FCC 47 CFR PART 15 SUBPART C
ISED RSS-247 ISSUE 2

CERTIFICATION TEST REPORT

For

WIFI+BT module

MODEL NUMBER: WCT0LR2201J

FCC ID: 2AC23-WCT0LR2201J
IC: 12290A-WCT0LR2201J

REPORT NUMBER: 4788196596.1-3

ISSUE DATE: November 24, 2017

Prepared for

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Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
--	11/24/2017	Initial Issue	

Summary of Test Results			
Clause	**Test Items**	FCC/IC Rules	Test Results
1	6dB Bandwidth and 99% Bandwidth	FCC 15.247 (a) (2) RSS-247 Clause 5.2 (a)	PASS
2	Peak Conducted Output Power	FCC 15.247 (b) (3) RSS-247 Clause 5.4 (e)	PASS
3	Power Spectral Density	FCC 15.247 (e) RSS-247 Clause 5.2 (b)	PASS
4	Conducted Bandedge and Spurious Emission	FCC 15.247 (d) RSS-247 Clause 5.5	PASS
5	Radiated Bandedge and Spurious Emission	FCC 15.247 (d) FCC 15.209 FCC 15.205 RSS-247 Clause 5.5 RSS-GEN Clause 8.9	PASS
6	Conducted Emission Test For AC Power Port	FCC 15.207 RSS-GEN Clause 8.8	PASS
7	Antenna Requirement	FCC 15.203 RSS-GEN Clause 8.3	PASS

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	Hui Zhou Gaoshengda Technology Co.,LTD
Address:	HuaXing RD,NO 2,ZhongKai High Technology Development Area,Huizhou,Guangdong, China

Manufacturer Information

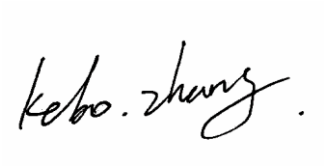
Company Name:	Hui Zhou Gaoshengda Technology Co.,LTD
Address:	HuaXing RD,NO 2,ZhongKai High Technology Development Area,Huizhou,Guangdong, China

EUT Description

Product Name	WIFI+BT module
Brand Name	GSD
Model Name	WCT0LR2201J
Sample ID	1220986
Sample Status	Good
Sample Received date	October 20, 2017
Date Tested	October 23~November 23, 2017

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	PASS
ISED RSS-247 Issue 2	PASS
ISED RSS-GEN Issue 4	PASS

Tested By:



Kebo Zhang
Engineer

Checked By:

Shawn Wen
Laboratory Leader

Approved By:

Stephen Guo

Laboratory Manager

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, KDB558074 D01 DTS Meas Guidance v04, KDB414788 D01 Radiated Test Site v01, ANSI C63.10-2013 and KDB 662911 D01 Multiple Transmitter Output v02r01.

3. FACILITIES AND ACCREDITATION

Test Location	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
Address	Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China
Accreditation Certificate	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. The Certificate Registration Number is 4102.01. UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The Designation Number is CN1187. UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. EMC Laboratory has been registered and fully described in a report filed with Industry Canada. The Company Number is 21320.

Note: The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

4. CALIBRATION AND UNCERTAINTY

4.1. 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 recognize national standards.

4.2. MEASUREMENT UNCERTAINTY

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

Test Item	Uncertainty
Uncertainty for Conduction emission test	2.90dB
Uncertainty for Radiation Emission test(include Fundamental emission) (9KHz-30MHz)	2.2dB
Uncertainty for Radiation Emission test(include Fundamental emission) (30MHz-1GHz)	4.52dB
Uncertainty for Radiation Emission test (1GHz to 26GHz)(include Fundamental emission)	5.04dB(1-6GHz)
	5.30dB (6GHz-18Gz)
	5.23dB (18GHz-26Gz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

Equipment	WIFI+BT module
Model Name	WCT0LR2201J
Radio Technology	IEEE802.11b/g/n HT20/n HT40
Operation frequency	IEEE 802.11b: 2412MHz—2472MHz IEEE 802.11g: 2412MHz—2472MHz IEEE 802.11n HT20: 2412MHz—2472MHz IEEE 802.11n HT40: 2422MHz—2462MHz
Modulation	IEEE 802.11b: DSSS(CCK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK,BPSK) IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK,BPSK)
Power Supply	AC120V/60Hz
Hardware Version	V1.0
Software Version	V1.2

5.2. MAXIMUM OUTPUT POWER

Frequency Range (MHz)	Number of Transmit ANTs (NTX)	IEE Std. 802.11	Channel Number	Max Output Power (dBm)
2412-2472	1	b	1-13[13]	18.55
2412-2472	1	g	1-13[13]	22.15
2412-2472	2	n HT20	1-13[13]	24.25
2422-2462	2	n HT40	3-11[9]	24.10

Note: For 802.11n mode, the output power the same between SISO and MIMO mode.

5.3. CHANNEL LIST

Channel List for 802.11b/g/n (20 MHz)							
Channel	Frequency (MHz)	Channel	Frequenc y(MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	5	2432	9	2452	13	2472
2	2417	6	2437	10	2457		
3	2422	7	2442	11	2462		
4	2427	8	2447	12	2467		

Channel List for 802.11n (40 MHz)							
Channel	Frequency (MHz)	Channel	Frequenc y(MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	7	2442	11	2462		
4	2427	8	2447				
5	2432	9	2452				
6	2437	10	2457				

5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel	Frequency
WiFi TX(802.11b)	CH 1, CH 7, CH 13	2412MHz, 2442MHz, 2472MHz
WiFi TX(802.11g)	CH 1, CH 7, CH 13	2412MHz, 2442MHz, 2472MHz
WiFi TX(802.11n HT20)	CH 1, CH 7, CH 13	2412MHz, 2442MHz, 2472MHz
WiFi TX(802.11n HT40)	CH 3, CH 7, CH 11	2422MHz, 2442MHz, 2462MHz

5.5. THE WORSE CASE CONFIGURATIONS

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band							
Test Software		REALTEK					
Modulation Mode	Transmit Antenna Number	Test Channel					
		NCB: 20MHz			NCB: 40MHz		
		CH 1	CH 7	CH 13	CH 3	CH 7	CH 11
802.11b	1	46	52	50	N/A		
802.11g	1	52	54	46			
802.11n HT20	1	56	58	40			
802.11n HT40	1	N/A	N/A	N/A	54	58	44
802.11b	2	49	49	51	N/A		
802.11g	2	50	50	50			
802.11n HT20	2	53	56	39			
802.11n HT40	2	N/A	N/A	N/A	54	58	44

5.6. TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests	
Relative Humidity	55 ~ 65%	
Atmospheric Pressure:	1025Pa	
Temperature	TN	23 ~ 28°C
Voltage :	VL	N/A
	VN	AC 120V/60Hz
	VH	N/A

Note: VL= Lower Extreme Test Voltage
VN= Nominal Voltage
VH= Upper Extreme Test Voltage
TN= Normal Temperature

5.7. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
1	2412-2472	External Antenna	3.24

Antenna	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
2	2412-2472	External Antenna	3.24

Test Mode	Transmit and Receive Mode	Description
IEEE 802.11b	☒2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.
IEEE 802.11g	☒2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.
IEEE 802.11n HT20	☒2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.
IEEE 802.11n HT40	☒2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.

Note: Only 802.11n HT20/HT40 support MIMO mode.

5.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	P/N
1	PC	Dell	Vostro 3902	8KNDDB2
2	Debug	N/A	N/A	N/A

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	PCIEX	N/A	N/A	0.1	N/A

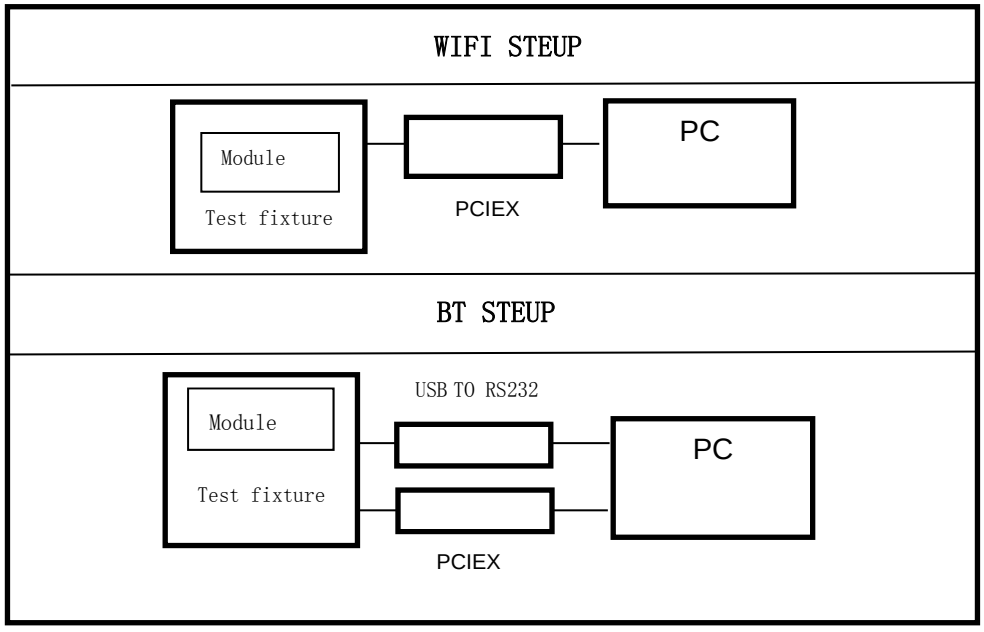
ACCESSORY

Item	Accessory	Brand Name	Model Name	Description
1	N/A	N/A	N/A	N/A

TEST SETUP

The EUT can work in engineering mode with a software through a PC.

SETUP DIAGRAM FOR TESTS



5.9. MEASURING INSTRUMENT AND SOFTWARE USED

Conducted Emissions						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☑	EMI Test Receiver	R&S	ESR3	101961	Dec.20, 2016	Dec.19, 2017
☑	Two-Line V-Network	R&S	ENV216	101983	Dec.20, 2016	Dec.19, 2017
☑	Artificial Mains Networks	Schwarzbeck	NSLK 8126	8126465	Feb.10, 2017	Feb.10, 2018
Software						
Used	Description		Manufacturer	Name	Version	
☑	Test Software for Conducted disturbance		UL	Antenna port	Ver. 7.2	
Radiated Emissions						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☑	MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Feb. 24, 2017	Feb. 24, 2018
☑	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Jan.09, 2016	Jan.09, 2019
☑	Preamplifier	HP	8447D	2944A09099	Feb. 13, 2017	Feb. 13, 2018
☑	EMI Measurement Receiver	R&S	ESR26	101377	Dec. 20, 2016	Dec. 20, 2017
☑	Horn Antenna	TDK	HRN-0118	130939	Jan. 09, 2016	Jan. 09, 2019
☑	High Gain Horn Antenna	Schwarzbeck	BBHA-9170	691	Jan.06, 2016	Jan.06, 2019
☑	Preamplifier	TDK	PA-02-0118	TRS-305-00066	Jan. 14, 2017	Jan. 14, 2018
☑	Preamplifier	TDK	PA-02-2	TRS-307-00003	Dec. 20, 2016	Dec. 20, 2017
☑	Loop antenna	Schwarzbeck	1519B	00008	Mar. 26, 2016	Mar. 26, 2019
☑	Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	4	Dec. 20, 2016	Dec. 20, 2017
Software						
Used	Description		Manufacturer	Name	Version	
☑	Test Software for Radiated disturbance		Farad	EZ-EMC	Ver. UL-3A1	
Other instruments						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☑	Spectrum Analyzer	Keysight	N9030A	MY55410512	Dec. 20, 2016	Dec. 20, 2017
☑	Power Meter	Keysight	N9031A	MY55416024	Feb. 13, 2017	Feb. 13, 2018
☑	Power Sensor	Keysight	N9323A	MY55440013	Feb. 13, 2017	Feb. 13, 2018
☑	Power Sensor	Keysight	U2021XA	MY57030004	Feb. 13, 2017	Feb. 13, 2018

6. MEASUREMENT METHODS

No.	Test Item	KDB Name	Section
1	6dB Bandwidth and 99% Bandwidth	KDB 558074 D01 DTS Meas Guidance v04	8.0
2	Peak Output Power	KDB 558074 D01 DTS Meas Guidance v04	9.1.1
3	Power Spectral Density	KDB 558074 D01 DTS Meas Guidance v04	10.2
4	Out-of-band emissions in non-restricted bands	KDB 558074 D01 DTS Meas Guidance v04	11.0
5	Out-of-band emissions in restricted bands	KDB 558074 D01 DTS Meas Guidance v04	12.1
6	Band-edge	KDB 558074 D01 DTS Meas Guidance v04	13.3.2
7	Conducted Emission Test For AC Power Port	ANSI C63.10-2013	7.3

7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

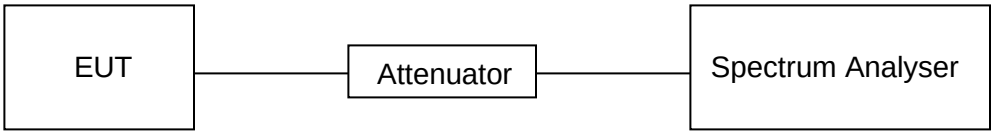
LIMITS

None; for reporting purposes only

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method

TEST SETUP



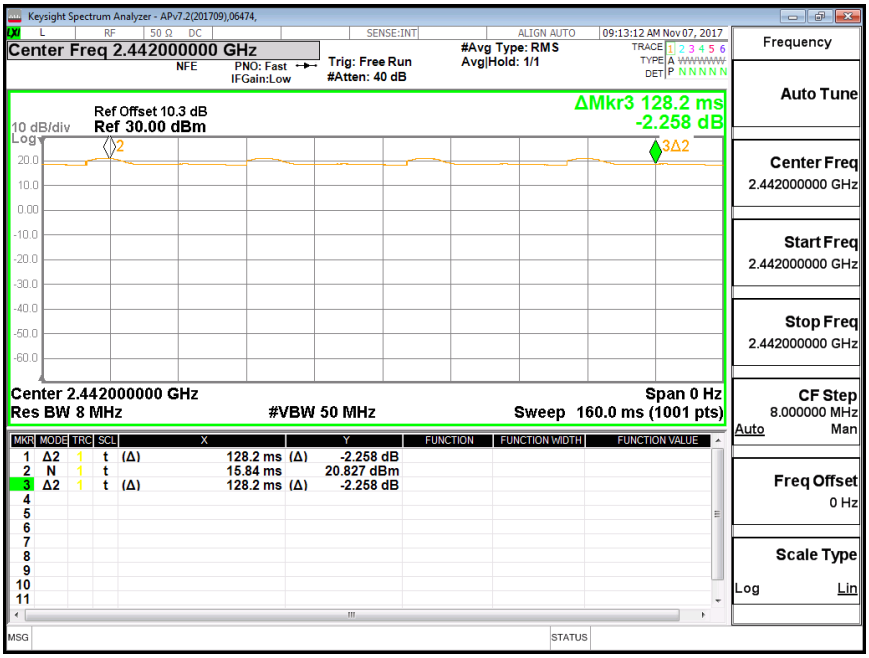
RESULTS

ANTENNA1

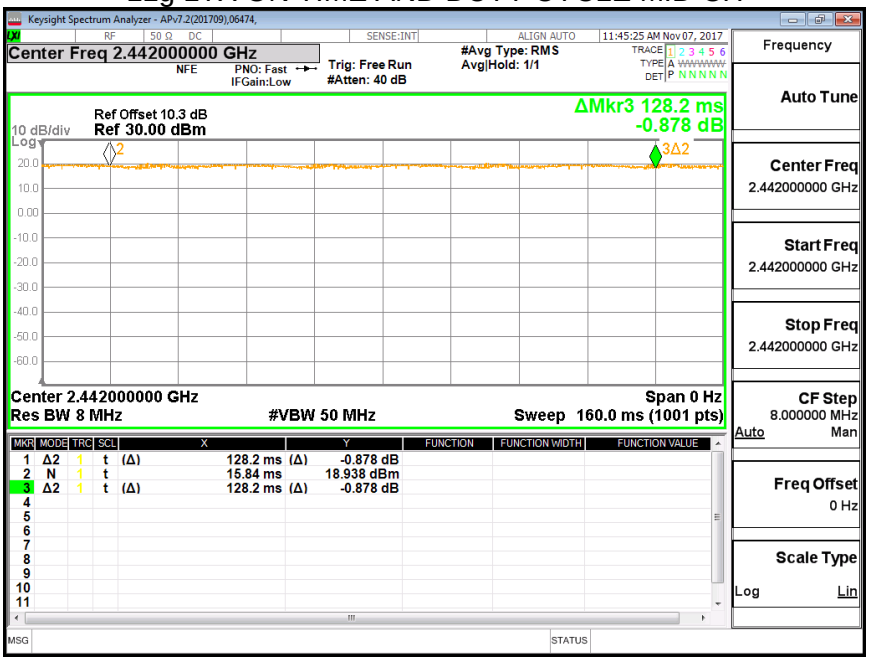
Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (db)	1/B Minimum VBW (KHz)
11b 1TX	100	100	1	100	0	0.01
11g 1TX	100	100	1	100	0	0.01
11n20 CDD	100	100	1	100	0	0.01
11n40 CDD	100	100	1	100	0	0.01

Note: Duty Cycle Correction Factor=10log(1/x).
Where: x is Duty Cycle (Linear)
Where: B is On Time
Antenna 1 and Antenna 2 has the same duty cycle, only Antenna 1 data show here.

