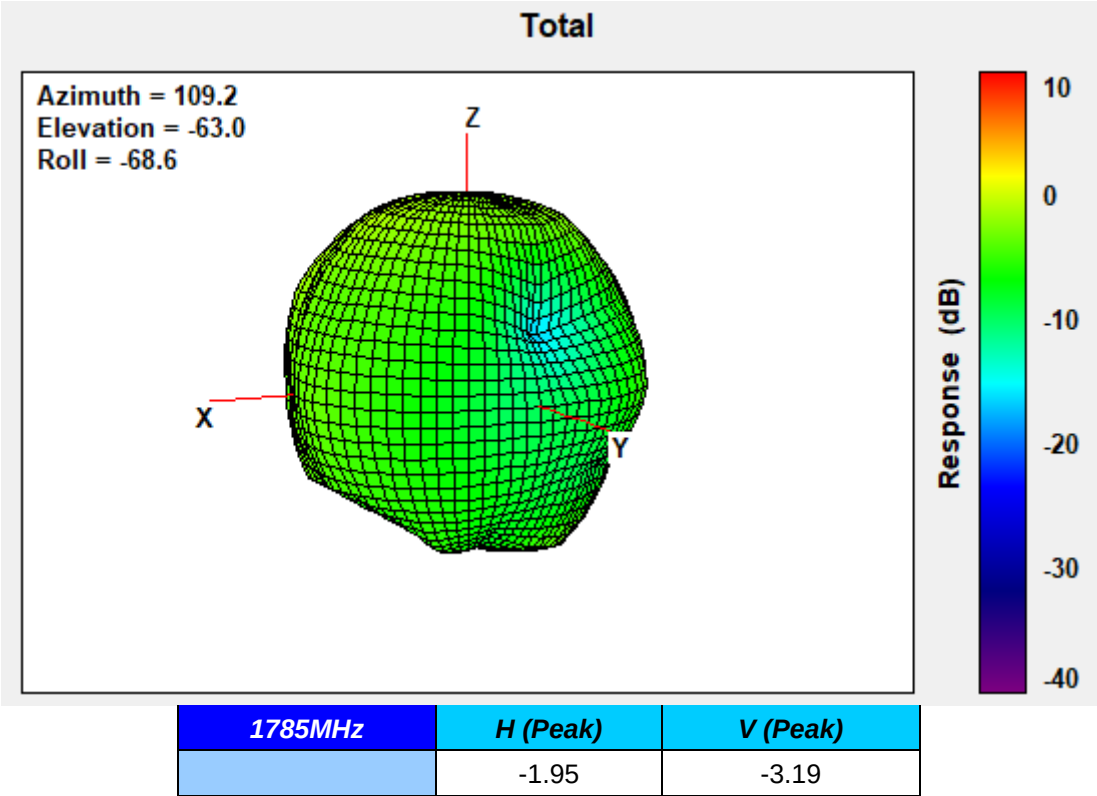
1767.4MHz



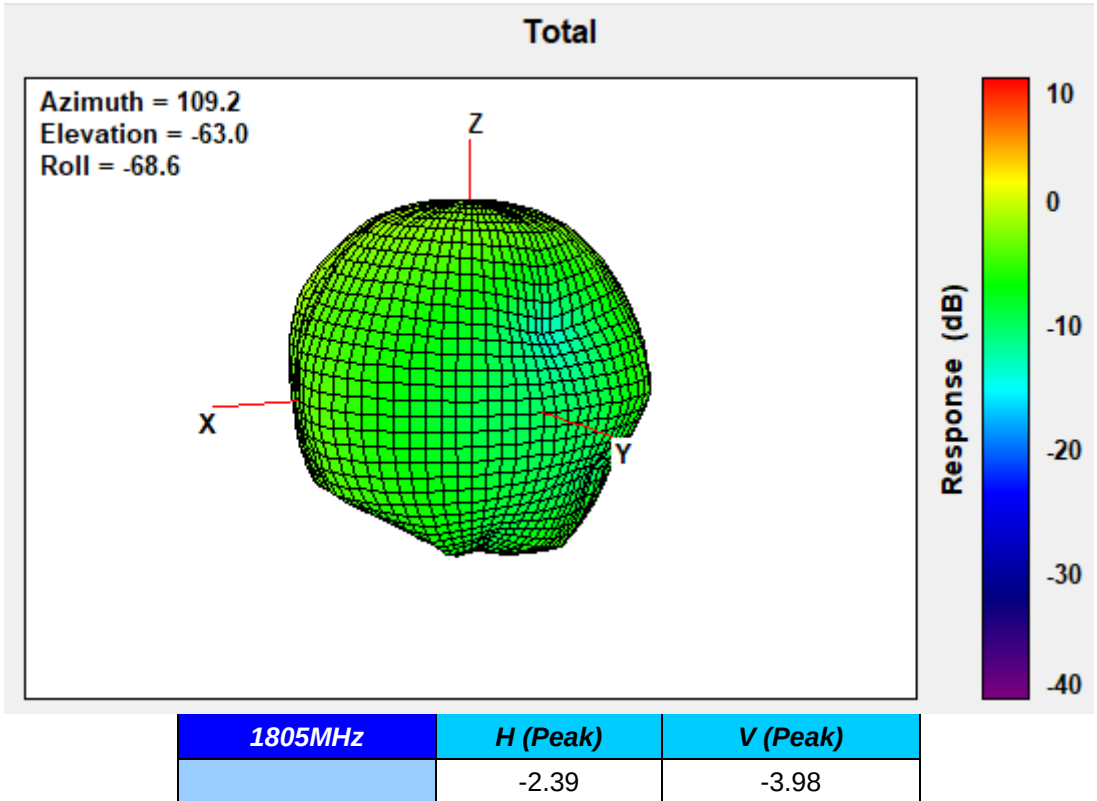
1780MHz



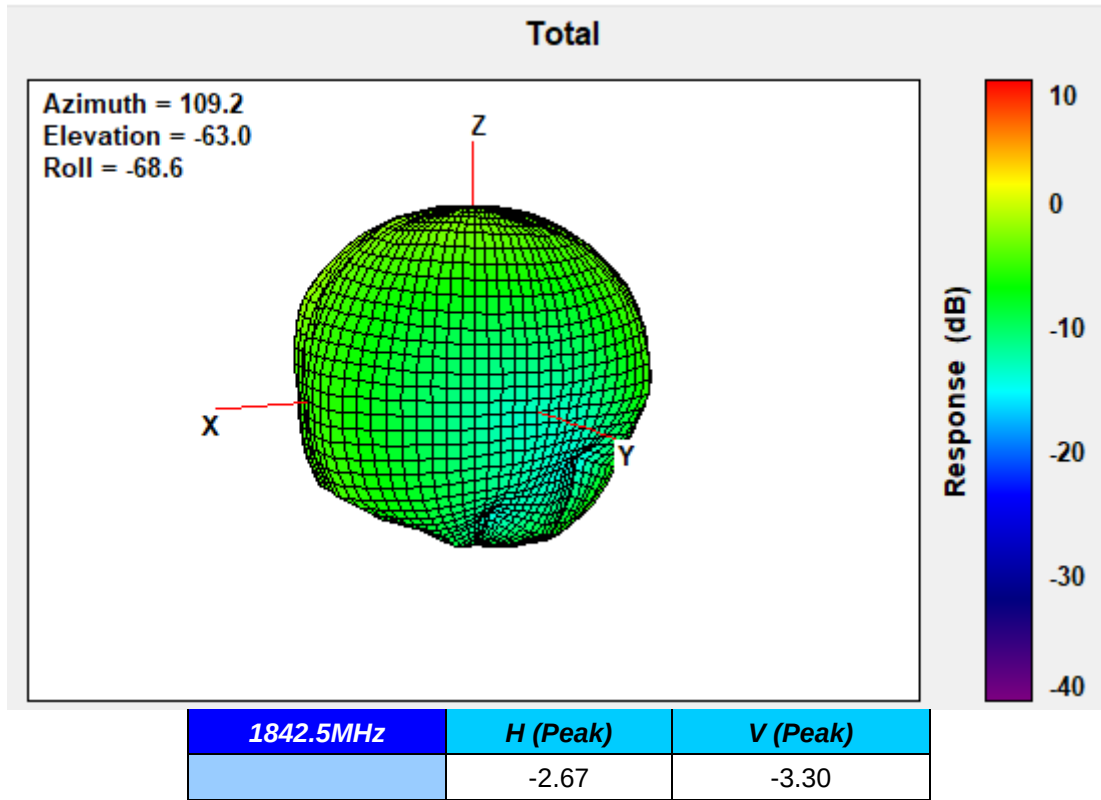
1785MHz



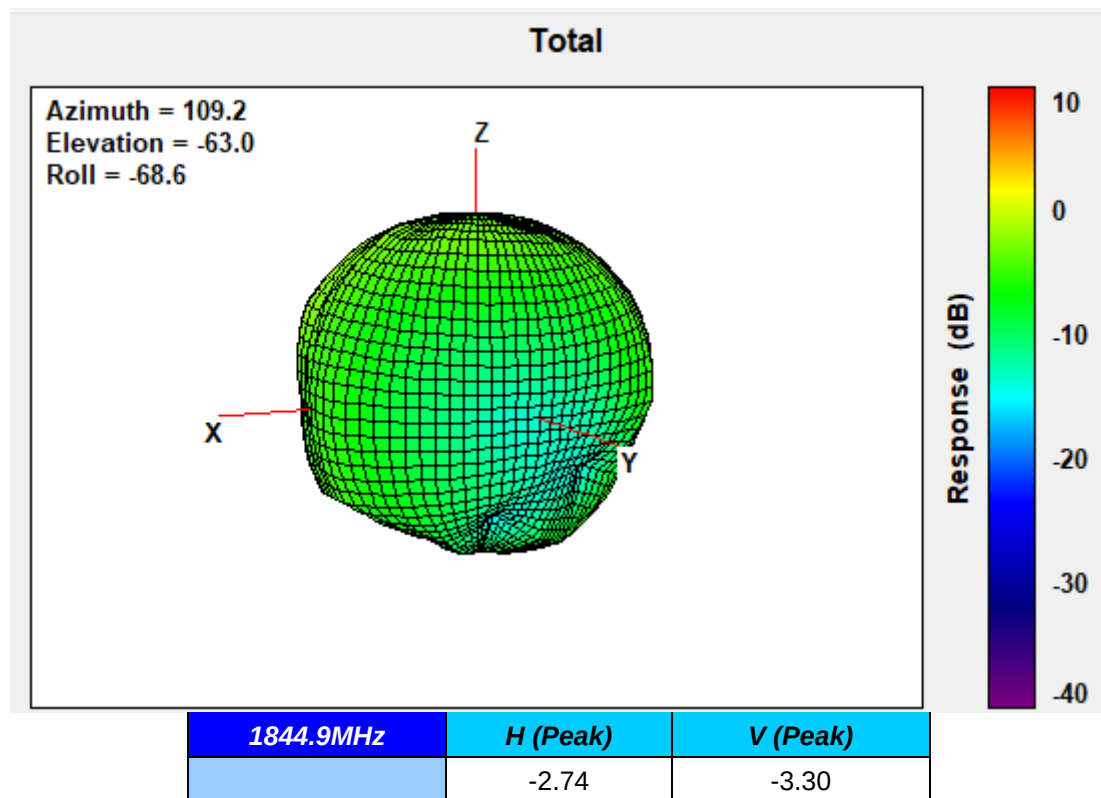
1805MHz



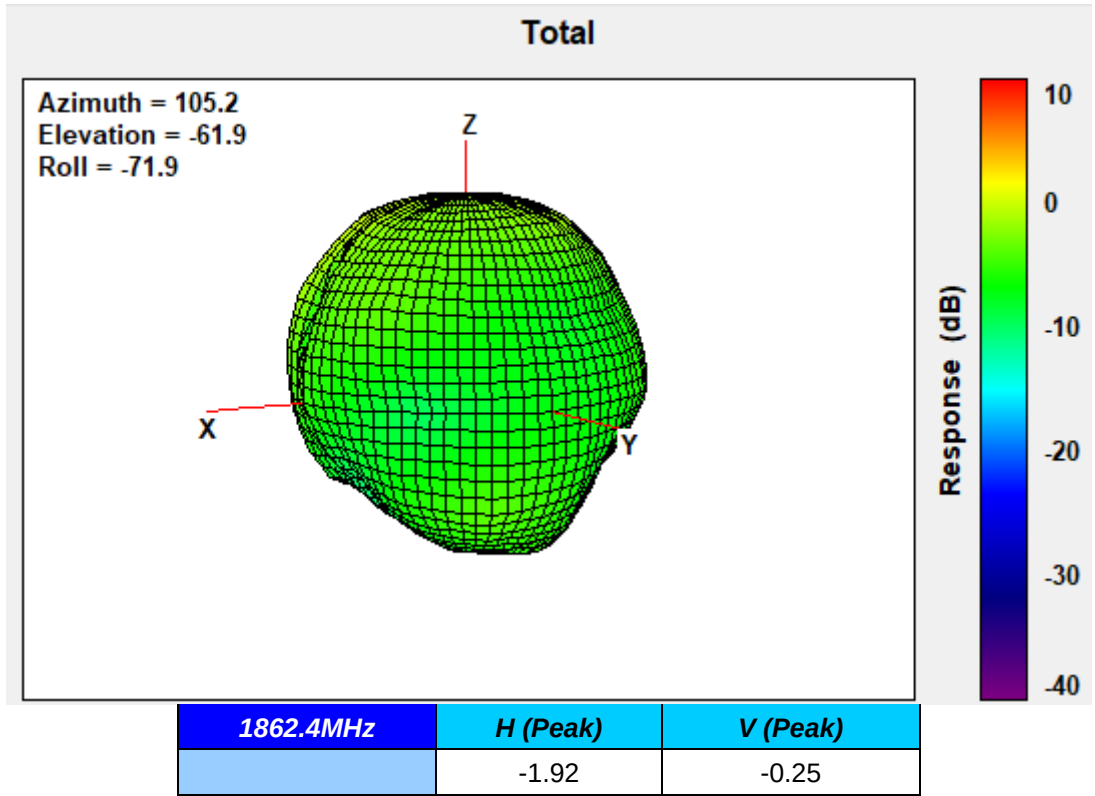
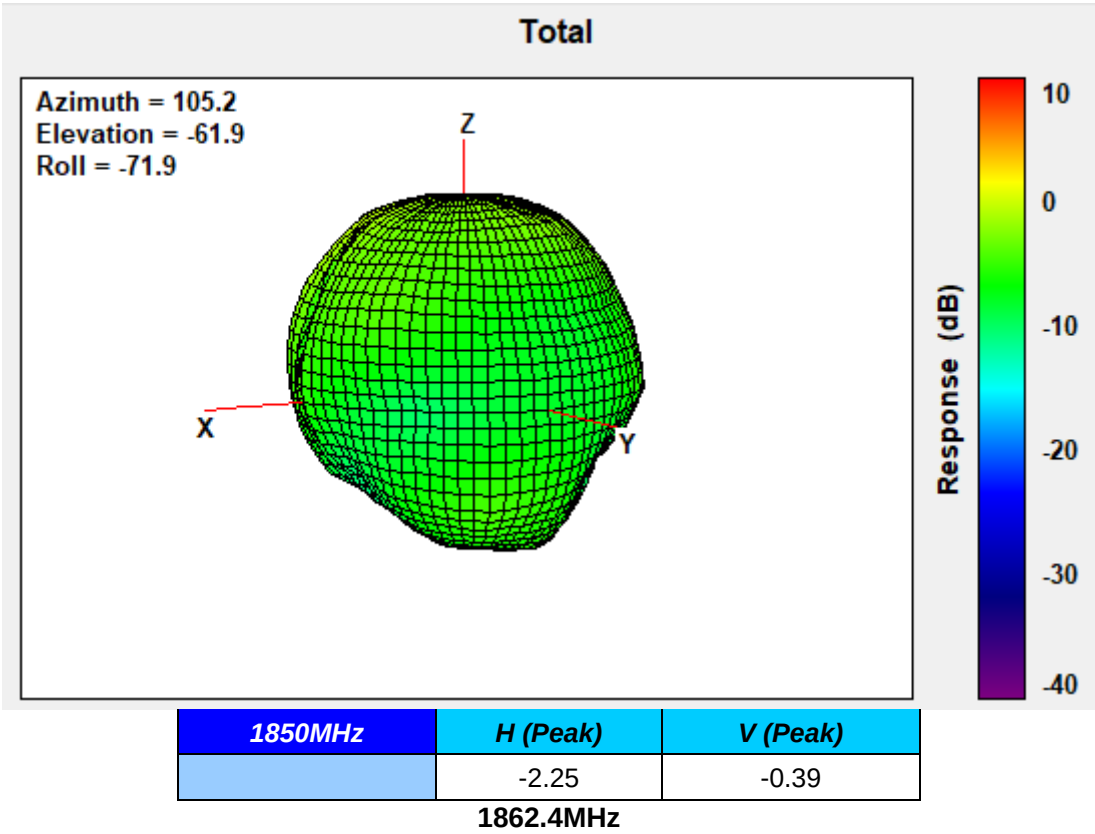
1842.5MHz



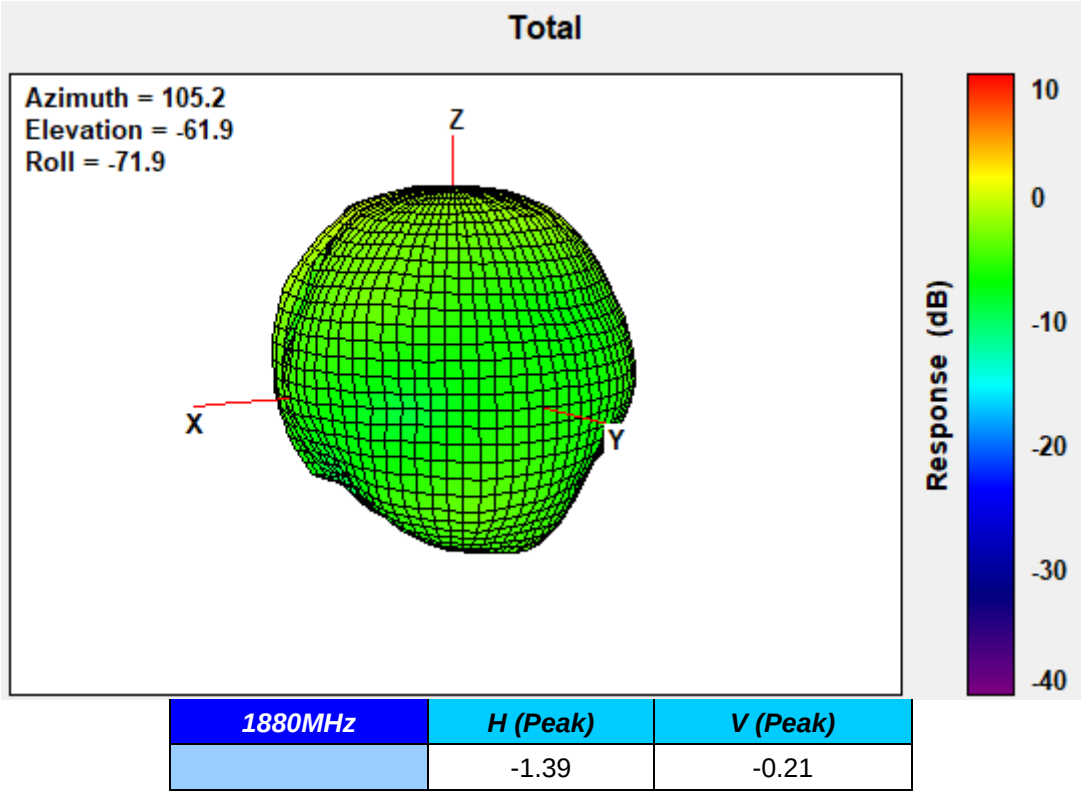
1844.9MHz



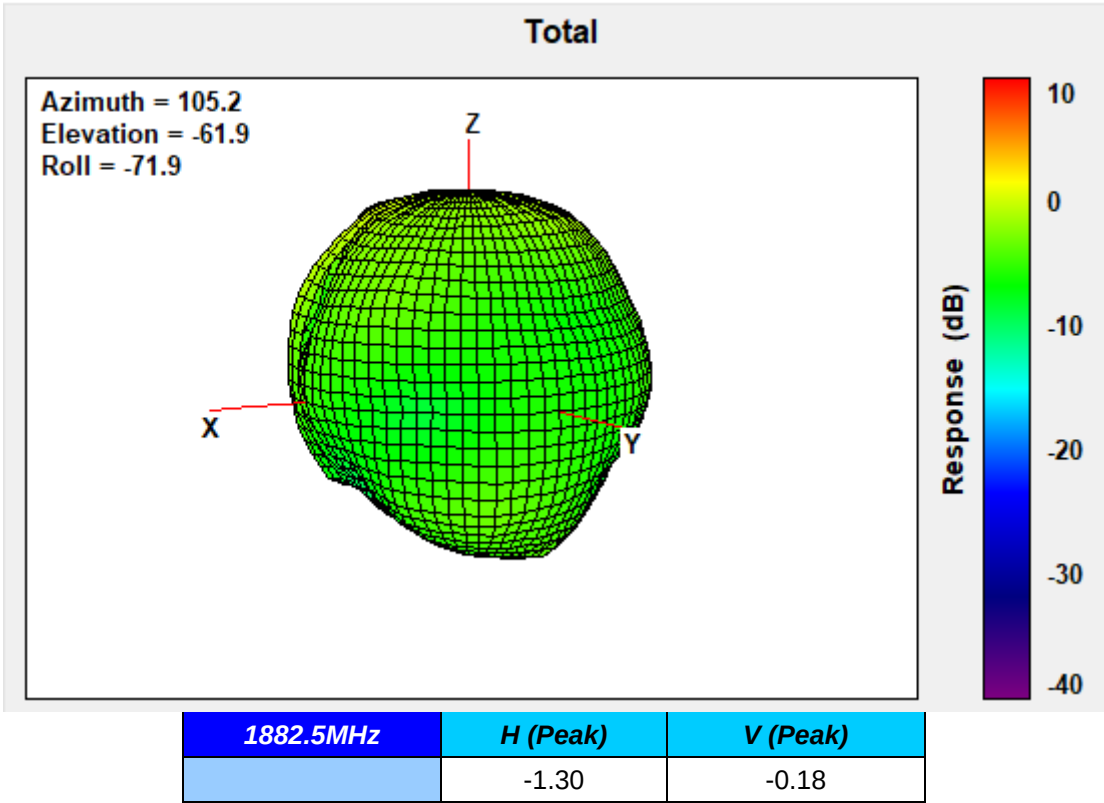
1850MHz



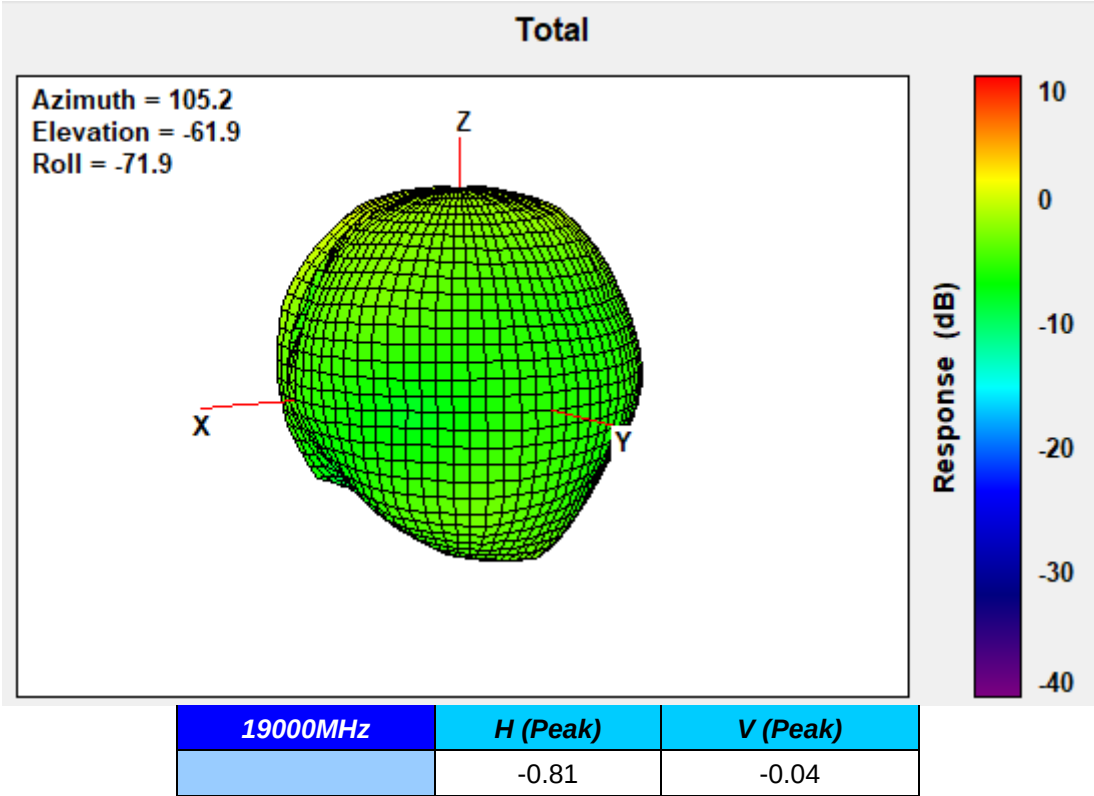
1880MHz



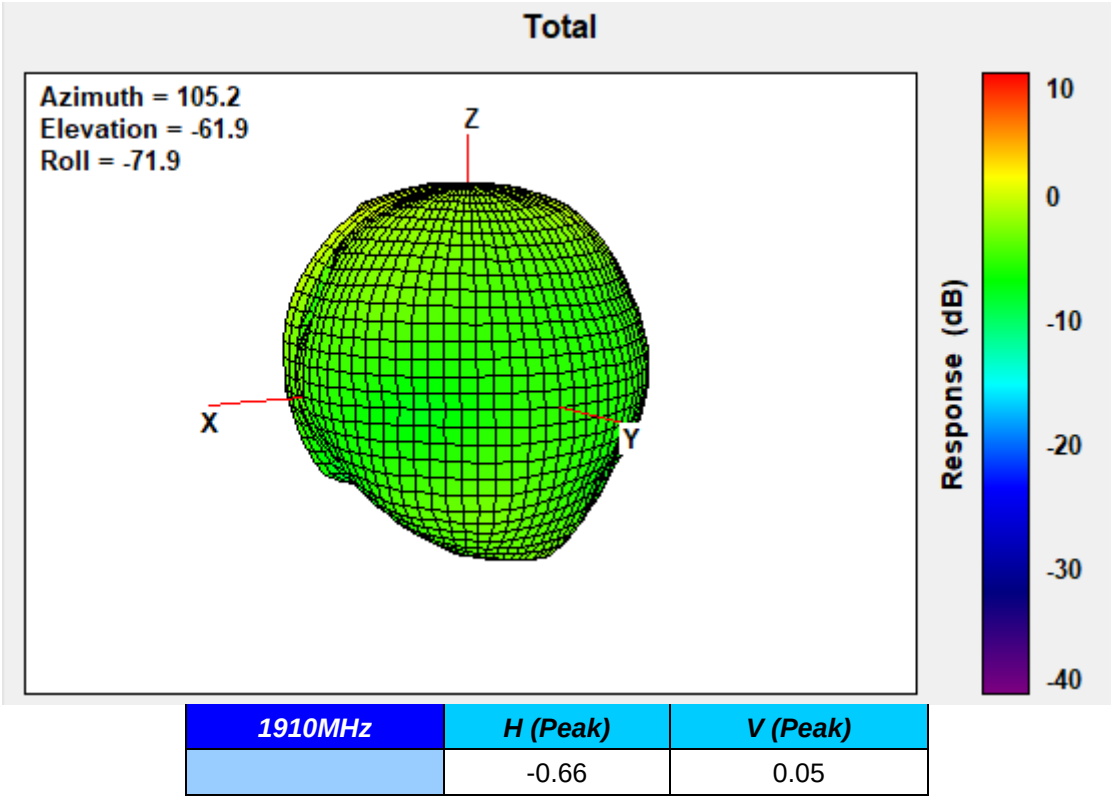
1882.5MHz



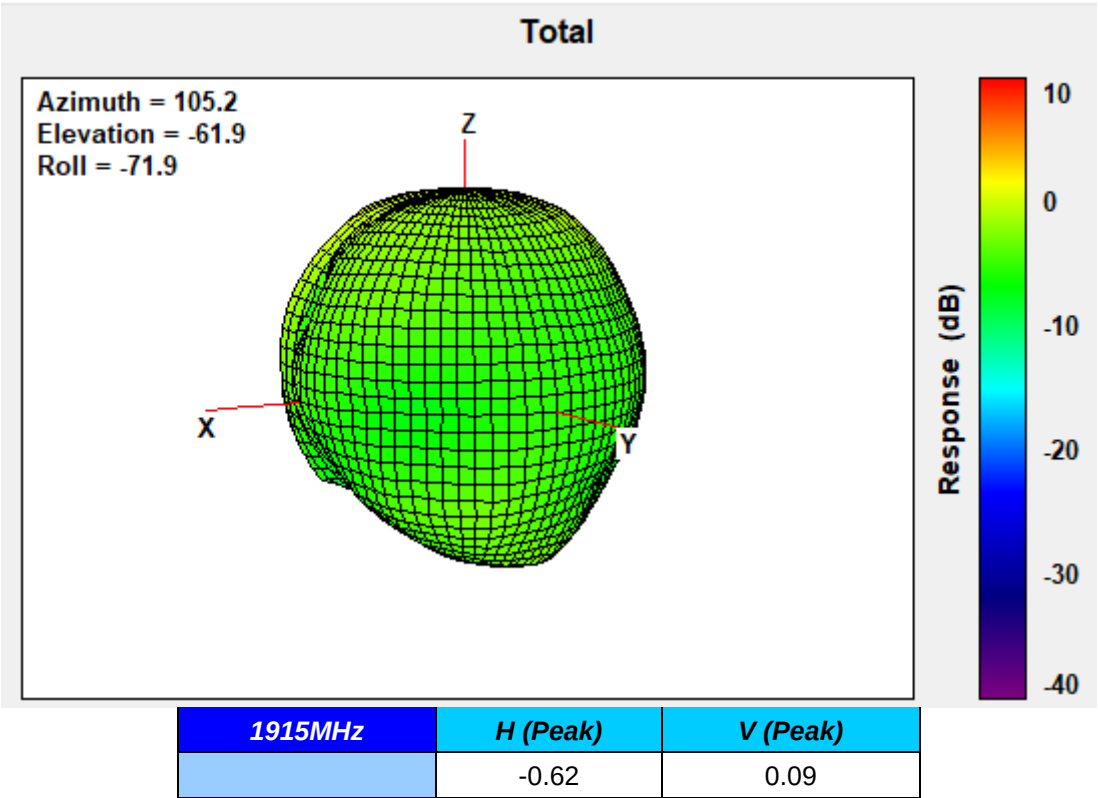
1900MHz



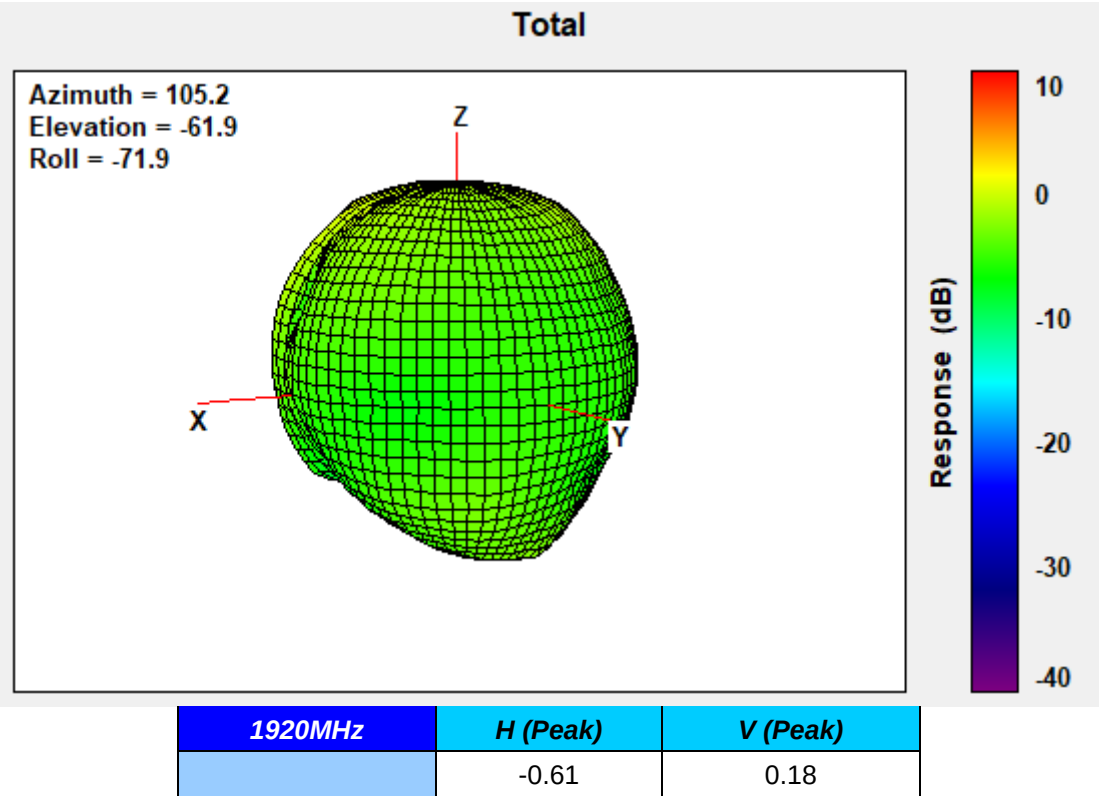
1910MHz



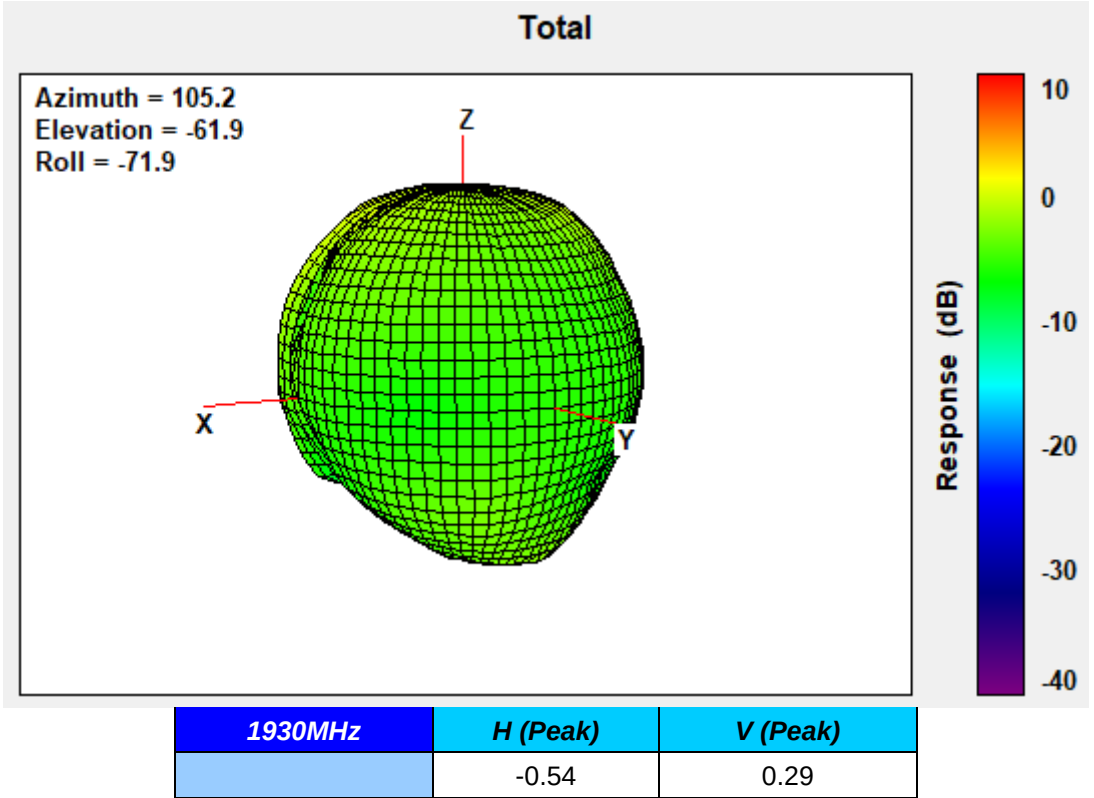
1915MHz



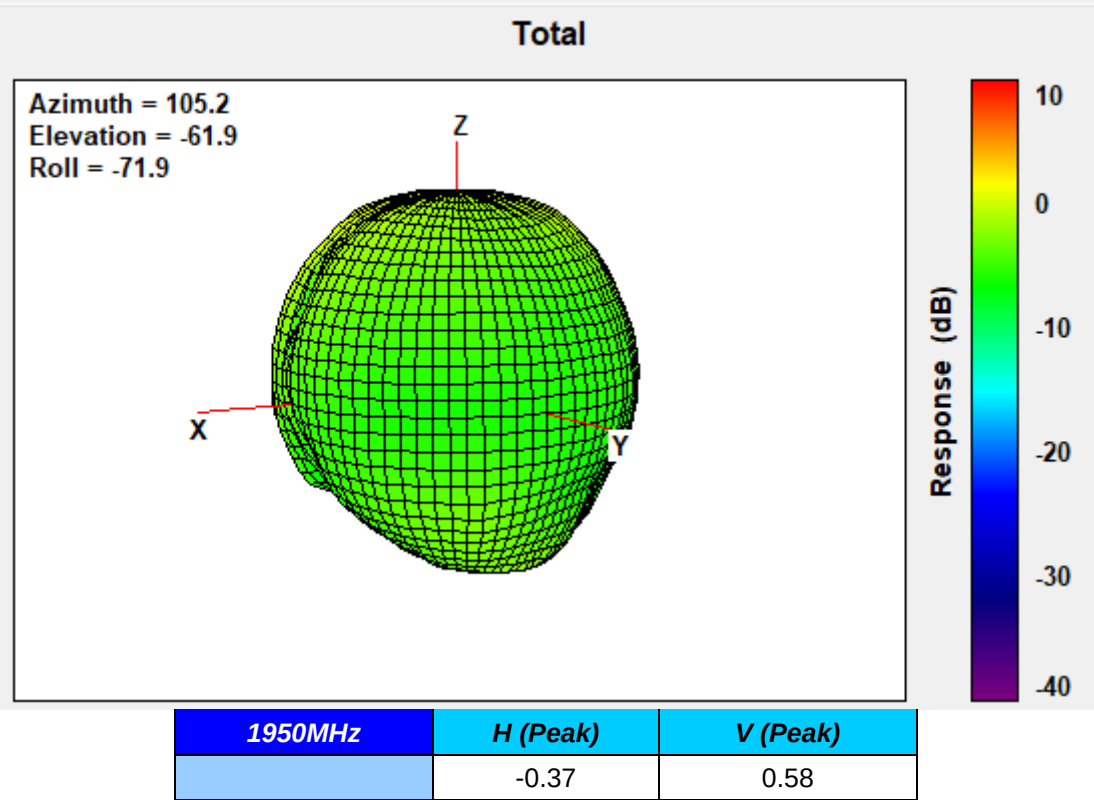
1920MHz



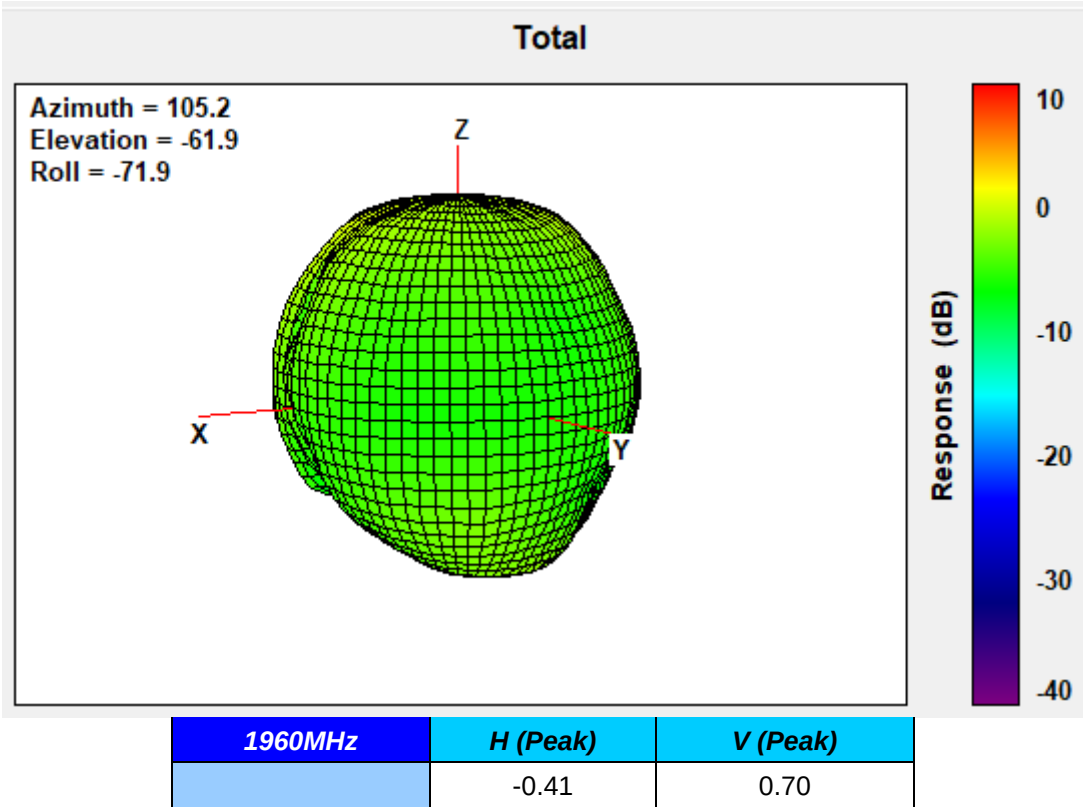
1930MHz



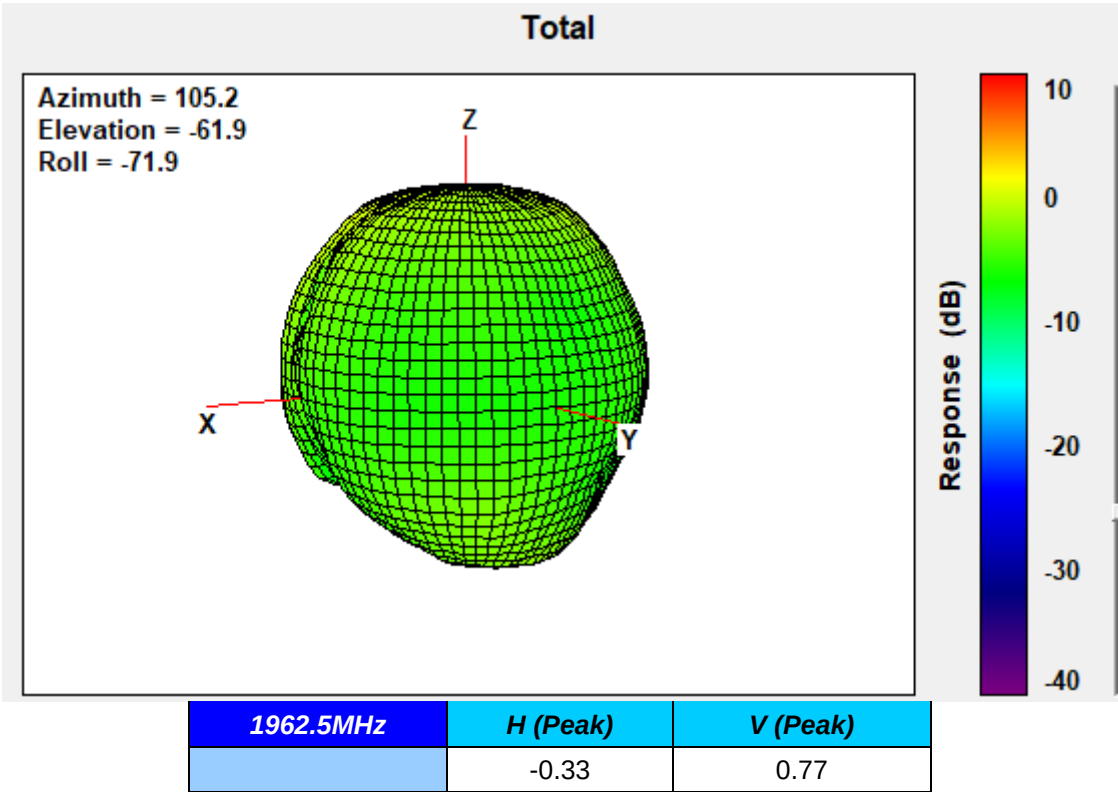
1950MHz



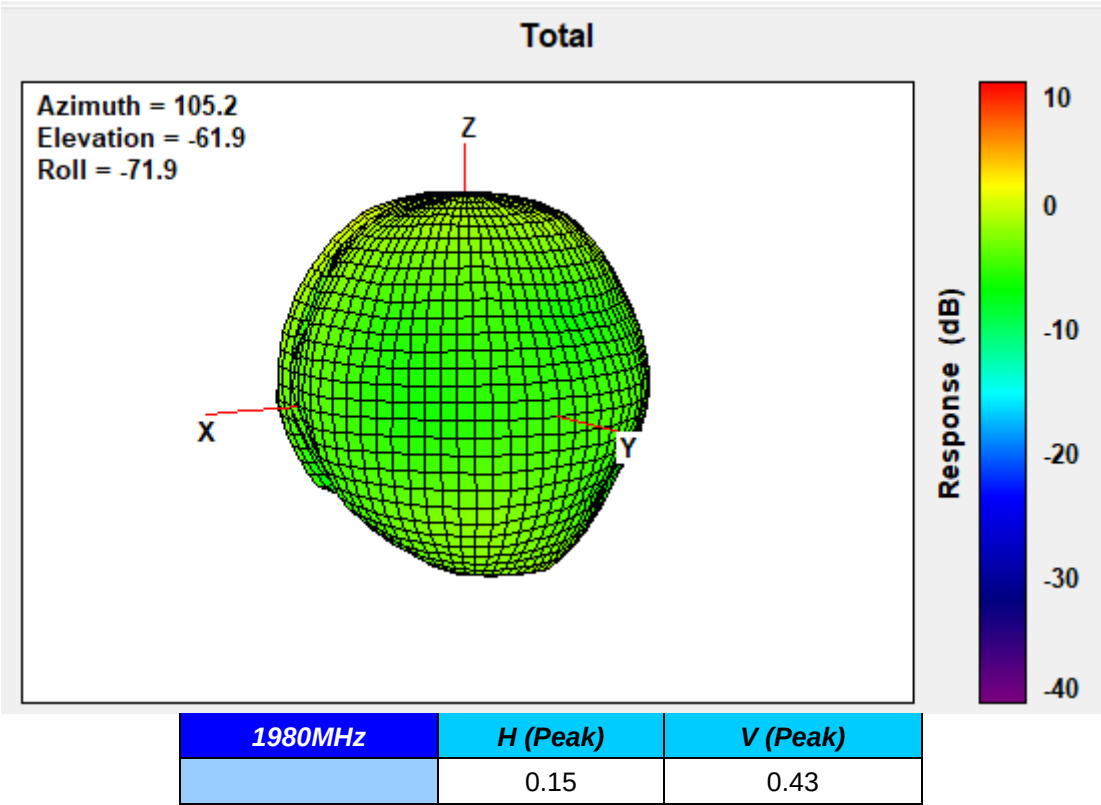
1960MHz



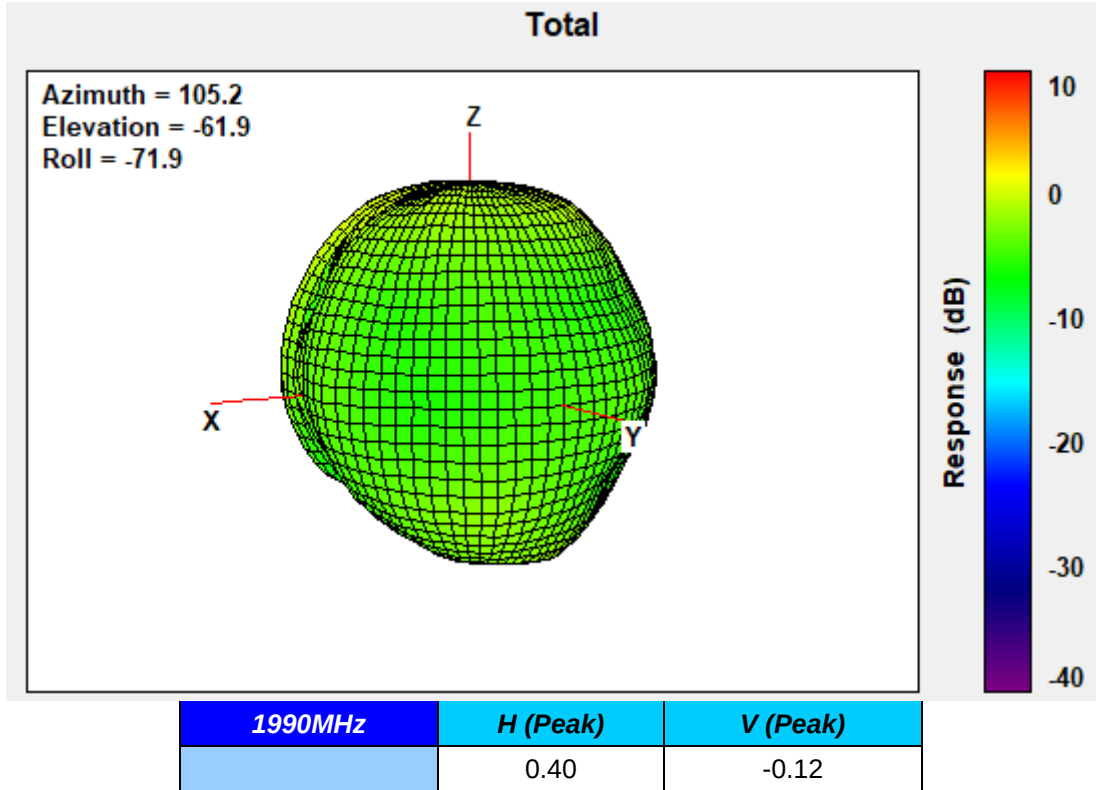
1962.5MHz



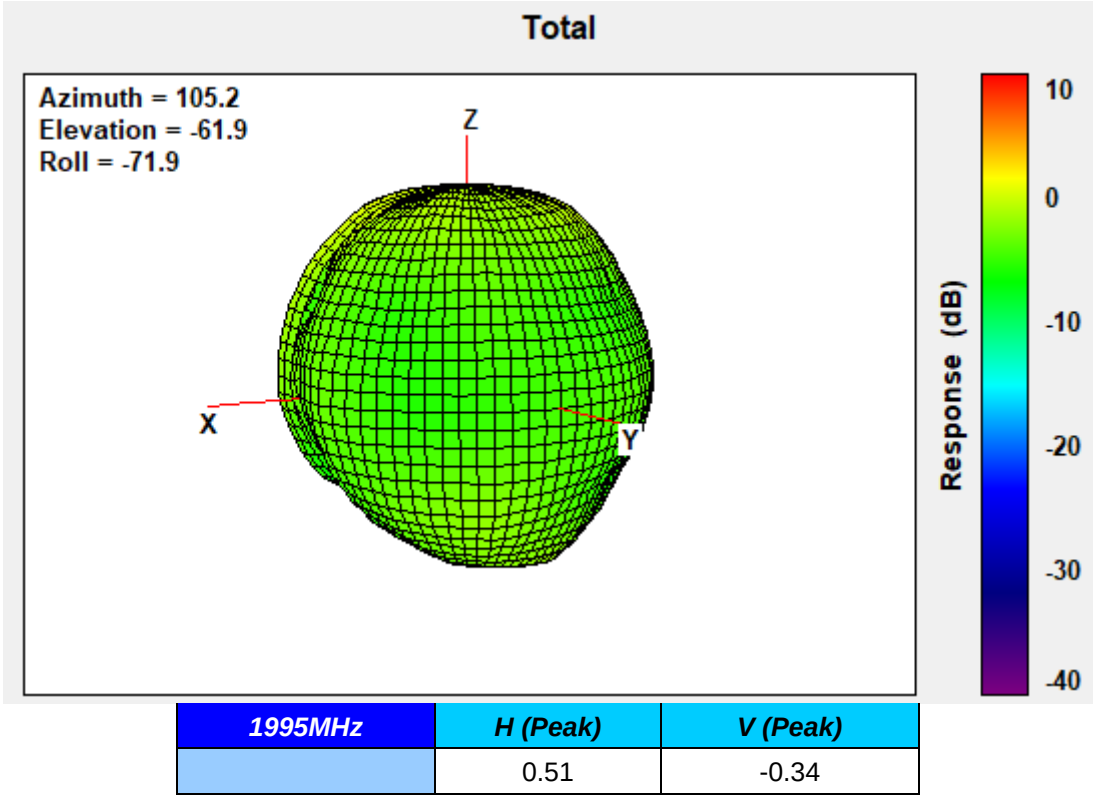
1980MHz



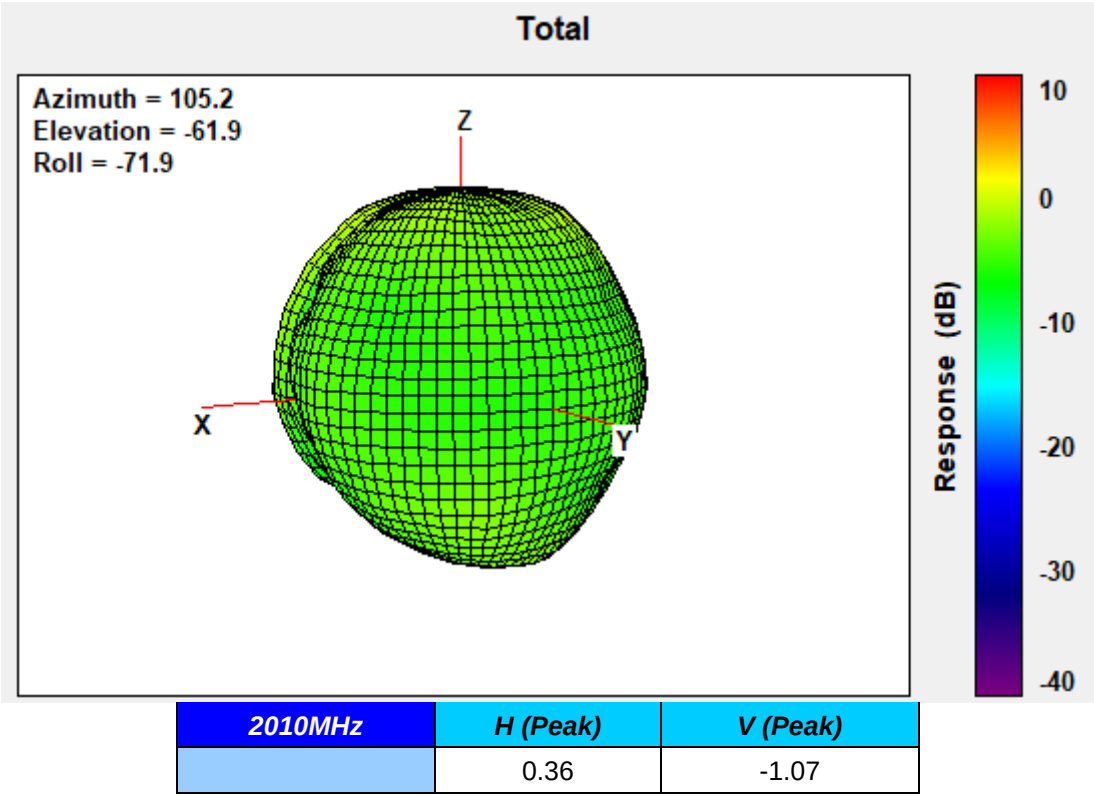
1990MHz

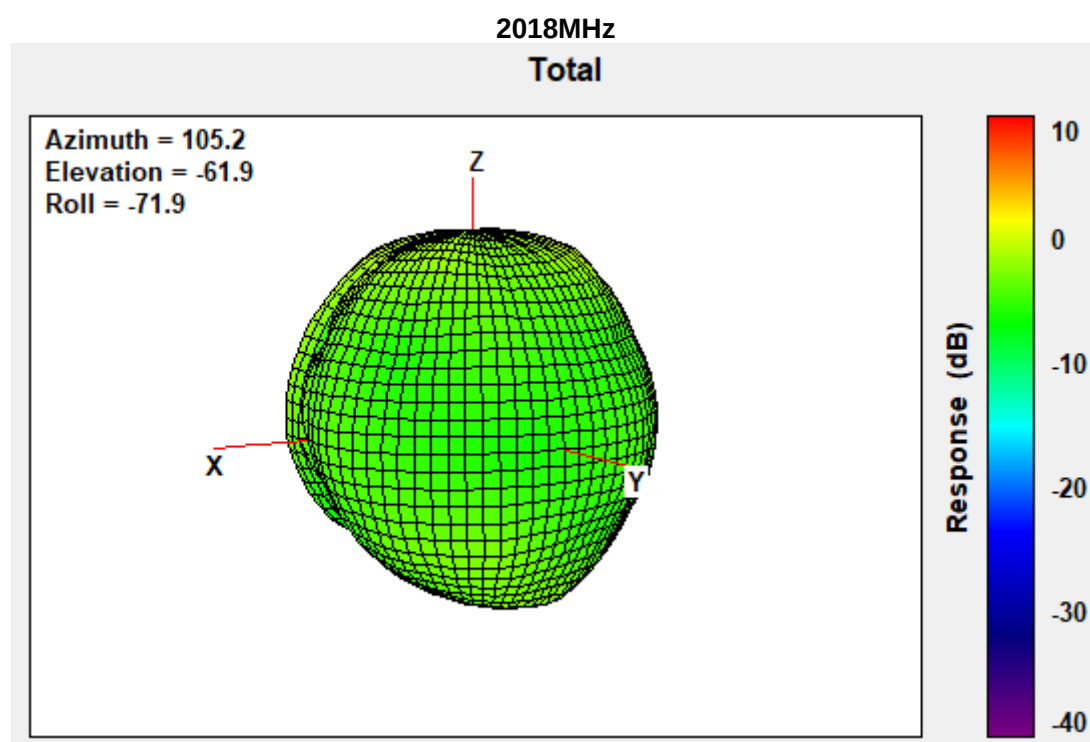


1995MHz



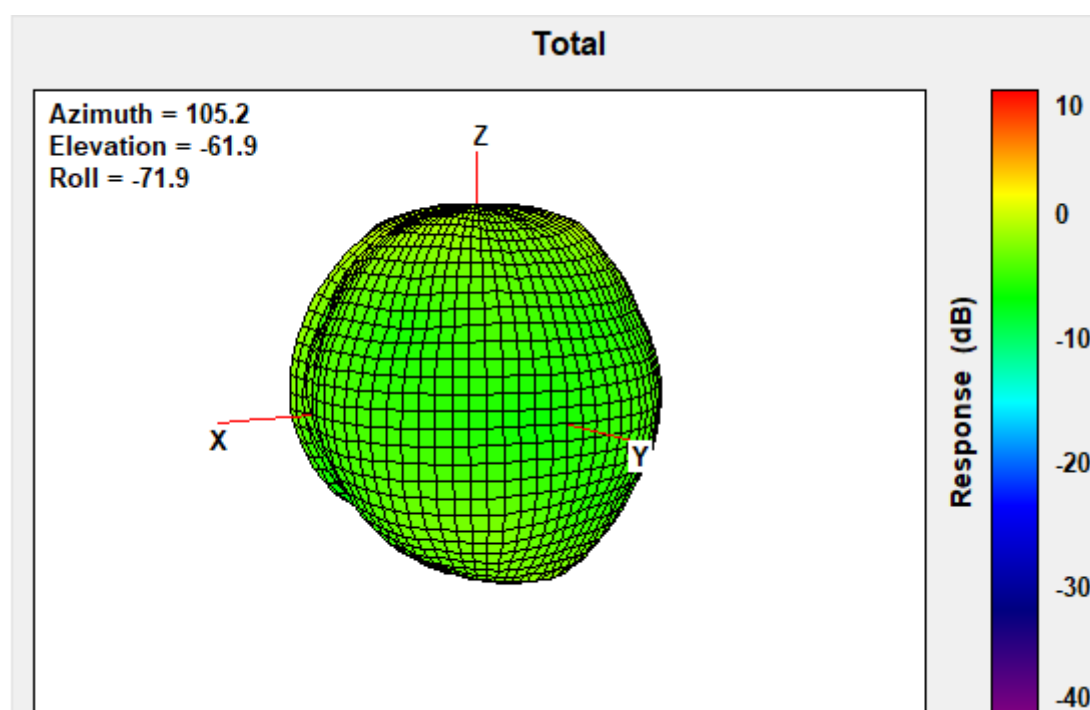
2010MHz





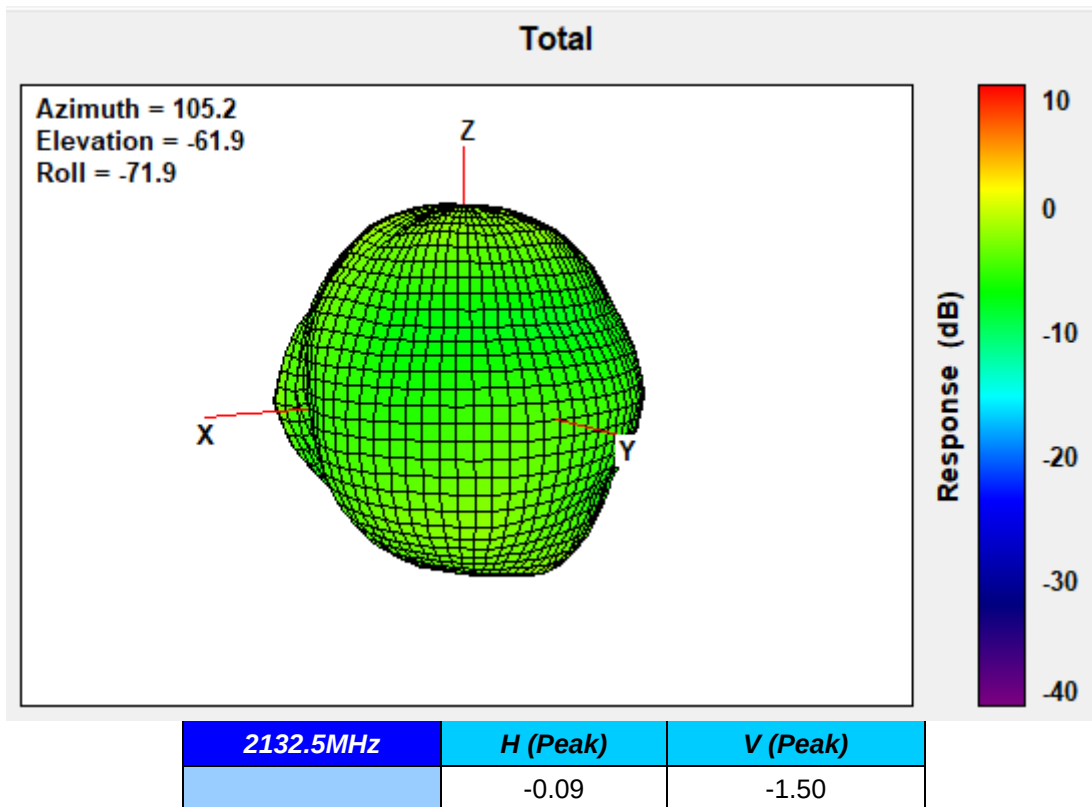
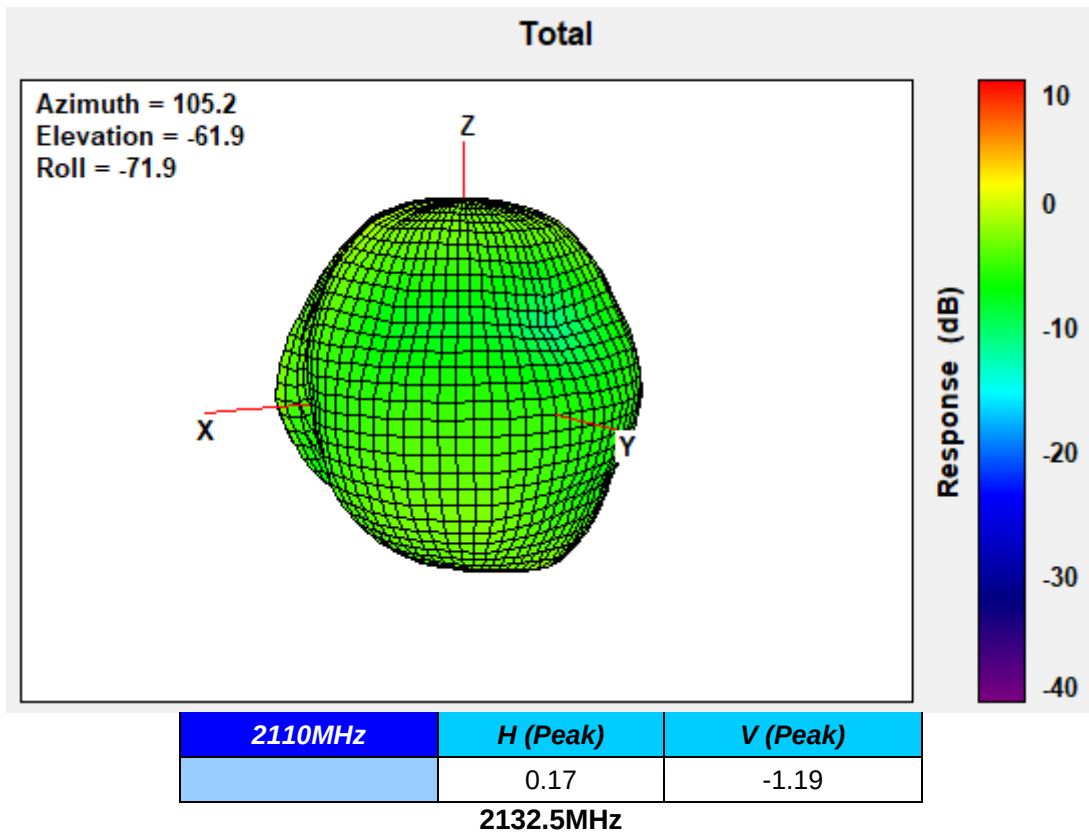
2018MHz	H (Peak)	V (Peak)
	0.33	-1.16

