



CDR9030 Antenna Test Report (NA SKU)

DV

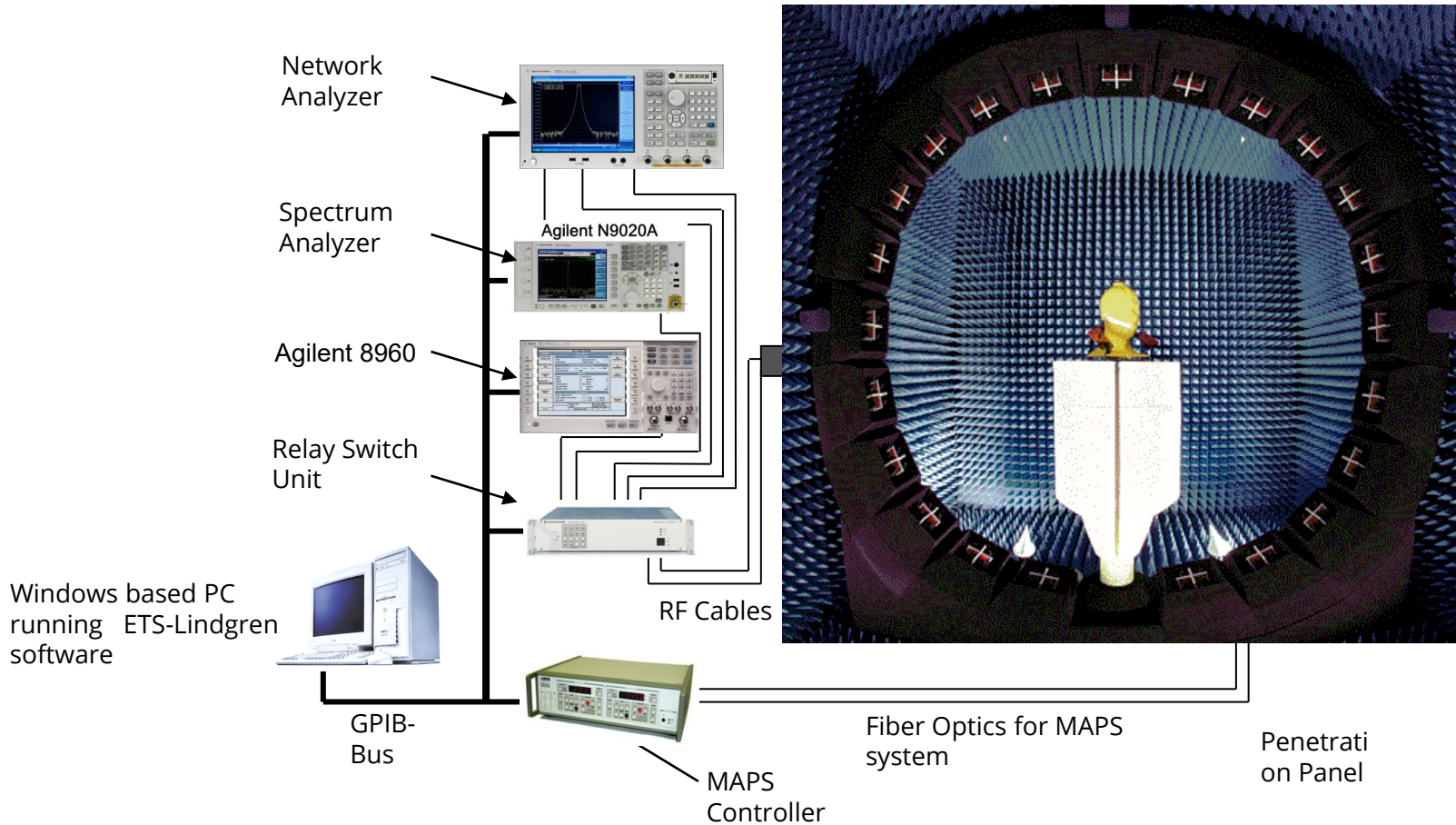
2022/06/24



Agenda

- Antenna Location
- EV1 PCBA
- Modification
- Antenna Test Result
 - LTE-Main Antenna
 - LTE-AUX Antenna
 - Wi-Fi Antenna
- OTA Test

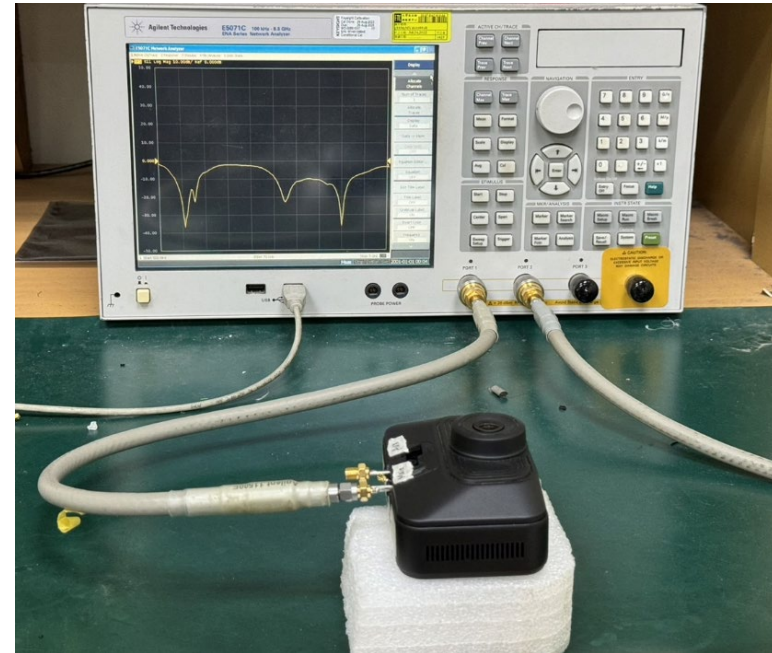
Askey OTA Chamber Configuration by Conic-cut



