RADIO PERFORMANCE TEST REPORT

Test Report No. : **OT-24O-RWD-038**

Reception No. : **2408002763**

Applicant : **MCNEX CO.,LTD**

Address : **MCNEX Tower, 13-39, Songdogwahak-ro 16 beon-gi, Yeonsu-gu, Incheon, South Korea**

Manufacturer : **MCNEX CO.,LTD**

Address : **MCNEX Tower, 13-39, Songdogwahak-ro 16 beon-gi, Yeonsu-gu, Incheon, South Korea**

Type of Equipment : **2CH Dashcam**

FCC ID : **2ABC6-M8**

Model Name : **M8**

Multiple Model Name : **MD-8000, MD-8100, MD-8200, FTX-DC4000, MD-8400**

Serial number : **N/A**

Total page of Report : **84 pages (including this page)**

Date of Incoming : **August 29, 2024**

Date of issue : **October 24, 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
Yun-Bok, Wi / Prj. 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

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Revision History

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-24O-RWD-038	October 24, 2024	Initial Release	All

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1. VERIFICATION OF COMPLIANCE

Applicant : MCNEX CO.,LTD

Address : MCNEX Tower, 13-39, Songdogwahak-ro 16 beon-gi, Yeonsu-gu, Incheon, South Korea

Contact Person : SEUNG JUN RO / Senior Research Engineer

Telephone No. : +82-10-9274-1055

FCC ID : 2ABC6-M8

Model Name : M8

Brand Name : Momento, FTX / Firstech, LLC

Serial Number : N/A

Date : October 24, 2024

EQUIPMENT CLASS	Unlicensed National Information infrastructure(UNII)
E.U.T. DESCRIPTION	2CH Dashcam
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.

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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)	Peak 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

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

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

FCC (Federal Communications Commission) - Accreditation No. KR0013

RRA (Radio Research Agency) – Designation No. KR0013

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3. GENERAL INFORMATION

3.1 Product Description

The MCNEX CO.,LTD, Model M8 (referred to as the EUT in this report) is a 2CH Dashcam. The product specification described herein was obtained from product data sheet or user's manual.

DEVICE TYPE	2CH Dashcam	
Temperature Range	-20 °C ~ 60 °C	
OPERATING FREQUENCY	WLAN 2.4 GHz	2 412 MHz ~ 2 462 MHz (802.11b/g/n(HT20))
		2 422 MHz ~ 2 452 MHz (802.11n(HT40))
	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))
	5 725 MHz ~ 5 850 MHz Band	5 745 MHz ~ 5 825 MHz (802.11a/n(HT20))
		5 755 MHz ~ 5 795 MHz (802.11n(HT40))
MODULATION TYPE	WLAN 2.4 GHz	802.11b: DSSS Modulation(DBPSK/DQPSK/CCK) 802.11g/n(HT20)/n(HT40): OFDM Modulation(BPSK/QPSK/16QAM/64QAM)
	WLAN 5 GHz	802.11a/n(HT20)/n(HT40): OFDM Modulation(BPSK/QPSK/16QAM/64QAM)
RF OUTPUT POWER	WLAN 2.4 GHz	21.05dBm(802.11b) 14.43 dBm(802.11g) 13.38 dBm(802.11n_HT20) 11.13 dBm(802.11n_HT40)

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RF OUTPUT POWER	5 150 MHz ~ 5 250 MHz Band (UNII I)	9.02 dBm(802.11a) 8.46 dBm(802.11n_HT20) 6.79 dBm(802.11n_HT40)
	5 725 MHz ~ 5 850 MHz Band (UNII 3)	10.44 dBm(802.11a) 10.59 dBm(802.11n_HT20) 10.63 dBm(802.11n_HT40)
ANTENNA TYPE	Chip Antenna	
ANTENNA GAIN	WLAN 2.4 GHz	2.23 dBi
	5 150 MHz ~ 5 250 MHz Band	2.79 dBi
	5 725 MHz ~ 5 850 MHz Band	2.79 dBi
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)		24MHz, 26MHz, 27MHz
ELECTRICAL RATING		DC 12 V / DC 24 V

* The product is a client device.

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
M8	V536 processor, DDR3*2, front camera+rear camera(Basic Model)	☑
MD-8000	V526 processor, DDR3*1, front camera only	☐
MD-8100	V526 processor, DDR3*1, front camera+rear camera	☐
MD-8200	V536 processor, DDR3*2, front camera+rear camera	☐
FTX-DC4000	V536 processor, DDR3*2, front camera only	☐
MD-8400	V536 processor, DDR3*2, front camera+rear camera	☐

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	MCNEX CO.,LTD	N/A	N/A
Camera	MCNEX CO.,LTD	N/A	N/A
Radar Module	N/A	N/A	2AD56HLK-LD2410-P

5.2 Peripheral equipment

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

Model	Manufacturer	Description	Connected to
M8	MCNEX CO.,LTD	2CH Dashcam (EUT)	-
GP-4303D	LG Precision Co.,Ltd	DC Power Supply (DC 30 V 3 A)	EUT
PROBOOK 450 G7	HP	NoteBook PC	EUT

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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.

The EUT was moved throughout the XY, XZ, and YZ planes and the worst case is “XY” axis, but the worst data was recorded in this report.

-. Channel List (5 150 MHz ~ 5 250 MHz Band)

802.11a / n_HT20		802.11n_HT40	
Channel	Frequency[MHz]	Channel	Frequency[MHz]
36	5 180.00	38	5 190.00
40	5 200.00	46	5 230.00
44	5 220.00		
48	5 240.00		

-. Channel List (5 725 MHz ~ 5 850 MHz Band)

802.11a / n_HT20		802.11n_HT40	
Channel	Frequency[MHz]	Channel	Frequency[MHz]
149	5 745.00	151	5 755.00
153	5 765.00	159	5 795.00
157	5 785.00		
161	5 805.00		
165	5 825.00		

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-. Duty Cycle

Band	TEST Mode	Data Rate	On Time (ms)	Total Time (ms)	Duty Cycle (%)	Duty Cycle Factor (dB)
UNII 1	802.11 a	6	2.067	2.292	90.20	0.45
		9	1.387	1.607	86.34	0.64
		12	1.047	1.235	84.82	0.72
		18	0.705	0.902	78.21	1.07
		24	0.533	0.727	73.31	1.35
		36	0.365	0.587	62.17	2.06
		48	0.276	0.462	59.77	2.24
		54	0.248	0.444	55.77	2.54
	802.11 n(HT20)	MCS0	1.928	2.110	91.35	0.39
		MCS1	0.976	1.178	82.81	0.82
		MCS2	0.667	0.815	81.79	0.87
		MCS3	0.507	0.738	68.69	1.63
		MCS4	0.353	0.575	61.38	2.12
		MCS5	0.272	0.449	60.67	2.17
		MCS6	0.248	0.435	57.16	2.43
		MCS7	0.228	0.406	56.19	2.50
	802.11 n(HT40)	MCS0	0.946	1.148	82.38	0.84
		MCS1	0.493	0.688	71.68	1.45
		MCS2	0.340	0.518	65.60	1.83
		MCS3	0.264	0.478	55.28	2.57
		MCS4	0.187	0.410	45.63	3.41
		MCS5	0.151	0.382	39.55	4.03
		MCS6	0.140	0.371	37.69	4.24
		MCS7	0.128	0.359	35.60	4.49

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

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

-. Duty Cycle

Band	TEST Mode	Data Rate	On Time (ms)	Total Time (ms)	Duty Cycle (%)	Duty Cycle Factor (dB)
UNII 3	802.11 a	6	2.067	2.270	91.06	0.41
		9	1.387	1.570	88.34	0.54
		12	1.047	1.202	87.10	0.60
		18	0.705	0.872	80.84	0.92
		24	0.532	0.719	74.00	1.31
		36	0.364	0.579	62.88	2.01
		48	0.276	0.453	60.83	2.16
		54	0.249	0.426	58.35	2.34
	802.11 n(HT20)	MCS0	1.915	2.120	90.31	0.44
		MCS1	0.983	1.168	84.12	0.75
		MCS2	0.668	0.880	75.86	1.20
		MCS3	0.508	0.668	75.98	1.19
		MCS4	0.353	0.557	63.39	1.98
		MCS5	0.273	0.458	59.47	2.26
		MCS6	0.247	0.453	54.55	2.63
		MCS7	0.229	0.451	50.68	2.95
	802.11 n(HT40)	MCS0	0.941	1.147	81.99	0.86
		MCS1	0.493	0.680	72.55	1.39
		MCS2	0.339	0.534	63.55	1.97
		MCS3	0.264	0.450	58.74	2.31
		MCS4	0.188	0.365	51.33	2.90
		MCS5	0.153	0.357	42.79	3.69
		MCS6	0.140	0.336	41.59	3.81
		MCS7	0.128	0.332	38.48	4.15

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

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

5.4 Configuration of Test System

Line Conducted Test: It is not need to test this requirement, because the EUT shall be operated by DC Power.

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 PCB Antenna is located on the main board of EUT and the PCB antenna is connected to the outside of the EUT by a special connector type, so no consideration of replacement by the user.

6. PRELIMINARY TEST

6.1 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

6.2 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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7. MIMIMUM 26 dB BANDWIDTH

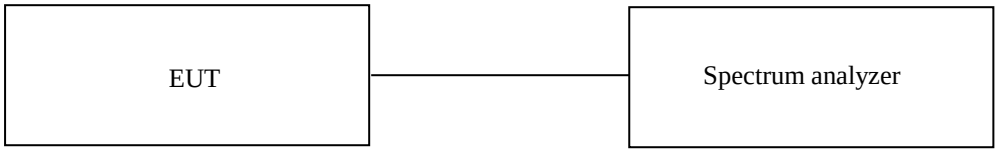
7.1 Operating environment

Temperature : 24 °C

Relative humidity : 51.3 % R.H.

7.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 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.



7.3 Test Date

September 02, 2024 ~ October 10, 2024

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7.4 Test data for DC 12 V

7.4.1 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	31.77
	Middle	5 220.00	31.57
	High	5 240.00	30.92
5 725 ~ 5 850	Low	5 745.00	22.23
	Middle	5 785.00	22.73
	High	5 825.00	20.33

7.4.2 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	29.77
	Middle	5 220.00	30.52
	High	5 240.00	29.52
5 725 ~ 5 850	Low	5 745.00	22.88
	Middle	5 785.00	25.03
	High	5 825.00	20.68

7.4.3 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	38.26
	High	5 230.00	38.06
5 725 ~ 5 850	Low	5 755.00	52.65
	High	5 795.00	51.55

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7.5 Test data for DC 24 V

7.5.1 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	32.97
	Middle	5 220.00	29.82
	High	5 240.00	30.57
5 725 ~ 5 850	Low	5 745.00	26.72
	Middle	5 785.00	24.28
	High	5 825.00	22.43

7.5.2 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	30.02
	Middle	5 220.00	34.17
	High	5 240.00	33.02
5 725 ~ 5 850	Low	5 745.00	24.53
	Middle	5 785.00	24.48
	High	5 825.00	20.03

7.5.3 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	48.75
	High	5 230.00	55.74
5 725 ~ 5 850	Low	5 755.00	47.85
	High	5 795.00	53.95

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8. 6 dB BANDWIDTH

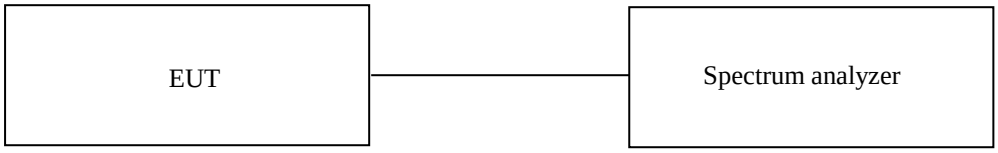
8.1 Operating environment

Temperature : 24 °C

Relative humidity : 51.3 % 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 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.



8.3 Test Date

September 02, 2024 ~ October 10, 2024

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8.4 Test data for DC 12 V

8.4.1 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	15.23	0.50	14.73
	Middle	5 785.00	15.18	0.50	14.68
	High	5 825.00	15.18	0.50	14.68

8.4.2 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	15.33	0.50	14.83
	Middle	5 785.00	15.33	0.50	14.83
	High	5 825.00	15.53	0.50	15.03

8.4.3 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	30.97	0.50	30.47
	High	5 795.00	31.37	0.50	30.87

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8.5 Test data for DC 24 V

8.5.1 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	15.93	0.50	15.43
	Middle	5 785.00	15.88	0.50	15.38
	High	5 825.00	15.18	0.50	14.68

8.5.2 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	15.28	0.50	14.78
	Middle	5 785.00	15.18	0.50	14.68
	High	5 825.00	15.33	0.50	14.83

8.5.3 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	33.47	0.50	32.97
	High	5 795.00	34.17	0.50	33.67

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9. MAXIMUM CONDUCTED OUTPUT POWER

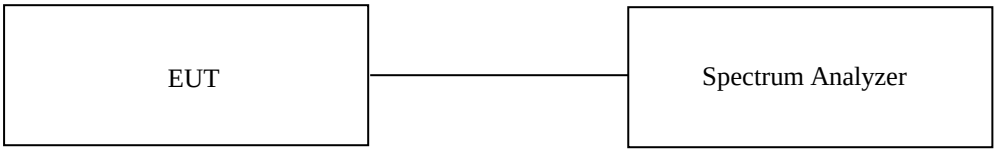
9.1 Operating environment

Temperature : 24 °C

Relative humidity : 51.3 % R.H.

