



FCC PART 15E TEST REPORT No.24T04Z100998-011

for

TCL Communication Ltd.

Tablet PC

9465G

FCC ID: 2ACCJB222

with

Hardware Version: 05

Software Version: 6GS2

Issued Date: 2024-06-19

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

Test Laboratory:

CTTL-Telecommunication Technology Labs, CAICT

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
24T04Z100998-011	Rev.0	1st edition	2024-06-19

Note: the latest revision of the test report supersedes all previous version.

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1. Test Laboratory

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 accredited test laboratory under American Association for Laboratory Accreditation (A2LA) with lab code 7049.01, and is also an FCC accredited test laboratory (CN1349), and ISED accredited test laboratory (CAB identifier:CN0066). The detail accreditation scope can be found on A2LA website.

1.2. Testing Location

Conducted testing Location: CTTL(huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing,
P. R. China100191

Radiated testing Location: CTTL(huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing,
100191, P. R. China

1.3. TestingEnvironment

Normal Temperature: 15-35°C

Relative Humidity: 20-75%

1.4. Project date

Testing Start Date: 2024-05-08

Testing End Date: 2024-06-14

1.5. Signature



Yao Xingyu

(Prepared this test report)



Zheng Wei

(Reviewed this test report)



Pang Shuai

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name: TCL Communication Ltd.
Address/Post: 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science
Park, Shatin, NT, Hong Kong
City: Hong Kong
Postal Code: /
Country: China
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2.2. Manufacturer Information

Company Name: TCL Communication Ltd.
Address/Post: 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science
Park, Shatin, NT, Hong Kong
City: Hong Kong
Postal Code: /
Country: China
Contact Person: Ting Wang
Contact Email: ting.wang.hz@tcl.com
Telephone: +86 752 2639091
Fax: +86 755 3661 2000-81722

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	Tablet PC
Model name	9465G
FCC ID	2ACCJB222
WLAN Frequency Band	ISM Band: 5725MHz~5850MHz
Type of modulation	OFDM
Nominal Voltage	3.8V
Extreme High Voltage	4.2V
Extreme Low Voltage	3.5V

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version	Date of receipt
UT17a	355470610000115	05	6GS2	2024-05-11
UT41a	355470610000404	05	6GS2	2024-05-17

*EUT ID: is used to identify the test sample in the lab internally.

UT17a is used for Conduction test, UT41a is used for Radiation test.

3.3. Internal Identification of AE used during the test

AE ID*	Description	Note	Manufacturer
AE1-1	Battery	2853B7PL-2P	Gaoyuan
AE2-1	Charger	UT-681E-5200MY	Shenzhen Baijunda Electronic CO.,Ltd
AE2-2	Charger	UT-681A-5200MY	Shenzhen Baijunda Electronic CO.,Ltd
AE2-3	Charger	UT-681B-5200MY	Shenzhen Baijunda Electronic CO.,Ltd
AE3	USB cable	XB.003.1071.0003	Huizhou Besiter Power Technology Co., Ltd

*AE ID: is used to identify the test sample in the lab internally.

3.4. General Description

Equipment Under Test (EUT) is a model of Tablet PC with integrated antenna. It consists of normal options: Battery and Charger.

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the Client.

4. Reference Documents

4.1. Documents supplied by applicant

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

FCC Part15	FCC CFR 47, Part 15, Subpart C and E:	
	15.205 Restricted bands of operation;	2021
	15.209 Radiated emission limits, general requirements;	
	15.407 General technical requirements	
ANSI C63.10	Methods of Measurement of Radio-Noise Emissions from	
	Low-Voltage Electrical and Electronic Equipment in the	2013
	Range of 9 kHz to 40 GHz	
UNII: KDB 789033	General U-NII Test Procedures New Rules v02r01	2017-12
D02		

5. Laboratory Environment

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Semi-anechoic chamber.

6. Test Results

6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15E	Sub-clause of IC	Verdict
Maximum Peak Output Power	15.407 (a)	/	P
Peak Power Spectral Density	15.407 (a)	/	P
Occupied 6dB Bandwidth	15.407 (e)	/	P
Band Edges Compliance - Conducted& Radiated	15.407 (b)	/	P
Transmitter Spurious Emission - Radiated	15.407, 15.205, 15.209	/	P
AC Powerline Conducted Emission	15.107, 15.207	/	P

Please refer to **ANNEX A** for detail.

Terms used in Verdict column

P	Pass, The EUT complies with the essential requirements in the standard.
NM	Not measured, The test was not measured by CTTL
NA	Not Applicable, The test was not applicable
F	Fail, The EUT does not comply with the essential requirements in the standard

6.2. Statements

CTTL has evaluated the test cases as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.

This report only deals with the WLAN function among the features described in section 3.

6.3. Test Conditions

For this report, all the test cases are tested under normal temperature and normal voltage, and also under norm humidity, the specific condition is shown as follows:

Temperature	26°C
Voltage	3.8V
Humidity	44%

7. Test Facilities Utilized

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	1 year	2024-07-04
2	Vector Signal Analyzer	FSW67	104051	Rohde & Schwarz	1 year	2025-04-01
3	LISN	ENV216	101200	Rohde & Schwarz	1 year	2025-05-16
4	Test Receiver	ESCI	100344	Rohde & Schwarz	1 year	2025-04-01
5	Attenuator	10dB/2W	/	Rosenberger	/	/
6	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESW44	103023	R&S	2 years	2025-06-08
2	EMI Antenna	HFH2-Z2	829324/00 7	R&S	1 year	2025-01-04
3	EMI Antenna	VULB 9163	01222	SCHWARZBECK	2 years	2025-01-28
4	EMI Antenna	3115	00167250	ETS-Lindgren	1 year	2025-04-11
5	EMI Antenna	3116	2663	ETS-Lindgren	2 years	2024-11-22

Test software information(HL)		
Test Item	Software	Manufacturer
Conducted emission	EMC32 V8.53.0	R&S
Radiated emission	EMC32 V11.50.00	R&S

8. Measurement Uncertainty

8.1. Transmitter Output Power

Measurement Uncertainty: 0.387dB,k=1.96

8.2. Peak Power Spectral Density

Measurement Uncertainty: 0.705dB,k=1.96

8.3. 6dB Emission Bandwidth

Measurement Uncertainty: 60.80Hz,k=1.96

8.4. Band Edges Compliance

Measurement Uncertainty : 0.62dB,k=1.96

8.5. Spurious Emissions

Conducted (k=1.96)

Frequency Range	Uncertainty(dB)
$30\text{MHz} \leq f \leq 2\text{GHz}$	1.22
$2\text{GHz} \leq f \leq 3.6\text{GHz}$	1.22
$3.6\text{GHz} \leq f \leq 8\text{GHz}$	1.22
$8\text{GHz} \leq f \leq 12.75\text{GHz}$	1.51
$12.75\text{GHz} \leq f \leq 26\text{GHz}$	1.51
$26\text{GHz} \leq f \leq 40\text{GHz}$	1.59

Radiated (k=2)

Frequency Range	Uncertainty(dB)
9kHz-30MHz	4.92
$30\text{MHz} \leq f \leq 1\text{GHz}$	4.72
$1\text{GHz} \leq f \leq 18\text{GHz}$	4.84
$18\text{GHz} \leq f \leq 40\text{GHz}$	5.12

8.6. AC Power-line Conducted Emission

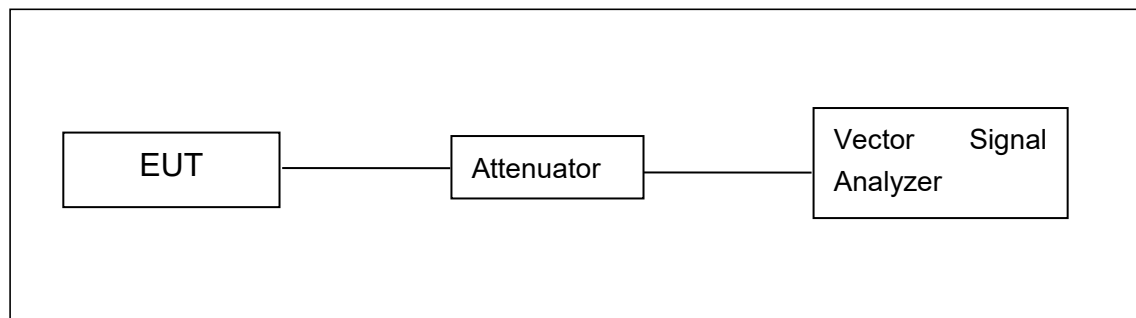
Measurement Uncertainty : 3.08dB,k=2

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

A.1.1. Conducted Measurements

- 1). Connect the EUT to the test system correctly.
- 2). Set the EUT to the required work mode.
- 3). Set the EUT to the required channel.
- 4). Set the spectrum analyzer to start measurement.
- 5). Record the values. Vector Signal Analyzer

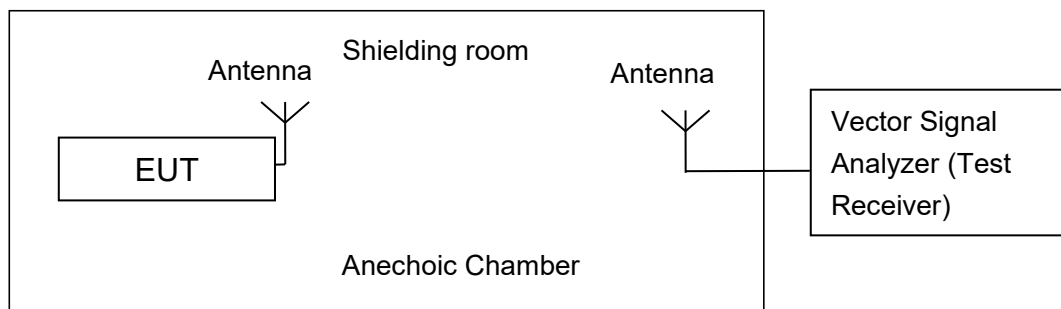


A.1.2. Radiated Emission Measurements

In the case of radiated emission, the used settings are as follows,

Sweep frequency from 30 MHz to 1GHz, RBW = 100 kHz, VBW = 300 kHz;

Sweep frequency from 1 GHz to 26GHz, RBW = 1MHz, VBW = 3MHz;



The measurement is made according to ANSI C63.10.

The radiated emission test is performed in semi-anechoic chamber. The distance from the EUT to the reference point of measurement antenna is 3m. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept. During the test, the turntable is rotated 360° and the measurement antenna is moved from 1m to 4m to get the maximization result.

A.2. Maximum Peak Output Power

Measurement Limit and Method:

Standard	Limit (dBm)
FCC CRF Part 15.407(a)	< 30

Set span to encompass the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.

Set RBW = 1 MHz.

Set VBW $\geq$ 3 MHz.

Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$.

Sweep time = auto.

Detector = power averaging (rms)

Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed to ensure that the average accurately represents the true average over the on and off periods of the transmitter.

Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal. Add 10 log (1/x), where x is the duty cycle

A.2.1 Antenna Gain

Antenna gain is -0.5dBi and the value is supplied by the applicant or manufacturer.

A.2.2. Maximum Average Output Power-Conducted

EUT ID: UT17a

Measurement Results:

802.11a mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11a	6	17.67	17.25	17.22

The data rate 6Mbps is selected as worst condition, and the following cases are performed with this condition.

802.11n-HT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11n (20MHz)	MCS0	17.37	17.17	17.22

The data rate MCS0 is selected as worst condition, and the following cases are performed with

this condition.

802.11ac-HT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11ac (20MHz)	MCS0	14.59	14.94	15.33

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

802.11n-HT40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11n (40MHz)	MCS0	15.10	14.93

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

802.11ac-HT40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11ac (40MHz)	MCS0	15.19	15.04

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

802.11ac-HT80 mode

Mode	Data Rate (Index)	Test Result (dBm)
		5775MHz (Ch155)
802.11ac (80MHz)	MCS0	15.01

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

The duty cycle of all mode are 100%



16:02:11 19.06.2024

Maximum output Power: 11a CH149

Conclusion: PASS

A.3. Peak Power Spectral Density

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.407(a)	< 30 dBm/500 kHz

Set span to encompass the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.

Set RBW = 500 kHz.

Set VBW $\geq$ 3 MHz.

Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$.

Sweep time = auto.

Detector = power averaging (rms)

Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed to ensure that the average accurately represents the true average over the on and off periods of the transmitter. Use the peak search function on the instrument to find the peak of the spectrum and record its value. Add $10 \log (1/x)$, where x is the duty cycle.

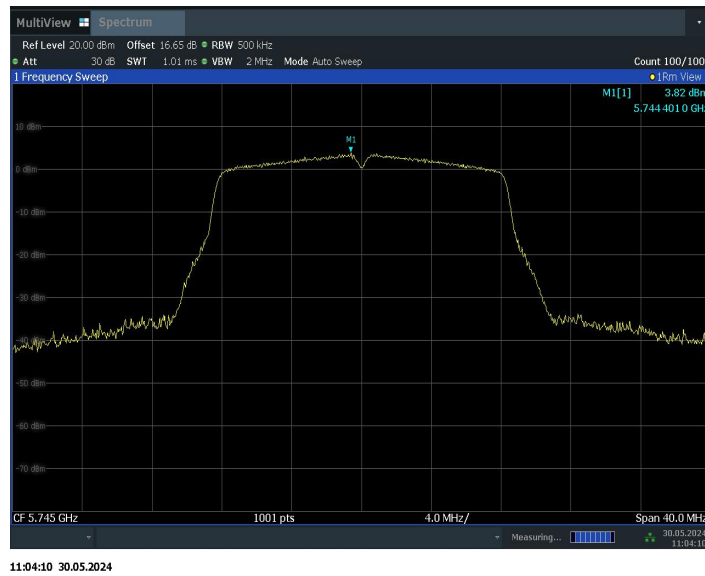
Measurement Uncertainty:

Measurement Uncertainty	0.75dB
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EUT ID: UT17a

Measurement Results:

Mode	Channel	Power Spectral Density (dBm/500kHz)	Conclusion
802.11a	149	3.82	P
	157	3.51	P
	165	3.33	P
802.11n HT20	149	3.07	P
	157	3.09	P
	165	2.98	P
802.11ac VHT40	151	-2.06	P
	159	-1.97	P
802.11ac VHT80	155	-5.84	P



Conclusion: PASS

A.4. 6dB Emission Bandwidth

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.407 (e)	≥ 500

Set RBW = 100 kHz.

Set the video bandwidth (VBW) $\geq 3 \times$ RBW.

Detector = Peak.

Trace mode = max hold.

Sweep = auto couple.

Allow the trace to stabilize.

Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Measurement Uncertainty:

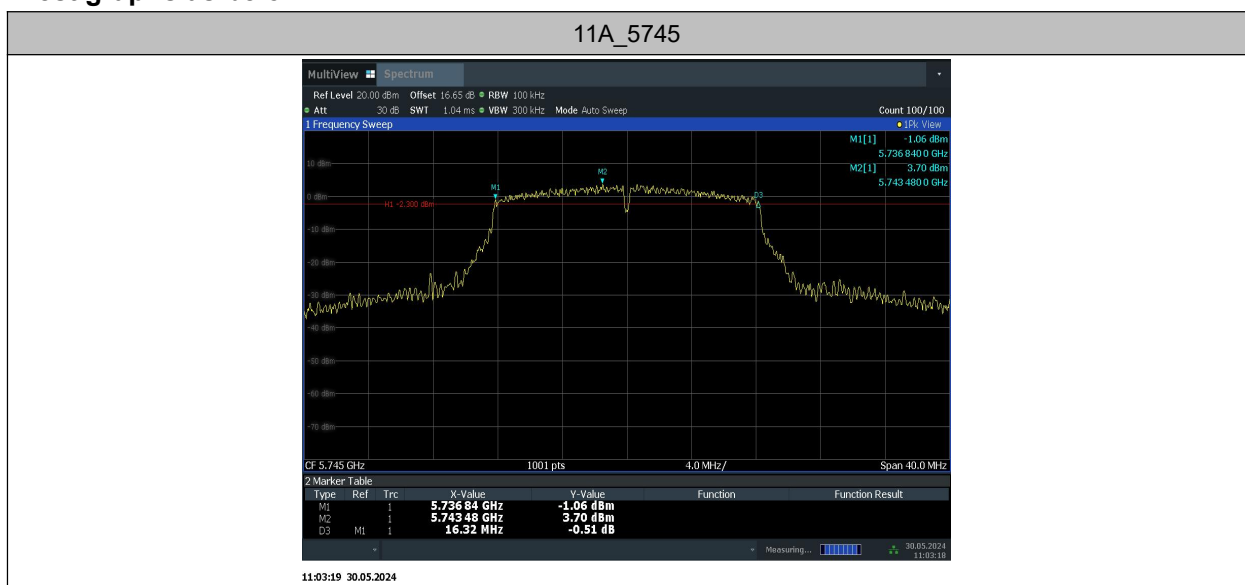
Measurement Uncertainty	60.80Hz
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EUT ID: UT17a

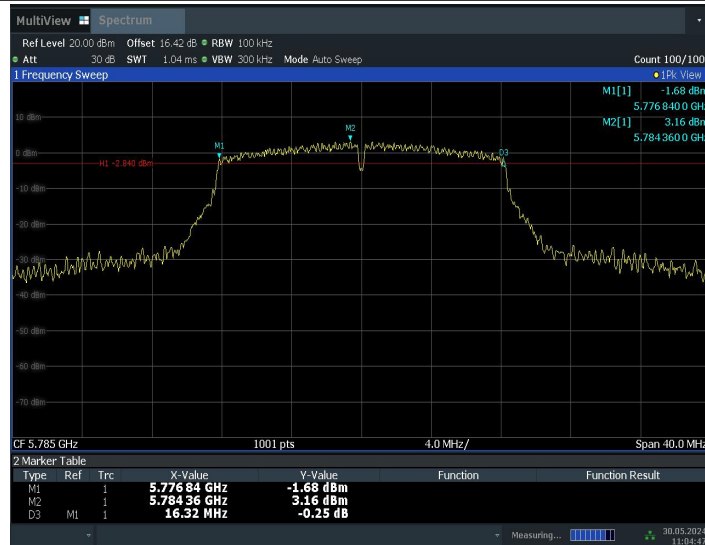
Measurement Result:

TestMode	Frequency[MHz]	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	5745	16.32	5736.84	5753.16	0.5	PASS
	5785	16.32	5776.84	5793.16	0.5	PASS
	5825	16.32	5816.84	5833.16	0.5	PASS
11N20SISO	5745	17.60	5736.20	5753.80	0.5	PASS
	5785	17.60	5776.20	5793.80	0.5	PASS
	5825	17.56	5816.20	5833.76	0.5	PASS
11AC40SISO	5755	36.32	5736.84	5773.16	0.5	PASS
	5795	36.32	5776.84	5813.16	0.5	PASS
11AC80SISO	5775	76.32	5736.76	5813.08	0.5	PASS

Test graphs as below:

