

ANTENNA TEST REPORT

Test Place

Company Name	UL Japan, Inc. Ise EMC Lab.
Address	4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 Japan
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Equipment Under Test (EUT)

Description	Bluetooth Low Energy Pattern Antenna
Manufacturer	OMRON HEALTHCARE Co.,Ltd.
Model Number	HEM-7440T1
Frequency of Operation	2402 MHz to 2480 MHz
Antenna Type	Pattern Antenna

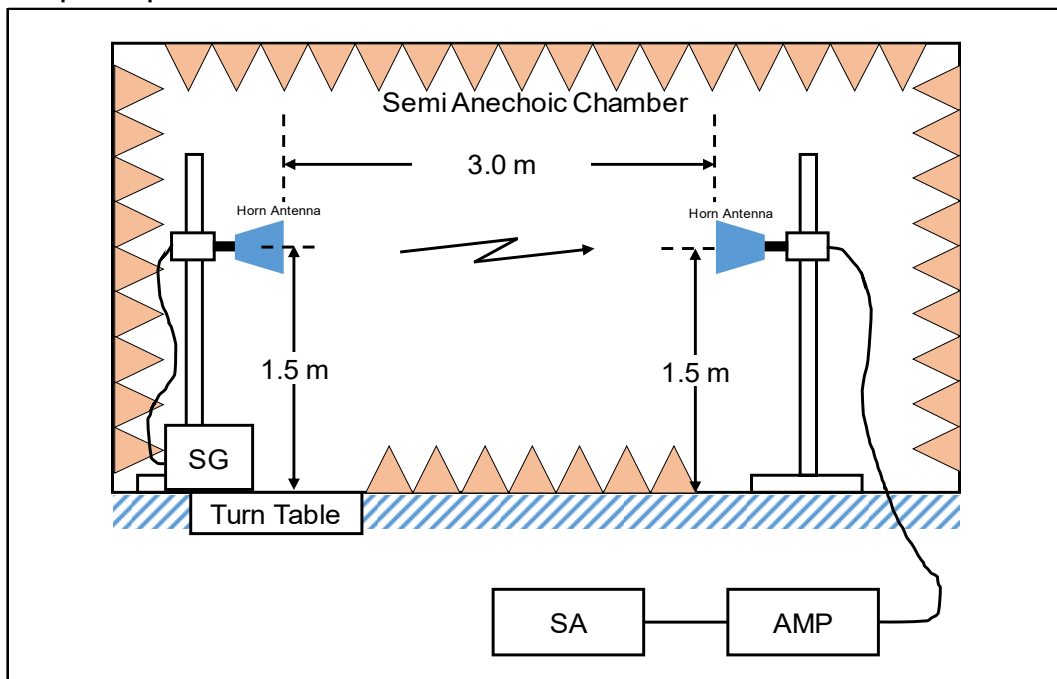
For the shape of the antenna is refer to Internal Photo.

