RADIO PERFORMANCE TEST REPORT

Test Report No. : **OT-24N-RWD-018**

Reception No. : **2408002803**

Applicant : **LINKFLOW Co., Ltd.**

Address : **3,4F, 54, Nonhyeon-ro 2-gil, Gangnam-gu, Seoul, South Korea**

Manufacturer : **LINKFLOW Co., Ltd.**

Address : **3,4F, 54, Nonhyeon-ro 2-gil, Gangnam-gu, Seoul, South Korea**

Type of Equipment : **LINKFLOW BOLD**

FCC ID. : **2AVCKLFE1300**

Model Name : **LF-E1300**

Multiple Model Name : **LF-E1000, LF-E1320, LF-E1340, LF-E2300, LF-E2320, LF-E2340, LF-E3300, LF-E3320, LF-E3340, LF-E2000, LF-E3000**

Serial number : **N/A**

Total page of Report : **61 pages (including this page)**

Date of Incoming : **September 02, 2024**

Date of issue : **November 12, 2024**

SUMMARY

The equipment complies with the regulation; ***FCC PART 15 SUBPART E Section 15.407***

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.



Tested by	Reviewed by	Approved by
Myeong-Hwa, Jang / Senior Project Engineer	Tae-Ho, Kim / Chief Engineer	Jae-Ho, Lee / Chief Engineer
ONETECH Corp.	ONETECH Corp.	ONETECH Corp.

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

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

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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-24N-RWD-018	November 12, 2024	Initial Release	All

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1. VERIFICATION OF COMPLIANCE

Applicant : LINKFLOW Co., Ltd.

Address : 3,4F, 54, Nonhyeon-ro 2-gil, Gangnam-gu, Seoul, South Korea

Contact Person : Chunghee Lee / Senior Engineer

Telephone No. : +82-10-3332-0211

FCC ID : 2AVCKLFE1300

Model Name : LF-E1300

Brand Name : LINKFLOW

Serial Number : N/A

Date : November 12, 2024

EQUIPMENT CLASS	Unlicensed National Information infrastructure(UNII)
E.U.T. DESCRIPTION	LINKFLOW BOLD
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 E Section 15.407 789033 D02 General UNII Test Procedures New Rules v02r01
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.

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

2. TEST SUMMARY

2.1 Test items and results

SECTION	TEST ITEMS	RESULTS
15.407(a)	26 dB Bandwidth	PASS
15.407(a)	Maximum Conducted Output Power	Met the Limit / PASS
15.407(a)	Power Spectral Density	Met the Limit / PASS
15.407(e)	6 dB Bandwidth	Met the Limit / PASS
15.407(g)	Frequency Stability	Met the Limit / PASS
15.407(b)	Undesirable Emissions	Met the Limit / PASS
15.205, 15.407(b)	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Met the Limit / PASS
15.207	Conducted Limits	Met the Limit / 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 E Section 15.407

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

-. 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 LINKFLOW Co., Ltd., Model LF-E1300 (referred to as the EUT in this report) is a LINKFLOW BOLD. The product specification described herein was obtained from product data sheet or user's manual.

Device Type	LINKFLOW BOLD	
Temperature Range	0 °C ~ 40 °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 ~ 2 462 MHz (802.11b/g/n(HT20)) 2 422 MHz ~ 2 452 MHz (802.11n(HT40))
	WLAN 5 150 MHz ~ 5 250 MHz Band	5 180 MHz ~ 5 240 MHz (802.11a/n(HT20))
		5 190 MHz ~ 5 230 MHz (802.11n(HT40))
		5 210 MHz (802.11ac(VHT80))
	WLAN 5 725 MHz ~ 5 850 MHz Band	5 745 MHz ~ 5 825 MHz (802.11a/n(HT20))
		5 755 MHz ~ 5 795 MHz (802.11n(HT40))
		5 775 MHz (802.11ac(VHT80))
Modulation Type	Bluetooth LE	GFSK for 1 Mbps, 2 Mbps
	Bluetooth	GFSK for 1Mbps, π/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	7.19 dBm
		2 Mbps	7.48 dBm
	Bluetooth	1 Mbps	12.23 dBm
		2 Mbps	11.64 dBm
		3 Mbps	11.62 dBm
	WLAN 2.4 GHz	802.11b	17.55 dBm
		802.11g	19.42 dBm
		802.11n(HT20)	19.45 dBm
		802.11n(HT40)	23.44 dBm
	WLAN 5 150 MHz ~ 5 250 MHz Band	802.11a	15.30 dBm
		802.11n(HT20)	15.17 dBm
		802.11n(HT40)	15.82 dBm
		802.11ac(VHT80)	15.50 dBm
	WLAN 5 725 MHz ~ 5 850 MHz Band	802.11a	16.36 dBm
		802.11n(HT20)	16.22 dBm
		802.11n(HT40)	15.99 dBm
		802.11ac(VHT80)	16.65 dBm
Antenna Type	FPCB Antenna		
Antenna Gain	Bluetooth LE	0.32 dBi	
	Bluetooth	0.32 dBi	
	WLAN 2.4 GHz	0.32 dBi	
	WLAN 5 150 MHz ~ 5 250 MHz Band	1.15 dBi	
	WLAN 5 725 MHz ~ 5 850 MHz Band	3.00 dBi	
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)		38.4 MHz	

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

-. The following lists consist of the added model and their differences.

Model Name	Differences	Tested
LF-E1300	Basic Model	☑
LF-E1000, LF-E1320, LF-E1340, LF-E2300, LF-E2320, LF-E2340, LF-E3300, LF-E3320, LF-E3340, LF-E2000, LF-E3000	This model is identical to the basic model except for the model name (Varies depending on B2C, B2B, B2G) only.	☐

Note: 1. Applicant consigns only basic model to test. Therefore this test report just guarantees the units, which have been tested.

2. The Applicant/manufacturer is responsible for the compliance of all variants.

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	LINKFLOW Co., Ltd.	N/A	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
LF-E1300	LINKFLOW Co., Ltd.	LINKFLOW BOLD (EUT)	
RT329OLE	HP	Notebook PC	EUT
PPP009C	CHICONY POWER TECHNOLOGY (Chong Qing) Co., LTD.	AC Adapter	

5.3 Mode of operation during the test

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

-. Frequency / Channel Operations

		Channel	Frequency
802.11a 802.11n(HT20) 802.11ac(VHT20)	UNII1 [5 150 MHz ~ 5 250 MHz]	36	5 180
		44	5 220
		48	5 240
	UNII3 [5 725 MHz ~ 5 850 MHz]	149	5 745
		157	5 785
		165	5 825
802.11n(HT40) 802.11ac(VHT40)	UNII1 [5 150 MHz ~ 5 250 MHz]	38	5 190
		46	5 230
	UNII3 [5 725 MHz ~ 5 850 MHz]	151	5 755
802.11ac(VHT80)	UNII1 [5 150 MHz ~ 5 250 MHz]	42	5 210
	UNII3 [5 725 MHz ~ 5 850 MHz]	155	5 775

-. Duty Cycle

Band	TEST Mode	Data Rate	On Time (ms)	Total Time (ms)	Duty Cycle (%)	Duty Cycle Factor (dB)
UNII 1	802.11 a (5 220 MHz)	6	2.064	2.101	98.24	0.08
		9	1.384	1.421	97.40	0.11
		12	1.044	1.081	96.58	0.15
		18	0.704	0.741	95.04	0.22
		24	0.532	0.569	93.50	0.29
		36	0.364	0.400	91.00	0.41
		48	0.276	0.312	88.54	0.53
		54	0.248	0.284	87.41	0.58
	802.11 n(HT20) (5 220 MHz)	MCS0	1.924	1.961	98.11	0.08
		MCS1	0.980	1.017	96.36	0.16
		MCS2	0.668	0.705	94.75	0.23
		MCS3	0.508	0.545	93.21	0.31
		MCS4	0.352	0.388	90.72	0.42
		MCS5	0.272	0.308	88.31	0.54
		MCS6	0.248	0.284	87.32	0.59
		MCS7	0.228	0.264	86.36	0.64
	802.11 n(HT40) (5 230 MHz)	MCS0	0.948	0.984	96.34	0.16
		MCS1	0.492	0.528	93.21	0.31
		MCS2	0.340	0.376	90.46	0.44
		MCS3	0.264	0.300	88.04	0.55
		MCS4	0.188	0.224	83.93	0.76
		MCS5	0.152	0.188	80.86	0.92
		MCS6	0.140	0.176	79.62	0.99
		MCS7	0.128	0.164	78.05	1.08
	802.11 ac(VHT80) (5 210 MHz)	MCS0	0.464	0.500	92.79	0.33
		MCS1	0.252	0.288	87.48	0.58
		MCS2	0.184	0.220	83.64	0.78
		MCS3	0.148	0.184	80.41	0.95
		MCS4	0.112	0.148	75.60	1.21
		MCS5	0.096	0.132	72.63	1.39
		MCS6	0.088	0.124	70.87	1.50
		MCS7	0.084	0.120	69.90	1.56
		MCS8	0.076	0.112	67.75	1.69
		MCS9	0.072	0.108	66.49	1.77

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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-. Duty Cycle

