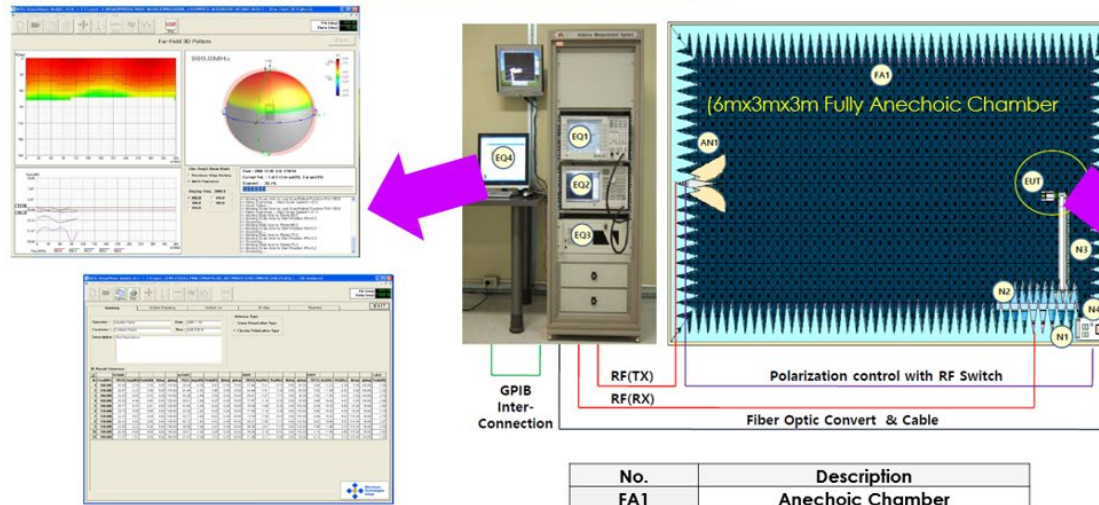


[GVMRS Antenna Information (Manufacturer and Testing setup)]

Item	Information
제조사명	LSmtron
측정기관명	LSmtron
시험날짜	25.08.29
시험담당자	이승배
사용장비	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 전 밴드 측정가능. 3)Chamber 사양 및 장비상세 : 사양서 유첨 (유첨 : 챔버 사양서_3D AMS(633)_LSmtron)

Test setup

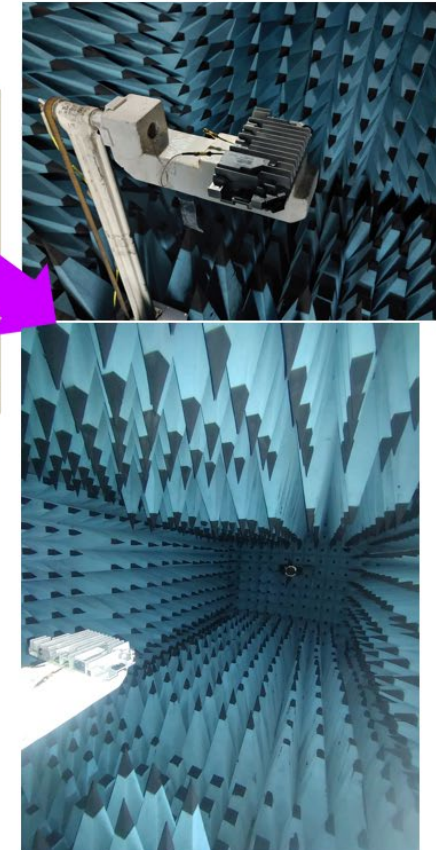
[System Diagram with Anechoic Chamber, Positioning System & Test Equipment]
 -The image below is the overall configuration of the passive test.

