

Yageo W313 WWAN Antenna Test Report

Platform: SI System
Antenna Revision : R01

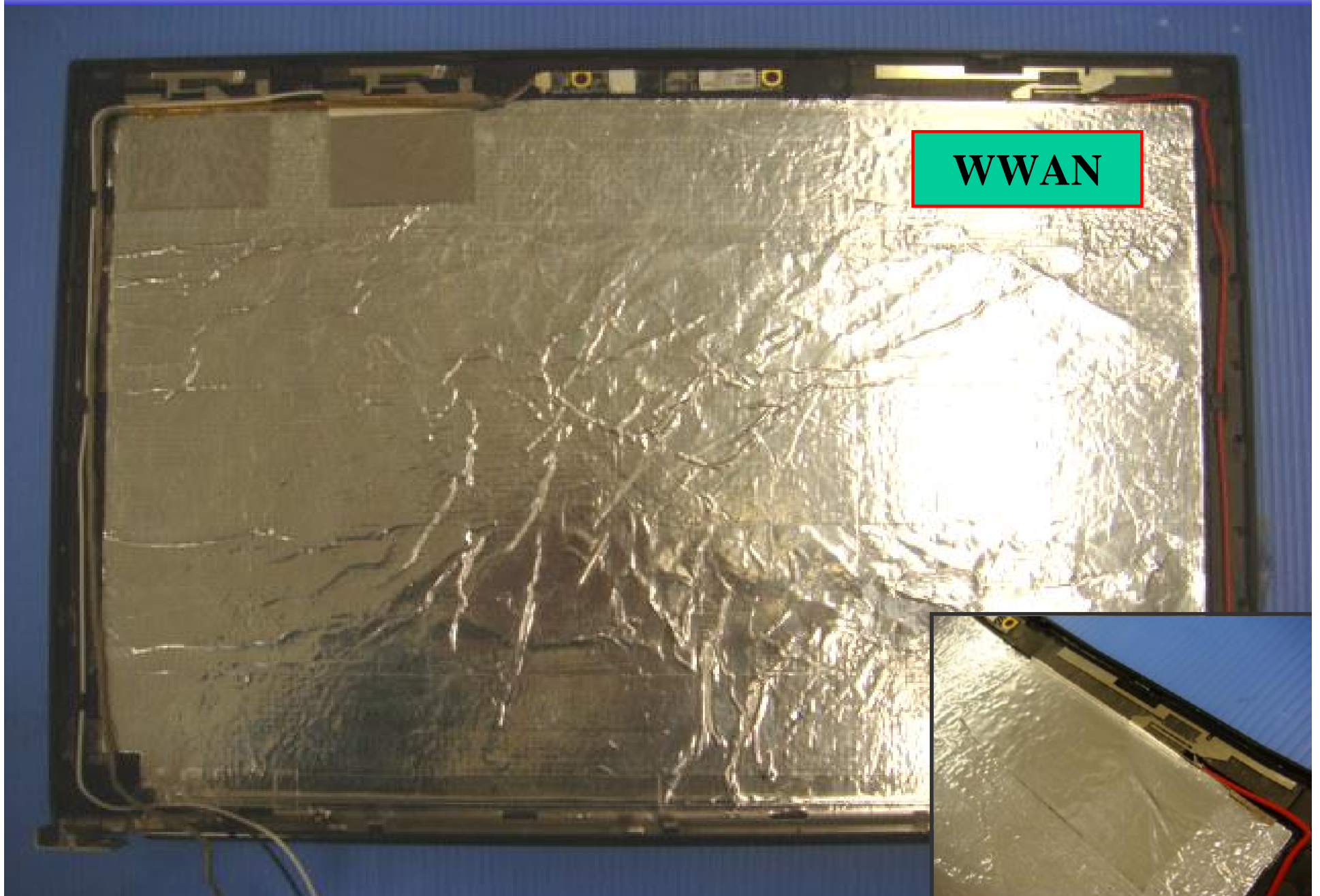
YAGEO Multi-Band Wireless LAN Antenna

Special Product Division (SPD),
R&D Technology Center,
Yageo Corporation
Date: Apr. 08, 2008

