CERTIFICATION TEST REPORT

Report Number. : 11836945-E3V2

Applicant	:	Google LLC. 1600 Amphitheatre Parkway Mountain View, CA 94043 U.S.A.
Model	:	H0B
FCC ID	:	A4R-H0B
IC	:	10395A-H0B
EUT Description	:	Multimedia Device
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C ISED RSS - 247 ISSUE 2

Date Of Issue:
October 25, 2017

Prepared by:
UL Verification Services Inc.
47173 Benicia Street
Fremont, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888

NVLAP LAB CODE 200065-0

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	10/13/17	Initial Issue	---
V2	10/25/17	Updated sections 1, 5.4, 8.1, 8.6.4	C. Susa

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

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UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Google LLC.
1600 Amphitheatre Parkway
Mountain View, CA 94043 U.S.A.

EUT DESCRIPTION: Multimedia Device

MODEL: H0B

SERIAL NUMBER: 7904M2Z2N8(radiated), 7904M2Z2N6(radiated), 7904M2Z154(conducted)

DATE TESTED: September 11th, 2017 - October 10th, 2017

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

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. 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, any agency of the Federal Government, or any agency of the U.S. government.

Approved & Released For
UL Verification Services Inc. By:

Francisco de Anda
CONSUMER TECHNOLOGY DIVISION
Operations Leader
UL Verification Services Inc.

Prepared By:

Clifford Susa
CONSUMER TECHNOLOGY DIVISION
Project Engineer
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, KDB 558074 D01 v4, ANSI C63.10-2013, RSS-GEN Issue 4, and RSS-247 Issue 2.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. 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.

47173 Benicia Street	47266 Benicia Street
☒ Chamber A	☒ Chamber D
☒ Chamber B	☒ Chamber E
☐ Chamber C	☒ Chamber F
	☐ Chamber G
	☐ Chamber H

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through C are covered under ISED company address code 2324B with site numbers 2324B -1 through 2324B-3, respectively. Chambers D through H are covered under Industry Canada company address code 22541 with site numbers 22541 -1 through 22541-5, respectively.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0 except for ISED RSS-247 Issue 2. The full scope of accreditation can be viewed at http://ts.nist.gov/standards/scopes/2000650.htm.

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 recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.84 dB
Conducted Distrubance, 0.15 to 30 MHz	3.65 dB
Radiated Disturbance, 9KHz to 30 MHz	3.15 dB
Radiated Disturbance, 30 to 1000 MHz	5.36 dB
Radiated Disturbance,1000 to 18000 MHz	4.32 dB
Radiated Disturbance,18000 to 26000 MHz	4.45 dB
Radiated Disturbance,26000 to 40000 MHz	5.24 dB

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

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a multimedia device

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum output power as follows:

		Peak		Average	
Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)	Output Power (dBm)	Output Power (mW)
1Tx					
2412 - 2462	802.11b	25.06	320.63	22.58	181.13
2412 - 2462	802.11g	27.97	626.61	22.83	191.87
2412 - 2462	802.11n HT20	27.84	608.14	22.99	199.07
2422 - 2452	802.11n HT40	22.22	166.72	15.84	38.37
2Tx					
2412 - 2462	802.11n HT20	29.86	968.28	25.26	335.74
2422 - 2452	802.11n HT40	20.17	103.99	16.05	40.27

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

Frequency Band (GHz)	Antenna Gain (dBi)	
	Chain 0	Chain 1
2.4	4.70	4.10

Note: Chain 0➔Antenna 0 and Chain1➔ Antenna1

5.4. 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 fundamental of the EUT was investigated in two orientations Y and Z, it was determined that Y orientation was worst-case orientation. X orientation was not investigated due to the AC and I/O ports in the back of the EUT. Therefore, all final radiated testing was performed with the EUT in Y orientation.

All measurements were performed with the AC plugged into a power source.

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

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11n HT20 mode: MCS0
802.11n HT40 mode: MCS0

For simultaneous transmission of multiple channels from the same antenna in the 2.4GHz and 5GHz bands, tests were conducted for various configurations having the highest power. No noticeable new emission was found.

5.5. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was v1.29.

The test utility software used during testing was QRCT v3.0.264.0.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List			
Description	**Manufacturer**	**Model**	**Serial Number**
AC Adapter	HP	HSTNN-LA40	WDUV0B3U8HK1Y
Laptop	HP	11-d001ax	5CD51643JG
USB Ethernet Adapter	Linksys	USB3GIG	15710S05701719
USB Hub	CGC	27402	NSN

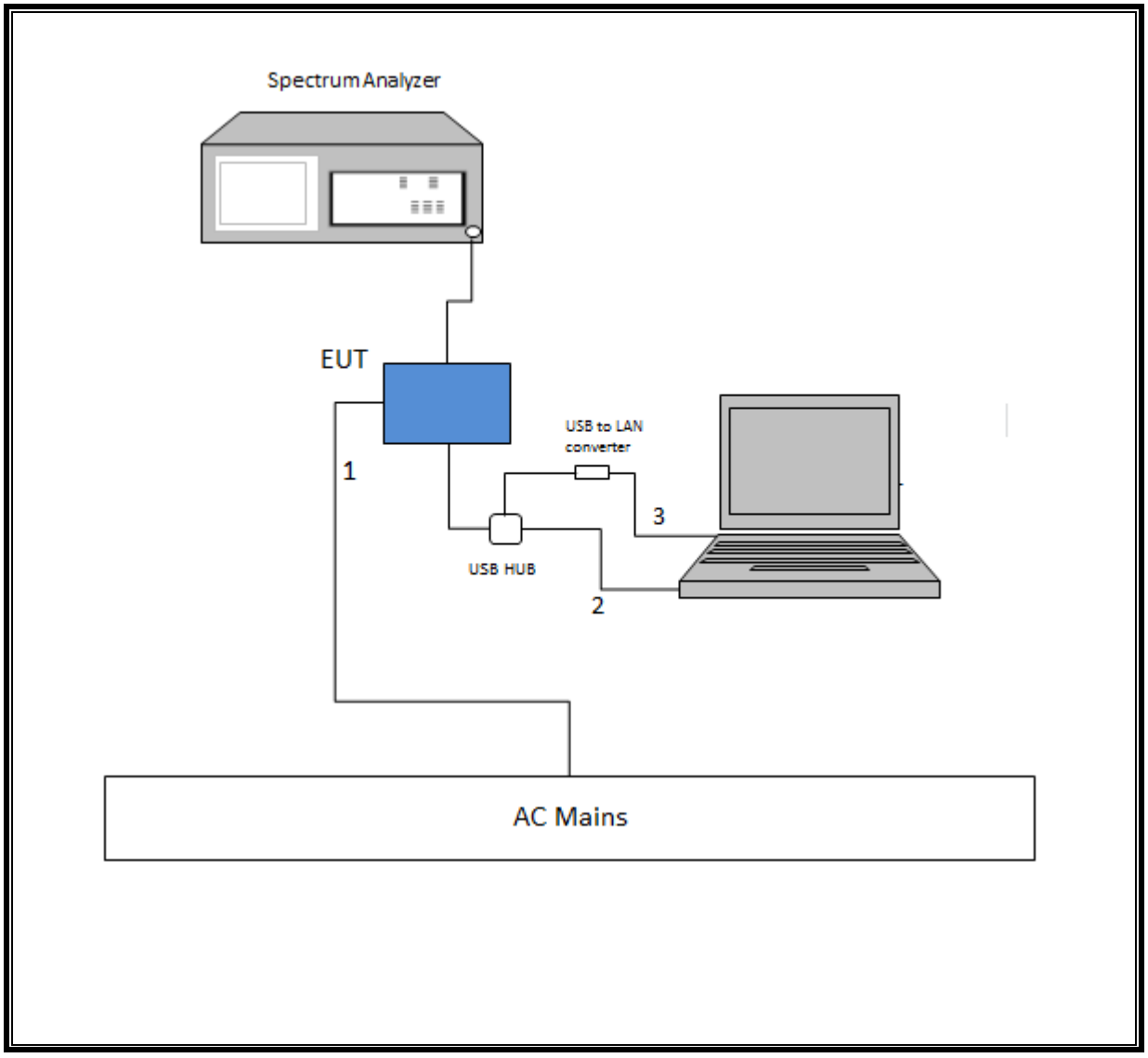
I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	1	2-Prong	unshielded		
2	USB	1	USB	unshielded	2.5	USB serial cable
3	Ethernet	1	RJ45	unshielded	1	

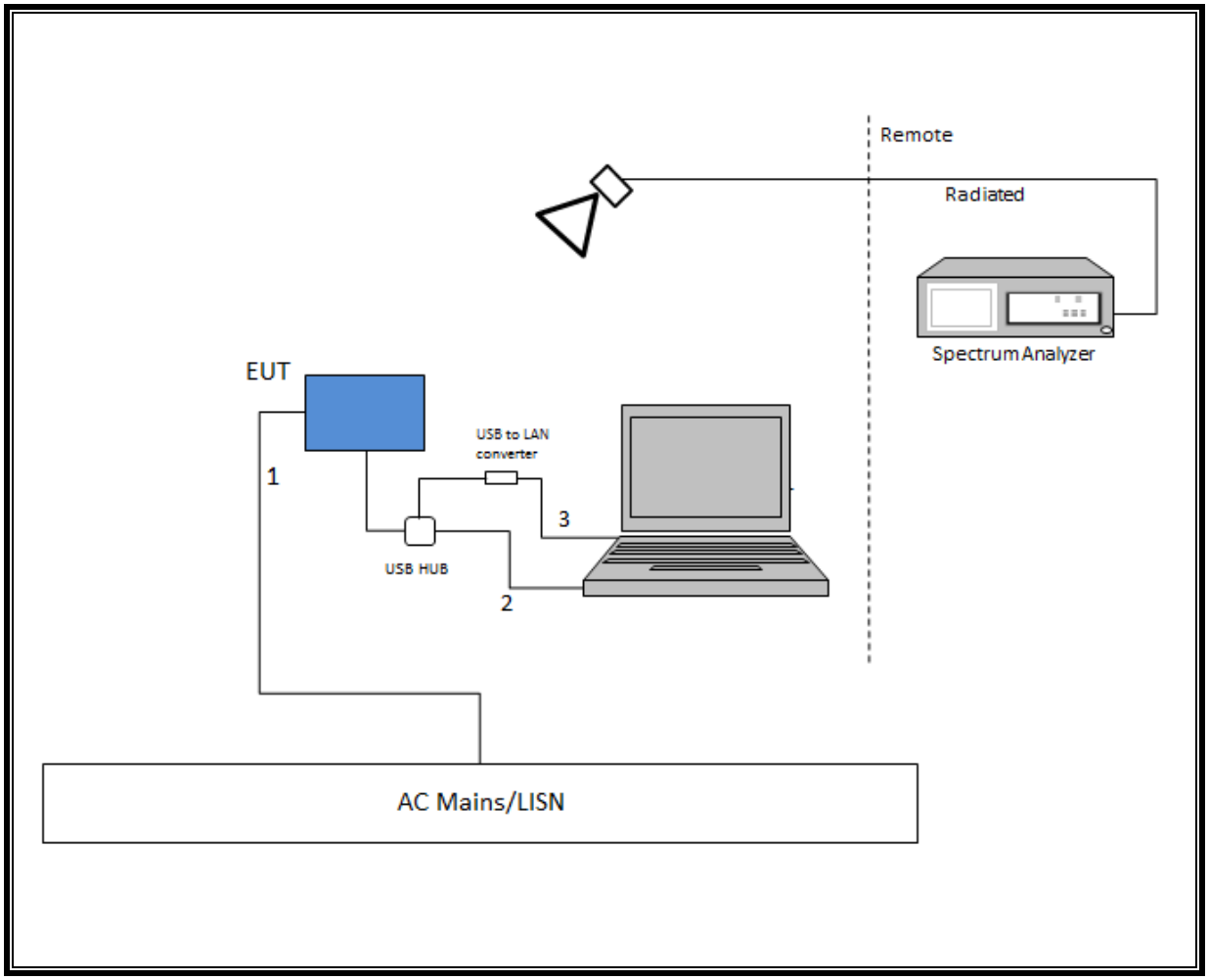
TEST SETUP

The EUT is connected to a test laptop. Test software exercises the radio.

