



FCC PART 15C TEST REPORT No.I22Z60808-IOT06

for

Razer Inc.

Gaming Tablet

RZ45-0460VWQ

With

FCC ID: RWO-RZ450460

Hardware Version: V4

Software Version: Razer Edge 5G-12-user

Issued Date: 2022-08-26

Note:

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The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I22Z60808-IOT06	Rev.0	1st edition	2022-08-03
I22Z60808-IOT06	Rev.1	Add the power result graph. Add thePSD result graph. Update the description of A.1.2.	2022-08-26

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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 NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) with lab code 600118-0, and is also an FCC accredited test laboratory (CN5017), and ISED accredited test laboratory (ISED#: 24849). The detail accreditation scope can be found on NVLAP website.

1.2. Testing Location

Testing Location: CTTL(huayuan North Road)

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

1.3. Testing Environment

Normal Temperature: 15-35°C

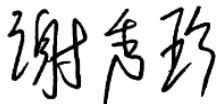
Relative Humidity: 20-75%

1.4. Project date

Testing Start Date: 2022-04-20

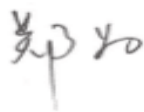
Testing End Date: 2022-08-03

1.5. Signature



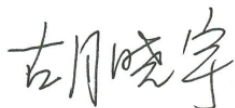
Xie Xiuzhen

(Prepared this test report)



Zheng Wei

(Reviewed this test report)



Hu Xiaoyu

(Approved this test report)



2. CLIENT INFORMATION

2.1. Applicant Information

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2.2. Manufacturer Information

Company Name: Razer Inc.
Address /Post: 9 Pasteur, Suite 100, Irvine, CA 92618, USA.
Contact: Johnsen Tia
Email: Johnsen.tia@razer.com
Telephone: +65 6571 6828

3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY

EQUIPMENT(AE)

3.1. About EUT

Description	Gaming Tablet
Model name	RZ45-0460VWQ
FCC ID	RWO-RZ450460
WLAN Frequency Band	ISM Band: 5725MHz~5850MHz
Type of modulation	OFDM/OFDMA
Antenna	Embedded antenna
Voltage	3.87V

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version
UT65a	867034040041429	V4	Razer Edge 5G-12-user
UT09a	867034040039712	V4	Razer Edge 5G-12-user

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

*UT09a is used for Conduction test, UT65a is used for Radiation test.

3.3. Internal Identification of AE used during the test

AE ID*	Description		
AE1	Battery	/	Inbuilt
AE2	USB Cable	/	/
AE3	Adapter	/	/

AE1

Model	RC30-046001
Manufacturer	ATL
Capacitance	5000mAh
Nominal voltage	3.87V

AE2

Model	LS2-A001A
Manufacturer	/
Length	/

AE3

Model	A849-200225C-US 1
Manufacturer	/
Note	/

*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 Gaming Tablet with embedded 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; 15.209 Radiated emission limits, general requirements; 15.407 General technical requirements	2018
ANSI C63.10	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2013
UNII: KDB 789033 D02	General U-NII Test Procedures New Rules v02r01	2017-12
KDB 662911 D01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band(e.g., MIMO, Smart Antenna, etc)	2013-10

5. LABORATORY ENVIRONMENT

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Semi-anechoic chamber.

6. SUMMARY OF TEST RESULTS

6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15C	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 - Conducted	15.407	/	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 requested by the client/matrix manufacturer 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 4.1.

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	3.87V
Humidity	44%

7. TEST EQUIPMENTS 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	2023-05-15
2	Test Receiver	ESCI 3	100344	R&S	1 year	2023-02-21
3	LISN	ENV216	101200	R&S	1 year	2022-06-29
4	Attenuator	10dB/2W	/	Rosenberger	/	/
5	Shielding Room	S81	/	ETS-Lindgren	/	/

Note:

The test dates were before the calibration due dates of equipment used (the LISN which series number is 101200)

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESW44	103023	R&S	1 year	2022-10-28
2	EMI Antenna	VULB 9163	483	SCHWARZBECK	1 year	2022-08-24
3	EMI Antenna	3115	00167250	ETS-Lindgren	1 year	2022-07-01
4	Loop Antenna	HFH2-Z2	829324/00 7	R&S	1 year	2022-12-22

Note:

The test dates were before the calibration due dates of equipment used (the EMI Antenna which series number is 00167250)

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. Occupied 6dB 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
$30\text{MHz} \leq f \leq 1\text{GHz}$	5.15
$1\text{GHz} \leq f \leq 18\text{GHz}$	5.54
$18\text{GHz} \leq f \leq 40\text{GHz}$	5.26

8.6. AC Power-line Conducted Emission

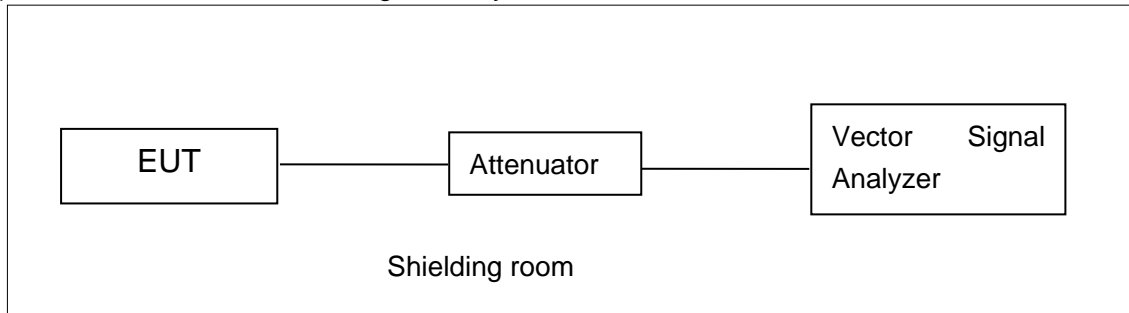
Measurement Uncertainty : 3.08dB,k=2

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

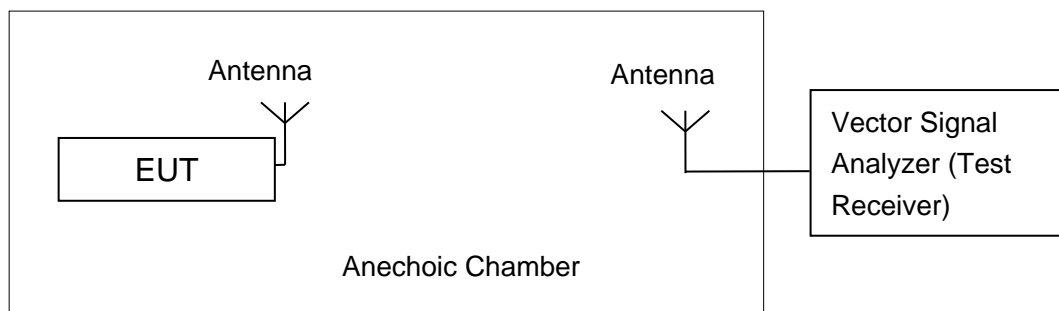


A.1.2. Radiated Emission Measurements

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 = 10Hz;



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. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

A.2. Maximum Peak Output Power

Measurement Limit and Method:

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

A.2.1. Method of Measurement: See ANSI C63.10-clause 12.3.2.2 Method SA-1

Frequency(MHz)	Ant4(dBi)	Ant5(dBi)	DG(dBi) beamforming
5745	-1.9	-2.4	0.86
5785	-1.8	-1.8	1.21
5825	-1.1	-1.8	1.57
5755	-1.9	-2.4	0.86
5795	-1.8	-1.8	1.21
5775	-1.8	-1.8	1.21

For BF transmissions, power and PSD directional gain is calculated as:

Directional gain = $10 \log [(10G_1 / 20 + 10G_2 / 20 + \dots + 10G_n / 20) / NANT]$ dBi, as following table for PSD. NANT = number of transmit antennas NSS = number of spatial streams. (The worst case directional gain will occur when NSS = 1).

Measurement Results:

SISO-ANT4

802.11a mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11a	6	16.23	16.47	16.46

The data rate 6Mbps is selected as worse 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	15.39	15.45	15.35

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

802.11ac-VHT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11ac(20MHz)	MCS0	15.46	15.43	15.49

The data rate MCS0 is selected as worse 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	15.42	15.51

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

802.11ac-VHT40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11ac(40MHz)	MCS0	15.73	15.71

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

802.11ac-VHT80 mode

Mode	Data Rate (Index)	Test Result (dBm)
		5775MHz (Ch155)
802.11ac(80MHz)	MCS0	14.89

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

802.11ax-HE20 mode(RU26-index0)

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11ac(20MHz)	MCS0	15.14	15.51	15.76

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

802.11ax-HE40 mode(RU26-idex0)

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11n(40MHz)	MCS0	15.44	15.75

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

802.11ax-HE80 mode(RU26-index0)

Mode	Data Rate (Index)	Test Result (dBm)
		5775MHz (Ch155)
802.11ac(80MHz)	MCS0	14.83

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

SISO-ANT5
802.11a mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11a	6	15.50	15.28	15.72

The data rate 6Mbps is selected as worse 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	14.34	14.50	14.74

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

802.11ac-VHT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11ac(20MHz)	MCS0	14.25	14.38	14.64

The data rate MCS0 is selected as worse 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	14.47	14.51

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

802.11ac-VHT40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11ac(40MHz)	MCS0	14.40	14.52

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

802.11ac-VHT80 mode

Mode	Data Rate (Index)	Test Result (dBm)
		5775MHz (Ch155)
802.11ac(80MHz)	MCS0	13.19

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

802.11ax-HE20 mode(RU26-index0)

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11ac(20MHz)	MCS0	14.23	14.16	14.62

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

802.11ax-HE40 mode(RU26-idex0)

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11n(40MHz)	MCS0	14.43	14.06

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

802.11ax-HE80 mode(RU26-index0)

Mode	Data Rate (Index)	Test Result (dBm)
		5775MHz (Ch155)
802.11ac(80MHz)	MCS0	13.37

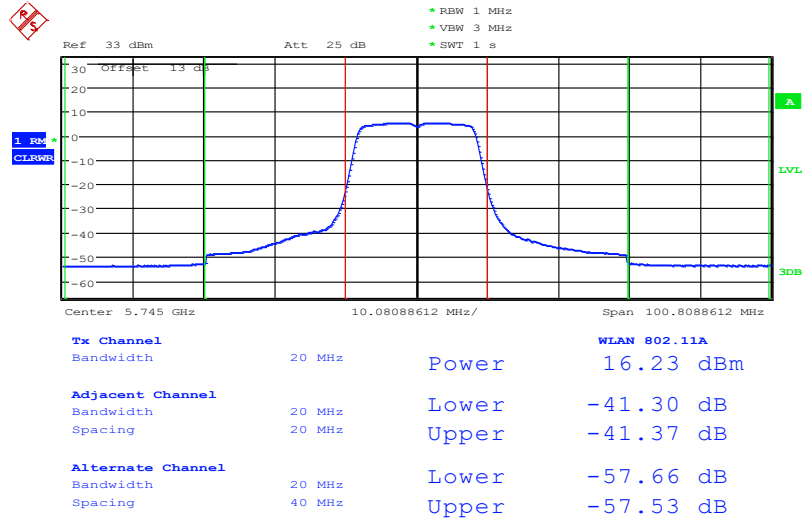
The data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.

MIMO

Mode	Channel	RF output power (dBm)			Conclusion
		ANT4	ANT5	SUM	
802.11a	5745MHz(CH149)	16.23	15.42	18.85	P
	5785MHz(CH157)	16.44	15.31	18.92	P
	5825MHz(CH165)	16.41	15.67	19.07	P
802.11n-HT20	5745MHz(CH149)	15.50	14.27	17.94	P
	5785MHz(CH157)	15.61	14.04	17.91	P
	5825MHz(CH165)	15.41	14.25	17.88	P
802.11ac-VHT20	5745MHz(CH149)	15.46	14.26	17.91	P
	5785MHz(CH157)	15.65	14.11	17.96	P
	5825MHz(CH165)	15.55	14.32	17.99	P
802.11ax-HE20	5745MHz(CH149)	15.42	14.35	17.93	P
	5785MHz(CH157)	15.76	14.32	18.11	P
	5825MHz(CH165)	15.67	14.39	18.09	P
802.11n-HT40	5755MHz(CH151)	15.63	14.23	18.00	P
	5795MHz(CH159)	15.82	14.18	18.09	P
802.11ac-VHT40	5755MHz(CH151)	15.45	14.09	17.83	P
	5795MHz(CH159)	15.60	14.33	18.02	P
802.11ax-HE40	5755MHz(CH151)	15.53	14.72	18.15	P
	5795MHz(CH159)	15.47	14.16	17.87	P
802.11ac-VHT80	5775MHz(CH155)	14.89	12.67	16.93	P
802.11ax-HE80	5775MHz(CH155)	15.55	13.47	17.64	P

The data rate 6Mbps(802.11b), MCS0(802.11n/ac/ax) is selected as worse condition, and the following cases are performed with this condition.