9.2 Test set-up for conducted measurement

The maximum peak output power was measured with the spectrum analyzer connected to the antenna output of the EUT. The spectrum analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 26 dB & 6 dB bandwidth. The EUT was operating in transmit mode at the appropriate center frequency.



9.3 Test Date

September 02, 2024 ~ October 10, 2024

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

9.4 Test data for DC 12 V

9.4.1 Test data for 802.11a RLAN Mode

-. Test Result : Pass

-. Duty Cycle : 90.20 % (U-NII-1) / 91.06 % (U-NII-3)

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	8.57	0.45	9.02	24.00	14.98
	Middle	5 220.00	8.25	0.45	8.70	24.00	15.30
	High	5 240.00	7.82	0.45	8.27	24.00	15.73
5 725 ~ 5 850	Low	5 745.00	9.88	0.41	10.29	30.00	19.71
	Middle	5 785.00	9.87	0.41	10.28	30.00	19.72
	High	5 825.00	9.98	0.41	10.39	30.00	19.61

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

9.4.2 Test data for 802.11n_HT20 RLAN Mode

-. Test Result : Pass

-. Duty Cycle : 91.35 % (U-NII-1) / 90.31 % (U-NII-3)

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	7.97	0.39	8.36	24.00	15.64
	Middle	5 220.00	7.87	0.39	8.26	24.00	15.74
	High	5 240.00	7.70	0.39	8.09	24.00	15.91
5 725 ~ 5 850	Low	5 745.00	9.75	0.44	10.19	30.00	19.81
	Middle	5 785.00	9.91	0.44	10.35	30.00	19.65
	High	5 825.00	9.95	0.44	10.39	30.00	19.61

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

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9.4.3 Test data for 802.11n_HT40 RLAN Mode

-. Test Result : Pass

-. Duty Cycle : 82.38 % (U-NII-1) / 81.99 % (U-NII-3)

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	5.95	0.84	6.79	24.00	17.21
	High	5 230.00	5.79	0.84	6.63	24.00	17.37
5 725 ~ 5 850	Low	5 755.00	9.77	0.86	10.63	30.00	19.37
	High	5 795.00	9.58	0.86	10.44	30.00	19.56

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

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9.5 Test data for DC 24 V

9.5.1 Test data for 802.11a RLAN Mode

-. Test Result : Pass

-. Duty Cycle : 90.20 % (U-NII-1) / 91.06 % (U-NII-3)

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	8.25	0.45	8.70	24.00	15.30
	Middle	5 220.00	8.15	0.45	8.60	24.00	15.40
	High	5 240.00	7.80	0.45	8.25	24.00	15.75
5 725 ~ 5 850	Low	5 745.00	9.62	0.41	10.03	30.00	19.97
	Middle	5 785.00	9.95	0.41	10.36	30.00	19.64
	High	5 825.00	10.03	0.41	10.44	30.00	19.56

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

9.5.2 Test data for 802.11n_HT20 RLAN Mode

-. Test Result : Pass

-. Duty Cycle : 91.35 % (U-NII-1) / 90.31 % (U-NII-3)

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	8.07	0.39	8.46	24.00	15.54
	Middle	5 220.00	7.99	0.39	8.38	24.00	15.62
	High	5 240.00	7.79	0.39	8.18	24.00	15.82
5 725 ~ 5 850	Low	5 745.00	9.82	0.44	10.26	30.00	19.74
	Middle	5 785.00	9.98	0.44	10.42	30.00	19.58
	High	5 825.00	10.15	0.44	10.59	30.00	19.41

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

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9.5.3 Test data for 802.11n_HT40 RLAN Mode

-. Test Result : Pass

-. Duty Cycle : 82.38 % (U-NII-1) / 81.99 % (U-NII-3)

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	5.95	0.84	6.79	24.00	17.21
	High	5 230.00	5.53	0.84	6.37	24.00	17.63
5 725 ~ 5 850	Low	5 755.00	9.70	0.86	10.56	30.00	19.44
	High	5 795.00	9.46	0.86	10.32	30.00	19.68

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

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10. PEAK POWER SPECTRAL DENSITY

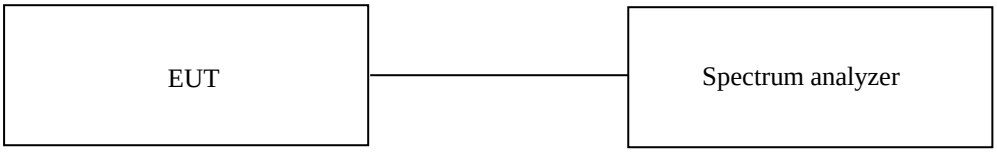
10.1 Operating environment

Temperature : 24 °C

Relative humidity : 51.3 % R.H.

10.2 Test set-up for conducted measurement

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz(500 kHz for frequency range 5 725 MHz ~ 5 850 MHz), the video bandwidth is set to 3 times the resolution bandwidth. The maximum level form the EUT in 1 MHz bandwidth was measured with above condition.



10.3 Test Date

September 02, 2024 ~ October 10, 2024

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

10.4 Test Data for DC 12 V

10.4.1 Test data for 802.11a RLAN Mode

-. Test Result : Pass

-. Duty Cycle : 90.20 % (U-NII-1) / 91.06 % (U-NII-3)

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	-1.65	0.45	-1.20	11.00	12.20
	Middle	5 220.00	-2.28	0.45	-1.83	11.00	12.83
	High	5 240.00	-2.43	0.45	-1.98	11.00	12.98
5 725 ~ 5 850	Low	5 745.00	-3.13	0.41	-2.72	30.00	32.72
	Middle	5 785.00	-3.00	0.41	-2.59	30.00	32.59
	High	5 825.00	-2.94	0.41	-2.53	30.00	32.53

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

10.4.2 Test data for 802.11n_HT20 RLAN Mode

-. Test Result : Pass

-. Duty Cycle : 91.35 % (U-NII-1) / 90.31 % (U-NII-3)

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	-2.10	0.39	-1.71	11.00	12.71
	Middle	5 220.00	-2.31	0.39	-1.92	11.00	12.92
	High	5 240.00	-2.88	0.39	-2.49	11.00	13.49
5 725 ~ 5 850	Low	5 745.00	-2.97	0.44	-2.53	30.00	32.53
	Middle	5 785.00	-3.37	0.44	-2.93	30.00	32.93
	High	5 825.00	-3.30	0.44	-2.86	30.00	32.86

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

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

10.4.3 Test data for 802.11n_HT40 RLAN Mode

-. Test Result : Pass

-. Duty Cycle : 82.38 % (U-NII-1) / 81.99 % (U-NII-3)

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	-6.68	0.84	-5.84	11.00	16.84
	High	5 230.00	-7.22	0.84	-6.38	11.00	17.38
5 725 ~ 5 850	Low	5 755.00	-5.87	0.86	-5.01	30.00	35.01
	High	5 795.00	-6.39	0.86	-5.53	30.00	35.53

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

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

10.5 Test Data for DC 24 V

10.5.1 Test data for 802.11a RLAN Mode

-. Test Result : Pass

-. Duty Cycle : 90.20 % (U-NII-1) / 91.06 % (U-NII-3)

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	-2.27	0.45	-1.82	11.00	12.82
	Middle	5 220.00	-1.74	0.45	-1.29	11.00	12.29
	High	5 240.00	-2.45	0.45	-2.00	11.00	13.00
5 725 ~ 5 850	Low	5 745.00	-3.70	0.41	-3.29	30.00	33.29
	Middle	5 785.00	-2.97	0.41	-2.56	30.00	32.56
	High	5 825.00	-3.29	0.41	-2.88	30.00	32.88

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

10.5.2 Test data for 802.11n_HT20 RLAN Mode

-. Test Result : Pass

-. Duty Cycle : 91.35 % (U-NII-1) / 90.31 % (U-NII-3)

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	-2.37	0.39	-1.98	11.00	12.98
	Middle	5 220.00	-2.21	0.39	-1.82	11.00	12.82
	High	5 240.00	-2.38	0.39	-1.99	11.00	12.99
5 725 ~ 5 850	Low	5 745.00	-3.61	0.44	-3.17	30.00	33.17
	Middle	5 785.00	-3.16	0.44	-2.72	30.00	32.72
	High	5 825.00	-3.00	0.44	-2.56	30.00	32.56

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

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

10.5.3 Test data for 802.11n_HT40 RLAN Mode

-. Test Result : Pass

-. Duty Cycle : 82.38 % (U-NII-1) / 81.99 % (U-NII-3)

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	-6.76	0.84	-5.92	11.00	16.92
	High	5 230.00	-7.64	0.84	-6.80	11.00	17.80
5 725 ~ 5 850	Low	5 755.00	-6.11	0.86	-5.25	30.00	35.25
	High	5 795.00	-6.57	0.86	-5.71	30.00	35.71

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

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

11. FREQUENCY STABILITY WITH TEMPERATURE VARIATION

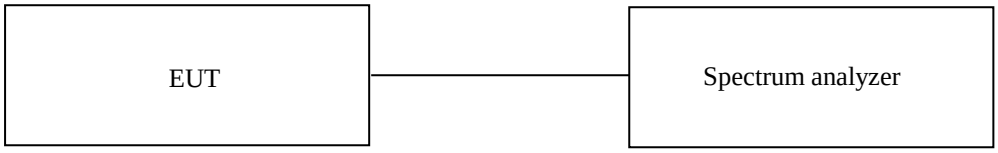
11.1 Operating environment

Temperature : 24 °C

Relative humidity : 51.3 % R.H.

11.2 Test set-up

Turn EUT off and set chamber temperature to -30 °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 -30 °C to +50 °C. Repeat above method for frequency measurements every 10 °C step and then record all measured frequencies on each temperature step.



11.3 Test Date

September 02, 2024 ~ October 10, 2024

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

11.4 Test Data for DC 12 V

11.4.1 Test data for UNII-1

-. Result : Pass

Temperature (°C)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (Hz)
-20	5 180 000 000	5 180 000 554	554
-10		5 179 992 830	- 7 170
0		5 179 985 821	- 14 179
10		5 179 973 216	- 26 784
20		5 179 967 611	- 32 389
30		5 179 967 905	- 32 095
40		5 179 979 593	- 20 407
50		5 180 000 650	650
60		5 180 019 983	19 983
-20	5 220 000 000	5 220 000 167	167
-10		5 219 992 740	- 7 260
0		5 219 985 767	- 14 233
10		5 219 973 800	- 26 200
20		5 219 967 288	- 32 712
30		5 219 967 237	- 32 763
40		5 219 978 524	- 21 476
50		5 219 999 397	- 603
60		5 220 022 118	22 118
-20	5 240 000 000	5 240 000 241	241
-10		5 239 992 817	- 7 183
0		5 239 985 671	- 14 329
10		5 239 974 109	- 25 891
20		5 239 967 165	- 32 835
30		5 239 967 015	- 32 985
40		5 239 977 853	- 22 147
50		5 239 998 041	- 1 959
60		5 240 023 448	23 448

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11.4.2 Test data for UNII-3

-. Result : Pass

Temperature (˚C)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (Hz)
-20	5 745 000 000	5 744 999 738	- 262
-10		5 744 991 473	- 8 527
0		5 744 983 432	- 16 568
10		5 744 971 252	- 28 748
20		5 744 963 894	- 36 106
30		5 744 964 097	- 35 903
40		5 744 976 337	- 23 663
50		5 744 999 705	- 295
60		5 745 030 246	30 246
-20	5 785 000 000	5 784 999 710	- 290
-10		5 784 991 284	- 8 716
0		5 784 983 189	- 16 811
10		5 784 971 155	- 28 845
20		5 784 963 646	- 36 354
30		5 784 963 764	- 36 236
40		5 784 975 754	- 24 246
50		5 784 999 588	- 412
60		5 785 033 048	33 048
-20	5 825 000 000	5 824 999 419	- 581
-10		5 824 991 075	- 8 925
0		5 824 982 865	- 17 135
10		5 824 970 819	- 29 181
20		5 824 963 404	- 36 596
30		5 824 963 661	- 36 339
40		5 824 975 385	- 24 615
50		5 824 999 861	- 139
60		5 825 035 225	35 225

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11.5 Test Data for DC 24 V

11.5.1 Test data for UNII-1

-. Result : Pass

Temperature (°C)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (Hz)
-20	5 180 000 000	5 180 000 184	184
-10		5 179 994 810	- 5 190
0		5 179 985 254	- 14 746
10		5 179 971 326	- 28 674
20		5 179 967 662	- 32 338
30		5 179 967 476	- 32 524
40		5 179 975 817	- 24 183
50		5 180 003 737	3 737
60		5 180 029 333	29 333
-20	5 220 000 000	5 220 000 149	149
-10		5 219 994 094	- 5 906
0		5 219 985 126	- 14 874
10		5 219 971 204	- 28 796
20		5 219 967 447	- 32 553
30		5 219 967 451	- 32 549
40		5 219 975 859	- 24 141
50		5 220 003 758	3 758
60		5 220 032 042	32 042
-20	5 240 000 000	5 240 000 133	133
-10		5 239 993 595	- 6 405
0		5 239 985 000	- 15 000
10		5 239 971 686	- 28 314
20		5 239 967 402	- 32 598
30		5 239 967 226	- 32 774
40		5 239 975 703	- 24 297
50		5 240 003 182	3 182
60		5 240 032 749	32 749