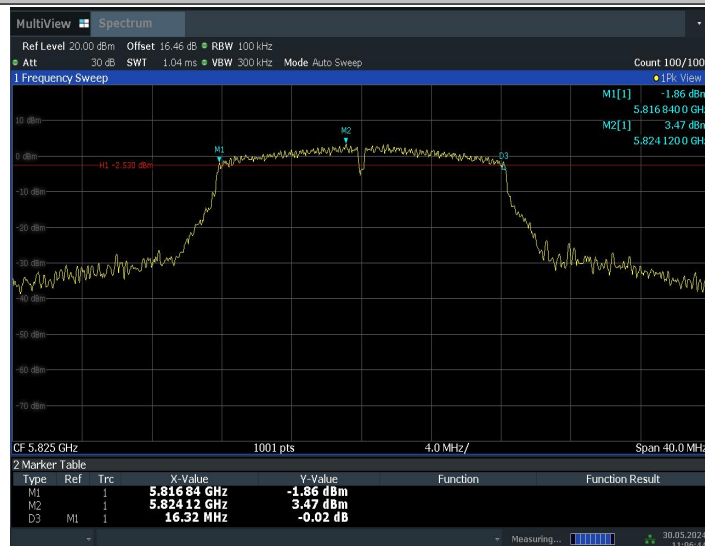


11A_5785



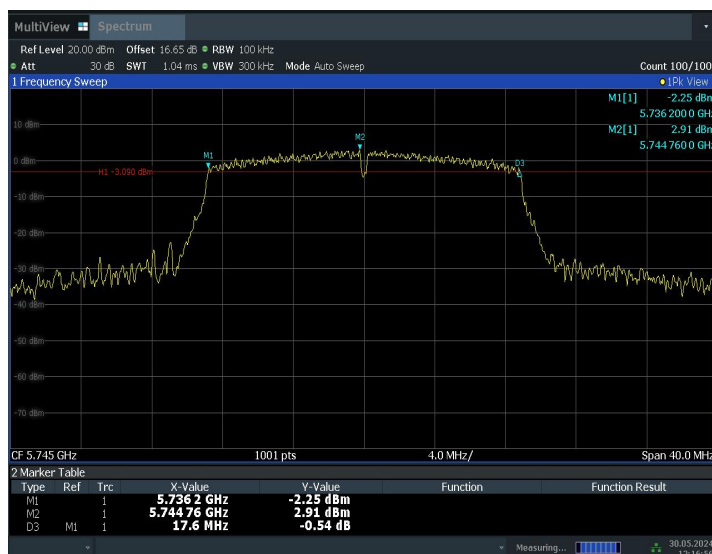
11:04:48 30.05.2024

11A_5825



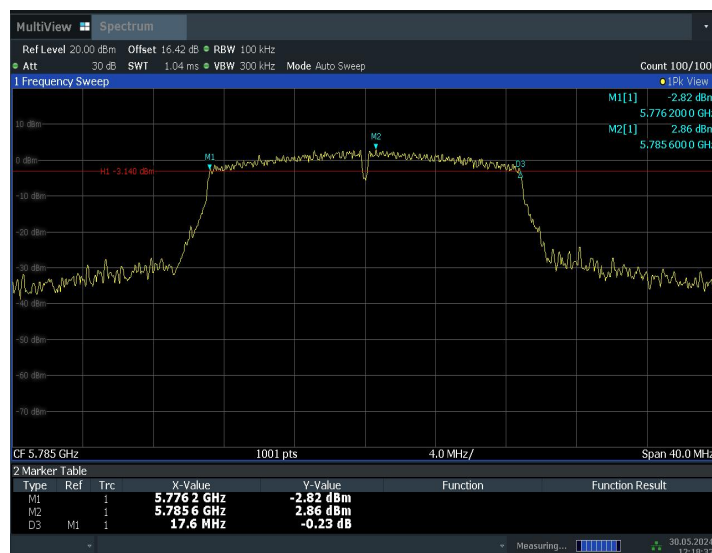
11:06:45 30.05.2024

11N20SISO_5745



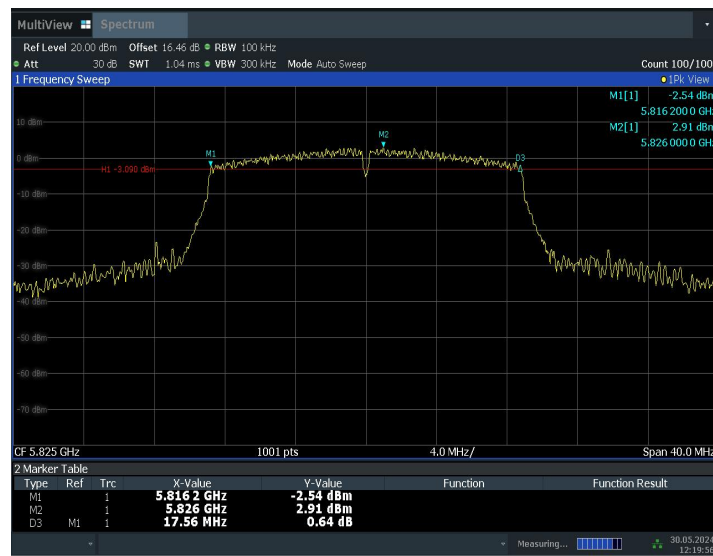
12:16:57 30.05.2024

11N20SISO_5785



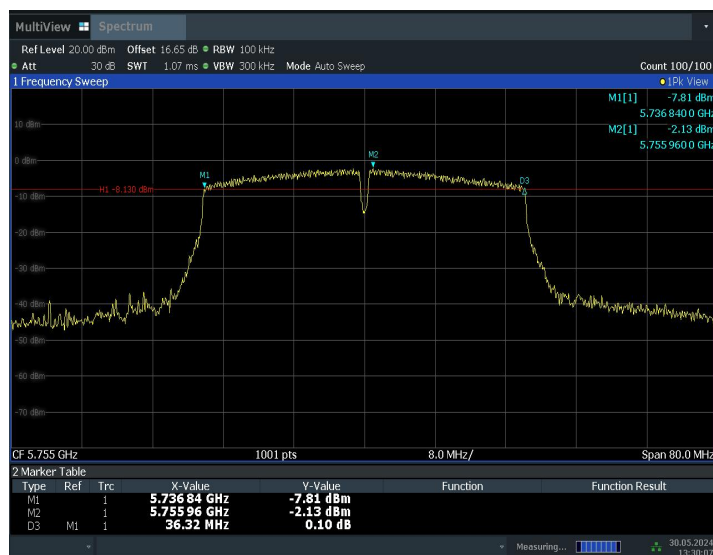
12:18:32 30.05.2024

11N20SISO_5825



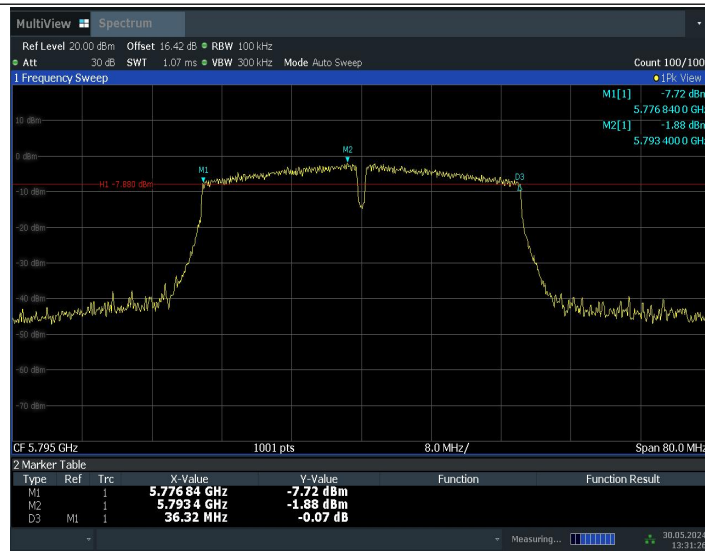
12:19:56 30.05.2024

11AC40SISO_5755



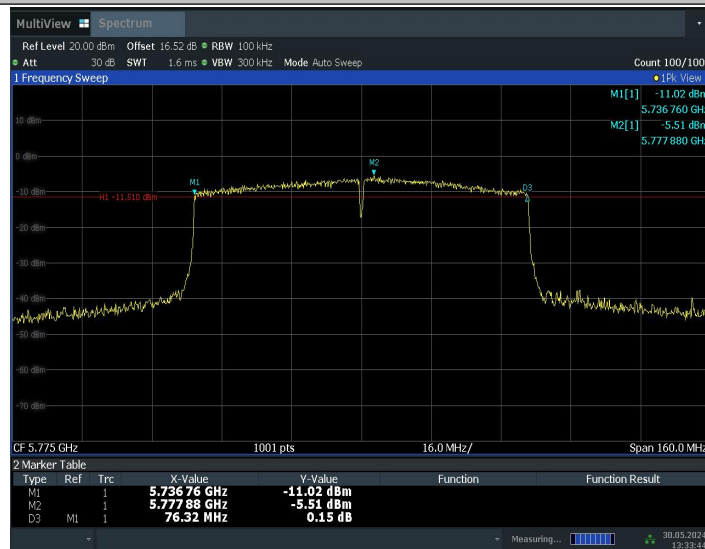
13:30:08 30.05.2024

11AC40SISO_5795



13:31:26 30.05.2024

11AC80SISO_5775



13:33:45 30.05.2024

Conclusion: PASS

A.5. Transmitter Spurious Emission

A.5.1 Transmitter Spurious Emission - Radiated

Measurement Limit:

Standard	Frequency (MHz)	Limit (dBm/MHz)
FCC 47 CFR Part 15.407	5725MHz~5850MHz	< -27

The measurement is made according to ANSI C63.10 .

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

Limit in restricted band:

Frequency of emission (MHz)	Field strength (uV/m)	Field strength (dBμV/m)	Measurement distance(m)
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Measurement Results:

Note:

A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

P_{Mea} is the field strength recorded from the instrument.

Conclusion: PASS

Average Results:

802.11a

Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11487.500	50.98	-32.80	39.10	44.68	54.00	3.02	V
11489.600	50.96	-32.80	39.10	44.66	54.00	3.04	H
9191.800	46.25	-34.47	37.70	43.02	54.00	7.75	H
9192.300	43.99	-34.47	37.70	40.76	54.00	10.01	H
17994.000	41.14	-29.59	45.95	24.78	54.00	12.86	V
17975.200	40.88	-29.59	45.95	24.52	54.00	13.12	H

Channel 157

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11568.900	52.53	-32.86	39.15	46.24	54.00	1.47	V
11569.400	52.18	-32.86	39.15	45.89	54.00	1.82	H
17997.800	41.24	-29.59	45.95	24.88	54.00	12.76	V
17996.700	40.90	-29.59	45.95	24.54	54.00	13.10	H
14488.800	36.95	-29.56	41.90	24.61	54.00	17.05	V
14499.800	36.85	-29.56	41.90	24.51	54.00	17.15	H

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11649.100	53.22	-32.62	39.20	46.64	54.00	0.78	V
11648.000	52.91	-32.62	39.20	46.33	54.00	1.09	H
9319.900	47.98	-34.04	37.80	44.22	54.00	6.02	V
9319.400	44.76	-34.04	37.80	41.00	54.00	9.24	H
17976.900	41.01	-29.59	45.95	24.65	54.00	12.99	H
17974.700	40.94	-29.59	45.95	24.58	54.00	13.06	H

802.11n-HT20
Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11489.100	50.90	-32.80	39.10	44.60	54.00	3.10	H
11488.000	50.67	-32.80	39.10	44.37	54.00	3.33	V
9191.800	46.02	-34.47	37.70	42.79	54.00	7.98	V
9192.300	43.81	-34.47	37.70	40.58	54.00	10.19	V
17998.900	41.35	-29.59	45.95	24.99	54.00	12.65	V
17995.000	41.08	-29.59	45.95	24.72	54.00	12.92	V

Channel 157

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11572.100	51.23	-32.86	39.15	44.94	54.00	2.77	V
11566.100	50.98	-32.86	39.15	44.69	54.00	3.02	V
17992.300	41.11	-29.59	45.95	24.75	54.00	12.89	V
17993.400	41.02	-29.59	45.95	24.66	54.00	12.98	V
16081.000	36.81	-29.92	38.10	28.63	54.00	17.19	V
14478.400	36.72	-29.56	41.90	24.38	54.00	17.28	H

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11651.400	52.34	-32.62	39.20	45.76	54.00	1.66	V
11648.600	52.02	-32.62	39.20	45.44	54.00	1.98	H
9319.900	46.64	-34.04	37.80	42.88	54.00	7.36	V
9319.400	44.69	-34.04	37.80	40.93	54.00	9.31	V
17969.200	41.64	-29.59	45.95	25.28	54.00	12.36	V
17998.900	41.06	-29.59	45.95	24.70	54.00	12.94	H

802.11n-HT40
Channel 151

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11512.200	46.31	-32.80	39.10	40.01	54.00	7.69	H
11505.600	45.68	-32.80	39.10	39.38	54.00	8.32	V
17977.500	41.22	-29.59	45.95	24.86	54.00	12.78	V
17957.100	41.02	-29.59	45.95	24.66	54.00	12.98	V
13286.500	36.89	-31.40	40.60	27.69	54.00	17.11	H
13271.100	36.68	-31.40	40.60	27.48	54.00	17.32	H

Channel 159

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11589.200	46.33	-32.72	39.20	39.85	54.00	7.67	H
11585.400	46.11	-32.72	39.20	39.63	54.00	7.89	H
17992.300	40.87	-29.59	45.95	24.51	54.00	13.13	H
17997.200	40.79	-29.59	45.95	24.43	54.00	13.21	H
14494.300	36.90	-29.56	41.90	24.56	54.00	17.10	H
14495.400	36.82	-29.56	41.90	24.48	54.00	17.18	V

