



FCC PART 15 TEST REPORT No.I21Z61265-IOT20

for

Wingtech Group (Hong Kong) Limited

LTE 4G mobile phone

WTVIS01

With

FCC ID: 2APXW-WTVIS01

Hardware Version: V1.1

Software Version: WTVIS01_0.01.01

Issued Date: 2021-08-31

Note:

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

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

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I21Z61265-IOT20	Rev.0	1st edition	2021-08-31
I21Z61265-IOT20	Rev.1	Change P.5.Testing Location 1	2021-09-09

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1. TEST LATORATORY

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 accredited test laboratory under NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) with lab code 600118-0, and is also an FCC accredited test laboratory (CN5017), and ISED accredited test laboratory (ISED#: 24849). The detail accreditation scope can be found on NVLAP website.

1.2. Testing Location

Location 1:CTTL(Huayuan North Road)

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

Radiated testing Location: CTTL(huayuan North Road)

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

1.3. Testing Environment

Normal Temperature: 15-35℃

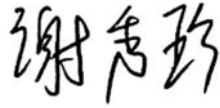
Relative Humidity: 20-75%

1.4. Project date

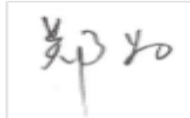
Testing Start Date: 2021-07-15

Testing End Date: 2021-08-31

1.5. Signature



Xie Xiuzhen
(Prepared this test report)



Zheng Wei
(Reviewed this test report)



Hu Xiaoyu
(Approved this test report)

2. CLIENT INFORMATION

2.1 Applicant Information

Company Name: Wingtech Group (Hong Kong) Limited
Address: Flat/RM 1903, 19/F, Podium Plaza 5 Hanoi Road, Tsim Sha Tsui
Kowloon, Hong Kong
City: Hong Kong
Postal Code: /
Country: China
Telephone: /
Fax: /

2.2 Manufacturer Information

Company Name: Wingtech Group (Hong Kong) Limited
Address: Flat/RM 1903, 19/F, Podium Plaza 5 Hanoi Road, Tsim Sha Tsui
Kowloon, Hong Kong
City: Hong Kong
Postal Code: /
Country: China
Telephone: /
Fax: /

3. EQUIPMENT UNDER TEST (EUT) AND

ANCILLARY EQUIPMENT (AE)

3.1. About EUT

Description	LTE 4G mobile phone
Model name	WTVIS01
FCC ID	2APXW-WTVIS01
WLAN Frequency Band	ISM Bands: -5150MHz~5250MHz -5250MHz~5350MHz -5470MHz~5725MHz
Type of modulation	OFDM
Antenna	Integral Antenna
Voltage	3.87V

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	869633050010865	V1.1	WTVIS01_0.01.01
EUT2	869633050014230	V1.1	WTVIS01_0.01.01

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

3.3. Internal Identification of AE used during the test

AE ID*	Description	SN
AE1	SWITCHING ADAPTER	/
AE2	A TO C CABLE	/
AE3	BATTERY	/

AE1

Model	ASUC62a-050240
Manufacturer	Shenzhen Aquilstar Technology Co.,Ltd
Length of cable	/

AE2

Type	NB_30130-01978
Manufacturer	DongGuan Mingxinhui Technology CO.,LTD
Length of cable	/

AE3

Type	JU001
Manufacturer	Jiade Energy Technology (Zhuhai) Co.,Ltd.
Length of cable	/

*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 LTE 4G mobile phone 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
KDB 558074 D01	Federal Communications Commission Office of Engineering and Technology Laboratory Division GUIDANCE FOR COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEM, FREQUENCY HOPPING SPREAD SPECTRUM SYSTEM, AND HYBRID SYSTEM DEVICES OPERATING UNDER SECTION 15.247 OF THE FCC RULES	2019

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/manufacture as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.1.

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

6.3. Test Conditions

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

Temperature	26°C
Voltage	3.87V
Humidity	44%

7. TEST EQUIPMENTS UTILIZED

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	1 year	2022-05-24
2	LISN	ENV216	101200	R&S	1 year	2022-05-30
3	Test Receiver	ESCI	100344	R&S	1 year	2022-02-23
4	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESU26	100235	Rohde & Schwarz	1 year	2022-02-23
2	BiLog Antenna	VULB9163	9163-01223	Schwarzbeck	1 year	2022-03-22
3	Antenna	3115	6914	ETS-Lindgren	1 year	2022-02-03
4	Dual-Ridge Waveguide Horn Antenna	3116	2661	ETS-Lindgren	1 year	2022-01-05
5	Analytical Spectrometer	FSV40	R&S	101047	1 year	2022-05-17

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

Radiated (k=2)

Frequency Range	Uncertainty(dB)
9kHz-30MHz	/
$30\text{MHz} \leq f \leq 1\text{GHz}$	5.16
$1\text{GHz} \leq f \leq 18\text{GHz}$	5.44
$18\text{GHz} \leq f \leq 40\text{GHz}$	5.28

8.6. AC Power-line Conducted Emission

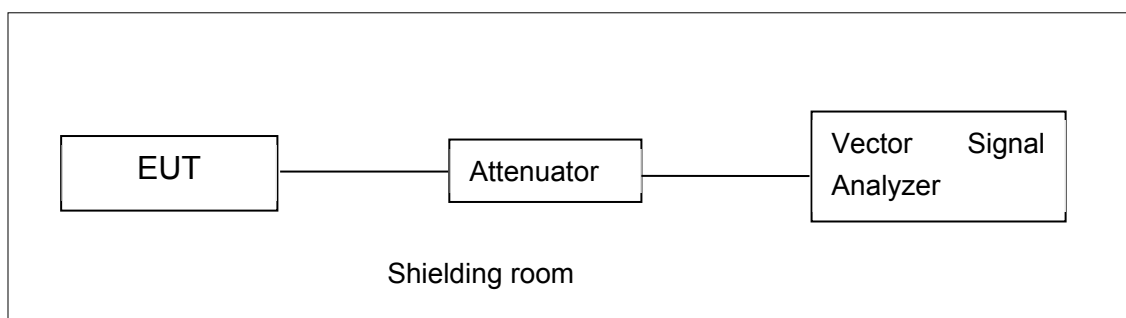
Measurement Uncertainty : 3.08,k=2

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

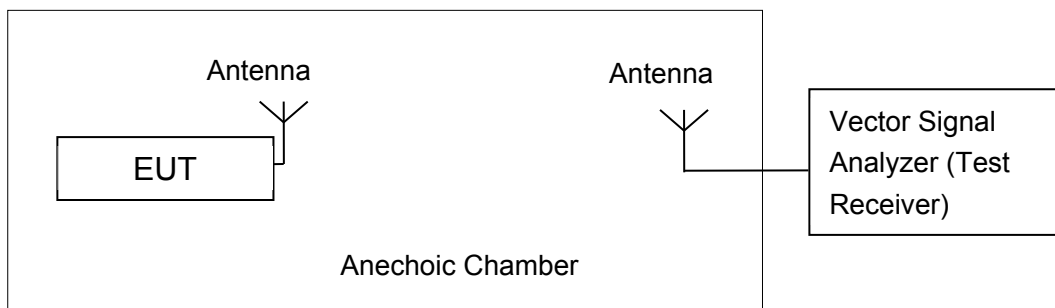


A.1.2. Radiated Emission Measurements

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 measurement method SA-2 is made according to KDB 789033

Note:

For straddle channel 20MHz Bandwidth 5720MHz, Conducted Output Power Limit:

802.11a=11+10*log(B)=24.76, B=37.55/2+5=23.775MHz,

802.11n-HT20=11+10*log(B)=24.66, B=36.50/2+5=23.25MHz,

802.11ac-VHT20=11+10*log(B)=24.66, B=36.45/2+5=23.225MHz,

For straddle channel 40/80MHz Bandwidth, conducted output power limit=24 dBm

802.11n-HT40: B=52.07/2+15=41.035MHz,

802.11ac-VHT40: B=53.12/2+15=41.56MHz,

802.11ac-VHT80: B=112.32/2+35=91.16MHz,

Measurement Results:

802.11a mode

Mode	Rate	Test Result (dBm)									
		Frequency (MHz)									
		5180	5200	5240	5260	5280	5320	5500	5580	5700	5720
802.11a	6Mbps	18.56	18.87	18.52	19.01	18.62	18.55	18.55	18.82	19.56	19.53

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

802.11n-HT20 mode

Mode	Rate	Test Result (dBm)									
		Frequency (MHz)									
		5180	5200	5240	5260	5280	5320	5500	5580	5700	5720
802.11n(HT20)	MCS0	18.97	18.96	18.46	19.11	19.39	18.98	18.61	18.50	18.31	18.34

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

802.11ac-HT20 mode

Mode	Rate	Test Result (dBm)									
		Frequency (MHz)									
		5180	5200	5240	5260	5280	5320	5500	5580	5700	5720
802.11ac(HT20)	MCS0	19.01	18.88	18.78	19.57	19.45	18.62	18.95	18.11	18.92	18.66

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

802.11n-HT40 mode

Mode	Rate	Test Result (dBm)							
		Frequency (MHz)							
		5190	5230	5270	5310	5510	5550	5670	5710
802.11n(HT40)	MCS0	17.70	17.95	18.20	17.78	16.82	16.65	16.45	16.96

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

802.11ac-HT40 mode

Mode	Rate	Test Result (dBm)							
		Frequency (MHz)							
		5190	5230	5270	5310	5510	5550	5670	5710
802.11ac(HT40)	MCS0	18.15	18.40	18.71	18.14	17.28	17.18	16.92	17.82

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

802.11ac-HT80 mode

Mode	Rate	Test Result (dBm)				
		Frequency (MHz)				
		5210	5290	5530	5610	5690
802.11ac(HT80)	MCS0	18.27	18.47	17.31	16.75	16.92

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

The duty cycle of all mode are 100%.

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	8.38	P
	5200 MHz	8.22	P
	5240 MHz	7.98	P
	5260 MHz	8.63	P
	5280 MHz	8.61	P
	5320 MHz	8.22	P
	5500 MHz	8.11	P
	5580 MHz	8.28	P
	5700 MHz	8.54	P
	5720 MHz	7.39	P
802.11ac HT20	5180 MHz	7.94	P
	5200 MHz	7.89	P
	5240 MHz	8.05	P
	5260 MHz	8.38	P
	5280 MHz	8.28	P
	5320 MHz	7.92	P
	5500 MHz	7.81	P
	5580 MHz	7.59	P
	5700 MHz	8.91	P
	5720 MHz	7.08	P
802.11ac HT40	5190 MHz	4.46	P
	5230 MHz	4.05	P
	5270 MHz	4.70	P
	5310 MHz	4.15	P
	5510 MHz	3.54	P
	5550 MHz	3.17	P
	5670 MHz	3.39	P
	5710 MHz	5.53	P
802.11ac HT80	5210MHz	1.09	P
	5290MHz	1.29	P
	5530MHz	0.14	P

	5610MHz	-0.12	P
	5690MHz	2.11	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
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Measurement Result:

Mode	Frequency	Occupied 26dB Bandwidth (MHz)		conclusion
802.11a	5180 MHz	Fig.1	35.00	P
	5200 MHz	Fig.2	37.20	P
	5240 MHz	Fig.3	36.55	P
	5260 MHz	Fig.4	35.95	P
	5280 MHz	Fig.5	34.70	P
	5320 MHz	Fig.6	37.55	P
	5500 MHz	Fig.7	35.35	P
	5580 MHz	Fig.8	35.55	P
	5700 MHz	Fig.9	37.60	P
	5720 MHz	Fig.10	37.55	P
802.11ac HT20	5180 MHz	Fig.11	34.00	P
	5200 MHz	Fig.12	35.50	P
	5240 MHz	Fig.13	36.15	P
	5260 MHz	Fig.14	35.40	P
	5280 MHz	Fig.15	34.20	P
	5320 MHz	Fig.16	34.20	P
	5500 MHz	Fig.17	33.60	P
	5580 MHz	Fig.18	32.05	P
	5700 MHz	Fig.19	37.10	P
	5720 MHz	Fig.20	36.45	P
802.11ac HT40	5190 MHz	Fig.21	58.56	P
	5230 MHz	Fig.22	44.56	P
	5270 MHz	Fig.23	59.44	P
	5310 MHz	Fig.24	57.60	P

	5510 MHz	Fig.25	44.48	P
	5550 MHz	Fig.26	46.00	P
	5670 MHz	Fig.27	49.52	P
	5710 MHz	Fig.28	53.12	P
	5210MHz	Fig.29	115.84	P
802.11ac HT80	5290MHz	Fig.30	116.16	P
	5530MHz	Fig.31	105.76	P
	5610MHz	Fig.32	87.68	P
	5690MHz	Fig.33	112.32	P

Conclusion: PASS

Test graphs as below:

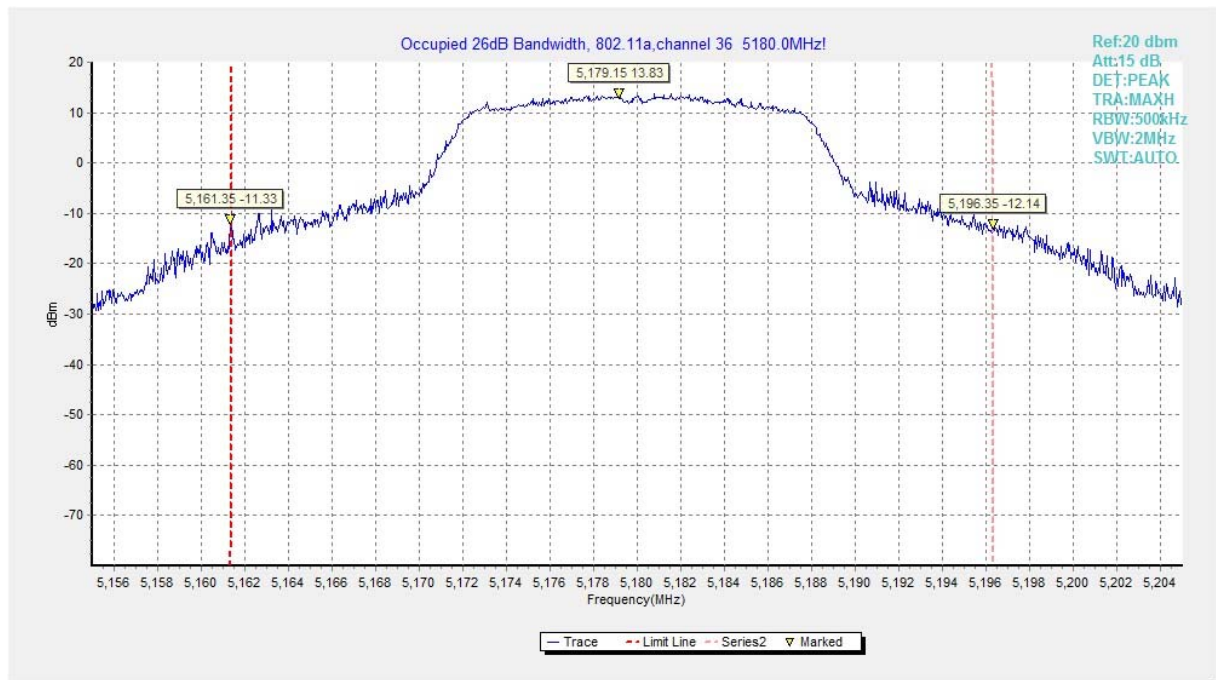


Fig.1 Occupied 26dB Bandwidth (802.11a, 5180MHz)

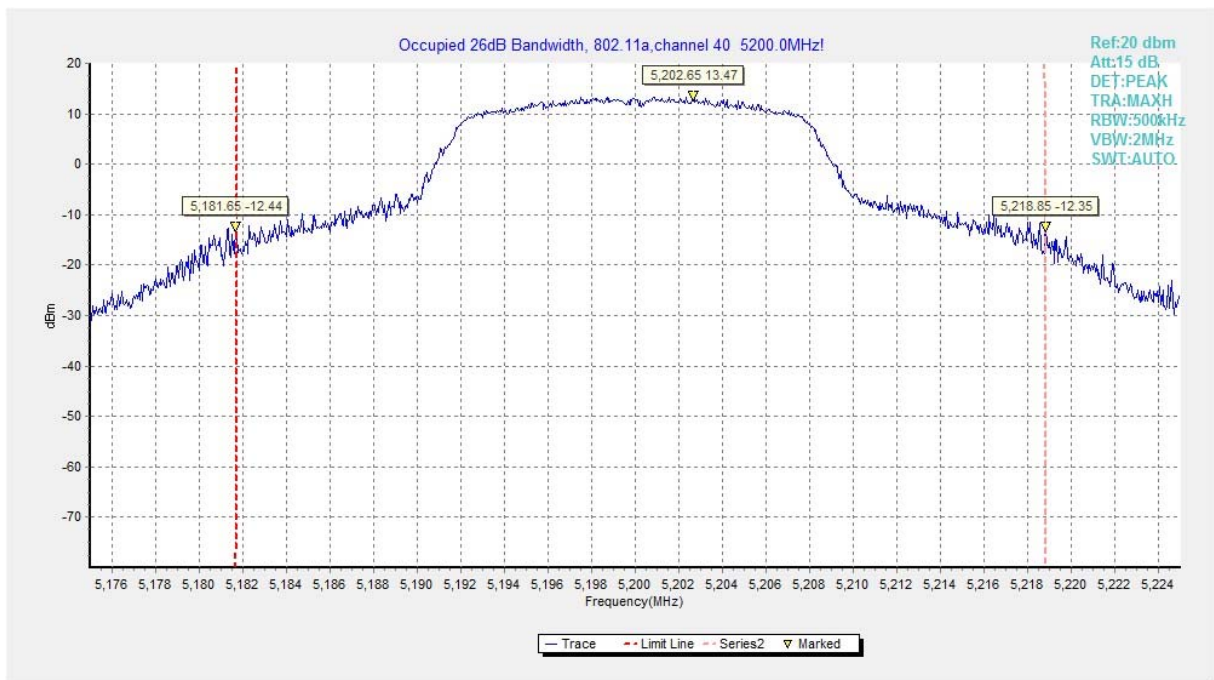


Fig.2 Occupied 26dB Bandwidth (802.11a, 5200MHz)

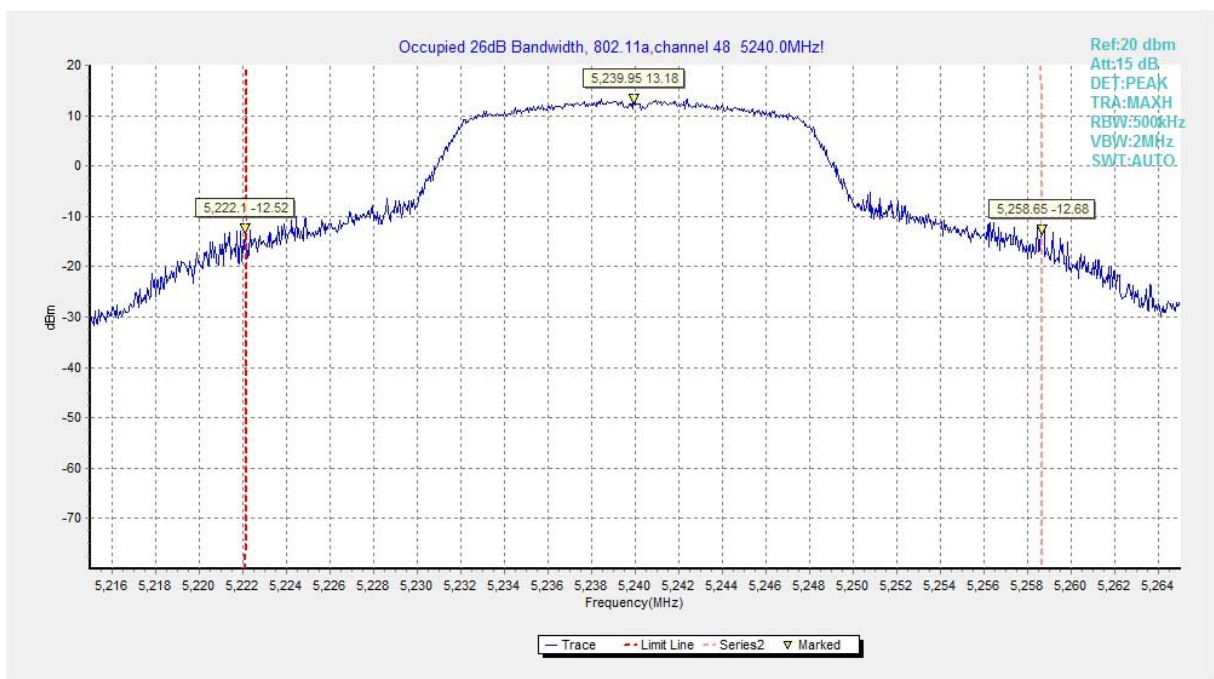


Fig.3 Occupied 26dB Bandwidth (802.11a, 5240MHz)

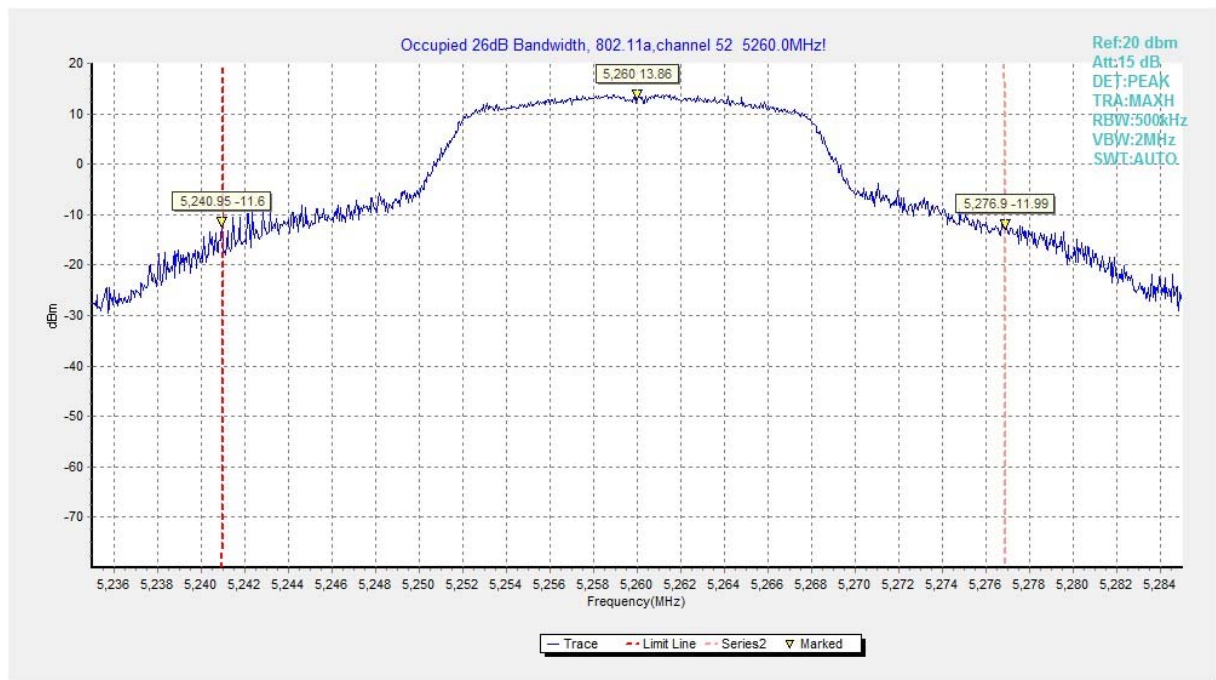


Fig.4 Occupied 26dB Bandwidth (802.11a, 5260MHz)

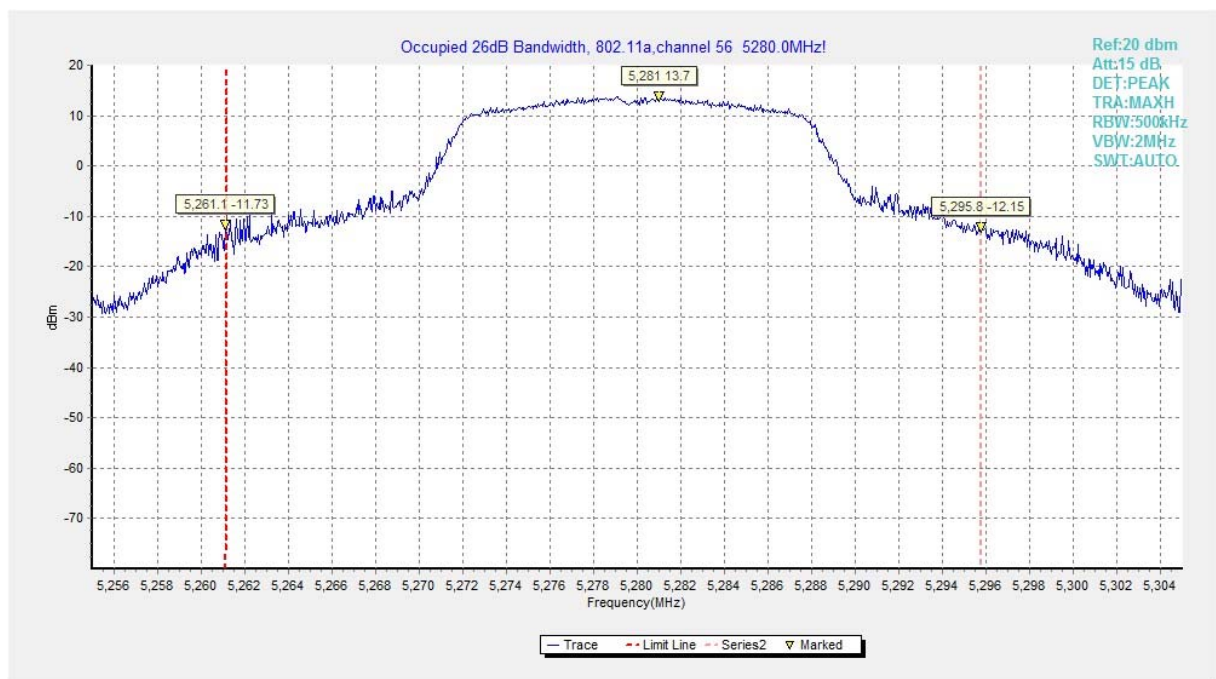


Fig.5 Occupied 26dB Bandwidth (802.11a, 5280MHz)

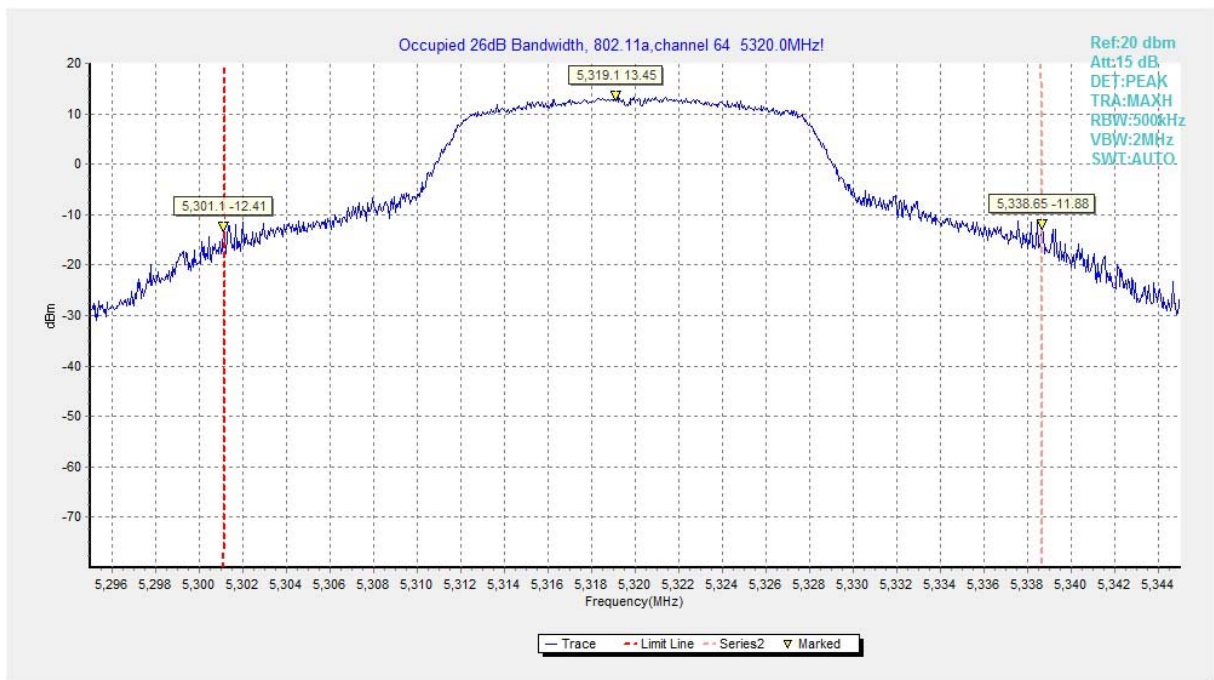


Fig.6 Occupied 26dB Bandwidth (802.11a, 5320MHz)

