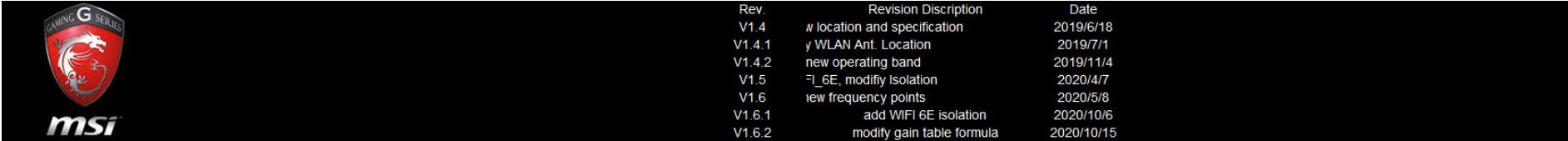


Antenna P/N (Main & Aux)	Antenna Type (PIFA / Dipole)	Highest Peak Gain with Cable Loss (dBi)						Cable Loss (dB)						Connector Type	Cable Length (mm)	Laptop Model
		2400~250 0 MHz	5150~585 0 MHz	5925~642 5 MHz	6425~652 5 MHz	6525~687 5 MHz	6875~712 5 MHz	2400~250 0 MHz	5150~585 0 MHz	5925~642 5 MHz	6425~652 5 MHz	6525~687 5 MHz	6875~712 5 MHz			
WA-P-LE-02-045	PIFA	2.24	2.68	3.01	-1.23	-1.96	-3.68	0.72	1.12	1.21	1.19	1.21	1.29	IPEX-4L	190mm	NB
WA-P-LE-02-046	PIFA	-2.96	1.16	0.99	-2.31	-2.54	-7.44	1.3	2.16	2.2	2.23	2.25	2.34	IPEX-4L	325mm	NB



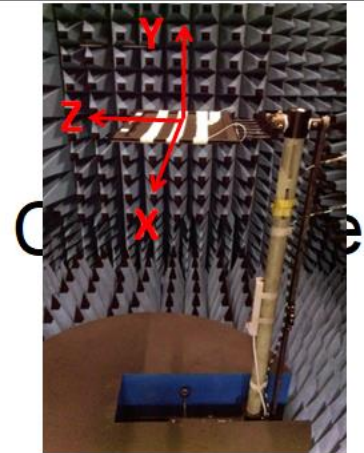
Platform Profile	
Customer	MSI
Category	Notebook
Model Name	MS-17LL
Mockup Stage	MVT
WIFI SKU	WIFI_6E
LTE SKU	N/A
WLAN Ant. Location	Typical
Stand alone GPS	NO
Date	2021/7/19

[illegible]

Device Photos

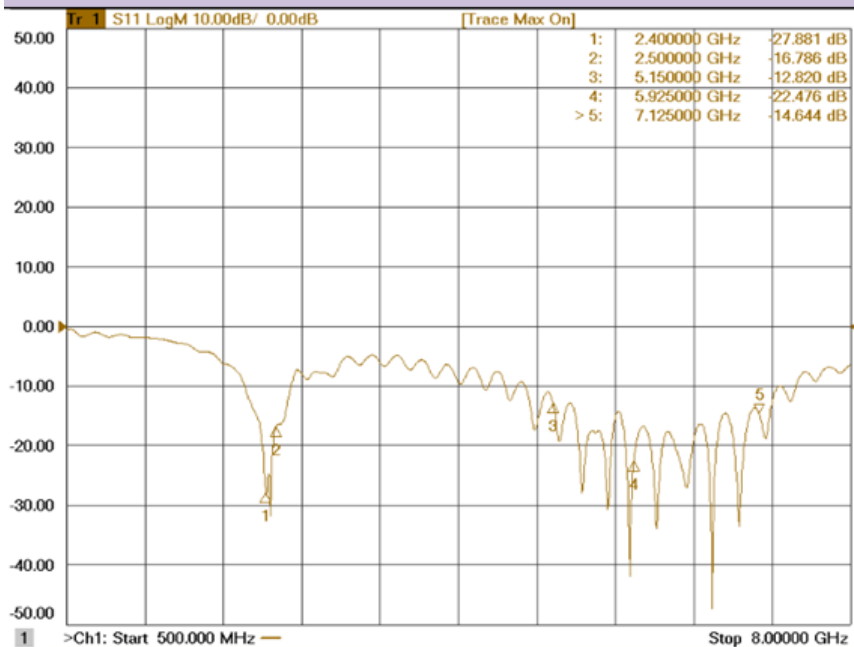


Coordinate System (vendor's chamber)