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11.5.2 Test data for UNII-3

-. Result : Pass

Temperature (˚C)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (Hz)
-20	5 745 000 000	5 744 999 647	- 353
-10		5 744 992 022	- 7 978
0		5 744 982 024	- 17 976
10		5 744 968 846	- 31 154
20		5 744 963 832	- 36 168
30		5 744 964 499	- 35 501
40		5 744 974 710	- 25 290
50		5 745 005 290	5 290
60		5 745 040 555	40 555
-20	5 785 000 000	5 784 999 354	- 646
-10		5 784 991 492	- 8 508
0		5 784 981 855	- 18 145
10		5 784 968 902	- 31 098
20		5 784 963 616	- 36 384
30		5 784 964 505	- 35 495
40		5 784 974 850	- 25 150
50		5 785 004 863	4 863
60		5 785 042 470	42 470
-20	5 825 000 000	5 824 999 145	- 855
-10		5 824 991 042	- 8 958
0		5 824 981 555	- 18 445
10		5 824 968 837	- 31 163
20		5 824 963 317	- 36 683
30		5 824 964 328	- 35 672
40		5 824 974 920	- 25 080
50		5 825 005 099	5 099
60		5 825 043 986	43 986

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12. FREQUENCY STABILITY WITH VOLTAGE VARIATION

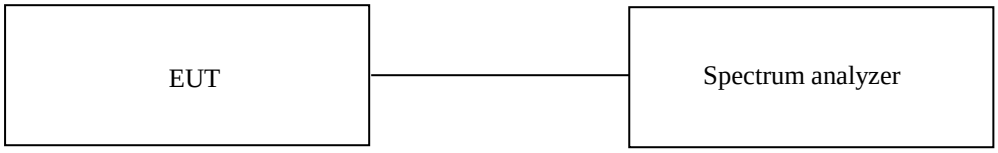
12.1 Operating environment

Temperature : 24 °C

Relative humidity : 51.3 % R.H.

12.2 Test set-up

An external DC power supply was connected to the input of the EUT. The voltage of EUT set to 115 % of the nominal value and then was reduced to 85 % of nominal voltage. The output frequency was recorded at each step.



12.3 Test Date

September 02, 2024 ~ October 10, 2024

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

12.4 Test Data for DC 12 V

12.4.1 Test data for UNII-1

-. Result : Pass

Voltage (VDC)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (Hz)
12.0	5 180 000 000	5 179 966 183	- 33 817
10.2		5 179 966 409	- 33 591
13.8		5 179 966 180	- 33 820
12.0	5 220 000 000	5 219 965 899	- 34 101
10.2		5 219 966 082	- 33 918
13.8		5 219 965 976	- 34 024
12.0	5 240 000 000	5 239 965 830	- 34 170
10.2		5 239 966 040	- 33 960
13.8		5 239 965 873	- 34 127

12.4.2 Test data for UNII-3

-. Result : Pass

Voltage (VDC)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (Hz)
12.0	5 745 000 000	5 744 962 595	- 37 405
10.2		5 744 962 658	- 37 342
13.8		5 744 962 676	- 37 324
12.0	5 785 000 000	5 784 962 328	- 37 672
10.2		5 784 962 390	- 37 610
13.8		5 784 962 393	- 37 607
12.0	5 825 000 000	5 824 962 114	- 37 886
10.2		5 824 962 223	- 37 777
13.8		5 824 962 216	- 37 784

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

12.5 Test Data for DC 24 V

12.4.1 Test data for UNII-1

-. Result : Pass

Voltage (VDC)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (Hz)
24.0	5 180 000 000	5 179 973 957	- 26 043
20.4		5 179 966 108	- 33 892
27.6		5 179 966 673	- 33 327
24.0	5 220 000 000	5 219 970 658	- 29 342
20.4		5 219 965 876	- 34 124
27.6		5 219 966 236	- 33 764
24.0	5 240 000 000	5 239 969 041	- 30 959
20.4		5 239 965 768	- 34 232
27.6		5 239 966 046	- 33 954

12.4.2 Test data for UNII-3

-. Result : Pass

Voltage (VDC)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (Hz)
24.0	5 745 000 000	5 744 964 331	- 35 669
20.4		5 744 962 487	- 37 513
27.6		5 744 962 502	- 37 498
24.0	5 785 000 000	5 784 963 304	- 36 696
20.4		5 784 962 276	- 37 724
27.6		5 784 962 156	- 37 844
24.0	5 825 000 000	5 824 962 546	- 37 454
20.4		5 824 962 116	- 37 884
27.6		5 824 961 920	- 38 080

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13. RADIATED SPURIOUS EMISSIONS

13.1 Operating environment

Temperature : 24 °C

Relative humidity : 51.3 % R.H.

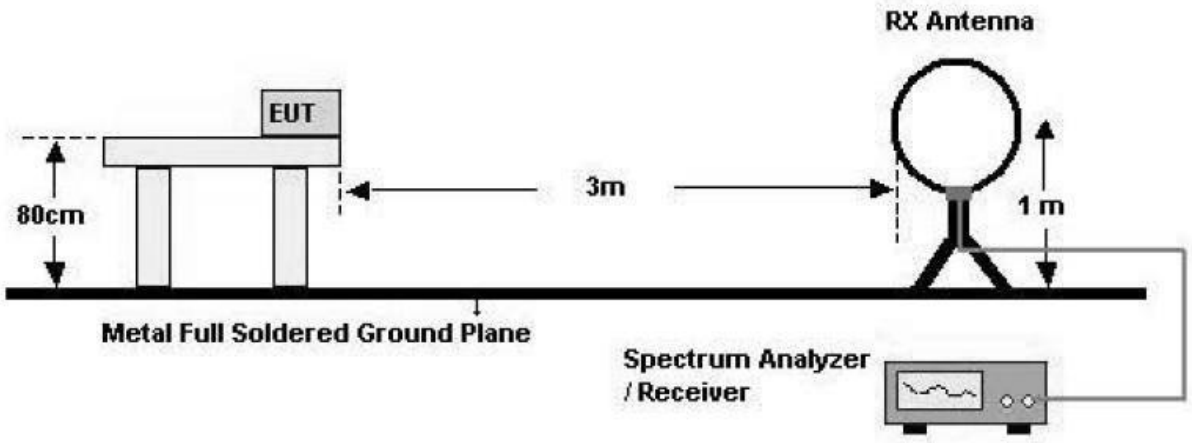
13.2 Test set-up for conducted measurement

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.

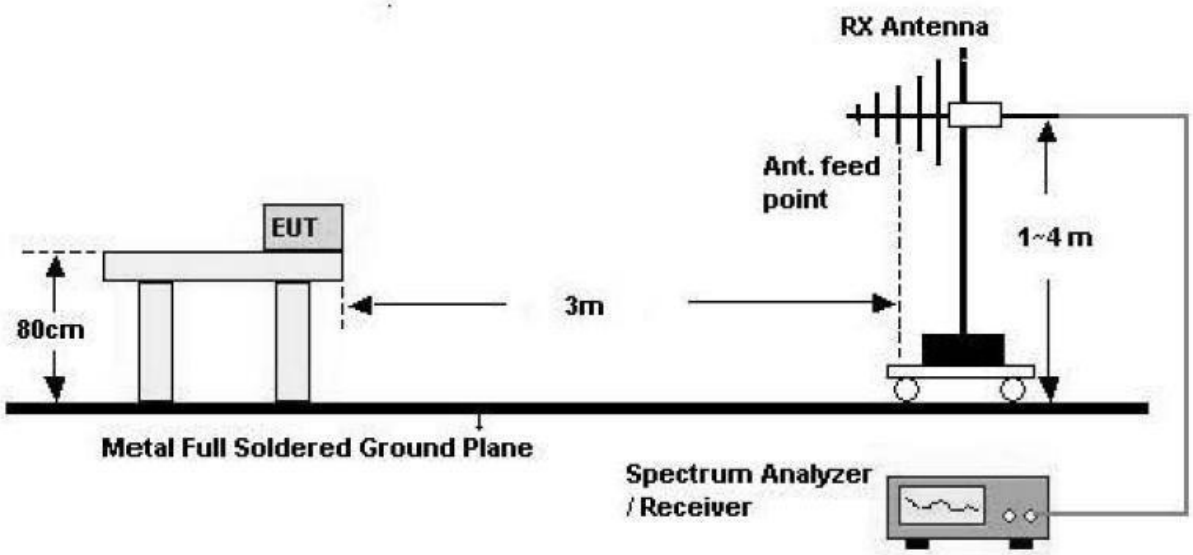
The frequency spectrum from 30 MHz to 40 GHz was scanned and maximum emission levels at each frequency recorded. The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.

- Test Configuration

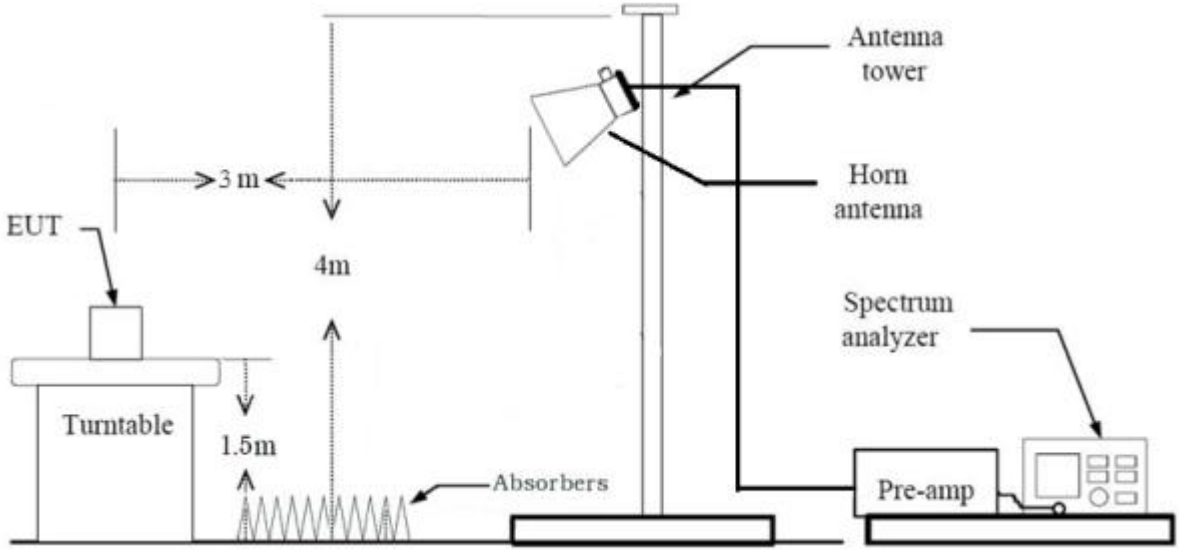
1. Below 30 MHz



2. 30 MHz - 1 GHz



3. Above 1 GHz



13.3 Test Date

September 02, 2024 ~ October 10, 2024

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13.4 Test data for DC 12 V

13.4.1 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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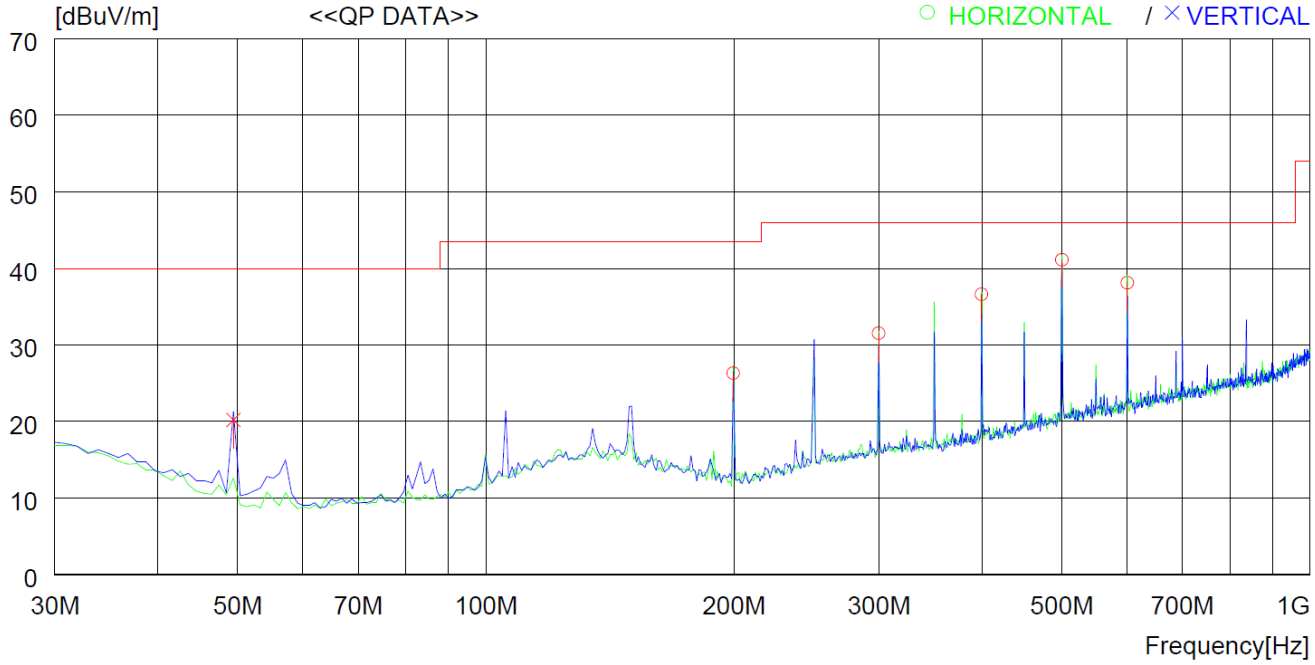
13.4.2 Test data for 30 MHz ~ 1 000 MHz

