

XC46BE224T-F100-VR

FCC Antenna Measurement Report

17th Oct, 2024

Version R01



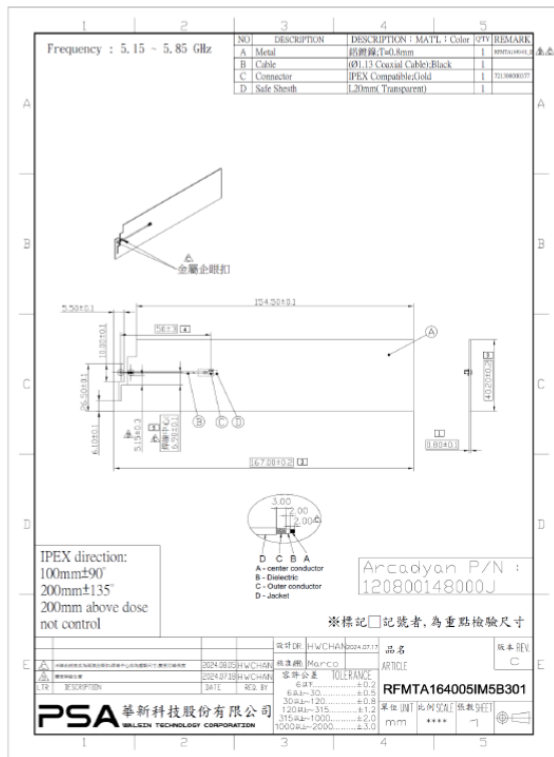
- **Return Loss :**
 - **WIFI**
 - **2G/5G Antennas** **<-10.5dB**
 - **Cellular**
 - **Full band LTE Antennas** **<-5.27dB**
 - **DFS** **<-13.02dB**
- **Isolation:**
 - **WIFI**
 - **2GHz isolation** **>25.55dB**
 - **5GHz isolation** **>33.21dB**
 - **Cellular**
 - **LB isolation** **>-10.80dB**
 - **MB isolation** **>19.71dB**
 - **CB** **>22.65dB**
- **Efficiency**
 - **WIFI**
 - **2G** **>71%**
 - **5G** **>71%**
 - **Cellular**
 - **LB** **>55.24%**
 - **MB** **>65.71%**
 - **CB** **>64.22%**
 - **DFS** **>60.98%**

● Antenna Definition and Distribution

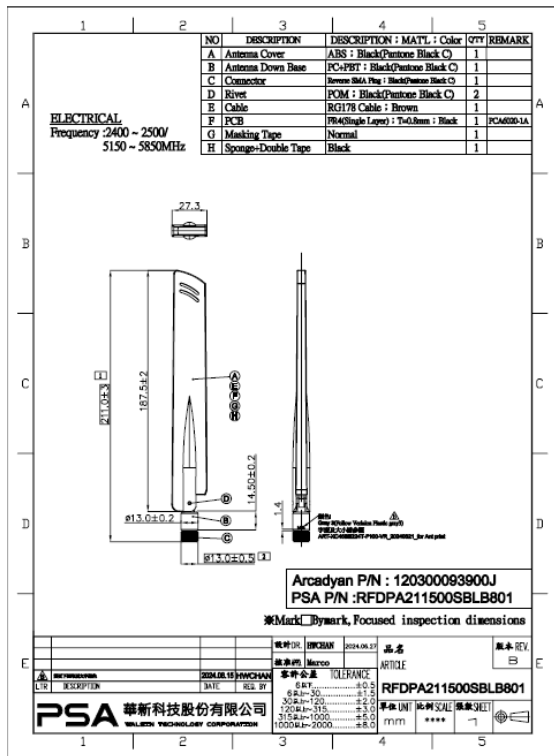
□ Antenna Definition

	Antenna	RF Chain	Antenna Type	Frequency(MHz)	Connector	Cable length	Brand	Model Number
WiFi 2G/5G	Ant.5	AWJ2	Dipole	2400-2500 ; 5150-5850	R-SMA	NA	PSA	RFDPA211500SBLB801
	Ant.6	AWJ1	Dipole	2400-2500 ; 5150-5850	R-SMA	NA	PSA	RFDPA211500SBLB801
Cellular antenn a	Ant.1	1	Dipole	746-4200	SMA	NA	PSA	RFDPA211500SMMB801
	Ant.2	0	Dipole	746-4200	SMA	NA	PSA	RFDPA211500SMMB801
	Ant.3	2	Dipole	746-4200	SMA	NA	PSA	RFDPA211500SMMB801
	Ant.4	3	Dipole	746-4200	SMA	NA	PSA	RFDPA211500SMMB801
DFS	Ant.7	WJ4	PIFA	5150-5850	I-PEX(MHF1)	50mm	PSA	RFMTA164005IM5B301

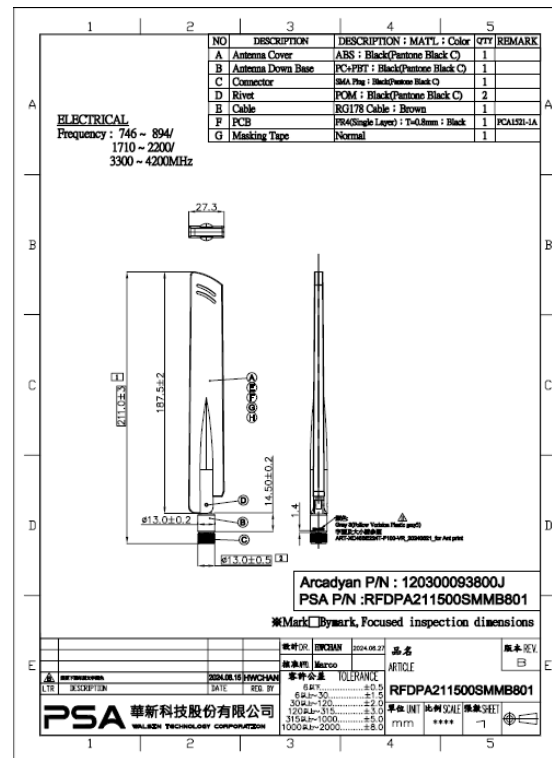
DFS



WIFI (ANT5/ANT6)

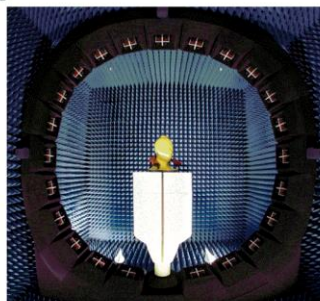


Cellular (ANT1~ANT4)

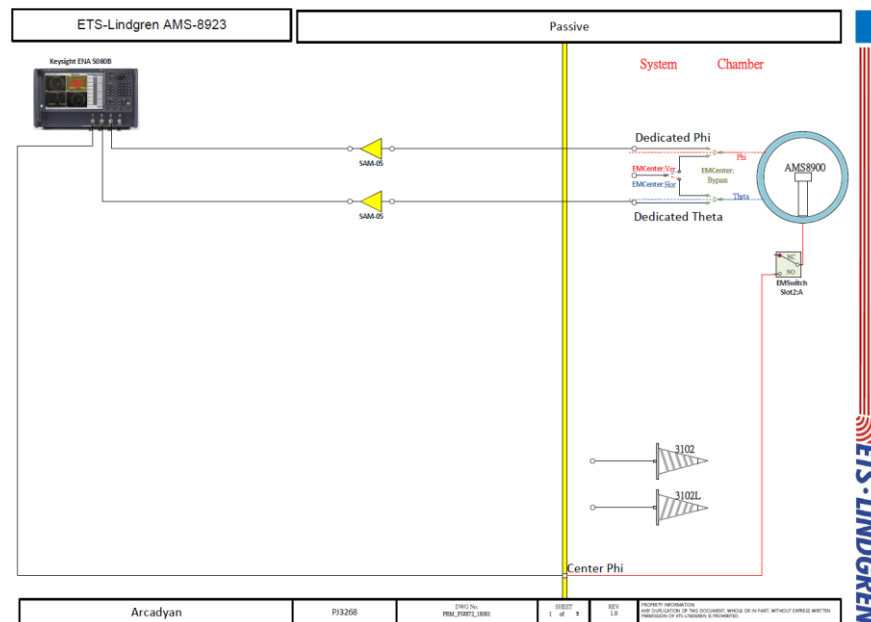


AMS-8923 Basics

- Regular Chamber Size: 13ft L x 13ft W x 13ft H
(3.96m x 3.96m x 3.96m)
- Test Distance: 1.9 meter
- Frequency: 700MHz – 6GHz
- Fully anechoic covered with EHP-12 absorbers
- Quiet Zone Diameter:
 - 30cm
 - 50cm
 - per CTIA 3.4 versions