2025MHz

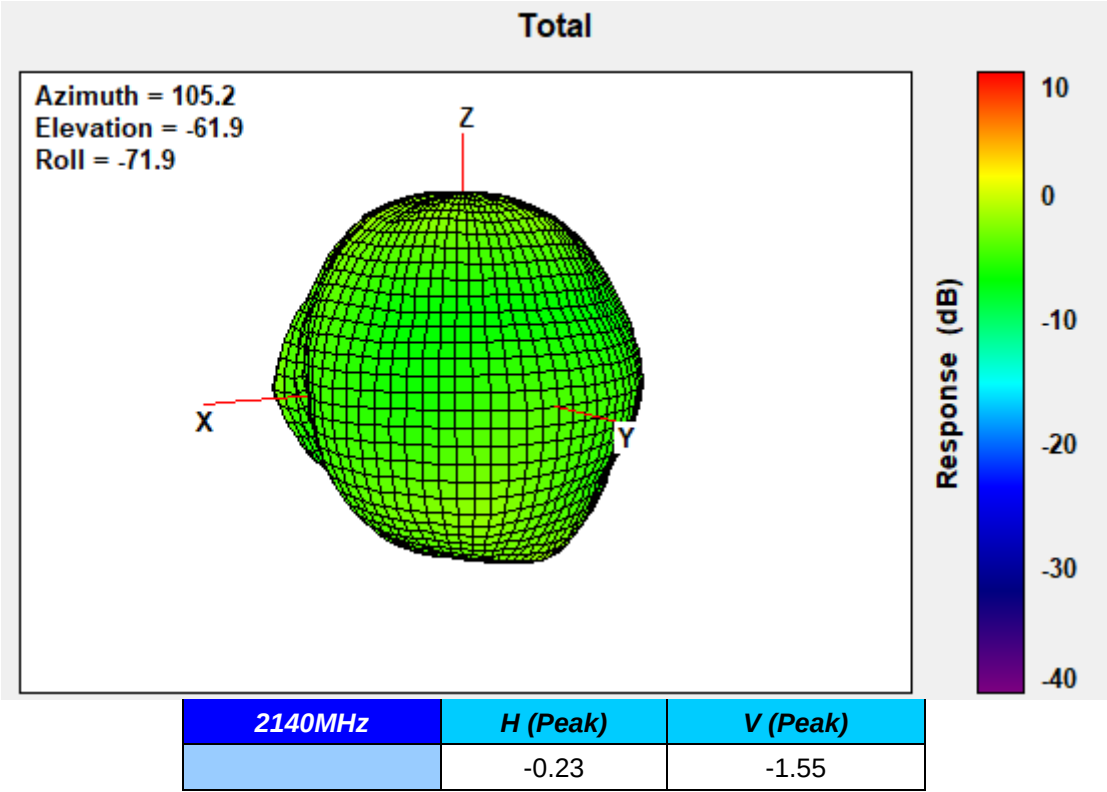


2025MHz	H (Peak)	V (Peak)
	0.37	-1.15

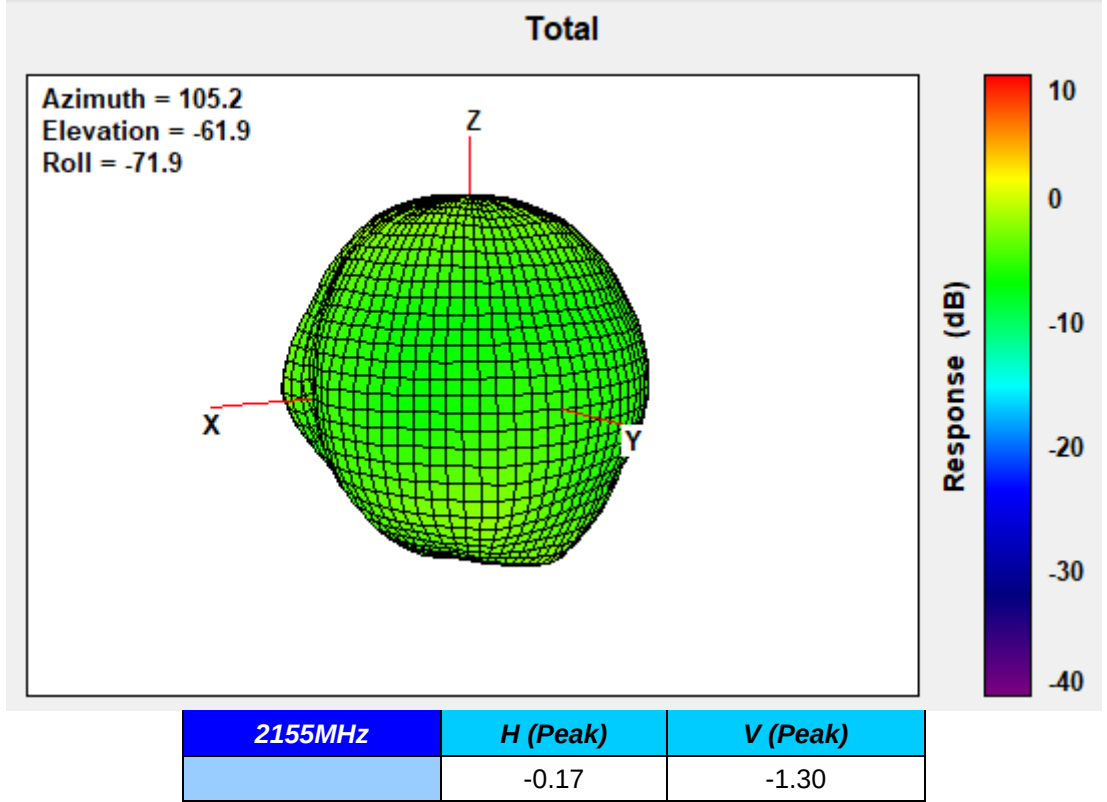
2110MHz



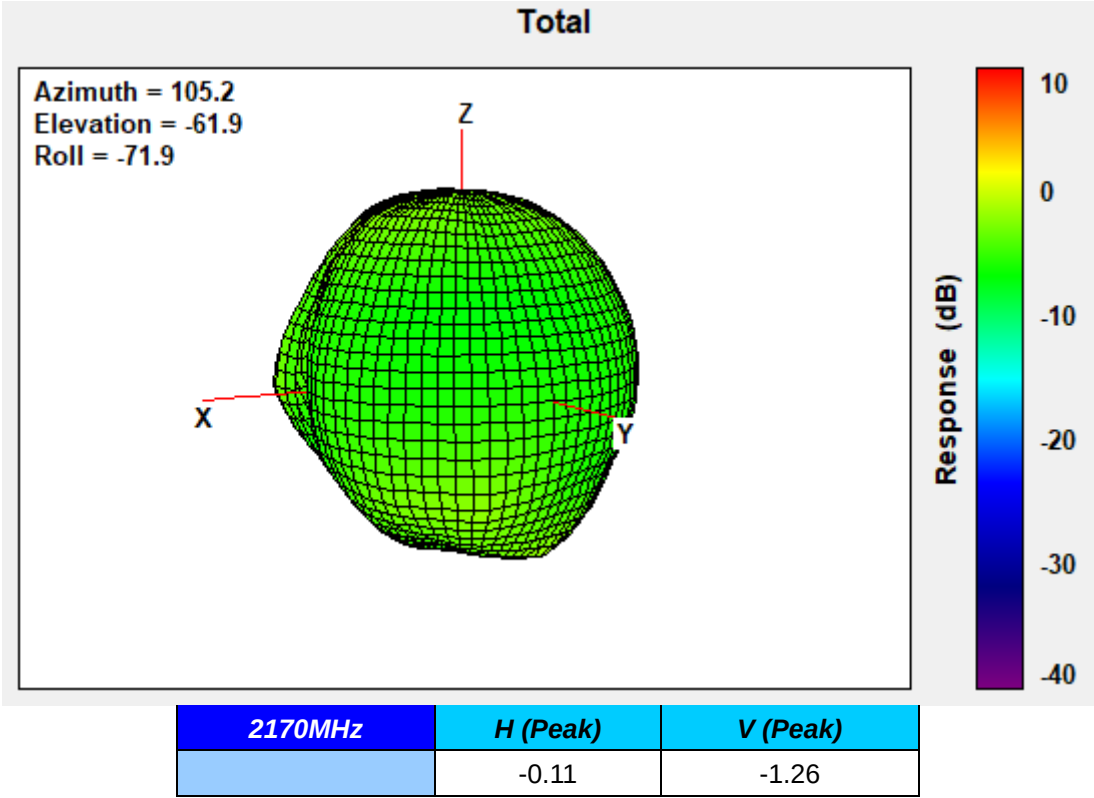
2140MHz



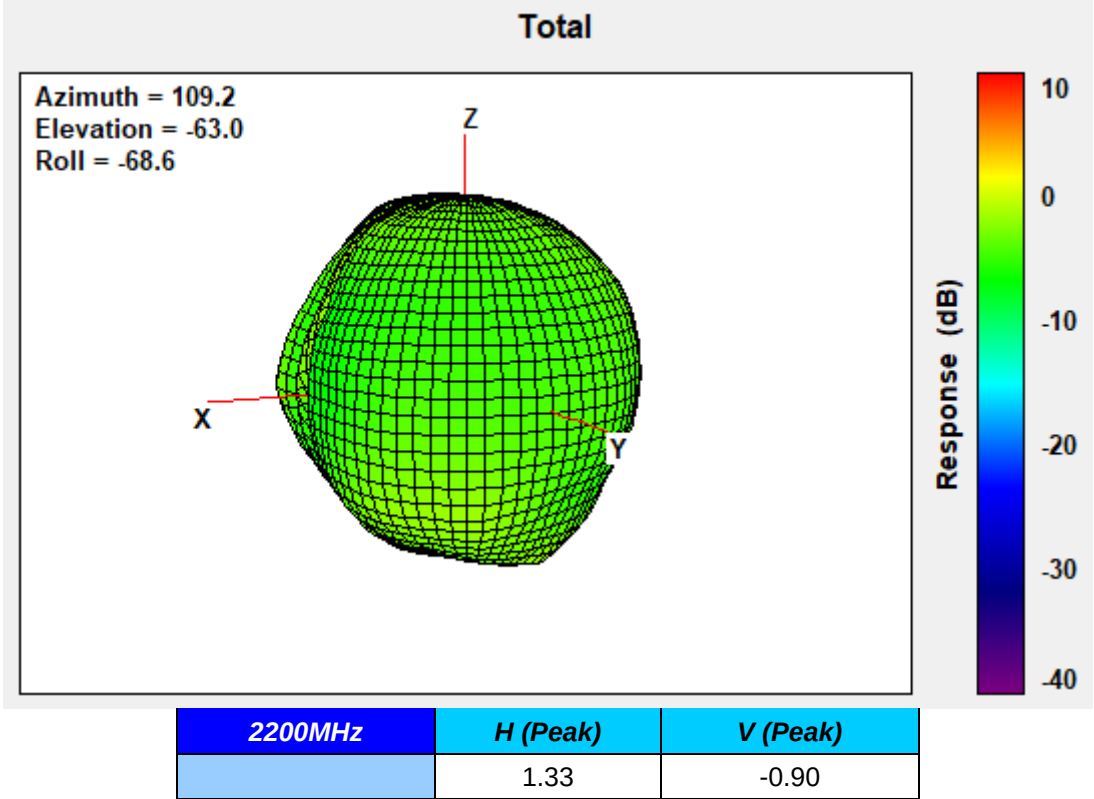
2155MHz



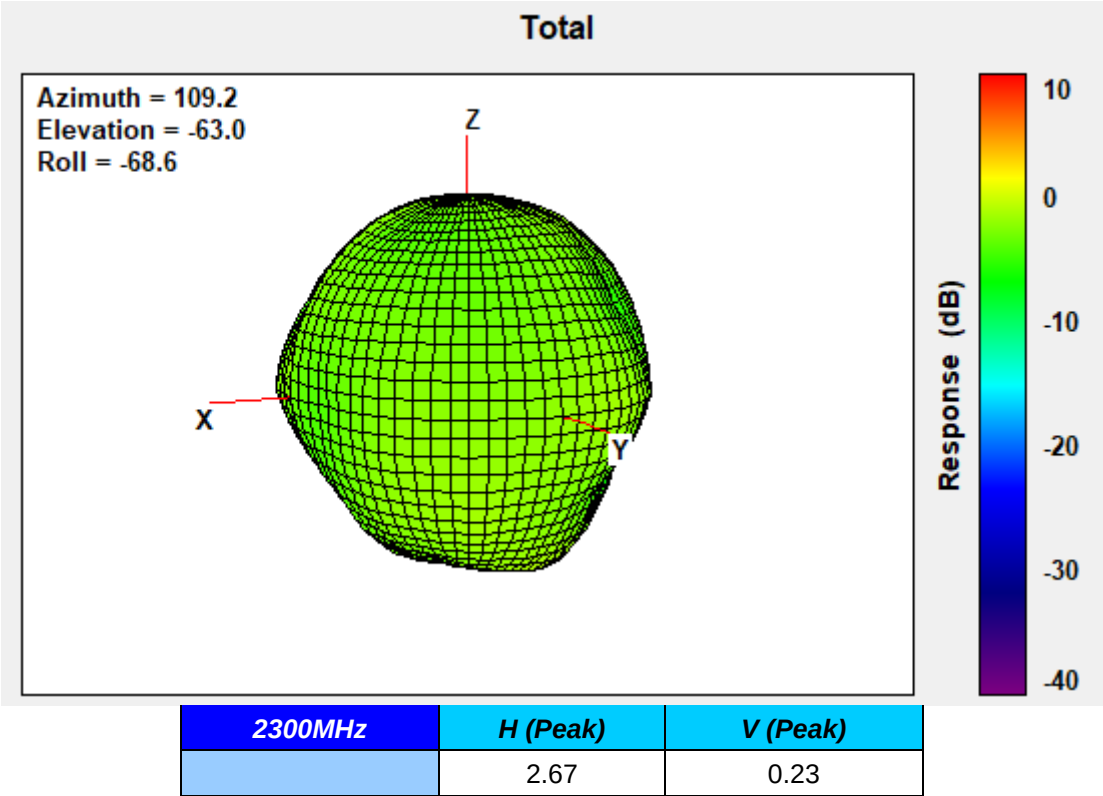
2170MHz



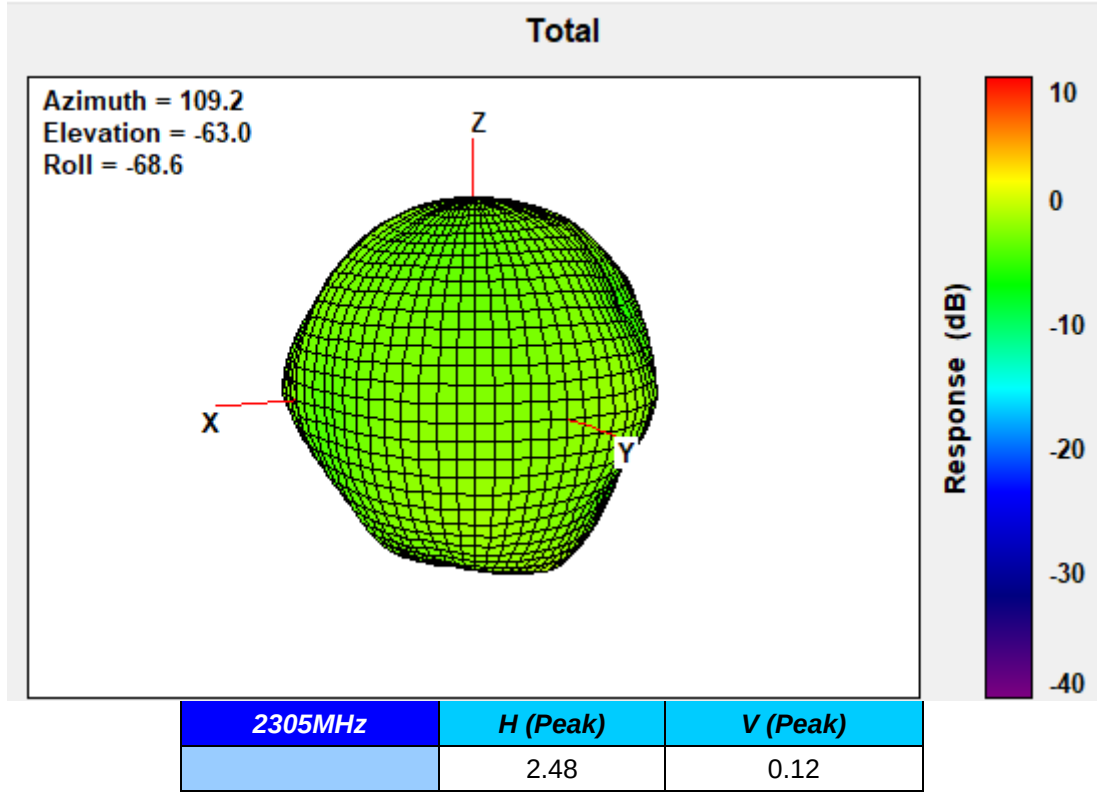
2200MHz



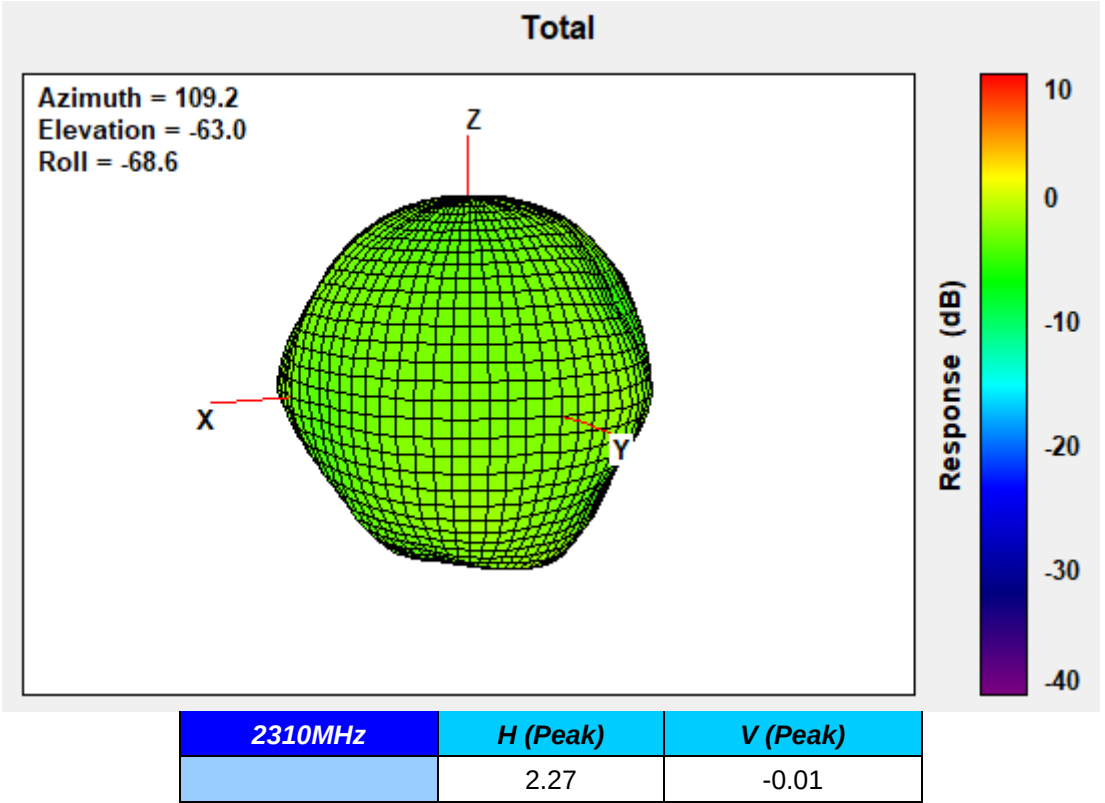
2300MHz



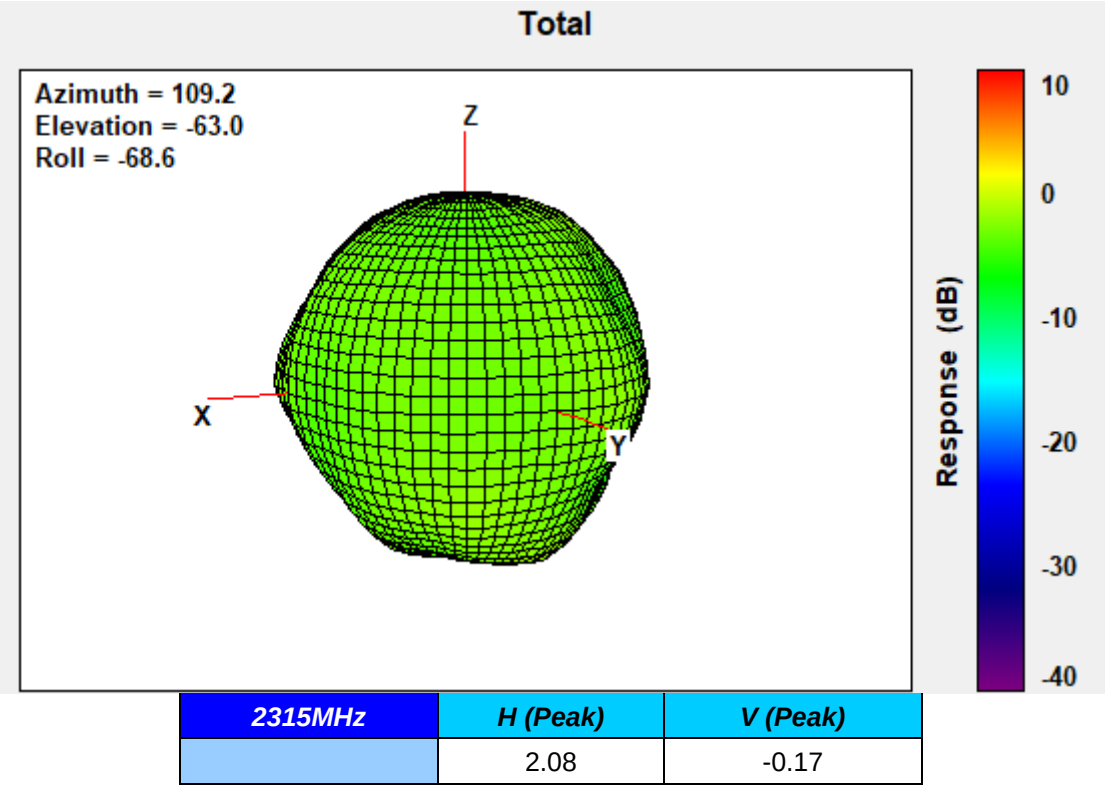
2305MHz



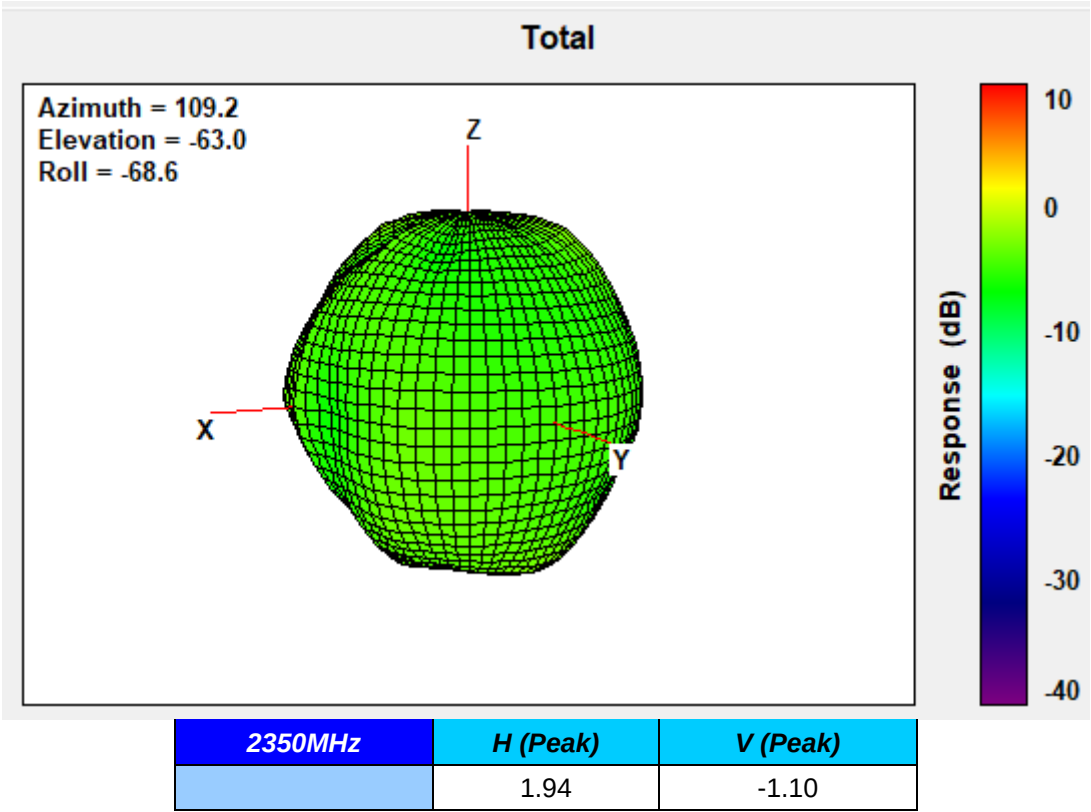
2310MHz



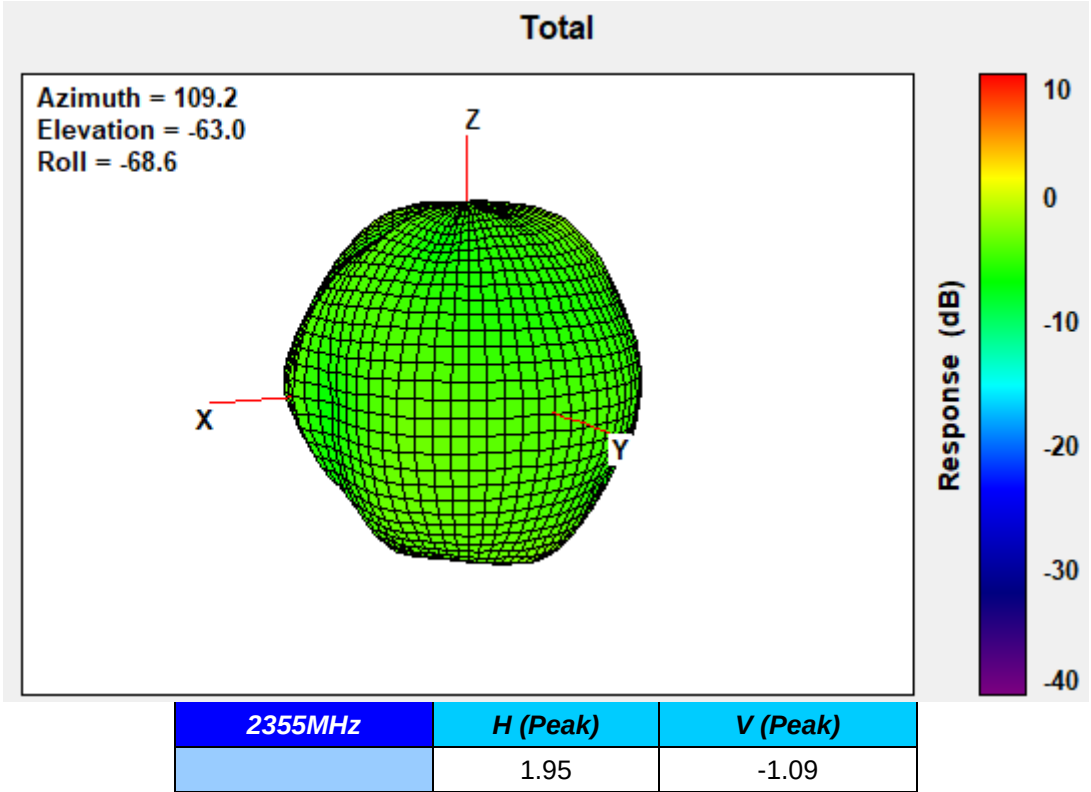
2315MHz



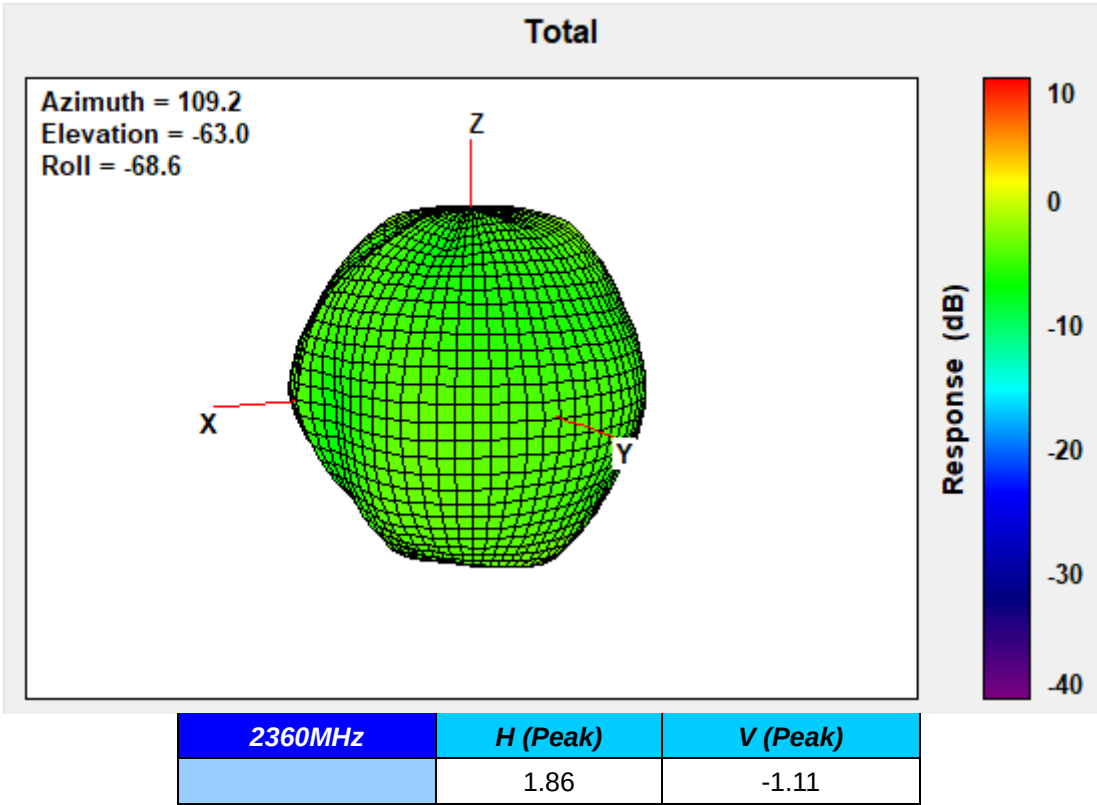
2350MHz



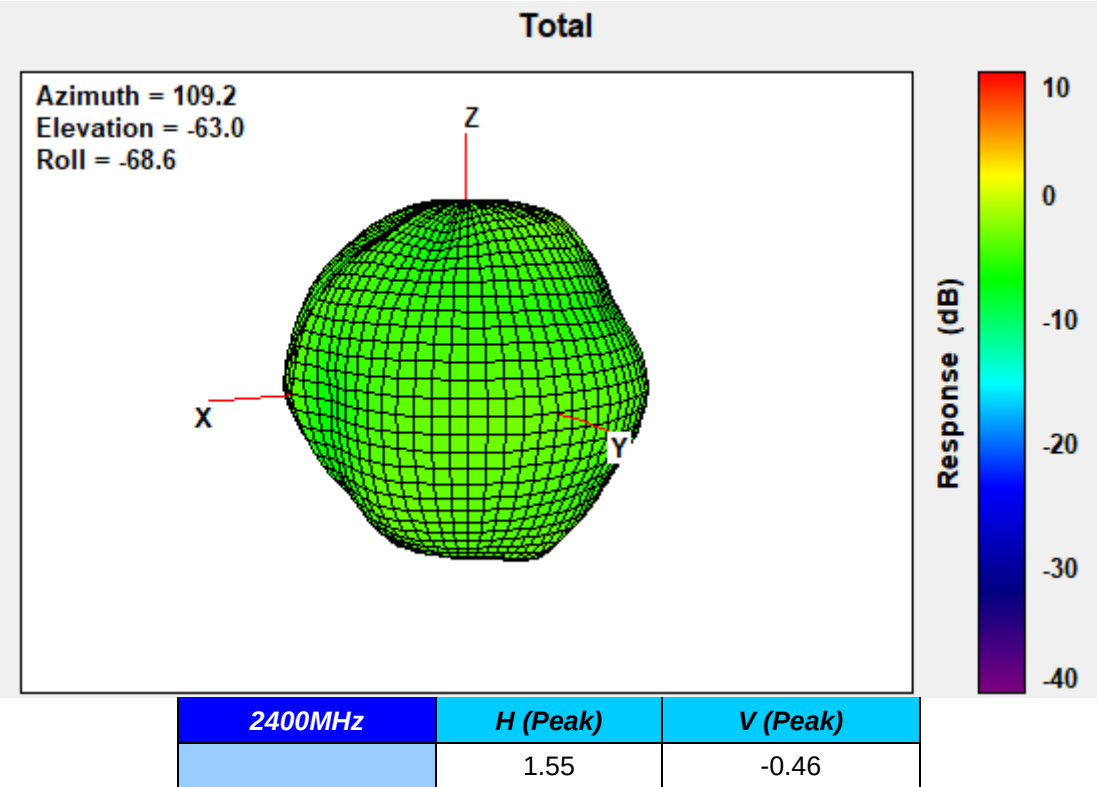
2355MHz



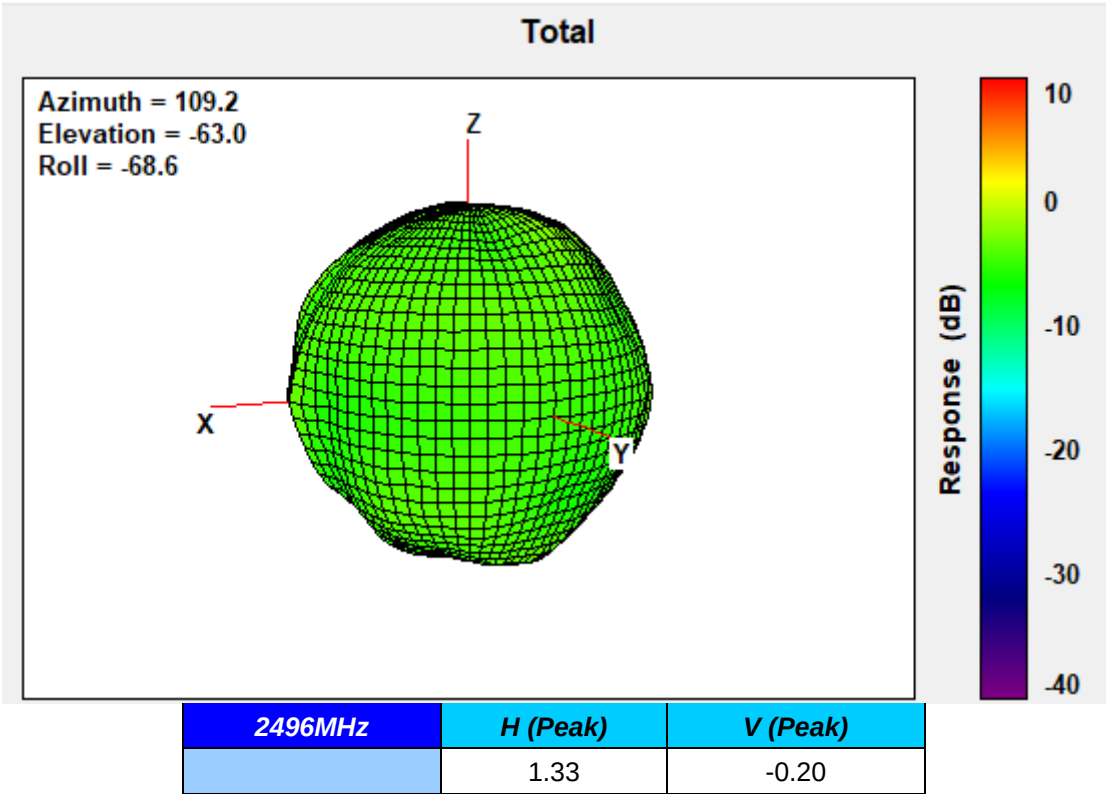
2360MHz



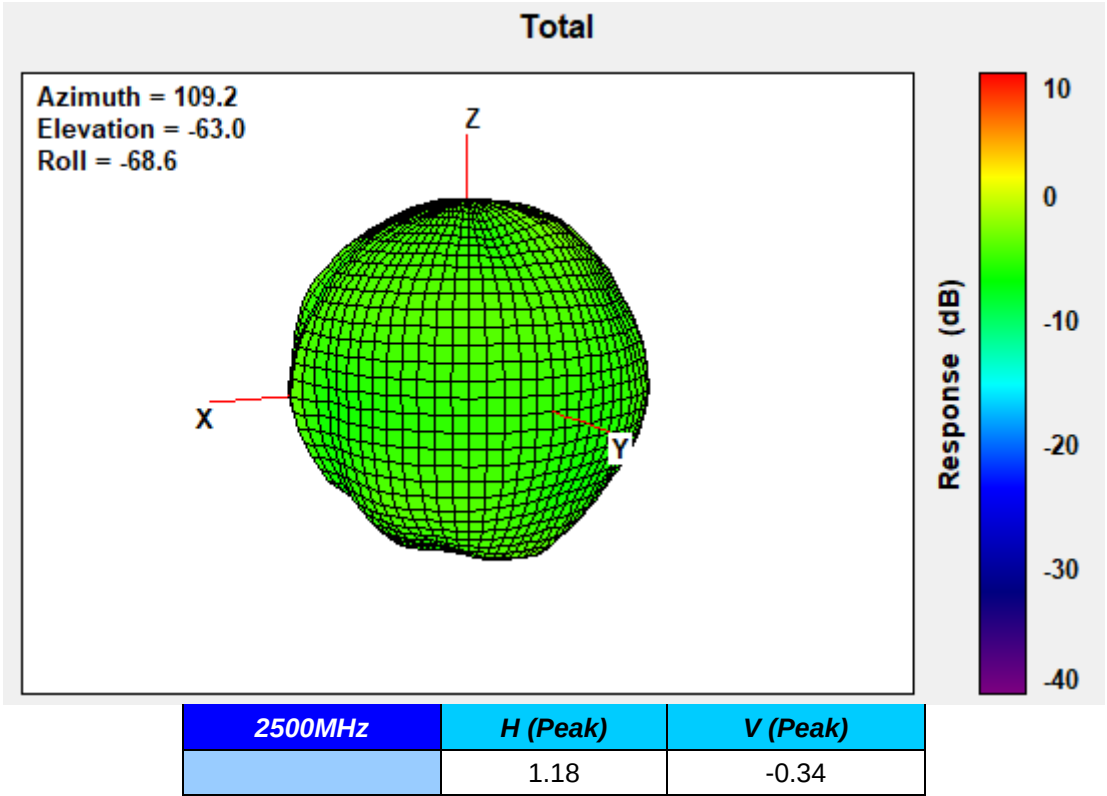
2400MHz



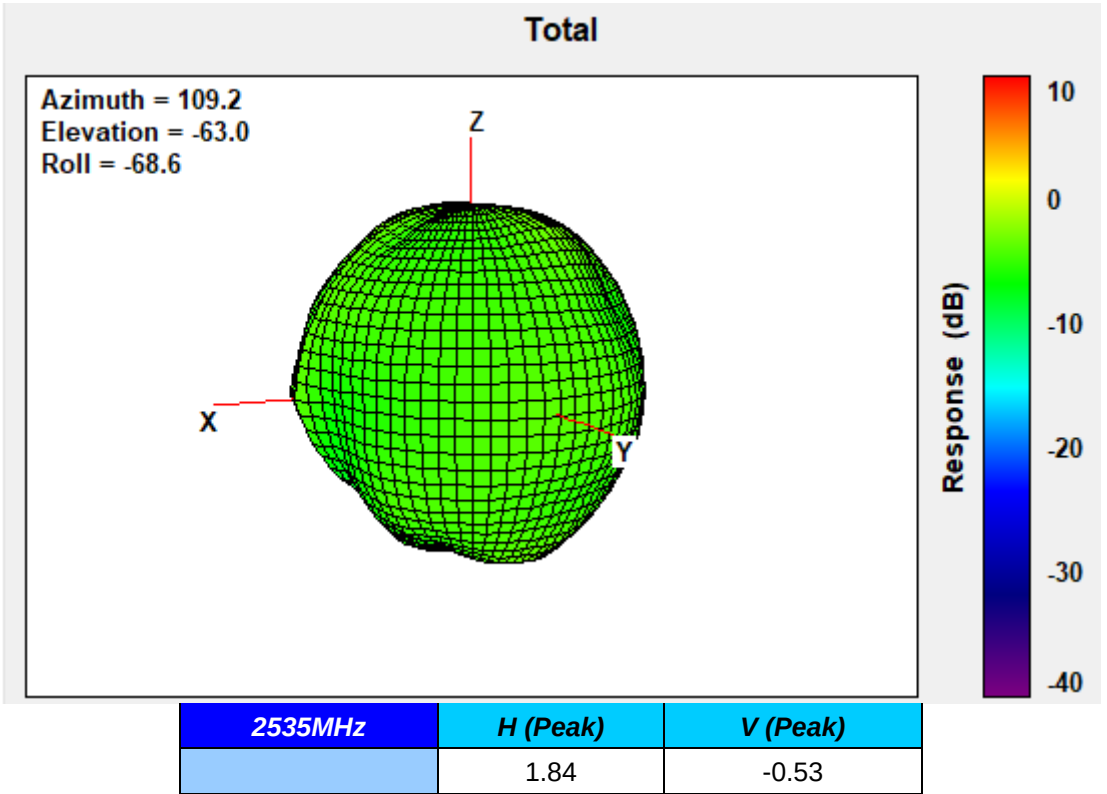
2496MHz



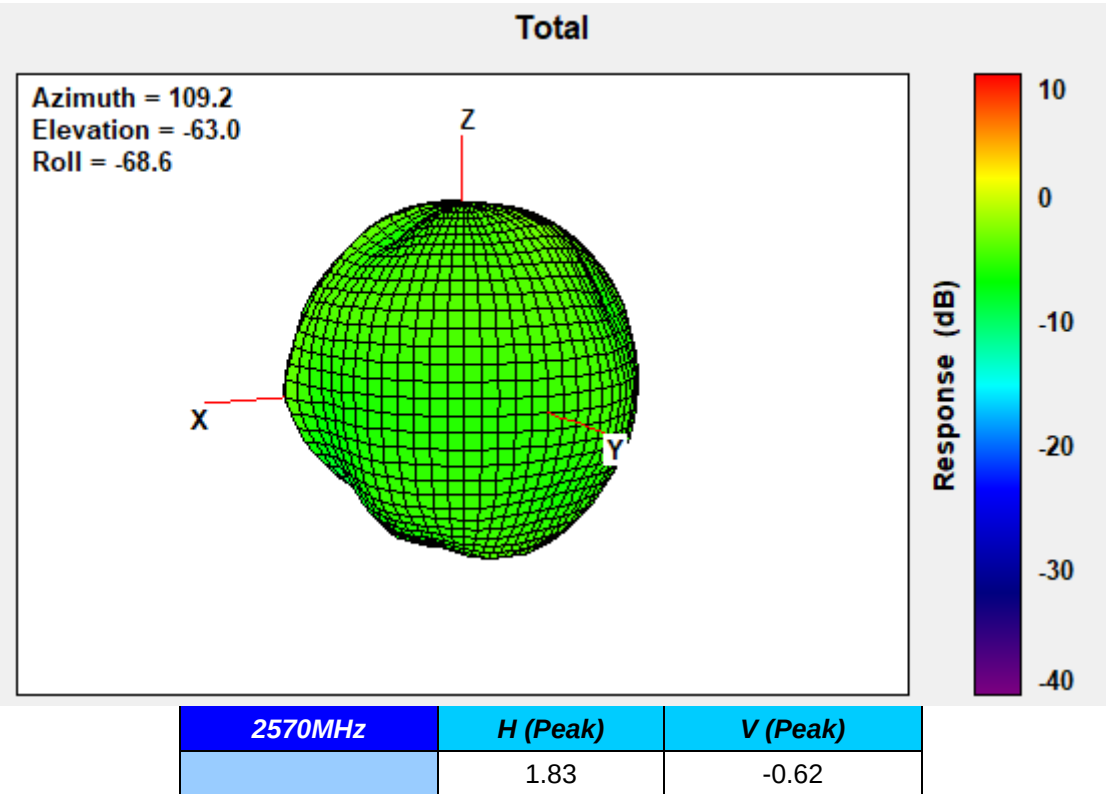
2500MHz



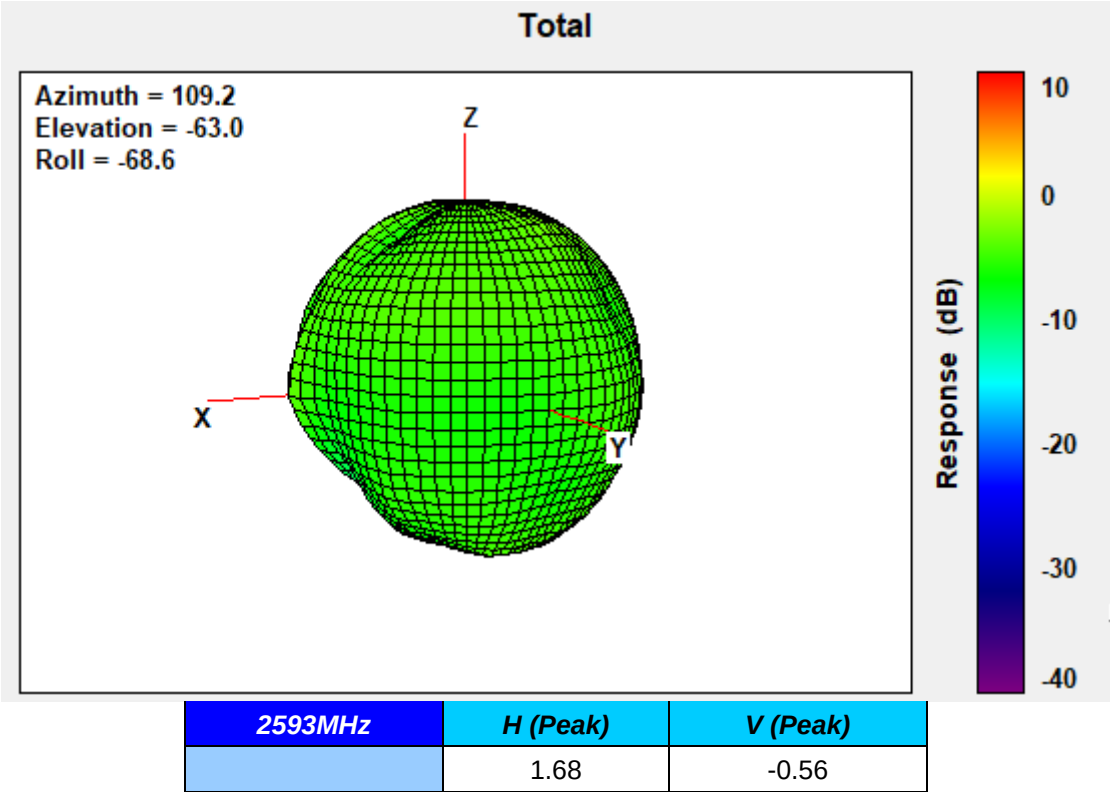
2535MHz



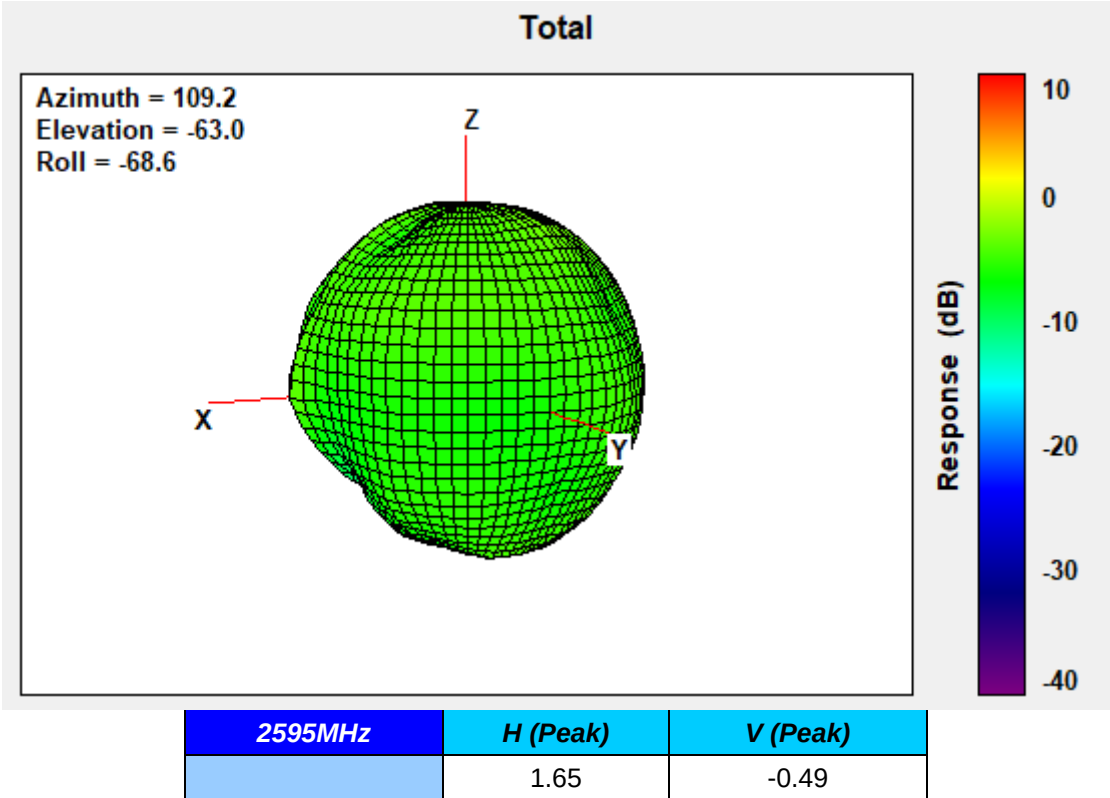
2570MHz



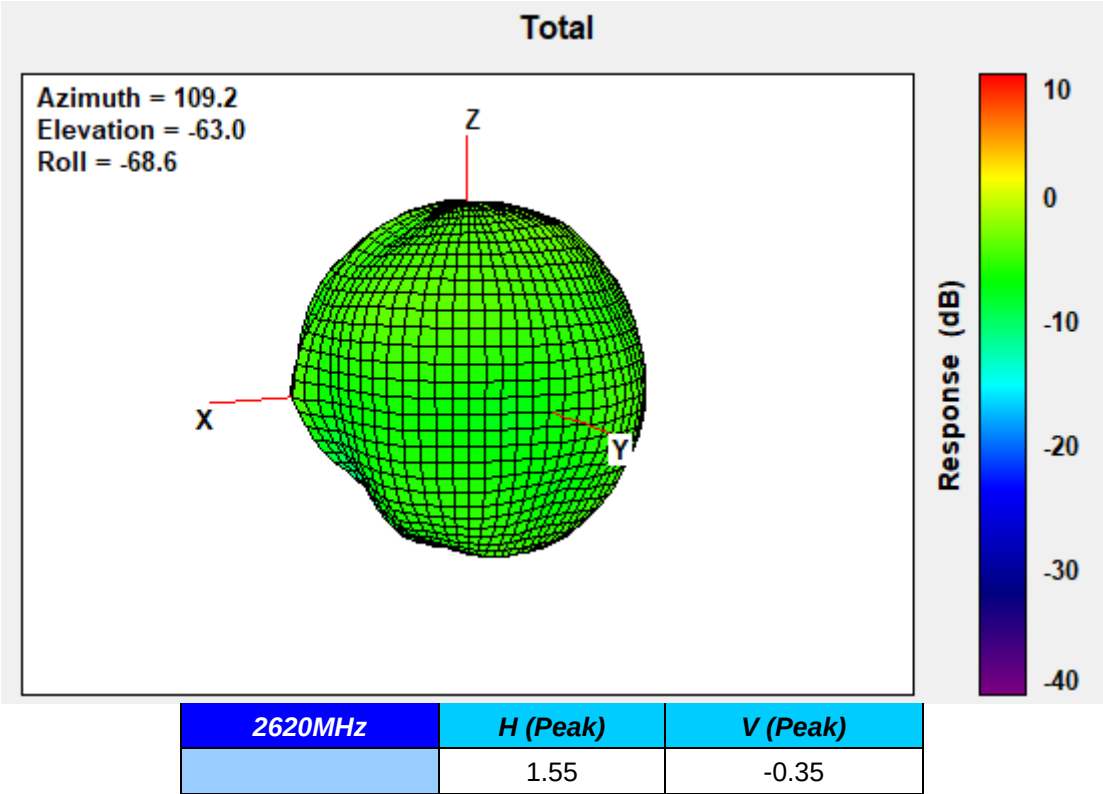
2593MHz



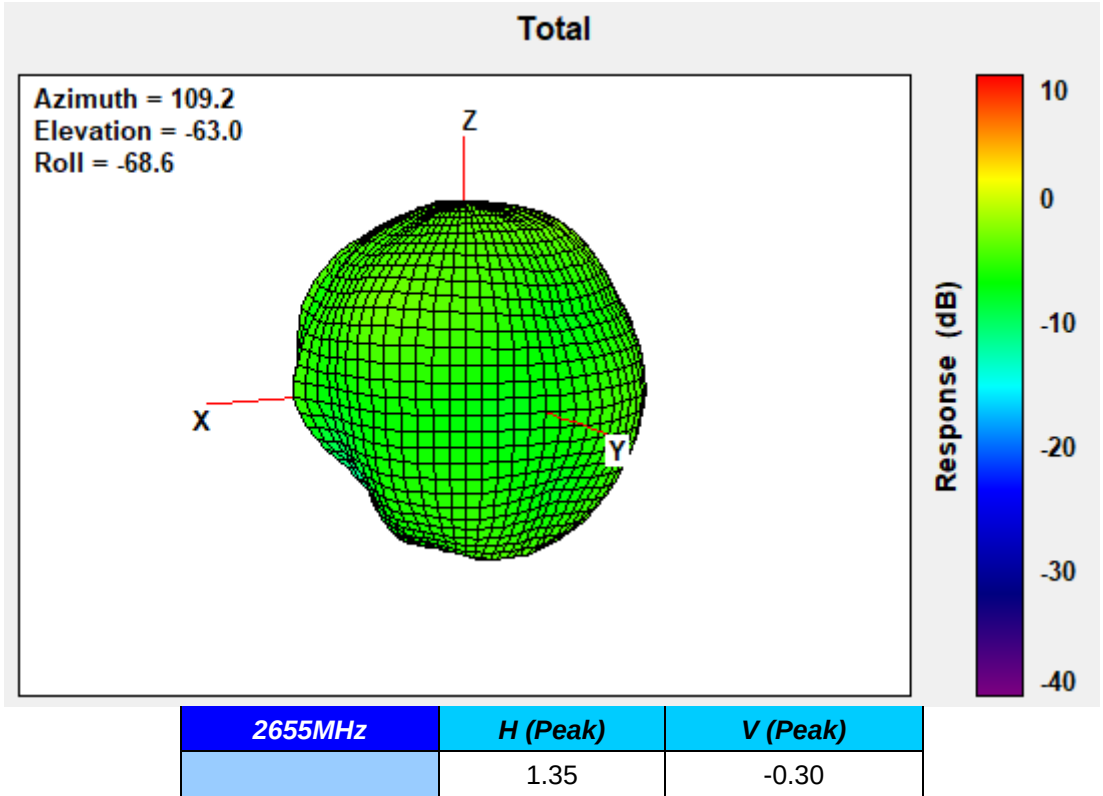
2595MHz



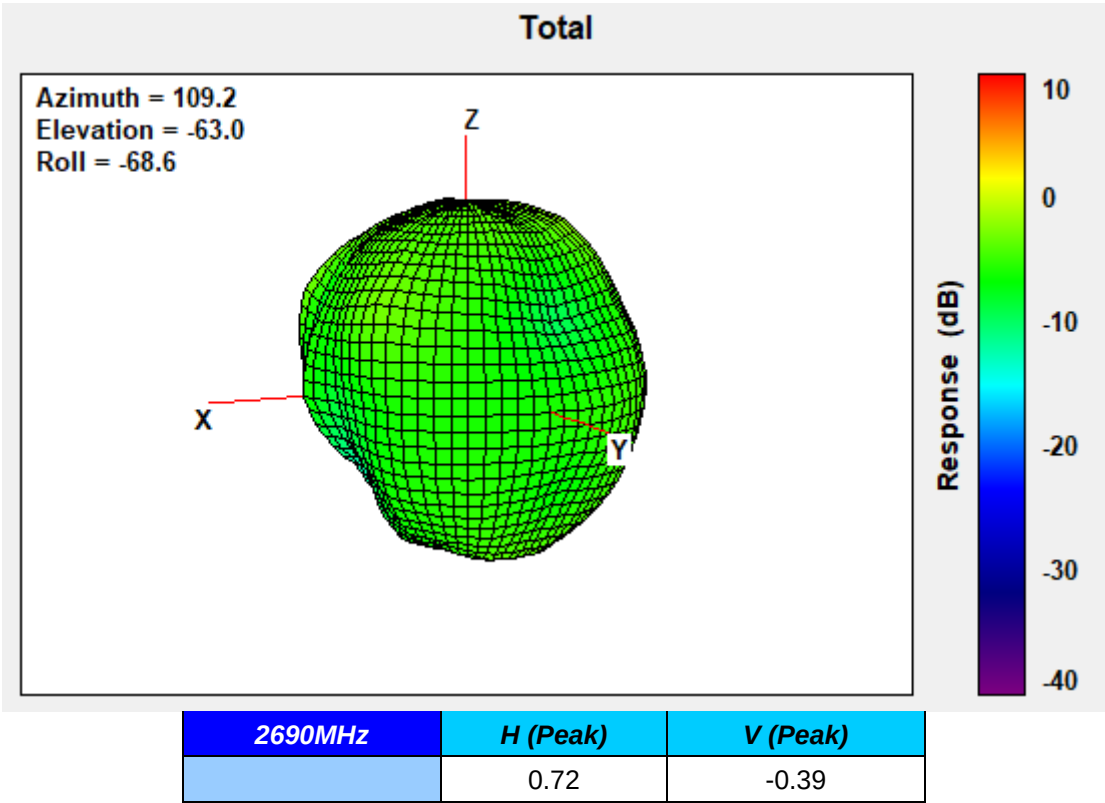
2620MHz



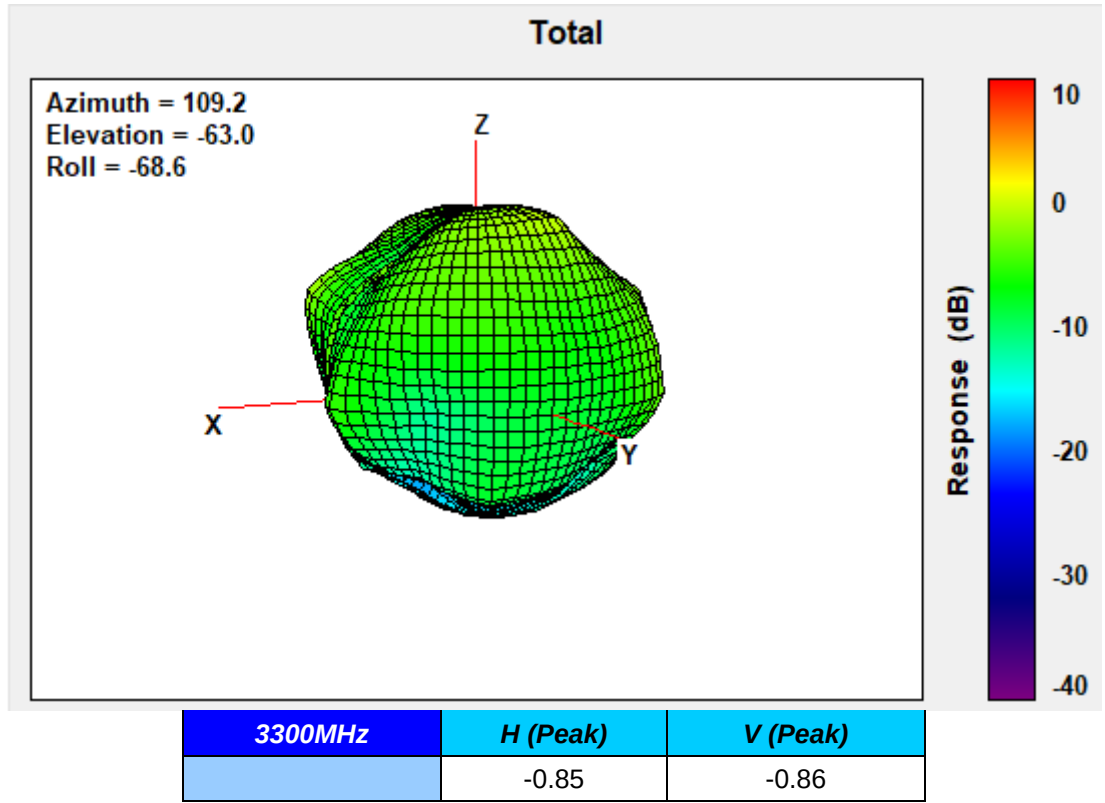
2655MHz



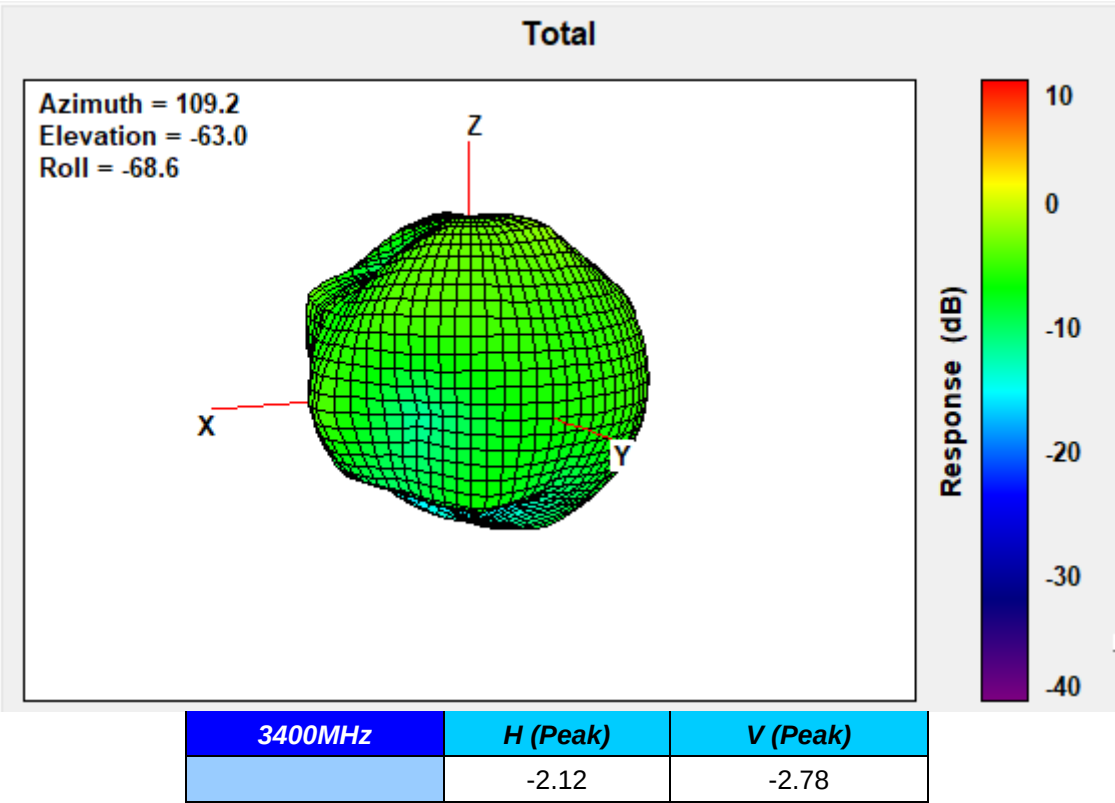
2690MHz



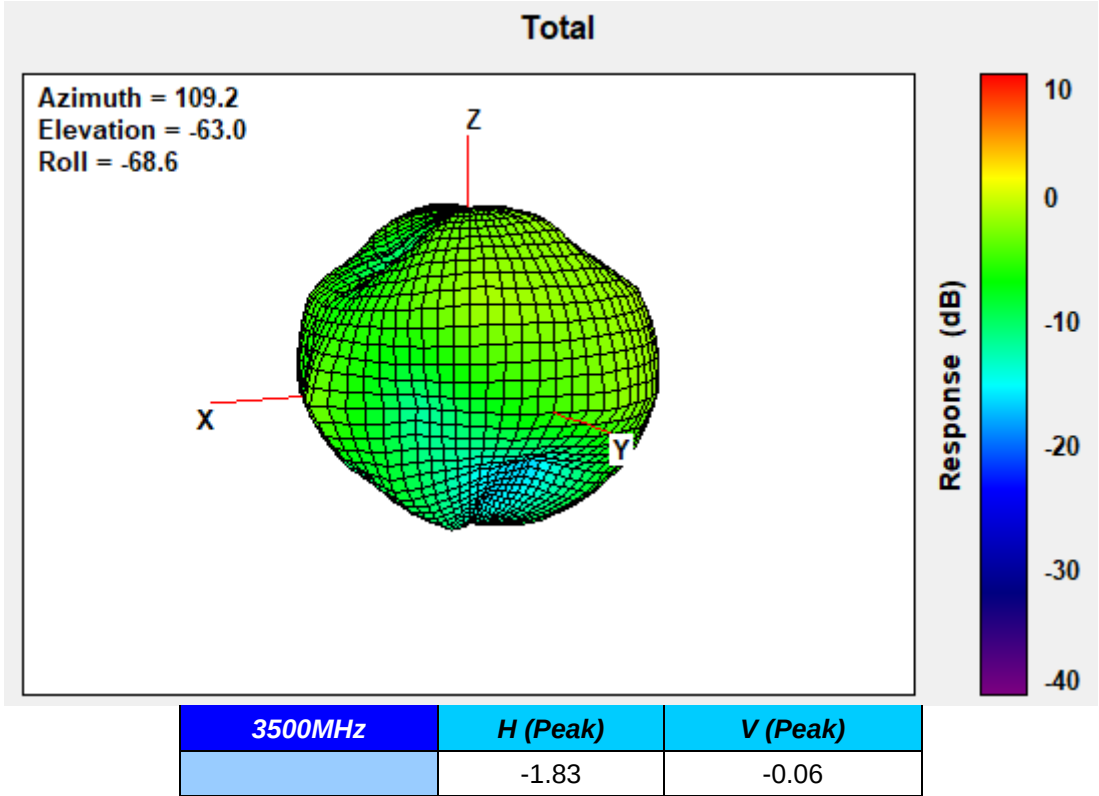
3300MHz



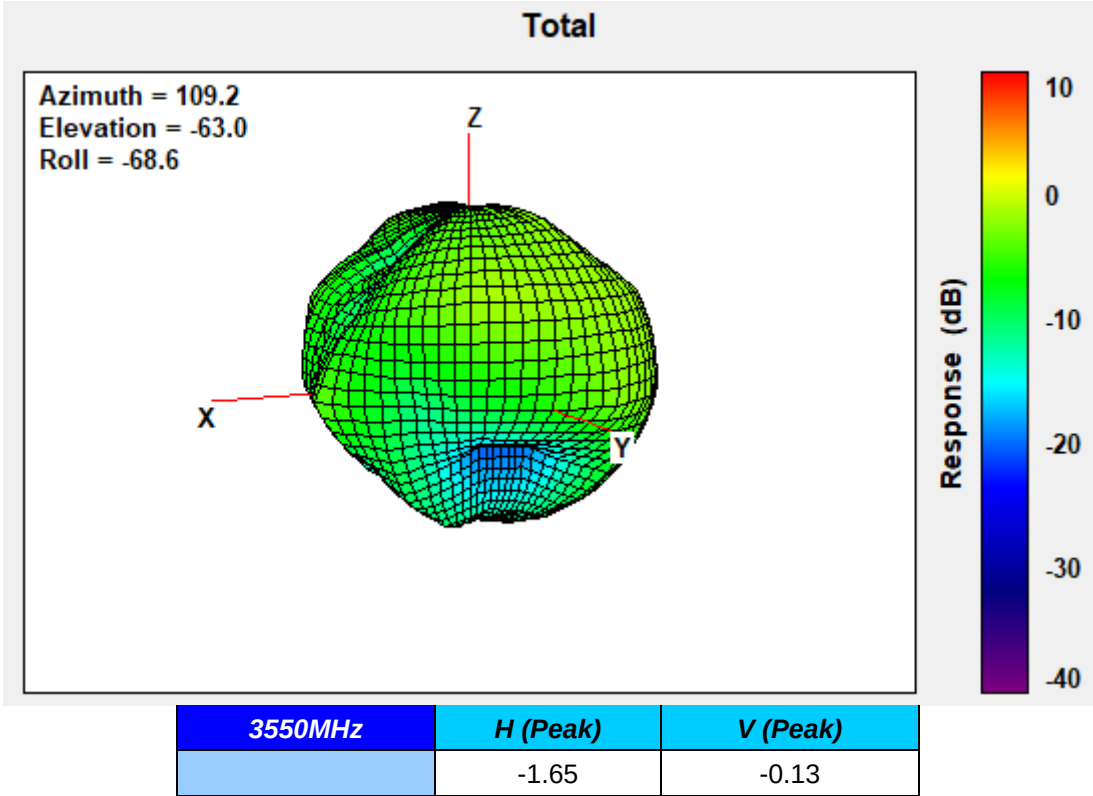
3400MHz



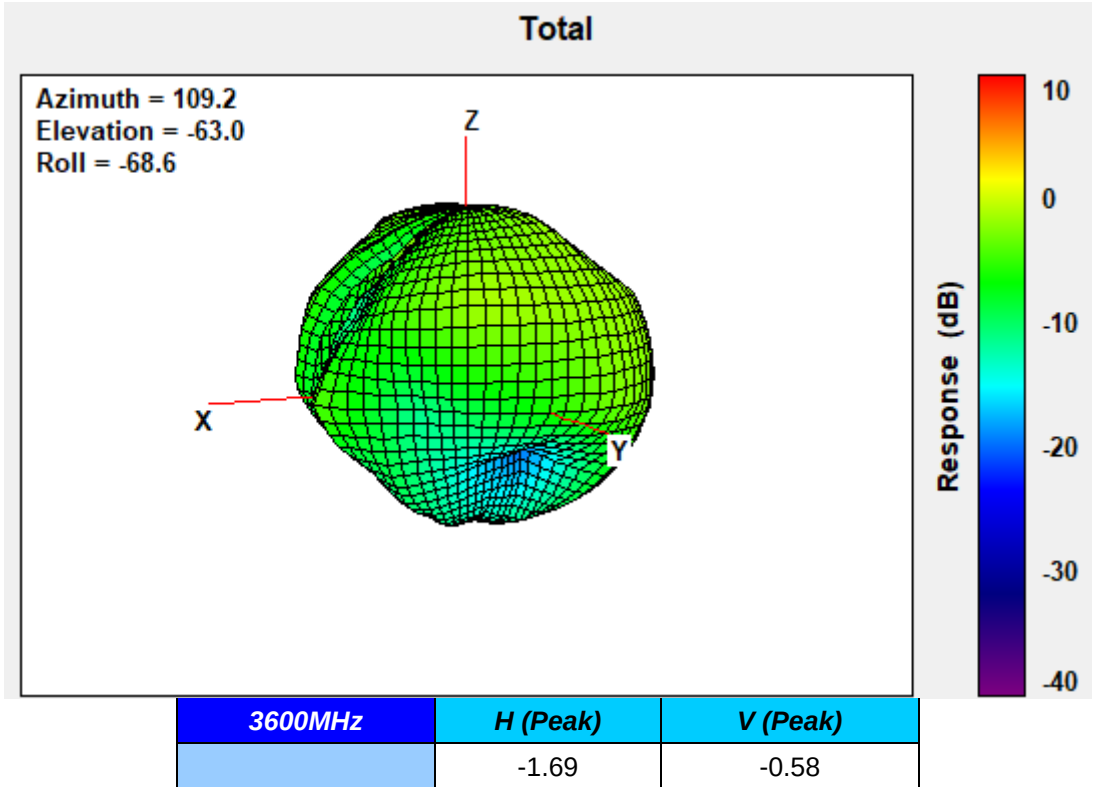
3500MHz



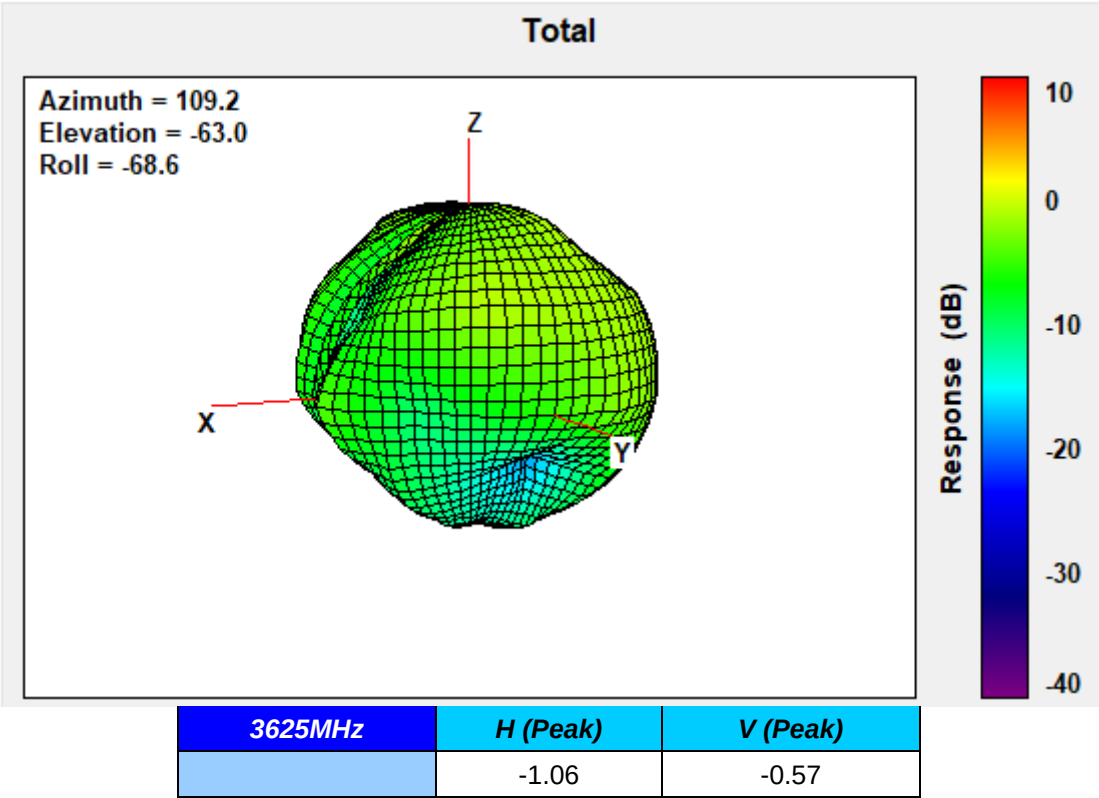
3550MHz



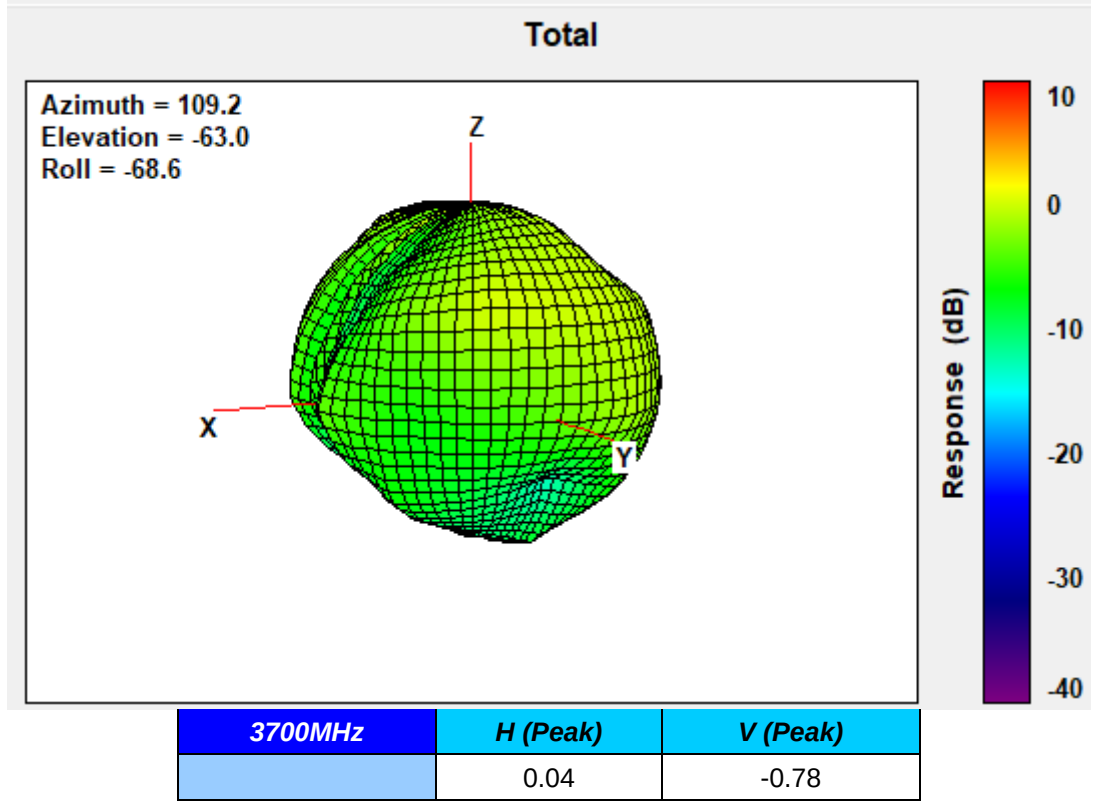
3600MHz



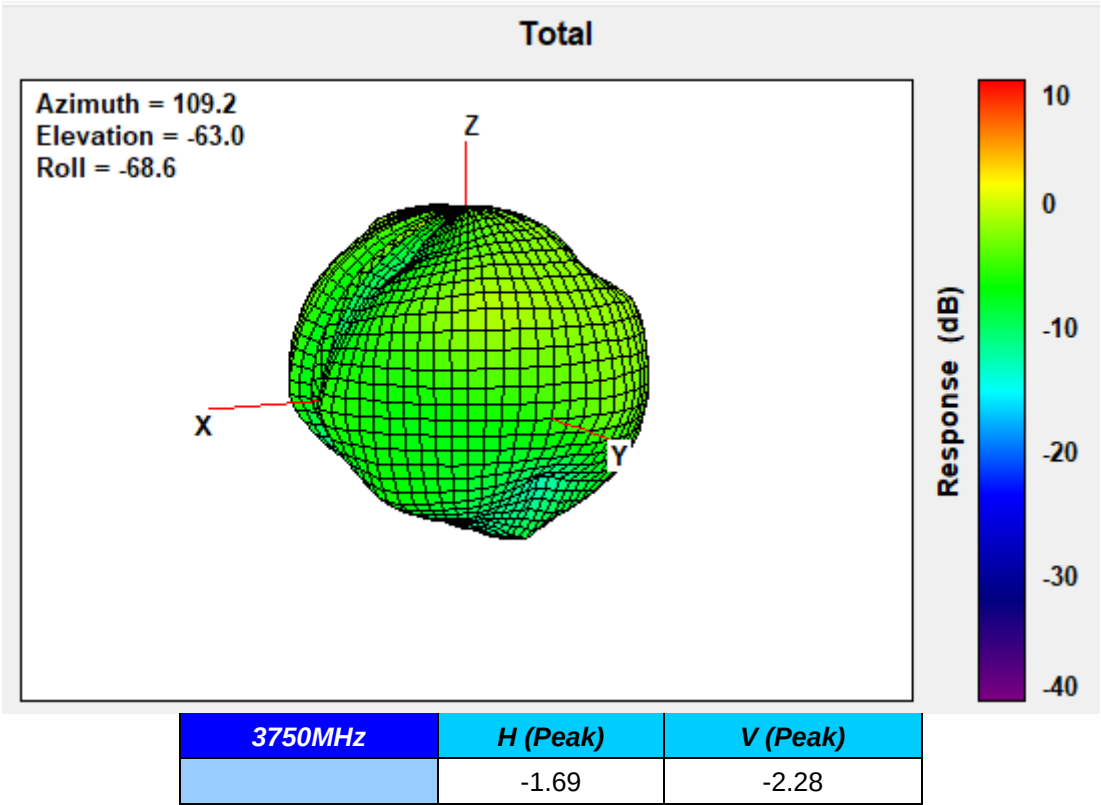
3625MHz



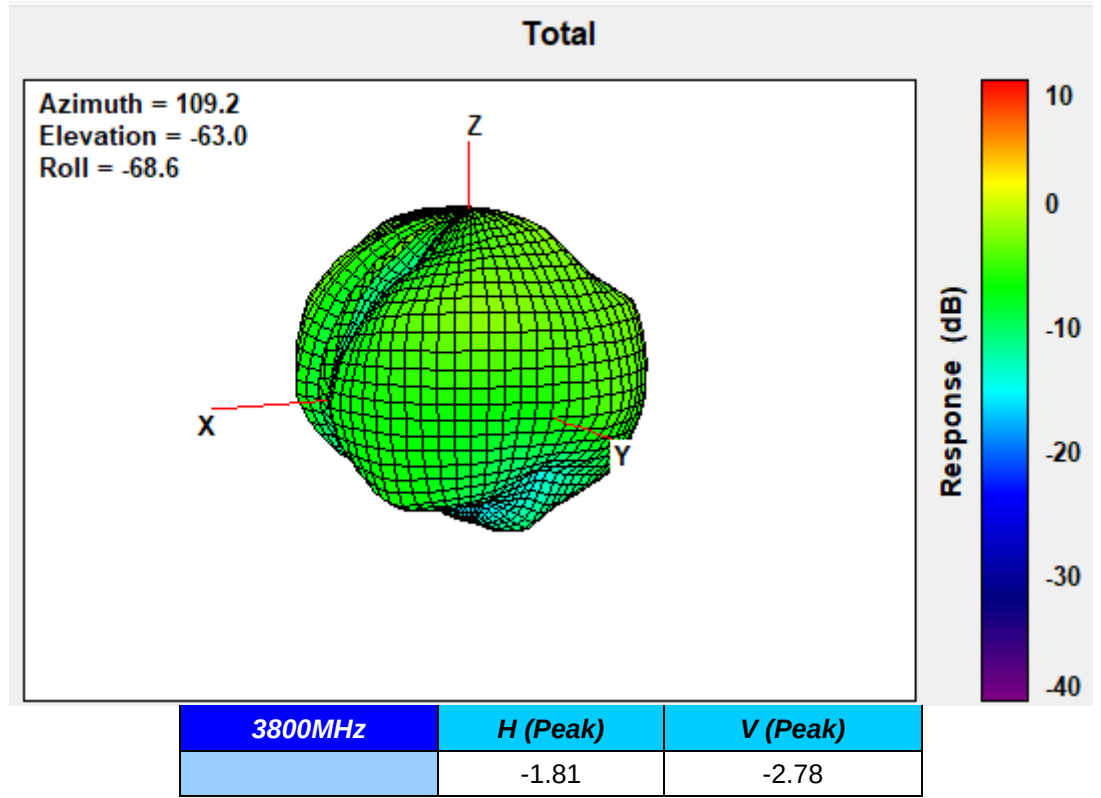
3700MHz



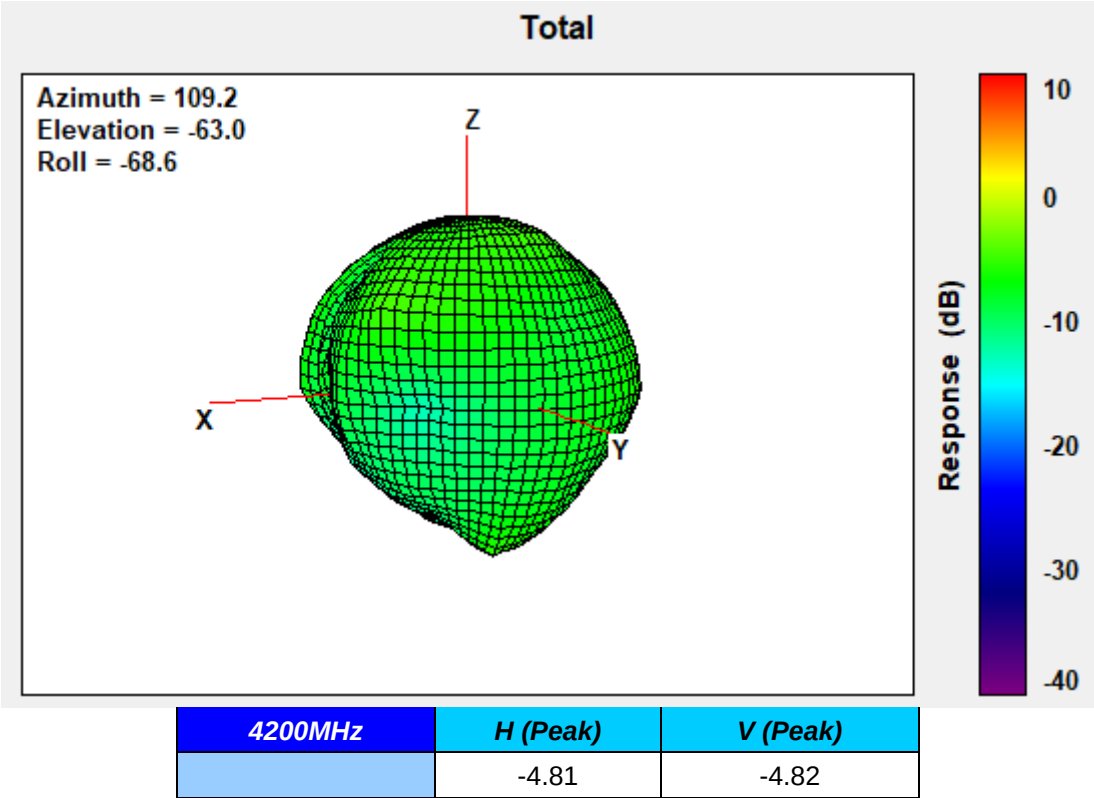
3750MHz



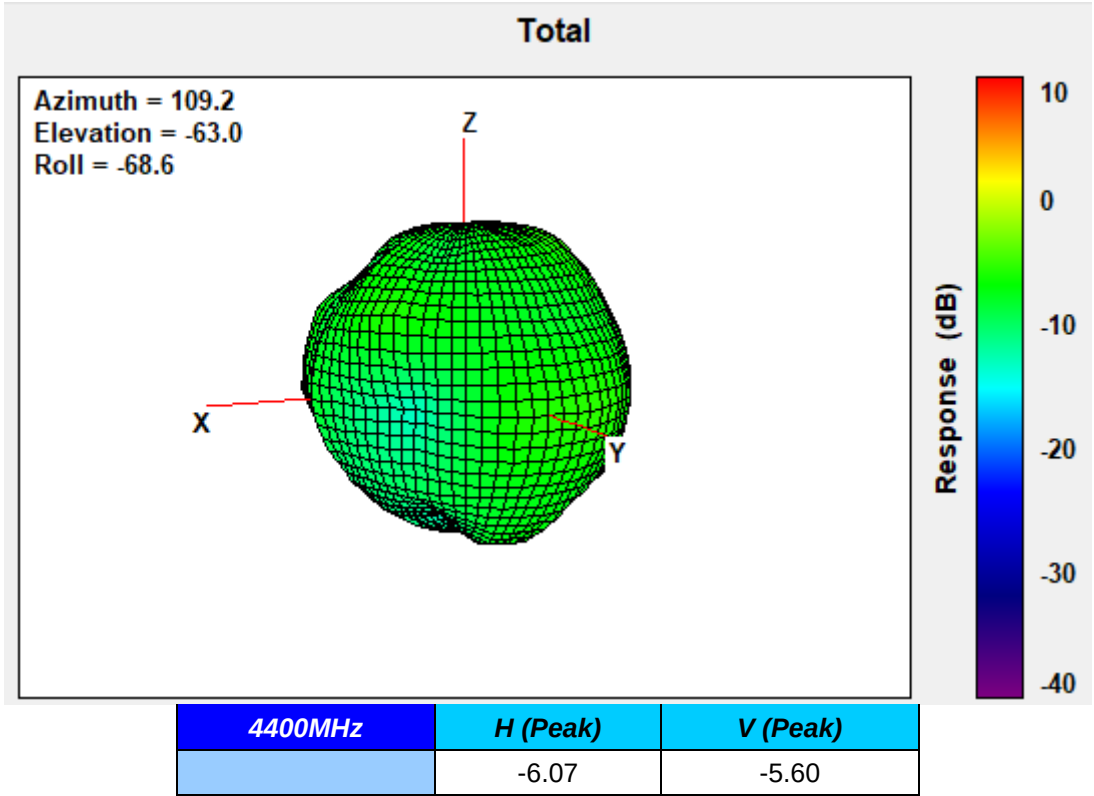
3800MHz



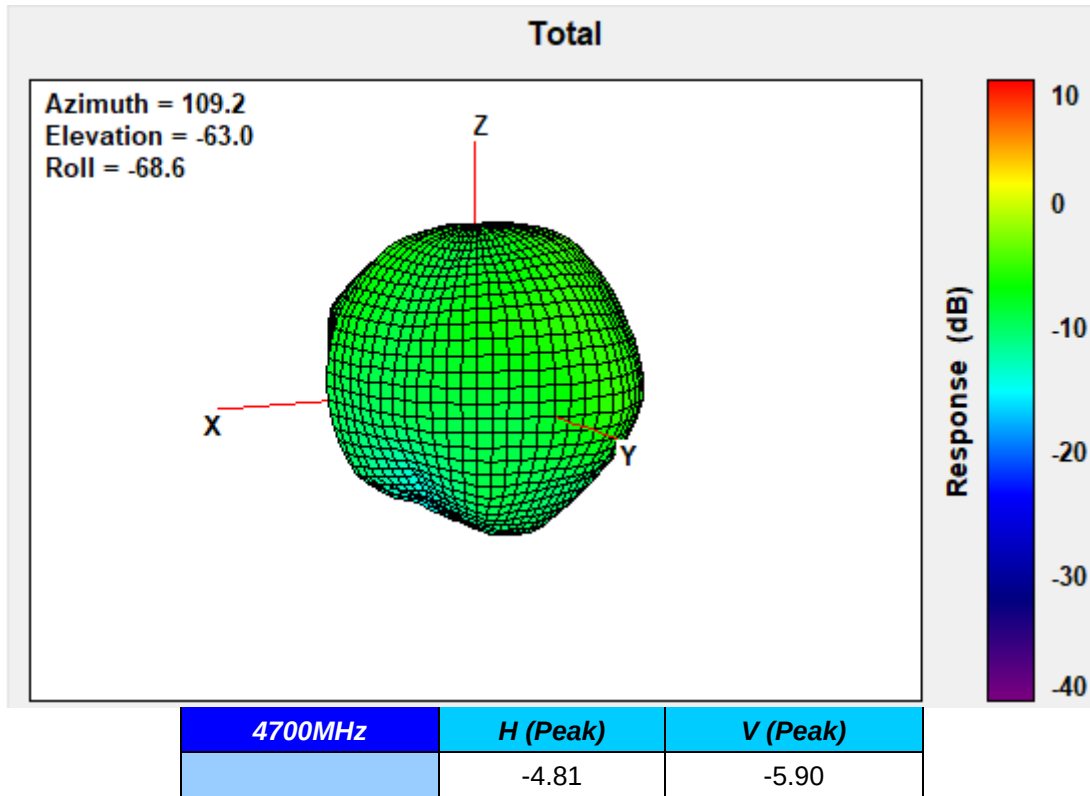
4200MHz



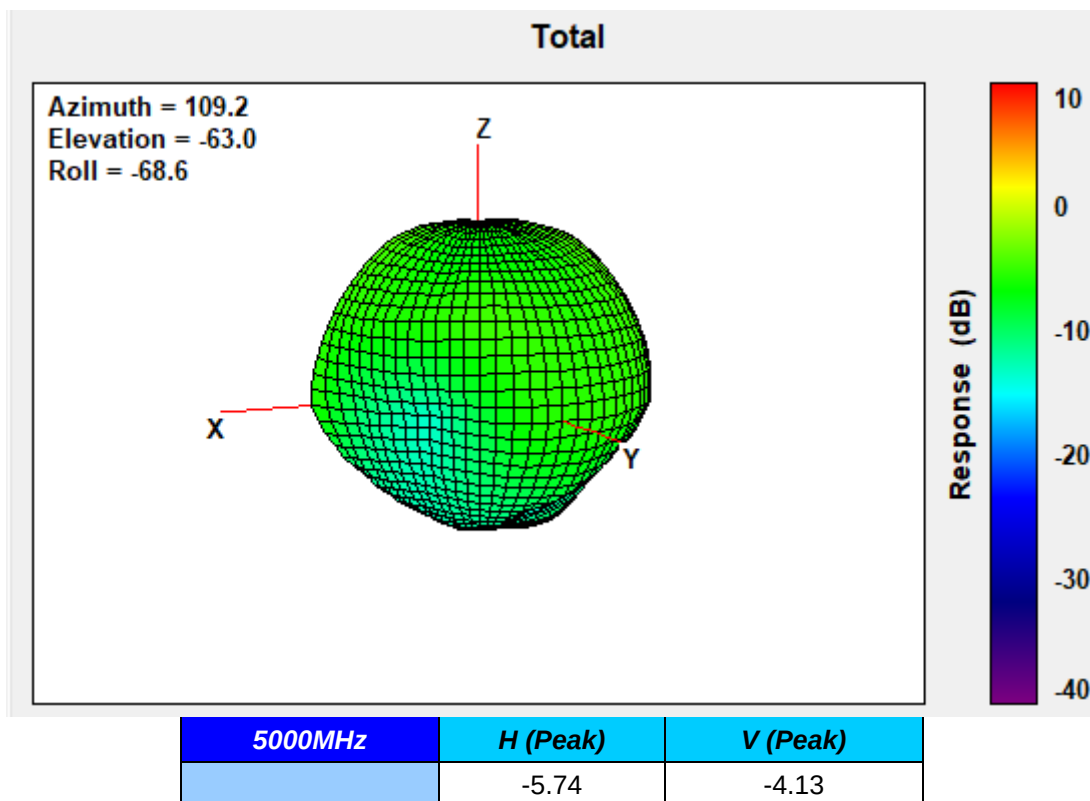
4400MHz



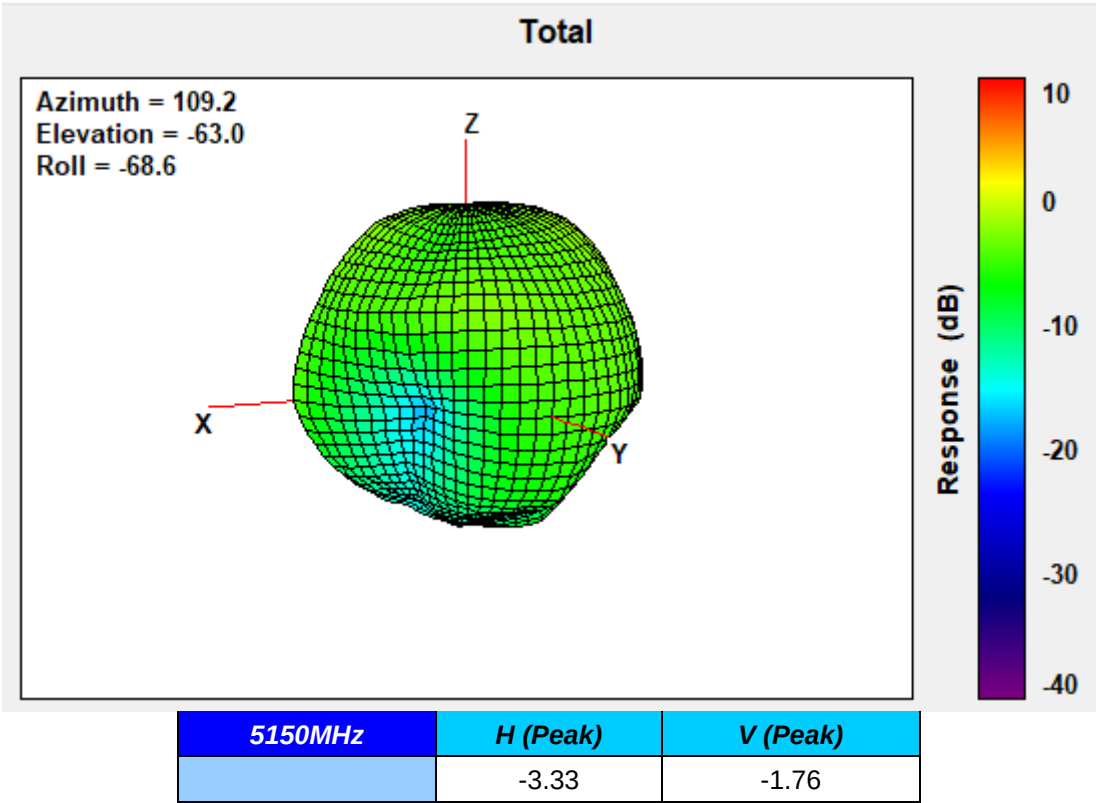
4700MHz



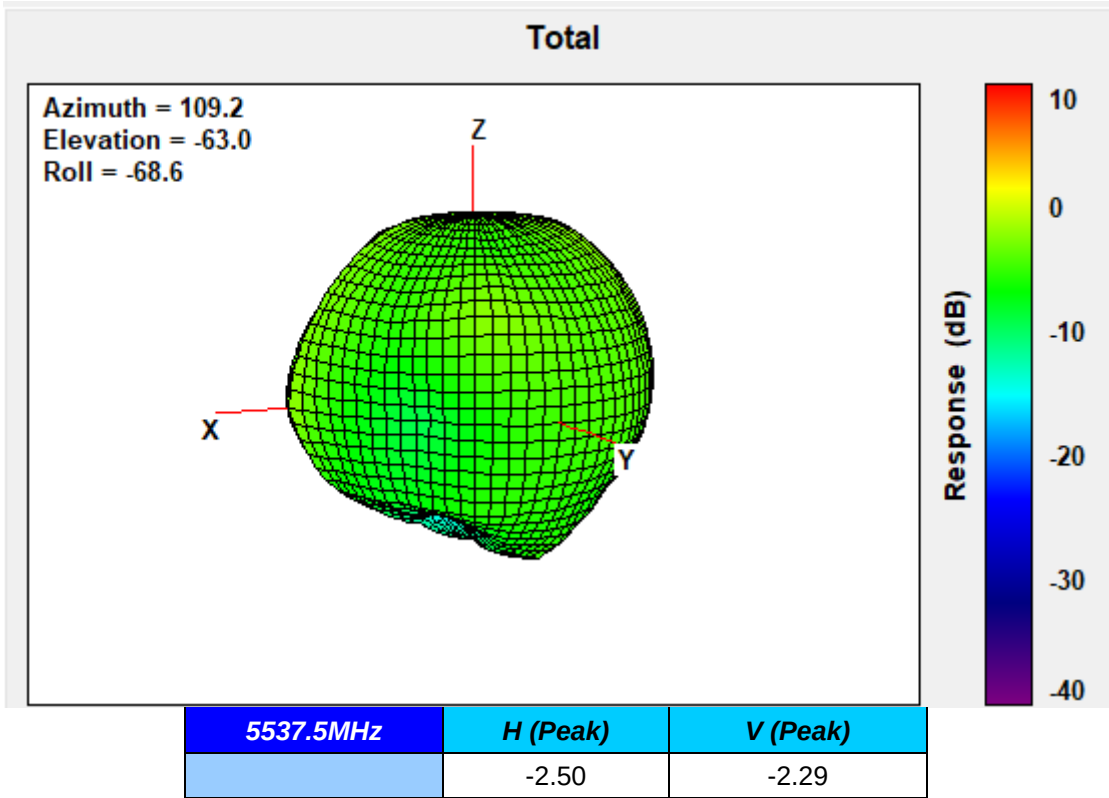
5000MHz

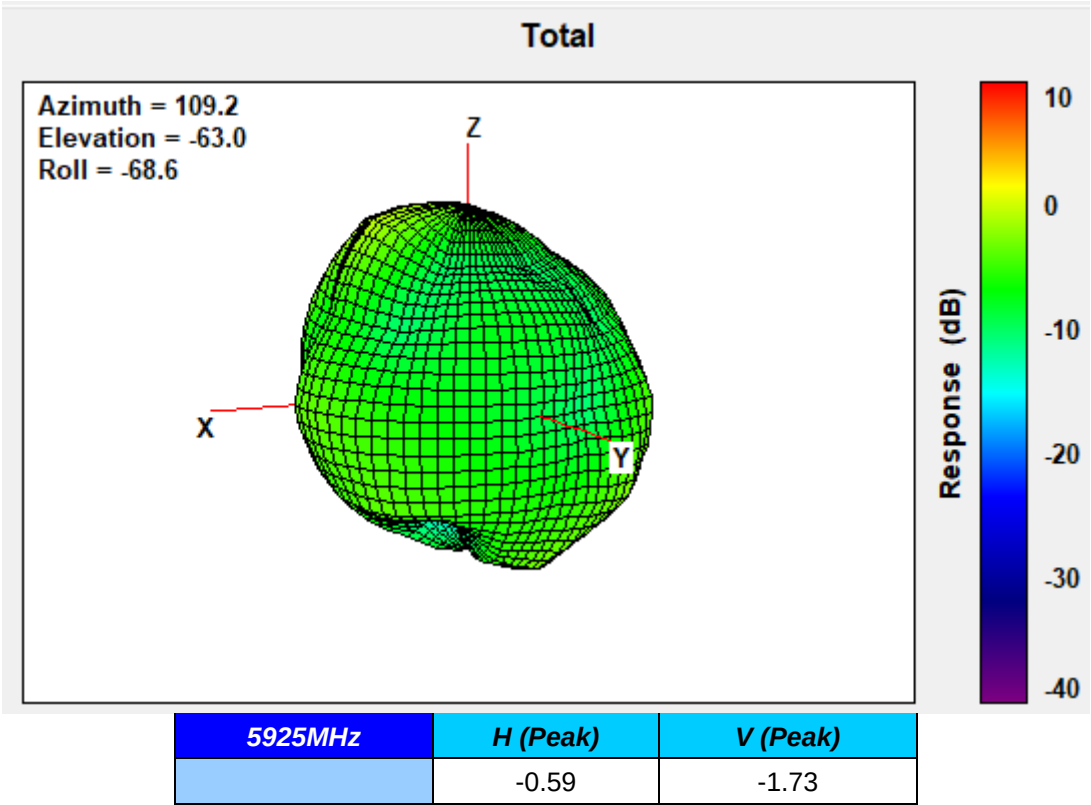


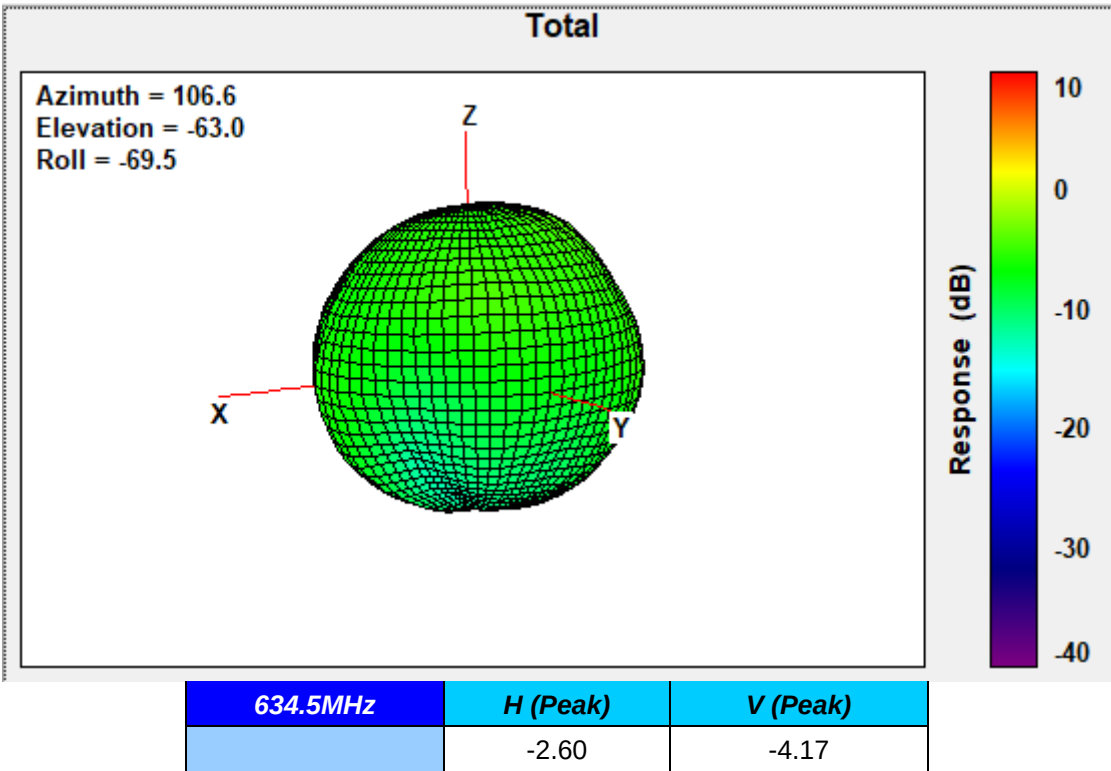
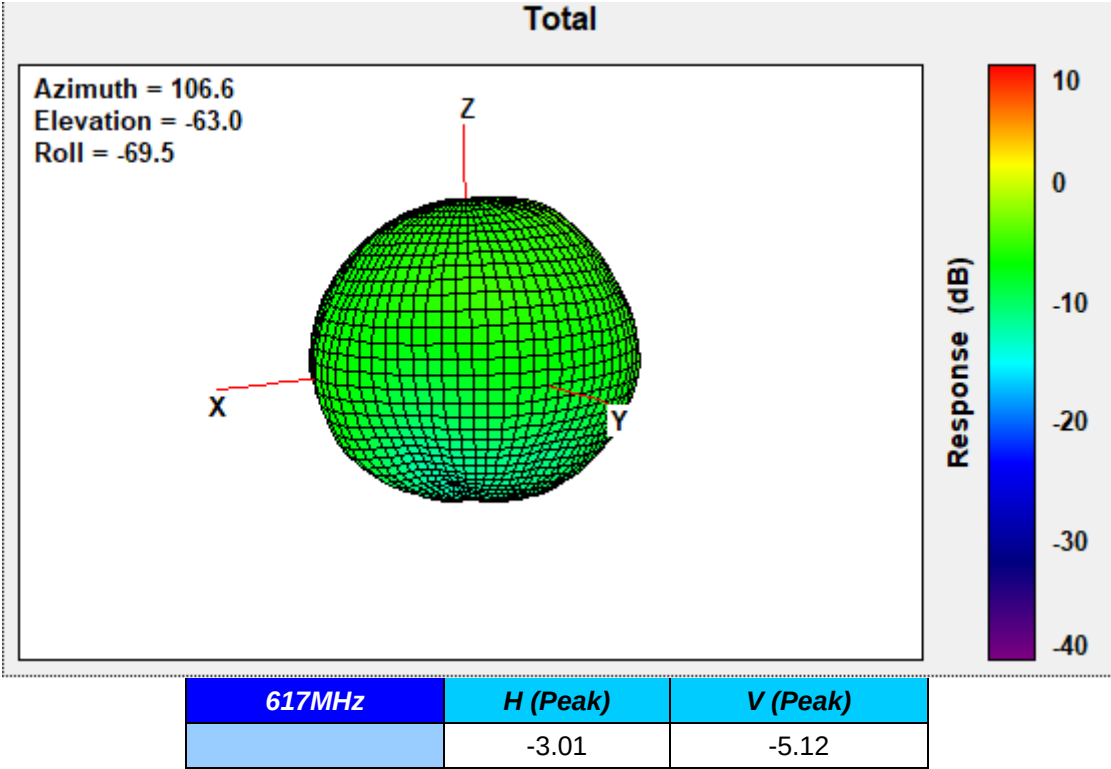
5150MHz