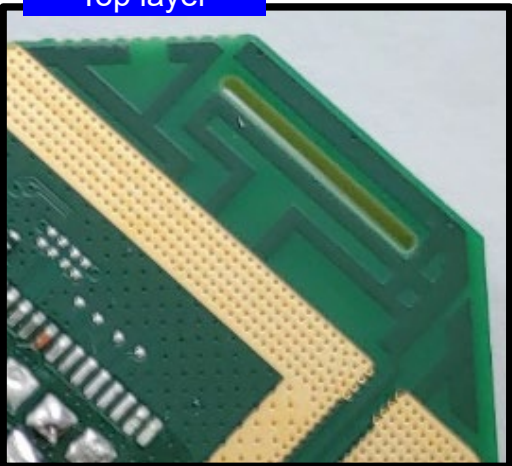
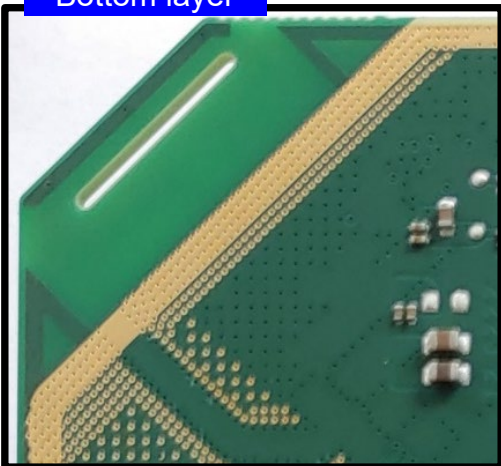


-Using 3D measurement software
 (Visualwave Mobile 2.0)

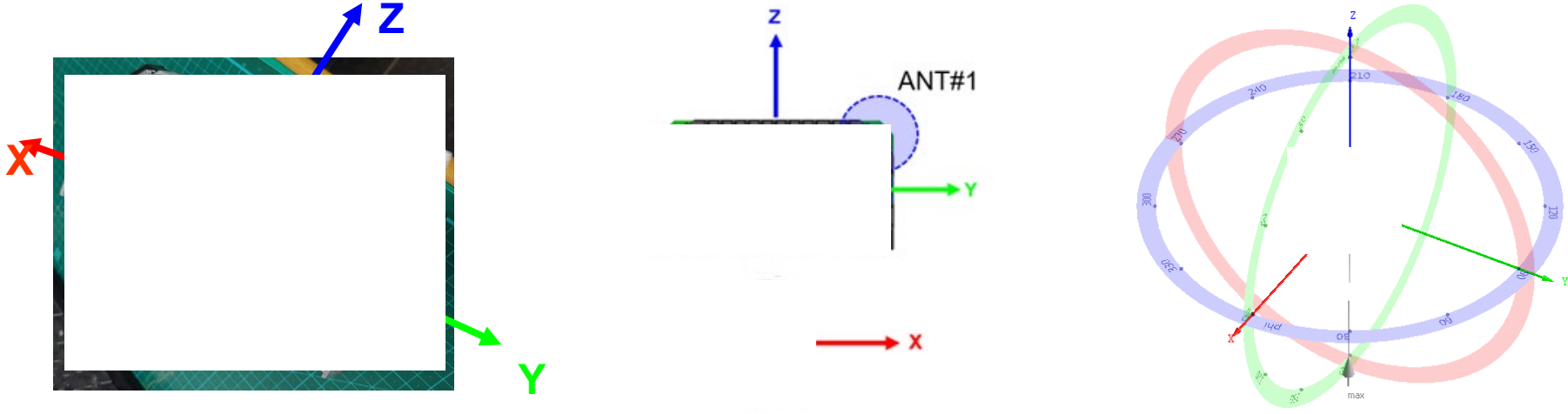
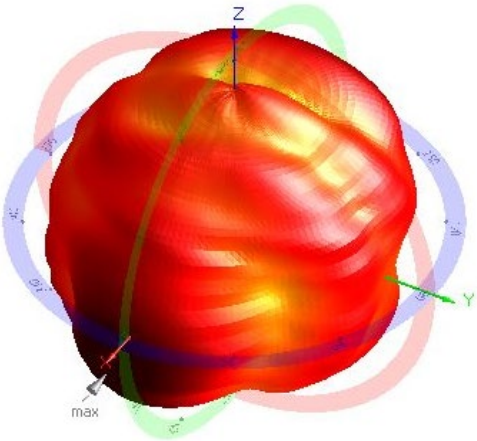
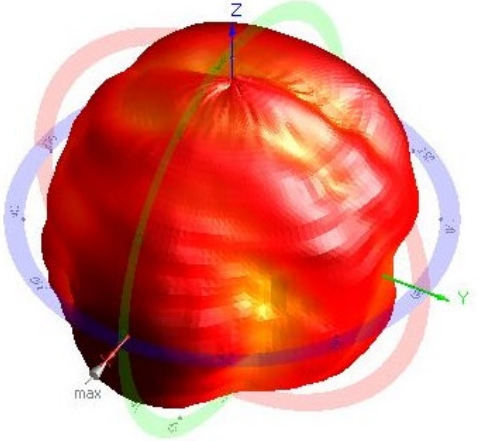
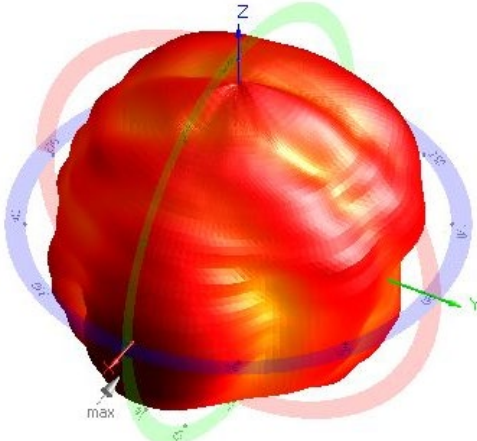
-Real-time 3D Graph and Analyze 3D results.

