



FCC PART 15C TEST REPORT No.I22Z70062-IOT05

for

Samsung Electronics Co., Ltd.

Tablet with Bluetooth, WLAN

SM-T503

With

FCC ID: ZCASMT503

Hardware Version: REV1.0

Software Version: T503.001

Issued Date: 2022-03-31

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.

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Test Laboratory:

CTTL-Telecommunication Technology Labs, CAICT

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

Tel:+86(0)10-62304633-2512, Fax:+86(0)10-62304633-2504

Email: ctl_terminals@caict.ac.cn, website: www.caict.ac.cn

REPORT HISTORY

Report Number	Revision	Description	Issue Date
I22Z70062-IOT05	Rev.0	1st edition	2022-03-28
I22Z70062-IOT05	Rev.1	Update duty cycle	2022-03-31

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1. TEST LATORATORY

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 1: CTTL(huayuan North Road)

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

Ttesting Location 2: CTTL (BDA)

Address: No. 18A, Kangding Street, Beijing Economic-Technology
Development Area, Beijing, 100176, P.R. China

1.1. TestingEnvironment

Normal Temperature: 15-35°C

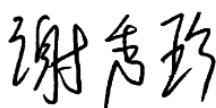
Relative Humidity: 20-75%

1.2. Project date

Testing Start Date: 2022-02-22

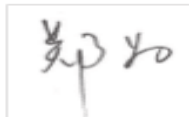
Testing End Date: 2022-03-28

1.3. Signature



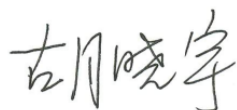
XieXiuzhen

(Prepared this test report)



Zheng Wei

(Reviewed this test report)



Hu Xiaoyu

(Approved this test report)

2. CLIENT INFORMATION

2.1. Applicant Information

Company Name: Samsung Electronics Co., Ltd.
Address: 19 Chapin Rd., Building D Pine Brook, NJ 07058
Contact: Jenni Chun
Email: j1.chun@samsung.com
Telephone: +1-201-937-4203

2.2. Manufacturer Information

Company Name: Samsung Electronics Co., Ltd.
Address: Samsung R5, Maetan dong 129, Samsung ro
Youngtong gu, Suwon city 443 742, Korea
Contact: Sunghoon Cho
Email: ggobi.cho@samsung.com
Telephone: +82-10-2722-4159

3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT(AE)

3.1. About EUT

Description	Tablet with Bluetooth, WLAN
Model name	SM-T503
FCC ID	ZCASMT503
WLAN Frequency Band	ISM Band: 5725MHz~5850MHz
Type of modulation	OFDM
Antenna gain	-2.01dBi
Voltage	3.8V

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version
UT15a	2270062UT15a	REV1.0	T503.001
UT17a	2270062UT17a	REV1.0	T503.001
UT20a	2270062UT20a	REV1.0	T503.001

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

3.3. Internal Identification of AE used during the test

AE ID*	Description	Remark
AE1	Adapter1	/
AE2	Adapter2	/
AE3	Adapter3	/
AE4	Adapter4	/
AE5	Data Cable1	/
AE6	Data Cable2	/
AE7	Headset	/
AE8	Battery	/

AE1

Model	EP-TA50JWE
Manufacturer	HAEM Co.,Ltd
Length of cable	/

AE2

Model	EP-TA50EWE
Manufacturer	RFTECH Co., Ltd.
Length of cable	/

AE3

Model	EP-TA50EWE
Manufacturer	HAEM Co.,Ltd
Length of cable	/

AE4

Model	EP-TA50UWE
Manufacturer	HAEM Co.,Ltd
Length of cable	/
AE5	
Model	EP-DT725BWE
Manufacturer	R.F.Tech Electronics (HuiZhou) Co.,Ltd.
Length of cable	/
AE6	
Model	EP-DT725BWE
Manufacturer	DONGGUAN KSD CO.,LTD
Length of cable	/
AE7	
Model	EHS61ASFWE
Manufacturer	DONGGUAN YOUNGBO ELECTRONICS CO.,LTD
Length of cable	/
AE8	
Model	/
Manufacturer	/
Length of cable	/

*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 with Bluetooth, WLAN 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;	2018
	15.209 Radiated emission limits, general requirements;	
ANSI C63.10	15.407 General technical requirements	
	Methods of Measurement of Radio-Noise Emissions from	
	Low-Voltage Electrical and Electronic Equipment in the	2013
UNII: KDB 789033 D02	Range of 9 kHz to 40 GHz	
	General U-NII Test Procedures New Rules v02r01	2017-12

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/manufacture 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	3.8V
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	2022-05-24
2	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESU26	100376	R&S	1 year	2022-09-15
2	EMI Antenna	VULB9163	9163-514	Schwarzbeck	1 year	2022-03-22
3	EMI Antenna	3117	00139065	ETS-Lindgren	1 year	2022-09-02
4	EMI Antenna	LB-180400-25-C-KF	J211060826	A-INFO	1 year	2023-02-27
5	Loop Antenna	HFH2-Z2	829324/007	R&S	1 year	2022-12-22
6	Analytical Spectrometer	FSV40	101047	R&S	1 year	2022-06-02
7	Test Receiver	ESW44	103015	R&S	1 year	2022-09-02

AC Power Line Conducted Emission

No.	Equipment	Model	Manufacturer	Serial Number	Calibration Period	Calibration Due date
1	LISN	ENV216	101459	R&S	1 year	2022-03-16
2	Test Receiver	ESCI	100766	R&S	1 year	2023-03-02

Note:

The LISN which Serial Number is 101459 was before Calibration Due date when used.

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	/
$30\text{MHz} \leq f \leq 1\text{GHz}$	5.40
$1\text{GHz} \leq f \leq 18\text{GHz}$	4.32
$18\text{GHz} \leq f \leq 40\text{GHz}$	5.26

8.6. AC Power-line Conducted Emission

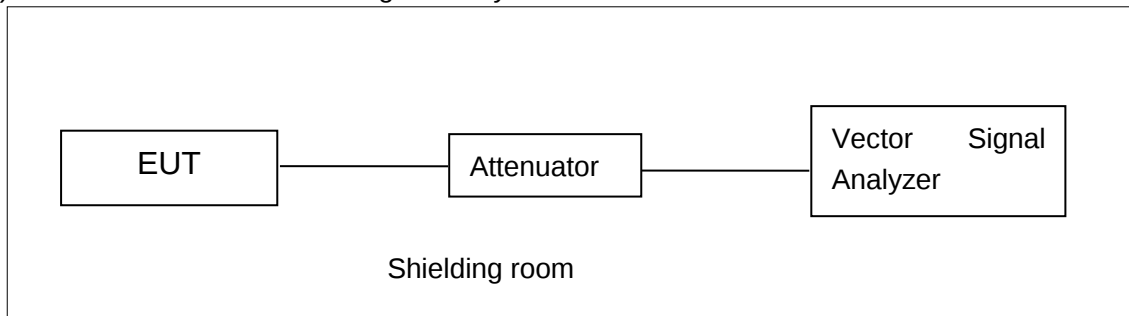
Measurement Uncertainty: 3.10dB, k=2

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

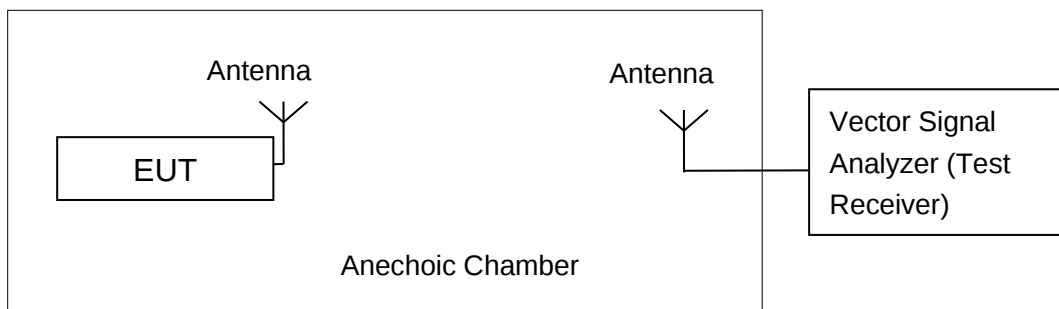


A.1.2. Radiated Emission Measurements

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.

A.2. Maximum Peak Output Power

Measurement Limit and Method:

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

A.2.1 Antenna Gain

Antenna gain is -2.01dBi and the value is supplied by the applicant or manufacturer.

A.2.2. Maximum Average Output Power-Conducted

Measurement Results:

Duty cycle

Mode	Test Result							
	6	9	12	18	24	36	48	54
802.11a	98%	98%	97%	93%	94%	90%	89%	90%
Mode	Test Result							
	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT20)	97%	96%	95%	93%	90%	89%	87%	88%
Mode	Test Result							
	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT40)	98%	97%	96%	94%	91%	90%	88%	87%

Mode	Test Result								
	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
802.11ac (HT20)	98%	97%	95%	94%	90%	89%	88%	87%	86%

Mode	Test Result									
	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac (HT40)	98%	98%	97%	96%	94%	92%	91%	91%	90%	88%
Mode	Test Result									
	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac (HT80)	97%	98%	96%	94%	91%	89%	88%	87%	85%	86%

802.11a mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11a	6	16.11	16.79	16.93
	9	/	/	16.94
	12	/	/	16.09
	18	/	/	16.05
	24	/	/	14.61
	36	/	/	14.56
	48	/	/	13.65
	54	/	/	13.55

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	15.49	16.16	16.30
	MCS1	/	/	15.43
	MCS2	/	/	15.45
	MCS3	/	/	14.49
	MCS4	/	/	13.93
	MCS5	/	/	13.51
	MCS6	/	/	13.39
	MCS7	/	/	13.41

The data rate MCS0 is selected as worse 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	16.51	17.05	17.23
	MCS1	/	/	17.09
	MCS2	/	/	17.02
	MCS3	/	/	14.31
	MCS4	/	/	14.22
	MCS5	/	/	12.47
	MCS6	/	/	12.48
	MCS7	/	/	12.43
	MCS8	/	/	12.08

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	15.40	16.26
	MCS1	/	15.51
	MCS2	/	15.44
	MCS3	/	14.55
	MCS4	/	14.51
	MCS5	/	13.95
	MCS6	/	13.94
	MCS7	/	13.51

The data rate MCS0 is selected as worse 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	16.42	17.22
	MCS1	/	17.15
	MCS2	/	17.07
	MCS3	/	14.35
	MCS4	/	14.31
	MCS5	/	13.12
	MCS6	/	13.08
	MCS7	/	12.57

	MCS8	/	12.31
	MCS9	/	12.25

The data rate MCS0 is selected as worse 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	17.88
	MCS1	17.27
	MCS2	17.19
	MCS3	14.35
	MCS4	14.36
	MCS5	13.02
	MCS6	13.09
	MCS7	12.98
	MCS8	12.81
	MCS9	12.72

