

RADIO PERFORMANCE TEST REPORT

Test Report No. : OT-244-RWD-014

Reception No. : 2312004428

Applicant : LILLYCOVER CO., LTD.

Address : 41256, 12F, 475, Dongdaegu-ro, Dong-gu, Daegu, South Korea

Manufacturer : LILLYCOVER CO., LTD.

Address : 41256, 12F, 475, Dongdaegu-ro, Dong-gu, Daegu, South Korea

Type of Equipment : Skin Diagnosis Device

FCC ID. : 2BFGZLCM-01

Model Name : LC-200

Multiple Model Name : N/A

Serial number : N/A

Total page of Report : 31 pages (including this page)

Date of Incoming : December 20, 2023

Date of issue : April 17, 2024

SUMMARY

The equipment complies with the regulation; **FCC PART 15 SUBPART C Section 15.247**

This test report only contains the result of a single test of the sample supplied for the examination.

It is not a generally valid assessment of the features of the respective products of the mass-production.

This report is not correlated with the "KS Q ISO/IEC 17025 and KOLAS accreditation" of Korean Laboratory Accreditation Scheme.



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※ Please refer to the Annex section for All test plots

Revision History

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-244-RWD-014	April 17, 2024	Initial Release	All

1. VERIFICATION OF COMPLIANCE

Applicant : LILLYCOVER CO., LTD.
Address : 41256, 12F, 475, Dongdaegu-ro, Dong-gu, Daegu, South Korea
Contact Person : Changgyu Bae / Assistant Manager
Telephone No. : +82-10-4334-6508
FCC ID : 2BFGZLCM-01
Model Name : LC-200
Brand Name : MULLI
Serial Number : N/A
Date : April 17, 2024

EQUIPMENT CLASS	DTS – DIGITAL TRNSMISSION SYSTEM
E.U.T. DESCRIPTION	Skin Diagnosis Device
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.10: 2013
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15 SUBPART C Section 15.247 KDB 558074 D01 15.247 Meas Guidance v05r02
Modifications on the Equipment to Achieve Compliance	None
Final Test was Conducted On	3 m, Semi Anechoic Chamber

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

2. TEST SUMMARY

2.1 Test items and results

SECTION	TEST ITEMS	RESULTS
15.247 (a) (2)	Minimum 6 dB Bandwidth	Met the Limit / PASS
15.247 (b) (3)	Maximum Peak Conducted Output Power	Met the Limit / PASS
15.247 (d)	100 kHz Bandwidth Outside the Frequency Band	Met the Limit / PASS
15.247 (d)	Radiated Emission which fall in the Restricted Band	Met the Limit / PASS
15.247 (e)	Peak Power Spectral Density	Met the Limit / PASS
15.209	Radiated Emission Limits	Met the Limit / PASS
15.207	Conducted Limits	N/A (See Note)
15.203	Antenna Requirement	Met requirement / PASS

Note: This Test is not performed because the EUT is operated by DC battery.

2.2 Additions, deviations, exclusions from standards

No additions, deviations or exclusions have been made from standard.

2.3 Related Submittal(s) / Grant(s)

Original submittal only

2.4 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in FCC PART 15 SUBPART C Section 15.247.

2.5 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10: 2013. Radiated testing was performed at a distance of 3 m from EUT to the antenna.

2.6 Test Facility

The Onetech Corp. has been designated to perform equipment testing in compliance with ISO/IEC 17025.

The Electromagnetic compatibility measurement facilities are located at 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea.

-. Site Filing:

VCCI (Voluntary Control Council for Interference) – Registration No. R-20122/ C-14617/ G-10666/ T-11842

ISED (Innovation, Science and Economic Development Canada) – Registration No. Site# 3736A-3

KOLAS (Korea Laboratory Accreditation Scheme) - Accreditation NO. KT085

FCC (Federal Communications Commission) - Accreditation No. KR0013

RRA (Radio Research Agency) – Designation No. KR0013

3. GENERAL INFORMATION

3.1 Product Description

The LILLYCOVER CO., LTD., Model LC-200 (referred to as the EUT in this report) is a Skin Diagnosis Device. The product specification described herein was obtained from product data sheet or user's manual.

DEVICE TYPE	Skin Diagnosis Device
Temperature Range	0 °C ~ 40 °C
OPERATING FREQUENCY	2 417 MHz ~ 2 462 MHz (802.11b/g/n(HT20))
	2 427 MHz ~ 2 452 MHz (802.11n(HT40))
MODULATION TYPE	802.11b: DSSS Modulation(DBPSK/DQPSK/CCK) 802.11g/n(HT20)/n(HT40): OFDM Modulation(BPSK/QPSK/16QAM/64QAM)
RF OUTPUT POWER	17.41 dBm(802.11b) 14.64 dBm(802.11g) 14.57 dBm(802.11n_HT20) 13.93 dBm(802.11n_HT40)
ANTENNA TYPE	Fixed Antenna
ANTENNA GAIN	3.42 dBi
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)	MCU : 48 MHz WIFI Module : 40 MHz

3.2 Alternative type(s)/model(s); also covered by this test report.

-. None

4. EUT MODIFICATIONS

-. None

5. SYSTEM TEST CONFIGURATION

5.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	N/A	MULLY REV02	N/A
LED Board	N/A	MULLY_REV02	N/A
USB Board	N/A	MULLY_REV2	N/A
Camera	N/A	N/A	N/A
Battery	DongGuan ZhuoMei New energy CO.,LTD	ZM186501P-3350	N/A
Module	N/A	ESP32-WROVER-E	N/A

5.2 Peripheral equipment

Defined as equipment needed for correct operation of the EUT, but not considered as tested:

Model	Manufacturer	Description	Connected to
LC-200	LILLYCOVER CO., LTD.	Skin Diagnosis Device (EUT)	-
PROBOOK	HP	NoteBook	EUT

5.3 Mode of operation during the test

For the testing, software used to control the EUT for staying in continuous transmitting is programmed.