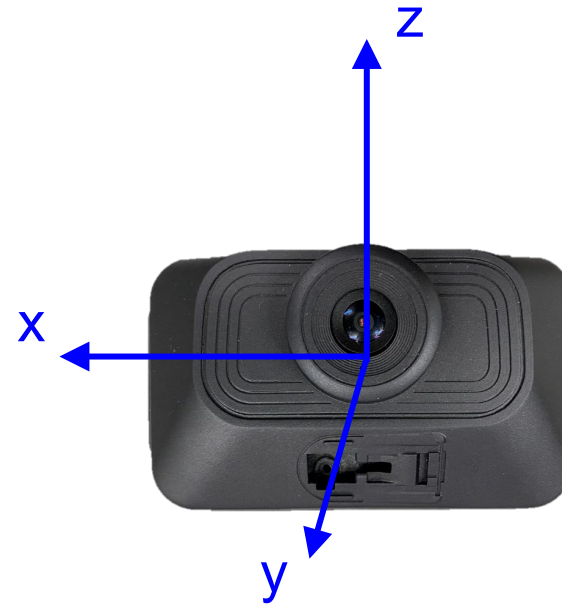
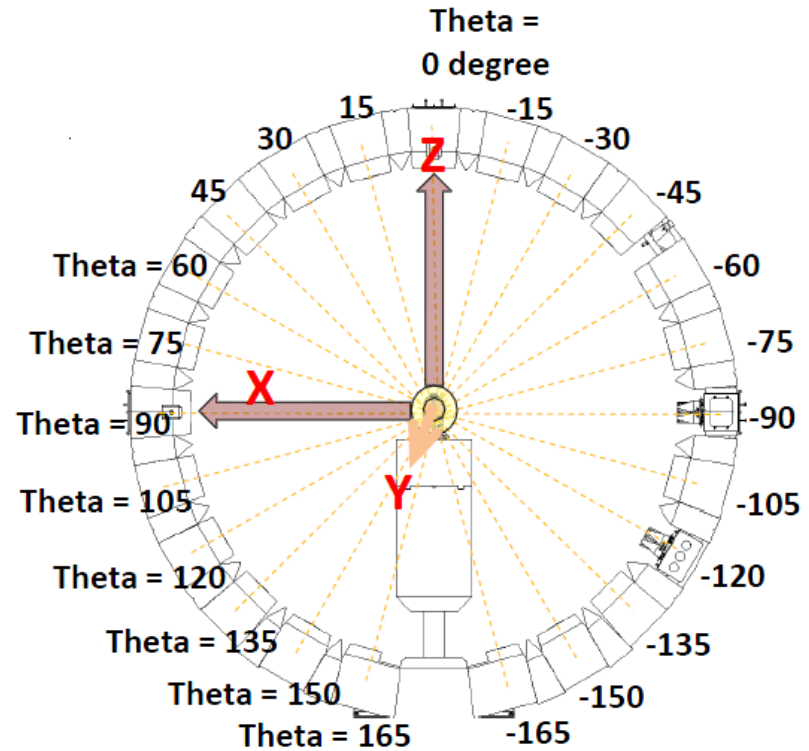
VSWR/Return Loss Measured Environments



