



CERTIFICATION TEST REPORT

Report Number. : R12935938-E4

Applicant : Microsoft Corporation
One Microsoft Way
Redmond, WA 98052-6399
USA

Model : 1868

FCC ID : C3K1868

IC ID : 3048A-1868

EUT Description : Portable Computing Device

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
ISED RSS-247 ISSUE 2
ISED RSS-GEN ISSUE 5

Date Of Issue:

2019-09-17

Prepared by:

UL LLC

12 Laboratory Dr.

Research Triangle Park, NC 27709 U.S.A.

TEL: (919) 549-1400



NVLAP Lab code: 200246-0

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	--	Initial Issue	
2	2019-09-11	Added AC power adaptor to support equipment. Revised test date range. Added justification for waiving SISO testing to Section 6.6 Added model similarity explanation to Section 4. Revised 802.11ax HE 40 SU and 484T RU65 99%BW results in Section 9.2 Revised 802.11ax HE20 242T RU61 PSD results in Section 9.2.1 Revised 802.11ax HE 40 SU, 106T RU53 and RU54 PSD results in Section 9.2.2	Brian T. Kiewra
3	2019-09-17	Revised conducted bandedge and conducted spurious results in Section 9.3.2	Brian T. Kiewra

TABLE OF CONTENTS

REPORT REVISION HISTORY	2
TABLE OF CONTENTS	3
1. ATTESTATION OF TEST RESULTS	5
2. TEST METHODOLOGY	7
3. FACILITIES AND ACCREDITATION	7
4. SCOPE OF REPORT.....	7
5. CALIBRATION AND UNCERTAINTY	8
5.1. <i>MEASURING INSTRUMENT CALIBRATION</i>	<i>8</i>
5.2. <i>SAMPLE CALCULATION</i>	<i>8</i>
5.3. <i>MEASUREMENT UNCERTAINTY.....</i>	<i>8</i>
6. EQUIPMENT UNDER TEST.....	9
6.1. <i>EUT DESCRIPTION</i>	<i>9</i>
6.2. <i>MAXIMUM OUTPUT POWER.....</i>	<i>9</i>
6.3. <i>TEST REDUCTIONS CASES</i>	<i>10</i>
6.4. <i>DESCRIPTION OF AVAILABLE ANTENNAS</i>	<i>11</i>
6.5. <i>SOFTWARE AND FIRMWARE.....</i>	<i>11</i>
6.6. <i>WORST-CASE CONFIGURATION AND MODE.....</i>	<i>12</i>
6.7. <i>DESCRIPTION OF TEST SETUP.....</i>	<i>12</i>
7. MEASUREMENT METHOD.....	13
8. TEST AND MEASUREMENT EQUIPMENT	14
9. ANTENNA PORT TEST RESULTS.....	17
9.1. <i>ON TIME AND DUTY CYCLE.....</i>	<i>17</i>
9.2. <i>99% BANDWIDTH.....</i>	<i>20</i>
9.2.1. <i>802.11ax HE20 MODE</i>	<i>21</i>
9.2.1. <i>802.11ax HE40 MODE</i>	<i>30</i>
9.3. <i>6 dB BANDWIDTH.....</i>	<i>36</i>
9.3.1. <i>802.11ax HE20 MODE</i>	<i>37</i>
9.4. <i>OUTPUT POWER.....</i>	<i>40</i>
9.4.1. <i>802.11ax HE20 MODE 2TX.....</i>	<i>42</i>
9.4.2. <i>802.11ax HE40 MODE 2TX.....</i>	<i>52</i>
9.1. <i>AVERAGE POWER.....</i>	<i>65</i>
9.1.1. <i>802.11 ax HE20 MODE 2TX.....</i>	<i>66</i>

9.1.1.	802.11 ax HE40 MODE 2TX	76
9.2.	<i>POWER SPECTRAL DENSITY</i>	89
9.2.1.	802.11ax HE20 MODE 2TX	90
9.2.2.	802.11ax HE40 MODE 2TX	120
9.3.	<i>CONDUCTED SPURIOUS EMISSIONS</i>	159
9.3.1.	802.11ax HE20 MODE 2TX	160
9.3.2.	802.11ax HE40 MODE 2TX	184
10.	RADIATED TEST RESULTS	212
10.1.	<i>TRANSMITTER ABOVE 1 GHz</i>	213
10.1.1.	TX ABOVE 1 GHz 802.11ax HE20 MODE IN THE 2.4 GHz BAND	213
10.1.2.	TX ABOVE 1 GHz 802.11ax HE40 MODE IN THE 2.4 GHz BAND	279
10.2.	<i>WORST CASE BELOW 1 GHz AND ABOVE 18 GHz</i>	345
11.	AC POWER LINE CONDUCTED EMISSIONS	345
12.	SETUP PHOTOS	345

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Microsoft Corporation
One Microsoft Way
Redmond, WA 98052-6399
USA

EUT DESCRIPTION: Portable Computing Device

MODEL: 1868

SERIAL NUMBER: See section 6.5

DATE TESTED: 2019-07-17 to 2019-09-16

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Complies
ISED RSS-247 Issue 2	Complies
ISED RSS-GEN Issue 5	Complies

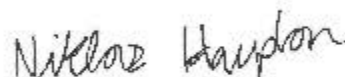
UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. government.

Approved & Released For
UL LLC By:

Prepared By:



Jeffrey Moser
Operations Leader
Consumer Technology Division
UL LLC

Niklas Haydon
Engineer
Consumer Technology Division
UL LLC

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, and KDB 558074 D01 15.247 Meas Guidance v05r02, RSS-GEN Issue 5, and RSS-247 Issue 2.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 12 Laboratory Drive, Research Triangle Park, North Carolina, USA and 2800 Perimeter Park Dr. Suite B, Morrisville, North Carolina, USA. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

12 Laboratory Dr.	2800 Perimeter Park Dr. Suite B
ISED Site Code: 2180C	
<input type="checkbox"/> Chamber A	<input checked="" type="checkbox"/> Chamber North
<input type="checkbox"/> Chamber C	<input checked="" type="checkbox"/> Chamber South

The above test sites and facilities are covered under FCC Test Firm Registration # 703469. Chambers above are covered under Industry Canada company address and respective code.

UL LLC (RTP) is accredited by NVLAP, Laboratory Code 200246-0

4. SCOPE OF REPORT

This test report covers the radiated emissions and antenna port conducted emissions for model 1868 for 2.4 802.11ax HE20 and 802.11ax HE40. Antenna port conducted emissions data in this report is leveraged by model 1867. For model 1867, radiated emissions can be found in UL report number R12922855-E4. For model 1868, AC mains line conducted emissions and worst-case radiated emissions can be found in UL report number R12935938-E3.

For the antenna port conducted emissions portion of this report, the worst-case antenna gain across both models was used to represent a worst-case scenario. Both models will be implemented with the same power.

Models 1867 and 1868 are electrically and RF equivalent as they use the same motherboard, radio module and on-board RF components. Both models share a common WiFi and BT power table. The radio-related firmware and driver versions are the same for the two models. The peak antenna gains are in the antenna gain section of the report. Antenna port conducted emissions measurements are done on model 1868 (FCC ID: C3K1868, IC: 3048A-1868) and the data is leveraged for model 1867 (FCC ID: C3K1867, IC: 3048A-1867). Highest antenna gain across the two models in each band has been considered while doing the conducted emissions measurements. Separate radiated & SAR measurements are done on each model.

5. CALIBRATION AND UNCERTAINTY

5.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

5.2. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

$$\text{Field Strength (dBuV/m)} = \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Preamp Gain (dB)}$$

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

$$\text{Final Voltage (dBuV)} = \text{Measured Voltage (dBuV)} + \text{Cable Loss (dB)} + \text{Limiter Factor (dB)} + \text{LISN Insertion Loss}$$

$$36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$$

5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radio Frequency (Spectrum Analyzer)	141.2 Hz
Occupied Channel Bandwidth	2.00%
RF output power, conducted	1.3 dB (PK) 0.45 dB (AV)
RF output power, radiated (SAC)	4.52 dB
Power Spectral Density, conducted	2.47 dB
Unwanted Emissions, conducted	2.50 dB
All emissions, radiated	4.88 dB
Temperature	2.26°C
Humidity	6.79%
DC Supply voltages	1.70%
Time	3.39%

Uncertainty figures are valid to a confidence level of 95%.

6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The EUT is a Portable Computing Device that contains 802.11 a/ac/ax/b/g/n 20/40/80/160MHz 2x2 dual band and BT/BLE radios.

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted peak output power as follows:

2.4GHz BAND 802.11 ax MODE

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2TX			
2412 - 2472	802.11ax HE20 SU	25.76	376.70
2412 - 2472	802.11ax HE20 RU size 242T	26.74	472.06
2412 - 2472	802.11ax HE20 RU size 106T	26.54	450.82
2412 - 2472	802.11ax HE20 RU size 52T	26.62	459.20
2412 - 2472	802.11ax HE20 RU size 26T	24.58	287.08
2422 - 2462	802.11ax HE40 SU	25.81	381.07
2422 - 2462	802.11ax HE40 RU size 484T	26.55	451.86
2422 - 2462	802.11ax HE40 RU size 242T	26.66	463.45
2422 - 2462	802.11ax HE40 RU size 106T	26.83	481.95
2422 - 2462	802.11ax HE40 RU size 52T	26.84	483.06
2422 - 2462	802.11ax HE40 RU size 26T	26.67	464.52

SISO and MIMO per chain power are set to the same level.

6.3. TEST REDUCTIONS CASES

99% bandwidth:

- The narrowest (a representative RU) and widest modes were tested. Note - The narrowest RU for 20 MHz, 26T represents 40 MHz 26T.

6dB bandwidth:

- The narrowest mode (a representative RU) was tested. Note - The narrowest RU for 20 MHz, 26T represents 40 MHz 26T.

Power measurements:

- All tones were tested for each bandwidth.
- Low, middle, and high RU allocation were tested.

Power spectral density:

- All tones were tested for each bandwidth.
- Low, middle, and high RU allocation were tested.

Radiated and conducted band edge:

- All tones and bandwidths were tested.
- The RU allocations closest to the band edge was tested to cover all other RU allocations.

Conducted spurious emissions

- All tones and bandwidths were tested.
- Low, middle, and high channel were tested.

Radiated spurious emissions: For 2.4GHz band, multiple modes were investigated and for final measurements the following was used. The output power for these modes was set to a power setting that represented both the highest output power and highest PSD across all production power settings for all bandwidth / RU configurations.

- A representative RU in HE20 26T was tested to cover HE40 26T.
- A representative RU in HE20 52T was tested to cover HE20 106T and HE40 52T/106T/242T.
- HE20 242T was tested to cover HE20 SU.
- HE40 484T was tested to cover HE40 SU.

6.4. DESCRIPTION OF AVAILABLE ANTENNAS

Frequency Range (GHz)	Antenna Type	Peak Gain (dBi) Chain 0 (Right)	Peak Gain (dBi) Chain 1 (Left)
Model 1867			
2.4 to 2.48	PIFA	0.7	2.6
5.15 to 5.25		4.9	4.4
5.25 to 5.35		6.1	5.0
5.47 to 5.72		7.2	5.5
5.725 to 5.85		9.4	5.6
Model 1868			
2.4 to 2.48	PIFA	0.4	1.0
5.15 to 5.25		3.6	2.2
5.25 to 5.35		5.2	3.5
5.47 to 5.72		6.4	4.7
5.725 to 5.85		7.8	4.5

The 2.4 GHz WLAN radio utilizes Chain 0 and chain 1.

NOTE:

Antenna 1 = Chain 0

Antenna 2 = Chain 1

6.5. SOFTWARE AND FIRMWARE

EUT	Serial Number	DRTU Version	OS Version	BT Driver Version	WiFi Driver Version	EUT's Power Supply (s/n)
R-557-1868-FCC-CONDUCTED-02	005210692757	11.1916.0-09531	MTEOS 1.652.0	21.0.19157.20088	99.0.43.8	0D130P01P9596
R-557-1868-FCC-CONDUCTED-03	005216792757	11.1916.0-09531	MTEOS 1.652.0	21.0.19157.20088	99.0.43.8	0D130P03GE596
R-557-1868-FCC-RADIATED-10	013886292757	11.1916.0-09531	MTEOS 1.652.0	21.0.19157.20088	99.0.43.8	0D130P02KC596
R-557-1868-FCC-RADIATED-11	013891692757	11.1916.0-09531	MTEOS 1.652.0	21.0.19157.20088	99.0.43.8	0D130P01S7596

6.6. WORST-CASE CONFIGURATION AND MODE

Radiated emissions below 1GHz, above 18GHz, and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Band edge and radiated emissions between 1GHz and 18GHz were performed with the EUT set to transmit at the highest power on low, middle and high channels.

The EUT has one intended orientations, X; therefore, all final radiated testing was performed with the EUT in X orientation.

Worst-case data rates as provided by the client were:

802.11ax HE20mode: MCS0, NSS2

802.11ax HE40mode: MCS0, NSS2

MIMO and SISO power are same setting per chain, therefore MIMO mode tested as worst-case to cover SISO mode.

6.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
USB Hub	J5 Create	JCA374	AY2A1904000477 / AY6A1903004261	N/A
Earbuds	Sony	MDR-EX14AP	Non-serialized	N/A
USB Flash Drive	Kingston	DataTraveler G4	Non-serialized	N/A
AC power adaptor	Microsoft	1706	0D130P02KC596	N/A

I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	Mains	1	12-pin	Mains	<3	None
2	USB-A	1	USB-A	USB	<3	None
3	USB-C	1	USB-C	USB	<3	None
4	Aux	1	Aux	Aux	<3	None

TEST SETUP

The test utility software was located on the EUT during the tests and was used to exercised the radios.

SETUP DIAGRAMS

Please refer to 12935938-EP1 for setup diagrams

7. MEASUREMENT METHOD

On Time and Duty Cycle: ANSI C63.10 Section 11.6

6 dB BW: ANSI C63.10 Subclause -11.8.1

Output Power: ANSI C63.10 Subclause -11.9.1.3 Method PKPM1 Peak-reading power meter

PSD: ANSI C63.10 Subclause -11.10.2 Method PKPSD (peak PSD)

Conducted emissions non-restricted frequency bands: ANSI C63.10 Subclause -11.11, 6.10.4

Radiated emissions restricted frequency bands: ANSI C63.10 Subclause -11.12.1, 6.10.5

Radiated Emissions Requirements: ANSI C63.10-2013 Section 6.3-6.6

8. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville - South Chamber)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	1-18 GHz				
AT0072	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2019-04-22	2020-04-22
	18-40 GHz				
AT0076	Horn Antenna, 18-26.5GHz	ARA	MWH-1826/B	2018-11-08	2019-11-08
	Gain-Loss Chains				
S-SAC03	Gain-loss string: 1-18GHz	Various	Various	2019-03-13	2020-03-13
S-SAC04	Gain-loss string: 18-40GHz	Various	Various	2018-09-30	2019-09-30
	Receiver & Software				
SA0025	Spectrum Analyzer	Agilent	N9030A	2019-02-28	2020-02-28
SA0027 (18-40GHz RSE)	Spectrum Analyzer	Agilent	N9030A	2019-05-15	2020-05-15
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA
	Additional Equipment used				
s/n 181474409	Environmental Meter	Fisher Scientific	15-077-963	2018-07-27	2020-07-27

NOTES:

1. For equipment listed above that was calibrated during the testing period, please note the equipment was used for testing after calibration.
2. For equipment listed above that has a calibration due date during the testing period, the testing was completed before the equipment expiration date.

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville - North Chamber)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	0.009-30MHz	(Loop Ant.)			
AT0059	Active Loop Antenna	ETS-Lindgren	6502	2018-07-20	2019-07-31
	30-1000 MHz				
AT0073	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2018-08-06	2019-08-31
	1-18 GHz				
AT0067	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2019-03-22	2020-03-22
	Gain-Loss Chains				
N-SAC01	Gain-loss string: 0.009-30MHz	Various	Various	2019-05-02	2020-05-02
N-SAC02	Gain-loss string: 25-1000MHz	Various	Various	2019-05-02	2020-05-02
N-SAC03	Gain-loss string: 1-18GHz	Various	Various	2019-03-15	2020-03-15
	Receiver & Software				
SA0026	Spectrum Analyzer	Agilent	N9030A	2019-03-19	2020-03-19
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA
	Additional Equipment used				
s/n 181474341	Environmental Meter	Fisher Scientific	15-077-963	2018-07-27	2020-07-27

NOTES:

1. For equipment listed above that was calibrated during the testing period, please note the equipment was used for testing after calibration.
2. For equipment listed above that has a calibration due date during the testing period, the testing was completed before the equipment expiration date.

Test Equipment Used – Antenna Port Conducted Testing (Morrisville – RP)

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
SA0027	PXA Signal Analyzer	Keysight Technologies	MY54490254	2019-05-15	2020-05-15
s/n 160938893	Environmental Meter	Fisher Scientific	14-650-118	2019-06-17	2020-06-17
224604-002	Coaxial Testing Cable	Uti-flex	UFA147A-0-0180-200200	NA	NA
Antenna Port	Antenna Port Software	Antenna	Version 10.0.1	NA	NA
126431 (PRE0128068)	RF Power Meter	Anritsu	ML2495A	2019-04-30	2020-04-30
126430 (PRE0128067)	Pulse Power Sensor, 300MHz to 40GHz	Anritsu	MA2411B	2019-04-30	2020-04-30
PWM001 (PRE0136343)	RF Power Meter	Keysight Technologies	N1912A	2019-06-14	2020-06-14
PWS001 (PRE0137347)	Peak and Avg Power Sensor, 50MHz to 18GHz	Keysight Technologies	N1921A	2019-05-06	2020-05-06

NOTES:

1. For equipment listed above that was calibrated during the testing period, please note the equipment was used for testing after calibration.
2. For equipment listed above that has a calibration due date during the testing period, the testing was completed before the equipment expiration date.

9. ANTENNA PORT TEST RESULTS

NOTE: Throughout this section:
 Antenna 1 = Chain 0
 Antenna 2 = Chain 1

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 558074 D01 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
802.11ax HE20 OFDMA, SU	3.967	4.023	0.986	98.61%	0.00	0.010
802.11ax HE20 OFDMA, RU size 242T	3.978	4.027	0.988	98.78%	0.00	0.010
802.11ax HE20 OFDMA, RU size 106T	3.978	4.027	0.988	98.78%	0.00	0.010
802.11ax HE20 OFDMA, RU size 52T	3.978	4.027	0.988	98.78%	0.00	0.010
802.11ax HE20 OFDMA, RU size 26T	3.978	4.027	0.988	98.78%	0.00	0.010
802.11ax HE40 OFDMA, SU	3.961	4.015	0.987	98.66%	0.00	0.010
802.11ax HE40 OFDMA, RU size 484T	3.976	4.024	0.988	98.81%	0.00	0.010
802.11ax HE40 OFDMA, RU size 242T	3.977	4.027	0.988	98.76%	0.00	0.010
802.11ax HE40 OFDMA, RU size 106T	3.977	4.027	0.988	98.76%	0.00	0.010
802.11ax HE40 OFDMA, RU size 52T	3.977	4.027	0.988	98.76%	0.00	0.010
802.11ax HE40 OFDMA, RU size 26T	3.977	4.029	0.987	98.71%	0.00	0.010

DUTY CYCLE PLOTS



802.11ax HE20 OFDMA, RU size SU MODE



802.11ax HE20 OFDMA, RU size 242T MODE



802.11ax HE20 OFDMA, RU size 106T MODE



802.11ax HE20 OFDMA, RU size 52T MODE



802.11ax HE20 OFDMA, RU size 26T MODE



802.11ax HE40 OFDMA, RU size SU MODE



802.11ax HE40 OFDMA, RU size 484T MODE



802.11ax HE40 OFDMA, RU size 242T MODE



802.11ax HE40 OFDMA, RU size 106T MODE



802.11ax HE40 OFDMA, RU size 52T MODE



802.11ax HE40 OFDMA, RU size 26T MODE

9.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

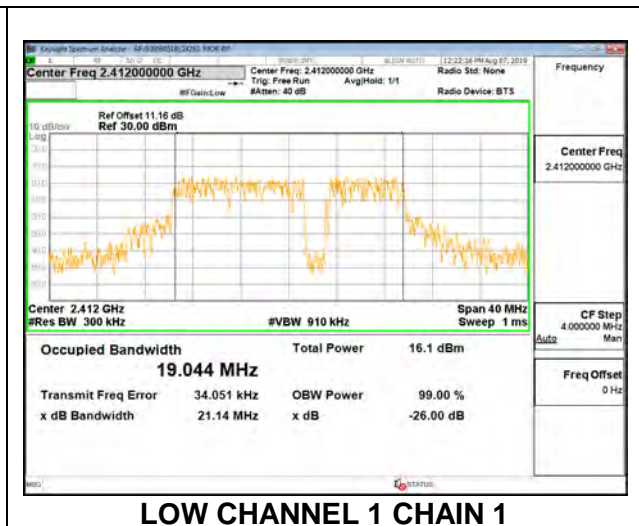
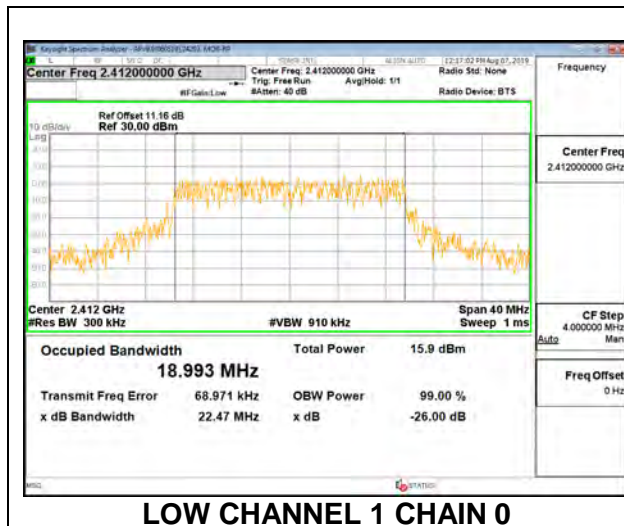
RESULTS

9.2.1. 802.11ax HE20 MODE

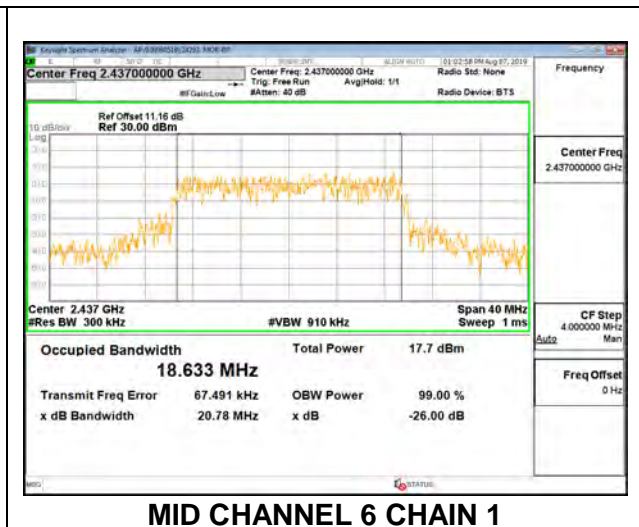
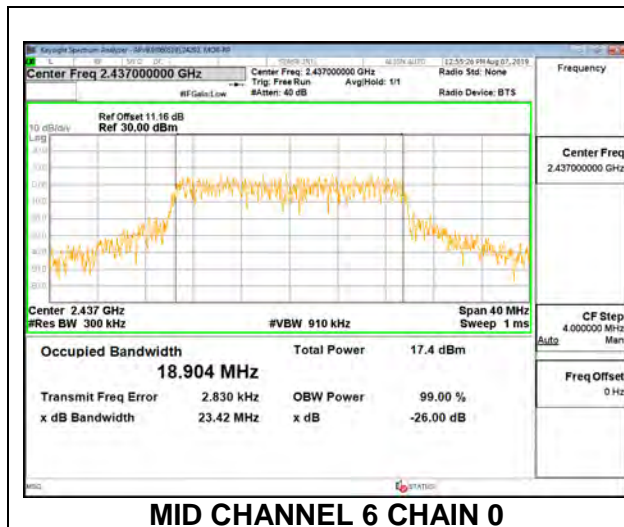
2TXChain 0 +Chain 1 OFDMA MODE: SU

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low 1	2412	18.993	19.044
Mid 6	2437	18.904	18.633
High 11	2462	18.943	19.127
High 12	2467	19.073	19.094
High 13	2472	18.876	18.872

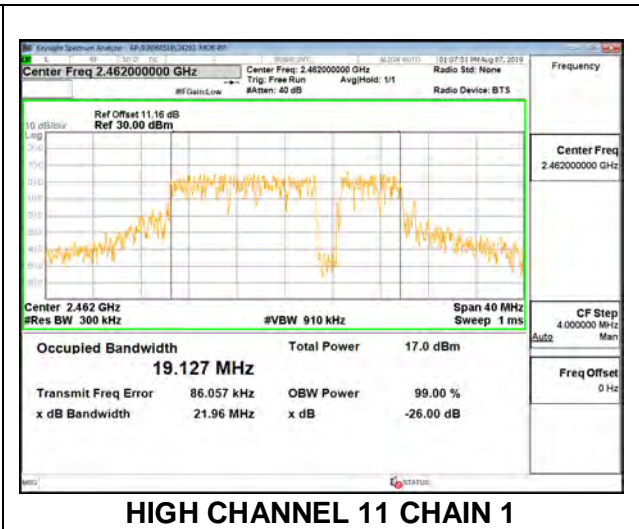
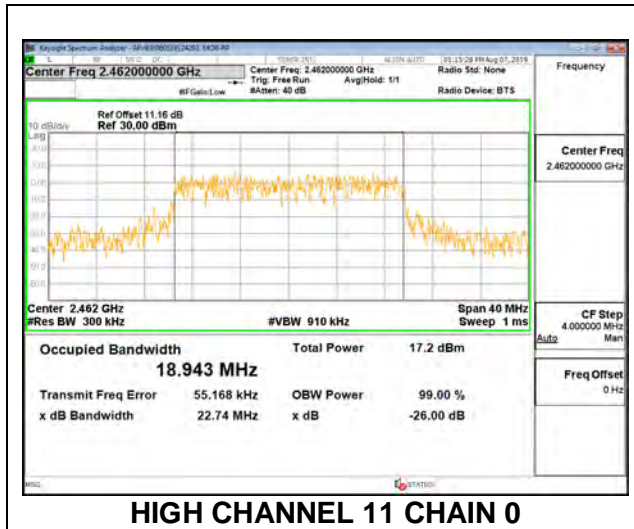
LOW CHANNEL 1



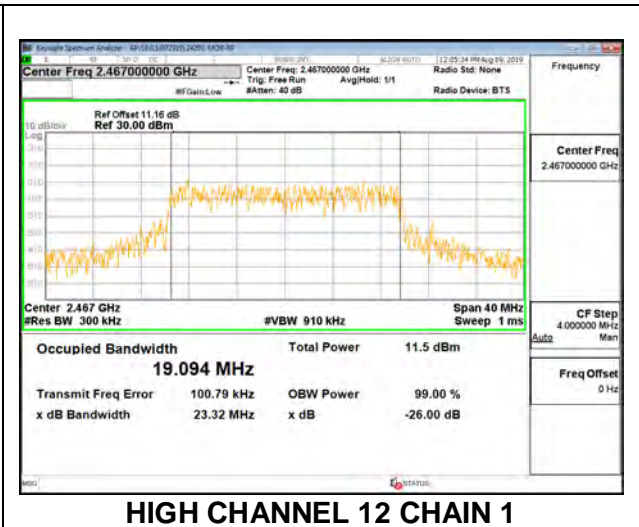
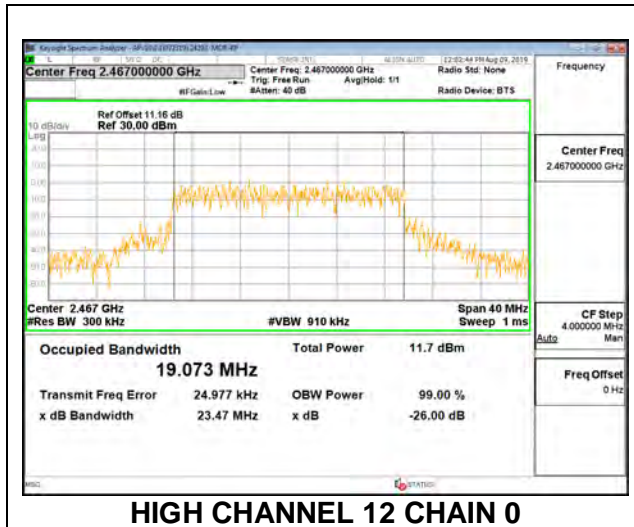
MID CHANNEL 6



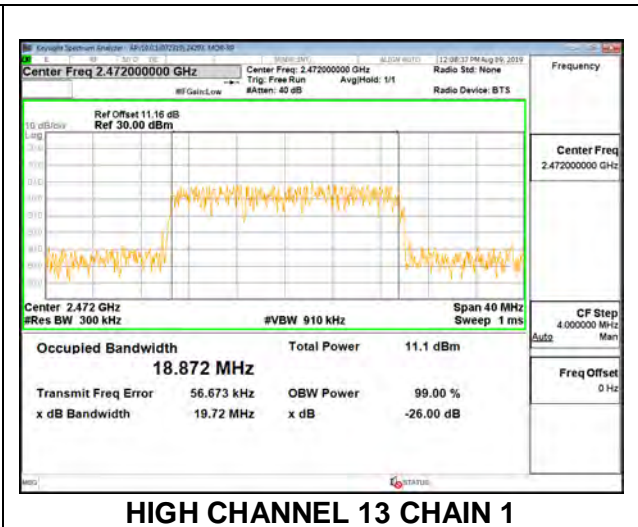
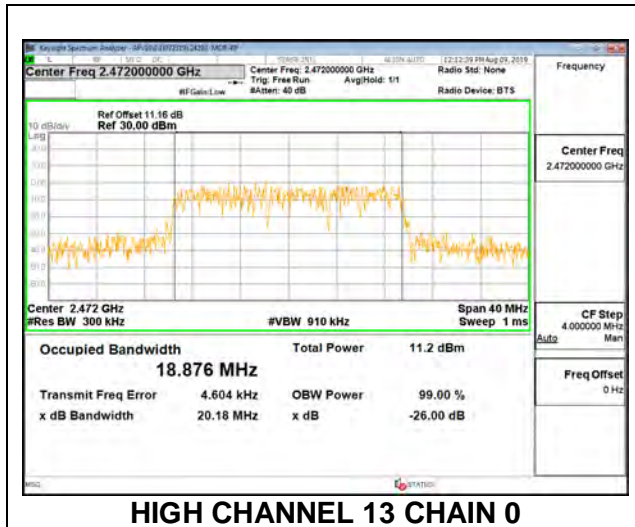
HIGH CHANNEL 11



HIGH CHANNEL 12



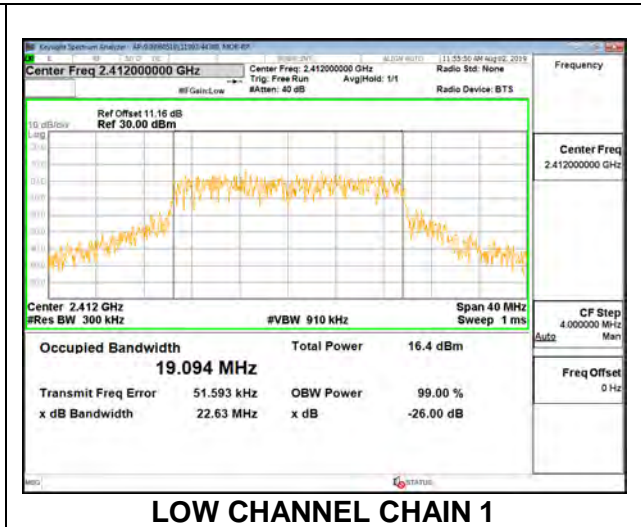
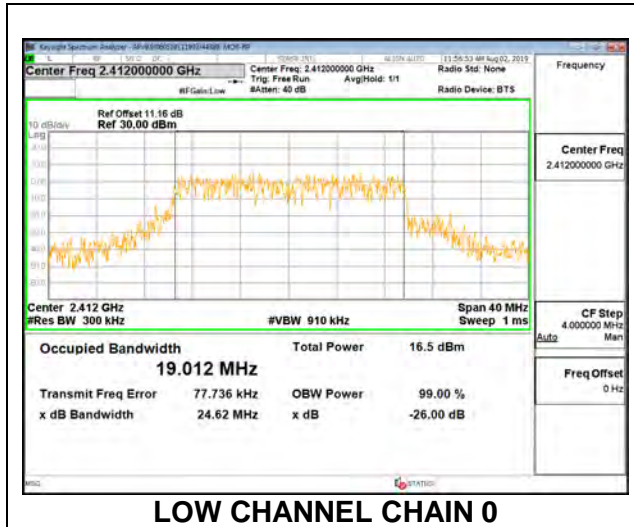
HIGH CHANNEL 13



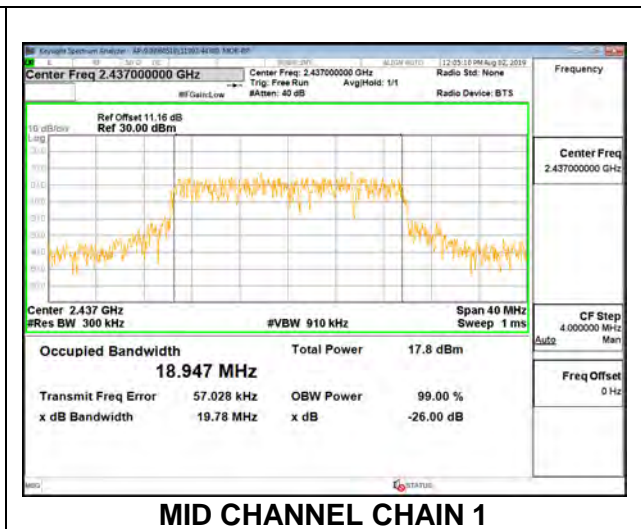
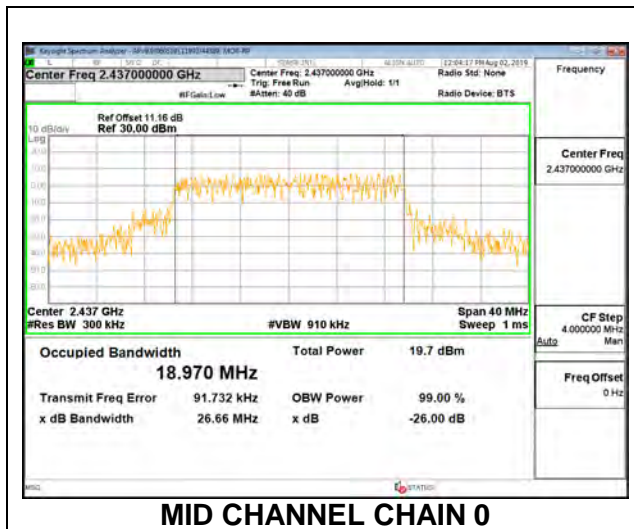
2TXChain 0 +Chain 1 OFDMA MODE – 242-Tones, RU Index 61

	(MHz)	Chain 0 (MHz)	Chain 1 (MHz)
Low 1	2412	19.012	19.094
Mid 6	2437	18.970	18.947
High 11	2462	19.020	19.061
High 12	2467	18.911	19.027
High 13	2472	18.762	18.780

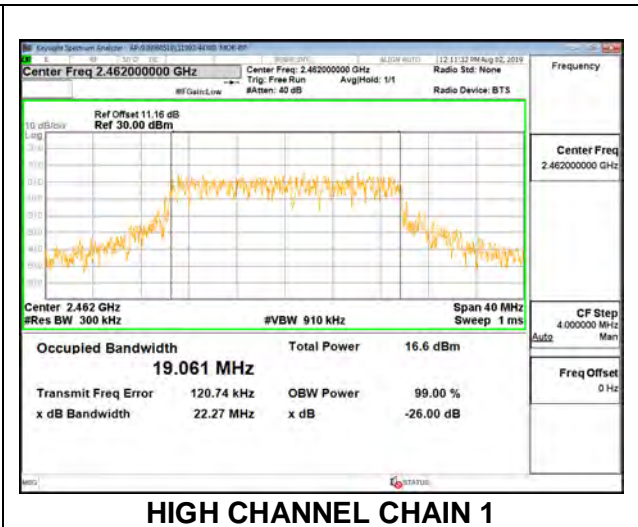
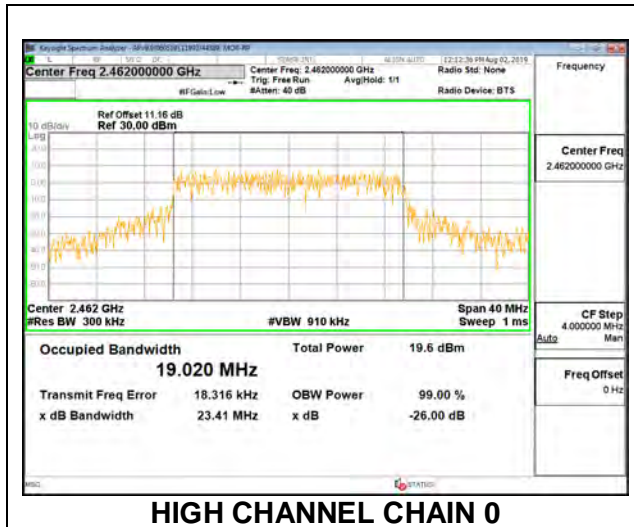
LOW CHANNEL 1



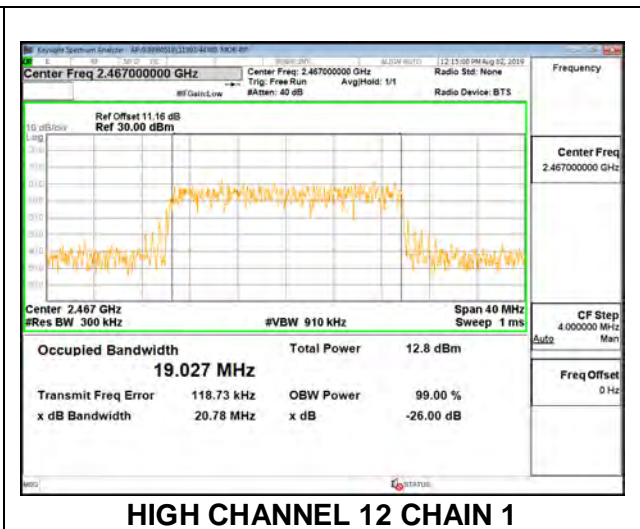
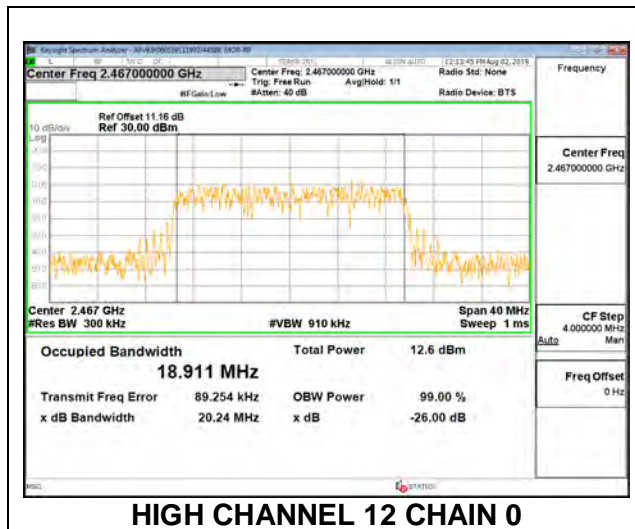
MID CHANNEL 6