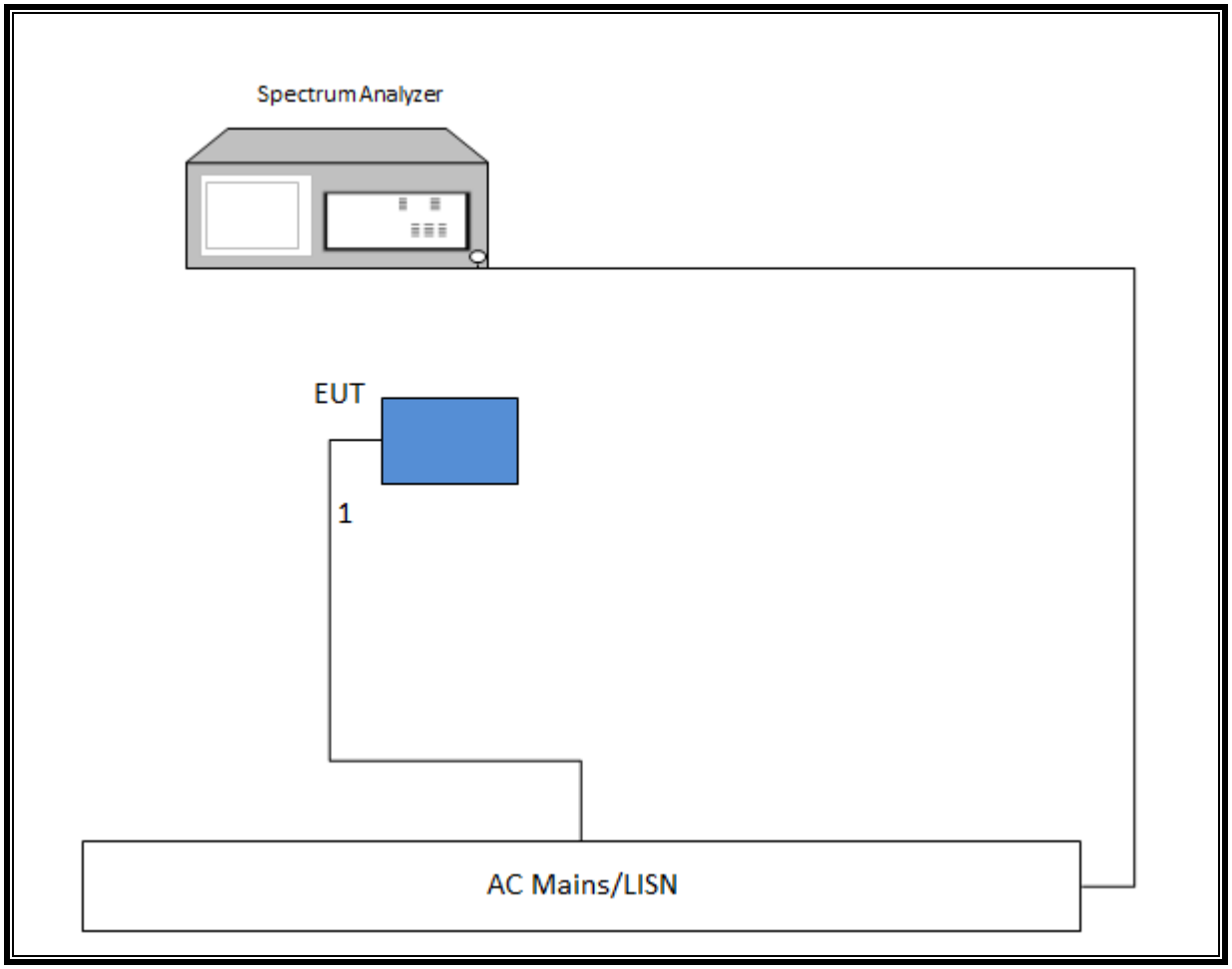
SETUP DIAGRAM FOR CONDUCTED TESTS



SETUP DIAGRAM FOR RADIATED TESTS



SETUP DIAGRAM FOR LINE CONDUCTED TEST



6. TEST AND MEASUREMENT EQUIPMENT

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

Description	Manufacturer	Model	ID Num	Cal Due	Last Cal
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T862	06/09/18	06/09/17
RF Amplifier, 1-18GHz	MITEQ	AFS42-00101800-25-S-42	T1165	06/24/18	06/26/17
RF Amplifier, 1-8GHz	MITEQ	AMF-4D-01000800-30-29P	T1573	06/24/18	06/26/17
Spectrum Analyzer	Keysight	N9030A	T1466	04/11/18	04/11/17
High Pass Filter 3GHz	Micro-Tronics	HPM17543	T486	06/24/18	06/24/17
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T346	03/28/18	03/28/17
RF Amplifier, 1-18GHz	MITEQ	AFS42-00101800-25-S-42	T1131	06/29/18	06/29/17
RF Amplifier, 1-8GHz	MITEQ	AMF-4D-01000800-30-29P	T1169	06/29/18	06/29/17
Spectrum Analyzer	Keysight	N9030A	T906	02/14/18	02/14/17
High Pass Filter 3GHz	Micro-Tronics	HPM17543	T426	06/29/18	06/29/17
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T119	03/28/18	03/28/18
RF Amplifier, 1-18GHz	MITEQ	AFS42-00101800-25-S-42	T742	01/25/18	01/25/17
Spectrum Analyzer	Keysight	N9030A	T1113	12/20/17	12/20/16
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	T421	01/25/18	01/25/17
High Pass Filter 6GHz	Micro-Tronics	HPS17542	T425	01/25/18	01/25/17
High Pass Filter 3GHz	Micro-Tronics	HPM17543	T427	01/25/18	01/25/17
Filter, BRF, 5150-5350MHz	Micro-Tronics	BRC50703	T1518	12/13/17	12/13/16
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	T243	10/11/17	10/11/16
Rf Preamplifier, 10kHz – 1GHz	Sonoma	310N	T286	06/02/18	06/02/17
Spectrum Analyzer	Keysight	N9030A	T340	12/14/18	12/14/17
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T711	1/30/18	1/30/17
RF Amplifier, 1-18GHz	MITEQ	AFS42-00101800-25-S-42	T740	11/29/17	11/29/16
High Pass Filter 3GHz	Micro-Tronics	HPM17543	T428	11/29/17	11/29/16
Spectrum Analyzer	Keysight	N9030A	T1210	07/17/18	07/17/17
Power Meter	Keysight	N1911A	T229	08/14/18	08/14/17
Power Sensor	Keysight	N1921A	T1225	03/29/18	03/29/17
EMI Receiver	Rohde & Schwarz	ESR	T1436	01/06/18	01/06/17
LISN	Fischer Custom Communications	FCC-LISN-50/250-25-2-01	T1310	06/15/18	06/15/17
Antenna Horn, 18-26GHz	ARA	MWH-1826	T89	01/04/18	01/04/17
RF Preamplifier, 1-26GHz	Agilent	8449B	T404	07/23/18	07/23/17
Spectrum Analyzer	Keysight	N9030A	T1454	12/15/18	12/15/17
Antenna, Horn, 1-18GHz	ETS Lindgren	3117	T863	06/09/18	06/09/17
RF Preamplifier, 1 - 8GHz	Miteq	AMF-4D-01000800-30-29P	T1156	02/15/18	02/15/17
Spectrum Analyzer	Keysight	N9030A	T907	01/23/18	01/23/17

Test Software List			
Description	**Manufacturer**	**Model**	**Version**
Radiated Software	UL	UL EMC	Ver 9.5, Dec 01, 2016
Conducted Emissions Software	UL	UL EMC	Ver 9.5, May 26, 2015

7. MEASUREMENT METHOD

On Time and Duty Cycle: KDB 558074 D01 v04, Section 6.

6 dB BW: KDB 558074 D01 v04, Section 8.1.

99% BW: ANSI C63.10-2013, Section 6.9.3.

Output Power: KDB 558074 D01 v04, Section 9.2.3.2.

Power Spectral Density: KDB 558074 D01 v04, Section 10.3.

Out-of-band emissions in non-restricted bands: KDB 558074 D01 v04, Section 11.1 (b).

Out-of-band emissions in restricted bands: KDB 558074 D01 v04, Section 12.1.

Band-edge: KDB 558074 D01 v04, Section 12.1.

AC Power Line Conducted Emissions: ANSI C63.10-2013, Section 6.2.

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8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 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)
802.11b Chain 0	12.440	12.560	0.990	99.04%	0.00	0.010
802.11b Chain 1	12.420	12.600	0.986	98.57%	0.00	0.010
802.11g Chain 0	2.064	2.208	0.935	93.48%	0.29	0.484
802.11g Chain 1	2.061	2.177	0.947	94.67%	0.24	0.485
802.11n HT20 Chain 0	1.917	2.040	0.940	93.97%	0.27	0.522
802.11n HT20 Chain 1	1.923	2.043	0.941	94.13%	0.26	0.520
802.11n HT20 2Tx CDD	1.923	2.034	0.945	94.54%	0.24	0.520
802.11n HT40 Chain 0	0.946	1.053	0.898	89.85%	0.46	1.057
802.11n HT40 Chain 1	0.945	1.073	0.880	88.02%	0.55	1.059
802.11n HT40 2Tx CDD	0.946	1.062	0.891	89.08%	0.50	1.057

DUTY CYCLE PLOTS

802.11b C0 MODE

802.11b C1 MODE

802.11g C0 MODE

802.11g C1 MODE

802.11n HT20 C0 MODE

802.11n HT20 C1 MODE

802.11n HT20 2Tx CDD MODE

802.11n HT40 C0 MODE

802.11n HT40 C1 MODE

802.11n HT40 2Tx CDD MODE

8.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

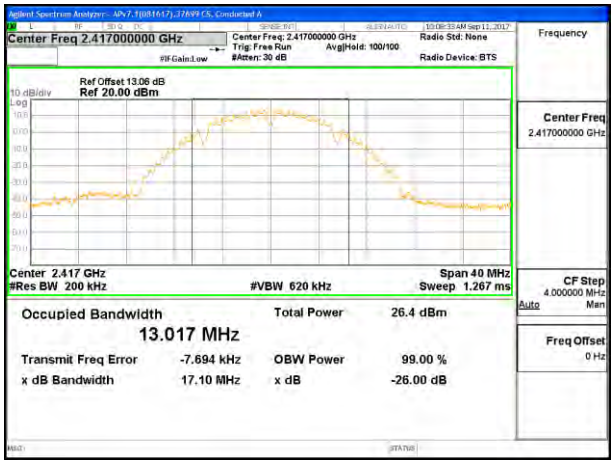
RESULTS

8.2.1. 802.11b MODE

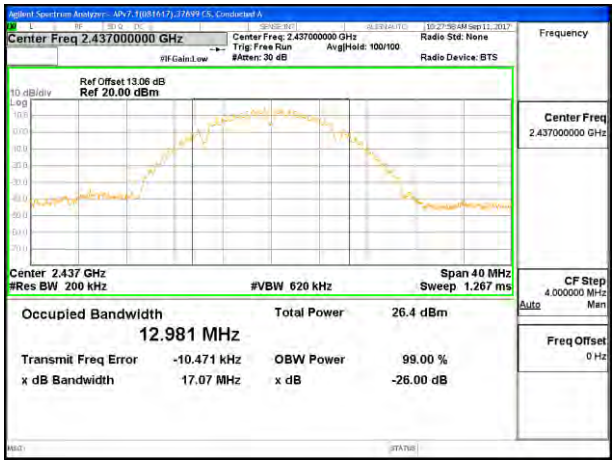
1TX Chain 0 MODE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	12.9600
Low 2	2417	13.0170
Mid 6	2437	12.9810
High 11	2462	13.0060

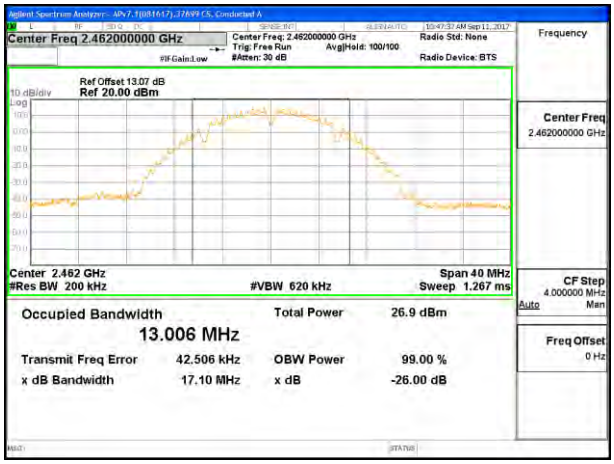
LOW CHANNEL 1



LOW CHANNEL 2



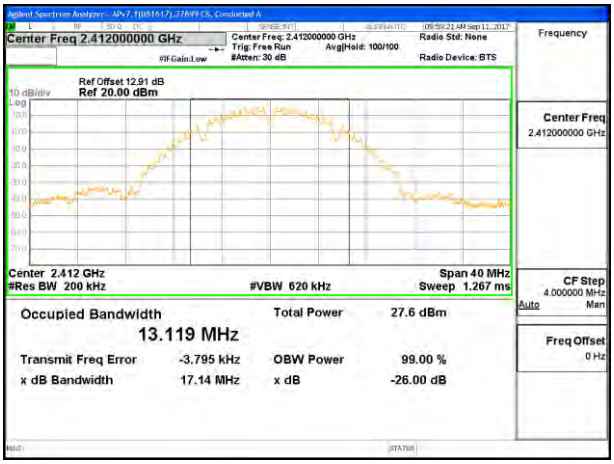
MID CHANNEL 6



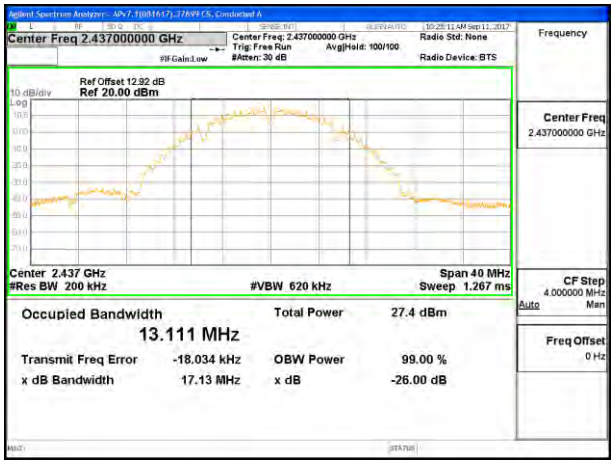
HIGH CHANNEL 11

1TX Chain **1 MODE**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	13.1190
Mid 6	2437	13.1110
High 11	2462	13.1180



LOW CHANNEL 1



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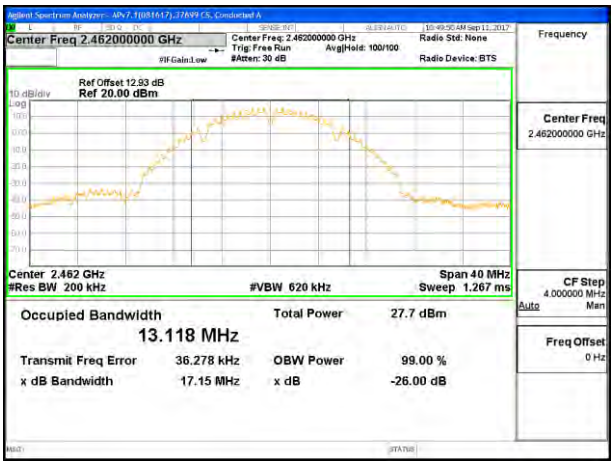

HIGH CHANNEL 11

8.2.2. 802.11g MODE

1TX Chain 0 MODE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	16.4680
Low 2	2417	16.5050
Low 3	2422	16.4880
Low 4	2427	16.5030
Low 5	2432	16.4880
Mid 6	2437	16.4740
High 7	2442	16.5020
High 8	2447	16.4840
High 9	2452	16.4990
High 10	2457	16.4970
High 11	2462	16.5170

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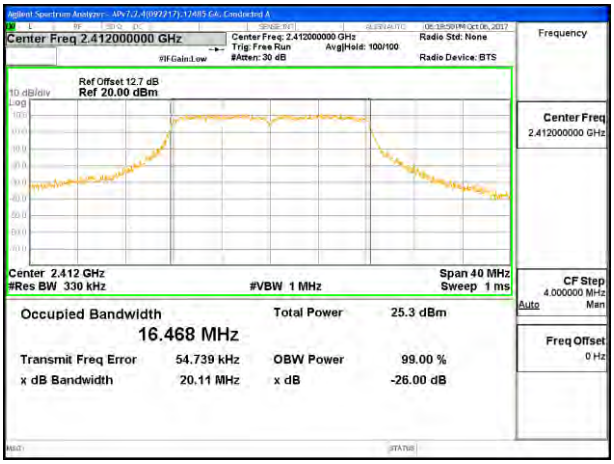
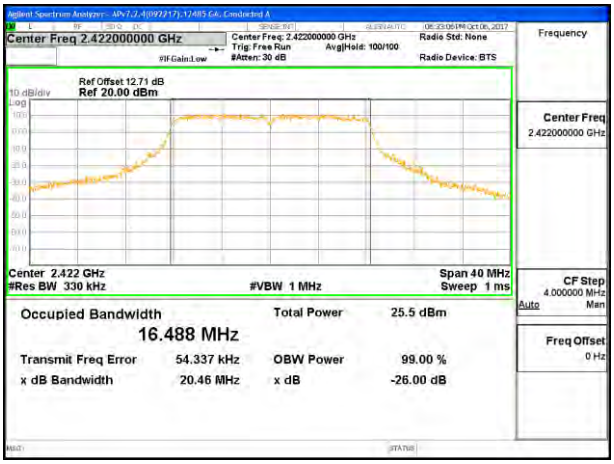


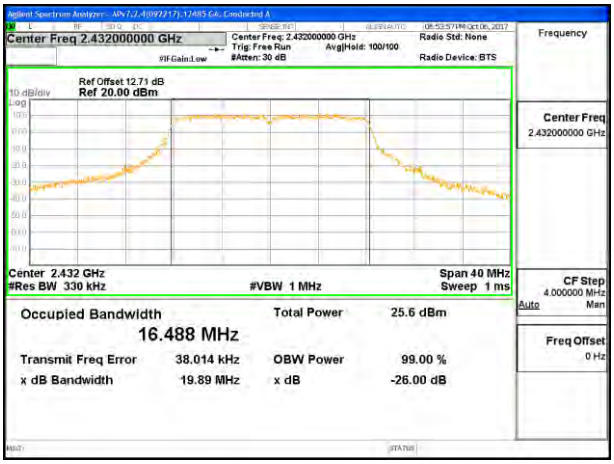
LOW CHANNEL 1

LOW CHANNEL 2



LOW CHANNEL 3

LOW CHANNEL 4



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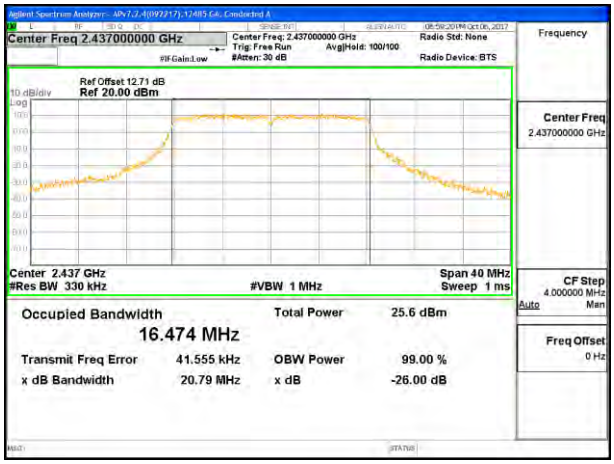
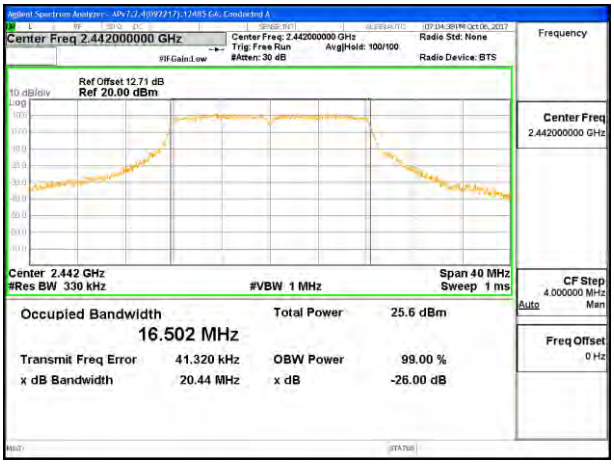


