FCC Part 15 Subpart E §15.407

Test Report

Equipment Under Test	**OTT+IPTV**
Model Name	**SC7210**
FCC ID	**WQT-SC7210**
Applicant	**Kaonmedia Co.,Ltd.**
Manufacturer	**Kaonmedia Co.,Ltd.**
Date of Test(s)	**2018. 01. 29 ~ 2018. 03. 12**
Date of Issue	**2018. 03. 12**

In the configuration tested, the EUT complied with the standards specified above.

Issue to	Issue by
Kaonmedia Co.,Ltd. KAONMEDIA Building, 884-3, Seongnam-daero, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea Tel.: +82-31-724-8728 Fax: +82-31-724-8999	**MOVON CORPORATION** 498-2, Geumeo-ro, Pogok-eup, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea, 449-812 Tel.: +82-31-338-8837 Fax: +82-31-338-8847

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Revision history

Revision	Date of issue	Description	Revised by
--	Feb 14, 2018	Initial	--
01	Mar 06, 2018	Add to Radiated test plots	Kin Son
02	Mar 12, 2018	Add Test Ac Power Line Test	Kin Son

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1. Attestation of test result

1.1. Details of applicant and manufacturer

Applicant	:	Kaonmedia Co.,Ltd.
Address	:	KAONMEDIA Building, 884-3, Seongnam-daero, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea
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1.2. Summary of test results

The EUT has been tested according to the following specifications;

Section in FCC part 15	Description	Result
§15.205(a) §15.209(a)	Transmitter radiated spurious emissions	C
§15.407(a)(1)	26 dB and 99% Occupied Bandwidth	C
§15.407(a)(1)	Maximum conducted Output power	C
§15.407(a)(1)	Power spectral density	C
§15.407(g)	frequency stability	C
§15.407(e)	6 dB bandwidth	C
1.1307(b)(1)	RF exposure evaluation	C
§15.203	Antenna Requirement	C
§15.207(a)	AC Conducted power line test	C

The sample was tested according to the following specification:
ANSI C63.10:2013, FCC Public Notice KDB789033 D02 v02r01
TEST SITE REGISTRATION NUMBER: ***FCC(KR0151)***

※ Abbreviation

C Complied
N/A Not applicable
F Fail

Approval Signatories

Test and Report Completed by :	Report Approval by :
손 홀 민	진 현 삽
Kin Son Test Engineer MOVON CORPORATION	Issac Jin Technical Manager MOVON CORPORATION

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2. EUT Description

Kind of product	OTT+IPTV
Model Name	SC7210
FCC ID	WQT-SC7210
Serial Number	N/A
Power supply	DC 12V
Frequency range	UNII-1 5 180 ㎒ ~ 5 240 ㎒ (802.11a/n_HT20) 5 190 ㎒ ~ 5 230 ㎒ (802.11an_HT40) UNII-2A 5 260 ㎒ ~ 5 320 ㎒ (802.11a/n _HT20) 5 270 ㎒ ~ 5 310 ㎒ (802.11an _HT40) UNII-2C 5 500 ㎒ ~ 5 620 ㎒ (802.11a/n _HT20) 5 510 ㎒ ~ 5 590 ㎒ (802.11an _HT40) UNII-3 5 745 ㎒ ~ 5 805 ㎒ (802.11a/n _HT20) 5 755 ㎒ ~ 5 795 ㎒ (802.11an _HT40)
Modulation technique	OFDM
Number of channels	UNII-1 5 180 ㎒ ~ 5 240 ㎒ (4ch) 5 190 ㎒ ~ 5 230 ㎒ (2ch) UNII-2A 5 260 ㎒ ~ 5 320 ㎒ (4ch) 5 270 ㎒ ~ 5 310 ㎒ (2ch) UNII-2C 5 500 ㎒ ~ 5 620 ㎒ (7ch) 5 510 ㎒ ~ 5 590 ㎒ (3ch) UNII-3 5 745 ㎒ ~ 5 805 ㎒ (4ch) 5 755 ㎒ ~ 5 795 ㎒ (2ch)
Antenna gain	ANT1 : 2.00 ㏈i (Max.)
	ANT2 : 2.00 ㏈i (Max.)
Test Site Registration Number	FCC(KR0151)

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2.1. Declarations by the manufacturer

None

2.2. Details of modification

None

2.3 Test Mode

UNII-1	
CH.	Frequency(㎒)
36	5 180
44	5 220
48	5 240

UNII-2A	
CH.	Frequency(㎒)
52	5 260
60	5 300
64	5 320

UNII-2C	
CH.	Frequency(㎒)
100	5 500
112	5 560
124	5 620

UNII-3	
CH.	Frequency(㎒)
149	5 745
157	5 785
161	5 805

(802.11a/n_HT20)

UNII-1	
CH.	Frequency(㎒)
38	5 190
46	5 230

UNII-2A	
CH.	Frequency(㎒)
54	5 270
62	5 310

UNII-2C	
CH.	Frequency(㎒)
102	5 510
110	5 550
118	5 590

UNII-3	
CH.	Frequency(㎒)
151	5 755
159	5 795

(802.11an_HT40)

2.4. Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission.
The data rate shown in the table below is the worst-case rate with respect to the specific test item.
Investigation has been done on all the possible configurations for searching the worst cases.
The following table is a list of the test modes shown in this test report.

Test Mode	Data rate (Worst case)
802.11a	6 Mbps
802.11an_HT20 802.11an_HT40	MCS0

2.5. Duty Cycle Factor

Mode	Duty Cycle (%)	Duty Cycle Factor (dB)
802.11a	-	-
802.11an(HT20)	-	-
802.11an(HT40)	-	-

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3. Measurement Equipment

Equipment	Manufacturer	Model	Serial number	Calibration Interval	Calibration due.
Test Receiver	R&S	ESVS30	829673/015	1 year	2018-12-07
Signal Generator	R&S	SMA100A	102188	1 year	2018-05-30
Spectrum Analyzer	R&S	FSV-40	100832	1 year	2018-05-30
Power Meter	Agilent	E4416A	GB41290645	1 year	2018-05-30
Power Sensor	Agilent	9327A	US40441490	1 year	2018-05-30
Power Module	R&S	OSP120	100905	1 year	2018-12-08
Horn Antenna	R&S	HF906	100236	2 year	2019-04-25
Horn Antenna	AH Systems	SAS-572	269	2 year	2019-08-01
Horn Antenna	AH Systems	SAS-573	164	2 year	2018-05-30
TRILOG Supper Broadband test Antenna	SCHWARZBECK	SAS-521-7	9161-4159	2 year	2018-06-14
Power Amplifier	MITEQ	AM-1431	1497315	1 year	2018-05-30
Power Amplifier	MITEQ	AFS43-01002600	1374382	1 year	2018-11-03
Band Rejection Filter	Micro-Tonics	BRM50702	064	1 year	2018-05-30
Controller	INNCO	CO2000	co200/064/6961003/L	N/A	N/A
Antenna Master	INNCO	MA4000	MA4000/038/6961003/L	N/A	N/A
Loop Antenna	ETS LINDGREN	6502	00118166	2 year	2018-02-23
TWO LINE-V-NETWORK	R&S	ESH3-Z5	100296	1 year	2018-12-07
Low Noise Amplifier	TESTEK	TK-PA18H	170013-L	1 year	2018-06-02
High Pass Filter	Wainwright	WHKX7.0/18G-8SS	25	1 year	2018-05-30

※Remark;
Support equipment

Description	Manufacturer	Model	Serial number
Notebook computer	DELL	Lattitude D510	-

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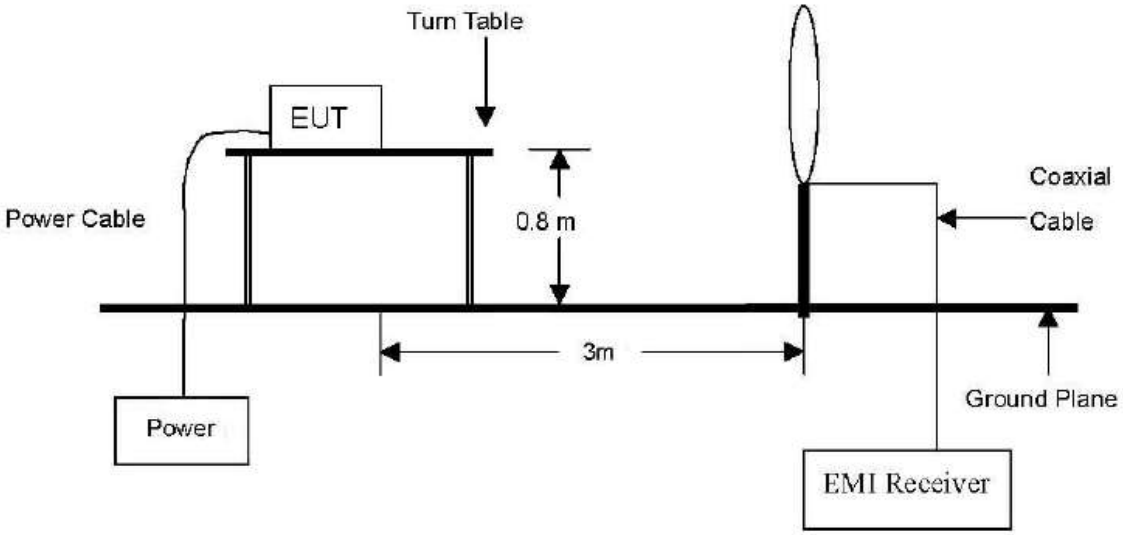
4. Transmitter radiated spurious emissions and conducted spurious emissions

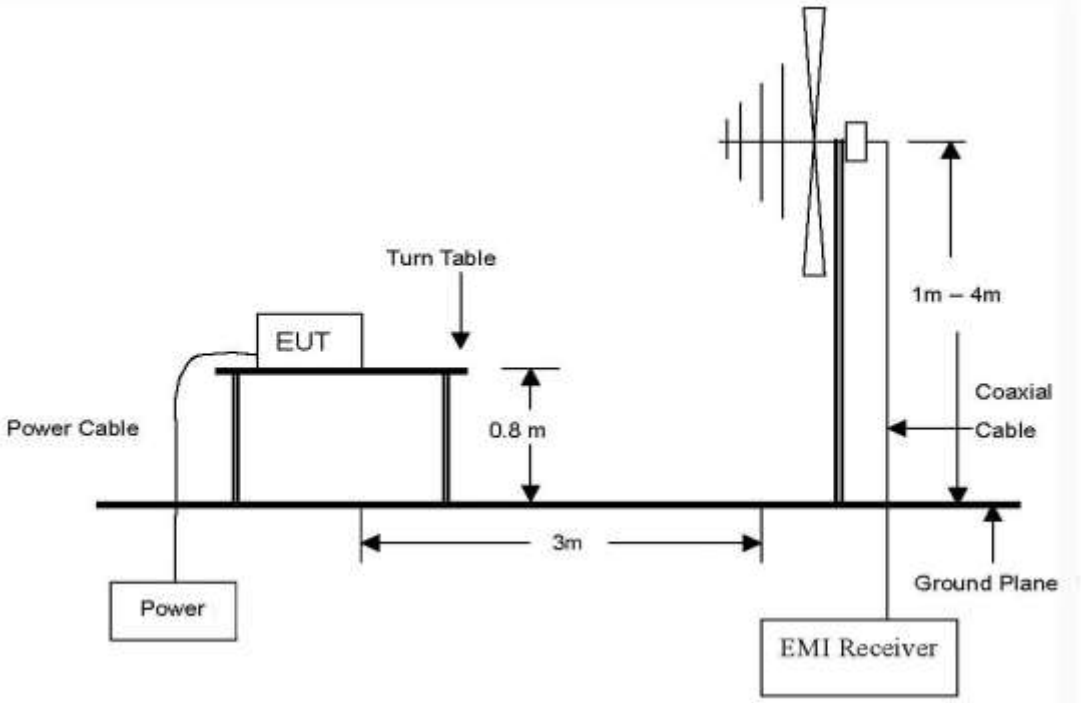
4.1. Test setup

4.1.1. Transmitter radiated spurious emissions

The diagram below shows the test setup that is utilized to make the measurements for emission from 9kHz to 30MHz Emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 30 ㎒ to 1 ㎓ emissions.



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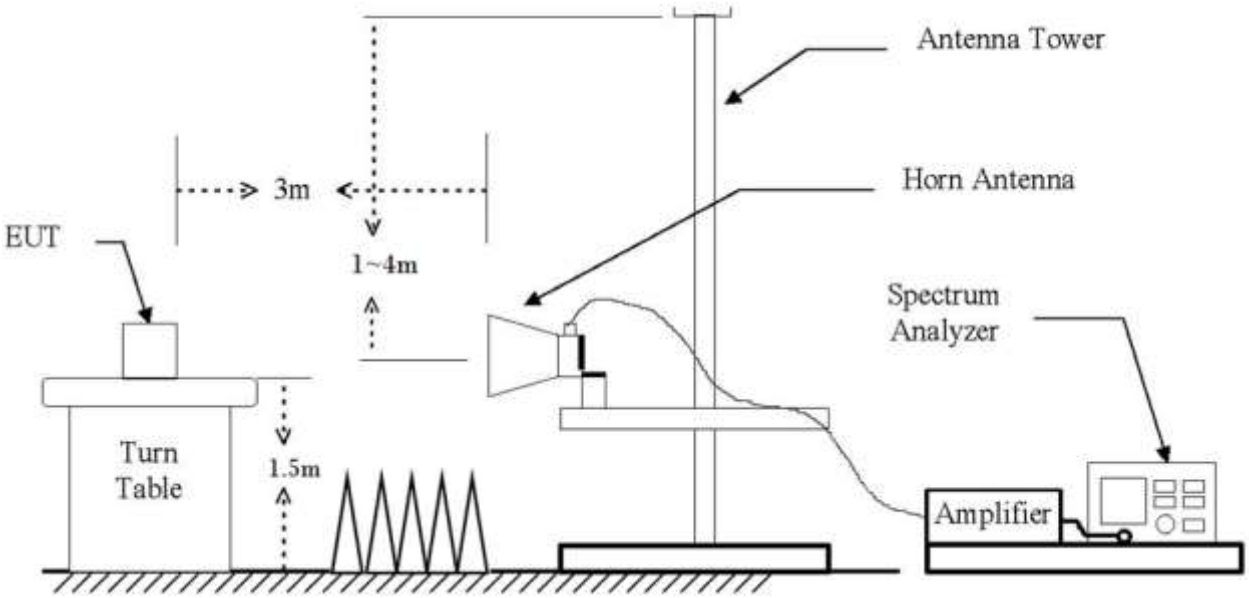
The diagram below shows the test setup that is utilized to make the measurements for emission from 1 ㎓ to 40 ㎓ emissions.



4.2. Limit

According to 15.209(a), for an intentional radiator devices, the general required of field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values：

Frequency (㎒)	Distance (Meters)	Radiated (μV/m)
0.009 ~ 0.490	300	2 400 / F(㎑)
0.490 ~ 1.705	30	24 000 / F(㎑)
1.705 ~ 30.0	30	30
30 ~ 88	3	100**
88 ~ 216	3	150**
216 ~ 960	3	200**
Above 960	3	500

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54 ~ 72 ㎒, 76 ~ 88 ㎒, 174 ~ 216 ㎒ or 470 ~ 806 ㎒. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

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According to 15.407(b), (b) Undesirable emission limits: Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15–5.25 ㎓ band: all emissions outside of the 5.15–5.35 ㎓ band shall not exceed an e.i.r.p of –27 ㏈m/㎒.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHzband:

i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the bandedge.

ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2,2020.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 ㎒.

A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 ㎒.

(6) Unwanted emissions below 1 ㎓ must comply with the general field strength limits set forth in§

15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in § 15.207.

(7) The provisions of §15.205 apply to intentional radiators operating under thissection.

(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipmentpermits.

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4.3. Test procedures

Radiated emissions from the EUT were measured according to the dictates of ANSI C63.10:2013
In case of the air temperature of the test site is out of the range is 10 to 40°C before the testing proceeds the warm-up time of EUT maintain adequately

4.3.1. Test procedures for radiated spurious emissions

1. The EUT is placed on a turntable, which is 0.8 m (Below 1 ㎓.)/ 1.5 m (Above 1 ㎓) above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

※ Remark;

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 10 ㎑ for Peak detection (PK) at frequency below 30 ㎒
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 ㎑ for Peak detection (PK) or Quasi-peak detection (QP) at frequency below 1 ㎓.
3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 ㎒ for Peak detection and frequency above 1 ㎓.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 ㎒z and the video bandwidth is 10 ㎐ for Average detection (AV) at frequency above 1 ㎓.

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4.4. Test result

Ambient temperature: 20℃
Relative humidity: 45% R.H.

4.4.1. Spurious radiated emission

The frequency spectrum from 9㎑ to 30㎒ was investigated. Emission levels are not reported muchlower than the limits by over 20 ㏈. All reading values are peak values.
To get a maximum emission levels from the EUT, the EUT was moved throughout the XY, XZ, and YZ planes.

Operation mode: UNII-1(802.11a) worst case
A. Low channel (5 180 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (㏈㎶)	Detector mode	Pol.	Ant. factor (㏈/m)	CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 220 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (㏈㎶)	Detector mode	Pol.	Ant. factor (㏈/m)	CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
No other emissions were detected at a level greater than 20dB below limit.								

C. High channel (5 240 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (㏈㎶)	Detector mode	Pol.	Ant. factor (㏈/m)	CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
No other emissions were detected at a level greater than 20dB below limit.								

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Operation mode: UNII-1(n_HT20) worst case

A. Low channel (5 180 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 220 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

C. High channel (5 240 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

Operation mode: UNII-1(n_HT40) worst case

A. Low channel (5 190 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. High channel (5 230 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

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Operation mode: UNII-2A(802.11a) worst case

A. Low channel (5 260 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 300 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

C. High channel (5 320 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

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Operation mode: UNII-2A(n_HT20) worst case

A. Low channel (5 260 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 300 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

C. High channel (5 320 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

Operation mode: UNII-2A(n_HT40) worst case

A. Low channel (5 270 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. High channel (5 310 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

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Operation mode: UNII-2C(802.11a) worst case

A. Low channel (5 500 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 560 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

C. High channel (5 620 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

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Operation mode: UNII-2C(n_HT20) worst case

A. Low channel (5 500 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 560 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

C. High channel (5 620 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

Operation mode: UNII-2C(n_HT40) worst case

A. Low channel (5 510 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 550 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

C. High channel (5 590 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

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Operation mode: UNII-3(802.11a) worst case

A. Low channel (5 745 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 785 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

C. High channel (5 805 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

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Operation mode: UNII-3(n_HT20) worst case

A. Low channel (5 745 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 785 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

C. High channel (5 805 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

Operation mode: UNII-3(n_HT40) worst case

A. Low channel (5 745 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. High channel (5 795 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

※ Remark

1. Actual = Reading + Ant. factor + CL (Cable loss)+Amp factor
2. Limit line = specific Limits (dBuV) + Distance extrapolation factor
3. 15.31 Measurement standards.

The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this part.

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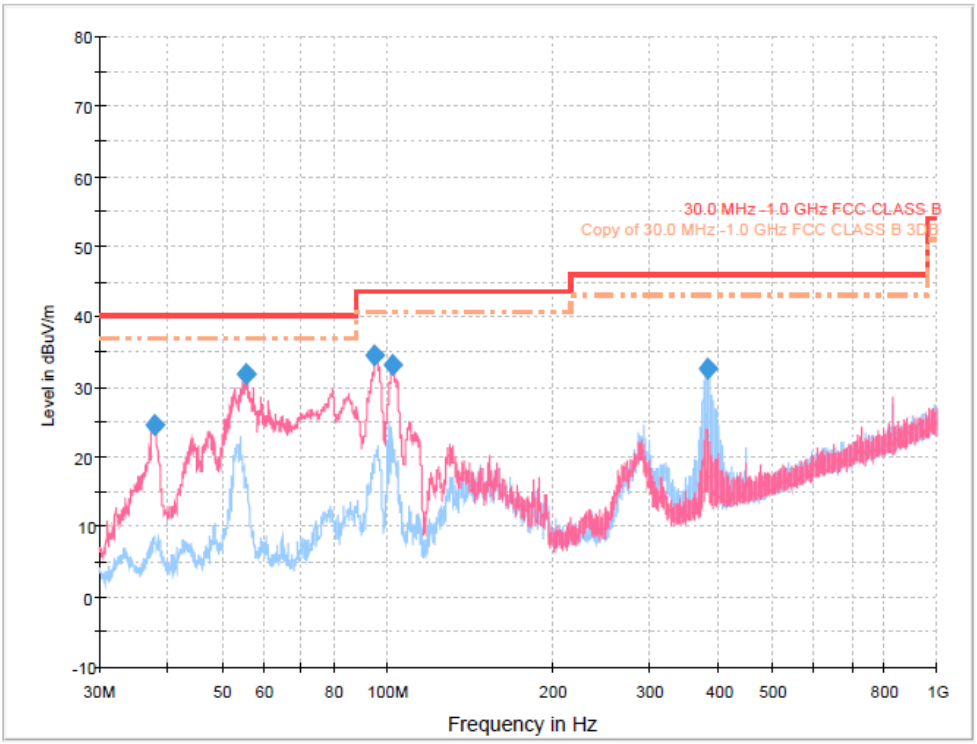
4.4.2. Spurious radiated emission

The frequency spectrum from 30 ㎒ to 1 000 ㎒ was investigated. Emission levels are not reported muchlower than the limits by over 20 ㏈. All reading values are peak values.
To get a maximum emission levels from the EUT, the EUT was moved throughout the XY, XZ, and YZ planes.

Operation mode: Transmitting mode
worst case data



Frequency (MHz)	MaxPeak-MaxHold (dBuV/m)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBuV/m)
37.892273	24.6	V	96.0	-19.7	15.4	40.0
55.616818	31.9	V	87.0	-19.6	8.1	40.0
95.166364	34.5	V	7.0	-21.3	9.0	43.5
102.132727	33.2	V	7.0	-20.8	10.3	43.5
384.005909	32.6	H	129.0	-13.5	13.4	46.0

※ Remark
15.31 Measurement standards.
The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this part.

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4.4.3. Spurious radiated emission

The frequency spectrum above 1 000 ㎒was investigated. Emission levels are not reported much lower thanthe limits by over 20 ㏈.
To get a maximum emission levels from the EUT, the EUT was moved throughout the XY, XZ, and YZ planes.

Operation mode: UNII-1(802.11a)

A. Low channel (5 180 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (㏈㎶)	Detector mode	Pol.	Ant. factor (㏈/m)	CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 220 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (㏈㎶)	Detector mode	Pol.	Ant. factor (㏈/m)	CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
No other emissions were detected at a level greater than 20dB below limit.								

C. High channel (5 240 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (㏈㎶)	Detector mode	Pol.	Ant. factor (㏈/m)	CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
No other emissions were detected at a level greater than 20dB below limit.								

Operation mode: UNII-1_(n_HT20)

A. Low channel (5 180 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (㏈㎶)	Detector mode	Pol.	Ant. factor (㏈/m)	CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 220 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (㏈㎶)	Detector mode	Pol.	Ant. factor (㏈/m)	CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
No other emissions were detected at a level greater than 20dB below limit.								

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C. High channel (5 240 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

Operation mode: UNII-1_(n_HT40)

A. Low channel (5 190 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. High channel (5 230 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

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Operation mode: UNII-2A(802.11a)

A. Low channel (5 260 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 300 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

C. High channel (5 320 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

Operation mode: UNII-2A_(n_HT20)

A. Low channel (5 260 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 300 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

C. High channel (5 320 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

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Operation mode: UNII-2A_(n_HT40)

A. Low channel (5 270 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. High channel (5 310 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

Operation mode: UNII-2C(802.11a)

A. Low channel (5 500 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 560 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

C. High channel (5 620 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

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Operation mode: UNII-2C_(n_HT20)

A. Low channel (5 500 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 560 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

C. High channel (5 620 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

Operation mode: UNII-2C_(n_HT40)

A. Low channel (5 510 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 550 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

C. High channel (5 590 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

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Operation mode: UNII-3(802.11a)

A. Low channel (5 745 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 785 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

C. High channel (5 805 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

Operation mode: UNII-3(n_HT20)

A. Low channel (5 745 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. Middle channel (5 785 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

C. High channel (5 805 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

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Operation mode: UNII-3_(n_HT40)

A. Low channel (5 755 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

B. High channel (5 795 ㎒)

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
No other emissions were detected at a level greater than 20dB below limit.								

※ Remark

1. Actual = Reading + Ant. factor + CL (Cable loss)
2. Limit line = specific Limits (dBuV) + Distance extrapolation factor
3. 15.31 Measurement standards.

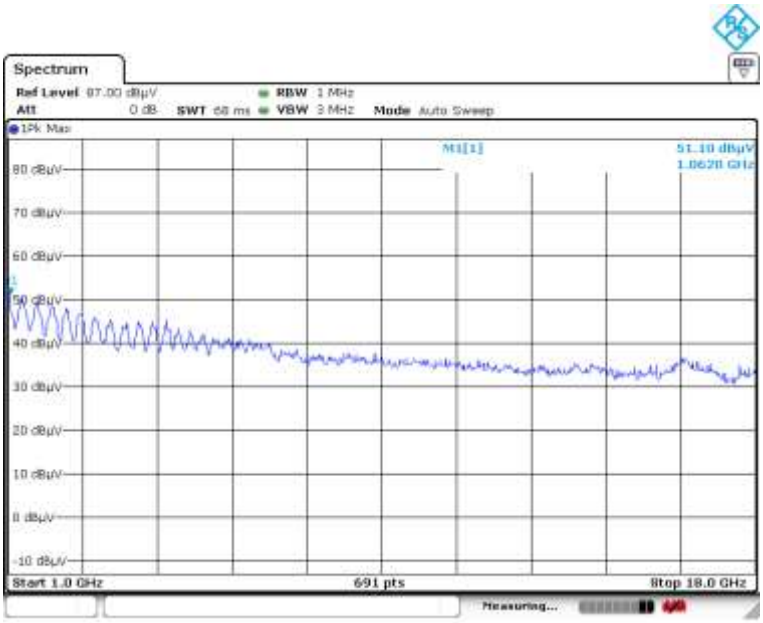
The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this part.

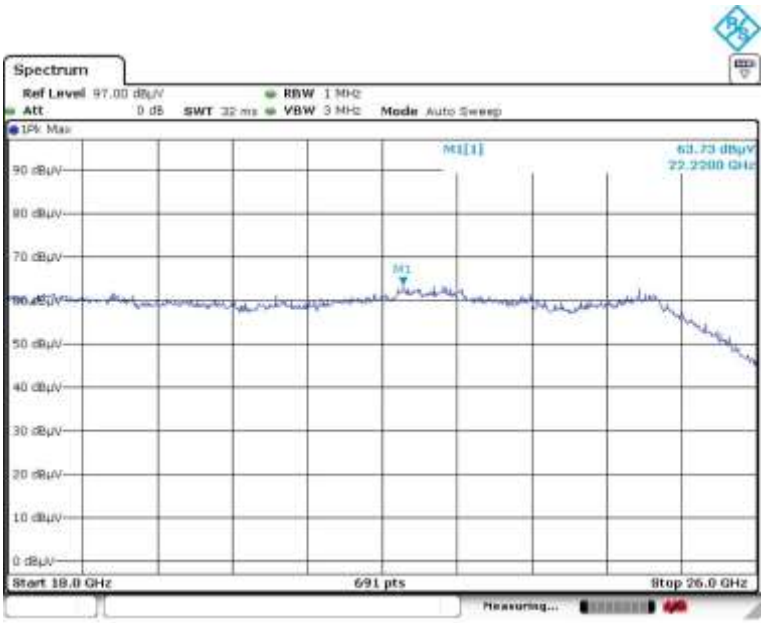
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

4.4.4 Spurious radiated emission.

Test plots

Operation mode: UNII-1(802.11a) 1TX worst case
*** channel(5 180 ㎒)**





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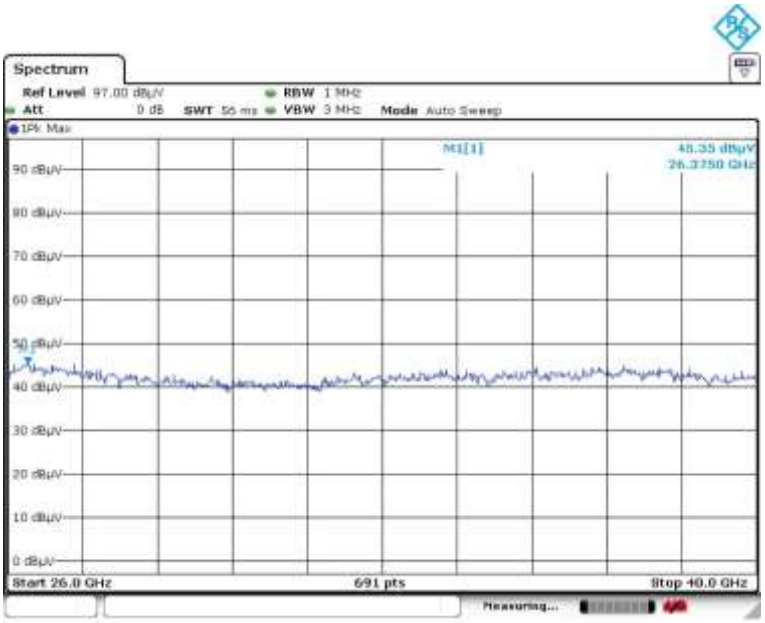
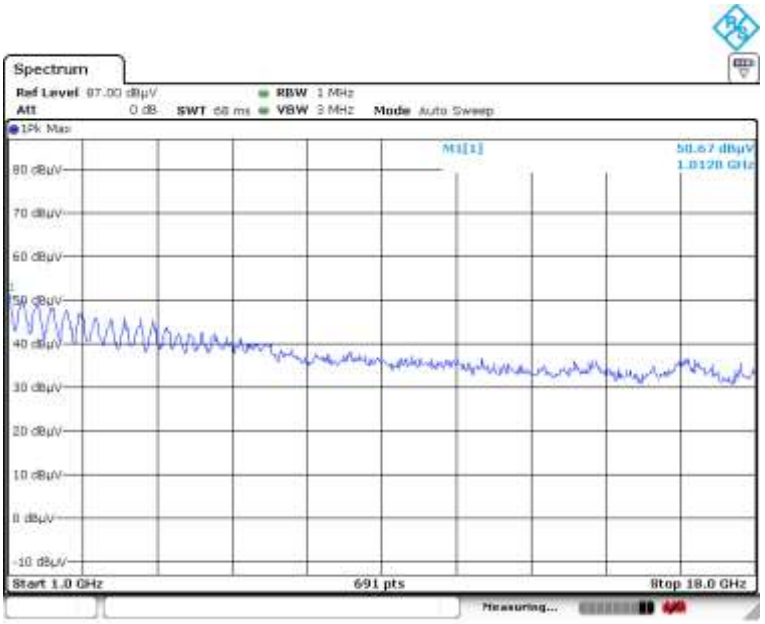


Operation mode: UNII-1(n_HT20) 2TX worst case
*** channel(5 180 ㎒)**



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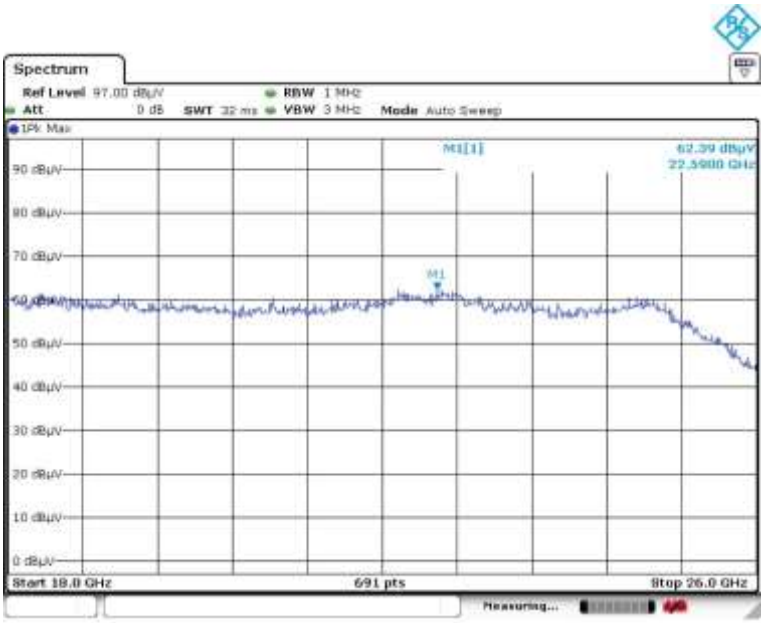
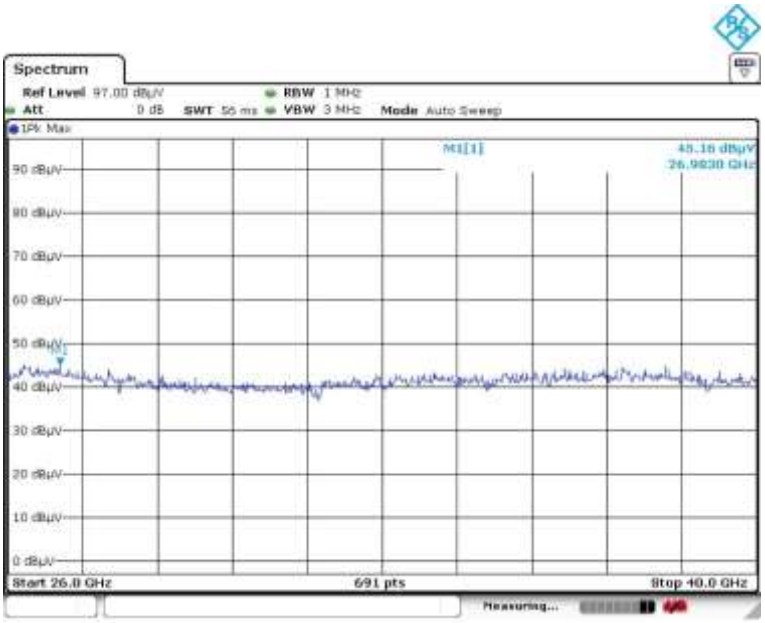
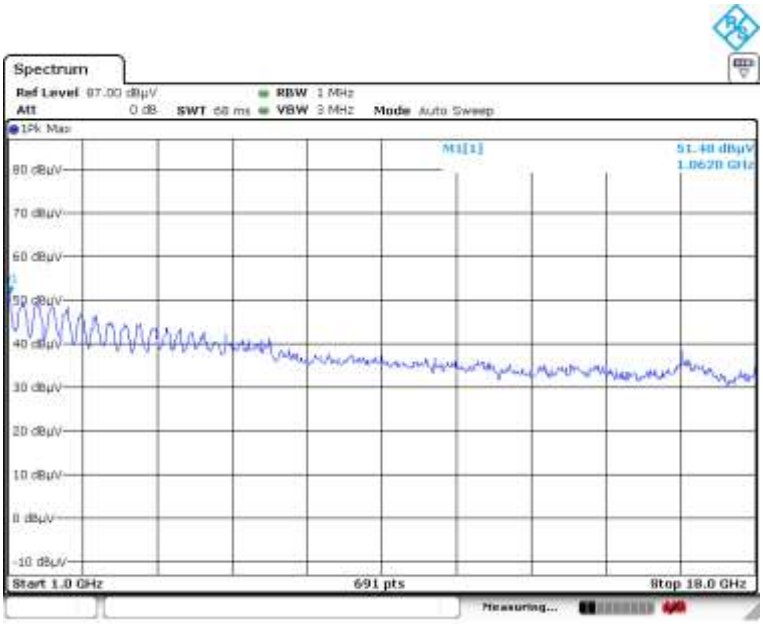
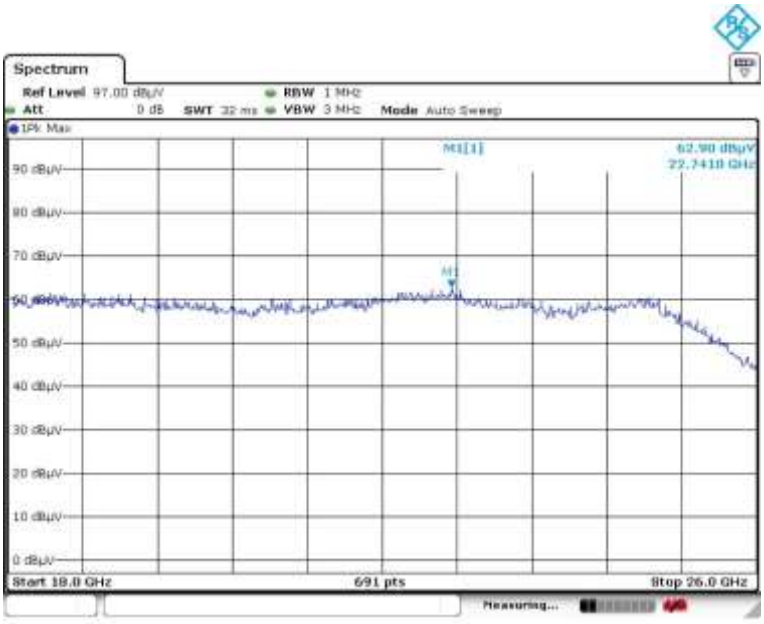




The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

Operation mode: UNII-1(n_HT40) 2TX worst case
*** channel(5 190 ㎒)**





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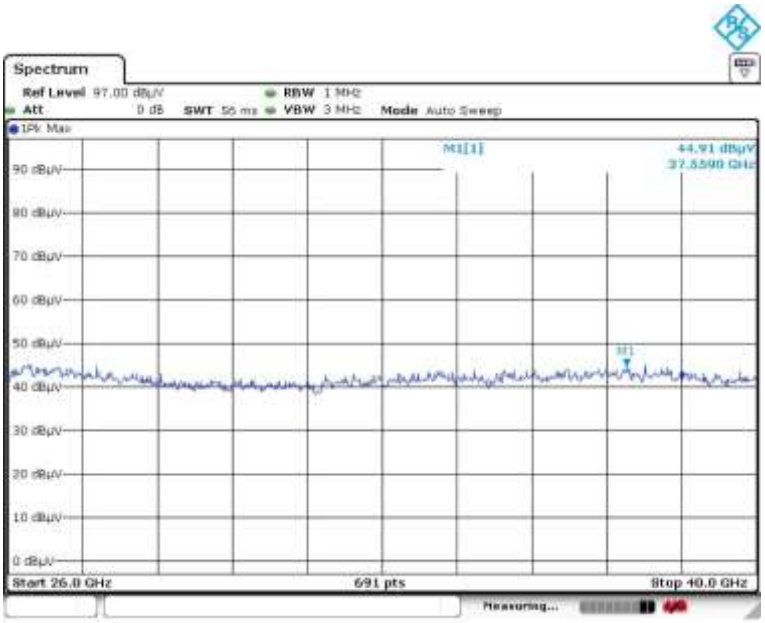
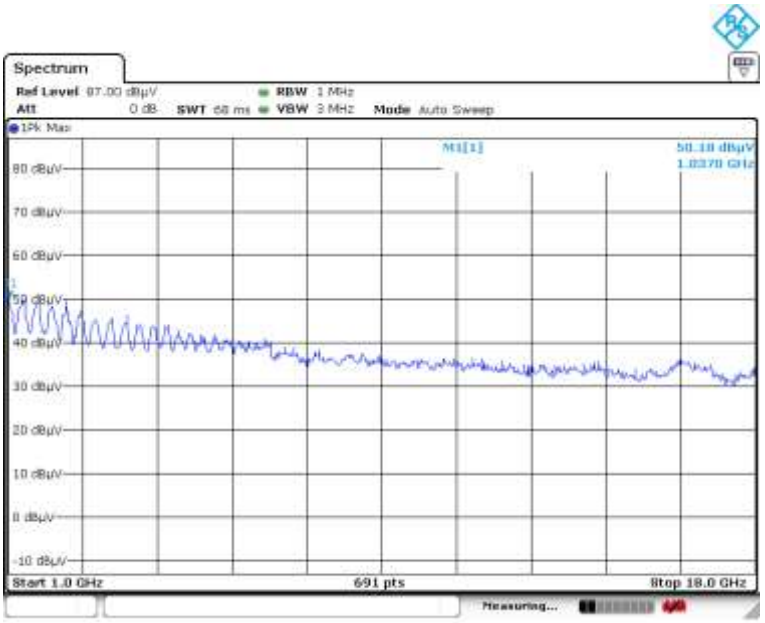


Operation mode: UNII-2A(802.11a) 1TX worst case
*** channel(5 320 ㎒)**



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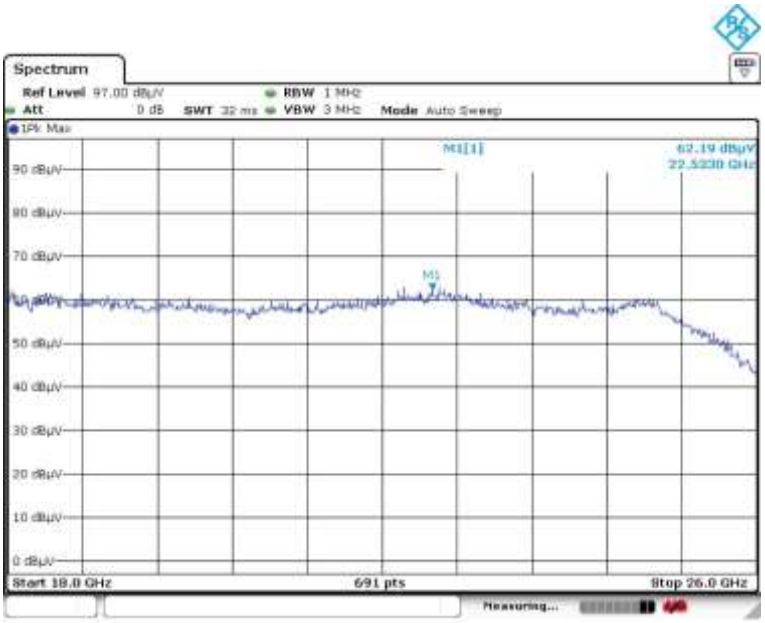

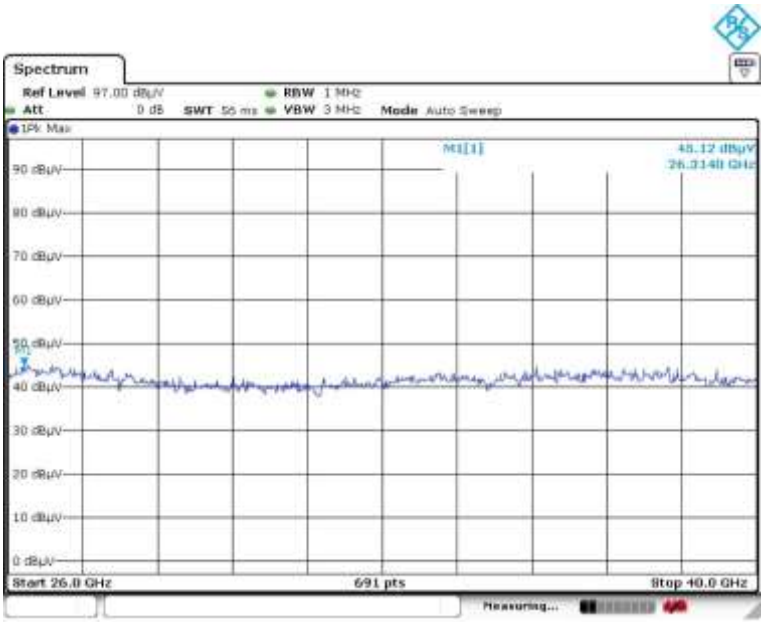

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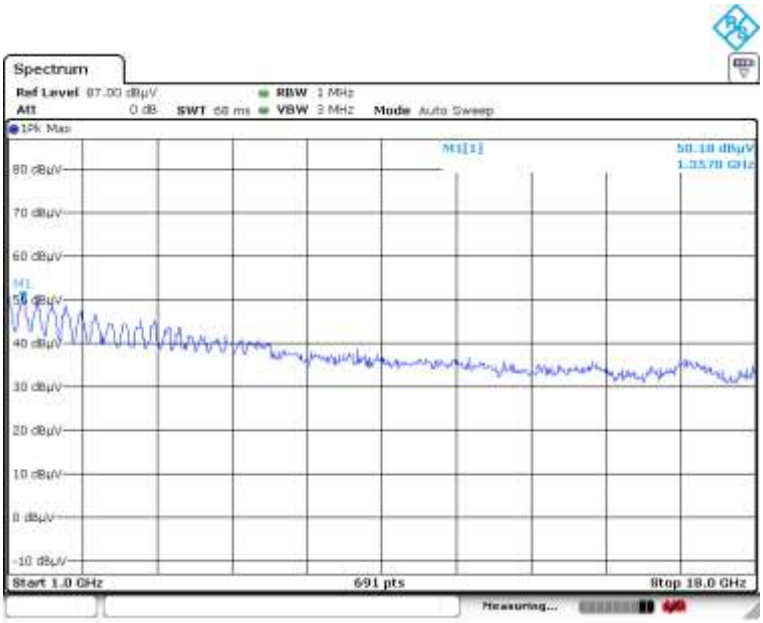
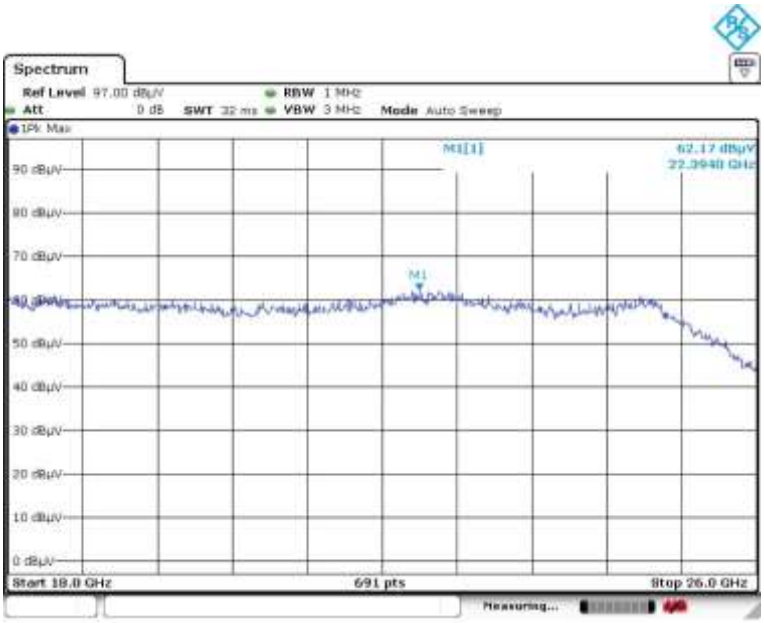
Operation mode: UNII-2A(n_HT20) 2TX worst case
*** channel(5 320 ㎒)**





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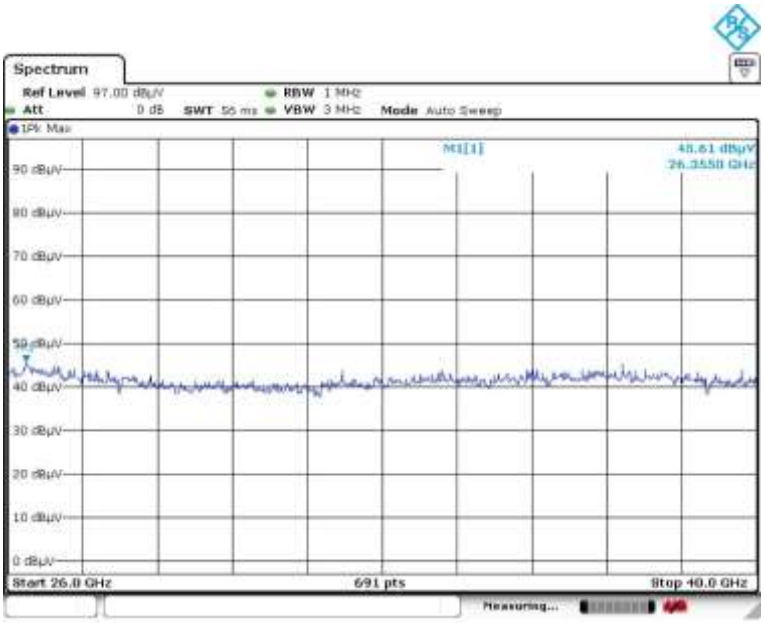
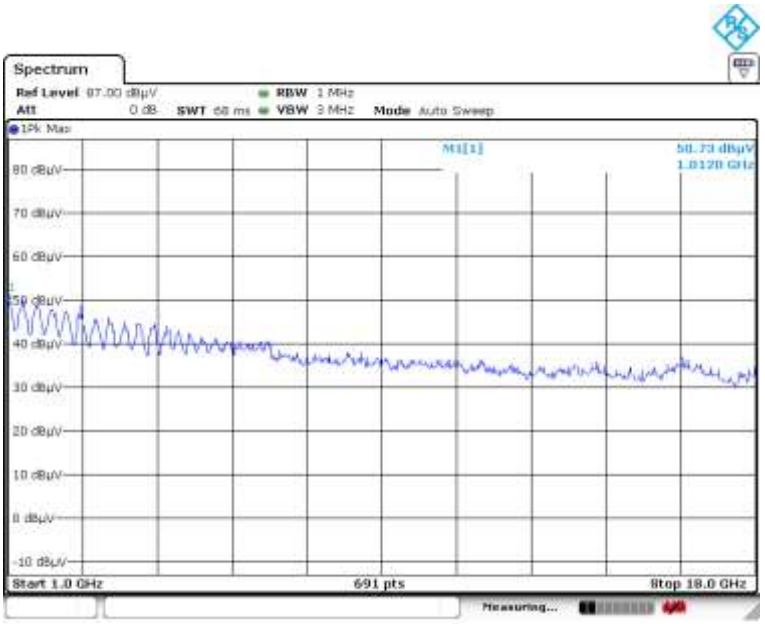


Operation mode: UNII-2A(n_HT40) 2TX worst case
*** channel(5 310 ㎒)**



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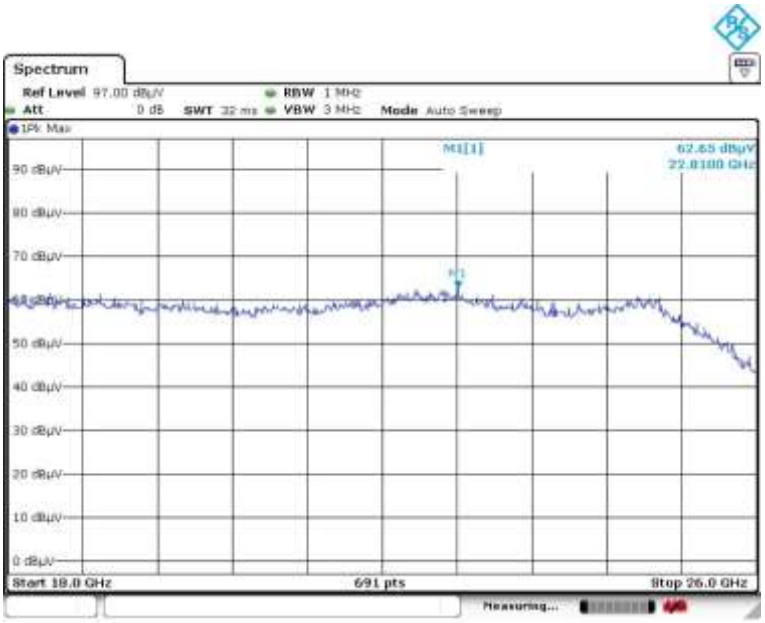

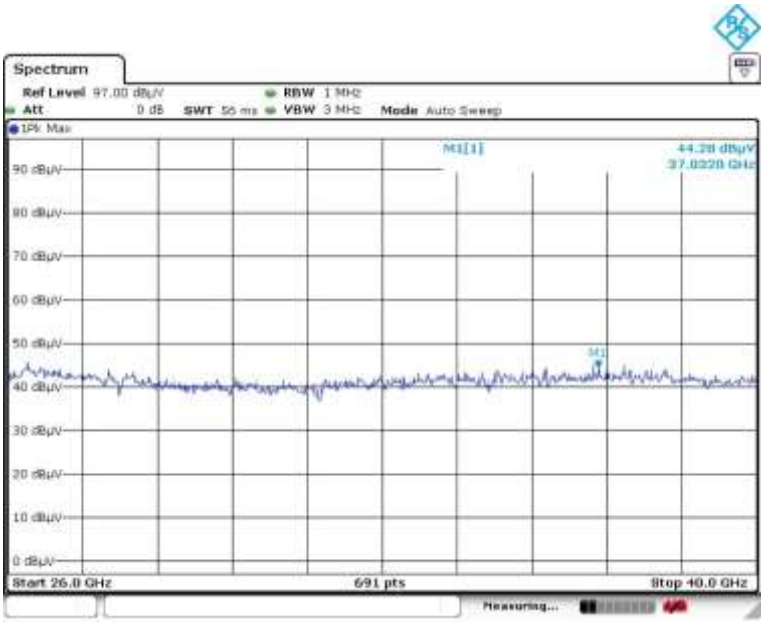

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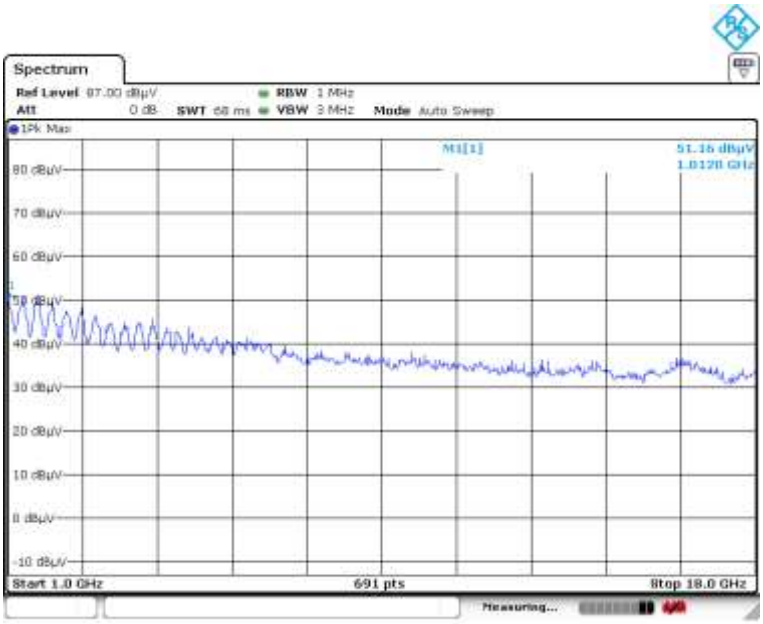
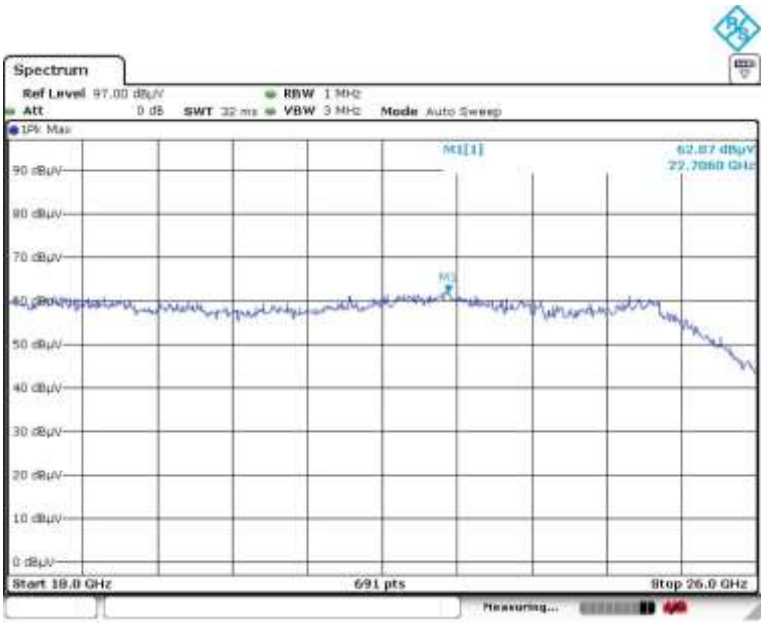
Operation mode: UNII-2C(802.11a) 1TX worst case
*** channel(5 500 ㎒)**





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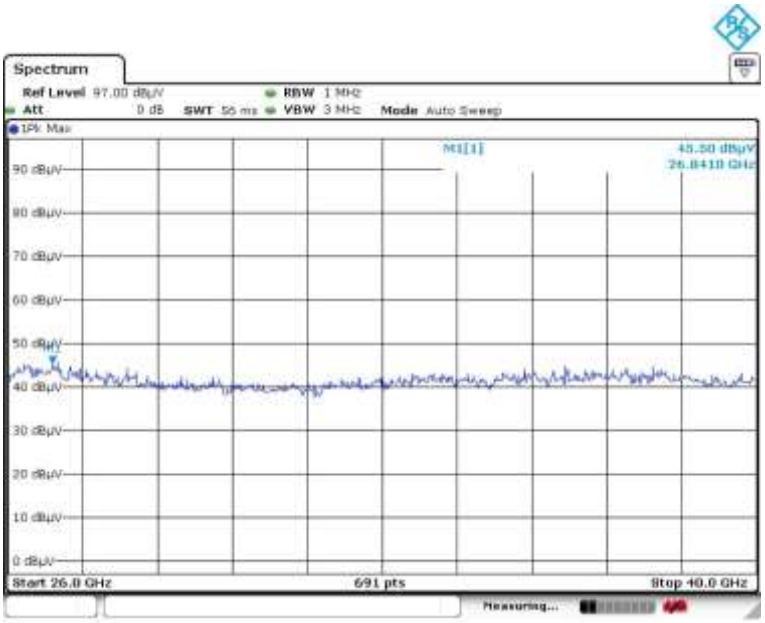
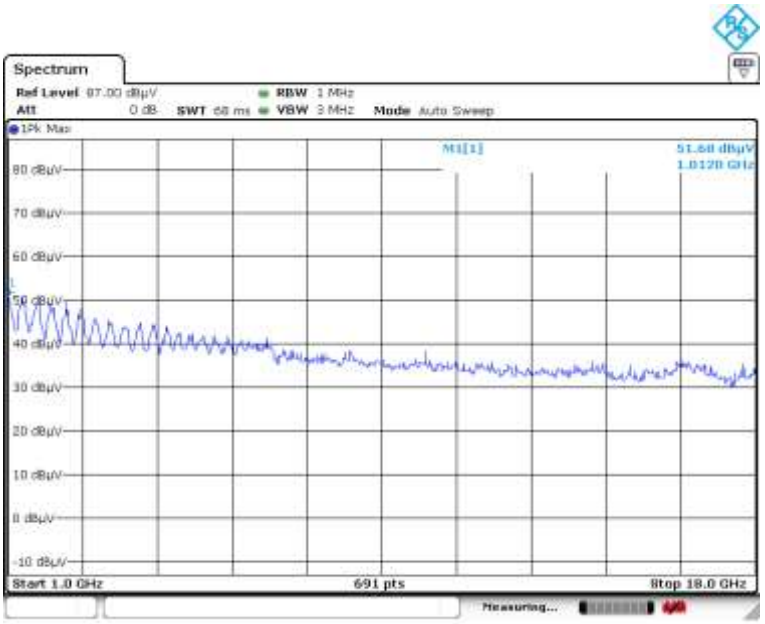


Operation mode: UNII-2C(n_HT20) 2TX worst case
*** channel(5 500 ㎒)**



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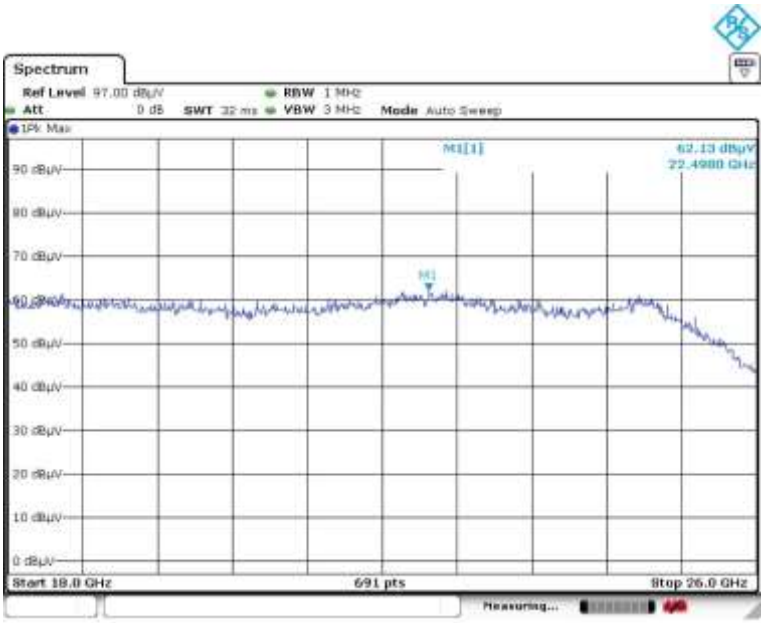

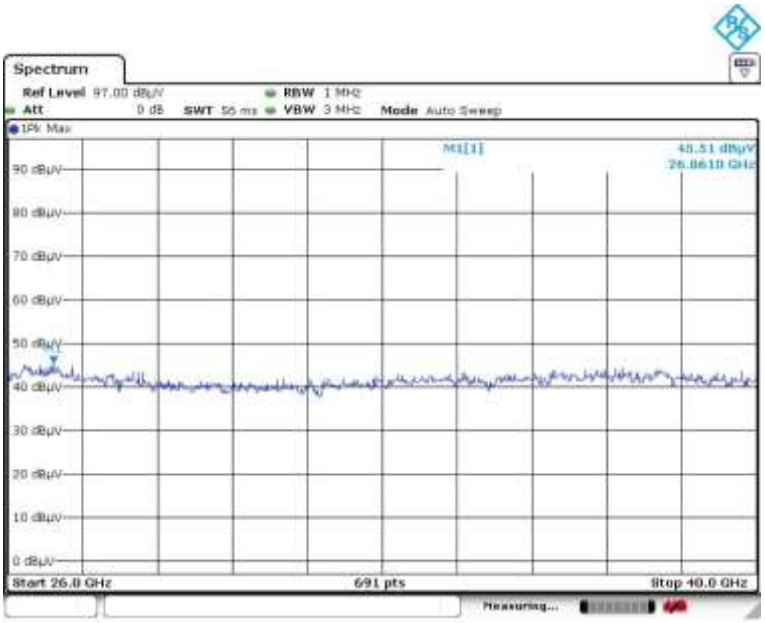

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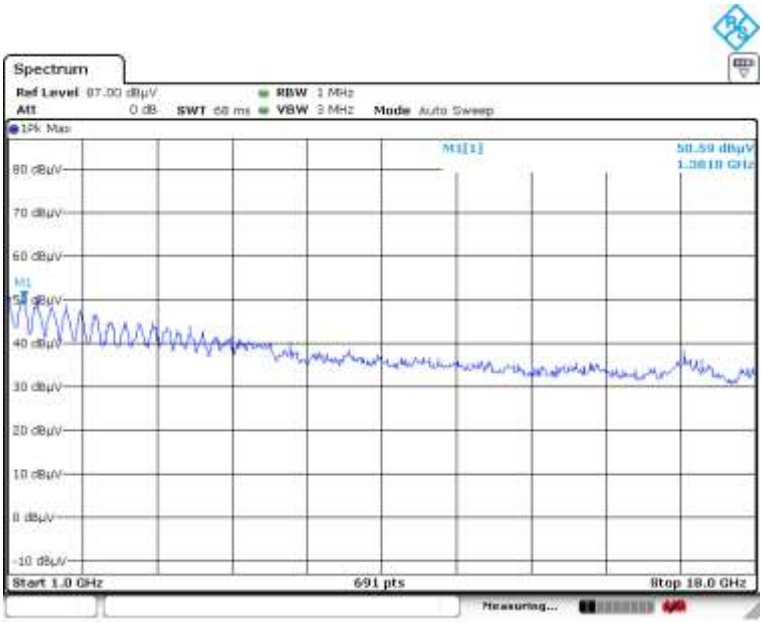
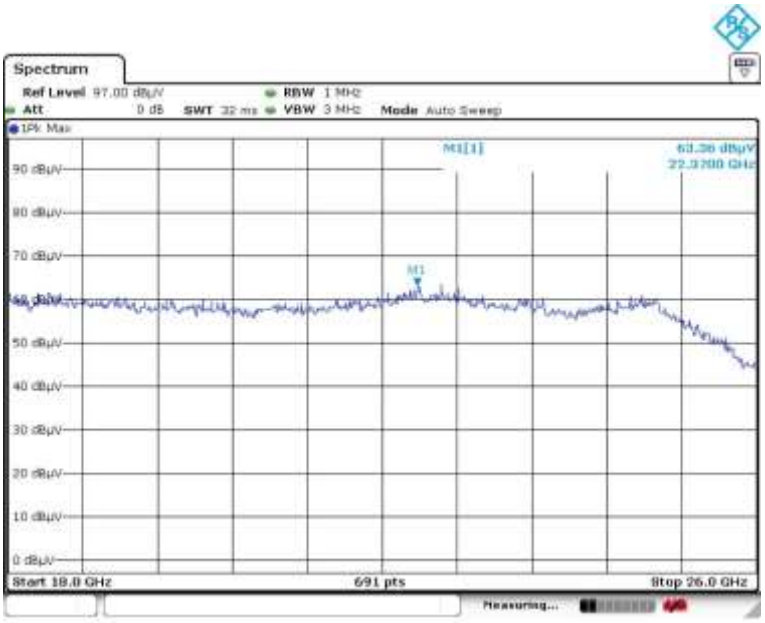
Operation mode: UNII-2C(n_HT40) 2TX worst case
*** channel(5 510 ㎒)**





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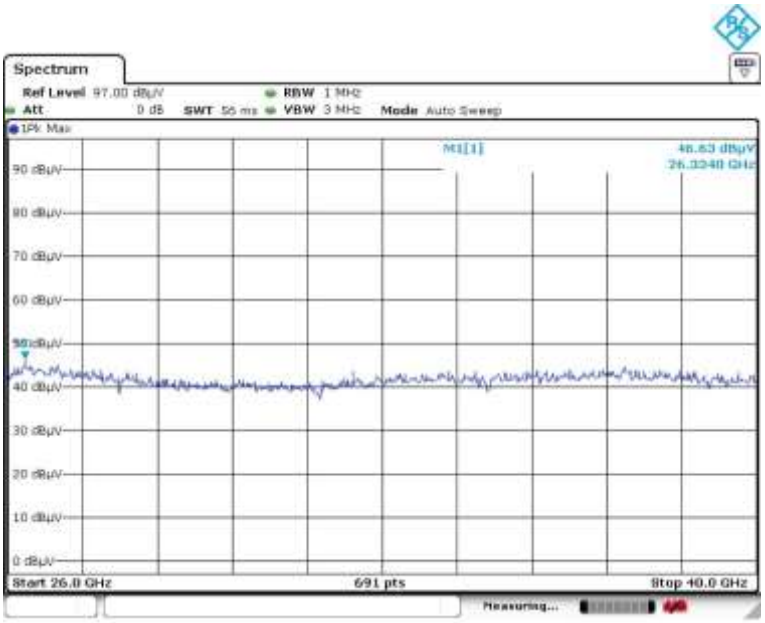
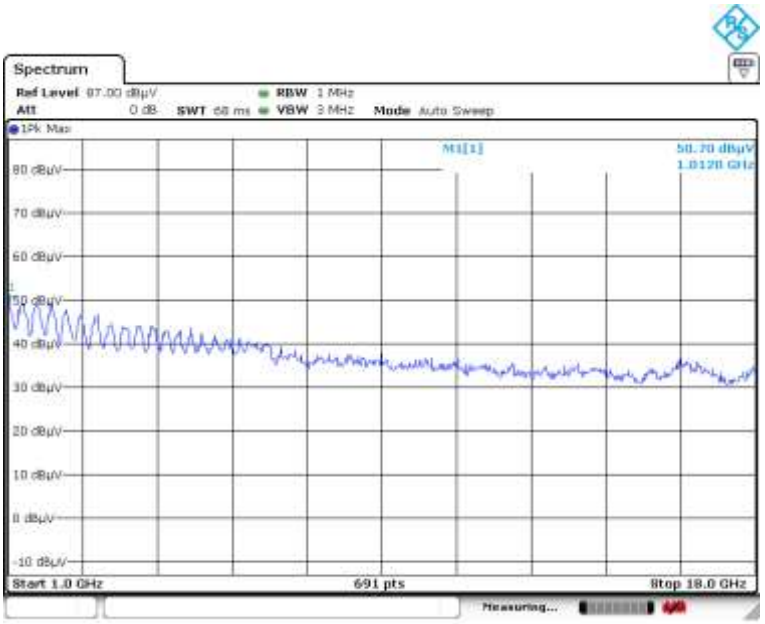


Operation mode: UNII-3(802.11a) 1TX worst case
*** channel(5 745 ㎒)**



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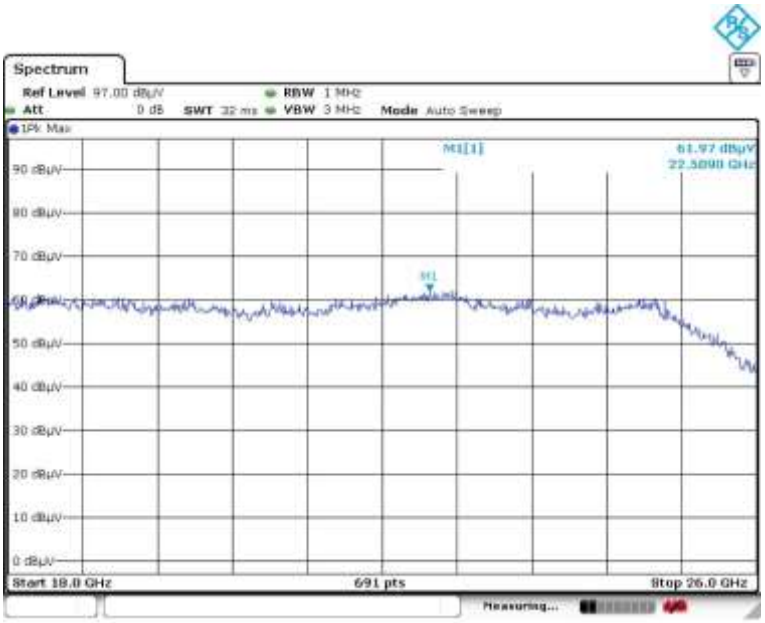
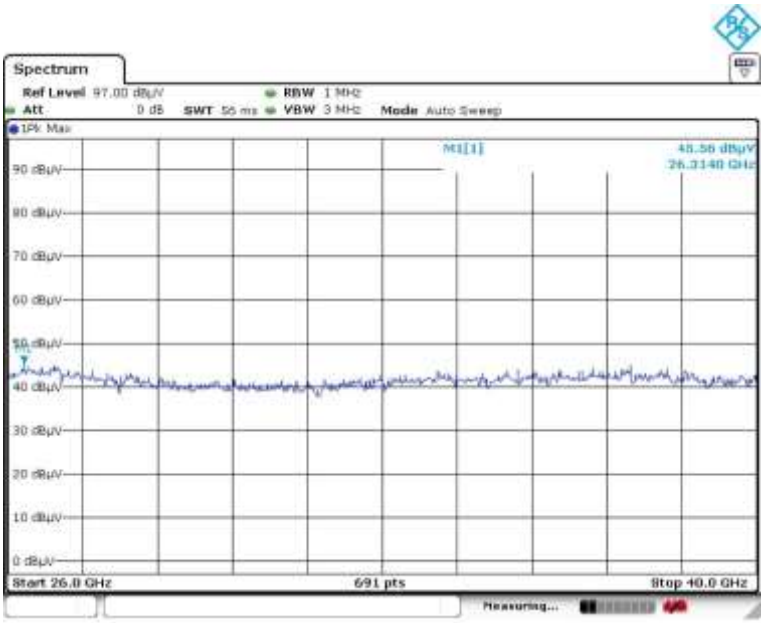
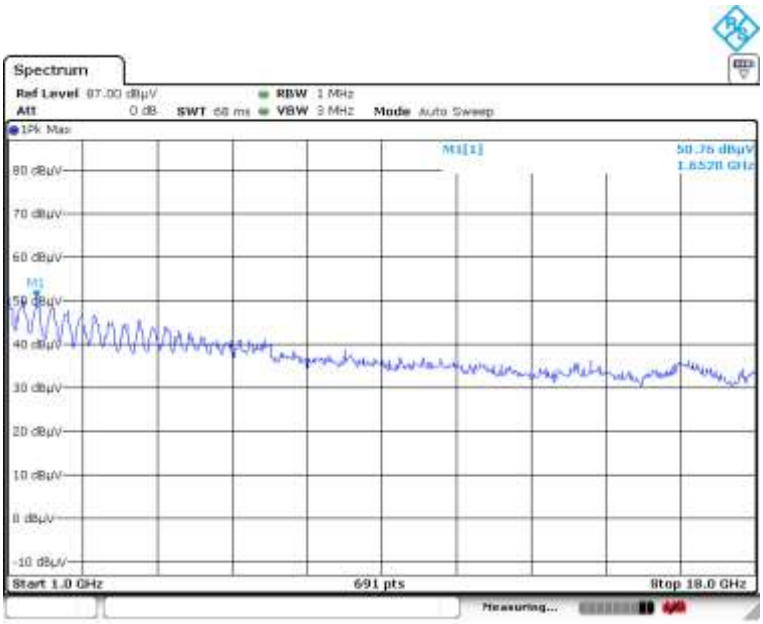
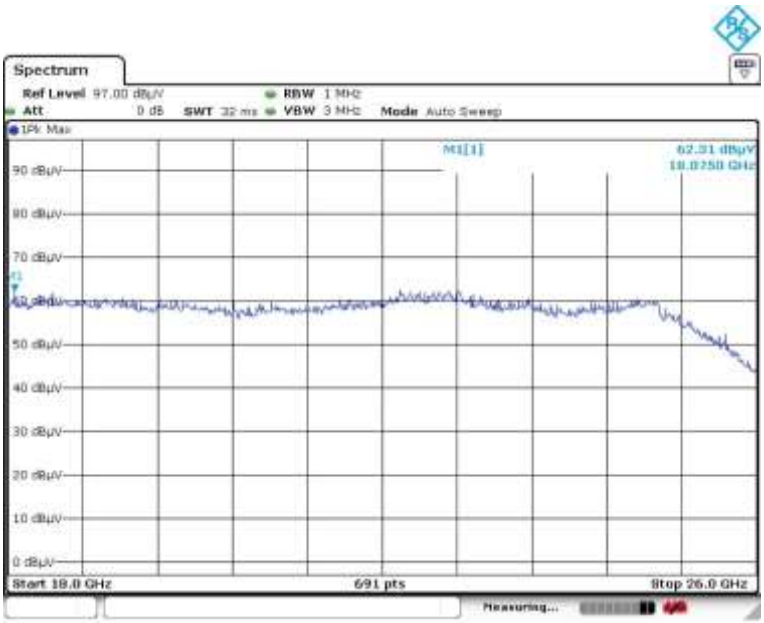




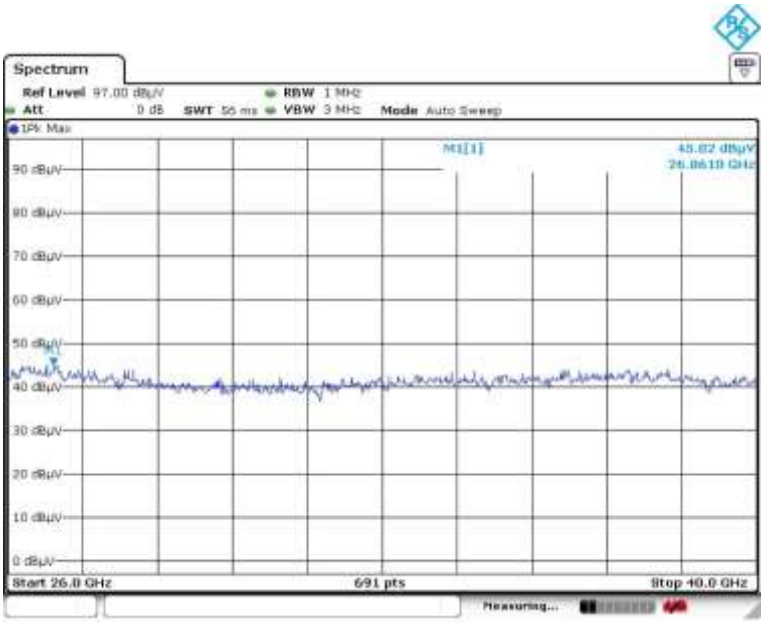
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

Operation mode: UNII-3(n_HT20) 2TX worst case
*** channel(5 745 ㎒)**

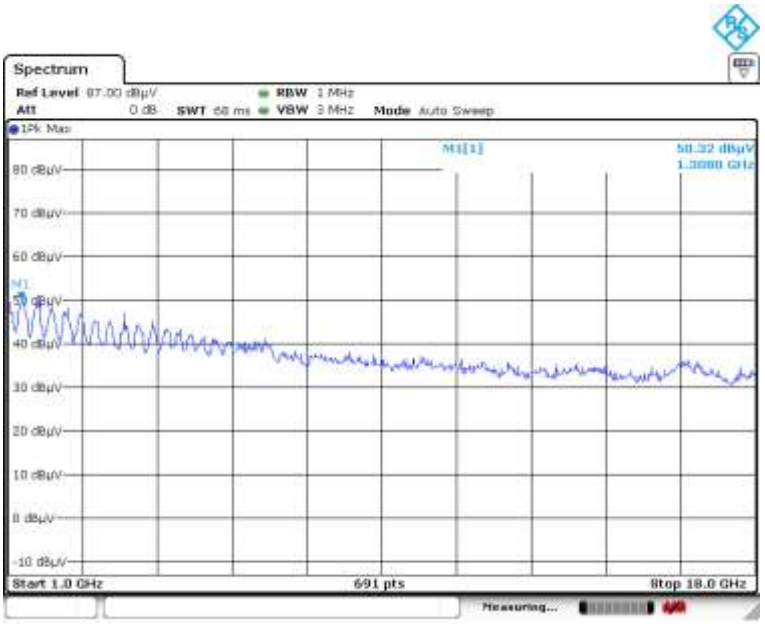




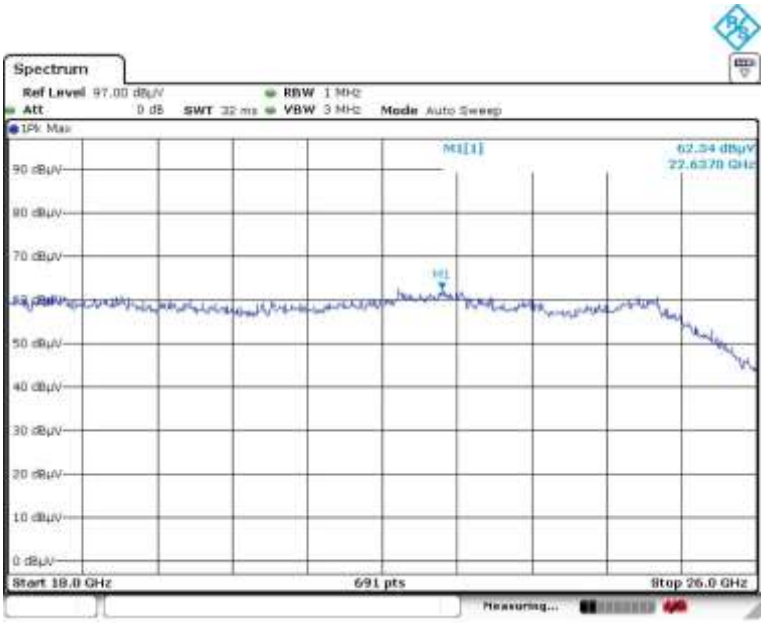
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

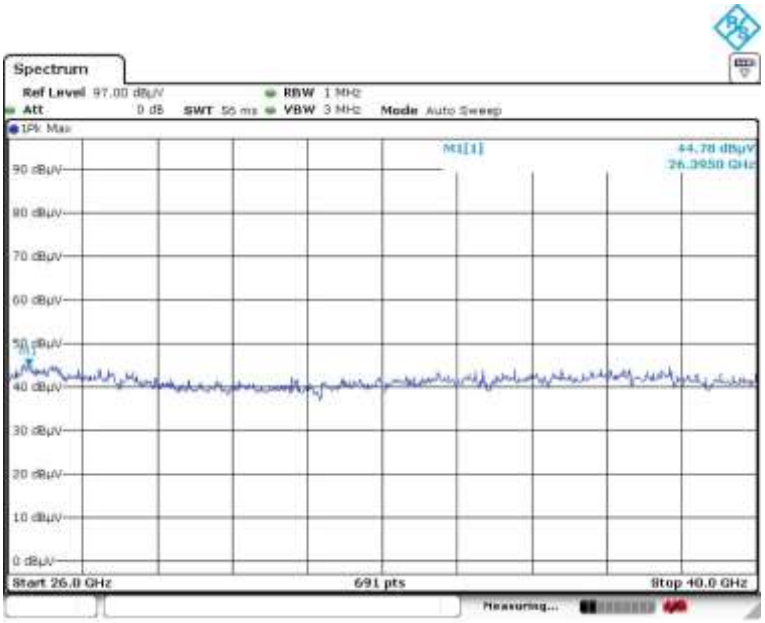


Operation mode: UNII-3(n_HT40) 2TX worst case
***channel(5 755 ㎒)**



The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.