ETS-LINDGREN



Tester	Joe Wu
ETS-Lindgren	AMS-8923
KEYSIGHT E5080B VNA calibration date	2/25/2020
KEYSIGHT E5080B VNA calibration date	8/28/2025
Antenna test date	10/17/2024
Test software	ETS-Lindgren EMQuest Version 1.12

Antenna Efficiency & Peak gain of WiFi 2G/5G

- WiFi / 2.4G+5G : Ant.5/Ant.6
 - Antenna Efficiency Table & Peak Gain Table

WIFI 2G/5G	2G_AVG.	5G_AVG	2412	2442	2484	5150	5350	5500	5600	5850	(MHz)
Ant.5	72.37	72.17	71.46	73.75	71.88	72.78	72.28	73.04	71.68	71.06	Efficiency (%)
Ant.6	72.84	71.52	71.85	72.97	73.71	71.30	71.83	71.89	71.34	71.25	
WIFI 2G/5G	2G Peak	5G Peak	2412	2442	2484	5150	5350	5500	5600	5850	
Ant.5	3.26	5.29	2.77	3.55	3.47	5.16	4.30	5.60	5.81	5.60	Peak Gain(dBi)
Ant.6	3.24	5.14	3.50	3.33	2.90	4.25	4.73	5.31	5.89	5.50	

Antenna Efficiency of Cellular LB

- Cellular L Band: 5/13
 - Antenna Efficiency & Peak Gain Table

	B13 AVG	B5 AVG	746	751	756	777	782	787	824	836.5	849	869	881.5	894	MHz
Ant.1	67.24	63.18	56.98	60.59	64.35	71.69	75.13	74.71	72.93	68.41	61.95	60.73	59.81	55.24	Efficiency (%)
Ant.2	60.28	61.28	56.58	56.91	61.59	62.65	61.85	62.07	63.80	64.65	63.99	61.75	56.94	56.52	
Ant.3	61.51	61.14	56.51	59.87	63.06	63.34	63.47	62.84	60.32	65.66	64.96	58.84	60.14	56.92	
Ant.4	67.53	62.95	59.20	61.87	63.38	73.18	72.80	74.73	72.86	67.27	63.34	59.91	57.69	56.65	
	B13 Peak	B5 Peak	746	751	756	777	782	787	824	836.5	849	869	881.5	894	
Ant.1	2.28	2.07	1.23	1.50	2.30	2.44	2.86	3.35	2.77	2.27	2.08	1.88	1.74	1.67	Peak gain (dBi)
Ant.2	2.26	1.63	1.97	2.04	2.64	2.59	2.11	2.19	1.84	1.45	1.56	1.71	1.80	1.43	
Ant.3	2.01	2.15	1.51	1.84	2.76	2.18	1.98	1.81	2.33	2.69	2.70	2.07	1.83	1.27	
Ant.4	3.59	2.86	2.62	2.83	3.60	4.23	4.21	4.05	3.92	3.73	2.85	2.40	2.16	2.09	

Antenna Efficiency of Cellular MB

- Cellular M/H Band: 2/66
- Antenna Efficiency & Peak Gain Table

	B2 Avg	B66 Avg	1710	1745	1780	1850	1880	1910	1930	1960	1990	2110	2155	2200	MHz
Ant.1	70.73	71.62	71.58	73.99	72.44	72.57	70.95	71.22	70.04	68.50	71.11	68.35	71.33	72.01	Efficiency (%)
Ant.2	69.15	71.12	70.95	76.83	71.07	73.24	71.08	65.74	65.71	68.76	70.36	69.68	68.20	69.98	
Ant.3	72.19	71.91	69.05	74.85	70.76	69.13	73.89	73.27	71.76	72.50	72.57	73.73	71.51	71.54	
Ant.4	72.38	72.13	68.47	76.34	73.50	75.87	76.79	71.16	69.75	71.43	69.25	71.95	72.58	69.94	
	B2 Peak	B66 Peak	1710	1745	1780	1850	1880	1910	1930	1960	1990	2110	2155	2200	
Ant.1	2.85	3.19	2.49	2.54	1.81	2.76	2.81	2.86	2.69	2.85	3.10	3.81	4.52	3.96	Peak gain (dBi)
Ant.2	3.20	3.29	2.56	2.83	2.05	2.75	2.82	2.19	2.76	3.95	4.73	3.91	3.89	4.51	
Ant.3	3.07	4.24	3.08	2.95	2.93	2.40	2.68	2.93	2.84	3.68	3.92	5.68	5.70	5.10	
Ant.4	3.36	3.22	2.35	2.90	2.88	3.46	3.52	3.16	2.98	3.85	3.20	4.22	3.45	3.54	

Antenna Efficiency of Cellular CB

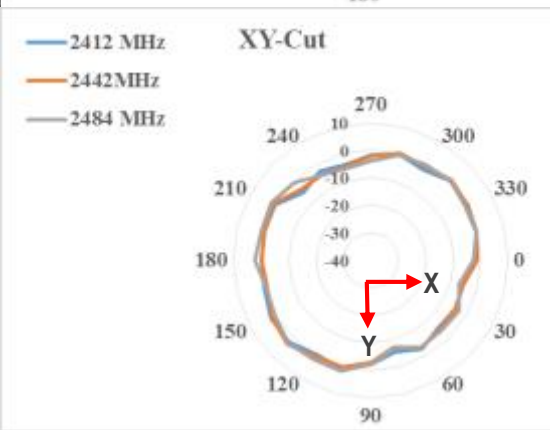
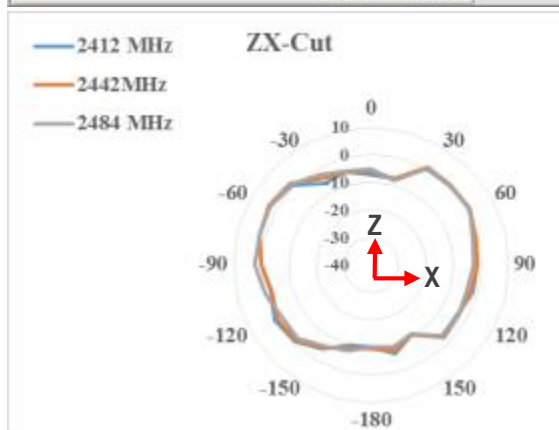
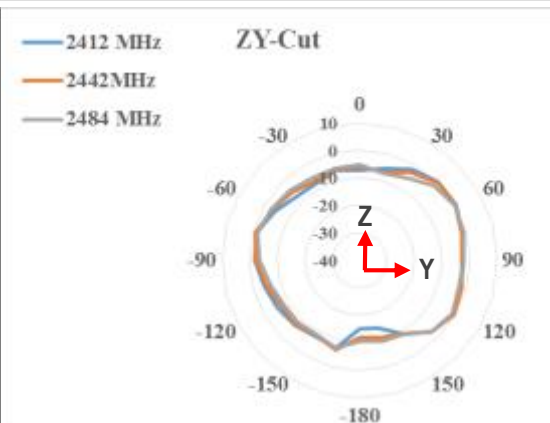
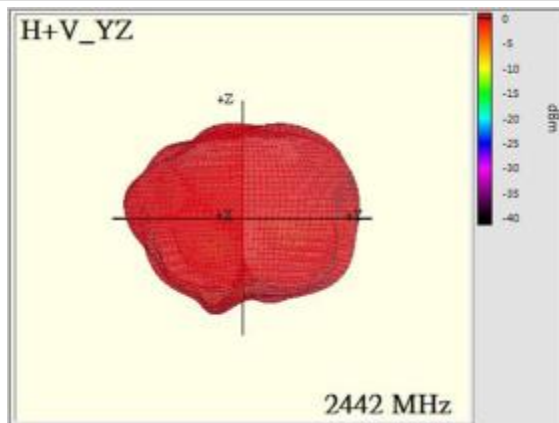
- Cellular C Band : n77/n48
 - Antenna Efficiency & Peak Gain Table

