TESTING
NVLAP LAB CODE 600118-0

FCC PART 15
TEST REPORT
No.I22Z70462-IOT03

for

Samsung Electronics Co., Ltd.

Multi-band GSM/WCDMA/LTE Phone with Bluetooth, WLAN

SM-A145R/DSN

With

FCC ID: ZCASMA145RN

Hardware Version: REV1.0

Software Version: A145R.001

Issued Date: 2022-12-06

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: cttl_terminals@caict.ac.cn, website: www.caict.ac.cn

REPORT HISTORY

Report Number	Revision	Description	Issue Date
I22Z70462-IOT03	Rev.0	1st edition	2022-12-06

CONTENTS

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

Testing Location 2: CTTL (BDA)

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

1.3. Testing Environment

Normal Temperature: 15-35℃

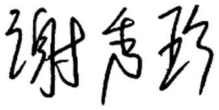
Relative Humidity: 20-75%

1.4. Project date

Testing Start Date: 2022-11-02

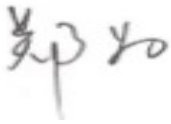
Testing End Date: 2022-12-06

1.5. Signature



Xie Xiuzhen

(Prepared this test report)



Zheng Wei

(Reviewed this test report)

Pang Shuai

(Approved this test report)

2. CLIENT INFORMATION

2.1 Applicant Information

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

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
City:	Suwon
Country:	Korea
Contact Person:	Sunghoon Cho
Email:	ggobi.cho@samsung.com
Telephone:	+82-10-2722-4159
Fax:	/

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

3.1. About EUT

Description	Multi-band GSM/WCDMA/LTE Phone with Bluetooth, WLAN
Model name	SM-A145R/DSN
FCC ID	ZCASMA145RN
WLAN Frequency Band	ISM Bands: -5150MHz~5250MHz -5250MHz~5350MHz -5470MHz~5725MHz
Type of modulation	OFDM
Antenna	Integral Antenna
Voltage	3.85V

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
UT17a	2270462UT17a	REV1.0	A145R.001
UT03a	2270462UT03a	REV1.0	A145R.001

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

UT03a is used for Conduction test, UT17a is used for Radiation test.

3.3. Internal Identification of AE used during the test

AE ID*	Description	Remark
AE1	Adapter	/
AE2	USB Cable1	C to C
AE3	USB Cable2	C to C
AE4	USB Cable3	C to A
AE5	Headset	/
AE6	Battery1	/
AE7	Battery2	/

AE1

Model	EP-T1510
Manufacturer	HAEM Co.,Ltd
Length of cable	/

AE2

Model	EP-DN980BWZ
Manufacturer	Samsung Electronics Co., Ltd.
Length of cable	/

AE3

Model	EP-DN980BWE
Manufacturer	Samsung Electronics Co., Ltd.
Length of cable	/
AE4	
Model	EP-DR140AWE
Manufacturer	Samsung Electronics Co., Ltd.
Length of cable	/
AE5	
Model	EHS61ASFWE
Manufacturer	ALMUS
Length of cable	/
AE6	
Model	HQ-50SD
Type	Secondary Li-ion Polymer Battery
Manufacturer	SCUD (Fujian) Electronics CO.,LTD
AE7	
Model	HQ-50S
Type	Secondary Li-ion Polymer Battery
Manufacturer	SCUD (Fujian) Electronics CO.,LTD

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

3.4. General Description

The Equipment under Test (EUT) is a model of Multi-band GSM/WCDMA/LTE Phone with Bluetooth, WLAN with integrated antenna and inbuilt battery.
It has Bluetooth (EDR)function.
It consists of normal options: travel charger, USB cable.
Manual and specifications of the EUT were provided to fulfil the test.
Samples undergoing test were selected by the client.

3.5. Interpretation of the Test Environment

For the test methods, the test environment uncertainty figures correspond to an expansion factor k=2.
Measurement Uncertainty

Parameter	Uncertainty
temperature	0.48°C
humidity	2 %
DC voltages	0.003V

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	Title 47 of the Code of Federal Regulations; Chapter I Part 15 - Radio frequency devices	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

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 Part15E	Sub-clause of IC	Verdict
Maximum Output Power	15.407	/	**P**
Peak Power Spectral Density	15.407	/	**P**
Occupied 26dB Bandwidth	15.403	/	**P**
Band edge compliance (Radiated)	15.209	/	**P**
Transmitter spurious emissions (Radiated)	15.407	/	**P**
AC Powerline Conducted Emission (150kHz- 30MHz)	15.407	/	**P**
Frequency Stability	15.407	/	**P**
99% Occupied bandwidth	/	/	**P**
Transmit Power Control	15.407	/	**NA**

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/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℃

Voltage 3.85V

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	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

No.	Equipment	Model	Manufacturer	Serial Number	Calibration Period	Calibration Due date
1	Test Receiver	ESU 26	R&S	100235	1 year	2023-03-08
2	Test Receiver	ESW44	R&S	103015	1 year	2023-01-23
3	EMI Antenna	VULB 9163	SCHWARZBECK	01223	1 year	2023-07-25
4	EMI Antenna	3115	ETS-Lindgren	00167250	1 year	2023-06-20
5	EMI Antenna	3116	ETS-Lindgren	2661	1 year	2023-02-08
6	Loop Antenna	HFH2-Z2	R&S	829324/007	1 year	2022-12-22

AC Power Line Conducted Emission

No.	Equipment	Model	Manufacturer	Serial Number	Calibration Period	Calibration Due date
1	LISN	ENV216	R&S	101200	1 year	2023-06-29
2	Test Receiver	ESCI	R&S	100344	1 year	2023-03-21

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 Channel 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)
30MHz ≤ f ≤ 2GHz	1.22
2GHz ≤ f ≤3.6GHz	1.22
3.6GHz ≤ f ≤8GHz	1.22
8GHz ≤ f ≤12.75GHz	1.51
12.75GHz ≤ f ≤26GHz	1.51
26GHz ≤ f ≤40GHz	1.59

Radiated (k=2)

Frequency Range	Uncertainty(dB)
9kHz-30MHz	4.92
30MHz ≤ f ≤ 1GHz	5.73
1GHz ≤ f ≤18GHz	5.54
18GHz ≤ f ≤40GHz	5.26

8.6. AC Power-line Conducted Emission

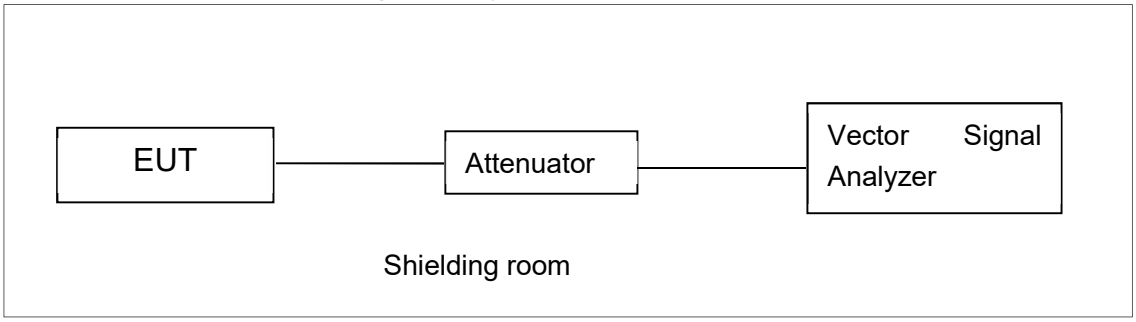
Measurement Uncertainty : 3.08,k=2

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

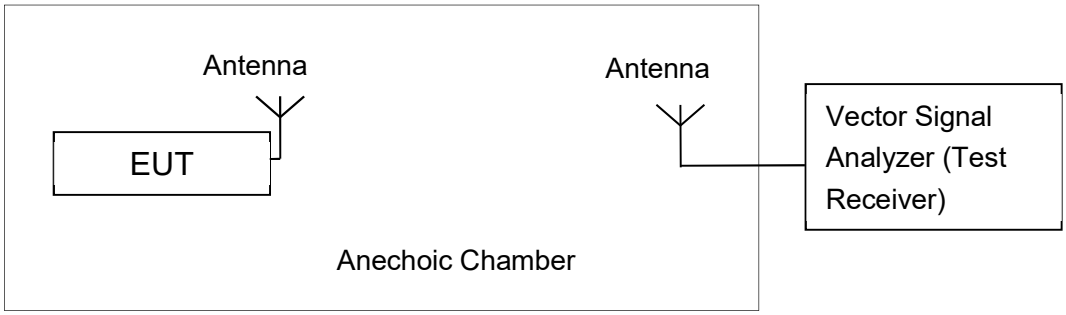
A.1.1. Conducted Measurements

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 KDB 789033
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 output Power

Measurement Limit and Method:

Standard	Frequency (MHz)	Limit (dBm)
FCC CRF Part 15.407(a)	5150MHz~5250MHz	24dBm
	5250MHz~5350MHz	24dBm or 11+10logB
	5470MHz~5725MHz	24dBm or 11+10logB

Limit use the less value, and B is the 26dB bandwidth.

The measurementmethod SA-2 is made according to KDB 789033

Measurement Results:

802.11a mode

Mode	Frequency	Test Result (dBm)							
		Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
802.11a	5180MHz	15.65	/	/	/	/	/	/	/
	5200MHz	15.89	/	/	/	/	/	/	/
	5240MHz	16.19	15.48	15.72	15.45	15.59	14.34	14.47	14.35
	5260MHz	15.69	/	/	/	/	/	/	/
	5280MHz	15.82	15.66	15.59	15.35	15.44	14.32	14.31	14.12
	5320MHz	15.63	/	/	/	/	/	/	/
	5500MHz	13.78	/	/	/	/	/	/	/
	5580MHz	14.35	/	/	/	/	/	/	/
	5700MHz	14.28	/	/	/	/	/	/	/
	5720MHz	14.21	/	/	/	/	/	/	/

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

802.11n-HT20 mode

Mode	Frequency	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT20)	5180MHz	15.04	/	/	/	/	/	/	/
	5200MHz	15.33	/	/	/	/	/	/	/
	5240MHz	15.18	/	/	/	/	/	/	/
	5260MHz	15.23	/	/	/	/	/	/	/
	5280MHz	15.49	15.22	15.16	15.14	13.32	13.07	13.09	13.05
	5320MHz	15.43	/	/	/	/	/	/	/
	5500MHz	12.94	/	/	/	/	/	/	/
	5580MHz	13.13	/	/	/	/	/	/	/
	5700MHz	12.78	/	/	/	/	/	/	/
	5720MHz	12.77	/	/	/	/	/	/	/

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

this condition.

802.11ac-HT20 mode

Mode	Frequency	Test Result (dBm)								
		Data Rate								
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
802.11ac (HT20)	5180MHz	12.82	12.74	12.68	12.64	12.53	11.54	11.37	11.57	11.39
	5200MHz	12.59	/	/	/	/	/	/	/	/
	5240MHz	12.85	/	/	/	/	/	/	/	/
	5260MHz	12.81	/	/	/	/	/	/	/	/
	5280MHz	12.64	/	/	/	/	/	/	/	/
	5320MHz	12.73	/	/	/	/	/	/	/	/
	5500MHz	13.01	/	/	/	/	/	/	/	/
	5580MHz	12.73	/	/	/	/	/	/	/	/
	5700MHz	12.26	/	/	/	/	/	/	/	/
	5720MHz	12.33	/	/	/	/	/	/	/	/

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

802.11n-HT40 mode

Mode	Frequency	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT40)	5190MHz	14.72	14.71	14.66	14.70	12.52	12.65	12.51	12.53
	5230MHz	14.80	/	/	/	/	/	/	/
	5270MHz	14.79	/	/	/	/	/	/	/
	5310MHz	14.59	/	/	/	/	/	/	/
	5510MHz	13.16	/	/	/	/	/	/	/
	5550MHz	13.03	/	/	/	/	/	/	/
	5670MHz	12.71	/	/	/	/	/	/	/
	5710MHz	12.52	/	/	/	/	/	/	/

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

802.11ac-HT40 mode

Mode	Frequency	Test Result (dBm)									
		Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac (HT40)	5190MHz	12.75	12.63	12.62	12.68	12.56	11.48	11.49	11.46	11.40	11.53
	5230MHz	12.72	/	/	/	/	/	/	/	/	/
	5270MHz	12.68	/	/	/	/	/	/	/	/	/
	5310MHz	12.55	/	/	/	/	/	/	/	/	/
	5510MHz	12.60	/	/	/	/	/	/	/	/	/
	5550MHz	12.64	/	/	/	/	/	/	/	/	/
	5670MHz	12.11	/	/	/	/	/	/	/	/	/
	5710MHz	11.93	/	/	/	/	/	/	/	/	/

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

802.11ac-HT80 mode

Mode	Frequency	Test Result (dBm)									
		Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac (HT80)	5210MHz	12.85	12.72	12.73	12.56	11.64	11.53	11.53	11.52	11.51	11.57
	5290MHz	12.60	/	/	/	/	/	/	/	/	/
	5530MHz	12.59	/	/	/	/	/	/	/	/	/
	5610MHz	12.72	/	/	/	/	/	/	/	/	/
	5690MHz	11.94	/	/	/	/	/	/	/	/	/

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

The duty cycle of all mode are 100%

Conclusion: PASS

A.3. Peak Power Spectral Density (conducted)

Measurement Limit:

Standard	Frequency (MHz)	Limit (dBm/MHz)
FCC CRF Part 15.407(a)	5150MHz~5250MHz	11
	5250MHz~5350MHz	11
	5470MHz~5725MHz	11

The output power measurement method Section F is made according to KDB 789033

Measurement Results:

Mode	Frequency	Power Spectral Density (dBm/MHz)	Conclusion
802.11a	5180 MHz	4.76	P
	5200 MHz	4.93	P
	5240 MHz	4.88	P
	5260 MHz	5.21	P
	5280 MHz	5.19	P
	5320 MHz	5.17	P
	5500 MHz	2.30	P
	5580 MHz	2.33	P
	5700 MHz	2.35	P
	5720 MHz	2.46	P
802.11n HT20	5180 MHz	4.77	P
	5200 MHz	4.52	P
	5240 MHz	4.80	P
	5260 MHz	4.91	P
	5280 MHz	4.84	P
	5320 MHz	4.82	P
	5500 MHz	1.52	P
	5580 MHz	1.49	P
	5700 MHz	1.51	P
	5720 MHz	1.42	P
802.11n HT40	5190 MHz	0.76	P
	5230 MHz	0.74	P
	5270 MHz	0.99	P
	5310 MHz	1.07	P
	5510 MHz	-1.39	P
	5550 MHz	-1.76	P
	5670 MHz	-1.56	P
	5710 MHz	-1.45	P
802.11ac HT80	5210MHz	-4.71	P
	5290MHz	-4.01	P
	5530MHz	-4.94	P

	5610MHz	-5.20	P
	5690MHz	-5.34	P

Conclusion: PASS

A.4. Occupied 26dB Bandwidth(conducted)

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.403 (i)	/

The measurement is made according to KDB 789033

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz

Measurement Result:

Mode	Frequency	Occupied 26dB Bandwidth (MHz)		conclusion
802.11a	5180 MHz	Fig.1	21.25	P
	5200 MHz	Fig.2	26.00	P
	5240 MHz	Fig.3	28.75	P
	5260 MHz	Fig.4	24.80	P
	5280 MHz	Fig.5	21.55	P
	5320 MHz	Fig.6	20.65	P
	5500 MHz	Fig.7	20.70	P
	5580 MHz	Fig.8	20.55	P
	5700 MHz	Fig.9	20.80	P
	5720 MHz	Fig.10	20.60	P
802.11n HT20	5180 MHz	Fig.11	22.95	P
	5200 MHz	Fig.12	24.55	P
	5240 MHz	Fig.13	26.45	P
	5260 MHz	Fig.14	23.25	P
	5280 MHz	Fig.15	22.90	P
	5320 MHz	Fig.16	25.20	P
	5500 MHz	Fig.17	20.90	P
	5580 MHz	Fig.18	21.05	P
	5700 MHz	Fig.19	20.90	P
	5720 MHz	Fig.20	21.05	P
802.11n HT40	5190 MHz	Fig.21	40.96	P
	5230 MHz	Fig.22	40.88	P
	5270 MHz	Fig.23	41.28	P
	5310 MHz	Fig.24	40.80	P
	5510 MHz	Fig.25	41.04	P

	5550 MHz	Fig.26	41.36	P
	5670 MHz	Fig.27	41.04	P
	5710 MHz	Fig.28	41.04	P
802.11ac HT80	5210MHz	Fig.29	80.96	P
	5290MHz	Fig.30	80.96	P
	5530MHz	Fig.31	80.96	P
	5610MHz	Fig.32	81.44	P
	5690MHz	Fig.33	81.12	P

Conclusion: PASS

Test graphs as below:

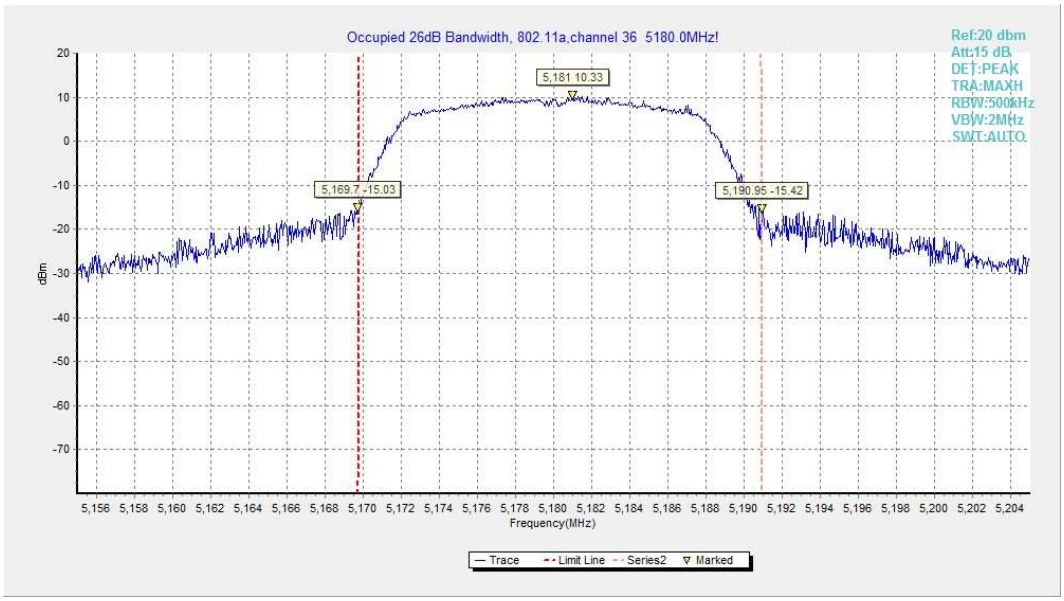


Fig.1 Occupied 26dB Bandwidth (802.11a, 5180MHz)

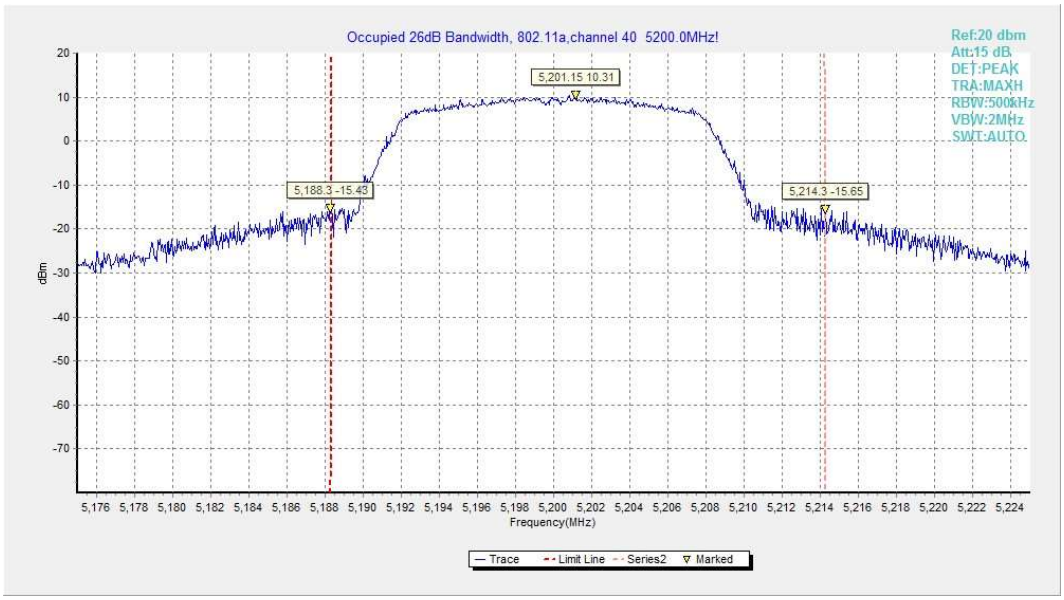


Fig.2 Occupied 26dB Bandwidth (802.11a, 5200MHz)

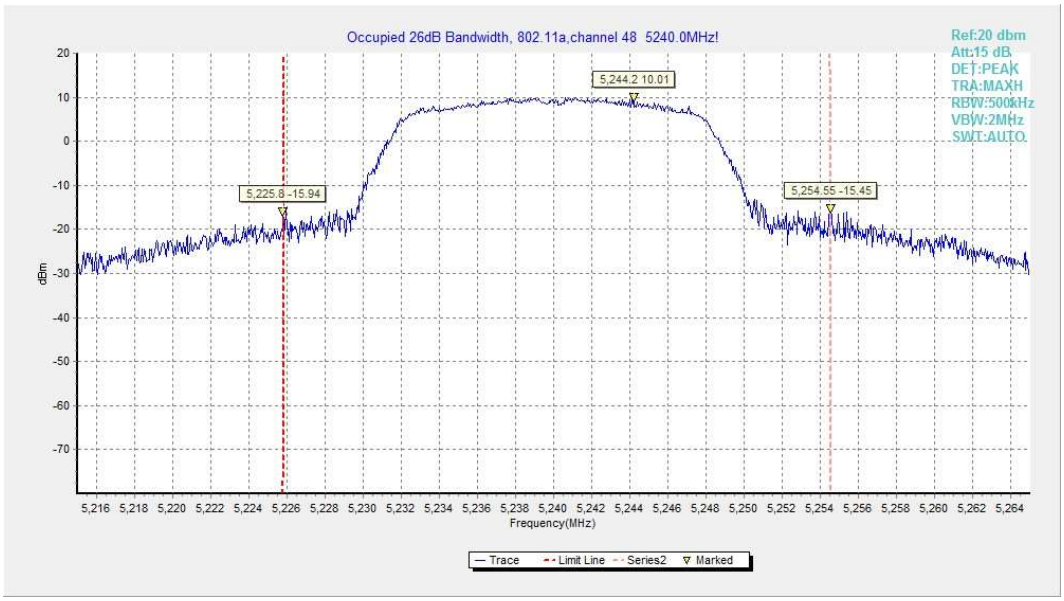


Fig.3 Occupied 26dB Bandwidth (802.11a, 5240MHz)

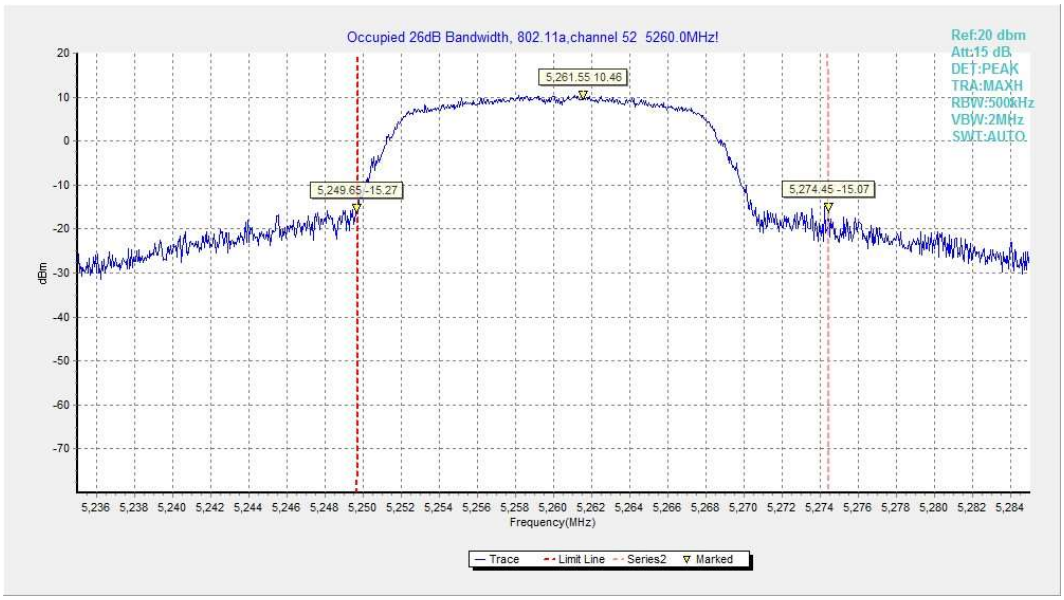


Fig.4 Occupied 26dB Bandwidth (802.11a, 5260MHz)

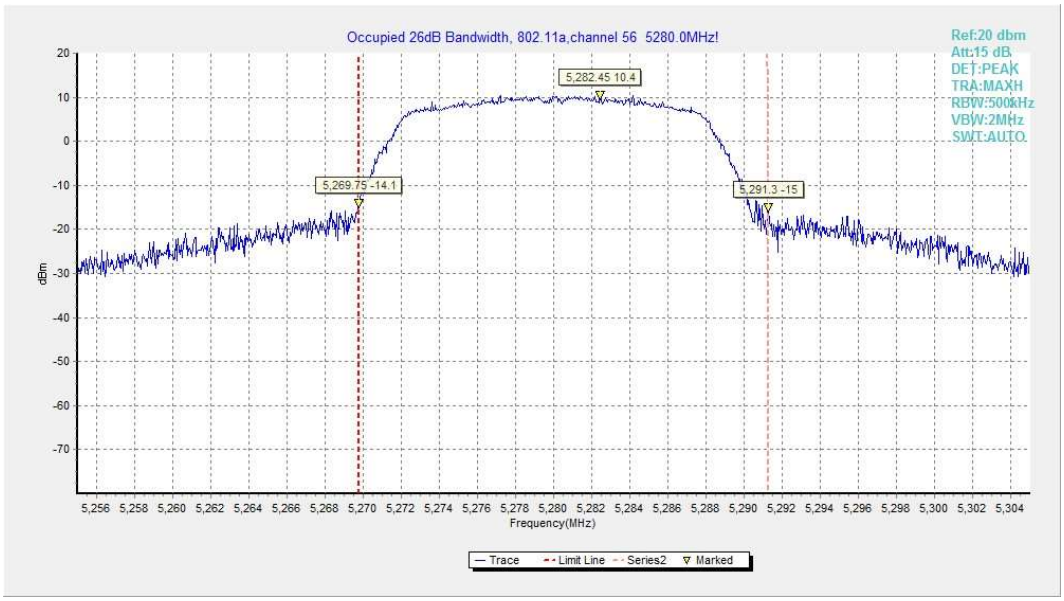


Fig.5 Occupied 26dB Bandwidth (802.11a, 5280MHz)

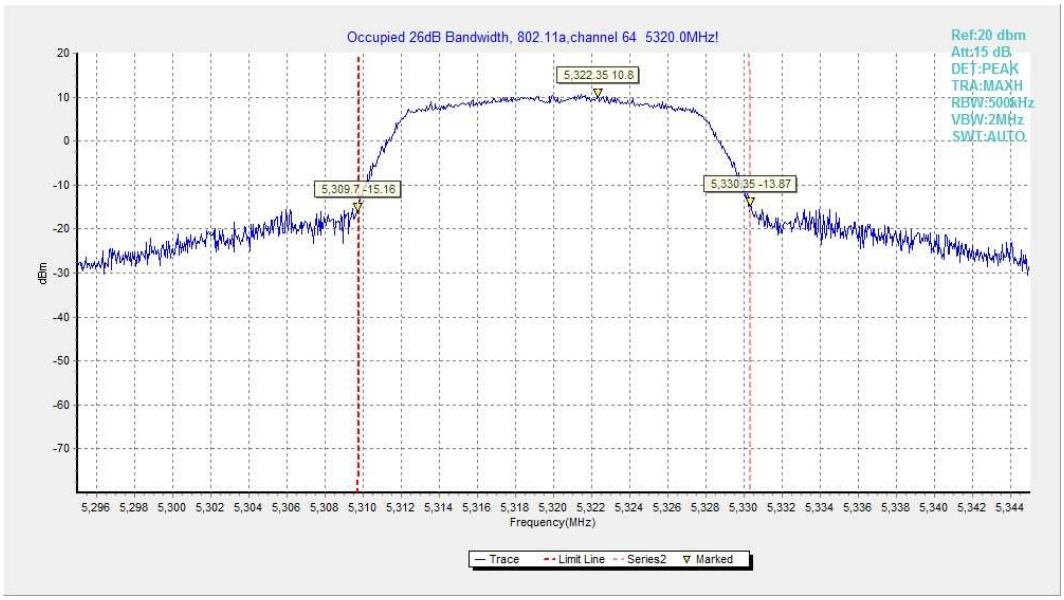


Fig.6 Occupied 26dB Bandwidth (802.11a, 5320MHz)

