

Report on the RF Testing of:

SATO Corporation
Printed Pattern Antenna
Model: BLE-DMTL



Antenna Characteristic Test

Prepared for: SATO Corporation
1-207 Onari-cho, Omiya-ku, Saitama-shi, Saitama,
330-0852 Japan

COMMERCIAL-IN-CONFIDENCE

Document Number: JPD-TR-25100-0

SIGNATURE			
NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Hiroaki Suzuki	RF Deputy Manager of EMC Lab	Approved Signatory	2025.12.10

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Japan Ltd. document control rules.

NAME	RESPONSIBLE FOR	SIGNATURE
Taiki Watanabe	Testing	

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1 Summary of Test

1.1 Modification history of the test report

Document Number	Modification History	Issue Date
JPD-TR-25100-0	First Issue	Refer to the cover page

1.2 Test period

18-November-2025

2 Equipment Under Test

2.1 EUT information

Applicant	SATO COPORATION. 1-207, Onari-cho, Omiya-ku, Saitama-shi, Saitama 330-0852 Japan Phone: +81-48-663-8116 Fax: +81-48-651-6662
Testing Equipment	Printed Pattern Antenna
Measurement Frequency	2402 MHz, 2440 MHz, 2480 MHz

2.2 Modification to the EUT

The table below details modifications made to the EUT during the test project.

Modification State	Description of Modification	Modification fitted by	Date of Modification
Model: BLE-DMTL Serial Number: BLE-6862-068			
0	As supplied by the applicant	Not Applicable	Not Applicable

3 Test Results

3.1 Measurement data

Date : 18-November-2025
Temperature : 21.6 [°C]
Humidity : 45.3 [%]
Test place : 3m Semi-anechoic chamber

Test engineer : Taiki Watanabe

3.2 Measurement results

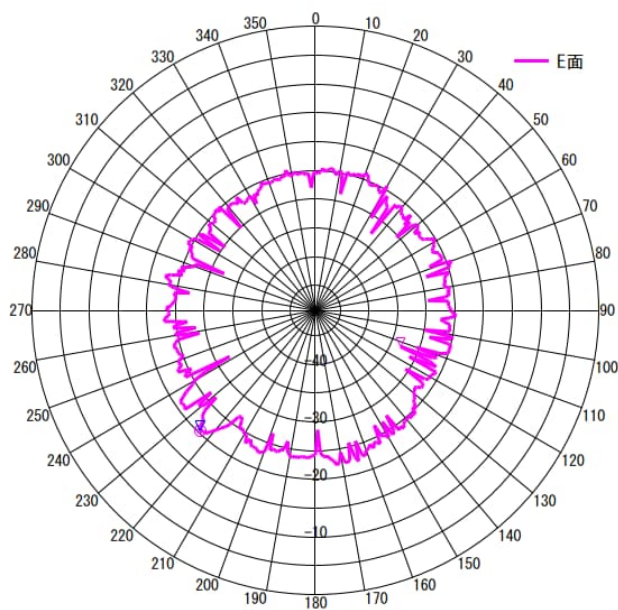
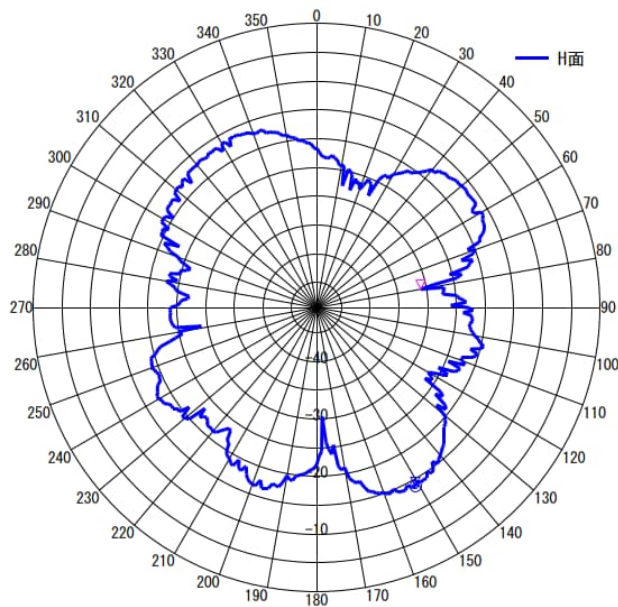
3.2.1 Antenna gain