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

Result : PASSED

EUT : 2CH Dashcam

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	199.750	41.0	15.6	1.8	32.1	26.3	43.5	17.2	200	0
2	299.660	42.0	19.4	2.2	32.1	31.5	46.0	14.5	100	359
3	399.570	45.3	20.8	2.6	32.1	36.6	46.0	9.4	100	136
4	500.451	47.2	23.2	2.9	32.2	41.1	46.0	4.9	100	359
5	600.358	43.0	24.2	3.2	32.3	38.1	46.0	7.9	200	0
----- Vertical ------										
6	49.400	38.2	13.2	0.9	32.1	20.2	40.0	19.8	100	0

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13.4.3 Test data for Above 1 GHz

13.4.3.1 Test data for Frequency UNII 1

13.4.3.1.1 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
100 kHz for Peak Mode 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 : 90.20 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	Duty Factor(dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel										
10 360.000	49.62	Peak	H	39.42	10.01	42.19	-	56.86	68.20	11.34
10 360.000	47.92	Peak	V	39.44	10.01	42.19	-	55.18	68.20	13.02
Middle Channel										
10 440.000	49.31	Peak	H	39.58	10.01	42.19	-	56.71	68.20	11.49
10 440.000	48.47	Peak	V	39.61	9.80	42.19	-	55.69	68.20	12.51
High Channel										
10 480.000	49.43	Peak	H	39.67	9.80	42.19	-	56.71	68.20	11.49
10 480.000	48.65	Peak	V	39.62	9.80	42.19	-	55.88	68.20	12.32

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

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13.4.3.1.2 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
100 kHz for Peak Mode 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 : 91.35 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	Duty Factor(dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel										
10 360.000	51.12	Peak	H	39.43	10.01	42.19	-	58.37	68.20	9.83
10 360.000	48.29	Peak	V	39.46	10.01	42.19	-	55.57	68.20	12.63
Middle Channel										
10 440.000	51.00	Peak	H	39.58	10.01	42.19	-	58.40	68.20	9.80
10 440.000	48.04	Peak	V	39.57	10.01	42.19	-	55.43	68.20	12.77
High Channel										
10 480.000	49.82	Peak	H	39.67	9.80	42.19	-	57.10	68.20	11.10
10 480.000	48.90	Peak	V	39.65	9.80	42.19	-	56.16	68.20	12.04

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

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13.4.3.1.3 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
100 kHz for Peak Mode 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 : 82.38 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	Duty Factor(dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel										
10 380.000	48.64	Peak	H	39.43	10.01	42.19	-	55.89	68.20	12.31
10 380.000	47.99	Peak	V	39.56	10.01	42.19	-	55.37	68.20	12.83
High Channel										
10 460.000	48.38	Peak	H	39.54	10.01	42.19	-	55.74	68.20	12.46
10 460.000	48.11	Peak	V	39.53	10.01	42.19	-	55.46	68.20	12.74

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

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13.4.3.2 Test data for Frequency UNII 3

13.4.3.2.1 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
100 kHz for Peak Mode 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 : 91.06 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	Duty Factor(dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel										
11 490.000	53.94	Peak	H	40.08	10.12	42.35	-	61.79	74.00	12.21
11 490.000	42.38	Average	H	40.08	10.12	42.35	0.41	50.64	54.00	3.36
11 490.000	50.52	Peak	V	40.08	10.12	42.35	-	58.37	74.00	15.63
11 490.000	38.06	Average	V	40.09	10.12	42.35	0.41	46.33	54.00	7.67
Middle Channel										
11 570.000	51.85	Peak	H	39.90	10.14	42.31	-	59.58	74.00	14.42
11 570.000	39.84	Average	H	39.92	10.14	42.31	0.41	48.00	54.00	6.00
11 570.000	50.46	Peak	V	39.91	10.14	42.31	-	58.20	74.00	15.80
11 570.000	37.91	Average	V	39.87	10.14	42.30	0.41	46.03	54.00	7.97
High Channel										
11 650.000	50.99	Peak	H	39.59	10.17	42.27	-	58.48	74.00	15.52
11 650.000	38.35	Average	H	39.61	10.14	42.27	0.41	46.24	54.00	7.76
11 650.000	50.39	Peak	V	39.70	10.14	42.28	-	57.95	74.00	16.05
11 650.000	37.75	Average	V	39.69	10.14	42.28	0.41	45.71	54.00	8.29

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

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13.4.3.2.2 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
100 kHz for Peak Mode 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 : 90.31 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	Duty Factor(dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel										
11 490.000	53.62	Peak	H	40.07	10.12	42.35	-	61.46	74.00	12.54
11 490.000	41.93	Average	H	40.08	10.12	42.35	0.44	50.22	54.00	3.78
11 490.000	50.27	Peak	V	40.09	10.12	42.35	-	58.13	74.00	15.87
11 490.000	37.81	Average	V	40.09	10.12	42.35	0.44	46.11	54.00	7.89
Middle Channel										
11 570.000	53.47	Peak	H	39.91	10.14	42.31	-	61.21	74.00	12.79
11 570.000	40.34	Average	H	39.92	10.14	42.31	0.44	48.53	54.00	5.47
11 570.000	50.31	Peak	V	39.95	10.14	42.31	-	58.09	74.00	15.91
11 570.000	37.64	Average	V	39.88	10.14	42.30	0.44	45.80	54.00	8.20
High Channel										
11 650.000	53.27	Peak	H	39.61	10.14	42.27	-	60.75	74.00	13.25
11 650.000	39.55	Average	H	39.60	10.14	42.27	0.44	47.46	54.00	6.54
11 650.000	49.79	Peak	V	39.51	10.17	42.25	-	57.22	74.00	16.78
11 650.000	37.54	Average	V	39.66	10.14	42.27	0.44	45.51	54.00	8.49

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

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13.4.3.2.3 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
100 kHz for Peak Mode 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 : 81.99 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	Duty Factor(dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel										
11 510.000	52.85	Peak	H	40.08	10.12	42.35	-	60.70	74.00	13.30
11 510.000	39.36	Average	H	40.08	10.12	42.35	0.86	48.07	54.00	5.93
11 510.000	49.80	Peak	V	40.04	10.12	42.35	-	57.61	74.00	16.39
11 510.000	37.79	Average	V	40.09	10.12	42.35	0.86	46.51	54.00	7.49
High Channel										
11 590.000	50.32	Peak	H	39.84	10.14	42.30	-	58.00	74.00	16.00
11 590.000	38.12	Average	H	39.84	10.14	42.30	0.86	46.66	54.00	7.34
11 590.000	49.79	Peak	V	39.82	10.14	42.30	-	57.45	74.00	16.55
11 590.000	37.67	Average	V	39.88	10.14	42.30	0.86	46.25	54.00	7.75

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

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13.5 Test data for DC 24 V

13.5.1 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.									

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

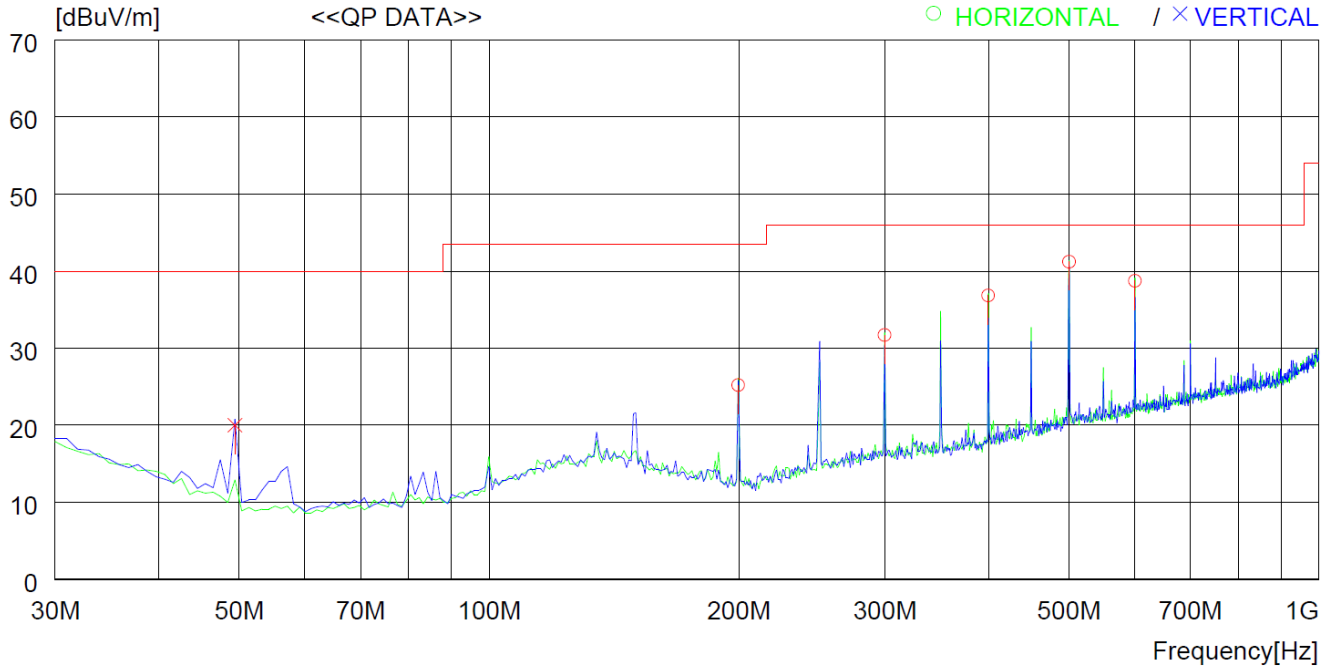
13.5.2 Test data for 30 MHz ~ 1 000 MHz

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

Result : PASSED

EUT : 2CH Dashcam

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	199.750	39.9	15.6	1.8	32.1	25.2	43.5	18.3	200	359
2	299.660	42.2	19.4	2.2	32.1	31.7	46.0	14.3	100	96
3	399.570	45.5	20.8	2.6	32.1	36.8	46.0	9.2	100	131
4	500.451	47.3	23.2	2.9	32.2	41.2	46.0	4.8	100	0
5	600.358	43.6	24.2	3.2	32.3	38.7	46.0	7.3	200	201
----- Vertical ------										
6	49.400	38.0	13.2	0.9	32.1	20.0	40.0	20.0	100	69

13.5.3 Test data for Above 1 GHz

13.5.3.1 Test data for Frequency UNII 1

13.5.3.1.1 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
100 kHz for Peak Mode 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 : 90.20 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	Duty Factor(dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel										
10 360.000	53.63	Peak	H	39.42	10.01	42.19	-	60.87	68.20	7.33
10 360.000	49.34	Peak	V	39.47	10.01	42.19	-	56.63	68.20	11.57
Middle Channel										
10 440.000	50.82	Peak	H	39.58	10.01	42.19	-	58.22	68.20	9.98
10 440.000	48.73	Peak	V	39.55	10.01	42.19	-	56.10	68.20	12.10
High Channel										
10 480.000	51.05	Peak	H	39.66	9.80	42.19	-	58.32	68.20	9.88
10 480.000	49.36	Peak	V	39.65	9.80	42.19	-	56.62	68.20	11.58

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

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13.5.3.1.2 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
100 kHz for Peak Mode 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 : 91.35 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	Duty Factor(dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel										
10 360.000	48.43	Peak	H	39.42	10.01	42.19	-	55.67	68.20	12.53
10 360.000	47.55	Peak	V	39.41	10.01	42.19	-	54.78	68.20	13.42
Middle Channel										
10 440.000	50.18	Peak	H	39.59	10.01	42.19	-	57.59	68.20	10.61
10 440.000	48.37	Peak	V	39.62	9.80	42.19	-	55.60	68.20	12.60
High Channel										
10 480.000	49.63	Peak	H	39.66	9.80	42.19	-	56.90	68.20	11.30
10 480.000	48.76	Peak	V	39.64	9.80	42.19	-	56.01	68.20	12.19

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

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13.5.3.1.3 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
100 kHz for Peak Mode 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 : 82.38 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	Duty Factor(dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel										
10 380.000	49.05	Peak	H	39.48	10.01	42.19	-	56.35	68.20	11.85
10 380.000	47.75	Peak	V	39.49	10.01	42.19	-	55.06	68.20	13.14
High Channel										
10 460.000	49.06	Peak	H	39.61	9.80	42.19	-	56.28	68.20	11.92
10 460.000	48.55	Peak	V	39.67	9.80	42.19	-	55.83	68.20	12.37