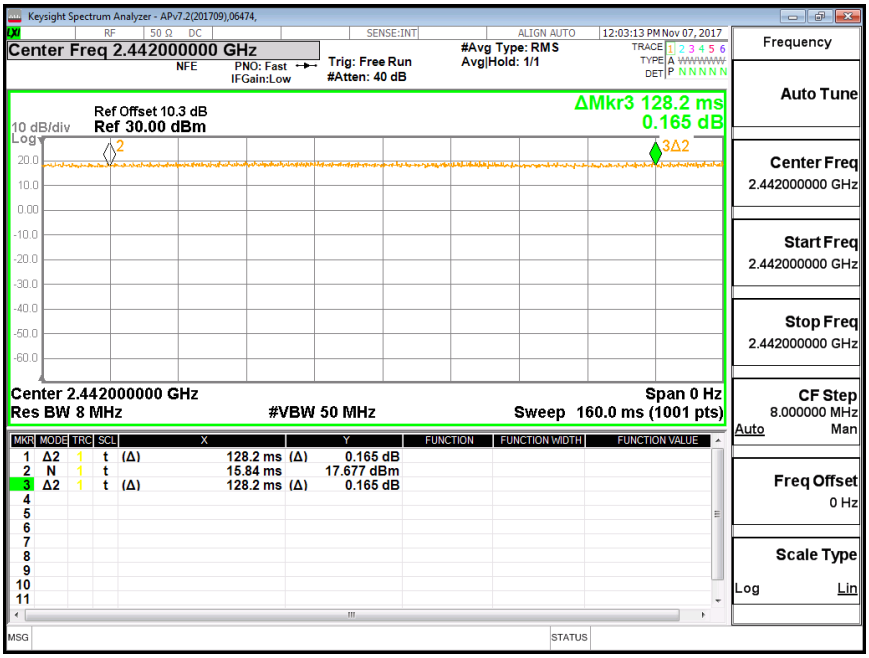
11b 1TX ON TIME AND DUTY CYCLE MID CH



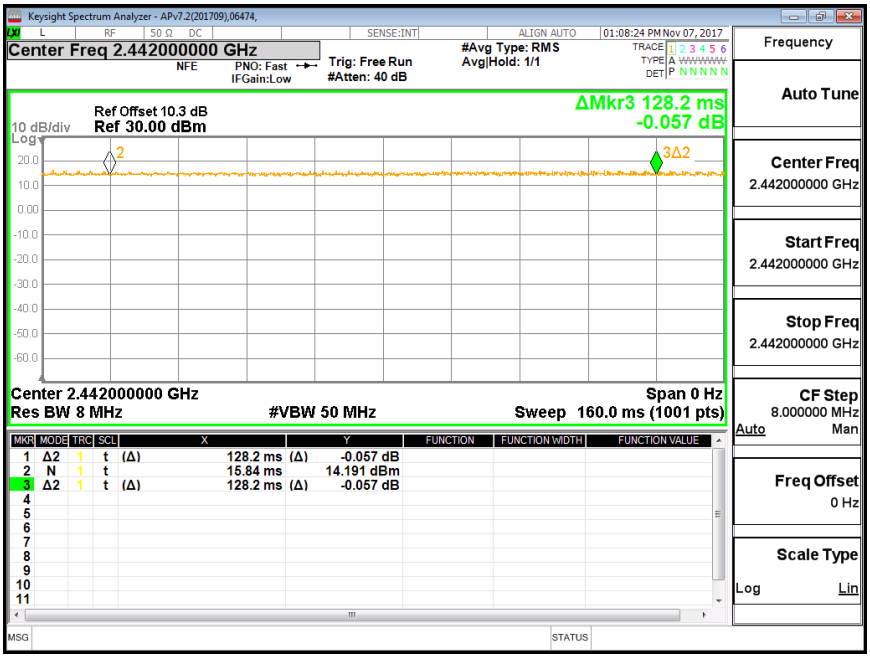
11g 1TX ON TIME AND DUTY CYCLE MID CH



11n20 CDD ON TIME AND DUTY CYCLE MID CH



11n40 CDD ON TIME AND DUTY CYCLE MID CH



7.2. 6 dB DTS BANDWIDTH AND 99% BANDWIDTH

LIMITS

FCC Part15 (15.247) Subpart C RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(a)(2) RSS-247 5.1 (a)	6 dB Bandwidth	>= 500KHz	2400-2483.5
RSS-Gen Clause 6.6	99% Bandwidth	For reporting purposes only.	2400-2483.5

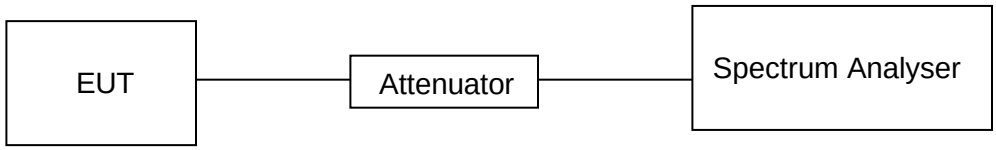
TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 6dB Bandwidth :100K For 99% Bandwidth :1% to 5% of the occupied bandwidth
VBW	For 6dB Bandwidth : ≥3 × RBW For 99% Bandwidth : approximately 3×RBW
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB and 99% relative to the maximum level measured in the fundamental emission.

TEST SETUP



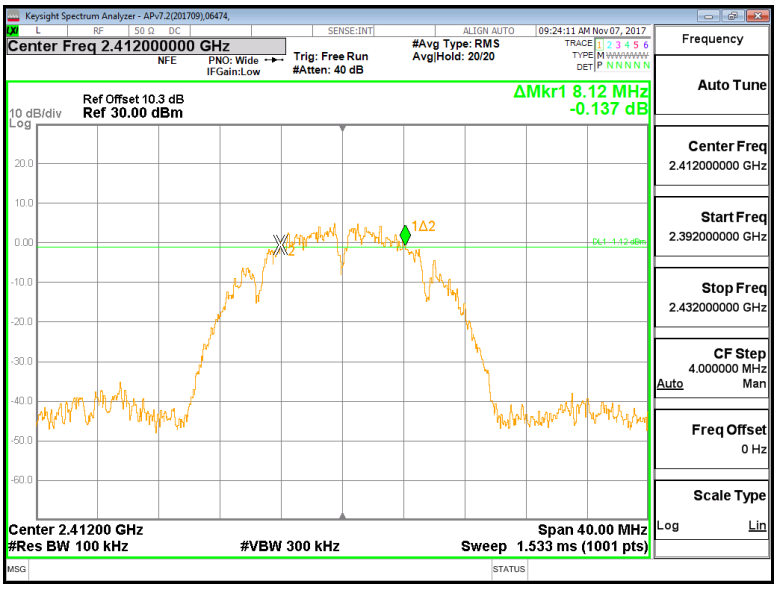
RESULTS

7.2.1. 802.11b SISO MODE

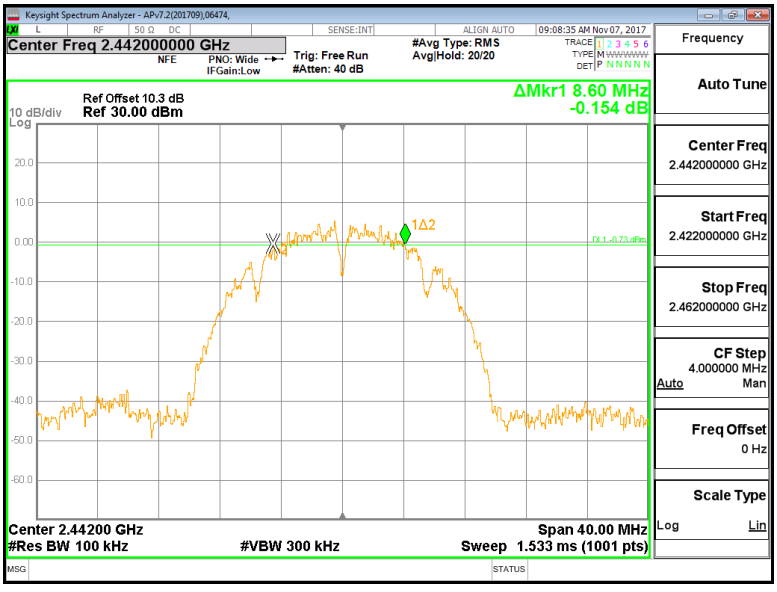
ANTENNA1

Frequency (MHz)	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit For 6dB (kHz)	Result
2412	8.12	13.686	500	Pass
2442	8.60	13.490	500	Pass
2472	8.04	13.569	500	Pass

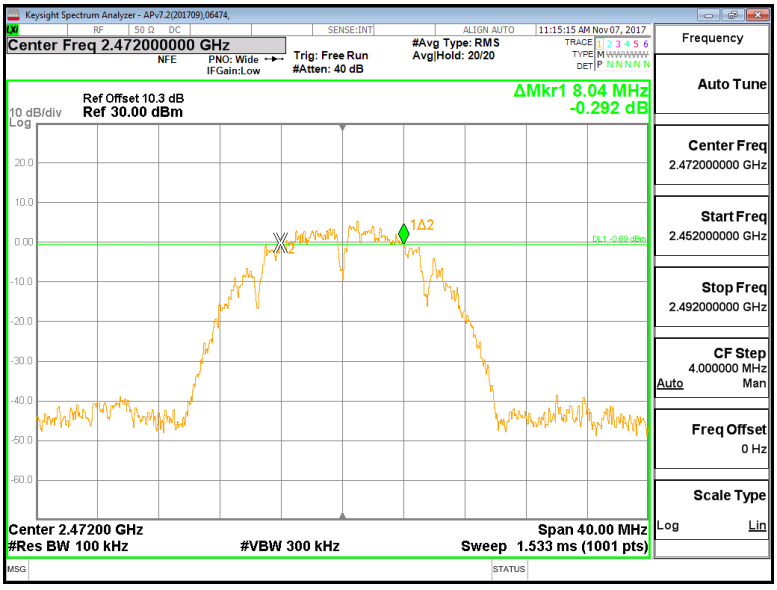
6 dB BANDWIDTH LOW CH



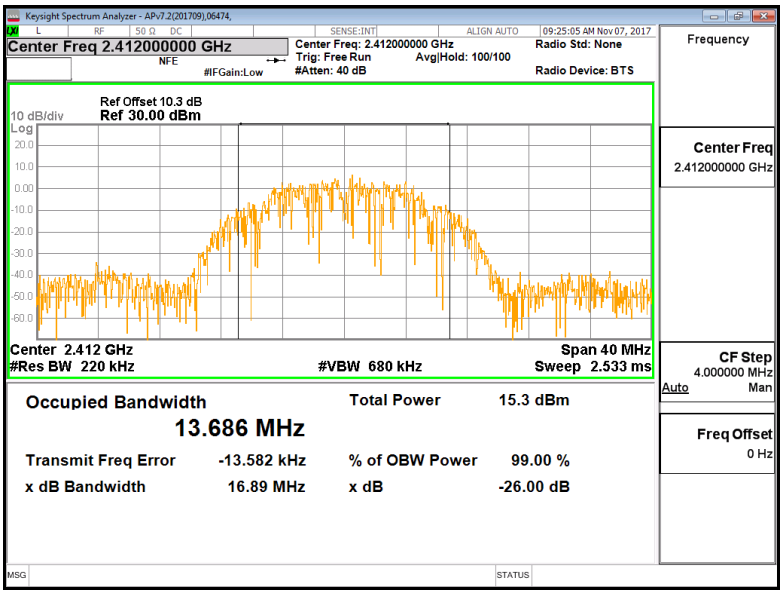
6 dB BANDWIDTH MID CH



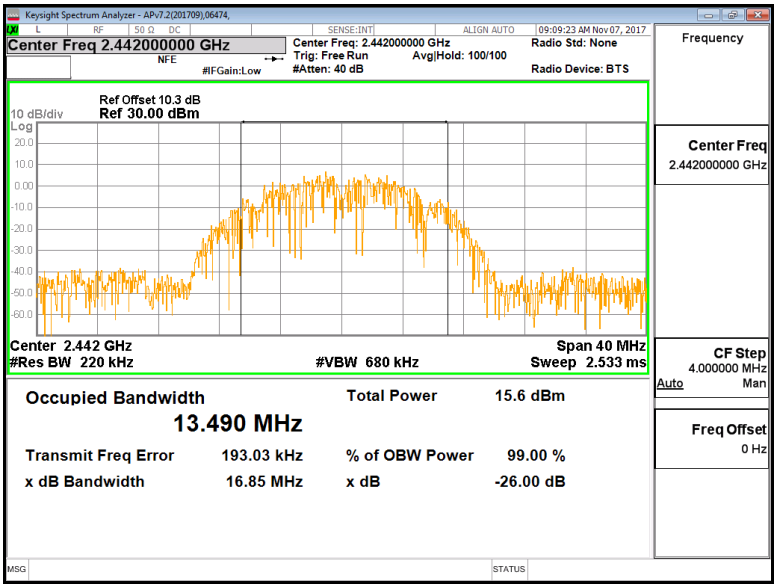
6 dB BANDWIDTH HIGH CH



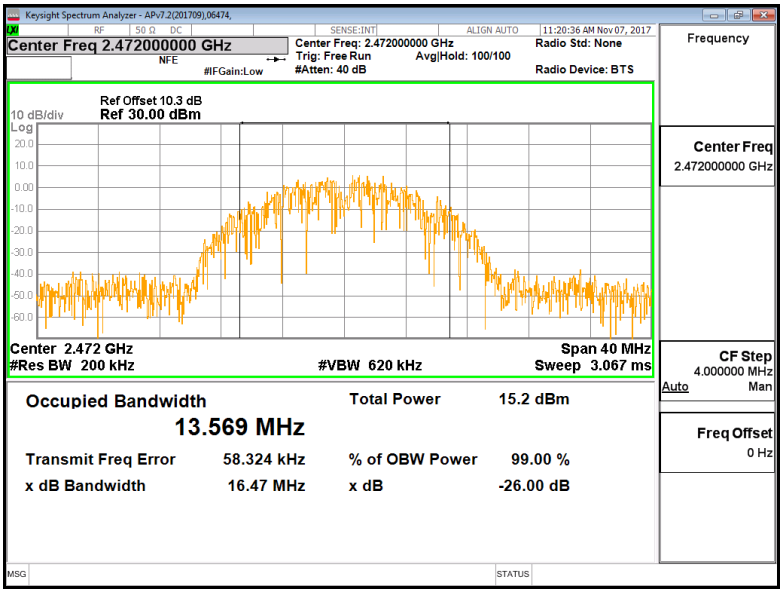
99% BANDWIDTH LOW CH



99% BANDWIDTH MID CH



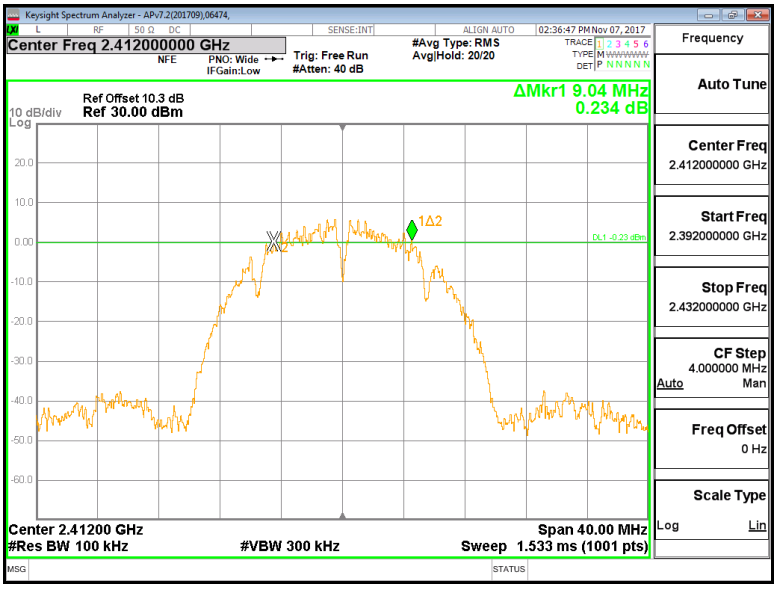
99% BANDWIDTH HIGH CH



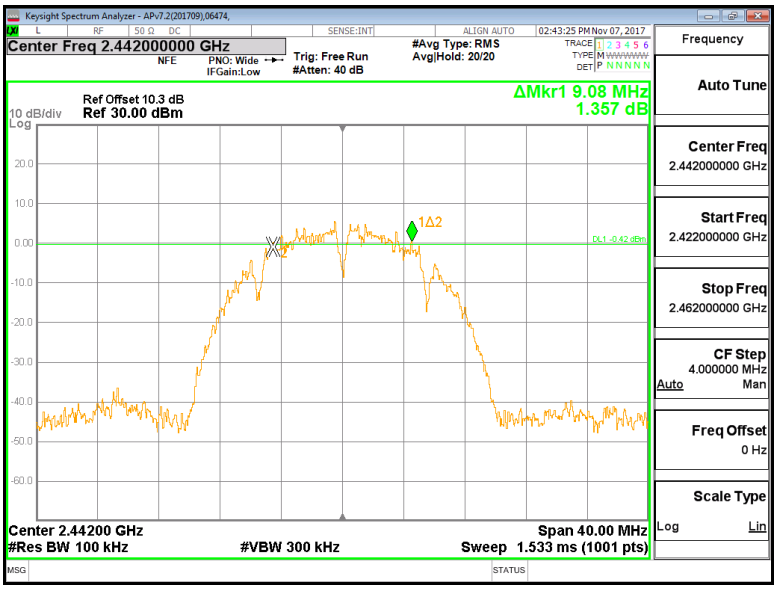
ANTENNA2

Frequency (MHz)	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit For 6dB (kHz)	Result
2412	9.04	13.619	500	Pass
2442	9.08	13.711	500	Pass
2472	9.60	13.456	500	Pass

