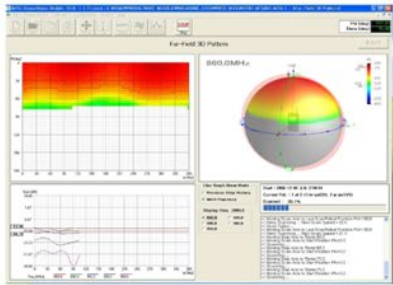


[GVMRB Antenna Information (Manufacturer and Testing setup)

Item	Information
Manufacturer	LS Mtron
Test inc.	LS Mtron
Measurement Equipment	1)Network Analyzer : Model = Agilent E5071B / Frequency range = 300 KHz ~ 8.5GHz 2)Wireless Communications Test Set : Model = Agilent E5515C (8960 Series 10) / Band = GSM, CDMA, WCDMA

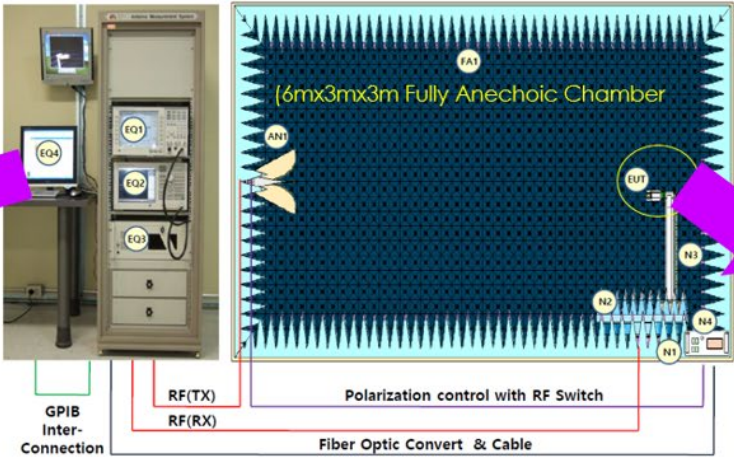
Test setup

[System Diagram with Anechoic Chamber, Positioning System & Test Equipment]
-The image below is the overall configuration of the passive test.

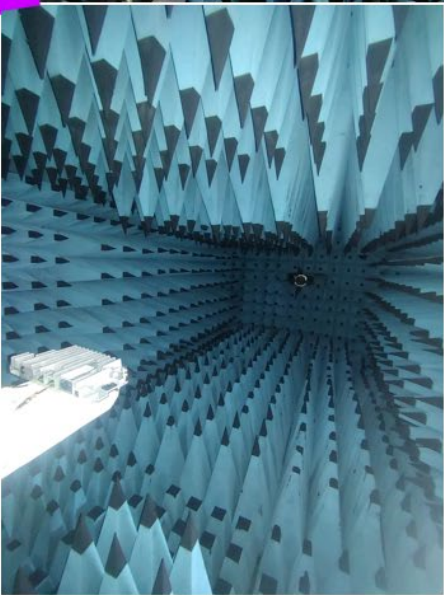


Antenna	Frequency	Power	Gain	Efficiency	SWR	Return Loss	Reflection Coefficient	Transmission Coefficient	Isolation	Interference	Harmonics	Spurious	Other
FA1	1000.000	10.000	1.000	0.999	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EQ1	1000.000	10.000	1.000	0.999	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EQ2	1000.000	10.000	1.000	0.999	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EQ3	1000.000	10.000	1.000	0.999	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EQ4	1000.000	10.000	1.000	0.999	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N1	1000.000	10.000	1.000	0.999	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N2	1000.000	10.000	1.000	0.999	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N3	1000.000	10.000	1.000	0.999	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N4	1000.000	10.000	1.000	0.999	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AN1	1000.000	10.000	1.000	0.999	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EUT	1000.000	10.000	1.000	0.999	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