Frequency	Position 1		Position 2		Position 3	
	Horizontal (H-side)	Vertical (E-side)	Horizontal (H-side)	Vertical (E-side)	Horizontal (H-side)	Vertical (E-side)
2402MHz	-13.95	-20.44	-13.47	-18.02	-6.48	-8.69
2440MHz	-14.36	-22.02	-14.45	-19.87	-8.14	-9.98
2480MHz	-14.97	-22.08	-14.88	-21.03	-9.57	-11.37

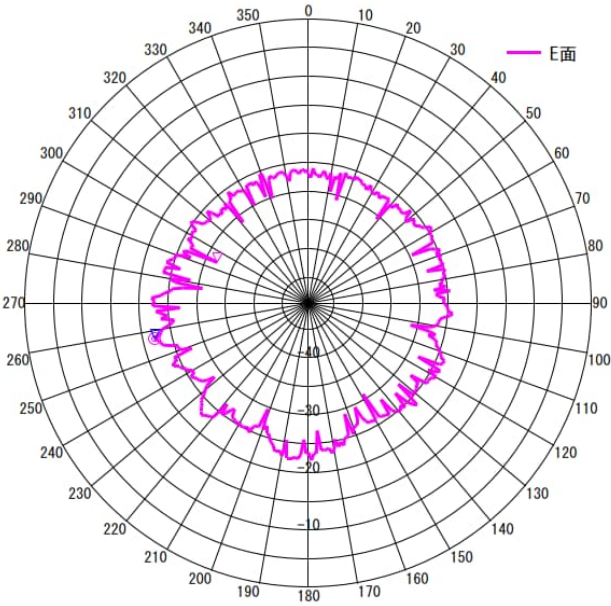
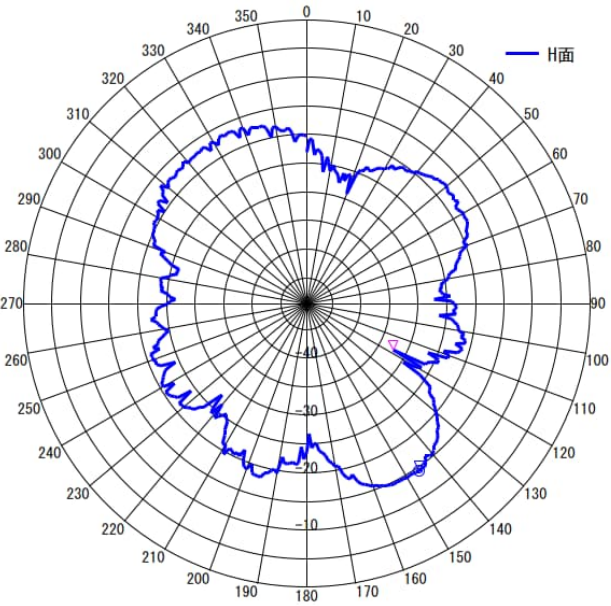
-6.48dBi : MAX GAIN

