

RADIO PERFORMANCE TEST REPORT

Test Report No. : OT-25N-RWD-046
Reception No. : 2510003461
Applicant : Samsung Electronics Co Ltd
Address : 19 Chapin Rd., Building D, Pine Brook, New Jersey, 07058, United States
Manufacturer : Samsung Electronics Co Ltd
Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do 16677, Korea
Type of Equipment : Wi-Fi/BT Transceiver
FCC ID. : A3LWCH731R
Model Name : WCH731R
Multiple Model Name : N/A
Serial number : N/A
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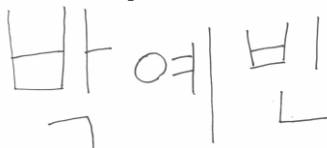
SUMMARY

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 test report is not associated with the accreditation granted by the Korean Laboratory Accreditation Scheme (KOLAS).





Tested by
 Ye-Bhin, Park / Engineer
 ONETECH Corp.

Reviewed by
 Tae-Ho, Kim / Chief Engineer
 ONETECH Corp.

Approved by
 Jae-Ho, Lee / Director
 ONETECH Corp.

CONTENTS

	Page
1. VERIFICATION OF COMPLIANCE	6
2. TEST SUMMARY	7
2.1 TEST ITEMS AND RESULTS	7
2.2 ADDITIONS, DEVIATIONS, EXCLUSIONS FROM STANDARDS	7
2.3 RELATED SUBMITTAL(S) / GRANT(S)	7
2.4 PURPOSE OF THE TEST	7
2.5 TEST METHODOLOGY	7
2.6 TEST FACILITY	7
3. GENERAL INFORMATION	8
3.1 PRODUCT DESCRIPTION	8
3.2 ALTERNATIVE TYPE(S)/MODEL(S); ALSO COVERED BY THIS TEST REPORT	13
4. EUT MODIFICATIONS	13
5. SYSTEM TEST CONFIGURATION	14
5.1 JUSTIFICATION	14
5.2 PERIPHERAL EQUIPMENT	14
5.3 MODE OF OPERATION DURING THE TEST	14
5.4 CONFIGURATION OF TEST SYSTEM	15
5.5 ANTENNA REQUIREMENT	15
6. MEASUREMENT UNCERTAINTY	15
7. PRELIMINARY TEST	16
7.1 AC POWER LINE CONDUCTED EMISSIONS TESTS	16
7.2 GENERAL RADIATED EMISSIONS TESTS	16
8. MINIMUM 20 dB BANDWIDTH	17
8.1 OPERATING ENVIRONMENT	17
8.2 TEST SET-UP	17
8.3 TEST DATE	17
8.4 TEST DATA FOR 1 MBPS	17
8.5 TEST DATA FOR 2 MBPS	17
8.6 TEST DATA FOR 3 MBPS	17
9. HOPPING FREQUENCY SEPARATION	18
9.1 OPERATING ENVIRONMENT	18
9.2 TEST SET-UP	18

9.3 TEST DATE	18
9.4 TEST DATA FOR 1 MBPS	18
9.5 TEST DATA FOR 2 MBPS	18
9.6 TEST DATA FOR 3 MBPS	18
10. NUMBER OF HOPPING CHANNELS	19
10.1 OPERATING ENVIRONMENT	19
10.2 TEST SET-UP	19
10.3 TEST DATE	19
10.4 TEST DATA FOR 1 MBPS	19
10.5 TEST DATA FOR 2 MBPS	19
10.6 TEST DATA FOR 3 MBPS	19
11. TIME OF OCCUPANCY	20
11.1 OPERATING ENVIRONMENT	20
11.2 TEST SET-UP	20
11.3 TEST DATE	20
11.4 TEST DATA FOR 1 MBPS	20
11.5 TEST DATA FOR 2 MBPS	21
11.6 TEST DATA FOR 3 MBPS	21
12. MAXIMUM PEAK OUTPUT POWER	22
12.1 OPERATING ENVIRONMENT	22
12.2 TEST SET-UP	22
12.3 TEST DATE	22
12.4 TEST DATA FOR 1 MBPS	23
12.5 TEST DATA FOR 2 MBPS	23
12.6 TEST DATA FOR 3 MBPS	23
13. 100 kHz BANDWIDTH OUTSIDE THE FREQUENCY BAND	24
13.1 OPERATING ENVIRONMENT	24
13.2 TEST SET-UP FOR CONDUCTED MEASUREMENT	24
13.3 TEST SET-UP FOR RADIATED MEASUREMENT	24
13.4 TEST DATE	24
13.5 TEST DATA FOR CONDUCTED EMISSION	24
13.6 TEST DATA FOR TRANSMITTING MODE RADIATED EMISSION	25
13.6.1 Radiated Emission which fall in the Restricted Band	25
13.6.2 Spurious & Harmonic Radiated Emission above 1 GHz	28
14. RADIATED EMISSION TEST	31
14.1 OPERATING ENVIRONMENT	31

14.2 TEST SET-UP	31
14.3 TEST DATE	31
14.4 TEST DATA FOR 30 MHz ~ 1 000 MHz	32
14.4.1 Test data for Bluetooth Mode	32
14.4.2 Test data for Bluetooth Mode (Bluetooth + WLAN 2.4 GHz)	33
14.4.3 Test data for Bluetooth Mode (Bluetooth + WLAN 5 GHz)	34
14.5 Test data for Below 30 MHz	35
14.6 TEST DATA FOR ABOVE 1 GHz	35
15. CONDUCTED EMISSION TEST.....	36
15.1 OPERATING ENVIRONMENT	36
15.2 TEST SET-UP	36
15.3 TEST DATE	36
15.4 TEST DATA.....	37
15.4.1 Test data for Bluetooth	37
15.4.2 Test data for Intermodulation Mode (Bluetooth + WLAN 2.4 GHz)	39
15.4.3 Test data for Intermodulation Mode (Bluetooth + WLAN 5 GHz)	41
16. LIST OF TEST EQUIPMENT	43

※ Please refer to the Annex section for All test plots

Revision History

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-25N-RWD-046	November 27, 2025	Initial Release	All

1. VERIFICATION OF COMPLIANCE

Applicant : Samsung Electronics Co Ltd

Address : 19 Chapin Rd., Building D, Pine Brook, New Jersey, 07058, United States

Contact Person : Minhyung Cho / Staff Engineer

Telephone No. : +82-10-8798-3916

FCC ID : A3LWCH731R

Model Name : WCH731R

Brand Name : 

Serial Number : N/A

Date : November 27, 2025

EQUIPMENT CLASS	DTS – DIGITAL TRANSMISSION SYSTEM
E.U.T. DESCRIPTION	Modular Transmitter, Wi-Fi/BT Transceiver
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.10: 2020
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) (1)	Carrier Frequency Separation	Met the Limit / PASS
15.247 (a) (1) (iii)	Minimum Number of Hopping Channels	Met the Limit / PASS
15.247 (a) (1) (iii)	Average Time of Occupancy	Met the Limit / PASS
15.247 (b) (1)	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
15.209	Radiated Emission Limits, General Requirement	Met the Limit / PASS
15.207	Conducted Limits	Met the Limit / PASS
15.203	Antenna Requirement	Met requirement / PASS

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: 2020. 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

-. Lab Accreditation:

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

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

FCC (Federal Communications Commission) - Accreditation No. KR0013

RRA (Radio Research Agency) – Designation No. KR0013

3. GENERAL INFORMATION

3.1 Product Description

The Samsung Electronics Co Ltd, Model WCH731R (referred to as the EUT in this report) is a Wi-Fi/BT Transceiver. The product specification described herein was obtained from product data sheet or user's manual.

DEVICE TYPE	Wi-Fi/BT Transceiver		
Temperature Range	-10 °C ~ 50 °C		
OPERATING FREQUENCY	Bluetooth LE	2 402 MHz ~ 2 480 MHz	
	Bluetooth	2 402 MHz ~ 2 480 MHz	
	WLAN 2.4 GHz	2 412 MHz ~ 2 472 MHz (802.11b/g/n(HT20))	
	WLAN	5 180 MHz ~ 5 240 MHz (802.11a/n(HT20)/ac(VHT20))	
	5 150 MHz ~	5 190 MHz ~ 5 230 MHz (802.11n(HT40)/ac(VHT40))	
	5 250 MHz Band	5 210 MHz (802.11ac(VHT80))	
	WLAN	5 260 MHz ~ 5 320 MHz (802.11a/n(HT20)/ac(VHT20))	
	5 250 MHz ~	5 270 MHz ~ 5 310 MHz (802.11n(HT40)/ac(VHT40))	
	5 350 MHz Band	5 290 MHz (802.11ac(VHT80))	
	WLAN	5 500 MHz ~ 5 720 MHz (802.11a/n(HT20)/ac(VHT20))	
	5 470 MHz ~	5 510 MHz ~ 5 710 MHz (802.11n(HT40)/ac(VHT40))	
	5 725 MHz Band	5 530 MHz ~ 5 690 MHz (802.11ac(VHT80))	
	WLAN	5 745 MHz ~ 5 825 MHz (802.11a/n(HT20)/ac(VHT20))	
	5 725 MHz ~	5 755 MHz ~ 5 795 MHz (802.11n(HT40)/ac(VHT40))	
	5 850 MHz Band	5 775 MHz (802.11ac(VHT80))	
MODULATION TYPE	Bluetooth LE	GFSK for 1 Mbps / 2 Mbps	
	Bluetooth	GFSK for 1Mbps, $\pi/4$ -DQPSK for 2Mbps, 8-DPSK for 3Mbps	
	WLAN 2.4 GHz	802.11b: DSSS Modulation(DBPSK/DQPSK/CCK) 802.11g/n(HT20): OFDM Modulation(BPSK/QPSK/16QAM/64QAM)	
	WLAN 5 GHz	802.11a/n(HT20)/n(HT40)/ac(VHT80): OFDM Modulation(BPSK/QPSK/16QAM/64QAM)	
RF OUTPUT POWER	Bluetooth LE	1 Mbps	12.05 dBm
		2 Mbps	12.15 dBm
	Bluetooth	1 Mbps	12.31 dBm
		2 Mbps	11.41 dBm
		3 Mbps	11.91 dBm