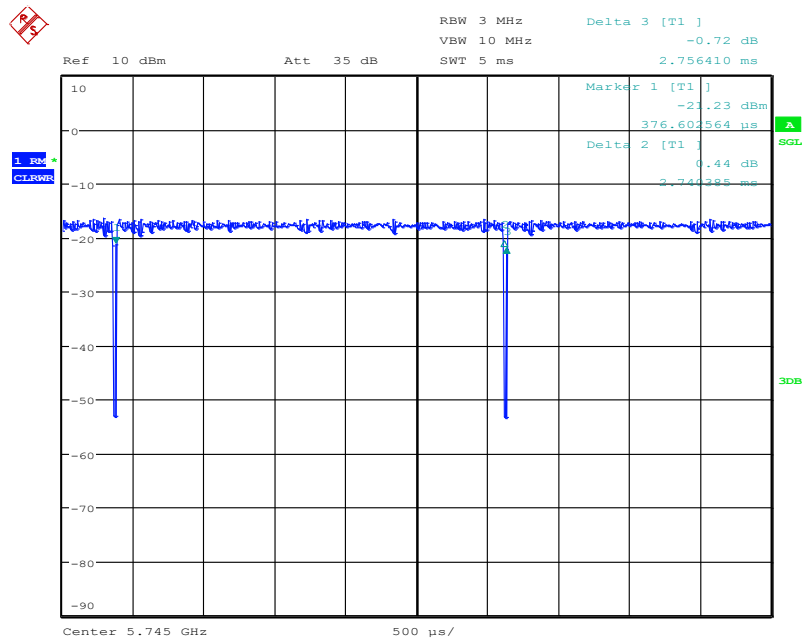
802.11a-5745MHz-ant4:



Date: 27.AUG.2022 04:21:00

Duty Cycle

Mode	11a	11n20	11ac20	11ax20	11n40	11ac40	11ax40	11ac80	11ax80
Duty Cycle	99%	99%	99%	99%	99%	99%	99%	99%	98%



Date: 4.AUG.2022 16:29:44

Note: The following cases are performed with this condition:

- a) 802.11a/ac20/ac40/ac80 mode (Ant4) are selected as the worst condition (SISO), 802.11ax20/40/80 mode (Ant4) are selected as the worst condition (SISO);
- b) The 802.11ax20 full RU mode (compare with 802.11n20/ac20), 802.11ac40 mode (compare with 802.11ax40/ac40), 802.11ac80 mode (compare with 802.11ax80) are selected as the worst condition (SISO Ant5).
- c) 802.11a/ac20/n40/ac80/ax20/ax40/ax80 mode (Ant4) are selected as the worst condition (MIMO);
- d) The 802.11ax20 full RU mode (compare with 802.11n20/ac20), 802.11n40 mode (compare with 802.11ac40/ax40), 802.11ac80 mode (compare with 802.11ax80) are selected as the worst condition (MIMO);
- e) The maximum power of 802.11ax20/40/80/160 are got with RU26-index0 (SISO/MIMO).

Conclusion: PASS

A.3. Peak Power Spectral Density

Measurement Limit:

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

The measurement is made according to ANSI C63.10 and KDB789033 D02

Measurement Uncertainty:

Measurement Uncertainty	0.75dB
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Measurement Results:

Ant4

Mode	Channel	Power Spectral Density (dBm/500kHz)	Conclusion
802.11a	149	2.01	P
	157	2.26	P
	165	1.93	P
802.11ac HT20	149	0.97	P
	157	0.98	P
	165	0.75	P
802.11ac VHT40	151	-1.78	P
	159	-1.93	P
802.11ac VHT80	155	-5.73	P
802.11ax HE20(RU26-index0)	149	9.95	P
	157	9.83	P
	165	9.48	P

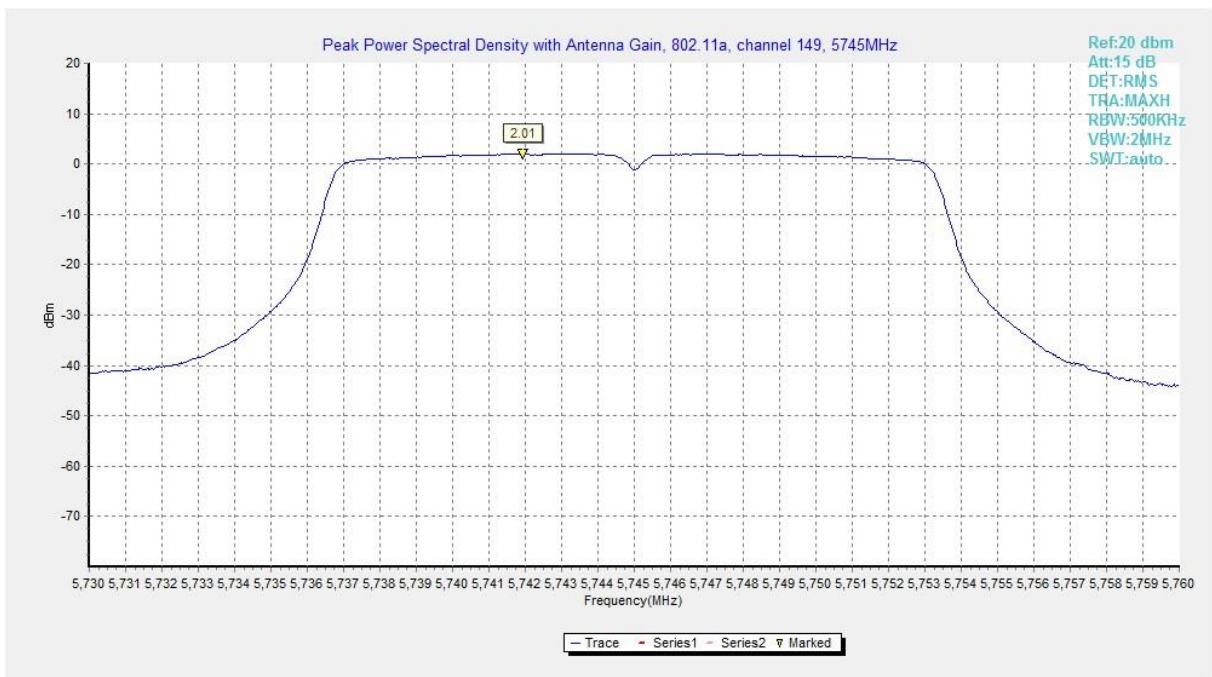
802.11ax HE40(RU26-index0)	151	9.82	P
	159	9.58	P
802.11ac HE80(RU26-index0)	155	9.44	P

MIMO

Mode	Channel	/	Power Spectral Density (dBm/500kHz)	Conclusion
802.11a	5745MHz(CH149)	Ant4	2.23	P
		Ant5	1.41	P
		SUM	4.85	P
	5785MHz(CH157)	Ant4	2.25	P
		Ant5	1.29	P
		SUM	4.81	P
	5825MHz(CH165)	Ant4	1.99	P
		Ant5	1.63	P
		SUM	4.82	P
802.11ac-VHT20	5745MHz(CH149)	Ant4	0.87	P
		Ant5	0.10	P
		SUM	3.51	P
	5785MHz(CH157)	Ant4	1.16	P
		Ant5	-0.03	P
		SUM	3.62	P
	5825MHz(CH165)	Ant4	0.94	P
		Ant5	0.05	P
		SUM	3.53	P
802.11ax-HE20 (RU26-index0)	5745MHz(CH149)	Ant4	10.02	P
		Ant5	8.32	P
		SUM	12.26	P
	5785MHz(CH157)	Ant4	10.09	P
		Ant5	8.11	P
		SUM	12.22	P
	5825MHz(CH165)	Ant4	9.98	P
		Ant5	8.51	P
		SUM	12.32	P
802.11n-HT40	5755MHz(CH151)	Ant4	-1.83	P
		Ant5	-2.62	P
		SUM	0.80	P
	5795MHz(CH159)	Ant4	-1.78	P
		Ant5	-2.89	P
		SUM	0.71	P
802.11ax-HE40 (RU26-index0)	5755MHz(CH151)	Ant4	9.87	P
		Ant5	7.89	P

	5795MHz(CH159)	SUM	12.00	P
		Ant4	10.03	P
		Ant5	8.05	P
		SUM	12.16	P
802.11ac-VHT80	5775MHz(CH155)	Ant4	-5.57	P
		Ant5	-6.82	P
		SUM	-3.14	P
802.11ax-HE80 (RU26-index0)	5775MHz(CH155)	Ant4	9.23	P
		Ant5	7.36	P
		SUM	11.41	P

802.11a-5745MHz-ant4:



Conclusion: PASS

A.4. Occupied 6dB Bandwidth

Measurement Limit:

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

The measurement is made according to KDB789033 D02 .

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz
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Measurement Result:

Mode	Channel	Occupied 6dB Bandwidth (MHz)		conclusion
802.11a	149	Fig.1	16.35	P
	157	Fig.2	16.25	P

	165	Fig.3	16.30	P
802.11ax HE20	149	Fig.4	19.05	P
	157	Fig.5	19.05	P
	165	Fig.6	19.05	P
802.11ac VHT40	151	Fig.7	38.08	P
	159	Fig.8	38.08	P
802.11ac VHT80	155	Fig.9	78.08	P

Conclusion: PASS

Test graphs as below:

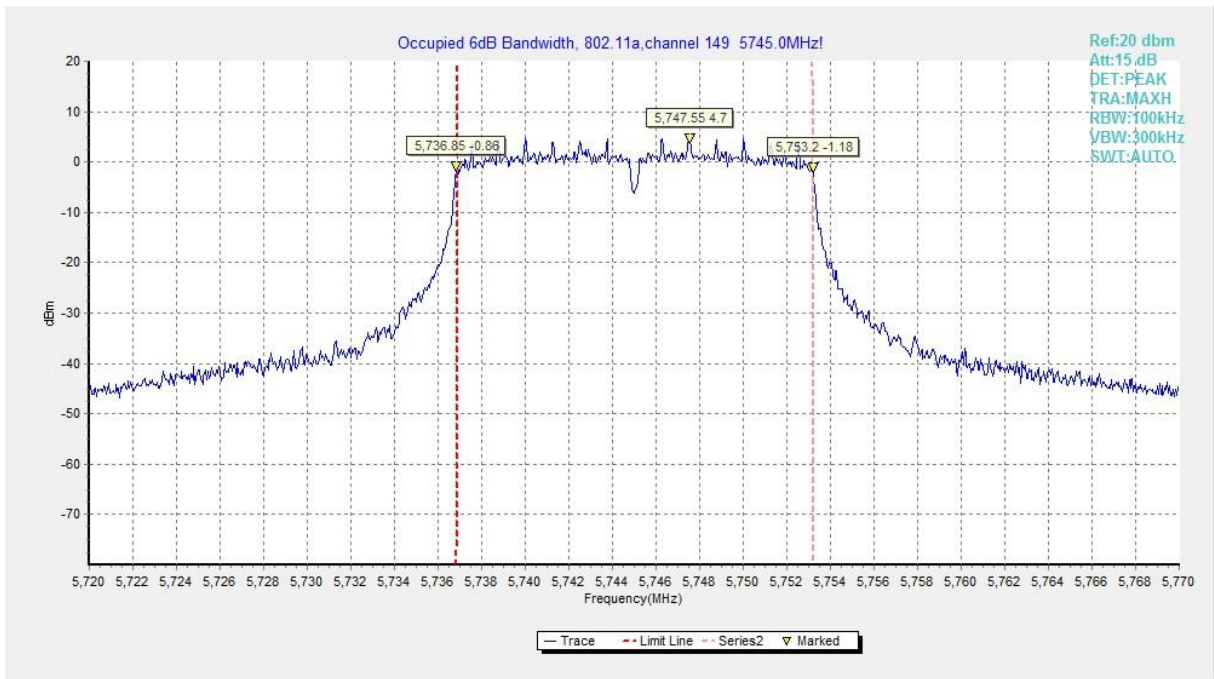


Fig. 1 Occupied 6dB Bandwidth (802.11a, Ch 149)