	B48 Avg	n77 Avg	3300	3550	3625	3700	3750	4200	MHz
Ant.1	72.65	70.27	67.90	71.51	73.27	73.18	71.56	64.22	Efficiency (%)
Ant.2	70.85	68.91	66.13	72.19	70.80	69.56	69.26	65.54	
Ant.3	71.25	69.77	68.63	69.97	70.04	73.74	70.28	65.93	
Ant.4	74.08	70.56	65.15	74.66	72.17	75.41	70.33	65.63	
	B48 Peak	n77 Peak	3300	3550	3625	3700	3750	4200	
Ant.1	0.42	0.31	-0.14	0.24	0.46	0.57	0.32	0.41	Peak gain (dBi)
Ant.2	0.59	0.37	-0.44	0.91	0.86	0.01	0.17	0.71	
Ant.3	-0.41	-0.05	0.65	-0.73	-0.13	-0.38	-0.51	0.78	
Ant.4	0.22	0.25	0.26	0.33	0.03	0.3	-0.18	0.74	

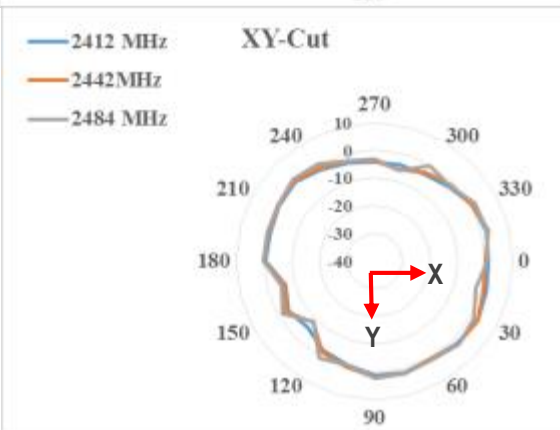
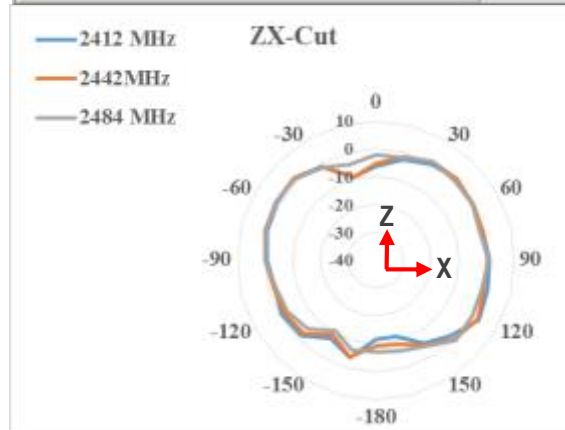
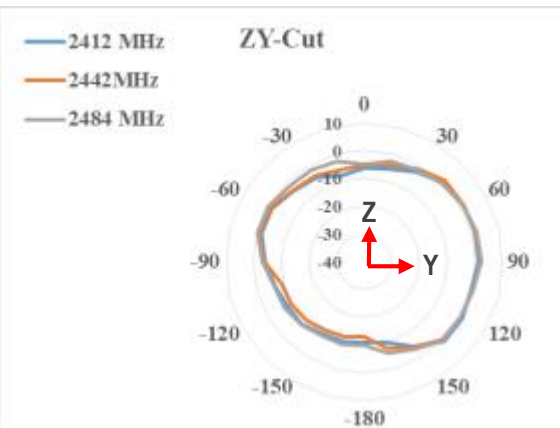
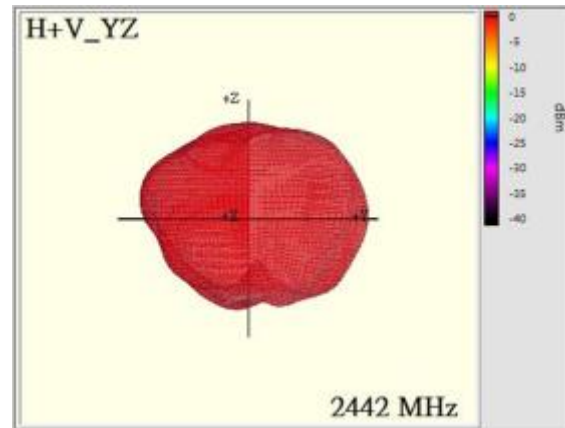
Antenna Efficiency of DFS

WIFI 2G/5G	5G_AVG	5150	5350	5500	5600	5850	(MHz)
Ant.7	63.33	67.23	63.01	63.16	60.98	62.28	Efficiency (%)
WIFI 2G/5G	5G Peak	5150	5350	5500	5600	5850	
Ant.7	4.08	3.68	3.64	4.38	4.31	4.38	Peak Gain(dBi)