Test Procedure

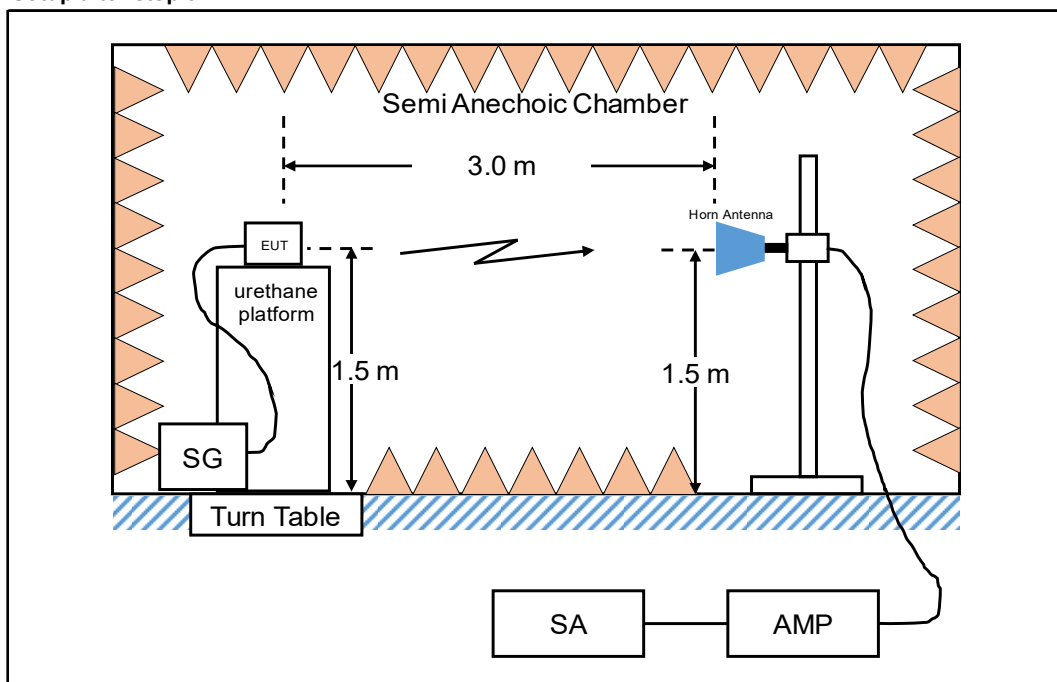
Test configuration	EUT was placed on a platform of nominal size, 0.5 m by 0.5 m, raised 1.5 m above the conducting ground plane. The measurements were performed for both vertical and horizontal antenna polarization with the Spectrum Analyzer.
Test procedure	Step 1 The tests have been measured in semi anechoic chamber at the distance of 3 m between the Substitution Antenna and the measuring Antenna, both Antennas were placed for the height 1.5 m. The Substitution Antenna has been connected to the Signal Generator. Step 2 The output power of the Signal Generator was setting value calculated by compensating the finite difference in the Antenna gain of Substitution Antenna. Step 3 The electric field strength at the distance of 3 m is received via the measurement antenna, and the reference value at that time is measured with a spectrum analyzer. Step 4 The measurements were performed for both vertical and horizontal antenna polarization. Step 5 Exchanged the Substitution Antenna to the measuring Antenna, the output power of the Signal Generator was setting value calculated by 0 dBm at the input of EUT. Step 6 The EUT was rotated a full revolution and recorded the electric field strength for each degree. Step 7 Calculate and record the difference from the value recorded in Step 6 to the value recorded in Step 3. Step 8 The measurement in steps 5 to 7 repeated with both vertical and horizontal antenna polarization, each position of XY, YZ and ZX-plane of EUT. Step 9 Then the results of Step 8 were recorded. Step 10 Calculate the difference between step 9 and the Output Power of measuring Antenna and recorded the calculated results.