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)

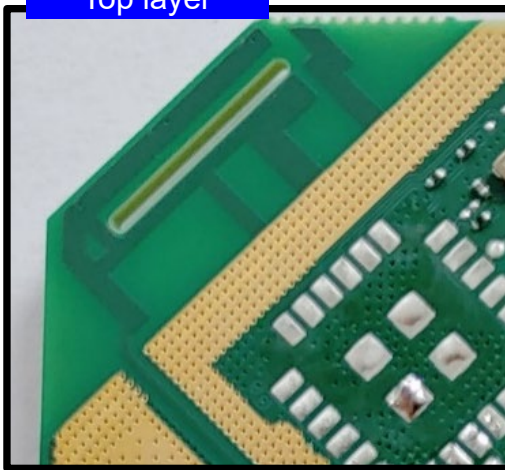
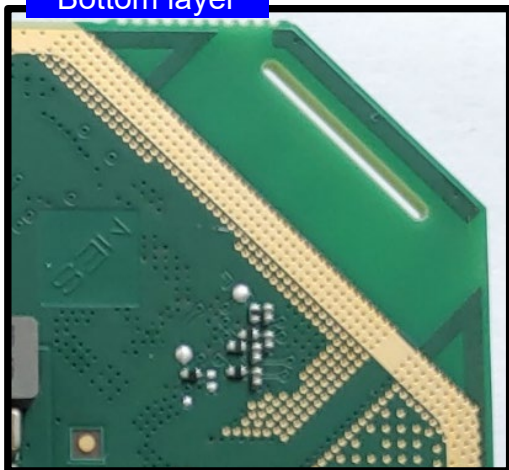