RF OUTPUT POWER	WLAN 2.4 GHz	SISO Antenna 0	17.53 dBm(802.11b) 16.59 dBm(802.11g) 16.46 dBm(802.11n_HT20)
		SISO Antenna 1	17.42 dBm(802.11b) 16.11 dBm(802.11g) 16.72 dBm(802.11n_HT20)
		MIMO Antenna 0	16.04 dBm(802.11n_HT20)
		MIMO Antenna 1	16.38 dBm(802.11n_HT20)
		MIMO Multiple Antenna	19.22 dBm(802.11n_HT20)
	WLAN 5 150 MHz ~ 5 250 MHz Band	SISO Antenna 0	16.88 dBm(802.11a) 13.51 dBm(802.11n_HT20) 13.11 dBm(802.11n_HT40) 13.06 dBm(802.11ac_VHT80)
		SISO Antenna 1	16.94 dBm(802.11a) 13.65 dBm(802.11n_HT20) 13.61 dBm(802.11n_HT40) 13.17 dBm(802.11ac_VHT80)
		MIMO Antenna 0	13.26 dBm(802.11n_HT20) 13.09 dBm(802.11n_HT40) 13.14 dBm(802.11ac_VHT80)
		MIMO Antenna 1	13.77 dBm(802.11n_HT20) 15.60 dBm(802.11n_HT40) 13.04 dBm(802.11ac_VHT80)
		MIMO Multiple Antenna	16.53 dBm(802.11n_HT20) 16.37 dBm(802.11n_HT40) 16.10 dBm(802.11ac_VHT80)

RF OUTPUT POWER	WLAN 5 250 MHz ~ 5 350 MHz Band	SISO Antenna 0	16.90 dBm(802.11a) 15.44 dBm(802.11n_HT20) 15.53 dBm(802.11n_HT40) 14.74 dBm(802.11ac_VHT80)
		SISO Antenna 1	16.76 dBm(802.11a) 15.70 dBm(802.11n_HT20) 15.74 dBm(802.11n_HT40) 14.51 dBm(802.11ac_VHT80)
		MIMO Antenna 0	15.50 dBm(802.11n_HT20) 15.25 dBm(802.11n_HT40) 14.57 dBm(802.11ac_VHT80)
		MIMO Antenna 1	15.68 dBm(802.11n_HT20) 15.60 dBm(802.11n_HT40) 14.43 dBm(802.11ac_VHT80)
		MIMO Multiple Antenna	18.60 dBm(802.11n_HT20) 18.44 dBm(802.11n_HT40) 17.51 dBm(802.11ac_VHT80)

RF OUTPUT POWER	WLAN 5 470 MHz ~ 5 725 MHz Band	SISO Antenna 0	16.67 dBm(802.11a) 15.69 dBm(802.11n_HT20) 15.33 dBm(802.11n_HT40) 14.48 dBm(802.11ac_VHT80)
		SISO Antenna 0 Straddle	13.14 dBm(802.11a) 12.06 dBm(802.11n_HT20) 12.73 dBm(802.11n_HT40) 12.43 dBm(802.11ac_VHT80)
		SISO Antenna 1	16.89 dBm(802.11a) 15.88 dBm(802.11n_HT20) 15.77 dBm(802.11n_HT40) 14.27 dBm(802.11ac_VHT80)
		SISO Antenna 1_Straddle	14.55 dBm(802.11a) 13.52 dBm(802.11n_HT20) 14.28 dBm(802.11n_HT40) 12.40 dBm(802.11ac_VHT80)
		MIMO Antenna 0	15.63 dBm(802.11n_HT20) 15.28 dBm(802.11n_HT40) 13.80 dBm(802.11ac_VHT80)
		MIMO Antenna 0 Straddle	10.35 dBm(802.11n_HT20) 11.16 dBm(802.11n_HT40) 11.04 dBm(802.11ac_VHT80)
		MIMO Antenna 1	14.61 dBm(802.11n_HT20) 15.67 dBm(802.11n_HT40) 14.24 dBm(802.11ac_VHT80)
		MIMO Antenna 1 Straddle	11.66 dBm(802.11n_HT20) 12.76 dBm(802.11n_HT40) 10.91 dBm(802.11ac_VHT80)
		MIMO Multiple Antenna	18.16 dBm(802.11n_HT20) 18.49 dBm(802.11n_HT40) 18.44 dBm(802.11ac_VHT80)
		MIMO Multiple Antenna _Straddle	14.06 dBm(802.11n_HT20) 15.04 dBm(802.11n_HT40) 13.99 dBm(802.11ac_VHT80)

RF OUTPUT POWER	WLAN 5 725 MHz ~ 5 850 MHz Band	SISO Antenna 0	16.65 dBm(802.11a) 14.91 dBm(802.11n_HT20) 15.13 dBm(802.11n_HT40) 13.55 dBm(802.11ac_VHT80)
		SISO Antenna 0 Straddle	5.84 dBm(802.11a) 5.29 dBm(802.11n_HT20) 0.64 dBm(802.11n_HT40) -3.79 dBm(802.11ac_VHT80)
		SISO Antenna 1	16.84 dBm(802.11a) 15.77 dBm(802.11n_HT20) 15.41 dBm(802.11n_HT40) 14.33 dBm(802.11ac_VHT80)
		SISO Antenna 1_Straddle	7.34 dBm(802.11a) 6.83 dBm(802.11n_HT20) 2.20 dBm(802.11n_HT40) -4.63 dBm(802.11ac_VHT80)
		MIMO Antenna 0	15.21 dBm(802.11n_HT20) 15.58 dBm(802.11n_HT40) 13.77 dBm(802.11ac_VHT80)
		MIMO Antenna 0 Straddle	3.60 dBm(802.11n_HT20) -0.87 dBm(802.11n_HT40) -5.25 dBm(802.11ac_VHT80)
		MIMO Antenna 1	15.58 dBm(802.11n_HT20) 15.36 dBm(802.11n_HT40) 14.34 dBm(802.11ac_VHT80)
		MIMO Antenna 1 Straddle	4.95 dBm(802.11n_HT20) 0.67 dBm(802.11n_HT40) -5.67 dBm(802.11ac_VHT80)
		MIMO Multiple Antenna	18.41 dBm(802.11n_HT20) 18.48 dBm(802.11n_HT40) 17.07 dBm(802.11ac_VHT80)
		MIMO Multiple Antenna _Straddle	7.34 dBm(802.11n_HT20) 2.98 dBm(802.11n_HT40) -2.44 dBm(802.11ac_VHT80)

ANTENNA TYPE	PCB Antenna		
ANTENNA TRANSMIT TYPE	WLAN 5 GHz: 2T2R WLAN 2.4 GHz: 2T2R Bluetooth / Bluetooth LE: 1T1R		
ANTENNA GAIN	Bluetooth LE	0.70 dBi	
	Bluetooth	0.70 dBi	
	WLAN 2.4 GHz	Antenna 0	1.20 dBi
		Antenna 1	1.70 dBi
		Multiple Antenna	4.47 dBi
	5 150 MHz ~ 5 250 MHz Band	Antenna 0	1.90 dBi
		Antenna 1	1.10 dBi
		Multiple Antenna	4.53 dBi
	5 250 MHz ~ 5 350 MHz Band	Antenna 0	1.60 dBi
		Antenna 1	0.30 dBi
		Multiple Antenna	4.01 dBi
	5 470 MHz ~ 5 725 MHz Band	Antenna 0	0.40 dBi
		Antenna 1	-0.40 dBi
		Multiple Antenna	3.03 dBi
	5 725 MHz ~ 5 850 MHz Band	Antenna 0	-0.40 dBi
		Antenna 1	-0.10 dBi
		Multiple Antenna	2.76 dBi
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)		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	Samsung Electronics Co Ltd	HDWB-26R22-V1.0	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
WCH731R	Samsung Electronics Co Ltd	Wi-Fi/BT Transceiver (EUT)	
80XH	LENOVO	Notebook PC	EUT
PA-1450-55LR	Liteon	AC Adapter	

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 2 402 MHz, 2 441MHz, and 2 480 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 “YZ” axis, but the worst data was recorded in this report.

-. Frequency / Channel Operations

Channel	Frequency
0	2 402
39	2 441
78	2 480

-. Duty Cycle

Mode	Tx On Time [ms]	Tx Off Time [ms]	Duty Cycle [%]	Correction Factor [dB]
Bluetooth [1 Mbps]	2.884	0.844	77.35	1.12
Bluetooth [2 Mbps]	2.864	0.839	77.35	1.12
Bluetooth [3 Mbps]	2.866	0.840	77.34	1.12

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

Correction Factor : 10 * Log(1 / (Duty Cycle / 100))

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OTC-TRF-RF-001(0)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

5.4 Configuration of Test System

Line Conducted Test: The EUT was connected to USB and the power of USB was connected to Notebook PC. All supporting equipments were connected to another LISN. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.10: 2020 to determine the worse operating conditions.

