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Test report

347879-3TRFWL

Date of issue: March 15, 2018

Applicant:

ARRIS

Product:

Xi6-A

Model:

Xi6-A

FCC ID:

ACQ-XI6

ISED ID:

109AS-XI6

Specifications:

- FCC 47 CFR Part 15 Subpart E, §15.407

  Unlicensed National Information Infrastructure Devises

- RSS-247, Issue 2, Section 6, Feb 2017

  Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

Test location

Company name	Nemko Canada Inc.
Address	292 Labrosse Avenue
City	Pointe-Claire
Province	QC
Postal code	H9R 5L8
Country	Canada
Telephone	+1 514 694 2684
Facsimile	+1 514 694 3528
Toll free	+1 800 563 6336
Website	www.nemko.com
Site number	FCC: CA2041; ISED: 2040G-5 (3 m semi anechoic chamber)

Tested by	Yong Huang Wireless/EMC Specialist
Reviewed by	Kevin Rose, Wireless/EMC Specialist
Review date	March 15, 2018
Reviewer signature	

Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.
This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

Copyright notification

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Section 1. Report summary

1.1 Applicant and manufacturer

Company name	ARRIS
Address	101 Tournament Drive
City	Horsham
Province/State	PA
Postal/Zip code	19044
Country	US

1.2 Test specifications

FCC 47 CFR Part 15, Subpart E, Clause 15.407 RSS-247, Issue 2, February 2017	Unlicensed National Information Infrastructure Devises Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

1.3 Test methods

789033 D02 General UNII Test Procedures New Rules v02r01 (Dec 14, 2017)	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E
662911 D01 Multiple Transmitter Output v02r01 (October 31, 2013)	Emissions Testing of Transmitters with Multiple Outputs in the Same Band
662911 D02 MIMO with Cross Polarized Antenna v01 (October 25, 2011)	Emissions testing of transmitters with multiple outputs in the same band (MIMO) with Cross Polarized Antenna
905462D02 UNII DFS Compliance Procedures New Rules v02(April 8, 2016)	Compliance Measurement Procedures for Unlicensed National Information Infrastructure Devices Operating in the 5250-5350 MHz and 5470-5725 MHz Bands Incorporating Dynamic Frequency Selection
905462 D03 Client Without DFS New Rulesv01r02(August 22, 2016)	U-NII Client Device without Detection Capability
ANSI C63.10 v2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

1.4 Statement of compliance

In the configuration tested, the EUT was found compliant.

Testing was completed against all relevant requirements of the test standard. Results obtained indicate that the product under test complies in full with the requirements tested. The test results relate only to the items tested.

See "Summary of test results" for full details.

1.5 Exclusions

None

1.6 Test report revision history

Revision #	Details of changes made to test report
TRF	Original report issued

Section 2. Summary of test results

2.1 FCC Part 15 Subpart C, general requirements test results

Part	Test description	Verdict
§15.31(e)	Variation of power source	Pass[1]
§15.203	Antenna requirement	Pass[2]

Notes: [1] Measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, was performed with the supply voltage varied between 85 % and 115 % of the nominal rated supply voltage. No noticeable output power variation was observed

[2]The Antennas are located within the enclosure of EUT and not user accessible.

2.2 FCC Part 15 Subpart E, test results

Part	Test description	Verdict
§15.403(i)	Emission bandwidth	Pass
§15.407(a)(1)	Power and density limits within 5.15–5.25 GHz band	Not applicable
§15.407(a)(2)	Power and density limits within 5.25–5.35 GHz and 5.47–5.725 GHz bands	Pass
§15.407(a)(3)	Power and density limits within 5.725–5.85 GHz band	Not applicable
§15.407(b)(1)	Undesirable emission limits for 5.15–5.25 GHz band	Not applicable
§15.407(b)(2)	Undesirable emission limits for 5.25–5.35 GHz band	Not applicable
§15.407(b)(3)	Undesirable emission limits for 5.47–5.725 GHz bands	Pass
§15.407(b)(4)	Undesirable emission limits for 5.725–5.85 GHz band	Not applicable
§15.407(b)(6)	Conducted limits for U-NII devices using an AC power line	Pass
§15.407(e)	Minimum 6 dB bandwidth of U-NII devices within the 5.725-5.85 GHz band	Not applicable
§15.407(g)	Frequency stability	Pass
§15.407(h)(1)	Transmit power control (TPC)	Not applicable[1]
§15.407(h)(2)	Dynamic Frequency Selection (DFS)	Pass

Notes: [1] Not applicable to systems with an e.i.r.p. of less than 500 mW.

2.3 RSS-Gen, Issue 4, test results

Part	Test description	Verdict
6.6	Occupied Bandwidth	Pass
7.1.2[1]	Receiver radiated emission limits	Not applicable
7.1.3[1]	Receiver conducted emission limits	Not applicable
8.8	Power Line Conducted Emissions Limits for Licence-Exempt Radio Apparatus	Pass
8.11[2]	Frequency stability	Pass

Notes: [1] According to sections 5.2 and 5.3 of RSS-Gen, Issue 4: if EUT does not have a stand-alone receiver neither scanner receiver, then it exempt from receiver requirements.

[2] According to section 8.11 of RSS-Gen, Issue 4: if the frequency stability of the licence-exempt radio apparatus is not specified in the applicable standard (RSS), measurement of the frequency stability is not required

2.4 ISED RSS-247, Issue 2, test results

Section	Test description	Verdict
6.1[1]	Types of Modulation	Pass[1]
6.2.1.1	Power limits for 5150–5250 MHz band	Not applicable
6.2.2.1	Power limits for 5250–5350 MHz band	Not applicable
6.2.3.1	Power limits for 5470–5600 MHz and 5650–5725 MHz bands	Pass
6.2.4.1	Power limits for 5725–5850 MHz band	Not applicable
6.2.4.1	Minimum 6 dB bandwidth	Not applicable
6.2.1.2	Unwanted emission limits for 5150–5250 MHz band	Not applicable
6.2.2.2	Unwanted emission limits for 5250–5350 MHz band	Not applicable
6.2.2.2	TPC requirements for devices with a maximum e.i.r.p. greater than 500 mW	Not applicable
6.2.2.3	Additional requirements for 5250–5350 MHz band	Not applicable
6.2.3.2	Unwanted emission limits for 5470–5600 MHz and 5650–5725 MHz bands	Pass
6.2.4.2	Unwanted emission limits for 5725–5850 MHz band	Not applicable
6.3	Dynamic Frequency Selection (DFS) for devices operating in the bands 5250–5350 MHz, 5470–5600 MHz and 5650–5725 MHz	Pass

Notes: [1] The EUT employs digital modulation: 802.11a/n/ac

Section 3. Equipment under test (EUT) details

3.1 Sample information

Receipt date	January 29, 2018
Nemko sample ID number	Item #1

3.2 EUT information

Product name	Xi6-A
Model	Xi6-A
Serial number	M11742TK0022

3.3 Technical information

Applicant IC company number	109AS
IC UPN number	XI6
All used IC test site(s) Reg. number	2040G-5
RSS number and Issue number	RSS-247 Issue 2, Section 6, February 2017
Frequency band	5470–5725 MHz
Frequency Min (MHz)	5500(20 MHz channel); 5510 (40 MHz channel); 5530 (80 MHz channel)
Frequency Max (MHz)	5720(20 MHz channel); 5710 (40 MHz channel); 5690 (80 MHz channel)
Measured BW (MHz) (26 dB)	20.74 (20 MHz channel); 41.28 (40 MHz channel); 82.96 (80 MHz channel)
Measured BW (MHz) (99%)	17.46(20 MHz channel); 35.96 (40 MHz channel); 75.28 (80 MHz channel)
Type of modulation	OFDM
Emission classification (F1D, G1D, D1D)	W7D
Transmitter spurious, Units @ distance	53.84 dBµV/m @3m, average at 5.47 GHz
Power requirements	120 V_{AC}, 60 Hz
Antenna information	The EUT uses a unique antenna coupling/ non-detachable antenna to the intentional radiator. Antenna gain as following:

frequency MHz	ant 1,dbi	ant2, dbi
5150	3.8	2.6
5200	3.4	2.7
5300	3.1	3.3
5400	3	3.7
5500	3	3.8
5600	2.7	3.7
5700	2.9	3.8
5800	3	3.6
5850	3.1	4

3.4 Product description and theory of operation

The EUT is a 2×2 MIMO carrier grade broadband wireless infrastructure product, designed to operate indoor in the 5GHz bands.

3.5 EUT exercise details

The EUT was controlled to transmit continuously at desired frequency and modulation from laptop using QRCT interface

3.6 EUT setup diagram

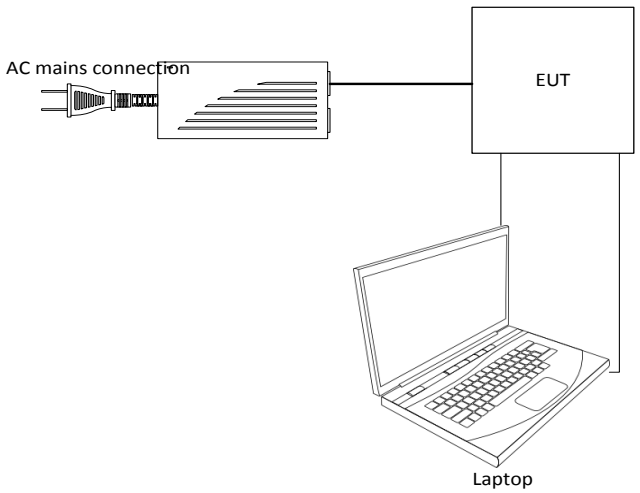


Figure 3.6-1: *Setup diagram*

3.7 EUT sub assemblies

Table 3.7-1: *EUT sub assemblies*

Description	Brand name	Model/Part number	Serial number
Xi6-A	ARRIS	M/N: AX061AEI	S/N: M11742TK0022

Table 3.7-2: *Support equipment*

Description	Brand name	Model, Part number, Serial number, Revision level
Laptop D620	DELL	M/N:PP18L, P/N:PP18L, S/N:07898349890528
Master router	XFINITY	M/N:TG1682G,P/N:TG02DCG1682P3CT, S/N:1000191 TG1682G/CT-0

Section 4. Engineering considerations

4.1 Modifications incorporated in the EUT

There were no modifications performed to the EUT during this assessment.

4.2 Technical judgment

None

4.3 Deviations from laboratory tests procedures

No deviations were made from laboratory procedures.

Section 5. Test conditions

5.1 Atmospheric conditions

Temperature	15–30 °C
Relative humidity	20–75 %
Air pressure	860–1060 mbar

When it is impracticable to carry out tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests shall be recorded and stated.

5.2 Power supply range

The normal test voltage for equipment to be connected to the mains shall be the nominal mains voltage. For the purpose of the present document, the nominal voltage shall be the declared voltage, or any of the declared voltages ±5 %, for which the equipment was designed.

Section 6. Measurement uncertainty

6.1 Uncertainty of measurement

Measurement uncertainty budgets for the tests are detailed below. Measurement uncertainty calculations assume a coverage factor of K = 2 with 95% certainty.

Test name	Measurement uncertainty, dB
All antenna port measurements	0.55
Conducted spurious emissions	1.13
Radiated spurious emissions	3.78
AC power line conducted emissions	3.55

Section 7. Test equipment

7.1 Test equipment list

Table 7.1-1: *Equipment list*

Equipment	Manufacturer	Model no.	Asset no.	Cal cycle	Next cal.
Flush mount turntable	Sunol	FM2022	FA002550	—	NCR
Controller	Sunol	SC104V	FA002551	—	NCR
Antenna mast	Sunol	TLT2	FA002552	—	NCR
Spectrum analyzer	Rohde & Schwarz	FSV 40	FA002731	1 year	July 10/18
50 Ω coax cable	C.C.A.	None	FA002603	—	VOU
50 Ω coax cable	C.C.A.	None	FA002605	—	VOU
50 Ω coax cable	C.C.A.	None	FA002607	—	VOU
Bilog antenna (20–2000 MHz)	Sunol	JB1	FA002517	1 year	Dec. 6/18
Horn antenna (1–18 GHz)	EMCO	3115	FA001451	1 year	April 5/18
Horn antenna (18–40 GHz)	EMCO	3116	FA002487	2 year	Aug. 16/18
Pre-amplifier (0.5–18 GHz)	COM-POWER	PAM-118A	FA002561	1 year	May 8/18
Pre-amplifier (18–40 GHz)	COM-POWER	PAM-840	FA002508	1 year	May 8/18
5470-5725 MHz Notch Filter	Microwave Circuits	N0555983	FA002691	—	VOU
50 Ω coax cable	HUBER+SUHNER	SUCOFLEX 100	FA002564	—	VOU
Three phase power system	TESEQ	ProfLine 2115-400	FA002516	1 year	Aug. 21/18
Power sensor	Rohde & Schwarz	NRP18S	FA002730	1 year	July 21/18
Receiver/spectrum analyzer	Rohde & Schwarz	ESU 40	FA002071	1 year	Sept. 18/18
Environmental Chamber	ESPEC	EPX-4H	FA002736	1 year	May 16/18
Multimeter	AMPPROBE	AM-530	FA002536	1 year	May 3/18
LISN	Rohde & Schwarz	ENV216	FA002514	1 year	Dec. 15/18
DFS test box	Aeroflex	PXI	FA002628	1 year	Aug 26/18
Power Splitter	Mini-Circuits	ZN2PD-63-S+	FA002861	—	VOU
Power Splitter	Mini-Circuits	ZN2PD-63-S+	FA002862	—	VOU
Variable Attenuator	API Weinschel, Inc.	AF117A-69-33	FA002813	—	VOU

Note: NCR - no calibration required, VOU - verify on use

Section 8. Testing data

8.1 FCC 15.403(i) Emission bandwidth

8.1.1 Definitions and limits

15.403(i) For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier. Determination of the emissions bandwidth is based on the use of measurement instrumentation employing a peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

8.1.2 Test summary

Test start date	January 31, 2018
Test engineer	Yong Huang

8.1.3 Observations, settings and special notes

Spectrum analyser settings:

Resolution bandwidth	approximately 1% of the EBW
Video bandwidth	> RBW
Detector mode	Peak
Trace mode	Max Hold

8.1.4 Test data

Table 8.1-1: *26 dB bandwidth results*

Modulation	Frequency, MHz	26 dB bandwidth, MHz
802.11a	5500	19.32
	5600	19.22
	5720	19.02
802.11n HT20	5500	19.90
	5600	20.10
	5720	20.74
802.11n HT40	5510	41.08
	5590	40.92
	5710	41.08
802.11ac VHT20	5500	20.60
	5600	20.00
	5720	20.68
802.11ac VHT40	5510	41.28
	5590	40.84
	5710	41.20
802.11ac VHT80	5530	82.80
	5610	82.96
	5690	83.12

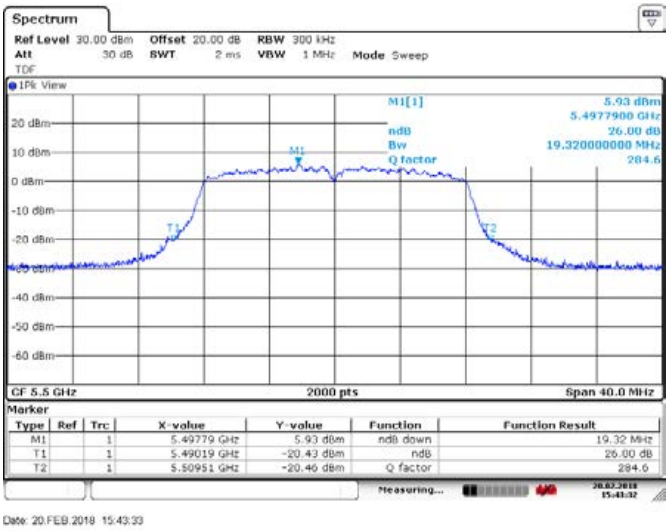


Figure 8.1-1: *26 dB bandwidth on 802.11a, sample plot*

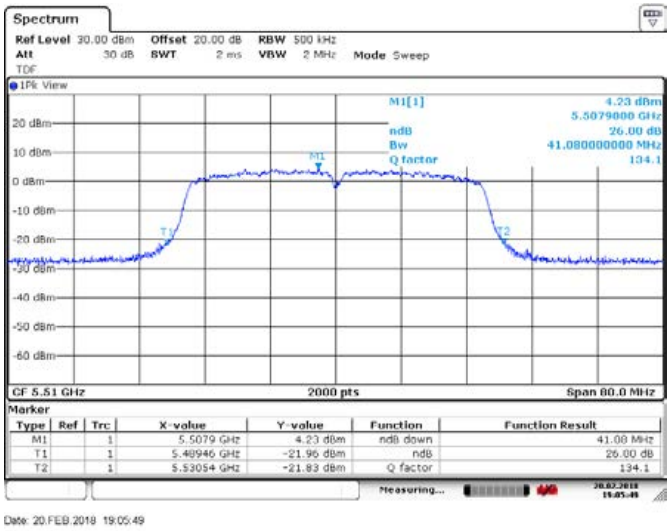


Figure 8.1-2: *26 dB bandwidth on 802.11n HT40, sample plot*

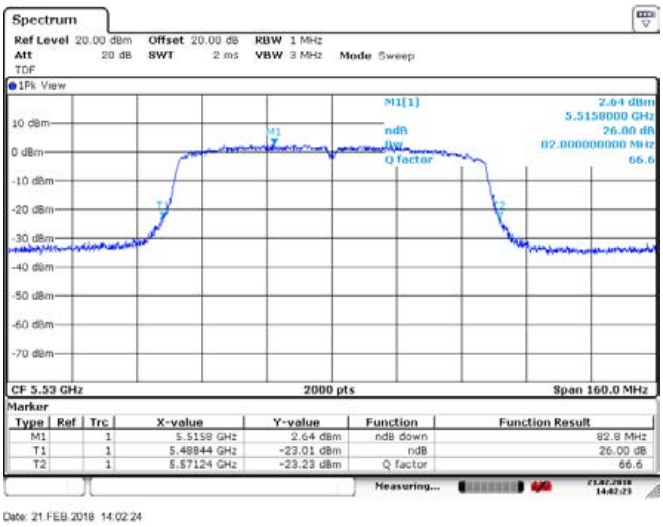


Figure 8.1-3: *26 dB bandwidth on 802.11ac VHT80, sample plot*

8.2 RSS-Gen 6.6 Occupied bandwidth

8.2.1 Definitions and limits

The emission bandwidth (×dB) is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated × dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3× the resolution bandwidth.

When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth, as calculated or measured.

8.2.2 Test summary

Test start date	January 31, 2018
Test engineer	Yong Huang

8.2.3 Observations, settings and special notes

Spectrum analyser settings:

Resolution bandwidth:	1 % to 5 % of OBW
Video bandwidth:	≥3 × RBW
Detector mode:	Peak
Trace mode:	Max Hold

8.2.4 Test data

Table 8.2-1: *99 % bandwidth results (in MHz)*

Modulation	Frequency, MHz	99% bandwidth, MHz
802.11a	5500	16.30
	5600	16.32
	5720	16.34
802.11n HT20	5500	17.40
	5600	17.42
	5720	17.46
802.11n HT40	5510	35.96
	5590	35.96
	5710	35.96
802.11ac VHT20	5500	17.42
	5600	17.42
	5720	17.46
802.11ac VHT40	5510	35.92
	5590	35.96
	5710	35.92
802.11ac VHT80	5530	75.28
	5610	75.20
	5690	75.12

8.2.4 Test data, continued

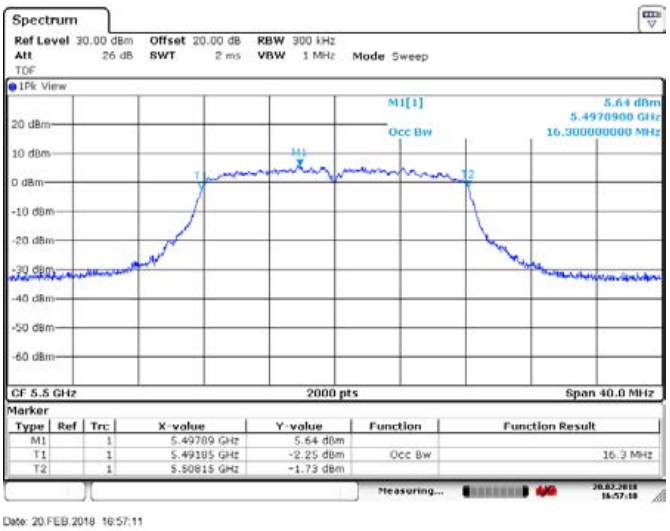


Figure 8.2-1: *99 % bandwidth on 802.11a, sample plot*

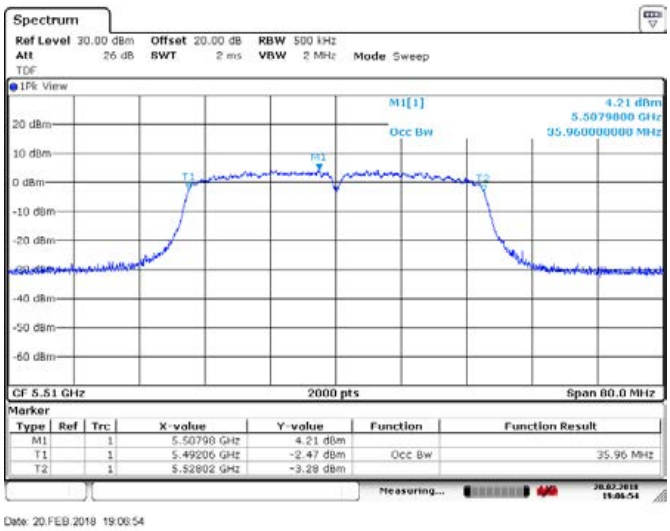


Figure 8.2-2: *99 % bandwidth on 802.11n HT40, sample plot*

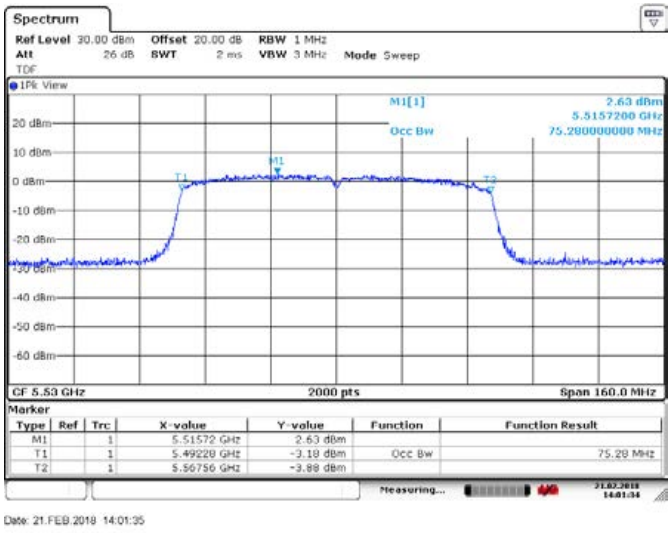


Figure 8.2-3: *99 % bandwidth 802.11ac VHT80, sample plot*

8.3 FCC 15.407(a)(2) and RSS-247 6.2.3.1, 5.47–5.725 GHz band output power and spectral density limits

8.3.1 Definitions and limits

FCC:
For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

FCC §15.407(h)(1) Transmit power control (TPC).
U-NII devices shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

ISED:
The maximum conducted output power shall not exceed 250 mW or 11 + 10 $\log_{10}$B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 $\log_{10}$B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

8.3.2 Test summary

Test start date	January 31, 2018
Test engineer	Yong Huang

8.3.3 Observations, settings and special notes

Output power was tested using RMS power meter.

