



SGS-CSTC Standards Technical Services Co., Ltd Shenzhen Branch

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Rev.: 01
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ANTENNA PASSIVE TEST REPORT

Application No. SZOA2409000196AT
Applicant Janus International Group LLC.
Manufacturer Janus International Group LLC.
Product Name NOKĒ Volt 3.3 Unit Controller
Model No. UC-VLT
Standards ANSI/IEEE Std 149-2021
Date Initial Sample(s) Received September 23, 2024
Testing Start Date September 24, 2024
Testing Finish Date September 24, 2024
Report Issue Date October 23, 2024

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

Yuanyu Luo

Prepared by: Yuanyu Luo/ Test Engineer

Ervin Li

Approved by: Ervin Li/ Technical Manager



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Shenzhen Branch, Inspection & Testing Services

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Revision History

Revision	Issue Date	Description
01	October 23, 2024	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	Janus International Group LLC
Applicant's Address	135 Janus International Blvd. Temple, GA, USA, 30179
Contact	Kathrine Cao
Tel.	+86-13592732924
Fax	N/A
E-mail	Kathrine.cao@janusintl.com

1.3 Details of Manufacturer

Manufacturer's Name	Janus International Group LLC
Manufacturer's Address	135 Janus International Blvd. Temple, GA, USA, 30179
Contact	Kathrine Cao
Tel.	+86-13592732924
Fax	N/A
E-mail	Kathrine.cao@janusintl.com



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1.4 General Description of EUT

Device Description:	NOKĒ Volt 3.3 Unit Controller
Device Manufacturer:	Janus International Group LLC.
Device Model:	UC-VLT
Hardware Version:	N/A
Software Version:	N/A
Dimension:	34.0mm*1.6mm*1.6mm
Antenna Type:	TP1: Wire, TP5: Wire

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°C · Max. = 25°C	
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