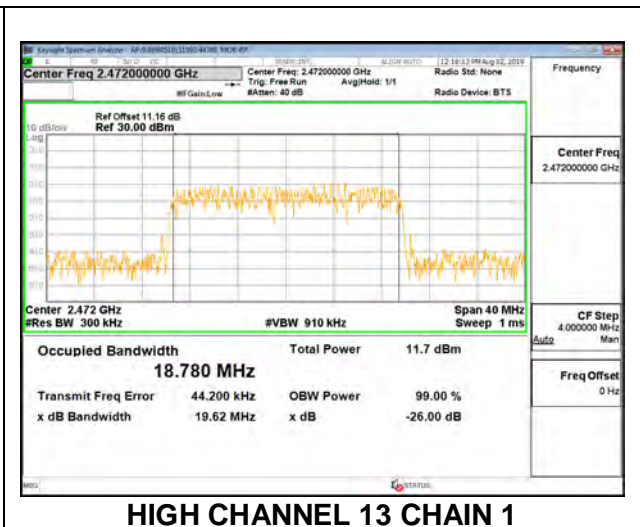
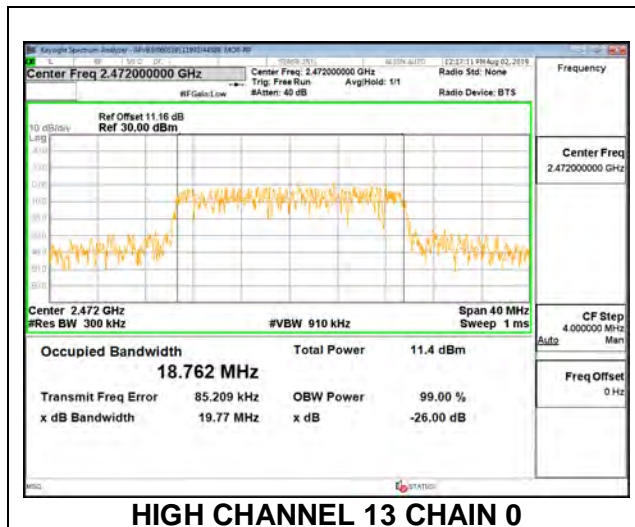
HIGH CHANNEL 11



HIGH CHANNEL 12



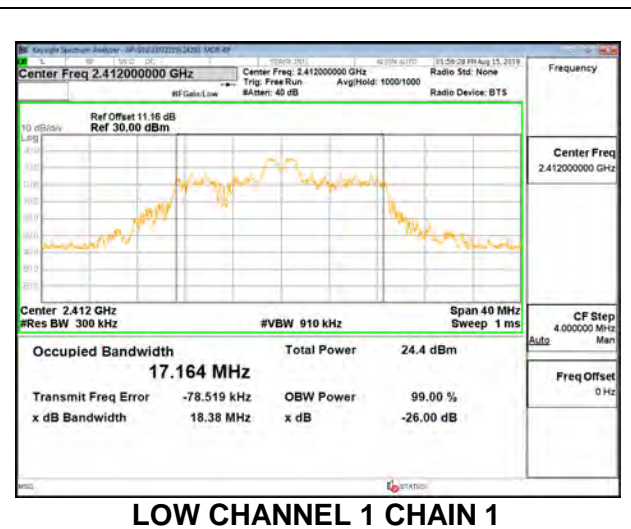
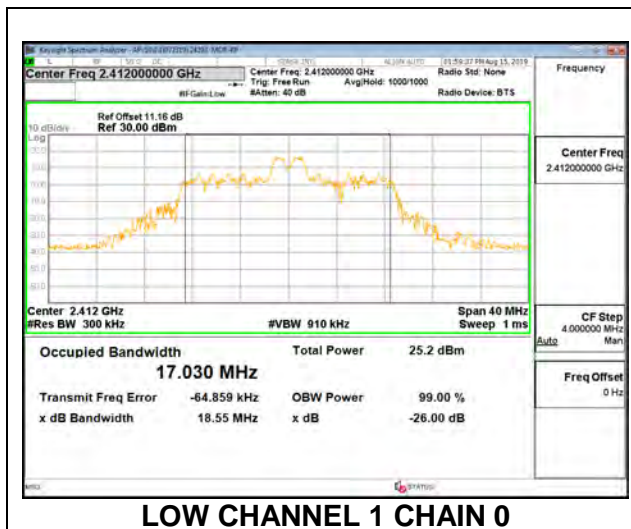
HIGH CHANNEL 13



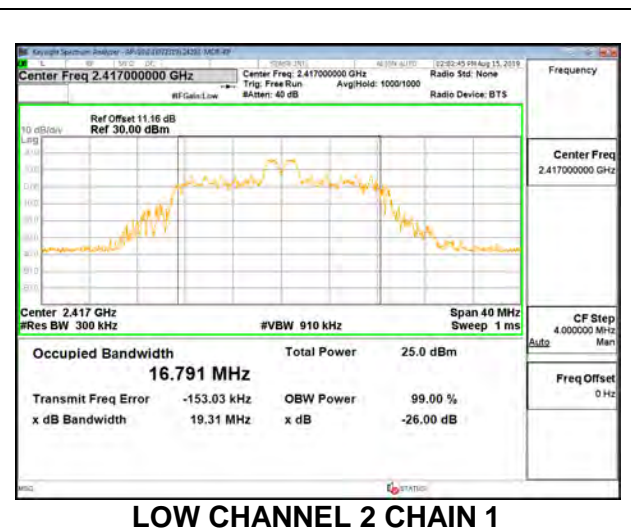
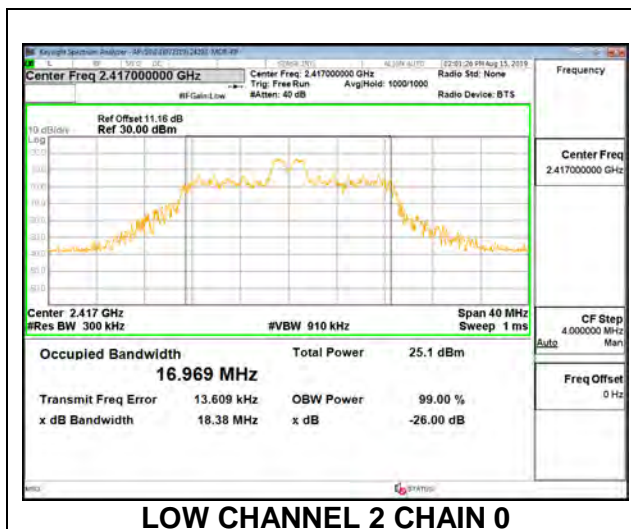
2TXChain 0 +Chain 1 OFDMA MODE – 26-Tones, RU Index 4

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low 1	2412	17.030	17.164
Low 2	2417	16.969	16.791
Mid 6	2437	16.979	16.935
High 11	2462	17.162	17.175
High 12	2467	17.111	17.192
High 13	2472	16.968	16.892

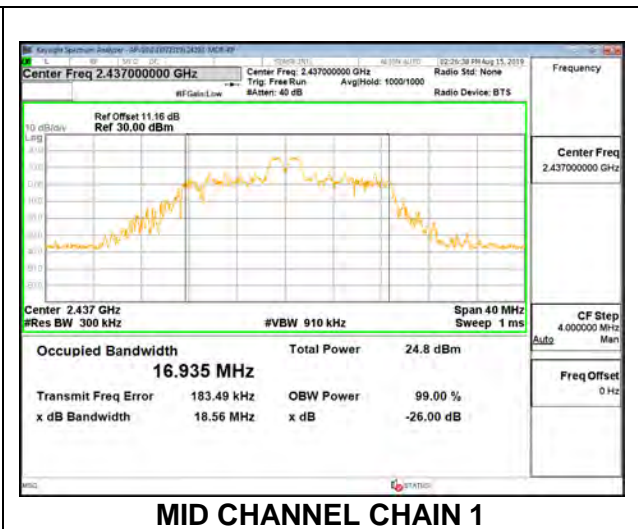
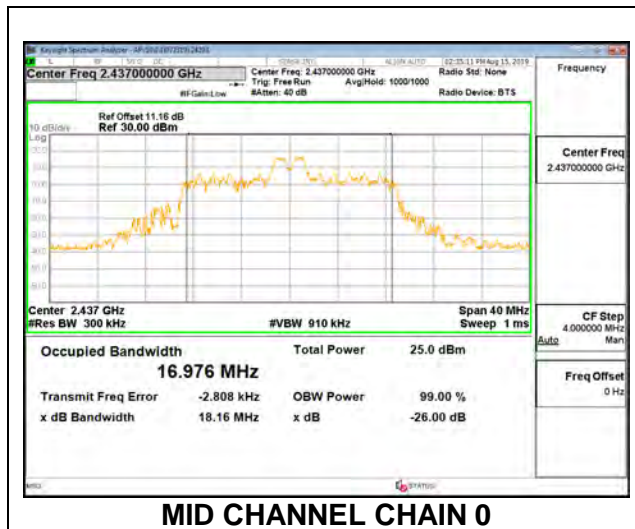
LOW CHANNEL 1



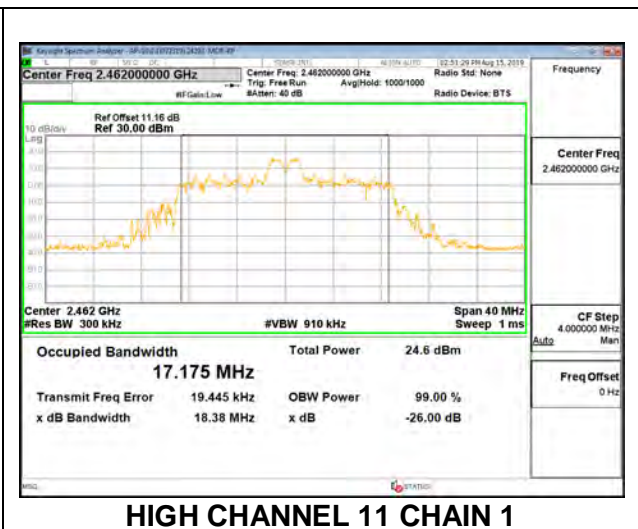
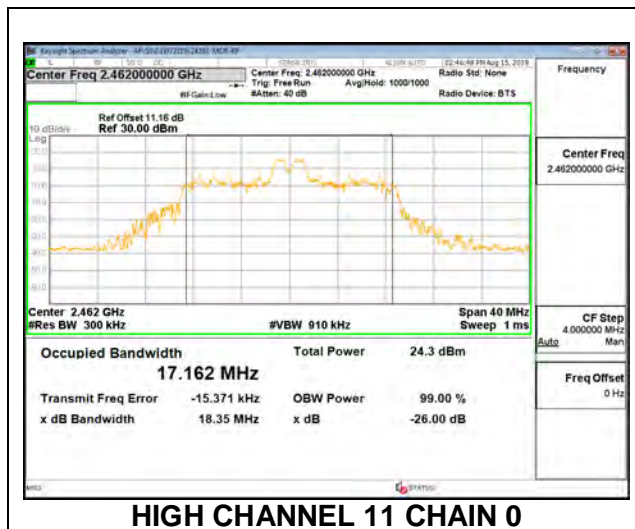
LOW CHANNEL 2



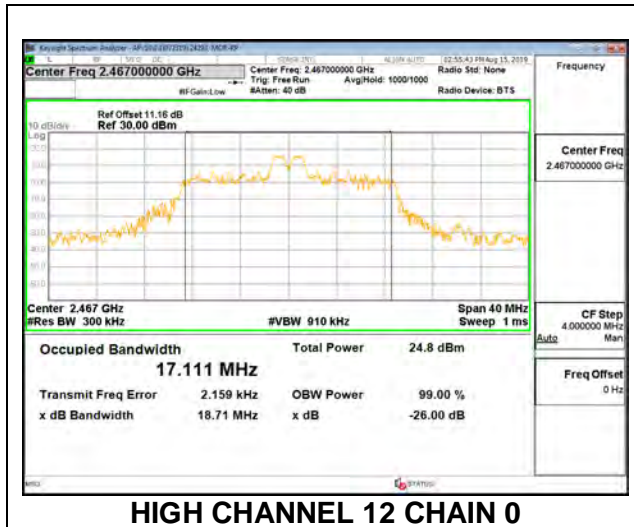
MID CHANNEL 6



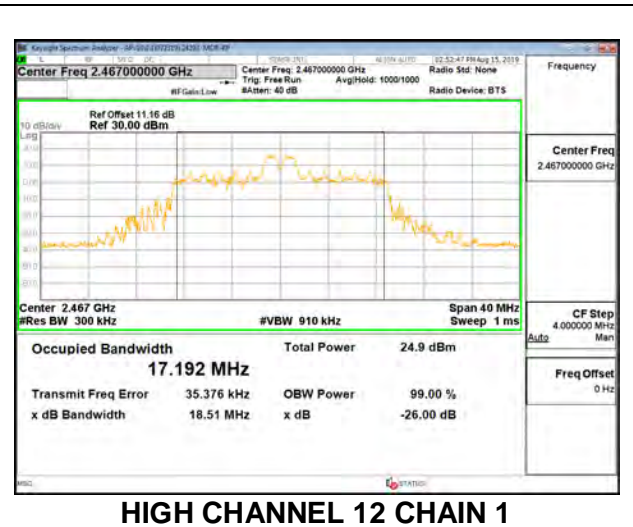
HIGH CHANNEL 11



HIGH CHANNEL 12

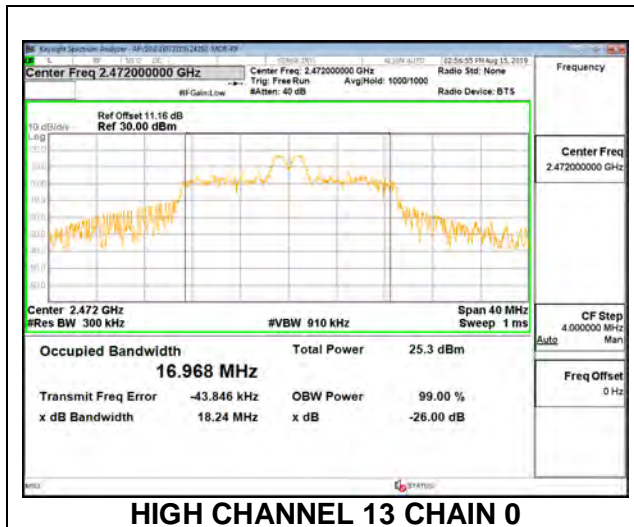


HIGH CHANNEL 12 CHAIN 0

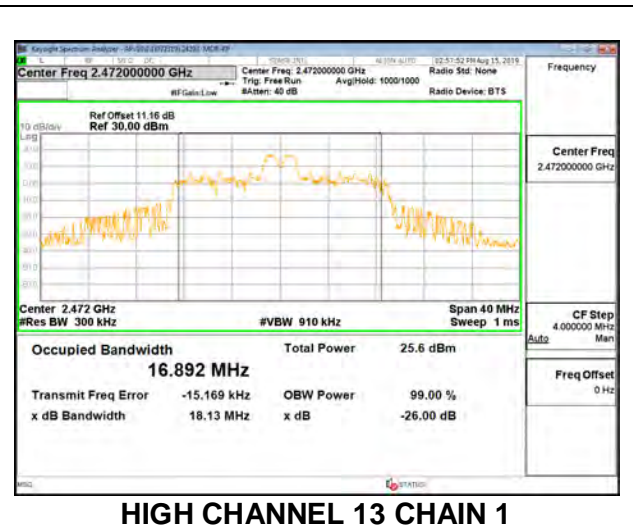


HIGH CHANNEL 12 CHAIN 1

HIGH CHANNEL 13



HIGH CHANNEL 13 CHAIN 0



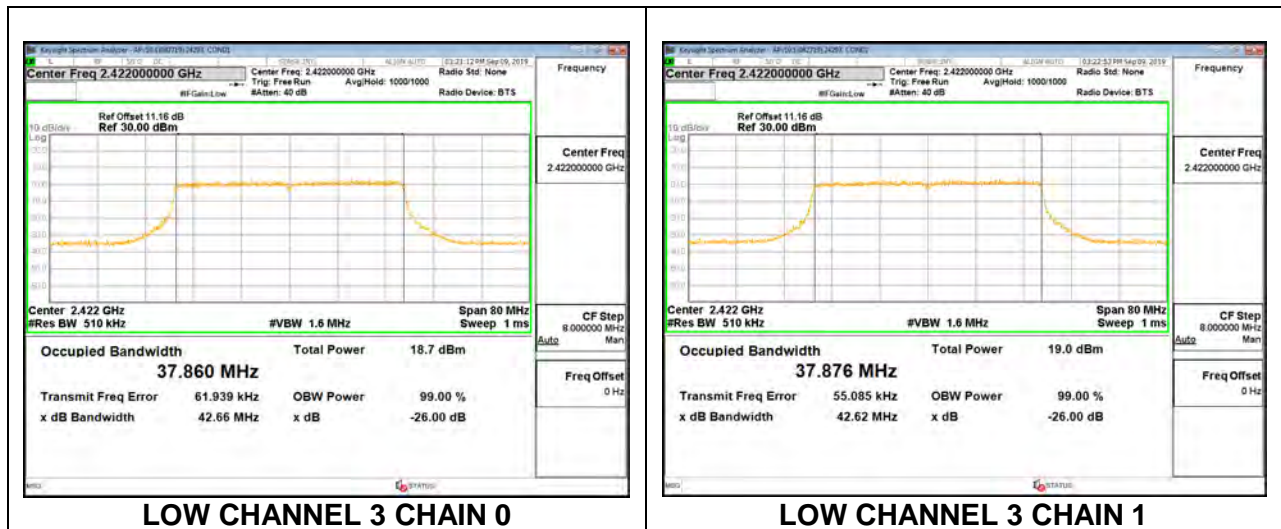
HIGH CHANNEL 13 CHAIN 1

9.2.1. 802.11ax HE40 MODE

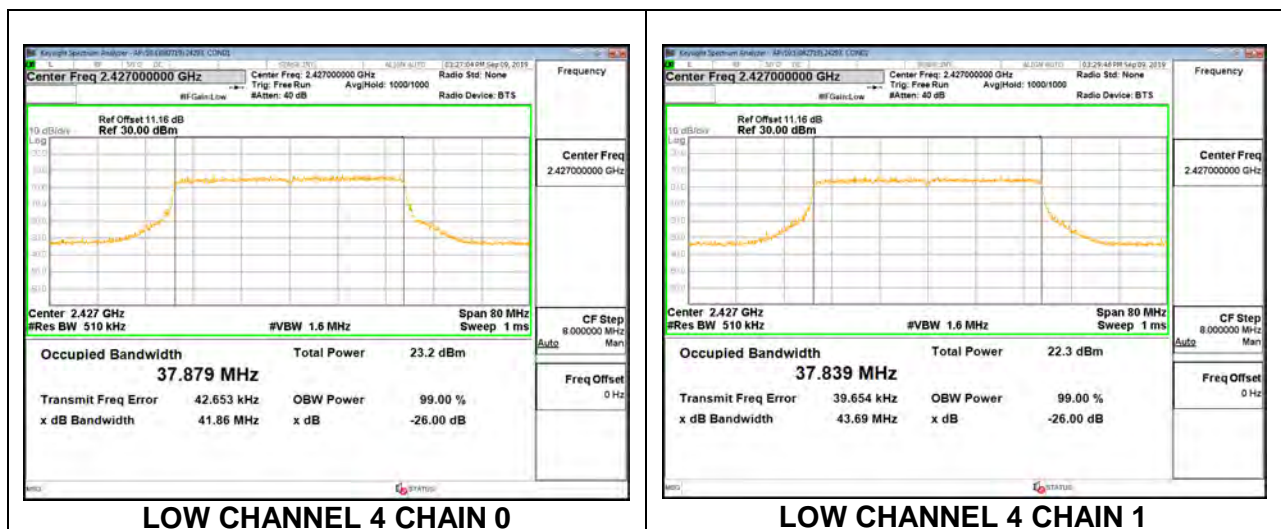
2TXChain 0 +Chain 1 OFDMA MODE: SU

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low 3	2422	37.860	37.876
Low 4	2427	37.879	37.839
Mid 6	2437	37.850	37.875
High 9	2452	37.868	37.876
High 10	2457	37.894	37.875
High 11	2462	37.580	37.573

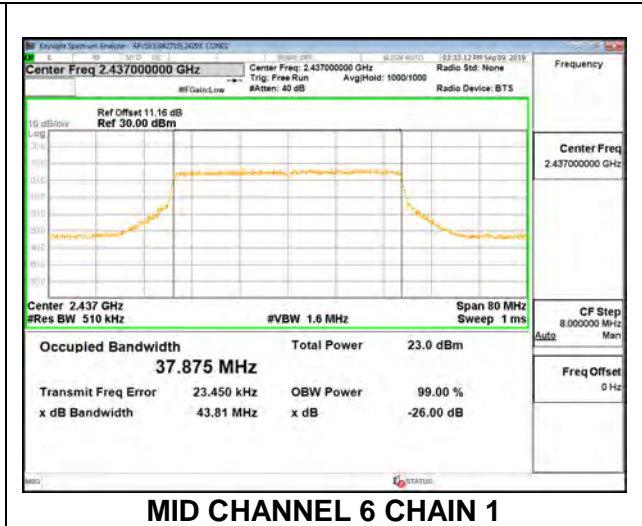
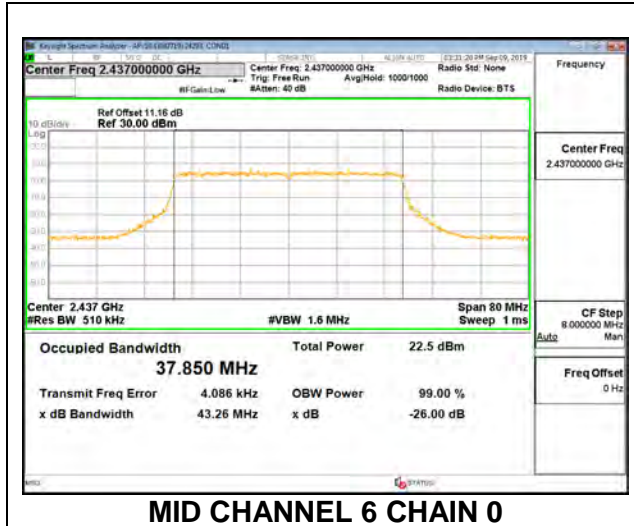
LOW CHANNEL 3



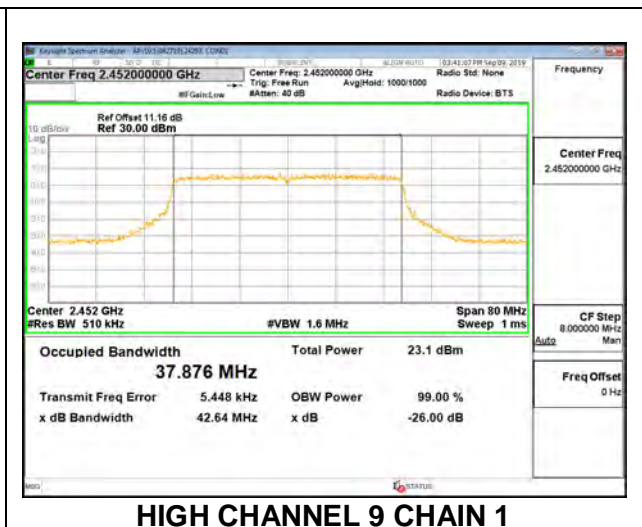
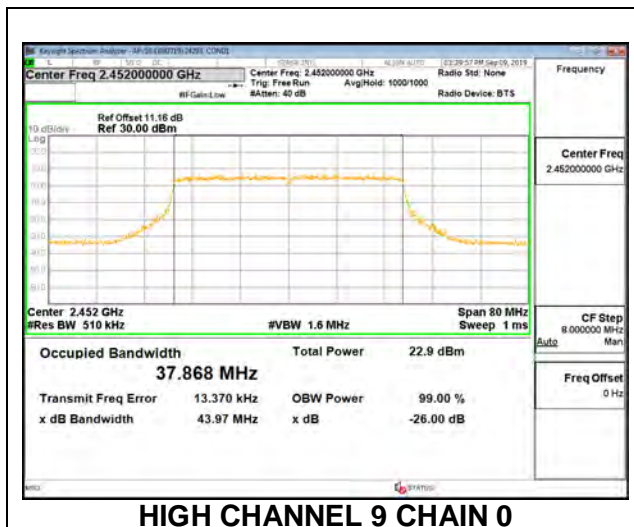
LOW CHANNEL 4



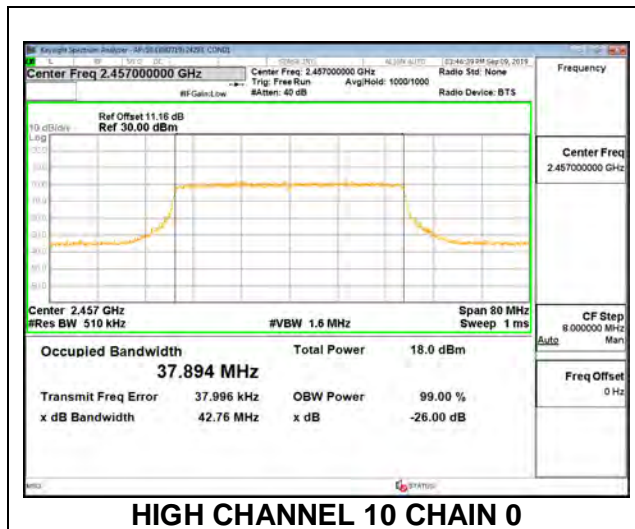
MID CHANNEL 6



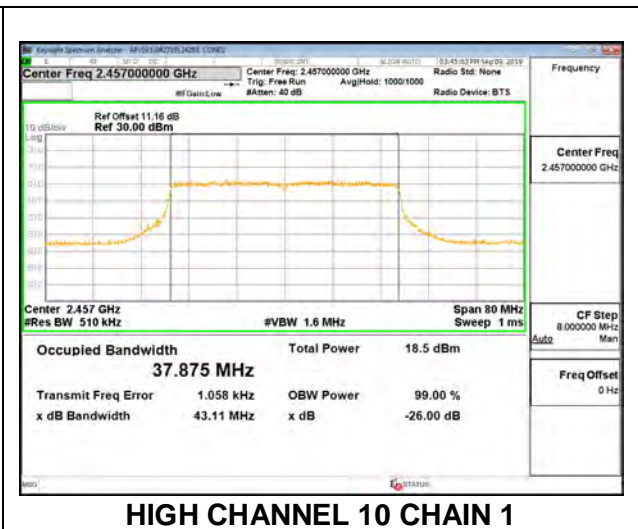
HIGH CHANNEL 9



HIGH CHANNEL 10

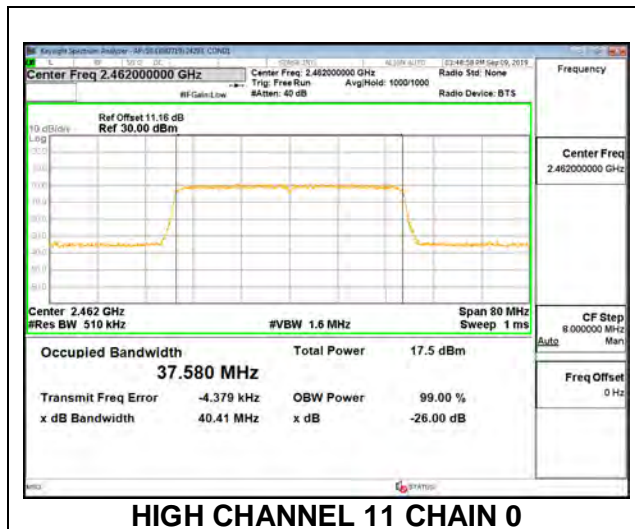


HIGH CHANNEL 10 CHAIN 0

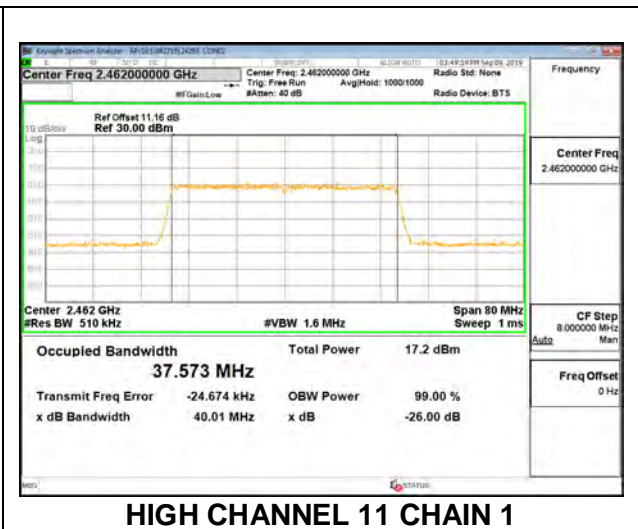


HIGH CHANNEL 10 CHAIN 1

HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0

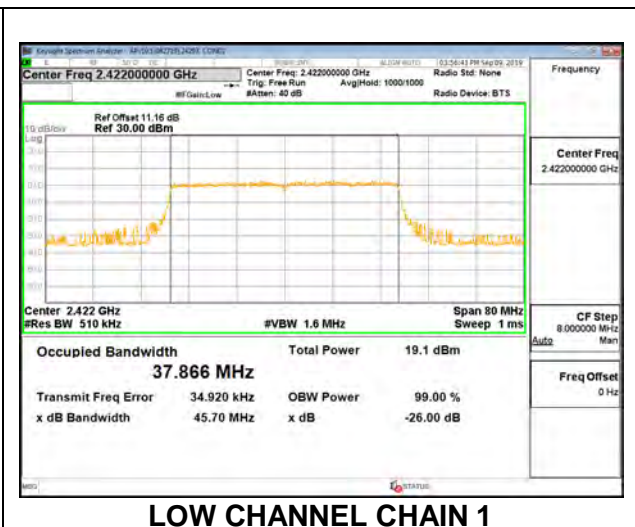
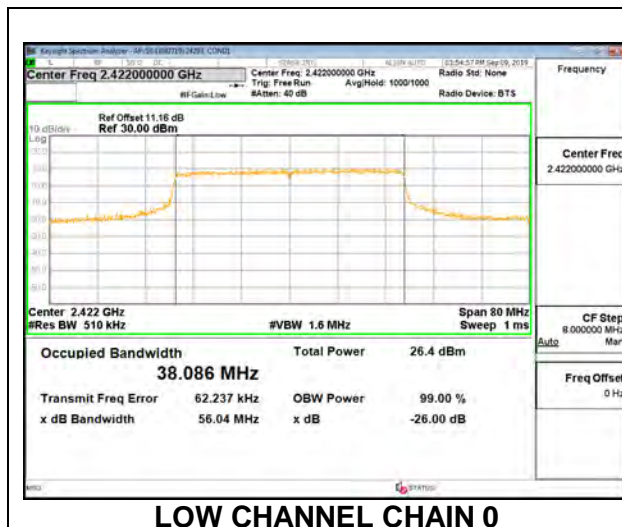


HIGH CHANNEL 11 CHAIN 1

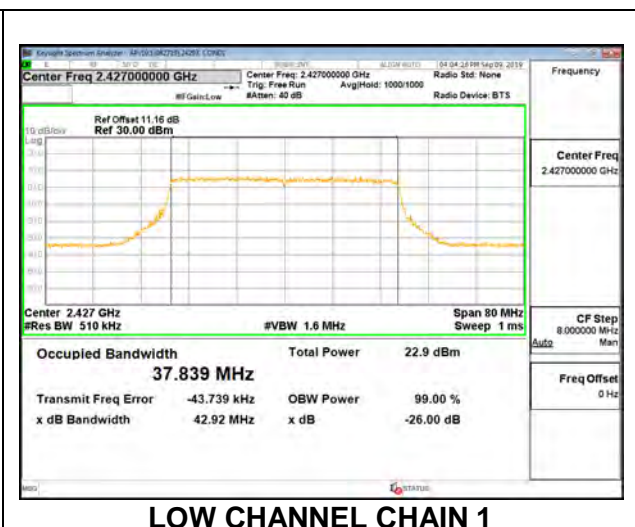
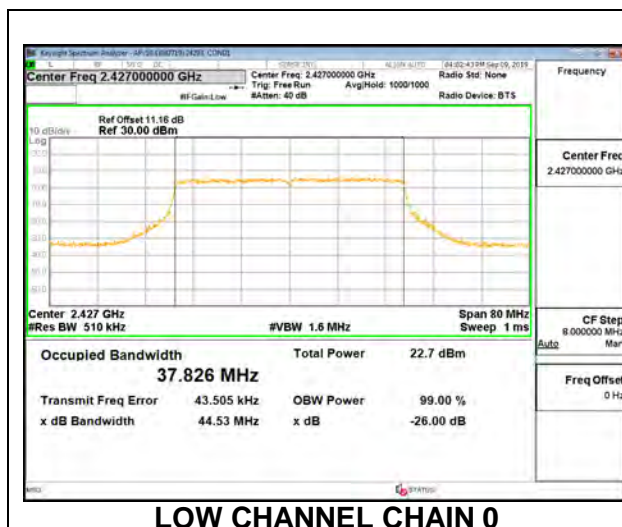
2TXChain 0 +Chain 1 OFDMA MODE – 484-Tones, RU Index 65

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low 3	2422	38.086	37.866
Low 4	2427	37.826	37.839
Mid 6	2437	37.751	37.875
High 9	2452	37.824	37.848
High 10	2457	37.832	38.015
High 11	2462	37.608	37.543

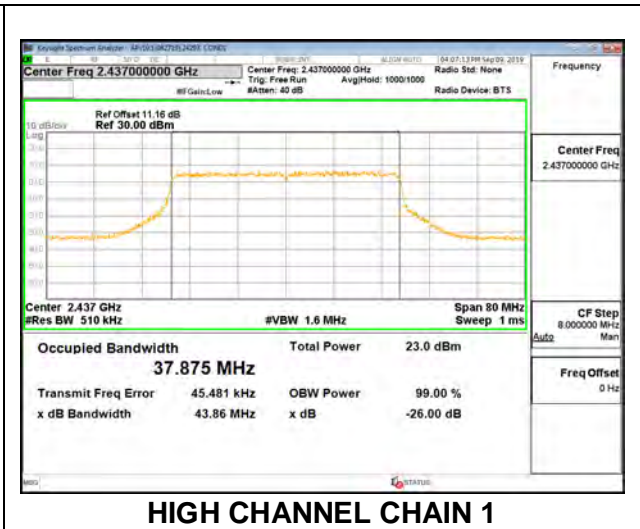
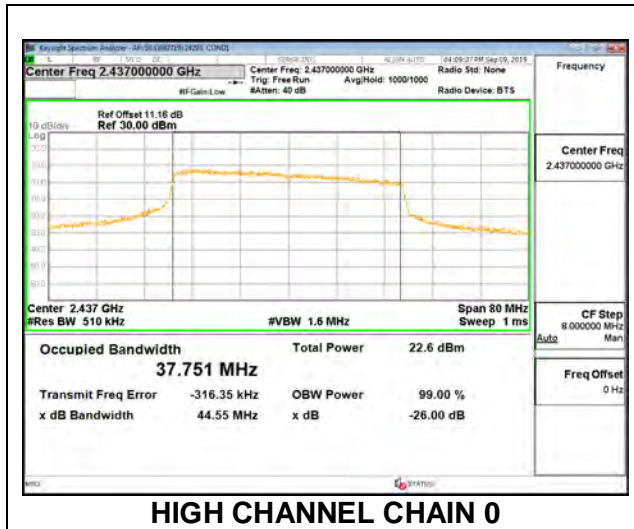
LOW CHANNEL 3



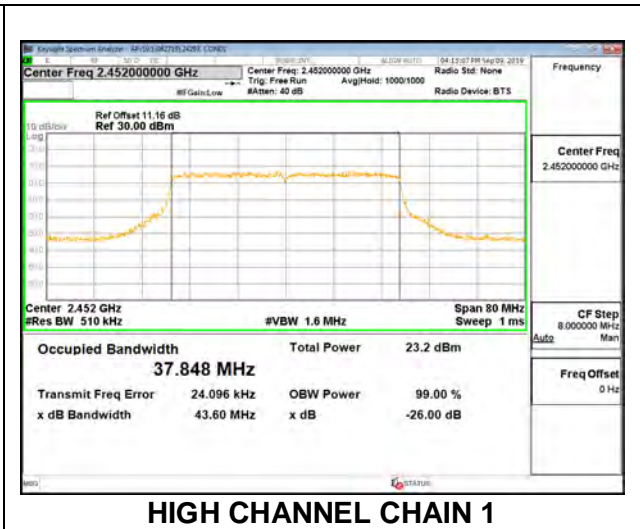
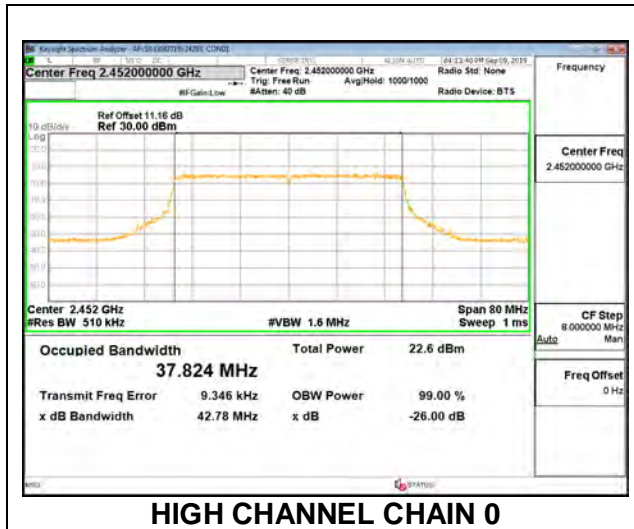
LOW CHANNEL 4



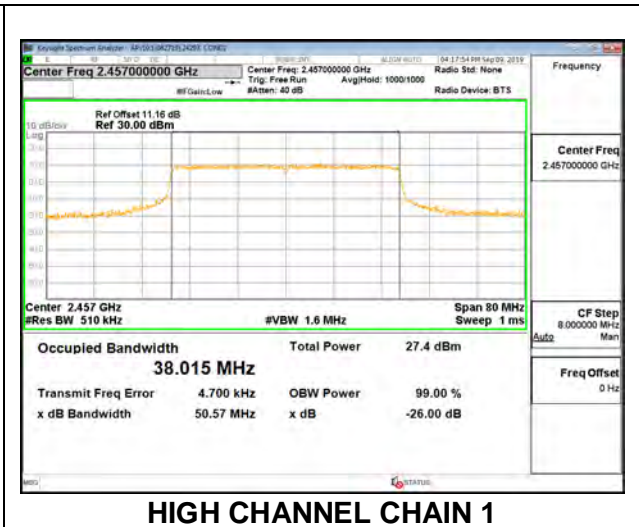
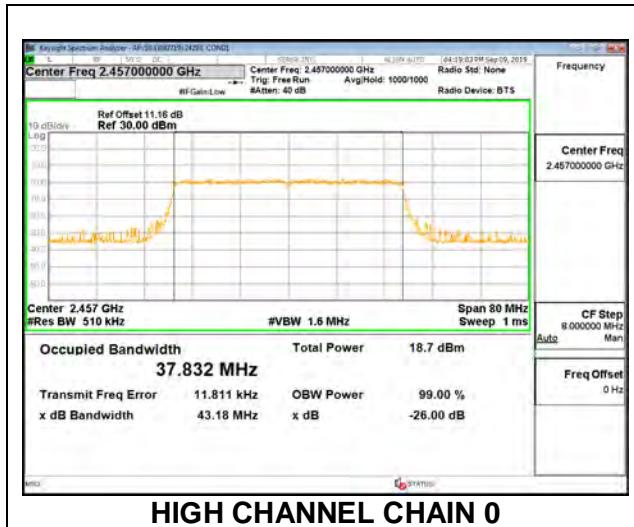
MID CHANNEL 6



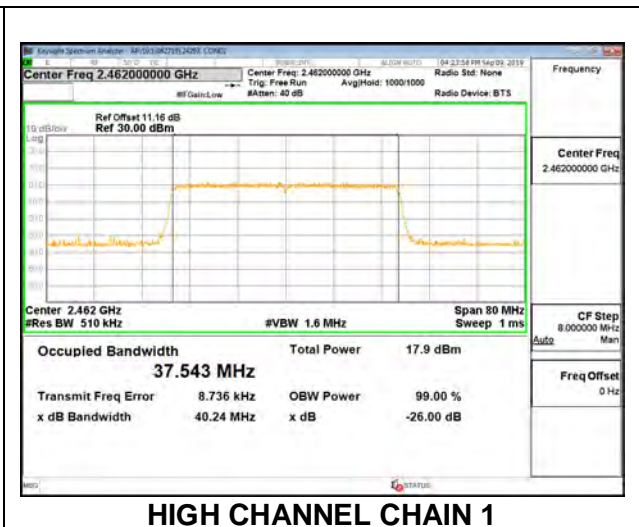
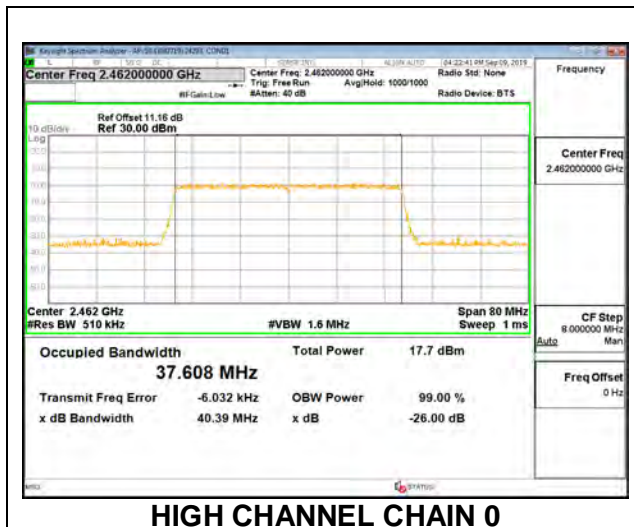
HIGH CHANNEL 9



HIGH CHANNEL 10



HIGH CHANNEL 11



9.3. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)
ISED RSS-247 Clause 5.2 (a)
NCC LP0002 §3.10.1.6 (2A)

The minimum 6 dB bandwidth shall be at least 500 kHz.