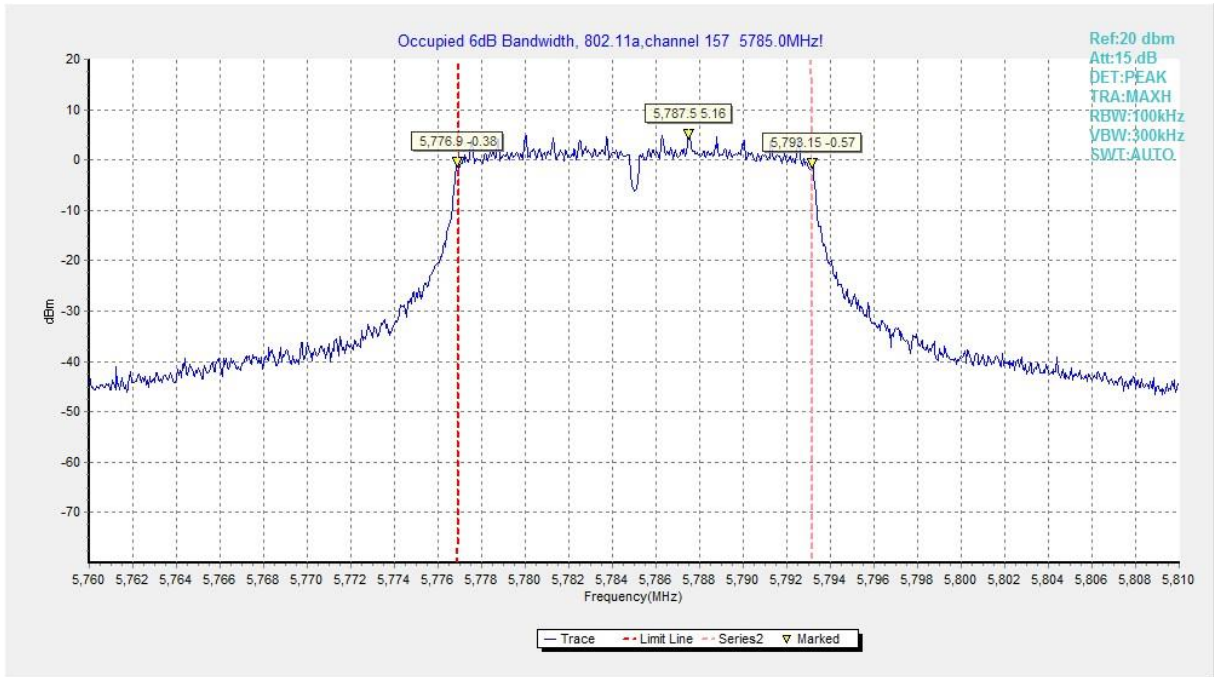


Fig. 2 Occupied 6dB Bandwidth (802.11a, Ch 157)

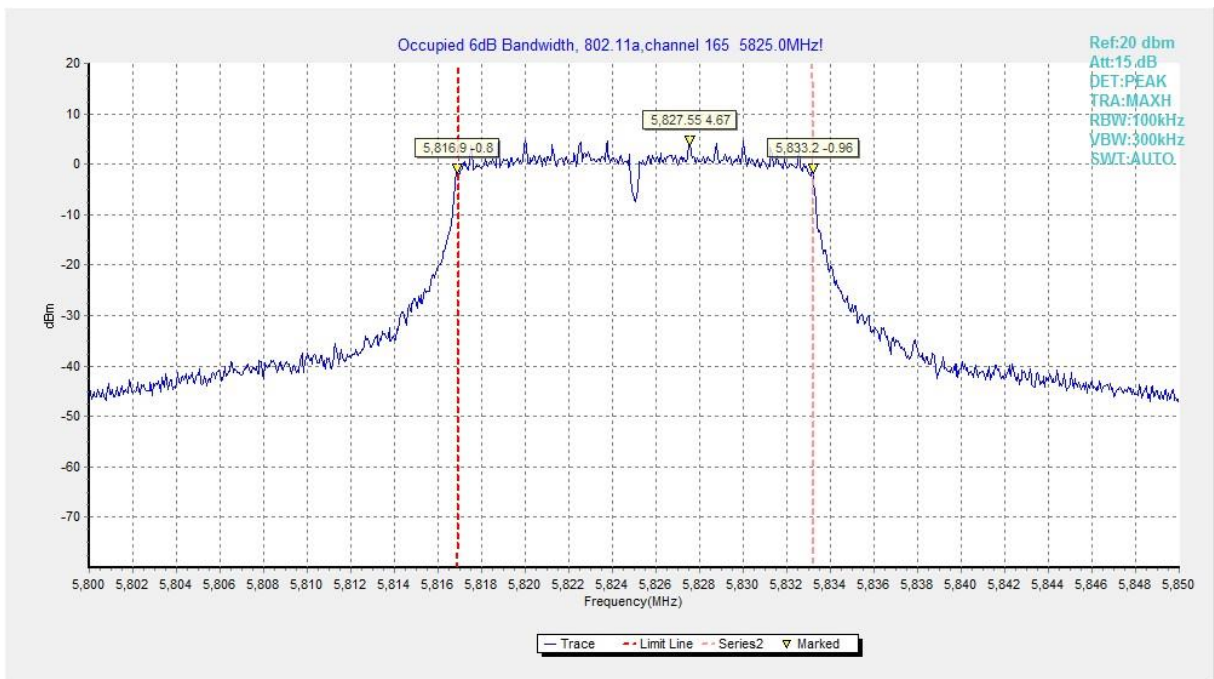


Fig. 3 Occupied 6dB Bandwidth (802.11a, Ch 165)

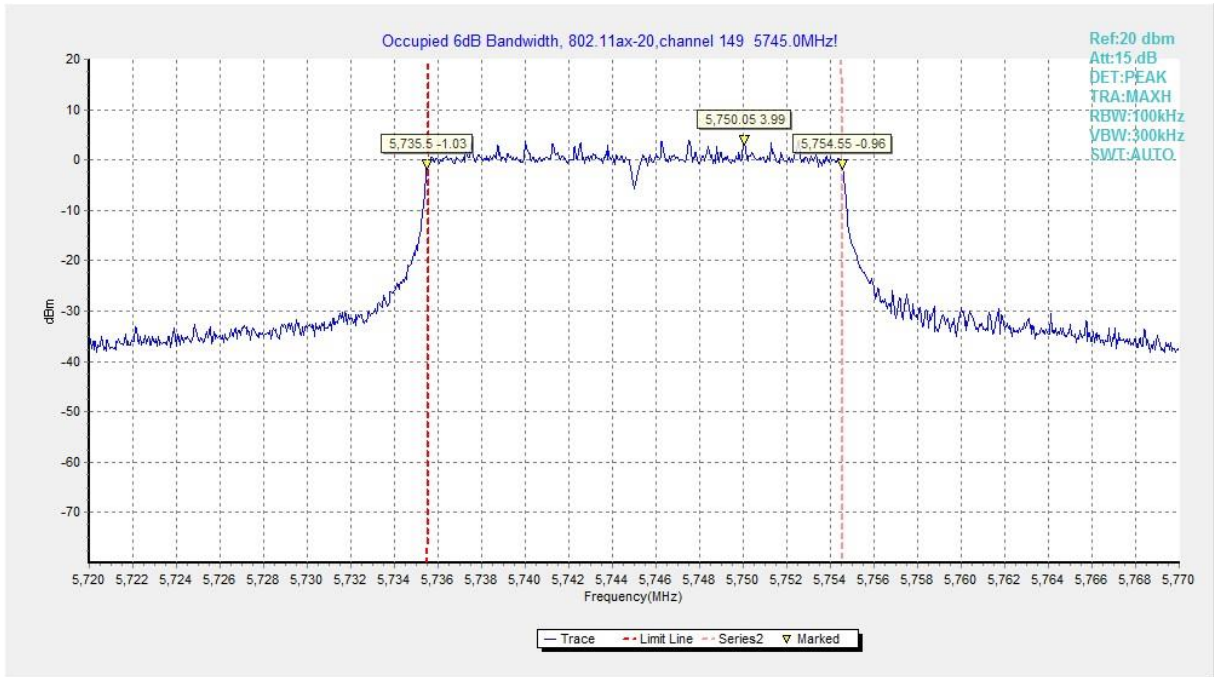


Fig. 4 Occupied 6dB Bandwidth (802.11ax-HE20, Ch 149)

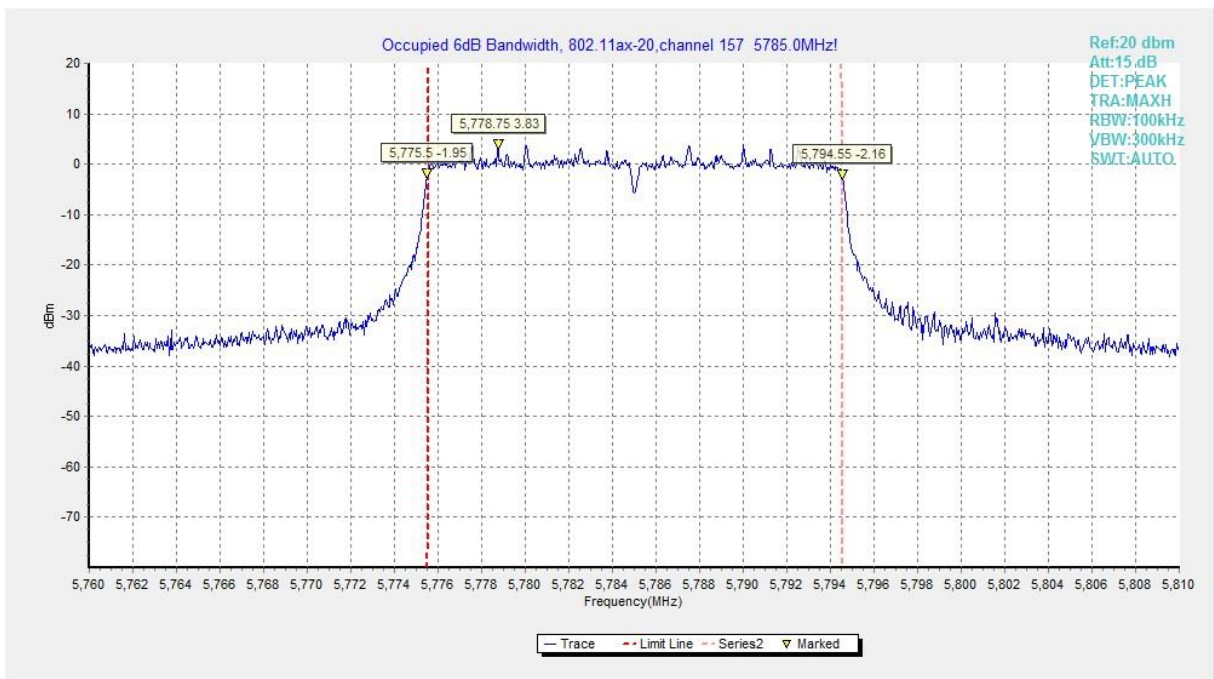


Fig. 5 Occupied 6dB Bandwidth (802.11ax-HE20, Ch 157)

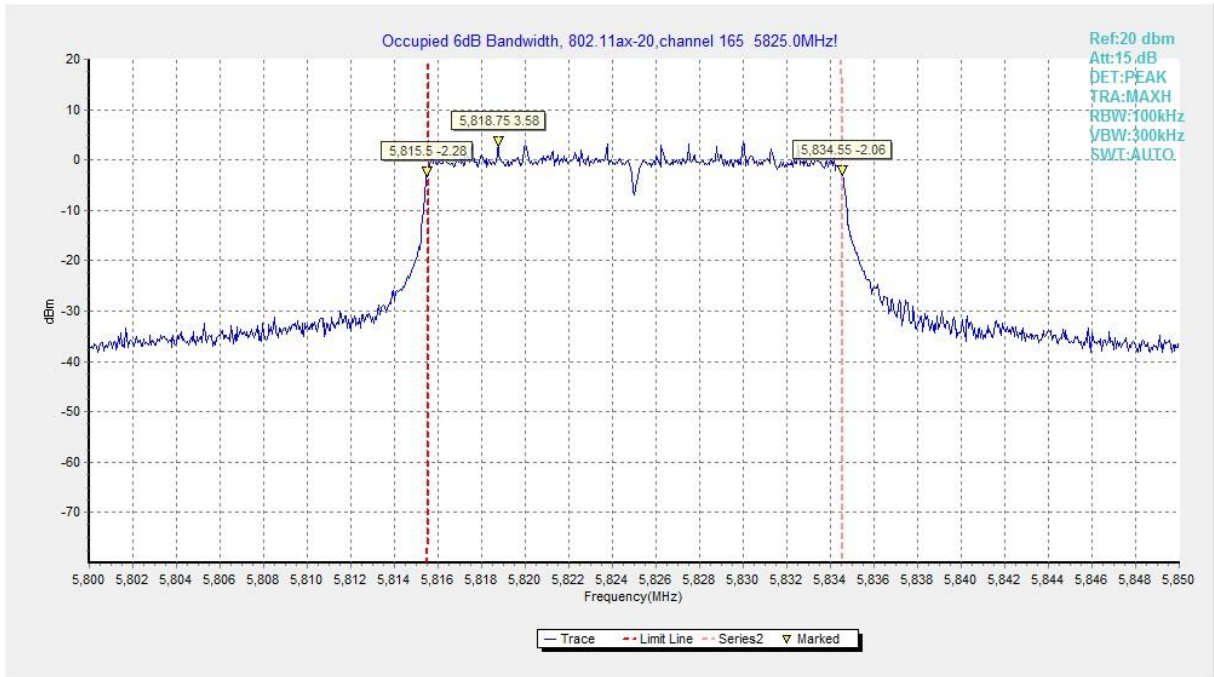


Fig. 6 Occupied 6dB Bandwidth (802.11ax-HE20, Ch 165)