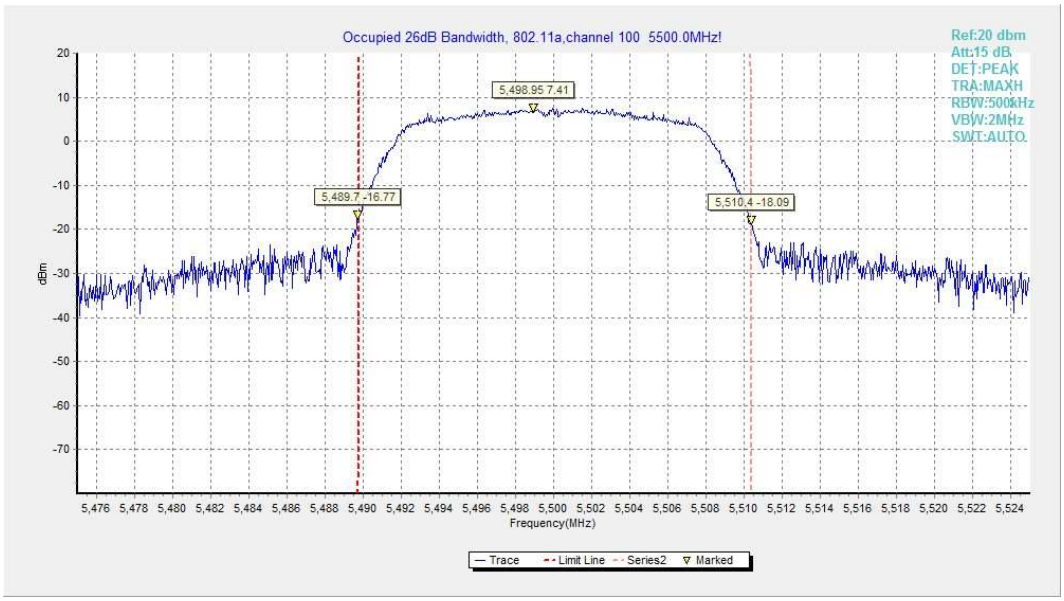


Fig.7 Occupied 26dB Bandwidth (802.11a, 5500MHz)

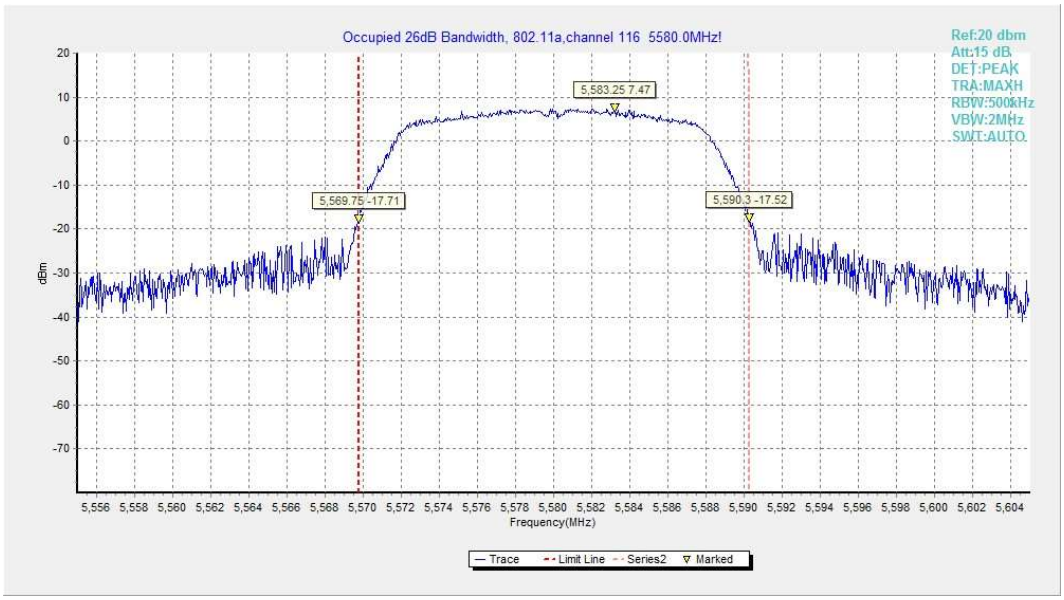


Fig.8 Occupied 26dB Bandwidth (802.11a, 5580MHz)

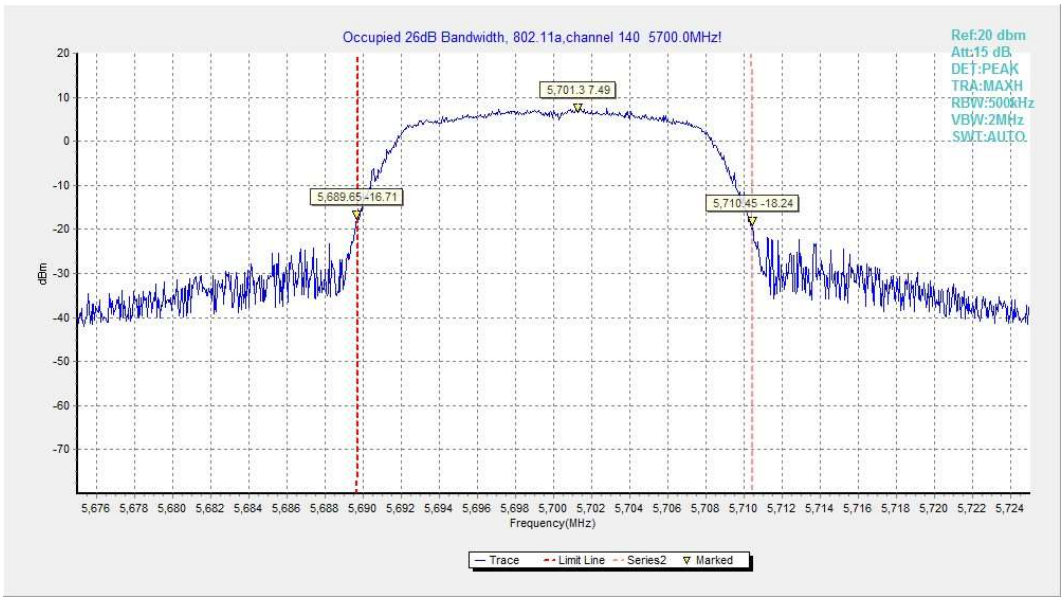


Fig.9 Occupied 26dB Bandwidth (802.11a, 5700MHz)

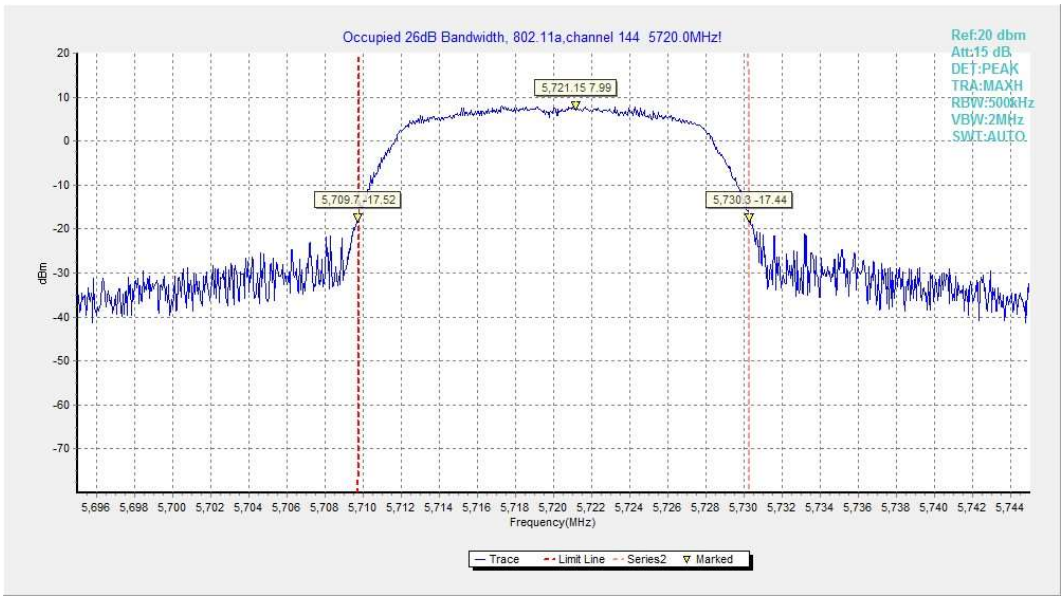


Fig.10 Occupied 26dB Bandwidth (802.11a, 5720MHz)

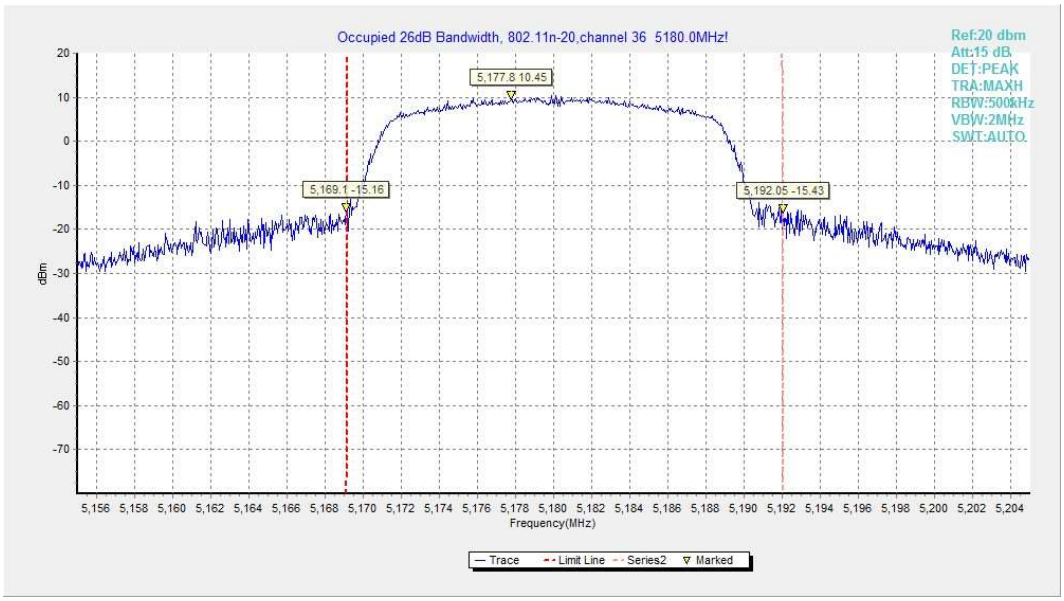


Fig.11 Occupied 26dB Bandwidth (802.11n-HT20, 5180MHz)

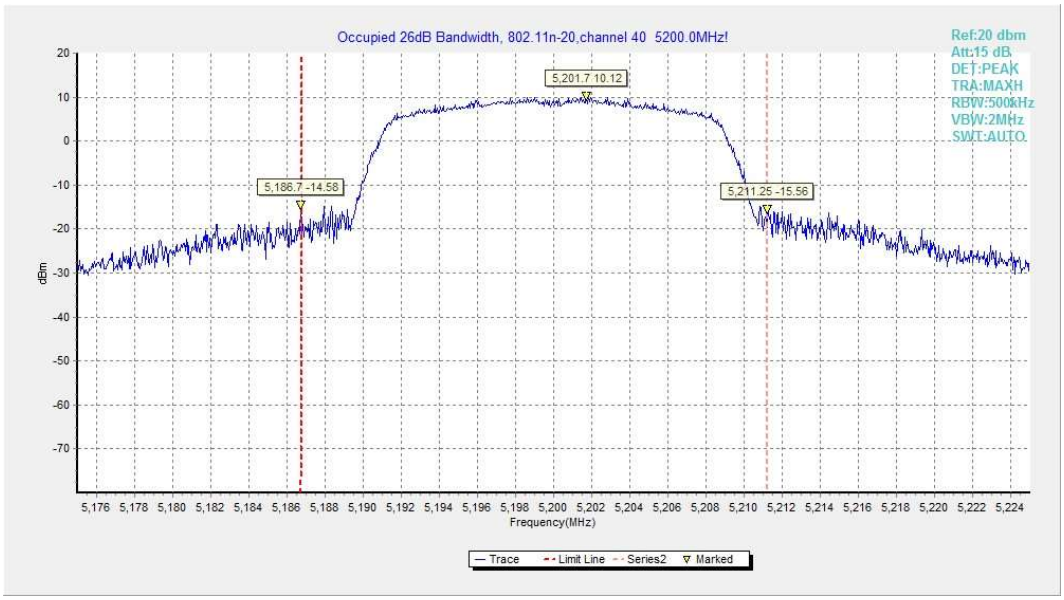


Fig.12 Occupied 26dB Bandwidth (802.11n-HT20, 5200MHz)

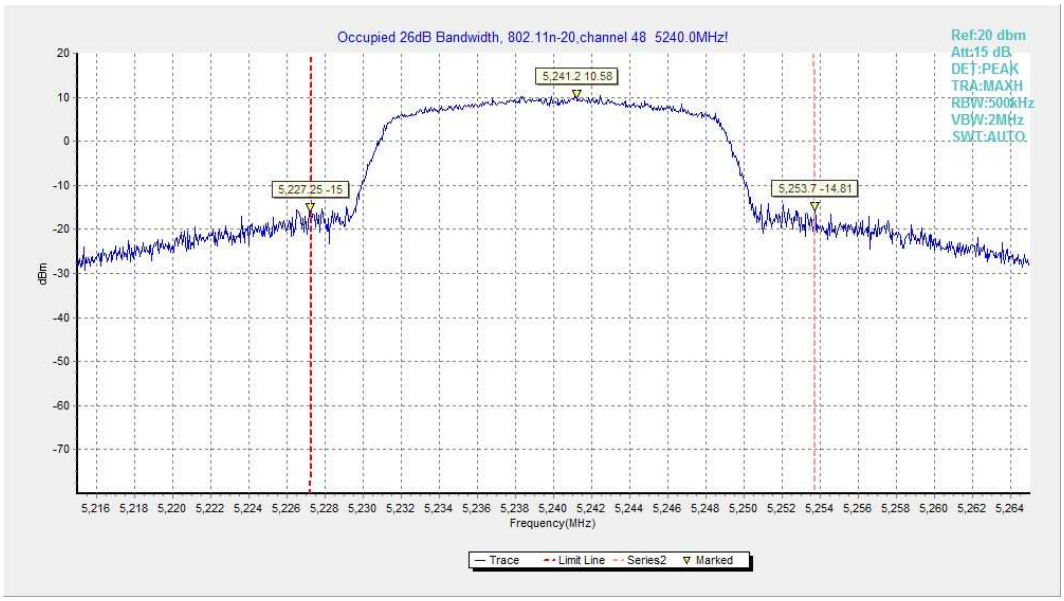


Fig.13 Occupied 26dB Bandwidth (802.11n-HT20, 5240MHz)

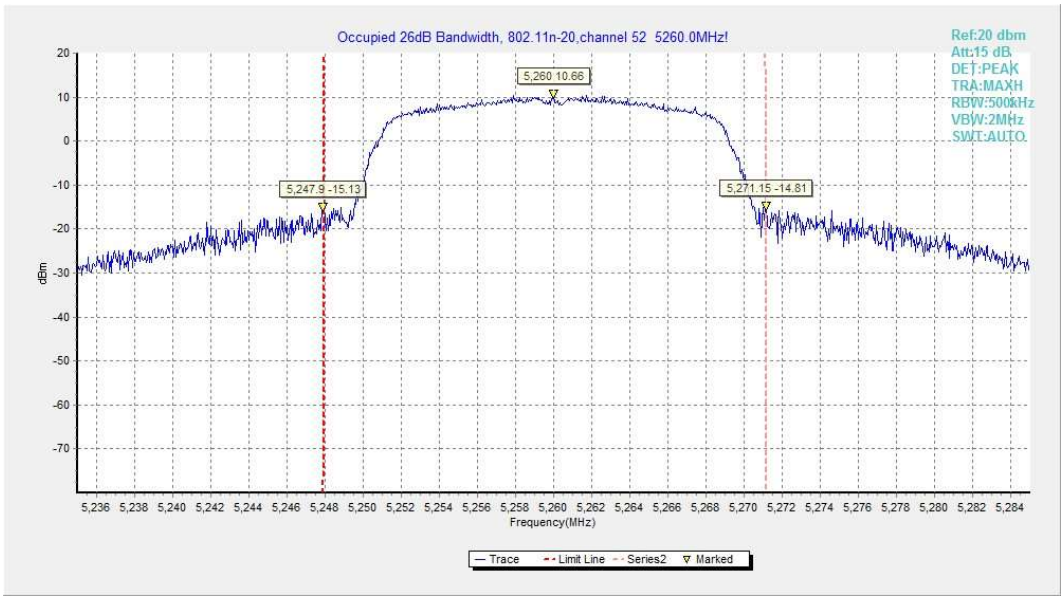


Fig.14 Occupied 26dB Bandwidth (802.11n-HT20, 5260MHz)

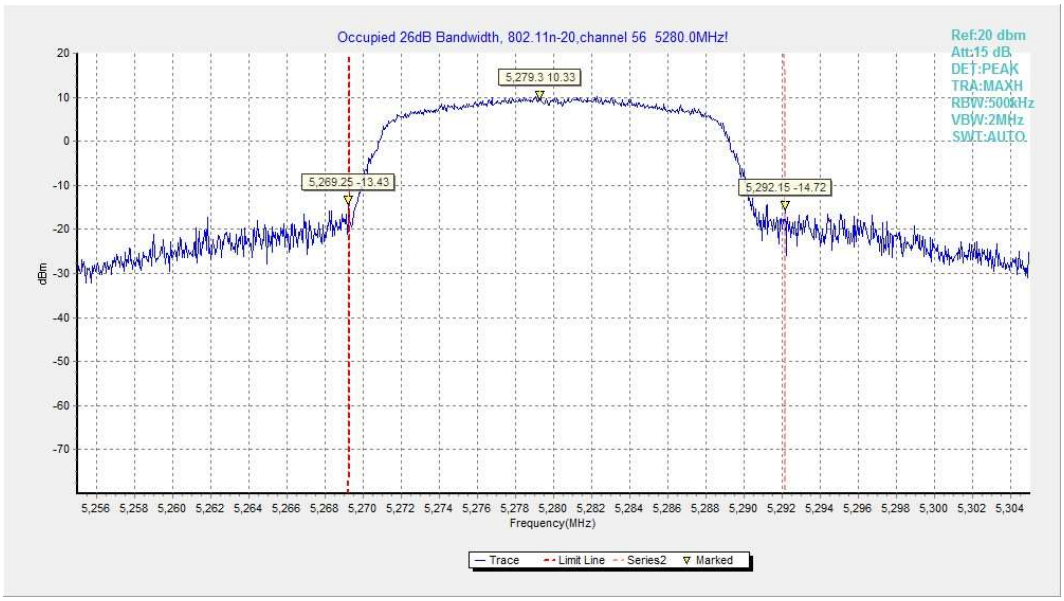


Fig.15 Occupied 26dB Bandwidth (802.11n-HT20, 5280MHz)

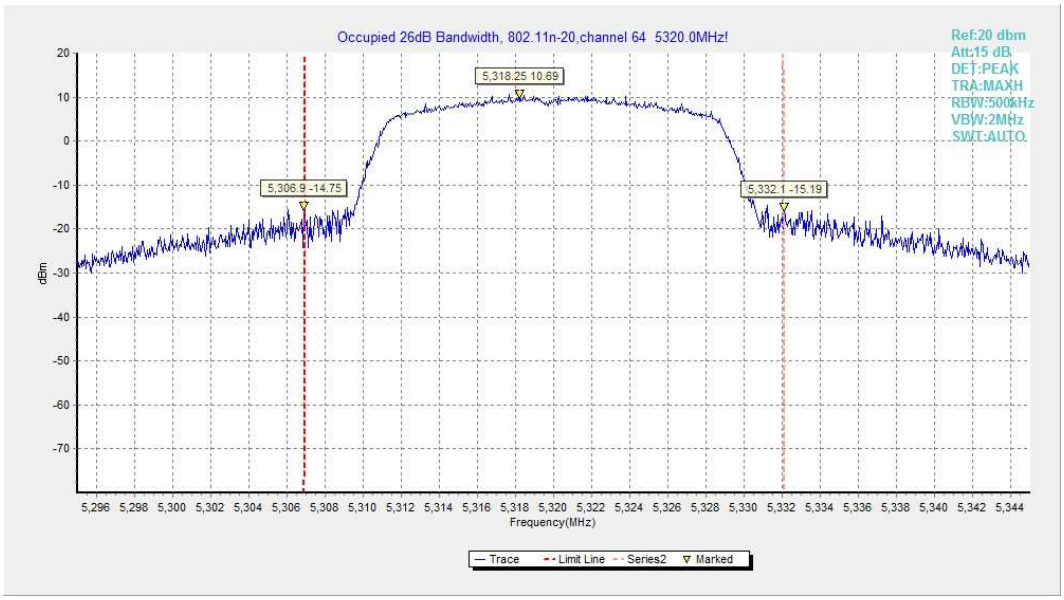


Fig.16 Occupied 26dB Bandwidth (802.11n-HT20, 5320MHz)

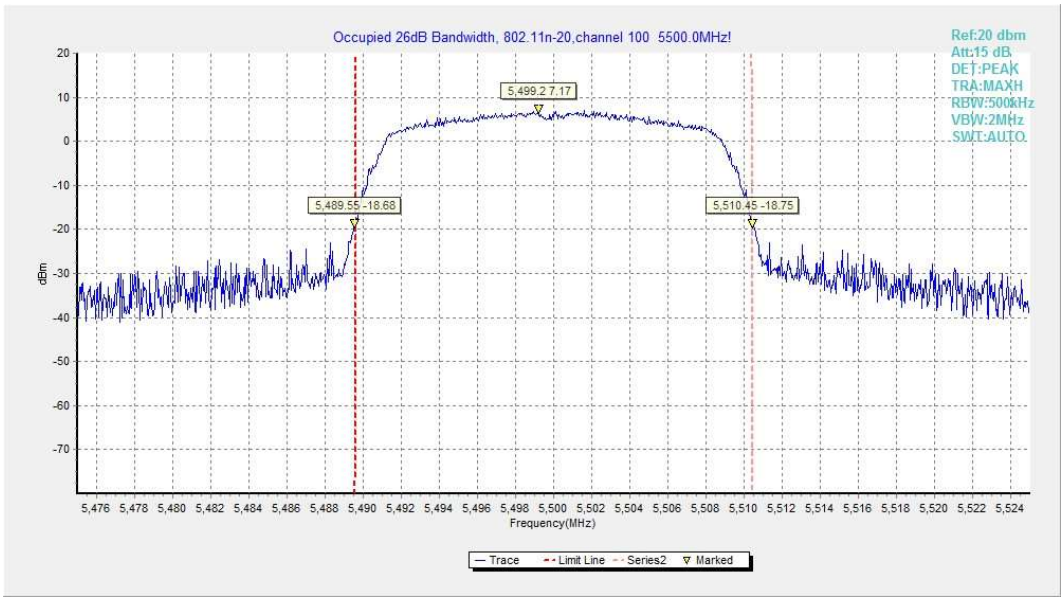


Fig.17 Occupied 26dB Bandwidth (802. 11n-HT20, 5500MHz)

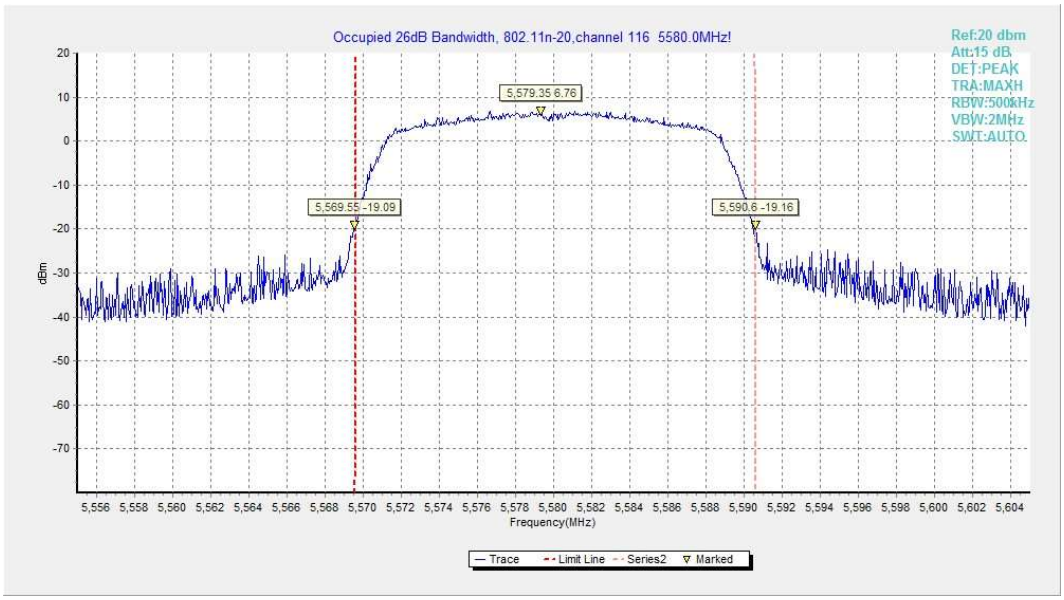


Fig.18 Occupied 26dB Bandwidth (802. 11n-HT20, 5580MHz)

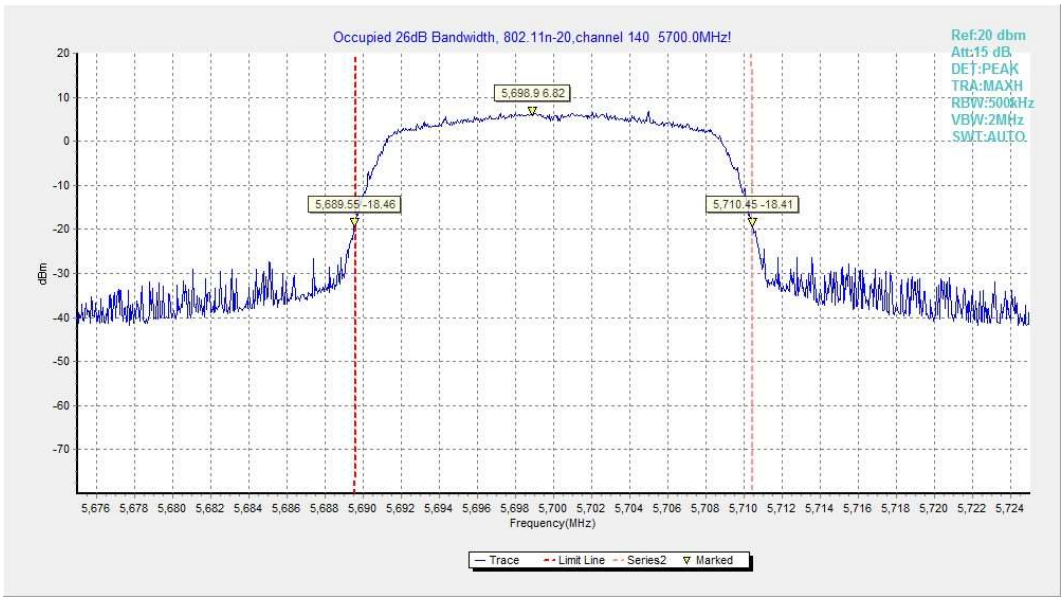


Fig.19 Occupied 26dB Bandwidth (802. 11n-HT20, 5700MHz)