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

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:

Mode	Channel	Power Spectral Density (dBm/500kHz)	Conclusion
802.11a	149	1.61	P
	157	2.42	P
	165	2.31	P
802.11ac HT20	149	1.81	P
	157	2.59	P
	165	2.43	P
802.11ac HT40	151	-1.14	P
	159	-0.16	P
802.11ac HT80	155	-4.09	P

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
-------------------------	---------

Measurement Result:

Mode	Channel	Occupied 6dB Bandwidth (MHz)		conclusion
802.11a	149	Fig.1	16.35	P
	157	Fig.2	16.35	P
	165	Fig.3	16.35	P
802.11ac HT20	149	Fig.4	17.50	P
	157	Fig.5	17.55	P
	165	Fig.6	17.55	P
802.11ac HT40	151	Fig.7	35.68	P
	159	Fig.8	35.68	P
802.11ac HT80	155	Fig.9	75.68	P

Conclusion: PASS

Test graphs as below:

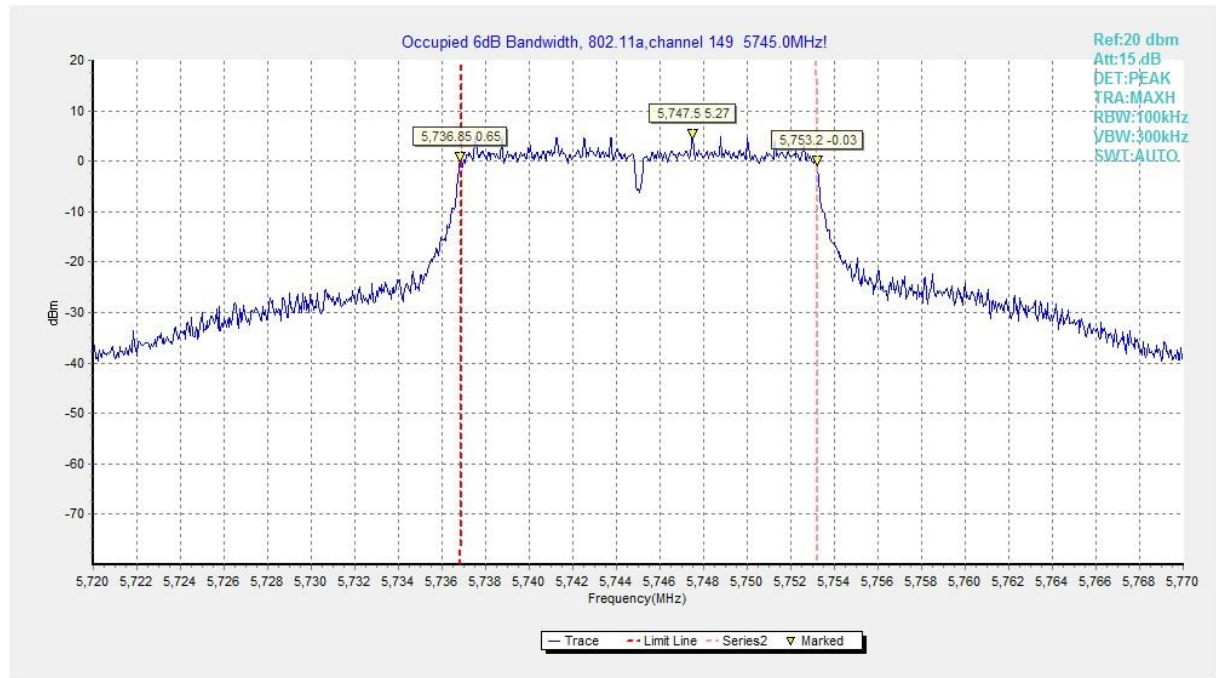


Fig. 1 Occupied 6dB Bandwidth (802.11a, Ch 149)

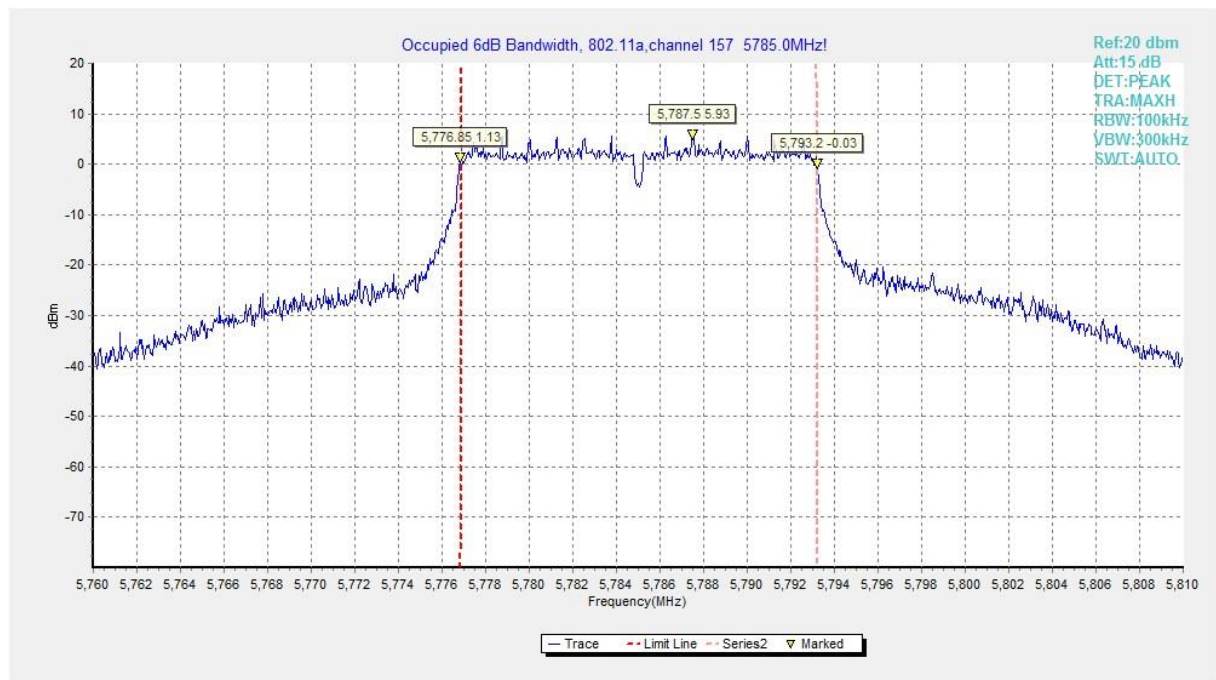


Fig. 2 Occupied 6dB Bandwidth (802.11a, Ch 157)

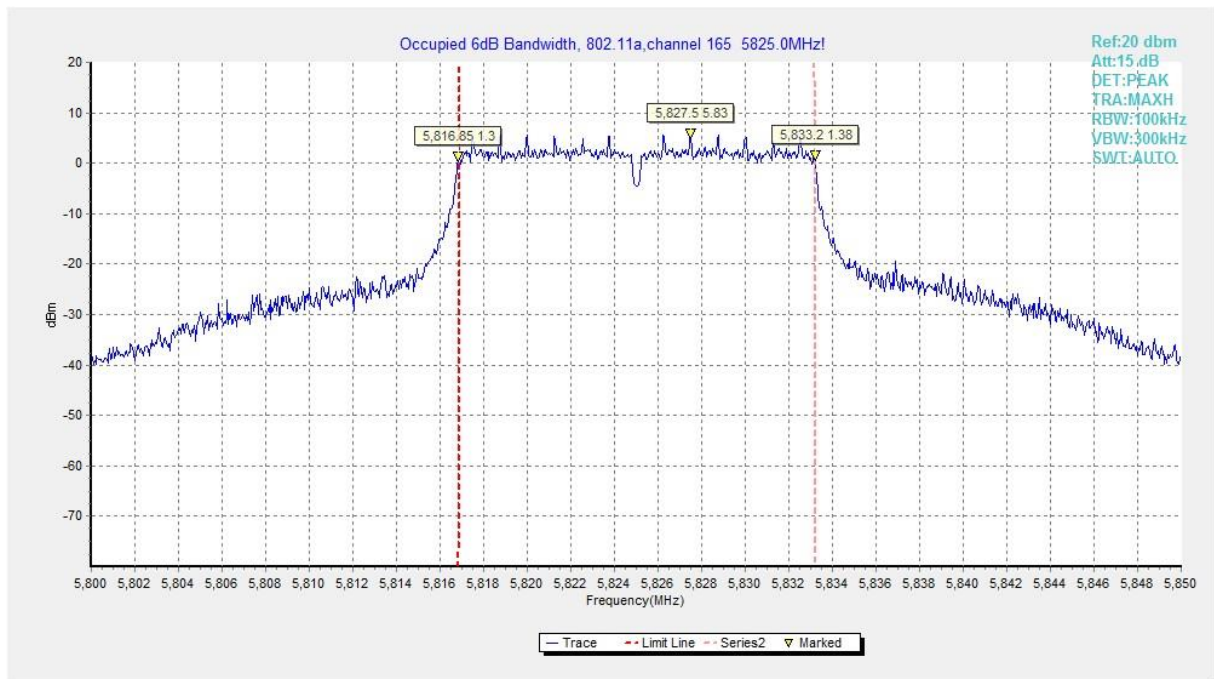


Fig. 3 Occupied 6dB Bandwidth (802.11a, Ch 165)

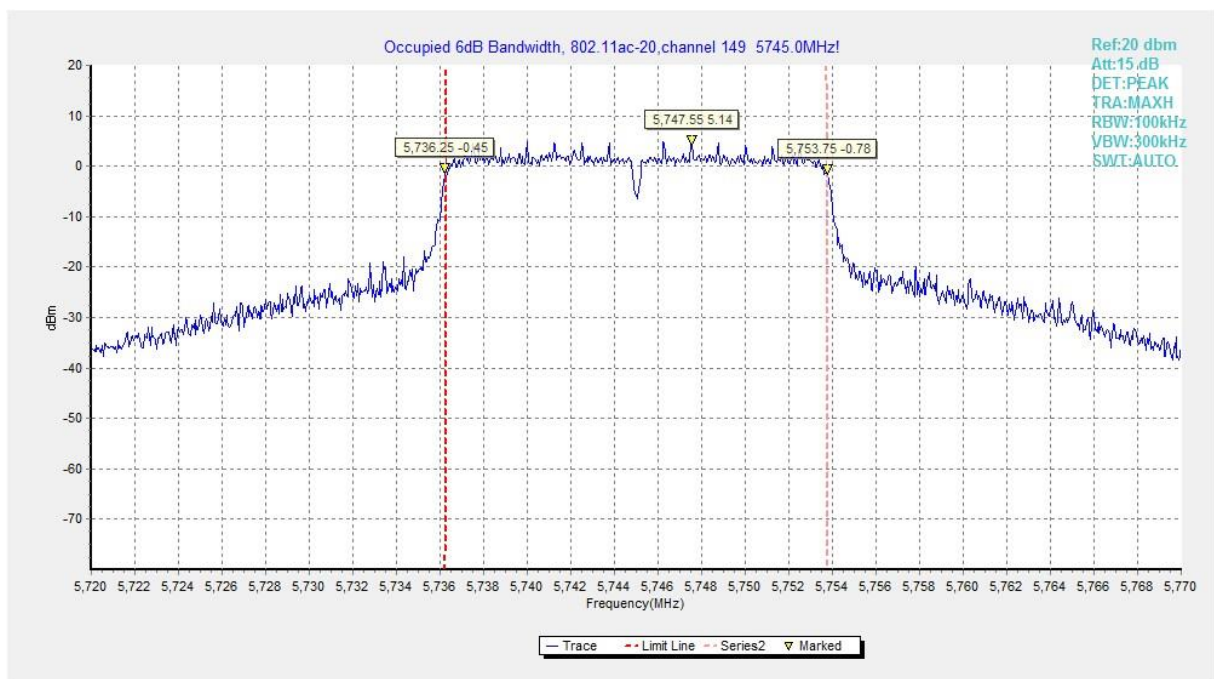


Fig. 4 Occupied 6dB Bandwidth (802.11ac-HT20, Ch 149)