For final testing, the EUT was set at 2 417 MHz, 2 437 MHz, 2 462 MHz, 2 427 MHz and 2 452 MHz to get a maximum emission levels from the EUT. The EUT was moved throughout the XY, XZ, and YZ planes and the worst case is “XY” axis, but the worst data was recorded in this report.

-. Channel List (WLAN 2.4 GHz_20 MHz Bandwidth)

Channel	Frequency[MHz]	Channel	Frequency[MHz]	Channel	Frequency[MHz]
2	2 417.00	6	2 437.00	10	2 457.00
3	2 422.00	7	2 442.00	11	2 462.00
4	2 427.00	8	2 447.00	-	-
5	2 432.00	9	2 452.00	-	-

-. Channel List (WLAN 2.4 GHz_40 MHz Bandwidth)

Channel	Frequency[MHz]	Channel	Frequency[MHz]	Channel	Frequency[MHz]
4	2 427.00	8	2 447.00	-	-
5	2 432.00	9	2 452.00	-	-
6	2 437.00	-	-	-	-
7	2 442.00	-	-	-	-

-. Duty Cycle

Band	TEST Mode	Data Rate	On Time (ms)	Total Time (ms)	Duty Cycle (%)	Duty Cycle Factor (dB)
WLAN 2.4 GHz	802.11 b	1	-	-	100.00	0.00
		2	-	-	100.00	0.00
		5.5	-	-	100.00	0.00
		11	-	-	100.00	0.00
	802.11 g	6	-	-	100.00	0.00
		9	-	-	100.00	0.00
		12	-	-	100.00	0.00
		18	-	-	100.00	0.00
		24	-	-	100.00	0.00
		36	-	-	100.00	0.00
		48	-	-	100.00	0.00
		54	-	-	100.00	0.00
	802.11 n(HT20)	MCS0	-	-	100.00	0.00
		MCS1	-	-	100.00	0.00
		MCS2	-	-	100.00	0.00
		MCS3	-	-	100.00	0.00
		MCS4	-	-	100.00	0.00
		MCS5	-	-	100.00	0.00
		MCS6	-	-	100.00	0.00
		MCS7	-	-	100.00	0.00
	802.11 n(HT40)	MCS0	-	-	100.00	0.00
		MCS1	-	-	100.00	0.00
		MCS2	-	-	100.00	0.00
		MCS3	-	-	100.00	0.00
		MCS4	-	-	100.00	0.00
		MCS5	-	-	100.00	0.00
		MCS6	-	-	100.00	0.00
		MCS7	-	-	100.00	0.00

Note – Duty Cycle : (Tx On Time / (Tx On Time + Tx Off Time)) * 100

Correction Factor : $10 * \log(1 / (\text{Duty Cycle} / 100))$

5.4 Configuration of Test System

Line Conducted Test: The EUT was connected to adaptor and the power of adaptor was connected to LISN. All supporting equipment were connected to another LISN. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions.

Radiated Emission Test: Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 meter Semi Anechoic Chamber.

The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

5.5 Antenna Requirement

For intentional device, according to section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna Construction:

The antenna of the EUT is a Fixed Antenna on the main Board in the EUT, so that it cannot be replaced by the user.

6. PRELIMINARY TEST

6.1 General Radiated Emissions Tests

During Preliminary Test, the following operating mode was investigated.

Operation Mode	The Worse operating condition (Please check one only)
Transmitting Mode	X

7. MINIMUM 6 dB BANDWIDTH

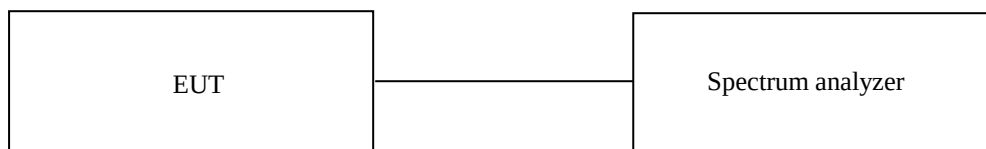
7.1 Operating environment

Temperature : 21 °C

Relative humidity : 49 % R.H.

7.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz, and peak detection was used. The 6 dB bandwidth is defined as the total spectrum over which the power is higher than the peak power minus 6 dB.