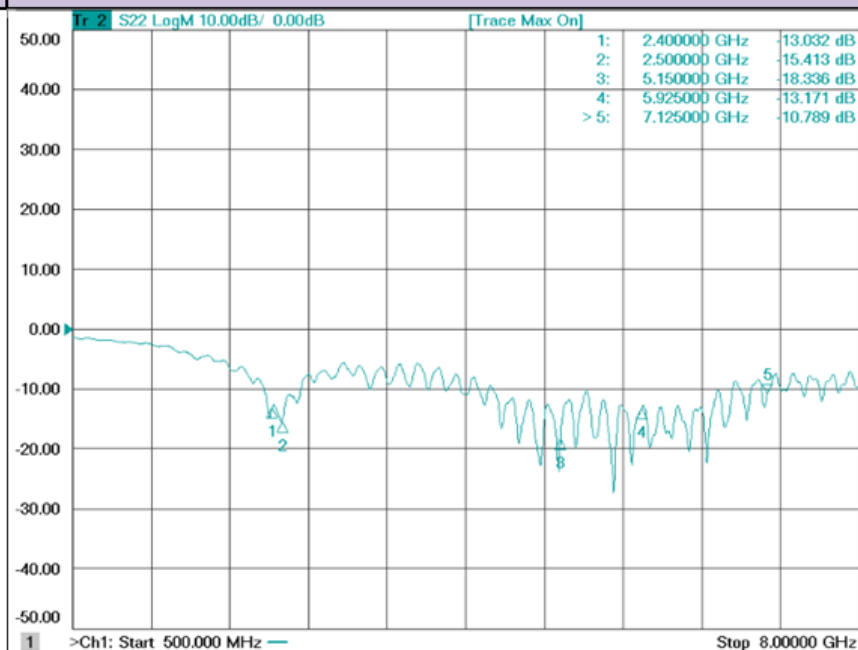


Antenna S11

WLAN_Main

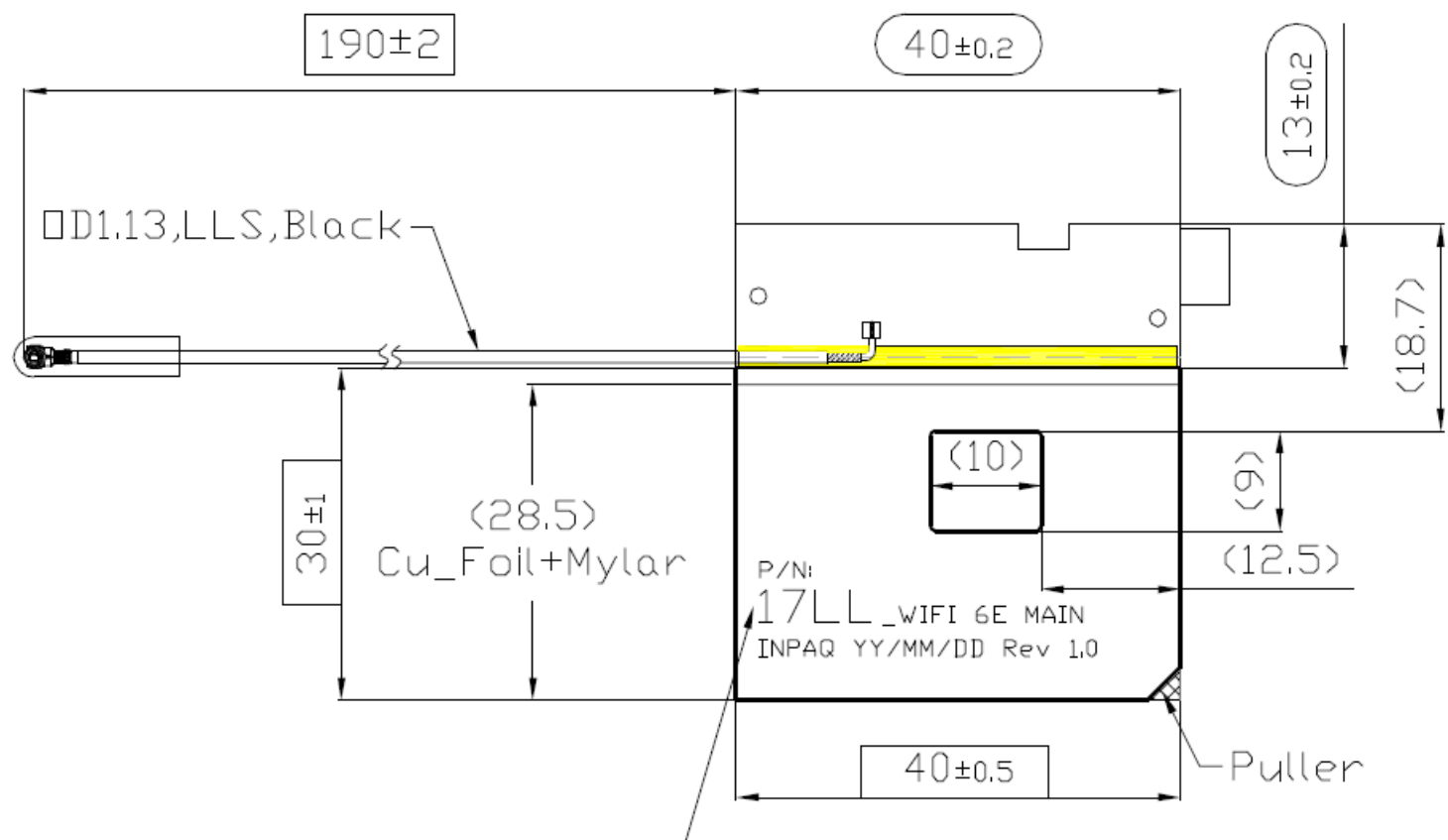


WLAN_Aux

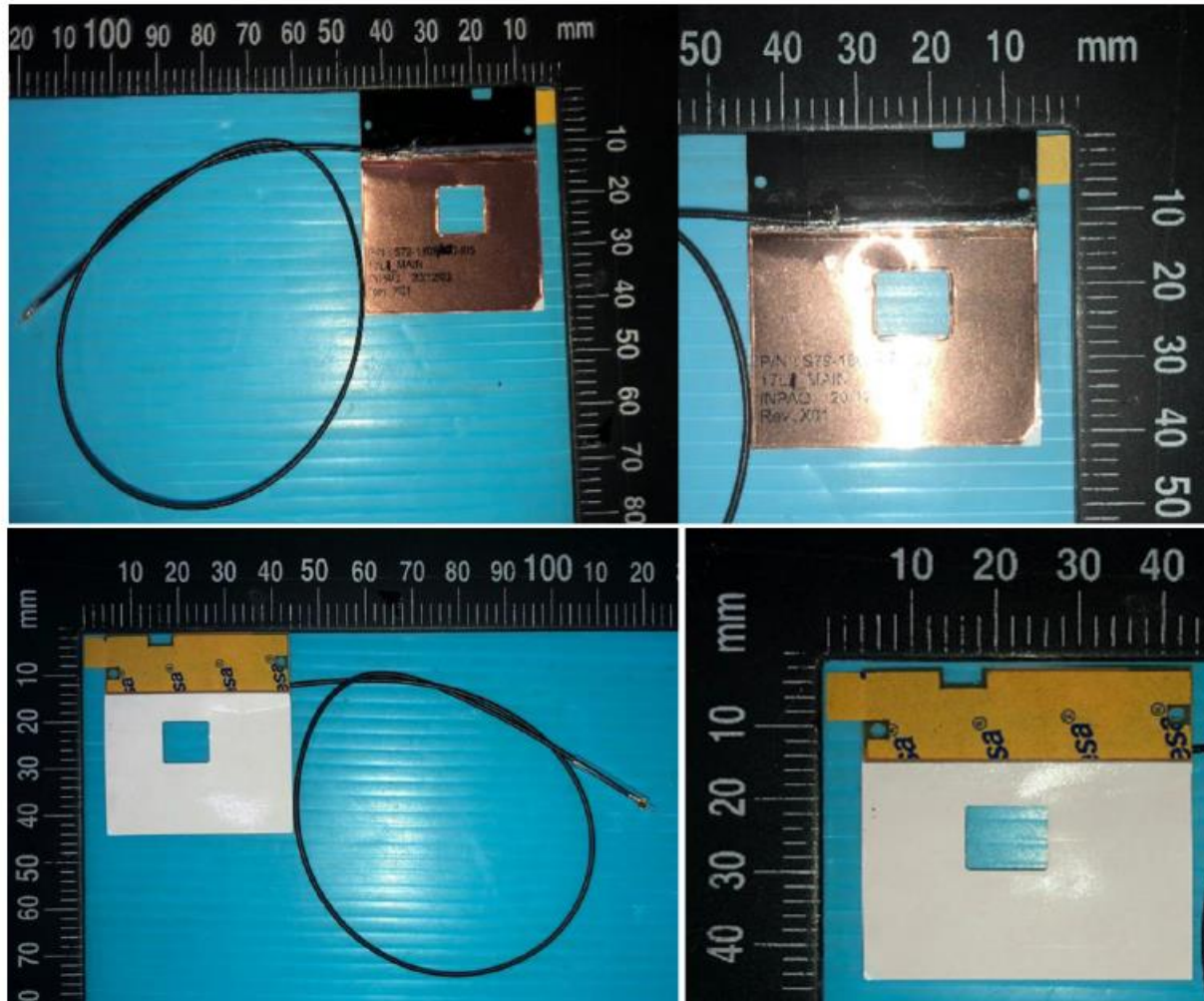


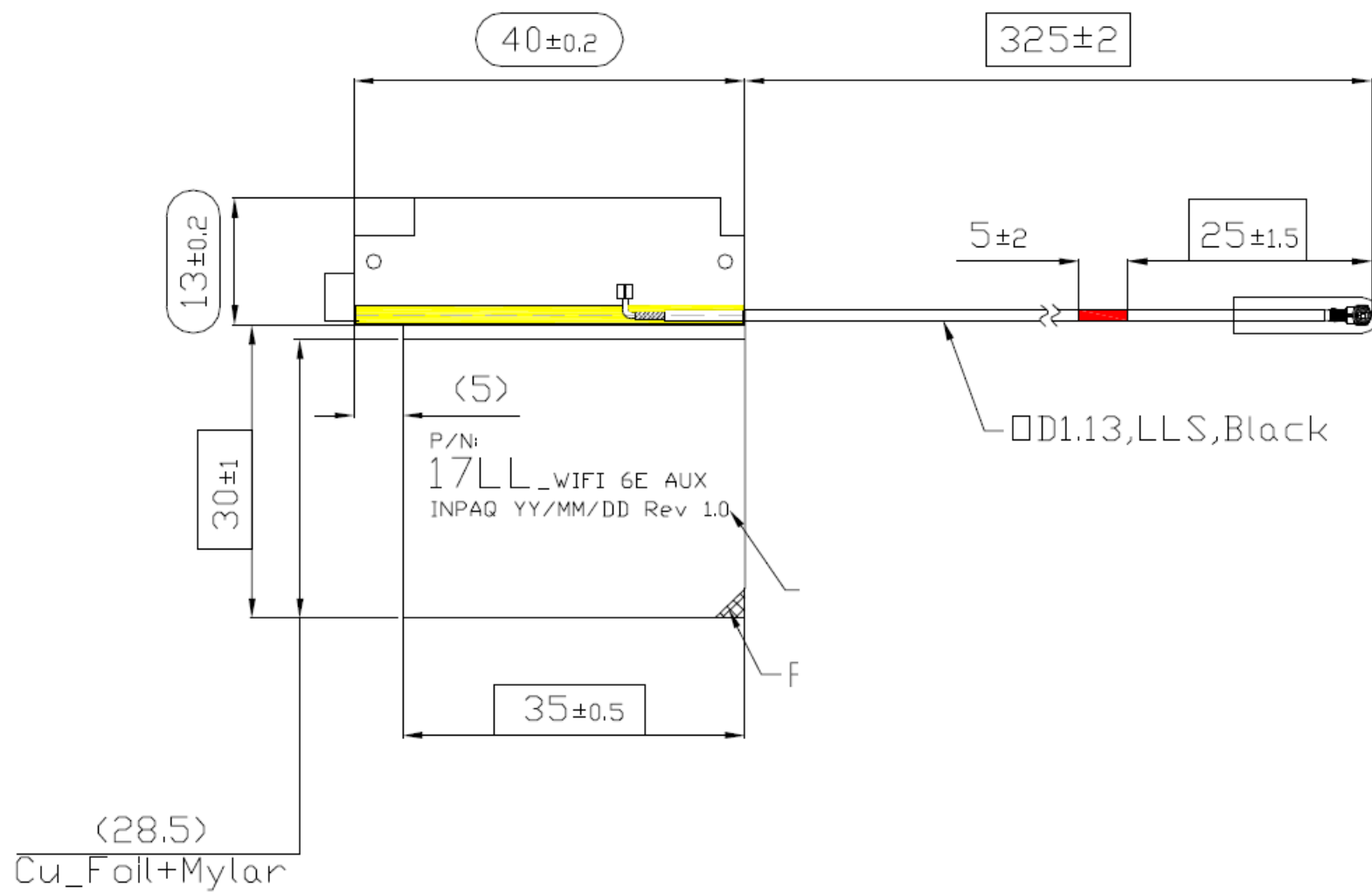
WLAN Antenna spec.				Measured Data	
Typical		Freq.	Efficiency (dB)		Efficiency (dB)
		(MHz)	Main	Aux	Main Aux
WLAN	802.11 b/g	2400	-5.0	-5.0	-3.52 -3.93
		2450	-5.0	-5.0	-3.70 -3.81
		2500	-5.0	-5.0	-3.89 -3.86
	802.11a / ac	5150	-5.5	-5.5	-4.68 -4.63
		5250	-5.5	-5.5	-4.29 -4.85
		5350	-5.5	-5.5	-4.03 -4.66
		5470	-5.5	-5.5	-4.27 -4.77
		5600	-5.5	-5.5	-4.58 -4.80
		5725	-5.5	-5.5	-4.30 -4.82