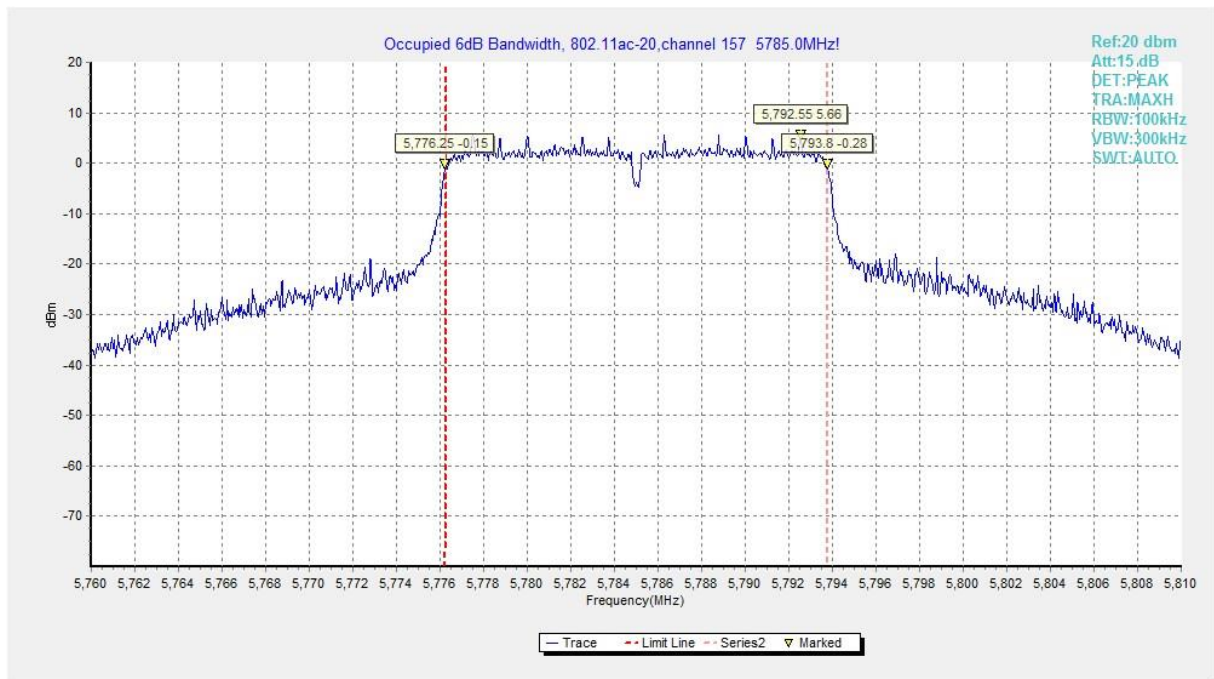


Fig. 5 Occupied 6dB Bandwidth (802.11ac-HT20, Ch 157)

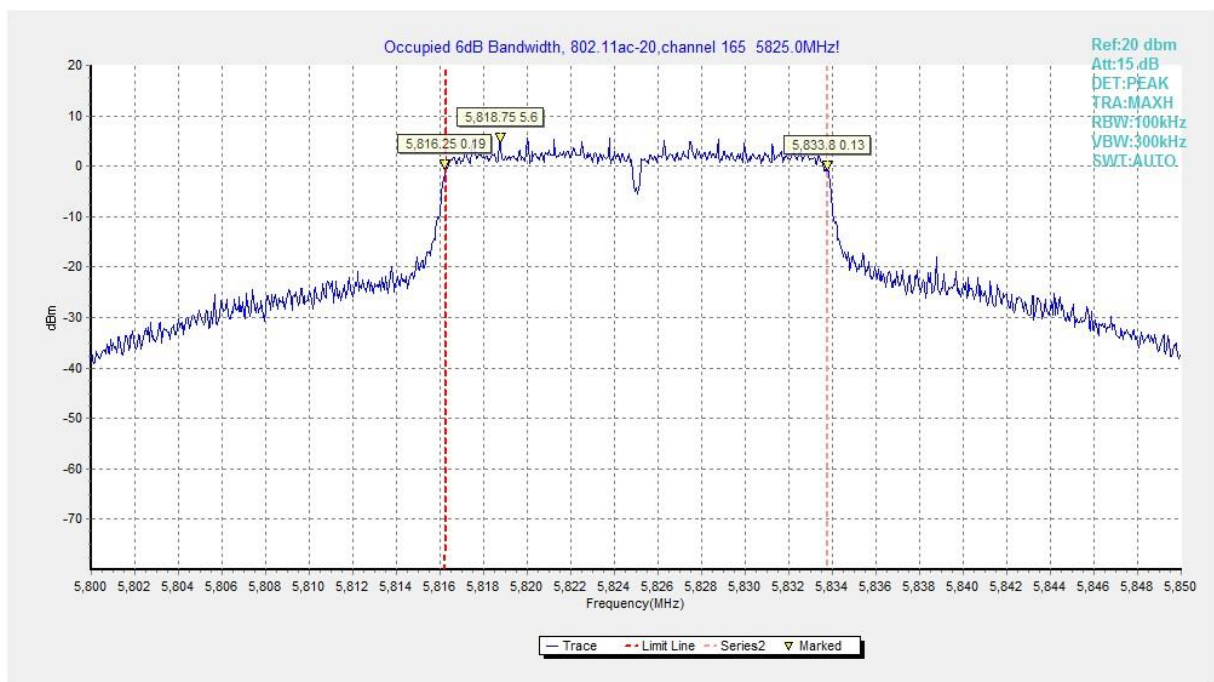


Fig. 6 Occupied 6dB Bandwidth (802.11ac-HT20, Ch 165)

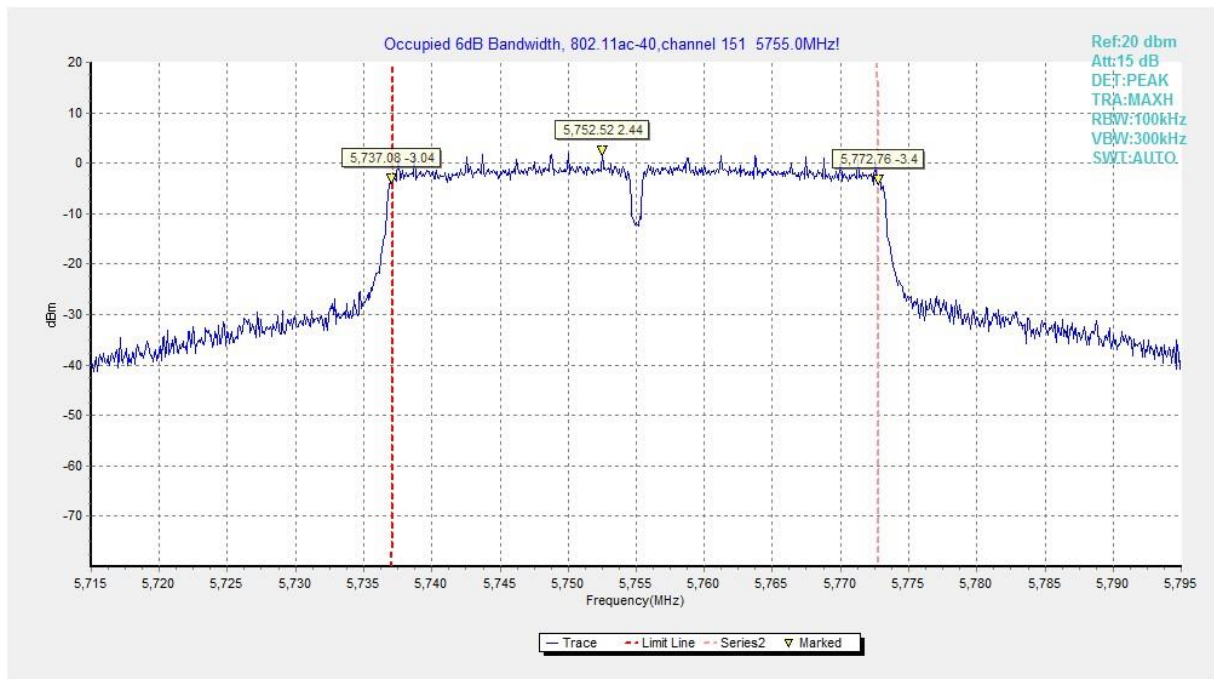


Fig. 7 Occupied 6dB Bandwidth (802.11ac-HT40, Ch 151)