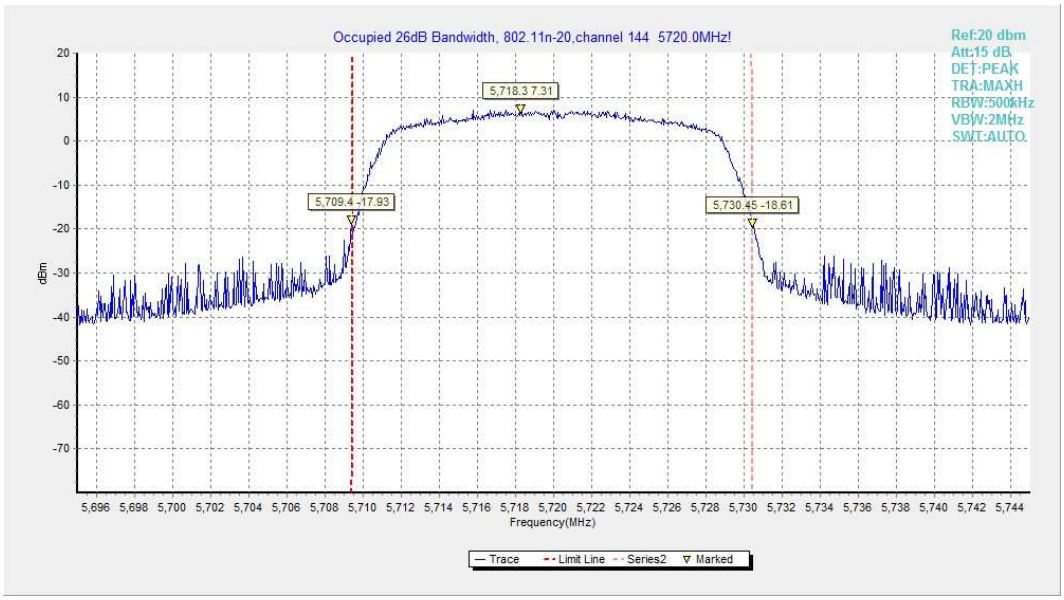


Fig.20 Occupied 26dB Bandwidth (802. 11n-HT20, 5720MHz)

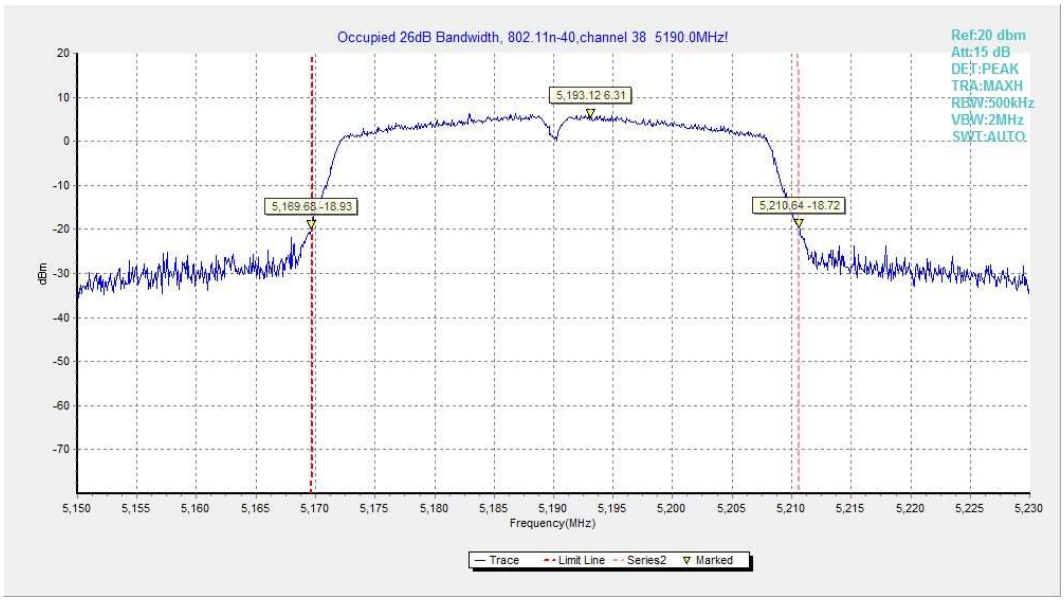


Fig.21 Occupied 26dB Bandwidth (802.11n-HT40, 5190MHz)

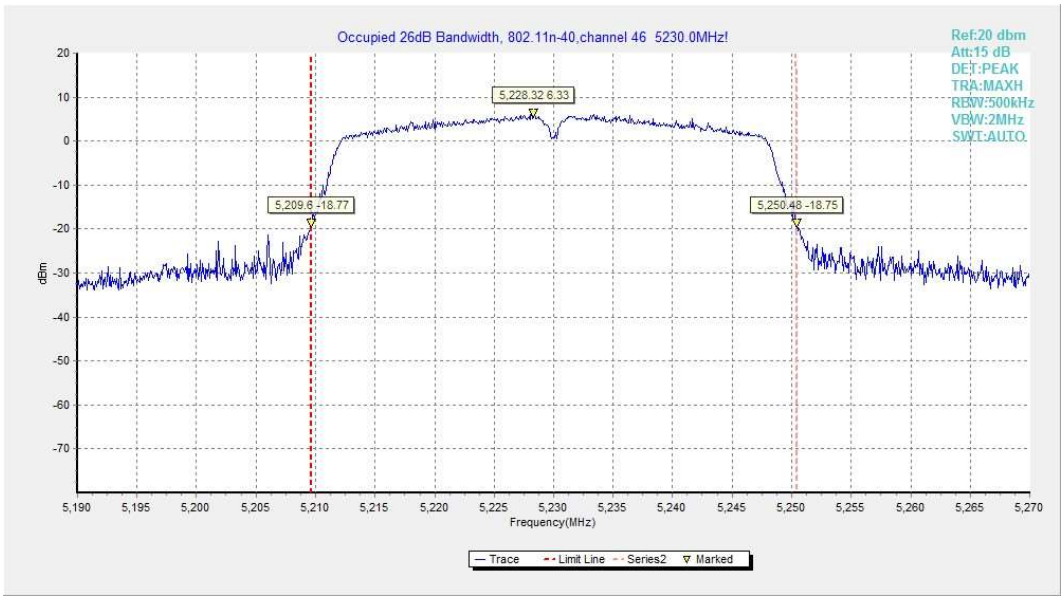


Fig.22 Occupied 26dB Bandwidth (802.11n-HT40, 5230MHz)

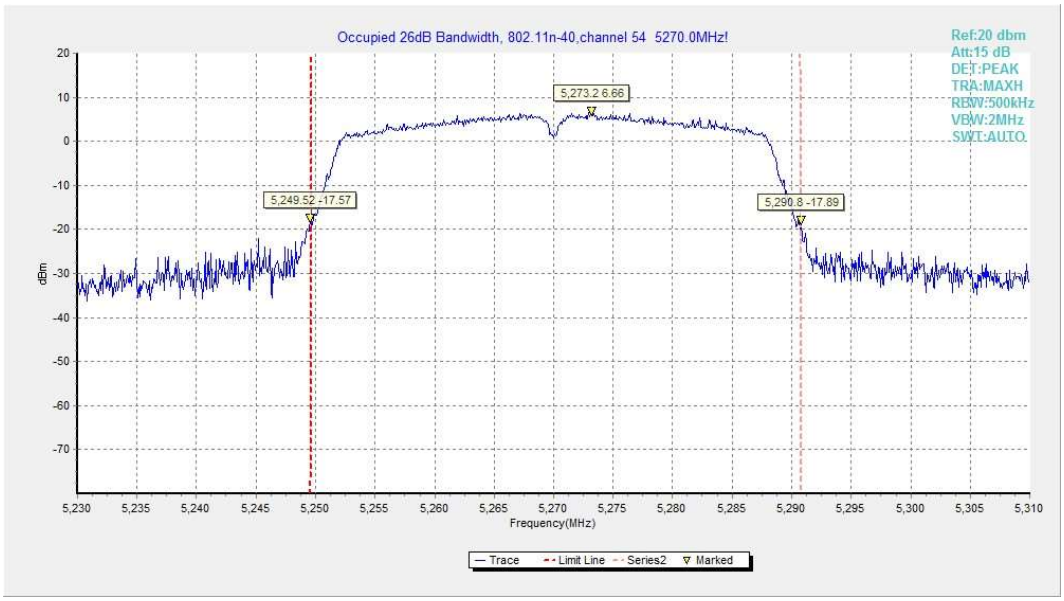


Fig.23 Occupied 26dB Bandwidth (802.11n-HT40, 5270MHz)

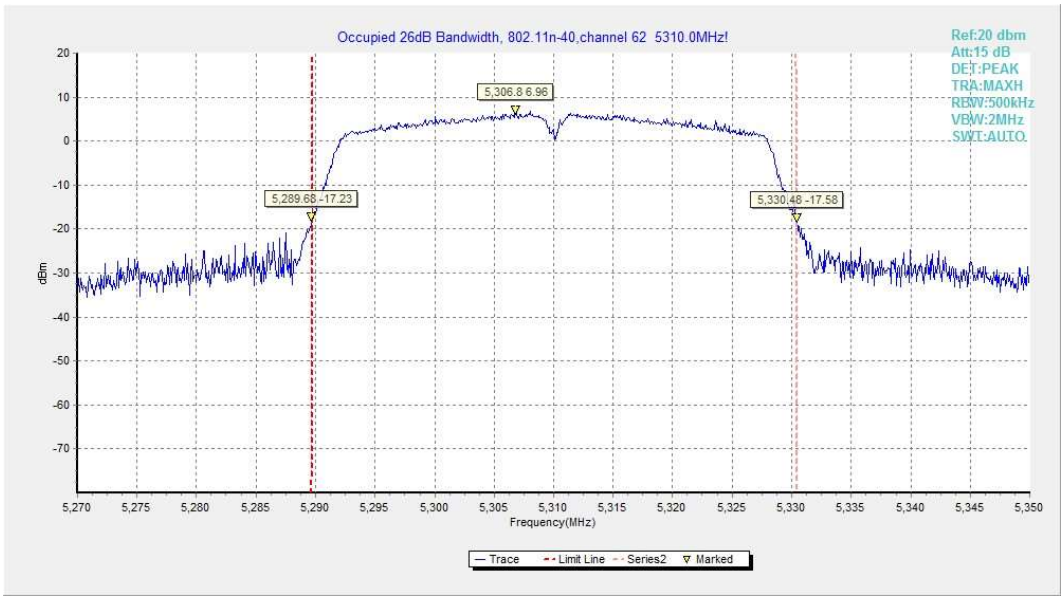


Fig.24 Occupied 26dB Bandwidth (802.11n-HT40, 5310MHz)

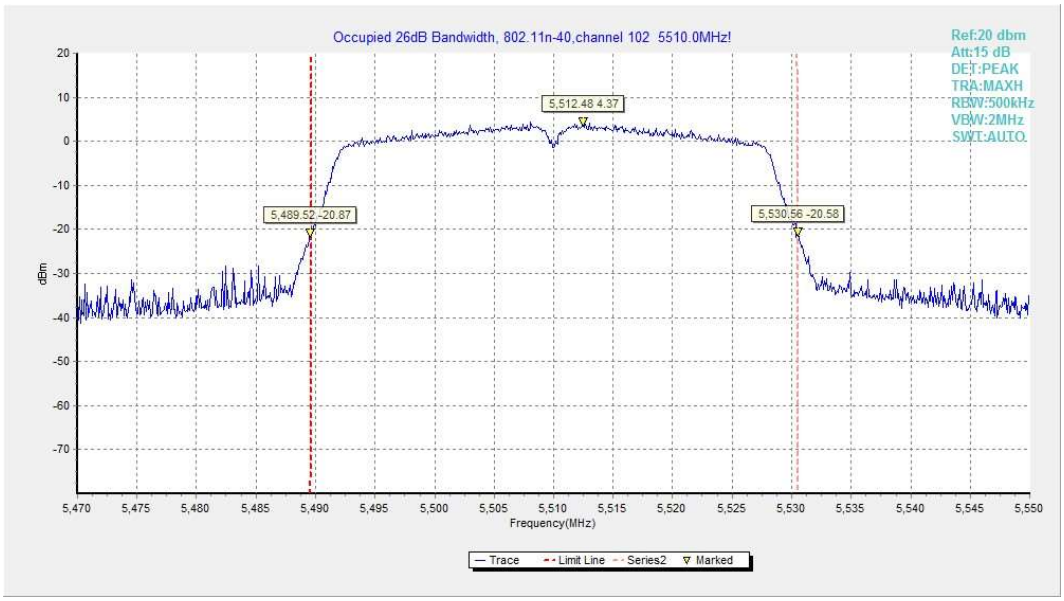


Fig.25 Occupied 26dB Bandwidth (802. 11n-HT40, 5510MHz)

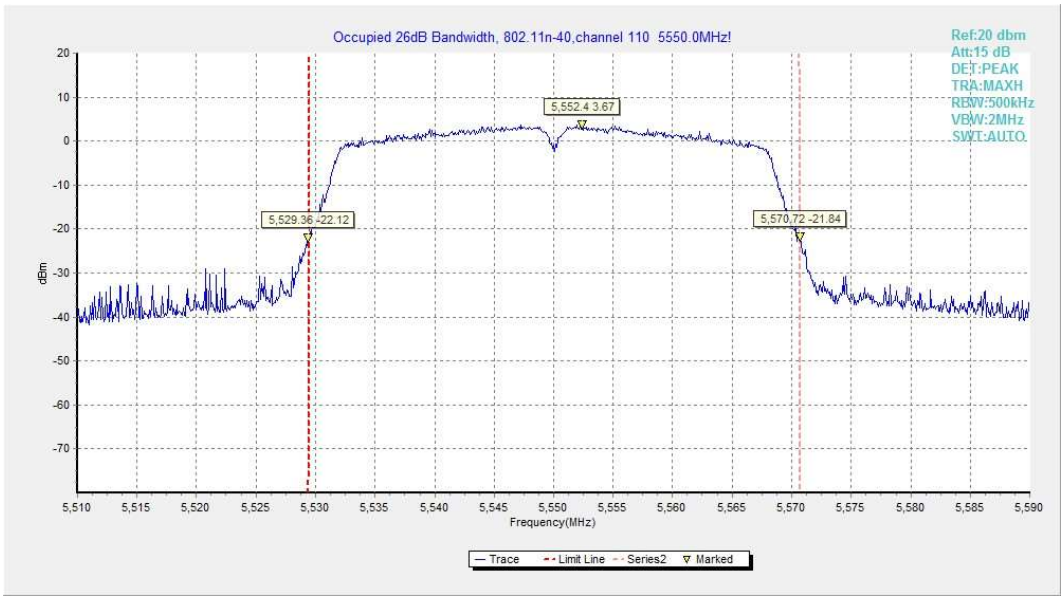


Fig.26 Occupied 26dB Bandwidth (802. 11n-HT40, 5590MHz)

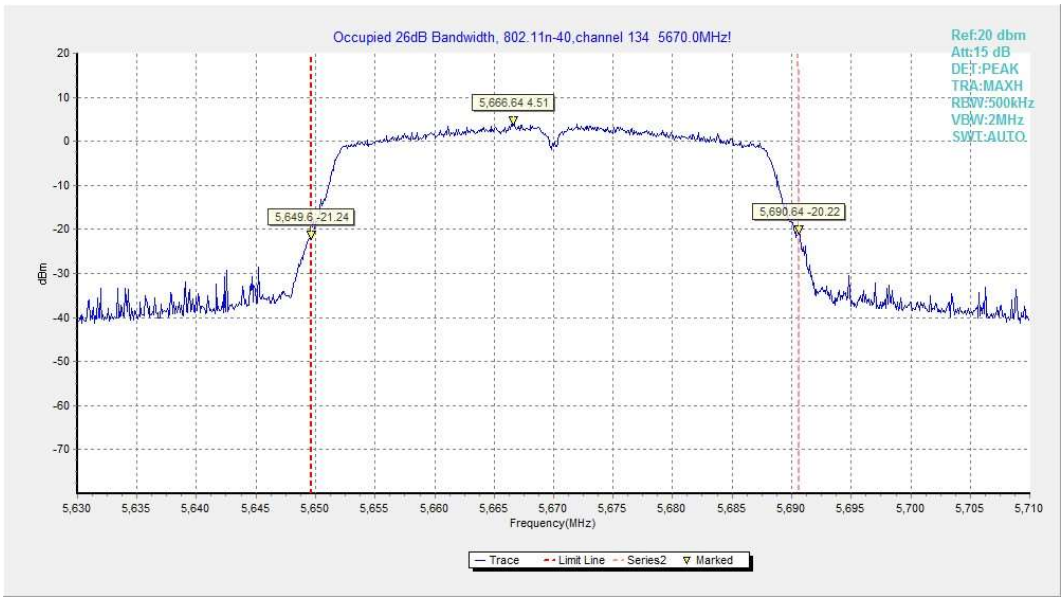


Fig.27 Occupied 26dB Bandwidth (802. 11n-HT40, 5670MHz)

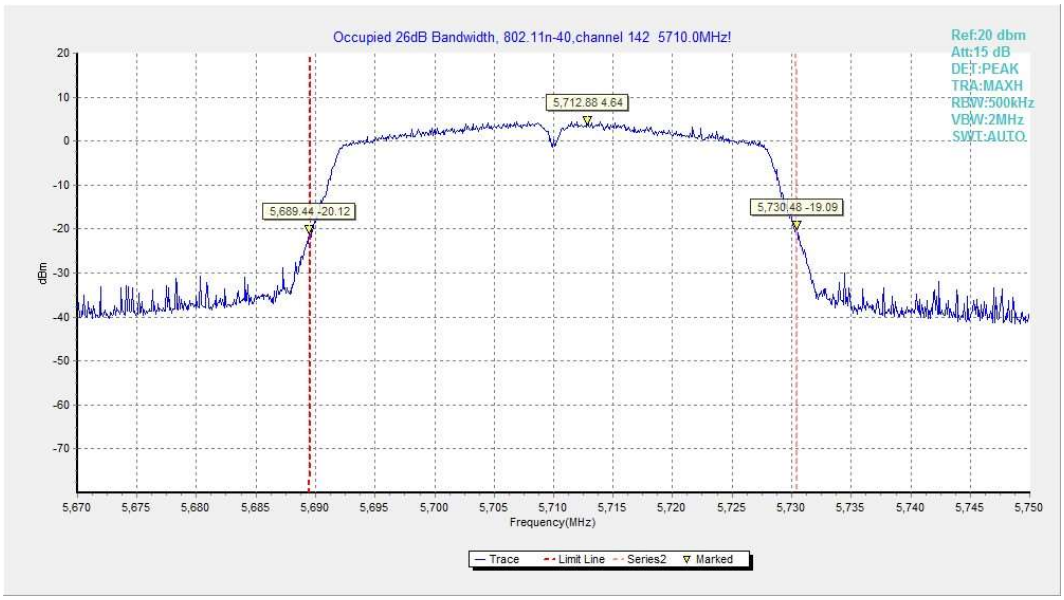


Fig.28 Occupied 26dB Bandwidth (802. 11n-HT40, 5710MHz)

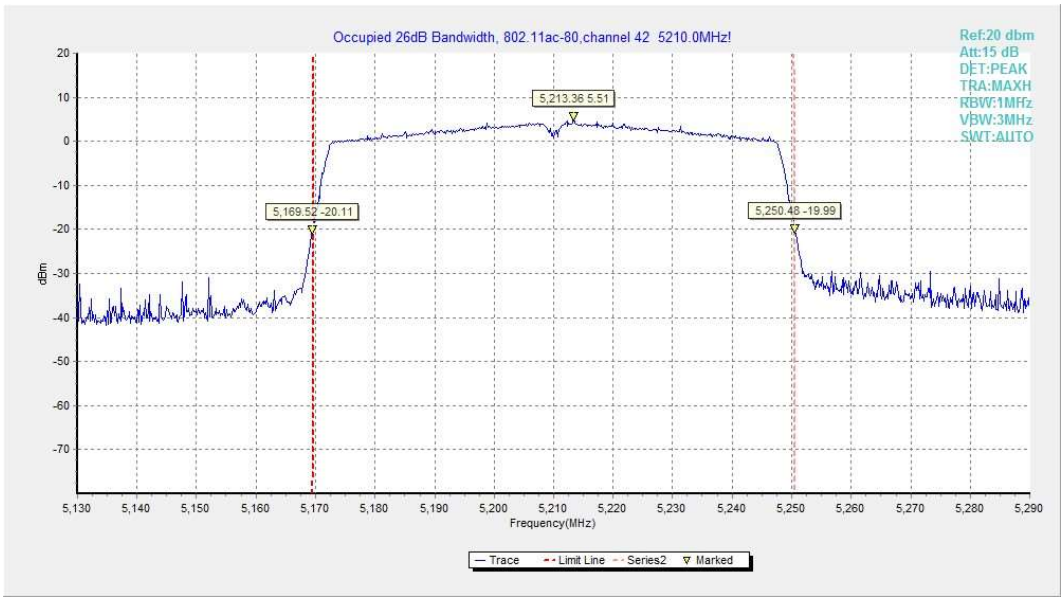


Fig.29 Occupied 26dB Bandwidth (802. 11ac-HT80, 5210MHz)

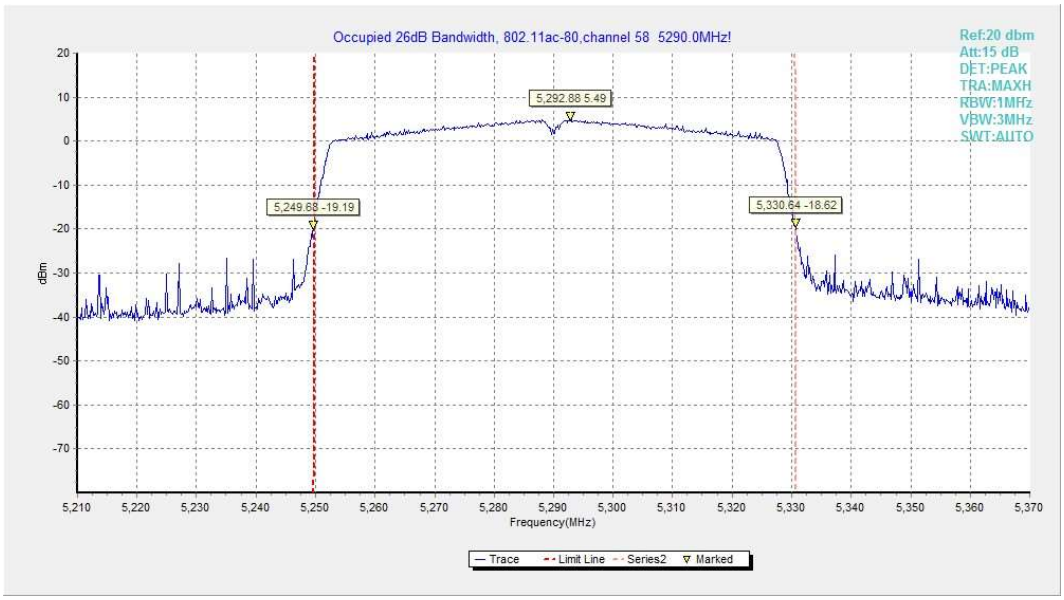


Fig.30 Occupied 26dB Bandwidth (802. 11ac-HT80, 5290MHz)

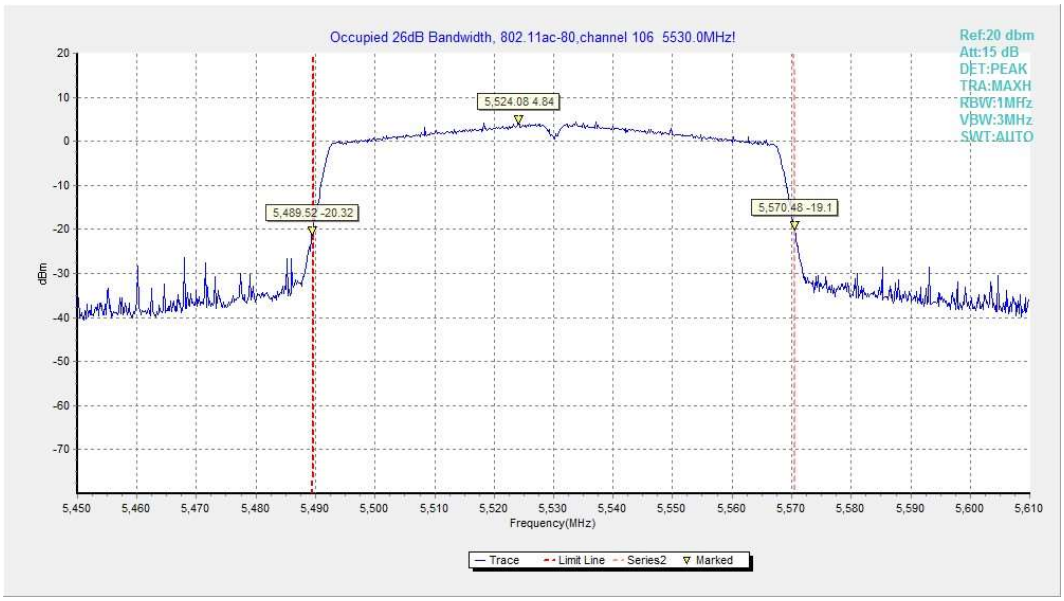


Fig.31 Occupied 26dB Bandwidth (802. 11ac-HT80, 5530MHz)

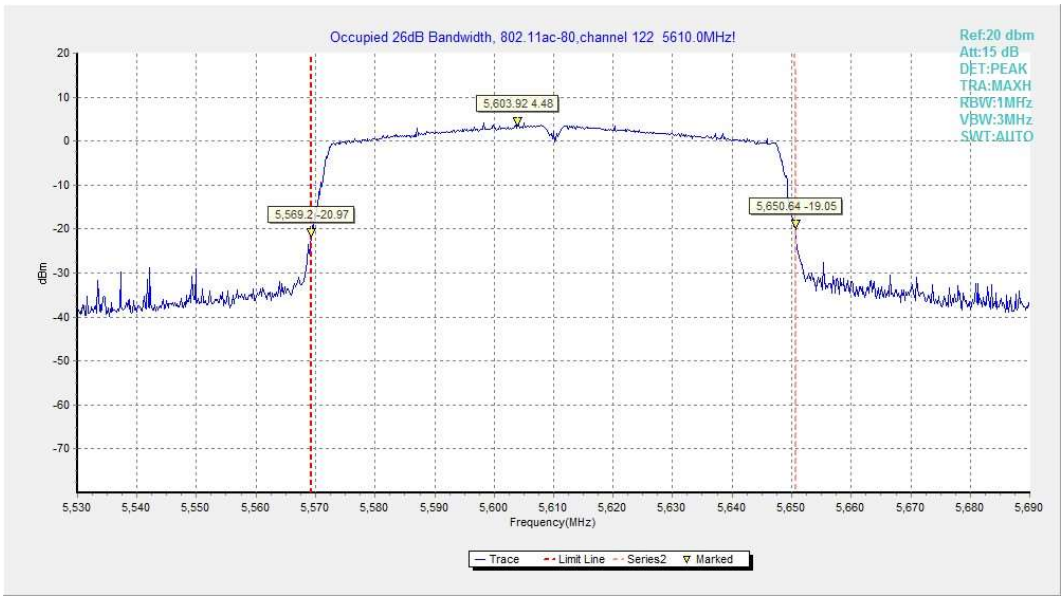


Fig.32 Occupied 26dB Bandwidth (802. 11ac-HT80, 5610MHz)