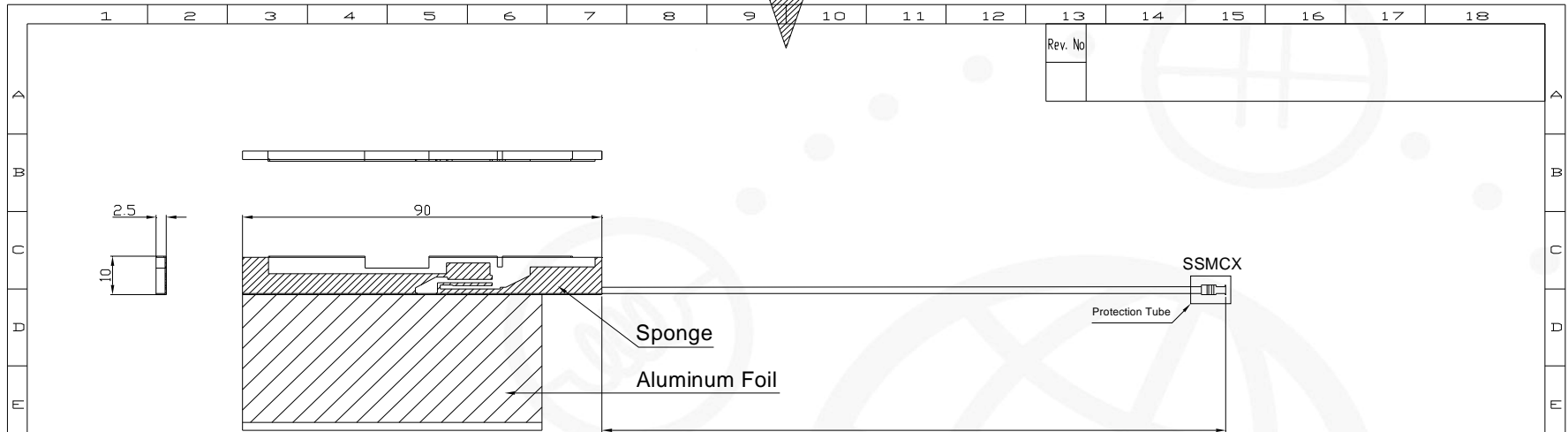
Contents

- Project Information

- ® **Yageo W313 Antenna**
 - ü **Pictures or drawings of antennas**
 - ü **Cable Length Information**
 - ü **Antenna Part Number**
 - ü **Efficiency Data With SPEC**
 - ü **Gain Data With SPEC**
 - ü **VSWR Data With SPEC**
 - ü **Conclusion and Next Step for Issue**



This drawing is property of SEC. Use or copy of this drawing without proper permission of the appropriate technical-document managing department is prohibited.



Main Ant / Right / 460+/-3mm / Color Red / \varnothing D=1.37mm

Yageo P/N For WL: CAN 4313 739 012501B

***ELECTRICAL PERFORMANCE:**

- 1.IMPEDANCE:50ohm
- 2.FREQUENCY RANGE:850 / 900 / 1800 / 1900 / 2100MHZ
- 3.WORK VOLTAGE:N/A
- 4.DIELECTRIC WITH STANDING VOLTAGE:AC 1500V for 1MIN
- 5.INSULATOR RESISTANCE:1500 MEGOHMS. MIN
- 6.VSMR:3.5 MAX(FOR EACH BANDS)

Note:

- 1.I-PEX GOLD RF CONN *1 (I-PEX 20351-111R-37) ;
- 2.COAXIAL CABLE OD=1.37,COLOR: Red
- 3.ALL MATERIAL MEET GREEN PRODUCT CRITERION.

Vendor Information:

- 1.Address: **Yageo (Taiwan) Ltd.** / 16, west 3rd Street, N.E.P.Z Kaohsiung, 811 Taiwan, R.O.C
- 2.Product Name (Intended Use): RF Antenna / Cable Assembly

RANGE	GRADE 1	Grade 2	Grade 3
0~4	± 0.05	± 0.1	± 0.2
4~16	± 0.08	± 0.15	± 0.3
16~64	± 0.12	± 0.25	± 0.5
64~250	± 0.25	± 0.4	± 0.8

PROJECT : Inventec-W313

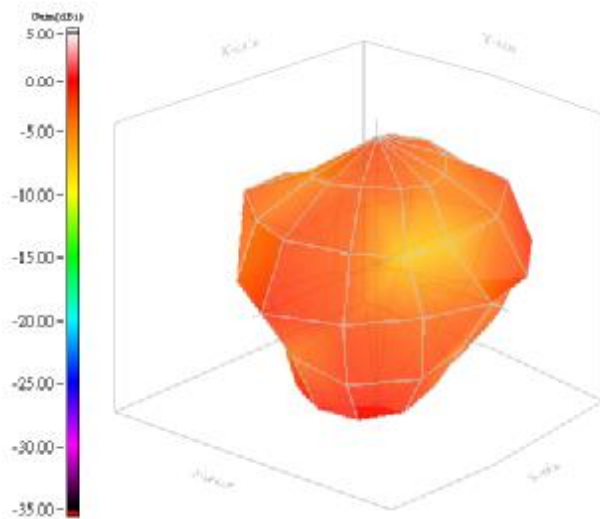
TITLE	ANTENNA-R / WWAN Antenna				
UNIT	mm	DESIGNED	CHECKED	APPROVED	PROJECTION
TOLERANCE	GRADE 2	Ethan	Howard	Randy Lee	
SCALE	1/1				SHEET NO. 1 / 1
MATERIAL	Metal				
YAGEO		Doc. CODE			