Band	TEST Mode	Data Rate	On Time (ms)	Total Time (ms)	Duty Cycle (%)	Duty Cycle Factor (dB)
UNII 3	802.11 a (5 785 MHz)	6	2.064	2.101	98.24	0.08
		9	1.384	1.421	97.40	0.11
		12	1.044	1.081	96.58	0.15
		18	0.704	0.741	95.01	0.22
		24	0.532	0.569	93.50	0.29
		36	0.364	0.400	91.06	0.41
		48	0.276	0.312	88.46	0.53
		54	0.248	0.284	87.32	0.59
	802.11 n(HT20) (5 785 MHz)	MCS0	1.924	1.961	98.11	0.08
		MCS1	0.980	1.017	96.36	0.16
		MCS2	0.668	0.705	94.75	0.23
		MCS3	0.508	0.545	93.21	0.31
		MCS4	0.352	0.388	90.72	0.42
		MCS5	0.272	0.308	88.31	0.54
		MCS6	0.248	0.284	87.32	0.59
		MCS7	0.228	0.264	86.36	0.64
	802.11 n(HT40) (5 795 MHz)	MCS0	0.948	0.984	96.34	0.16
		MCS1	0.492	0.528	93.21	0.31
		MCS2	0.340	0.376	90.46	0.44
		MCS3	0.264	0.300	88.00	0.56
		MCS4	0.188	0.224	83.93	0.76
		MCS5	0.152	0.188	80.85	0.92
		MCS6	0.140	0.176	79.55	0.99
		MCS7	0.128	0.164	78.05	1.08
	802.11 ac(VHT80) (5 775 MHz)	MCS0	0.464	0.500	92.79	0.33
		MCS1	0.252	0.288	87.50	0.58
		MCS2	0.184	0.220	83.64	0.78
		MCS3	0.148	0.184	80.40	0.95
		MCS4	0.112	0.148	75.59	1.22
		MCS5	0.096	0.132	72.65	1.39
		MCS6	0.088	0.124	70.87	1.50
		MCS7	0.084	0.120	69.95	1.55
		MCS8	0.076	0.112	67.75	1.69
		MCS9	0.072	0.108	66.51	1.77

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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5.4 Configuration of Test System

Line Conducted Test: The EUT was tested in the Transmitting mode. 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 FPCB Antenna on the main board in the EUT, so no consideration of replacement by the user.

6. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013.
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	0.90
Conducted Spurious Emission < 26.5 GHz	1.26
Power Spectral Density	1.20
Line Conducted Disturbance (150 kHz ~ 30 MHz)	2.00
Radiated Disturbance (9 kHz ~ 30 MHz)	3.30
Radiated Disturbance (30 MHz ~ 1 GHz)	4.42
Radiated Disturbance (1 GHz ~ 18 GHz)	5.10
Radiated Disturbance (18 GHz ~ 40 GHz)	5.65

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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

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8. MIMIMUM 26 dB BANDWIDTH

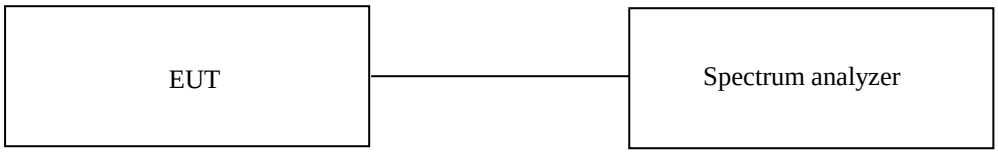
8.1 Operating environment

Temperature : 24 °C

Relative humidity : 45 % 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 approximately 1% of the emission bandwidth, and peak detection was used. The 26 dB bandwidth is defined as the total spectrum over which the power is higher than the peak power minus 26 dB.



8.3 Test Date

September 09, 2024 ~ October 12, 2024

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8.4 Test data for 802.11a RLAN Mode

-. Test Result : Pass

Frequency range (MHz)	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
5 150 ~ 5 250	Low	5 180.00	23.73
	Middle	5 220.00	23.28
	High	5 240.00	22.28
5 725 ~ 5 850	Low	5 745.00	26.12
	Middle	5 785.00	24.53
	High	5 825.00	23.03

8.5 Test data for 802.11n(HT20) RLAN Mode

-. Test Result : Pass

Frequency range (MHz)	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
5 150 ~ 5 250	Low	5 180.00	23.83
	Middle	5 220.00	25.37
	High	5 240.00	24.78
5 725 ~ 5 850	Low	5 745.00	26.02
	Middle	5 785.00	26.37
	High	5 825.00	24.13

8.6 Test data for 802.11n(HT40) RLAN Mode

-. Test Result : Pass

Frequency range (MHz)	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
5 150 ~ 5 250	Low	5 190.00	41.76
	High	5 230.00	44.26
5 725 ~ 5 850	Low	5 755.00	41.76
	High	5 795.00	41.66

8.7 Test data for 802.11ac(VHT80) RLAN Mode

-. Test Result : Pass

Frequency range (MHz)	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
5 150 ~ 5 250	Middle	5 210.00	83.92
5 725 ~ 5 850	Middle	5 775.00	83.92

9. 6 dB BANDWIDTH

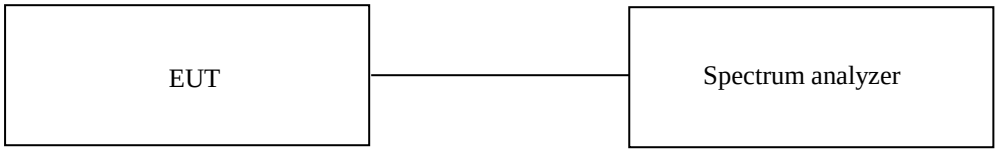
9.1 Operating environment

Temperature : 24 °C

Relative humidity : 45 % R.H.

9.2 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.



9.3 Test Date

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9.4 Test data for 802.11a RLAN Mode

-. Test Result : Pass

Frequency range (MHz)	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)
5 725 ~ 5 850	Low	5 745.00	15.18	0.50	14.68
	Middle	5 785.00	16.28	0.50	15.78
	High	5 825.00	15.63	0.50	15.13

9.5 Test data for 802.11n(HT20) RLAN Mode

-. Test Result : Pass

Frequency range (MHz)	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)
5 725 ~ 5 850	Low	5 745.00	15.38	0.50	14.88
	Middle	5 785.00	15.18	0.50	14.68
	High	5 825.00	15.18	0.50	14.68

9.6 Test data for 802.11n(HT40) RLAN Mode

-. Test Result : Pass

Frequency range (MHz)	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)
5 725 ~ 5 850	Low	5 755.00	35.66	0.50	35.16
	High	5 795.00	35.76	0.50	35.26

9.7 Test data for 802.11ac(VHT80) RLAN Mode

-. Test Result : Pass

Frequency range (MHz)	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)
5 725 ~ 5 850	Middle	5 775.00	75.32	0.50	74.82

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10. MAXIMUM CONDUCTED OUTPUT POWER

10.1 Operating environment

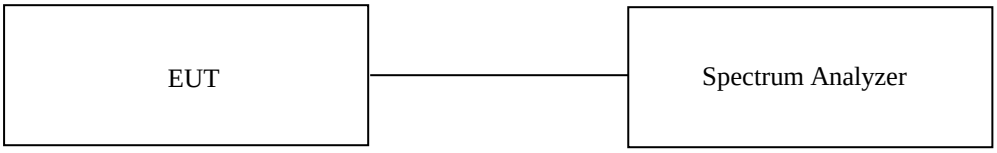
Temperature : 24 °C

Relative humidity : 45 % 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 1 MHz, the video bandwidth is set to 3 times the resolution bandwidth.



10.3 Test Date

September 09, 2024 ~ October 12, 2024

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10.4 Test data for 802.11a RLAN Mode

-. Test Result : Pass

-. Duty Cycle : 98.24 %

Frequency range (MHz)	Channel	Frequency (MHz)	Measured Value (dBm)	Duty Factor (dB)	Total Value (dBm)	Limit (dBm)	Margin (dB)
5 150 ~ 5 250	Low	5 180.00	15.22	0.08	15.30	23.98	8.68
	Middle	5 220.00	14.98	0.08	15.06	23.98	8.92
	High	5 240.00	13.90	0.08	13.98	23.98	10.00
5 725 ~ 5 850	Low	5 745.00	15.82	0.08	15.90	30.00	14.10
	Middle	5 785.00	16.28	0.08	16.36	30.00	13.64
	High	5 825.00	15.60	0.08	15.68	30.00	14.32

Remark : Margin = Limit –Total Value (=Measured Value +Duty Factor)

10.5 Test data for 802.11n(HT20) RLAN Mode

-. Test Result : Pass

-. Duty Cycle : 98.11 %

Frequency range (MHz)	Channel	Frequency (MHz)	Measured Value (dBm)	Duty Factor (dB)	Total Value (dBm)	Limit (dBm)	Margin (dB)
5 150 ~ 5 250	Low	5 180.00	15.09	0.08	15.17	23.98	8.81
	Middle	5 220.00	14.88	0.08	14.96	23.98	9.02
	High	5 240.00	14.77	0.08	14.85	23.98	9.13
5 725 ~ 5 850	Low	5 745.00	15.70	0.08	15.78	30.00	14.22
	Middle	5 785.00	16.14	0.08	16.22	30.00	13.78
	High	5 825.00	15.47	0.08	15.55	30.00	14.45

Remark : Margin = Limit –Total Value (=Measured Value +Duty Factor)