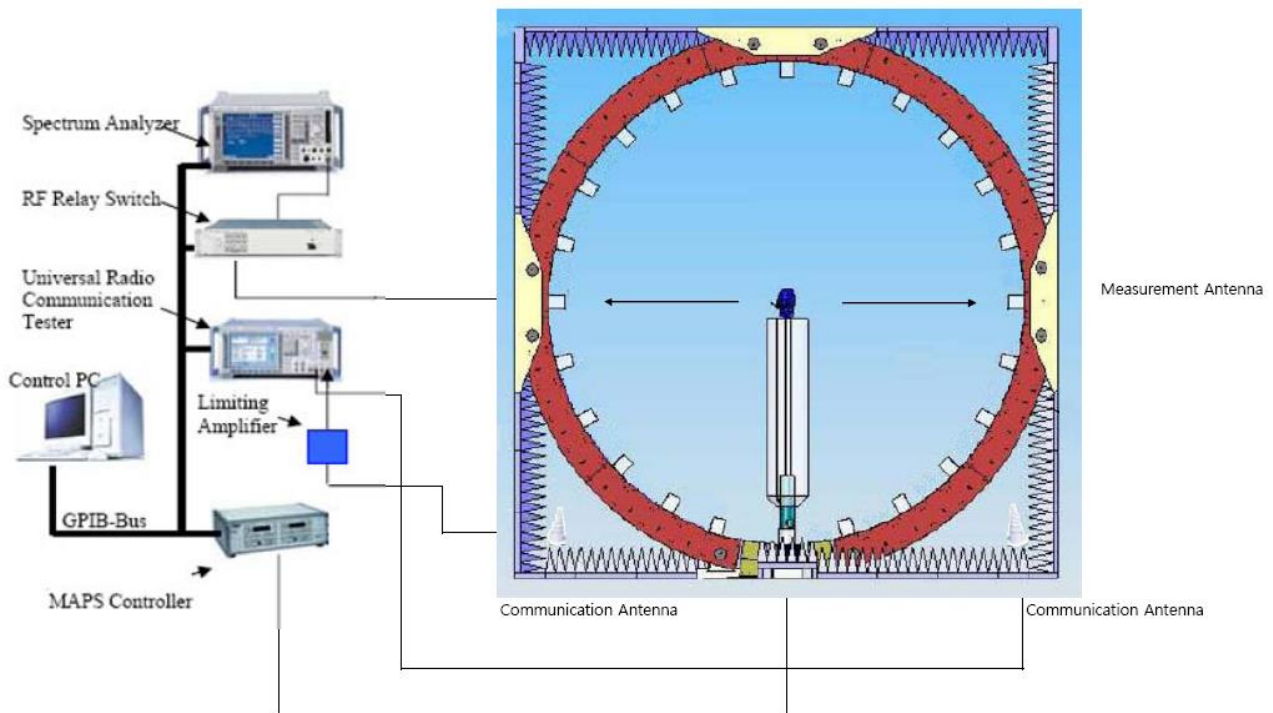
2.1 Test Configuration

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 5m



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	2024/01/30	2025/01/29
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

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

TP1			
Frequency (MHz)	Efficiency (dB)	Efficiency (%)	Gain (dBi)
2350	-3.76	42.03	2.99
2355	-4.02	39.60	2.87
2360	-3.91	40.69	2.89
2365	-4.18	38.23	2.78
2370	-4.32	36.97	2.46
2375	-4.52	35.33	2.49
2380	-4.60	34.67	2.18
2385	-4.52	35.30	2.61
2390	-4.65	34.25	2.13
2395	-4.60	34.66	2.39
2400	-4.97	31.86	1.74
2402	-5.09	30.95	1.59
2405	-5.19	30.25	1.74
2410	-5.36	29.12	1.37
2415	-5.58	27.67	1.28
2420	-5.65	27.25	1.19
2425	-5.93	25.50	0.89
2430	-6.23	23.80	0.76
2435	-6.57	22.01	0.13
2440	-6.81	20.84	0.16
2441	-6.81	20.83	0.06
2445	-6.80	20.88	-0.15



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2450	-6.90	20.41	-0.28
2455	-6.95	20.20	-0.36
2460	-7.29	18.67	-0.73
2465	-7.49	17.82	-1.02
2470	-7.83	16.49	-1.09
2475	-8.00	15.86	-1.30
2480	-8.21	15.10	-1.42
2485	-8.40	14.45	-1.55
2490	-8.54	14.00	-1.51
2495	-8.62	13.74	-1.60
2500	-8.82	13.11	-1.59
2505	-9.03	12.50	-2.00
2510	-9.38	11.53	-2.08
2515	-9.93	10.17	-2.93
2520	-10.50	8.92	-3.34
2525	-11.04	7.87	-3.95
2530	-11.41	7.24	-4.03
2535	-11.66	6.83	-4.39
2540	-11.83	6.56	-4.45
2545	-11.86	6.52	-4.41
2550	-11.99	6.33	-4.62
2555	-12.05	6.23	-4.62
2560	-12.24	5.98	-5.06
2565	-12.35	5.82	-5.13
2570	-12.41	5.75	-5.42
2575	-12.44	5.70	-5.48
2580	-12.33	5.85	-5.49



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TP5			
Frequency (MHz)	Efficiency (dB)	Efficiency (%)	Gain (dBi)
2350	-7.22	18.96	-1.33
2355	-7.37	18.34	-1.22
2360	-7.15	19.26	-1.26
2365	-7.29	18.66	-1.25
2370	-7.25	18.83	-1.17
2375	-7.29	18.66	-1.24
2380	-7.18	19.13	-1.04
2385	-6.99	19.98	-1.03
2390	-6.98	20.06	-0.92
2395	-6.77	21.06	-1.05
2400	-6.98	20.04	-1.56
2402	-7.01	19.89	-1.34
2405	-7.02	19.84	-1.31
2410	-7.08	19.59	-1.42
2415	-7.13	19.38	-1.30
2420	-7.04	19.78	-1.11
2425	-7.17	19.18	-1.30
2430	-7.31	18.56	-1.33
2435	-7.54	17.64	-1.64
2440	-7.59	17.44	-1.64
2441	-7.54	17.61	-1.49
2445	-7.44	18.03	-1.43
2450	-7.33	18.51	-1.41