7.3 Test Date

March 05, 2024 ~ March 13, 2024

7.4 Test data for 802.11b WLAN Mode

-. Test Result : Pass

CHANNEL	FREQUENCY (MHz)	6 dB Bandwidth (MHz)	LIMIT (MHz)	Margin (MHz)
Low	2 417.00	9.14	0.50	8.64
Middle	2 437.00	9.54	0.50	9.04
High	2 462.00	9.14	0.50	8.64

Remark. Margin = Measured Value - Limit

7.5 Test data for 802.11g WLAN Mode

-. Test Result : Pass

CHANNEL	FREQUENCY (MHz)	6 dB Bandwidth (MHz)	LIMIT (MHz)	Margin (MHz)
Low	2 417.00	16.38	0.50	15.88
Middle	2 437.00	16.38	0.50	15.88
High	2 462.00	16.38	0.50	15.88

Remark. Margin = Measured Value - Limit

7.6 Test data for 802.11n_HT20 WLAN Mode

-. Test Result : Pass

CHANNEL	FREQUENCY (MHz)	6 dB Bandwidth (MHz)	LIMIT (MHz)	Margin (MHz)
Low	2 417.00	16.58	0.50	16.08
Middle	2 437.00	16.83	0.50	16.33
High	2 462.00	16.63	0.50	16.13

Remark. Margin = Measured Value – Limit

7.7 Test data for 802.11n_HT40 WLAN Mode

-. Test Result : Pass

CHANNEL	FREQUENCY (MHz)	6 dB Bandwidth (MHz)	LIMIT (MHz)	Margin (MHz)
Low	2 427.00	31.57	0.50	31.07
Middle	2 437.00	31.77	0.50	31.27
High	2 452.00	31.97	0.50	31.47

Remark. Margin = Measured Value – Limit

8. MAXIMUM PEAK OUTPUT POWER

8.1 Operating environment

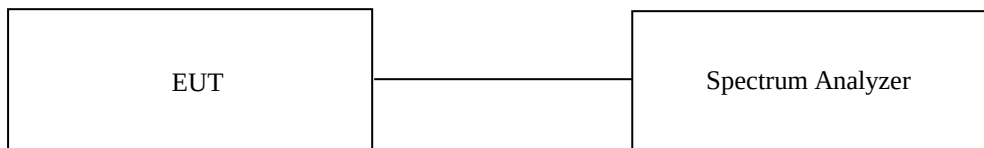
Temperature : 21 °C

Relative humidity : 49 % R.H.

8.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer.

The resolution bandwidth is set to 1 MHz, the video bandwidth is set to 3 times the resolution bandwidth.



8.3 Test Date

March 05, 2024 ~ March 13, 2024

8.4 Test data for 802.11b WLAN Mode

-. Test Result : Pass

-. Duty Cycle : 100 %

CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Duty Factor(dB)	Total Value(dBm)	LIMIT (dBm)	MARGIN (dB)
Low	2 417.00	16.45	-	16.45	30.00	13.55
Middle	2 437.00	17.41	-	17.41	30.00	12.59
High	2 462.00	16.49	-	16.49	30.00	13.51

Remark. Margin = Limit – Result (=Measured Value + Duty Factor)

8.5 Test data for 802.11g WLAN Mode

-. Test Result : Pass

-. Duty Cycle : 100 %

CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Duty Factor(dB)	Total Value(dBm)	LIMIT (dBm)	MARGIN (dB)
Low	2 417.00	14.64	-	14.64	30.00	15.36
Middle	2 437.00	14.44	-	14.44	30.00	15.56
High	2 462.00	14.54	-	14.54	30.00	15.46

Remark. Margin = Limit – Result (=Measured Value + Duty Factor)

8.6 Test data for 802.11n(HT20) WLAN Mode

-. Test Result : Pass

-. Duty Cycle : 100 %

CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Duty Factor(dB)	Total Value(dBm)	LIMIT (dBm)	MARGIN (dB)
Low	2 417.00	14.57	-	14.57	30.00	15.43
Middle	2 437.00	14.25	-	14.25	30.00	15.75
High	2 462.00	14.31	-	14.31	30.00	15.69

Remark. Margin = Limit – Result (=Measured Value + Duty Factor)

8.7 Test data for 802.11n(HT40) WLAN Mode

-. Test Result : Pass

-. Duty Cycle : 100 %

CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Duty Factor(dB)	Total Value(dBm)	LIMIT (dBm)	MARGIN (dB)
Low	2 427.00	13.93	-	13.93	30.00	16.07
Middle	2 437.00	13.70	-	13.70	30.00	16.30
High	2 452.00	13.78	-	13.78	30.00	16.22

Remark. Margin = Limit – Result (=Measured Value + Duty Factor)

9. 100 kHz BANDWIDTH OUTSIDE THE FREQUENCY BAND

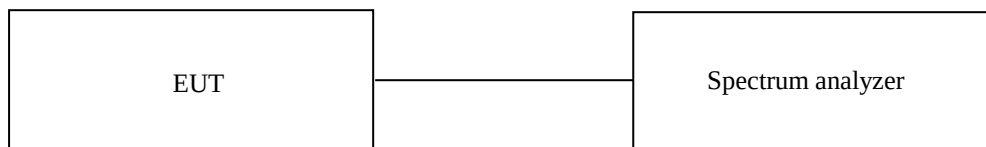
9.1 Operating environment

Temperature : 21 °C

Relative humidity : 49 % R.H.

9.2 Test set-up for conducted measurement

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz and video bandwidth is set to 300 kHz, and peak detection was used.