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

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13.5.3.2 Test data for Frequency UNII 3

13.5.3.2.1 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
100 kHz for Peak Mode 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 : 91.06 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	Duty Factor(dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel										
11 490.000	53.09	Peak	H	40.08	10.12	42.35	-	60.94	74.00	13.06
11 490.000	41.67	Average	H	40.08	10.12	42.35	0.41	49.93	54.00	4.07
11 490.000	49.89	Peak	V	40.07	10.12	42.34	-	57.74	74.00	16.26
11 490.000	37.85	Average	V	40.07	10.12	42.35	0.41	46.10	54.00	7.90
Middle Channel										
11 570.000	51.45	Peak	H	39.94	10.14	42.31	-	59.22	74.00	14.78
11 570.000	39.71	Average	H	39.93	10.14	42.31	0.41	47.88	54.00	6.12
11 570.000	50.07	Peak	V	39.86	10.14	42.30	-	57.77	74.00	16.23
11 570.000	37.77	Average	V	39.83	10.14	42.30	0.41	45.85	54.00	8.15
High Channel										
11 650.000	50.59	Peak	H	39.63	10.14	42.27	-	58.09	74.00	15.91
11 650.000	37.82	Average	H	39.59	10.17	42.26	0.41	45.73	54.00	8.27
11 650.000	49.94	Peak	V	39.61	10.14	42.27	-	57.42	74.00	16.58
11 650.000	37.49	Average	V	39.67	10.14	42.28	0.41	45.43	54.00	8.57

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

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13.5.3.2.2 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
100 kHz for Peak Mode 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 : 90.31 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	Duty Factor(dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel										
11 490.000	54.08	Peak	H	40.08	10.12	42.35	-	61.93	74.00	12.07
11 490.000	42.22	Average	H	40.08	10.12	42.35	0.44	50.51	54.00	3.49
11 490.000	50.31	Peak	V	40.09	10.12	42.35	-	58.17	74.00	15.83
11 490.000	37.78	Average	V	40.09	10.12	42.35	0.44	46.08	54.00	7.92
Middle Channel										
11 570.000	52.14	Peak	H	39.92	10.14	42.31	-	59.89	74.00	14.11
11 570.000	40.33	Average	H	39.92	10.14	42.31	0.44	48.52	54.00	5.48
11 570.000	50.54	Peak	V	39.95	10.14	42.32	-	58.31	74.00	15.69
11 570.000	37.77	Average	V	39.86	10.14	42.30	0.44	45.91	54.00	8.09
High Channel										
11 650.000	51.78	Peak	H	39.62	10.14	42.27	-	59.27	74.00	14.73
11 650.000	37.88	Average	H	39.61	10.14	42.27	0.44	45.80	54.00	8.20
11 650.000	49.87	Peak	V	39.63	10.14	42.27	-	57.37	74.00	16.63
11 650.000	37.44	Average	V	39.68	10.14	42.28	0.44	45.42	54.00	8.58

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

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13.5.3.2.3 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
100 kHz for Peak Mode 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 : 81.99 %

-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	Duty Factor(dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel										
11 510.000	52.44	Peak	H	40.09	10.12	42.35	-	60.30	74.00	13.70
11 510.000	40.30	Average	H	40.08	10.12	42.34	0.86	49.02	54.00	4.98
11 510.000	49.96	Peak	V	40.09	10.12	42.35	-	57.82	74.00	16.18
11 510.000	37.71	Average	V	40.09	10.12	42.35	0.86	46.43	54.00	7.57
High Channel										
11 590.000	50.25	Peak	H	39.96	10.14	42.32	-	58.03	74.00	15.97
11 590.000	38.58	Average	H	39.84	10.14	42.30	0.86	47.12	54.00	6.88
11 590.000	50.00	Peak	V	39.88	10.14	42.31	-	57.71	74.00	16.29
11 590.000	37.74	Average	V	39.88	10.14	42.31	0.86	46.31	54.00	7.69

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

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14. RADIATED RESTRICTED BAND EDGE MEASUREMENTS

14.1 Operating environment

Temperature : 24 °C

Relative humidity : 51.3 % R.H.

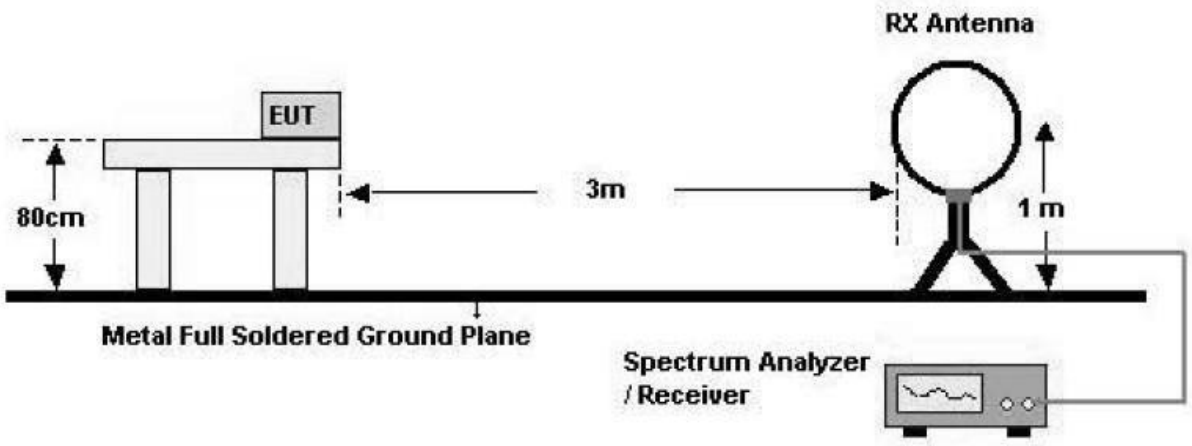
14.2 Test set-up for conducted measurement

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.

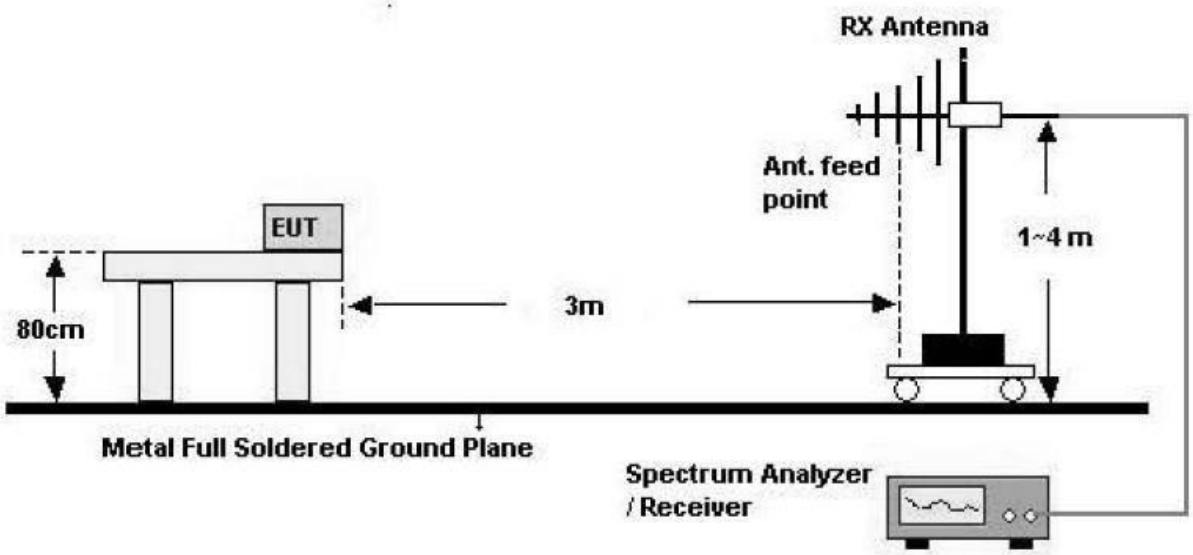
The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.

- Test Configuration

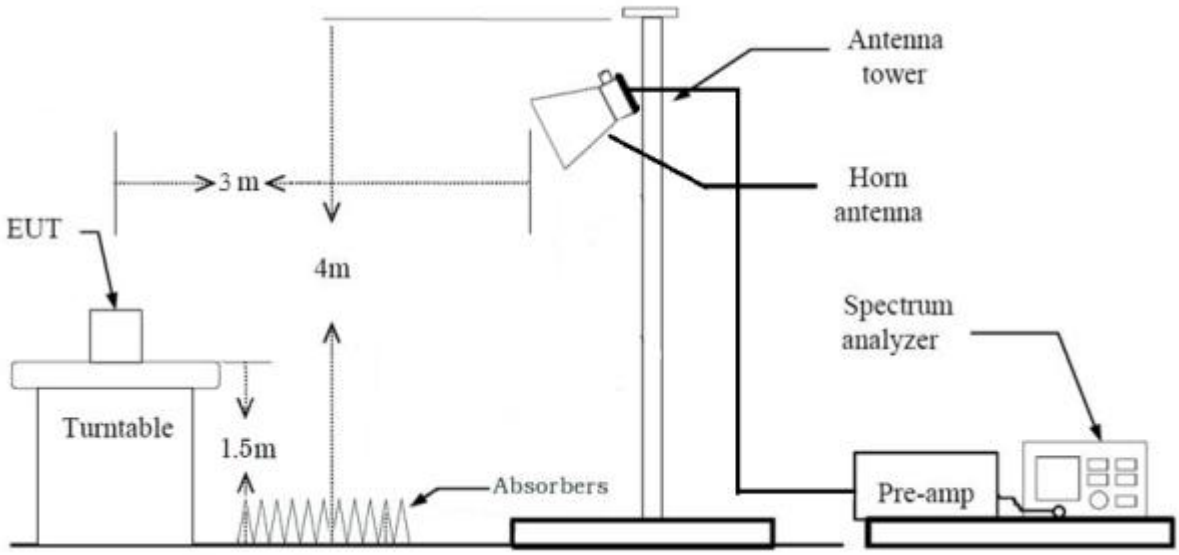
1. Below 30 MHz



2. 30 MHz - 1 GHz



3. Above 1 GHz



14.3 Test Date

September 02, 2024 ~ October 10, 2024

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14.4 Test data for DC 12 V

14.4.1 Test data for Frequency U-NII-1

14.4.1.1 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 : 90.20 %

-. Result : Pass

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
5142.98	58.08	Peak	H	31.90	6.51	41.25	6.13	-	61.37	74.00	12.63
5149.77	46.36	Average	H	31.90	6.51	41.25	6.13	0.45	50.10	54.00	3.90
5149.77	60.54	Peak	V	31.90	6.51	41.25	6.13	-	63.83	74.00	10.17
5149.09	46.92	Average	V	31.90	6.51	41.25	6.13	0.45	50.66	54.00	3.34

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

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

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

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14.4.1.2 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 : 91.35 %

-. Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5147.73	57.92	Peak	H	31.90	6.51	41.25	6.13	-	61.21	74.00	12.79
5149.77	44.92	Average	H	31.90	6.51	41.25	6.13	0.39	48.60	54.00	5.40
5149.77	62.70	Peak	V	31.90	6.51	41.25	6.13	-	65.99	74.00	8.01
5149.77	47.89	Average	V	31.90	6.51	41.25	6.13	0.39	51.57	54.00	2.43

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

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

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

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14.4.1.3 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 : 82.38 %

-. Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5149.68	62.88	Peak	H	31.90	6.51	41.25	6.13	-	66.17	74.00	7.83
5149.68	46.17	Average	H	31.90	6.51	41.25	6.13	0.84	50.30	54.00	3.70
5149.68	63.38	Peak	V	31.90	6.51	41.25	6.13	-	66.67	74.00	7.33
5148.30	47.47	Average	V	31.90	6.51	41.25	6.13	0.84	51.60	54.00	2.40

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

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

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

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14.4.2 Test data for Frequency U-NII-3

14.4.2.1 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 : 91.06 %

-. Result : Pass

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel											
5650.97	48.42	Peak	H	32.00	6.79	41.31	6.13	-	52.03	68.92	16.89
5715.39	57.57	Peak	H	32.03	6.77	41.32	6.12	-	61.17	109.51	48.34
5723.63	68.76	Peak	H	32.05	6.77	41.32	6.12	-	72.38	119.08	46.70
5854.92	48.53	Peak	H	32.31	6.74	41.34	6.12	-	52.36	110.98	58.62
5874.79	48.78	Peak	H	32.35	6.74	41.34	6.12	-	52.65	105.26	52.61
5924.18	49.75	Peak	H	32.50	6.83	41.35	6.13	-	53.86	68.81	14.95
5650.08	48.72	Peak	V	32.00	6.79	41.31	6.13	-	52.33	68.26	15.93
5719.85	61.58	Peak	V	32.04	6.77	41.32	6.12	-	65.19	110.76	45.57
5720.65	66.36	Peak	V	32.04	6.77	41.32	6.12	-	69.97	112.28	42.31
5854.93	48.34	Peak	V	32.31	6.74	41.34	6.12	-	52.17	110.96	58.79
5873.77	48.70	Peak	V	32.35	6.74	41.34	6.12	-	52.57	105.54	52.97
5924.23	48.35	Peak	V	32.50	6.83	41.35	6.13	-	52.46	68.77	16.31