Agilent E5071C ENA Network Analyzer



Fixture Reference position



Antenna Location

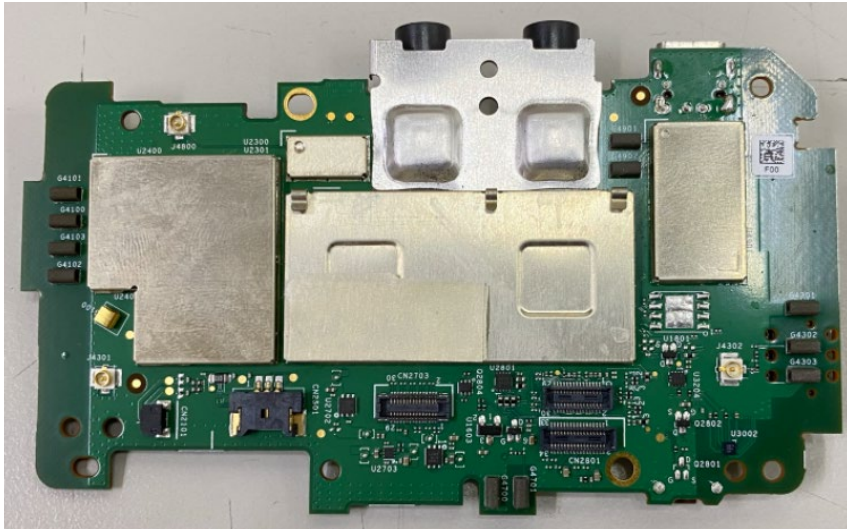


Top View

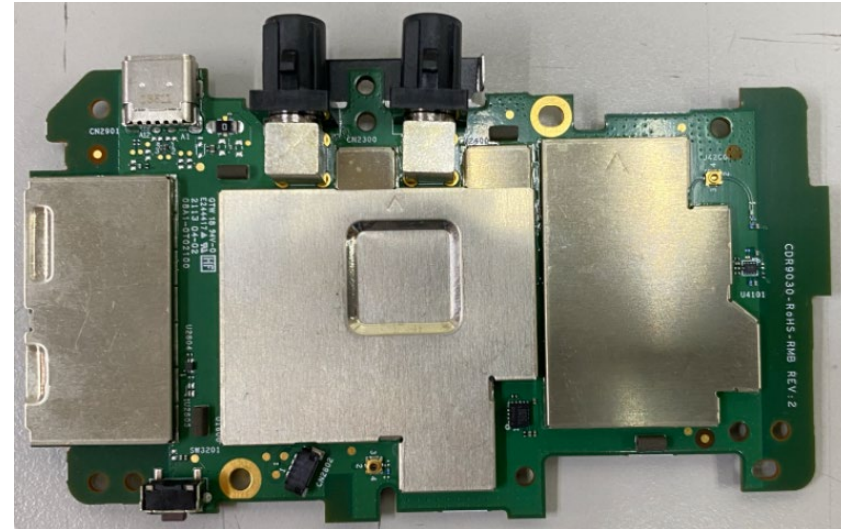


Back View

DV PCBA

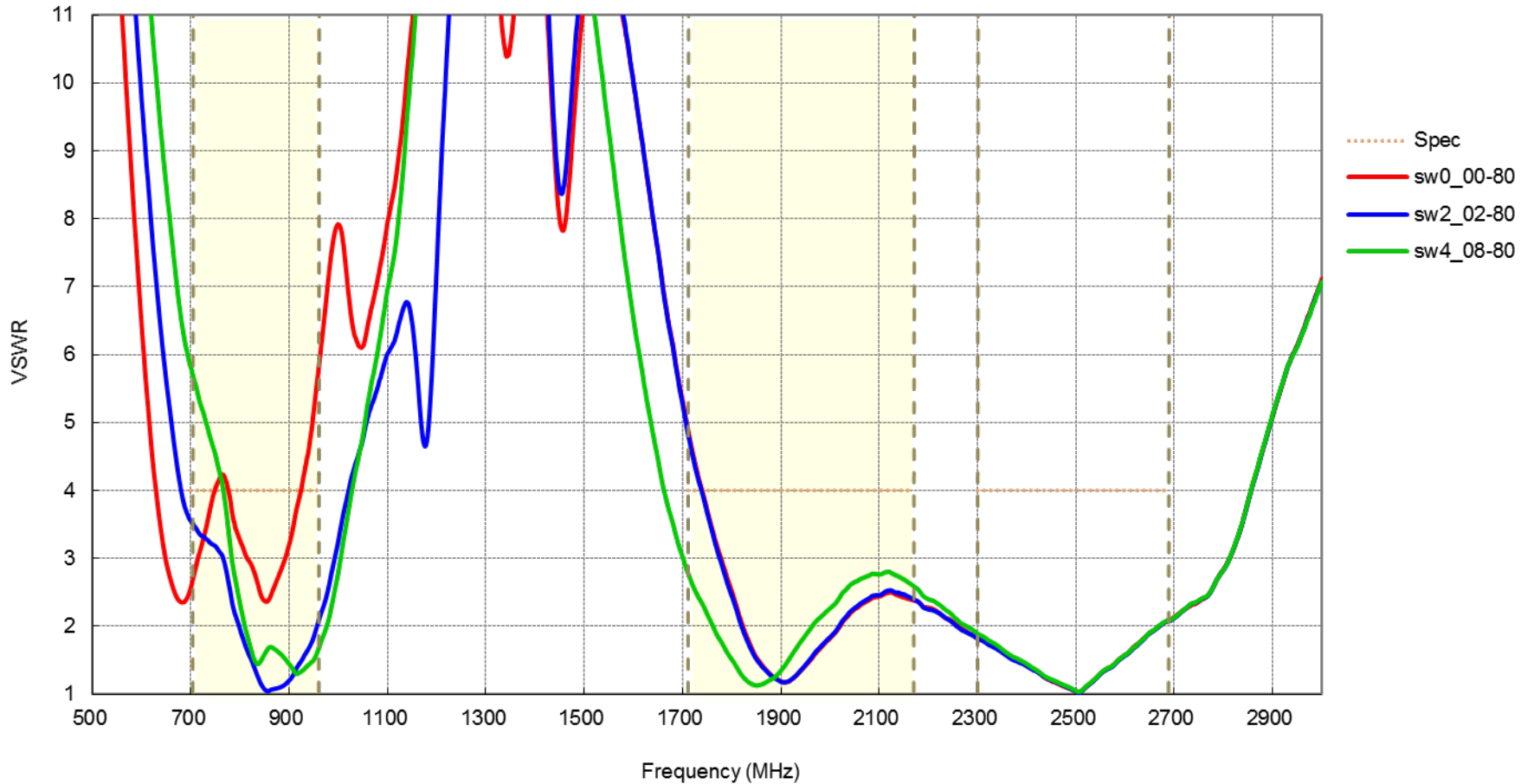


Top View



Bottom View

LTE-Main S-parameters



LTE-Main Passive Performance

	B12 TX				B12 RX				B13 RX				B13 TX				B26 TX						B26 RX						B5 TX						B5 RX					
Frequency (MHz)	699	704	710	716	729	734	740	746	748	751	756	777	782	787	791	806	814	821	824	831	836	849	859	862	869	876	880	894	900	915	925	940	960							
Spec	15	15	15	15	12	12	12	12	12	12	12	15	15	15			15	15	15	15	15	15	12	12	12	12	12	12												
Sw0_00-80	20.96	22.08	23.43	24.17	26.35	24.97	25.46	23.71	22.6	22.82	21.03	20.5	22.88	24.29	26.01	31.39	31.38	30.38	30.06	28.28	26.81	20.76	16.19	15.25	13.67	13.13	13.14	13.68	14.36	14.73	14.18	11.49	7.767							
Sw2_02-80	14.52	15.95	17.85	19.32	23.61	23.21	24.63	24.07	23.35	24.27	23.13	26.45	30.21	32.45	35.06	42.39	42.22	40.54	40.19	37.71	36.11	31.16	28.44	27.87	26.5	25.58	25.41	26.15	27.87	32.61	35.98	37.54	38.04							
Sw4_08-80	6.91	7.755	8.885	9.857	12.91	13.07	14.18	14.35	14.09	14.99	14.78	19.95	23.54	26.34	29.25	38.5	39.66	38.97	39.06	37.5	36.37	32.01	29.6	28.97	27.53	26.36	26.07	26.29	27.74	31.79	35.14	37.29	38.97							