Radiated Emission Test: Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10: 2020 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 EUT's antennas are a PCB antenna, which are permanently attached to the EUT and cannot be replaced by the user.

6. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2020.

All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence.

The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (dB)
Conducted Output Power	1.22
Conducted Spurious Emission < 26.5 GHz	1.40
Power Spectral Density	1.22
Line Conducted Disturbance (150 kHz ~ 30 MHz)	1.40
Radiated Disturbance (9 kHz ~ 30 MHz)	4.09
Radiated Disturbance (30 MHz ~ 1 GHz)	3.28
Radiated Disturbance (1 GHz ~ 18 GHz)	4.42
Radiated Disturbance (18 GHz ~ 40 GHz)	5.12

7. PRELIMINARY TEST

7.1 AC Power line Conducted Emissions Tests

During Preliminary Test, the following operating mode was investigated.

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

7.2 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

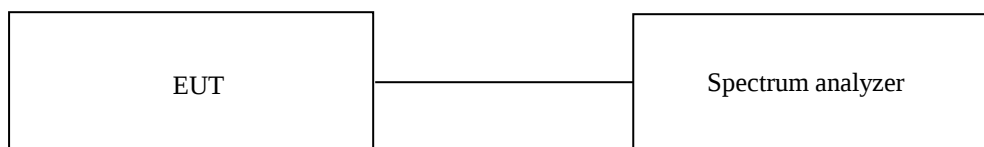
8. MINIMUM 20 dB BANDWIDTH

8.1 Operating environment

Temperature : 24 °C
Relative humidity : 43 % 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 20 kHz, and peak detection was used. The 20 dB bandwidth is defined as the total spectrum over which the power is higher than the peak power minus 20 dB.



8.3 Test Date

October 15, 2025 ~ November 14, 2025

8.4 Test data for 1 Mbps

CHANNEL	FREQUENCY (MHz)	20 dB Bandwidth (kHz)
Low	2 402.00	944.13
Middle	2 441.00	939.01
High	2 480.00	944.13

8.5 Test data for 2 Mbps

CHANNEL	FREQUENCY (MHz)	20 dB Bandwidth (kHz)
Low	2 402.00	1 303.81
Middle	2 441.00	1 308.67
High	2 480.00	1 313.79

8.6 Test data for 3 Mbps

CHANNEL	FREQUENCY (MHz)	20 dB Bandwidth (kHz)
Low	2 402.00	1 258.75
Middle	2 441.00	1 263.87
High	2 480.00	1 258.50

9. HOPPING FREQUENCY SEPARATION

9.1 Operating environment

Temperature : 24 °C
Relative humidity : 43 % R.H.

9.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The frequency span is set to 5 MHz. The analyzer is set to peak hold then a pseudo-random hopping sequence of the transmitter is captured. The mark delta function was used to measure the frequency separation between two adjacent hopping channels.



9.3 Test Date

October 15, 2025 ~ November 14, 2025

9.4 Test data for 1 Mbps

-. Test Result : Pass

MEASURED VLAUE (kHz)	Two-third of 20 dB Bandwidth (kHz)	LIMIT
1 158.80	626.01	Separated by a minimum of 626.01 kHz

9.5 Test data for 2 Mbps

-. Test Result : Pass

MEASURED VLAUE (kHz)	Two-third of 20 dB Bandwidth (kHz)	LIMIT
1 009.00	872.45	Separated by a minimum of 872.45 kHz

9.6 Test data for 3 Mbps

-. Test Result : Pass

MEASURED VLAUE (kHz)	Two-third of 20 dB Bandwidth (kHz)	LIMIT
1 019.00	842.58	Separated by a minimum of 842.58 kHz

10. NUMBER OF HOPPING CHANNELS

10.1 Operating environment

Temperature : 24 °C
Relative humidity : 43 % R.H.

10.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The frequency span is set to 100 MHz and the resolution bandwidth is set to 100 kHz. The analyzer is set to peak hold and then complete pseudo-random hopping sequence of the transmitter is captured.



10.3 Test Date

October 15, 2025 ~ November 14, 2025

10.4 Test data for 1 Mbps

-. Test Result : Pass

Data Transfer Rate	Measured value (Number)	Limit (Number)	Margin (Number)
1 Mbps	79	Minimum of 15	64

10.5 Test data for 2 Mbps

-. Test Result : Pass

Data Transfer Rate	Measured value (Number)	Limit (Number)	Margin (Number)
2 Mbps	79	Minimum of 15	64

10.6 Test data for 3 Mbps

-. Test Result : Pass

Data Transfer Rate	Measured value (Number)	Limit (Number)	Margin (Number)
3 Mbps	79	Minimum of 15	64

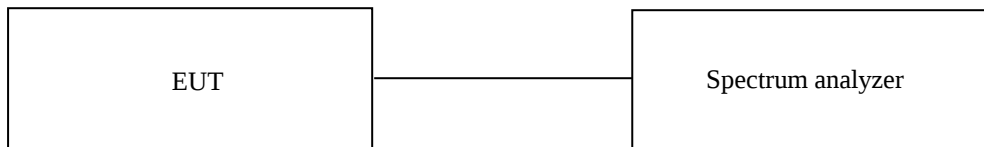
11. TIME OF OCCUPANCY

11.1 Operating environment

Temperature : 24 °C
Relative humidity : 43 % R.H.

11.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The transmitter is set to operate in its normal frequency hopping mode. The center frequency of the spectrum analyzer is set to one of hopping channels near the center of the operating band and span is set to zero Hz. The sweep time is set to display one complete pulse. The mark delta function is used to measure the duration of the pulses.



11.3 Test Date

October 15, 2025 ~ November 14, 2025

11.4 Test data for 1 Mbps

The system makes worst case 1 600 hops per second or 1 time slot has a length of 625 μs with 79 channels.

For DH1 packet type, the EUT needs 1 time slot for transmitting and 1 time slot for receiving and for DH3 packet type, the EUT needs 3 times slots for transmitting and 1 time slot for receiving, and DH5 packet needs 5 times slots for transmitting and 1 time slot for receiving. So The EUT has each channel for 10.13 times per second (= 1 600/2/79) for DH1, and 5.06 times (= 1 600/4/79) for DH3, and 3.38 times (= 1 600/6/79) for DH5.

Packet Type	Pulse Time (ms)	Hops per second with channels	Period Time (ms)	Total Dwell Time (ms)	Limit (ms)	Test Result
DH1	0.38	10.13	31.60	122.09	400.00	PASS
DH3	1.62	5.06	31.60	258.61	400.00	
DH5	2.89	3.38	31.60	308.28	400.00	

Total dwell time is calculated as following.

Total Dwell Time = Pulse time * Hops per second with channels * period time

11.5 Test data for 2 Mbps

The system makes worst case 1 600 hops per second or 1 time slot has a length of 625 μ s with 79 channels.

For DH1 packet type, the EUT needs 1 time slot for transmitting and 1 time slot for receiving and for DH3 packet type, the EUT needs 3 times slots for transmitting and 1 time slot for receiving, and DH5 packet needs 5 times slots for transmitting and 1 time slot for receiving. So The EUT has each channel for 10.13 times per second ($= 1\ 600/2/79$) for DH1, and 5.06 times ($= 1\ 600/4/79$) for DH3, and 3.38 times ($= 1\ 600/6/79$) for DH5.

Packet Type	Pulse Time (ms)	Hops per second with channels	Period Time (ms)	Total Dwell Time (ms)	Limit (ms)	Test Result
DH1	0.39	10.13	31.60	124.24	400.00	PASS
DH3	1.62	5.06	31.60	259.20	400.00	
DH5	2.87	3.38	31.60	306.01	400.00	

Total dwell time is calculated as following.

Total Dwell Time = Pulse time * Hops per second with channels * period time

11.6 Test data for 3 Mbps

The system makes worst case 1 600 hops per second or 1 time slot has a length of 625 μ s with 79 channels.

For DH1 packet type, the EUT needs 1 time slot for transmitting and 1 time slot for receiving and for DH3 packet type, the EUT needs 3 times slots for transmitting and 1 time slot for receiving, and DH5 packet needs 5 times slots for transmitting and 1 time slot for receiving. So The EUT has each channel for 10.13 times per second ($= 1\ 600/2/79$) for DH1, and 5.06 times ($= 1\ 600/4/79$) for DH3, and 3.38 times ($= 1\ 600/6/79$) for DH5.

Packet Type	Pulse Time (ms)	Hops per second with channels	Period Time (ms)	Total Dwell Time (ms)	Limit (ms)	Test Result
DH1	0.39	10.13	31.60	124.21	400.00	PASS
DH3	1.64	5.06	31.60	262.33	400.00	
DH5	2.87	3.38	31.60	306.23	400.00	

Total dwell time is calculated as following.

Total Dwell Time = Pulse time * Hops per second with channels * period time

12. MAXIMUM PEAK OUTPUT POWER

12.1 Operating environment

Temperature : 24 °C
Relative humidity : 43 % R.H.

12.2 Test set-up

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

The resolution bandwidth is set to $\geq$ DTS Bandwidth, the video bandwidth is set to 3 times the resolution bandwidth.