		5785	-5.5	-5.5	-3.93 -4.38
		5850	-5.5	-5.5	-3.41 -4.18
	WIFI_6E	5925	-6.0	-6.0	-3.69 -5.07
		6085	-6.0	-6.0	-3.73 -4.93
		6245	-6.0	-6.0	-3.52 -4.67
		6405	-6.0	-6.0	-3.15 -4.12
		6425	-6.0	-6.0	-3.25 -4.38
		6465	-6.0	-6.0	-3.37 -4.32
		6525	-6.0	-6.0	-3.17 -3.88
		6645	-6.0	-6.0	-3.93 -4.74
		6795	-6.0	-6.0	-4.31 -4.72
		6875	-6.0	-6.0	-3.75 -4.55
		6975	-6.0	-6.0	-4.02 -5.02
		7095	-6.0	-6.0	-4.04 -4.80
		7125	-6.0	-6.0	-4.26 -4.98

WLAN Antenna Peak Gain spec.					Measured Data	
Typical		Freq	Peak Gain (dBi)		Peak Gain (dBi)	
		(MHz)	Main	Aux	Main	Aux
WLAN	802.11 b/g	2400	3	3	2.24	-4.02
		2450	3	3	0.80	-3.30
		2500	3	3	1.05	-2.96
	802.11a / ac	5150	3.5	3.5	1.00	0.57
		5250	3.5	3.5	0.34	-0.29
		5350	3.5	3.5	-0.36	0.52
		5470	3.5	3.5	0.57	0.36
		5600	3.5	3.5	1.94	0.02
		5725	3.5	3.5	0.79	0.04
		5785	3.5	3.5	1.26	0.61
		5850	3.5	3.5	2.68	1.16
	WIFI_6E	5925	3.5	3.5	3.01	0.99
		6085	3.5	3.5	2.02	-1.18
		6245	3.5	3.5	0.36	-3.08
		6405	3.5	3.5	-1.09	-2.54
		6425	3.5	3.5	-0.76	-2.14
		6465	3.5	3.5	-1.23	-2.31
		6525	3.5	3.5	-1.96	-2.54
		6645	3.5	3.5	-3.46	-6.89
		6795	3.5	3.5	-4.62	-6.81
		6875	3.5	3.5	-4.79	-7.44
		6975	3.5	3.5	-3.68	-8.2
		7095	3.5	3.5	-3.83	-7.73
		7125	3.5	3.5	-4.14	-8.9