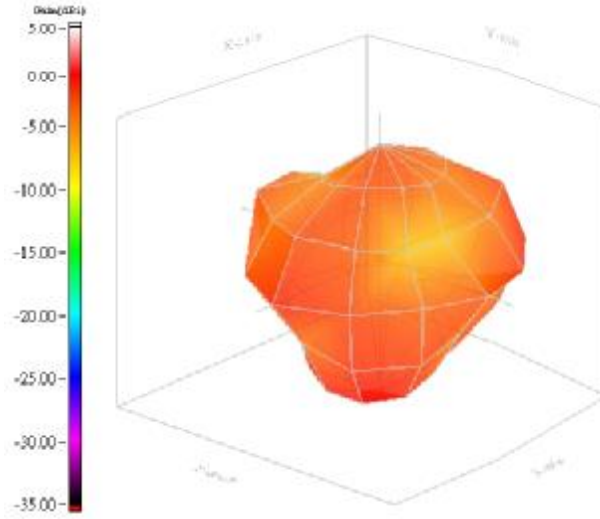
Frequency(MHz)	Peak gain(dBi)			Efficiency(dBi)			Efficiency(%)		
	Horizontal	Vertical	Vector sum	Horizontal	Vertical	Vector sum	Horizontal	Vertical	Vector sum
824	-2.45	-1.52	-0.31	-7.5	-6.28	-3.84	17.79	23.54	41.33
836	-2.56	-1.4	-0.18	-7.55	-6.27	-3.85	17.59	23.6	41.2
849	-2.6	-1.28	-0.21	-7.65	-6.27	-3.9	17.19	23.6	40.78
869	-3.5	-1.99	-1	-8.36	-6.92	-4.57	14.58	20.34	34.91
880	-4.28	-2.65	-1.64	-8.71	-7.21	-4.89	13.44	19.02	32.47
894	-3.2	-2.86	-1.84	-8.65	-7.04	-4.76	13.66	19.78	33.43
900	-1.99	-2.49	-1.78	-8.54	-6.76	-4.55	14.01	21.08	35.09
915	-1.51	-2.23	-1.32	-8.57	-6.76	-4.56	13.9	21.09	35
925	-1.06	-1.41	-0.65	-7.96	-6.29	-4.03	16.01	23.48	39.49
940	-1.93	-2.03	-1.38	-8.37	-7.04	-4.64	14.55	19.79	34.34
960	-2.81	-2.42	-1.79	-9.18	-8.02	-5.55	12.07	15.78	27.85
1710	1.01	1.49	3.12	-6.14	-5.37	-2.73	24.34	29.03	53.37
1750	0.77	1.41	3.32	-6.21	-5.49	-2.82	23.94	28.28	52.21
1785	0.43	1.11	3.09	-6.67	-5.97	-3.3	21.51	25.3	46.81
1805	0.18	0.76	2.88	-7.08	-6.29	-3.66	19.57	23.49	43.06
1840	0.31	0.74	2.87	-7.18	-6.36	-3.74	19.16	23.15	42.31
1850	0.35	0.45	2.7	-7.05	-6.32	-3.66	19.72	23.36	43.09
1880	1.03	0.19	2.79	-6.42	-5.96	-3.17	22.81	25.34	48.15
1910	1.35	-0.07	2.56	-6.09	-5.85	-2.96	24.62	26.01	50.61
1920	1.48	-0.27	2.23	-6.1	-6	-3.04	24.54	25.14	49.68
1930	1.5	-0.48	2.24	-6.16	-5.94	-3.04	24.21	25.44	49.66
1950	1.3	-0.52	2.19	-6.35	-6.02	-3.17	23.19	25.03	48.23
1960	1.06	0.43	2.5	-6.42	-5.86	-3.12	22.8	25.93	48.73
1980	0.69	0.69	2.68	-6.62	-5.88	-3.22	21.78	25.82	47.59
1990	0.15	1.14	3.28	-6.59	-5.48	-2.99	21.91	28.33	50.24
2110	-0.79	-0.02	2.1	-8.18	-6.8	-4.42	15.21	20.9	36.11
2140	-0.35	0.22	2.36	-7.86	-6.41	-4.07	16.35	22.85	39.2
2170	0.1	0.83	2.93	-7.33	-5.93	-3.56	18.5	25.52	44.02

W313 WWAN Main Antenna Total Average Gain :