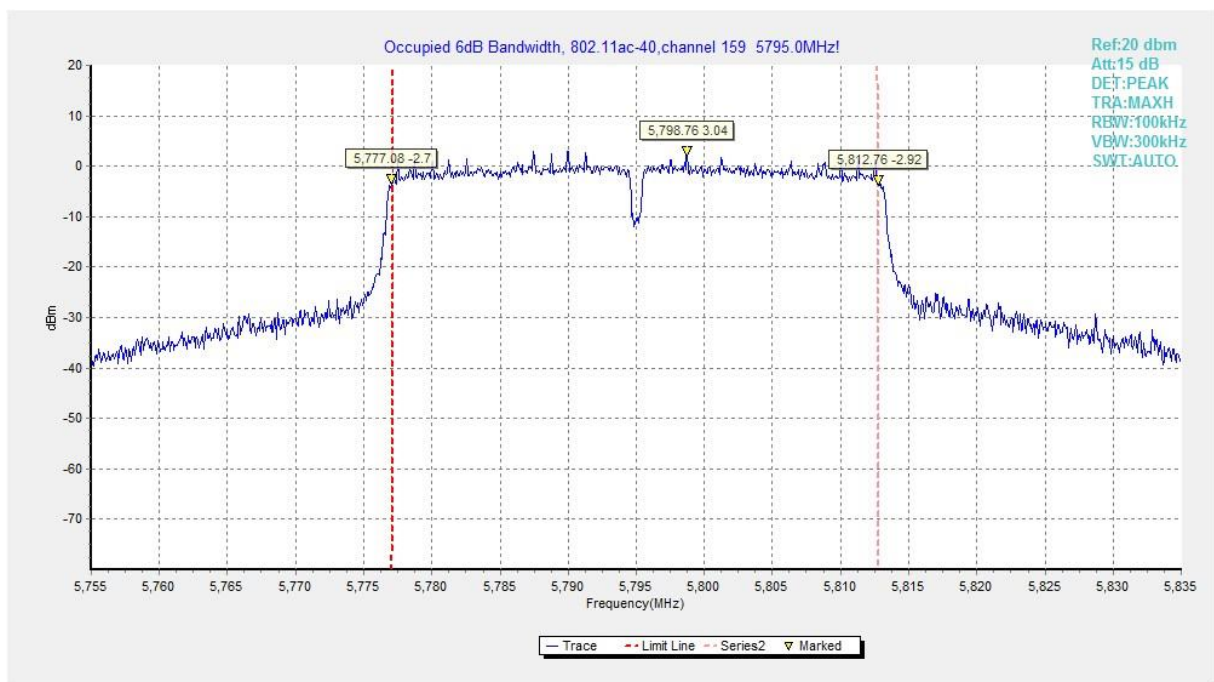


Fig. 8 Occupied 6dB Bandwidth (802.11ac-HT40, Ch 159)

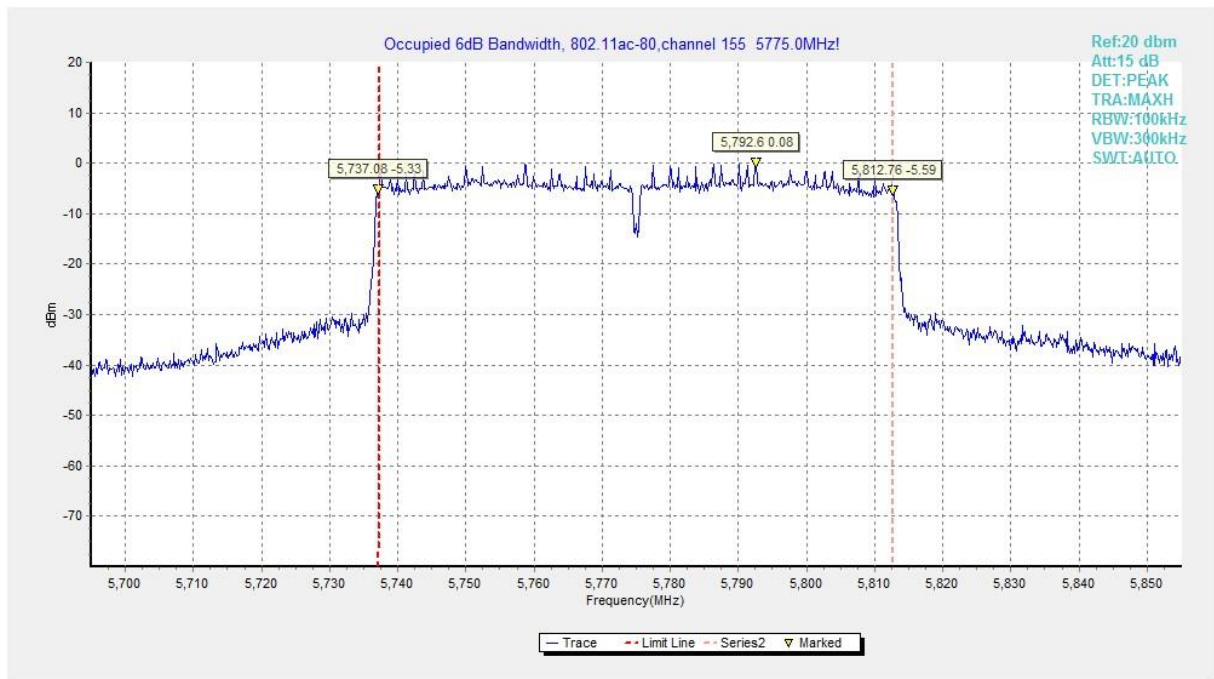


Fig. 9 Occupied 6dB Bandwidth (802.11ac-HT80, Ch 155)

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

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 (MHz)	Field strength(μ V/m)	Measurement distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

Frequency of emission (MHz)	Field strength (μ V/m)	Field strength (dBuV/m)	Measurement distance (m)
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Set up:

Tabletop devices shall be placed on a nonconducting platform with nominal top surface dimensions 1 m by 1.5 m. For emissions testing at or below 1 GHz, the table height shall be 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m

The EUT and transmitting antenna shall be centered on the turntable.

Test Procedure

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. 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.

The receiver references:

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100kHz/300kHz	5
1000-4000	1MHz/3MHz	15
4000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

Sample Calculations

1. Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

$$E = \text{EIRP} - 20 \log(D) + 104.77$$

Where:

E is the field strength in dB μ V/m

D is the measurement distance in meters

EIRP is the equivalent isotropically radiated power in dbm

2. The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + A_{\text{Rpl}} = P_{\text{Mea}} + \text{Cable Loss} + \text{Antenna Factor}$$

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.

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	9kHz ~30 MHz	---	P
		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	9kHz ~30 MHz	---	P
		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	9kHz ~30 MHz	---	P
		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	9kHz ~30 MHz	---	P
		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	9kHz ~30 MHz	---	P
		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	9kHz ~30 MHz	---	P
		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

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)
5403.500	44.37	-26.94	34.41	36.90	54.00	9.63	V
5458.450	44.22	-27.09	34.46	36.84	54.00	9.78	V
11490.200	36.68	-19.50	38.20	17.98	54.00	17.32	H
15974.900	41.35	-16.14	40.67	16.82	54.00	12.65	V
16154.200	41.18	-16.22	40.86	16.54	54.00	12.82	H
17795.400	42.79	-13.62	40.46	15.95	54.00	11.21	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)
5388.650	43.97	-26.97	34.39	36.54	54.00	10.03	V
5396.050	44.10	-26.91	34.40	36.61	54.00	9.90	V
11570.500	36.98	-19.62	38.30	18.30	54.00	17.02	H
15923.200	41.14	-16.11	40.61	16.63	54.00	12.86	H
16028.800	41.46	-16.19	40.73	16.92	54.00	12.54	H
17747.000	43.10	-13.74	40.50	16.34	54.00	10.90	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)
5040.750	44.45	-26.87	34.04	37.28	54.00	9.55	V
5436.580	44.15	-27.10	34.44	36.81	54.00	9.85	V
11649.700	36.96	-19.73	38.41	18.28	54.00	17.04	H
15520.600	40.34	-16.60	40.13	16.81	54.00	13.66	H
16020.000	41.43	-16.19	40.72	16.90	54.00	12.57	H
17798.700	42.72	-13.61	40.46	15.87	54.00	11.28	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)
5408.650	44.42	-26.97	34.41	36.97	54.00	9.58	V
5459.350	44.31	-27.08	34.46	36.93	54.00	9.69	V
11490.200	37.24	-19.50	38.20	18.54	54.00	16.76	H
15819.800	41.24	-16.04	40.49	16.79	54.00	12.76	H
16011.200	41.94	-16.18	40.71	17.40	54.00	12.06	H
17904.300	43.15	-13.90	40.38	16.68	54.00	10.85	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)
4628.050	47.09	-27.57	33.85	40.80	54.00	6.91	V
5402.850	44.27	-26.94	34.41	36.80	54.00	9.73	V
11570.500	37.45	-19.62	38.30	18.77	54.00	16.55	V
16011.200	41.94	-16.18	40.71	17.40	54.00	12.06	H
16144.300	41.34	-16.24	40.85	16.73	54.00	12.66	H
17798.700	43.13	-13.61	40.46	16.29	54.00	10.87	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)
5036.500	44.39	-26.84	34.04	37.19	54.00	9.61	V
5440.200	44.45	-27.11	34.44	37.12	54.00	9.55	V
11649.700	37.60	-19.73	38.41	18.92	54.00	16.40	H
15911.100	41.23	-16.10	40.59	16.73	54.00	12.77	V
16117.900	41.24	-16.28	40.82	16.70	54.00	12.76	V
17917.500	43.06	-13.95	40.37	16.64	54.00	10.94	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)
4604.500	46.65	-27.50	33.84	40.31	54.00	7.35	V
5036.400	44.16	-26.84	34.04	36.96	54.00	9.84	V
11510.000	37.46	-19.52	38.21	18.77	54.00	16.54	V
15929.800	41.53	-16.11	40.62	17.02	54.00	12.47	V
16017.800	41.88	-16.18	40.72	17.35	54.00	12.12	H
17705.200	43.33	-13.85	40.53	16.64	54.00	10.67	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)
4636.050	47.19	-27.59	33.86	40.92	54.00	6.81	V
5028.450	44.26	-26.88	34.03	37.11	54.00	9.74	V
11590.300	37.54	-19.66	38.33	18.86	54.00	16.46	H
15932.000	41.52	-16.11	40.62	17.02	54.00	12.48	V
16017.800	41.88	-16.18	40.72	17.35	54.00	12.12	H
17709.600	43.31	-13.84	40.53	16.61	54.00	10.69	H

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)
4596.250	44.99	-27.58	33.84	38.74	54.00	9.01	V
5026.400	43.67	-26.91	34.03	36.55	54.00	10.33	V
11490.200	37.15	-19.50	38.20	18.45	54.00	16.85	V
15947.400	41.42	-16.12	40.64	16.90	54.00	12.58	H
16029.900	41.72	-16.19	40.73	17.19	54.00	12.28	H
17737.100	43.30	-13.77	40.51	16.56	54.00	10.70	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)
4628.050	45.66	-27.57	33.85	39.37	54.00	8.34	V
5033.250	43.76	-26.81	34.03	36.54	54.00	10.24	V
11570.500	37.35	-19.62	38.30	18.68	54.00	16.65	H
15926.500	41.38	-16.11	40.61	16.88	54.00	12.62	H
15972.700	41.52	-16.14	40.67	17.00	54.00	12.48	V
17769.000	43.33	-13.69	40.48	16.53	54.00	10.67	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)
4660.500	46.23	-27.69	33.87	40.05	54.00	7.77	V
5035.450	43.53	-26.83	34.04	36.32	54.00	10.47	V
11649.700	37.37	-19.73	38.41	18.68	54.00	16.63	H
15824.200	41.04	-16.04	40.49	16.58	54.00	12.96	H
15934.200	41.38	-16.11	40.62	16.87	54.00	12.62	H
17727.200	43.28	-13.79	40.52	16.56	54.00	10.72	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)
4604.500	47.00	-27.50	33.84	40.66	54.00	7.00	V
5411.650	43.93	-26.98	34.42	36.50	54.00	10.07	V
11510.000	37.57	-19.52	38.21	18.88	54.00	16.43	V
15927.600	41.59	-16.11	40.61	17.09	54.00	12.41	H
16044.200	41.79	-16.21	40.74	17.25	54.00	12.21	H
17732.700	43.40	-13.78	40.51	16.67	54.00	10.60	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)
4635.800	47.68	-27.59	33.86	41.41	54.00	6.32	V
5400.450	43.75	-26.93	34.40	36.28	54.00	10.25	V
11590.300	37.57	-19.66	38.33	18.90	54.00	16.43	H
15823.100	41.31	-16.04	40.49	16.86	54.00	12.69	V
16018.900	41.89	-16.18	40.72	17.35	54.00	12.11	H
17737.100	43.45	-13.77	40.51	16.71	54.00	10.55	V