3.2.2 Antenna Pattern Position 1

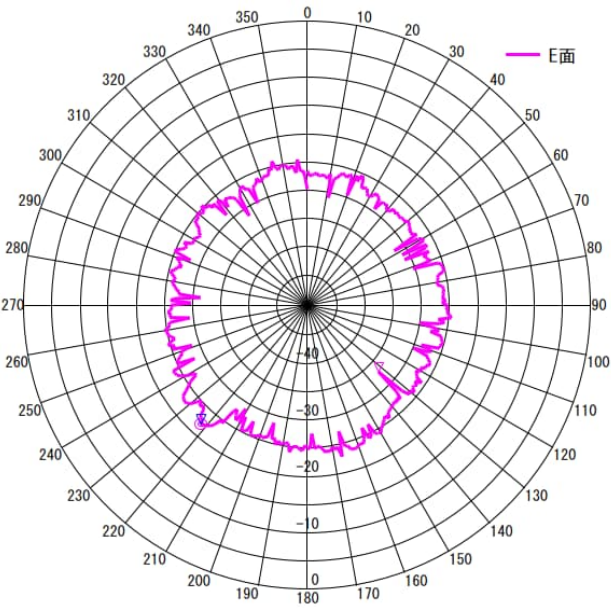
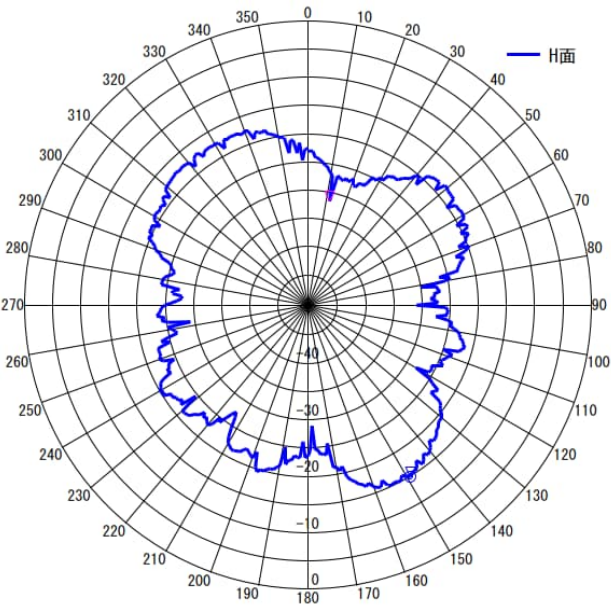
2402MHz