802.11ac-HT20
Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11488.000	48.97	-32.80	39.10	42.67	54.00	5.03	H
11491.900	48.58	-32.80	39.10	42.28	54.00	5.42	H
9191.800	46.25	-34.47	37.70	43.02	54.00	7.75	H
9192.300	43.53	-34.47	37.70	40.30	54.00	10.47	H
17953.800	41.29	-29.59	45.95	24.93	54.00	12.71	H
17920.800	40.90	-29.59	45.95	24.54	54.00	13.10	H

Channel 157

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11570.000	50.70	-32.86	39.15	44.41	54.00	3.30	V
11574.400	48.91	-32.86	39.15	42.62	54.00	5.09	V
17979.100	40.93	-29.59	45.95	24.57	54.00	13.07	H
17995.000	40.81	-29.59	45.95	24.45	54.00	13.19	H
14497.000	36.81	-29.56	41.90	24.47	54.00	17.19	V
14499.800	36.65	-29.56	41.90	24.31	54.00	17.35	H

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11653.000	49.66	-32.62	39.20	43.08	54.00	4.34	V
11646.400	49.43	-32.62	39.20	42.85	54.00	4.57	H
9319.900	47.51	-34.04	37.80	43.75	54.00	6.49	V
9319.400	45.44	-34.04	37.80	41.68	54.00	8.56	H
17962.600	41.19	-29.59	45.95	24.83	54.00	12.81	H
17983.500	41.19	-29.59	45.95	24.83	54.00	12.81	H

802.11ac-HT40

Channel 151

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11512.800	45.96	-32.80	39.10	39.66	54.00	8.04	V
11513.300	45.87	-32.80	39.10	39.57	54.00	8.13	H
17994.500	40.92	-29.59	45.95	24.56	54.00	13.08	V
17990.100	40.89	-29.59	45.95	24.53	54.00	13.11	V
14481.600	36.75	-29.56	41.90	24.41	54.00	17.25	V
14484.400	36.72	-29.56	41.90	24.38	54.00	17.28	H

Channel 159

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11589.200	46.80	-32.72	39.20	40.32	54.00	7.20	V
11590.300	46.52	-32.72	39.20	40.04	54.00	7.48	H
17998.300	41.16	-29.59	45.95	24.80	54.00	12.84	V
17937.800	40.99	-29.59	45.95	24.63	54.00	13.01	H
14492.600	36.79	-29.56	41.90	24.45	54.00	17.21	H
14483.900	36.77	-29.56	41.90	24.43	54.00	17.23	H

802.11ac-HT80

Channel 155

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11560.600	43.67	-32.86	39.15	37.38	54.00	10.33	V
11548.500	43.47	-32.86	39.15	37.18	54.00	10.53	H
17994.500	41.19	-29.59	45.95	24.83	54.00	12.81	H
17989.000	40.76	-29.59	45.95	24.40	54.00	13.24	H
13299.100	37.04	-31.40	40.60	27.84	54.00	16.96	H
14496.000	37.03	-29.56	41.90	24.69	54.00	16.97	H

Peak Results:
802.11a

Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11486.400	61.32	-32.80	39.10	55.02	74.00	12.68	H
11488.000	61.01	-32.80	39.10	54.71	74.00	12.99	V
17498.400	52.56	-29.07	44.55	37.08	68.30	15.74	V
17995.600	52.36	-29.59	45.95	36.00	74.00	21.64	V
16884.600	50.09	-29.28	40.30	39.07	68.30	18.21	V
16959.400	50.07	-29.68	40.60	39.15	68.30	18.23	H

Channel 157

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11569.400	63.20	-32.86	39.15	56.91	74.00	10.80	H
11568.900	61.95	-32.86	39.15	55.66	74.00	12.05	V
17492.300	53.08	-29.07	44.55	37.60	68.30	15.22	H
17975.200	52.34	-29.59	45.95	35.98	74.00	21.66	H
9256.100	50.86	-34.16	37.60	47.42	68.30	17.44	H
9255.500	49.97	-34.16	37.60	46.53	68.30	18.33	H

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11654.100	63.18	-32.62	39.20	56.60	74.00	10.82	V
11653.500	63.03	-32.62	39.20	56.45	74.00	10.97	H
17989.000	52.22	-29.59	45.95	35.86	74.00	21.78	H
17990.700	52.03	-29.59	45.95	35.67	74.00	21.97	H
16984.700	50.77	-29.38	40.85	39.30	68.30	17.53	V
9319.900	50.48	-34.04	37.80	46.72	74.00	23.52	V

802.11n-HT20
Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11489.100	61.81	-32.80	39.10	55.51	74.00	12.19	H
11488.500	60.93	-32.80	39.10	54.63	74.00	13.07	H
17466.000	52.54	-28.70	44.20	37.04	68.30	15.76	V
17974.200	51.96	-29.59	45.95	35.60	74.00	22.04	H
9191.800	50.56	-34.47	37.70	47.33	74.00	23.44	V
16966.500	50.31	-29.68	40.60	39.39	68.30	17.99	H

Channel 157

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11570.500	61.93	-32.86	39.15	55.64	74.00	12.07	H
11569.400	61.45	-32.86	39.15	55.16	74.00	12.55	H
17500.600	53.03	-29.07	44.55	37.55	68.30	15.27	V
17588.000	52.09	-29.60	45.15	36.54	68.30	16.21	V
9255.500	50.43	-34.16	37.60	46.99	68.30	17.87	V
16994.600	50.22	-29.38	40.85	38.75	68.30	18.08	V

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11646.400	62.00	-32.62	39.20	55.42	74.00	12.00	H
11653.500	61.77	-32.62	39.20	55.19	74.00	12.23	V
17991.800	52.96	-29.59	45.95	36.60	74.00	21.04	V
17926.800	52.48	-29.59	45.95	36.12	74.00	21.52	H
9319.900	50.72	-34.04	37.80	46.96	74.00	23.28	V
9319.400	50.34	-34.04	37.80	46.58	74.00	23.66	V

802.11n-HT40
Channel 151

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11511.100	56.17	-32.80	39.10	49.87	74.00	17.83	V
11523.800	55.20	-32.80	39.10	48.90	74.00	18.80	V
17617.200	52.06	-29.60	45.15	36.51	68.30	16.24	V
17530.300	51.73	-29.39	44.90	36.23	68.30	16.57	V
16977.500	50.08	-29.68	40.60	39.16	68.30	18.22	V
16856.000	49.88	-29.50	40.00	39.38	68.30	18.42	V

Channel 159

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11589.200	55.94	-32.72	39.20	49.46	74.00	18.06	H
11591.400	55.52	-32.72	39.20	49.04	74.00	18.48	H
17942.800	52.32	-29.59	45.95	35.96	74.00	21.68	H
17582.000	52.23	-29.60	45.15	36.68	68.30	16.07	V
9272.000	50.96	-34.14	37.60	47.50	68.30	17.34	H
9271.500	50.84	-34.14	37.60	47.38	68.30	17.46	V

802.11ac-HT20
Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11487.500	60.71	-32.80	39.10	54.41	74.00	13.29	H
11491.300	59.45	-32.80	39.10	53.15	74.00	14.55	V
17557.200	52.03	-29.39	44.90	36.53	68.30	16.27	H
17991.800	52.01	-29.59	45.95	35.65	74.00	21.99	V
16957.800	50.41	-29.68	40.60	39.49	68.30	17.89	V
16978.700	50.36	-29.68	40.60	39.44	68.30	17.94	H

Channel 157

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11572.100	61.57	-32.86	39.15	55.28	74.00	12.43	V
11570.000	60.85	-32.86	39.15	54.56	74.00	13.15	V
17960.400	52.04	-29.59	45.95	35.68	74.00	21.96	H
17588.600	51.94	-29.60	45.15	36.39	68.30	16.36	V
9255.500	50.71	-34.16	37.60	47.27	68.30	17.59	H
16950.600	50.46	-29.68	40.60	39.54	68.30	17.84	H

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11648.000	60.60	-32.62	39.20	54.02	74.00	13.40	H
11646.400	59.99	-32.62	39.20	53.41	74.00	14.01	H
17528.100	52.45	-29.39	44.90	36.95	68.30	15.85	H
17995.000	52.43	-29.59	45.95	36.07	74.00	21.57	V
9319.900	50.42	-34.04	37.80	46.66	74.00	23.58	V
9319.400	50.01	-34.04	37.80	46.25	74.00	23.99	H

802.11ac-HT40

Channel 151

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11512.200	55.60	-32.80	39.10	49.30	74.00	18.40	H
11508.900	55.54	-32.80	39.10	49.24	74.00	18.46	V
17374.100	52.05	-28.74	43.40	37.39	68.30	16.25	V
17960.400	51.83	-29.59	45.95	35.47	74.00	22.17	H
13673.700	50.74	-30.98	41.00	40.72	68.30	17.56	H
16991.800	49.86	-29.38	40.85	38.39	68.30	18.44	V

Channel 159

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11588.600	57.09	-32.72	39.20	50.61	74.00	16.91	V
11589.800	57.04	-32.72	39.20	50.56	74.00	16.96	H
17597.400	51.87	-29.60	45.15	36.32	68.30	16.43	H
17607.300	51.85	-29.60	45.15	36.30	68.30	16.45	H
16991.300	50.86	-29.38	40.85	39.39	68.30	17.44	V
9272.000	50.25	-34.14	37.60	46.79	68.30	18.05	H

802.11ac-HT80

Channel 155

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
11559.500	55.81	-32.86	39.15	49.52	74.00	18.19	V
11560.600	54.53	-32.86	39.15	48.24	74.00	19.47	V
17557.200	52.13	-29.39	44.90	36.63	68.30	16.17	H
17475.300	52.08	-29.07	44.55	36.60	68.30	16.22	V
16867.500	50.99	-29.50	40.00	40.49	68.30	17.31	H
14598.200	50.33	-29.14	41.90	37.57	68.30	17.97	H

A.6. Band Edges Compliance

A6.1 Band Edges - Radiated

Measurement Limit:

Standard	Limit (dBm/MHz)	
FCC 47 CFR Part 15.407	at the band edge	27
	at 5 MHz above or below the band edge	15.6
	at 25 MHz above or below the band edge	10
	at 75 MHz or more above or below the band edge	-27
	Note: increasing linearly from point to point.	