Spectrum analyzer settings for PSD measurement:

Resolution bandwidth	1 MHz
Video bandwidth	3 MHz
Frequency span	> EBW
Detector mode	RMS
Trace mode	Power Averaging over 100 sweeps

Combined average output power was calculated as follows: $P_{combined} = 10 \times log_{10}\left(\left(10^{P_{ch0}/10}\right) + \left(10^{P_{ch1}/10}\right)\right)$

EIRP was calculated as follows: $EIRP = P_{combined} + antenna\ directional\ gain$

Total antenna gain was calculated as follows: $Directional\ gain = 10\log[(\ 10^{\frac{G1}{20}} + 10^{\frac{G2}{20}})^2 / N_{ANT}]$

Output power/EIRP/PSD limit adjustment: Output power/EIRP/PSD limit – (Total antenna gain – 6 dBi).

FCC output power limit is 24 dBm (250 mW) or 11 + 10 × Log_{10} (EBW), whichever is less;
FCC EIRP limit is 500 mW(27 dBm), hence TPC is not applicable.

ISED output power limit is 24 dBm (250 mW) or 11 + 10 × Log_{10} (OBW), dBm , whichever is less.
ISED EIRP limit is 500 mW(27 dBm), hence TPC is not applicable.
For ISED, channels transmit within frequency band of 5600 MHz to 5650 MHz won`t be available as per client.

8.3.4 Test data

Table 8.3-1:*FCC Output power measurements results*

Modulation	Frequency, MHz	Output power on ch0, dBm	Output power on ch1, dBm	Combined power, dBm	Limit, dBm	Margin, dB	Tot. Gain, dBi	EIRP, dBm	Limit, dBm	Margin, dB
802.11a	5500	13.9	13.9	16.9	23.4	6.5	6.4	23.3	26.6	3.3
	5600	15.6	15.5	18.6	23.6	5.1	6.2	24.8	26.8	2.0
	5720	15.8	15.3	18.6	23.4	4.9	6.4	24.9	26.6	1.7
802.11n HT20	5500	13.7	13.7	16.7	23.6	6.8	6.4	23.1	26.6	3.5
	5600	15.4	15.1	18.3	23.8	5.5	6.2	24.5	26.8	2.3
	5720	15.6	15.1	18.4	23.6	5.2	6.4	24.7	26.6	1.9
802.11n HT40	5510	14.2	14.1	17.2	23.6	6.4	6.4	23.6	26.6	3.0
	5590	16.1	15.9	19.0	23.8	4.7	6.2	25.2	26.8	1.5
	5710	16.1	15.6	18.9	23.6	4.7	6.4	25.2	26.6	1.4
802.11ac VHT20	5500	13.6	13.6	16.6	23.6	6.9	6.4	23.0	26.6	3.6
	5600	15.4	15.2	18.3	23.8	5.4	6.2	24.5	26.8	2.2
	5720	15.6	15.2	18.4	23.6	5.2	6.4	24.8	26.6	1.8
802.11ac VHT40	5510	14.2	14.5	17.4	23.6	6.2	6.4	23.8	26.6	2.8
	5590	16.0	16.1	19.1	23.8	4.7	6.2	25.3	26.8	1.5
	5710	16.2	16.0	19.1	23.6	4.5	6.4	25.5	26.6	1.1
802.11ac VHT80	5530	11.5	11.7	14.6	23.6	8.9	6.4	21.0	26.6	5.5
	5610	14.9	14.8	17.9	23.8	5.9	6.2	24.1	26.8	2.7
	5690	14.7	14.5	17.6	23.6	6.0	6.4	24.0	26.6	2.6

Table 8.3-2:*ISED Output power measurements results*

Modulation	Frequency, MHz	Output power on ch0, dBm	Output power on ch1, dBm	Combined power, dBm	Limit, dBm	Margin, dB	Tot. Gain, dBi	EIRP, dBm	Limit, dBm	Margin, dB
802.11a	5500	13.9	13.9	16.9	22.7	5.8	6.4	23.3	26.6	3.3
	5600	15.6	15.5	18.6	22.9	4.3	6.2	24.8	26.8	2.0
	5720	15.8	15.3	18.6	22.8	4.2	6.4	24.9	26.6	1.7
802.11n HT20	5500	13.7	13.7	16.7	23.0	6.3	6.4	23.1	26.6	3.5
	5600	15.4	15.1	18.3	23.2	4.9	6.2	24.5	26.8	2.3
	5720	15.6	15.1	18.4	23.0	4.7	6.4	24.7	26.6	1.9
802.11n HT40	5510	14.2	14.1	17.2	23.6	6.4	6.4	23.6	26.6	3.0
	5590	16.1	15.9	19.0	23.8	4.7	6.2	25.2	26.8	1.5
	5710	16.1	15.6	18.9	23.6	4.7	6.4	25.2	26.6	1.4
802.11ac VHT20	5500	13.6	13.6	16.6	23.0	6.4	6.4	23.0	26.6	3.6
	5600	15.4	15.2	18.3	23.2	4.9	6.2	24.5	26.8	2.2
	5720	15.6	15.2	18.4	23.0	4.6	6.4	24.8	26.6	1.8
802.11ac VHT40	5510	14.2	14.5	17.4	23.6	6.2	6.4	23.8	26.6	2.8
	5590	16.0	16.1	19.1	23.8	4.7	6.2	25.3	26.8	1.5
	5710	16.2	16.0	19.1	23.6	4.5	6.4	25.5	26.6	1.1
802.11ac VHT80	5530	11.5	11.7	14.6	23.6	8.9	6.4	21.0	26.6	5.5
	5610	14.9	14.8	17.9	23.8	5.9	6.2	24.1	26.8	2.7
	5690	14.7	14.5	17.6	23.6	6.0	6.4	24.0	26.6	2.6

Note: As per client, channels transmit within 5600 MHz to 5650 MHz is not available for Canada.

Table 8.3-3: *PSD measurements results*

Modulation	Frequency, MHz	PSD on ch0, dBm/MHz	PSD on ch1, dBm/MHz	Combined PSD, dBm/MHz	Limit, dBm/MHz	Margin, dB
802.11a	5500	2.42	2.80	5.62	10.58	4.96
	5600	4.47	4.37	7.43	10.78	3.34
	5720	4.44	3.75	7.12	10.63	3.51
802.11n HT20	5500	1.87	2.62	5.27	10.58	5.31
	5600	3.73	3.73	6.74	10.78	4.04
	5720	3.99	3.93	6.97	10.63	3.66
802.11n HT40	5510	-0.56	-0.51	2.48	10.58	8.11
	5590	1.11	1.22	4.18	10.78	6.60
	5710	1.30	0.82	4.08	10.63	6.55
802.11ac VHT20	5500	2.04	2.21	5.14	10.58	5.44
	5600	3.66	4.01	6.85	10.78	3.93
	5720	4.10	3.42	6.78	10.63	3.84
802.11ac VHT40	5510	-0.92	-0.50	2.31	10.58	8.28
	5590	1.63	1.15	4.41	10.78	6.37
	5710	1.84	0.91	4.41	10.63	6.22
802.11ac VHT80	5530	-6.80	-6.67	-3.72	10.58	14.30
	5610	-3.51	-3.50	-0.49	10.78	11.27
	5690	-3.34	-4.07	-0.68	10.63	11.31

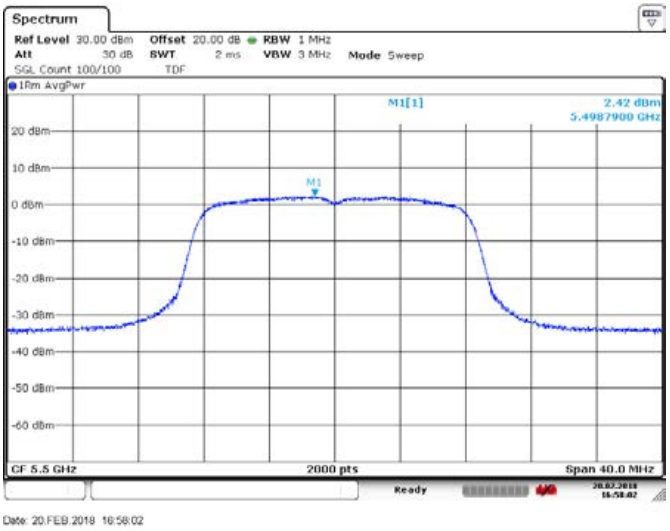


Figure 8.3-1: *PSD on 802.11a Sample plot*

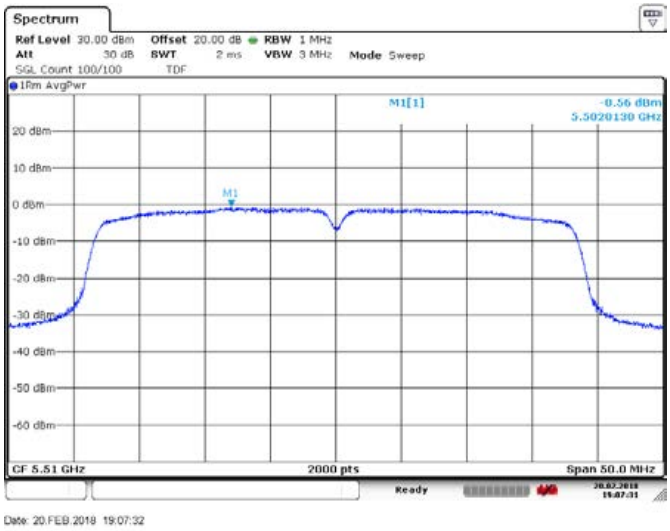


Figure 8.3-2: *PSD on 802.11n HT40, Sample plot*

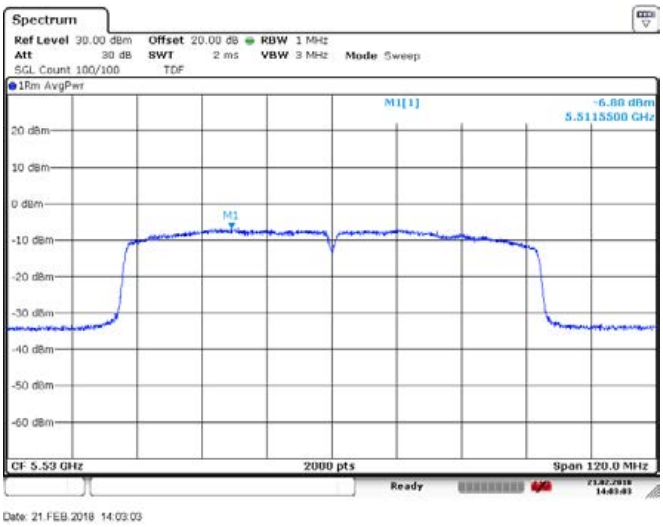


Figure 8.3-3: *PSD on 802.11ac HT80, Sample plot*

8.4 FCC 15.407(b) and RSS-247 6.2.3.2 Spurious (out-of-band) emissions

8.4.1 Definitions and limits

FCC:
(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 −27 dBm/MHz.
(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. 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 MHz.
(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.
(7) The provisions of § 15.205 apply to intentional radiators operating under this section.
(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency block edges as the design of the equipment permits.

ISED:
Emissions outside the band 5470–5725 MHz shall not exceed −27 dBm/MHz e.i.r.p. However, devices with bandwidth overlapping the band edge of 5725 MHz can meet the emission limit of −27 dBm/MHz e.i.r.p.at 5850 MHz instead of 5725 MHz.

Table 8.4-1: *FCC §15.209 and RSS-Gen – Radiated emission limits*

Frequency, MHz	Field strength of emissions µV/m	Field strength of emissions dBµV/m	Measurement distance, m
0.009–0.490	2400/F *(F in kHz)*	$67.6 - 20 \times \log_{10}$(F) *(F in kHz)*	300
0.490–1.705	24000/F *(F in kHz)*	$87.6 - 20 \times \log_{10}$(F) *(F in kHz)*	30
1.705–30.0	30	29.5	30
30–88	100	40.0	3
88–216	150	43.5	3
216–960	200	46.0	3
above 960	500	54.0	3

Notes: In the emission table above, the tighter limit applies at the band edges.
For frequencies above 1 GHz the limit on peak RF emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test

Table 8.4-2: *ISED restricted frequency bands*

MHz	MHz	MHz	GHz
0.090–0.110	12.51975–12.52025	399.9–410	5.35–5.46
2.1735–2.1905	12.57675–12.57725	608–614	7.25–7.75
3.020–3.026	13.36–13.41	960–1427	8.025–8.5
4.125–4.128	16.42–16.423	1435–1626.5	9.0–9.2
4.17725–4.17775	16.69475–16.69525	1645.5–1646.5	9.3–9.5
4.20725–4.20775	16.80425–16.80475	1660–1710	10.6–12.7
5.677-5.683	25.5–25.67	1718.8–1722.2	13.25–13.4
6.215–6.218	37.5–38.25	2200–2300	14.47–14.5
6.26775–6.26825	73–74.6	2310–2390	15.35–16.2
6.31175–6.31225	74.8–75.2	2655–2900	17.7–21.4
8.291–8.294	108–138	3260–3267	22.01–23.12
8.362–8.366	156.52475–156.52525	3332–3339	23.6–24.0
8.37625–8.38675	156.7–156.9	3345.8–3358	31.2–31.8
8.41425–8.41475	240–285	3500–4400	36.43–36.5
12.29–12.293	322–335.4	4500–5150	Above 38.6

Note: Certain frequency bands listed in Table 8.4-2 and above 38.6 GHz are designated for low-power license-exempt applications. These frequency bands and the requirements that apply to the devices are set out in this Standard

Table 8.4-3: *FCC restricted frequency bands*

MHz	MHz	MHz	GHz
0.090–0.110	16.42–16.423	399.9–410	4.5–5.15
0.495–0.505	16.69475–16.69525	608–614	5.35–5.46
2.1735–2.1905	16.80425–16.80475	960–1240	7.25–7.75
4.125–4.128	25.5–25.67	1300–1427	8.025–8.5
4.17725–4.17775	37.5–38.25	1435–1626.5	9.0–9.2
4.20725–4.20775	73–74.6	1645.5–1646.5	9.3–9.5
6.215–6.218	74.8–75.2	1660–1710	10.6–12.7
6.26775–6.26825	108–121.94	1718.8–1722.2	13.25–13.4
6.31175–6.31225	123–138	2200–2300	14.47–14.5
8.291–8.294	149.9–150.05	2310–2390	15.35–16.2
8.362–8.366	156.52475–156.52525	2483.5–2500	17.7–21.4
8.37625–8.38675	156.7–156.9	2690–2900	22.01–23.12
8.41425–8.41475	162.0125–167.17	3260–3267	23.6–24.0
12.29–12.293	167.72–173.2	3332–3339	31.2–31.8
12.51975–12.52025	240–285	3345.8–3358	36.43–36.5
12.57675–12.57725	322–335.4	3600–4400	Above 38.6
13.36–13.41			

8.4.2 Test summary

Test start date	January 31, 2018
Test engineer	Yong Huang

8.4.3 Observations, settings and special notes

The spectrum was searched from 30 MHz to 40 GHz while the EUT was transmitting on both MIMO chains simultaneously.
Conducted measurements were performed on on each individual MIMO chain, with the highest and the lowest data rate, the worse case is presented.
In the conducted plots below, the reference level offset was adjusted to include antenna gains.
Radiated measurements below 18 GHz were performed at a distance of 3 m. Radiated measurements above 18 GHz were performed at a distance of 1 m.
Cabinet radiation were performed while both antenna connectors were terminated with 50 Ω load. No emissions related to RF transmitter were detected within 6 dB below the limit.
Where it is not specified in the figure comment, the power settings were set to a maximum between FCC and ISED.

Spectrum analyser for peak conducted measurements within restricted bands below 1 GHz:

Resolution bandwidth:	100 kHz
Video bandwidth:	300 kHz
Detector mode:	Peak
Trace mode:	Max Hold

Spectrum analyser for peak conducted measurements within restricted bands above 1 GHz:

Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Detector mode:	Peak
Trace mode:	Max Hold

Spectrum analyser for average conducted measurements within restricted bands above 1 GHz for frequencies where peak results were above the average limit:

Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Detector mode:	RMS
Trace mode:	Power average
Number of averaging traces:	100

Spectrum analyser for peak conducted measurements outside restricted bands:

Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Detector mode:	Peak
Trace mode:	Max Hold

8.4.4 Test data

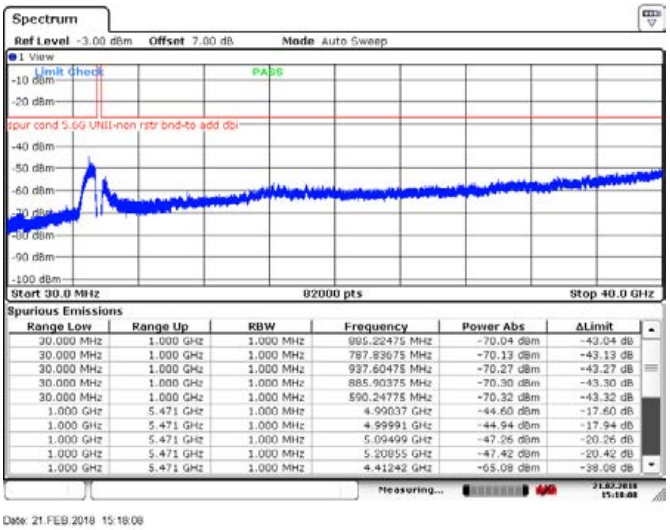


Figure 8.4-1: *Spurious emissions outside restricted bands, Tx on ch 100, 802.11a*

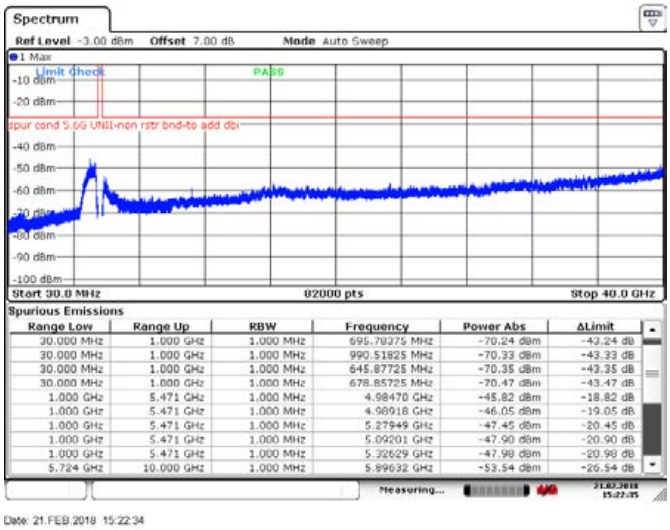


Figure 8.4-2: *Spurious emissions outside restricted bands, Tx on ch 120, 802.11a*

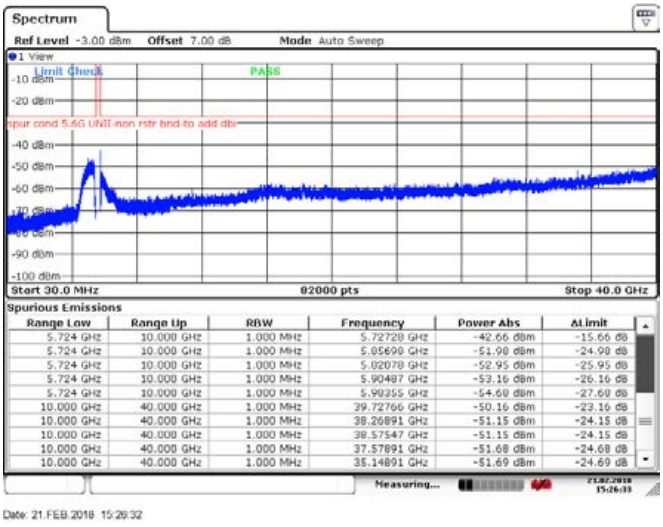


Figure 8.4-3: *Spurious emissions outside restricted bands, Tx on ch 144, 802.11a*