10.6 Test data for 802.11n(HT40) RLAN Mode

-. Test Result : Pass

-. Duty Cycle : 96.34 %

Frequency range (MHz)	Channel	Frequency (MHz)	Measured Value (dBm)	Duty Factor (dB)	Total Value (dBm)	Limit (dBm)	Margin (dB)
5 150 ~ 5 250	Low	5 190.00	15.66	0.16	15.82	23.98	8.16
	High	5 230.00	15.55	0.16	15.71	23.98	8.27
5 725 ~ 5 850	Low	5 755.00	15.41	0.16	15.57	30.00	14.43
	High	5 795.00	15.83	0.16	15.99	30.00	14.01

Remark : Margin = Limit –Total Value (=Measured Value +Duty Factor)

10.7 Test data for 802.11ac(VHT80) RLAN Mode

-. Test Result : Pass

-. Duty Cycle : 92.79 %

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Duty Factor (dB)	Total Value (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Middle	5 210.00	15.17	0.33	15.50	23.98	8.48
5 725 ~ 5 850	Middle	5 775.00	16.32	0.33	16.65	30.00	13.35

Remark : Margin = Limit –Total Value (=Measured Value +Duty Factor)

11. POWER SPECTRAL DENSITY

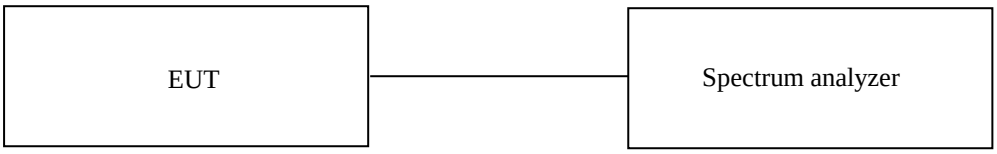
11.1 Operating environment

Temperature : 24 °C

Relative humidity : 45 % R.H.

11.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz(UNII 1) and 500 kHz(UNII 3), the video bandwidth is set to 3 times the resolution bandwidth. The maximum level for the EUT in 1 MHz bandwidth was measured with above condition



11.3 Test Date

September 09, 2024 ~ October 12, 2024

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11.4 Test data for 802.11a RLAN Mode

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

Frequency range (MHz)	Channel	Frequency (MHz)	Measured Value (dBm)	Duty Factor (dB)	Result value (dBm)	Limit (dBm / MHz)	Margin (dB)
5 150 ~ 5 250	Low	5 180.00	4.83	0.08	4.91	11.00	6.09
	Middle	5 220.00	4.24	0.08	4.32	11.00	6.68
	High	5 240.00	3.30	0.08	3.38	11.00	7.62
5 725 ~ 5 850	Low	5 745.00	2.31	0.08	2.39	30.00	27.61
	Middle	5 785.00	2.33	0.08	2.41	30.00	27.59
	High	5 825.00	2.05	0.08	2.13	30.00	27.87

Remark.1: Power Spectral Density = Measured Value + Duty Cycle Factor

11.5 Test data for 802.11n(HT20) RLAN Mode

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

Frequency range (MHz)	Channel	Frequency (MHz)	Measured Value (dBm)	Duty Factor (dB)	Result value (dBm)	Limit (dBm / MHz)	Margin (dB)
5 150 ~ 5 250	Low	5 180.00	4.14	0.08	4.22	11.00	6.78
	Middle	5 220.00	3.79	0.08	3.87	11.00	7.13
	High	5 240.00	3.81	0.08	3.89	11.00	7.11
5 725 ~ 5 850	Low	5 745.00	1.69	0.08	1.77	30.00	28.23
	Middle	5 785.00	1.44	0.08	1.52	30.00	28.48
	High	5 825.00	1.75	0.08	1.83	30.00	28.17

Remark.1: Power Spectral Density = Measured Value + Duty Cycle Factor

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11.6 Test data for 802.11n(HT40) RLAN Mode

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Duty Factor (dB)	Result Value (dBm)	LIMIT (dBm / MHz)	MARGIN (dB)
5 150 ~ 5 250	Low	5 190.00	1.61	0.16	1.77	11.00	9.23
	High	5 230.00	1.82	0.16	1.98	11.00	9.02
5 725 ~ 5 850	Low	5 755.00	-1.67	0.16	-1.51	30.00	31.51
	High	5 795.00	-1.58	0.16	-1.42	30.00	31.42

Remark.1: Power Spectral Density = Measured Value + Duty Cycle Factor

11.7 Test data for 802.11ac_HT80 RLAN Mode

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Duty Factor (dB)	Result VALUE (dBm)	LIMIT (dBm / MHz)	MARGIN (dB)
5 150 ~ 5 250	Low	5 210.00	-2.01	0.33	-1.68	11.00	12.68
5 725 ~ 5 850	Low	5 775.00	-4.06	0.33	-3.73	30.00	33.73

Remark.1: Power Spectral Density = Measured Value + Duty Cycle Factor

12. FREQUENCY STABILITY WITH TEMPERATURE VARIATION

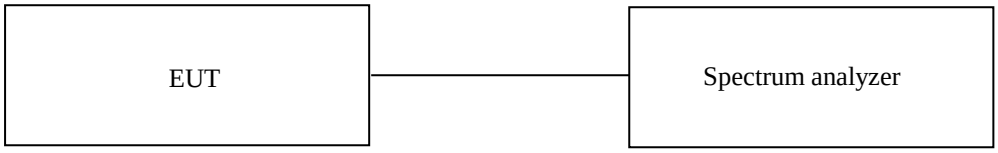
12.1 Operating environment

Temperature : 24 °C

Relative humidity : 45 % R.H.

12.2 Test set-up

Turn EUT off and set chamber temperature to -20 °C and then allow sufficient time (approximately 20 min to 30 min after chamber reach the assigned temperature) for EUT to stabilize. Turn on the EUT and measure the EUT operating frequency and then turn off the EUT after the measurement. The temperature in the chamber was raised 10 °C step from -20 °C to +80 °C. Repeat above method for frequency measurements every 10 °C step and then record all measured frequencies on each temperature step.



12.3 Test Date

September 09, 2024 ~ October 12, 2024

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12.4 Test Data for U-NII-1

-. Result : Pass

Temperature (˚C)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (Hz)
-20	5 180 000 000	5 179 953 940	-46 060
-10		5 179 948 550	-51 450
0		5 179 936 670	-63 330
10		5 179 933 212	-66 788
20		5 179 928 651	-71 349
30		5 179 921 893	-78 107
40		5 179 915 466	-84 534
50		5 179 914 988	-85 012
-20	5 220 000 000	5 219 954 346	-45 654
-10		5 219 946 389	-53 611
0		5 219 933 428	-66 572
10		5 219 930 507	-69 493
20		5 219 926 108	-73 892
30		5 219 923 961	-76 039
40		5 219 917 842	-82 158
50		5 219 914 614	-85 386
-20	5 240 000 000	5 239 953 796	-46 204
-10		5 239 948 012	-51 988
0		5 239 940 332	-59 668
10		5 239 932 162	-67 838
20		5 239 925 317	-74 683
30		5 239 923 745	-76 255
40		5 239 916 842	-83 158
50		5 239 914 305	-85 695

Note : While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.(ANSI C63.10-2013)

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12.5 Test Data for U-NII-3

-. Result : Pass

Temperature (˚C)	Carrier Freq. (Hz)	Measured Freq. (Hz)	**Frequency Error (Hz)**
-20	5 745 000 000	5 744 947 927	-52 073
-10		5 744 942 136	-57 864
0		5 744 921 226	-78 774
10		5 744 918 348	-81 652
20		5 744 913 406	-86 594
30		5 744 910 003	-89 997
40		5 744 909 482	-90 518
50		5 744 905 600	-94 400
-20	5 785 000 000	5 784 948 829	-51 171
-10		5 784 944 238	-55 762
0		5 784 931 023	-68 977
10		5 784 922 567	-77 433
20		5 784 914 914	-85 086
30		5 784 912 674	-87 326
40		5 784 906 123	-93 877
50		5 784 905 147	-94 853
-20	5 825 000 000	5 824 948 315	-51 685
-10		5 824 936 024	-63 976
0		5 824 929 667	-70 333
10		5 824 918 036	-81 964
20		5 824 914 331	-85 669
30		5 824 907 899	-92 101
40		5 824 905 104	-94 896
50		5 824 904 687	-95 313

Note : While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.(ANSI C63.10-2013)

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13. FREQUENCY STABILITY WITH VOLTAGE VARIATION

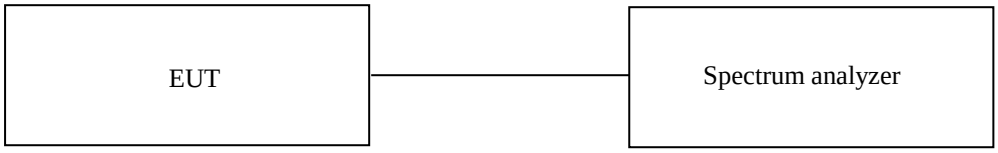
13.1 Operating environment

Temperature : 24 °C

Relative humidity : 45 % R.H.

13.2 Test set-up

An external DC power supply was connected to the input of the EUT. The voltage of EUT set to 110.0 % of the nominal value and then was reduced to 90.0 % of nominal voltage. The output frequency was recorded at each step.