The measurement is made according to KDB 789033 D02

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

Measurement Result:

Mode	Channel	Test Results	Conclusion
802.11a	5745 MHz	Fig.1	P
	5825 MHz	Fig.2	P
802.11n HT20	5745 MHz	Fig.3	P
	5825 MHz	Fig.4	P
802.11n HT40	5755 MHz	Fig.5	P
	5795 MHz	Fig.6	P
802.11ac HT20	5745 MHz	Fig.7	P
	5825 MHz	Fig.8	P
802.11ac HT40	5755 MHz	Fig.9	P
	5795 MHz	Fig.10	P
802.11ac HT80	5775 MHz	Fig.11 Fig.12	P

Conclusion: PASS

Test graphs as below:

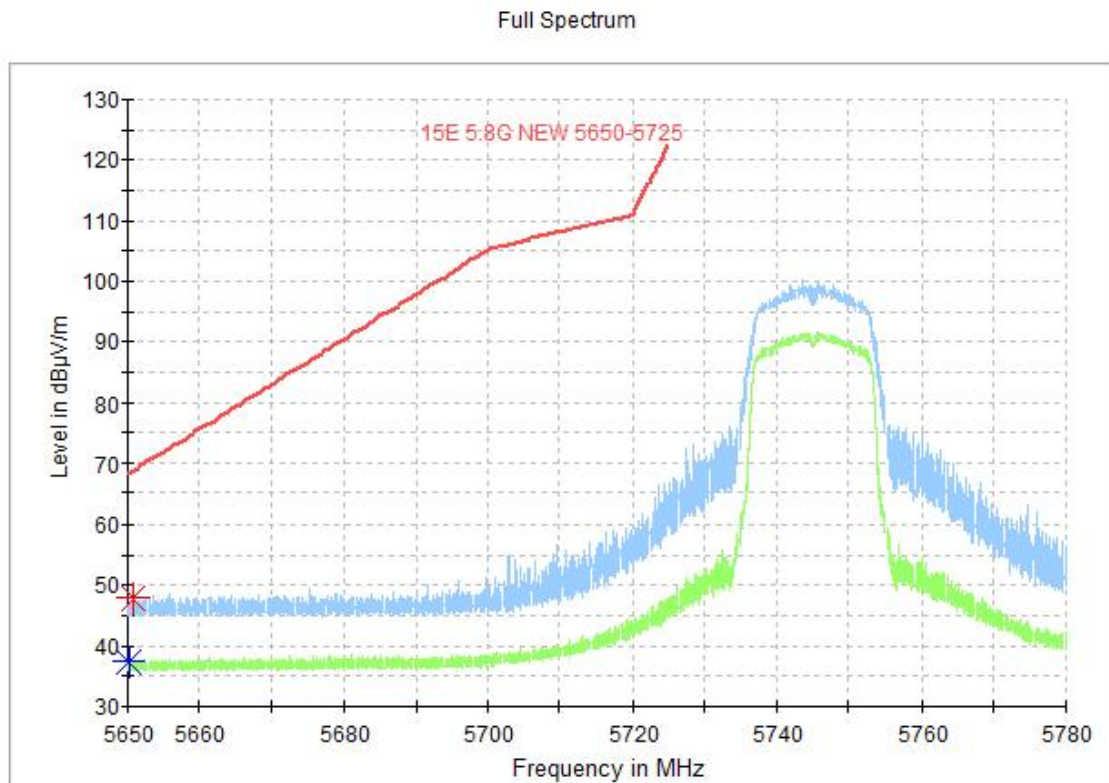


Fig. 1 Band Edges (802.11a Ch149,5745MHz)

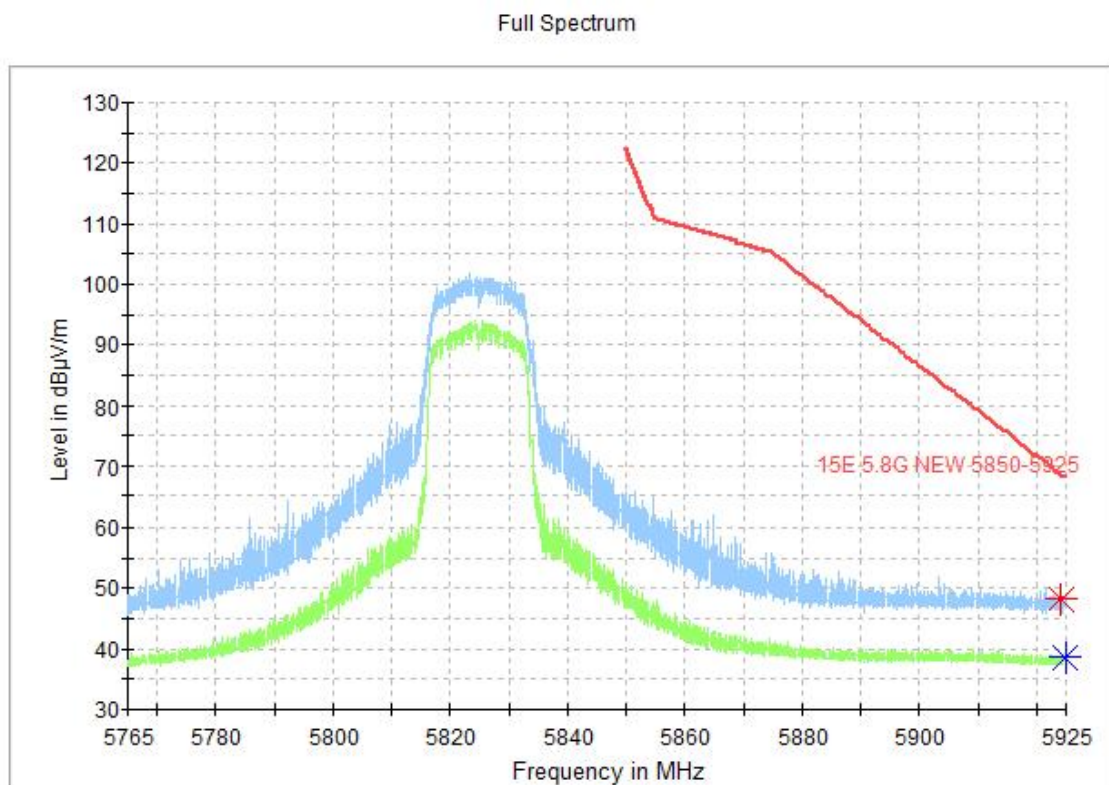


Fig. 2 Band Edges (802.11a Ch165, 5825MHz)

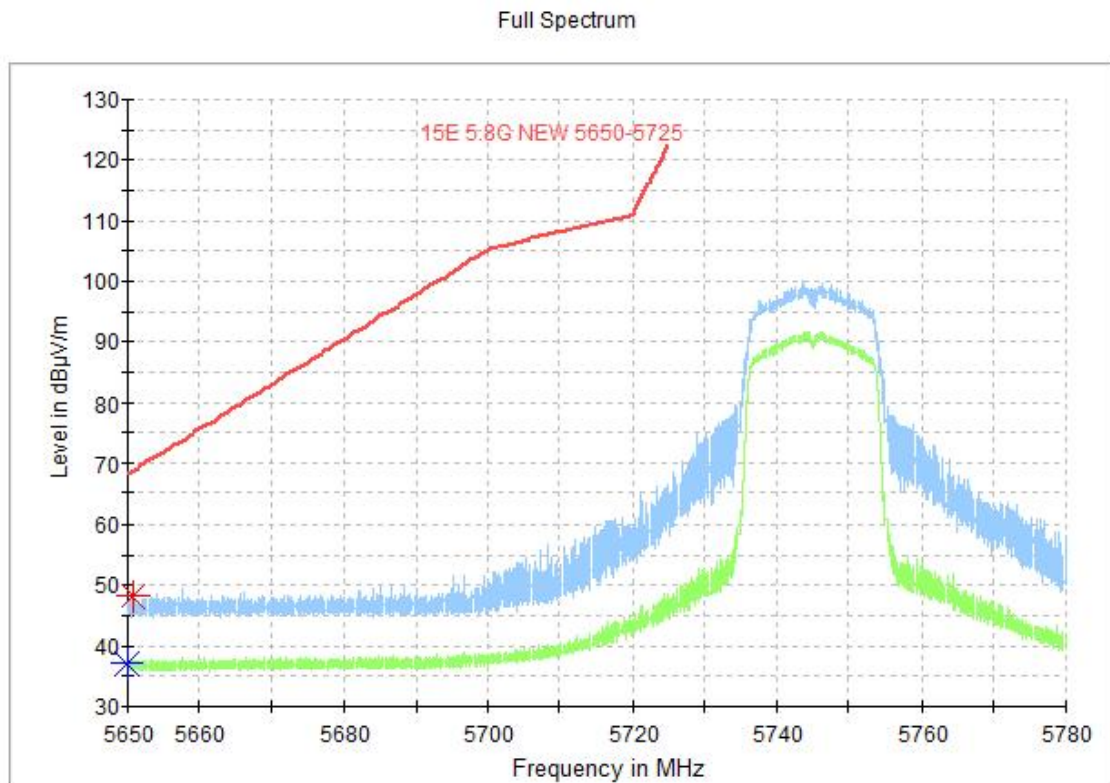


Fig. 3 Band Edges (802.11n-HT20 Ch149, 5745MHz)

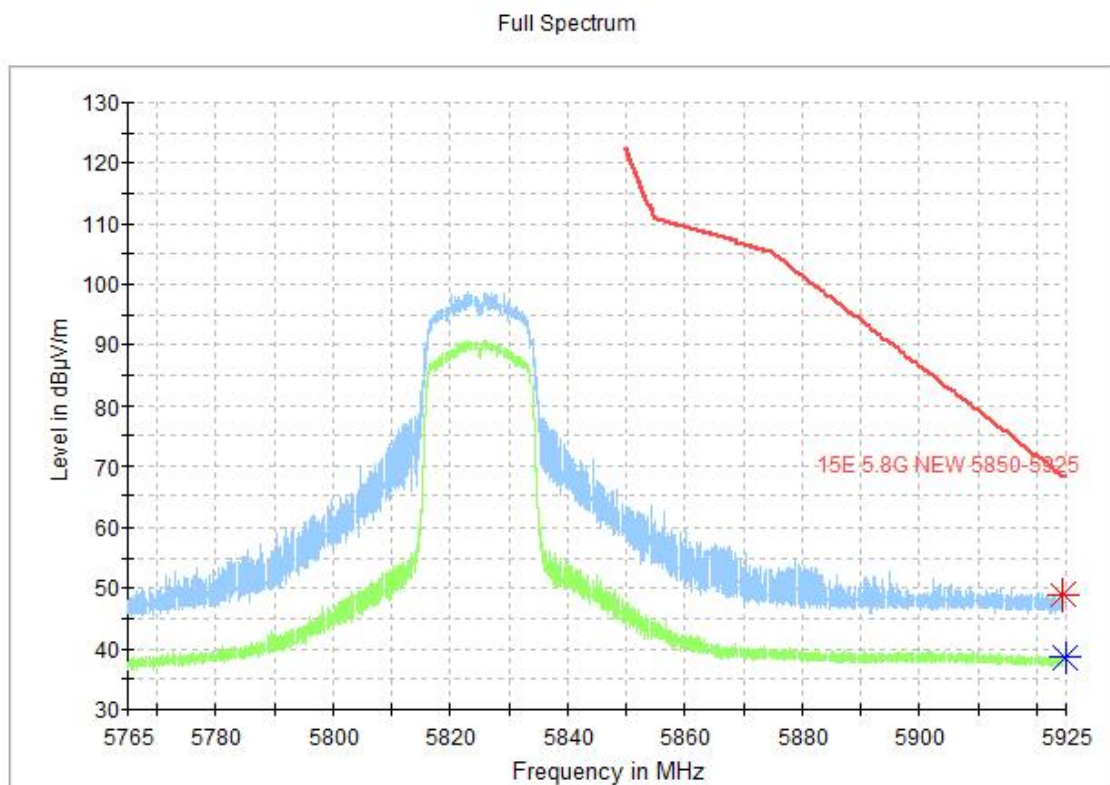


Fig. 4 Band Edges (802.11n-HT20 Ch165, 5825MHz)