Item	Information																																																																																																																																																																																											
Model명	GVMRS																																																																																																																																																																																											
적용 Module	ATC6CPL001 (BT/WiFi Combo module)																																																																																																																																																																																											
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Antenna#1 형상	Top layer  Bottom layer 																																																																																																																																																																																											
2.4GHz Peak gain (6.38 dBi)	<table border="1"> <tr> <th>Freq. [MHz]</th><th>2400</th><th>2402</th><th>2403</th><th>2404</th><th>2405</th><th>2406</th><th>2407</th><th>2408</th><th>2409</th><th>2410</th><th>2411</th><th>2412</th><th>2413</th><th>2414</th><th>2415</th><th>2416</th><th>2417</th><th>2418</th><th>2419</th><th>2420</th></tr> <tr> <th>Peak Gain [dBi]</th><td>5.16</td><td>5.32</td><td>5.4</td><td>5.48</td><td>5.51</td><td>5.52</td><td>5.54</td><td>5.53</td><td>5.55</td><td>5.58</td><td>5.59</td><td>5.64</td><td>5.67</td><td>5.71</td><td>5.74</td><td>5.76</td><td>5.76</td><td>5.78</td><td>5.79</td><td>5.81</td></tr> <tr> <th>Freq. [MHz]</th><th>2421</th><th>2422</th><th>2423</th><th>2424</th><th>2425</th><th>2426</th><th>2427</th><th>2428</th><th>2429</th><th>2430</th><th>2431</th><th>2432</th><th>2433</th><th>2434</th><th>2435</th><th>2436</th><th>2437</th><th>2438</th><th>2439</th><th>2440</th></tr> <tr> <th>Peak Gain [dBi]</th><td>5.85</td><td>5.85</td><td>5.82</td><td>5.79</td><td>5.73</td><td>5.66</td><td>5.6</td><td>5.56</td><td>5.56</td><td>5.55</td><td>5.57</td><td>5.6</td><td>5.63</td><td>5.64</td><td>5.63</td><td>5.61</td><td>5.59</td><td>5.6</td><td>5.6</td><td>5.64</td></tr> <tr> <th>Freq. [MHz]</th><th>2441</th><th>2442</th><th>2443</th><th>2444</th><th>2445</th><th>2446</th><th>2447</th><th>2448</th><th>2449</th><th>2450</th><th>2451</th><th>2452</th><th>2453</th><th>2454</th><th>2455</th><th>2456</th><th>2457</th><th>2458</th><th>2459</th><th>2460</th></tr> <tr> <th>Peak Gain [dBi]</th><td>5.7</td><td>5.75</td><td>5.79</td><td>5.83</td><td>5.8</td><td>5.77</td><td>5.7</td><td>5.65</td><td>5.62</td><td>5.59</td><td>5.61</td><td>5.61</td><td>5.65</td><td>5.67</td><td>5.67</td><td>5.66</td><td>5.62</td><td>5.6</td><td>5.57</td><td>5.56</td></tr> <tr> <th>Freq. [MHz]</th><th>2461</th><th>2462</th><th>2463</th><th>2464</th><th>2465</th><th>2466</th><th>2467</th><th>2468</th><th>2469</th><th>2470</th><th>2471</th><th>2472</th><th>2473</th><th>2474</th><th>2475</th><th>2476</th><th>2477</th><th>2478</th><th>2479</th><th>2480</th></tr> <tr> <th>Peak Gain [dBi]</th><td>6.36</td><td>6.36</td><td>6.38</td><td>6.35</td><td>6.33</td><td>6.3</td><td>6.26</td><td>6.24</td><td>6.24</td><td>6.25</td><td>6.28</td><td>6.33</td><td>6.34</td><td>6.32</td><td>6.26</td><td>6.16</td><td>6.03</td><td>5.89</td><td>5.8</td><td>5.72</td></tr> </table>																				Freq. [MHz]	2400	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	Peak Gain [dBi]	5.16	5.32	5.4	5.48	5.51	5.52	5.54	5.53	5.55	5.58	5.59	5.64	5.67	5.71	5.74	5.76	5.76	5.78	5.79	5.81	Freq. [MHz]	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	Peak Gain [dBi]	5.85	5.85	5.82	5.79	5.73	5.66	5.6	5.56	5.56	5.55	5.57	5.6	5.63	5.64	5.63	5.61	5.59	5.6	5.6	5.64	Freq. [MHz]	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	Peak Gain [dBi]	5.7	5.75	5.79	5.83	5.8	5.77	5.7	5.65	5.62	5.59	5.61	5.61	5.65	5.67	5.67	5.66	5.62	5.6	5.57	5.56	Freq. [MHz]	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	Peak Gain [dBi]	6.36	6.36	6.38	6.35	6.33	6.3	6.26	6.24	6.24	6.25	6.28	6.33	6.34	6.32	6.26	6.16	6.03	5.89	5.8	5.72
Freq. [MHz]	2400	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420																																																																																																																																																																								
Peak Gain [dBi]	5.16	5.32	5.4	5.48	5.51	5.52	5.54	5.53	5.55	5.58	5.59	5.64	5.67	5.71	5.74	5.76	5.76	5.78	5.79	5.81																																																																																																																																																																								
Freq. [MHz]	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440																																																																																																																																																																								
Peak Gain [dBi]	5.85	5.85	5.82	5.79	5.73	5.66	5.6	5.56	5.56	5.55	5.57	5.6	5.63	5.64	5.63	5.61	5.59	5.6	5.6	5.64																																																																																																																																																																								
Freq. [MHz]	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460																																																																																																																																																																								
Peak Gain [dBi]	5.7	5.75	5.79	5.83	5.8	5.77	5.7	5.65	5.62	5.59	5.61	5.61	5.65	5.67	5.67	5.66	5.62	5.6	5.57	5.56																																																																																																																																																																								
Freq. [MHz]	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480																																																																																																																																																																								
Peak Gain [dBi]	6.36	6.36	6.38	6.35	6.33	6.3	6.26	6.24	6.24	6.25	6.28	6.33	6.34	6.32	6.26	6.16	6.03	5.89	5.8	5.72																																																																																																																																																																								