12.3 Test Date

October 15, 2025 ~ November 14, 2025

12.4 Test data for 1 Mbps

-. Test Result : Pass

CHANNEL	FREQUENCY (MHz)	MEASURED VLAUE (dBm)	LIMIT (dBm)	MARGIN (dB)
LOW	2 402.00	11.95	21.00	9.05
MIDDLE	2 441.00	12.31	21.00	8.69
HIGH	2 480.00	11.77	21.00	9.23

Remark. Margin = Limit – Measured Value (=Receiver Reading + Cable Loss)

12.5 Test data for 2 Mbps

-. Test Result : Pass

CHANNEL	FREQUENCY (MHz)	MEASURED VLAUE (dBm)	LIMIT (dBm)	MARGIN (dB)
LOW	2 402.00	10.76	21.00	10.24
MIDDLE	2 441.00	11.41	21.00	9.59
HIGH	2 480.00	11.24	21.00	9.76

Remark. Margin = Limit – Measured Value (=Receiver Reading + Cable Loss)

12.6 Test data for 3 Mbps

-. Test Result : Pass

CHANNEL	FREQUENCY (MHz)	MEASURED VLAUE (dBm)	LIMIT (dBm)	MARGIN (dB)
LOW	2 402.00	10.83	21.00	10.17
MIDDLE	2 441.00	11.58	21.00	9.42
HIGH	2 480.00	11.91	21.00	9.09

Remark. Margin = Limit – Measured Value (=Receiver Reading + Cable Loss)

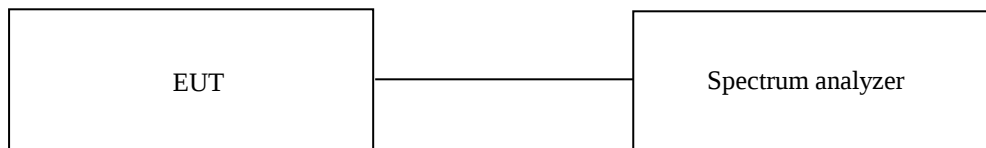
13. 100 kHz BANDWIDTH OUTSIDE THE FREQUENCY BAND

13.1 Operating environment

Temperature : 24 °C
Relative humidity : 43 % R.H.

13.2 Test set-up for conducted measurement

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



13.3 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.

13.4 Test Date

October 15, 2025 ~ November 14, 2025

13.5 Test data for conducted emission

For Test data for conducted emission, please refer to the Annex.

13.6 Test data for Transmitting mode radiated emission

13.6.1 Radiated Emission which fall in the Restricted Band

13.6.1.1 Test data for 1 Mbps

- 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 : 77.35 %
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain	ATT (dB)	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel											
2 360.23	53.85	Peak	H	27.68	4.87	42.76	10.28	-	53.92	74.00	20.08
2 356.46	41.89	Average	H	27.69	4.87	42.76	10.28	1.12	43.09	54.00	10.91
2 345.80	53.43	Peak	V	27.72	4.58	42.76	10.28	-	53.25	74.00	20.75
2 320.80	41.61	Average	V	27.82	4.58	42.77	10.28	1.12	42.64	54.00	11.36
Test Data for High Channel											
2 485.76	54.57	Peak	H	27.60	4.93	42.73	10.28	-	54.65	74.00	19.35
2 486.14	44.94	Average	H	27.60	4.93	42.73	10.28	1.12	46.14	54.00	7.86
2 485.80	54.46	Peak	V	27.60	4.93	42.73	10.28	-	54.54	74.00	19.46
2 486.10	43.17	Average	V	27.60	4.93	42.73	10.28	1.12	44.37	54.00	9.63

Tabulated test data for Restricted Band

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

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

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

13.6.1.2 Test data for 2 Mbps

- 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 : 77.35 %
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain	ATT (dB)	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel											
2 327.78	53.60	Peak	H	27.79	4.58	42.77	10.28	-	53.48	74.00	20.52
2 332.66	41.53	Average	H	27.77	4.58	42.77	10.28	1.12	42.51	54.00	11.49
2 360.14	54.07	Peak	V	27.68	4.87	42.76	10.28	-	54.14	74.00	19.86
2 357.10	41.46	Average	V	27.69	4.87	42.76	10.28	1.12	42.66	54.00	11.34
Test Data for High Channel											
2 498.95	54.24	Peak	H	27.60	4.93	42.73	10.28	-	54.32	74.00	19.68
2 486.18	43.31	Average	H	27.60	4.93	42.73	10.28	1.12	44.51	54.00	9.49
2 494.16	53.73	Peak	V	27.60	4.93	42.73	10.28	-	53.81	74.00	20.19
2 486.16	42.42	Average	V	27.60	4.93	42.73	10.28	1.12	43.62	54.00	10.38

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

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

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

13.6.1.3 Test data for 3 Mbps

- 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 : 77.34 %
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain	ATT (dB)	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel											
2 386.24	52.91	Peak	H	27.63	4.87	42.76	10.28	-	52.93	74.00	21.07
2 351.04	41.33	Average	H	27.70	4.87	42.76	10.28	1.12	42.54	54.00	11.46
2 335.05	53.77	Peak	V	27.76	4.58	42.77	10.28	-	53.62	74.00	20.38
2 366.57	41.43	Average	V	27.67	4.87	42.76	10.28	1.12	42.61	54.00	11.39
Test Data for High Channel											
2 486.12	54.55	Peak	H	27.60	4.93	42.73	10.28	-	54.63	74.00	19.37
2 485.88	43.27	Average	H	27.60	4.93	42.73	10.28	1.12	44.47	54.00	9.53
2 491.06	53.99	Peak	V	27.60	4.93	42.73	10.28	-	54.07	74.00	19.93
2 486.04	42.34	Average	V	27.60	4.93	42.73	10.28	1.12	43.54	54.00	10.46

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

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

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

13.6.2 Spurious & Harmonic Radiated Emission above 1 GHz

13.6.2.1 Test data for 1 Mbps

- . 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 : 77.35 %
- . Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel										
4 804.31	51.35	Peak	H	31.50	6.98	42.24	-	47.59	74.00	26.41
4 804.08	41.30	Average	H	31.50	6.98	42.24	1.12	38.66	54.00	15.34
4 804.20	52.74	Peak	V	31.50	6.98	42.24	-	48.98	74.00	25.02
4 803.95	45.03	Average	V	31.50	6.98	42.24	1.12	42.39	54.00	11.61
Test Data for Middle Channel										
4 882.28	51.20	Peak	H	31.50	6.77	42.24	-	47.23	74.00	26.77
4 882.05	43.00	Average	H	31.50	6.77	42.24	1.12	40.15	54.00	13.85
4 881.97	55.02	Peak	V	31.50	6.77	42.24	-	51.05	74.00	22.95
4 882.08	49.42	Average	V	31.50	6.77	42.24	1.12	46.57	54.00	7.43
Test Data for High Channel										
4 959.77	51.28	Peak	H	31.64	7.20	42.24	-	47.88	74.00	26.12
4 959.93	42.39	Average	H	31.64	7.20	42.24	1.12	40.11	54.00	13.89
4 960.38	56.36	Peak	V	31.64	7.20	42.24	-	52.96	74.00	21.04
4 959.98	51.38	Average	V	31.64	7.20	42.24	1.12	49.10	54.00	4.90

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

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

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

13.6.2.2 Test data for 2 Mbps

- 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 : 77.35 %
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel										
4 804.04	49.19	Peak	H	31.50	6.98	42.24	-	45.43	74.00	28.57
4 804.06	37.96	Average	H	31.50	6.98	42.24	1.12	35.32	54.00	18.68
4 803.94	50.51	Peak	V	31.50	6.98	42.24	-	46.75	74.00	27.25
4 804.25	39.53	Average	V	31.50	6.98	42.24	1.12	36.89	54.00	17.11
Test Data for Middle Channel										
4 881.50	50.17	Peak	H	31.50	6.77	42.24	-	46.20	74.00	27.80
4 882.15	39.24	Average	H	31.50	6.77	42.24	1.12	36.39	54.00	17.61
4 881.99	52.29	Peak	V	31.50	6.77	42.24	-	48.32	74.00	25.68
4 882.05	43.32	Average	V	31.50	6.77	42.24	1.12	40.47	54.00	13.53
Test Data for High Channel										
4 960.02	50.20	Peak	H	31.64	7.20	42.24	-	46.80	74.00	27.20
4 960.14	39.44	Average	H	31.64	7.20	42.24	1.12	37.16	54.00	16.84
4 960.30	53.93	Peak	V	31.64	7.20	42.24	-	50.53	74.00	23.47
4 960.05	45.67	Average	V	31.64	7.20	42.24	1.12	43.39	54.00	10.61

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

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

Total Level = Reading + Antenna Factor + Cable Loss – AMP Gain + Duty Factor

13.6.2.3 Test data for 3 Mbps

- 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 : 77.34 %
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel										
4 803.510	49.25	Peak	H	31.50	6.98	42.24	-	45.49	74.00	28.51
4 803.810	37.74	Average	H	31.50	6.98	42.24	1.12	35.10	54.00	18.90
4 804.180	50.68	Peak	V	31.50	6.98	42.24	-	46.92	74.00	27.08
4 803.880	39.81	Average	V	31.50	6.98	42.24	1.12	37.17	54.00	16.83
Test Data for Middle Channel										
4 881.650	49.36	Peak	H	31.50	6.77	42.24	-	45.39	74.00	28.61
4 882.020	38.09	Average	H	31.50	6.77	42.24	1.12	35.24	54.00	18.76
4 881.950	52.38	Peak	V	31.50	6.77	42.24	-	48.41	74.00	25.59
4 882.000	43.13	Average	V	31.50	6.77	42.24	1.12	40.28	54.00	13.72
Test Data for High Channel										
4 959.710	50.61	Peak	H	31.64	7.20	42.24	-	47.21	74.00	26.79
4 959.940	40.51	Average	H	31.64	7.20	42.24	1.12	38.23	54.00	15.77
4 959.880	53.01	Peak	V	31.64	7.20	42.24	-	49.61	74.00	24.39
4 959.960	43.85	Average	V	31.64	7.20	42.24	1.12	41.57	54.00	12.43

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

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

Total Level = Reading + Antenna Factor + Cable Loss – AMP Gain + Duty Factor

14. RADIATED EMISSION TEST

14.1 Operating environment

Temperature : 24 °C
Relative humidity : 43 % R.H.