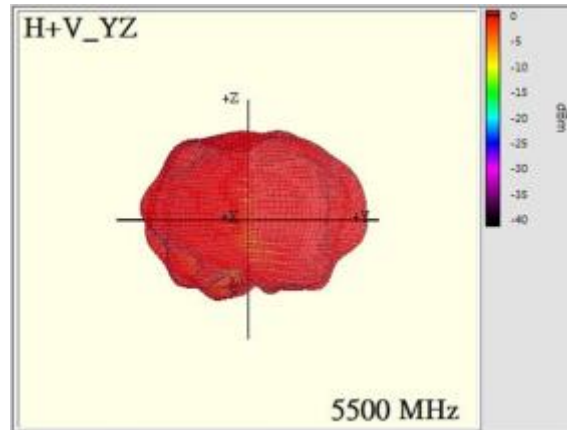
Antenna Radiation pattern – Ant.5_2G



Antenna Radiation pattern – Ant.6_2G

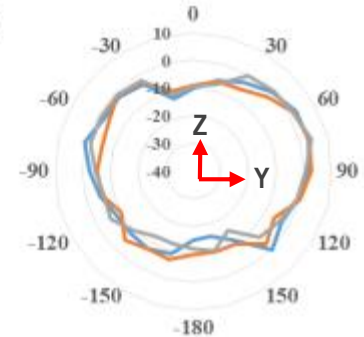


Antenna Radiation pattern – Ant.5_5G



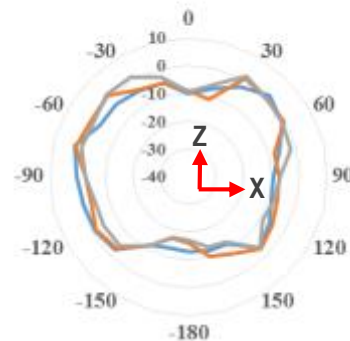
— 5150 MHz
— 5500 MHz
— 5850 MHz

ZY-Cut



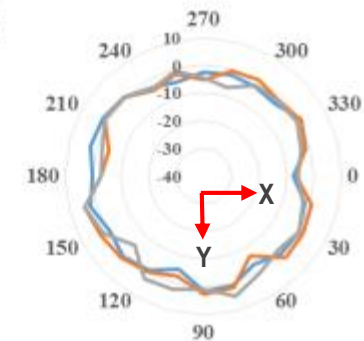
— 5150 MHz
— 5500 MHz
— 5850 MHz

ZX-Cut

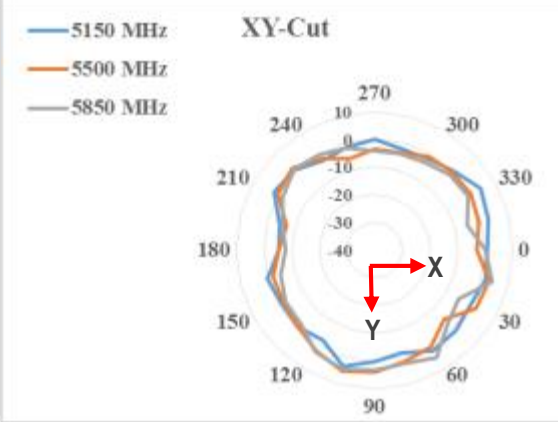
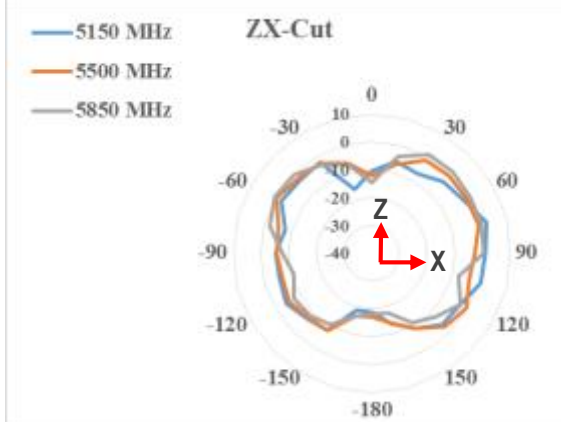
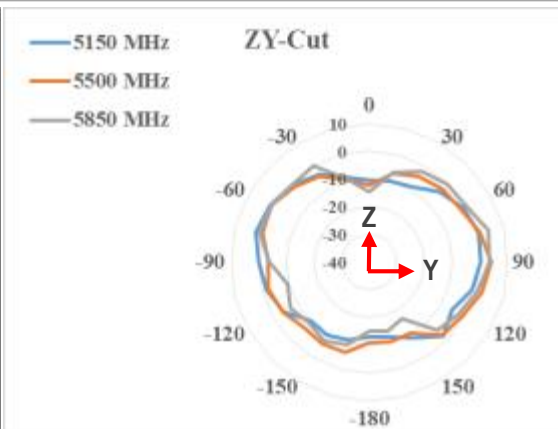
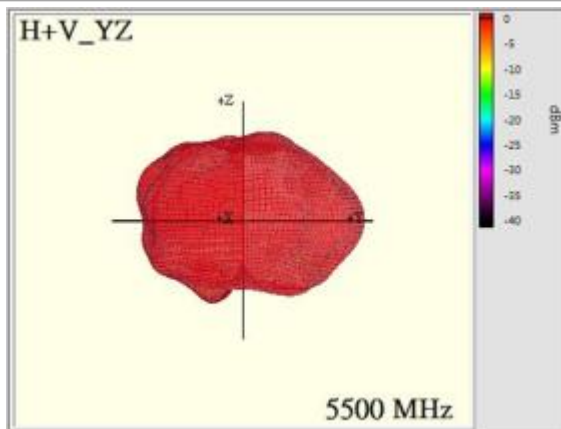


— 5150 MHz
— 5500 MHz
— 5850 MHz

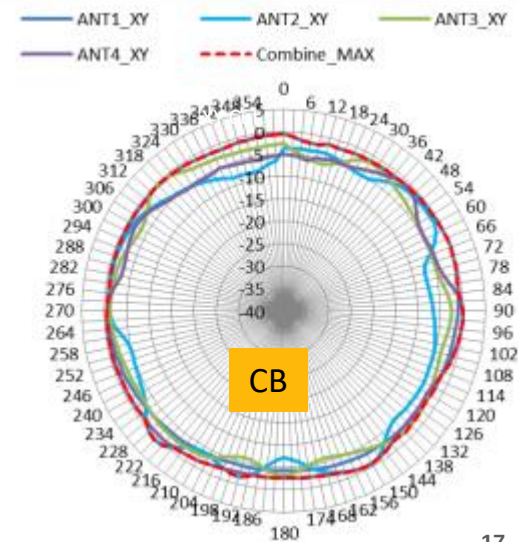
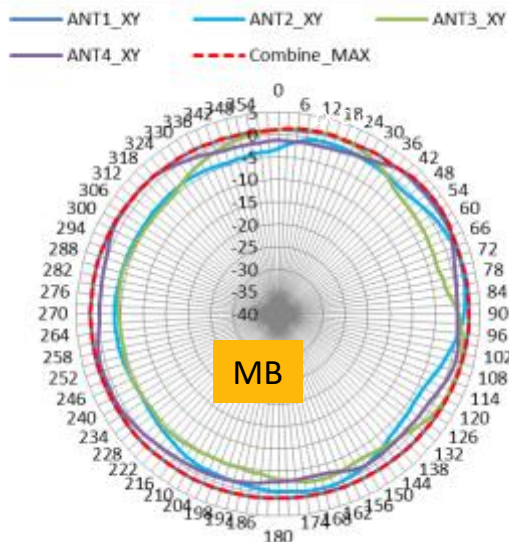
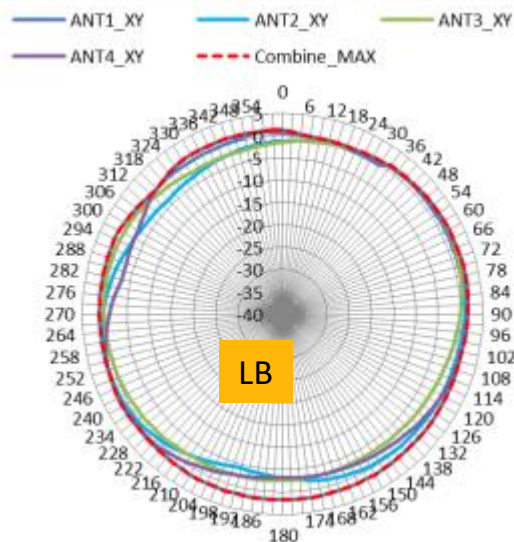
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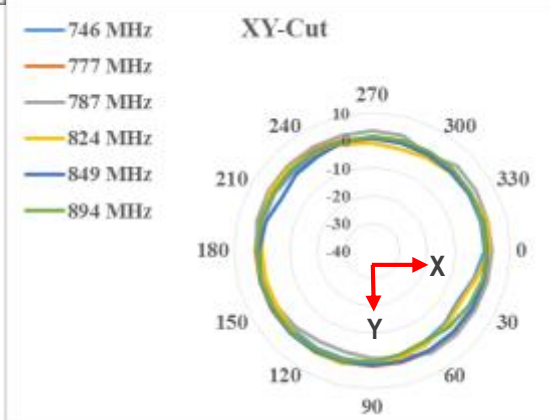
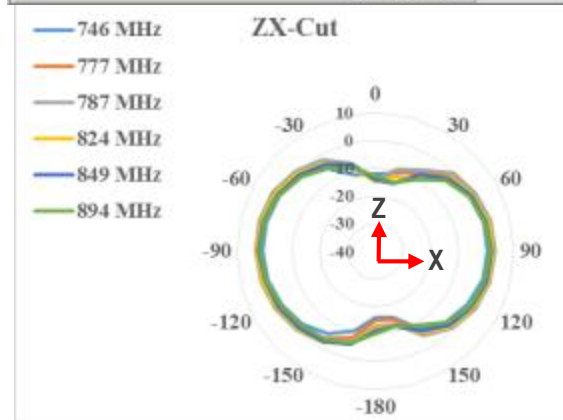
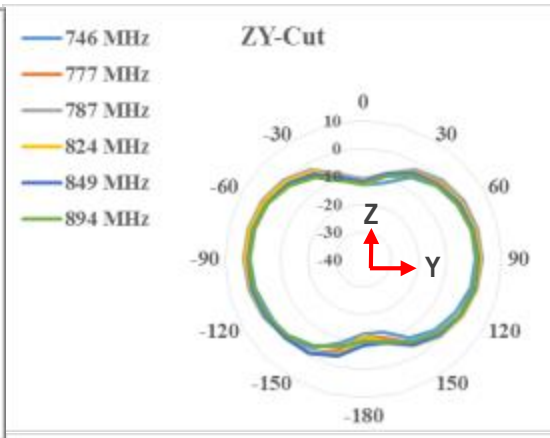
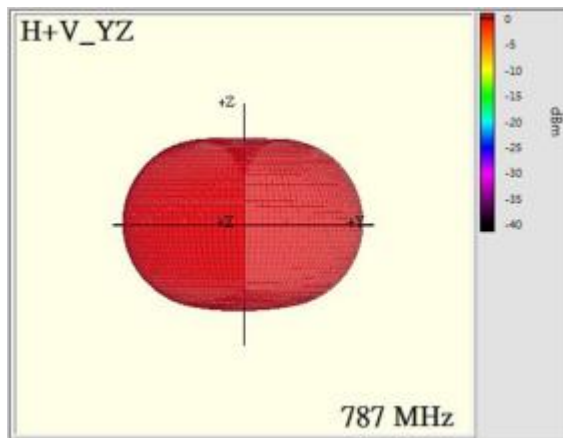
Antenna Radiation pattern – Ant.6_5G