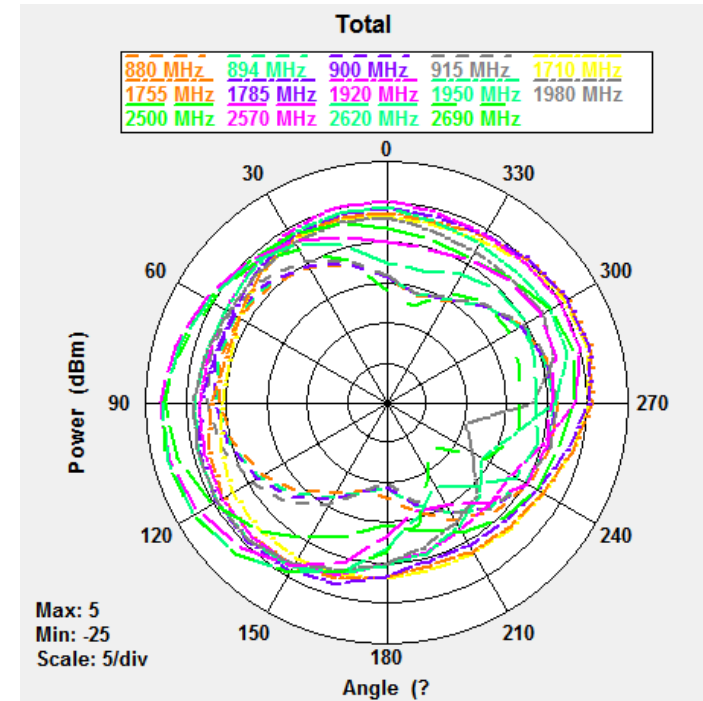
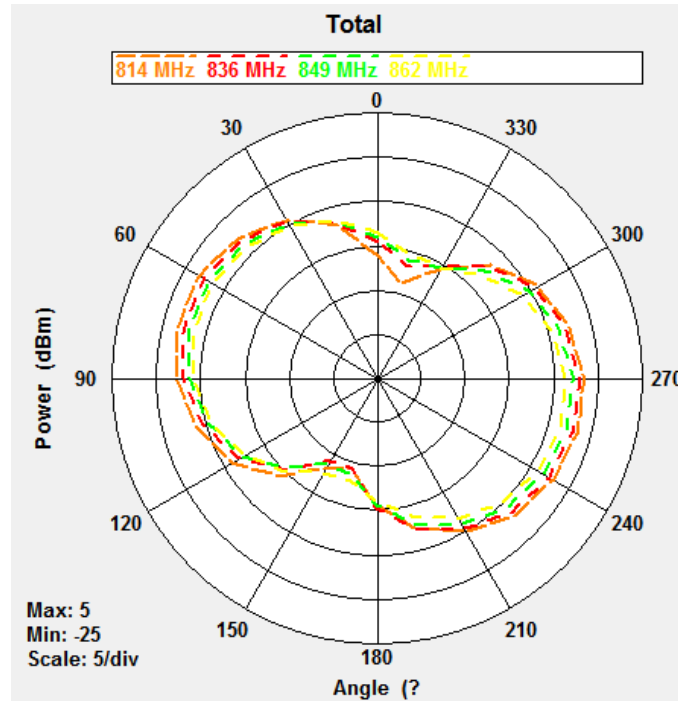
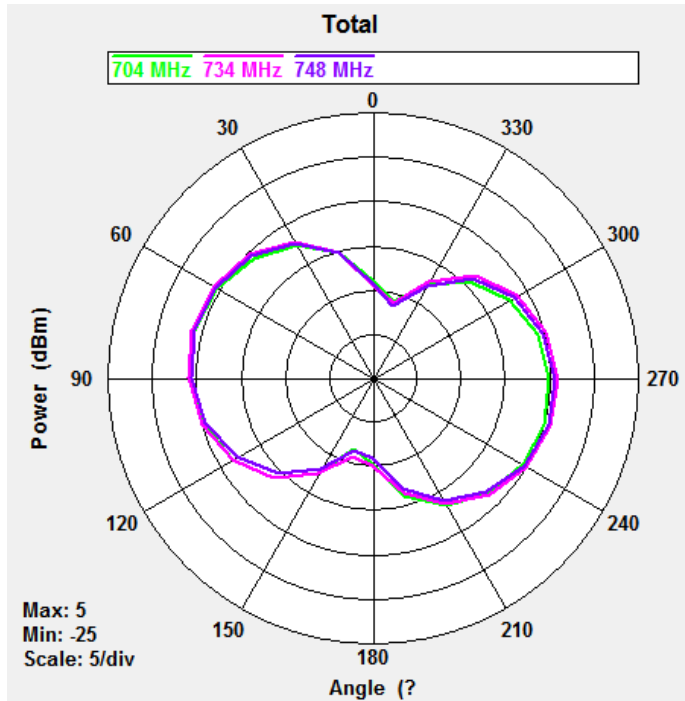
	B4 TX				B2 TX								B2 RX					B4 RX																							
Frequency (MHz)	1710	1730	1750	1755	1770	1785	1805	1840	1850	1880	1900	1910	1920	1930	1950	1960	1980	1990	2010	2018	2025	2110	2140	2155	2170	2300	2350	2400	2500	2515	2535	2555	2570	2595	2620	2630	2655	2680	2690		
Spec	28	28	28	28					28	28	28	28		25	25	25	25	25				25	25	25																	
Sw0_00-80	24.58	27.22	31.98	33.65	37.63	42.13	45.74	52.18	55.1	58.9	61.07	61.2	59.36	57.44	58.08	59.4	52.7	49.8	47.89	48.53	48.79	46.79	48.27	46.95	47.39	46.78	51.29	47.69	48.55	48.79	45.79	47.62	48.22	46.12	44.88	46.95	45.12	43.09	42.08		
Sw2_02-80	25.66	28.67	33.67	35.42	39.44	43.95	47.09	53.26	56.3	60.22	62.02	61.99	59.93	57.77	58.1	59.32	52.55	49.58	47.46	47.98	48.21	47.02	48.5	47.26	47.64	46.57	51.13	47.29	48.35	48.51	45.59	47.57	48.26	46.1	44.92	47.01	45.13	43.07	42.05		
Sw4_08-80	45.93	47.25	51.19	52.71	55.49	58.59	58.24	57.99	59.71	61.07	61.4	60.59	57.6	54.68	53.78	54.43	47.9	45.03	42.96	43.32	43.5	43.37	44.93	43.88	44.42	45.35	50.19	46.75	48.29	48.51	45.59	47.56	48.23	46.16	44.94	47.03	45.19	43.16	42.16		