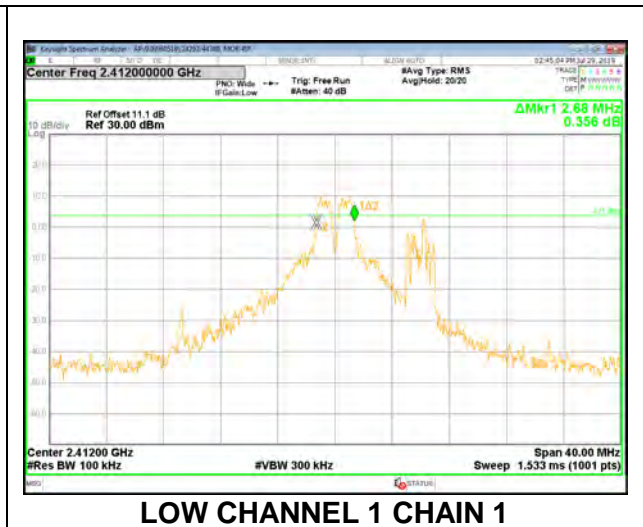
RESULTS

9.3.1. 802.11ax HE20 MODE

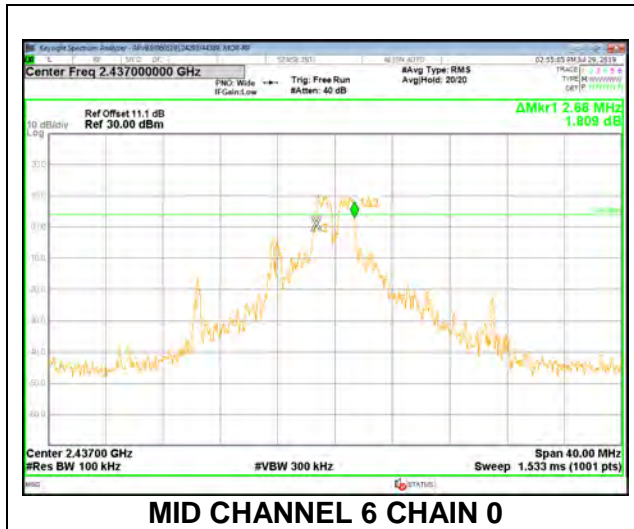
2TXChain 0 +Chain 1 OFDMA MODE: 26-Tones, RU index 4

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low 1	2412	2.72	2.68	0.5
Mid 6	2437	2.68	2.72	0.5
High 11	2462	2.68	2.72	0.5
High 12	2467	2.72	2.68	0.5
High 13	2472	2.68	2.68	0.5

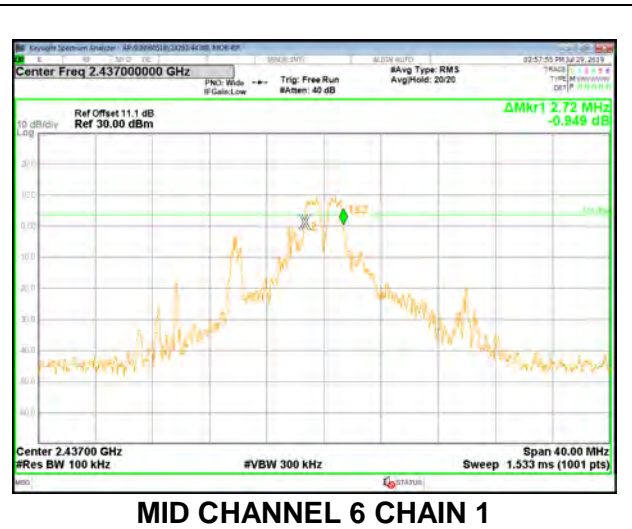
LOW CHANNEL 1



MID CHANNEL 6

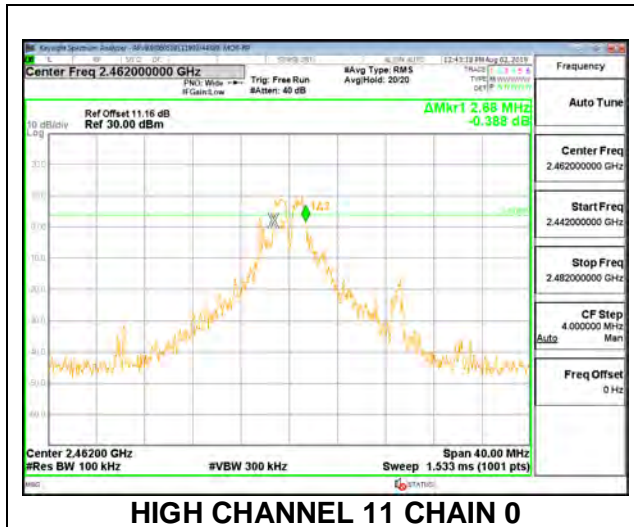


MID CHANNEL 6 CHAIN 0

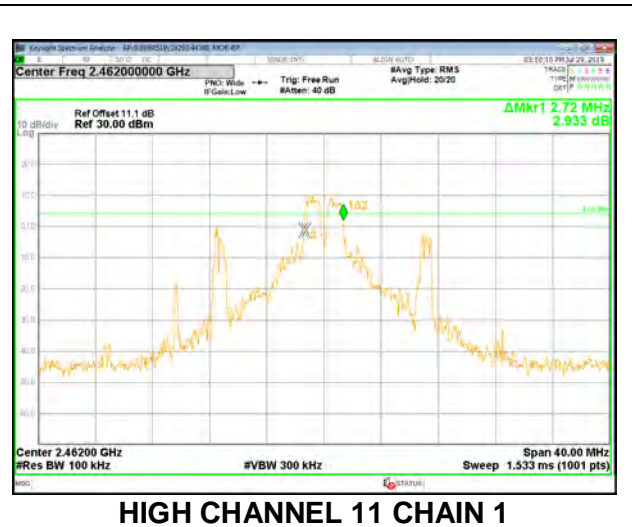


MID CHANNEL 6 CHAIN 1

HIGH CHANNEL 11

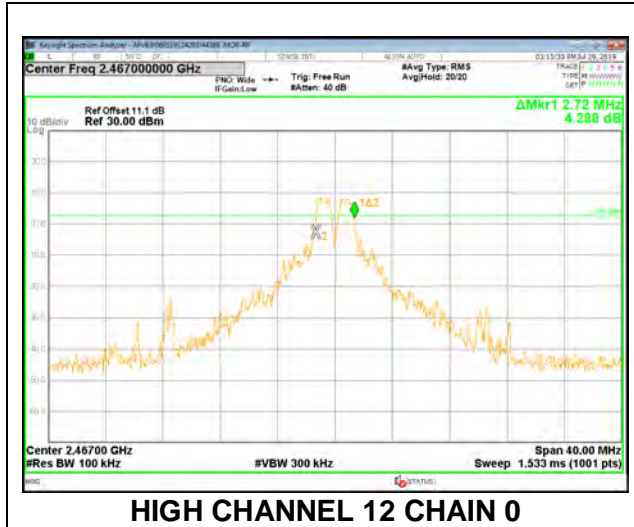


HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

HIGH CHANNEL 12

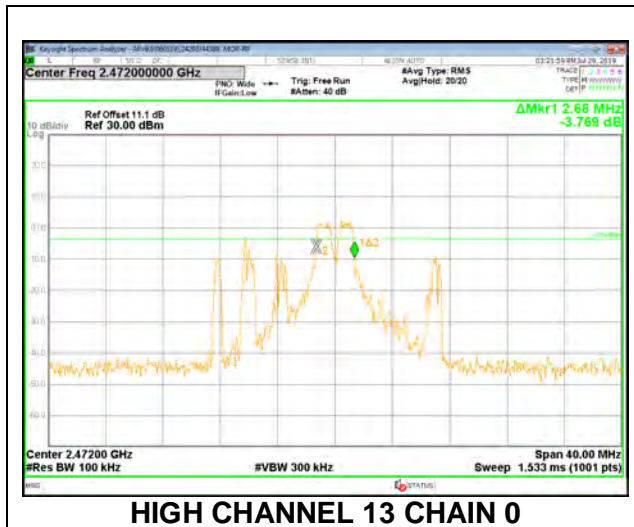


HIGH CHANNEL 12 CHAIN 0

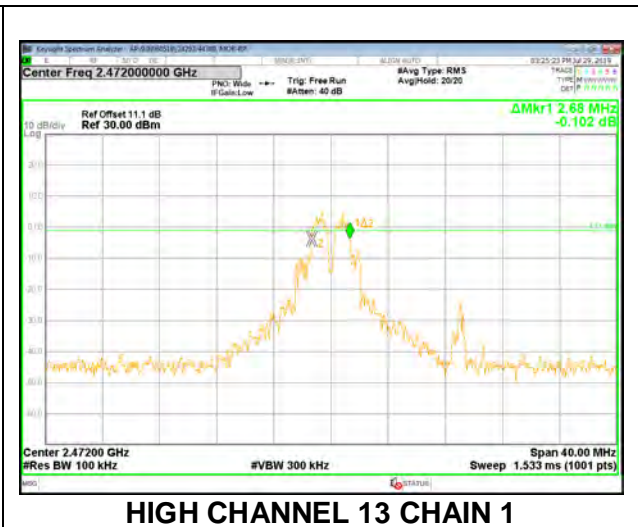


HIGH CHANNEL 12 CHAIN 1

HIGH CHANNEL 13



HIGH CHANNEL 13 CHAIN 0



HIGH CHANNEL 13 CHAIN 1

9.4. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)
RSS-247 5.4 (d)
NCC LP0002 § 3.10.1.2 (1C)

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The transmitter output is connected to a power meter. The cable assembly insertion loss was entered as an offset in the power meter to allow for a peak reading of power.

DIRECTIONAL ANTENNA GAIN

2 TX:

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
0.70	2.60	1.75

RESULTS

9.4.1. 802.11ax HE20 MODE 2TX

2TXChain 0 +Chain 1 MODE: 26-Tones, RU index 0

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00
High 12	2467	1.75	30.00	36	30.00
High 13	2472	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	21.37	21.40	24.40	30.00	-5.60
Mid 6	2437	21.25	21.31	24.29	30.00	-5.71
High 11	2462	21.22	21.22	24.23	30.00	-5.77
High 12	2467	21.07	20.97	24.03	30.00	-5.97
High 13	2472	20.86	21.03	23.96	30.00	-6.04

Tested by: 46722
 Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE: 26-Tones, RU index 4

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00
High 12	2467	1.75	30.00	36	30.00
High 13	2472	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	21.65	21.49	24.58	30.00	-5.42
Mid 6	2437	21.21	21.13	24.18	30.00	-5.82
High 11	2462	21.27	21.13	24.21	30.00	-5.79
High 12	2467	20.99	21.21	24.11	30.00	-5.89
High 13	2472	21.10	21.10	24.11	30.00	-5.89

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE: 26-Tones, RU index 8

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00
High 12	2467	1.75	30.00	36	30.00
High 13	2472	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	21.25	21.34	24.31	30.00	-5.69
Mid 6	2437	21.26	21.30	24.29	30.00	-5.71
High 11	2462	21.17	21.07	24.13	30.00	-5.87
High 12	2467	21.05	21.23	24.15	30.00	-5.85
High 13	2472	21.03	21.08	24.07	30.00	-5.93

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 52-Tones, RU index 37

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00
High 12	2467	1.75	30.00	36	30.00
High 13	2472	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	22.15	22.18	25.18	30.00	-4.82
Mid 6	2437	22.10	21.92	25.02	30.00	-4.98
High 11	2462	22.08	22.15	25.13	30.00	-4.87
High 12	2467	22.06	21.99	25.04	30.00	-4.96
High 13	2472	23.49	23.71	26.61	30.00	-3.39

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 52-Tones, RU index 38

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00
High 12	2467	1.75	30.00	36	30.00
High 13	2472	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	22.08	22.29	25.20	30.00	-4.80
Mid 6	2437	22.00	22.15	25.09	30.00	-4.91
High 11	2462	22.07	22.13	25.11	30.00	-4.89
High 12	2467	22.03	22.17	25.11	30.00	-4.89
High 13	2472	22.73	23.67	26.24	30.00	-3.76

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 52-Tones, RU index 40

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00
High 12	2467	1.75	30.00	36	30.00
High 13	2472	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	22.24	22.20	25.23	30.00	-4.77
Mid 6	2437	22.05	22.09	25.08	30.00	-4.92
High 11	2462	22.04	22.18	25.12	30.00	-4.88
High 12	2467	22.07	22.10	25.10	30.00	-4.90
High 13	2472	23.65	23.57	26.62	30.00	-3.38

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 106-Tones, RU index 53

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	1.75	30.00	36	30.00
Low 2	2417	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00
High 12	2467	1.75	30.00	36	30.00
High 13	2472	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	22.22	22.25	25.25	30.00	-4.75
Low 2	2417	22.96	23.07	26.03	30.00	-3.97
Mid 6	2437	22.89	23.07	25.99	30.00	-4.01
High 11	2462	22.81	23.05	25.94	30.00	-4.06
High 12	2467	21.21	21.29	24.26	30.00	-5.74
High 13	2472	23.37	23.45	26.42	30.00	-3.58

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 106-Tones, RU index 54

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	1.75	30.00	36	30.00
Low 2	2417	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00
High 12	2467	1.75	30.00	36	30.00
High 13	2472	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	22.22	22.15	25.20	30.00	-4.80
Low 2	2417	22.77	23.00	25.90	30.00	-4.10
Mid 6	2437	22.90	22.80	25.86	30.00	-4.14
High 11	2462	22.94	22.54	25.75	30.00	-4.25
High 12	2467	21.05	21.29	24.18	30.00	-5.82
High 13	2472	23.51	23.54	26.54	30.00	-3.46

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE 242 Tones RU 61

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	1.75	30.00	36	30.00
Low 2	2417	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 10	2457	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00
High 12	2467	1.75	30.00	36	30.00
High 13	2472	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	21.98	22.02	25.01	30.00	-4.99
Low 2	2417	22.93	23.14	26.05	30.00	-3.95
Mid 6	2437	23.15	23.25	26.21	30.00	-3.79
High 10	2457	23.33	23.08	26.22	30.00	-3.78
High 11	2462	22.01	22.00	25.02	30.00	-4.98
High 12	2467	23.80	23.61	26.72	30.00	-3.28
High 13	2472	23.92	23.53	26.74	30.00	-3.26

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE SU

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	1.75	30.00	36	30.00
Low 2	2417	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 10	2457	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00
High 12	2467	1.75	30.00	36	30.00
High 13	2472	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	21.60	21.88	24.75	30.00	-5.25
Low 2	2417	22.68	22.82	25.76	30.00	-4.24
Mid 6	2437	22.68	22.80	25.75	30.00	-4.25
High 10	2457	22.57	22.86	25.73	30.00	-4.27
High 11	2462	21.79	21.99	24.90	30.00	-5.10
High 12	2467	17.55	17.86	20.72	30.00	-9.28
High 13	2472	23.12	21.74	25.49	30.00	-4.51

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

9.4.2. 802.11ax HE40 MODE 2TX

2TXChain 0 +Chain 1 MODE: 26-Tones, RU index 0

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 3	2422	1.75	30.00	36	30.00
Low 4	2427	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 9	2452	1.75	30.00	36	30.00
High 10	2457	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 3	2422	23.74	23.18	26.48	30.00	-3.52
Low 4	2427	20.51	20.48	23.51	30.00	-6.49
Mid 6	2437	20.48	20.55	23.53	30.00	-6.47
High 9	2452	20.44	20.43	23.45	30.00	-6.55
High 10	2457	23.26	23.48	26.38	30.00	-3.62
High 11	2462	20.05	20.40	23.24	30.00	-6.76

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE: 26-Tones, RU index 8

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 3	2422	1.75	30.00	36	30.00
Low 4	2427	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 9	2452	1.75	30.00	36	30.00
High 10	2457	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 3	2422	23.79	23.52	26.67	30.00	-3.33
Low 4	2427	20.42	20.64	23.54	30.00	-6.46
Mid 6	2437	20.29	20.49	23.40	30.00	-6.60
High 9	2452	20.30	20.62	23.47	30.00	-6.53
High 10	2457	22.48	23.33	25.94	30.00	-4.06
High 11	2462	19.94	20.03	23.00	30.00	-7.00

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE: 26-Tones, RU index 17

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 3	2422	1.75	30.00	36	30.00
Low 4	2427	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 9	2452	1.75	30.00	36	30.00
High 10	2457	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 3	2422	23.73	23.36	26.56	30.00	-3.44
Low 4	2427	20.37	20.61	23.50	30.00	-6.50
Mid 6	2437	20.24	20.42	23.34	30.00	-6.66
High 9	2452	20.29	20.48	23.40	30.00	-6.60
High 10	2457	23.50	23.51	26.52	30.00	-3.48
High 11	2462	20.12	20.41	23.28	30.00	-6.72

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 52-Tones, RU index 37

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 3	2422	1.75	30.00	36	30.00
Low 4	2427	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 9	2452	1.75	30.00	36	30.00
High 10	2457	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 3	2422	23.53	23.37	26.46	30.00	-3.54
Low 4	2427	20.38	20.55	23.48	30.00	-6.52
Mid 6	2437	20.40	20.51	23.47	30.00	-6.53
High 9	2452	20.40	20.46	23.44	30.00	-6.56
High 10	2457	23.94	23.63	26.80	30.00	-3.20
High 11	2462	20.77	21.21	24.01	30.00	-5.99

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 52-Tones, RU index 40

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 3	2422	1.75	30.00	36	30.00
Low 4	2427	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 9	2452	1.75	30.00	36	30.00
High 10	2457	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 3	2422	23.43	23.13	26.29	30.00	-3.71
Low 4	2427	20.16	20.40	23.29	30.00	-6.71
Mid 6	2437	20.47	20.47	23.48	30.00	-6.52
High 9	2452	20.41	20.46	23.45	30.00	-6.55
High 10	2457	23.67	23.21	26.46	30.00	-3.54
High 11	2462	21.58	21.22	24.41	30.00	-5.59

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 52-Tones, RU index 44

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 3	2422	1.75	30.00	36	30.00
Low 4	2427	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 9	2452	1.75	30.00	36	30.00
High 10	2457	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 3	2422	23.85	23.81	26.84	30.00	-3.16
Low 4	2427	20.56	20.54	23.56	30.00	-6.44
Mid 6	2437	20.51	20.48	23.51	30.00	-6.49
High 9	2452	20.38	20.51	23.46	30.00	-6.54
High 10	2457	23.94	23.56	26.76	30.00	-3.24
High 11	2462	21.54	20.31	23.98	30.00	-6.02

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE: 106-Tones, RU index 53

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 3	2422	1.75	30.00	36	30.00
Low 4	2427	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 9	2452	1.75	30.00	36	30.00
High 10	2457	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 3	2422	23.25	23.26	26.27	30.00	-3.73
Low 4	2427	20.40	20.59	23.51	30.00	-6.49
Mid 6	2437	20.32	20.46	23.40	30.00	-6.60
High 9	2452	20.22	20.47	23.36	30.00	-6.64
High 10	2457	23.76	23.50	26.64	30.00	-3.36
High 11	2462	22.27	22.06	25.18	30.00	-4.82

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE: 106-Tones, RU index 54

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 3	2422	1.75	30.00	36	30.00
Low 4	2427	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 9	2452	1.75	30.00	36	30.00
High 10	2457	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 3	2422	23.59	23.25	26.43	30.00	-3.57
Low 4	2427	20.47	20.65	23.57	30.00	-6.43
Mid 6	2437	20.43	20.56	23.51	30.00	-6.49
High 9	2452	20.19	20.47	23.34	30.00	-6.66
High 10	2457	22.93	22.93	25.94	30.00	-4.06
High 11	2462	22.47	22.35	25.42	30.00	-4.58

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE: 106-Tones, RU index 56

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 3	2422	1.75	30.00	36	30.00
Low 4	2427	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 9	2452	1.75	30.00	36	30.00
High 10	2457	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 3	2422	23.64	23.72	26.69	30.00	-3.31
Low 4	2427	20.33	20.65	23.50	30.00	-6.50
Mid 6	2437	20.46	20.47	23.48	30.00	-6.52
High 9	2452	20.37	20.46	23.43	30.00	-6.57
High 10	2457	23.85	23.78	26.83	30.00	-3.17
High 11	2462	22.34	22.35	25.36	30.00	-4.64

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE: 242 Tones, RU index 61

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 3	2422	1.75	30.00	36	30.00
Low 4	2427	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 9	2452	1.75	30.00	36	30.00
High 10	2457	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 3	2422	23.74	23.50	26.63	30.00	-3.37
Low 4	2427	21.00	21.03	24.03	30.00	-5.97
Mid 6	2437	20.94	21.18	24.07	30.00	-5.93
High 9	2452	20.91	21.07	24.00	30.00	-6.00
High 10	2457	23.81	22.96	26.42	30.00	-3.58
High 11	2462	23.48	23.36	26.43	30.00	-3.57

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE: 242 Tones, RU index 62

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 3	2422	1.75	30.00	36	30.00
Low 4	2427	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 9	2452	1.75	30.00	36	30.00
High 10	2457	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 3	2422	23.69	23.61	26.66	30.00	-3.34
Low 4	2427	21.16	21.21	24.20	30.00	-5.80
Mid 6	2437	21.08	21.26	24.18	30.00	-5.82
High 9	2452	20.85	21.07	23.97	30.00	-6.03
High 10	2457	23.83	23.33	26.60	30.00	-3.40
High 11	2462	23.54	22.91	26.25	30.00	-3.75

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 484 Tones, RU index 65

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 3	2422	1.75	30.00	36	30.00
Low 4	2427	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 9	2452	1.75	30.00	36	30.00
High 10	2457	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 3	2422	22.67	22.22	25.46	30.00	-4.54
Low 4	2427	21.67	21.60	24.65	30.00	-5.35
Mid 6	2437	21.69	21.71	24.71	30.00	-5.29
High 9	2452	21.48	21.82	24.66	30.00	-5.34
High 10	2457	23.63	21.89	25.86	30.00	-4.14
High 11	2462	23.77	23.29	26.55	30.00	-3.45

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE SU

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 3	2422	1.75	30.00	36	30.00
Low 4	2427	1.75	30.00	36	30.00
Mid 6	2437	1.75	30.00	36	30.00
High 9	2452	1.75	30.00	36	30.00
High 10	2457	1.75	30.00	36	30.00
High 11	2462	1.75	30.00	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Measured Power (dBm)	Chain 1 Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 3	2422	20.57	20.75	23.67	30.00	-6.33
Low 4	2427	21.71	21.53	24.63	30.00	-5.37
Mid 6	2437	21.49	21.79	24.65	30.00	-5.35
High 9	2452	21.69	21.62	24.67	30.00	-5.33
High 10	2457	18.52	18.90	21.72	30.00	-8.28
High 11	2462	22.44	23.13	25.81	30.00	-4.19

Tested by: 46722
 Test date: 2019-08-07 to 2019-08-08

9.1. AVERAGE POWER

LIMITS

None; for reporting purposes only

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.7 dB (including 10 dB pad and 0.7 dB cable) was entered as an offset in the power meter to allow for a gated average reading of power

RESULTS

9.1.1. 802.11 ax HE20 MODE 2TX

2TXChain 0 +Chain 1 MODE : 26 Tones, RU index 0

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	16.40	16.52	19.47
Mid 6	2437	16.34	16.29	19.33
High 11	2462	16.20	16.20	19.21
High 12	2467	16.28	16.26	19.28
High 13	2472	9.28	9.29	12.30

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 26 Tones, RU index 4

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	16.73	16.90	19.83
Mid 6	2437	16.62	16.65	19.65
High 11	2462	16.50	16.60	19.56
High 12	2467	16.50	16.61	19.57
High 13	2472	9.84	10.06	12.96

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 26 Tones, RU index 8

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	16.55	16.58	19.58
Mid 6	2437	16.38	16.49	19.45
High 11	2462	16.25	16.38	19.33
High 12	2467	16.26	16.39	19.34
High 13	2472	9.25	9.49	12.38

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 52 Tones, RU index 37

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	17.71	17.72	20.73
Mid 6	2437	17.58	17.52	20.56
High 11	2462	17.42	17.54	20.49
High 12	2467	17.42	17.51	20.48
High 13	2472	10.75	11.04	13.91

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 52 Tones, RU index 38

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	17.92	17.99	20.97
Mid 6	2437	17.81	17.77	20.80
High 11	2462	17.83	17.75	20.80
High 12	2467	17.66	17.71	20.70
High 13	2472	11.10	11.32	14.22

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 52 Tones, RU index 40

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	17.78	17.81	20.81
Mid 6	2437	17.62	17.68	20.66
High 11	2462	17.40	17.64	20.53
High 12	2467	17.48	17.61	20.56
High 13	2472	10.84	11.15	14.01

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 106 Tones, RU index 53

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	17.76	17.77	20.78
Low 2	2417	18.65	18.78	21.73
Mid 6	2437	18.61	18.62	21.63
High 11	2462	18.42	18.51	21.48
High 12	2467	16.52	16.65	19.60
High 13	2472	10.93	11.12	14.04

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 106 Tones, RU index 54

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	17.78	17.91	20.86
Low 2	2417	18.86	18.84	21.86
Mid 6	2437	18.65	18.61	21.64
High 11	2462	18.43	18.62	21.54
High 12	2467	16.52	16.72	19.63
High 13	2472	10.90	11.26	14.09

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 242 Tones, RU index 61

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	16.29	16.35	19.33
Low 2	2417	18.14	18.22	21.19
Mid 6	2437	18.15	18.11	21.14
High 10	2457	18.00	18.16	21.09
High 11	2462	16.53	16.67	19.61
High 12	2467	12.45	12.73	15.60
High 13	2472	11.46	11.68	14.58

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : SU

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	16.30	16.45	19.39
Low 2	2417	17.71	17.85	20.79
Mid 6	2437	17.61	17.60	20.62
High 10	2457	17.59	17.68	20.65
High 11	2462	16.48	16.62	19.56
High 12	2467	12.07	12.33	15.21
High 13	2472	11.33	11.68	14.52

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

9.1.1. 802.11 ax HE40 MODE 2TX

2TXChain 0 +Chain 1 MODE : 26 Tones, RU index 0

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 3	2422	13.39	13.57	16.49
Low 4	2427	15.36	15.47	18.43
Mid 6	2437	15.37	15.45	18.42
High 9	2452	15.34	15.55	18.46
High 10	2457	12.37	12.36	15.38
High 11	2462	7.78	8.12	10.96

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 26 Tones, RU index 8

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 3	2422	14.00	13.95	16.99
Low 4	2427	15.69	15.86	18.79
Mid 6	2437	15.74	15.67	18.72
High 9	2452	15.57	15.68	18.64
High 10	2457	12.75	12.61	15.69
High 11	2462	7.70	7.75	10.74

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 26 Tones, RU index 17

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 3	2422	13.79	13.80	16.81
Low 4	2427	15.80	15.77	18.80
Mid 6	2437	15.66	15.58	18.63
High 9	2452	15.50	15.58	18.55
High 10	2457	12.48	12.49	15.50
High 11	2462	7.86	8.14	11.01

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 52 Tones, RU index 37

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 3	2422	13.44	13.50	16.48
Low 4	2427	15.47	15.69	18.59
Mid 6	2437	15.59	15.66	18.64
High 9	2452	15.49	15.66	18.59
High 10	2457	12.88	12.92	15.91
High 11	2462	8.34	8.62	11.49

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 52 Tones, RU index 40

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 3	2422	14.08	14.11	17.11
Low 4	2427	15.94	16.13	19.05
Mid 6	2437	15.99	16.01	19.01
High 9	2452	15.82	15.90	18.87
High 10	2457	13.35	13.35	16.36
High 11	2462	8.61	8.71	11.67

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 52 Tones, RU index 44

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 3	2422	13.77	13.86	16.83
Low 4	2427	15.89	15.87	18.89
Mid 6	2437	15.81	15.81	18.82
High 9	2452	15.62	15.75	18.70
High 10	2457	13.02	13.11	16.08
High 11	2462	8.54	8.74	11.65

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 106 Tones, RU index 53

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 3	2422	13.08	13.17	16.14
Low 4	2427	15.55	15.76	18.67
Mid 6	2437	15.65	15.69	18.68
High 9	2452	15.59	15.73	18.67
High 10	2457	12.53	12.49	15.52
High 11	2462	9.47	9.75	12.62

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 106 Tones, RU index 54

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 3	2422	13.57	13.59	16.59
Low 4	2427	15.97	16.12	19.06
Mid 6	2437	16.05	16.04	19.06
High 9	2452	15.88	15.96	18.93
High 10	2457	12.87	12.77	15.83
High 11	2462	9.75	9.87	12.82

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 106 Tones, RU index 56

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 3	2422	13.30	13.33	16.33
Low 4	2427	15.88	15.95	18.93
Mid 6	2437	15.80	15.75	18.79
High 9	2452	15.66	15.74	18.71
High 10	2457	12.56	12.66	15.62
High 11	2462	9.50	9.85	12.69

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 242 Tones, RU index 61

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 3	2422	14.76	14.83	17.81
Low 4	2427	15.70	15.80	18.76
Mid 6	2437	15.75	15.85	18.81
High 9	2452	15.67	15.82	18.76
High 10	2457	12.67	12.59	15.64
High 11	2462	11.12	11.04	14.09

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 242 Tones, RU index 62

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 3	2422	14.73	14.68	17.72
Low 4	2427	15.85	15.75	18.81
Mid 6	2437	15.70	15.71	18.72
High 9	2452	15.57	15.67	18.63
High 10	2457	12.56	12.67	15.63
High 11	2462	11.07	11.04	14.07

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : 484 Tones, RU index 65

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 3	2422	12.28	12.19	15.25
Low 4	2427	15.89	15.93	18.92
Mid 6	2437	15.75	15.80	18.79
High 9	2452	15.67	15.85	18.77
High 10	2457	11.60	11.57	14.60
High 11	2462	10.65	10.48	13.58

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

2TXChain 0 +Chain 1 MODE : SU

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 3	2422	14.85	14.97	17.92
Low 4	2427	15.87	15.88	18.89
Mid 6	2437	15.75	15.78	18.78
High 9	2452	15.55	15.83	18.70
High 10	2457	12.75	12.89	15.83
High 11	2462	13.07	13.01	16.05

Tested by: 46722

Test date: 2019-08-07 to 2019-08-08

9.2. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)
RSS-247 (5.2) (b)
NCC LP0002 §3.10.1.6 (2B)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

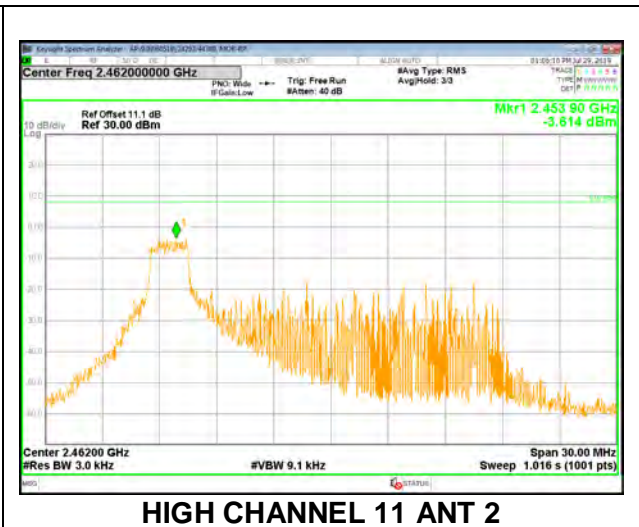
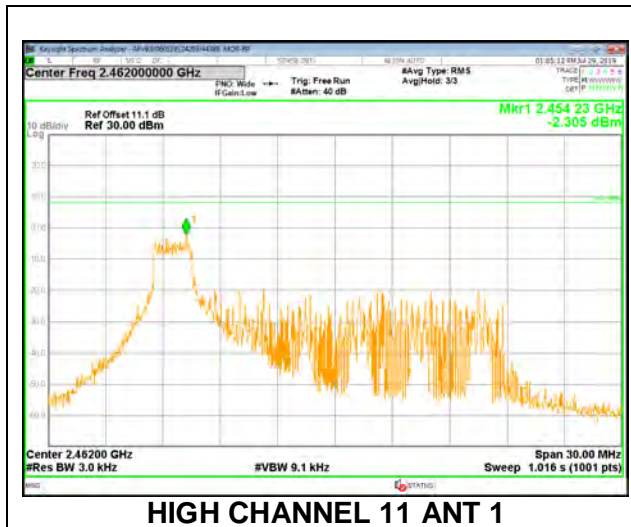
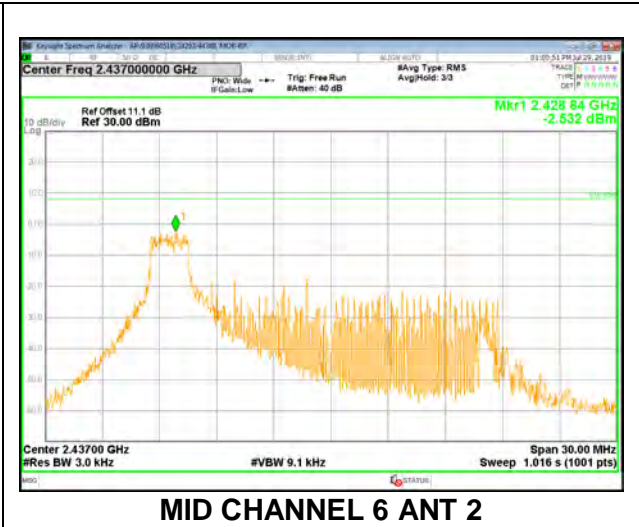
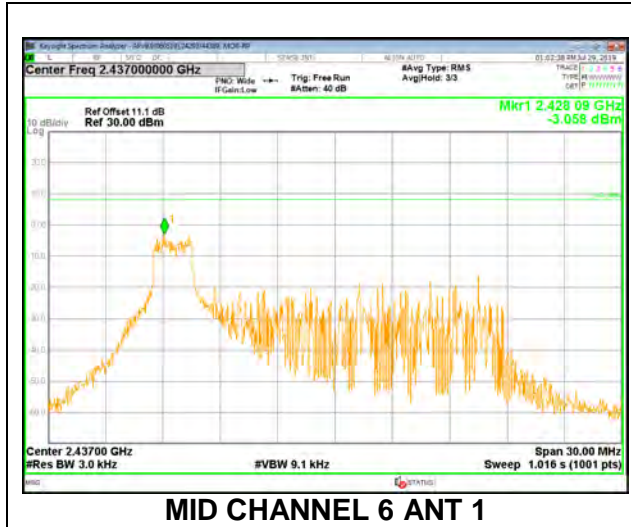
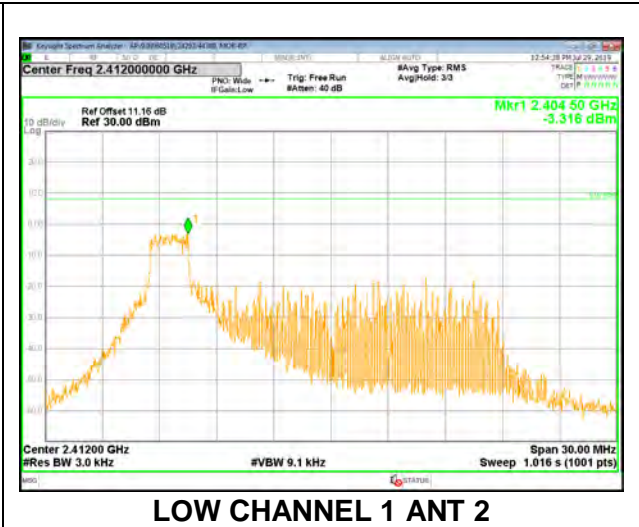
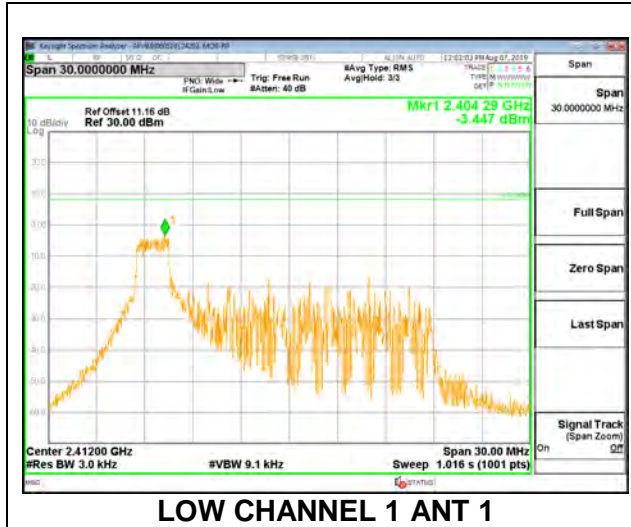
9.2.1. 802.11ax HE20 MODE 2TX