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)
5397.240	43.27	-26.91	34.40	35.78	54.00	10.73	V
5422.560	43.15	-27.03	34.43	35.76	54.00	10.85	V
11549.600	37.46	-19.59	38.27	18.78	54.00	16.54	H
16147.600	41.36	-16.23	40.85	16.74	54.00	12.64	V
17767.900	42.91	-13.69	40.48	16.11	54.00	11.09	V
17843.800	42.73	-13.70	40.42	16.01	54.00	11.27	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)
5651.173	58.19	-26.80	34.69	50.31	69.07	10.88	H
5650.759	58.47	-26.80	34.69	50.58	68.76	10.29	H
11490.200	47.15	-19.50	38.20	28.45	74.00	26.85	V
17234.950	53.27	-14.92	40.96	27.22	68.30	15.03	V
17428.000	55.40	-14.62	40.77	29.25	68.30	12.90	V
17672.200	55.56	-13.93	40.56	28.93	68.30	12.74	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)
5625.200	58.30	-26.66	34.66	50.30	68.30	10.00	H
5858.450	57.60	-26.75	34.94	49.41	68.30	10.70	H
11569.950	48.01	-19.62	38.30	29.34	74.00	25.99	V
17354.850	54.20	-14.75	40.84	28.11	68.30	14.10	V
17637.000	56.68	-14.02	40.59	30.11	68.30	11.62	H
17498.400	56.14	-14.44	40.70	29.88	68.30	12.16	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)
5924.994	58.74	-26.71	35.01	50.44	68.20	9.46	V
5921.405	59.26	-26.74	35.01	51.00	70.90	11.64	V
11650.250	48.94	-19.73	38.41	30.26	74.00	25.06	H
17474.750	53.67	-14.51	40.72	27.46	68.30	14.63	H
17592.450	55.83	-14.15	40.63	29.35	68.30	12.47	H
17643.050	56.87	-14.01	40.58	30.29	68.30	11.43	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)
5651.604	57.73	-26.80	34.69	49.85	69.40	11.67	H
5650.672	57.72	-26.80	34.69	49.83	68.70	10.98	H
11490.200	47.81	-19.50	38.20	29.11	74.00	26.19	H
17234.950	55.08	-14.92	40.96	29.03	68.30	13.22	H
17512.700	57.48	-14.40	40.69	31.19	68.30	10.82	H
17629.300	57.09	-14.04	40.60	30.53	68.30	11.21	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)
5688.680	58.02	-26.84	34.73	50.13	68.30	10.28	H
5893.250	57.83	-26.89	34.98	49.74	68.30	10.47	V
11569.950	49.03	-19.62	38.30	30.36	74.00	24.97	V
17354.850	55.15	-14.75	40.84	29.05	68.30	13.15	H
17535.800	56.52	-14.33	40.67	30.18	68.30	11.78	H
17666.150	56.92	-13.95	40.57	30.30	68.30	11.38	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)
5922.550	58.17	-26.73	35.01	49.90	70.00	11.83	V
5923.650	57.76	-26.72	35.01	49.47	69.20	11.44	V
11650.250	48.45	-19.73	38.41	29.77	74.00	25.55	V
17474.750	54.34	-14.51	40.72	28.13	68.30	13.96	V
17571.000	56.94	-14.22	40.64	30.52	68.30	11.36	H
17686.500	56.02	-13.89	40.55	29.36	68.30	12.28	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)
5650.983	56.72	-26.80	34.69	48.83	68.90	12.19	H
5653.200	57.52	-26.81	34.69	49.65	70.60	13.08	H
11510.000	48.68	-19.52	38.21	29.99	74.00	25.32	V
17265.200	56.01	-14.89	40.93	29.97	68.30	12.29	V
17454.950	55.79	-14.57	40.74	29.61	68.30	12.51	V
17683.750	56.99	-13.90	40.55	30.35	68.30	11.30	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)
5923.712	57.62	-26.72	35.01	49.33	69.20	11.58	H
5924.350	58.03	-26.72	35.01	49.73	68.70	10.67	H
11589.750	48.36	-19.66	38.33	29.69	74.00	25.64	V
17385.100	55.14	-14.70	40.81	29.03	68.30	13.16	V
17571.550	56.77	-14.22	40.64	30.34	68.30	11.53	V
17681.550	56.11	-13.91	40.55	29.47	68.30	12.19	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)
5652.932	57.31	-26.81	34.69	49.43	70.40	13.09	H
5651.495	56.48	-26.80	34.69	48.60	69.30	12.82	V
11490.200	48.70	-19.50	38.20	30.00	74.00	25.30	H
17234.950	54.31	-14.92	40.96	28.26	68.30	13.99	H
17454.400	56.29	-14.57	40.75	30.12	68.30	12.01	V
17659.000	57.06	-13.96	40.57	30.46	68.30	11.24	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)
5704.650	56.83	-26.77	34.75	48.85	68.30	11.47	V
5837.630	57.37	-26.71	34.91	49.17	68.30	10.93	H
11569.950	48.61	-19.62	38.30	29.93	74.00	25.39	V
17354.850	54.57	-14.75	40.84	28.47	68.30	13.73	V
17585.300	56.72	-14.18	40.63	30.27	68.30	11.58	H
17677.700	56.80	-13.92	40.56	30.16	68.30	11.50	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)
5922.740	56.76	-26.73	35.01	48.48	69.90	13.14	V
5924.035	57.89	-26.72	35.01	49.60	68.90	11.01	H
11650.250	50.68	-19.73	38.41	32.00	74.00	23.32	H
17474.750	53.96	-14.51	40.72	27.75	68.30	14.34	H
17594.100	56.30	-14.15	40.62	29.83	68.30	12.00	V
17690.900	56.80	-13.88	40.55	30.14	68.30	11.49	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)
5651.605	56.77	-26.80	34.69	48.89	69.40	12.63	V
5650.680	56.89	-26.80	34.69	49.00	68.70	11.81	V
11510.000	49.58	-19.52	38.21	30.89	74.00	24.42	H
17265.200	54.61	-14.89	40.93	28.57	68.30	13.69	H
17485.200	56.74	-14.48	40.71	30.51	68.30	11.56	H
17650.750	57.39	-13.99	40.58	30.79	68.30	10.91	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)
5922.635	57.04	-26.73	35.01	48.76	70.00	12.96	V
5924.402	57.33	-26.72	35.01	49.03	68.60	11.27	V
11589.750	49.35	-19.66	38.33	30.68	74.00	24.65	V
17385.100	54.39	-14.70	40.81	28.27	68.30	13.91	H
17469.800	58.60	-14.53	40.73	32.40	68.30	9.70	H
17679.350	57.96	-13.91	40.56	31.32	68.30	10.34	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)
5924.885	58.43	-26.71	35.01	50.13	68.29	9.86	H
5650.426	57.16	-26.80	34.69	49.28	68.51	11.35	V
11550.150	49.70	-19.59	38.27	31.02	74.00	24.30	V
17021.550	56.73	-15.05	41.18	30.60	68.30	11.57	V
17325.150	55.15	-14.81	40.87	29.08	68.30	13.15	H
17671.100	56.55	-13.93	40.56	29.92	68.30	11.75	H

Note:

The spurious emission above 18G is noise only.

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.	

Set up:

Tabletop devices shall be placed on a nonconducting platform with nominal top surface dimensions 1 m by 1.5 m and the table height shall be 1.5 m.

The EUT and transmitting antenna shall be centered on the turntable.

Test Procedure

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. 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.

The receiver references:

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100kHz/300kHz	5
1000-4000	1MHz/3MHz	15
4000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

Sample Calculations

Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

$E = \text{EIRP} - 20 \log(D) + 104.77$ Where:

E is the field strength in dBμV/m

D is the measurement distance in meters

EIRP is the equivalent isotropically radiated power in dbm

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

Conclusion: PASS
Test graphs as below:

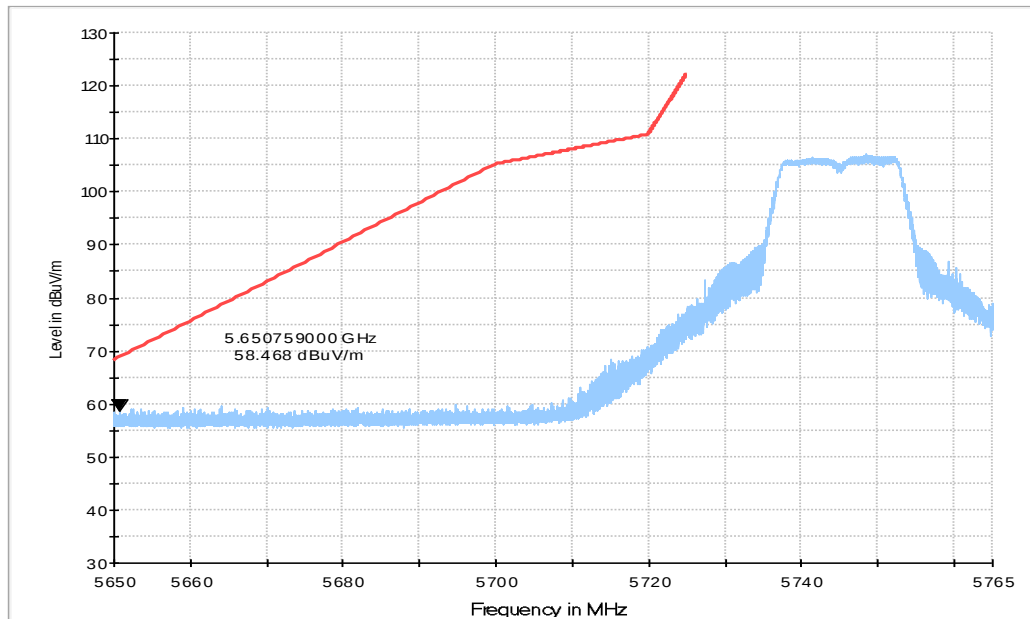


Fig. 10 Band Edges (802.11a Ch149,5745MHz)