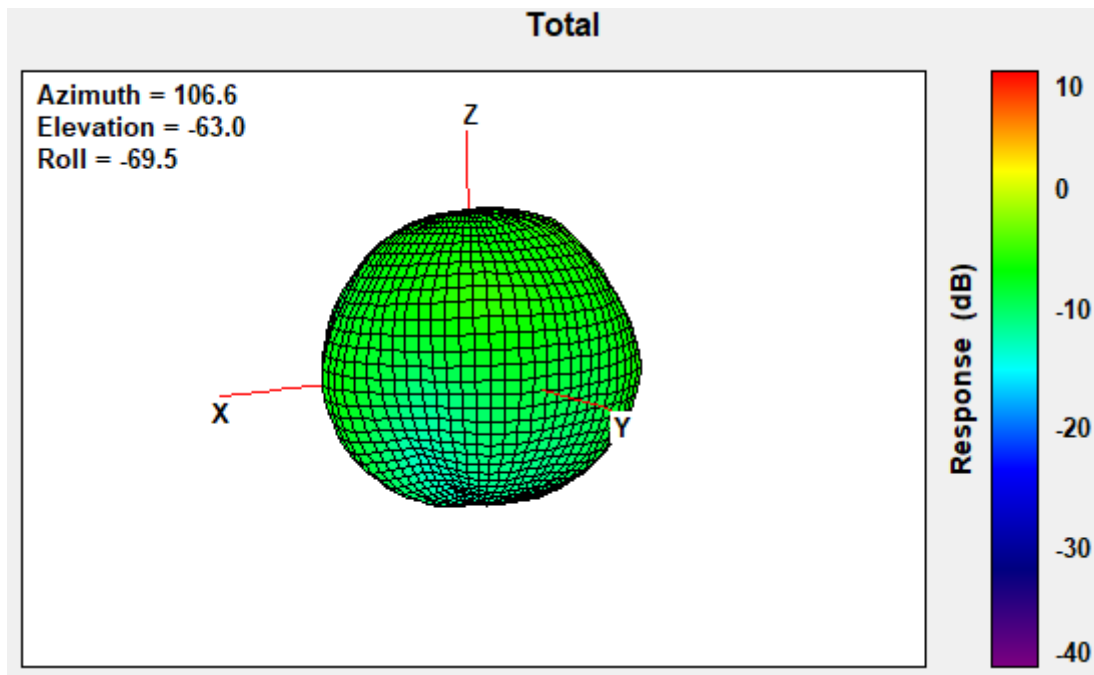
5537.5MHz





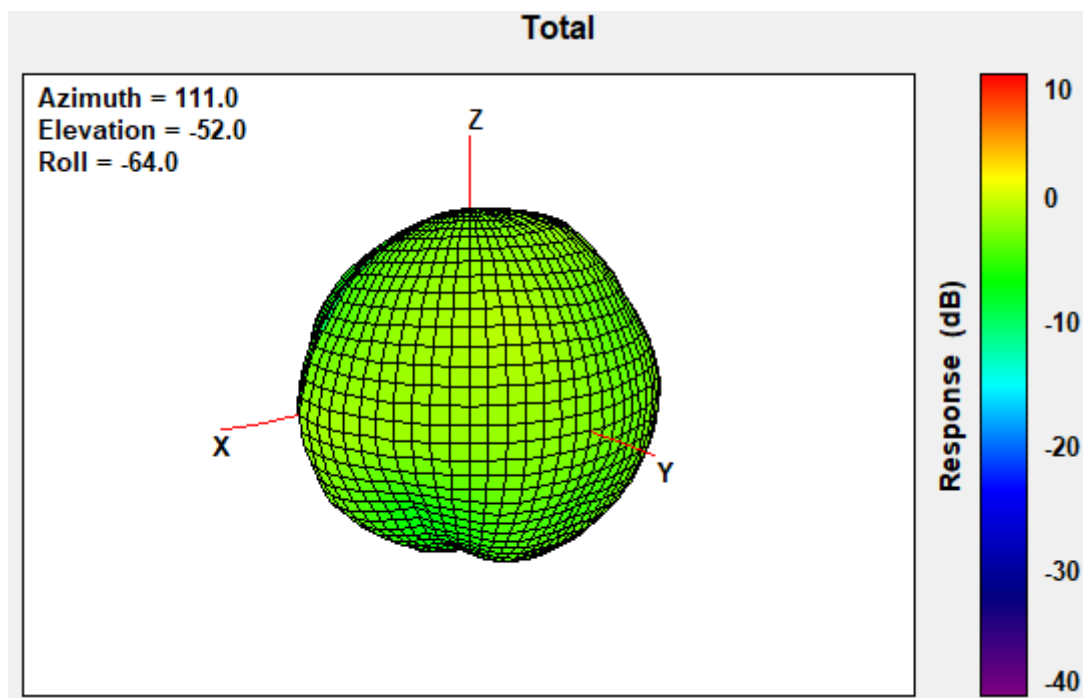


652MHz



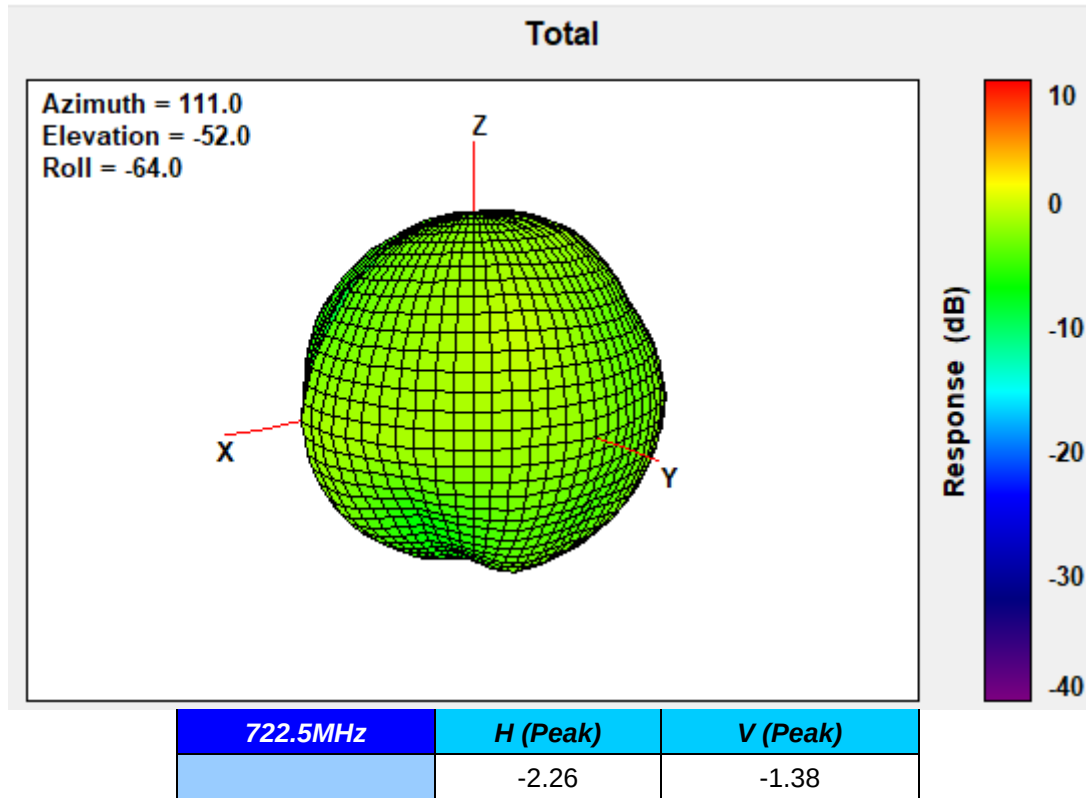
652MHz	H (Peak)	V (Peak)
	-3.31	-4.43

717MHz

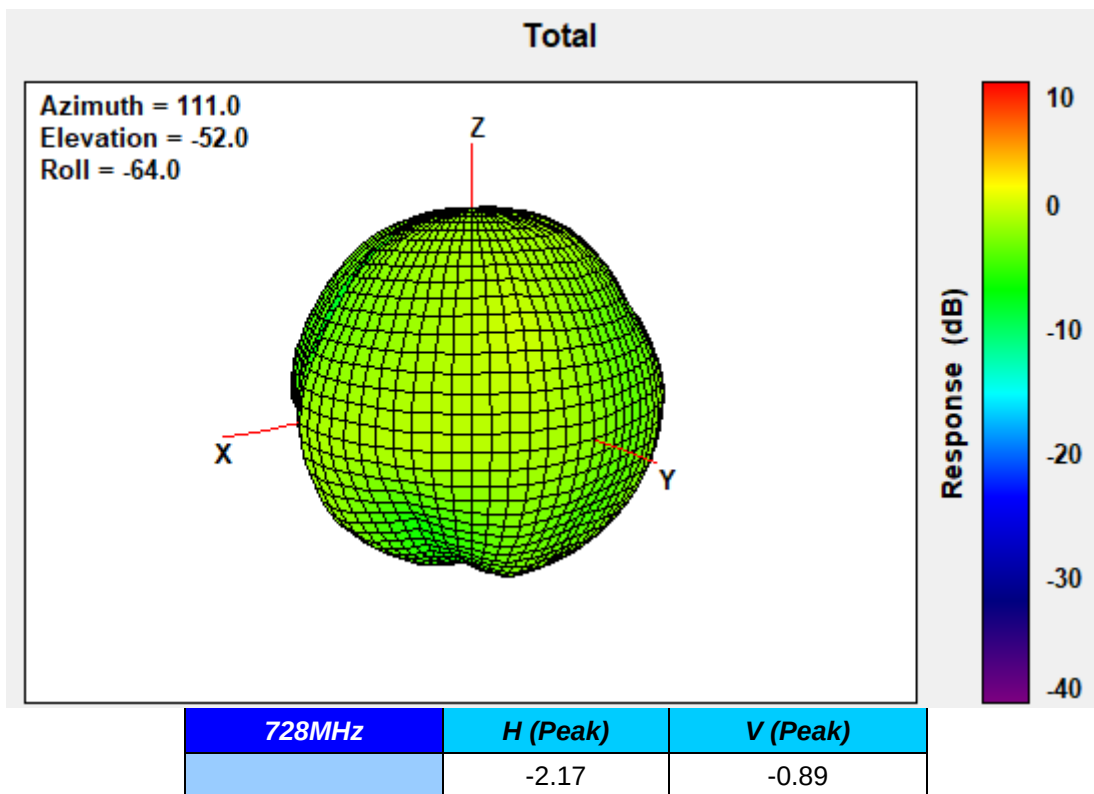


717MHz	H (Peak)	V (Peak)
	-2.44	-1.81

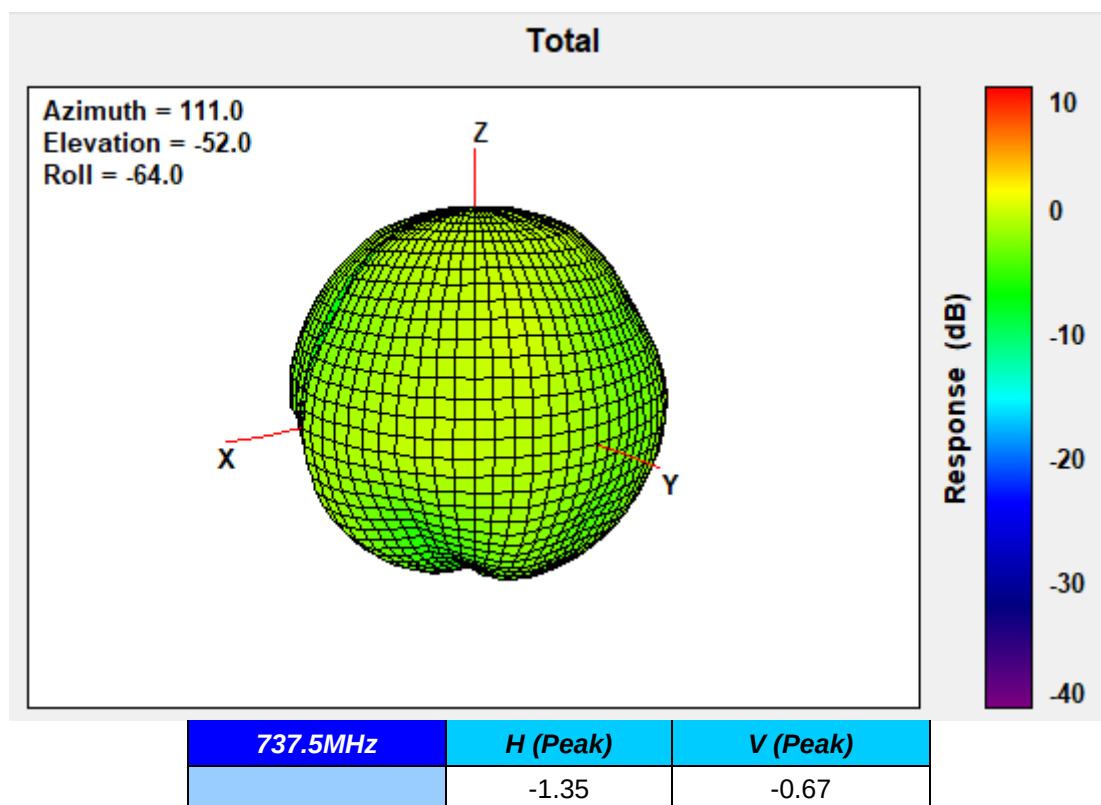
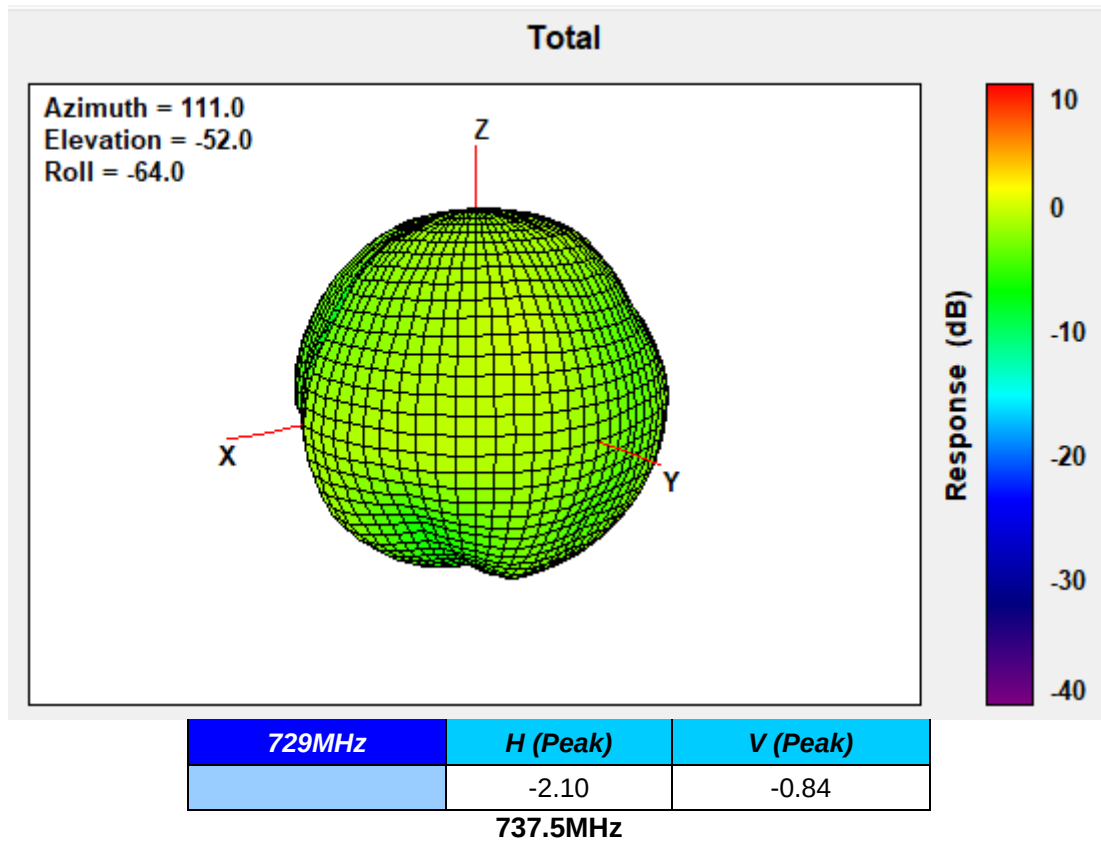
722.5MHz



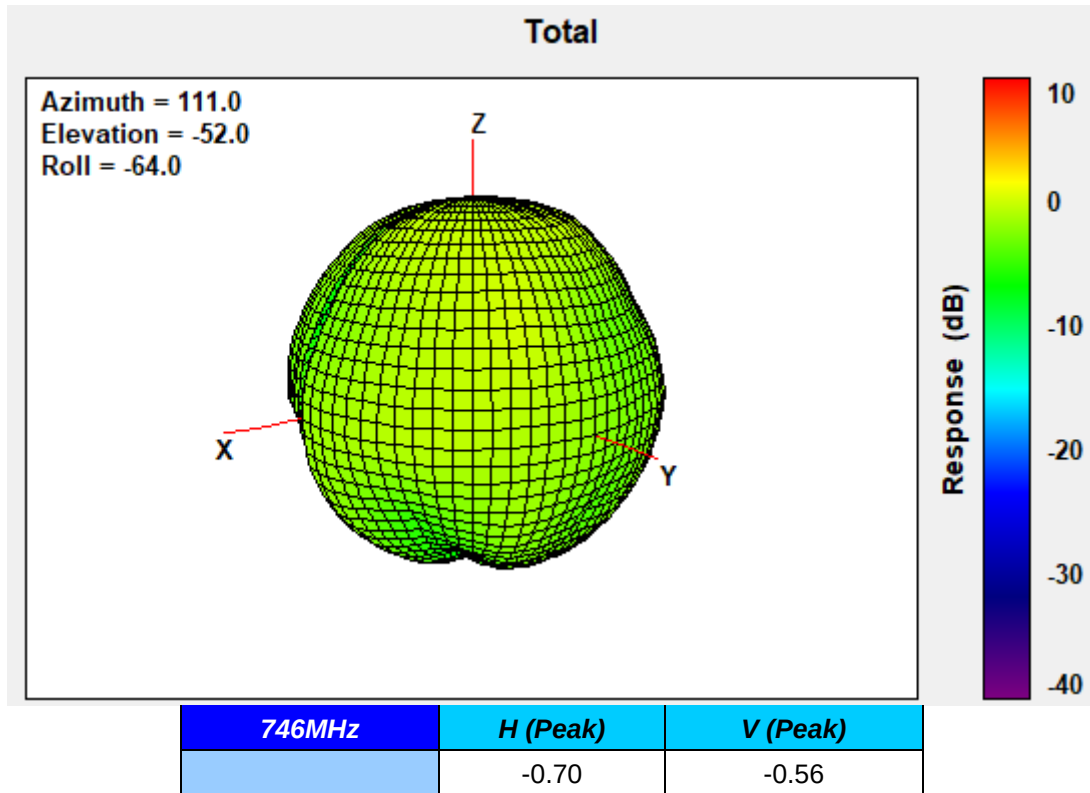
728MHz



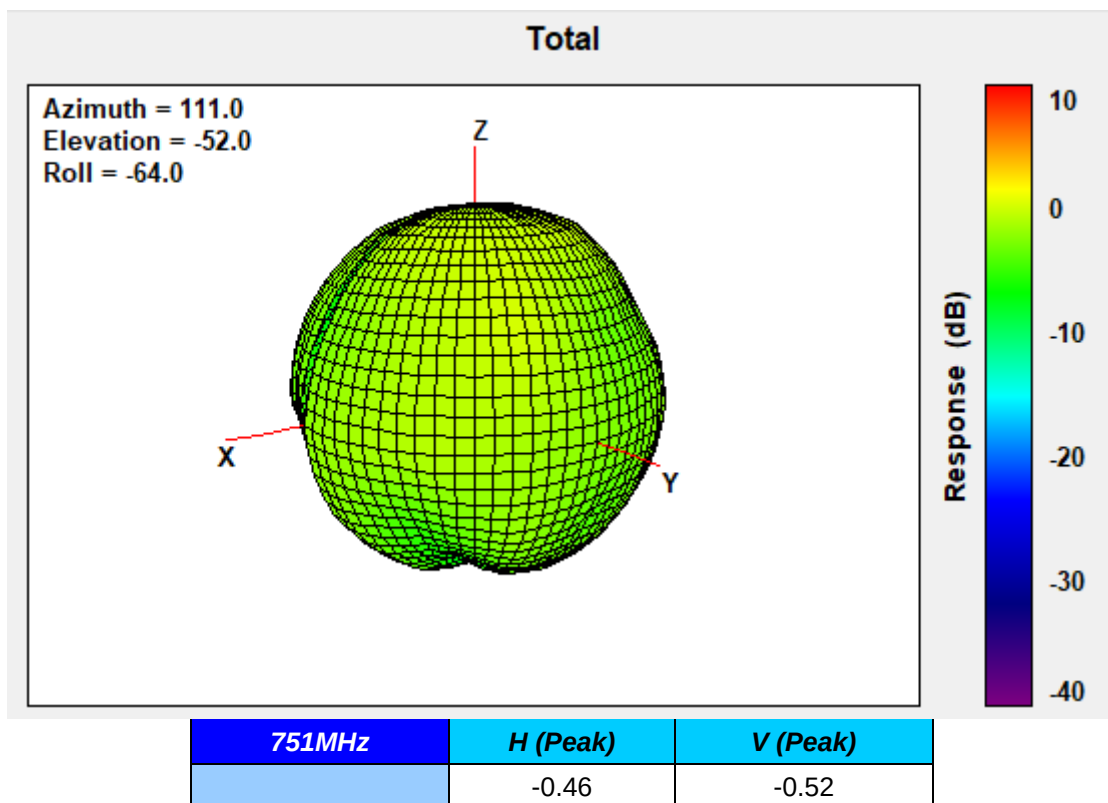
729MHz



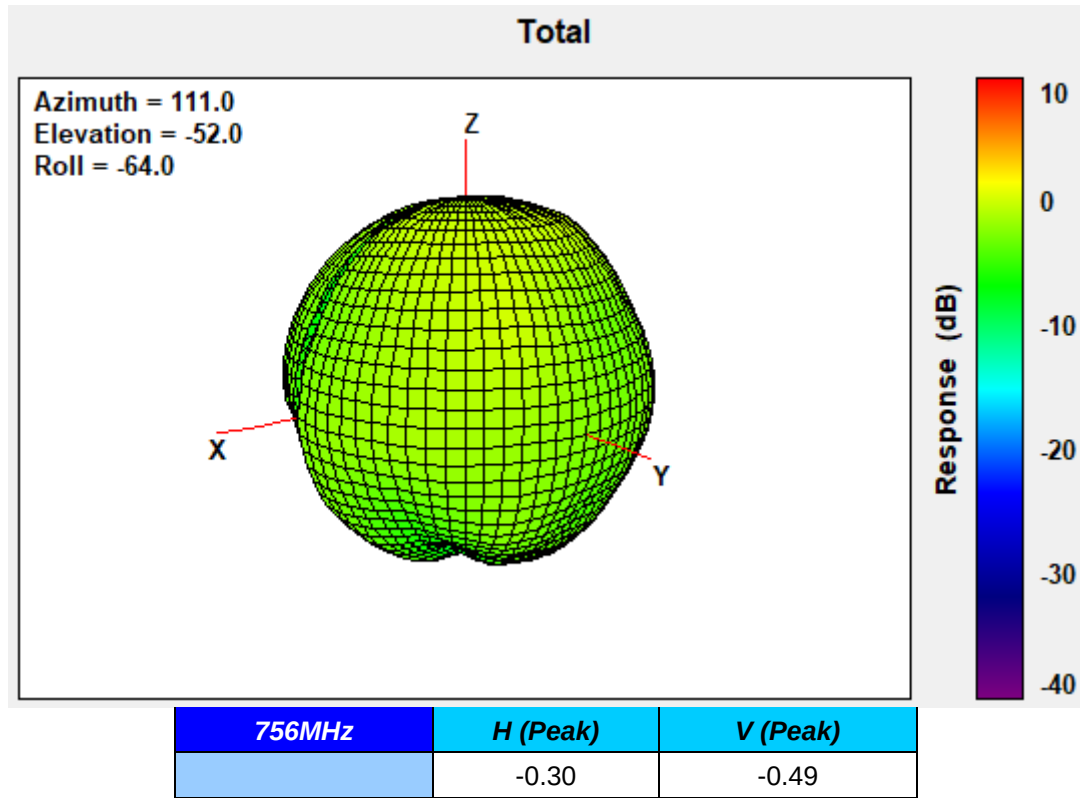
746MHz



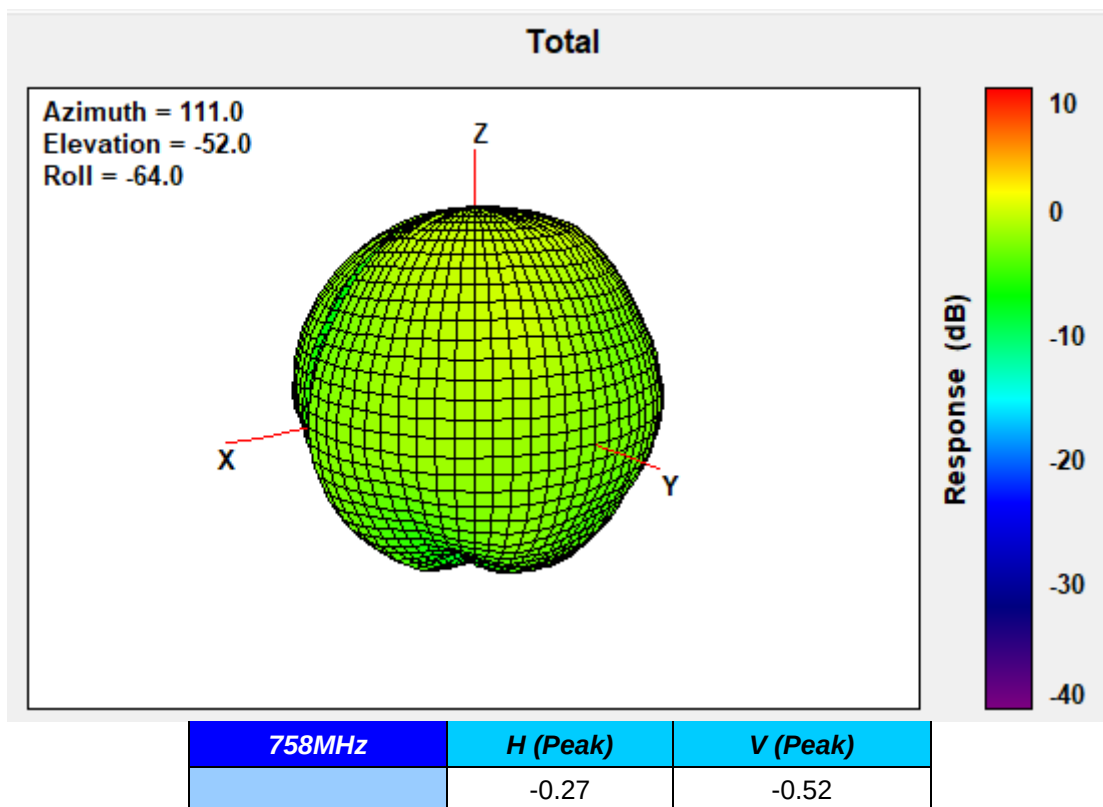
751MHz



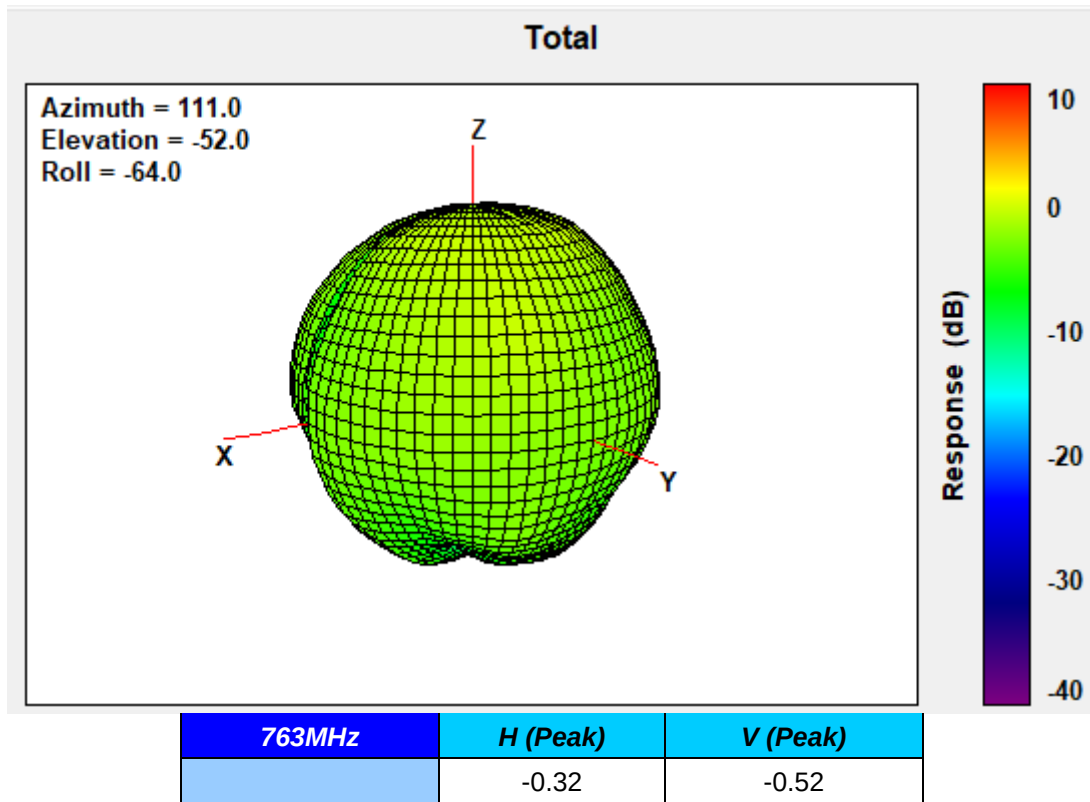
756MHz



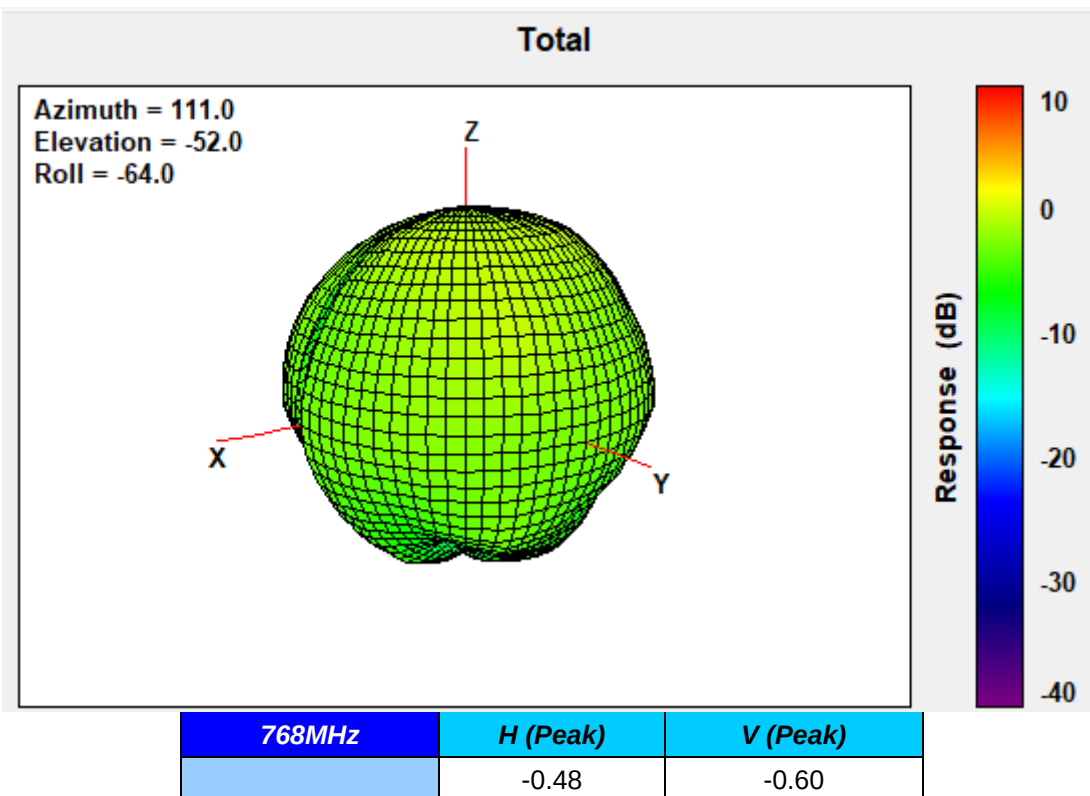
758MHz



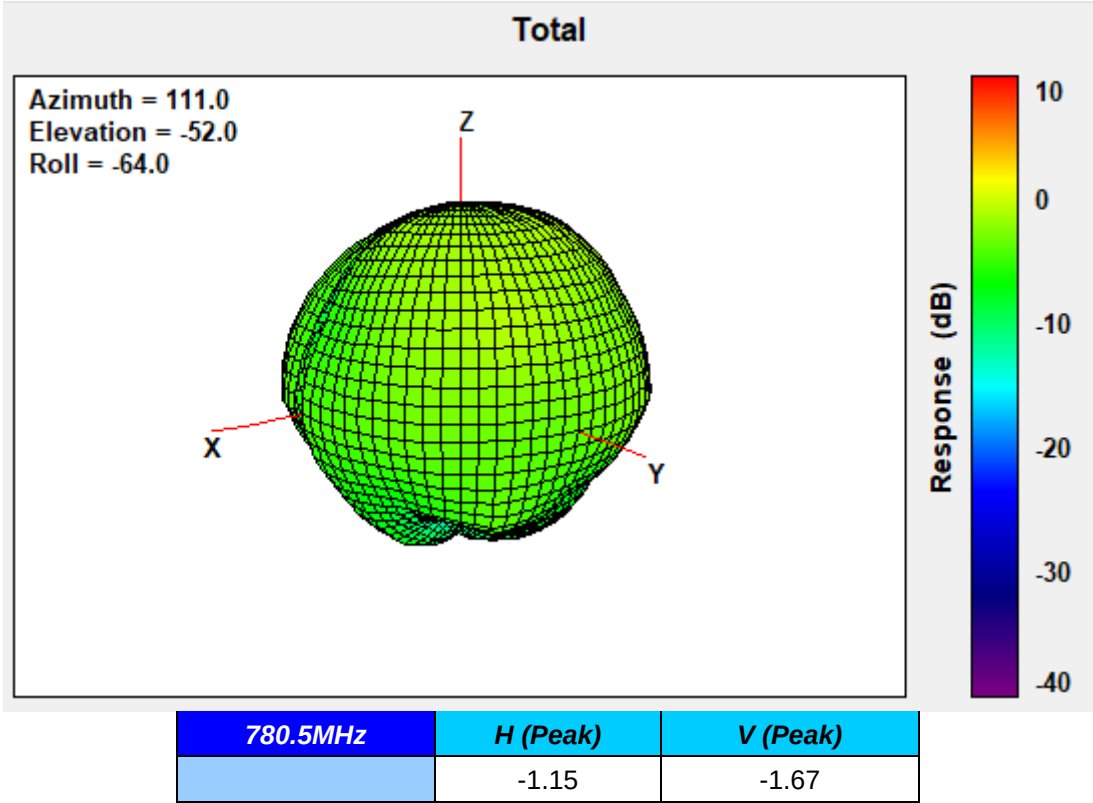
763MHz



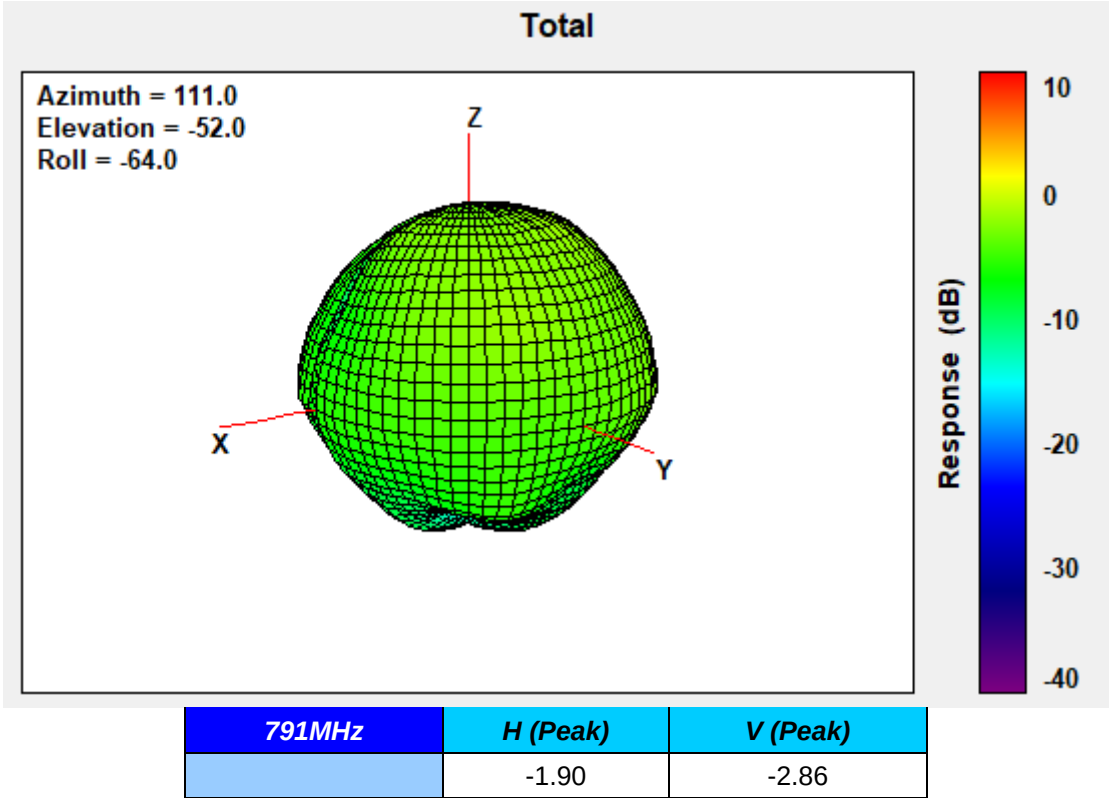
768MHz



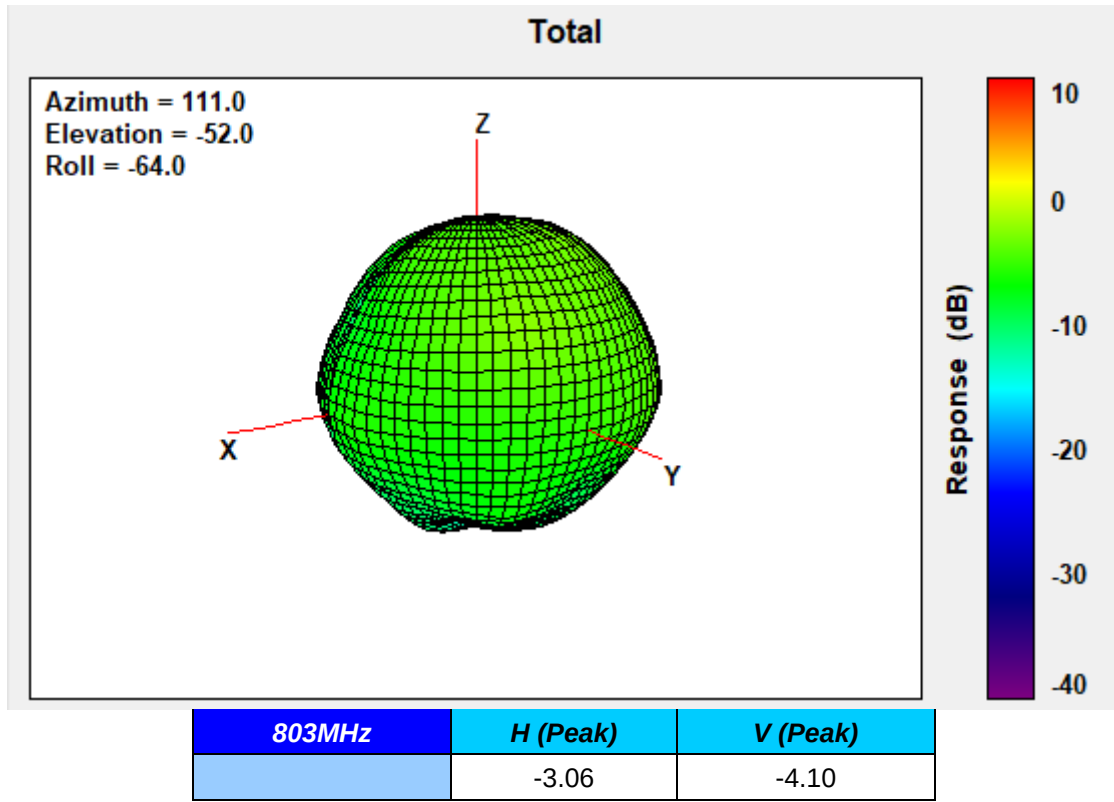
780.5MHz



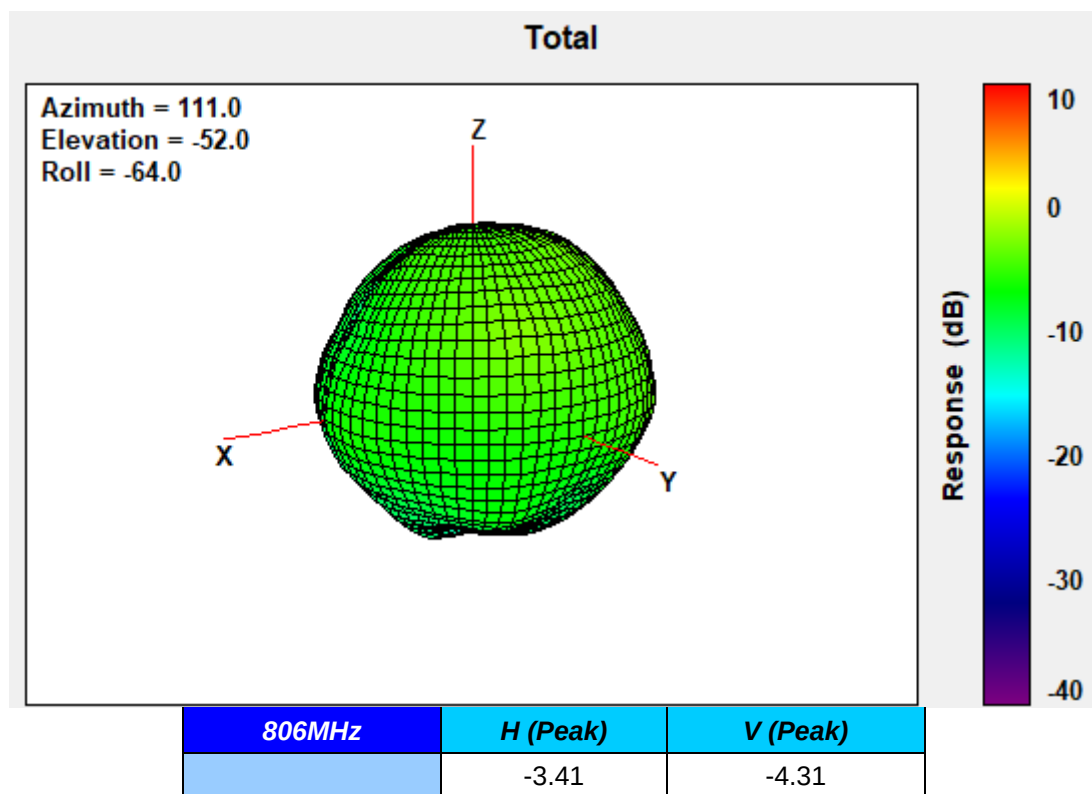
791MHz



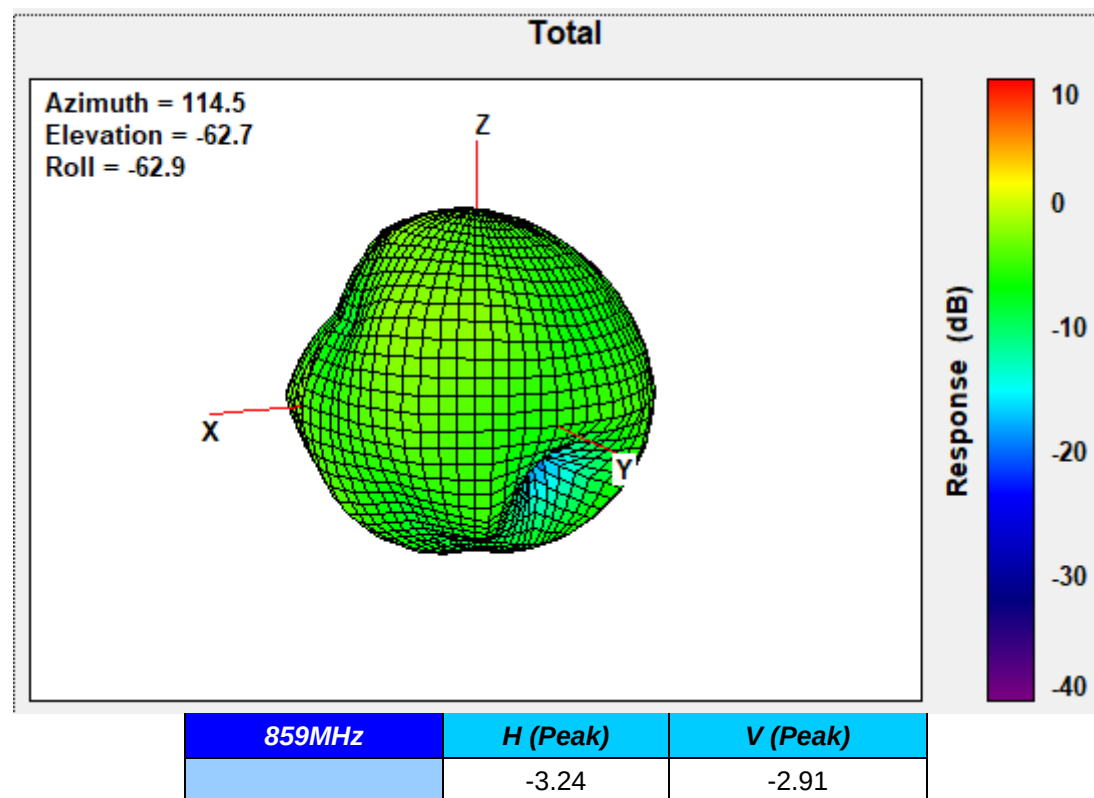
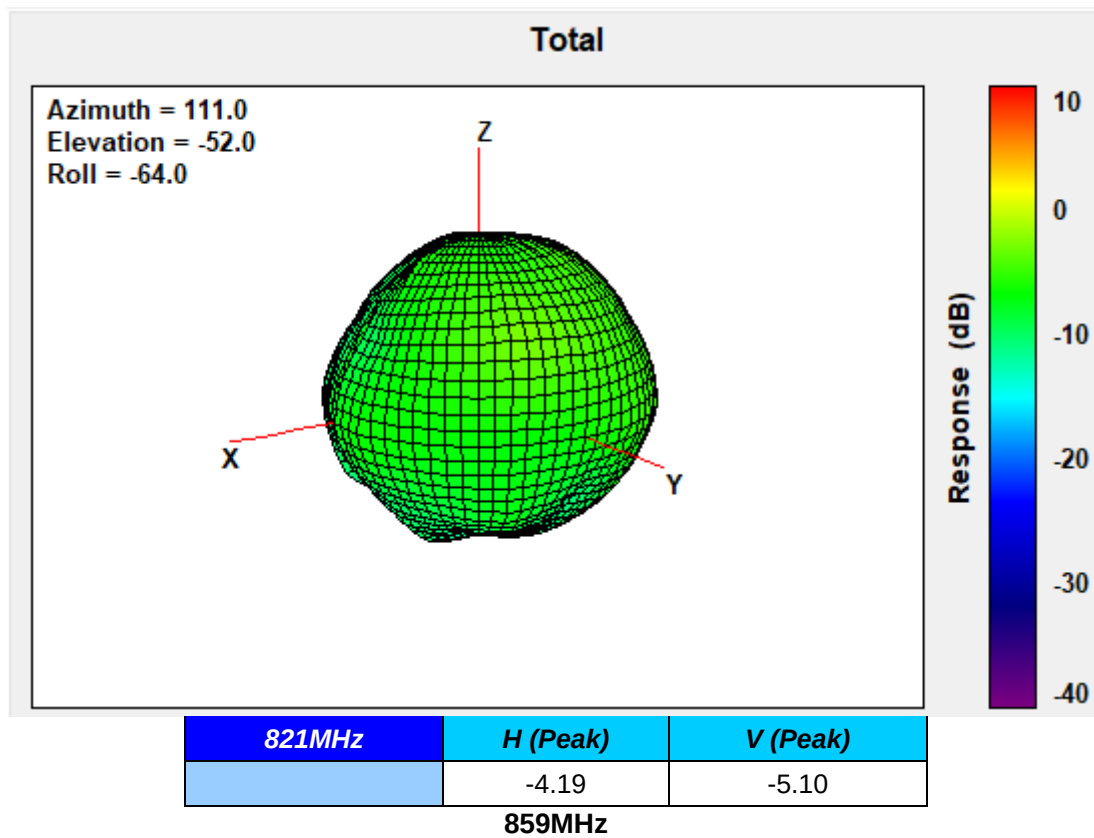
803MHz

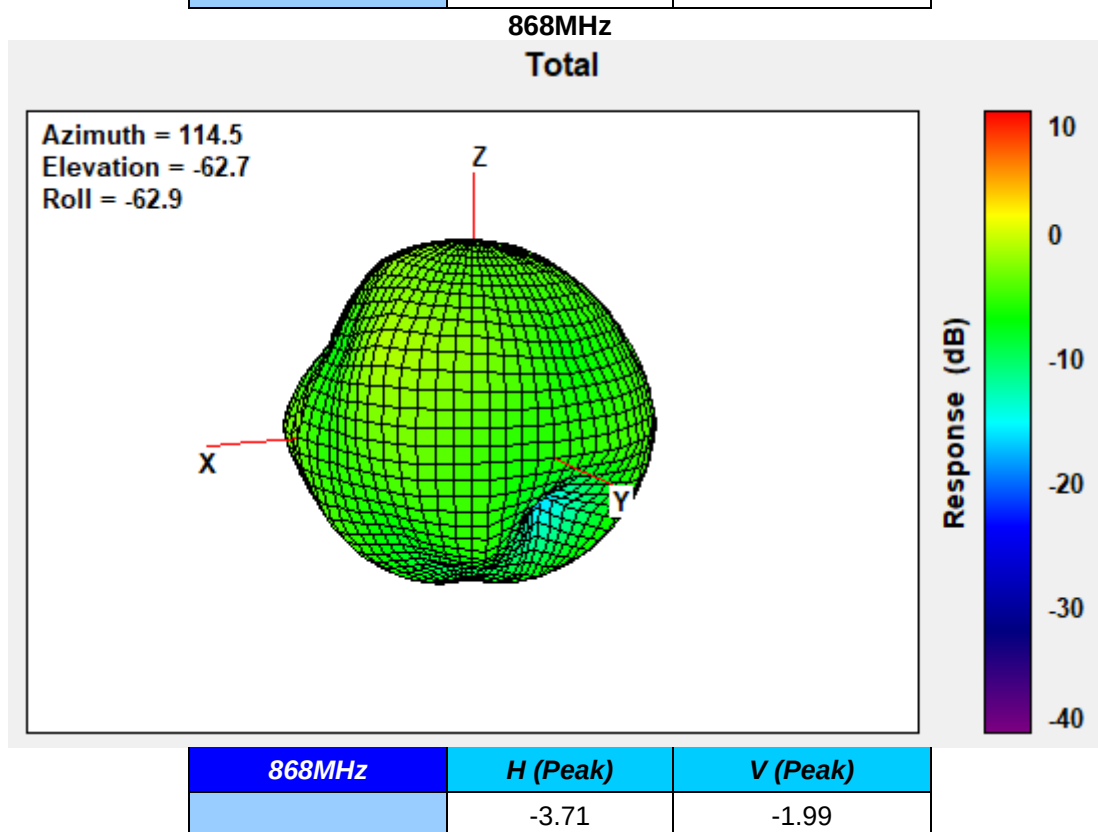
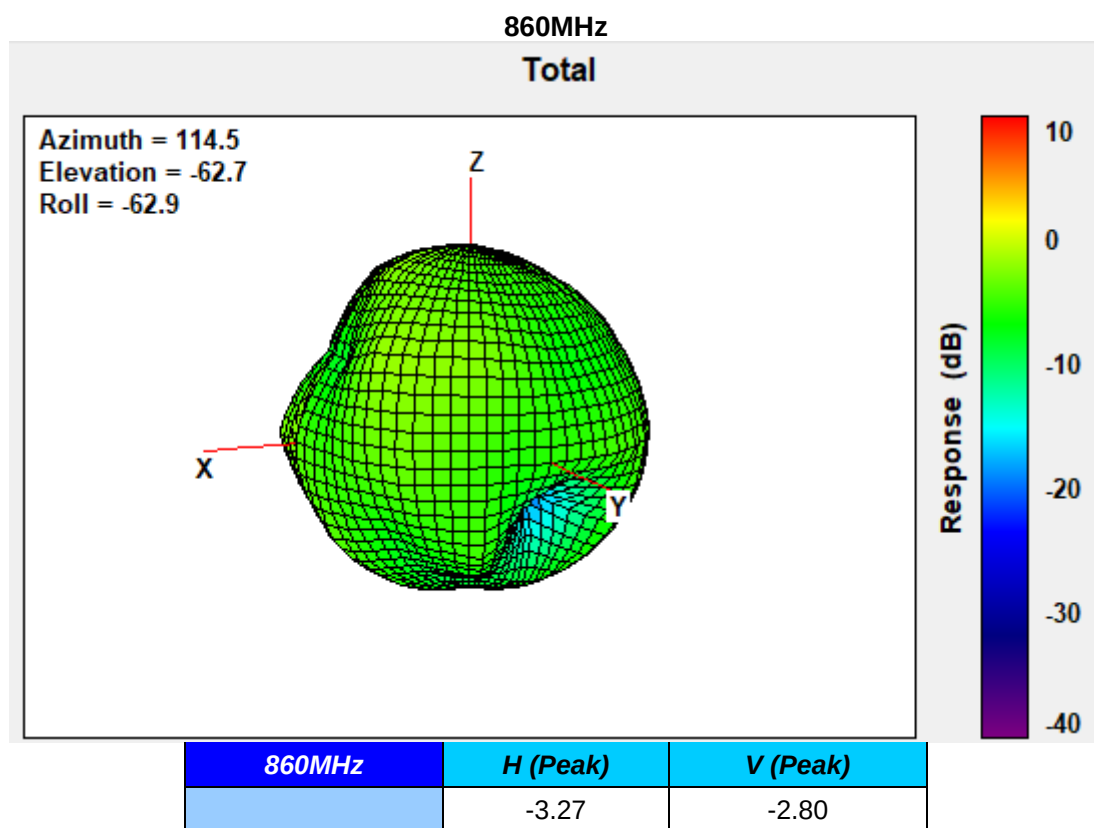


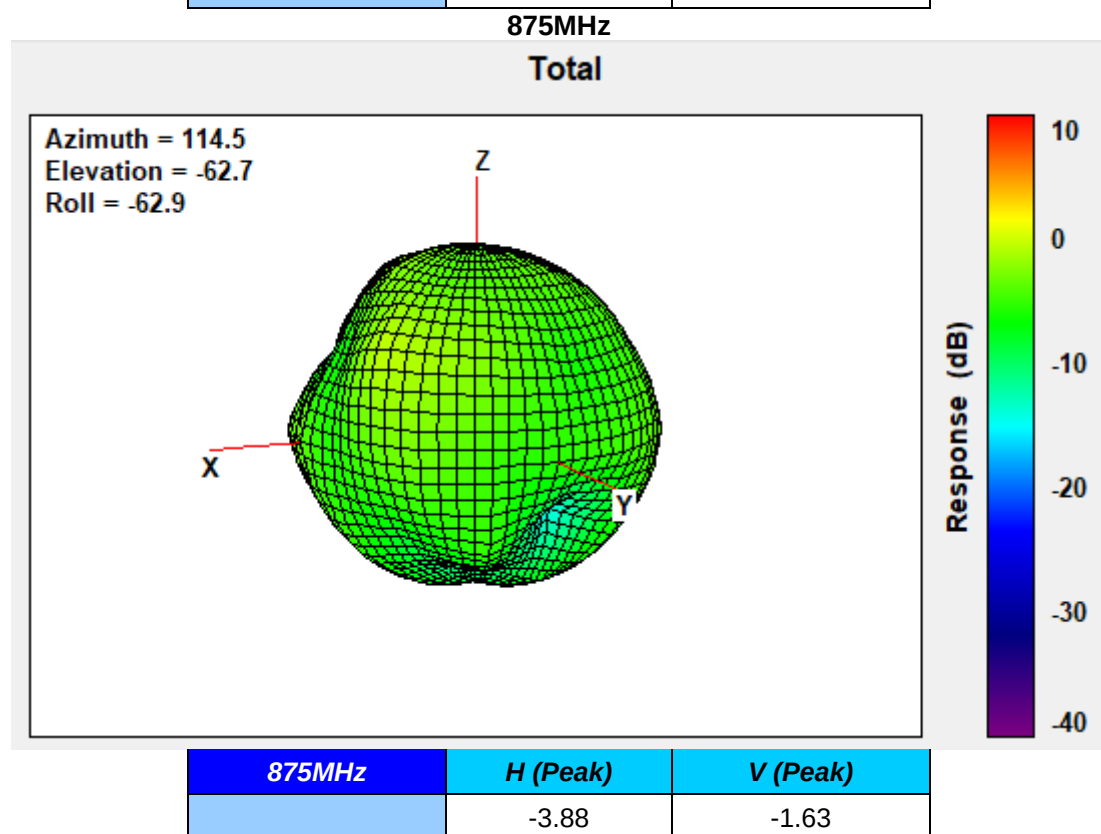
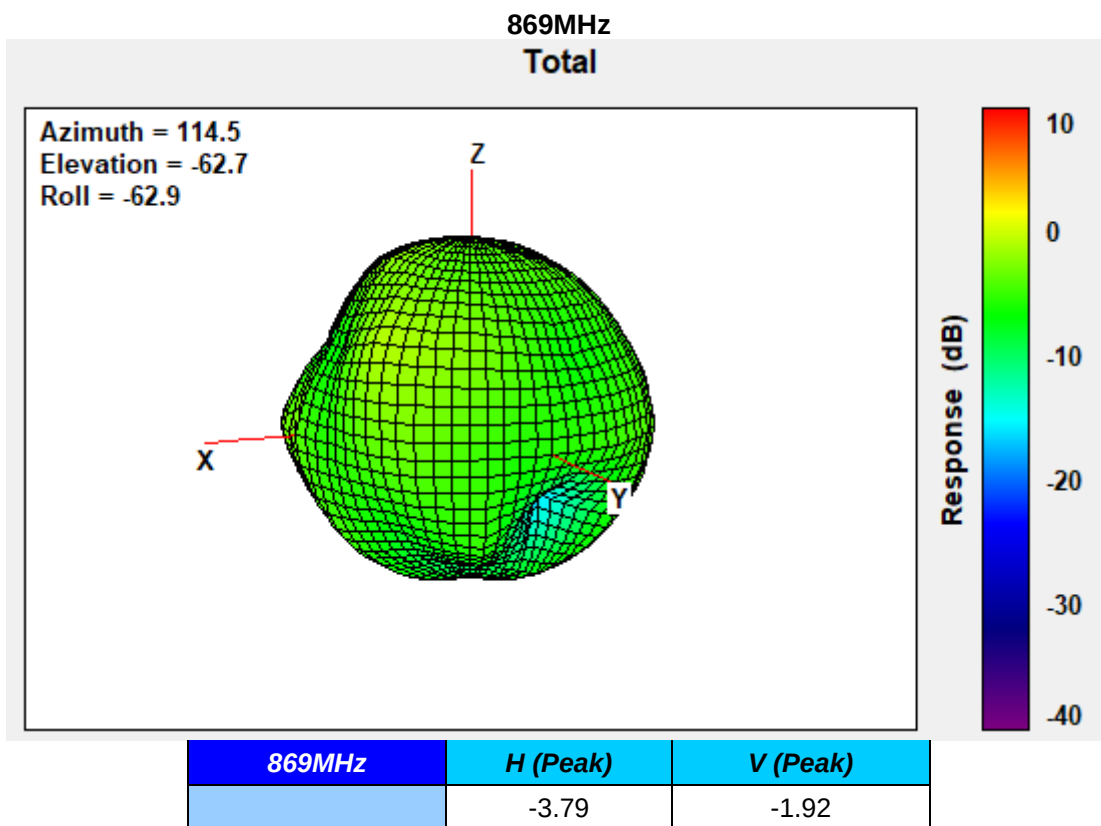
806MHz



821MHz



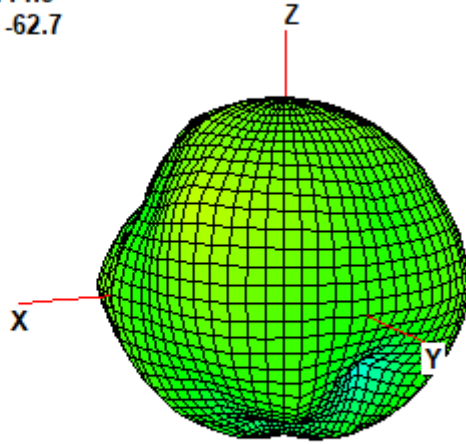




876.5MHz

Total

Azimuth = 114.5
Elevation = -62.7
Roll = -62.9

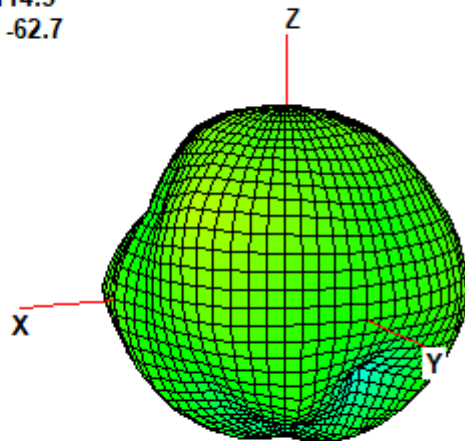


876.5MHz	H (Peak)	V (Peak)
	-3.78	-1.64

880MHz

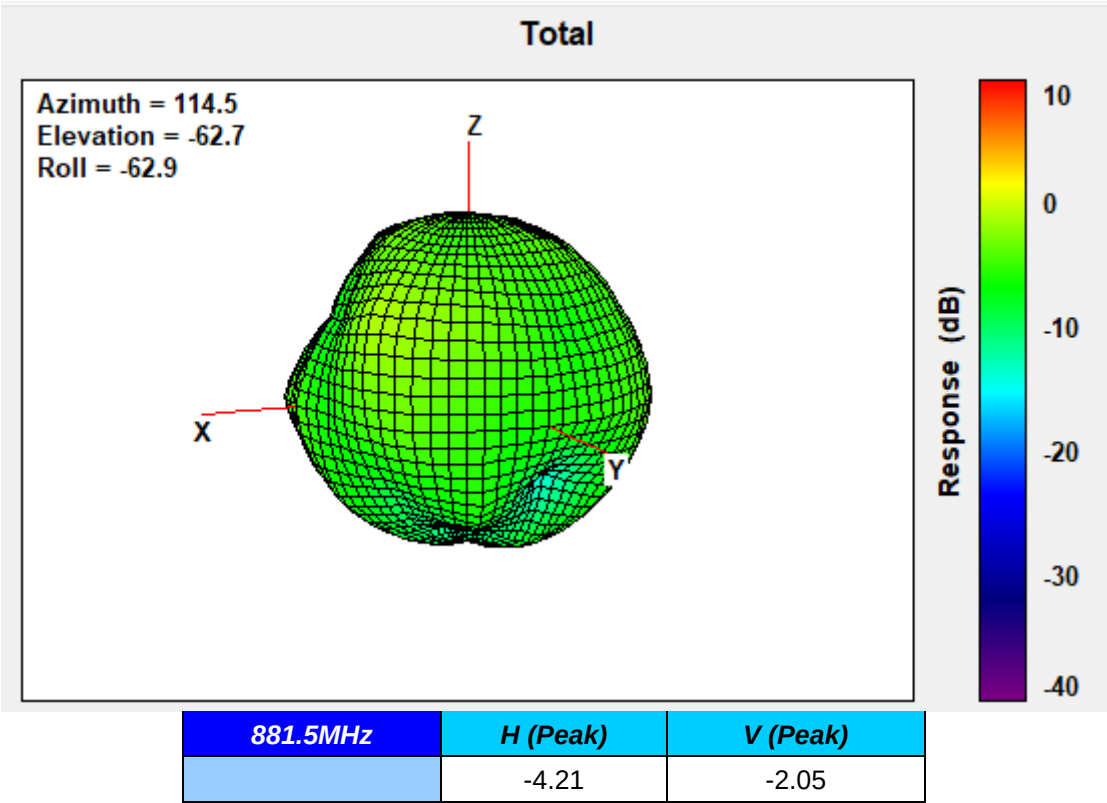
Total

Azimuth = 114.5
Elevation = -62.7
Roll = -62.9

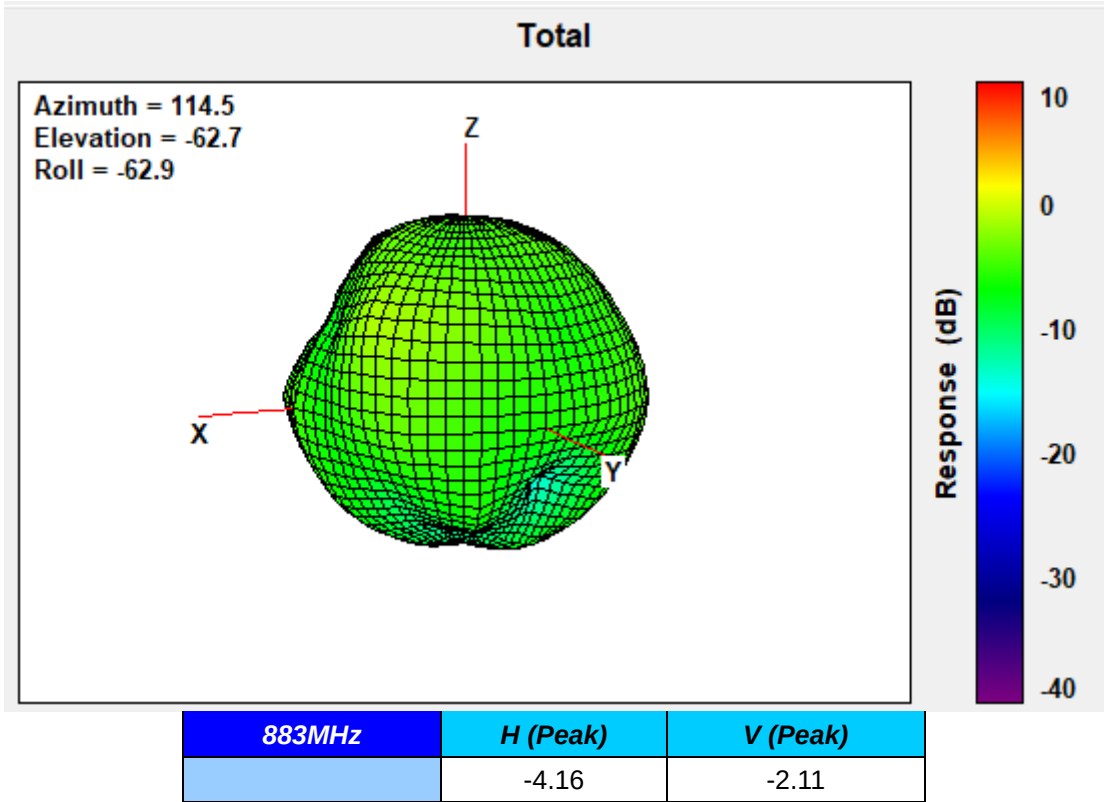


880MHz	H (Peak)	V (Peak)
	-4.25	-2.02

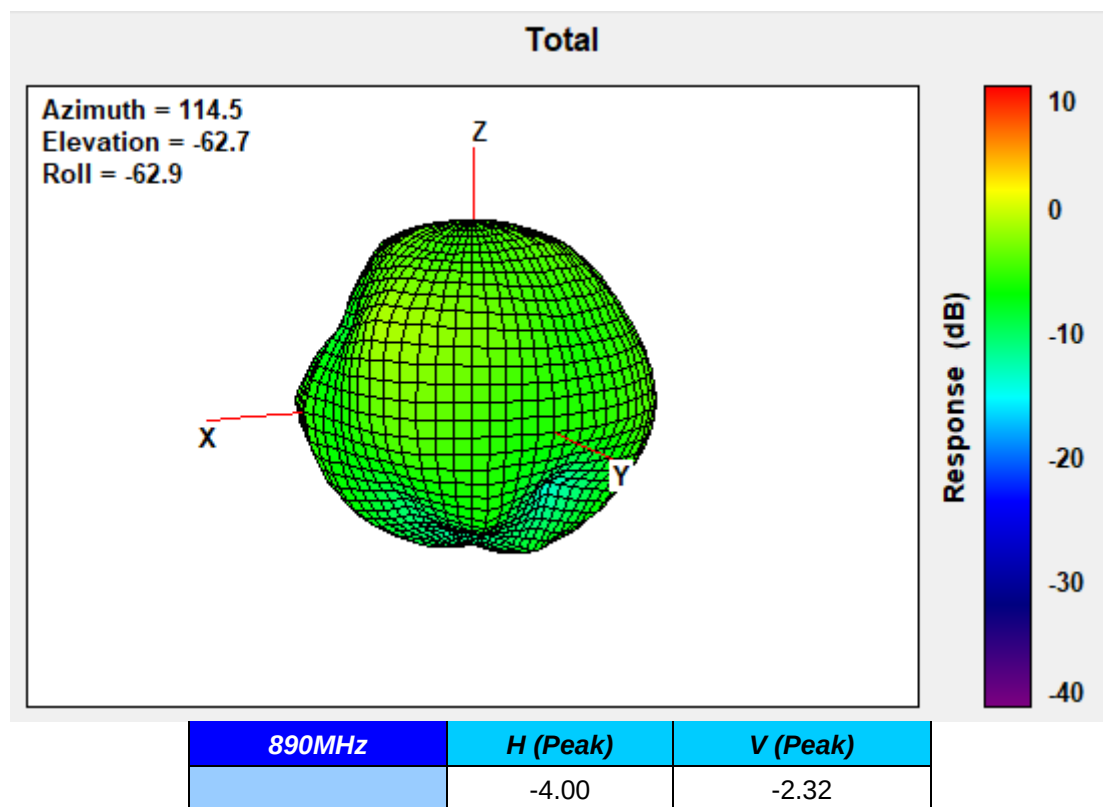
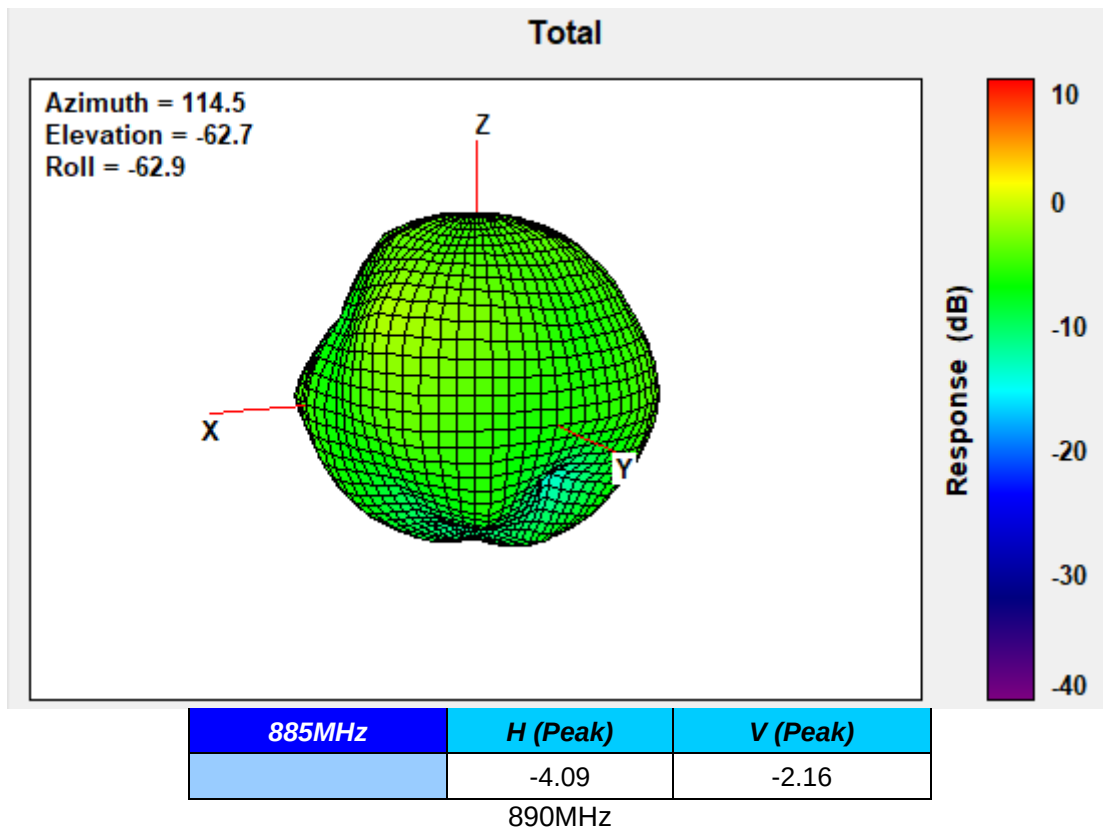
881.5MHz



