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
Telephone Number	+81-596-24-8999

Equipment Under Test (EUT)

Description	Contour plus BLUE
Manufacturer	PHC Corporation
Model Number	GM-9268H
Frequency of Operation	2402MH to 2480MHz
Antenna Type	Pattern Antenna

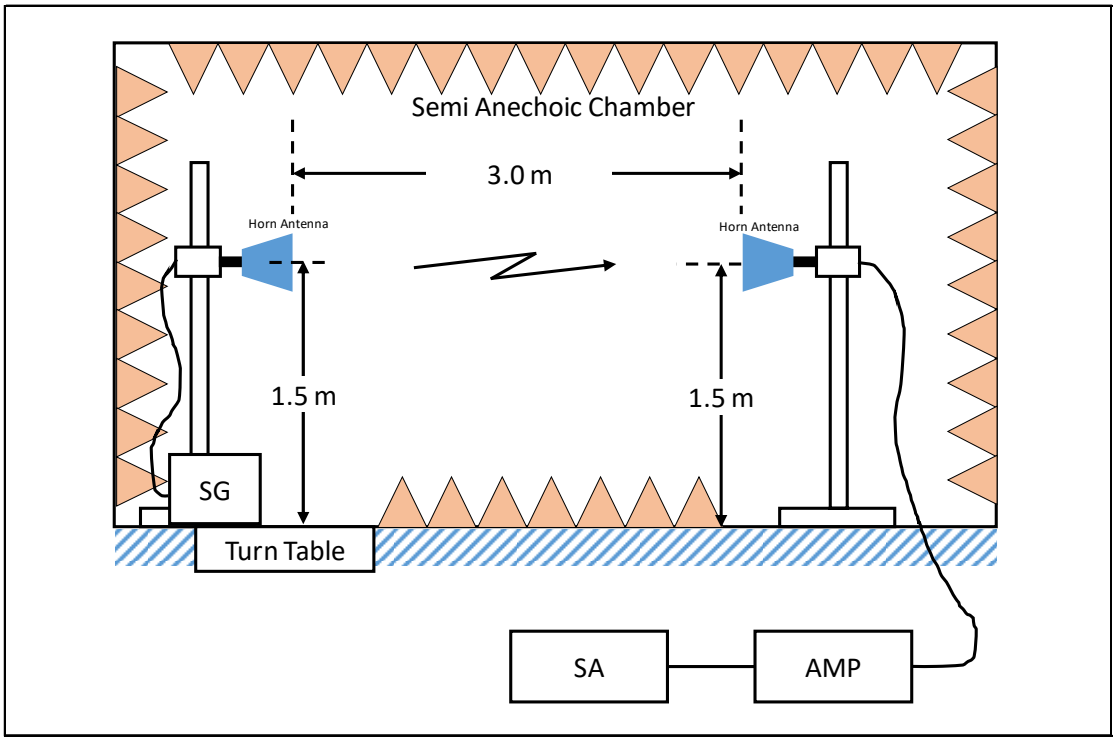
For the shape of the antenna is refer to Internal Photo.