13.3 Test Date

September 09, 2024 ~ October 12, 2024

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13.4 Test Data for U-NII-1

-. Result : Pass

Voltage (VDC)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (Hz)
3.24	5 180 000 000	5 179 928 522	-71 478
3.60		5 179 928 723	-71 277
3.96		5 179 928 835	-71 165
3.24	5 220 000 000	5 219 927 019	-72 981
3.60		5 219 927 206	-72 794
3.96		5 219 928 835	-71 165
3.24	5 240 000 000	5 239 925 254	-74 746
3.60		5 239 925 441	-74 559
3.96		5 239 925 584	-74 416

13.5 Test Data for U-NII-3

-. Result : Pass

Voltage (VDC)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (Hz)
3.24	5 745 000 000	5 744 913 255	-86 745
3.60		5 744 913 489	-86 511
3.96		5 744 913 858	-86 142
3.24	5 785 000 000	5 784 914 881	-85 119
3.60		5 784 915 011	-84 989
3.96		5 784 914 957	-85 043
3.24	5 825 000 000	5 824 914 029	-85 971
3.60		5 824 914 298	-85 702
3.96		5 824 914 452	-85 548

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14. RADIATED SPURIOUS EMISSIONS

14.1 Operating environment

Temperature : 24 °C

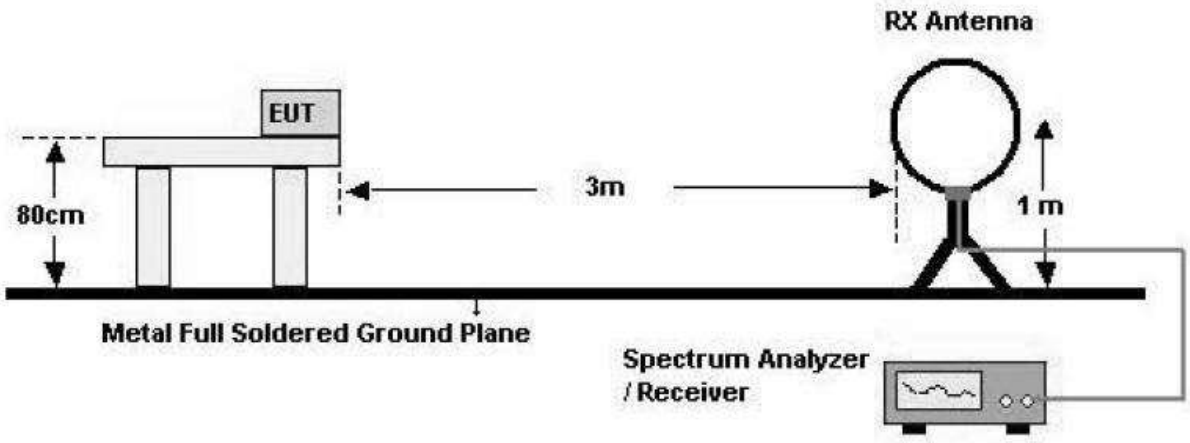
Relative humidity : 45 % R.H.

14.2 Test set-up for conducted measurement

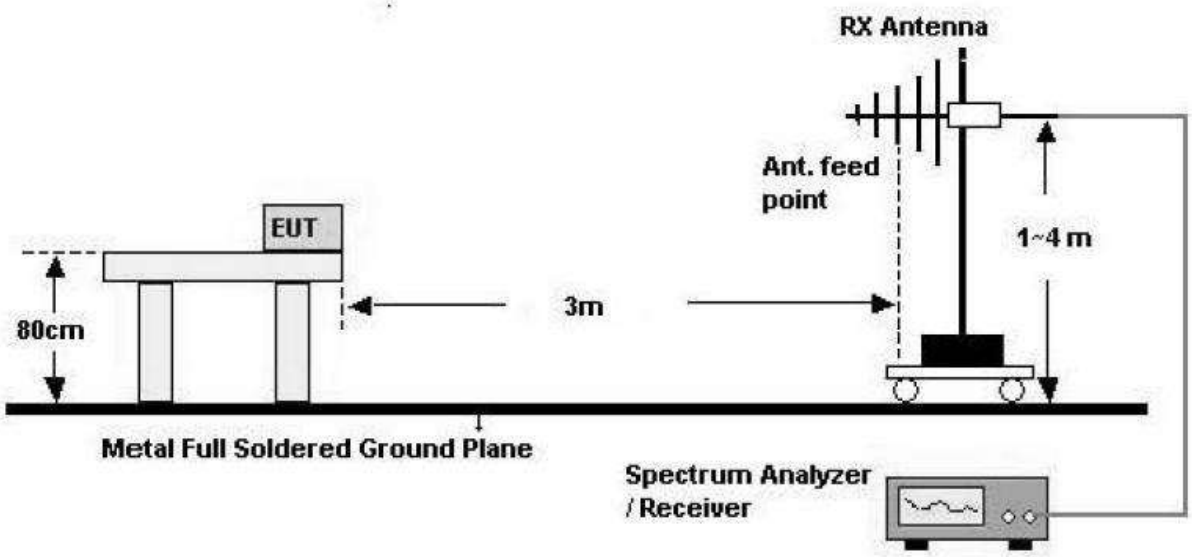
The radiated emissions measurements were on the 3 m semi anechoic chamber. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the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

The frequency spectrum from 30 MHz to 40 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.

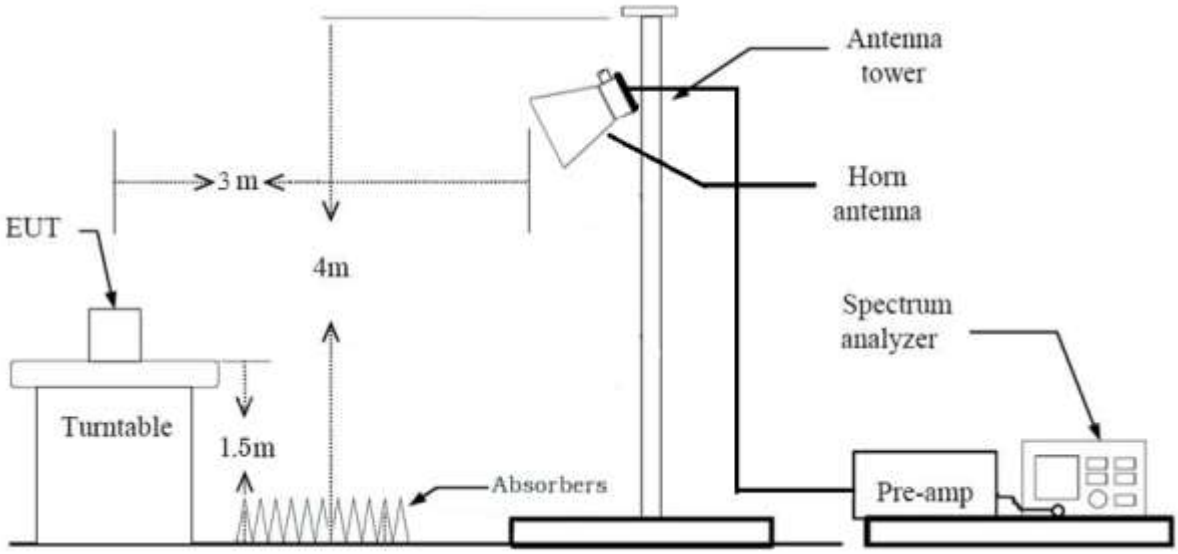
1. Below 30 MHz



2. 30 MHz - 1 GHz



3. Above 1 GHz



14.3 Test Date

September 09, 2024 ~ October 12, 2024

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

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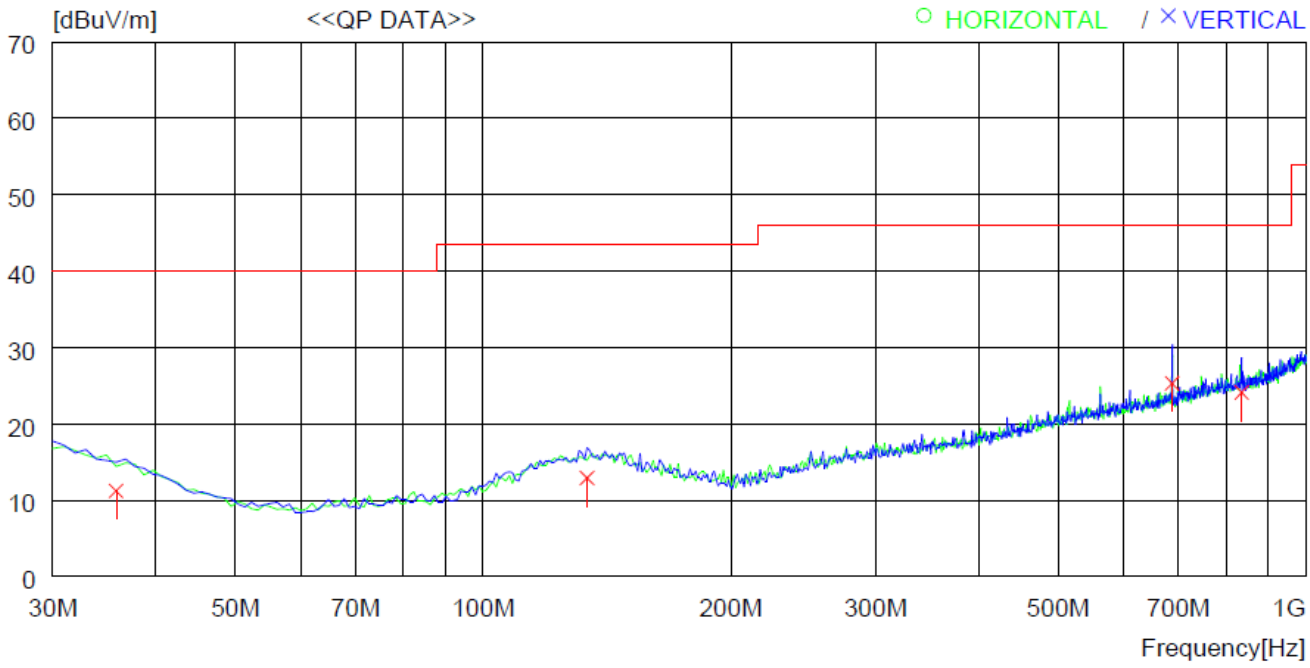
14.5 Test data for 30 MHz ~ 1 000 MHz