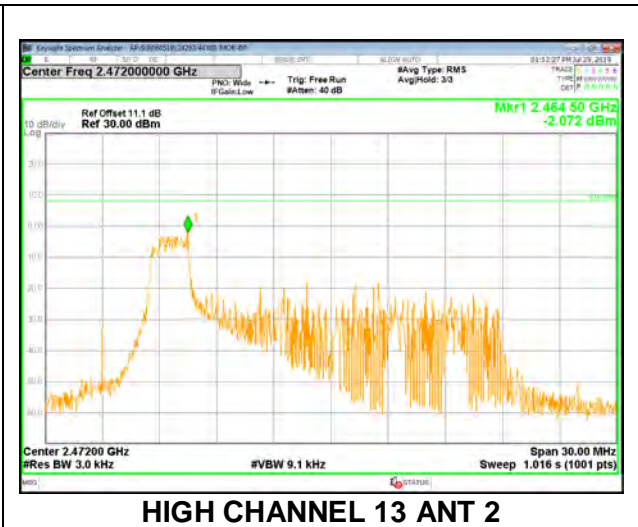
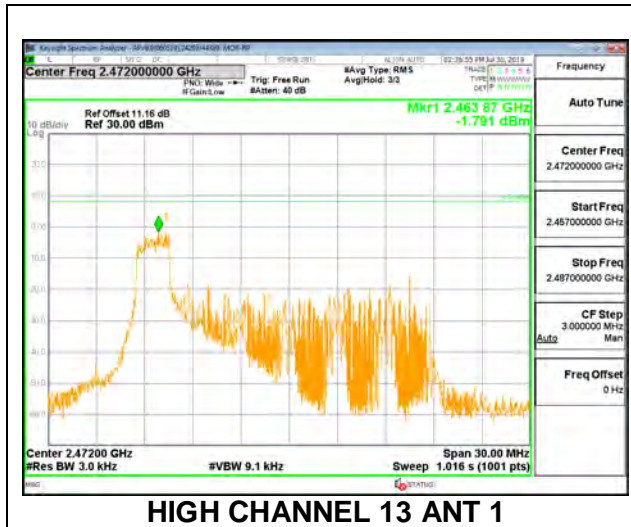
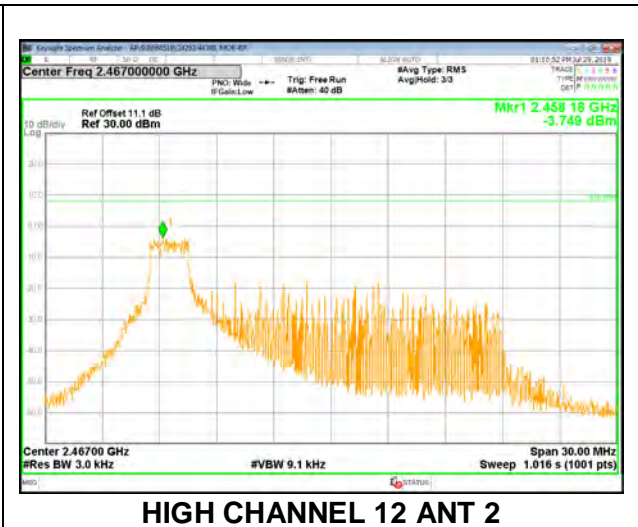
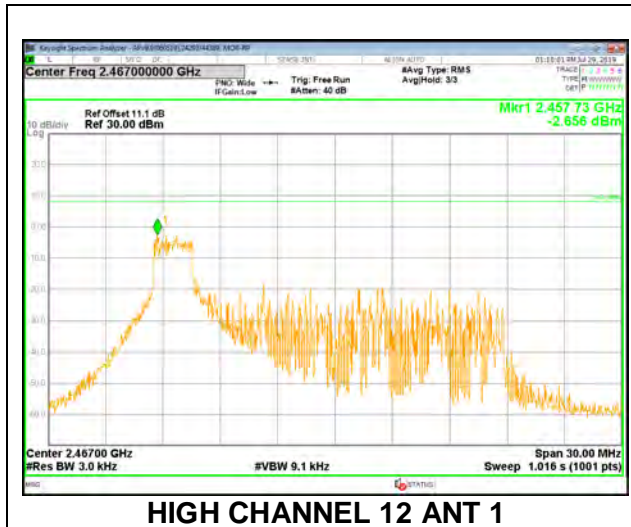
Antenna 1 +Chain 1 2TX MODE: 26-Tones, RU Index 0

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

Channel	Frequency (MHz)	Antenna 1 Measured (dBm/ 3kHz)	Antenna 2 Measured (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-3.447	-3.316	-0.37	8.0	-8.4
Mid 6	2437	-3.058	-2.532	0.22	8.0	-7.8
High 11	2462	-2.305	-3.614	0.10	8.0	-7.9
High 12	2467	-2.656	-3.749	-0.16	8.0	-8.2
High 13	2472	-1.791	-2.072	1.08	8.0	-6.9



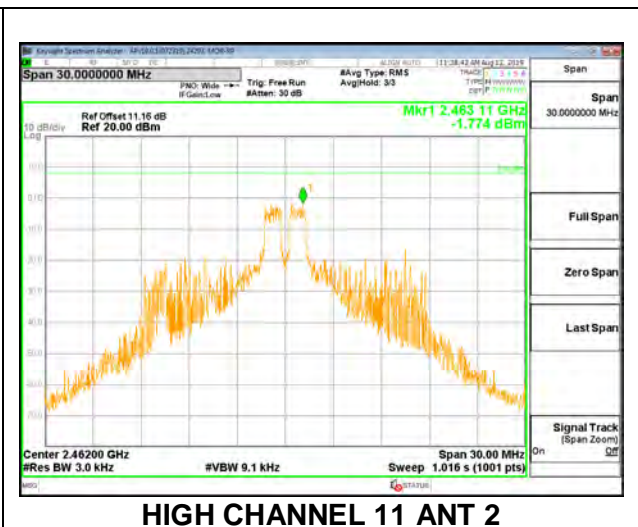
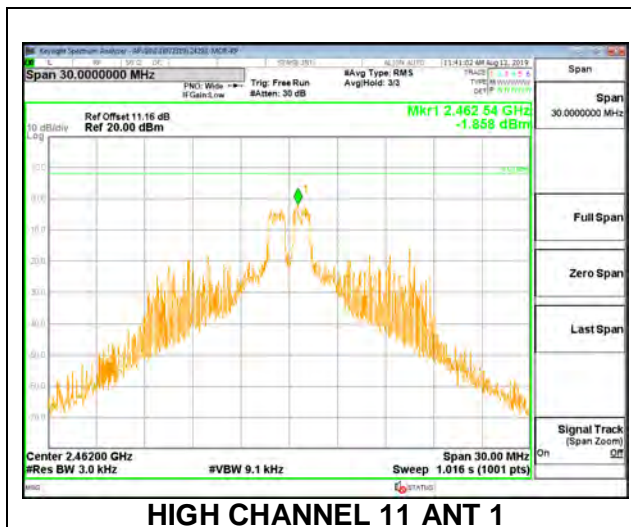
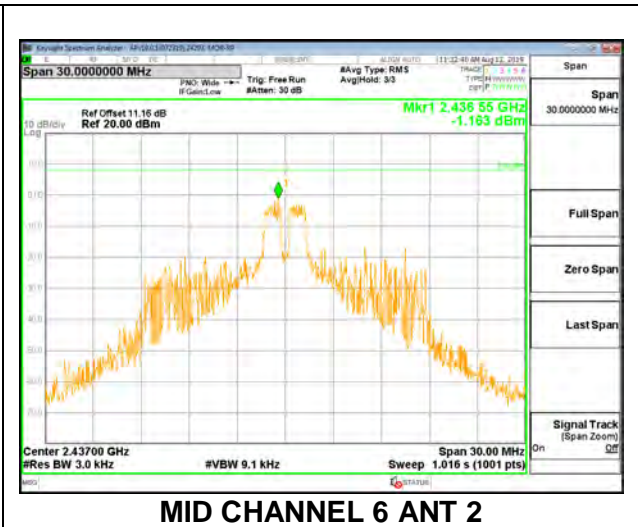
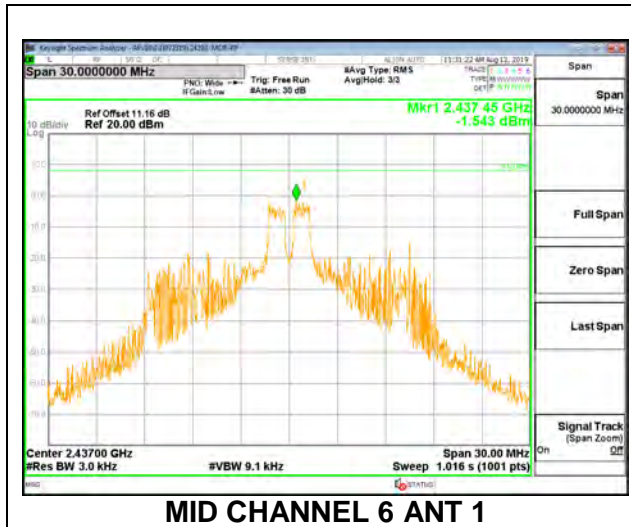
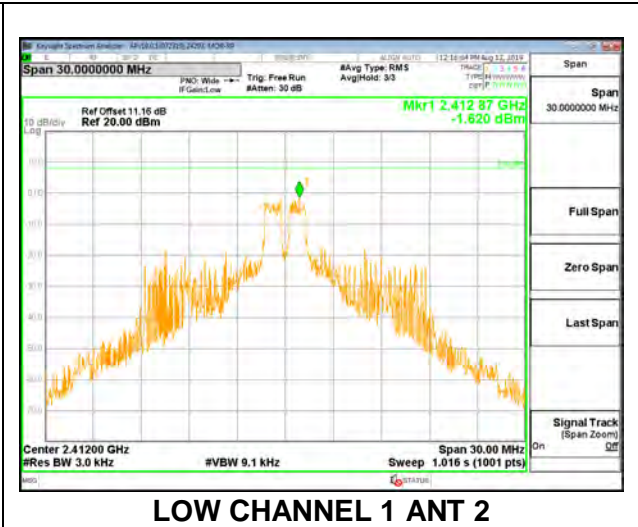
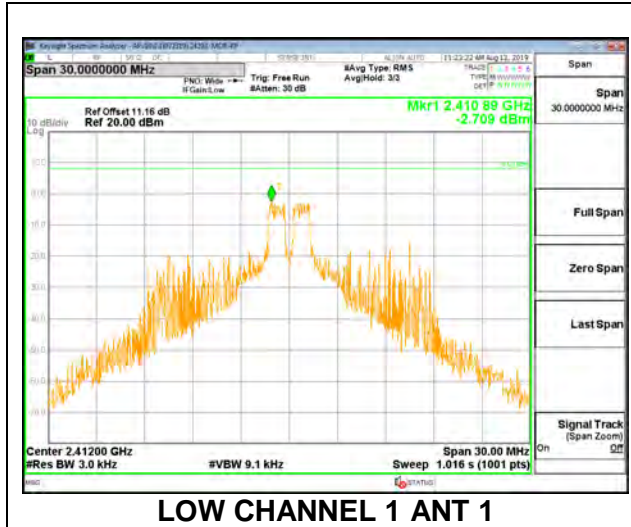


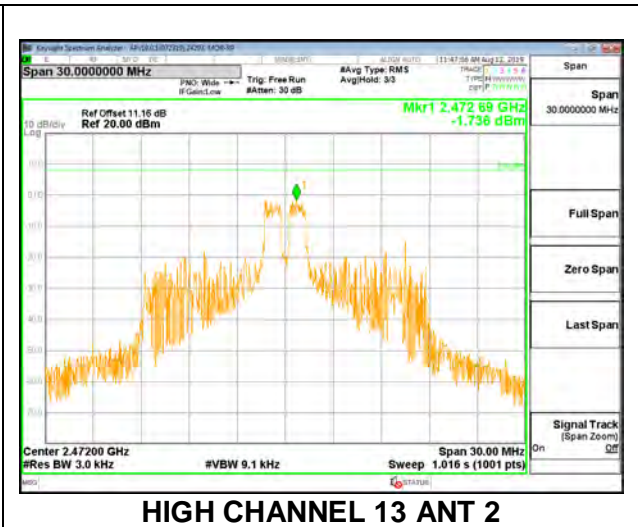
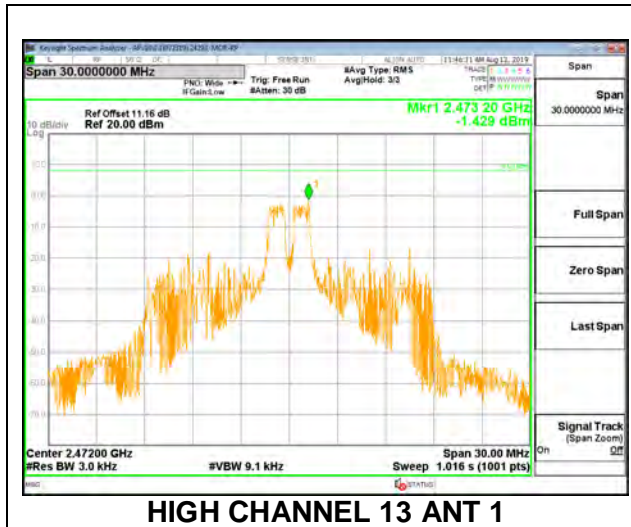
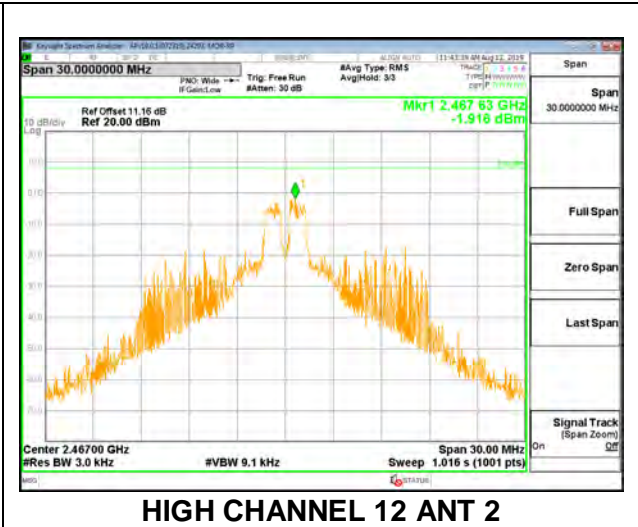
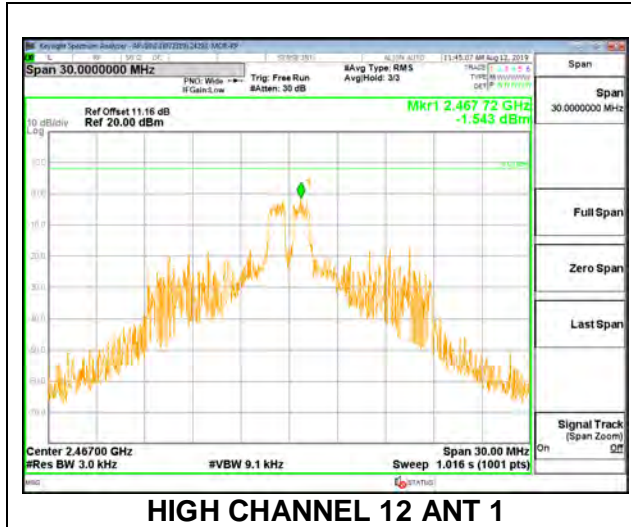
Antenna 1 +Chain 1 2TX MODE: 26-Tones, RU Index 4

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

Channel	Frequency (MHz)	Antenna 1 Measured (dBm/ 3kHz)	Antenna 2 Measured (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-2.709	-1.620	0.88	8.0	-7.1
Mid 6	2437	-1.543	-1.163	1.66	8.0	-6.3
High 11	2462	-1.858	-1.774	1.19	8.0	-6.8
High 12	2467	-1.543	-1.916	1.28	8.0	-6.7
High 13	2472	-1.429	-1.736	1.43	8.0	-6.6



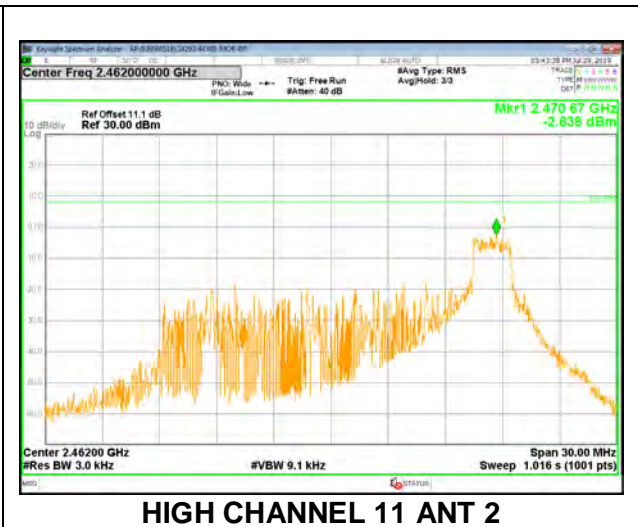
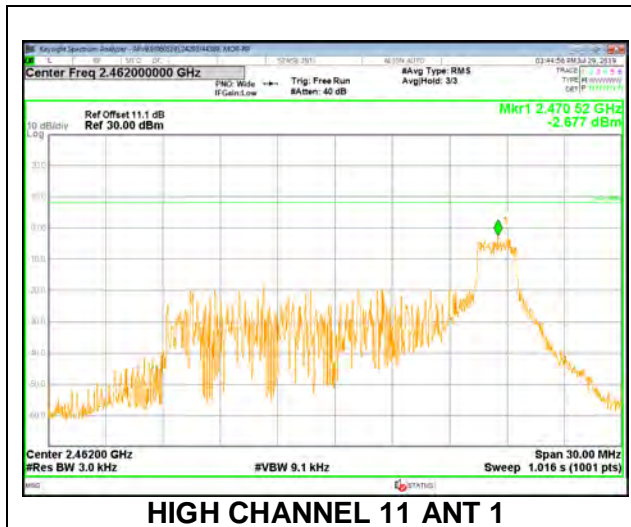
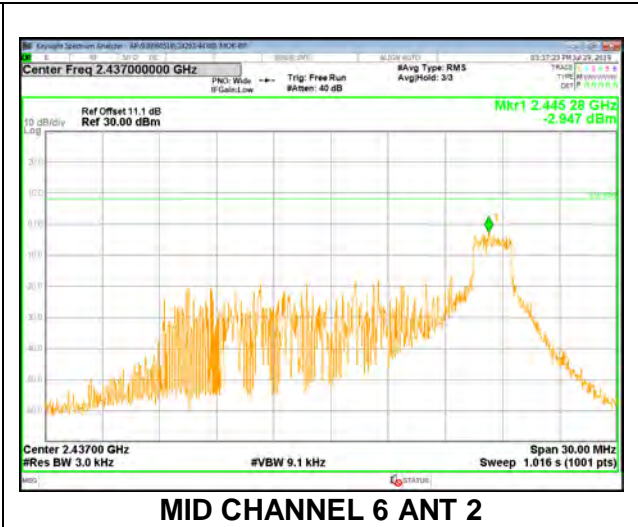
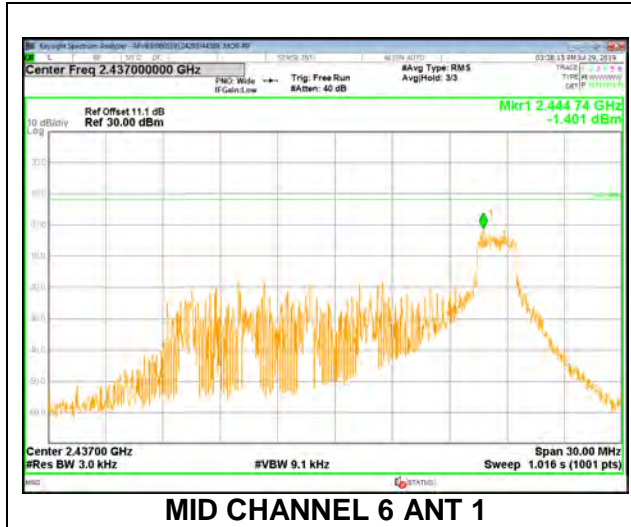
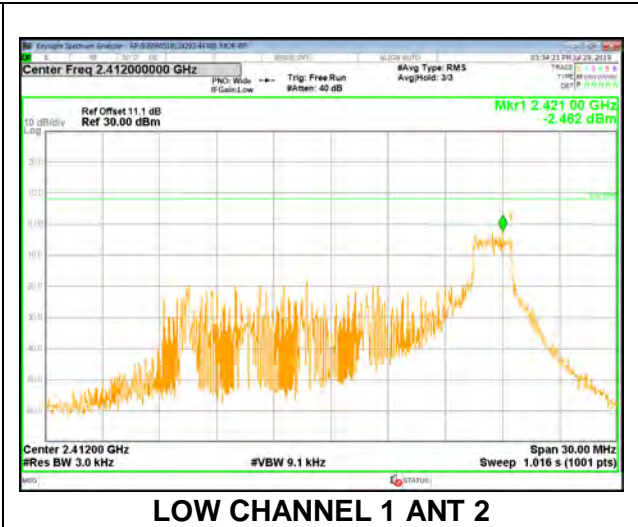
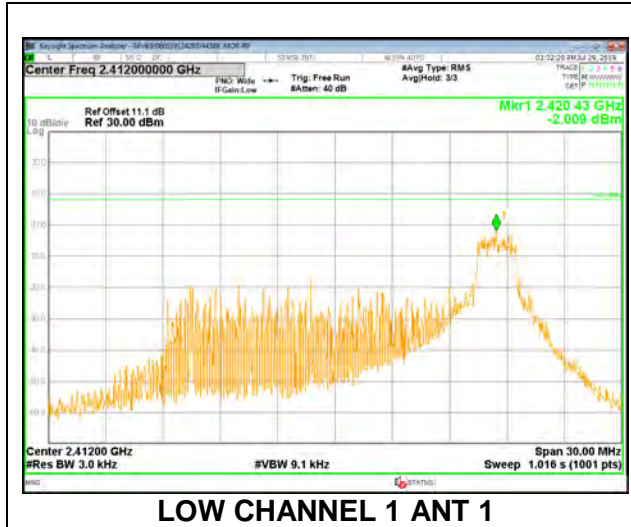


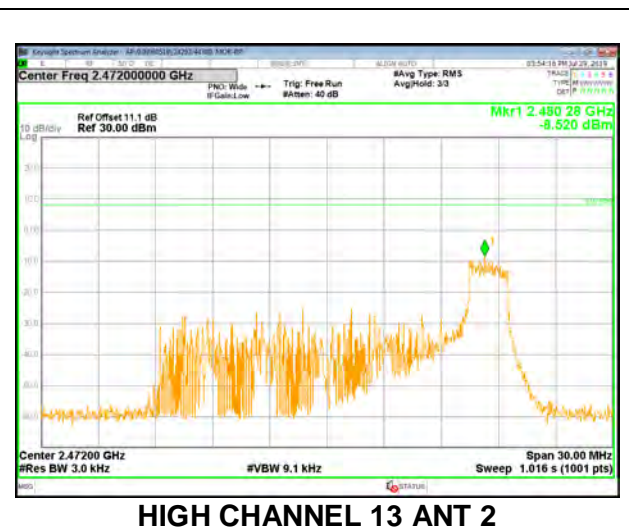
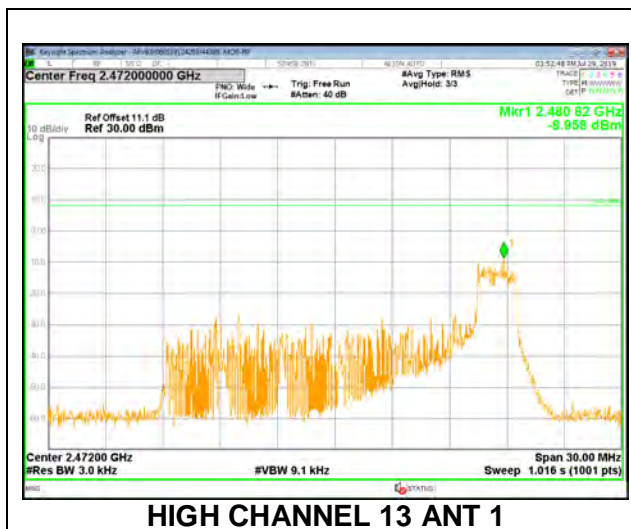
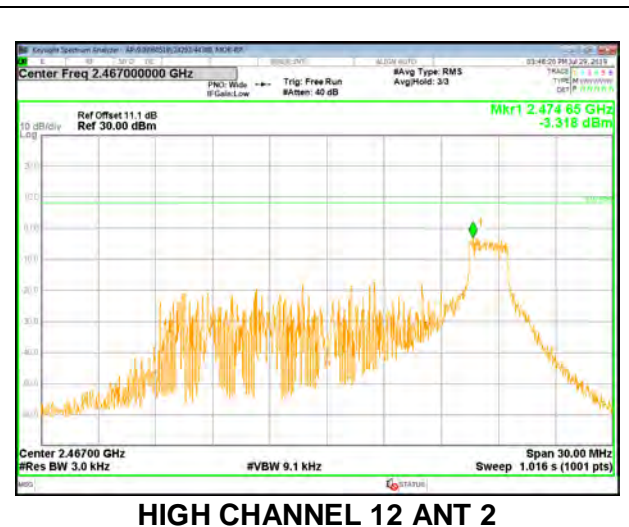
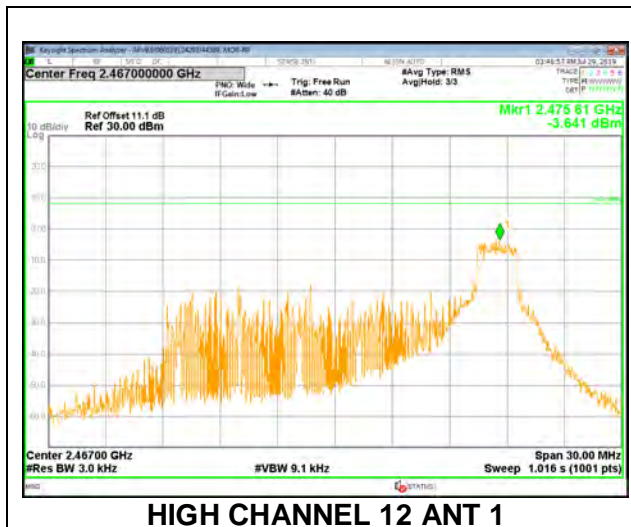
Antenna 1 +Chain 1 2TX MODE: 26-Tones, RU Index 8

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

Channel	Frequency (MHz)	Antenna 1 Measured (dBm/ 3kHz)	Antenna 2 Measured (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-2.009	-2.462	0.78	8.0	-7.2
Mid 6	2437	-1.401	-2.947	0.90	8.0	-7.1
High 11	2462	-2.677	-2.638	0.35	8.0	-7.6
High 12	2467	-3.641	-3.318	-0.47	8.0	-8.5
High 13	2472	-8.958	-8.520	-5.72	8.0	-13.7



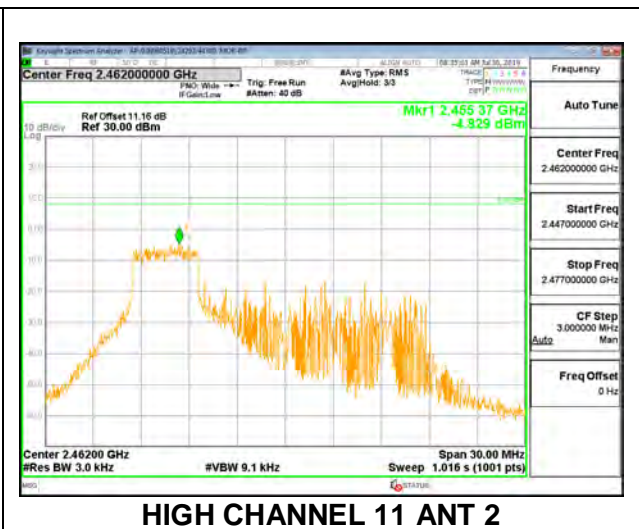
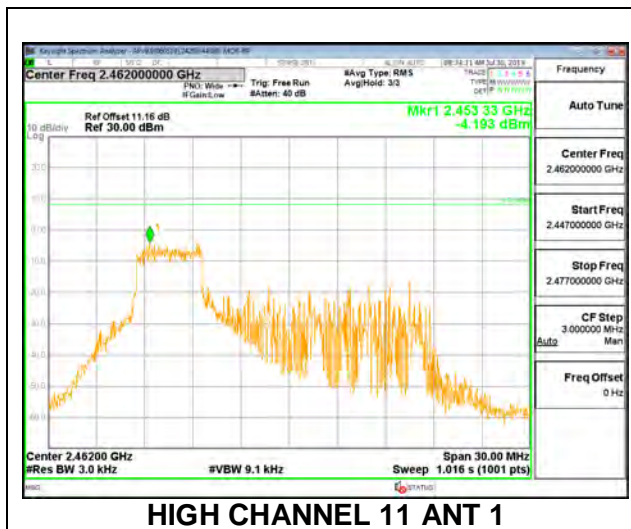
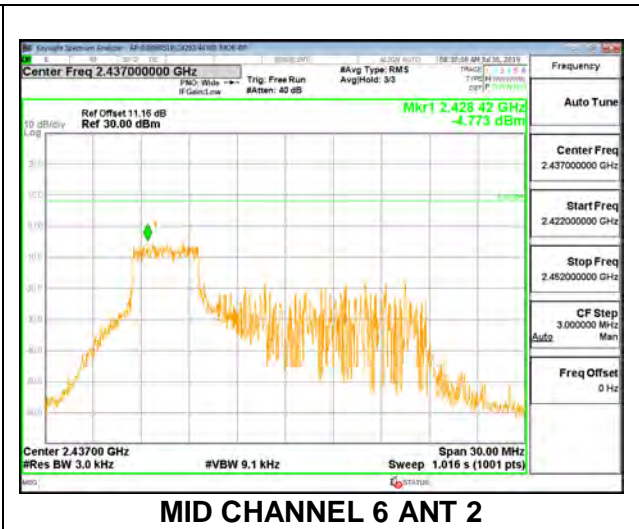
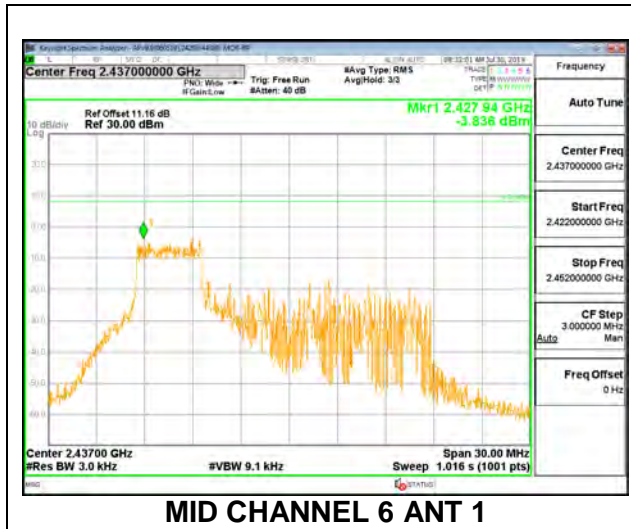
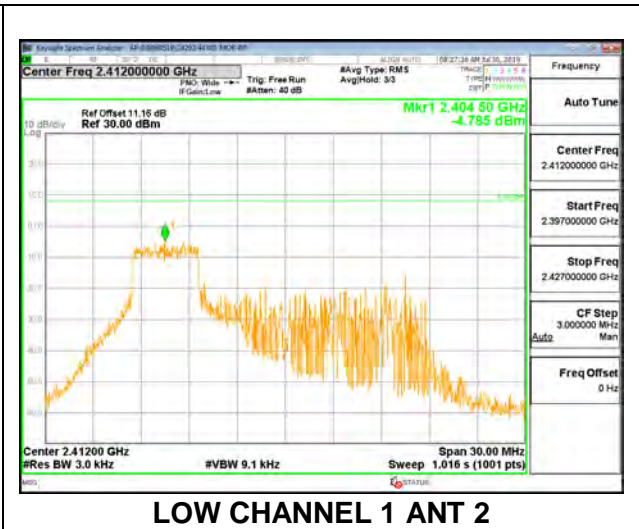
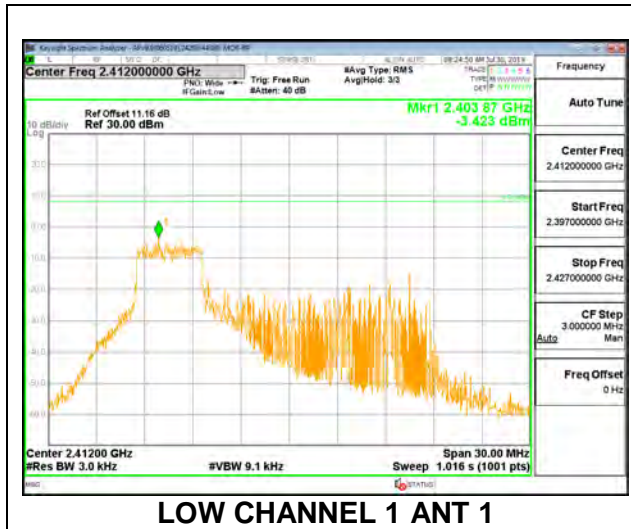


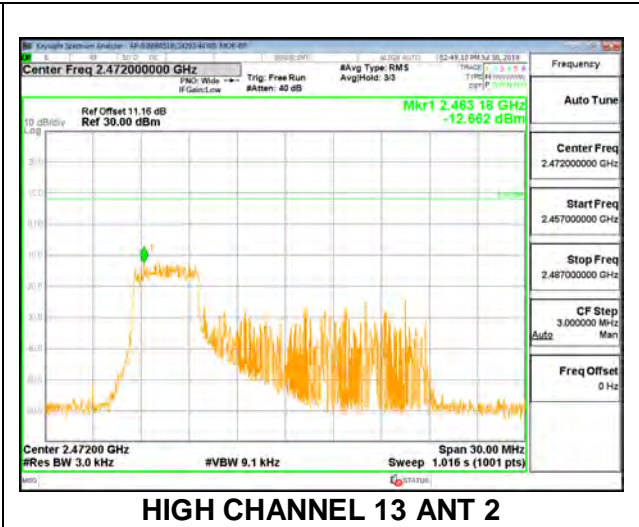
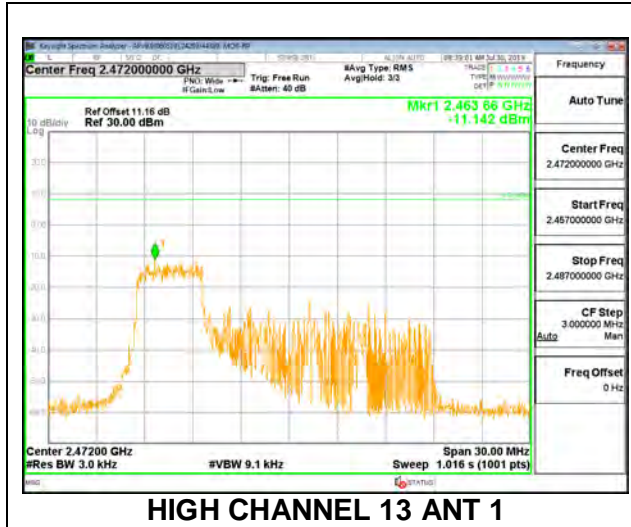
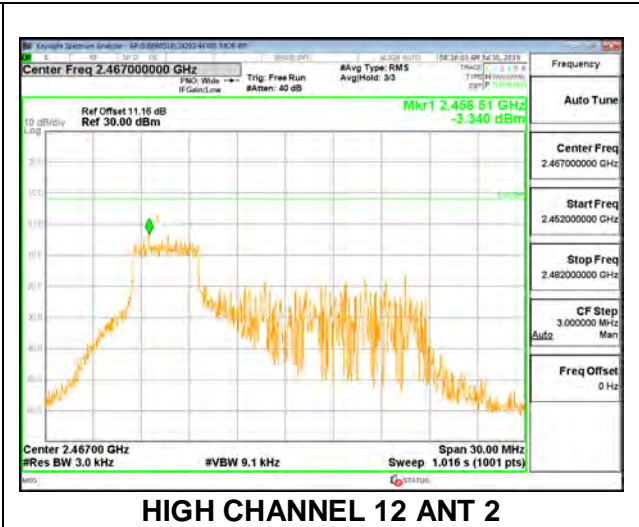
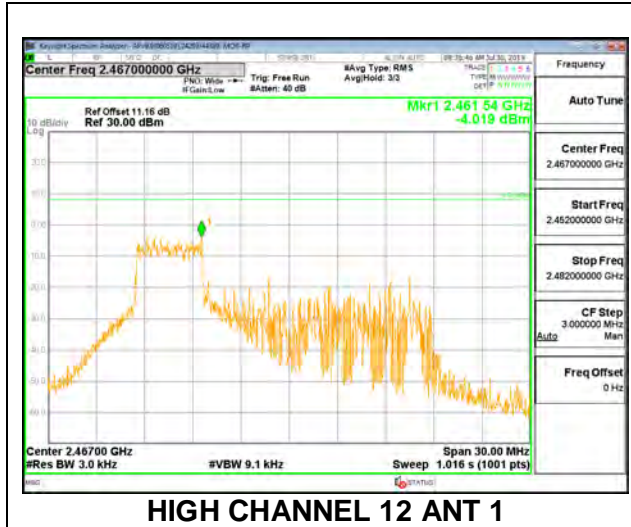
Antenna 1 +Chain 1 2TX MODE: 52-Tones, RU Index 37

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

Channel	Frequency (MHz)	Antenna 1 Measured (dBm/ 3kHz)	Antenna 2 Measured (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-3.423	-4.785	-1.04	8.0	-9.0
Mid 6	2437	-3.836	-4.773	-1.27	8.0	-9.3
High 11	2462	-4.193	-4.829	-1.49	8.0	-9.5
High 12	2467	-4.019	-3.340	-0.66	8.0	-8.7
High 13	2472	-11.142	-12.662	-8.83	8.0	-16.8