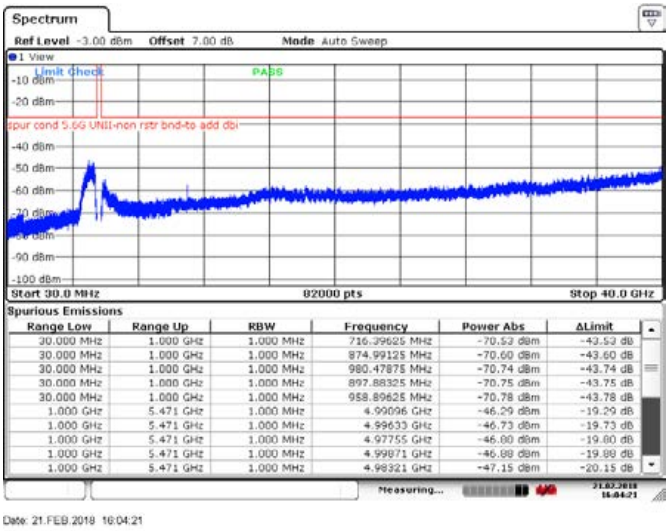


Figure 8.4-4: *Spurious emissions outside restricted bands, Tx on ch 100, 802.11n HT20*

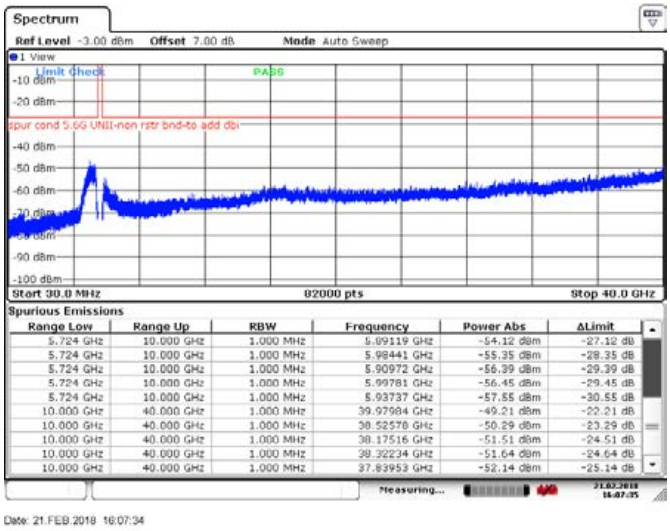


Figure 8.4-5: *Spurious emissions outside restricted bands, Tx on ch 120, 802.11n HT20*

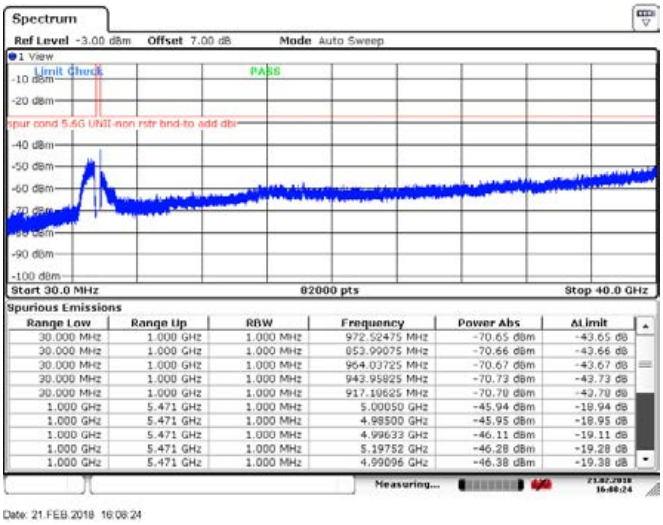


Figure 8.4-6: *Spurious emissions outside restricted bands, Tx on ch 144, 802.11n HT20*

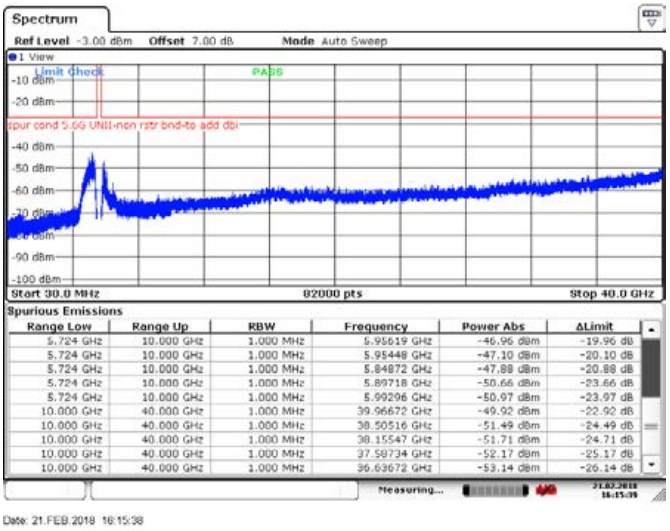


Figure 8.4-7: *Spurious emissions outside restricted bands, Tx on ch 102, 802.11n HT40*

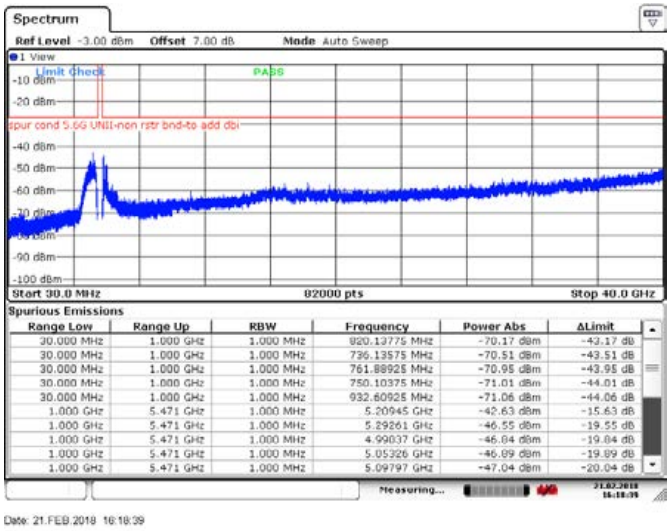


Figure 8.4-8: *Spurious emissions outside restricted bands, Tx on ch 118, 802.11n HT40*

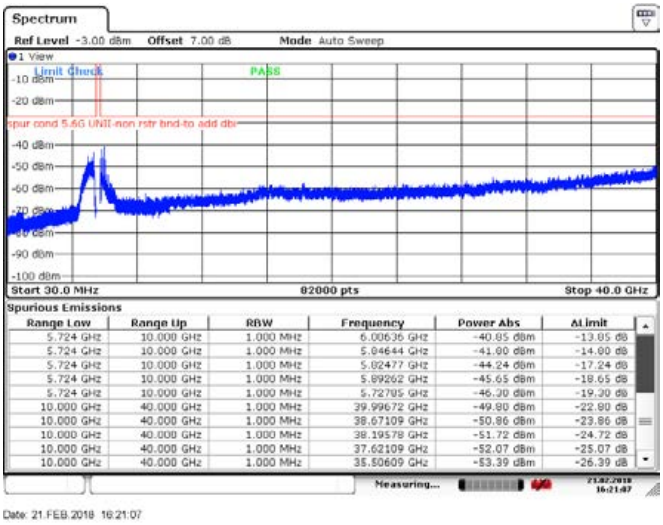


Figure 8.4-9: *Spurious emissions outside restricted bands, Tx on ch 142, 802.11n HT40*

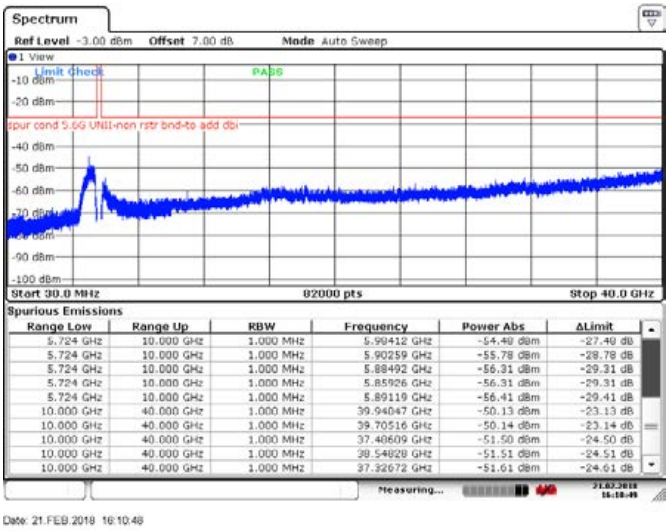


Figure 8.4-10: *Spurious emissions outside restricted bands, Tx on ch 100, 802.11ac VHT20*

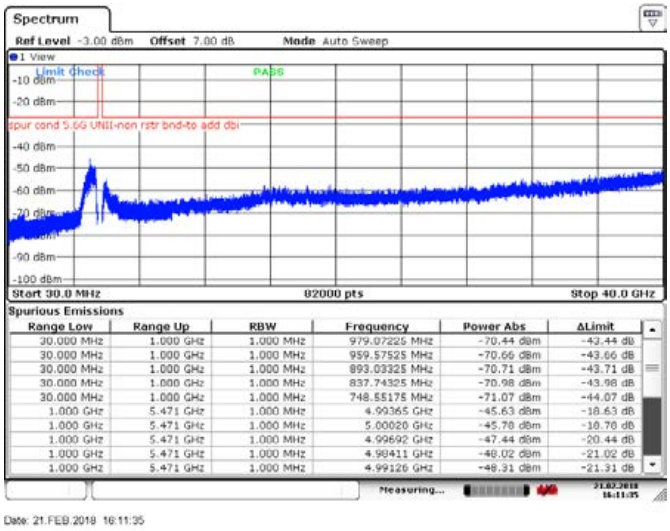


Figure 8.4-11: *Spurious emissions outside restricted bands, Tx on ch 120, 802.11ac VHT20*

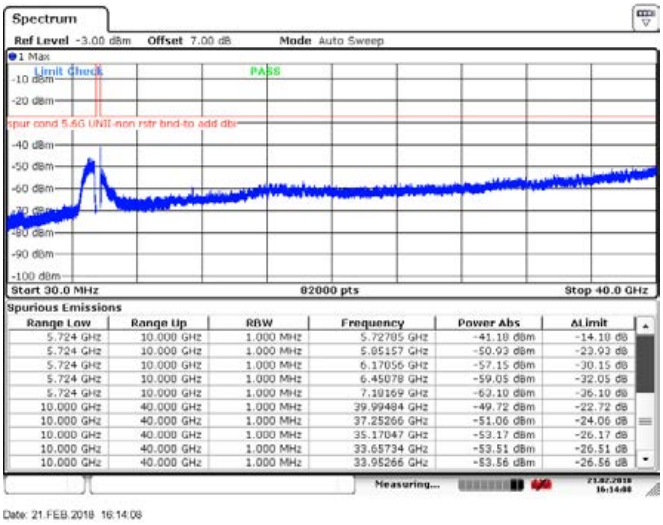


Figure 8.4-12: *Spurious emissions outside restricted bands, Tx on ch 144, 802.11ac VHT20*

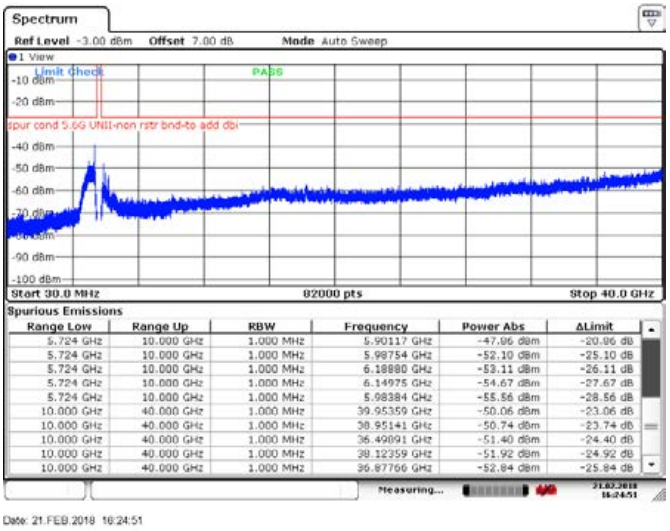


Figure 8.4-13: *Spurious emissions outside restricted bands, Tx on ch 102, 802.11ac VHT40*

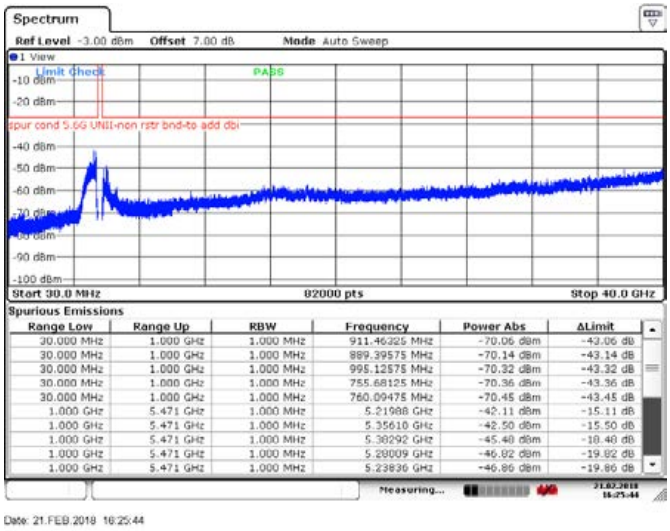


Figure 8.4-14: *Spurious emissions outside restricted bands, Tx on ch 118, 802.11ac VHT40*

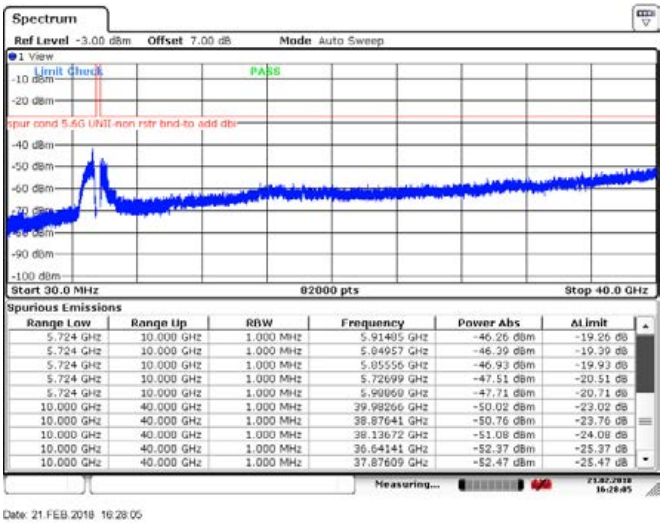


Figure 8.4-15: *Spurious emissions outside restricted bands, Tx on ch 142, 802.11ac VHT40*

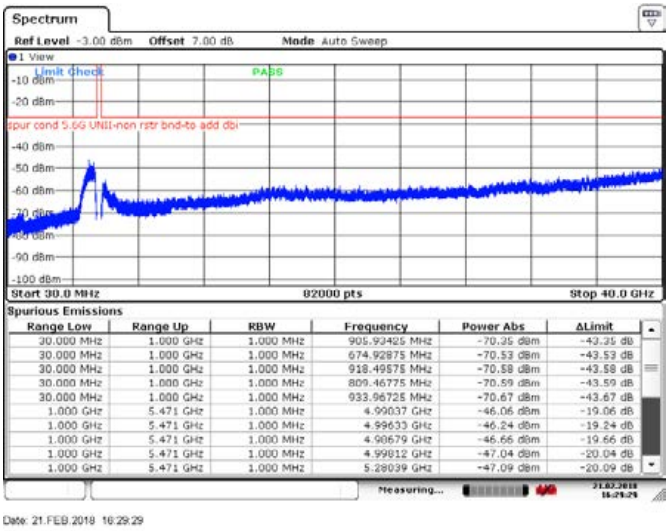


Figure 8.4-16: *Spurious emissions outside restricted bands, Tx on ch 106, 802.11ac VHT80*

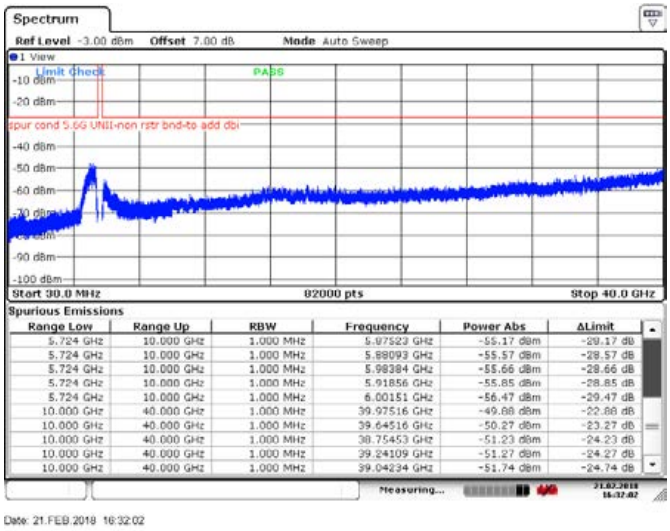


Figure 8.4-17: *Spurious emissions outside restricted bands, Tx on ch 122, 802.11ac VHT80*

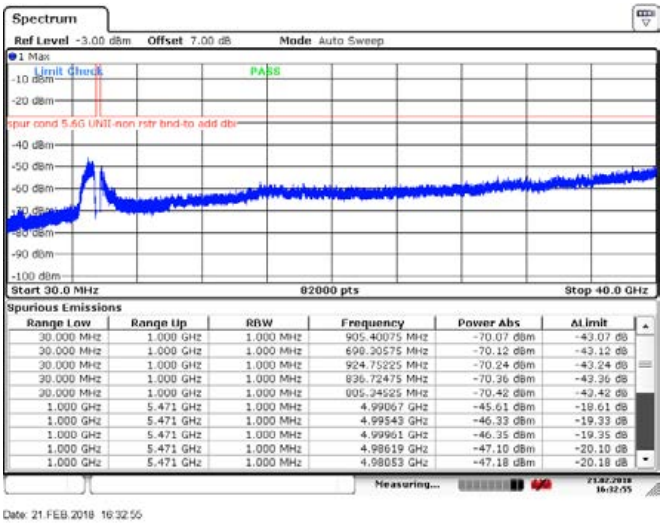


Figure 8.4-18: *Spurious emissions outside restricted bands, Tx on ch 138, 802.11ac VHT80*

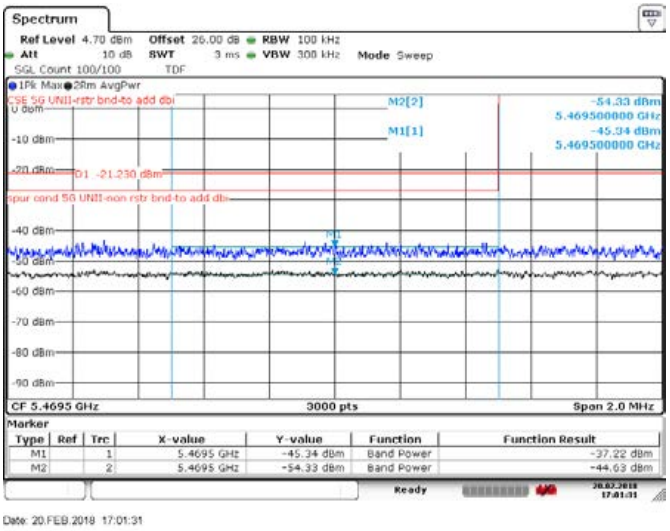


Figure 8.4-19: *Lower band edge, Tx on ch 100, 802.11a*

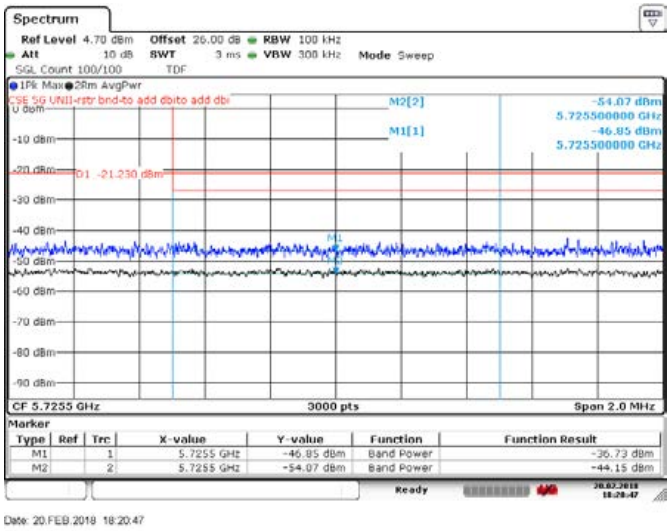


Figure 8.4-20: *Upper band edge, Tx on ch 140, 802.11a*

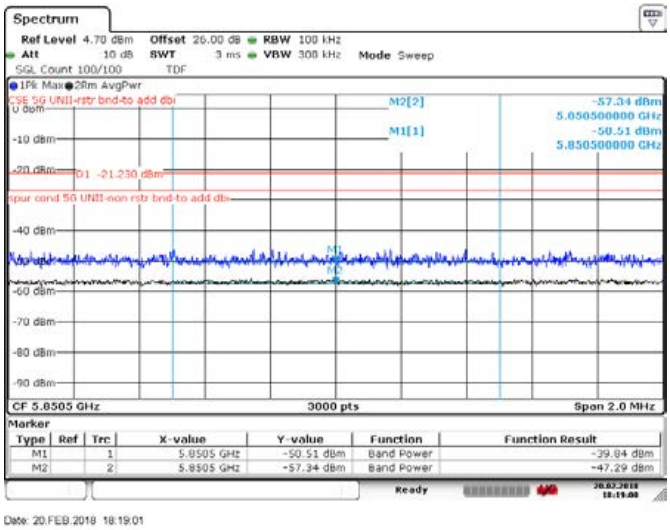


Figure 8.4-21: *Upper band edge, Tx on ch 144, 802.11a*

Note: Peak limit EIRP equivalent: 74 dBµV/m – 95.23 dB = −21.23 dBm
Average limit EIRP equivalent: 54 dBµV/m – 95.23 dB = −41.23 dBm
For straddle channel 144, band edge is measured at 5.85 GHz