LTE-Main Antenna Gain

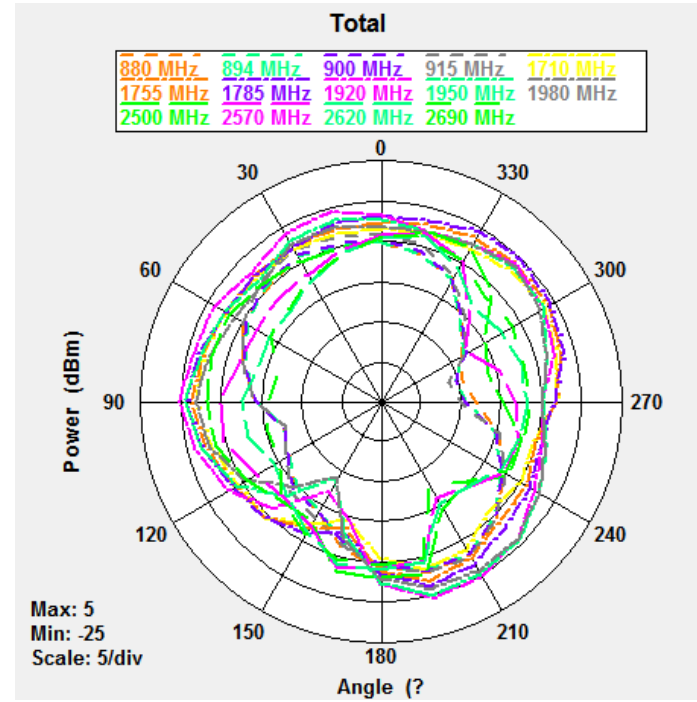
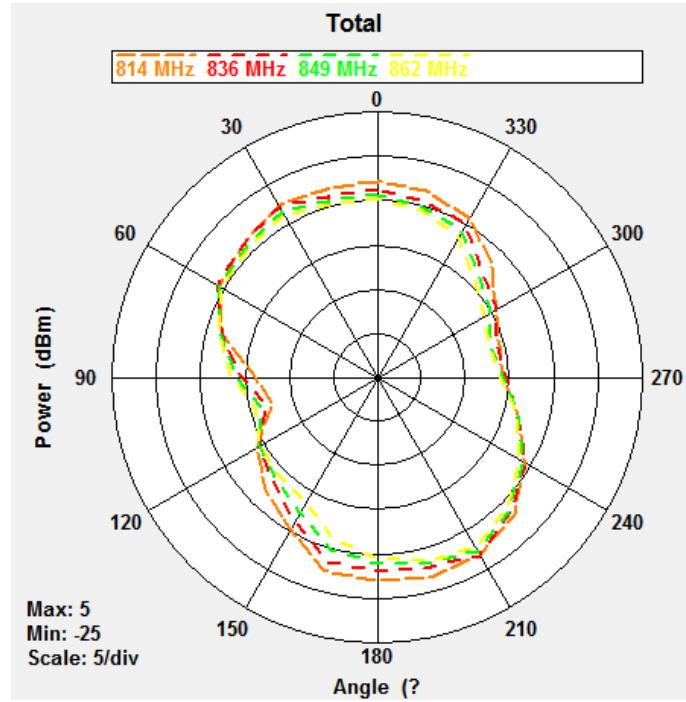
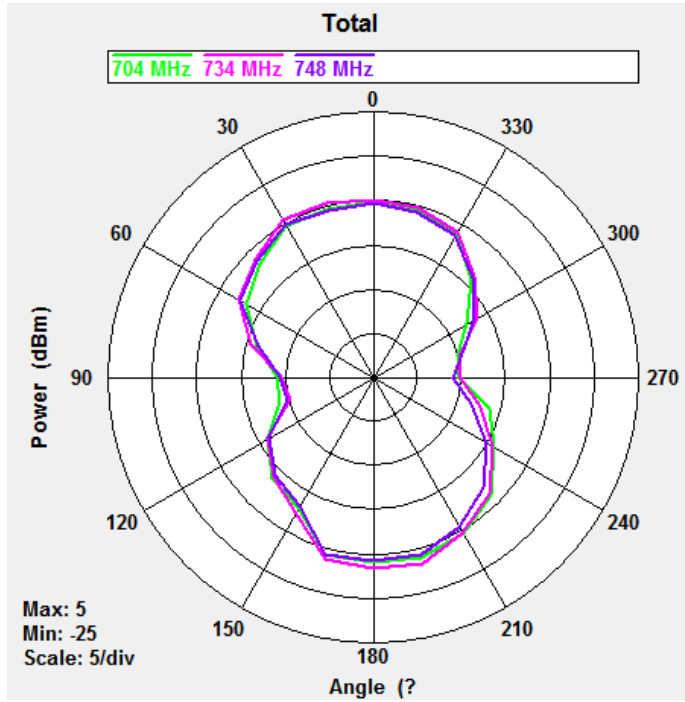
	B12 TX				B17 TX				B13 RX				B13 TX				B26 TX				B5 TX				B26 RX				B5 RX				
Frequency (MHz)	699	704	710	716	729	734	740	746	748	751	756	777	782	787	791	806	814	821	824	831	836	849	859	862	869	876	880	894	900	915	925	940	960
Gain (dBi)	-3.18	-3.16	-2.77	-2.71	-2.40	-2.63	-2.73	-3.25	-3.26	-3.30	-3.67	-3.53	-2.95	-2.66	-0.99	-0.04	-0.26	-0.63	-0.64	-1.01	-1.13	-1.59	-1.80	-1.95	-1.98	-1.67	-1.62	-1.34	-0.88	0.01	0.55	0.72	0.86

	B4 TX				B2 TX				B2 RX				B4 RX																										
Frequency (MHz)	1710	1730	1750	1755	1770	1785	1805	1840	1850	1880	1900	1910	1920	1930	1950	1960	1980	1990	2010	2018	2025	2110	2140	2155	2170	2300	2350	2400	2500	2515	2535	2555	2570	2595	2620	2630	2655	2680	2690
Gain (dBi)	0.75	0.92	1.07	1.12	1.14	1.00	0.72	0.34	0.70	0.97	0.99	0.76	0.34	0.17	0.22	0.49	-0.05	-0.37	-0.75	-0.63	-0.76	-0.85	-0.58	-0.79	-0.78	1.06	1.32	0.68	2.33	2.59	2.54	2.80	2.93	2.67	2.51	2.94	2.71	2.65	2.49

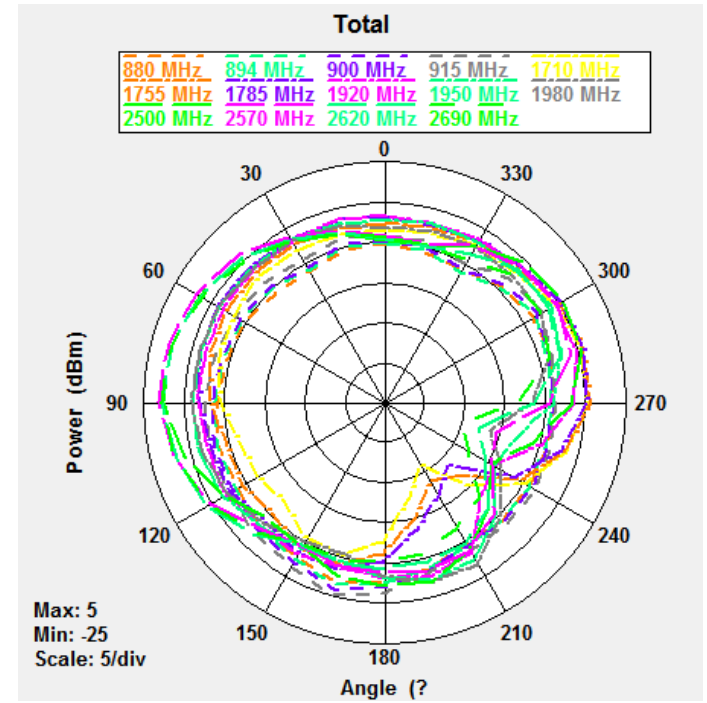
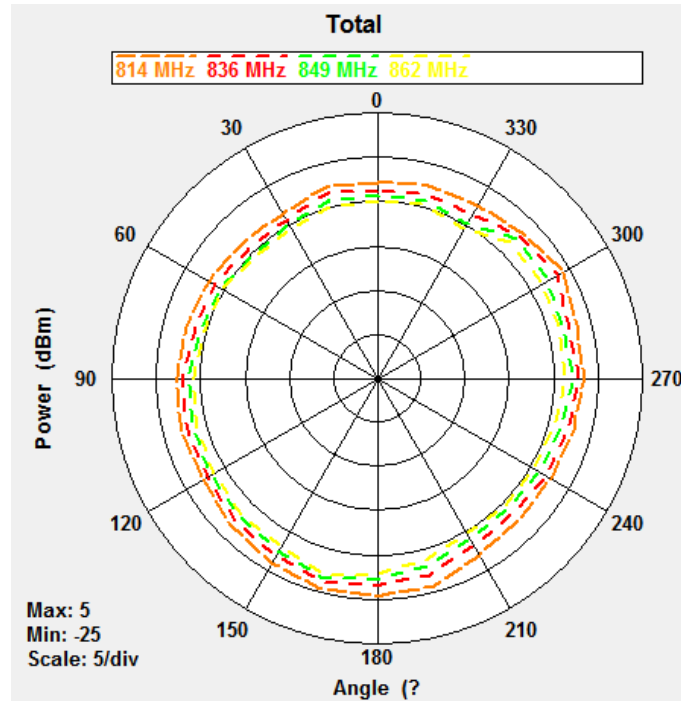
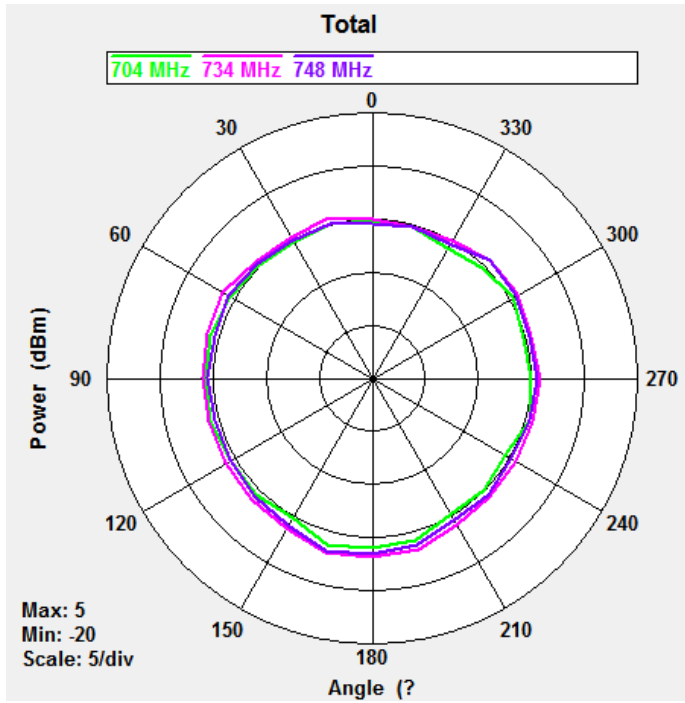
LTE-Main 2D Pattern