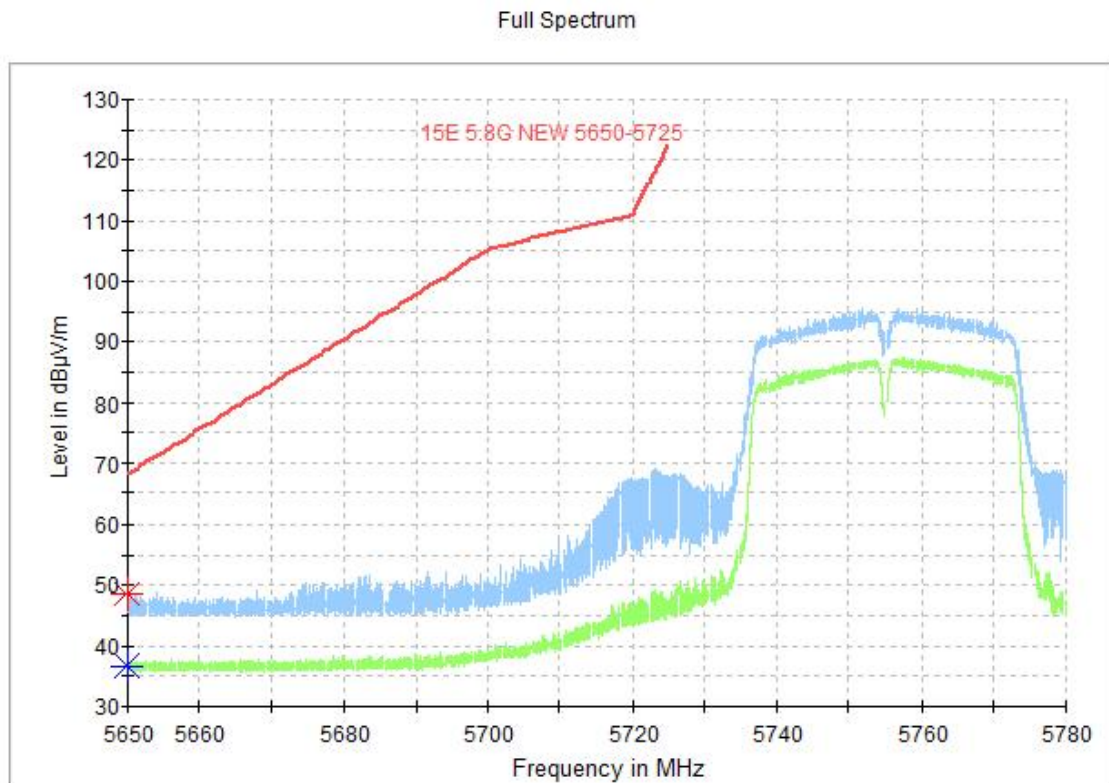


Fig. 5 Band Edges (802.11n-HT40 Ch151, 5755MHz)

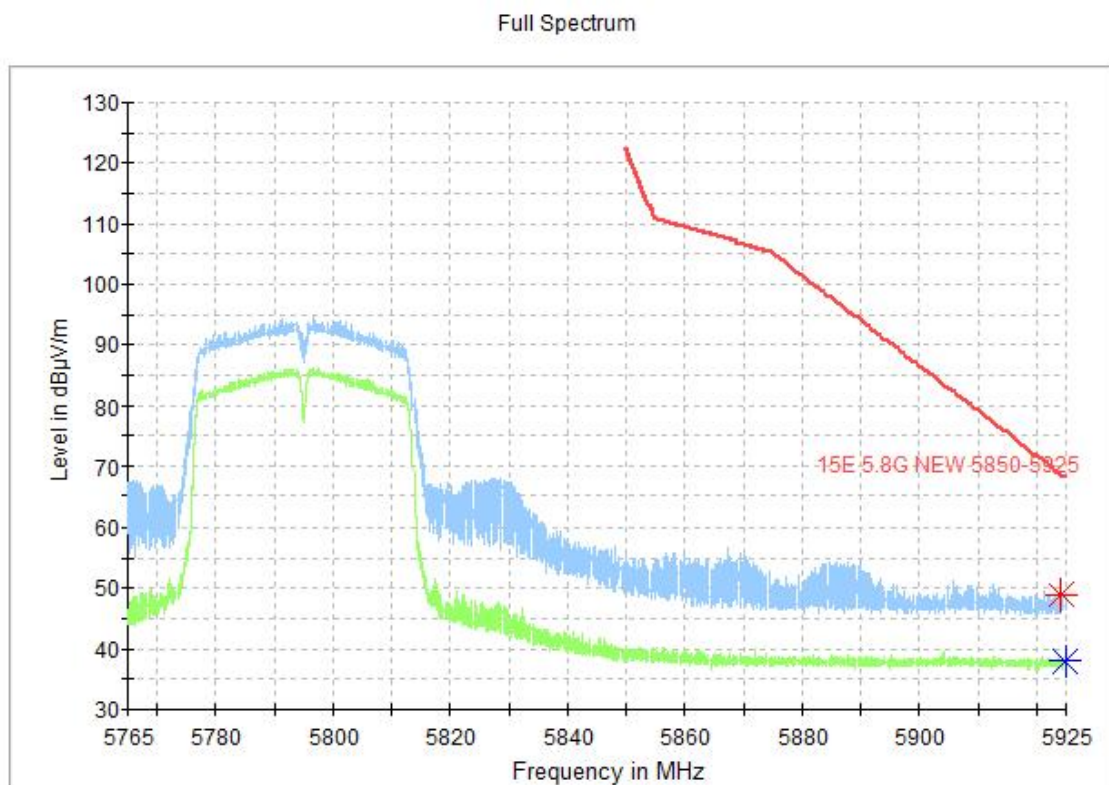


Fig. 6 Band Edges (802.11n-HT40 Ch159, 5795MHz)

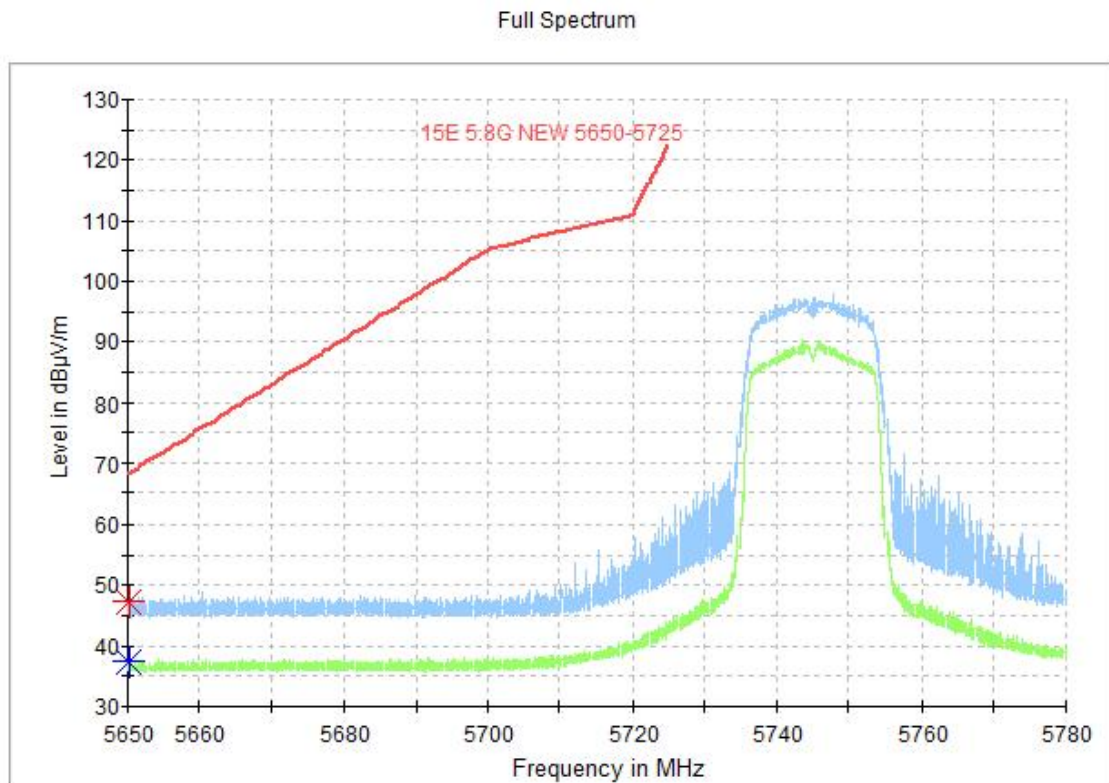


Fig. 7 Band Edges (802.11ac-HT20 Ch149, 5745MHz)

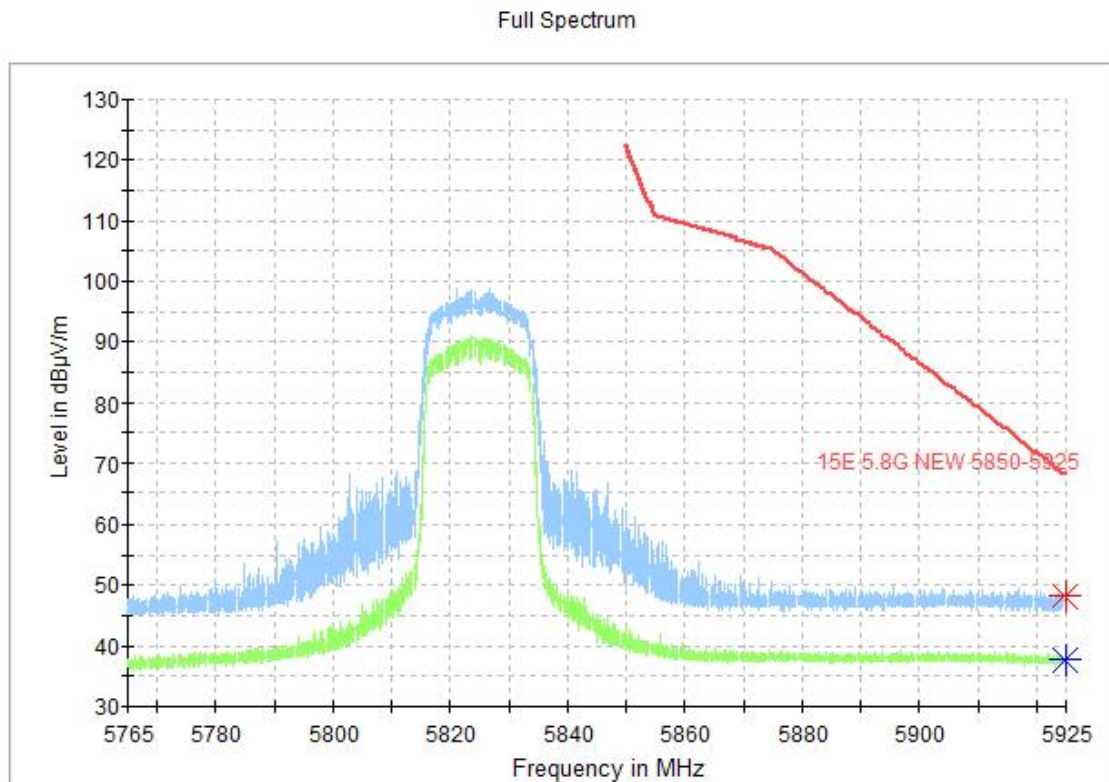


Fig. 8 Band Edges (802.11ac-HT20 Ch165, 5825MHz)