2440MHz

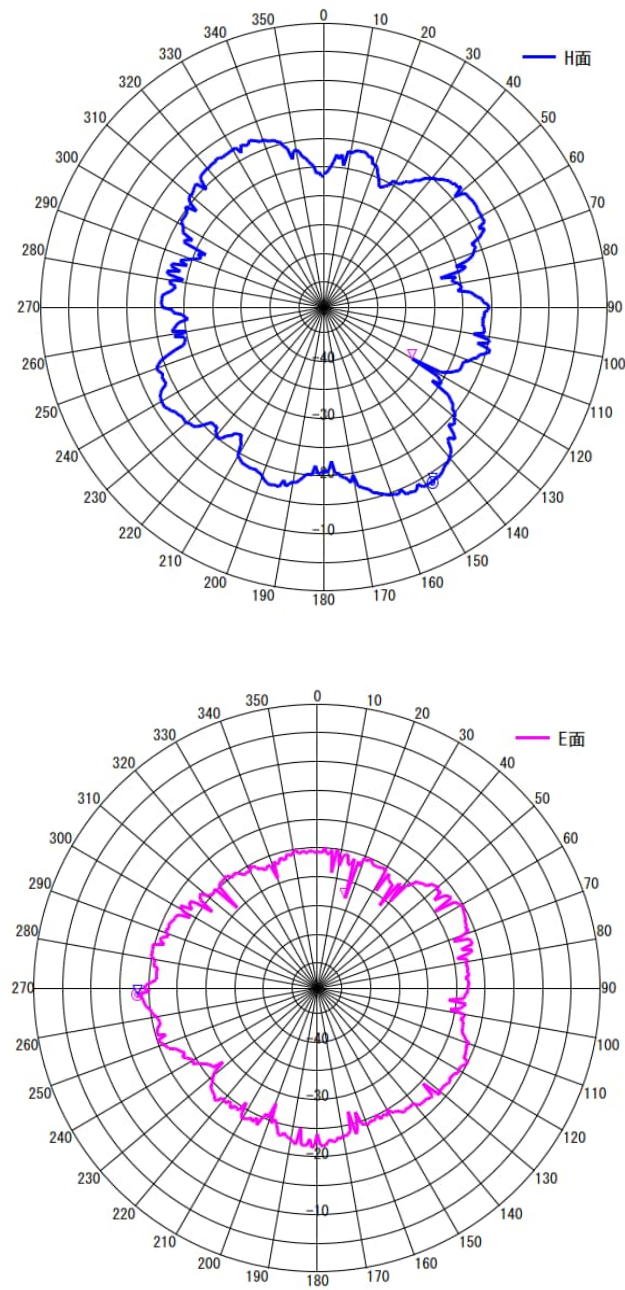


2480MHz

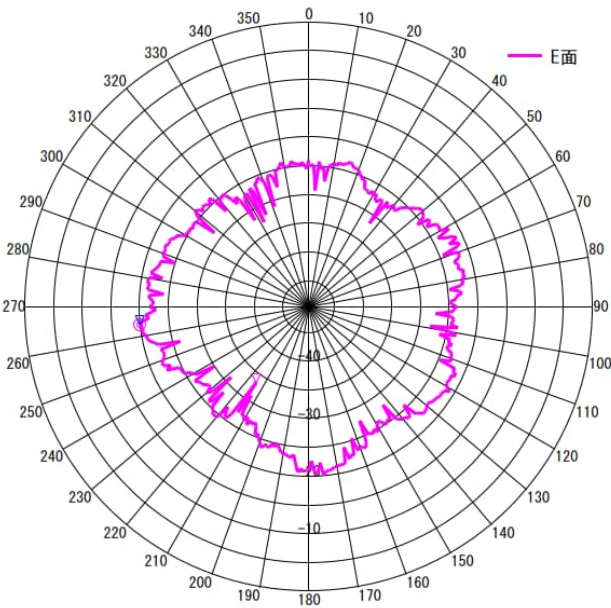
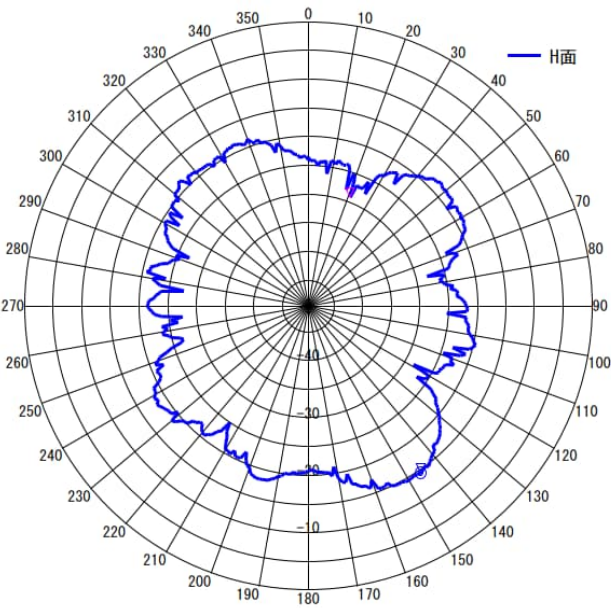


3.2.3 Antenna Pattern Position 2

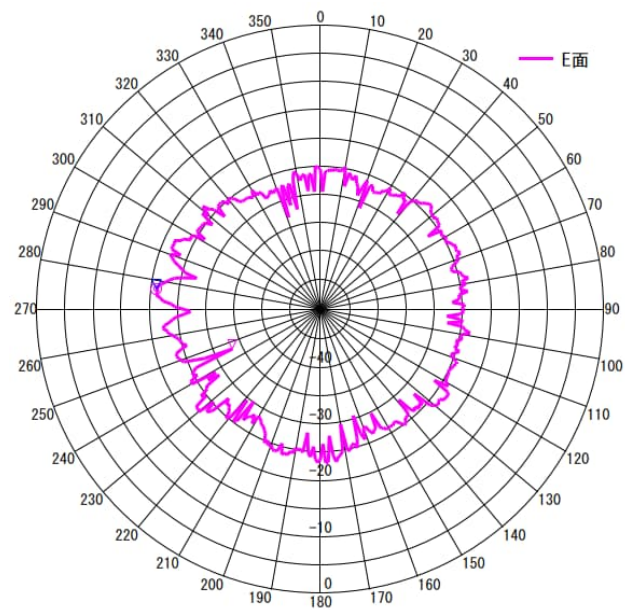
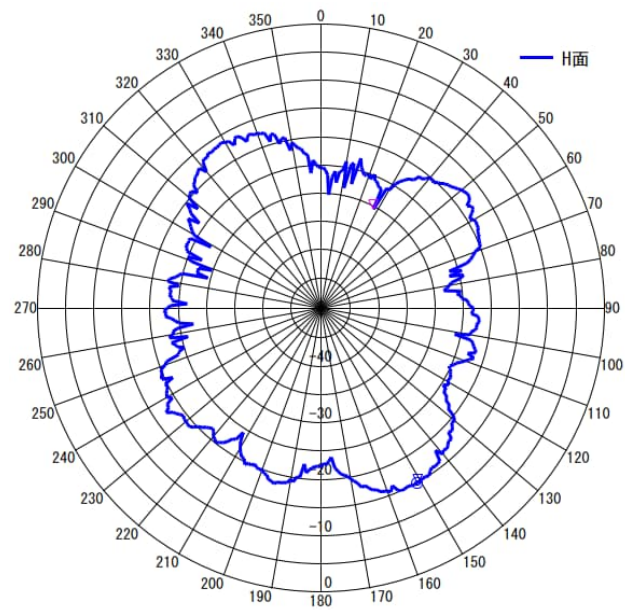
2402MHz