9.3 Test set-up for radiated measurement

The radiated emissions measurements were performed on the 3 m semi anechoic chamber. The EUT was placed on turntable approximately 1.5 m above the ground plane.

The frequency spectrum from 30 MHz to 26.5 GHz was scanned and maximum emission levels at each frequency recorded. The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.

9.4 Test Date

March 05, 2024 ~ March 13, 2024

9.5 Test data for conducted emission

For Test data for conducted emission, Please refer to the Annex

9.6 Test data for radiated emission

9.6.1 Radiated Emission which fall in the Restricted Band

9.6.1.1 Test data for 802.11b WLAN Mode

- . Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- . Video bandwidth : 3 MHz for Peak and Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : 100 %
- . Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel											
2324.70	53.41	Peak	H	27.75	4.62	42.57	-	-	43.21	74.00	30.79
2337.10	41.15	Average	H	27.68	4.63	42.57	-	-	30.89	54.00	23.11
2322.24	52.54	Peak	V	27.77	4.62	42.57	-	-	42.36	74.00	31.64
2328.23	41.03	Average	V	27.73	4.67	42.57	-	-	30.86	54.00	23.14
Test Data for High Channel											
2499.34	52.59	Peak	H	27.50	4.93	42.50	-	-	42.52	74.00	31.48
2497.70	40.80	Average	H	27.50	4.93	42.50	-	-	30.73	54.00	23.27
2488.55	56.26	Peak	V	27.52	4.88	42.50	-	-	46.16	74.00	27.84
2490.07	40.92	Average	V	27.52	4.88	42.50	-	-	30.82	54.00	23.18

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss - Amp Gain + ATT + Duty Factor

9.6.1.2 Test data for 802.11g WLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 100 %
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel											
2389.48	54.85	Peak	H	27.52	4.65	42.54	-	-	44.48	74.00	29.52
2351.31	40.94	Average	H	27.60	4.62	42.56	-	-	30.60	54.00	23.40
2382.42	52.09	Peak	V	27.54	4.65	42.55	-	-	41.73	74.00	32.27
2389.48	40.93	Average	V	27.52	4.65	42.54	-	-	30.56	54.00	23.44
Test Data for High Channel											
2484.99	52.73	Peak	H	27.53	4.83	42.51	-	-	42.58	74.00	31.42
2484.80	40.96	Average	H	27.53	4.83	42.51	-	-	30.81	54.00	23.19
2497.82	56.81	Peak	V	27.50	4.93	42.50	-	-	46.74	74.00	27.26
2496.72	40.89	Average	V	27.51	4.93	42.50	-	-	30.83	54.00	23.17

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss - Amp Gain + ATT + Duty Factor

9.6.1.3 Test data for 802.11n_HT20 WLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 100 %
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel											
2313.47	52.21	Peak	H	27.82	4.56	42.57	-	-	42.02	74.00	31.98
2358.69	40.95	Average	H	27.58	4.63	42.56	-	-	30.60	54.00	23.40
2385.84	52.23	Peak	V	27.53	4.65	42.55	-	-	41.86	74.00	32.14
2348.11	40.97	Average	V	27.61	4.58	42.56	-	-	30.60	54.00	23.40
Test Data for High Channel											
2493.03	52.45	Peak	H	27.51	4.88	42.50	-	-	42.34	74.00	31.66
2497.36	40.94	Average	H	27.51	4.93	42.50	-	-	30.88	54.00	23.12
2498.61	54.74	Peak	V	27.50	4.93	42.50	-	-	44.67	74.00	29.33
2486.69	40.92	Average	V	27.53	4.83	42.51	-	-	30.77	54.00	23.23

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss - Amp Gain + ATT + Duty Factor

9.6.1.4 Test data for 802.11n_HT40 WLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 100 %
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel											
2320.58	52.53	Peak	H	27.78	4.62	42.57	-	-	42.36	74.00	31.64
2389.66	41.36	Average	H	27.52	4.65	42.54	-	-	30.99	54.00	23.01
2342.79	52.90	Peak	V	27.64	4.63	42.56	-	-	42.61	74.00	31.39
2347.93	40.97	Average	V	27.61	4.58	42.56	-	-	30.60	54.00	23.40
Test Data for High Channel											
2485.11	53.00	Peak	H	27.53	4.83	42.51	-	-	42.85	74.00	31.15
2486.93	40.92	Average	H	27.53	4.88	42.51	-	-	30.82	54.00	23.18
2496.33	54.75	Peak	V	27.51	4.93	42.50	-	-	44.69	74.00	29.31
2484.25	40.81	Average	V	27.53	4.83	42.51	-	-	30.66	54.00	23.34

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss - Amp Gain + ATT + Duty Factor