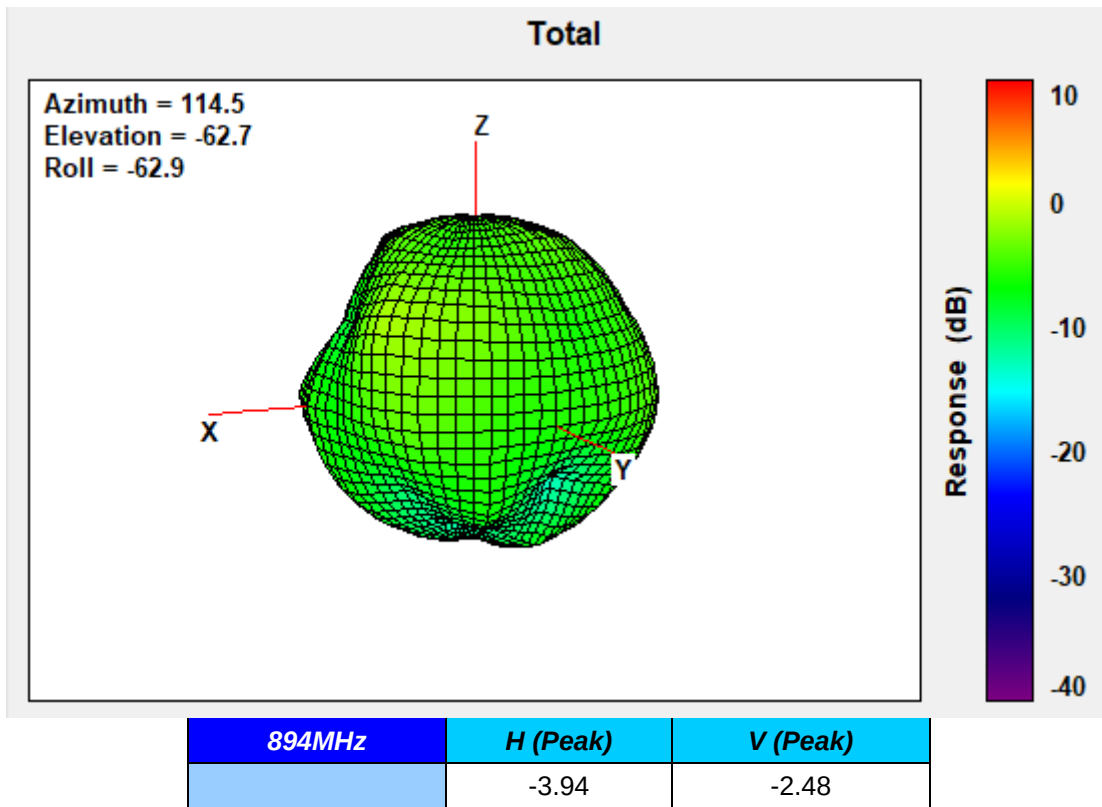
883MHz



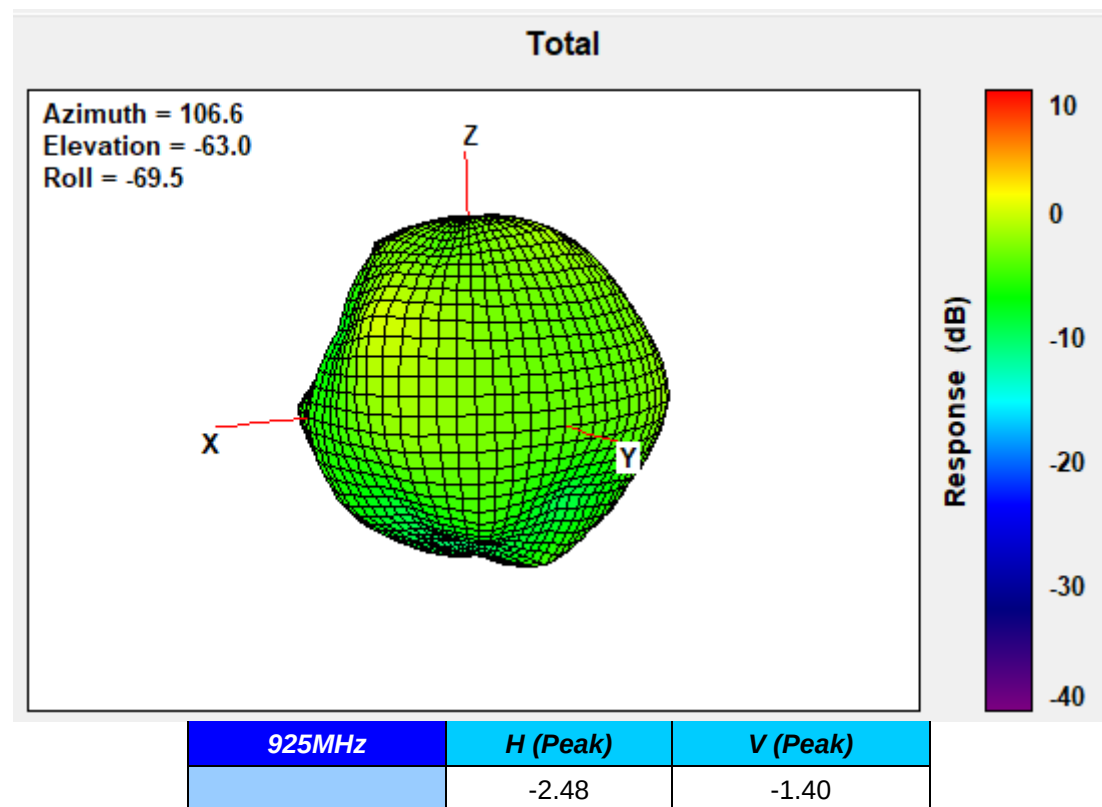
885MHz



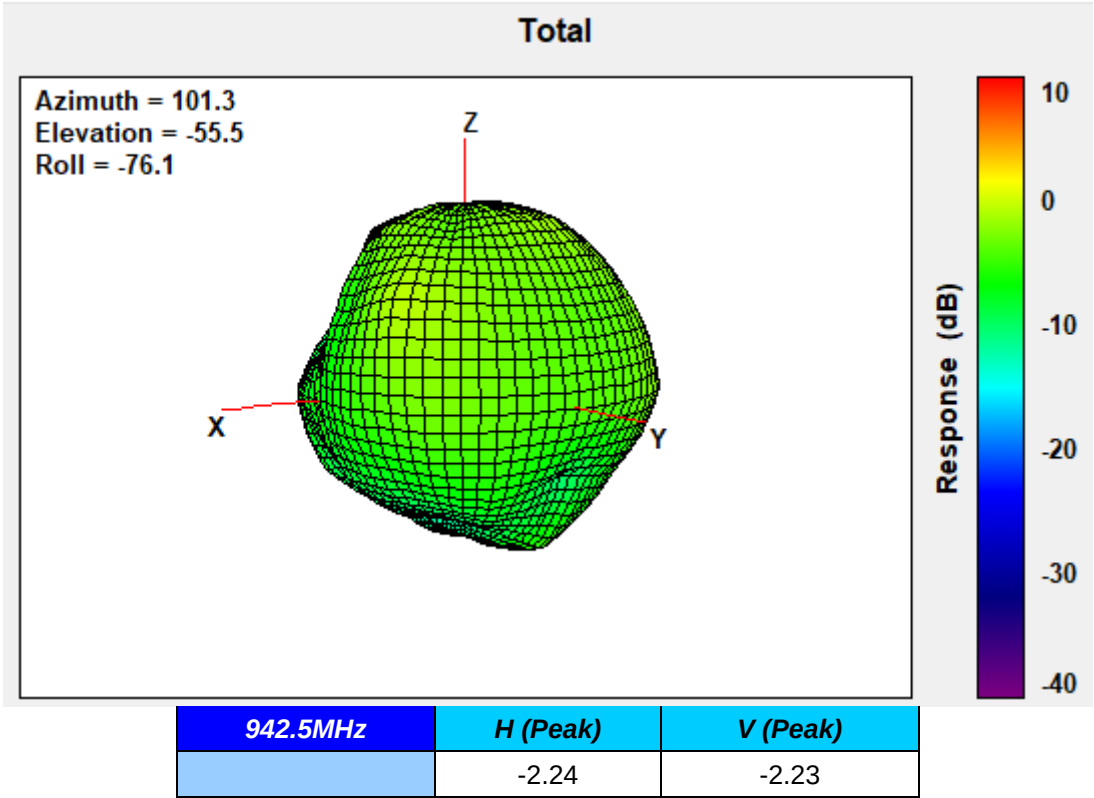
894MHz



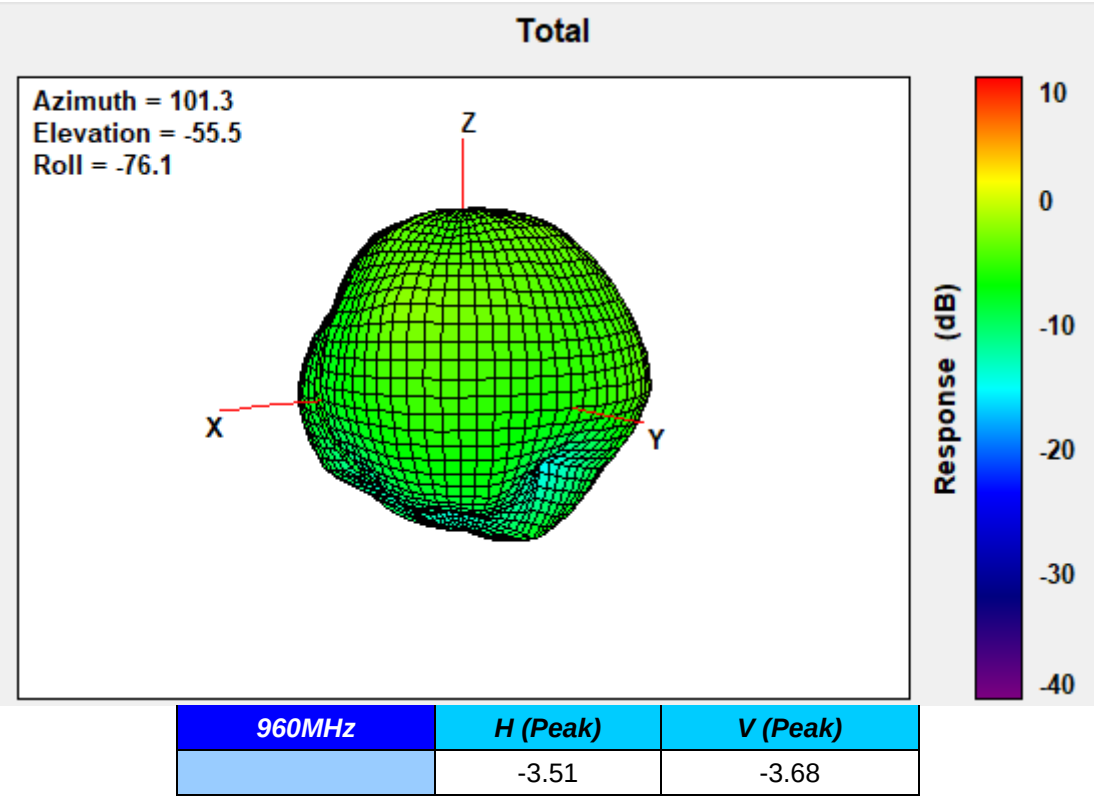
925MHz



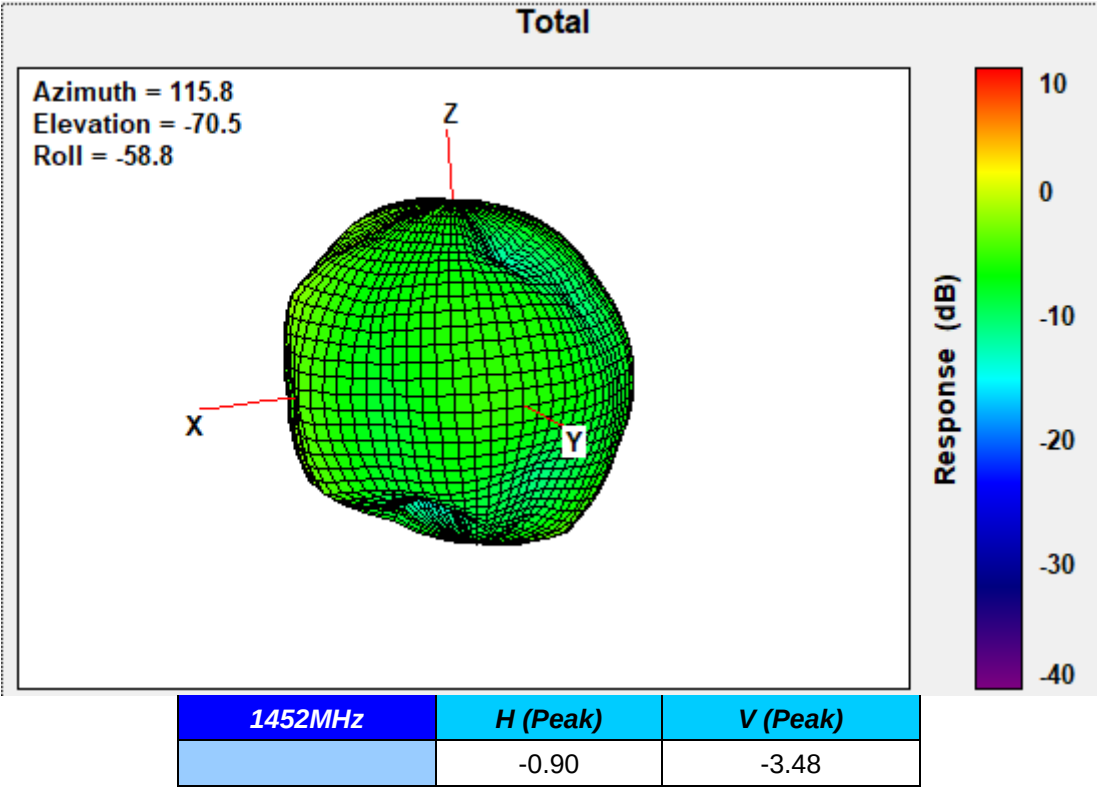
942.5MHz



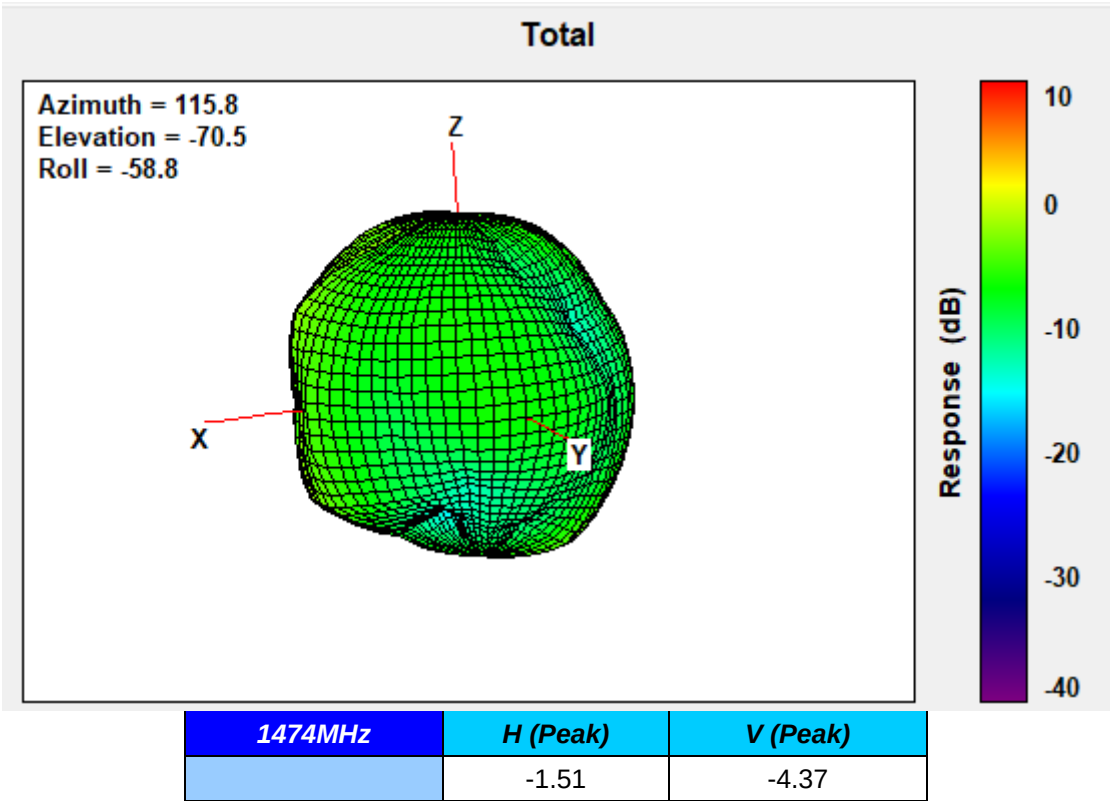
960MHz



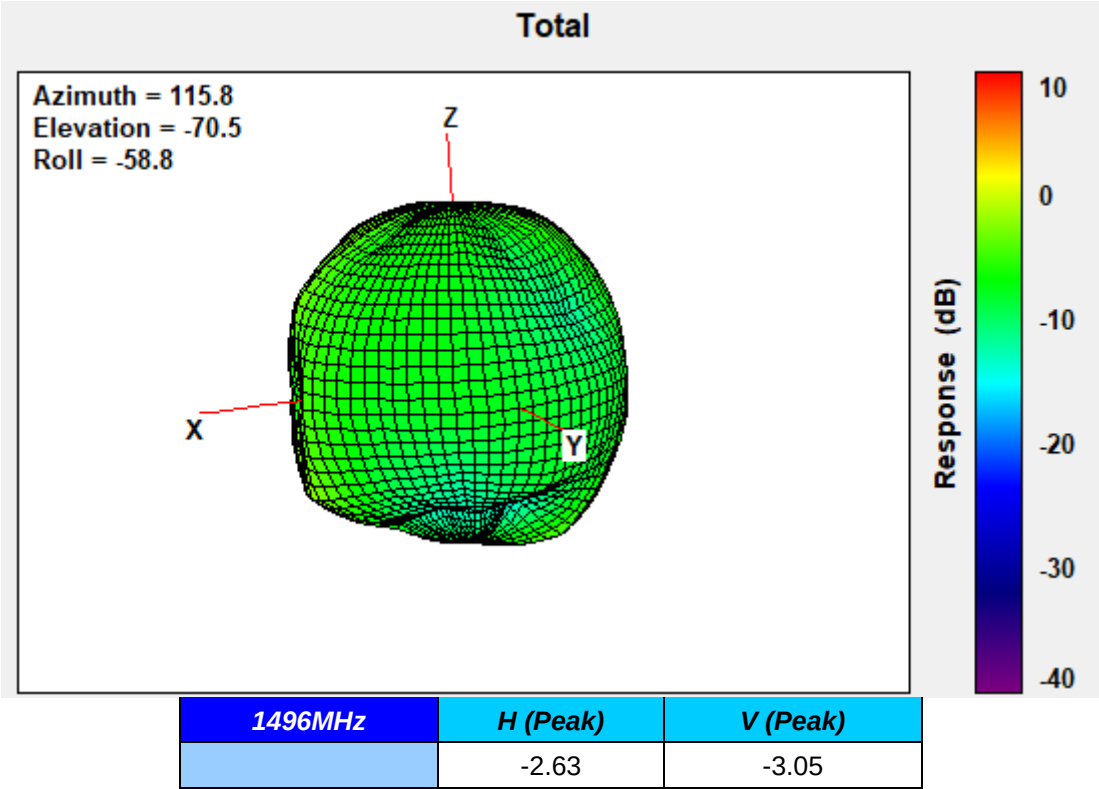
1452MHz



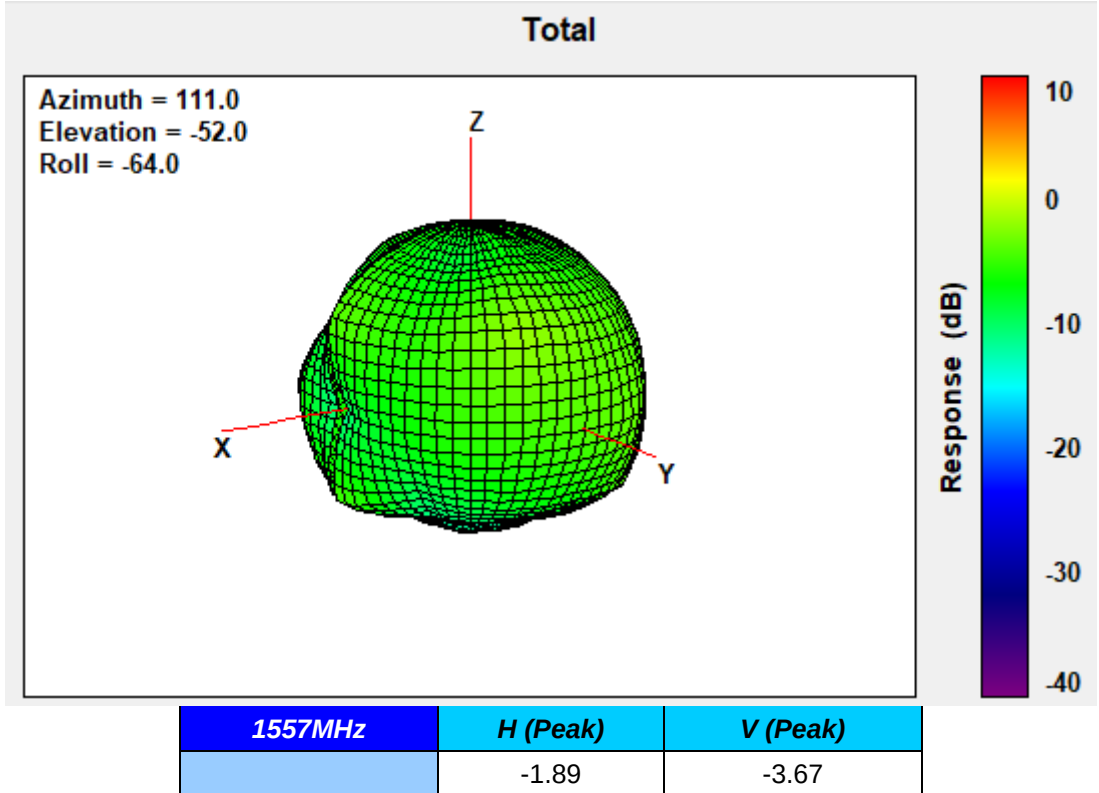
1474MHz



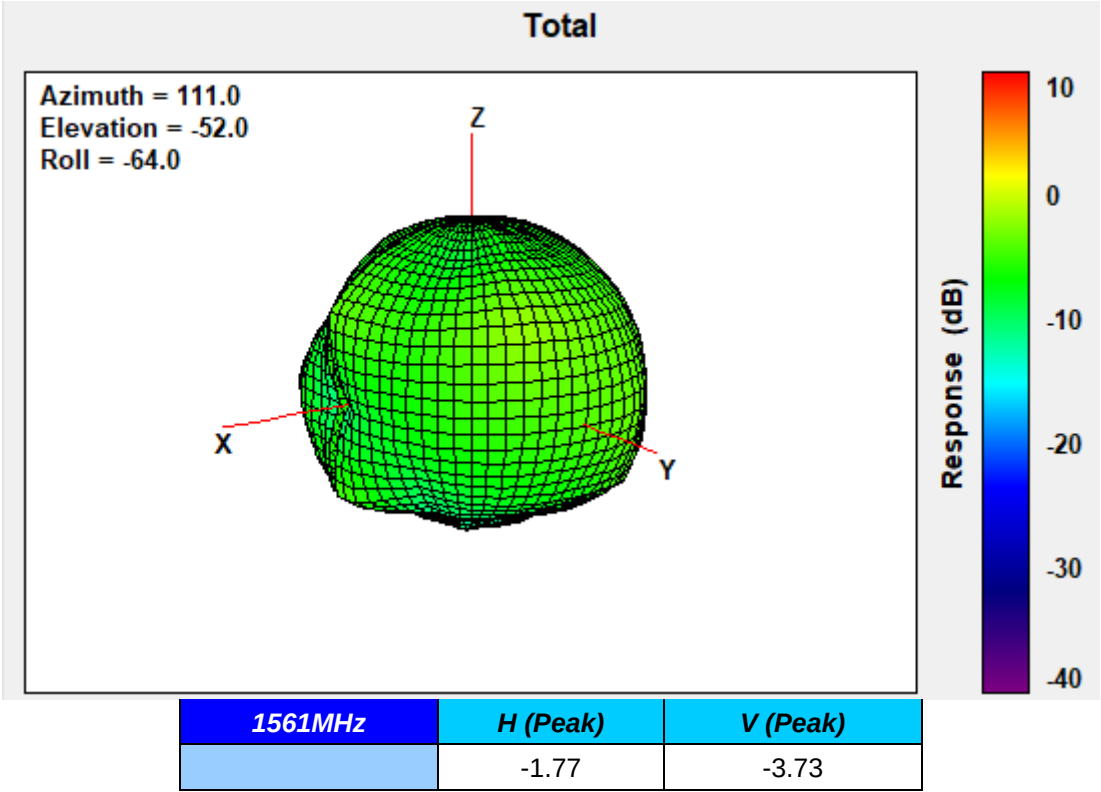
1496MHz



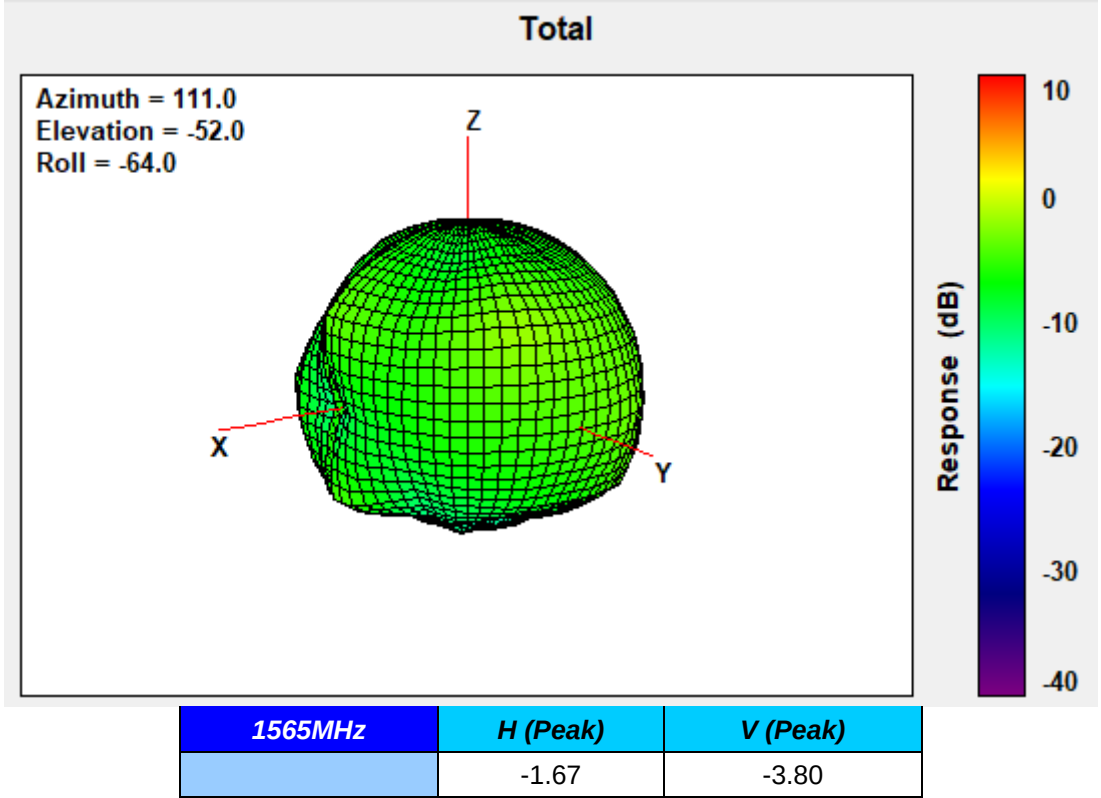
1557MHz



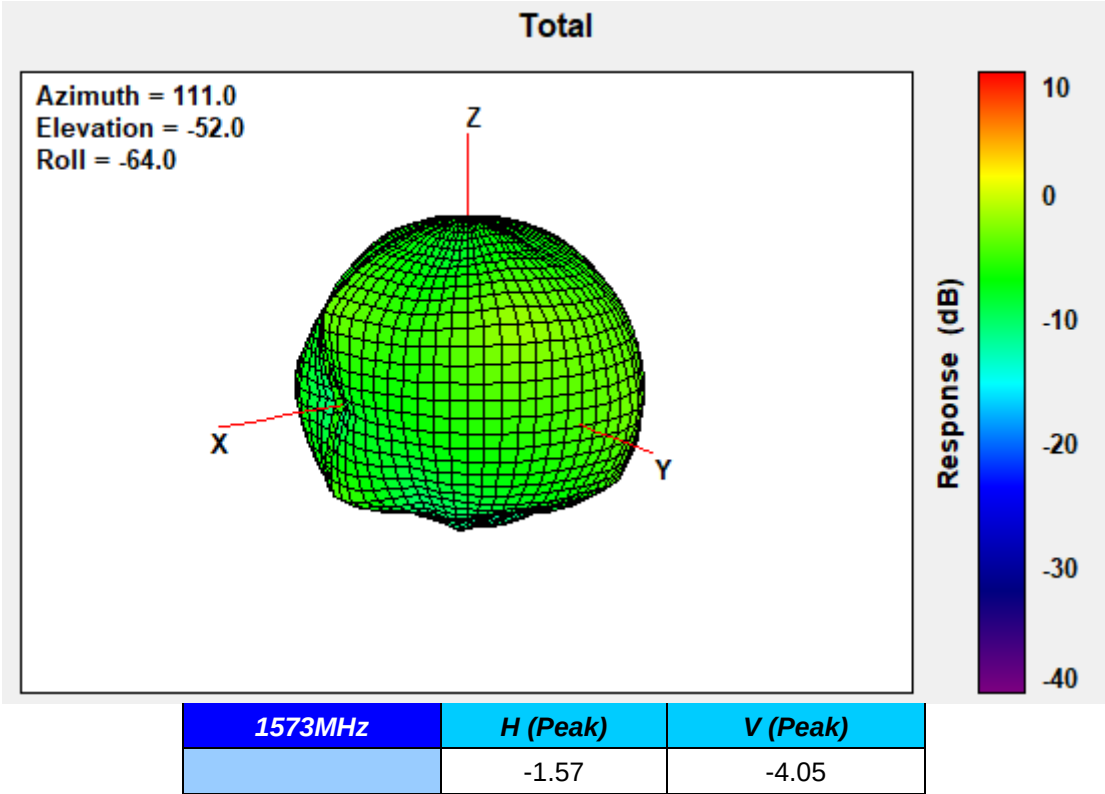
1561MHz



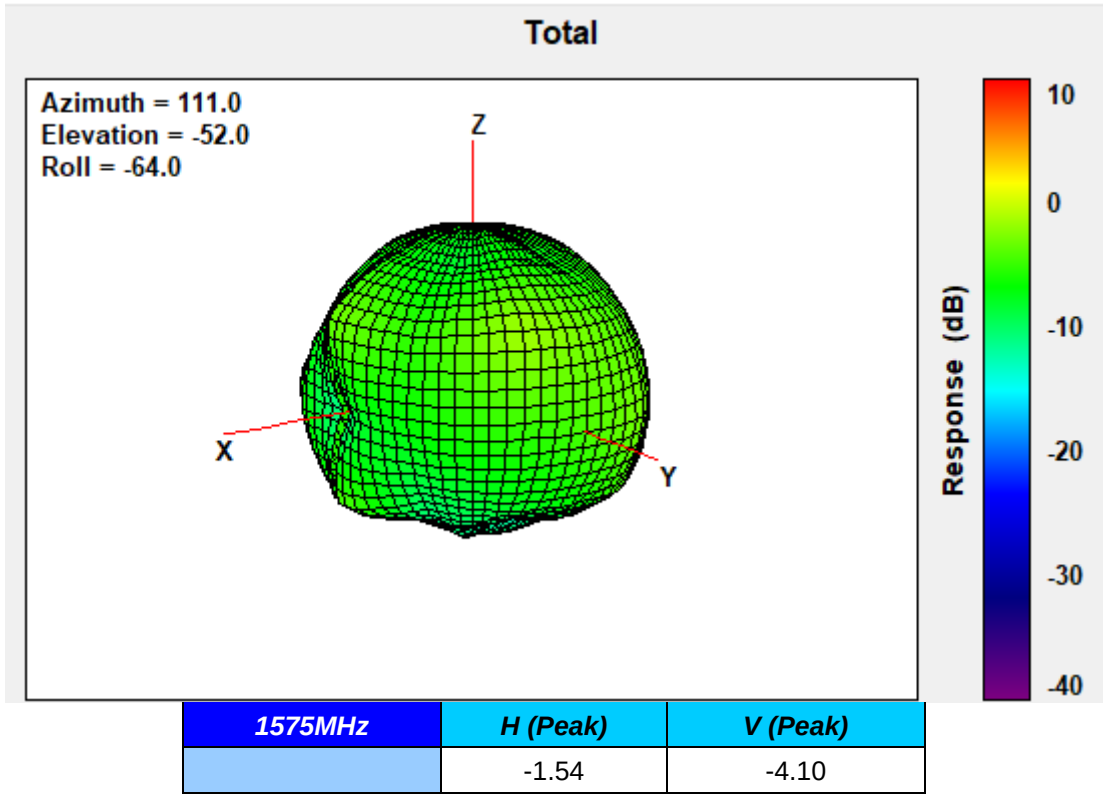
1565MHz



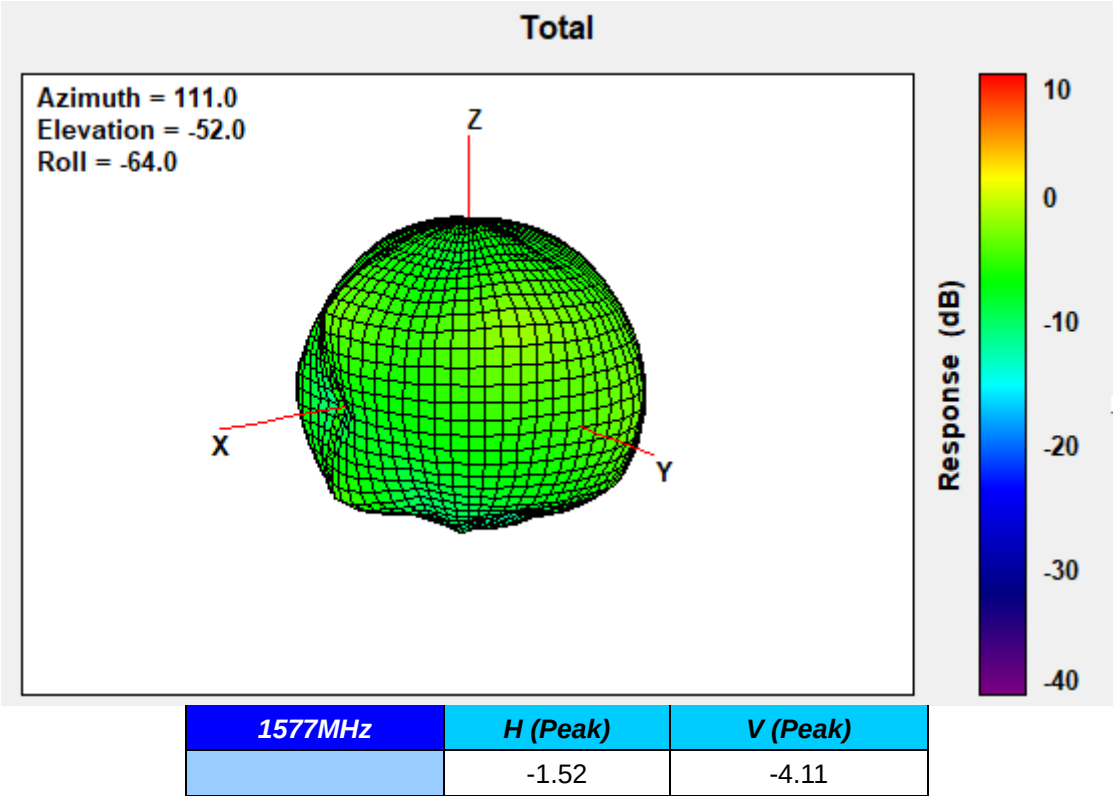
1573MHz



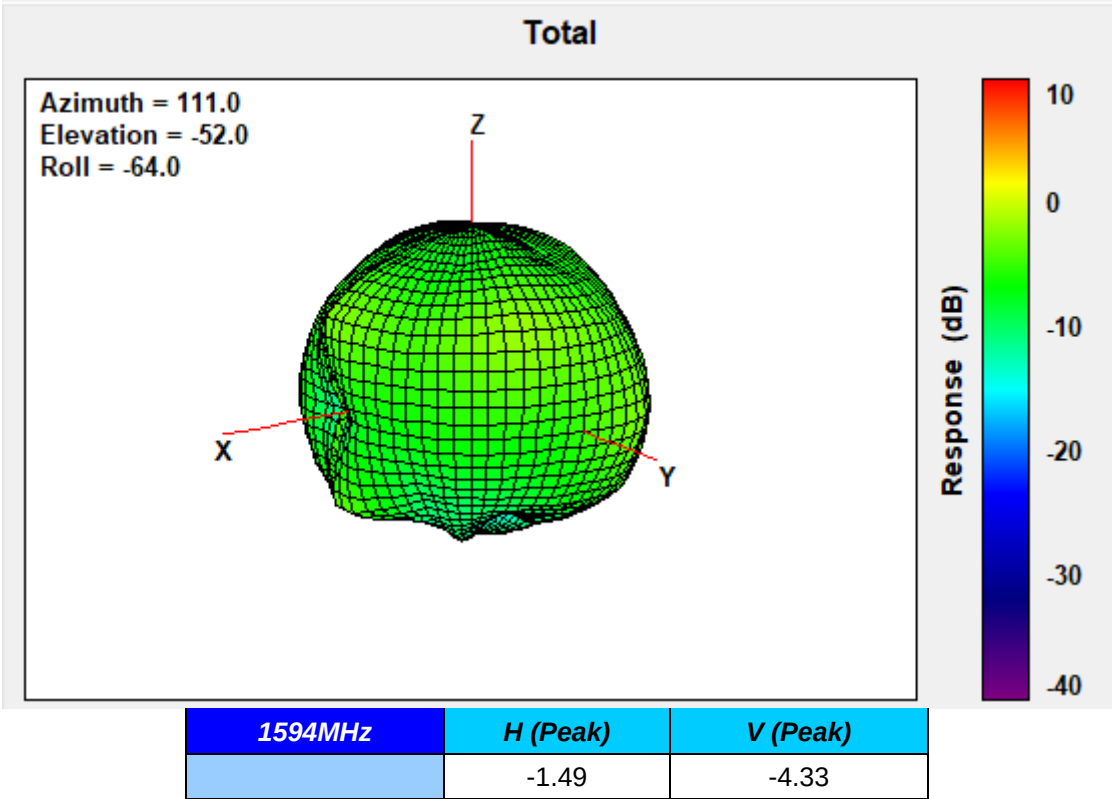
1575MHz



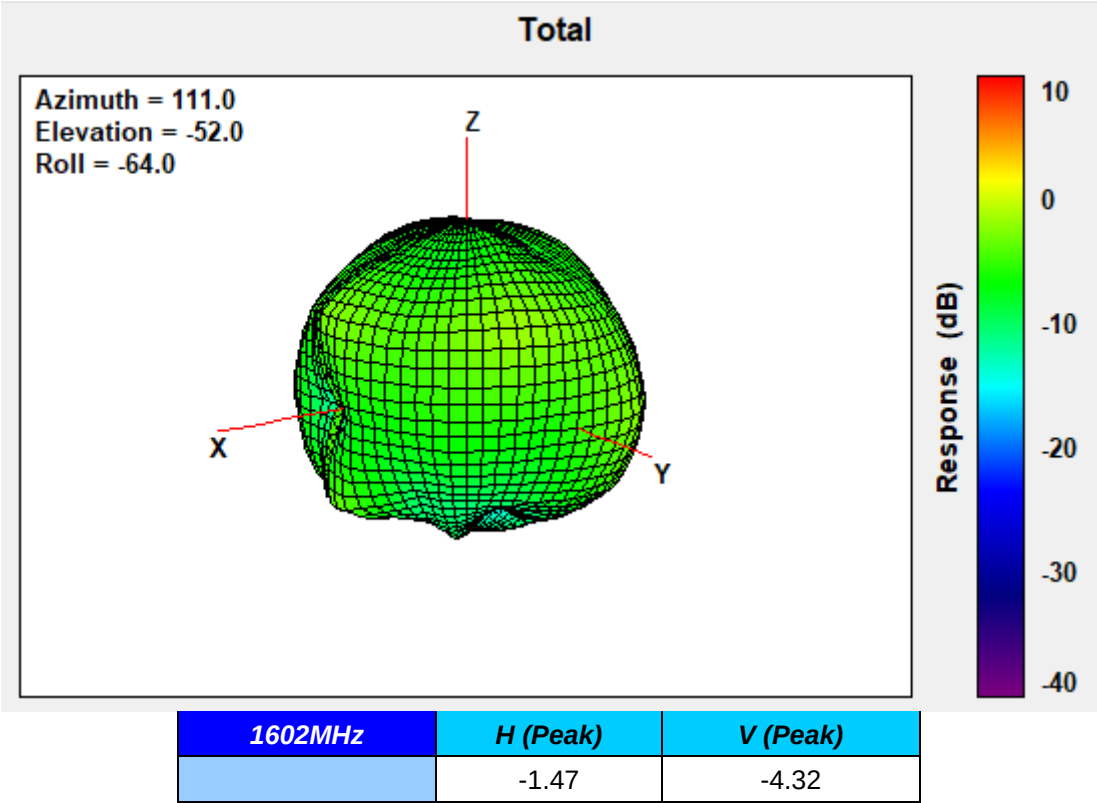
1577MHz



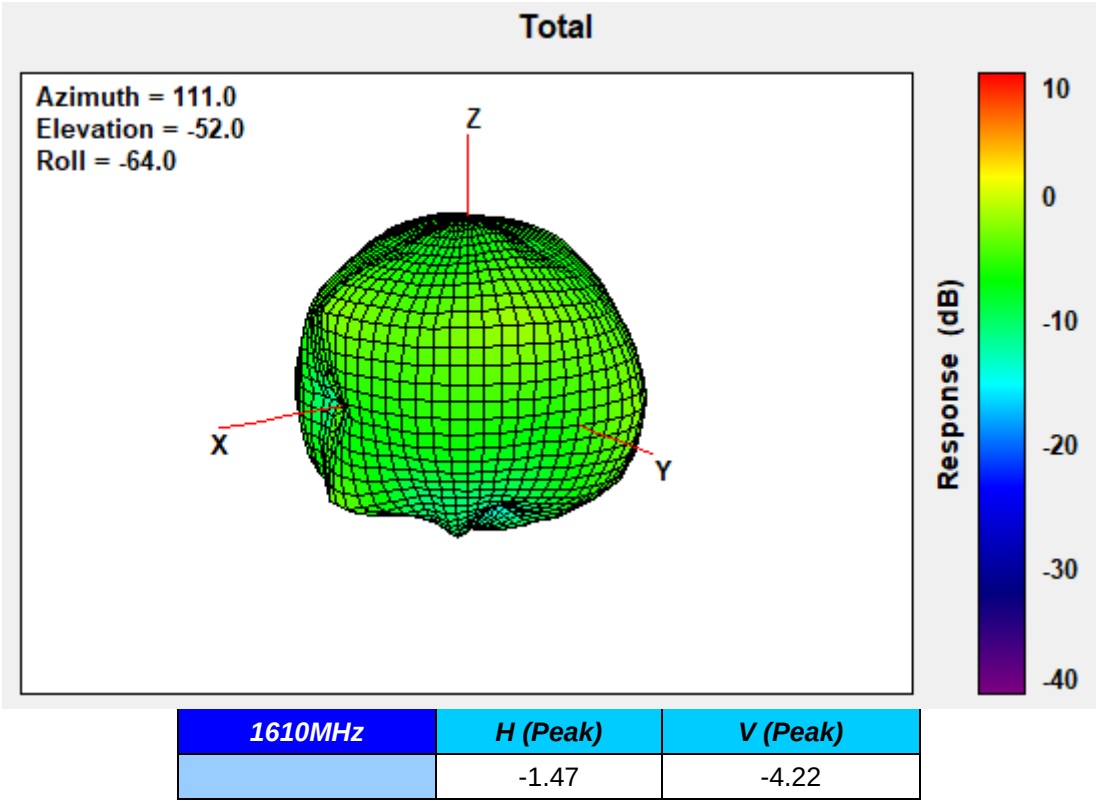
1594MHz



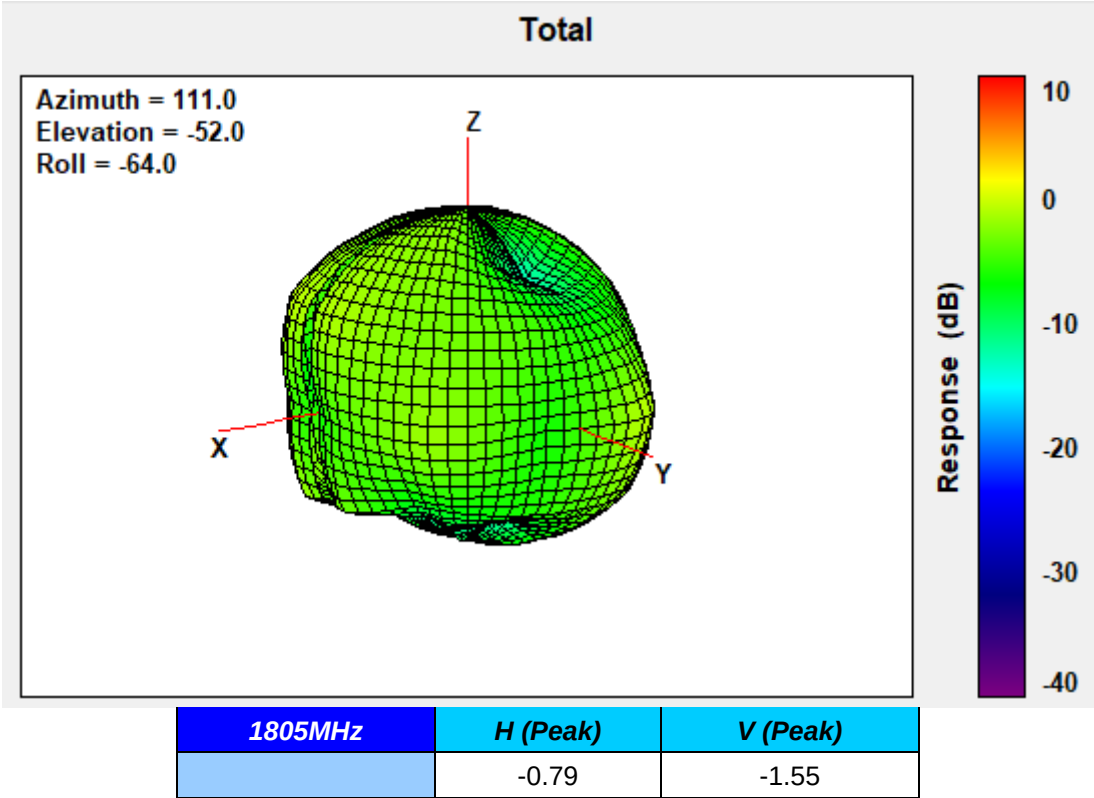
1602MHz



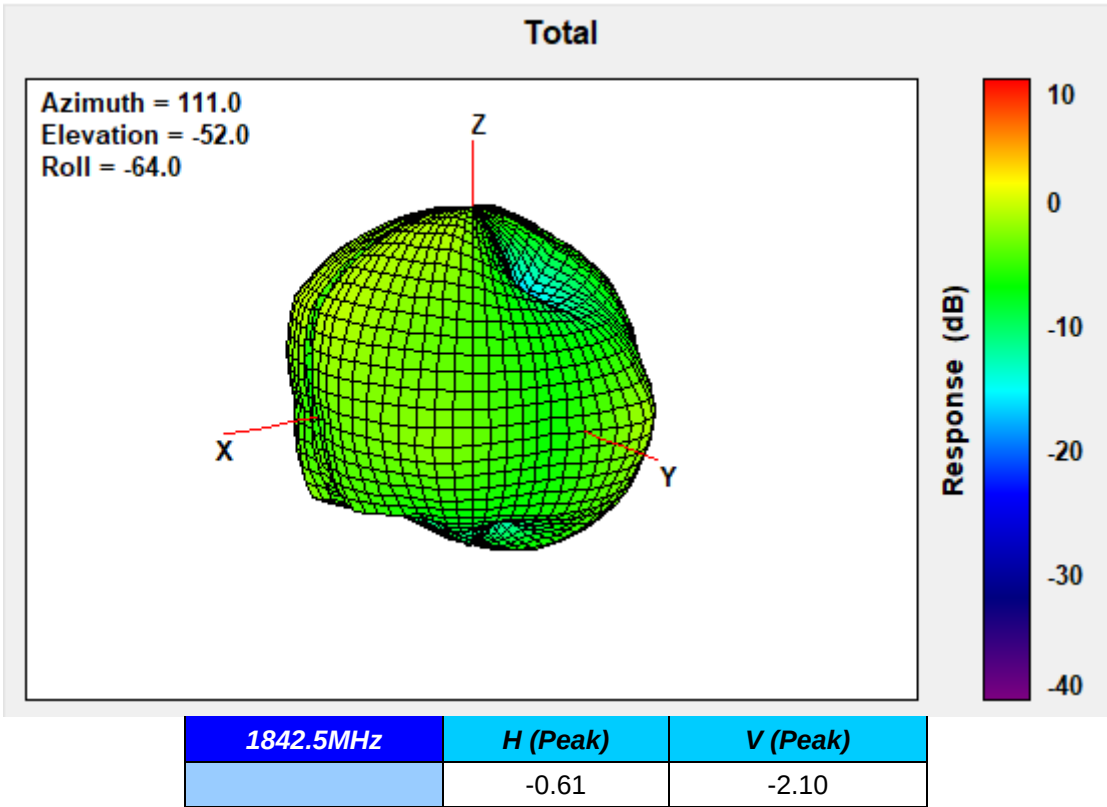
1610MHz



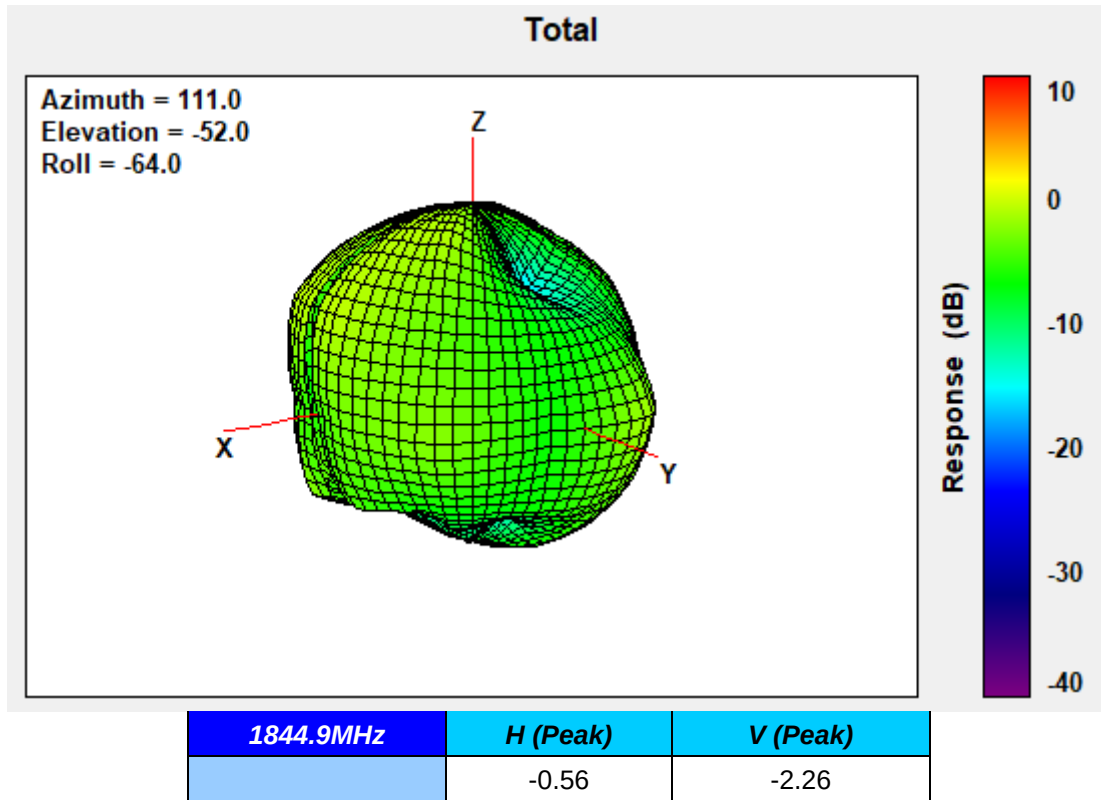
1805MHz



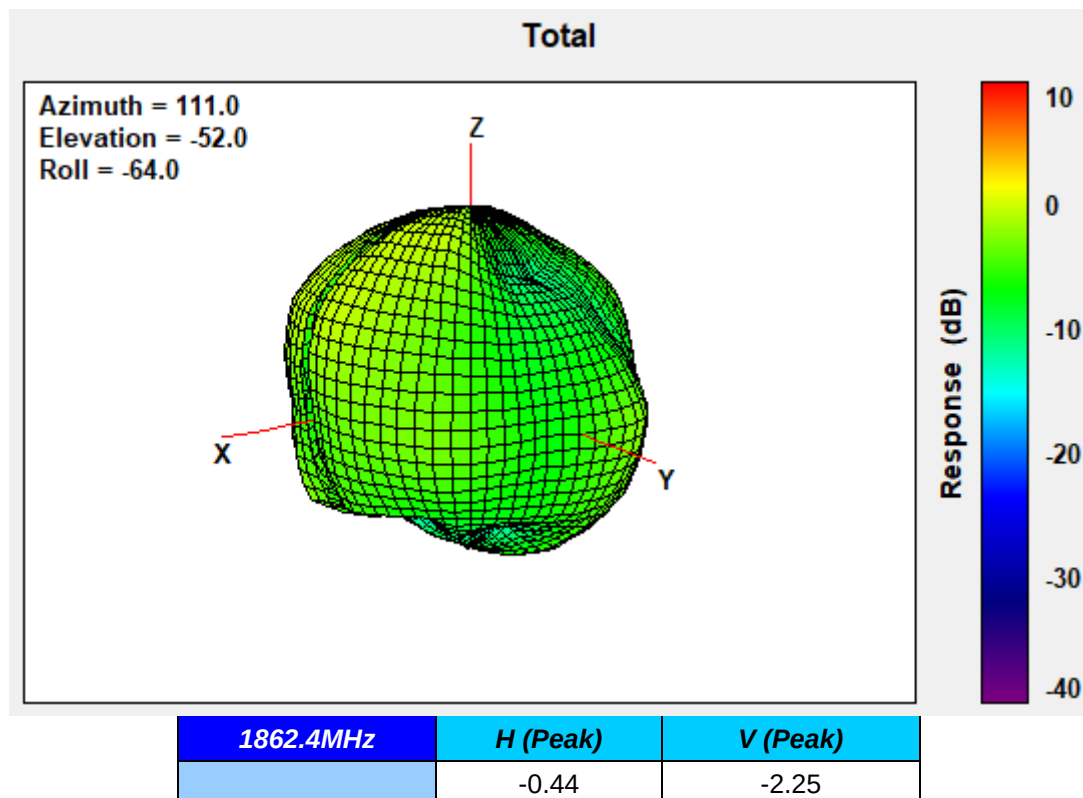
1842.5MHz



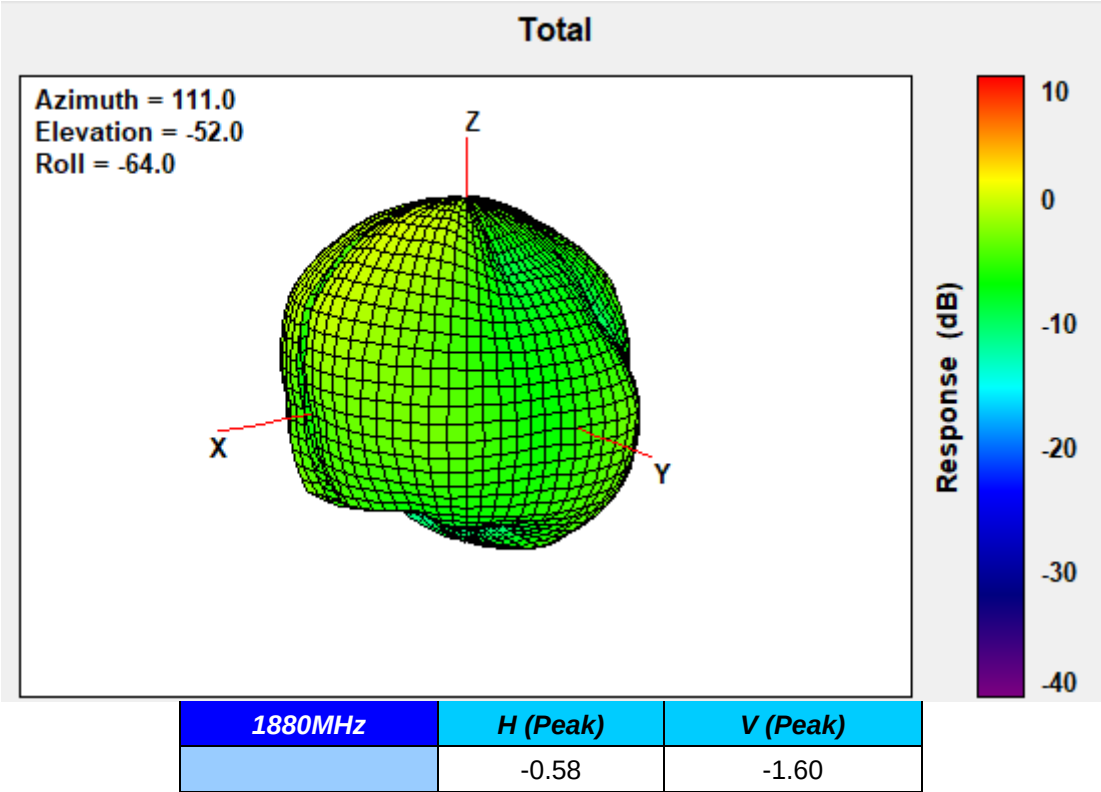
1844.9MHz



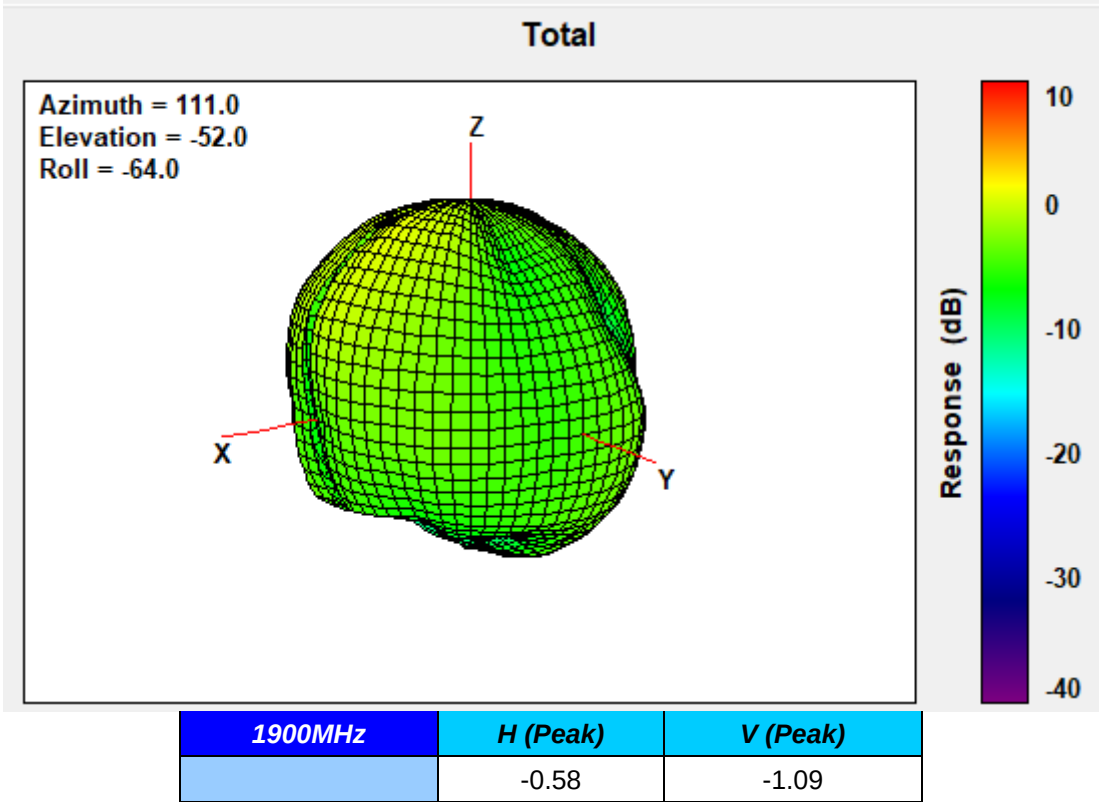
1862.4MHz



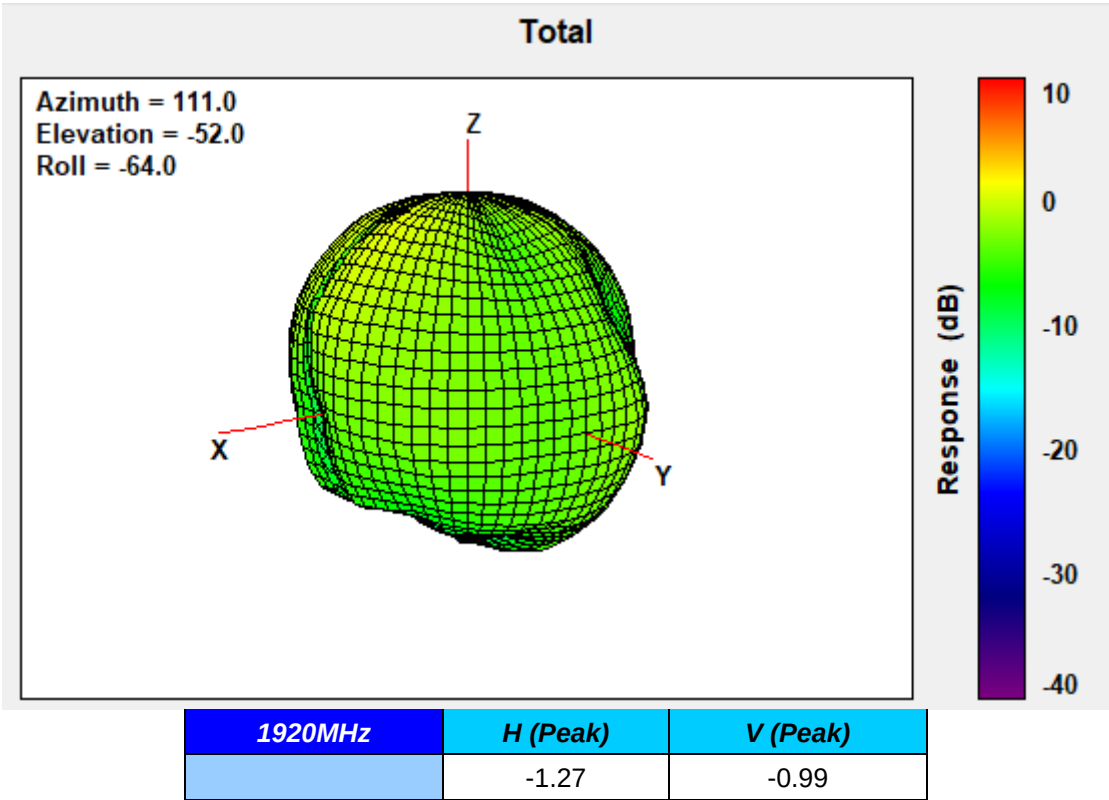
1880MHz



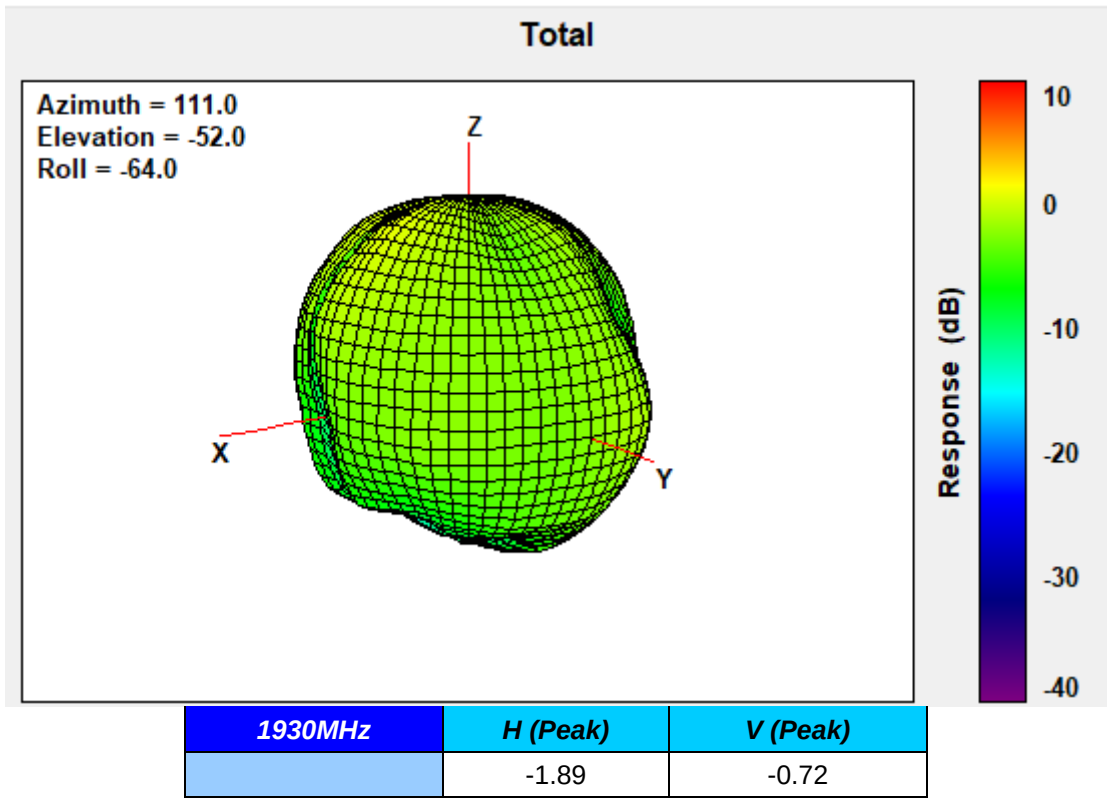
1900MHz



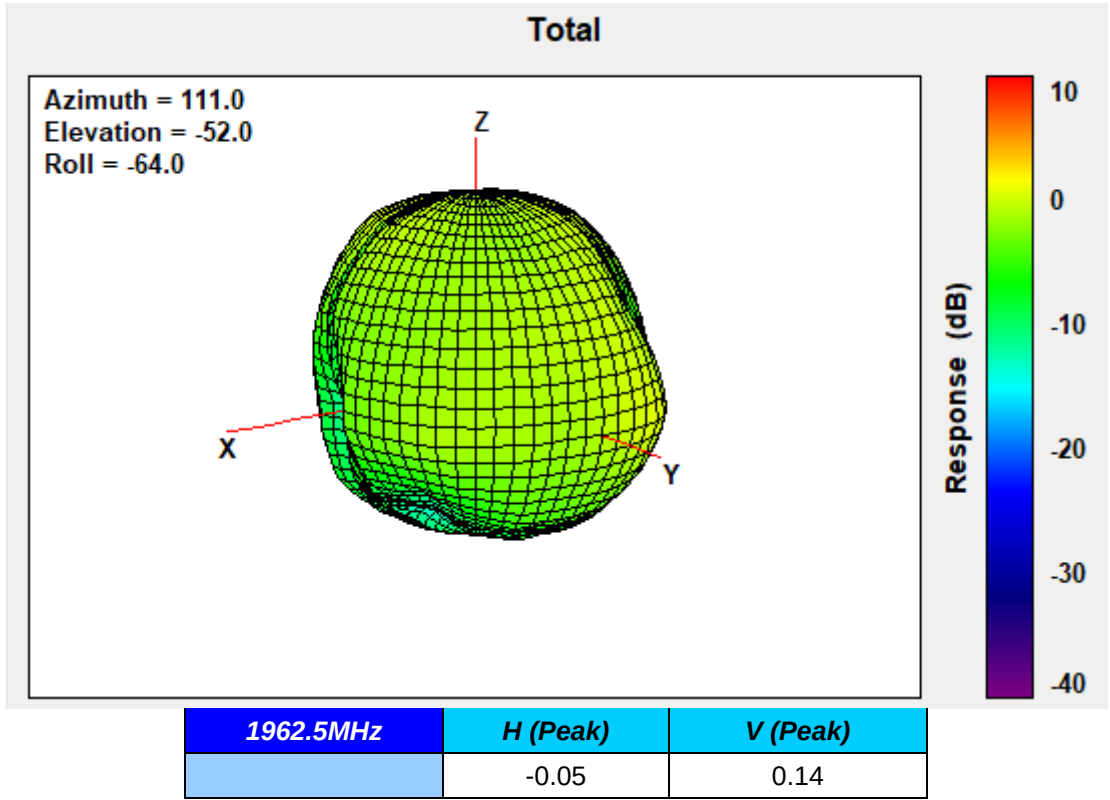
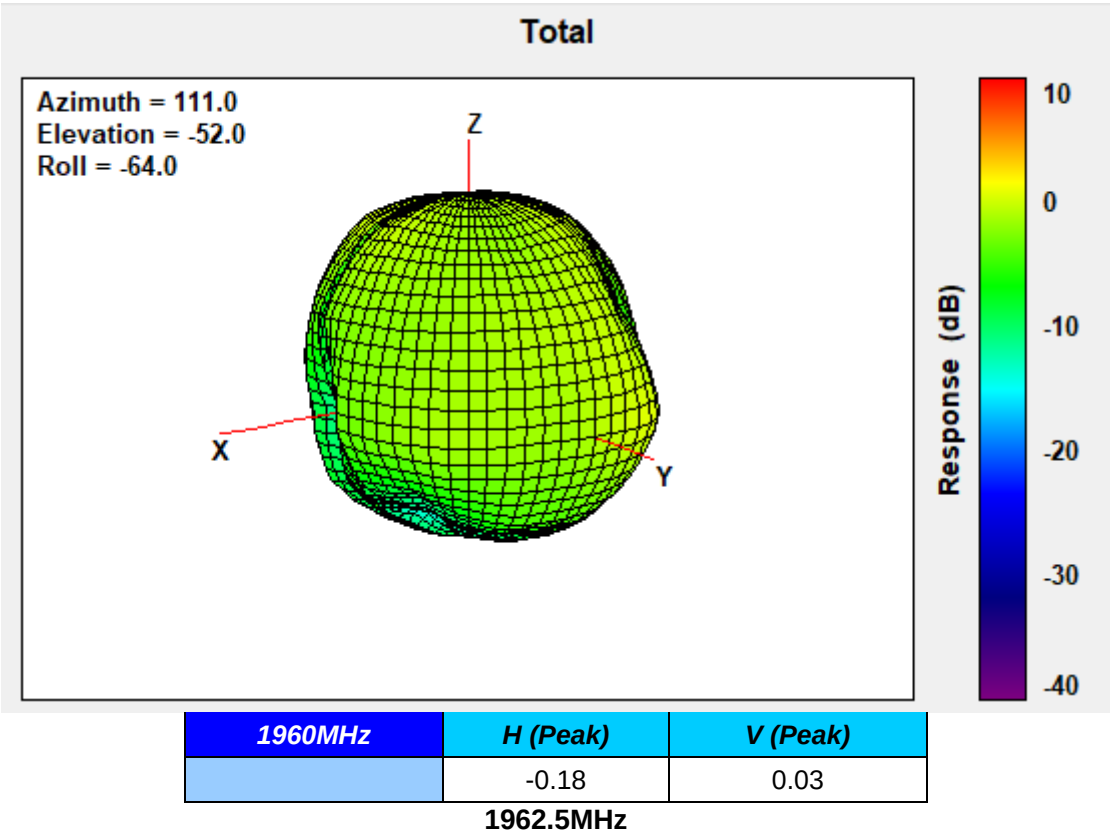
1920MHz



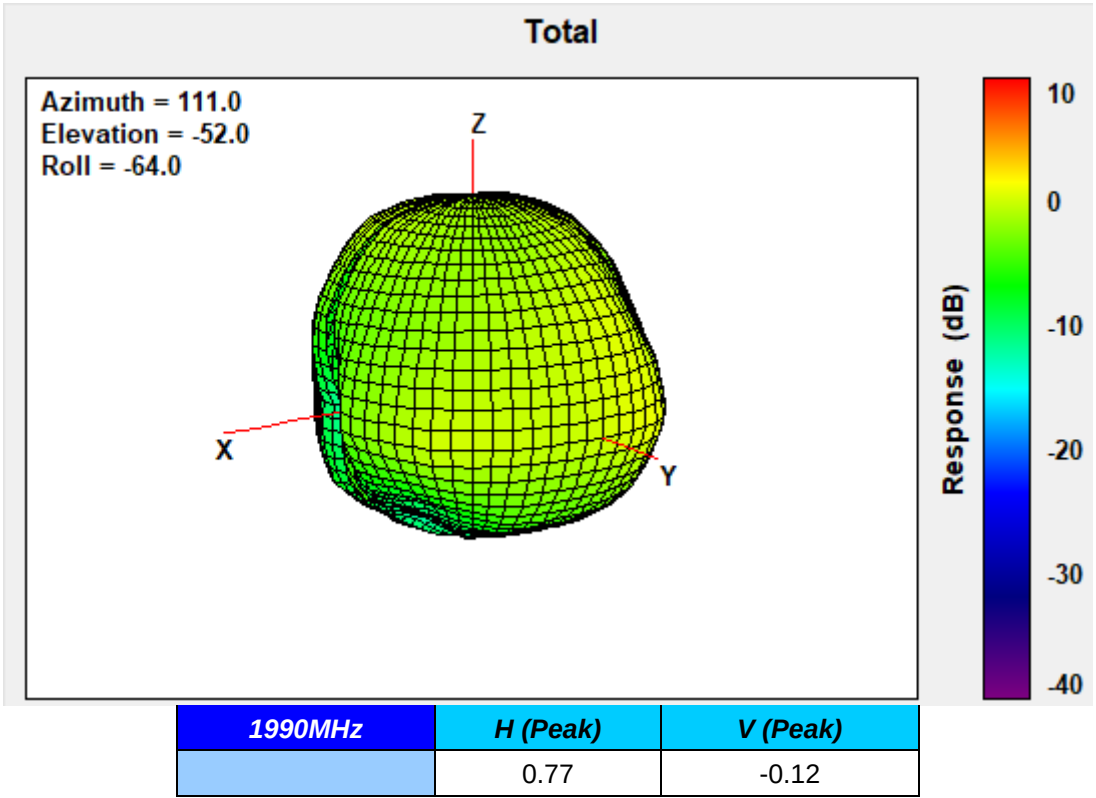
1930MHz



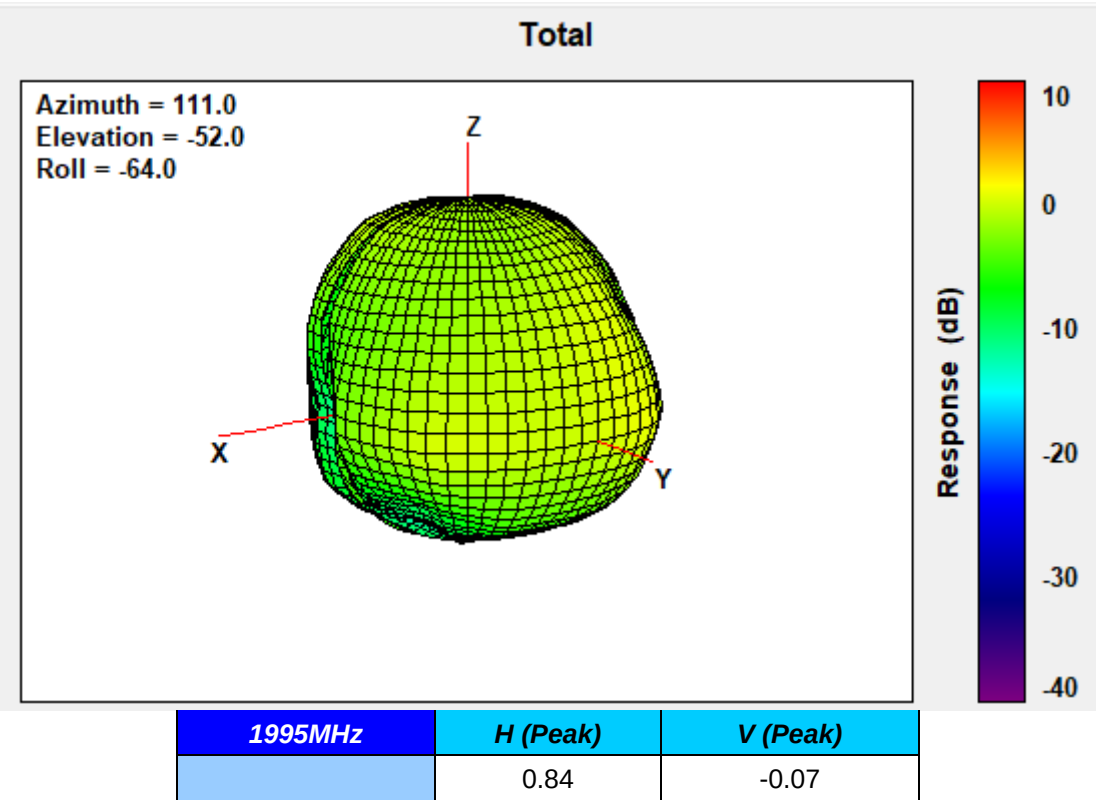
1960MHz



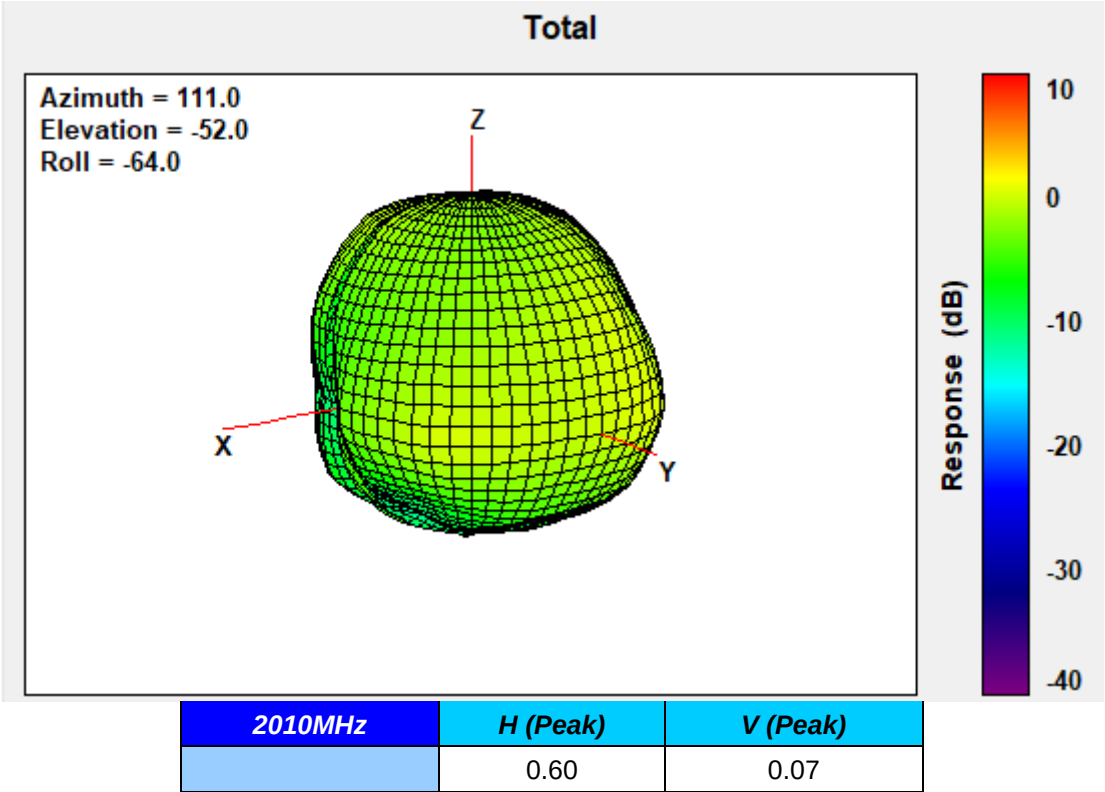
1990MHz



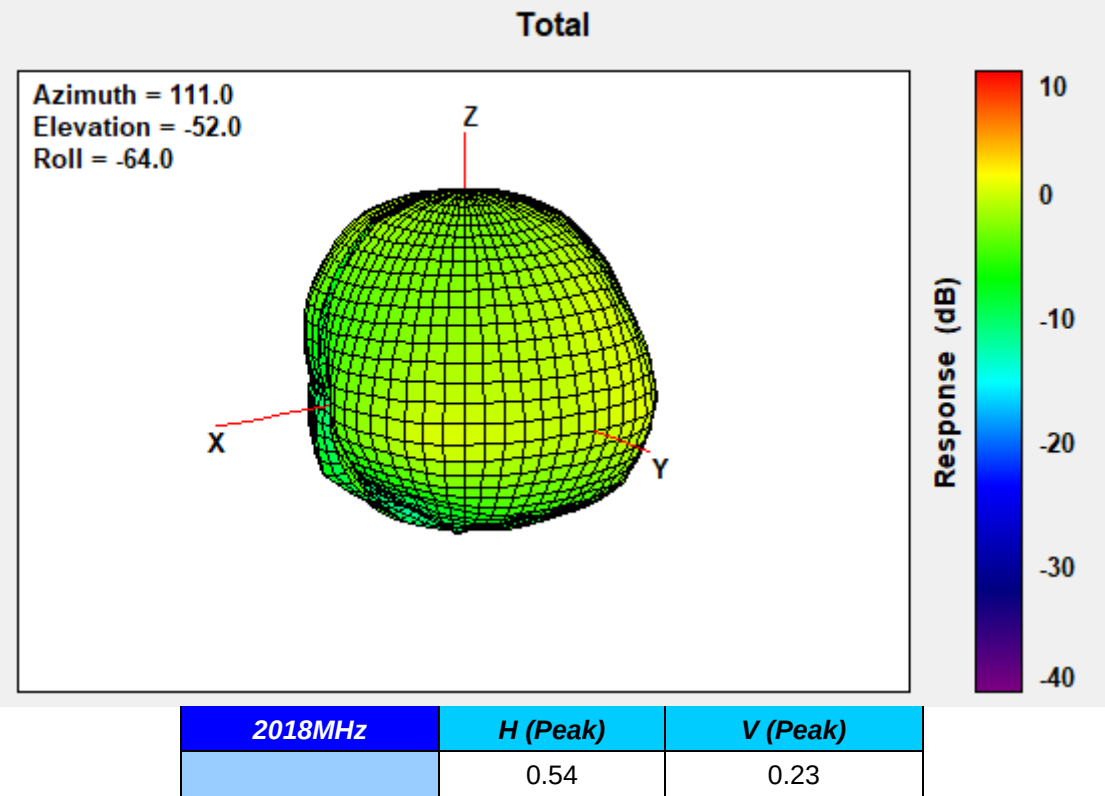
1995MHz

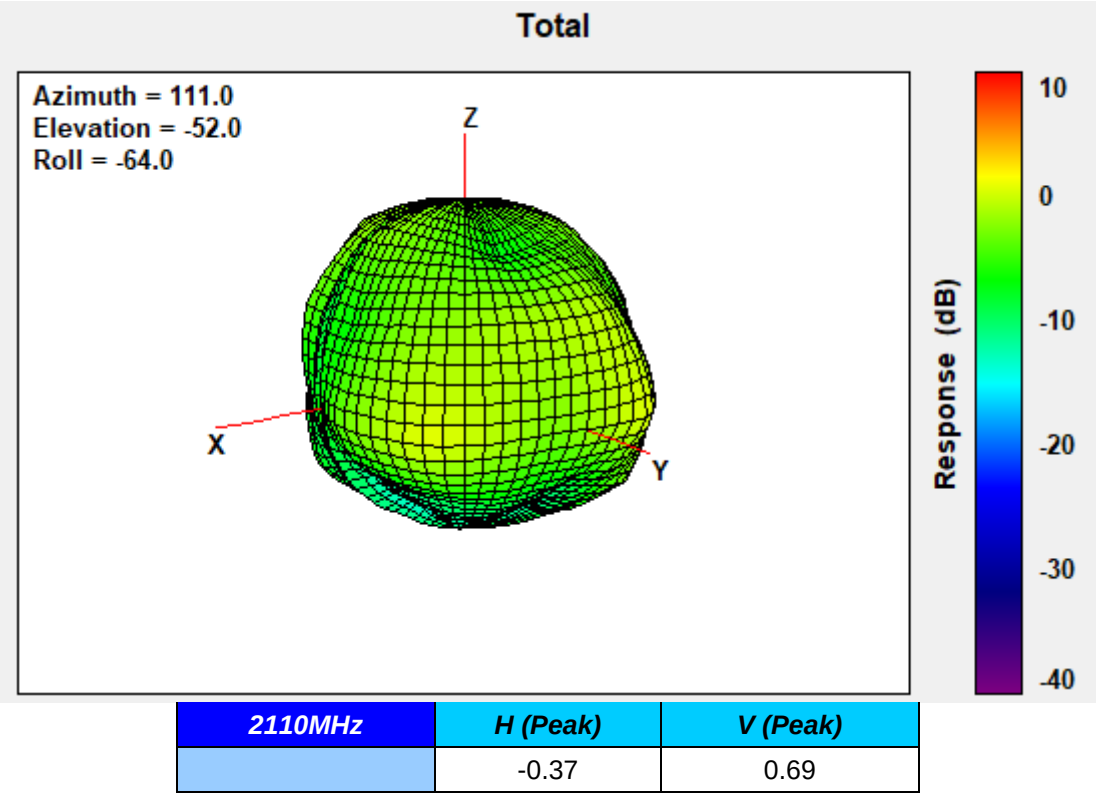
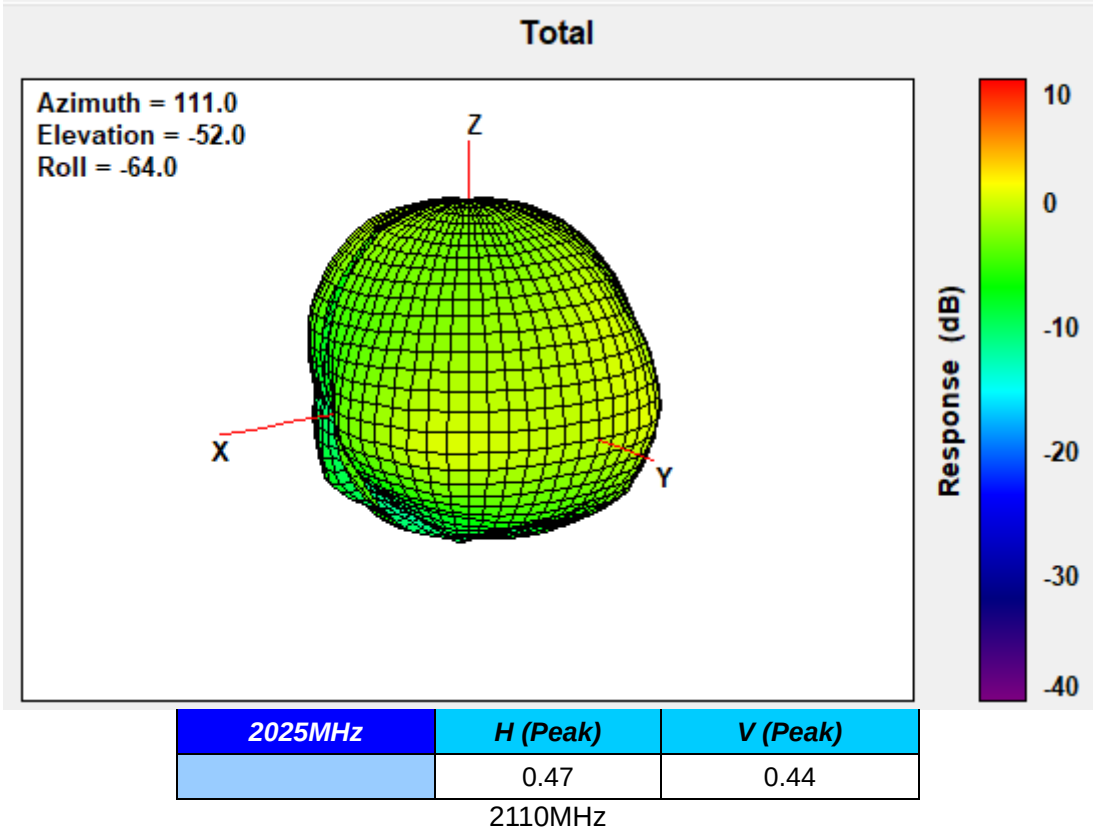


