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Rev.: 01
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ANTENNA PASSIVE TEST REPORT

Application No. SZOA2411000218MO
Applicant Rolling Wireless S.à r.l.
Manufacturer Rolling Wireless S.à r.l.
Product Name 2.4/5.8G/WIFI 6E Tri-band Antenna
Model No. SWE045
Standards ANSI/IEEE Std 149-2021
Date Initial Sample(s) Received Nov.26, 2024
Testing Start Date Feb.20, 2025
Testing Finish Date Feb.20, 2025
Report Issue Date Mar. 17, 2025

* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Yuanyu Luo

Ervin Li

Prepared by: Yuanyu Luo/ Test Engineer

Approved by: Ervin Li/ Technical Manager



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Revision History

Revision	Issue Date	Description
01	Mar. 17, 2025	Initial creation of report



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1 General Information

1.1 Testing Laboratory

Test Lab	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
Address	No. 1 Workshop, M-10, Middle section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China 518057
Contact	Ervin Li
Tel.	+86 18823369694
Fax	+86-755-25328600
E-mail	Ervin.Li@sgs.com

1.2 Details of Applicant

Applicant's Name	Rolling Wireless S.à r.l.
Applicant's Address	8-10 rue Mathias Hardt 1717 Luxembourg
Contact	Gene Santana
Tel.	NA
Fax	NA
E-mail	gene.santana@rollingwireless.com

1.3 Details of Manufacturer

Applicant's Name	Rolling Wireless S.à r.l.
Applicant's Address	8-10 rue Mathias Hardt 1717 Luxembourg
Contact	Gene Santana
Tel.	NA
Fax	NA
E-mail	gene.santana@rollingwireless.com



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1.4 General Description of EUT

Device Description:	2.4/5.8G/WIFI 6E Tri-band Antenna
Device Manufacturer:	Rolling Wireless S.à r.l.
Device Model:	SWE045
Hardware Version:	N/A
Software Version:	N/A
Antenna Dimensions:	Refer to Antenna Specification
Antenna Type:	Glue stick antenna

1.5 Test Procedure

Testing is performed according to the **ANSI/IEEE Std 149-2021**.



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1.6 Test Specification

Identity	Document Title
ANSI/IEEE Std 149-2008	IEEE Standard Test Procedures for Antennas

1.7 Laboratory Environment

Temperature	Min. =19℃ , Max. = 25℃	
Relative humidity	Min. =40% , Max. =72%	
Shield effect	0.7-6GHz	> 100dB
Ground resistance	<0.5Ω	



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2 OTA Measurements System Configuration