LTE-Main 2D Pattern



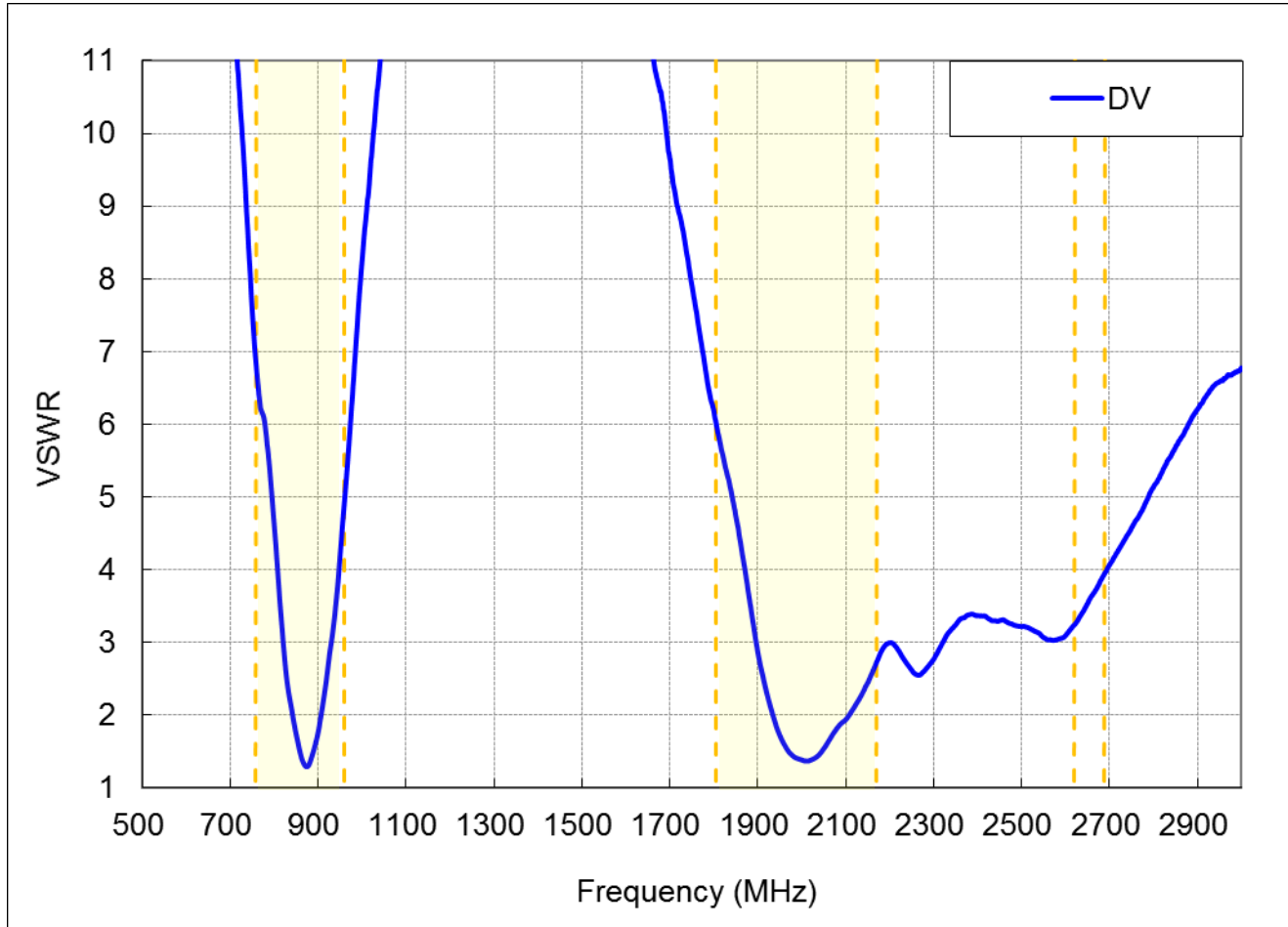
LTE-Main 2D Pattern



Antenna Tune Code List

Band	Path	Tune Code
B2	TX	08-80
	RX	08-80
B4	TX	08-80
	RX	08-80
B5	TX	02-80
	RX	02-80
B12	TX	00-80
	RX	00-80
B13	TX	02-80
	RX	02-80
B17	TX	00-80
	RX	00-80
B26	TX	02-80
	RX	02-80