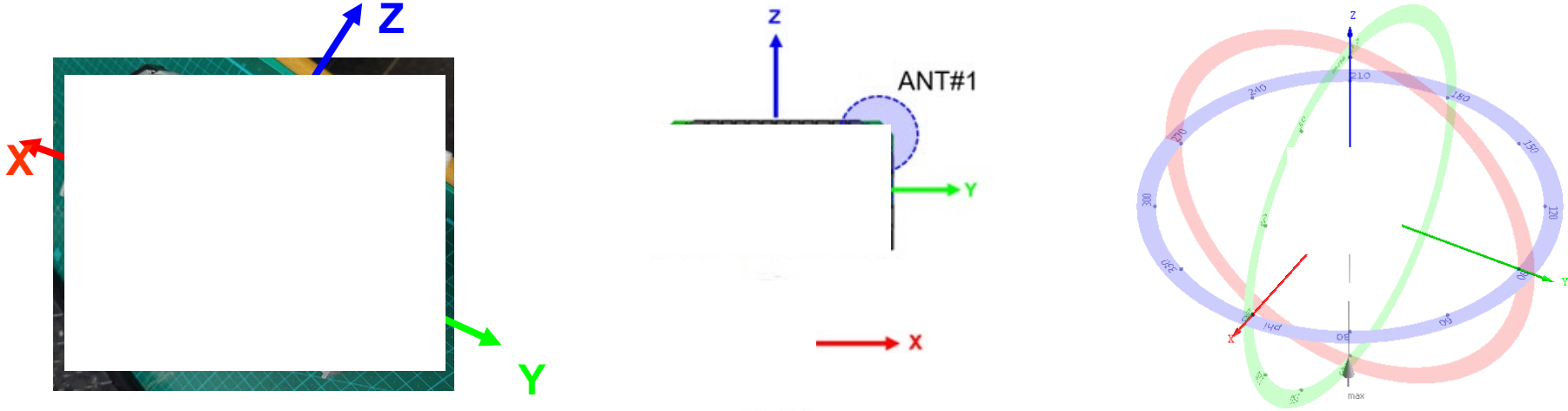
[GVMRS Antenna#1 specification : 3D Radiation pattern]

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

[GVMRS Antenna#2 specification : Peak gain]

Item	Information																				
Model명	GVMRS																				
적용 Module	ATB2CUL003 (BT module)																				
Antenna Type	PCB Trace Antenna																				
Antenna#2 형상	Top layer  Bottom layer 																				
2.4GHz Peak gain (6.98 dBi)	Freq. [MHz]	2400	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420
	Peak Gain [dBi]	6.62	6.55	6.55	6.59	6.63	6.68	6.72	6.74	6.75	6.73	6.7	6.7	6.71	6.74	6.78	6.81	6.84	6.87	6.87	6.86
	Freq. [MHz]	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440
	Peak Gain [dBi]	6.86	6.86	6.86	6.88	6.91	6.93	6.92	6.89	6.86	6.79	6.74	6.71	6.71	6.73	6.76	6.81	6.88	6.94	6.95	6.95
	Freq. [MHz]	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460
	Peak Gain [dBi]	6.95	6.92	6.91	6.91	6.91	6.95	6.98	6.98	6.93	6.92	6.91	6.88	6.87	6.88	6.89	6.9	6.91	6.93	6.94	6.93
	Freq. [MHz]	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480
	Peak Gain [dBi]	6.94	6.91	6.94	6.93	6.93	6.95	6.96	6.96	6.96	6.96	6.96	6.96	6.97	6.96	6.96	6.98	6.98	6.92	6.85	6.79

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

Item	Information		
Model명	GVMRS		
적용 Module	ATB2CUL003 (BT module)		
Antenna Type	PCB Trace Antenna		
axis of Antenna#2 Chamber Coordinates			
3D Radiation	2400MHz	2445MHz	2500MHz
	