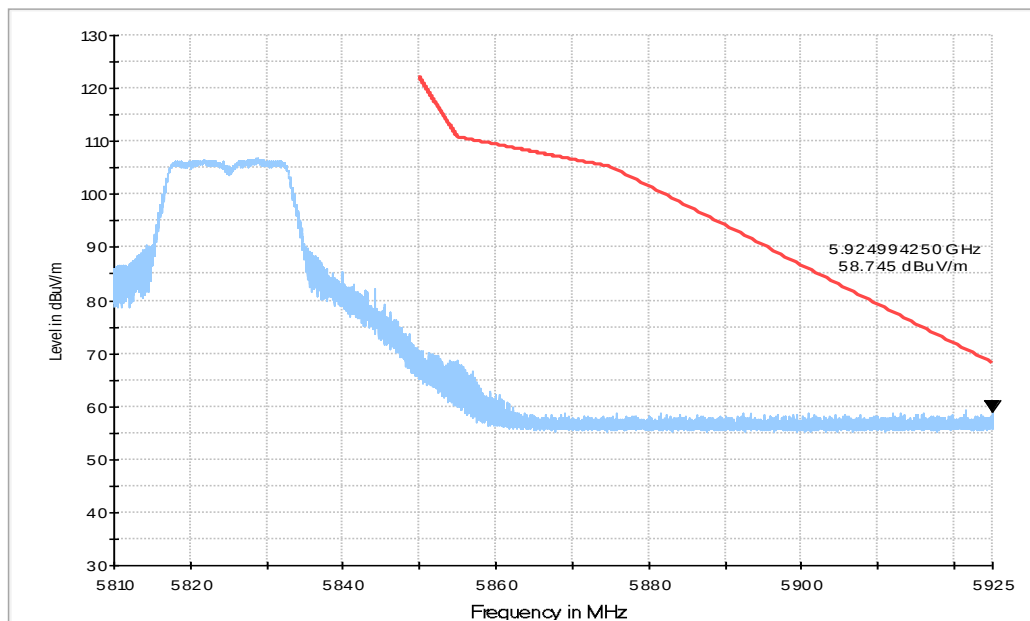


Fig. 11 Band Edges (802.11a Ch165, 5825MHz)

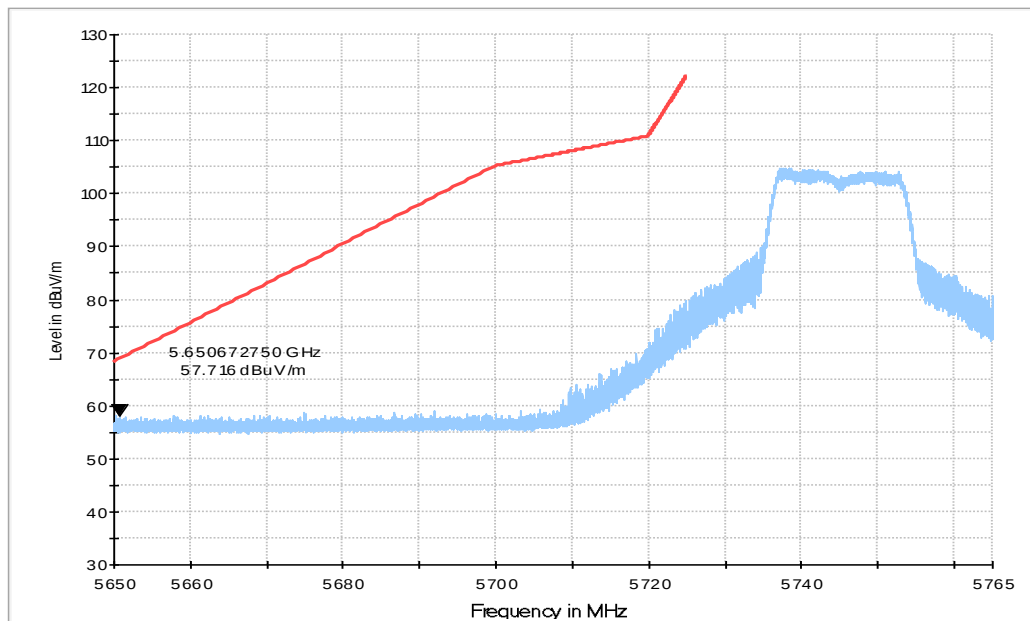


Fig. 12 Band Edges (802.11n-HT20 Ch149, 5745MHz)

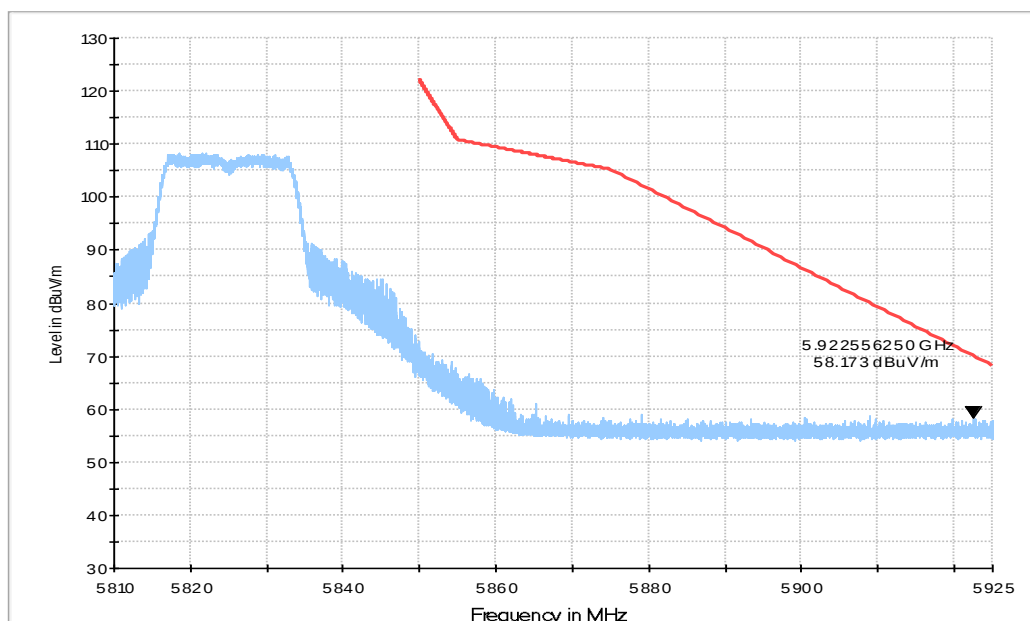


Fig. 13 Band Edges (802.11n-HT20 Ch165, 5825MHz)

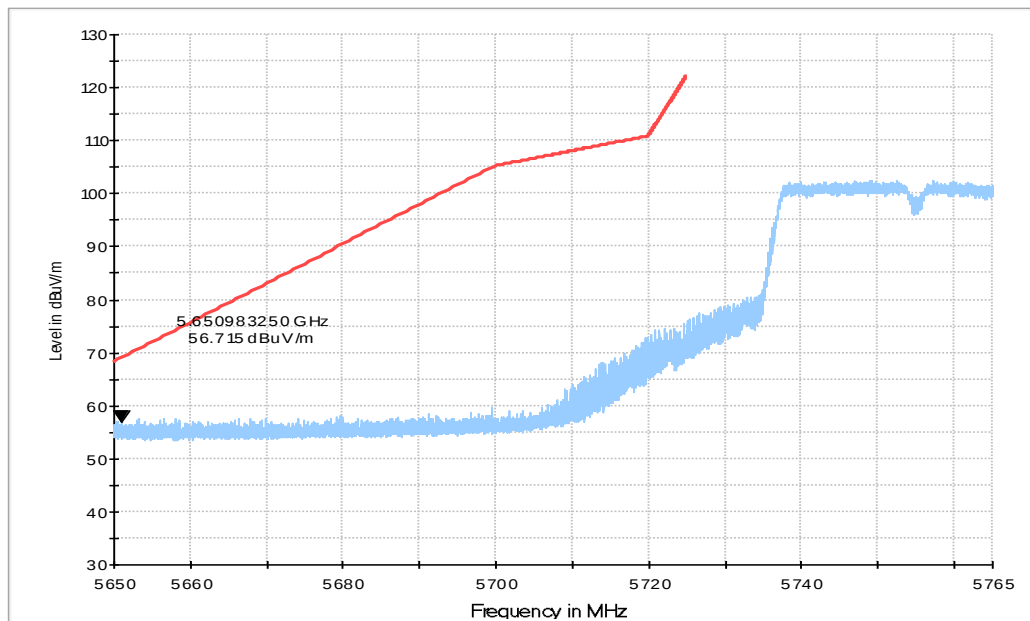


Fig. 14 Band Edges (802.11n-HT40 Ch151, 5755MHz)

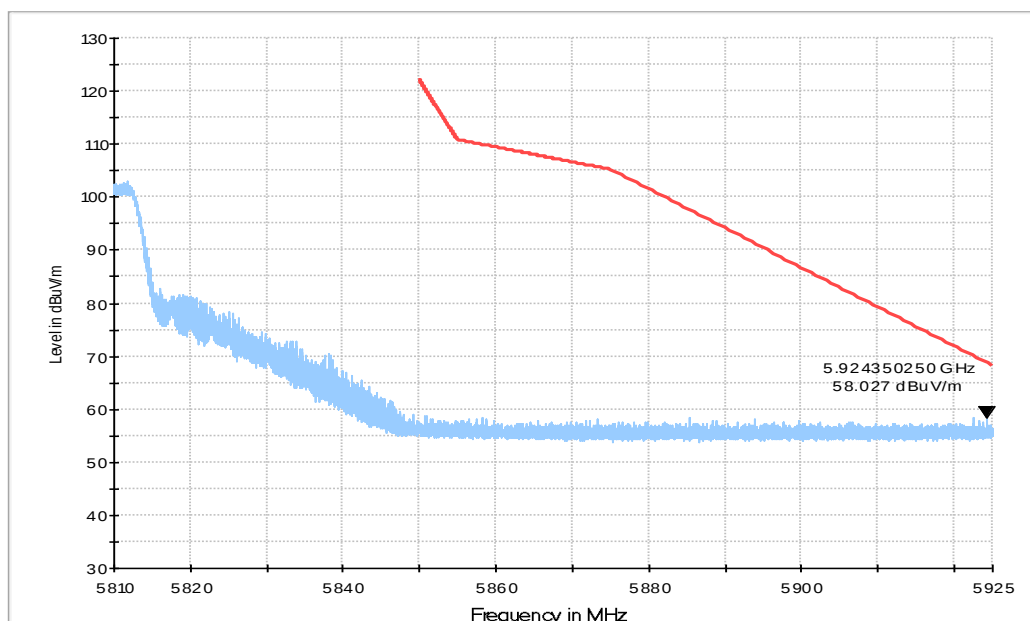


Fig. 15 Band Edges (802.11n-HT40 Ch159, 5795MHz)