Figure 1: Test Setup

Setup for step 1 to 4



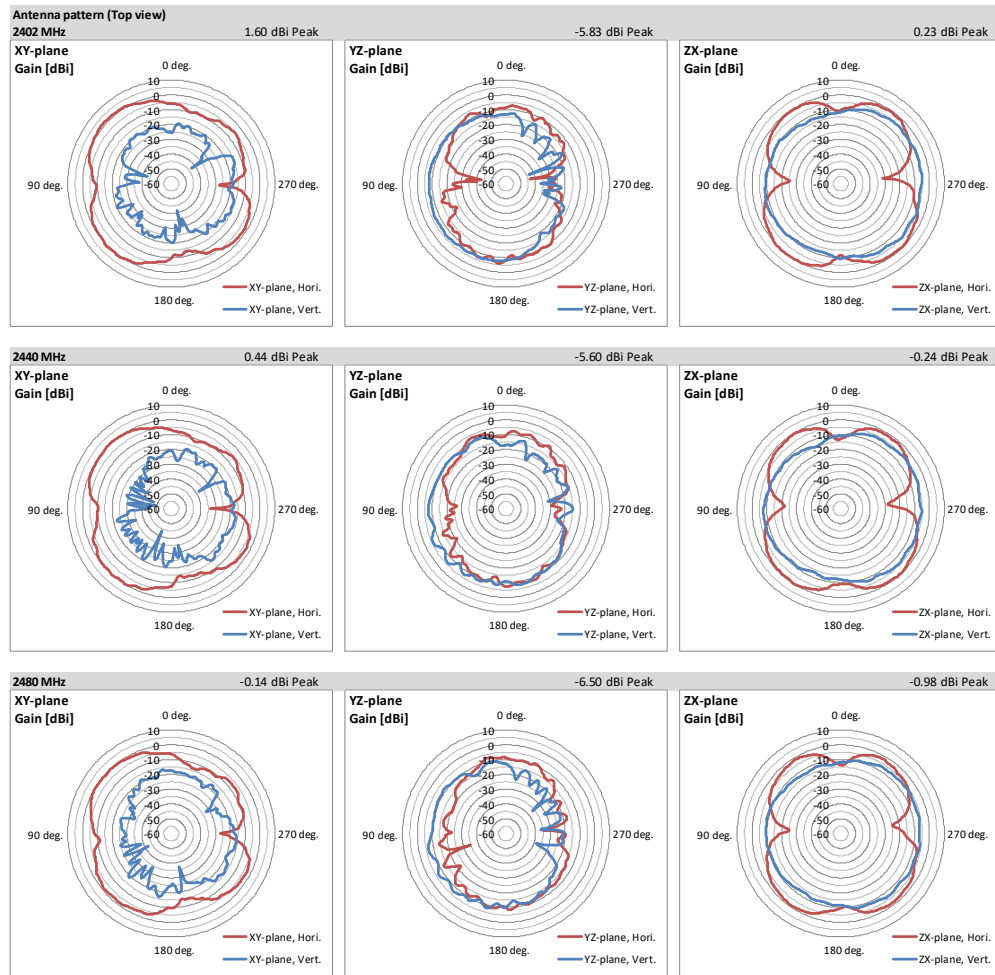
Setup after step 5



SG: Signal Generator
 SA: Spectrum Analyzer
 AMP: Pre Amplifier

Antenna pattern

Date	Test site	Temperature	Humidity	Engineer
September 3, 2025	SAC2	23 deg. C	65 % RH	Yuichiro Yamazaki

**Antenna gain [UNIT: dBi]**

Peak	2402	2440	2480
Frequency [MHz]	2402	2440	2480
Peak gain	1.60	0.44	-0.14

Yellow highlighted area: Maximum Antenna Gain [dBi]

Hori. : Horizontal
Vert. : Vertical

Average*		2402	2440	2480
Frequency [MHz]		2402	2440	2480
XY-plane	Hori.	-3.21	-4.13	-4.65
	Vert.	-20.95	-22.00	-20.43
	Avg (H/V)	-6.15	-7.07	-7.55
YZ-plane	Hori.	-11.53	-11.76	-12.81
	Vert.	-10.70	-10.81	-11.76
	Avg (H/V)	-11.09	-11.26	-12.25
ZX-plane	Hori.	-3.46	-3.72	-4.75
	Vert.	-7.88	-8.13	-8.87
	Avg (H/V)	-5.13	-5.39	-6.34
Total		-6.80	-7.29	-8.07

Average : Result of averaging the true value of the value of each degree of angle.

Test Instruments

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
AP	244707	Thermo-Hygrometer	HIOKI E. E. CORPORATION	LR5001	231202102	2025/01/19	12
AP	141542	Digital Tester	Fluke Corporation	FLUKE 26-3	78030611	2025/08/01	12
AP	142228	Measure, Tape, Steel	KOMELON	KMC-36	-	-	-
AP	142006	AC2_Semi Anechoic Chamber(SVSWR)	TDK	Semi Anechoic Chamber 3m	DA-06902	2025/04/21	24
AP	141903	Spectrum Analyzer	Keysight Technologies Inc	E4440A	MY46186390	2025/01/30	12
AP	141512	Horn Antenna 1-18GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	254	2024/10/17	12
AP	252663	Microwave Cable	Huber+Suhner	SF126E/11PC35/1 1PC35/1000MM,5 000MM	616276/126E / 616275/126E	2024/09/10	12
AP	253739	Pre Amplifier	Keysight Technologies Inc	8449B	3008A01919	2024/10/23	12
AP	158264	Signal Generator	Keysight Technologies Inc	N5182A	MY50142539	2025/09/02	12
AP	254838	Microwave Cable	Huber+Suhner	SUCOFLEX102	2001316 /2	2024/12/03	12
AP	141514	Horn Antenna 1-18GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	01611	2025/06/18	12

*Hyphens for Last Calibration Date and Cal Int (month) are instruments that Calibration is not required (e.g. software), or instruments checked in advance before use.

The expiration date of the calibration is the end of the expired month.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.

Test item:

AP: Antenna Pattern