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Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
High Channel											
5650.42	48.28	Peak	H	32.00	6.79	41.31	6.13	-	51.89	68.51	16.62
5700.17	48.19	Peak	H	32.00	6.77	41.32	6.12	-	51.76	105.25	53.49
5720.28	48.50	Peak	H	32.04	6.77	41.32	6.12	-	52.11	111.44	59.33
5853.68	56.63	Peak	H	32.31	6.74	41.34	6.12	-	60.46	113.81	53.35
5874.03	49.18	Peak	H	32.35	6.74	41.34	6.12	-	53.05	105.47	52.42
5924.73	47.48	Peak	H	32.50	6.83	41.35	6.13	-	51.59	68.40	16.81
5650.12	47.43	Peak	V	32.00	6.79	41.31	6.13	-	51.04	68.29	17.25
5704.67	49.95	Peak	V	32.01	6.77	41.32	6.12	-	53.53	106.51	52.98
5720.09	48.90	Peak	V	32.04	6.77	41.32	6.12	-	52.51	111.01	58.50
5854.60	54.50	Peak	V	32.31	6.74	41.34	6.12	-	58.33	111.71	53.38
5872.73	49.75	Peak	V	32.35	6.74	41.34	6.12	-	53.62	105.84	52.22
5924.53	47.97	Peak	V	32.50	6.83	41.35	6.13	-	52.08	68.55	16.47

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

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

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

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14.4.2.2 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 : 90.31 %

-. Result : Pass

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel											
5650.17	47.70	Peak	H	32.00	6.79	41.31	6.13	-	51.31	68.33	17.02
5717.95	62.09	Peak	H	32.04	6.77	41.32	6.12	-	65.70	110.23	44.53
5721.13	64.85	Peak	H	32.04	6.77	41.32	6.12	-	68.46	113.38	44.92
5854.70	49.09	Peak	H	32.31	6.74	41.34	6.12	-	52.92	111.48	58.56
5874.49	49.03	Peak	H	32.35	6.74	41.34	6.12	-	52.90	105.34	52.44
5924.92	48.26	Peak	H	32.50	6.83	41.35	6.13	-	52.37	68.26	15.89
5650.17	47.83	Peak	V	32.00	6.79	41.31	6.13	-	51.44	68.33	16.89
5717.69	59.77	Peak	V	32.04	6.77	41.32	6.12	-	63.38	110.15	46.77
5721.17	66.12	Peak	V	32.04	6.77	41.32	6.12	-	69.73	113.47	43.74
5854.97	48.44	Peak	V	32.31	6.74	41.34	6.12	-	52.27	110.87	58.60
5871.47	48.80	Peak	V	32.34	6.74	41.34	6.12	-	52.66	106.19	53.53
5923.43	47.89	Peak	V	32.49	6.83	41.35	6.13	-	51.99	69.36	17.37

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Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
High Channel											
5650.32	48.60	Peak	H	32.00	6.79	41.31	6.13	-	52.21	68.44	16.23
5702.25	49.39	Peak	H	32.00	6.77	41.32	6.12	-	52.96	105.83	52.87
5720.02	48.39	Peak	H	32.04	6.77	41.32	6.12	-	52.00	110.85	58.85
5854.86	54.65	Peak	H	32.31	6.74	41.34	6.12	-	58.48	111.12	52.64
5871.39	49.40	Peak	H	32.34	6.74	41.34	6.12	-	53.26	106.21	52.95
5924.63	47.40	Peak	H	32.50	6.83	41.35	6.13	-	51.51	68.47	16.96
5651.82	48.70	Peak	V	32.00	6.79	41.31	6.13	-	52.31	69.55	17.24
5700.23	48.15	Peak	V	32.00	6.77	41.32	6.12	-	51.72	105.26	53.54
5720.10	48.86	Peak	V	32.04	6.77	41.32	6.12	-	52.47	111.03	58.56
5854.59	55.31	Peak	V	32.31	6.74	41.34	6.12	-	59.14	111.73	52.59
5855.47	54.75	Peak	V	32.31	6.74	41.34	6.12	-	58.58	110.67	52.09
5924.88	47.75	Peak	V	32.50	6.83	41.35	6.13	-	51.86	68.29	16.43

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

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

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

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14.4.2.3 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 : 81.99 %

-. Result : Pass

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel											
5651.12	48.19	Peak	H	32.00	6.79	41.31	6.13	-	51.80	69.03	17.23
5716.83	70.56	Peak	H	32.03	6.77	41.32	6.12	-	74.16	109.91	35.75
5720.13	69.71	Peak	H	32.04	6.77	41.32	6.12	-	73.32	111.10	37.78
5854.80	48.92	Peak	H	32.31	6.74	41.34	6.12	-	52.75	111.26	58.51
5874.05	48.85	Peak	H	32.35	6.74	41.34	6.12	-	52.72	105.47	52.75
5924.78	48.18	Peak	H	32.50	6.83	41.35	6.13	-	52.29	68.36	16.07
5651.67	48.33	Peak	V	32.00	6.79	41.31	6.13	-	51.94	69.44	17.50
5717.85	71.98	Peak	V	32.04	6.77	41.32	6.12	-	75.59	110.20	34.61
5720.22	69.96	Peak	V	32.04	6.77	41.32	6.12	-	73.57	111.30	37.73
5854.88	48.31	Peak	V	32.31	6.74	41.34	6.12	-	52.14	111.07	58.93
5874.57	48.65	Peak	V	32.35	6.74	41.34	6.12	-	52.52	105.32	52.80
5923.98	49.07	Peak	V	32.50	6.83	41.35	6.13	-	53.18	68.95	15.77

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Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
High Channel											
5650.08	47.48	Peak	H	32.00	6.79	41.31	6.13	-	51.09	68.26	17.17
5701.55	48.69	Peak	H	32.00	6.77	41.32	6.12	-	52.26	105.63	53.37
5720.24	48.55	Peak	H	32.04	6.77	41.32	6.12	-	52.16	111.35	59.19
5854.93	52.35	Peak	H	32.31	6.74	41.34	6.12	-	56.18	110.96	54.78
5873.13	49.64	Peak	H	32.35	6.74	41.34	6.12	-	53.51	105.72	52.21
5924.63	47.64	Peak	H	32.50	6.83	41.35	6.13	-	51.75	68.47	16.72
5650.08	47.36	Peak	V	32.00	6.79	41.31	6.13	-	50.97	68.26	17.29
5702.17	49.14	Peak	V	32.00	6.77	41.32	6.12	-	52.71	105.81	53.10
5720.02	49.23	Peak	V	32.04	6.77	41.32	6.12	-	52.84	110.85	58.01
5854.83	52.66	Peak	V	32.31	6.74	41.34	6.12	-	56.49	111.19	54.70
5872.51	49.30	Peak	V	32.35	6.74	41.34	6.12	-	53.17	105.90	52.73
5924.83	47.97	Peak	V	32.50	6.83	41.35	6.13	-	52.08	68.33	16.25

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

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

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

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14.5 Test data for DC 24 V

14.5.1 Test data for Frequency U-NII-1

14.5.1.1 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 : 90.20 %

-. Result : Pass

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
5146.37	56.01	Peak	H	31.90	6.51	41.25	6.13	-	59.30	74.00	14.70
5149.77	46.34	Average	H	31.90	6.51	41.25	6.13	0.45	50.08	54.00	3.92
5147.73	60.46	Peak	V	31.90	6.51	41.25	6.13	-	63.75	74.00	10.25
5149.09	47.50	Average	V	31.90	6.51	41.25	6.13	0.45	51.24	54.00	2.76

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

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

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

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14.5.1.2 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 : 91.35 %

-. Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5149.09	57.40	Peak	H	31.90	6.51	41.25	6.13	-	60.69	74.00	13.31
5149.09	45.10	Average	H	31.90	6.51	41.25	6.13	0.39	48.78	54.00	5.22
5149.77	59.51	Peak	V	31.90	6.51	41.25	6.13	-	62.80	74.00	11.20
5149.77	47.19	Average	V	31.90	6.51	41.25	6.13	0.39	50.87	54.00	3.13

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

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

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

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14.5.1.3 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 : 82.38 %

-. Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5149.68	58.34	Peak	H	31.90	6.51	41.25	6.13	-	61.63	74.00	12.37
5149.68	46.56	Average	H	31.90	6.51	41.25	6.13	0.84	50.69	54.00	3.31
5148.30	59.82	Peak	V	31.90	6.51	41.25	6.13	-	63.11	74.00	10.89
5149.68	47.49	Average	V	31.90	6.51	41.25	6.13	0.84	51.62	54.00	2.38

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

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

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

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14.5.2 Test data for Frequency U-NII-3

14.5.2.1 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 : 91.06 %

-. Result : Pass

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel											
5650.62	48.65	Peak	H	32.00	6.79	41.31	6.13	-	52.26	68.66	16.40
5715.75	57.35	Peak	H	32.03	6.77	41.32	6.12	-	60.95	109.61	48.66
5720.85	60.58	Peak	H	32.04	6.77	41.32	6.12	-	64.19	112.74	48.55
5854.96	47.92	Peak	H	32.31	6.74	41.34	6.12	-	51.75	110.89	59.14
5872.21	49.08	Peak	H	32.34	6.74	41.34	6.12	-	52.94	105.98	53.04
5924.98	48.49	Peak	H	32.50	6.83	41.35	6.13	-	52.60	68.21	15.61
5650.52	48.08	Peak	V	32.00	6.79	41.31	6.13	-	51.69	68.58	16.89
5718.87	62.26	Peak	V	32.04	6.77	41.32	6.12	-	65.87	110.48	44.61
5725.00	72.61	Peak	V	32.05	6.77	41.32	6.12	-	76.23	122.20	45.97
5854.92	48.39	Peak	V	32.31	6.74	41.34	6.12	-	52.22	110.98	58.76
5873.87	48.69	Peak	V	32.35	6.74	41.34	6.12	-	52.56	105.52	52.96
5924.98	47.64	Peak	V	32.50	6.83	41.35	6.13	-	51.75	68.21	16.46

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Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
High Channel											
5650.22	48.21	Peak	H	32.00	6.79	41.31	6.13	-	51.82	68.36	16.54
5700.17	48.56	Peak	H	32.00	6.77	41.32	6.12	-	52.13	105.25	53.12
5720.05	48.48	Peak	H	32.04	6.77	41.32	6.12	-	52.09	110.91	58.82
5854.61	53.98	Peak	H	32.31	6.74	41.34	6.12	-	57.81	111.69	53.88
5874.05	48.63	Peak	H	32.35	6.74	41.34	6.12	-	52.50	105.47	52.97
5924.98	47.99	Peak	H	32.50	6.83	41.35	6.13	-	52.10	68.21	16.11
5650.42	48.37	Peak	V	32.00	6.79	41.31	6.13	-	51.98	68.51	16.53
5701.39	48.41	Peak	V	32.00	6.77	41.32	6.12	-	51.98	105.59	53.61
5720.04	48.45	Peak	V	32.04	6.77	41.32	6.12	-	52.06	110.89	58.83
5854.49	54.00	Peak	V	32.31	6.74	41.34	6.12	-	57.83	111.96	54.13
5871.21	49.49	Peak	V	32.34	6.74	41.34	6.12	-	53.35	106.26	52.91
5924.78	48.97	Peak	V	32.50	6.83	41.35	6.13	-	53.08	68.36	15.28

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

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

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

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14.5.2.2 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 : 90.31 %

-. Result : Pass

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel											
5650.32	48.63	Peak	H	32.00	6.79	41.31	6.13	-	52.24	68.44	16.20
5715.45	58.64	Peak	H	32.03	6.77	41.32	6.12	-	62.24	109.53	47.29
5721.07	65.07	Peak	H	32.04	6.77	41.32	6.12	-	68.68	113.24	44.56
5854.76	48.47	Peak	H	32.31	6.74	41.34	6.12	-	52.30	111.35	59.05
5874.69	48.08	Peak	H	32.35	6.74	41.34	6.12	-	51.95	105.29	53.34
5924.88	46.93	Peak	H	32.50	6.83	41.35	6.13	-	51.04	68.29	17.25
5650.08	48.50	Peak	V	32.00	6.79	41.31	6.13	-	52.11	68.26	16.15
5719.03	61.13	Peak	V	32.04	6.77	41.32	6.12	-	64.74	110.53	45.79
5722.03	65.56	Peak	V	32.04	6.77	41.32	6.12	-	69.17	115.43	46.26
5854.76	48.68	Peak	V	32.31	6.74	41.34	6.12	-	52.51	111.35	58.84
5874.69	48.25	Peak	V	32.35	6.74	41.34	6.12	-	52.12	105.29	53.17
5923.88	48.19	Peak	V	32.50	6.83	41.35	6.13	-	52.30	69.03	16.73