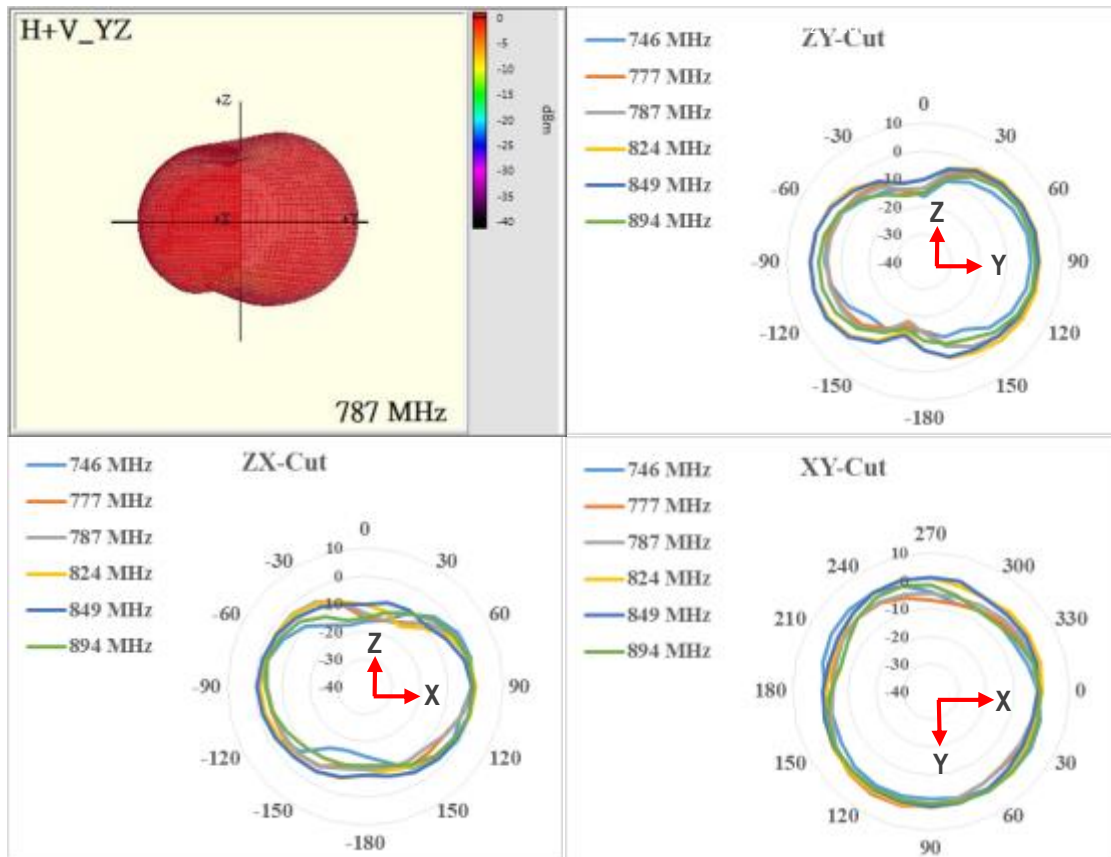
Antenna Radiation pattern – Cellular Combine pattern