9.6.2 Spurious & Harmonic Radiated Emission

9.6.2.1 Test data for 802.11b WLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Duty Cycle : 100 %
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel										
4 834.000	54.14	Peak	H	31.27	6.59	41.83	-	50.17	74.00	23.83
4 834.000	47.58	Average	H	31.27	6.59	41.83	-	43.61	54.00	10.39
4 834.000	55.06	Peak	V	31.27	6.59	41.83	-	51.09	74.00	22.91
4 834.000	48.75	Average	V	31.27	6.59	41.83	-	44.78	54.00	9.22
Test Data for Middle Channel										
4 874.000	56.24	Peak	H	31.30	6.69	41.83	-	52.40	74.00	21.60
4 874.000	50.85	Average	H	31.30	6.69	41.83	-	47.01	54.00	6.99
4 874.000	59.73	Peak	V	31.30	6.69	41.83	-	55.89	74.00	18.11
4 874.000	54.72	Average	V	31.30	6.69	41.83	-	50.88	54.00	3.12
Test Data for High Channel										
4 924.000	52.96	Peak	H	31.25	6.70	41.82	-	49.09	74.00	24.91
4 924.000	45.70	Average	H	31.25	6.70	41.82	-	41.83	54.00	12.17
4 924.000	54.66	Peak	V	31.25	6.70	41.82	-	50.79	74.00	23.21
4 924.000	48.01	Average	V	31.25	6.70	41.82	-	44.14	54.00	9.86

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amp Gain} + \text{Duty Factor}$$

9.6.2.2 Test data for 802.11g WLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Duty Cycle : 100 %
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel										
4 834.000	51.53	Peak	H	31.27	6.59	41.83	-	47.56	74.00	26.44
4 834.000	40.05	Average	H	31.27	6.59	41.83	-	36.08	54.00	17.92
4 834.000	56.76	Peak	V	31.27	6.59	41.83	-	52.79	74.00	21.21
4 834.000	45.46	Average	V	31.27	6.59	41.83	-	41.49	54.00	12.51
Test Data for Middle Channel										
4 874.000	50.52	Peak	H	31.30	6.70	41.82	-	46.70	74.00	27.30
4 874.000	38.25	Average	H	31.30	6.69	41.83	-	34.41	54.00	19.59
4 874.000	52.95	Peak	V	31.30	6.69	41.83	-	49.11	74.00	24.89
4 874.000	41.31	Average	V	31.30	6.69	41.83	-	37.47	54.00	16.53
Test Data for High Channel										
4 924.000	50.97	Peak	H	31.25	6.70	41.81	-	47.11	74.00	26.89
4 924.000	40.01	Average	H	31.25	6.70	41.82	-	36.14	54.00	17.86
4 924.000	52.50	Peak	V	31.25	6.70	41.82	-	48.63	74.00	25.37
4 924.000	40.72	Average	V	31.25	6.70	41.81	-	36.86	54.00	17.14

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amp Gain} + \text{Duty Factor}$$

9.6.2.3 Test data for 802.11n_HT20 WLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Duty Cycle : 100 %
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel										
4 834.000	51.39	Peak	H	31.26	6.59	41.83	-	47.41	74.00	26.59
4 834.000	40.05	Average	H	31.27	6.59	41.83	-	36.08	54.00	17.92
4 834.000	52.99	Peak	V	31.25	6.59	41.83	-	49.00	74.00	25.00
4 834.000	39.97	Average	V	31.27	6.59	41.83	-	36.00	54.00	18.00
Test Data for Middle Channel										
4 874.000	51.18	Peak	H	31.30	6.69	41.83	-	47.34	74.00	26.66
4 874.000	39.51	Average	H	31.30	6.69	41.83	-	35.67	54.00	18.33
4 874.000	57.20	Peak	V	31.30	6.69	41.83	-	53.36	74.00	20.64
4 874.000	44.45	Average	V	31.30	6.69	41.83	-	40.61	54.00	13.39
Test Data for High Channel										
4 924.000	50.13	Peak	H	31.25	6.70	41.82	-	46.26	74.00	27.74
4 924.000	38.48	Average	H	31.25	6.70	41.81	-	34.62	54.00	19.38
4 924.000	52.28	Peak	V	31.25	6.70	41.81	-	48.42	74.00	25.58
4 924.000	40.26	Average	V	31.25	6.70	41.82	-	36.39	54.00	17.61

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dBμV/m)} - \text{Total Level (dBμV/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amp Gain} + \text{Duty Factor}$$

9.6.2.4 Test data for 802.11n_HT40 WLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Duty Cycle : 100 %
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel										
4 854.000	50.02	Peak	H	31.24	6.60	41.84	-	46.02	74.00	27.98
4 854.000	38.18	Average	H	31.30	6.69	41.83	-	34.34	54.00	19.66
4 854.000	49.91	Peak	V	31.23	6.60	41.84	-	45.90	74.00	28.10
4 854.000	37.99	Average	V	31.24	6.60	41.84	-	33.99	54.00	20.01
Test Data for Middle Channel										
4 874.000	49.60	Peak	H	31.27	6.70	41.82	-	45.75	74.00	28.25
4 874.000	38.08	Average	H	31.30	6.69	41.83	-	34.24	54.00	19.76
4 874.000	51.71	Peak	V	31.30	6.70	41.82	-	47.89	74.00	26.11
4 874.000	41.10	Average	V	31.30	6.69	41.83	-	37.26	54.00	16.74
Test Data for High Channel										
4 904.000	50.24	Peak	H	31.27	6.70	41.82	-	46.39	74.00	27.61
4 904.000	39.50	Average	H	31.29	6.70	41.82	-	35.67	54.00	18.33
4 904.000	50.34	Peak	V	31.25	6.70	41.82	-	46.47	74.00	27.53
4 904.000	39.52	Average	V	31.29	6.70	41.82	-	35.69	54.00	18.31