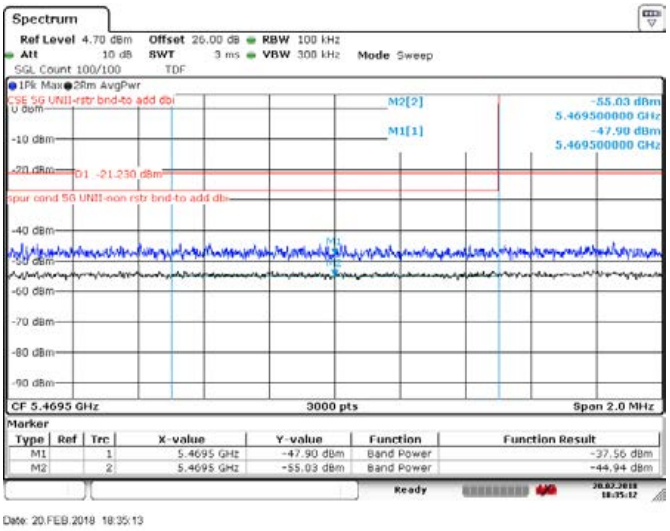


Figure 8.4-22: *Lower band edge, Tx on ch 100, 802.11n HT20*

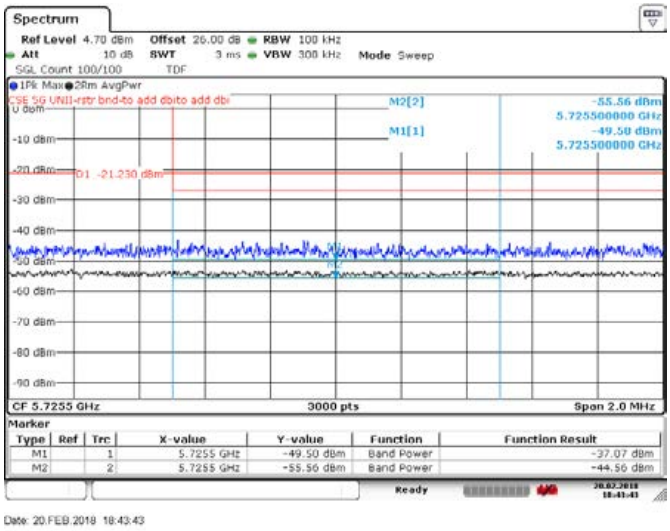


Figure 8.4-23: *Upper band edge, Tx on ch 140, 802.11n HT20*

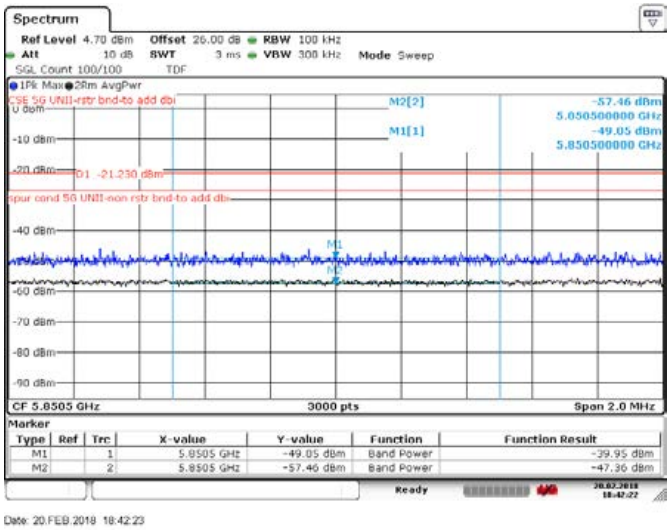


Figure 8.4-24: *Upper band edge, Tx on ch 144, 802.11n HT20*

Note: Peak limit EIRP equivalent: 74 dBµV/m – 95.23 dB = −21.23 dBm
Average limit EIRP equivalent: 54 dBµV/m – 95.23 dB = −41.23 dBm
For straddle channel 144, band edge is measured at 5.85 GHz

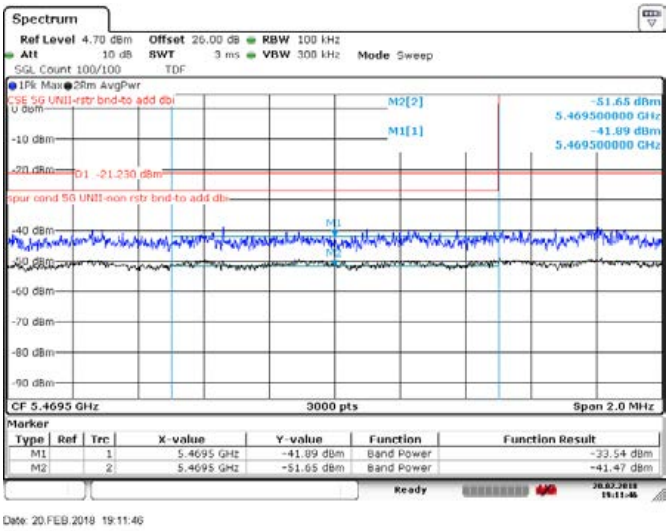


Figure 8.4-25: *Lower band edge, Tx on ch 102, 802.11n HT40*

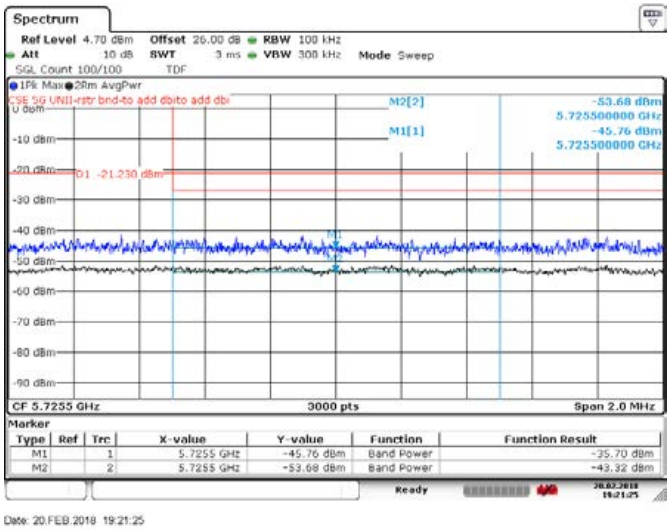


Figure 8.4-26: *Upper band edge, Tx on ch 134, 802.11n HT40*

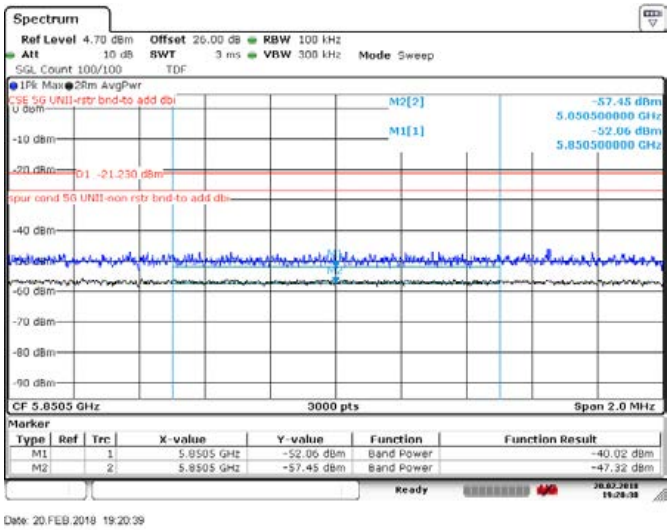


Figure 8.4-27: *Upper band edge, Tx on ch 142, 802.11n HT40*

Note: Peak limit EIRP equivalent: 74 dBµV/m – 95.23 dB = −21.23 dBm
Average limit EIRP equivalent: 54 dBµV/m – 95.23 dB = −41.23 dBm
For straddle channel 142, band edge is measured at 5.85 GHz

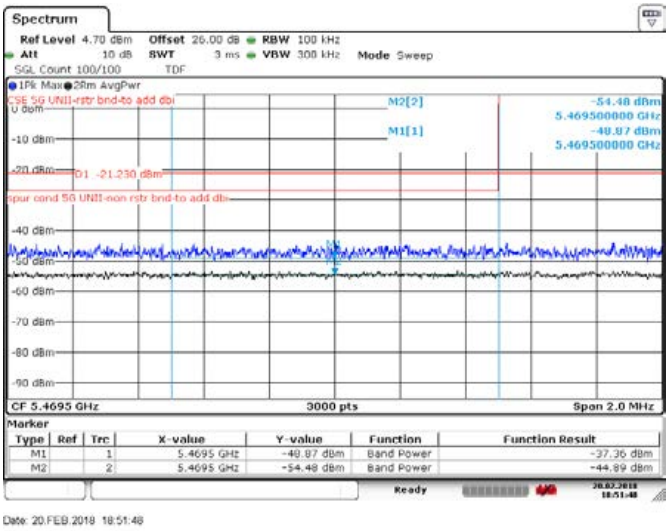


Figure 8.4-28: *Lower band edge, Tx on ch 100, 802.11ac VHT20*

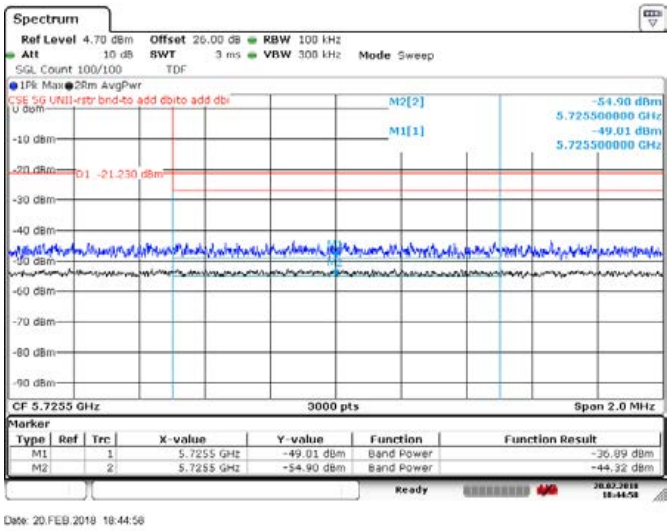


Figure 8.4-29: *Upper band edge, Tx on ch 140, 802.11ac VHT20*

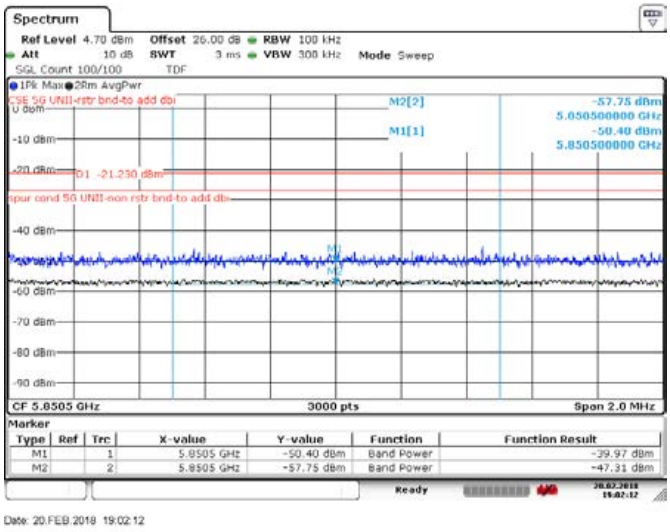


Figure 8.4-30: *Upper band edge, Tx on ch 144, 802.11ac VHT20*

Note: Peak limit EIRP equivalent: 74 dBµV/m – 95.23 dB = −21.23 dBm
Average limit EIRP equivalent: 54 dBµV/m – 95.23 dB = −41.23 dBm
For straddle channel 144, band edge is measured at 5.85 GHz

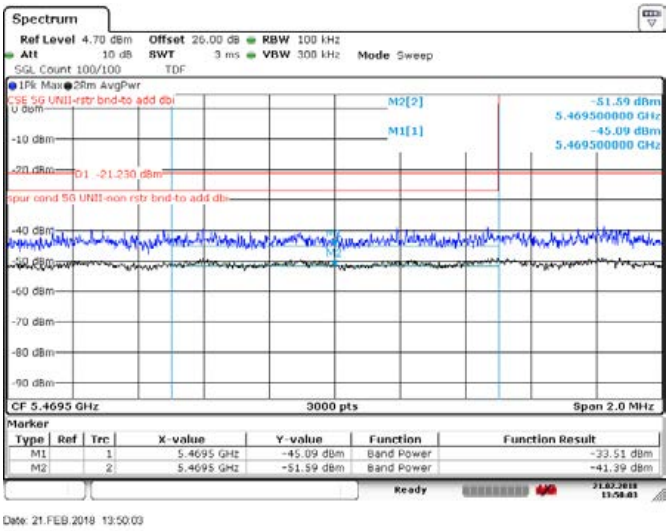


Figure 8.4-31: *Lower band edge, Tx on ch 102, 802.11ac VHT40*

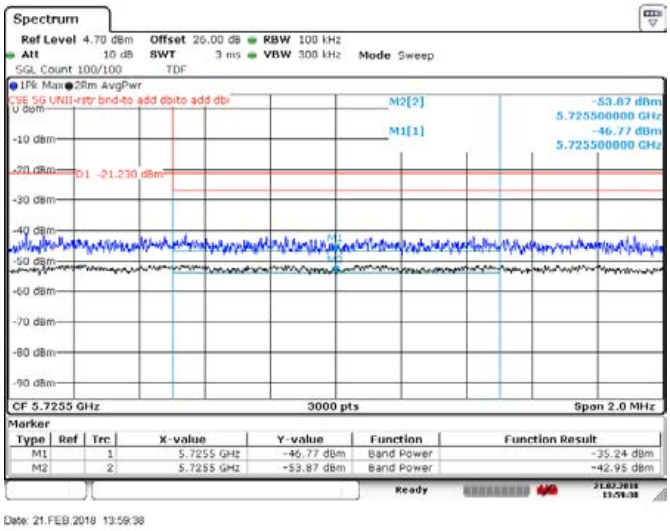


Figure 8.4-32: *Upper band edge, Tx on ch 134, 802.11ac VHT40*

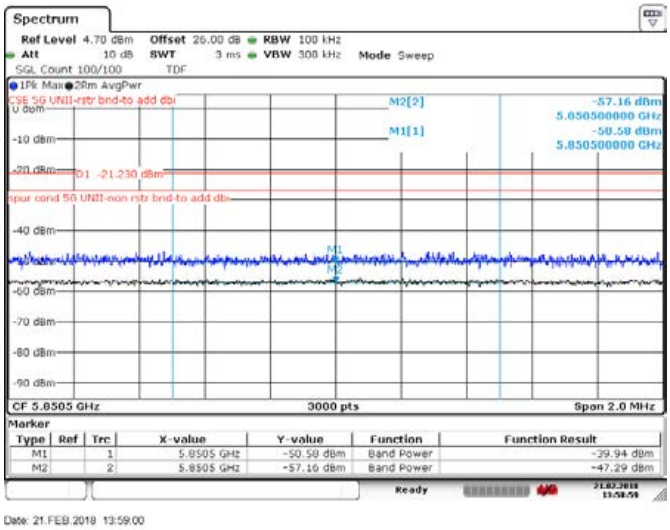


Figure 8.4-33: *Upper band edge, Tx on ch 142, 802.11ac VHT40*

Note: Peak limit EIRP equivalent: 74 dBµV/m – 95.23 dB = −21.23 dBm
Average limit EIRP equivalent: 54 dBµV/m – 95.23 dB = −41.23 dBm
For straddle channel 142, band edge is measured at 5.85 GHz

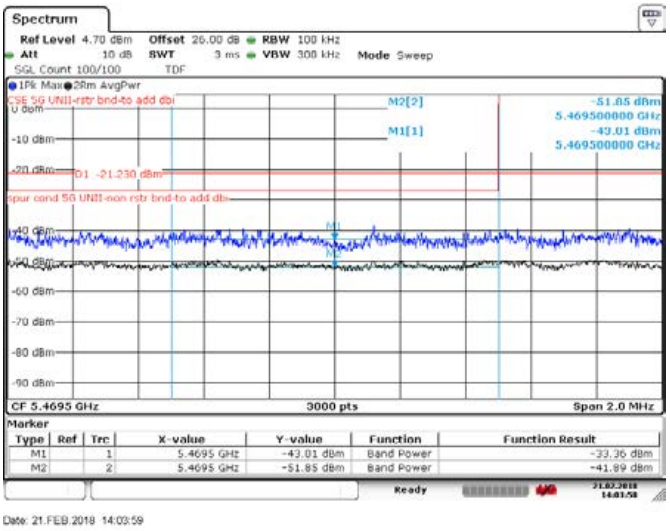


Figure 8.4-34: *Lower band edge, Tx on ch 106, 802.11ac VHT80*

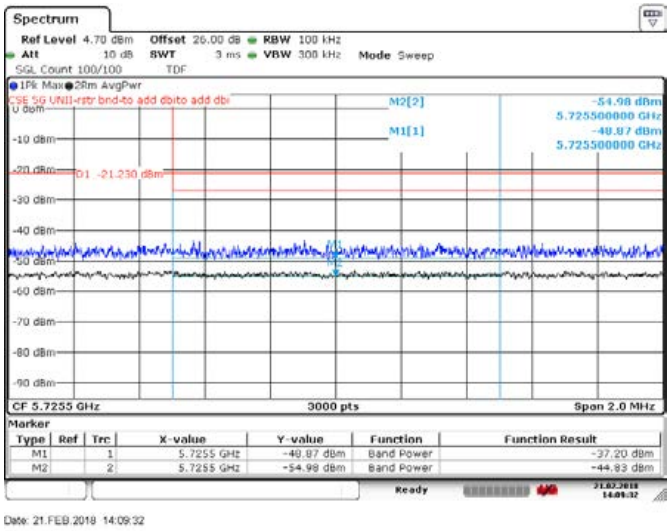


Figure 8.4-35: *Upper band edge, Tx on ch 122, 802.11ac VHT80*

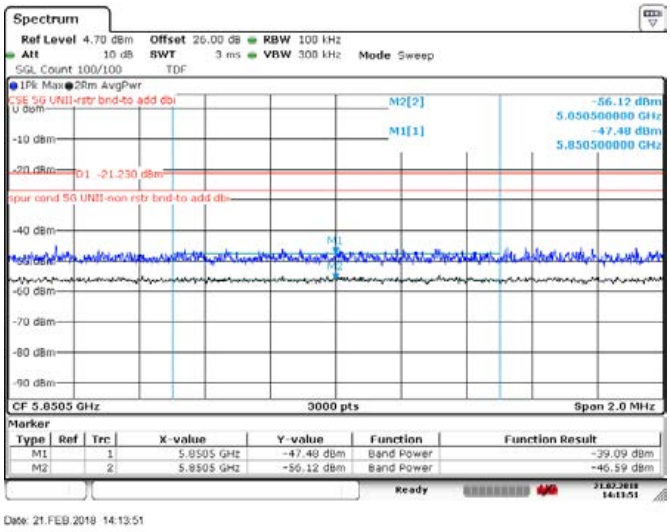


Figure 8.4-36: *Upper band edge, Tx on ch 138, 802.11ac VHT80*

Note: Peak limit EIRP equivalent: 74 dBµV/m – 95.23 dB = −21.23 dBm
Average limit EIRP equivalent: 54 dBµV/m – 95.23 dB = −41.23 dBm
For straddle channel 138, band edge is measured at 5.85 GHz

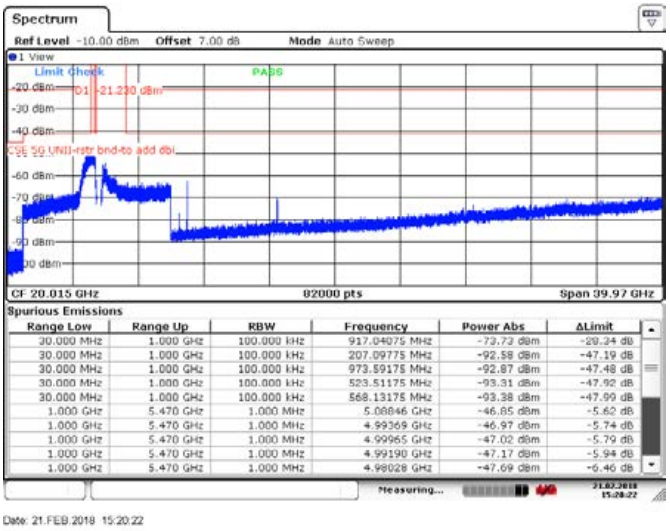


Figure 8.4-37: *Spurious emissions within restricted bands, Tx on ch 100, 802.11a noHT*