2010MHz

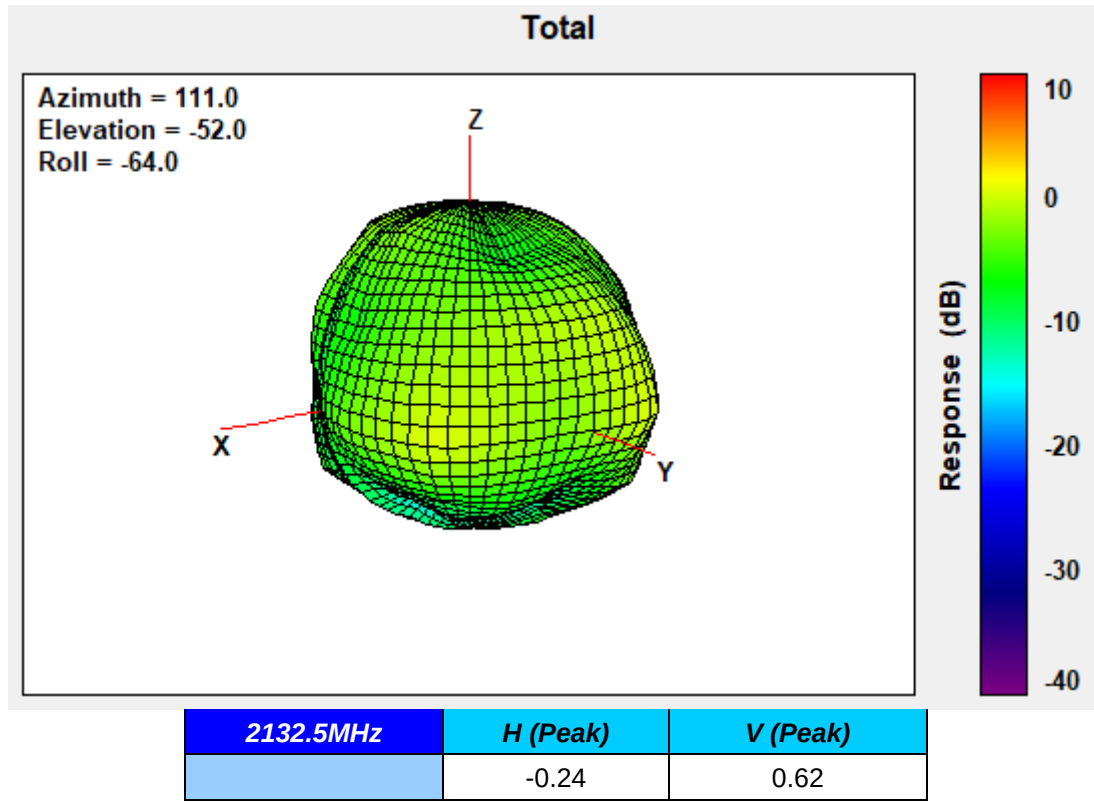


2018MHz

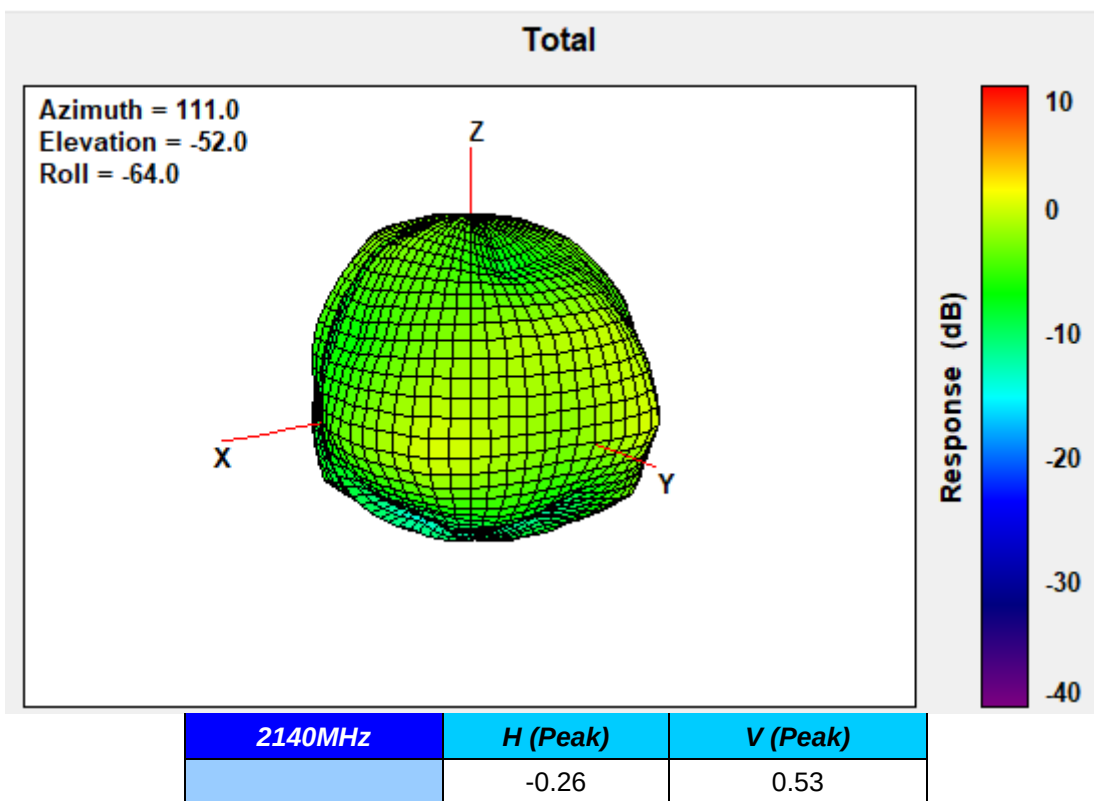




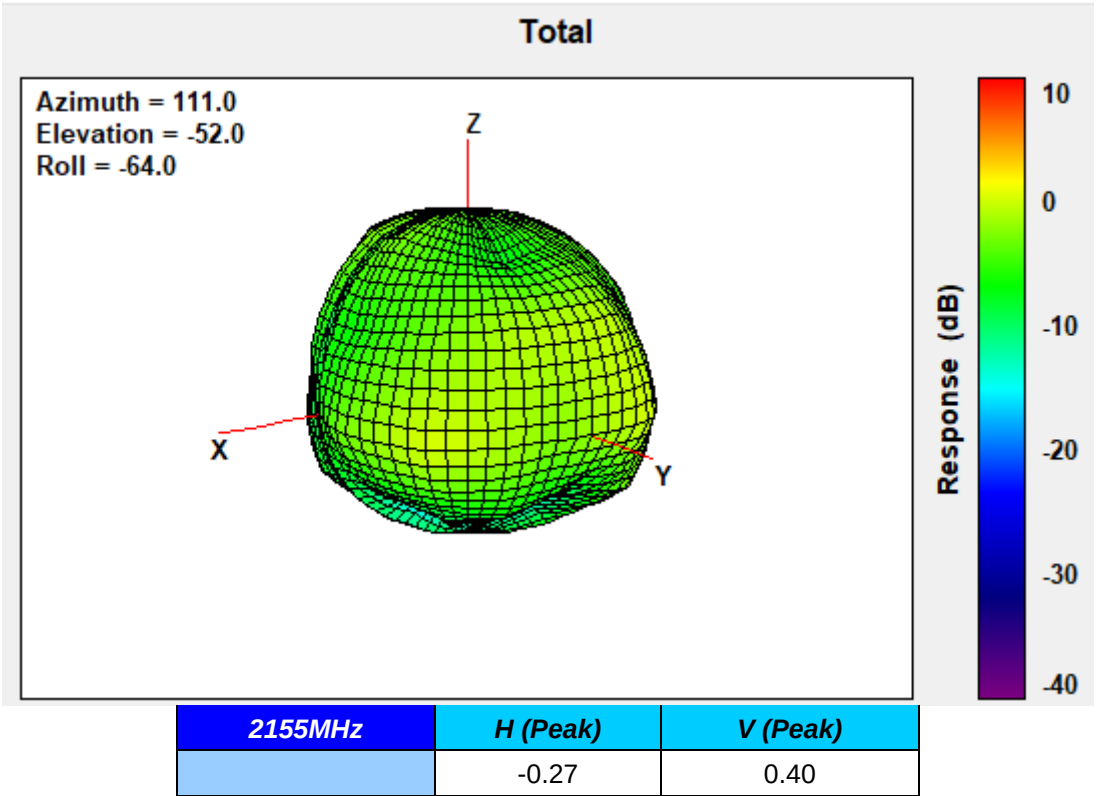
2132.5MHz



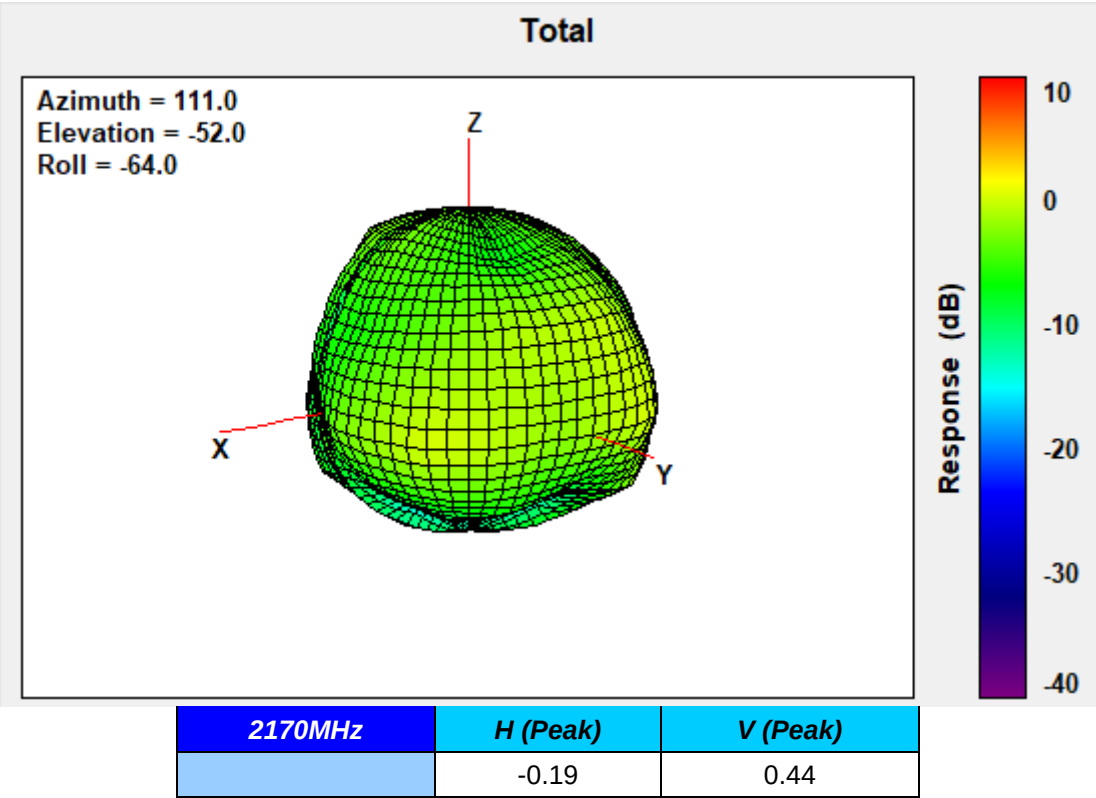
2140MHz



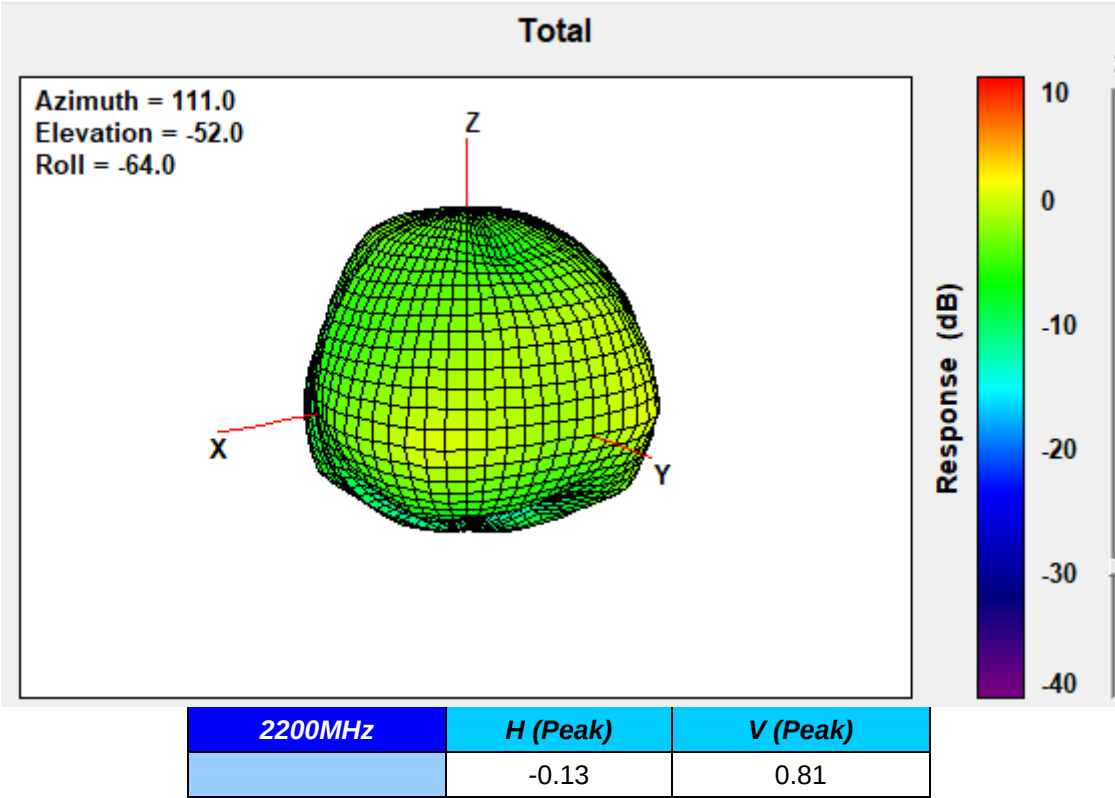
2155MHz



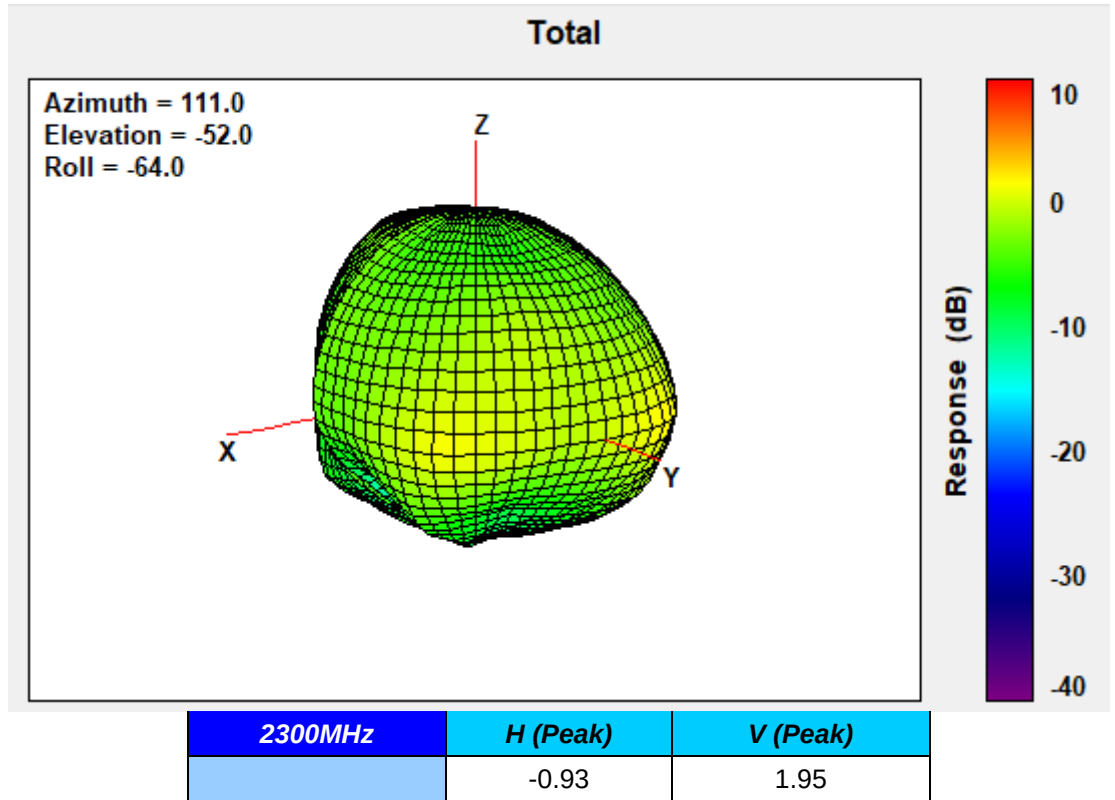
2170MHz



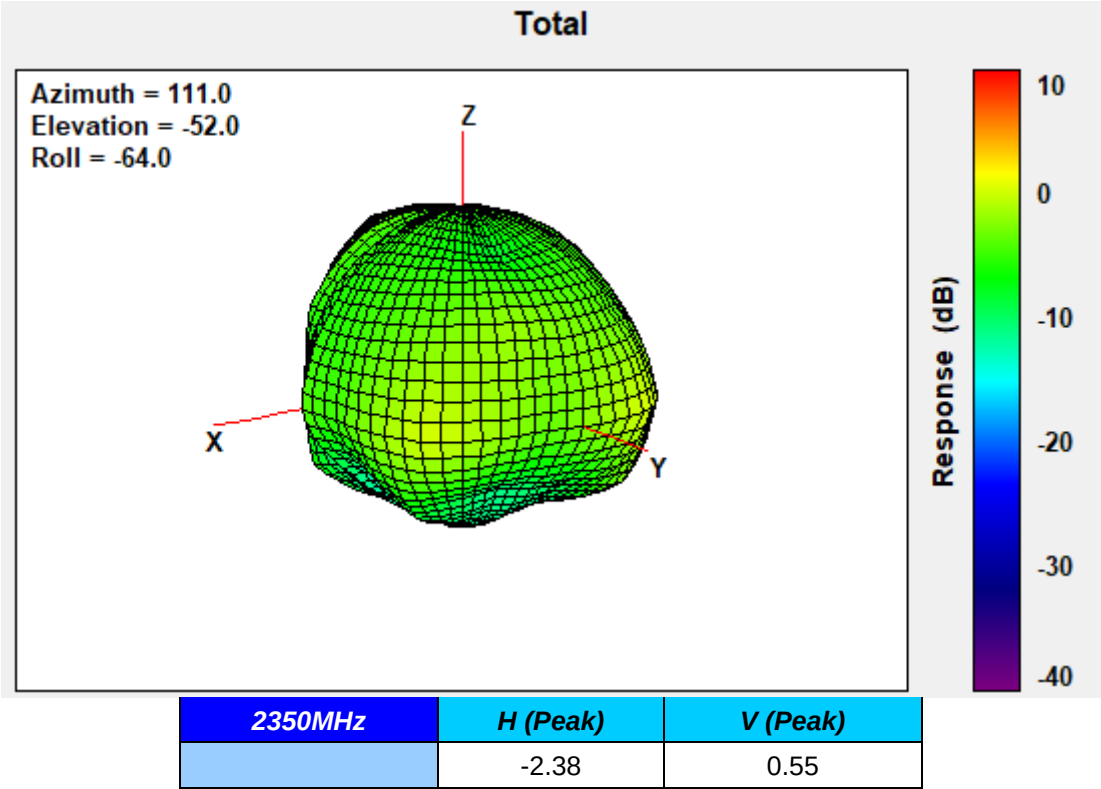
2200MHz



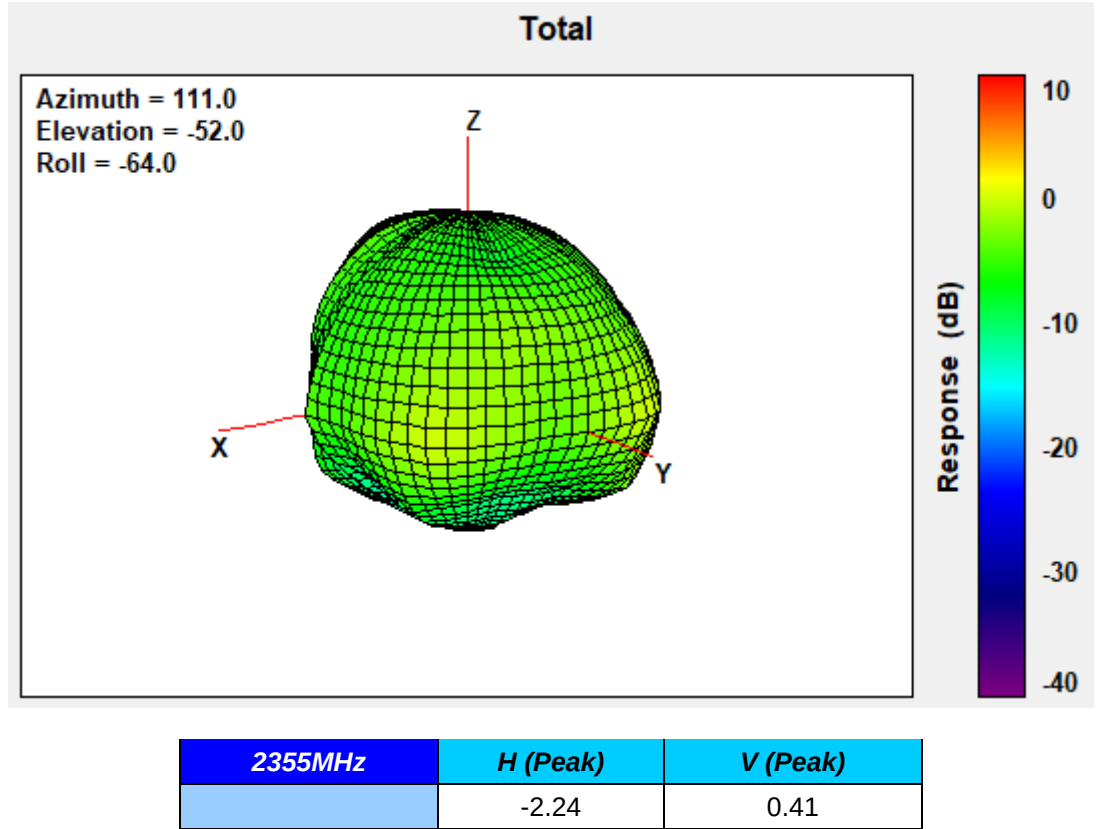
2300MHz



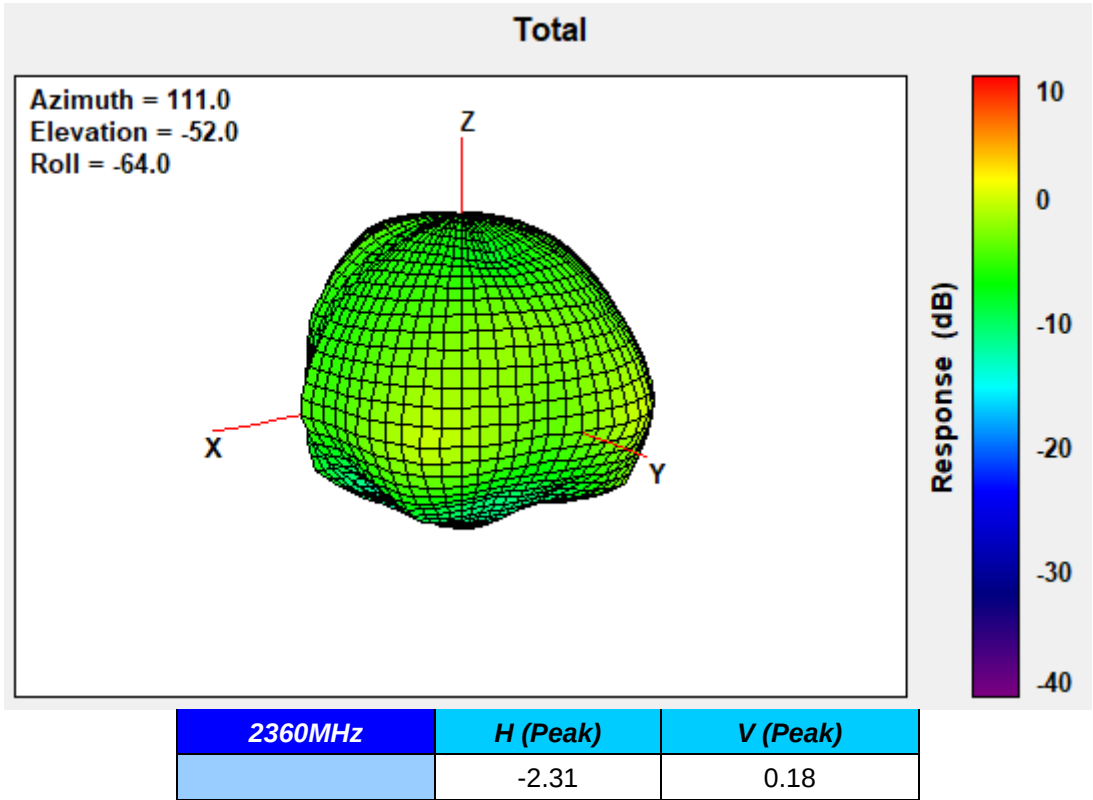
2350MHz



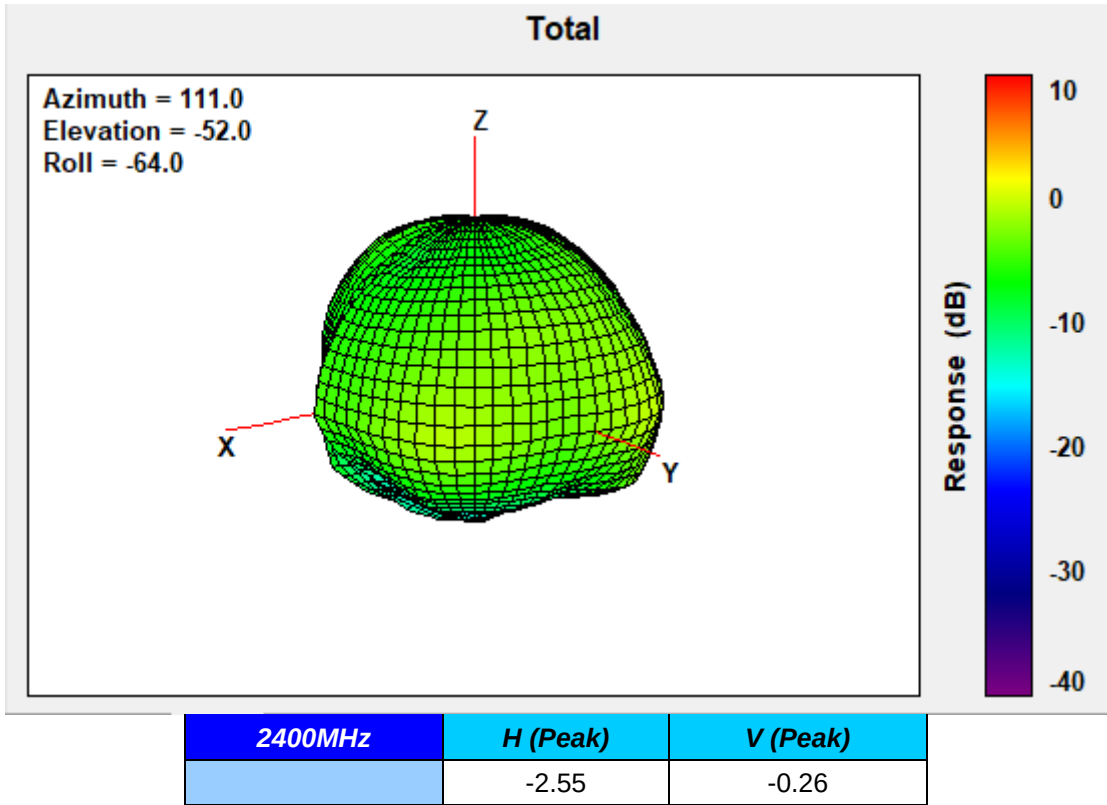
2355MHz



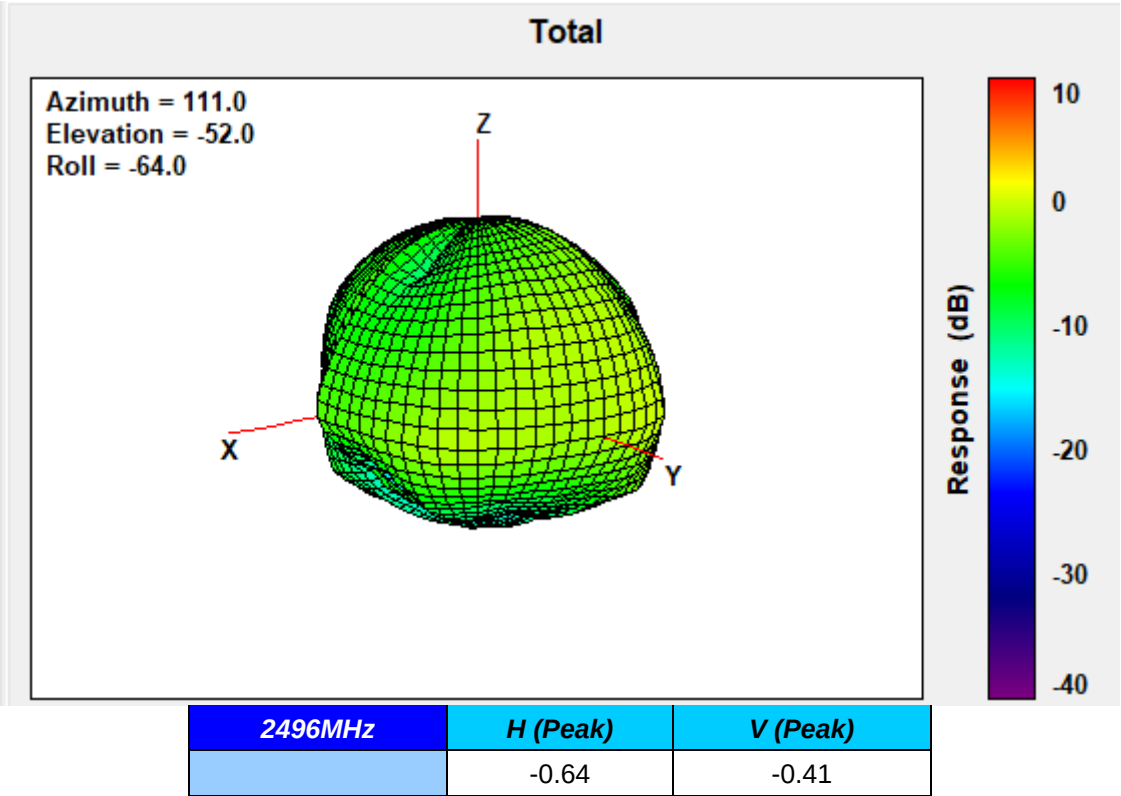
2360MHz



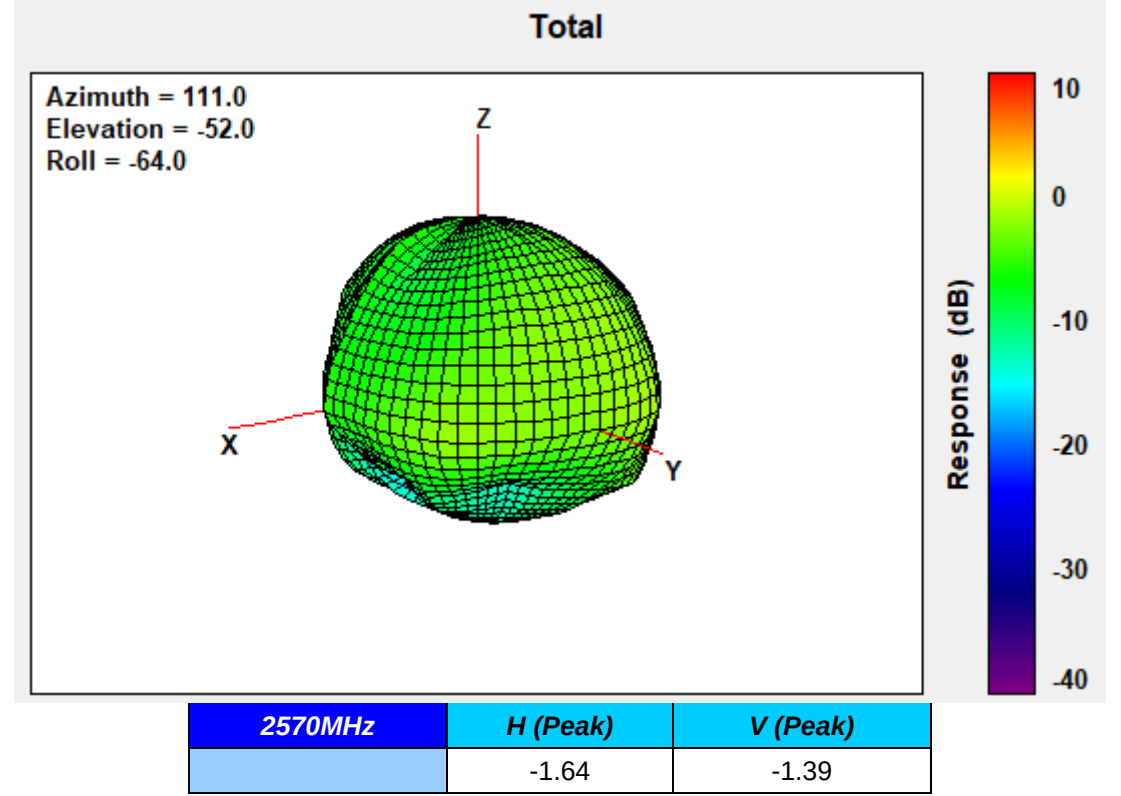
2400MHz



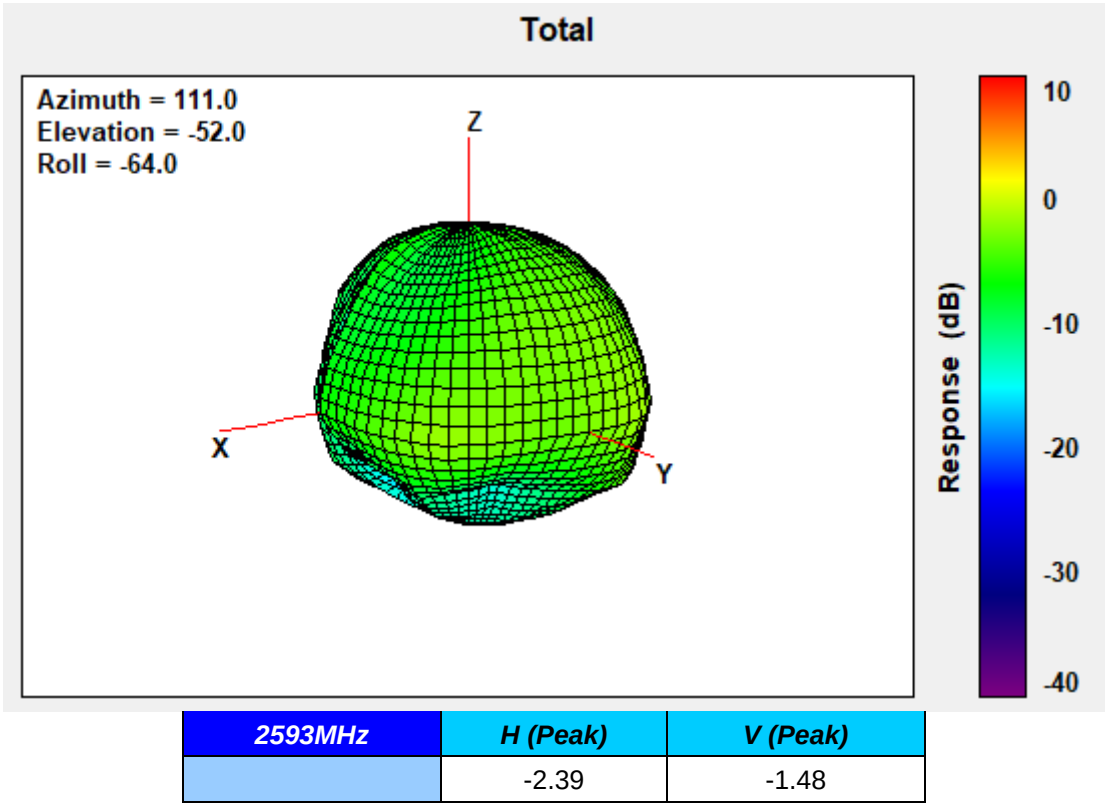
2496MHz



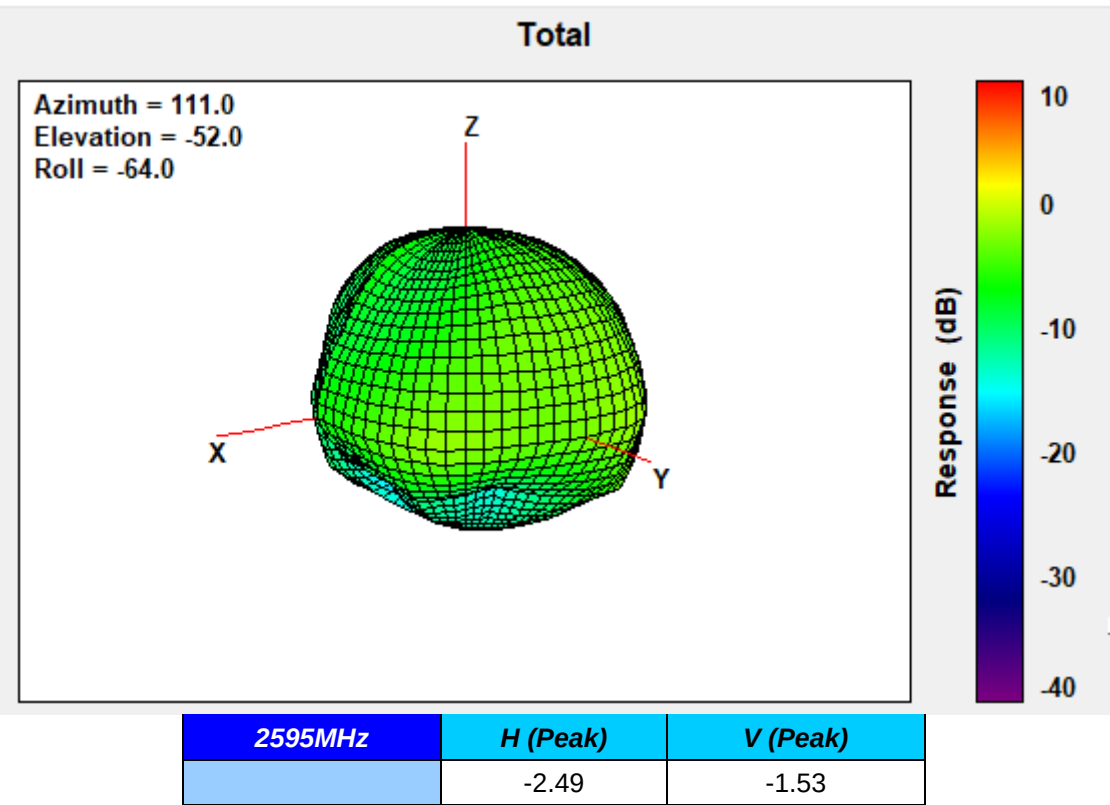
2570MHz



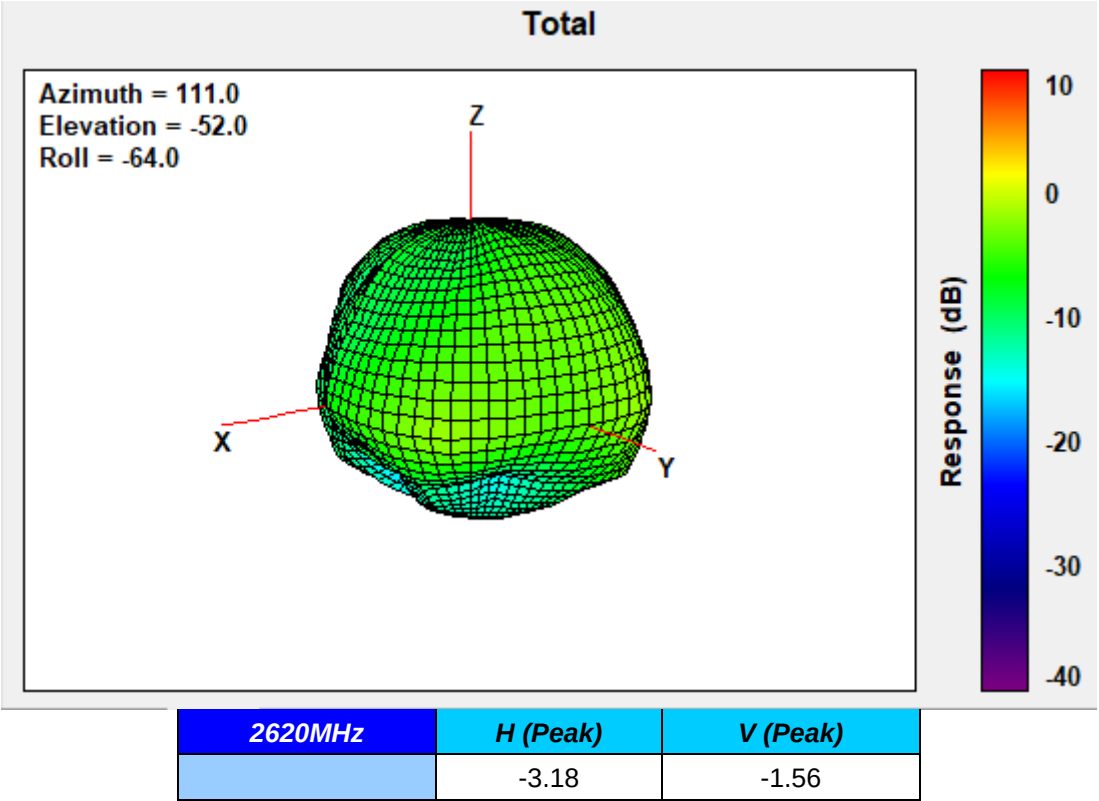
2593MHz



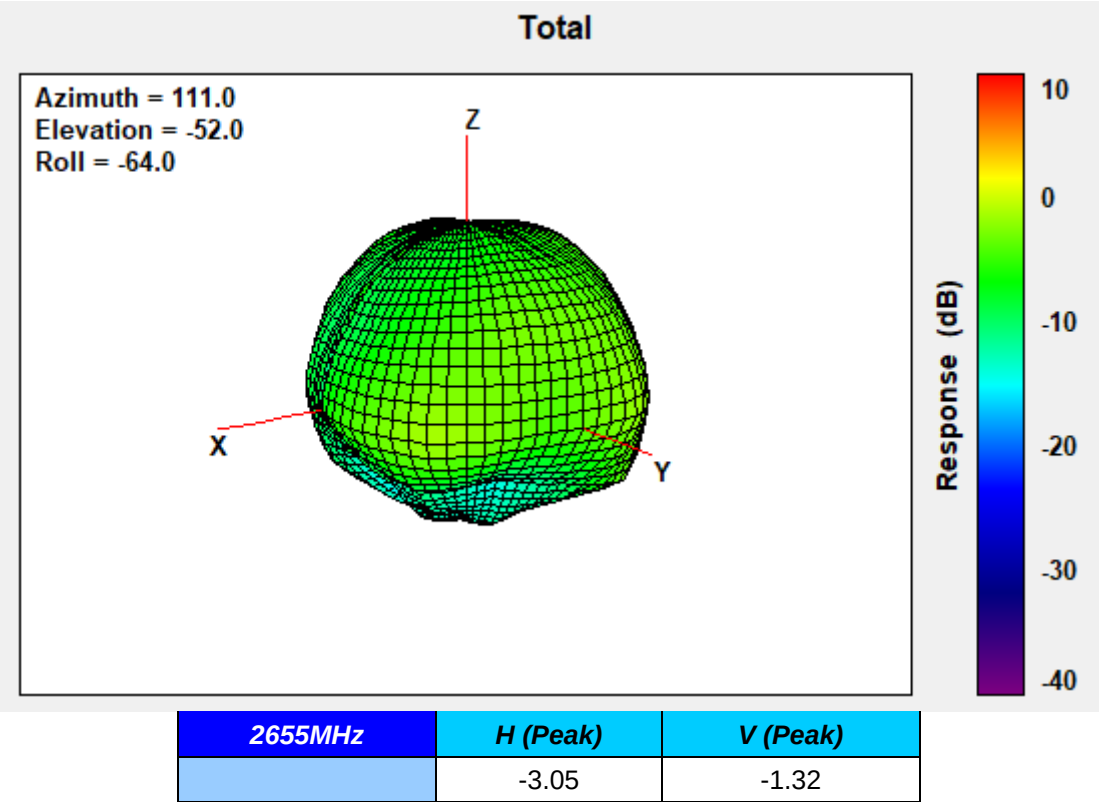
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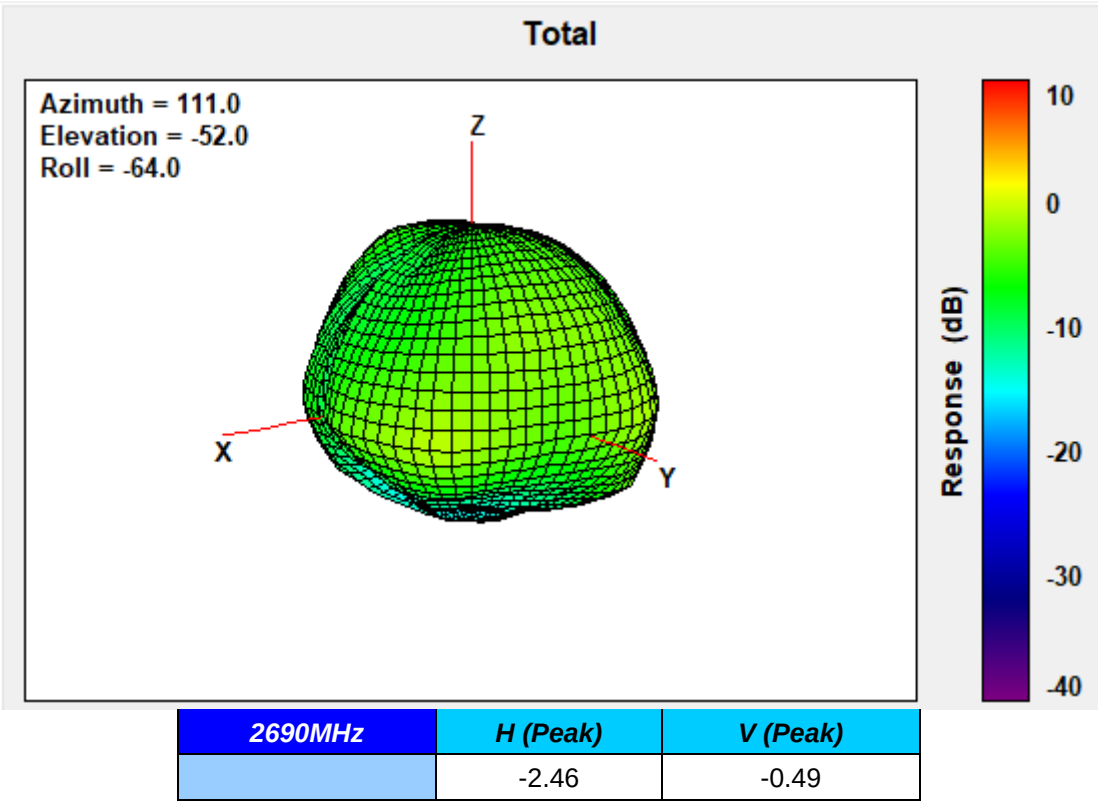
2620MHz



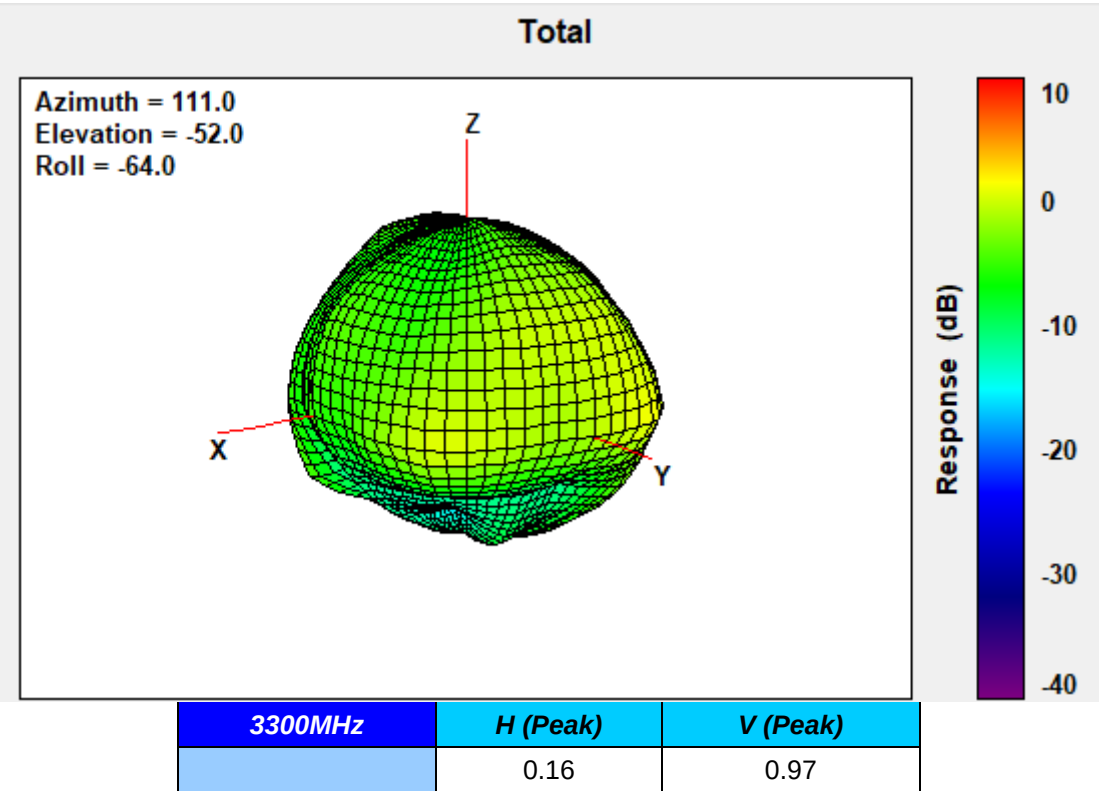
2655MHz



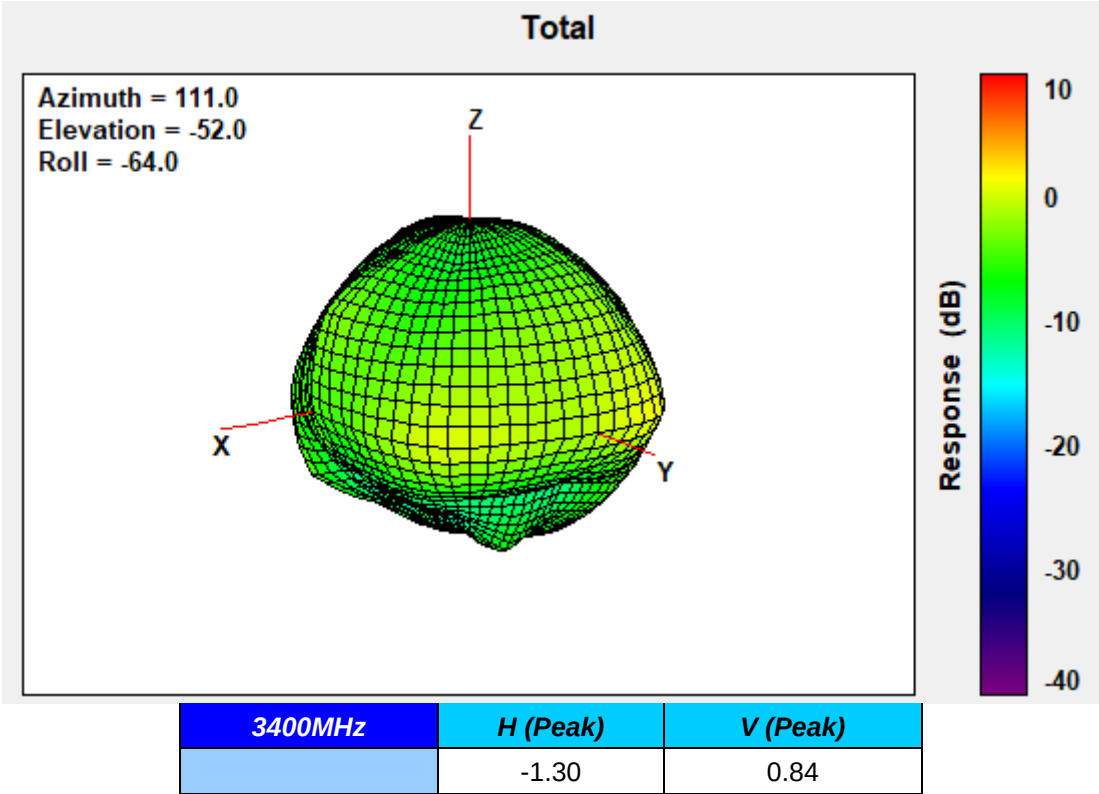
2690MHz



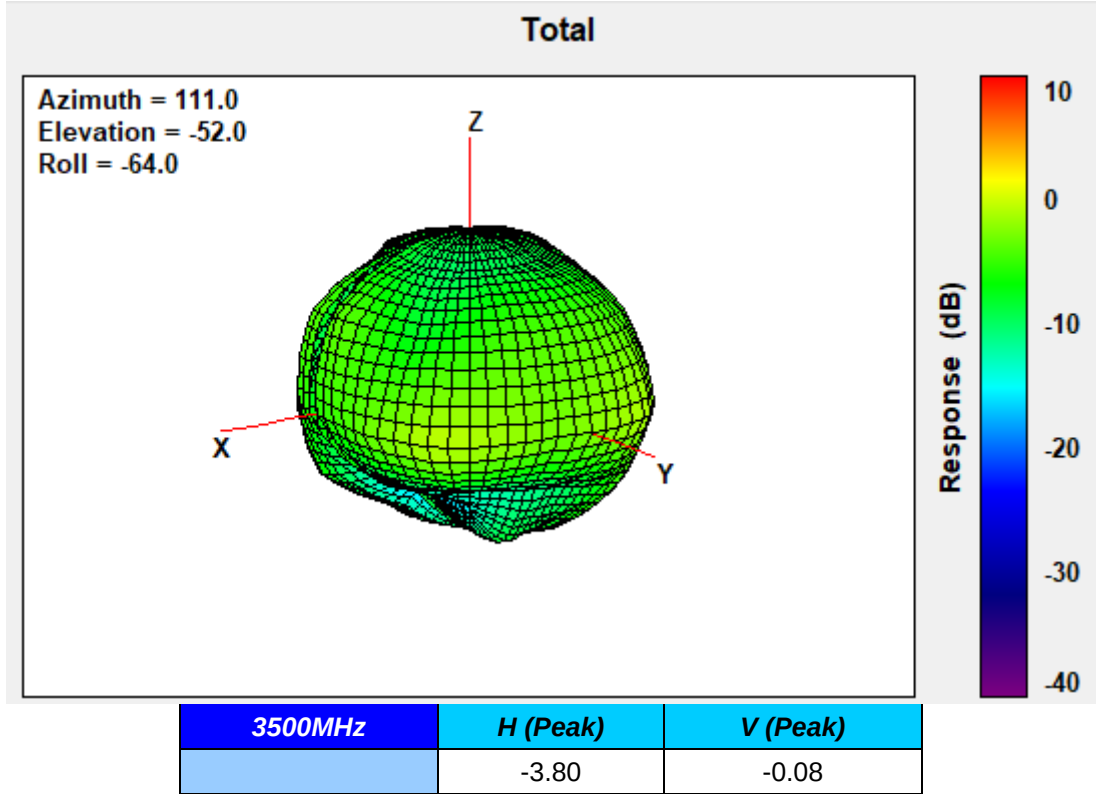
3300MHz



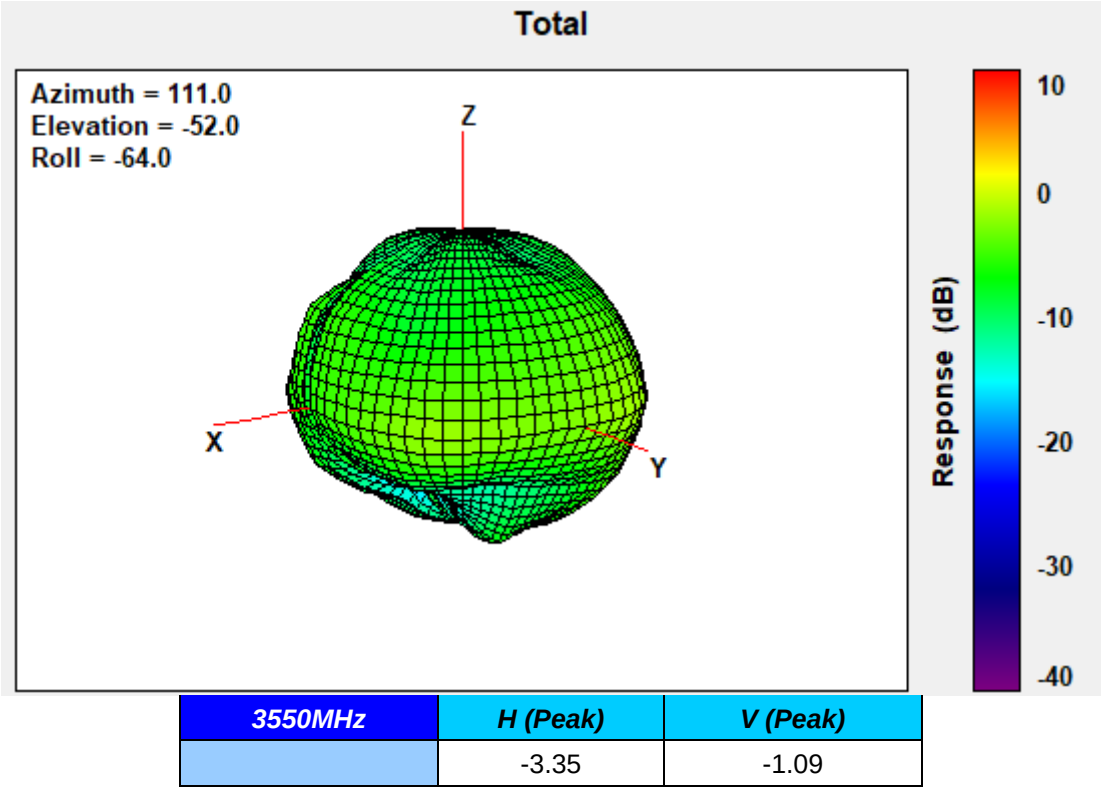
3400MHz



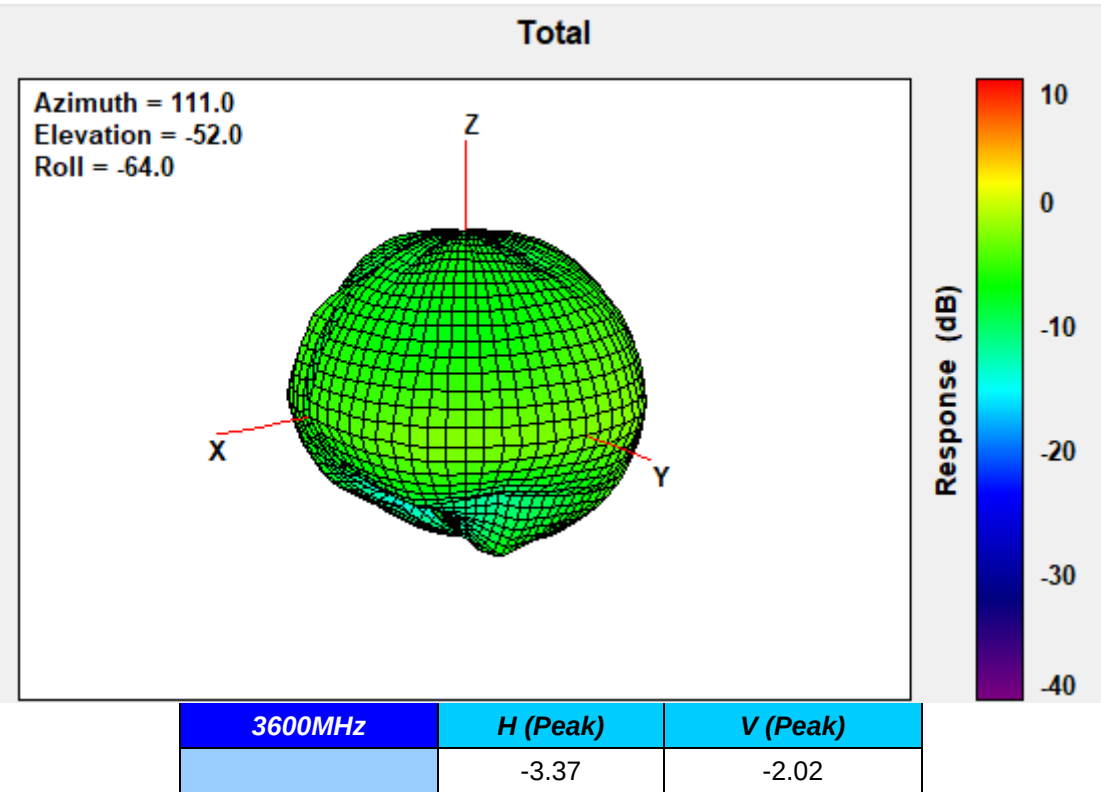
3500MHz



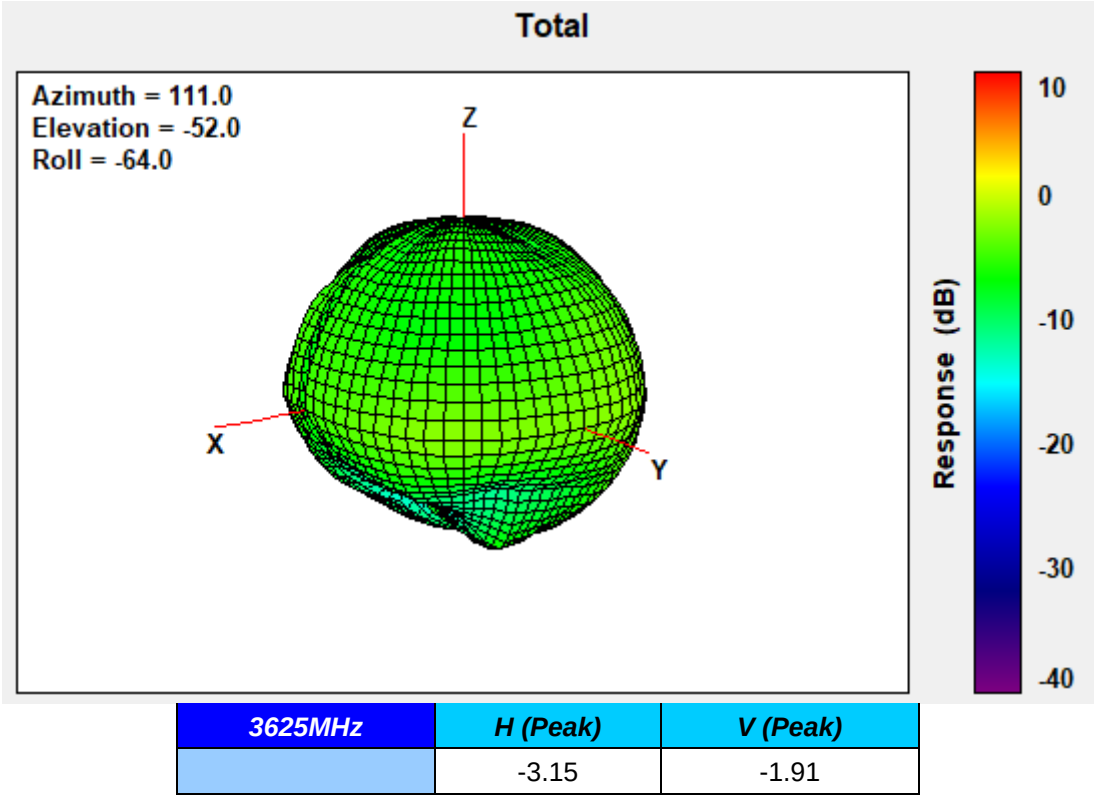
3550MHz



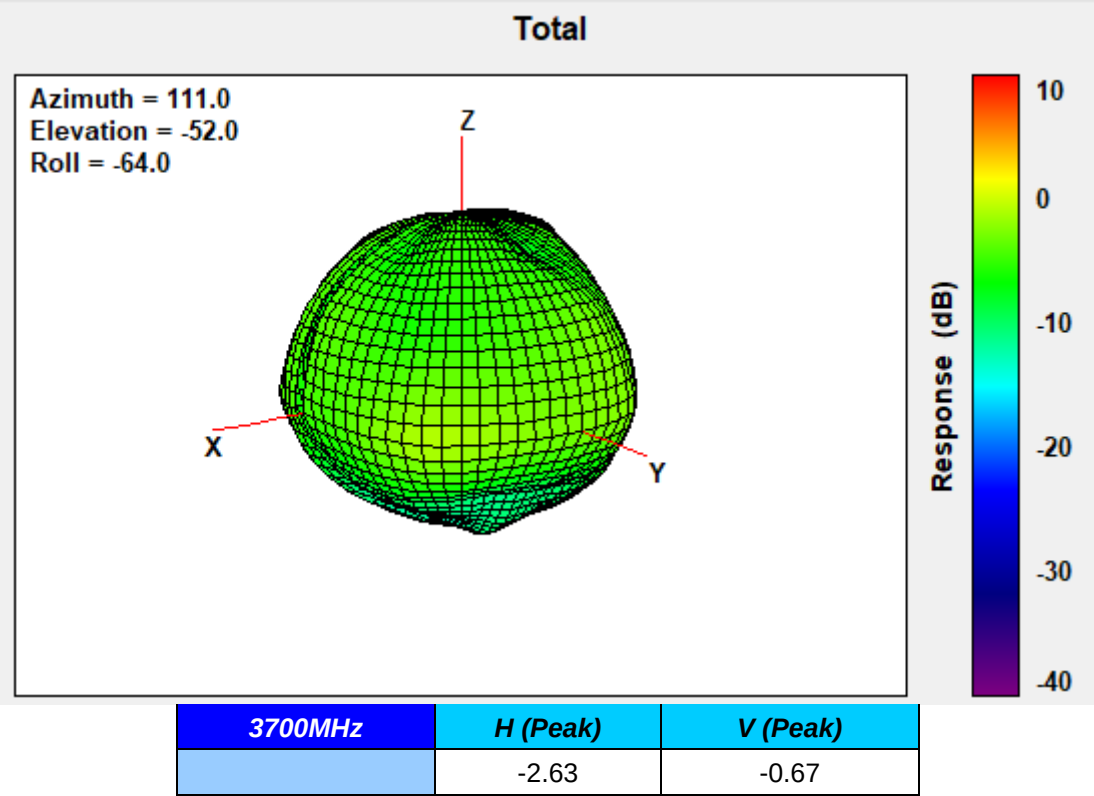
3600MHz



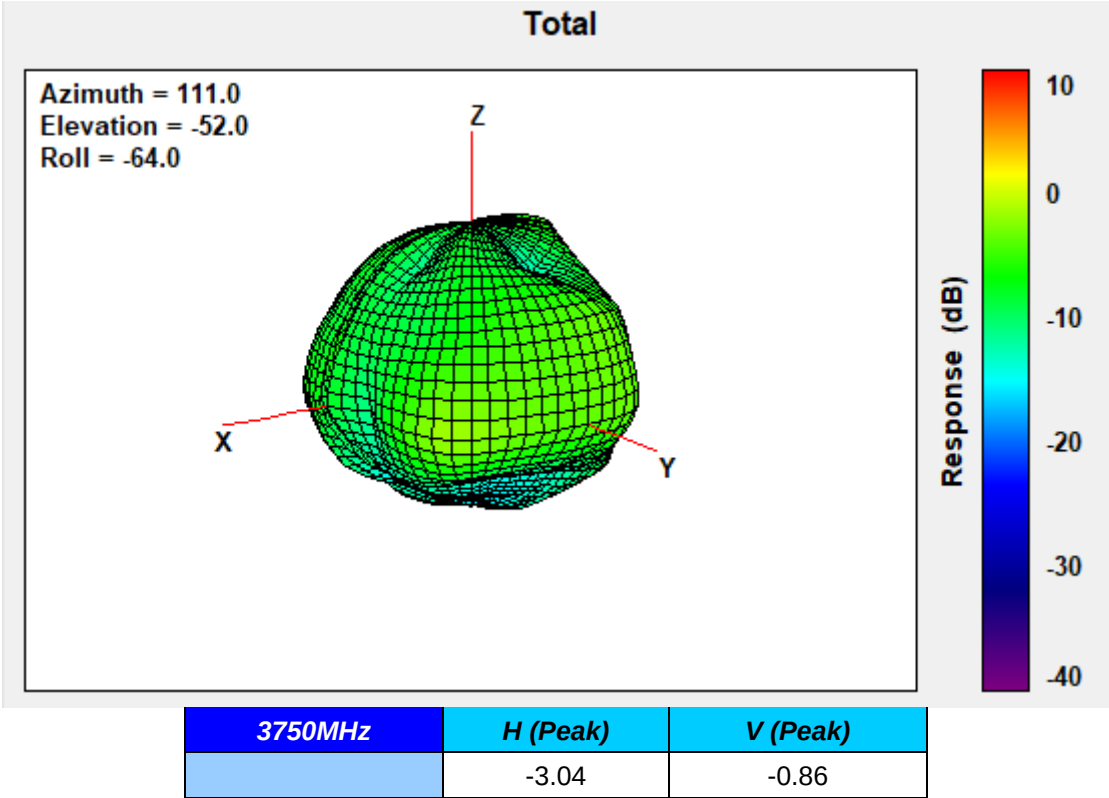
3625MHz



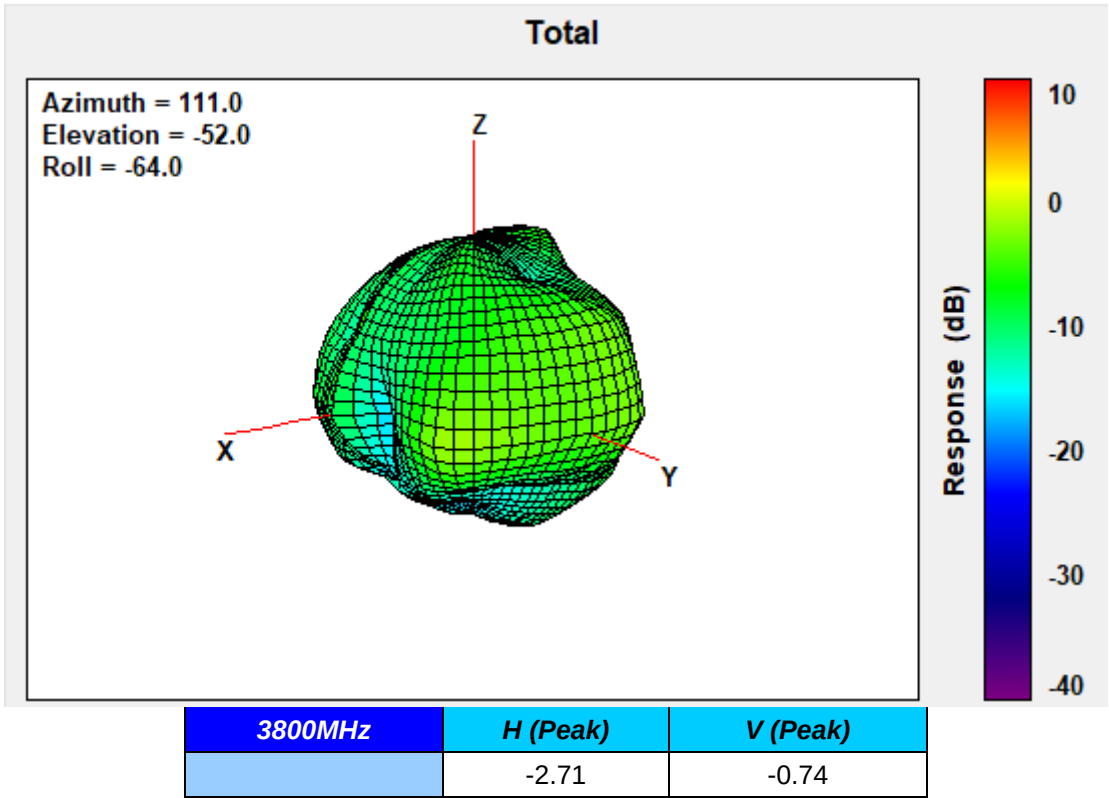
3700MHz



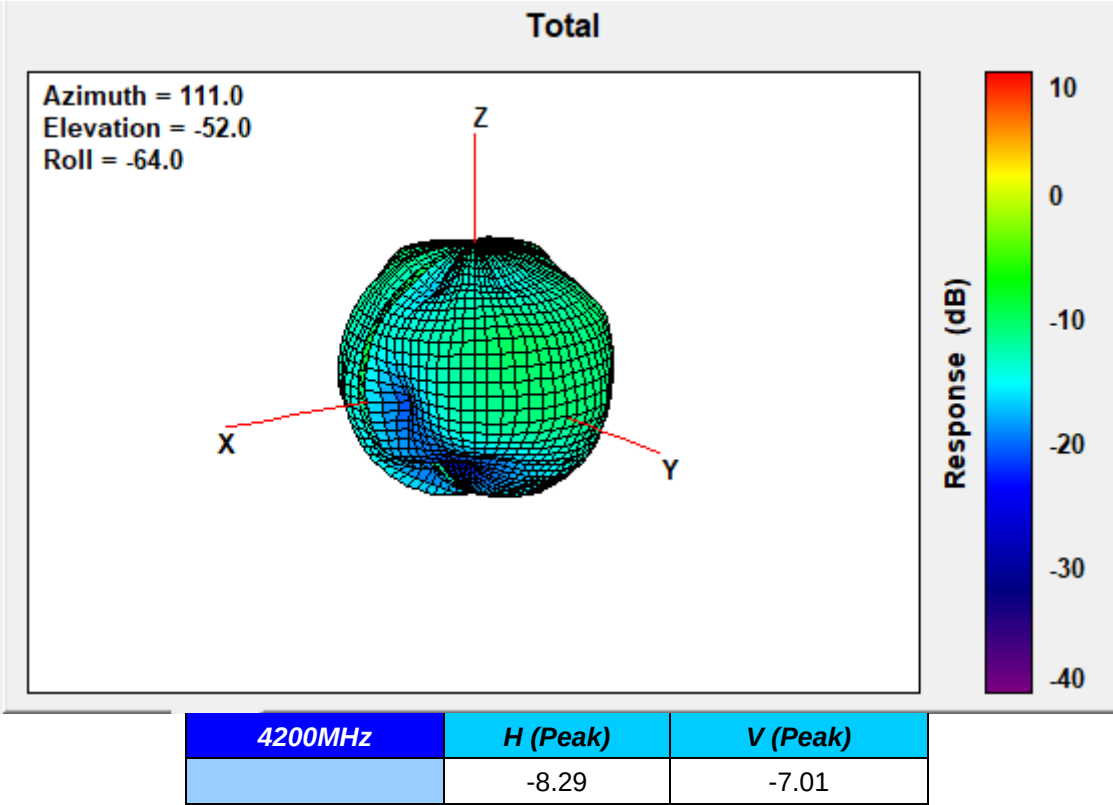
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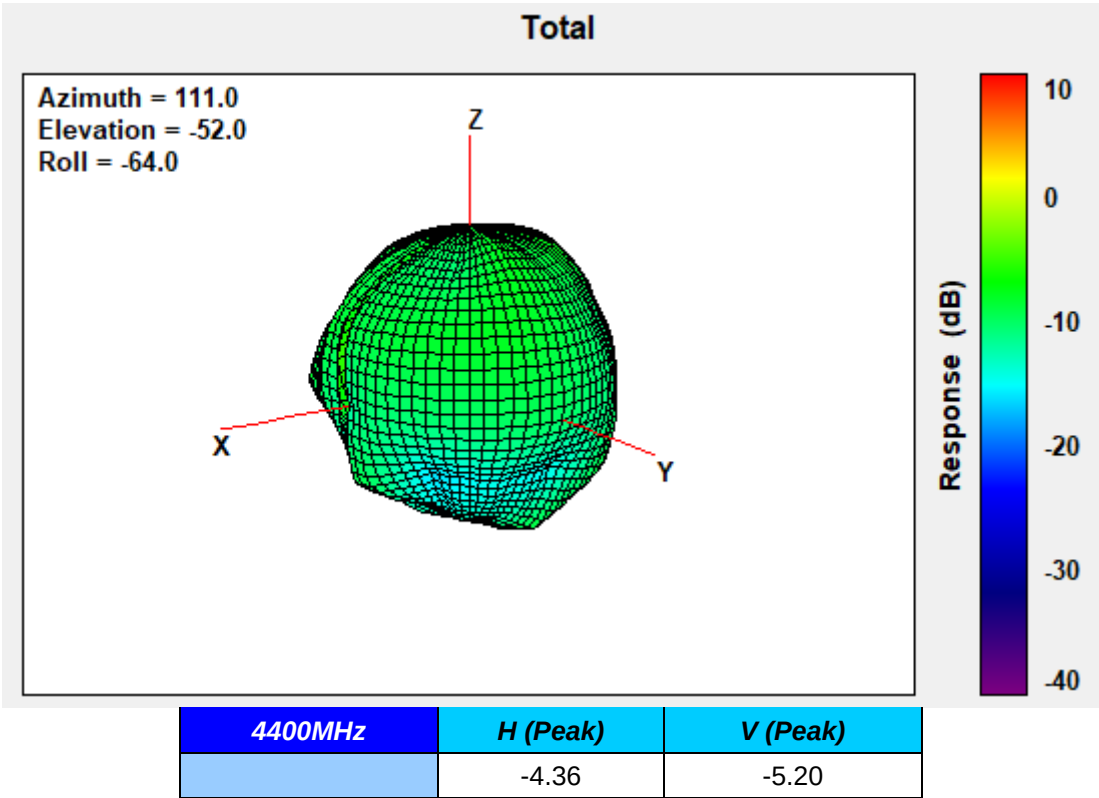
3800MHz