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amp Gain} + \text{Duty Factor}$$

10. PEAK POWER SPECTRAL DENSITY

10.1 Operating environment

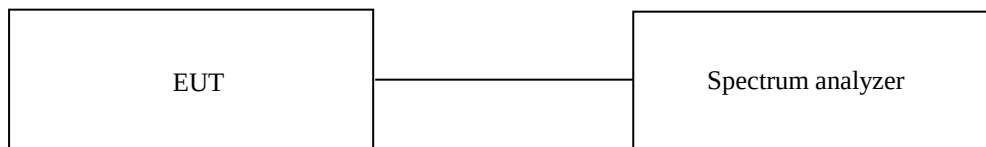
Temperature : 21 °C

Relative humidity : 49 % R.H.

10.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer.

The resolution bandwidth is set to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$, the video bandwidth is set to 3 times the resolution bandwidth.



10.3 Test Date

March 05, 2024 ~ March 13, 2024

10.4 Test data for 802.11b WLAN Mode

-. Test Result : Pass

-. Duty Cycle : 100 %

CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Duty Factor(dB)	Total Value(dBm)	LIMIT (dBm / 3 kHz)	MARGIN (dB)
Low	2 417.00	-16.23	-	-16.23	8.00	24.23
Middle	2 437.00	-15.62	-	-15.62	8.00	23.62
High	2 462.00	-16.38	-	-16.38	8.00	24.38

Remark. Margin = Limit – Result (=Measured Value + Duty Factor)

10.5 Test data for 802.11g WLAN Mode

-. Test Result : Pass

-. Duty Cycle : 100 %

CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Duty Factor(dB)	Total Value(dBm)	LIMIT (dBm / 3 kHz)	MARGIN (dB)
Low	2 417.00	-20.57	-	-20.57	8.00	28.57
Middle	2 437.00	-20.70	-	-20.70	8.00	28.70
High	2 462.00	-20.65	-	-20.65	8.00	28.65

Remark. Margin = Limit – Result (=Measured Value + Duty Factor)

10.6 Test data for 802.11n_HT20 WLAN Mode

-. Test Result : Pass

-. Duty Cycle : 100 %

CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Duty Factor(dB)	Total Value(dBm)	LIMIT (dBm / 3 kHz)	MARGIN (dB)
Low	2 417.00	-20.57	-	-20.57	8.00	28.57
Middle	2 437.00	-20.91	-	-20.91	8.00	28.91
High	2 462.00	-20.77	-	-20.77	8.00	28.77

Remark. Margin = Limit – Result (=Measured Value + Duty Factor)

10.7 Test data for 802.11n_HT40 WLAN Mode

-. Test Result : Pass

-. Duty Cycle : 100 %

CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Duty Factor(dB)	Total Value(dBm)	LIMIT (dBm / 3 kHz)	MARGIN (dB)
Low	2 427.00	-24.04	-	-24.04	8.00	32.04
Middle	2 437.00	-24.30	-	-24.30	8.00	32.30
High	2 452.00	-24.25	-	-24.25	8.00	32.25

Remark. Margin = Limit – Result (=Measured Value + Duty Factor)

11. RADIATED EMISSION TEST

11.1 Operating environment

Temperature : 21 °C

Relative humidity : 49 % R.H.

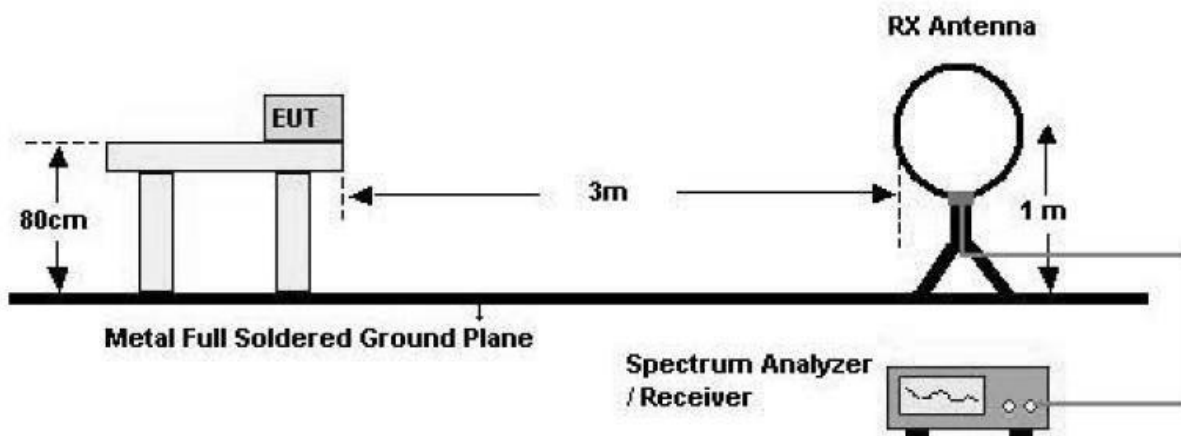
11.2 Test set-up

The radiated emissions measurements were on the 3 m semi anechoic chamber. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