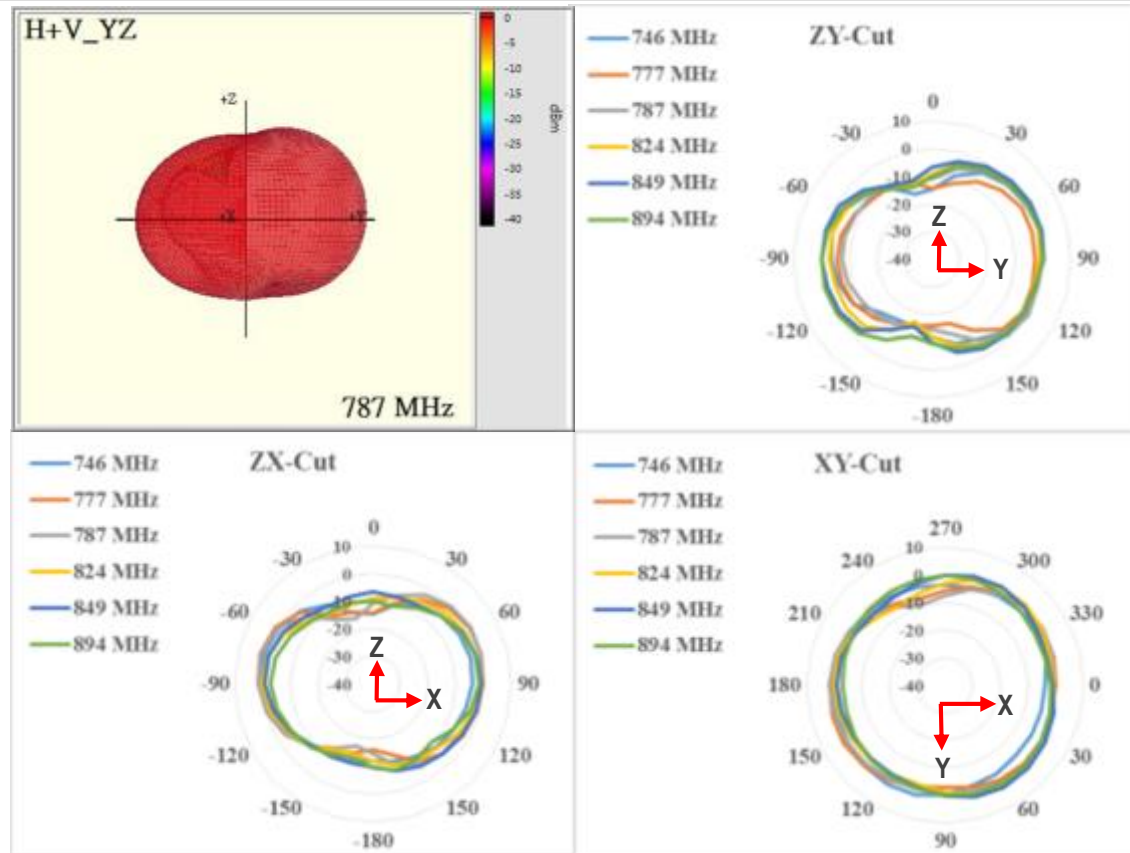
Antenna Radiation pattern – Ant.1_LB



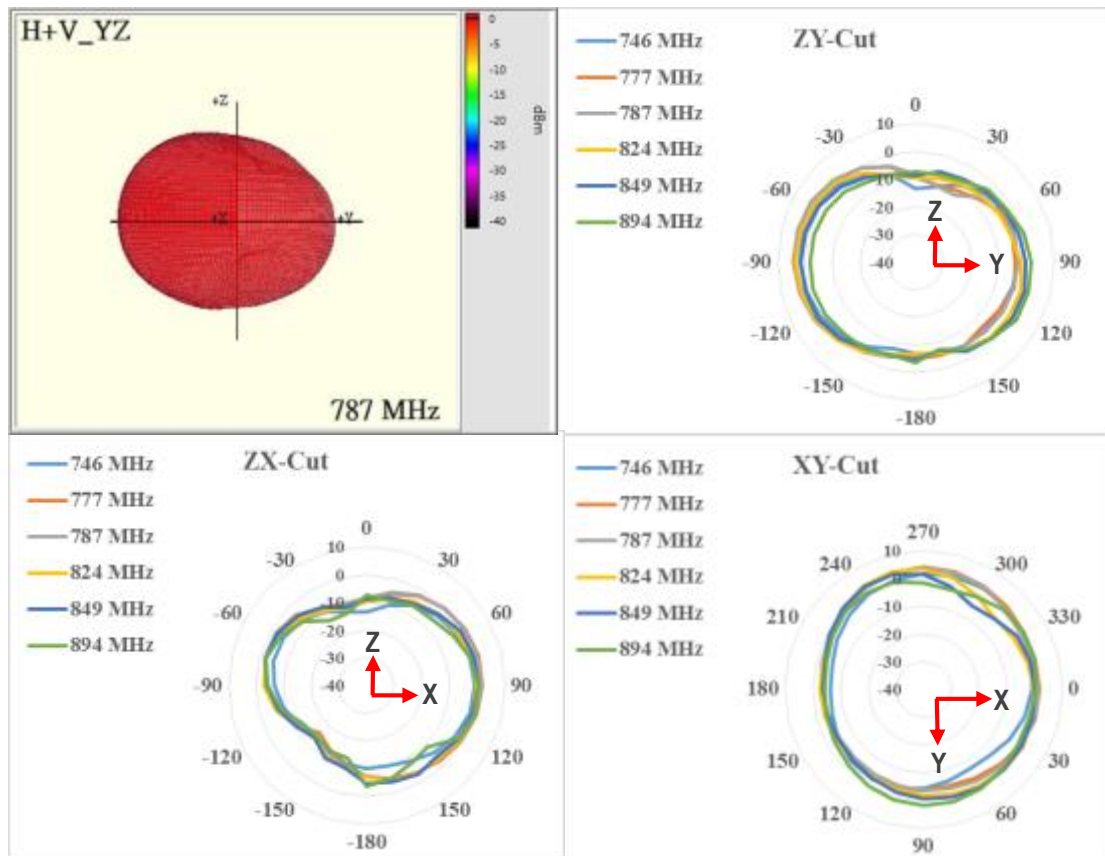
Antenna Radiation pattern – Ant.2_LB



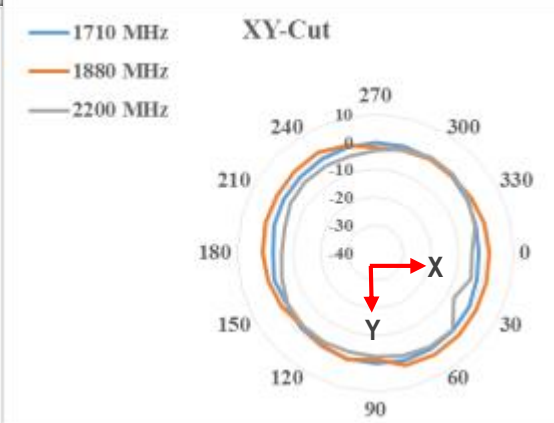
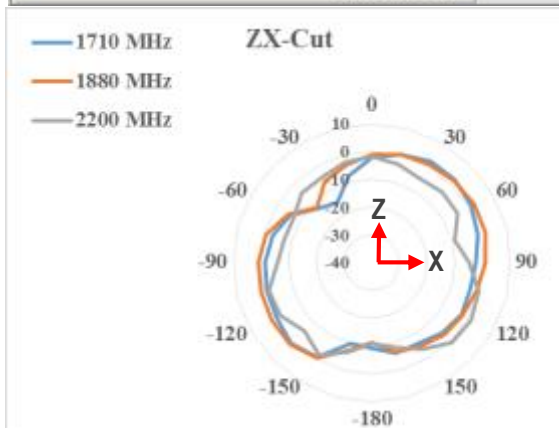
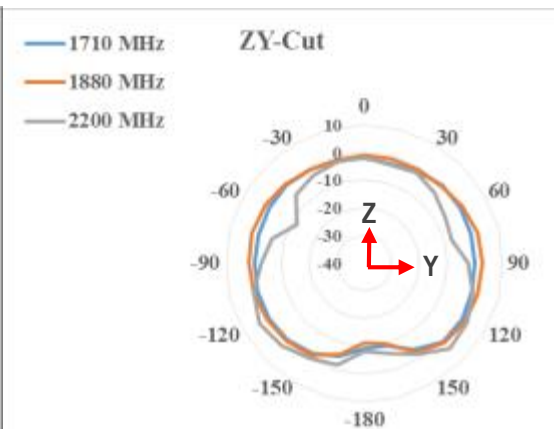
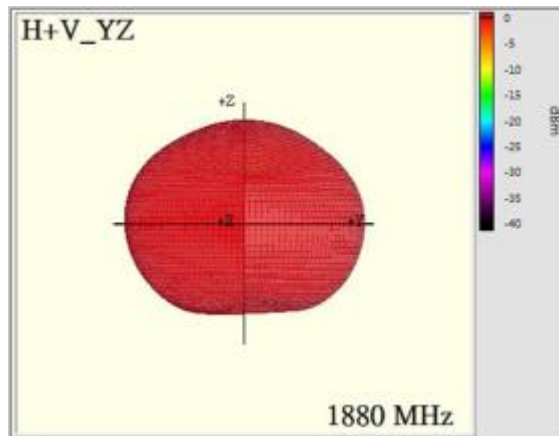
Antenna Radiation pattern – Ant.3_LB



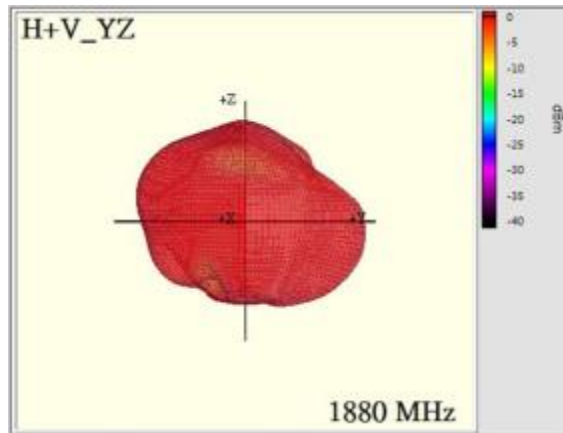
Antenna Radiation pattern – Ant.4_LB



Antenna Radiation pattern – Ant.1_MB

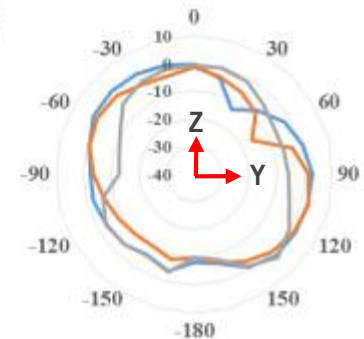


Antenna Radiation pattern – Ant.2_MB



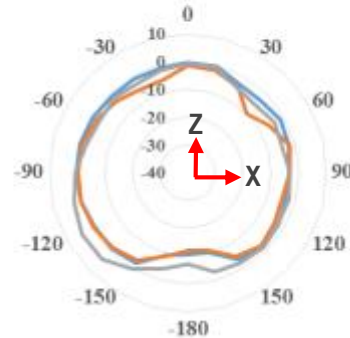
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— 1880 MHz
— 2200 MHz

ZY-Cut



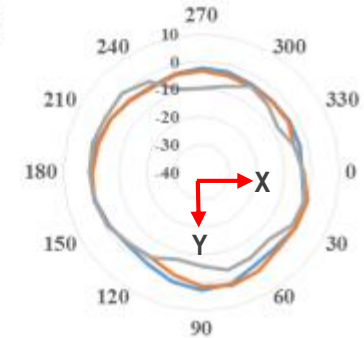
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ZX-Cut

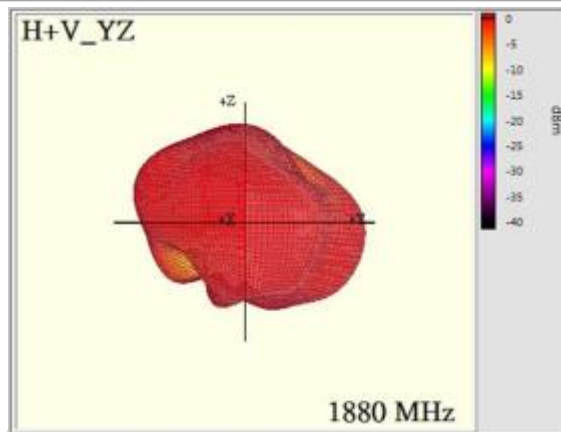


— 1710 MHz
— 1880 MHz
— 2200 MHz

XY-Cut

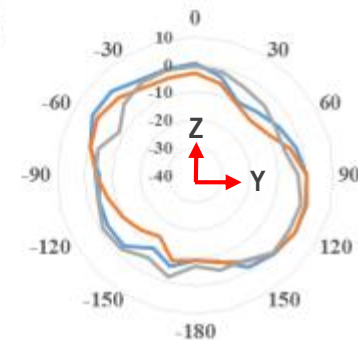


Antenna Radiation pattern – Ant.3_MB



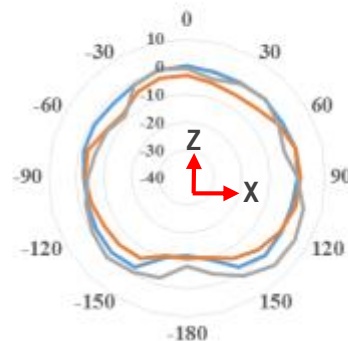
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ZY-Cut