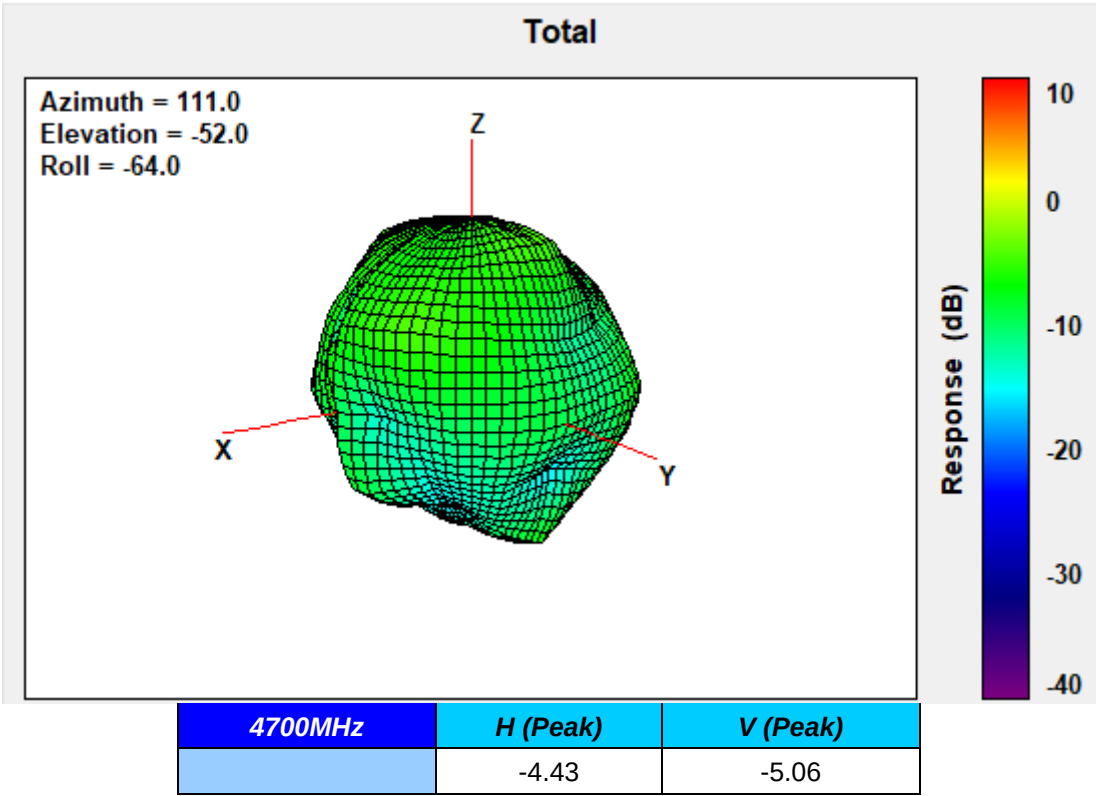
4200MHz



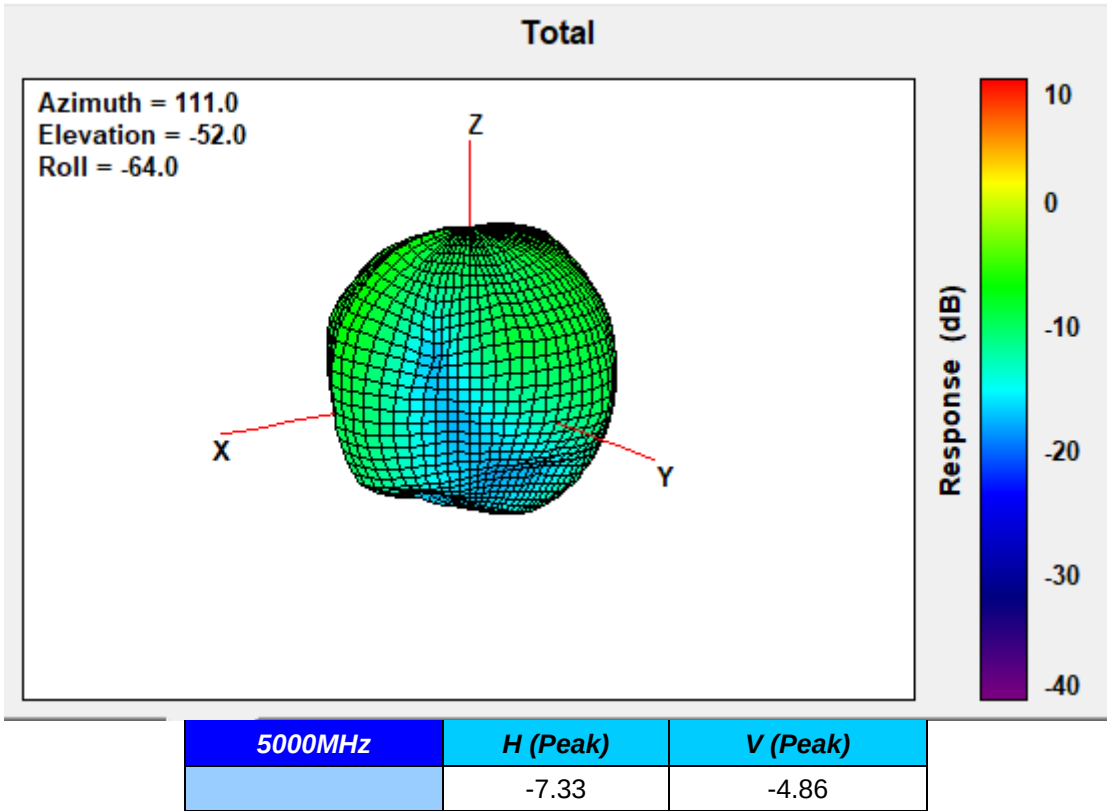
4400MHz



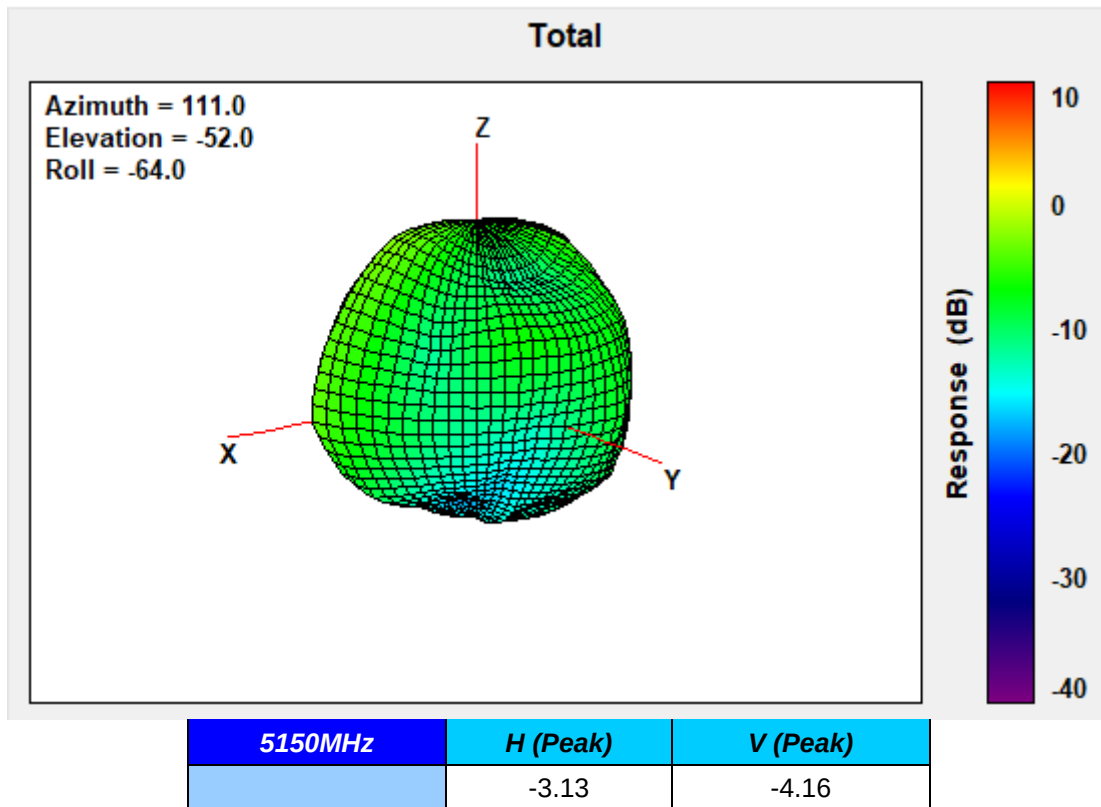
4700MHz



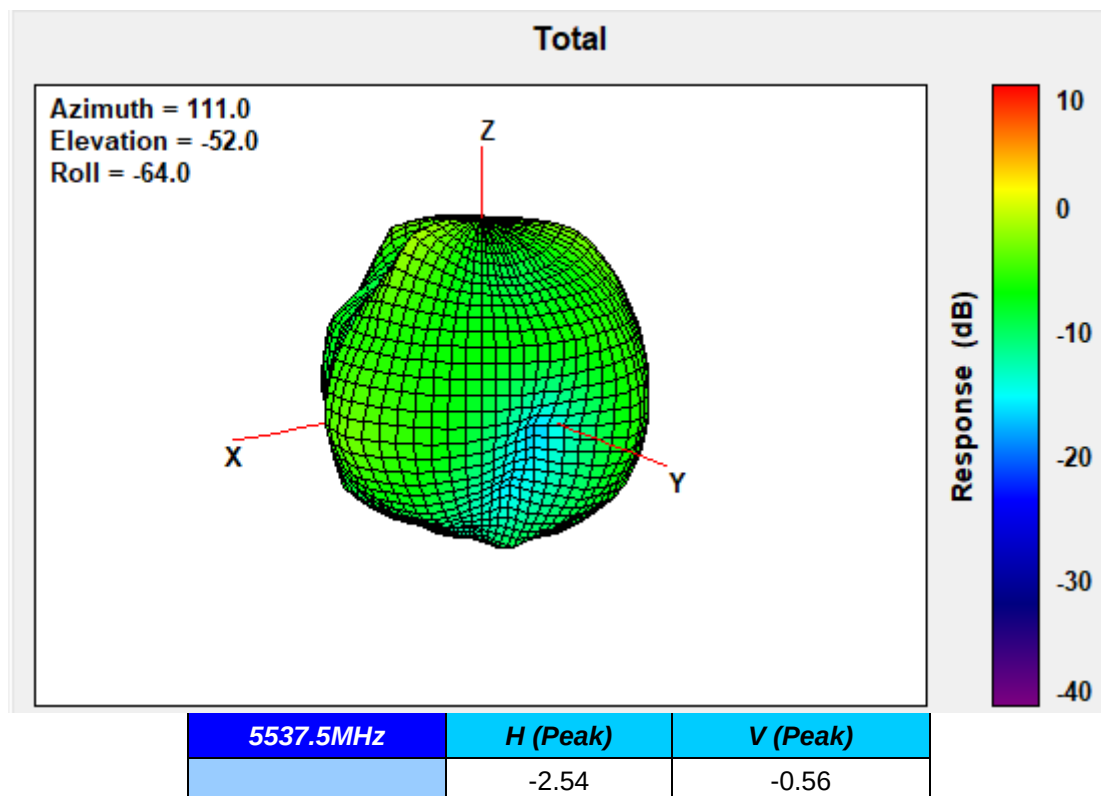
5000MHz

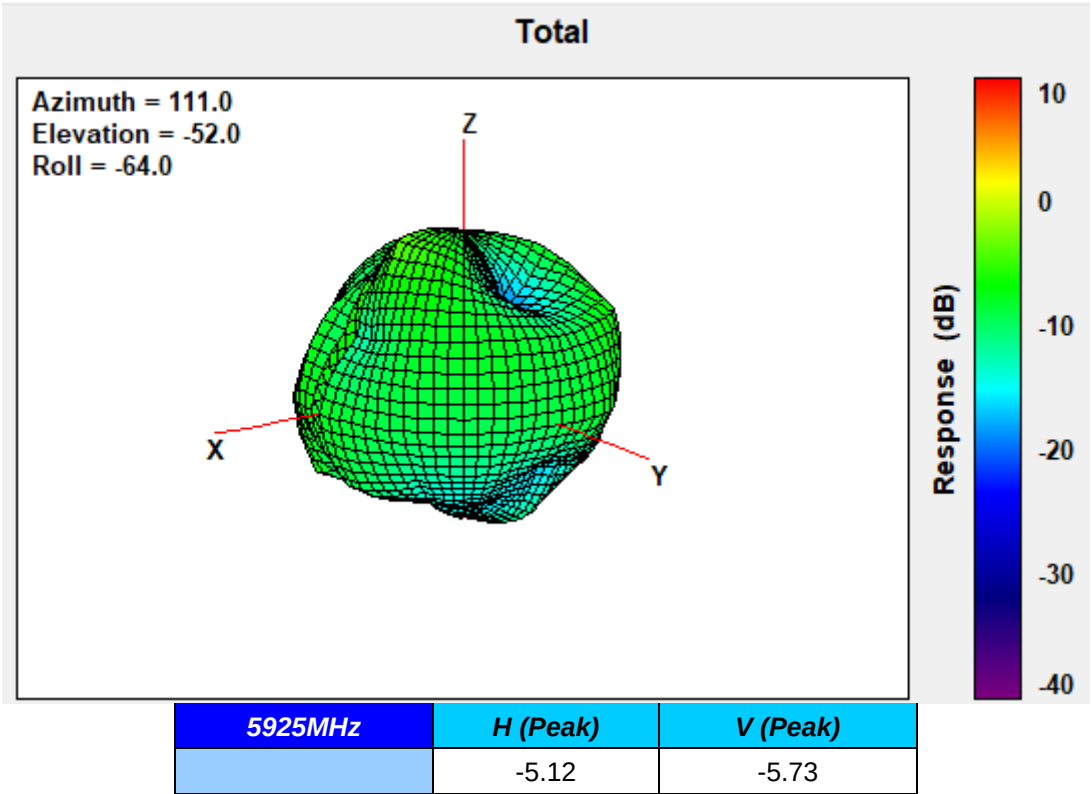


5150MHz

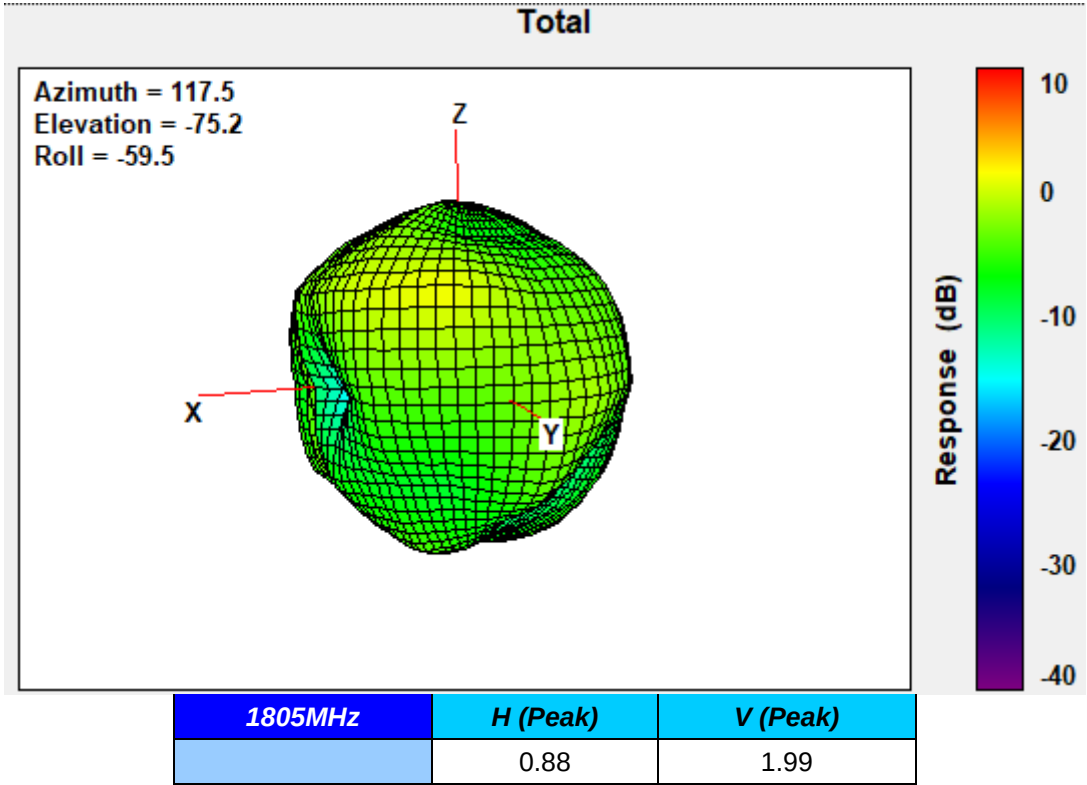


5537.5MHz

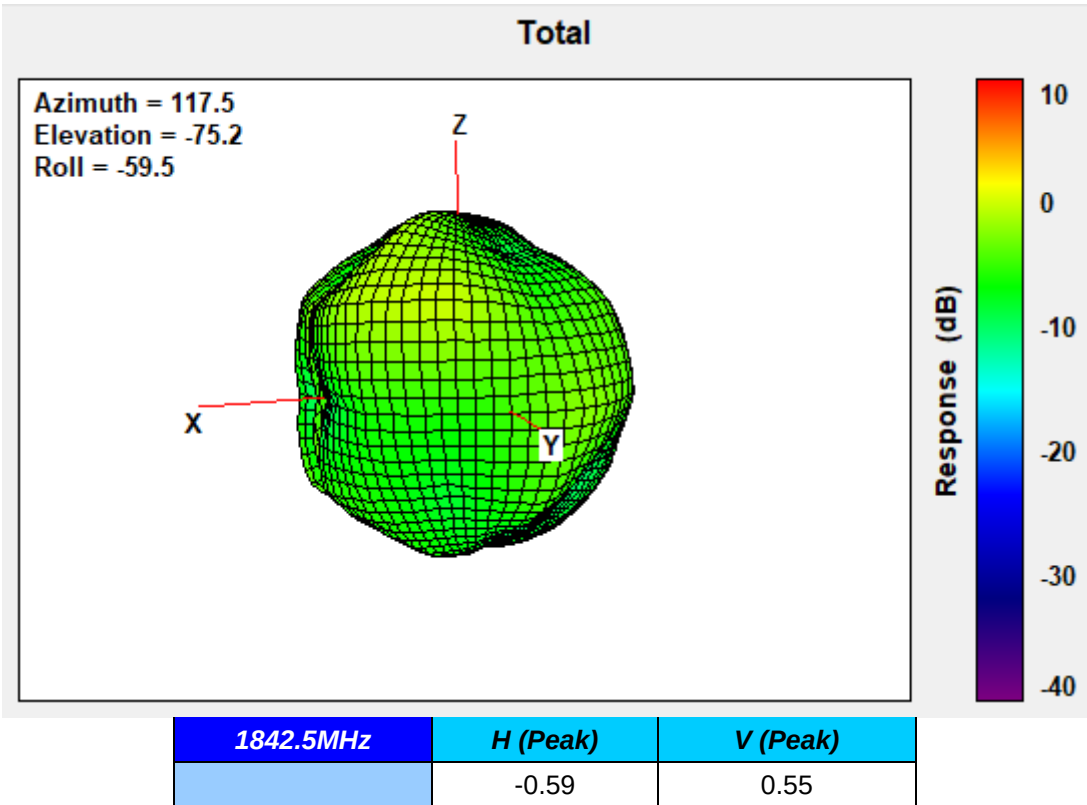




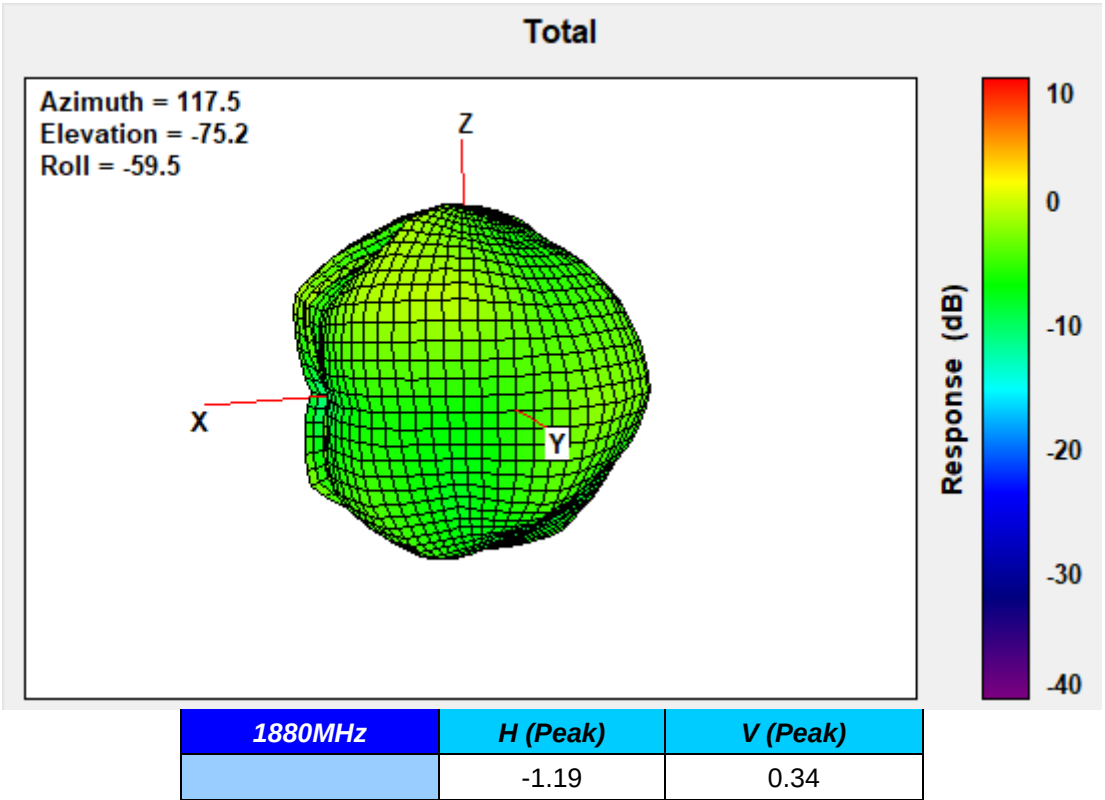
1805MHz



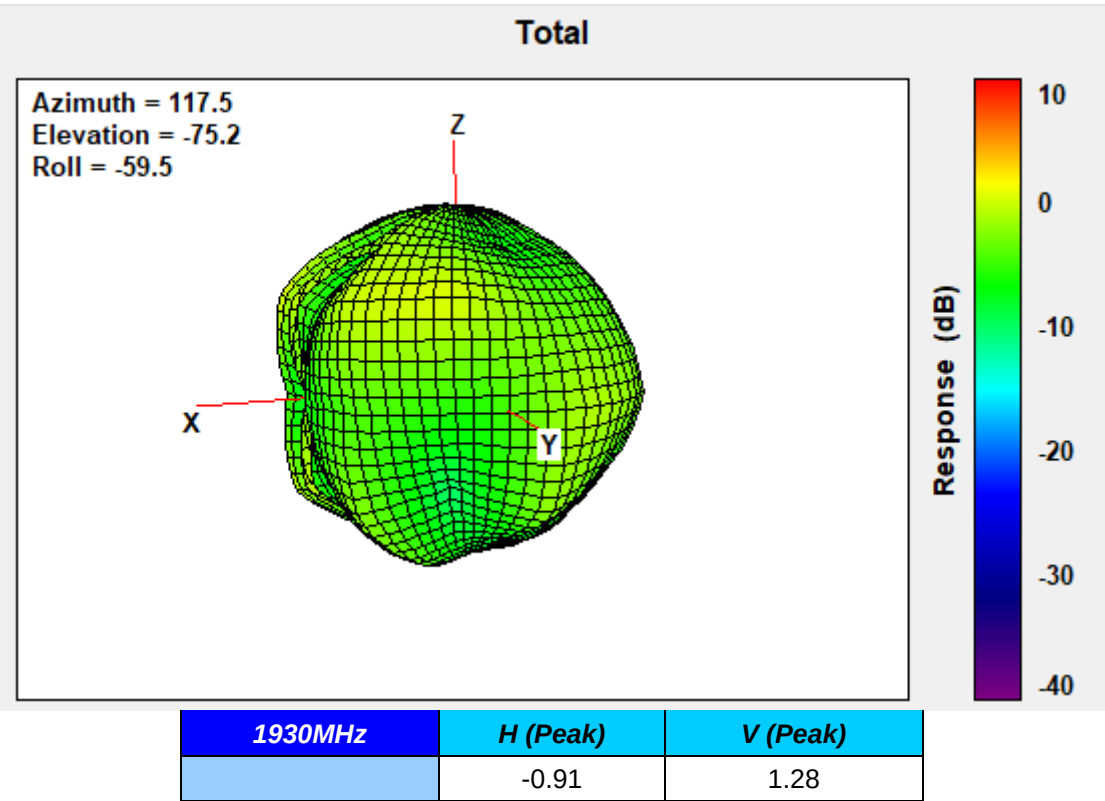
1842.5MHz



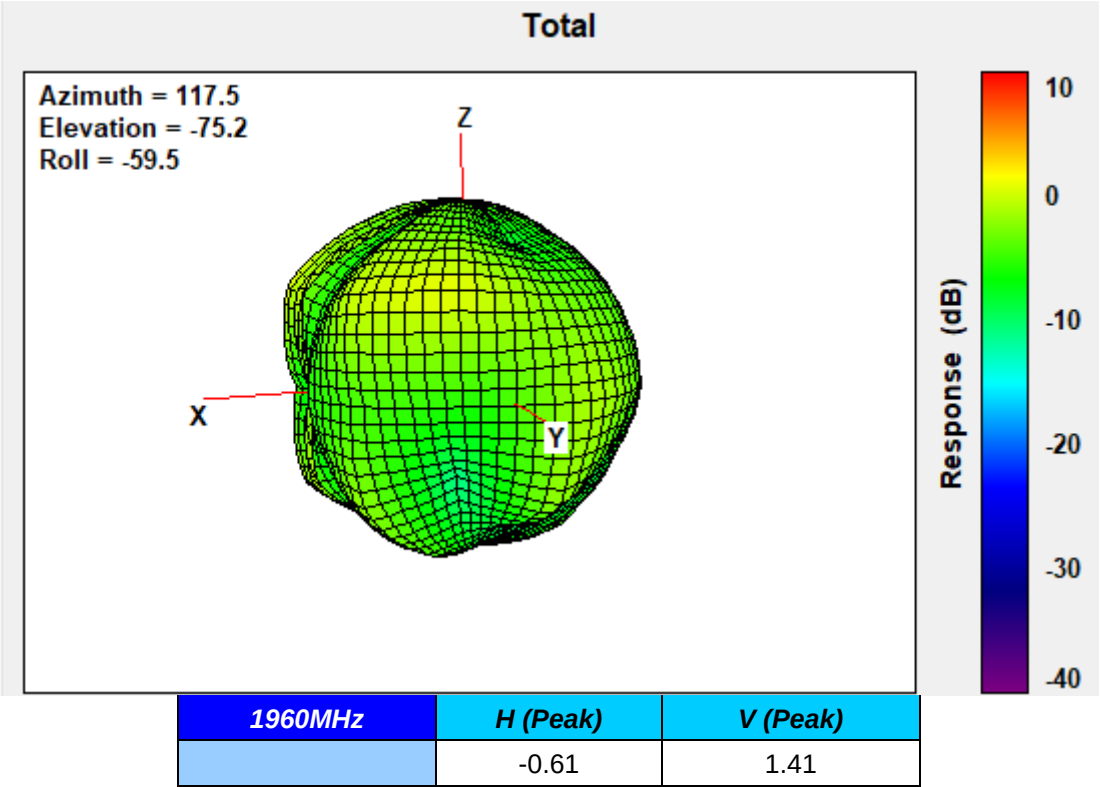
1880MHz



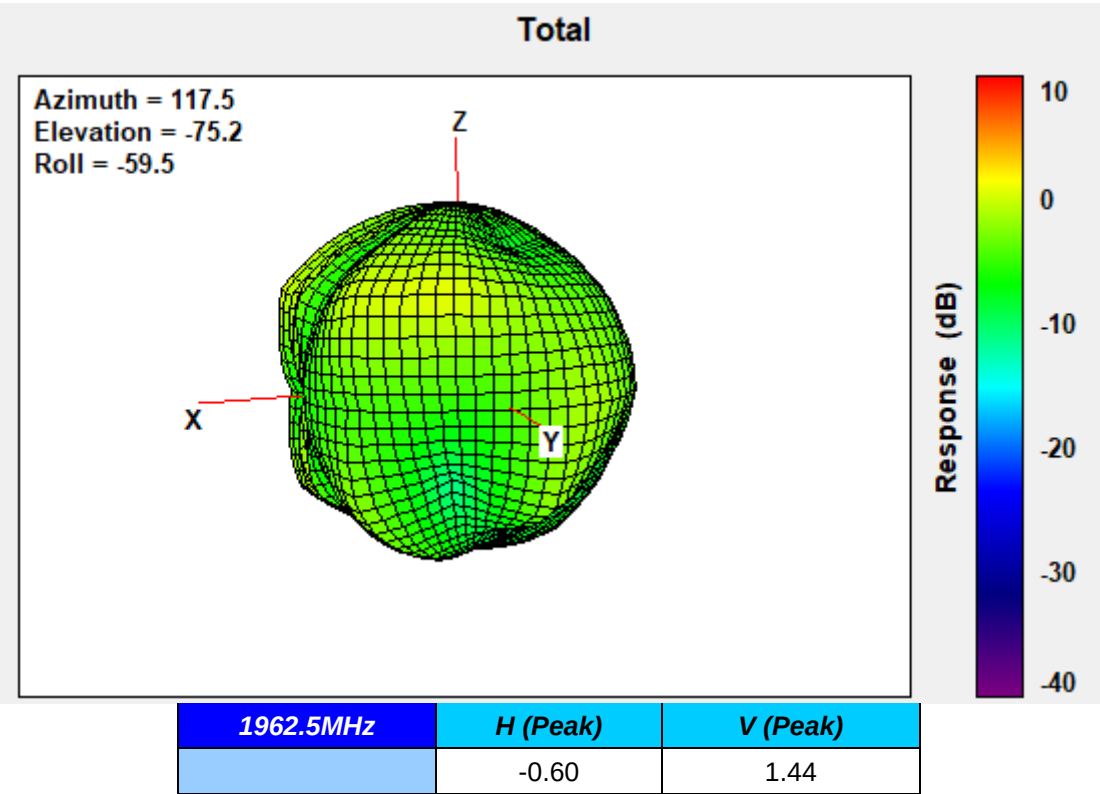
1930MHz



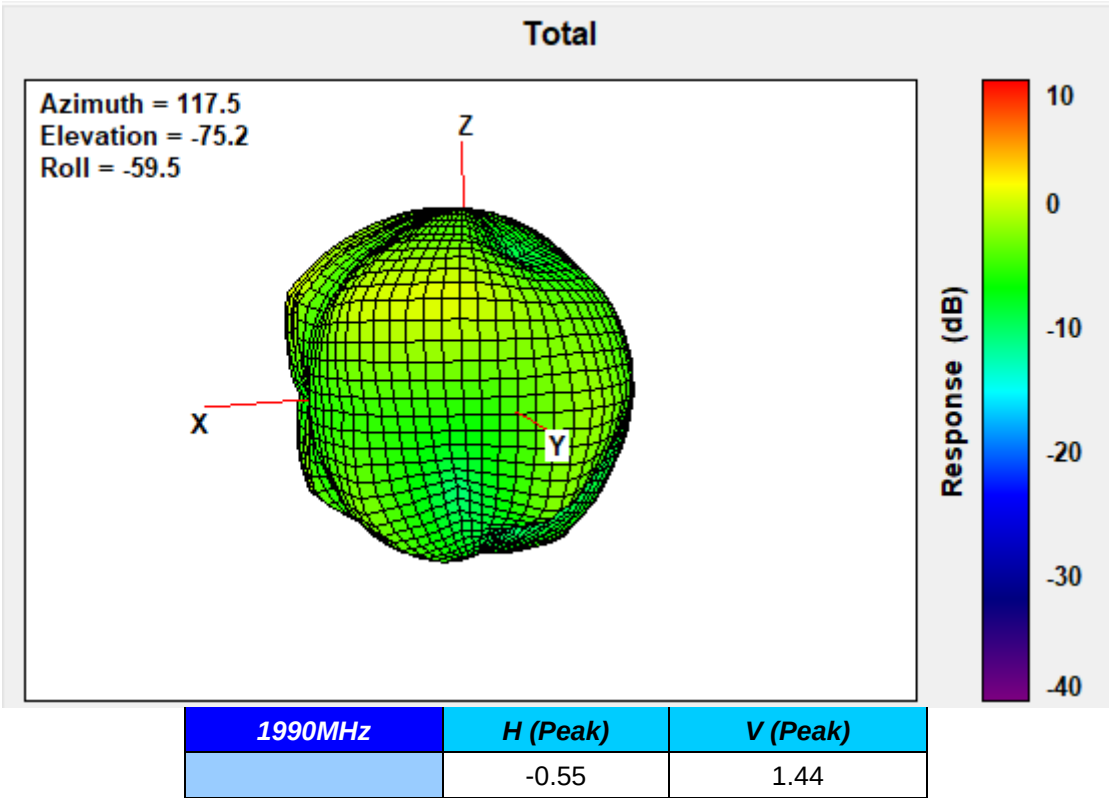
1960MHz



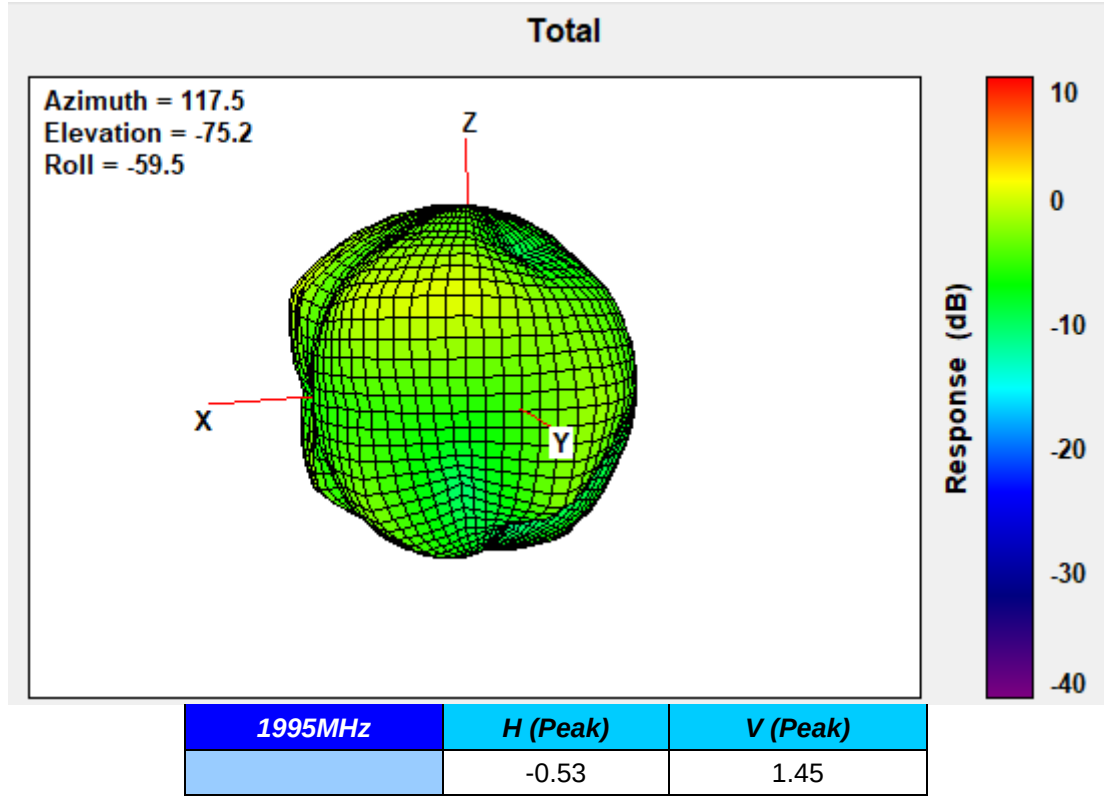
1962.5MHz



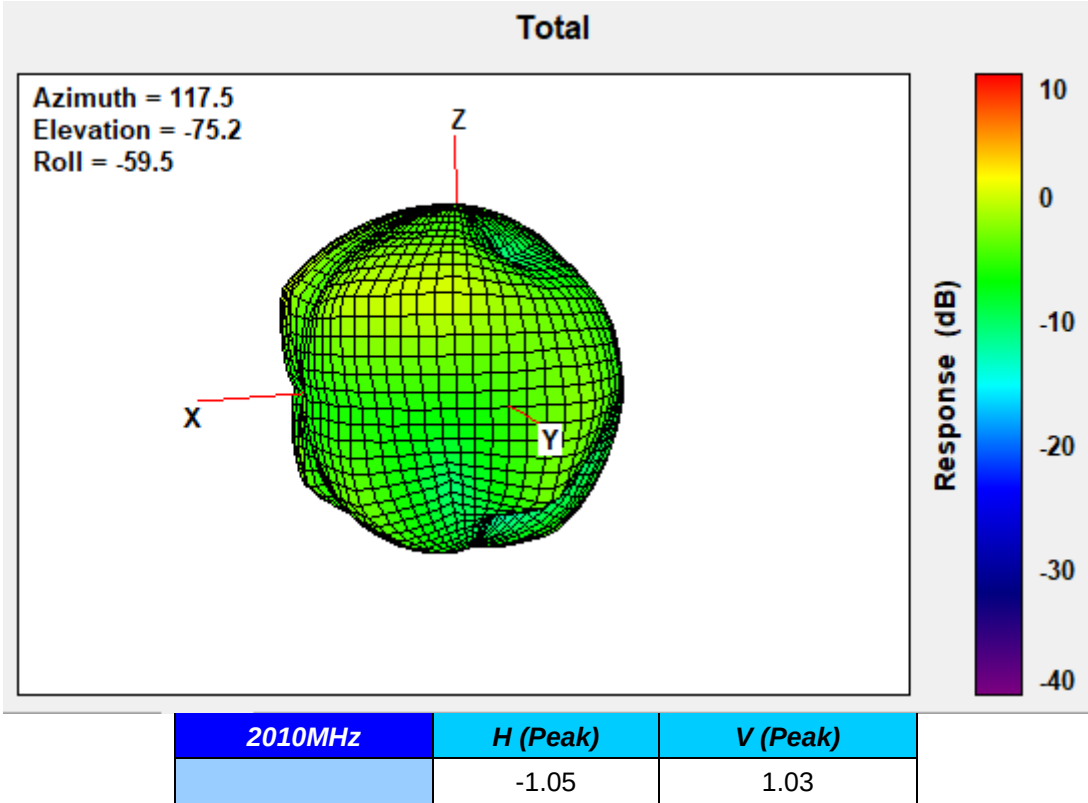
1990MHz



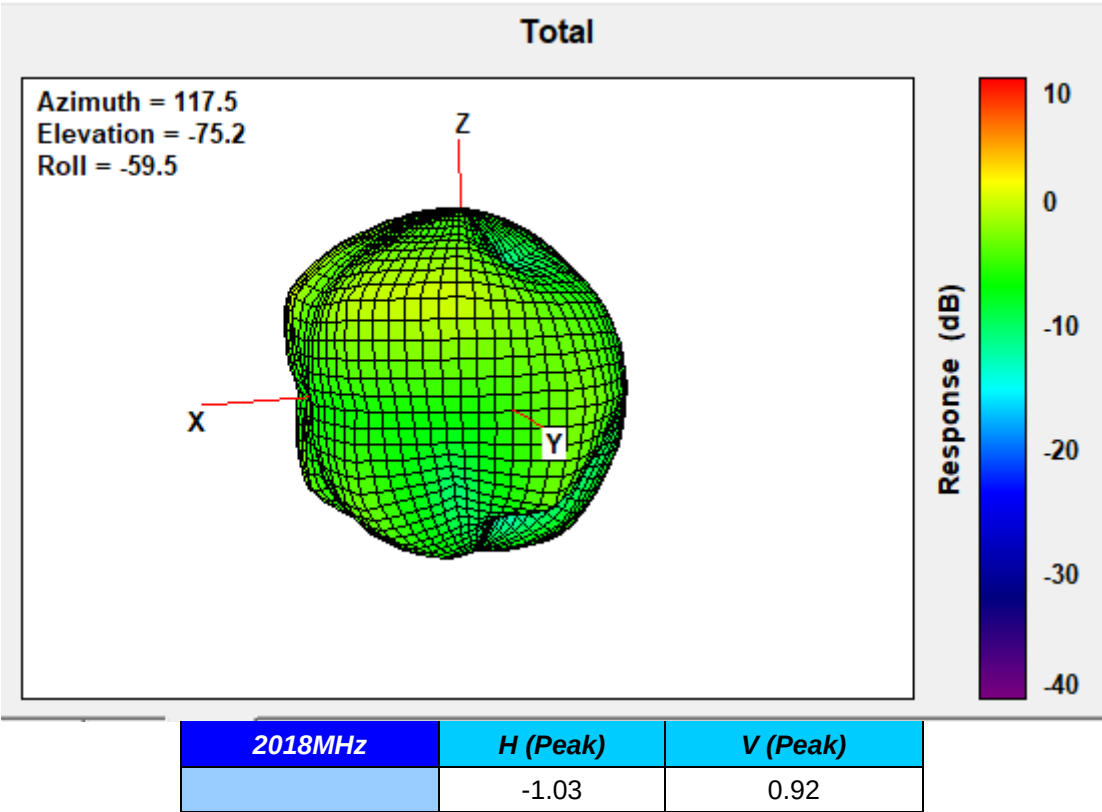
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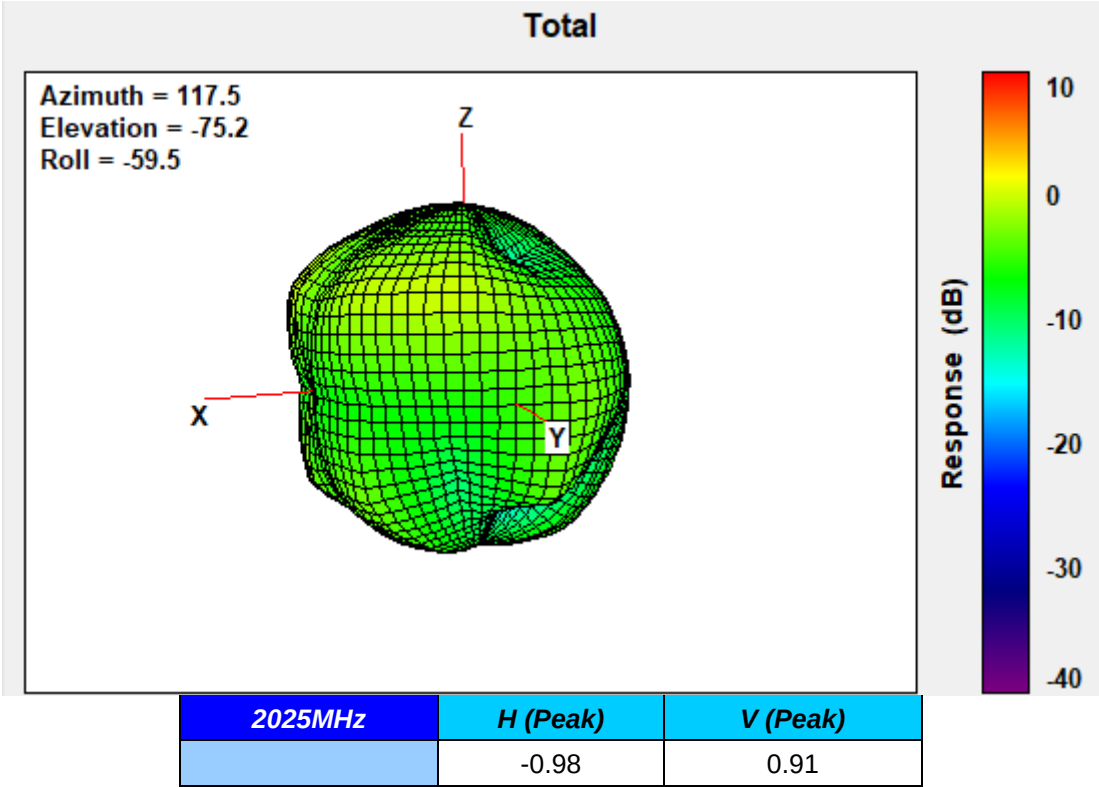
2010MHz



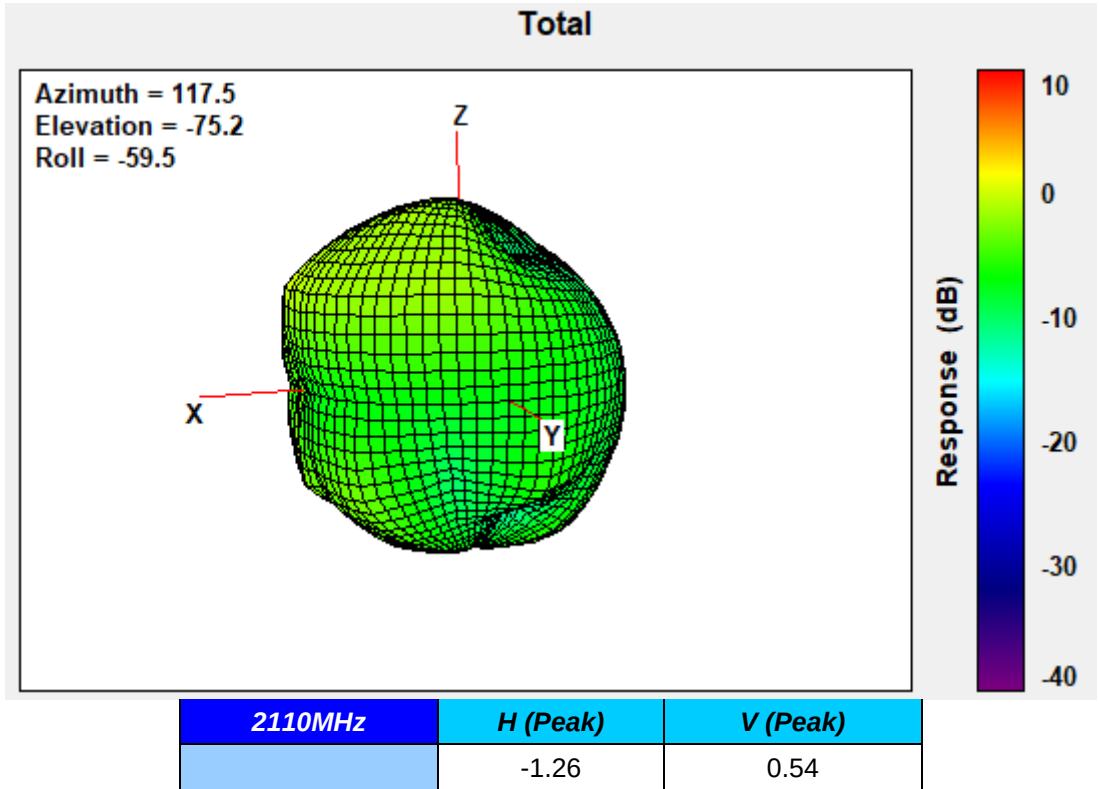
2018MHz



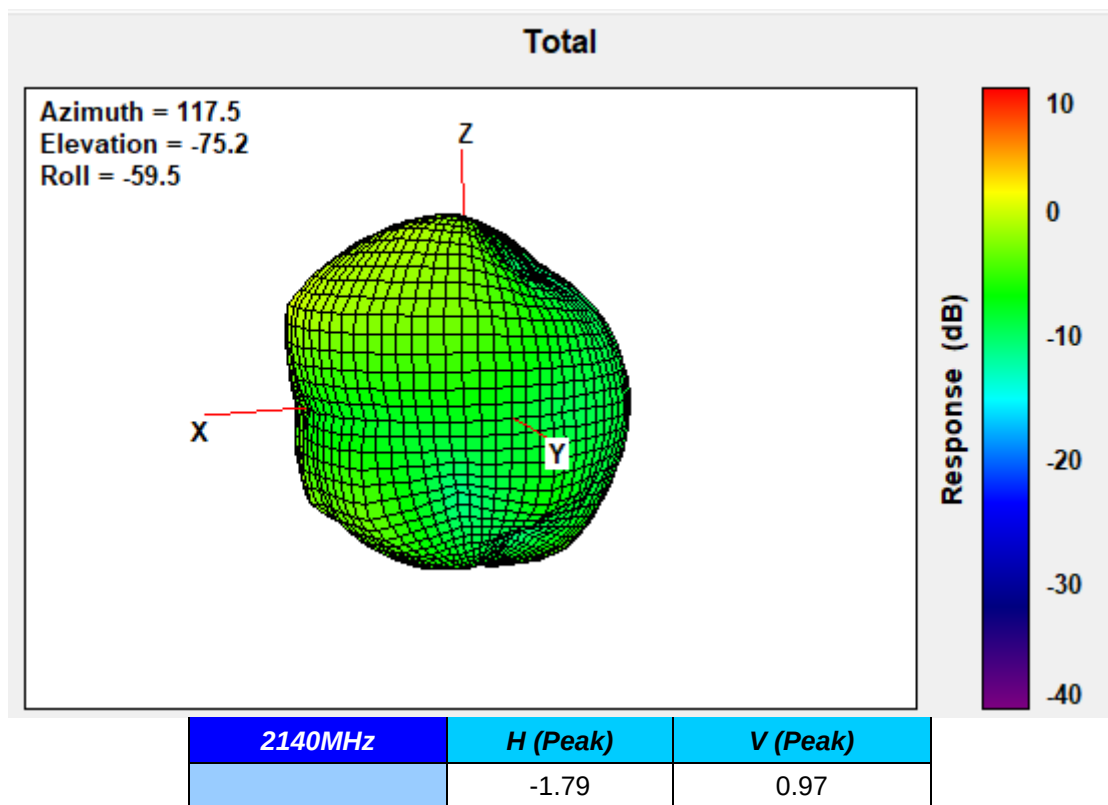
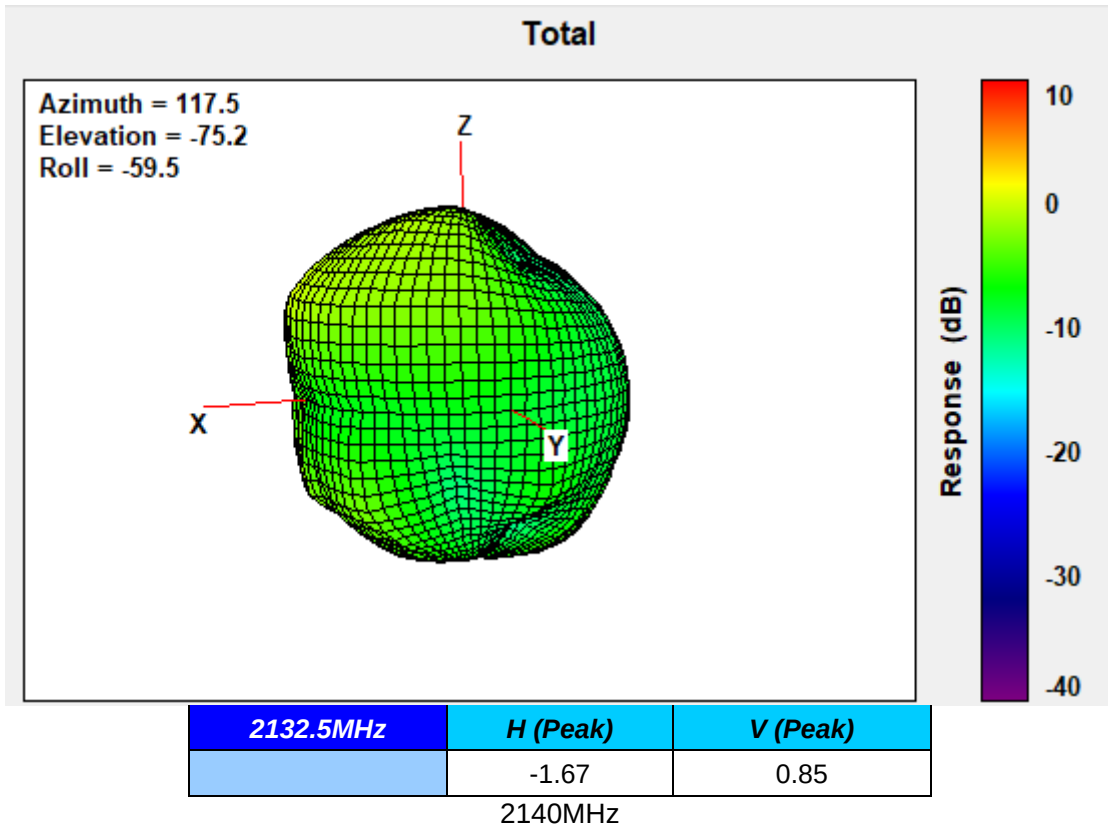
2025MHz



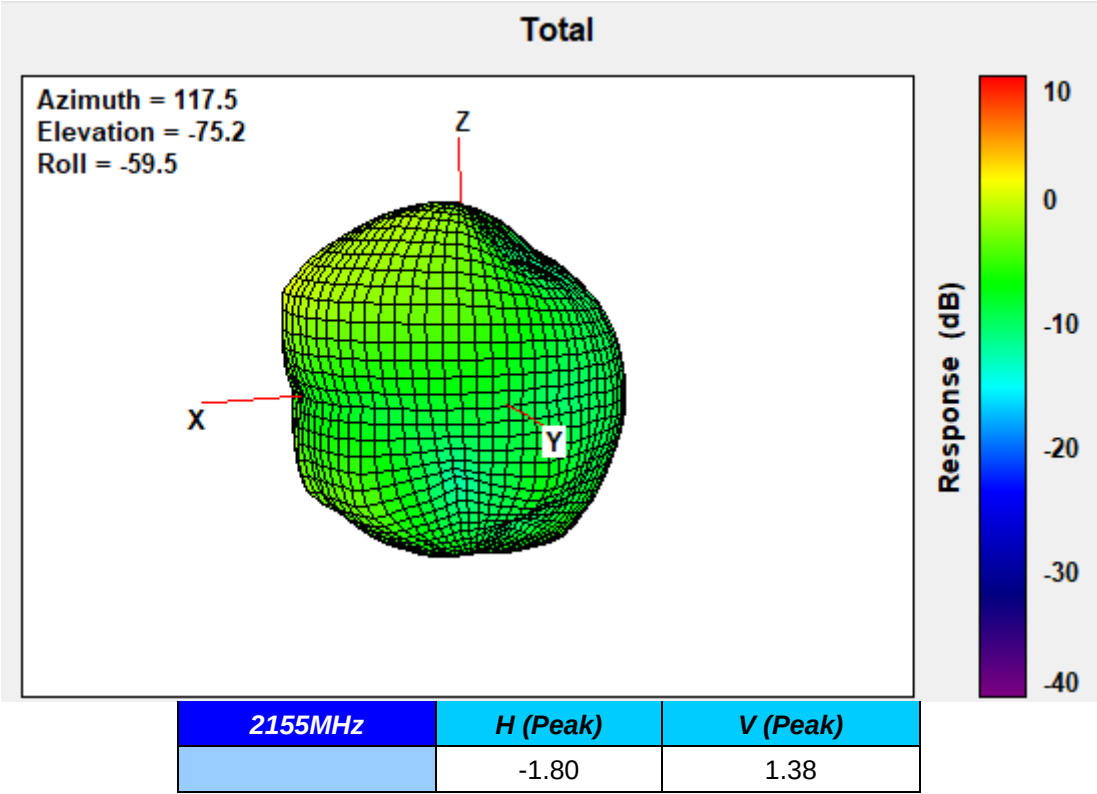
2110MHz



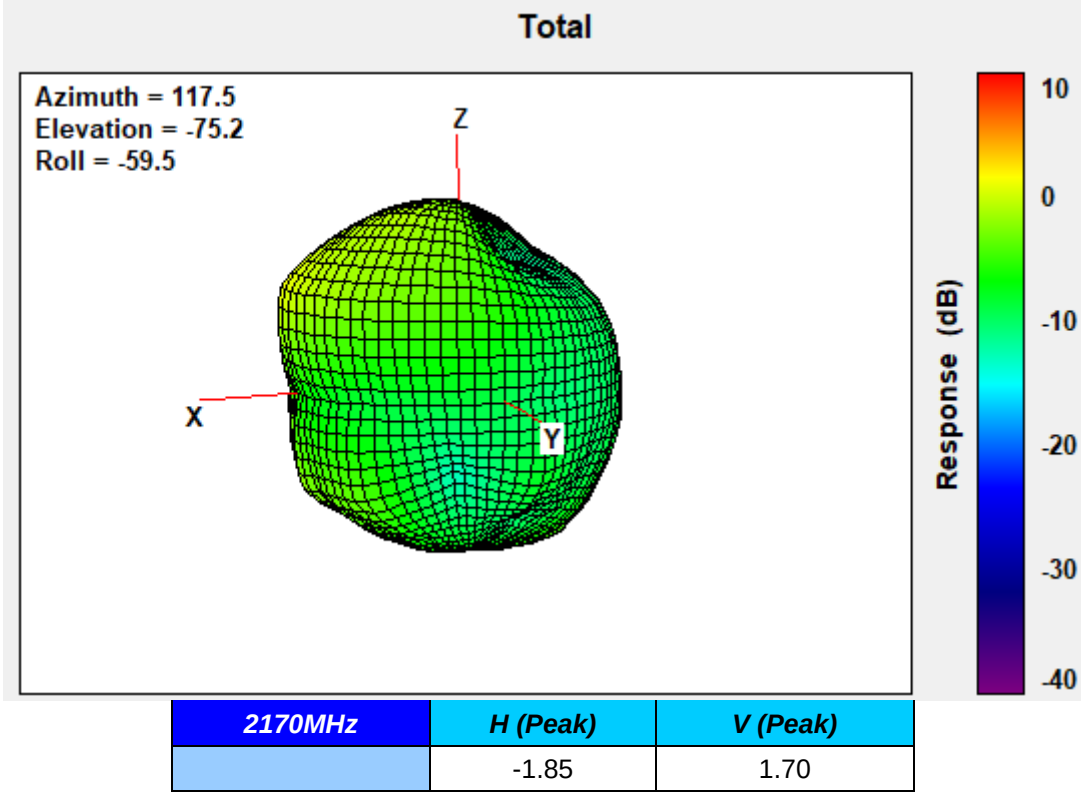
2132.5MHz



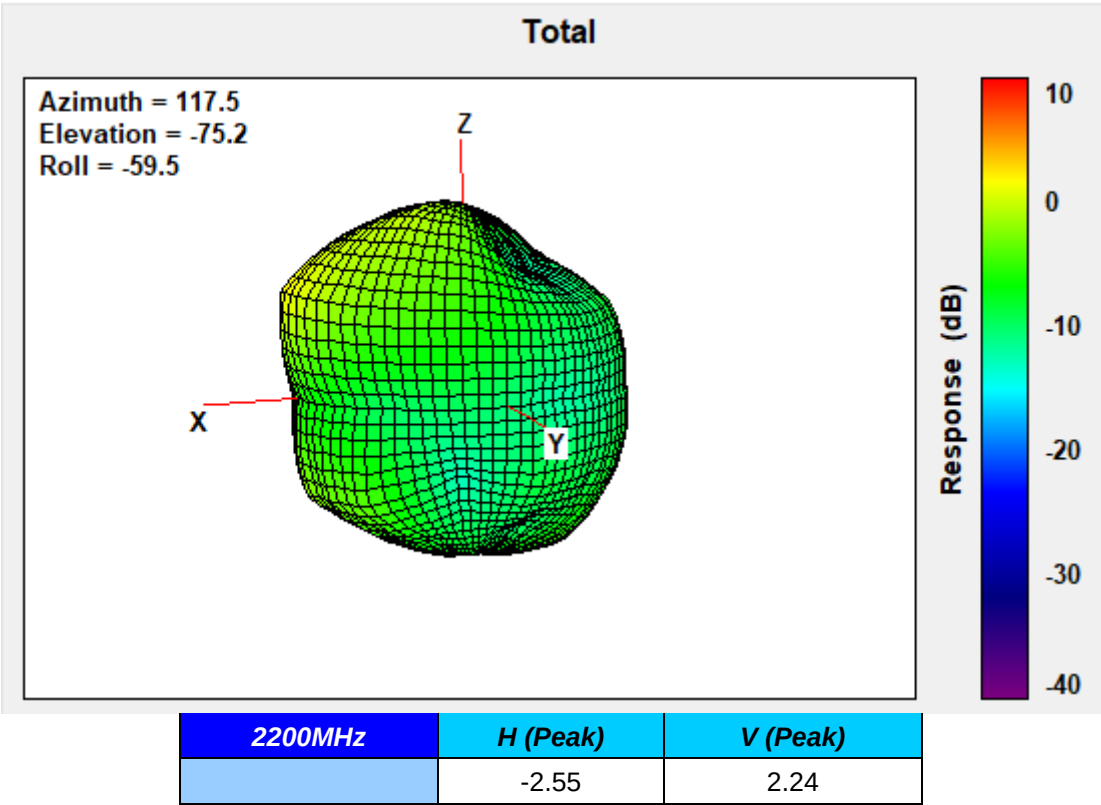
2155MHz



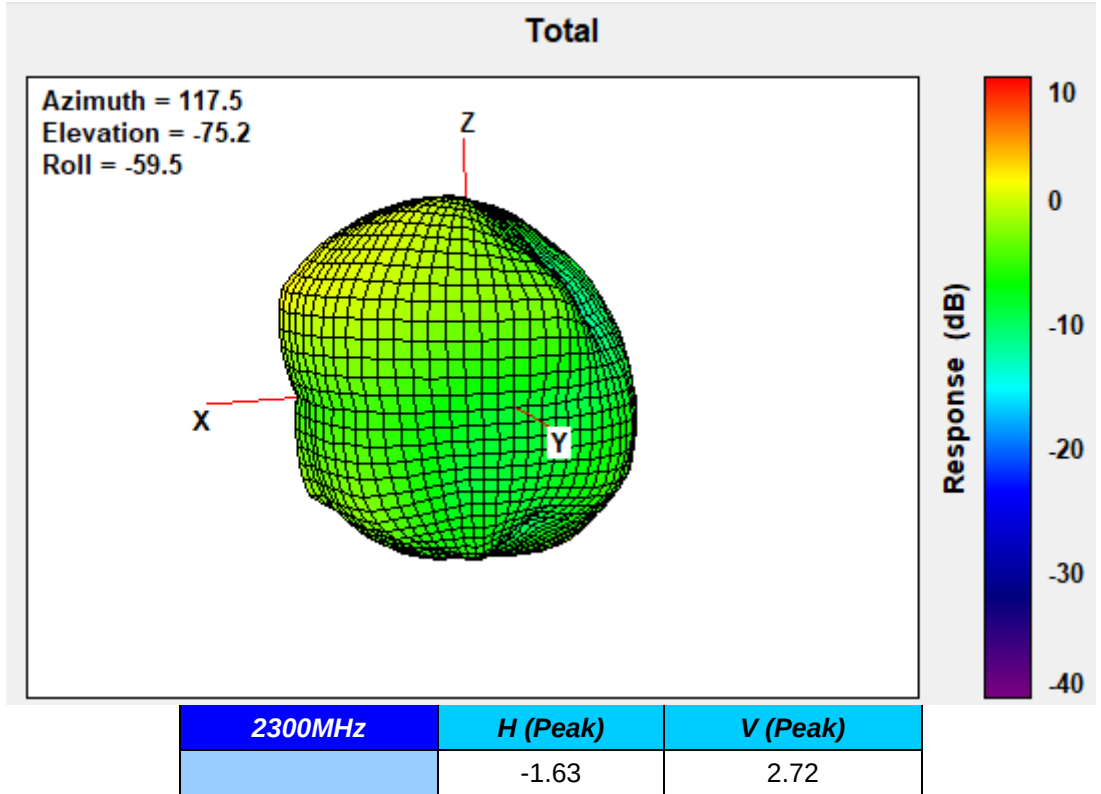
2170MHz



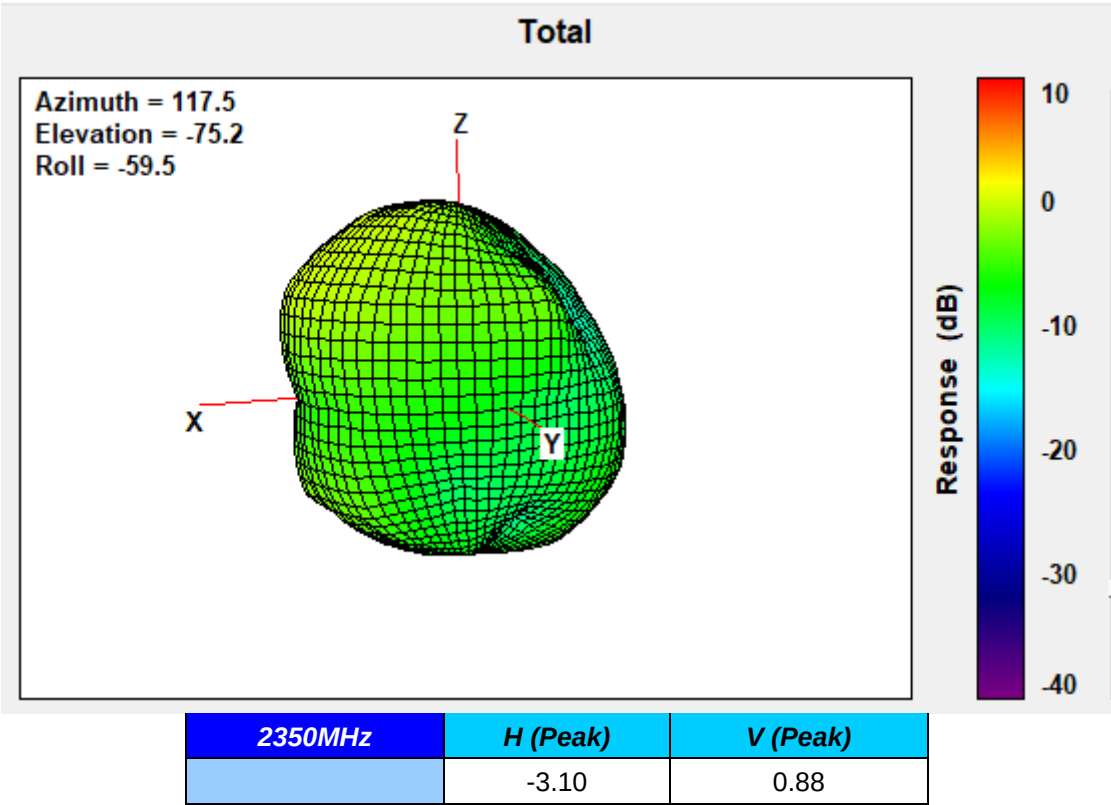
2200MHz



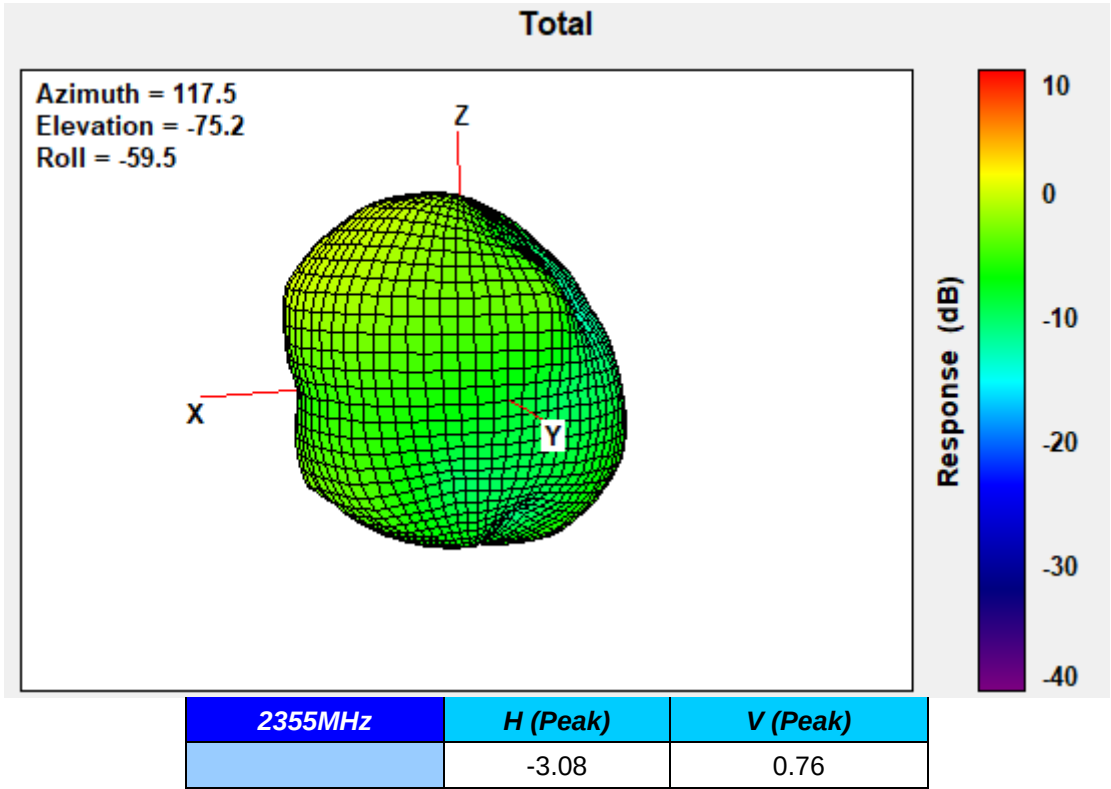
2300MHz



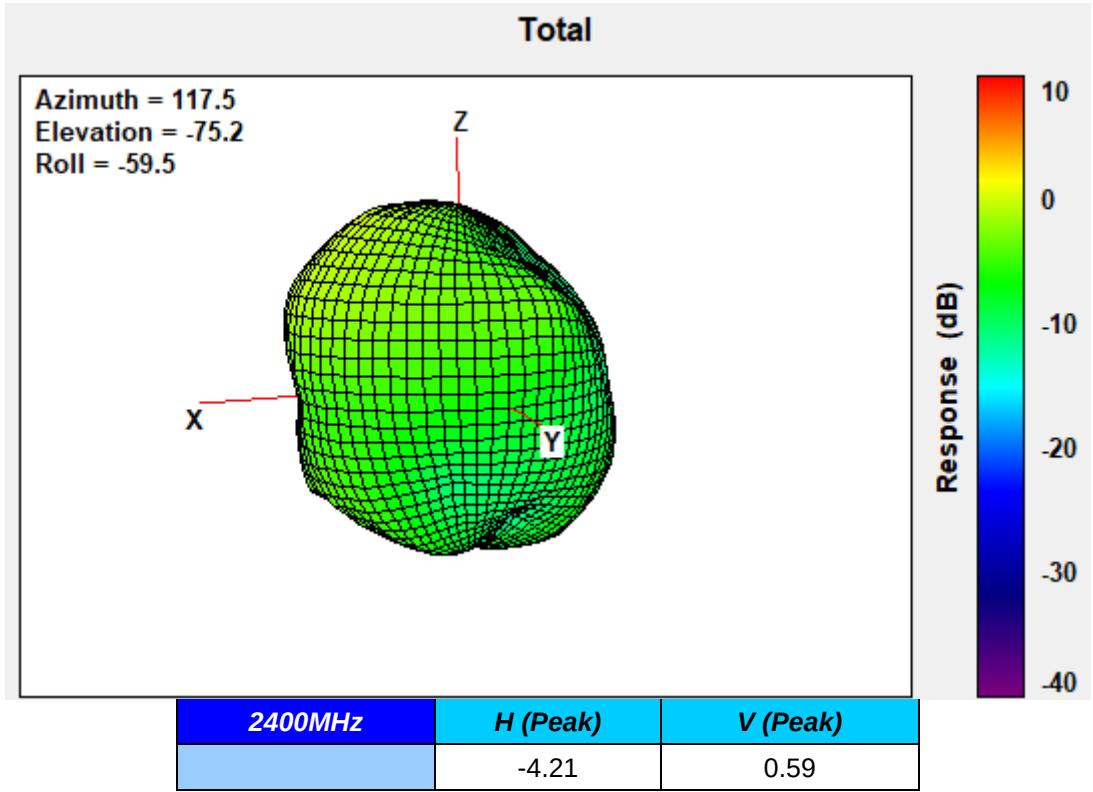
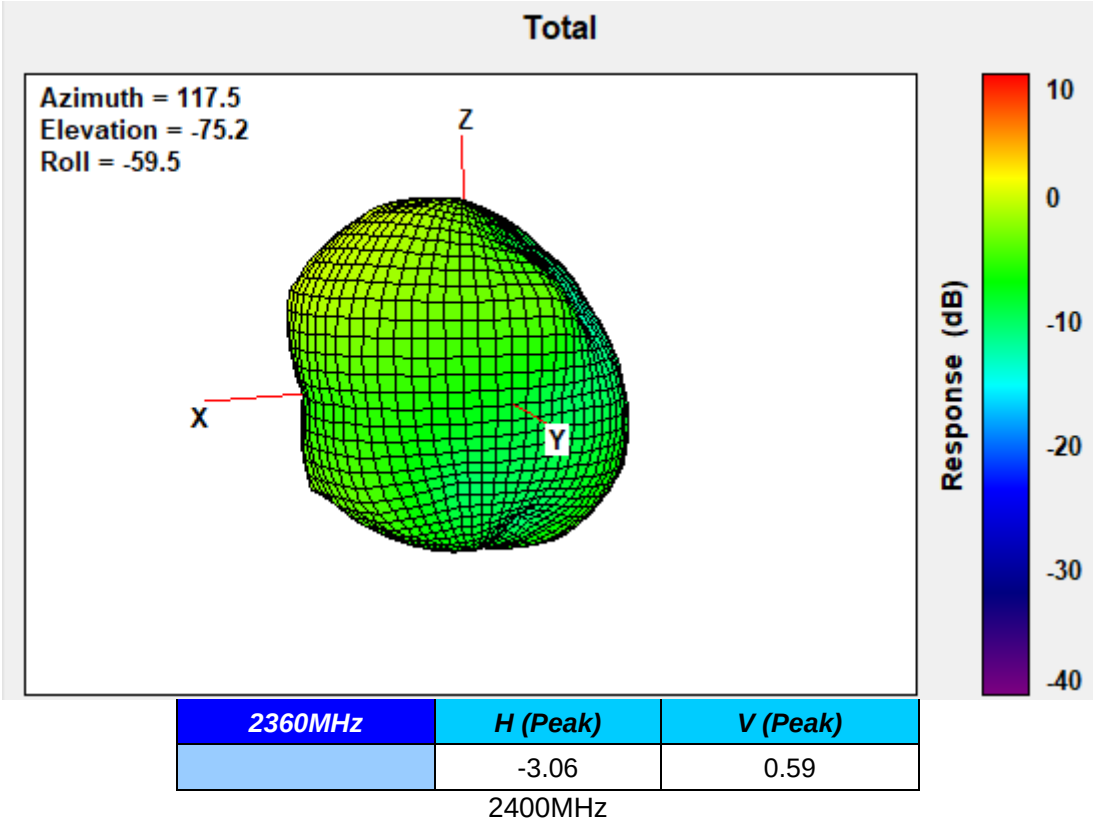
2350MHz