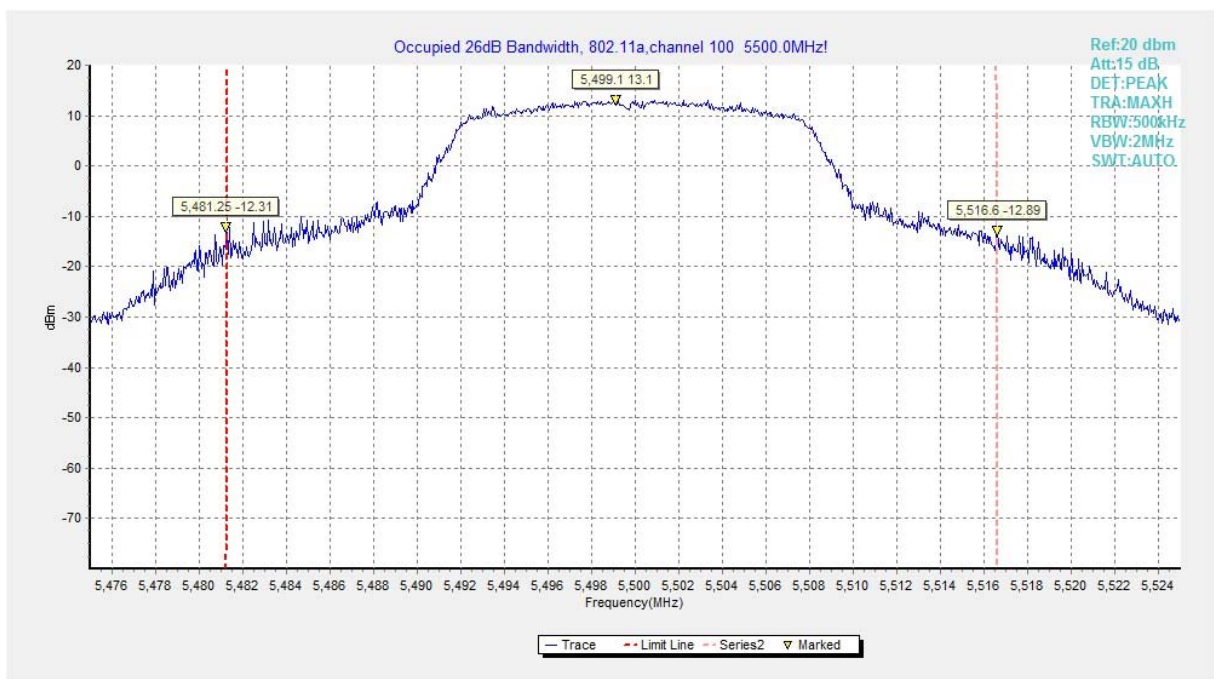


Fig.7 Occupied 26dB Bandwidth (802.11a, 5500MHz)

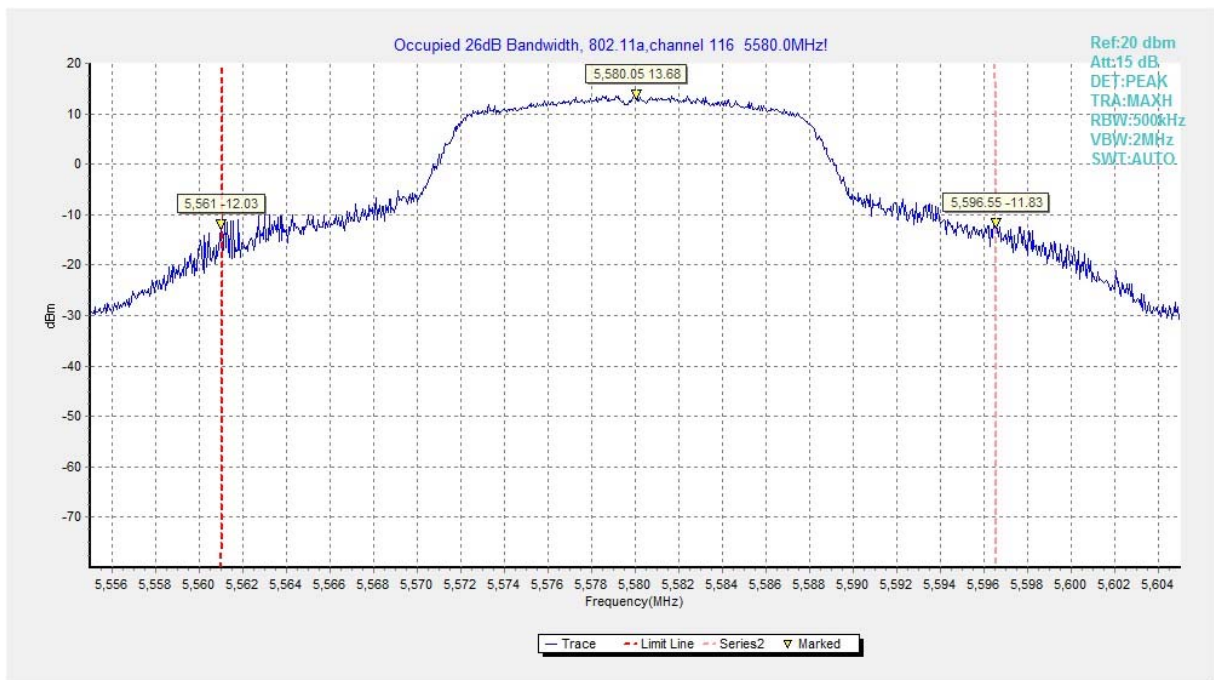


Fig.8 Occupied 26dB Bandwidth (802.11a, 5580MHz)

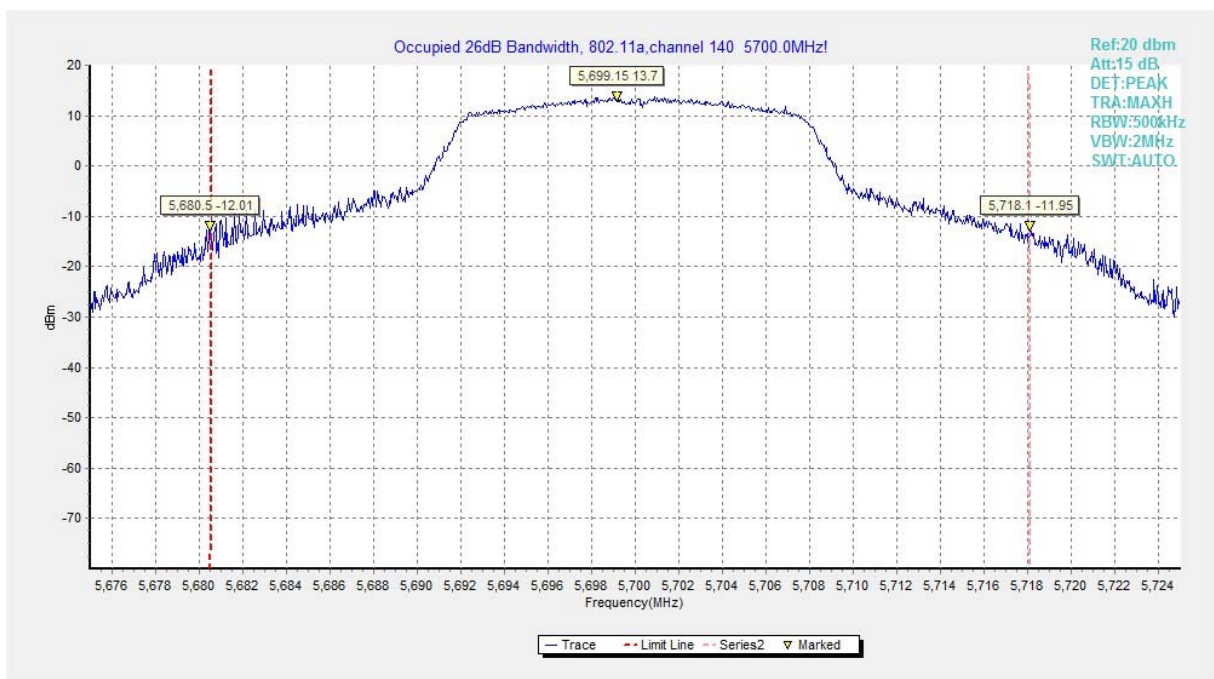


Fig.9 Occupied 26dB Bandwidth (802.11a, 5700MHz)

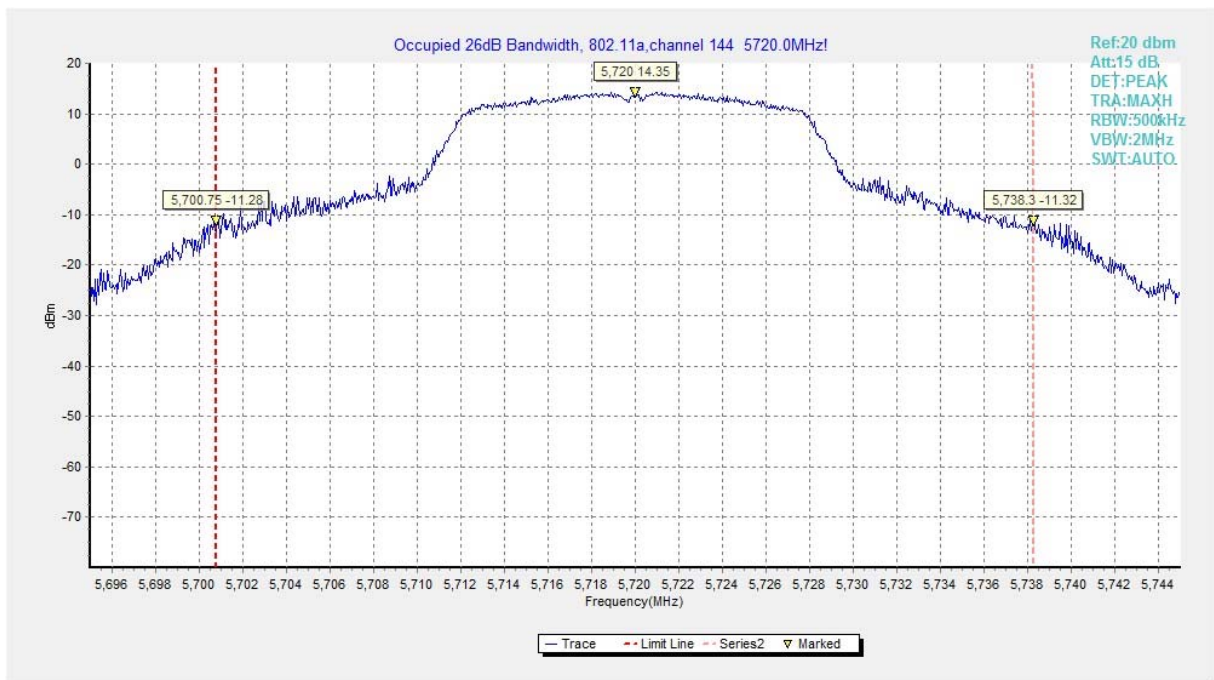


Fig.10 Occupied 26dB Bandwidth (802.11a, 5720MHz)

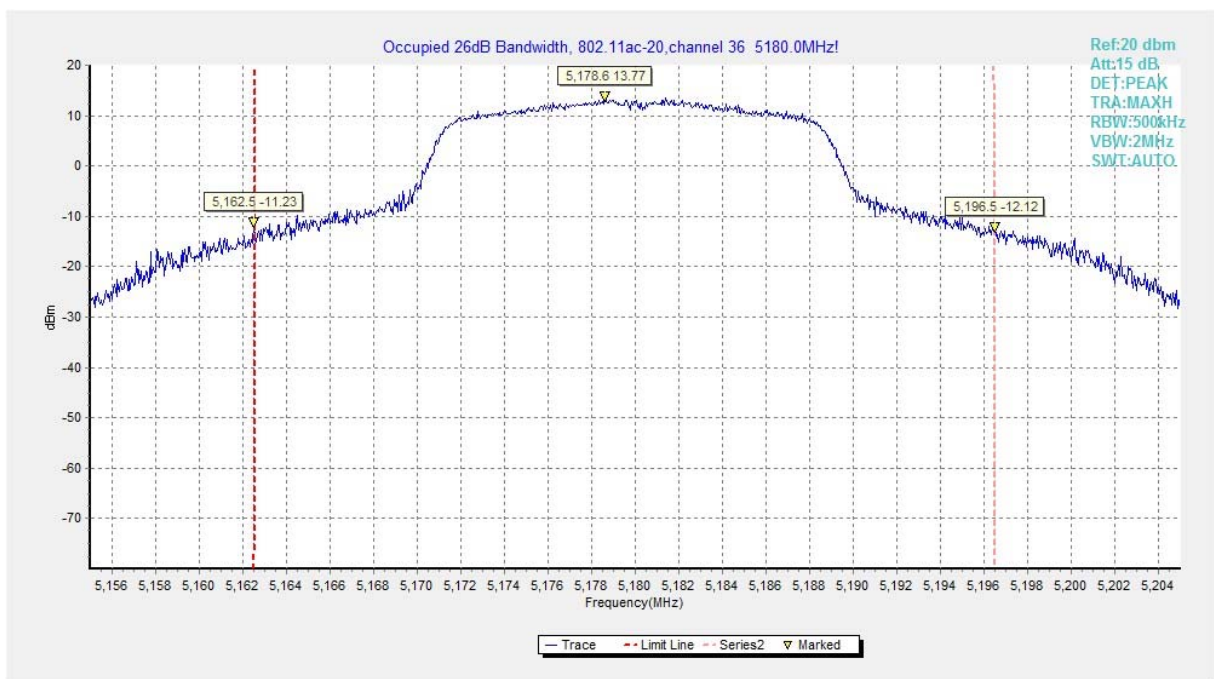


Fig.11 Occupied 26dB Bandwidth (802.11ac-HT20, 5180MHz)

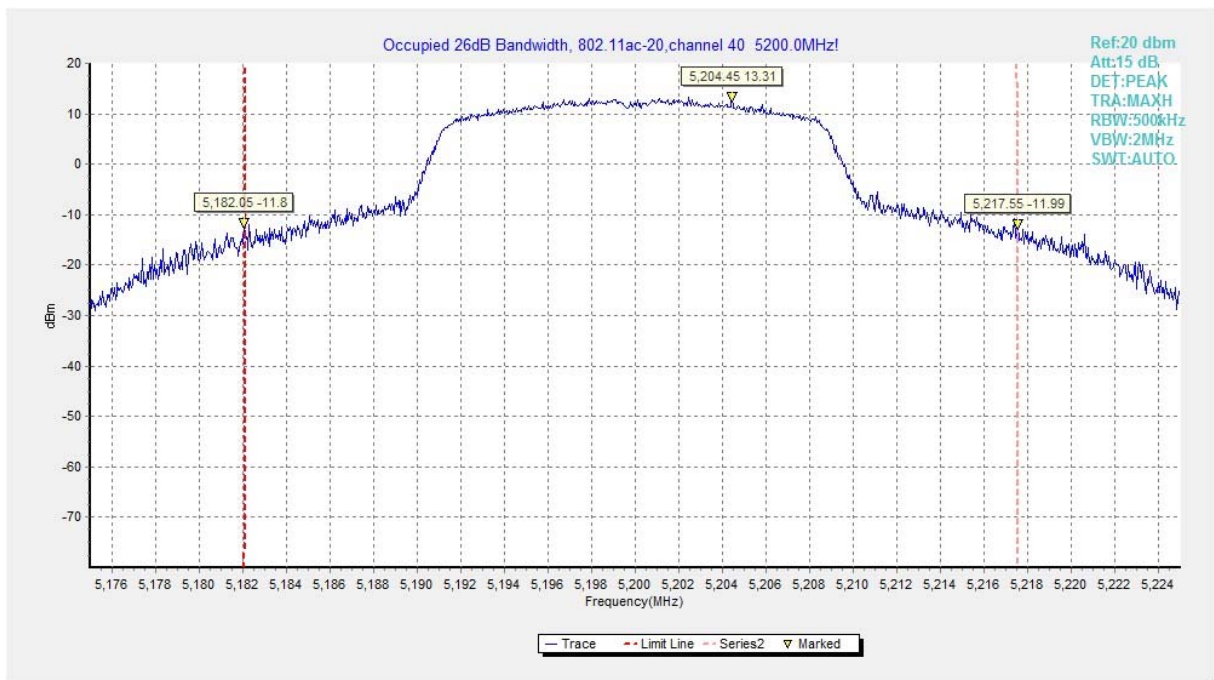


Fig.12 Occupied 26dB Bandwidth (802.11ac-HT20, 5200MHz)

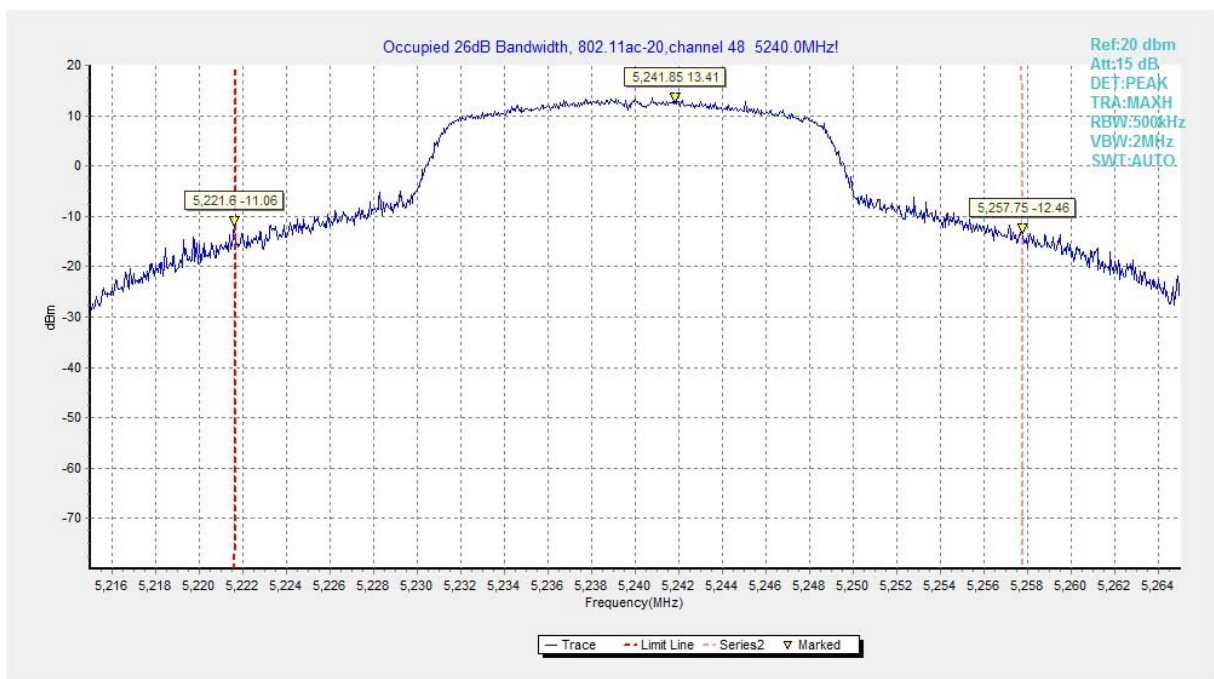


Fig.13 Occupied 26dB Bandwidth (802.11ac-HT20, 5240MHz)

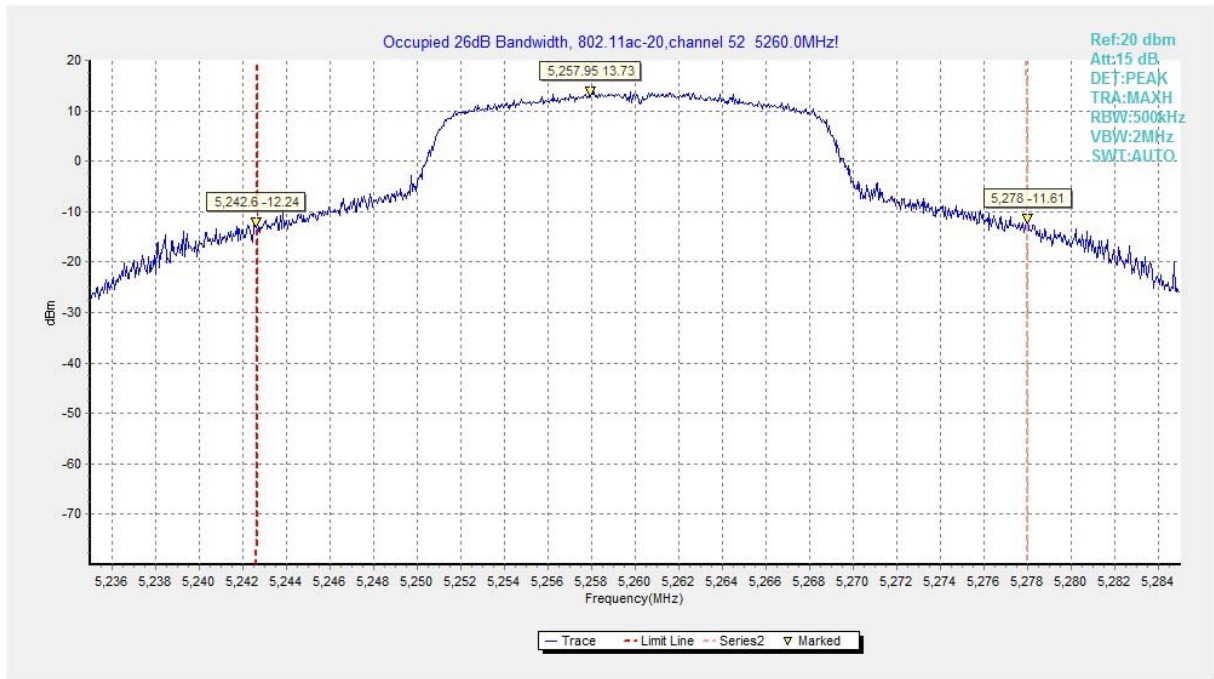


Fig.14 Occupied 26dB Bandwidth (802.11ac-HT20, 5260MHz)

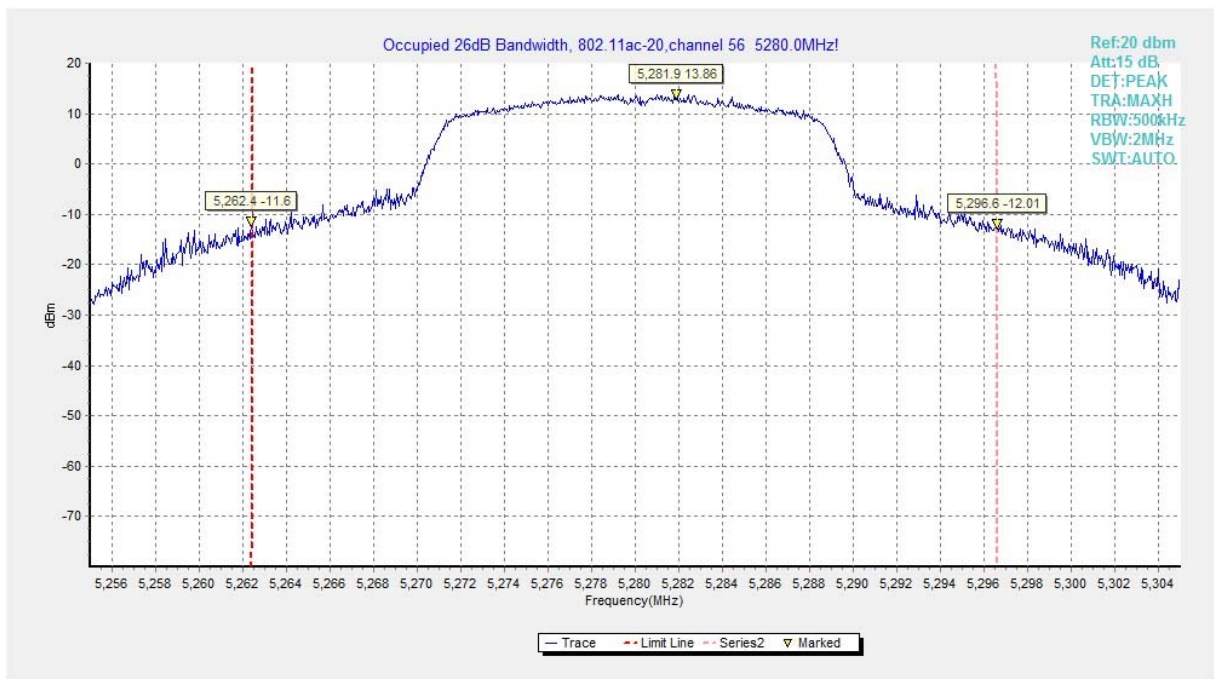


Fig.15 Occupied 26dB Bandwidth (802.11ac-HT20, 5280MHz)

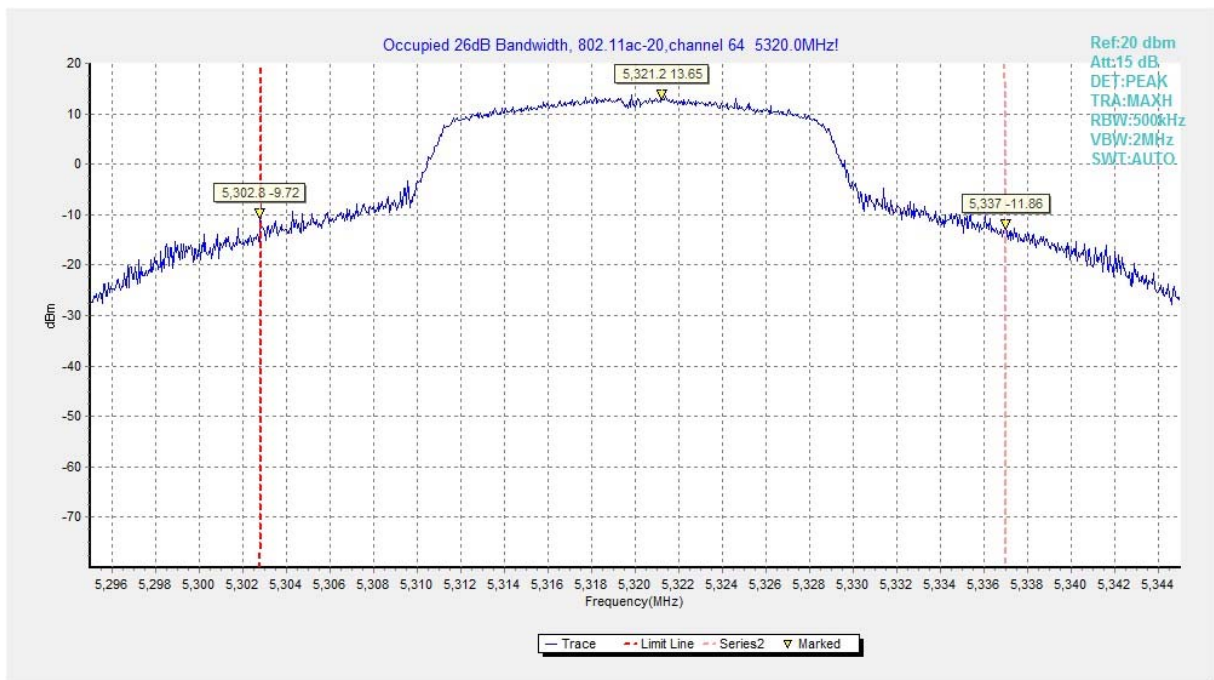


Fig.16 Occupied 26dB Bandwidth (802.11ac-HT20, 5320MHz)