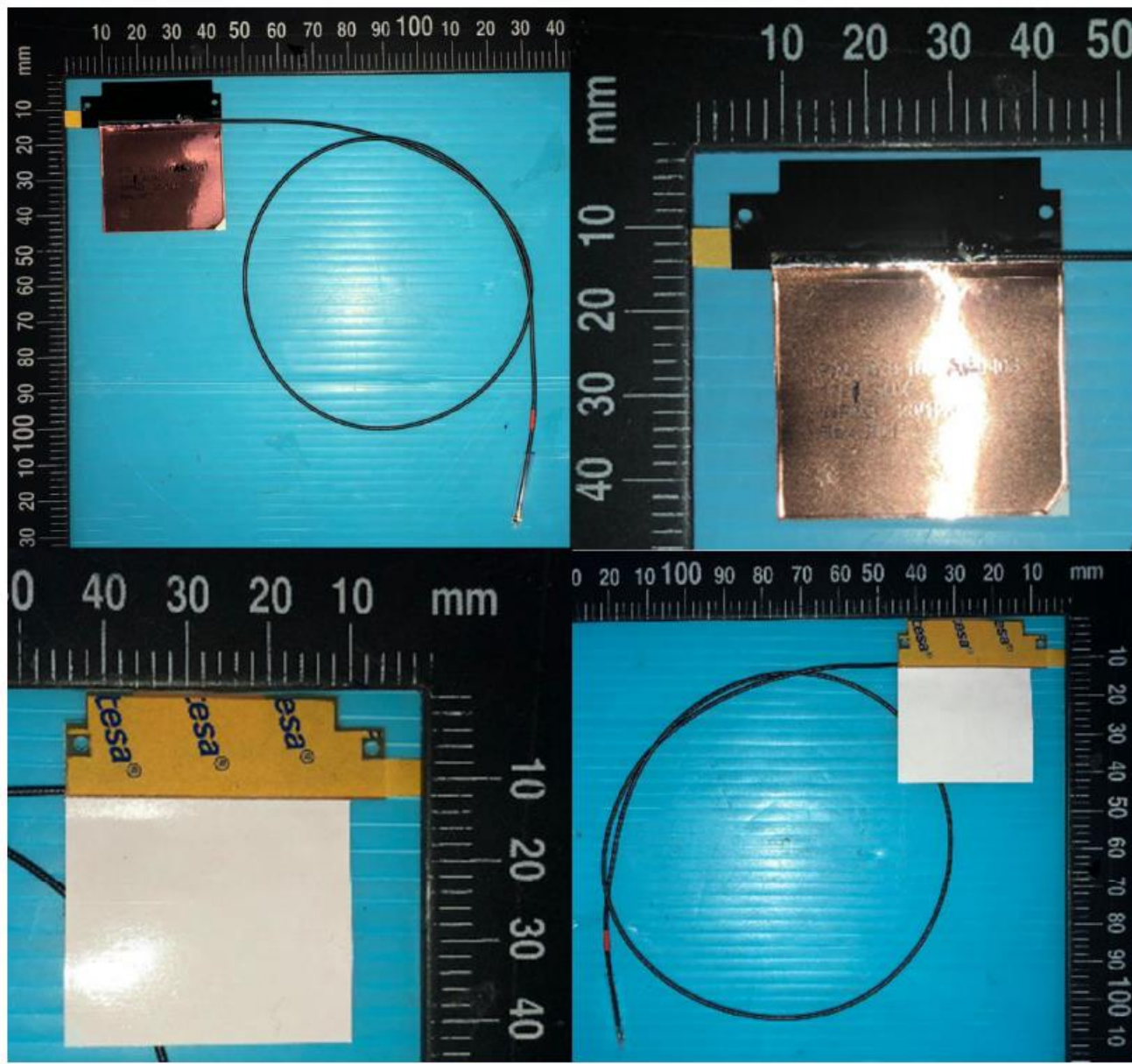


Main Antenna Photo:





Aux Antenna Photo:

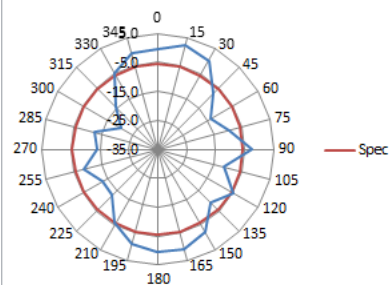


Coverage Spec.	Gain	2.4 GHz	>=	-5.5	dBi
		5 GHz	>=	-7	dBi
	Coverage	Main	>=	50	%
		Aux	>=	40	%