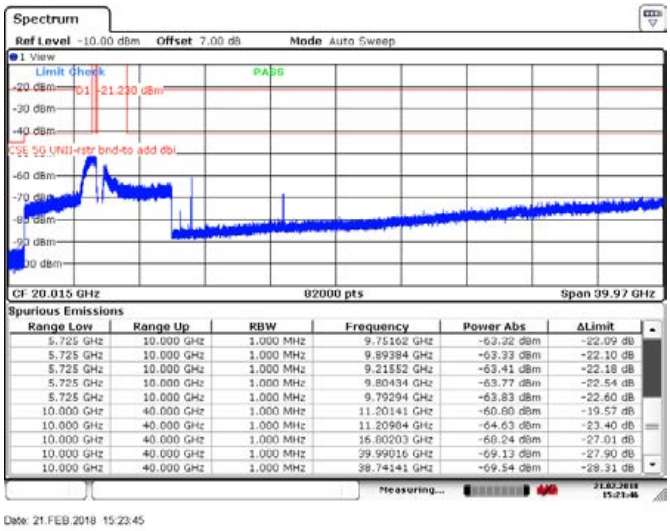


Figure 8.4-38: *Spurious emissions within restricted bands, Tx on ch 120, 802.11a noHT*

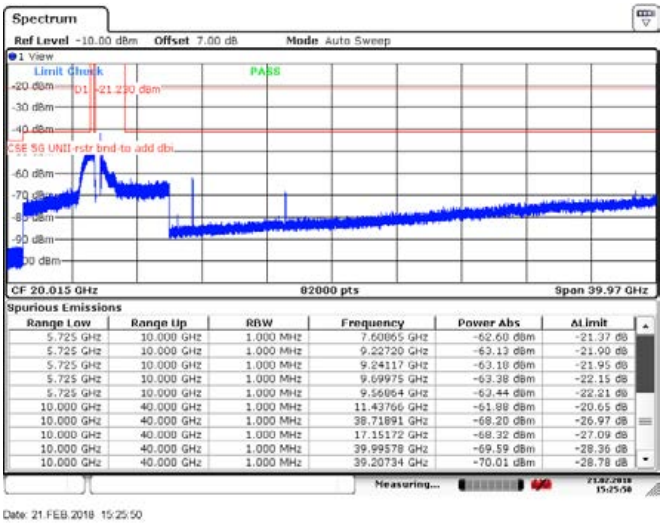


Figure 8.4-39: *Spurious emissions within restricted bands, Tx on ch 144, 802.11a noHT*

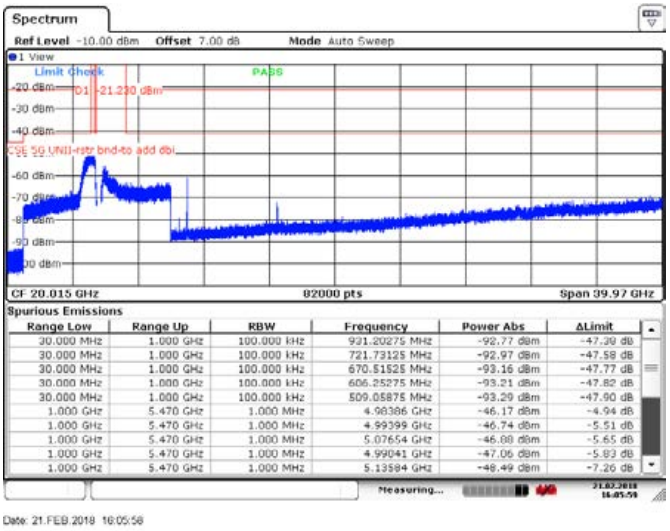


Figure 8.4-40: *Spurious emissions within restricted bands, Tx on ch 100, 802.11n HT20*

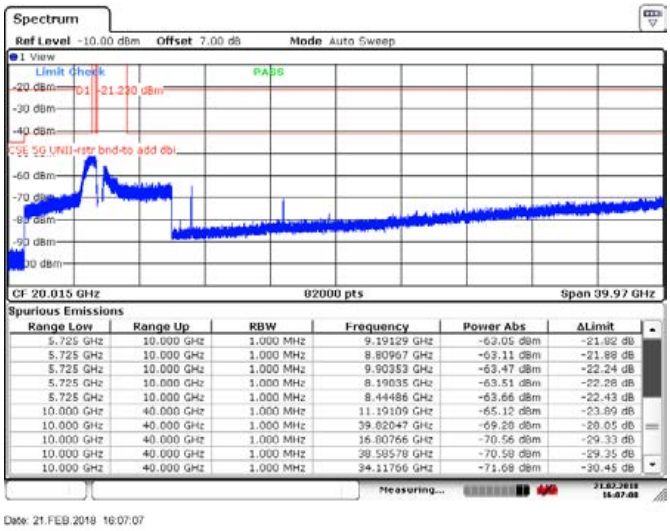


Figure 8.4-41: *Spurious emissions within restricted bands, Tx on ch 120, 802.11n HT20*

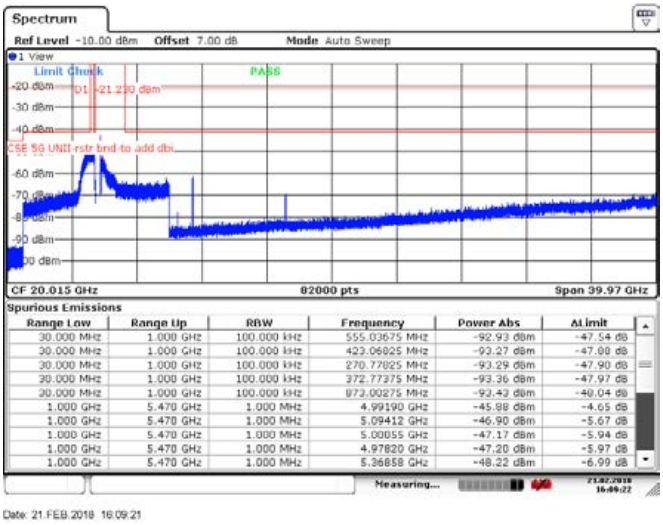


Figure 8.4-42: *Spurious emissions within restricted bands, Tx on ch 144, 802.11n HT20*

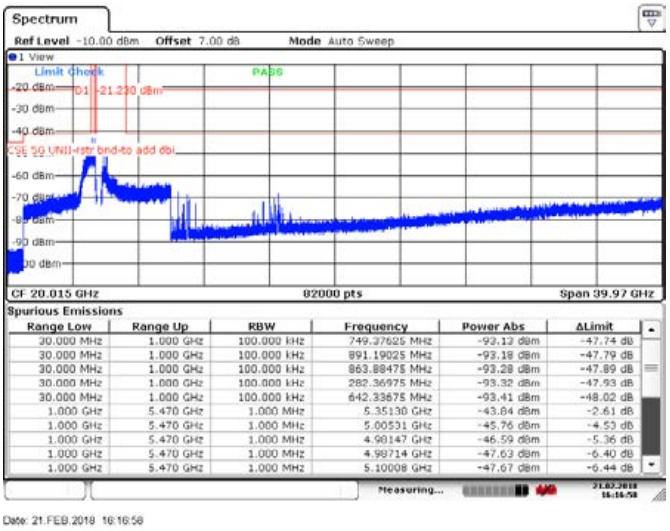


Figure 8.4-43: *Spurious emissions within restricted bands, Tx on ch 102, 802.11n HT40*

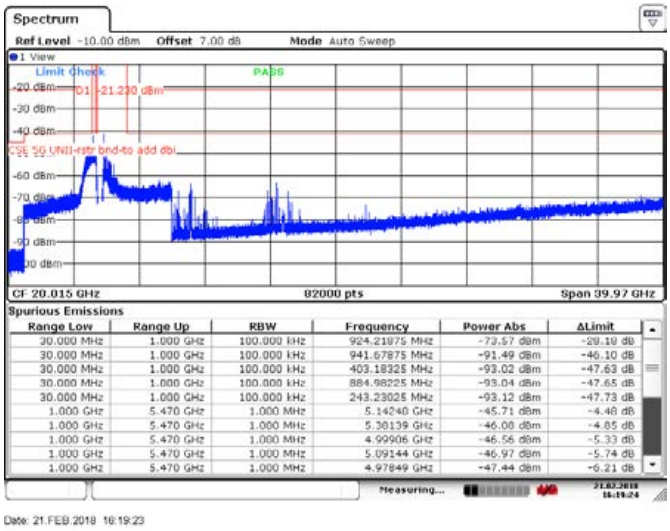


Figure 8.4-44: *Spurious emissions within restricted bands, Tx on ch 118, 802.11n HT40*

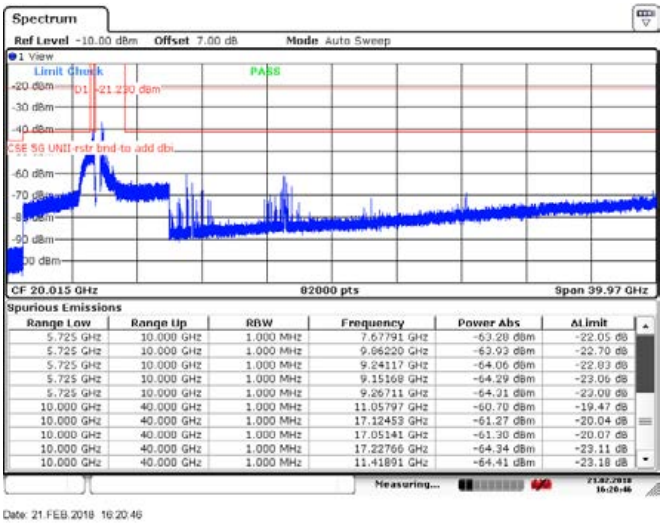


Figure 8.4-45: *Spurious emissions within restricted bands, Tx on ch 142, 802.11n HT40*

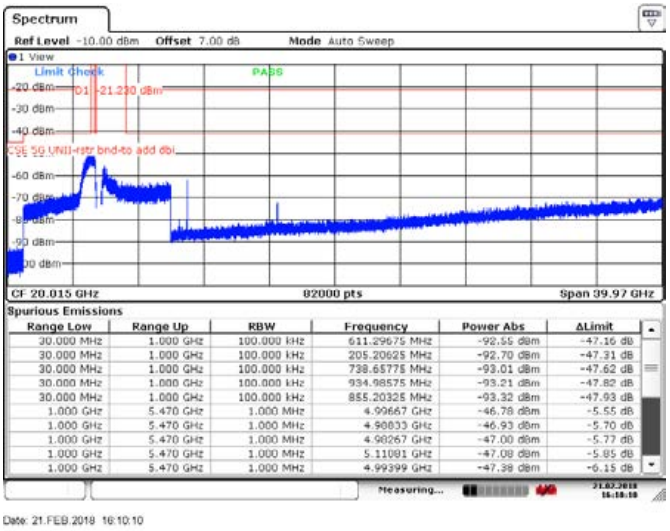


Figure 8.4-46: *Spurious emissions within restricted bands, Tx on ch 100, 802.11ac VHT20*

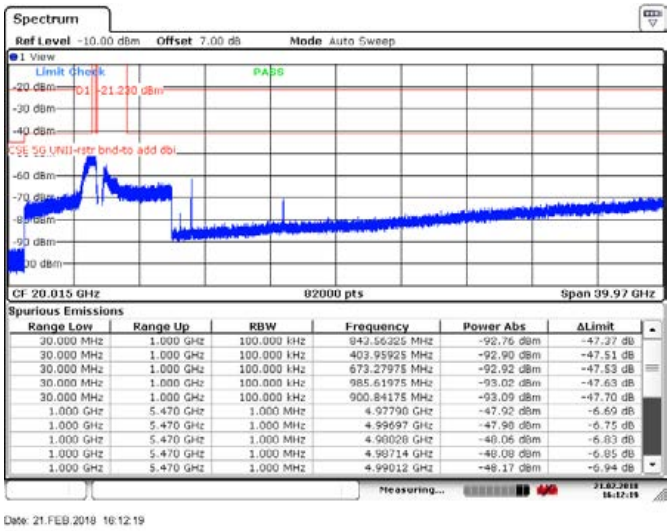


Figure 8.4-47: *Spurious emissions within restricted bands, Tx on ch 120, 802.11ac VHT20*

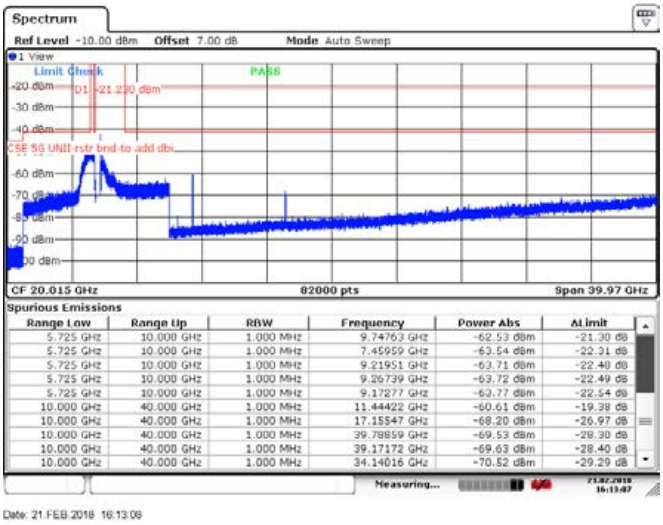


Figure 8.4-48: *Spurious emissions within restricted bands, Tx on ch 144, 802.11ac VHT20*

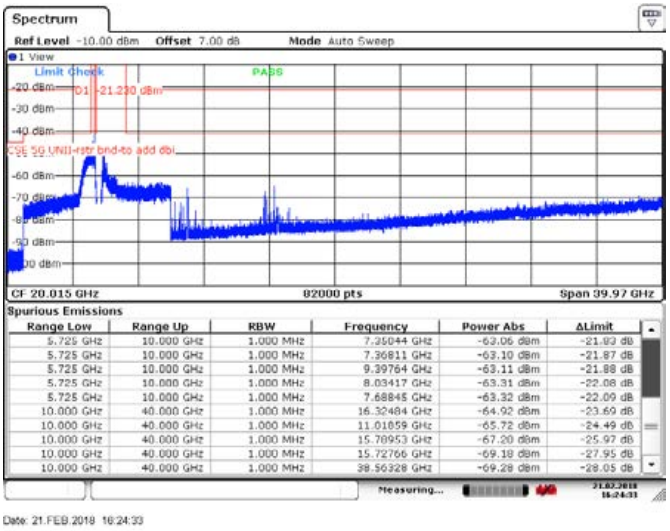


Figure 8.4-49: *Spurious emissions within restricted bands, Tx on ch 102, 802.11ac VHT40*

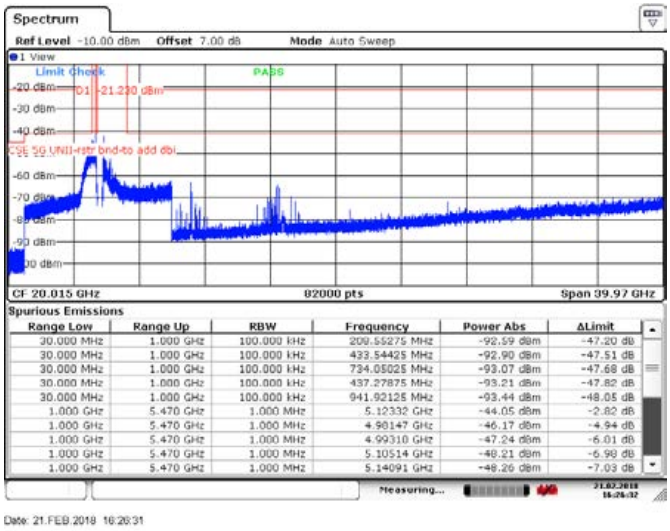


Figure 8.4-50: *Spurious emissions within restricted bands, Tx on ch 118, 802.11ac VHT40*

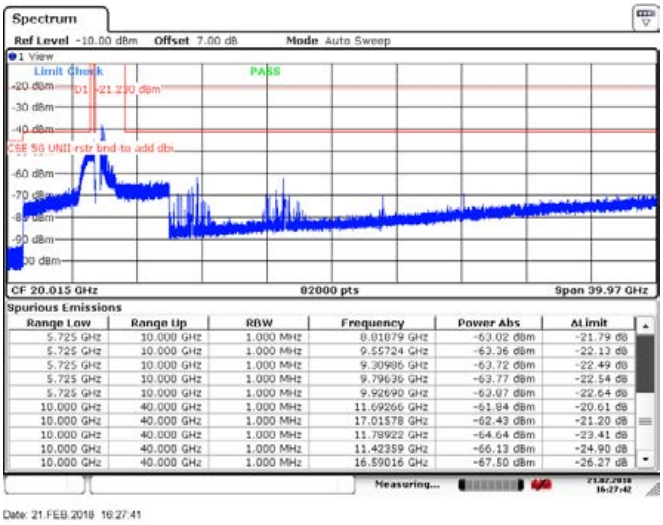


Figure 8.4-51: *Spurious emissions within restricted bands, Tx on ch 142, 802.11ac VHT40*

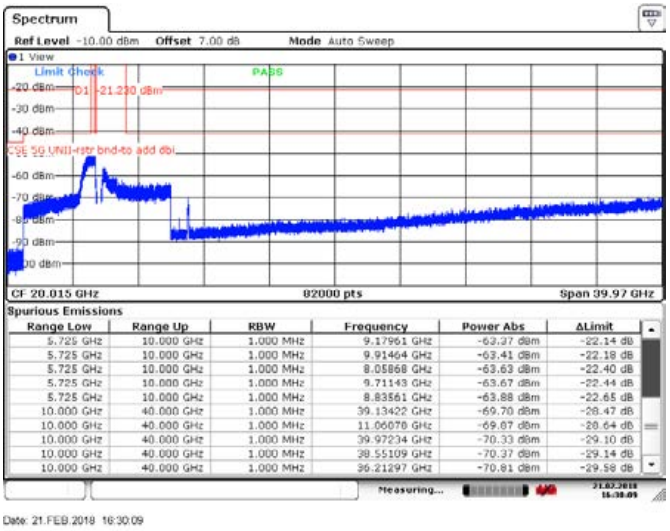


Figure 8.4-52: *Spurious emissions within restricted bands, Tx on ch 106, 802.11ac VHT80*

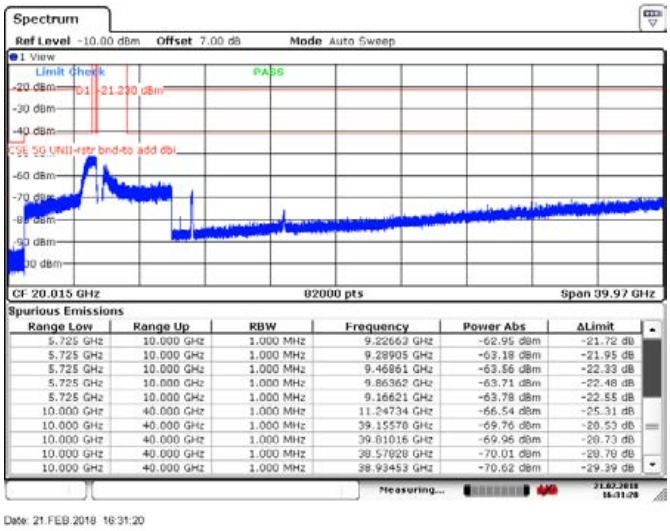


Figure 8.4-53: *Spurious emissions within restricted bands, Tx on ch 122, 802.11ac VHT80*

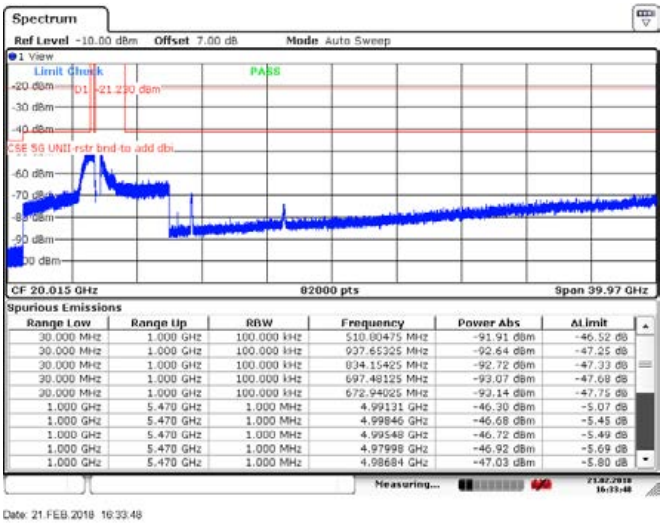


Figure 8.4-54: *Spurious emissions within restricted bands, Tx on ch 138, 802.11ac VHT80*