2440MHz

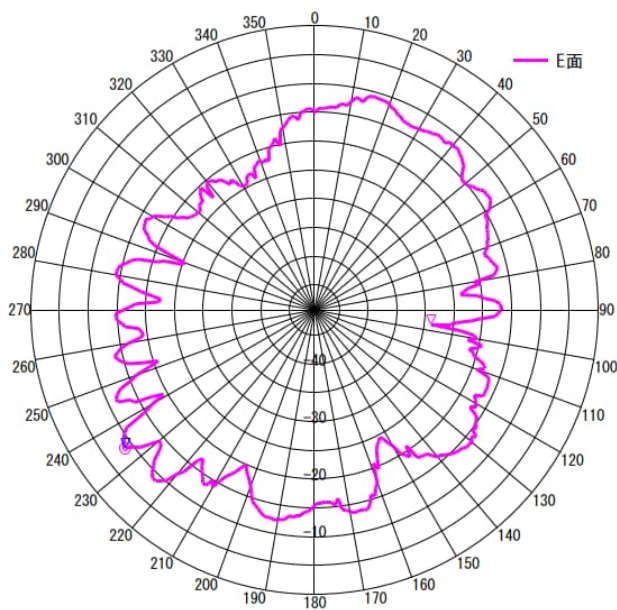
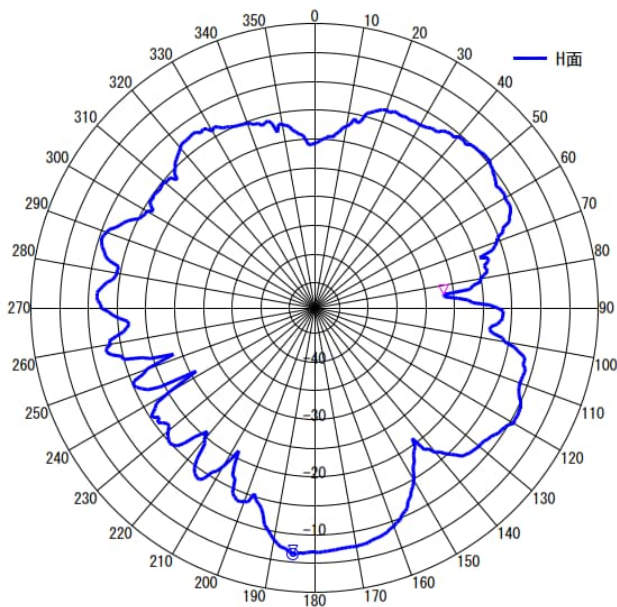


2480MHz

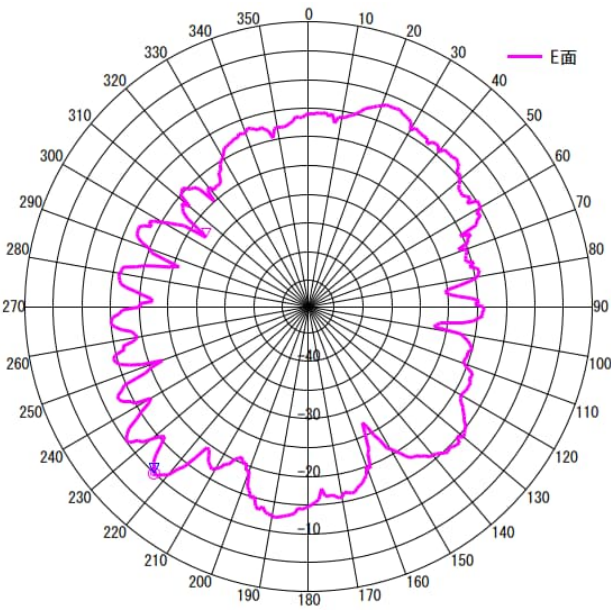
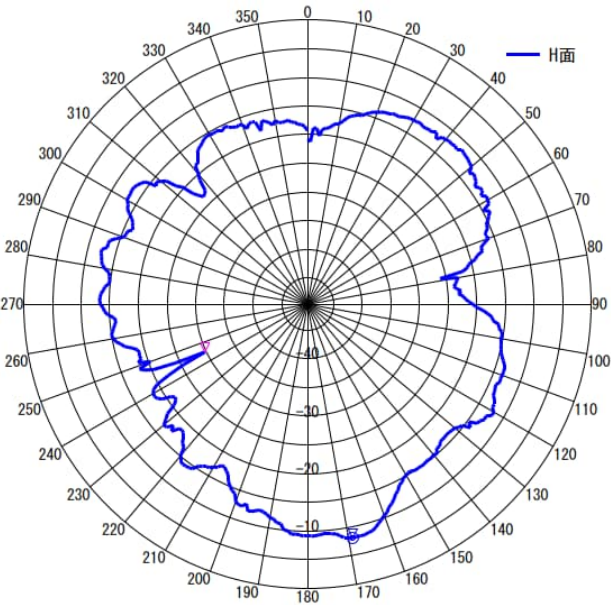