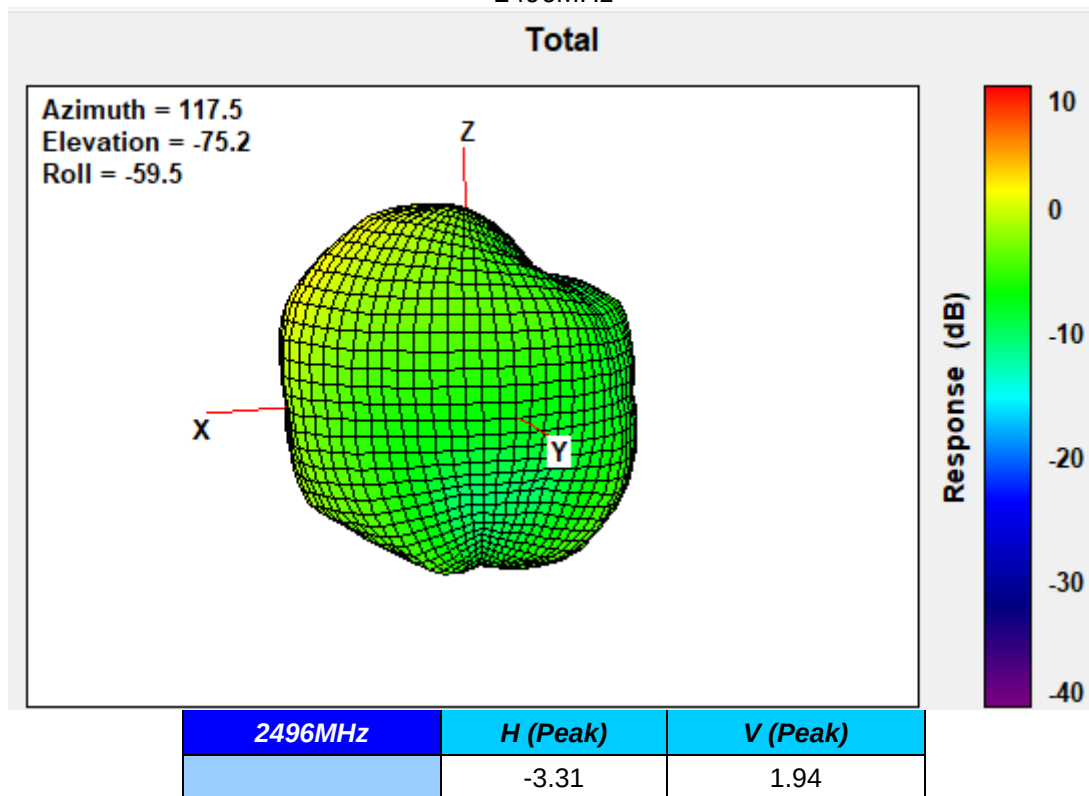
2355MHz



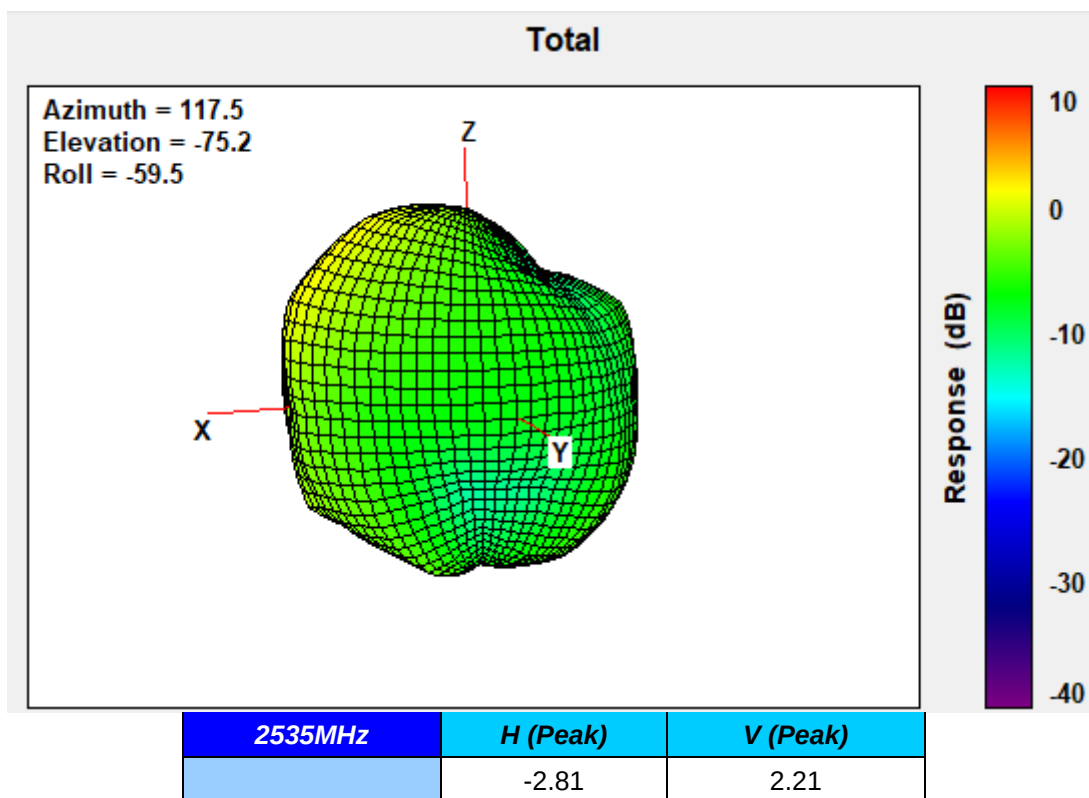
2360MHz



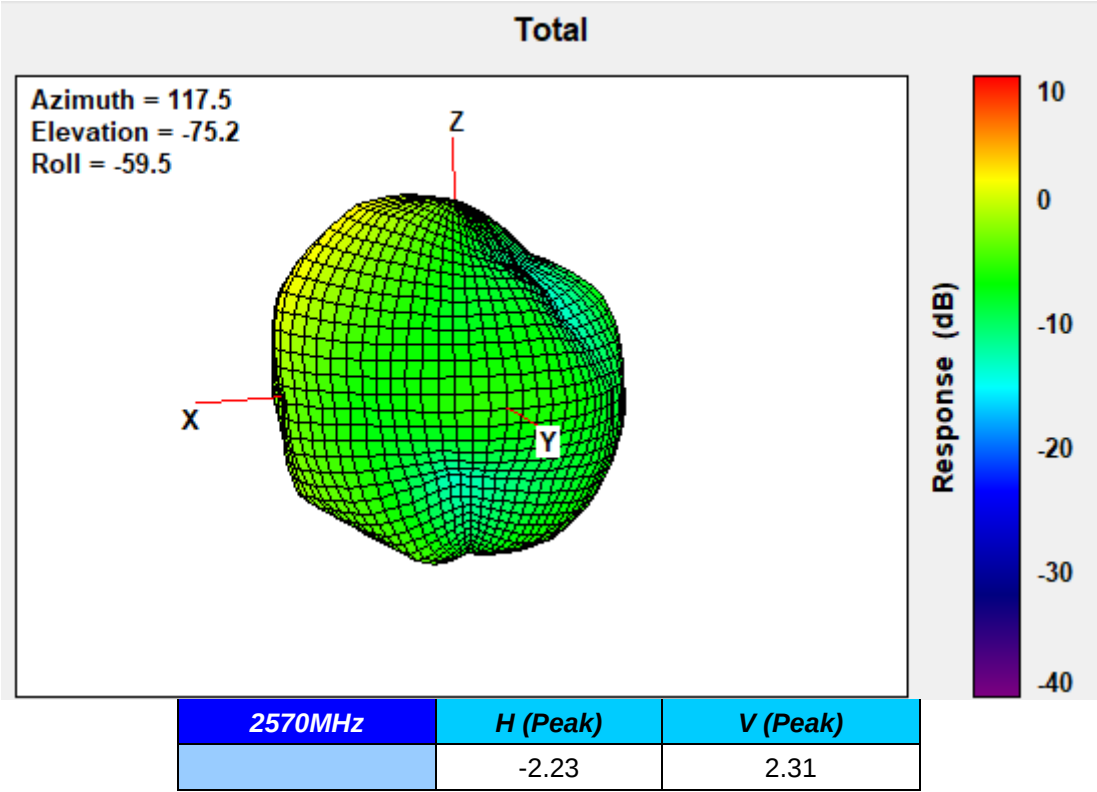
2496MHz



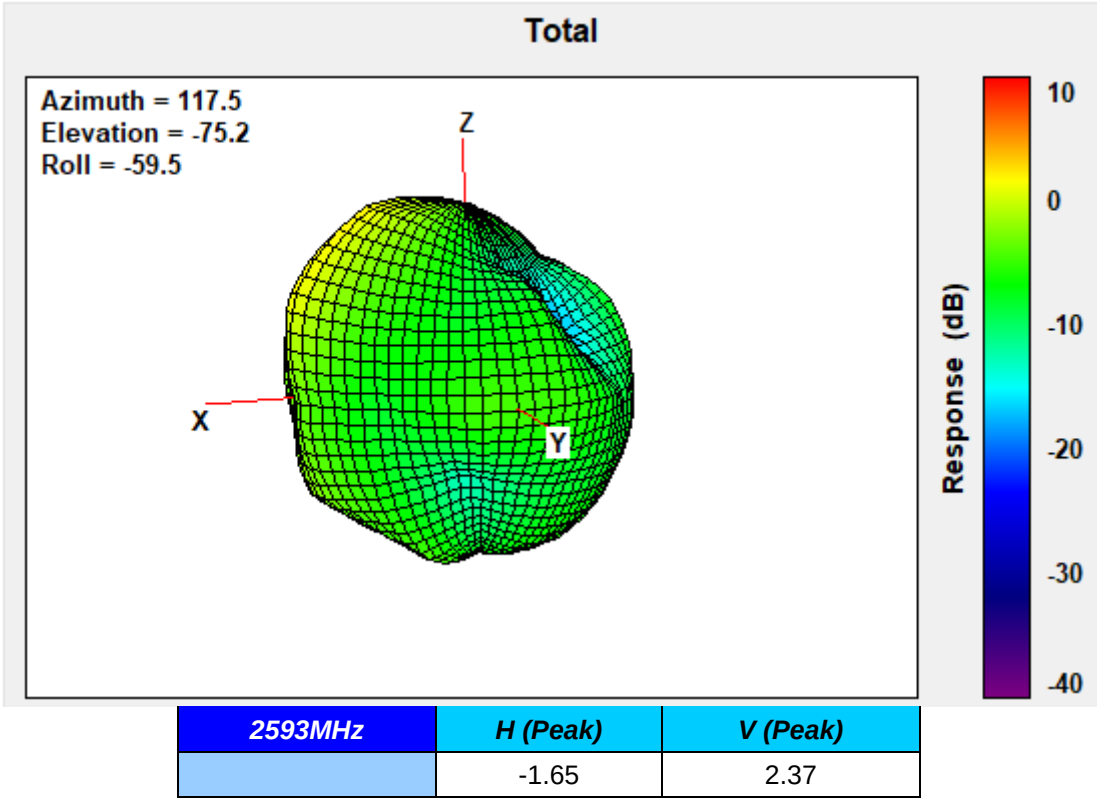
2535MHz



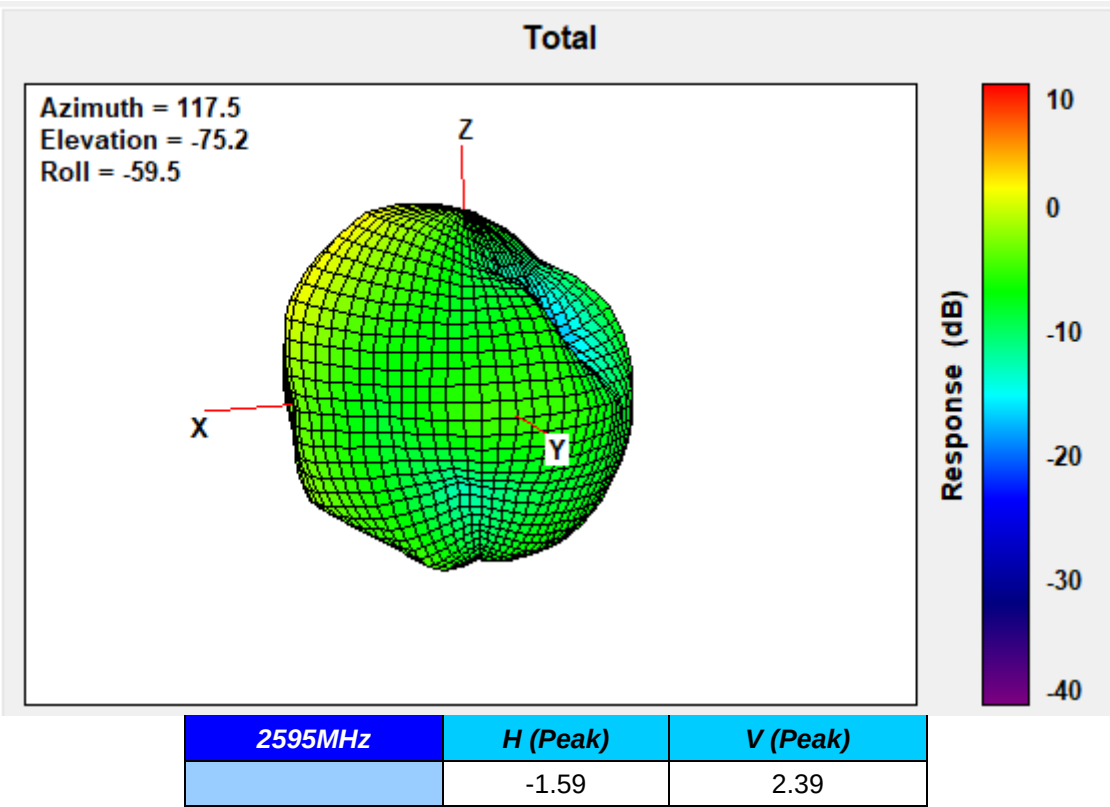
2570MHz



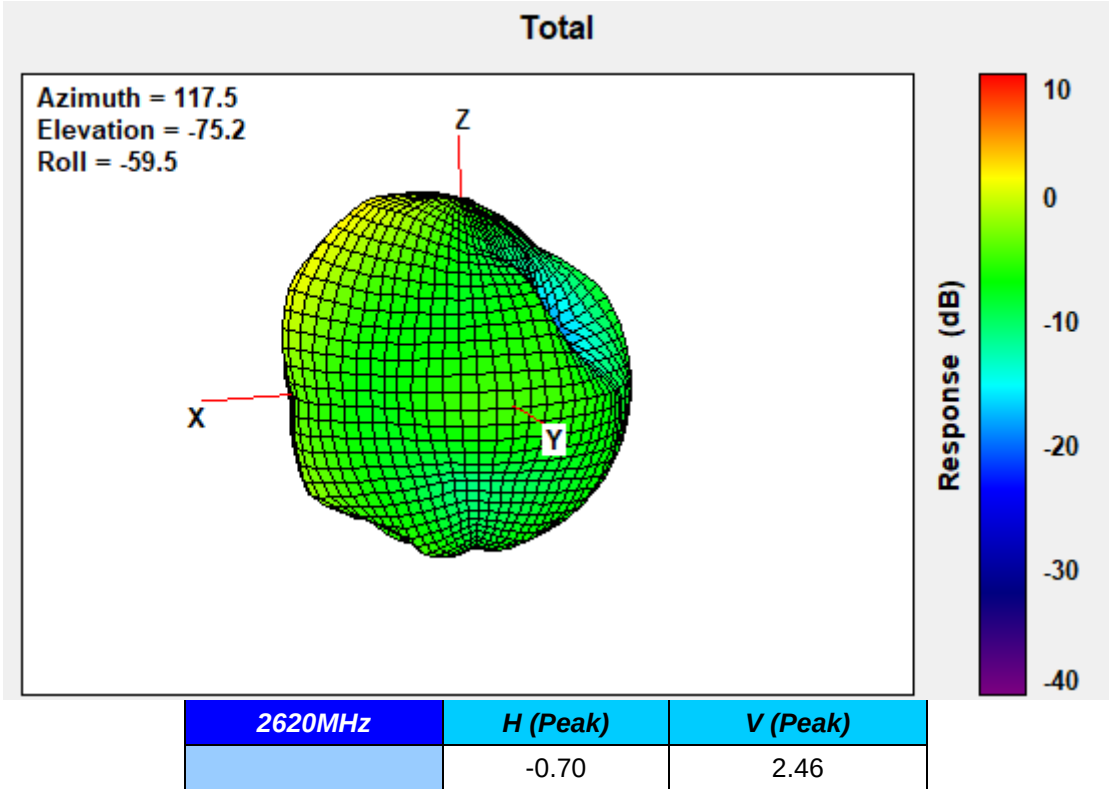
2593MHz



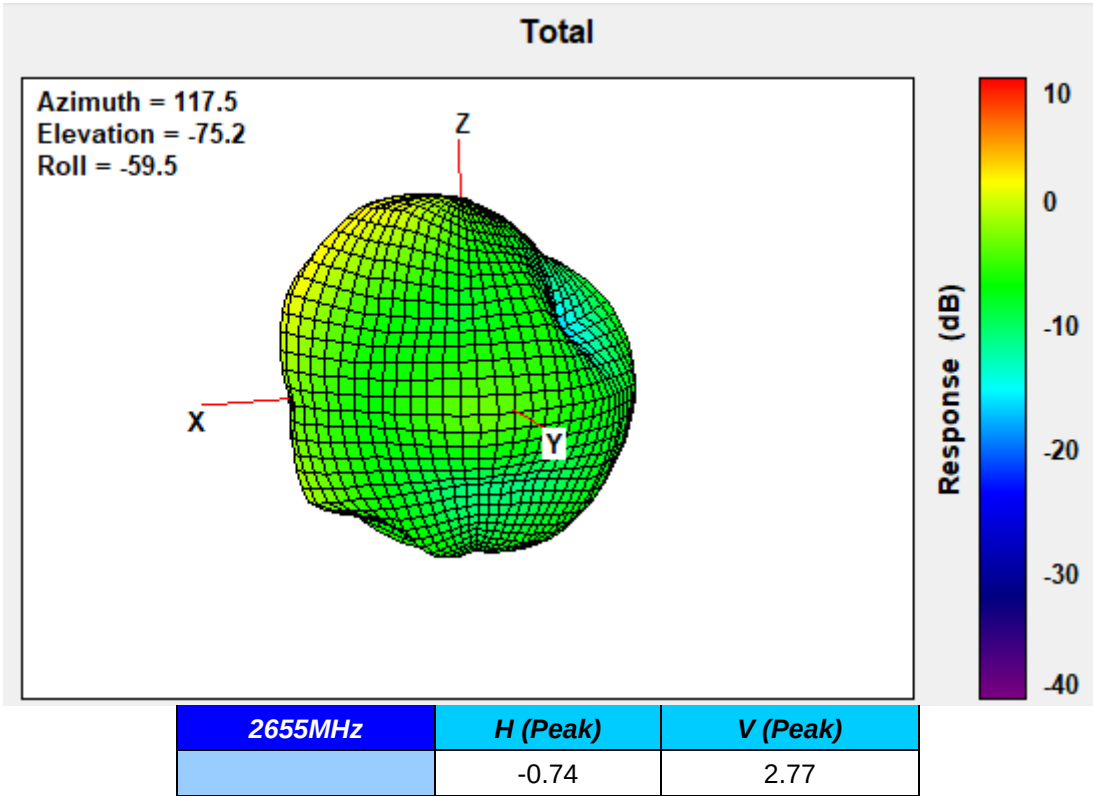
2595MHz



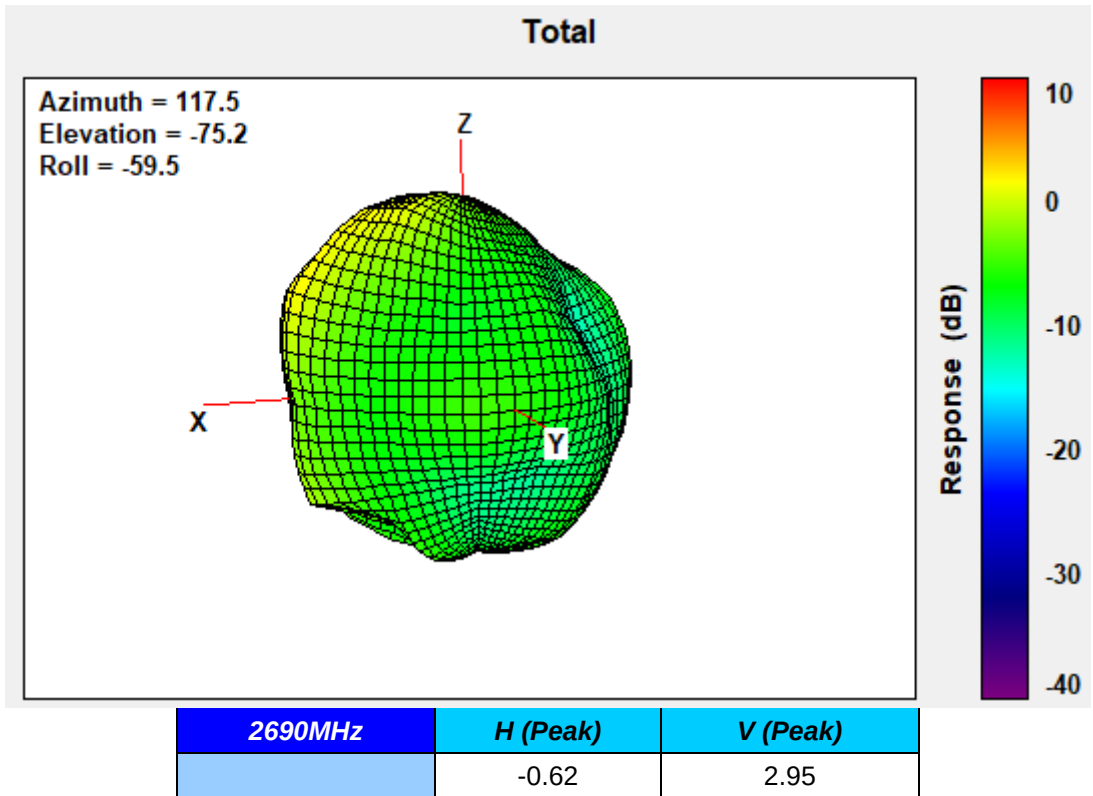
2620MHz



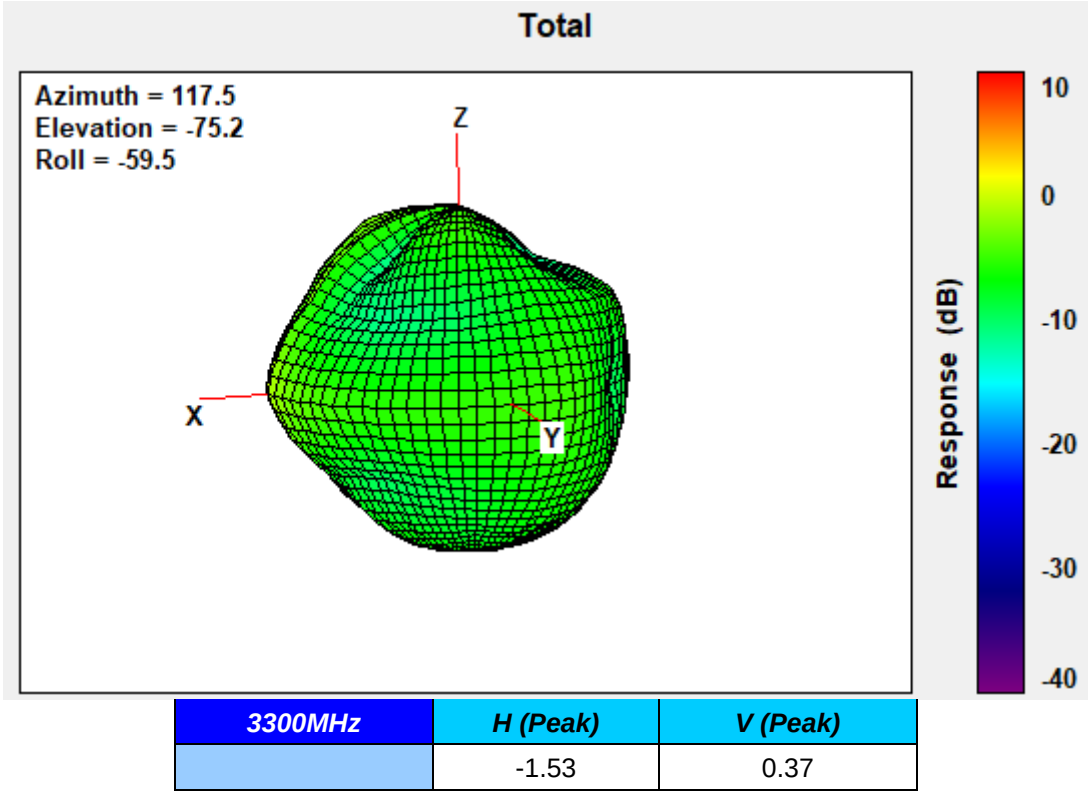
2655MHz



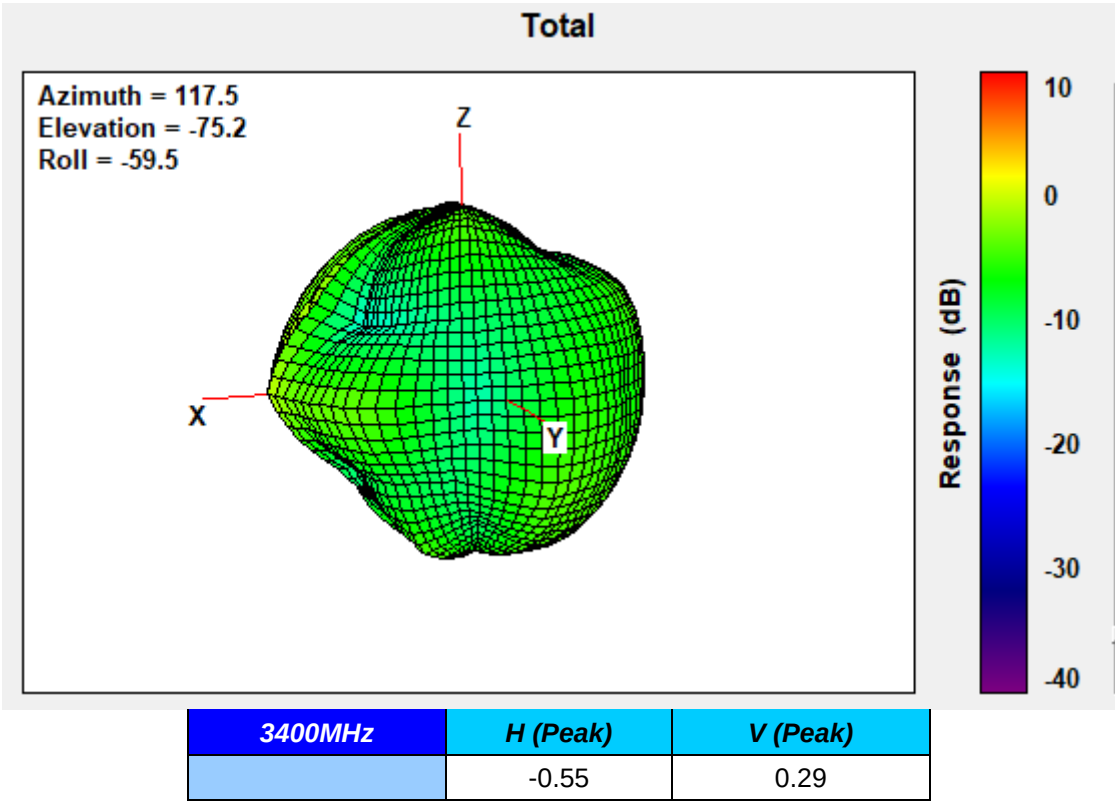
2690MHz



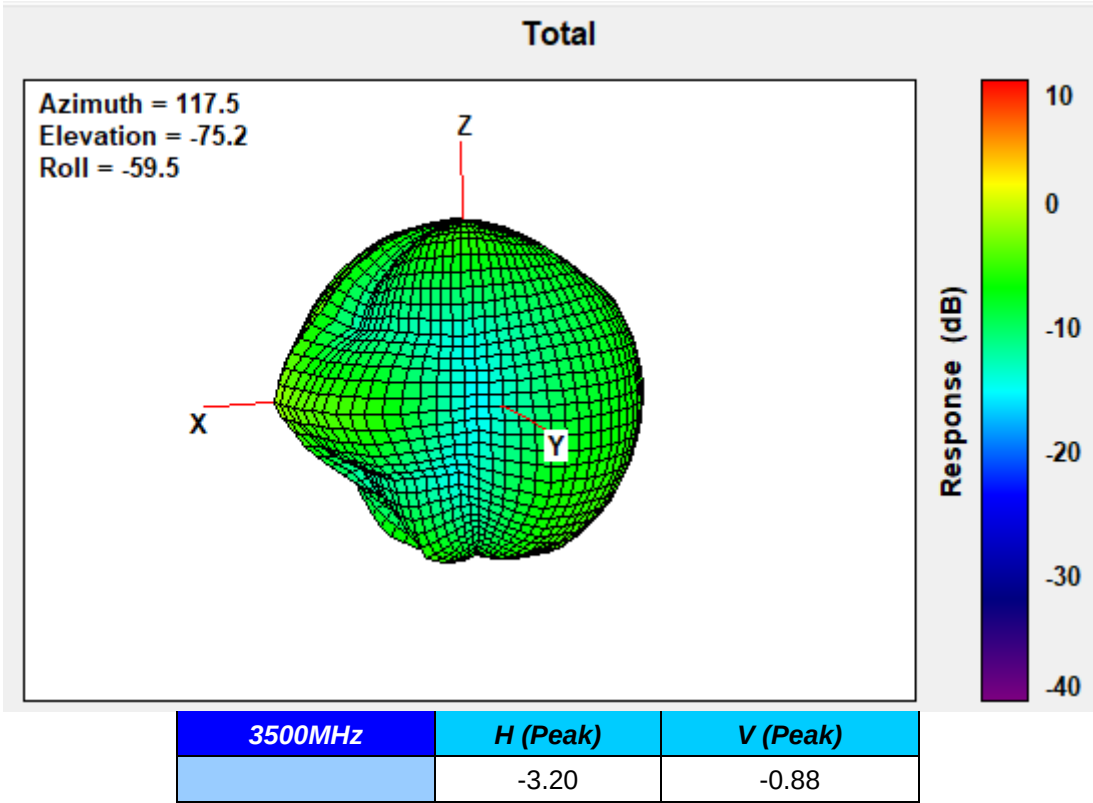
3300MHz



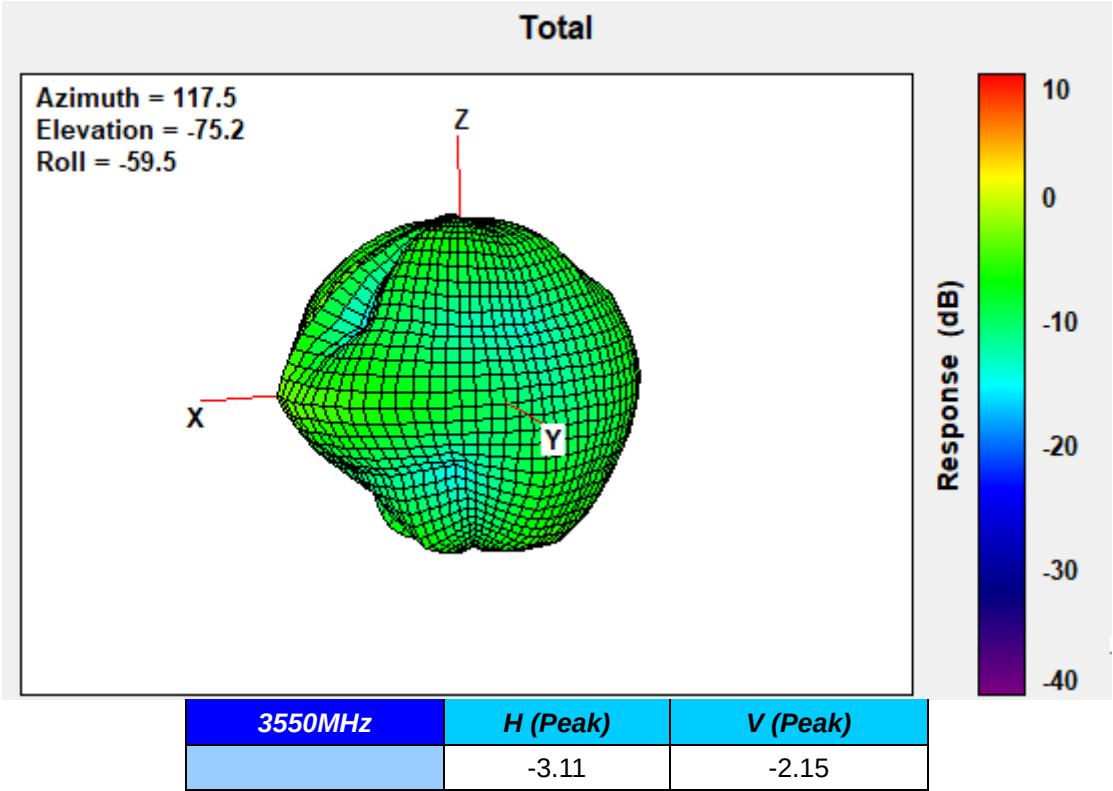
3400MHz

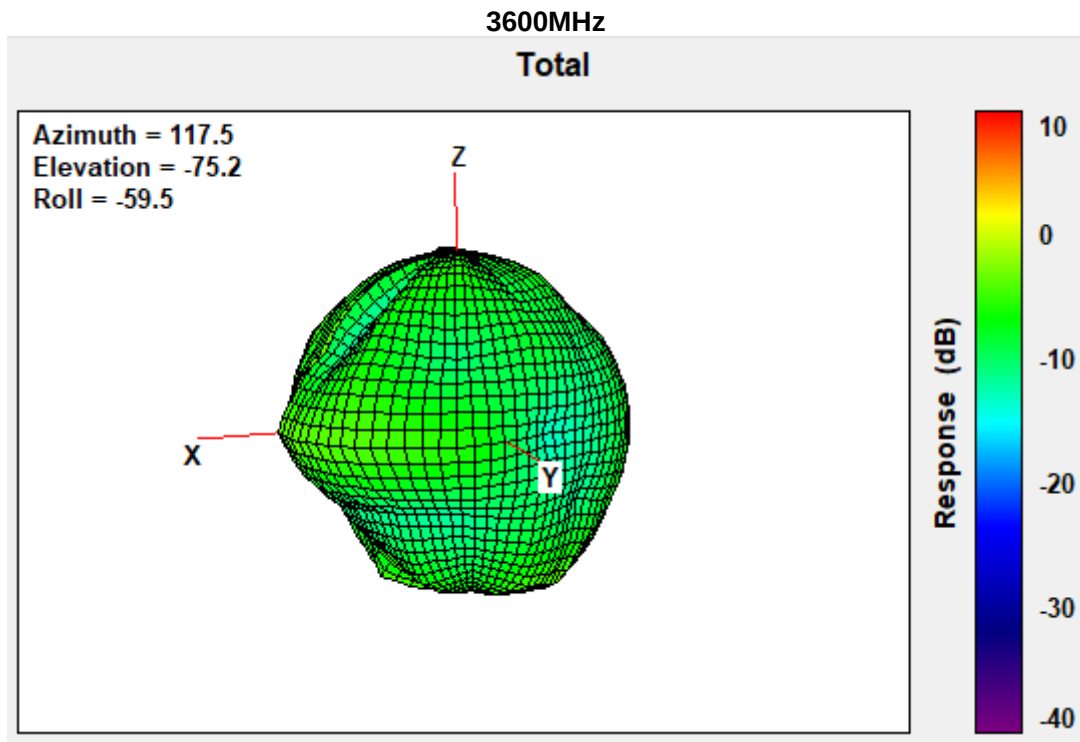


3500MHz



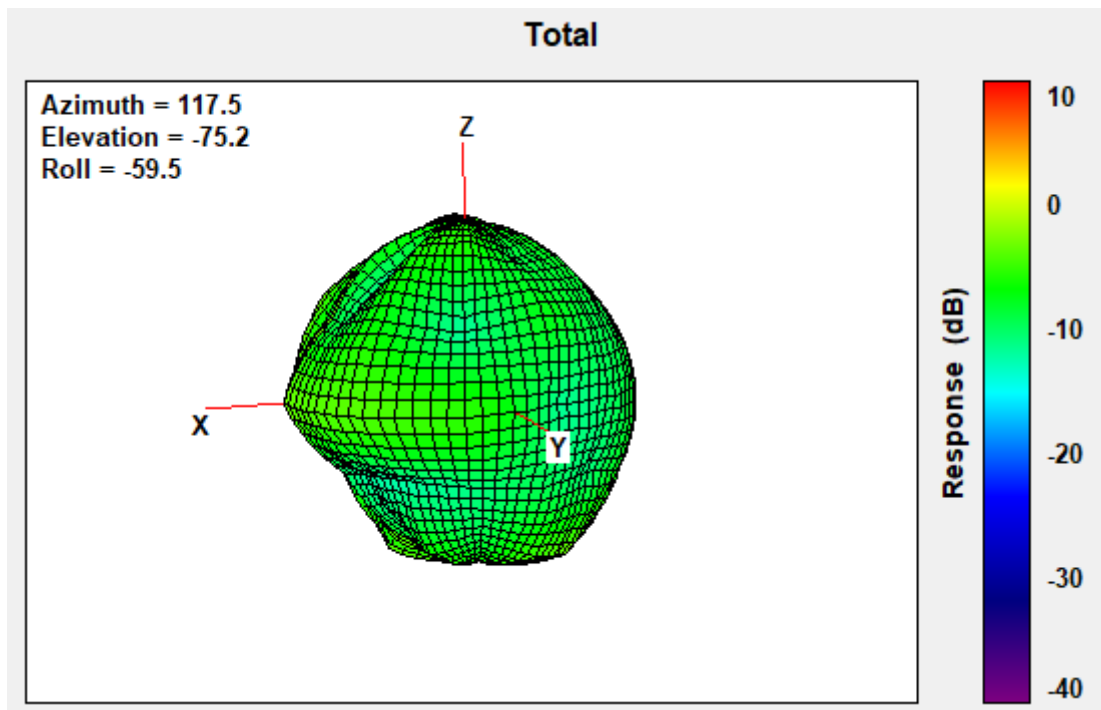
3550MHz



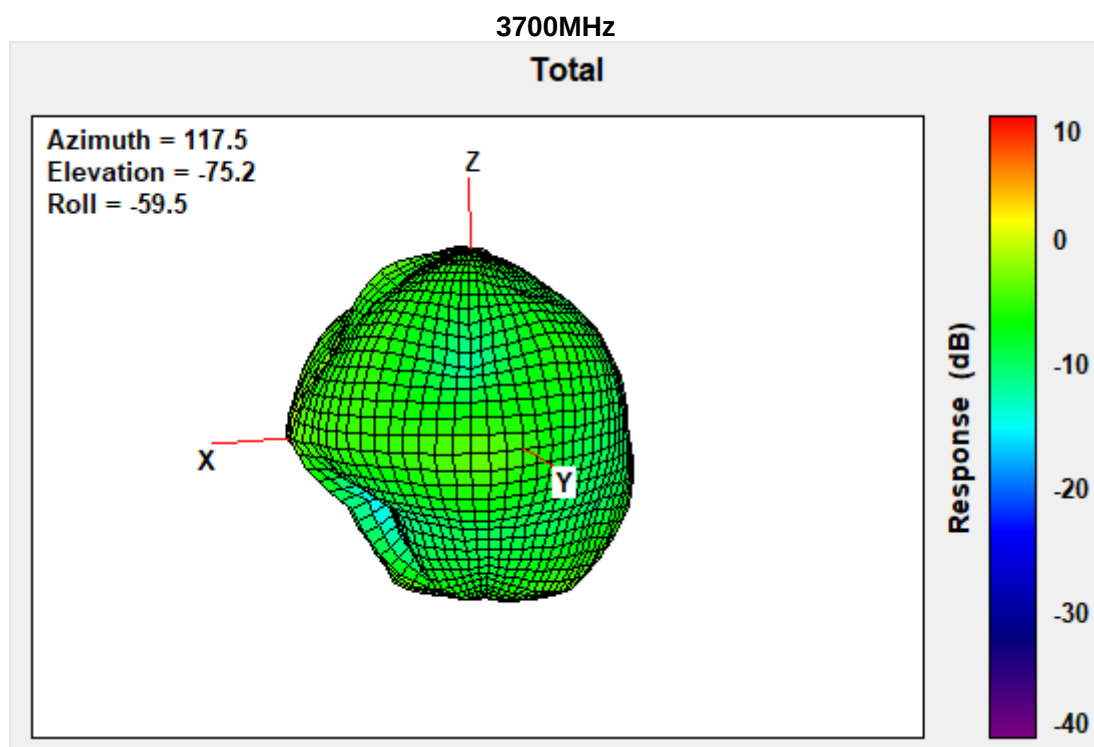


3600MHz	H (Peak)	V (Peak)
	-1.29	-1.23

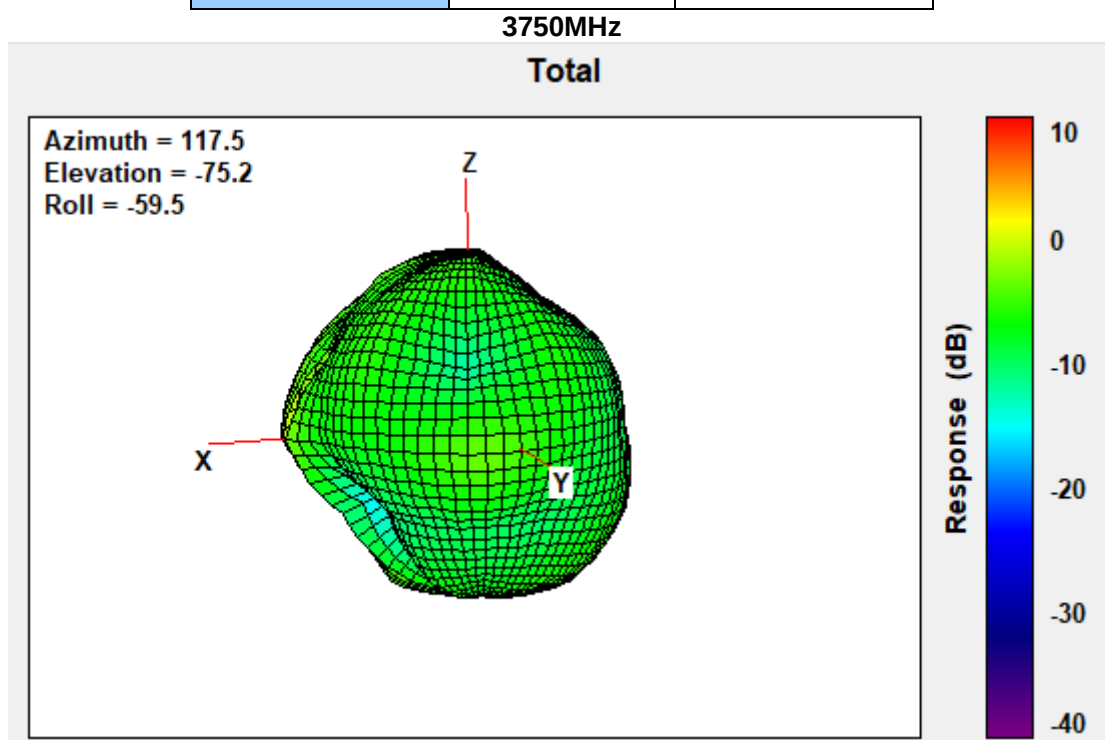
3625MHz



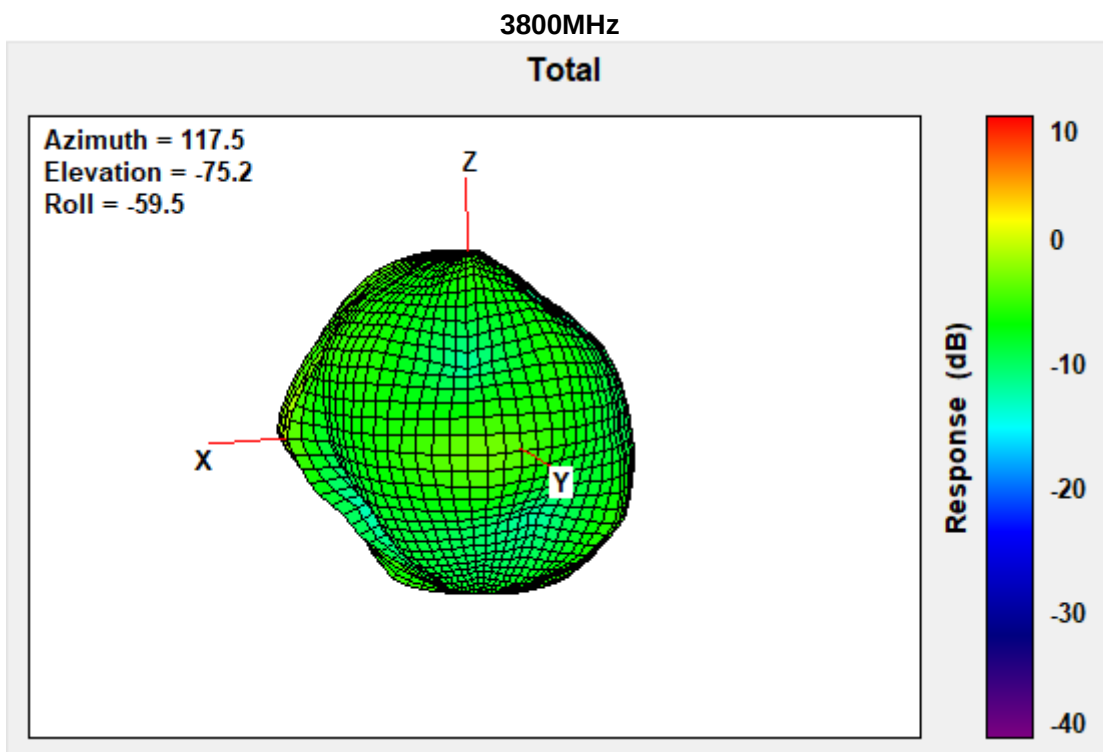
3625MHz	H (Peak)	V (Peak)
	-0.72	-0.68



3700MHz	H (Peak)	V (Peak)
	-0.81	-0.21

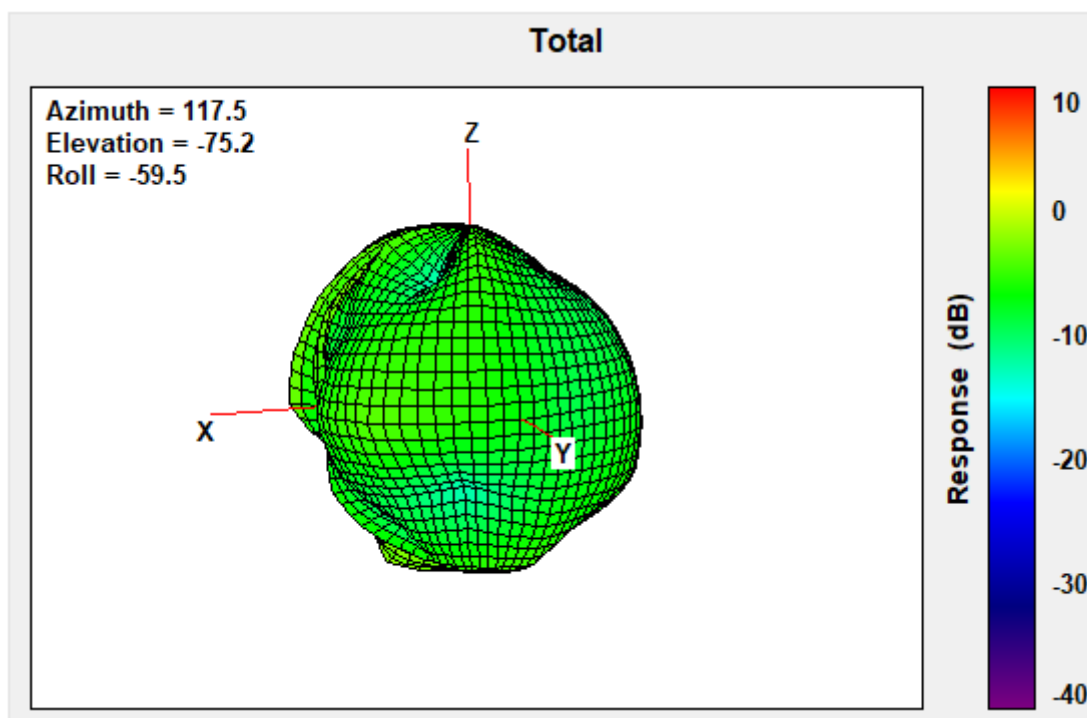


3750MHz	H (Peak)	V (Peak)
	-1.24	0.38



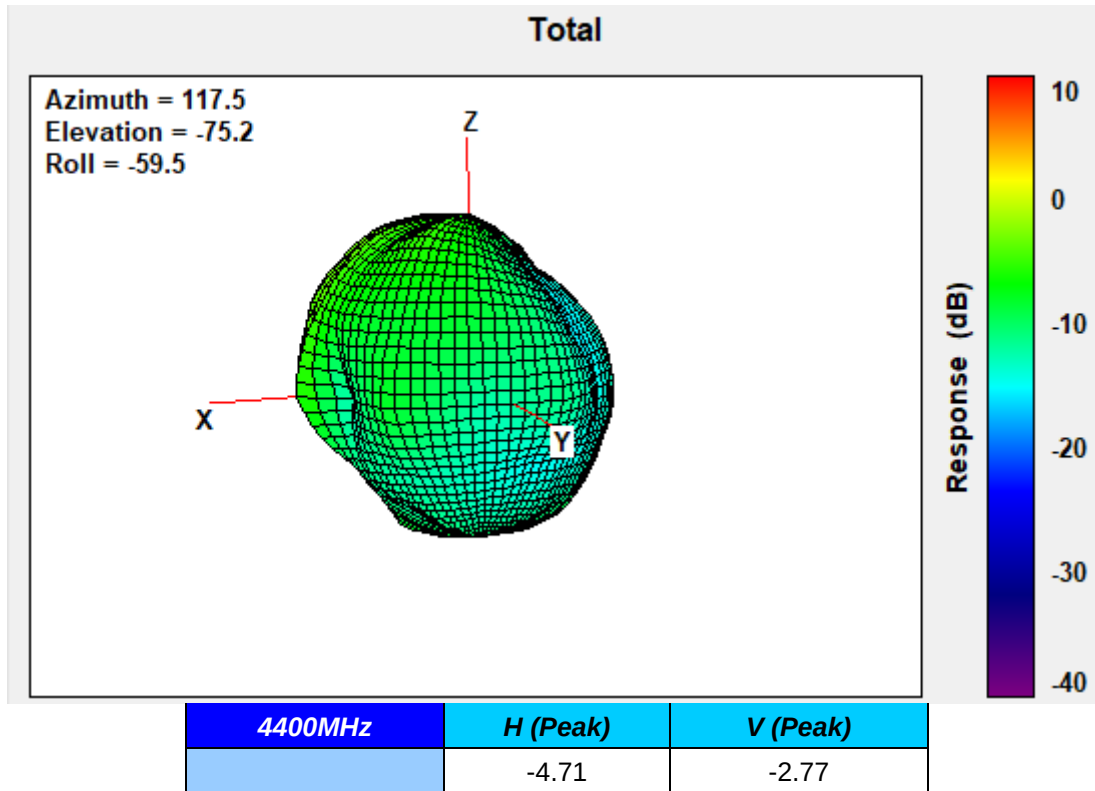
3800MHz	H (Peak)	V (Peak)
	-2.49	0.20

4200MHz

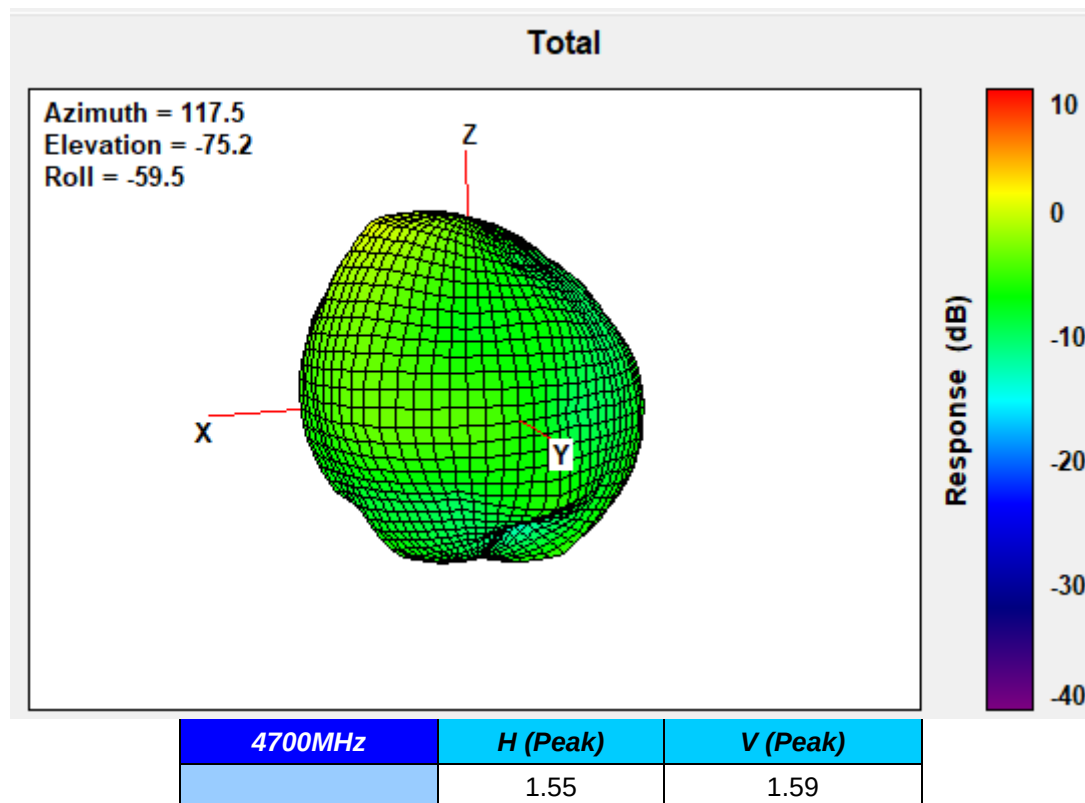


4200MHz	H (Peak)	V (Peak)
	-3.97	-1.00

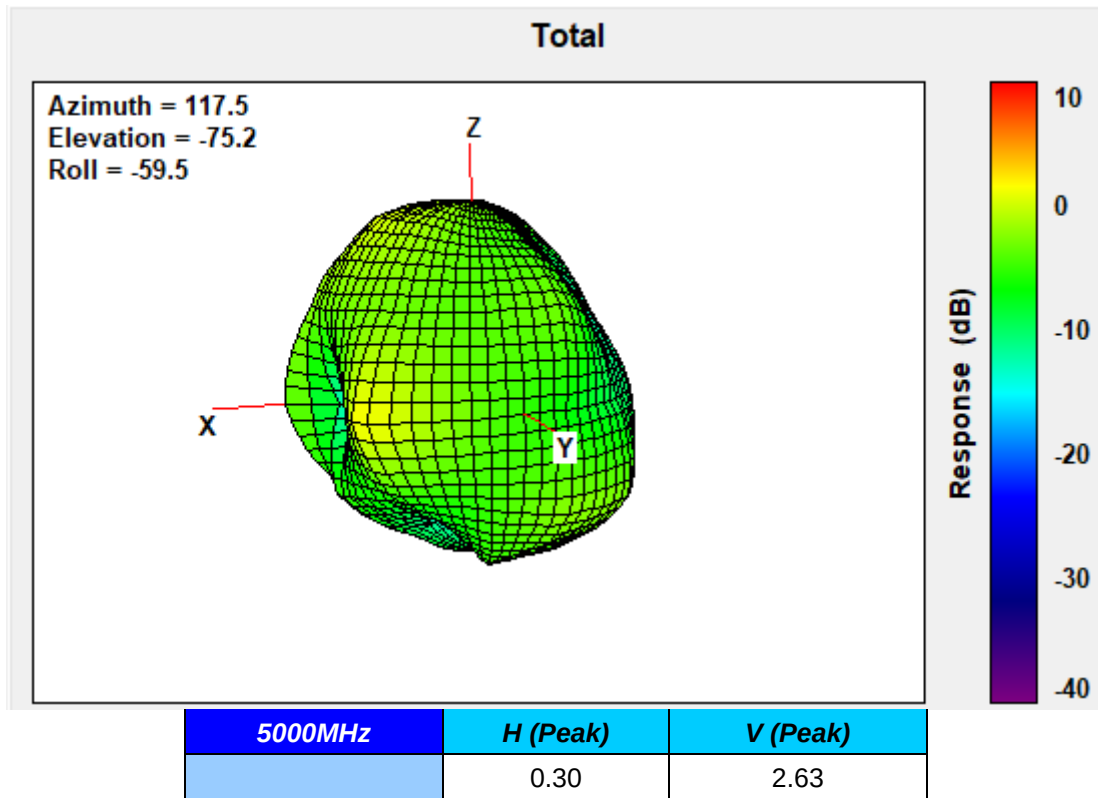
4400MHz

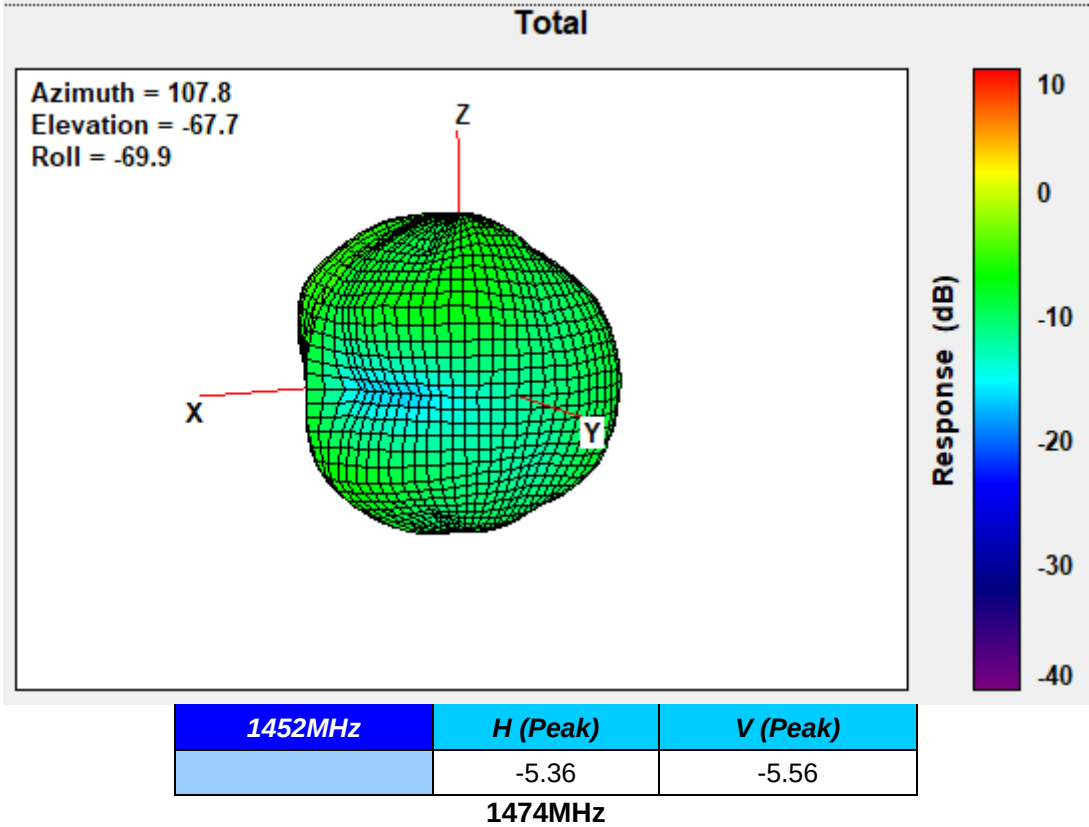


4700MHz

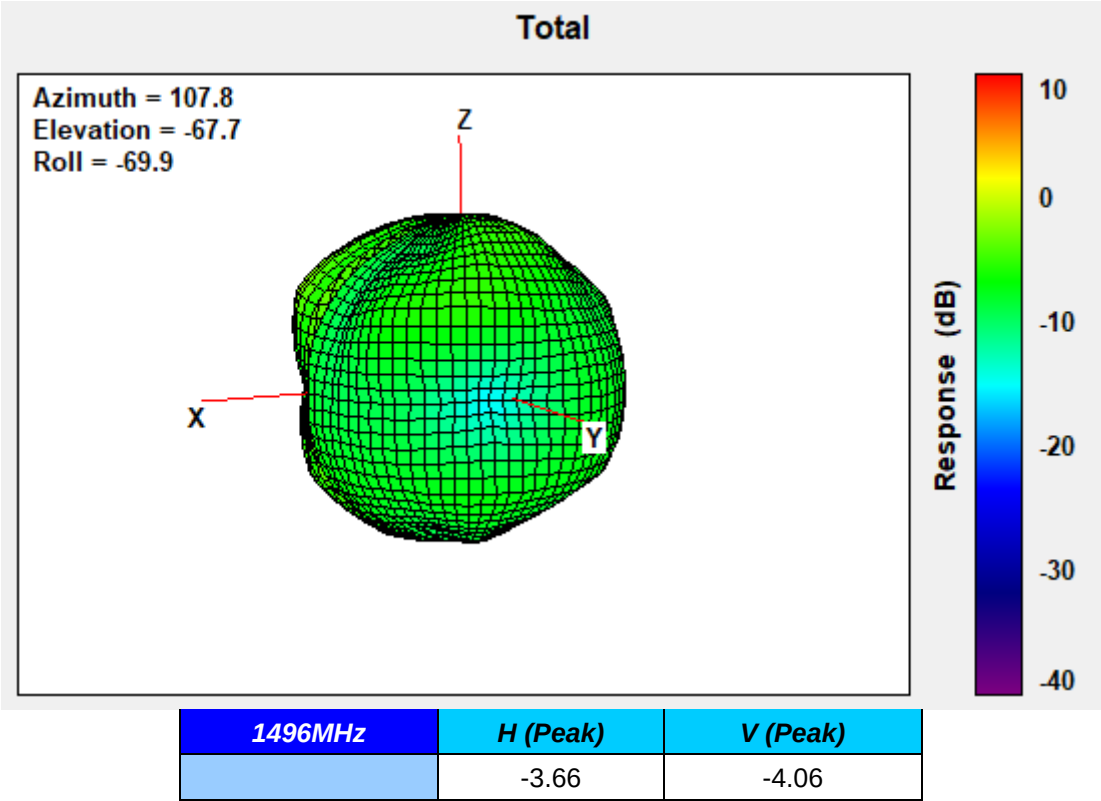


5000MHz

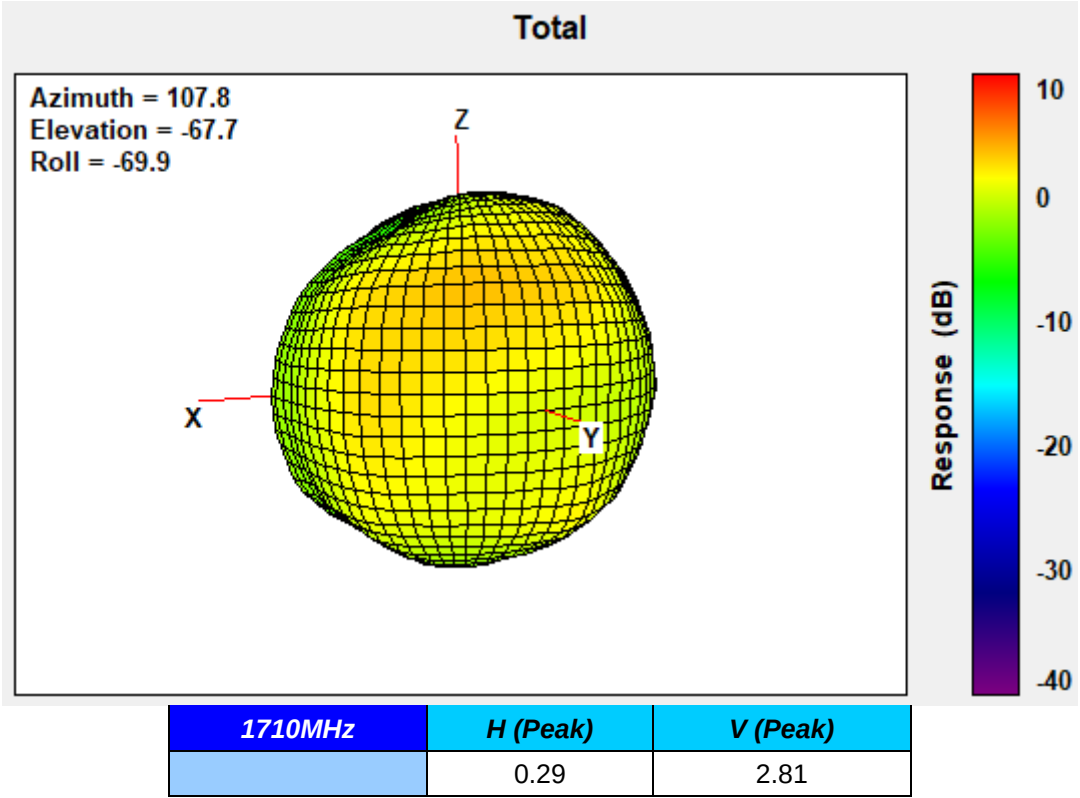




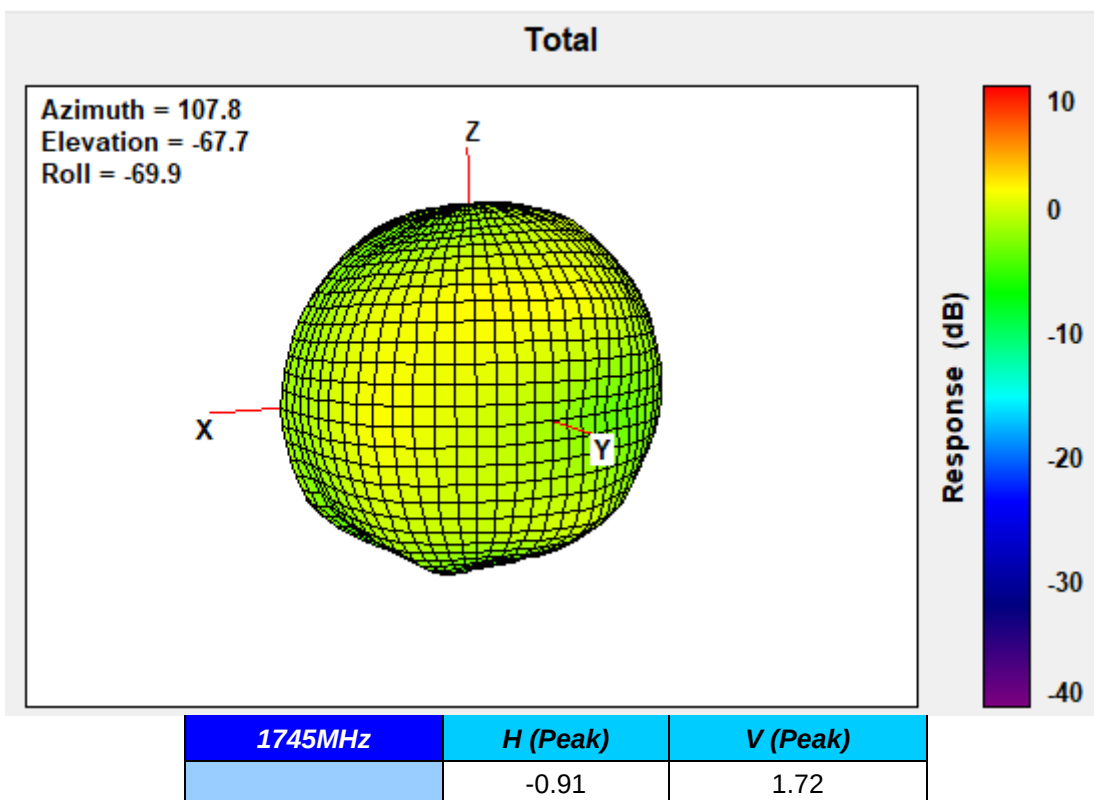
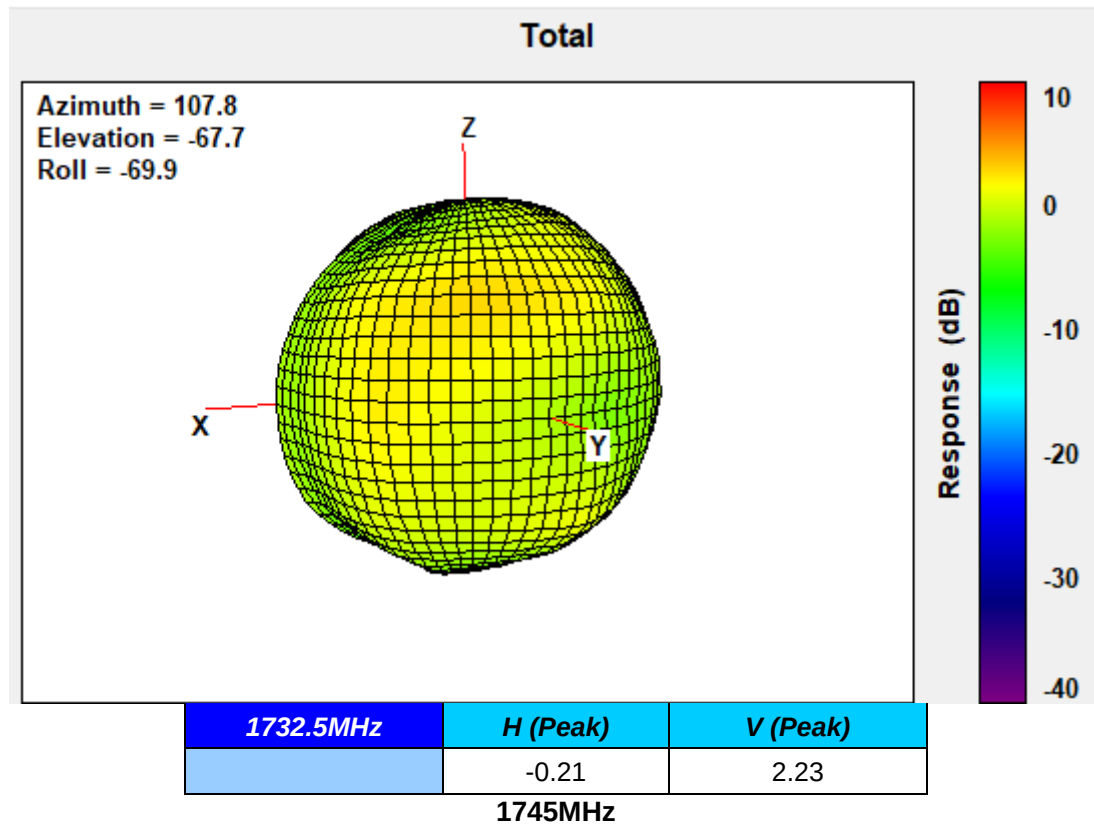
1496MHz