14.2 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.

14.3 Test Date

October 15, 2025 ~ November 14, 2025

14.4 Test data for 30 MHz ~ 1 000 MHz

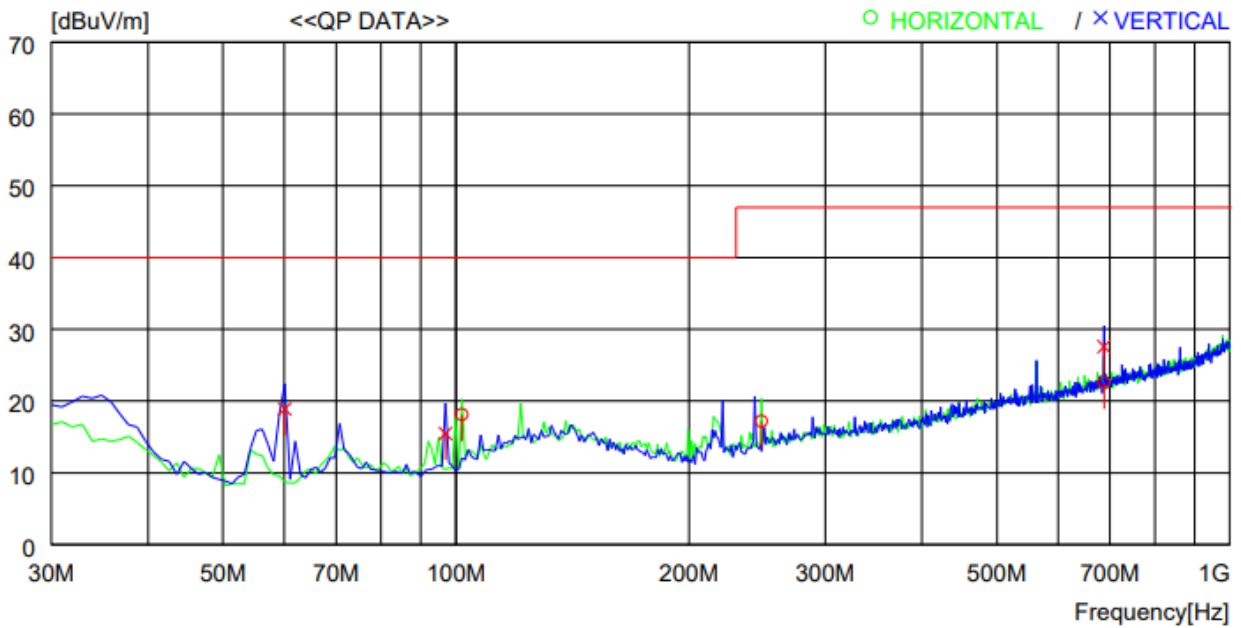
14.4.1 Test data for Bluetooth Mode

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

Result : PASSED

EUT : Wi-Fi/BT Transceiver

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	101.780	33.2	15.7	1.3	32.1	18.1	40.0	21.9	220	160
2	248.250	29.5	17.7	2.1	32.1	17.2	47.0	29.8	257	18
3	687.655	26.2	25.4	3.5	32.5	22.6	47.0	24.4	312	176
----- Vertical -----										
4	60.070	37.7	12.3	1.0	32.1	18.9	40.0	21.1	310	227
5	96.930	31.4	14.9	1.3	32.1	15.5	40.0	24.5	123	0
6	687.655	31.2	25.4	3.5	32.5	27.6	47.0	19.4	250	83

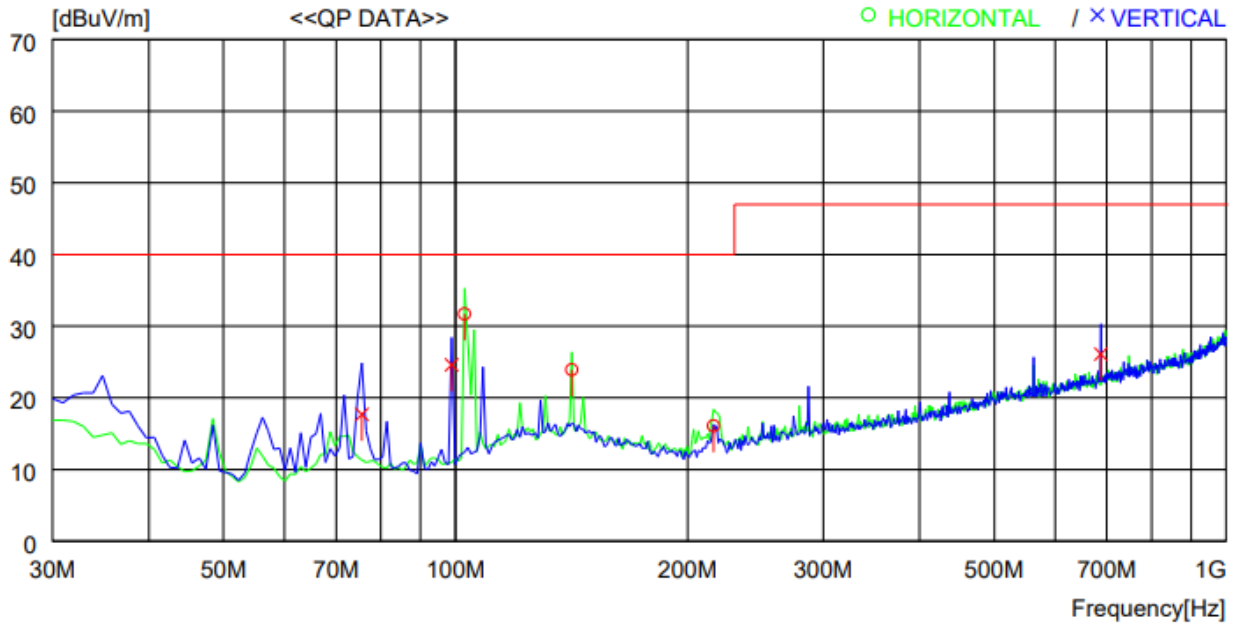
14.4.2 Test data for Bluetooth Mode (Bluetooth + WLAN 2.4 GHz)

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

Result : PASSED

EUT : Wi-Fi/BT Transceiver

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



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	102.750	46.6	15.9	1.3	32.1	31.7	40.0	8.3	158	35
2	141.550	35.2	19.3	1.5	32.1	23.9	40.0	16.1	213	0
3	216.240	30.0	16.3	1.9	32.1	16.1	40.0	23.9	231	0
----- Vertical -----										
4	75.590	35.5	13.2	1.1	32.1	17.7	40.0	22.3	231	33
5	98.870	40.2	15.2	1.3	32.1	24.6	40.0	15.4	116	180
6	687.655	29.7	25.4	3.5	32.5	26.1	47.0	20.9	269	76

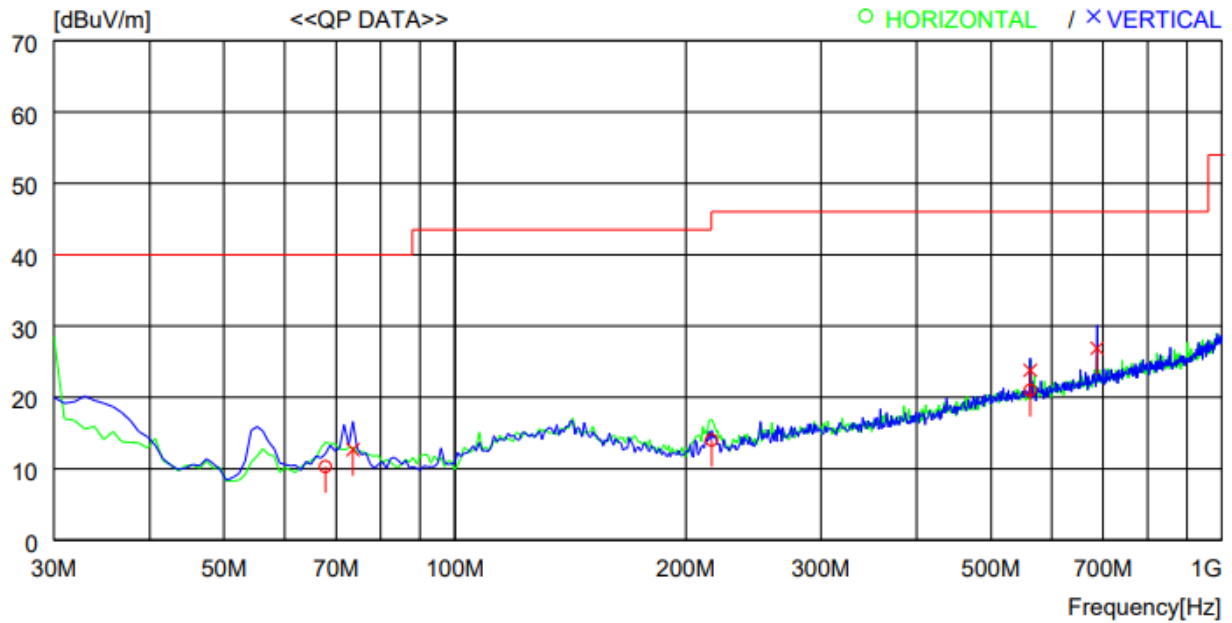
14.4.3 Test data for Bluetooth Mode (Bluetooth + WLAN 5 GHz)