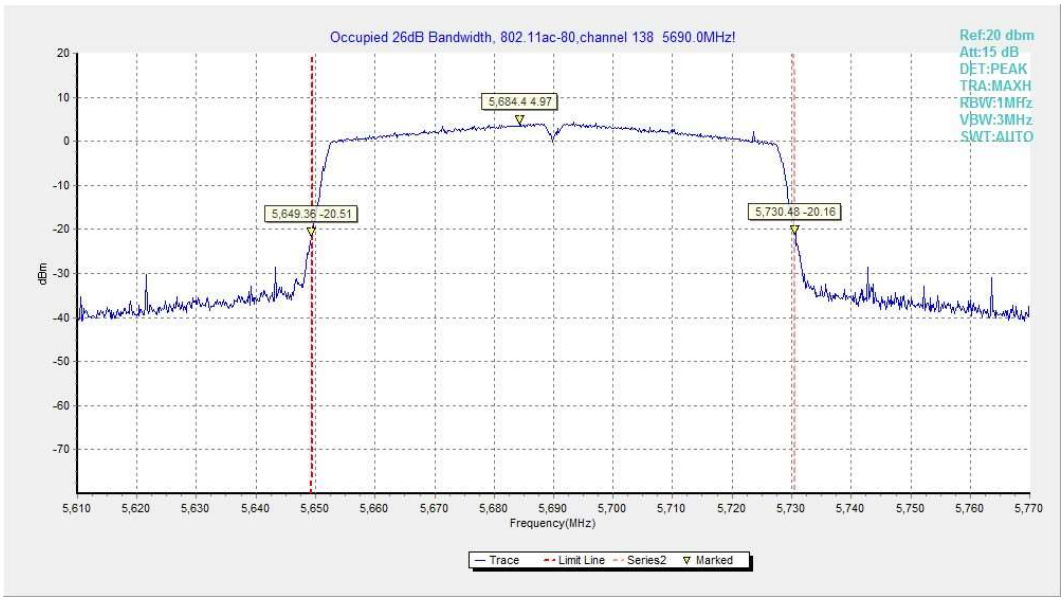


Fig.33 Occupied 26dB Bandwidth (802. 11ac-HT80, 5690MHz)

A.5. Band Edges Compliance

A5.1 Band Edges - Radiated

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.407	-27 dBm/MHz

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

Limit in restricted band:

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)	Measurement distance(m)
Above 960	500	54	3

The measurement is made according to ANSI C63.10-2013 and KDB 789033

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

1. Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:
E=EIRP- 20log (*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	5180 MHz	Fig.34	P
	5320 MHz	Fig.35	P
	5500 MHz	Fig.36	P
	5700 MHz	Fig.37	P
802.11n HT20	5180 MHz	Fig.38	P
	5320 MHz	Fig.39	P
	5500 MHz	Fig.40	P
	5700 MHz	Fig.41	P
802.11n HT40	5190 MHz	Fig.42	P
	5310 MHz	Fig.43	P
	5510 MHz	Fig.44	P
	5670 MHz	Fig.45	P
802.11ac HT20	5180 MHz	Fig.46	P
	5320 MHz	Fig.47	P
	5500 MHz	Fig.48	P
	5700 MHz	Fig.49	P
802.11ac HT40	5190 MHz	Fig.50	P
	5310 MHz	Fig.51	P
	5510 MHz	Fig.52	P
	5670 MHz	Fig.53	P
802.11ac HT80	5210MHz	Fig.54	P
	5290MHz	Fig.55	P
	5530MHz	Fig.56	P
	5610MHz	Fig.57	P

Conclusion: PASS

Test graphs as below:

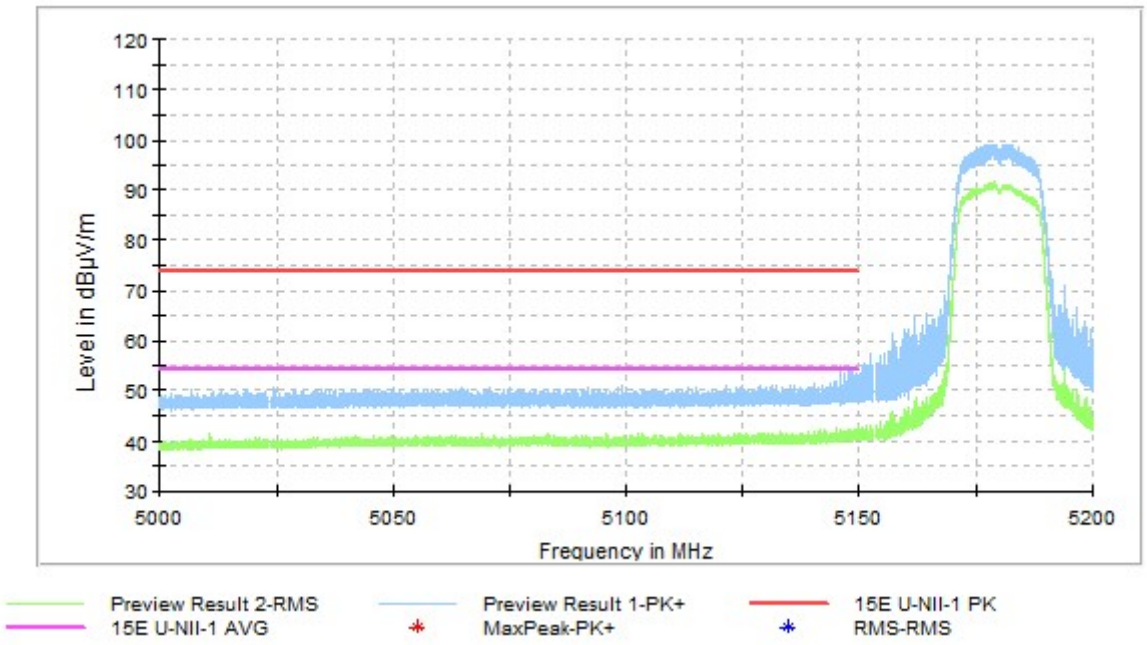


Fig.34 Band Edges (802.11a Ch36, 5180MHz)

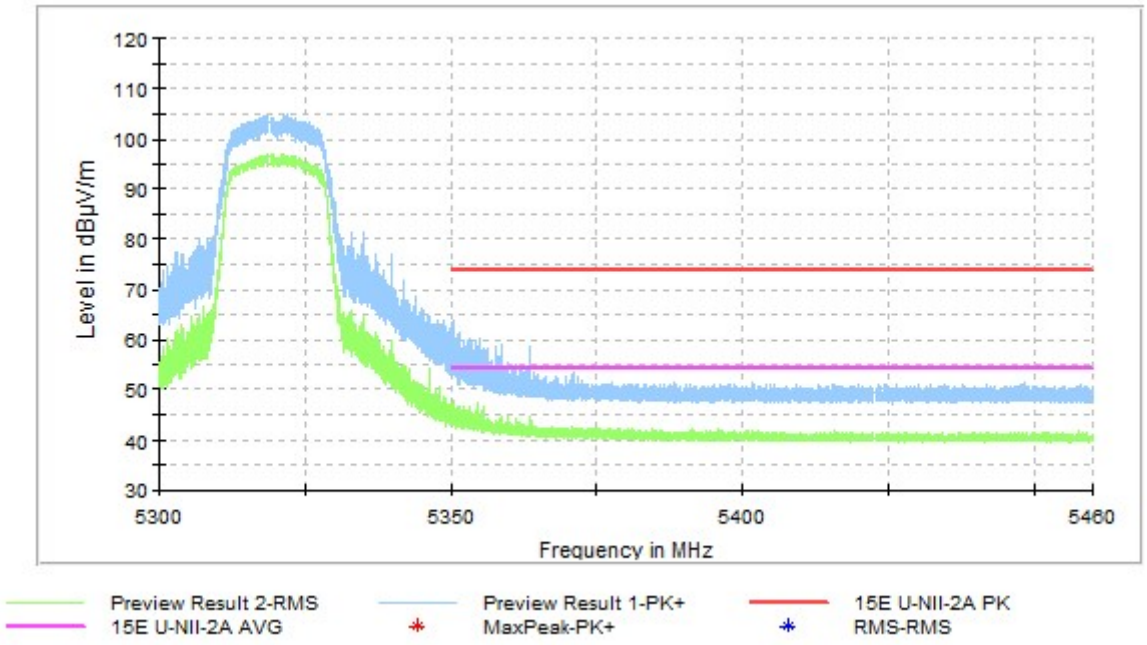


Fig.35 Band Edges (802.11a Ch64, 5320MHz)

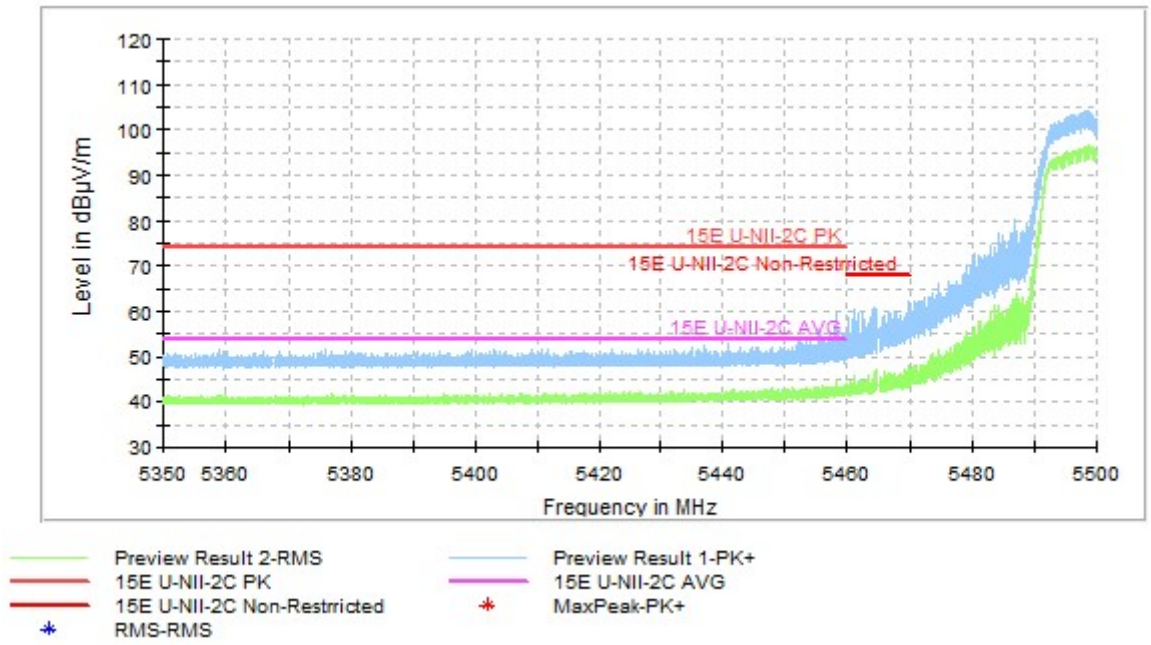


Fig.36 Band Edges (802.11a Ch100, 5500MHz)

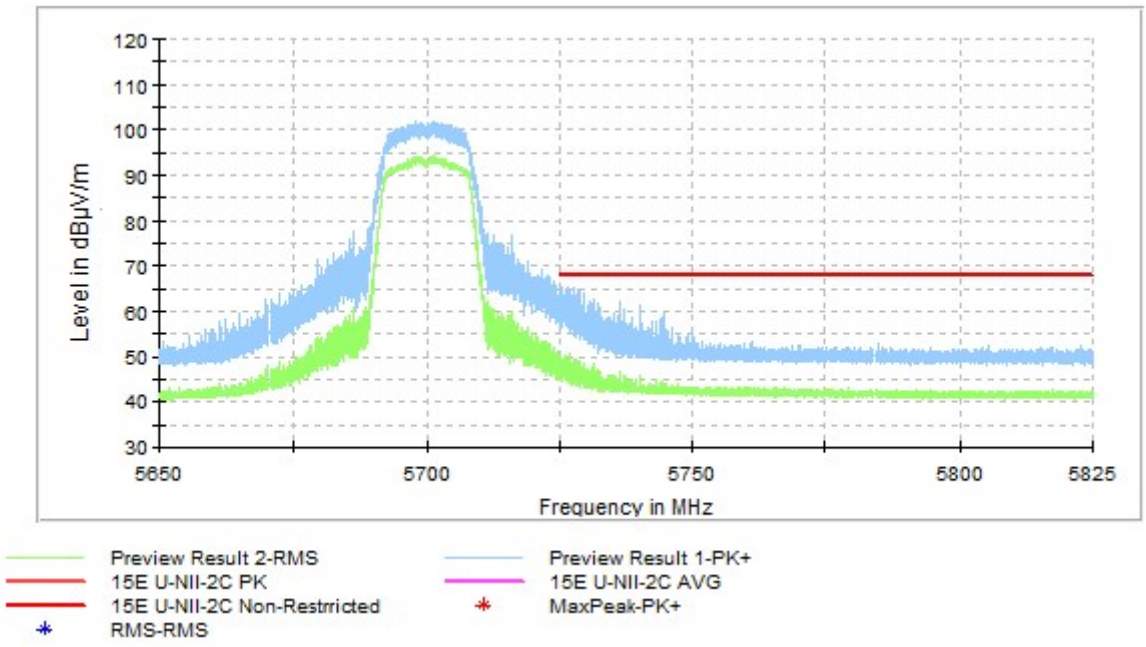


Fig.37 Band Edges (802.11a Ch140, 5700MHz)

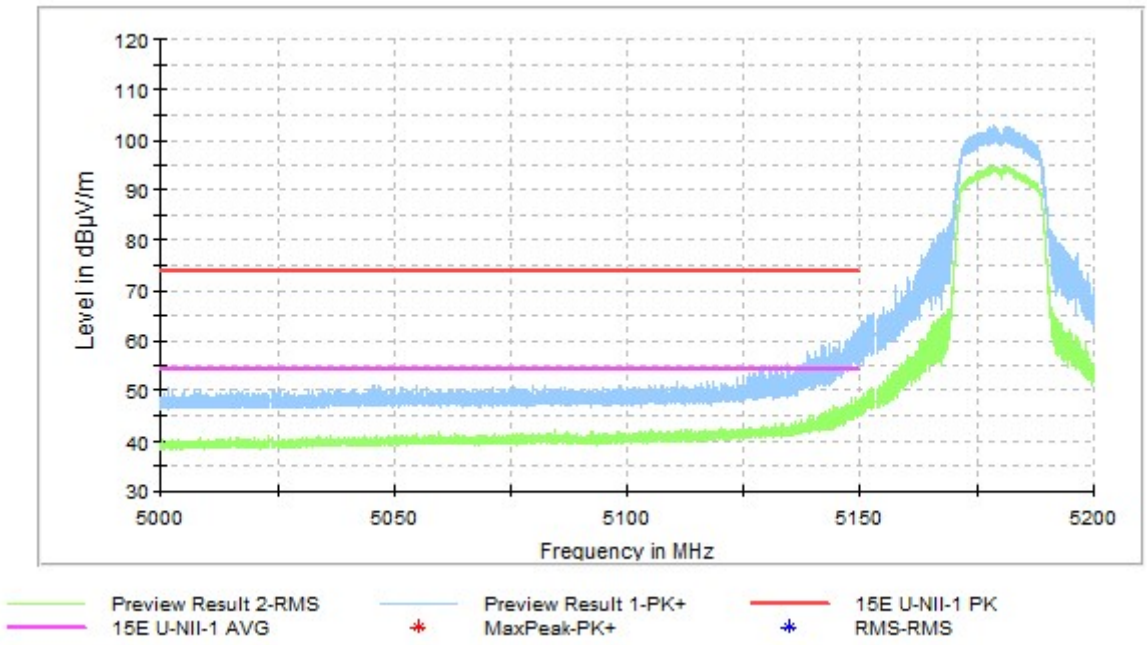


Fig.38 Band Edges (802.11n-HT20 Ch36, 5180MHz)

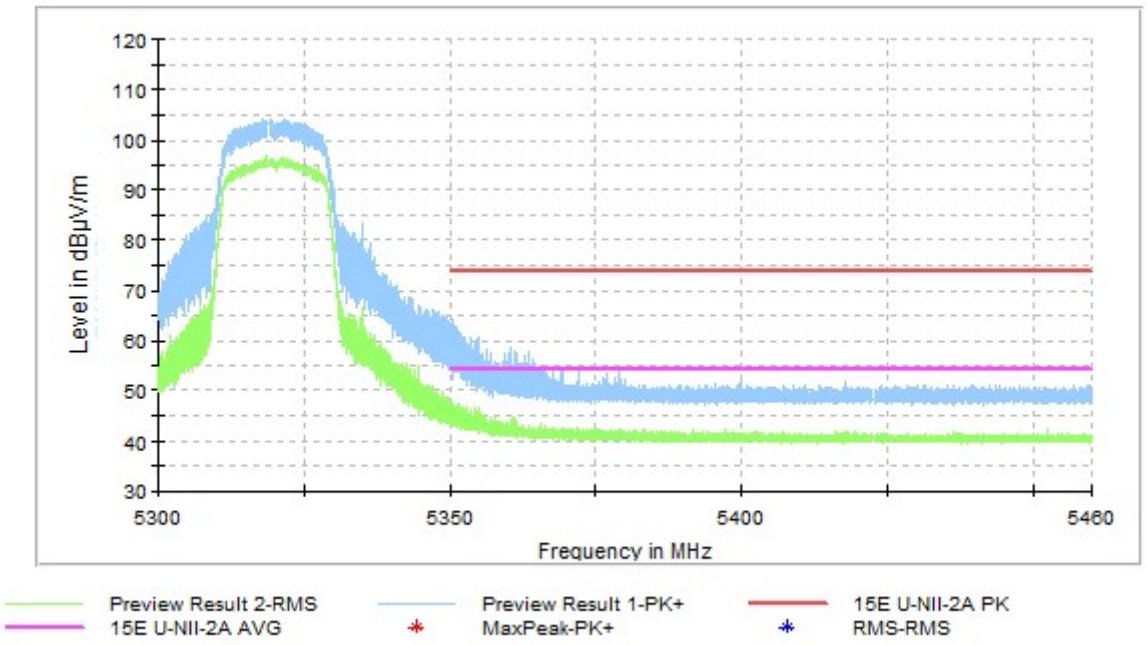


Fig.39 Band Edges (802.11n-HT20 Ch64, 5320MHz)

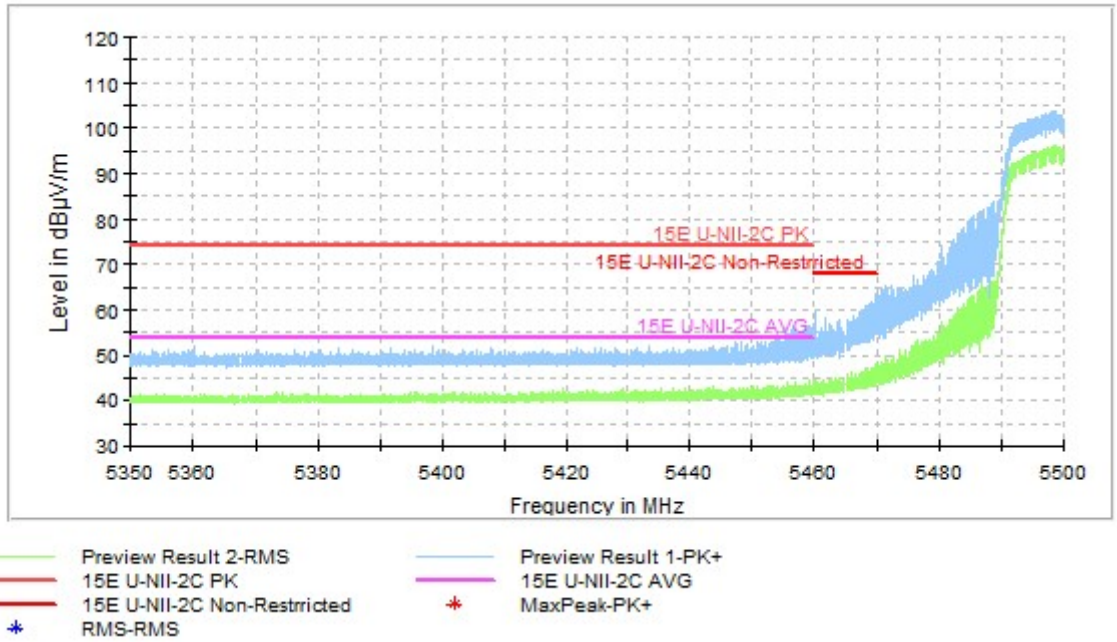


Fig.40 Band Edges (802.11n-HT20 Ch100, 5500MHz)

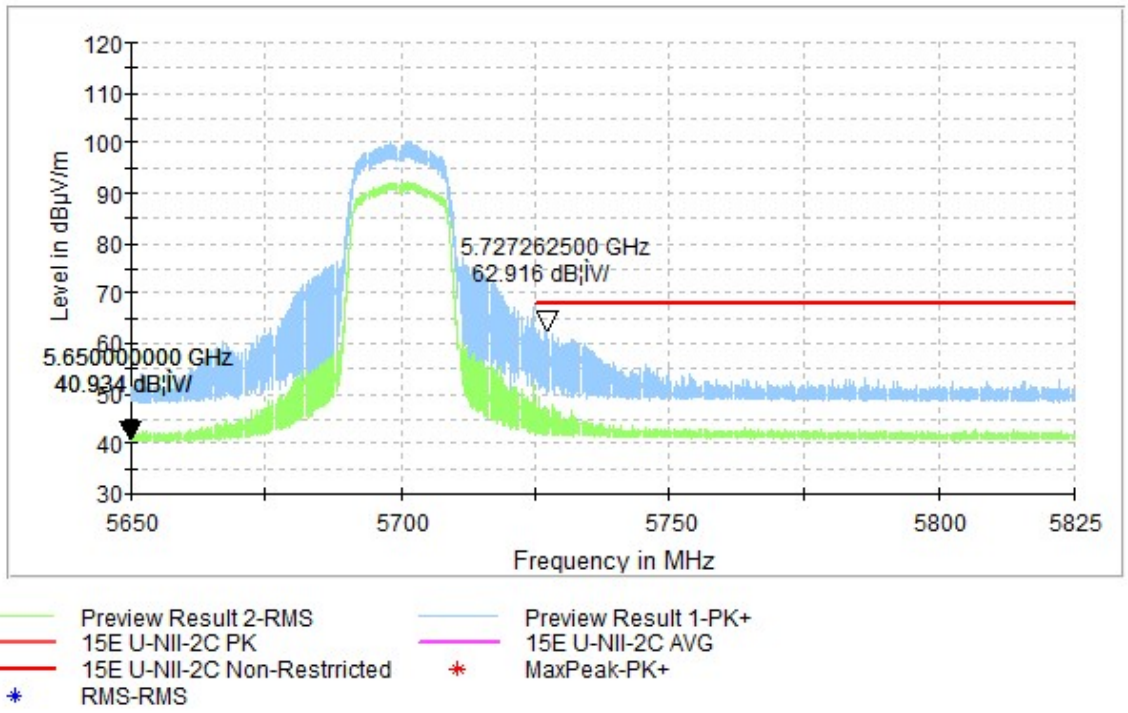


Fig.41 Band Edges (802.11n-HT20 Ch140, 5700MHz)

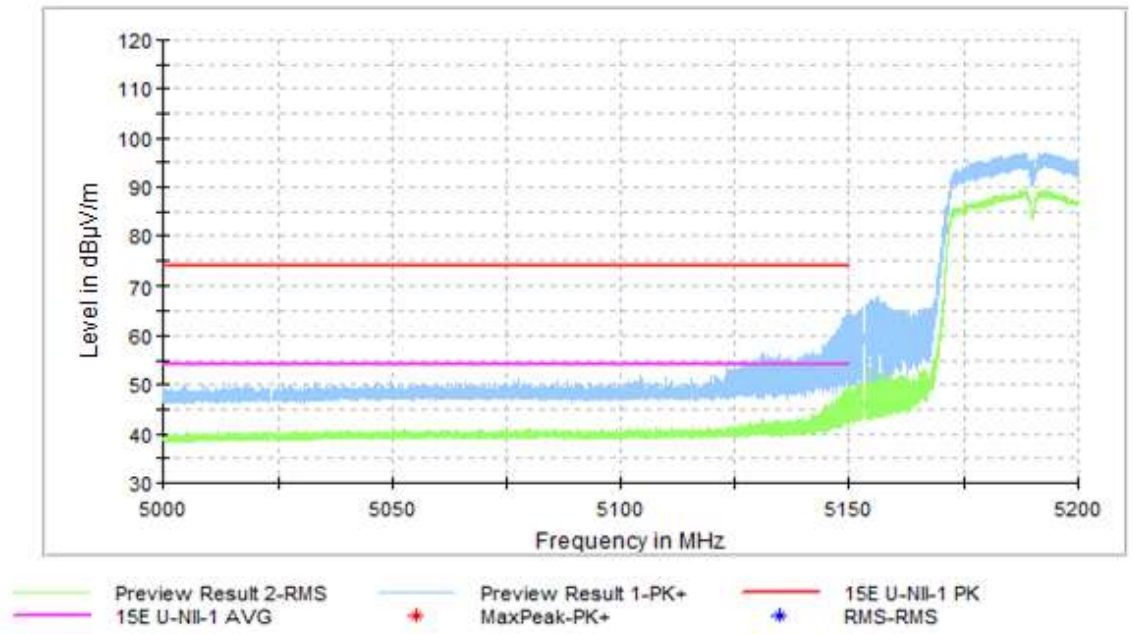


Fig.42 Band Edges (802.11n-HT40 Ch38, 5190MHz)

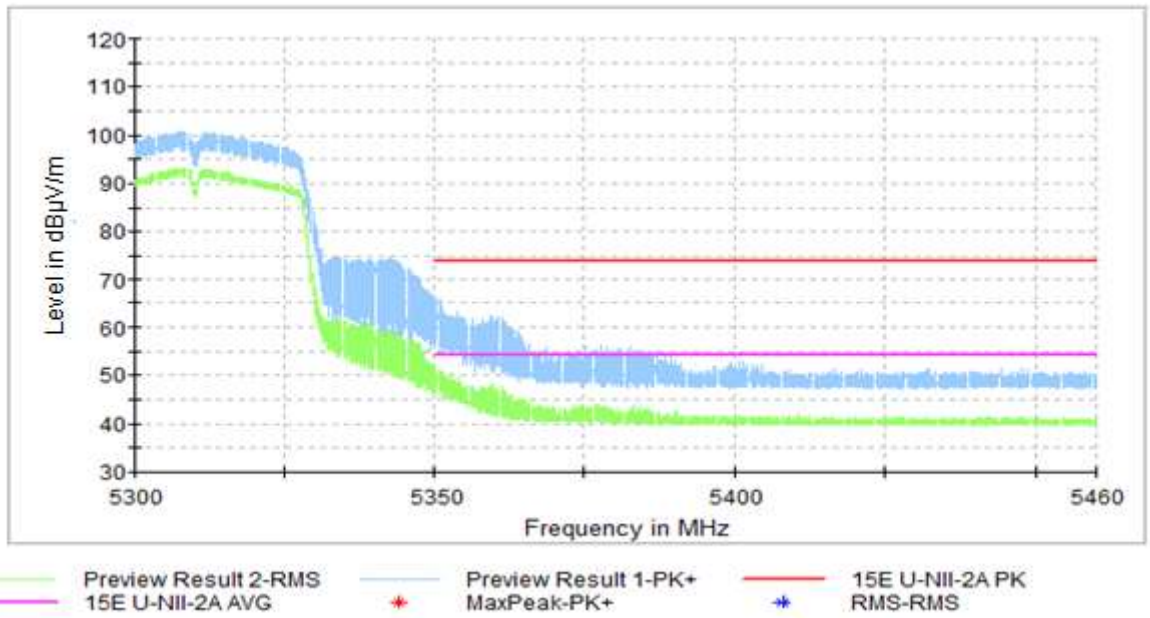


Fig.43 Band Edges (802.11n-HT40 Ch62, 5310MHz)