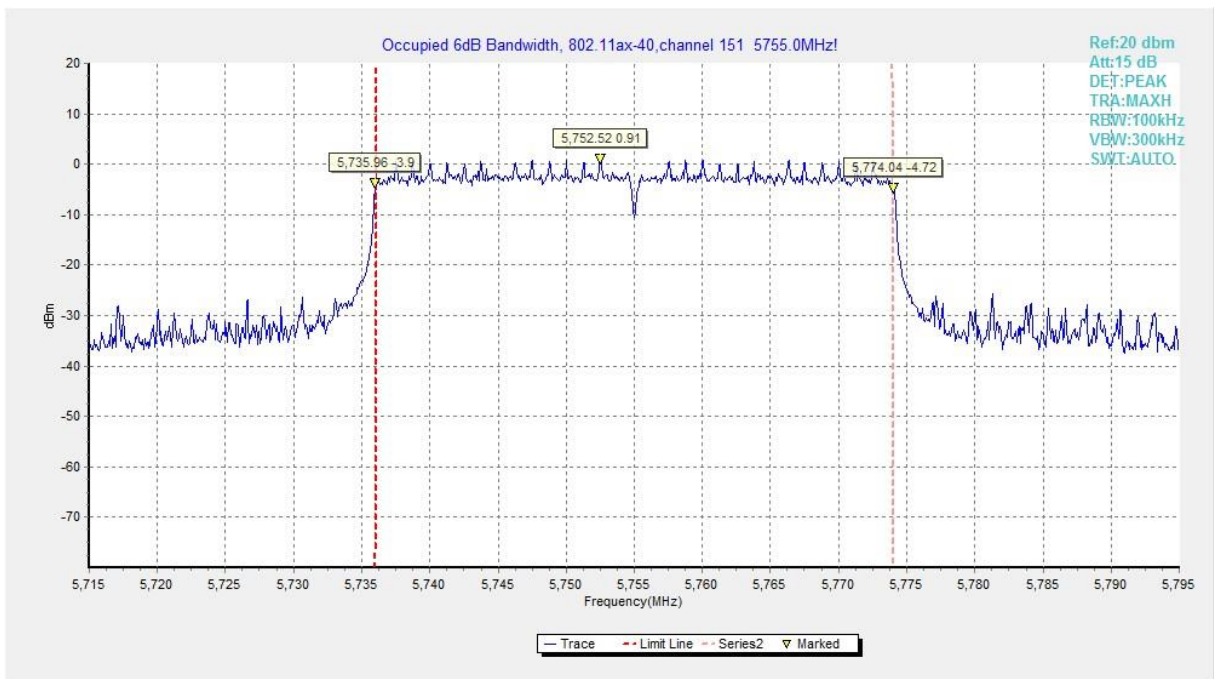


Fig. 7 Occupied 6dB Bandwidth (802.11ac-HT40, Ch 151)

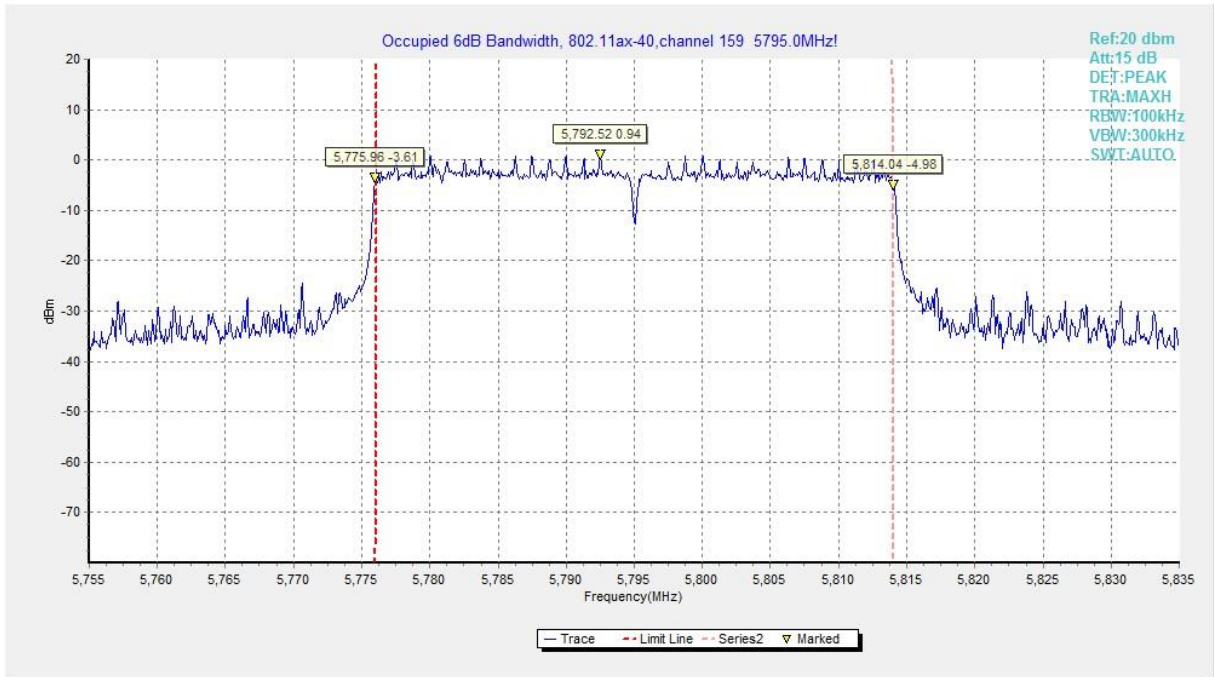


Fig. 8 Occupied 6dB Bandwidth (802.11ac-HT40, Ch 159)

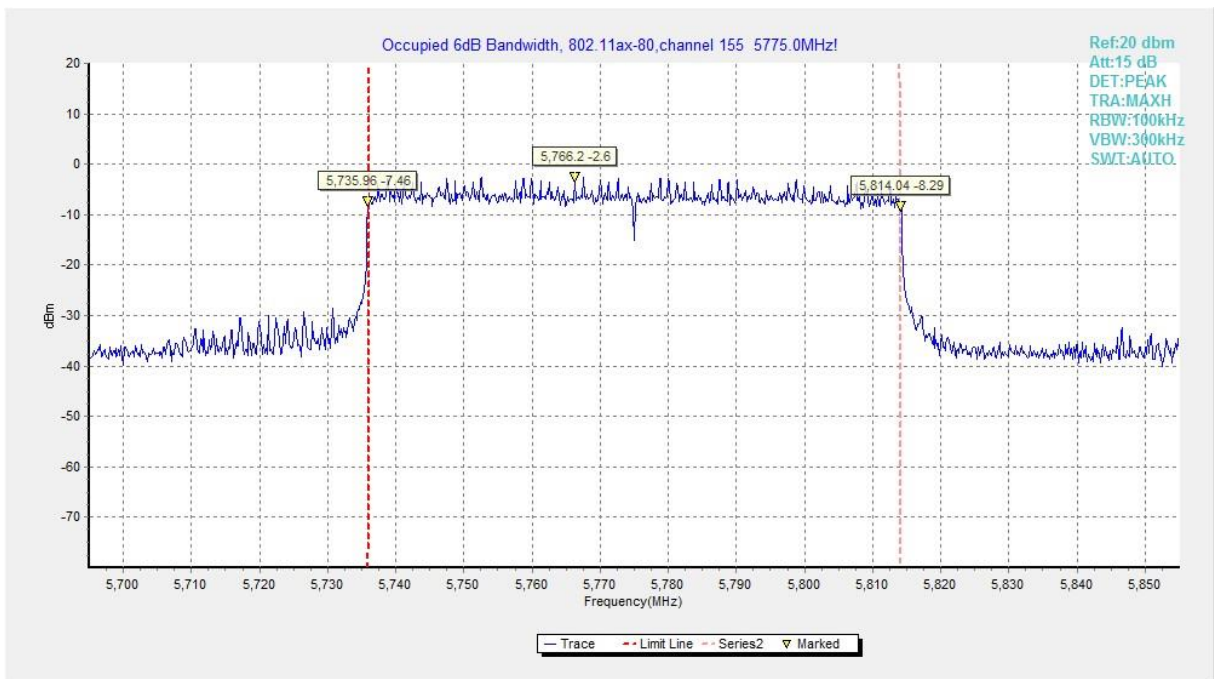


Fig. 9 Occupied 6dB Bandwidth (802.11ac-HT80, Ch 155)

A.5. Transmitter Spurious Emission

A.5.1 Transmitter Spurious Emission - 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

Measurement Results:

802.11a mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	149	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	157	30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
		26.5 GHz~ 40 GHz	---	P
	165	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P

802.11n-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT20)	149	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	157	30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
		26.5 GHz~ 40 GHz	---	P
	165	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P

802.11n-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT40)	151	30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
		26.5 GHz~ 40 GHz	---	P
	159	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P

802.11ac-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion	
802.11ac (HT20)	149	1 GHz ~ 3 GHz	---	P	
		3 GHz ~ 7 GHz	---	P	
		7 GHz ~ 18 GHz	---	P	
	157	30 MHz ~1 GHz	---	P	
		1 GHz ~ 3 GHz	---	P	
		3 GHz ~ 7 GHz	---	P	
		7 GHz ~ 18 GHz	---	P	
		18 GHz ~ 26.5 GHz	---	P	
		26.5 GHz~ 40 GHz	---	P	
		165	1 GHz ~ 3 GHz	---	P
			3 GHz ~ 7 GHz	---	P
	7 GHz ~ 18 GHz		---	P	

802.11ac-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11ac (HT40)	151	30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
		26.5 GHz~ 40 GHz	---	P
	159	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P

802.11ac-HT80 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11ac (HT80)	155	30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P

		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
		26.5 GHz~ 40 GHz	---	P

Conclusion: PASS

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.

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)
17994.000	41.68	-25.50	46.66	20.52	54.00	12.32	H
17760.200	41.66	-25.50	46.66	20.50	54.00	12.34	H
16056.300	38.23	-27.35	38.54	27.04	54.00	15.77	H
14494.900	38.11	-28.59	42.46	24.24	54.00	15.89	V
11963.200	36.03	-31.48	39.09	28.42	54.00	17.97	V
11520.500	36.00	-32.26	38.84	29.43	54.00	18.00	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)
17998.300	42.55	-25.50	46.66	21.39	54.00	11.45	V
17956.500	41.96	-25.50	46.66	20.80	54.00	12.04	H
16054.100	38.67	-27.35	38.54	27.48	54.00	15.33	V
16065.100	38.51	-26.77	38.93	26.35	54.00	15.49	V
11858.100	36.11	-31.85	39.05	28.91	54.00	17.89	V
11922.000	36.11	-31.48	39.09	28.50	54.00	17.89	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)
17996.200	41.89	-25.50	46.66	20.73	54.00	12.11	V
17995.000	41.85	-25.50	46.66	20.69	54.00	12.15	H
16150.400	38.73	-26.77	38.93	26.57	54.00	15.27	H
16154.200	38.48	-26.77	38.93	26.32	54.00	15.52	H
11527.000	36.21	-32.26	38.84	29.64	54.00	17.79	H
11541.400	36.07	-32.26	38.84	29.50	54.00	17.93	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)
17714.000	42.01	-25.74	45.95	21.80	54.00	11.99	V
17967.000	41.87	-25.50	46.66	20.71	54.00	12.13	V
16146.000	38.44	-26.77	38.93	26.28	54.00	15.56	H
16066.200	38.36	-26.77	38.93	26.20	54.00	15.64	H
11930.200	36.53	-31.48	39.09	28.92	54.00	17.47	H
11922.500	36.07	-31.48	39.09	28.46	54.00	17.93	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)
17976.300	42.01	-25.50	46.66	20.85	54.00	11.99	V
17779.500	41.99	-25.50	46.66	20.83	54.00	12.01	V
16143.800	38.89	-26.77	38.93	26.73	54.00	15.11	V
16070.000	38.37	-26.77	38.93	26.21	54.00	15.63	V
11996.800	36.07	-31.48	39.09	28.46	54.00	17.93	H
11885.100	35.96	-31.85	39.05	28.76	54.00	18.04	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)
17780.000	42.06	-25.50	46.66	20.90	54.00	11.94	H
17817.400	41.98	-25.50	46.66	20.82	54.00	12.02	V
16136.000	38.60	-26.77	38.93	26.44	54.00	15.40	H
16053.500	38.29	-27.35	38.54	27.10	54.00	15.71	H
11931.900	36.07	-31.48	39.09	28.46	54.00	17.93	V
11031.500	35.99	-32.49	38.72	29.75	54.00	18.01	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)
17987.900	42.20	-25.50	46.66	21.04	54.00	11.80	H
17997.800	42.09	-25.50	46.66	20.93	54.00	11.91	V
16048.600	38.58	-27.35	38.54	27.39	54.00	15.42	H
16141.000	38.58	-26.77	38.93	26.42	54.00	15.42	V
11912.600	36.08	-31.85	39.05	28.88	54.00	17.92	H
11962.600	36.03	-31.48	39.09	28.42	54.00	17.97	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)
17711.800	41.78	-25.74	45.95	21.57	54.00	12.22	H
17785.500	41.77	-25.50	46.66	20.61	54.00	12.23	H
16050.800	38.48	-27.35	38.54	27.29	54.00	15.52	V
16151.500	38.36	-26.77	38.93	26.20	54.00	15.64	V
11862.500	36.32	-31.85	39.05	29.12	54.00	17.68	H
11875.200	36.12	-31.85	39.05	28.92	54.00	17.88	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)
17995.000	42.01	-25.50	46.66	20.85	54.00	11.99	V
17990.700	41.98	-25.50	46.66	20.82	54.00	12.02	V
16049.700	38.43	-27.35	38.54	27.24	54.00	15.57	H
16158.600	38.36	-26.77	38.93	26.20	54.00	15.64	H
11922.500	36.22	-31.48	39.09	28.61	54.00	17.78	H
11909.300	36.21	-31.85	39.05	29.01	54.00	17.79	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)
17995.600	41.96	-25.50	46.66	20.80	54.00	12.04	H
17996.200	41.86	-25.50	46.66	20.70	54.00	12.14	V
16148.700	38.47	-26.77	38.93	26.31	54.00	15.53	V
16148.100	38.46	-26.77	38.93	26.30	54.00	15.54	V
11937.900	36.03	-31.48	39.09	28.42	54.00	17.97	V
11978.000	36.02	-31.48	39.09	28.41	54.00	17.98	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)
17964.800	42.00	-25.50	46.66	20.84	54.00	12.00	H
17993.400	41.96	-25.50	46.66	20.80	54.00	12.04	H
16150.400	38.49	-26.77	38.93	26.33	54.00	15.51	H
16138.800	38.45	-26.77	38.93	26.29	54.00	15.55	H
12000.000	36.19	-31.48	39.09	28.58	54.00	17.81	V
11939.000	36.03	-31.48	39.09	28.42	54.00	17.97	V