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

Result : PASSED

EUT : Wi-Fi/BT Transceiver

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



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal -----										
1	67.830	28.5	12.8	1.1	32.1	10.3	40.0	29.7	400	2
2	216.240	27.9	16.3	1.9	32.1	14.0	46.0	32.0	203	26
3	562.529	26.6	23.8	3.1	32.5	21.0	46.0	25.0	400	0
----- Vertical -----										
4	73.650	30.6	13.1	1.1	32.1	12.7	40.0	27.3	112	8
5	562.529	29.4	23.8	3.1	32.5	23.8	46.0	22.2	110	159
6	687.655	30.5	25.4	3.5	32.5	26.9	46.0	19.1	253	359

14.5 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

Frequency (MHz)	Reading (dB μ V)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	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.								

14.6 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

Frequency (MHz)	Reading (dB μ V)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	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.								

15. CONDUCTED EMISSION TEST

15.1 Operating environment

Temperature : 24 °C
Relative humidity : 43 % R.H.

15.2 Test set-up

The EUT was placed on a wooden table, 0.8 m height above the floor. Power was fed to the EUT through a $50\ \Omega$ / $50\ \mu\text{H}$ + $5\ \Omega$ Artificial Mains Network (AMN). The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

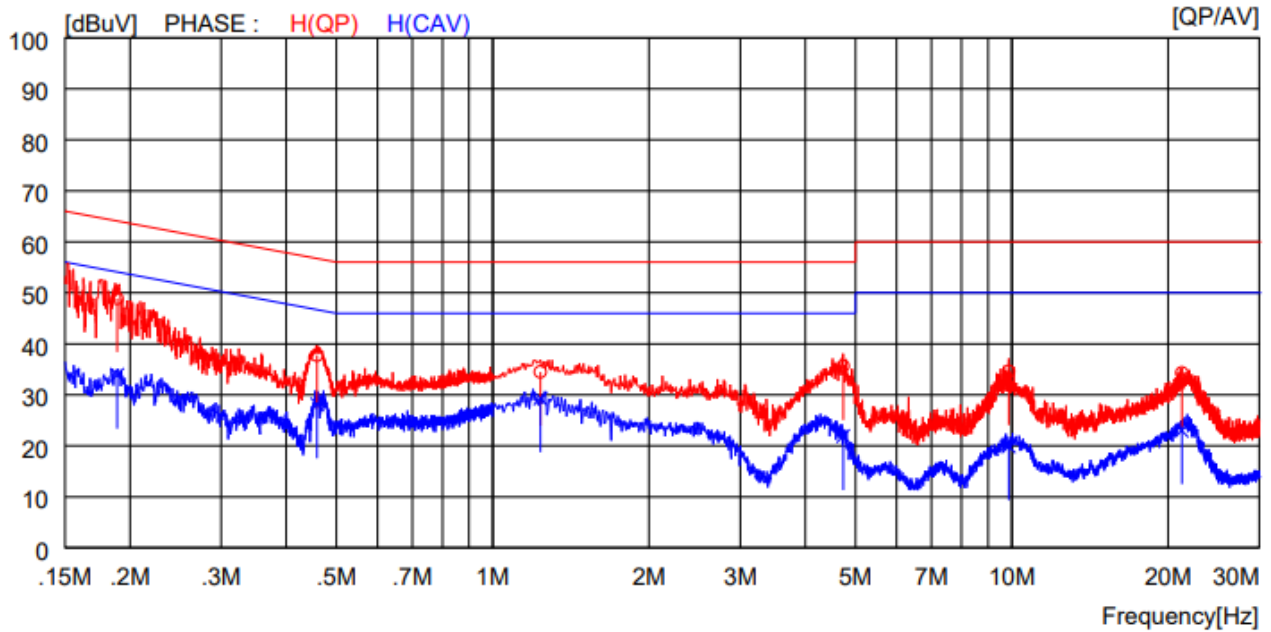
15.3 Test Date

October 15, 2025 ~ November 14, 2025

15.4 Test data

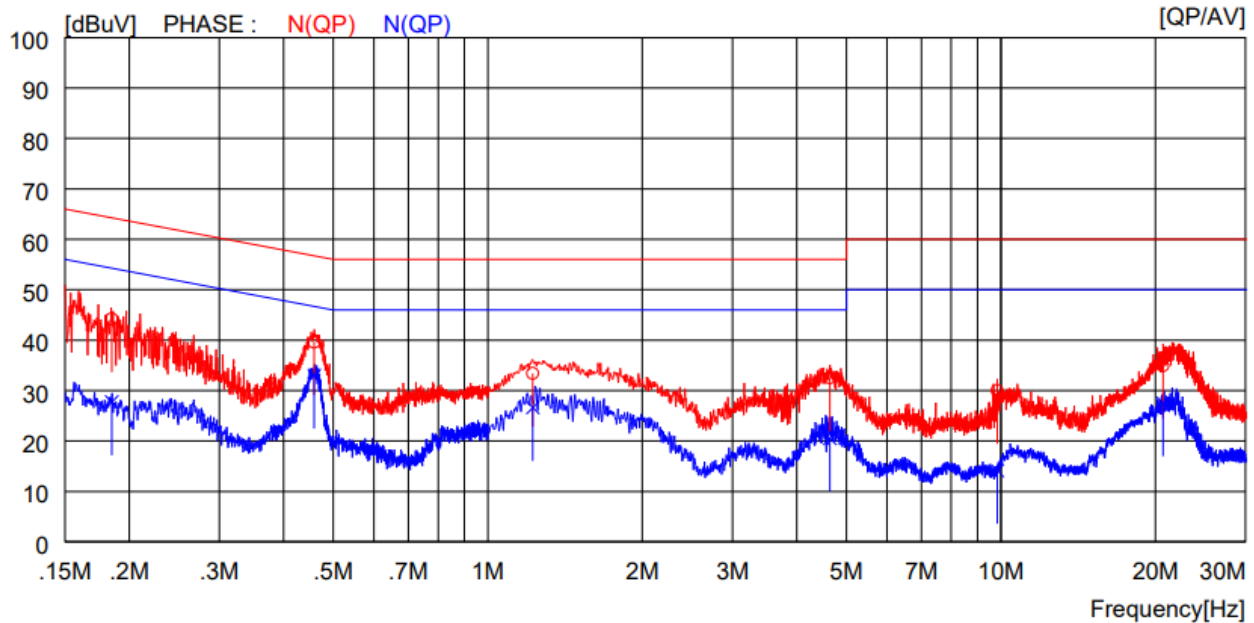
15.4.1 Test data for Bluetooth

- . Resolution bandwidth : 9 kHz
- . Frequency range : 0.15 MHz ~ 30 MHz
- . Tested Line : HOT LINE



NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.18900	38.8	----	10.1	48.9	----	64.1	----	15.2	----	H (QP)
2	0.45900	27.7	----	10.1	37.8	----	56.7	----	18.9	----	H (QP)
3	1.23600	24.4	----	10.1	34.5	----	56.0	----	21.5	----	H (QP)
4	4.73200	25.3	----	10.3	35.6	----	56.0	----	20.4	----	H (QP)
5	9.86000	24.1	----	10.5	34.6	----	60.0	----	25.4	----	H (QP)
6	21.25000	23.1	----	11.2	34.3	----	60.0	----	25.7	----	H (QP)
7	0.18900	----	23.8	10.1	----	33.9	----	54.1	----	20.2	H (CAV)
8	0.45900	----	18.0	10.1	----	28.1	----	46.7	----	18.6	H (CAV)
9	1.23600	----	19.2	10.1	----	29.3	----	46.0	----	16.7	H (CAV)
10	4.73200	----	11.6	10.3	----	21.9	----	46.0	----	24.1	H (CAV)
11	9.86000	----	9.4	10.5	----	19.9	----	50.0	----	30.1	H (CAV)
12	21.25000	----	11.8	11.2	----	23.0	----	50.0	----	27.0	H (CAV)