Limits apply to : FCC CFR 47, PART 15, SUBPART E, SECTION 15.407

Result : PASSED

EUT : LINKFLOW BOLD

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]
----- Vertical ------										
1	35.820	23.5	19.0	0.8	32.1	11.2	40.0	28.8	200	359
2	133.790	24.3	19.2	1.5	32.1	12.9	43.5	30.6	100	293
3	687.655	28.9	25.4	3.4	32.4	25.3	46.0	20.7	100	0
4	835.091	25.2	27.3	3.8	32.2	24.1	46.0	21.9	100	191

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14.6 Test data for Above 1 GHz

14.6.1 Test data for Frequency UNII I

14.6.1.1 Test data for 802.11a RLAN 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
1 MHz and Peak Detector for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 98.24 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	Duty (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Multiple Transmit										
10 369.89	50.97	Peak	H	39.44	10.01	42.19	-	58.23	68.20	9.97
10 381.33	50.16	Peak	V	39.46	10.01	42.19	-	57.44	68.20	10.76
10 460.38	50.43	Peak	H	39.62	9.80	42.19	-	57.66	68.20	10.54
10 416.47	50.35	Peak	V	39.53	10.01	42.19	-	57.70	68.20	10.50
10 487.44	50.84	Peak	H	39.67	9.80	42.19	-	58.12	68.20	10.08
10 504.68	51.10	Peak	V	39.70	9.80	42.19	-	58.41	68.20	9.79

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

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

14.6.1.2 Test data for 802.11n(HT20) RLAN 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
1 MHz and Peak Detector for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 98.11 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	Duty (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Multiple Transmit										
10 345.12	49.64	Peak	H	39.39	9.62	42.19	-	56.46	68.20	11.74
10 381.93	49.97	Peak	V	39.46	10.01	42.19	-	57.25	68.20	10.95
10 418.67	50.32	Peak	H	39.54	10.01	42.19	-	57.68	68.20	10.52
10 458.88	50.04	Peak	V	39.62	9.80	42.19	-	57.27	68.20	10.93
10 486.29	50.40	Peak	H	39.67	9.80	42.19	-	57.68	68.20	10.52
10 472.51	50.16	Peak	V	39.65	9.80	42.19	-	57.42	68.20	10.78

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

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

14.6.1.3 Test data for 802.11n(HT40) RLAN 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
1 MHz and Peak Detector for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 96.34 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	Duty (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Multiple Transmit										
10 406.07	50.22	Peak	H	39.51	10.01	42.19	-	57.55	68.20	10.65
10 420.76	50.01	Peak	V	39.54	10.01	42.19	-	57.37	68.20	10.83
10 499.06	50.65	Peak	H	39.70	9.80	42.19	-	57.96	68.20	10.24
10 485.87	50.37	Peak	V	39.67	9.80	42.19	-	57.65	68.20	10.55

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

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

14.6.1.4 Test data for 802.11ac(VHT80) RLAN 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
1 MHz and Peak Detector for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 92.79 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	Duty (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Multiple Transmit										
10 492.13	49.93	Peak	H	39.68	9.80	42.19	-	57.22	68.20	10.98
10 492.53	49.90	Peak	V	39.69	9.80	42.19	-	57.20	68.20	11.00

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

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

14.6.2 Test data for Frequency UNII 3

14.6.2.1 Test data for 802.11a RLAN 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
1 MHz and Peak Detector for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 98.24 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	Duty (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Multiple Transmit										
11 493.20	50.07	Peak	H	40.09	10.12	42.35	-	57.93	74.00	16.07
11 494.20	37.71	Average	H	40.09	10.12	42.35	0.08	45.65	54.00	8.35
11 467.12	50.12	Peak	V	40.03	10.12	42.35	-	57.92	74.00	16.08
11 499.99	37.64	Average	V	40.10	10.12	42.35	0.08	45.59	54.00	8.41
11 575.15	49.22	Peak	H	39.90	10.14	42.31	-	56.95	74.00	17.05
11 567.35	37.26	Average	H	39.93	10.14	42.31	0.08	45.10	54.00	8.90
11 558.76	49.62	Peak	V	39.96	10.14	42.32	-	57.40	74.00	16.60
11 545.82	37.20	Average	V	40.01	10.12	42.32	0.08	45.09	54.00	8.91
11 633.47	47.93	Peak	H	39.67	10.14	42.28	-	55.46	74.00	18.54
11 629.97	36.63	Average	H	39.68	10.14	42.28	0.08	44.25	54.00	9.75
11 625.38	48.55	Peak	V	39.70	10.14	42.28	-	56.11	74.00	17.89
11 630.17	36.68	Average	V	39.68	10.14	42.28	0.08	44.30	54.00	9.70

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

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

14.6.2.2 Test data for 802.11n(HT20) RLAN 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
1 MHz and Peak Detector for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 98.11 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	Duty (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Multiple Transmit										
11 468.22	49.88	Peak	H	40.04	10.12	42.35	-	57.69	74.00	16.31
11 488.70	37.68	Average	H	40.08	10.12	42.35	0.08	45.61	54.00	8.39
11 495.35	49.99	Peak	V	40.09	10.12	42.35	-	57.85	74.00	16.15
11 495.74	37.70	Average	V	40.09	10.12	42.35	0.08	45.64	54.00	8.36
11 564.41	49.70	Peak	H	39.94	10.14	42.31	-	57.47	74.00	16.53
11 556.16	37.23	Average	H	39.98	10.14	42.32	0.08	45.11	54.00	8.89
11 574.00	49.57	Peak	V	39.90	10.14	42.31	-	57.30	74.00	16.70
11 555.91	37.32	Average	V	39.98	10.14	42.32	0.08	45.20	54.00	8.80
11 662.79	48.55	Peak	H	39.55	10.17	42.26	-	56.01	74.00	17.99
11 625.62	36.77	Average	H	39.70	10.14	42.28	0.08	44.41	54.00	9.59
11 630.12	48.86	Peak	V	39.68	10.14	42.28	-	56.40	74.00	17.60
11 630.22	36.68	Average	V	39.68	10.14	42.28	0.08	44.30	54.00	9.70

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

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

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14.6.2.3 Test data for 802.11n(HT40) RLAN 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
1 MHz and Peak Detector for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 96.34 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	Duty (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Multiple Transmit										
11 494.42	50.28	Peak	H	40.09	10.12	42.35	-	58.14	74.00	15.86
11 483.43	38.36	Average	H	40.07	10.12	42.35	0.16	46.36	54.00	7.64
11 466.04	49.64	Peak	V	40.03	10.12	42.35	-	57.44	74.00	16.56
11 485.72	37.52	Average	V	40.07	10.12	42.35	0.16	45.52	54.00	8.48
11 597.29	50.18	Peak	H	39.81	10.14	42.30	-	57.83	74.00	16.17
11 556.23	37.51	Average	H	39.98	10.14	42.32	0.16	45.47	54.00	8.53
11 550.24	49.19	Peak	V	40.00	10.14	42.32	-	57.01	74.00	16.99
11 543.35	37.33	Average	V	40.01	10.12	42.33	0.16	45.29	54.00	8.71

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

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

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14.6.2.4 Test data for 802.11ac(VHT80) RLAN 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
1 MHz and Peak Detector for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 92.79 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	Duty (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Multiple Transmit										
11 488.46	48.70	Peak	H	40.08	10.12	42.35	-	56.55	74.00	17.45
11 482.07	37.20	Average	H	40.06	10.12	42.35	0.33	45.36	54.00	8.64
11 513.64	49.07	Peak	V	40.07	10.12	42.34	-	56.92	74.00	17.08
11 499.25	37.27	Average	V	40.10	10.12	42.35	0.33	45.47	54.00	8.53

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

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

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15. RADIATED RESTRICTED BAND EDGE MEASUREMENTS

15.1 Operating environment

Temperature : 24 °C

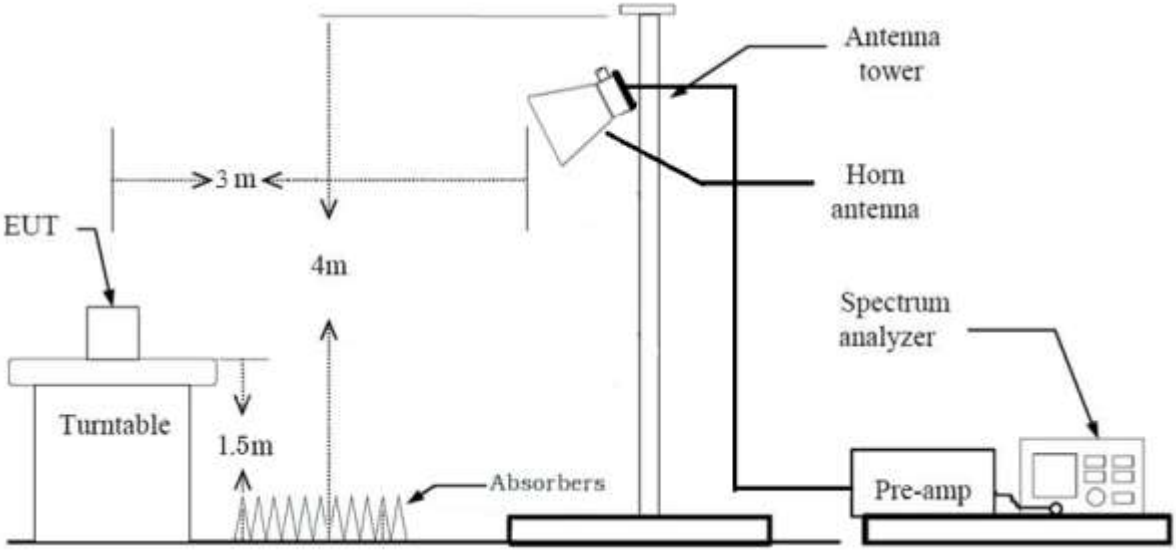
Relative humidity : 45 % R.H.