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2455	-7.16	19.24	-0.98
2460	-7.29	18.65	-1.28
2465	-7.29	18.66	-1.12
2470	-7.43	18.06	-1.57
2475	-7.38	18.27	-1.44
2480	-7.38	18.27	-1.46
2485	-7.32	18.55	-1.46
2490	-7.25	18.83	-1.39
2495	-7.04	19.75	-1.26
2500	-7.04	19.78	-1.21
2505	-6.94	20.22	-1.11
2510	-7.06	19.69	-1.22
2515	-7.31	18.58	-1.41
2520	-7.62	17.31	-1.60
2525	-7.88	16.29	-1.93
2530	-8.02	15.78	-2.03
2535	-8.05	15.66	-2.11
2540	-8.00	15.85	-1.98
2545	-7.83	16.48	-1.86
2550	-7.77	16.72	-1.74
2555	-7.73	16.85	-1.84
2560	-7.78	16.67	-1.95
2565	-7.79	16.64	-2.06
2570	-7.74	16.84	-2.09
2575	-7.66	17.13	-1.97
2580	-7.52	17.70	-1.97



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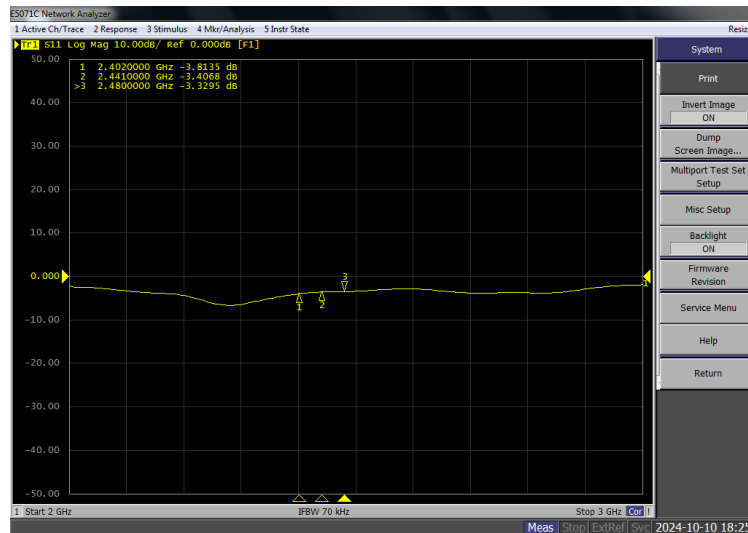
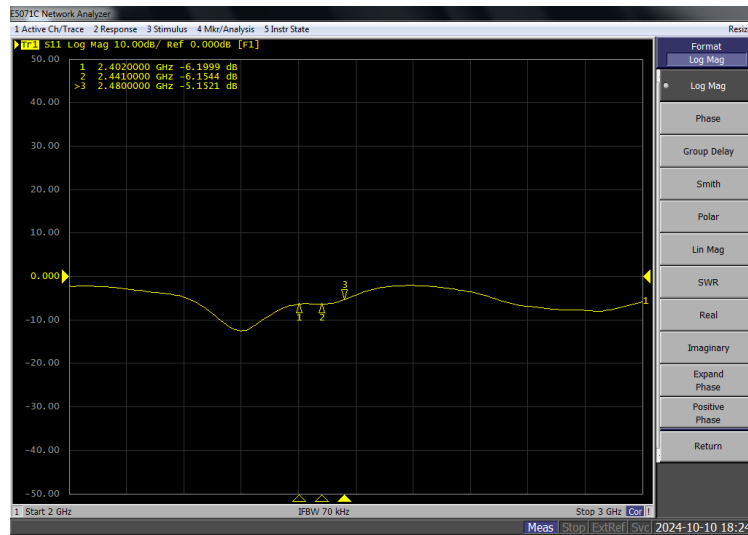
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6 Pattern Plots