-. Tested Line : NEUTRAL LINE



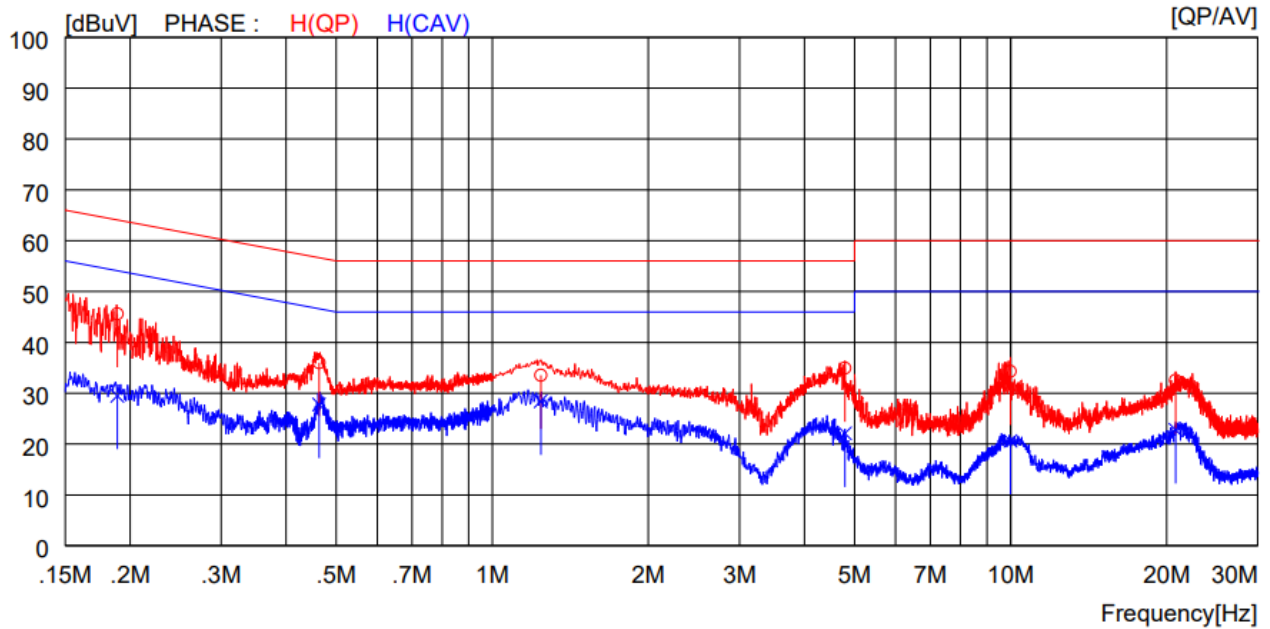
NO	FREQ [MHz]	READING		C. FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.18500	34.1	----	10.1	44.2	----	64.3	----	20.1	----	N (QP)
2	0.45900	29.5	----	10.1	39.6	----	56.7	----	17.1	----	N (QP)
3	1.22400	23.3	----	10.1	33.4	----	56.0	----	22.6	----	N (QP)
4	4.64400	22.2	----	10.3	32.5	----	56.0	----	23.5	----	N (QP)
5	9.84000	19.5	----	10.5	30.0	----	60.0	----	30.0	----	N (QP)
6	20.71000	23.7	----	11.2	34.9	----	60.0	----	25.1	----	N (QP)
7	0.18500	----	17.6	10.1	----	27.7	----	54.3	----	26.6	N (CAV)
8	0.45900	----	22.9	10.1	----	33.0	----	46.7	----	13.7	N (CAV)
9	1.22400	----	16.5	10.1	----	26.6	----	46.0	----	19.4	N (CAV)
10	4.64400	----	10.2	10.3	----	20.5	----	46.0	----	25.5	N (CAV)
11	9.84000	----	3.6	10.5	----	14.1	----	50.0	----	35.9	N (CAV)
12	20.71000	----	16.3	11.2	----	27.5	----	50.0	----	22.5	N (CAV)

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

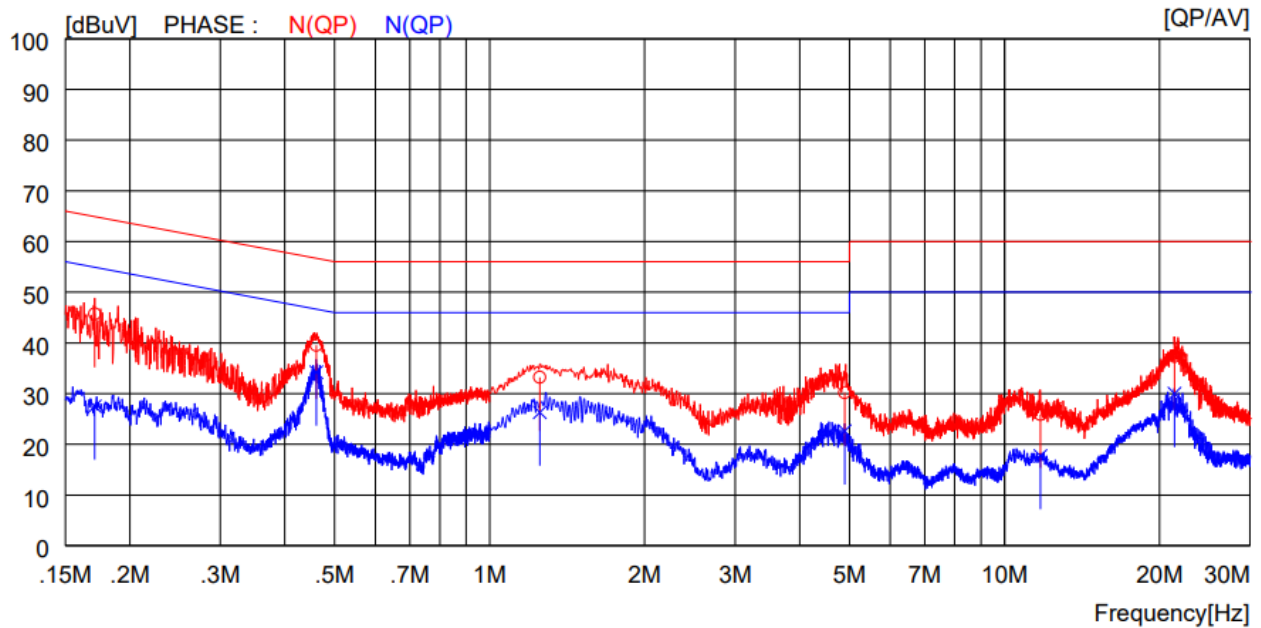
15.4.2 Test data for Intermodulation Mode (Bluetooth + WLAN 2.4 GHz)

- Resolution bandwidth : 9 kHz
- Frequency range : 0.15 MHz ~ 30 MHz
- Tested Line : HOT LINE



NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.18900	35.5	----	10.1	45.6	----	64.1	----	18.5	----	H (QP)
2	0.46300	25.9	----	10.1	36.0	----	56.6	----	20.6	----	H (QP)
3	1.24000	23.4	----	10.1	33.5	----	56.0	----	22.5	----	H (QP)
4	4.78800	24.6	----	10.3	34.9	----	56.0	----	21.1	----	H (QP)
5	9.99000	23.8	----	10.5	34.3	----	60.0	----	25.7	----	H (QP)
6	20.82000	21.3	----	11.2	32.5	----	60.0	----	27.5	----	H (QP)
7	0.18900	----	19.4	10.1	----	29.5	----	54.1	----	24.6	H (CAV)
8	0.46300	----	17.7	10.1	----	27.8	----	46.6	----	18.8	H (CAV)
9	1.24000	----	18.3	10.1	----	28.4	----	46.0	----	17.6	H (CAV)
10	4.78800	----	11.8	10.3	----	22.1	----	46.0	----	23.9	H (CAV)
11	9.99000	----	10.1	10.5	----	20.6	----	50.0	----	29.4	H (CAV)
12	20.82000	----	11.6	11.2	----	22.8	----	50.0	----	27.2	H (CAV)

-. Tested Line : NEUTRAL LINE



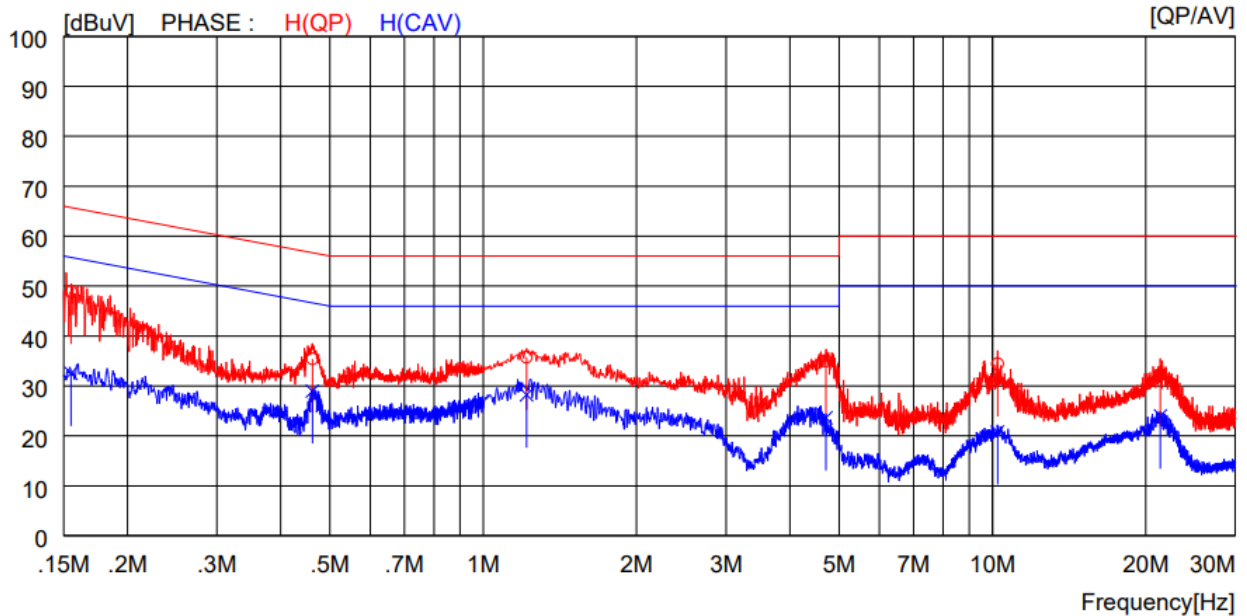
NO	FREQ [MHz]	READING		C. FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.17100	35.6	----	10.1	45.7	----	64.9	----	19.2	----	N (QP)
2	0.46100	29.4	----	10.1	39.5	----	56.7	----	17.2	----	N (QP)
3	1.25200	23.1	----	10.1	33.2	----	56.0	----	22.8	----	N (QP)
4	4.89600	19.9	----	10.3	30.2	----	56.0	----	25.8	----	N (QP)
5	11.74000	15.2	----	10.7	25.9	----	60.0	----	34.1	----	N (QP)
6	21.38000	26.1	----	11.2	37.3	----	60.0	----	22.7	----	N (QP)
7	0.17100	----	17.4	10.1	----	27.5	----	54.9	----	27.4	N (CAV)
8	0.46100	----	24.1	10.1	----	34.2	----	46.7	----	12.5	N (CAV)
9	1.25200	----	16.2	10.1	----	26.3	----	46.0	----	19.7	N (CAV)
10	4.89600	----	12.3	10.3	----	22.6	----	46.0	----	23.4	N (CAV)
11	11.74000	----	7.0	10.7	----	17.7	----	50.0	----	32.3	N (CAV)
12	21.38000	----	18.8	11.2	----	30.0	----	50.0	----	20.0	N (CAV)