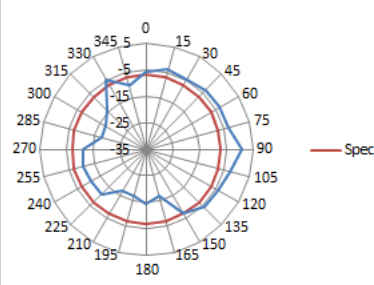


MSI		WIFI XY cut																				
Angle	2.4 GHz		2.45 GHz		2.5 GHz		5.15 GHz		5.25 GHz		5.35 GHz		5.47 GHz		5.6 GHz		5.725 GHz		5.785 GHz		5.85 GHz	
	WLAN_M	WLAN_A	WLAN_M	WLAN_A	WLAN_M	WLAN_A	WLAN_M	WLAN_A	WLAN_M	WLAN_A	WLAN_M	WLAN_A	WLAN_M	WLAN_A	WLAN_M	WLAN_A	WLAN_M	WLAN_A	WLAN_M	WLAN_A	WLAN_M	WLAN_A
0	-0.27	-5.41	-1.24	-3.74	-2.09	-2.96	-5.73	-9.56	-6.48	-10.26	-5.73	-10.79	-3.28	-9.26	-2.33	-10.29	-2.88	-9.79	-1.94	-9.74	-1.45	-10.34
15	2.24	-4.21	0.80	-4.56	-0.81	-3.58	-3.89	-11.60	-4.54	-12.92	-4.63	-14.56	-2.73	-11.57	-1.67	-9.64	-2.30	-9.88	-2.51	-11.59	-2.43	-11.61
30	0.42	-4.20	-0.13	-3.51	-1.27	-2.83	-4.73	-10.15	-6.55	-10.13	-7.72	-9.38	-5.68	-8.40	-4.49	-6.11	-3.68	-4.24	-4.12	-4.16	-3.85	-3.68
45	-7.90	-5.46	-5.50	-5.48	-4.68	-4.82	-3.46	-6.32	-3.25	-6.16	-3.17	-5.12	-2.27	-3.86	-1.54	-3.99	-0.30	-3.54	-0.25	-3.45	-0.70	-2.96
60	-13.77	-9.89	-14.55	-9.77	-13.66	-7.96	-3.09	-4.17	-2.27	-5.21	-2.14	-5.41	-0.54	-4.87	0.51	-3.20	0.79	-1.64	1.26	-2.08	2.68	-1.53
75	-9.29	-9.29	-9.85	-8.61	-8.12	-9.29	-3.00	-4.82	-2.30	-5.29	-1.09	-6.00	0.57	-4.53	1.94	-3.60	0.68	-3.48	0.02	-2.94	-0.49	-1.29
90	-2.51	-4.25	-3.34	-3.30	-3.64	-2.96	1.00	-5.56	0.34	-5.43	-0.36	-3.42	0.03	-3.70	-0.63	-3.89	-0.68	-2.42	-1.37	-2.46	-0.92	-1.59
105	-11.16	-5.45	-10.37	-4.69	-8.24	-4.57	-2.41	-5.39	-2.13	-6.38	-2.43	-4.94	-0.86	-3.59	-0.80	-2.70	-0.79	-1.32	-0.46	-1.92	1.32	-1.47
120	-4.65	-4.33	-4.39	-4.36	-5.19	-6.21	-4.17	-5.41	-3.33	-4.64	-4.60	-3.26	-2.93	-2.26	-1.25	0.02	-0.79	0.04	-1.29	0.61	-0.69	1.16
135	-9.17	-5.08	-7.66	-5.26	-5.50	-5.08	-4.19	-3.17	-4.38	-0.29	-3.47	0.52	-3.54	0.36	-4.09	-2.70	-6.58	-2.97	-6.22	-2.93	-4.59	-2.35
150	-2.00	-5.44	-1.24	-6.78	-0.44	-9.18	-7.00	-2.82	-7.00	-3.88	-7.00	-4.96	-6.55	-4.75	-4.84	-5.66	-3.44	-8.93	-3.59	-10.94	-3.26	-9.59
165	0.67	-5.05	0.09	-6.22	1.05	-5.25	-16.63	-1.57	-19.47	-3.54	-15.80	-3.61	-12.34	-3.50	-11.73	-5.38	-10.59	-5.71	-9.75	-6.38	-7.97	-6.93
180	0.61	-5.37	-0.38	-4.89	-1.65	-4.60	-14.38	0.57	-16.57	-4.39	-13.09	-5.46	-8.50	-4.53	-7.29	-5.07	-8.06	-4.74	-8.92	-4.44	-8.04	-3.84
195	-1.20	-7.54	-2.17	-6.70	-5.02	-9.21	-16.98	-7.03	-20.22	-4.90	-16.35	-4.86	-12.17	-4.55	-9.98	-3.59	-10.60	-3.79	-11.85	-3.38	-12.95	-2.52
210	-5.50	-8.42	-6.66	-8.35	-7.97	-10.48	-16.91	-9.96	-17.76	-14.61	-17.31	-13.49	-13.82	-10.12	-14.73	-8.72	-9.51	-10.33	-10.55	-9.20	-10.96	-7.41
225	-12.80	-14.00	-11.07	-14.29	-12.25	-14.53	-11.18	-15.14	-12.14	-16.61	-12.52	-16.48	-11.86	-19.85	-5.89	-21.21	-4.65	-17.97	-4.22	-17.32	-4.14	-15.03
240	-13.15	-12.67	-14.26	-12.46	-11.37	-12.94	-10.76	-18.75	-12.21	-17.11	-13.78	-17.48	-11.56	-16.65	-9.88	-17.79	-8.52	-16.23	-8.74	-17.34	-9.12	-17.32
255	-8.62	-16.95	-9.22	-18.73	-10.97	-16.72	-10.38	-15.29	-12.01	-16.21	-12.31	-15.21	-11.34	-13.44	-11.19	-10.25	-10.30	-9.68	-9.20	-9.65	-8.04	-9.15
270	-14.25	-14.10	-13.78	-14.31	-14.66	-13.17	-11.36	-14.56	-11.21	-16.64	-12.53	-14.77	-13.35	-13.24	-14.20	-12.27	-10.56	-14.61	-9.56	-14.46	-9.47	-12.62
285	-12.32	-10.85	-14.36	-10.64	-13.66	-11.28	-17.43	-15.41	-20.74	-14.13	-17.39	-12.41	-22.56	-9.80	-14.62	-7.56	-10.47	-7.86	-9.62	-8.57	-9.23	-7.53
300	-20.23	-10.06	-15.41	-9.97	-18.62	-10.02	-17.18	-14.17	-16.19	-15.37	-16.21	-11.59	-17.64	-8.37	-23.45	-6.71	-19.91	-6.27	-22.06	-6.77	-17.09	-6.46
315	-14.42	-7.07	-12.94	-6.60	-14.17	-7.18	-13.99	-21.70	-14.68	-20.59	-15.25	-18.95	-14.08	-12.65	-15.68	-11.43	-18.62	-11.16	-15.88	-12.02	-12.61	-11.46
330	-4.88	-6.73	-5.35	-5.46	-6.77	-6.84	-4.73	-10.17	-4.04	-12.75	-3.68	-12.06	-2.81	-8.86	-1.68	-8.42	-4.49	-10.15	-5.95	-9.82	-6.14	-9.97
345	-0.41	-7.39	-0.75	-6.40	-2.07	-5.34	-10.23	-8.60	-11.39	-6.80	-7.00	-6.82	-5.50	-7.62	-6.21	-9.80	-7.07	-8.54	-6.73	-7.78	-6.28	-6.37
coverage	50.0%	45.8%	50.0%	41.7%	50.0%	41.7%	50.0%	41.7%	50.0%	50.0%	50.0%	50.0%	54.2%	45.8%	58.3%	54.2%	54.2%	50.0%	58.3%	50.0%	58.3%	54.2%