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4.4.5. Restricted Band

Operation mode: UNII-1(802.11a) worst case
*** channel(5 180 ㎒)**

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	Amp+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5146.60	78.40	Peak	H	32.89	45.06	66.23	74.00	7.77
5129.60	61.49	Peak	V	32.89	45.06	49.32	74.00	24.68

Operation mode: UNII-1(n_HT20) worst case
*** channel(5 180 ㎒)**

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	Amp+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5143.60	63.35	Peak	H	32.89	45.06	51.18	74.00	22.82
5086.60	61.58	Peak	V	32.89	45.06	49.41	74.00	24.59

Operation mode: UNII-1(n_HT40) worst case
*** channel(5 190 ㎒)**

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	Amp+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5146.60	76.88	Peak	H	32.89	45.06	64.71	74.00	9.29
5051.70	60.70	Peak	V	32.89	45.06	48.53	74.00	25.47

Operation mode: UNII-2A(802.11a) worst case
*** channel(5 320 ㎒)**

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	Amp+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5350.00	79.84	Peak	H	33.86	45.06	68.64	74.00	5.36
5365.68	59.54	Peak	V	33.86	45.06	48.34	74.00	25.66

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Operation mode: UNII-2A(n_HT20) worst case
*** channel(5 320 ㎒)**

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	Amp+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5352.22	76.51	Peak	H	33.86	45.06	65.31	74.00	8.69
5368.07	61.43	Peak	V	33.86	45.06	50.23	74.00	23.77

Operation mode: UNII-2A(n_HT40) worst case
*** channel(5 310 ㎒)**

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	Amp+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5350.00	63.17	Peak	H	33.86	45.06	51.97	74.00	22.03
5363.24	62.38	Peak	V	33.86	45.06	51.18	74.00	22.82

Operation mode: UNII-2C(802.11a) worst case
*** channel(5 500 ㎒)**

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	Amp+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5456.45	62.18	Peak	H	33.86	45.06	50.98	74.00	23.02
5457.84	59.81	Peak	V	33.86	45.06	48.61	74.00	25.39

Operation mode: UNII-2C(n_HT20) worst case
*** channel(5 500 ㎒)**

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	Amp+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5452.51	61.68	Peak	H	33.86	45.06	50.48	74.00	23.52
5458.76	59.35	Peak	V	33.86	45.06	48.15	74.00	25.85

Operation mode: UNII-2C(n_HT40) worst case
*** channel(5 510 ㎒)**

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	Amp+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5456.22	62.31	Peak	H	33.86	45.06	51.11	74.00	22.89
5452.28	59.15	Peak	V	33.86	45.06	47.95	74.00	26.05

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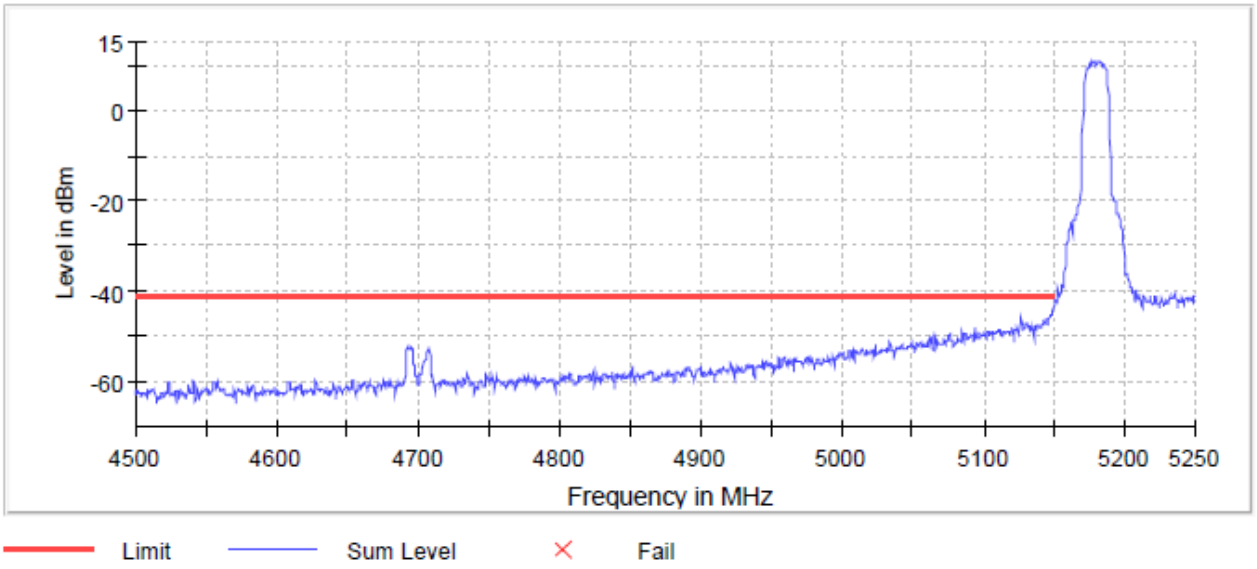
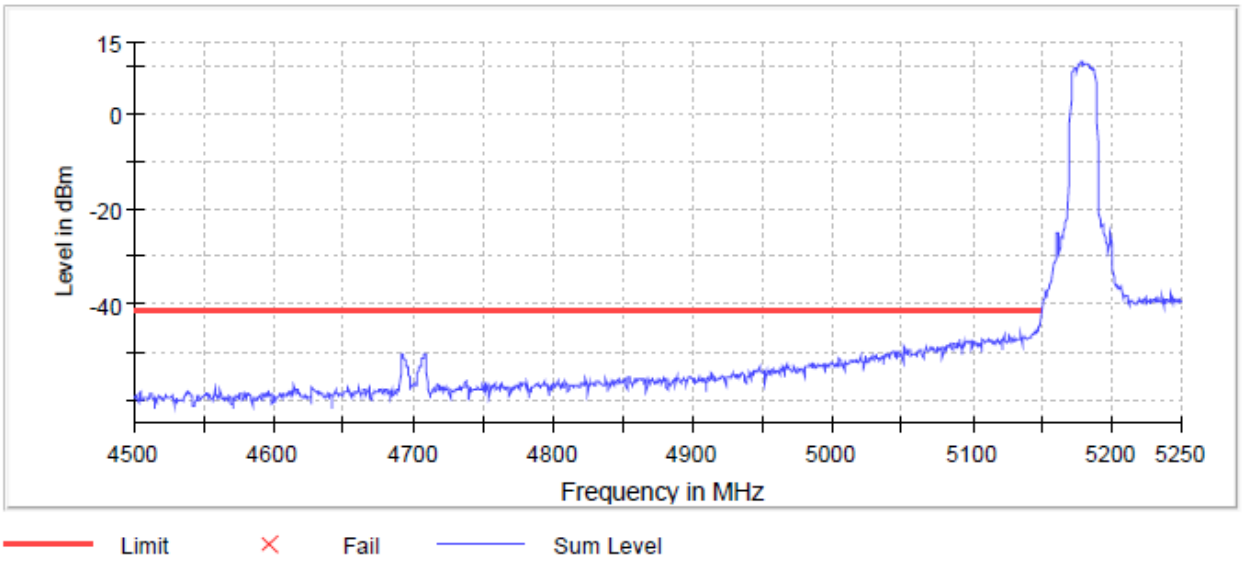
4.4.6. Out of Band-edge Measurement.

Test plots

Operation mode: UNII-1(802.11a) 1TX worst case
*** channel(5 180 ㎒)**



Operation mode: UNII-1(n_HT20) 2TX worst case
*** channel(5 180 ㎒)**



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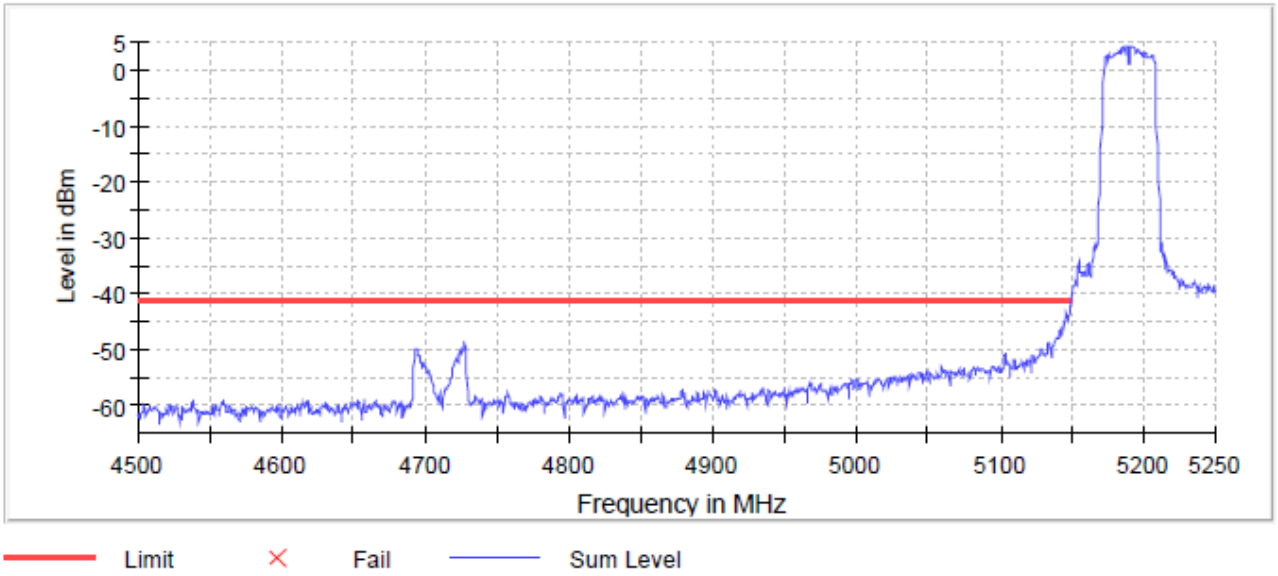
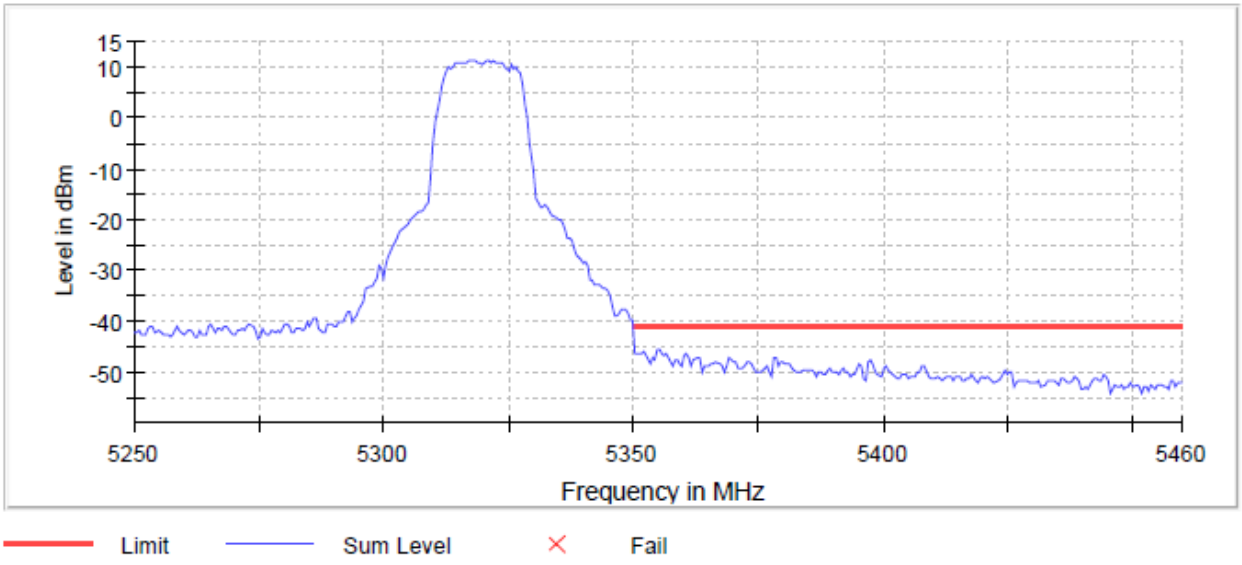
Operation mode: UNII-1(n_HT40) 2TX worst case
*** channel(5 190 ㎒)**



Operation mode: UNII-2A(802.11a) 1TX worst case
*** channel(5 320 ㎒)**



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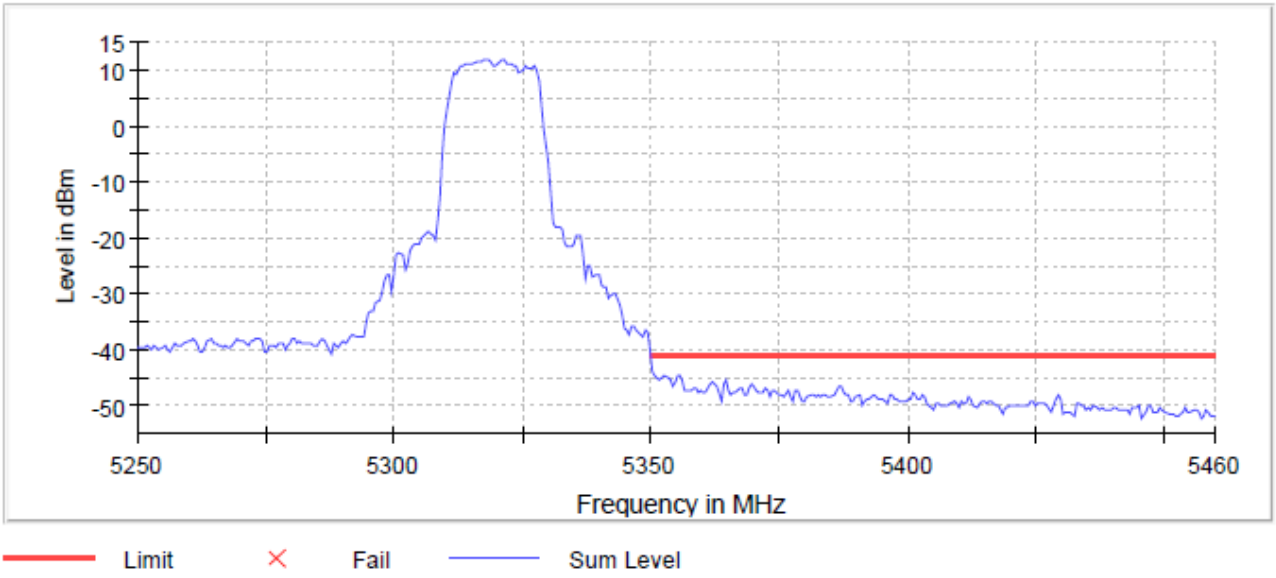
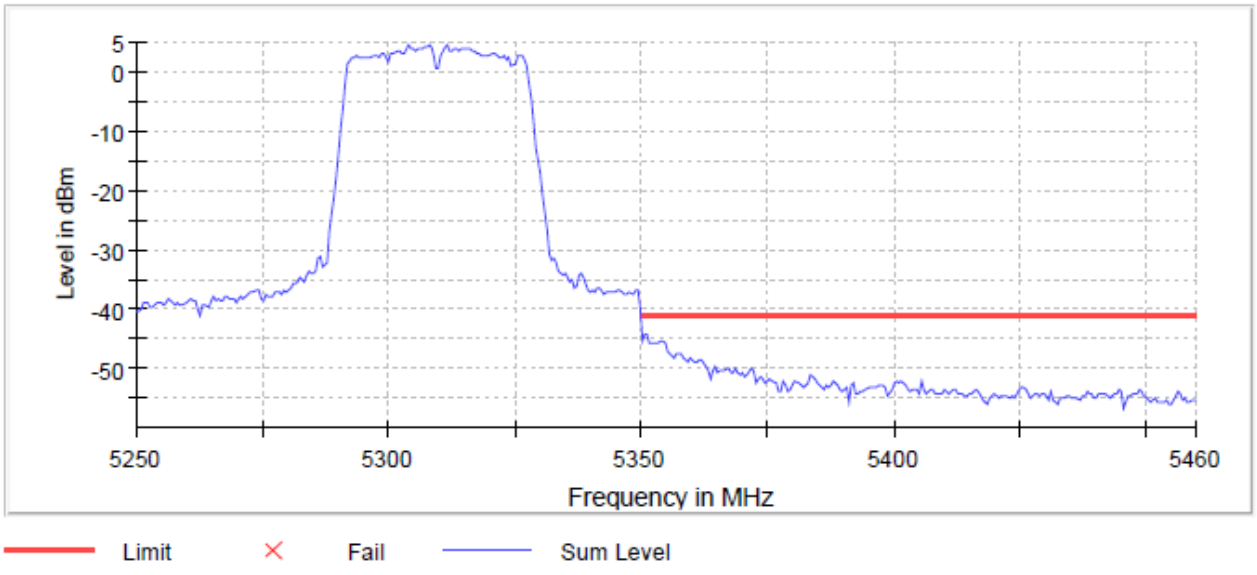
Operation mode: UNII-2A(n_HT20) 2TX worst case
*** channel(5 320 ㎒)**



Operation mode: UNII-2A(n_HT40) 2TX worst case
*** channel(5 310 ㎒)**



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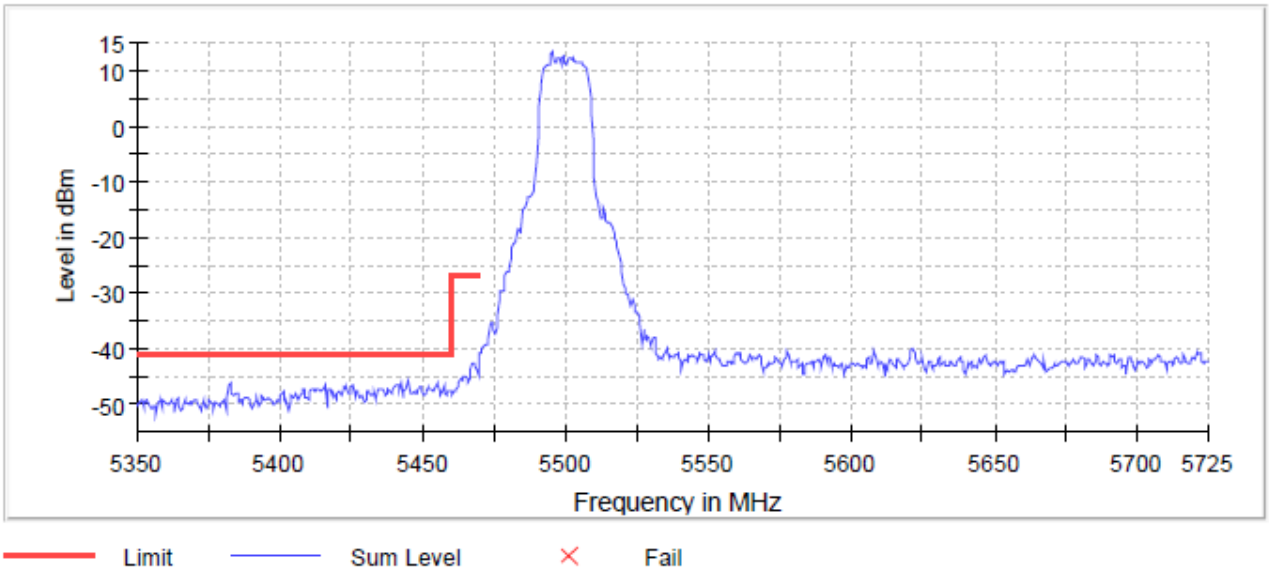
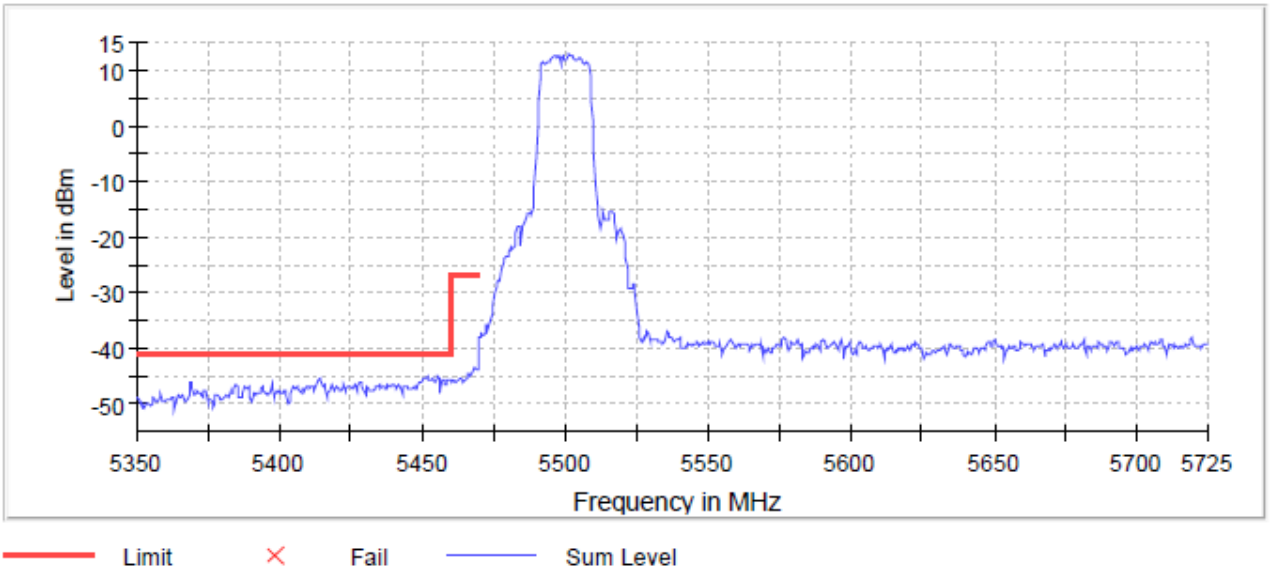
Operation mode: UNII-2C(802.11a) 1TX worst case
*** channel(5 500 ㎒)**



Operation mode: UNII-2C(n_HT20) 2TX worst case
*** channel(5 500 ㎒)**



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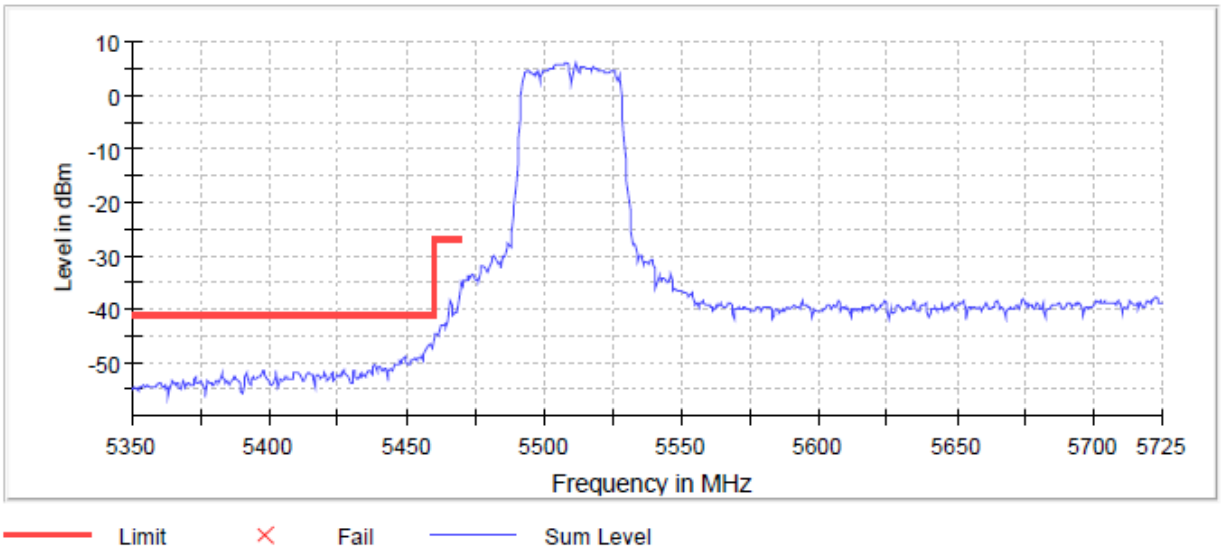
Operation mode: UNII-2C(n_HT40) 2TX worst case
*** channel(5 510 ㎒)**



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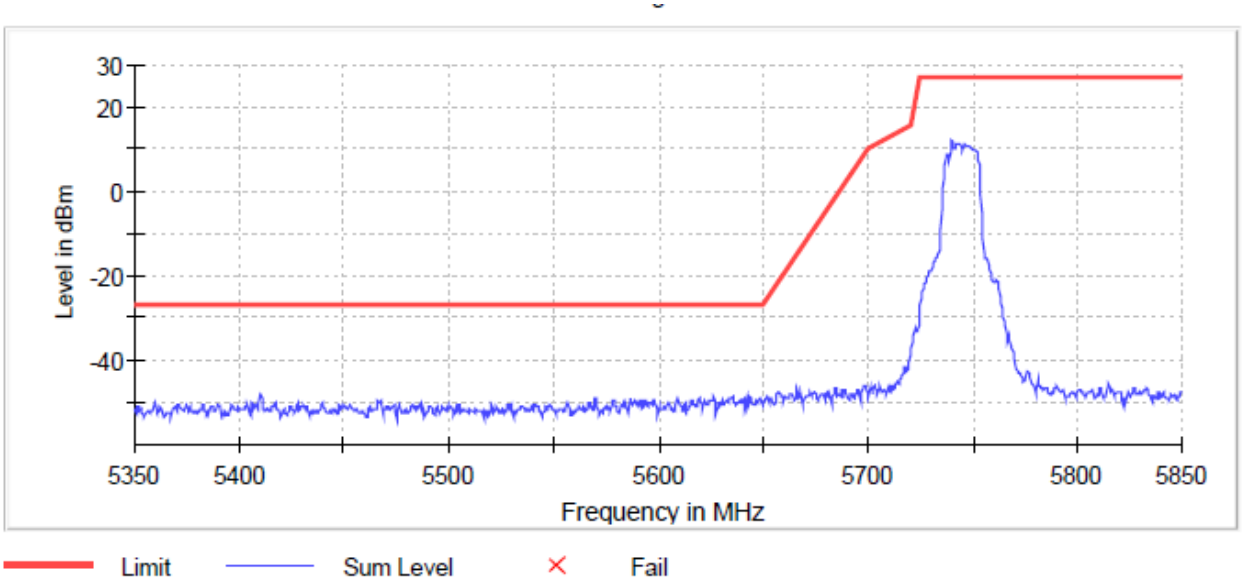
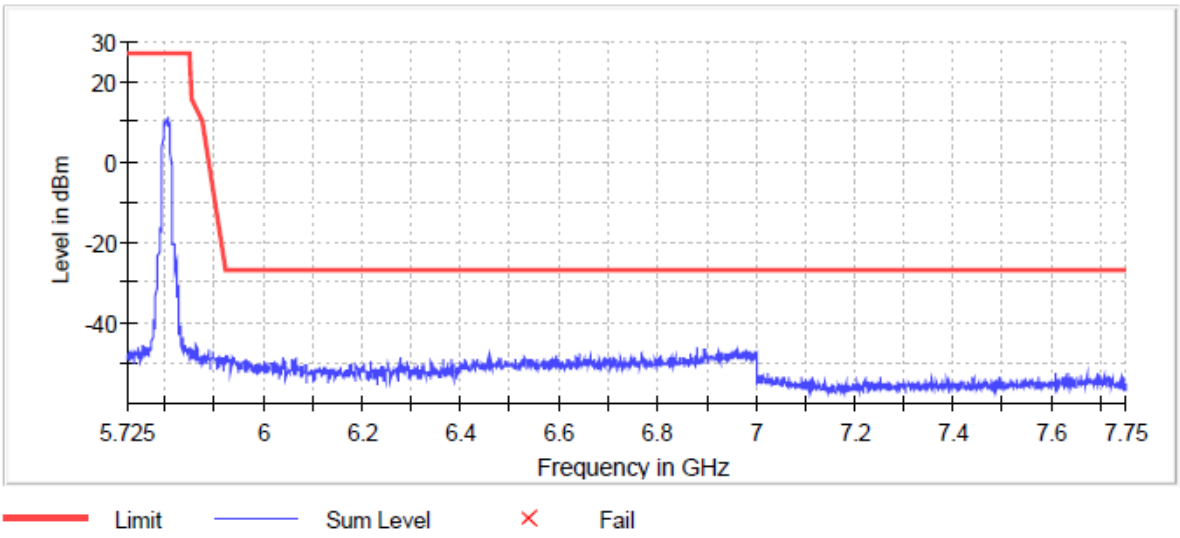
Operation mode: UNII-3(802.11a) 1TX worst case
*** Low channel(5 745 ㎒)**



*** High channel(5 805 ㎒)**



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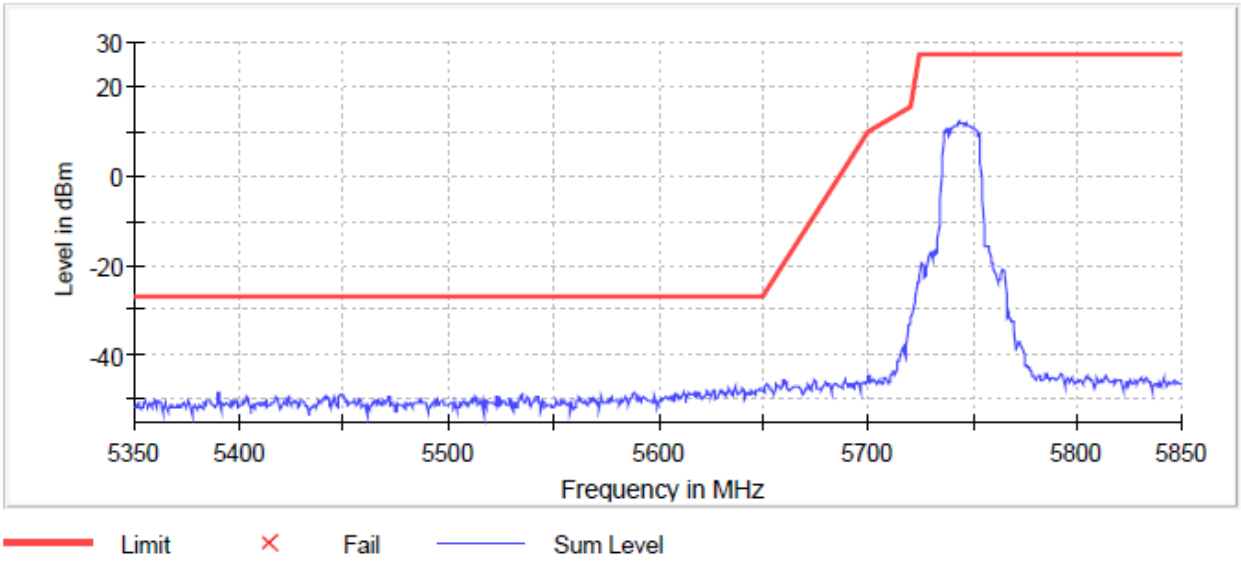
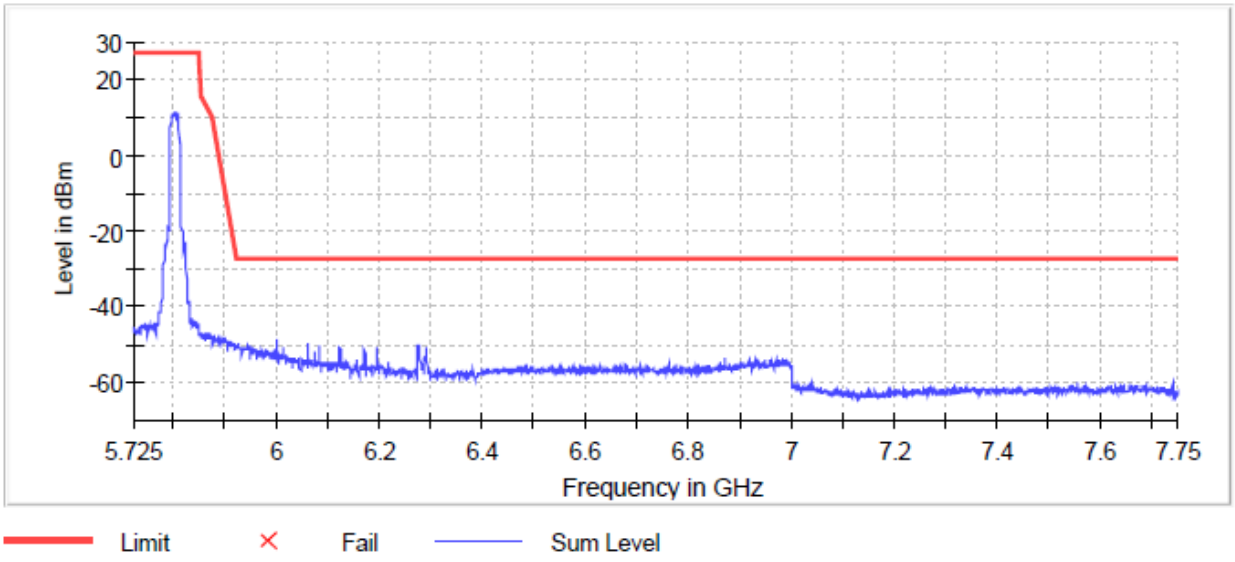
Operation mode: UNII-3(n_HT20) 2TX worst case

*** Low channel(5 745 ㎒)**



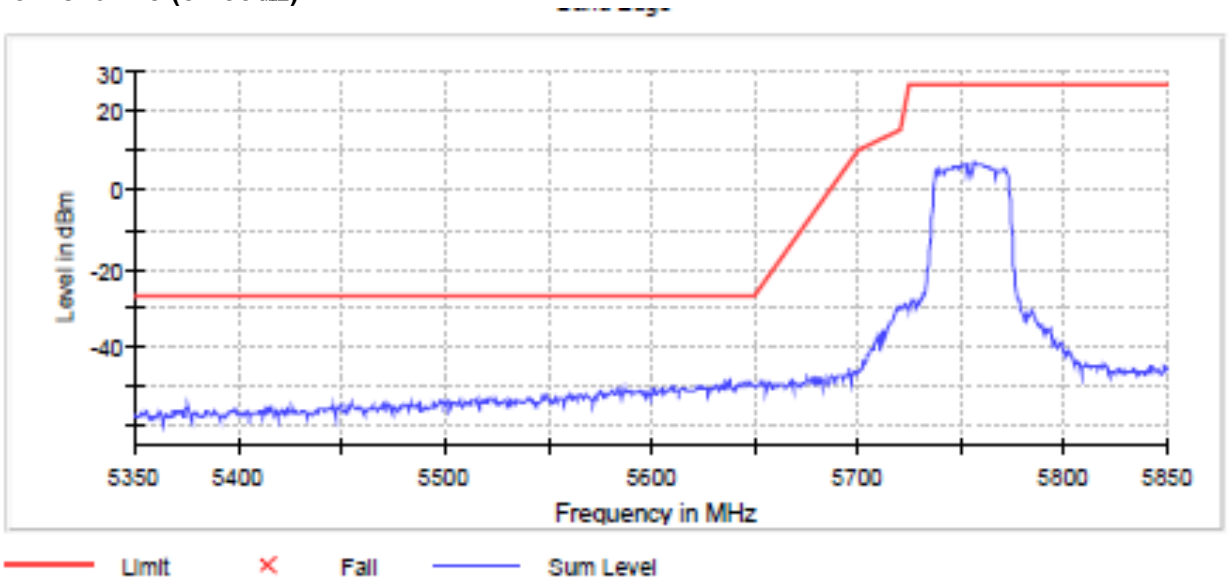
*** High channel(5 805 ㎒)**



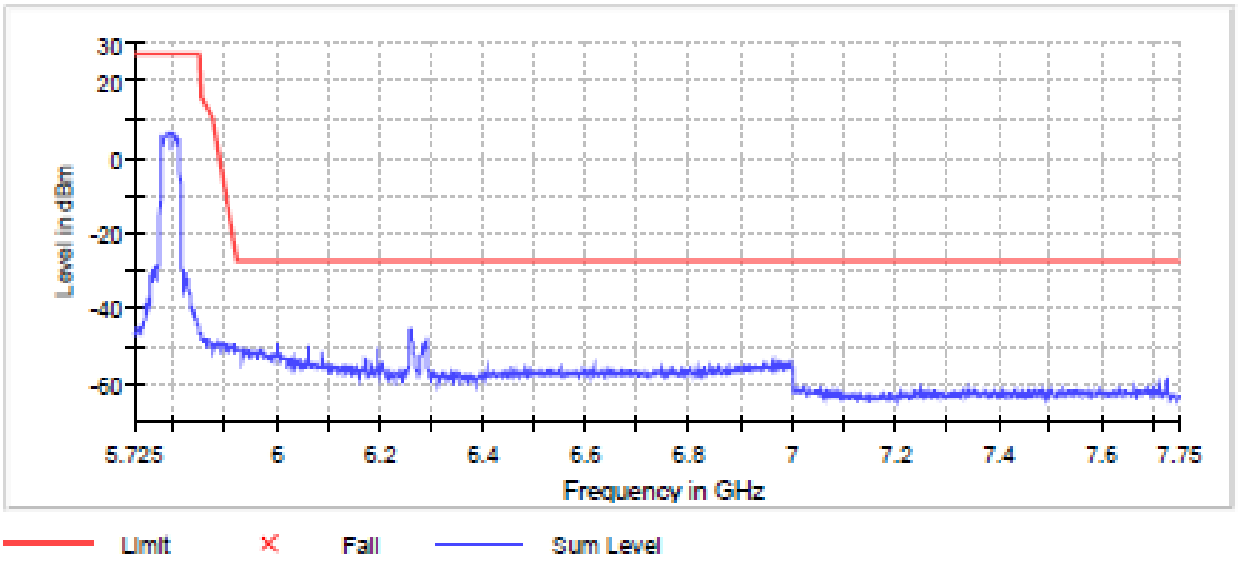
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

Operation mode: UNII-3(n_HT40) 2TX worst case

*** Low channel(5 755 ㎒)**



*** High channel(5 795 ㎒)**



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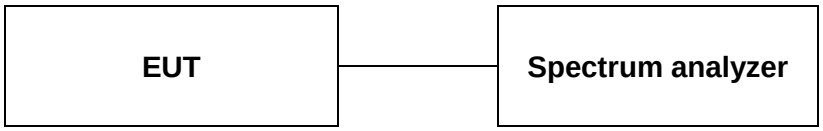
5. 26 dB and 99% bandwidth

5.1. Test setup



5.2. Limit

Not applicable

5.3. Test procedure (KDB 789033)

1. The signal analyzer's automatic bandwidth measurement capability was used to per Form the 26dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 26. The automatic bandwidth measurement function also has the capability of Stimultaneously measuring the 99% occupied bandwidth. The bandwidth measurement Was not influenced by any intermediate power nulls in the fundamental emission.
2. Set the spectrum analyzer as,

a) Set RBW = approximately 1% of the emission bandwidth.
b) Set the VBW > RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

3. Repeat until all the rest channels are investigated.

5.4. Test results

Ambient temperature: 21℃
Relative humidity: 45% R.H.

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The worst case test data

Mode	Frequency(㎒)	26 ㏈ bandwidth(㎒)	99% bandwidth(㎒)
U-NII-1(802.11a)	5 180	19.70	16.72
	5 220	19.70	16.72
	5 240	19.70	16.72
U-NII-1(n_HT20)	5 180	20.30	17.71
	5 220	20.10	17.71
	5 240	20.30	17.71
U-NII-1(n_HT40)	5 190	40.30	35.82
	5 230	40.00	85.82
U-NII-2A(802.11a)	5 260	19.70	16.72
	5 300	19.70	16.72
	5 320	19.70	16.72
U-NII-2A(n_HT20)	5 260	20.10	17.71
	5 300	20.10	17.71
	5 320	20.30	17.71
U-NII-2A(n_HT40)	5 270	40.30	35.82
	5 310	40.00	35.82
U-NII-2C(802.11a)	5 500	20.70	16.72
	5 560	20.70	16.72
	5 620	20.70	16.72
U-NII-2C(n_HT20)	5 500	21.29	17.71
	5 560	20.30	17.71
	5 620	20.50	17.71
U-NII-2C(n_HT40)	5 510	40.30	35.82
	5 550	40.30	35.82
	5 590	40.00	35.82

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Mode	Frequency(㎒)	26 ㏈ bandwidth(㎒)	99% bandwidth(㎒)
U-NII-3(802.11a)	5 745	20.70	16.72
	5 785	20.70	16.72
	5 805	20.30	16.72
U-NII-3(n_HT20)	5 745	20.30	17.71
	5 785	20.10	17.71
	5 805	20.30	17.71
U-NII-3(n_HT40)	5 755	40.00	35.82
	5 795	40.00	35.82

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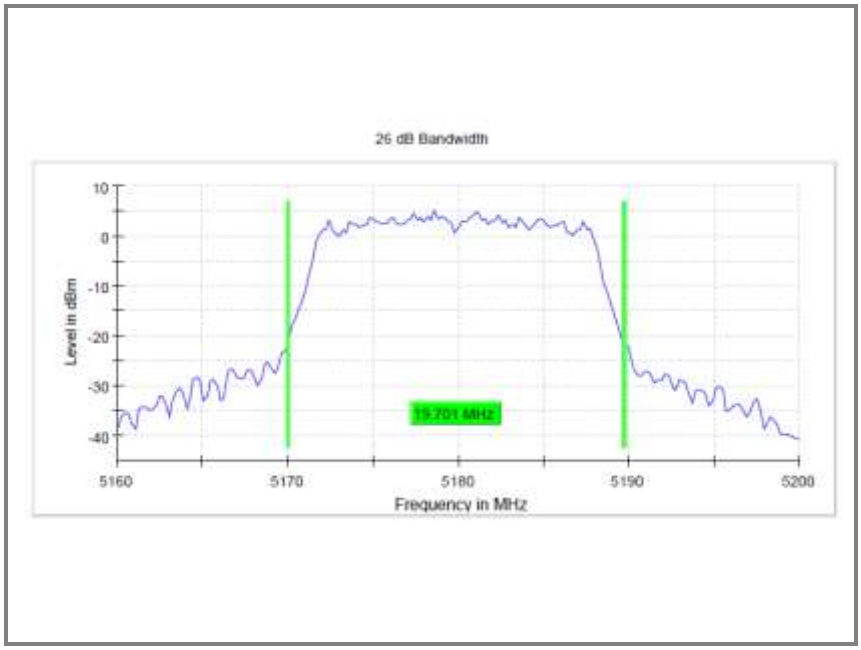
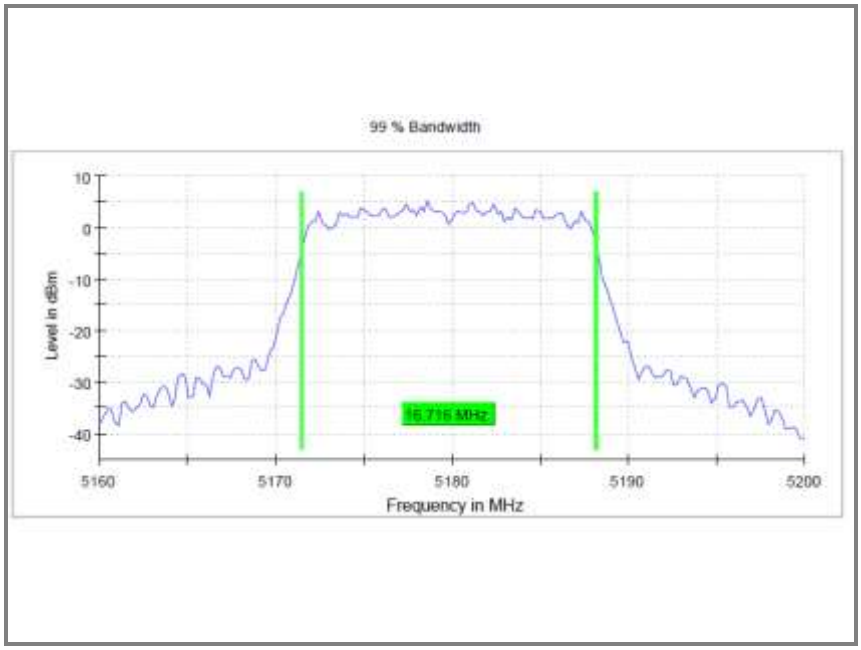
Operation mode: U-NII-1(802.11a)

A. Low channel(5180 ㎒)- 26 ㏈ bandwidth



A. Low channel(5180 ㎒)– 99% bandwidth



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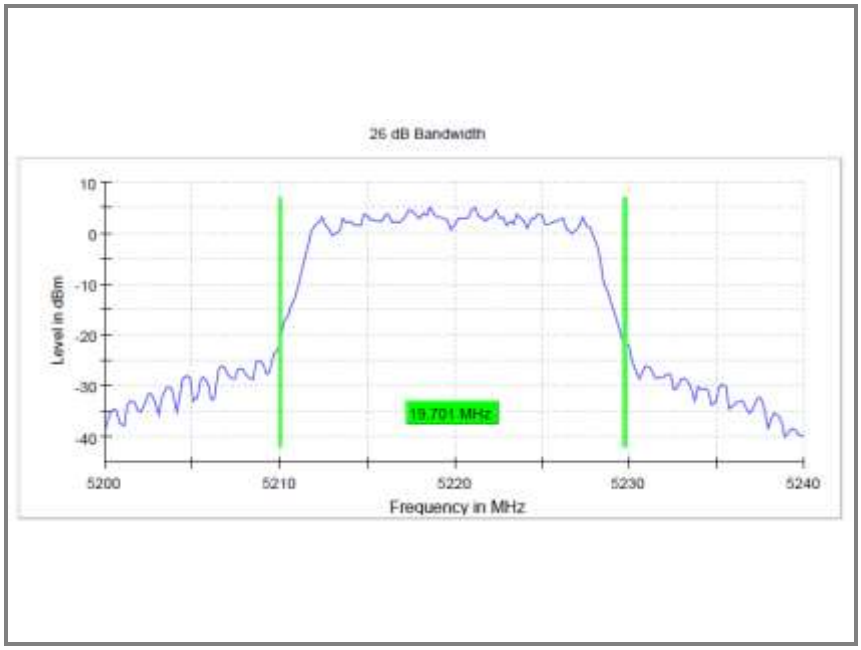
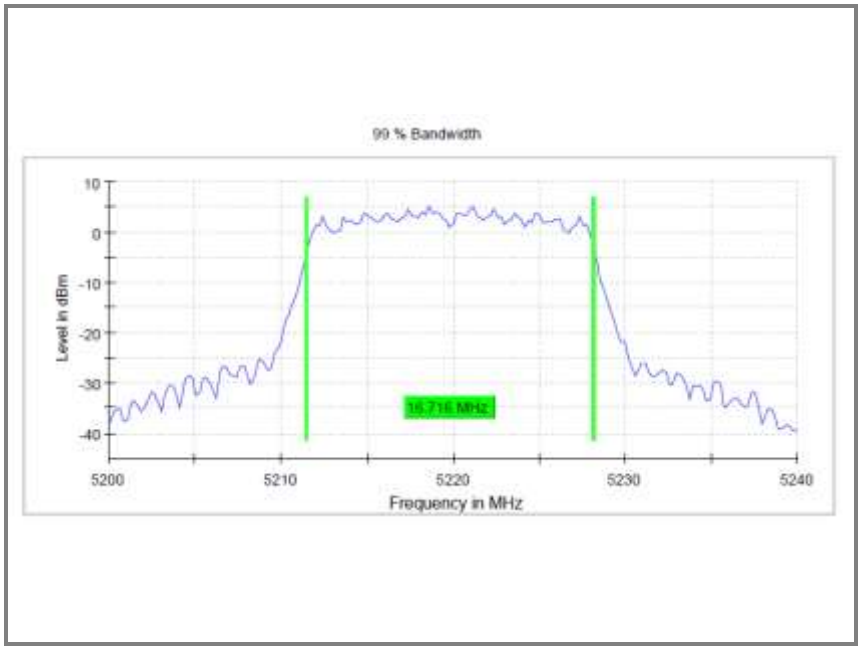
B. Middle channel(5220 ㎒)- 26 ㏈ bandwidth



B. Middle channel(5220 ㎒)– 99% bandwidth



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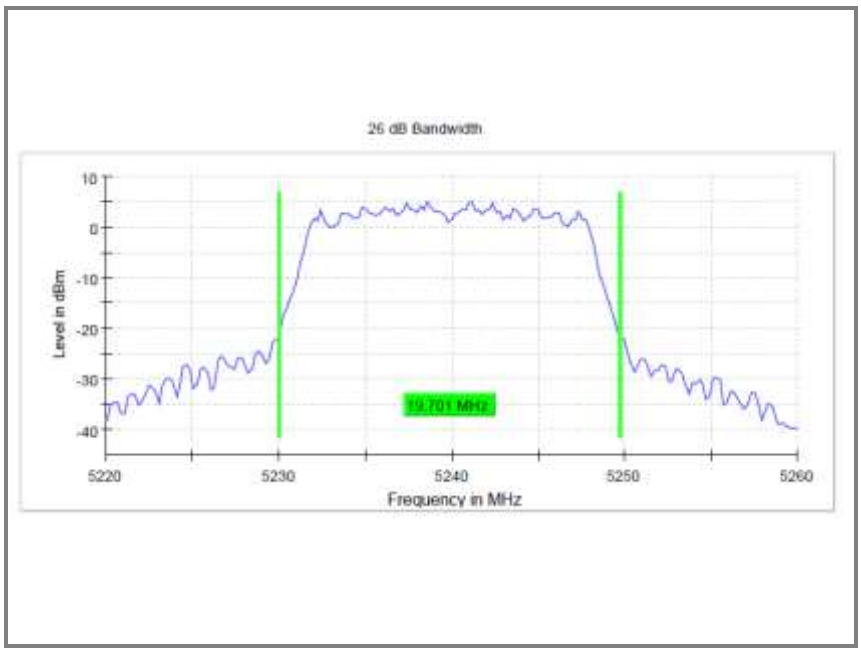
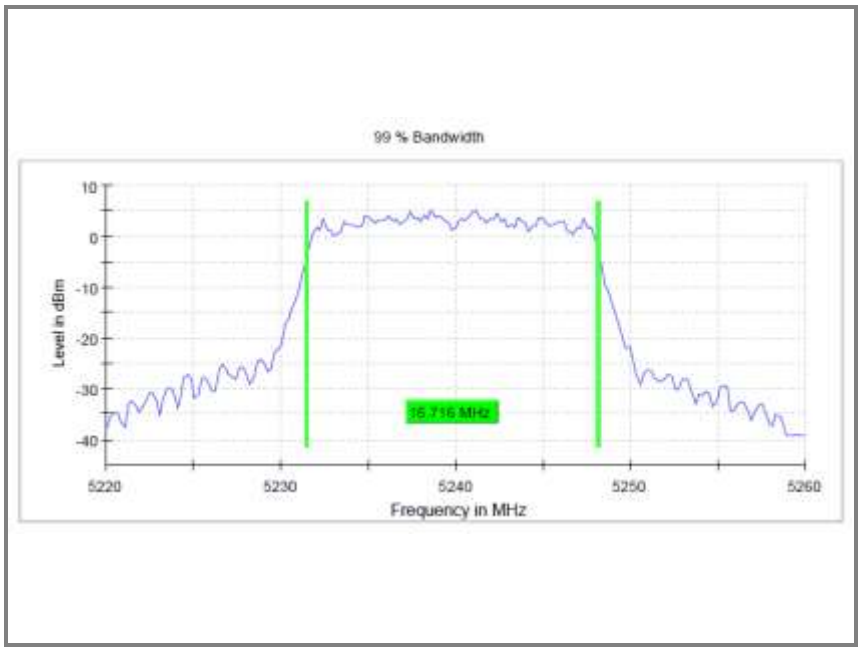
C. High channel(5240 ㎒)- 26 ㏈ bandwidth



C. High channel(5240 ㎒)– 99% bandwidth



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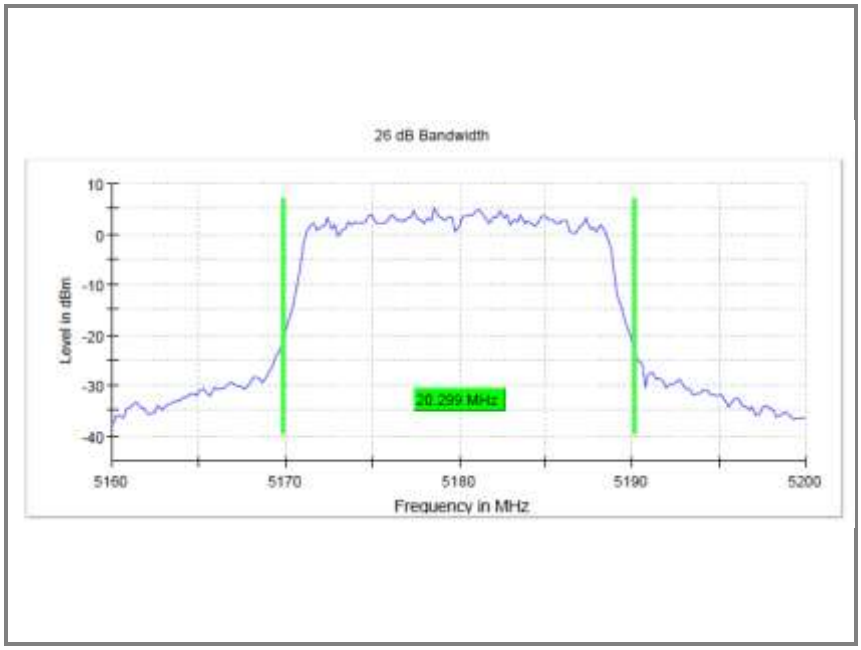
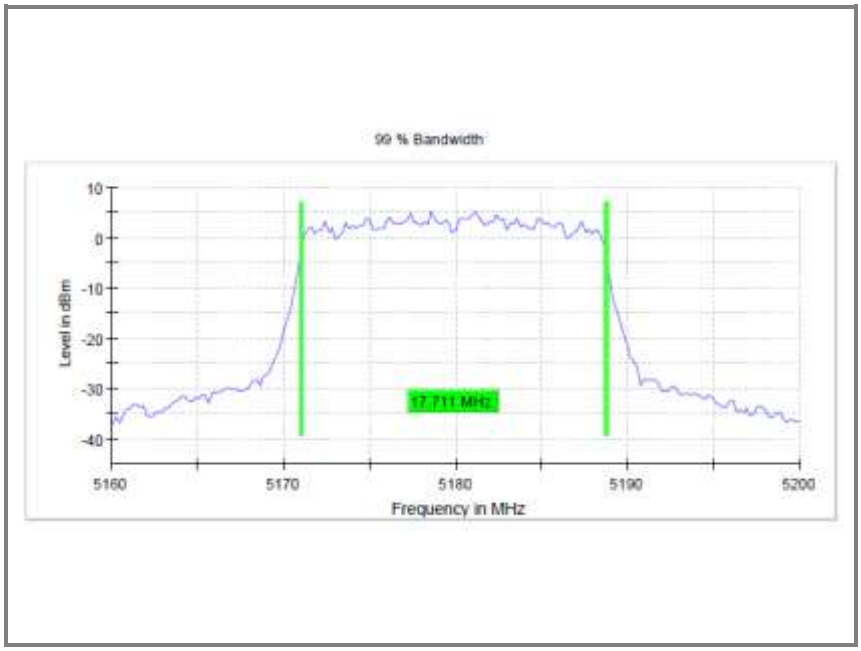
Operation mode: U-NII-1(n_HT20)

A. Low channel(5180 ㎒)- 26 ㏈ bandwidth



A. Low channel(5180 ㎒)– 99% bandwidth



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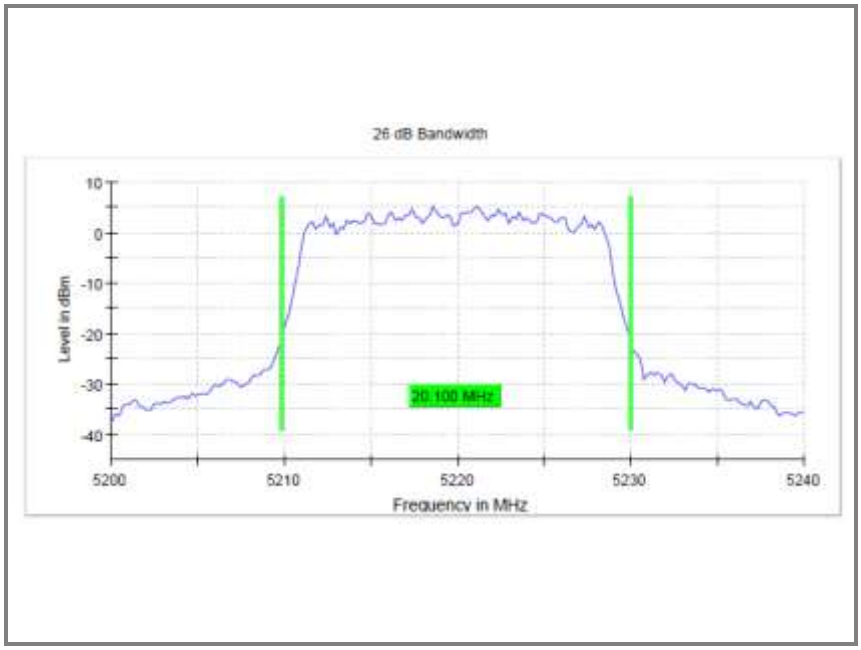
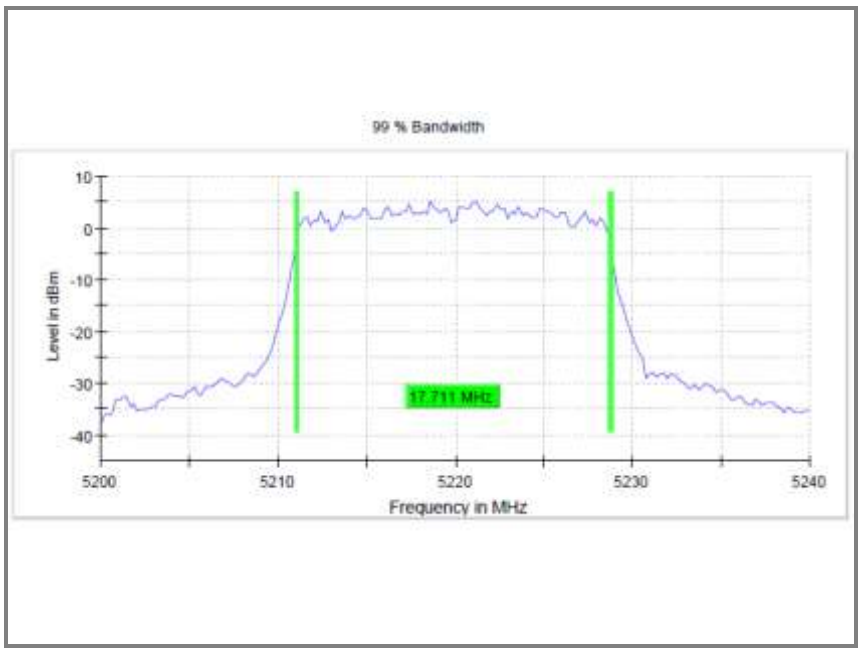
B. Middle channel(5220 ㎒)- 26 ㏈ bandwidth



B. Middle channel(5220 ㎒)– 99% bandwidth



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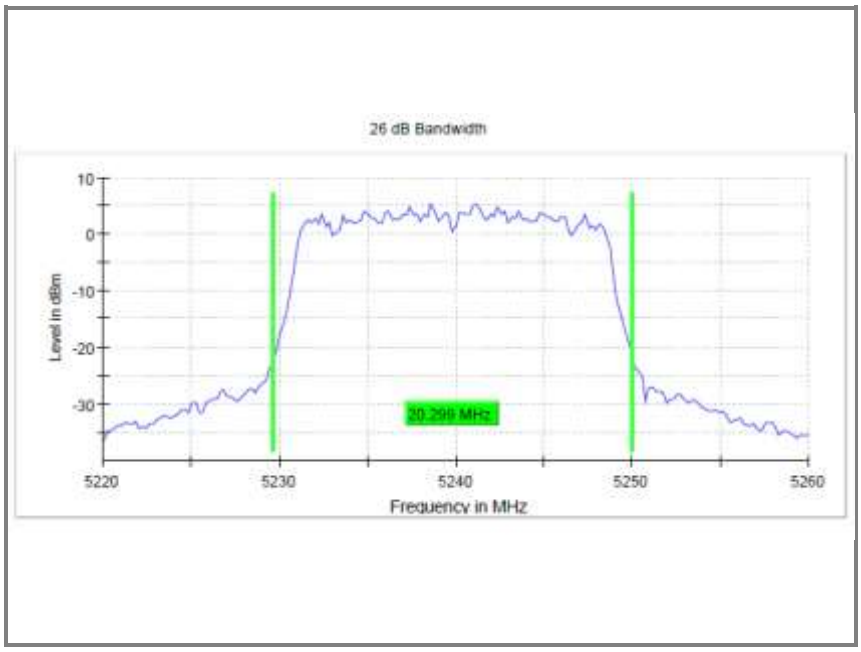
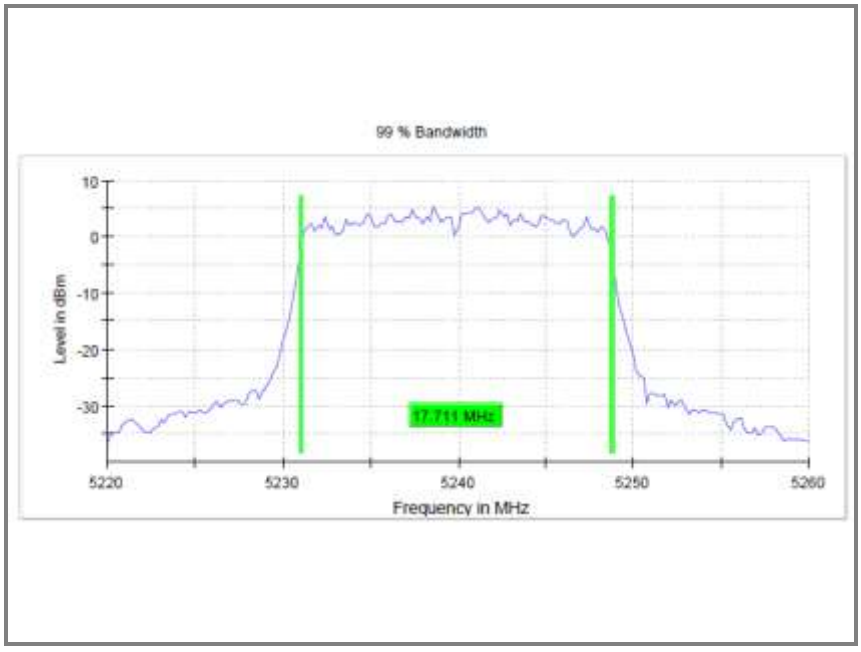
C. High channel(5240 ㎒)- 26 ㏈ bandwidth



C. High channel(5240 ㎒)– 99% bandwidth



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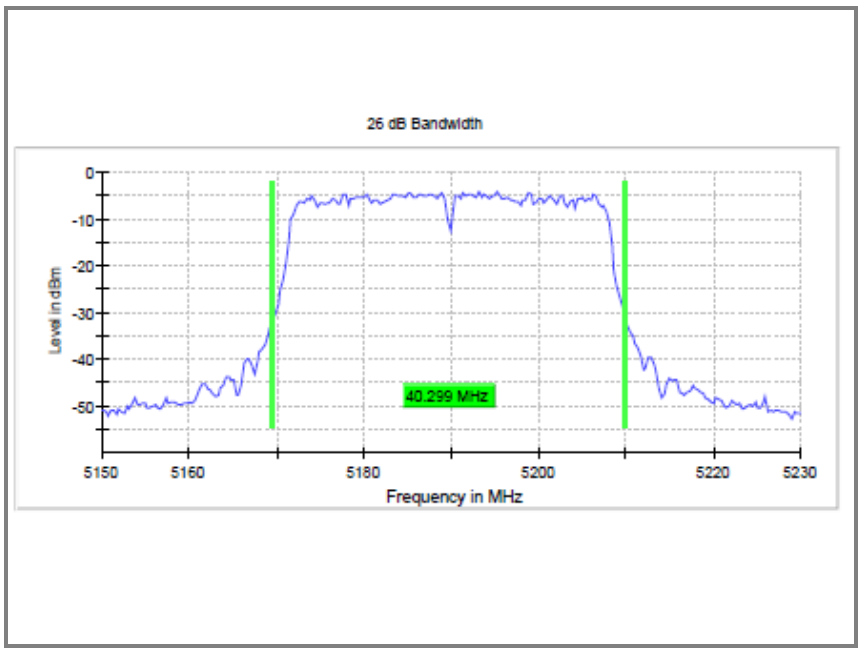
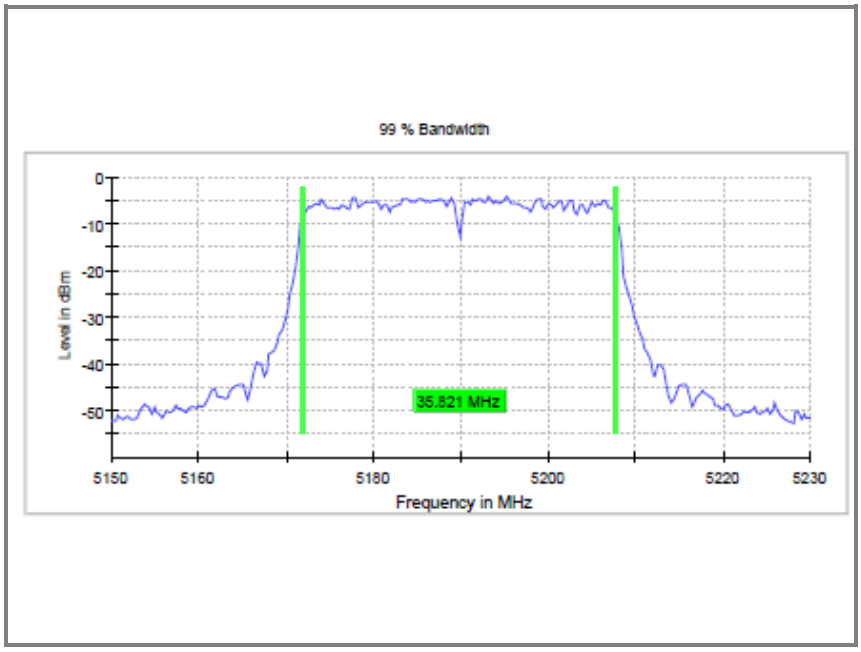
Operation mode: U-NII-1(n_HT40)

A. Low channel(5190 ㎒)- 26 ㏈ bandwidth



A. Low channel(5190 ㎒)– 99% bandwidth



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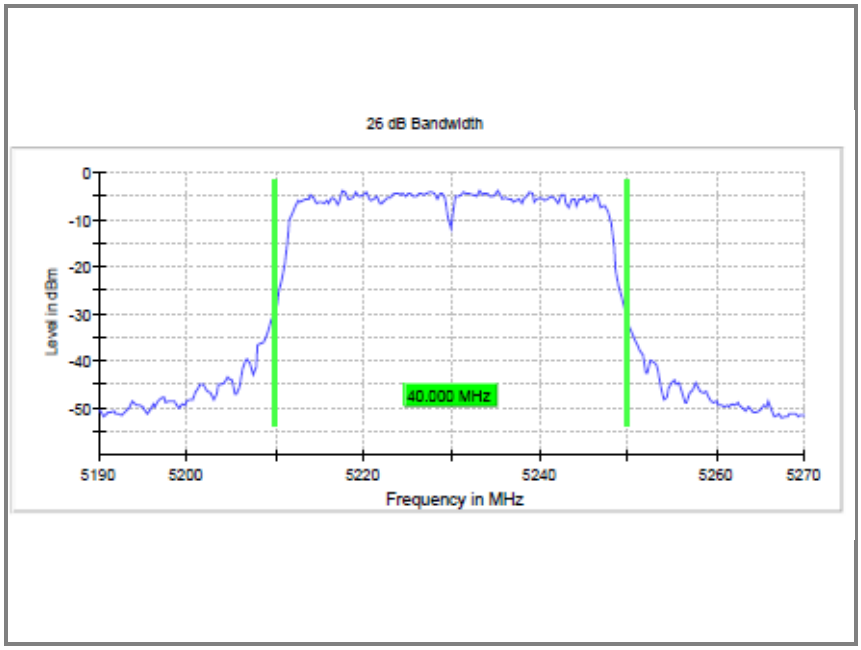
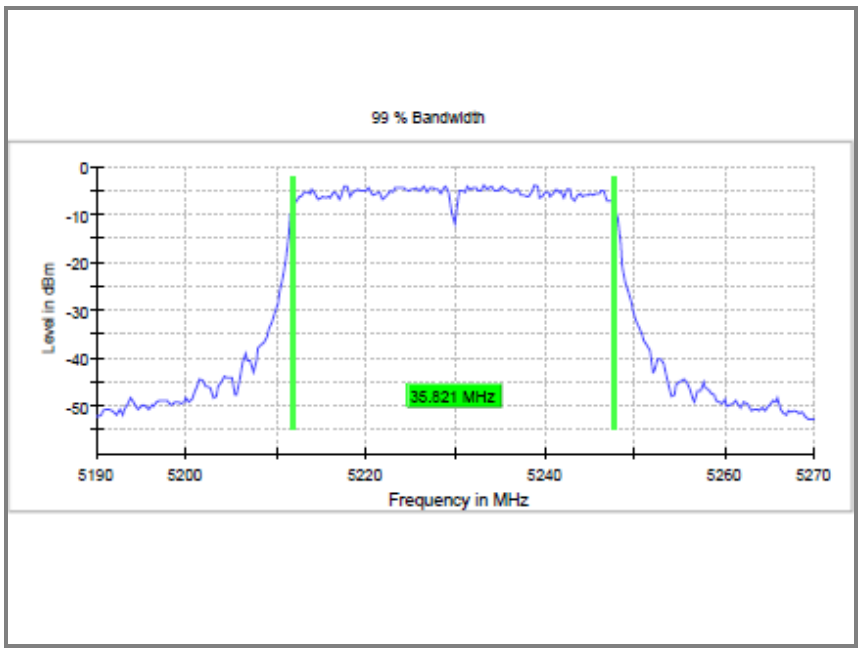
B. High channel(5230 ㎒)- 26 ㏈ bandwidth