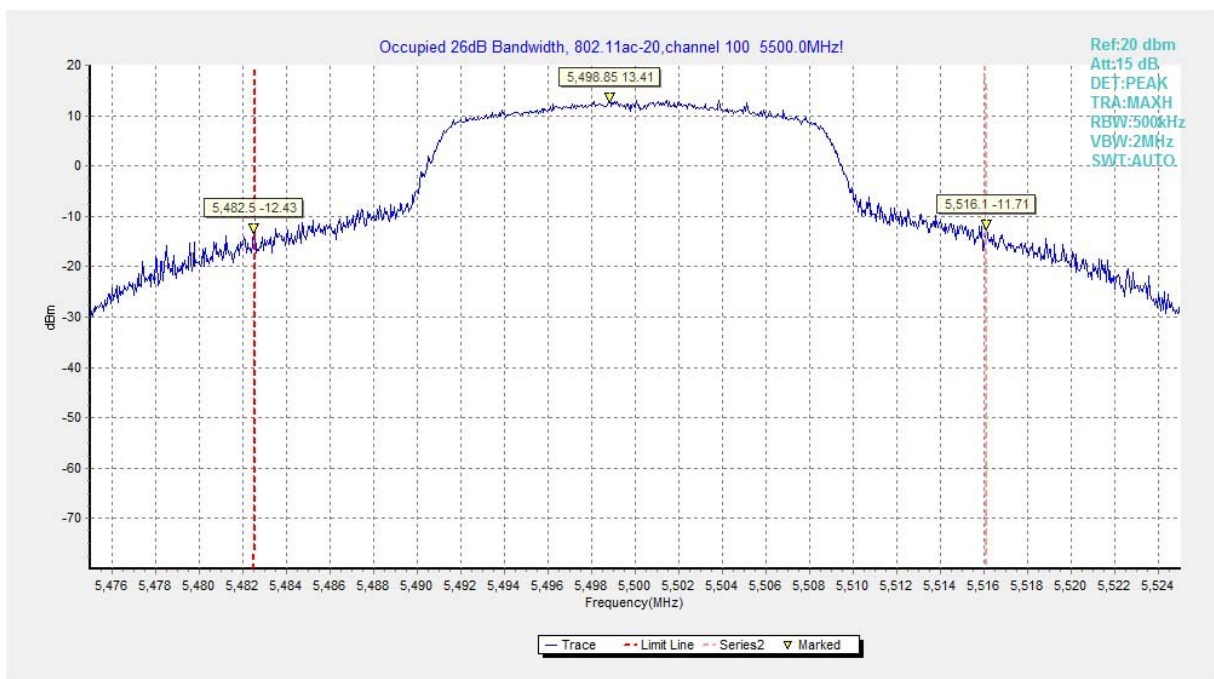


Fig.17 Occupied 26dB Bandwidth (802. 11ac-HT20, 5500MHz)

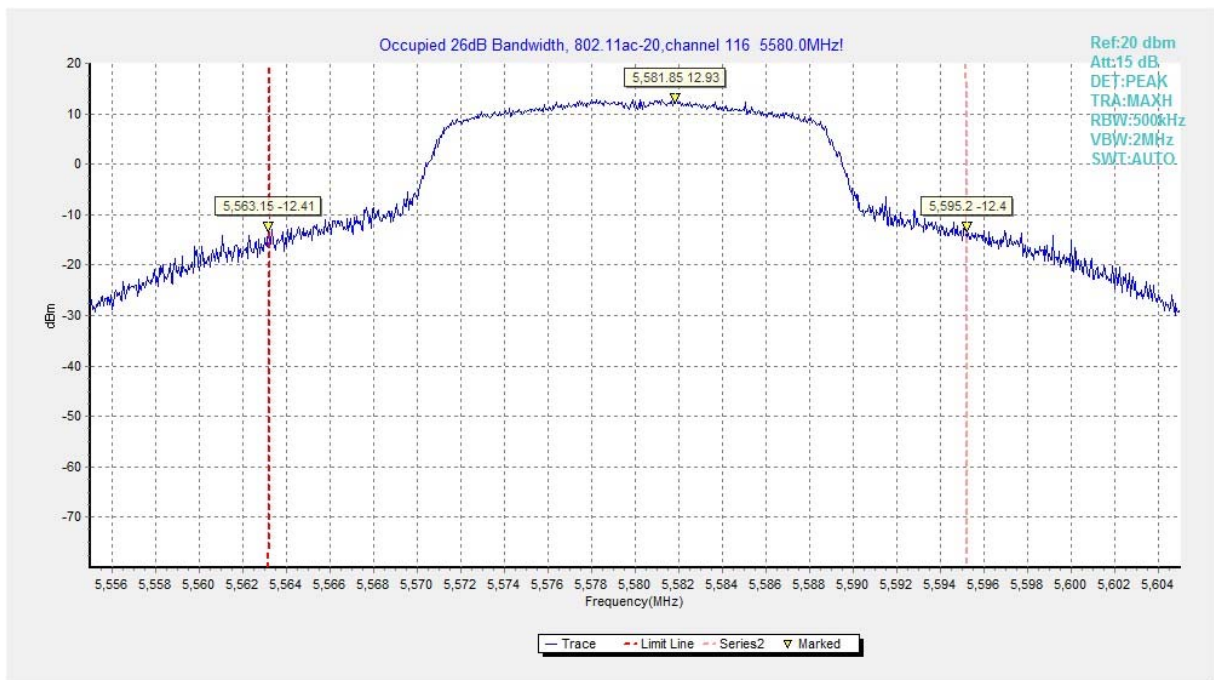


Fig.18 Occupied 26dB Bandwidth (802. 11ac-HT20, 5580MHz)

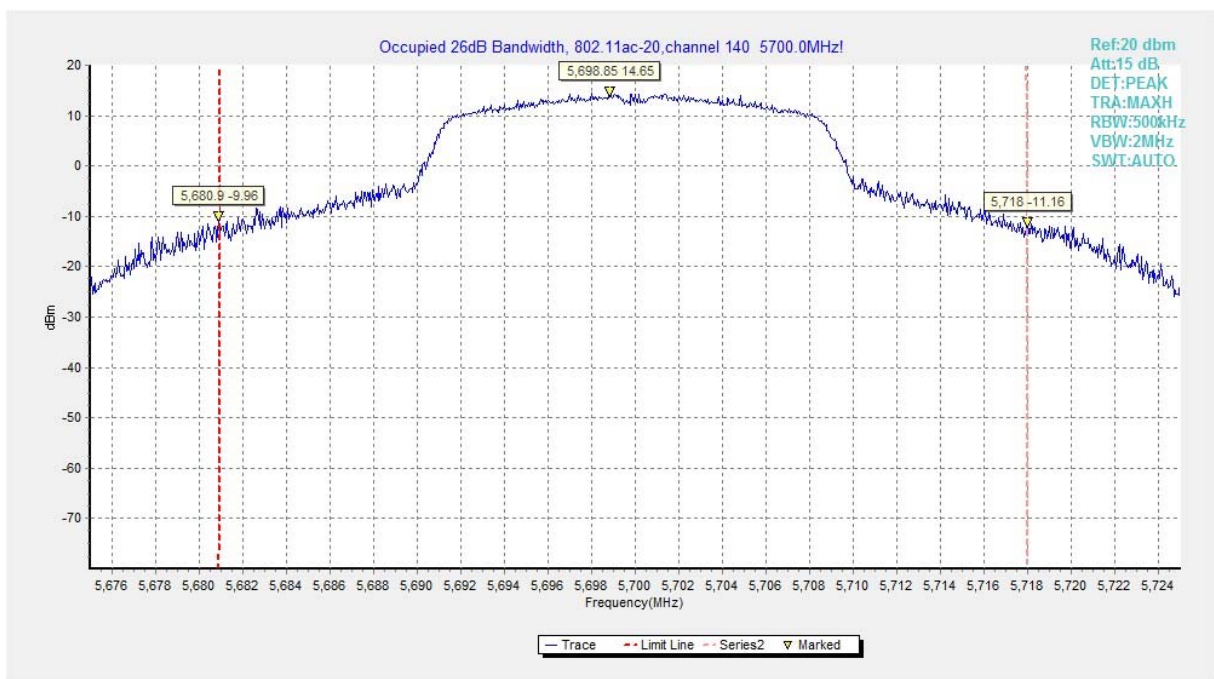


Fig.19 Occupied 26dB Bandwidth (802. 11ac-HT20, 5700MHz)

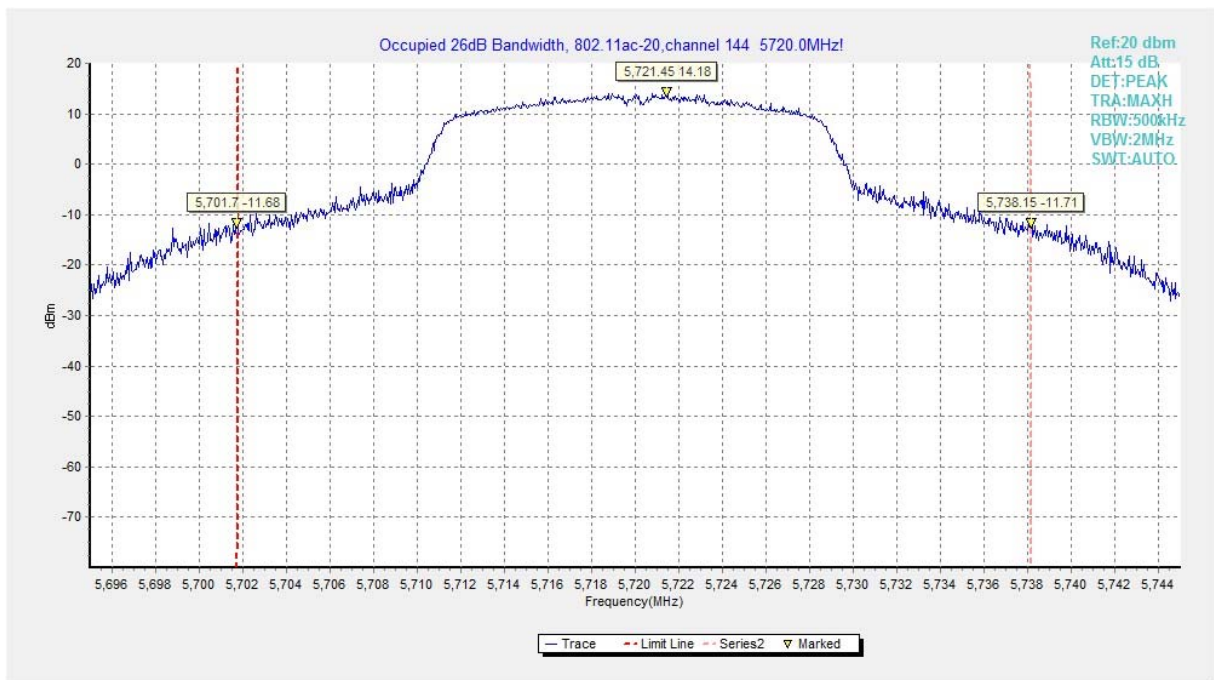


Fig.20 Occupied 26dB Bandwidth (802. 11ac-HT20, 5720MHz)

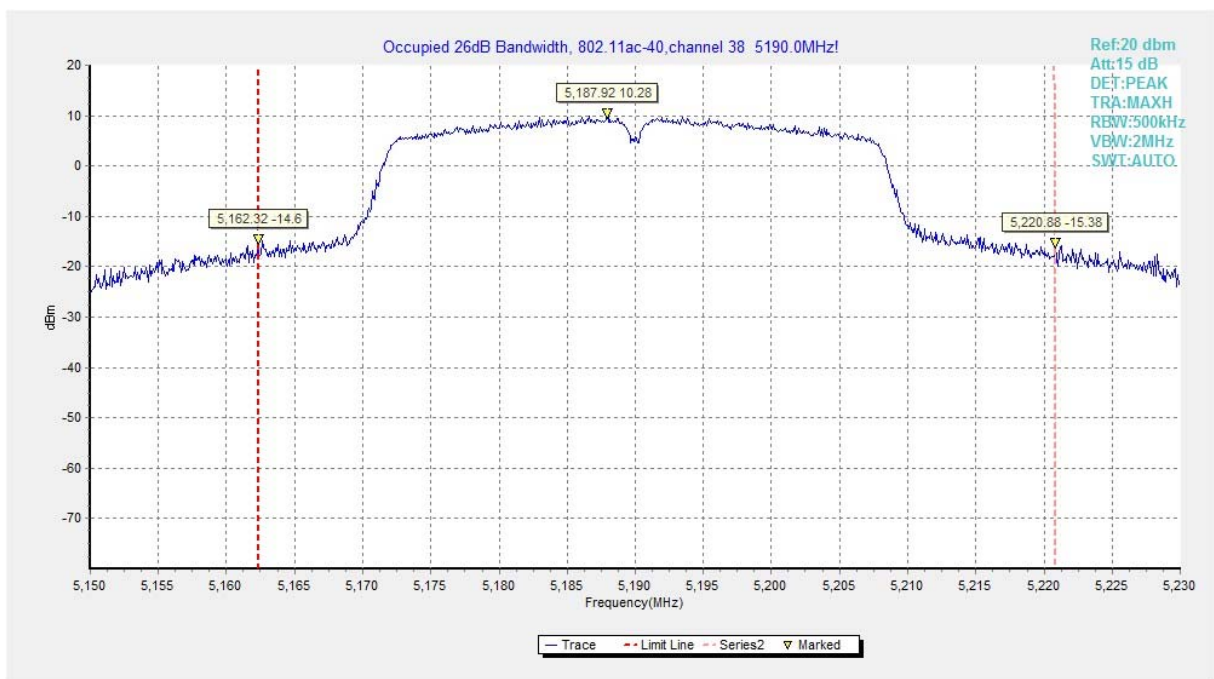


Fig.21 Occupied 26dB Bandwidth (802.11ac-HT40, 5190MHz)

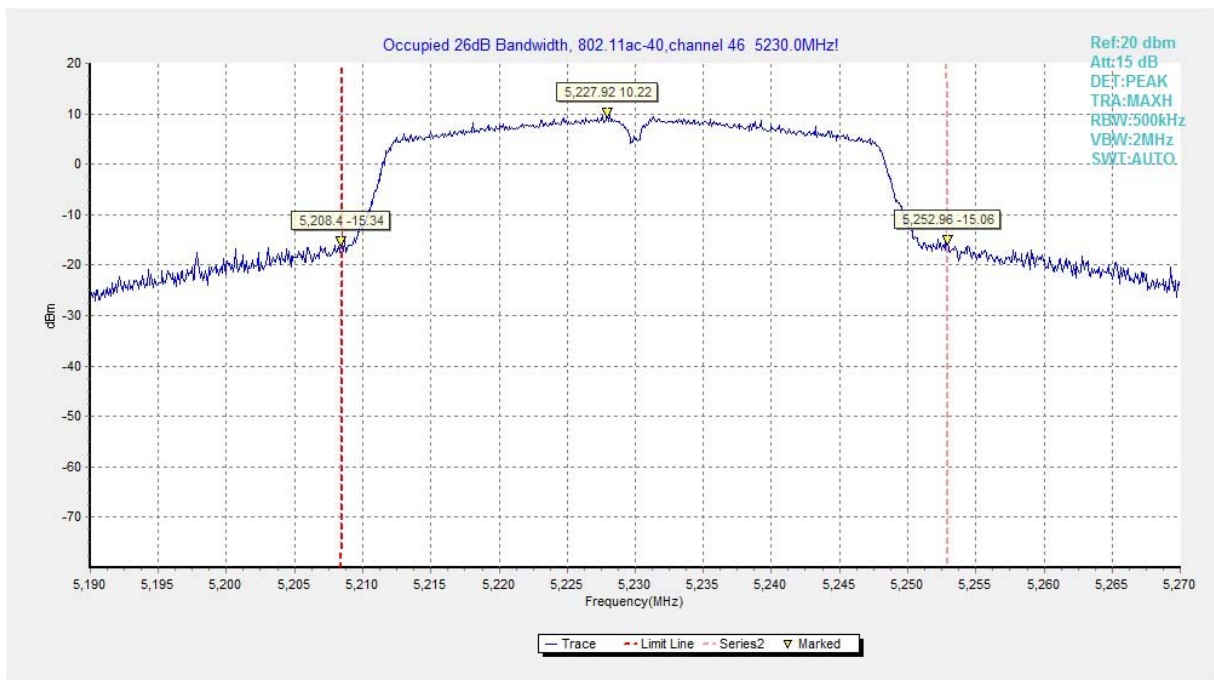


Fig.22 Occupied 26dB Bandwidth (802.11ac-HT40, 5230MHz)

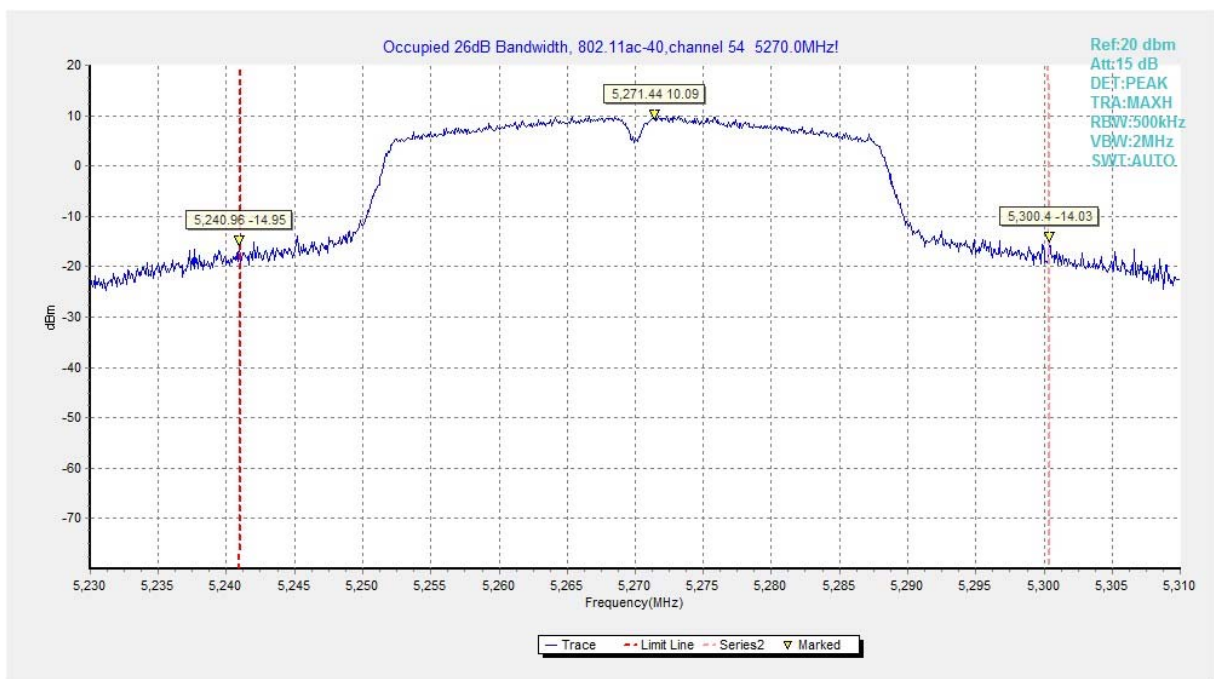


Fig.23 Occupied 26dB Bandwidth (802.11ac-HT40, 5270MHz)

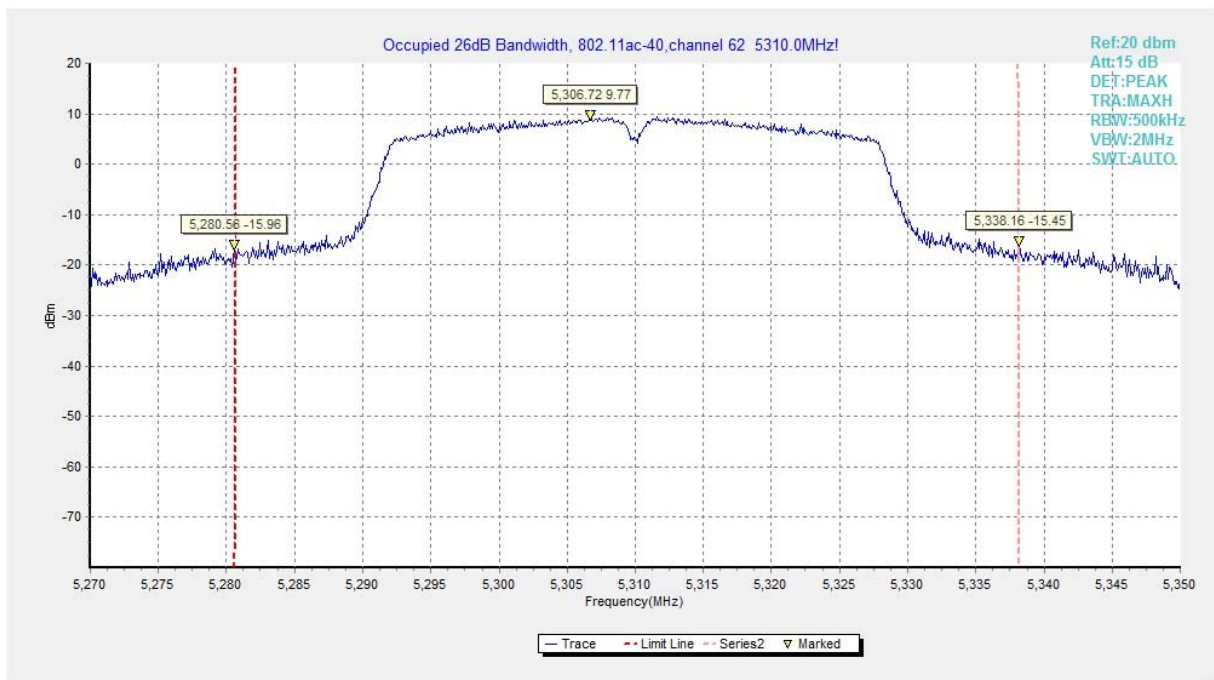


Fig.24 Occupied 26dB Bandwidth (802.11ac-HT40, 5310MHz)

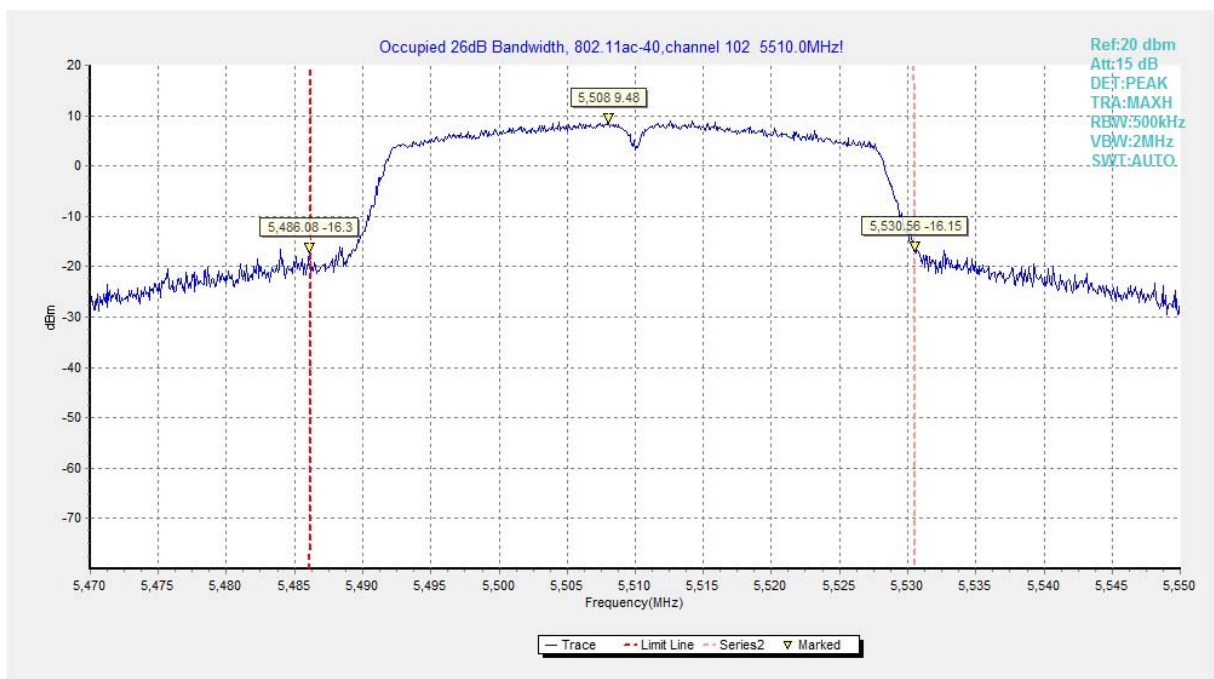


Fig.25 Occupied 26dB Bandwidth (802.11ac-HT40, 5510MHz)

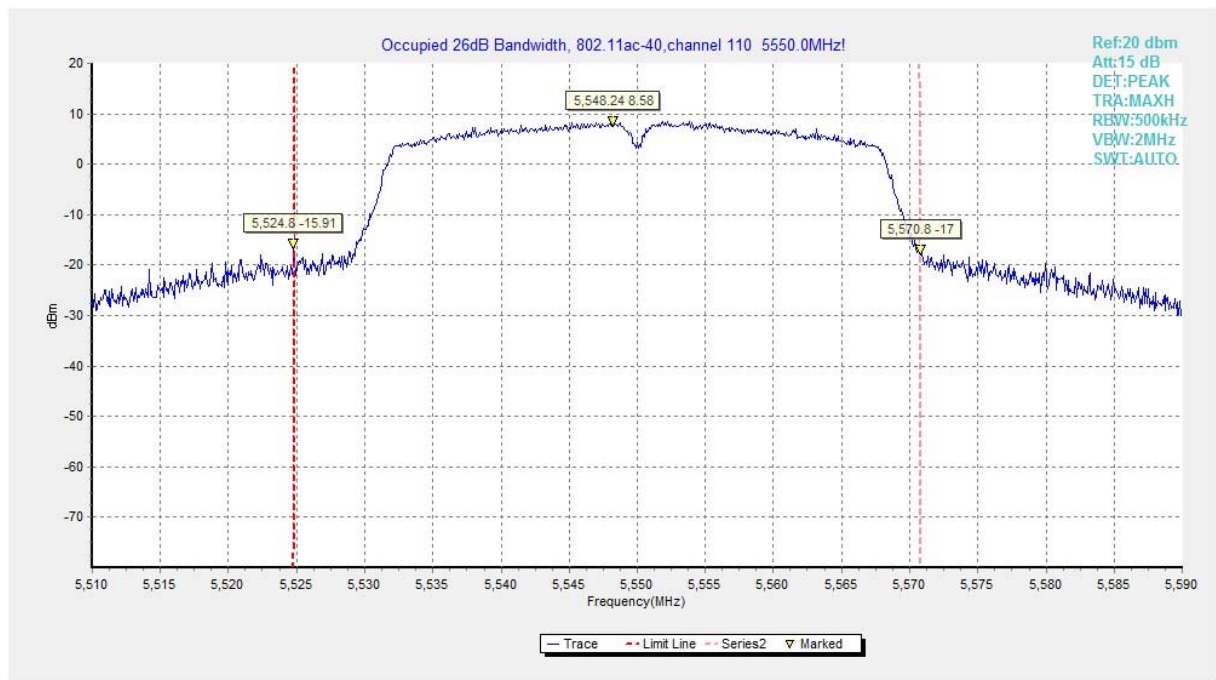


Fig.26 Occupied 26dB Bandwidth (802. 11ac-HT40, 5550MHz)