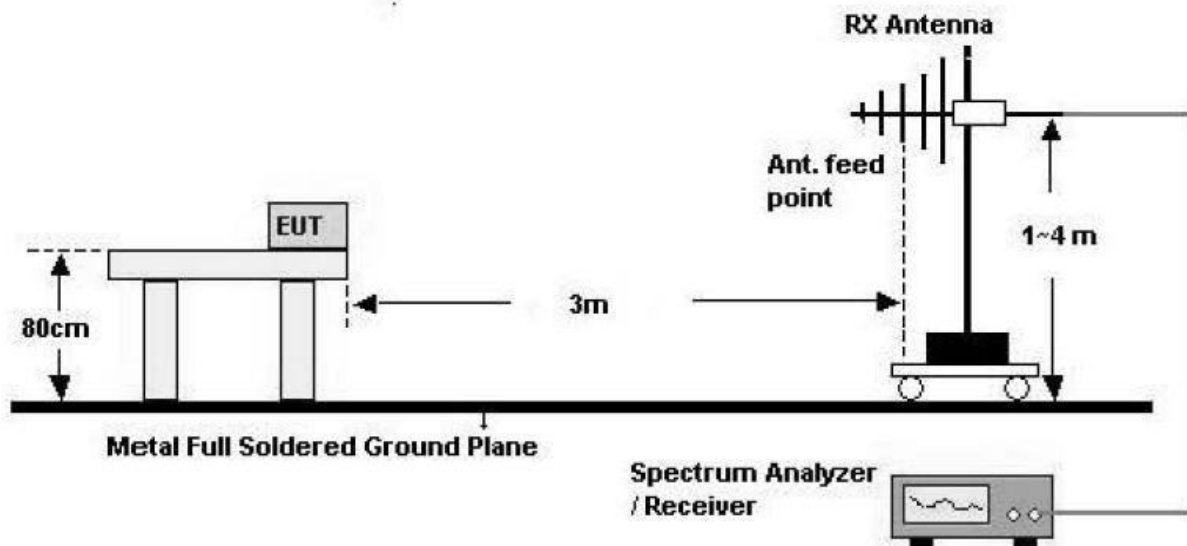
The frequency spectrum from 30 MHz to 26.5 GHz was scanned and emission levels maximized at each frequency recorded. The system was rotated 360°, and the antenna was varied in height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