B. High channel(5230 ㎒)– 99% bandwidth



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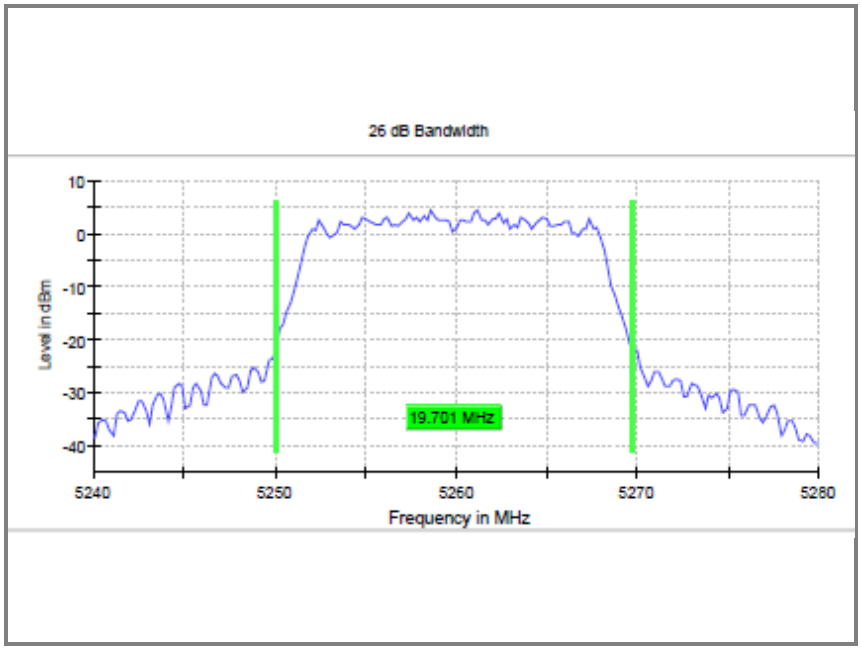
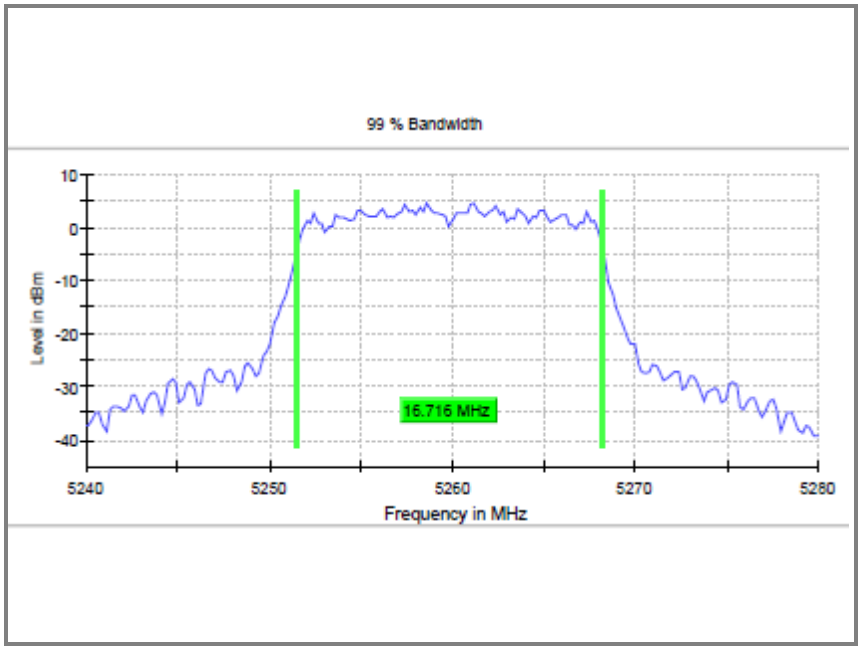
Operation mode: U-NII-2A(802.11a)

A. Low channel(5260 ㎒)- 26 ㏈ bandwidth



A. Low channel(5260 ㎒)– 99% bandwidth



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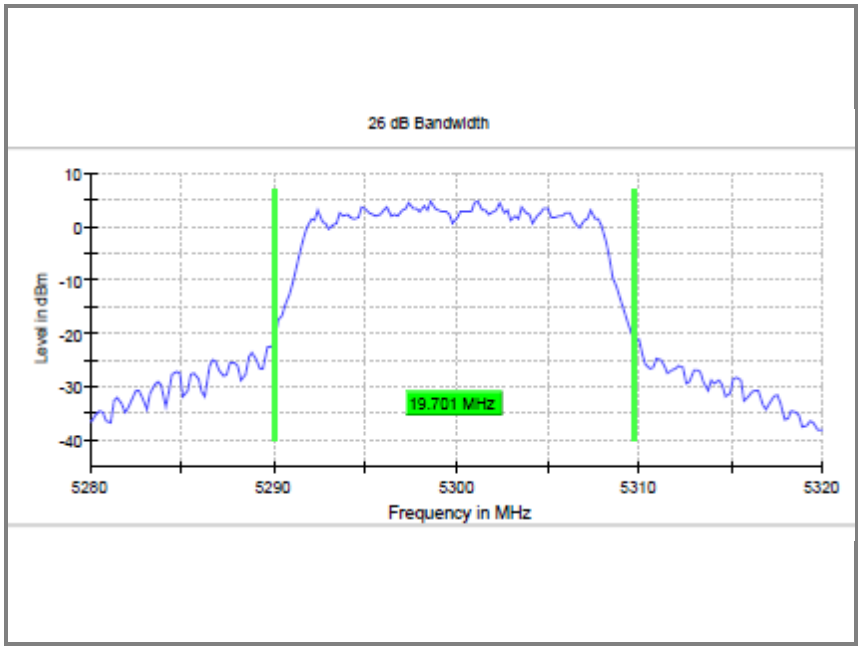
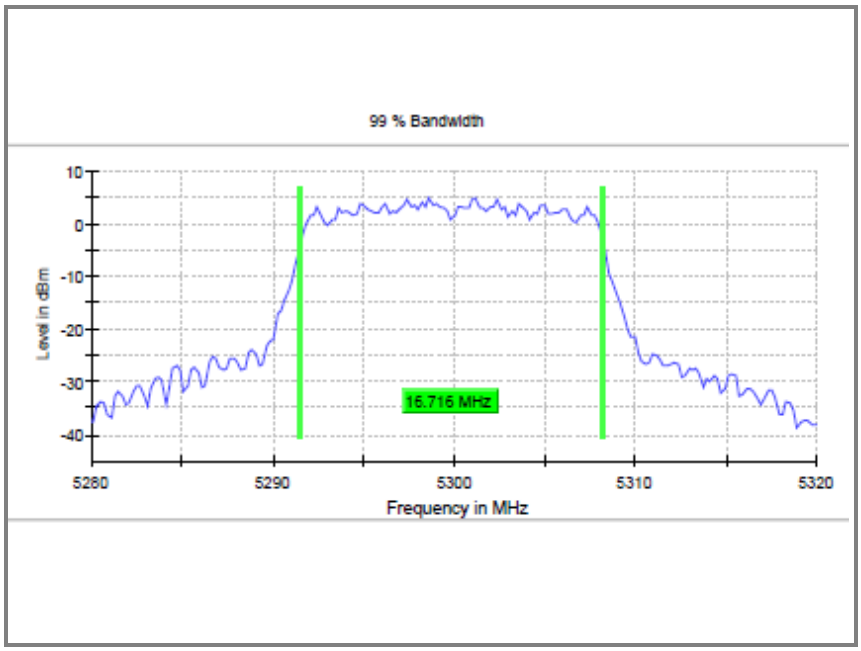
B. Middle channel(5300 ㎒)- 26 ㏈ bandwidth



B. Middle channel(5300 ㎒)– 99% bandwidth



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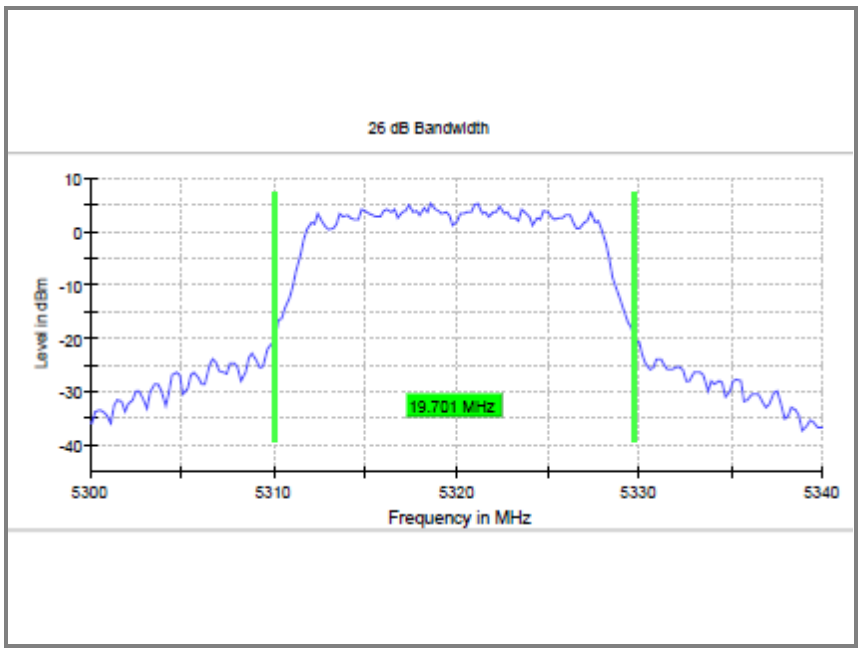
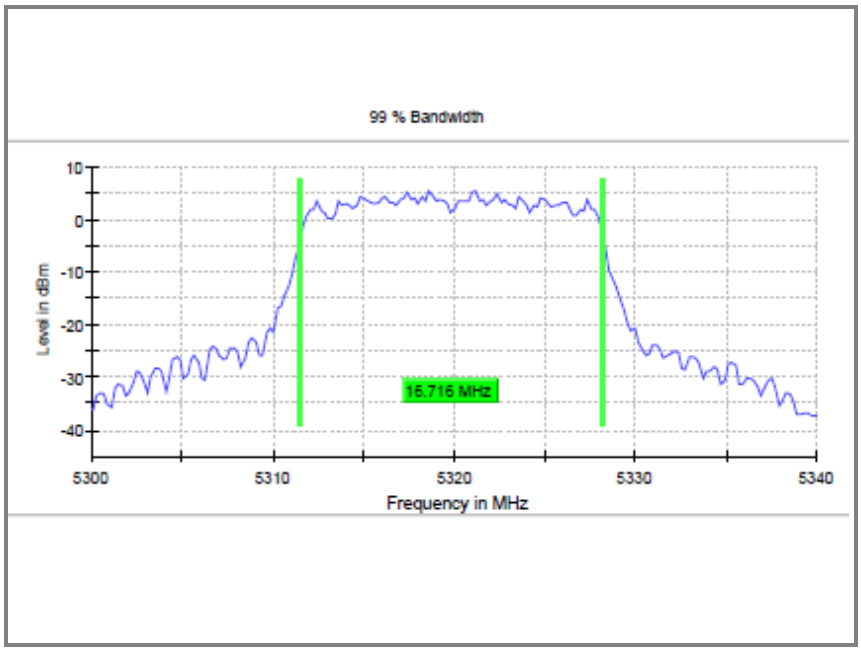
C. High channel(5320 ㎒)- 26 ㏈ bandwidth



C. High channel(5320 ㎒)– 99% bandwidth



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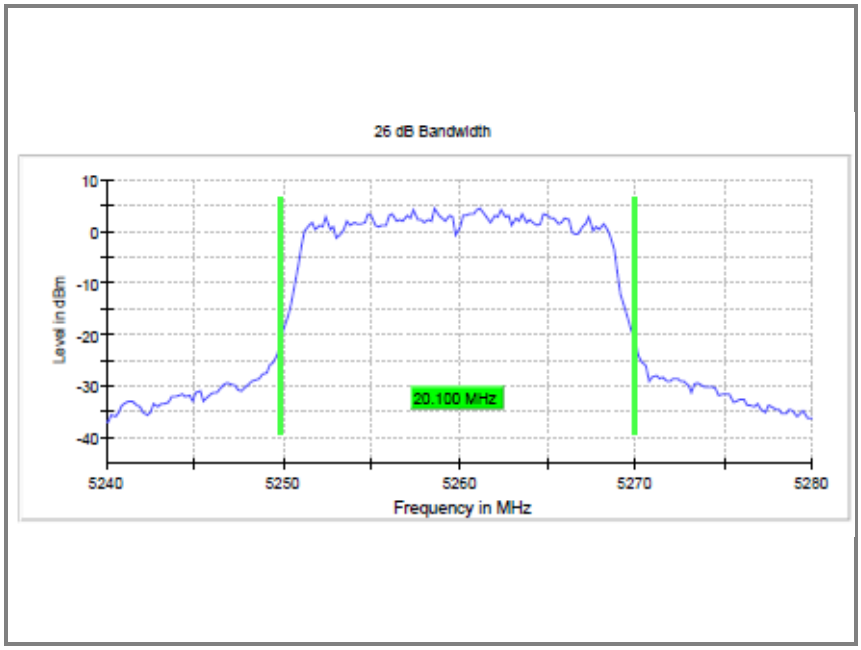
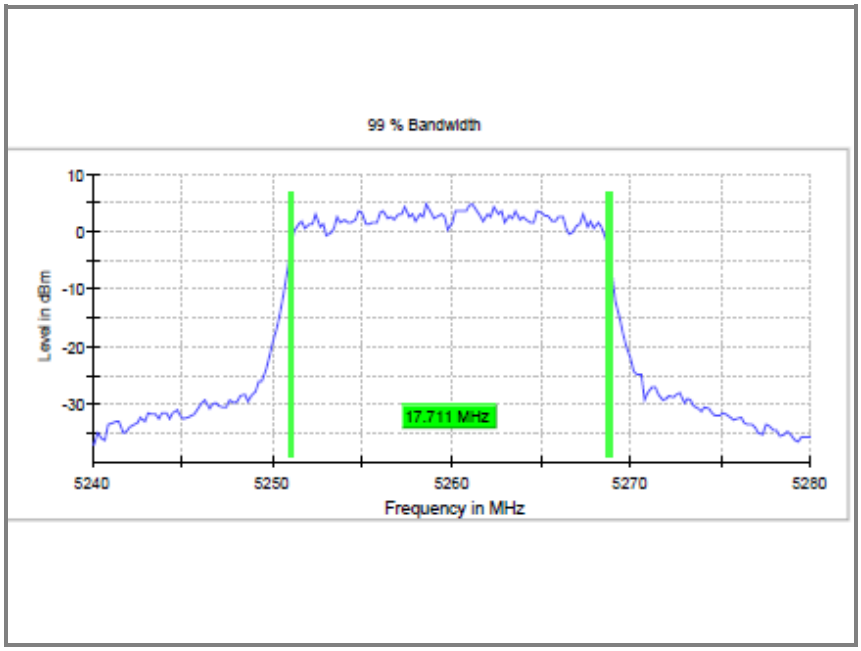
Operation mode: U-NII-2A(n_HT20)

A. Low channel(5260 ㎒)- 26 ㏈ bandwidth



A. Low channel(5260 ㎒)– 99% bandwidth



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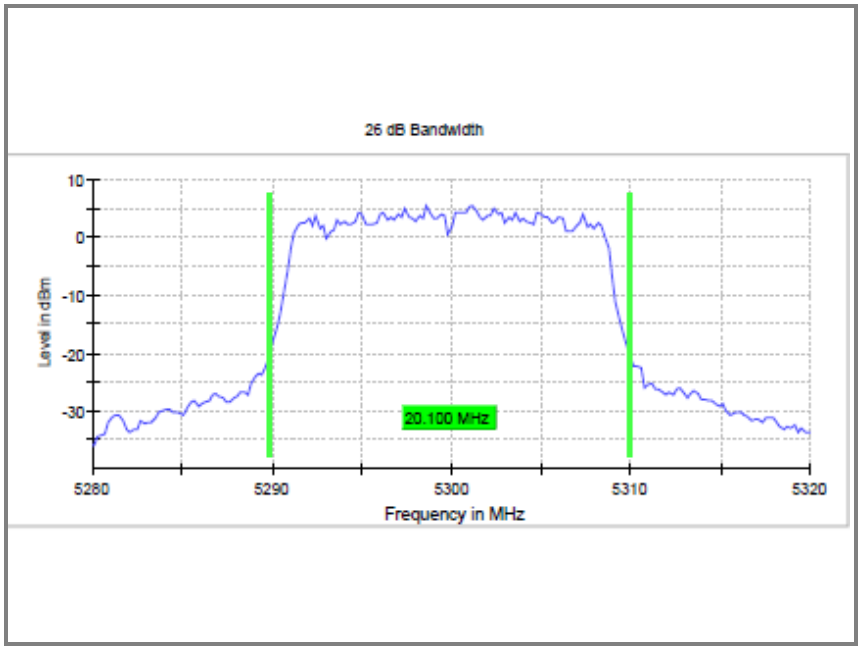
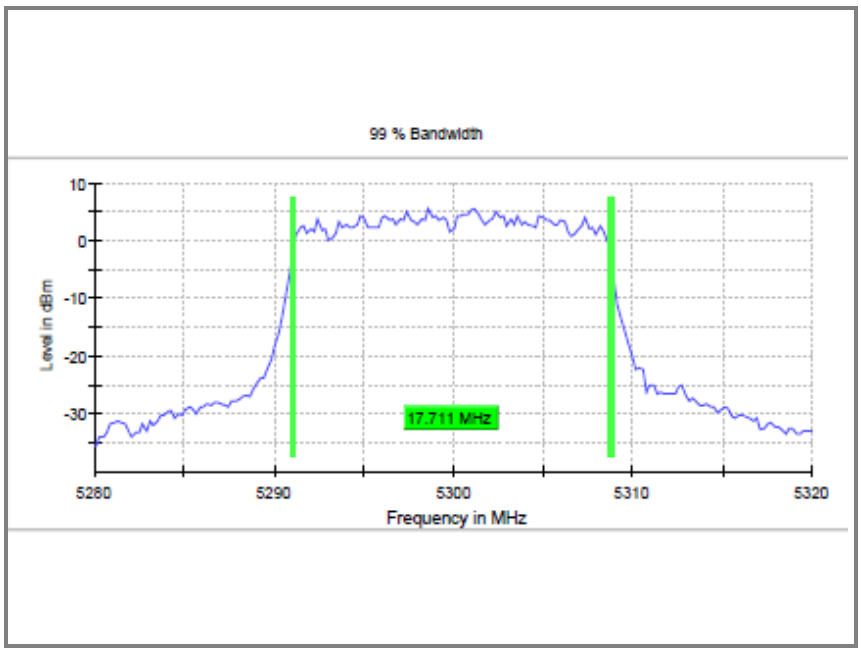
B. Middle channel(5300 ㎒)- 26 ㏈ bandwidth



B. Middle channel(5300 ㎒)– 99% bandwidth



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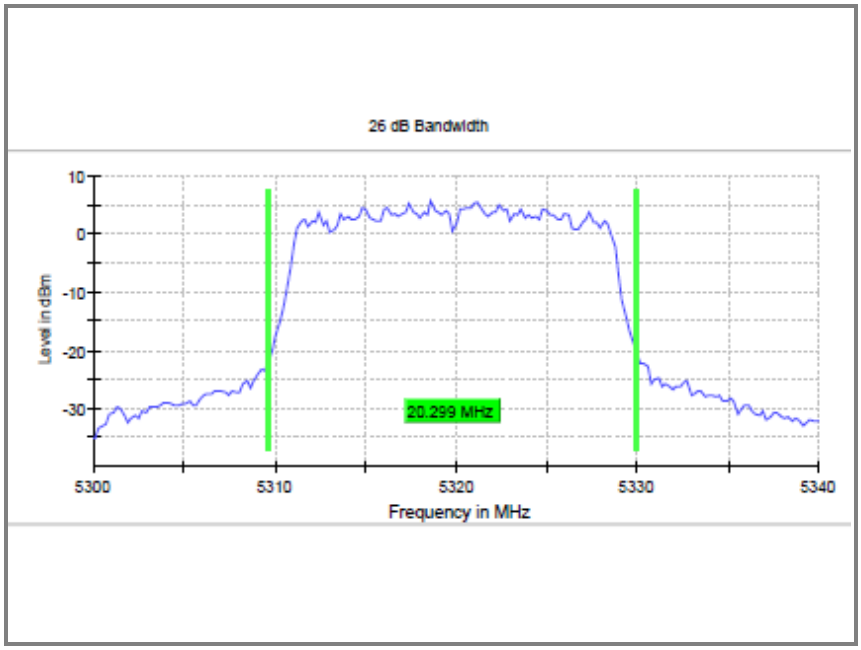
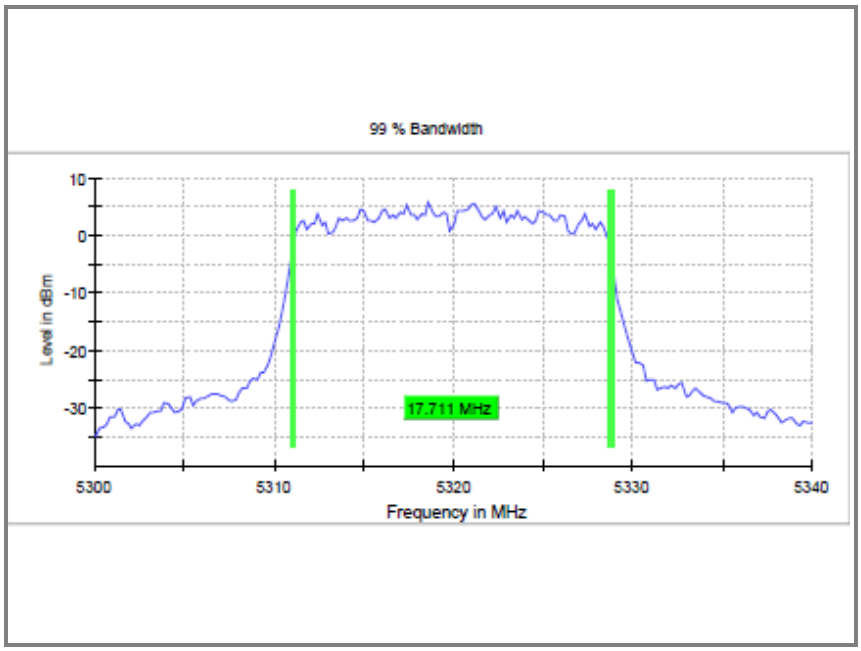
C. High channel(5320 ㎒)- 26 ㏈ bandwidth



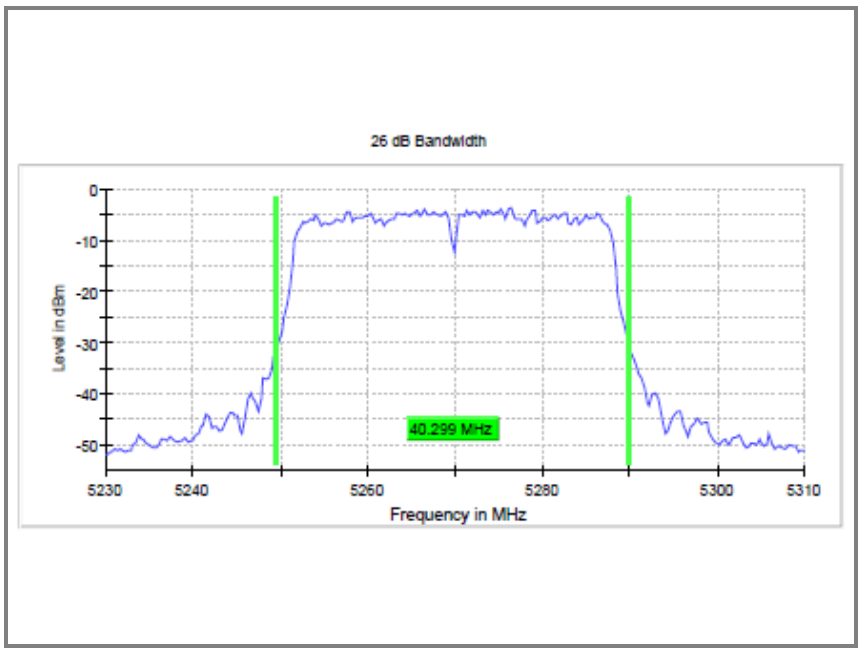
C. High channel(5320 ㎒)– 99% bandwidth



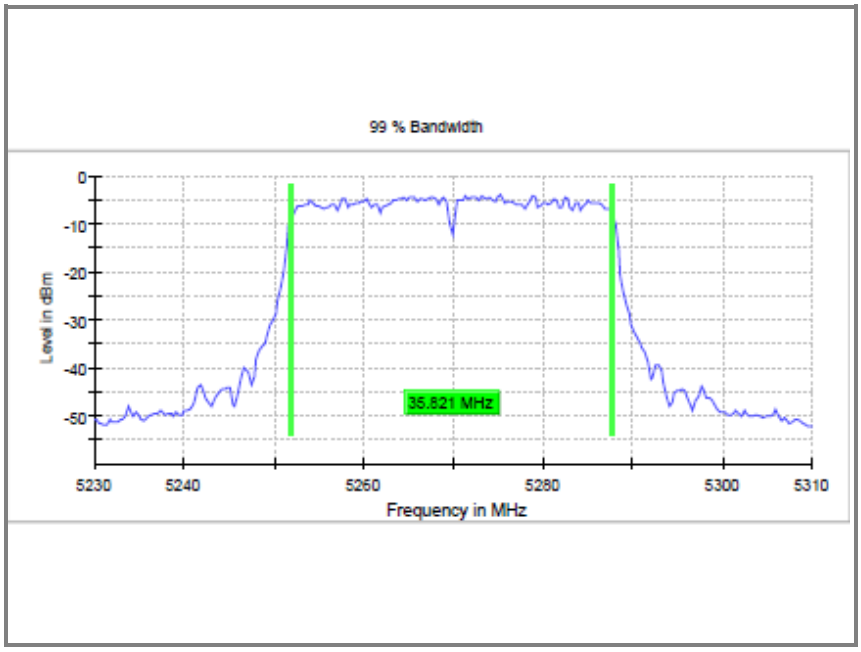
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

Operation mode: U-NII-2A(n_HT40)

A. Low channel(5270 ㎒)- 26 ㏈ bandwidth



A. Low channel(5270 ㎒)– 99% bandwidth



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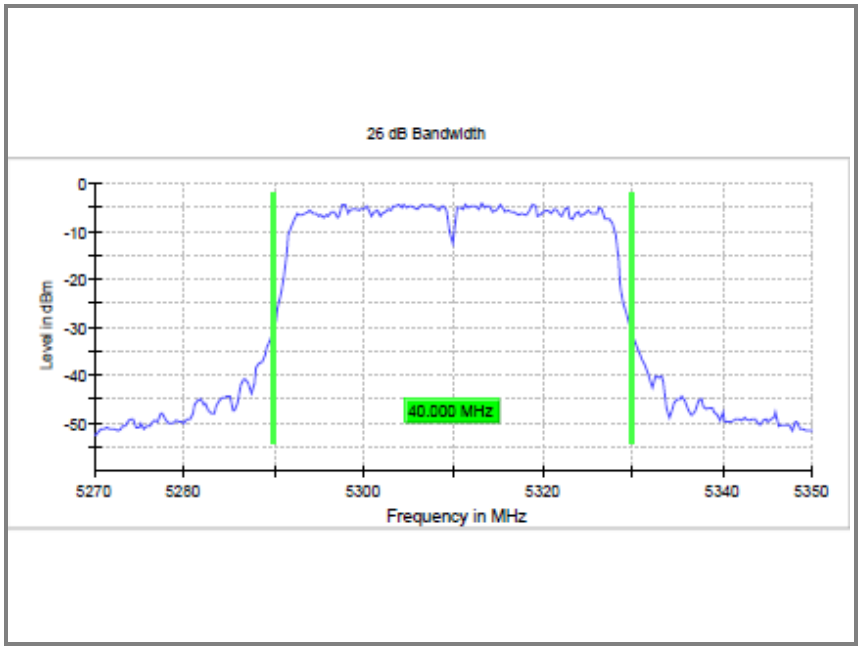
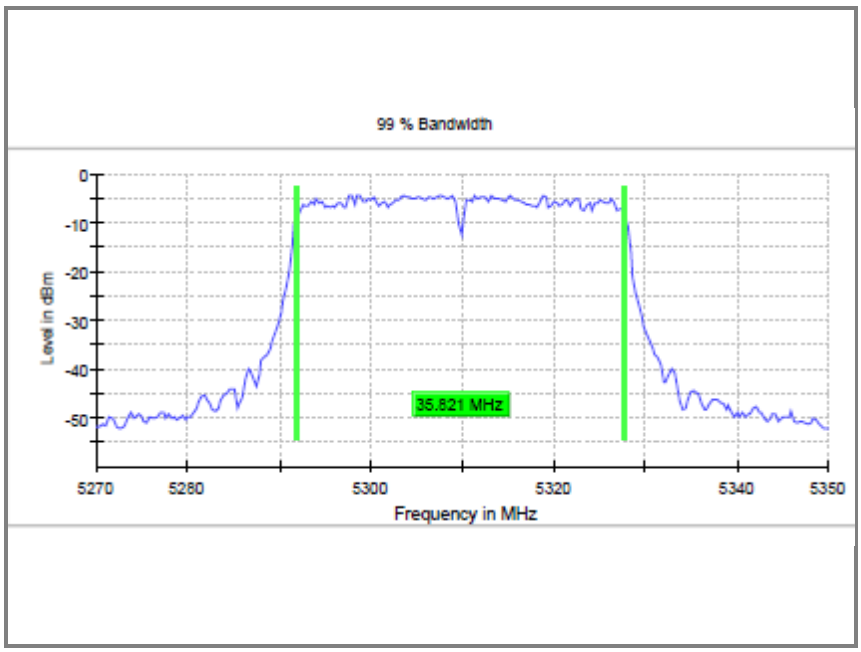
B. High channel(5310 ㎒)- 26 ㏈ bandwidth



B. High channel(5310 ㎒)– 99% bandwidth



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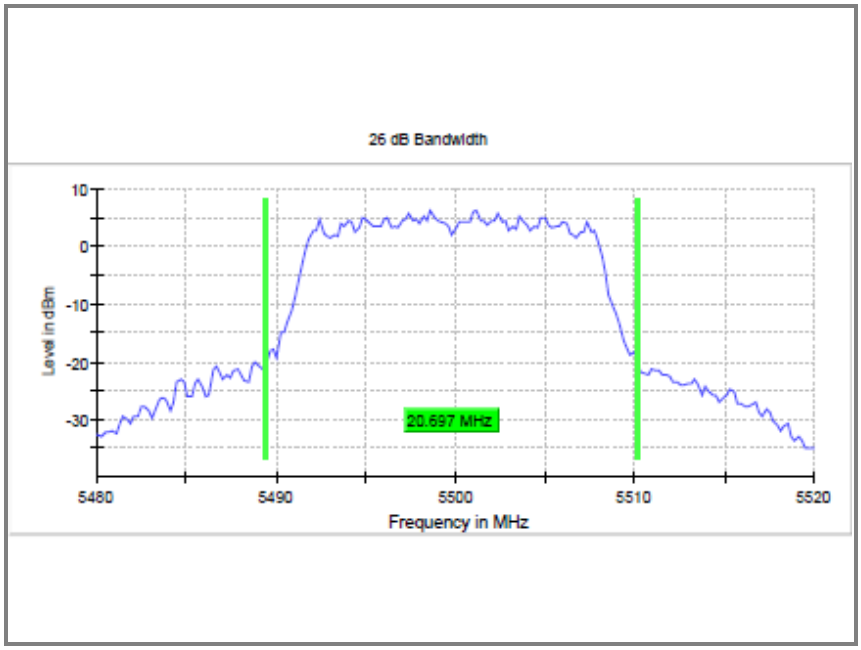
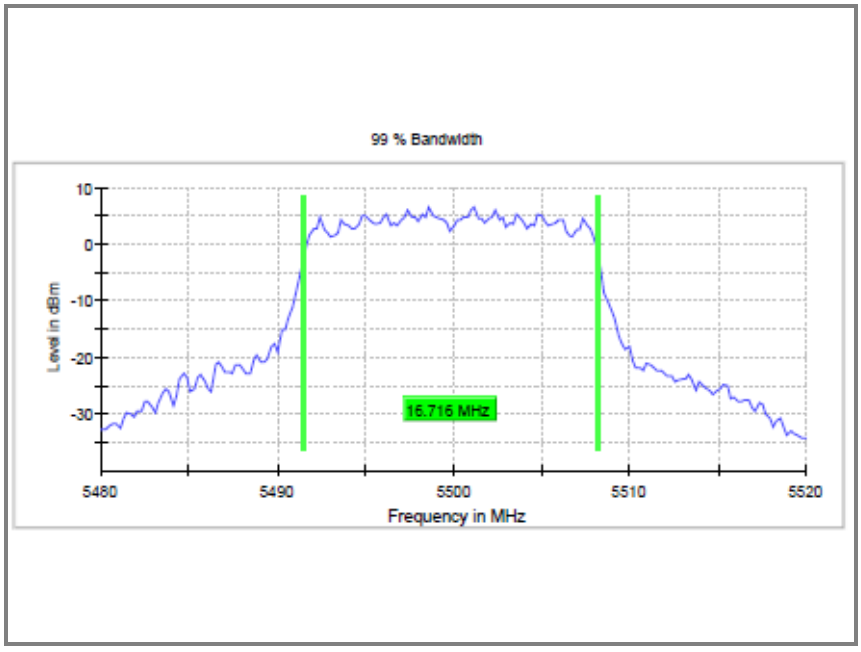
Operation mode: U-NII-2C(802.11a)

A. Low channel(5500 ㎒)- 26 ㏈ bandwidth



A. Low channel(5500 ㎒)– 99% bandwidth



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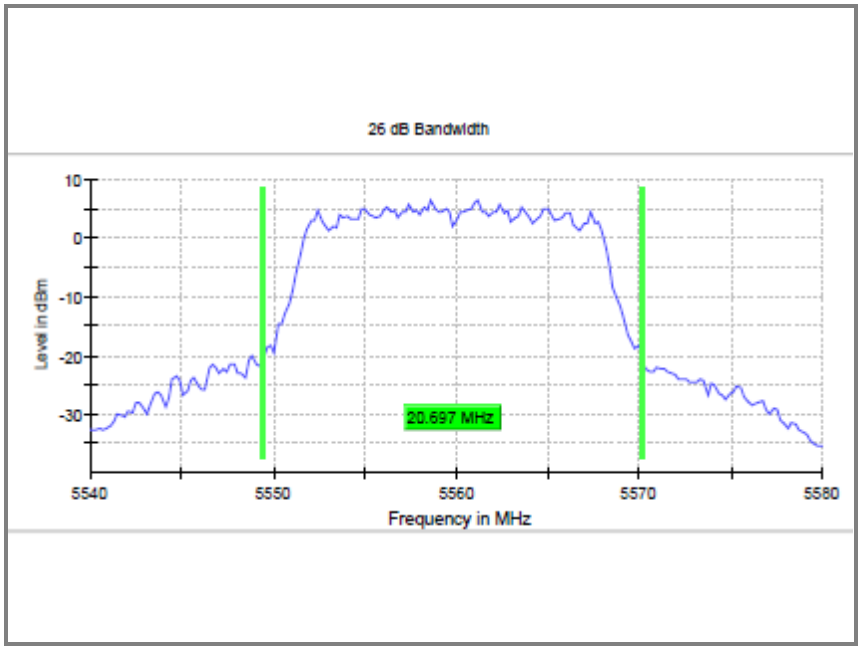
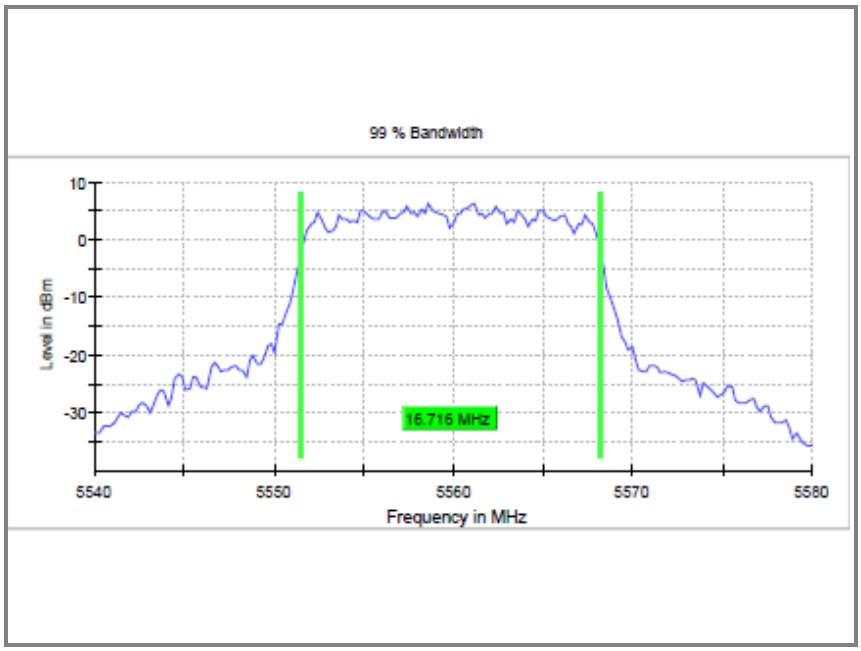
B. Middle channel(5560 ㎒)- 26 ㏈ bandwidth



B. Middle channel(5560 ㎒)– 99% bandwidth



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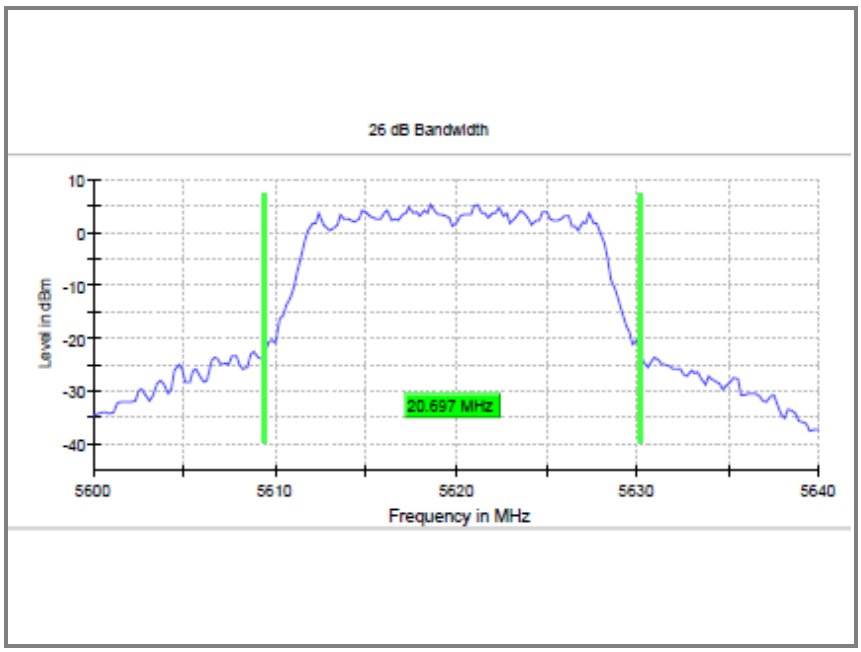
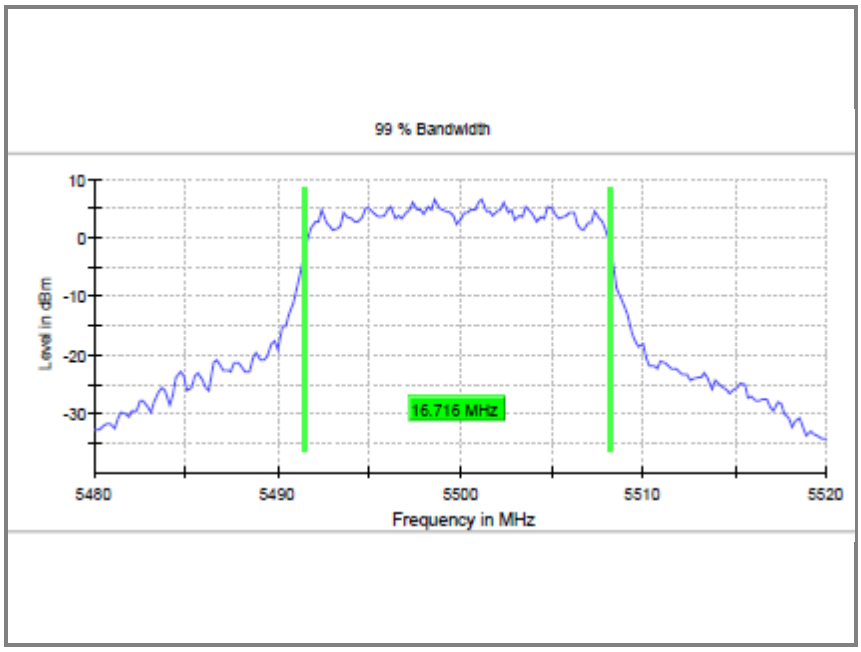
C. High channel(5620 ㎒)- 26 ㏈ bandwidth



C. High channel(5620 ㎒)– 99% bandwidth



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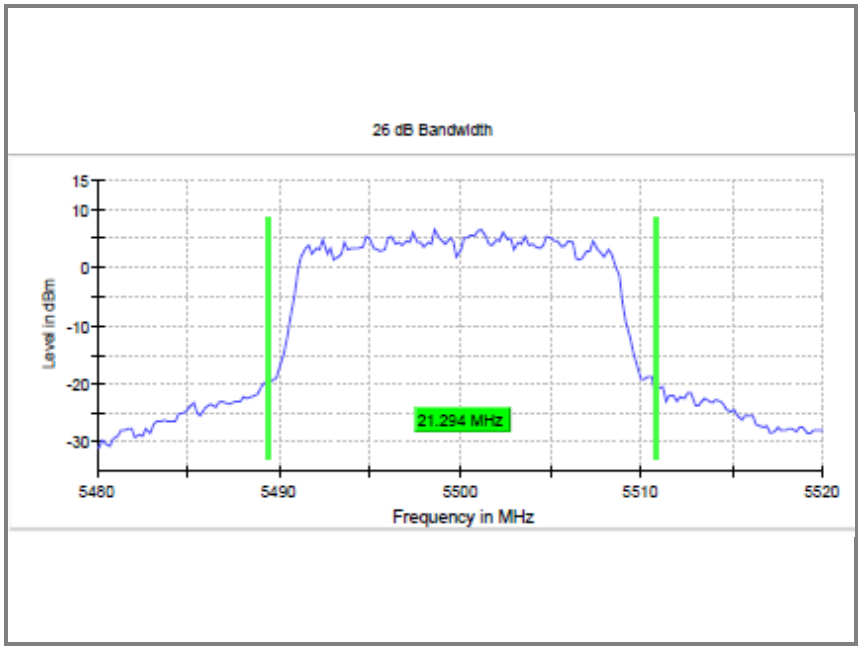
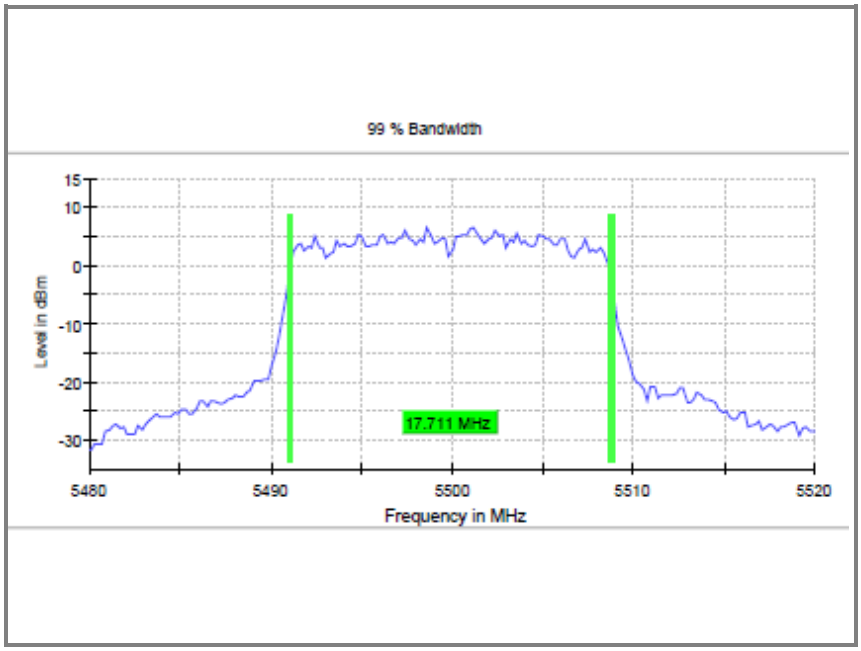
Operation mode: U-NII-2C(n_HT20)

A. Low channel(5500 ㎒)- 26 ㏈ bandwidth



A. Low channel(5500 ㎒)– 99% bandwidth



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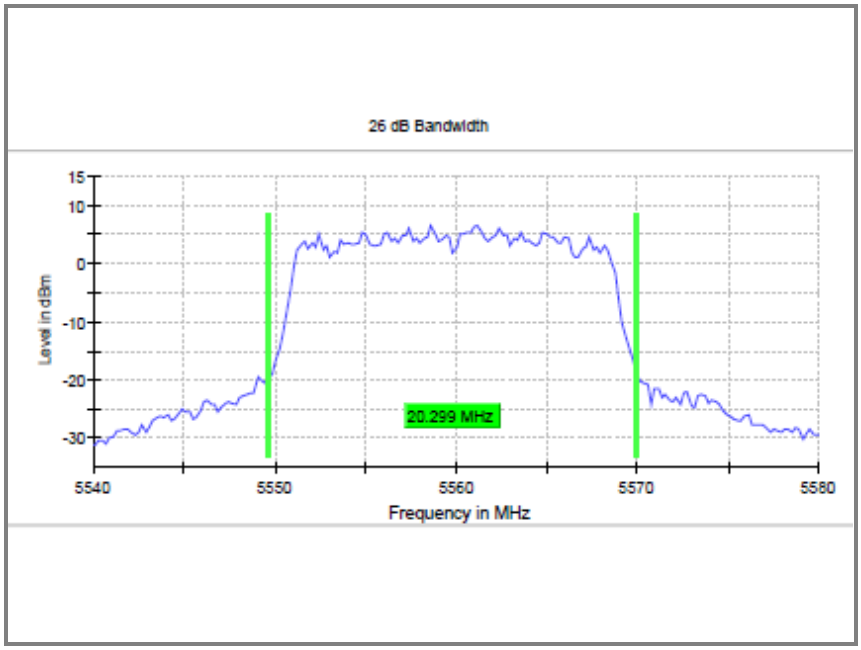
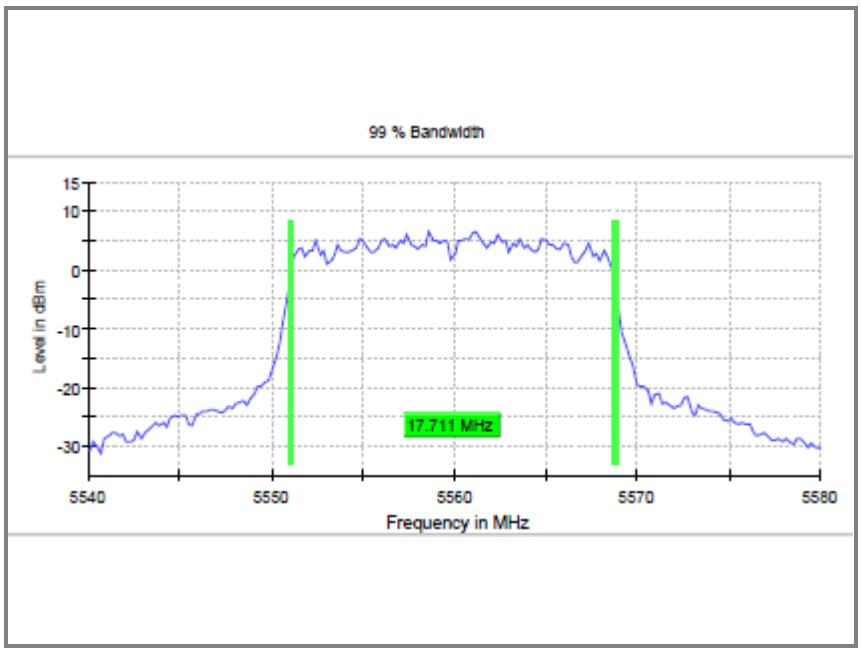
B. Middle channel(5560 ㎒)- 26 ㏈ bandwidth



B. Middle channel(5560 ㎒)– 99% bandwidth



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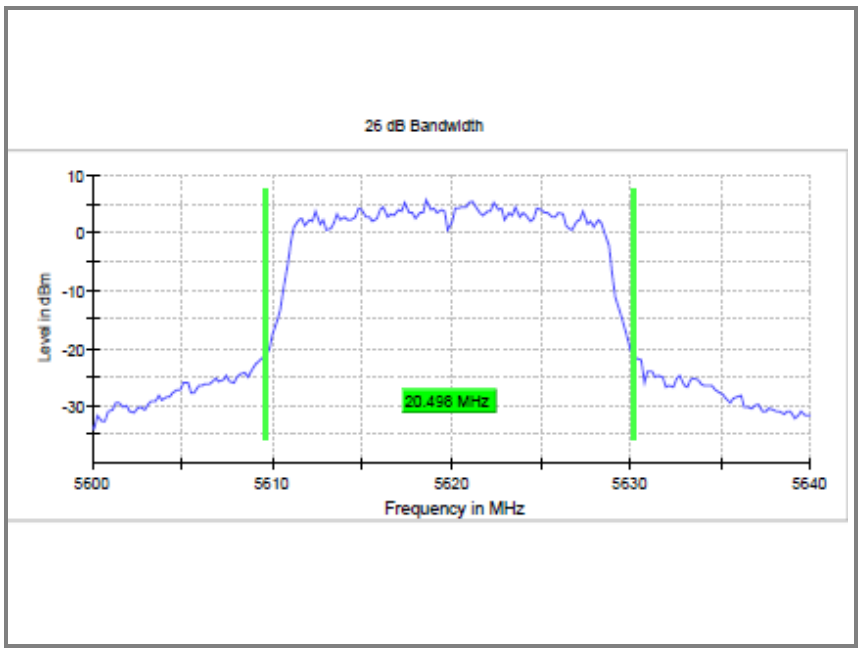
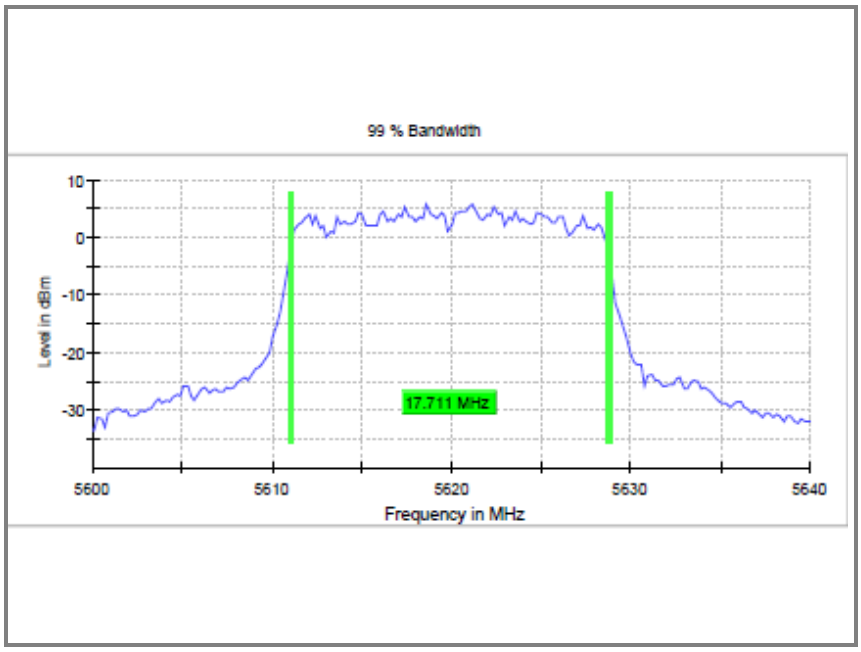
C. High channel(5620 ㎒)- 26 ㏈ bandwidth



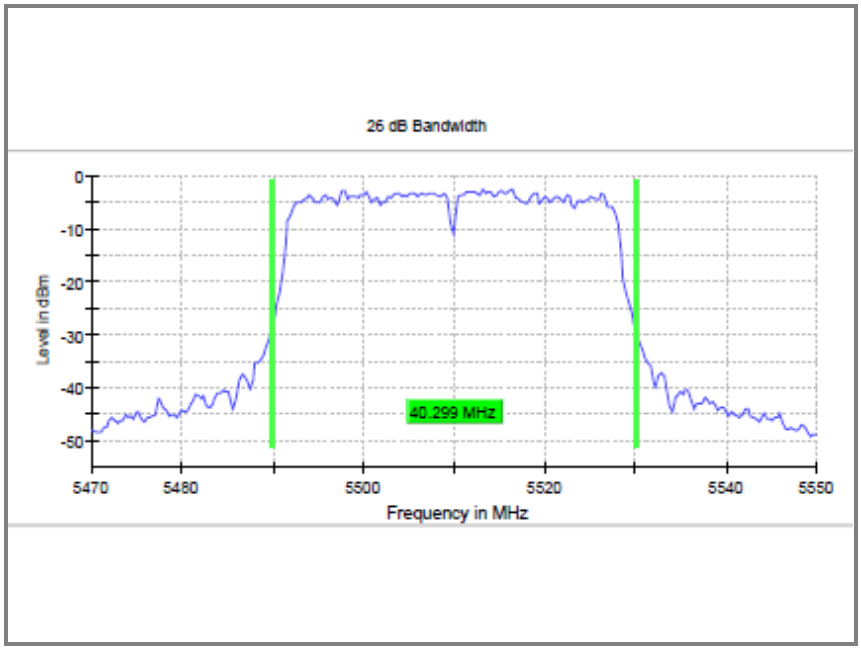
C. High channel(5620 ㎒)– 99% bandwidth



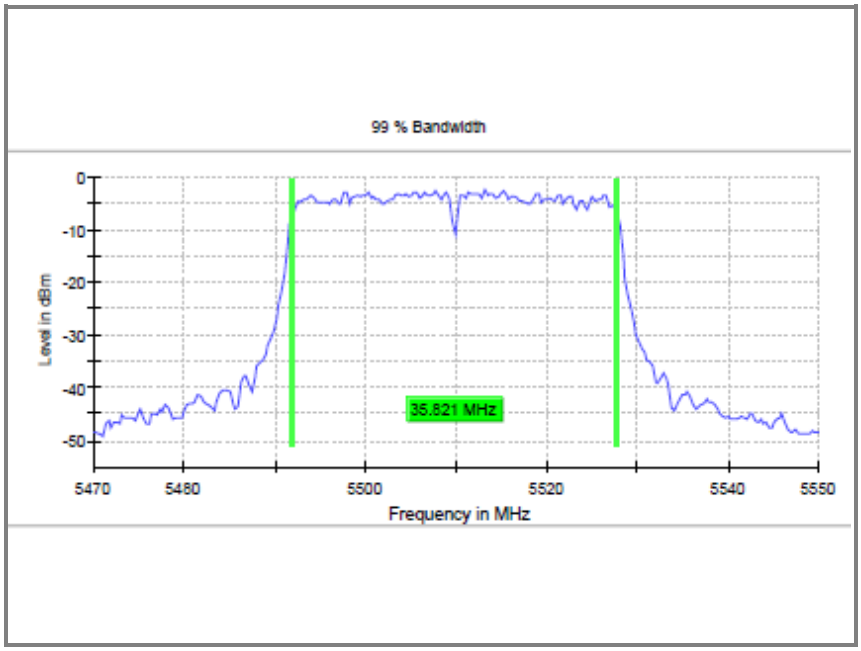
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

Operation mode: U-NII-2C(n_HT40)

A. Low channel(5510 ㎒)- 26 ㏈ bandwidth



A. Low channel(5510 ㎒)– 99% bandwidth



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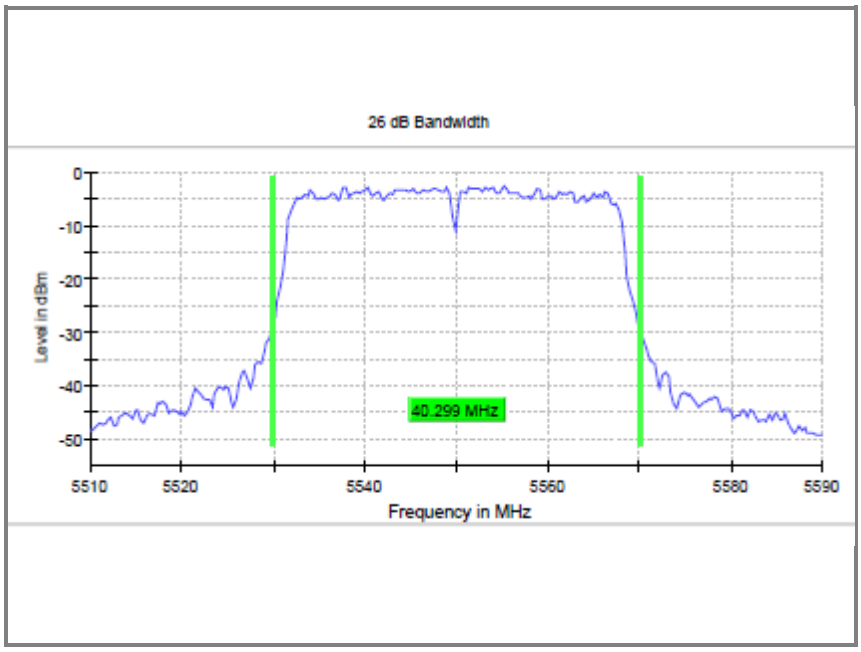
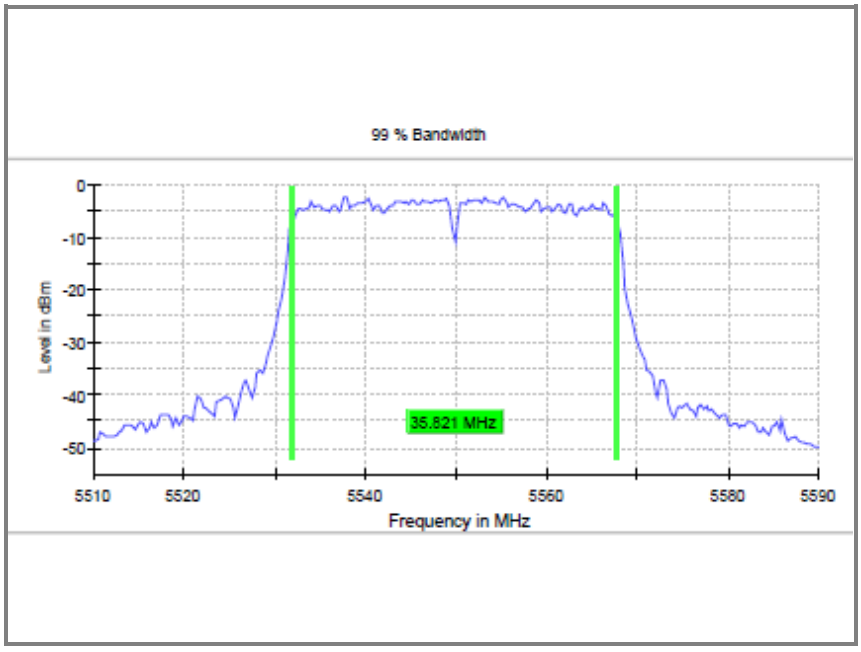
B. Middle channel(5550 ㎒)- 26 ㏈ bandwidth



B. Middle channel(5550 ㎒)– 99% bandwidth



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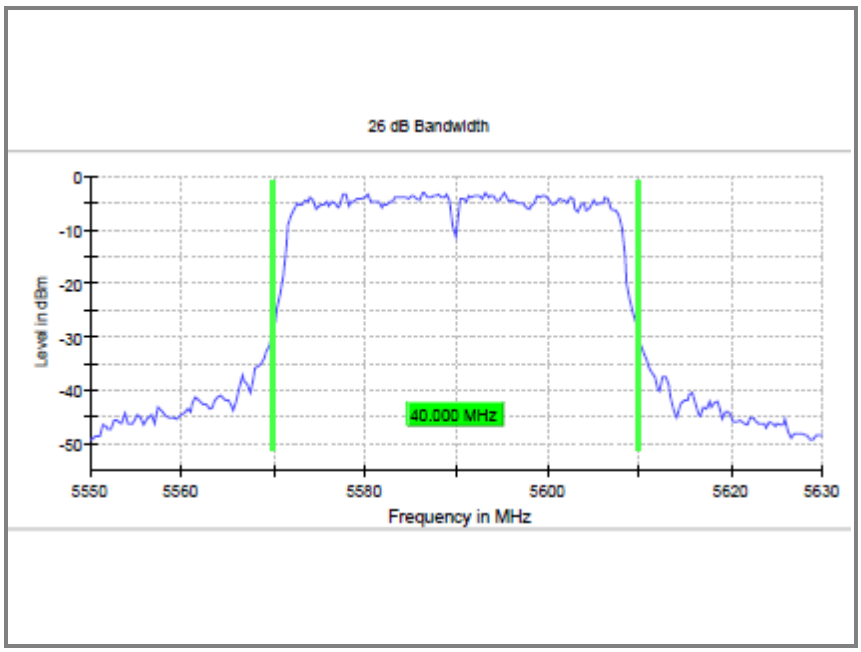
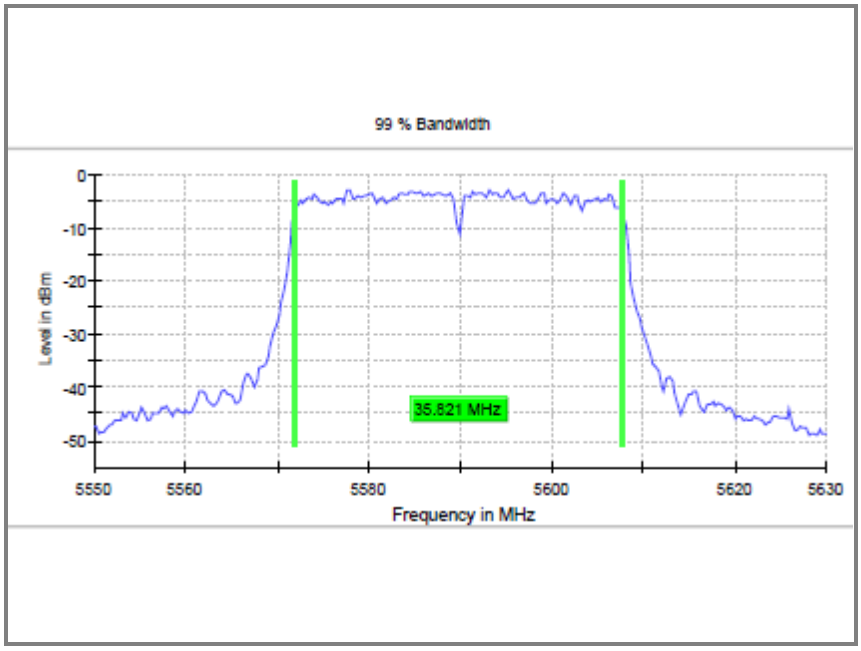
C. High channel(5590 ㎒)- 26 ㏈ bandwidth



C. High channel(5590 ㎒)– 99% bandwidth



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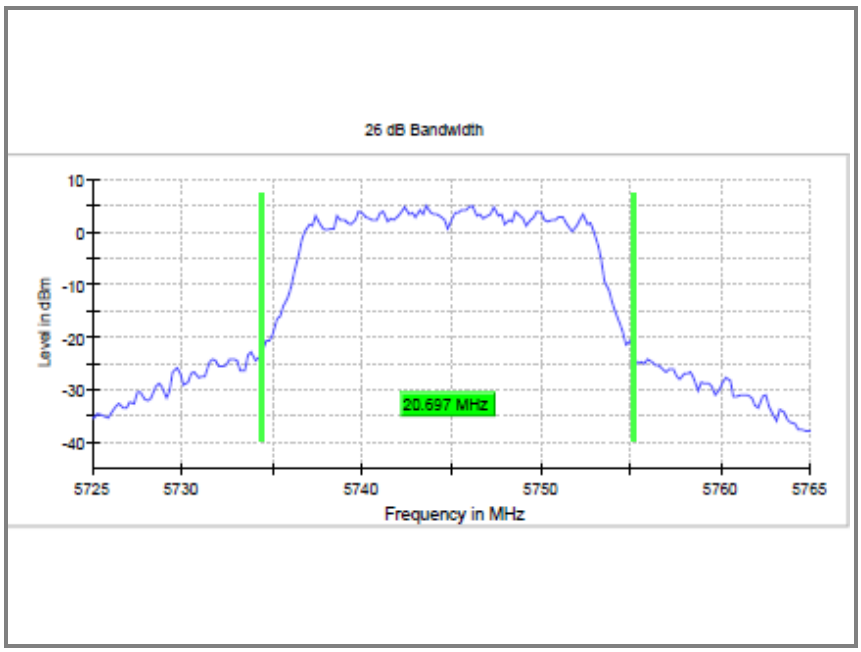
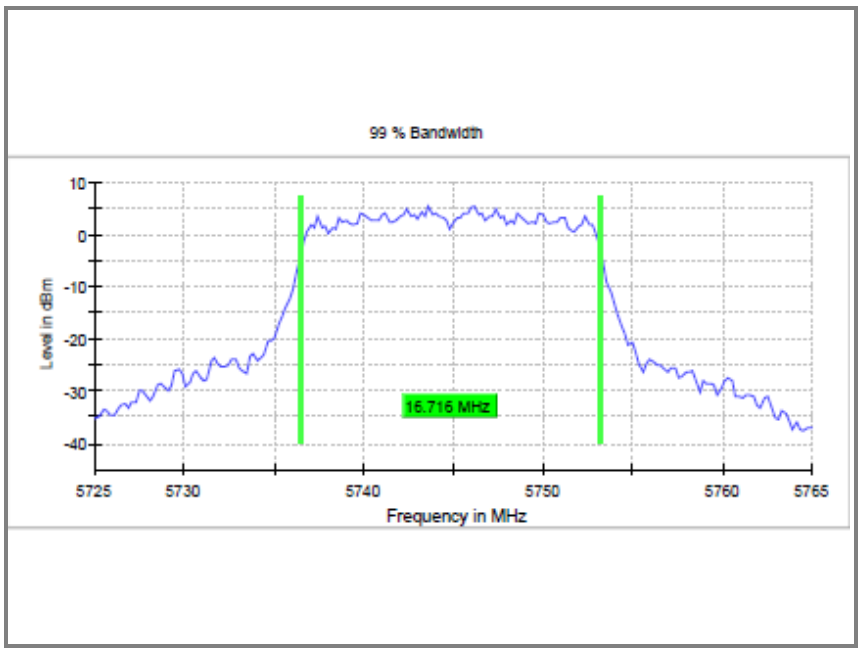
Operation mode: U-NII-3(802.11a)

A. Low channel(5745 ㎒)- 26 ㏈ bandwidth



A. Low channel(5745 ㎒)– 99% bandwidth



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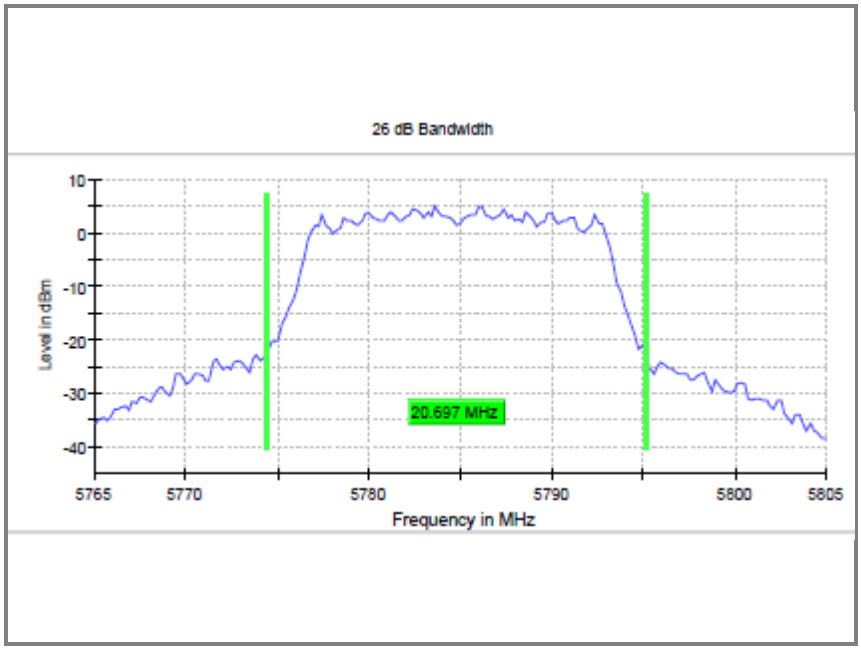
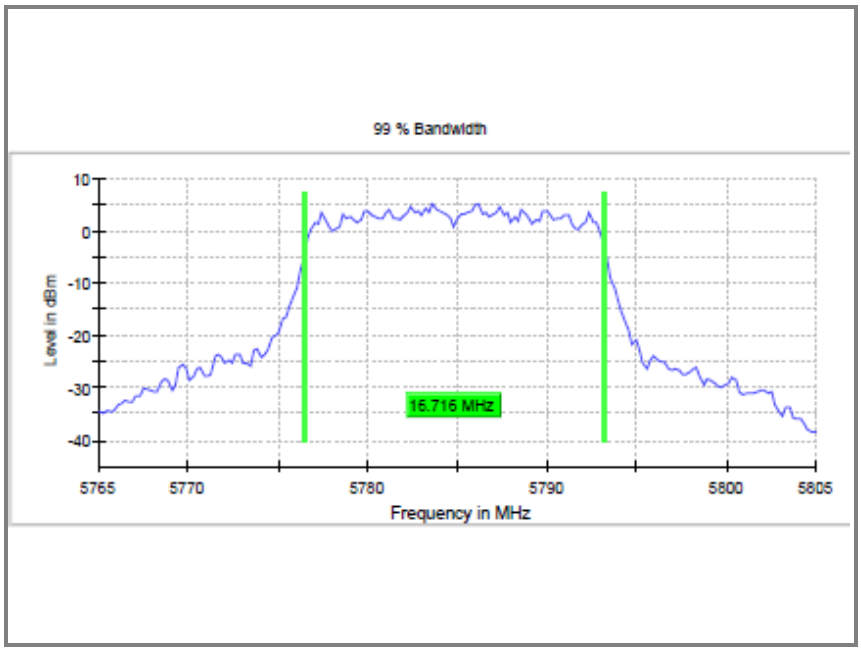
B. Middle channel(5785㎒)- 26㏈ bandwidth



B. Middle channel(5785㎒)– 99% bandwidth



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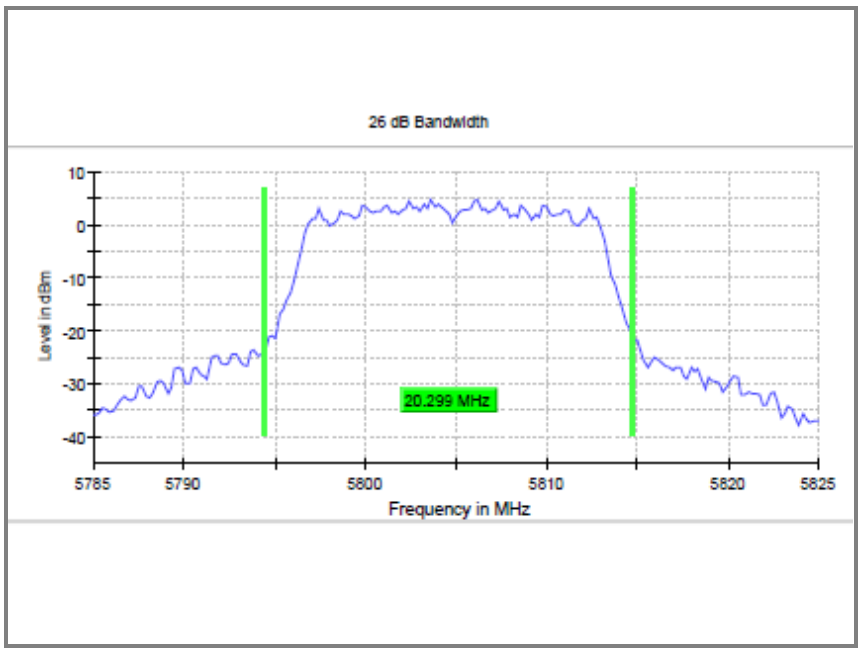
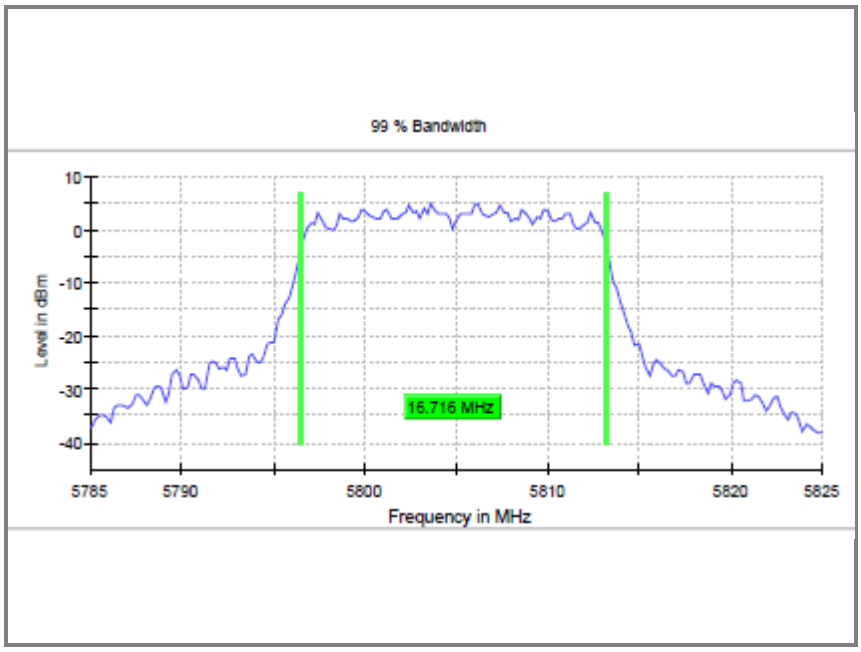
C. High channel(5805 ㎒)- 26 ㏈ bandwidth