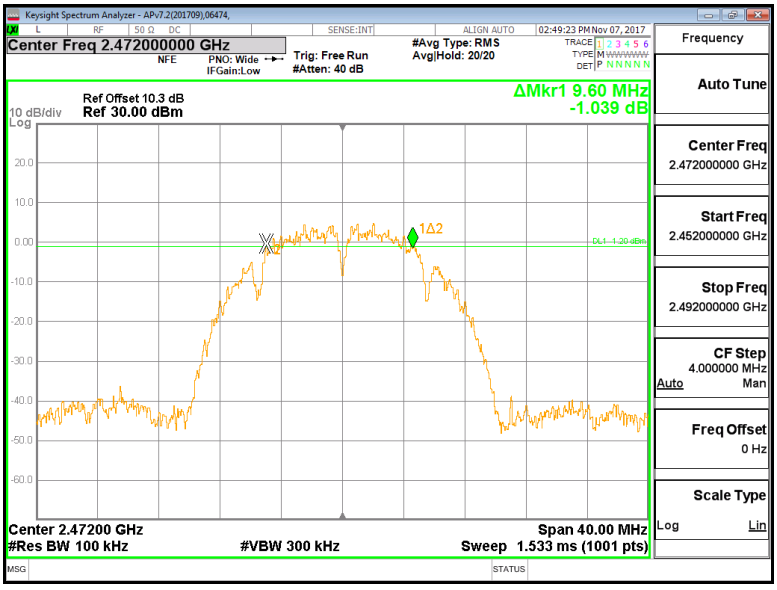
6 dB BANDWIDTH LOW CH



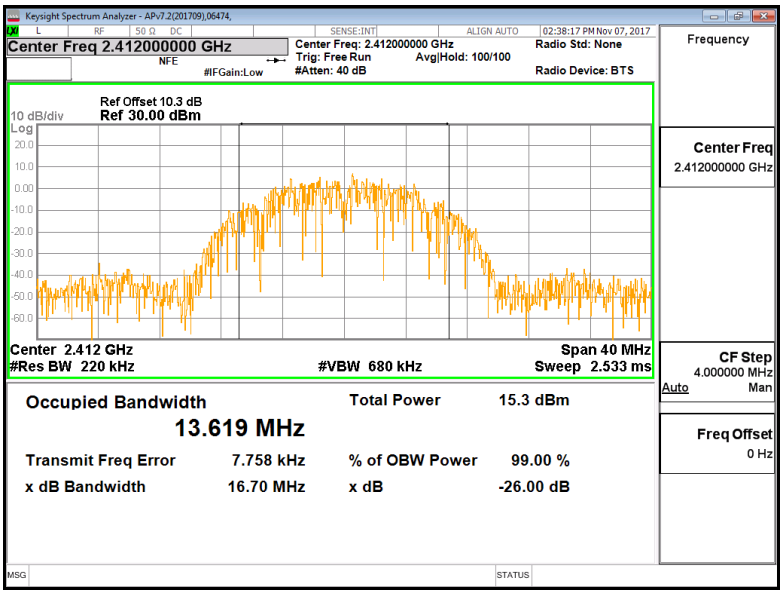
6 dB BANDWIDTH MID CH



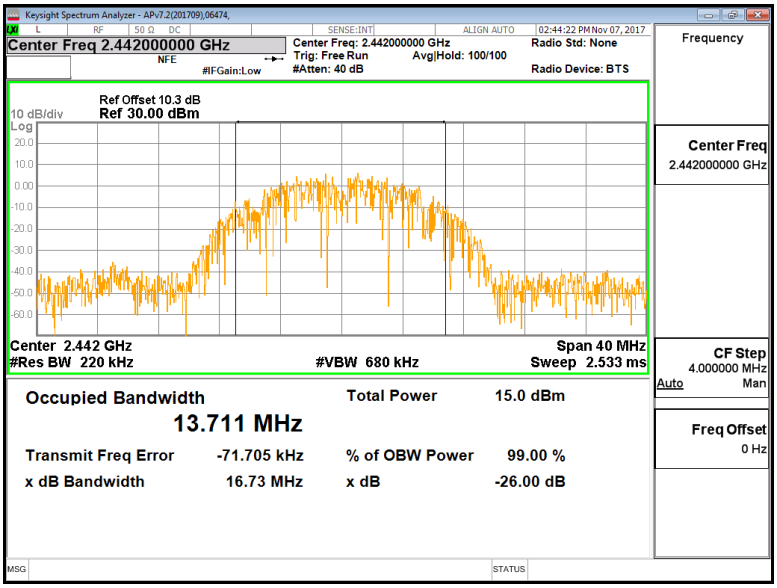
6 dB BANDWIDTH HIGH CH



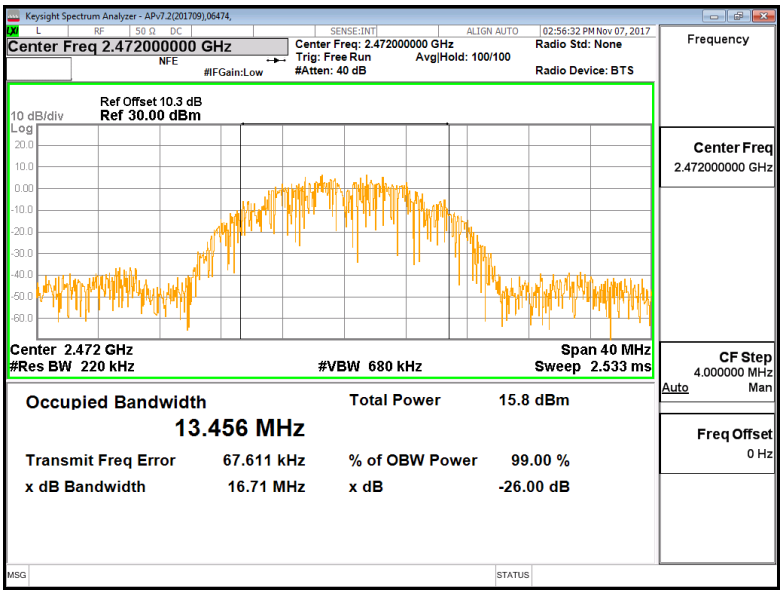
99% BANDWIDTH LOW CH



99% BANDWIDTH MID CH



99% BANDWIDTH HIGH CH

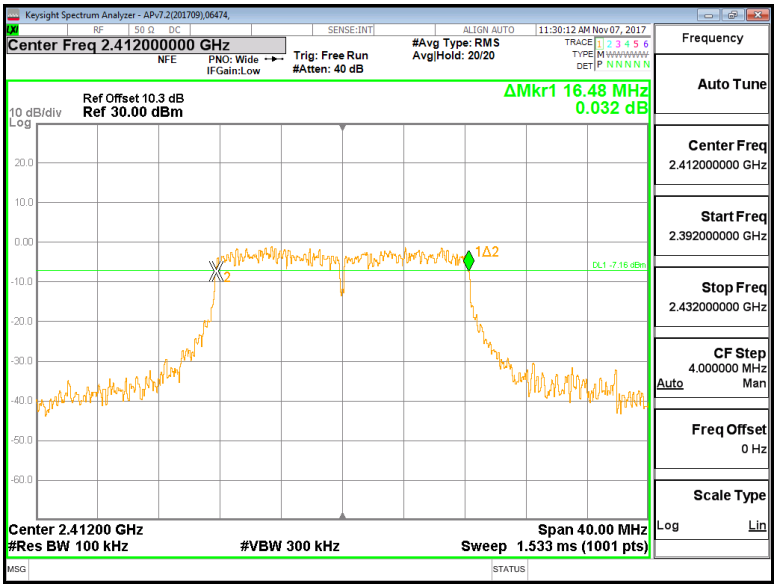


7.2.2. 802.11g SISO MODE

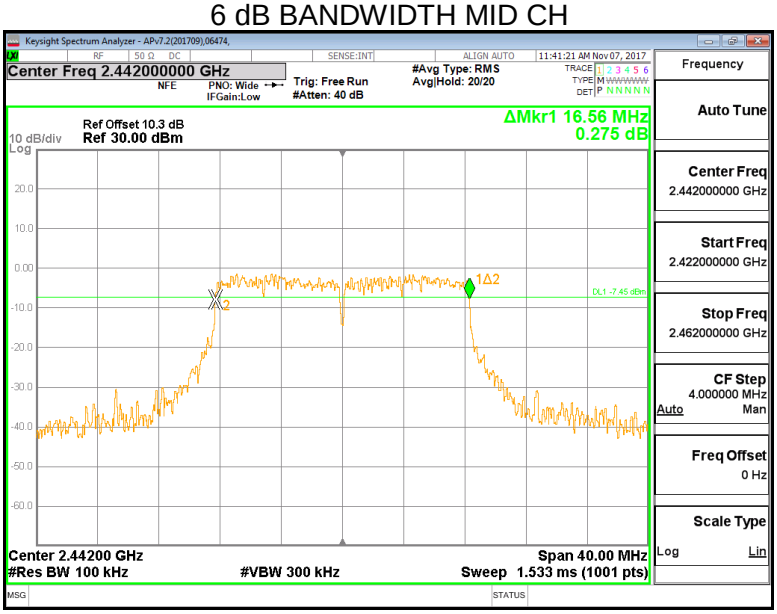
ANTENNA1

Frequency (MHz)	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit For 6dB (kHz)	Result
2412	16.48	16.421	500	Pass
2442	16.56	16.511	500	Pass
2472	16.52	16.471	500	Pass

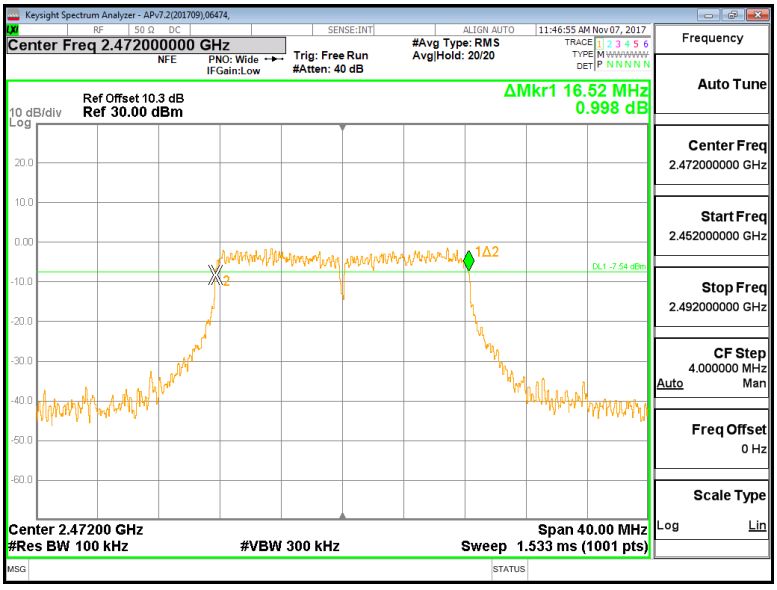
6 dB BANDWIDTH LOW CH



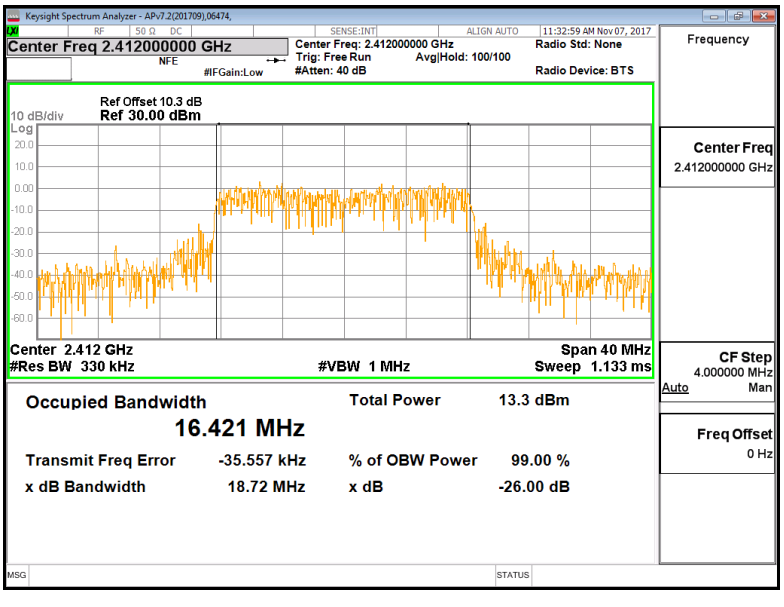
6 dB BANDWIDTH MID CH



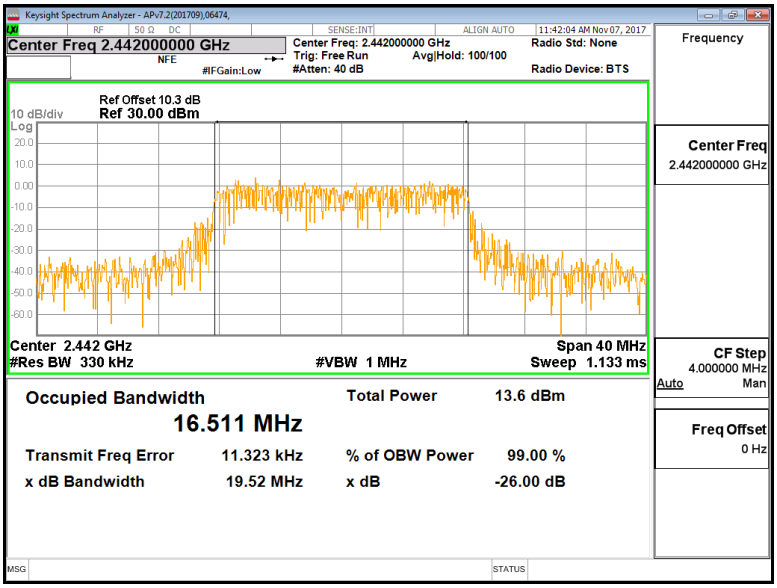
6 dB BANDWIDTH HIGH CH



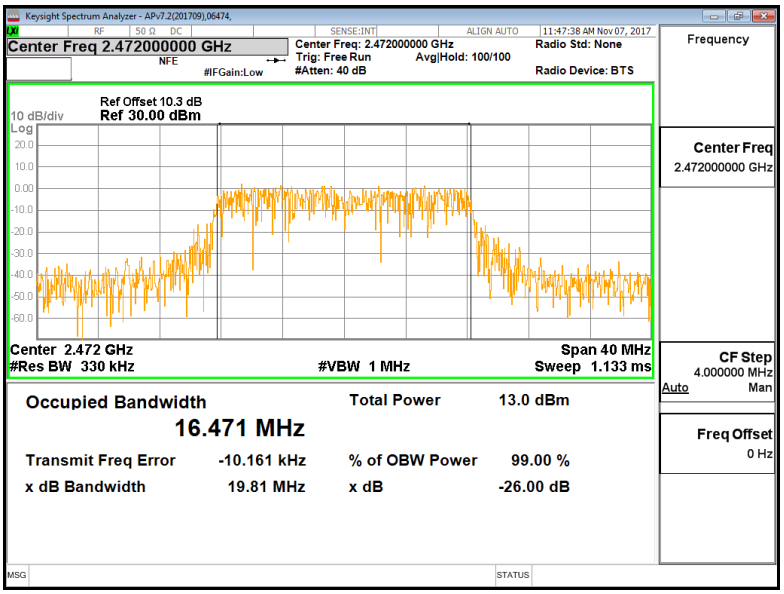
99% BANDWIDTH LOW CH



99% BANDWIDTH MID CH



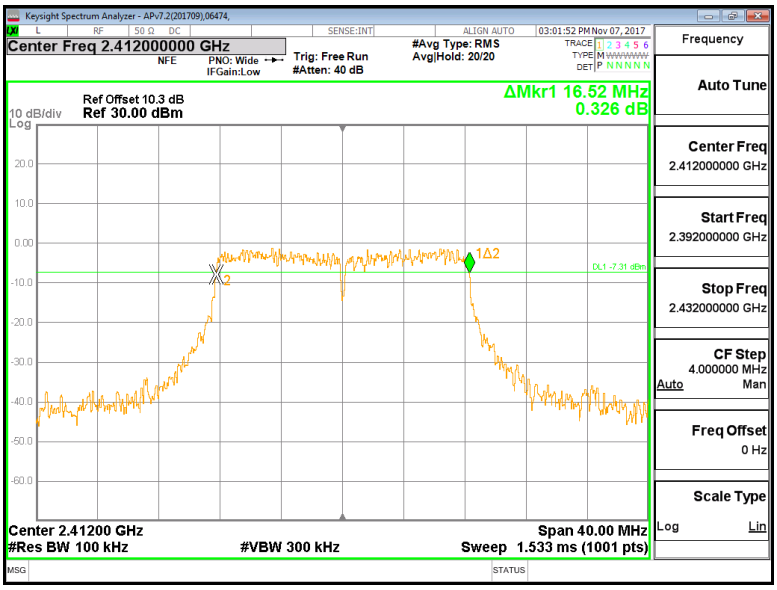
99% BANDWIDTH HIGH CH



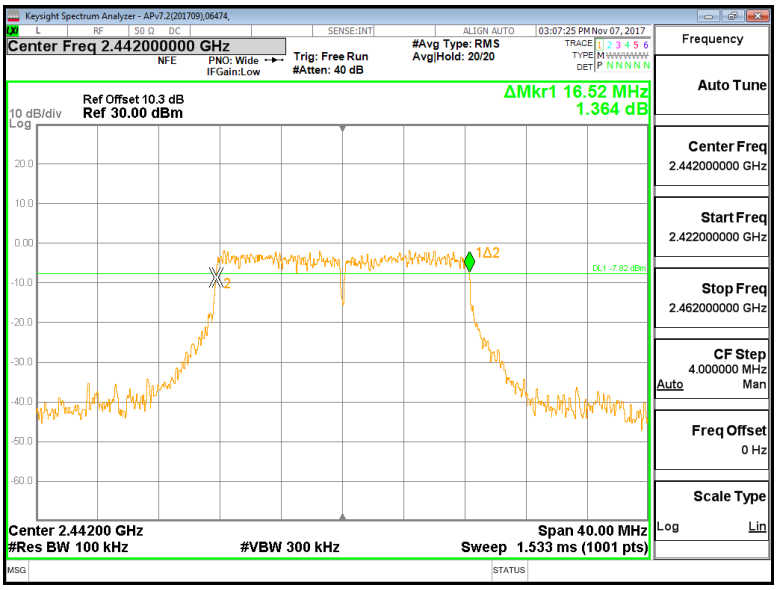
ANTENNA2

Frequency (MHz)	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit For 6dB (kHz)	Result
2412	16.52	16.607	500	Pass
2442	16.52	16.567	500	Pass
2472	16.52	16.522	500	Pass