LTE-AUX S-parameters

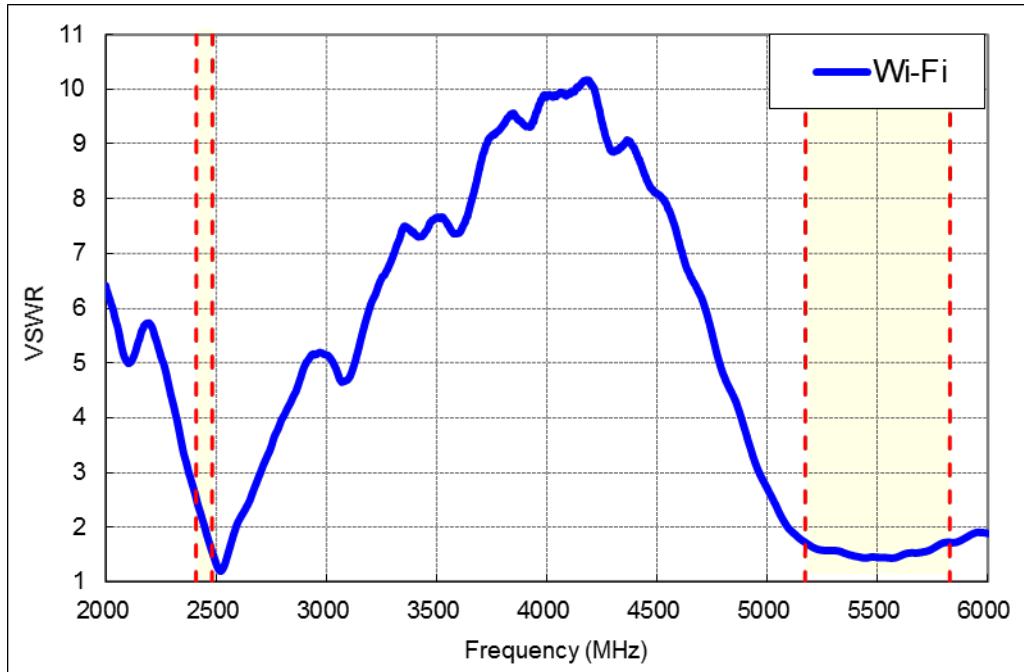


LTE-AUX Performance

					B12 RX				B13 RX														B26 RX						B5 RX					
Frequency (MHz)	699	704	710	716	729	734	740	746	748	751	756	777	782	787	791	806	814	821	824	831	836	849	859	862	869	876	880	894	900	915	925	940	960	
Spec					6.3	6.3	6.3	6.3	6.3	6.3	6.3													6.3	6.3	6.3	6.3	6.3	6.3					
Efficiency (%)	2.893	3.127	3.592	4.136	6.431	6.633	8.015	8.879	8.989	9.929	10.61	12.1	13.01	14	15.68	26.08	31.49	35.39	37.38	40.08	41.67	43.01	43.22	43.26	42.77	41.74	41.35	38.92	38.55	34.1	29.98	20.83	17.87	

													B2 RX					B4 RX																									
Frequency (MHz)	1710	1730	1750	1755	1770	1785	1805	1840	1850	1880	1900	1910	1920	1930	1950	1960	1980	1990	2010	2018	2025	2110	2140	2155	2170	2300	2350	2400	2500	2515	2535	2555	2570	2595	2620	2630	2655	2680	2690				
Spec														12.9	12.9	12.9	12.9	12.9				12.9	12.9	12.9																			
Efficiency (%)	11.64	12.97	15.84	16.8	19.01	21.73	23.78	25.34	27.52	35.35	41.9	44.61	45.72	45.99	49.23	51.85	47.34	45.11	43.95	45.07	45.96	42.29	40.72	37.48	35.57	33.06	34.97	33.7	34.98	34.95	33.28	34.13	33.8	30.53	27.54	28.04	24.51	22.13	21.01				