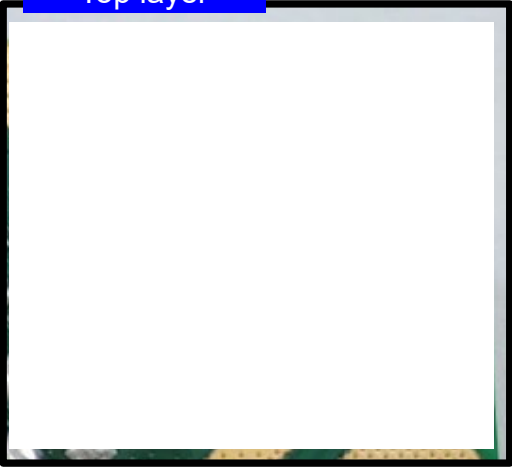
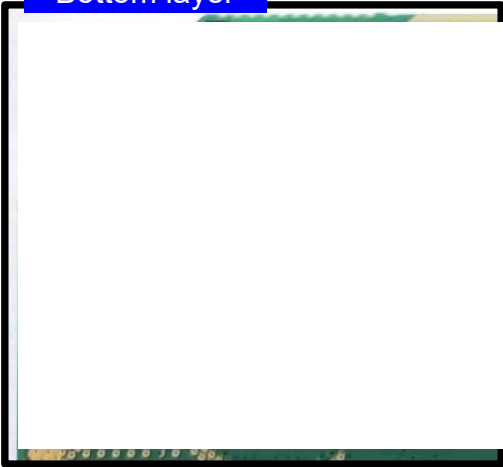
- Using 3D measurement software (Visualwave Mobile 2.0)
- Real-time 3D Graph and Analyze 3D results.



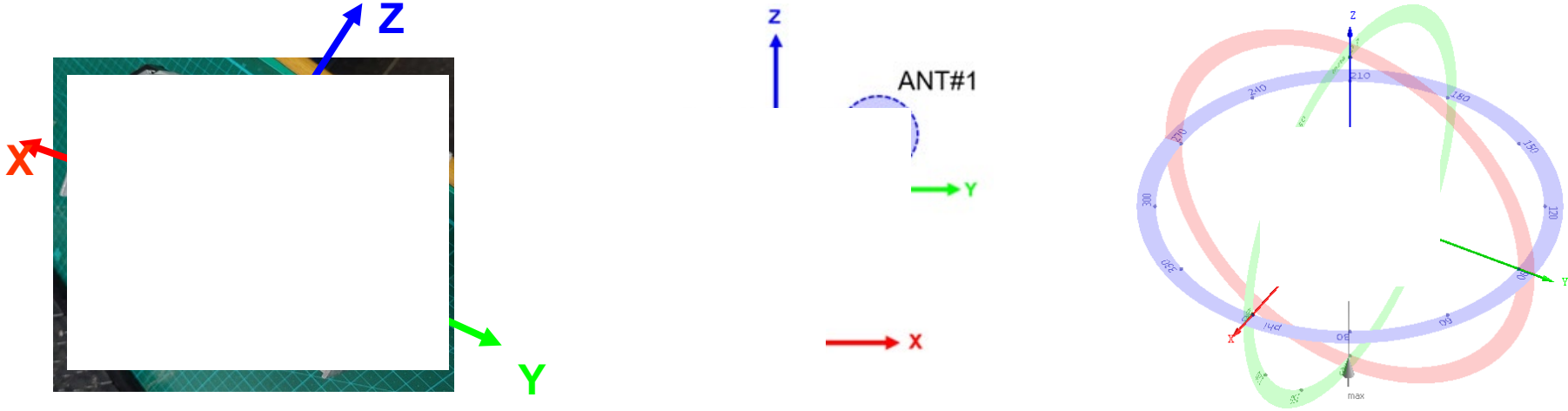
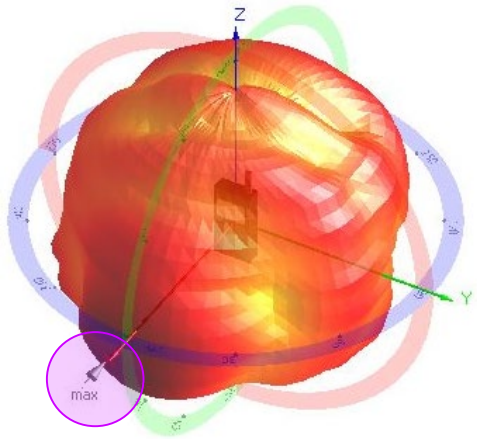
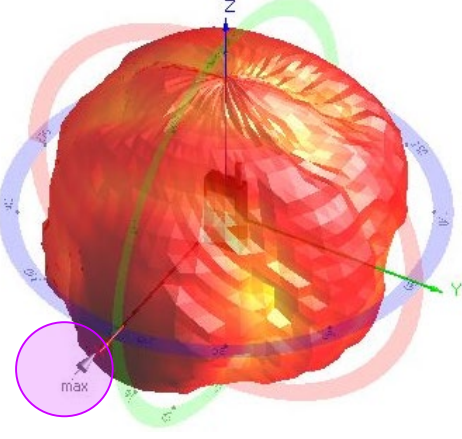
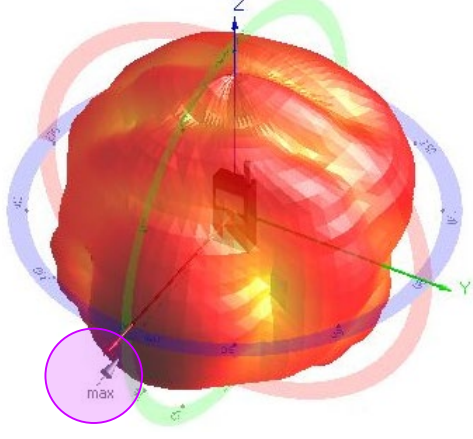
No.	Description
FA1	Anechoic Chamber
EQ1	Network Analyzer
EQ2	Wireless Communications Test Set
EQ3	System Controller
EQ4	System Monitor
N1	Azimuth Positioner
N2	Turn-Table & Linear Slide
N3	3D Transparent Positioner
N4	Positioner Controller
AN1	Dual Polarized Transmit Antenna
EUT	AUT (Antenna under test)