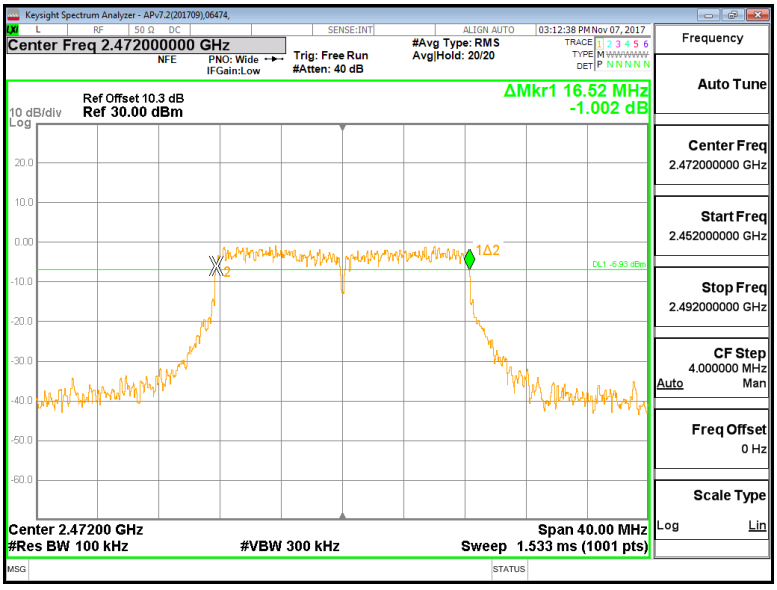
6 dB BANDWIDTH LOW CH



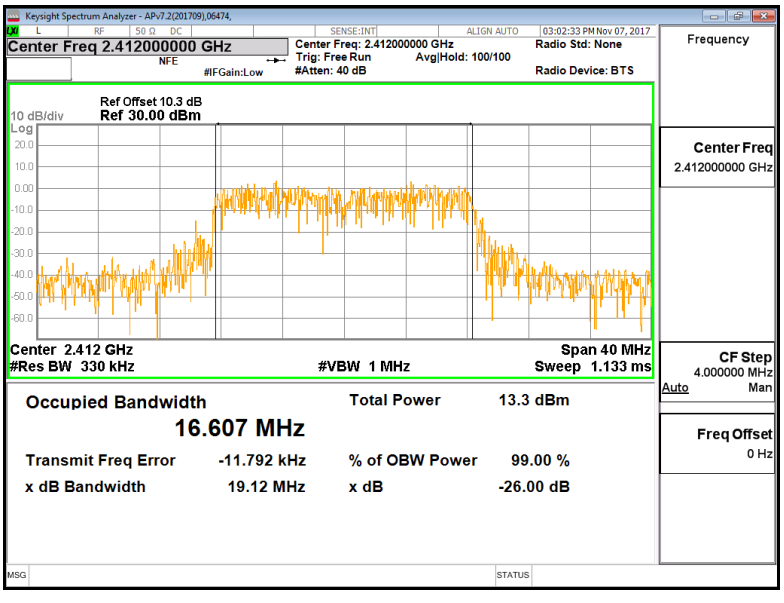
6 dB BANDWIDTH MID CH



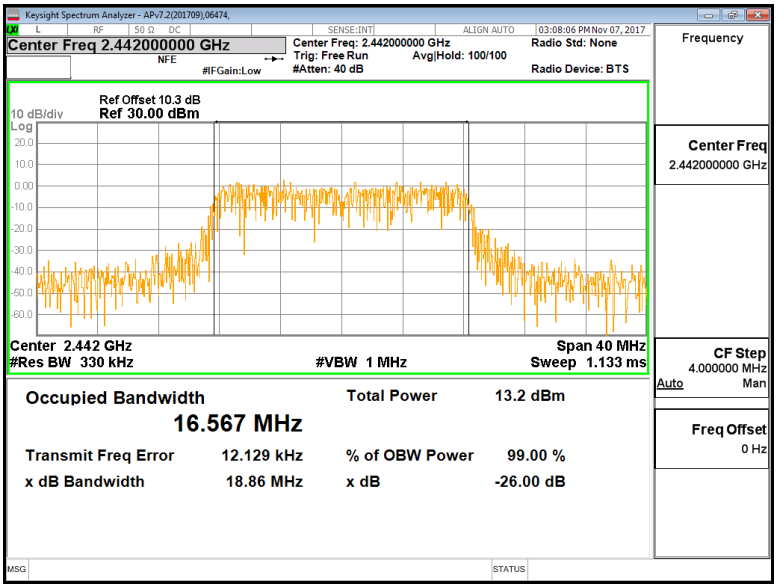
6 dB BANDWIDTH HIGH CH



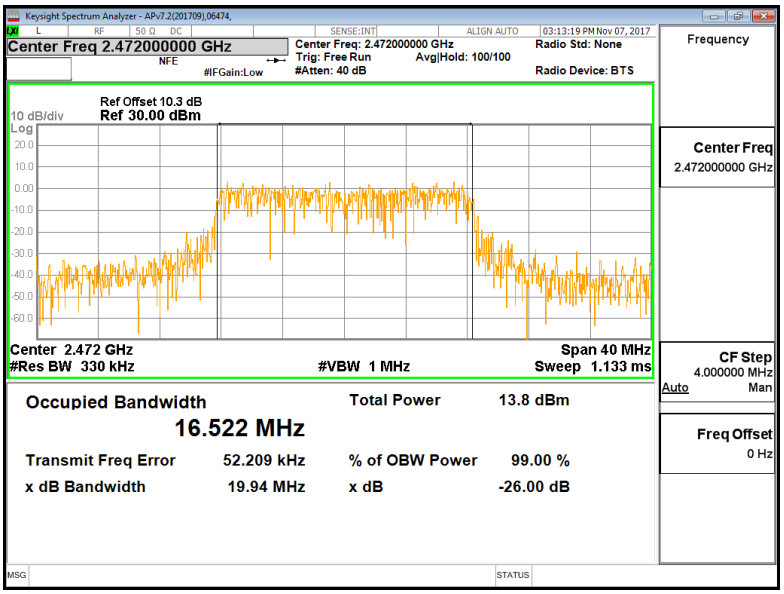
99% BANDWIDTH LOW CH



99% BANDWIDTH MID CH



99% BANDWIDTH HIGH CH

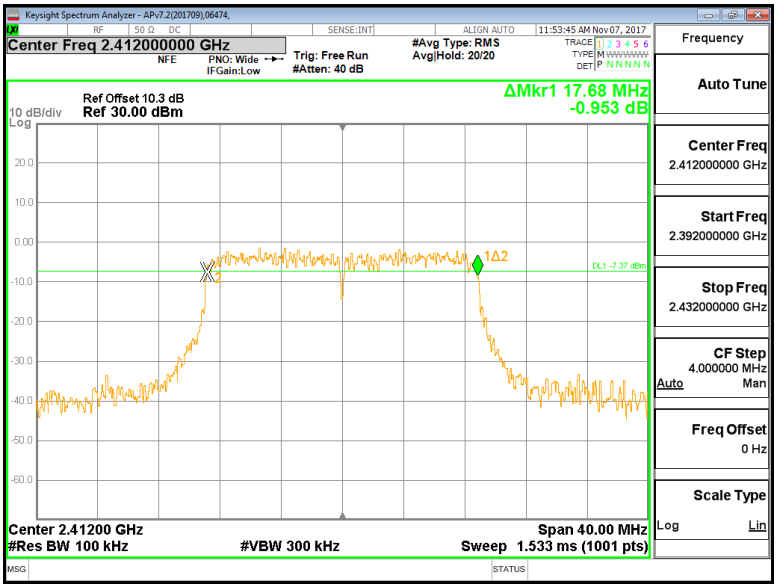


7.2.3. 802.11n20 CDD MODE

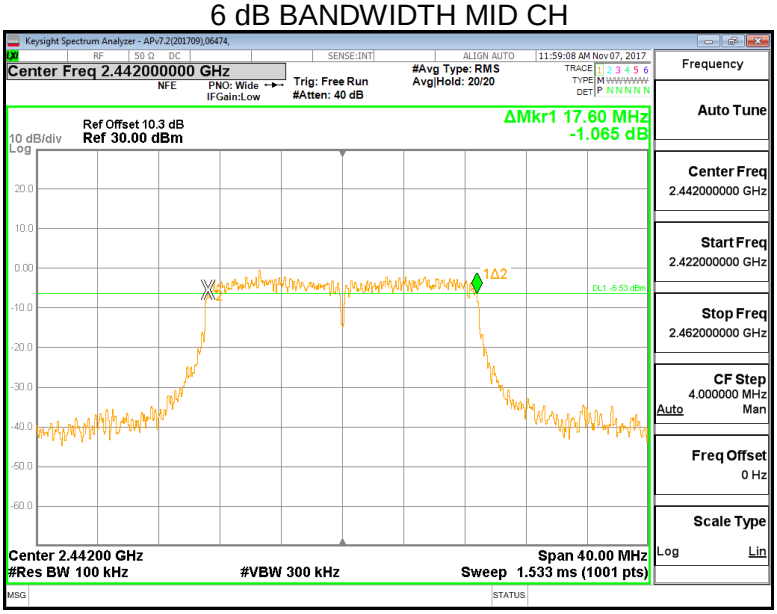
ANTENNA1

Frequency (MHz)	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit For 6dB (kHz)	Result
2412	17.68	17.678	500	Pass
2442	17.60	17.698	500	Pass
2472	17.68	17.636	500	Pass

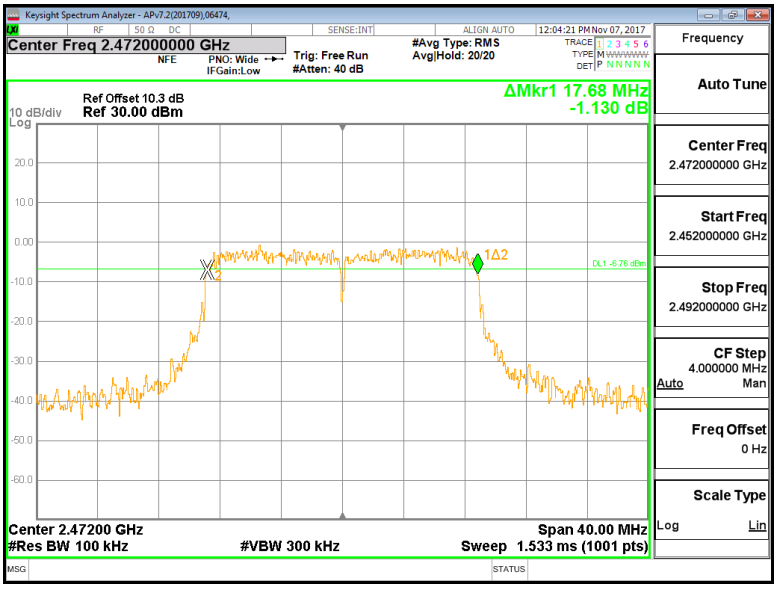
6 dB BANDWIDTH LOW CH



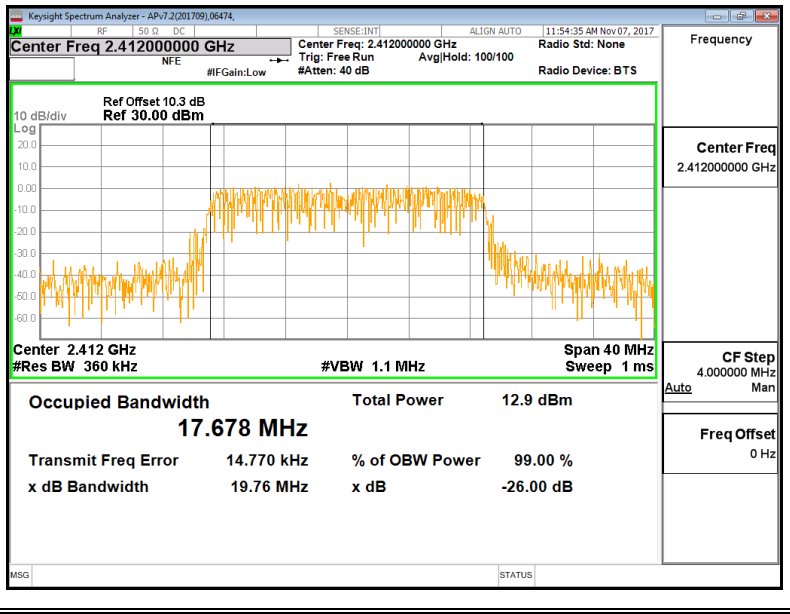
6 dB BANDWIDTH MID CH



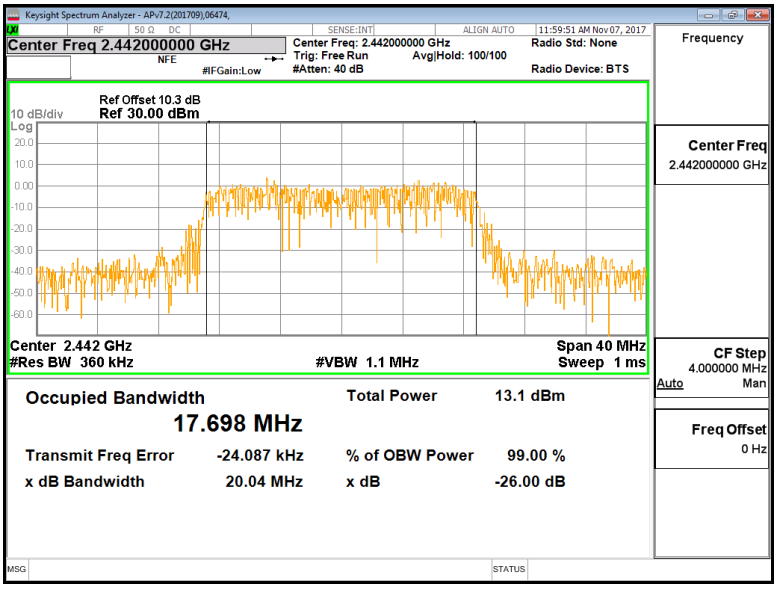
6 dB BANDWIDTH HIGH CH



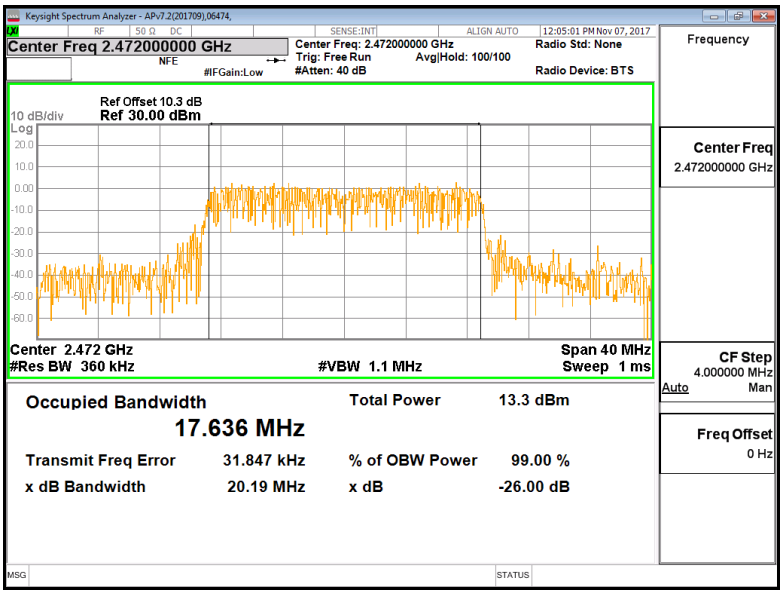
99% BANDWIDTH LOW CH



99% BANDWIDTH MID CH



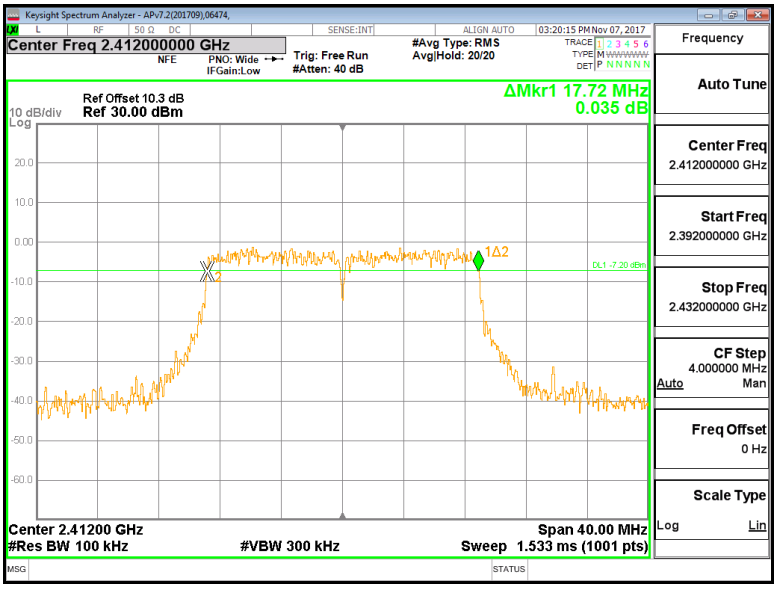
99% BANDWIDTH HIGH CH



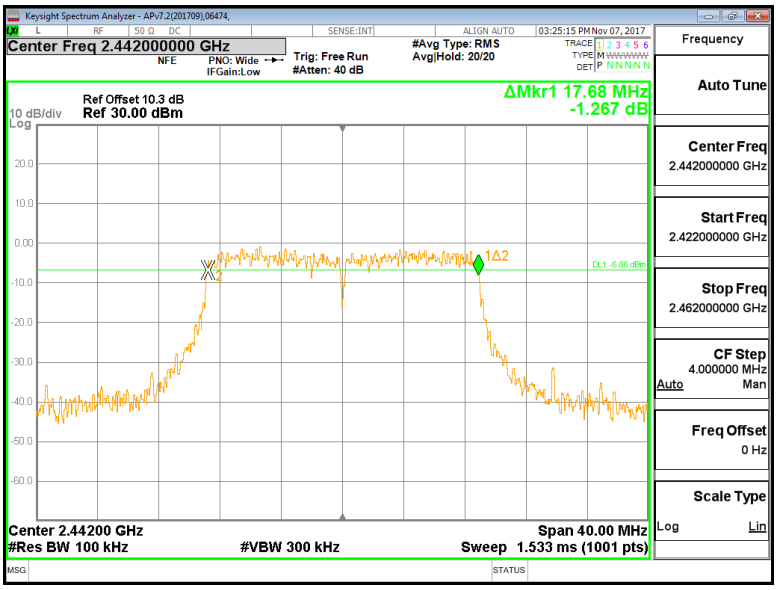
ANTENNA2

Frequency (MHz)	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit For 6dB (kHz)	Result
2412	17.72	17.724	500	Pass
2442	17.68	17.620	500	Pass
2472	17.60	17.585	500	Pass