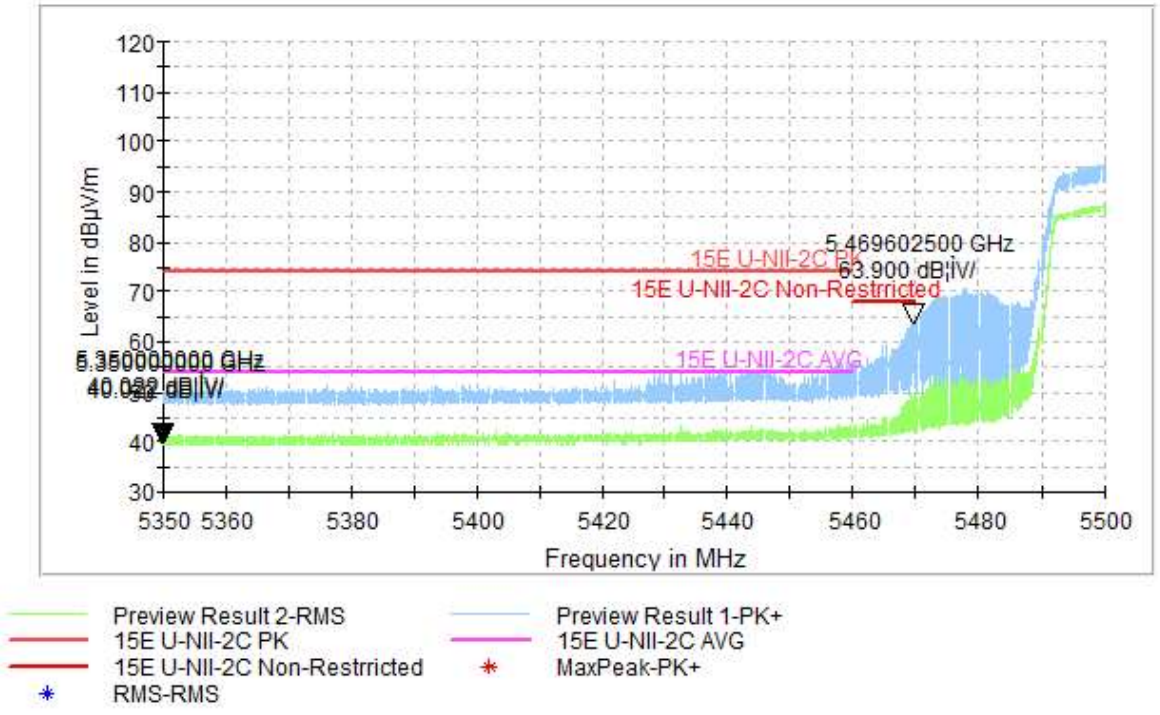


Fig.44 Band Edges (802.11n-HT40 Ch102, 5510MHz)

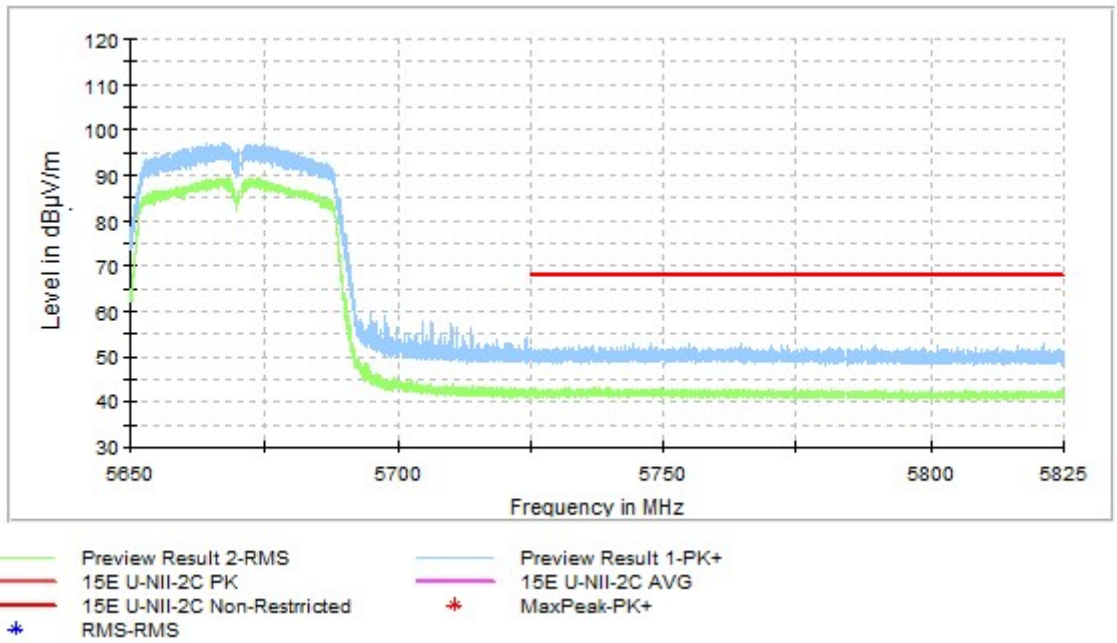


Fig.45 Band Edges (802.11n-HT40 Ch134, 5670MHz)

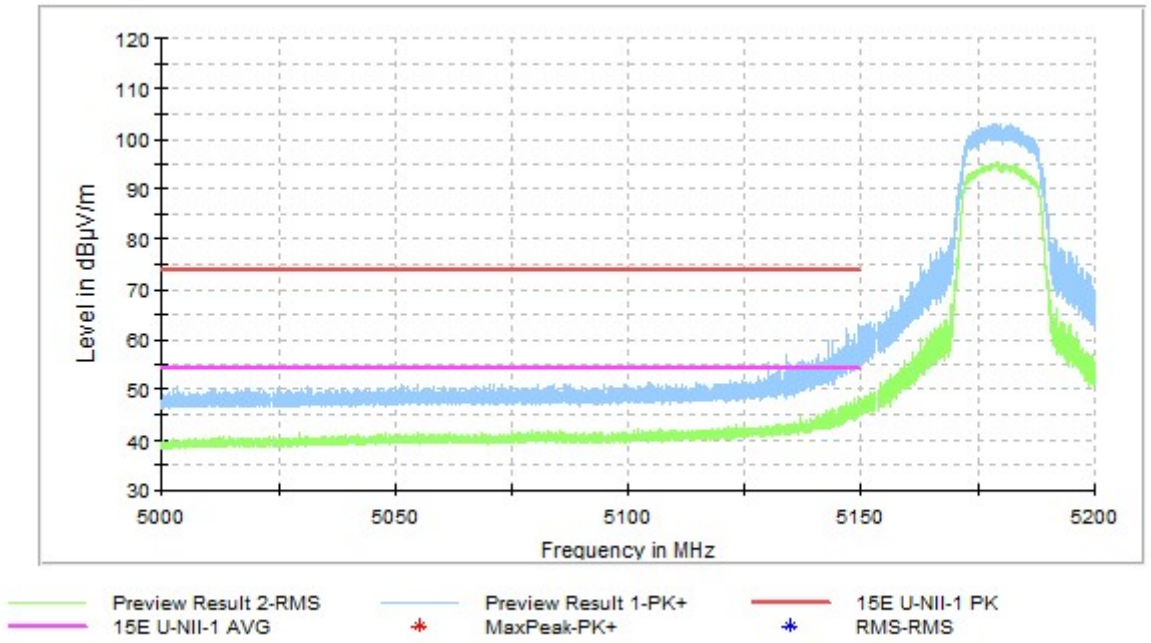


Fig.46 Band Edges (802.11ac-HT20 Ch36, 5180MHz)

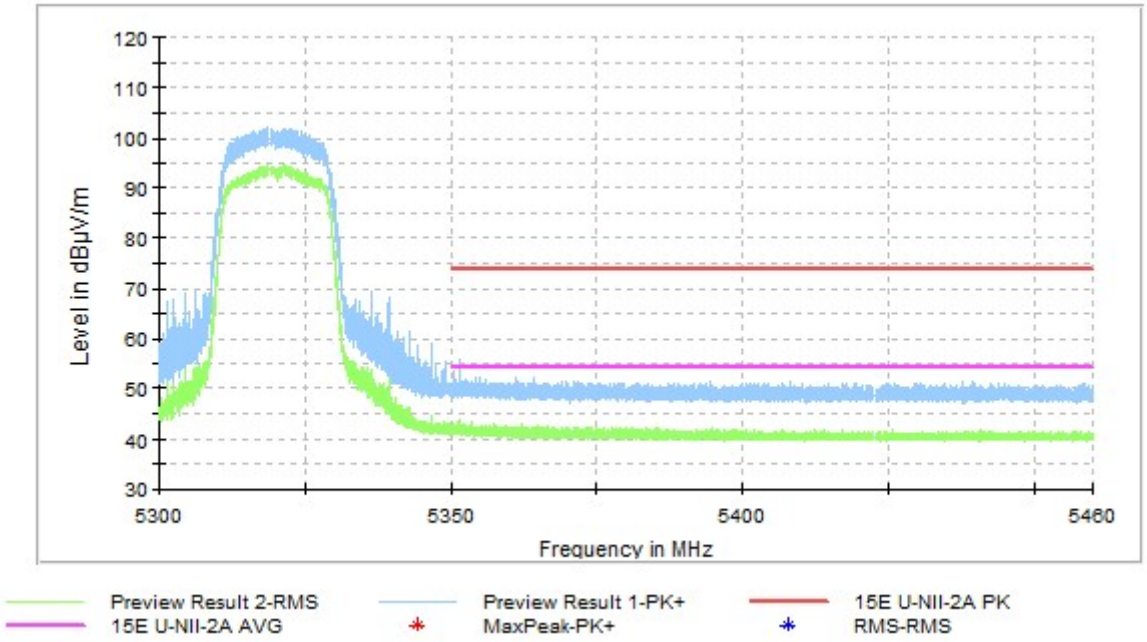


Fig.47 Band Edges (802.11ac-HT20 Ch64, 5320MHz)

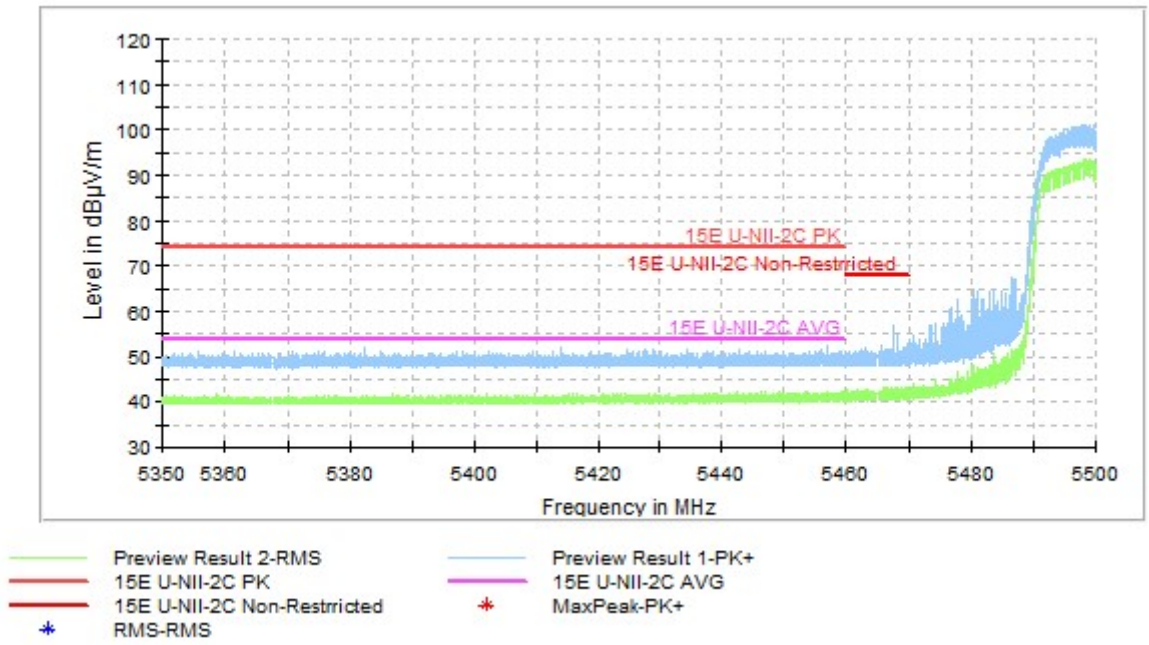


Fig.48 Band Edges (802.11ac-HT20 Ch100, 5500MHz)

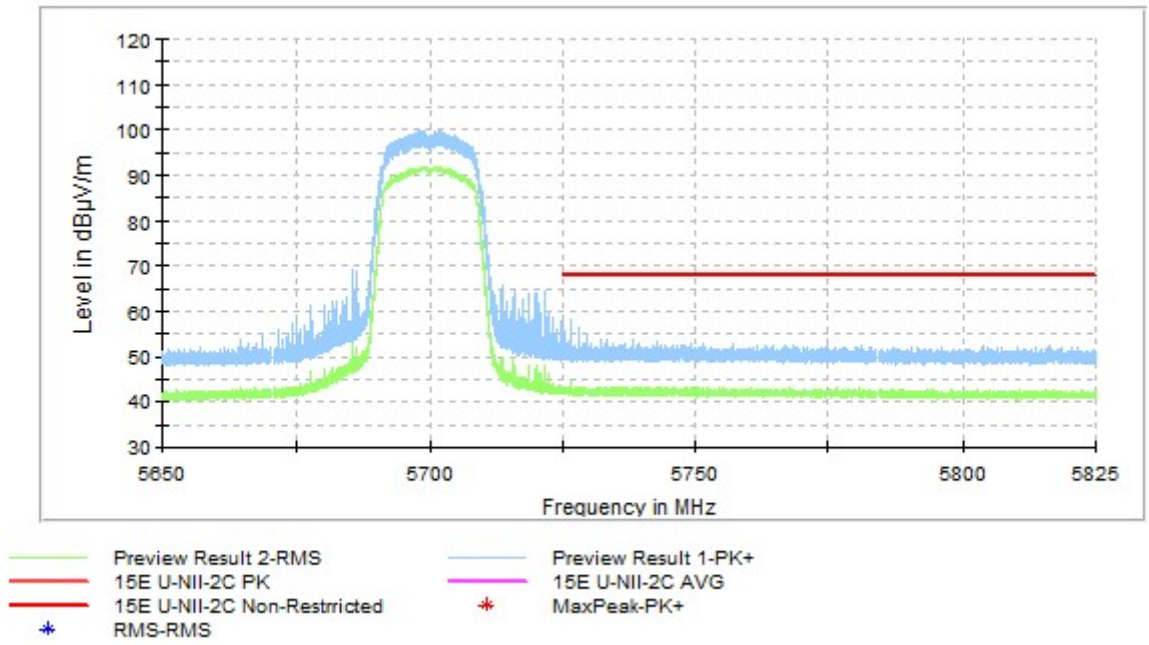


Fig.49 Band Edges (802.11ac-HT20 Ch140, 5700MHz)

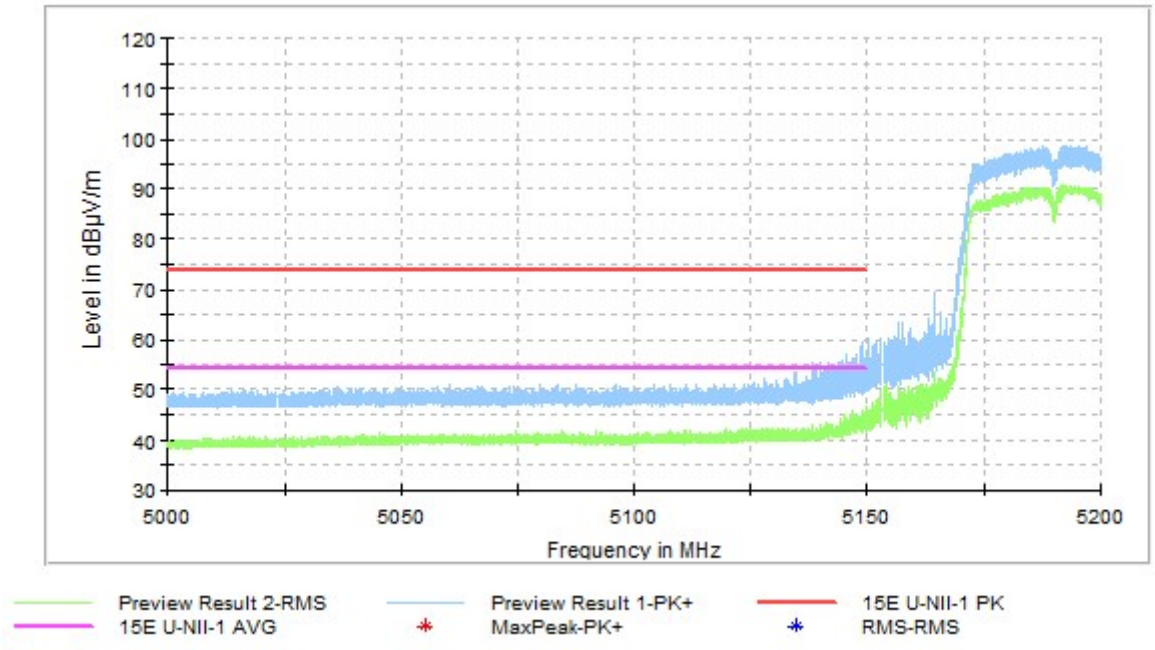


Fig.50 Band Edges (802.11ac-HT40 Ch38, 5190MHz)

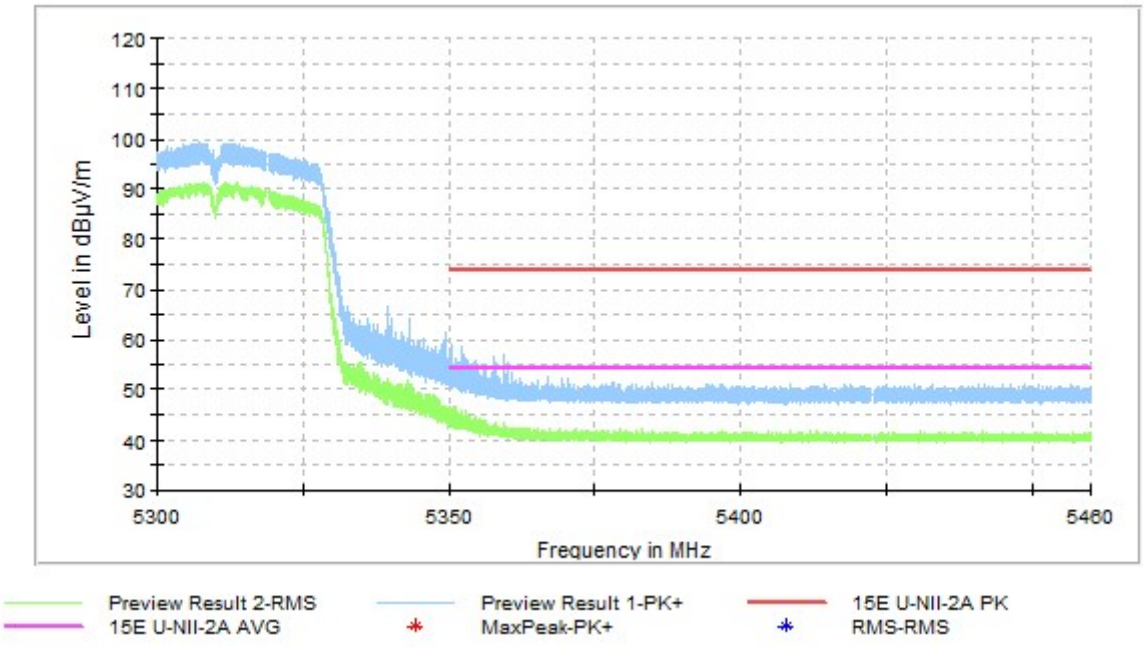


Fig.51 Band Edges (802.11ac-HT40 Ch62, 5310MHz)

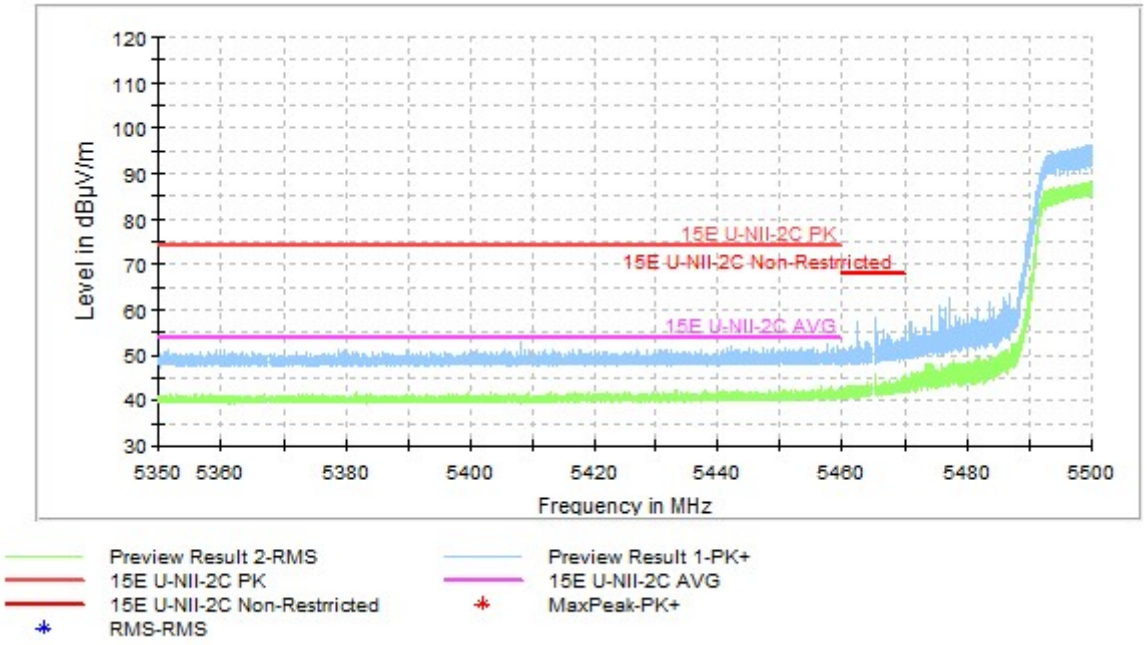


Fig.52 Band Edges (802.11ac-HT40 Ch102, 5510MHz)

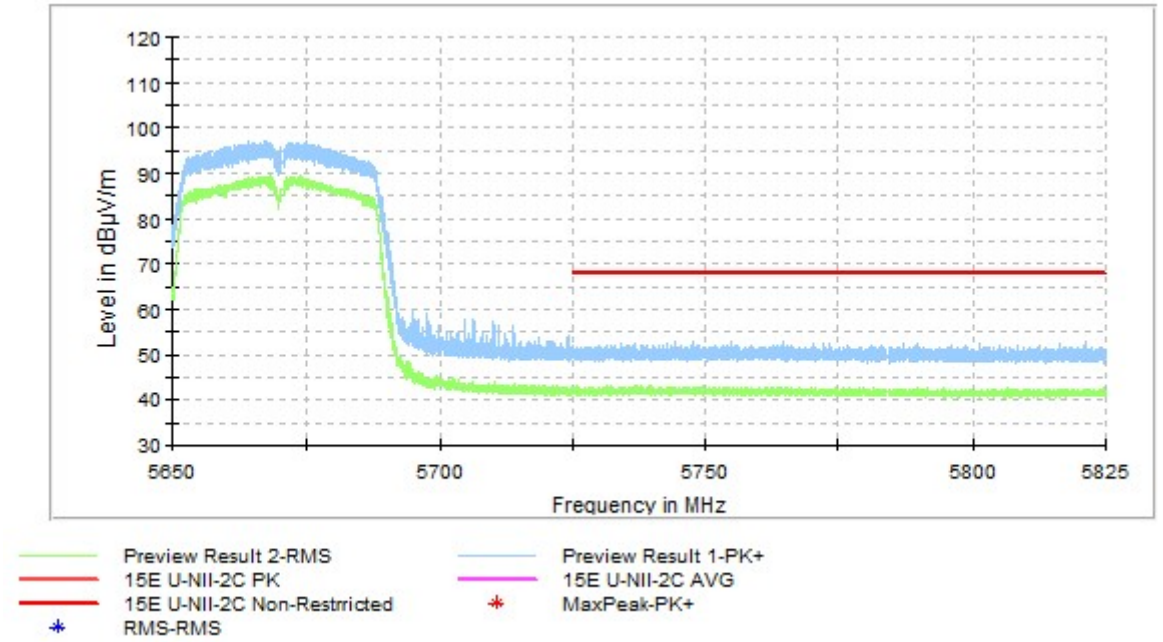


Fig.53 Band Edges (802.11ac-HT40 Ch134, 5670MHz)

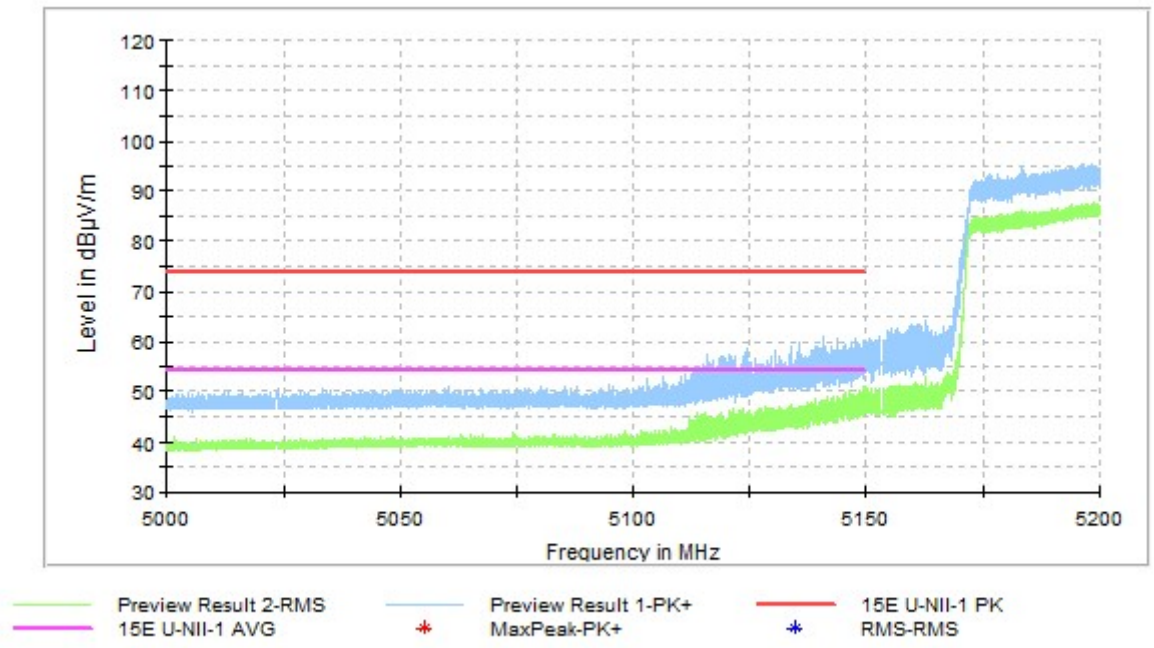


Fig.54 Band Edges (802.11ac-HT80 Ch42 , 5210MHz)

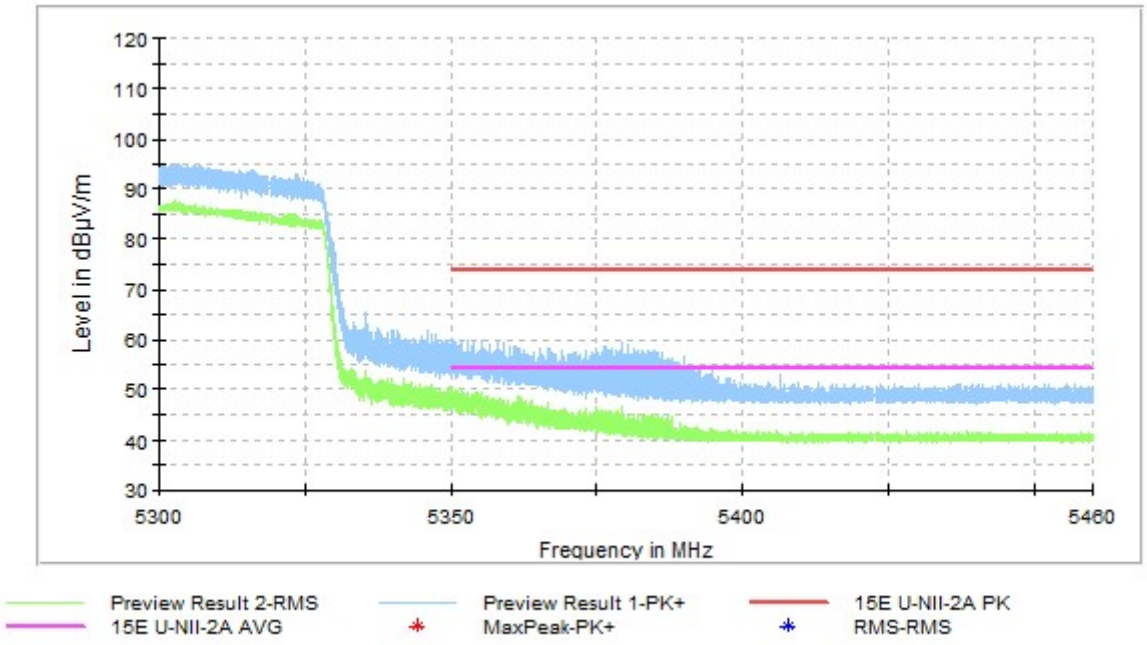


Fig.55 Band Edges (802.11ac-HT80 Ch58, 5290MHz)