MID CHANNEL 6



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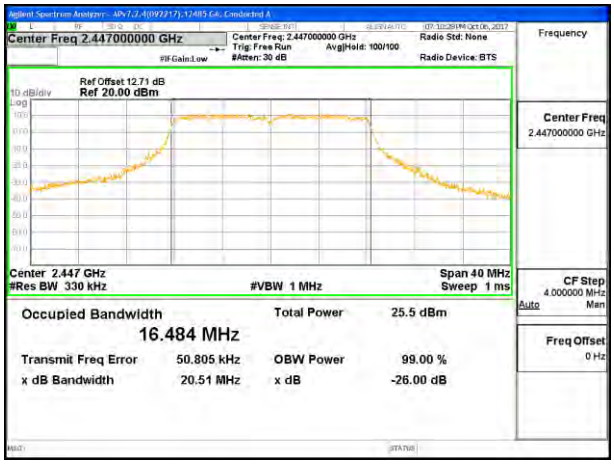
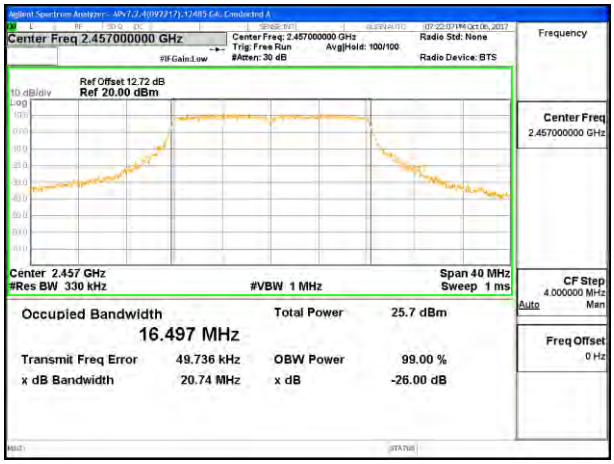


HIGH CHANNEL 8

HIGH CHANNEL 9



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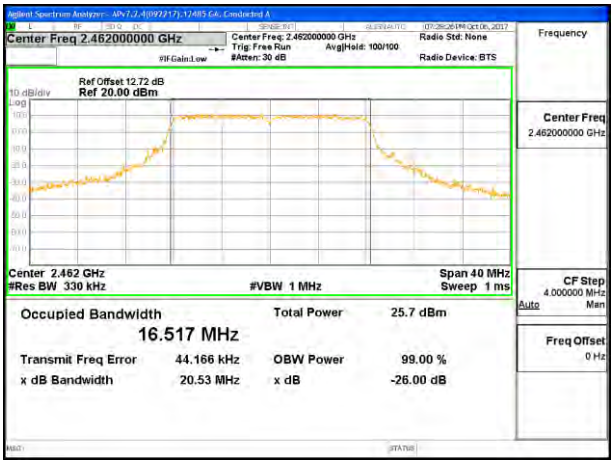


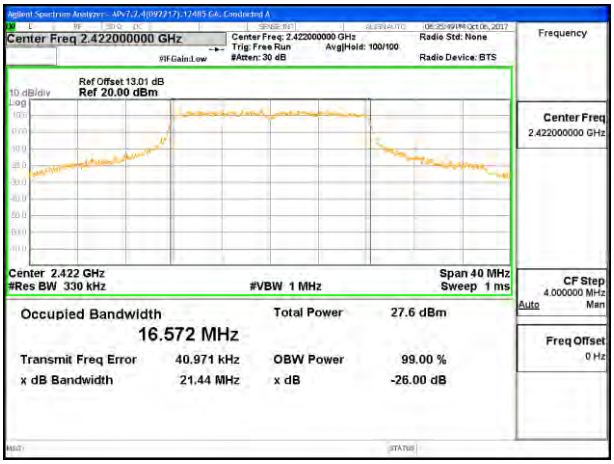
HIGH CHANNEL 11

1TX Chain 1 MODE

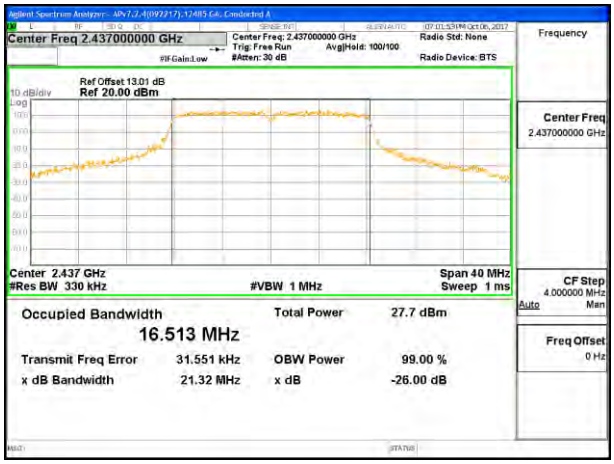
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	16.5610
Low 2	2417	16.5760
Low 3	2422	16.5720
Mid 6	2437	16.5130
High 8	2447	16.5590
High 9	2452	16.5580
High 10	2457	16.5100
High 11	2462	16.5310

LOW CHANNEL 1

LOW CHANNEL 2



LOW CHANNEL 3



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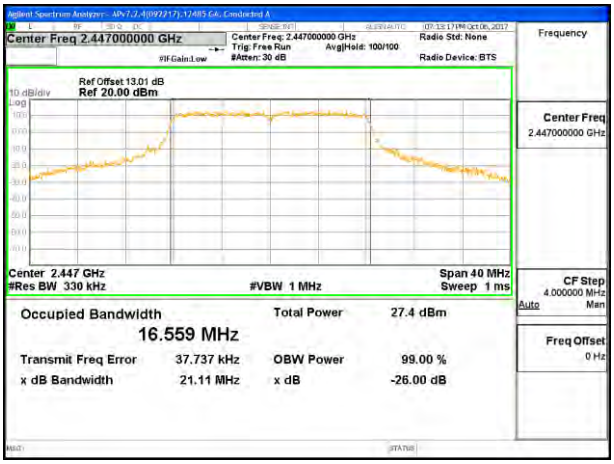


HIGH CHANNEL 8

HIGH CHANNEL 9

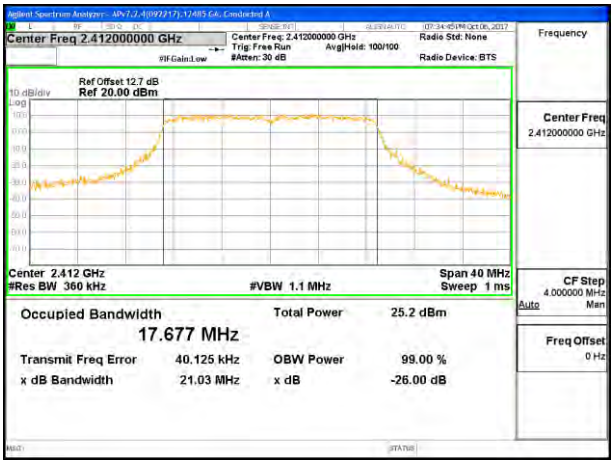
HIGH CHANNEL 10

HIGH CHANNEL 11

8.2.3. 802.11n HT20 MODE

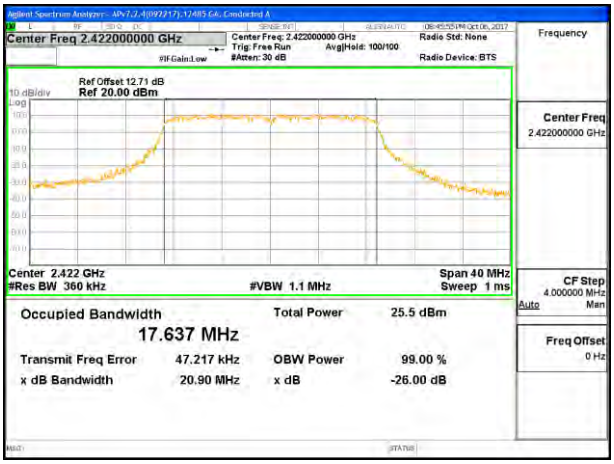
1TX Chain 0 MODE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	17.6770
Low 2	2417	17.6800
Low 3	2422	17.6370
Low 4	2427	17.6810
Low 5	2432	17.6560
Mid 6	2437	17.6750
High 8	2447	17.6460
High 9	2452	17.6640
High 10	2457	17.6810
High 11	2462	17.6690

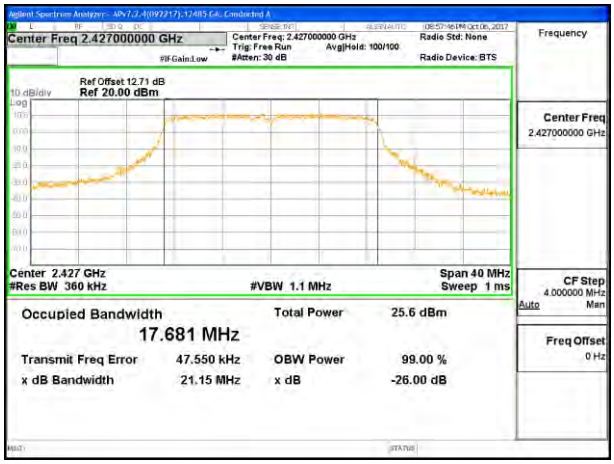


LOW CHANNEL 1

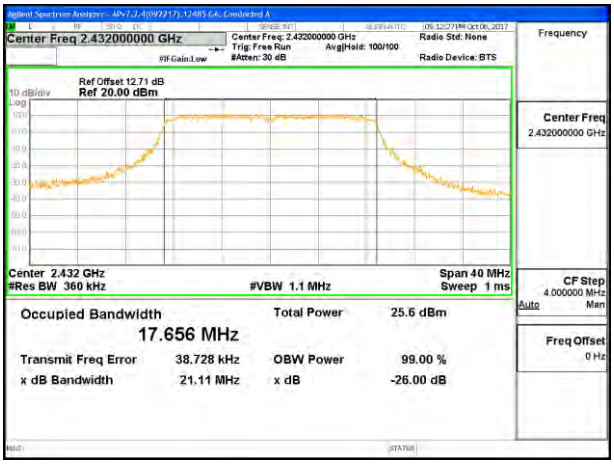
LOW CHANNEL 2



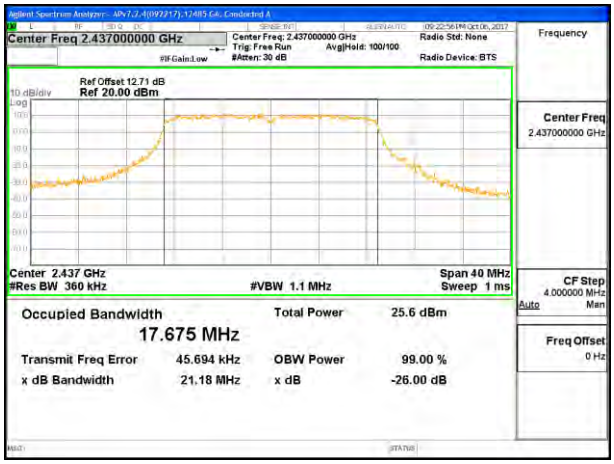
LOW CHANNEL 3



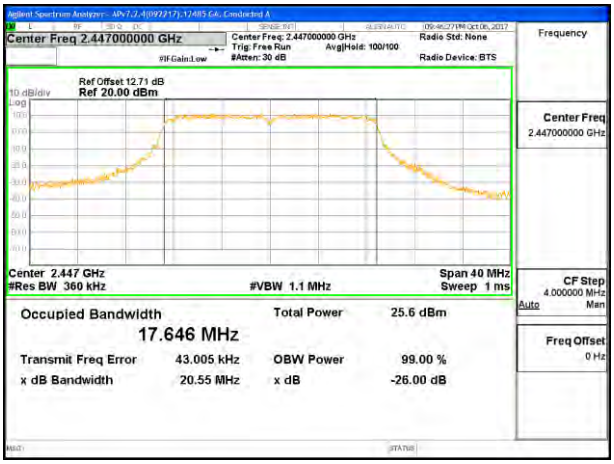
LOW CHANNEL 4



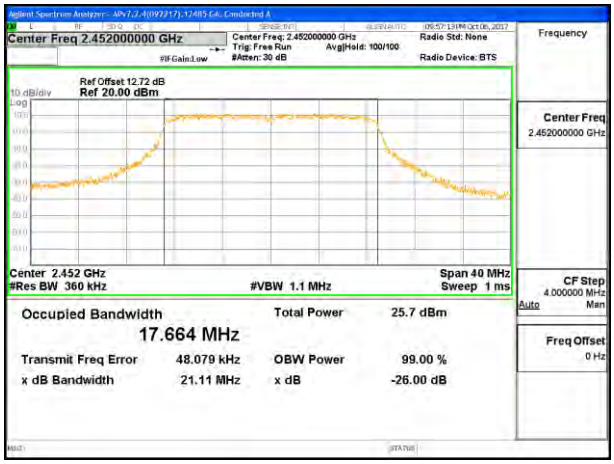
LOW CHANNEL 5



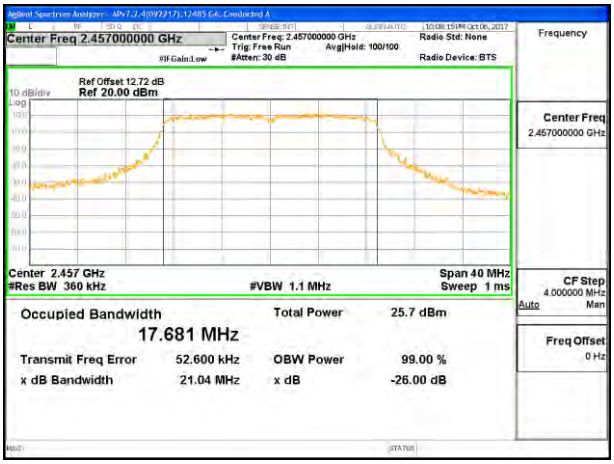
MID CHANNEL 6



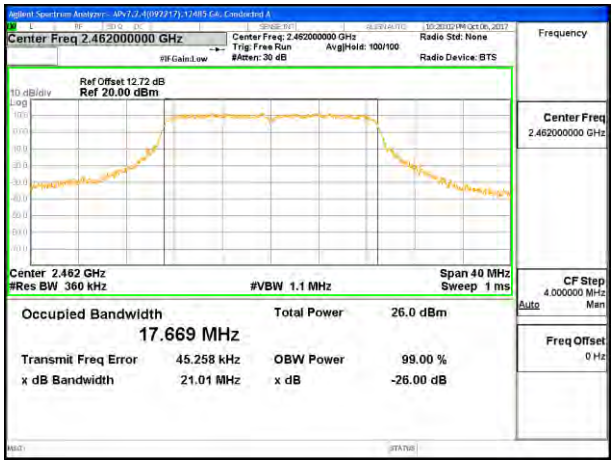
HIGH CHANNEL 8



HIGH CHANNEL 9



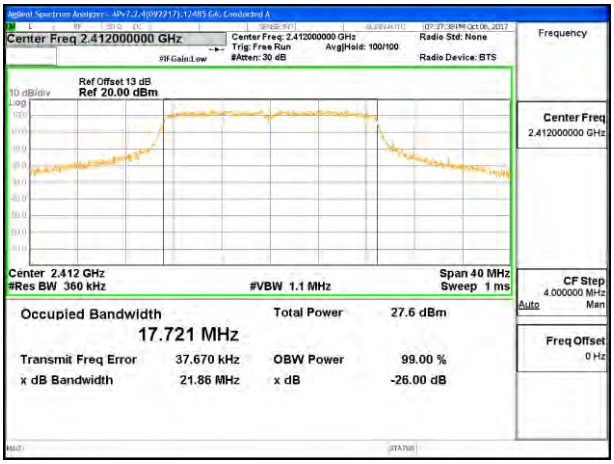
HIGH CHANNEL 10



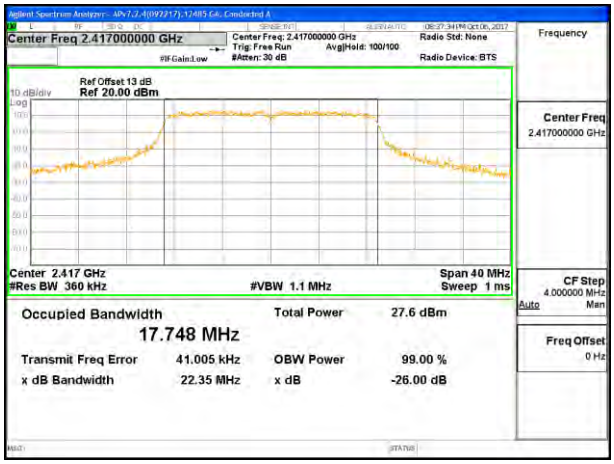
HIGH CHANNEL 11

1TX Chain 1 MODE

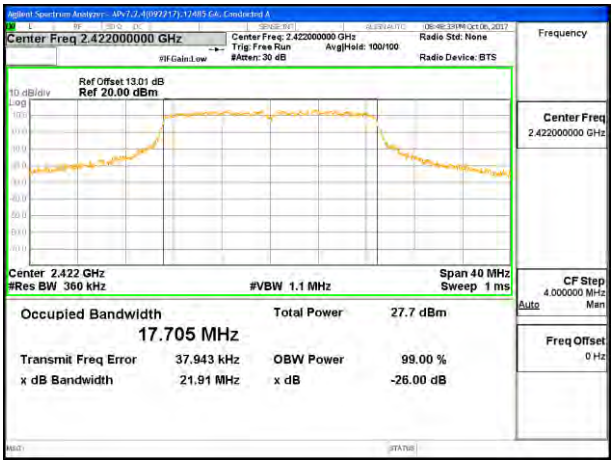
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	17.7210
Low 2	2417	17.7480
Low 3	2422	17.7050
Low 4	2427	17.6950
Low 5	2432	17.6920
Mid 6	2437	17.7130
High 9	2452	17.7020
High 10	2457	17.6990
High 11	2462	17.7120