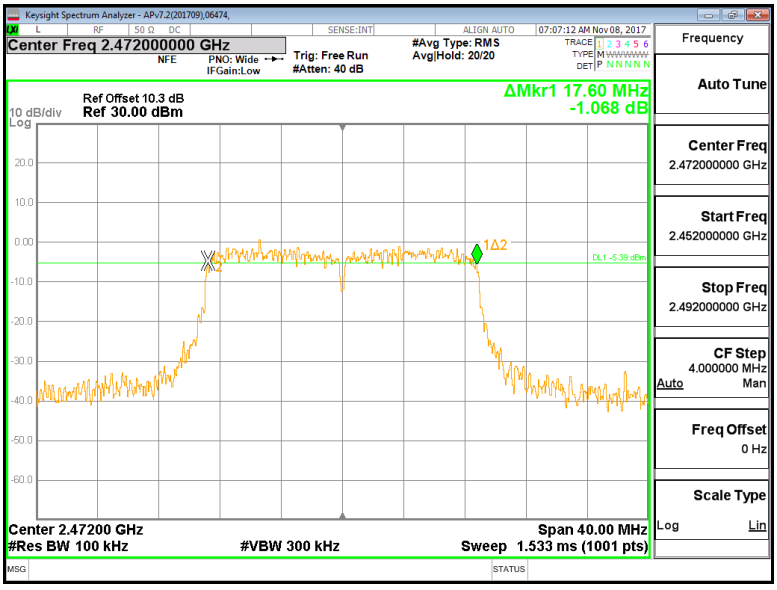
6 dB BANDWIDTH LOW CH



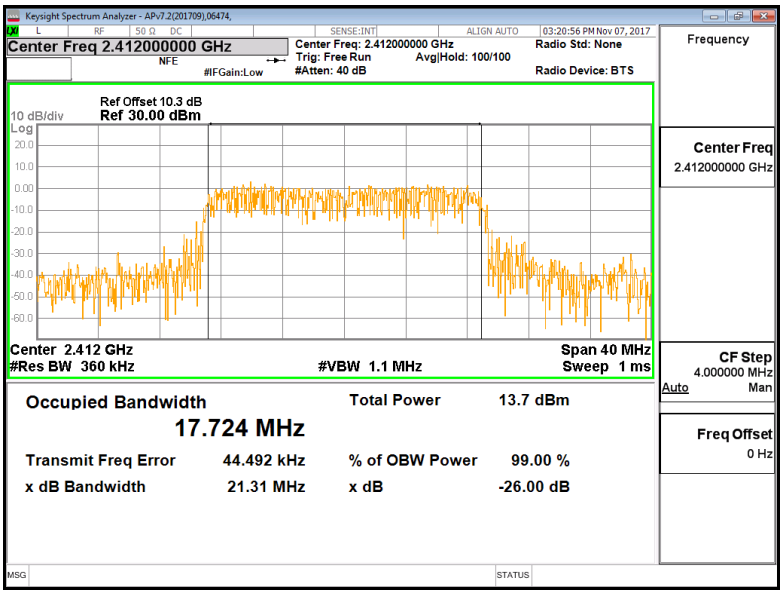
6 dB BANDWIDTH MID CH



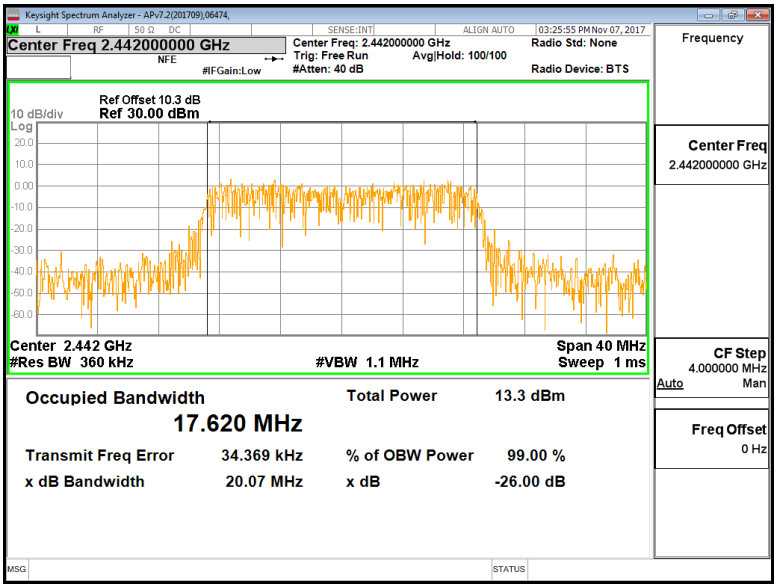
6 dB BANDWIDTH HIGH CH



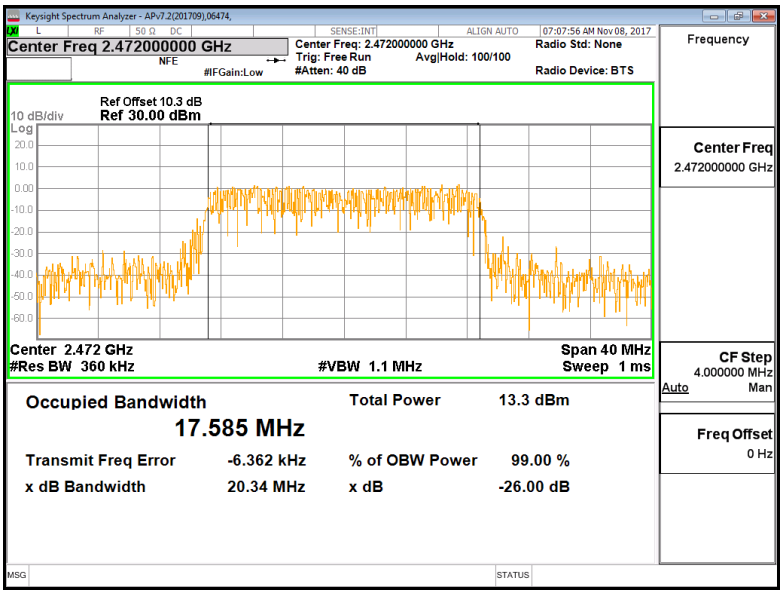
99% BANDWIDTH LOW CH



99% BANDWIDTH MID CH



99% BANDWIDTH HIGH CH

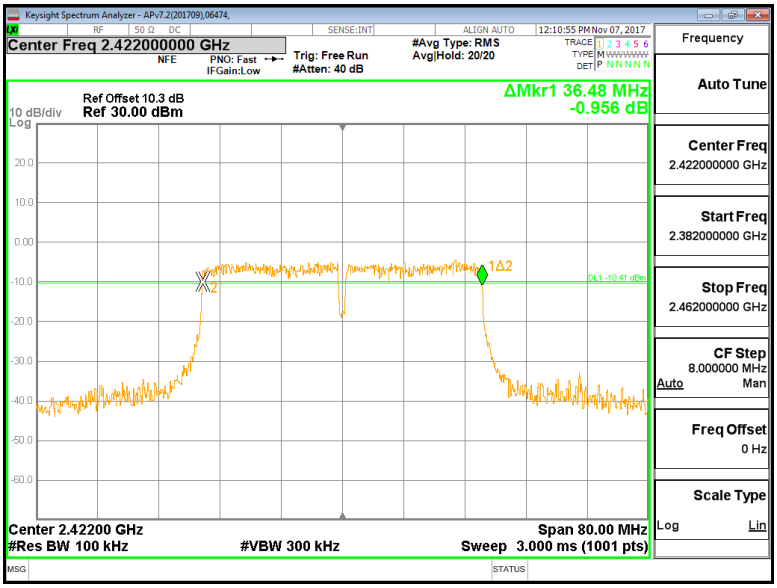


7.2.4. 802.11n40 CDD MODE

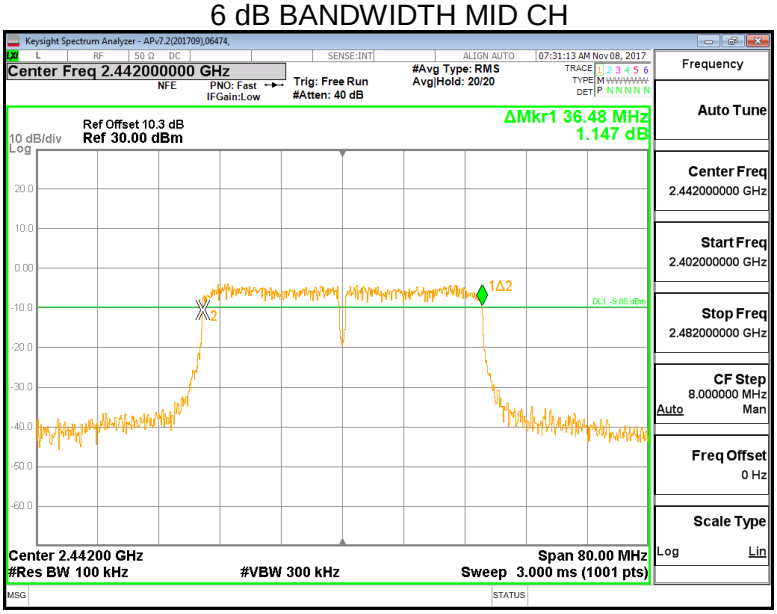
ANTENNA1

Frequency (MHz)	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit For 6dB (kHz)	Result
2422	36.48	36.15	500	Pass
2442	36.48	36.30	500	Pass
2462	36.48	36.41	500	Pass