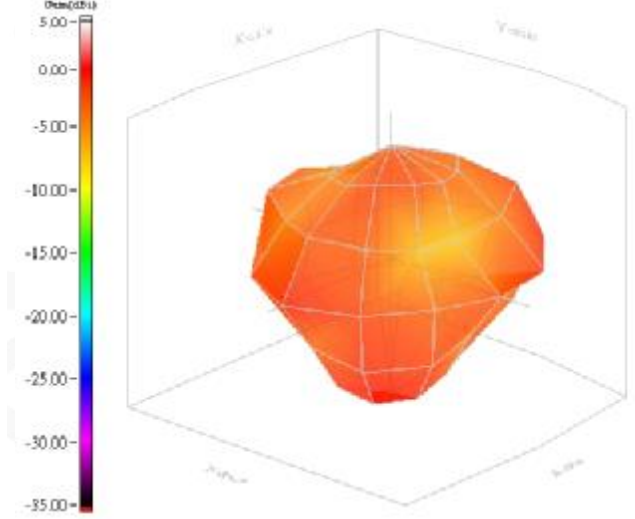
- Radiation Pattern



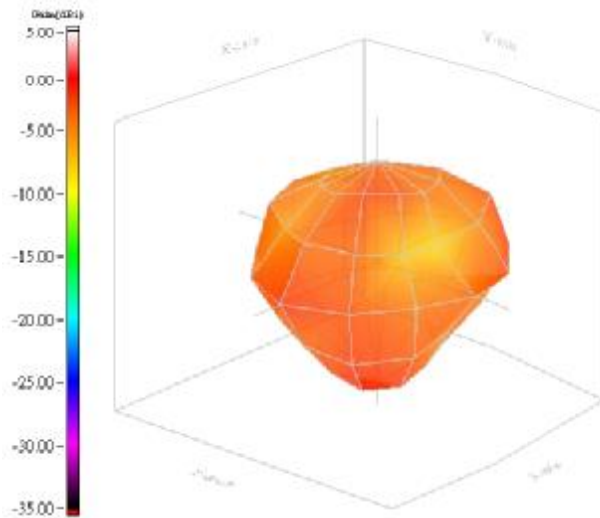
824MHz



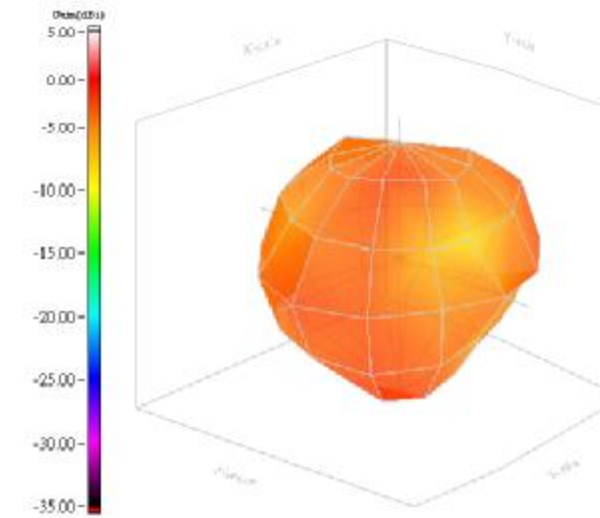
836MHz



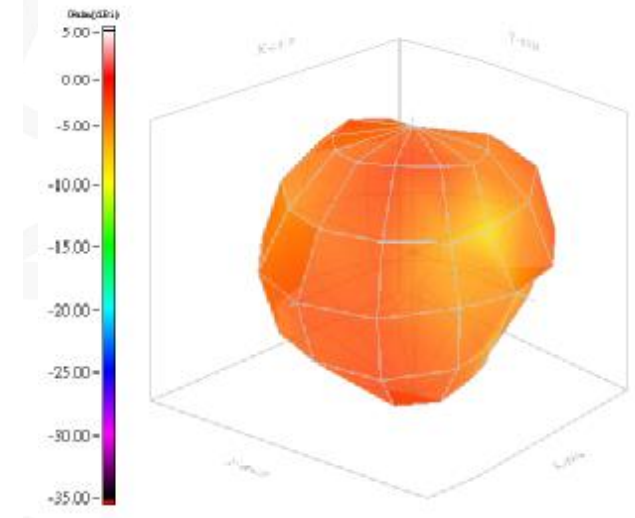
849MHz



869MHz



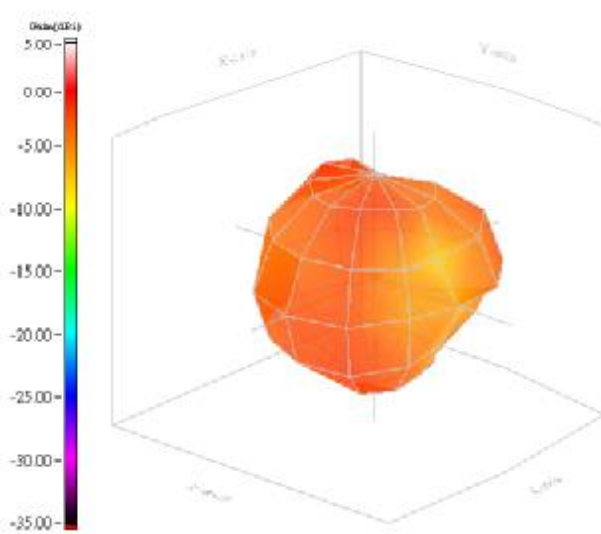
880MHz



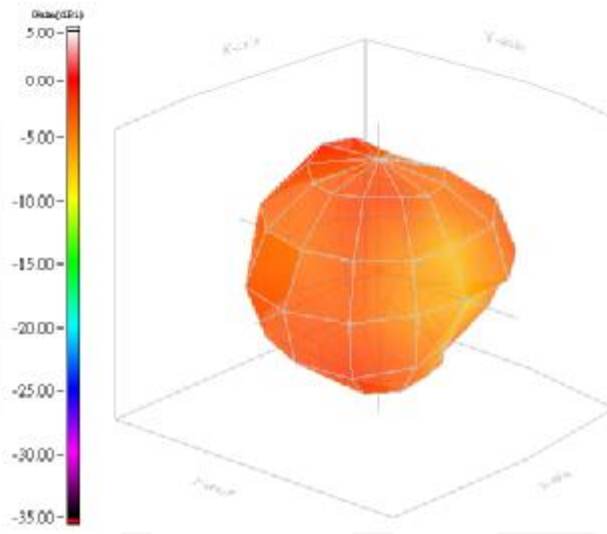
894MHz

W313 WWAN Main Antenna Total Average Gain :