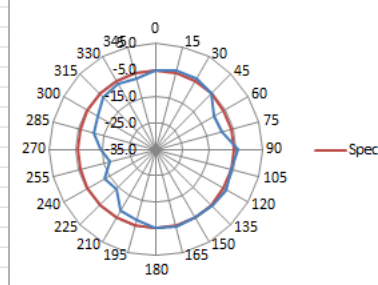
Main_2.4 GHz



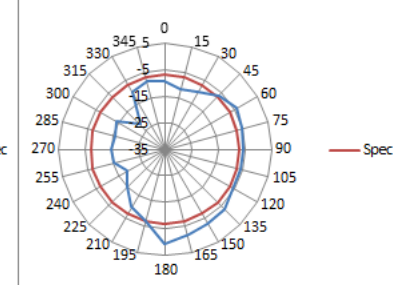
Main_5.15 GHz



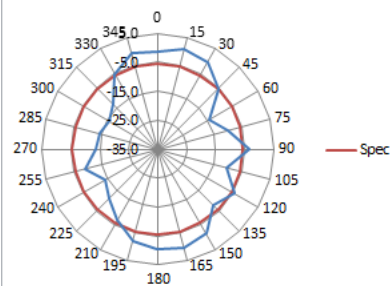
Aux_2.4 GHz



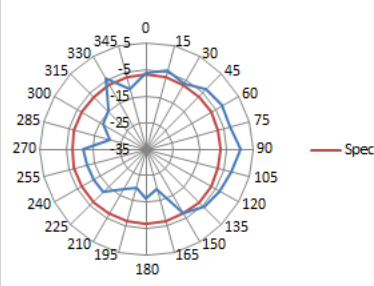
Aux_5.15 GHz



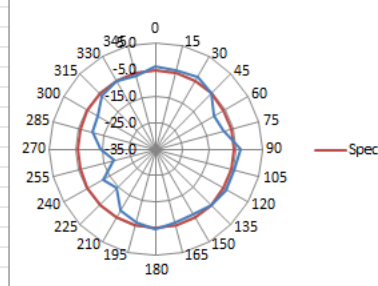
Main_2.45 GHz



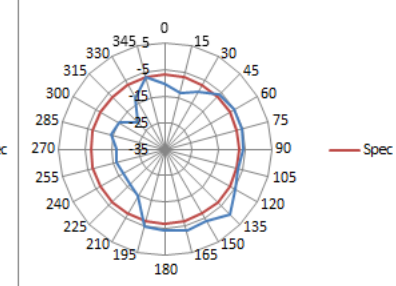
Main_5.25 GHz



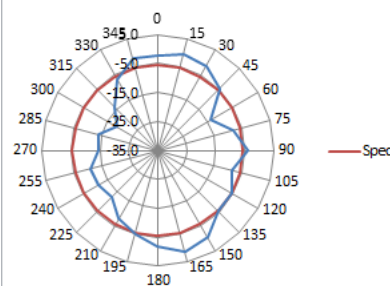
Aux_2.45 GHz



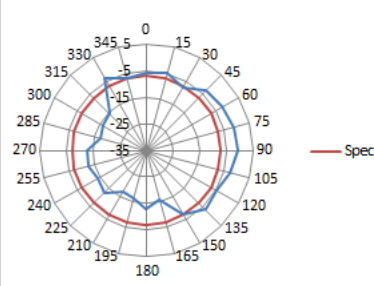
Aux_5.25 GHz



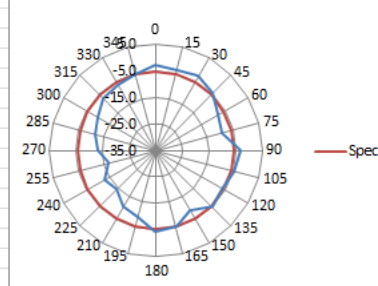
Main_2.5 GHz



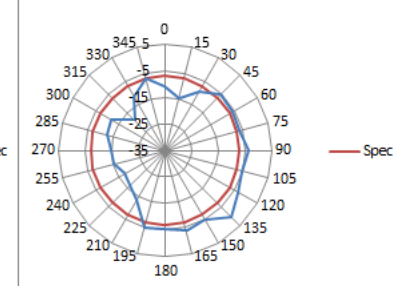
Main_5.35 GHz