15.2 Test set-up for conducted measurement

The radiated emissions measurements were performed on the 3 m, open-field test site. The EUT was placed on a non-conductive turntable above the ground plane.

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.

1. Above 1 GHz



15.3 Test Date

September 09, 2024 ~ October 12, 2024

15.4 Test data for Frequency UNII I

15.4.1 Test data for 802.11a RLAN 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 : 98.24 %

-. Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBuV/m)	Limits (dBuV/m)	Margin (dB)
Multiple Transmit											
4 781.58	53.95	Peak	H	31.16	6.21	41.30	6.11	-	56.13	74.00	17.87
4 711.61	42.16	Average	H	31.10	6.19	41.31	6.12	0.08	44.34	54.00	9.66
4 721.80	53.44	Peak	V	31.10	6.19	41.31	6.12	-	55.54	74.00	18.46
4 766.63	42.07	Average	V	31.13	6.33	41.30	6.12	0.08	44.43	54.00	9.57

Tabulated test data for Restricted Band

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

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

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15.4.2 Test data for 802.11n(HT20) RLAN 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 : 98.11 %

-. Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBuV/m)	Limits (dBuV/m)	Margin (dB)
Multiple Transmit											
4 800.60	53.15	Peak	H	31.20	6.21	41.29	6.11	-	55.38	74.00	18.62
4 751.01	42.13	Average	H	31.10	6.33	41.30	6.12	0.08	44.46	54.00	9.54
4 672.21	52.59	Peak	V	31.10	6.16	41.33	6.13	-	54.65	74.00	19.35
4 748.29	42.10	Average	V	31.10	6.38	41.31	6.12	0.08	44.47	54.00	9.53

Tabulated test data for Restricted Band

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

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

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15.4.3 Test data for 802.11n(HT40) RLAN 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 : 96.34 %

-. Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBuV/m)	Limits (dBuV/m)	Margin (dB)
Multiple Transmit											
4 733.33	53.11	Peak	H	31.10	6.38	41.31	6.12	-	55.40	74.00	18.60
4 762.28	41.87	Average	H	31.12	6.33	41.30	6.12	0.16	44.30	54.00	9.70
4 686.46	53.95	Peak	V	31.10	6.19	41.32	6.12	-	56.04	74.00	17.96
4 689.22	42.05	Average	V	31.10	6.19	41.32	6.12	0.16	44.30	54.00	9.70

Tabulated test data for Restricted Band

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

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

15.4.4 Test data for 802.11ac(VHT80) RLAN 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 : 92.79 %

-. Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBuV/m)	Limits (dBuV/m)	Margin (dB)
Multiple Transmit											
5 124.53	52.90	Peak	H	31.90	6.50	41.25	6.13	-	56.18	74.00	17.82
4 775.56	42.13	Average	H	31.15	6.21	41.30	6.11	0.33	44.63	54.00	9.37
5 136.59	52.97	Peak	V	31.90	6.51	41.25	6.13	-	56.26	74.00	17.74
5 147.94	42.65	Average	V	31.90	6.51	41.25	6.13	0.33	46.27	54.00	7.73

Tabulated test data for Restricted Band

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

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

15.5 Test data for Frequency U-NII-3

15.5.1 Test data for 802.11a RLAN 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 : 98.24 %

-. Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBuV/m)	Limits (dBuV/m)	Margin (dB)
Multiple Transmit											
5 650.67	48.34	Peak	H	32.00	6.79	41.31	6.13	-	51.95	68.70	16.75
5 700.27	48.10	Peak	H	32.00	6.77	41.32	6.12	-	51.67	105.28	53.61
5 720.28	48.56	Peak	H	32.04	6.77	41.32	6.12	-	52.17	111.44	59.27
5 854.95	48.63	Peak	H	32.31	6.74	41.34	6.12	-	52.46	110.91	58.45
5 874.09	48.63	Peak	H	32.35	6.74	41.34	6.12	-	52.50	105.45	52.95
5 924.92	49.15	Peak	H	32.50	6.83	41.35	6.13	-	53.26	68.26	15.00
5 650.17	47.46	Peak	V	32.00	6.79	41.31	6.13	-	51.07	68.33	17.26
5 700.03	48.23	Peak	V	32.00	6.77	41.32	6.12	-	51.80	105.21	53.41
5 723.07	57.57	Peak	V	32.05	6.77	41.32	6.12	-	61.19	117.80	56.61
5 854.87	49.36	Peak	V	32.31	6.74	41.34	6.12	-	53.19	111.10	57.91
5 874.25	49.25	Peak	V	32.35	6.74	41.34	6.12	-	53.12	105.41	52.29
5 923.93	48.68	Peak	V	32.50	6.83	41.35	6.13	-	52.79	68.99	16.20

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBuV/m)	Limits (dBuV/m)	Margin (dB)
Multiple Transmit											
5 650.32	47.65	Peak	H	32.00	6.79	41.31	6.13	-	51.26	68.44	17.18
5 700.79	48.74	Peak	H	32.00	6.77	41.32	6.12	-	52.31	105.42	53.11
5 720.03	47.68	Peak	H	32.04	6.77	41.32	6.12	-	51.29	110.87	59.58
5 854.70	49.10	Peak	H	32.31	6.74	41.34	6.12	-	52.93	111.48	58.55
5 874.93	48.17	Peak	H	32.35	6.74	41.34	6.12	-	52.04	105.22	53.18
5 924.38	47.80	Peak	H	32.50	6.83	41.35	6.13	-	51.91	68.66	16.75
5 650.32	48.50	Peak	V	32.00	6.79	41.31	6.13	-	52.11	68.44	16.33
5 702.35	49.36	Peak	V	32.00	6.77	41.32	6.12	-	52.93	105.86	52.93
5 720.12	48.62	Peak	V	32.04	6.77	41.32	6.12	-	52.23	111.07	58.84
5 854.35	50.27	Peak	V	32.31	6.74	41.34	6.12	-	54.10	112.28	58.18
5 872.71	49.75	Peak	V	32.35	6.74	41.34	6.12	-	53.62	105.84	52.22
5 924.18	48.89	Peak	V	32.50	6.83	41.35	6.13	-	53.00	68.81	15.81

Tabulated test data for Restricted Band

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

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

15.5.2 Test data for 802.11n(HT20) RLAN 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 : 98.11 %

-. Result : Pass

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBuV/m)	Limits (dBuV/m)	Margin (dB)
Multiple Transmit											
5 651.72	49.89	Peak	H	32.00	6.79	41.31	6.13	-	53.50	69.47	15.97
5 700.71	48.96	Peak	H	32.00	6.77	41.32	6.12	-	52.53	105.40	52.87
5 720.05	47.75	Peak	H	32.04	6.77	41.32	6.12	-	51.36	110.91	59.55
5 854.94	47.95	Peak	H	32.31	6.74	41.34	6.12	-	51.78	110.94	59.16
5 872.77	48.16	Peak	H	32.35	6.74	41.34	6.12	-	52.03	105.82	53.79
5 924.68	47.57	Peak	H	32.50	6.83	41.35	6.13	-	51.68	68.44	16.76
5 650.42	48.72	Peak	V	32.00	6.79	41.31	6.13	-	52.33	68.51	16.18
5 703.89	49.63	Peak	V	32.01	6.77	41.32	6.12	-	53.21	106.29	53.08
5 720.05	51.88	Peak	V	32.04	6.77	41.32	6.12	-	55.49	110.91	55.42
5 854.42	49.27	Peak	V	32.31	6.74	41.34	6.12	-	53.10	112.12	59.02
5 872.61	48.82	Peak	V	32.35	6.74	41.34	6.12	-	52.69	105.87	53.18
5 924.18	48.84	Peak	V	32.50	6.83	41.35	6.13	-	52.95	68.81	15.86