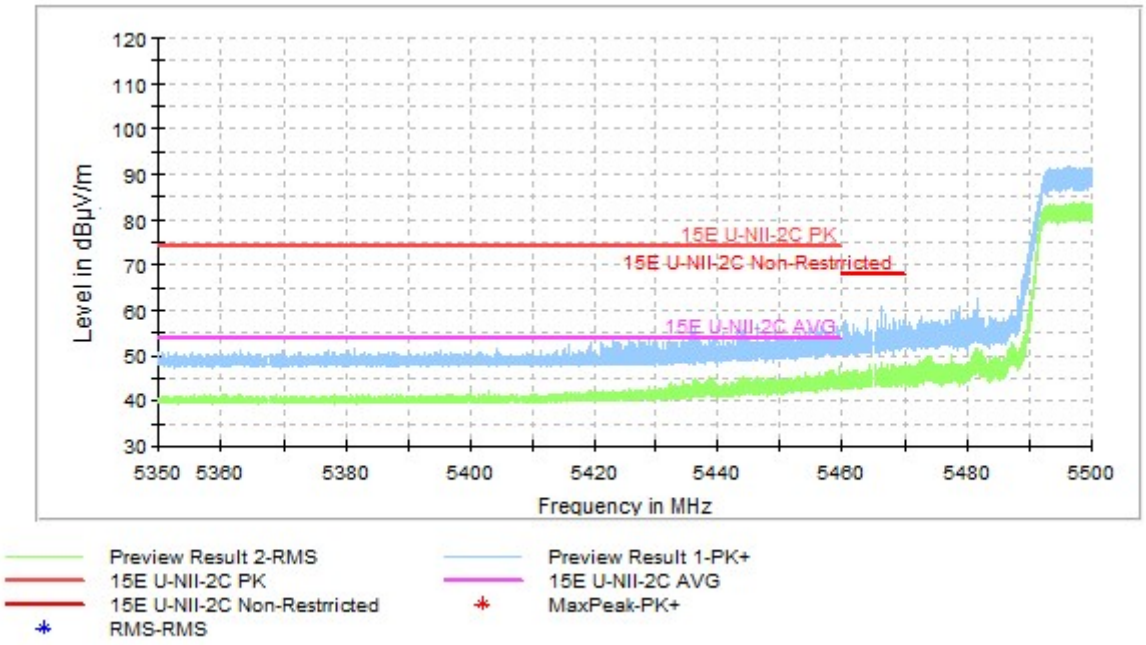


Fig.56 Band Edges (802.11ac-HT80 Ch106, 5530MHz)

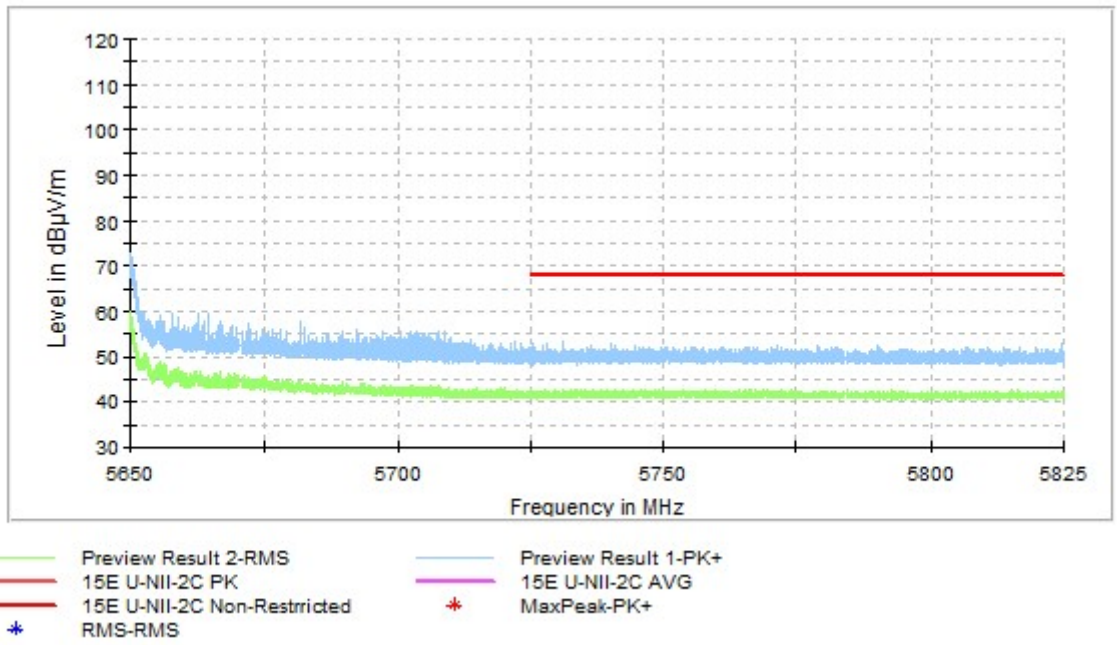


Fig.57 Band Edges (802.11ac-HT80 Ch122, 5610MHz)

A.6. Transmitter Spurious Emission

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.407	-27 dBm/MHz

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

Limit in restricted band:

Frequency (MHz)	Field strength(μV/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(uV/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

The measurement is made according to ANSI C63.10-2013 and KDB 789033

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=EIRP- 20log (*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

2. The measurement results are obtained as described below:

Result=P_{Mea}+$A_{RpI=}$ P_{Mea}+Cable Loss+Antenna Factor

A "reference path loss" is established and the A_{RpI} 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	36(5180MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	40(5200MHz)	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
	48(5240MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	52(5260MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	56(5280MHz)	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
	64(5320MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	100(5500MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	120(5600MHz)	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
	140(5700MHz)	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	36(5180MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	40(5200MHz)	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
	48(5240MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	52(5260MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	56(5280MHz)	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
	64(5320MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	100(5500MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	120(5600MHz)	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
	140(5700MHz)	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	38(5190MHz)	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
	46(5230MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	54(5270MHz)	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
	62(5310MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	102(5510MHz)	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
	118(5590MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	134(5670MHz)	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	36(5180MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	40(5200MHz)	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
	48(5240MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	52(5260MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	56(5280MHz)	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
	64(5320MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	100(5500MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	120(5600MHz)	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
	140(5700MHz)	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	38(5190MHz)	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
	46(5230MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	54(5270MHz)	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
	62(5310MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	102(5510MHz)	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
	118(5590MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	134(5670MHz)	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	42(5210MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	58(5290MHz)	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
	106(5530MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	122(5610MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P

Conclusion: PASS

AVERAGE Results:

802.11a

Channel 36

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)
17938.000	40.84	-25.50	46.66	19.68	54.00	13.16	H
17952.000	40.70	-25.50	46.66	19.54	54.00	13.30	V
12332.800	37.75	-31.10	38.94	29.91	54.00	16.25	H
12220.600	37.53	-31.43	38.99	29.97	54.00	16.47	H
5149.800	48.54	-27.61	33.67	42.48	54.00	5.46	V
5149.400	47.93	-27.61	33.67	41.87	54.00	6.07	V

Channel 40

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)
17976.500	40.64	-25.50	46.66	19.48	54.00	13.36	V
17863.600	40.47	-25.50	46.66	19.31	54.00	13.53	H
12331.700	37.52	-31.10	38.94	29.68	54.00	16.48	V
12292.100	37.47	-31.10	38.94	29.63	54.00	16.53	V
8241.900	33.54	-35.19	37.45	31.29	54.00	20.46	V
8339.400	33.52	-34.50	37.68	30.34	54.00	20.48	V

Channel 48

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)
17870.900	40.67	-25.50	46.66	19.51	54.00	13.33	H
17869.100	40.65	-25.50	46.66	19.49	54.00	13.35	V
12329.500	37.44	-31.10	38.94	29.60	54.00	16.56	H
12264.600	37.11	-31.43	38.99	29.55	54.00	16.89	H
8283.300	33.50	-34.97	37.56	30.90	54.00	20.50	V
9485.600	33.33	-33.19	37.93	28.60	54.00	20.67	V

Channel 52

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)
17973.600	40.76	-25.50	46.66	19.60	54.00	13.24	H
17964.400	40.66	-25.50	46.66	19.50	54.00	13.34	H
12292.100	37.60	-31.10	38.94	29.76	54.00	16.40	H
12264.600	37.23	-31.43	38.99	29.67	54.00	16.77	V
9045.600	34.23	-33.76	38.13	29.86	54.00	19.77	V
9118.600	33.99	-33.85	38.08	29.76	54.00	20.01	V

Channel 56

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)
17938.000	41.15	-25.50	46.66	19.99	54.00	12.85	V
17872.400	40.67	-25.50	46.66	19.51	54.00	13.33	V
12297.600	38.24	-31.10	38.94	30.40	54.00	15.76	H
12330.600	37.84	-31.10	38.94	30.00	54.00	16.16	H
9076.100	33.99	-33.76	38.13	29.62	54.00	20.01	V
8254.000	33.75	-34.97	37.56	31.15	54.00	20.25	H

Channel 64

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)
17960.400	40.65	-25.50	46.66	19.49	54.00	13.35	V
17972.500	40.56	-25.50	46.66	19.40	54.00	13.44	V
12331.700	37.96	-31.10	38.94	30.12	54.00	16.04	H
12331.300	37.16	-31.10	38.94	29.32	54.00	16.84	V
5350.300	47.88	-27.43	34.01	41.30	54.00	6.12	V
5350.400	47.66	-27.43	34.01	41.08	54.00	6.34	H

Channel 100

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)
17942.800	40.66	-25.50	46.66	19.50	54.00	13.34	H
17940.600	40.57	-25.50	46.66	19.41	54.00	13.43	V
12264.600	37.55	-31.43	38.99	29.99	54.00	16.45	H
12270.100	37.14	-31.43	38.99	29.58	54.00	16.86	V
5458.300	45.02	-27.18	34.17	38.03	54.00	8.98	H
5459.900	44.03	-27.18	34.17	37.04	54.00	9.97	H

Channel 120

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	40.72	-25.50	46.66	19.56	54.00	13.28	V
17866.500	40.54	-25.50	46.66	19.38	54.00	13.46	H
12265.300	38.02	-31.43	38.99	30.46	54.00	15.98	H
12261.700	37.37	-31.43	38.99	29.81	54.00	16.63	H
9041.200	34.15	-33.76	38.13	29.78	54.00	19.85	V
9075.300	33.85	-33.76	38.13	29.48	54.00	20.15	H

Channel 140

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)
17953.100	41.54	-25.50	46.66	20.38	54.00	12.46	H
17978.400	40.86	-25.50	46.66	19.70	54.00	13.14	H
12264.600	37.61	-31.43	38.99	30.05	54.00	16.39	V
12311.900	37.42	-31.10	38.94	29.58	54.00	16.58	V
9035.400	33.70	-33.76	38.13	29.33	54.00	20.30	V
9031.700	33.62	-33.76	38.13	29.25	54.00	20.38	V

Channel 144

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)
17818.500	41.04	-25.50	46.66	19.88	54.00	12.96	H
17940.600	41.01	-25.50	46.66	19.85	54.00	12.99	V
12297.600	37.39	-31.10	38.94	29.55	54.00	16.61	H
12326.900	37.28	-31.10	38.94	29.44	54.00	16.72	V
8282.200	34.60	-34.97	37.56	32.00	54.00	19.40	H
9051.500	34.22	-33.76	38.13	29.85	54.00	19.78	H

802.11n-HT20

Channel 36

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)
17870.900	40.76	-25.50	46.66	19.60	54.00	13.24	H
17862.900	40.69	-25.50	46.66	19.53	54.00	13.31	V
12330.600	37.39	-31.10	38.94	29.55	54.00	16.61	H
12328.400	37.03	-31.10	38.94	29.19	54.00	16.97	H
5148.200	48.69	-27.61	33.67	42.63	54.00	5.31	V
5149.200	48.49	-27.61	33.67	42.43	54.00	5.51	V

Channel 40

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)
17938.000	40.88	-25.50	46.66	19.72	54.00	13.12	H
17976.500	40.86	-25.50	46.66	19.70	54.00	13.14	H
12332.400	37.27	-31.10	38.94	29.43	54.00	16.73	H
12332.800	37.07	-31.10	38.94	29.23	54.00	16.93	V
9050.000	33.62	-33.76	38.13	29.25	54.00	20.38	V
9451.200	33.61	-32.95	37.91	28.64	54.00	20.39	V

Channel 48

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)
17864.700	40.92	-25.50	46.66	19.76	54.00	13.08	H
17973.600	40.69	-25.50	46.66	19.53	54.00	13.31	V
12332.800	37.40	-31.10	38.94	29.56	54.00	16.60	V
12329.500	37.25	-31.10	38.94	29.41	54.00	16.75	V
8238.600	33.73	-35.19	37.45	31.48	54.00	20.27	V
8209.600	33.63	-35.19	37.45	31.38	54.00	20.37	V

Channel 52

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)
17938.800	40.73	-25.50	46.66	19.57	54.00	13.27	V
17978.000	40.67	-25.50	46.66	19.51	54.00	13.33	H
12331.700	37.33	-31.10	38.94	29.49	54.00	16.67	H
12288.800	37.10	-31.10	38.94	29.26	54.00	16.90	H
8416.100	34.31	-34.35	37.79	30.87	54.00	19.69	H
9130.700	33.92	-33.85	38.08	29.69	54.00	20.08	H

Channel 56

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)
17941.000	40.90	-25.50	46.66	19.74	54.00	13.10	V
17979.100	40.78	-25.50	46.66	19.62	54.00	13.22	V
12332.800	37.28	-31.10	38.94	29.44	54.00	16.72	H
12265.700	37.19	-31.43	38.99	29.63	54.00	16.81	H
9050.000	33.85	-33.76	38.13	29.48	54.00	20.15	V
9480.500	33.78	-33.19	37.93	29.05	54.00	20.22	H

Channel 64

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)
17969.200	40.88	-25.50	46.66	19.72	54.00	13.12	H
17938.800	40.77	-25.50	46.66	19.61	54.00	13.23	V
12331.700	37.57	-31.10	38.94	29.73	54.00	16.43	H
12263.500	37.37	-31.43	38.99	29.81	54.00	16.63	V
5350.000	47.73	-27.43	34.01	41.15	54.00	6.27	H
5350.300	47.67	-27.43	34.01	41.09	54.00	6.33	H

Channel 100

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)
17979.800	41.13	-25.50	46.66	19.97	54.00	12.87	V
17938.000	40.94	-25.50	46.66	19.78	54.00	13.06	H
12293.900	37.67	-31.10	38.94	29.83	54.00	16.33	H
12332.400	37.47	-31.10	38.94	29.63	54.00	16.53	V
5459.800	44.66	-27.18	34.17	37.67	54.00	9.34	H
5459.200	44.44	-27.18	34.17	37.45	54.00	9.56	H

Channel 120

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)
17943.900	41.10	-25.50	46.66	19.94	54.00	12.90	H
17907.600	40.77	-25.50	46.66	19.61	54.00	13.23	V
12330.200	37.59	-31.10	38.94	29.75	54.00	16.41	V
12310.100	37.08	-31.10	38.94	29.24	54.00	16.92	V
8494.200	34.48	-34.13	37.86	30.74	54.00	19.52	V
8336.500	33.95	-34.50	37.68	30.77	54.00	20.05	H

Channel 140

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)
17974.300	40.73	-25.50	46.66	19.57	54.00	13.27	V
17971.000	40.48	-25.50	46.66	19.32	54.00	13.52	H
12296.500	37.10	-31.10	38.94	29.26	54.00	16.90	H
12327.700	37.01	-31.10	38.94	29.17	54.00	16.99	V
9163.000	33.75	-33.85	38.08	29.52	54.00	20.25	V
9066.900	33.71	-33.76	38.13	29.34	54.00	20.29	H

Channel 144

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)
17978.400	40.95	-25.50	46.66	19.79	54.00	13.05	V
17940.200	40.82	-25.50	46.66	19.66	54.00	13.18	H
12332.100	37.68	-31.10	38.94	29.84	54.00	16.32	H
12304.200	37.55	-31.10	38.94	29.71	54.00	16.45	H
9077.500	34.12	-33.76	38.13	29.75	54.00	19.88	V
9093.300	34.11	-33.76	38.13	29.74	54.00	19.89	H

802.11n-HT40

Channel 38

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)
17958.600	40.90	-25.50	46.66	19.74	54.00	13.10	V
17938.800	40.68	-25.50	46.66	19.52	54.00	13.32	H
12330.200	37.82	-31.10	38.94	29.98	54.00	16.18	V
12329.500	36.99	-31.10	38.94	29.15	54.00	17.01	V
5149.900	49.16	-27.61	33.67	43.10	54.00	4.84	H
5148.700	48.99	-27.61	33.67	42.93	54.00	5.01	H

Channel 46

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)
17872.400	40.79	-25.50	46.66	19.63	54.00	13.21	H
17911.300	40.71	-25.50	46.66	19.55	54.00	13.29	H
12329.500	37.74	-31.10	38.94	29.90	54.00	16.26	H
12331.700	37.64	-31.10	38.94	29.80	54.00	16.36	H
8321.800	34.33	-34.97	37.56	31.73	54.00	19.67	H
8363.300	34.13	-34.50	37.68	30.95	54.00	19.87	V

Channel 54

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)
17935.500	40.78	-25.50	46.66	19.62	54.00	13.22	V
17979.800	40.77	-25.50	46.66	19.61	54.00	13.23	V
12220.200	37.43	-31.43	38.99	29.87	54.00	16.57	H
12330.600	37.29	-31.10	38.94	29.45	54.00	16.71	H
9142.400	33.83	-33.85	38.08	29.60	54.00	20.17	H
9080.100	33.72	-33.76	38.13	29.35	54.00	20.28	H

Channel 62

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)
17847.100	40.83	-25.50	46.66	19.67	54.00	13.17	V
17888.900	40.61	-25.50	46.66	19.45	54.00	13.39	V
12268.300	37.32	-31.43	38.99	29.76	54.00	16.68	H
12332.400	37.25	-31.10	38.94	29.41	54.00	16.75	H
5350.600	51.80	-27.43	34.01	45.22	54.00	2.20	H
5351.100	51.66	-27.43	34.01	45.08	54.00	2.34	H

Channel 102

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)
17941.300	42.09	-25.50	46.66	20.93	54.00	11.91	V
17980.600	41.18	-25.50	46.66	20.02	54.00	12.82	H
12331.700	37.92	-31.10	38.94	30.08	54.00	16.08	H
12329.100	37.35	-31.10	38.94	29.51	54.00	16.65	H
5457.800	43.82	-27.18	34.17	36.83	54.00	10.18	V
5432.400	43.23	-27.18	34.17	36.24	54.00	10.77	H

Channel 118

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)
17769.700	41.46	-25.50	46.66	20.30	54.00	12.54	H
17977.600	41.33	-25.50	46.66	20.17	54.00	12.67	V
12222.100	37.38	-31.43	38.99	29.82	54.00	16.62	V
12265.300	37.33	-31.43	38.99	29.77	54.00	16.67	V
8280.400	34.16	-34.97	37.56	31.56	54.00	19.84	H
8328.100	33.77	-34.50	37.68	30.59	54.00	20.23	V

Channel 134

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)
17957.100	41.21	-25.50	46.66	20.05	54.00	12.79	V
17864.000	40.89	-25.50	46.66	19.73	54.00	13.11	H
12332.100	37.89	-31.10	38.94	30.05	54.00	16.11	H
12296.100	37.27	-31.10	38.94	29.43	54.00	16.73	V
9125.200	34.20	-33.85	38.08	29.97	54.00	19.80	V
9036.500	33.99	-33.76	38.13	29.62	54.00	20.01	H

Channel 142

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)
17937.300	41.72	-25.50	46.66	20.56	54.00	12.28	V
17931.400	40.68	-25.50	46.66	19.52	54.00	13.32	H
12332.400	37.54	-31.10	38.94	29.70	54.00	16.46	H
12219.900	37.35	-31.43	38.99	29.79	54.00	16.65	V
8379.800	34.11	-34.50	37.68	30.93	54.00	19.89	V
8318.200	33.98	-34.97	37.56	31.38	54.00	20.02	V

802.11ac-HT20

Channel 36

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	40.91	-25.50	46.66	19.75	54.00	13.09	H
17855.900	40.88	-25.50	46.66	19.72	54.00	13.12	V
12330.200	37.38	-31.10	38.94	29.54	54.00	16.62	H
12269.000	37.24	-31.43	38.99	29.68	54.00	16.76	V
5145.400	42.88	-27.61	33.67	36.82	54.00	11.12	V
5142.800	42.51	-27.61	33.67	36.45	54.00	11.49	V

Channel 40

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)
17978.700	41.01	-25.50	46.66	19.85	54.00	12.99	V
17973.600	40.66	-25.50	46.66	19.50	54.00	13.34	H
12264.600	37.18	-31.43	38.99	29.62	54.00	16.82	V
12215.500	36.87	-31.43	38.99	29.31	54.00	17.13	H
8320.000	34.97	-34.97	37.56	32.37	54.00	19.03	H
9094.000	34.00	-33.76	38.13	29.63	54.00	20.00	V

Channel 48

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)
17940.600	40.85	-25.50	46.66	19.69	54.00	13.15	H
17959.700	40.61	-25.50	46.66	19.45	54.00	13.39	V
12333.200	37.34	-31.10	38.94	29.50	54.00	16.66	V
12332.800	37.24	-31.10	38.94	29.40	54.00	16.76	V
9423.300	34.33	-32.95	37.91	29.36	54.00	19.67	H
9067.600	33.70	-33.76	38.13	29.33	54.00	20.30	H

Channel 52

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)
17979.100	40.73	-25.50	46.66	19.57	54.00	13.27	H
17956.400	40.54	-25.50	46.66	19.38	54.00	13.46	V
12330.200	37.25	-31.10	38.94	29.41	54.00	16.75	H
12332.100	37.15	-31.10	38.94	29.31	54.00	16.85	H
9038.300	33.52	-33.76	38.13	29.15	54.00	20.48	H
8485.700	33.50	-34.35	37.79	30.06	54.00	20.50	H

Channel 56

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)
17932.200	40.85	-25.50	46.66	19.69	54.00	13.15	V
17972.100	40.74	-25.50	46.66	19.58	54.00	13.26	V
12291.700	37.43	-31.10	38.94	29.59	54.00	16.57	H
12291.400	37.21	-31.10	38.94	29.37	54.00	16.79	V
8447.600	33.81	-34.35	37.79	30.37	54.00	20.19	H
9047.100	33.68	-33.76	38.13	29.31	54.00	20.32	H

Channel 64

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)
17938.800	40.66	-25.50	46.66	19.50	54.00	13.34	H
17975.100	40.51	-25.50	46.66	19.35	54.00	13.49	H
12332.800	37.22	-31.10	38.94	29.38	54.00	16.78	V
12287.700	37.14	-31.10	38.94	29.30	54.00	16.86	H
5351.400	44.00	-27.43	34.01	37.42	54.00	10.00	H
5351.300	43.59	-27.43	34.01	37.01	54.00	10.41	H

Channel 100

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)
17936.200	40.90	-25.50	46.66	19.74	54.00	13.10	H
17869.800	40.49	-25.50	46.66	19.33	54.00	13.51	V
12332.100	37.14	-31.10	38.94	29.30	54.00	16.86	V
12331.000	36.96	-31.10	38.94	29.12	54.00	17.04	H
5456.900	42.28	-27.18	34.17	35.29	54.00	11.72	H
5449.200	42.25	-27.18	34.17	35.26	54.00	11.75	H

Channel 120

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)
17941.300	40.79	-25.50	46.66	19.63	54.00	13.21	V
17934.700	40.74	-25.50	46.66	19.58	54.00	13.26	V
12331.000	37.85	-31.10	38.94	30.01	54.00	16.15	V
12330.200	37.16	-31.10	38.94	29.32	54.00	16.84	H
8486.500	33.98	-34.35	37.79	30.54	54.00	20.02	V
8222.500	33.89	-35.19	37.45	31.64	54.00	20.11	H

Channel 140

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)
17901.000	40.53	-25.50	46.66	19.37	54.00	13.47	H
17952.700	40.36	-25.50	46.66	19.20	54.00	13.64	V
12329.500	37.49	-31.10	38.94	29.65	54.00	16.51	H
12331.300	37.39	-31.10	38.94	29.55	54.00	16.61	V
8482.400	34.35	-34.35	37.79	30.91	54.00	19.65	V
9455.900	33.97	-32.95	37.91	29.00	54.00	20.03	H

Channel 144

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)
17907.600	41.07	-25.50	46.66	19.91	54.00	12.93	H
17937.300	40.71	-25.50	46.66	19.55	54.00	13.29	H
12014.200	37.59	-31.48	39.09	29.98	54.00	16.41	H
12332.800	37.53	-31.10	38.94	29.69	54.00	16.47	H
8494.200	34.07	-34.13	37.86	30.33	54.00	19.93	H
8493.100	33.75	-34.35	37.79	30.31	54.00	20.25	V

802.11ac-HT40

Channel 38

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)
17934.700	41.39	-25.50	46.66	20.23	54.00	12.61	H
17913.800	40.83	-25.50	46.66	19.67	54.00	13.17	V
12332.800	37.84	-31.10	38.94	30.00	54.00	16.16	H
12288.400	37.22	-31.10	38.94	29.38	54.00	16.78	V
5149.800	46.49	-27.61	33.67	40.43	54.00	7.51	H
5149.900	46.00	-27.61	33.67	39.94	54.00	8.00	H

Channel 46

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)
17908.700	41.40	-25.50	46.66	20.24	54.00	12.60	H
17864.000	41.15	-25.50	46.66	19.99	54.00	12.85	H
12328.000	37.78	-31.10	38.94	29.94	54.00	16.22	H
12263.500	37.48	-31.43	38.99	29.92	54.00	16.52	V
9060.300	34.14	-33.76	38.13	29.77	54.00	19.86	H
9044.900	34.06	-33.76	38.13	29.69	54.00	19.94	H

Channel 54

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)
17940.200	40.67	-25.50	46.66	19.51	54.00	13.33	H
17940.600	40.54	-25.50	46.66	19.38	54.00	13.46	H
12331.700	37.71	-31.10	38.94	29.87	54.00	16.29	V
12306.800	37.18	-31.10	38.94	29.34	54.00	16.82	H
9050.000	34.03	-33.76	38.13	29.66	54.00	19.97	V
8374.300	33.96	-34.50	37.68	30.78	54.00	20.04	H

Channel 62

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)
17935.800	41.07	-25.50	46.66	19.91	54.00	12.93	V
17931.400	41.03	-25.50	46.66	19.87	54.00	12.97	V
12331.000	37.27	-31.10	38.94	29.43	54.00	16.73	V
12330.200	37.14	-31.10	38.94	29.30	54.00	16.86	V
5350.700	46.95	-27.43	34.01	40.37	54.00	7.05	H
5350.900	46.56	-27.43	34.01	39.98	54.00	7.44	H

Channel 102

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)
17901.000	40.92	-25.50	46.66	19.76	54.00	13.08	H
17934.700	40.57	-25.50	46.66	19.41	54.00	13.43	V
12262.800	37.84	-31.43	38.99	30.28	54.00	16.16	V
12326.200	37.53	-31.10	38.94	29.69	54.00	16.47	V
5458.400	42.96	-27.18	34.17	35.97	54.00	11.04	H
5456.700	42.83	-27.18	34.17	35.84	54.00	11.17	H