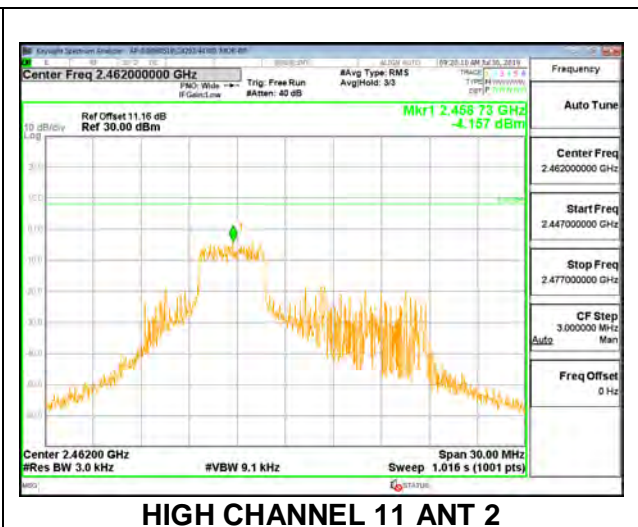
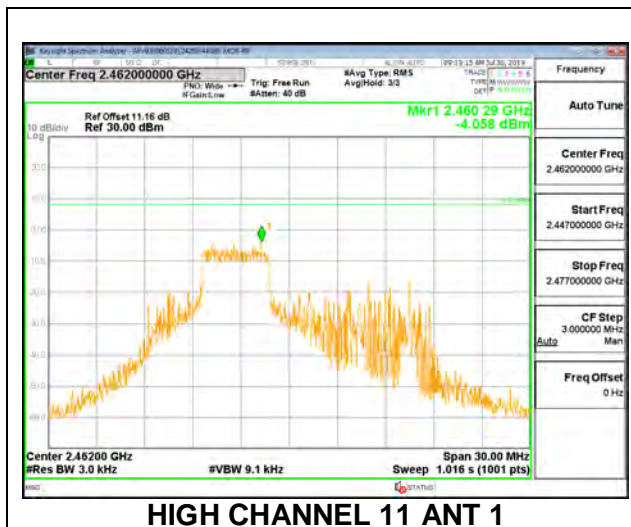
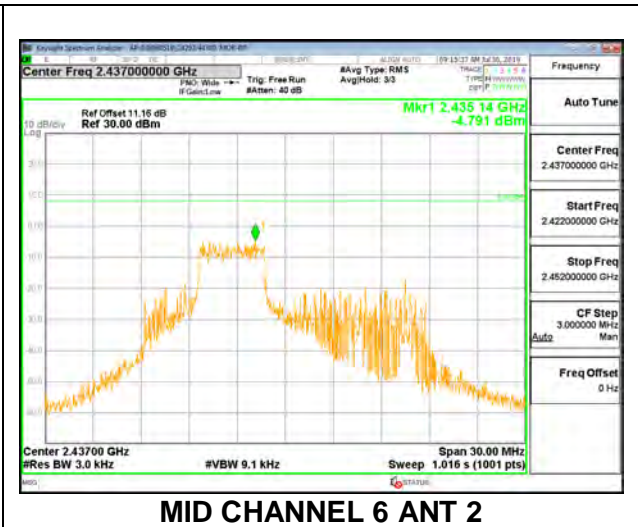
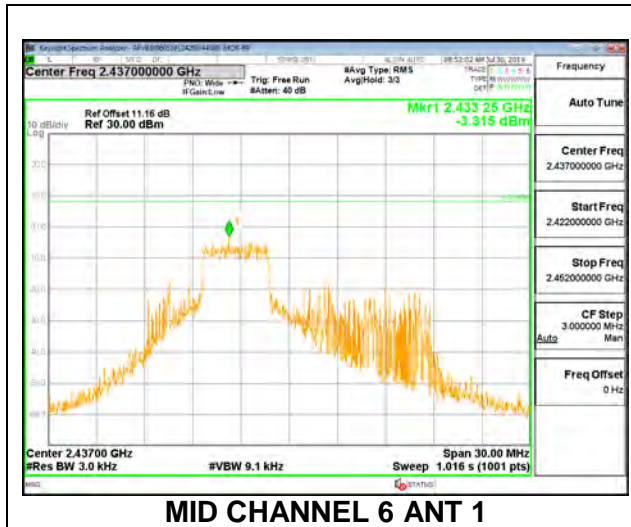
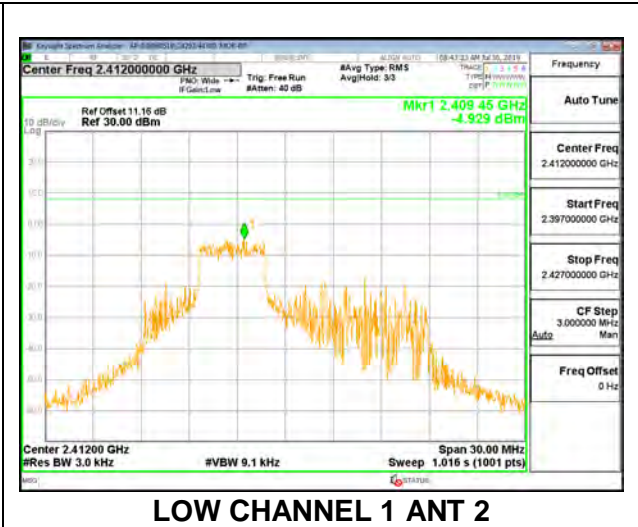
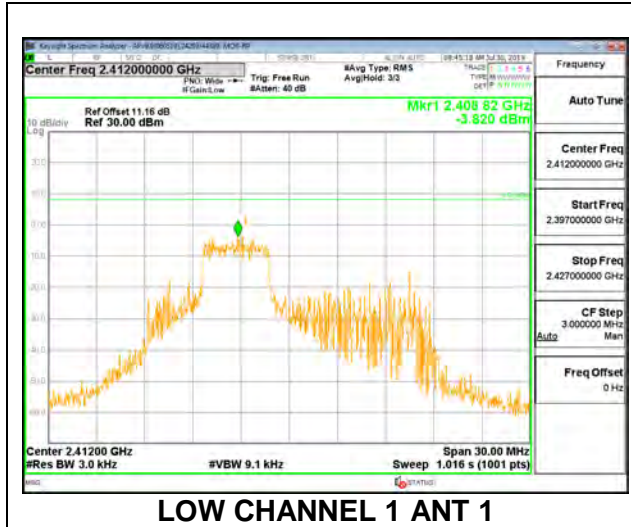


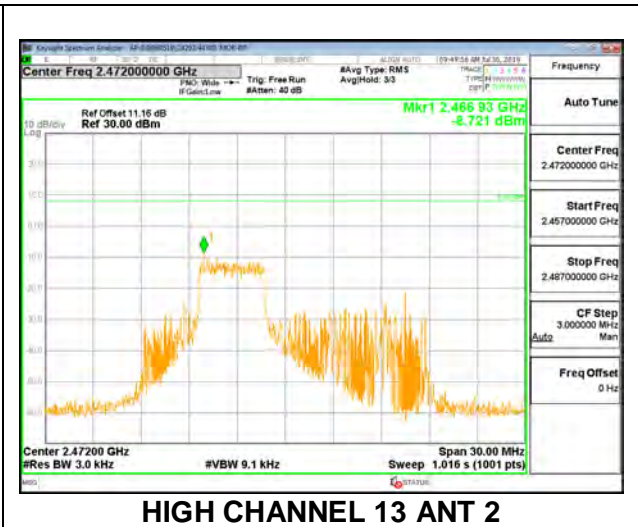
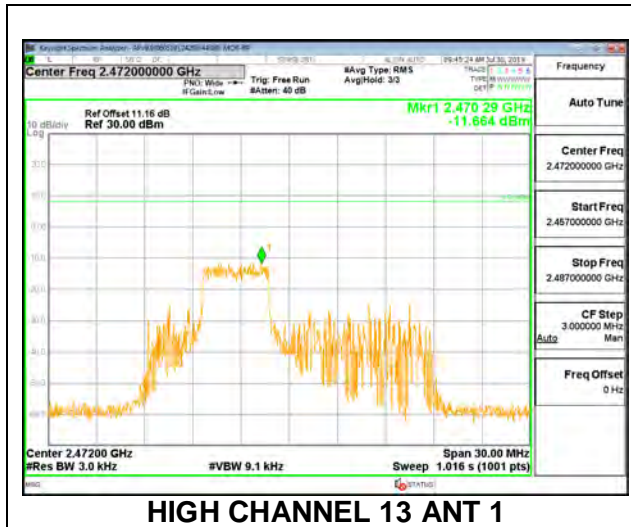
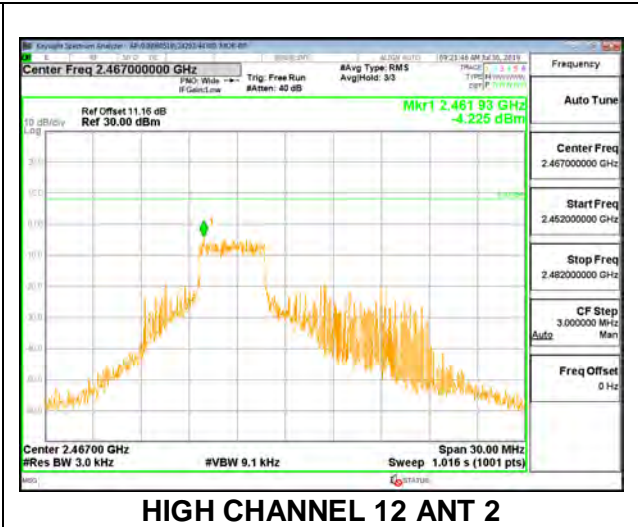
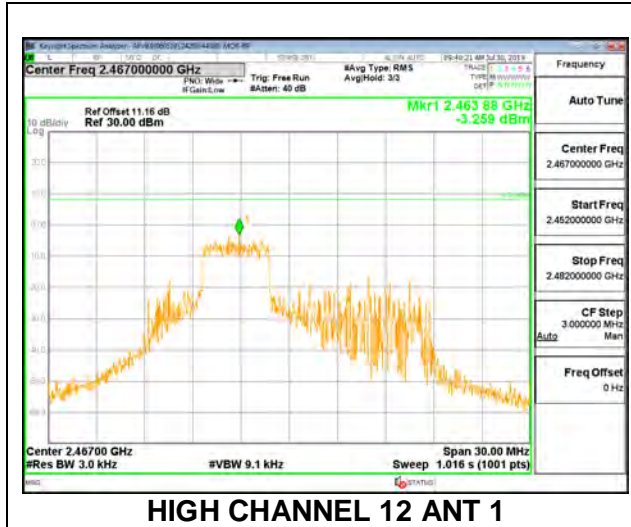
Antenna 1 +Chain 1 2TX MODE: 52-Tones, RU Index 38

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

Channel	Frequency (MHz)	Antenna 1 Measured (dBm/ 3kHz)	Antenna 2 Measured (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-3.820	-4.929	-1.33	8.0	-9.3
Mid 6	2437	-3.315	-4.791	-0.98	8.0	-9.0
High 11	2462	-4.058	-4.157	-1.10	8.0	-9.1
High 12	2467	-3.259	-4.225	-0.70	8.0	-8.7
High 13	2472	-11.664	-8.721	-6.94	8.0	-14.9



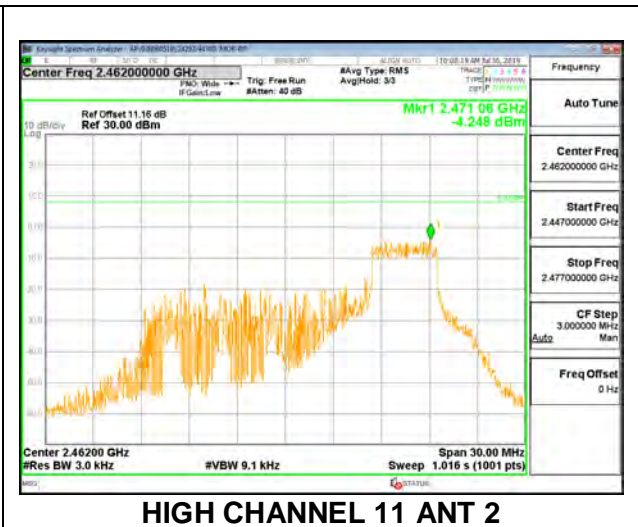
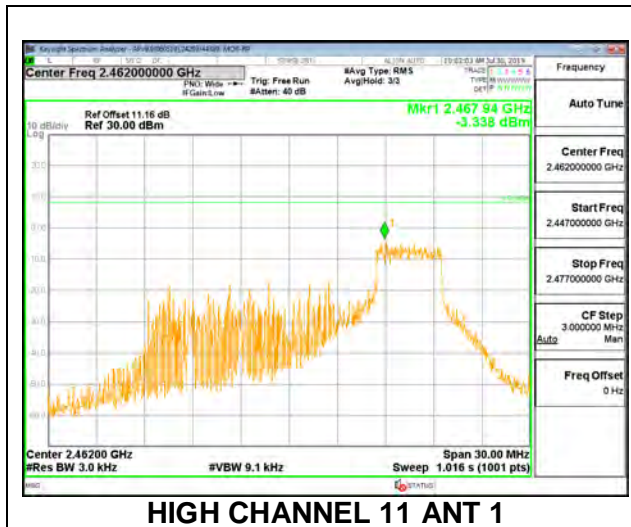
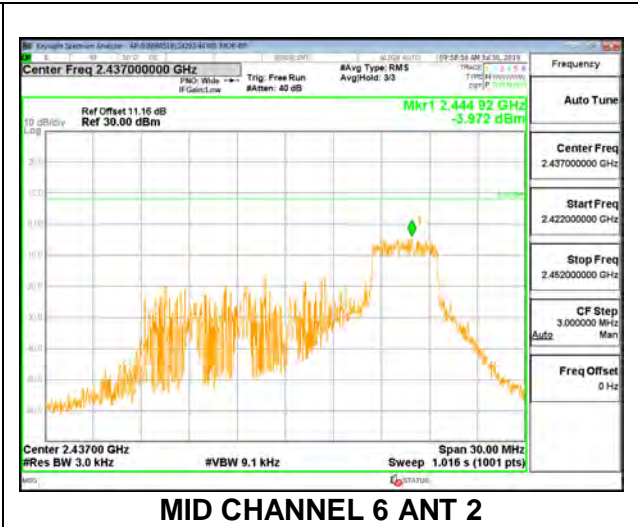
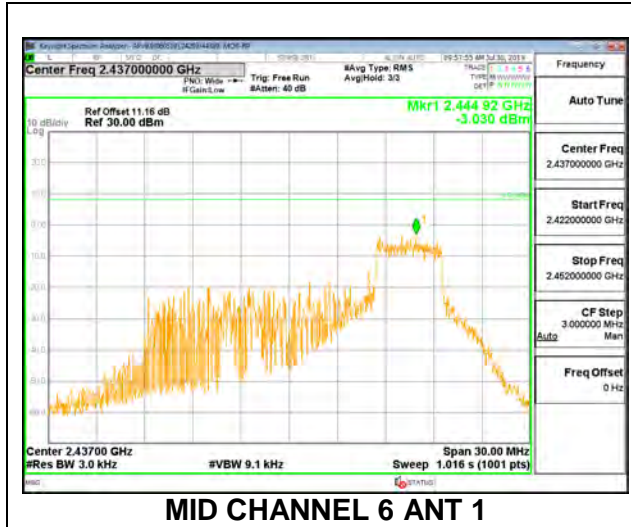
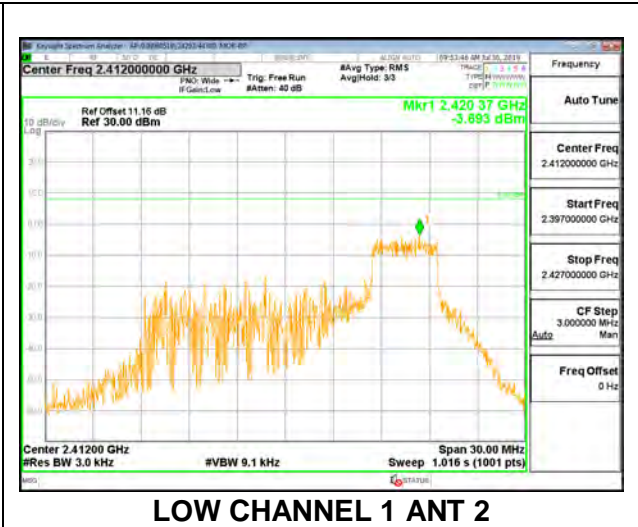
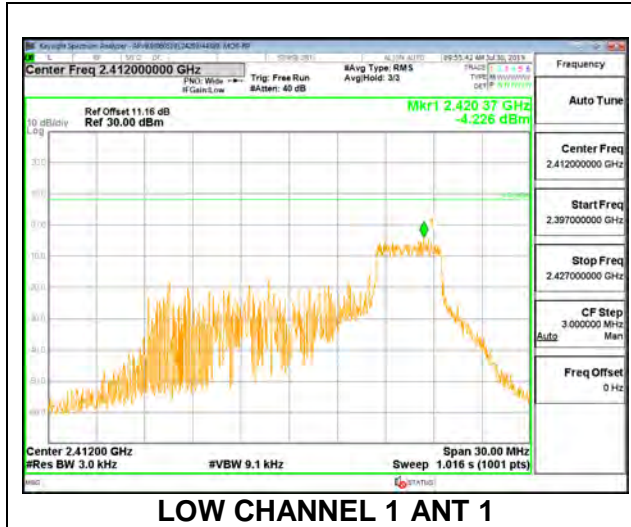


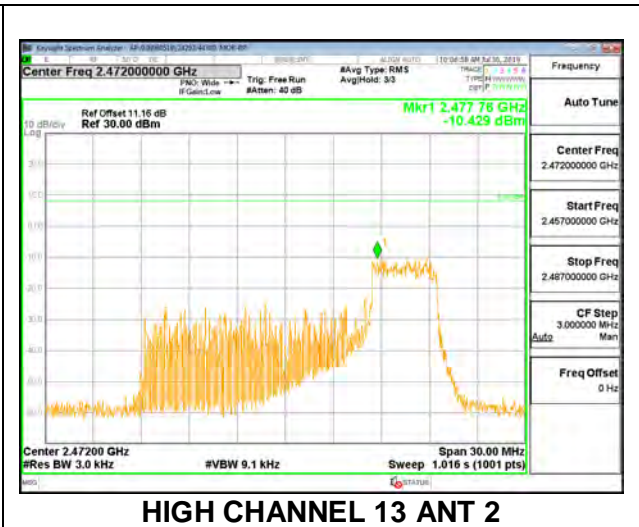
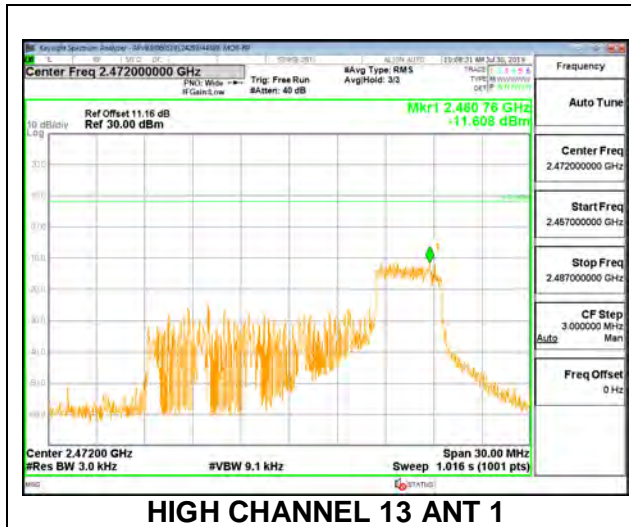
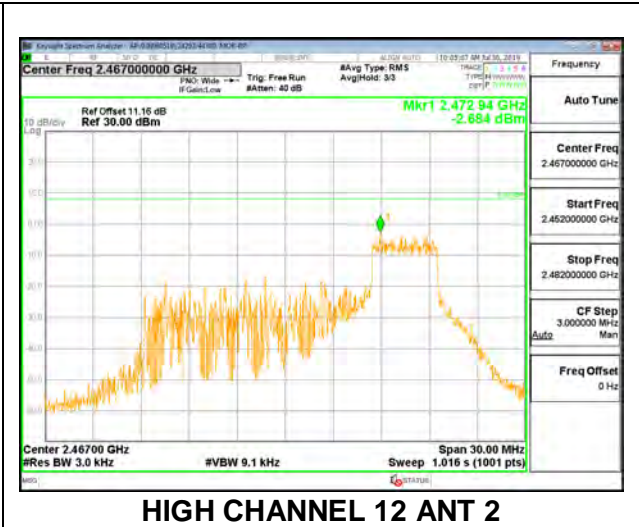
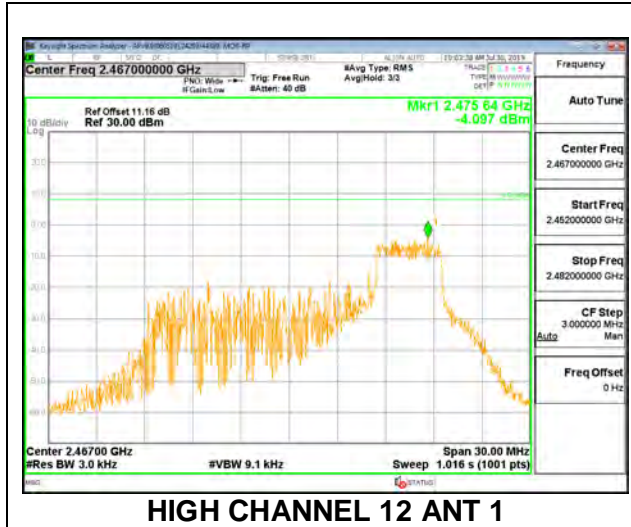
Antenna 1 +Chain 1 2TX MODE: 52-Tones, RU Index 40

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

Channel	Frequency (MHz)	Antenna 1 Measured (dBm/ 3kHz)	Antenna 2 Measured (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-4.226	-3.693	-0.94	8.0	-8.9
Mid 6	2437	-3.030	-3.972	-0.47	8.0	-8.5
High 11	2462	-3.338	-4.248	-0.76	8.0	-8.8
High 12	2467	-4.097	-2.684	-0.32	8.0	-8.3
High 13	2472	-11.608	-10.429	-7.97	8.0	-16.0



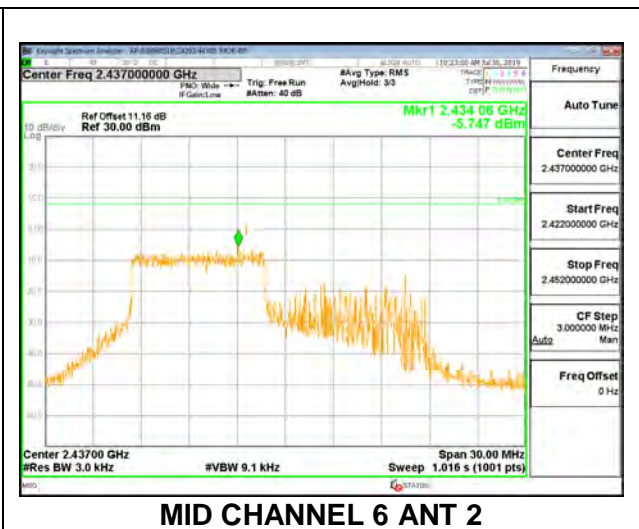
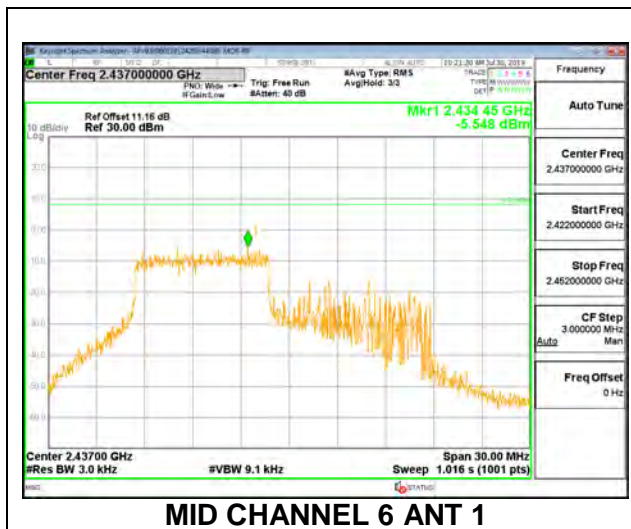
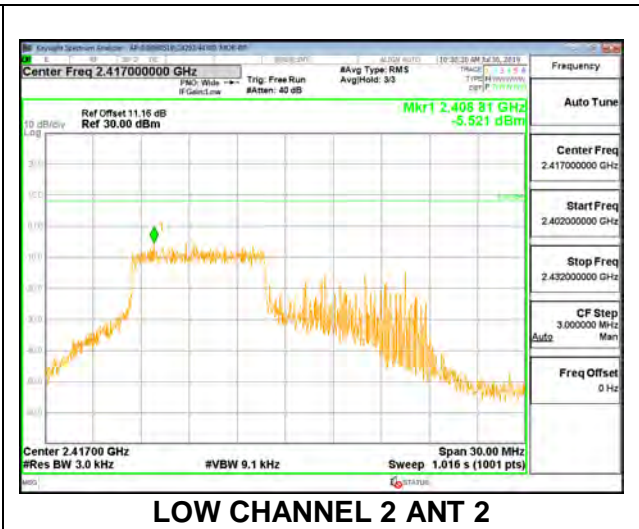
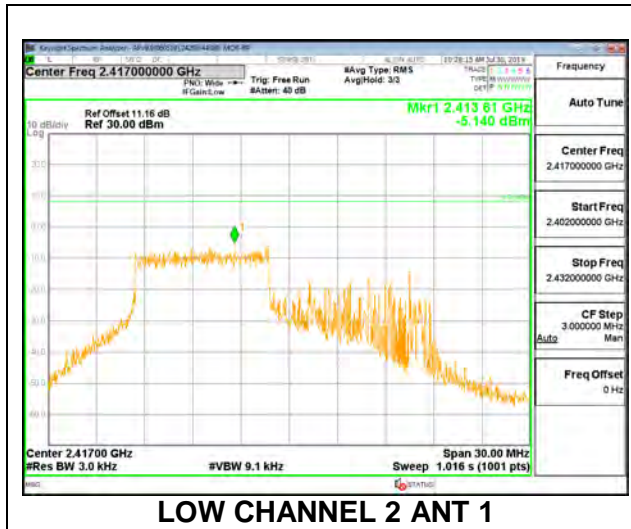
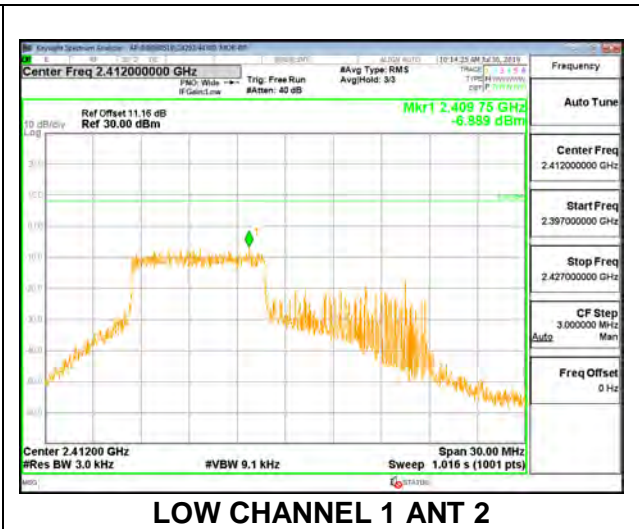
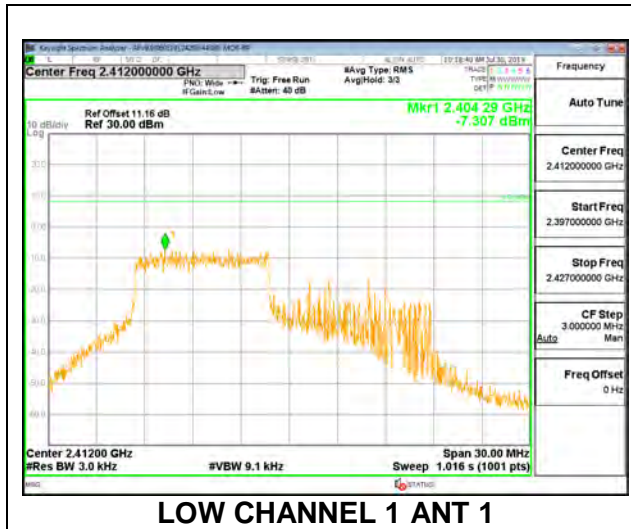


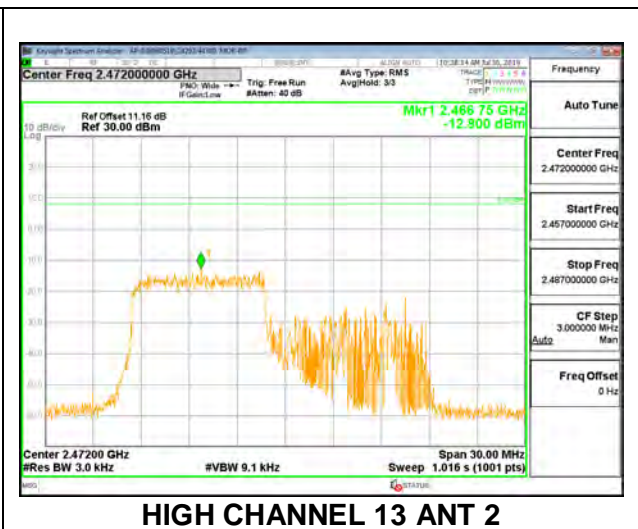
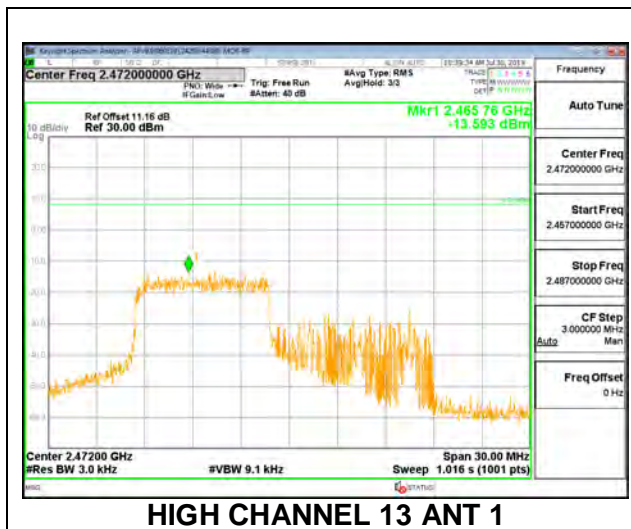
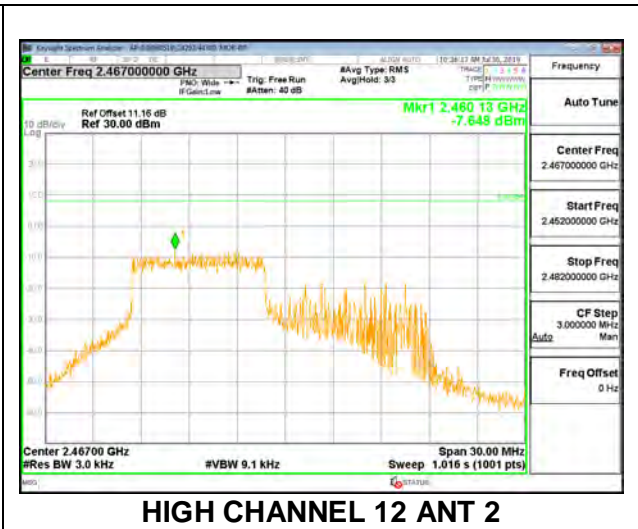
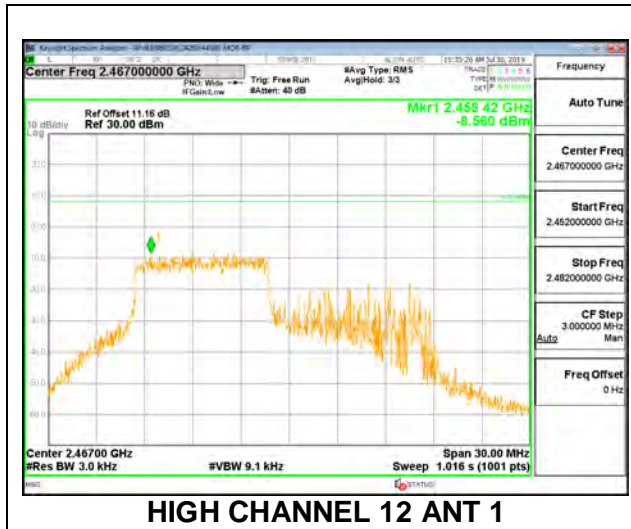
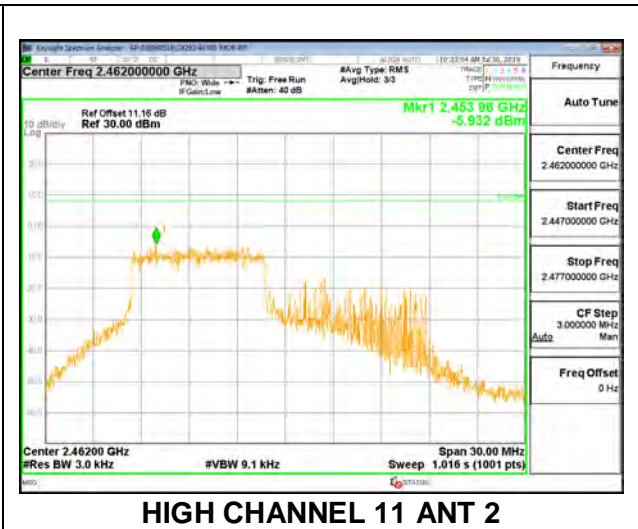
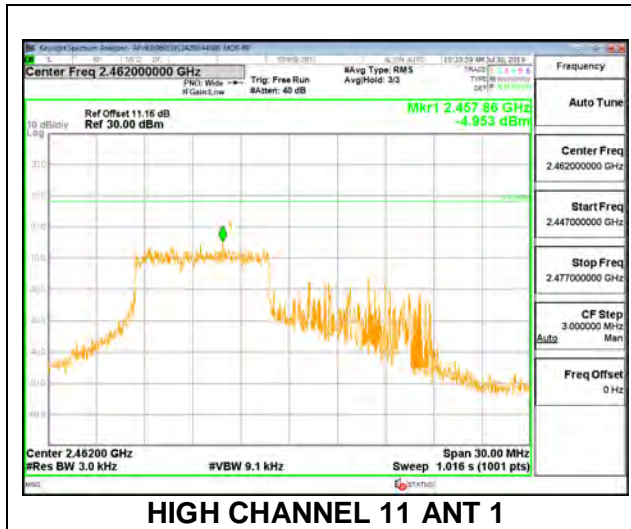
Antenna 1 +Chain 1 2TX MODE: 106-Tones, RU Index 53

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

Channel	Frequency (MHz)	Antenna 1 Measured (dBm/ 3kHz)	Antenna 2 Measured (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-7.307	-6.889	-4.08	8.0	-12.1
Low 2	2417	-5.140	-5.521	-2.32	8.0	-10.3
Mid 6	2437	-5.548	-5.747	-2.64	8.0	-10.6
High 11	2462	-4.953	-5.932	-2.40	8.0	-10.4
High 12	2467	-8.560	-7.648	-5.07	8.0	-13.1
High 13	2472	-13.593	-12.800	-10.17	8.0	-18.2



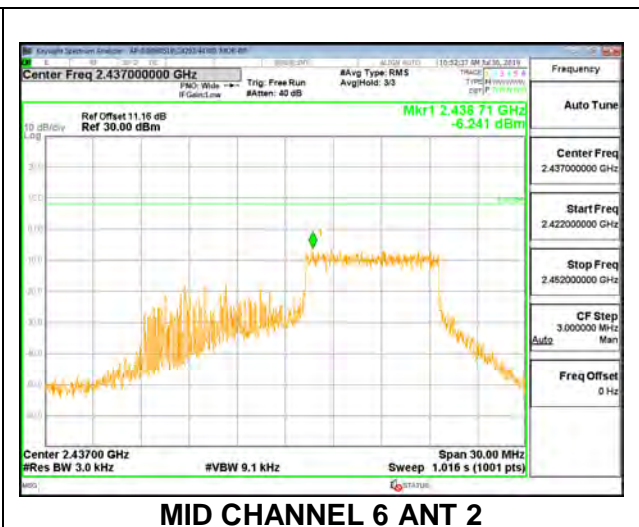
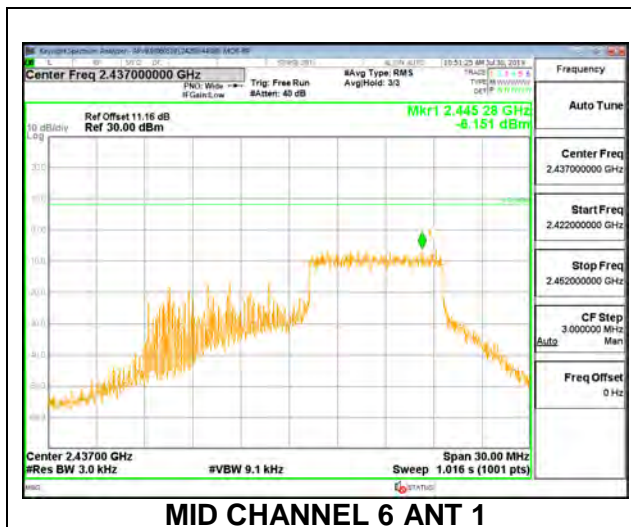
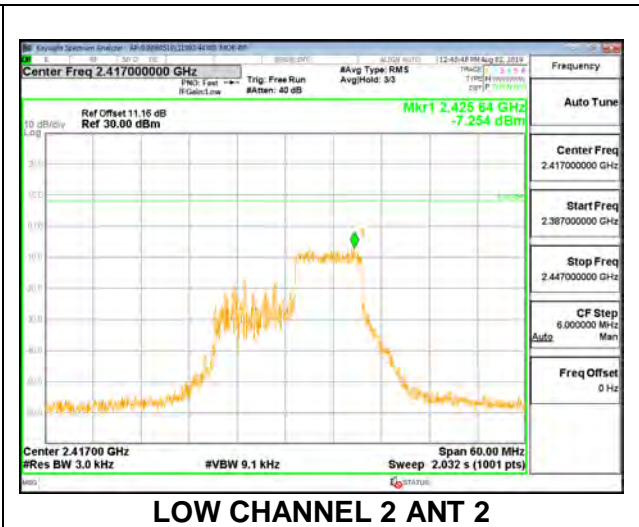
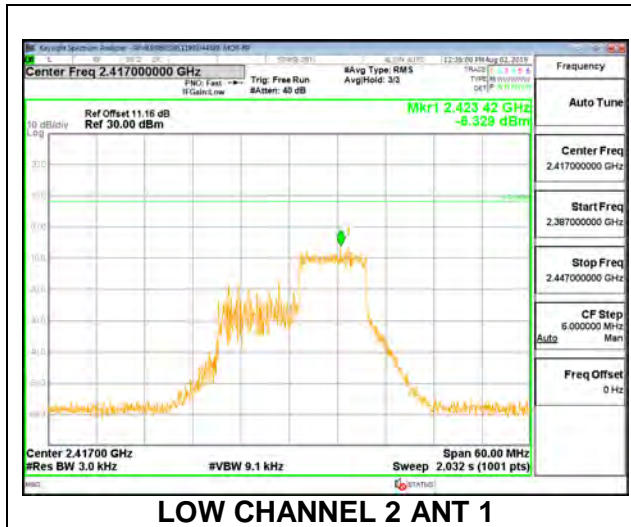
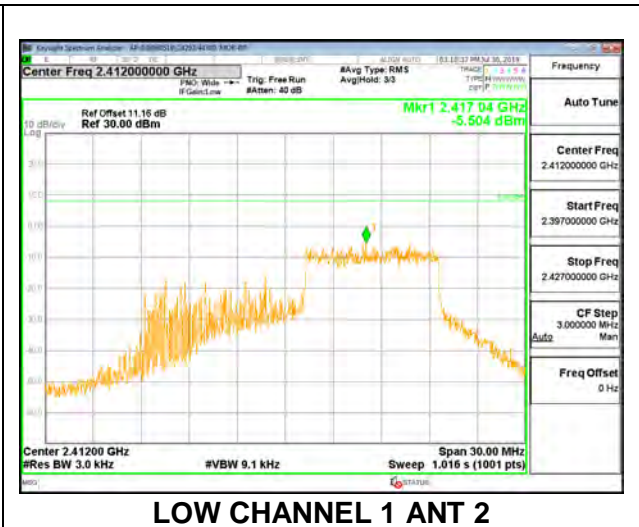
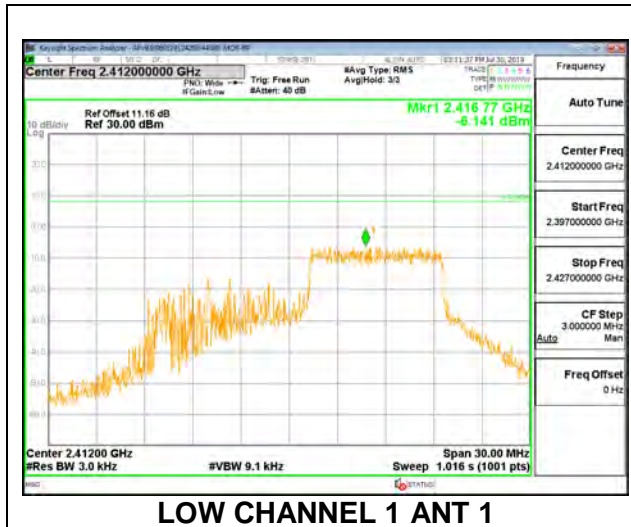