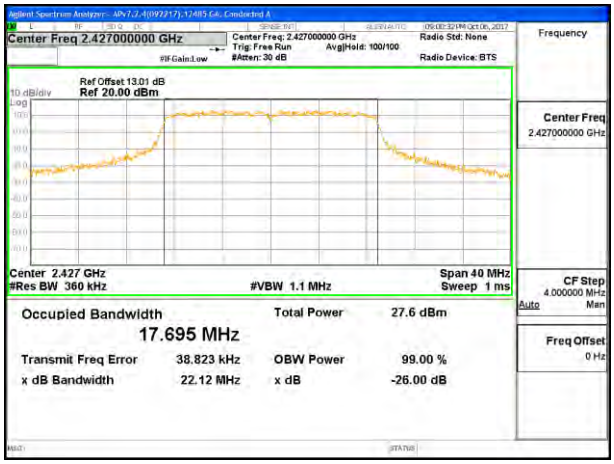
LOW CHANNEL 1



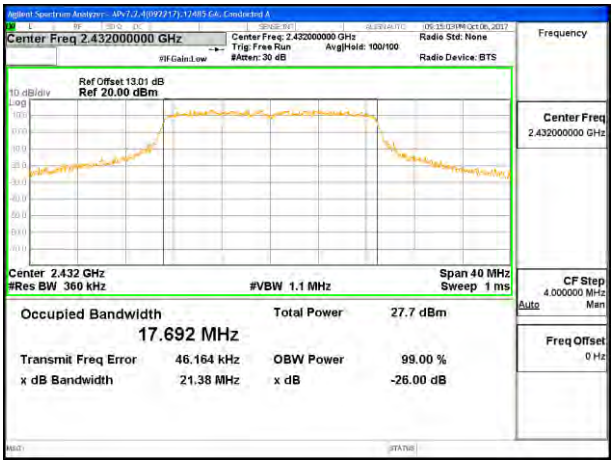
LOW CHANNEL 2



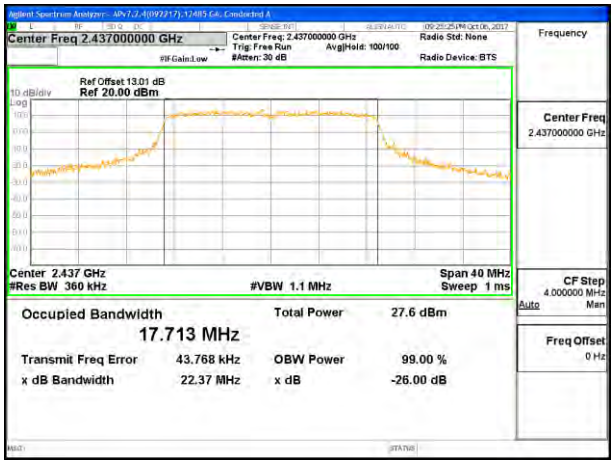
LOW CHANNEL 3



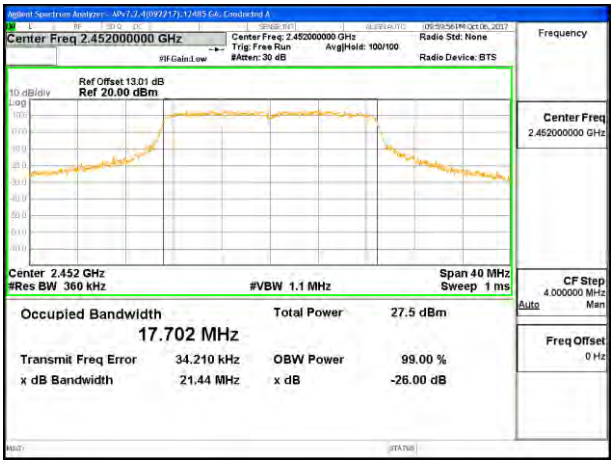
LOW CHANNEL 4



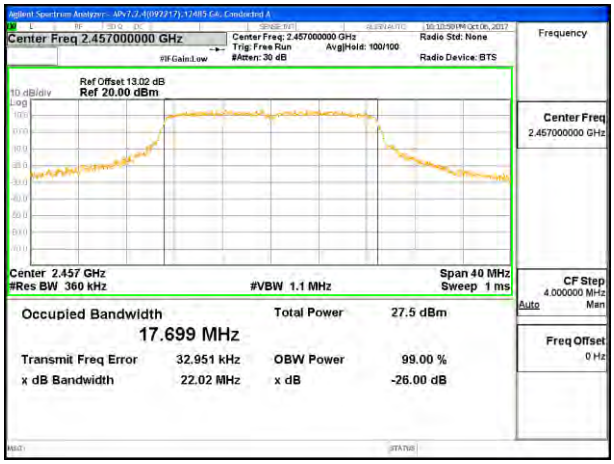
LOW CHANNEL 5



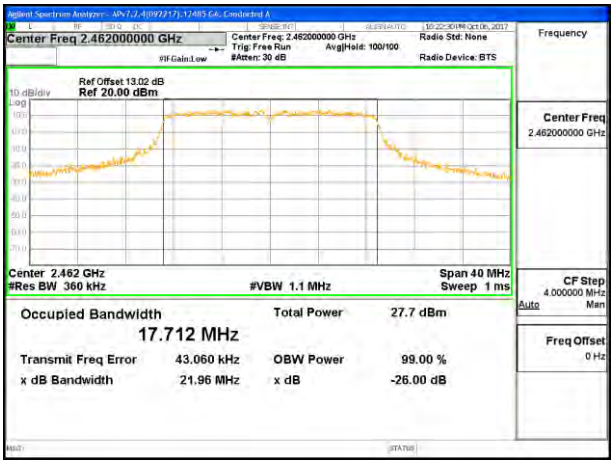
MID CHANNEL 6



HIGH CHANNEL 9



HIGH CHANNEL 10

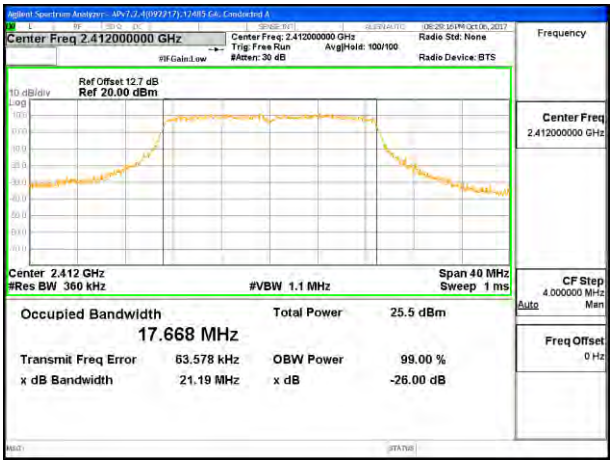


HIGH CHANNEL 11

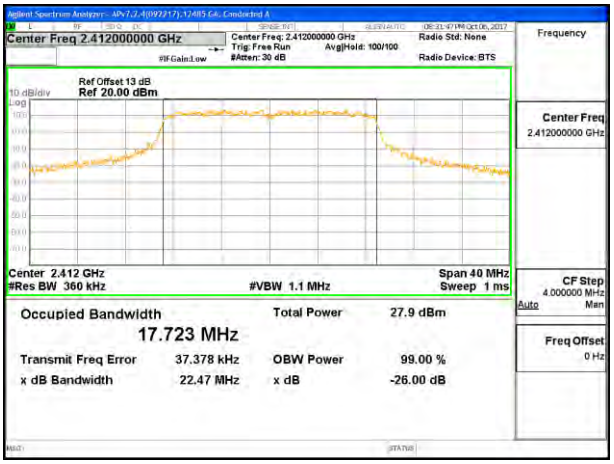
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low 1	2412	17.6680	17.7230
Low 2	2417	17.6860	17.7290
Low 3	2422	17.6570	17.7010
Low 4	2427	17.6480	17.6980
Low 5	2432	17.6440	17.7130
Mid 6	2437	17.6590	17.7130
High 7	2442	17.6410	17.7010
High 8	2447	17.6680	17.7090
High 9	2452	17.6720	17.6830
High 10	2457	17.6470	17.7140
High 11	2462	17.6400	17.6670