Channel 118

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)
17979.800	41.40	-25.50	46.66	20.24	54.00	12.60	H
17932.200	41.15	-25.50	46.66	19.99	54.00	12.85	H
12333.200	37.43	-31.10	38.94	29.59	54.00	16.57	H
12298.300	37.23	-31.10	38.94	29.39	54.00	16.77	H
9088.500	34.50	-33.76	38.13	30.13	54.00	19.50	V
9066.200	33.91	-33.76	38.13	29.54	54.00	20.09	V

Channel 134

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)
17938.800	40.66	-25.50	46.66	19.50	54.00	13.34	V
17941.300	40.56	-25.50	46.66	19.40	54.00	13.44	H
12293.200	37.85	-31.10	38.94	30.01	54.00	16.15	H
12332.400	37.65	-31.10	38.94	29.81	54.00	16.35	H
9041.200	34.49	-33.76	38.13	30.12	54.00	19.51	V
9018.900	33.94	-33.76	38.13	29.57	54.00	20.06	H

Channel 142

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)
17978.700	40.59	-25.50	46.66	19.43	54.00	13.41	H
17888.200	40.52	-25.50	46.66	19.36	54.00	13.48	H
12331.700	37.91	-31.10	38.94	30.07	54.00	16.09	V
12306.000	37.23	-31.10	38.94	29.39	54.00	16.77	H
8494.500	34.17	-34.13	37.86	30.43	54.00	19.83	V
9084.500	33.85	-33.76	38.13	29.48	54.00	20.15	V

802.11ac-HT80

Channel 42

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)
17935.800	40.44	-25.50	46.66	19.28	54.00	13.56	V
17941.300	40.42	-25.50	46.66	19.26	54.00	13.58	H
12328.400	37.66	-31.10	38.94	29.82	54.00	16.34	H
12286.200	37.29	-31.10	38.94	29.45	54.00	16.71	H
8332.800	33.57	-34.50	37.68	30.39	54.00	20.43	H
9069.100	33.55	-33.76	38.13	29.18	54.00	20.45	V

Channel 58

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)
17963.700	40.73	-25.50	46.66	19.57	54.00	13.27	V
17974.300	40.52	-25.50	46.66	19.36	54.00	13.48	H
12331.700	37.52	-31.10	38.94	29.68	54.00	16.48	H
12332.800	37.52	-31.10	38.94	29.68	54.00	16.48	H
5351.700	50.09	-27.43	34.01	43.51	54.00	3.91	H
5351.100	49.87	-27.43	34.01	43.29	54.00	4.13	H

Channel 106

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)
17835.400	40.69	-25.50	46.66	19.53	54.00	13.31	V
17943.200	40.69	-25.50	46.66	19.53	54.00	13.31	V
12332.800	37.94	-31.10	38.94	30.10	54.00	16.06	V
12331.700	37.41	-31.10	38.94	29.57	54.00	16.59	H
5459.500	47.28	-27.18	34.17	40.29	54.00	6.72	H
5458.000	46.70	-27.18	34.17	39.71	54.00	7.30	H

Channel 138

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)
17870.900	40.91	-25.50	46.66	19.75	54.00	13.09	H
17843.400	40.59	-25.50	46.66	19.43	54.00	13.41	V
12331.300	37.33	-31.10	38.94	29.49	54.00	16.67	H
12225.700	37.04	-31.43	38.99	29.48	54.00	16.96	V
8497.100	33.90	-34.13	37.86	30.16	54.00	20.10	V
9051.500	33.74	-33.76	38.13	29.37	54.00	20.26	H

PEAK Results:

802.11a

Channel 36

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)
16864.100	49.61	-26.62	41.49	34.74	68.30	18.69	H
17931.100	49.05	-25.50	46.66	27.89	74.00	24.95	H
12332.800	46.44	-31.10	38.94	38.60	74.00	27.56	H
11797.800	45.70	-31.85	39.05	38.50	74.00	28.30	H
5149.800	62.79	-27.61	33.67	56.73	74.00	11.21	V
5146.800	62.24	-27.61	33.67	56.18	74.00	11.76	H

Channel 40

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)
16856.700	49.47	-26.62	41.49	34.60	68.30	18.83	V
17093.200	49.26	-26.60	43.36	32.50	68.30	19.04	V
12331.700	46.75	-31.10	38.94	38.91	74.00	27.25	V
12332.800	45.95	-31.10	38.94	38.11	74.00	28.05	V
10105.300	43.16	-33.45	38.13	38.48	68.30	25.14	V
10295.200	43.07	-33.68	38.17	38.57	68.30	25.23	H

Channel 48

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)
17864.700	49.46	-25.50	46.66	28.30	74.00	24.54	V
17983.900	49.44	-25.50	46.66	28.28	74.00	24.56	H
12331.300	45.32	-31.10	38.94	37.48	74.00	28.68	H
12300.900	45.23	-31.10	38.94	37.39	74.00	28.77	V
10083.300	43.09	-33.45	38.13	38.41	68.30	25.21	H
9042.000	43.02	-33.76	38.13	38.65	74.00	30.98	V

Channel 52

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)
17956.000	49.39	-25.50	46.66	28.23	74.00	24.61	H
17275.800	49.01	-25.95	44.35	30.60	68.30	19.29	H
12331.300	45.68	-31.10	38.94	37.84	74.00	28.32	H
12289.200	45.60	-31.10	38.94	37.76	74.00	28.40	V
10165.100	44.08	-33.33	38.15	39.26	68.30	24.22	H
10018.000	43.84	-33.63	38.11	39.36	68.30	24.46	H

Channel 56

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)
17949.800	49.48	-25.50	46.66	28.32	74.00	24.52	V
17318.000	49.44	-25.95	44.35	31.03	68.30	18.86	H
12332.100	46.60	-31.10	38.94	38.76	74.00	27.40	H
11770.000	45.99	-31.99	38.98	39.00	74.00	28.01	H
10062.000	43.48	-33.45	38.13	38.80	68.30	24.82	H
8808.000	43.44	-33.90	38.07	39.27	68.30	24.86	V

Channel 64

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)
17966.300	49.40	-25.50	46.66	28.24	74.00	24.60	V
17857.000	49.27	-25.50	46.66	28.11	74.00	24.73	H
12309.700	45.79	-31.10	38.94	37.95	74.00	28.21	V
12256.900	45.68	-31.43	38.99	38.12	74.00	28.32	H
5350.300	63.74	-27.43	34.01	57.16	74.00	10.26	V
5350.100	63.15	-27.43	34.01	56.57	74.00	10.85	H

Channel 100

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)
16973.000	49.18	-26.32	42.36	33.13	68.30	19.12	H
17941.000	49.14	-25.50	46.66	27.98	74.00	24.86	H
12292.800	45.73	-31.10	38.94	37.89	74.00	28.27	H
12311.500	45.62	-31.10	38.94	37.78	74.00	28.38	V
5458.300	59.45	-27.18	34.17	52.46	74.00	14.55	H
5469.600	62.09	-27.18	34.17	55.10	68.30	6.21	H

Channel 120

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)
16971.900	49.60	-26.32	42.36	33.55	68.30	18.70	H
17319.800	49.59	-25.95	44.35	31.18	68.30	18.71	H
12265.300	45.39	-31.43	38.99	37.83	74.00	28.61	H
12261.300	45.29	-31.43	38.99	37.73	74.00	28.71	V
10254.900	43.16	-33.33	38.15	38.34	68.30	25.14	V
10122.900	43.12	-33.45	38.13	38.44	68.30	25.18	H

Channel 140

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)
17978.400	49.76	-25.50	46.66	28.60	74.00	24.24	H
17799.400	49.24	-25.50	46.66	28.08	74.00	24.76	H
12307.100	45.77	-31.10	38.94	37.93	74.00	28.23	V
12309.700	45.46	-31.10	38.94	37.62	74.00	28.54	H
5725.400	64.73	-27.07	34.31	57.49	68.30	3.57	H
5726.300	64.73	-27.07	34.31	57.49	68.30	3.57	H

Channel 144

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)
17945.400	48.97	-25.50	46.66	27.81	74.00	25.03	V
17826.200	48.84	-25.50	46.66	27.68	74.00	25.16	H
12300.200	47.04	-31.10	38.94	39.20	74.00	26.96	V
12258.400	46.19	-31.43	38.99	38.63	74.00	27.81	H
9764.700	43.90	-33.52	38.05	39.37	68.30	24.40	V
10102.700	43.56	-33.45	38.13	38.88	68.30	24.74	H

802.11n-HT20

Channel 36

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)
17985.300	49.55	-25.50	46.66	28.39	74.00	24.45	V
17876.400	49.47	-25.50	46.66	28.31	74.00	24.53	V
12333.200	45.62	-31.10	38.94	37.78	74.00	28.38	H
12221.300	45.45	-31.43	38.99	37.89	74.00	28.55	V
5150.000	62.44	-27.61	33.67	56.38	74.00	11.56	V
5149.900	62.20	-27.61	33.67	56.14	74.00	11.80	V

Channel 40

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)
17954.900	49.68	-25.50	46.66	28.52	74.00	24.32	H
17870.600	49.24	-25.50	46.66	28.08	74.00	24.76	V
12320.300	45.66	-31.10	38.94	37.82	74.00	28.34	H
12332.800	45.53	-31.10	38.94	37.69	74.00	28.47	V
10132.400	43.16	-33.45	38.13	38.48	68.30	25.14	H
8360.000	42.80	-34.50	37.68	39.62	74.00	31.20	V

Channel 48

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)
17431.300	49.69	-26.85	45.25	31.29	68.30	18.61	V
17118.500	49.23	-26.60	43.36	32.47	68.30	19.07	H
12332.100	46.17	-31.10	38.94	38.33	74.00	27.83	H
12331.700	46.16	-31.10	38.94	38.32	74.00	27.84	H
8922.100	43.49	-33.54	38.14	38.88	68.30	24.81	H
9560.400	43.35	-33.19	37.93	38.62	68.30	24.95	H

Channel 52

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)
17930.700	49.36	-25.50	46.66	28.20	74.00	24.64	H
17341.800	49.03	-25.95	44.35	30.62	68.30	19.27	H
12287.300	46.07	-31.10	38.94	38.23	74.00	27.93	V
12029.200	45.72	-31.48	39.09	38.11	74.00	28.28	H
10247.900	43.80	-33.33	38.15	38.98	68.30	24.50	H
10115.200	43.48	-33.45	38.13	38.80	68.30	24.82	V

Channel 56

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)
17982.400	49.86	-25.50	46.66	28.70	74.00	24.14	H
17821.800	49.74	-25.50	46.66	28.58	74.00	24.26	H
12264.600	45.86	-31.43	38.99	38.30	74.00	28.14	H
12294.700	45.53	-31.10	38.94	37.69	74.00	28.47	V
10249.800	43.81	-33.33	38.15	38.99	68.30	24.49	H
10066.100	43.52	-33.45	38.13	38.84	68.30	24.78	V

Channel 64

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)
17908.700	49.14	-25.50	46.66	27.98	74.00	24.86	H
16869.600	49.03	-26.62	41.49	34.16	68.30	19.27	V
12265.700	46.16	-31.43	38.99	38.60	74.00	27.84	V
12194.600	45.85	-31.43	38.99	38.29	74.00	28.15	H
5350.400	64.09	-27.43	34.01	57.51	74.00	9.91	H
5350.200	63.37	-27.43	34.01	56.79	74.00	10.63	V

Channel 100

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)
17950.500	50.04	-25.50	46.66	28.88	74.00	23.96	H
15917.700	49.66	-27.35	38.54	38.47	74.00	24.34	H
12304.200	45.50	-31.10	38.94	37.66	74.00	28.50	V
12190.500	45.40	-31.43	38.99	37.84	74.00	28.60	V
5459.800	56.83	-27.18	34.17	49.84	74.00	17.17	H
5469.700	63.78	-27.18	34.17	56.79	68.30	4.52	H

Channel 120

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)
17951.600	49.07	-25.50	46.66	27.91	74.00	24.93	V
17976.900	48.98	-25.50	46.66	27.82	74.00	25.02	H
12310.100	46.14	-31.10	38.94	38.30	74.00	27.86	V
12311.500	45.83	-31.10	38.94	37.99	74.00	28.17	H
9987.200	43.79	-33.63	38.11	39.31	68.30	24.51	V
8265.700	43.70	-34.97	37.56	41.10	74.00	30.30	H

Channel 140

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)
17935.500	49.93	-25.50	46.66	28.77	74.00	24.07	V
16825.600	49.22	-26.62	41.49	34.35	68.30	19.08	H
12332.400	46.17	-31.10	38.94	38.33	74.00	27.83	H
12311.200	45.69	-31.10	38.94	37.85	74.00	28.31	V
5725.100	63.42	-27.07	34.31	56.18	68.30	4.88	V
5727.300	62.92	-27.07	34.31	55.68	68.30	5.38	H

Channel 144

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)
17157.800	49.71	-26.60	43.36	32.95	68.30	18.59	V
17864.000	49.53	-25.50	46.66	28.37	74.00	24.47	V
12332.100	46.39	-31.10	38.94	38.55	74.00	27.61	H
11605.000	46.09	-32.31	38.91	39.50	74.00	27.91	V
10110.800	44.08	-33.45	38.13	39.40	68.30	24.22	H
10182.300	43.58	-33.33	38.15	38.76	68.30	24.72	V

802.11n-HT40

Channel 38

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)
17927.800	49.76	-25.50	46.66	28.60	74.00	24.24	V
17340.400	49.57	-25.95	44.35	31.16	68.30	18.73	V
12175.100	46.44	-31.43	38.99	38.88	74.00	27.56	V
11994.400	46.20	-31.48	39.09	38.59	74.00	27.80	H
5149.900	64.72	-27.61	33.67	58.66	74.00	9.28	H
5149.600	64.41	-27.61	33.67	58.35	74.00	9.59	H

Channel 46

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)
17939.900	49.92	-25.50	46.66	28.76	74.00	24.08	V
17942.800	49.60	-25.50	46.66	28.44	74.00	24.40	V
12331.700	46.69	-31.10	38.94	38.85	74.00	27.31	H
12237.100	46.18	-31.43	38.99	38.62	74.00	27.82	V
10102.400	43.90	-33.45	38.13	39.22	68.30	24.40	V
10145.600	43.65	-33.45	38.13	38.97	68.30	24.65	V

Channel 54

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)
17943.500	49.86	-25.50	46.66	28.70	74.00	24.14	V
17976.900	49.22	-25.50	46.66	28.06	74.00	24.78	H
12289.900	45.90	-31.10	38.94	38.06	74.00	28.10	H
12291.000	45.76	-31.10	38.94	37.92	74.00	28.24	H
10154.400	43.48	-33.45	38.13	38.80	68.30	24.82	V
9990.200	43.41	-33.63	38.11	38.93	68.30	24.89	V

Channel 62

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)
17959.300	49.73	-25.50	46.66	28.57	74.00	24.27	V
17979.800	49.53	-25.50	46.66	28.37	74.00	24.47	V
12310.100	46.04	-31.10	38.94	38.20	74.00	27.96	V
12286.600	45.89	-31.10	38.94	38.05	74.00	28.11	H
5350.300	65.81	-27.43	34.01	59.23	74.00	8.19	H
5350.600	65.72	-27.43	34.01	59.14	74.00	8.28	H

Channel 102

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)
17900.600	50.06	-25.50	46.66	28.90	74.00	23.94	H
17948.700	49.73	-25.50	46.66	28.57	74.00	24.27	H
12332.800	46.12	-31.10	38.94	38.28	74.00	27.88	H
12331.300	46.06	-31.10	38.94	38.22	74.00	27.94	H
5457.600	56.70	-27.18	34.17	49.71	74.00	17.30	H
5469.600	63.90	-27.18	34.17	56.91	68.30	4.40	V

Channel 118

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)
17616.100	49.34	-25.74	45.95	29.13	68.30	18.96	V
17939.100	49.34	-25.50	46.66	28.18	74.00	24.66	V
12016.700	46.09	-31.48	39.09	38.48	74.00	27.91	H
12011.200	45.97	-31.48	39.09	38.36	74.00	28.03	H
8913.600	43.66	-33.54	38.14	39.05	68.30	24.64	V
10219.300	43.22	-33.33	38.15	38.40	68.30	25.08	H

Channel 134

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)
17936.600	50.48	-25.50	46.66	29.32	74.00	23.52	H
17906.500	49.72	-25.50	46.66	28.56	74.00	24.28	H
12216.200	46.67	-31.43	38.99	39.11	74.00	27.33	H
12080.200	45.96	-31.59	39.04	38.51	74.00	28.04	H
5736.000	59.18	-27.07	34.31	51.94	68.30	9.12	H
5736.300	58.94	-27.07	34.31	51.70	68.30	9.36	V

Channel 142

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)
17972.100	49.67	-25.50	46.66	28.51	74.00	24.33	H
17931.400	49.49	-25.50	46.66	28.33	74.00	24.51	H
12289.500	45.88	-31.10	38.94	38.04	74.00	28.12	V
12222.400	45.61	-31.43	38.99	38.05	74.00	28.39	V
10090.300	43.96	-33.45	38.13	39.28	68.30	24.34	V
9894.800	43.54	-33.48	38.08	38.94	68.30	24.76	V

802.11ac-HT20

Channel 36

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)
16912.100	49.30	-26.32	42.36	33.25	68.30	19.00	H
17275.100	48.97	-25.95	44.35	30.56	68.30	19.33	V
12267.500	45.67	-31.43	38.99	38.11	74.00	28.33	V
12269.000	45.52	-31.43	38.99	37.96	74.00	28.48	V
5146.100	54.70	-27.61	33.67	48.64	74.00	19.30	H
5148.600	54.00	-27.61	33.67	47.94	74.00	20.00	V

Channel 40

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)
17983.900	49.07	-25.50	46.66	27.91	74.00	24.93	V
17927.400	49.06	-25.50	46.66	27.90	74.00	24.94	H
12223.500	45.98	-31.43	38.99	38.42	74.00	28.02	H
12221.000	45.88	-31.43	38.99	38.32	74.00	28.12	H
10078.200	43.05	-33.45	38.13	38.37	68.30	25.25	H
8864.100	42.94	-33.54	38.14	38.33	68.30	25.36	H

Channel 48

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)
16836.200	49.26	-26.62	41.49	34.39	68.30	19.04	H
17833.500	49.10	-25.50	46.66	27.94	74.00	24.90	H
12221.300	45.44	-31.43	38.99	37.88	74.00	28.56	H
11154.300	45.38	-32.60	38.75	39.24	74.00	28.62	V
10169.500	43.54	-33.33	38.15	38.72	68.30	24.76	V
9595.300	43.34	-33.06	37.97	38.43	68.30	24.96	V

Channel 52

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)
17937.700	49.51	-25.50	46.66	28.35	74.00	24.49	H
17047.000	49.36	-26.60	43.36	32.60	68.30	18.94	V
12229.000	45.83	-31.43	38.99	38.27	74.00	28.17	H
12331.300	45.82	-31.10	38.94	37.98	74.00	28.18	V
10263.700	43.31	-33.68	38.17	38.81	68.30	24.99	H
8916.900	42.96	-33.54	38.14	38.35	68.30	25.34	V

Channel 56

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)
17931.100	49.18	-25.50	46.66	28.02	74.00	24.82	V
17842.000	49.01	-25.50	46.66	27.85	74.00	24.99	H
12329.100	46.05	-31.10	38.94	38.21	74.00	27.95	V
12310.800	45.94	-31.10	38.94	38.10	74.00	28.06	H
9547.600	43.21	-33.19	37.93	38.48	68.30	25.09	V
10016.200	43.16	-33.63	38.11	38.68	68.30	25.14	V

Channel 64

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)
17611.000	49.62	-25.74	45.95	29.41	68.30	18.68	H
17854.400	49.52	-25.50	46.66	28.36	74.00	24.48	V
12329.900	45.61	-31.10	38.94	37.77	74.00	28.39	V
12332.800	45.41	-31.10	38.94	37.57	74.00	28.59	V
5351.300	55.87	-27.43	34.01	49.29	74.00	18.13	H
5350.300	53.28	-27.43	34.01	46.70	74.00	20.72	H

Channel 100

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)
17885.200	49.42	-25.50	46.66	28.26	74.00	24.58	V
17942.400	49.27	-25.50	46.66	28.11	74.00	24.73	H
12309.700	46.08	-31.10	38.94	38.24	74.00	27.92	V
12260.900	45.92	-31.43	38.99	38.36	74.00	28.08	V
5456.900	52.42	-27.18	34.17	45.43	74.00	21.58	H
5467.300	56.78	-27.18	34.17	49.79	68.30	11.52	H

Channel 120

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)
17868.700	49.82	-25.50	46.66	28.66	74.00	24.18	H
16814.600	49.18	-26.62	41.49	34.31	68.30	19.12	V
12077.600	45.80	-31.59	39.04	38.35	74.00	28.20	V
12292.500	45.59	-31.10	38.94	37.75	74.00	28.41	V
10280.200	43.21	-33.68	38.17	38.71	68.30	25.09	V
10113.700	43.10	-33.45	38.13	38.42	68.30	25.20	H

Channel 140

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)
17968.500	49.53	-25.50	46.66	28.37	74.00	24.47	V
17620.100	49.29	-25.74	45.95	29.08	68.30	19.01	V
12332.100	46.39	-31.10	38.94	38.55	74.00	27.61	V
12264.200	45.86	-31.43	38.99	38.30	74.00	28.14	V
5726.500	58.49	-27.07	34.31	51.25	68.30	9.81	H
5726.400	57.75	-27.07	34.31	50.51	68.30	10.55	H

Channel 144

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)
17932.900	49.75	-25.50	46.66	28.59	74.00	24.25	H
16869.900	49.39	-26.62	41.49	34.52	68.30	18.91	H
12220.600	45.99	-31.43	38.99	38.43	74.00	28.01	V
12231.200	45.61	-31.43	38.99	38.05	74.00	28.39	H
10150.000	44.00	-33.45	38.13	39.32	68.30	24.30	V
10136.500	43.92	-33.45	38.13	39.24	68.30	24.38	H

802.11ac-HT40

Channel 38

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)
17934.700	50.28	-25.50	46.66	29.12	74.00	23.72	H
17985.000	49.28	-25.50	46.66	28.12	74.00	24.72	H
12327.300	45.51	-31.10	38.94	37.67	74.00	28.49	H
12262.400	45.39	-31.43	38.99	37.83	74.00	28.61	V
5149.200	59.36	-27.61	33.67	53.30	74.00	14.64	H
5148.900	58.68	-27.61	33.67	52.62	74.00	15.32	H

Channel 46

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)
17773.800	49.86	-25.50	46.66	28.70	74.00	24.14	V
17020.300	49.78	-26.32	42.36	33.73	68.30	18.52	H
12308.600	47.02	-31.10	38.94	39.18	74.00	26.98	H
12294.700	46.51	-31.10	38.94	38.67	74.00	27.49	H
10109.700	43.44	-33.45	38.13	38.76	68.30	24.86	V
10102.400	43.40	-33.45	38.13	38.72	68.30	24.90	H

Channel 54

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)
17940.200	49.33	-25.50	46.66	28.17	74.00	24.67	H
17934.400	49.27	-25.50	46.66	28.11	74.00	24.73	V
12264.600	46.49	-31.43	38.99	38.93	74.00	27.51	H
12329.100	45.74	-31.10	38.94	37.90	74.00	28.26	H
10267.700	43.35	-33.68	38.17	38.85	68.30	24.95	V
10183.800	43.27	-33.33	38.15	38.45	68.30	25.03	H

Channel 62

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)
17935.100	49.19	-25.50	46.66	28.03	74.00	24.81	H
17835.000	49.14	-25.50	46.66	27.98	74.00	24.86	H
12263.900	46.32	-31.43	38.99	38.76	74.00	27.68	H
12008.300	45.55	-31.48	39.09	37.94	74.00	28.45	H
5350.200	58.86	-27.43	34.01	52.28	74.00	15.14	H
5352.000	58.53	-27.43	34.01	51.95	74.00	15.47	H

Channel 102

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)
17903.200	49.91	-25.50	46.66	28.75	74.00	24.09	H
17979.500	49.76	-25.50	46.66	28.60	74.00	24.24	V
12263.900	46.26	-31.43	38.99	38.70	74.00	27.74	H
12329.500	45.98	-31.10	38.94	38.14	74.00	28.02	V
5408.100	52.84	-27.36	34.09	46.12	74.00	21.16	H
5465.200	58.48	-27.18	34.17	51.49	68.30	9.82	H

Channel 118

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)
17912.000	49.76	-25.50	46.66	28.60	74.00	24.24	H
17004.900	49.27	-26.32	42.36	33.22	68.30	19.03	H
12194.900	45.75	-31.43	38.99	38.19	74.00	28.25	V
12290.600	45.68	-31.10	38.94	37.84	74.00	28.32	H
8889.400	43.39	-33.54	38.14	38.78	68.30	24.91	H
9579.100	43.02	-33.06	37.97	38.11	68.30	25.28	H

Channel 134

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)
17909.400	49.38	-25.50	46.66	28.22	74.00	24.62	V
17859.900	49.26	-25.50	46.66	28.10	74.00	24.74	V
12331.300	46.53	-31.10	38.94	38.69	74.00	27.47	V
12293.600	45.95	-31.10	38.94	38.11	74.00	28.05	H
5754.900	52.85	-27.07	34.31	45.61	68.30	15.45	V
5821.100	52.72	-27.07	34.35	45.43	68.30	15.58	V

Channel 142

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)
17864.700	50.20	-25.50	46.66	29.04	74.00	23.80	H
17977.300	49.89	-25.50	46.66	28.73	74.00	24.11	V
12332.400	46.27	-31.10	38.94	38.43	74.00	27.73	H
12296.100	46.21	-31.10	38.94	38.37	74.00	27.79	V
10140.100	43.76	-33.45	38.13	39.08	68.30	24.54	V
10251.600	43.68	-33.33	38.15	38.86	68.30	24.62	V

802.11ac-HT80

Channel 42

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)
17683.600	49.81	-25.74	45.95	29.60	68.30	18.49	H
17839.400	49.27	-25.50	46.66	28.11	74.00	24.73	H
12309.000	46.08	-31.10	38.94	38.24	74.00	27.92	V
12260.600	45.69	-31.43	38.99	38.13	74.00	28.31	H
10114.800	43.77	-33.45	38.13	39.09	68.30	24.53	H
10152.600	42.96	-33.45	38.13	38.28	68.30	25.34	H

Channel 58

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)
17982.800	49.56	-25.50	46.66	28.40	74.00	24.44	V
17088.100	49.36	-26.60	43.36	32.60	68.30	18.94	V
12309.700	45.99	-31.10	38.94	38.15	74.00	28.01	H
12291.700	45.88	-31.10	38.94	38.04	74.00	28.12	V
5351.700	59.89	-27.43	34.01	53.31	74.00	14.11	H
5350.400	59.70	-27.43	34.01	53.12	74.00	14.30	H

Channel 106

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)
17975.100	49.24	-25.50	46.66	28.08	74.00	24.76	V
17913.100	49.18	-25.50	46.66	28.02	74.00	24.82	V
12194.200	46.15	-31.43	38.99	38.59	74.00	27.85	H
11764.100	45.50	-31.99	38.98	38.51	74.00	28.50	V
5458.700	57.05	-27.18	34.17	50.06	74.00	16.95	H
5466.200	60.74	-27.18	34.17	53.75	68.30	7.56	H

Channel 138

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)
17976.200	49.18	-25.50	46.66	28.02	74.00	24.82	H
17837.200	49.08	-25.50	46.66	27.92	74.00	24.92	V
12331.300	46.44	-31.10	38.94	38.60	74.00	27.56	H
12288.100	46.23	-31.10	38.94	38.39	74.00	27.77	H
10125.100	43.49	-33.45	38.13	38.81	68.30	24.81	V
8910.700	43.24	-33.54	38.14	38.63	68.30	25.06	H

Note:

1. The spurious emission above 18G is noise only.
2. All emissions below 30MHz are more than 20 dB below the limit

A.7. AC Powerline Conducted Emission (150kHz- 30MHz)

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.