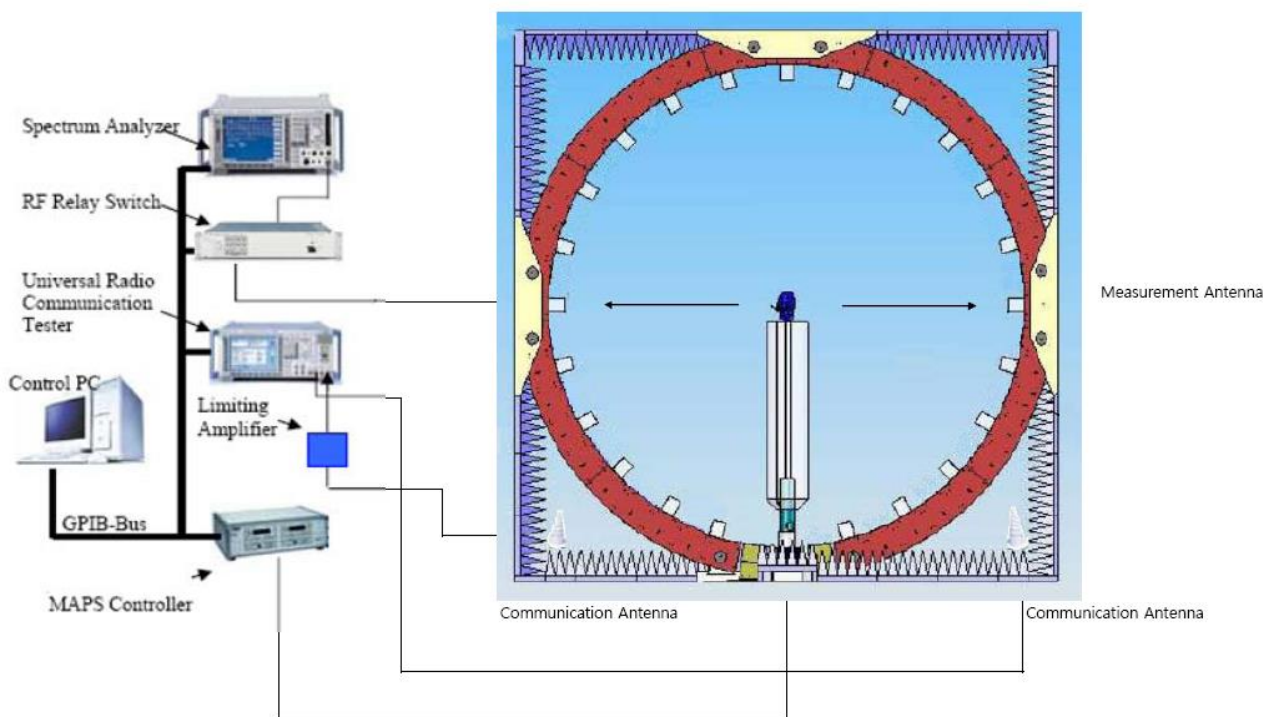
2.1 Test Configuration

Testing Condition:

- Temperature: $22 \pm 3^{\circ}\text{C}$
- Humidity: $< 80\%$

Measurement Facility:

Great-Circle-Cut method is used to measure the antenna 3D GAIN of EUT in OTA qualified anechoic chamber. Equipment Under Test (EUT) geometry centre vertical projection at the centre of platform, the distance from EUT to measurement antenna is 1.95m



F-1. OTA Measurement System Configuration



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3 Test Equipment List

Type of Equipment	Model Number	Manufacture	Calibration Date	Valid Period
Network Analyzer	E5071C S/N MY46523591	Keysight	2024/12/19	2025/12/18
Quad-Ridge Horn Antenna 700 MHz-10 GHz	EMCO 3164-08 S/N 161915	ETS-Lindgren L.P.	N/A	N/A
MAPS Controller	EMCENTER S/N 160485	ETS-Lindgren L.P.	N/A	N/A
SAM V4.5BS Head Phantom	Head Phantom S/N 3609	SPEAG	NCR	NCR

Definition of Acronyms:

NCR: No Calibration Requirement.

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4 Measurement Uncertainty

Item	2400-2500 MHz (dB)
Gain	0.88
Efficiency	0.88
Measurement Uncertainty (95% CONFIDENCE INTERVAL) K=2	



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5 Test Results

2.4G			
Frequency (MHz)	Efficiency (dB)	Efficiency (%)	Gain (dBi)
2350	-4.27	37.37	2.83
2355	-4.47	35.73	2.49
2360	-4.19	38.13	2.75
2365	-4.33	36.93	2.67
2370	-4.40	36.32	2.41
2375	-4.44	35.98	2.56
2380	-4.42	36.10	2.26
2385	-4.19	38.13	2.68
2390	-4.22	37.87	2.49
2395	-4.05	39.38	2.72
2400	-4.32	36.96	2.41
2402	-4.46	35.79	2.22
2405	-4.50	35.45	2.21
2410	-4.47	35.71	2.24
2415	-4.48	35.63	2.16
2420	-4.24	37.69	2.44
2425	-4.25	37.55	2.29
2430	-4.27	37.44	2.20
2435	-4.25	37.58	2.11
2440	-4.28	37.32	2.14
2441	-4.25	37.56	2.15
2445	-4.10	38.94	2.29



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2450	-4.09	39.04	2.28
2455	-3.96	40.22	2.40
2460	-4.08	39.11	2.27
2465	-4.09	38.97	2.19
2470	-4.21	37.92	2.11
2475	-4.14	38.55	2.06
2480	-4.06	39.28	2.08
2485	-3.96	40.15	2.06
2490	-3.79	41.74	2.21
2495	-3.61	43.60	2.34
2500	-3.46	45.06	2.53
2505	-3.33	46.50	2.66
2510	-3.28	47.00	2.66
2515	-3.43	45.42	2.47
2520	-3.59	43.72	2.23
2525	-3.72	42.47	2.10
2530	-3.77	41.99	1.98
2535	-3.73	42.39	2.06
2540	-3.63	43.37	2.14
2545	-3.39	45.79	2.38
2550	-3.35	46.20	2.39
2555	-3.32	46.58	2.37
2560	-3.44	45.30	2.22
2565	-3.46	45.11	2.02
2570	-3.45	45.19	1.95
2575	-3.35	46.28	1.90
2580	-3.13	48.68	2.13