LOW CHANNEL 1



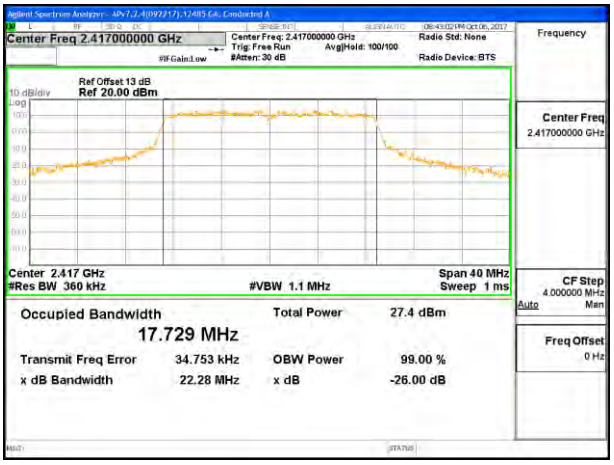
LOW CHANNEL 1 CHAIN 0



LOW CHANNEL 1 CHAIN 1

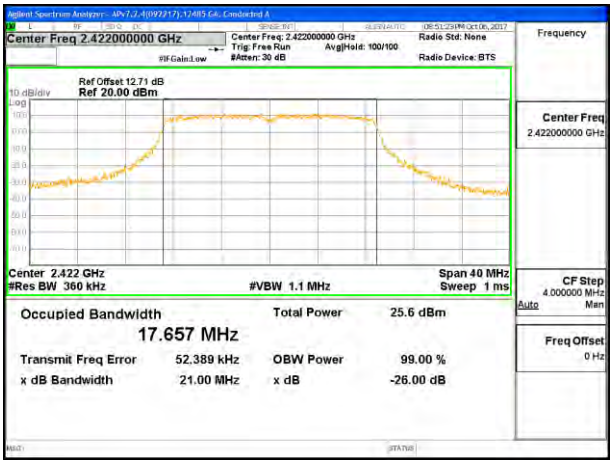
LOW CHANNEL 2

LOW CHANNEL 2 CHAIN 0

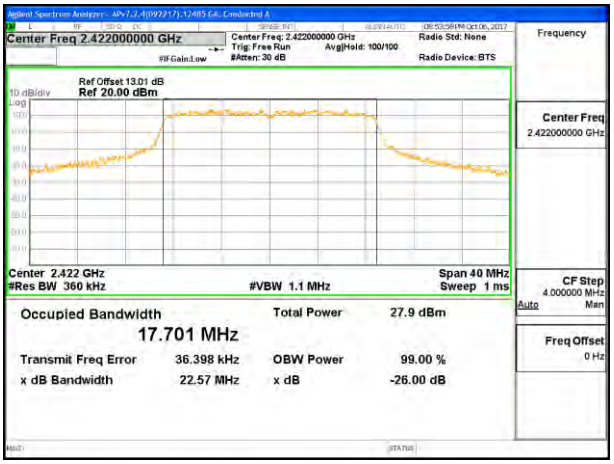


LOW CHANNEL 2 CHAIN 1

LOW CHANNEL 3

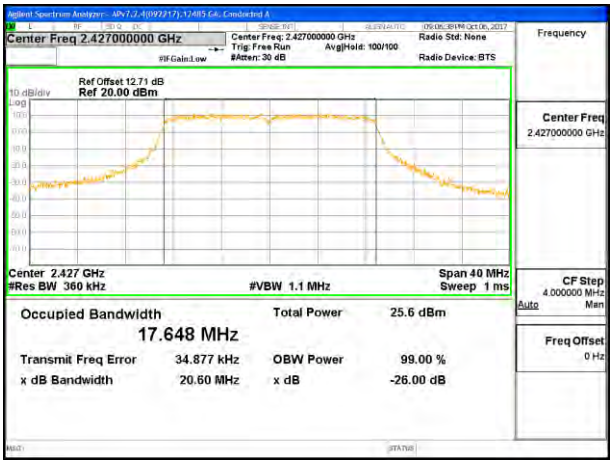


LOW CHANNEL 3 CHAIN 0

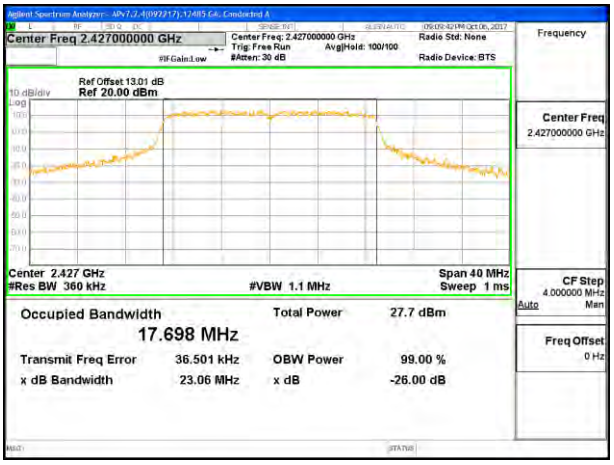


LOW CHANNEL 3 CHAIN 1

LOW CHANNEL 4

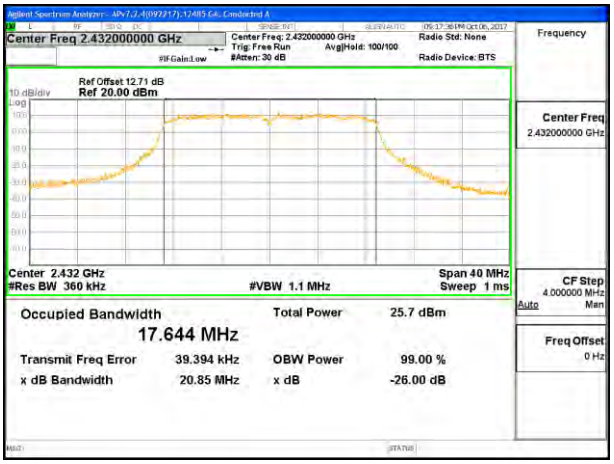


LOW CHANNEL 4 CHAIN 0

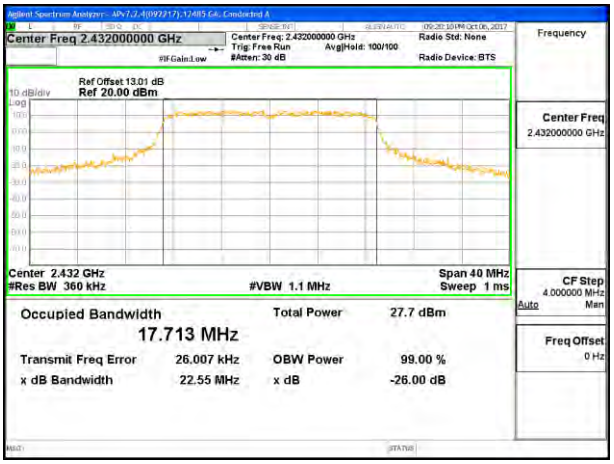


LOW CHANNEL 4 CHAIN 1

LOW CHANNEL 5

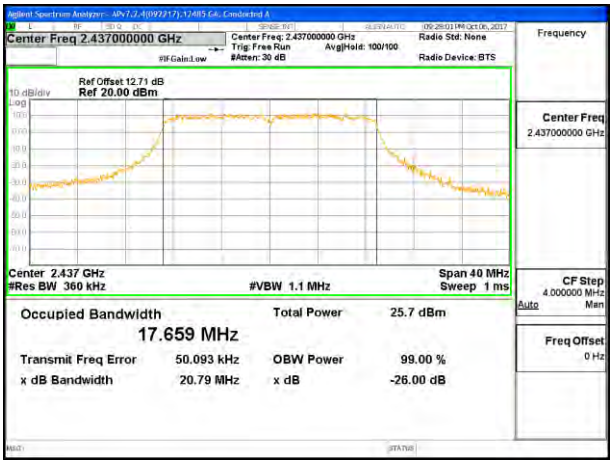


LOW CHANNEL 5 CHAIN 0

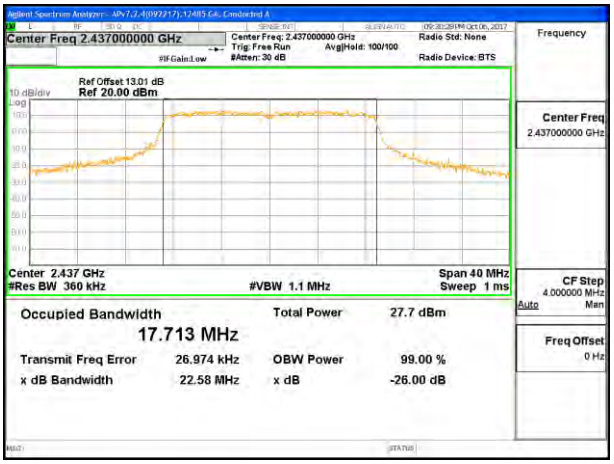


LOW CHANNEL 5 CHAIN 1

MID CHANNEL 6

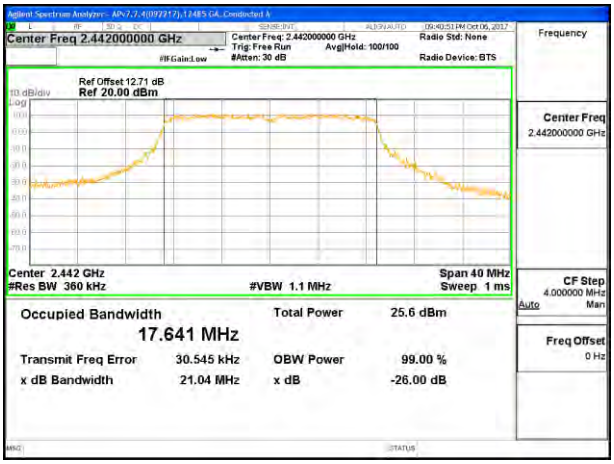


MID CHANNEL 6 CHAIN 0

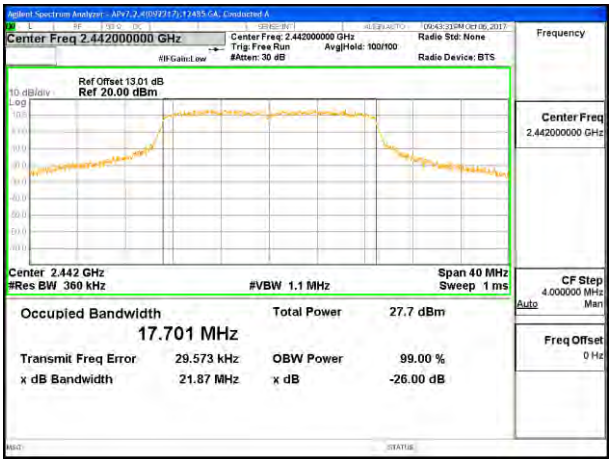


MID CHANNEL 6 CHAIN 1

HIGH CHANNEL 7

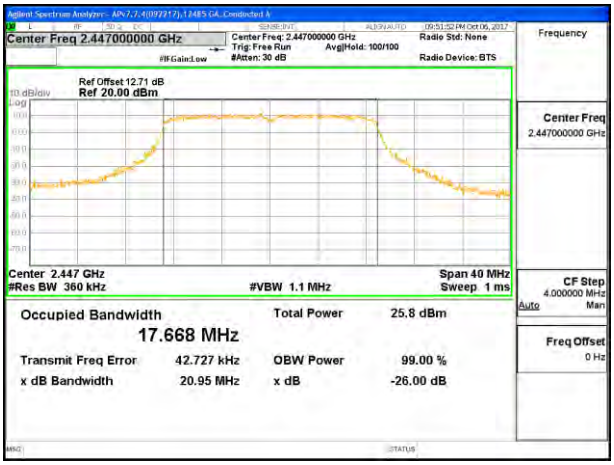


HIGH CHANNEL 7 CHAIN 0

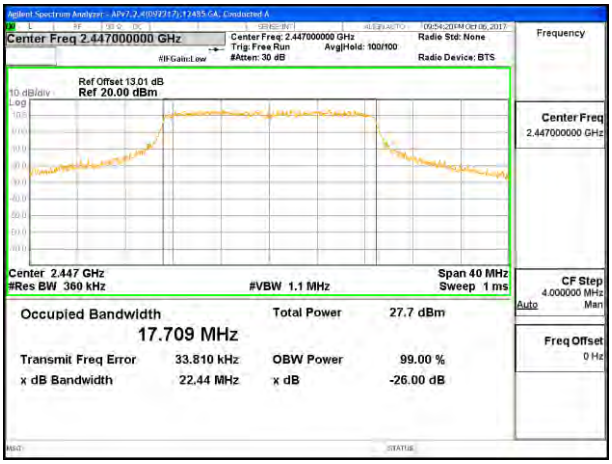


HIGH CHANNEL 7 CHAIN 1

HIGH CHANNEL 8

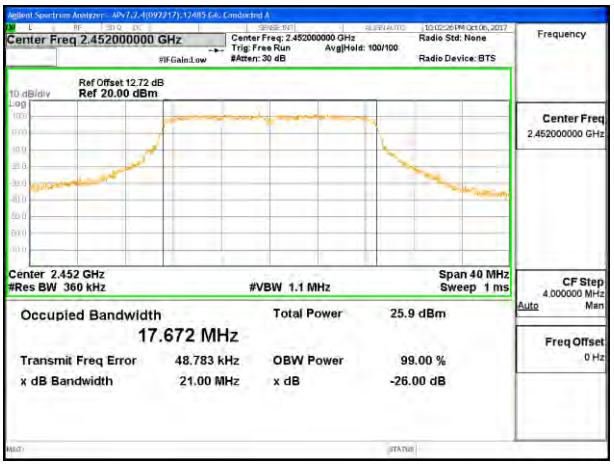


HIGH CHANNEL 8 CHAIN 0

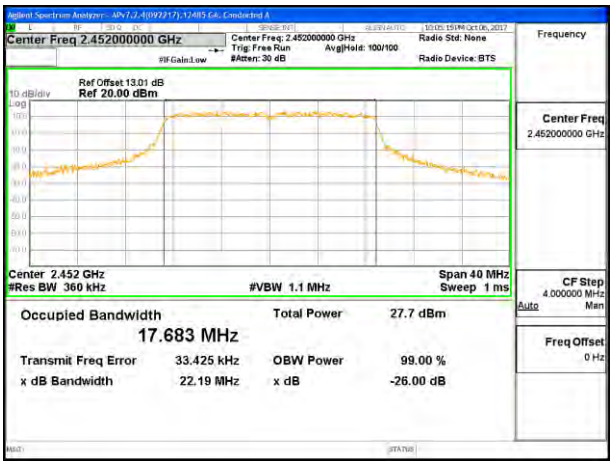


HIGH CHANNEL 8 CHAIN 1

HIGH CHANNEL 9

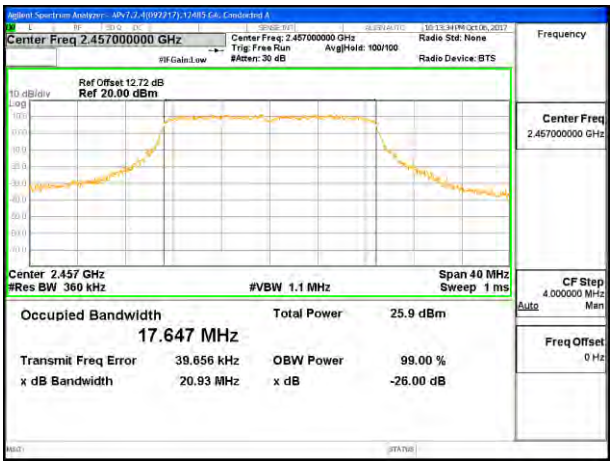


HIGH CHANNEL 9 CHAIN 0

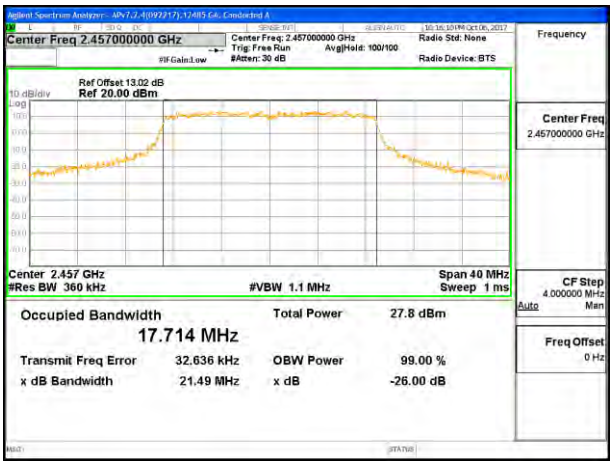


HIGH CHANNEL 9 CHAIN 1

HIGH CHANNEL 10

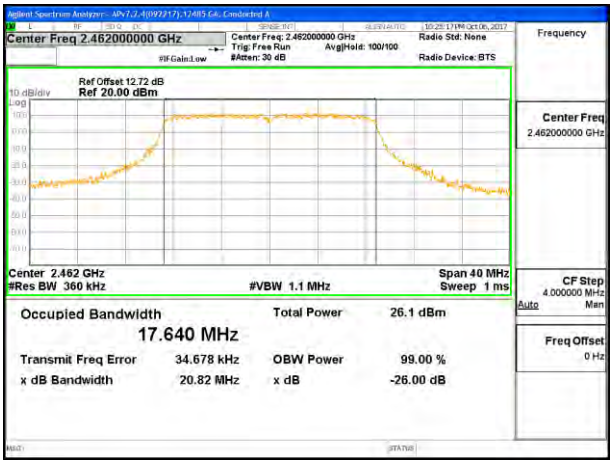


HIGH CHANNEL 10 CHAIN 0

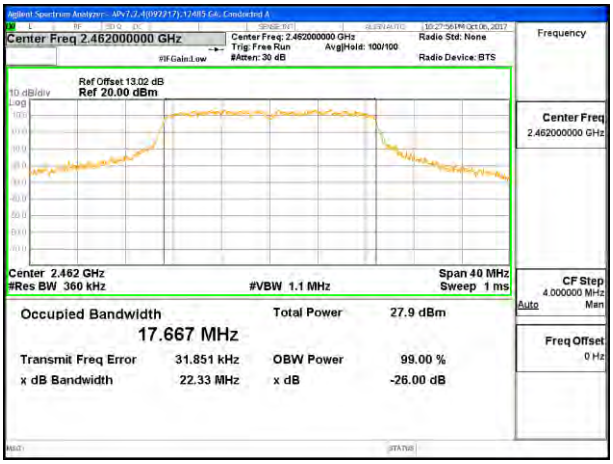


HIGH CHANNEL 10 CHAIN 1

HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0

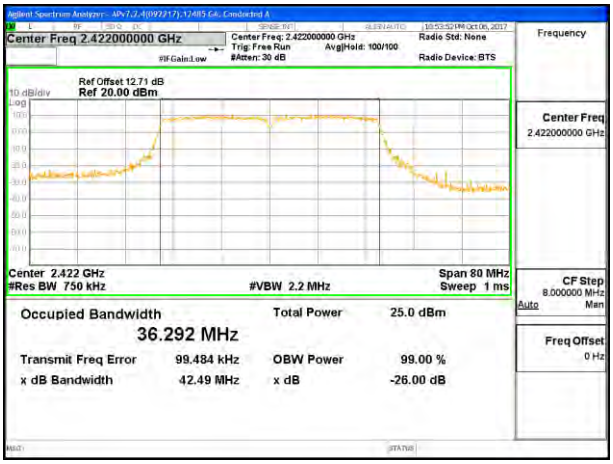


HIGH CHANNEL 11 CHAIN 1

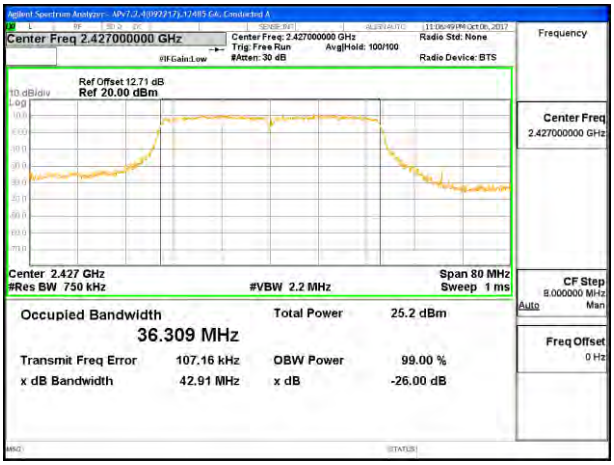
8.2.4. 802.11n HT40 MODE

1TX Chain 0 MODE

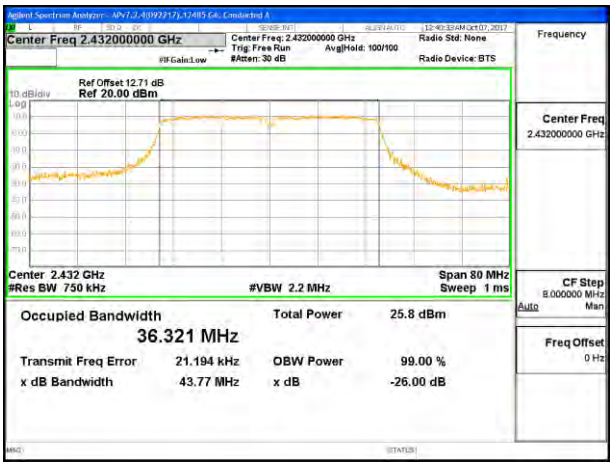
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 3	2422	36.2920
Low 4	2427	36.3090
Low 5	2432	36.3210
Mid 6	2437	36.2670
High 7	2442	36.2850
High 8	2447	36.3540
High 9	2452	36.2620