6.1 Return Loss



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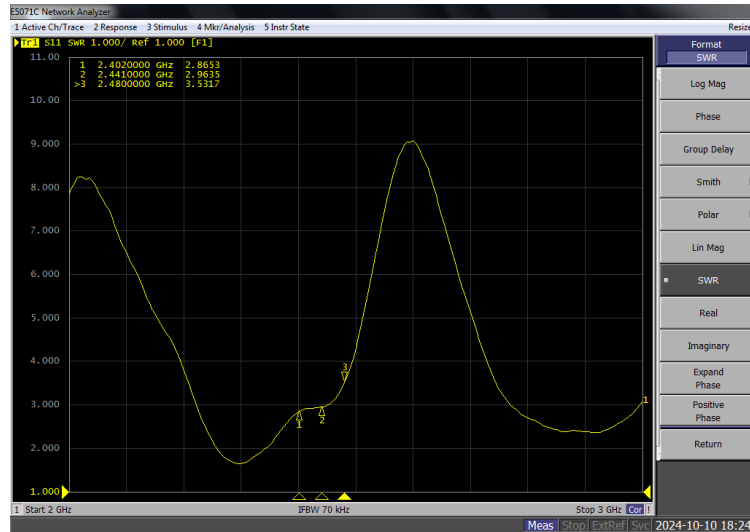
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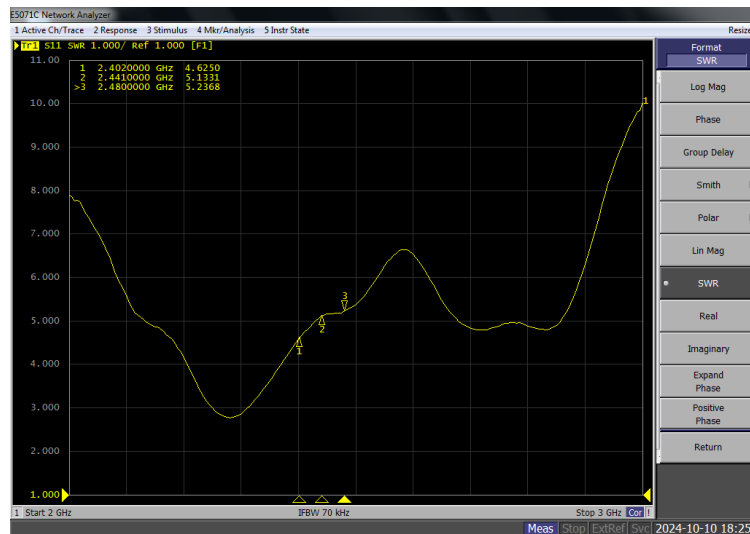
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6.2 VSWR