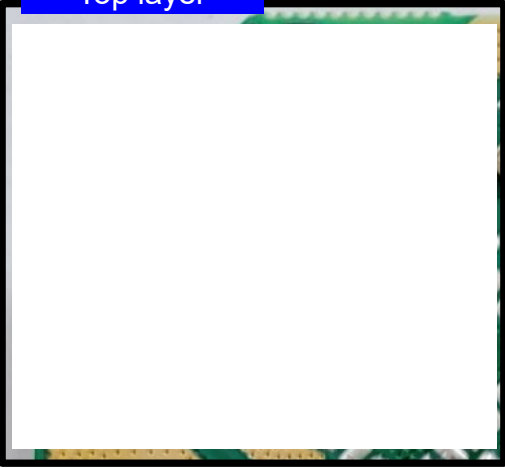
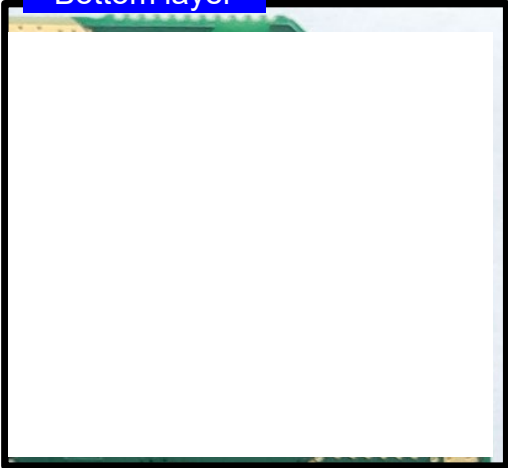
[GVMRB Antenna#1 specification : Peak gain]

Item	Information																					
Model name	GVMRB																					
Applying Module	ATC6CPL001 (BT/WiFi Combo module)																					
Antenna Type	PCB Trace Antenna																					
Antenna#1 Feature	Top layer  Bottom layer 																					
2.4GHz Peak gain	Freq. [MHz]	2400	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421
	Peak Gain [dBi]	5.3	5.38	5.5	5.56	5.62	5.68	5.67	5.62	5.57	5.57	5.57	5.6	5.65	5.71	5.75	5.79	5.9	5.91	5.97	6	6.02
	Freq. [MHz]	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442
	Peak Gain [dBi]	6.01	6.06	6.01	6	5.96	5.85	5.77	5.72	5.68	5.67	5.7	5.79	5.88	5.91	5.94	5.99	6.02	6.05	6.05	6.04	6.05
	Freq. [MHz]	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463
	Peak Gain [dBi]	6.09	6.13	6.21	6.23	6.28	6.27	6.28	6.27	6.26	6.26	6.26	6.29	6.32	6.34	6.34	6.37	6.36	6.35	6.35	6.35	6.34
	Freq. [MHz]	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2484	2490	2500	
	Peak Gain [dBi]	6.35	6.35	6.36	6.35	6.34	6.33	6.36	6.38	6.38	6.39	6.39	6.37	6.29	6.21	6.1	6	5.92	5.87	5.52	5.7	