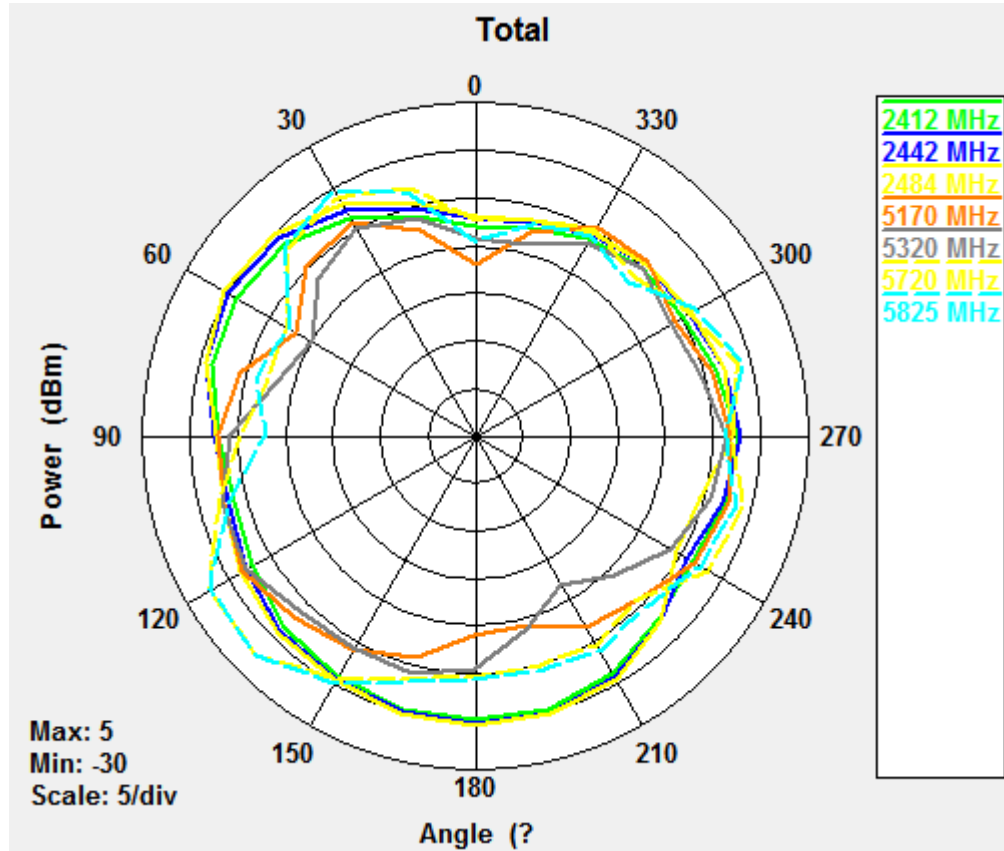
Wi-Fi S-parameters



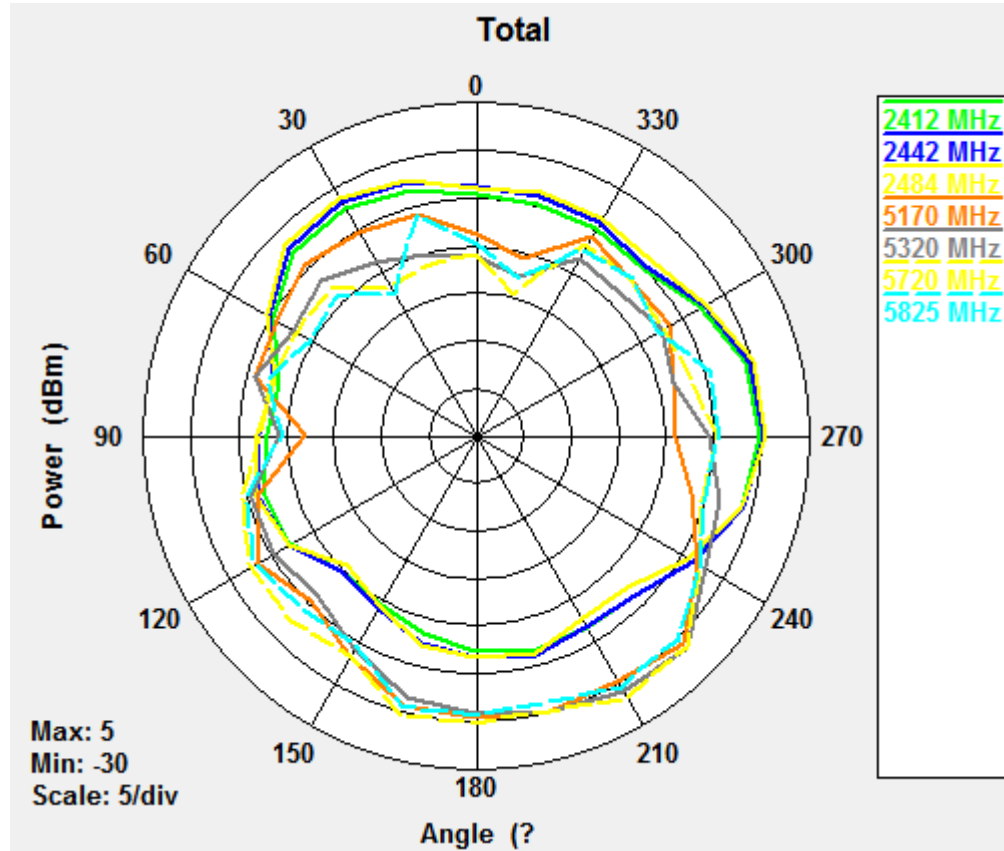
Wi-Fi Performance

	802.11 b/ g/ n			802.11 a			
Frequency	2400MHz	2450MHz	2500MHz	5150MHz	5350MHz	5725MHz	5825MHz
Spec	30	30	30	30	30	30	30
Efficiency(%)	33.77	36.27	39.57	41.96	36.06	45.6	42.33
Gain (dBi)	-0.77	-0.38	0.22	3.07	2.44	3.17	2.67

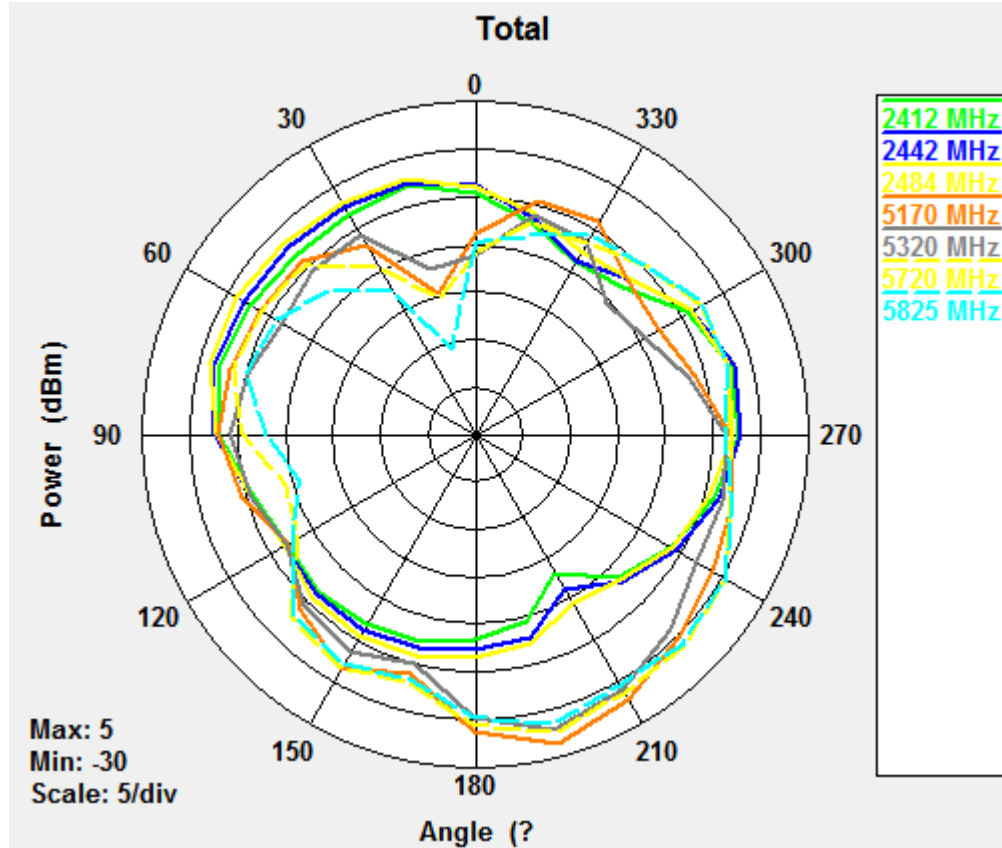
Wi-Fi 2D Pattern



Wi-Fi 2D Pattern



Wi-Fi 2D Pattern



OTA Test

TRP	RB Start	Channel	Frequency (MHz)	TRP (dBm)
Status				DV
B2 BW10M 50RB	0	18650	1855	19.92
	19	18900	1880	20.37
	38	19150	1905	20.15
B4 BW10M 50RB	0	20000	1715	19.67
	19	20175	1732.5	19.91
	38	20350	1750	20.48
LTE B5 BW10M 12RB	0	20450	829	17.82
	19	20525	836.5	17.41
	38	20600	844	16.40
B12 BW5M 8RB	0	23035	701.5	13.30
	8	23095	707.5	13.42
	17	23155	713.5	13.25
B13 BW10M 12RB	0	23230	777	17.01
	20	23230	782	17.13
	38	23230	751	17.03
B17 BW10M 12RB	0	23780	709	13.28
	19	23790	710	13.34
	38	23800	711	13.27
LTE B26 BW5M 8RB	0	26715	816.5	18.67
	8	26865	831.5	17.56
	17	27015	846.5	16.36



Manufacturing Experiences.

Since 1989.