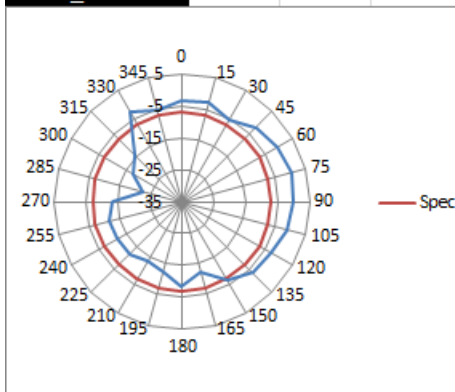
Aux_2.5 GHz



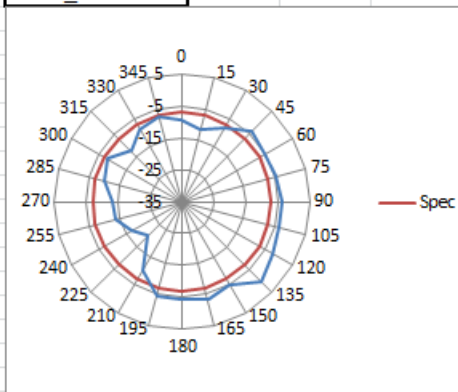
Aux_5.35 GHz



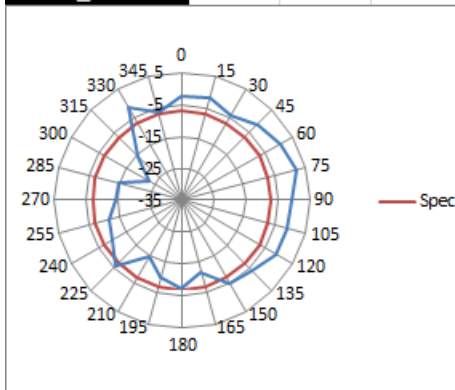
Main_5.47 GHz



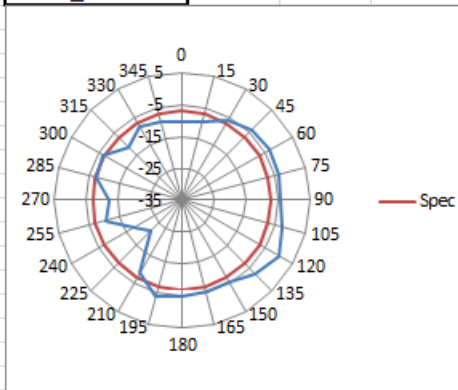
Aux_5.47 GHz



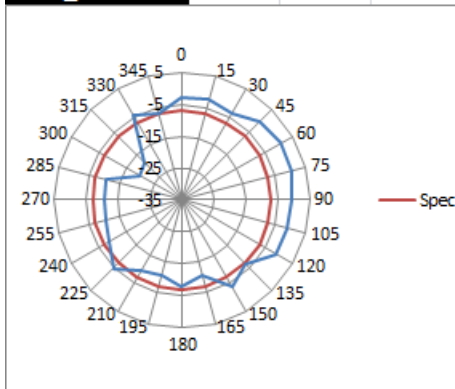
Main_5.6 GHz



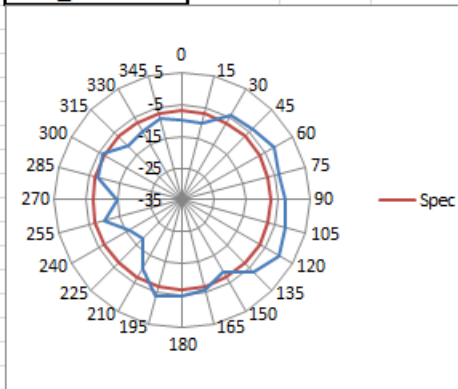
Aux_5.6 GHz



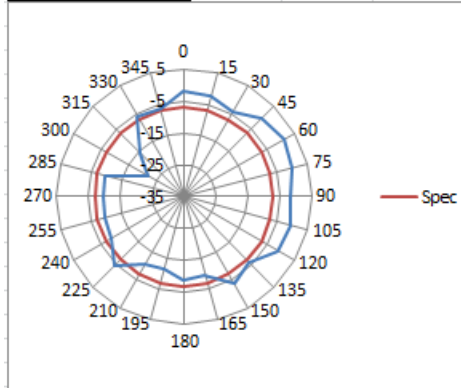
Main_5.725 GHz



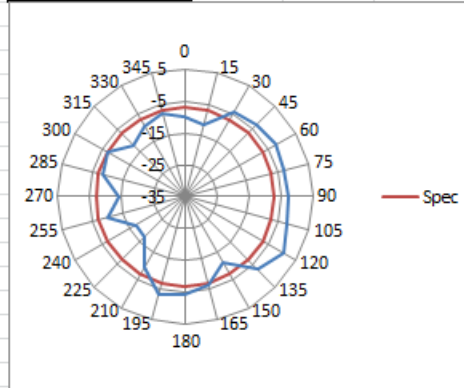
Aux_5.725 GHz



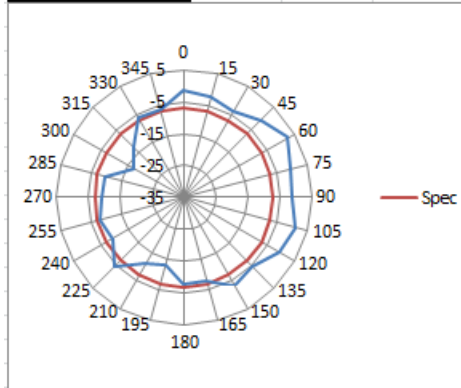
Main_5.785 GHz



Aux_5.785 GHz



Main_5.85 GHz



Aux_5.85 GHz