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

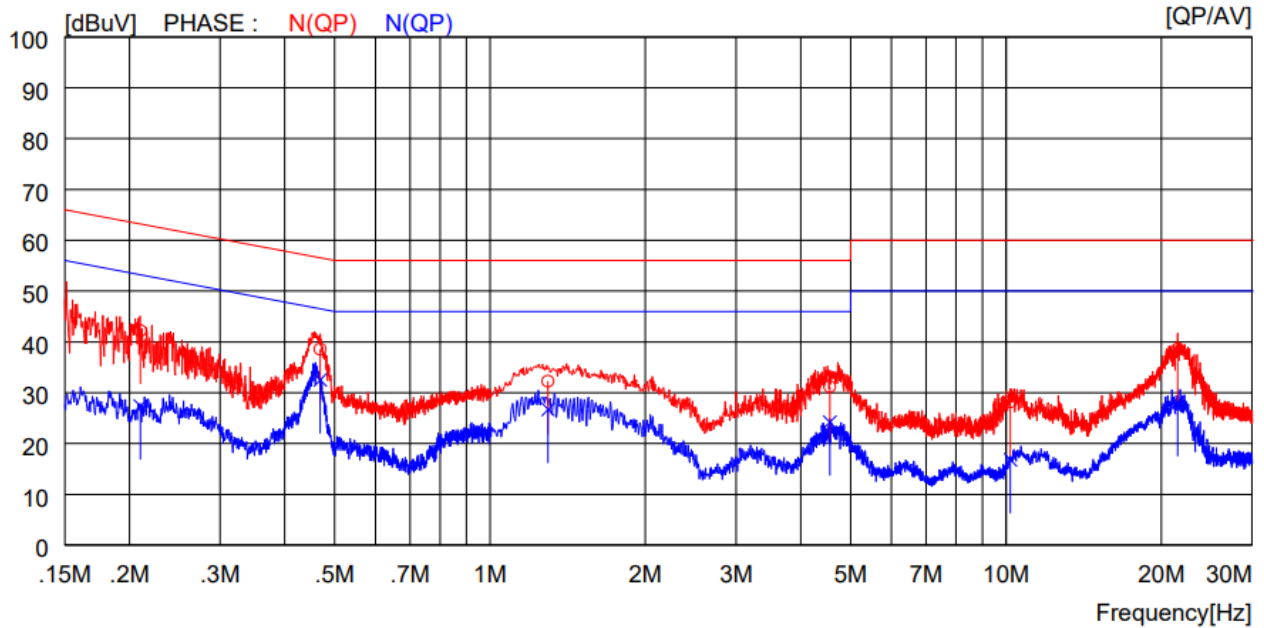
15.4.3 Test data for Intermodulation Mode (Bluetooth + WLAN 5 GHz)

- Resolution bandwidth : 9 kHz
- Frequency range : 0.15 MHz ~ 30 MHz
- Tested Line : HOT LINE



NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.15500	38.8	----	10.1	48.9	----	65.7	----	16.8	----	H (QP)
2	0.46200	25.3	----	10.1	35.4	----	56.7	----	21.3	----	H (QP)
3	1.21600	25.6	----	10.1	35.7	----	56.0	----	20.3	----	H (QP)
4	4.70800	24.7	----	10.3	35.0	----	56.0	----	21.0	----	H (QP)
5	10.23000	23.8	----	10.6	34.4	----	60.0	----	25.6	----	H (QP)
6	21.37000	21.1	----	11.2	32.3	----	60.0	----	27.7	----	H (QP)
7	0.15500	----	22.4	10.1	----	32.5	----	55.7	----	23.2	H (CAV)
8	0.46200	----	18.9	10.1	----	29.0	----	46.7	----	17.7	H (CAV)
9	1.21600	----	18.1	10.1	----	28.2	----	46.0	----	17.8	H (CAV)
10	4.70800	----	13.3	10.3	----	23.6	----	46.0	----	22.4	H (CAV)
11	10.23000	----	10.2	10.6	----	20.8	----	50.0	----	29.2	H (CAV)
12	21.37000	----	12.8	11.2	----	24.0	----	50.0	----	26.0	H (CAV)

-. Tested Line : NEUTRAL LINE



NO	FREQ [MHz]	READING		C. FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.21000	32.1	----	10.1	42.2	----	63.2	----	21.0	----	N (QP)
2	0.46900	28.5	----	10.1	38.6	----	56.5	----	17.9	----	N (QP)
3	1.29600	22.2	----	10.1	32.3	----	56.0	----	23.7	----	N (QP)
4	4.55600	21.0	----	10.2	31.2	----	56.0	----	24.8	----	N (QP)
5	10.20000	17.7	----	10.5	28.2	----	60.0	----	31.8	----	N (QP)
6	21.51000	27.3	----	11.2	38.5	----	60.0	----	21.5	----	N (QP)
7	0.21000	----	17.3	10.1	----	27.4	----	53.2	----	25.8	N (CAV)
8	0.46900	----	22.4	10.1	----	32.5	----	46.5	----	14.0	N (CAV)
9	1.29600	----	16.6	10.1	----	26.7	----	46.0	----	19.3	N (CAV)
10	4.55600	----	14.0	10.2	----	24.2	----	46.0	----	21.8	N (CAV)
11	10.20000	----	6.3	10.5	----	16.8	----	50.0	----	33.2	N (CAV)
12	21.51000	----	16.8	11.2	----	28.0	----	50.0	----	22.0	N (CAV)

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

16. LIST OF TEST EQUIPMENT

Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
FSV3044	Rohde & Schwarz	Signal & Spectrum Analyzer	101757	Jul. 02, 2025 (1Y)
FSV3044	Rohde & Schwarz	Signal & Spectrum Analyzer	101758	Jul. 02, 2025 (1Y)
FSVA40	Rohde & Schwarz	Signal Analyzer	101598	Jan. 13, 2025 (1Y)
FSV40-N	Rohde & Schwarz	Spectrum Analyzer	101457	Jan. 13, 2025 (1Y)
FSV40-N	Rohde & Schwarz	Spectrum Analyzer	101651	Jan. 13, 2025 (1Y)
SMBV100A	Rohde & Schwarz	VECTOR SIGNAL GENERATOR	260423	Jan 14, 2025 (1Y)
SMB100A	Rohde & Schwarz	SiGNAL GENERATOR	177648	Jan 13, 2025 (1Y)
NRP33S	Rohde & Schwarz	3-Path Diode Power Sensor	103230	Jan 06, 2025 (1Y)
ESU	Rohde & Schwarz	EMI Test Receiver	100261	Mar. 05, 2025 (1Y)
310N	Sonoma Instrument	Pre-Amplifier	392756	Oct. 16, 2025 (1Y)
SCU18	Rohde & Schwarz	Pre-Amplifier	102266	Jul. 02, 2025 (1Y)
SCU40A	Rohde & Schwarz	Pre-Amplifier	100436	Jan. 15, 2025 (1Y)
DT2000-2t	Innco System	Turn Table	N/A	N/A
MA-4640-XPET	Innco System	Antenna Master	MA4640/652/43100318/P	N/A
CO3000	Innco System	Controller	1026/40960617/P	N/A
HLP-2008	TDK RF Solutions	Hybrid Antenna	131316	Mar. 09, 2024 (2Y)
BBHA9120D	Schwarzbeck	Horn Antenna	9120D-1366	Jun. 19, 2025 (1Y)
BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170178	Jan. 04, 2025 (1Y)
HPF 3GHz	Rohde & Schwarz	High Pass Filter	N/A	Jan. 13, 2025 (1Y)
10 dB Attenuator	Rohde & Schwarz	10 dB Attenuator	14100882-4	Jul. 02, 2025 (1Y)
ESCI	Rohde & Schwarz	EMI TEST RECEIVER	101012	Sep. 24, 2025 (1Y)
NSLK8126	Schwarzbeck	V - LISN (4*16/25A)	8126404	Mar. 11, 2025 (1Y)
ESH3-Z2	Rohde & Schwarz	PULSE LIMITER	100655	Mar. 11, 2025 (1Y)