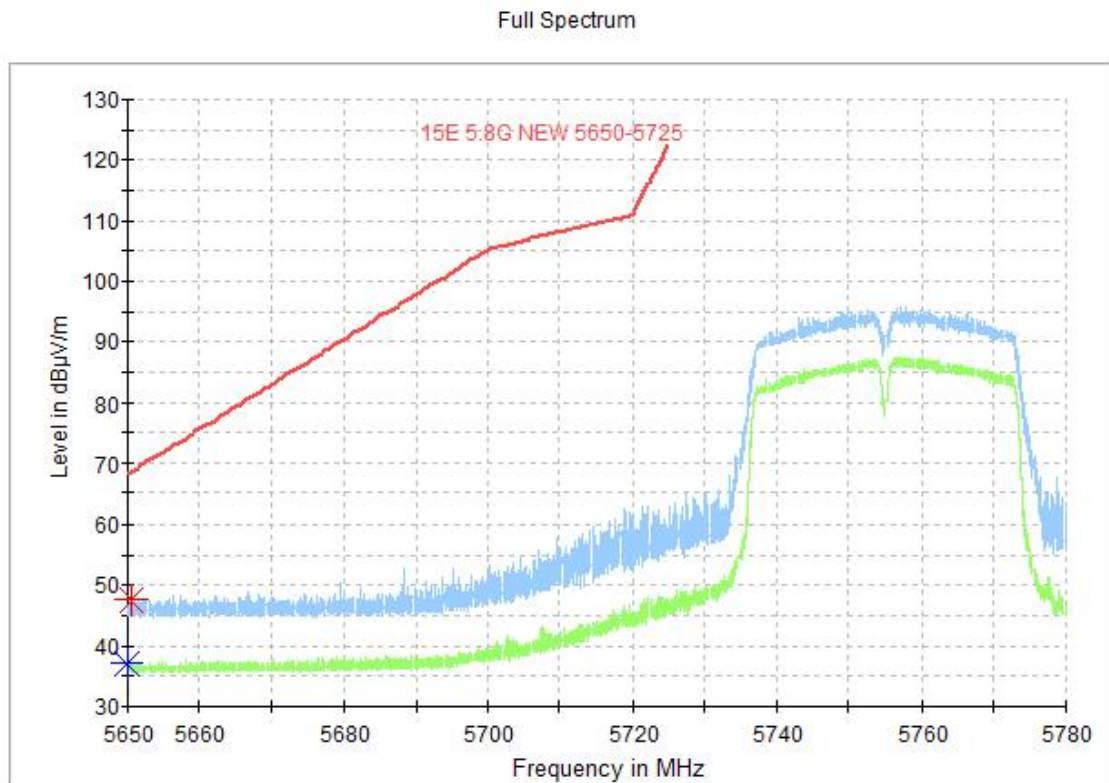


Fig. 9 Band Edges (802.11ac-HT40 Ch151, 5755MHz)

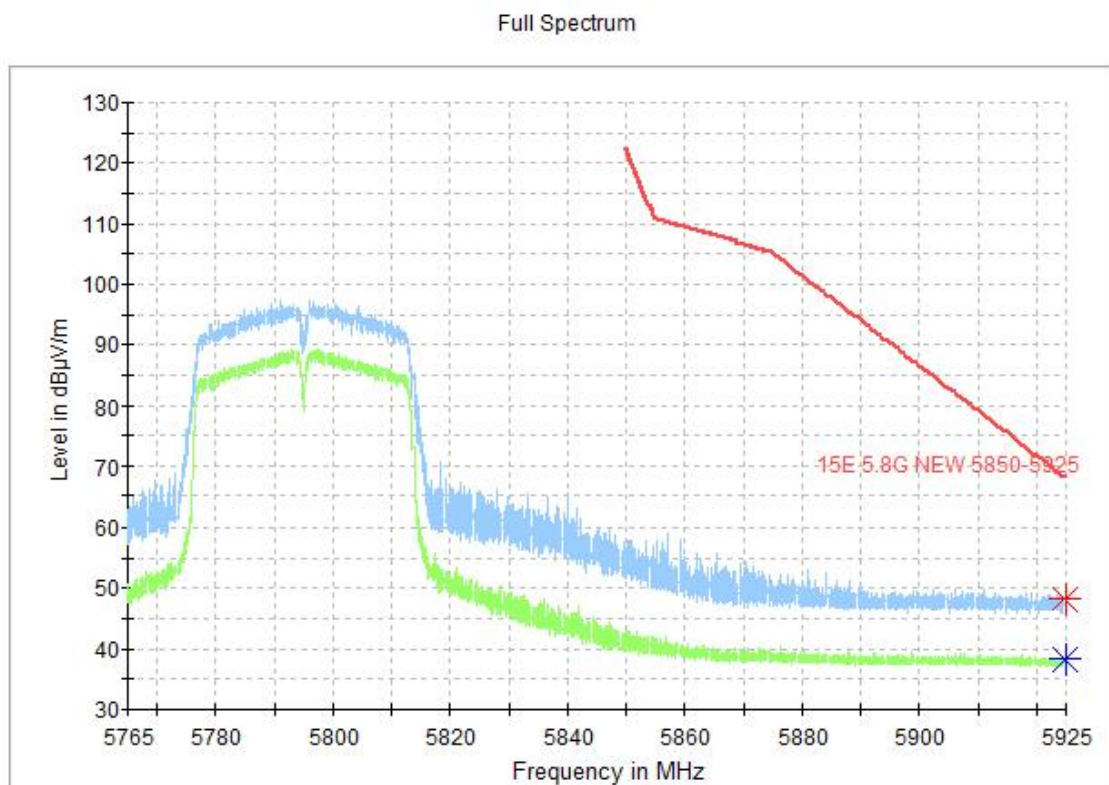


Fig. 10 Band Edges (802.11ac-HT40 Ch159, 5795MHz)

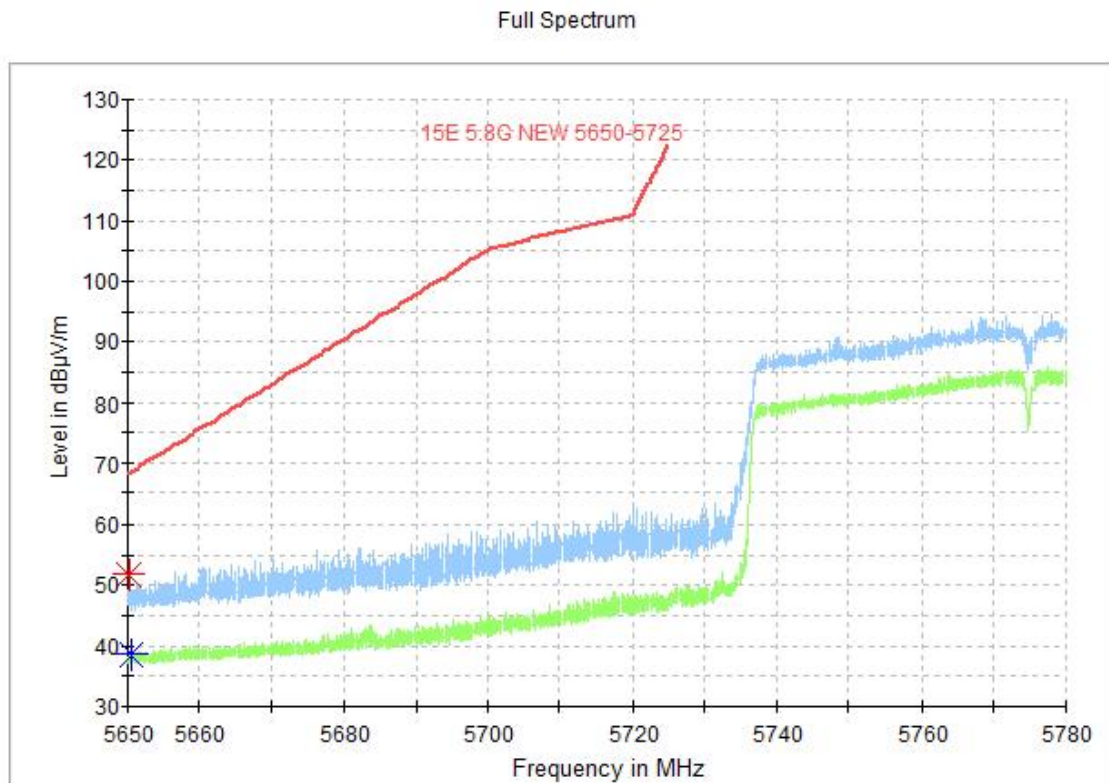


Fig. 11 Band Edges (802.11ac-HT80 Ch155, 5775MHz)