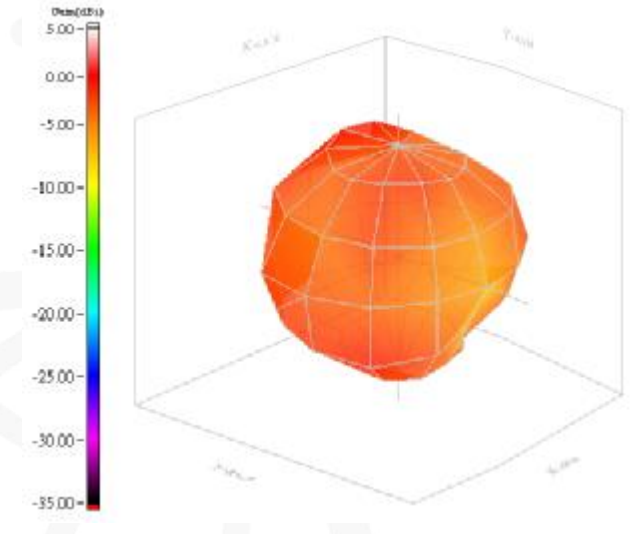
- Radiation Pattern



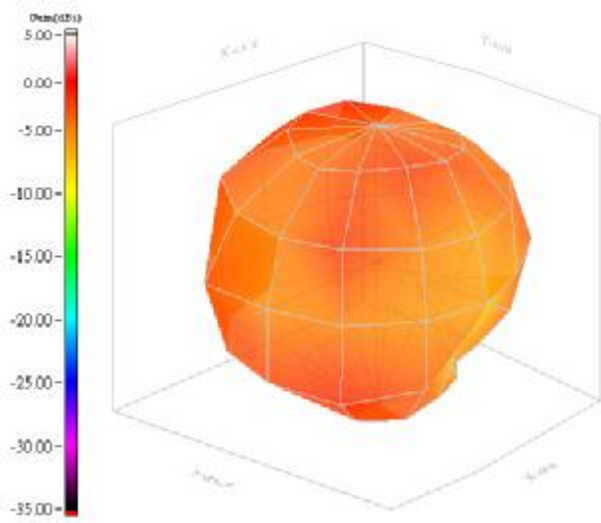
900MHz



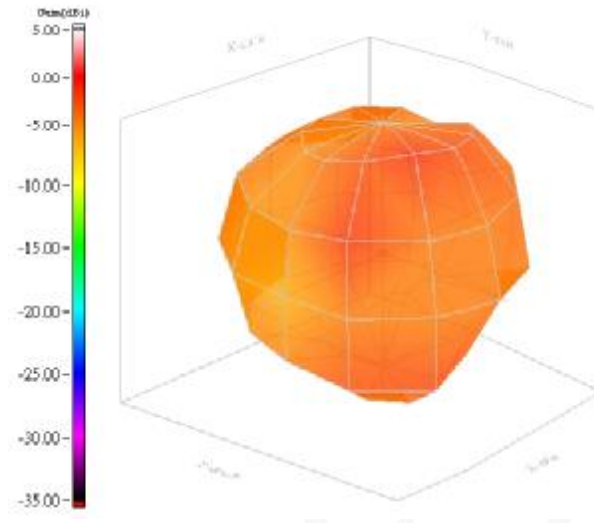
915MHz



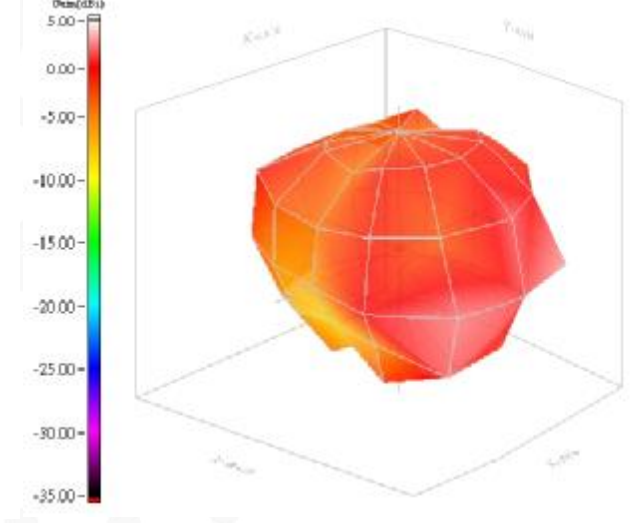
925MHz



940MHz



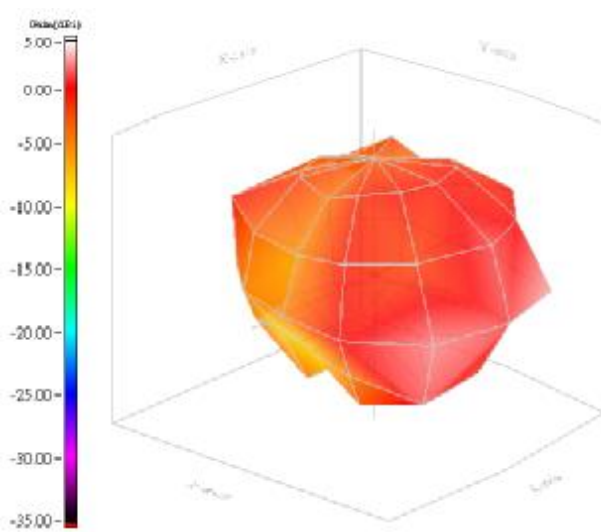
960MHz



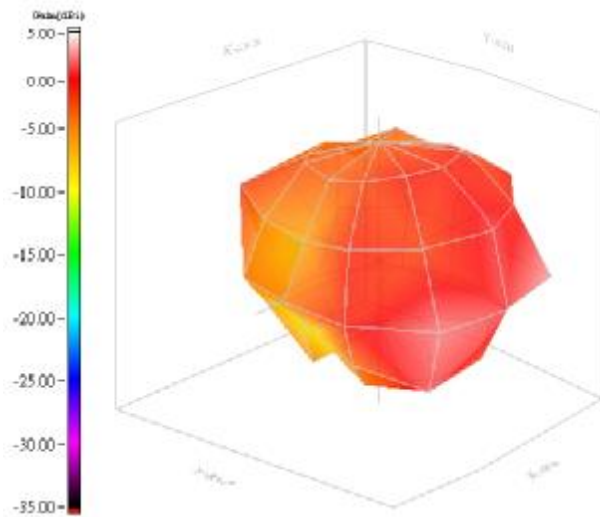
1710MHz

W313 WWAN Main Antenna Total Average Gain :