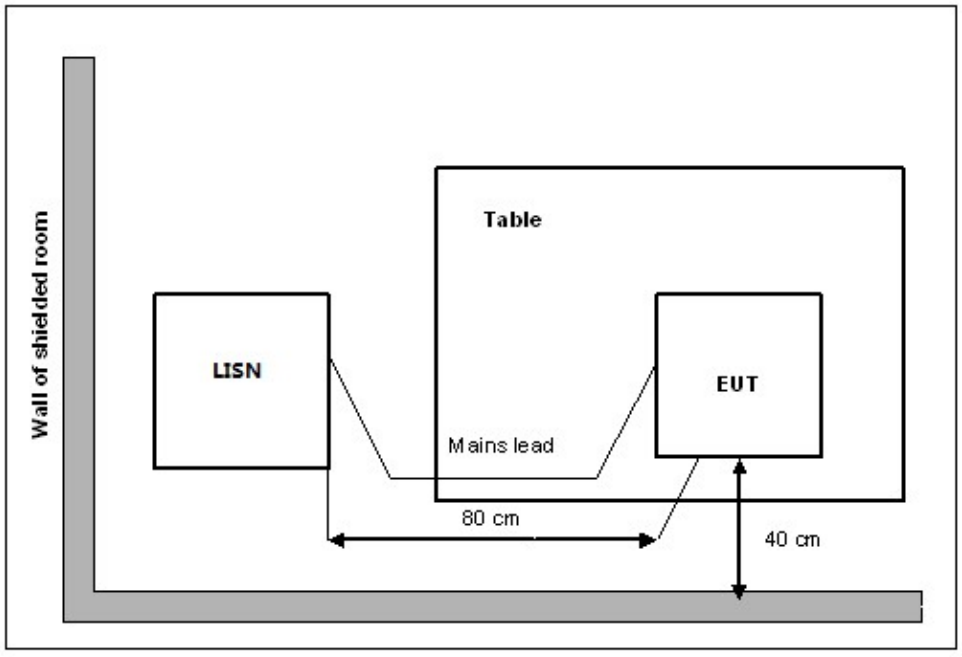
The measurement bandwidth is:

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.58	Fig.59	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	67 56 to 46	Fig.58	Fig.59	P
0.5 to 5	46			
5 to 30	50			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

Conclusion: PASS

Test graphs as below:

Traffic:

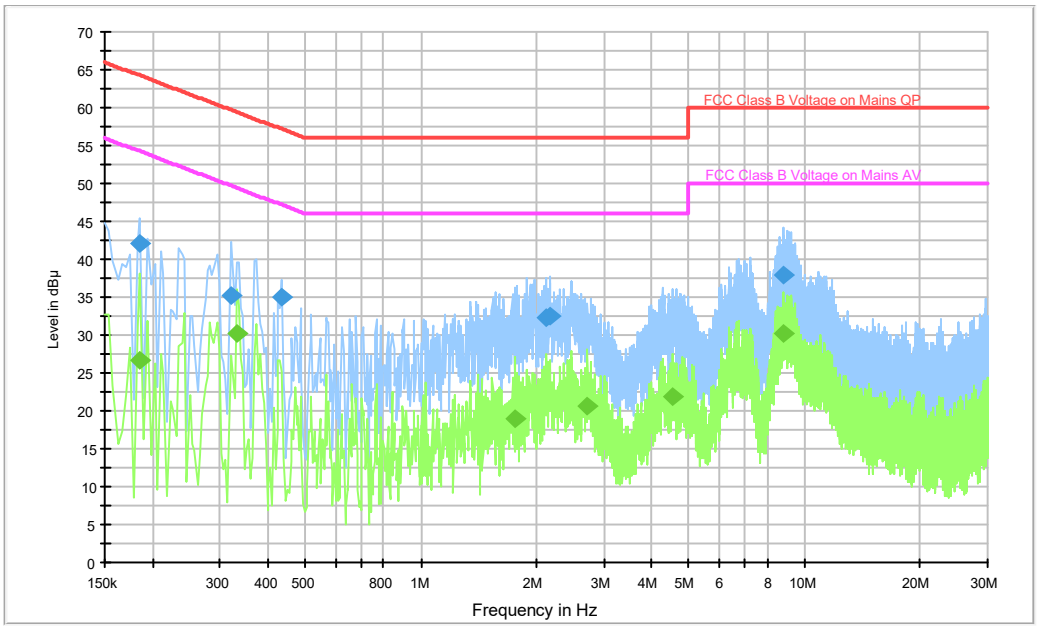


Fig.58 AC Powerline Conducted Emission-Traffic

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 (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186000	42.1	2000.	9.000	N	19.7	22.2	64.2
0.322000	35.3	2000.	9.000	N	19.7	24.4	59.7
0.434000	35.1	2000.	9.000	N	19.7	22.1	57.2
0.186000	42.1	2000.	9.000	N	19.7	22.2	64.2
0.322000	35.3	2000.	9.000	N	19.7	24.4	59.7
0.434000	35.1	2000.	9.000	N	19.7	22.1	57.2

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186000	26.7	2000.0	9.000	N	19.7	27.5	54.2
0.330000	30.1	2000.0	9.000	L1	19.7	19.3	49.5
1.758000	18.9	2000.0	9.000	L1	19.6	27.1	46.0
2.726000	20.6	2000.0	9.000	L1	19.6	25.4	46.0
4.542000	21.8	2000.0	9.000	L1	19.6	24.2	46.0
8.806000	30.1	2000.0	9.000	L1	19.7	19.9	50.0

Idle

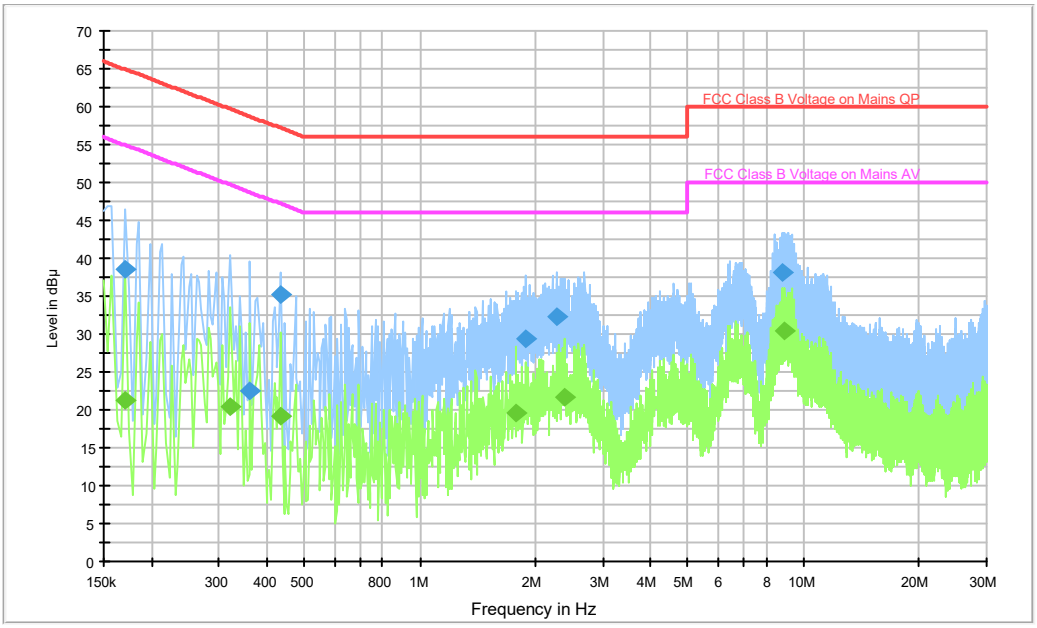


Fig.59 AC Powerline Conducted Emission-Idle

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 (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.170000	38.5	2000.	9.000	L1	19.7	26.4	65.0
0.362000	22.5	2000.	9.000	L1	19.7	36.2	58.7
0.434000	35.2	2000.	9.000	N	19.7	22.0	57.2
1.886000	29.5	2000.	9.000	L1	19.6	26.5	56.0
2.282000	32.3	2000.	9.000	L1	19.6	23.7	56.0
8.770000	38.1	2000.	9.000	L1	19.7	21.9	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.170000	21.3	2000.0	9.000	L1	19.7	33.7	55.0
0.322000	20.4	2000.0	9.000	L1	19.7	29.3	49.7
0.434000	19.3	2000.0	9.000	N	19.7	27.9	47.2
1.782000	19.5	2000.0	9.000	N	19.6	26.5	46.0
2.378000	21.7	2000.0	9.000	L1	19.6	24.3	46.0
8.906000	30.4	2000.0	9.000	L1	19.7	19.6	50.0

A.8. 99% Occupied bandwidth

Method of Measurement: See ANSI C63.10-2013-clause 12.4.2.

a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.

b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.

c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2.

d) Step a) through step c) might require iteration to adjust within the specified range.

e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.

f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.

g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% ofthe total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.

h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz

Measurement Result:

Mode	Frequency	99% Occupied bandwidth (MHz)		conclusion
802.11a	5180 MHz	Fig.60	17.40	P
	5200 MHz	Fig.61	17.44	P
	5240 MHz	Fig.62	17.48	P
802.11n HT20	5180 MHz	Fig.63	18.24	P
	5200 MHz	Fig.64	18.20	P
	5240 MHz	Fig.65	18.28	P
802.11n HT40	5190 MHz	Fig.66	36.24	P
	5230 MHz	Fig.67	36.32	P
802.11ac HT80	5210 MHz	Fig.68	75.20	P

Conclusion: PASS

Test graphs as below:

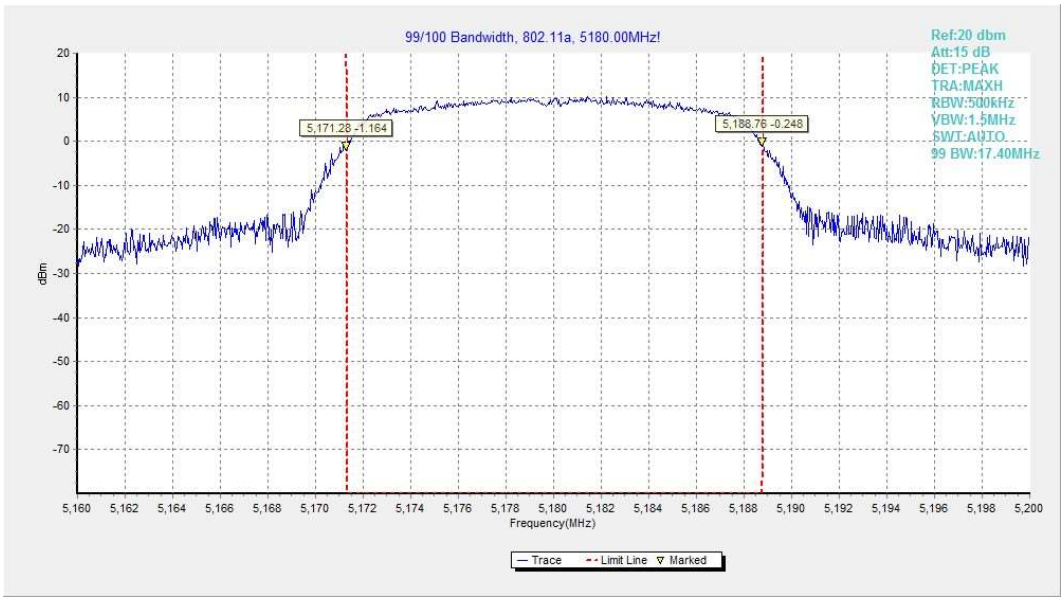


Fig.60 99% Occupied bandwidth (802.11a, 5180MHz)

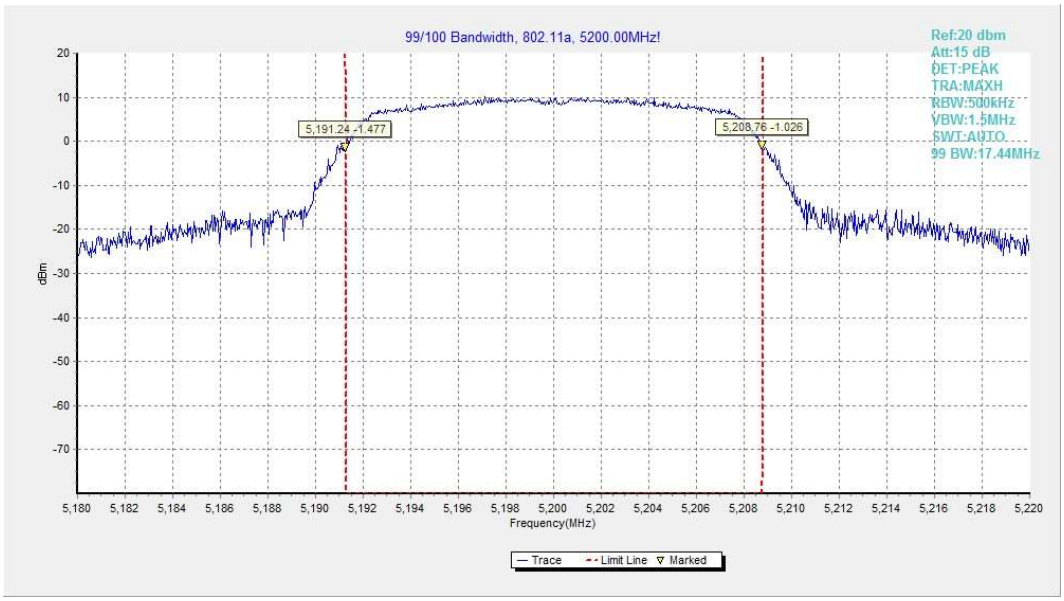


Fig.61 99% Occupied bandwidth (802.11a, 5200MHz)

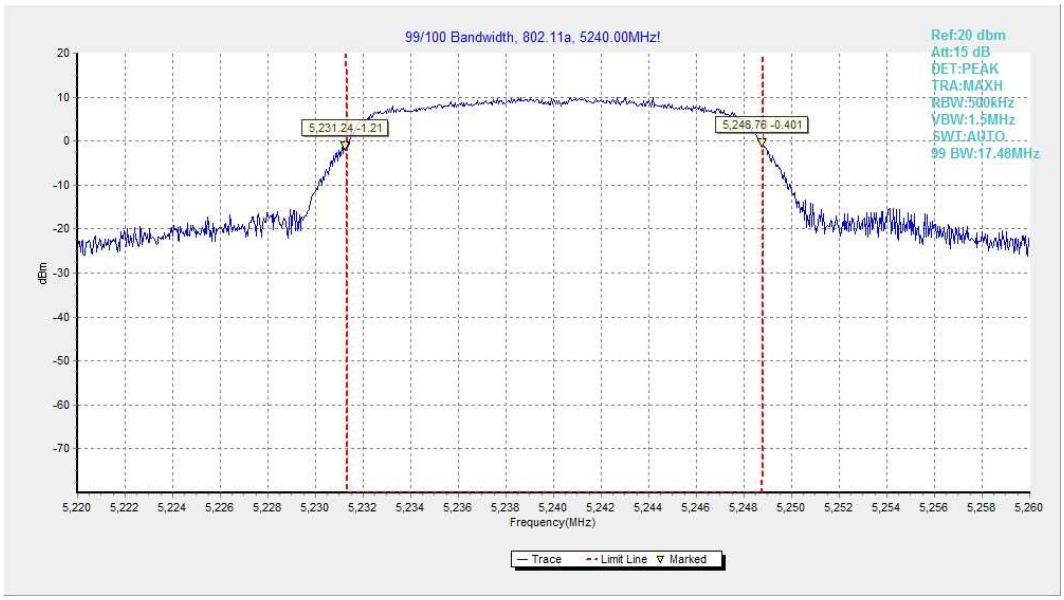


Fig.62 99% Occupied bandwidth (802.11a, 5240MHz)

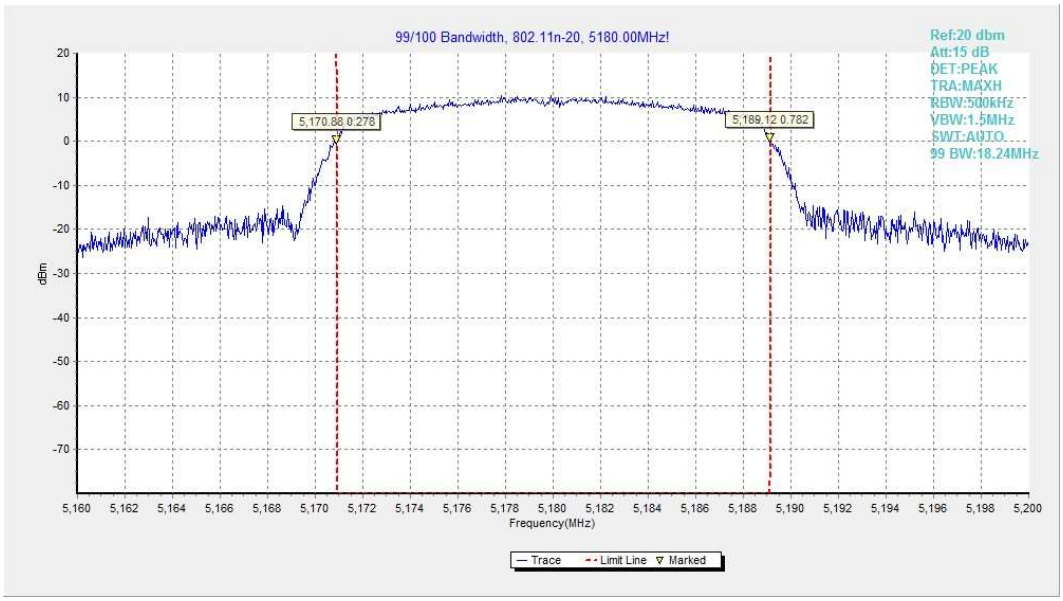


Fig.63 99% Occupied bandwidth (802.11n-HT20, 5180MHz)

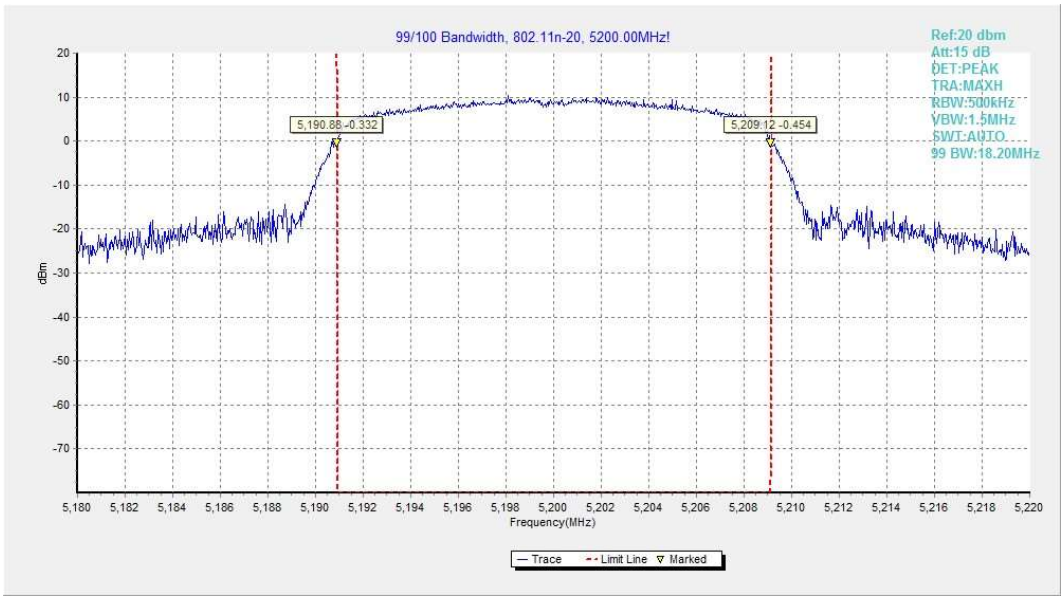


Fig.64 99% Occupied bandwidth (802.11n-HT20, 5200MHz)

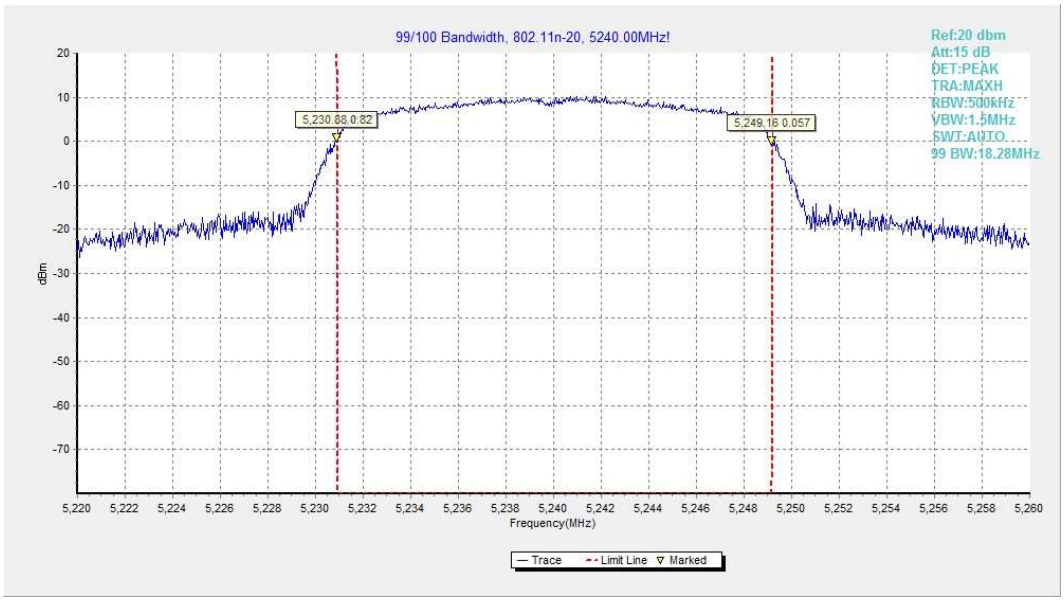


Fig.65 99% Occupied bandwidth (802.11n-HT20, 5240MHz)

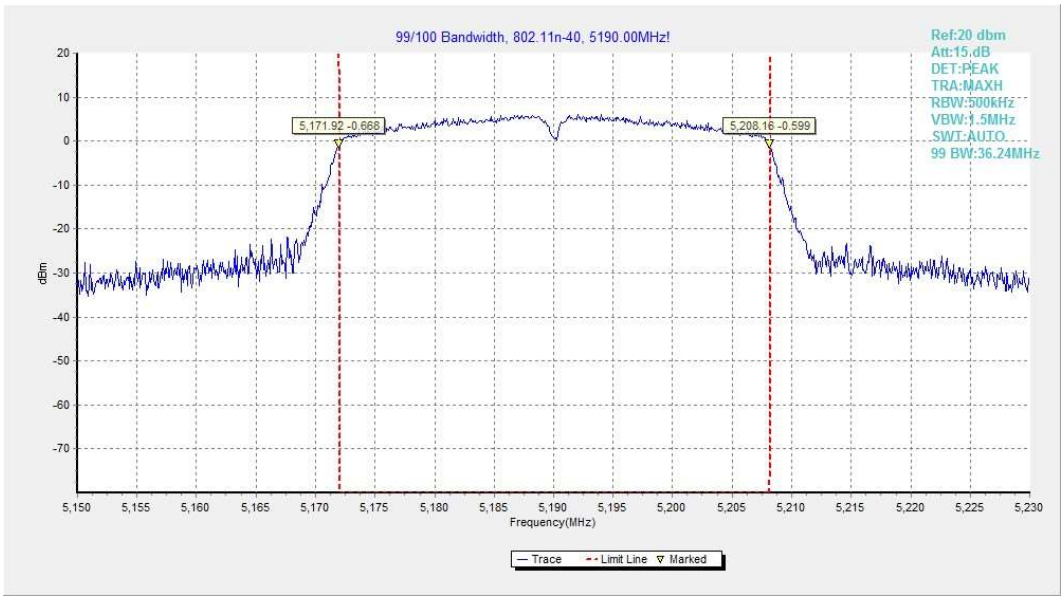


Fig.66 99% Occupied bandwidth (802.11ac-HT20, 5180MHz)

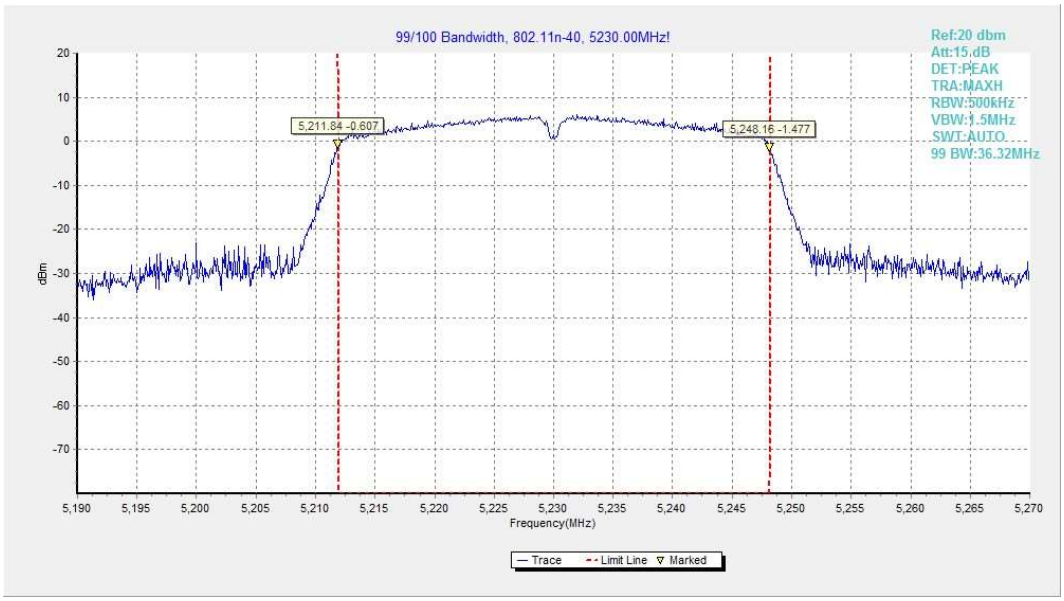


Fig.67 99% Occupied bandwidth (802.11ac-HT20, 5200MHz)

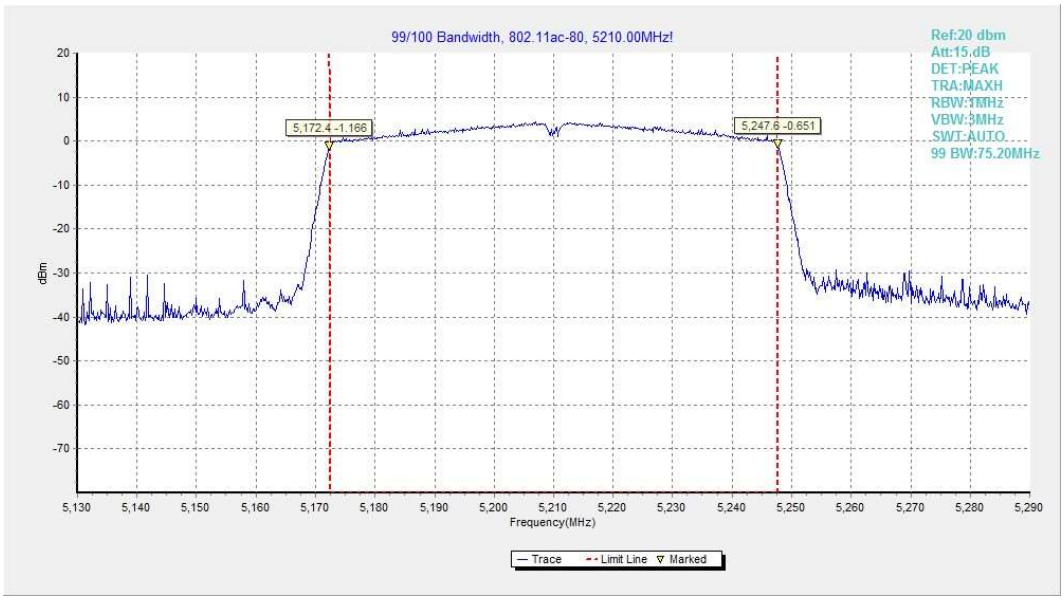


Fig.68 99% Occupied bandwidth (802.11ac-HT80, 5210MHz)

A.10. Power control

A Transmission Power Control mechanism is not required for systems with an e.i.r.p. of less than 27dBm (500 mW).

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

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ilac-MRA

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 600118-0

Telecommunication Technology Labs, CAICT
Beijing
China

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Electromagnetic Compatibility & Telecommunications

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2022-10-01 through 2023-09-30
Effective Dates

For the National Voluntary Laboratory Accreditation Program

***** END OF REPORT BODY *****