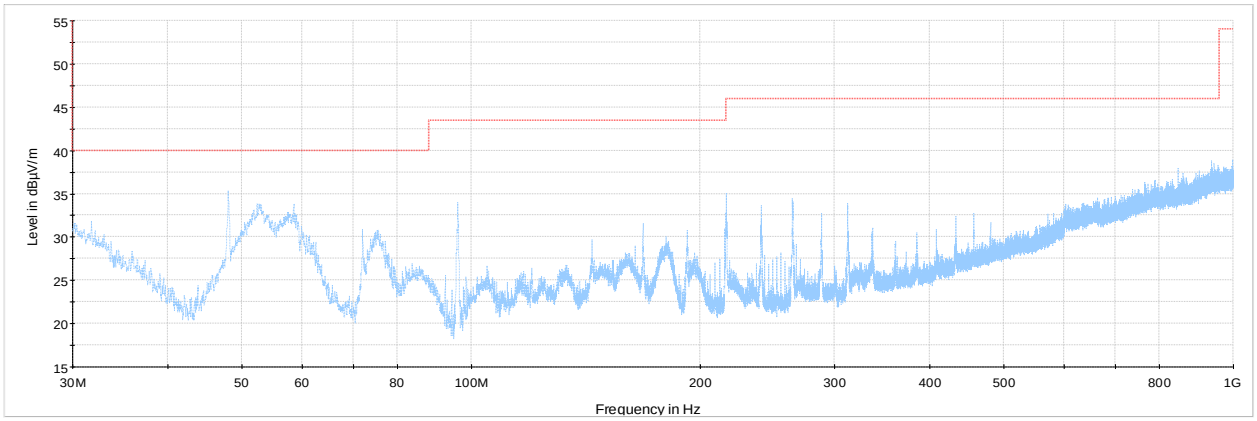


Figure 8.4-55: *Cabinet Radiated spurious emission 30 MHz to 1 GHz sample plot*

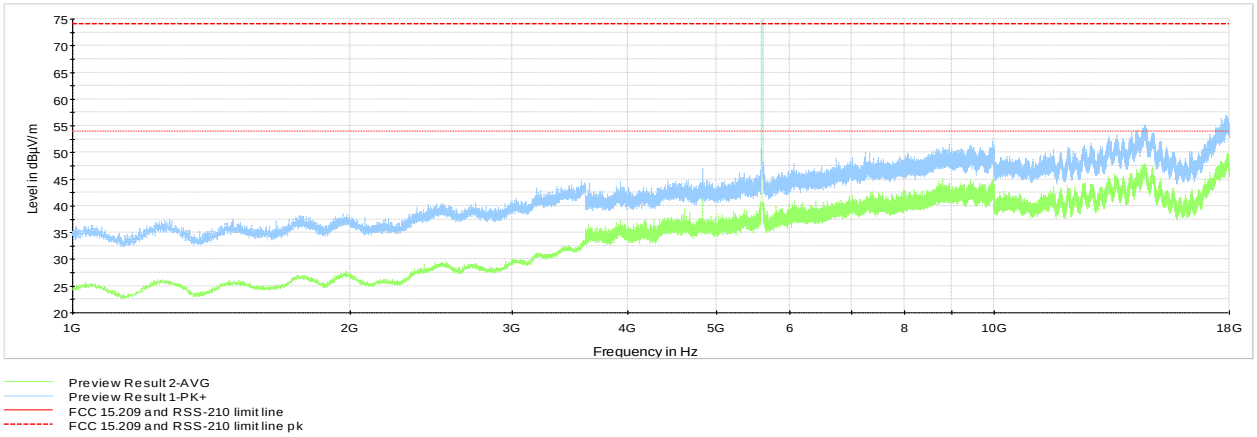


Figure 8.4-56: *Cabinet Radiated spurious emission 1 to 18 GHz sample plot*

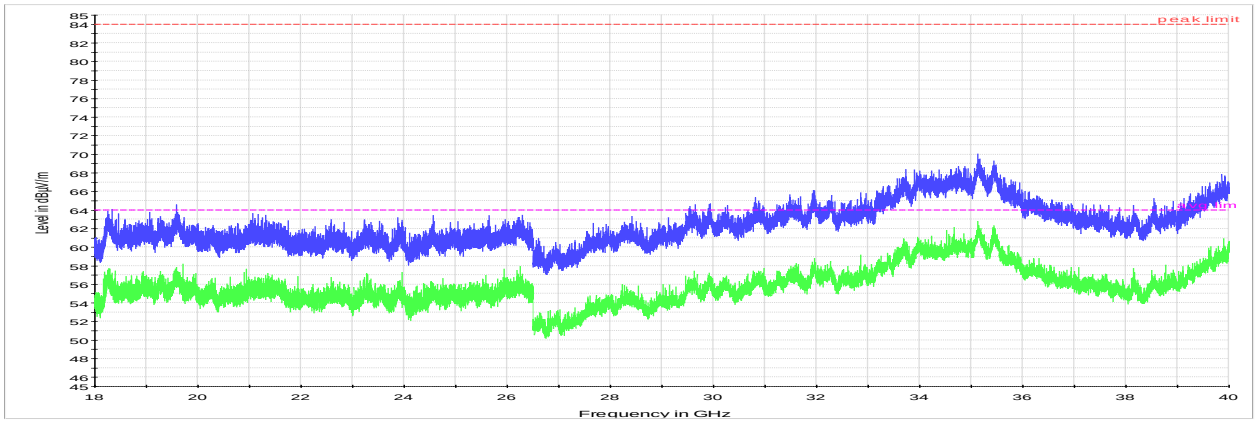


Figure 8.4-57: *Cabinet Radiated spurious emission 18 to 40 GHz sample plot*

Note: EUT was investigated in high/mid/low channels of 802.11a/802.11n/802.11ac modes, only worst case is presented.

8.5 FCC 15.207(a) AC power line conducted emissions limits

8.5.1 Definitions and limits

FCC §15.407(6)(b):

Any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207

FCC §15.207(a):
Except as shown in paragraphs (b) and (c) of this section, 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 line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 µH/50 Ω line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

ISED:
A radio apparatus that is designed to be connected to the public utility (AC) power line shall ensure that the radio frequency voltage, which is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz, shall not exceed the limits in table below.

Unless the requirements applicable to a given device state otherwise, for any radio apparatus equipped to operate from the public utility AC power supply either directly or indirectly (such as with a battery charger), the radio frequency voltage of emissions conducted back onto the AC power lines in the frequency range of 0.15 MHz to 30 MHz shall not exceed the limits shown in table below. The more stringent limit applies at the frequency range boundaries.

Table 8.5-1: *Conducted emissions limit*

Frequency of emission (MHz)	Conducted limit (dBµV)	
	Quasi-peak	Average**
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

Note: * - The level decreases linearly with the logarithm of the frequency.
** - A linear average detector is required.

8.5.2 Test summary

Test start date:	February 23, 2018
Test engineer:	Yong Huang

8.5.3 Observations, settings and special notes

The EUT was set up as tabletop configuration.

The spectral scan has been corrected with transducer factors (i.e. cable loss, LISN factors, and attenuators) for determination of compliance.

A preview measurement was generated with the receiver in continuous scan mode. Emissions detected within 6 dB or above limit were re-measured with the appropriate detector against the correlating limit and recorded as the final measurement.

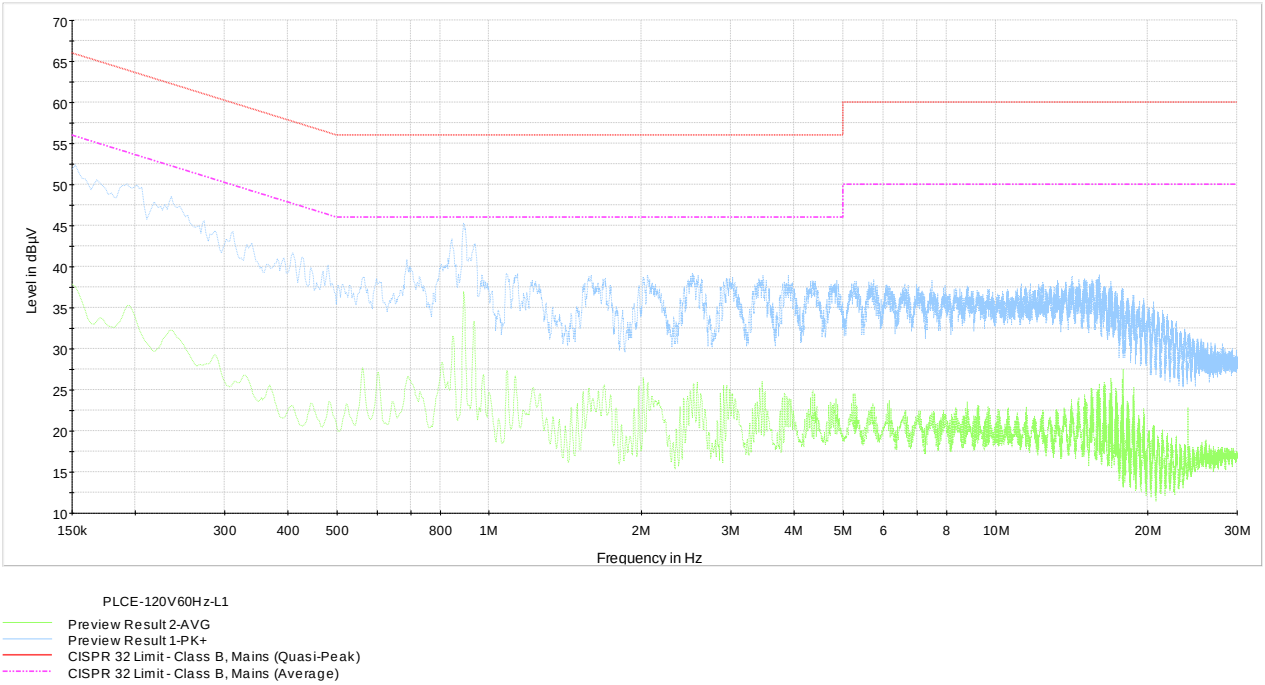
Receiver settings for preview measurements:

Resolution bandwidth	9 kHz
Video bandwidth	30 kHz
Detector mode	Peak and Average
Trace mode	Max Hold
Measurement time	100 ms

Receiver settings for final measurements:

Resolution bandwidth	9 kHz
Video bandwidth	30 kHz
Detector mode	Quasi-Peak and Average
Trace mode	Max Hold
Measurement time	100 ms

8.5.4 Test data



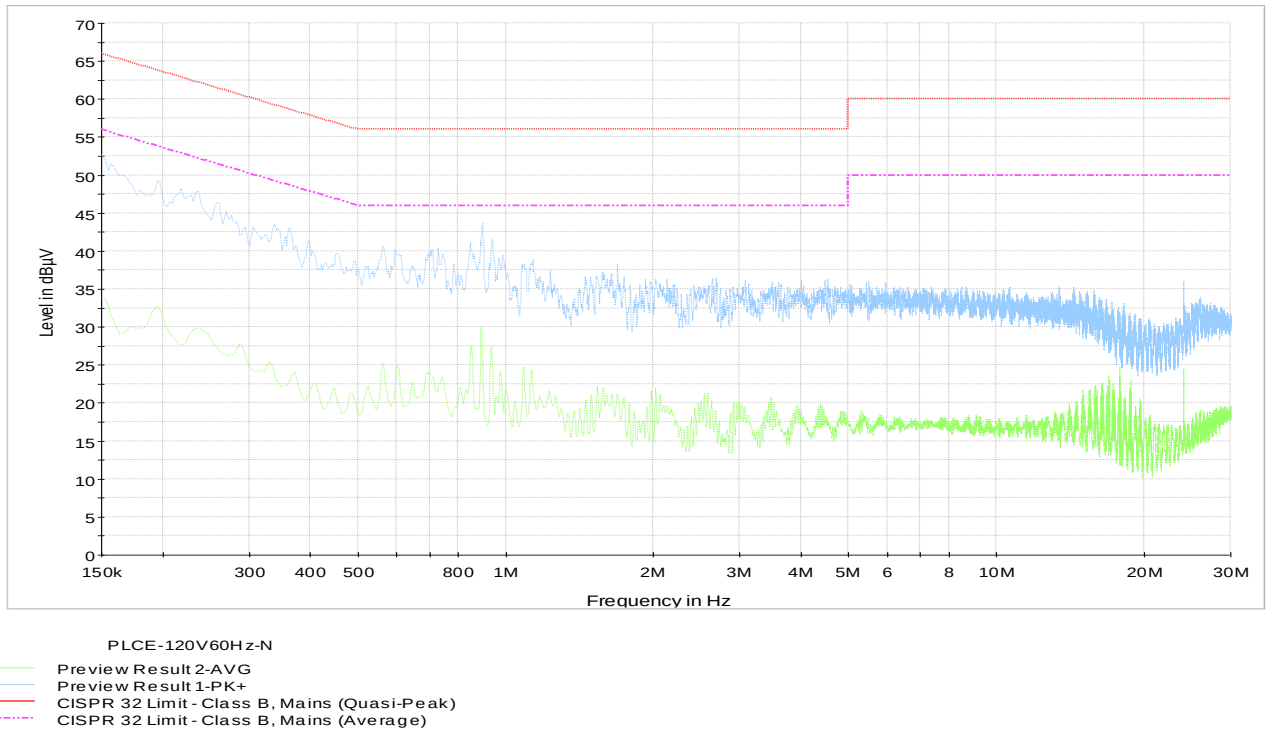
Plot 8.5-1: *Conducted emissions on phase line*

Table 8.5-2: *Average conducted emissions results on phase line*

Frequency, MHz	Average result, dBµV	Limit, dBµV	Margin, dB	Meas. Time, ms	Bandwidth, kHz	Correction, dB
0.890	37.1	46.0	8.9	100	9	9.5

Notes: [1] Result (dBµV) = receiver/spectrum analyzer value (dBµV) + correction factor (dB)
[2] Correction factor (dB) = LISN factor IL (dB) + cable loss (dB) + attenuator (dB)
[3] Emissions that were continuously present for a minimum of 1 second and occurred more than once for every 15 seconds observation period were considered valid emissions. The maximum value of valid emissions have been recorded.

Sample calculation: 37.1 dBµV (result) = 26.6 dBµV (receiver reading) + 9.5 dB (Correction factor)



Plot 8.5-2: *Conducted emissions on neutral line*

8.6 FCC 15.407(g) and RSS-Gen 8.11 Frequency stability

8.6.1 Definitions and limits

Manufacturers of U-NII (IC: LE-LAN) devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

8.6.2 Test summary

Test start date:	February 27, 2018
Test engineer:	Yong Huang

8.6.3 Observations, settings and special notes

Spectrum analyser settings:

Resolution bandwidth:	10 Hz
Video bandwidth:	10 Hz
Detector mode:	Peak
Trace mode:	Max Hold

8.6.4 Test data

Table 8.6-1: *Frequency drift measurement*

Test conditions Temperature, Voltage	Nominal frequency, GHz	Frequency, GHz	Drift, Hz
+40 °C, Nominal	5.6	5.6000113750	-562
+30 °C, Nominal	5.6	5.6000090620	-2875
+20 °C, +15 %	5.6	5.6000119370	0
+20 °C, Nominal	5.6	5.6000119370	reference
+20 °C, −15 %	5.6	5.6000119370	0
+10 °C, Nominal	5.6	5.6000133120	1375
0 °C, Nominal	5.6	5.6000271240	15187

Minimum lower band edge margin is more than 3 kHz

Minimum upper band edge margin is more than 16 kHz

The frequency drifts in above table are within these minimum margins, the emissions are deemed to maintain within the band of operation.

8.7 FCC 15.407(h)(2) and RSS-247 6.3 Radar Detection Function of Dynamic Frequency Selection (DFS)

8.7.1 Definitions and limits

(2) Radar Detection Function of Dynamic Frequency Selection (DFS). U-NII devices operating with any part of its 26 dB emission bandwidth in the 5.25–5.35 GHz and 5.47–5.725 GHz bands shall employ a DFS radar detection mechanism to detect the presence of radar systems and to avoid co-channel operation with radar systems. Operators shall only use equipment with a DFS mechanism that is turned on when operating in these bands. The device must sense for radar signals at 100 percent of its emission bandwidth. The minimum DFS detection threshold for devices with a maximum e.i.r.p. of 200 mW to 1 W (23–30 dBm) is −64 dBm. For devices that operate with less than 200 mW (23 dBm) e.i.r.p. and a power spectral density of less than 10 dBm in a 1 MHz band, the minimum detection threshold is −62 dBm. The detection threshold is the received power averaged over 1 microsecond referenced to a 0 dBi antenna. For the initial channel setting, the manufacturers shall be permitted to provide for either random channel selection or manual channel selection.

(i) Operational Modes. The DFS requirement applies to the following operational modes:

(A) The requirement for channel availability check time applies in the master operational mode.

(B) The requirement for channel move time applies in both the master and slave operational modes.

(ii) Channel Availability Check Time. A U-NII device shall check if there is a radar system already operating on the channel before it can initiate a transmission on a channel and when it has to move to a new channel. The U-NII device may start using the channel if no radar signal with a power level greater than the interference threshold values listed in paragraph (h)(2) of this section, is detected within 60 seconds.

(iii) Channel Move Time. After a radar's presence is detected, all transmissions shall cease on the operating channel within 10 seconds. Transmissions during this period shall consist of normal traffic for a maximum of 200 ms after detection of the radar signal. In addition, intermittent management and control signals can be sent during the remaining time to facilitate vacating the operating channel.

(iv) Non-occupancy Period. A channel that has been flagged as containing a radar system, either by a channel availability check or in-service monitoring, is subject to a non-occupancy period of at least 30 minutes. The non-occupancy period starts at the time when the radar system is detected.

Table 8.7-1: *DFS Response Requirement Values*

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds[1]
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period[1 and 2]
U-NII Detection Bandwidth	Minimum 80% of the 99% power bandwidth[3]

Notes: [1] The instant that the *Channel Move Time* and the *Channel Closing Transmission Time* begins is as follows:

- For the Short pulse radar Test Signals this instant is the end of the Burst.
- For the Frequency Hopping radar Test Signal, this instant is the end of the last radar Burst generated.
- For the Long Pulse radar Test Signal this instant is the end of the 12 second period defining the radar transmission.

[2] The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate Channel changes (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

[3] During the *U-NII Detection Bandwidth* detection test, radar type 1 is used and for each frequency step the minimum percentage of detection is 90%. Measurements are performed with no data traffic.

Table 8.7-2: *Short Pulse Radar Test Waveforms*

Radar type	Pulse width, µs	Pulse Repetition Interval (PRI), µs	Number of pulses	Minimum percentage of successful detection	Minimum number of trials
0	1	1428	18	See note	See note
1	1	**Test A:** 15 unique PRI values randomly selected from the list of 23 PRI values in table below **Test B:** 15 unique PRI values randomly selected within the range of 518–3066 µs, with a minimum increment of 1 µs, excluding PRI values selected in Test A	Roundup{(1 ÷ 360) × (19 × 10^6 ÷ $PRI_{\mu s}$)}	60%	30
2	1–5	150–230	23–29	60%	30
3	6–10	200–500	16–18	60%	30
4	11–20	200–500	12–16	60%	30
Aggregate (Radar types 1–4)				80%	120

Note: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.

Table 8.7-3: *Pulse Repetition Intervals Values for Test A*

Pulse Repetition Frequency number	Pulse Repetition Frequency, Pulses per second	Pulse Repetition Interval (PRI), µs
1	1930.5	518
2	1818.7	538
3	1792.1	558
4	1730.1	578
5	1672.2	598
6	1618.1	618
7	1567.4	638
8	1519.8	658
9	1474.9	678
10	1432.7	698
11	1392.8	718
12	1355.0	738
13	1319.3	758
14	1285.3	778
15	1253.1	798
16	1222.5	818
17	1193.3	838
18	1165.6	858
19	1139.0	878
20	1113.6	898
21	1089.3	918
22	1066.1	938
23	326.2	3066

Table 8.7-4: *Long Pulse Radar Test Waveforms*

Radar type	Pulse width, µs	Chirp width, MHz	Pulse Repetition Interval (PRI), µs	Number of pulses per burst	Number of bursts	Minimum percentage of successful detection	Minimum number of trials
5	50–100	5–20	1000–2000	1–3	8–20	80%	30

Table 8.7-5: *Frequency Hopping Radar Test Waveforms*

Radar type	Pulse width, µs	Pulse Repetition Interval (PRI), µs	Pulses per hop	Hopping rate, kHz	Hopping sequence length, ms	Minimum percentage of successful detection	Minimum number of trials
6	1	333	9	0.333	300	70%	30

8.7.2 Test summary

Test start date:	March 8, 2018
Test engineer:	Yong Huang

8.7.3 Observations, settings and special notes

Since EUT is a client device without DFS radar detection mechanism, therefore only two tests are applicable: Channel Move Time and Channel Closing Transmission Time. The test was performed with conducted setup. The test was performed with an approved master (provided by customer) operating in 80 MHz BW mode. Transmit channel was operating in 80 MHz BW mode centered at 5530 MHz, the Radar type 0 at 5500 MHz was supplied to companion master device.