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Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
High Channel											
5650.22	47.33	Peak	H	32.00	6.79	41.31	6.13	-	50.94	68.36	17.42
5701.51	48.37	Peak	H	32.00	6.77	41.32	6.12	-	51.94	105.62	53.68
5720.16	48.10	Peak	H	32.04	6.77	41.32	6.12	-	51.71	111.16	59.45
5853.50	58.61	Peak	H	32.31	6.74	41.34	6.12	-	62.44	114.22	51.78
5873.73	49.07	Peak	H	32.35	6.74	41.34	6.12	-	52.94	105.56	52.62
5924.98	48.32	Peak	H	32.50	6.83	41.35	6.13	-	52.43	68.21	15.78
5650.87	47.83	Peak	V	32.00	6.79	41.31	6.13	-	51.44	68.84	17.40
5703.53	49.30	Peak	V	32.01	6.77	41.32	6.12	-	52.88	106.19	53.31
5720.00	48.87	Peak	V	32.04	6.77	41.32	6.12	-	52.48	110.80	58.32
5853.51	60.30	Peak	V	32.31	6.74	41.34	6.12	-	64.13	114.20	50.07
5874.23	48.46	Peak	V	32.35	6.74	41.34	6.12	-	52.33	105.42	53.09
5924.53	48.11	Peak	V	32.50	6.83	41.35	6.13	-	52.22	68.55	16.33

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

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

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

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14.5.2.3 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 : 81.99 %

-. Result : Pass

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel											
5650.37	48.35	Peak	H	32.00	6.79	41.31	6.13	-	51.96	68.47	16.51
5717.67	69.14	Peak	H	32.04	6.77	41.32	6.12	-	72.75	110.15	37.40
5720.02	67.30	Peak	H	32.04	6.77	41.32	6.12	-	70.91	110.85	39.94
5854.87	47.90	Peak	H	32.31	6.74	41.34	6.12	-	51.73	111.10	59.37
5874.17	49.82	Peak	H	32.35	6.74	41.34	6.12	-	53.69	105.43	51.74
5924.58	48.98	Peak	H	32.50	6.83	41.35	6.13	-	53.09	68.51	15.42
5650.12	48.45	Peak	V	32.00	6.79	41.31	6.13	-	52.06	68.29	16.23
5718.17	68.79	Peak	V	32.04	6.77	41.32	6.12	-	72.40	110.29	37.89
5720.56	73.84	Peak	V	32.04	6.77	41.32	6.12	-	77.45	112.08	34.63
5854.92	49.74	Peak	V	32.31	6.74	41.34	6.12	-	53.57	110.98	57.41
5874.83	48.77	Peak	V	32.35	6.74	41.34	6.12	-	52.64	105.25	52.61
5924.58	48.64	Peak	V	32.50	6.83	41.35	6.13	-	52.75	68.51	15.76

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Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain (dB)	ATT (dB)	Duty (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
High Channel											
5652.37	48.70	Peak	H	32.00	6.79	41.31	6.13	-	52.31	69.95	17.64
5702.03	49.35	Peak	H	32.00	6.77	41.32	6.12	-	52.92	105.77	52.85
5720.01	48.98	Peak	H	32.04	6.77	41.32	6.12	-	52.59	110.82	58.23
5854.91	52.17	Peak	H	32.31	6.74	41.34	6.12	-	56.00	111.01	55.01
5874.85	49.19	Peak	H	32.35	6.74	41.34	6.12	-	53.06	105.24	52.18
5924.73	47.72	Peak	H	32.50	6.83	41.35	6.13	-	51.83	68.40	16.57
5650.37	48.12	Peak	V	32.00	6.79	41.31	6.13	-	51.73	68.47	16.74
5701.25	48.91	Peak	V	32.00	6.77	41.32	6.12	-	52.48	105.55	53.07
5720.11	48.88	Peak	V	32.04	6.77	41.32	6.12	-	52.49	111.05	58.56
5854.83	51.75	Peak	V	32.31	6.74	41.34	6.12	-	55.58	111.19	55.61
5873.67	48.96	Peak	V	32.35	6.74	41.34	6.12	-	52.83	105.57	52.74
5924.73	47.75	Peak	V	32.50	6.83	41.35	6.13	-	51.86	68.40	16.54

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

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

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

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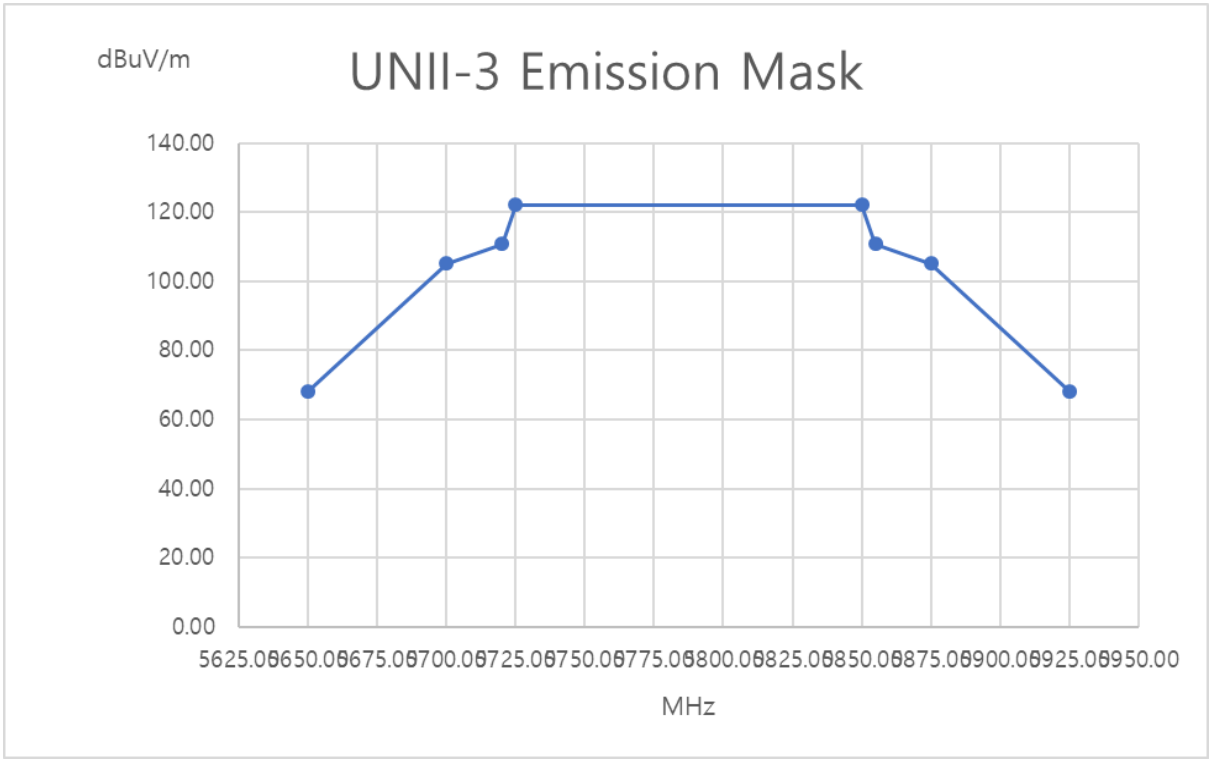
14.6 U-NII-3 Emission Limits

14.6.1 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.

15. CONDUCTED EMISSION TEST

15.1 Operating environment

Temperature : 24 °C

Relative humidity : 51.3 % 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 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.

15.3 Test Date

September 02, 2024 ~ October 10, 2024

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

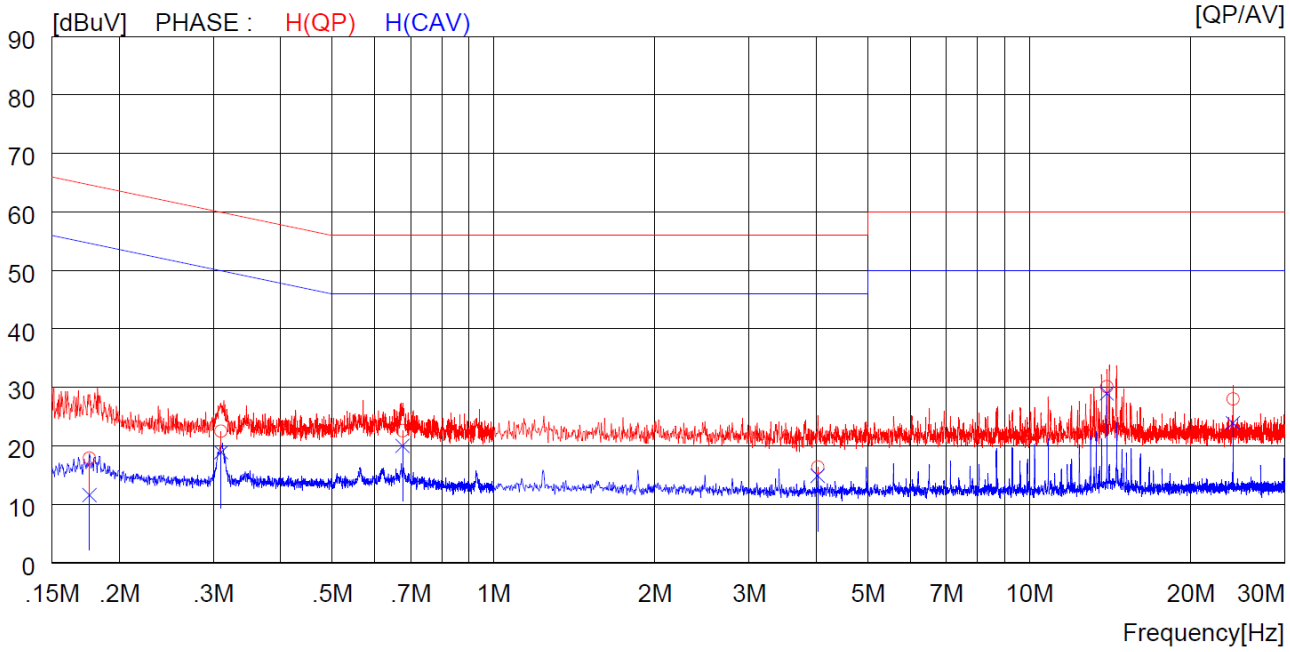
15.4 Test data for DC 12 V

15.4.1 Test data for WLAN 5 GHz

-. Resolution bandwidth : 9 kHz

-. Frequency range : 0.15 MHz ~ 30 MHz

-. Tested Line : HOT 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	0.17600	7.8	----	10.1	17.9	----	64.7	----	46.8	----	H(QP)
2	0.31000	12.5	----	10.0	22.5	----	60.0	----	37.5	----	H(QP)
3	0.67600	12.5	----	10.1	22.6	----	56.0	----	33.4	----	H(QP)
4	4.02800	6.2	----	10.2	16.4	----	56.0	----	39.6	----	H(QP)
5	13.95000	19.7	----	10.4	30.1	----	60.0	----	29.9	----	H(QP)
6	24.00000	17.2	----	10.8	28.0	----	60.0	----	32.0	----	H(QP)
7	0.17600	----	1.5	10.1	----	11.6	----	54.7	----	43.1	H(CAV)
8	0.31000	----	8.9	10.0	----	18.9	----	50.0	----	31.1	H(CAV)
9	0.67600	----	9.9	10.1	----	20.0	----	46.0	----	26.0	H(CAV)
10	4.02800	----	4.7	10.2	----	14.9	----	46.0	----	31.1	H(CAV)
11	13.95000	----	18.6	10.4	----	29.0	----	50.0	----	21.0	H(CAV)
12	24.00000	----	13.1	10.8	----	23.9	----	50.0	----	26.1	H(CAV)

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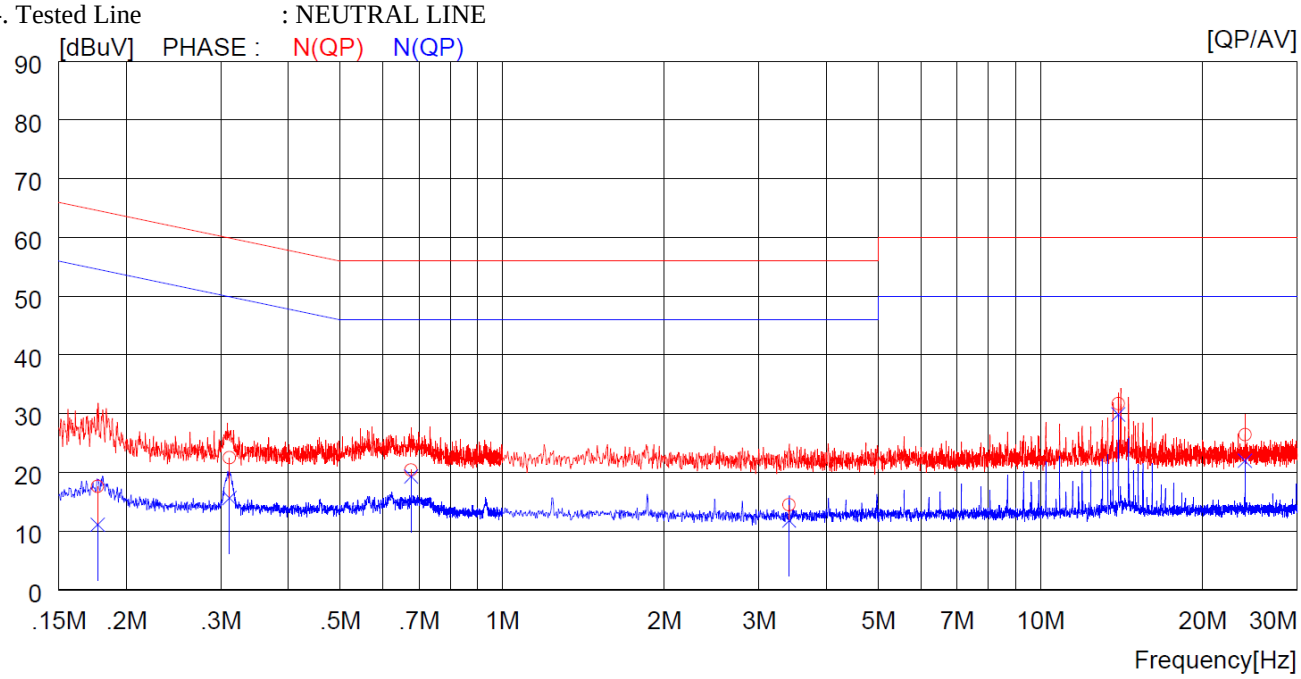
-. Tested Line : NEUTRAL LINE