Test Procedure

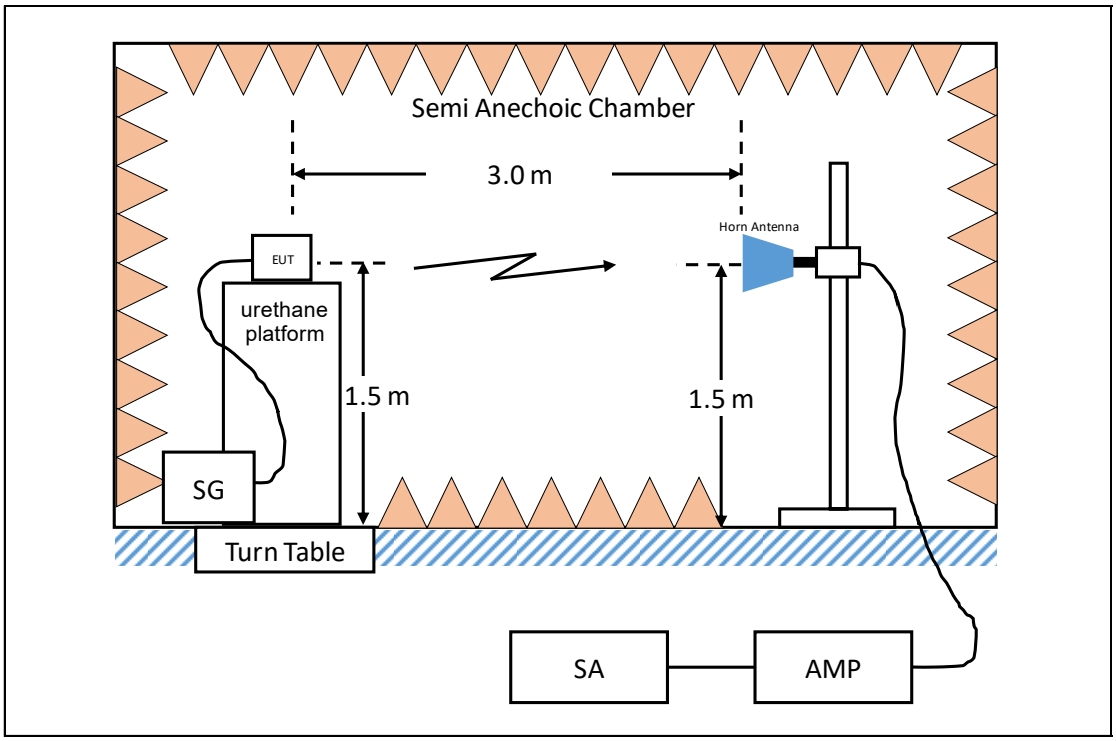
Test configuration	EUT was placed on a platform of nominal size, 0.5 m by 0.5 m, raised 1.5 m above the conducting ground plane. The measurements were performed for both vertical and horizontal antenna polarization with the Spectrum Analyzer. The setup are shown in Figure 1.
Test procedure	Step 1 The 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 EUT, 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.