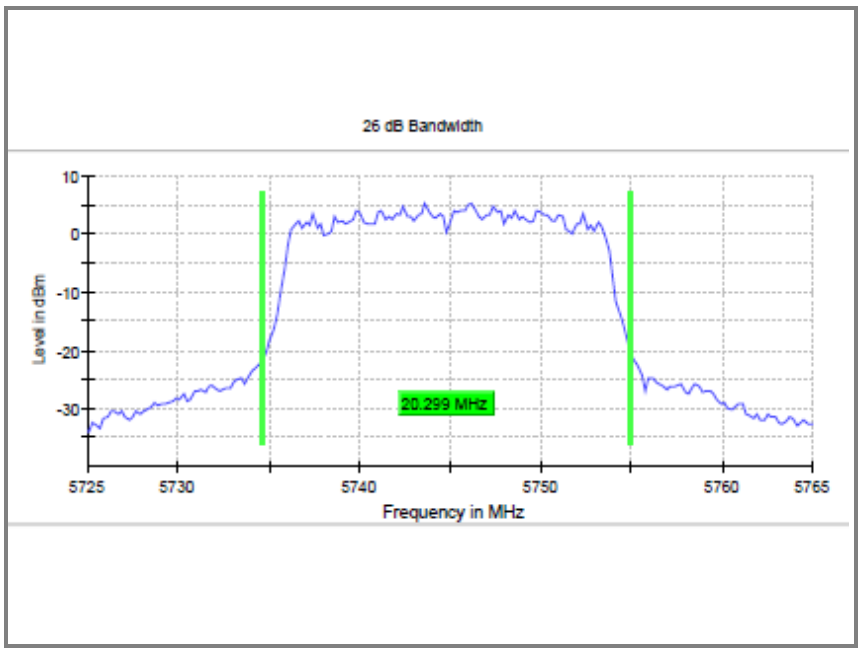
C. High channel(5805 ㎒)– 99% bandwidth



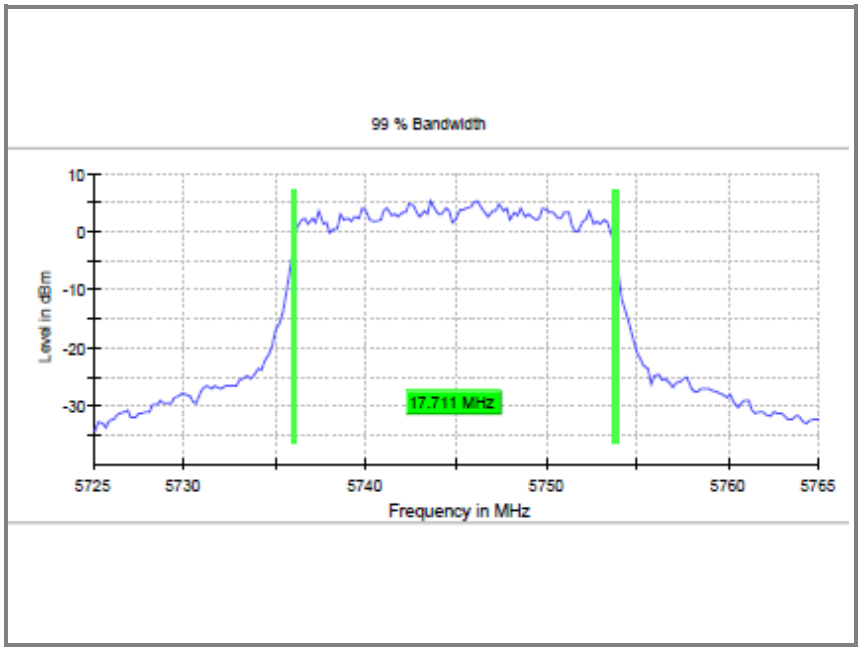
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

Operation mode: U-NII-3(n_HT20)

A. Low channel(5745 ㎒)- 26 ㏈ bandwidth



A. Low channel(5745 ㎒)– 99% bandwidth



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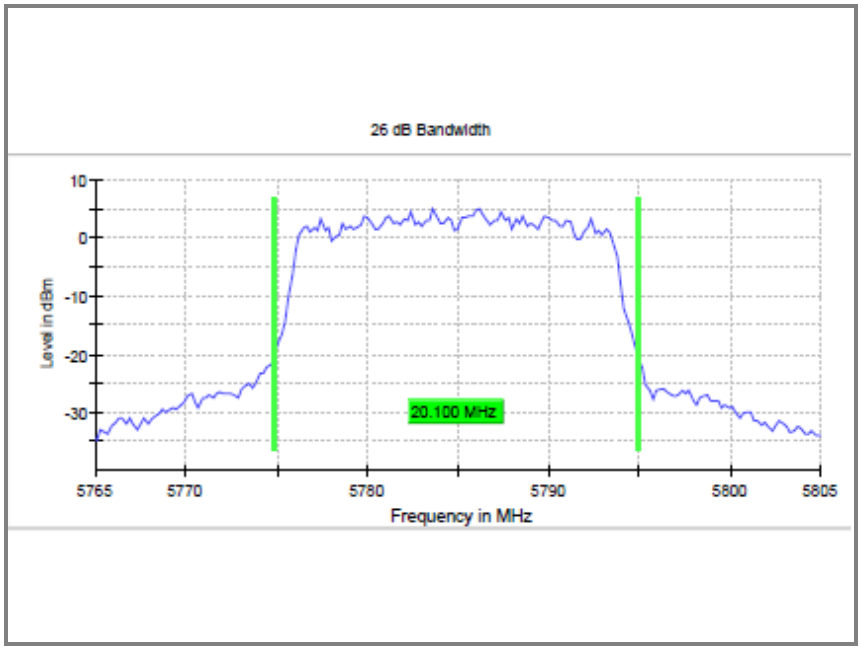
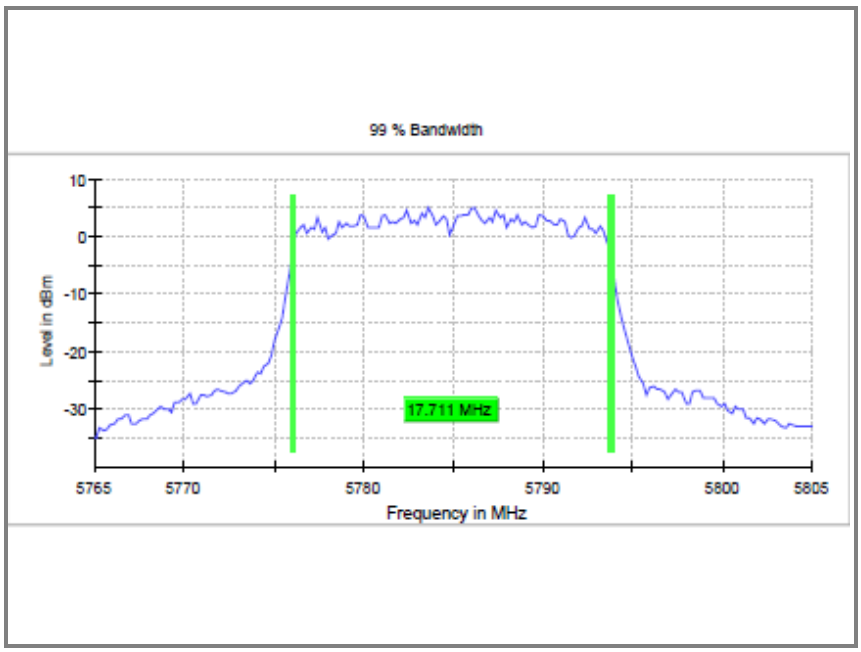
B. Middle channel(5785 ㎒)- 26 ㏈ bandwidth



B. Middle channel(5785 ㎒)– 99% bandwidth



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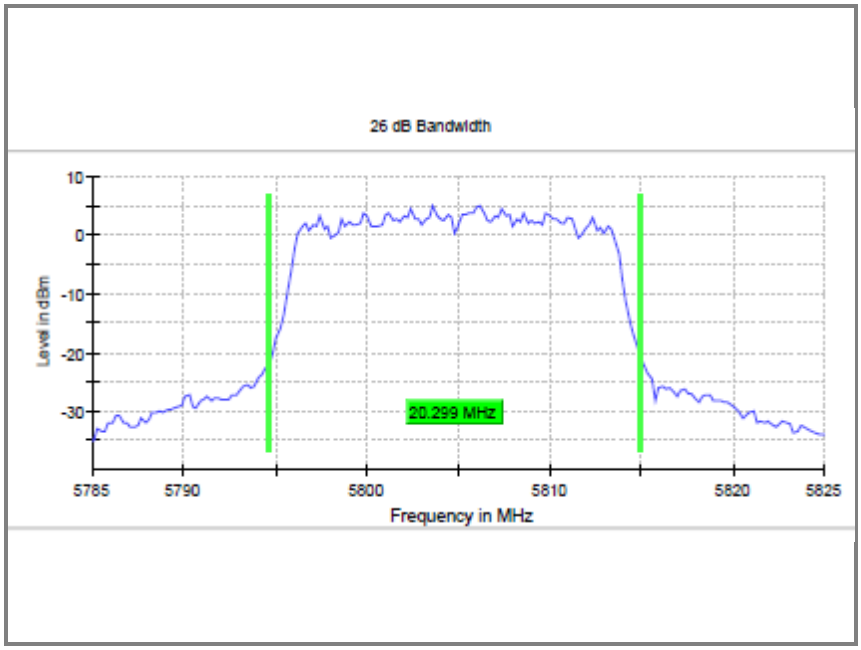
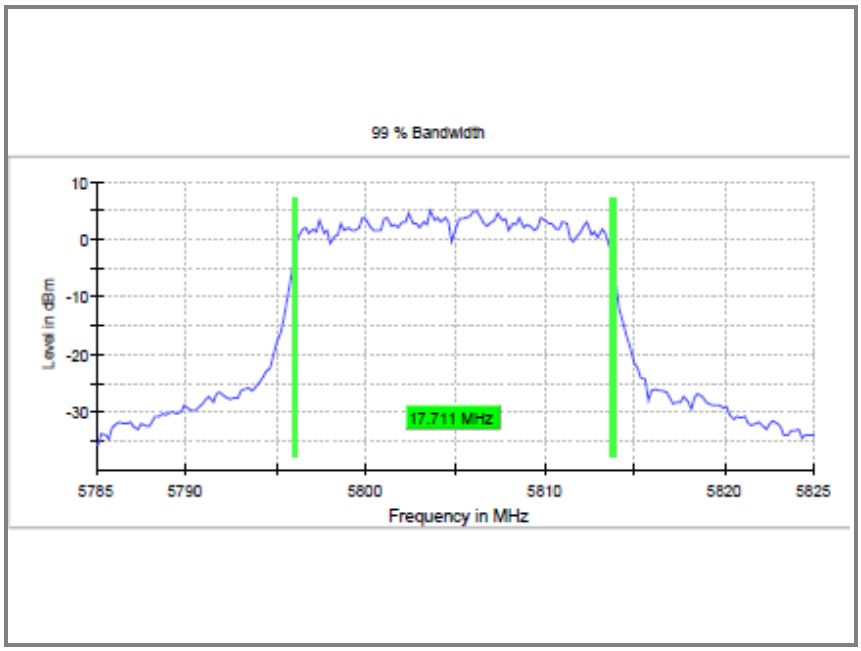
C. High channel(5805 ㎒)- 26 ㏈ bandwidth



C. High channel(5805 ㎒)– 99% bandwidth



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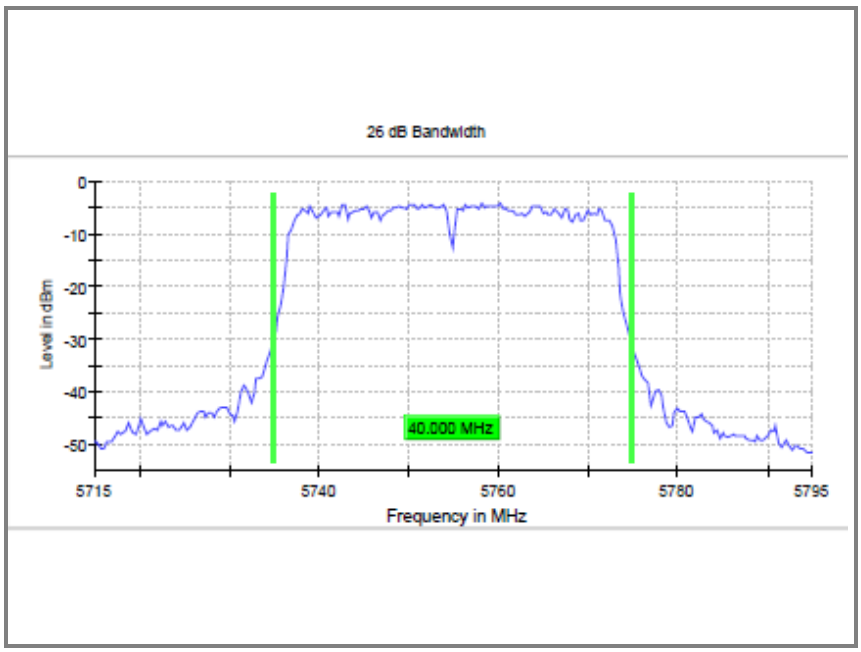
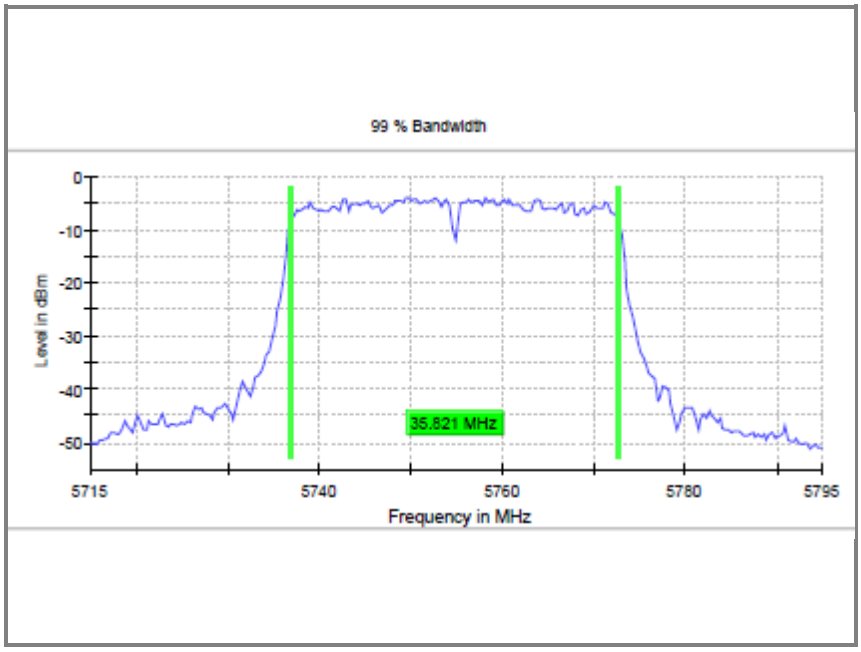
Operation mode: U-NII-3(n_HT40)

A. Low channel(5755 ㎒)- 26 ㏈ bandwidth



A. Low channel(5755 ㎒)– 99% bandwidth



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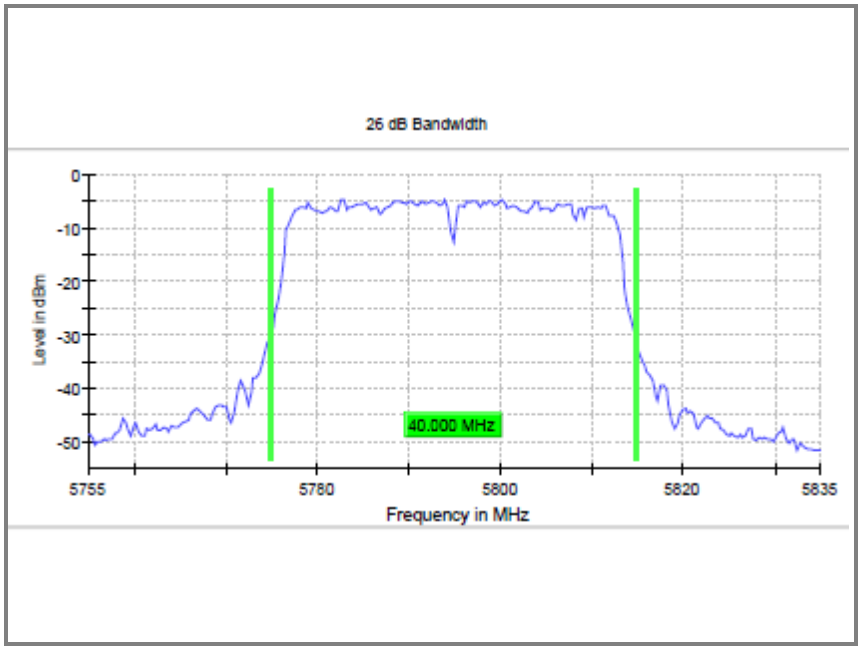
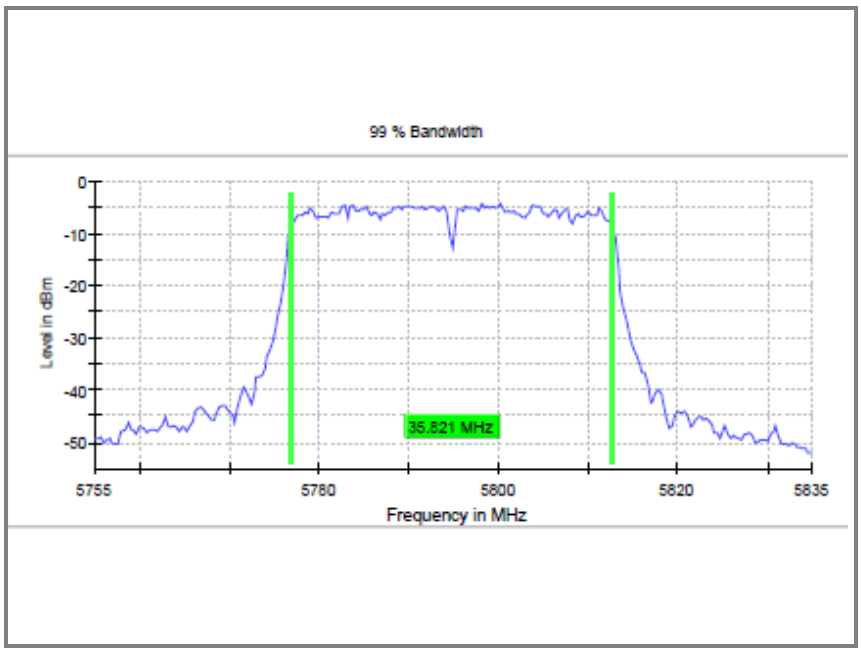
B. High channel(5795 ㎒)- 26 ㏈ bandwidth



B. High channel(5795 ㎒)– 99% bandwidth



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6. Maximum Conducted Output power

6.1. Limit

Frequency Band	Limit
5150-5250MHz	Not exceed 250mW(24dBm)
5250-5350MHz	The lesser of 250mW(24dBm) or 11+ 10logB
5470-5725MHz	The lesser of 250mW(24dBm) or 11+ 10logB
5725-5850MHz	Not exceed 1W(30dBm)
*Where B is the 26dB emission bandwidth in MHz	

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 $\log_{10}$B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

6.2. Test procedure (KDB 789033)

b) Method PM-G (Measurement using a gated RF average power meter):
Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

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6.4. Test results

Ambient temperature: 21℃
Relative humidity: 45% R.H.

Mode	Frequency(㎒)	Output Power(dB m)		
		ANT1	ANT2	2X2 Mimo
U-NII-1(802.11a)	5 180	12.99	6.23	
	5 220	13.02	6.18	
	5 240	13.28	6.01	
U-NII-1(n_HT20)	5 180	12.92	8.24	13.23
	5 220	13.02	8.04	13.62
	5 240	13.28	8.01	13.92
U-NII-1(n_HT40)	5 190	6.14	4.36	9.09
	5 230	6.48	4.00	9.21
U-NII-2A(802.11a)	5 260	12.81	8.73	
	5 300	13.00	8.05	
	5 320	13.61	8.69	
U-NII-2A(n_HT20)	5 260	12.83	8.33	13.52
	5 300	13.54	8.33	14.09
	5 320	13.62	8.38	14.22
U-NII-2A(n_HT40)	5 270	6.45	3.58	9.51
	5 310	6.20	3.21	9.34
U-NII-2C(802.11a)	5 500	14.53	10.35	
	5 560	14.60	10.62	
	5 620	13.68	10.05	
U-NII-2C(n_HT20)	5 500	14.57	10.01	15.25
	5 560	14.62	10.37	14.84
	5 620	13.73	9.78	14.49
U-NII-2C(n_HT40)	5 510	7.86	6.24	10.96
	5 550	7.99	6.67	10.98
	5 590	7.76	6.91	10.92

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Mode	Frequency(㎒)	Output Power(dB m)		
		ANT1	ANT2	2X2 Mimo
U-NII-3(802.11a)	5 745	13.37	9.01	
	5 785	13.36	9.01	
	5 805	13.14	9.27	
U-NII-3(n_HT20)	5 745	13.36	8.96	12.80
	5 785	13.20	9.14	12.62
	5 805	13.11	8.93	12.58
U-NII-3(n_HT40)	5 755	6.55	5.54	7.28
	5 795	6.32	6.25	7.24

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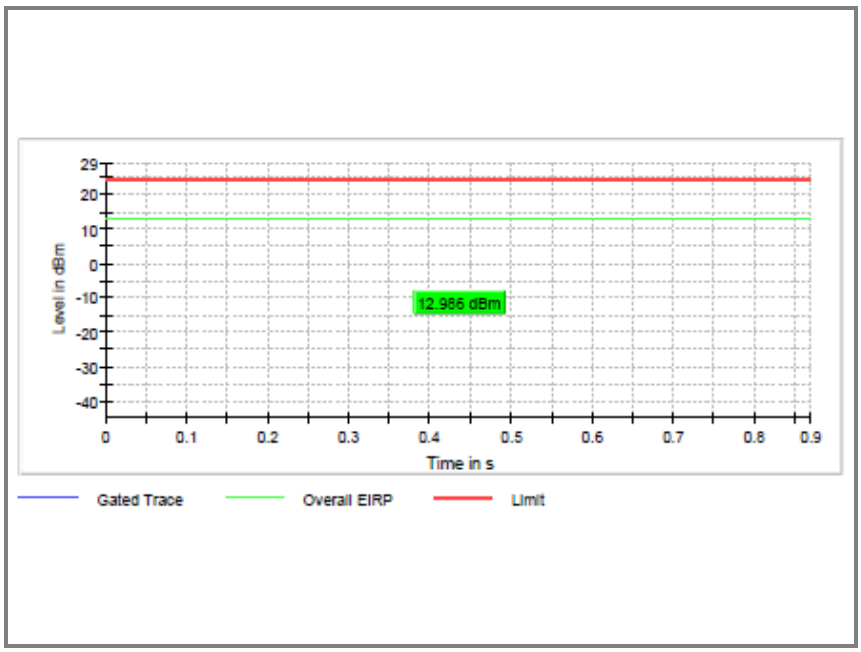
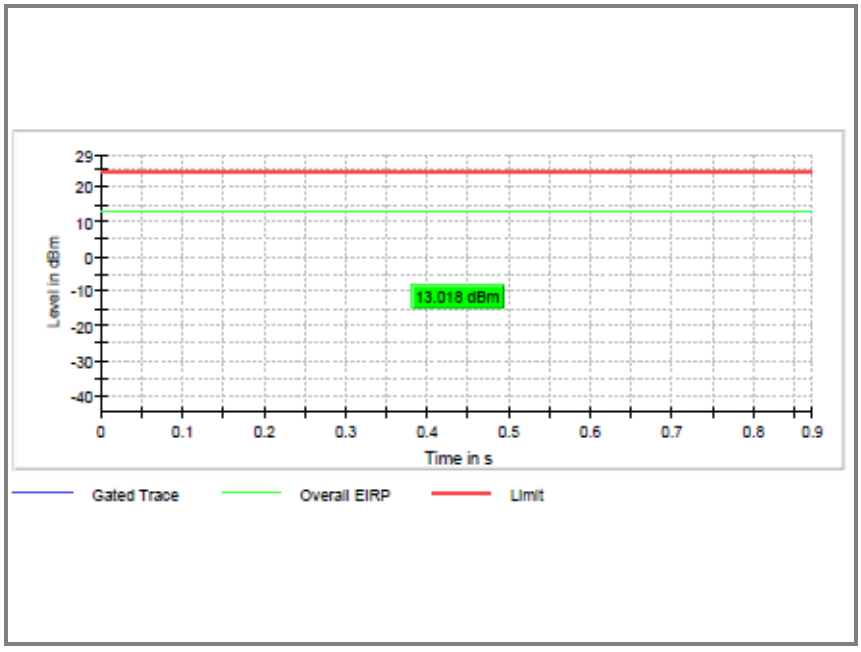
Operation mode: U-NII-1(802.11a) ANT1

A. Low channel(5180 ㎒)



B. Middle channel(5220 ㎒)



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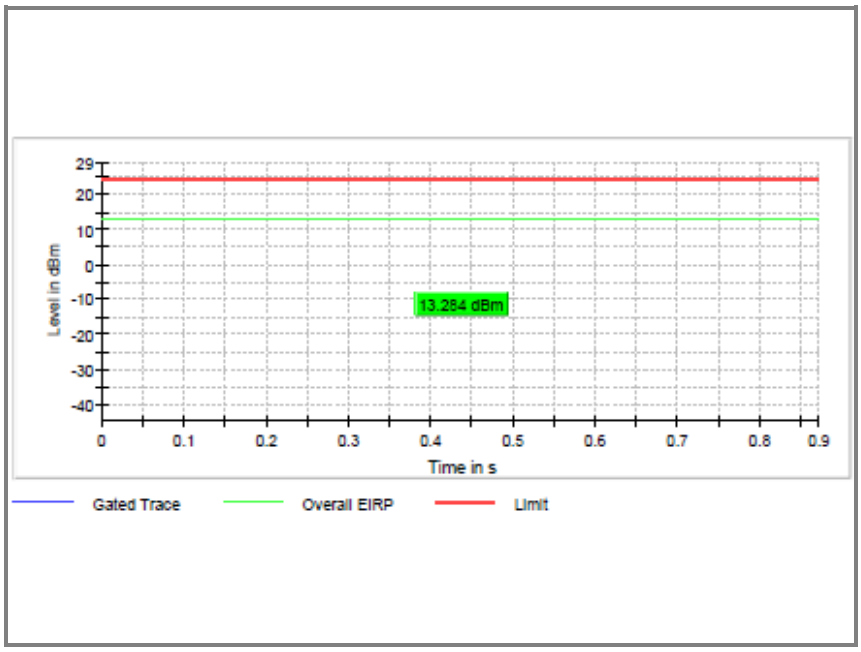
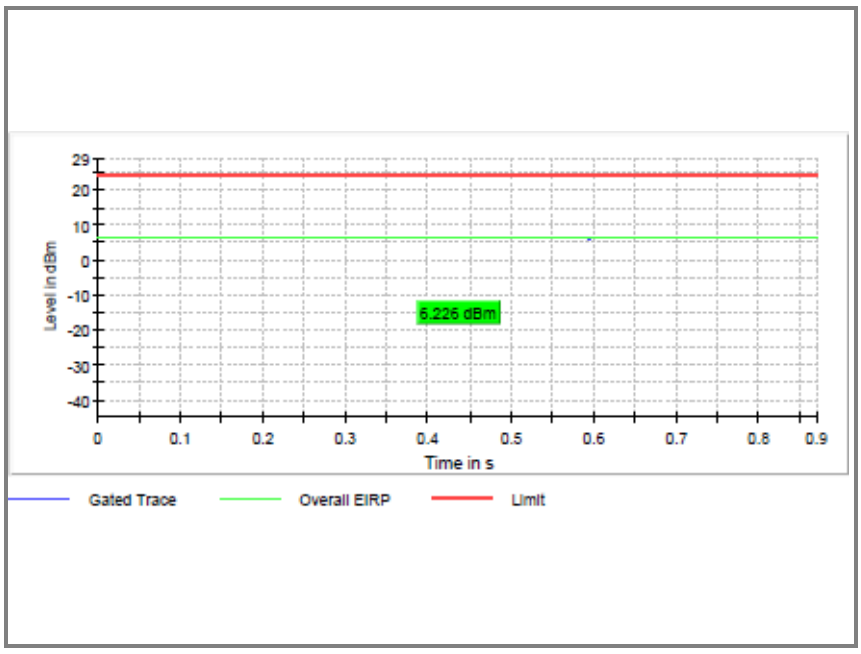
C. High channel(5240 ㎒)



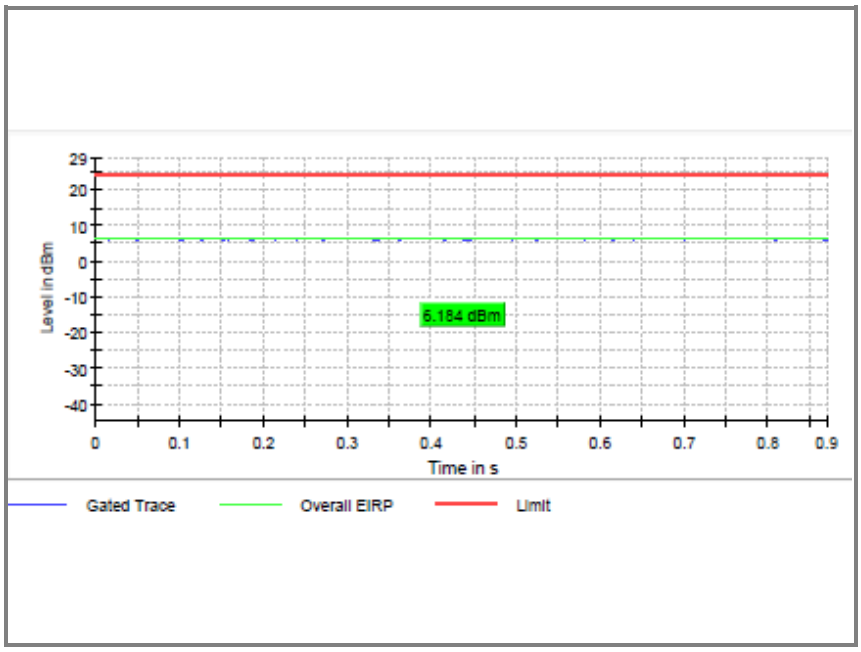
Operation mode: U-NII-1(802.11a) ANT2

A. Low channel(5180 ㎒)

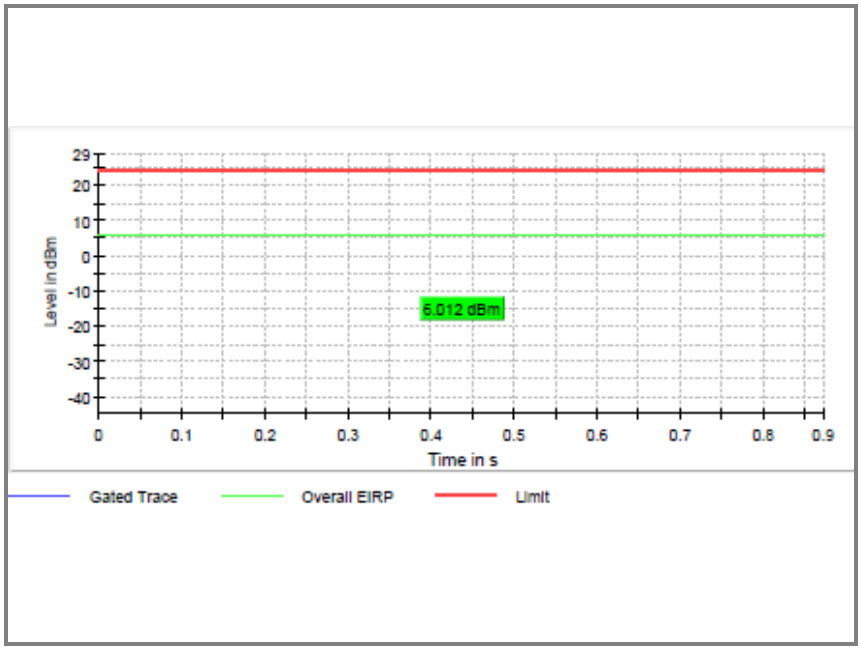


The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

B. Middle channel(5220 ㎒)



C. High channel(5240 ㎒)



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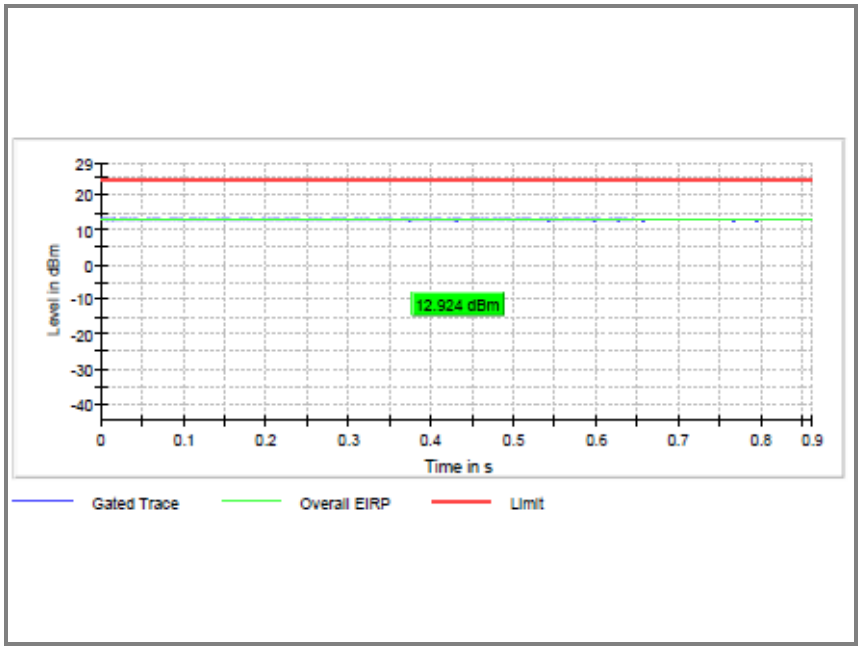
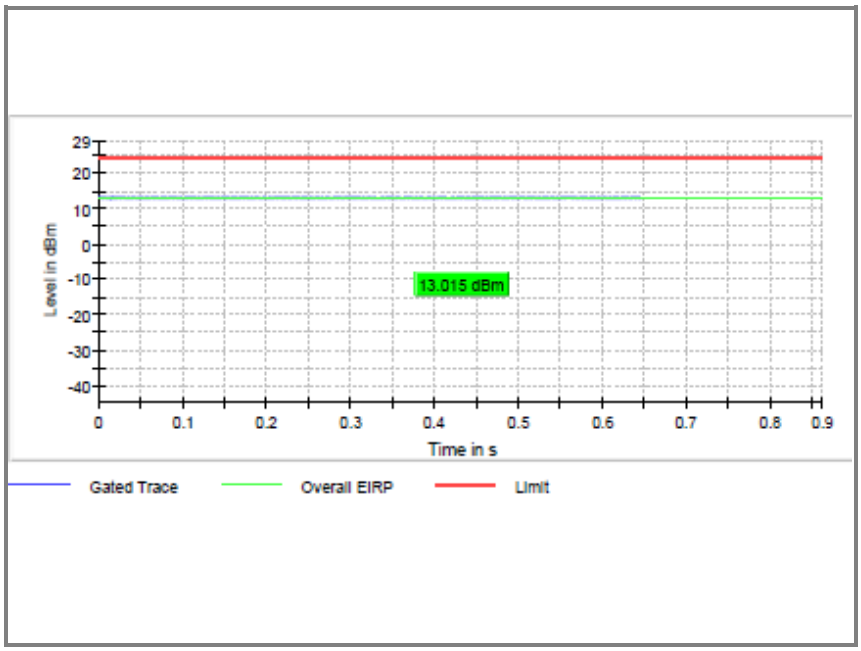
Operation mode: U-NII-1(n_HT20)ANT1

A. Low channel(5180 ㎒)



B. Middle channel(5220 ㎒)



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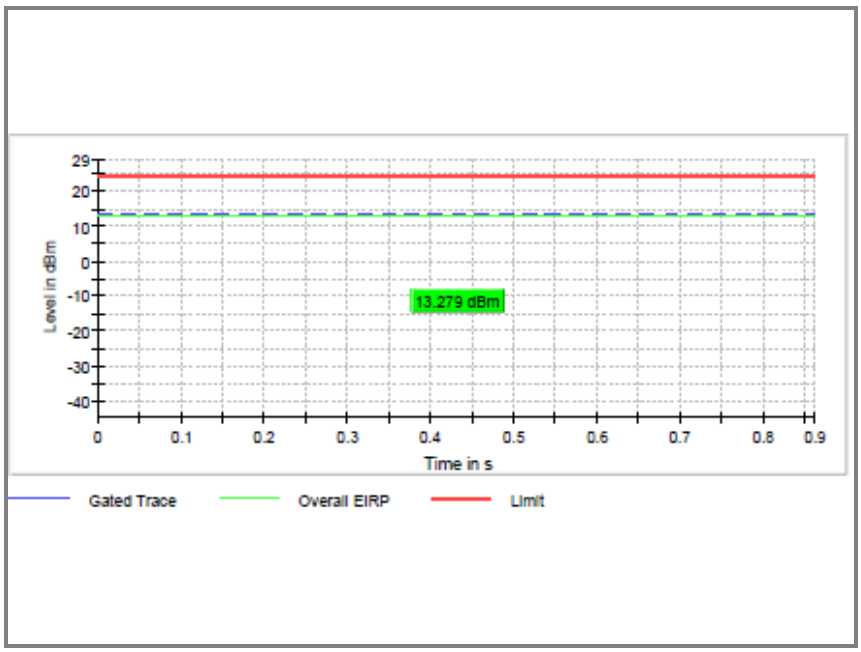
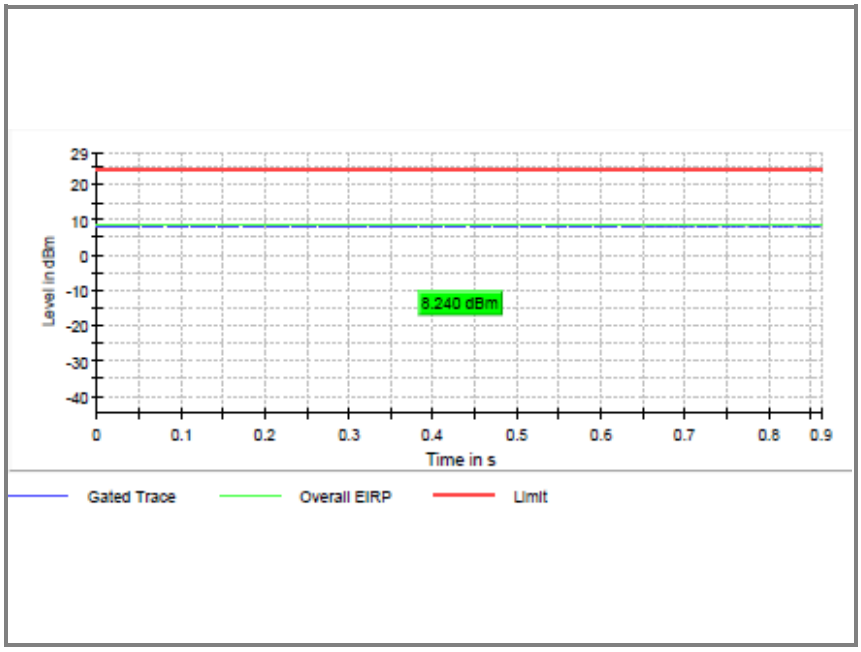
C. High channel(5240 ㎒)



Operation mode: U-NII-1(n_HT20)ANT2

A. Low channel(5180 ㎒)



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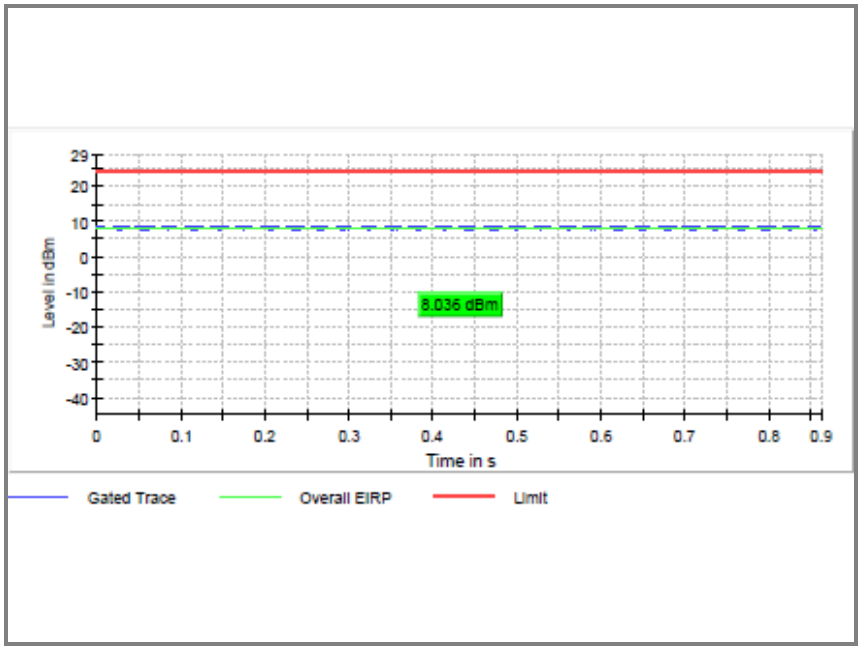
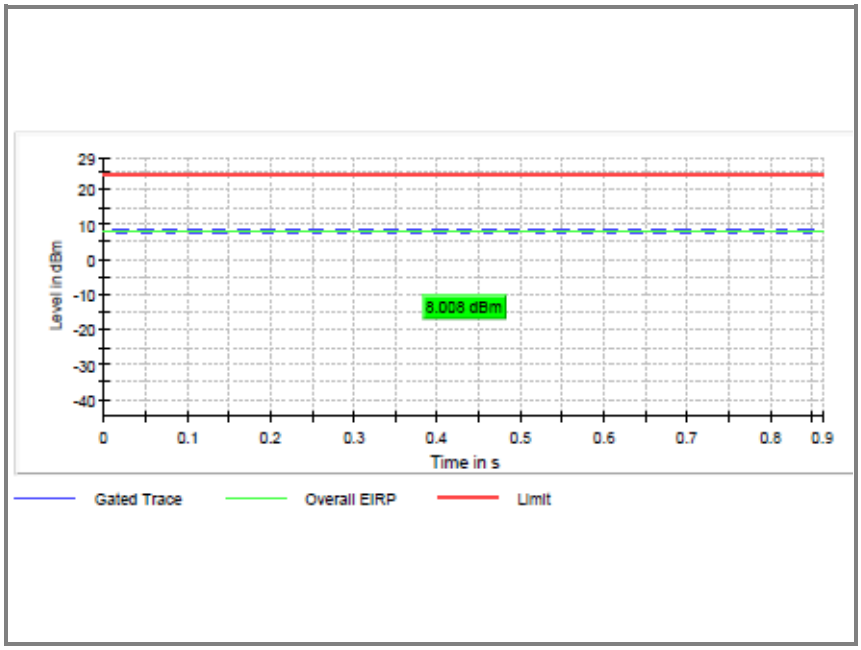
B. Middle channel(5220 ㎒)



C. High channel(5240 ㎒)



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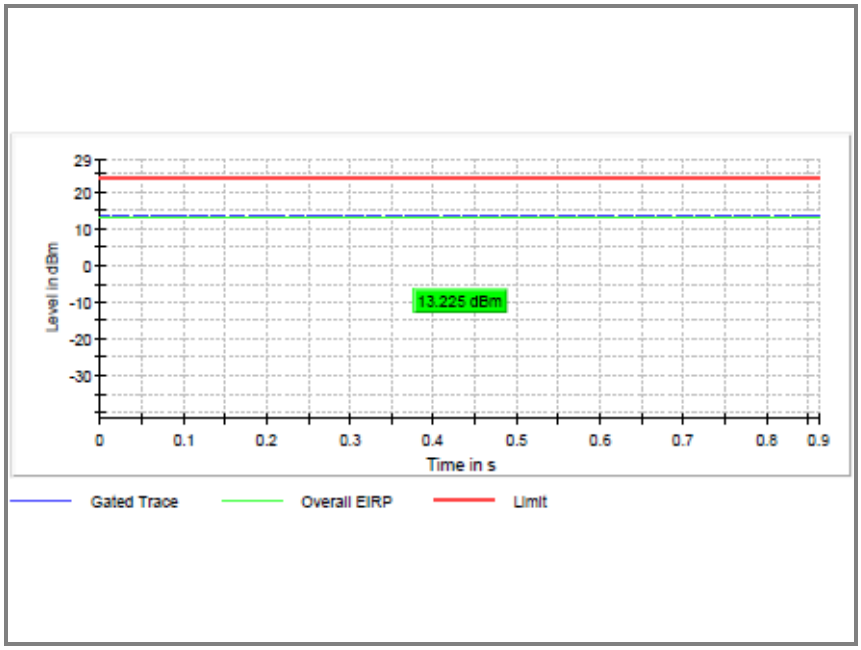
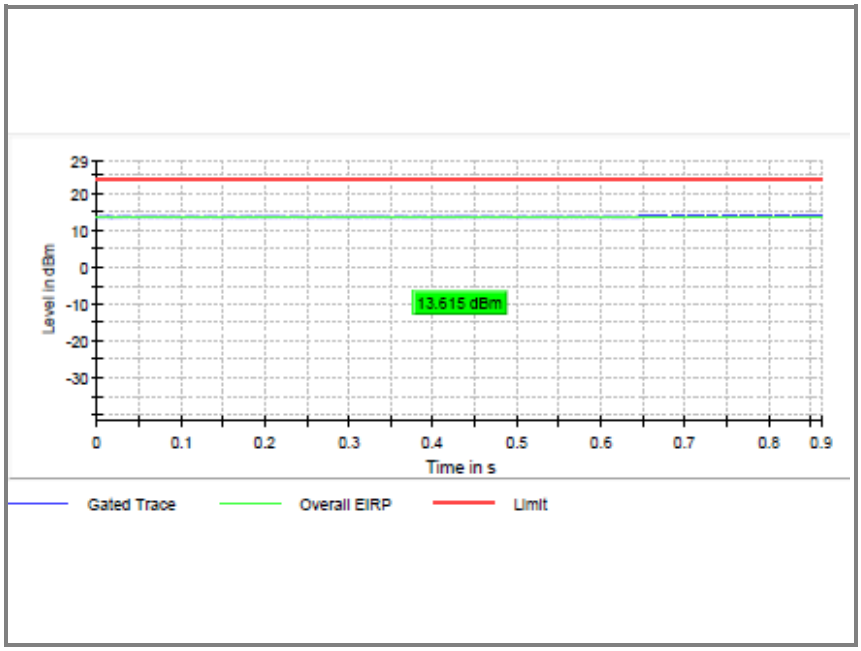
Operation mode: U-NII-1(n_HT20) Mimo2X2

A. Low channel(5180 ㎒)



B. Middle channel(5220 ㎒)



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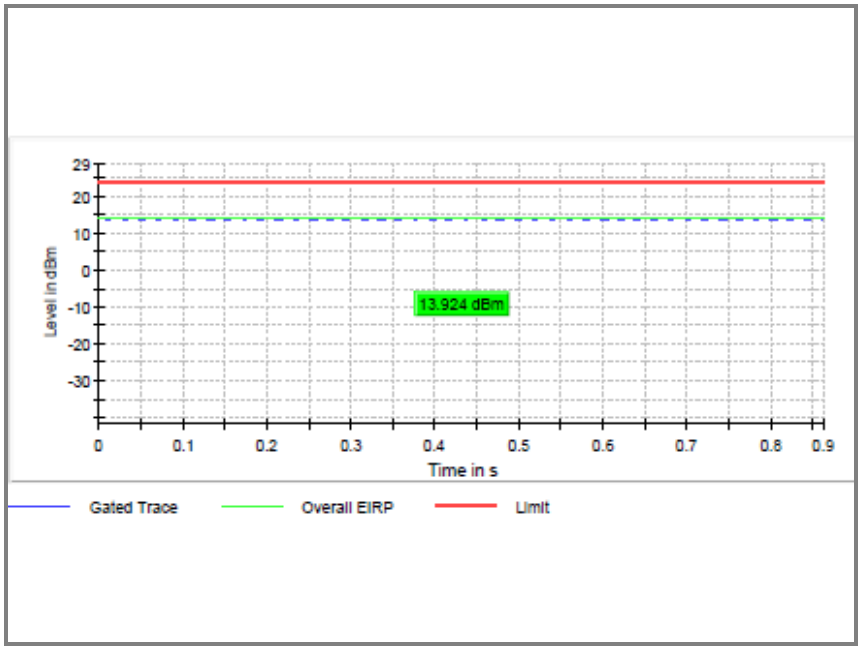
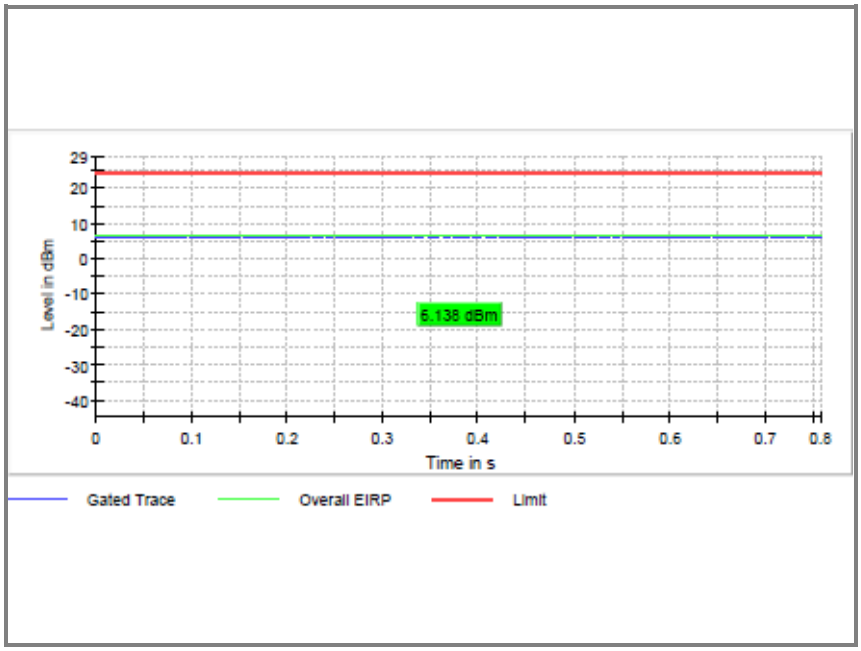
C. High channel(5240 ㎒)



Operation mode: U-NII-1(n_HT40) ANT1

A. Low channel(5190 ㎒)



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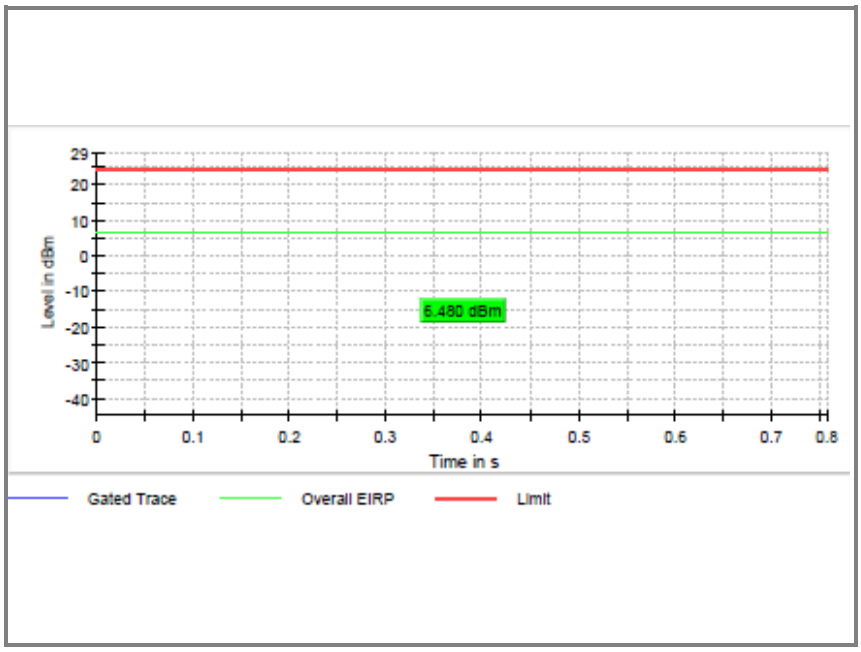
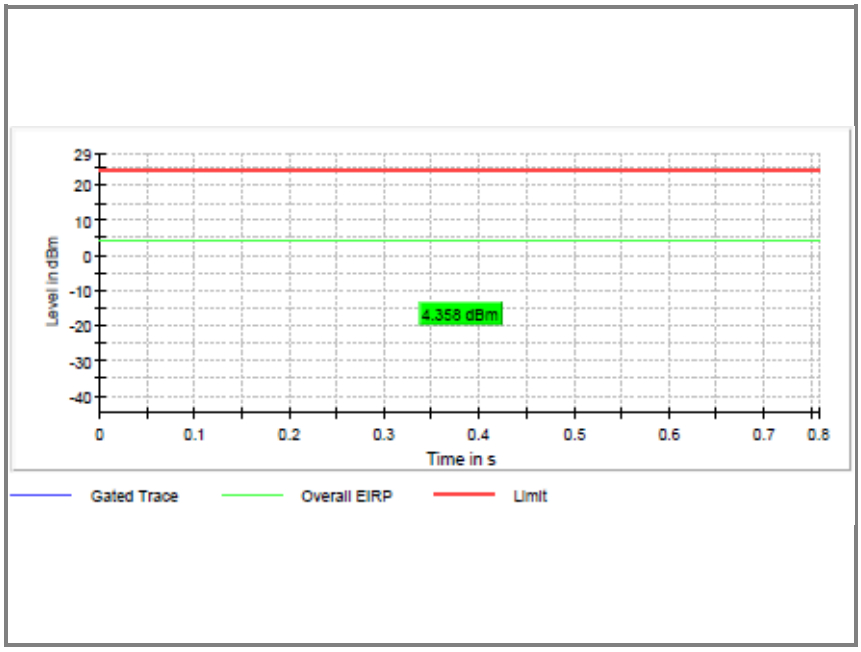
B. High channel(5230 ㎒)



Operation mode: U-NII-1(n_HT40)ANT2

A. Low channel(5190 ㎒)



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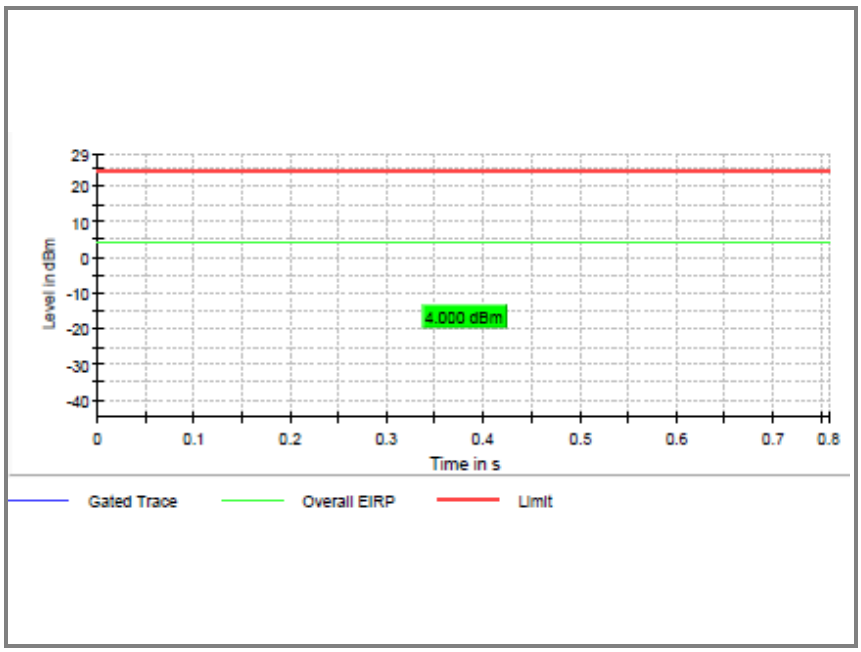
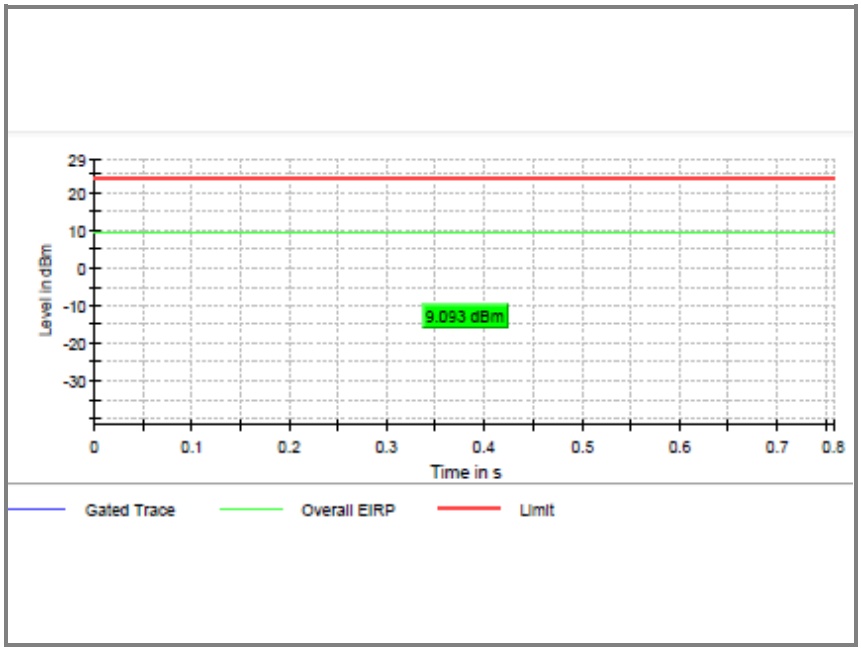
B. High channel(5230 ㎒)



Operation mode: U-NII-1(n_HT40) Mimo2X2

A. Low channel(5190 ㎒)



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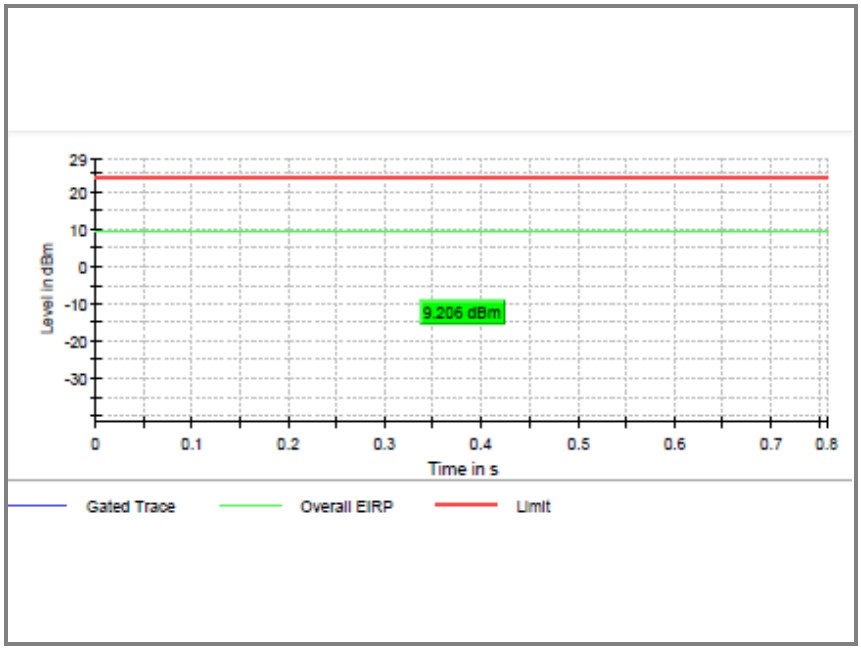
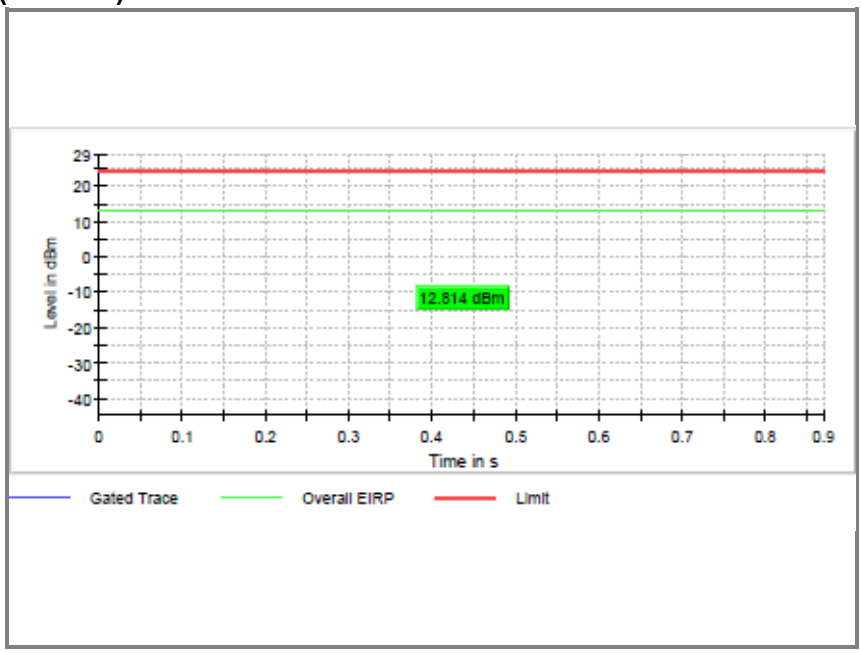
B. High channel(5230 ㎒)



Operation mode: U-NII-2A(802.11a) ANT1

A. Low channel(5260 ㎒)



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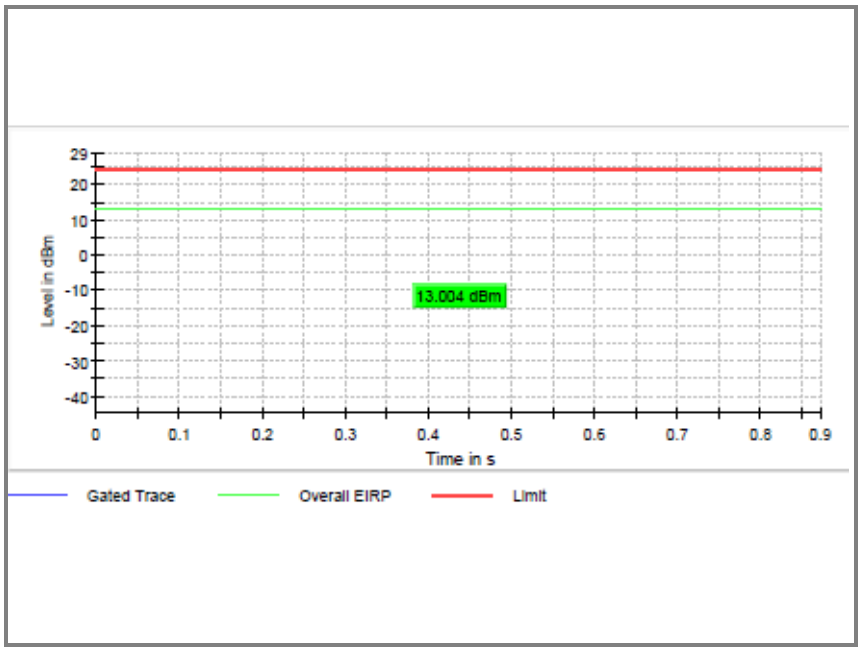
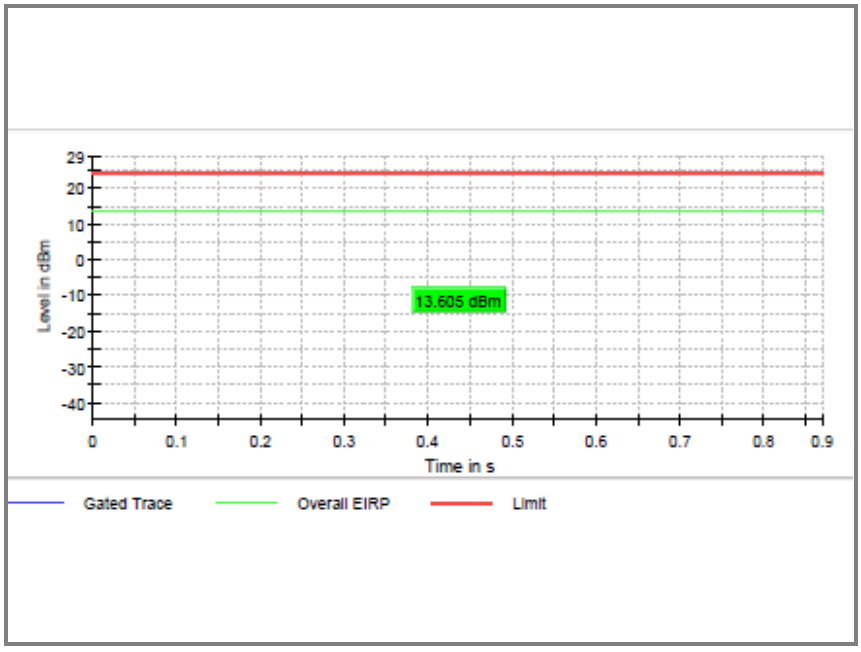
B. Middle channel(5300 ㎒)



C. High channel(5320 ㎒)



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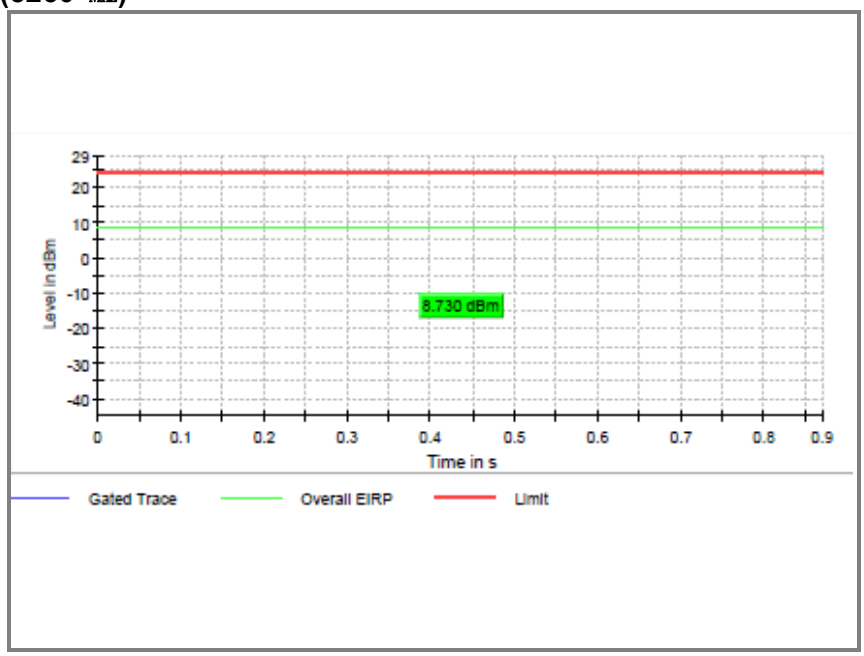
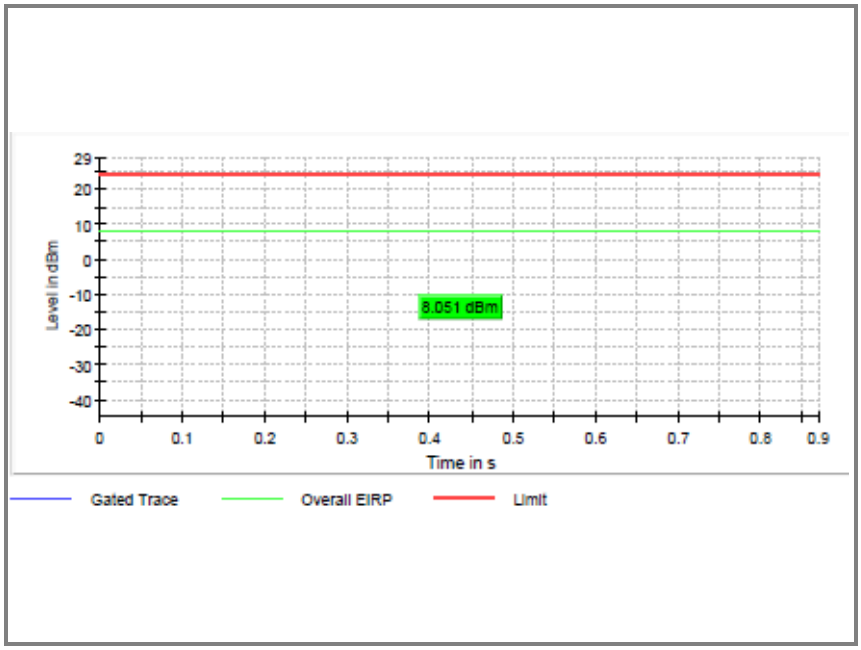
Operation mode: U-NII-2A(802.11a)ANT2

A. Low channel(5260 ㎒)



B. Middle channel(5300 ㎒)



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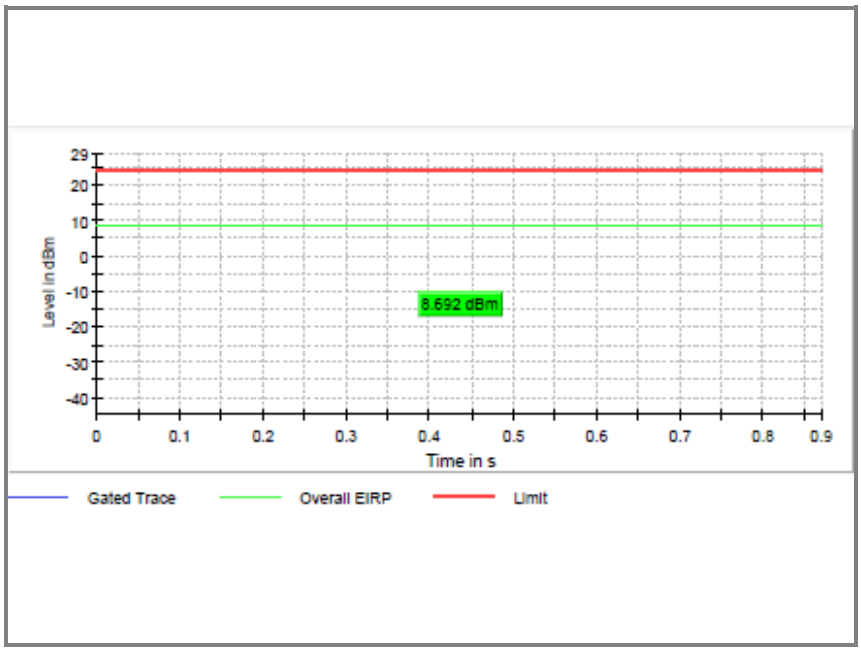
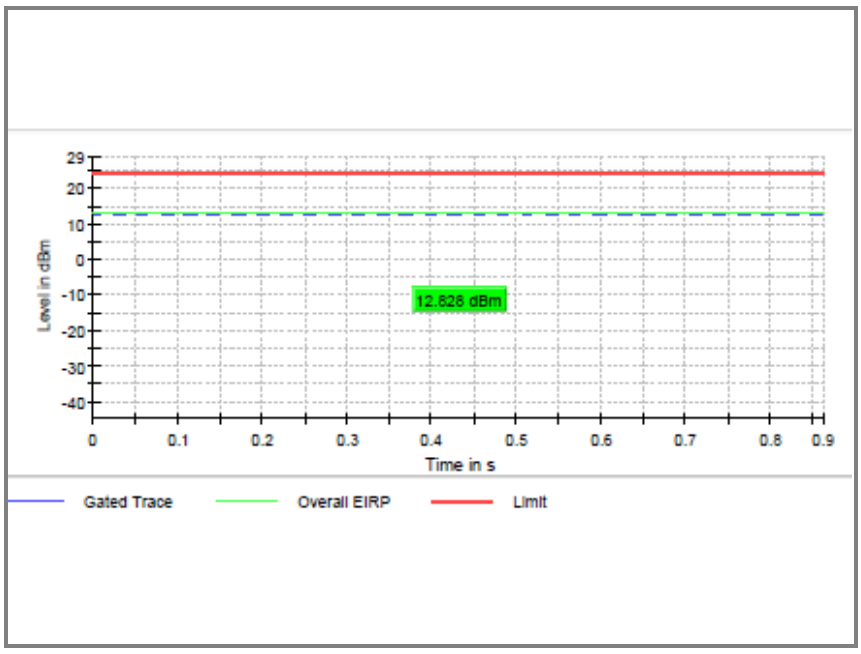
C. High channel(5320 ㎒)



Operation mode: U-NII-2A(n_HT20) ANT1

A. Low channel(5260 ㎒)



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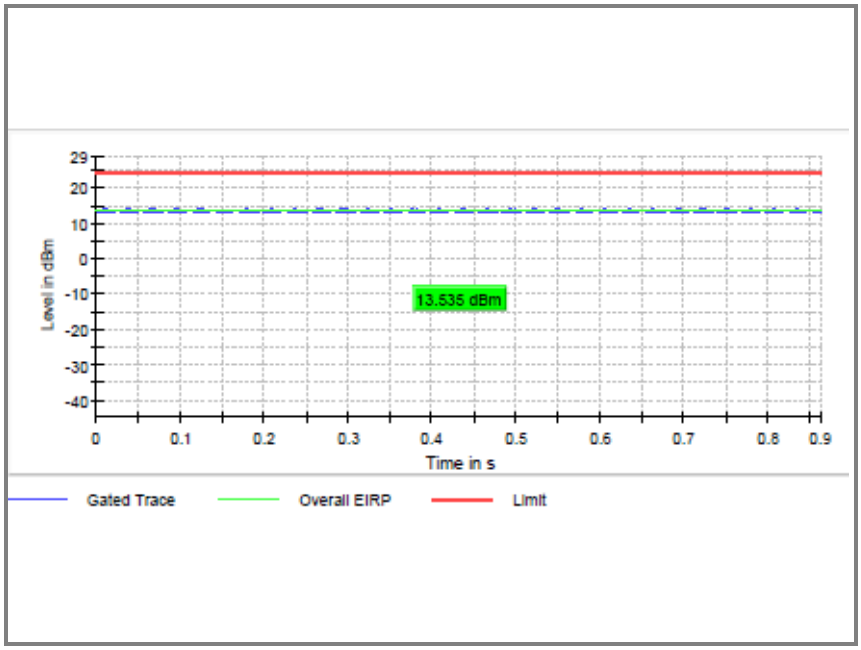
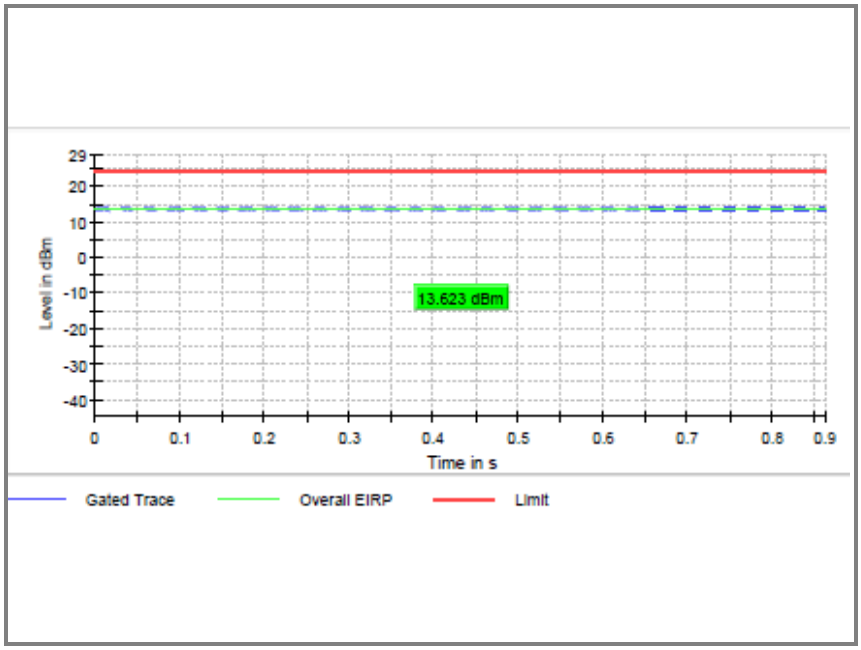
B. Middle channel(5300 ㎒)