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5G			
Frequency (MHz)	Efficiency (dB)	Efficiency (%)	Gain (dBi)
5000	-6.91	20.38	0.04
5005	-6.82	20.82	-0.40
5010	-6.85	20.64	-0.48
5015	-6.69	21.41	0.43
5020	-6.79	20.93	0.37
5025	-6.69	21.45	0.05
5030	-7.04	19.79	-0.82
5035	-7.14	19.31	-0.52
5040	-7.34	18.44	-0.97
5045	-7.60	17.37	-0.87
5050	-7.47	17.90	-0.17
5055	-7.31	18.59	-0.59
5060	-7.13	19.36	-0.11
5065	-7.08	19.60	0.08
5070	-6.65	21.61	-0.03
5075	-6.48	22.51	0.42
5080	-6.51	22.32	0.81
5085	-6.61	21.85	0.03
5090	-6.71	21.33	0.96
5095	-7.27	18.77	0.33
5100	-7.52	17.71	-0.34
5105	-7.79	16.63	-0.15
5110	-7.94	16.08	-0.77
5115	-8.15	15.32	-1.12
5120	-8.14	15.35	-1.01
5125	-8.26	14.91	-0.56
5130	-8.31	14.77	-1.03
5135	-8.26	14.92	-1.71
5140	-8.12	15.42	-1.54
5145	-7.83	16.46	-1.47
5150	-7.51	17.76	-1.33



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5155	-7.32	18.52	-0.91
5160	-6.98	20.07	-0.11
5165	-6.57	22.01	0.16
5170	-6.56	22.09	0.50
5175	-6.55	22.11	0.29
5180	-6.56	22.10	0.34
5185	-6.54	22.21	-0.13
5190	-6.78	21.01	-0.06
5195	-6.94	20.25	0.13
5200	-6.88	20.53	1.14
5205	-7.14	19.34	0.52
5210	-7.06	19.67	0.30
5215	-6.96	20.15	0.68
5220	-6.98	20.07	-0.11
5225	-7.09	19.54	-1.05
5230	-7.20	19.05	-1.16
5235	-7.11	19.47	-0.76
5240	-7.28	18.70	-0.53
5245	-7.13	19.36	-0.68
5250	-7.06	19.68	-0.91
5255	-6.67	21.54	-0.57
5260	-6.54	22.19	-0.58
5265	-6.49	22.46	-0.28
5270	-6.38	23.03	0.52
5275	-6.28	23.56	0.40
5280	-6.25	23.72	1.25
5285	-6.39	22.97	1.00
5290	-6.18	24.10	1.09
5295	-6.28	23.54	0.52
5300	-6.40	22.93	0.66
5305	-6.58	21.98	0.08
5310	-6.52	22.26	-0.02
5315	-6.72	21.30	-0.14
5320	-6.57	22.02	-0.23
5325	-6.55	22.14	-0.01
5330	-6.47	22.55	-0.27
5335	-6.49	22.45	-0.05



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5340	-6.33	23.28	-0.22
5345	-5.99	25.20	1.03
5350	-5.88	25.85	1.83
5355	-5.66	27.14	1.57
5360	-5.31	29.43	1.81
5365	-5.20	30.17	2.09
5370	-5.04	31.30	2.39
5375	-5.12	30.77	1.78
5380	-5.23	30.03	1.09
5385	-5.31	29.46	1.24
5390	-5.40	28.84	1.10
5395	-5.42	28.69	1.11
5400	-5.70	26.91	0.57
5405	-5.68	27.03	0.54
5410	-6.11	24.51	-0.03
5415	-6.22	23.89	0.06
5420	-6.18	24.09	0.72
5425	-6.34	23.22	0.42
5430	-6.26	23.67	0.46
5435	-6.12	24.44	0.71
5440	-6.09	24.61	0.92
5445	-5.88	25.83	0.84
5450	-5.93	25.53	0.52
5455	-5.63	27.38	1.10
5460	-5.64	27.28	1.05
5465	-5.51	28.11	0.85
5470	-5.55	27.85	0.58
5475	-5.58	27.66	0.50
5480	-5.60	27.54	0.38
5485	-5.82	26.18	0.17
5490	-5.73	26.75	0.39
5495	-5.73	26.73	0.72
5500	-5.47	28.37	1.32
5505	-5.46	28.43	1.20
5510	-5.45	28.51	1.23
5515	-5.54	27.92	1.44
5520	-5.41	28.75	1.70