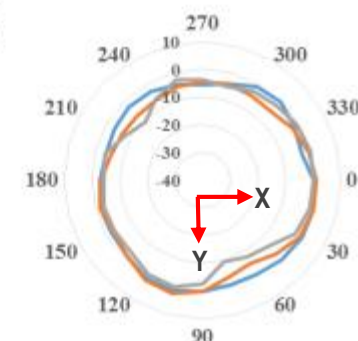
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— 1880 MHz
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ZX-Cut

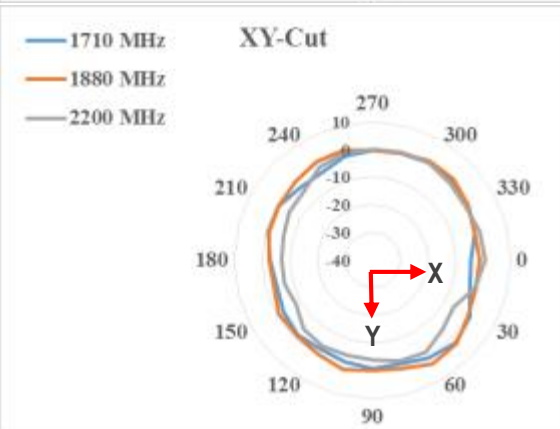
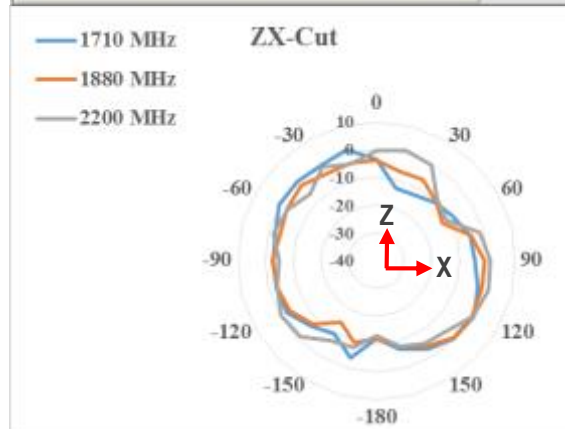
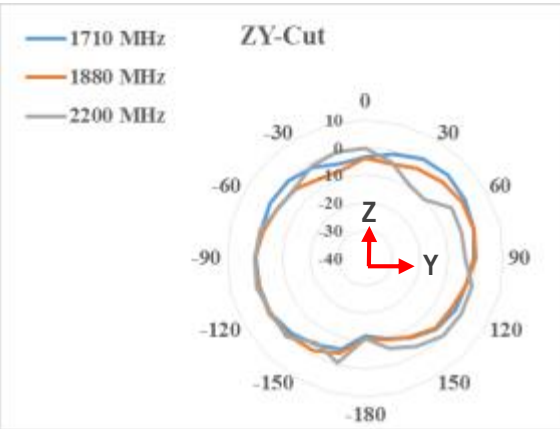
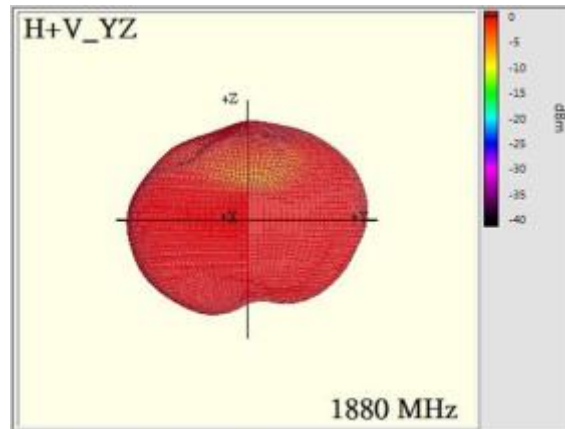


— 1710 MHz
— 1880 MHz
— 2200 MHz

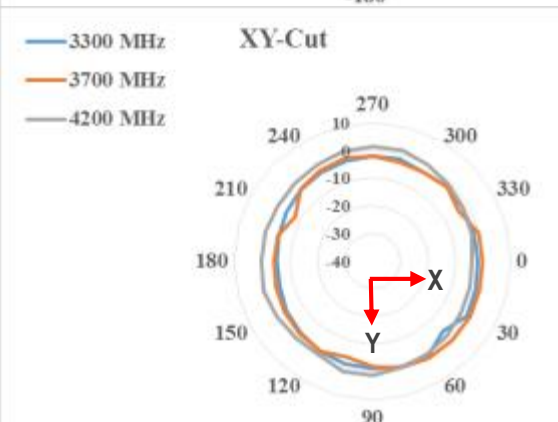
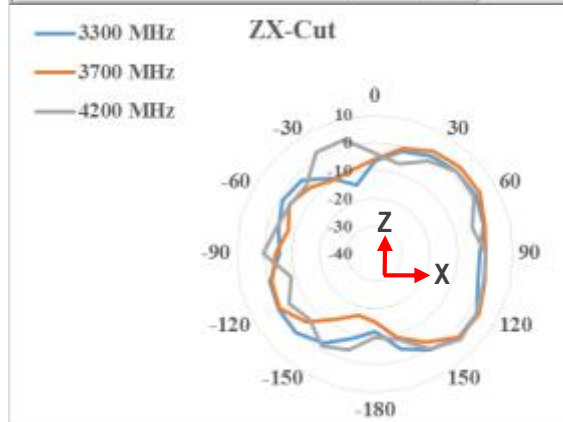
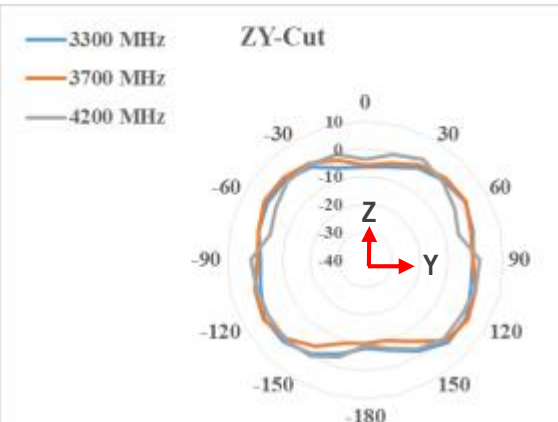
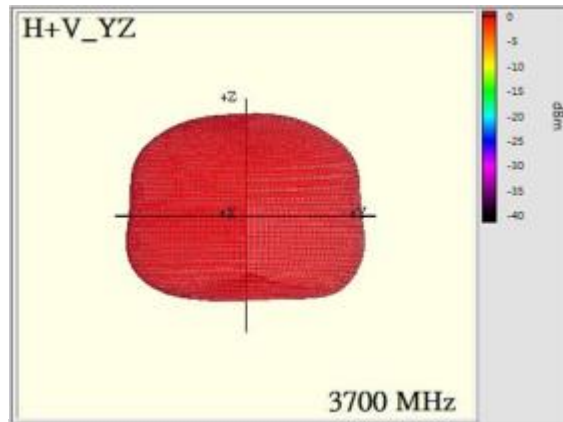
XY-Cut