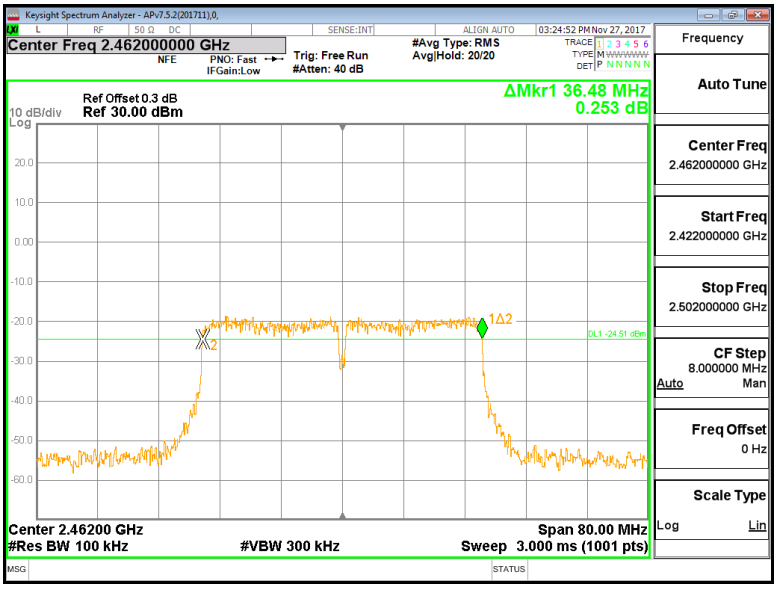
6 dB BANDWIDTH LOW CH



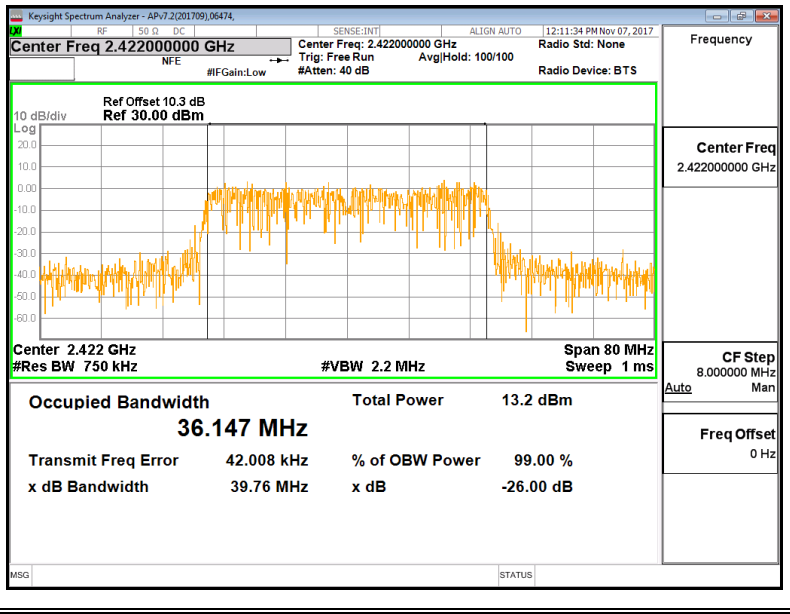
6 dB BANDWIDTH MID CH



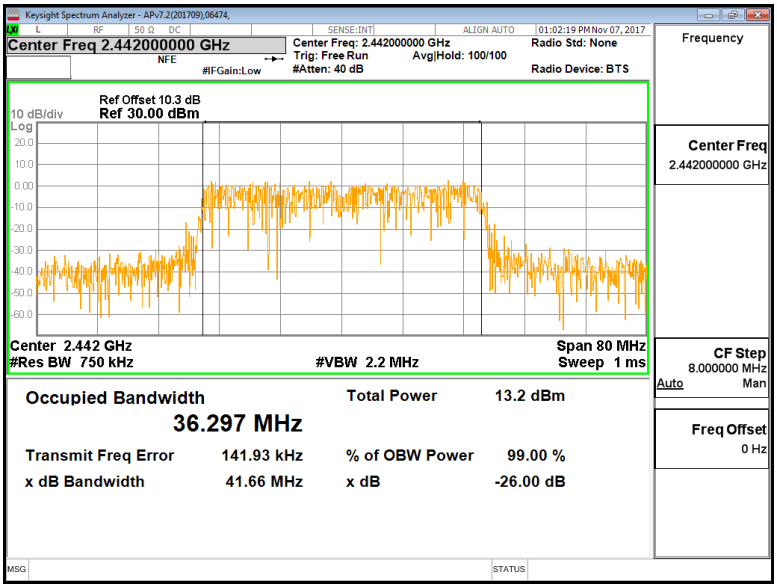
6 dB BANDWIDTH HIGH CH



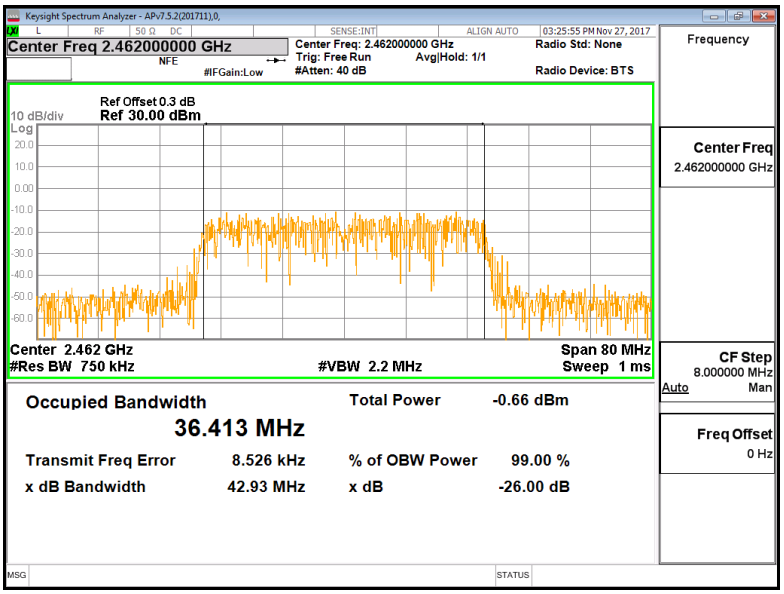
99% BANDWIDTH LOW CH



99% BANDWIDTH MID CH



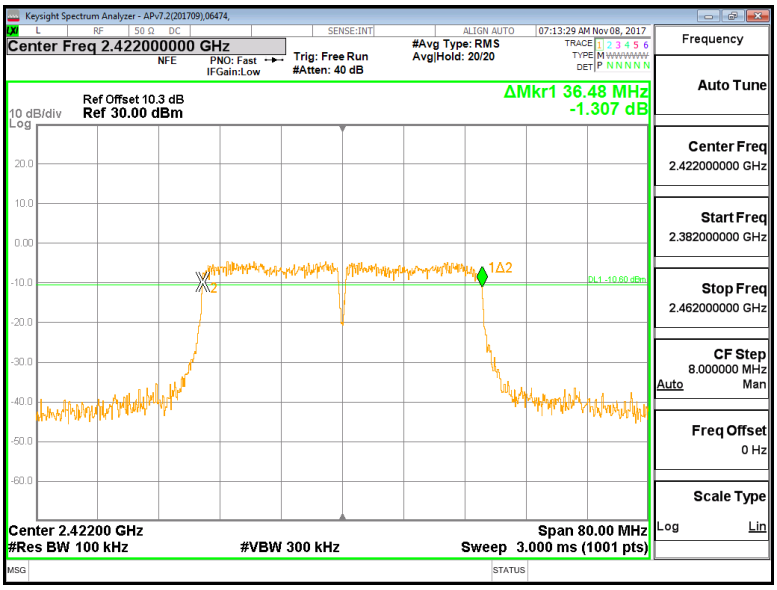
99% BANDWIDTH HIGH CH



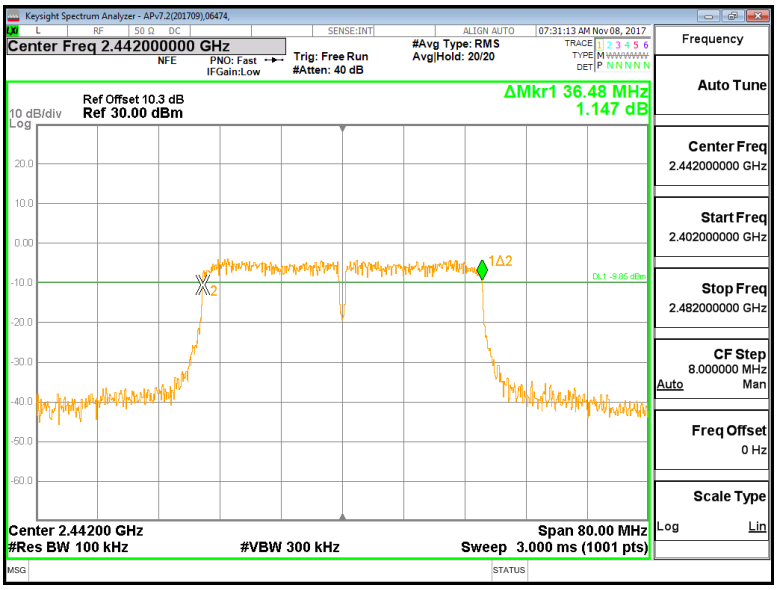
ANTENNA2

Frequency (MHz)	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit For 6dB (kHz)	Result
2422	36.48	36.30	500	Pass
2442	36.48	36.26	500	Pass
2462	36.48	36.25	500	Pass

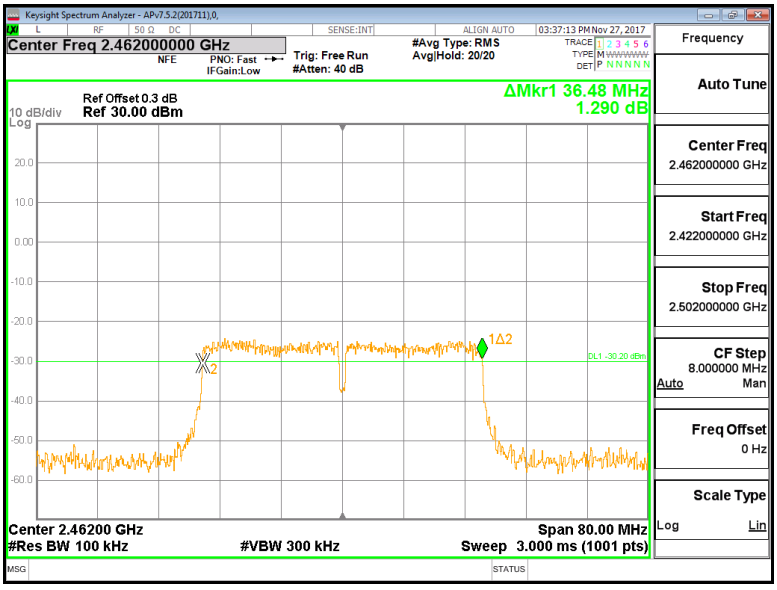
6 dB BANDWIDTH LOW CH



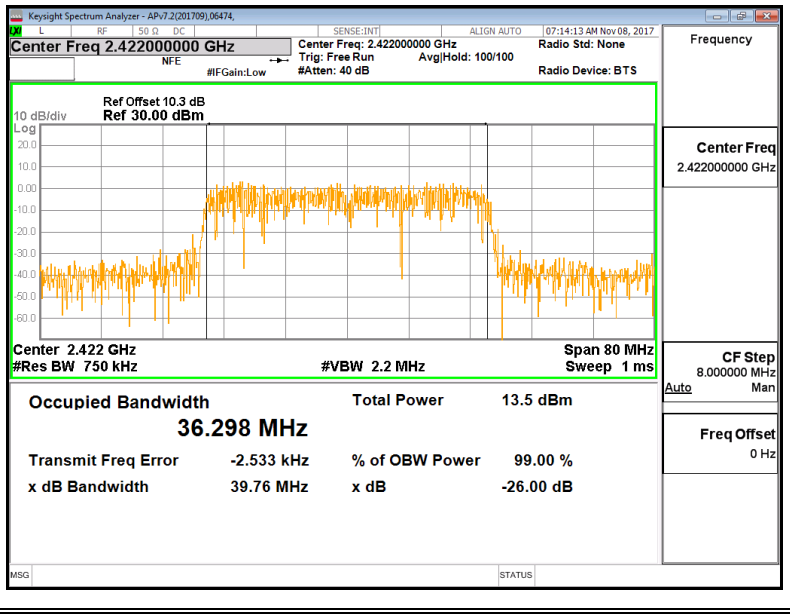
6 dB BANDWIDTH MID CH



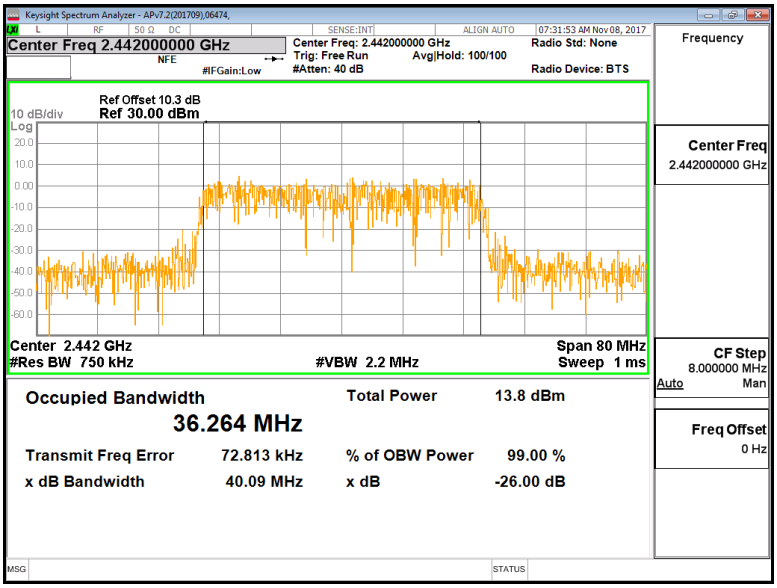
6 dB BANDWIDTH HIGH CH



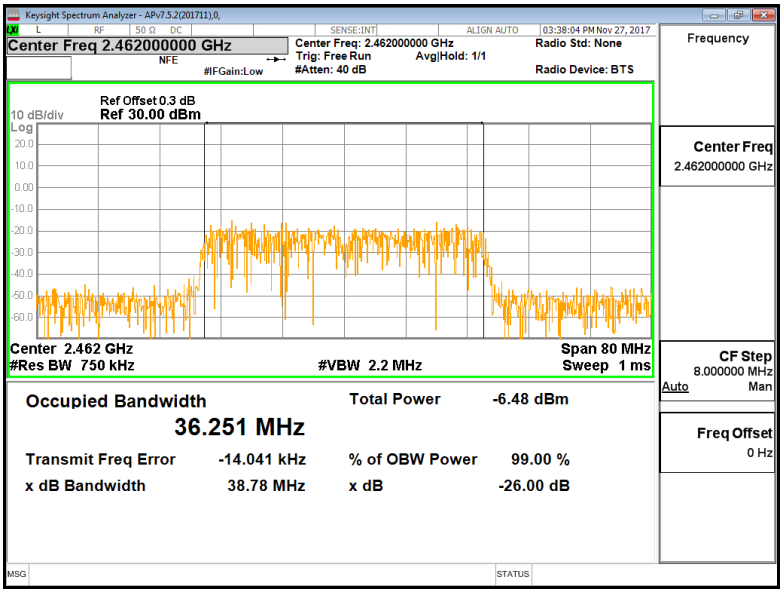
99% BANDWIDTH LOW CH



99% BANDWIDTH MID CH



99% BANDWIDTH HIGH CH



7.3. PEAK CONDUCTED OUTPUT POWER

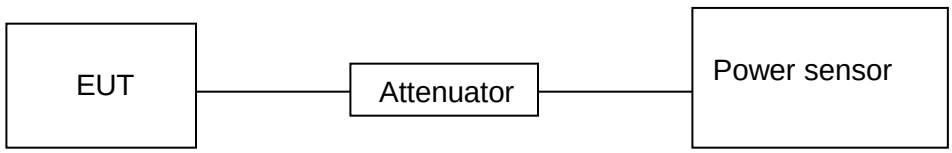
LIMITS

FCC Part15 (15.247) Subpart C RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(b)(3) RSS-247 5.4 (e)	Peak Output Power	1 watt or 30dBm	2400-2483.5

TEST PROCEDURE

Place the EUT on the table and set it in the transmitting mode.
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Power sensor.
Measure peak power each channel.

TEST SETUP



RESULTS

7.3.1. 802.11b SISO MODE

Mode	Frequency (MHz)	ANT	Maximum PK Conducted Output Power (dBm)		Result
			Single	Total	
802.11b	2412	1	16.19	N/A	PASS
		2	18.46		
	2442	1	18.16		
		2	18.25		
	2462	1	18.21		
		2	18.26		
	2467	1	17.73		
		2	18.34		
	2472	1	17.86		
		2	18.55		

Mode	Frequency (MHz)	ANT	Maximum AV Conducted Output Power (dBm)		Result
			Single	Total	
802.11b	2412	1	13.45	N/A	PASS
		2	15.23		
	2442	1	15.44		
		2	15.26		
	2462	1	15.50		
		2	15.27		
	2467	1	15.01		
		2	15.46		
	2472	1	14.95		
		2	15.55		

7.3.2. 802.11g SISO MODE

Mode	Frequency (MHz)	ANT	Maximum PK Conducted Output Power (dBm)		Result
			Single	Total	
802.11g	2412	1	20.79	N/A	PASS
		2	22.15		
	2442	1	21.61		
		2	21.87		
	2462	1	21.73		
		2	21.90		
	2467	1	18.67		
		2	18.61		
	2472	1	18.54		
		2	18.54		

Mode	Frequency (MHz)	ANT	Maximum AV Conducted Output Power (dBm)		Result
			Single	Total	
802.11g	2412	1	12.81	N/A	30
		2	13.17		
	2442	1	13.52		
		2	12.86		
	2462	1	13.45		
		2	12.97		
	2467	1	10.92		
		2	10.87		
	2472	1	10.66		
		2	10.80		

7.3.1. 802.11n HT20 SISO MODE

Mode	Frequency (MHz)	ANT	Maximum PK Conducted Output Power (dBm)		Result
			Single	Total	
802.11n20	2412	1	20.67	24.33	PASS
		2	21.88		
	2442	1	21.24	24.03	
		2	20.78		
	2462	1	20.89	23.90	
		2	20.94		
	2467	1	15.82	18.60	
		2	15.34		
	2472	1	15.54	18.58	
		2	15.42		

Mode	Frequency (MHz)	ANT	Maximum AV Conducted Output Power (dBm)		Result
			Single	Total	
802.11n20	2412	1	12.77	15.70	PASS
		2	12.60		
	2442	1	13.00	15.81	
		2	12.58		
	2462	1	12.67	15.61	
		2	12.52		
	2467	1	7.56	10.70	
		2	7.83		
	2472	1	7.67	10.78	
		2	7.87		

7.3.2. 802.11n HT20 CDD MODE

Mode	Frequency (MHz)	ANT	Maximum PK Conducted Output Power (dBm)		Result
			Single	Total	
802.11n20	2412	1	21.23	24.25	PASS
		2	22.80		
	2442	1	21.25	24.00	
		2	21.16		
	2462	1	20.21	23.11	
		2	19.99		
	2467	1	15.32	18.37	
		2	15.39		
	2472	1	15.54	18.49	
		2	15.42		

Mode	Frequency (MHz)	ANT	Maximum AV Conducted Output Power (dBm)		Result
			Single	Total	
802.11n20	2412	1	12.65	15.77	PASS
		2	12.87		
	2442	1	12.98	15.99	
		2	12.95		
	2462	1	12.61	15.62	
		2	12.60		
	2467	1	7.76	10.50	
		2	7.21		
	2472	1	7.49	10.43	
		2	7.34		

7.3.1. 802.11n HT40 SISO MODE

Mode	Frequency (MHz)	ANT	Maximum PK Conducted Output Power (dBm)		Result
			Single	Total	
802.11n40	2422	1	20.84	23.87	PASS
		2	20.88		
	2442	1	20.79	23.80	
		2	21.15		
	2462	1	16.99	20.39	
		2	17.74		

Mode	Frequency (MHz)	ANT	Maximum AV Conducted Output Power (dBm)		Result
			Single	Total	
802.11n40	2422	1	12.53	15.59	PASS
		2	12.63		
	2442	1	12.71	15.73	
		2	12.73		
	2462	1	9.12	12.86	
		2	9.62		

7.3.2. 802.11n HT40 CDD MODE

Mode	Frequency (MHz)	ANT	Maximum PK Conducted Output Power (dBm)		Result
			Single	Total	
802.11n40	2422	1	21.02	24.10	PASS
		2	21.16		
	2442	1	20.85	24.01	
		2	21.15		
	2462	1	17.77	20.80	
		2	17.80		

Mode	Frequency (MHz)	ANT	Maximum AV Conducted Output Power (dBm)		Result
			Single	Total	
802.11n40	2422	1	12.65	15.72	PASS
		2	12.76		
	2442	1	12.96	15.98	
		2	13.11		
	2462	1	9.78	12.86	
		2	9.92		

7.4. POWER SPECTRAL DENSITY

LIMITS

FCC Part15 (15.247) Subpart C RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
FCC §15.247 (e) RSS-247 5.2 (b)	Power Spectral Density	8 dBm in any 3 kHz band	2400-2483.5

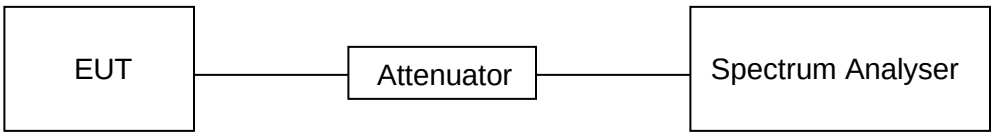
TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	3 kHz ≤ RBW ≤ 100 kHz.
VBW	≥3 × RBW
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.
If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