Figure 1: Test Setup

Setup for step 1 to 4



Setup after step 5

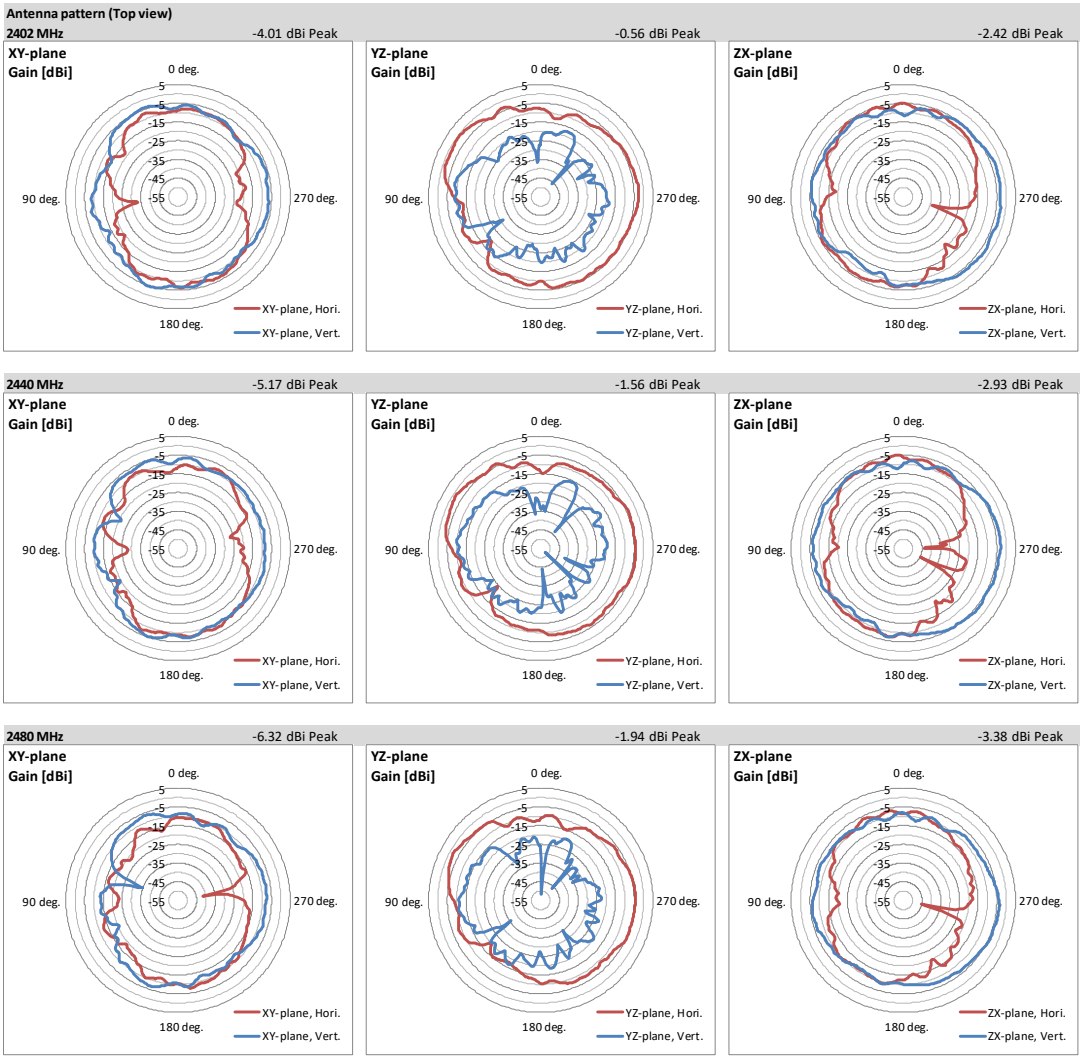


SG: Signal Generator
SA: Spectrum Analyzer
AMP: Pre Amplifier

Test Data

Antenna Pattern and Gain

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 23, 2025
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Takeshi Hiyaji



Antenna gain [UNIT: dBi]

Peak

Frequency [MHz]	2402	2440	2480
Peak gain	-0.56	-1.56	-1.94

Average (角度1度毎の値を真値平均した結果)

Frequency [MHz]		2402	2440	2480
XY-plane	Hori.	-10.74	-11.54	-13.20
	Vert.	-7.66	-8.62	-9.93
	Avg (H/V)	-8.93	-9.84	-11.26
YZ-plane	Hori.	-5.43	-6.44	-7.31
	Vert.	-17.08	-17.86	-18.90
	Avg (H/V)	-8.15	-9.15	-10.03
ZX-plane	Hori.	-8.78	-10.38	-11.68
	Vert.	-5.90	-6.55	-7.48
	Avg (H/V)	-7.10	-8.05	-9.09
Total		-8.00	-8.95	-10.04

Yellow highlighted area: Maximum Antenna Gain [dBi]

Test Instruments

Test Equipment

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
APG	244709	Thermo-Hygrometer	HIOKI E.E. CORPORATION	LR5001	231202103	2025/01/19	12
APG	141532	DIGITAL HiTESTER	HIOKI E.E. CORPORATION	3805	051201197	2025/01/16	12
APG	142183	Measure	KOMELON	KMC-36	-	2024/10/21	12
APG	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
APG	142013	AC3_Semi Anechoic Chamber(SVSWR)	TDK	Semi Anechoic Chamber 3m	DA-10005	2023/04/12	24
APG	141884	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY44020357	2024/05/09	12
APG	246001	Microwave Cable	Huber+Suhner	SF103/11PC35/11PC35/1000mm / SF126E/5000mm	800673(1m) / 610204(5m)	2024/03/06	12
APG	141580	MicroWave System Amplifier	Keysight Technologies Inc	83017A	MY39500779	2024/03/08	12
APG	160324	Coaxial Cable	Huber+Suhner	SUCOFLEX 102A	MY009/2A	2024/10/25	12
APG	141507	Horn Antenna 1-18GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	258	2024/11/11	12
APG	141514	Horn Antenna 1-18GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	01611	2024/06/25	12
APG	158264	Signal Generator	Keysight Technologies Inc	N5182A	MY50142539	2024/09/25	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: APG: Antenna Pattern and Gain