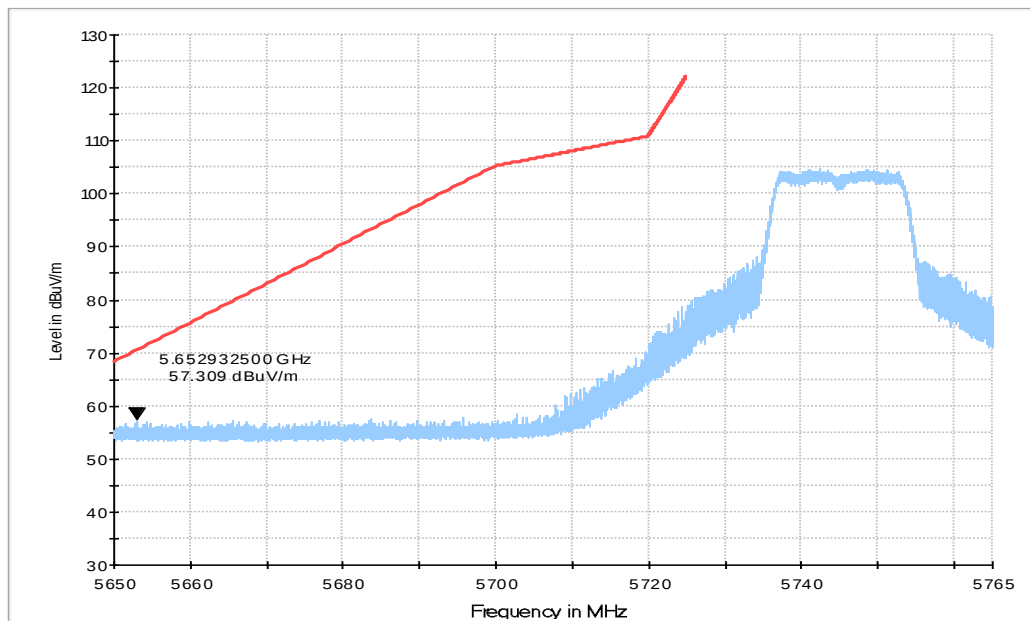


Fig. 16 Band Edges (802.11ac-HT20 Ch149, 5745MHz)

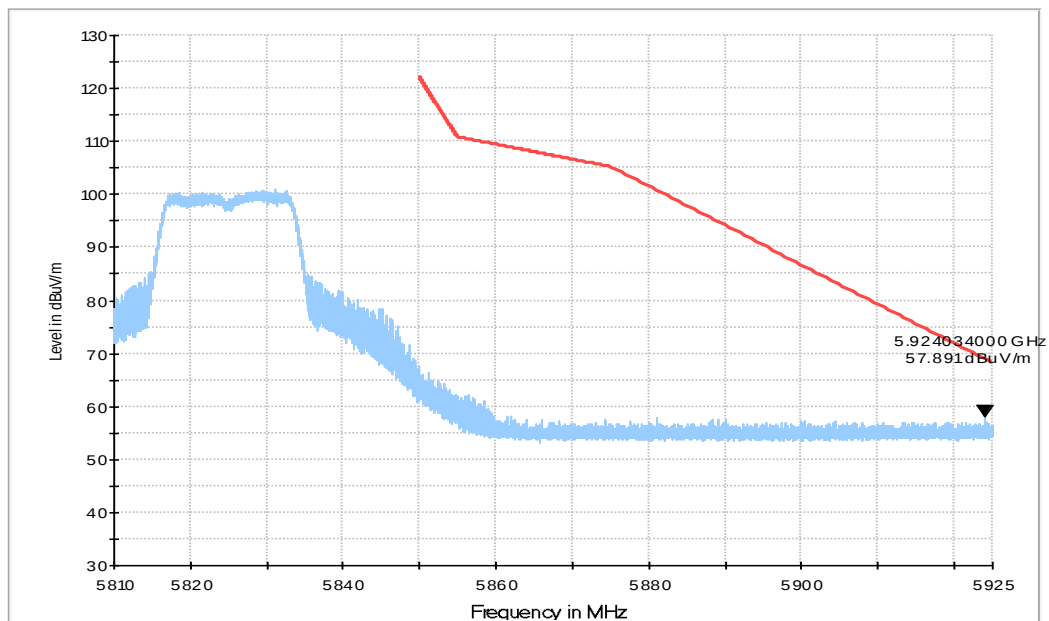


Fig. 17 Band Edges (802.11ac-HT20 Ch165, 5825MHz)

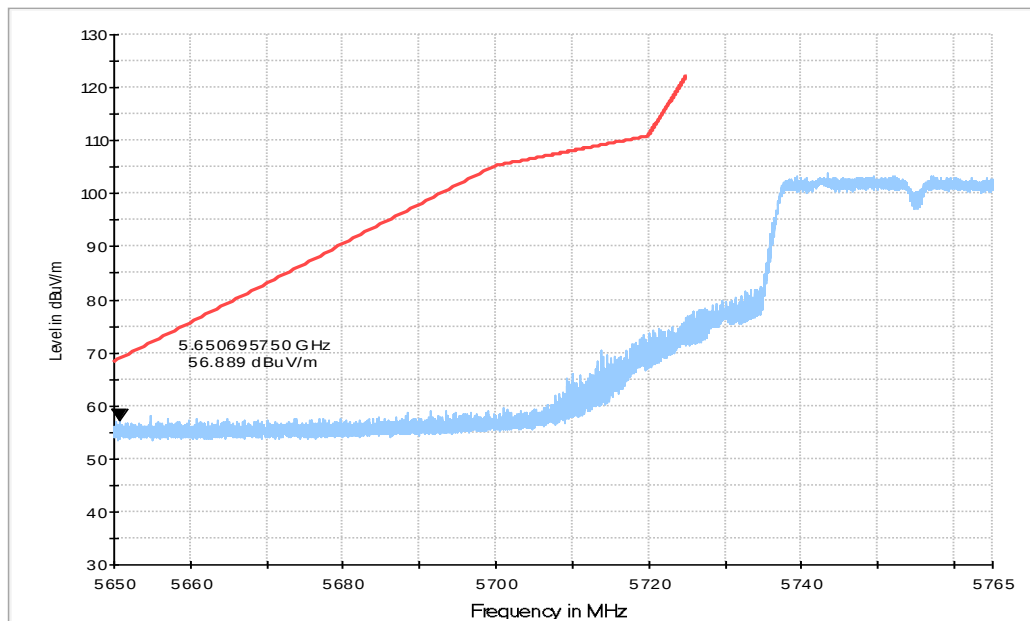


Fig. 18 Band Edges (802.11ac-HT40 Ch151, 5755MHz)

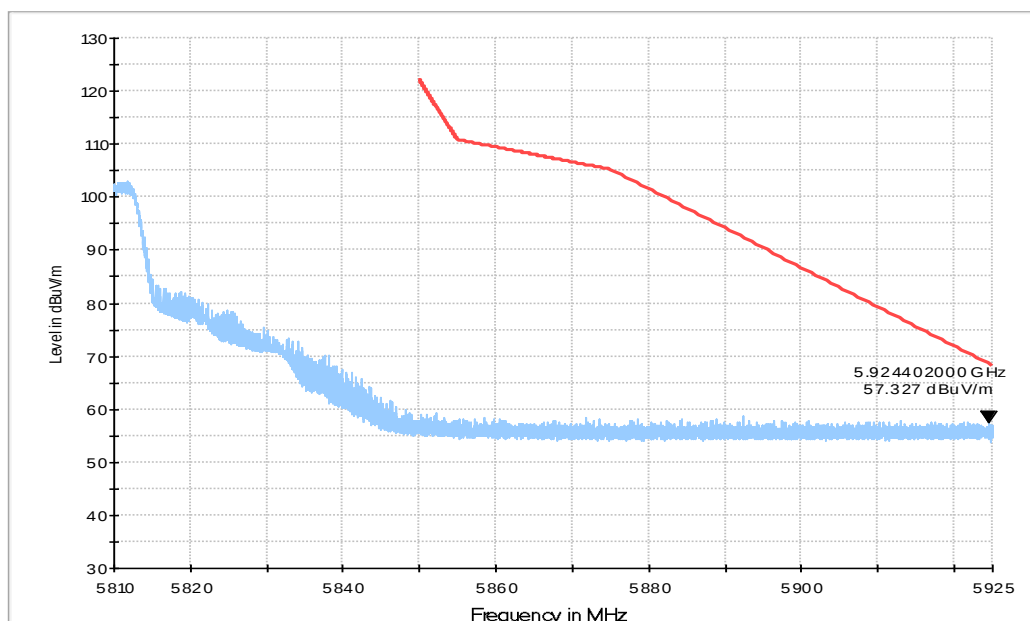


Fig. 19 Band Edges (802.11ac-HT40 Ch159, 5795MHz)

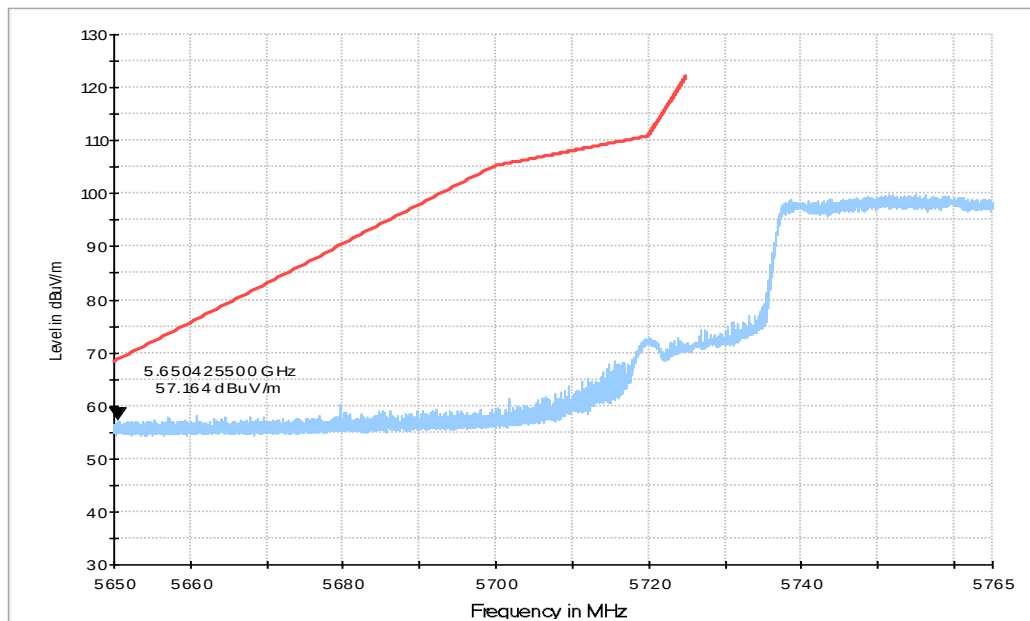


Fig. 20 Band Edges (802.11ac-HT80 Ch155, 5775MHz)