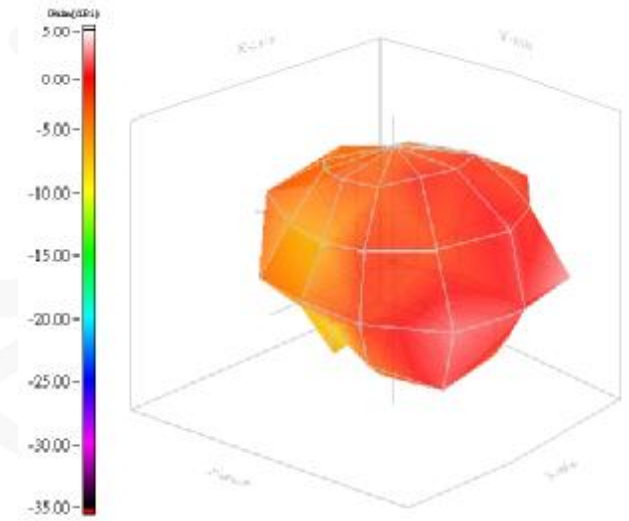
- Radiation Pattern



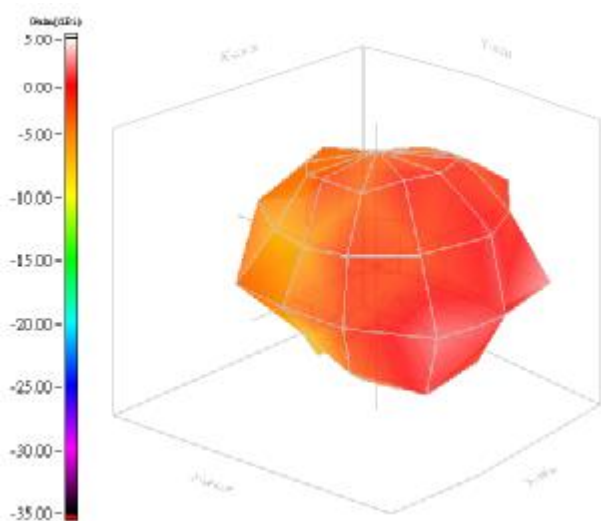
1750MHz



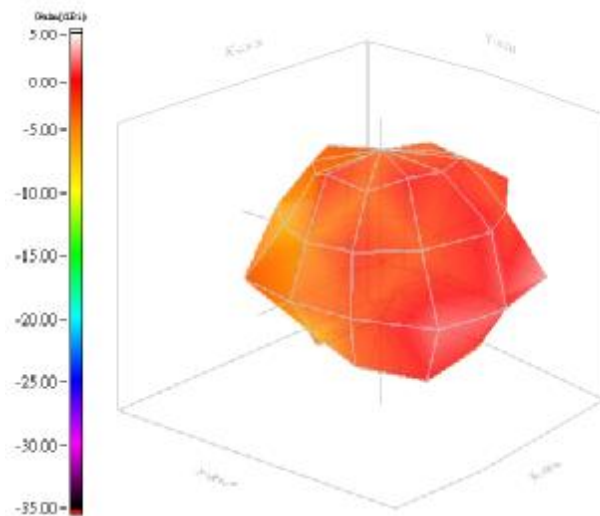
1785MHz



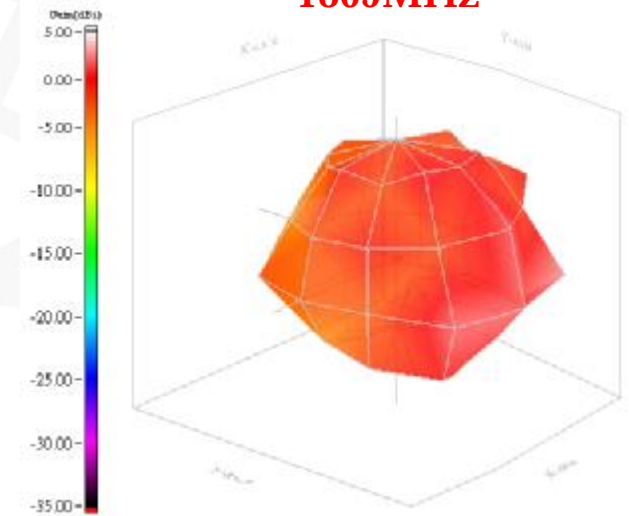
1805MHz



1840MHz



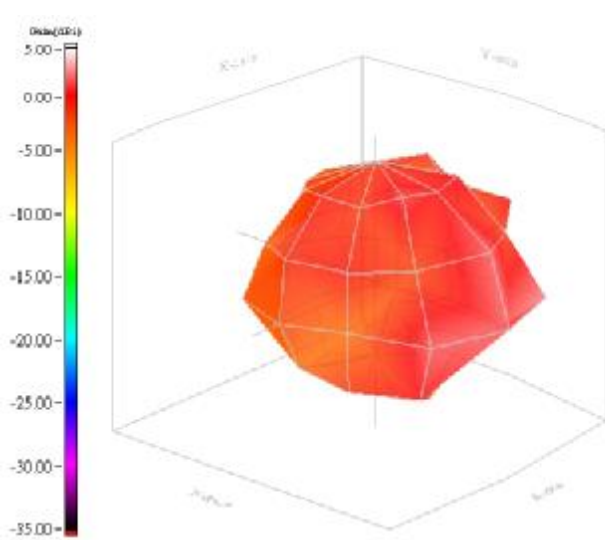
1850MHz



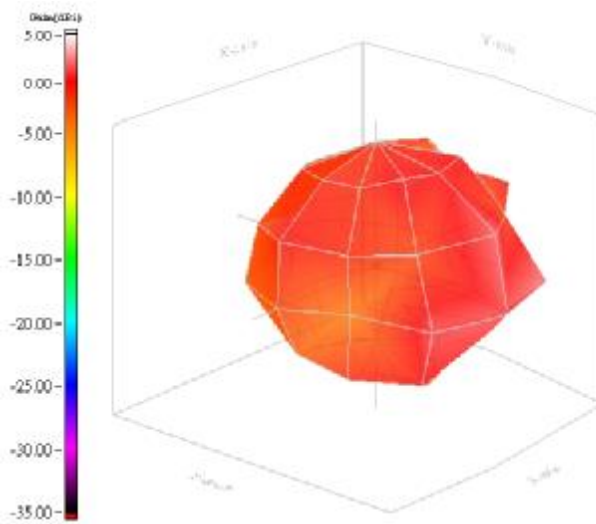
1880MHz

W313 WWAN Main Antenna Total Average Gain :