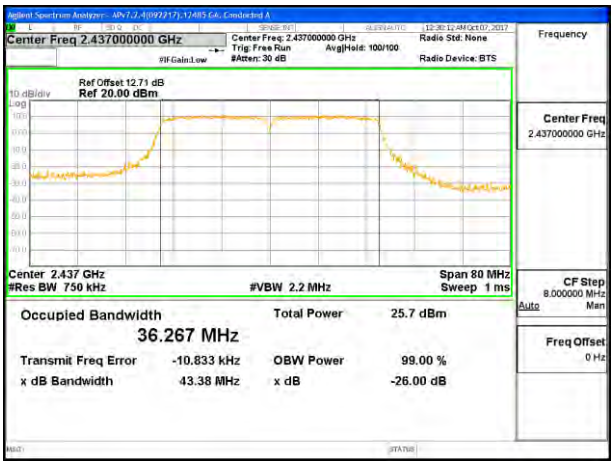
LOW CHANNEL 3



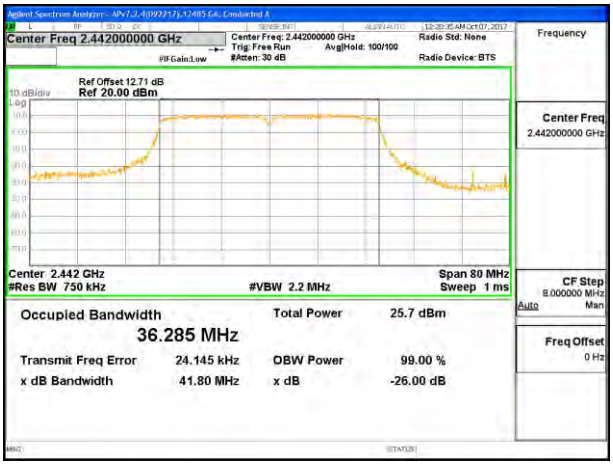
LOW CHANNEL 4



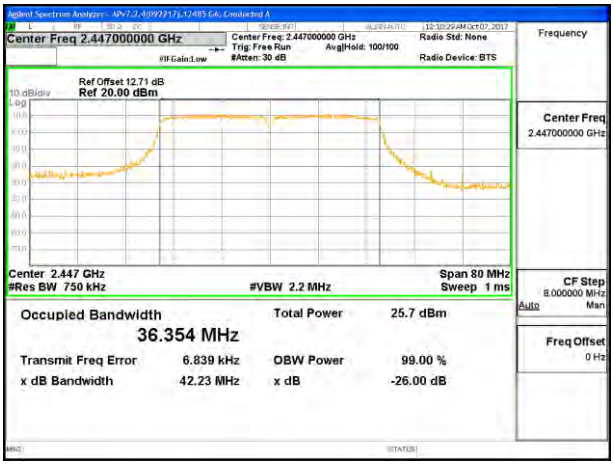
LOW CHANNEL 5



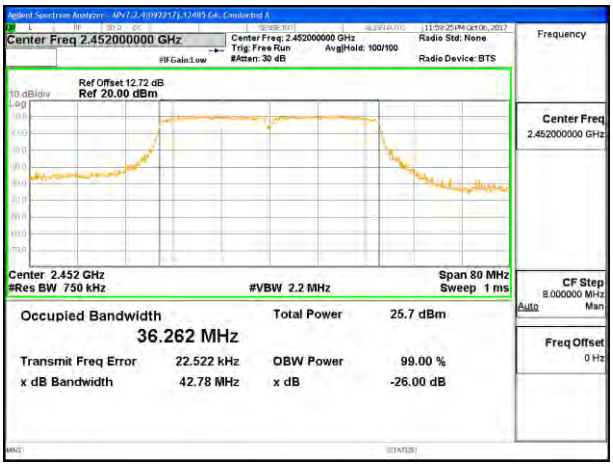
MID CHANNEL 6



HIGH CHANNEL 7



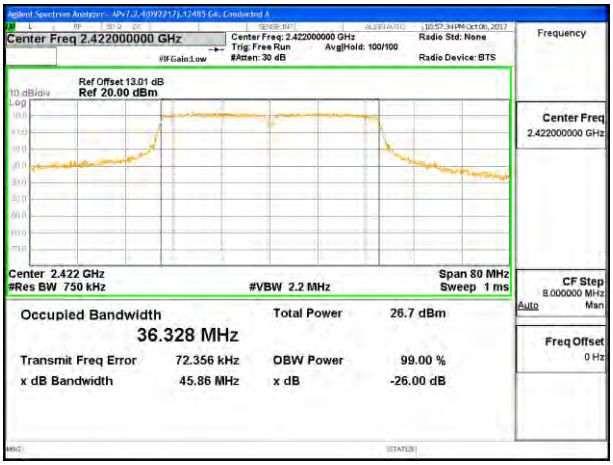
HIGH CHANNEL 8



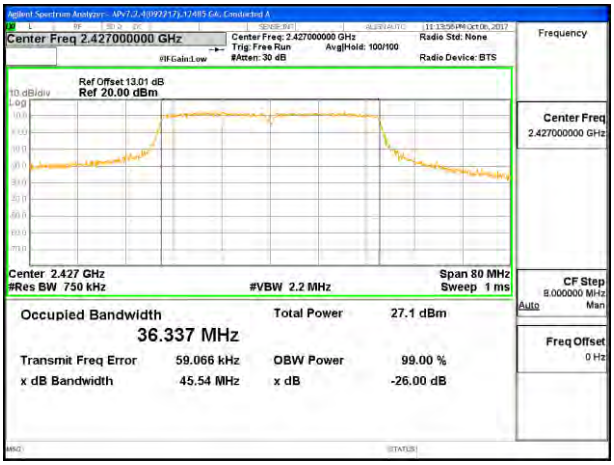
HIGH CHANNEL 9

1TX Chain 1 MODE

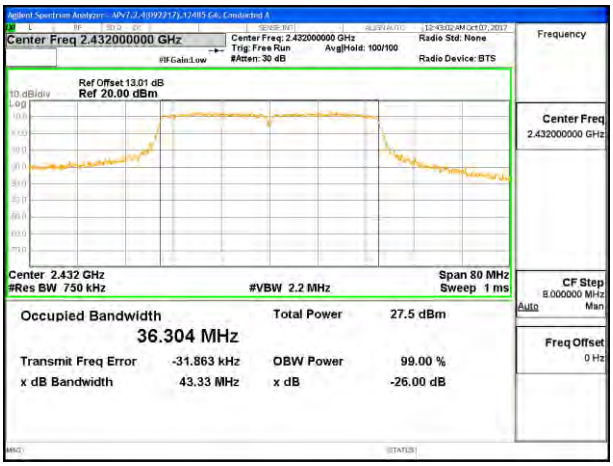
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 3	2422	36.3280
Low 4	2427	36.3370
Low 5	2432	36.3040
Mid 6	2437	36.3600
High 7	2442	36.3460
High 8	2447	36.4220
High 9	2452	36.3090



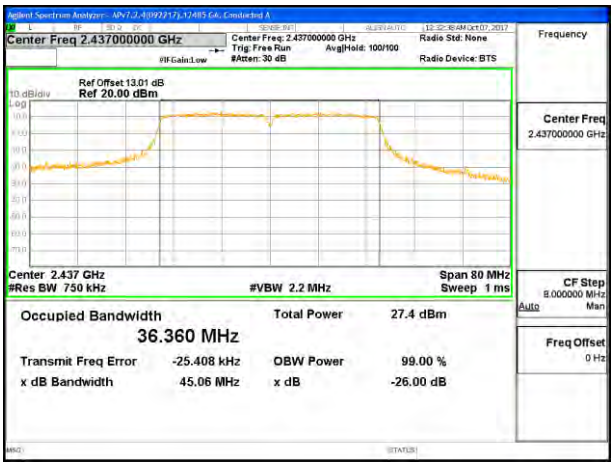
LOW CHANNEL 3



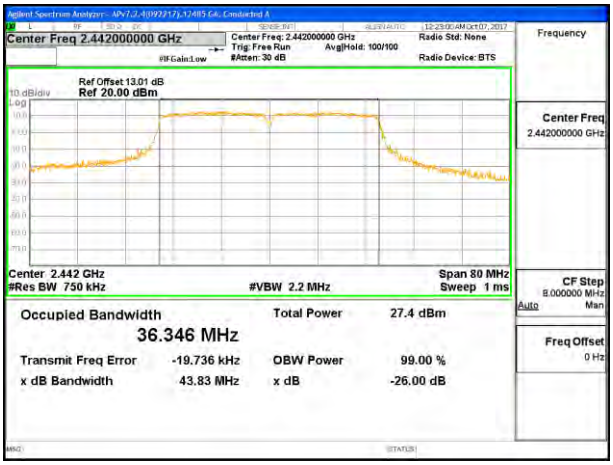
LOW CHANNEL 4



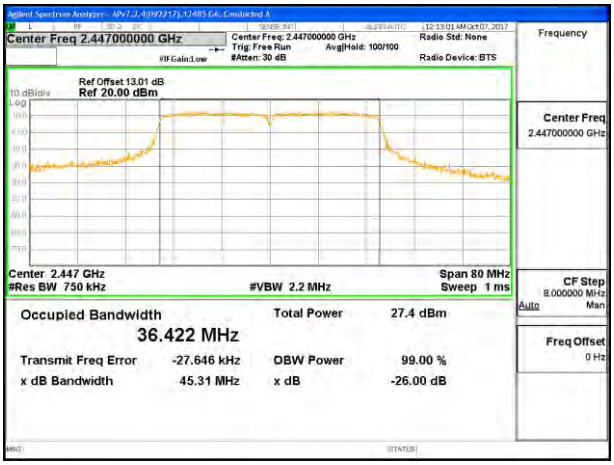
LOW CHANNEL 5



MID CHANNEL 6



HIGH CHANNEL 7



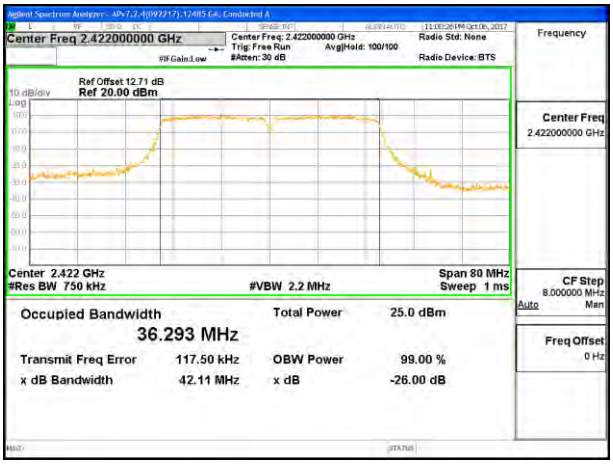
HIGH CHANNEL 8

HIGH CHANNEL 9

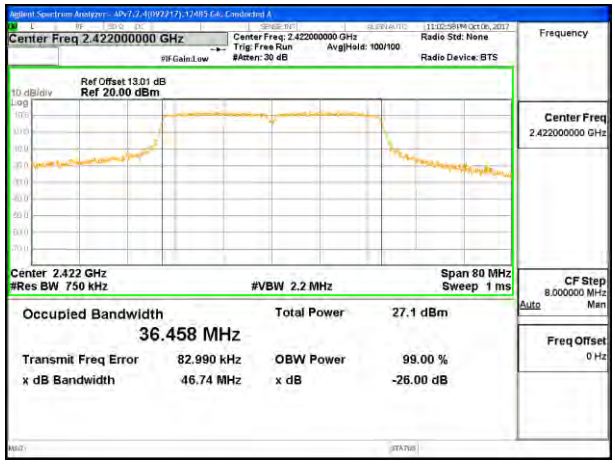
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low 3	2422	36.2930	36.4580
Low 4	2427	36.3010	36.3630
Low 5	2432	36.3380	36.3550
Mid 6	2437	36.3000	36.3460
High 7	2442	36.3350	36.3690
High 8	2447	36.3070	36.3590
High 9	2452	36.3540	36.3610