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5525	-5.54	27.90	1.18
5530	-5.28	29.65	1.29
5535	-5.43	28.66	1.25
5540	-5.37	29.06	1.20
5545	-5.53	28.02	0.74
5550	-5.52	28.05	0.76
5555	-5.43	28.63	0.78
5560	-5.44	28.58	1.00
5565	-5.19	30.26	1.49
5570	-5.16	30.47	1.44
5575	-4.98	31.76	1.76
5580	-4.95	32.02	2.14
5585	-4.81	33.02	2.56
5590	-4.73	33.68	2.71
5595	-4.58	34.86	2.88
5600	-4.59	34.73	2.88
5605	-4.59	34.72	3.01
5610	-4.86	32.64	2.76
5615	-4.92	32.18	2.52
5620	-5.24	29.89	1.96
5625	-5.18	30.36	1.89
5630	-5.23	30.01	1.87
5635	-5.18	30.36	1.89
5640	-5.09	30.97	1.83
5645	-5.09	31.01	1.97
5650	-4.93	32.13	2.22
5655	-4.98	31.80	2.45
5660	-4.85	32.70	2.72
5665	-4.86	32.63	2.86
5670	-4.90	32.37	3.01
5675	-4.94	32.09	3.07
5680	-5.02	31.47	3.18
5685	-5.14	30.59	2.91
5690	-5.11	30.85	2.80
5695	-5.22	30.06	2.55
5700	-5.28	29.62	2.27
5705	-5.37	29.05	2.13



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5710	-5.42	28.74	1.89
5715	-5.42	28.68	2.03
5720	-5.42	28.71	1.99
5725	-5.41	28.78	1.96
5730	-5.31	29.41	2.26
5735	-5.15	30.58	2.73
5740	-5.01	31.58	2.97
5745	-5.01	31.58	2.89
5750	-4.94	32.08	3.04
5755	-4.94	32.09	3.42
5760	-5.21	30.15	2.80
5765	-5.26	29.79	2.58
5770	-5.51	28.12	2.41
5775	-5.63	27.37	2.17
5780	-5.84	26.09	1.98
5785	-5.95	25.41	1.78
5790	-5.94	25.48	1.67
5795	-6.11	24.49	1.39
5800	-6.01	25.08	1.54
5805	-6.10	24.57	1.67
5810	-5.92	25.58	1.73
5815	-5.92	25.60	1.89
5820	-5.85	26.02	2.19
5825	-5.84	26.06	2.28
5830	-5.79	26.36	2.26
5835	-5.92	25.61	1.90
5840	-5.96	25.36	1.99
5845	-6.15	24.27	1.74
5850	-6.18	24.08	1.50
5855	-6.40	22.89	1.40
5860	-6.49	22.43	1.18
5865	-6.59	21.94	1.02
5870	-6.57	22.04	0.72
5875	-6.52	22.31	0.65
5880	-6.42	22.78	1.31
5885	-6.12	24.46	2.03
5890	-6.03	24.92	2.08



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5895	-5.74	26.67	2.24
5900	-5.73	26.70	1.91
5905	-5.60	27.54	2.88
5910	-5.74	26.67	2.34
5915	-5.71	26.87	1.52
5920	-5.87	25.88	1.79
5925	-6.10	24.57	1.65
5930	-6.31	23.36	1.32
5935	-6.59	21.92	0.59
5940	-6.87	20.54	1.07
5945	-6.91	20.37	1.60
5950	-6.96	20.15	0.99
5955	-6.92	20.31	0.36
5960	-6.88	20.53	0.66
5965	-7.10	19.49	1.18
5970	-7.08	19.59	1.43
5975	-7.08	19.60	0.69
5980	-6.83	20.74	0.73
5985	-6.94	20.24	0.86
5990	-6.88	20.50	1.60
5995	-7.10	19.52	0.63
6000	-7.24	18.88	0.32