C. High channel(5320 ㎒)



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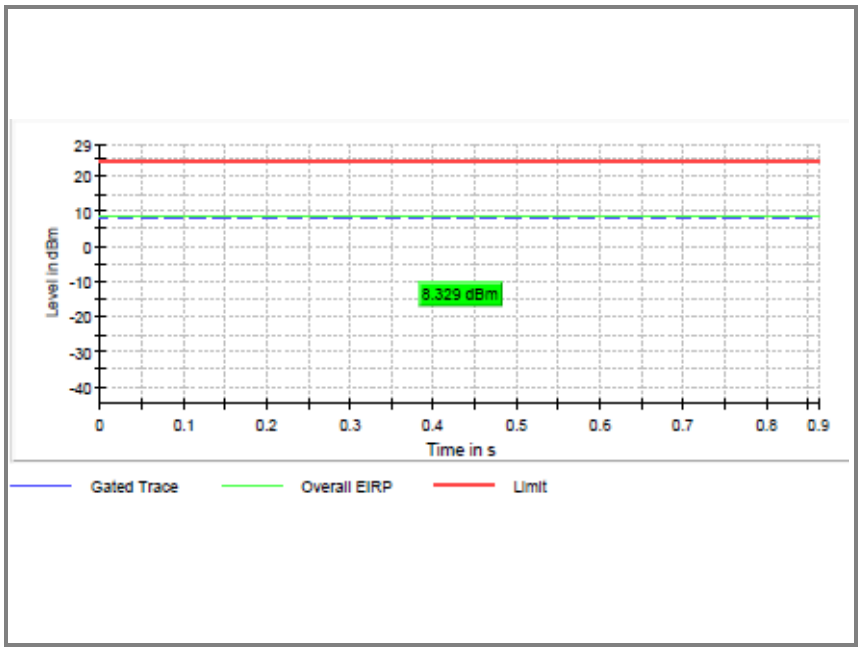
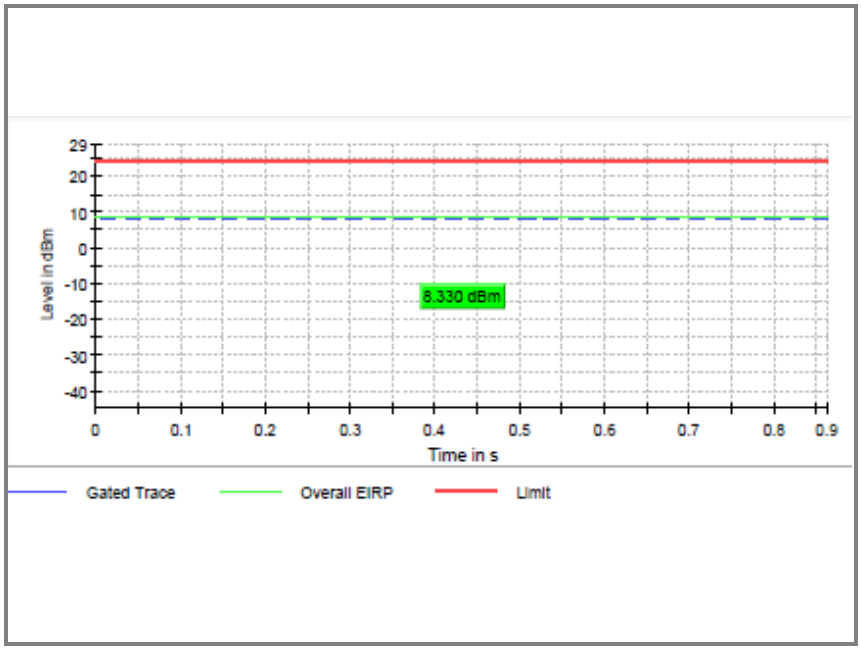
Operation mode: U-NII-2A(n_HT20) ANT2

A. Low channel(5260 ㎒)



B. Middle channel(5300 ㎒)



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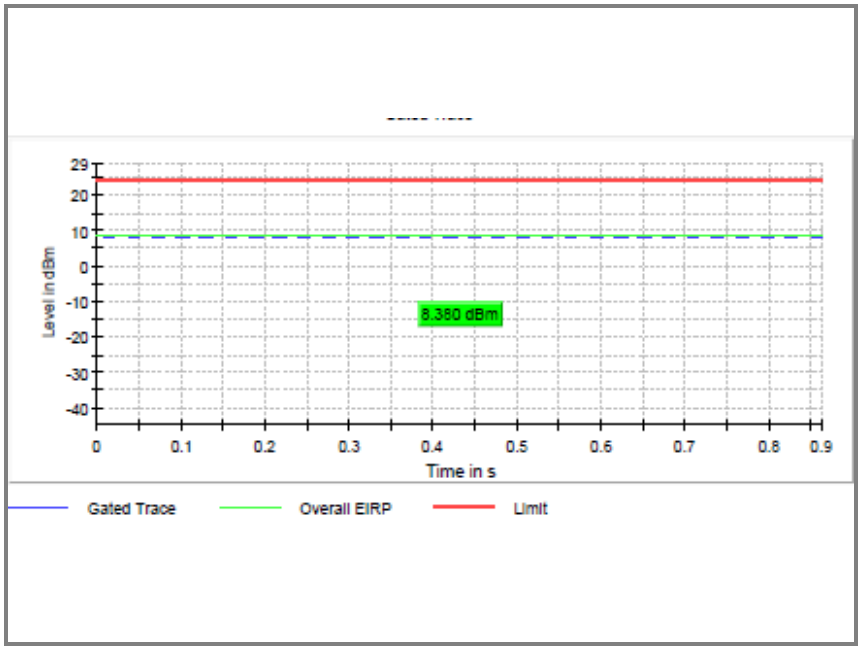
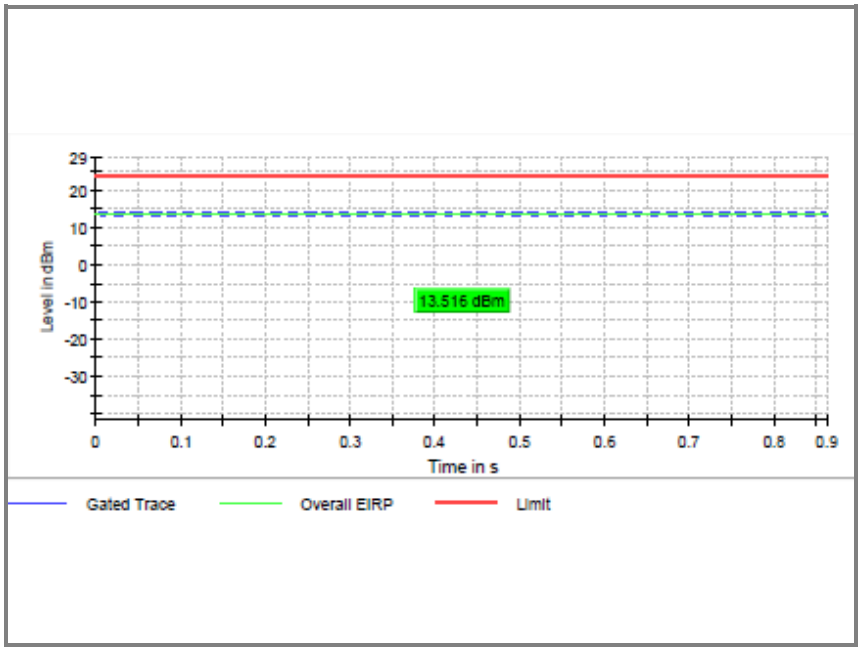
C. High channel(5320 ㎒)



Operation mode: U-NII-2A(n_HT20) Mimo2X2

A. Low channel(5260 ㎒)



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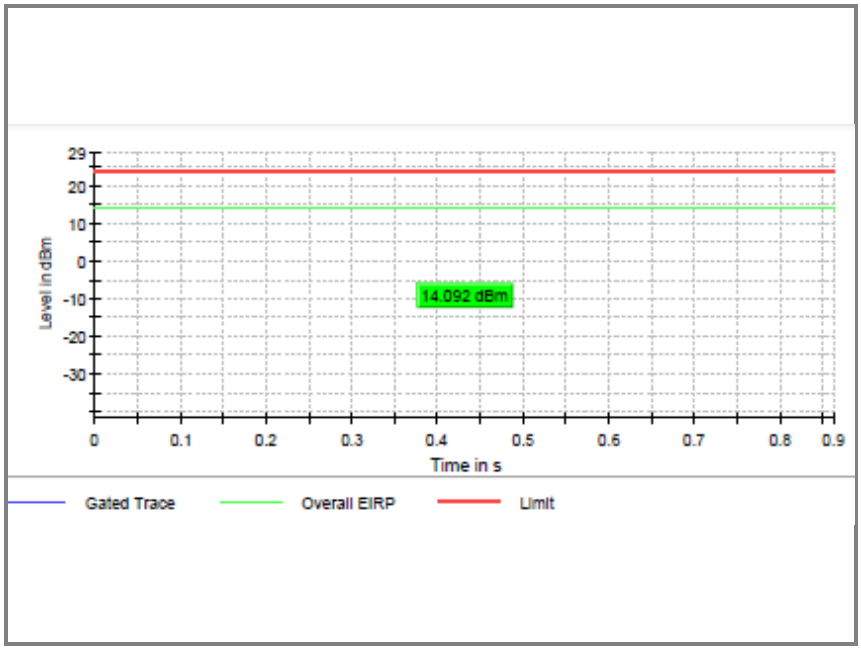
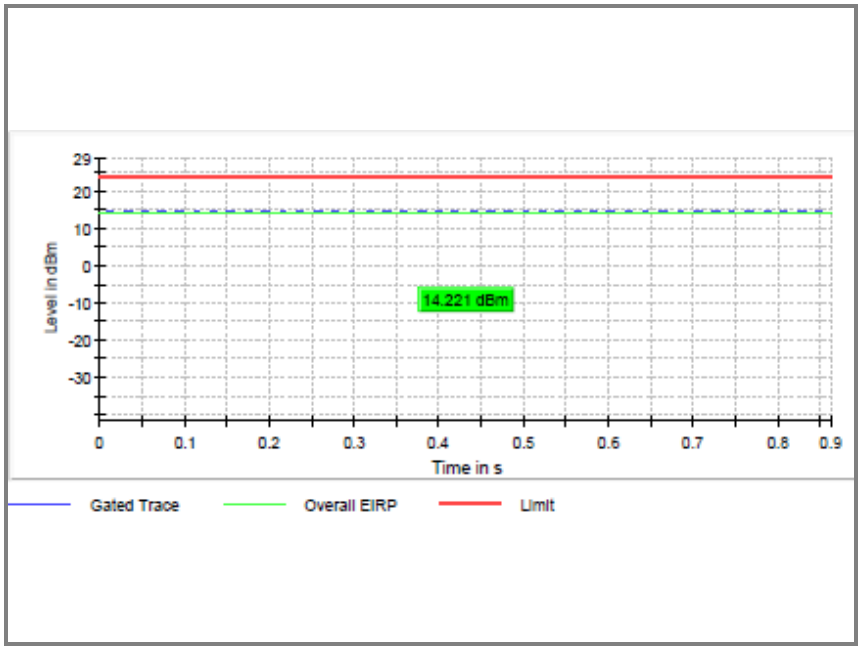
B. Middle channel(5300 ㎒)



C. High channel(5320 ㎒)



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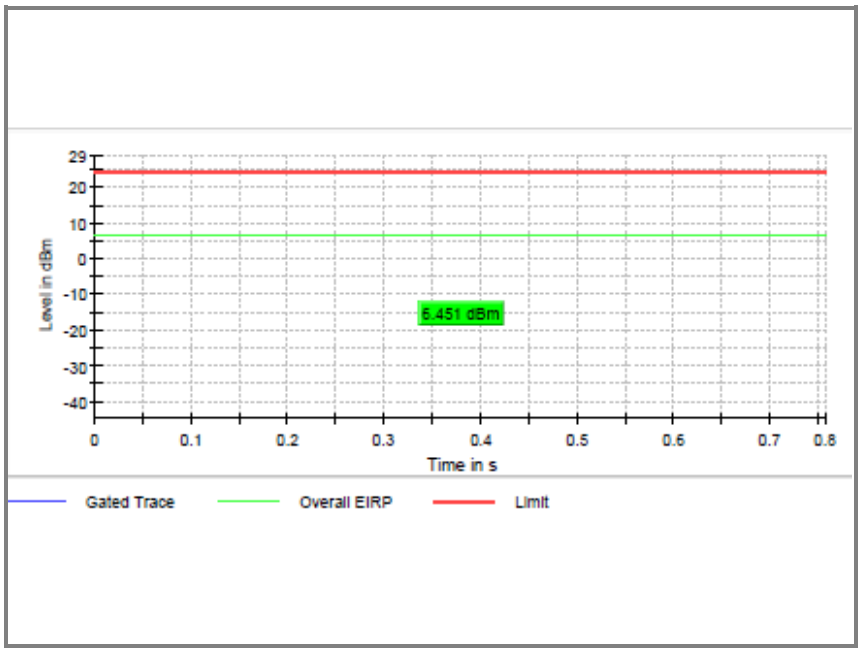
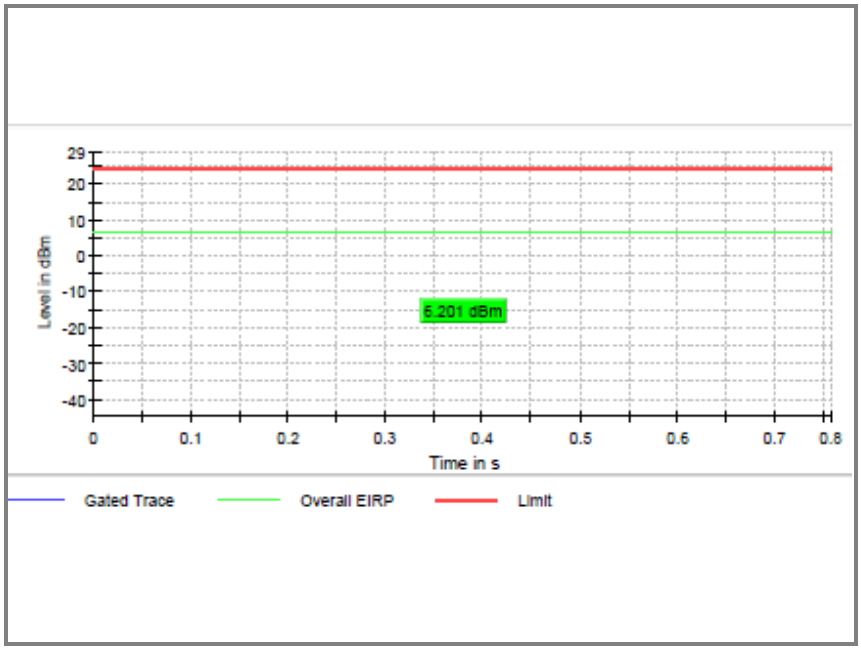
Operation mode: U-NII-2A(n_HT40) ANT1

A. Low channel(5270 ㎒)



B. High channel(5310 ㎒)



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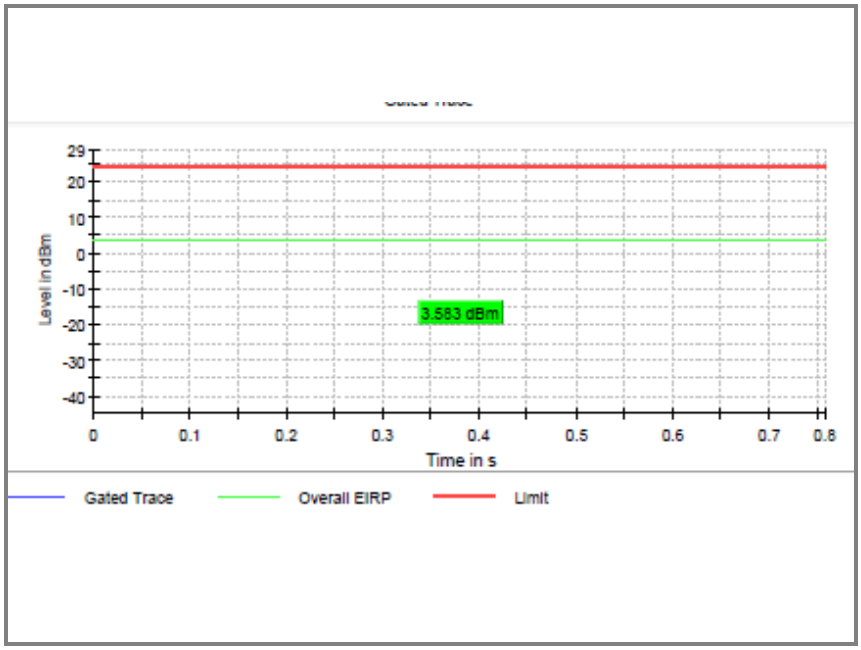
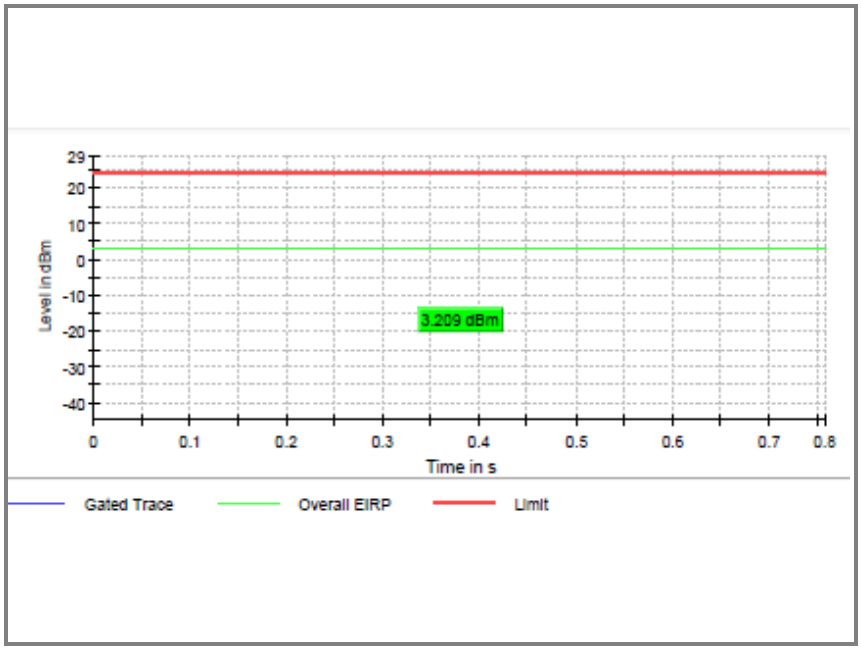
Operation mode: U-NII-2A(n_HT40) ANT2

A. Low channel(5270 ㎒)



B. High channel(5310 ㎒)



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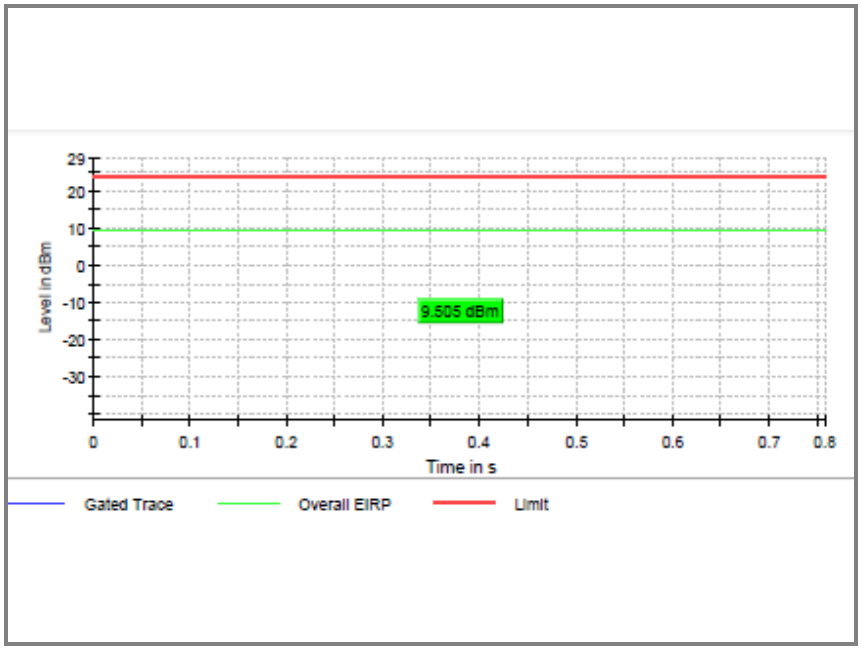
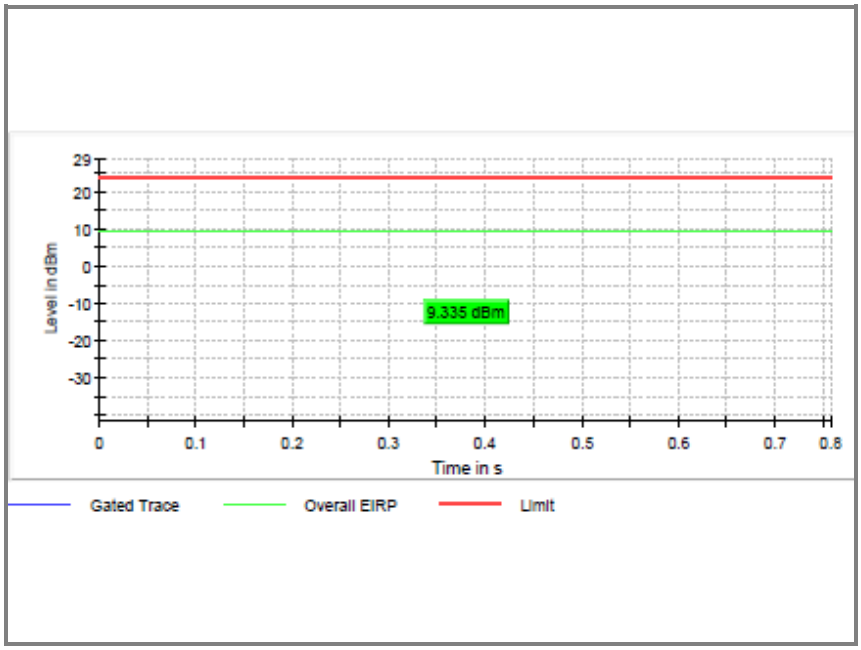
Operation mode: U-NII-2A(n_HT40) Mimo2X2

A. Low channel(5270 ㎒)



B. High channel(5310 ㎒)



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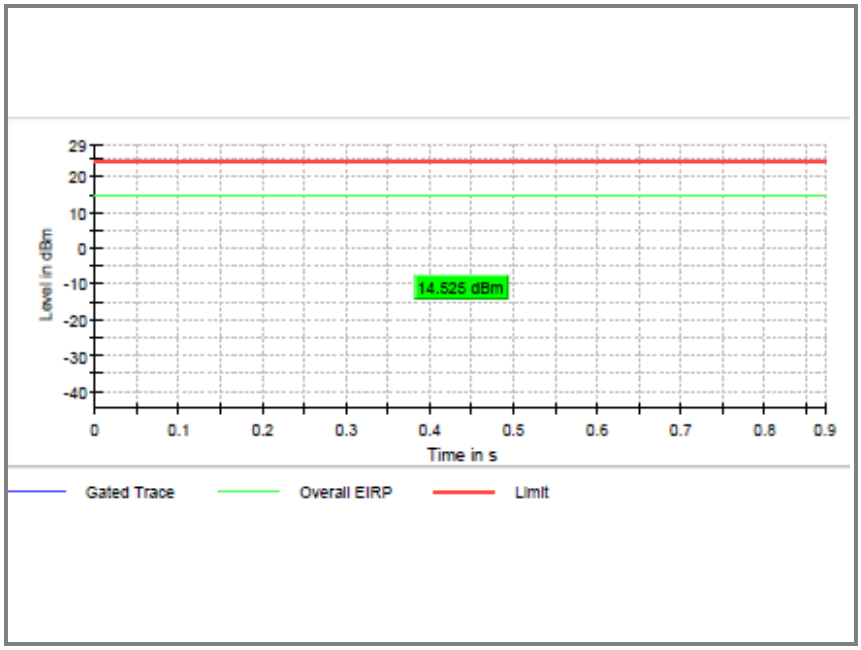
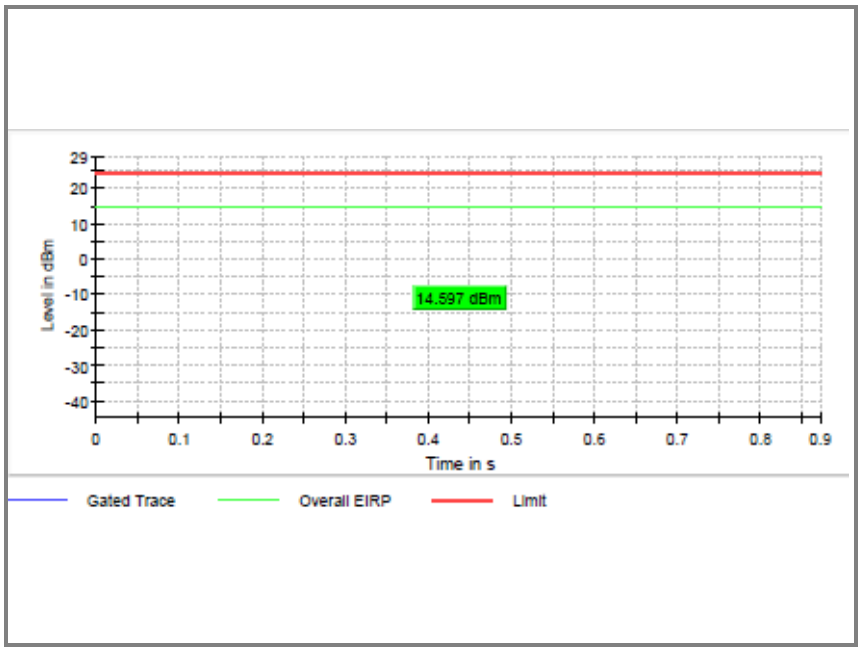
Operation mode: U-NII-2C(802.11a) ANT1

A. Low channel(5500 ㎒)



B. Middle channel(5560 ㎒)



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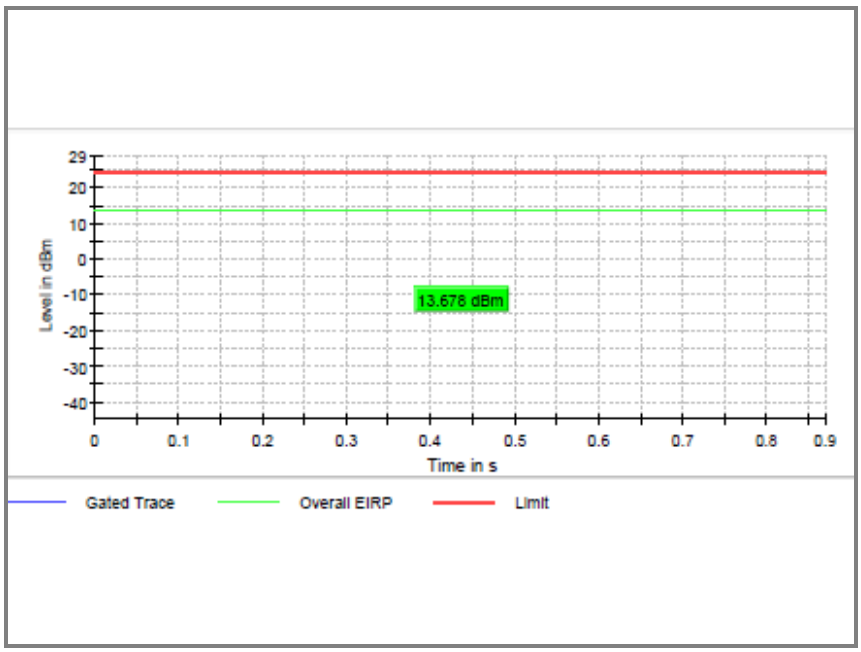
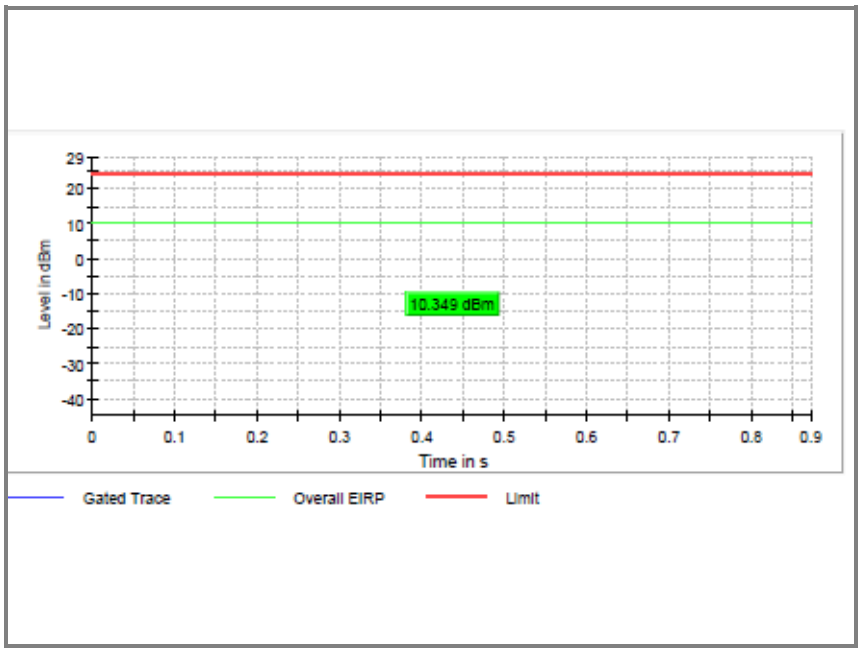
C. High channel(5620 ㎒)



Operation mode: U-NII-2C(802.11a) ANT2

A. Low channel(5500 ㎒)



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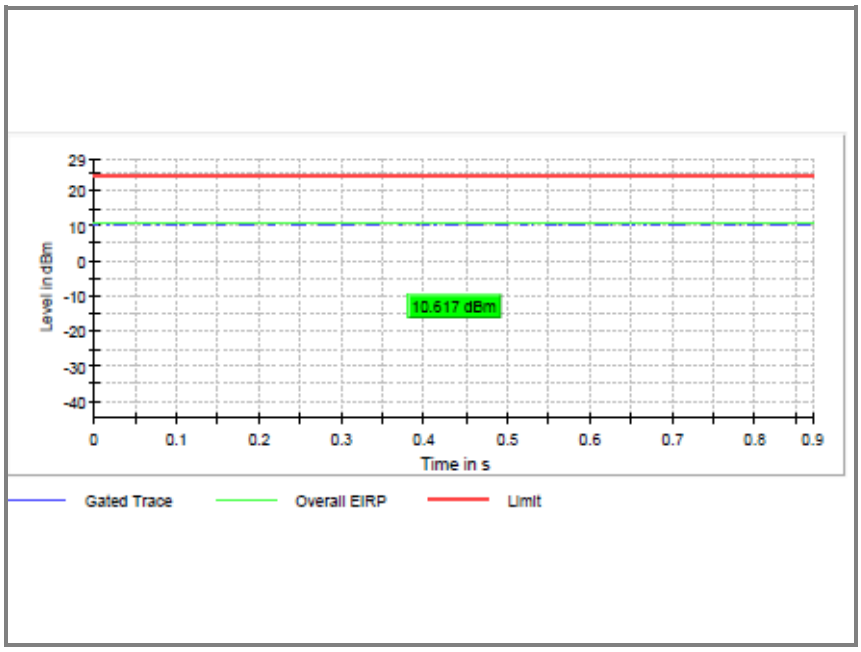
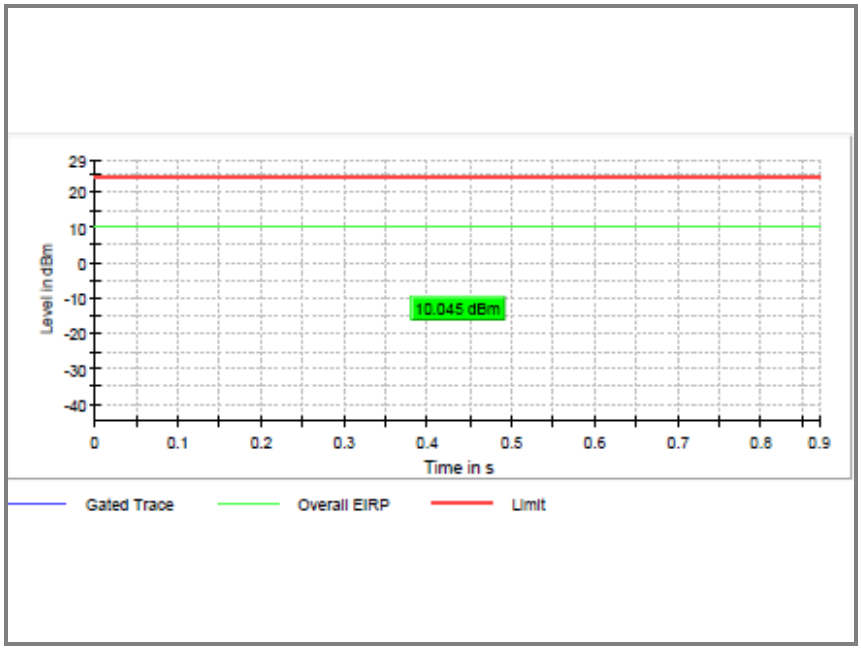
B. Middle channel(5560 ㎒)



C. High channel(5620 ㎒)



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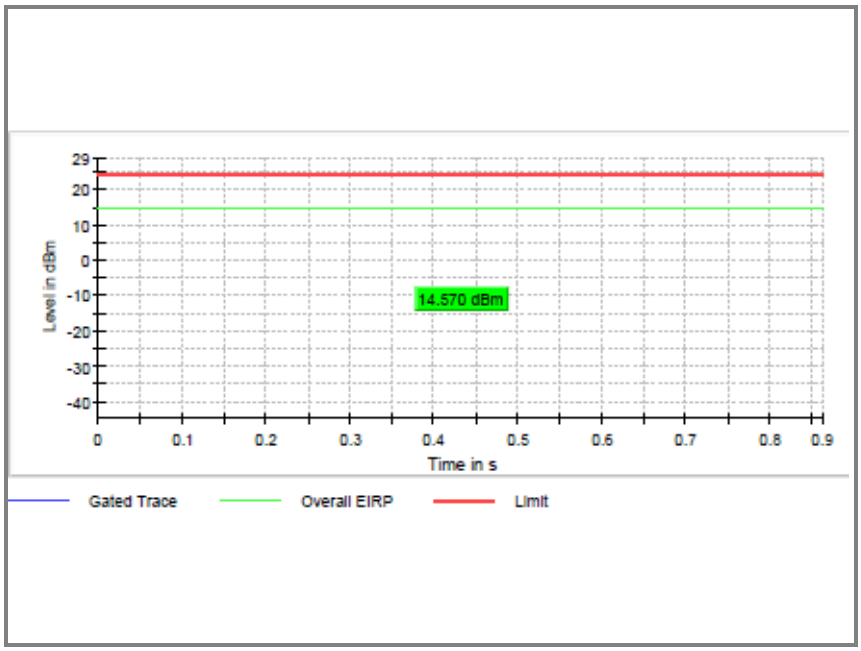
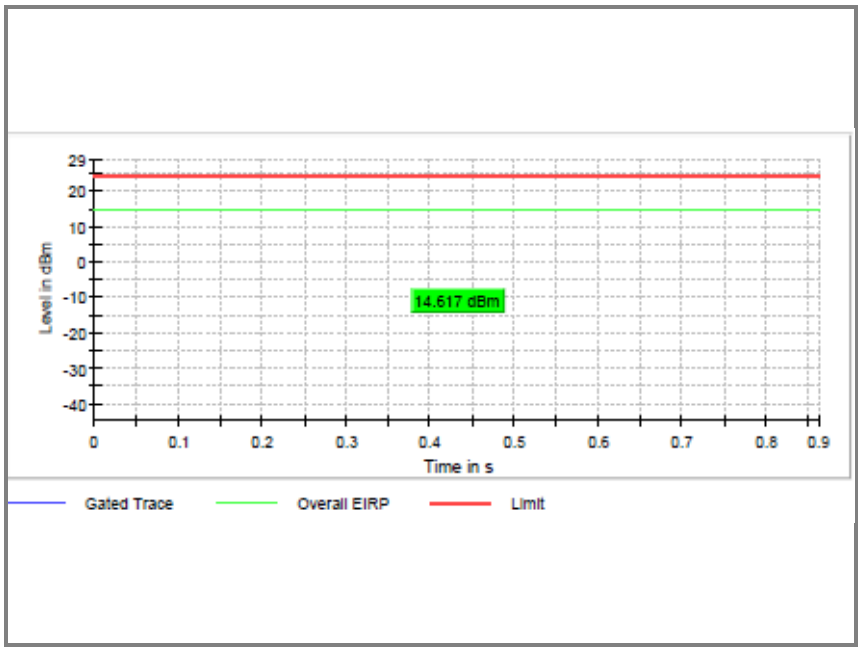
Operation mode: U-NII-2C(n_HT20) ANT1

A. Low channel(5500 ㎒)



B. Middle channel(5560 ㎒)



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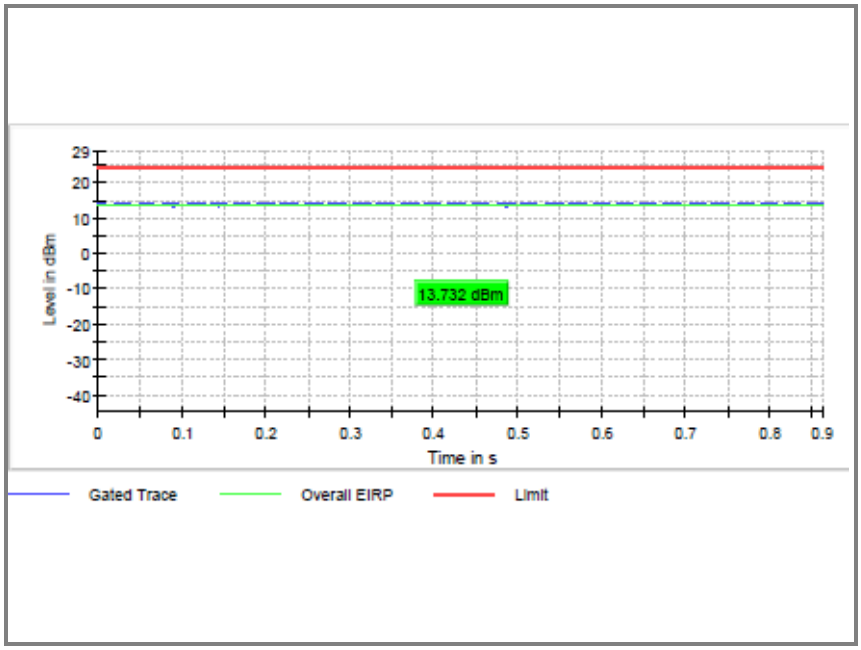
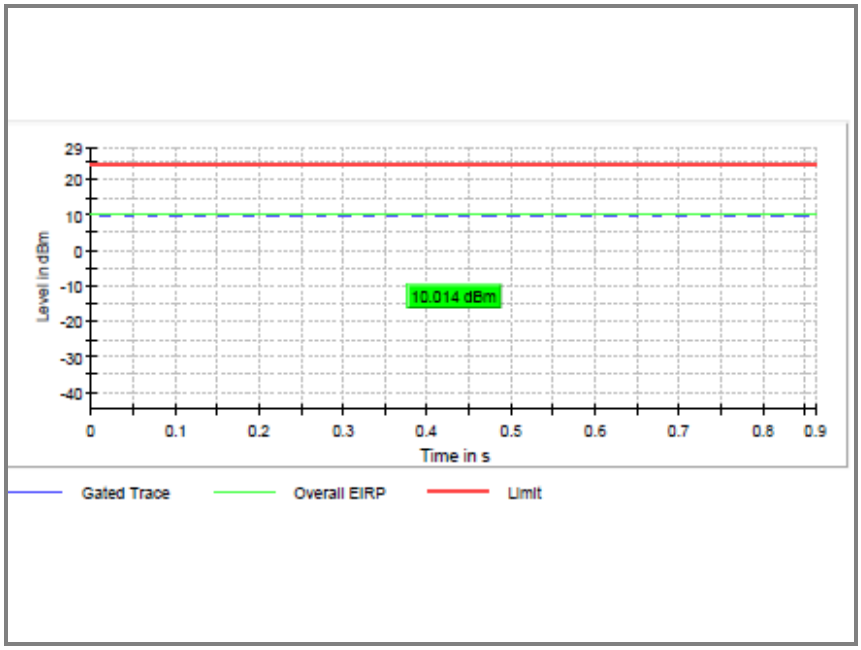
C. High channel(5620 ㎒)



Operation mode: U-NII-2C(n_HT20) ANT2

A. Low channel(5500 ㎒)



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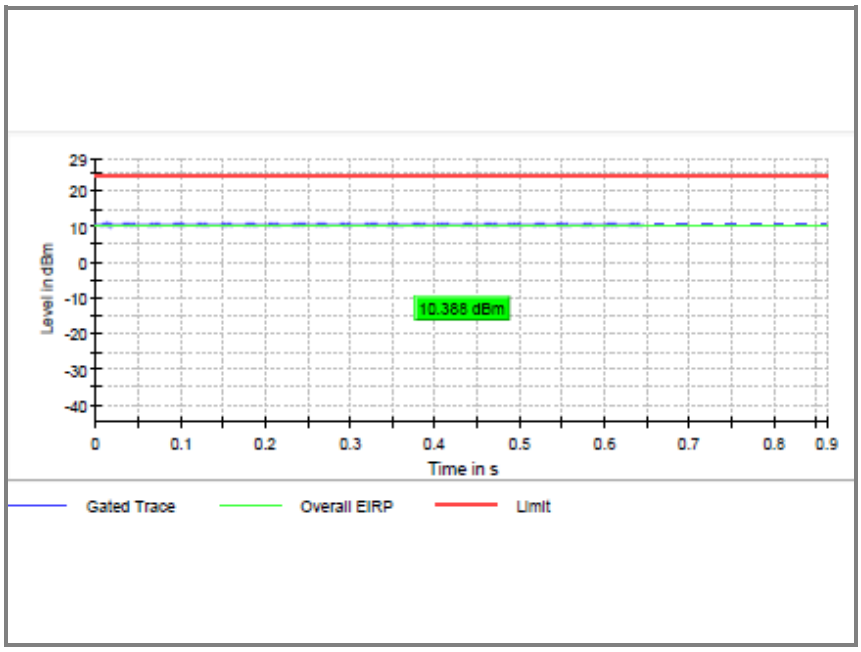
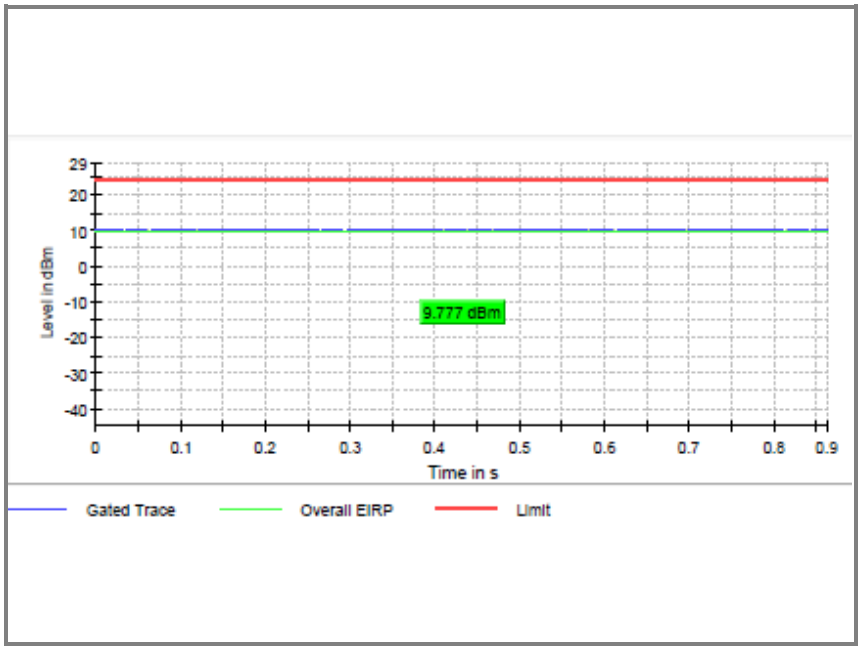
B. Middle channel(5560 ㎒)



C. High channel(5620 ㎒)



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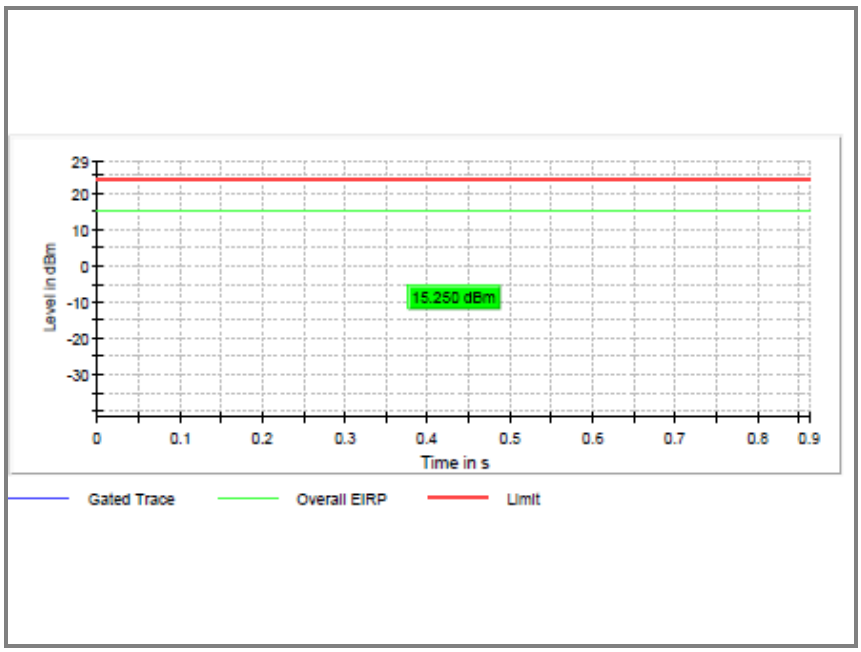
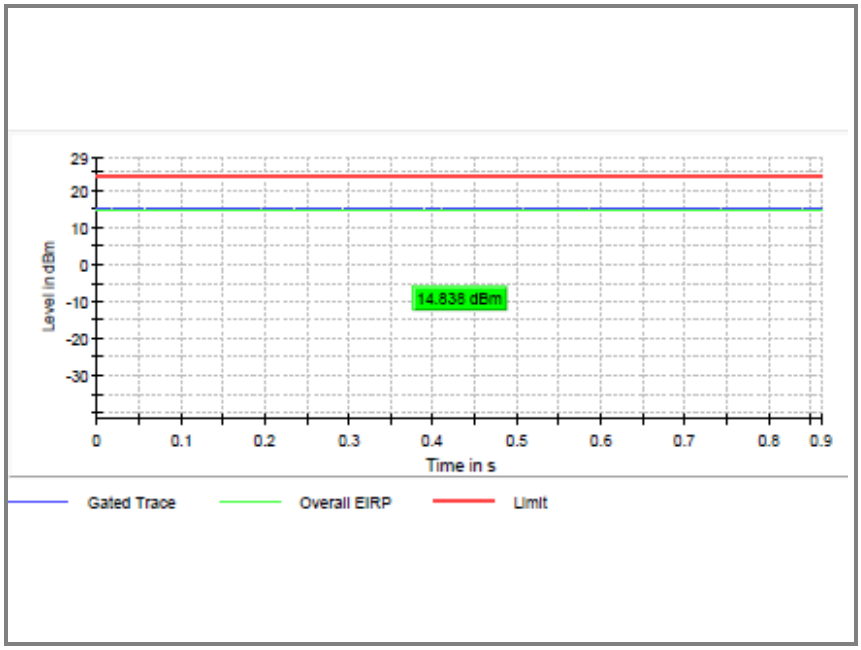
Operation mode: U-NII-2C(n_HT20) Mimo2X2

A. Low channel(5500 ㎒)



B. Middle channel(5560 ㎒)



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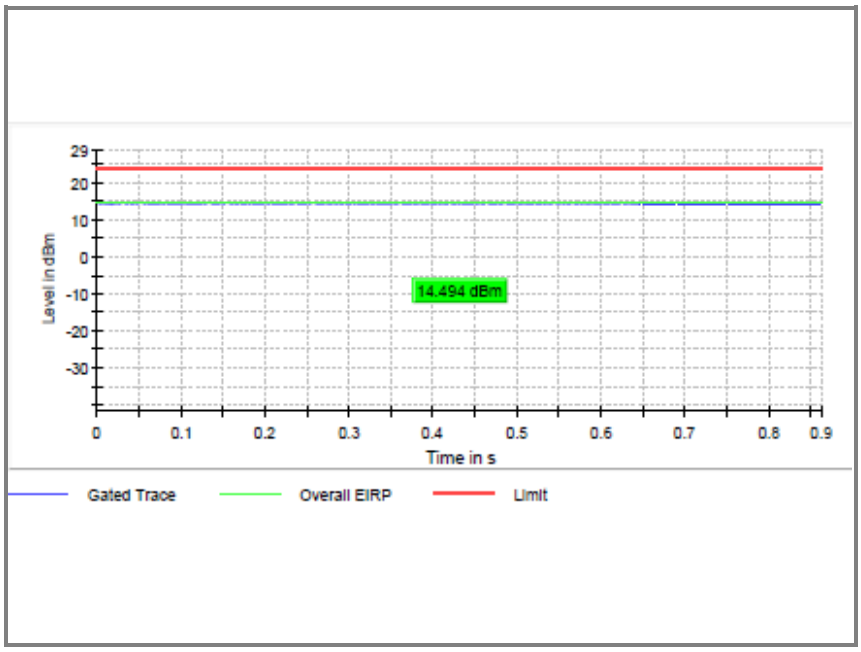
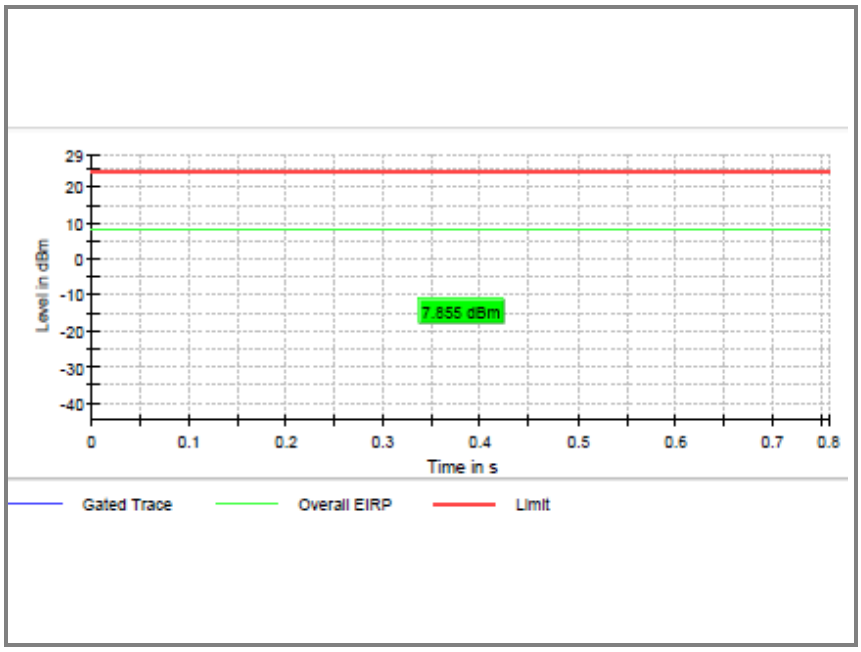
C. High channel(5620 ㎒)



Operation mode: U-NII-2C(n_HT40)ANT1

A. Low channel(5510 ㎒)



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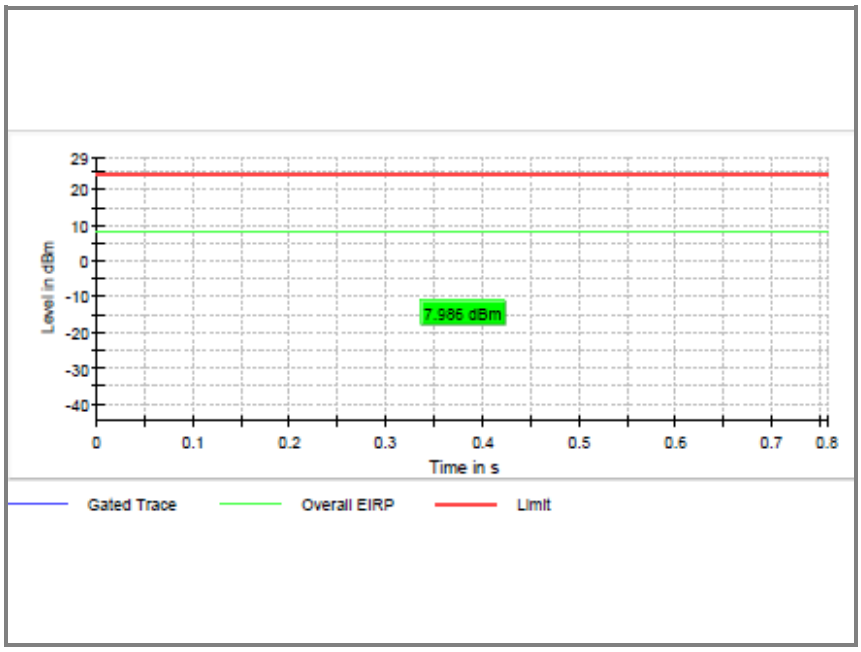
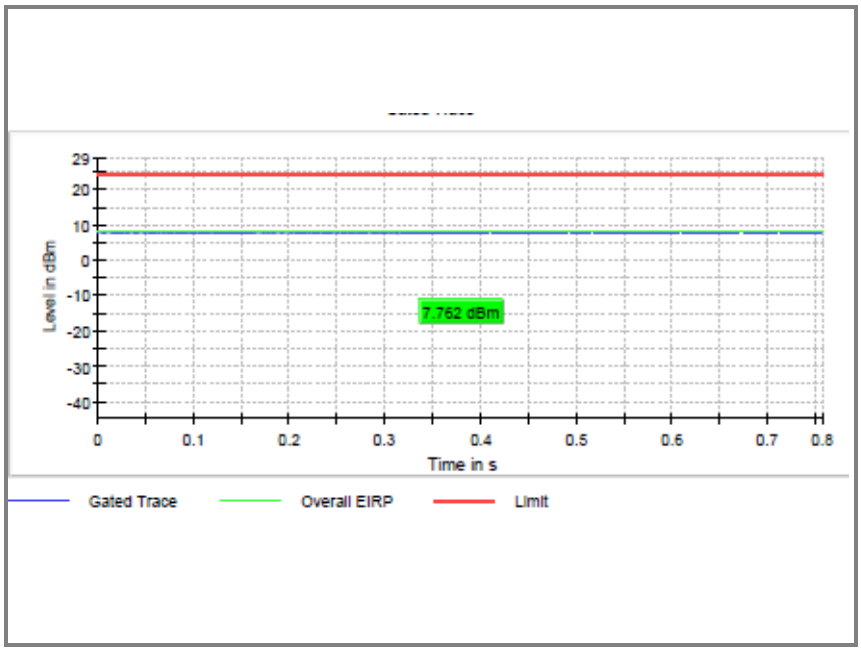
B. Middle channel(5550 ㎒)



C. High channel(5590 ㎒)



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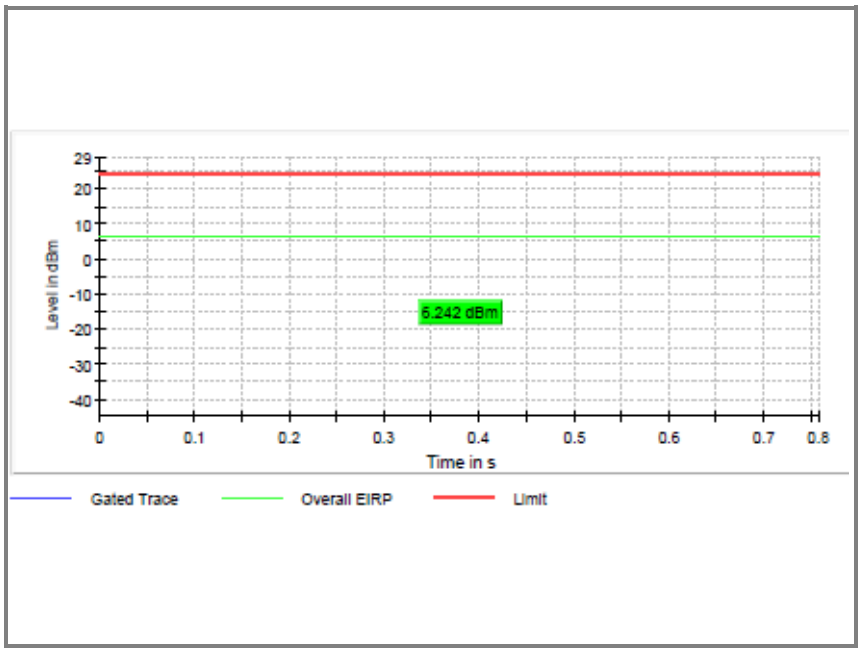
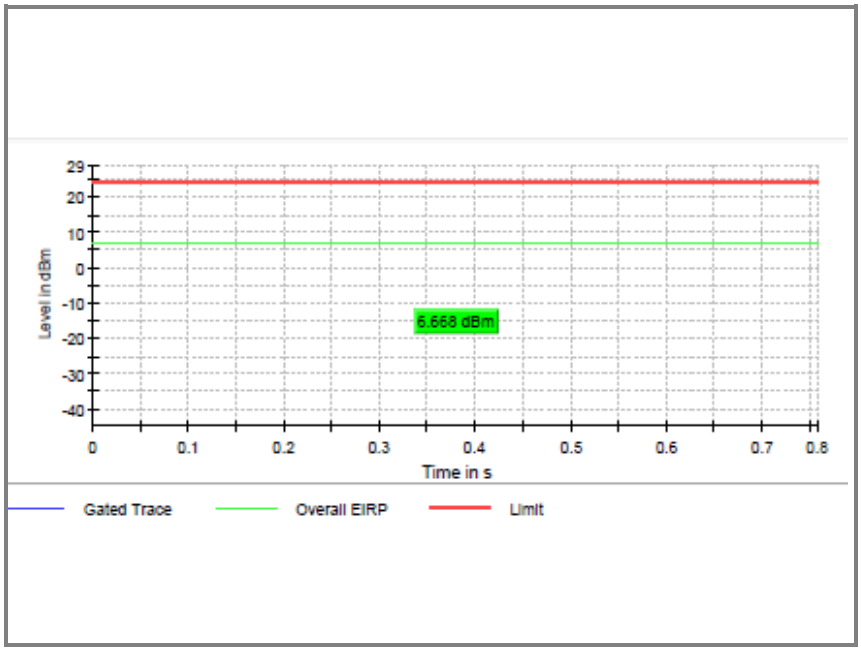
Operation mode: U-NII-2C(n_HT40)ANT2

A. Low channel(5510 ㎒)



B. Middle channel(5550 ㎒)



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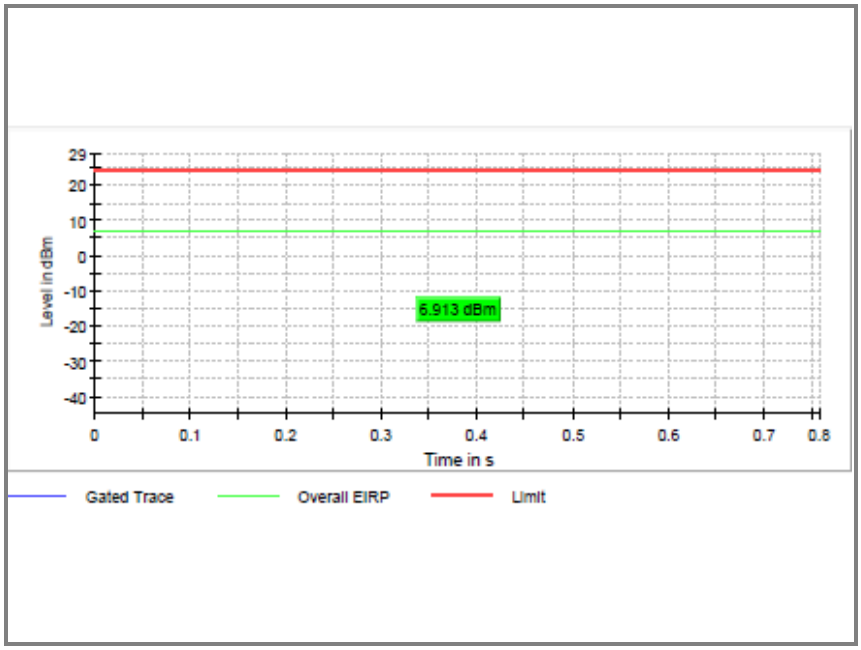
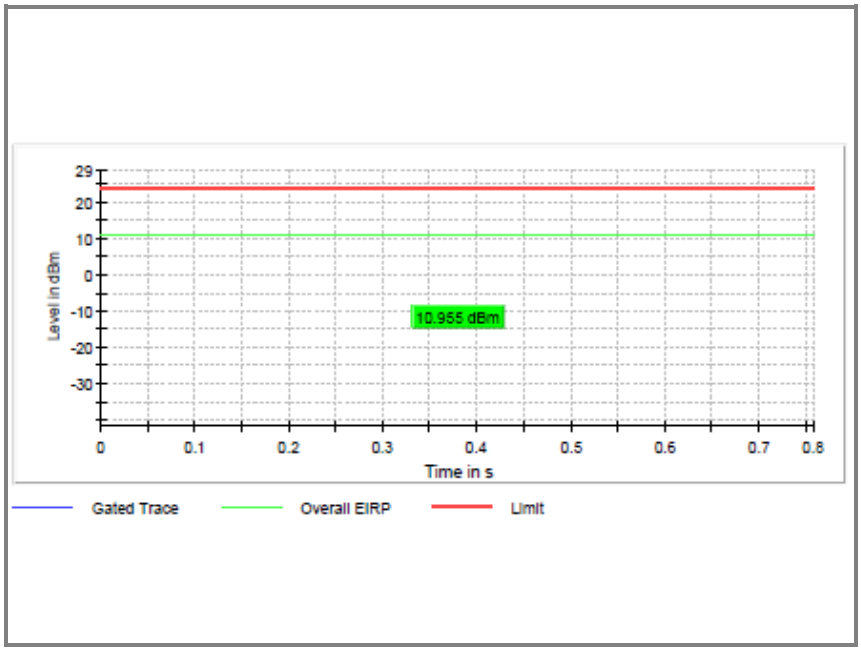
C. High channel(5590 ㎒)



Operation mode: U-NII-2C(n_HT40) Mimo 2X2

A. Low channel(5510 ㎒)



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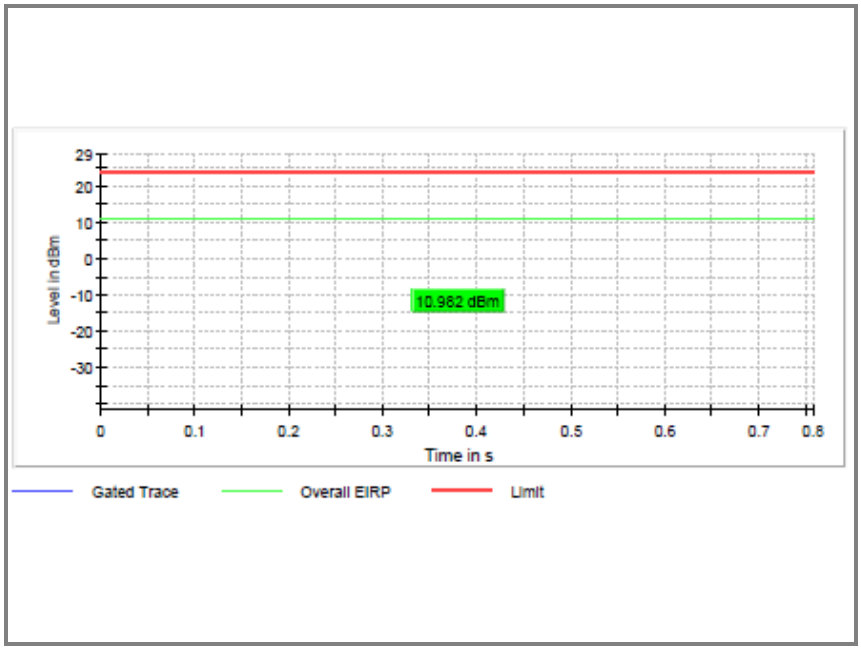
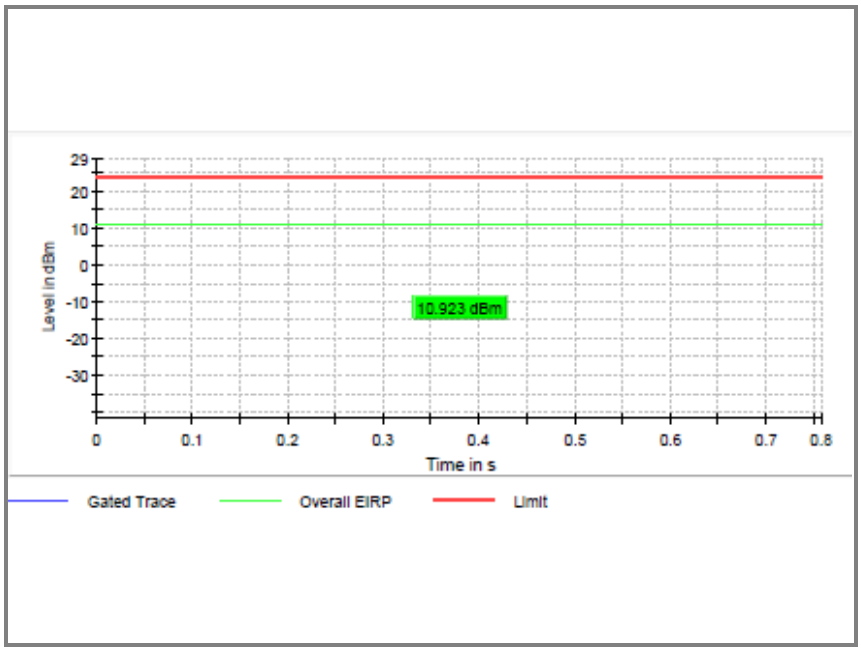
B. Middle channel(5550 ㎒)



C. High channel(5590 ㎒)



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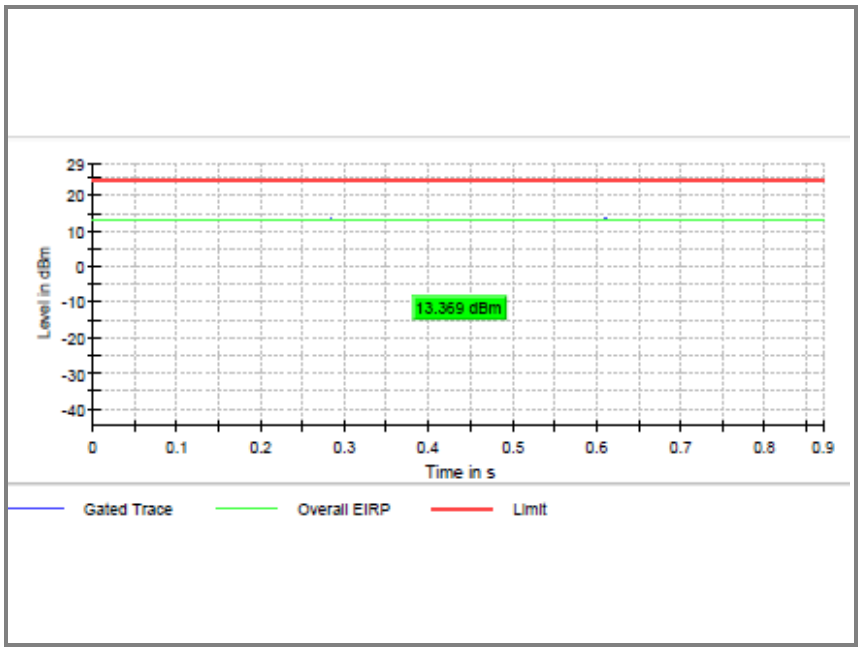
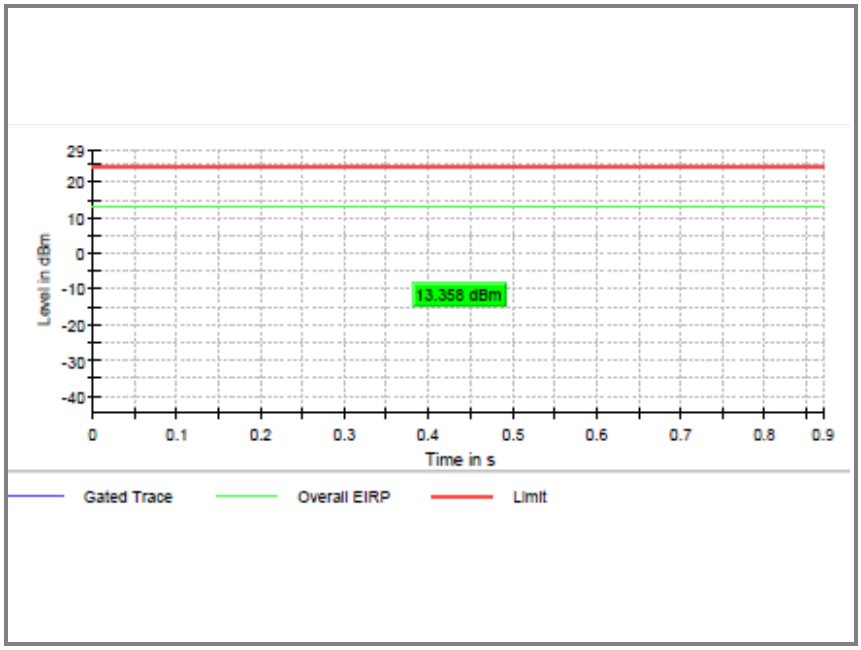
Operation mode: U-NII-3(802.11a) ANT1

A. Low channel(5745 ㎒)



B. Middle channel(5785 ㎒)



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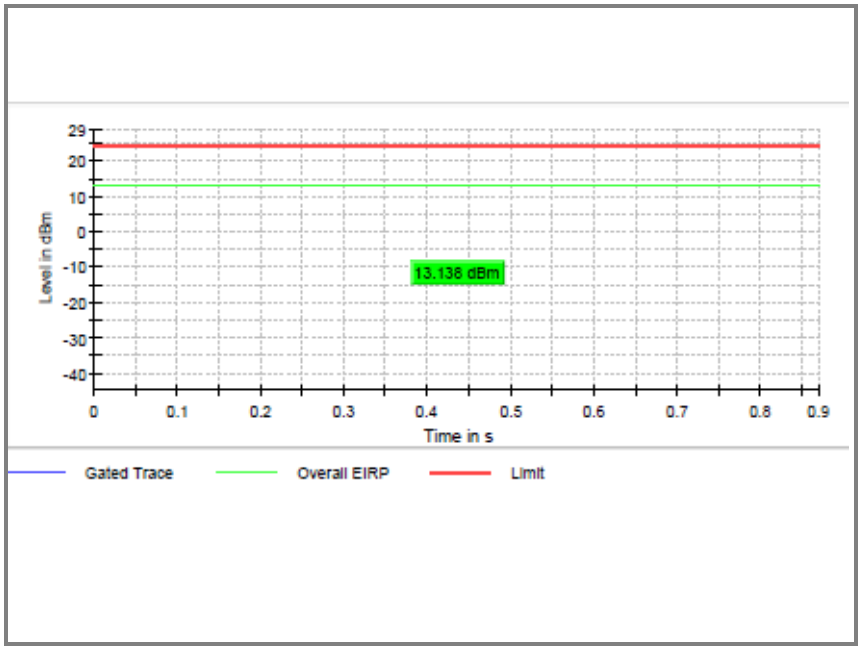
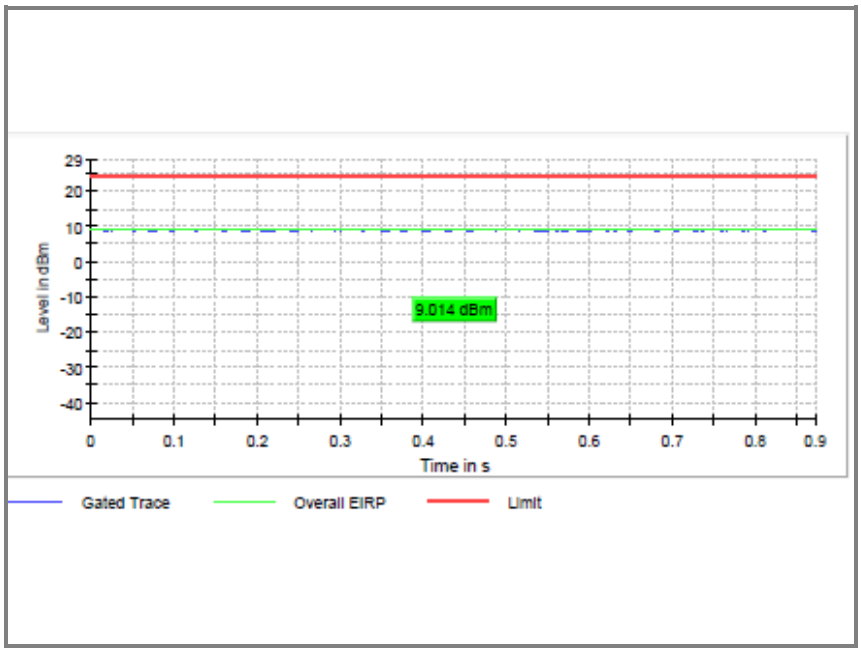
C. High channel(5805 ㎒)