3.2.4 Antenna Pattern Position 3

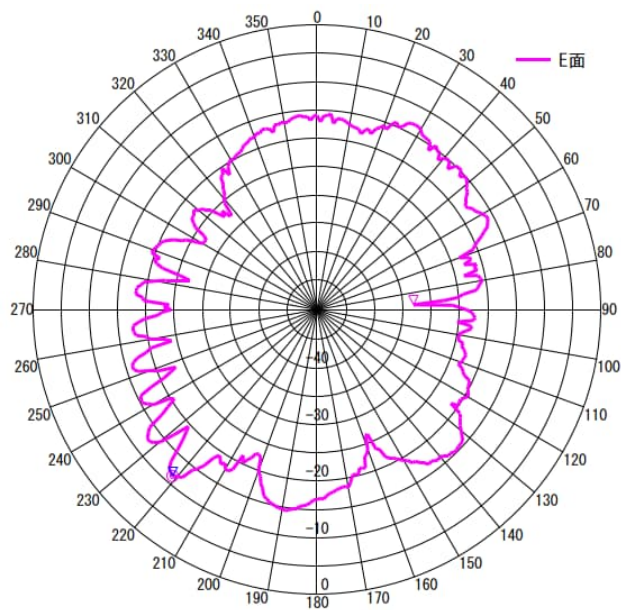
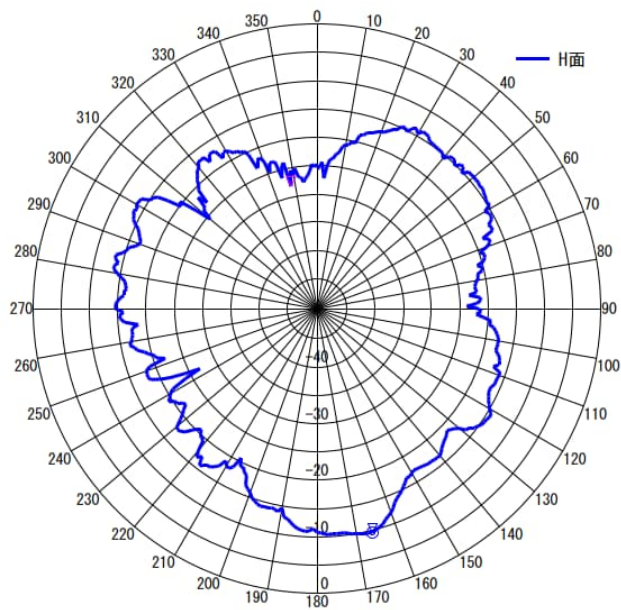
2402MHz