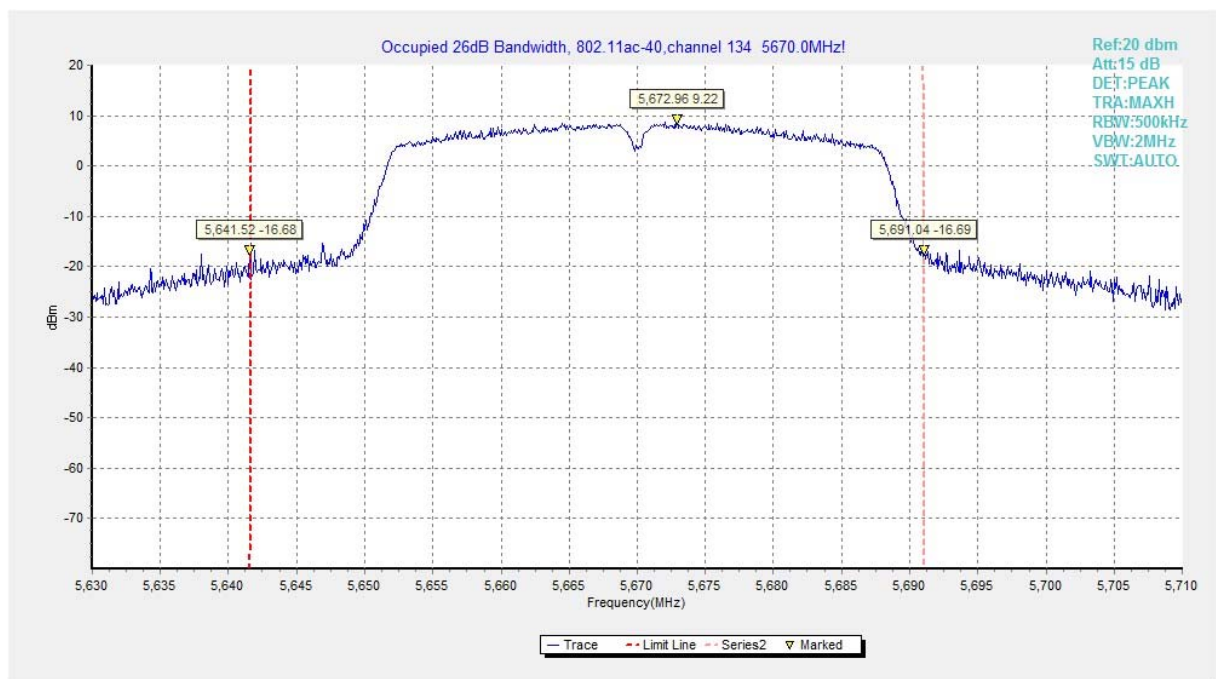


Fig.27 Occupied 26dB Bandwidth (802. 11ac-HT40, 5670MHz)

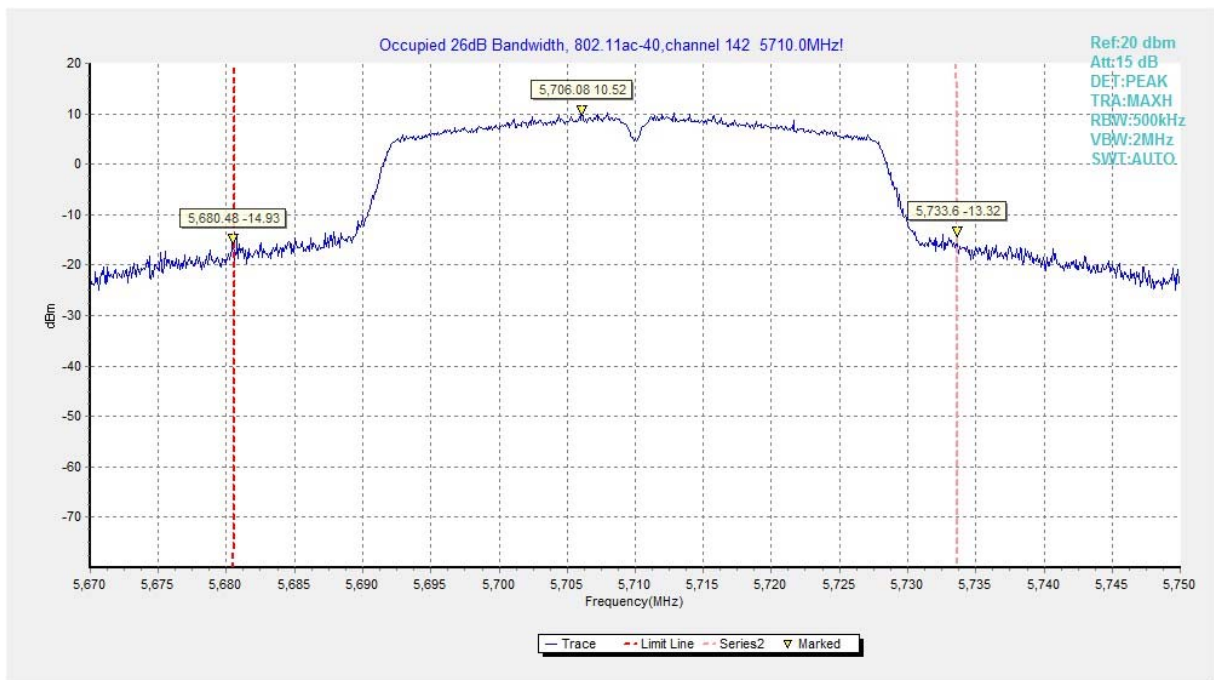


Fig.28 Occupied 26dB Bandwidth (802. 11ac-HT40, 5710MHz)

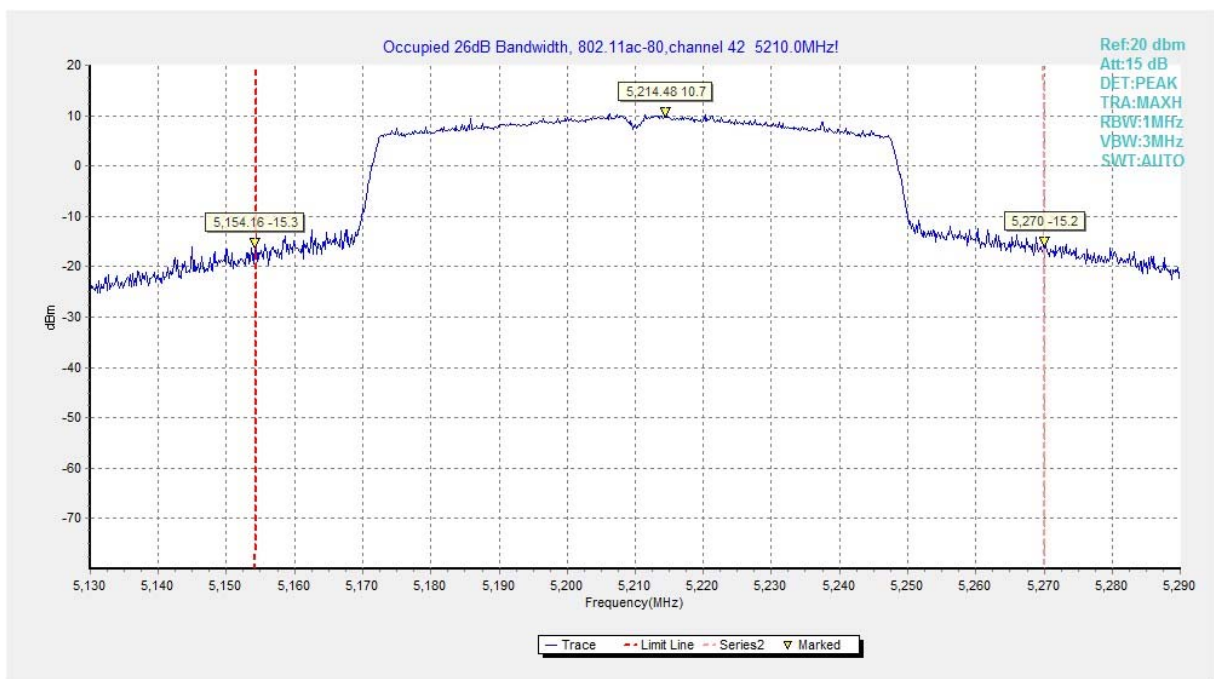


Fig.29 Occupied 26dB Bandwidth (802. 11ac-HT80, 5210MHz)

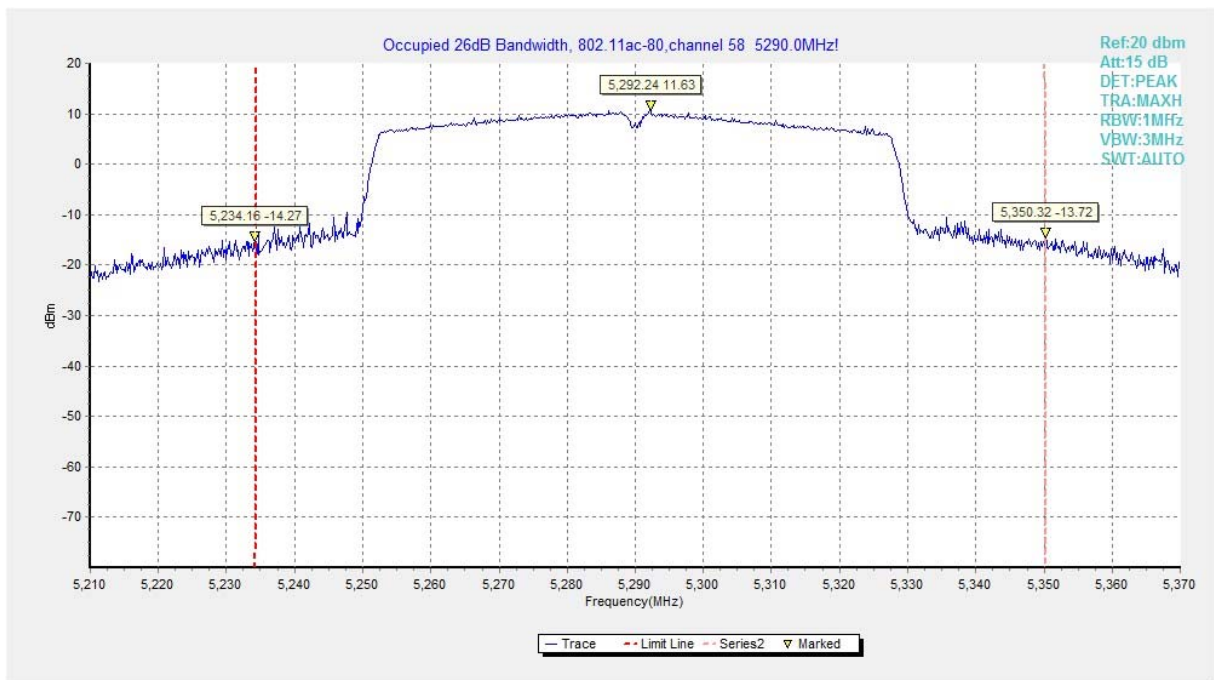


Fig.30 Occupied 26dB Bandwidth (802. 11ac-HT80, 5290MHz)

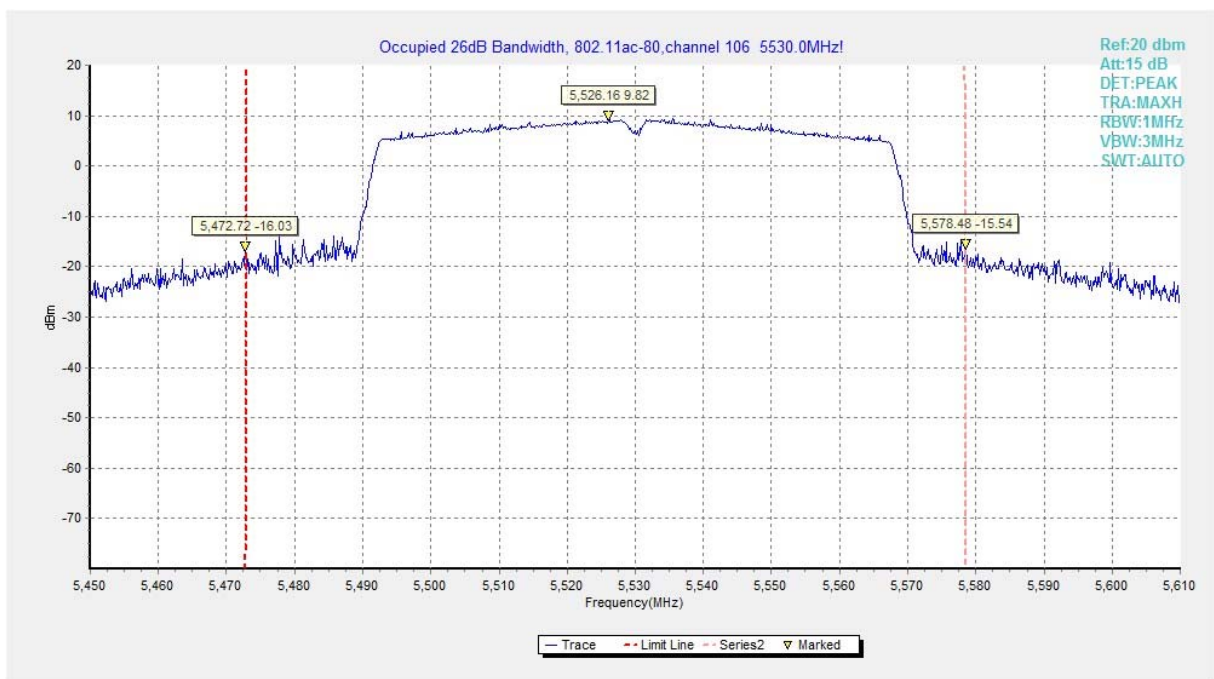


Fig.31 Occupied 26dB Bandwidth (802. 11ac-HT80, 5530MHz)

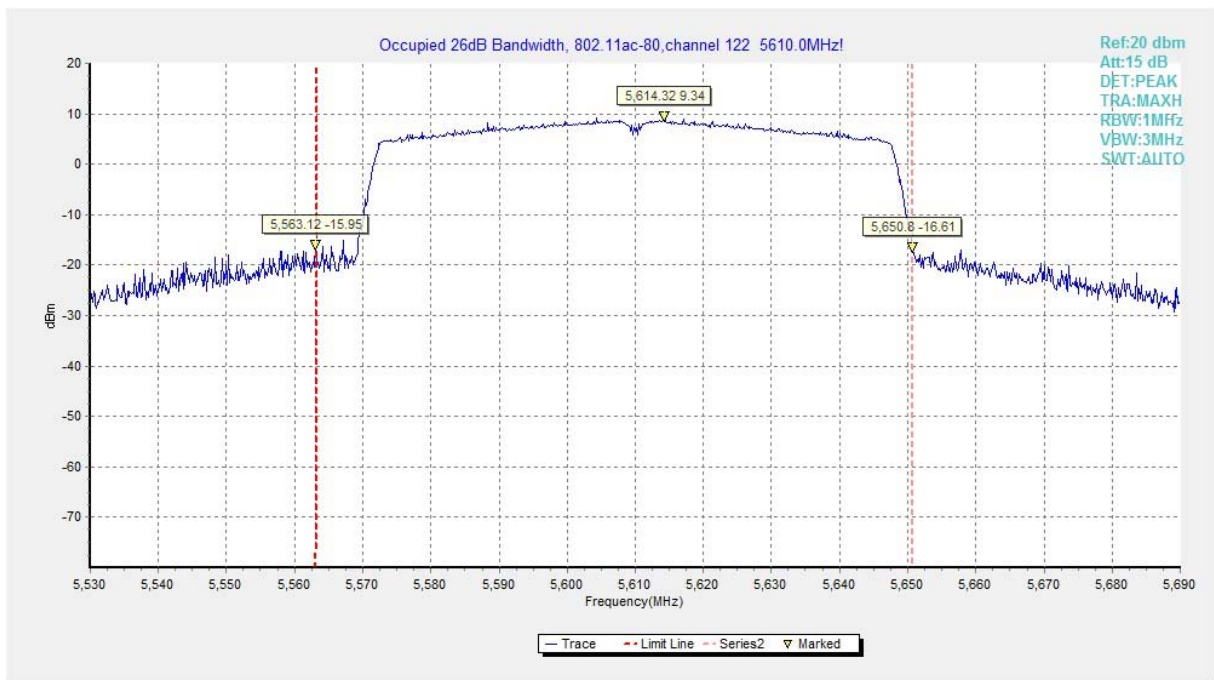


Fig.32 Occupied 26dB Bandwidth (802. 11ac-HT80, 5610MHz)

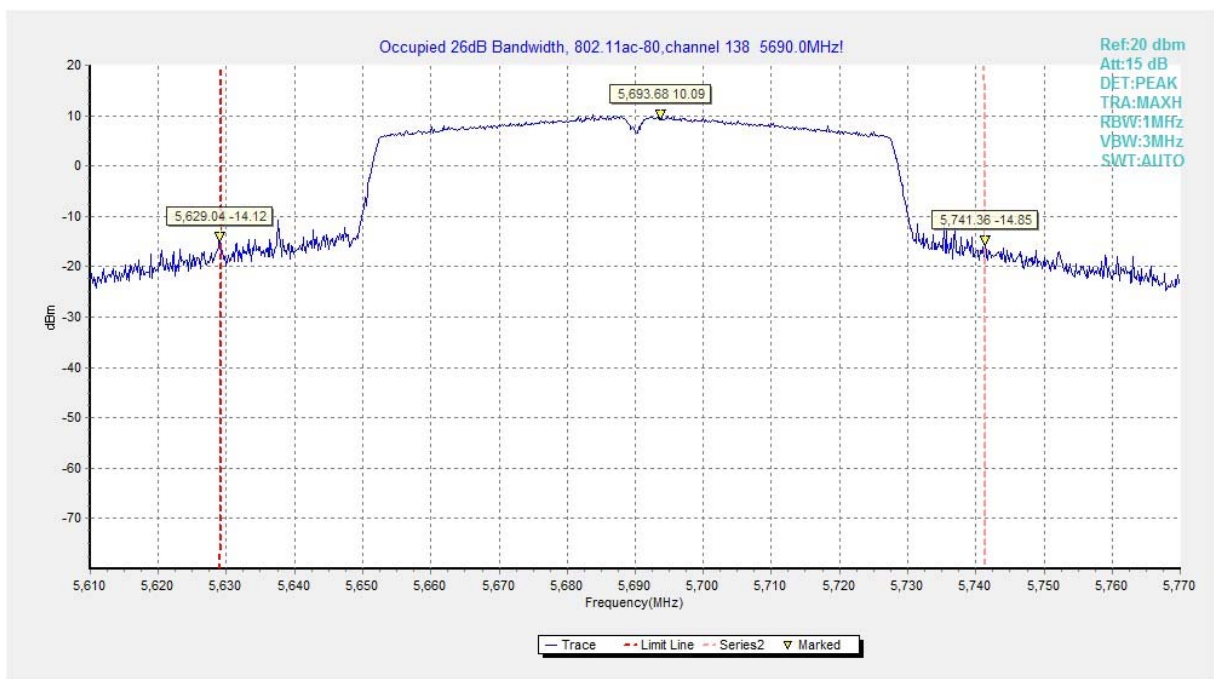


Fig.33 Occupied 26dB Bandwidth (802. 11ac-HT80, 5690MHz)

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)
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 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

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
802.11ac HT20	5180 MHz	Fig.42	P
	5320 MHz	Fig.43	P
	5500 MHz	Fig.44	P
	5700 MHz	Fig.45	P
802.11n HT40	5190 MHz	Fig.46	P
	5310 MHz	Fig.47	P
	5510 MHz	Fig.48	P
	5670 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:

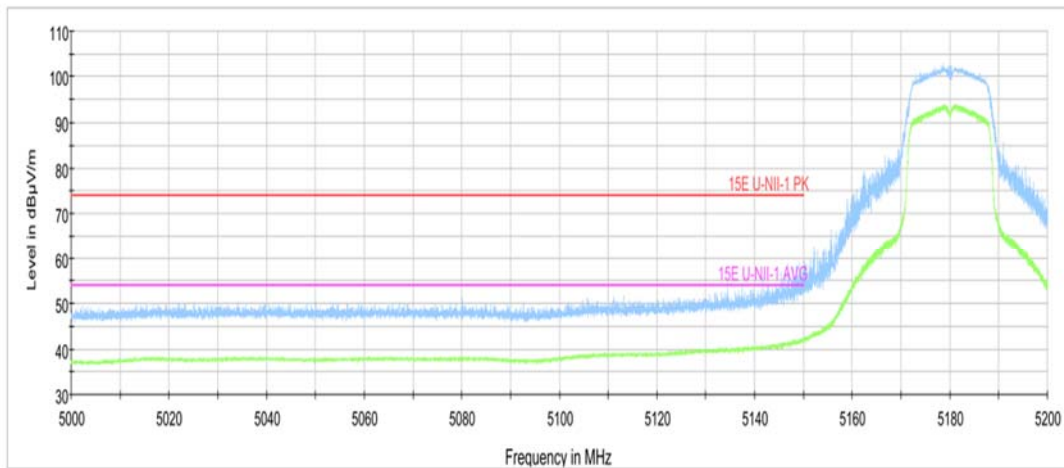


Fig.34 Band Edges (802.11a Ch36, 5180MHz)

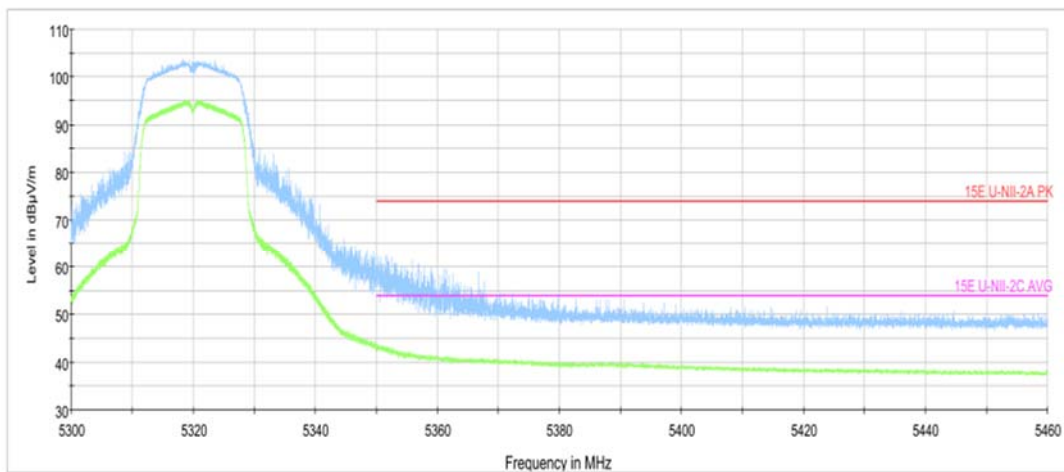


Fig.35 Band Edges (802.11a Ch64, 5320MHz)

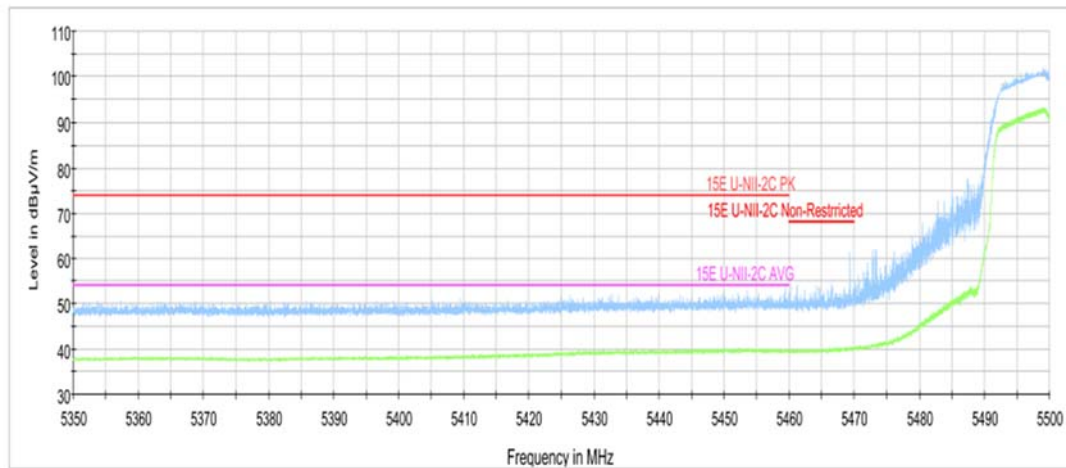


Fig.36 Band Edges (802.11a Ch100, 5500MHz)

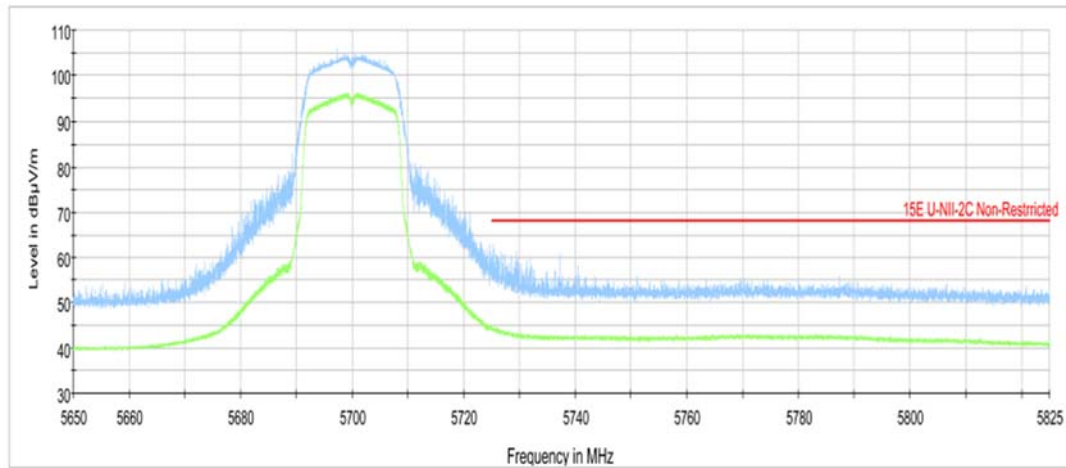


Fig.37 Band Edges (802.11a Ch140, 5700MHz)

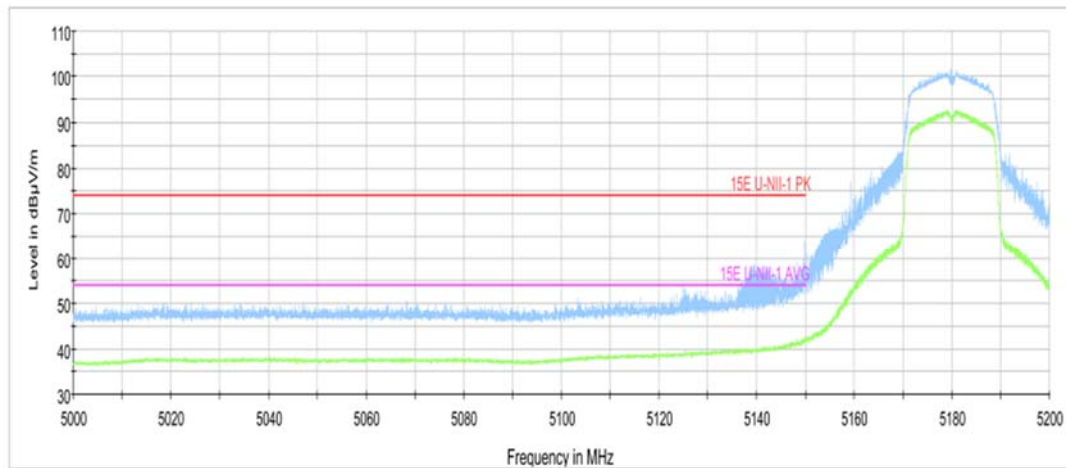


Fig.38 Band Edges (802.11n-HT20 Ch36, 5180MHz)