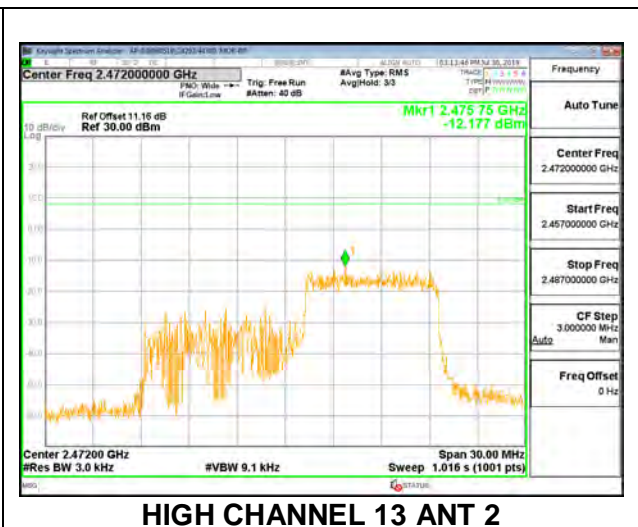
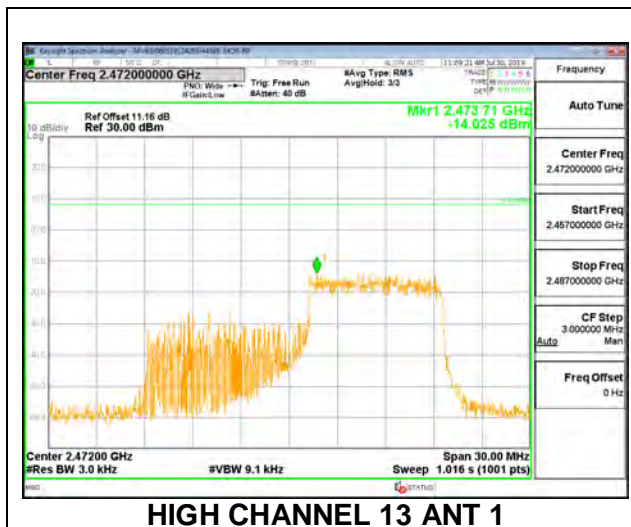
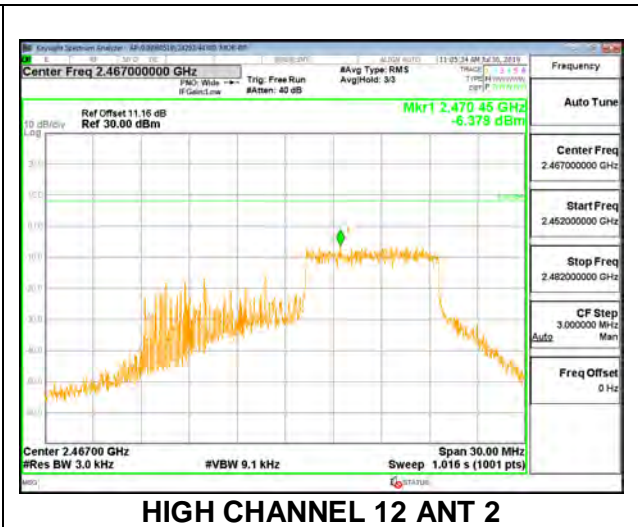
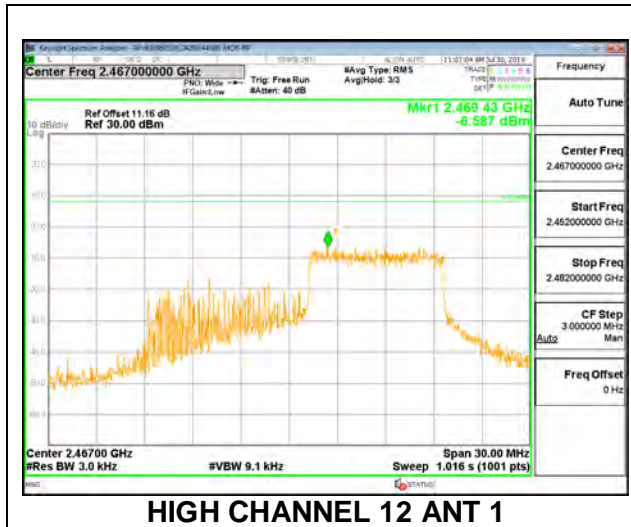
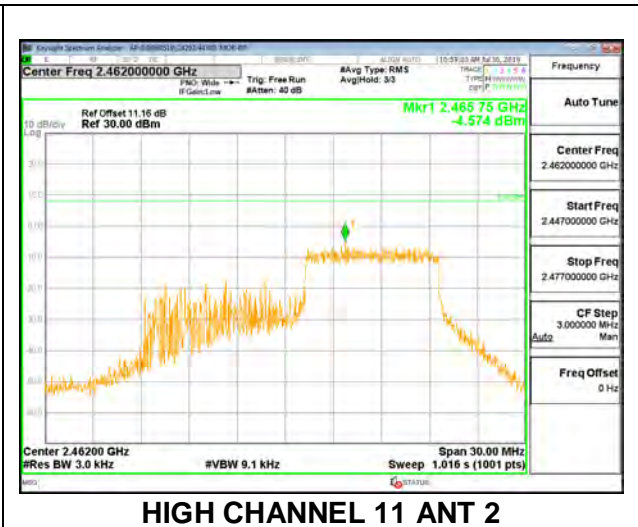
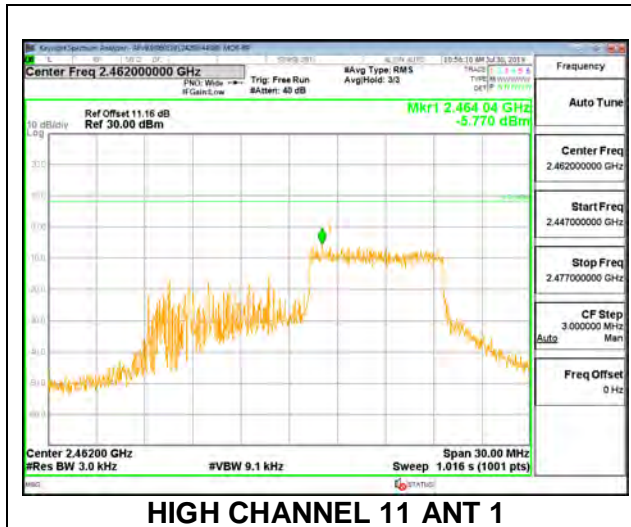
Antenna 1 +Chain 1 2TX MODE: 106-Tones, RU Index 54

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

Channel	Frequency (MHz)	Antenna 1 Measured (dBm/ 3kHz)	Antenna 2 Measured (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-6.141	-5.504	-2.80	8.0	-10.8
Low 2	2417	-6.329	-7.254	-3.76	8.0	-11.8
Mid 6	2437	-6.151	-6.241	-3.19	8.0	-11.2
High 11	2462	-5.770	-4.574	-2.12	8.0	-10.1
High 12	2467	-6.587	-6.378	-3.47	8.0	-11.5
High 13	2472	-14.025	-12.177	-9.99	8.0	-18.0



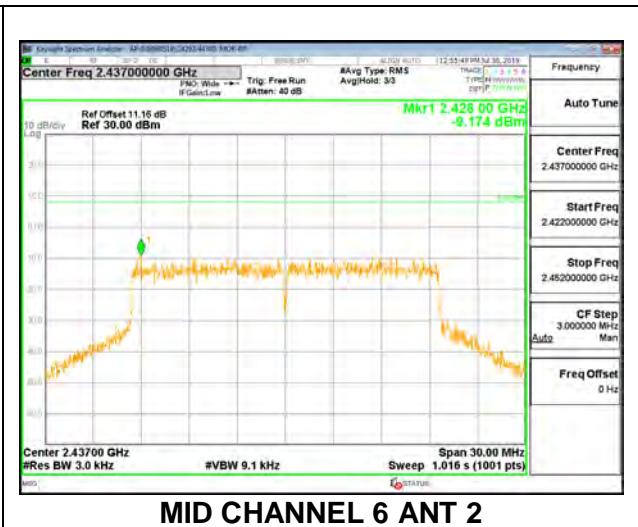
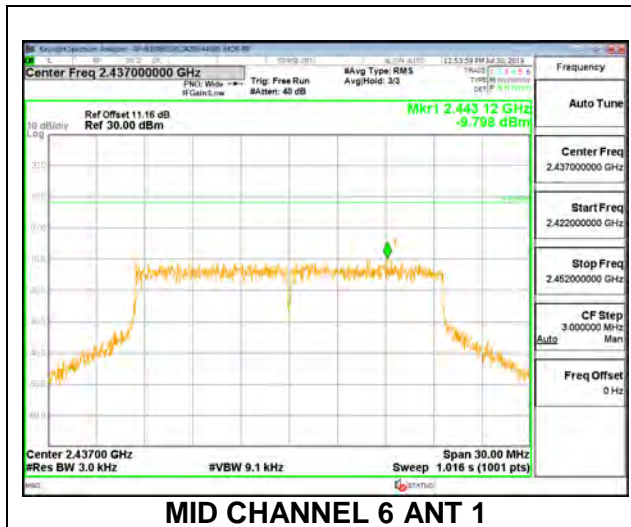
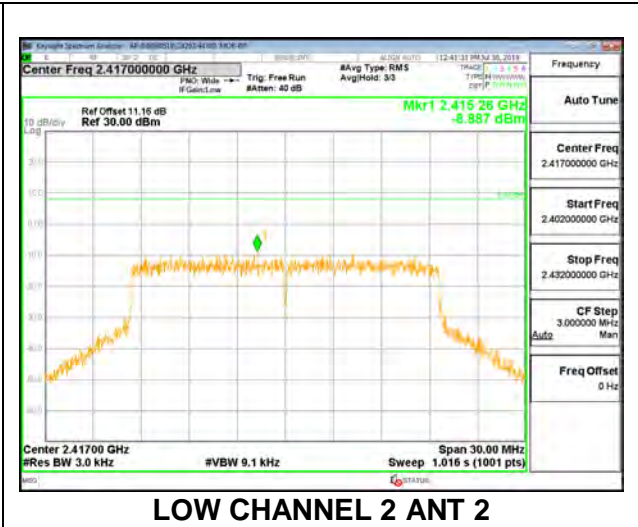
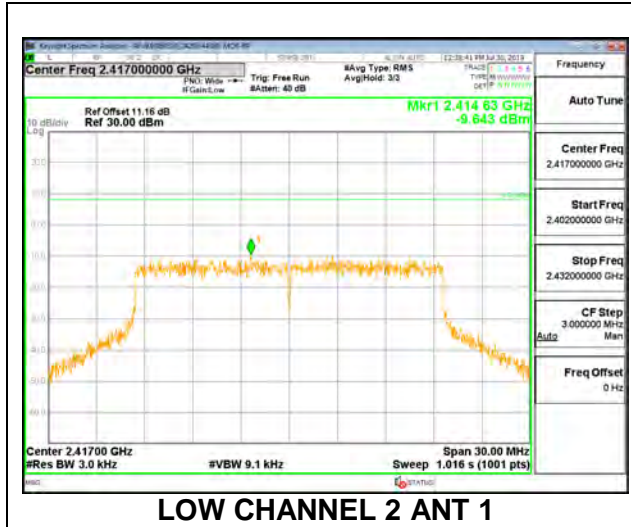
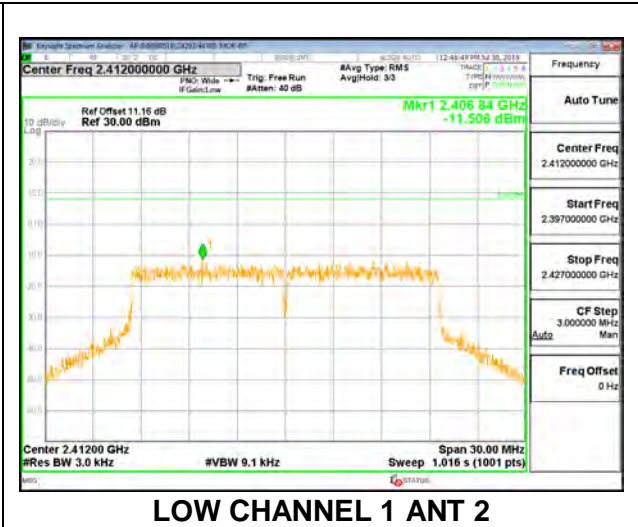
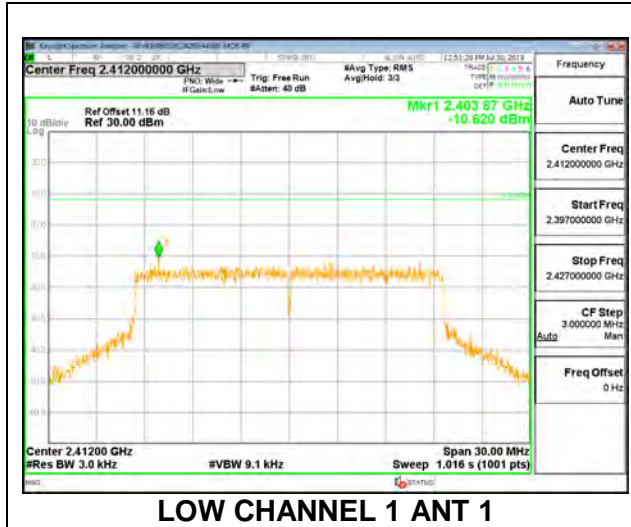


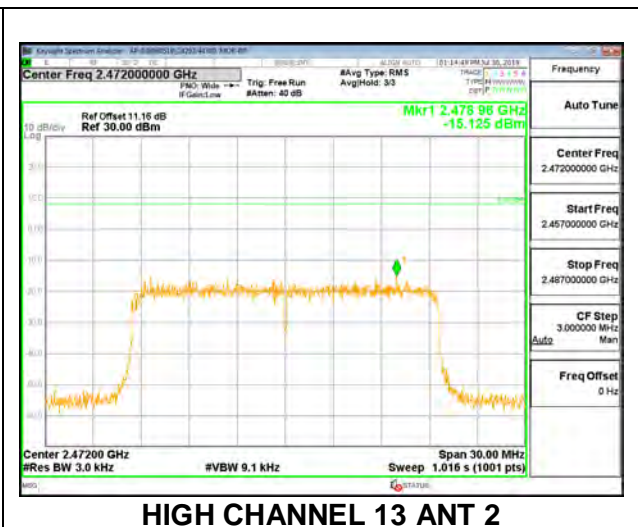
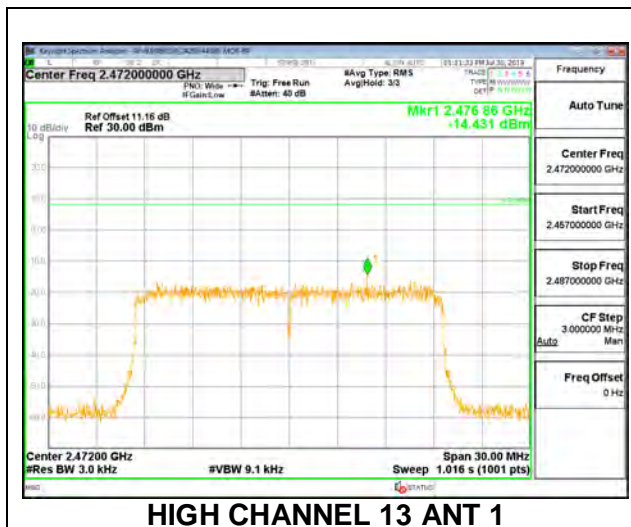
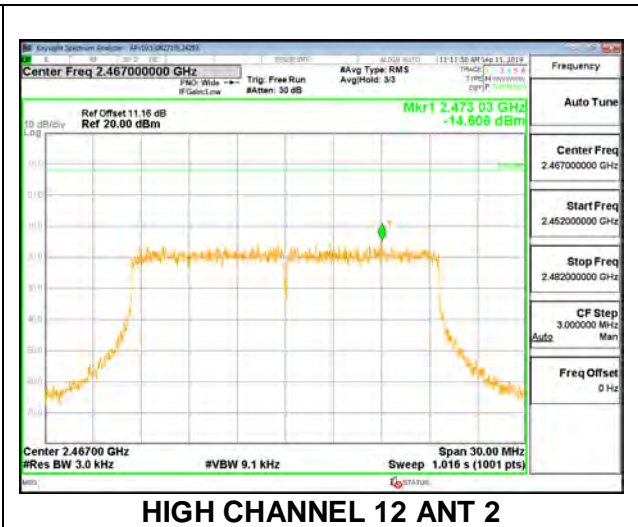
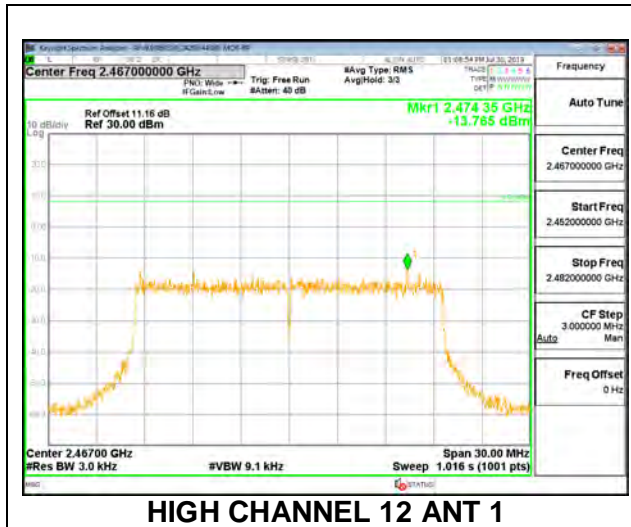
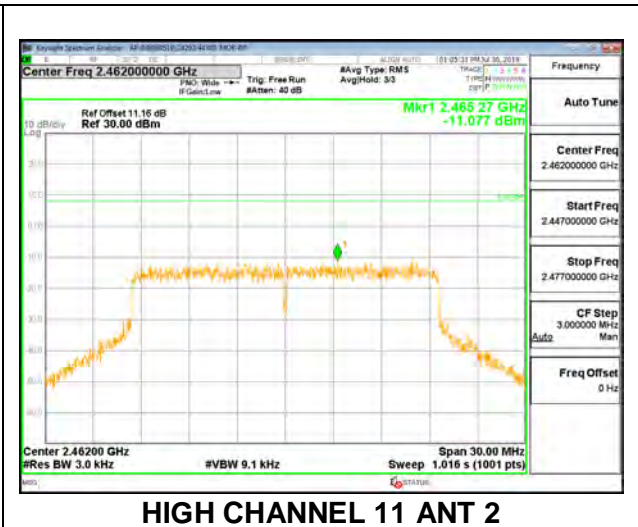
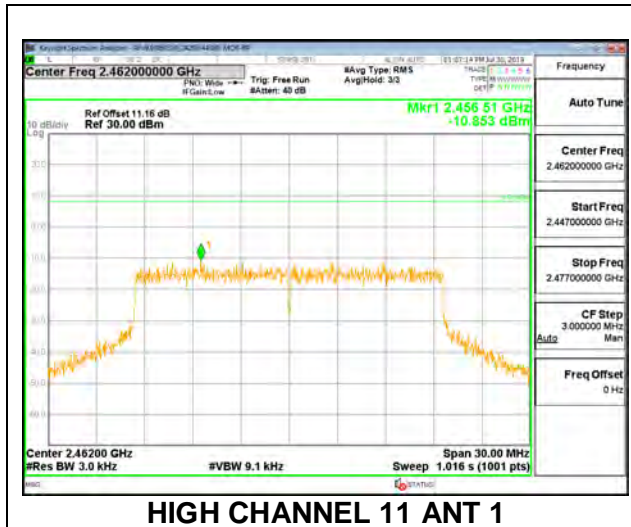
Antenna 1 +Chain 1 2TX MODE: 242-Tone RU Index 61

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

Channel	Frequency (MHz)	Antenna 1 Measured (dBm/ 3kHz)	Antenna 2 Measured (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-10.620	-11.506	-8.03	8.0	-16.0
Low 2	2417	-9.643	-8.887	-6.24	8.0	-14.2
Mid 6	2437	-9.798	-9.174	-6.46	8.0	-14.5
High 11	2462	-10.853	-11.077	-7.95	8.0	-16.0
High 12	2467	-13.765	-14.606	-11.15	8.0	-19.2
High 13	2472	-14.431	-15.125	-11.75	8.0	-19.8



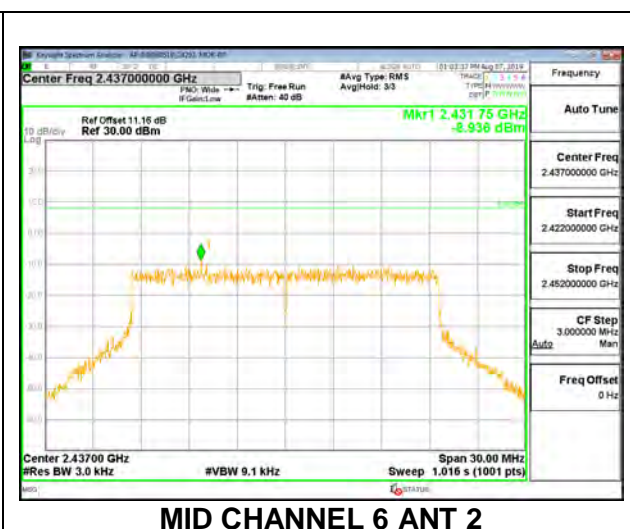
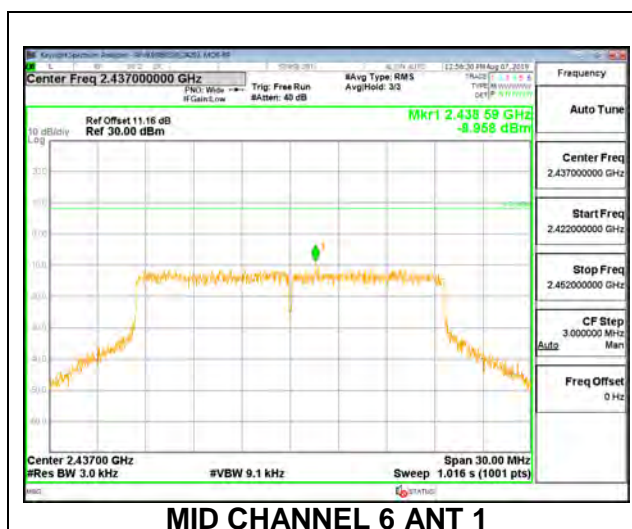
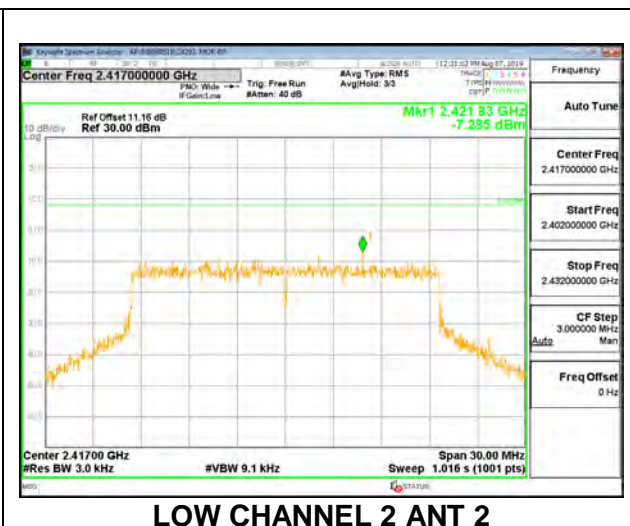
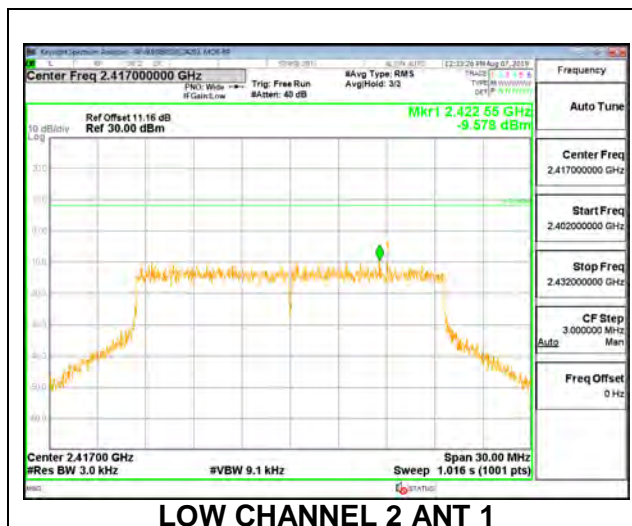
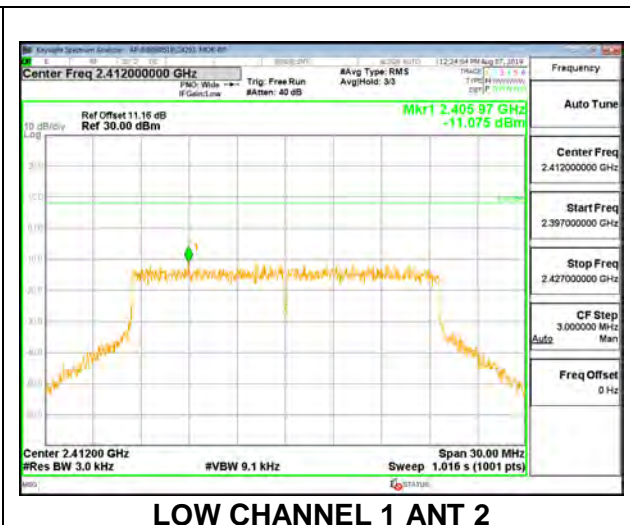
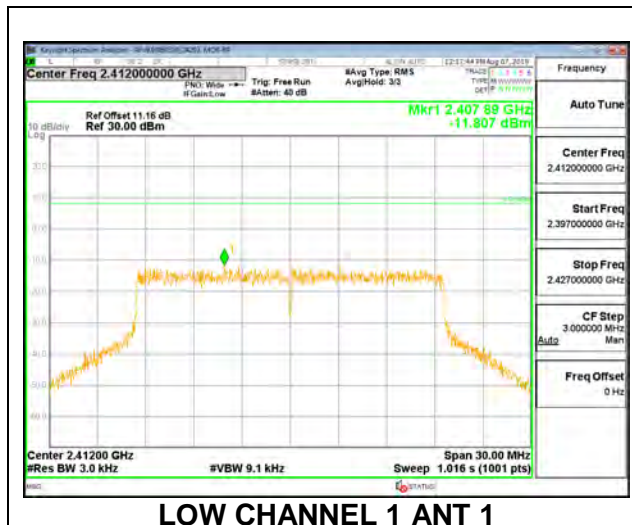


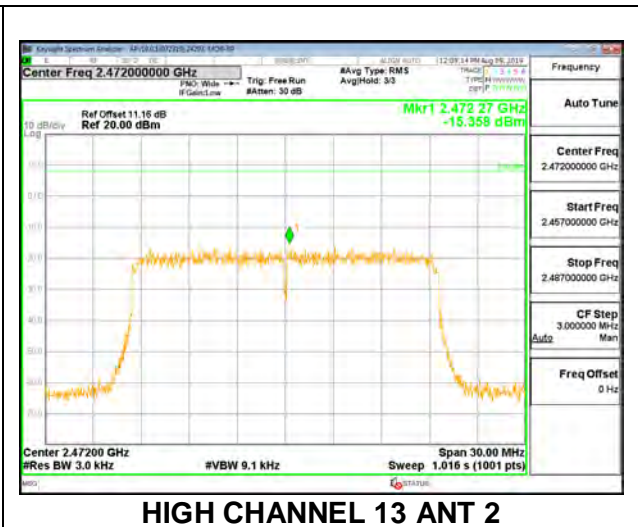
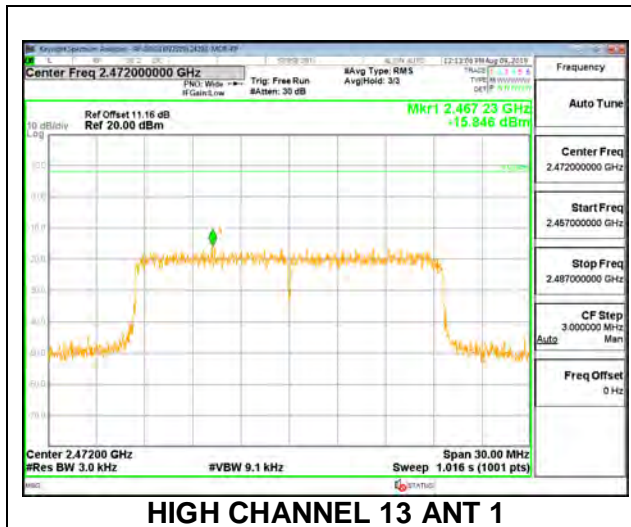
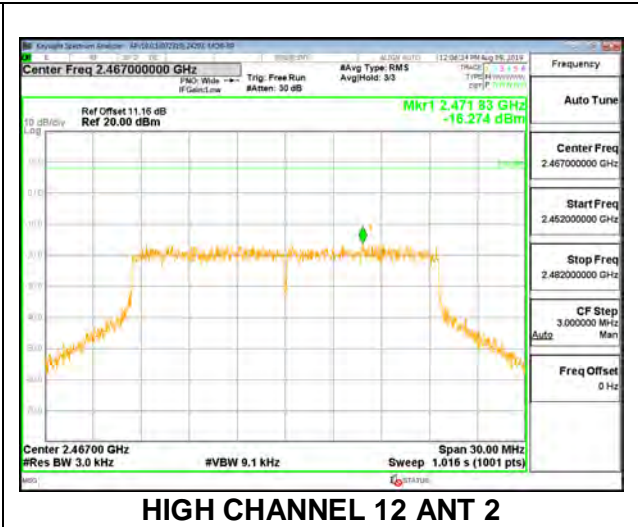
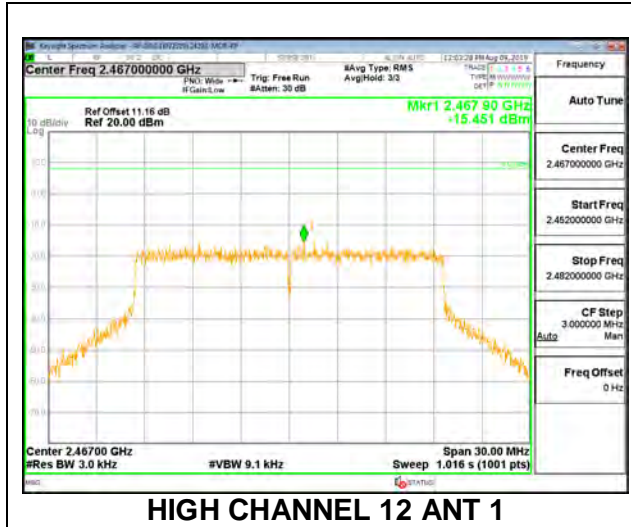
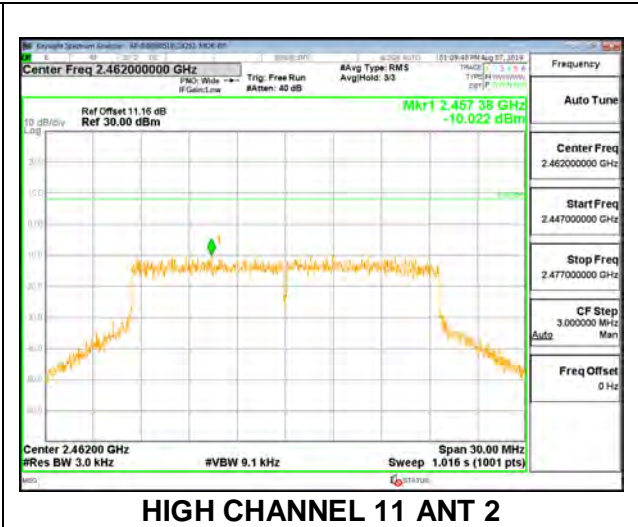
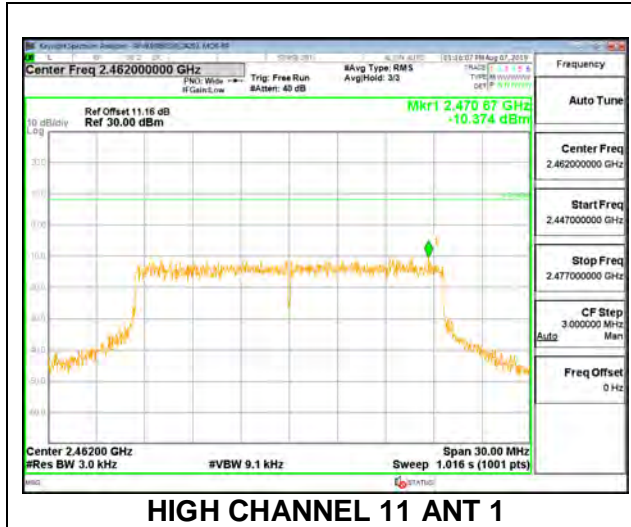
Antenna 1 +Chain 1 2TX MODE: SU

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

Channel	Frequency (MHz)	Antenna 1 Measured (dBm/ 3kHz)	Antenna 2 Measured (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-11.807	-11.075	-8.42	8.0	-16.4
Low 2	2417	-9.578	-7.285	-5.27	8.0	-13.3
Mid 6	2437	-8.958	-8.936	-5.94	8.0	-13.9
High 11	2462	-10.374	-10.022	-7.18	8.0	-15.2
High 12	2467	-15.451	-16.274	-12.83	8.0	-20.8
High 13	2472	-15.846	-15.358	-12.58	8.0	-20.6