2440MHz



2480MHz



4 Test Equipment

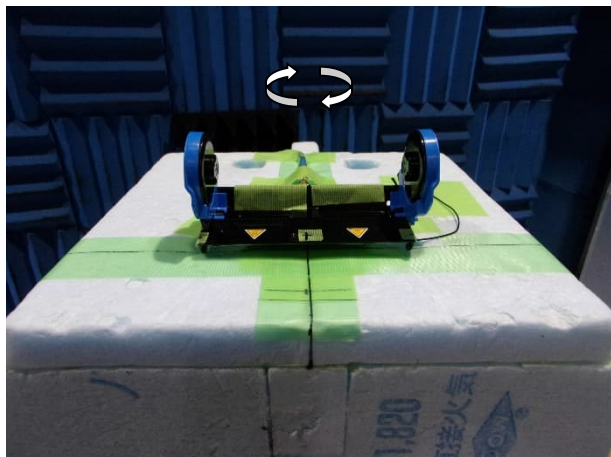
Equipment	Company	Model No.	Serial No.	Cal. Authority	Cal. Method	Cal. Date
EMI receiver	ROHDE&SCHWARZ	ESW44	103171	ROHDE&SCHWARZ	(d)	02-Dec-2024
Double ridged guide antenna	ETS LINDGREN	3117	00209352	Intertek	(d)	24-Jun-2025
Dipole Antenna	ANRITSU	MA5612 B4	6202632156	Intertek	(d)	16-Jul-2025
Preamplifier	Techno Science Japan	MLA-0118-J02-40	23050008	Intertek	(d)	19-Jun-2025
Attenuator	HUBER+SUHNER	6803.17.B	N/A(2340)	Intertek	(d)	17-Dec-2024
Attenuator	AEROFLEX	26A-10	081217-08	Intertek	(d)	16-Dec-2024
Microwave cable	HUBER+SUHNER	SUCOFLEX104/9m	2001099/4	Intertek	(d)	17-Dec-2024
Microwave cable	HUBER+SUHNER	SUCOFLEX104/1m	MY32976/4	Intertek	(d)	17-Dec-2024
Microwave cable	HUBER+SUHNER	SUCOFLEX104/2m	SN MY28404/4	Intertek	(d)	17-Dec-2024
Microwave cable	HUBER+SUHNER	SUCOFLEX106/7m	41625/6	Intertek	(d)	19-Dec-2024
Attenuator	Weinschel	56-10	J4993	Intertek	(d)	16-Dec-2024
Microwave cable	HUBER SUNER	Sucoflex 102/2m	31648	Intertek	(d)	7-Mar-2025
Signal generator	ROHDE&SCHWARZ	SMB100A	177525	Intertek	(a)	06-Dec-2024
3m Semi an-echoic Chamber	TOKIN	N/A	N/A(9002-SVSWR)	Intertek	(d)	14-May-2025
Absorber	RIKEN	PFP30	N/A	N/A	N/A	N/A
PC	DELL	OPTIPLEX9010	00186-228-073-851	N/A	N/A	N/A
Software	Techno Science Japan	TEPTO-ANT	Version 1.3.0012	N/A	N/A	N/A

The calibration period is within one year starting from the month following the date of calibration.

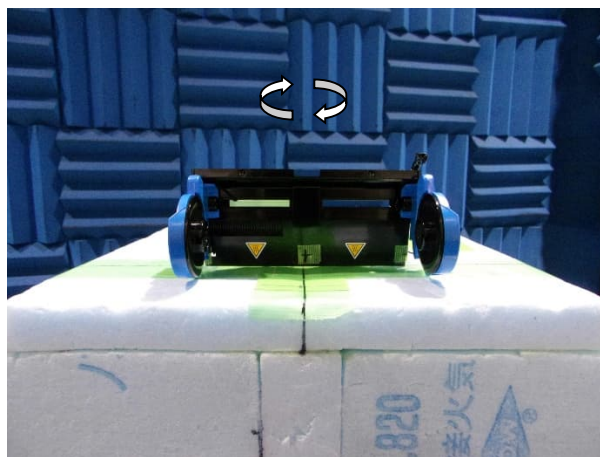
Cal.Method ...

- a) : Calibration conducted by the National Institute of Information and Communications Technology~NICT~ or a designated calibration agency under Article 102-18 paragraph (1)~ Telecom Engineering Center, Intertek Japan K.K., Keysight Technologies, Inc~.
- b) : Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992)~Japan Calibration Service System~
- c) : Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1)~ Telecom Engineering Center, Intertek Japan K.K.,
- d) : Calibration conducted by using other equipment that listed above from a) to c)

5 Antenna Position



Position 1



Position 2



Position 3

- * This is the measurement plane relative to the receiving antenna.
- * 0° to 360° is clockwise relative to the receiving antenna.

6 Measurement Environment