- Test Configuration

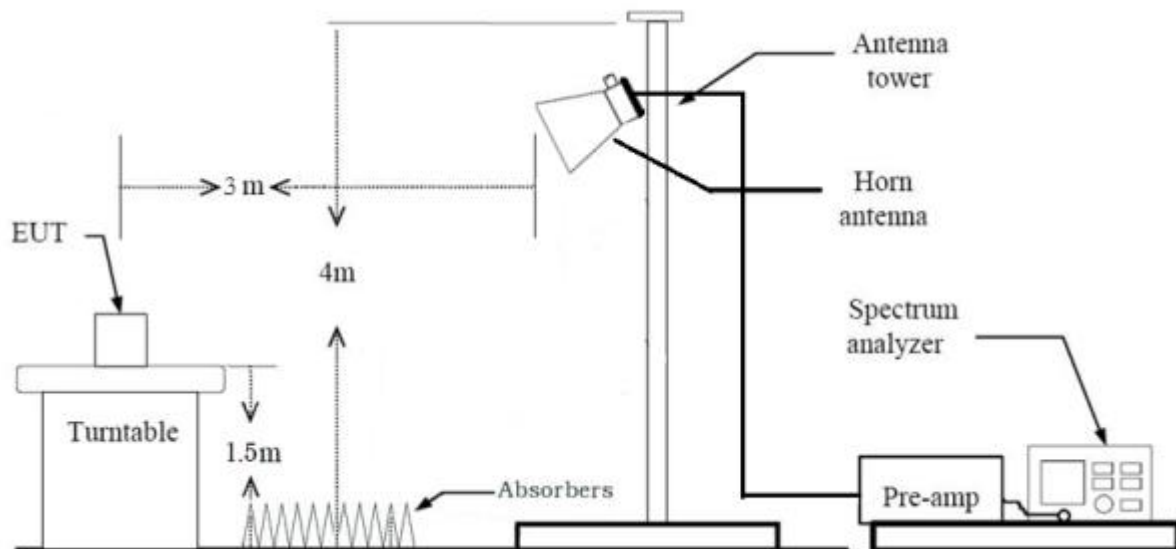
1. Below 30 MHz



2. 30 MHz - 1 GHz



3. Above 1 GHz



11.3 Test Date

March 05, 2024 ~ March 13, 2024

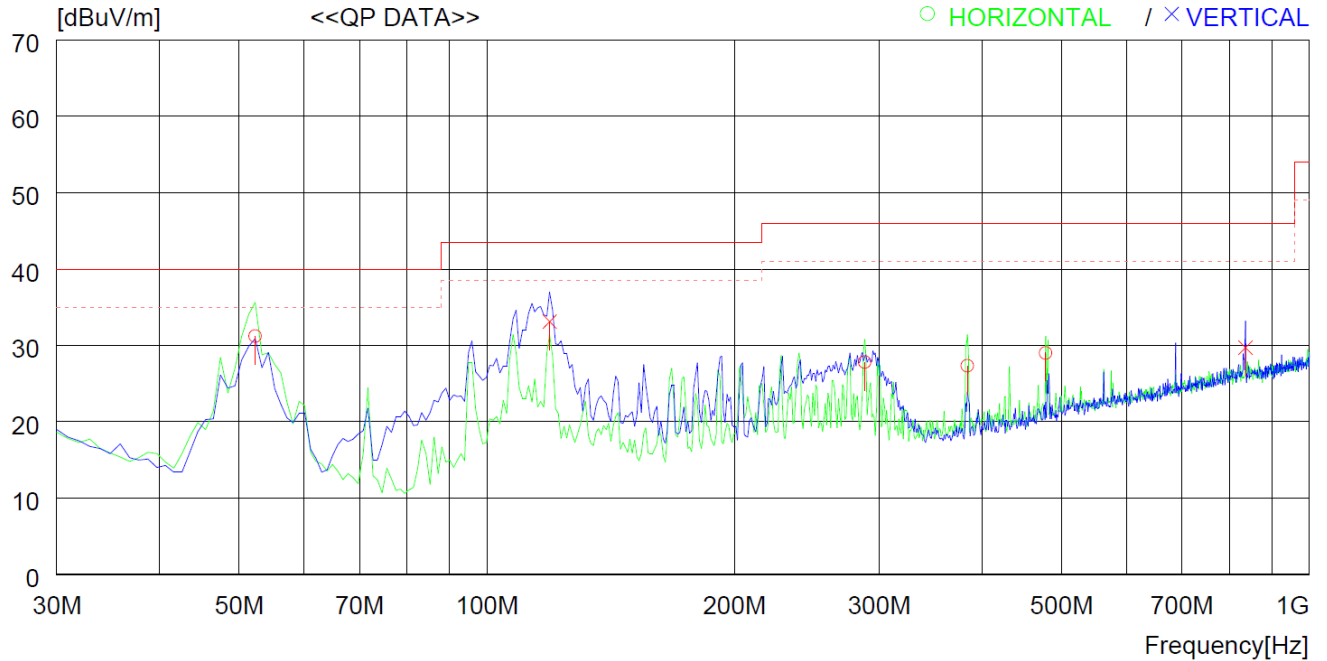
11.4 Test data for 30 MHz ~ 1 000 MHz

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.247

Result : PASSED

EUT : Skin Diagnosis Device

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	QP	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	52.310	49.5	12.7	1.1	32.1	31.2	40.0	8.8	400	36
2	288.020	38.5	18.8	2.6	32.1	27.8	46.0	18.2	100	168
3	384.050	36.0	20.4	3.0	32.1	27.3	46.0	18.7	100	359
4	478.141	35.2	22.6	3.4	32.2	29.0	46.0	17.0	100	290
----- Vertical -----										
5	119.240	45.1	18.5	1.6	32.1	33.1	43.5	10.4	100	0
6	836.061	30.2	27.2	4.5	32.2	29.7	46.0	16.3	200	359

11.5 Test data for Below 30 MHz

- . Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)
- . Frequency range : 9 kHz ~ 30 MHz
- . Measurement distance : 3 m
- . Operating mode : Transmitting mode

Frequency (MHz)	Reading (dB μ V)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dB μ V/m)	Limits (dB μ V/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.									

11.6 Test data for above 1 GHz

- . Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- . Video bandwidth : 3 MHz for Peak and Average Mode
- . Frequency range : 1 GHz ~ 26.5 GHz
- . Measurement distance : 3 m
- . Operating mode : Transmitting mode

Frequency (MHz)	Reading (dB μ V)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dB μ V/m)	Limits (dB μ V/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.									

12. LIST OF TEST EQUIPMENT

Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
FSV 40-N	Rohde & Schwarz	Signal Analyzer	101651	Jan. 15, 2024 (1Y)
SMB100A	Rohde & Schwarz	Signal Generator	177648	Jan. 17, 2024 (1Y)
ESU	Rohde & Schwarz	TEST RECEIVER	100261	Mar. 05, 2024 (1Y)
HPF 3GHz	Rohde & Schwarz	High Pass Filter (1-3 GHz)	N/A	Jan. 15, 2024 (1Y)
WT-A3882-R10	Microwave	Cavity Band Rejection Filter	WT22040502-1	Jan. 16, 2024 (1Y)
310N	Sonoma Instrument	Amplifier	392756	Oct. 14, 2023 (1Y)
SCU18	Rohde & Schwarz	Pre-Amplifier	102266	Jul. 11, 2023 (1Y)
SCU40A	Rohde & Schwarz	Signal Conditioning unit	100436	Jan. 23, 2024 (1Y)
FMZB 1513	Schwarzbeck	Loop Antenna	1513-235	Mar. 24, 2022 (2Y)
HLP-2008	TDK	Hybrid Antenna	131313	Apr. 05, 2023 (2Y)
BBHA9120D	Schwarzbeck	Horn Antenna	9120D-1349	Jul. 04, 2023 (1Y)
BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170178	Jan. 04, 2024 (1Y)
DT2000-2t	Innco System	Turn Table	N/A	N/A
CO3000	Innco System	Controller	1026/40960617/P	N/A
MA-4640-XPET	Innco System	Antenna Master	MA4640/652/43100318/P	N/A