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)
17989.500	41.99	-25.50	46.66	20.83	54.00	12.01	V
17816.800	41.90	-25.50	46.66	20.74	54.00	12.10	H
16065.600	38.37	-26.77	38.93	26.21	54.00	15.63	H
16144.300	38.37	-26.77	38.93	26.21	54.00	15.63	V
11451.100	36.00	-32.26	38.84	29.43	54.00	18.00	V
11979.100	35.97	-31.48	39.09	28.36	54.00	18.03	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)
17990.100	41.96	-25.50	46.66	20.80	54.00	12.04	V
17998.300	41.96	-25.50	46.66	20.80	54.00	12.04	V
16146.000	38.39	-26.77	38.93	26.23	54.00	15.61	H
16061.200	38.38	-26.77	38.93	26.22	54.00	15.62	H
11991.800	36.19	-31.48	39.09	28.58	54.00	17.81	V
11537.000	36.08	-32.26	38.84	29.51	54.00	17.92	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)
17975.800	42.07	-25.50	46.66	20.91	54.00	11.93	V
17990.100	41.92	-25.50	46.66	20.76	54.00	12.08	V
16042.000	38.02	-27.35	38.54	26.83	54.00	15.98	V
16159.100	38.00	-26.77	38.93	25.84	54.00	16.00	V
11907.600	36.11	-31.85	39.05	28.91	54.00	17.89	H
11940.600	36.10	-31.48	39.09	28.49	54.00	17.90	V

802.11ax-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)
17711.800	42.02	-25.74	45.95	21.81	54.00	11.98	H
17998.300	41.86	-25.50	46.66	20.70	54.00	12.14	V
16142.100	38.40	-26.77	38.93	26.24	54.00	15.60	H
16150.400	38.32	-26.77	38.93	26.16	54.00	15.68	V
11961.000	36.23	-31.48	39.09	28.62	54.00	17.77	V
11890.600	36.00	-31.85	39.05	28.80	54.00	18.00	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)
17996.700	42.09	-25.50	46.66	20.93	54.00	11.91	V
17987.900	41.87	-25.50	46.66	20.71	54.00	12.13	V
16140.500	38.63	-26.77	38.93	26.47	54.00	15.37	V
16156.400	38.38	-26.77	38.93	26.22	54.00	15.62	H
11976.400	36.19	-31.48	39.09	28.58	54.00	17.81	H
11930.200	36.16	-31.48	39.09	28.55	54.00	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)
17992.800	42.08	-25.50	46.66	20.92	54.00	11.92	H
17978.500	41.94	-25.50	46.66	20.78	54.00	12.06	V
16151.500	38.53	-26.77	38.93	26.37	54.00	15.47	H
16060.100	38.46	-26.77	38.93	26.30	54.00	15.54	V
11991.200	36.24	-31.48	39.09	28.63	54.00	17.76	V
11962.100	36.07	-31.48	39.09	28.46	54.00	17.93	H

802.11ax-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)
17705.800	42.07	-25.74	45.95	21.86	54.00	11.93	H
17953.200	41.92	-25.50	46.66	20.76	54.00	12.08	H
16157.000	38.57	-26.77	38.93	26.41	54.00	15.43	V
15978.200	38.46	-27.35	38.54	27.27	54.00	15.54	H
11953.900	36.25	-31.48	39.09	28.64	54.00	17.75	V
11933.000	36.18	-31.48	39.09	28.57	54.00	17.82	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)
17996.700	42.04	-25.50	46.66	20.88	54.00	11.96	H
17998.300	42.02	-25.50	46.66	20.86	54.00	11.98	H
16054.600	38.39	-27.35	38.54	27.20	54.00	15.61	H
16071.100	38.31	-26.77	38.93	26.15	54.00	15.69	V
11868.000	36.13	-31.85	39.05	28.93	54.00	17.87	V
11928.500	36.10	-31.48	39.09	28.49	54.00	17.90	V

802.11ax-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)
17773.400	41.86	-25.50	46.66	20.70	54.00	12.14	V
17921.300	41.79	-25.50	46.66	20.63	54.00	12.21	H
16064.000	38.36	-26.77	38.93	26.20	54.00	15.64	V
16056.300	38.23	-27.35	38.54	27.04	54.00	15.77	H
11536.400	36.20	-32.26	38.84	29.63	54.00	17.80	H
11925.200	36.13	-31.48	39.09	28.52	54.00	17.87	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)
17855.900	52.44	-25.50	46.66	31.28	74.00	21.56	H
17615.500	52.14	-25.74	45.95	31.93	68.30	16.16	H
16578.800	50.35	-26.87	40.65	36.57	68.30	17.95	V
13759.000	50.22	-29.10	40.86	38.45	68.30	18.08	H
11526.000	47.35	-32.26	38.84	40.78	74.00	26.65	H
11963.800	46.84	-31.48	39.09	39.23	74.00	27.16	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)
17607.800	52.93	-25.74	45.95	32.72	68.30	15.37	V
17747.500	52.84	-25.50	46.66	31.68	74.00	21.16	V
16562.300	51.27	-26.87	40.65	37.49	68.30	17.03	H
16826.800	50.89	-26.62	41.49	36.02	68.30	17.41	H
10874.200	46.66	-32.33	38.59	40.40	74.00	27.34	V
11886.200	46.62	-31.85	39.05	39.42	74.00	27.38	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)
17418.700	52.76	-26.85	45.25	34.36	68.30	15.54	H
17884.500	52.70	-25.50	46.66	31.54	74.00	21.30	V
14210.000	50.91	-28.99	42.00	37.89	68.30	17.39	H
16597.000	50.29	-26.87	40.65	36.51	68.30	18.01	H
10780.700	46.80	-32.77	38.49	41.08	74.00	27.20	V
11872.500	46.68	-31.85	39.05	39.48	74.00	27.32	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)
17994.000	52.54	-25.50	46.66	31.38	74.00	21.46	V
17618.300	52.53	-25.74	45.95	32.32	68.30	15.77	V
16573.800	51.71	-26.87	40.65	37.93	68.30	16.59	V
16567.800	50.69	-26.87	40.65	36.91	68.30	17.61	V
11519.400	46.65	-32.26	38.84	40.08	74.00	27.35	V
11985.800	46.43	-31.48	39.09	38.82	74.00	27.57	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)
17634.200	52.17	-25.74	45.95	31.96	68.30	16.13	V
17629.300	52.13	-25.74	45.95	31.92	68.30	16.17	H
16884.600	50.55	-26.32	42.36	34.50	68.30	17.75	V
16526.000	50.50	-26.96	39.82	37.64	68.30	17.80	H
11181.100	46.69	-32.60	38.75	40.55	74.00	27.31	H
11672.800	46.54	-32.31	38.91	39.95	74.00	27.46	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)
17580.900	53.74	-25.74	45.95	33.53	68.30	14.56	H
17697.500	52.77	-25.74	45.95	32.56	68.30	15.53	V
16539.200	51.22	-26.96	39.82	38.36	68.30	17.08	H
16625.000	50.86	-26.87	40.65	37.08	68.30	17.44	V
11970.900	46.53	-31.48	39.09	38.92	74.00	27.47	H
11944.500	46.32	-31.48	39.09	38.71	74.00	27.68	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)
17254.800	52.90	-25.95	44.35	34.49	68.30	15.40	H
17756.300	52.63	-25.50	46.66	31.47	74.00	21.37	V
16593.700	50.89	-26.87	40.65	37.11	68.30	17.41	H
16597.500	50.86	-26.87	40.65	37.08	68.30	17.44	V
11051.300	46.89	-32.49	38.72	40.65	74.00	27.11	H
11530.400	46.86	-32.26	38.84	40.29	74.00	27.14	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)
17755.800	52.69	-25.50	46.66	31.53	74.00	21.31	V
17941.200	52.51	-25.50	46.66	31.35	74.00	21.49	V
16558.500	51.04	-26.87	40.65	37.26	68.30	17.26	H
16890.700	50.58	-26.32	42.36	34.53	68.30	17.72	H
11967.000	47.37	-31.48	39.09	39.76	74.00	26.63	V
10287.400	46.46	-33.68	38.17	41.96	68.30	21.84	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)
17396.100	52.79	-26.85	45.25	34.39	68.30	15.51	V
17770.700	52.52	-25.50	46.66	31.36	74.00	21.48	V
16584.800	50.94	-26.87	40.65	37.16	68.30	17.36	V
16592.500	50.76	-26.87	40.65	36.98	68.30	17.54	H
11809.800	46.20	-31.85	39.05	39.00	74.00	27.80	H
10883.000	46.17	-32.33	38.59	39.91	74.00	27.83	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)
17622.700	52.66	-25.74	45.95	32.45	68.30	15.64	V
17772.800	52.39	-25.50	46.66	31.23	74.00	21.61	V
16604.700	50.95	-26.87	40.65	37.17	68.30	17.35	V
16521.600	50.88	-26.96	39.82	38.02	68.30	17.42	V
11952.800	46.93	-31.48	39.09	39.32	74.00	27.07	V
11945.000	46.80	-31.48	39.09	39.19	74.00	27.20	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)
17993.400	52.81	-25.50	46.66	31.65	74.00	21.19	H
17305.900	52.45	-25.95	44.35	34.04	68.30	15.85	H
16647.000	50.49	-26.87	40.65	36.71	68.30	17.81	V
16773.000	50.30	-26.62	41.49	35.43	68.30	18.00	H
11937.400	46.55	-31.48	39.09	38.94	74.00	27.45	V
10668.000	46.51	-32.76	38.38	40.89	74.00	27.49	V

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)
17829.000	52.89	-25.50	46.66	31.73	74.00	21.11	V
17976.900	52.25	-25.50	46.66	31.09	74.00	21.75	H
16550.800	50.76	-26.87	40.65	36.98	68.30	17.54	V
16554.000	50.49	-26.87	40.65	36.71	68.30	17.81	H
11909.900	48.32	-31.85	39.05	41.12	74.00	25.68	H
11731.600	46.84	-31.99	38.98	39.85	74.00	27.16	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)
17829.500	53.63	-25.50	46.66	32.47	74.00	20.37	H
17634.800	53.08	-25.74	45.95	32.87	68.30	15.22	V
16780.700	51.54	-26.62	41.49	36.67	68.30	16.76	H
16580.500	50.65	-26.87	40.65	36.87	68.30	17.65	H
11572.700	46.67	-32.31	38.91	40.08	74.00	27.33	V
11610.100	46.50	-32.31	38.91	39.91	74.00	27.50	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)
17789.300	52.51	-25.50	46.66	31.35	74.00	21.49	H
17775.000	52.22	-25.50	46.66	31.06	74.00	21.78	V
13589.500	50.52	-29.50	40.43	39.59	68.30	17.78	H
13647.900	50.47	-29.50	40.43	39.54	68.30	17.83	V
10682.200	47.10	-32.77	38.49	41.38	74.00	26.90	V
11874.600	46.86	-31.85	39.05	39.66	74.00	27.14	H

802.11ax-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)
17422.000	53.07	-26.85	45.25	34.67	68.30	15.23	V
17848.200	52.39	-25.50	46.66	31.23	74.00	21.61	V
16573.800	51.13	-26.87	40.65	37.35	68.30	17.17	H
16595.800	51.10	-26.87	40.65	37.32	68.30	17.20	H
11961.500	46.25	-31.48	39.09	38.64	74.00	27.75	H
11449.000	46.19	-32.26	38.84	39.62	74.00	27.81	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)
17669.500	52.40	-25.74	45.95	32.19	68.30	15.90	H
17700.800	52.19	-25.74	45.95	31.98	74.00	21.81	V
16817.000	50.99	-26.62	41.49	36.12	68.30	17.31	H
16531.000	50.86	-26.96	39.82	38.00	68.30	17.44	H
11528.700	46.82	-32.26	38.84	40.25	74.00	27.18	H
11956.600	46.76	-31.48	39.09	39.15	74.00	27.24	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)
17823.500	52.53	-25.50	46.66	31.37	74.00	21.47	V
17697.500	52.51	-25.74	45.95	32.30	68.30	15.79	H
16468.800	50.88	-26.96	39.82	38.02	68.30	17.42	V
16923.100	50.83	-26.32	42.36	34.78	68.30	17.47	V
11409.400	46.87	-32.42	38.79	40.50	74.00	27.13	H
10539.800	46.72	-32.99	38.27	41.43	68.30	21.58	H