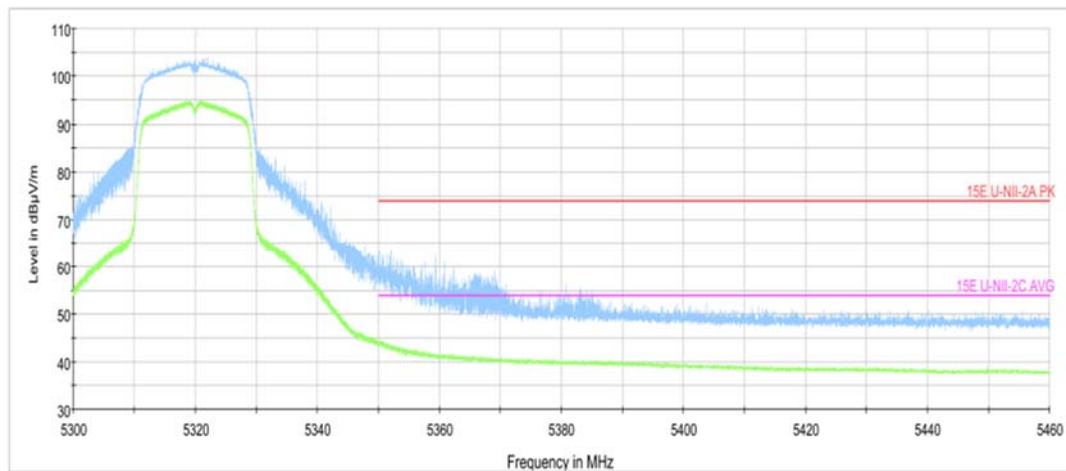


Fig.39 Band Edges (802.11n-HT20 Ch64, 5320MHz)

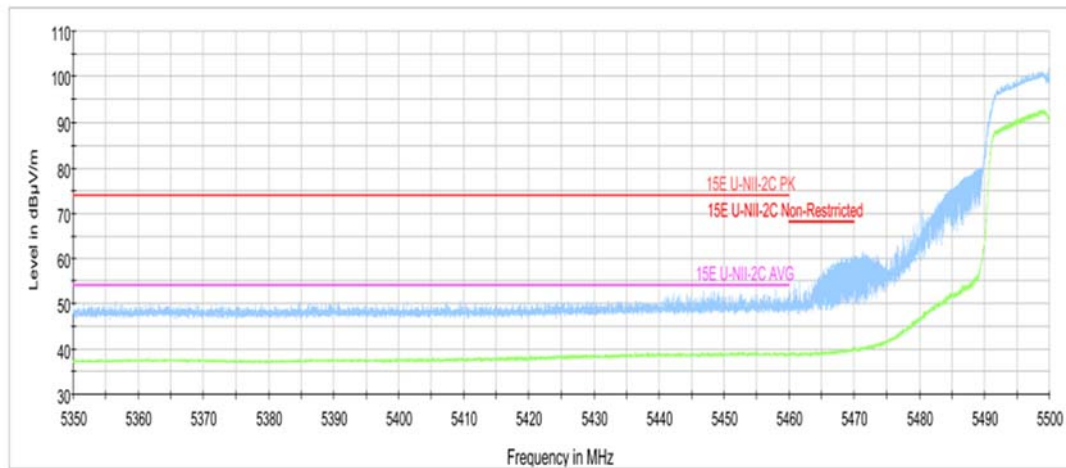


Fig.40 Band Edges (802.11n-HT20 Ch100, 5500MHz)

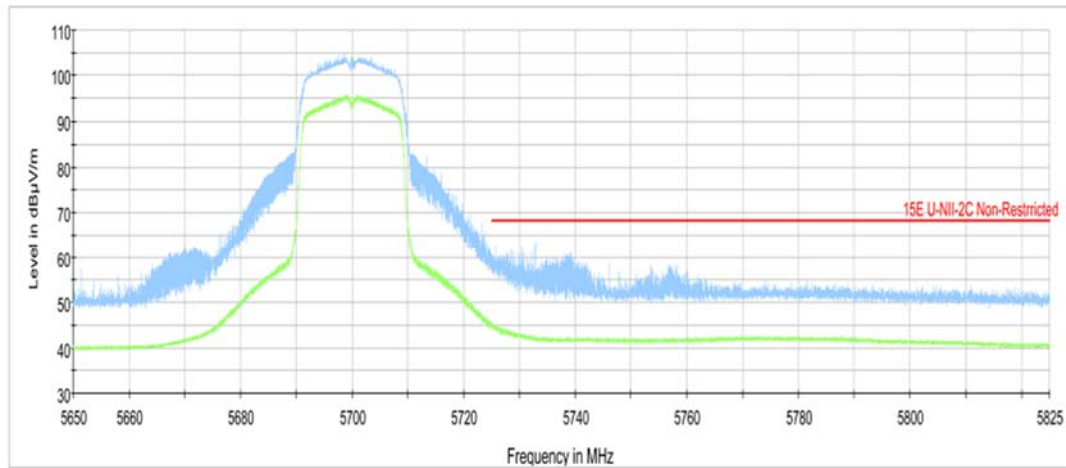


Fig.41 Band Edges (802.11n-HT20 Ch140, 5700MHz)

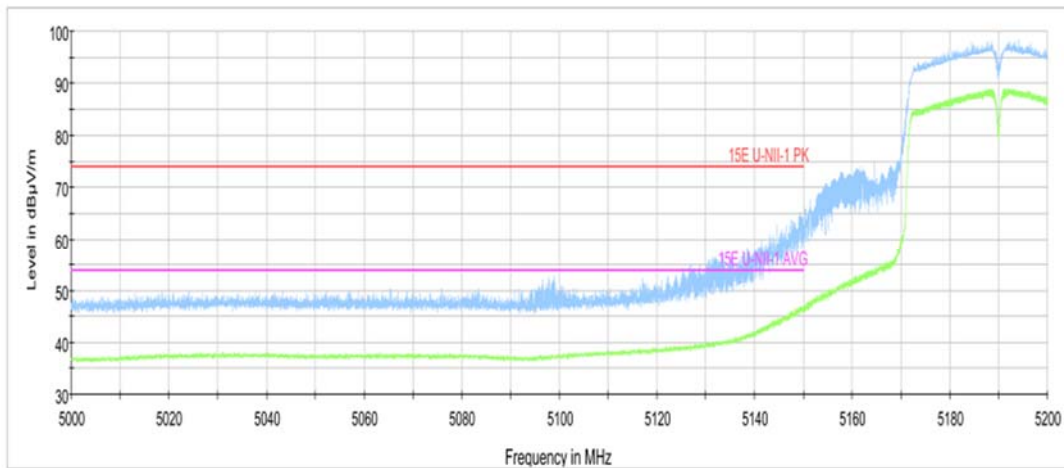


Fig.42 Band Edges (802.11n-HT40 Ch38, 5190MHz)

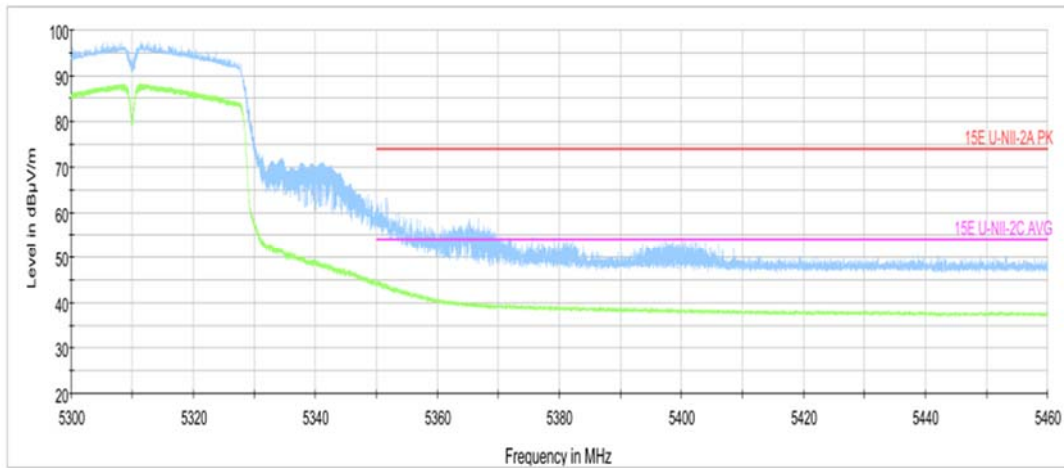


Fig.43 Band Edges (802.11n-HT40 Ch62, 5310MHz)

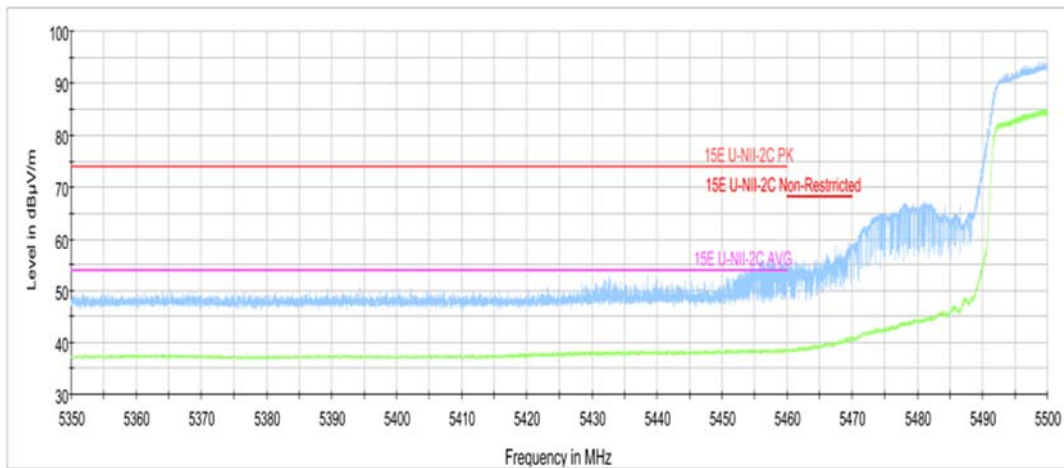


Fig.44 Band Edges (802.11n-HT40 Ch102, 5510MHz)

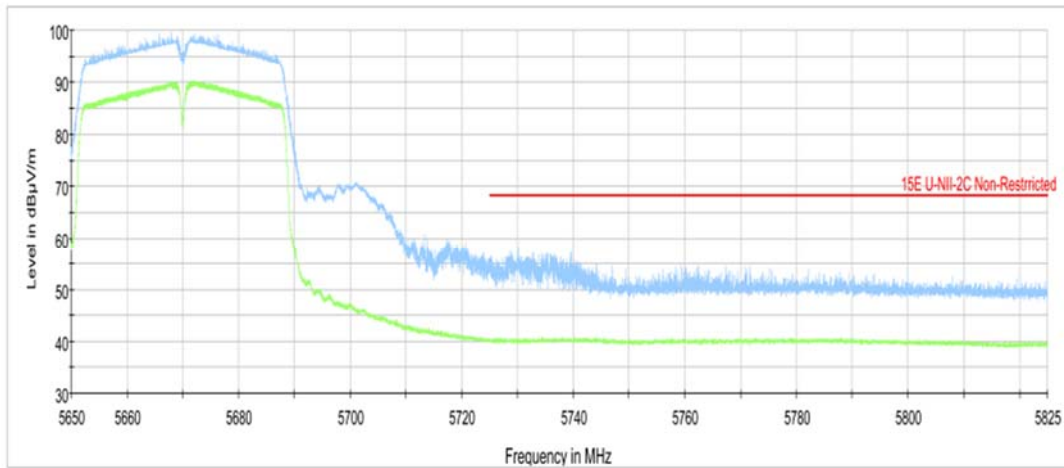


Fig.45 Band Edges (802.11n-HT40 Ch134, 5670MHz)

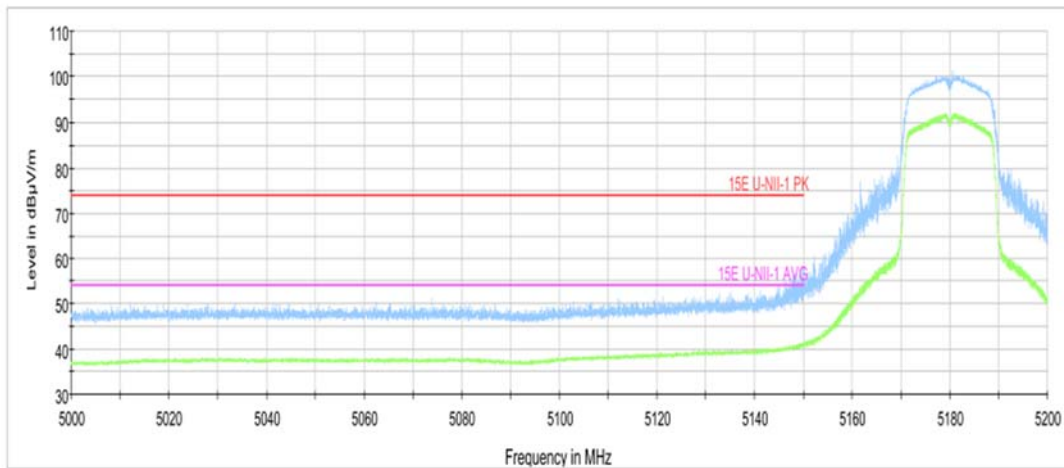


Fig.46 Band Edges (802.11ac-HT20 Ch36, 5180MHz)

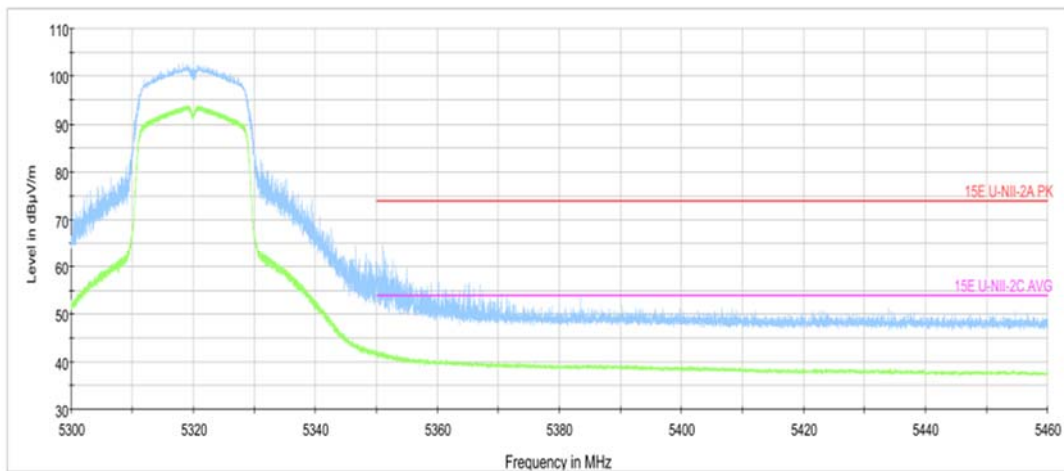


Fig.47 Band Edges (802.11ac-HT20 Ch64, 5320MHz)

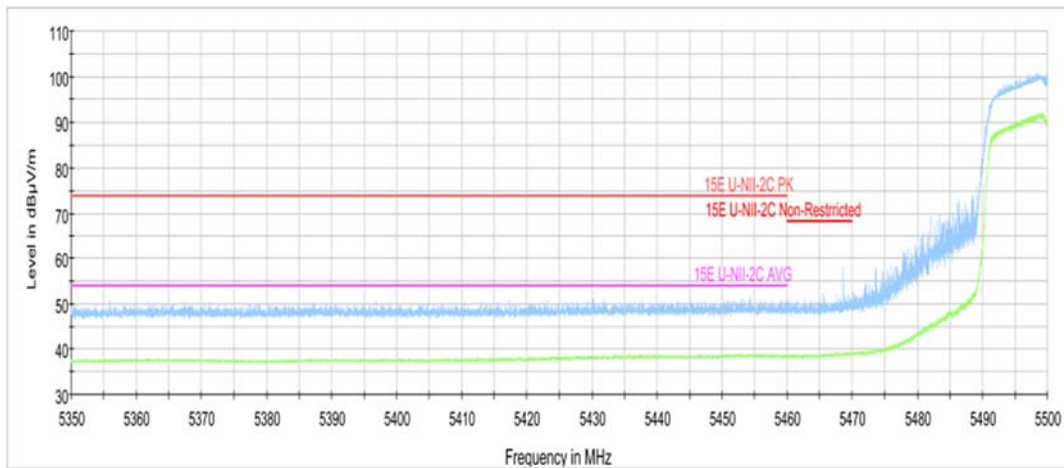


Fig.48 Band Edges (802.11ac-HT20 Ch100, 5500MHz)

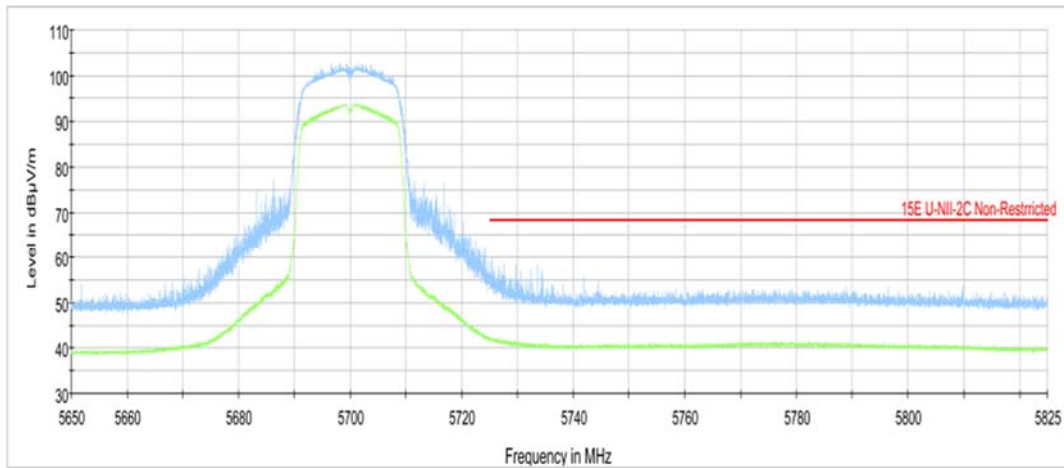


Fig.49 Band Edges (802.11ac-HT20 Ch140, 5700MHz)

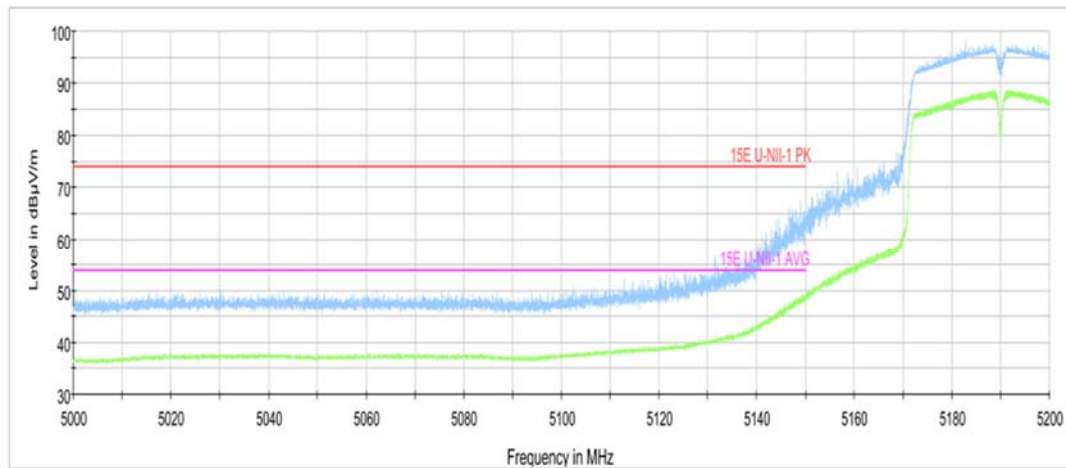


Fig.50 Band Edges (802.11ac-HT40 Ch38, 5190MHz)

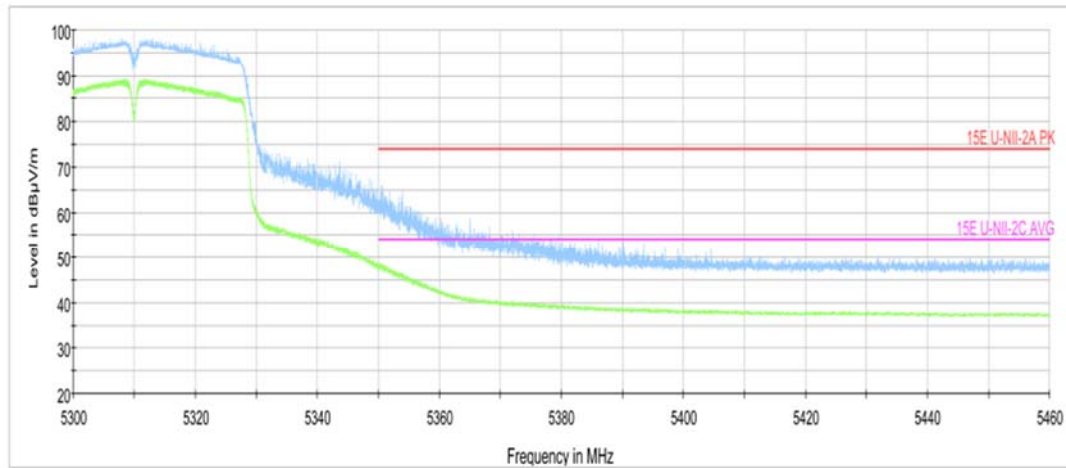


Fig.51 Band Edges (802.11ac-HT40 Ch62, 5310MHz)

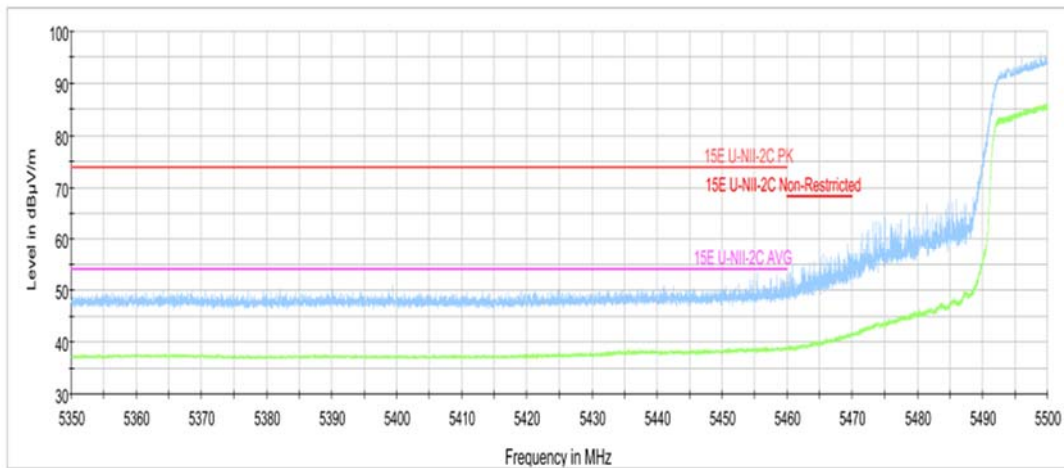


Fig.52 Band Edges (802.11ac-HT40 Ch102, 5510MHz)

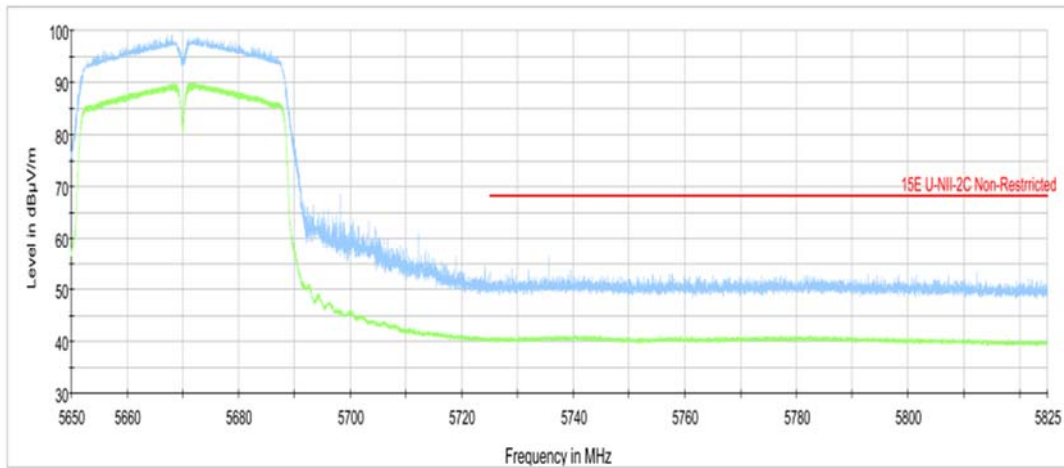


Fig.53 Band Edges (802.11ac-HT40 Ch134, 5670MHz)

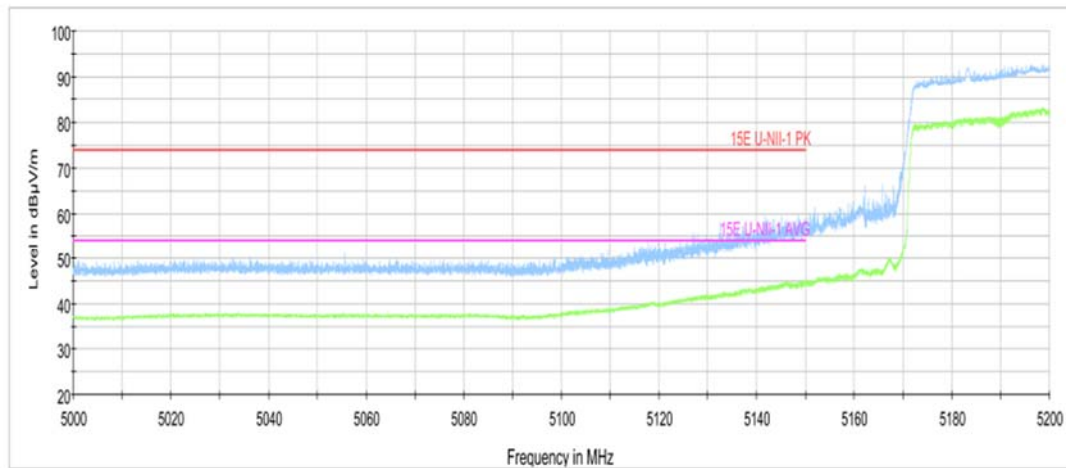


Fig.54 Band Edges (802.11ac-HT80 Ch42 , 5210MHz)

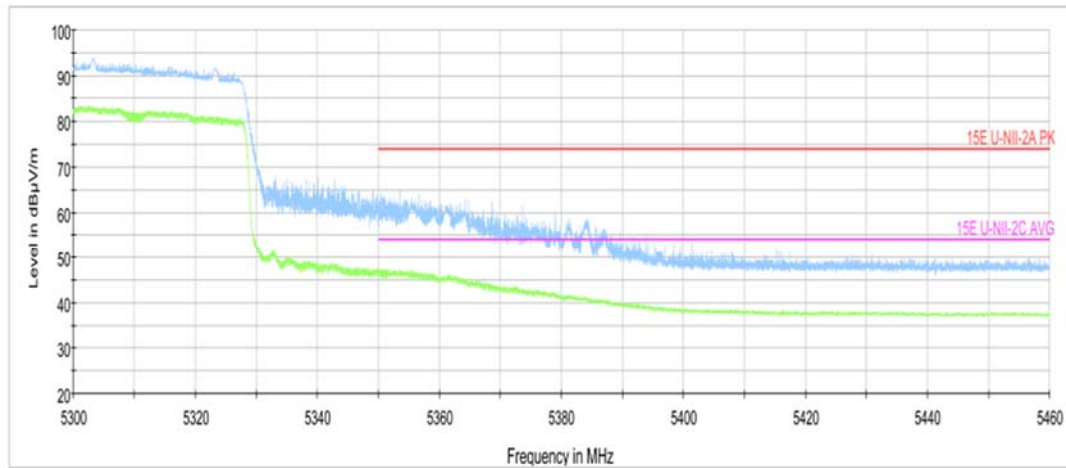


Fig.55 Band Edges (802.11ac-HT80 Ch58, 5290MHz)