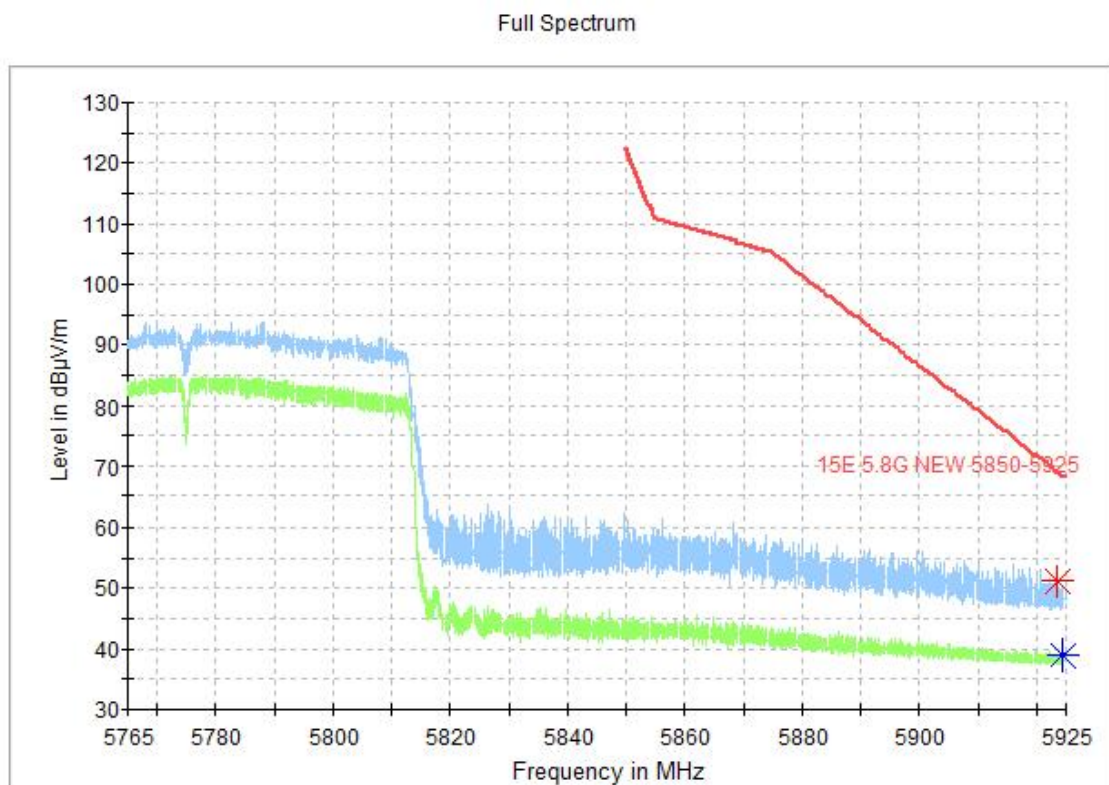


Fig. 12 Band Edges (802.11ac-HT80 Ch155, 5775MHz)

A.7. AC Powerline Conducted Emission

Summary

All AC line conducted spurious emissions are measured with a receiver connected to a grounded LISN while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for conducted spurious emissions. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section

Method of Measurement:

See Clause 6.2 of ANSI C63.10 specifically.

See Clause 4 and Clause 5 of ANSI C63.10 generally.

The conducted emissions from the AC port of the EUT are measured in a shielding room. The EUT is connected to a Line Impedance Stabilization Network (LISN). An overview sweep with peak detection was performed. The measurements were performed with a quasi-peak detector and if required, an average detector.

The conducted emission measurements were made with the following detector of the test receiver:
Quasi-Peak / Average Detector.

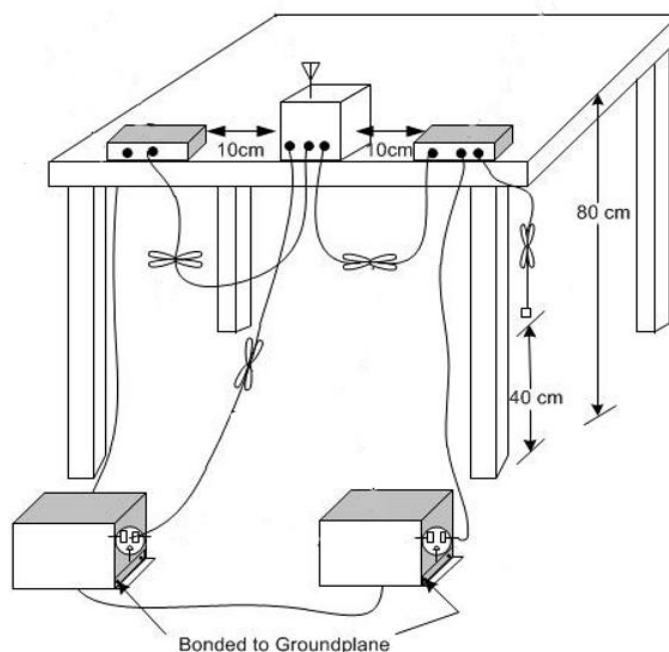
The measurement bandwidth is:

Frequency of Emission (MHz)	RBW/IF bandwidth
0.15-30	9kHz

Test Condition:

Voltage (V)	Frequency (Hz)
120	60

Test setup



Measurement Result and limit:
WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	66 to 56	Fig.A.7.1	Fig.A.7.2	P
0.5 to 5	56			
5 to 30	60			

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	56 to 46	Fig.A.7.1	Fig.A.7.2	P
0.5 to 5	46			
5 to 30	50			

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Conclusion: PASS

Test graphs as below:

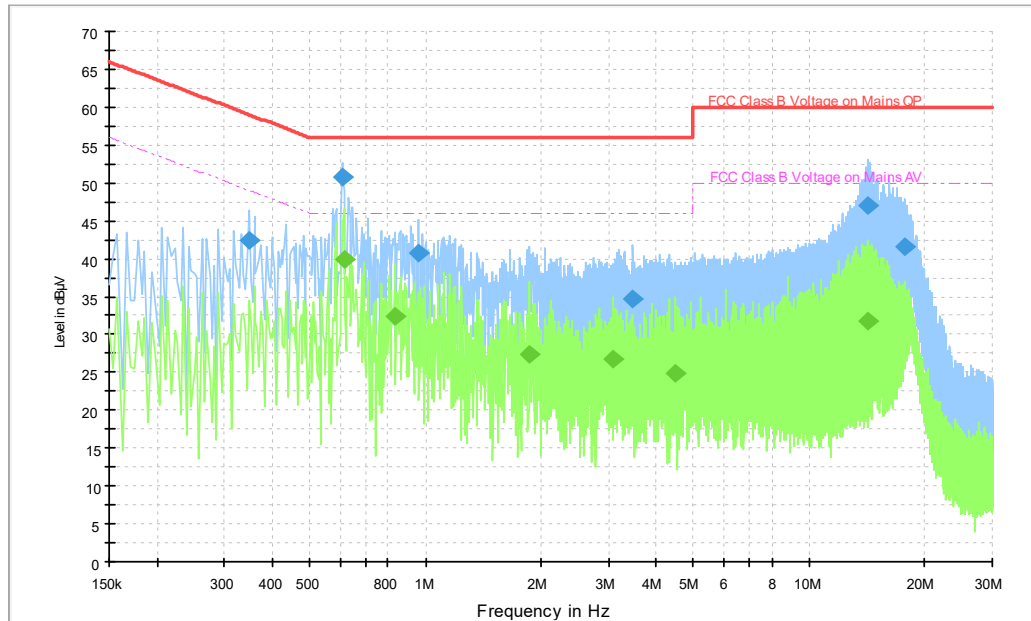


Fig.A.7.1 AC Powerline Conducted Emission-802.11a

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.346000	42.4	2000.0	9.000	On	N	19.8	16.7	59.1
0.606000	50.7	2000.0	9.000	On	N	19.9	5.3	56.0
0.958000	40.7	2000.0	9.000	On	L1	19.9	15.3	56.0
3.482000	34.6	2000.0	9.000	On	L1	19.8	21.4	56.0
14.294000	47.1	2000.0	9.000	On	N	19.8	12.9	60.0
17.842000	41.7	2000.0	9.000	On	N	19.8	18.3	60.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.614000	39.9	2000.0	9.000	On	L1	20.0	6.1	46.0
0.834000	32.4	2000.0	9.000	On	L1	19.9	13.6	46.0
1.862000	27.3	2000.0	9.000	On	L1	19.8	18.7	46.0
3.082000	26.7	2000.0	9.000	On	L1	19.8	19.3	46.0
4.486000	24.9	2000.0	9.000	On	L1	19.8	21.1	46.0
14.238000	31.8	2000.0	9.000	On	L1	20.0	18.2	50.0

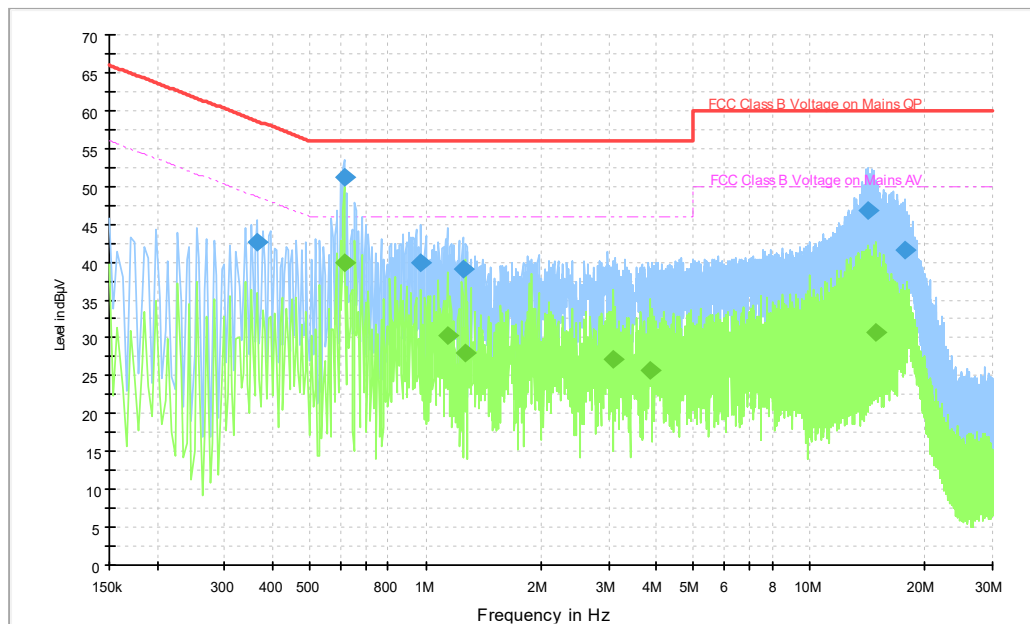


Fig.A.7.2 AC Powerline Conducted Emission-Idle

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.366000	42.5	2000.0	9.000	On	N	19.8	16.1	58.6
0.614000	51.3	2000.0	9.000	On	N	19.8	4.7	56.0
0.974000	39.9	2000.0	9.000	On	L1	19.9	16.1	56.0
1.250000	39.1	2000.0	9.000	On	L1	19.9	16.9	56.0
14.298000	46.9	2000.0	9.000	On	N	19.8	13.1	60.0
17.814000	41.6	2000.0	9.000	On	N	19.8	18.4	60.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.614000	39.9	2000.0	9.000	On	N	19.8	6.1	46.0
1.138000	30.2	2000.0	9.000	On	L1	19.9	15.8	46.0
1.274000	28.1	2000.0	9.000	On	L1	19.9	17.9	46.0
3.070000	27.2	2000.0	9.000	On	L1	19.8	18.8	46.0
3.842000	25.7	2000.0	9.000	On	L1	19.8	20.3	46.0
14.834000	30.8	2000.0	9.000	On	N	19.8	19.2	50.0

A.8. Antenna Requirement

The antenna of the device is permanently attached. There are no provisions for connection to an external antenna.

The unit complies with the requirement of FCC Part 15.203.

ANNEX B: EUT parameters

Disclaimer: The antenna gain and worse case provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom.

ANNEX C: Accreditation Certificate



*** END OF REPORT BODY ***