802.11ax-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)
17191.500	53.08	-26.60	43.36	36.32	68.30	15.22	H
17835.000	52.10	-25.50	46.66	30.94	74.00	21.90	V
16758.100	50.76	-26.62	41.49	35.89	68.30	17.54	H
16690.500	50.71	-26.87	40.65	36.93	68.30	17.59	H
11068.900	46.63	-32.49	38.72	40.39	74.00	27.37	V
11579.900	46.61	-32.31	38.91	40.02	74.00	27.39	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)
17887.200	53.63	-25.50	46.66	32.47	74.00	20.37	H
17697.000	52.45	-25.74	45.95	32.24	68.30	15.85	H
16943.500	50.80	-26.32	42.36	34.75	68.30	17.50	V
16575.000	50.79	-26.87	40.65	37.01	68.30	17.51	H
11919.800	46.99	-31.48	39.09	39.38	74.00	27.01	H
11824.600	46.71	-31.85	39.05	39.51	74.00	27.29	V

802.11ax-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)
17730.500	52.89	-25.74	45.95	32.68	74.00	21.11	V
17773.400	52.53	-25.50	46.66	31.37	74.00	21.47	V
16576.600	51.08	-26.87	40.65	37.30	68.30	17.22	H
16767.500	50.68	-26.62	41.49	35.81	68.30	17.62	H
11879.000	46.80	-31.85	39.05	39.60	74.00	27.20	H
10298.900	46.76	-33.68	38.17	42.26	68.30	21.54	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.	

Measurement Result:

Mode	Channel	Test Results	Conclusion
802.11a	5745 MHz	Fig.10	P
	5825 MHz	Fig.11	P
802.11n HT20	5745 MHz	Fig.12	P
	5825 MHz	Fig.13	P
802.11n HT40	5755 MHz	Fig.14	P
	5795 MHz	Fig.15	P
802.11ac HT20	5745 MHz	Fig.16	P
	5825 MHz	Fig.17	P
802.11ac HT40	5755 MHz	Fig.18	P
	5795 MHz	Fig.19	P
802.11ac HT80	5775 MHz	Fig.20 Fig.21	P
802.11ax HT20	5745 MHz	Fig.22	P
	5825 MHz	Fig.23	P
802.11ax HT40	5755 MHz	Fig.24	P
	5795 MHz	Fig.25	P
802.11ax HT80	5775 MHz	Fig.26 Fig.27	P

Conclusion: PASS

Test graphs as below:

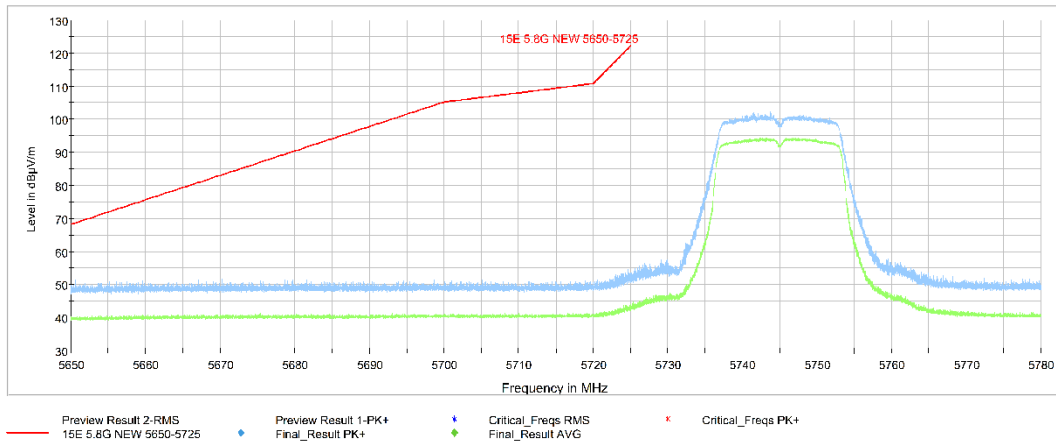


Fig. 10 Band Edges (802.11a Ch149,5745MHz)

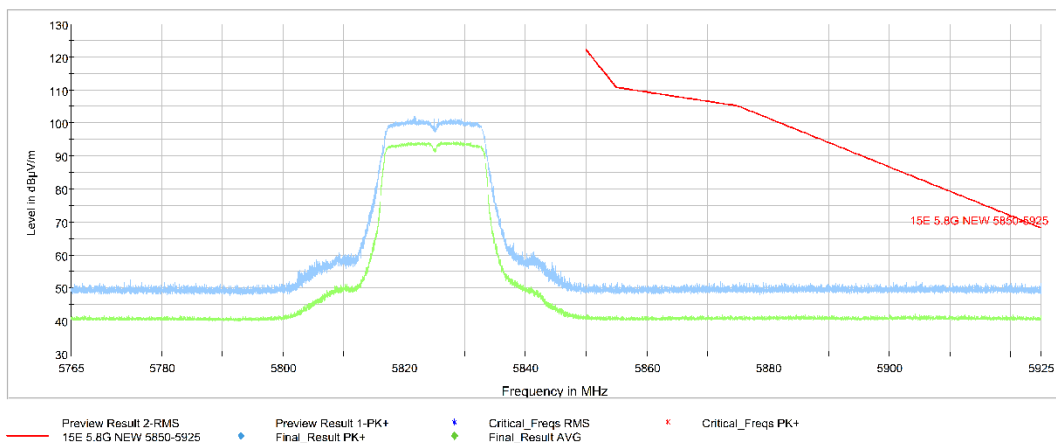


Fig. 11 Band Edges (802.11a Ch165, 5825MHz)

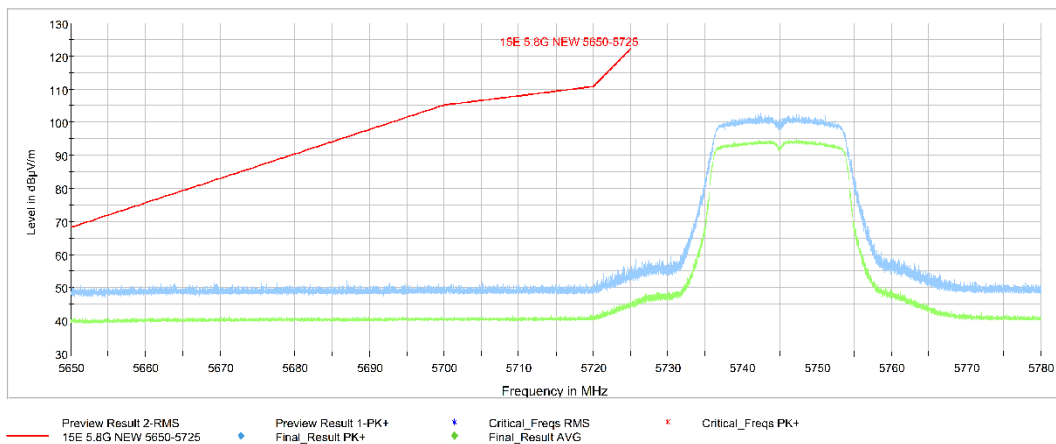


Fig. 12 Band Edges (802.11n-HT20 Ch149, 5745MHz)

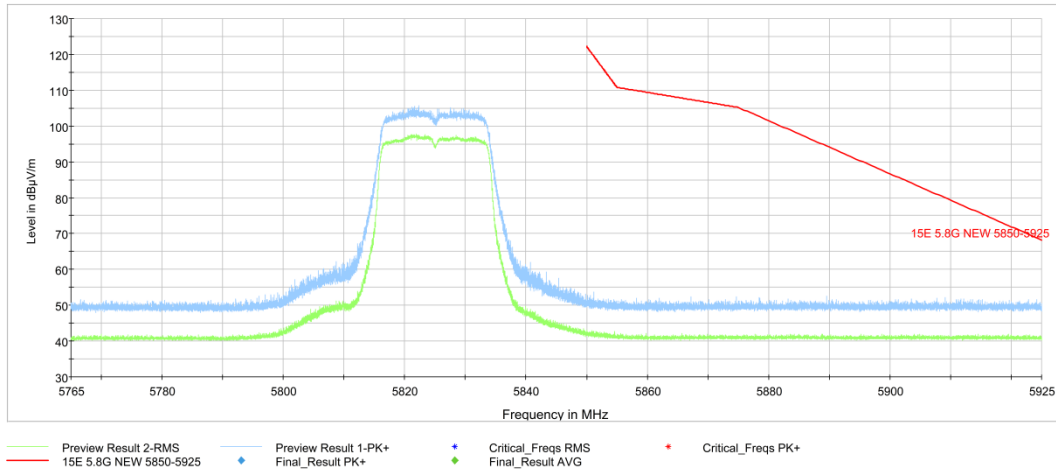


Fig. 13 Band Edges (802.11n-HT20 Ch165, 5825MHz)

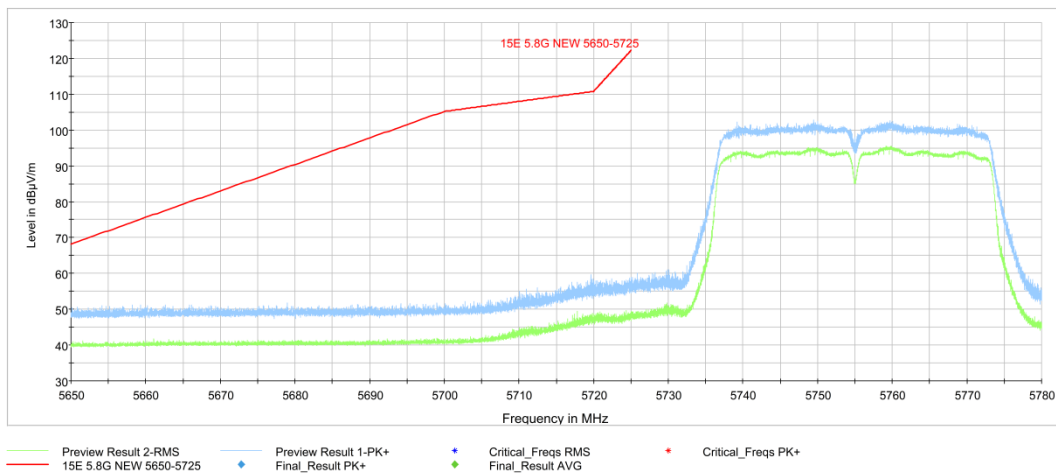


Fig. 14 Band Edges (802.11n-HT40 Ch151, 5755MHz)

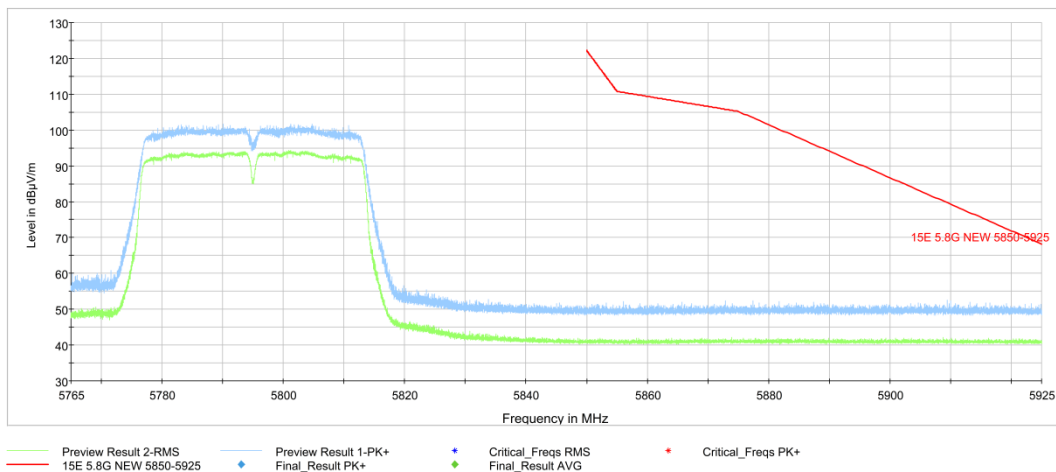


Fig. 15 Band Edges (802.11n-HT40 Ch159, 5795MHz)