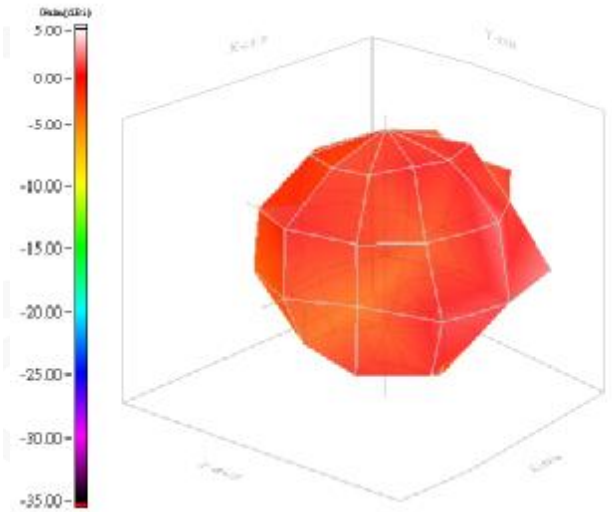
- Radiation Pattern



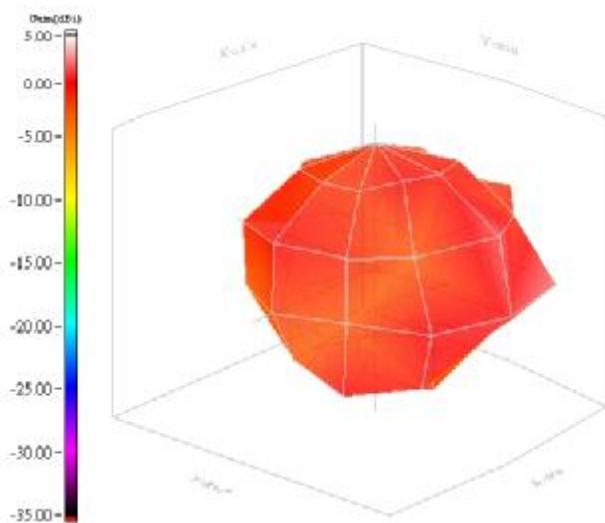
1910MHz



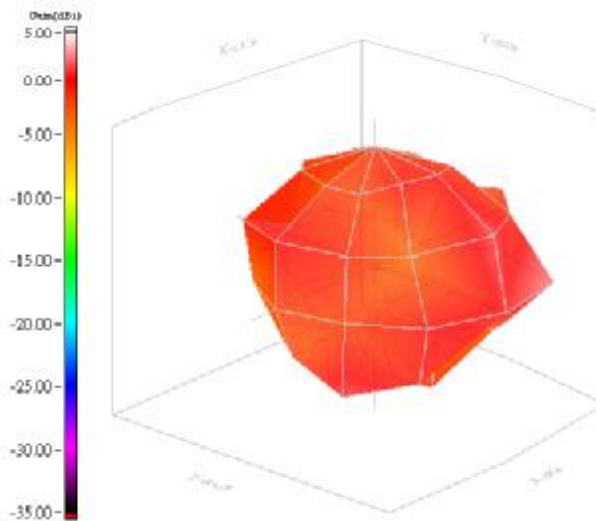
1920MHz



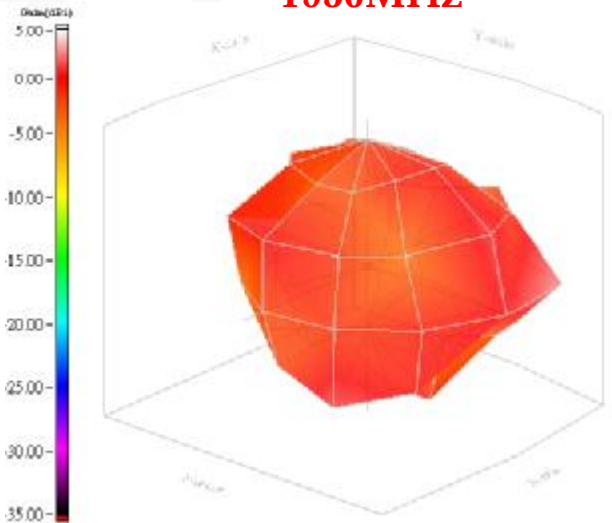
1930MHz



1950MHz



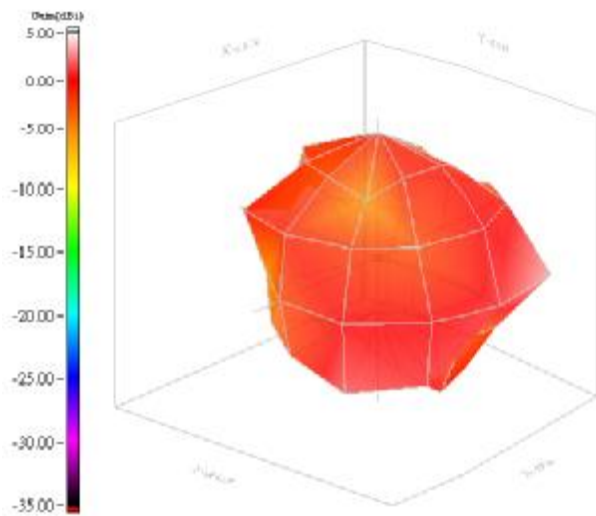
1960MHz



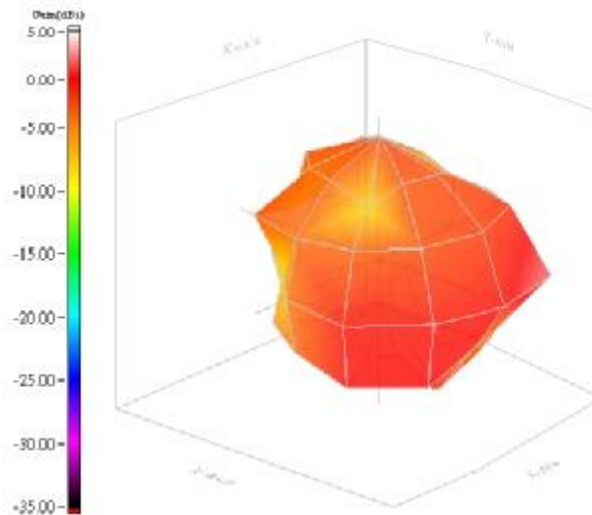
1980MHz

W313 WWAN Main Antenna Total Average Gain :