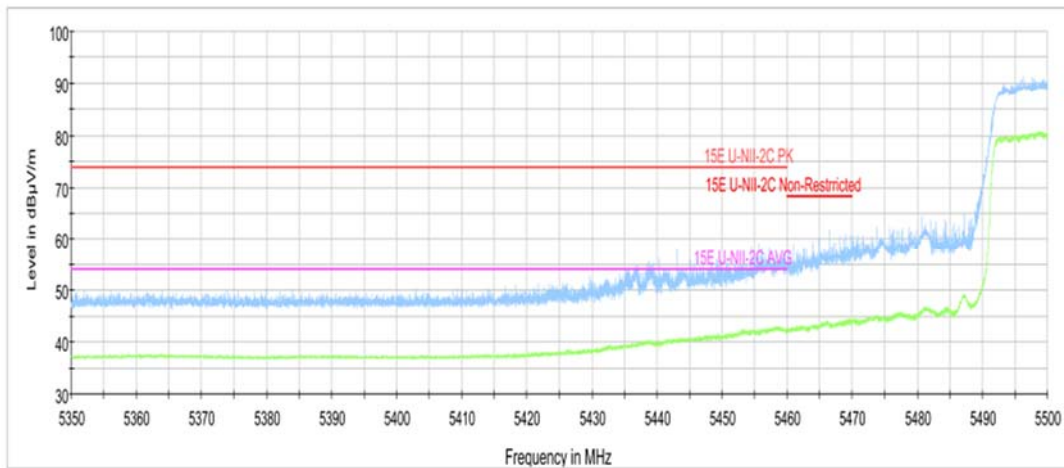


Fig.56 Band Edges (802.11ac-HT80 Ch106, 5530MHz)

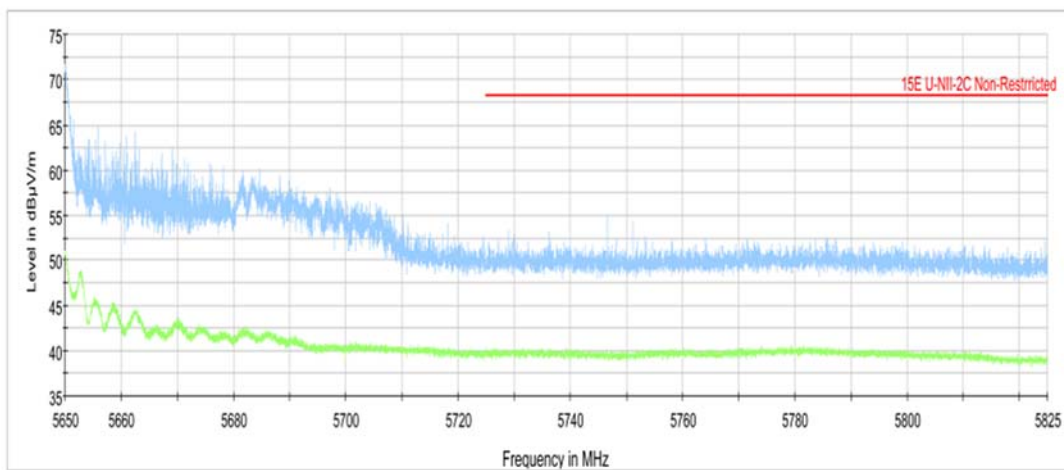


Fig.57 Band Edges (802.11ac-HT80 Ch122, 5610MHz)

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

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

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
18000-40000	1MHz/3MHz	20

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
	144(5720MHz)	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

	120(5600MHz)	7 GHz ~ 18 GHz	---	P
		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
	144(5720MHz)	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
	142(5710MHz)	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
	64(5320MHz)	26.5 GHz ~ 40 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
	100(5500MHz)	7 GHz ~ 18 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
	120(5600MHz)	7 GHz ~ 18 GHz	---	P
		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
	144(5720MHz)	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
	142(5710MHz)	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
	138(5690MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P

Conclusion: PASS

Note:

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

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

The measurement results are obtained as described below:

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

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)
17997.800	46.17	-25.50	46.66	25.01	54.00	7.83	V
17988.500	45.82	-25.50	46.66	24.66	54.00	8.18	H
14476.100	39.09	-28.59	42.46	25.22	54.00	14.91	V
14489.400	39.07	-28.59	42.46	25.20	54.00	14.93	V
5149.900	42.38	-27.61	33.67	36.32	54.00	11.62	H
5149.700	42.27	-27.61	33.67	36.21	54.00	11.73	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)
17997.800	46.07	-25.50	46.66	24.91	54.00	7.93	V
17981.300	46.04	-25.50	46.66	24.88	54.00	7.96	H
14488.800	39.01	-28.59	42.46	25.14	54.00	14.99	H
14478.900	39.00	-28.59	42.46	25.13	54.00	15.00	V
11810.900	34.51	-31.85	39.05	27.31	54.00	19.49	V
11835.600	34.41	-31.85	39.05	27.21	54.00	19.59	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)
17993.400	46.14	-25.50	46.66	24.98	54.00	7.86	V
17996.700	45.97	-25.50	46.66	24.81	54.00	8.03	V
14488.800	39.22	-28.59	42.46	25.35	54.00	14.78	V
14487.700	39.09	-28.59	42.46	25.22	54.00	14.91	H
11814.100	34.60	-31.85	39.05	27.40	54.00	19.40	V
11836.700	34.50	-31.85	39.05	27.30	54.00	19.50	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)
17987.900	46.15	-25.50	46.66	24.99	54.00	7.85	H
17995.600	46.15	-25.50	46.66	24.99	54.00	7.85	V
14491.000	39.31	-28.59	42.46	25.44	54.00	14.69	H
14498.700	39.24	-28.59	42.46	25.37	54.00	14.76	V
11821.300	34.63	-31.85	39.05	27.43	54.00	19.37	V
11864.800	34.62	-31.85	39.05	27.42	54.00	19.38	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)
17996.200	46.23	-25.50	46.66	25.07	54.00	7.77	H
17994.500	46.17	-25.50	46.66	25.01	54.00	7.83	V
14491.500	39.26	-28.59	42.46	25.39	54.00	14.74	V
14481.100	39.25	-28.59	42.46	25.38	54.00	14.75	V
11852.100	34.67	-31.85	39.05	27.47	54.00	19.33	V
11842.800	34.65	-31.85	39.05	27.45	54.00	19.35	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)
17996.200	46.20	-25.50	46.66	25.04	54.00	7.80	V
17995.000	46.19	-25.50	46.66	25.03	54.00	7.81	V
14497.600	39.36	-28.59	42.46	25.49	54.00	14.64	V
14476.100	38.96	-28.59	42.46	25.09	54.00	15.04	H
5350.200	43.86	-27.43	34.01	37.28	54.00	10.14	H
5350.100	43.50	-27.43	34.01	36.92	54.00	10.50	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)
17993.400	46.09	-25.50	46.66	24.93	54.00	7.91	V
17989.000	46.07	-25.50	46.66	24.91	54.00	7.93	V
14479.500	39.21	-28.59	42.46	25.34	54.00	14.79	V
14493.800	39.02	-28.59	42.46	25.15	54.00	14.98	V
5450.500	40.13	-27.18	34.17	33.14	54.00	13.87	H
5452.200	40.13	-27.18	34.17	33.14	54.00	13.87	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)
17990.100	46.16	-25.50	46.66	25.00	54.00	7.84	V
17996.700	46.11	-25.50	46.66	24.95	54.00	7.89	V
14498.100	39.31	-28.59	42.46	25.44	54.00	14.69	V
14497.600	39.27	-28.59	42.46	25.40	54.00	14.73	H
11837.800	34.73	-31.85	39.05	27.53	54.00	19.27	V
11638.100	34.60	-32.31	38.91	28.01	54.00	19.40	V

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)
17994.000	46.38	-25.50	46.66	25.22	54.00	7.62	H
17997.200	46.22	-25.50	46.66	25.06	54.00	7.78	V
14492.100	39.12	-28.59	42.46	25.25	54.00	14.88	H
14497.600	39.02	-28.59	42.46	25.15	54.00	14.98	H
11818.500	34.67	-31.85	39.05	27.47	54.00	19.33	V
11829.500	34.59	-31.85	39.05	27.39	54.00	19.41	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)
17988.5	46.39	-25.5	46.66	25.23	54	7.61	V
17991.2	46.33	-25.5	46.66	25.17	54	7.67	V
14497	39.51	-28.59	42.46	25.64	54	14.49	V
14477.2	39.42	-28.59	42.46	25.55	54	14.58	V
11857.6	34.59	-31.85	39.05	27.39	54	19.41	V
11915.9	34.59	-31.48	39.09	26.98	54	19.41	V

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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)
17990.700	46.29	-25.50	46.66	25.13	54.00	7.71	H
17993.400	46.09	-25.50	46.66	24.93	54.00	7.91	V
14496.000	39.17	-28.59	42.46	25.30	54.00	14.83	V
14483.300	39.01	-28.59	42.46	25.14	54.00	14.99	V
5149.900	42.47	-27.61	33.67	36.41	54.00	11.53	H
5149.700	42.41	-27.61	33.67	36.35	54.00	11.59	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)
17998.900	46.41	-25.50	46.66	25.25	54.00	7.59	H
17995.000	46.10	-25.50	46.66	24.94	54.00	7.90	H
14494.900	39.17	-28.59	42.46	25.30	54.00	14.83	H
14497.600	38.99	-28.59	42.46	25.12	54.00	15.01	V
11903.200	34.38	-31.85	39.05	27.18	54.00	19.62	V
11904.900	34.38	-31.85	39.05	27.18	54.00	19.62	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)
17993.400	46.15	-25.50	46.66	24.99	54.00	7.85	V
17996.200	46.15	-25.50	46.66	24.99	54.00	7.85	H
14498.700	39.25	-28.59	42.46	25.38	54.00	14.75	V
14484.400	39.19	-28.59	42.46	25.32	54.00	14.81	V
12000.000	34.57	-31.48	39.09	26.96	54.00	19.43	V
11867.000	34.42	-31.85	39.05	27.22	54.00	19.58	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)
17997.800	46.75	-25.50	46.66	25.59	54.00	7.25	V
17997.200	46.21	-25.50	46.66	25.05	54.00	7.79	V
14492.600	39.64	-28.59	42.46	25.77	54.00	14.36	V
14494.300	39.18	-28.59	42.46	25.31	54.00	14.82	H
11840.000	34.63	-31.85	39.05	27.43	54.00	19.37	V
11816.900	34.61	-31.85	39.05	27.41	54.00	19.39	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)
17997.200	46.26	-25.50	46.66	25.10	54.00	7.74	H
17995.000	46.17	-25.50	46.66	25.01	54.00	7.83	V
14493.200	39.24	-28.59	42.46	25.37	54.00	14.76	V
14497.600	39.10	-28.59	42.46	25.23	54.00	14.90	H
11815.800	34.85	-31.85	39.05	27.65	54.00	19.15	V
11811.400	34.57	-31.85	39.05	27.37	54.00	19.43	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)
17996.200	46.41	-25.50	46.66	25.25	54.00	7.59	V
17996.700	46.24	-25.50	46.66	25.08	54.00	7.76	V
14497.600	39.54	-28.59	42.46	25.67	54.00	14.46	V
14496.500	39.22	-28.59	42.46	25.35	54.00	14.78	V
5350.100	44.46	-27.43	34.01	37.88	54.00	9.54	H
5350.400	44.36	-27.43	34.01	37.78	54.00	9.64	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)
17997.200	46.12	-25.50	46.66	24.96	54.00	7.88	V
17986.200	46.11	-25.50	46.66	24.95	54.00	7.89	V
14499.200	39.14	-28.59	42.46	25.27	54.00	14.86	H
14489.900	39.11	-28.59	42.46	25.24	54.00	14.89	V
5452.400	39.42	-27.18	34.17	32.43	54.00	14.58	H
5454.200	39.33	-27.18	34.17	32.34	54.00	14.67	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)
17991.200	46.25	-25.50	46.66	25.09	54.00	7.75	V
17993.400	46.23	-25.50	46.66	25.07	54.00	7.77	V
14497.000	39.41	-28.59	42.46	25.54	54.00	14.59	H
14481.100	39.30	-28.59	42.46	25.43	54.00	14.70	H
11823.500	34.82	-31.85	39.05	27.62	54.00	19.18	V
11848.200	34.70	-31.85	39.05	27.50	54.00	19.30	V

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)
17998.300	46.09	-25.50	46.66	24.93	54.00	7.91	V
17997.800	46.07	-25.50	46.66	24.91	54.00	7.93	V
14488.200	39.36	-28.59	42.46	25.49	54.00	14.64	V
14482.200	39.29	-28.59	42.46	25.42	54.00	14.71	V
11813.000	34.72	-31.85	39.05	27.52	54.00	19.28	V
11843.300	34.62	-31.85	39.05	27.42	54.00	19.38	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)
17988.5	46.49	-25.5	46.66	25.33	54	7.51	V
17998.9	46.45	-25.5	46.66	25.29	54	7.55	V
14488.8	39.74	-28.59	42.46	25.87	54	14.26	V
14493.8	39.59	-28.59	42.46	25.72	54	14.41	H
11840	35.18	-31.85	39.05	27.98	54	18.82	V
11846.6	35.09	-31.85	39.05	27.89	54	18.91	V

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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)
17980.8	46.31	-25.5	46.66	25.15	54	7.69	V
17992.3	46.13	-25.5	46.66	24.97	54	7.87	H
14496	39.26	-28.59	42.46	25.39	54	14.74	H
14477.2	39.06	-28.59	42.46	25.19	54	14.94	V
11830.1	34.61	-31.85	39.05	27.41	54	19.39	H
11823.5	34.6	-31.85	39.05	27.4	54	19.4	V

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)
17986.200	45.81	-25.50	46.66	24.65	54.00	8.19	V
17987.900	45.79	-25.50	46.66	24.63	54.00	8.21	H
14493.200	39.08	-28.59	42.46	25.21	54.00	14.92	H
14479.500	39.07	-28.59	42.46	25.20	54.00	14.93	V
12000.000	34.38	-31.48	39.09	26.77	54.00	19.62	V
11864.200	34.22	-31.85	39.05	27.02	54.00	19.78	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)
17987.900	46.38	-25.50	46.66	25.22	54.00	7.62	V
17991.200	46.12	-25.50	46.66	24.96	54.00	7.88	V
14485.000	39.15	-28.59	42.46	25.28	54.00	14.85	H
14487.700	39.14	-28.59	42.46	25.27	54.00	14.86	H
11934.000	34.67	-31.48	39.09	27.06	54.00	19.33	V
11896.100	34.66	-31.85	39.05	27.46	54.00	19.34	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)
17985.700	46.25	-25.50	46.66	25.09	54.00	7.75	H
17979.700	46.14	-25.50	46.66	24.98	54.00	7.86	V
14497.000	39.23	-28.59	42.46	25.36	54.00	14.77	V
14492.100	39.18	-28.59	42.46	25.31	54.00	14.82	H
5350.000	44.66	-27.43	34.01	38.08	54.00	9.34	H
5350.300	44.66	-27.43	34.01	38.08	54.00	9.34	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)
17987.300	46.25	-25.50	46.66	25.09	54.00	7.75	V
17984.600	46.21	-25.50	46.66	25.05	54.00	7.79	H
14499.800	39.25	-28.59	42.46	25.38	54.00	14.75	H
14497.600	39.19	-28.59	42.46	25.32	54.00	14.81	H
5454.900	38.69	-27.18	34.17	31.70	54.00	15.31	H
5458.900	38.69	-27.18	34.17	31.70	54.00	15.31	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)
17998.300	46.19	-25.50	46.66	25.03	54.00	7.81	V
17992.800	46.16	-25.50	46.66	25.00	54.00	7.84	H
14480.500	39.33	-28.59	42.46	25.46	54.00	14.67	V
14475.600	39.31	-28.59	42.46	25.44	54.00	14.69	V
11815.800	34.79	-31.85	39.05	27.59	54.00	19.21	H
11845.000	34.78	-31.85	39.05	27.58	54.00	19.22	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)
17998.3	46.54	-25.5	46.66	25.38	54	7.46	V
17998.9	46.42	-25.5	46.66	25.26	54	7.58	V
14496	39.44	-28.59	42.46	25.57	54	14.56	V
14498.1	39.37	-28.59	42.46	25.5	54	14.63	V
11821.9	35.23	-31.85	39.05	28.03	54	18.77	V
11841.1	35.17	-31.85	39.05	27.97	54	18.83	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)
17987.9	46.19	-25.5	46.66	25.03	54	7.81	V
17983.5	46.06	-25.5	46.66	24.9	54	7.94	H
14498.7	39.29	-28.59	42.46	25.42	54	14.71	V
14484.4	39.22	-28.59	42.46	25.35	54	14.78	V
11841.1	34.65	-31.85	39.05	27.45	54	19.35	H
11921.4	34.53	-31.48	39.09	26.92	54	19.47	V

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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)
17991.200	46.14	-25.50	46.66	24.98	54.00	7.86	V
17994.500	45.76	-25.50	46.66	24.60	54.00	8.24	H
14482.200	39.34	-28.59	42.46	25.47	54.00	14.66	H
14496.500	38.88	-28.59	42.46	25.01	54.00	15.12	H
5150.000	41.73	-27.61	33.67	35.67	54.00	12.27	H
5149.900	41.31	-27.61	33.67	35.25	54.00	12.69	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)
17996.200	46.13	-25.50	46.66	24.97	54.00	7.87	V
17992.800	45.90	-25.50	46.66	24.74	54.00	8.10	V
14489.900	39.21	-28.59	42.46	25.34	54.00	14.79	V
14494.900	39.00	-28.59	42.46	25.13	54.00	15.00	H
11812.500	34.42	-31.85	39.05	27.22	54.00	19.58	V
11945.600	34.37	-31.48	39.09	26.76	54.00	19.63	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)
17988.500	46.17	-25.50	46.66	25.01	54.00	7.83	V
17991.800	46.05	-25.50	46.66	24.89	54.00	7.95	V
14487.100	39.06	-28.59	42.46	25.19	54.00	14.94	H
14498.700	38.98	-28.59	42.46	25.11	54.00	15.02	V
11835.000	34.54	-31.85	39.05	27.34	54.00	19.46	H
11988.500	34.42	-31.48	39.09	26.81	54.00	19.58	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)
17996.200	46.09	-25.50	46.66	24.93	54.00	7.91	V
17975.800	46.00	-25.50	46.66	24.84	54.00	8.00	H
14472.300	39.15	-28.59	42.46	25.28	54.00	14.85	V
14481.600	39.10	-28.59	42.46	25.23	54.00	14.90	V
11842.200	34.64	-31.85	39.05	27.44	54.00	19.36	V
11847.100	34.58	-31.85	39.05	27.38	54.00	19.42	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)
17991.200	46.19	-25.50	46.66	25.03	54.00	7.81	H
17983.000	46.10	-25.50	46.66	24.94	54.00	7.90	V
14495.400	39.08	-28.59	42.46	25.21	54.00	14.92	V
14497.600	39.04	-28.59	42.46	25.17	54.00	14.96	H
11841.100	34.81	-31.85	39.05	27.61	54.00	19.19	H
11901.600	34.69	-31.85	39.05	27.49	54.00	19.31	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)
17981.800	46.11	-25.50	46.66	24.95	54.00	7.89	V
17998.300	46.11	-25.50	46.66	24.95	54.00	7.89	H
14483.900	39.40	-28.59	42.46	25.53	54.00	14.60	V
14482.800	39.18	-28.59	42.46	25.31	54.00	14.82	V
5350.200	42.31	-27.43	34.01	35.73	54.00	11.69	H
5351.200	42.22	-27.43	34.01	35.64	54.00	11.78	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)
17997.800	46.31	-25.50	46.66	25.15	54.00	7.69	H
17992.800	46.12	-25.50	46.66	24.96	54.00	7.88	H
14491.000	39.43	-28.59	42.46	25.56	54.00	14.57	V
14477.800	39.26	-28.59	42.46	25.39	54.00	14.74	H
5450.700	38.97	-27.18	34.17	31.98	54.00	15.03	H
5437.300	38.90	-27.18	34.17	31.91	54.00	15.10	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)
17993.400	46.18	-25.50	46.66	25.02	54.00	7.82	H
17984.600	46.09	-25.50	46.66	24.93	54.00	7.91	V
14477.800	39.25	-28.59	42.46	25.38	54.00	14.75	V
14478.400	39.09	-28.59	42.46	25.22	54.00	14.91	H
11814.700	34.58	-31.85	39.05	27.38	54.00	19.42	V
11849.400	34.57	-31.85	39.05	27.37	54.00	19.43	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)
17994.000	46.69	-25.50	46.66	25.53	54.00	7.31	H
17991.200	46.60	-25.50	46.66	25.44	54.00	7.40	V
14495.400	39.46	-28.59	42.46	25.59	54.00	14.54	V
14493.200	39.11	-28.59	42.46	25.24	54.00	14.89	V
11811.400	34.77	-31.85	39.05	27.57	54.00	19.23	V
11836.100	34.58	-31.85	39.05	27.38	54.00	19.42	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)
17993.4	46.34	-25.5	46.66	25.18	54	7.66	H
17996.7	46.32	-25.5	46.66	25.16	54	7.68	H
14484.4	39.31	-28.59	42.46	25.44	54	14.69	V
14475.6	39.23	-28.59	42.46	25.36	54	14.77	H
11936.8	34.63	-31.48	39.09	27.02	54	19.37	V
11859.8	34.61	-31.85	39.05	27.41	54	19.39	V

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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)
17991.800	45.58	-25.50	46.66	24.42	54.00	8.42	V
17985.200	45.52	-25.50	46.66	24.36	54.00	8.48	V
14482.800	38.77	-28.59	42.46	24.90	54.00	15.23	V
14480.500	38.71	-28.59	42.46	24.84	54.00	15.29	V
5149.500	49.31	-27.61	33.67	43.25	54.00	4.69	H
5149.300	49.17	-27.61	33.67	43.11	54.00	4.83	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)
17992.300	45.83	-25.50	46.66	24.67	54.00	8.17	H
17996.700	45.78	-25.50	46.66	24.62	54.00	8.22	H
14496.000	39.12	-28.59	42.46	25.25	54.00	14.88	V
14499.800	39.02	-28.59	42.46	25.15	54.00	14.98	V
11927.500	34.36	-31.48	39.09	26.75	54.00	19.64	V
11830.100	34.32	-31.85	39.05	27.12	54.00	19.68	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)
17979.100	45.98	-25.50	46.66	24.82	54.00	8.02	V
17995.000	45.95	-25.50	46.66	24.79	54.00	8.05	V
14491.000	39.45	-28.59	42.46	25.58	54.00	14.55	H
14497.000	39.43	-28.59	42.46	25.56	54.00	14.57	H
11820.200	34.82	-31.85	39.05	27.62	54.00	19.18	V
11863.600	34.70	-31.85	39.05	27.50	54.00	19.30	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)
17992.800	46.24	-25.50	46.66	25.08	54.00	7.76	H
17992.300	46.13	-25.50	46.66	24.97	54.00	7.87	V
14498.700	39.26	-28.59	42.46	25.39	54.00	14.74	V
14497.600	39.25	-28.59	42.46	25.38	54.00	14.75	V
5350.300	48.66	-27.43	34.01	42.08	54.00	5.34	H
5350.500	48.60	-27.43	34.01	42.02	54.00	5.40	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)
17986.800	46.17	-25.50	46.66	25.01	54.00	7.83	H
17998.900	46.12	-25.50	46.66	24.96	54.00	7.88	H
14478.900	39.36	-28.59	42.46	25.49	54.00	14.64	V
14488.200	39.31	-28.59	42.46	25.44	54.00	14.69	V
5459.800	39.12	-27.18	34.17	32.13	54.00	14.88	H
5456.700	39.05	-27.18	34.17	32.06	54.00	14.95	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)
17991.200	46.10	-25.50	46.66	24.94	54.00	7.90	V
17996.200	46.04	-25.50	46.66	24.88	54.00	7.96	V
14493.200	39.34	-28.59	42.46	25.47	54.00	14.66	V
14480.500	39.17	-28.59	42.46	25.30	54.00	14.83	V
11842.200	34.73	-31.85	39.05	27.53	54.00	19.27	H
11835.000	34.57	-31.85	39.05	27.37	54.00	19.43	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)
17997.200	46.25	-25.50	46.66	25.09	54.00	7.75	V
17996.700	46.11	-25.50	46.66	24.95	54.00	7.89	H
14498.100	39.50	-28.59	42.46	25.63	54.00	14.50	V
14497.600	39.48	-28.59	42.46	25.61	54.00	14.52	V
11861.500	34.86	-31.85	39.05	27.66	54.00	19.14	V
11818.500	34.65	-31.85	39.05	27.45	54.00	19.35	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)
17991.2	46.28	-25.5	46.66	25.12	54	7.72	V
17989.5	46.17	-25.5	46.66	25.01	54	7.83	V
14499.8	39.31	-28.59	42.46	25.44	54	14.69	H
14494.9	39.29	-28.59	42.46	25.42	54	14.71	V
11834.5	34.62	-31.85	39.05	27.42	54	19.38	V
11902.7	34.62	-31.85	39.05	27.42	54	19.38	H

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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)
17977.500	46.19	-25.50	46.66	25.03	54.00	7.81	V
17989.000	45.99	-25.50	46.66	24.83	54.00	8.01	V
14481.600	39.34	-28.59	42.46	25.47	54.00	14.66	H
14499.200	39.31	-28.59	42.46	25.44	54.00	14.69	V
5149.300	45.19	-27.61	33.67	39.13	54.00	8.81	H
5149.600	45.06	-27.61	33.67	39.00	54.00	8.94	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)
17985.200	46.31	-25.50	46.66	25.15	54.00	7.69	V
17993.400	46.27	-25.50	46.66	25.11	54.00	7.73	V
14499.800	39.34	-28.59	42.46	25.47	54.00	14.66	H
14478.400	39.26	-28.59	42.46	25.39	54.00	14.74	V
5350.300	47.45	-27.43	34.01	40.87	54.00	6.55	H
5351.100	47.30	-27.43	34.01	40.72	54.00	6.70	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)
17998.900	46.40	-25.50	46.66	25.24	54.00	7.60	V
17990.700	46.23	-25.50	46.66	25.07	54.00	7.77	H
14470.600	39.29	-28.59	42.46	25.42	54.00	14.71	V
14498.100	39.26	-28.59	42.46	25.39	54.00	14.74	V
5458.700	42.93	-27.18	34.17	35.94	54.00	11.07	H
5458.600	42.92	-27.18	34.17	35.93	54.00	11.08	H

Channel 122

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)
17986.200	46.19	-25.50	46.66	25.03	54.00	7.81	V
17998.900	46.18	-25.50	46.66	25.02	54.00	7.82	H
14495.400	39.36	-28.59	42.46	25.49	54.00	14.64	V
14494.900	39.24	-28.59	42.46	25.37	54.00	14.76	V
11822.400	34.69	-31.85	39.05	27.49	54.00	19.31	V
11813.000	34.55	-31.85	39.05	27.35	54.00	19.45	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)
17977.5	46.2	-25.5	46.66	25.04	54	7.8	H
17998.9	46.18	-25.5	46.66	25.02	54	7.82	V
14497.6	39.35	-28.59	42.46	25.48	54	14.65	V
14475	39.31	-28.59	42.46	25.44	54	14.69	V
11832.3	34.77	-31.85	39.05	27.57	54	19.23	H
11837.2	34.7	-31.85	39.05	27.5	54	19.3	V