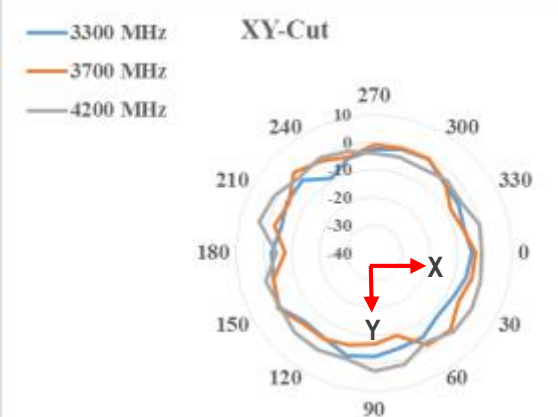
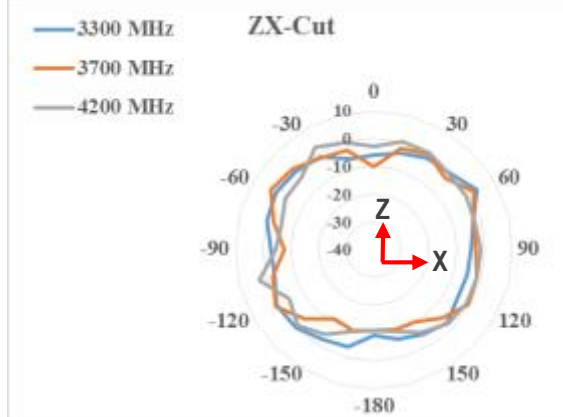
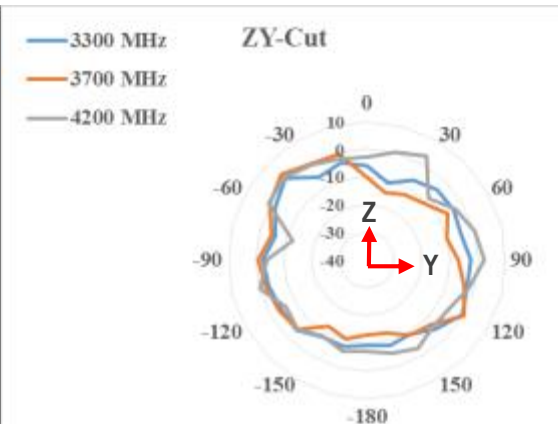
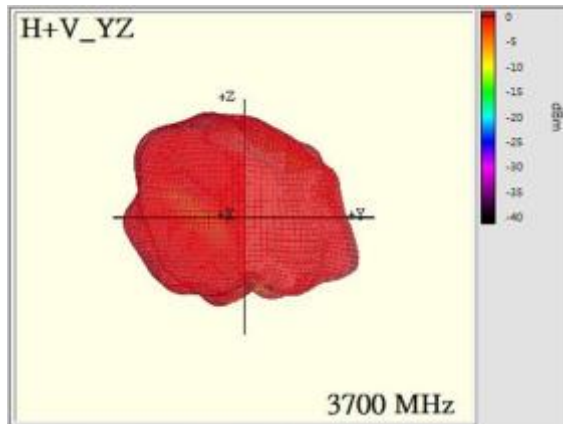
Antenna Radiation pattern – Ant.4_MB



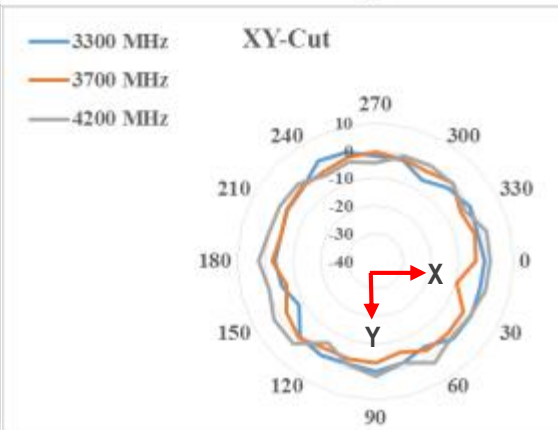
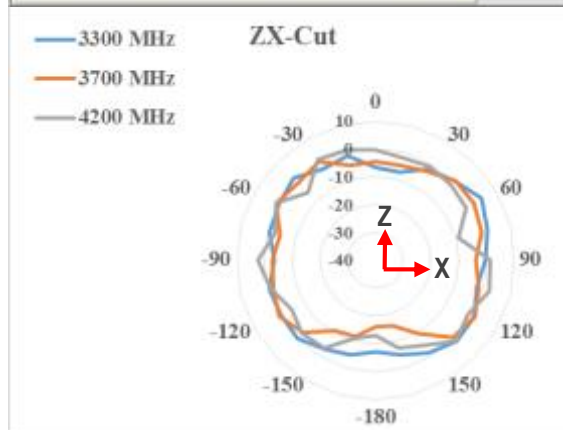
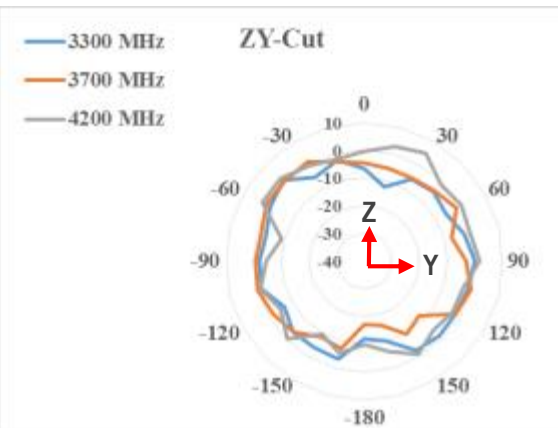
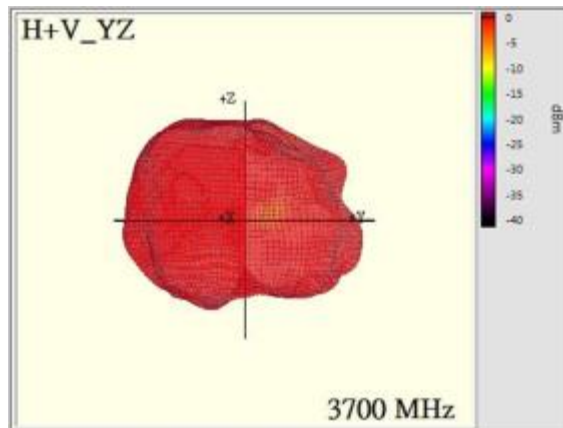
Antenna Radiation pattern – Ant.1_CB



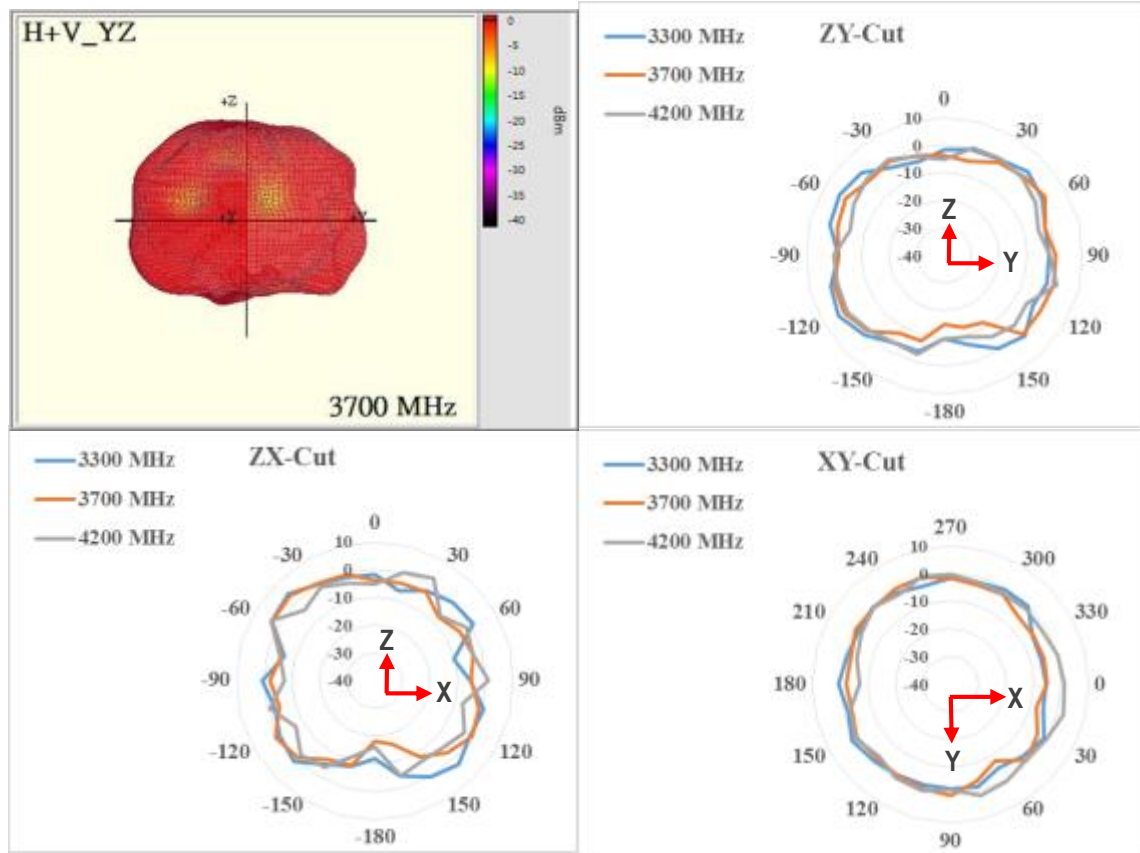
Antenna Radiation pattern – Ant.2_CB



Antenna Radiation pattern – Ant.3_CB



Antenna Radiation pattern – Ant.4_CB



Antenna Radiation pattern – Ant.7_5G