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	0.17700	7.5	----	10.1	17.6	----	64.6	----	47.0	----	N(QP)
2	0.31100	12.5	----	10.0	22.5	----	59.9	----	37.4	----	N(QP)
3	0.67700	10.3	----	10.1	20.4	----	56.0	----	35.6	----	N(QP)
4	3.41200	4.3	----	10.2	14.5	----	56.0	----	41.5	----	N(QP)
5	13.95000	21.3	----	10.4	31.7	----	60.0	----	28.3	----	N(QP)
6	24.00000	15.6	----	10.8	26.4	----	60.0	----	33.6	----	N(QP)
7	0.17700	----	1.0	10.1	----	11.1	----	54.6	----	43.5	N(CAV)
8	0.31100	----	5.6	10.0	----	15.6	----	49.9	----	34.3	N(CAV)
9	0.67700	----	9.2	10.1	----	19.3	----	46.0	----	26.7	N(CAV)
10	3.41200	----	1.6	10.2	----	11.8	----	46.0	----	34.2	N(CAV)
11	13.95000	----	19.5	10.4	----	29.9	----	50.0	----	20.1	N(CAV)
12	24.00000	----	11.2	10.8	----	22.0	----	50.0	----	28.0	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.

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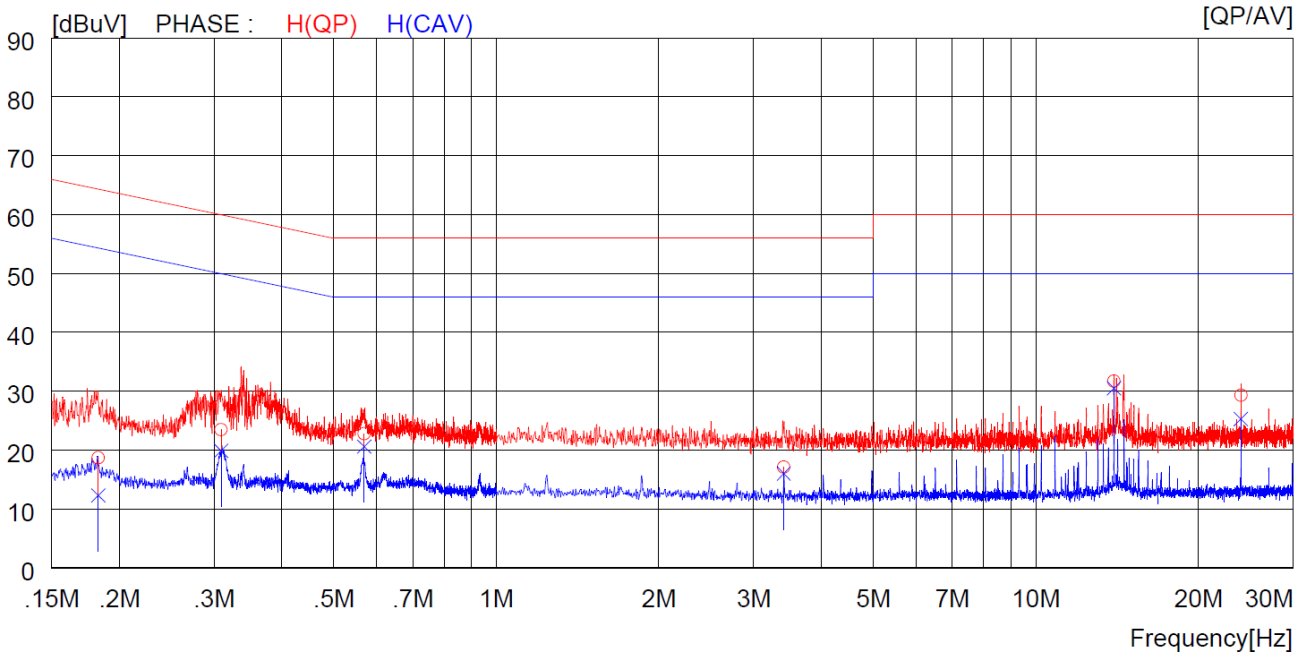
15.5 Test data for DC 24 V

15.5.1 Test data for WLAN 5 GHz

-. Resolution bandwidth : 9 kHz

-. Frequency range : 0.15 MHz ~ 30 MHz

-. Tested Line : HOT 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	0.18300	8.6	----	10.1	18.7	----	64.3	----	45.6	----	H(QP)
2	0.30900	13.5	----	10.0	23.5	----	60.0	----	36.5	----	H(QP)
3	0.56900	12.7	----	10.1	22.8	----	56.0	----	33.2	----	H(QP)
4	3.41200	6.9	----	10.2	17.1	----	56.0	----	38.9	----	H(QP)
5	13.96000	21.3	----	10.4	31.7	----	60.0	----	28.3	----	H(QP)
6	24.00000	18.5	----	10.8	29.3	----	60.0	----	30.7	----	H(QP)
7	0.18300	----	2.2	10.1	----	12.3	----	54.3	----	42.0	H(CAV)
8	0.30900	----	9.9	10.0	----	19.9	----	50.0	----	30.1	H(CAV)
9	0.56900	----	10.5	10.1	----	20.6	----	46.0	----	25.4	H(CAV)
10	3.41200	----	5.8	10.2	----	16.0	----	46.0	----	30.0	H(CAV)
11	13.96000	----	20.1	10.4	----	30.5	----	50.0	----	19.5	H(CAV)
12	24.00000	----	14.5	10.8	----	25.3	----	50.0	----	24.7	H(CAV)

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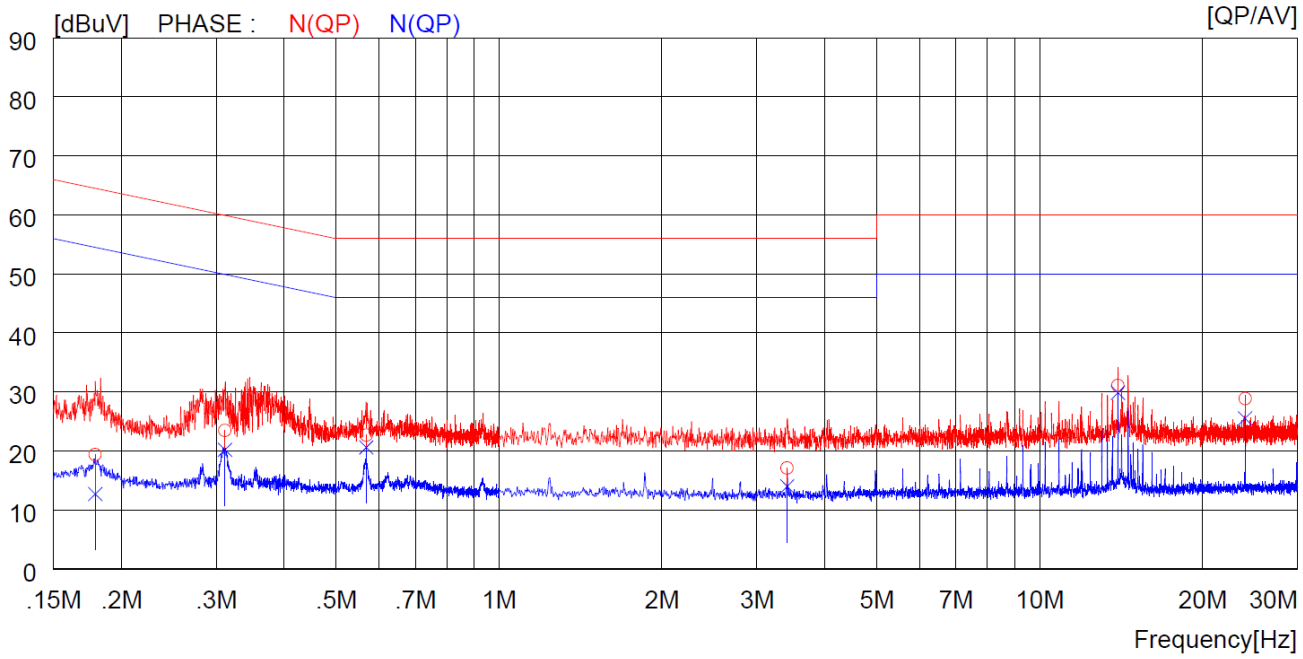
-. Tested Line : NEUTRAL LINE



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	0.17900	9.3	----	10.1	19.4	----	64.5	----	45.1	----	N(QP)
2	0.31100	13.5	----	10.0	23.5	----	59.9	----	36.4	----	N(QP)
3	0.56800	12.6	----	10.1	22.7	----	56.0	----	33.3	----	N(QP)
4	3.41200	6.9	----	10.2	17.1	----	56.0	----	38.9	----	N(QP)
5	13.96000	20.7	----	10.4	31.1	----	60.0	----	28.9	----	N(QP)
6	24.00000	18.1	----	10.8	28.9	----	60.0	----	31.1	----	N(QP)
7	0.17900	----	2.6	10.1	----	12.7	----	54.5	----	41.8	N(CAV)
8	0.31100	----	10.2	10.0	----	20.2	----	49.9	----	29.7	N(CAV)
9	0.56800	----	10.5	10.1	----	20.6	----	46.0	----	25.4	N(CAV)
10	3.41200	----	3.8	10.2	----	14.0	----	46.0	----	32.0	N(CAV)
11	13.96000	----	19.5	10.4	----	29.9	----	50.0	----	20.1	N(CAV)
12	24.00000	----	14.7	10.8	----	25.5	----	50.0	----	24.5	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.

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

16. LIST OF TEST EQUIPMENT

Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
FSV40-N	Rohde & Schwarz	Signal Analyzer	101651	Jan. 15, 2024 (1Y)
ESU	Rohde & Schwarz	EMI Test Receiver	100261	Mar. 05, 2024 (1Y)
GP-4303D	LG Precision Co.,Ltd	DC POWER SUPPLY	5071069	Jan. 04, 2024 (1Y)
E3632A	Agilent	DC POWER SUPPLY	MY50370016	Jan. 15, 2024 (1Y)
OPM-303D	ODA	DC POWER SUPPLY	oda-01-0923-07199	Jan. 16, 2024 (1Y)
HPF 3GHz	Rohde & Schwarz	High Pass Filter (1-3 GHz)	N/A	Jan. 15, 2024 (1Y)
WT-A3882-R10	Microwave	Cavity Band Rejection Filter	WT22040502-1	Jan. 16, 2024 (1Y)
F-40-10.0-RF	RLC Electronis	High Pass Filter	0427	Mar. 04, 2024 (1Y)
WT-A5851-R12	Microwave	Cavity Band Rejection Filter	WT22040502-2	Jan. 16, 2024 (1Y)
WT-A1856-R12	Microwave	Cavity Band Rejection Filter	WT22040502-4	Jan. 16, 2024 (1Y)
310N	Sonoma Instrument	Pre-Amplifier	392756	Oct. 16, 2024 (1Y)
SCU18	Rohde & Schwarz	Pre-Amplifer	102266	Jul. 04, 2024 (1Y)
SCU40A	Rohde & Schwarz	Signal Conditioning unit	100436	Jan. 23, 2024 (1Y)
QFA1802-26-6-S	Qualwave	6dB Attenuator	225340	Jan. 17, 2024 (1Y)
DT2000-2t	Innco System	Turn Table	N/A	N/A
CO3000	Innco System	Controller	1026/40960617/P	N/A
MA-4640-XPET	Innco System	Antenna Master	MA4640/652/43100318/P	N/A
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)
FMZB 1513	Schwarzbeck	Loop Antenna	1513-235	Mar. 20, 2024 (2Y)
ESCI	Rohde & Schwarz	Test Receiver	101012	Mar. 11, 2024 (1Y)
ESH3-Z2	Rohde & Schwarz	Pulse Limiter	100655	Mar. 12, 2024 (1Y)
NSLK8128	Schwarzbeck	LISN	8128216	Mar. 12, 2024 (1Y)
PSL-2KP	ESPEC	Environmental Test Chamber	14009407	Jan. 15, 2024 (1Y)

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