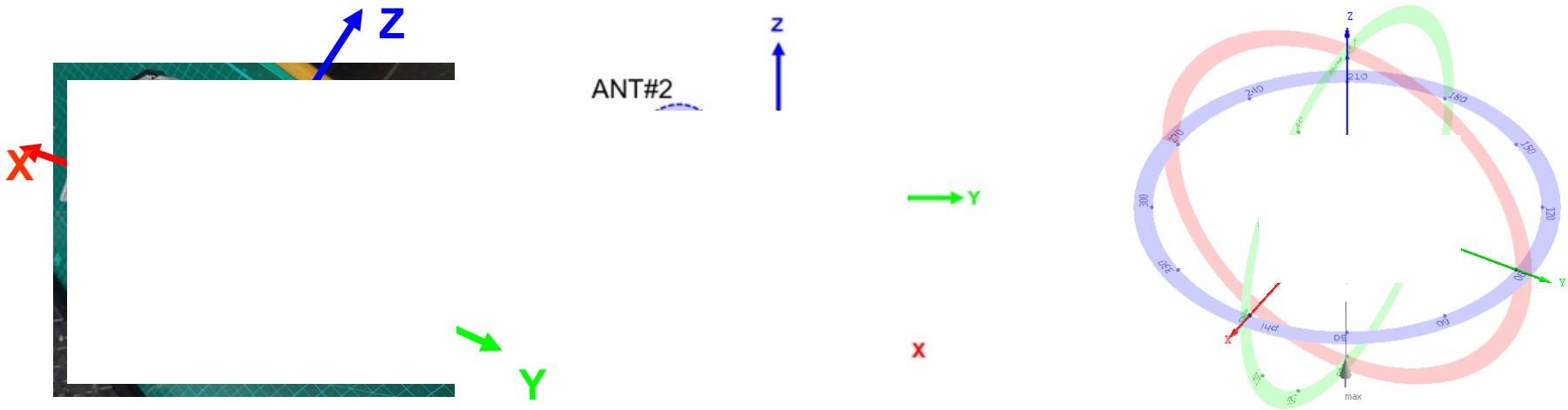
[GVMRB Antenna#1 specification : 3D Radiation pattern]

Item	Information		
Model name	GVMRB		
Applying Module	ATC6CPL001 (BT/WiFi Combo module)		
Antenna Type	PCB Trace Antenna		
axis of Antenna#1 Chamber Coordinates			
3D Radiation	2400MHz	2445MHz	2500MHz
			

[GVMRB Antenna#2 specification : Peak gain]

Item	Information																					
Model name	GVMRB																					
Appying Module	ATB2CUL003 (BT module)																					
Antenna Type	PCB Trace Antenna																					
Antenna#2 Feature	Top layer  Bottom layer 																					
2.4GHz Peak gain	Freq. [MHz]	2400	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421
	Peak Gain [dBi]	6.15	6.37	6.46	6.52	6.57	6.59	6.62	6.66	6.68	6.74	6.77	6.8	6.83	6.83	6.85	6.87	6.89	6.91	6.93	6.94	6.92
	Freq. [MHz]	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442
	Peak Gain [dBi]	6.93	6.87	6.85	6.79	6.79	6.77	6.79	6.78	6.8	6.78	6.76	6.71	6.69	6.66	6.66	6.7	6.75	6.82	6.88	6.9	6.81
	Freq. [MHz]	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463
	Peak Gain [dBi]	6.86	6.81	6.74	6.67	6.62	6.6	6.62	6.64	6.67	6.69	6.67	6.63	6.56	6.51	6.47	6.44	6.36	6.36	6.37	6.37	6.34
	Freq. [MHz]	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2484	2490	2500	
	Peak Gain [dBi]	6.29	6.25	6.22	6.19	6.2	6.23	6.26	6.28	6.28	6.23	6.15	6.06	5.95	5.86	5.8	5.82	5.84	6	5.8	6.16	

[GVMRB Antenna#2 specification : 3D Radiation pattern]

Item	Information		
Model name	GVMRB		
Appying Module	ATB2CUL003 (BT module)		
Antenna Type	PCB Trace Antenna		
axis of Antenna#2 Chamber Coordinates			
3D Radiation	2400MHz	2445MHz	2500MHz
	