Operation mode: U-NII-3(802.11a) ANT2

A. Low channel(5745 ㎒)



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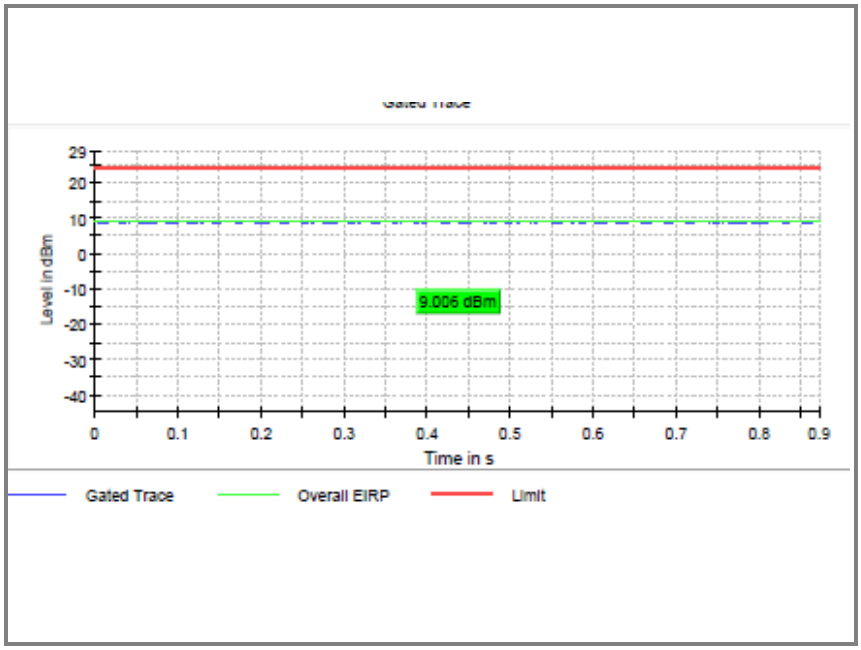
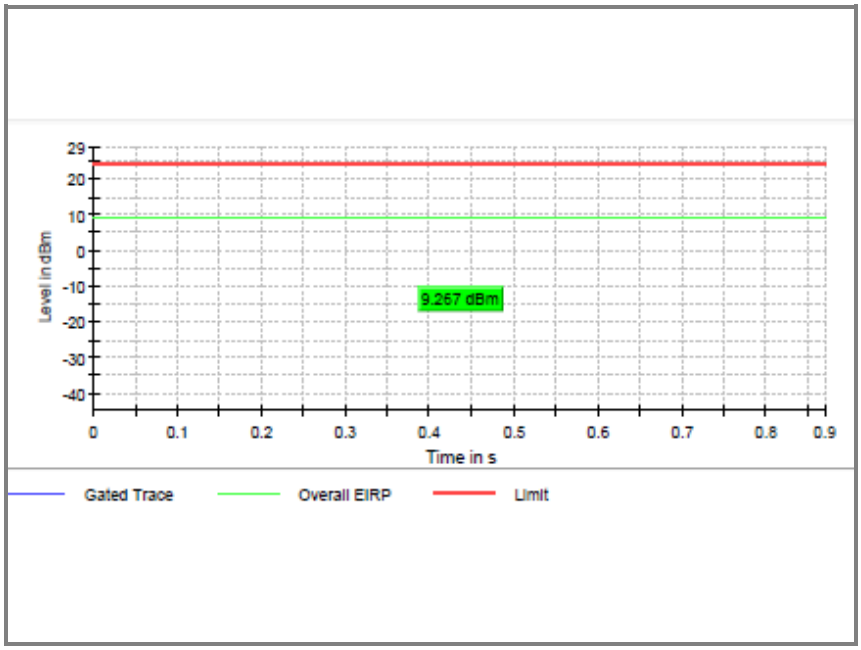
B. Middle channel(5785 ㎒)



C. High channel(5805 ㎒)



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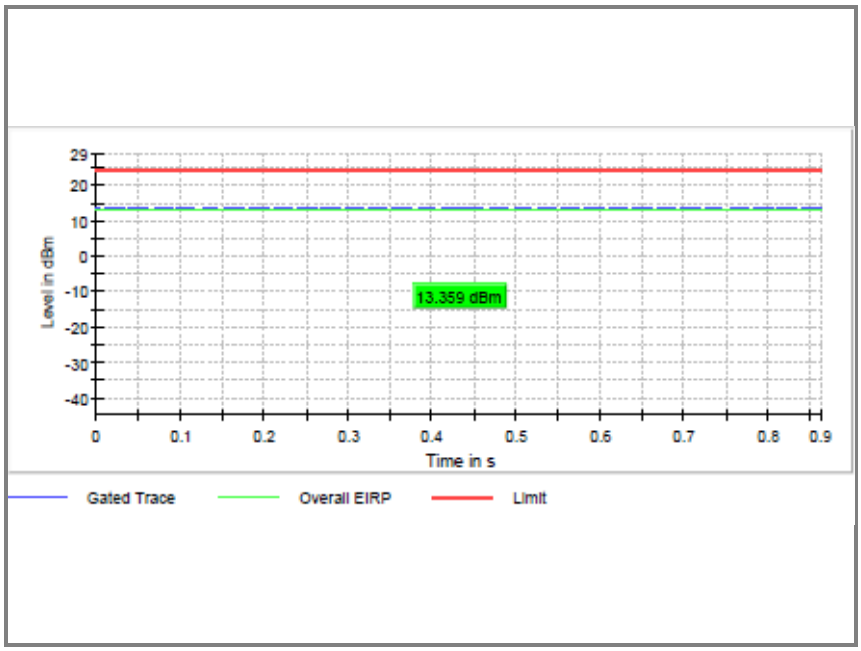
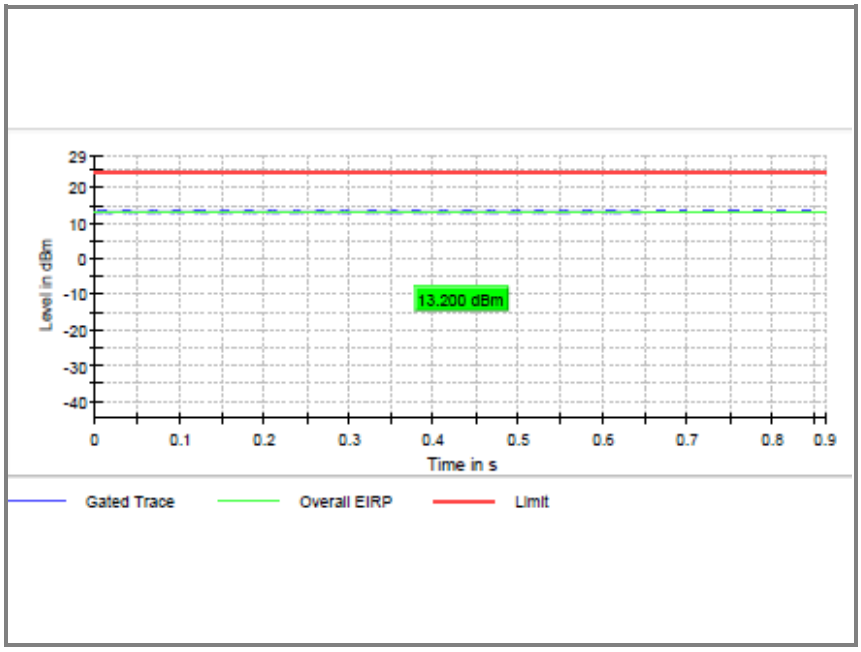
Operation mode: U-NII-3(n_HT20) ANT1

A. Low channel(5745 ㎒)



B. Middle channel(5785 ㎒)



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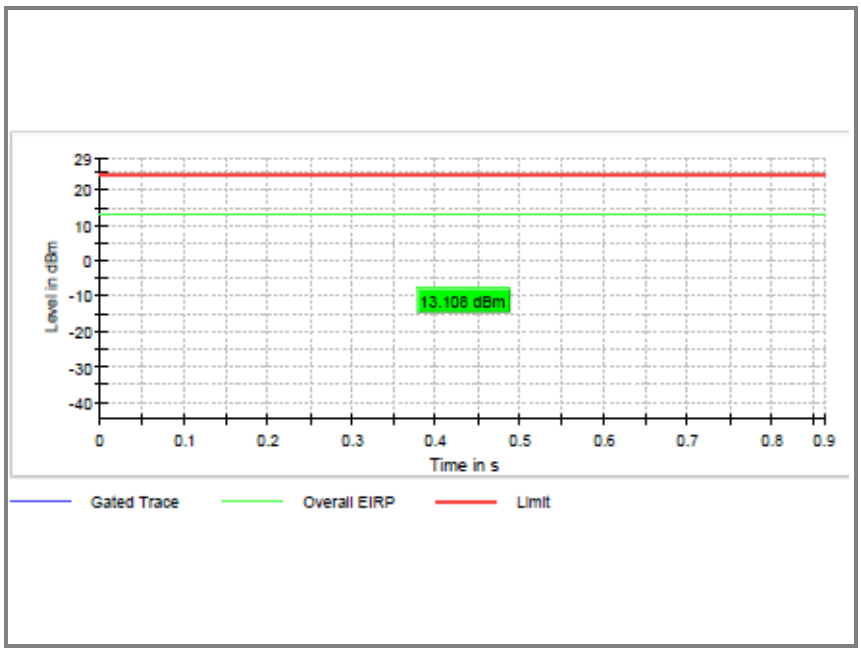
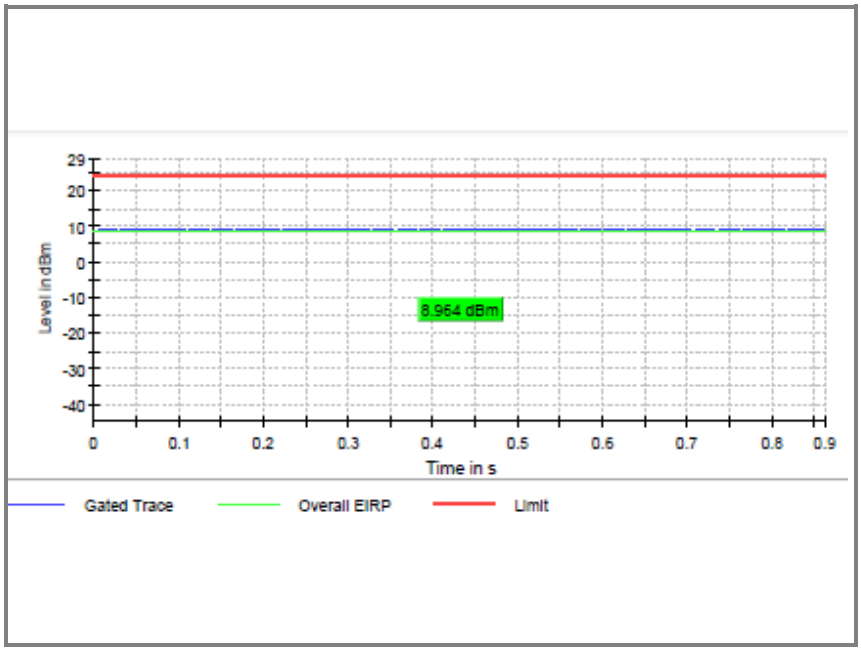
C. High channel(5805 ㎒)



Operation mode: U-NII-3(n_HT20) ANT2

A. Low channel(5745 ㎒)



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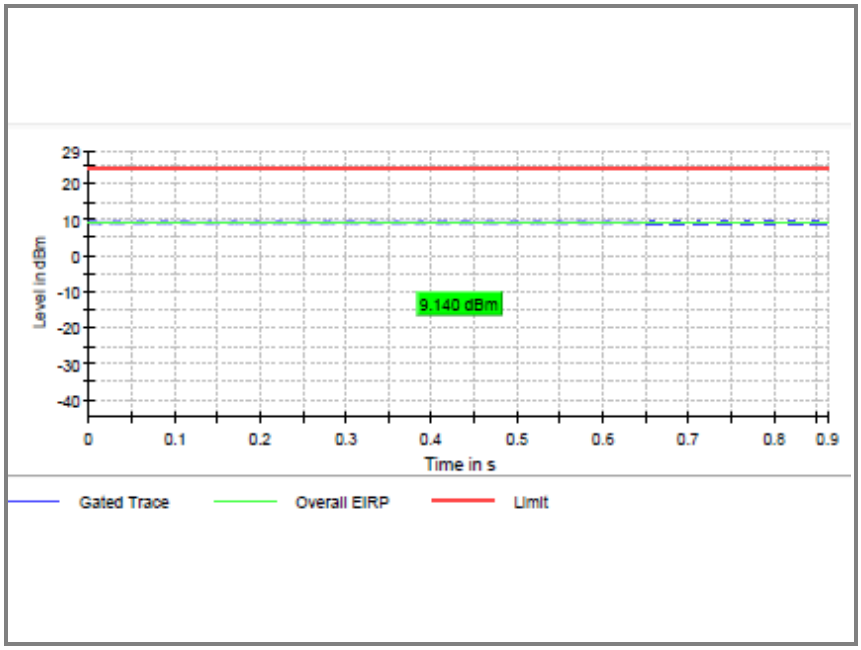
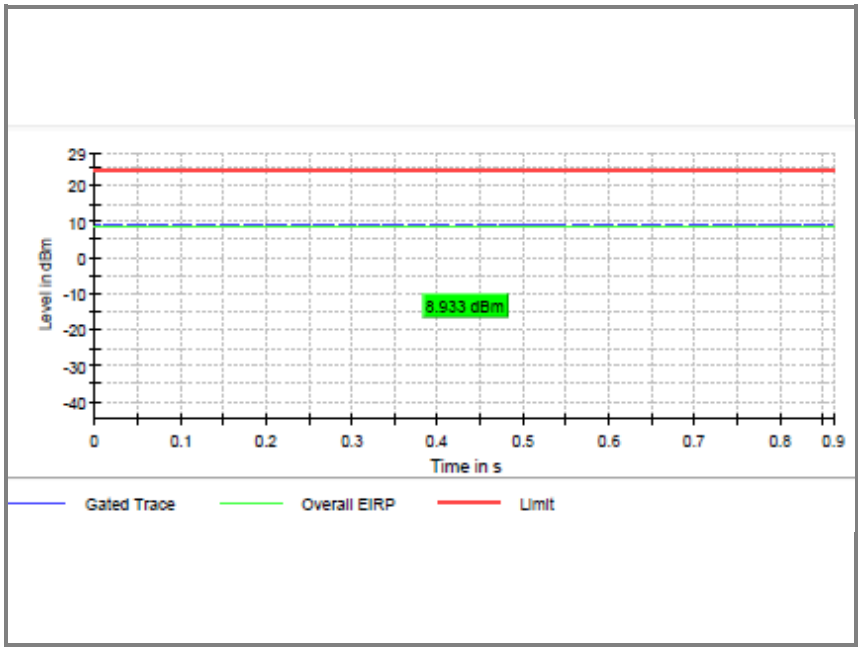
B. Middle channel(5785 ㎒)



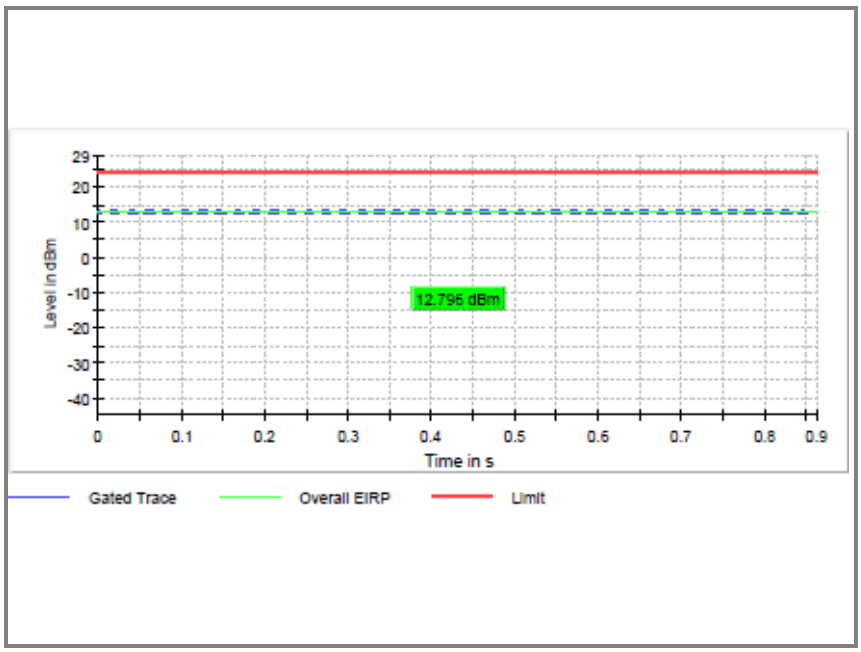
C. High channel(5805 ㎒)



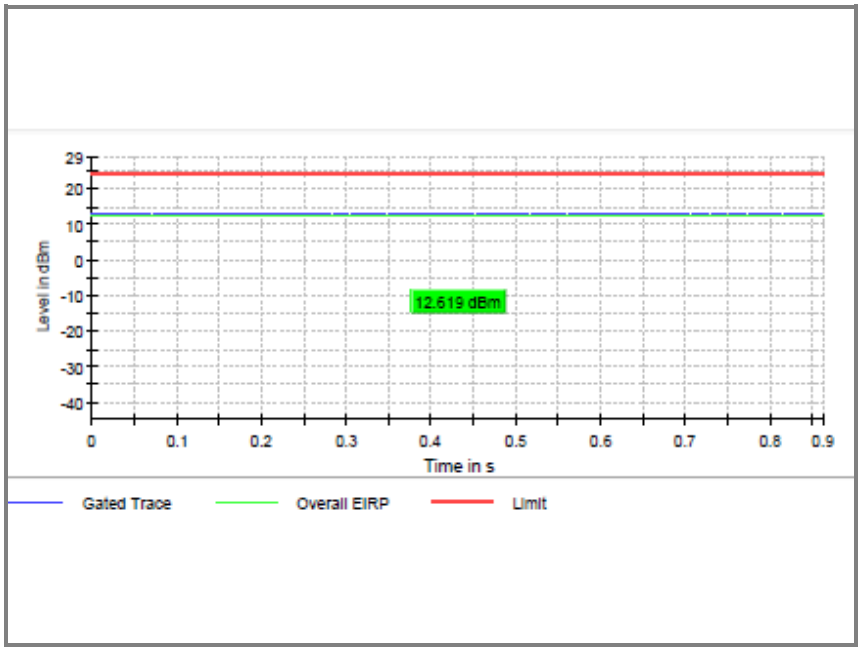
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

Operation mode: U-NII-3(n_HT20) Mimo 2X2

A. Low channel(5745 ㎒)



B. Middle channel(5785 ㎒)



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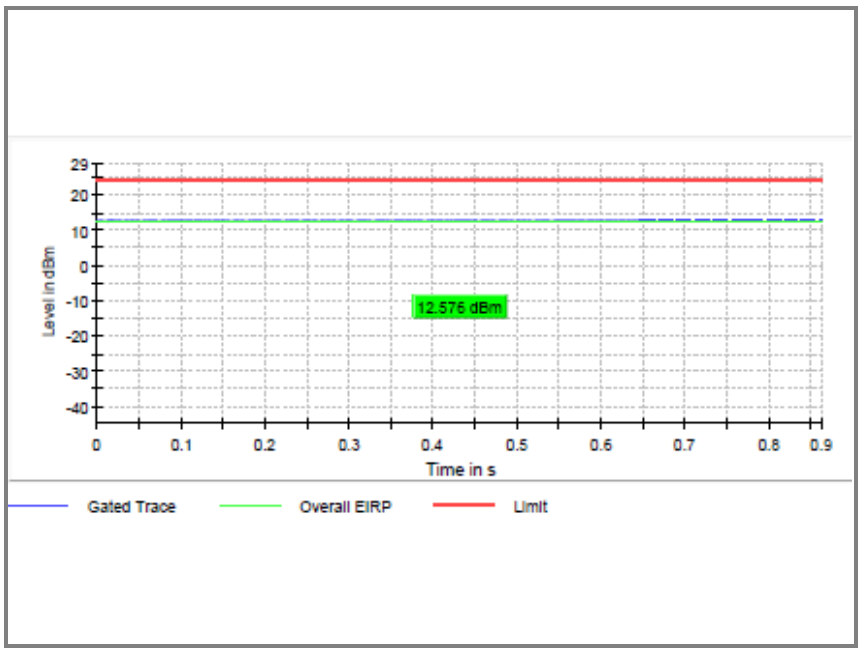
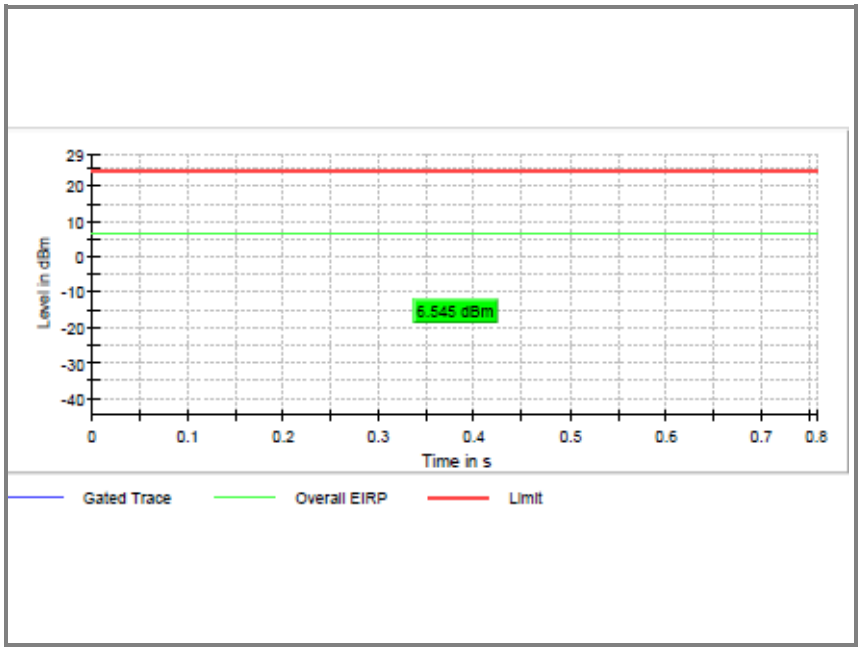
C. High channel(5805 ㎒)



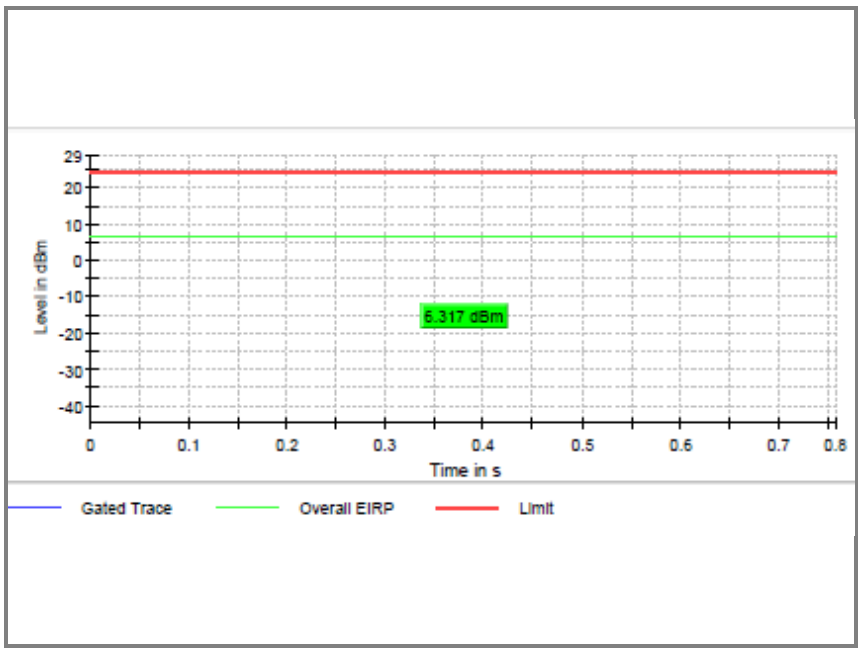
Operation mode: U-NII-3(n_HT40) ANT1

A. Low channel(5755 ㎒)



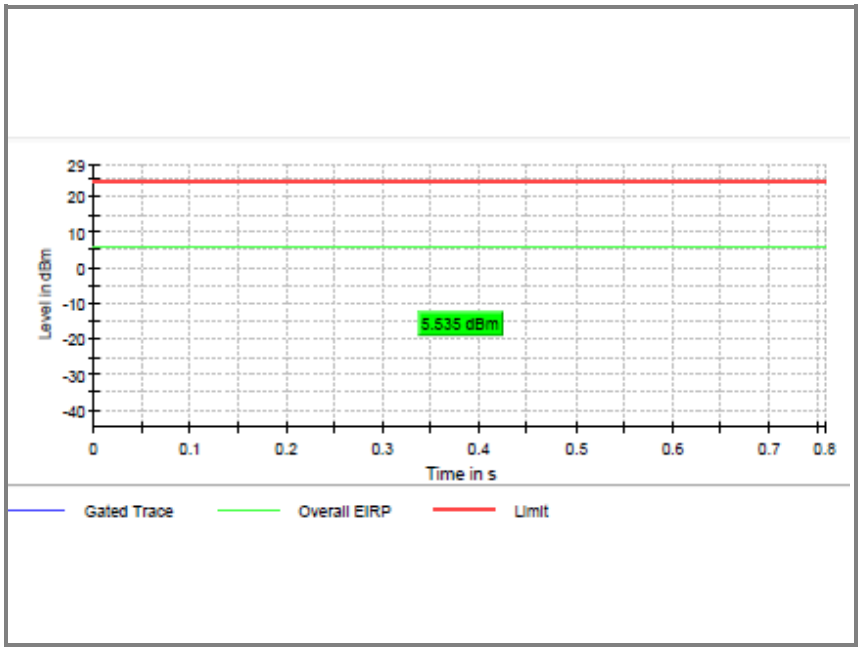
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

B. High channel(5795 ㎒)



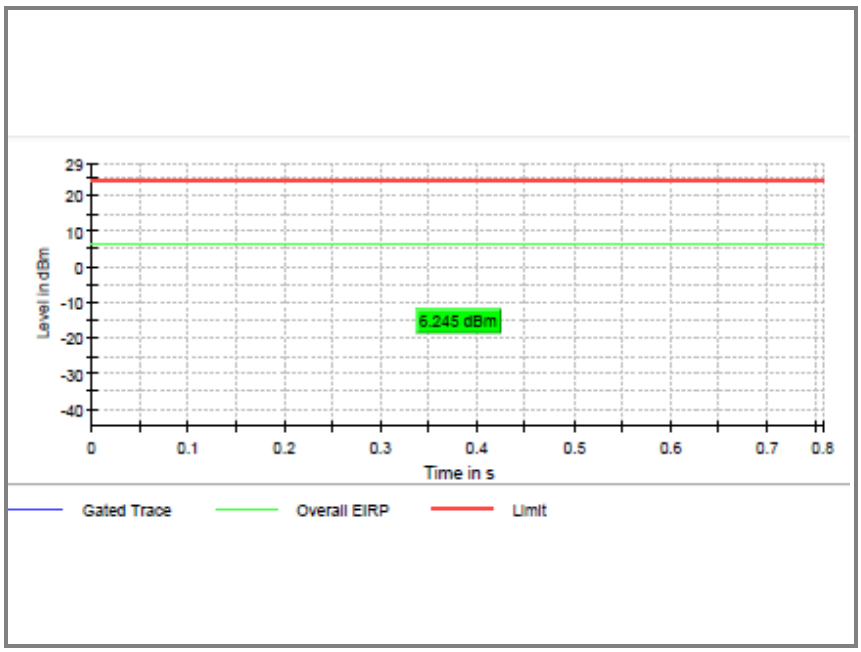
Operation mode: U-NII-3(n_HT40) ANT2

A. Low channel(5755 ㎒)



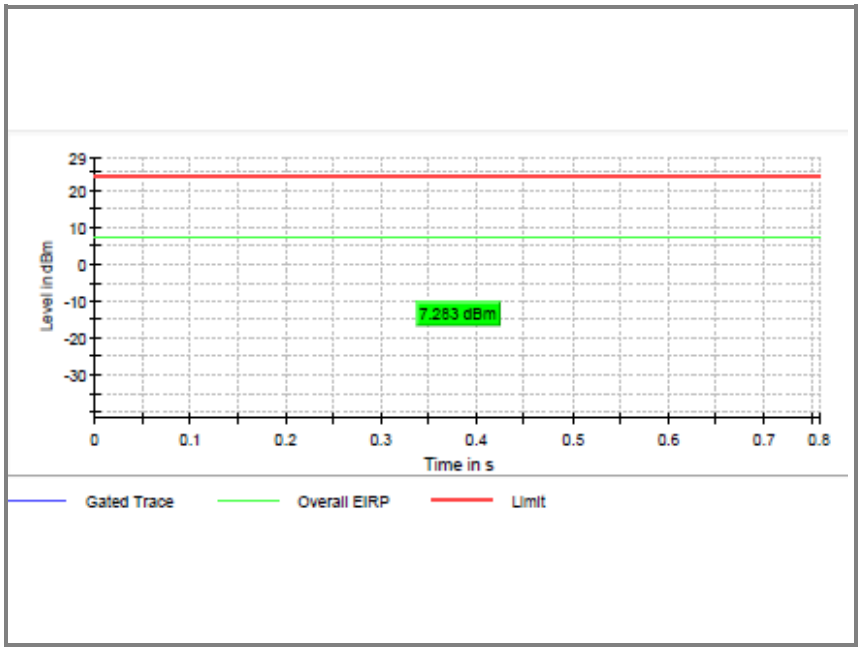
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

B. High channel(5795 ㎒)



Operation mode: U-NII-3(n_HT40) Mimo 2X2

A. Low channel(5755 ㎒)



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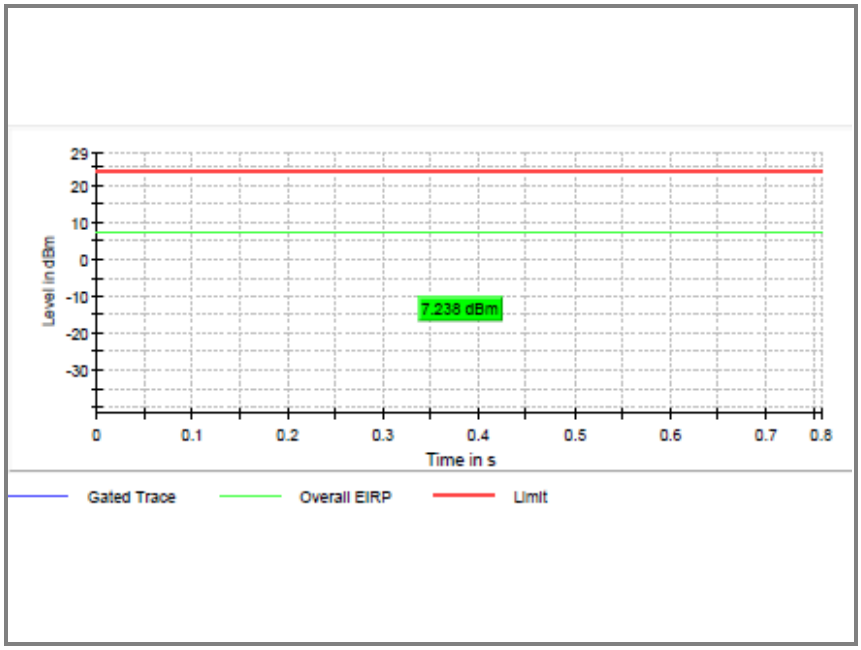
B. High channel(5795 ㎒)



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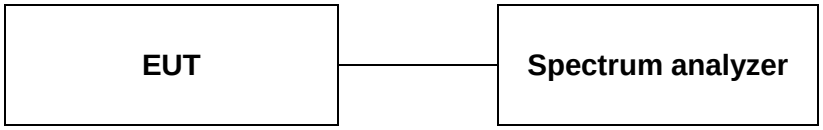
7. power spectral density

7.1. Test setup



7.2. Test Overview and Limit

Frequency Band	Limit
5150-5250MHz	The power spectral density less than 11dBm/1MHz
5250-5350MHz	The power spectral density less than 11dBm/1MHz
5470-5725MHz	The power spectral density less than 11dBm/1MHz
5725-5850MHz	The power spectral density less than 30dBm/500kHz

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7.3. Test procedure (KDB 789033)

1. Create an average power spectrum for the EUT operating mode being tested by following the instructions in II.E.2. for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, “Compute power….” (This procedure is required even if the maximum conducted output power measurement was performed using a power meter, method PM.)

2. Use the peak search function on the instrument to find the peak of the spectrum and record its value.

3. Make the following adjustments to the peak value of the spectrum, if applicable:
a) If Method SA-2 or SA-2 Alternative was used, add 10 log (1/x), where x is the duty cycle, to the peak of the spectrum.

b) If Method SA-3 Alternative was used and the linear mode was used in II.E.2.g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.
4. The result is the Maximum PSD over 1 MHz reference bandwidth.

5. For devices operating in the bands 5.15−5.25 GHz, 5.25−5.35 GHz, and 5.47−5.725 GHz, the preceding procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in Section 15.407(a)(5). For devices operating in the band 5.725−5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

a) Set RBW ≥ 1/*T*, where *T* is defined in II.B.l.a).

b) Set VBW ≥ 3 RBW.

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10 log (500 kHz/RBW) to the measured result, whereas RBW (<500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10 log (1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.
Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the II.F.5.c) and II.F.5.d), since RBW=100 kHz is available on nearly all spectrum analyzers.

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7.4. Test results

Ambient temperature: 21℃
Relative humidity: 45% R.H.

Mode	Frequency (㎒)	Power Spectral Density (dB m /1 ㎒)			Limit (dB m /1 ㎒)
		ANT1	ANT2	Mimo 2X2	
U-NII-1(802.11a)	5 180	3.64	-3.06		11dBm
	5 220	3.73	-3.07		
	5 240	3.93	-3.27		
U-NII-1(n_HT20)	5 180	3.39	-1.28	3.62	
	5 220	3.56	-1.43	4.05	
	5 240	3.73	-1.53	4.30	
U-NII-1(n_HT40)	5 190	-6.47	-8.03	-3.42	
	5 230	-6.10	-8.44	-3.29	
U-NII-2A(802.11a)	5 260	3.41	-0.44		11dBm
	5 300	3.68	-1.08		
	5 320	4.19	-0.56		
U-NII-2A(n_HT20)	5 260	3.27	-1.24	3.91	
	5 300	4.07	-1.13	4.56	
	5 320	4.06	-1.18	4.58	
U-NII-2A(n_HT40)	5 270	-6.27	-9.02	-3.02	
	5 310	-6.47	-9.34	-3.19	
U-NII-2C(802.11a)	5 500	5.13	1.05		11dBm
	5 560	5.09	1.18		
	5 620	4.12	0.60		
U-NII-2C(n_HT20)	5 500	5.02	0.43	5.64	
	5 560	4.92	0.62	5.07	
	5 620	4.06	0.02	4.68	
U-NII-2C(n_HT40)	5 510	-4.97	-6.42	-1.62	
	5 550	-4.74	-5.95	-1.52	
	5 590	-5.33	-5.95	-1.88	

Mode	Frequency (㎒)	Power Spectral Density (dB m /500kHz)			Limit (dB m /500kHz)
		ANT1	ANT2	Mimo 2X2	
U-NII-3(802.11a)	5 745	1.14	-3.42		30
	5 785	1.03	-3.51		
	5 805	0.85	-3.18		
U-NII-3(n_HT20)	5 745	0.95	-3.67	0.34	
	5 785	0.63	-3.59	0.03	
	5 805	0.57	-3.75	-0.05	
U-NII-3(n_HT40)	5 755	-9.25	-10.18	-8.38	
	5 795	-9.66	-9.60	-8.53	

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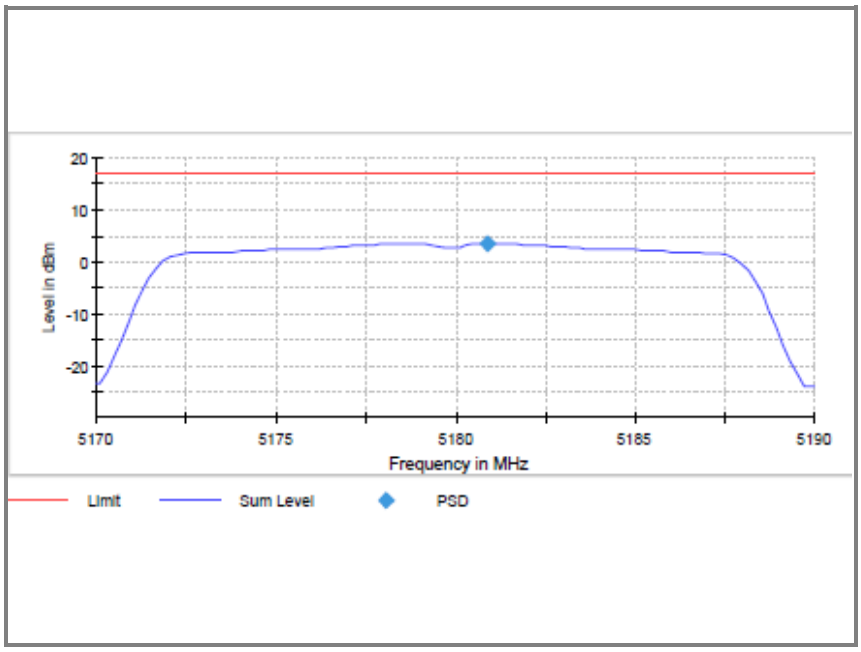
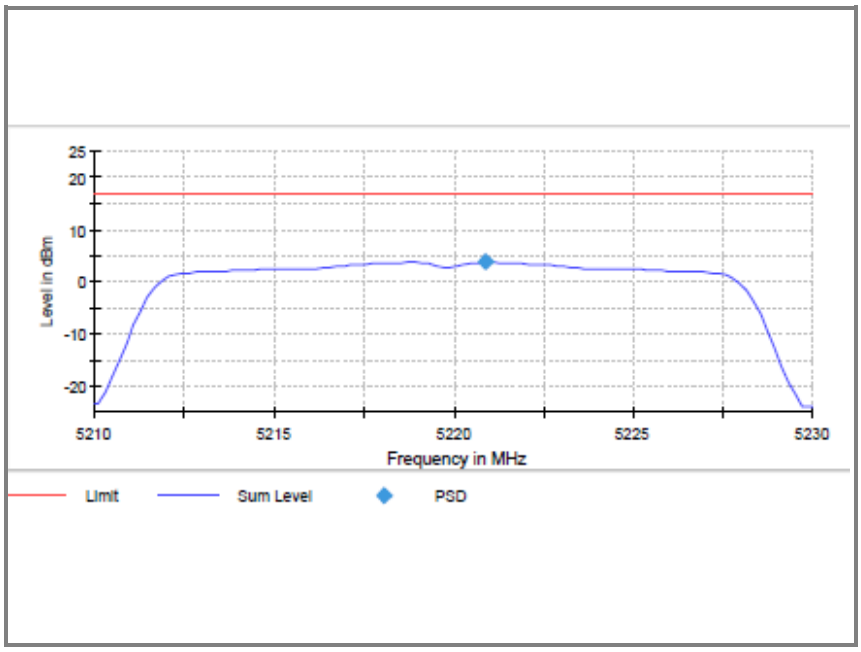
Operation mode: U-NII-1(802.11a)ANT1

A. Low channel(5180 ㎒)



B. Middle channel(5220 ㎒)



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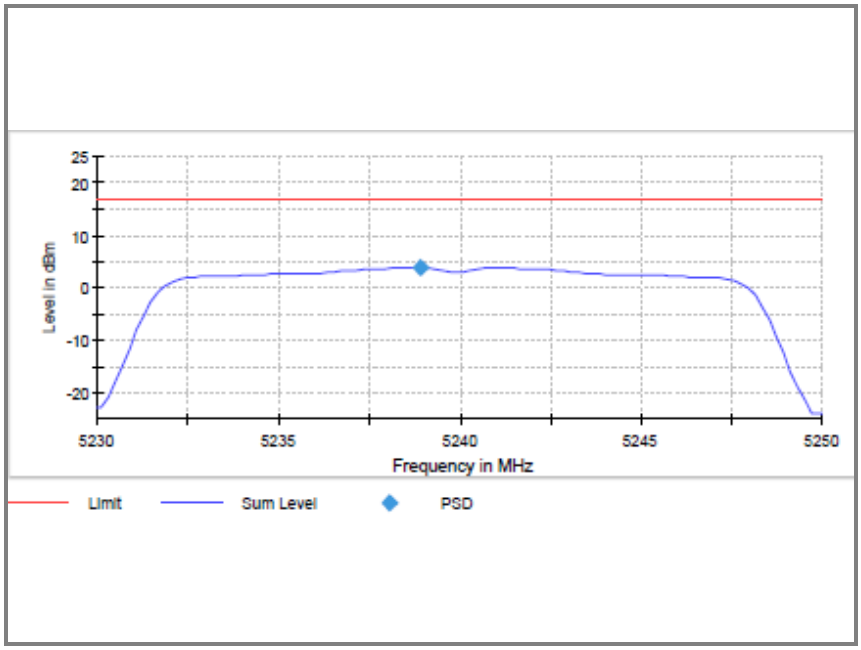
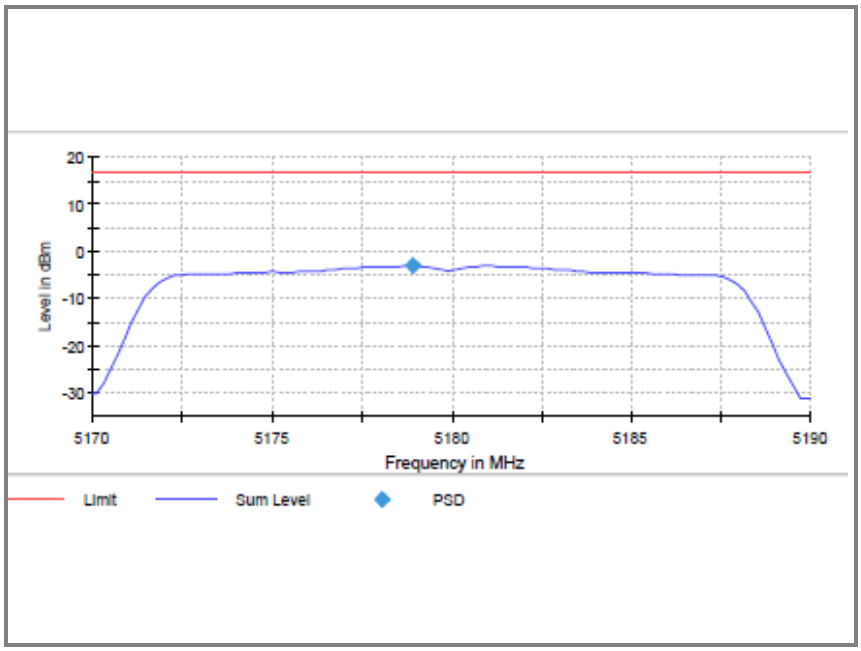
C. High channel(5240 ㎒)



Operation mode: U-NII-1(802.11a)ANT2

A. Low channel(5180 ㎒)



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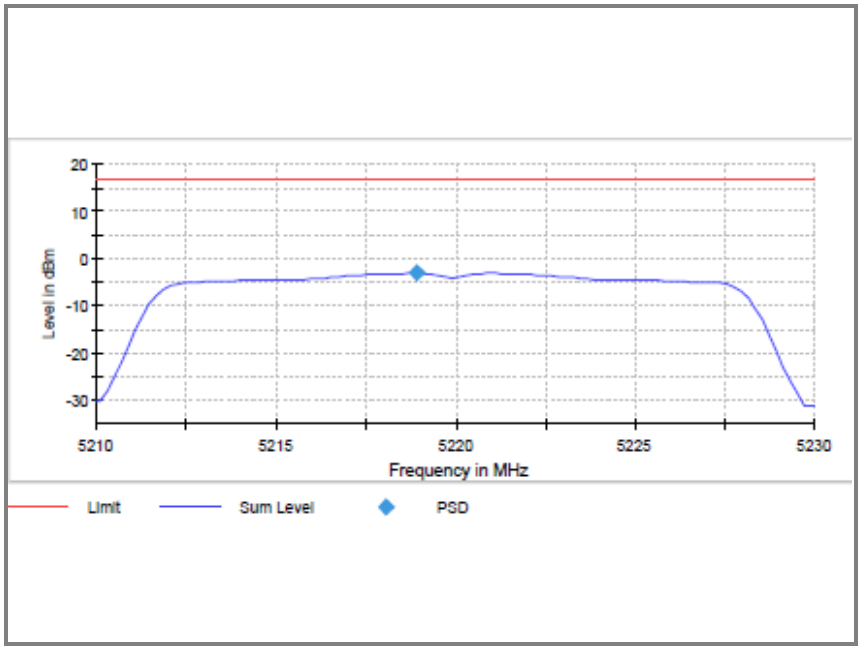
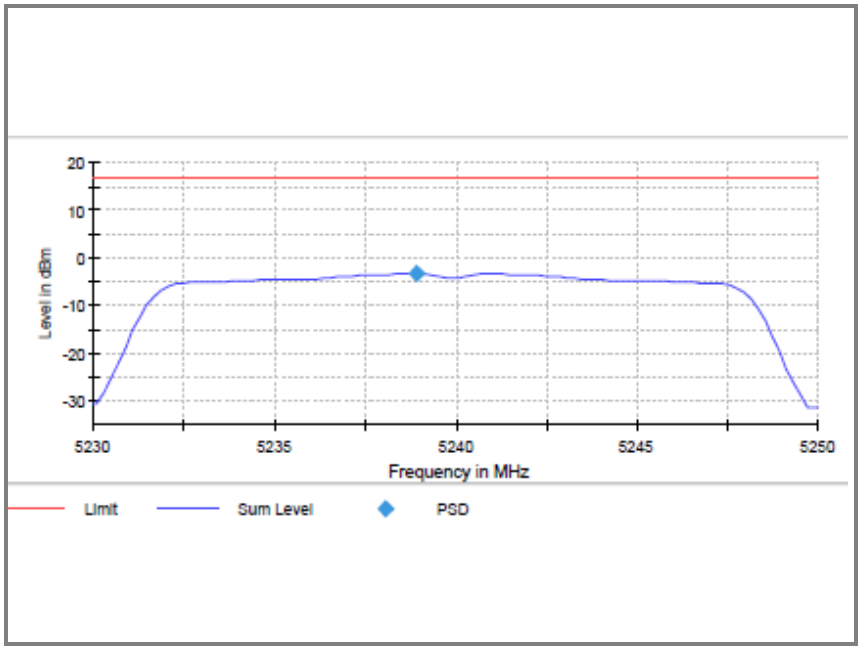
B. Middle channel(5220 ㎒)



C. High channel(5240 ㎒)



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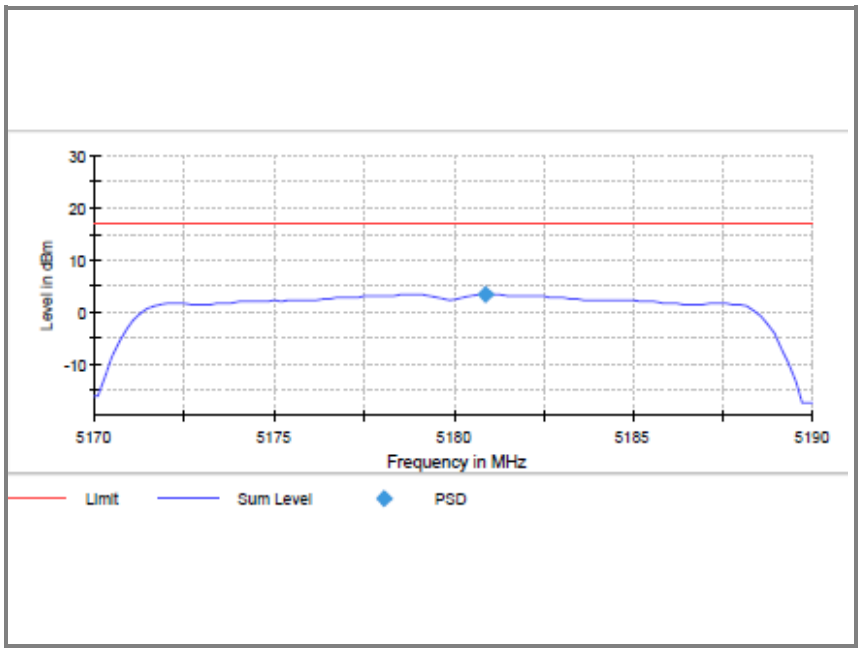
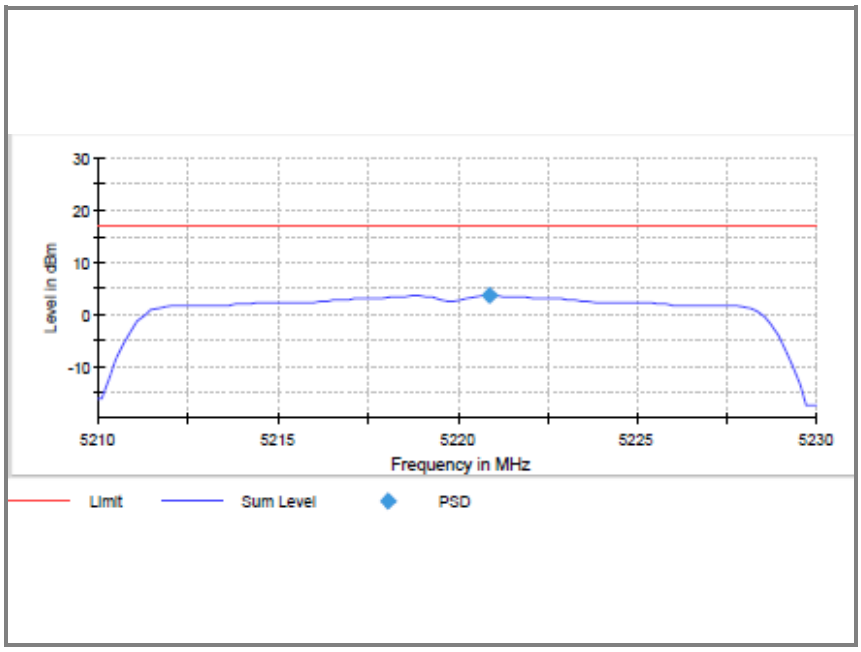
Operation mode: U-NII-1(n_HT20)ANT1

A. Low channel(5180 ㎒)



B. Middle channel(5220 ㎒)



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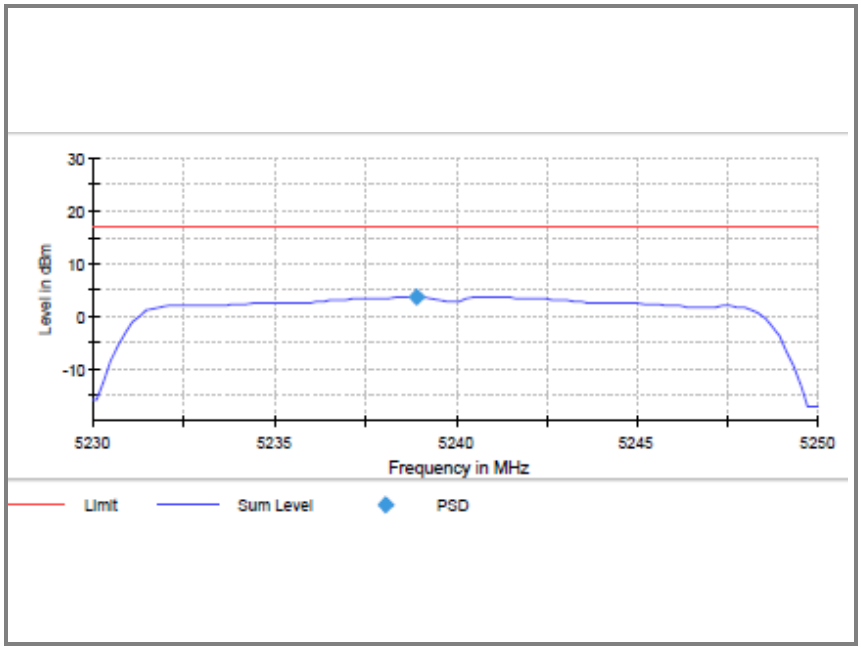
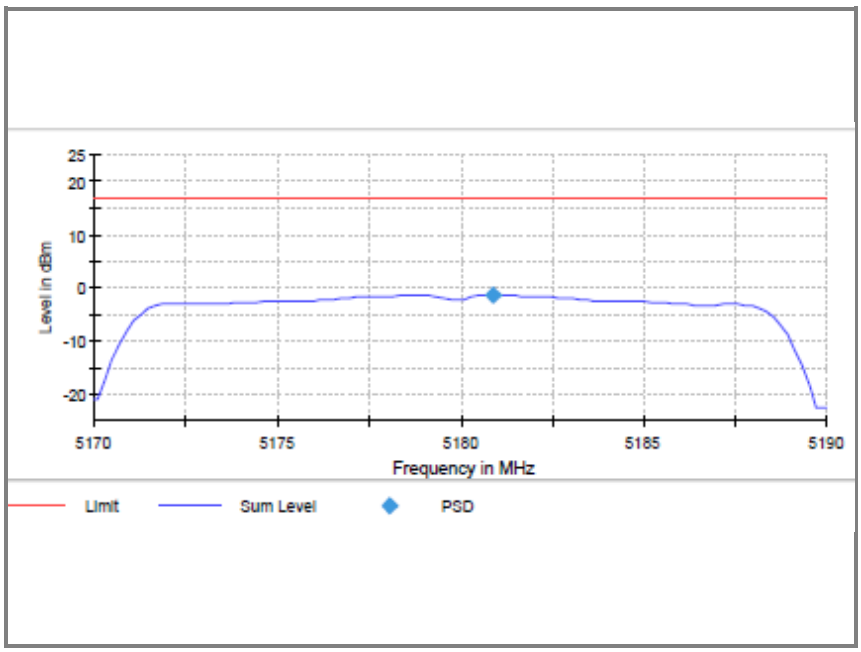
C. High channel(5240 ㎒)



Operation mode: U-NII-1(n_HT20)ANT2

A. Low channel(5180 ㎒)



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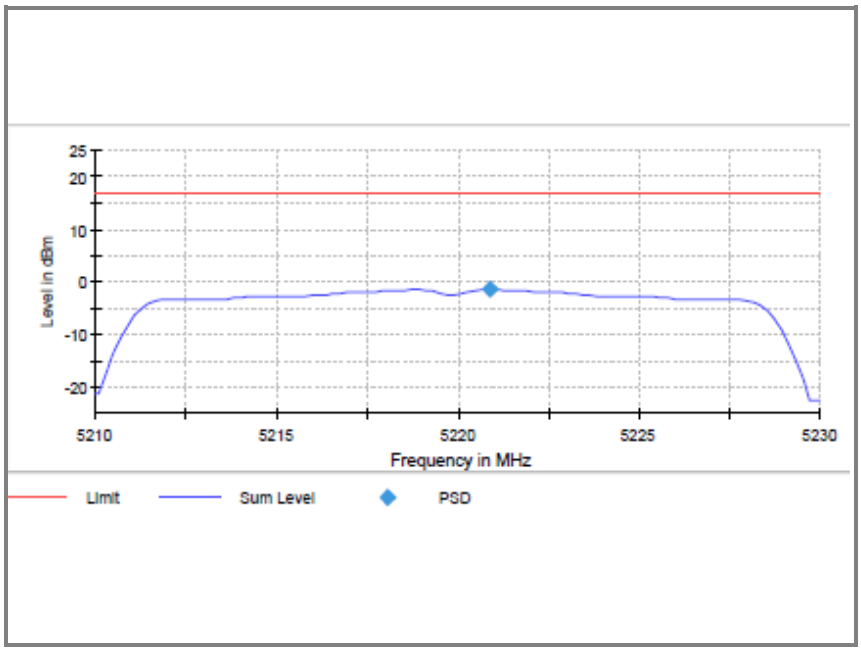
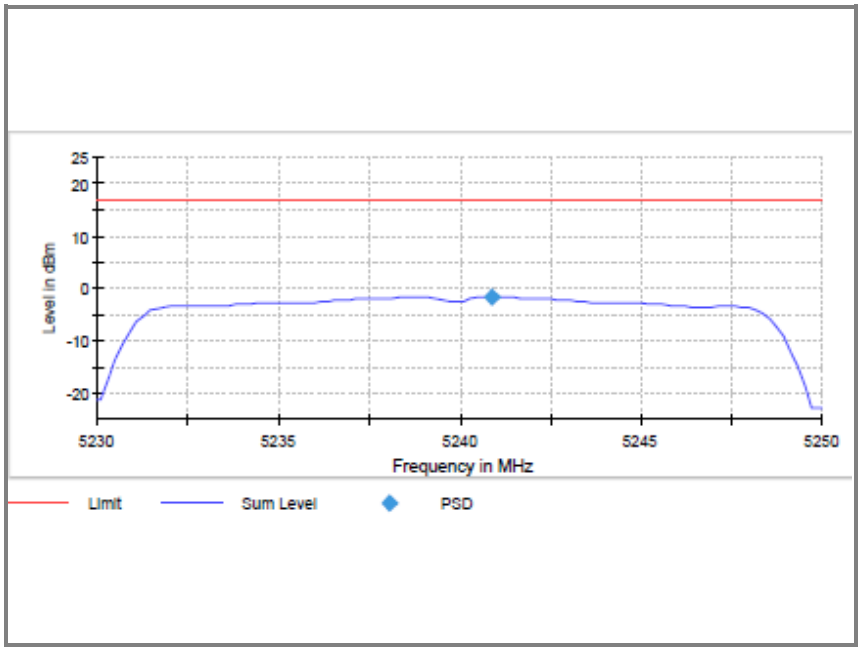
B. Middle channel(5220 ㎒)



C. High channel(5240 ㎒)



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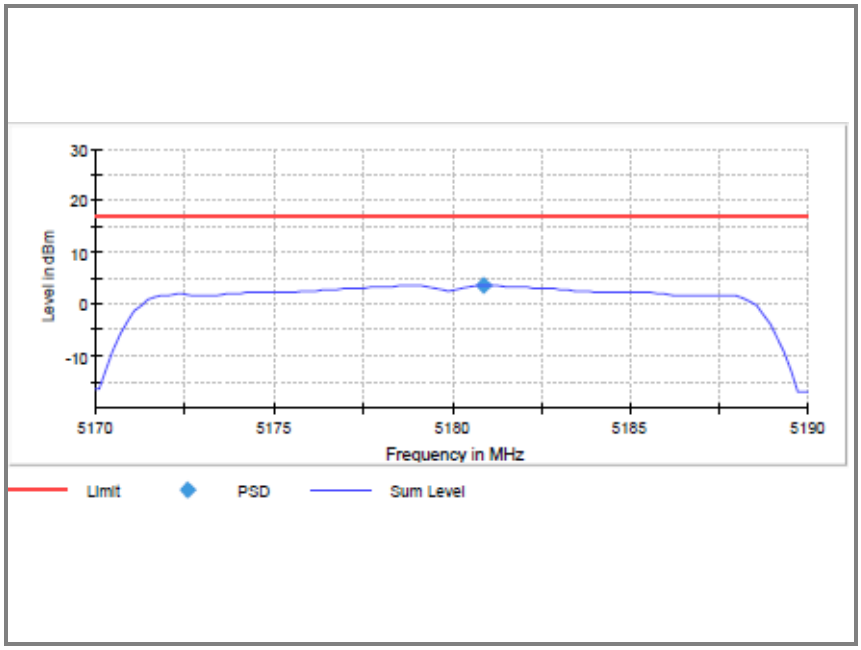
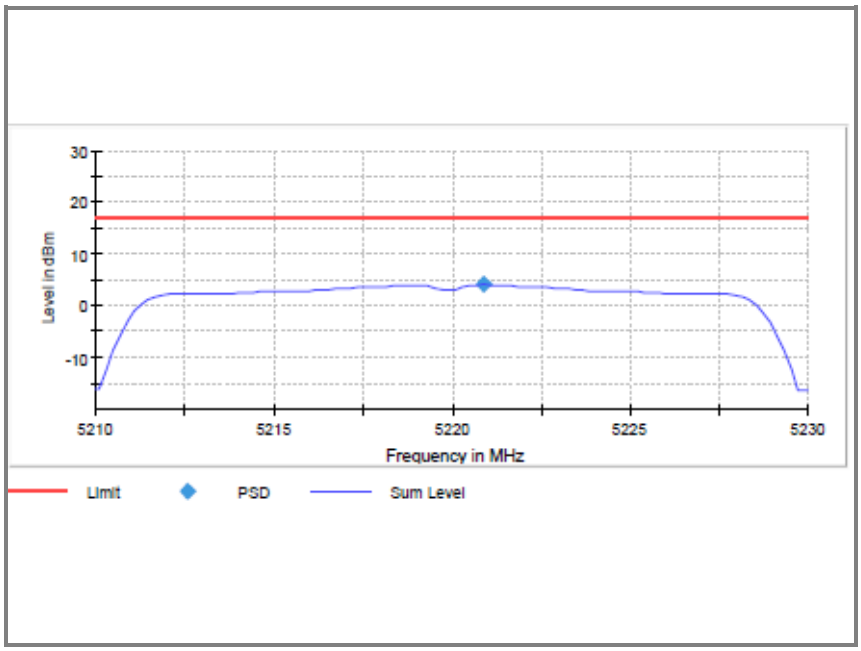
Operation mode: U-NII-1(n_HT20)Mimo2X2

A. Low channel(5180 ㎒)



B. Middle channel(5220 ㎒)



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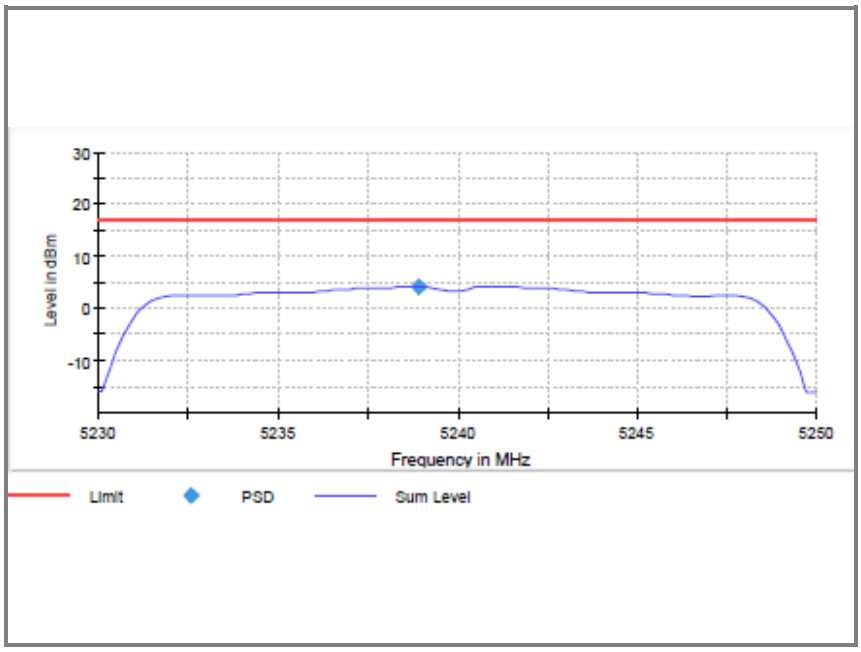
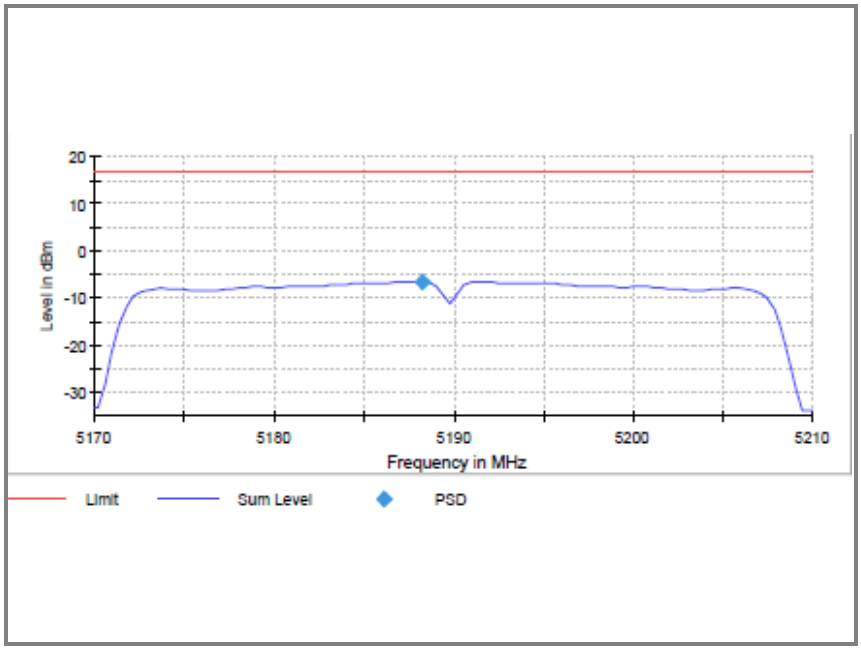
C. High channel(5240 ㎒)



Operation mode: U-NII-1(n_HT40)ANT1

A. Low channel(5190 ㎒)



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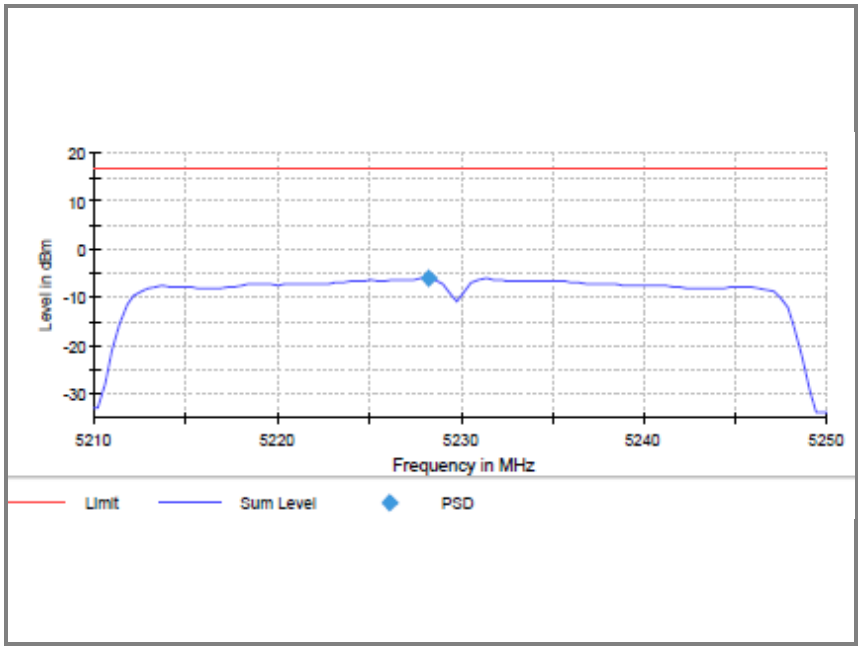
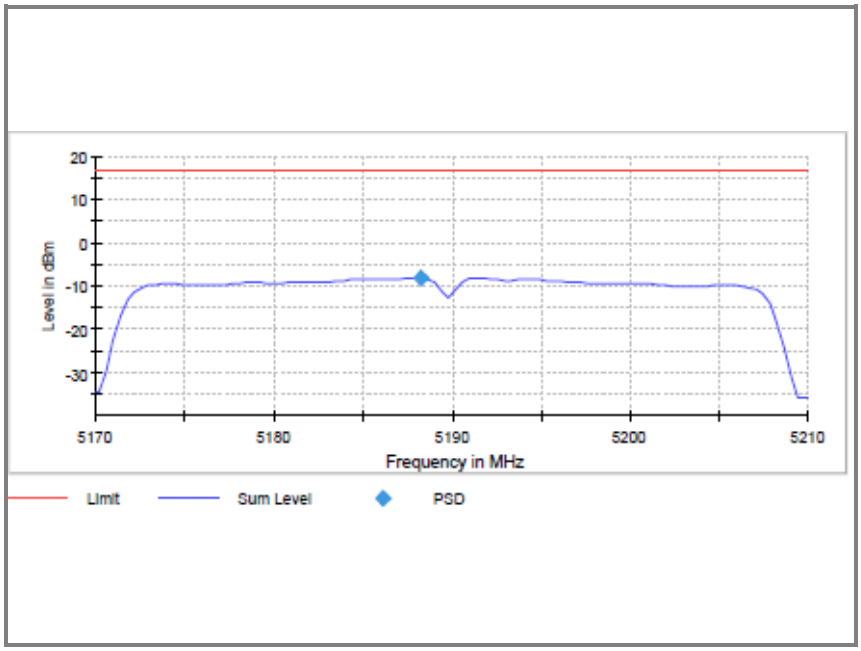
B. High channel(5230 ㎒)



Operation mode: U-NII-1(n_HT40)ANT2

A. Low channel(5190 ㎒)



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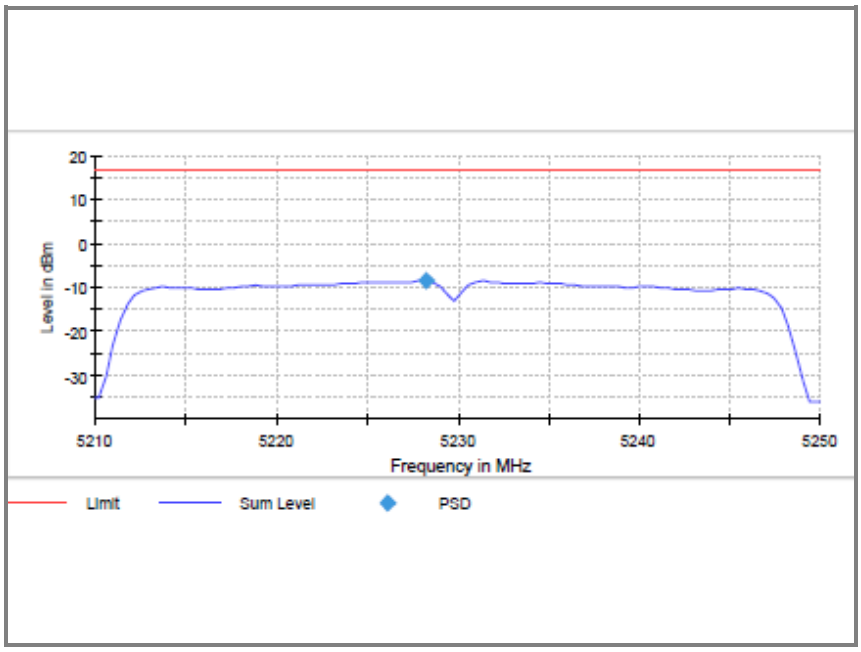
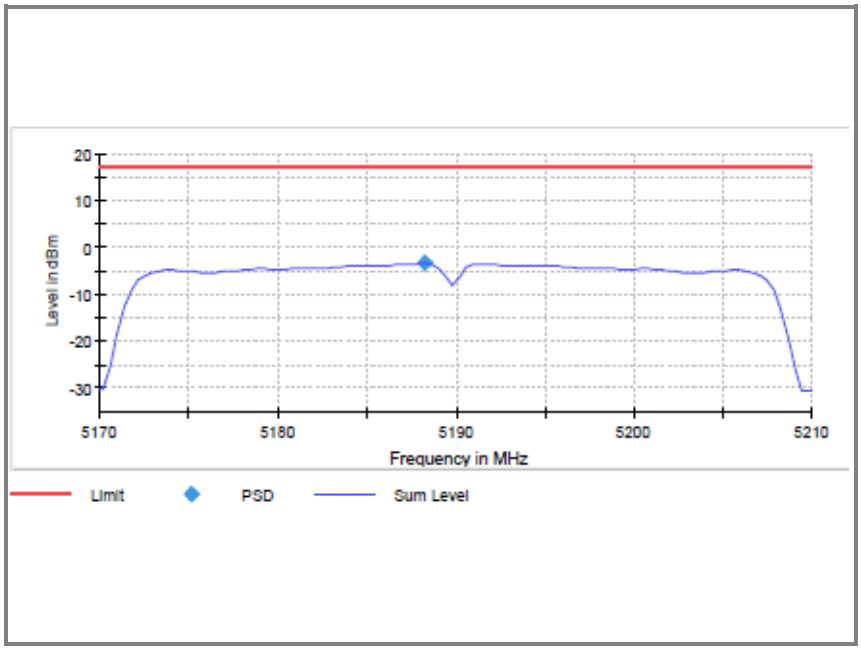
B. High channel(5230 ㎒)



Operation mode: U-NII-1(n_HT40)Mimo2X2

A. Low channel(5190 ㎒)



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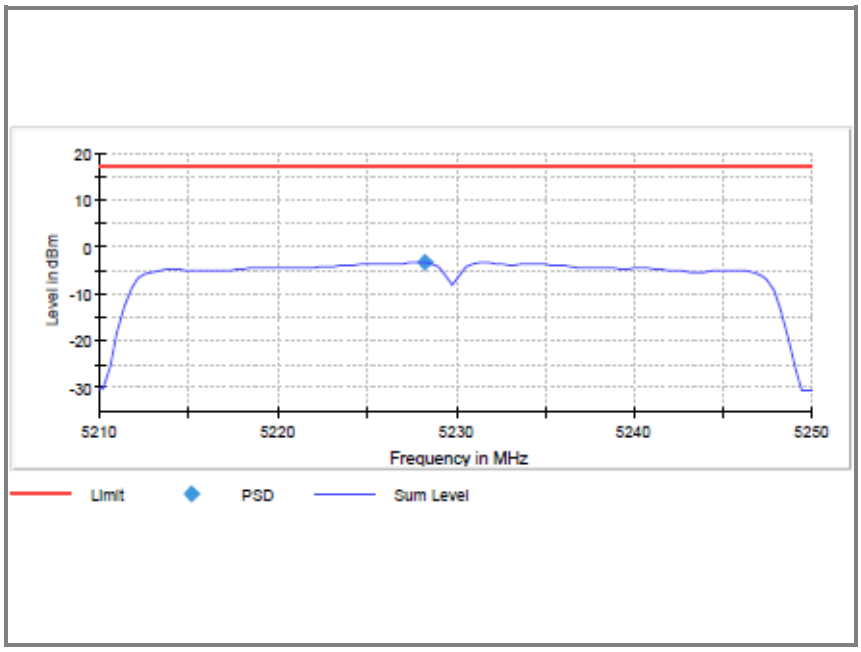
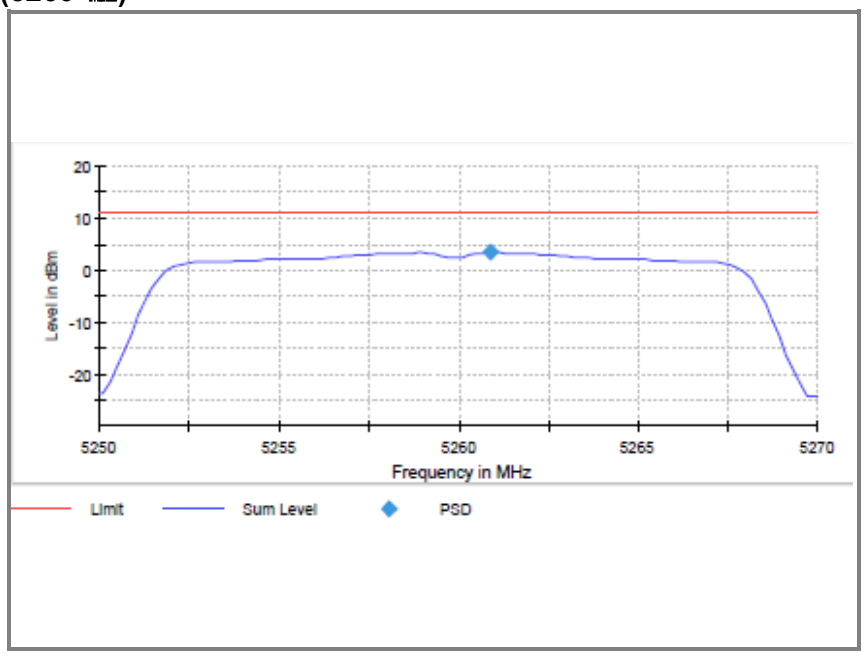
B. High channel(5230 ㎒)