TEST SETUP



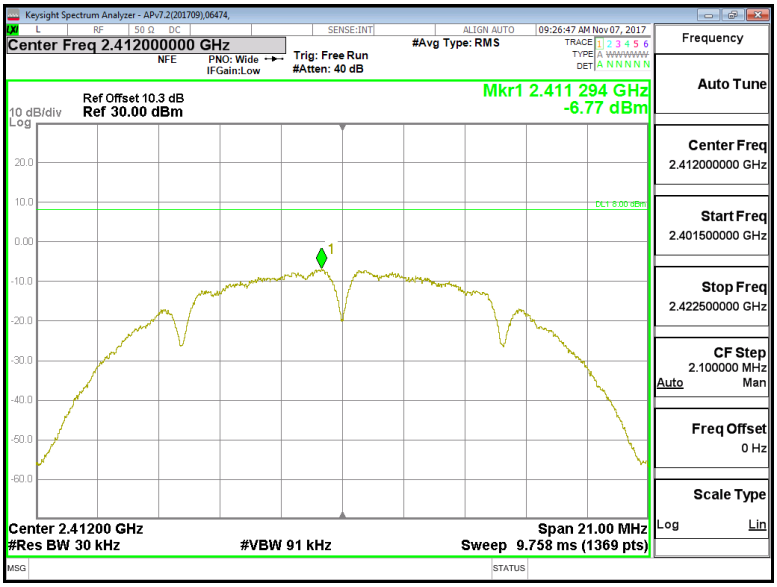
RESULTS

7.4.1. 802.11b SISO MODE

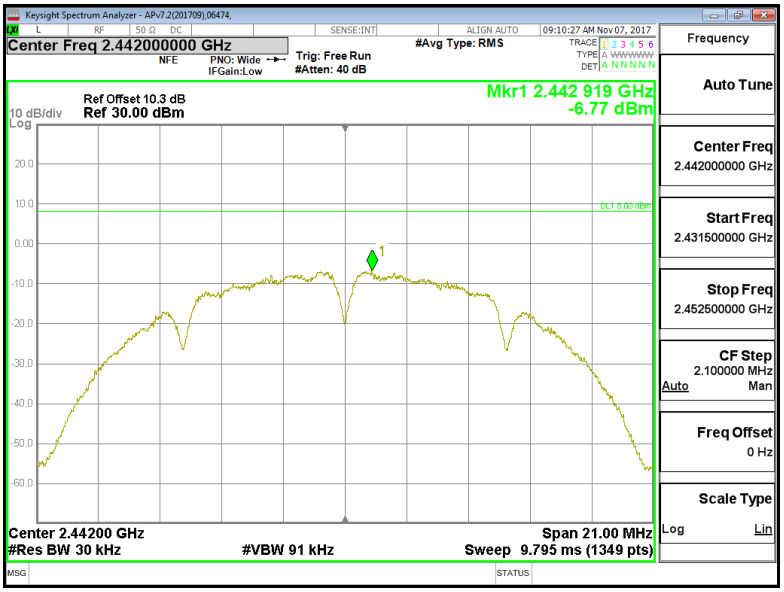
Frequency (MHz)	ANT	Power Spectral Density (dBm/3kHz)		Limit (dBm/3kHz)
		Single	Total	
2412	1	-6.77	N/A	8
	2	-5.83		
2442	1	-6.77		
	2	-6.72		
2472	1	-7.06		
	2	-6.40		

ANTENNA1

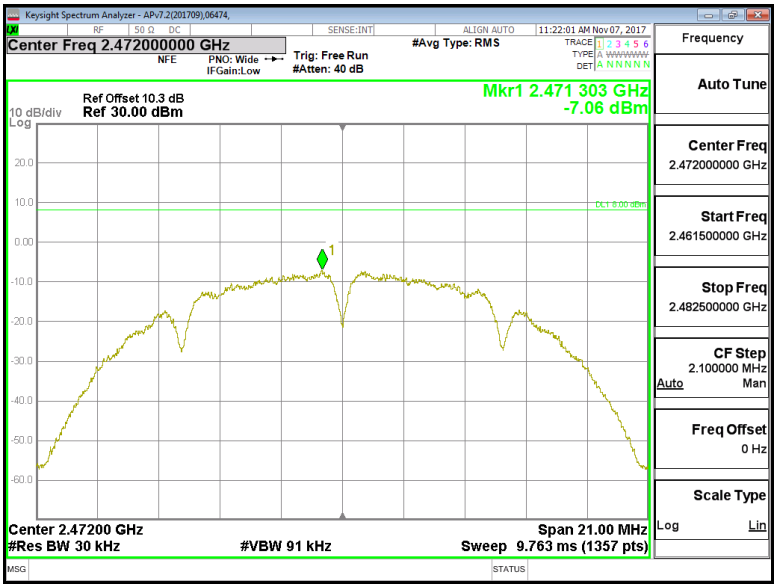
PSD LOW CH



PSD MID CH

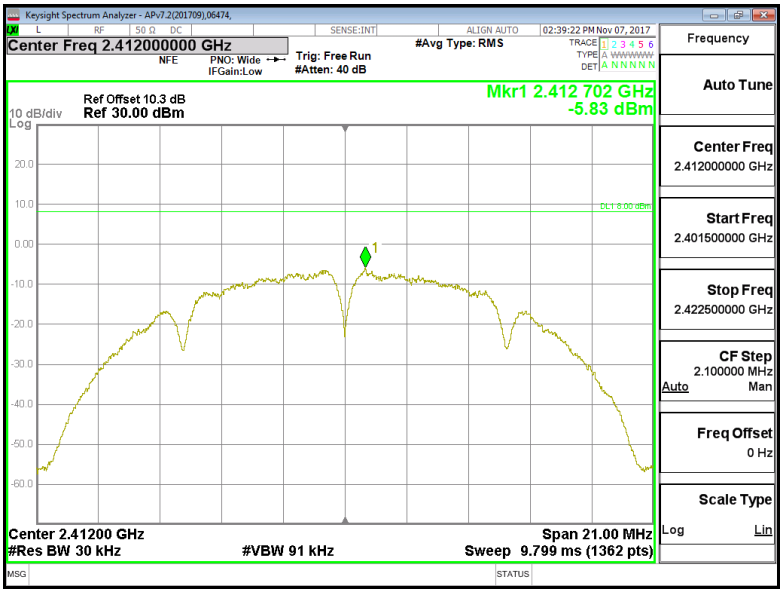


PSD HIGH CH

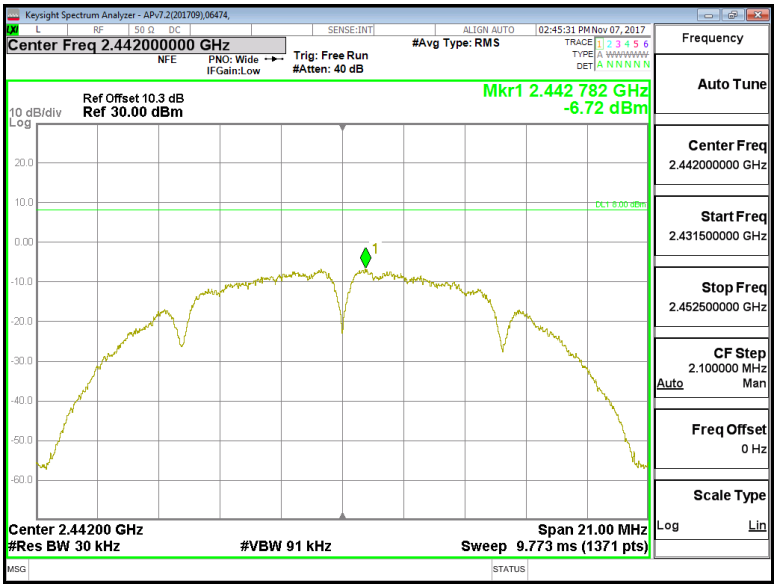


ANTENNA2

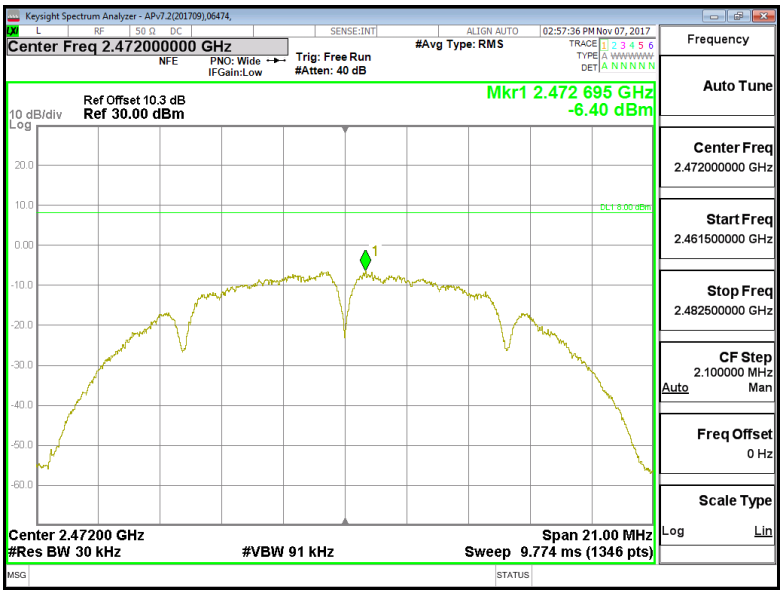
PSD LOW CH



PSD MID CH



PSD HIGH CH

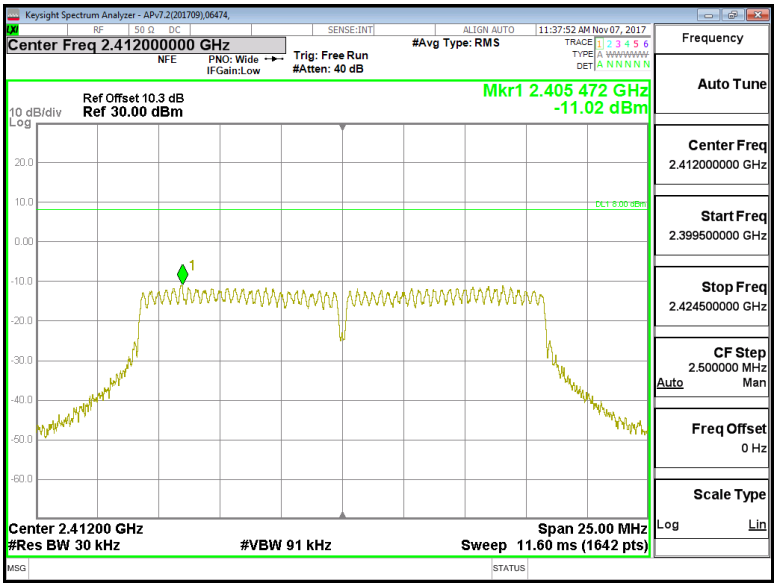


7.4.2. 802.11g SISO MODE

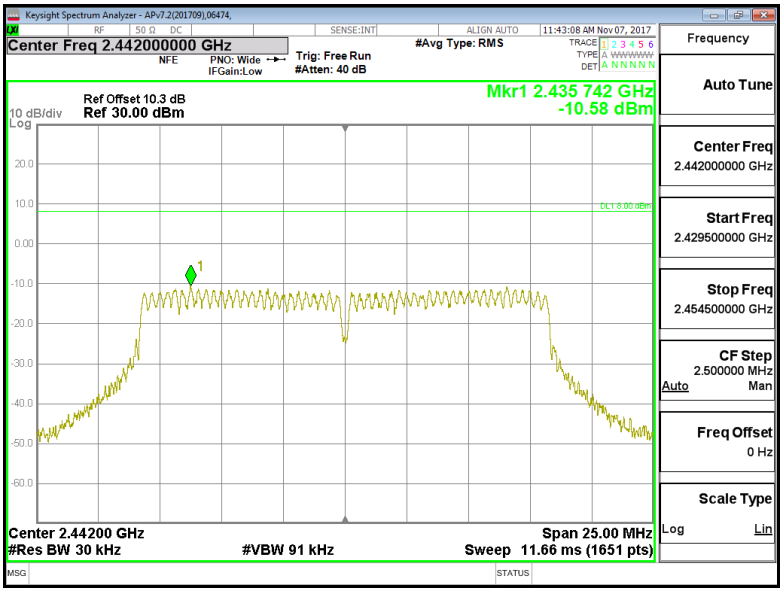
Frequency (MHz)	ANT	Power Spectral Density (dBm/3kHz)		Limit (dBm/3kHz)
		Single	Total	
2412	1	-11.02	N/A	8
	2	-11.29		
2442	1	-10.85		
	2	-11.68		
2472	1	-11.79		
	2	-10.52		