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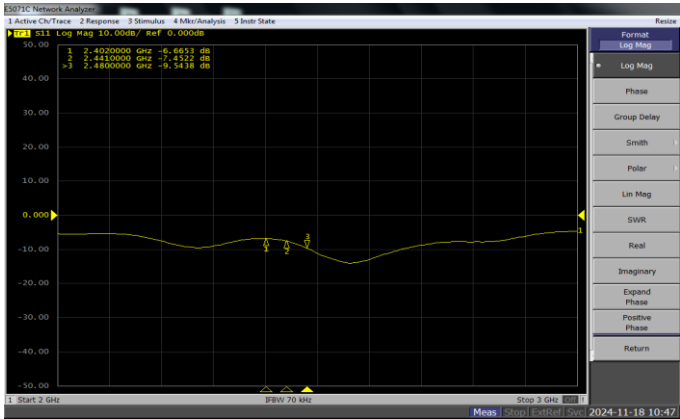
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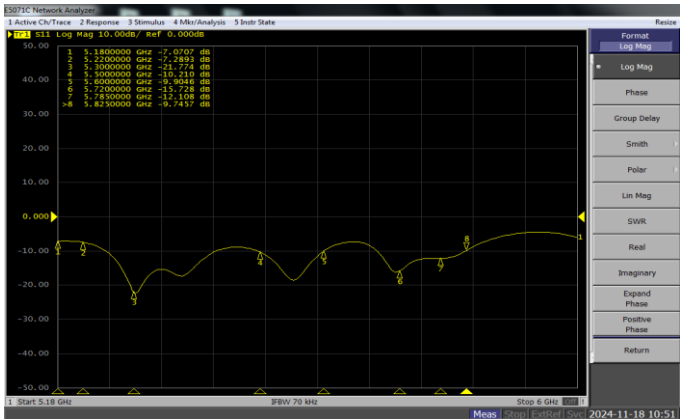
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6 Pattern Plots

6.1 Return Loss



2.4G



5G



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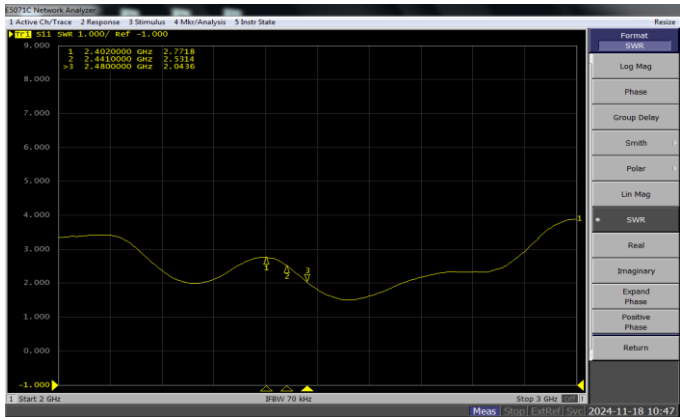
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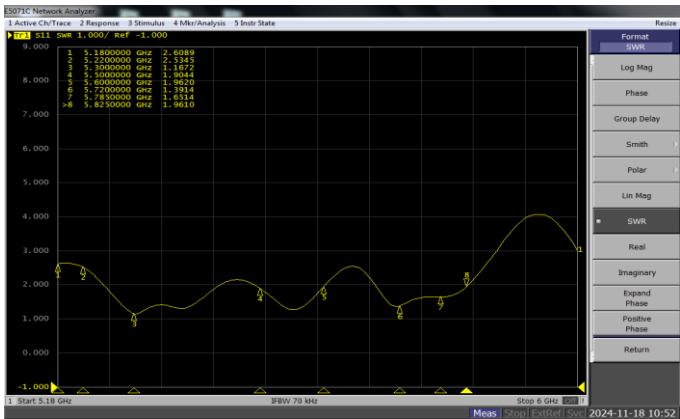
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6.2 VSWR



2.4G



5G

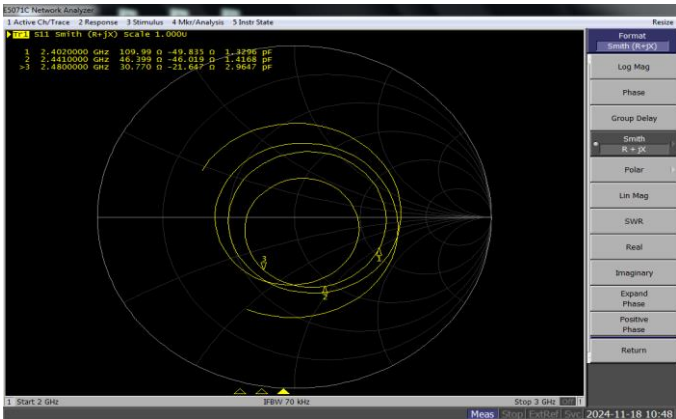


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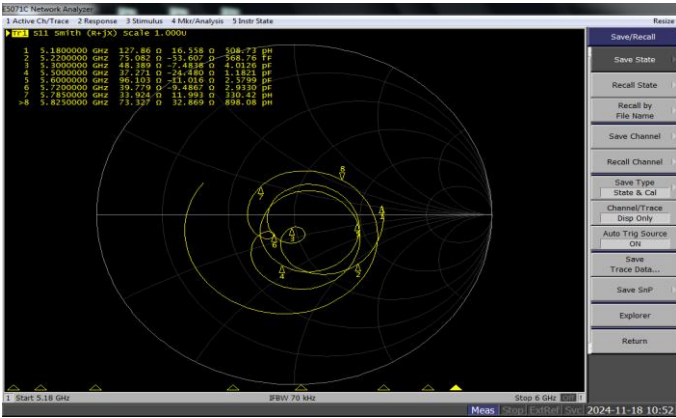
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6.3 Stimulus