Operation mode: U-NII-2A(802.11a)ANT1

A. Low channel(5260 ㎒)



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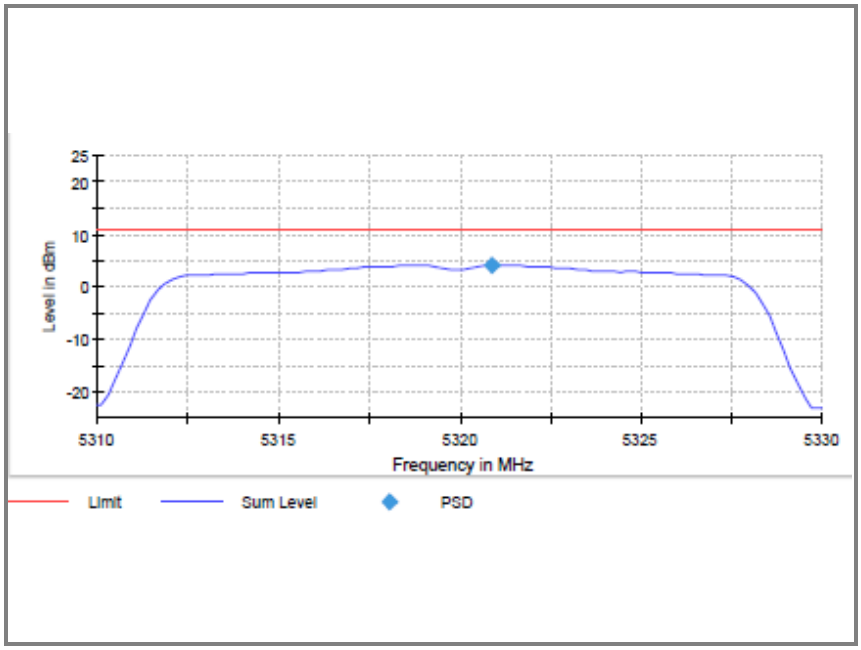
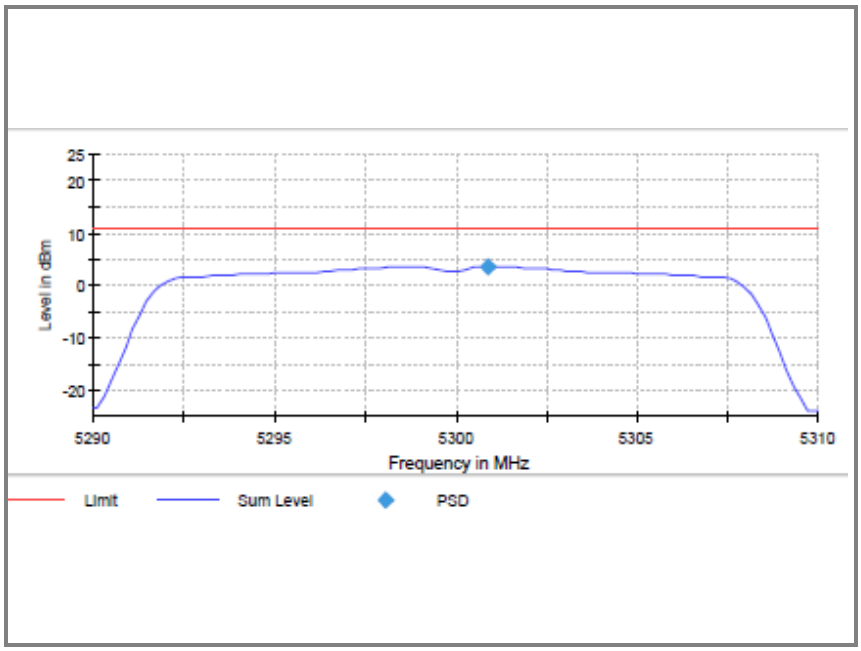
B. Middle channel(5300 ㎒)



C. High channel(5320 ㎒)



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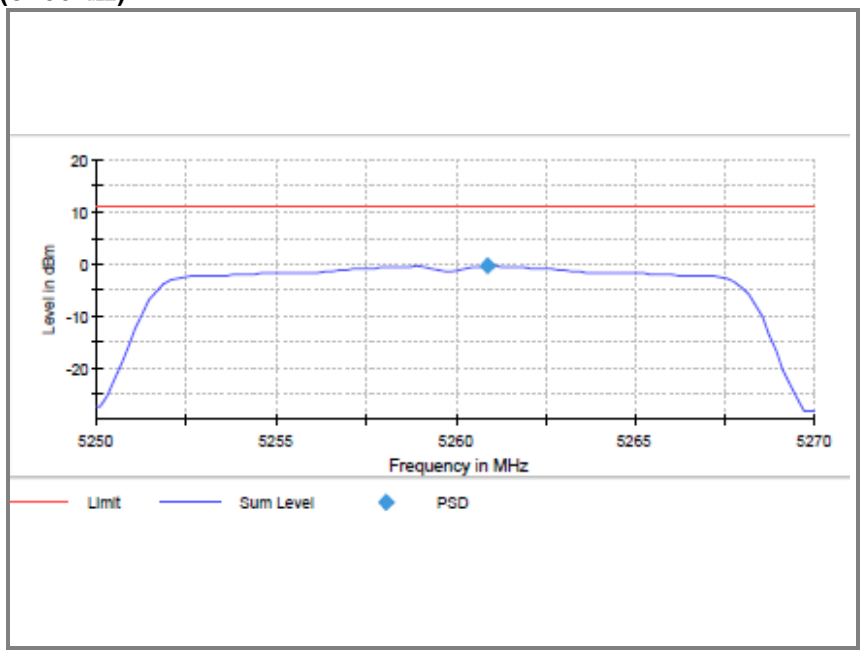
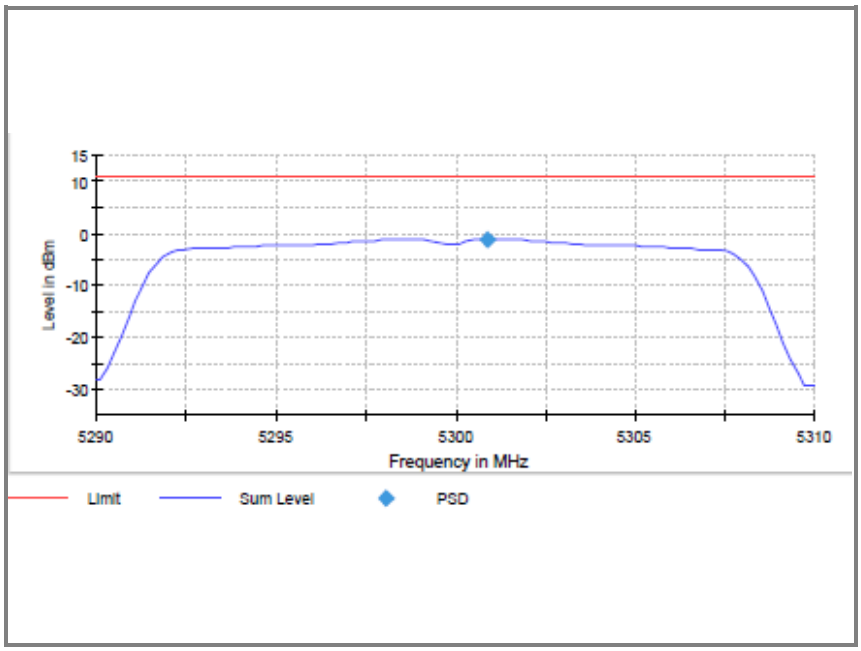
Operation mode: U-NII-2A(802.11a)ANT2

A. Low channel(5260 ㎒)



B. Middle channel(5300 ㎒)



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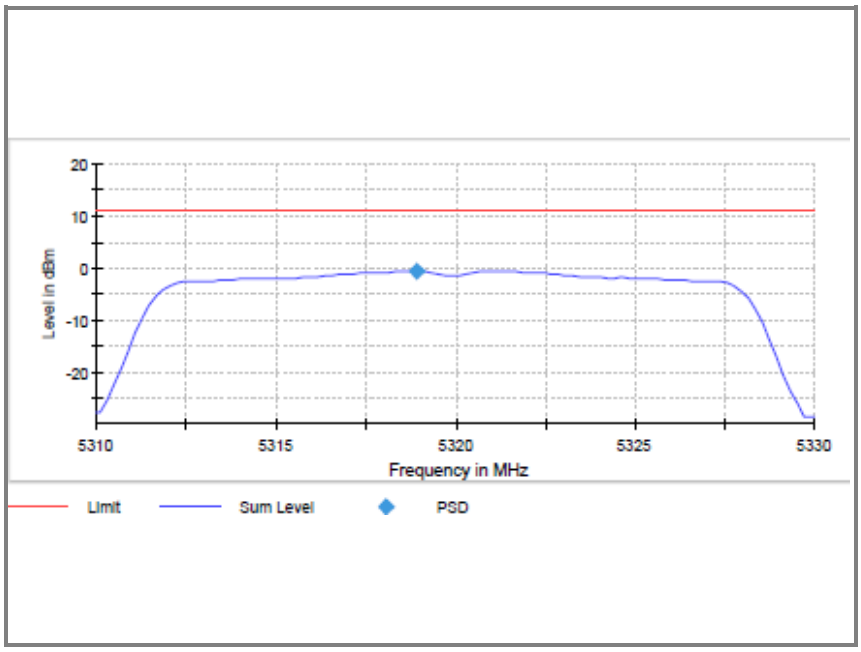
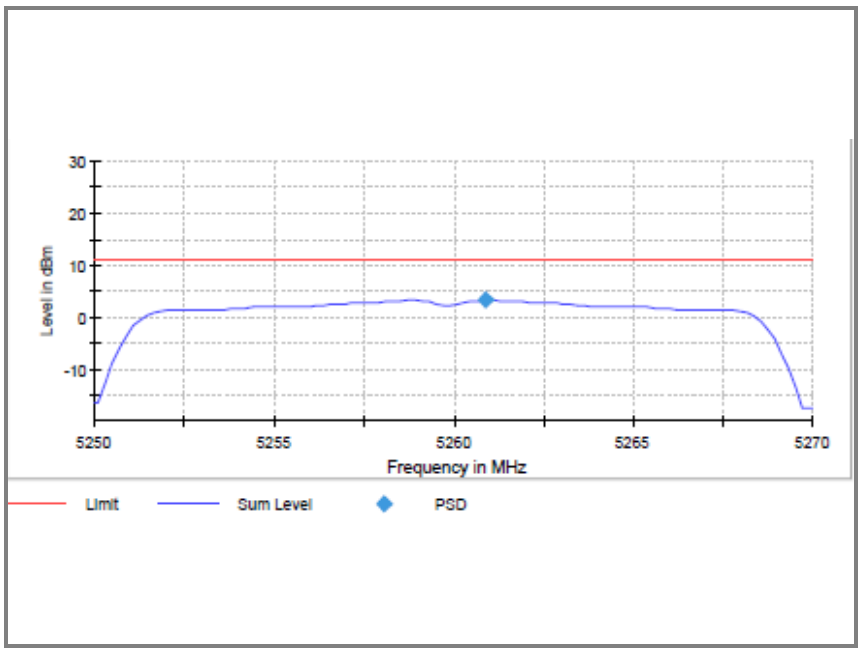
C. High channel(5320 ㎒)



Operation mode: U-NII-2A(n_HT20)ANT1

A. Low channel(5260 ㎒)



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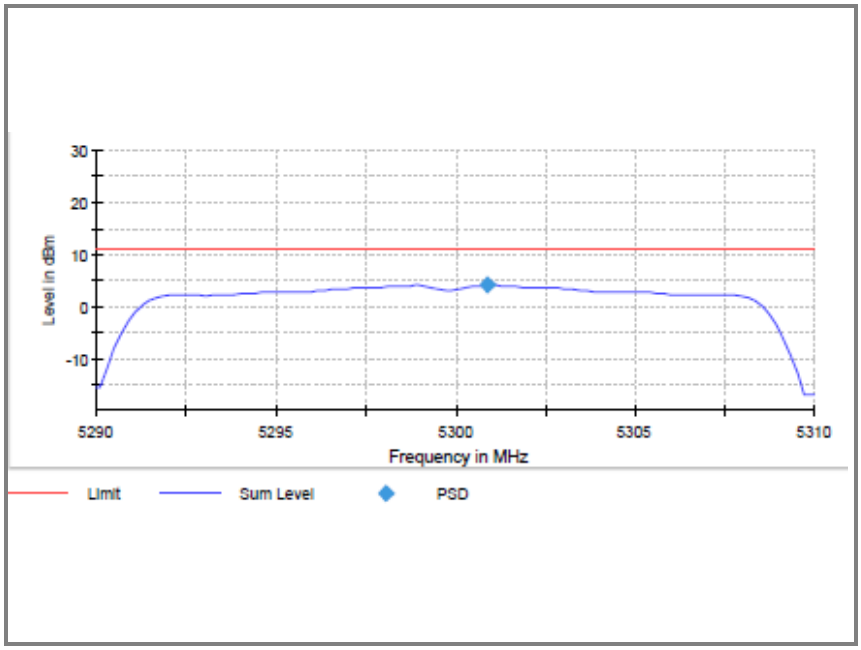
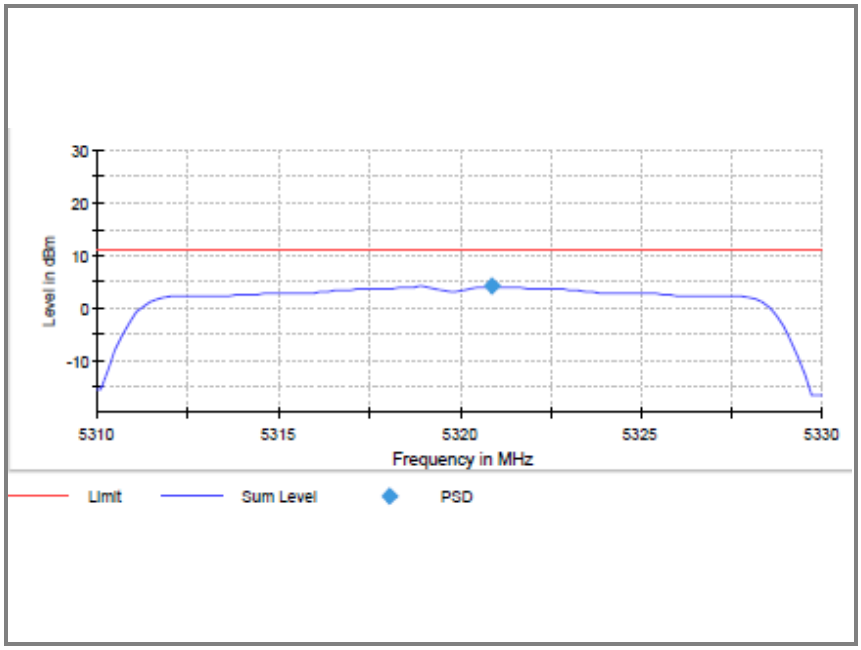
B. Middle channel(5300 ㎒)



C. High channel(5320 ㎒)



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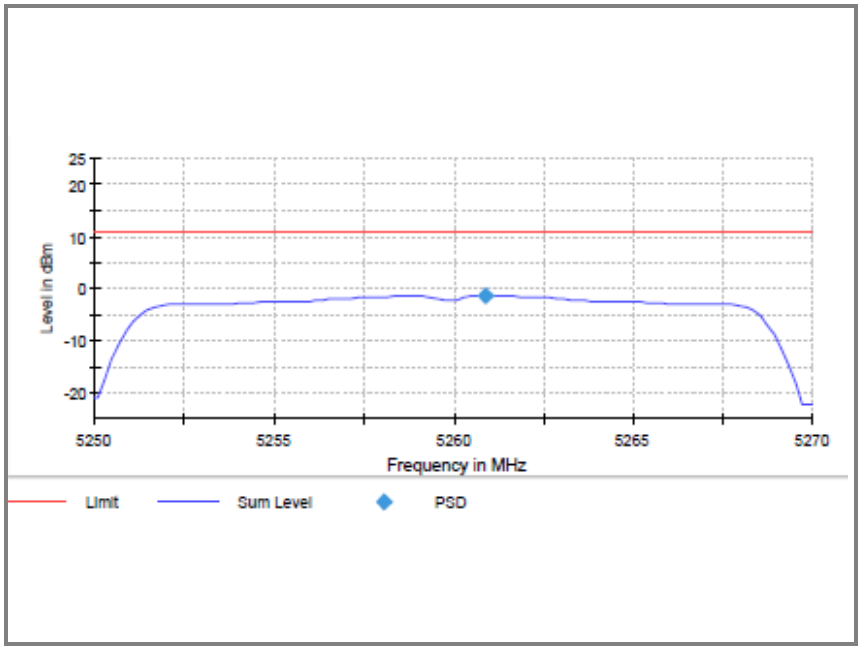
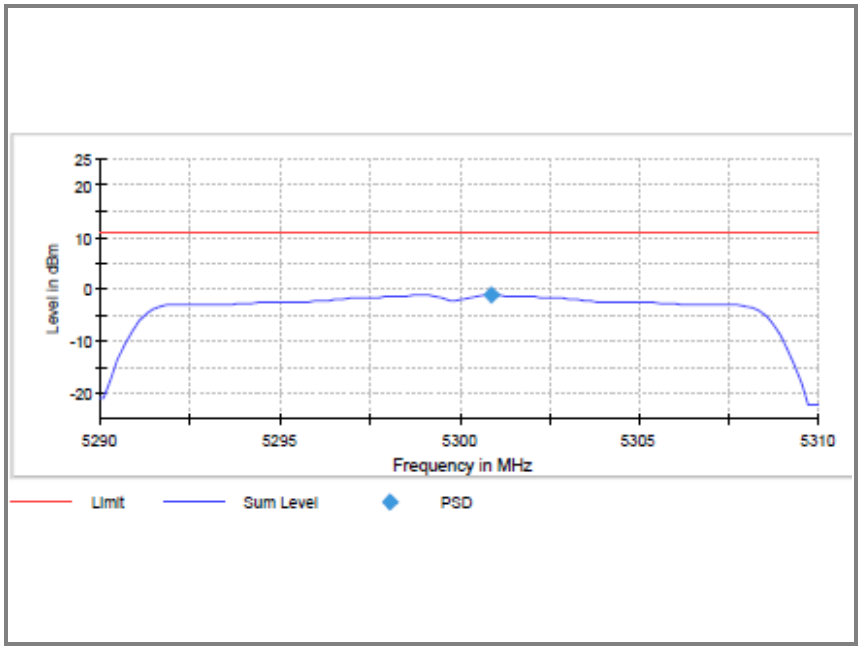
Operation mode: U-NII-2A(n_HT20)ANT2

A. Low channel(5260 ㎒)



B. Middle channel(5300 ㎒)



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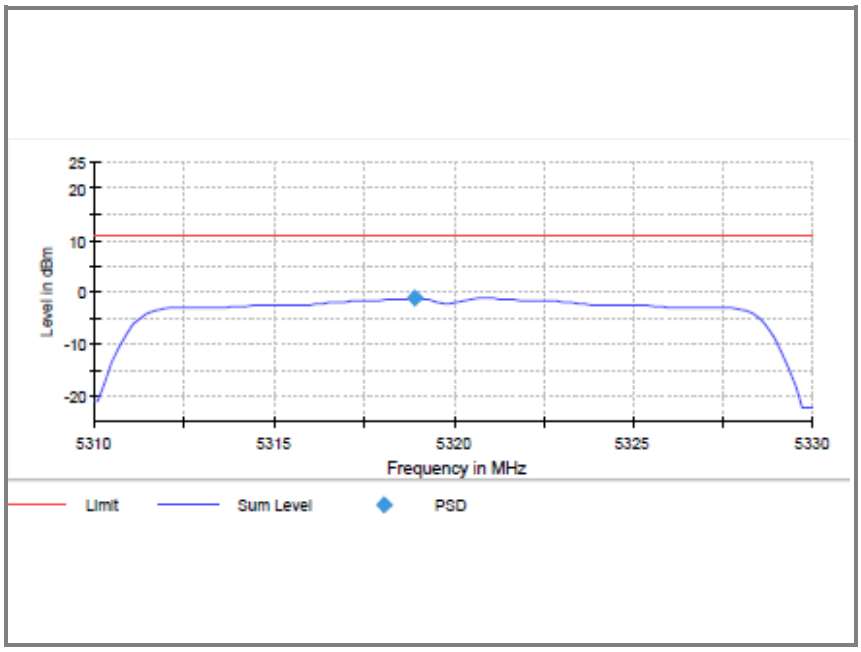
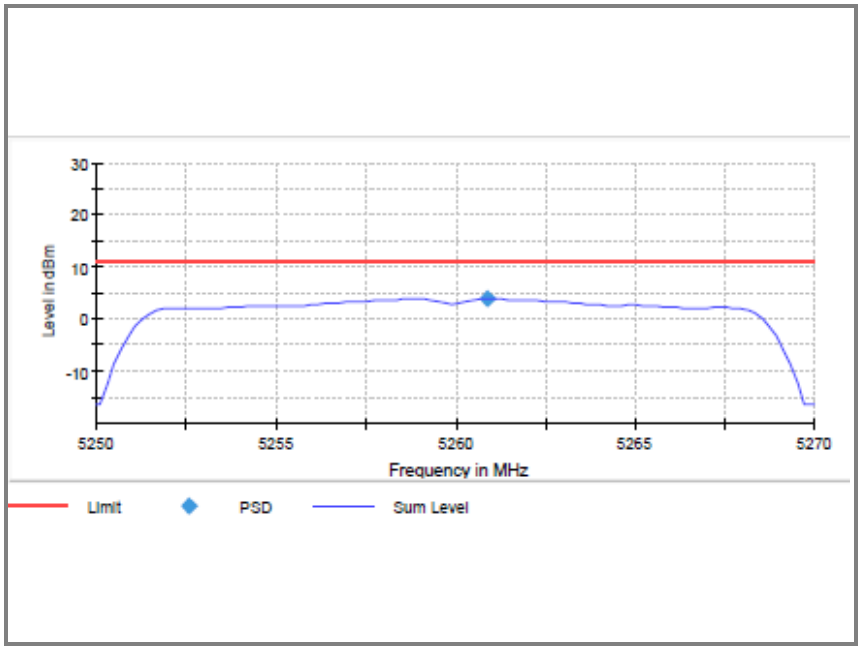
C. High channel(5320 ㎒)



Operation mode: U-NII-2A(n_HT20)Mimo2X2

A. Low channel(5260 ㎒)



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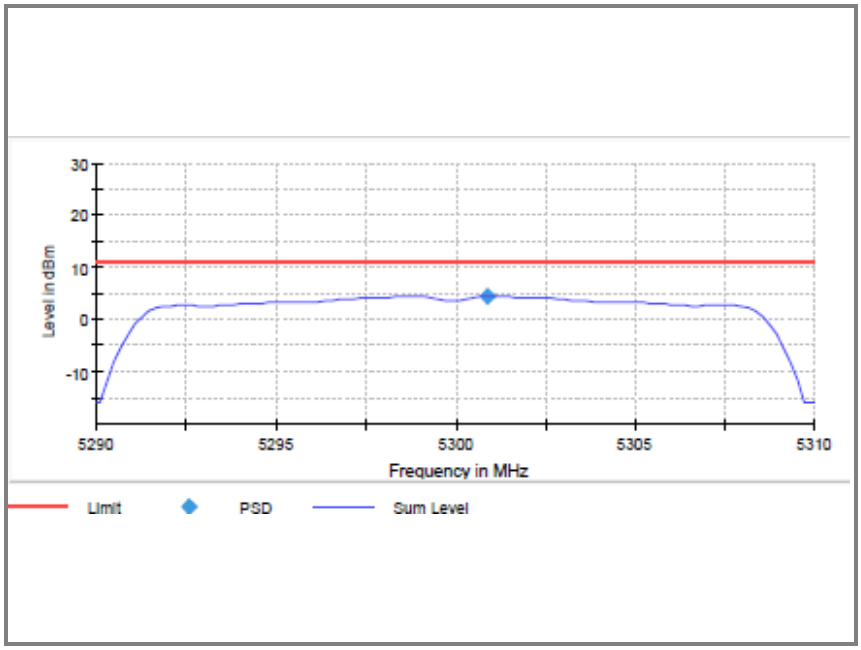
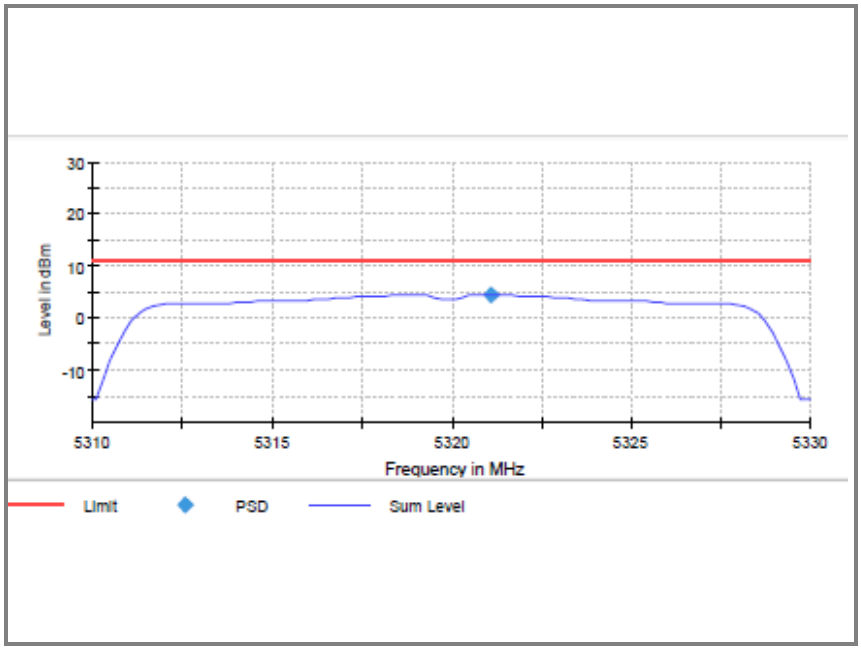
B. Middle channel(5300 ㎒)



C. High channel(5320 ㎒)



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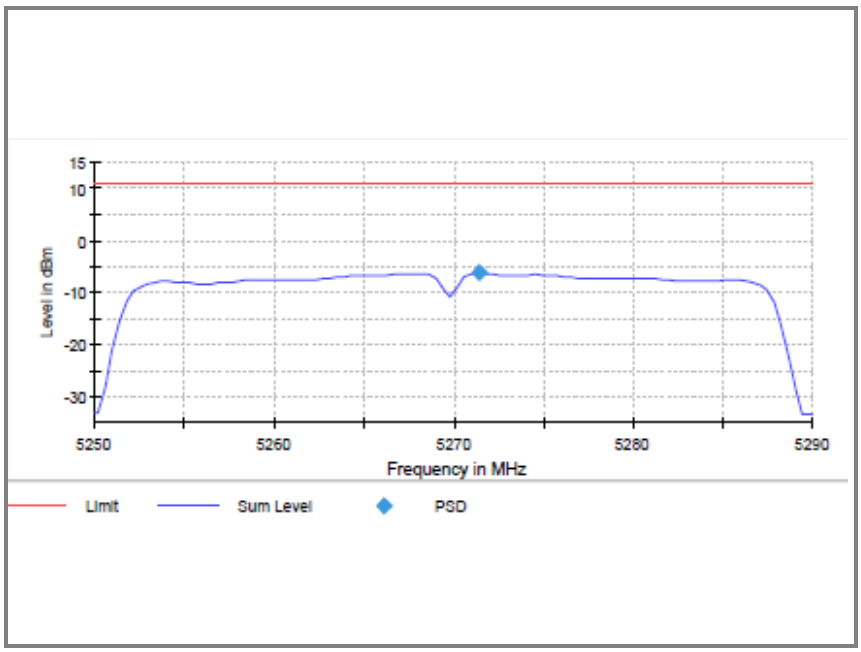
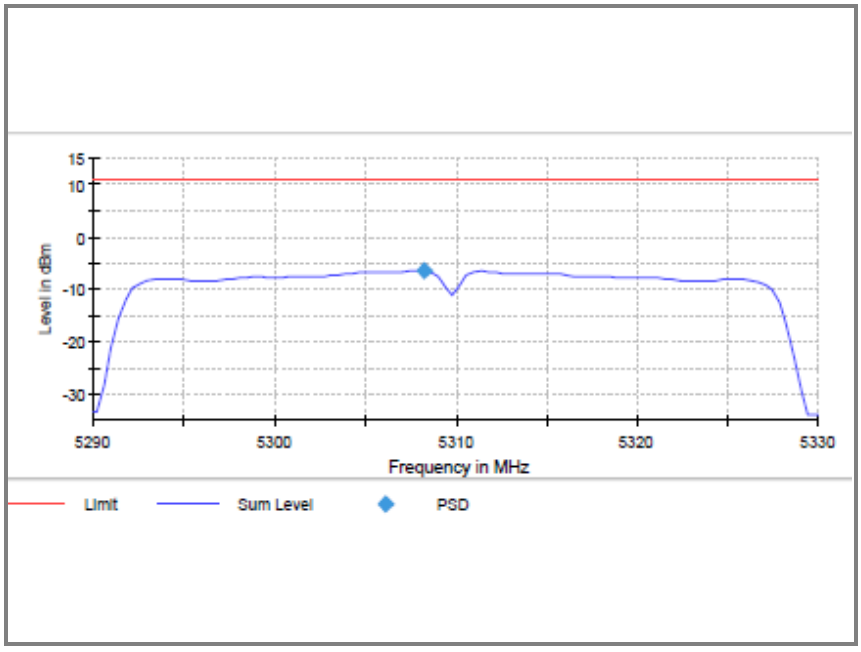
Operation mode: U-NII-2A(n_HT40)ANT1

A. Low channel(5270 ㎒)



B. High channel(5310 ㎒)



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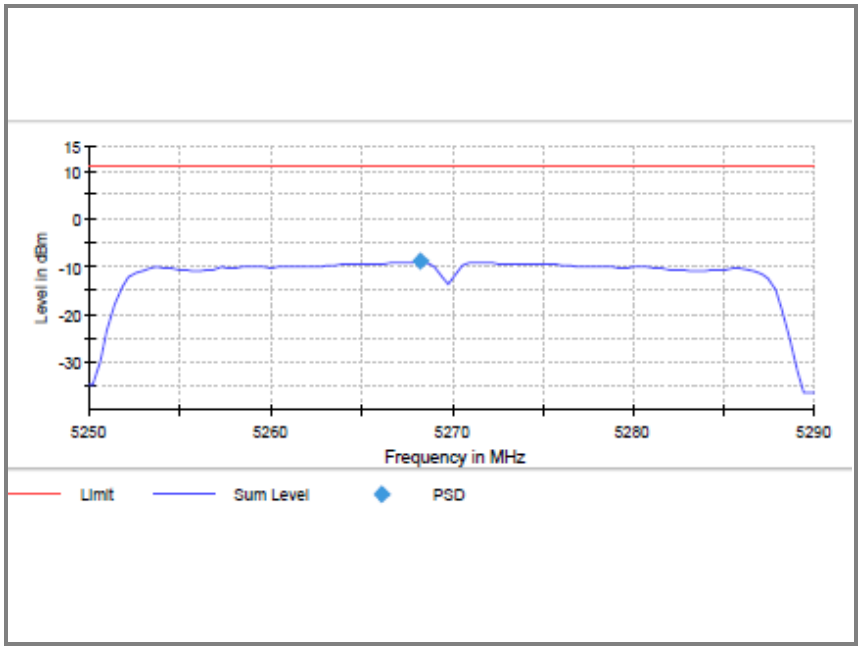
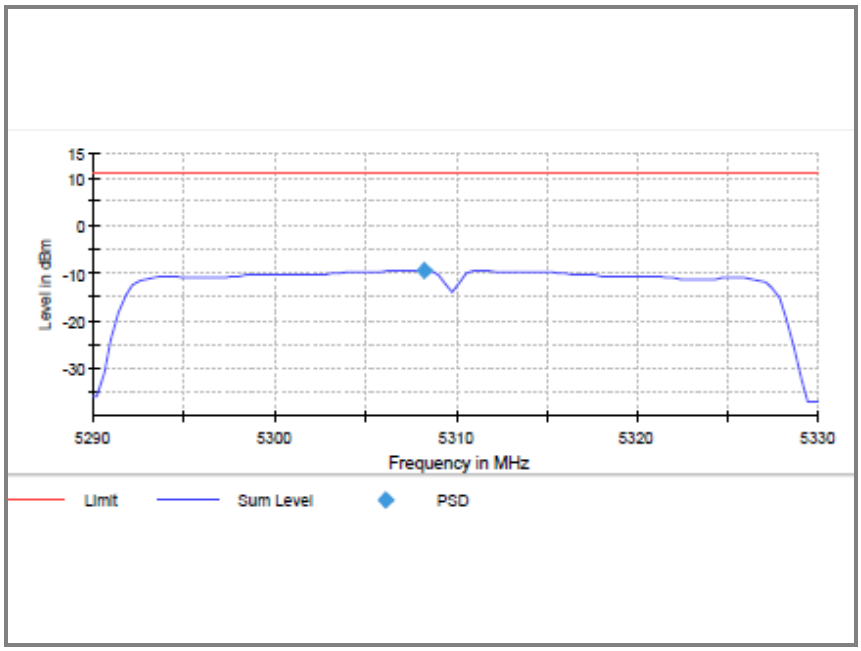
Operation mode: U-NII-2A(n_HT40)ANT2

A. Low channel(5270 ㎒)



B. High channel(5310 ㎒)



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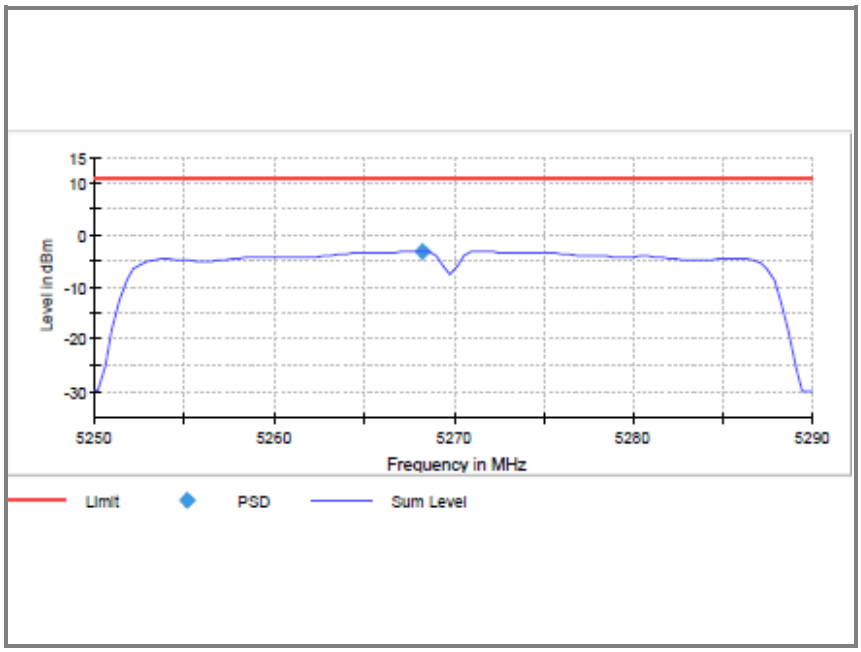
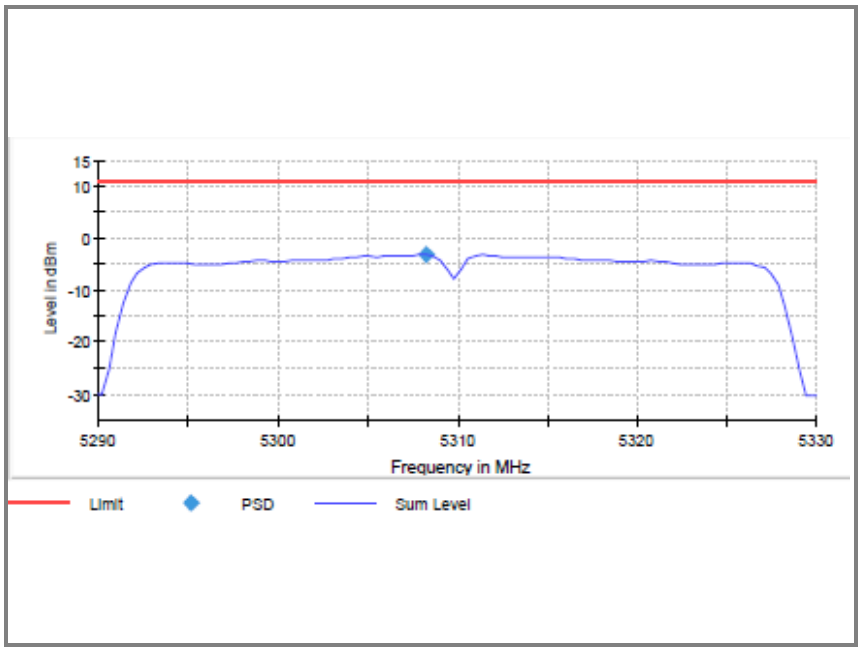
Operation mode: U-NII-2A(n_HT40)Mimo2X2

A. Low channel(5270 ㎒)



B. High channel(5310 ㎒)



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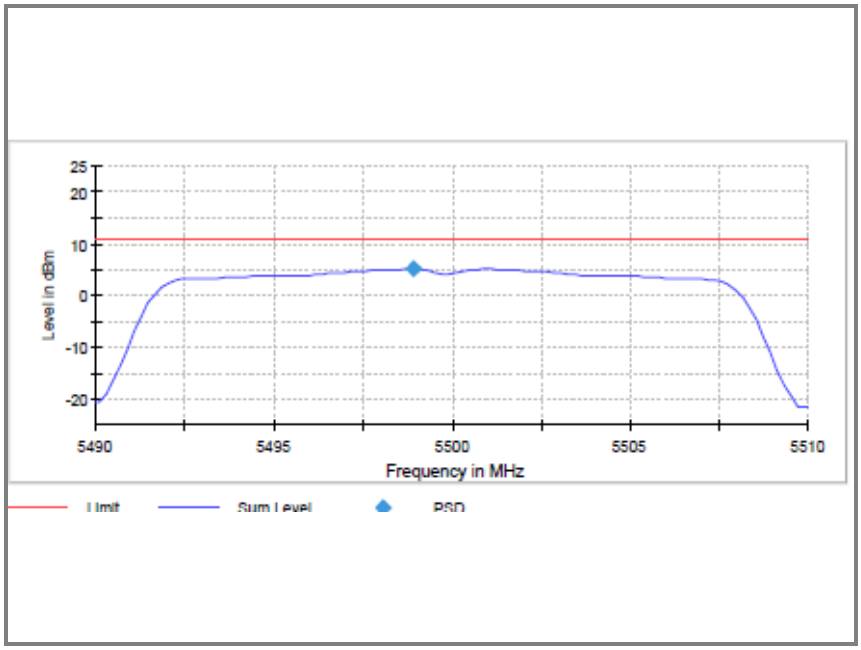
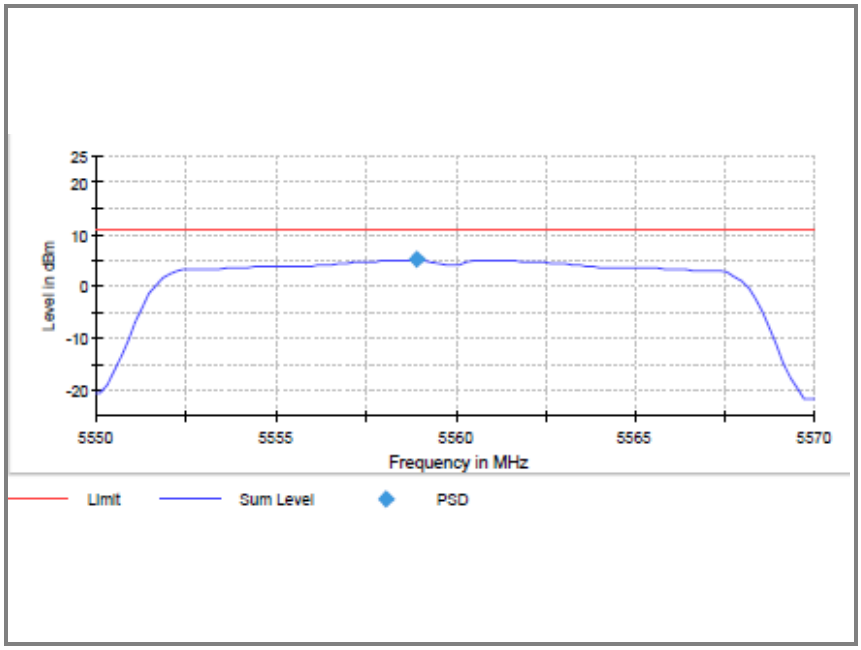
Operation mode: U-NII-2C(802.11a)ANT1

A. Low channel(5500 ㎒)



B. Middle channel(5560 ㎒)



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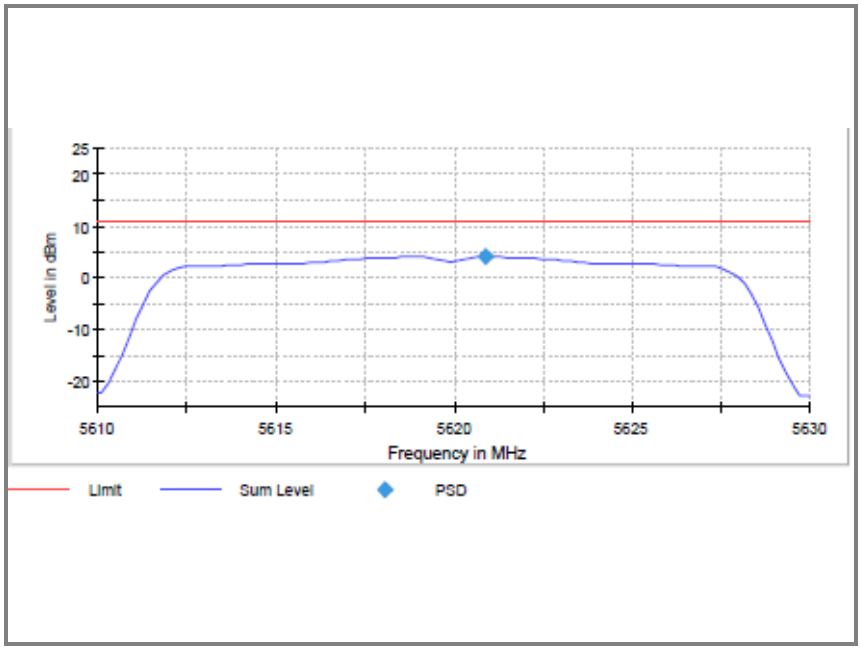
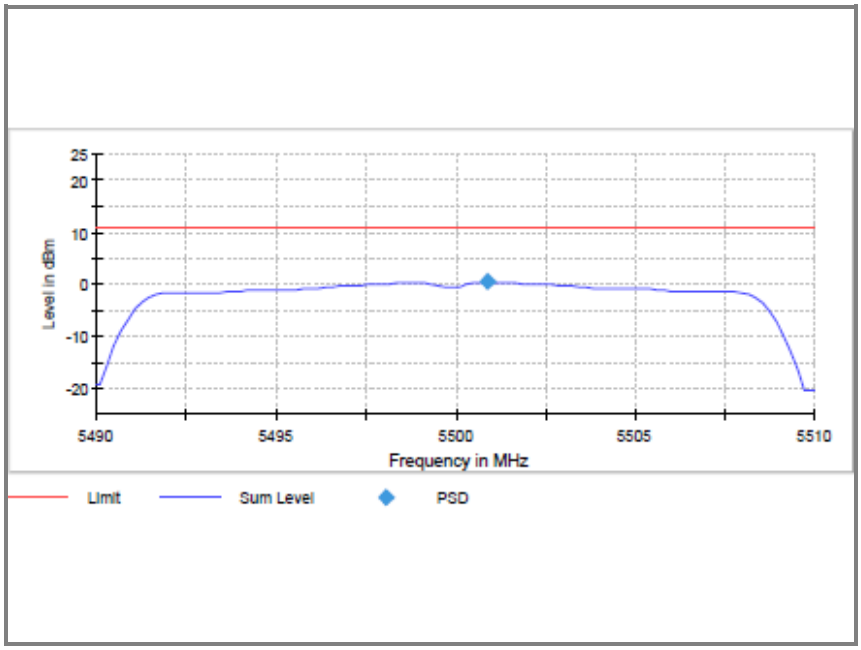
C. High channel(5620 ㎒)



Operation mode: U-NII-2C(802.11a)ANT2

A. Low channel(5500 ㎒)



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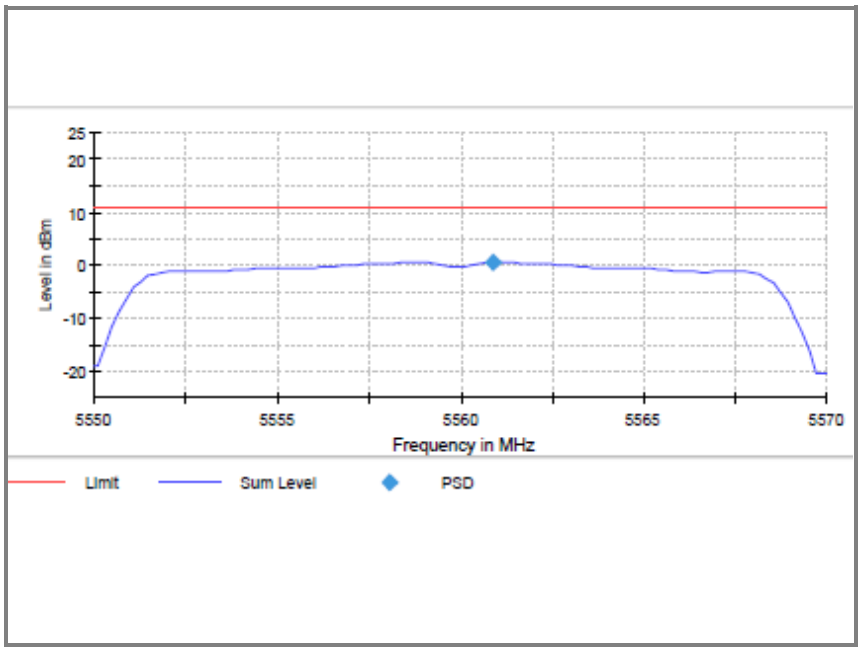
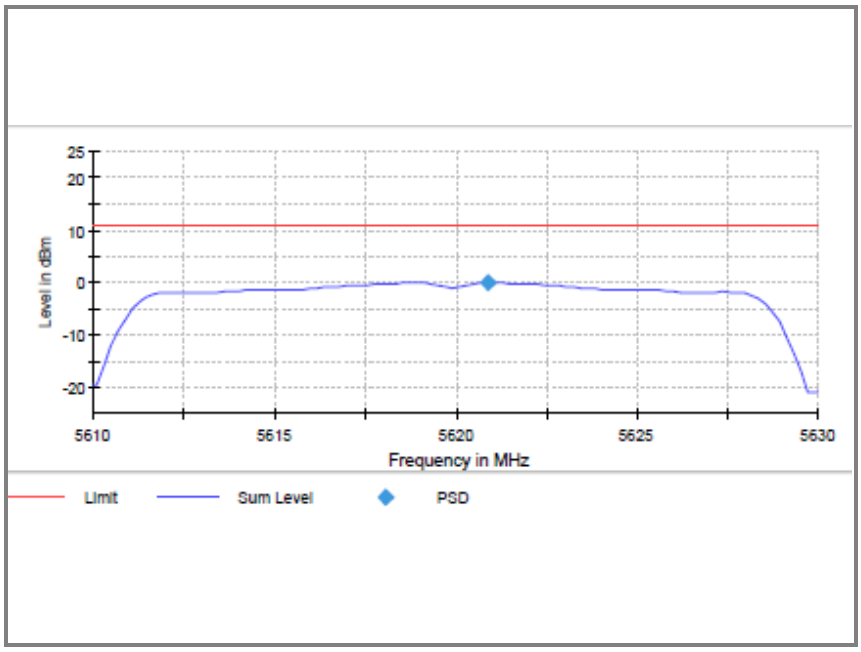
B. Middle channel(5560 ㎒)



C. High channel(5620 ㎒)



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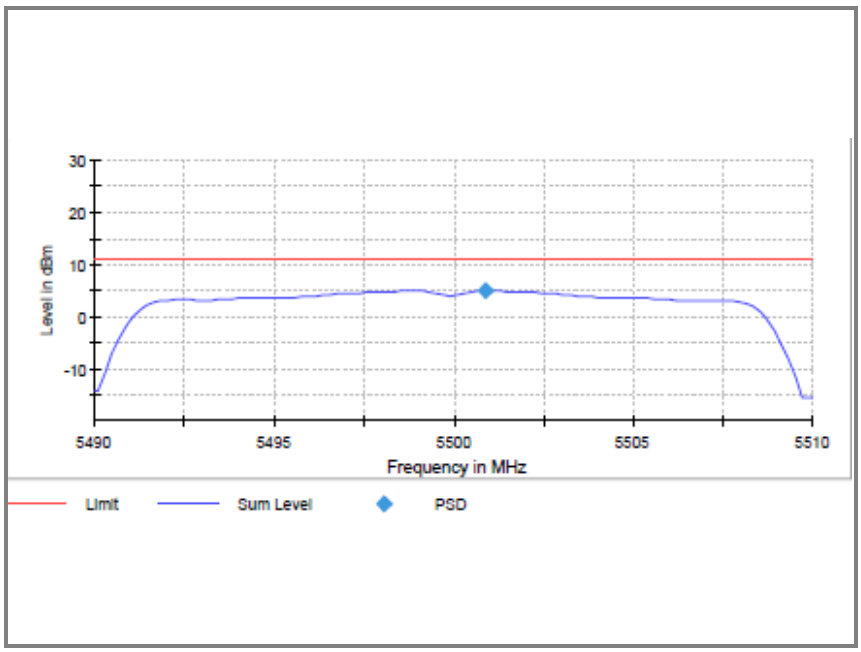
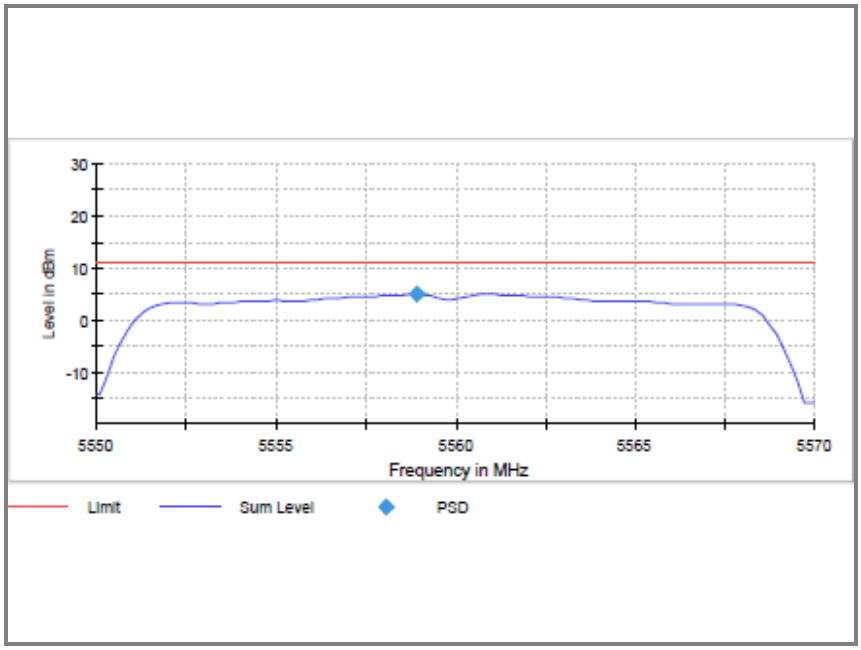
Operation mode: U-NII-2C(n_HT20) ANT1

A. Low channel(5500 ㎒)



B. Middle channel(5560 ㎒)



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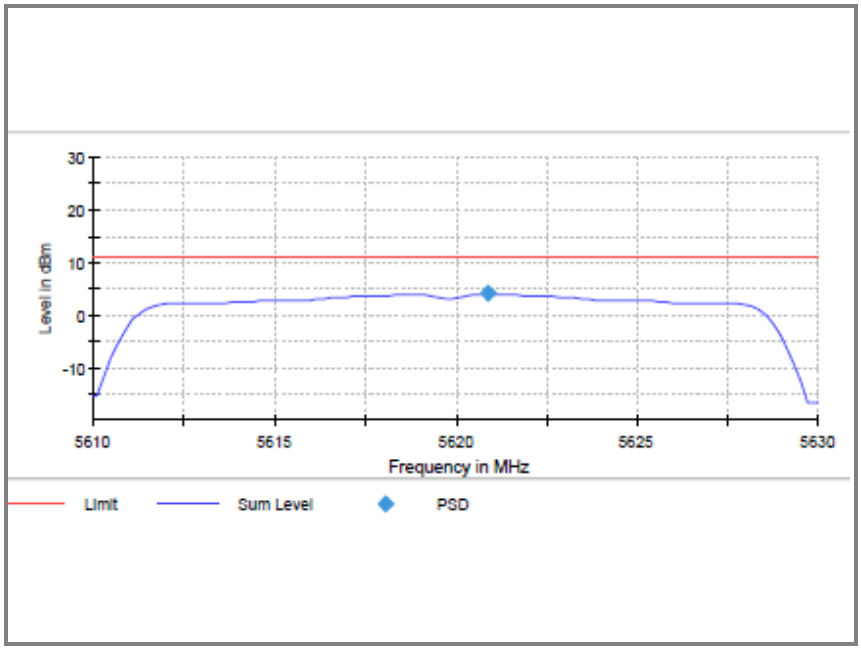
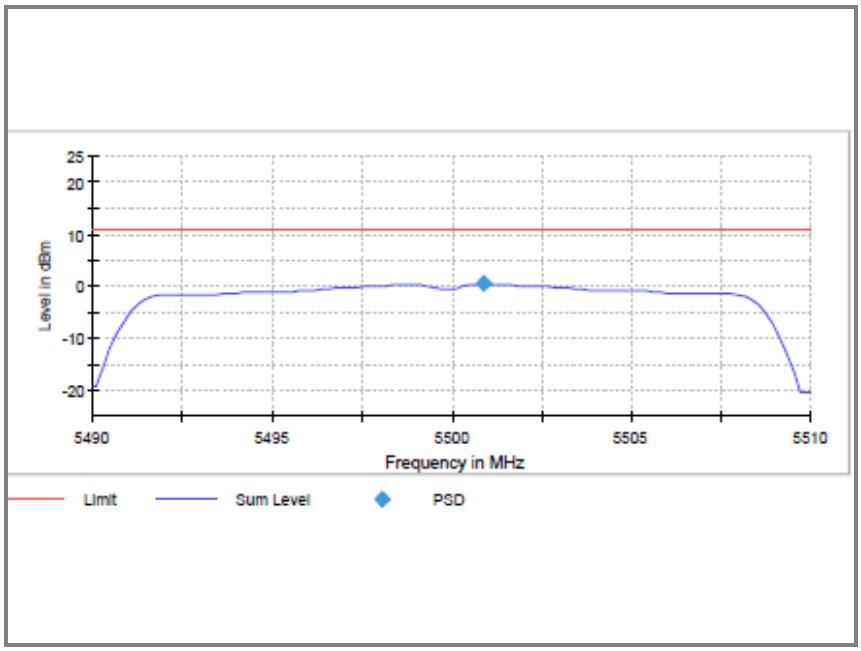
C. High channel(5620 ㎒)



Operation mode: U-NII-2C(n_HT20) ANT2

A. Low channel(5500 ㎒)



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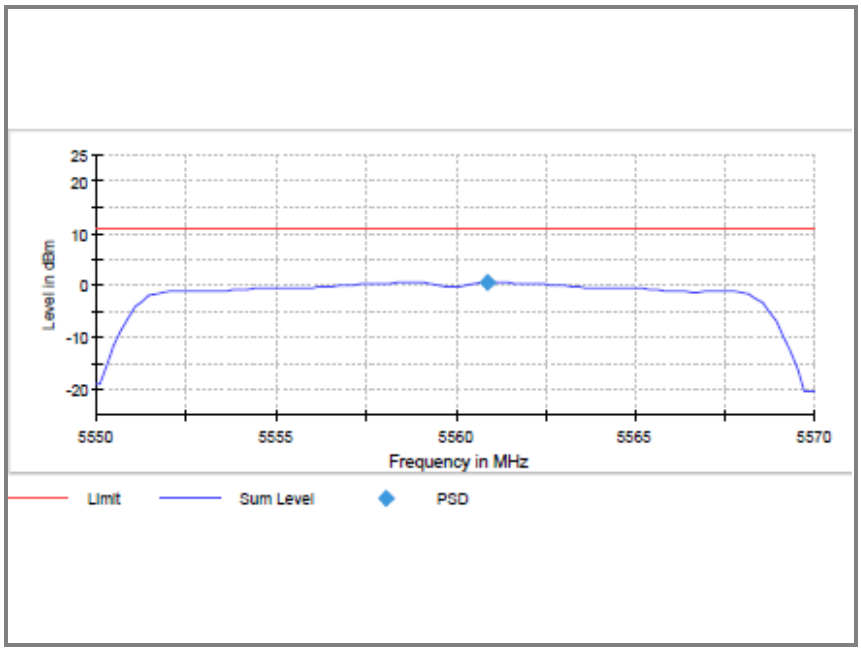
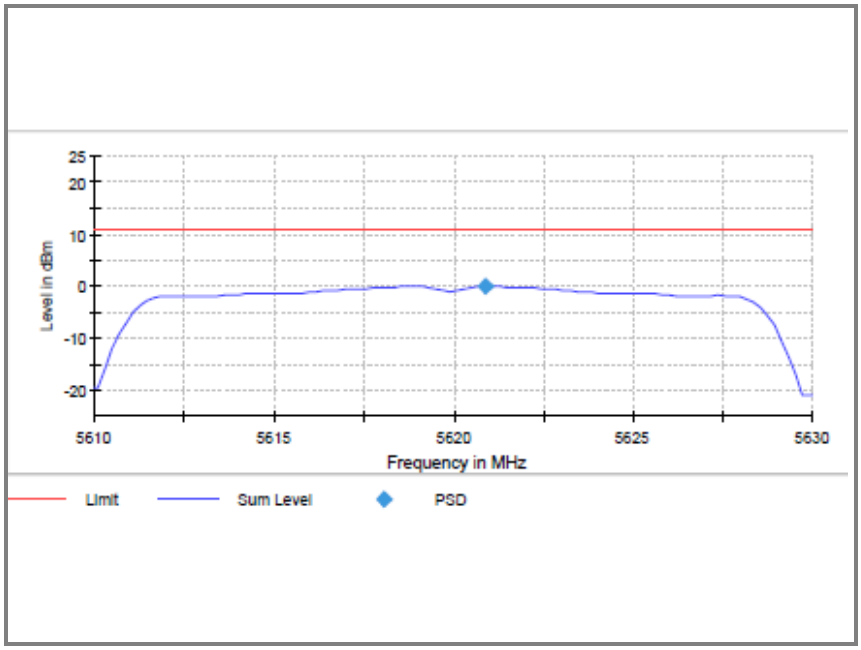
B. Middle channel(5560 ㎒)



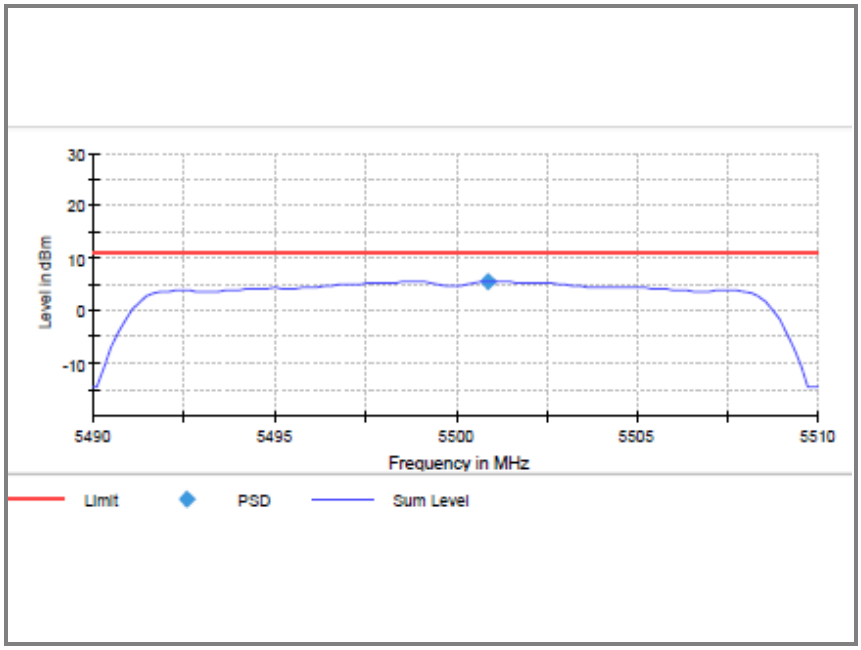
C. High channel(5620 ㎒)



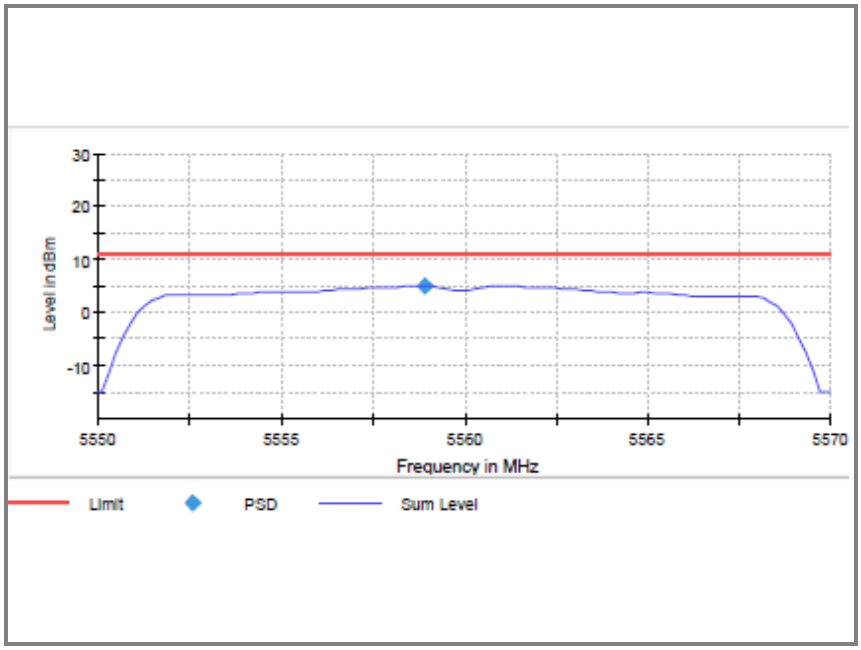
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

Operation mode: U-NII-2C(n_HT20) Mimo2X2

A. Low channel(5500 ㎒)



B. Middle channel(5560 ㎒)



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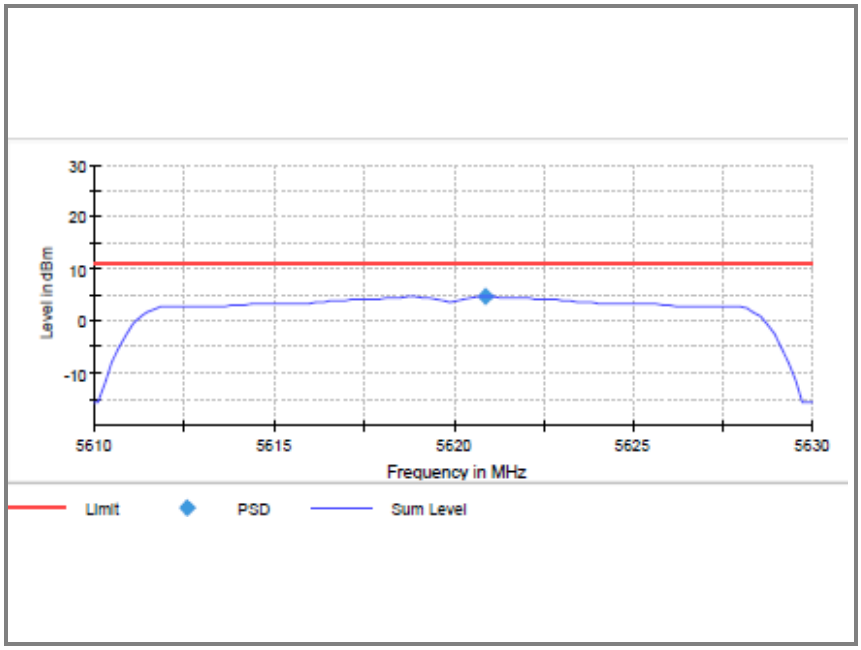
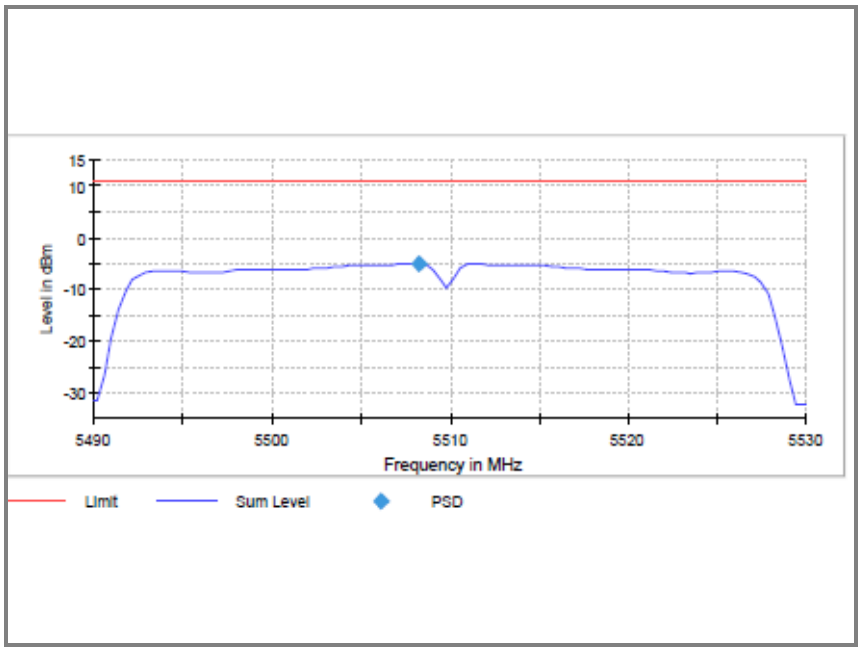
C. High channel(5620 ㎒)



Operation mode: U-NII-2C(n_HT40) ANT1

A. Low channel(5510 ㎒)



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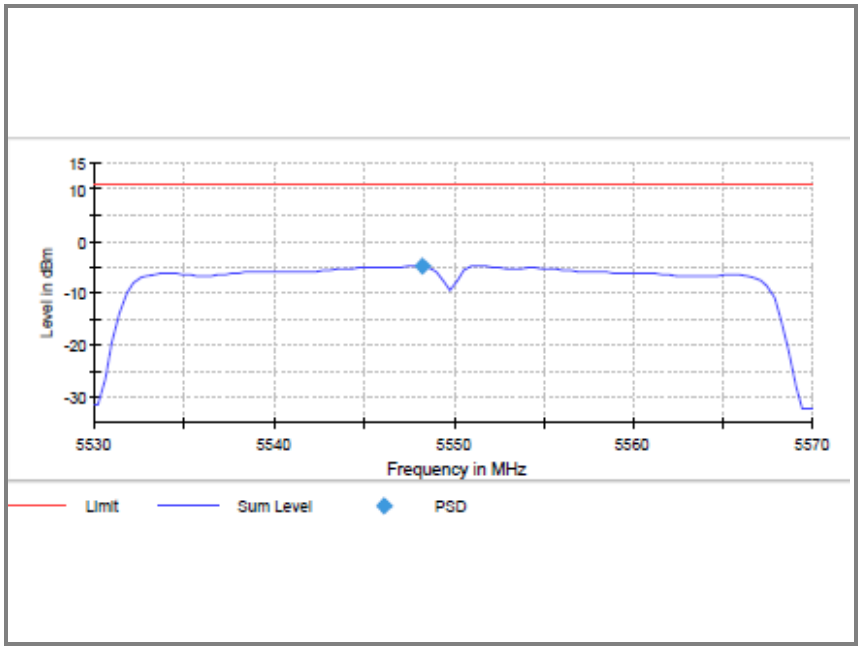
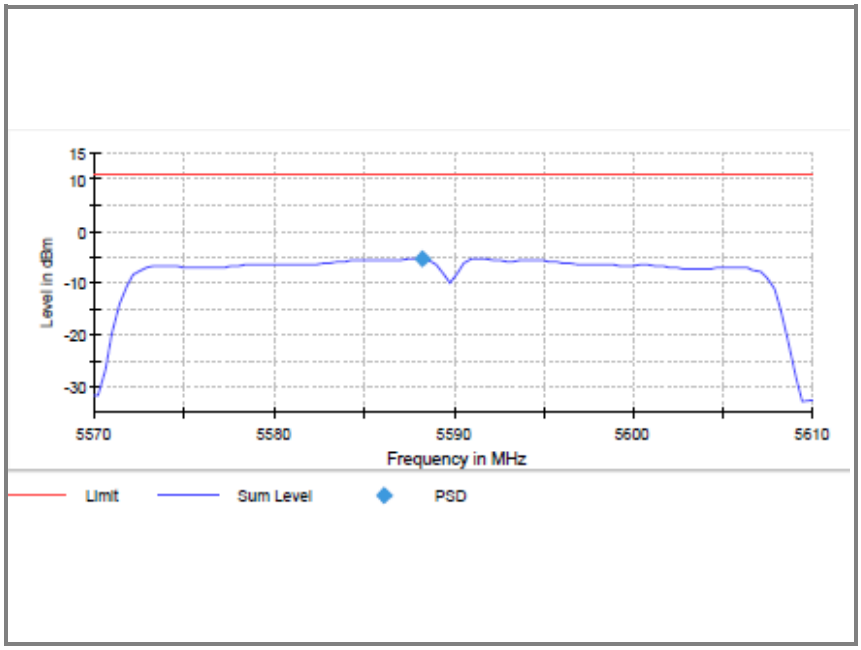
B. Middle channel(5550 ㎒)



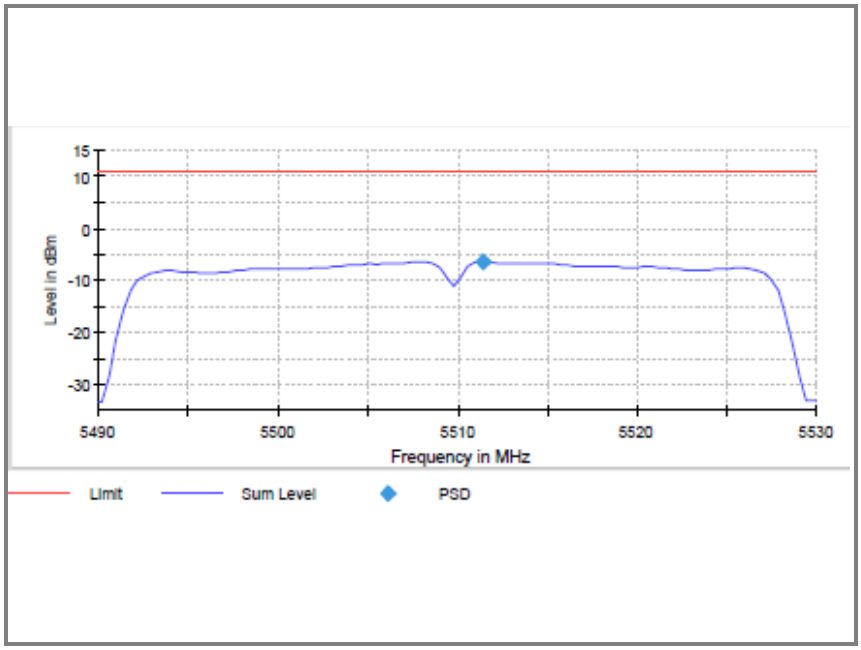
C. High channel(5590 ㎒)



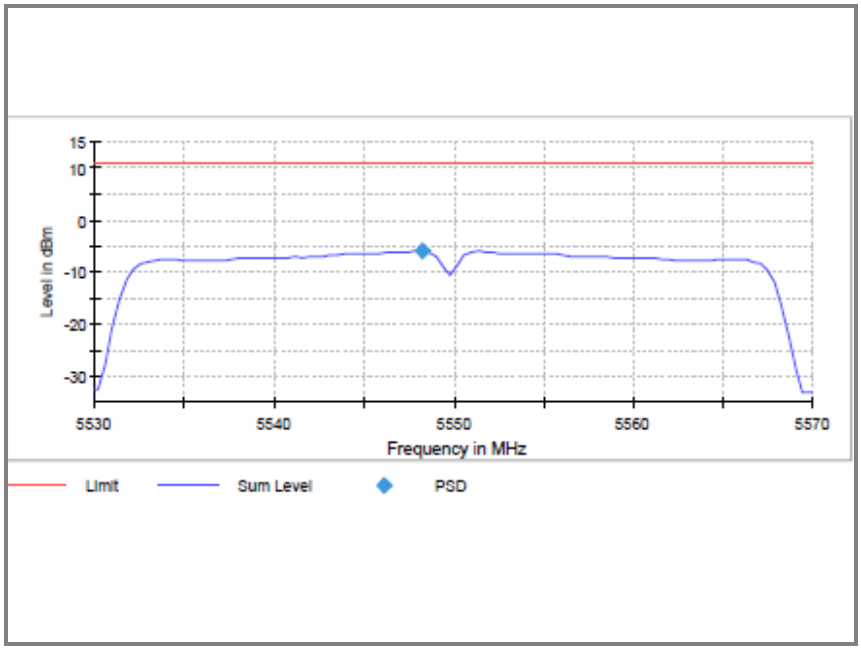
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

Operation mode: U-NII-2C(n_HT40) ANT2

A. Low channel(5510 ㎒)

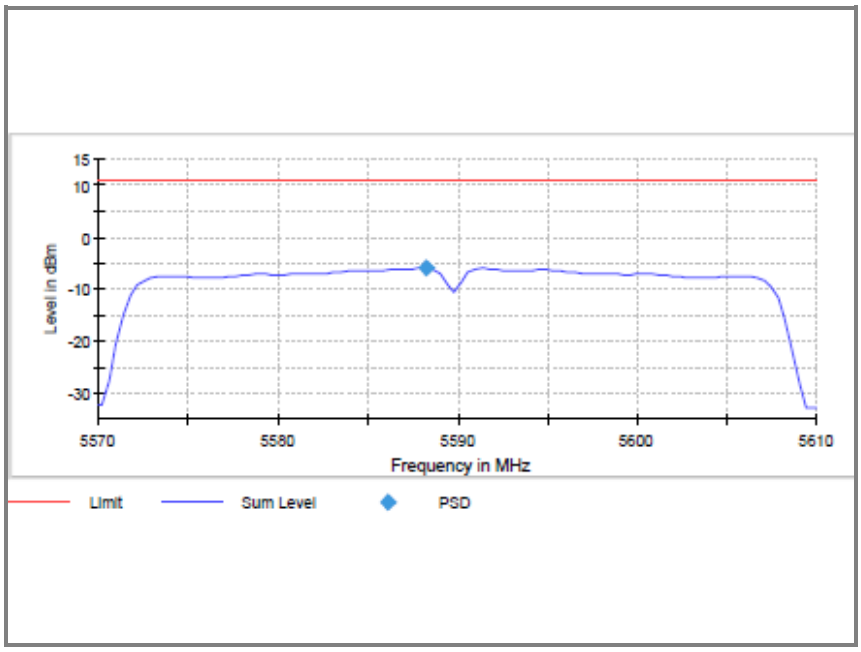


B. Middle channel(5550 ㎒)



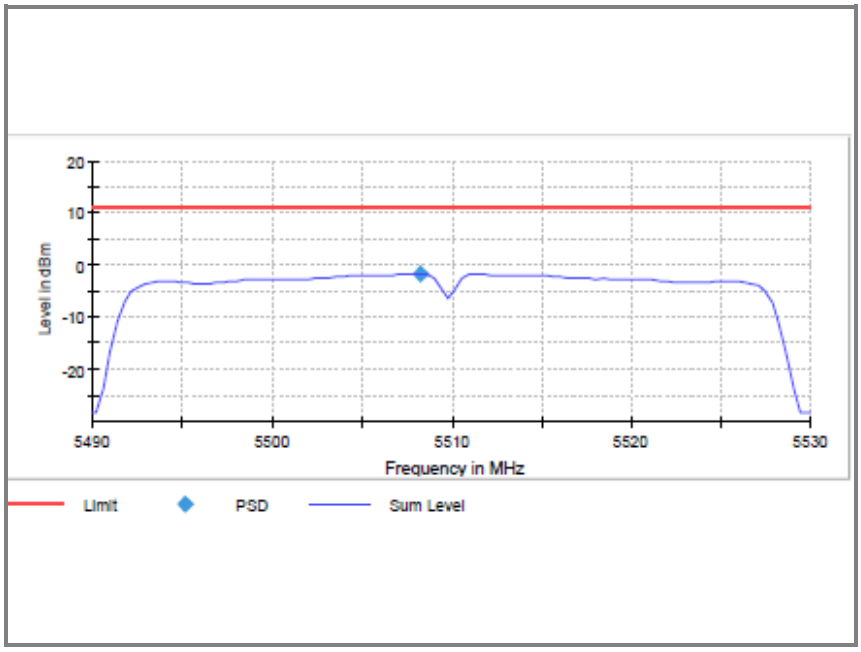
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