Free Space TP1



Free Space TP5



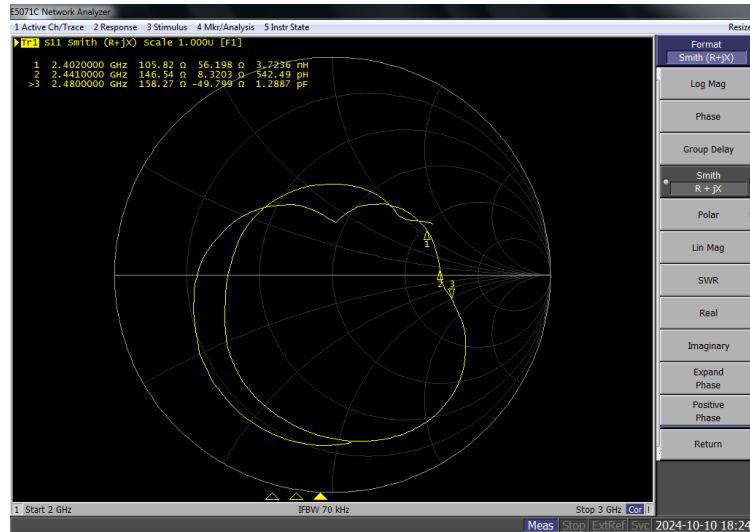
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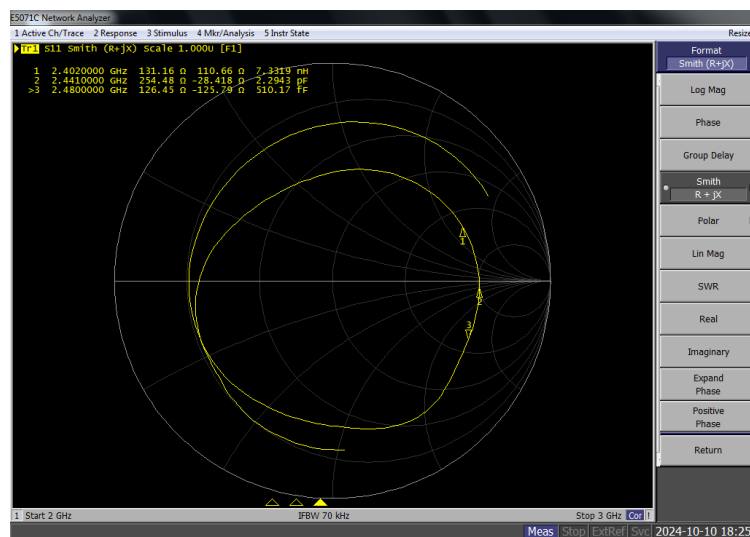
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6.3 Stimulus



Free Space TP1



Free Space TP5



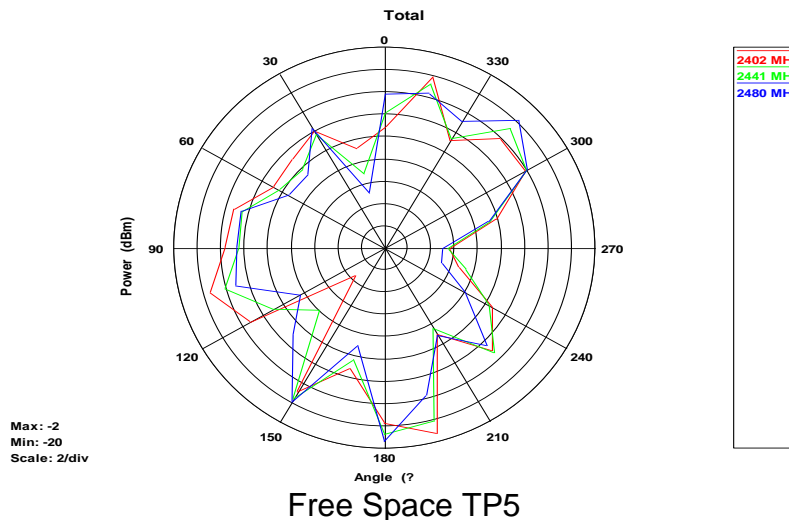
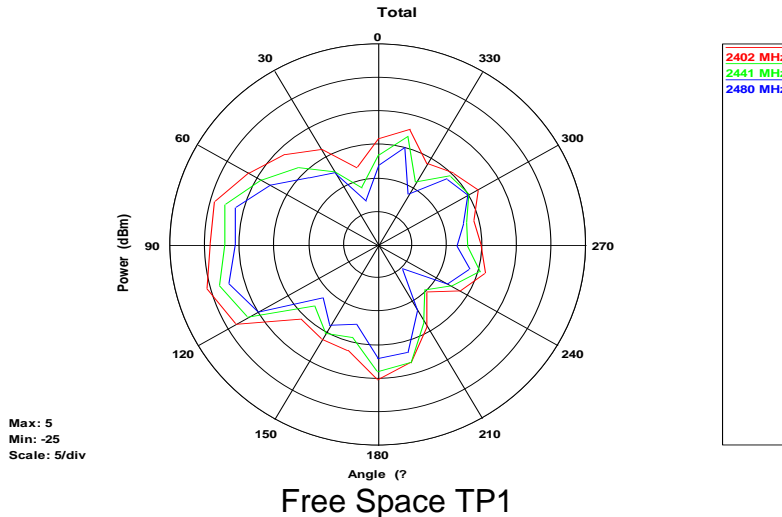
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7 2-D Antenna Pattern(Theta=90°)