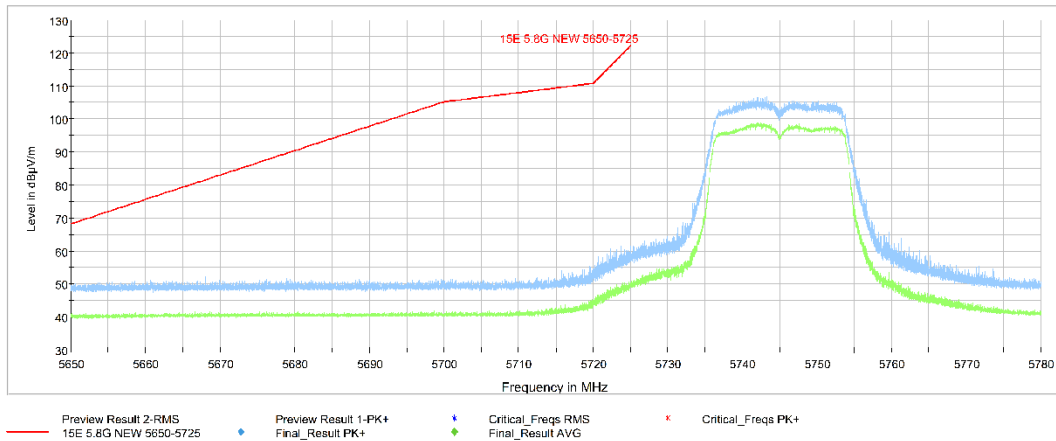


Fig. 16 Band Edges (802.11ac-HT20 Ch149, 5745MHz)

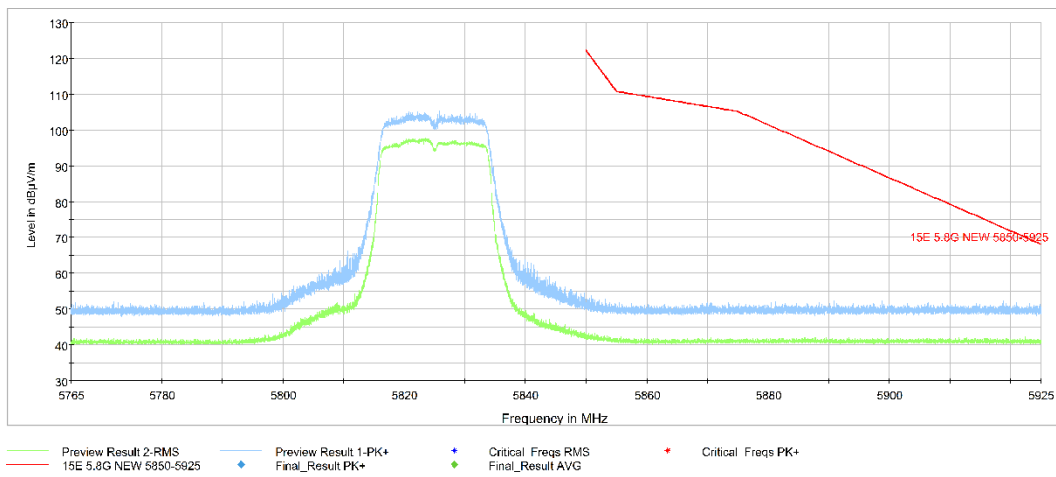


Fig. 17 Band Edges (802.11ac-HT20 Ch165, 5825MHz)

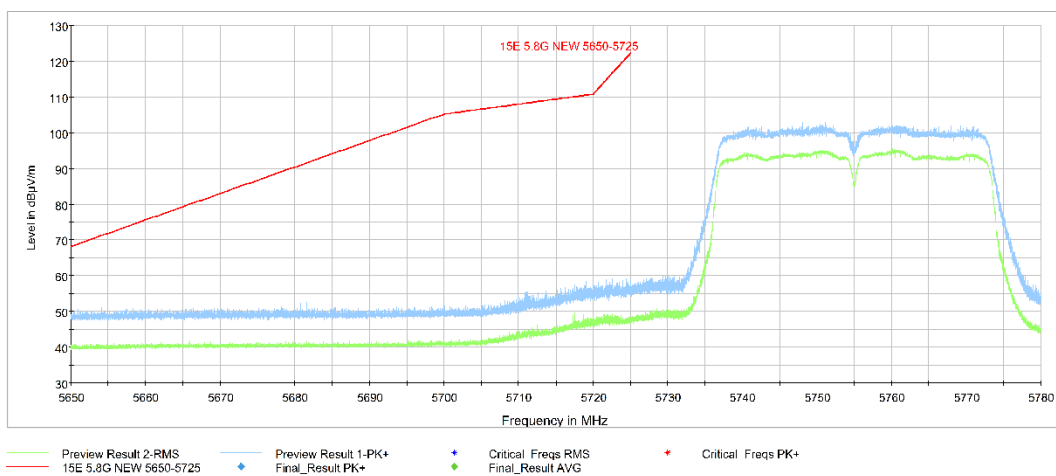


Fig. 18 Band Edges (802.11ac-HT40 Ch151, 5755MHz)

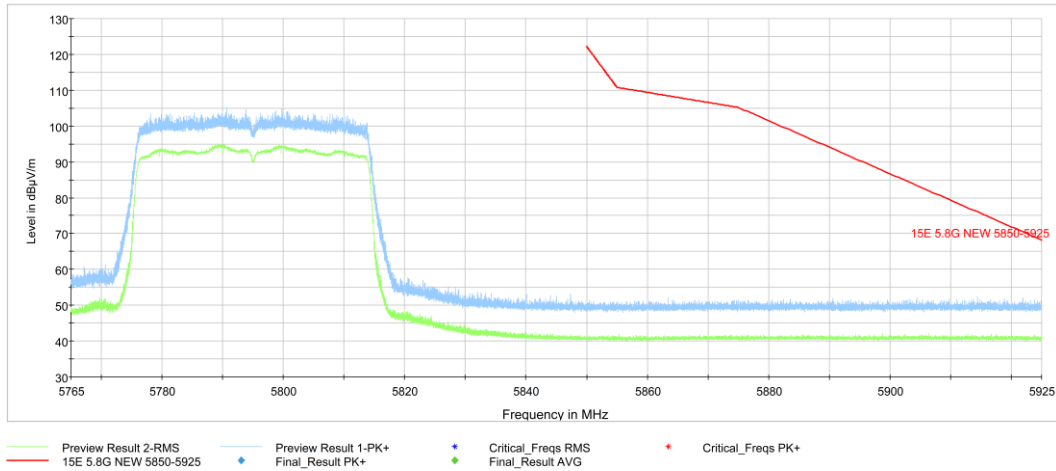


Fig. 19 Band Edges (802.11ac-HT40 Ch159, 5795MHz)

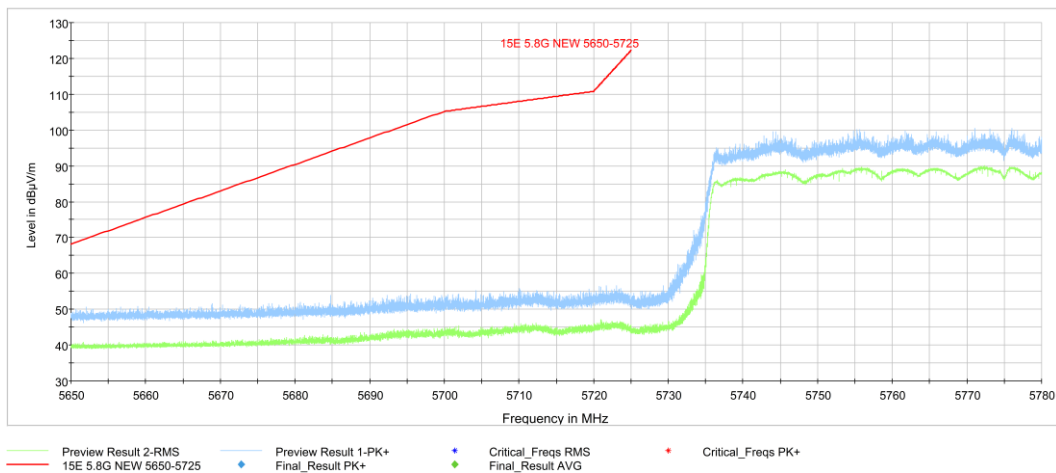


Fig. 20 Band Edges (802.11ac-HT80 Ch155, 5775MHz)

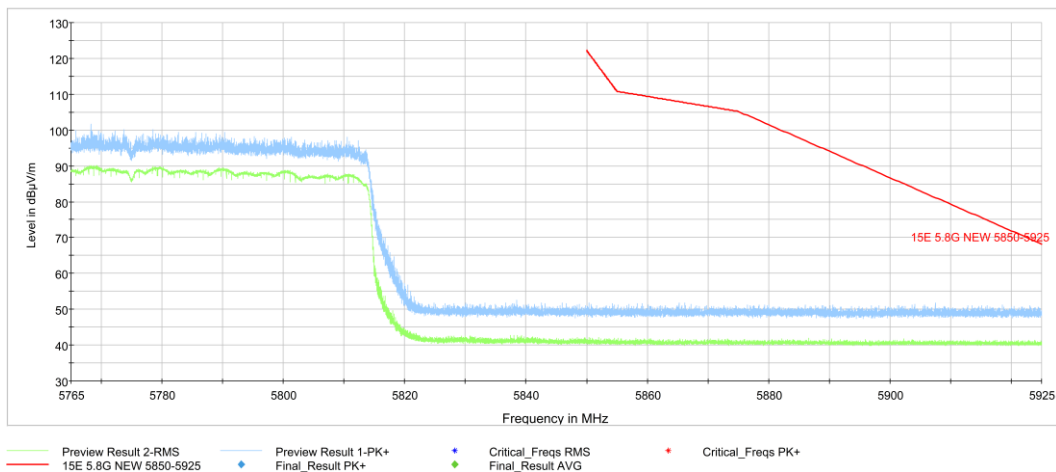


Fig. 21 Band Edges (802.11ac-HT80 Ch155,, 5775MHz)

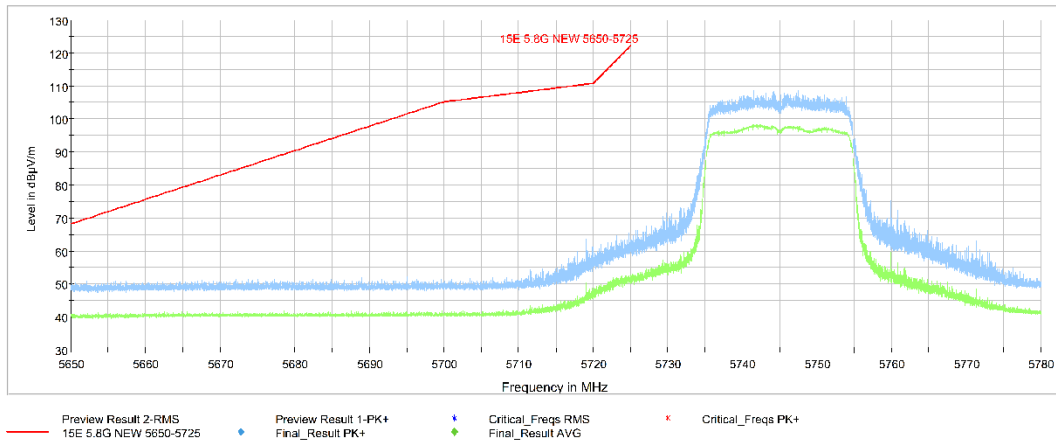


Fig. 22 Band Edges (802.11ax-HT20 Ch149, 5745MHz)

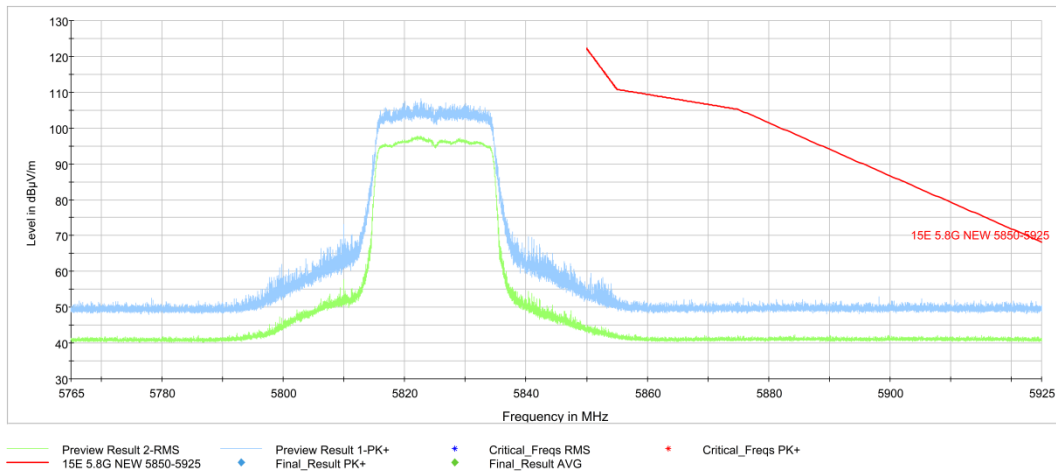


Fig. 23 Band Edges (802.11ax-HT20 Ch165, 5825MHz)