C. High channel(5590 ㎒)



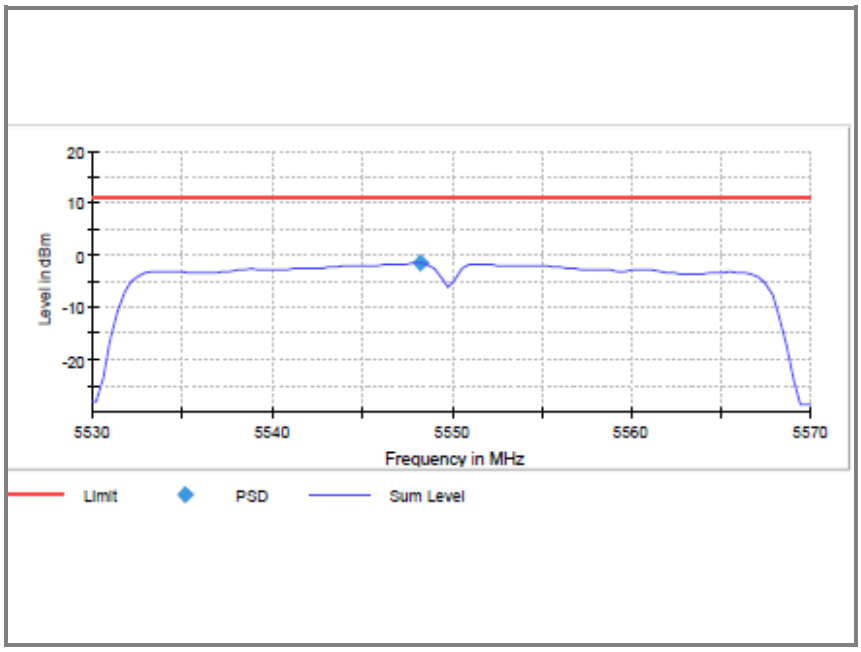
Operation mode: U-NII-2C(n_HT40) Mimo2X2

A. Low channel(5510 ㎒)

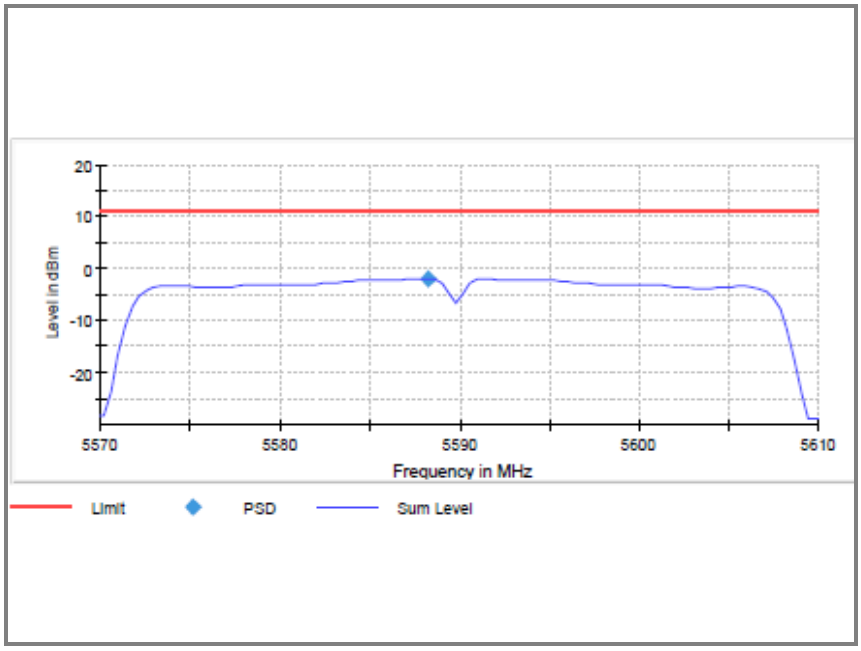


The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

B. Middle channel(5550 ㎒)



C. High channel(5590 ㎒)



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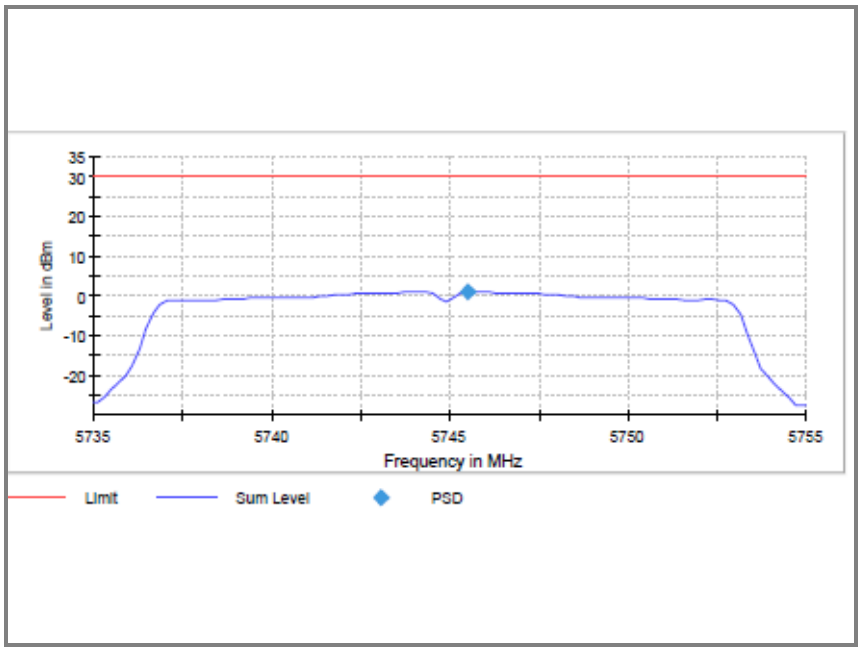
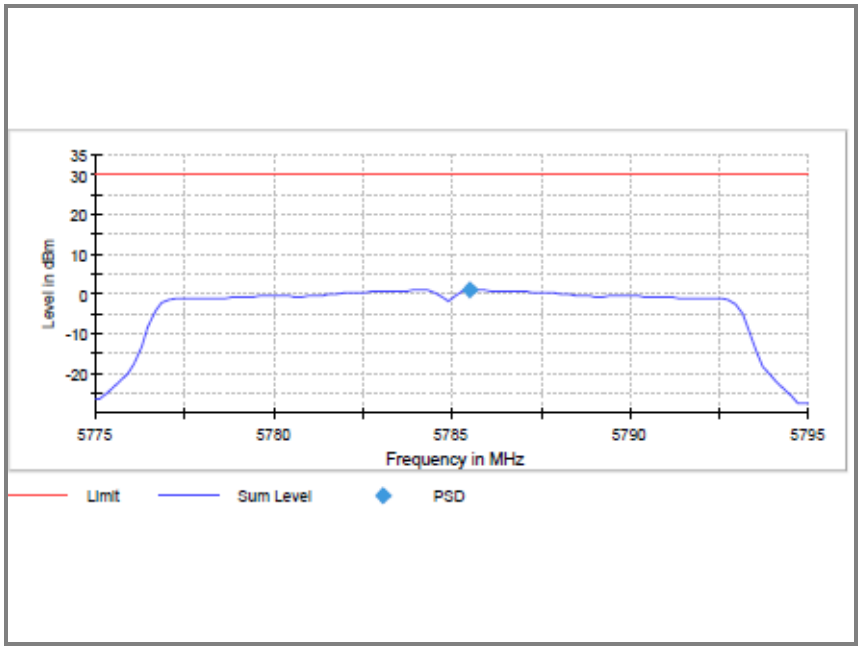
Operation mode: U-NII-3(802.11a) ANT1

A. Low channel(5745 ㎒)



B. Middle channel(5785 ㎒)



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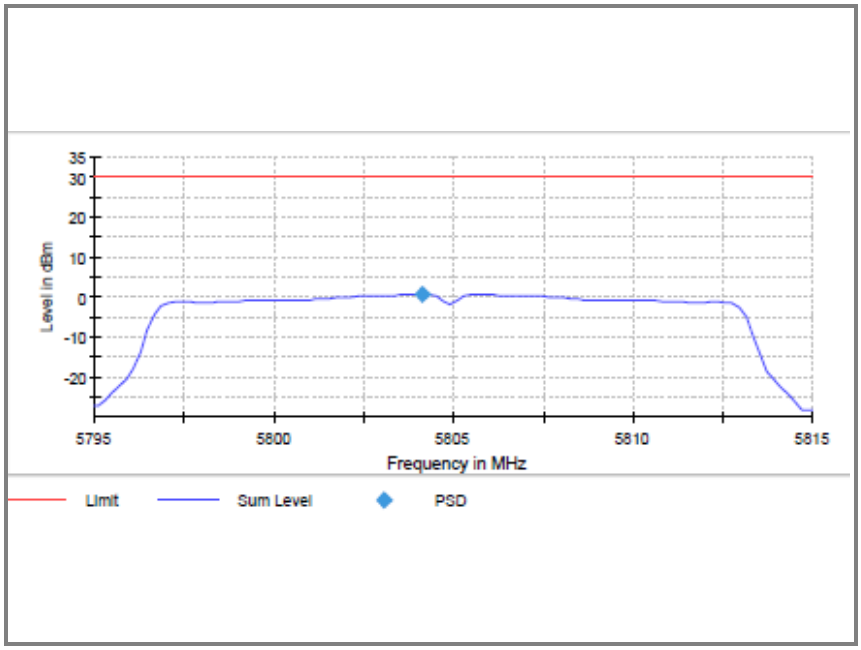
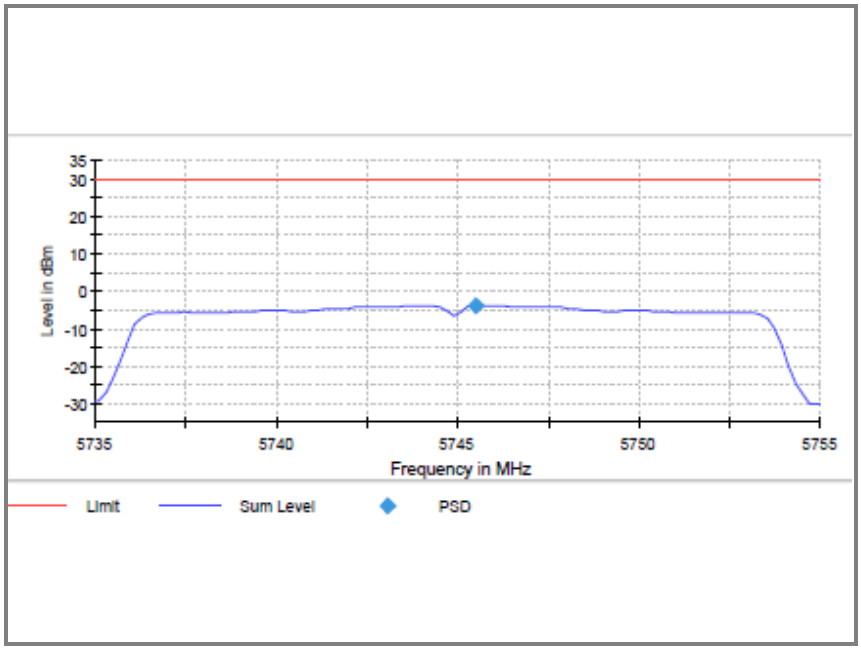
C. High channel(5805 ㎒)



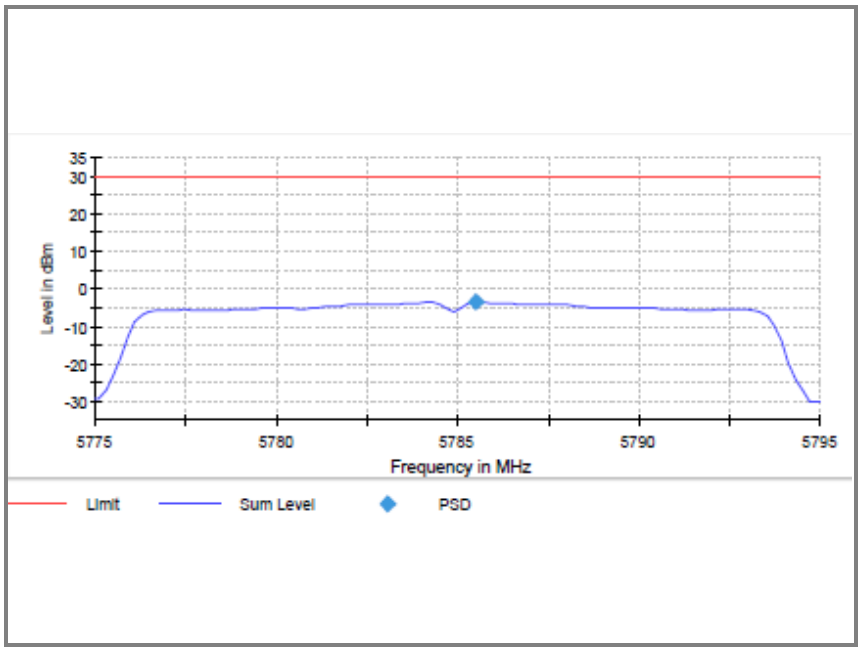
Operation mode: U-NII-3(802.11a) ANT2

A. Low channel(5745 ㎒)

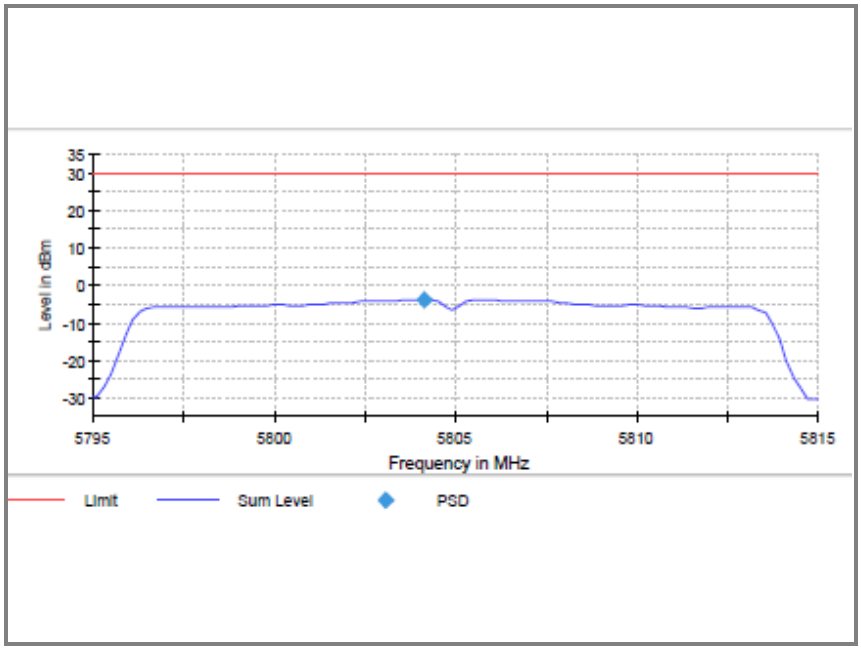


The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

B. Middle channel(5785 ㎒)



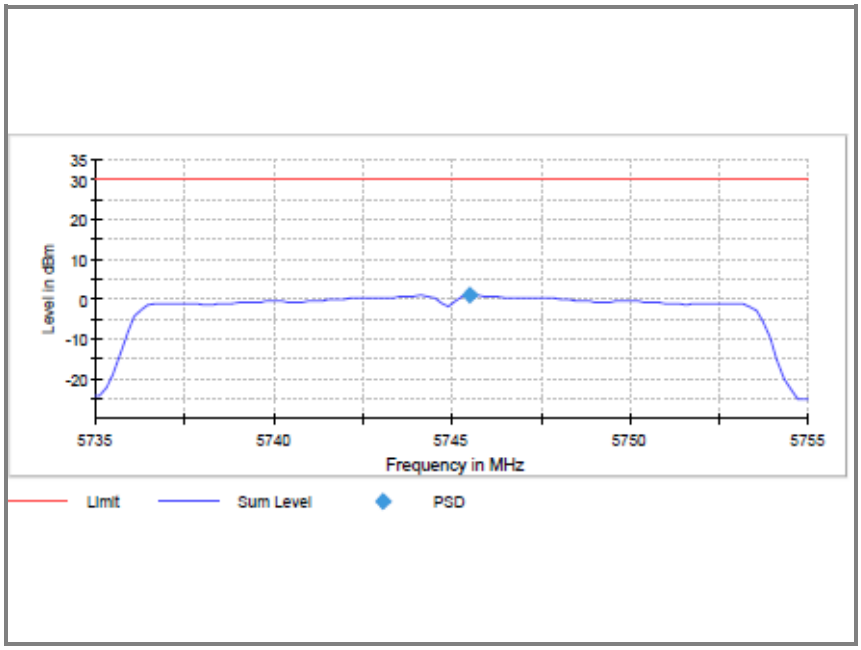
C. High channel(5805 ㎒)



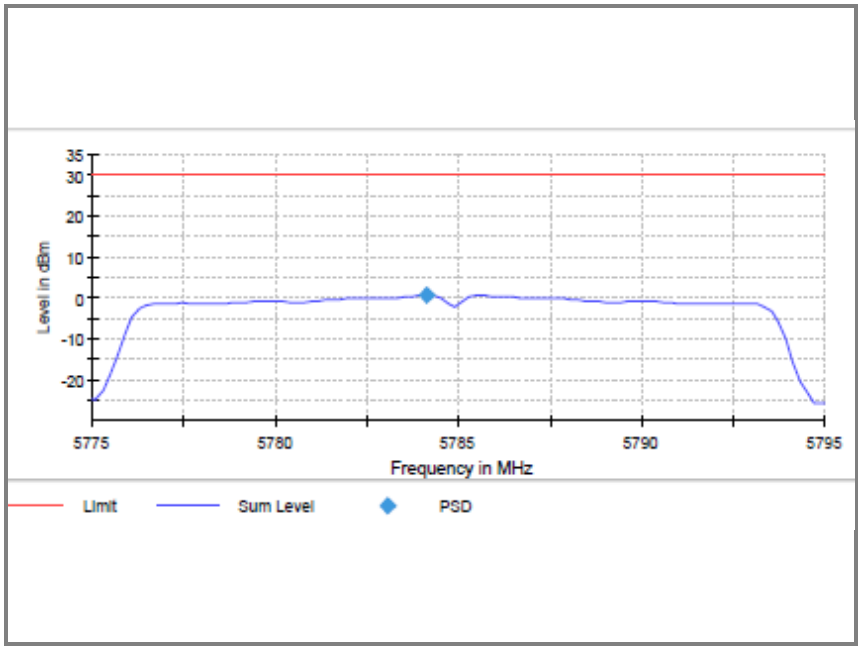
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

Operation mode: U-NII-3(n_HT20) ANT1

A. Low channel(5745 ㎒)



B. Middle channel(5785 ㎒)



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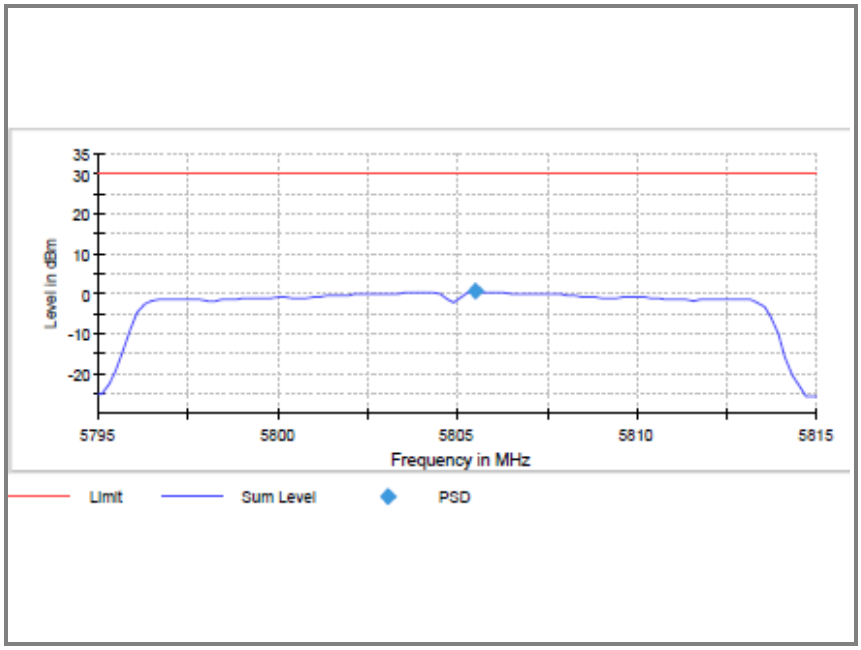
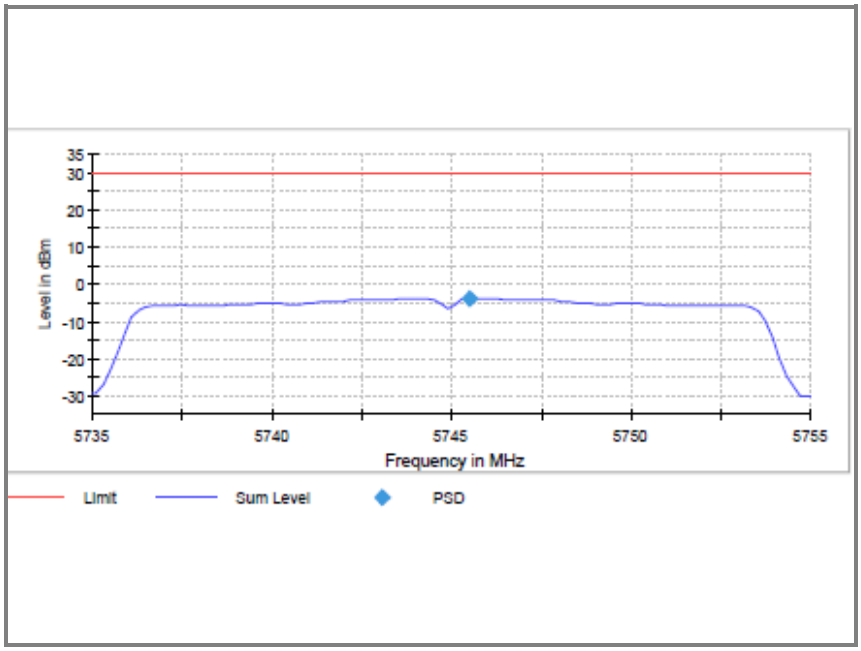
C. High channel(5805 ㎒)



Operation mode: U-NII-3(n_HT20) ANT2

A. Low channel(5745 ㎒)



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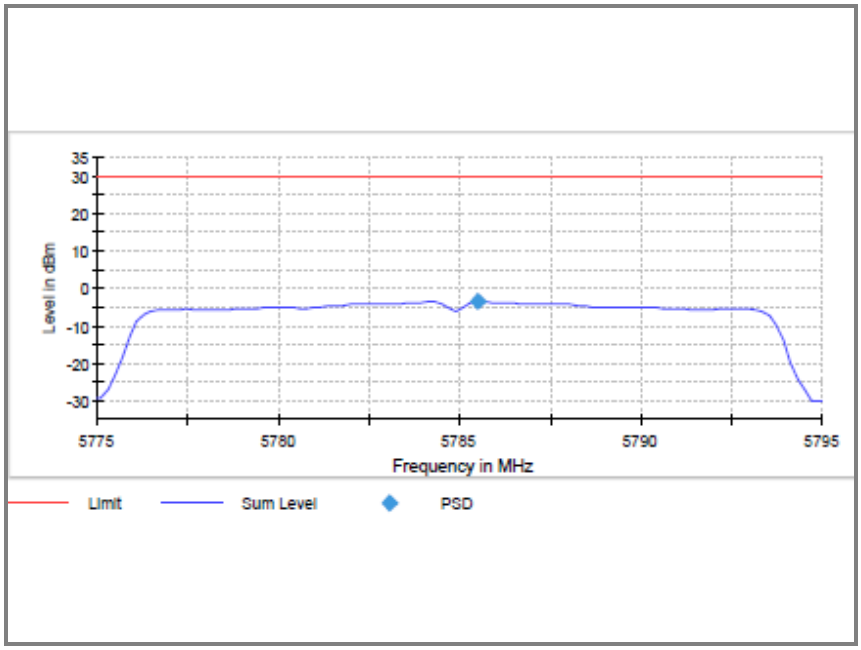
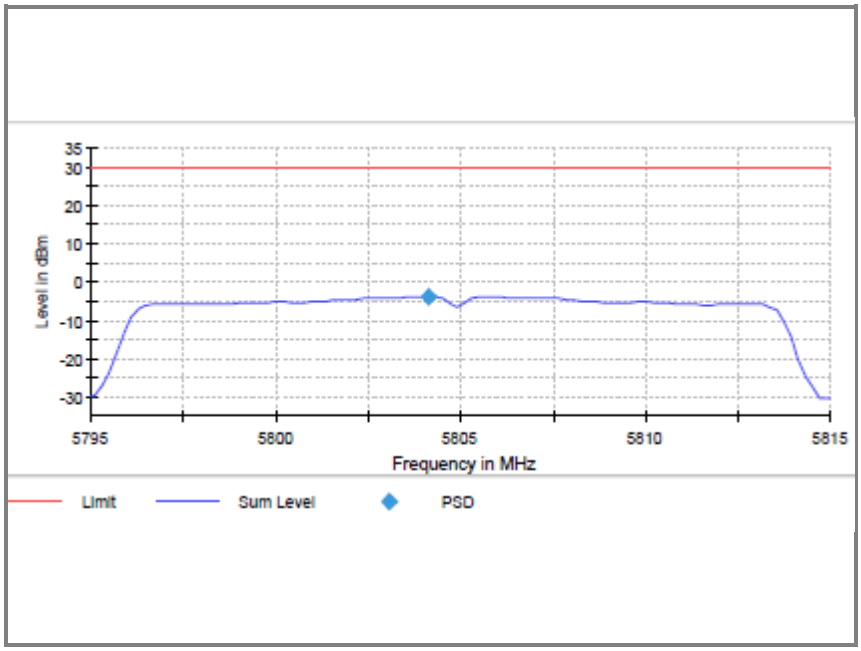
B. Middle channel(5785 ㎒)



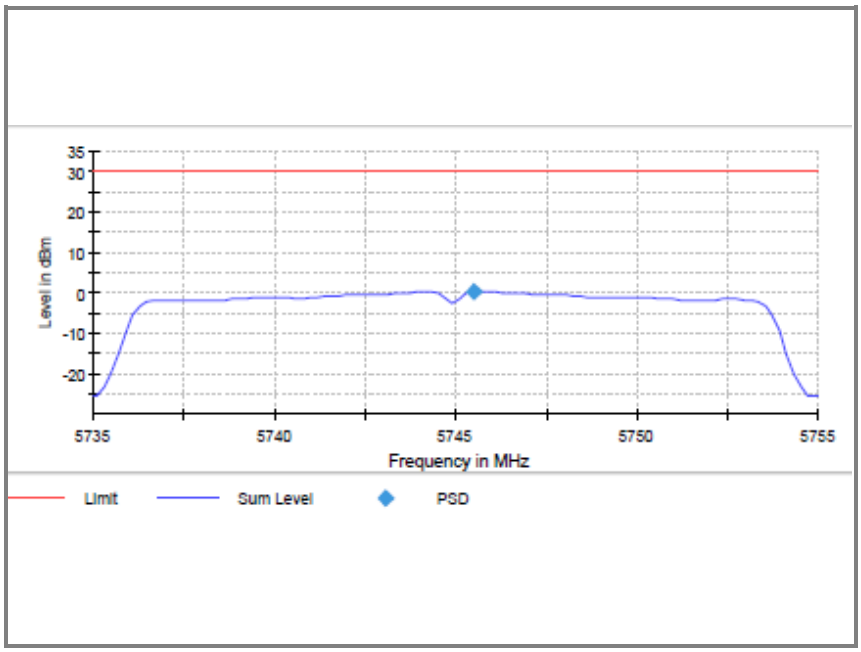
C. High channel(5805 ㎒)



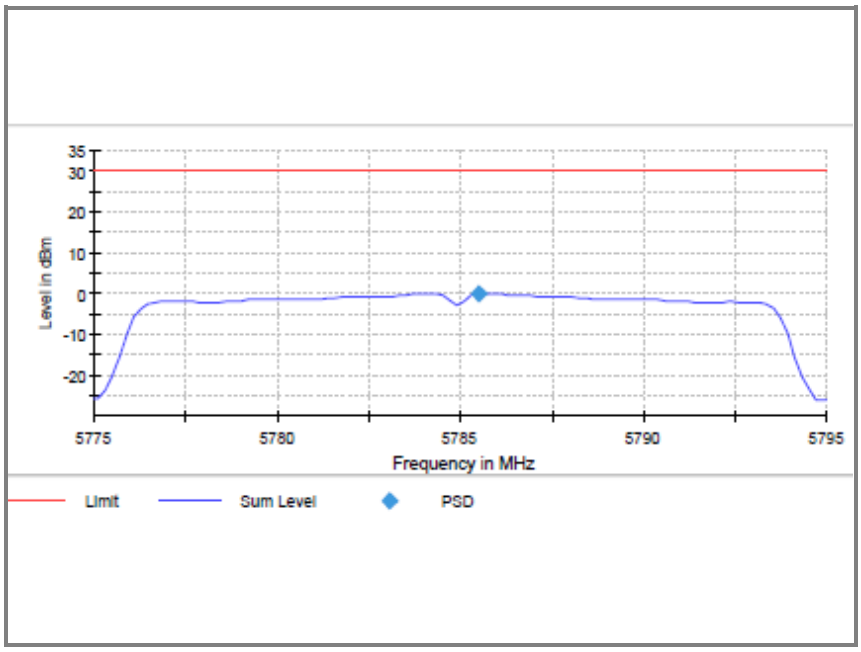
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.This test report cannot be reproduced, except in full, without the written approval ofMOVON CORPORATION.

Operation mode: U-NII-3(n_HT20) Mimo2X2

A. Low channel(5745 ㎒)



B. Middle channel(5785 ㎒)



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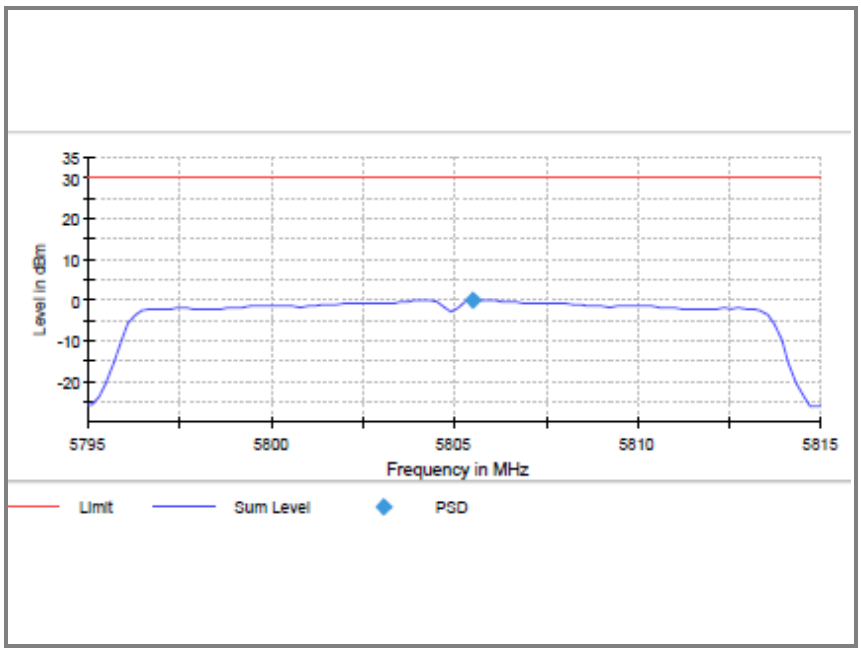
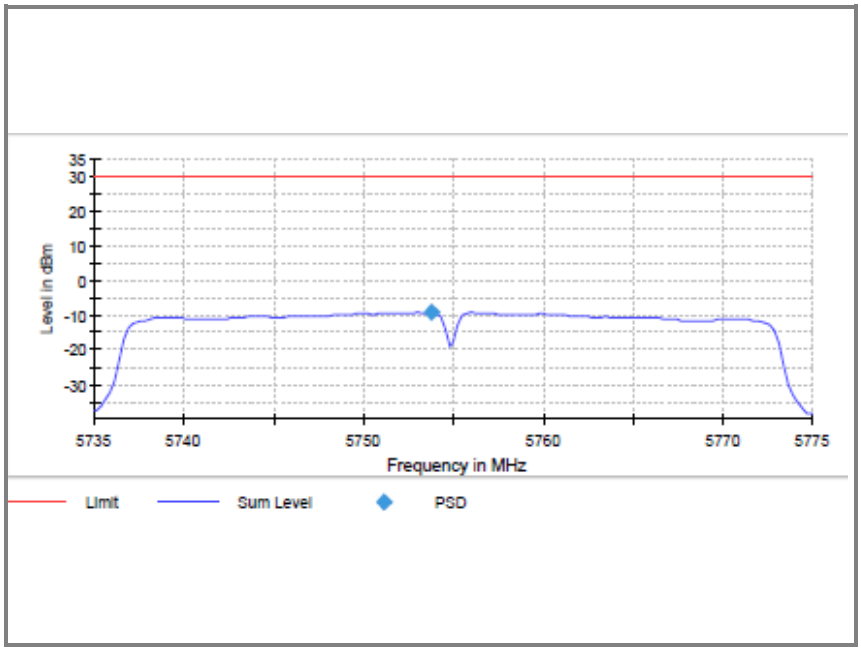
C. High channel(5805 ㎒)



Operation mode: U-NII-3(n_HT40) ANT1

A. Low channel(5755 ㎒)



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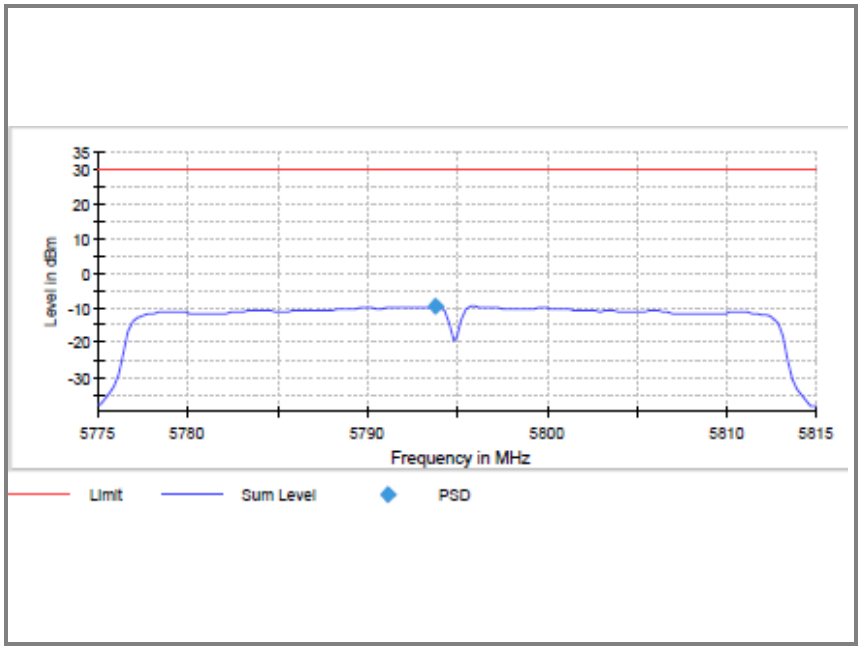
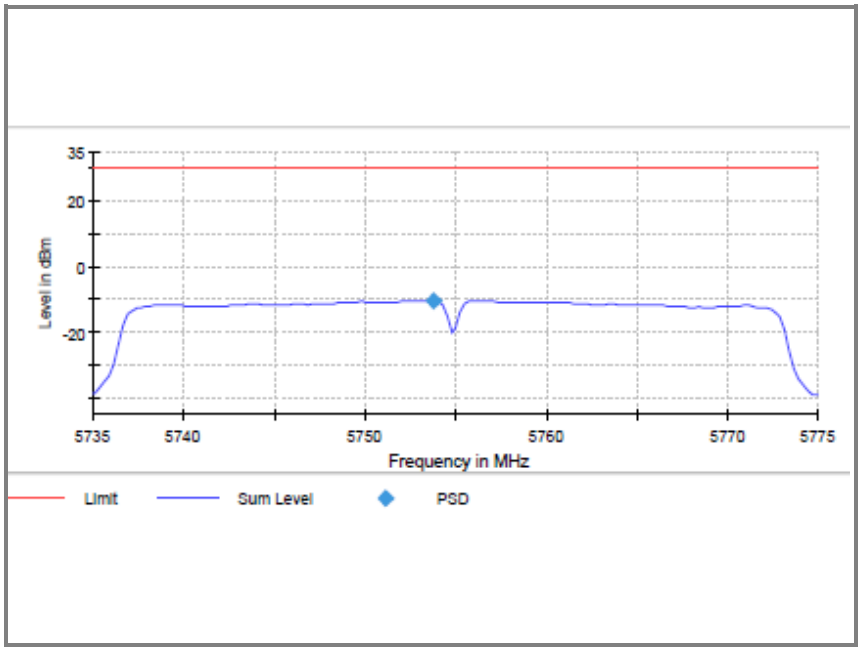
B. High channel(5795 ㎒)



Operation mode: U-NII-3(n_HT40) ANT2

A. Low channel(5755 ㎒)



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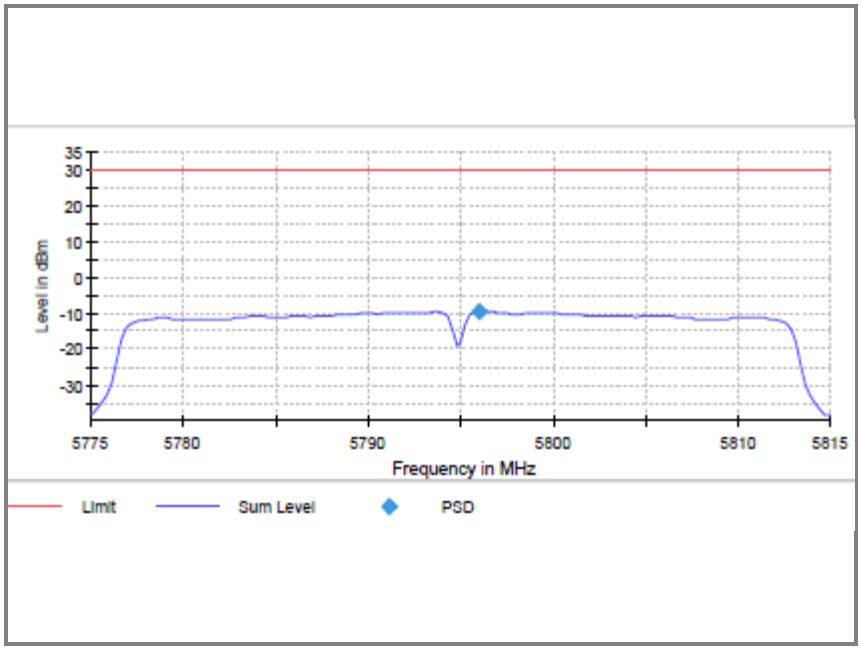
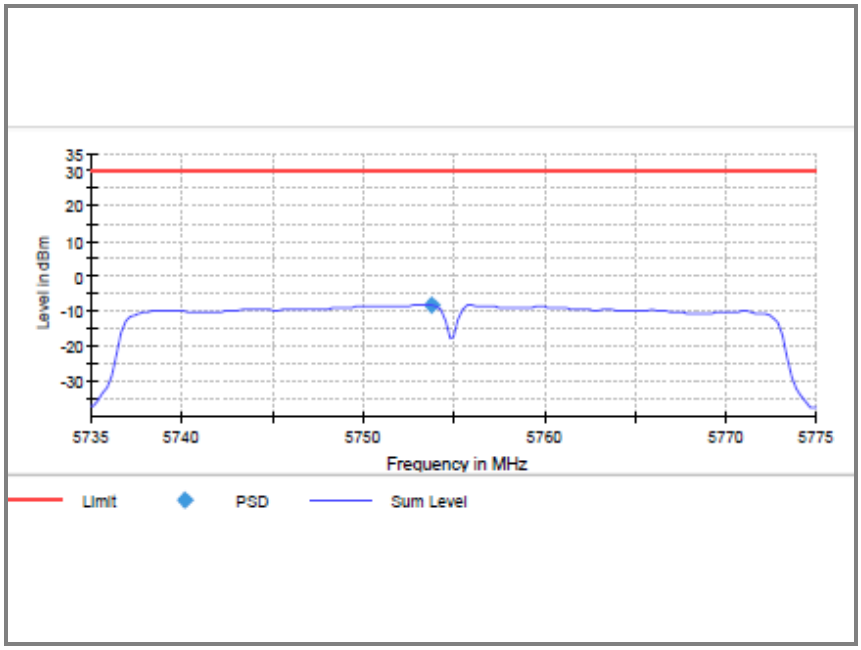
B. High channel(5795 ㎒)



Operation mode: U-NII-3(n_HT40) Mimo2X2

A. Low channel(5755 ㎒)



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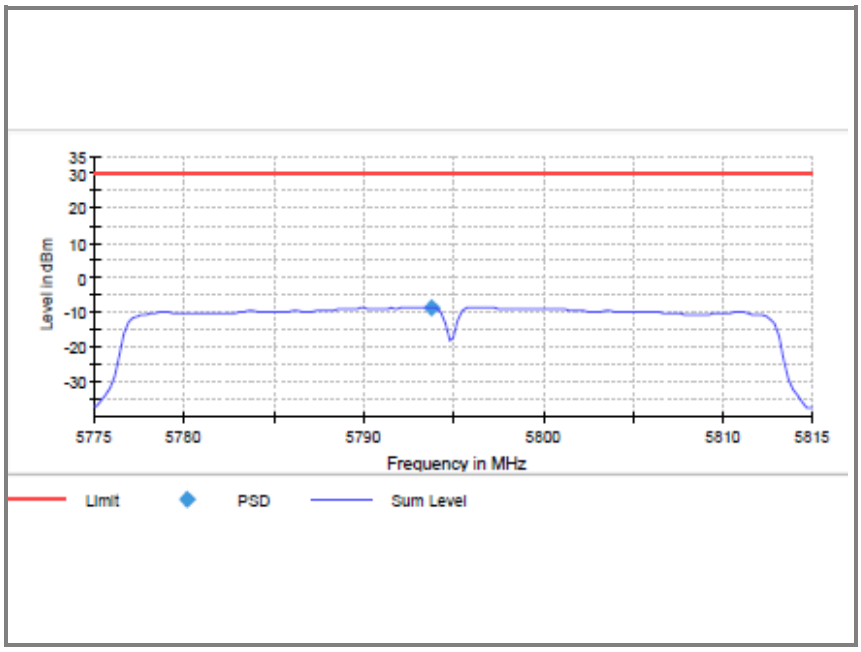
B. High channel(5795 ㎒)



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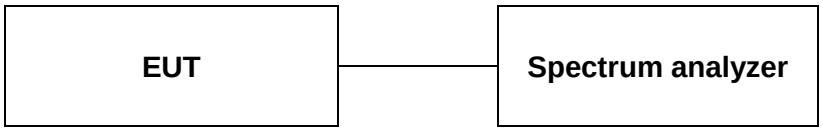
8. 6 dB Bandwidth

8.1. Test setup



8.2. Limit

Within the 5.725-5.85 ㎓ band, the minimum 6 ㏈ bandwidth of U-NII devices shall be at least 500 ㎑.

8.3. Test procedure

Test procedure(KDB 789033)

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

8.4. Test results

Ambient temperature: 21℃
Relative humidity: 45 % R.H.

The worst case test data

Mode	Frequency (㎒)	6 ㏈ bandwidth (㎒)
U-NII-3(802.11a)	5 745	16.26
	5 785	16.26
	5 805	16.46
U-NII-3(n_HT20)	5 745	16.76
	5 785	16.76
	5 805	17.06
U-NII-3(n_HT40)	5 755	35.26
	5 795	35.26

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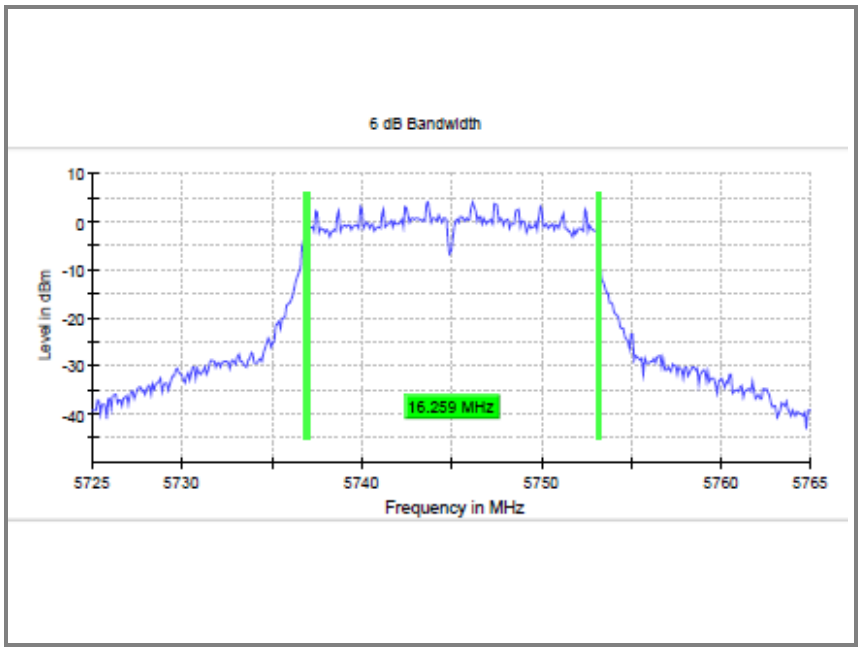
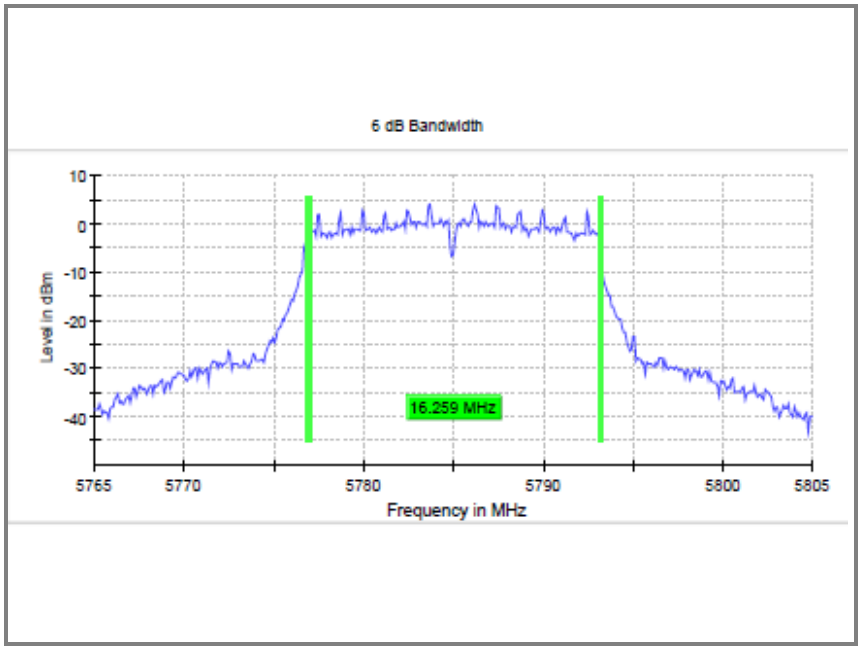
Operation mode: U-NII-3(802.11a)

A. Low channel(5745 ㎒)



B. Middle channel(5785 ㎒)



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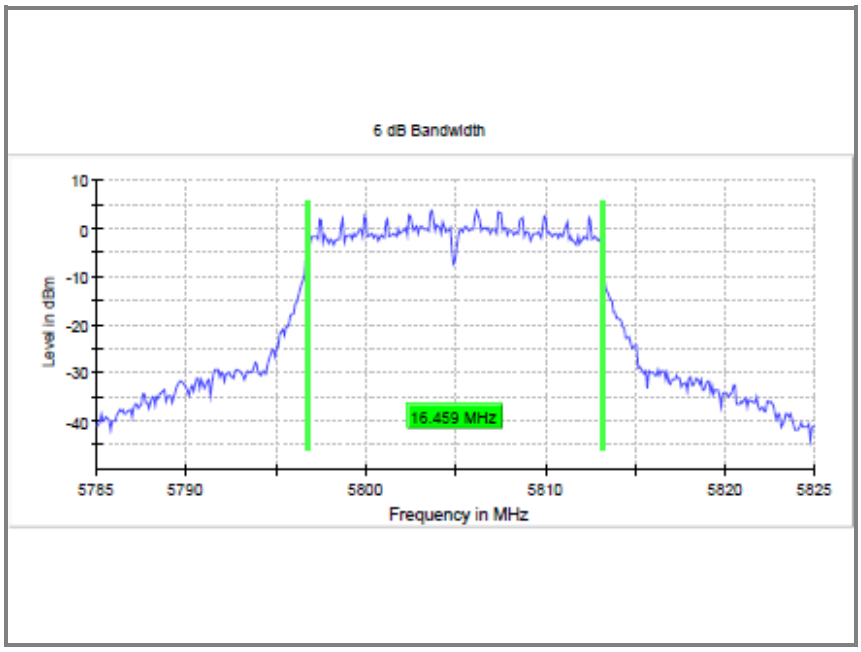
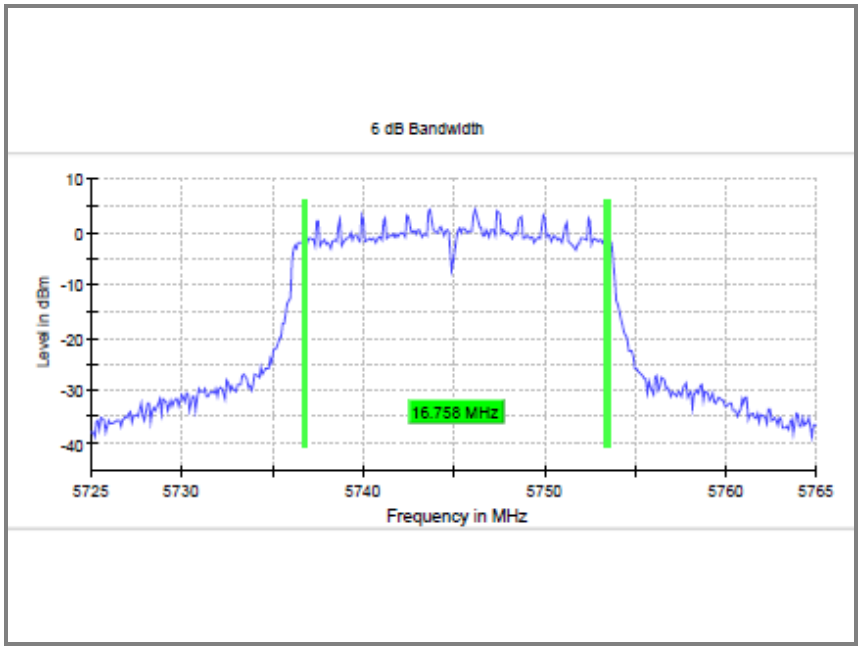
C. High channel(5805 ㎒)



Operation mode: U-NII-3(n_HT20)

A. Low channel(5745 ㎒)



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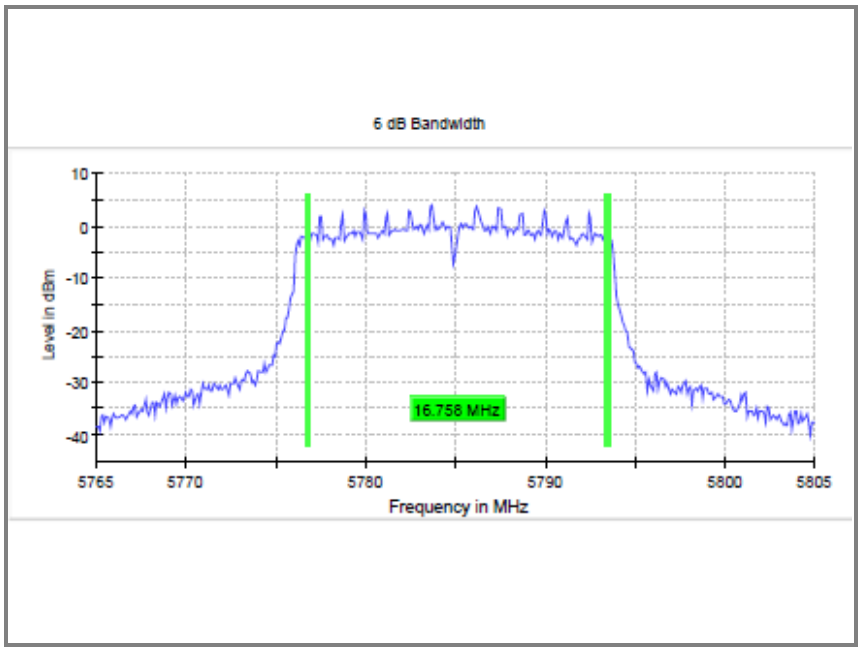
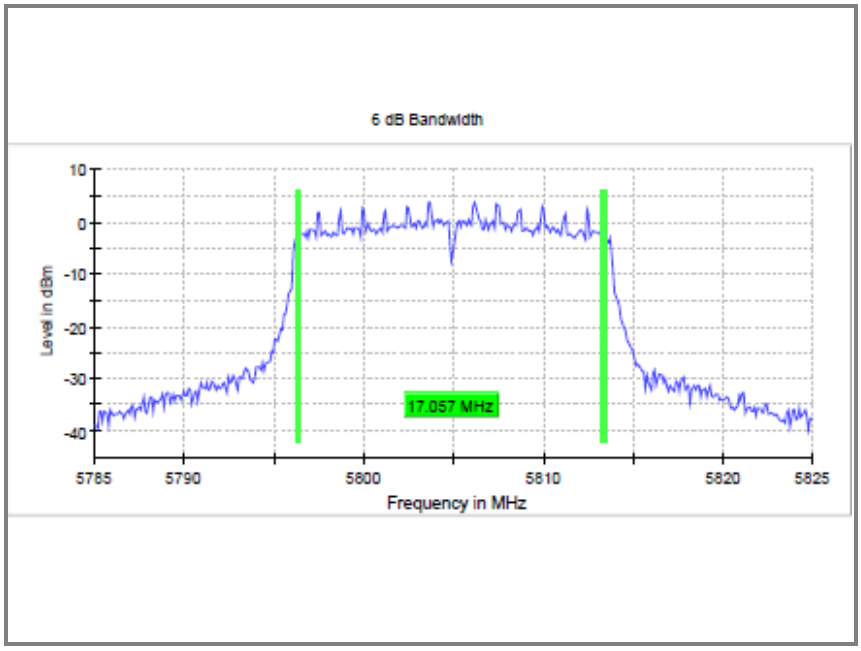
B. Middle channel(5785 ㎒)



C. High channel(5805 ㎒)



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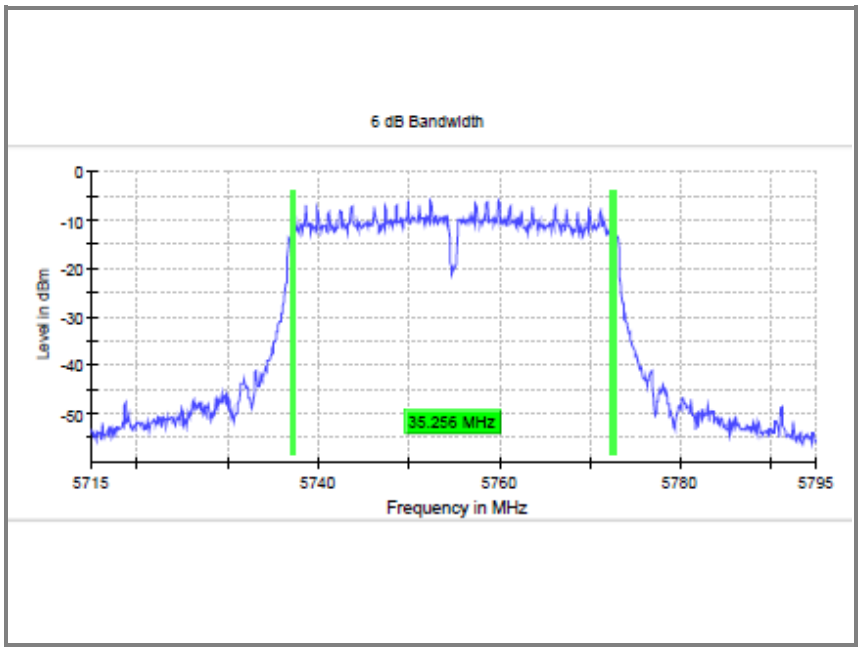
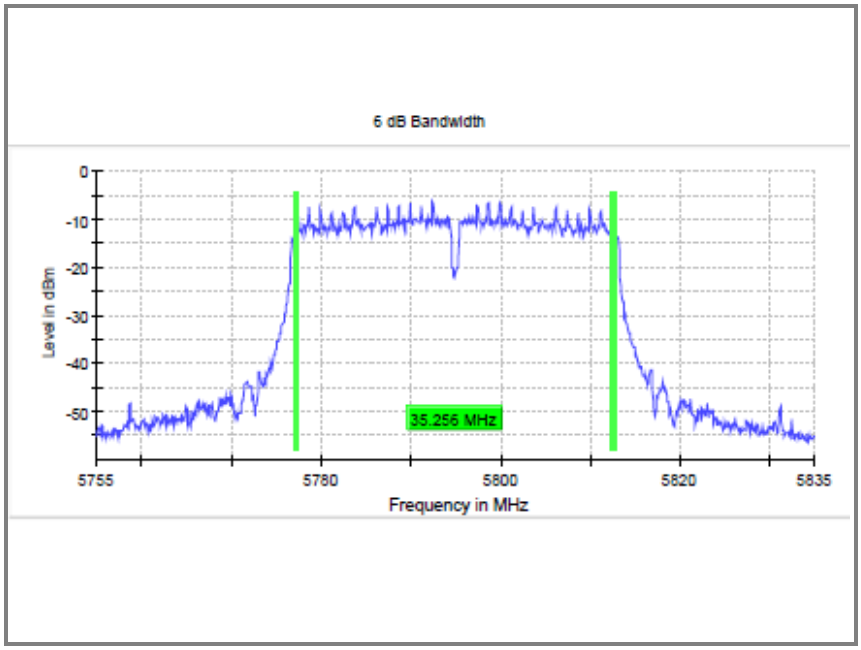
Operation mode: U-NII-3(n_HT40)

A. Low channel(5755 ㎒)



B. High channel(5795 ㎒)



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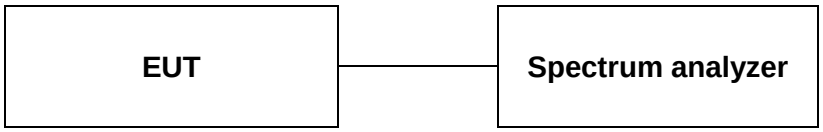
9. Frequency stability

9.1. Test setup



9.2. Limit

Not applicable

9.3. Test procedure

a. The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage.
b. Turn the EUT on and couple its output to a spectrum analyzer.
c. Turn the EUT off and set the chamber to the highest temperature specified.
d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize.
e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

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9.4. Test results

Operation mode: Normal mode
The worst case test data

Operation Frequency :5 180 ㎒ (Worst case)

VOLTAGE (%)	**POWER** (VDC)	TEMP (dB)	**FREQ** (Hz)	**Deviation** (%)
100%	13.5	+20(Ref)	5 179.998 5	-0.000029
100%		-20	5 179.996 1	-0.000075
100%		-10	5 179.991 7	-0.000160
100%		0	5 179.998 6	-0.000027
100%		+10	5 179.997 7	-0.000044
100%		+20	5 179.989 6	-0.000201
100%		+25	5 179.998 3	-0.000033
100%		+30	5 179.998 1	-0.000037
100%		+40	5 179.998 3	-0.000033
100%		+50	5 179.996 8	-0.000062
100%		+60	5 179.995 1	-0.000095
85%	11.48	+20	5 179.991 8	-0.000158
115%	15.53	+20	5 179.998 9	-0.000021

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10. RF exposure evaluation

10.1 Environmental evaluation and exposure limit according to FCC CFR 47 part 1, 1.1307(b), 1.1310

According to §15.247(e)(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines. According to KDB 447498 (2)(a)(i)

Limits for maximum permissible exposure (MPE)

Frequency range (㎒)	Electric field strength(V/m)	Magnetic field strength (A/m)	Power density (㎽/㎠)	Average time
(A) Limits for Occupational / Control exposures				
300 – 1 500	--	--	F/300	6
1 500 – 100 000	--	--	5	6
(B) Limits for General Population / Uncontrol Exposures				
300 – 1 500	--	--	F/1 500	6
1 500 – 100 000	--	--	1	30

10.2. Friis transmission formula : Pd=(Pout*G)\(4*pi*R2)

Where
Pd= Power density in ㎽/㎠
Pout=output power to antenna in ㎽
G= Numeric gain of the antenna relative to isotropic antenna
Pi=3.1416
R= distance between observation point and center of the radiator in cm
Pd the limit of MPE, 1 ㎽/㎠. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

10.3. Test result of RF exposure evaluation

Test Item : RF Exposure evaluation data
Test Mode : Normal operation

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10.4. Output power into antenna & RF exposure evaluation distance

ANT1

Mode	Frequency (㎒)	Output Peak power to antenna (dBm)	Antenna gain(dBi)	Antenna Gain (dBi) Numeric	Powerdensity at 20 ㎝ (㎽/㎠)	Power density Limits (㎽/㎠)
U-NII-1(802.11a)	5 180	12.99	2.00	1.58	0.006 280	1
	5 220	13.02			0.006 323	
	5 240	13.28			0.006 714	
U-NII-1(n_HT20)	5 180	12.92			0.006 179	
	5 220	13.02			0.006 323	
	5 240	13.28			0.006 714	
U-NII-1(n_HT40)	5 190	6.14			0.001 297	
	5 230	6.48			0.001 403	
U-NII-2A(802.11a)	5 260	12.81			0.006 025	
	5 300	13.00			0.006 294	
	5 320	13.61			0.007 244	
U-NII-2A(n_HT20)	5 260	12.83			0.006 053	
	5 300	13.54			0.007 128	
	5 320	13.62			0.007 260	
U-NII-2A(n_HT40)	5 270	6.45			0.001 393	
	5 310	6.20			0.001 315	
U-NII-2C(802.11a)	5 500	14.53			0.008 953	
	5 560	14.60			0.009 098	
	5 620	13.68			0.007 361	
U-NII-2C(n_HT20)	5 500	14.57			0.009 035	
	5 560	14.62			0.009 140	
	5 620	13.73			0.007 446	
U-NII-2C(n_HT40)	5 510	7.86			0.001 927	
	5 550	7.99			0.001 986	
	5 590	7.76			0.001 883	
U-NII-3(802.11a)	5 745	13.37			0.006 854	
	5 785	13.36			0.006 838	
	5 805	13.14			0.006 501	
U-NII-3(n_HT20)	5 745	13.36			0.006 838	
	5 785	13.20			0.006 591	
	5 805	13.11			0.006 456	
U-NII-3(n_HT40)	5 755	6.55			0.001 425	
	5 795	6.32			0.001 352	

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ANT2

Mode	Frequency (㎒)	Output Peak power to antenna (dBm)	Antenna gain(dBi)	Antenna Gain (dBi) Numeric	Powerdensity at 20 ㎝ (㎽/㎠)	Power density Limits (㎽/㎠)
U-NII-1(802.11a)	5 180	6.23	2.00	1.58	0.001 324	1
	5 220	6.18			0.001 309	
	5 240	6.01			0.001 259	
U-NII-1(n_HT20)	5 180	8.24			0.002 104	
	5 220	8.04			0.002 009	
	5 240	8.01			0.001 995	
U-NII-1(n_HT40)	5 190	4.36			0.000 861	
	5 230	4.00			0.000 792	
U-NII-2A(802.11a)	5 260	8.73			0.002 355	
	5 300	8.05			0.002 013	
	5 320	8.69			0.002 333	
U-NII-2A(n_HT20)	5 260	8.33			0.002 148	
	5 300	8.33			0.002 148	
	5 320	8.38			0.002 172	
U-NII-2A(n_HT40)	5 270	3.58			0.000 719	
	5 310	3.21			0.000 661	
U-NII-2C(802.11a)	5 500	10.35			0.003 419	
	5 560	10.62			0.003 639	
	5 620	10.05			0.003 191	
U-NII-2C(n_HT20)	5 500	10.01			0.003 162	
	5 560	10.37			0.003 435	
	5 620	9.78			0.002 999	
U-NII-2C(n_HT40)	5 510	6.24			0.001 327	
	5 550	6.67			0.001 465	
	5 590	6.91			0.001 549	
U-NII-3(802.11a)	5 745	9.01			0.002 512	
	5 785	9.01			0.002 512	
	5 805	9.27			0.002 667	
U-NII-3(n_HT20)	5 745	8.96			0.002 483	
	5 785	9.14			0.002 588	
	5 805	8.93			0.002 466	
U-NII-3(n_HT40)	5 755	5.54			0.001 130	
	5 795	6.25			0.001 330	

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2X2 Mimo

Mode	Frequency (㎒)	Output Peak power to antenna (dBm)	Antenna gain(dBi)	Antenna Gain (dBi) Numeric	Powerdensity at 20 ㎝ (㎽/㎠)	Power density Limits (㎽/㎠)
U-NII-1(n_HT20)	5 180	13.23	2.00	1.58	0.006 637	1
	5 220	13.62			0.007 260	
	5 240	13.92			0.007 779	
U-NII-1(n_HT40)	5 190	9.09			0.002 558	
	5 230	9.21			0.002 630	
U-NII-2A(n_HT20)	5 260	13.52			0.007 095	
	5 300	14.09			0.008 090	
	5 320	14.22			0.008 336	
U-NII-2A(n_HT40)	5 270	9.51			0.002 818	
	5 310	9.34			0.002 710	
U-NII-2C(n_HT20)	5 500	15.25			0.010 567	
	5 560	14.84			0.009 615	
	5 620	14.49			0.008 871	
U-NII-2C(n_HT40)	5 510	10.96			0.003 935	
	5 550	10.98			0.003 953	
	5 590	10.92			0.003 899	
U-NII-3(n_HT20)	5 745	12.80			0.006 011	
	5 785	12.62			0.005 767	
	5 805	12.58			0.005 714	
U-NII-3(n_HT40)	5 755	7.28			0.001 686	
	5 795	7.24			0.001 671	

※ Remark

The power density P_d (5th column) at a distance of 20 ㎝ calculated from the friis transmission formula is far below the limit of 1 ㎽/㎠ .

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11. Antenna requirement

11.1 Standard Applicable:

According to §15.203, Antenna requirement.

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sec- tions 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field dis- turbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

11.2 Antenna Connected Construction:

The directional gins of antenna used for transmitting is below table, and the antenna connector is designed with fixed type RF connector and no consideration of replacement. Please see EUT photo and antenna spec. for details.

	P/N	Gain
Ant1	EPWD1-B150UT	2.00 dBi
Ant2		2.00 dBi
Directional gain (Mimo)		5.01 dBi

※ Remark

Directional gain = Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}]$ dBi

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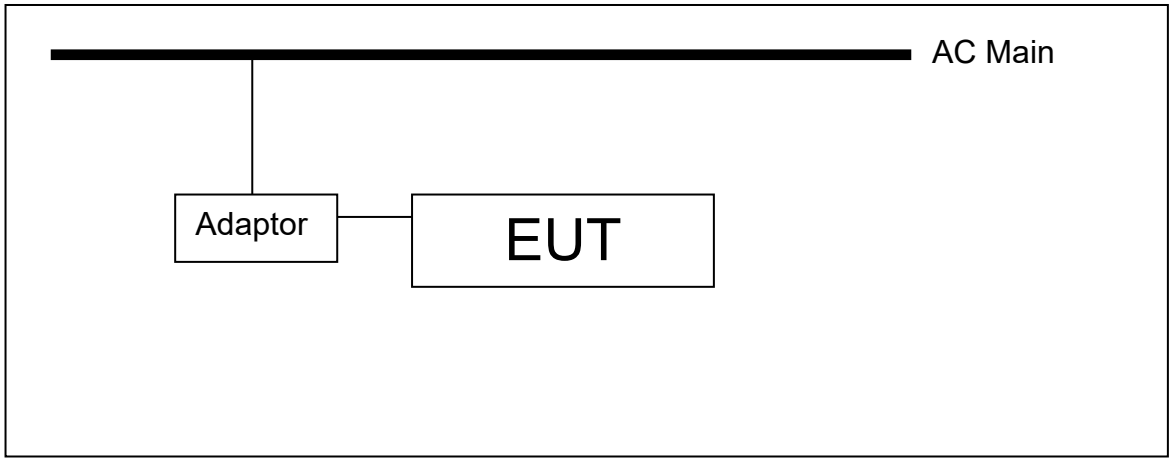
12. AC Conducted power line test

12.1 Test setup



12.2 Limit

According to §15.107(a) for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power lineon any frequency or frequencies, within the band 150 ㎑ to 30 ㎒, shall not exceed the limitsin the following table, as measured using a 50 uH/50ohm line impedance stabilization network(LISN).

Compliance with the provision of this paragraph shall on the measurement of the radio frequencyvoltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequencies ranges.

Frequency of Emission (㎒)	Conducted limit (dB㎶/m)	
	Quasi-peak	Average
0.15 – 0.50	66-56*	56-46*
0.50 – 5.00	56	46
5.00 – 30.0	60	50

※ **Remark**

Decreases with the logarithm of the frequency.

12.3 Test procedures

The test procedure is performed in a 6.5 m × 3.6 m × 3.6 m (L×W×H) shielded room. The EUTalong with its peripherals were placed on a 1.0m(W)× 1.5m(L) and 0.8m in heightwooden table and the EUT was adjusted to maintain a 0.4 meter space from a verticalreference plane.

The EUT was connected to power mains through a line impedancestabilization network (LISN) which provides 50 ohm coupling impedance for measuringinstrument and the chassis ground was bounded to the horizontal ground plane of shieldedroom. All peripherals were connected to the second LISN and the chassis ground alsobounded to the horizontal ground plane of shielded room. The excess power cablebetween the EUT and the LISN was bundled. The power cables of peripherals wereunbundled. All connecting cables of EUT and peripherals were moved to find themaximum emission.

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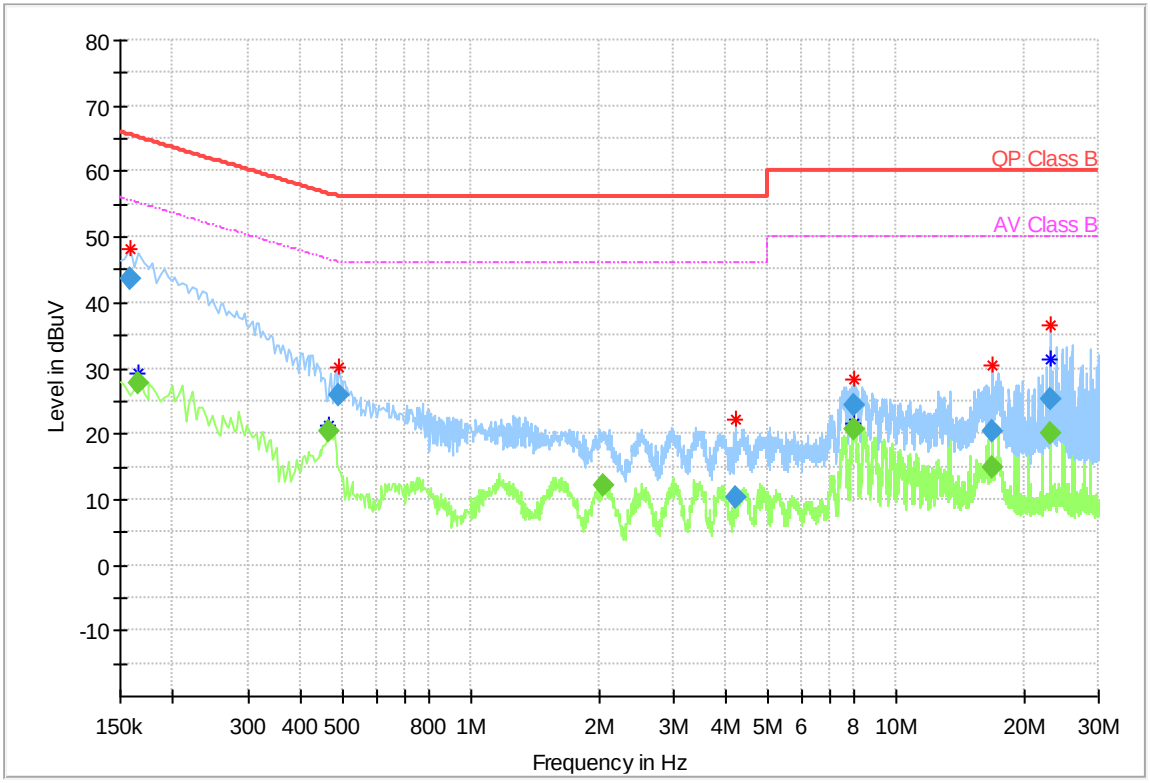
12.4 Test results

Ambient temperature: 22℃
Relative humidity: 45% R.H.

Frequency range: 0.15 ㎒ ~ 30 ㎒
Measured bandwidth: 9 ㎑



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.16	43.70	---	65.57	21.87	7000.0	9.00	N	GND	9.99
0.17	---	27.62	55.16	27.54	7000.0	9.00	L1	GND	10.00
0.47	---	20.47	46.59	26.12	7000.0	9.00	L1	GND	10.02
0.49	25.77	---	56.17	30.40	7000.0	9.00	N	GND	10.01
2.06	---	12.01	46.00	33.99	7000.0	9.00	L1	GND	10.14
4.21	10.23	---	56.00	45.77	7000.0	9.00	N	GND	10.27
7.95	24.35	---	60.00	35.65	7000.0	9.00	L1	GND	10.66
7.96	---	20.77	50.00	29.23	7000.0	9.00	L1	GND	10.66
16.89	---	14.78	50.00	35.22	7000.0	9.00	N	GND	11.03
16.89	20.24	---	60.00	39.76	7000.0	9.00	N	GND	11.03
23.12	25.21	---	60.00	34.79	7000.0	9.00	L1	GND	11.41
23.12	---	20.14	50.00	29.86	7000.0	9.00	L1	GND	11.41

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