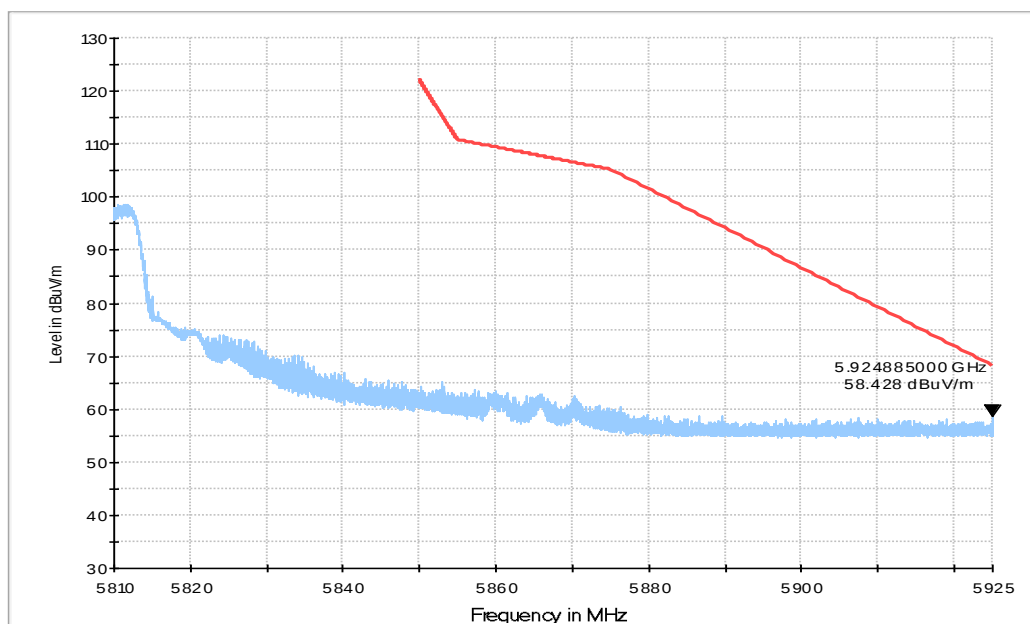


Fig. 21 Band Edges (802.11ac-HT80 Ch155, 5775MHz)

A.7. AC Powerline Conducted Emission

Method of Measurement:

See Clause 6.2 of ANSI C63.10-2013 specifically.

See Clause 4 and Clause 5 of ANSI C63.10-2013 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.

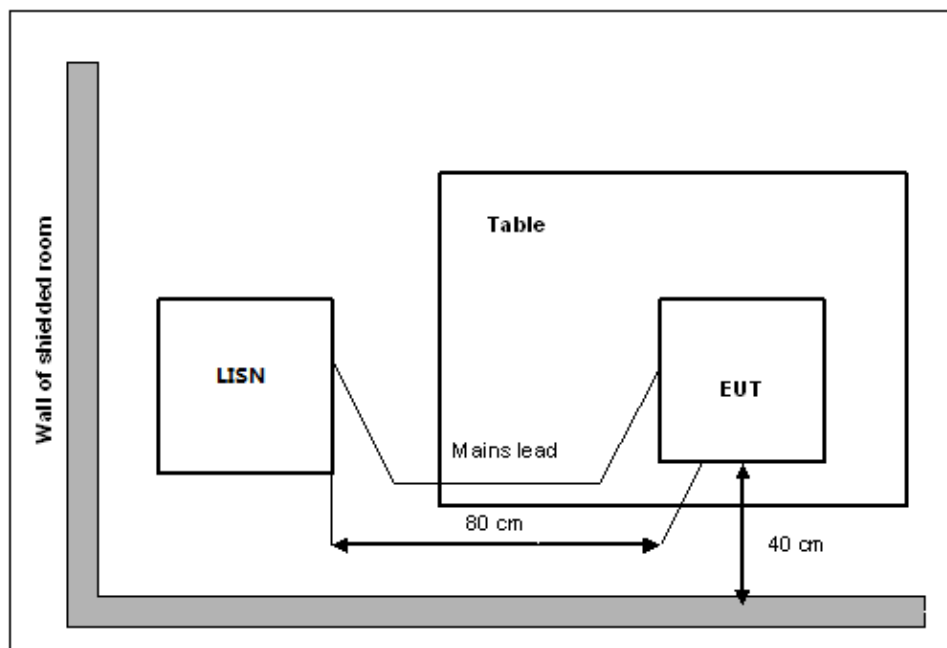
The measurement bandwidth is:

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

Test Condition:

Voltage (V)	Frequency (Hz)
120	60

Measurement Setup



Measurement Result and limit:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11a	Idle	
0.15 to 0.5	66 to 56	Fig.22	Fig.23	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		
		802.11a	Idle	
0.15 to 0.5	56 to 46	Fig.22	Fig.23	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:

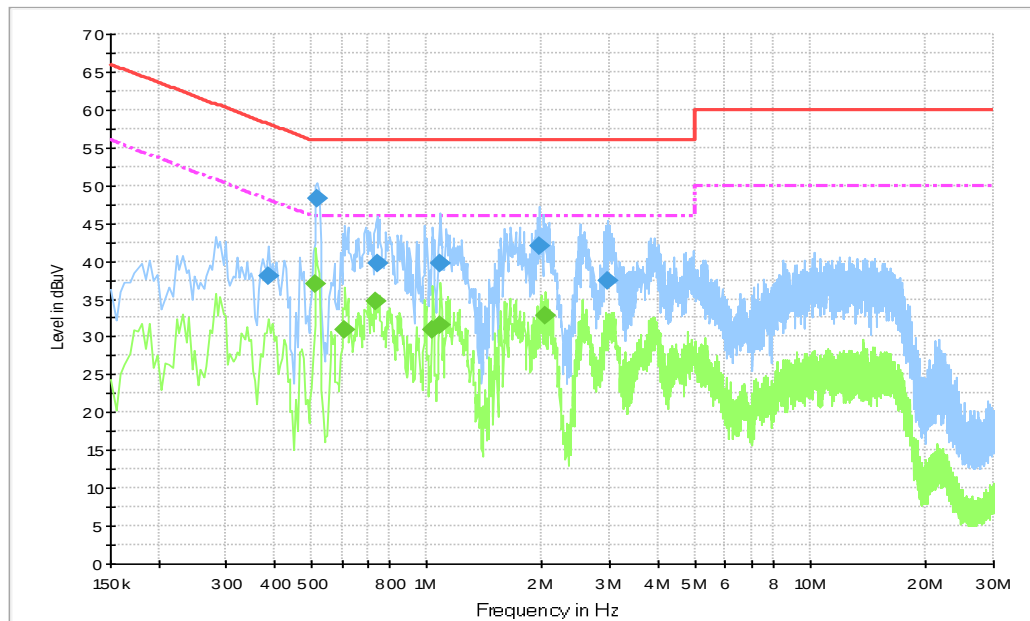


Fig.22 AC Power line Conducted Emission-802.11a

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)
0.388500	38.1	5000	9.000	On	L1	19.9	20.0	58.1
0.519000	48.3	5000	9.000	On	L1	19.9	7.7	56.0
0.744000	39.6	5000	9.000	On	N	19.8	16.4	56.0
1.086000	39.7	5000	9.000	On	N	19.7	16.3	56.0
1.972500	42.0	5000	9.000	On	L1	19.7	14.0	56.0
2.962500	37.3	5000	9.000	On	N	19.6	18.7	56.0

Final Result 2

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.514500	36.9	5000	9.000	On	N	19.9	9.1	46.0
0.613500	30.9	5000	9.000	On	N	19.8	15.1	46.0
0.739500	34.7	5000	9.000	On	L1	19.8	11.3	46.0
1.036500	31.0	5000	9.000	On	N	19.7	15.0	46.0
1.086000	31.6	5000	9.000	On	N	19.7	14.4	46.0
2.031000	32.8	5000	9.000	On	L1	19.7	13.2	46.0

Idle:

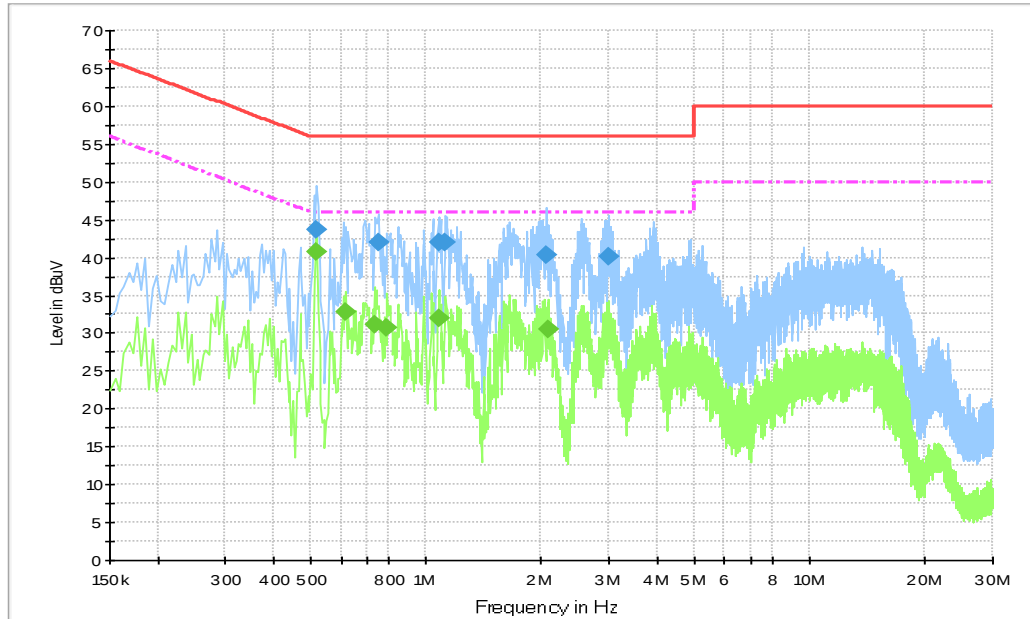


Fig.23 AC Power line Conducted Emission-Idle

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)
0.519000	43.7	5000	9.000	On	N	19.9	12.3	56.0
0.753000	42.0	5000	9.000	On	L1	19.8	14.0	56.0
1.081500	42.0	5000	9.000	On	L1	19.7	14.0	56.0
1.126500	42.0	5000	9.000	On	L1	19.7	14.0	56.0
2.067000	40.4	5000	9.000	On	L1	19.7	15.6	56.0
3.003000	40.1	5000	9.000	On	L1	19.6	15.9	56.0

Final Result 2

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.519000	40.8	5000.0	9.000	On	L1	19.9	5.2	46.0
0.618000	32.9	5000.0	9.000	On	L1	19.8	13.1	46.0
0.735000	31.1	5000.0	9.000	On	N	19.8	14.9	46.0
0.793500	30.6	5000.0	9.000	On	N	19.8	15.4	46.0
1.081500	32.0	5000.0	9.000	On	N	19.7	14.0	46.0
2.085000	30.6	5000.0	9.000	On	L1	19.7	15.4	46.0

Note: The measurement results showed here are worst cases of the combinations of different AE.

ANNEX B: EUT parameters

Disclaimer: The antenna gain 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 ***