LOW CHANNEL 3

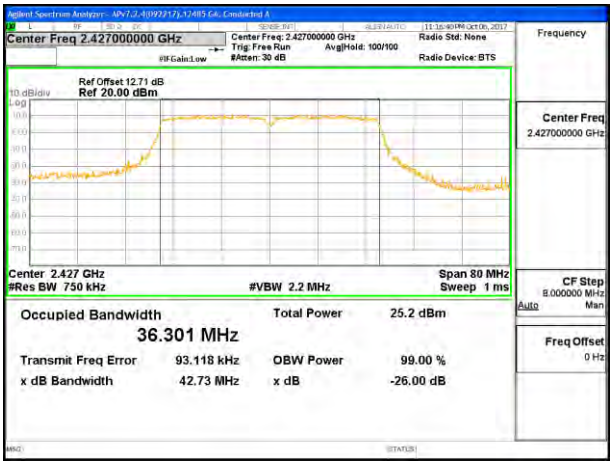


LOW CHANNEL 3 CHAIN 0

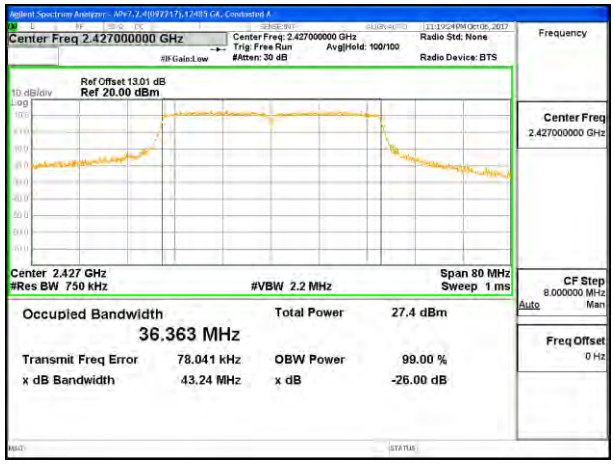


LOW CHANNEL 3 CHAIN 1

LOW CHANNEL 4

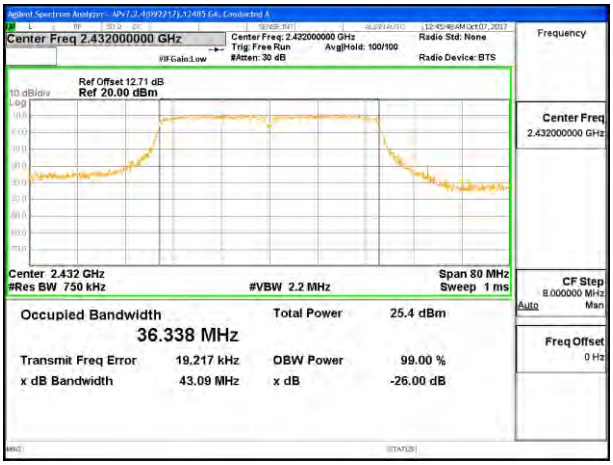


LOW CHANNEL 4 CHAIN 0

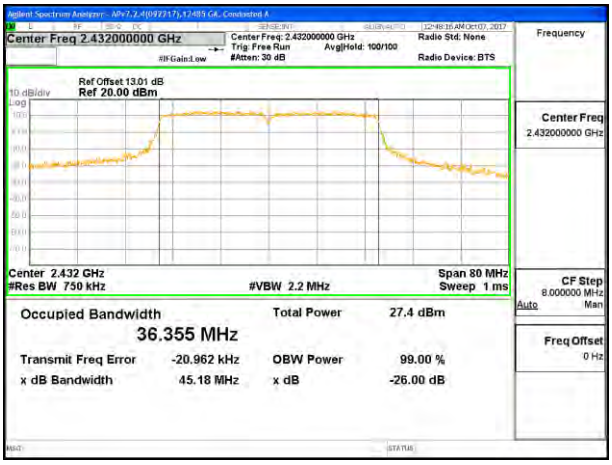


LOW CHANNEL 4 CHAIN 1

LOW CHANNEL 5

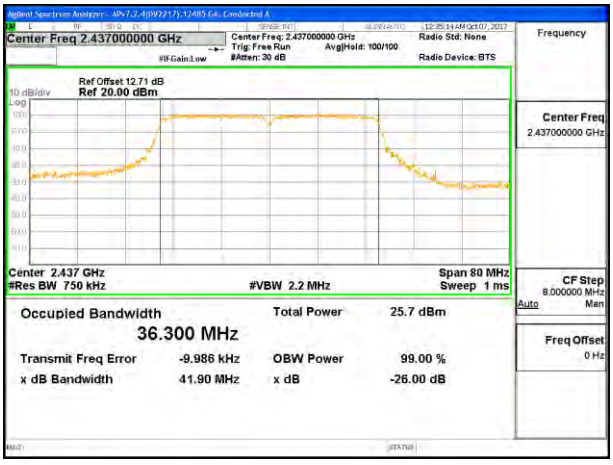


LOW CHANNEL 5 CHAIN 0

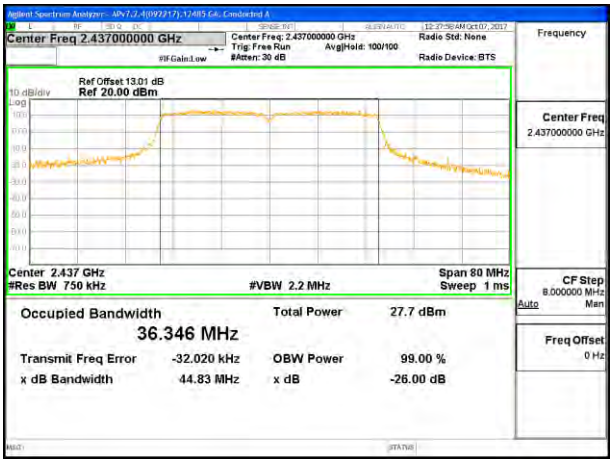


LOW CHANNEL 5 CHAIN 1

MID CHANNEL 6

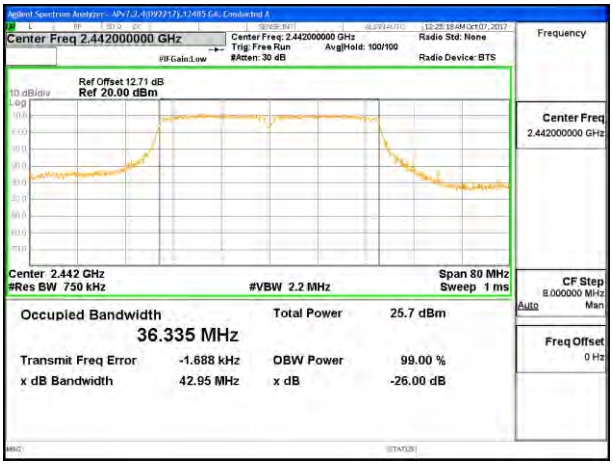


MID CHANNEL 6 CHAIN 0

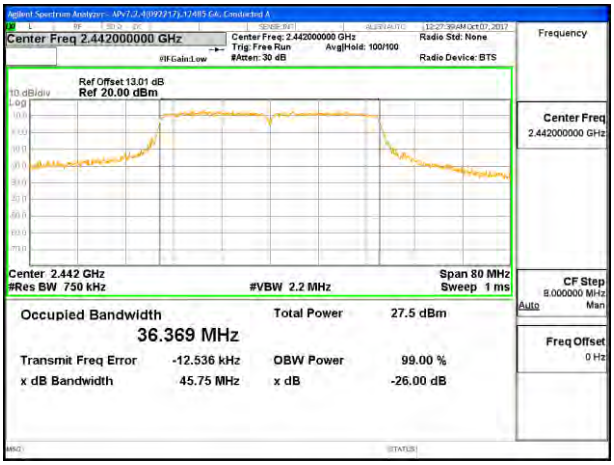


MID CHANNEL 6 CHAIN 1

HIGH CHANNEL 7

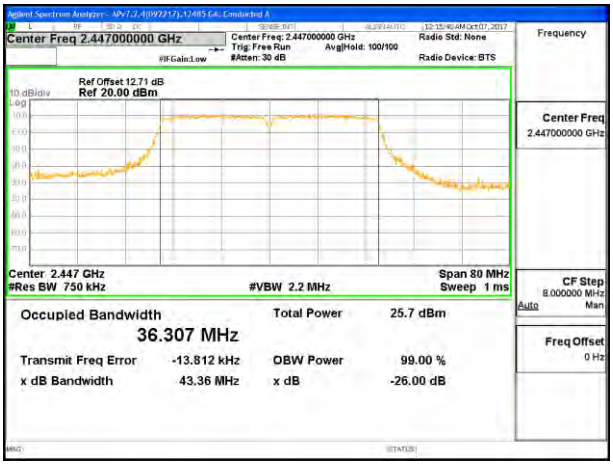


HIGH CHANNEL 7 CHAIN 0

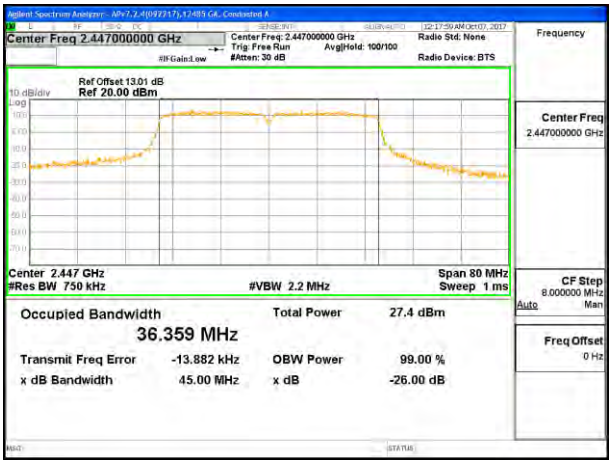


HIGH CHANNEL 7 CHAIN 1

HIGH CHANNEL 8

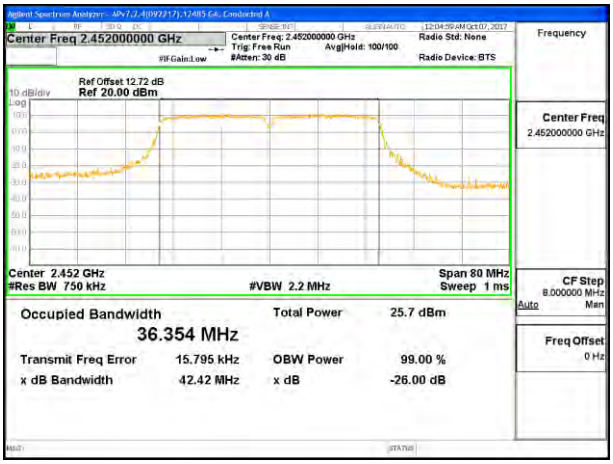


HIGH CHANNEL 8 CHAIN 0

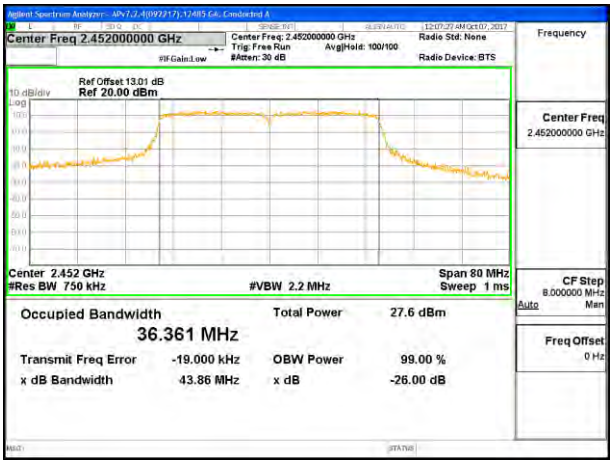


HIGH CHANNEL 8 CHAIN 1

HIGH CHANNEL 9



HIGH CHANNEL 9 CHAIN 0



HIGH CHANNEL 9 CHAIN 1

8.3. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

RSS-247 (5.2) (a)

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

RESULTS

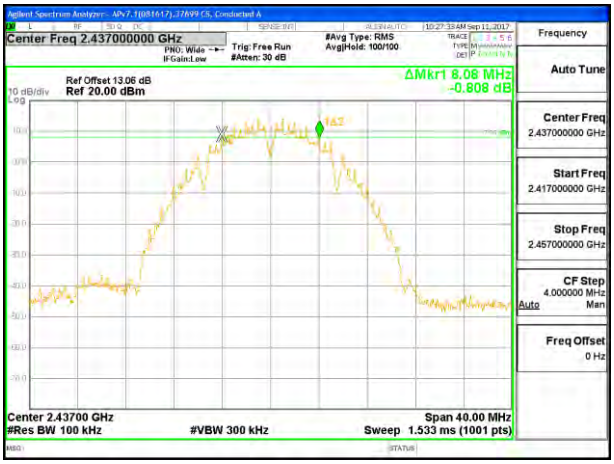
8.3.1. 802.11b MODE

1TX Chain 0 MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	7.1600	0.5
Low 2	2417	7.1600	0.5
Mid 6	2437	8.0800	0.5
High 11	2462	7.1600	0.5

LOW CHANNEL 1

LOW CHANNEL 2



MID CHANNEL 6

HIGH CHANNEL 11

1TX Chain 1 MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	7.6400	0.5
Mid 6	2437	8.0800	0.5
High 11	2462	7.1600	0.5

LOW CHANNEL 1

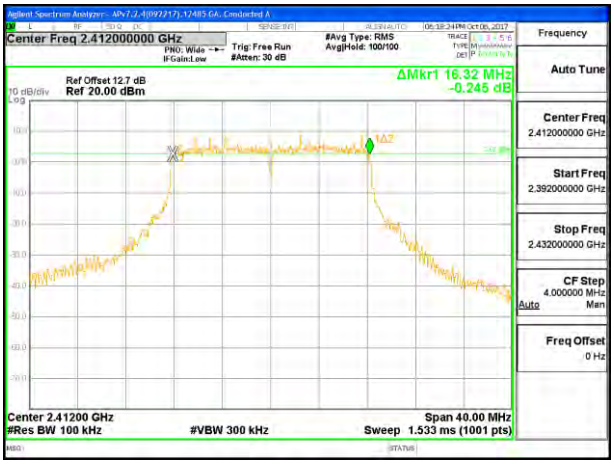
MID CHANNEL 6

HIGH CHANNEL 11

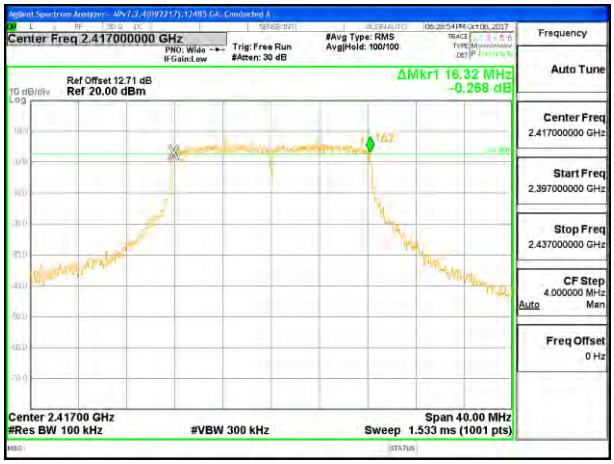
8.3.2. 802.11g MODE

1TX Chain 0 MODE

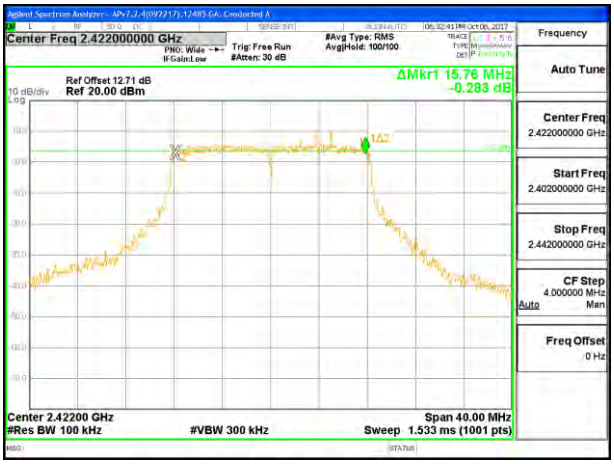
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	16.3200	0.5
Low 2	2417	16.3200	0.5
Low 3	2422	15.7600	0.5
Low 4	2427	16.3200	0.5
Low 5	2432	16.2800	0.5
Mid 6	2437	16.0400	0.5
High 7	2442	16.2800	0.5
High 8	2447	16.0400	0.5
High 9	2452	15.6800	0.5
High 10	2457	16.3200	0.5
High 11	2462	16.3200	0.5