PEAK Results:
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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)
17989.500	57.34	-25.50	46.66	36.18	74.00	16.66	H
17977.500	57.22	-25.50	46.66	36.06	74.00	16.78	V
14404.100	51.75	-28.59	42.46	37.88	68.30	16.55	H
14329.900	51.42	-28.42	42.34	37.50	68.30	16.88	H
5146.800	58.86	-27.61	33.67	52.80	74.00	15.14	H
5149.200	58.85	-27.61	33.67	52.79	74.00	15.15	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)
17942.800	57.14	-25.50	46.66	35.98	74.00	16.86	V
17954.300	56.88	-25.50	46.66	35.72	74.00	17.12	V
14389.800	51.72	-28.42	42.34	37.80	68.30	16.58	V
14581.800	50.79	-27.29	41.90	36.18	68.30	17.51	H
11938.500	46.70	-31.48	39.09	39.09	74.00	27.30	V
11915.400	46.54	-31.48	39.09	38.93	74.00	27.46	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)
17992.300	57.65	-25.50	46.66	36.49	74.00	16.35	H
17998.900	57.57	-25.50	46.66	36.41	74.00	16.43	H
14372.800	51.08	-28.42	42.34	37.16	68.30	17.22	V
14502.000	50.98	-28.59	42.46	37.11	68.30	17.32	H
11821.900	46.58	-31.85	39.05	39.38	74.00	27.42	H
11882.400	46.40	-31.85	39.05	39.20	74.00	27.60	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)
17901.000	57.64	-25.50	46.66	36.48	74.00	16.36	H
17973.600	57.08	-25.50	46.66	35.92	74.00	16.92	V
14475.000	51.38	-28.59	42.46	37.51	74.00	22.62	V
14502.000	51.25	-28.59	42.46	37.38	68.30	17.05	V
11831.800	46.52	-31.85	39.05	39.32	74.00	27.48	V
11832.900	46.38	-31.85	39.05	39.18	74.00	27.62	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)
17984.000	58.13	-25.50	46.66	36.97	74.00	15.87	V
17973.600	57.34	-25.50	46.66	36.18	74.00	16.66	V
14084.000	51.40	-29.44	41.66	39.18	68.30	16.90	V
14486.600	50.92	-28.59	42.46	37.05	74.00	23.08	V
11879.000	46.15	-31.85	39.05	38.95	74.00	27.85	H
11606.800	46.11	-32.31	38.91	39.52	74.00	27.89	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)
17984.000	57.92	-25.50	46.66	36.76	74.00	16.08	V
17958.800	57.14	-25.50	46.66	35.98	74.00	16.86	V
14398.600	51.45	-28.59	42.46	37.58	68.30	16.85	V
14607.600	51.09	-27.29	41.90	36.48	68.30	17.21	V
5351.500	62.31	-27.43	34.01	55.73	74.00	11.69	H
5351.800	62.23	-27.43	34.01	55.65	74.00	11.77	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)
17974.700	57.89	-25.50	46.66	36.73	74.00	16.11	V
17998.900	57.47	-25.50	46.66	36.31	74.00	16.53	V
14620.200	51.33	-27.29	41.90	36.72	68.30	16.97	V
14595.500	51.28	-27.29	41.90	36.67	68.30	17.02	V
5459.400	53.64	-27.18	34.17	46.65	74.00	20.36	H
5469.400	61.04	-27.18	34.17	54.05	68.30	7.26	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)
17980.800	57.63	-25.50	46.66	36.47	74.00	16.37	H
17989.000	57.07	-25.50	46.66	35.91	74.00	16.93	H
14315.500	51.59	-28.42	42.34	37.67	68.30	16.71	H
14349.600	51.40	-28.42	42.34	37.48	68.30	16.90	H
11598.500	47.14	-32.31	38.91	40.55	74.00	26.86	V
10974.300	46.13	-32.82	38.70	40.25	74.00	27.87	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)
17995.600	58.34	-25.50	46.66	37.18	74.00	15.66	H
17978.000	57.84	-25.50	46.66	36.68	74.00	16.16	H
14126.900	51.32	-28.99	42.00	38.30	68.30	16.98	V
14382.600	51.19	-28.42	42.34	37.27	68.30	17.11	V
5725.300	62.91	-27.07	34.31	55.67	68.30	5.39	H
5725.400	61.58	-27.07	34.31	54.34	68.30	6.72	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)
17984	58.13	-25.5	46.66	36.97	74	15.87	H
17994.5	57.43	-25.5	46.66	36.27	74	16.57	H
14553.7	51.18	-27.29	41.9	36.57	68.3	17.12	H
14498.7	50.91	-28.59	42.46	37.04	74	23.09	V
11800.4	46.24	-31.85	39.05	39.04	74	27.76	V
11892.2	46.16	-31.85	39.05	38.96	74	27.84	H

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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)
17985.700	57.69	-25.50	46.66	36.53	74.00	16.31	H
17970.800	57.15	-25.50	46.66	35.99	74.00	16.85	V
14381.500	51.11	-28.42	42.34	37.19	68.30	17.19	H
14399.700	50.96	-28.59	42.46	37.09	68.30	17.34	V
5149.900	63.94	-27.61	33.67	57.88	74.00	10.06	H
5149.600	59.87	-27.61	33.67	53.81	74.00	14.13	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)
17983.000	57.65	-25.50	46.66	36.49	74.00	16.35	V
17993.400	57.43	-25.50	46.66	36.27	74.00	16.57	H
14841.400	51.21	-28.59	40.79	39.01	68.30	17.09	V
14356.800	50.81	-28.42	42.34	36.89	68.30	17.49	V
11839.500	46.59	-31.85	39.05	39.39	74.00	27.41	H
11937.400	46.49	-31.48	39.09	38.88	74.00	27.51	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)
17995.000	57.55	-25.50	46.66	36.39	74.00	16.45	H
17996.200	57.42	-25.50	46.66	36.26	74.00	16.58	H
14531.100	50.96	-28.59	42.46	37.09	68.30	17.34	V
14417.300	50.85	-28.59	42.46	36.98	68.30	17.45	H
11944.500	46.31	-31.48	39.09	38.70	74.00	27.69	V
11861.500	45.94	-31.85	39.05	38.74	74.00	28.06	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)
17963.700	57.42	-25.50	46.66	36.26	74.00	16.58	V
17966.500	57.18	-25.50	46.66	36.02	74.00	16.82	V
14316.100	51.81	-28.42	42.34	37.89	68.30	16.49	H
14353.500	51.25	-28.42	42.34	37.33	68.30	17.05	V
11922.000	46.53	-31.48	39.09	38.92	74.00	27.47	H
11902.100	46.50	-31.85	39.05	39.30	74.00	27.50	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)
17983.500	57.76	-25.50	46.66	36.60	74.00	16.24	H
17991.800	57.67	-25.50	46.66	36.51	74.00	16.33	H
14385.400	51.12	-28.42	42.34	37.20	68.30	17.18	V
14620.200	50.96	-27.29	41.90	36.35	68.30	17.34	V
10940.800	46.02	-32.82	38.70	40.14	74.00	27.98	V
11821.300	45.93	-31.85	39.05	38.73	74.00	28.07	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)
17978.500	57.68	-25.50	46.66	36.52	74.00	16.32	H
17997.800	57.52	-25.50	46.66	36.36	74.00	16.48	V
14492.600	51.55	-28.59	42.46	37.68	74.00	22.45	V
14476.700	51.14	-28.59	42.46	37.27	74.00	22.86	V
5352.000	63.62	-27.43	34.01	57.04	74.00	10.38	H
5350.100	63.24	-27.43	34.01	56.66	74.00	10.76	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)
17984.000	57.99	-25.50	46.66	36.83	74.00	16.01	H
17970.300	57.66	-25.50	46.66	36.50	74.00	16.34	V
14471.800	52.18	-28.59	42.46	38.31	74.00	21.82	H
14419.000	52.11	-28.59	42.46	38.24	68.30	16.19	H
5457.900	53.07	-27.18	34.17	46.08	74.00	20.93	H
5469.800	60.42	-27.18	34.17	53.43	68.30	7.88	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)
17997.800	57.26	-25.50	46.66	36.10	74.00	16.74	H
17979.100	57.17	-25.50	46.66	36.01	74.00	16.83	V
14402.500	51.19	-28.59	42.46	37.32	68.30	17.11	V
14703.900	51.09	-28.32	41.35	38.07	68.30	17.21	H
11835.000	46.60	-31.85	39.05	39.40	74.00	27.40	H
11824.000	46.31	-31.85	39.05	39.11	74.00	27.69	V

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)
17997.200	56.83	-25.50	46.66	35.67	74.00	17.17	V
17997.800	56.70	-25.50	46.66	35.54	74.00	17.30	V
14407.400	51.47	-28.59	42.46	37.60	68.30	16.83	H
14397.000	51.22	-28.59	42.46	37.35	68.30	17.08	V
5733.000	63.34	-27.07	34.31	56.10	68.30	4.96	H
5732.600	62.96	-27.07	34.31	55.72	68.30	5.34	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)
17995.6	57.55	-25.5	46.66	36.39	74	16.45	V
17994	57.54	-25.5	46.66	36.38	74	16.46	V
14315	52.04	-28.42	42.34	38.12	68.3	16.26	H
14321.6	51.79	-28.42	42.34	37.87	68.3	16.51	H
11785	46.16	-31.99	38.98	39.17	74	27.84	V
11474.8	45.88	-32.26	38.84	39.31	74	28.12	H

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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)
17986.200	56.79	-25.50	46.66	35.63	74.00	17.21	H
17887.200	56.55	-25.50	46.66	35.39	74.00	17.45	V
14370.000	51.02	-28.42	42.34	37.10	68.30	17.28	V
14810.500	50.38	-28.32	41.35	37.36	68.30	17.92	H
5149.300	65.19	-27.61	33.67	59.13	74.00	8.81	H
5149.000	64.54	-27.61	33.67	58.48	74.00	9.46	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)
17998.900	57.82	-25.50	46.66	36.66	74.00	16.18	H
17991.800	57.25	-25.50	46.66	36.09	74.00	16.75	H
14759.400	51.35	-28.32	41.35	38.33	68.30	16.95	H
14577.400	50.83	-27.29	41.90	36.22	68.30	17.47	H
11835.600	46.76	-31.85	39.05	39.56	74.00	27.24	V
11809.200	46.53	-31.85	39.05	39.33	74.00	27.47	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)
17998.900	58.54	-25.50	46.66	37.38	74.00	15.46	V
17990.100	58.33	-25.50	46.66	37.17	74.00	15.67	V
14354.000	51.20	-28.42	42.34	37.28	68.30	17.10	H
14405.800	51.18	-28.59	42.46	37.31	68.30	17.12	H
11775.600	46.40	-31.99	38.98	39.41	74.00	27.60	H
11619.500	46.32	-32.31	38.91	39.73	74.00	27.68	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)
17981.300	58.17	-25.50	46.66	37.01	74.00	15.83	V
17967.500	57.50	-25.50	46.66	36.34	74.00	16.50	H
14593.300	51.25	-27.29	41.90	36.64	68.30	17.05	V
14482.800	51.11	-28.59	42.46	37.24	74.00	22.89	H
5351.800	63.40	-27.43	34.01	56.82	74.00	10.60	H
5351.500	63.24	-27.43	34.01	56.66	74.00	10.76	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)
17994.500	57.22	-25.50	46.66	36.06	74.00	16.78	V
17986.200	57.17	-25.50	46.66	36.01	74.00	16.83	V
14518.000	51.32	-28.59	42.46	37.45	68.30	16.98	V
14615.900	51.31	-27.29	41.90	36.70	68.30	16.99	H
5457.900	56.09	-27.18	34.17	49.10	74.00	17.91	H
5469.600	59.47	-27.18	34.17	52.48	68.30	8.83	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)
17996.200	58.11	-25.50	46.66	36.95	74.00	15.89	V
17904.800	57.69	-25.50	46.66	36.53	74.00	16.31	H
14395.900	51.49	-28.59	42.46	37.62	68.30	16.81	H
14727.500	51.47	-28.32	41.35	38.45	68.30	16.83	H
11739.400	46.77	-31.99	38.98	39.78	74.00	27.23	V
11946.700	46.63	-31.48	39.09	39.02	74.00	27.37	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)
17995.600	58.34	-25.50	46.66	37.18	74.00	15.66	H
17978.000	57.84	-25.50	46.66	36.68	74.00	16.16	H
14126.900	51.32	-28.99	42.00	38.30	68.30	16.98	V
14382.600	51.19	-28.42	42.34	37.27	68.30	17.11	V
5725.300	62.91	-27.07	34.31	55.67	68.30	5.39	H
5725.400	61.58	-27.07	34.31	54.34	68.30	6.72	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)
17979.1	57.75	-25.5	46.66	36.59	74	16.25	V
17990.7	57.38	-25.5	46.66	36.22	74	16.62	V
14416.2	52.02	-28.59	42.46	38.15	68.3	16.28	V
14309.5	51.89	-28.42	42.34	37.97	68.3	16.41	V
11914.8	46.14	-31.48	39.09	38.53	74	27.86	H
11920.9	46.13	-31.48	39.09	38.52	74	27.87	V

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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)
17991.800	57.37	-25.50	46.66	36.21	74.00	16.63	H
17941.200	57.18	-25.50	46.66	36.02	74.00	16.82	H
14489.900	51.00	-28.59	42.46	37.13	74.00	23.00	H
14593.300	50.97	-27.29	41.90	36.36	68.30	17.33	V
5149.900	58.16	-27.61	33.67	52.10	74.00	15.84	H
5149.600	57.72	-27.61	33.67	51.66	74.00	16.28	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)
17987.900	57.08	-25.50	46.66	35.92	74.00	16.92	V
17991.200	56.92	-25.50	46.66	35.76	74.00	17.08	V
14515.200	51.60	-28.59	42.46	37.73	68.30	16.70	V
14695.000	51.23	-28.32	41.35	38.21	68.30	17.07	V
11925.200	47.58	-31.48	39.09	39.97	74.00	26.42	H
11917.000	46.80	-31.48	39.09	39.19	74.00	27.20	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)
17984.000	57.64	-25.50	46.66	36.48	74.00	16.36	V
17973.600	57.44	-25.50	46.66	36.28	74.00	16.56	V
14513.500	50.89	-28.59	42.46	37.02	68.30	17.41	V
14267.100	50.75	-28.42	42.34	36.83	68.30	17.55	H
11988.500	46.55	-31.48	39.09	38.94	74.00	27.45	V
11633.800	46.24	-32.31	38.91	39.65	74.00	27.76	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)
17975.200	57.46	-25.50	46.66	36.30	74.00	16.54	V
17988.500	57.23	-25.50	46.66	36.07	74.00	16.77	V
14524.500	51.50	-28.59	42.46	37.63	68.30	16.80	H
14522.400	51.04	-28.59	42.46	37.17	68.30	17.26	H
11807.500	46.47	-31.85	39.05	39.27	74.00	27.53	V
10983.100	46.27	-32.82	38.70	40.39	74.00	27.73	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)
17989.000	57.86	-25.50	46.66	36.70	74.00	16.14	V
17991.800	57.65	-25.50	46.66	36.49	74.00	16.35	V
14398.000	51.68	-28.59	42.46	37.81	68.30	16.62	H
14521.800	51.30	-28.59	42.46	37.43	68.30	17.00	V
11854.300	46.35	-31.85	39.05	39.15	74.00	27.65	H
11840.000	46.15	-31.85	39.05	38.95	74.00	27.85	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)
17998.300	57.27	-25.50	46.66	36.11	74.00	16.73	H
17901.000	57.26	-25.50	46.66	36.10	74.00	16.74	V
14474.000	51.34	-28.59	42.46	37.47	74.00	22.66	H
14390.400	51.33	-28.42	42.34	37.41	68.30	16.97	V
5351.000	64.60	-27.43	34.01	58.02	74.00	9.40	H
5351.300	63.33	-27.43	34.01	56.75	74.00	10.67	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)
17981.800	58.14	-25.50	46.66	36.98	74.00	15.86	V
17980.800	57.76	-25.50	46.66	36.60	74.00	16.24	V
14463.000	51.90	-28.59	42.46	38.03	68.30	16.40	V
14384.300	51.84	-28.42	42.34	37.92	68.30	16.46	V
5454.300	51.82	-27.18	34.17	44.83	74.00	22.18	H
5468.600	57.99	-27.18	34.17	51.00	68.30	10.31	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)
17903.200	57.59	-25.50	46.66	36.43	74.00	16.41	H
17959.300	57.47	-25.50	46.66	36.31	74.00	16.53	V
14504.800	51.91	-28.59	42.46	38.04	68.30	16.39	H
14391.500	51.77	-28.42	42.34	37.85	68.30	16.53	H
11926.400	46.65	-31.48	39.09	39.04	74.00	27.35	H
11964.900	46.57	-31.48	39.09	38.96	74.00	27.43	V

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)
17992.300	57.44	-25.50	46.66	36.28	74.00	16.56	H
17991.200	57.27	-25.50	46.66	36.11	74.00	16.73	V
14456.900	51.06	-28.59	42.46	37.19	68.30	17.24	V
14459.100	50.60	-28.59	42.46	36.73	68.30	17.70	V
5725.500	59.88	-27.07	34.31	52.64	68.30	8.42	H
5725.200	58.94	-27.07	34.31	51.70	68.30	9.36	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)
17998.3	58.26	-25.5	46.66	37.1	74	15.74	V
17988.5	57.53	-25.5	46.66	36.37	74	16.47	V
14289.7	51.23	-28.42	42.34	37.31	68.3	17.07	V
14617.5	50.98	-27.29	41.9	36.37	68.3	17.32	V
11862	46.12	-31.85	39.05	38.92	74	27.88	V
11931.9	46.06	-31.48	39.09	38.45	74	27.94	V

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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)
17996.700	56.76	-25.50	46.66	35.60	74.00	17.24	H
17965.900	56.44	-25.50	46.66	35.28	74.00	17.56	V
14366.100	51.13	-28.42	42.34	37.21	68.30	17.17	H
14397.500	50.50	-28.59	42.46	36.63	68.30	17.80	H
5149.100	67.42	-27.61	33.67	61.36	74.00	6.58	H
5146.600	66.15	-27.61	33.67	60.09	74.00	7.85	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)
17946.100	56.86	-25.50	46.66	35.70	74.00	17.14	H
17979.700	56.78	-25.50	46.66	35.62	74.00	17.22	V
14415.600	50.66	-28.59	42.46	36.79	68.30	17.64	H
14381.000	50.65	-28.42	42.34	36.73	68.30	17.65	V
11606.800	45.88	-32.31	38.91	39.29	74.00	28.12	V
11783.400	45.87	-31.99	38.98	38.88	74.00	28.13	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)
17969.800	57.80	-25.50	46.66	36.64	74.00	16.20	V
17964.800	57.75	-25.50	46.66	36.59	74.00	16.25	H
14498.100	51.67	-28.59	42.46	37.80	74.00	22.33	H
14544.900	51.10	-27.29	41.90	36.49	68.30	17.20	V
11812.000	46.26	-31.85	39.05	39.06	74.00	27.74	V
11834.000	46.24	-31.85	39.05	39.04	74.00	27.76	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)
17969.800	57.77	-25.50	46.66	36.61	74.00	16.23	H
17978.000	57.06	-25.50	46.66	35.90	74.00	16.94	V
14501.500	51.20	-28.59	42.46	37.33	68.30	17.10	V
14276.500	51.13	-28.42	42.34	37.21	68.30	17.17	H
5350.500	65.87	-27.43	34.01	59.29	74.00	8.13	H
5350.700	65.77	-27.43	34.01	59.19	74.00	8.23	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)
17974.700	57.38	-25.50	46.66	36.22	74.00	16.62	H
17997.800	57.38	-25.50	46.66	36.22	74.00	16.62	V
14408.500	51.54	-28.59	42.46	37.67	68.30	16.76	H
14887.500	51.45	-28.59	40.79	39.25	68.30	16.85	H
5455.400	53.30	-27.18	34.17	46.31	74.00	20.70	H
5469.300	59.23	-27.18	34.17	52.24	68.30	9.07	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)
17994.500	57.13	-25.50	46.66	35.97	74.00	16.87	V
17964.200	57.00	-25.50	46.66	35.84	74.00	17.00	H
14301.800	51.88	-28.42	42.34	37.96	68.30	16.42	V
14500.400	51.49	-28.59	42.46	37.62	68.30	16.81	H
11889.000	46.47	-31.85	39.05	39.27	74.00	27.53	V
11973.600	46.34	-31.48	39.09	38.73	74.00	27.66	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)
17995.000	57.57	-25.50	46.66	36.41	74.00	16.43	V
17996.700	57.36	-25.50	46.66	36.20	74.00	16.64	H
14331.000	51.46	-28.42	42.34	37.54	68.30	16.84	H
14487.700	51.35	-28.59	42.46	37.48	74.00	22.65	H
5735.600	56.15	-27.07	34.31	48.91	68.30	12.15	H
5729.000	54.08	-27.07	34.31	46.84	68.30	14.22	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)
17992.3	57.33	-25.5	46.66	36.17	74	16.67	H
17991.8	57.29	-25.5	46.66	36.13	74	16.71	H
14894.7	51.6	-28.59	40.79	39.4	68.3	16.7	H
14337	51.22	-28.42	42.34	37.3	68.3	17.08	V
11812	46.49	-31.85	39.05	39.29	74	27.51	V
11928	46.35	-31.48	39.09	38.74	74	27.65	V

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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)
17948.300	57.91	-25.50	46.66	36.75	74.00	16.09	V
17968.700	57.85	-25.50	46.66	36.69	74.00	16.15	V
14421.700	51.53	-28.59	42.46	37.66	68.30	16.77	H
14498.700	51.51	-28.59	42.46	37.64	74.00	22.49	V
5148.400	59.52	-27.61	33.67	53.46	74.00	14.48	H
5145.100	59.46	-27.61	33.67	53.40	74.00	14.54	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)
17983.000	58.01	-25.50	46.66	36.85	74.00	15.99	V
17987.900	57.43	-25.50	46.66	36.27	74.00	16.57	V
14381.500	51.14	-28.42	42.34	37.22	68.30	17.16	V
14480.500	51.14	-28.59	42.46	37.27	74.00	22.86	H
5353.500	64.88	-27.43	34.01	58.30	74.00	9.12	H
5350.400	64.23	-27.43	34.01	57.65	74.00	9.77	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)
17951.600	58.17	-25.50	46.66	37.01	74.00	15.83	V
17983.000	57.53	-25.50	46.66	36.37	74.00	16.47	V
14700.000	51.41	-28.32	41.35	38.39	68.30	16.89	V
14306.800	51.12	-28.42	42.34	37.20	68.30	17.18	H
5455.600	59.05	-27.18	34.17	52.06	74.00	14.95	H
5466.600	61.81	-27.18	34.17	54.82	68.30	6.49	H

Channel 122

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17993.400	57.53	-25.50	46.66	36.37	74.00	16.47	H
17965.300	57.48	-25.50	46.66	36.32	74.00	16.52	V
14494.300	51.89	-28.59	42.46	38.02	74.00	22.11	V
14800.100	51.38	-28.32	41.35	38.36	68.30	16.92	H
5746.600	54.91	-27.07	34.31	47.67	68.30	13.39	H
5751.100	54.40	-27.07	34.31	47.16	68.30	13.90	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)
17996.2	58.19	-25.5	46.66	37.03	74	15.81	H
17994	57.66	-25.5	46.66	36.5	74	16.34	H
14298.5	51.13	-28.42	42.34	37.21	68.3	17.17	V
14403.5	51.11	-28.59	42.46	37.24	68.3	17.19	H
11845	46.53	-31.85	39.05	39.33	74	27.47	H
11720.1	46.38	-31.99	38.98	39.39	74	27.62	V

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.

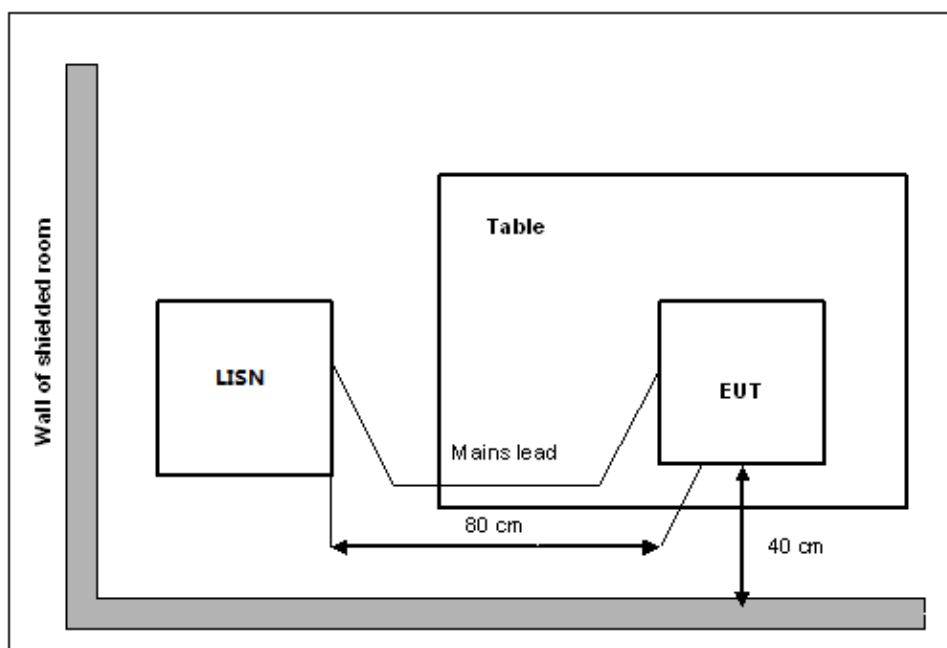
The measurement bandwidth is:

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:

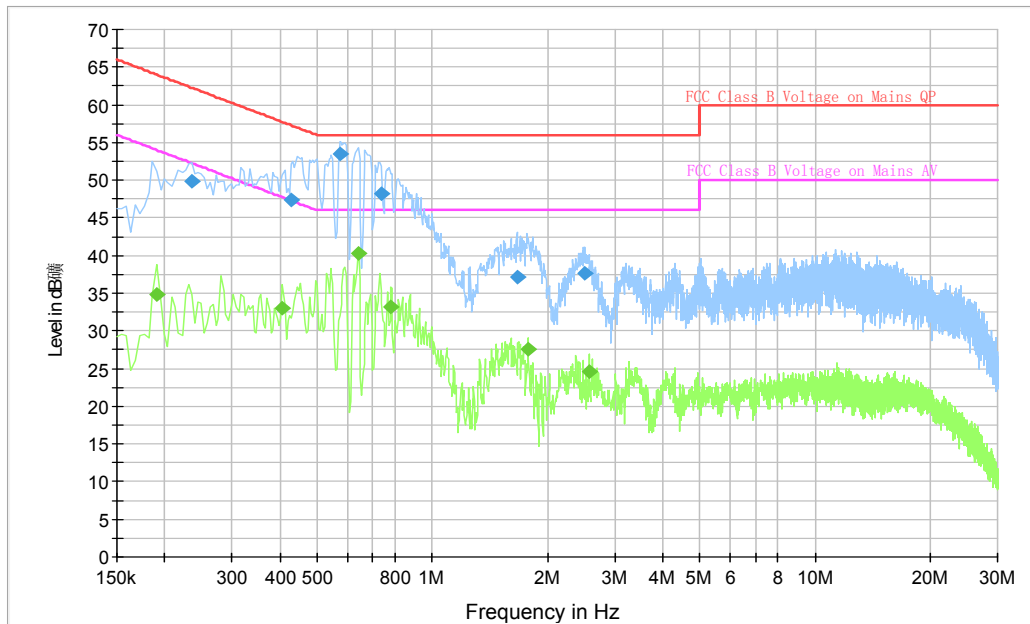


Fig.58 AC Powerline Conducted Emission-Traffic

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)
0.235500	49.8	1000.	9.000	N	19.8	12.4	62.3
0.429000	47.4	1000.	9.000	N	19.9	9.9	57.3
0.573000	53.5	1000.	9.000	N	19.9	2.5	56.0
0.739500	48.2	1000.	9.000	N	19.8	7.8	56.0
1.666500	37.1	1000.	9.000	L1	19.5	18.9	56.0
2.499000	37.7	1000.	9.000	L1	19.5	18.3	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.190500	34.8	1000.0	9.000	L1	20.0	19.2	54.0
0.406500	33.0	1000.0	9.000	L1	19.9	14.7	47.7
0.640500	40.3	1000.0	9.000	N	19.8	5.7	46.0
0.780000	33.2	1000.0	9.000	L1	19.7	12.8	46.0
1.783500	27.5	1000.0	9.000	L1	19.5	18.5	46.0
2.571000	24.6	1000.0	9.000	L1	19.5	21.4	46.0