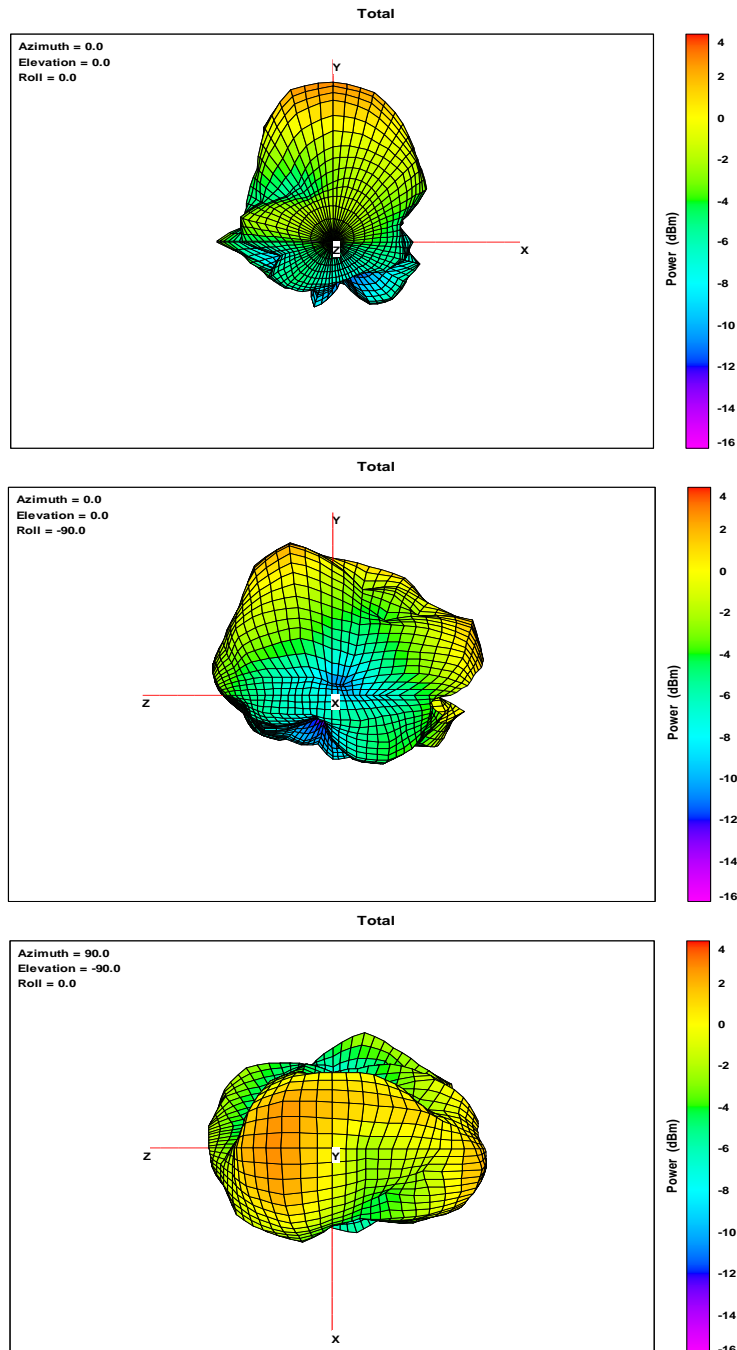


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8 3-D Antenna Pattern



Free Space TP1



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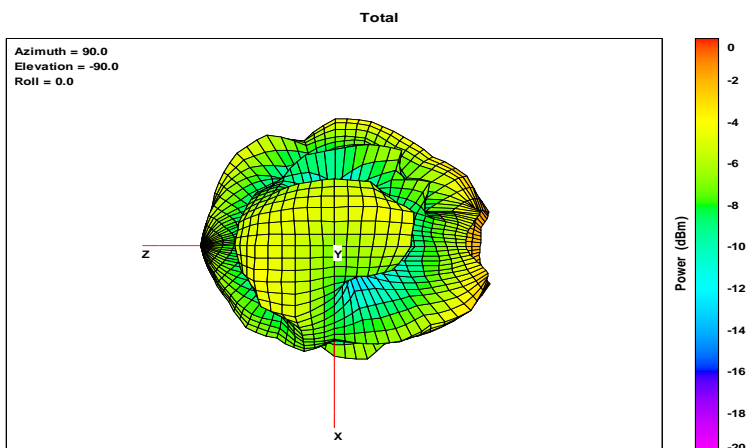