2.4G



5G



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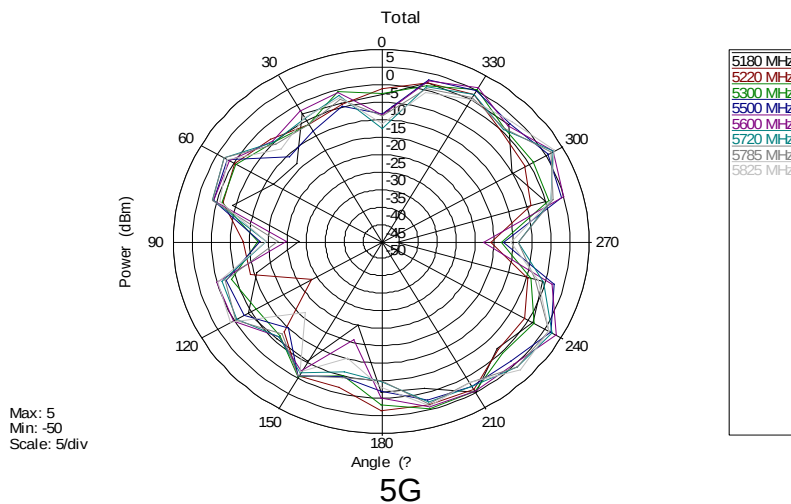
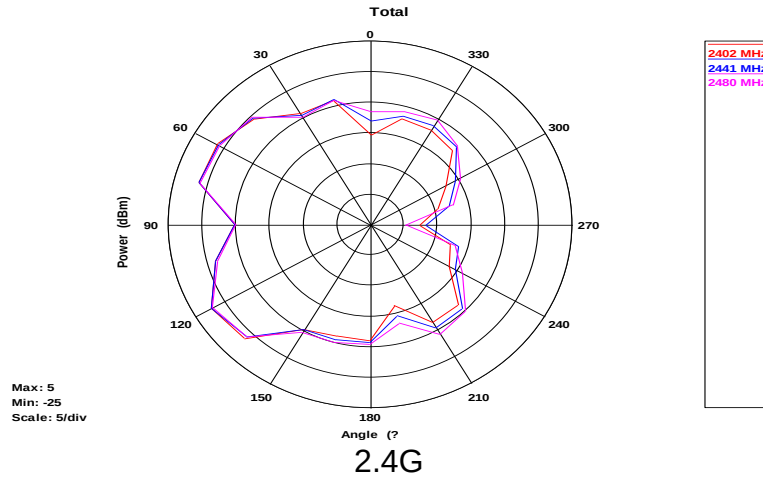
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7 2-D Antenna Pattern(Theta=90°)