Idle

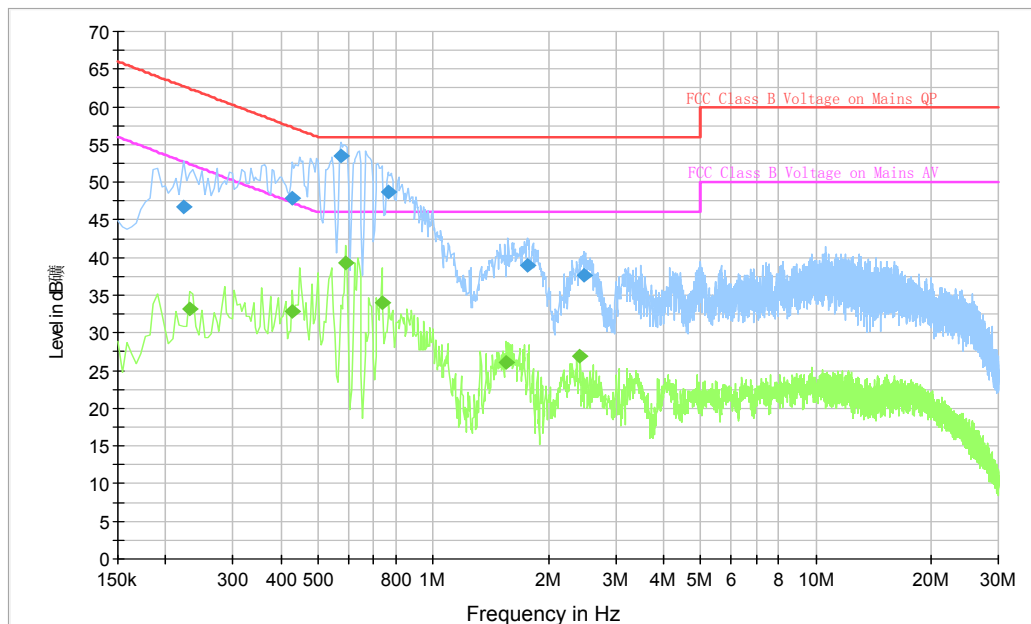


Fig.59 AC Powerline Conducted Emission-Idle

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)
0.222000	46.7	1000.	9.000	N	19.8	16.0	62.7
0.429000	47.9	1000.	9.000	N	19.9	9.3	57.3
0.573000	53.4	1000.	9.000	N	19.9	2.6	56.0
0.762000	48.7	1000.	9.000	N	19.8	7.3	56.0
1.770000	38.9	1000.	9.000	L1	19.5	17.1	56.0
2.485500	37.6	1000.	9.000	L1	19.5	18.4	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.231000	33.2	1000.0	9.000	N	19.8	19.2	52.4
0.429000	32.9	1000.0	9.000	N	19.9	14.4	47.3
0.591000	39.4	1000.0	9.000	N	19.9	6.6	46.0
0.739500	34.0	1000.0	9.000	N	19.8	12.0	46.0
1.558500	26.2	1000.0	9.000	L1	19.5	19.8	46.0
2.422500	27.0	1000.0	9.000	N	19.8	19.0	46.0

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% of the 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
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Measurement Result:

Mode	Frequency	99% Occupied bandwidth (MHz)		conclusion
802.11a	5180 MHz	Fig.60	18.32	P
	5200 MHz	Fig.61	18.24	P
	5240 MHz	Fig.62	18.08	P
802.11ac HT20	5180 MHz	Fig.63	18.80	P
	5200 MHz	Fig.64	18.88	P
	5240 MHz	Fig.65	18.92	P
802.11ac HT40	5190 MHz	Fig.66	36.64	P
	5230 MHz	Fig.67	36.48	P
802.11ac HT80	5210 MHz	Fig.68	76.00	P

Conclusion: PASS
Test graphs as below:

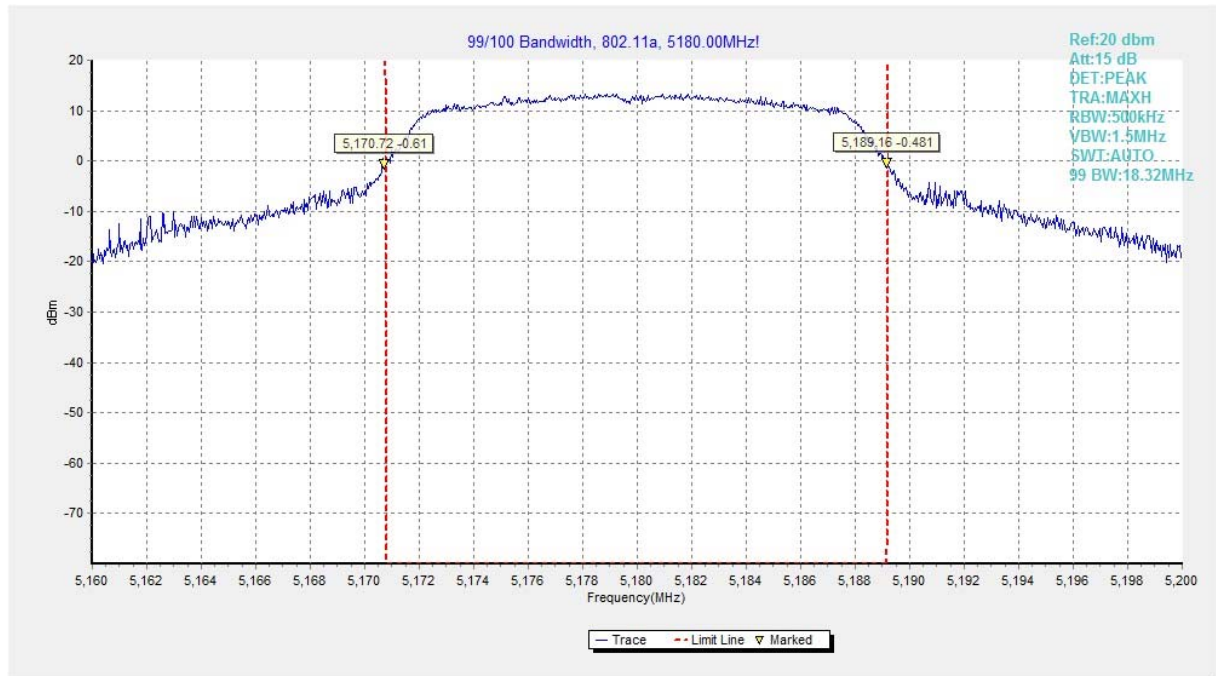


Fig.60 99% Occupied bandwidth (802.11a, 5180MHz)

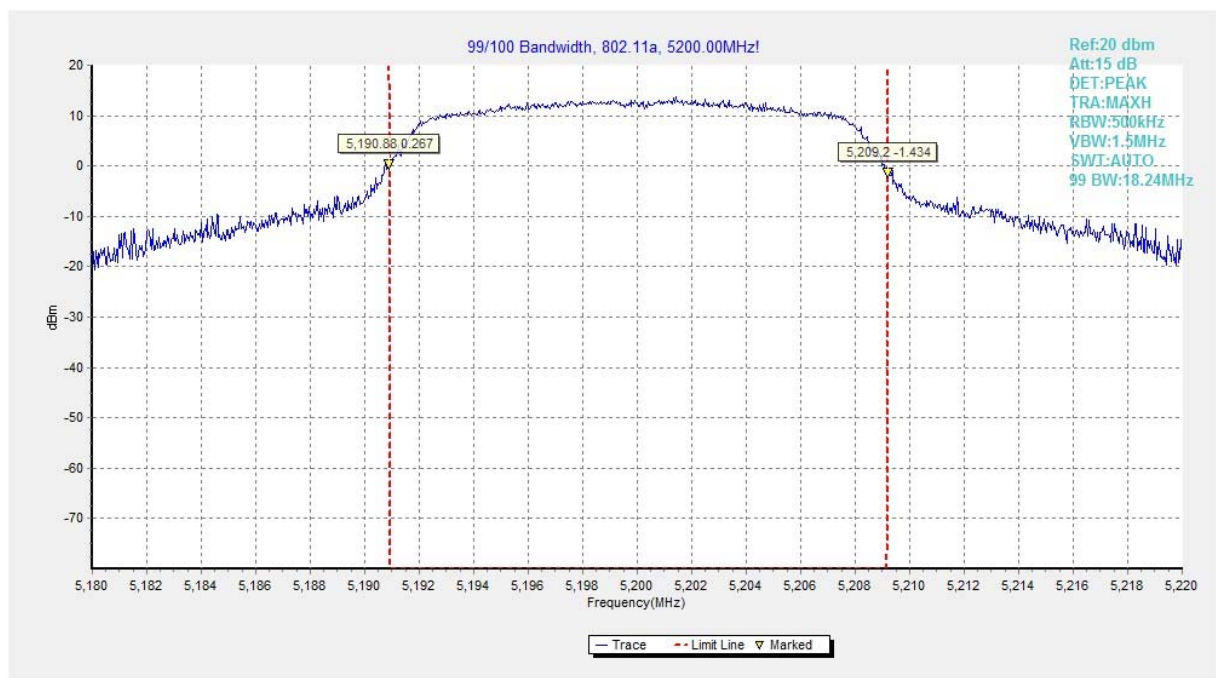


Fig.61 99% Occupied bandwidth (802.11a, 5200MHz)

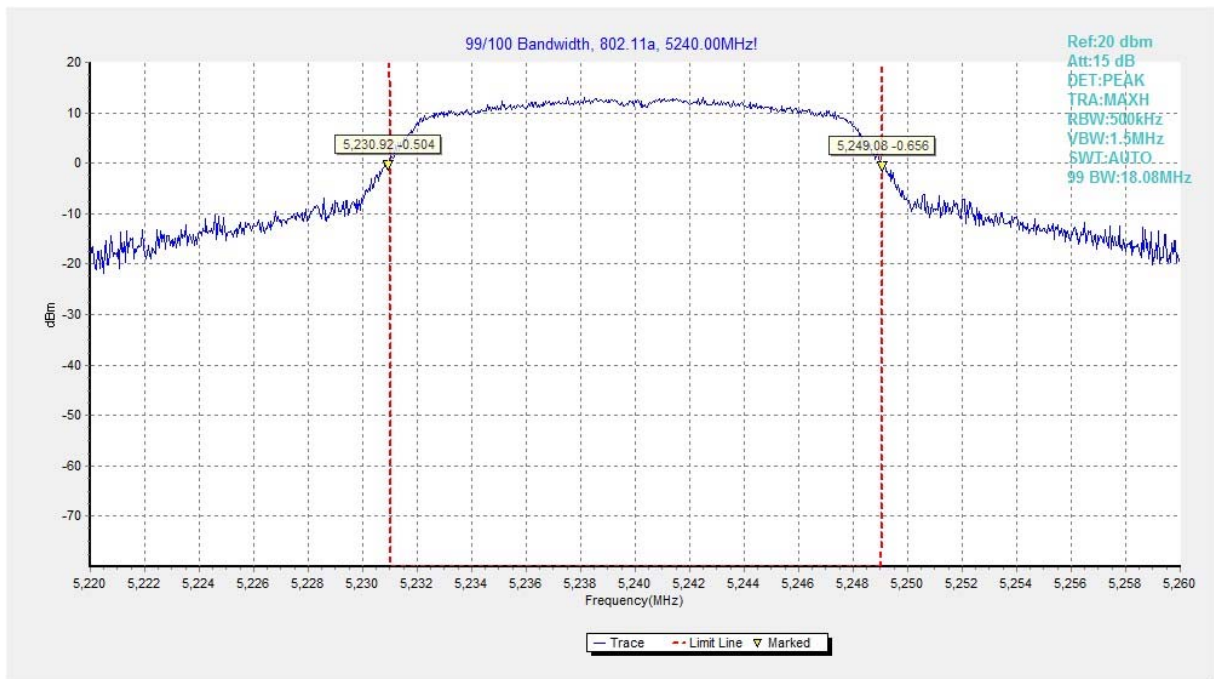


Fig.62 99% Occupied bandwidth (802.11a, 5240MHz)

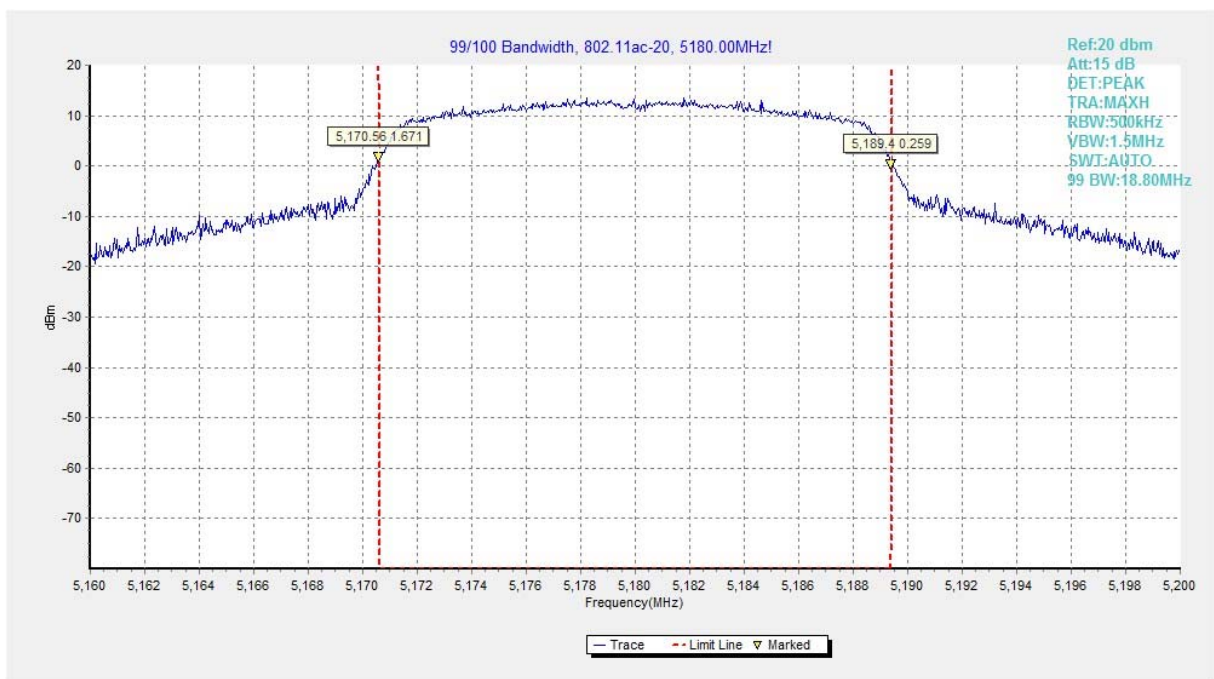


Fig.63 99% Occupied bandwidth (802.11ac-HT20, 5180MHz)

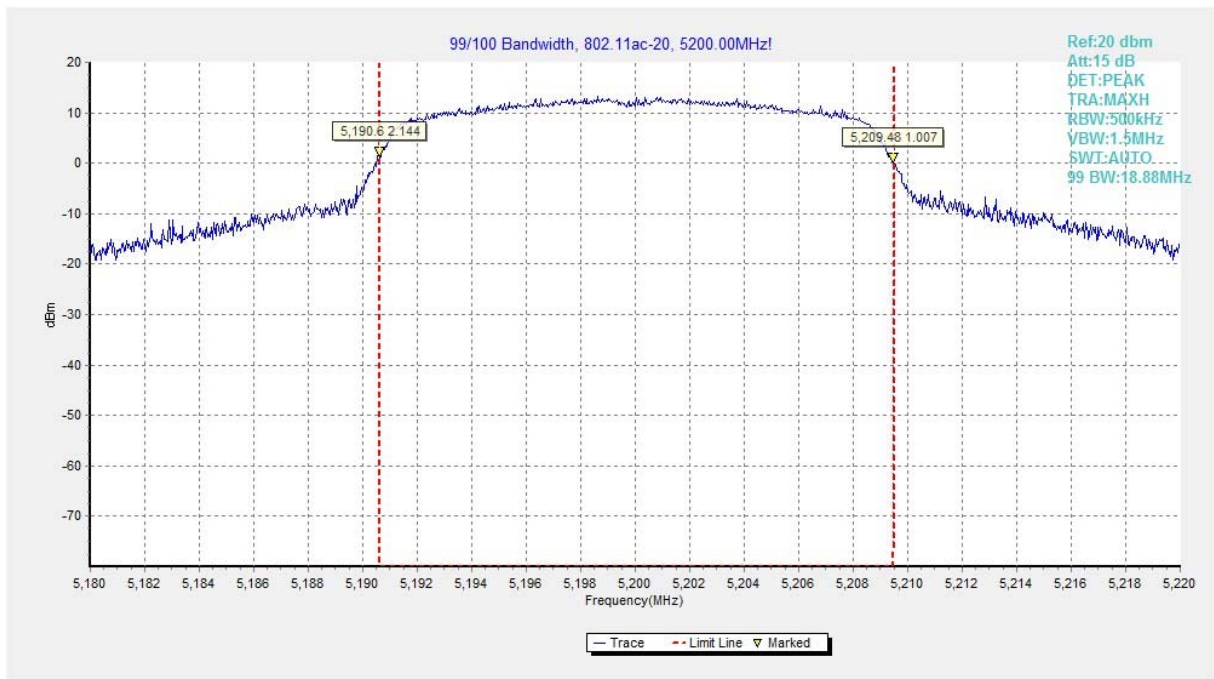


Fig.64 99% Occupied bandwidth (802.11ac-HT20, 5200MHz)

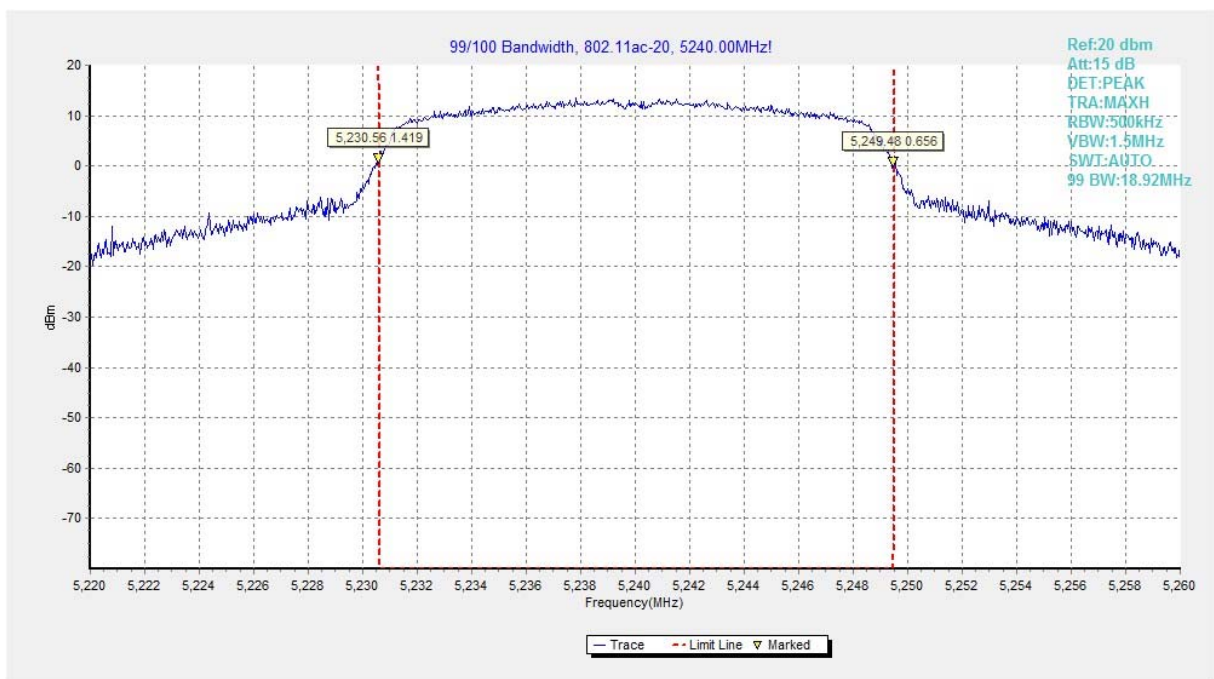


Fig.65 99% Occupied bandwidth (802.11ac-HT20, 5240MHz)

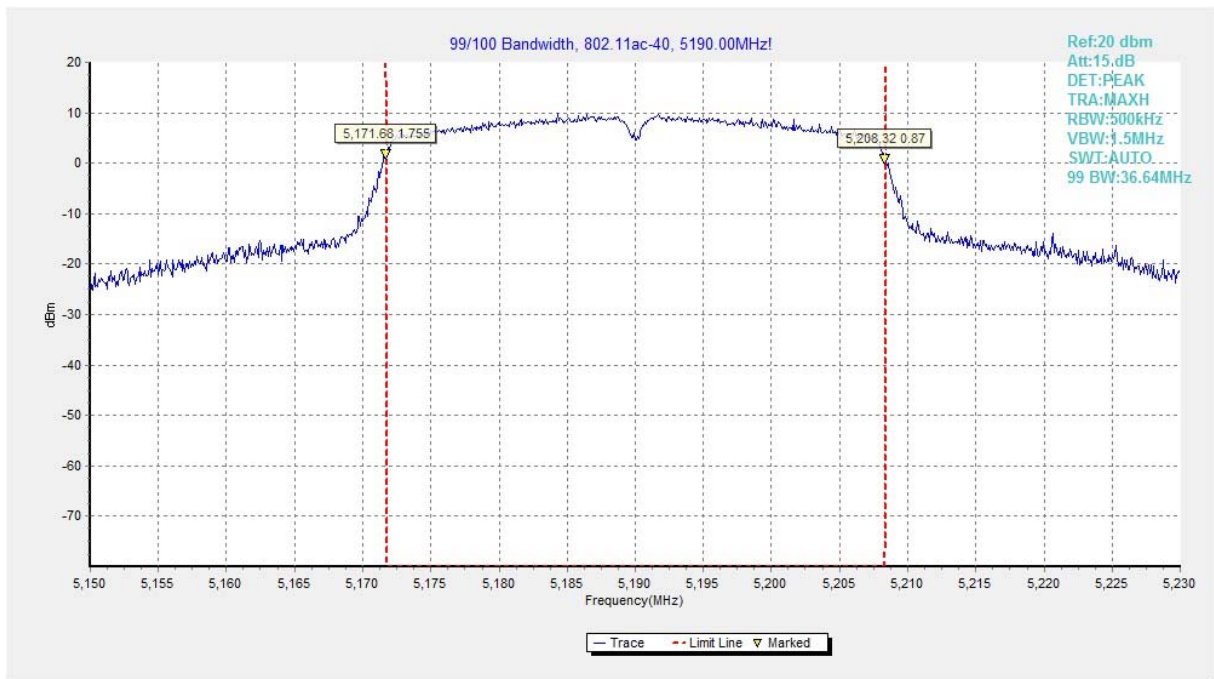


Fig.66 99% Occupied bandwidth (802.11ac-HT40, 5190MHz)

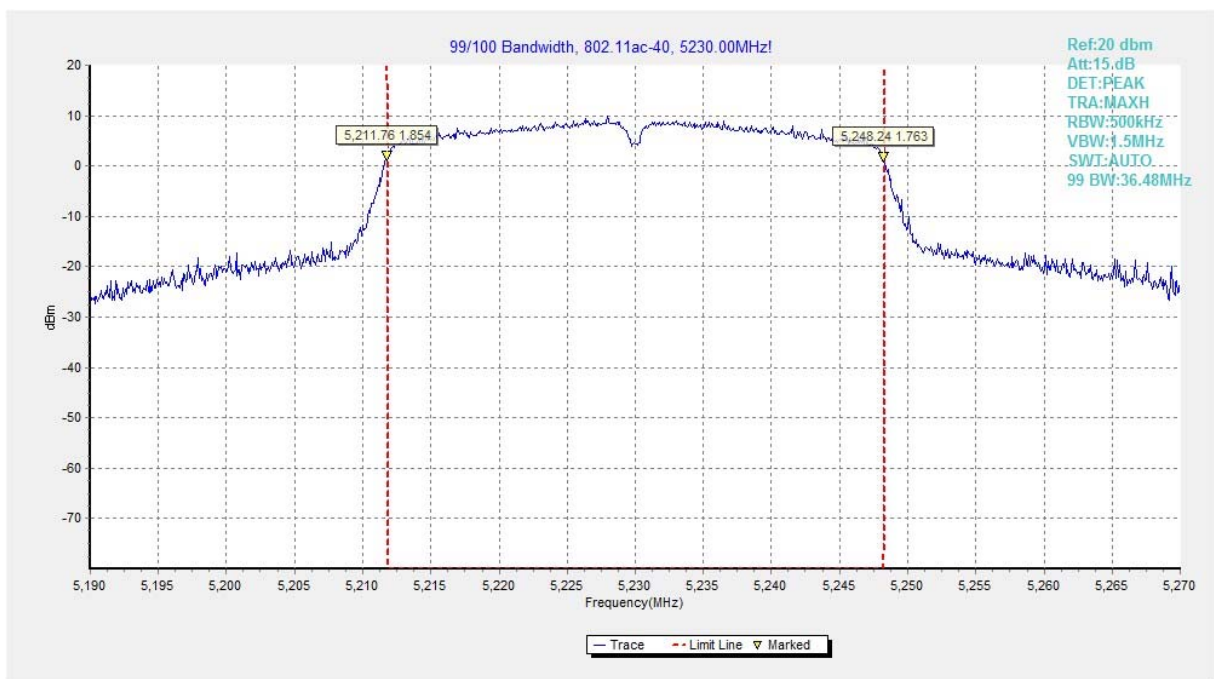


Fig.67 99% Occupied bandwidth (802.11ac-HT40, 5230MHz)

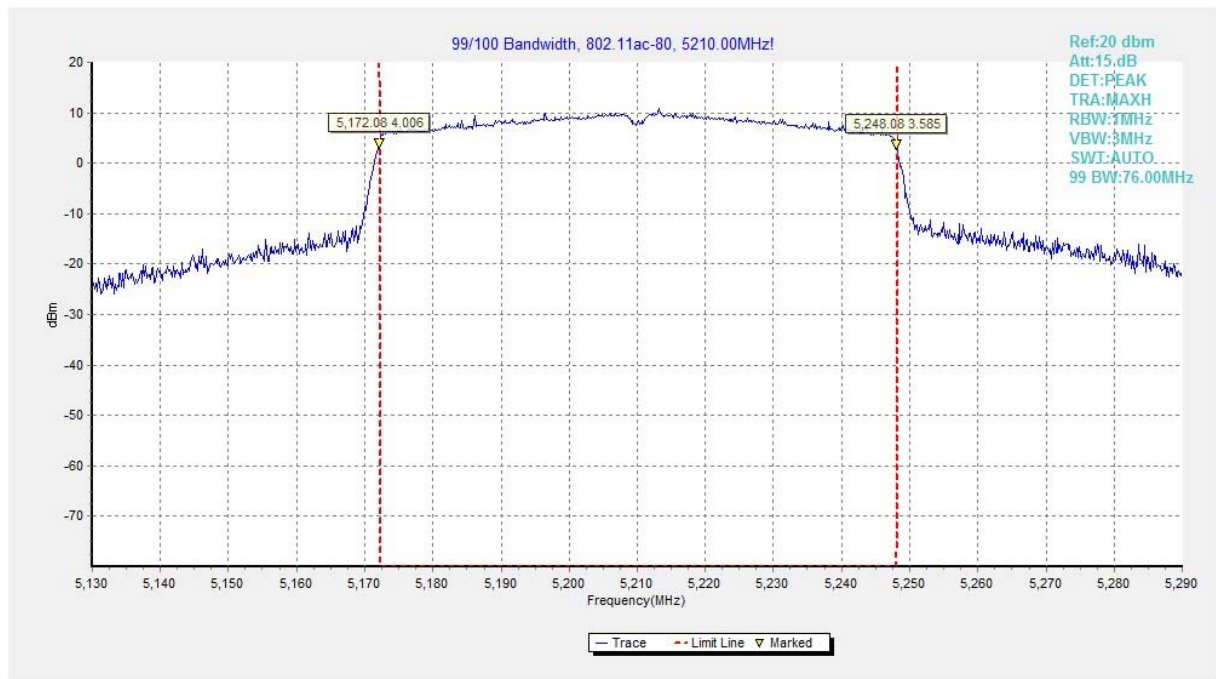


Fig.68 99% Occupied bandwidth (802.11ac-HT80, 5210MHz)

A.9. 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 worse case provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom.

ANNEX C: Accreditation Certificate

United States Department of Commerce National Institute of Standards and Technology NVLAP[®]  Certificate of Accreditation to ISO/IEC 17025:2017 NVLAP LAB CODE: 600118-0 Telecommunication Technology Labs, CAICT Beijing China <i>is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:</i> Electromagnetic Compatibility & Telecommunications <i>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 Communiqué dated January 2009).</i> 2020-09-29 through 2021-09-30 <i>Effective Dates</i>  Hana S. Laman <i>For the National Voluntary Laboratory Accreditation Program</i>	
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