ANTENNA1

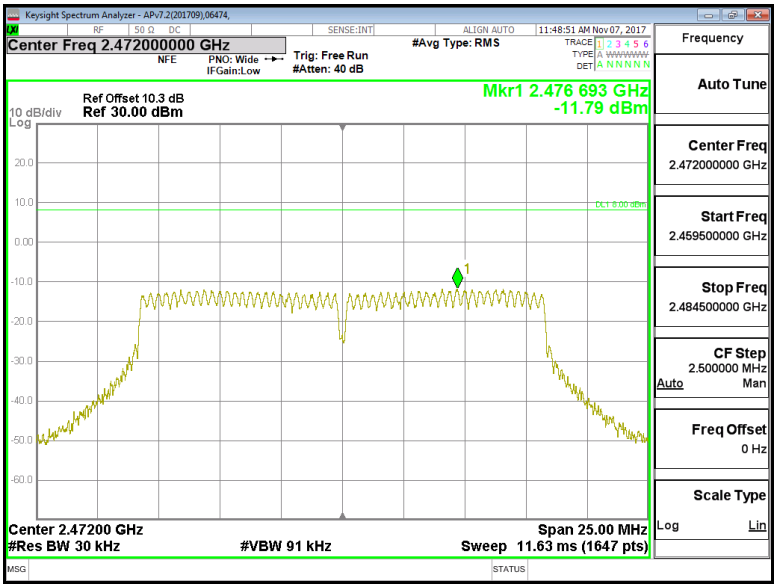
PSD LOW CH



PSD MID CH

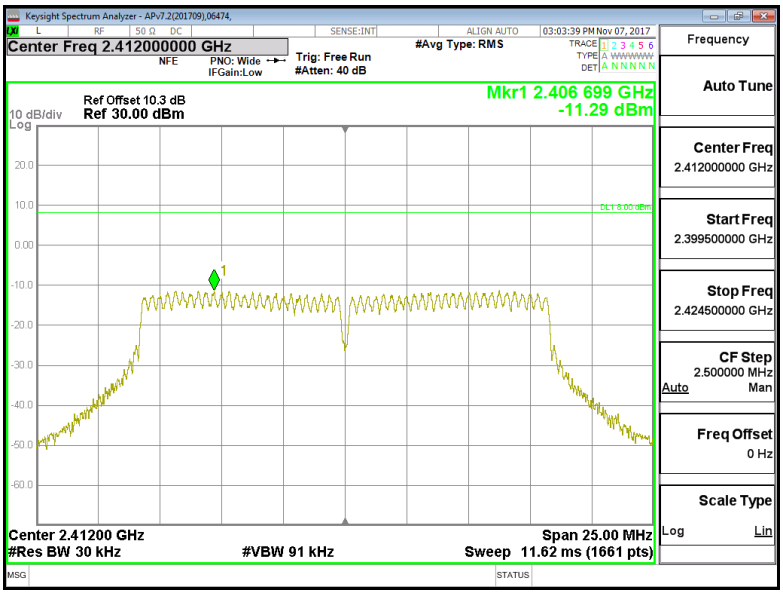


PSD HIGH CH

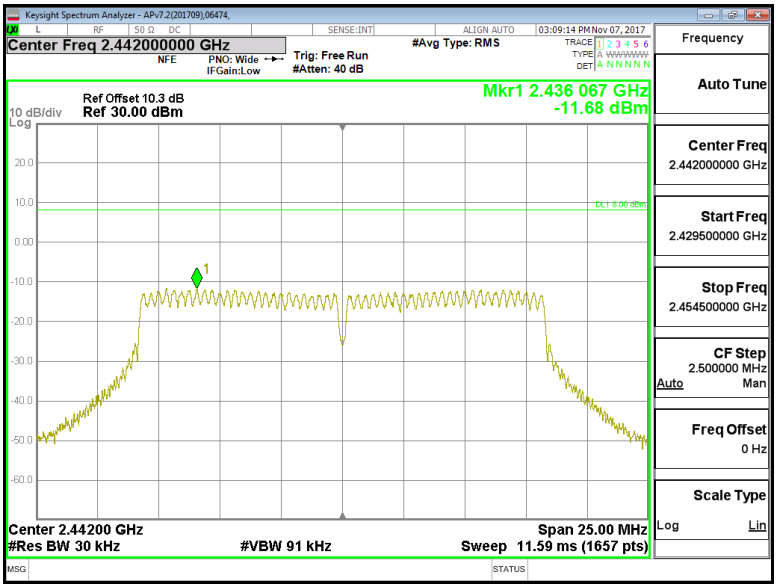


ANTENNA2

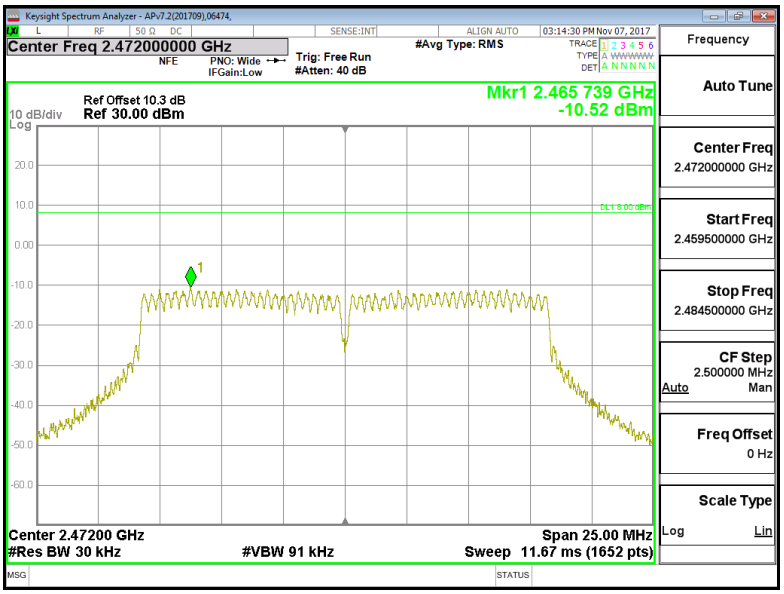
PSD LOW CH



PSD MID CH



PSD HIGH CH

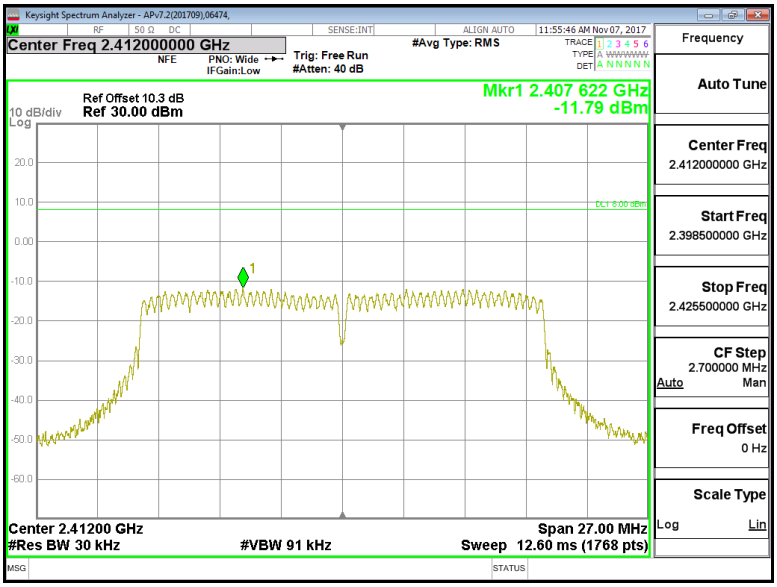


7.4.3. 802.11n20 CDD MODE

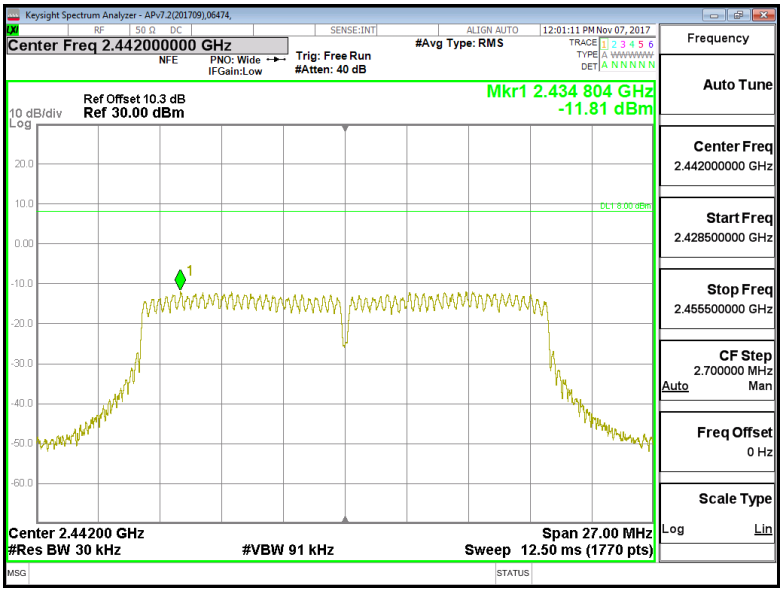
Frequency (MHz)	ANT	Power Spectral Density (dBm/3kHz)		Limit (dBm/3kHz)
		Single	Total	
2412	1	-11.79	-8.54	8
	2	-11.33		
2442	1	-11.81	-8.39	
	2	-11.02		
2472	1	-11.46	-8.46	
	2	-11.48		

ANTENNA1

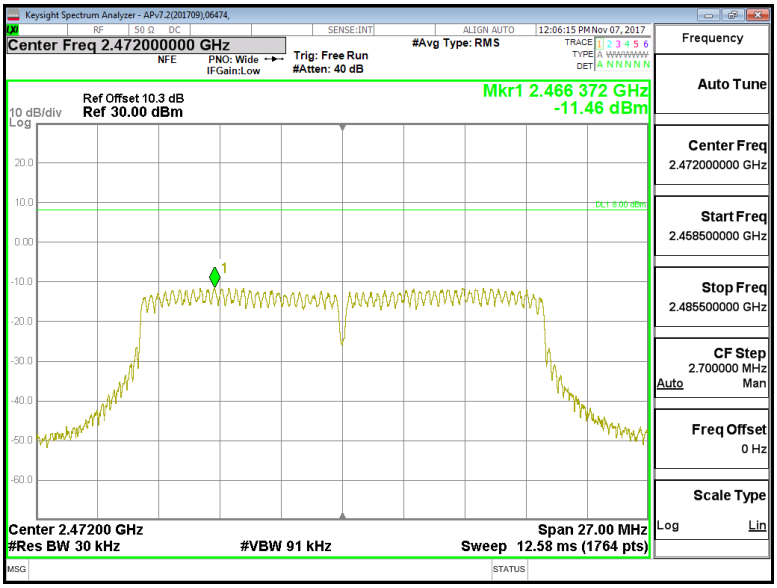
PSD LOW CH



PSD MID CH

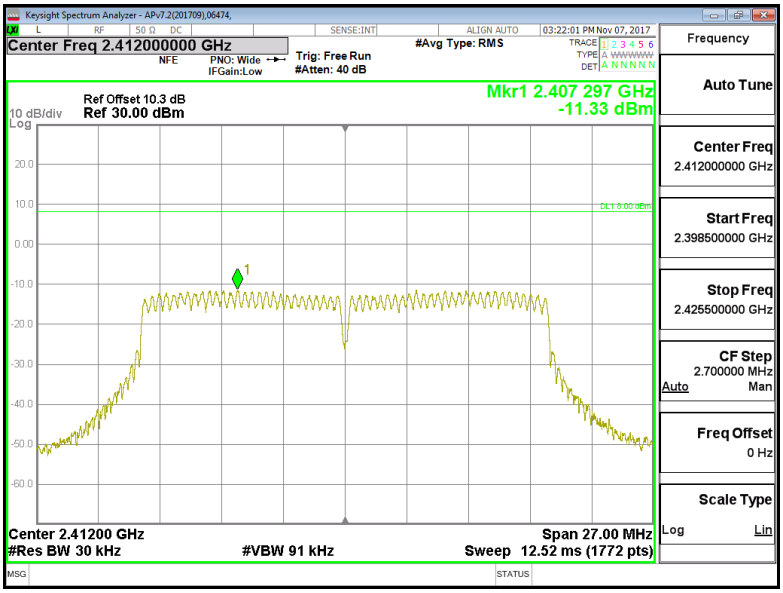


PSD HIGH CH

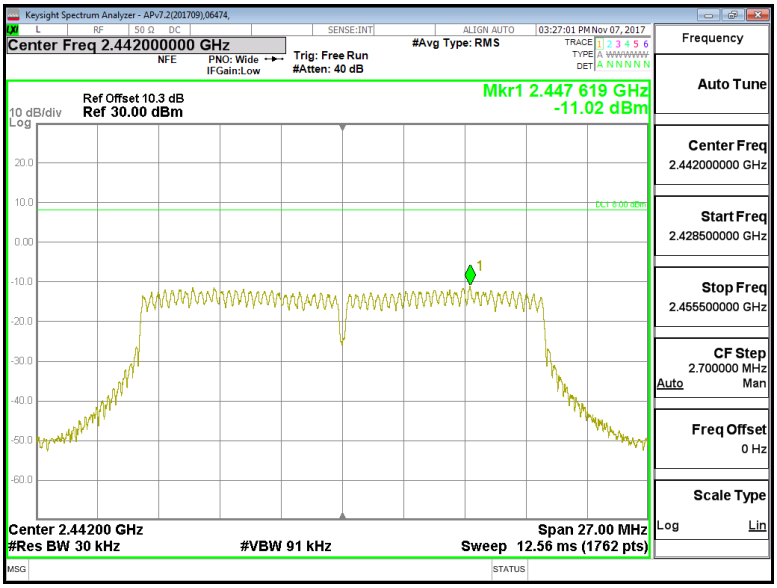


ANTENNA2

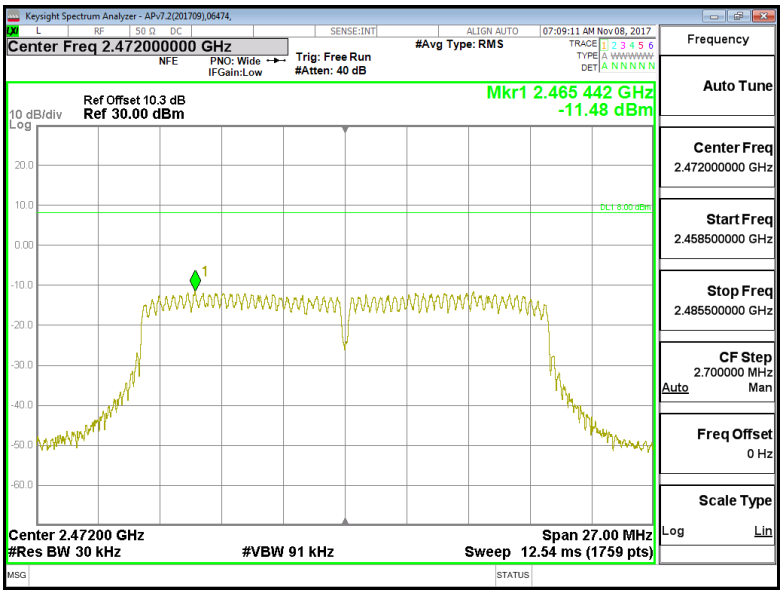
PSD LOW CH



PSD MID CH



PSD HIGH CH

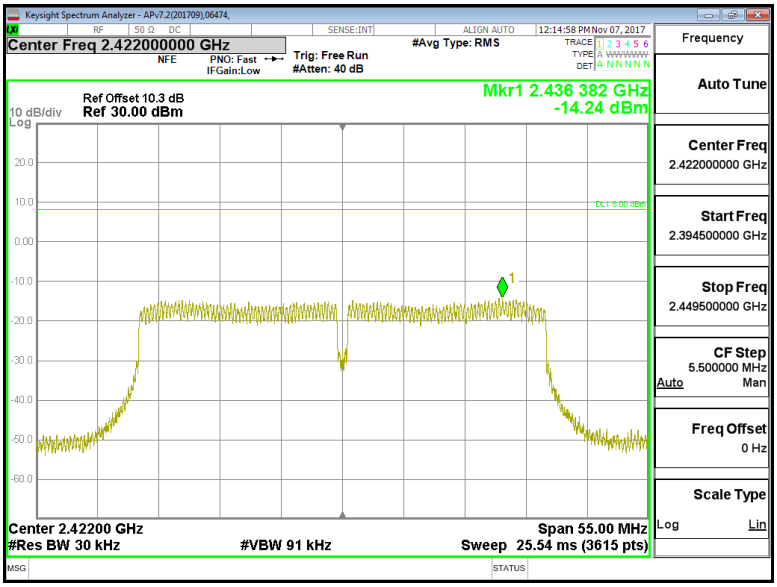


7.4.4. 802.11n40 CDD MODE

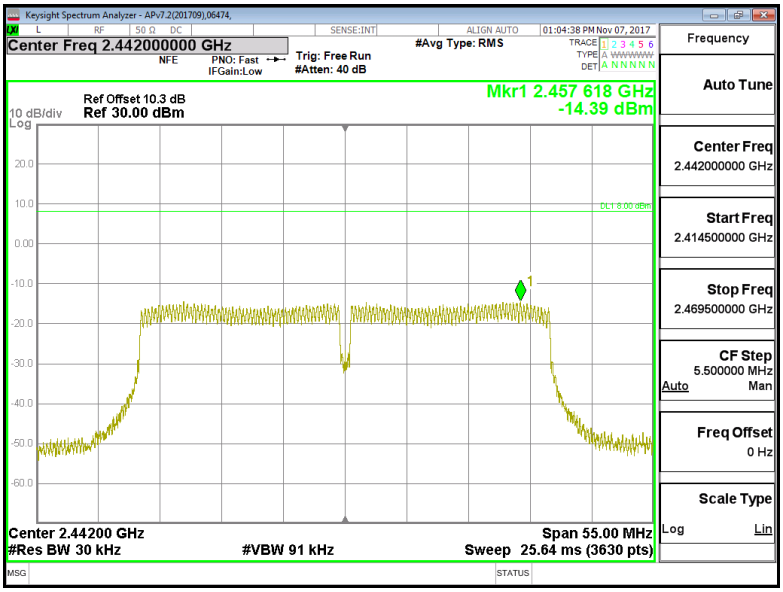
Frequency (MHz)	ANT	Power Spectral Density (dBm/3kHz)		Limit (dBm/3kHz)
		Single	Total	
2422	1	-14.24	-11.17	8
	2	-14.12		
2442	1	-14.39	-11.35	
	2	-14.34		
2462	1	-31.60	-30.44	
	2	-36.74		

ANTENNA1

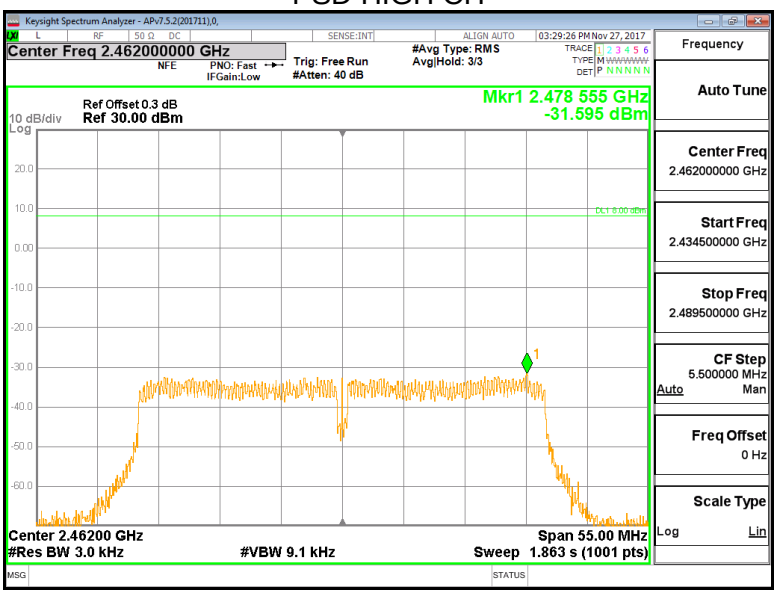
PSD LOW CH



PSD MID CH

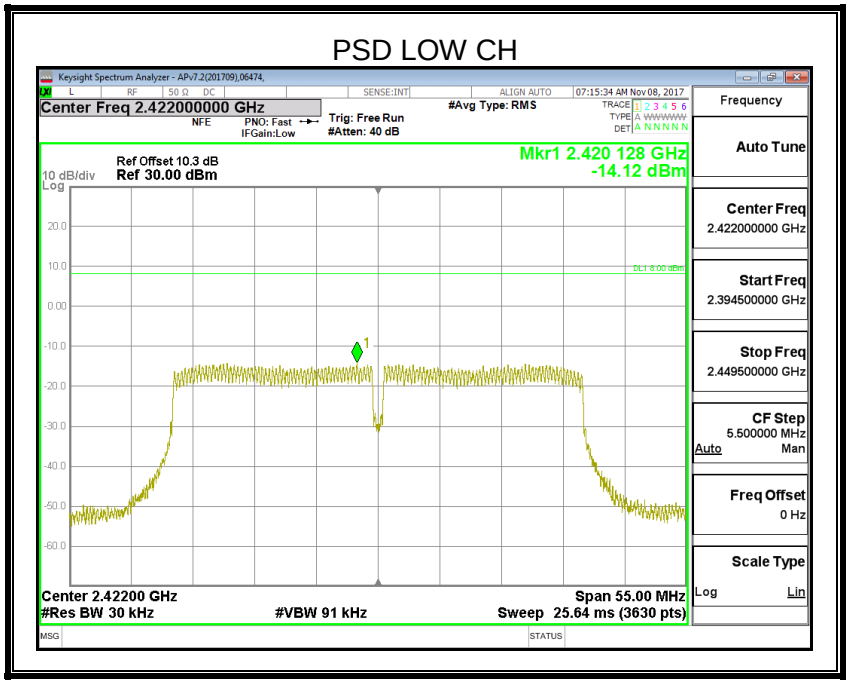


PSD HIGH CH

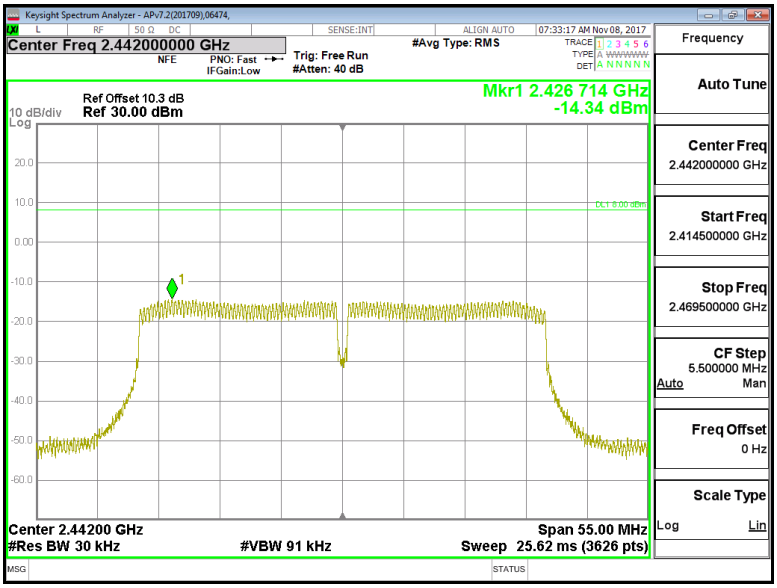


ANTENNA2

PSD LOW CH



PSD MID CH



PSD HIGH CH