8.7.4 Test data

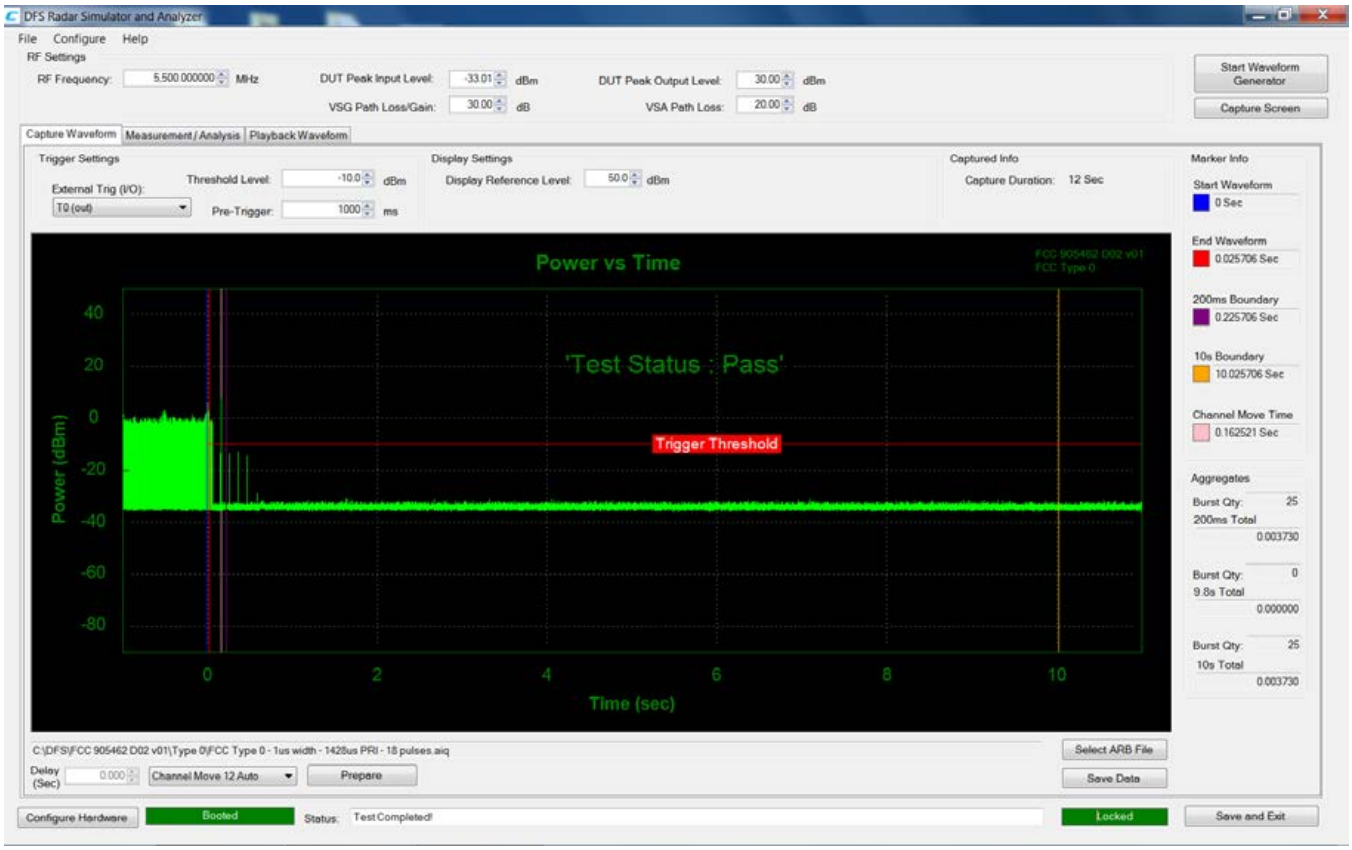


Figure 8.7-1: *Channel move time measurement*

Report Generated :12/03/2018

Test Result :Passed

Test Type :Channel Move Auto 12

Waveform : C:\DFS\FCC 905462 D02 v01\Type 0\FCC Type 0 - 1us width - 1428us PRI - 18 pulses.aiq

Reported results are filtered. Any gaps in transmission less than 1E-05ms are assumed to be continuous transmission

Aggregate time is calculated on filtered data

Timings Relative to Start of Capture

T1 : 25.706 (ms)

Transmission Duration by Region					
Region	Start (sec)	End (sec)	Power Allowed (ms)	Power Measured (ms)	Pass/Fail
0	0	0.2	200	3.73	Pass
1	0.2	10	60	0	Pass
2	10	12	0	0	Pass

Table 8.7-6: *Pulses detected*

Start Time (ms)	Stop Time (ms)	Duration (ms)
-999.561	-999.529	0.032
-999.344	-999.312	0.032
-998.818	-998.667	0.152
-997.387	-997.335	0.052
-997.259	-997.007	0.252
-996.213	-996.181	0.032
-995.908	-995.877	0.032
-995.706	-995.553	0.152
-994.732	-994.700	0.032
-994.543	-994.511	0.032
-994.256	-994.105	0.151
-992.842	-992.791	0.052
-992.714	-992.463	0.251
-991.658	-991.626	0.032
-991.299	-991.267	0.032
-991.073	-990.900	0.173
-990.170	-990.138	0.032
-989.869	-989.837	0.032
-989.604	-989.453	0.151
-988.703	-988.671	0.032
-988.496	-988.464	0.032
-988.148	-987.997	0.152
-987.359	-987.328	0.031
-987.028	-986.997	0.032
-986.653	-986.502	0.152
-985.158	-985.007	0.151
-983.691	-983.540	0.151
-982.197	-982.046	0.151
-980.730	-980.578	0.152

Table 8.7-7: *Pulses detected, continued*

Start Time (ms)	Stop Time (ms)	Duration (ms)
-979.235	-979.083	0.152
-977.766	-977.615	0.151
-976.273	-976.121	0.151
-974.803	-974.653	0.150
-973.310	-973.159	0.151
-971.817	-971.665	0.151
-970.315	-970.170	0.144
-968.844	-968.700	0.144
-967.366	-967.214	0.151
-965.649	-965.498	0.151
-964.202	-964.059	0.143
-962.772	-962.627	0.144
-961.348	-961.197	0.151
-959.879	-959.735	0.144
-958.376	-958.232	0.144
-956.883	-956.739	0.145
-955.389	-955.246	0.143
-953.922	-953.779	0.143
-952.474	-952.423	0.052
-952.339	-952.095	0.243
-950.771	-950.627	0.144
-949.341	-949.197	0.144
-947.917	-947.766	0.151
-946.474	-946.331	0.143
-944.979	-944.835	0.144
-943.491	-943.339	0.152
-942.023	-941.872	0.151
-940.556	-940.406	0.150
-939.061	-938.918	0.143
-937.650	-937.420	0.230
-936.104	-935.924	0.181
-934.597	-934.446	0.151
-933.109	-932.957	0.152
-931.642	-931.491	0.152
-930.144	-929.993	0.151
-928.675	-928.524	0.151
-927.187	-927.036	0.151
-925.690	-925.539	0.151
-924.195	-924.043	0.151
-922.700	-922.548	0.152
-921.233	-921.082	0.151
-919.748	-919.597	0.151
-918.260	-918.109	0.151
-916.831	-916.780	0.051
-916.703	-916.473	0.230
-915.169	-914.997	0.172
-913.715	-913.564	0.152
-912.257	-912.106	0.151
-910.754	-910.604	0.151
-909.268	-909.117	0.151
-907.802	-907.650	0.151
-906.308	-906.156	0.151
-904.814	-904.662	0.151
-903.303	-903.160	0.143
-901.811	-901.661	0.150
-900.353	-900.209	0.144
-898.884	-898.740	0.144
-897.388	-897.244	0.144
-895.895	-895.744	0.151

Table 8.7-8: *Pulses detected, continued*

Start Time (ms)	Stop Time (ms)	Duration (ms)
-894.400	-894.249	0.151
-892.934	-892.783	0.151
-891.440	-891.289	0.151
-889.978	-889.826	0.151
-888.482	-888.331	0.151
-887.012	-886.861	0.151
-885.518	-885.367	0.151
-884.015	-883.864	0.151
-882.528	-882.377	0.151
-881.060	-880.909	0.151
-879.556	-879.413	0.143
-878.063	-877.919	0.144
-876.566	-876.423	0.144
-875.100	-874.956	0.144
-873.605	-873.461	0.144
-872.133	-871.982	0.151
-870.639	-870.488	0.151
-869.154	-869.004	0.150
-867.659	-867.508	0.151
-866.171	-866.019	0.152
-864.665	-864.522	0.143
-863.256	-863.026	0.230
-861.710	-861.530	0.180
-860.205	-860.054	0.151
-858.720	-858.569	0.151
-857.252	-857.100	0.151
-855.756	-855.604	0.152
-854.275	-854.123	0.151
-852.787	-852.635	0.152
-851.299	-851.148	0.151
-849.810	-849.659	0.152
-848.307	-848.156	0.152
-846.814	-846.662	0.151
-845.326	-845.175	0.151
-843.858	-843.708	0.151
-842.417	-842.366	0.051
-842.282	-842.058	0.223
-840.734	-840.554	0.181
-839.270	-839.218	0.052
-839.142	-838.861	0.281
-837.542	-837.362	0.180
-836.094	-836.042	0.052
-835.966	-835.714	0.252
-834.418	-834.238	0.180
-832.954	-832.803	0.151
-831.530	-831.379	0.151
-830.063	-829.911	0.152
-828.569	-828.419	0.150
-827.075	-826.924	0.151
-825.573	-825.421	0.152
-824.085	-823.934	0.151
-822.618	-822.467	0.151
-821.160	-821.108	0.052
-821.024	-820.780	0.244
-819.469	-819.319	0.149
-818.046	-817.894	0.151
-816.606	-816.455	0.151
-815.175	-815.024	0.151
-813.681	-813.530	0.151

Table 8.7-9: *Pulses detected, continued*

Start Time (ms)	Stop Time (ms)	Duration (ms)
-812.183	-812.034	0.149
-810.684	-810.539	0.144
-809.217	-809.066	0.151
-807.724	-807.580	0.144
-806.262	-806.111	0.151
-804.767	-804.617	0.151
-803.264	-803.120	0.144
-801.761	-801.618	0.144
-800.268	-800.124	0.144
-798.786	-798.635	0.151
-797.349	-797.298	0.051
-797.221	-796.968	0.252
-795.659	-795.516	0.143
-794.229	-794.080	0.149
-792.800	-792.648	0.151
-791.360	-791.158	0.202
-789.854	-789.803	0.051
-789.726	-789.416	0.310
-788.119	-787.968	0.151
-786.688	-786.538	0.150
-785.253	-785.110	0.143
-783.828	-783.677	0.151
-782.381	-782.237	0.144
-780.957	-780.806	0.151
-779.464	-779.312	0.152
-777.969	-777.826	0.143
-776.532	-776.280	0.252
-774.964	-774.812	0.152
-773.506	-773.354	0.152
-772.011	-771.860	0.151
-770.517	-770.366	0.151
-769.023	-768.872	0.151
-767.561	-767.410	0.151
-766.066	-765.914	0.152
-764.599	-764.448	0.152
-763.101	-762.950	0.151
-761.246	-761.102	0.144
-759.777	-759.597	0.180
-758.289	-758.237	0.052
-758.153	-757.880	0.273
-756.600	-756.548	0.052
-756.465	-756.082	0.382
-754.767	-754.588	0.179
-753.306	-753.155	0.152
-751.875	-751.725	0.151
-750.436	-750.284	0.151
-748.942	-748.790	0.151
-747.448	-747.296	0.152
-745.978	-745.834	0.144
-744.511	-744.367	0.144
-743.018	-742.874	0.144
-741.531	-741.380	0.151
-740.035	-739.884	0.152
-738.567	-738.415	0.151
-737.073	-736.922	0.151
-735.606	-735.455	0.151
-734.112	-733.961	0.152
-732.613	-732.462	0.151
-731.119	-730.968	0.151

Table 8.7-10: *Pulses detected, continued*

Start Time (ms)	Stop Time (ms)	Duration (ms)
-729.653	-729.501	0.151
-728.158	-728.006	0.152
-726.662	-726.511	0.151
-725.168	-725.016	0.151
-723.698	-723.548	0.150
-722.204	-722.053	0.151
-720.763	-720.711	0.052
-720.627	-720.404	0.224
-719.080	-718.908	0.172
-717.625	-717.473	0.151
-716.156	-716.012	0.144
-714.731	-714.580	0.151
-713.236	-713.086	0.151
-711.762	-711.619	0.144
-710.269	-710.125	0.144
-708.787	-708.636	0.151
-707.318	-707.167	0.151
-705.848	-705.697	0.151
-704.352	-704.208	0.144
-702.856	-702.713	0.143
-701.455	-701.223	0.231
-699.892	-699.719	0.172
-698.400	-698.249	0.151
-696.914	-696.763	0.151
-695.430	-695.279	0.151
-693.937	-693.786	0.151
-692.453	-692.302	0.151
-690.967	-690.816	0.151
-689.483	-689.331	0.152
-687.986	-687.838	0.148
-686.561	-686.509	0.052
-686.433	-686.203	0.229
-684.905	-684.724	0.180
-683.437	-683.293	0.144
-681.987	-681.835	0.151
-680.493	-680.341	0.152
-678.999	-678.848	0.151
-677.540	-677.388	0.152
-676.071	-675.920	0.151
-674.588	-674.444	0.144
-673.101	-672.950	0.151
-671.607	-671.456	0.151
-670.121	-669.970	0.151
-668.645	-668.495	0.151
-667.159	-667.007	0.152
-665.674	-665.523	0.151
-664.180	-664.028	0.151
-662.693	-662.542	0.151
-661.199	-661.048	0.151
-659.710	-659.559	0.151
-658.213	-658.063	0.150
-656.730	-656.587	0.144
-655.246	-655.102	0.144
-653.750	-653.606	0.144
-652.279	-652.128	0.151
-650.785	-650.634	0.152
-649.291	-649.148	0.142
-647.800	-647.649	0.151
-646.313	-646.162	0.151

Table 8.7-11: *Pulses detected, continued*

Start Time (ms)	Stop Time (ms)	Duration (ms)
-644.837	-644.686	0.151
-643.343	-643.199	0.144
-641.857	-641.713	0.144
-640.445	-640.393	0.052
-640.317	-640.088	0.228
-638.796	-638.617	0.179
-637.328	-637.177	0.151
-635.870	-635.719	0.151
-634.376	-634.225	0.151
-632.875	-632.731	0.144
-631.424	-631.272	0.151
-629.955	-629.804	0.151
-628.468	-628.325	0.144
-627.046	-626.815	0.231
-625.496	-625.316	0.179
-623.999	-623.948	0.052
-623.871	-623.591	0.281
-622.280	-622.129	0.151
-620.856	-620.704	0.152
-619.424	-619.273	0.151
-617.984	-617.833	0.151
-616.524	-616.373	0.150
-615.049	-614.906	0.144
-613.589	-613.438	0.151
-612.104	-611.954	0.151
-610.611	-610.459	0.151
-609.121	-608.974	0.147
-607.638	-607.486	0.151
-606.153	-606.003	0.150
-604.659	-604.507	0.152
-603.174	-603.023	0.151
-601.678	-601.534	0.144
-600.196	-600.044	0.152
-598.706	-598.554	0.152
-597.221	-597.071	0.150
-595.727	-595.584	0.143
-594.234	-594.090	0.144
-592.749	-592.606	0.144
-591.270	-591.119	0.151
-589.824	-589.773	0.051
-589.696	-589.465	0.231
-588.147	-587.974	0.172
-586.683	-586.532	0.151
-585.230	-585.078	0.152
-583.796	-583.647	0.149
-582.329	-582.178	0.151
-580.833	-580.682	0.151
-579.338	-579.187	0.151
-577.845	-577.693	0.151
-576.351	-576.199	0.151
-574.884	-574.733	0.151
-573.389	-573.238	0.151
-571.886	-571.735	0.151
-570.399	-570.248	0.151
-568.932	-568.781	0.151
-567.427	-567.284	0.143
-565.939	-565.788	0.151
-564.437	-564.293	0.144
-562.970	-562.826	0.144

Table 8.7-12: *Pulses detected, continued*

Start Time (ms)	Stop Time (ms)	Duration (ms)
-561.491	-561.340	0.151
-560.021	-559.870	0.151
-558.519	-558.375	0.144
-557.031	-556.880	0.151
-555.536	-555.385	0.151
-554.042	-553.898	0.143
-552.631	-552.401	0.230
-551.084	-550.904	0.181
-549.579	-549.428	0.151
-548.091	-547.940	0.151
-546.625	-546.473	0.152
-545.131	-544.979	0.151
-543.650	-543.499	0.151
-542.165	-542.016	0.150
-540.667	-540.516	0.151
-539.178	-539.027	0.151
-537.693	-537.548	0.144
-536.214	-536.062	0.151
-534.728	-534.576	0.151
-533.234	-533.082	0.152
-531.748	-531.597	0.151
-530.261	-530.110	0.151
-528.768	-528.624	0.144
-527.273	-527.122	0.151
-525.795	-525.644	0.151
-524.358	-524.306	0.052
-524.230	-523.999	0.231
-523.313	-523.282	0.032
-523.052	-523.020	0.032
-522.711	-522.531	0.180
-522.344	-522.312	0.032
-521.816	-521.784	0.032
-521.504	-521.472	0.032
-521.241	-521.097	0.144
-520.525	-520.494	0.031
-520.308	-520.277	0.032
-519.819	-519.667	0.152
-519.028	-518.996	0.032
-518.829	-518.798	0.032
-518.322	-518.171	0.151
-517.605	-517.573	0.032
-517.386	-517.355	0.032
-516.826	-516.683	0.144
-516.016	-515.984	0.032
-515.770	-515.738	0.032
-515.370	-515.218	0.152
-514.569	-514.537	0.032
-514.341	-514.309	0.032
-513.886	-513.734	0.152
-513.189	-513.158	0.032
-512.973	-512.941	0.032
-512.402	-512.251	0.152
-511.690	-511.658	0.032
-511.455	-511.423	0.032
-510.904	-510.760	0.144
-510.195	-510.163	0.032
-509.879	-509.847	0.032
-509.426	-509.274	0.152
-508.647	-508.615	0.032

Table 8.7-13: *Pulses detected, continued*

Start Time (ms)	Stop Time (ms)	Duration (ms)
-508.421	-508.389	0.032
-507.940	-507.788	0.152
-507.252	-507.220	0.032
-506.954	-506.922	0.032
-506.447	-506.295	0.152
-505.644	-505.612	0.032
-505.382	-505.350	0.032
-504.955	-504.804	0.151
-504.202	-504.170	0.032
-503.904	-503.872	0.032
-503.460	-503.308	0.152
-502.659	-502.627	0.032
-502.388	-502.356	0.032
-501.966	-501.815	0.151
-501.199	-501.167	0.032
-500.883	-500.851	0.032
-500.474	-500.323	0.151
-499.665	-499.633	0.032
-499.358	-499.326	0.032
-498.981	-498.830	0.151
-498.166	-498.134	0.032
-497.886	-497.854	0.031
-497.478	-497.326	0.152
-496.769	-496.738	0.032
-496.454	-496.422	0.032
-495.982	-495.831	0.151
-495.219	-495.187	0.032
-495.029	-494.997	0.032
-494.495	-494.343	0.151
-493.825	-493.794	0.032
-493.644	-493.613	0.032
-492.993	-492.842	0.151
-492.325	-492.293	0.032
-492.117	-492.085	0.032
-491.529	-491.377	0.152
-490.822	-490.790	0.032
-490.632	-490.600	0.032
-490.034	-489.884	0.151
-489.335	-489.303	0.032
-489.118	-489.086	0.032
-488.558	-488.414	0.144
-487.072	-486.920	0.152
-485.573	-485.422	0.152
-484.072	-483.928	0.144
-482.578	-482.435	0.143
-481.091	-480.940	0.151
-479.625	-479.481	0.144
-478.186	-477.934	0.252
-476.654	-476.503	0.151
-475.169	-475.018	0.151
-473.667	-473.516	0.151
-472.179	-472.027	0.152
-470.712	-470.560	0.152
-469.253	-469.102	0.151
-467.768	-467.616	0.152
-466.273	-466.122	0.151
-464.788	-464.637	0.151
-463.294	-463.143	0.151
-461.801	-461.649	0.151

Table 8.7-14: *Pulses detected, continued*

Start Time (ms)	Stop Time (ms)	Duration (ms)
-460.317	-460.173	0.144
-458.835	-458.684	0.152
-457.341	-457.190	0.152
-455.847	-455.697	0.150
-454.038	-453.886	0.152
-452.587	-452.435	0.151
-451.148	-451.004	0.144
-449.715	-449.564	0.151
-448.273	-448.130	0.144
-446.850	-446.699	0.151
-445.411	-445.267	0.144
-443.915	-443.772	0.144
-442.454	-442.303	0.151
-440.952	-440.808	0.143
-439.485	-439.341	0.144
-438.005	-437.854	0.151
-436.520	-436.369	0.151
-435.088	-435.036	0.052
-434.960	-434.729	0.231
-433.414	-433.234	0.179
-431.954	-431.802	0.151
-430.492	-430.341	0.151
-429.025	-428.876	0.150
-427.532	-427.380	0.151
-426.065	-425.914	0.151
-424.571	-424.420	0.151
-423.116	-423.065	0.051
-422.988	-422.735	0.252
-421.447	-421.296	0.151
-420.014	-419.963	0.051
-419.886	-419.634	0.252
-418.337	-418.185	0.151
-416.913	-416.762	0.151
-415.471	-415.320	0.151
-414.032	-413.887	0.144
-412.608	-412.456	0.151
-411.168	-411.017	0.151
-409.675	-409.524	0.151
-408.173	-408.029	0.144
-406.711	-406.560	0.151
-405.213	-405.070	0.144
-403.766	-403.515	0.251
-402.217	-402.066	0.151
-400.759	-400.608	0.151
-399.262	-399.111	0.150
-397.795	-397.643	0.151
-396.301	-396.150	0.152
-394.834	-394.683	0.151
-393.340	-393.189	0.151
-391.875	-391.823	0.052
-391.747	-391.495	0.252
-390.193	-390.042	0.151
-388.768	-388.616	0.151
-387.328	-387.177	0.151
-385.897	-385.746	0.151
-384.399	-384.248	0.151
-382.932	-382.781	0.151
-381.440	-381.288	0.152
-379.972	-379.821	0.152