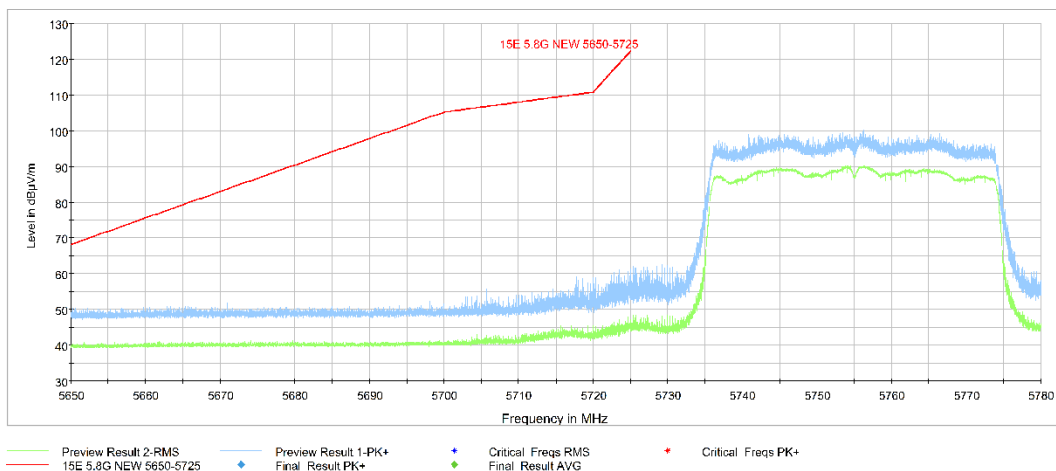


Fig. 24 Band Edges (802.11ax-HT40 Ch151, 5755MHz)

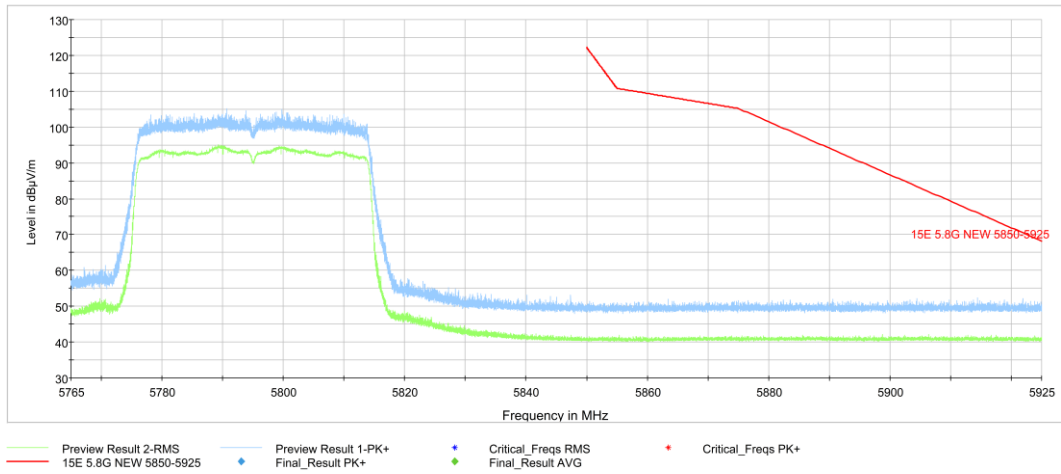


Fig. 25 Band Edges (802.11ax-HT40 Ch159, 5795MHz)

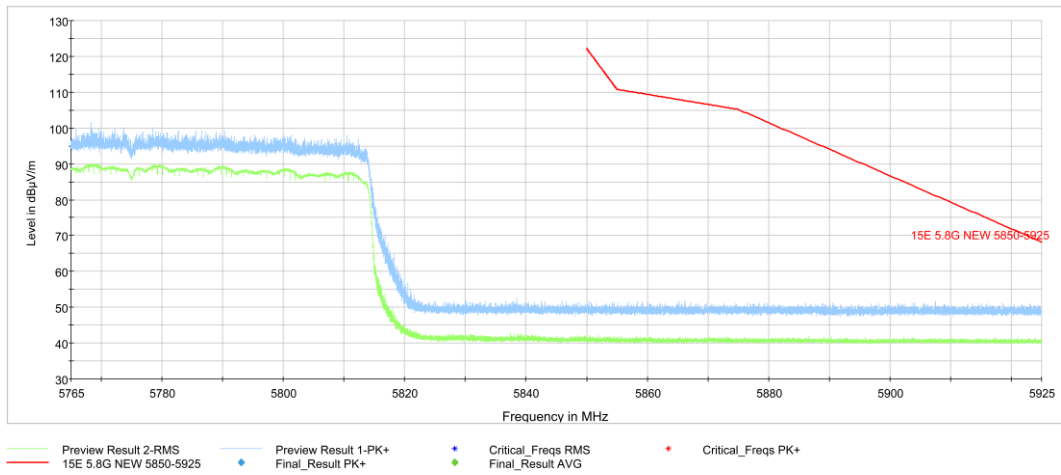


Fig. 26 Band Edges (802.11ax-HT80 Ch155, 5775MHz)

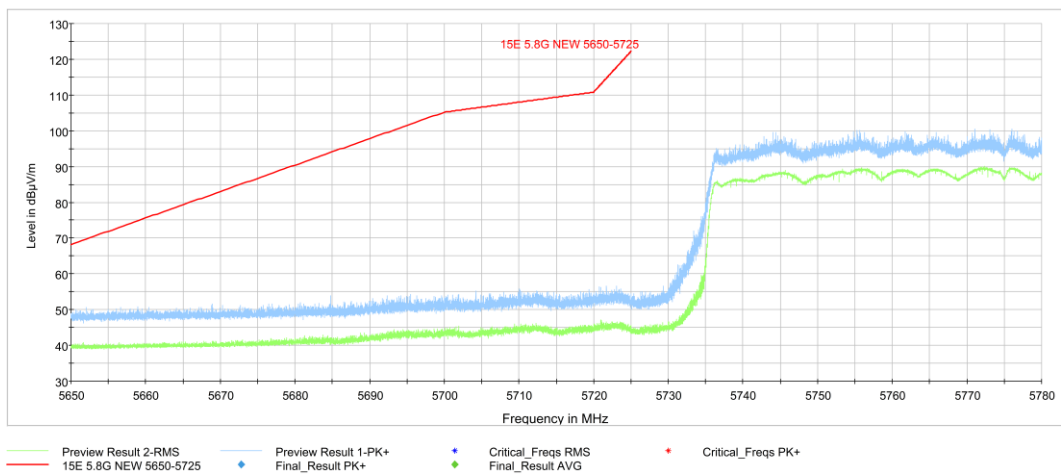


Fig. 27 Band Edges (802.11ax-HT80 Ch155,, 5775MHz)

A.7. AC Powerline Conducted Emission

Test Condition:

Voltage (V)	Frequency (Hz)
120	60

Measurement uncertainty:

Expanded measurement uncertainty for this test item is $U = 3.08\text{dB}$, $k=2$.

Measurement Result and limit:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Result (dB μ V)		Conclusion
		With charger		
		802.11a	Idle	
0.15 to 0.5	66 to 56	Fig.28	Fig.29	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 (dB μ V)	Result (dB μ V)		Conclusion
		With charger		
		802.11a	Idle	
0.15 to 0.5	56 to 46	Fig.28	Fig.29	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.

The measurement is made according to ANSI C63.10 .

Conclusion: PASS

Test graphs as below:

Traffic:

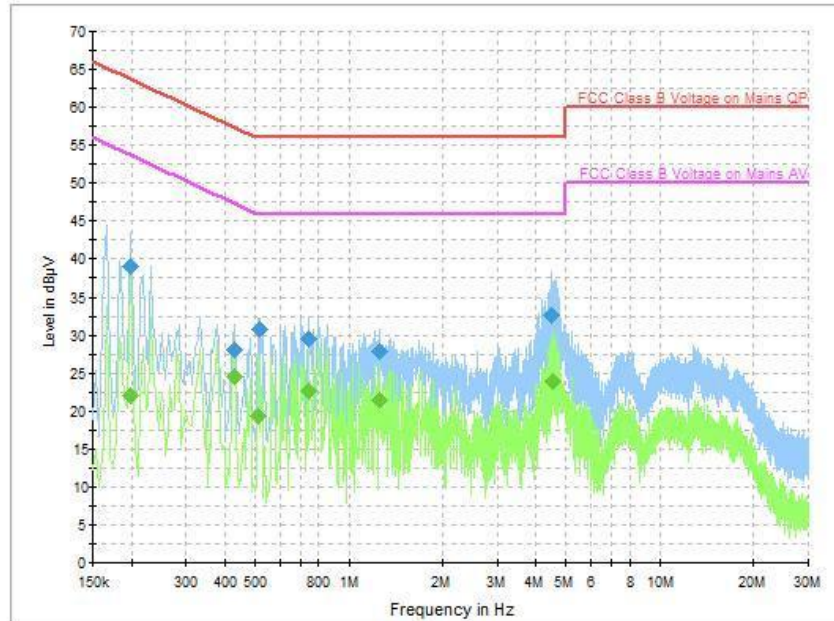


Fig. 28 AC Power line Conducted Emission-802.11a

Note1: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.198000	39.14	5000.	9.000	On	L1	19.8	24.60	63.70	0.198000
0.430000	28.09	5000.	9.000	On	L1	19.7	29.20	57.30	0.430000
0.514000	30.65	5000.	9.000	On	N	19.8	25.40	56.00	0.514000
0.742000	29.51	5000.	9.000	On	N	19.6	26.50	56.00	0.742000
1.262000	27.80	5000.	9.000	On	N	19.6	28.20	56.00	1.262000
4.498000	32.61	5000.	9.000	On	N	19.5	23.40	56.00	4.498000

Final Result 2

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.198000	21.99	5000.	9.000	On	L1	19.8	31.70	53.70	0.198000
0.430000	24.48	5000.	9.000	On	L1	19.7	22.80	47.30	0.430000
0.510000	19.31	5000.	9.000	On	N	19.8	26.70	46.00	0.510000
0.742000	22.57	5000.	9.000	On	N	19.6	23.40	46.00	0.742000
1.258000	21.39	5000.	9.000	On	N	19.6	24.60	46.00	1.258000
4.526000	23.84	5000.	9.000	On	N	19.5	22.20	46.00	4.526000

Note2: The measurement results showed here are worst cases

Idle:

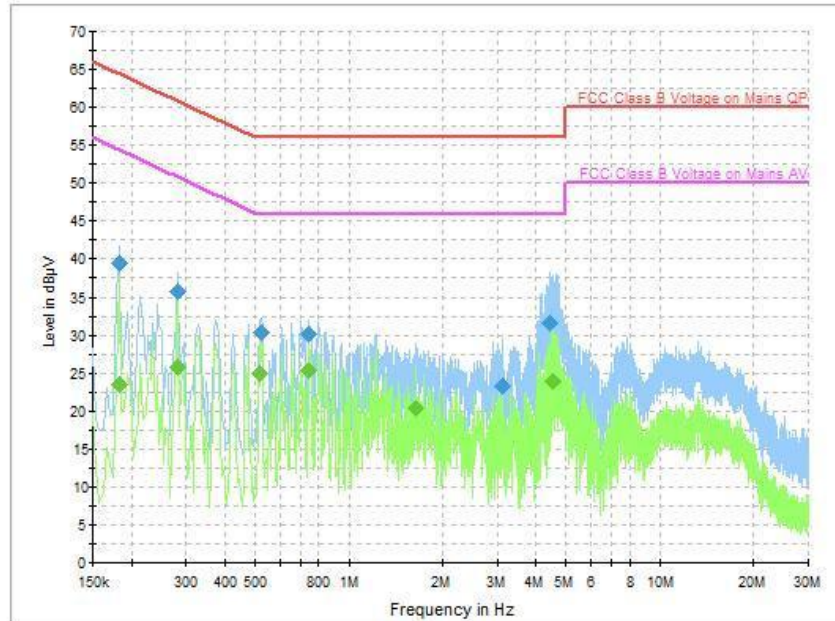


Fig. 29 AC Power line Conducted Emission-Idle

Note1: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.182000	39.51	5000.	9.000	On	L1	19.8	24.90	64.40	0.182000
0.282000	35.83	5000.	9.000	On	L1	19.8	24.90	60.80	0.282000
0.522000	30.27	5000.	9.000	On	N	19.8	25.70	56.00	0.522000
0.746000	30.21	5000.	9.000	On	N	19.6	25.80	56.00	0.746000
3.130000	23.33	5000.	9.000	On	L1	19.5	32.70	56.00	3.130000
4.406000	31.67	5000.	9.000	On	N	19.5	24.30	56.00	4.406000

Final Result 2

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.182000	23.39	5000.0	9.000	On	L1	19.81	31.00	54.40	0.182000
0.282000	25.80	5000.0	9.000	On	L1	19.82	25.00	50.80	0.282000
0.514000	24.90	5000.0	9.000	On	N	19.83	21.10	46.00	0.514000
0.746000	25.25	5000.0	9.000	On	N	19.60	20.80	46.00	0.746000
1.634000	20.27	5000.0	9.000	On	N	19.65	25.70	46.00	1.634000
4.554000	23.90	5000.0	9.000	On	N	19.51	22.10	46.00	4.554000

Note2: The measurement results showed here are worst cases.

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 ***