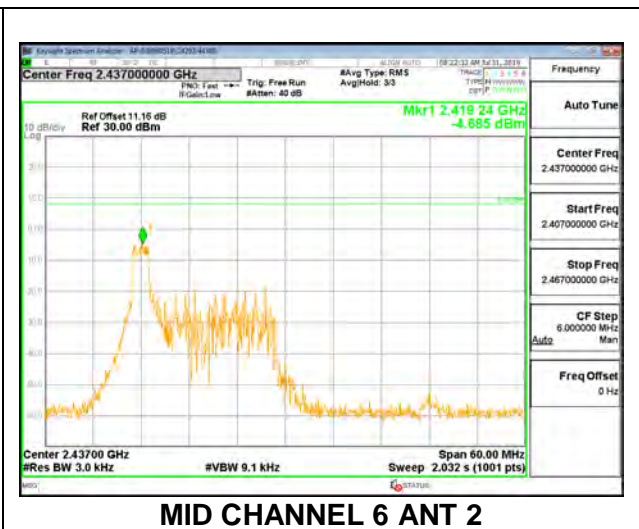
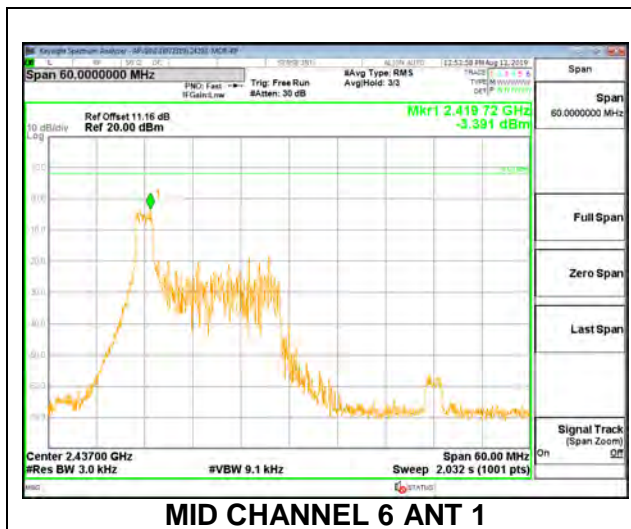
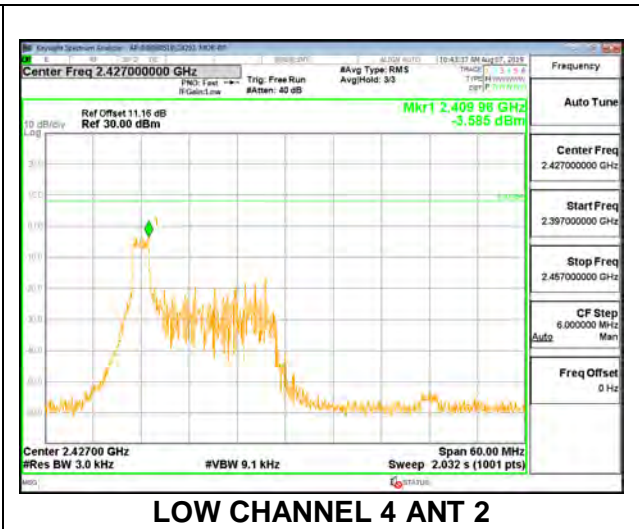
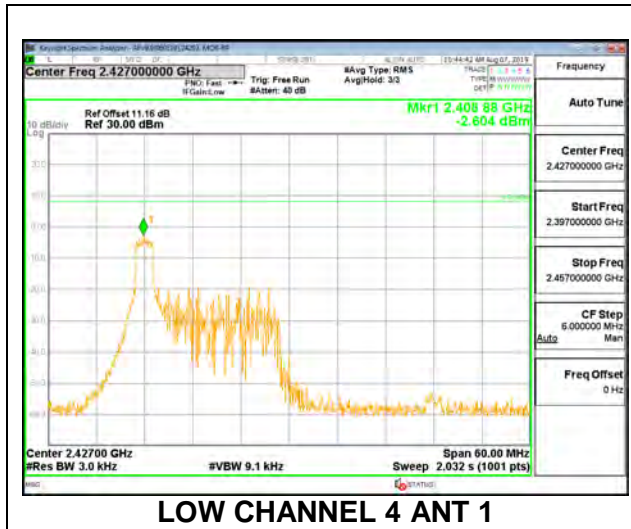
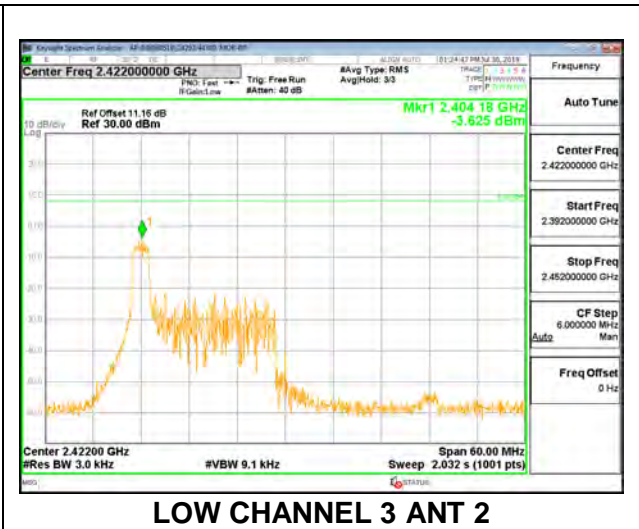
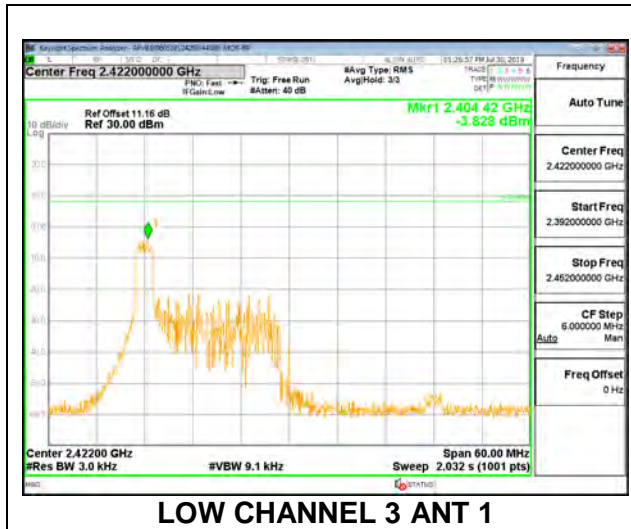
9.2.2. 802.11ax HE40 MODE 2TX

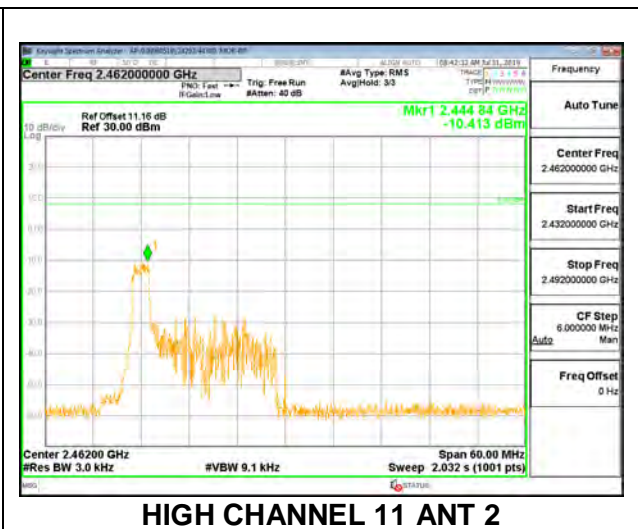
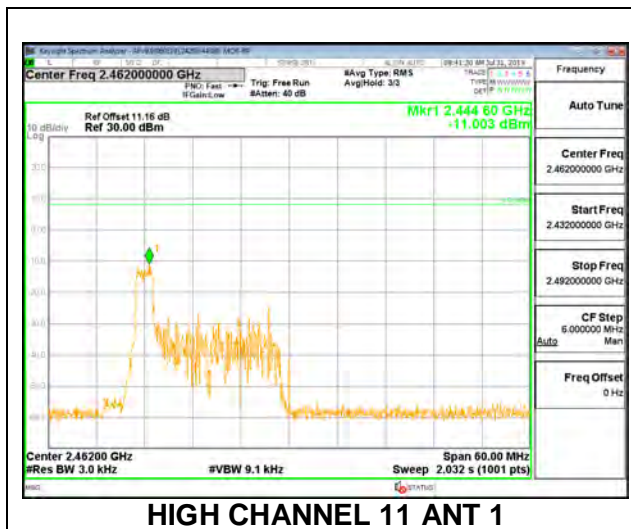
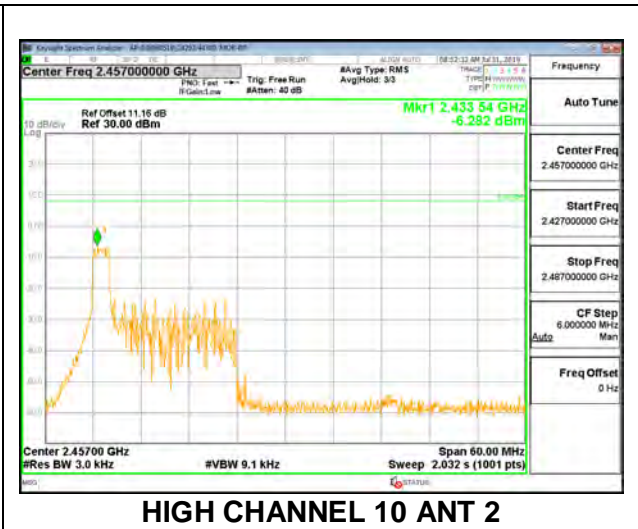
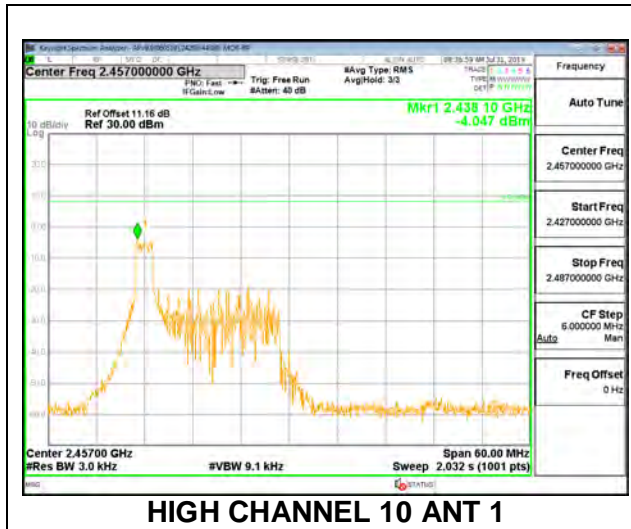
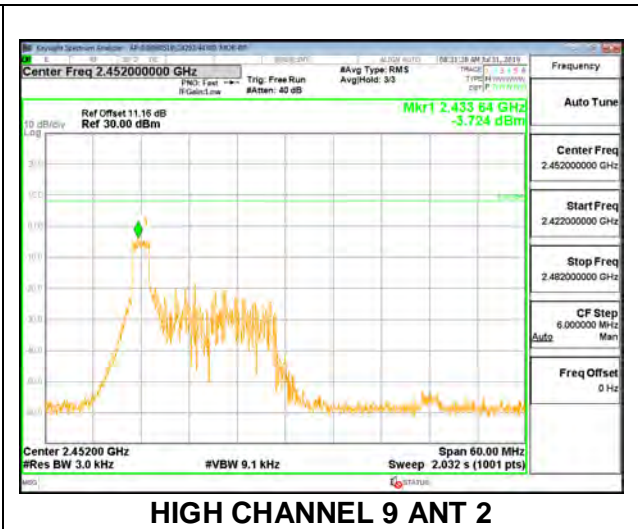
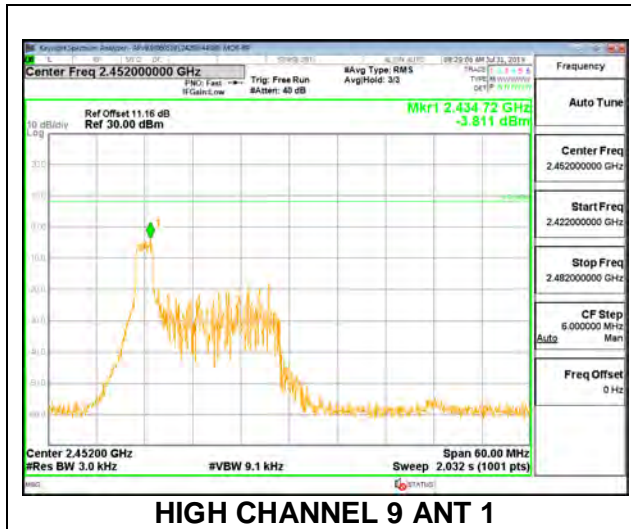
Antenna 1 +Chain 1 2TX MODE: 26-Tones RU Index 0

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

Channel	Frequency (MHz)	Antenna 1 Measured (dBm/ 3kHz)	Antenna 2 Measured (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 3	2422	-3.828	-3.625	-0.72	8.0	-8.7
Low 4	2427	-2.604	-3.585	-0.06	8.0	-8.1
Mid 6	2437	-3.391	-4.685	-0.98	8.0	-9.0
High 9	2452	-3.811	-3.724	-0.76	8.0	-8.8
High 10	2457	-4.047	-6.282	-2.01	8.0	-10.0
High 11	2462	-11.003	-10.413	-7.69	8.0	-15.7



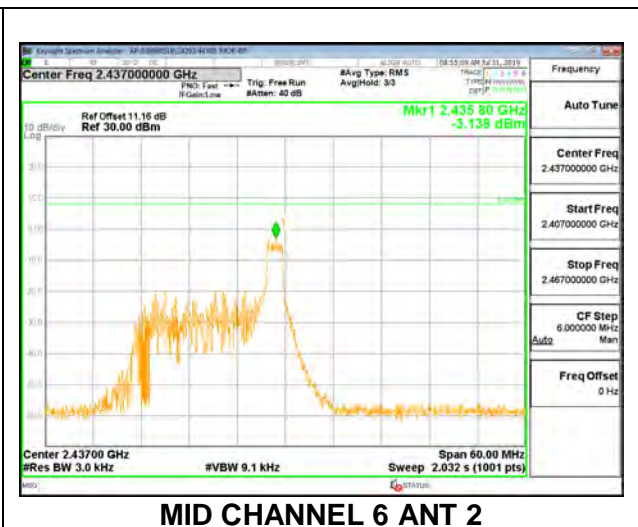
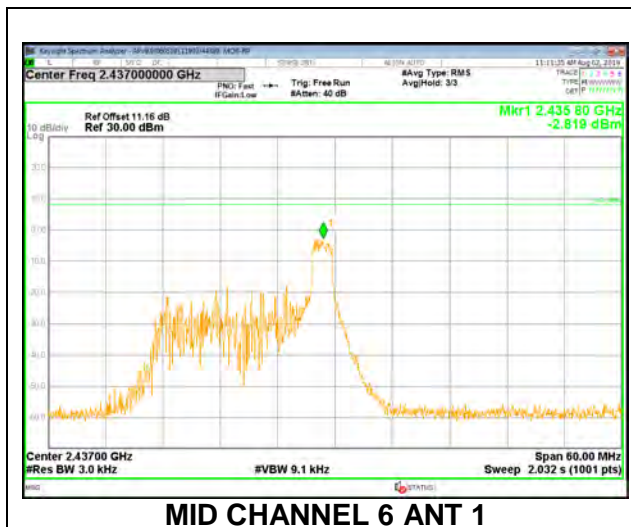
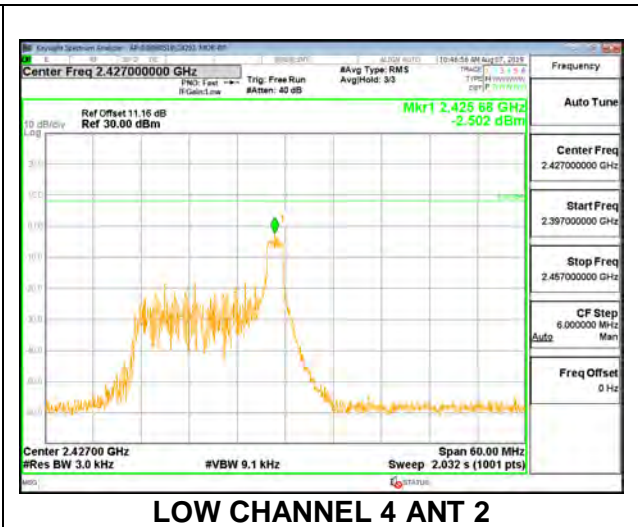
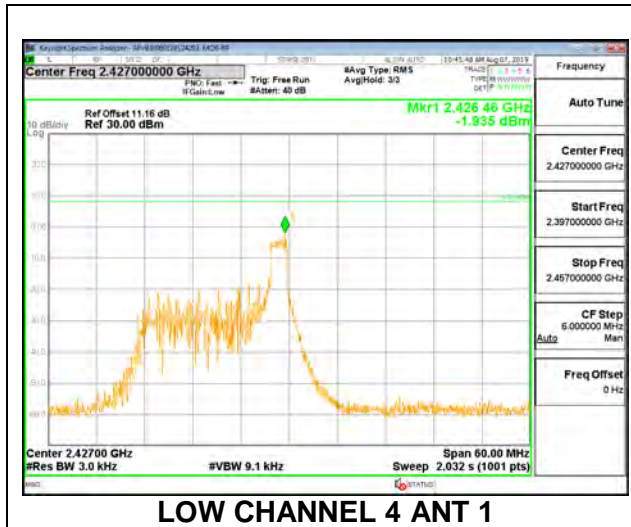
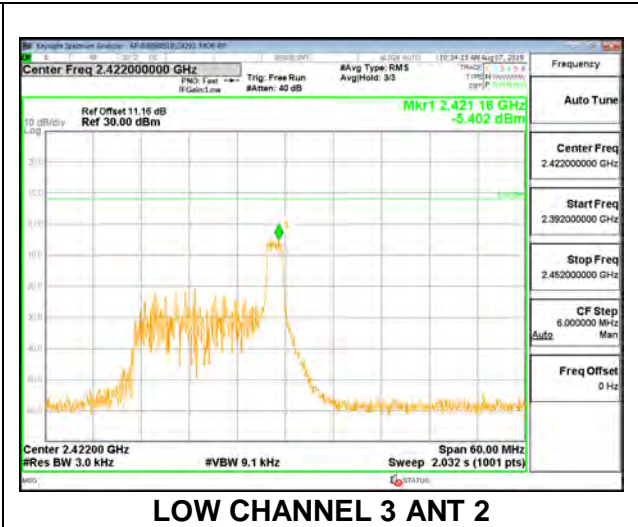
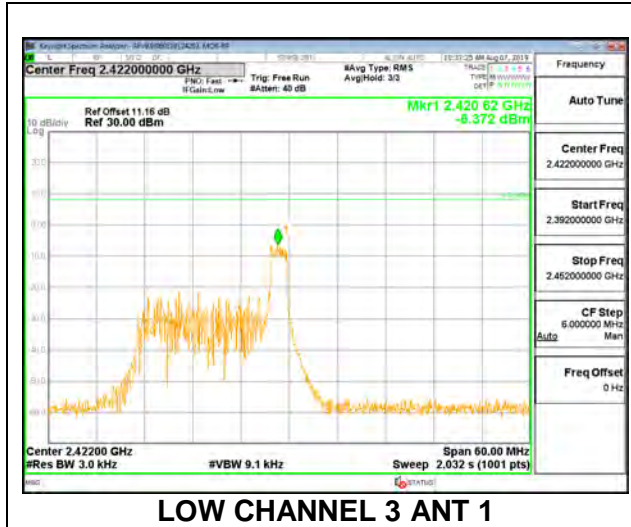


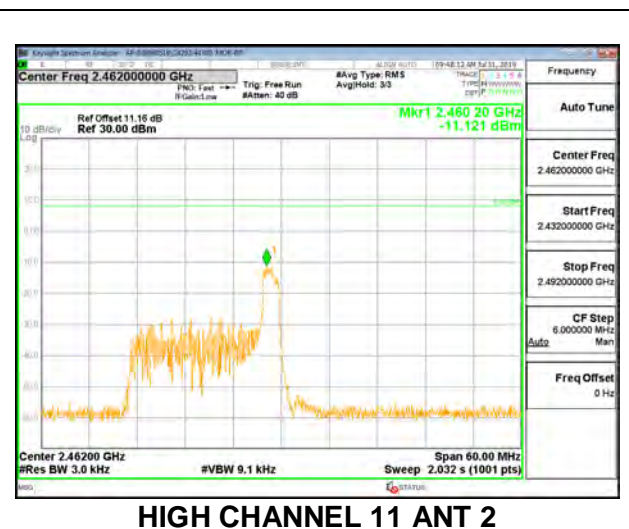
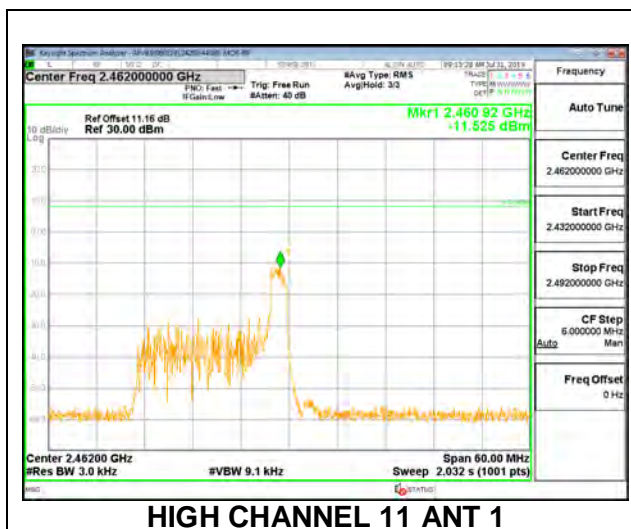
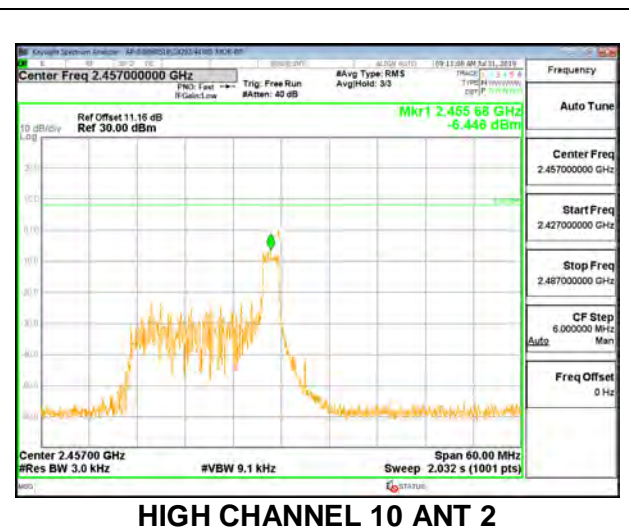
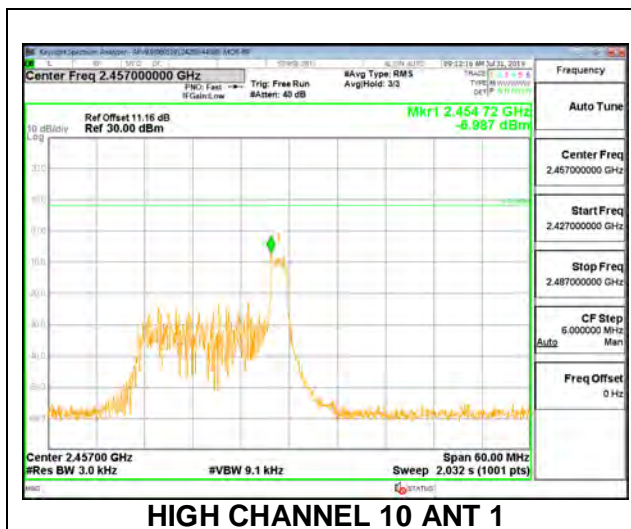
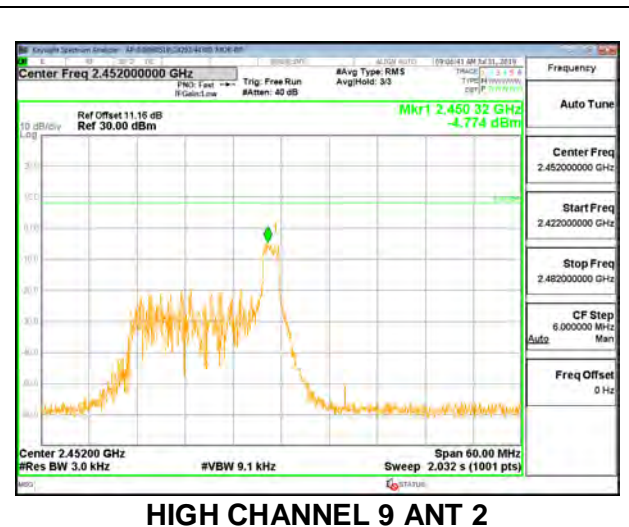
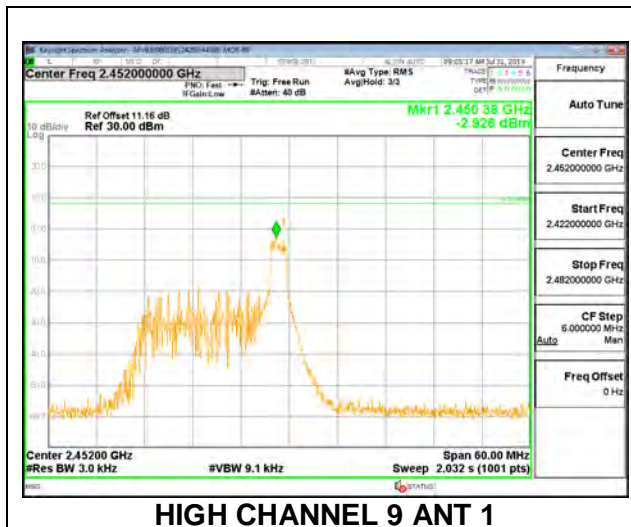
Antenna 1 +Chain 1 2TX MODE: 26-Tones RU Index 8

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

Channel	Frequency (MHz)	Antenna 1 Measured (dBm/ 3kHz)	Antenna 2 Measured (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 3	2422	-6.372	-5.402	-2.85	8.0	-10.8
Low 4	2427	-1.935	-2.502	0.80	8.0	-7.2
Mid 6	2437	-2.819	-3.138	0.03	8.0	-8.0
High 9	2452	-2.926	-4.774	-0.74	8.0	-8.7
High 10	2457	-6.987	-6.446	-3.70	8.0	-11.7
High 11	2462	-11.525	-11.121	-8.31	8.0	-16.3



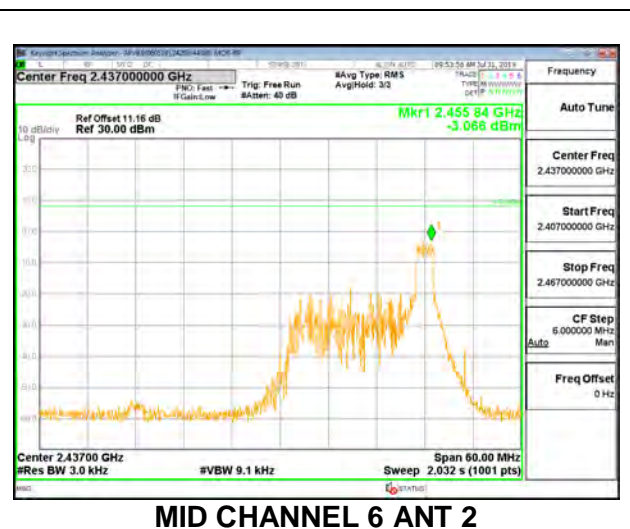
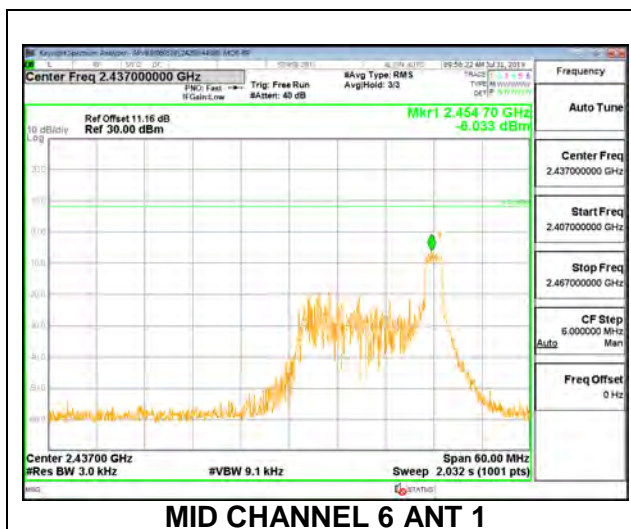
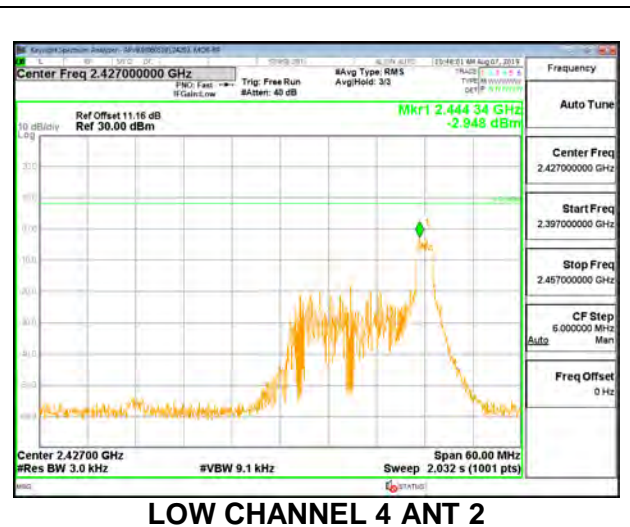
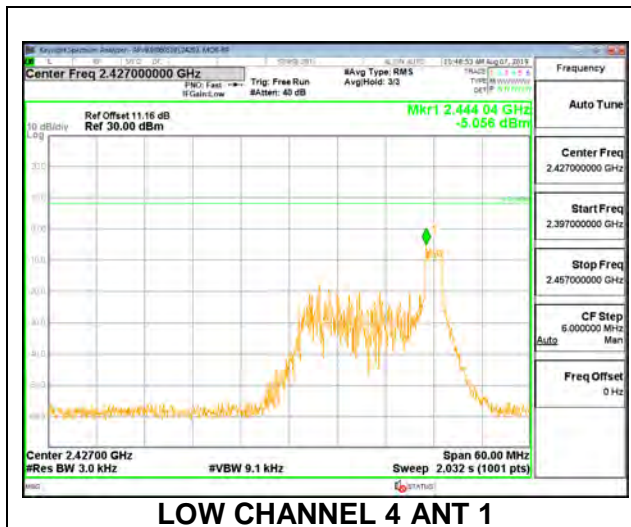
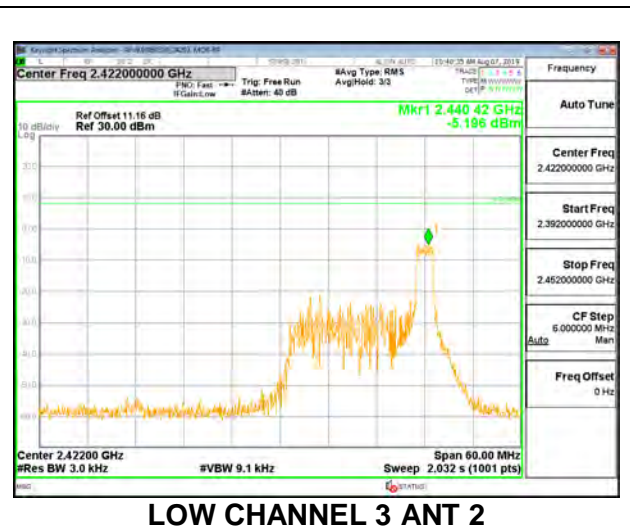
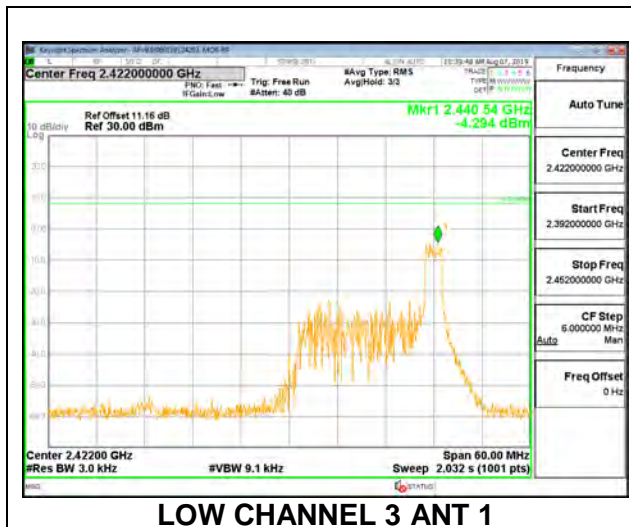


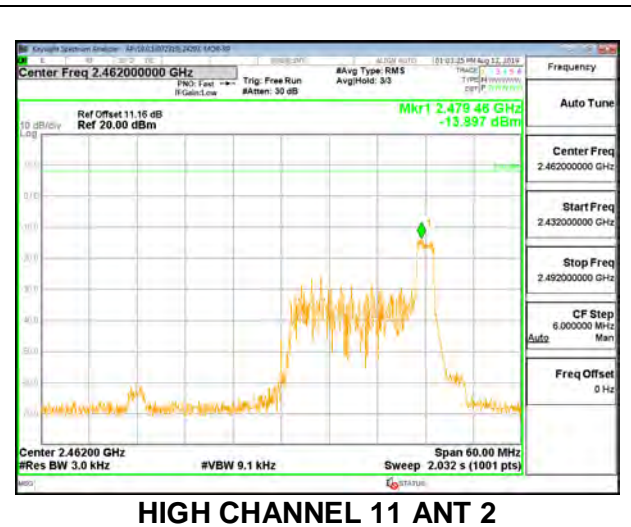
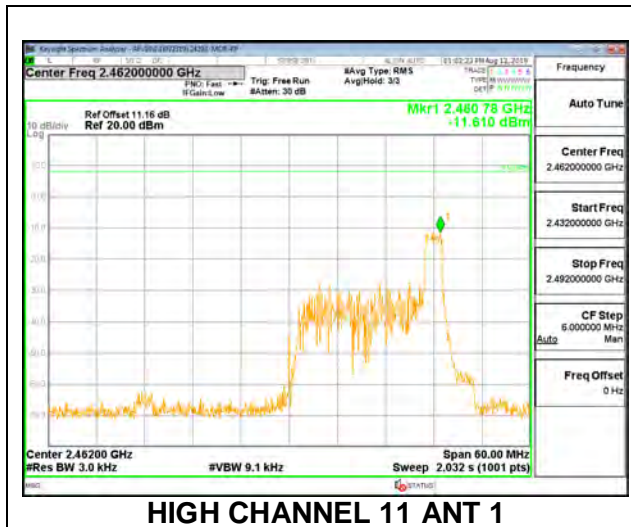
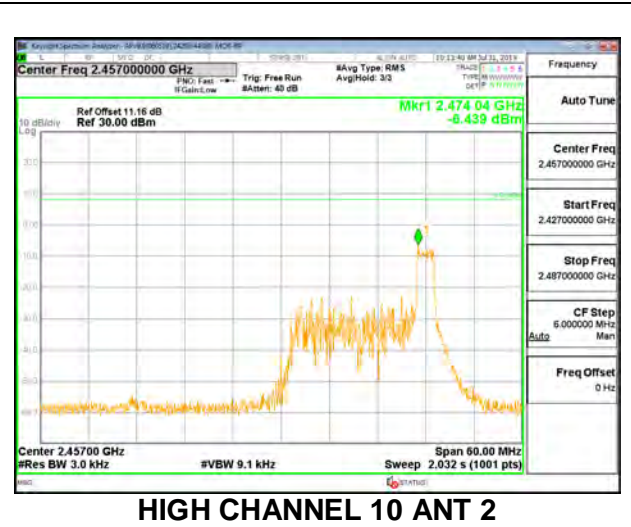
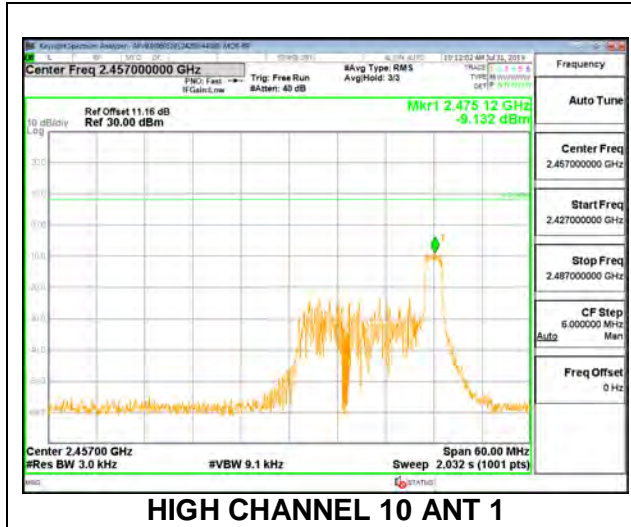
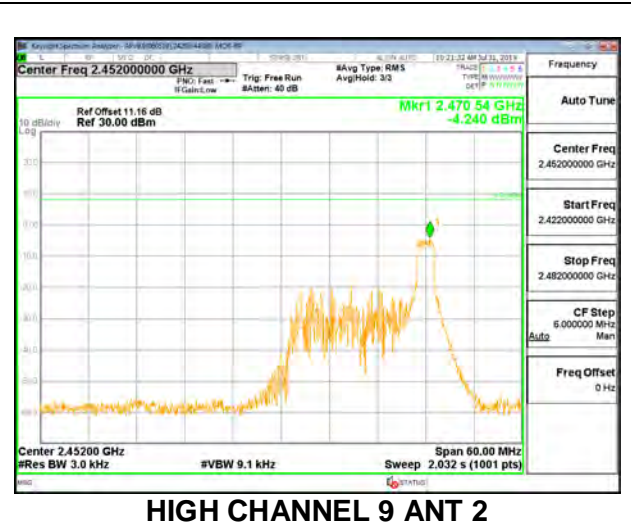
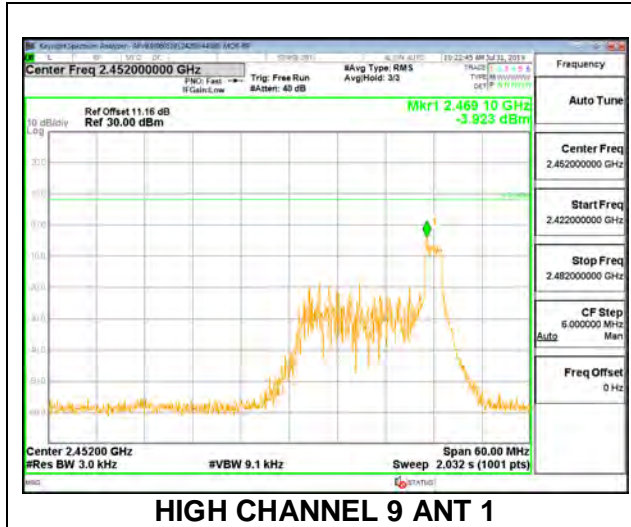
Antenna 1 +Chain 1 2TX MODE: 26-Tones RU Index 17

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

Channel	Frequency (MHz)	Antenna 1 Measured (dBm/ 3kHz)	Antenna 2 Measured (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 3	2422	-4.294	-5.196	-1.71	8.0	-9.7
Low 4	2427	-5.056	-2.948	-0.87	8.0	-8.9
Mid 6	2437	-6.033	-3.066	-1.29	8.0	-9.3
High 9	2452	-3.923	-4.240	-1.07	8.0	-9.1
High 10	2457	-9.132	-6.439	-4.57	8.0	-12.6
High 11	2462	-11.610	-13.897	-9.59	8.0	-17.6