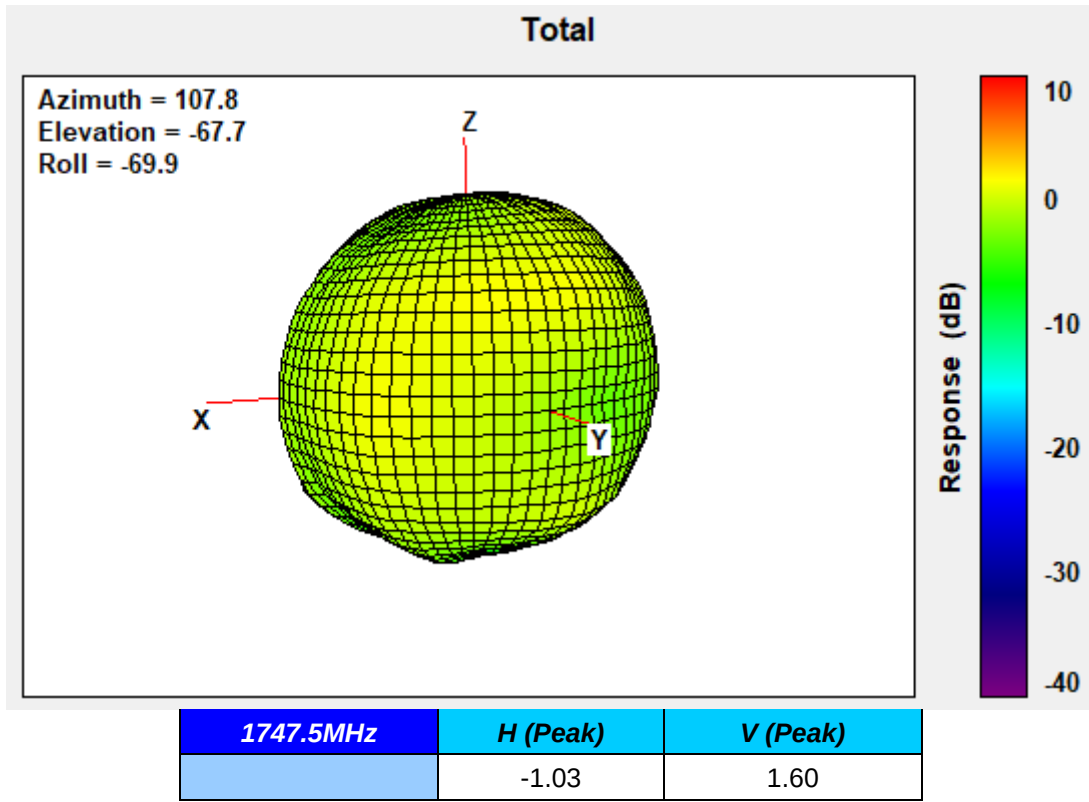
1710MHz



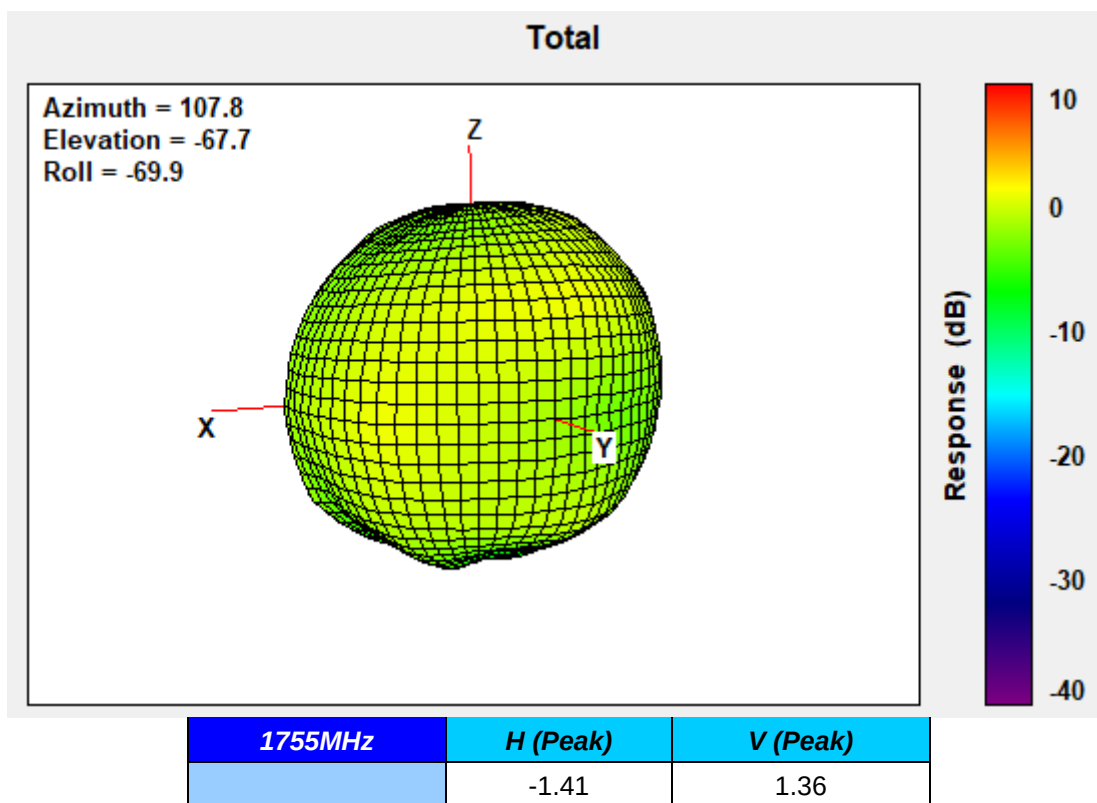
1732.5MHz



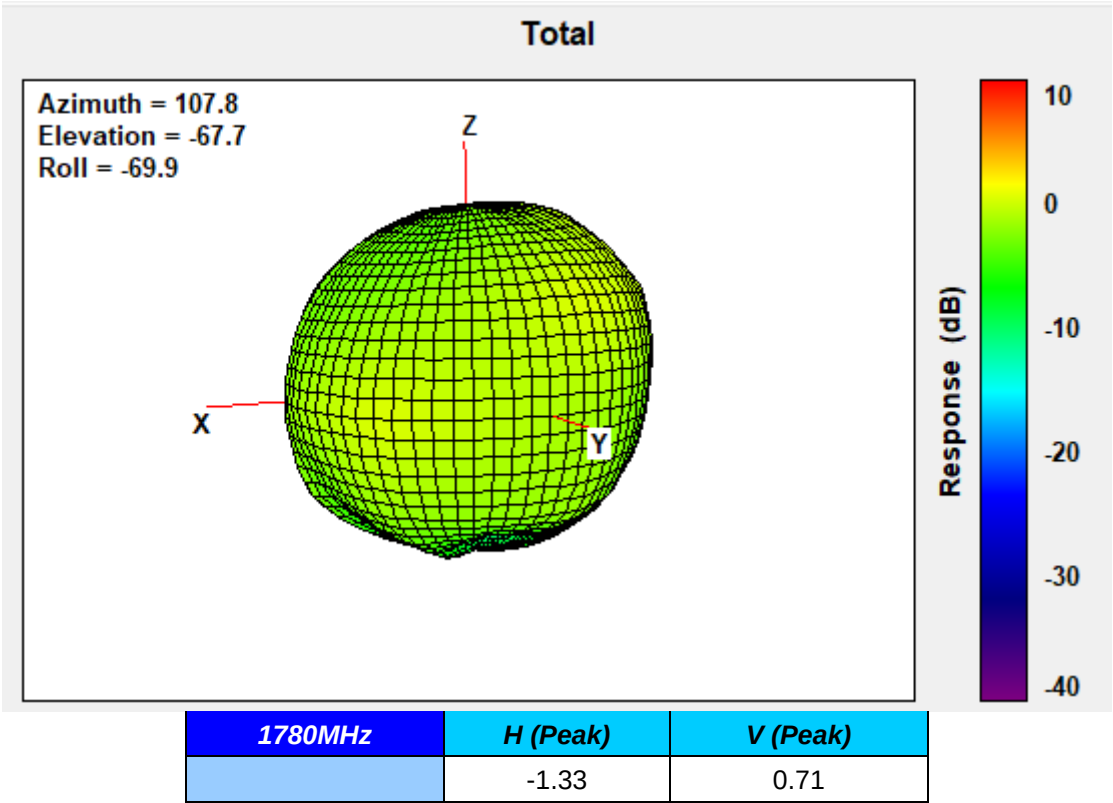
1747.5MHz



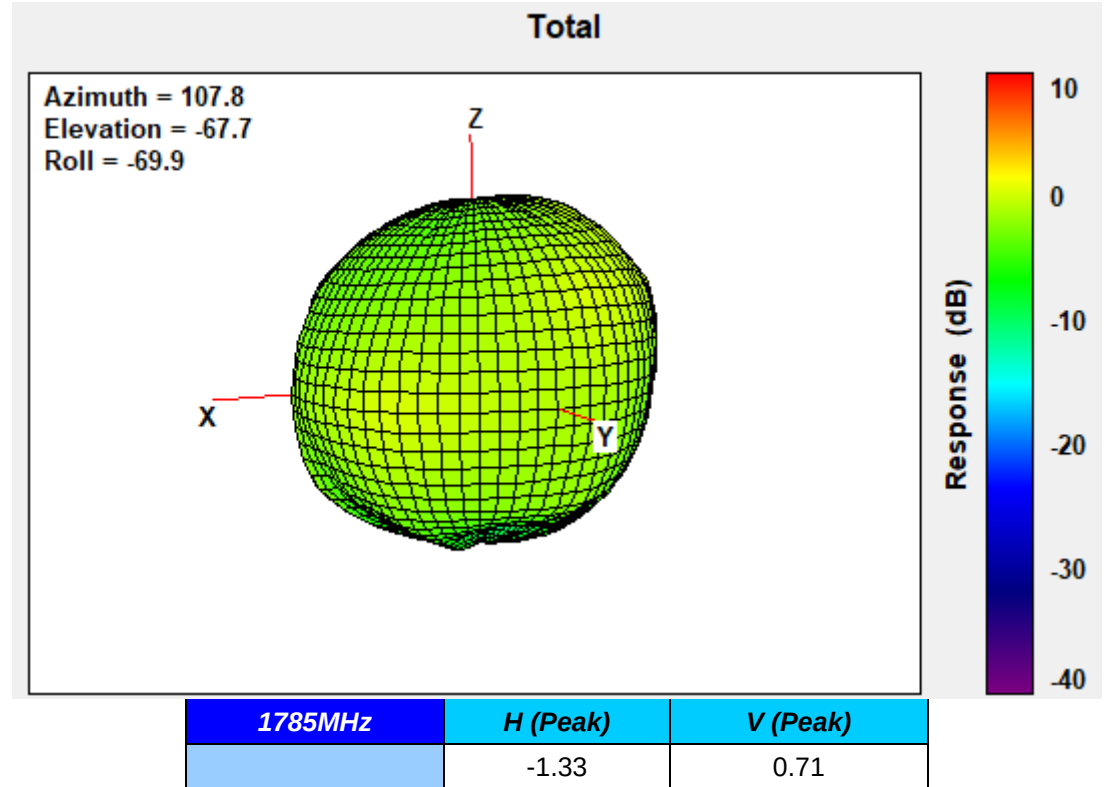
1755MHz



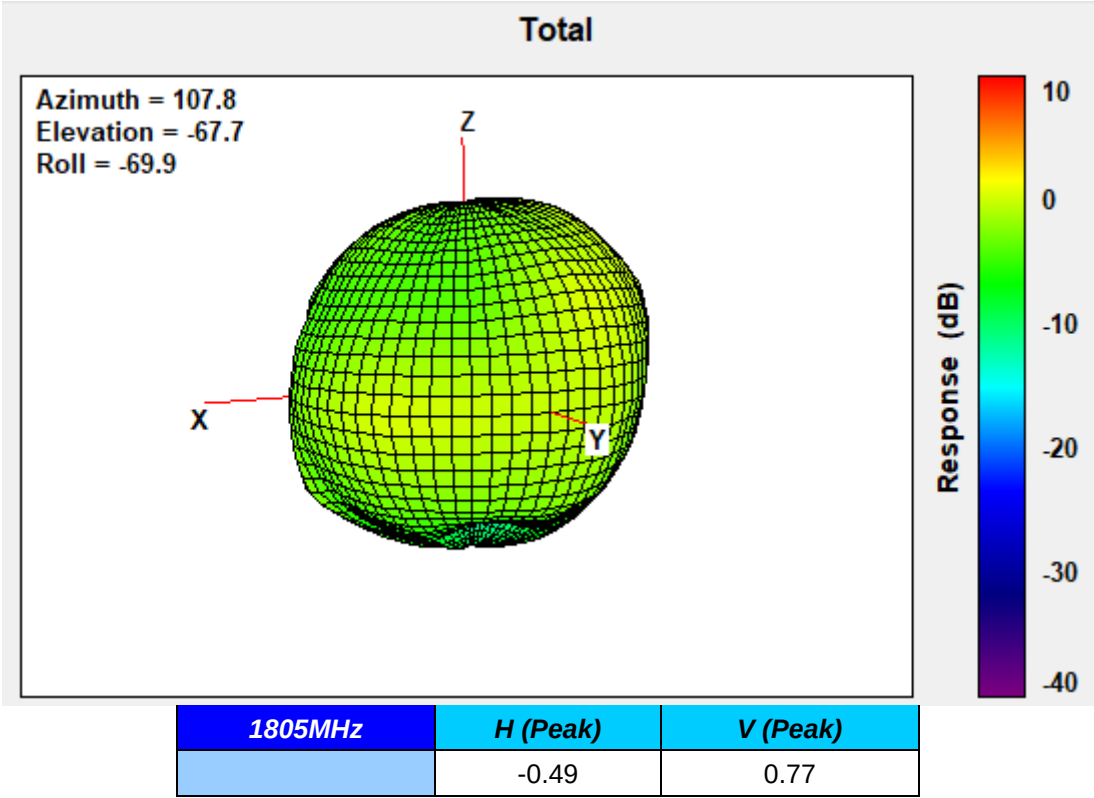
1780MHz



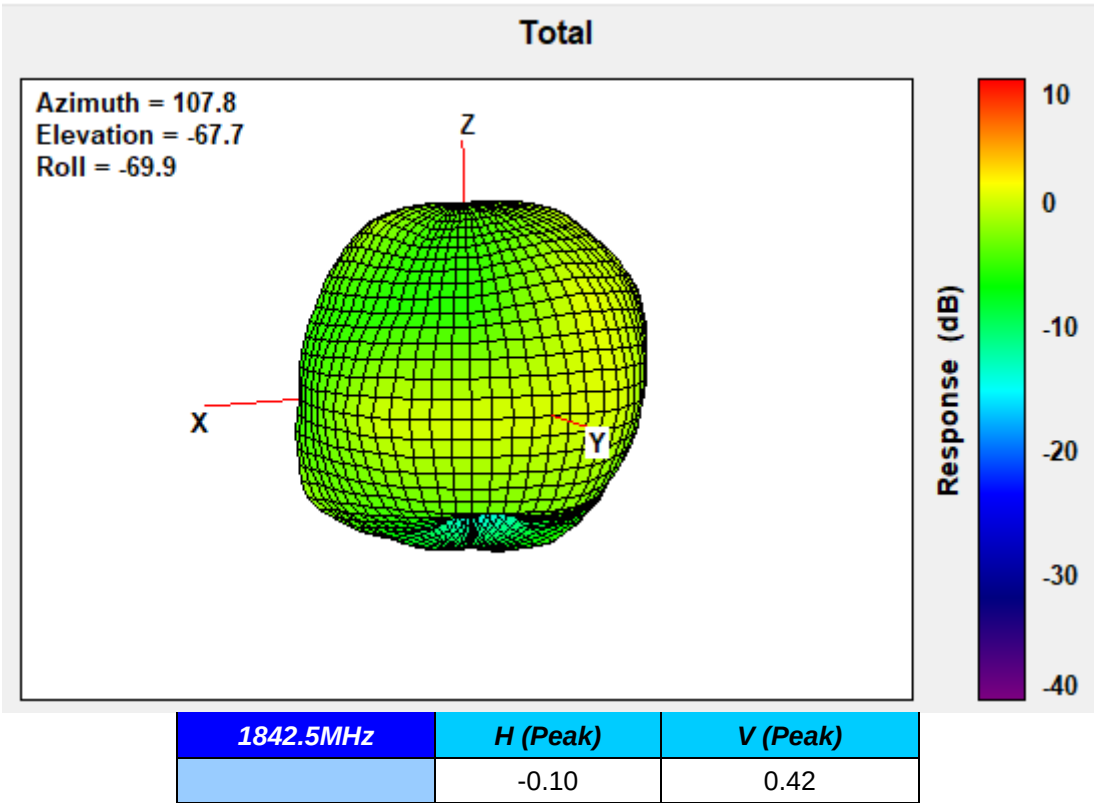
1785MHz



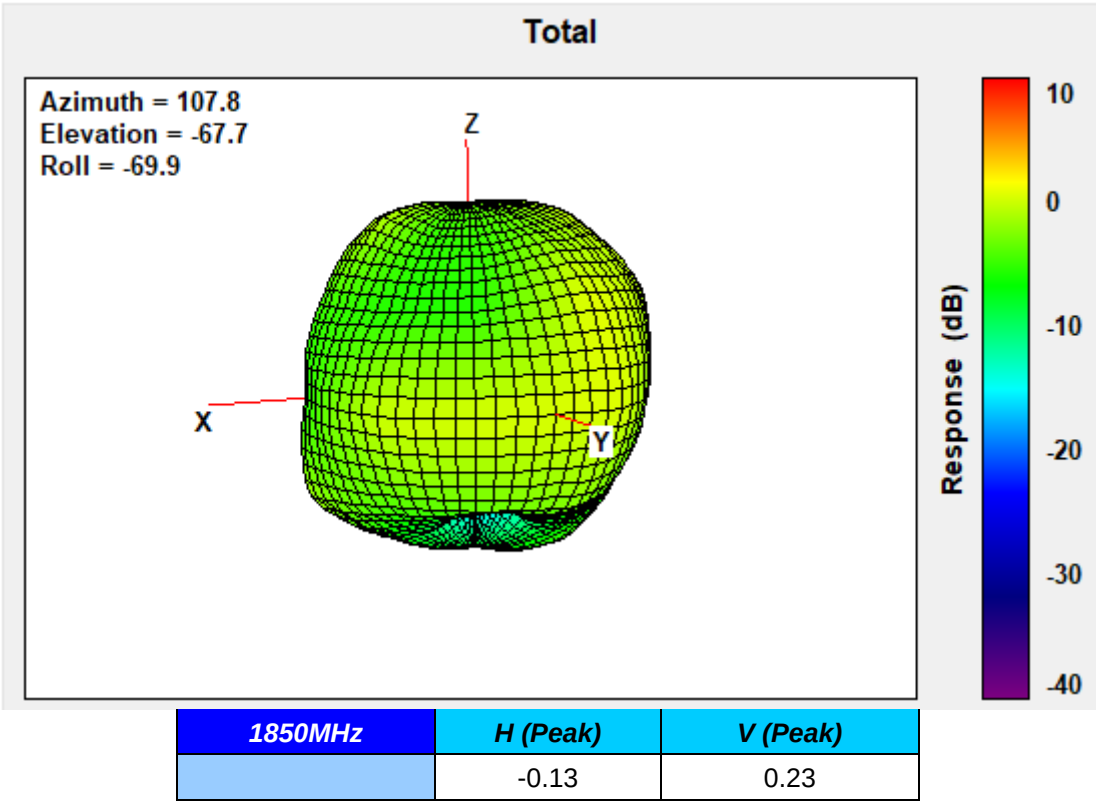
1805MHz



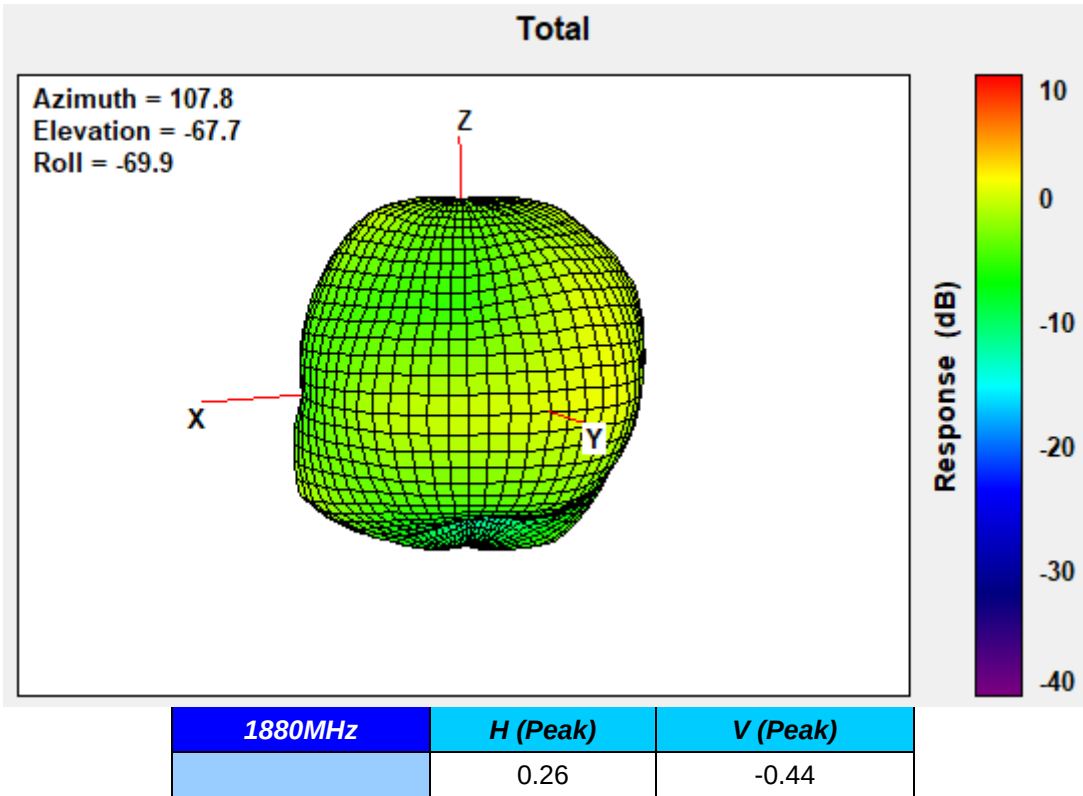
1842.5MHz



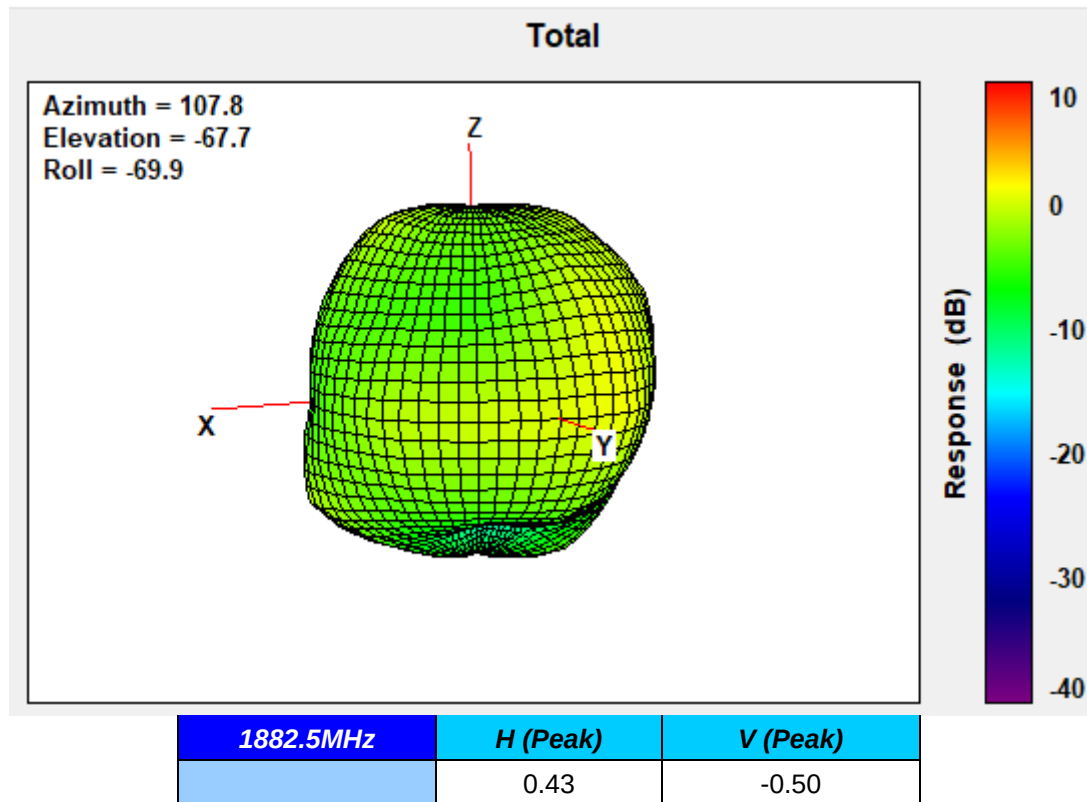
1850MHz



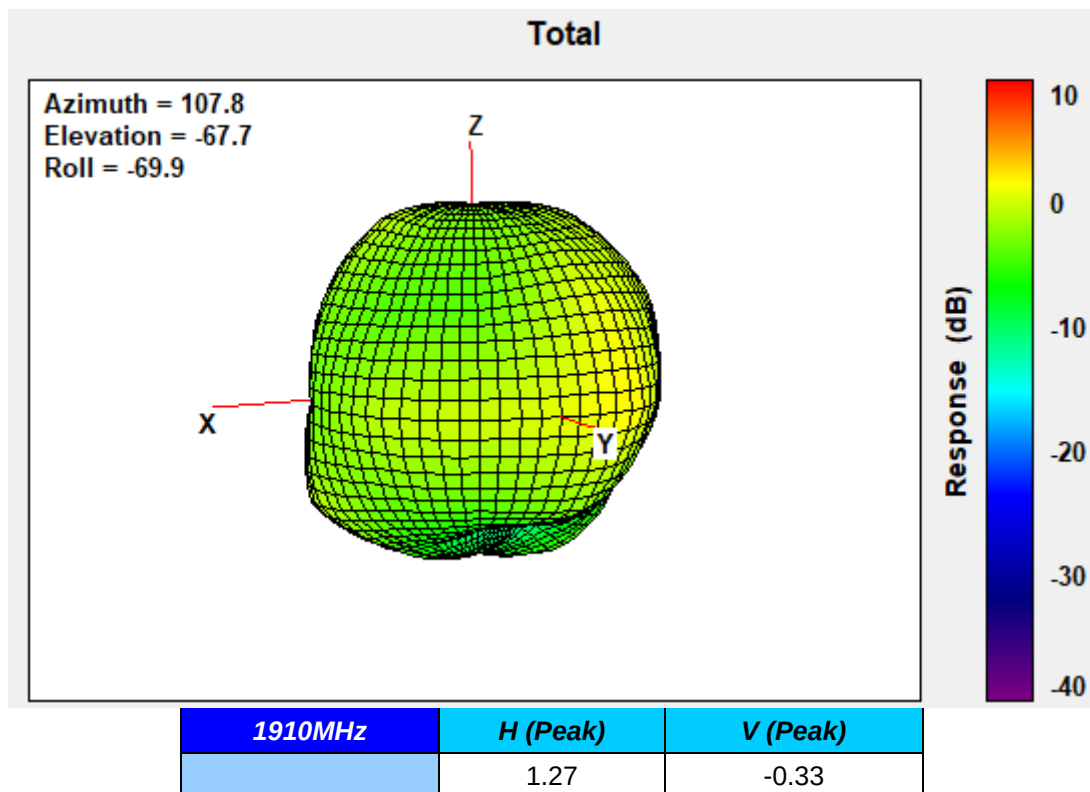
1880MHz



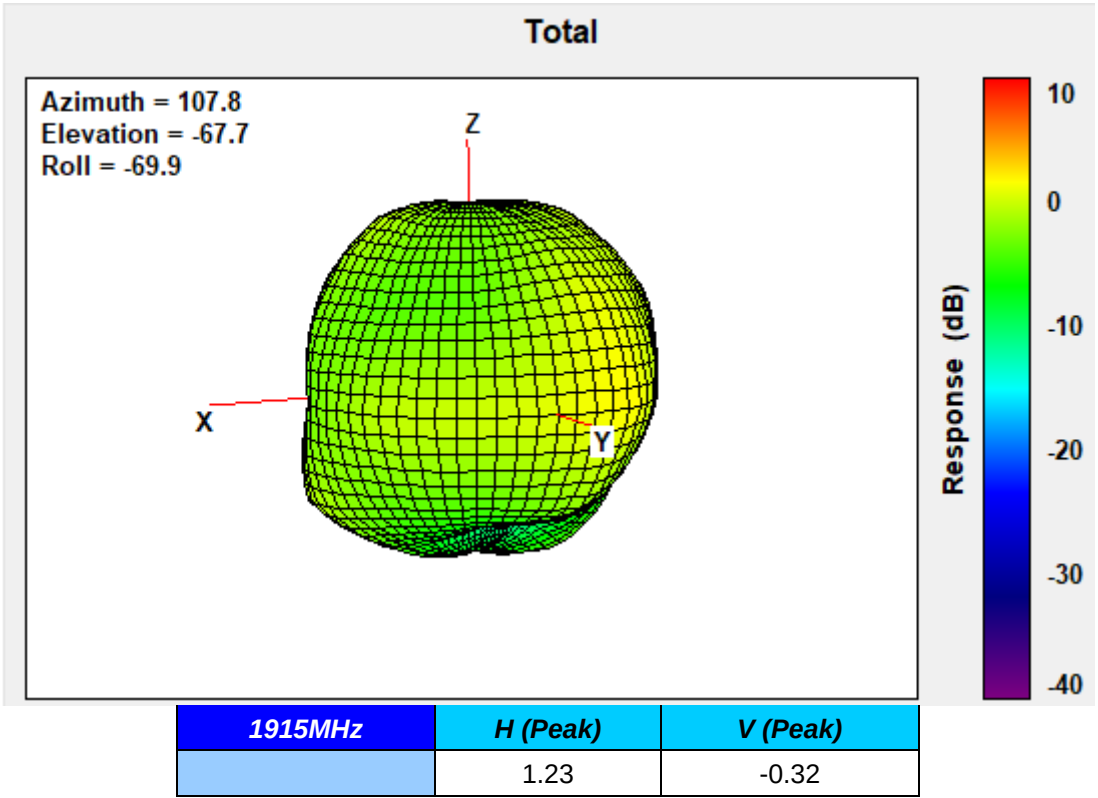
1882.5MHz



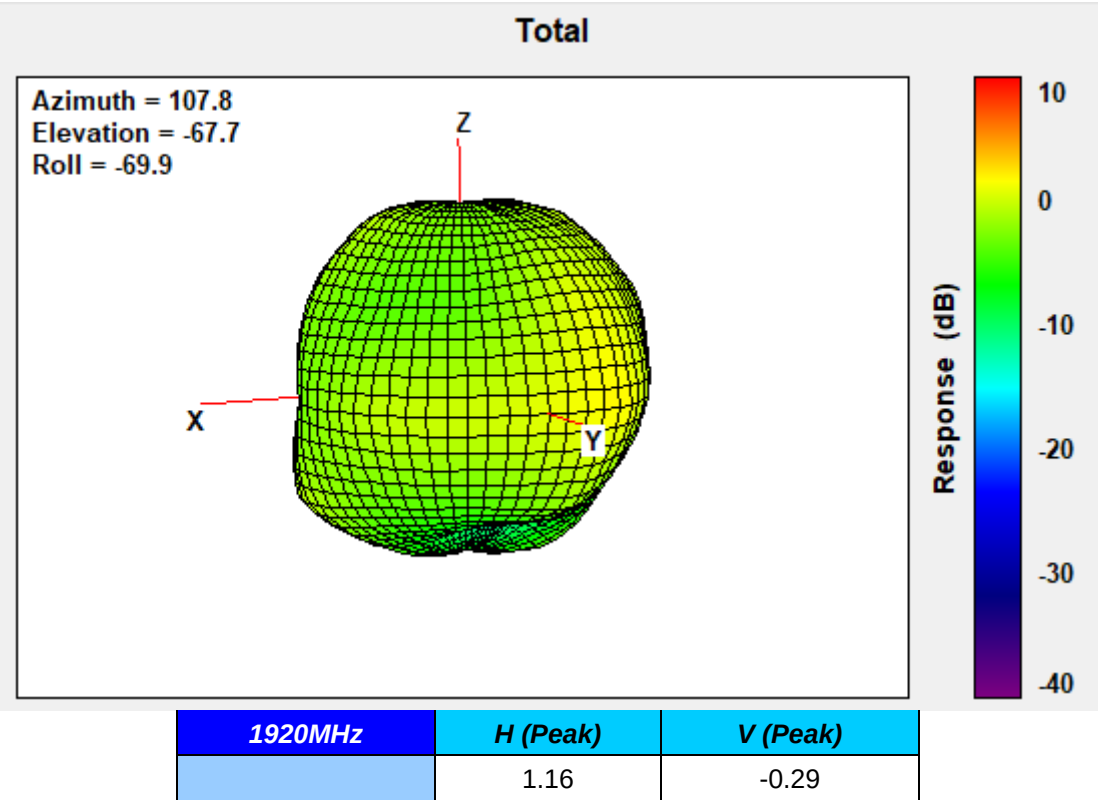
1910MHz



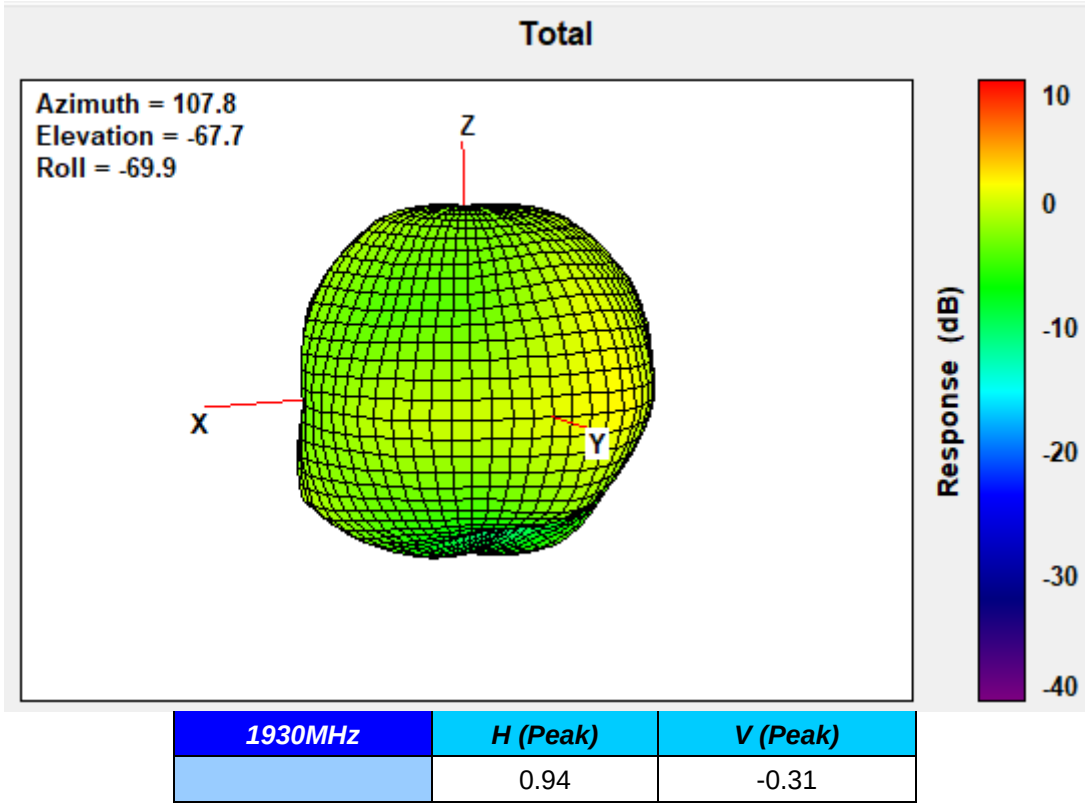
1915MHz



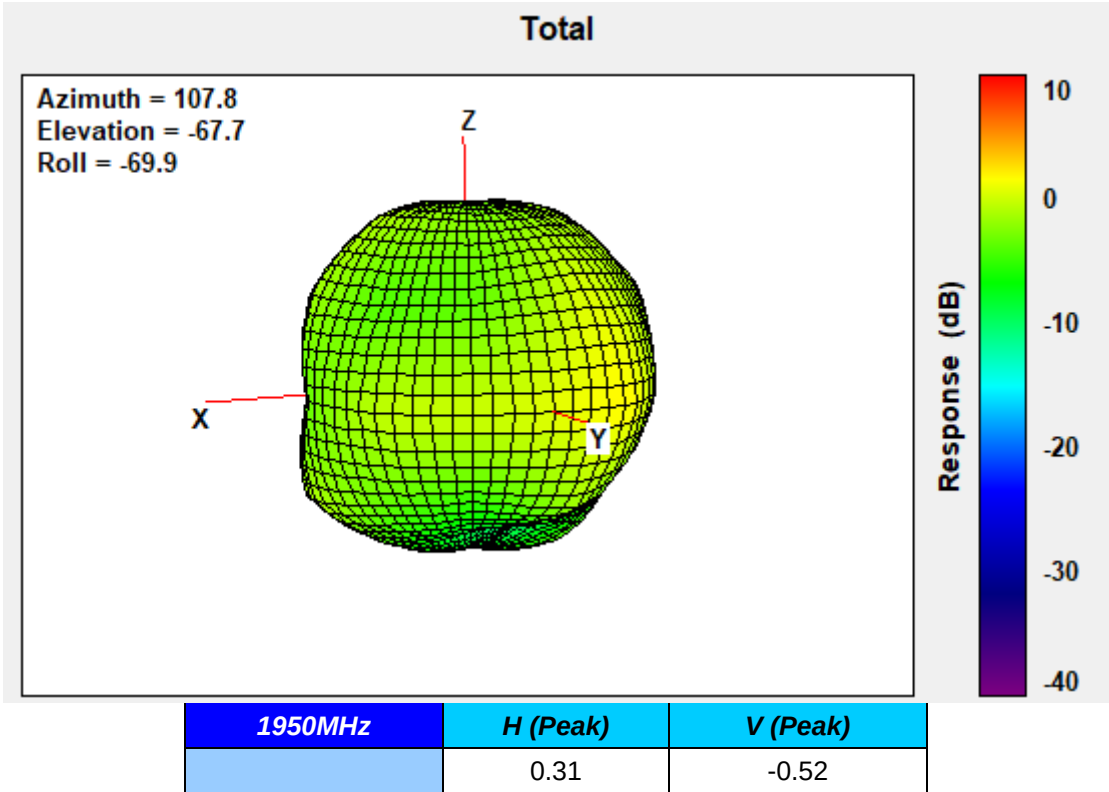
1920MHz



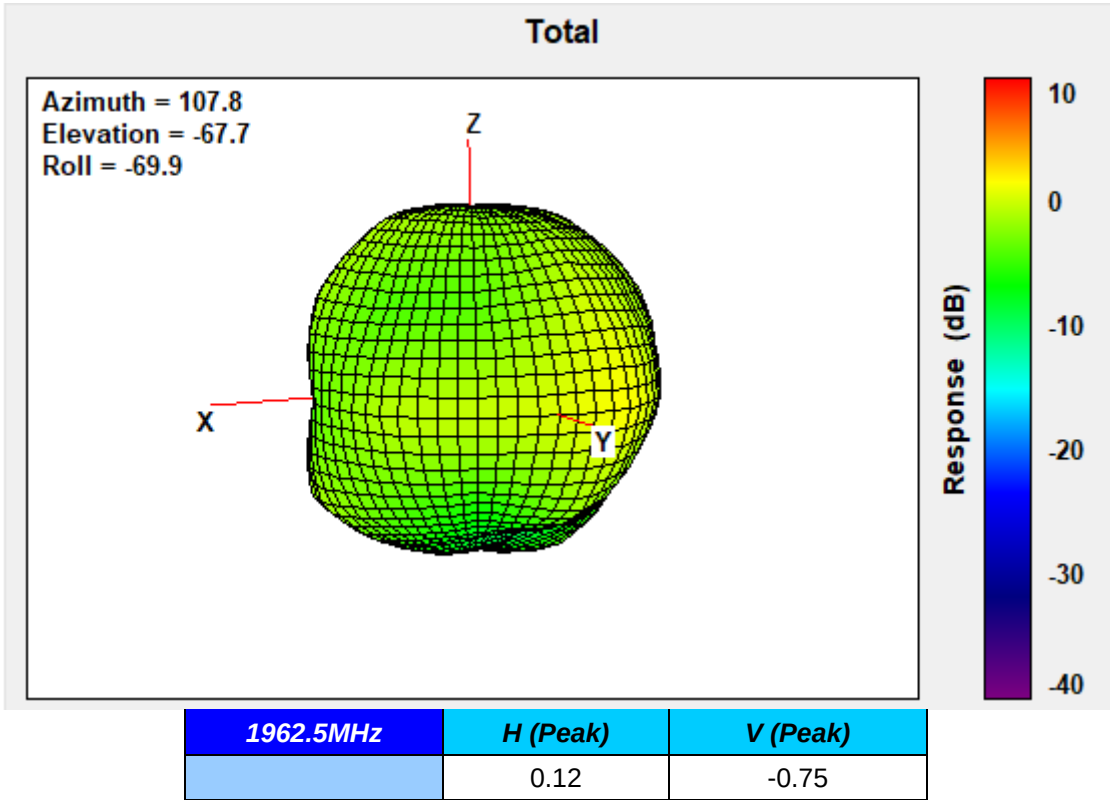
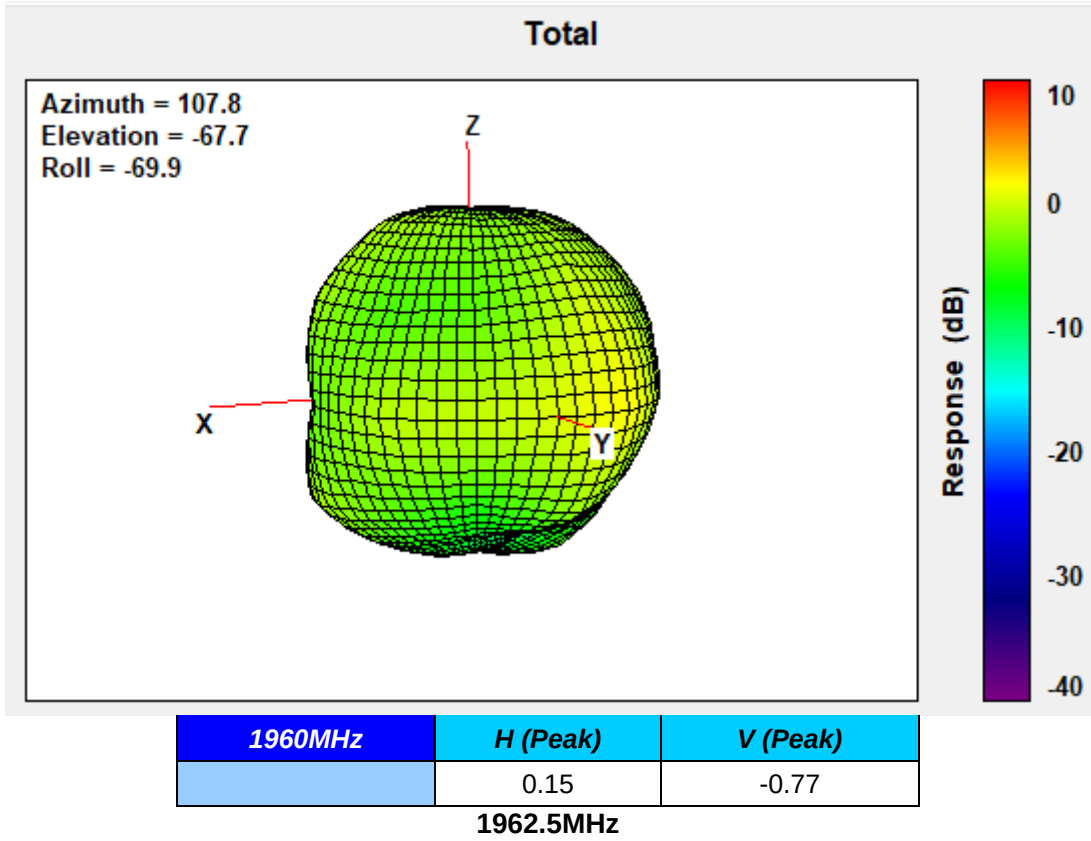
1930MHz



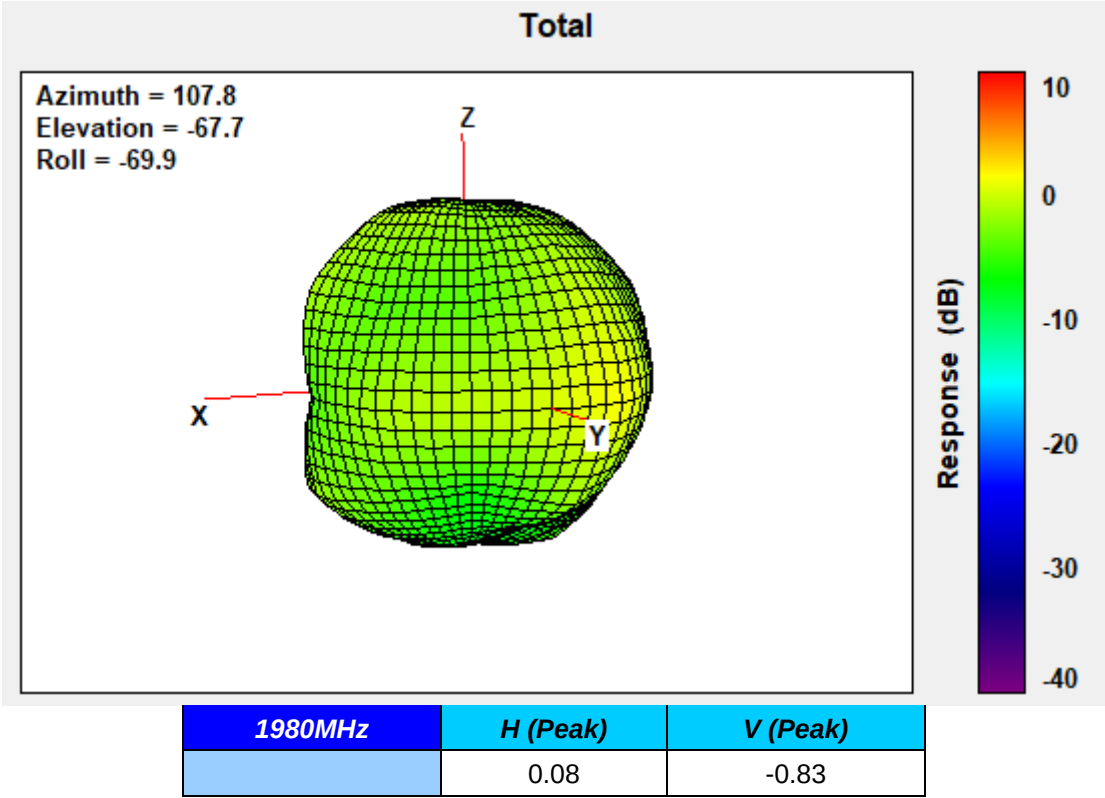
1950MHz



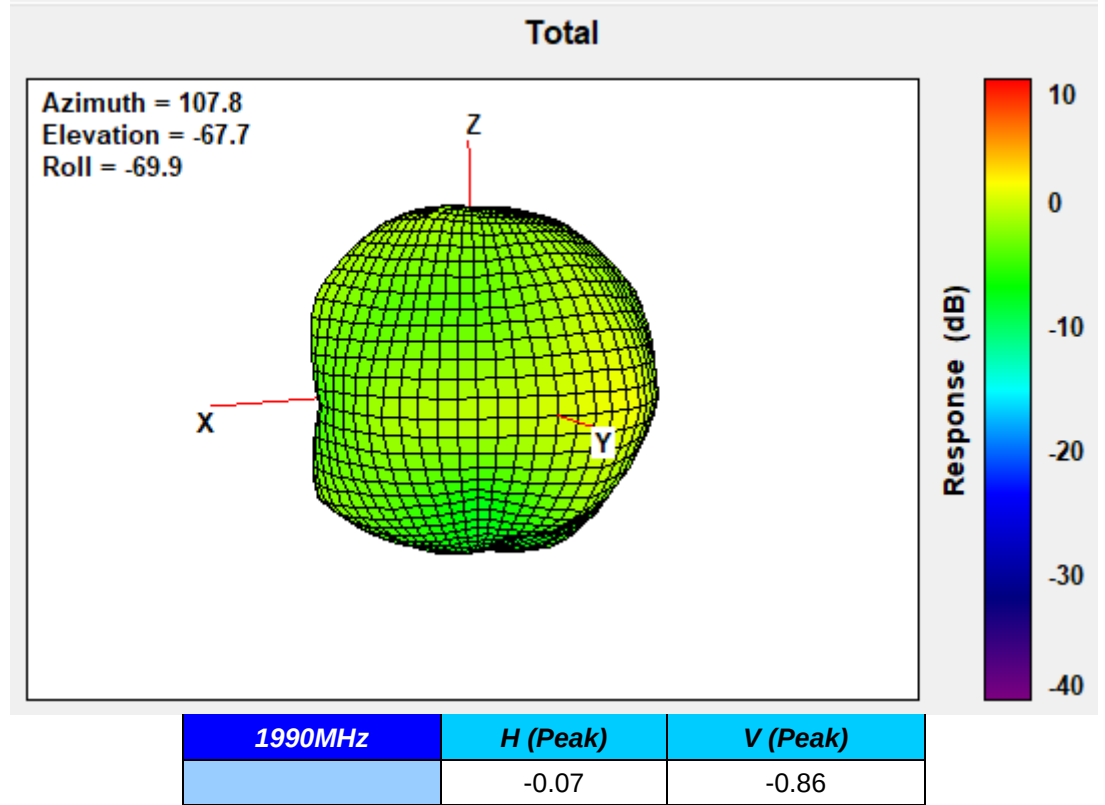
1960MHz



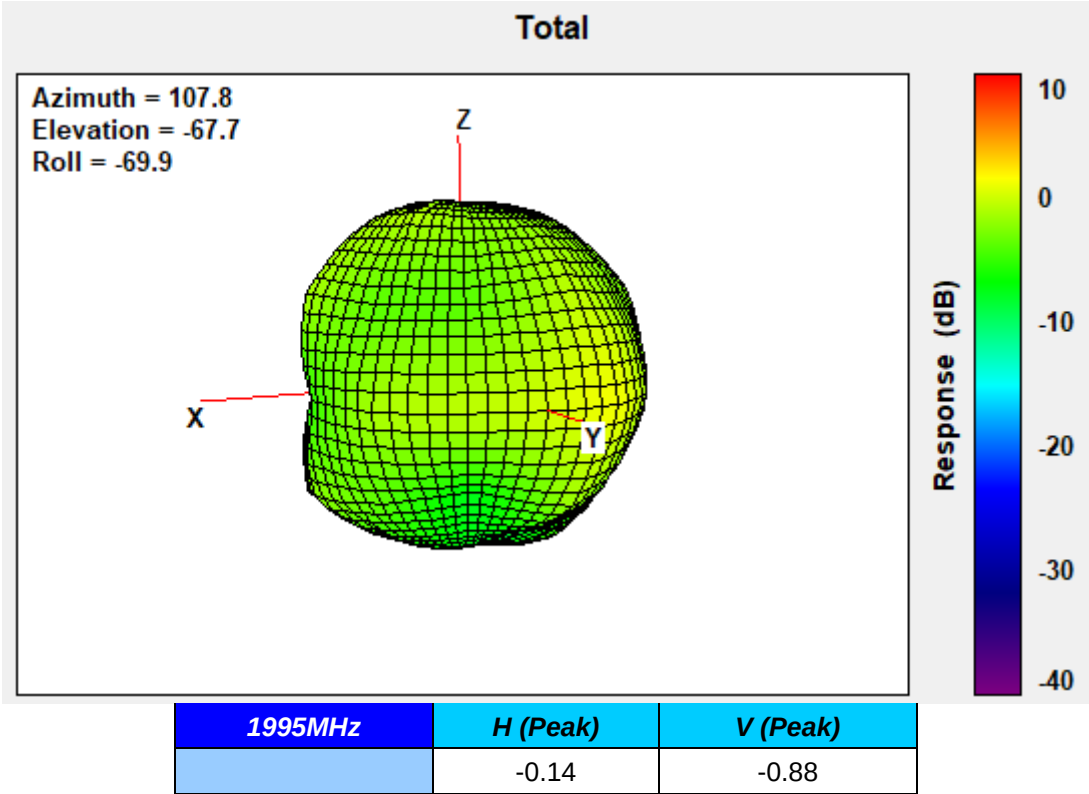
1980MHz



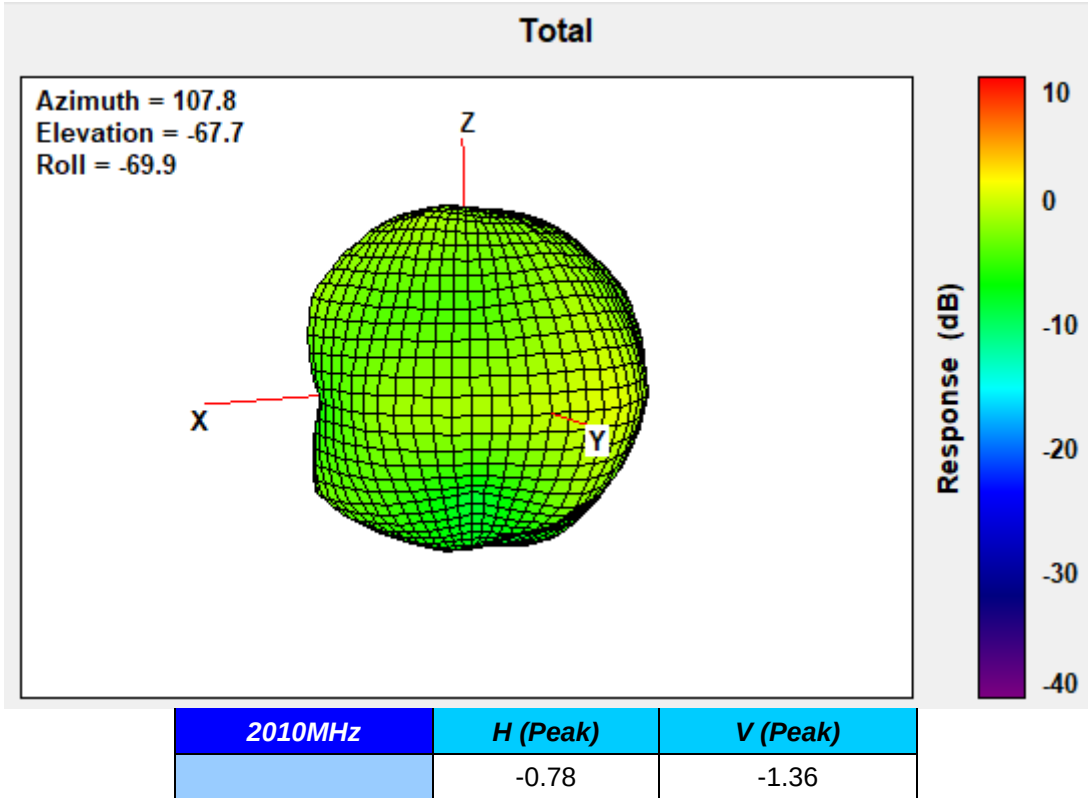
1990MHz



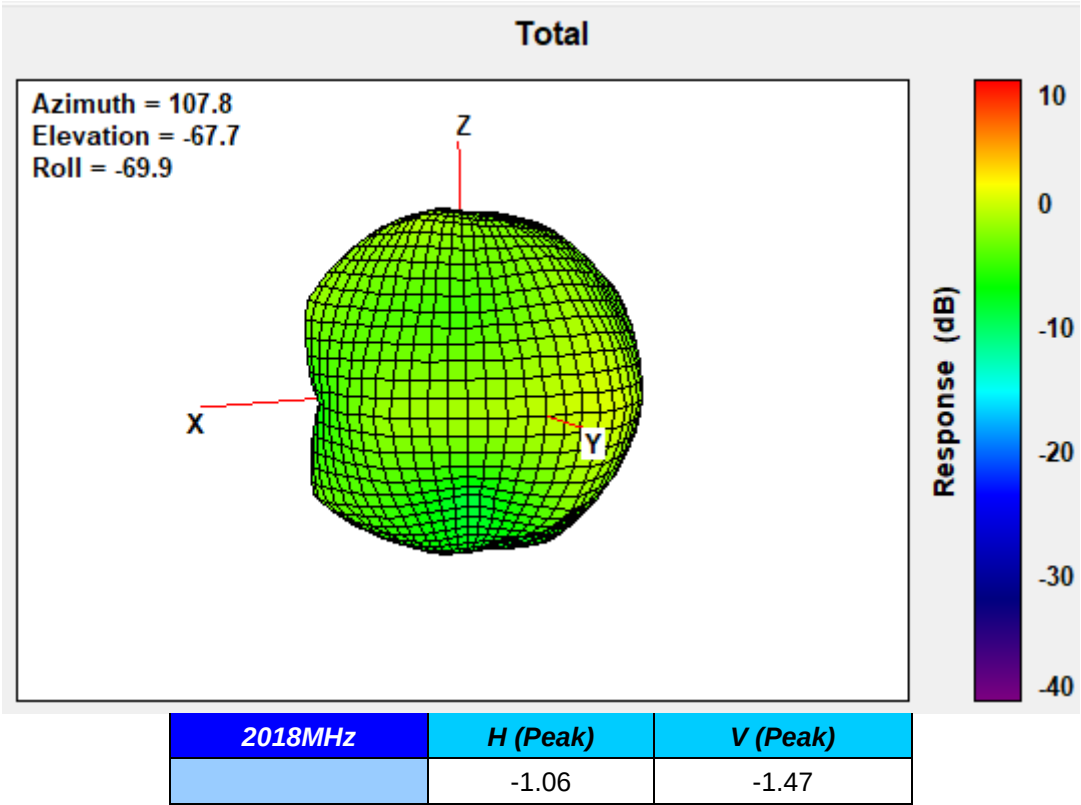
1995MHz



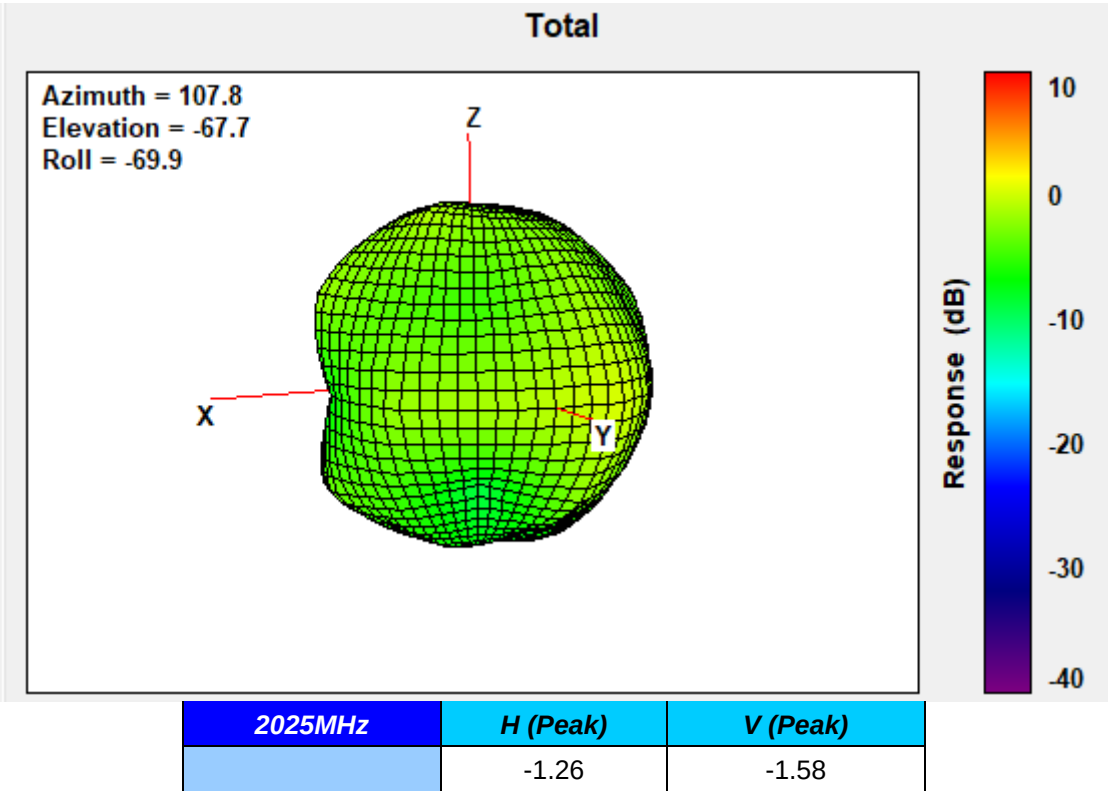
2010MHz



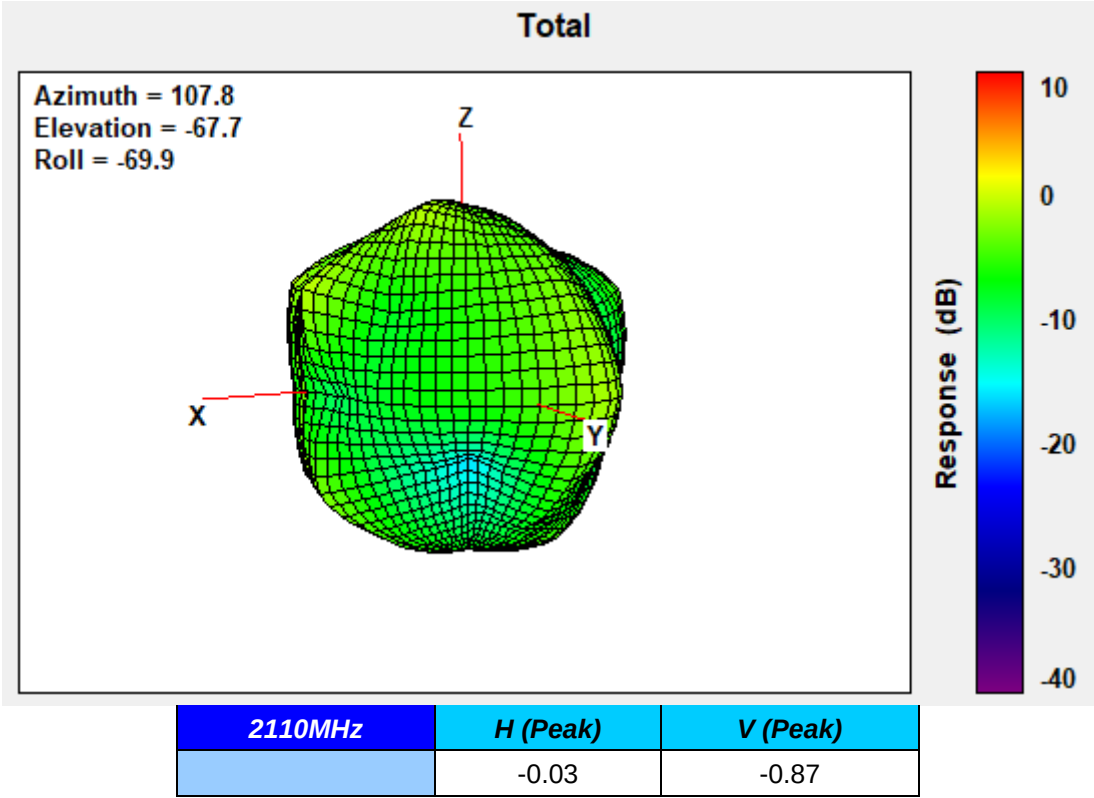
2018MHz



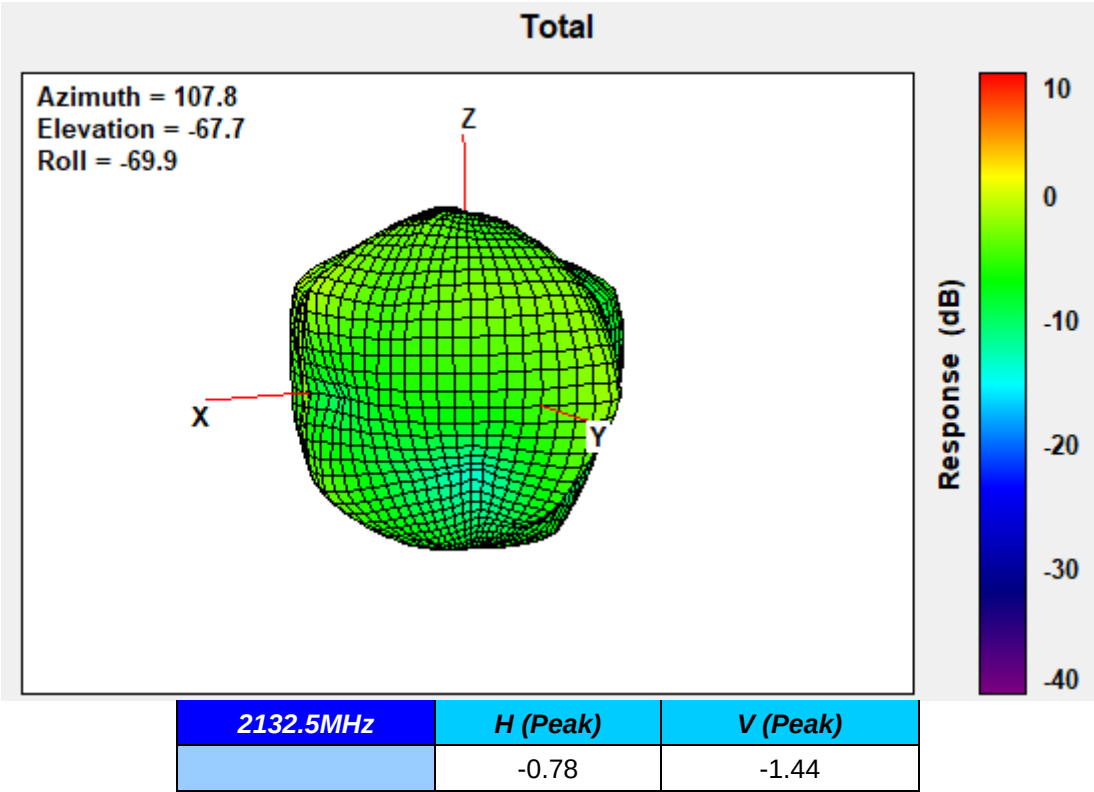
2025MHz



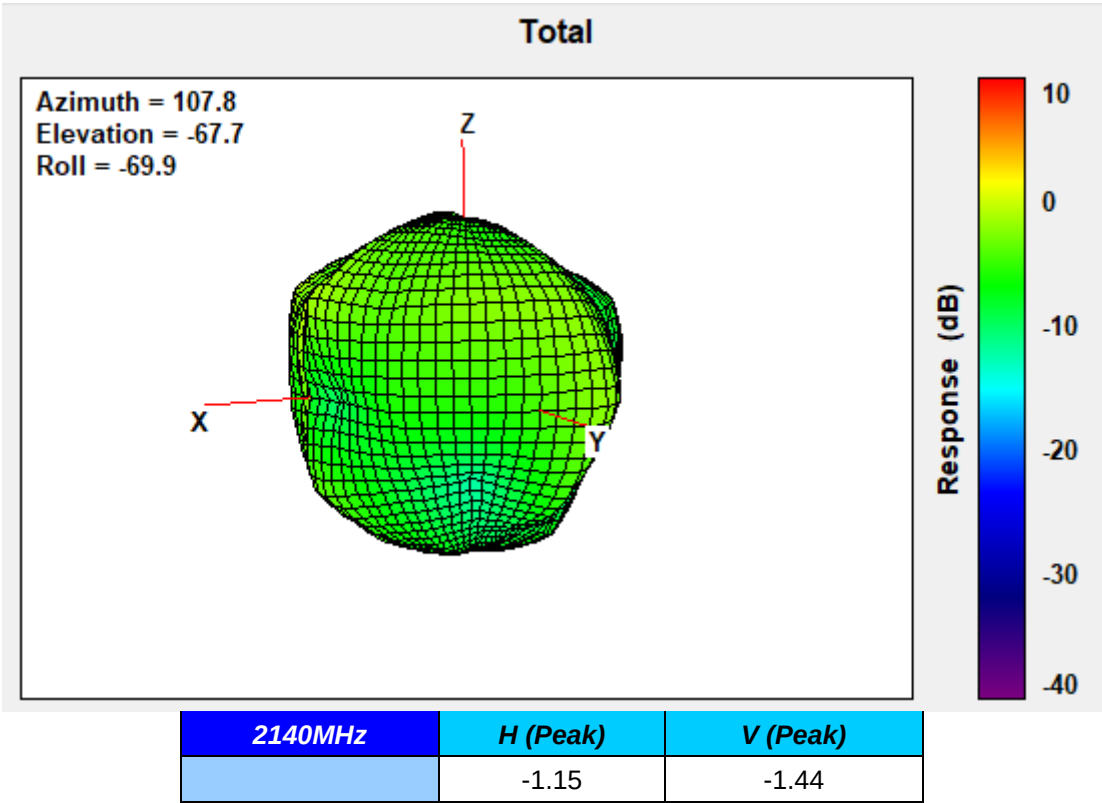
2110MHz



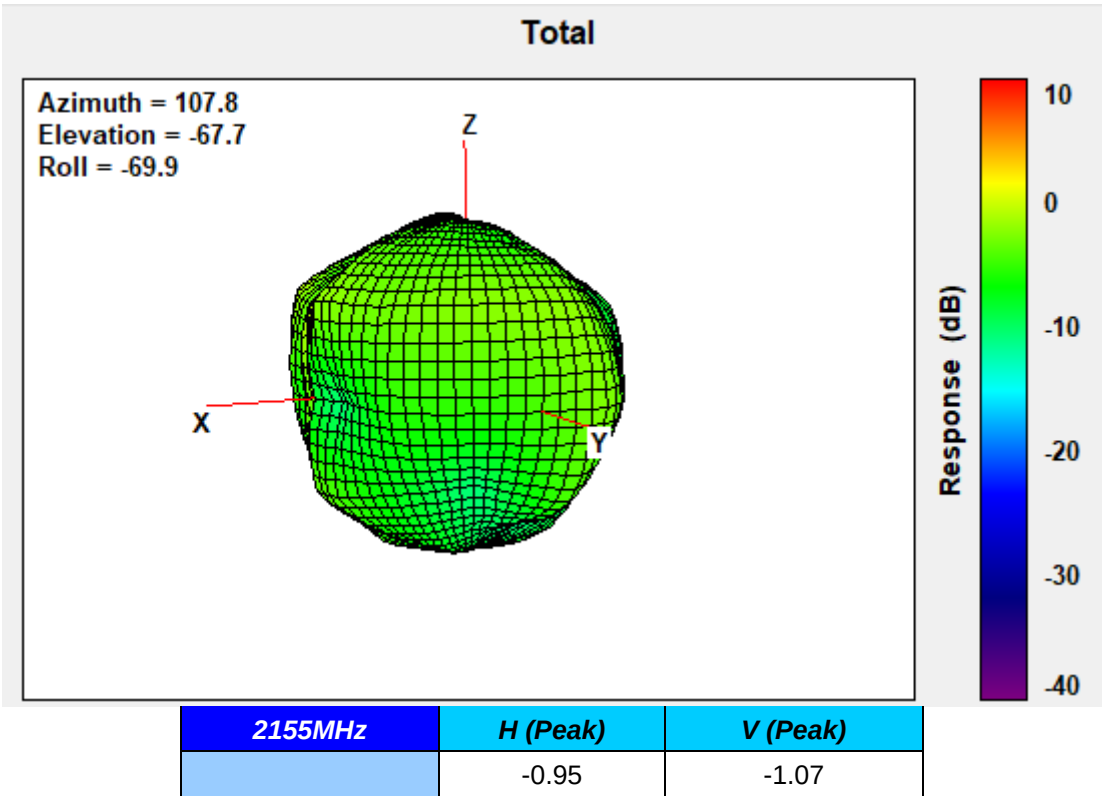
2132.5MHz



2140MHz



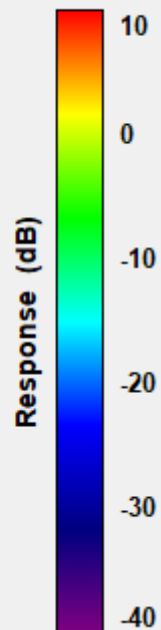
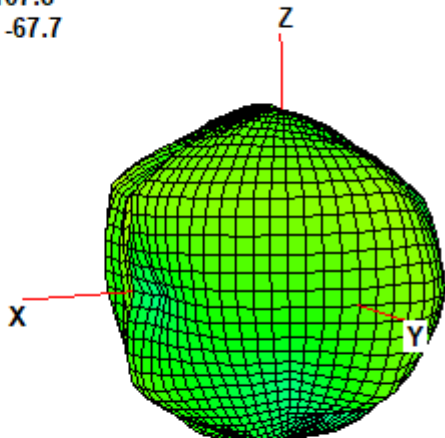
2155MHz



2170MHz

Total

Azimuth = 107.8
Elevation = -67.7
Roll = -69.9

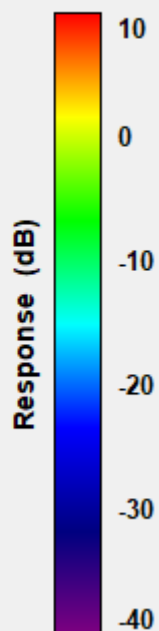
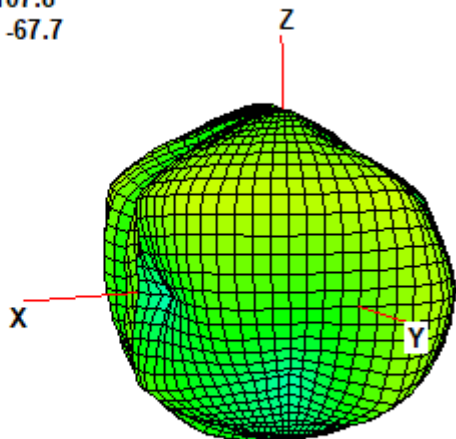


2170MHz	H (Peak)	V (Peak)
	-0.72	-0.51

2200MHz

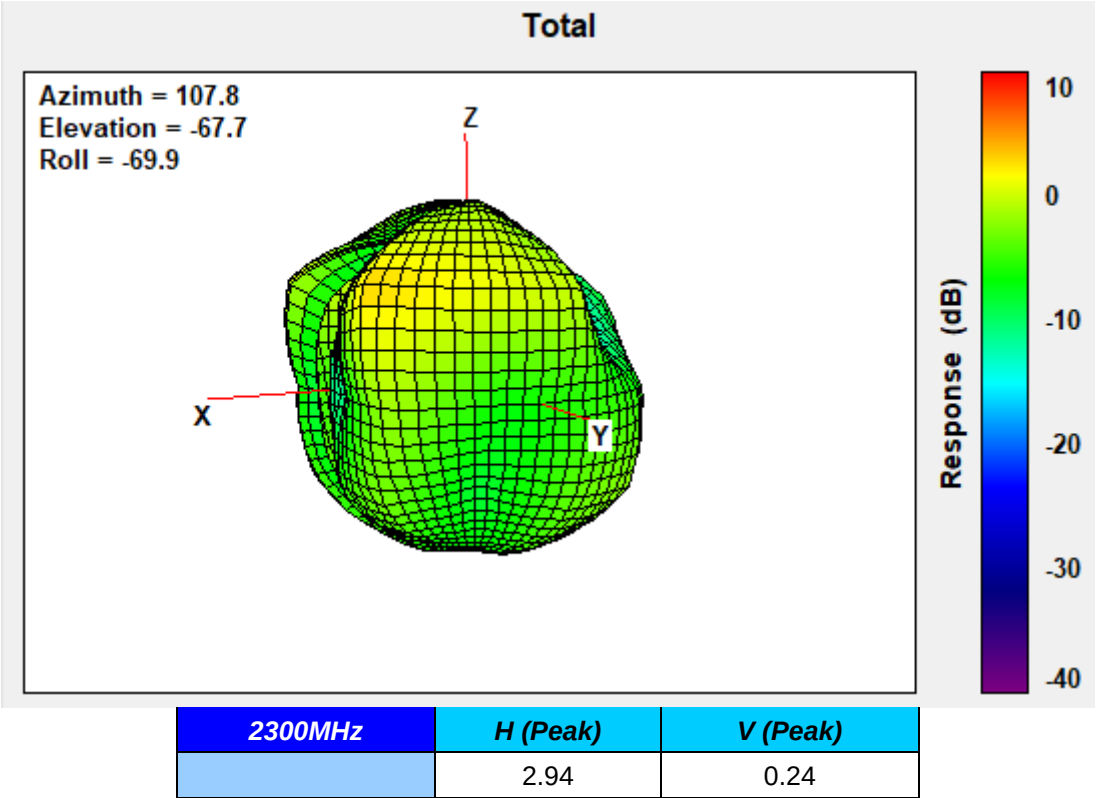
Total

Azimuth = 107.8
Elevation = -67.7
Roll = -69.9

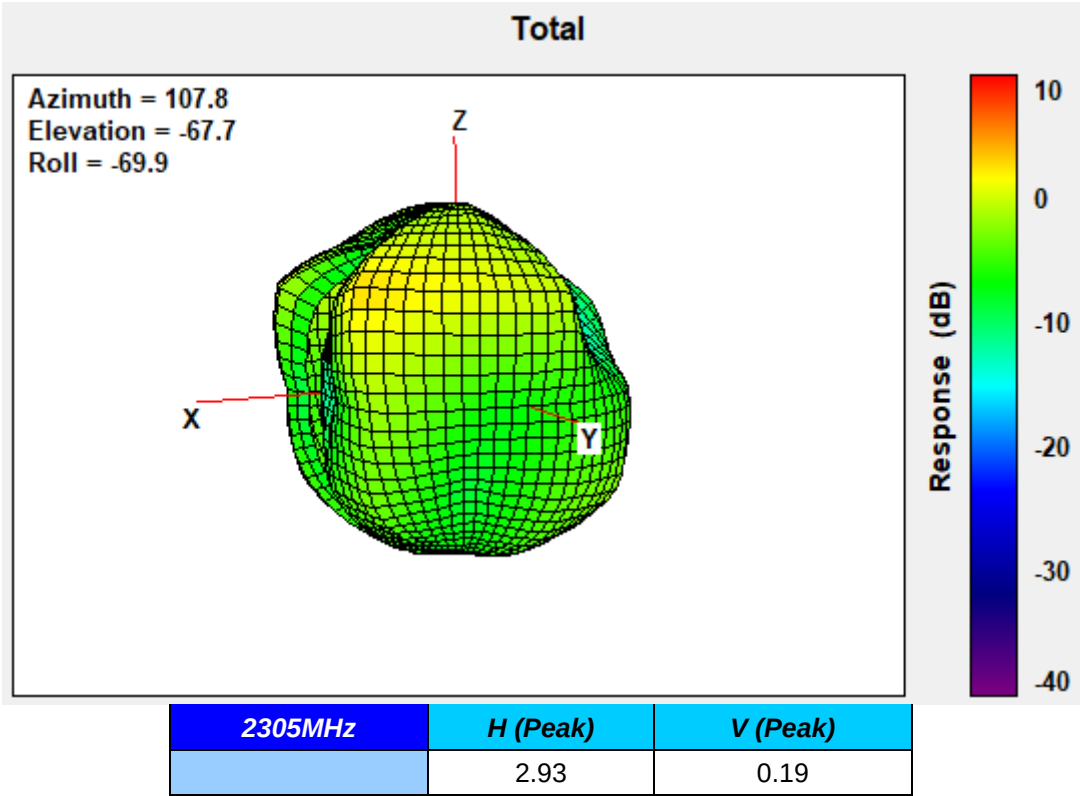


2200MHz	H (Peak)	V (Peak)
	0.30	-0.22

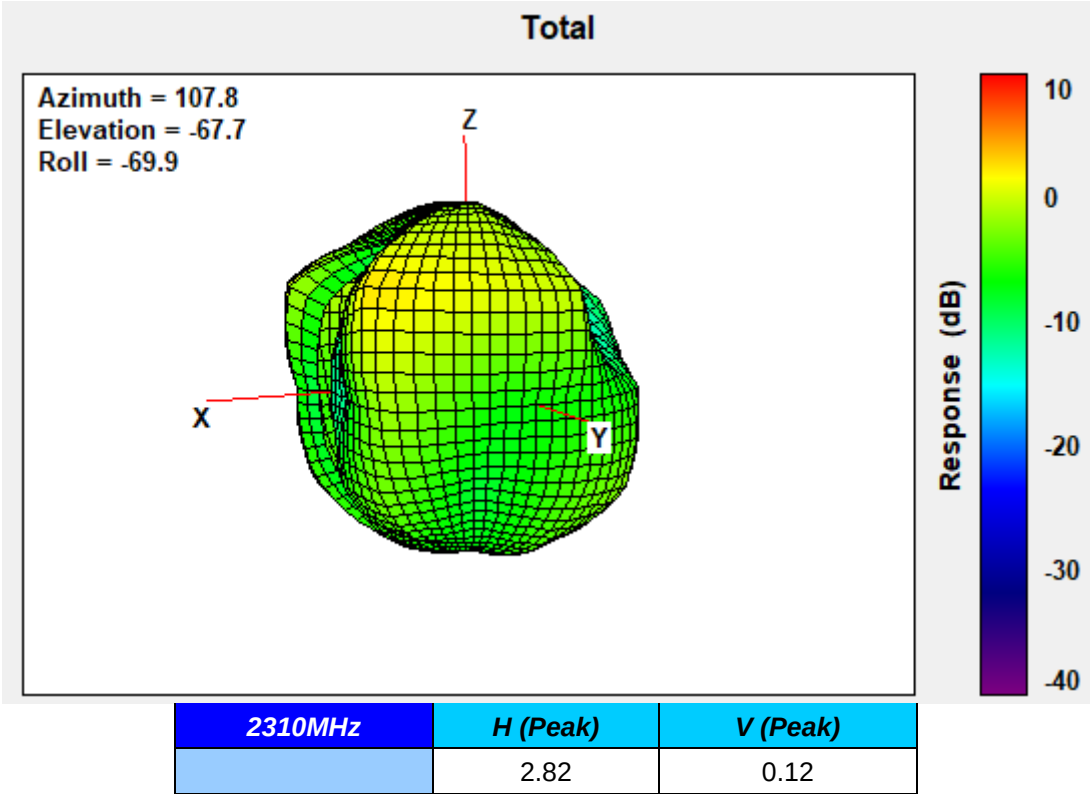
2300MHz



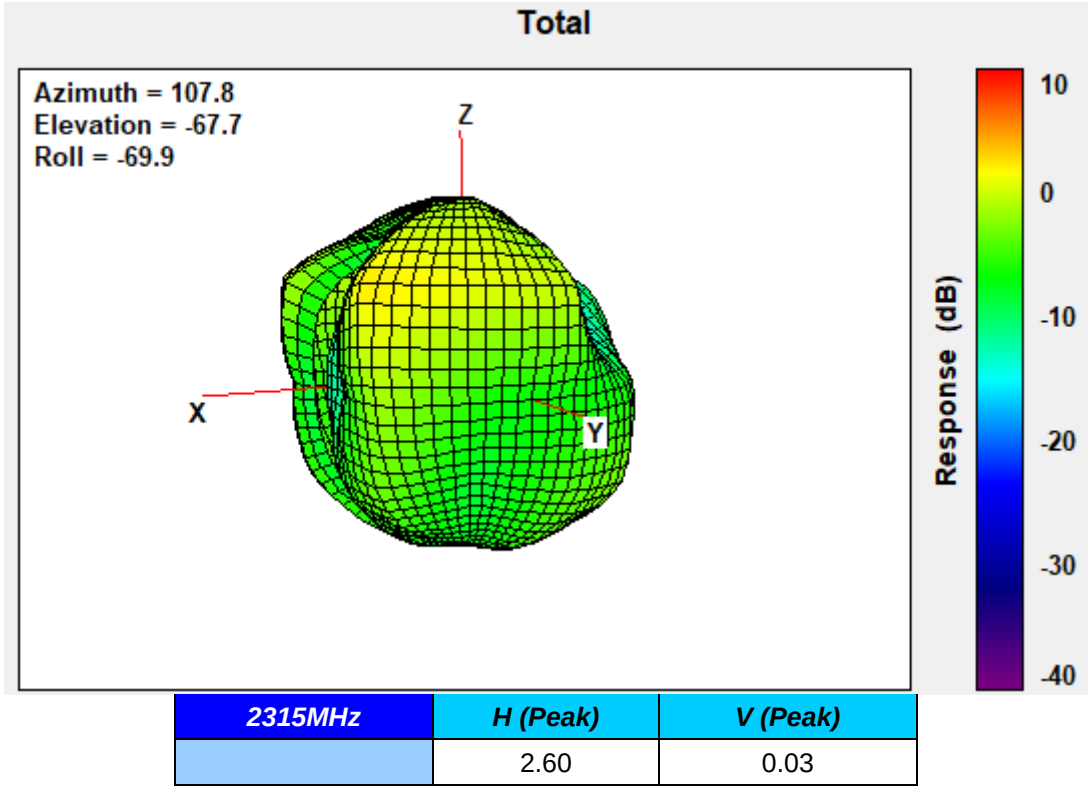
2305MHz



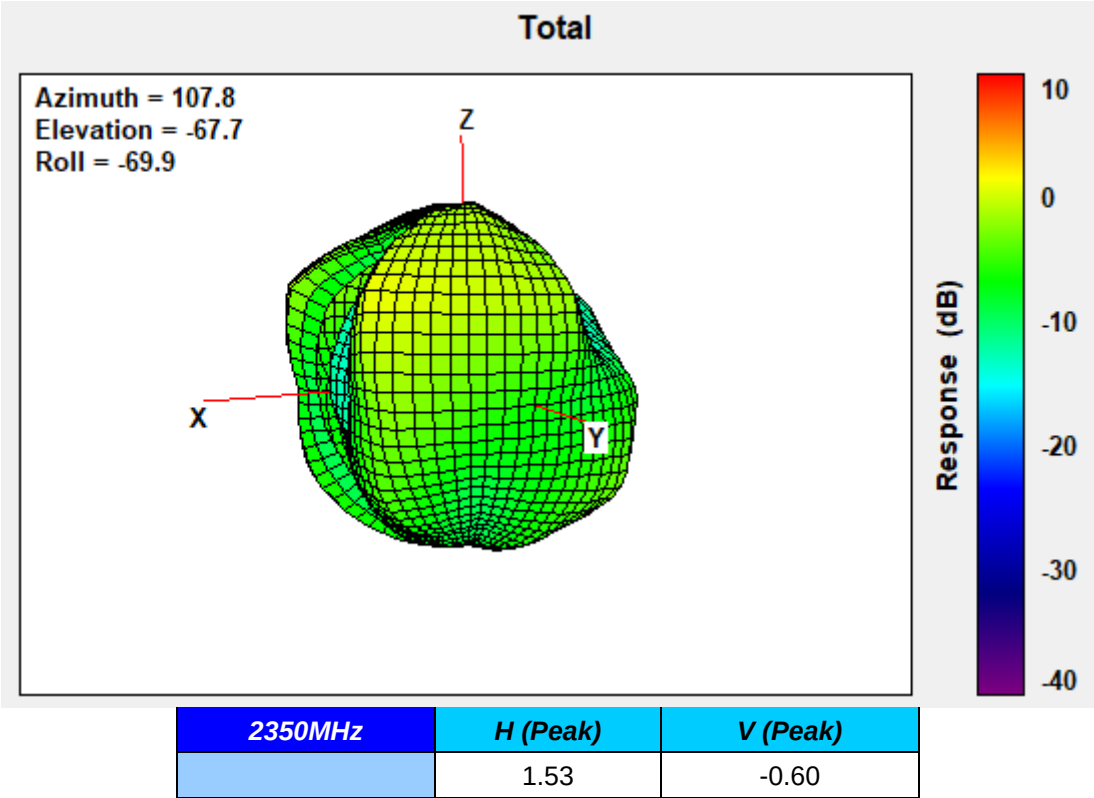
2310MHz



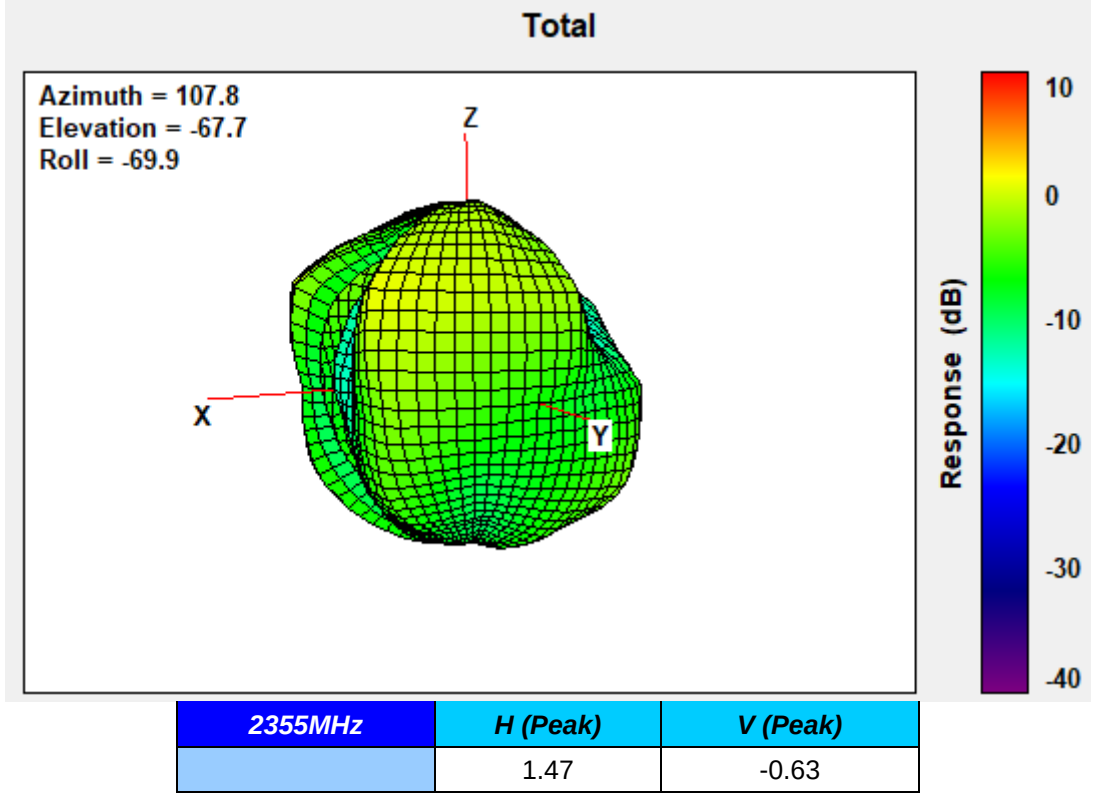
2315MHz



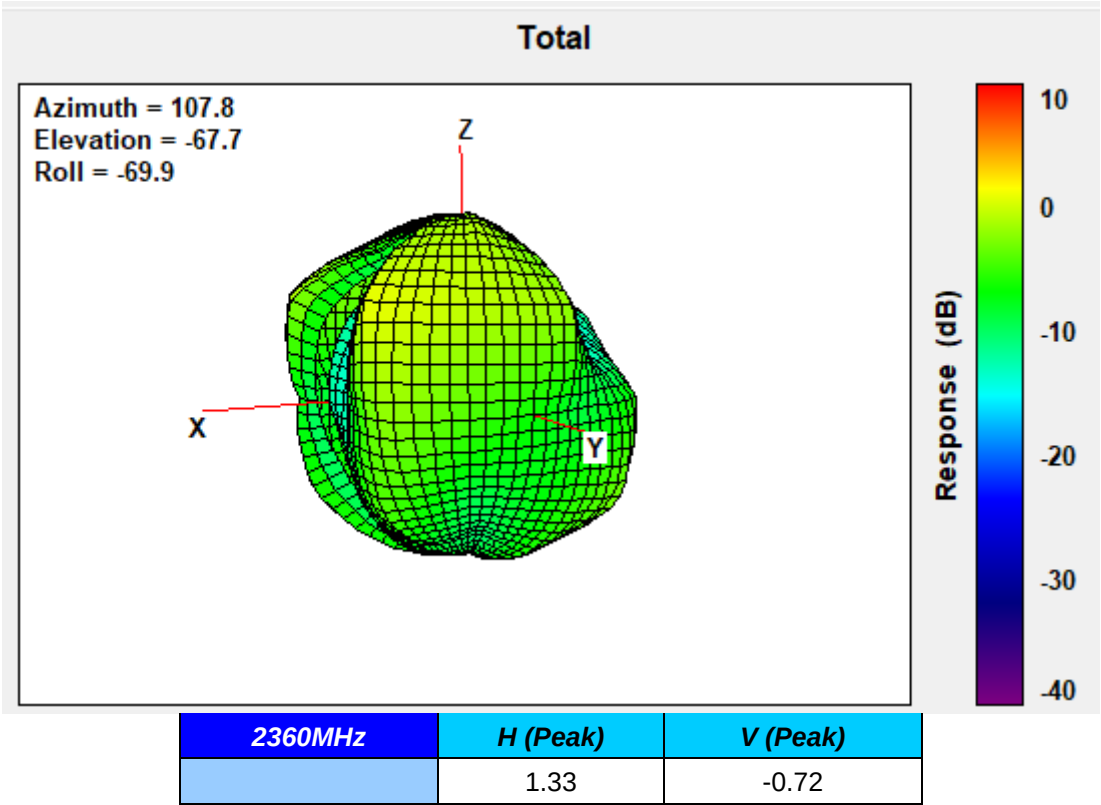
2350MHz



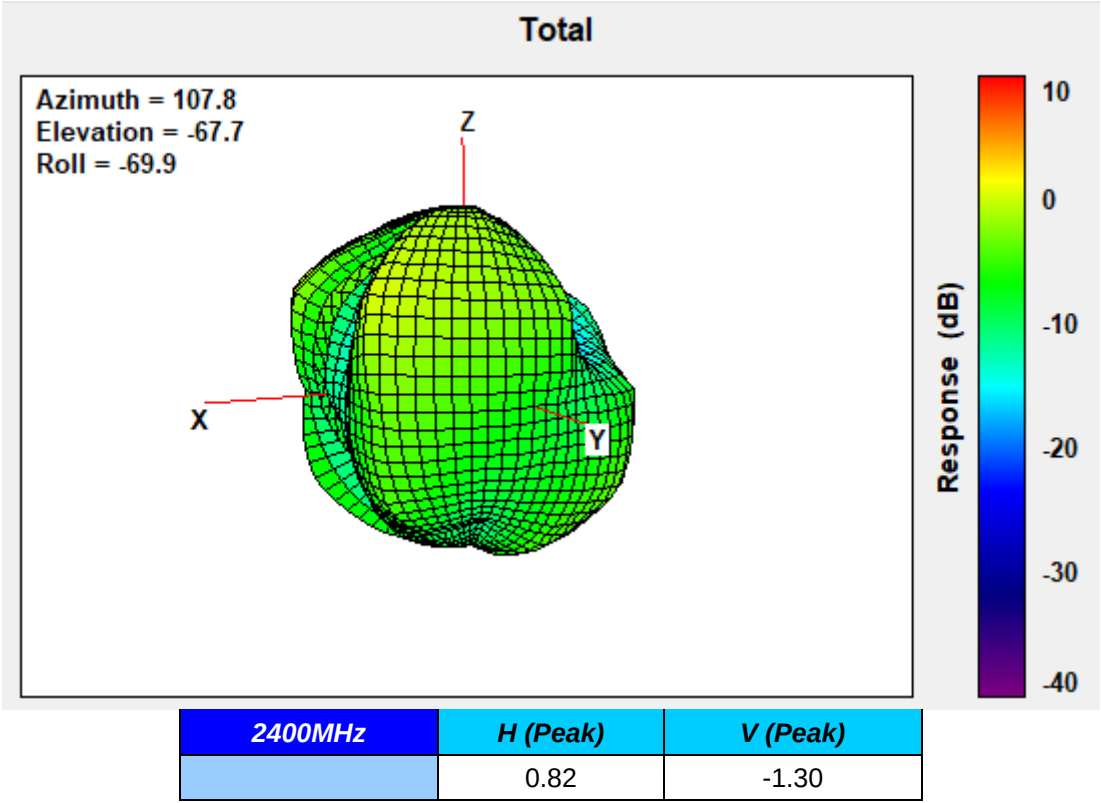
2355MHz



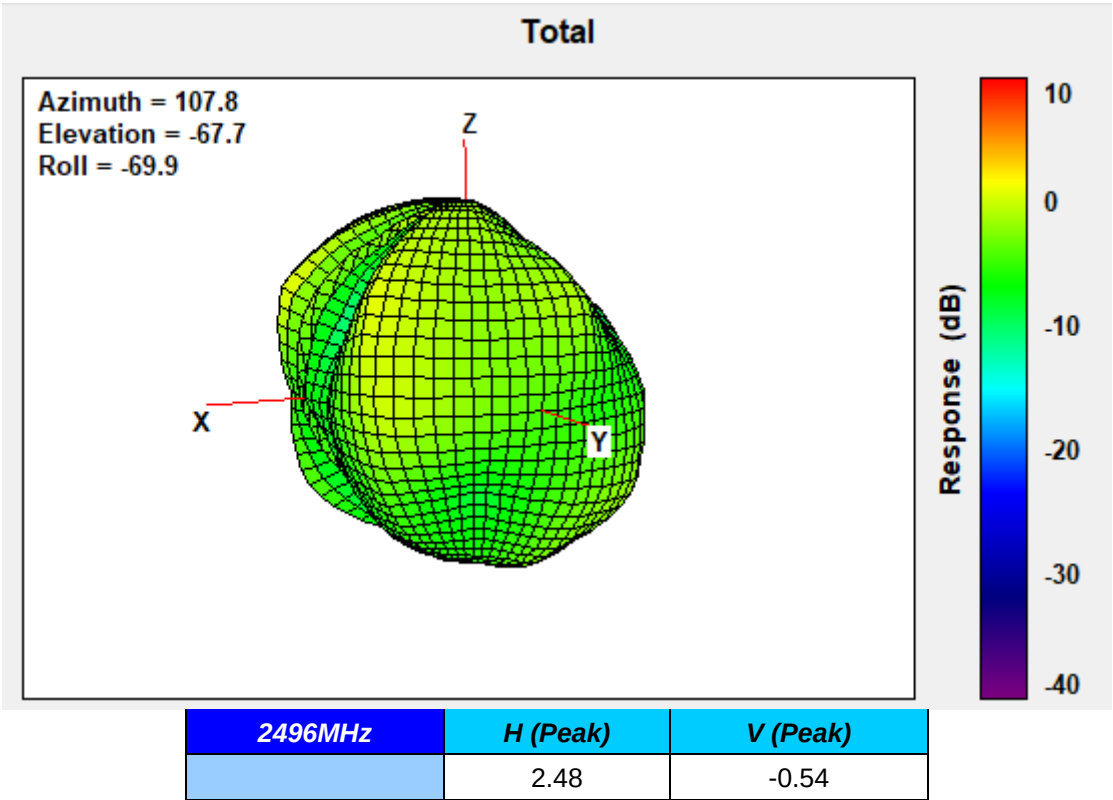
2360MHz



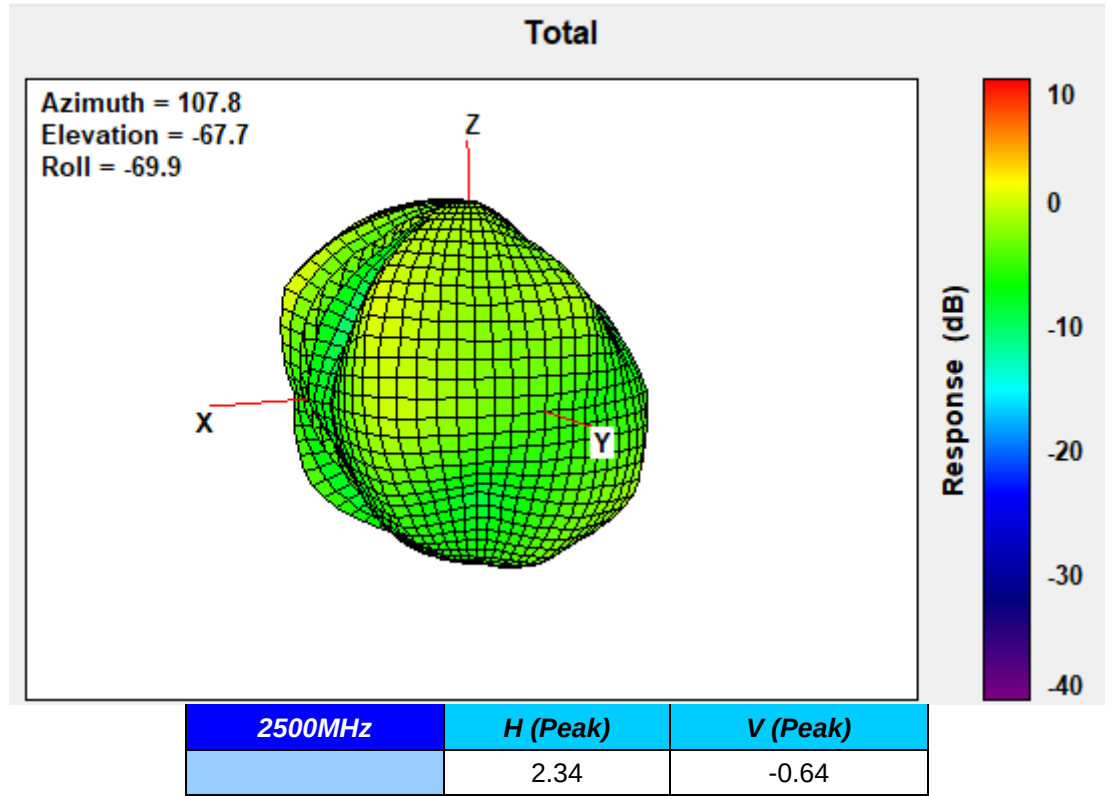
2400MHz



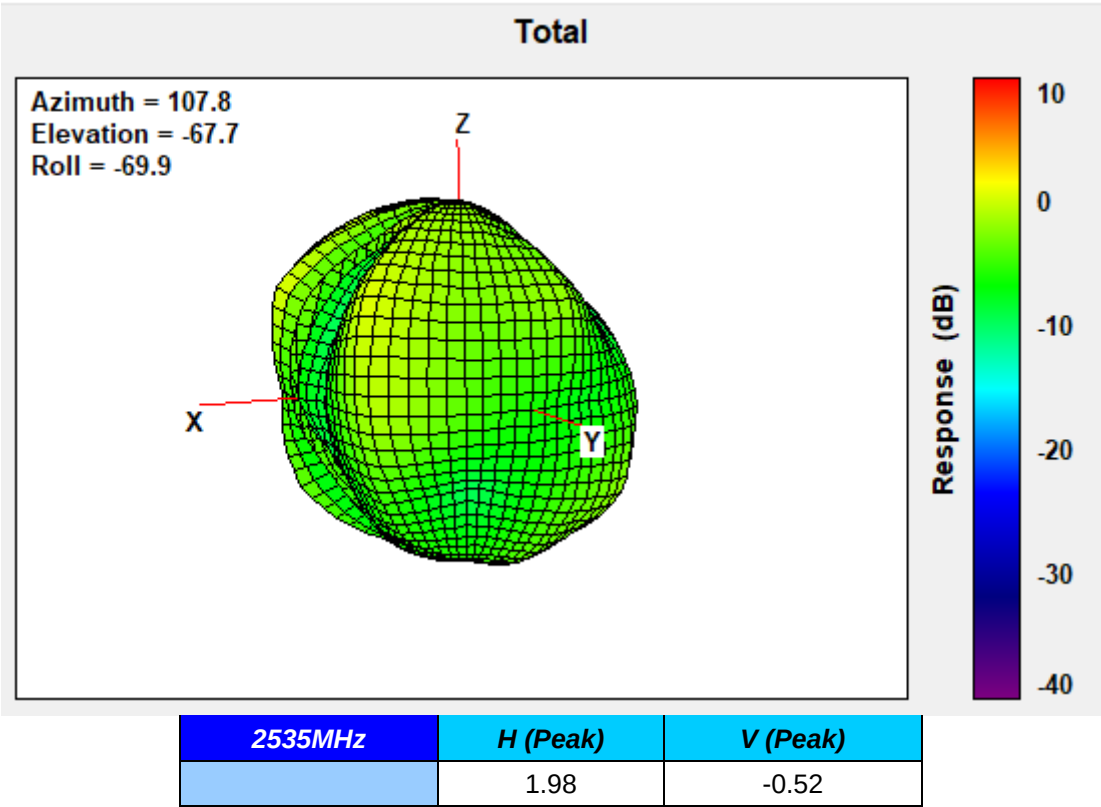
2496MHz



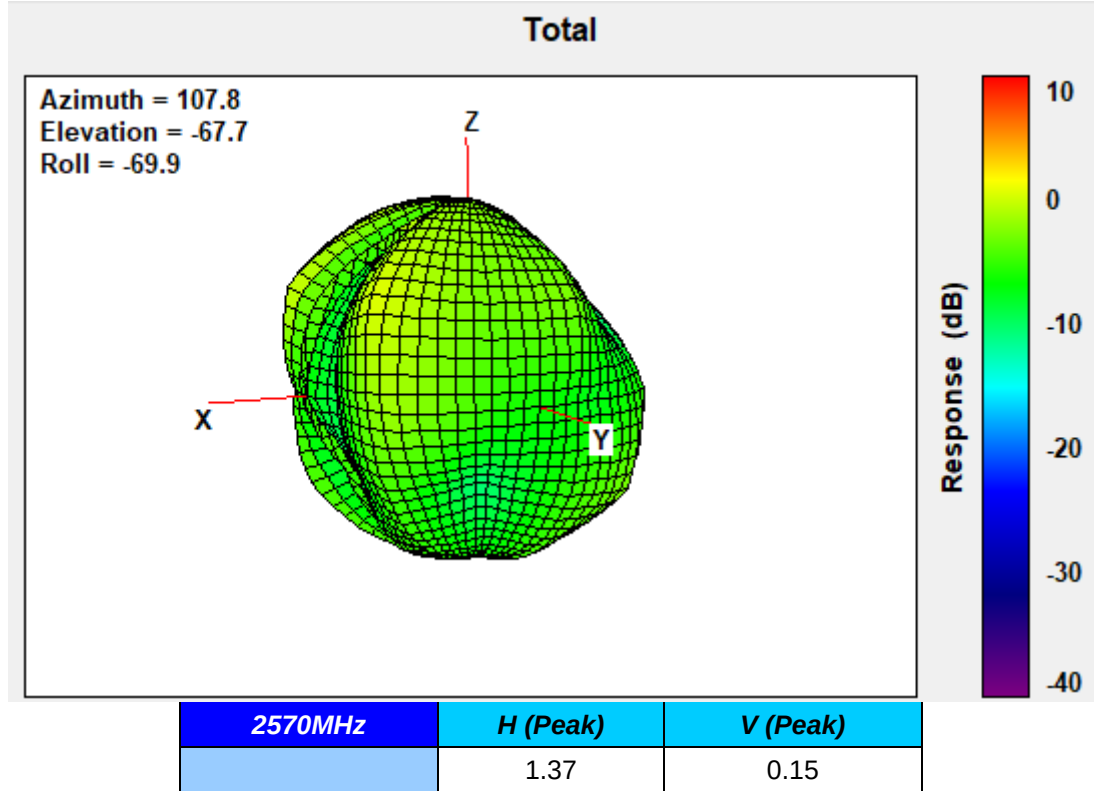
2500MHz



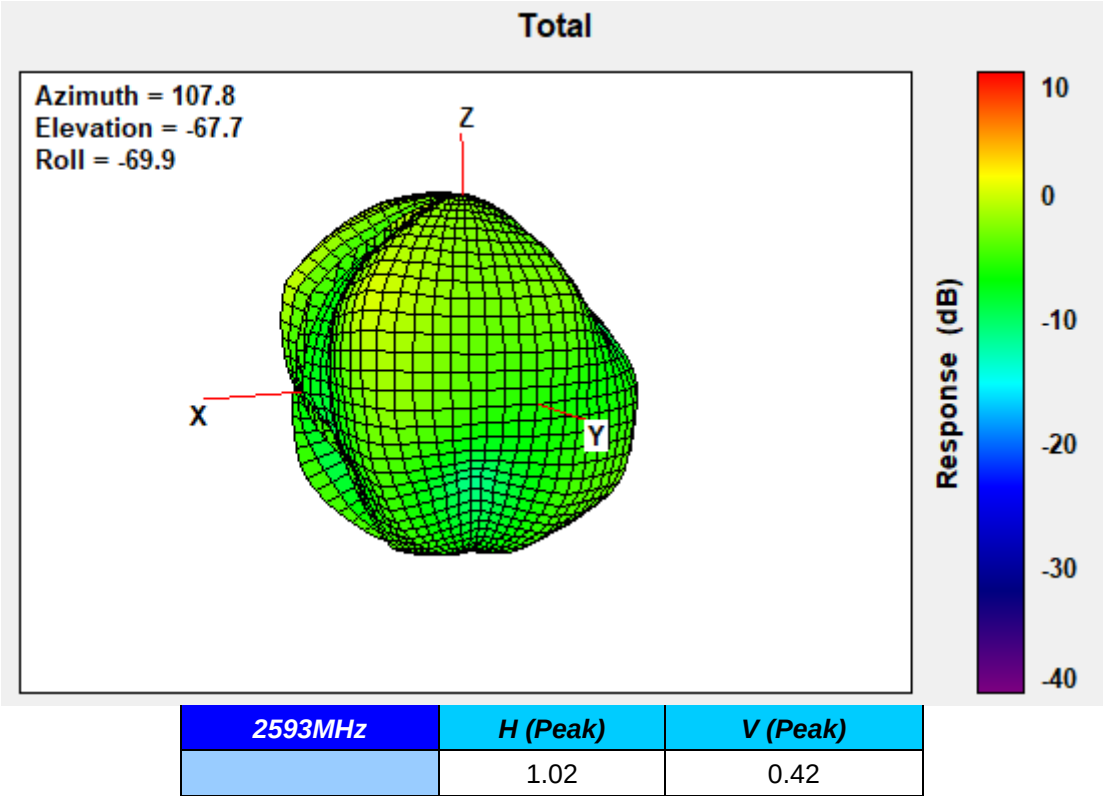
2535MHz



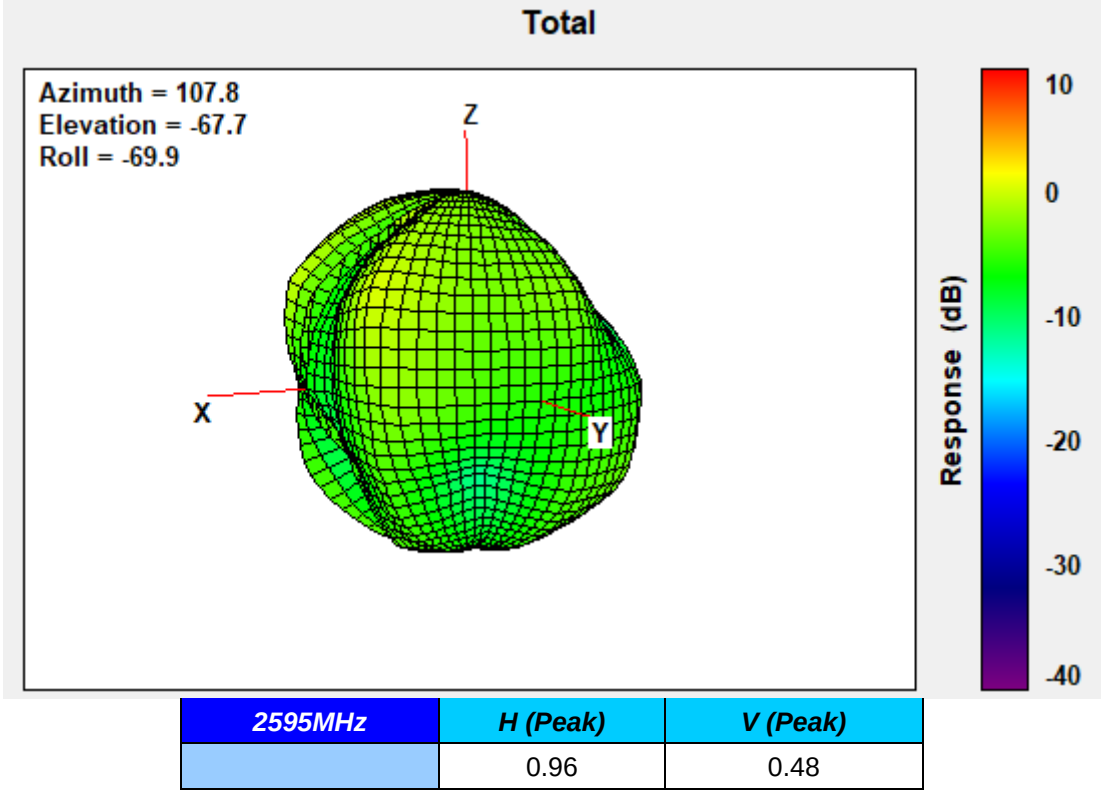
2570MHz



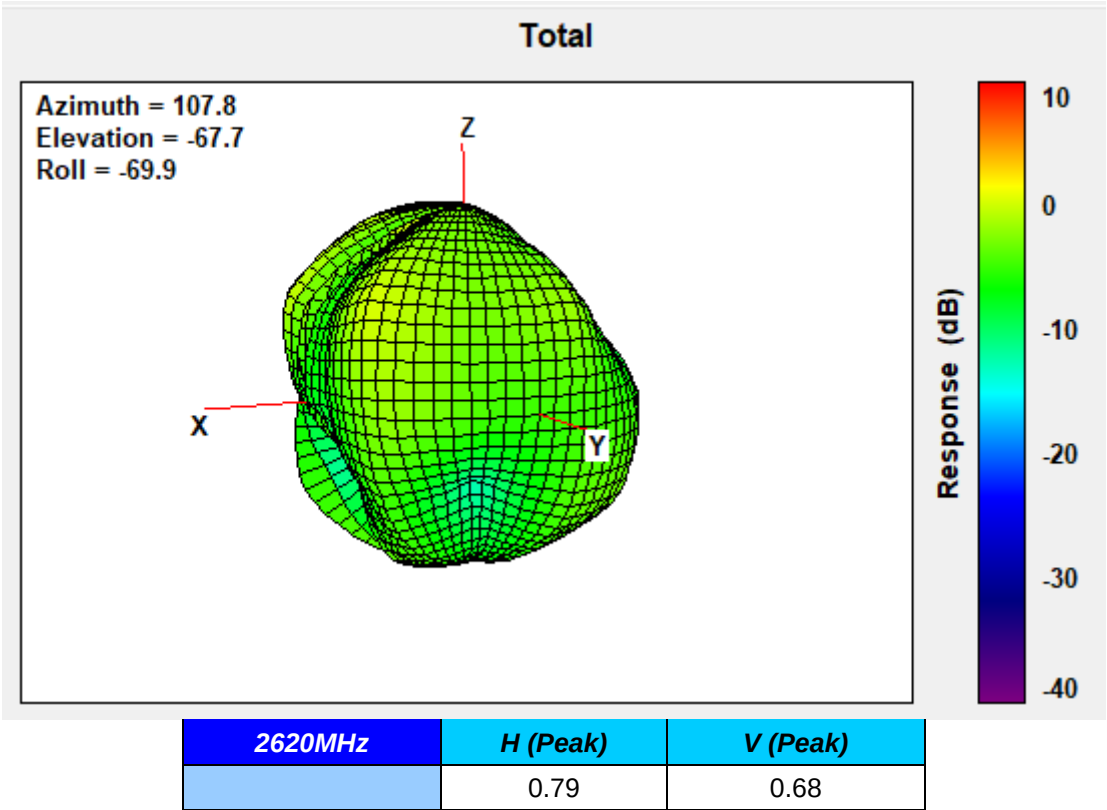
2593MHz



2595MHz



2620MHz



2655MHz