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Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBuV/m)	Limits (dBuV/m)	Margin (dB)
Multiple Transmit											
5 650.97	47.87	Peak	H	32.00	6.79	41.31	6.13	-	51.48	68.92	17.44
5 700.23	48.29	Peak	H	32.00	6.77	41.32	6.12	-	51.86	105.26	53.40
5 720.18	48.75	Peak	H	32.04	6.77	41.32	6.12	-	52.36	111.21	58.85
5 854.95	48.51	Peak	H	32.31	6.74	41.34	6.12	-	52.34	110.91	58.57
5 874.93	48.37	Peak	H	32.35	6.74	41.34	6.12	-	52.24	105.22	52.98
5 924.48	48.41	Peak	H	32.50	6.83	41.35	6.13	-	52.52	68.58	16.06
5 650.22	47.19	Peak	V	32.00	6.79	41.31	6.13	-	50.80	68.36	17.56
5 700.35	48.28	Peak	V	32.00	6.77	41.32	6.12	-	51.85	105.30	53.45
5 720.14	49.48	Peak	V	32.04	6.77	41.32	6.12	-	53.09	111.12	58.03
5 854.39	50.19	Peak	V	32.31	6.74	41.34	6.12	-	54.02	112.19	58.17
5 874.77	48.71	Peak	V	32.35	6.74	41.34	6.12	-	52.58	105.26	52.68
5 924.78	47.61	Peak	V	32.50	6.83	41.35	6.13	-	51.72	68.36	16.64

Tabulated test data for Restricted Band

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

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

15.5.3 Test data for 802.11n(HT40) RLAN 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 : 96.34 %

-. Result : Pass

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBuV/m)	Limits (dBuV/m)	Margin (dB)
Multiple Transmit											
5 650.27	47.90	Peak	H	32.00	6.79	41.31	6.13	-	51.51	68.40	16.89
5 703.55	49.49	Peak	H	32.01	6.77	41.32	6.12	-	53.07	106.19	53.12
5 720.11	49.29	Peak	H	32.04	6.77	41.32	6.12	-	52.90	111.05	58.15
5 854.56	50.47	Peak	H	32.31	6.74	41.34	6.12	-	54.30	111.80	57.50
5 873.65	48.50	Peak	H	32.35	6.74	41.34	6.12	-	52.37	105.58	53.21
5 924.18	48.44	Peak	H	32.50	6.83	41.35	6.13	-	52.55	68.81	16.26
5 650.72	47.29	Peak	V	32.00	6.79	41.31	6.13	-	50.90	68.73	17.83
5 716.77	56.55	Peak	V	32.03	6.77	41.32	6.12	-	60.15	109.90	49.75
5 720.02	56.08	Peak	V	32.04	6.77	41.32	6.12	-	59.69	110.85	51.16
5 854.99	47.97	Peak	V	32.31	6.74	41.34	6.12	-	51.80	110.82	59.02
5 874.13	48.04	Peak	V	32.35	6.74	41.34	6.12	-	51.91	105.44	53.53
5 923.58	48.82	Peak	V	32.49	6.83	41.35	6.13	-	52.92	69.25	16.33

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Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBuV/m)	Limits (dBuV/m)	Margin (dB)
Multiple Transmit											
5 650.22	47.91	Peak	H	32.00	6.79	41.31	6.13	-	51.52	68.36	16.84
5 700.67	48.36	Peak	H	32.00	6.77	41.32	6.12	-	51.93	105.39	53.46
5 720.00	47.82	Peak	H	32.04	6.77	41.32	6.12	-	51.43	110.80	59.37
5 854.86	48.27	Peak	H	32.31	6.74	41.34	6.12	-	52.10	111.12	59.02
5 873.67	48.47	Peak	H	32.35	6.74	41.34	6.12	-	52.34	105.57	53.23
5 924.08	48.45	Peak	H	32.50	6.83	41.35	6.13	-	52.56	68.88	16.32
5 650.67	47.51	Peak	V	32.00	6.79	41.31	6.13	-	51.12	68.70	17.58
5 700.09	48.16	Peak	V	32.00	6.77	41.32	6.12	-	51.73	105.23	53.50
5 720.19	47.93	Peak	V	32.04	6.77	41.32	6.12	-	51.54	111.23	59.69
5 854.77	48.75	Peak	V	32.31	6.74	41.34	6.12	-	52.58	111.32	58.74
5 872.17	49.52	Peak	V	32.34	6.74	41.34	6.12	-	53.38	105.99	52.61
5 923.88	49.16	Peak	V	32.50	6.83	41.35	6.13	-	53.27	69.03	15.76

Tabulated test data for Restricted Band

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

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

15.5.4 Test data for 802.11ac(VHT80) RLAN 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 : 92.79 %

-. Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBuV/m)	Limits (dBuV/m)	Margin (dB)
Multiple Transmit											
5 650.52	47.05	Peak	H	32.00	6.79	41.31	6.13	-	50.66	68.58	17.92
5 701.07	48.63	Peak	H	32.00	6.77	41.32	6.12	-	52.20	105.50	53.30
5 720.02	48.51	Peak	H	32.04	6.77	41.32	6.12	-	52.12	110.85	58.73
5 854.87	48.04	Peak	H	32.31	6.74	41.34	6.12	-	51.87	111.10	59.23
5 874.93	49.21	Peak	H	32.35	6.74	41.34	6.12	-	53.08	105.22	52.14
5 924.92	47.17	Peak	H	32.50	6.83	41.35	6.13	-	51.28	68.26	16.98
5 650.08	46.91	Peak	V	32.00	6.79	41.31	6.13	-	50.52	68.26	17.74
5 701.99	53.75	Peak	V	32.00	6.77	41.32	6.12	-	57.32	105.76	48.44
5 720.55	57.71	Peak	V	32.04	6.77	41.32	6.12	-	61.32	112.05	50.73
5 854.99	55.33	Peak	V	32.31	6.74	41.34	6.12	-	59.16	110.82	51.66
5 872.07	55.55	Peak	V	32.34	6.74	41.34	6.12	-	59.41	106.02	46.61
5 924.13	47.68	Peak	V	32.50	6.83	41.35	6.13	-	51.79	68.84	17.05

Tabulated test data for Restricted Band

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

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

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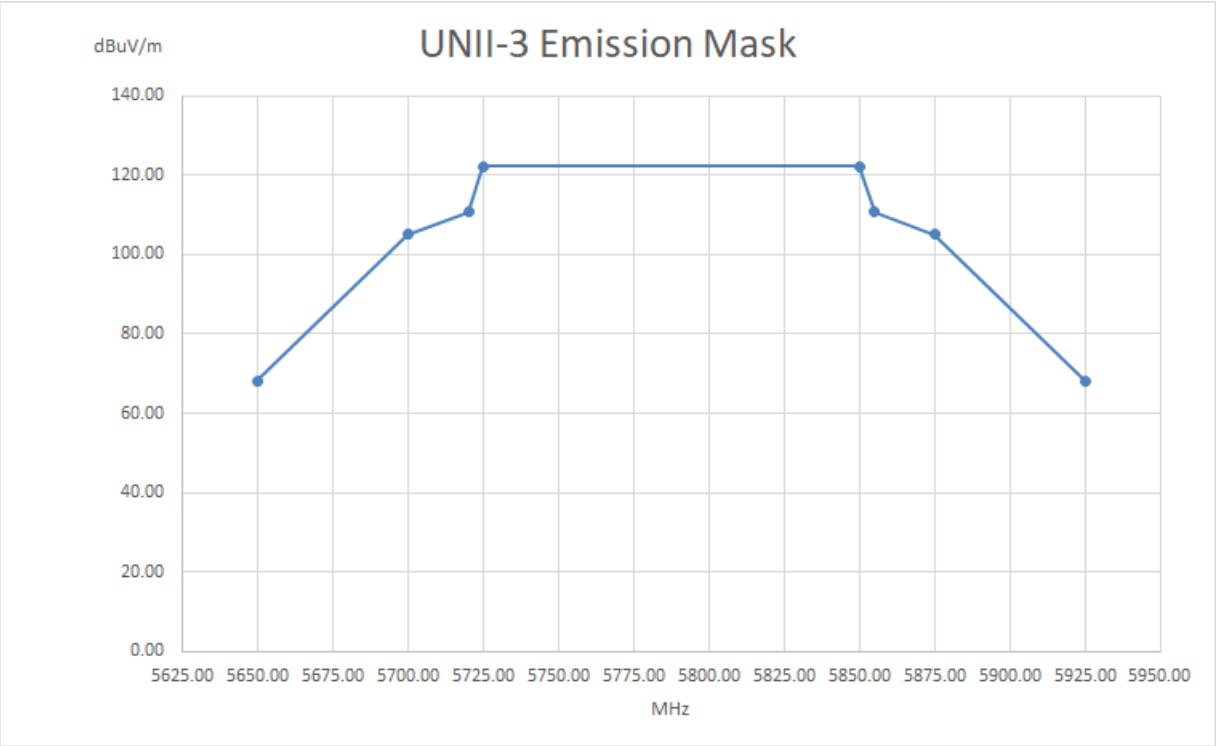
15.5.5 U-NII-3 Emission Limits

15.5.5.1 Emission Mask Plots



Remark.

-. Title 47 → Part 15 → Subpart E—UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE DEVICES

§ 15.407 General technical requirements.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

16. CONDUCTED EMISSION TEST

16.1 Operating environment

Temperature : 24 °C

Relative humidity : 45 % R.H.