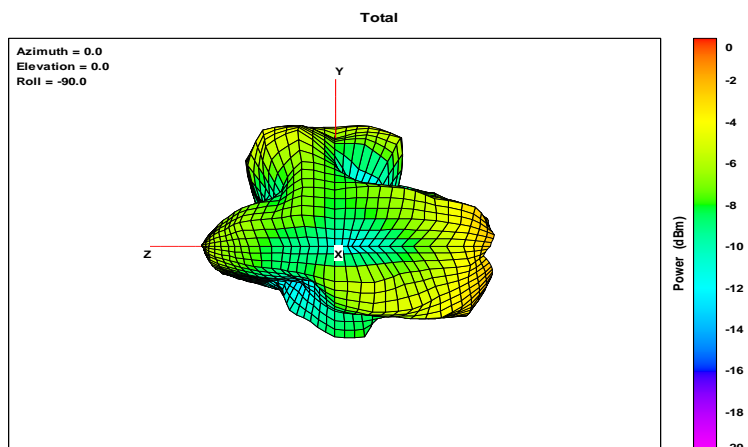
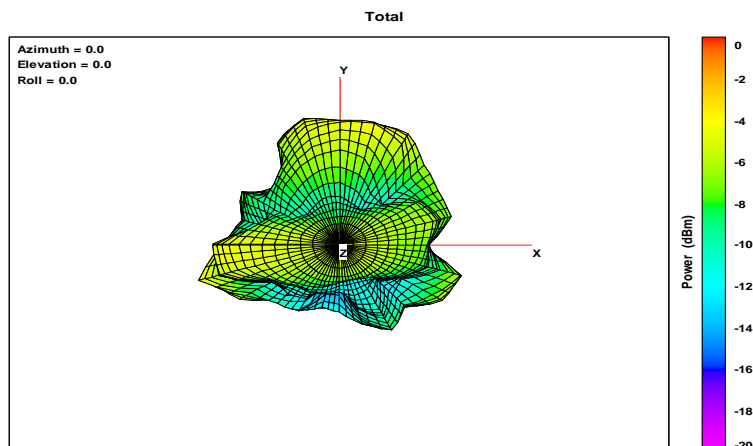
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Free Space TP5



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9 The EUT and Test Configuration