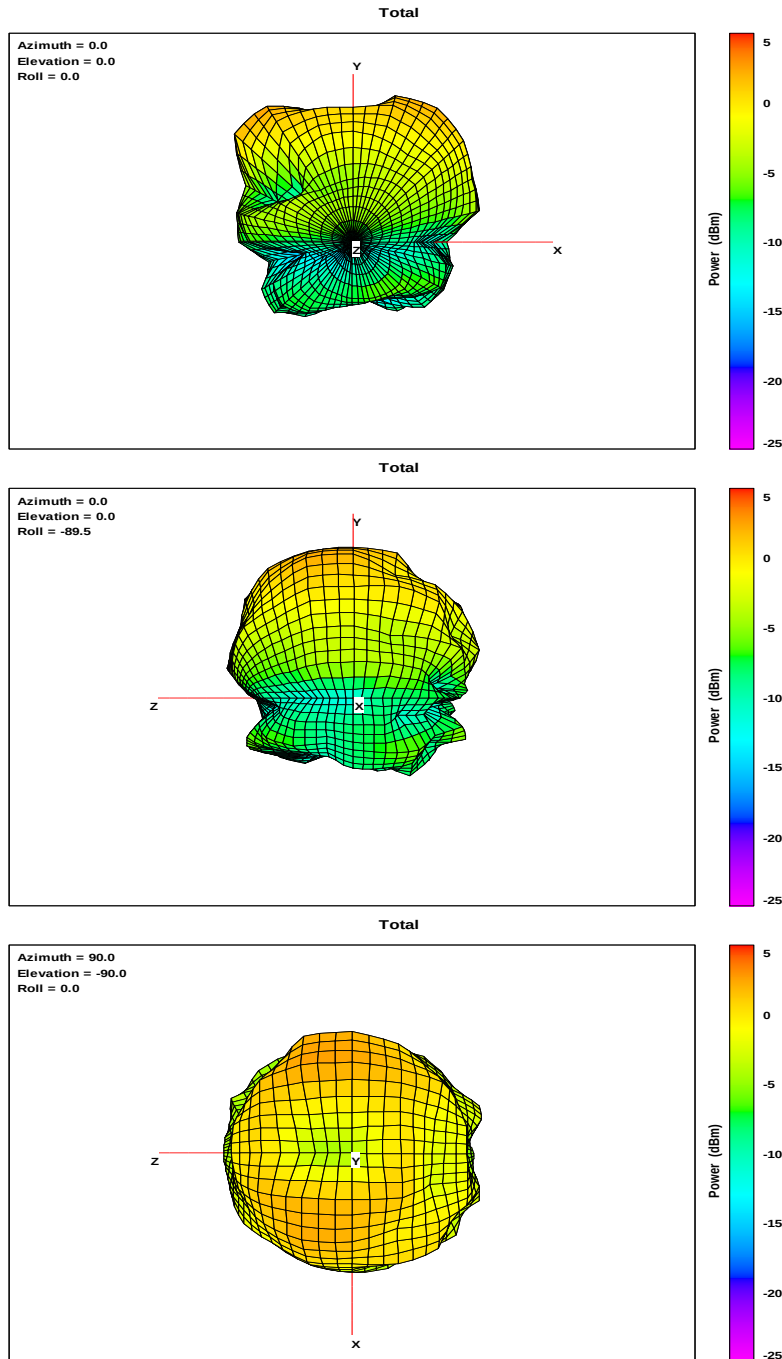
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8 3-D Antenna Pattern



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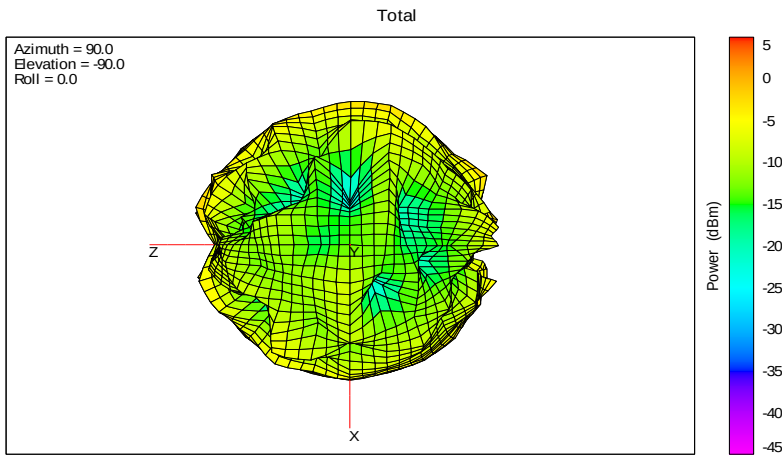
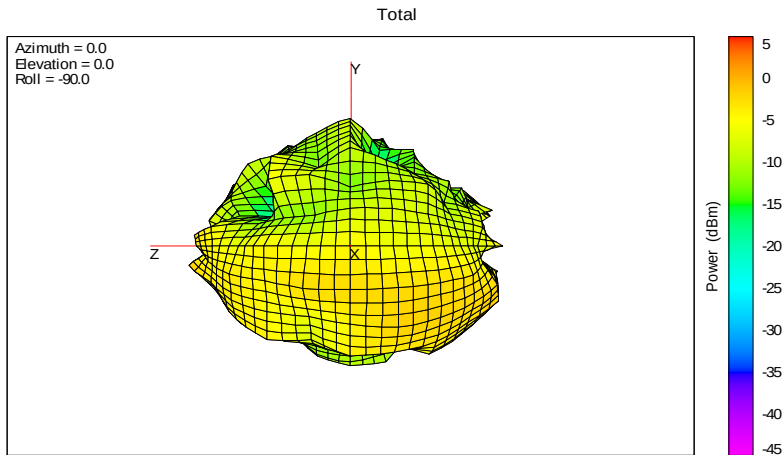
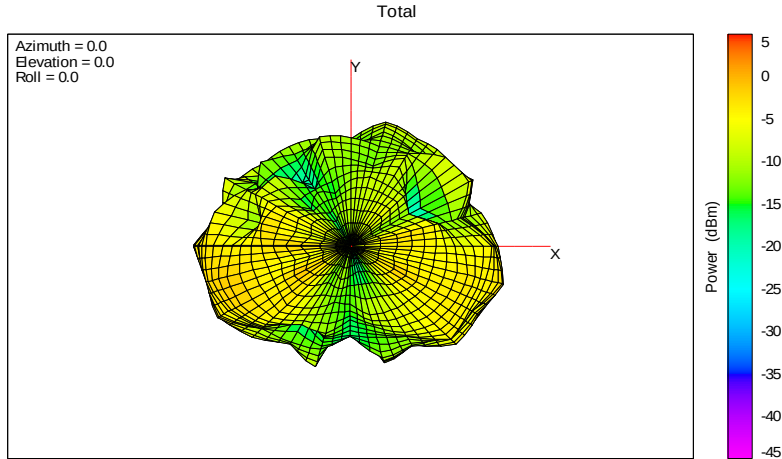
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9 The EUT and Test Configuration