16.2 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 Ω / 50 μH + 5 Ω Artificial Mains Network (AMN). The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

16.3 Test Date

September 09, 2024 ~ October 12, 2024

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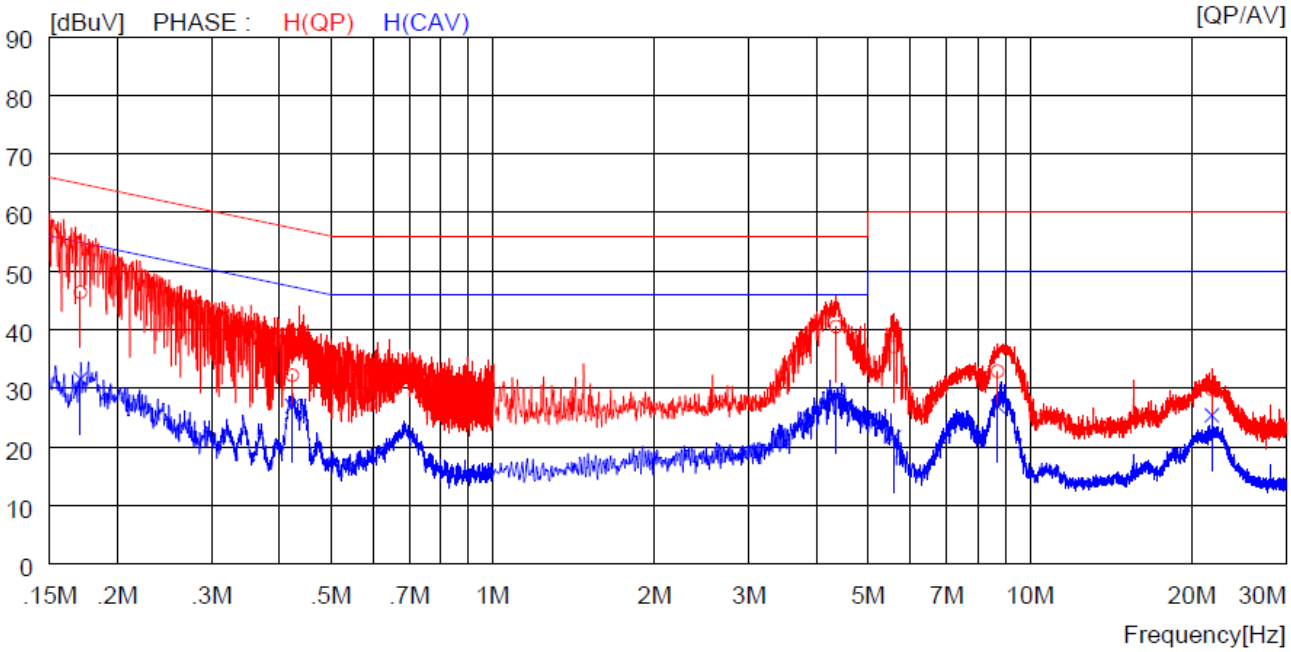
16.4 Test data

-. Resolution bandwidth : 9 kHz

-. Frequency range : 0.15 MHz ~ 30 MHz

-. Tested Line : HOT LINE



NO	FREQ	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.17100	36.3	----	10.1	46.4	----	64.9	----	18.5	----	H(QP)
2	0.42400	22.1	----	10.1	32.2	----	57.4	----	25.2	----	H(QP)
3	4.36000	30.3	----	10.2	40.5	----	56.0	----	15.5	----	H(QP)
4	5.58500	26.8	----	10.3	37.1	----	60.0	----	22.9	----	H(QP)
5	8.72000	22.6	----	10.3	32.9	----	60.0	----	27.1	----	H(QP)
6	21.80000	19.1	----	10.7	29.8	----	60.0	----	30.2	----	H(QP)
7	0.17100	----	21.5	10.1	----	31.6	----	54.9	----	23.3	H(CAV)
8	0.42400	----	16.9	10.1	----	27.0	----	47.4	----	20.4	H(CAV)
9	4.36000	----	18.3	10.2	----	28.5	----	46.0	----	17.5	H(CAV)
10	5.58500	----	11.4	10.3	----	21.7	----	50.0	----	28.3	H(CAV)
11	8.72000	----	16.6	10.3	----	26.9	----	50.0	----	23.1	H(CAV)
12	21.80000	----	14.7	10.7	----	25.4	----	50.0	----	24.6	H(CAV)

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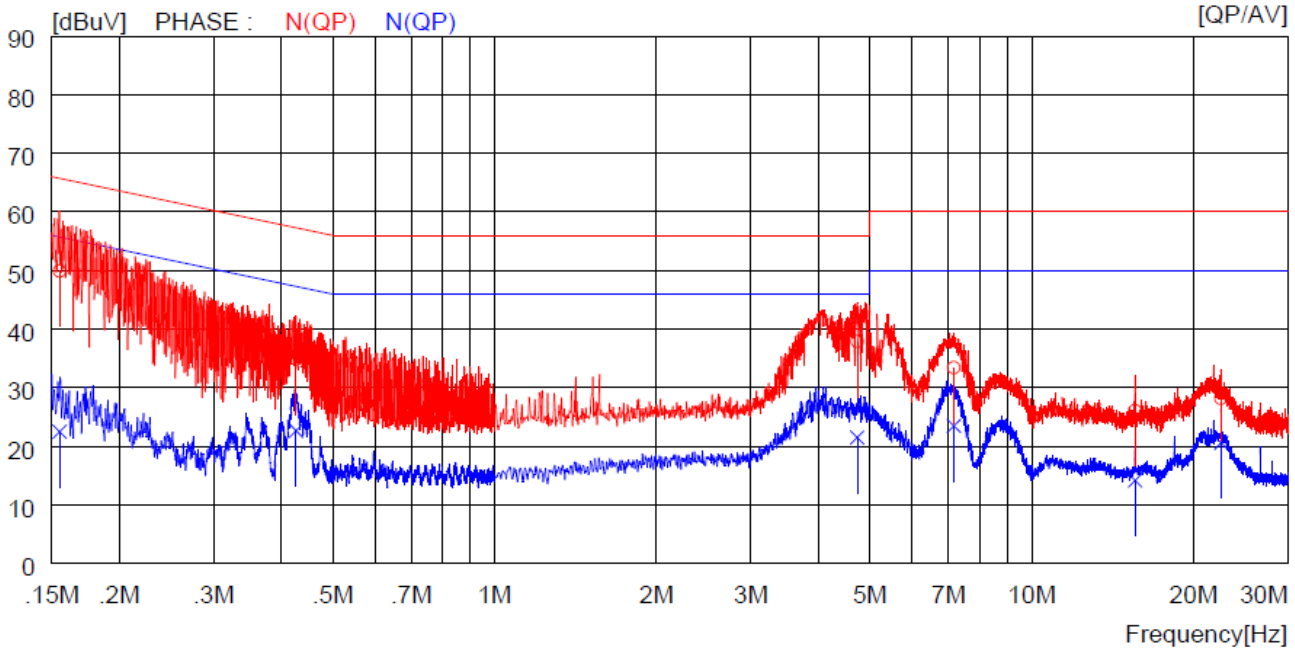
-. Tested Line : NEUTRAL LINE



NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.15500	39.8	----	10.1	49.9	----	65.7	----	15.8	----	N(QP)
2	0.42700	24.8	----	10.1	34.9	----	57.3	----	22.4	----	N(QP)
3	4.73200	27.6	----	10.3	37.9	----	56.0	----	18.1	----	N(QP)
4	7.16500	23.1	----	10.3	33.4	----	60.0	----	26.6	----	N(QP)
5	15.58000	15.5	----	10.6	26.1	----	60.0	----	33.9	----	N(QP)
6	22.53000	17.5	----	10.7	28.2	----	60.0	----	31.8	----	N(QP)
7	0.15500	----	12.4	10.1	----	22.5	----	55.7	----	33.2	N(CAV)
8	0.42700	----	12.6	10.1	----	22.7	----	47.3	----	24.6	N(CAV)
9	4.73200	----	11.2	10.3	----	21.5	----	46.0	----	24.5	N(CAV)
10	7.16500	----	13.2	10.3	----	23.5	----	50.0	----	26.5	N(CAV)
11	15.58000	----	3.6	10.6	----	14.2	----	50.0	----	35.8	N(CAV)
12	22.53000	----	9.9	10.7	----	20.6	----	50.0	----	29.4	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.

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17. LIST OF TEST EQUIPMENT

Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
FSV30	Rohde & Schwarz	Signal Analyzer	101199	Jan. 15, 2024 (1Y)
ESR3	Rohde & Schwarz	EMI Test Receiver	102602	Mar. 11, 2024 (1Y)
310N	Sonoma Instrument	Pre-Amplifier	392756	Oct. 16, 2023 (1Y)
SCU18	Rohde & Schwarz	Pre-Amplifer	102266	Jul. 04, 2024 (1Y)
SCU40A	Rohde & Schwarz	Pre-Amplifer	100436	Jan. 23, 2024 (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
FMZB 1513	Schwarzbeck	Loop Antenna	1513-235	Mar. 20, 2024 (2Y)
HLP-2008	TDK	Hybrid Antenna	131316	Mar. 09, 2024 (2Y)
BBHA9120D	Schwarzbeck	Horn Antenna	9120D-1349	Jul. 02, 2024 (1Y)
BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170178	Jan. 04, 2024 (1Y)
HPF 3GHz	Rohde & Schwarz	High Pass Filter	N/A	Jan. 15, 2024 (1Y)
F-40-10.0-RF	RLC Electronis	High Pass Filter	0427	Mar. 04, 2024 (1Y)
ESCI	Rohde & Schwarz	EMI TEST RECEIVER	101012	Sep. 26, 2024 (1Y)
NSLK8128	Schwarzbeck	AMN	8128216	Mar. 12, 2024 (1Y)
ESH3-Z2	Rohde & Schwarz	PULSE LIMITER	100655	Mar. 12, 2024 (1Y)