Table 8.7-15: *Pulses detected, continued*

Start Time (ms)	Stop Time (ms)	Duration (ms)
-378.476	-378.325	0.151
-376.991	-376.840	0.151
-375.506	-375.356	0.151
-374.077	-374.025	0.051
-373.949	-373.718	0.230
-372.385	-372.212	0.173
-370.926	-370.782	0.144
-369.475	-369.324	0.152
-368.041	-367.890	0.151
-366.546	-366.396	0.150
-365.043	-364.899	0.144
-363.575	-363.431	0.144
-362.088	-361.937	0.151
-360.591	-360.440	0.151
-359.096	-358.944	0.152
-357.602	-357.452	0.150
-356.135	-355.984	0.151
-354.634	-354.490	0.144
-353.147	-352.996	0.151
-351.415	-351.263	0.152
-349.967	-349.823	0.144
-348.507	-348.355	0.151
-347.065	-346.921	0.144
-345.635	-345.491	0.144
-344.201	-344.050	0.151
-342.717	-342.565	0.151
-341.248	-341.097	0.151
-339.777	-339.633	0.144
-338.371	-338.319	0.052
-338.242	-338.012	0.230
-336.715	-336.543	0.172
-335.259	-335.108	0.151
-333.798	-333.647	0.151
-332.324	-332.180	0.144
-330.837	-330.694	0.143
-329.417	-329.187	0.230
-327.877	-327.697	0.179
-326.372	-326.221	0.151
-324.885	-324.733	0.151
-323.418	-323.268	0.150
-321.921	-321.769	0.151
-320.452	-320.301	0.152
-318.964	-318.812	0.151
-317.476	-317.324	0.151
-315.981	-315.836	0.145
-314.497	-314.346	0.151
-313.004	-312.853	0.151
-311.511	-311.359	0.152
-310.008	-309.857	0.151
-308.515	-308.370	0.145
-307.055	-306.904	0.151
-305.571	-305.419	0.152
-304.149	-304.098	0.051
-304.021	-303.791	0.230
-302.501	-302.321	0.180
-301.038	-300.887	0.152
-299.551	-299.400	0.151
-298.074	-297.931	0.144
-296.591	-296.439	0.152

Table 8.7-16: *Pulses detected, continued*

Start Time (ms)	Stop Time (ms)	Duration (ms)
-295.124	-294.973	0.151
-293.650	-293.506	0.144
-292.172	-292.027	0.144
-290.690	-290.539	0.151
-289.203	-289.051	0.151
-287.697	-287.554	0.143
-286.210	-286.059	0.151
-284.796	-284.745	0.051
-284.668	-284.437	0.230
-283.149	-282.969	0.180
-281.689	-281.538	0.151
-280.231	-280.080	0.151
-278.765	-278.614	0.150
-277.351	-277.300	0.051
-277.223	-276.993	0.230
-275.701	-275.528	0.173
-274.233	-274.088	0.144
-272.802	-272.658	0.144
-271.308	-271.165	0.144
-269.842	-269.698	0.145
-268.371	-268.219	0.152
-266.877	-266.726	0.151
-265.392	-265.242	0.150
-263.899	-263.747	0.151
-262.412	-262.268	0.144
-260.931	-260.779	0.152
-259.442	-259.291	0.151
-258.003	-257.822	0.180
-256.540	-256.390	0.150
-255.099	-254.955	0.144
-253.668	-253.524	0.144
-252.243	-252.093	0.150
-250.804	-250.661	0.144
-249.265	-249.114	0.151
-247.816	-247.665	0.151
-246.382	-246.238	0.144
-244.970	-244.740	0.231
-243.434	-243.254	0.180
-241.918	-241.766	0.152
-240.433	-240.282	0.152
-238.959	-238.815	0.144
-237.492	-237.341	0.151
-236.000	-235.848	0.151
-234.506	-234.354	0.151
-233.017	-232.865	0.151
-231.541	-231.390	0.151
-230.048	-229.904	0.144
-228.557	-228.406	0.151
-227.073	-226.922	0.151
-225.588	-225.436	0.151
-224.082	-223.931	0.151
-222.596	-222.452	0.144
-221.118	-220.974	0.144
-219.638	-219.487	0.150
-218.143	-217.992	0.151
-216.649	-216.497	0.152
-215.173	-215.022	0.151
-213.677	-213.534	0.144
-212.183	-212.040	0.144

Table 8.7-17: *Pulses detected, continued*

Start Time (ms)	Stop Time (ms)	Duration (ms)
-210.690	-210.546	0.144
-209.209	-209.058	0.151
-207.732	-207.582	0.151
-206.238	-206.094	0.144
-204.742	-204.591	0.151
-203.249	-203.097	0.151
-201.784	-201.733	0.052
-201.656	-201.404	0.252
-200.097	-199.946	0.151
-198.666	-198.522	0.144
-197.234	-197.090	0.144
-195.801	-195.651	0.151
-194.315	-194.163	0.152
-192.845	-192.694	0.151
-191.389	-191.216	0.173
-189.875	-189.682	0.194
-188.389	-188.338	0.052
-188.254	-187.953	0.301
-186.645	-186.495	0.150
-185.210	-185.063	0.148
-183.783	-183.632	0.151
-182.352	-182.200	0.151
-180.902	-180.758	0.144
-179.408	-179.264	0.144
-177.922	-177.772	0.150
-176.455	-176.304	0.151
-174.955	-174.809	0.146
-173.492	-173.341	0.151
-171.998	-171.856	0.142
-170.587	-170.356	0.231
-169.040	-168.860	0.181
-167.535	-167.384	0.151
-166.047	-165.896	0.151
-164.573	-164.429	0.144
-163.079	-162.935	0.144
-161.595	-161.451	0.144
-160.116	-159.965	0.152
-158.628	-158.476	0.151
-157.217	-157.165	0.052
-157.089	-156.859	0.230
-155.573	-155.393	0.180
-154.104	-153.953	0.151
-152.617	-152.465	0.151
-151.107	-150.957	0.151
-149.659	-149.508	0.151
-148.200	-148.048	0.152
-146.613	-146.462	0.151
-145.172	-145.020	0.152
-143.708	-143.558	0.150
-142.232	-142.088	0.144
-140.775	-140.724	0.051
-140.647	-140.395	0.252
-139.093	-138.942	0.151
-137.662	-137.511	0.152
-136.231	-136.080	0.151
-134.792	-134.642	0.150
-133.298	-133.154	0.144
-131.841	-131.693	0.148
-130.358	-130.206	0.152

Table 8.7-18: *Pulses detected, continued*

Start Time (ms)	Stop Time (ms)	Duration (ms)
-128.878	-128.677	0.201
-127.323	-127.172	0.152
-125.821	-125.669	0.151
-124.359	-124.209	0.150
-122.850	-122.705	0.144
-121.356	-121.212	0.144
-119.895	-119.745	0.150
-118.402	-118.251	0.151
-116.956	-116.904	0.052
-116.820	-116.577	0.243
-115.285	-115.135	0.150
-113.855	-113.704	0.151
-112.424	-112.273	0.151
-110.984	-110.834	0.150
-109.490	-109.339	0.151
-108.032	-107.831	0.201
-106.515	-106.235	0.280
-104.935	-104.770	0.166
-103.472	-103.314	0.158
-102.042	-101.877	0.165
-100.543	-100.377	0.166
-99.078	-98.912	0.166
-97.571	-97.413	0.158
-96.093	-95.927	0.166
-94.587	-94.438	0.148
-93.099	-92.948	0.152
-91.601	-91.450	0.151
-90.134	-89.983	0.151
-88.648	-88.496	0.151
-87.185	-87.033	0.151
-85.681	-85.537	0.144
-84.194	-84.043	0.151
-82.691	-82.540	0.151
-81.196	-81.052	0.143
-79.729	-79.585	0.144
-78.277	-78.126	0.151
-76.783	-76.639	0.144
-75.290	-75.146	0.144
-73.812	-73.662	0.150
-72.324	-72.173	0.151
-70.907	-70.856	0.051
-70.779	-70.550	0.230
-69.252	-69.079	0.173
-67.783	-67.639	0.144
-66.333	-66.182	0.151
-64.845	-64.694	0.151
-63.378	-63.227	0.151
-61.908	-61.758	0.151
-60.415	-60.264	0.151
-58.921	-58.770	0.151
-57.423	-57.277	0.147
-55.932	-55.781	0.151
-54.457	-54.263	0.194
-52.927	-52.783	0.144
-51.441	-51.290	0.151
-49.947	-49.796	0.151
-48.444	-48.299	0.145
-46.984	-46.833	0.151
-45.489	-45.337	0.151

Table 8.7-19: *Pulses detected, continued*

Start Time (ms)	Stop Time (ms)	Duration (ms)
-43.996	-43.845	0.151
-42.500	-42.356	0.144
-41.065	-40.812	0.253
-39.504	-39.354	0.150
-38.080	-37.928	0.151
-36.577	-36.425	0.152
-35.089	-34.938	0.151
-33.615	-33.471	0.144
-32.146	-31.995	0.151
-30.659	-30.508	0.151
-29.165	-29.014	0.151
-27.671	-27.520	0.151
-26.110	-25.966	0.144
-24.699	-24.647	0.052
-24.563	-24.318	0.245
-23.647	-23.615	0.032
-23.330	-23.299	0.032
-22.915	-22.764	0.151
-22.552	-22.521	0.032
-22.049	-22.017	0.032
-21.769	-21.737	0.032
-21.478	-21.326	0.152
-20.752	-20.720	0.032
-20.579	-20.547	0.032
-20.033	-19.889	0.144
-19.311	-19.279	0.032
-19.092	-19.061	0.032
-18.609	-18.458	0.151
-17.832	-17.801	0.032
-17.589	-17.557	0.031
-17.167	-17.016	0.152
-16.431	-16.399	0.032
-16.232	-16.200	0.032
-15.734	-15.584	0.150
-14.937	-14.906	0.032
-14.684	-14.653	0.032
-14.240	-14.089	0.152
-13.435	-13.403	0.032
-13.227	-13.195	0.032
-12.764	-12.620	0.144
-12.042	-12.010	0.032
-11.843	-11.811	0.032
-11.274	-11.131	0.143
-10.596	-10.564	0.032
-10.396	-10.364	0.032
-9.822	-9.670	0.152
-9.149	-9.117	0.032
-8.968	-8.936	0.032
-8.340	-8.189	0.151
-7.652	-7.620	0.032
-7.381	-7.349	0.032
-6.847	-6.695	0.152
-6.153	-6.121	0.032
-5.954	-5.922	0.032
-5.346	-5.202	0.144
-4.657	-4.625	0.032
-4.422	-4.390	0.032
-3.851	-3.708	0.143
-3.137	-3.105	0.032

Table 8.7-20: *Pulses detected, continued*

Start Time (ms)	Stop Time (ms)	Duration (ms)
-2.864	-2.833	0.032
-2.366	-2.216	0.150
-1.612	-1.581	0.032
-1.296	-1.264	0.032
-0.896	-0.745	0.151
-0.215	-0.183	0.032
0.065	0.097	0.032
0.600	0.751	0.151
1.404	1.436	0.032
1.704	1.736	0.032
2.096	2.248	0.152
2.850	2.882	0.032
3.087	3.119	0.032
3.602	3.746	0.144
4.285	4.286	0.001
4.417	4.448	0.031
4.661	4.692	0.032
5.082	5.233	0.151
5.713	5.714	0.001
5.996	6.028	0.032
6.542	6.693	0.151
7.141	7.142	0.001
7.275	7.307	0.032
7.519	7.551	0.032
8.030	8.181	0.152
8.569	8.570	0.001
8.829	8.861	0.032
9.082	9.114	0.032
9.517	9.669	0.152
9.997	9.998	0.001
10.259	10.291	0.032
10.539	10.571	0.032
11.006	11.158	0.151
11.425	11.426	0.001
12.500	12.651	0.151
12.853	12.854	0.001
13.995	14.147	0.152
14.281	14.282	0.001
15.490	15.641	0.151
15.709	15.710	0.001
16.957	17.108	0.151
17.137	17.138	0.001
18.462	18.606	0.144
19.902	20.075	0.173
21.417	21.727	0.310
22.849	22.850	0.001
23.013	23.065	0.052
23.149	23.566	0.418
24.277	24.278	0.001
24.843	24.895	0.052
24.971	25.540	0.569
25.705	25.706	0.001
26.864	27.051	0.187
28.351	28.517	0.166
29.814	29.980	0.166
31.285	31.443	0.158
32.748	32.907	0.158
34.208	34.374	0.166
35.672	35.837	0.166

Table 8.7-21: *Pulses detected, continued*

Start Time (ms)	Stop Time (ms)	Duration (ms)
37.145	37.293	0.148
38.616	38.760	0.144
40.075	40.218	0.143
41.563	41.713	0.150
43.030	43.181	0.151
44.524	44.675	0.151
46.017	46.169	0.151
47.512	47.664	0.151
48.959	49.010	0.052
49.094	49.339	0.245
50.631	50.782	0.151
52.064	52.208	0.143
53.504	53.648	0.144
54.935	55.078	0.144
56.392	56.443	0.051
56.527	56.772	0.245
58.186	58.337	0.151
162.457	162.521	0.064

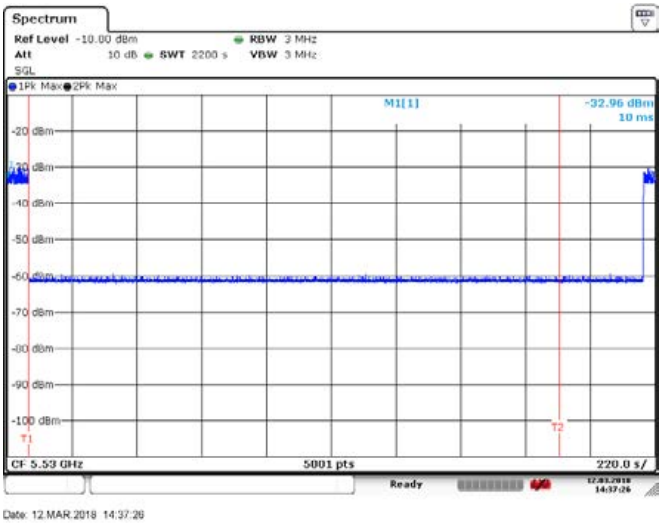
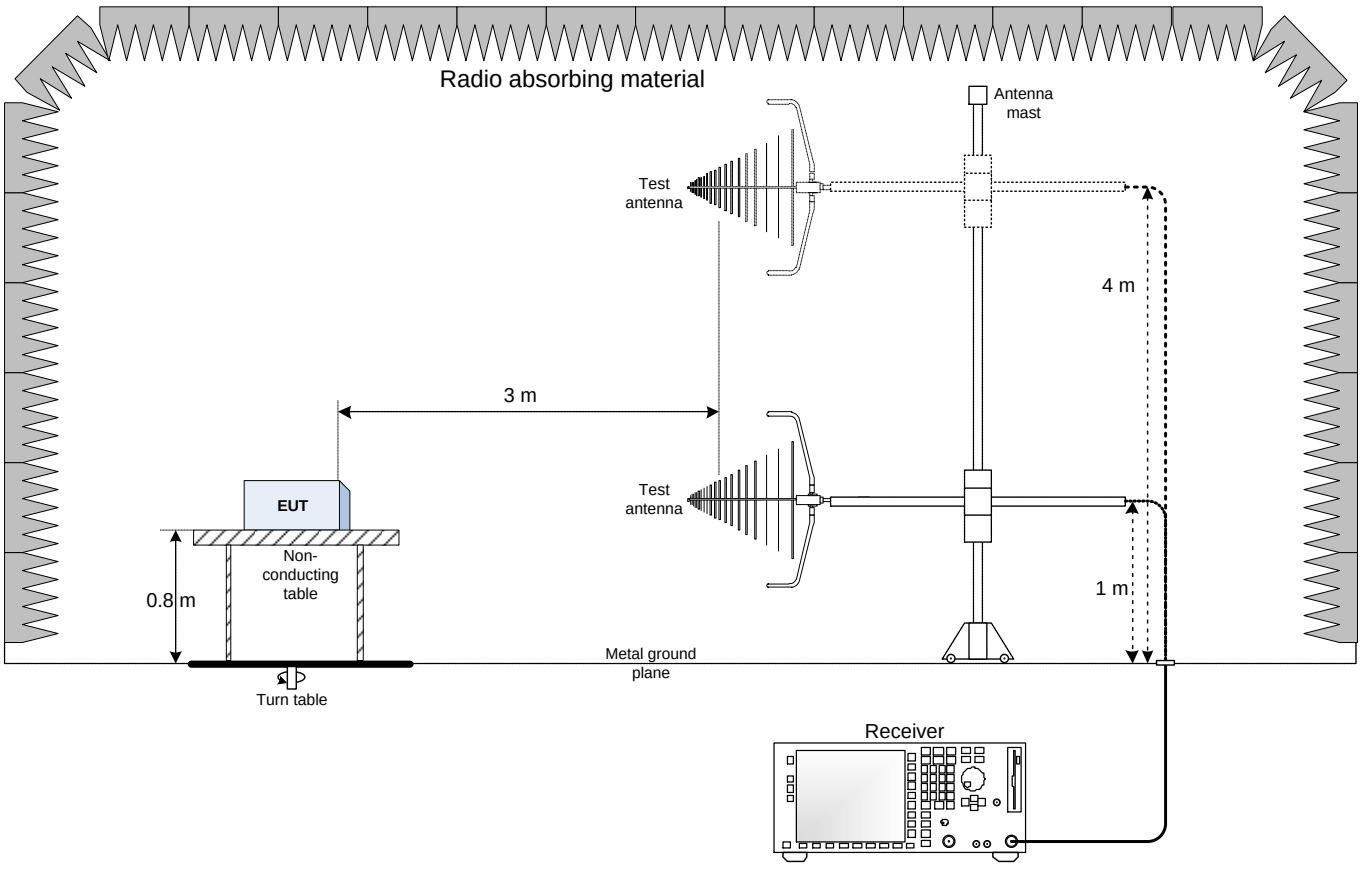


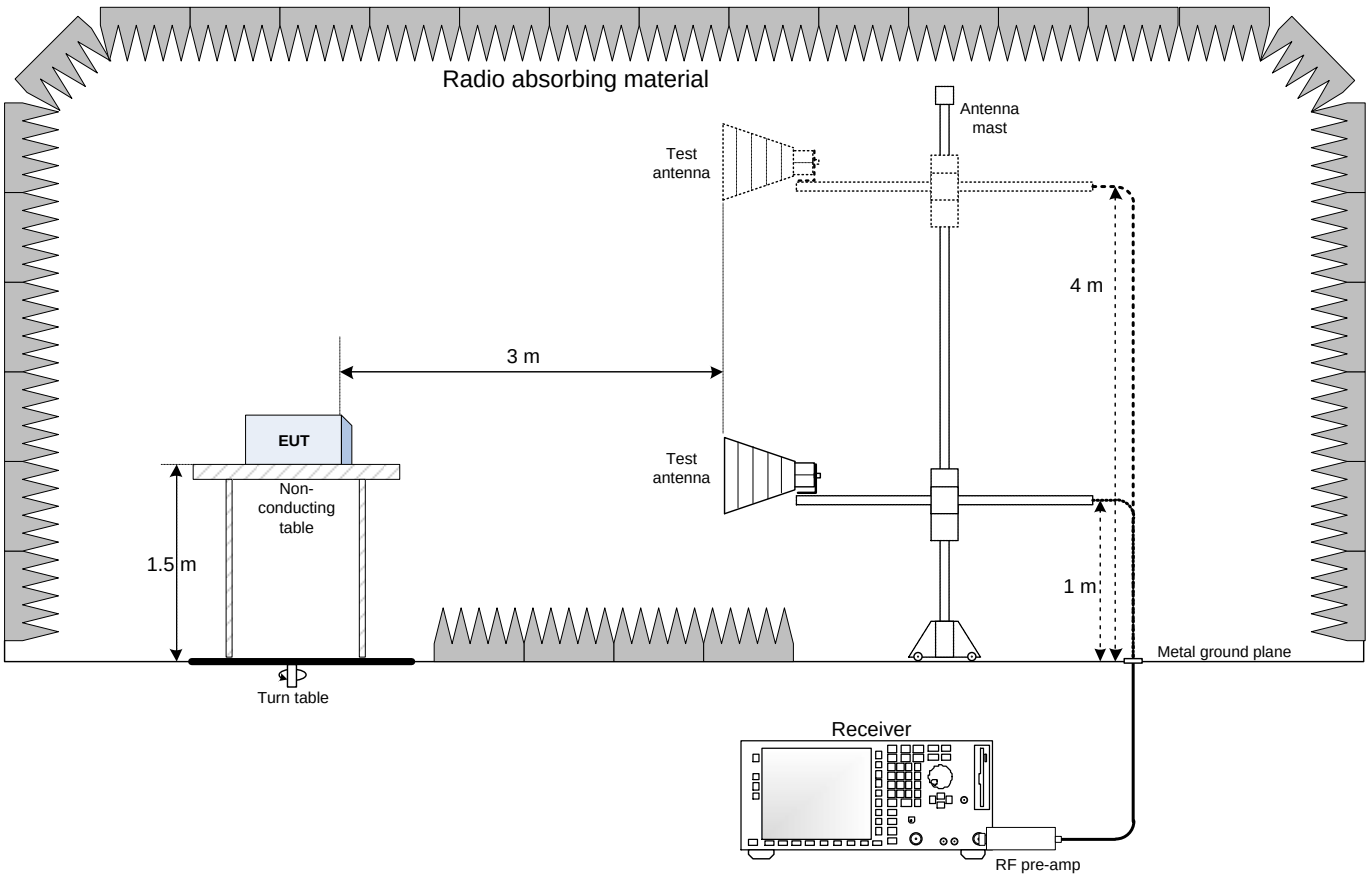
Figure 8.7-2: *Client non-occupancy 30 minutes period test (30 minutes is 1800 seconds)*

Section 9. Block diagrams of test set-ups

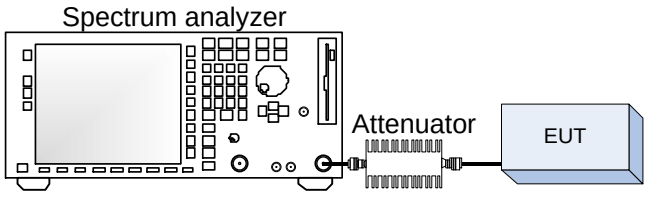
9.1 Radiated emissions set-up for frequencies below 1 GHz



9.2 Radiated emissions set-up for frequencies above 1 GHz



9.3 Antenna port conducted measurements set-up



9.4 Conducted emissions on AC line set-up