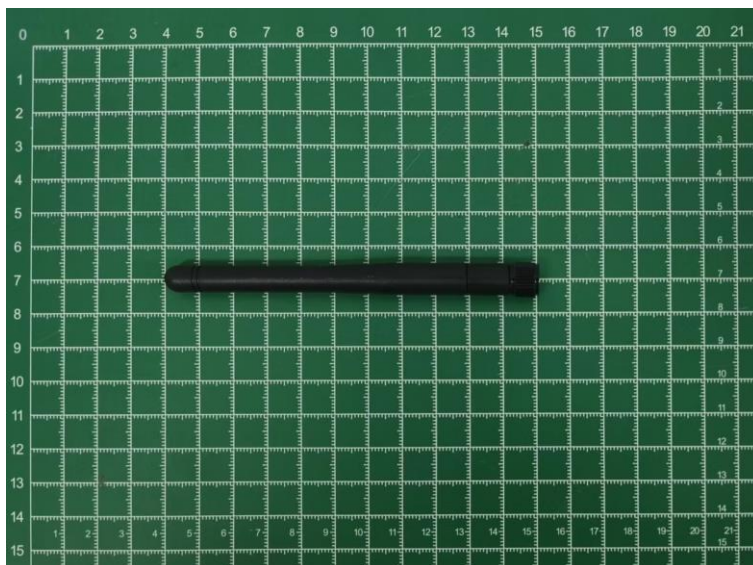
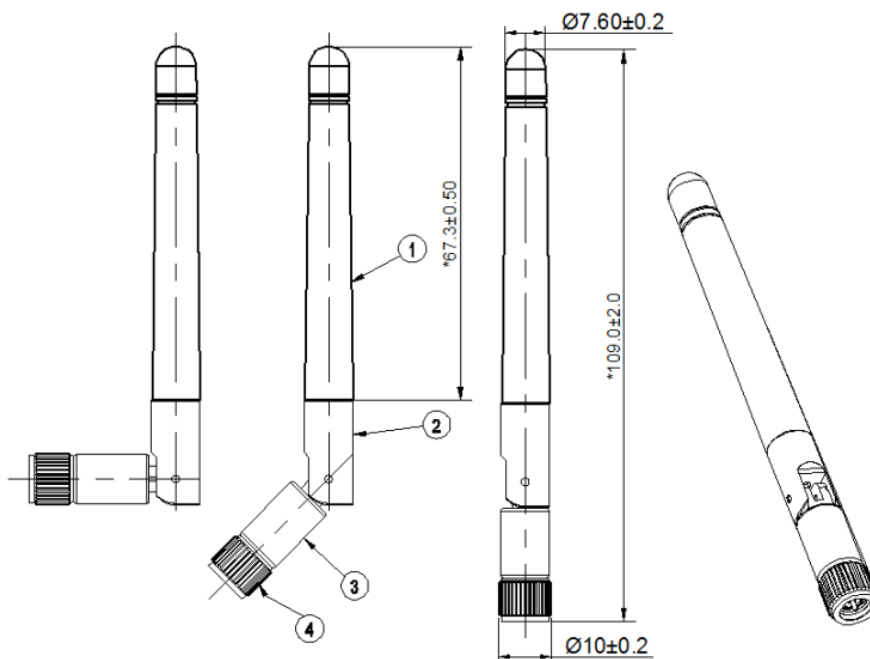


Photo of EUT



Antenna Dimensions



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