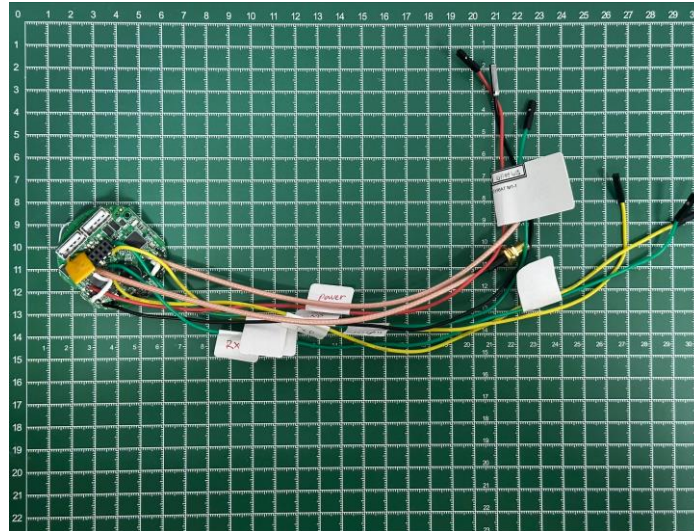
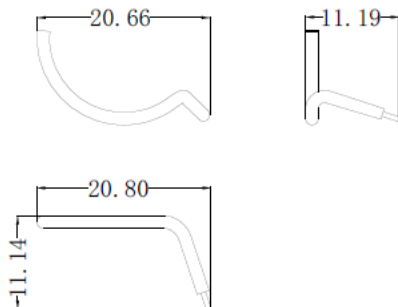
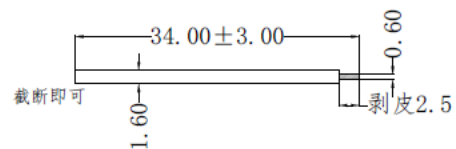


Photo of EUT

天线组装折弯三视图



天线展开视图



Antenna Dimensions



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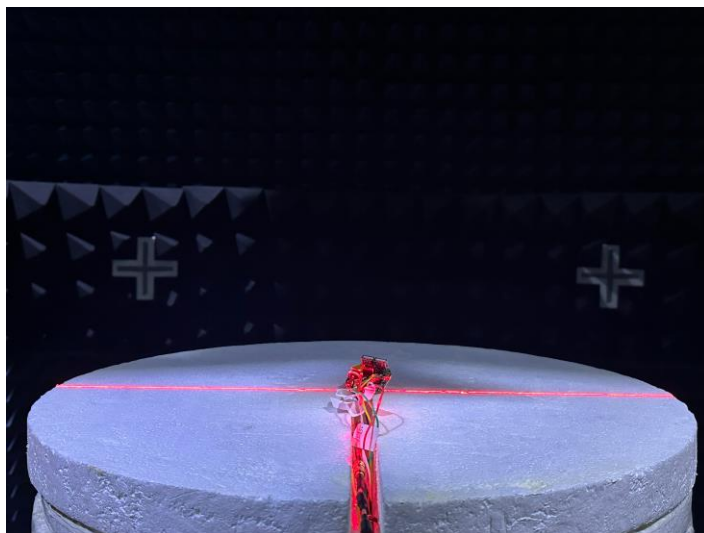
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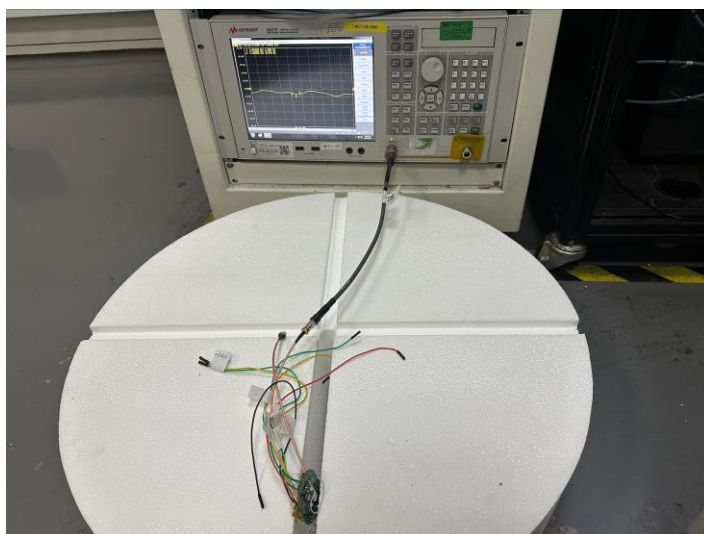
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Free Space View



Free Space Setup

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