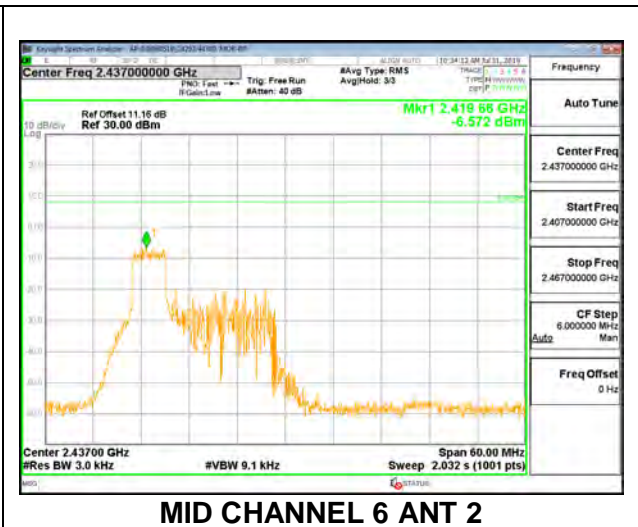
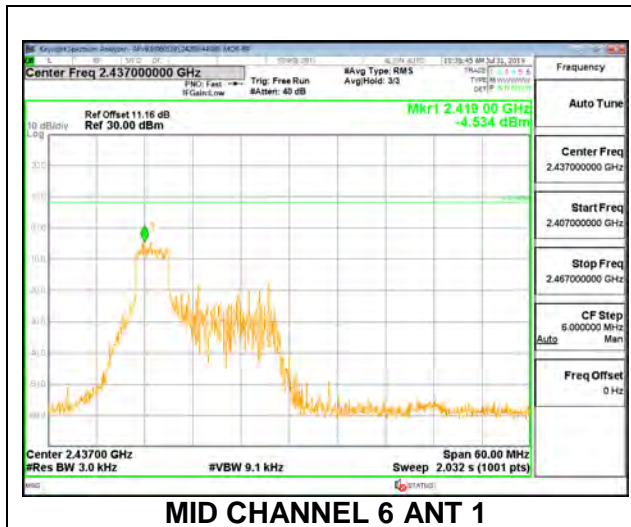
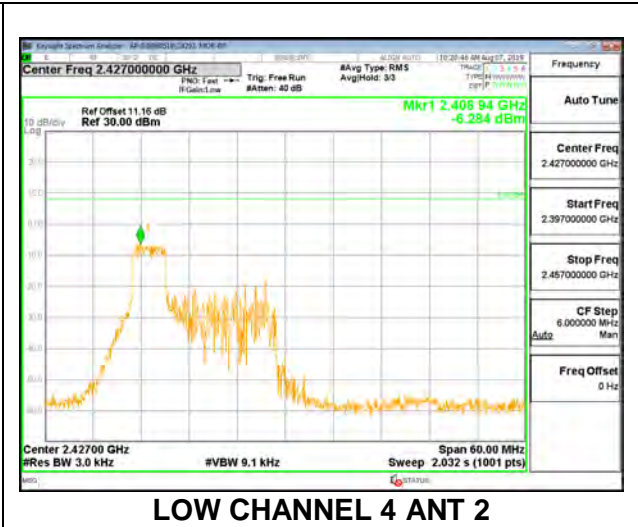
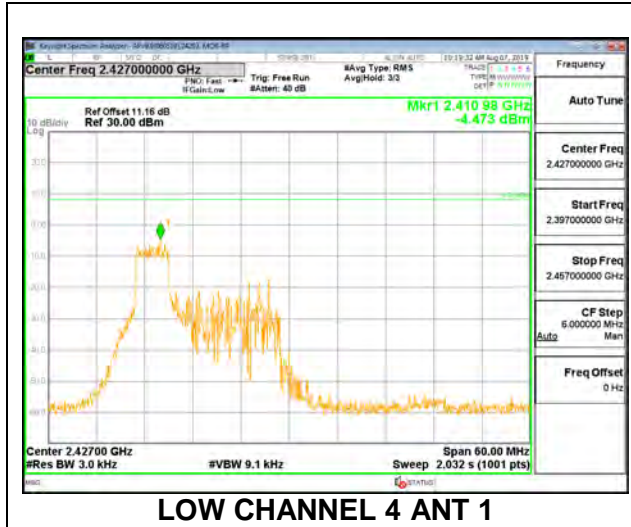
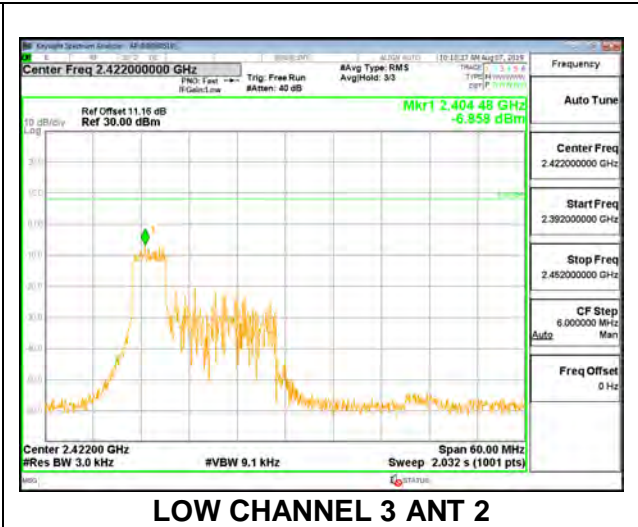
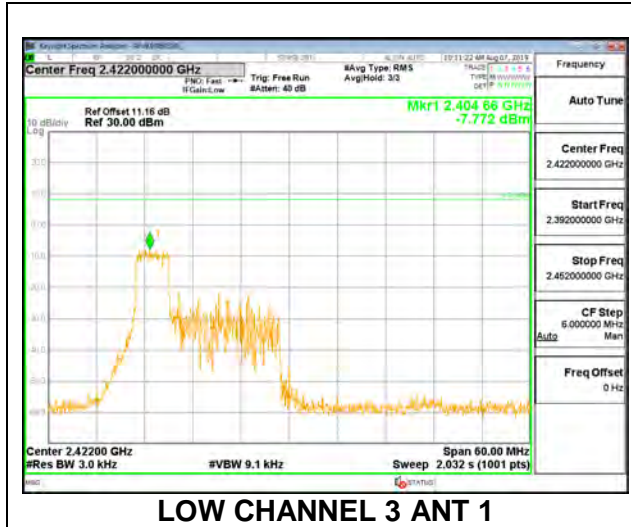


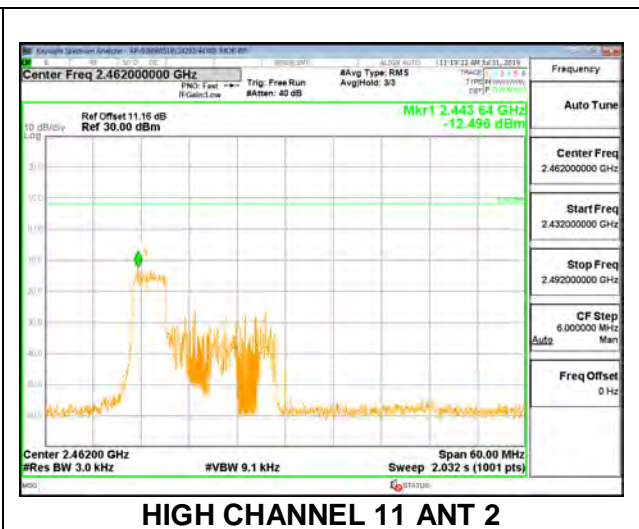
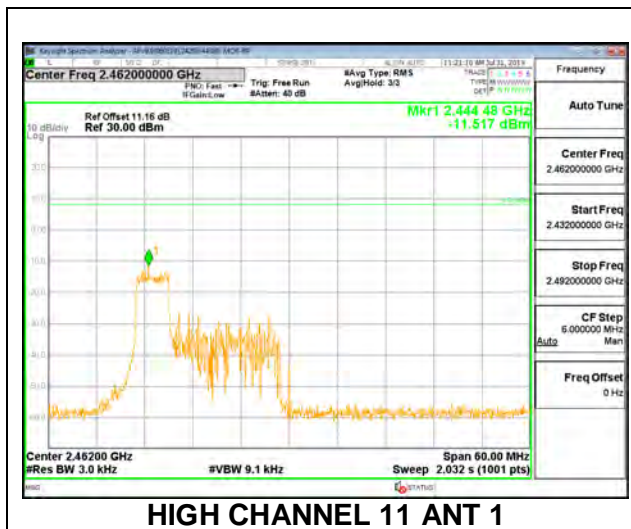
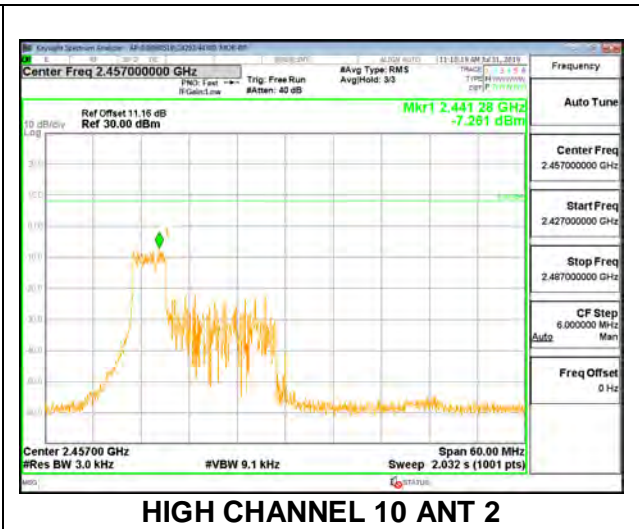
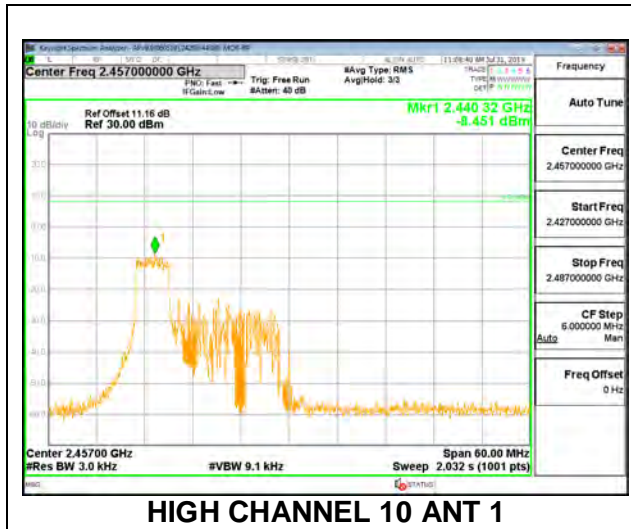
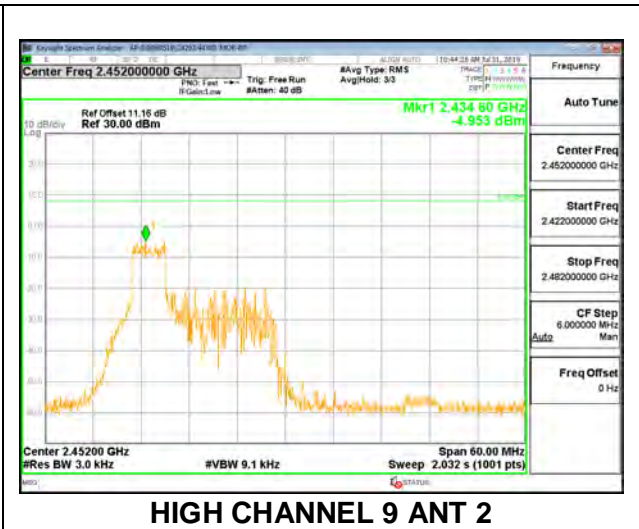
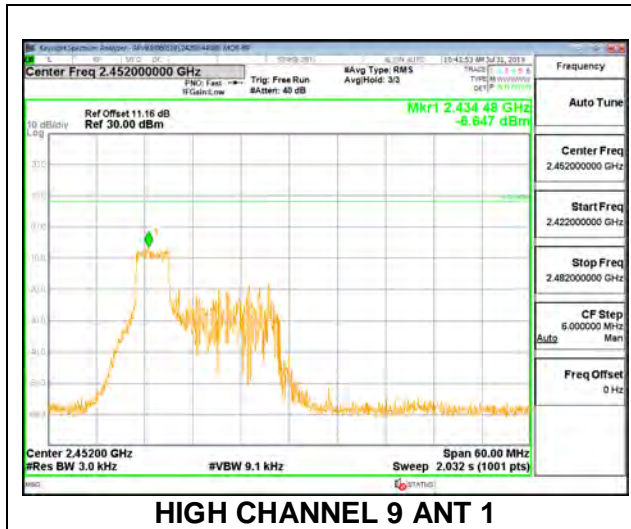
Antenna 1 +Chain 1 2TX MODE: 52-Tones RU Index 37

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

Channel	Frequency (MHz)	Antenna 1 Measured (dBm/ 3kHz)	Antenna 2 Measured (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 3	2422	-7.772	-6.858	-4.28	8.0	-12.3
Low 4	2427	-4.473	-6.284	-2.27	8.0	-10.3
Mid 6	2437	-4.534	-6.572	-2.42	8.0	-10.4
High 9	2452	-6.647	-4.953	-2.71	8.0	-10.7
High 10	2457	-8.451	-7.261	-4.81	8.0	-12.8
High 11	2462	-11.517	-12.496	-8.97	8.0	-17.0



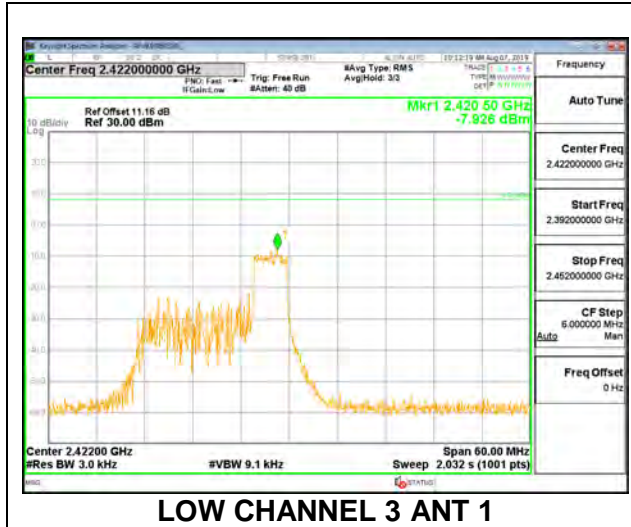


Antenna 1 +Chain 1 2TX MODE: 52-Tones RU Index 40

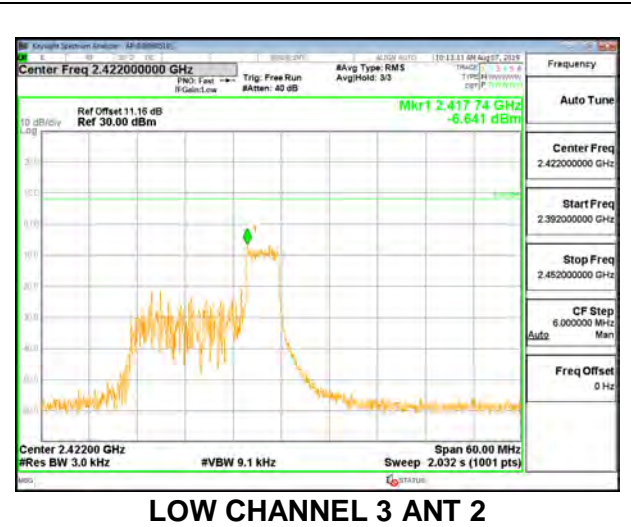
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

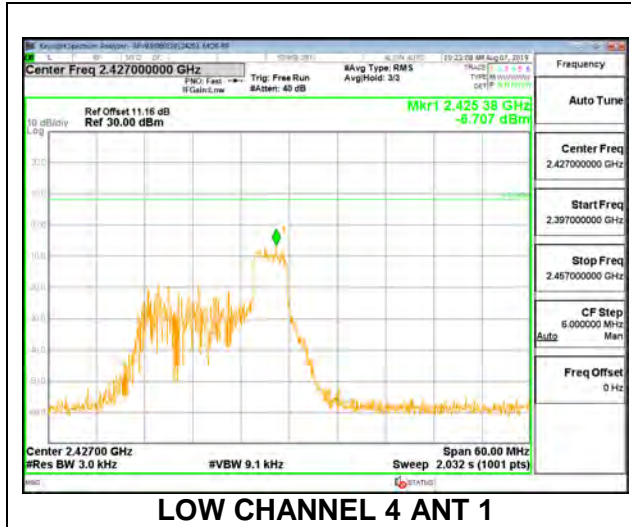
Channel	Frequency (MHz)	Antenna 1 Measured (dBm/ 3kHz)	Antenna 2 Measured (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 3	2422	-7.926	-6.641	-4.23	8.0	-12.2
Low 4	2427	-6.707	-3.541	-1.83	8.0	-9.8
Mid 6	2437	-5.869	-6.127	-2.99	8.0	-11.0
High 9	2452	-7.398	-5.869	-3.56	8.0	-11.6
High 10	2457	-8.201	-9.782	-5.91	8.0	-13.9
High 11	2462	-12.387	-12.138	-9.25	8.0	-17.3



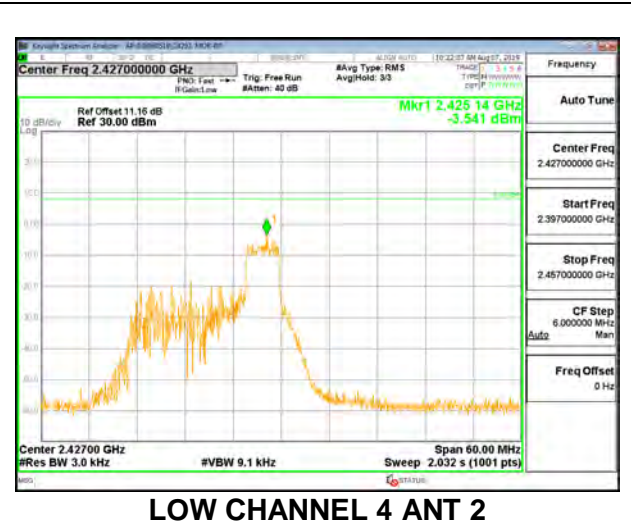
LOW CHANNEL 3 ANT 1



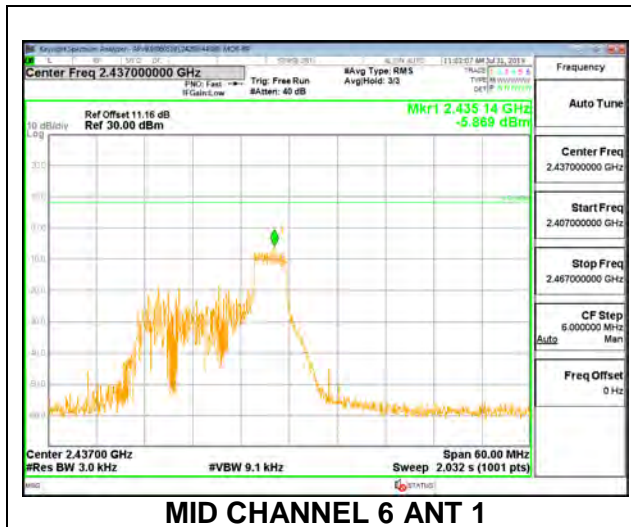
LOW CHANNEL 3 ANT 2



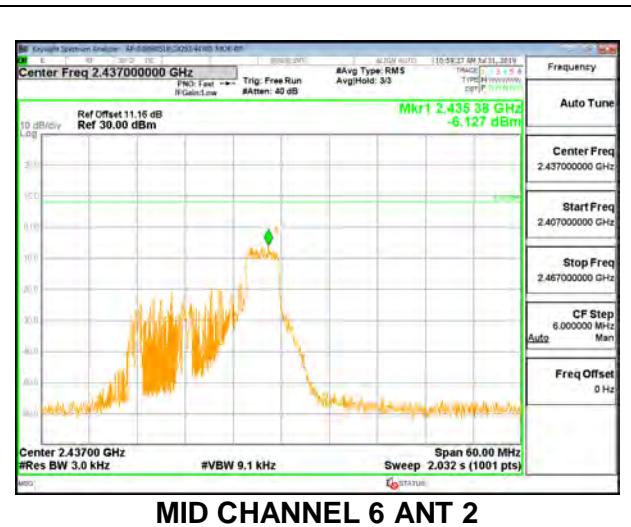
LOW CHANNEL 4 ANT 1



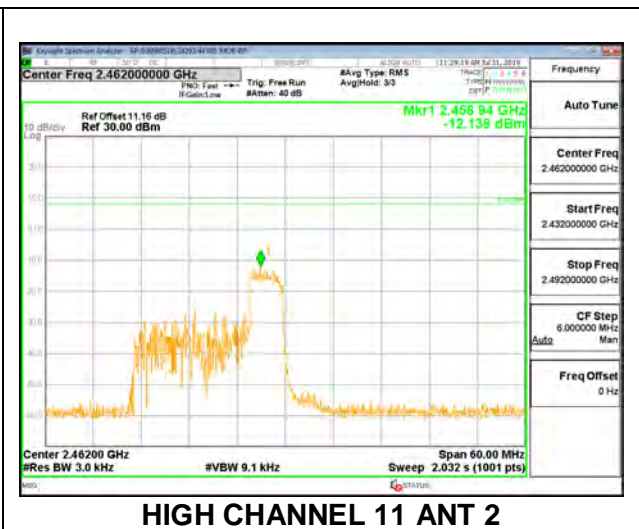
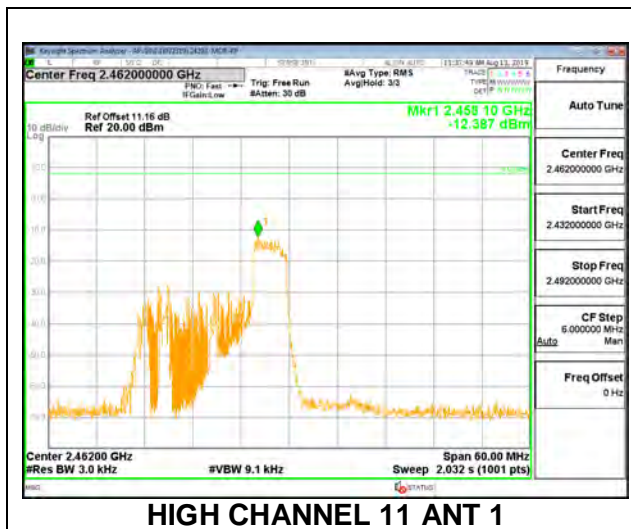
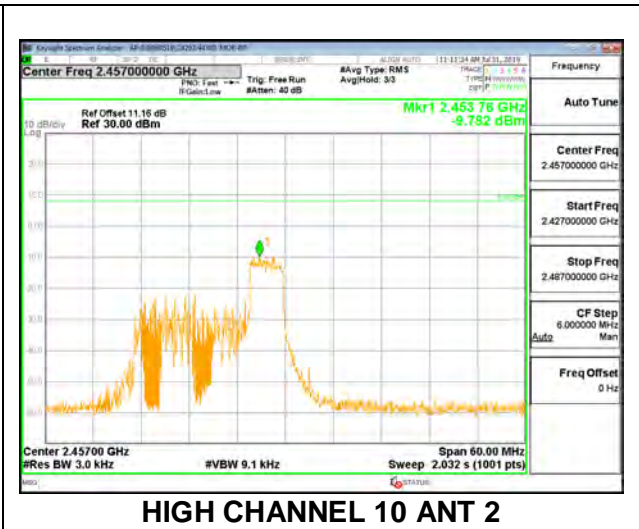
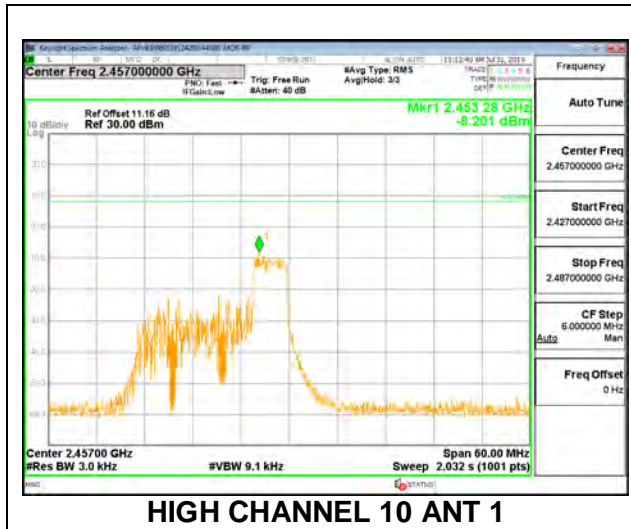
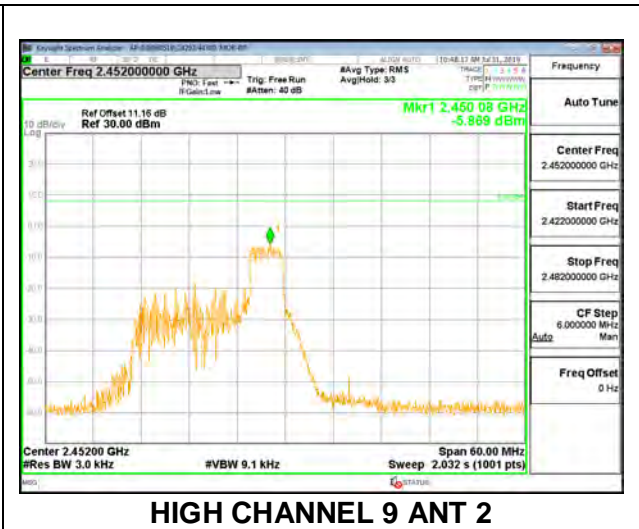
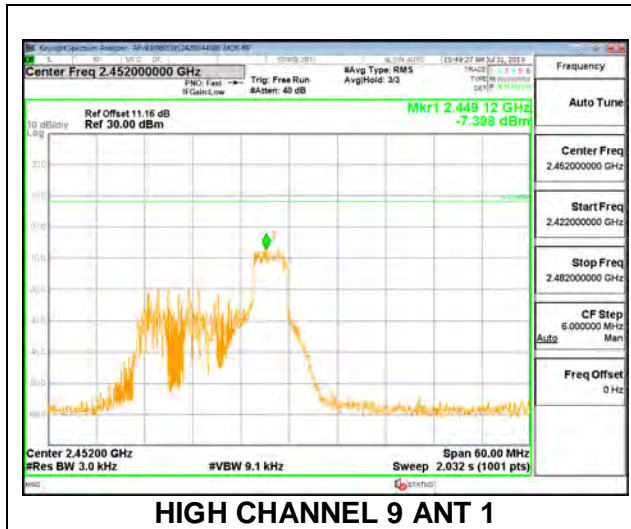
LOW CHANNEL 4 ANT 2



MID CHANNEL 6 ANT 1



MID CHANNEL 6 ANT 2

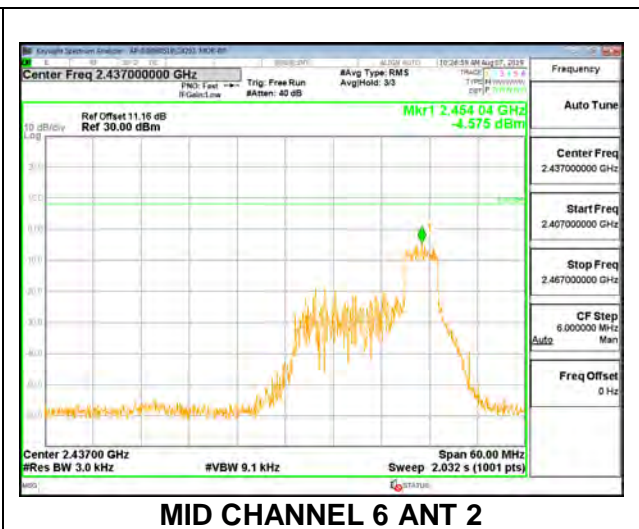
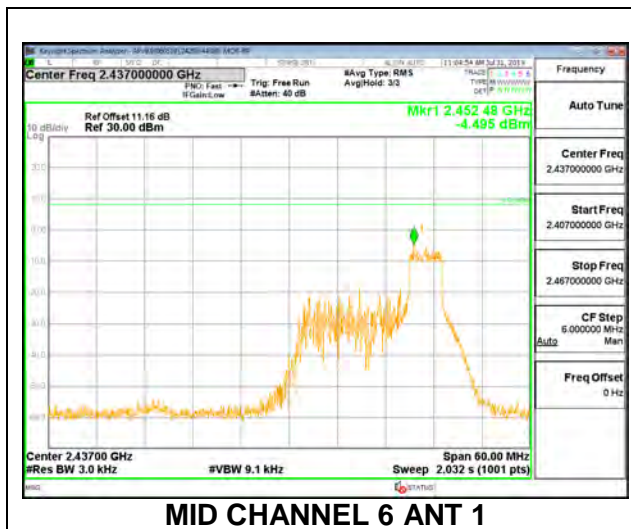
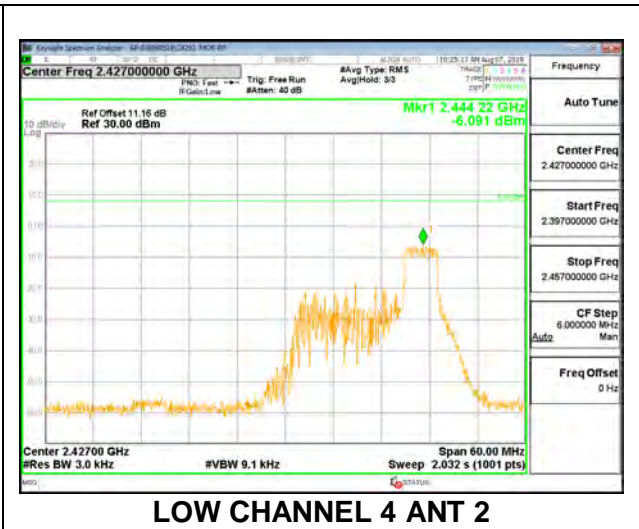
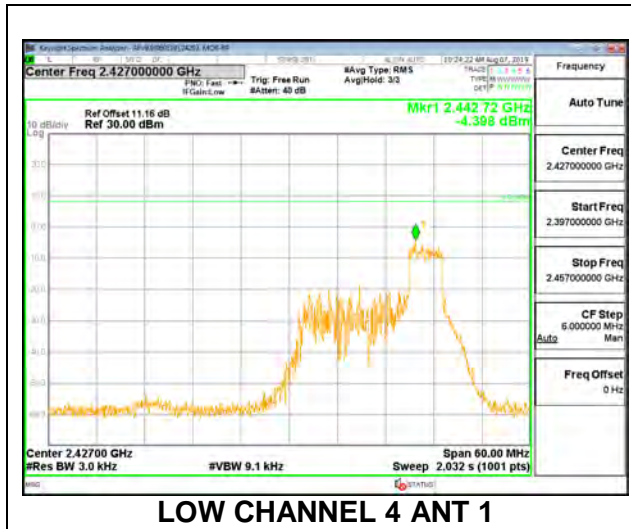
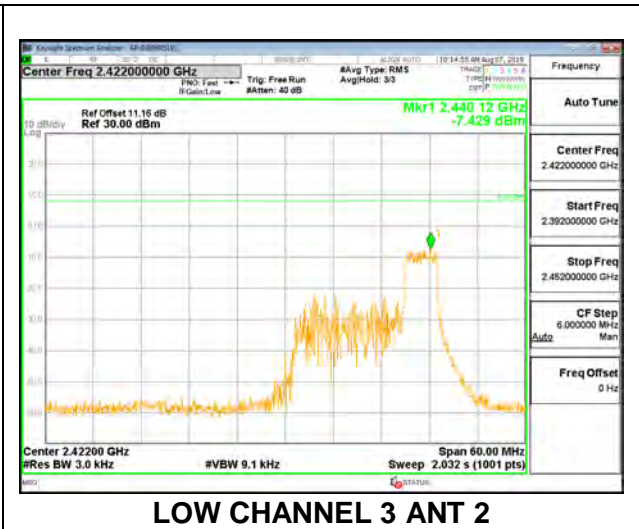
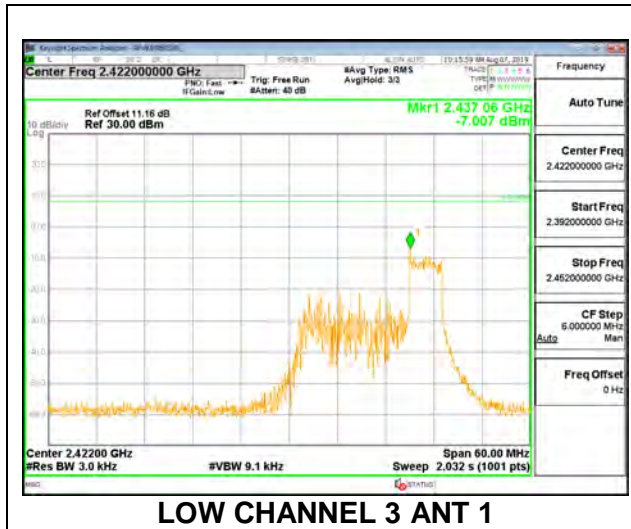


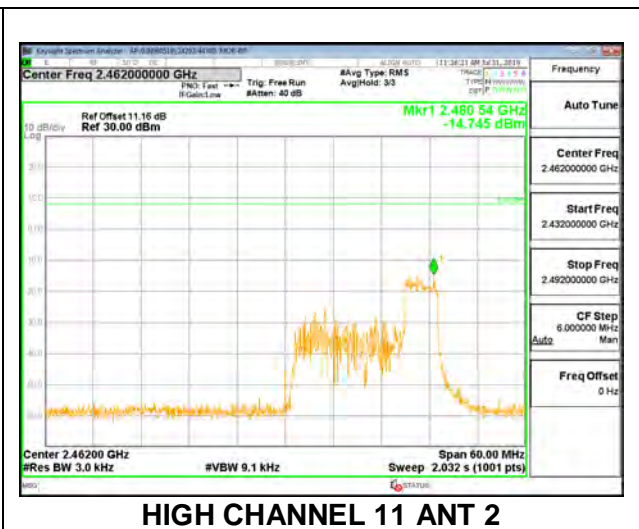
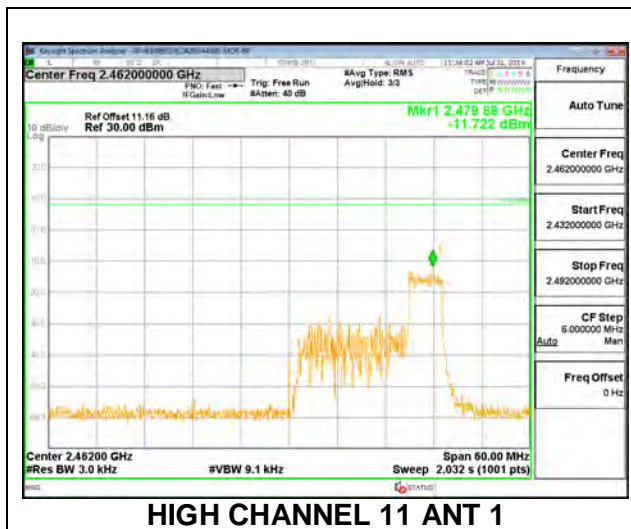
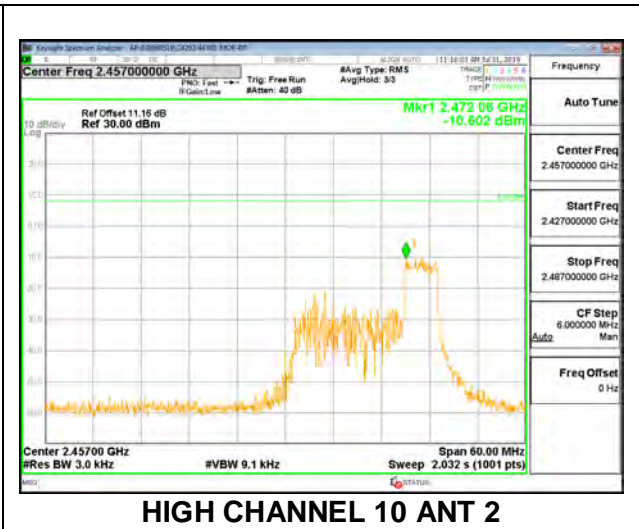
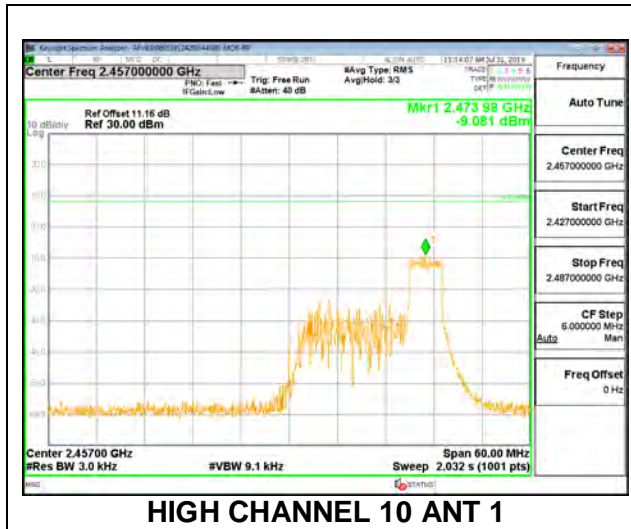
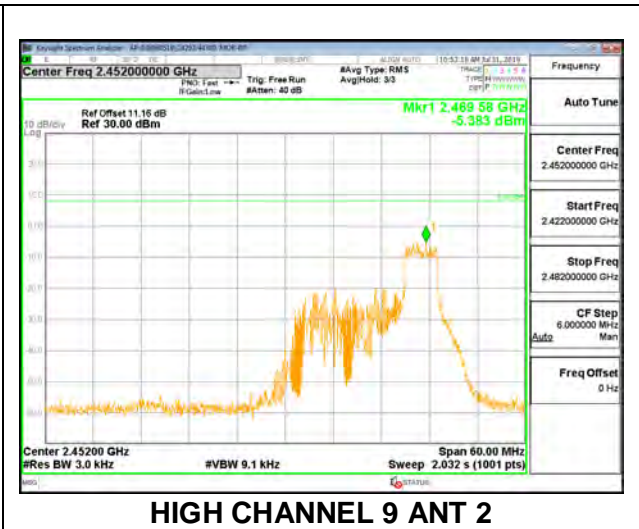
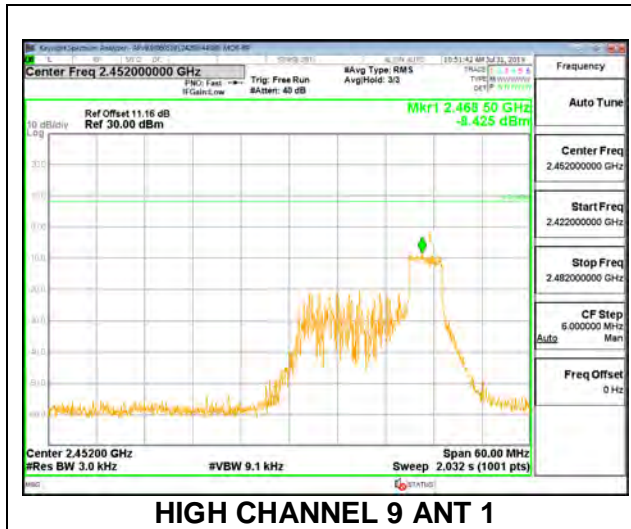
Antenna 1 +Chain 1 2TX MODE: 52-Tones RU Index 44

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

Channel	Frequency (MHz)	Antenna 1 Measured (dBm/ 3kHz)	Antenna 2 Measured (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 3	2422	-7.007	-7.429	-4.20	8.0	-12.2
Low 4	2427	-4.398	-6.091	-2.15	8.0	-10.2
Mid 6	2437	-4.495	-4.575	-1.52	8.0	-9.5
High 9	2452	-8.425	-5.383	-3.63	8.0	-11.6
High 10	2457	-9.081	-10.602	-6.76	8.0	-14.8
High 11	2462	-11.722	-14.745	-9.97	8.0	-18.0





Antenna 1 +Chain 1 2TX MODE: 106-Tones RU Index 53

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

Channel	Frequency (MHz)	Antenna 1 Measured (dBm/ 3kHz)	Antenna 2 Measured (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 3	2422	-10.287	-10.102	-7.18	8.0	-15.2
Low 4	2427	-7.773	-8.233	-4.99	8.0	-13.0
Mid 6	2437	-8.727	-7.449	-5.03	8.0	-13.0
High 9	2452	-9.173	-7.749	-5.39	8.0	-13.4
High 10	2457	-11.783	-11.061	-8.40	8.0	-16.4
High 11	2462	-14.670	-13.692	-11.14	8.0	-19.1