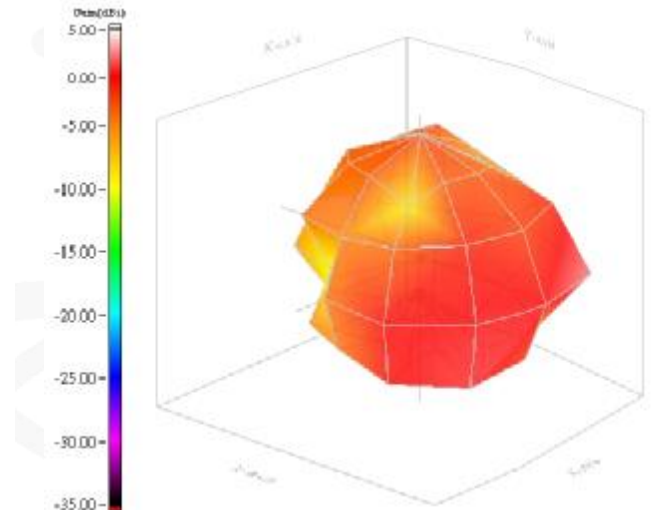
- Radiation Pattern



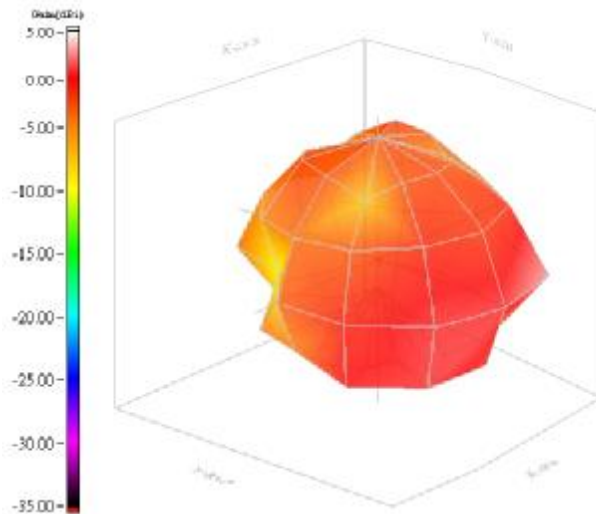
1990MHz



2110MHz



2140MHz

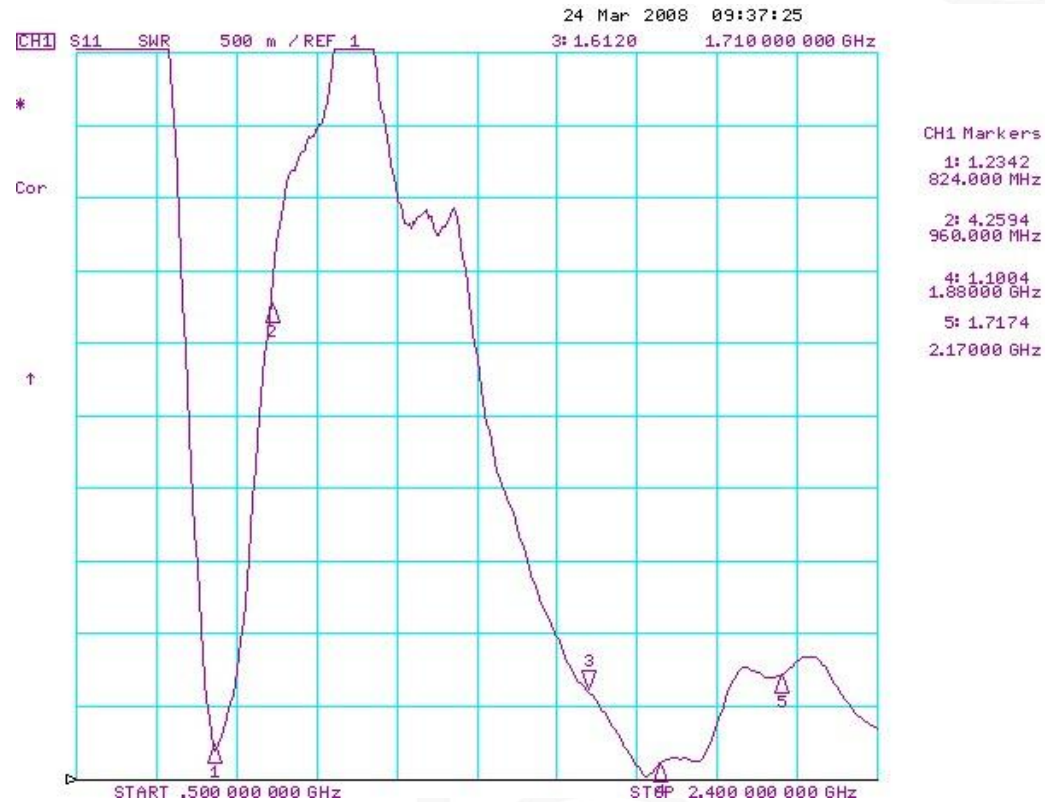


2170MHz

- *VSWR Measurement of W313*

- *VSWR of WWAN Right Antenna in W313 mockup*

a. *WWAN*



VSWR	824 MHz	960 MHz	1.71 GHz	1.88 GHz	2.17 GHz
WWAN	1.23	4.25	1.61	1.10	1.71

Conclusions:

1. **One WWAN antenna was designed based on SI system for antenna performance double check.**
2. **The Efficiency of the WWAN antenna designs already pass TRP specifications.**