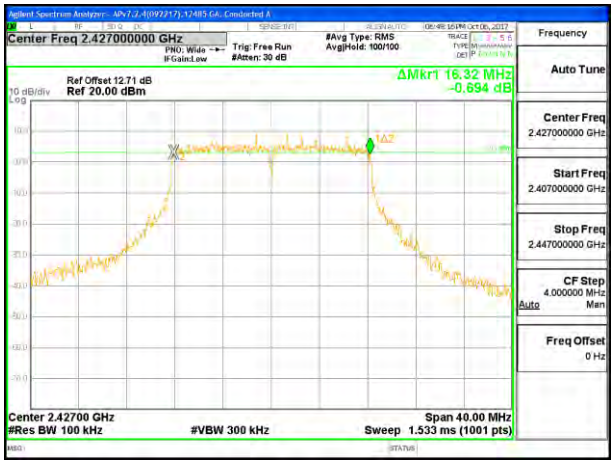
LOW CHANNEL 1



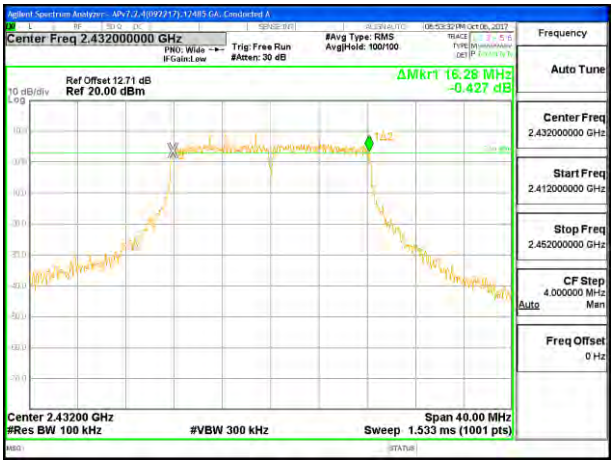
LOW CHANNEL 2



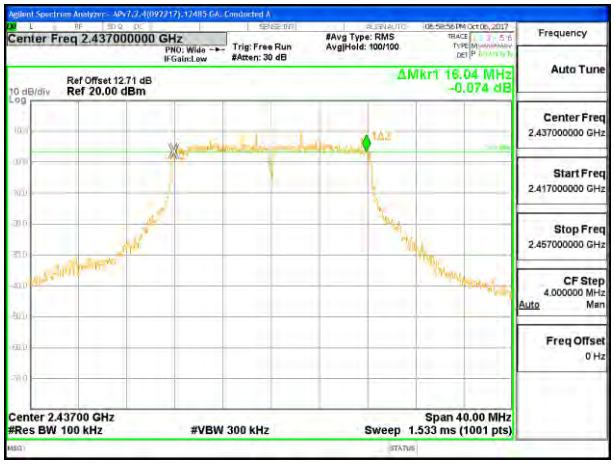
LOW CHANNEL 3



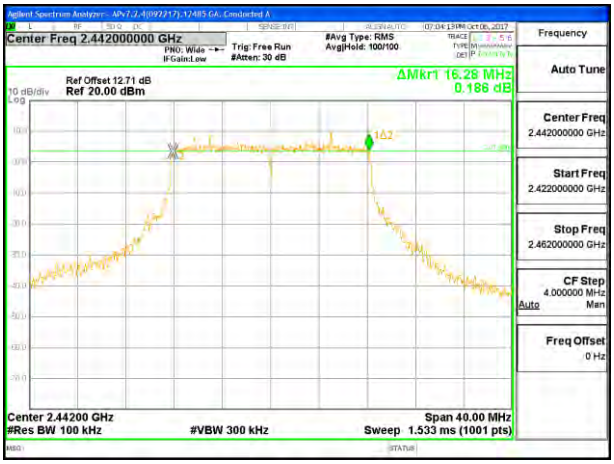
LOW CHANNEL 4



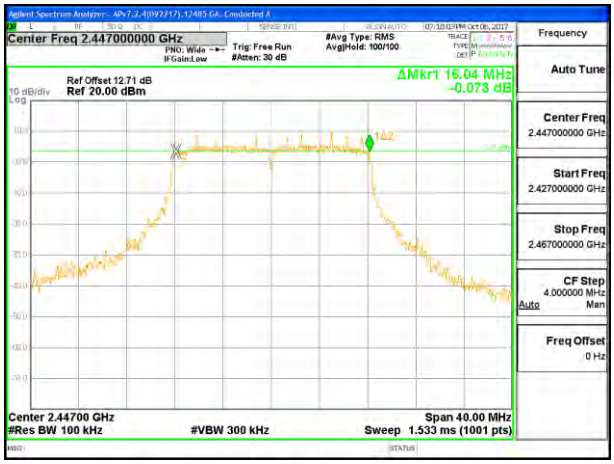
LOW CHANNEL 5



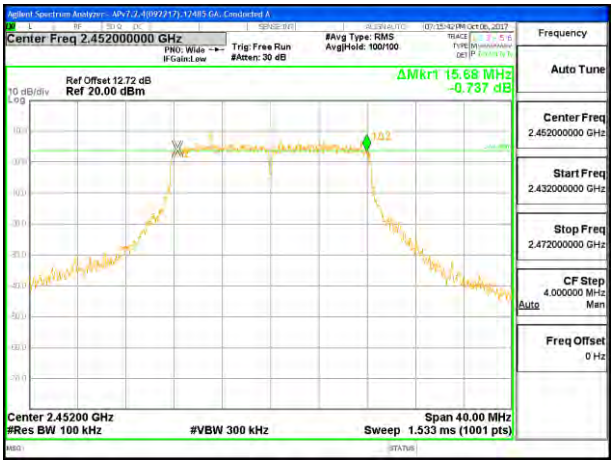
MID CHANNEL 6



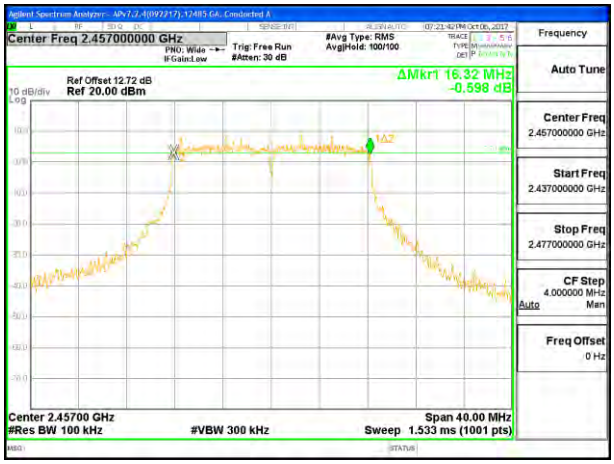
HIGH CHANNEL 7



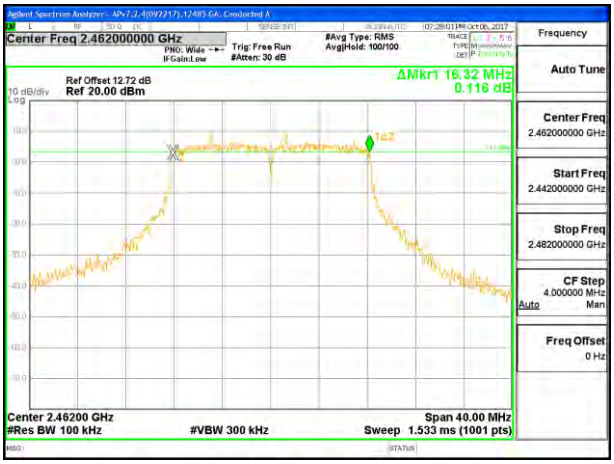
HIGH CHANNEL 8



HIGH CHANNEL 9



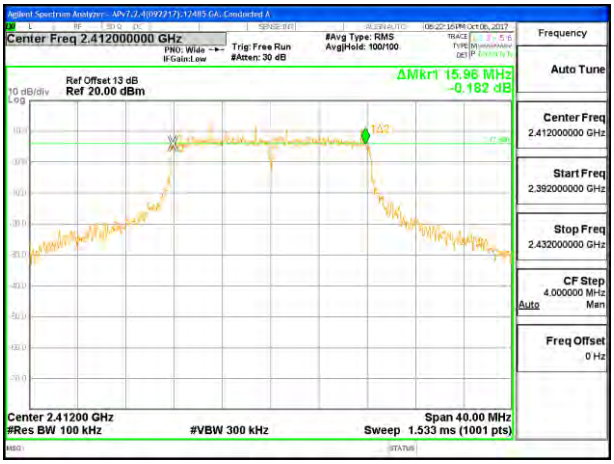
HIGH CHANNEL 10



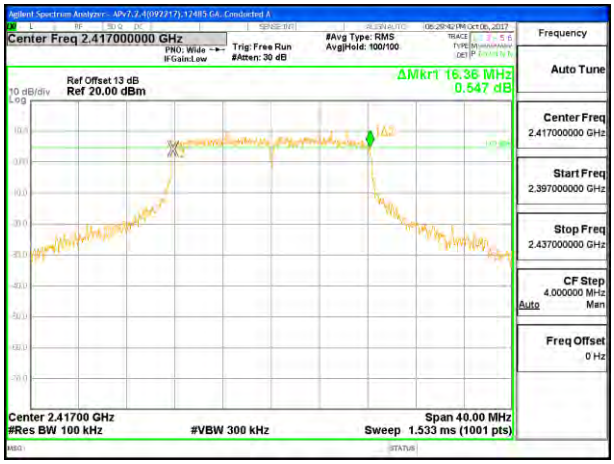
HIGH CHANNEL 11

1TX Chain 1 MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	15.9600	0.5
Low 2	2417	16.3600	0.5
Low 3	2422	16.0400	0.5
Low 4	2427	16.4000	0.5
Low 5	2432	16.0400	0.5
Mid 6	2437	15.7200	0.5
High 7	2442	16.4800	0.5
High 8	2447	15.9600	0.5
High 9	2452	15.8800	0.5
High 10	2457	15.5600	0.5
High 11	2462	16.0400	0.5



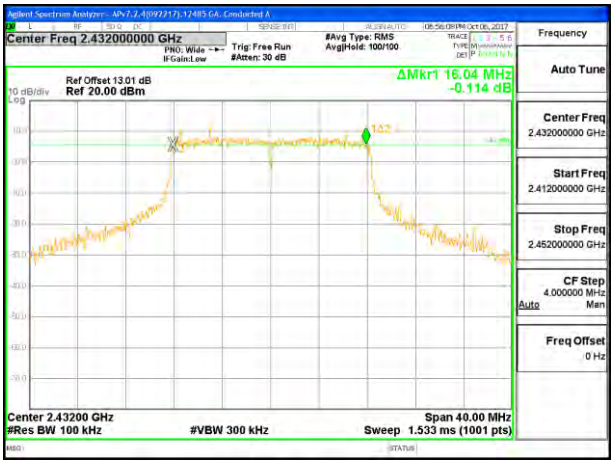
LOW CHANNEL 1



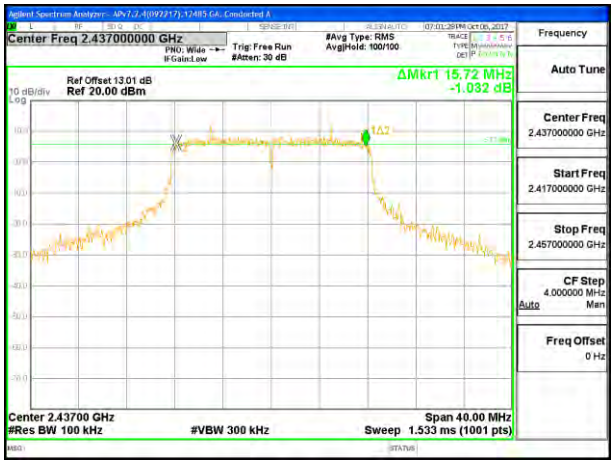
LOW CHANNEL 2

LOW CHANNEL 3

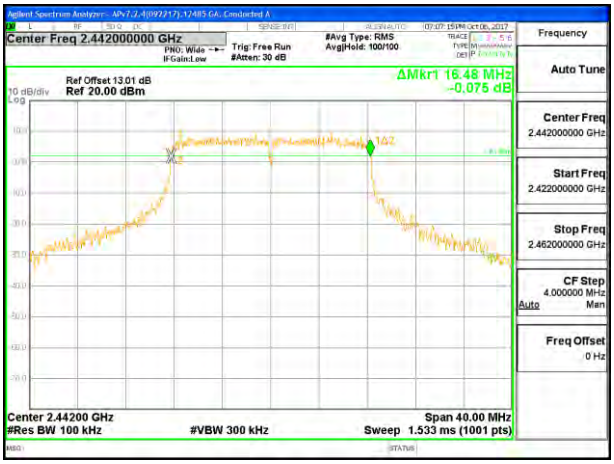
LOW CHANNEL 4



LOW CHANNEL 5



MID CHANNEL 6

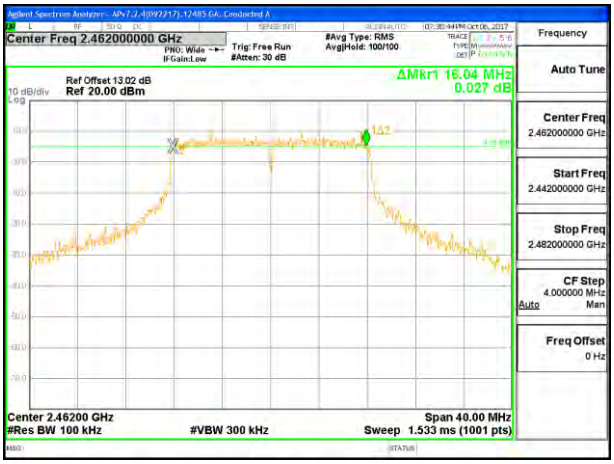


HIGH CHANNEL 7

HIGH CHANNEL 8

HIGH CHANNEL 9

HIGH CHANNEL 10

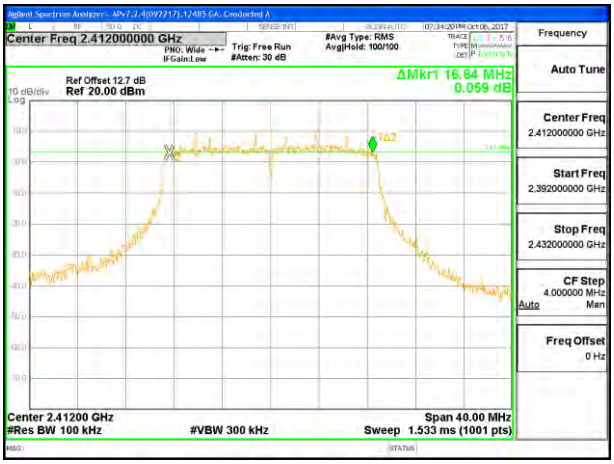


HIGH CHANNEL 11

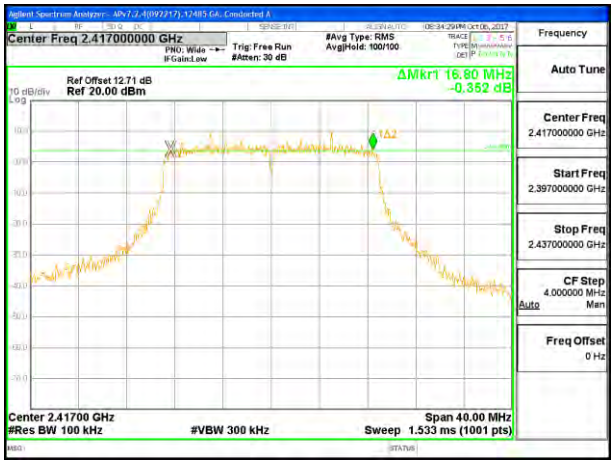
8.3.3. 802.11n HT20 MODE

1TX Chain 0 MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	16.8400	0.5
Low 2	2417	16.8000	0.5
Low 3	2422	16.7600	0.5
Low 4	2427	16.8400	0.5
Low 5	2432	17.3200	0.5
Mid 6	2437	16.8000	0.5
High 8	2447	16.6000	0.5
High 9	2452	16.8000	0.5
High 10	2457	16.5600	0.5
High 11	2462	16.7600	0.5

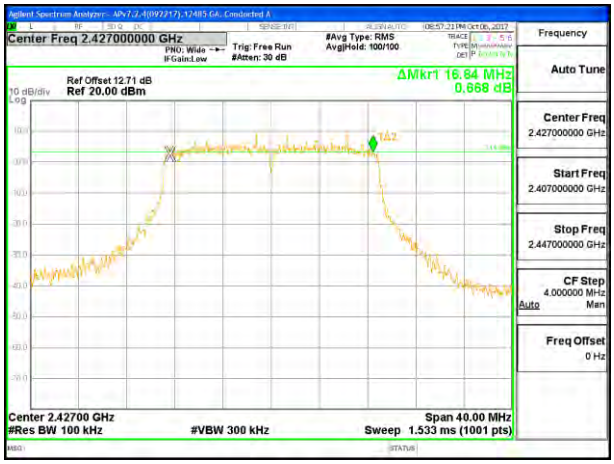


LOW CHANNEL 1

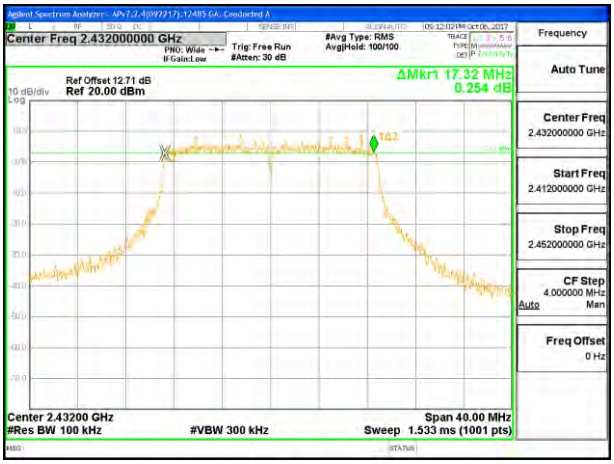


LOW CHANNEL 2

LOW CHANNEL 3

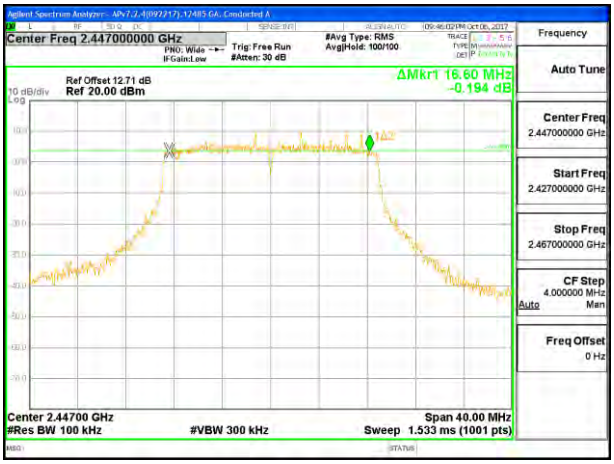


LOW CHANNEL 4

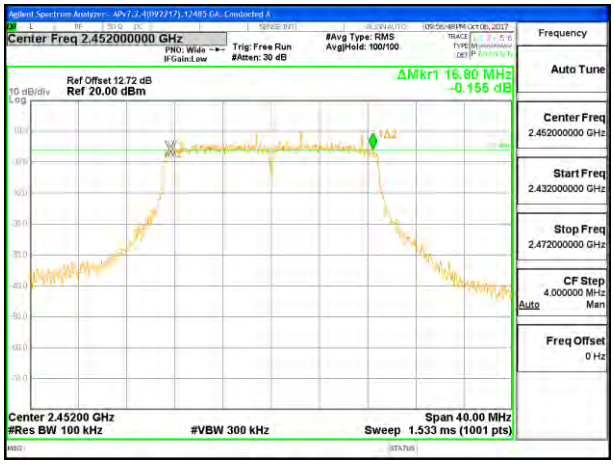


LOW CHANNEL 5

MID CHANNEL 6

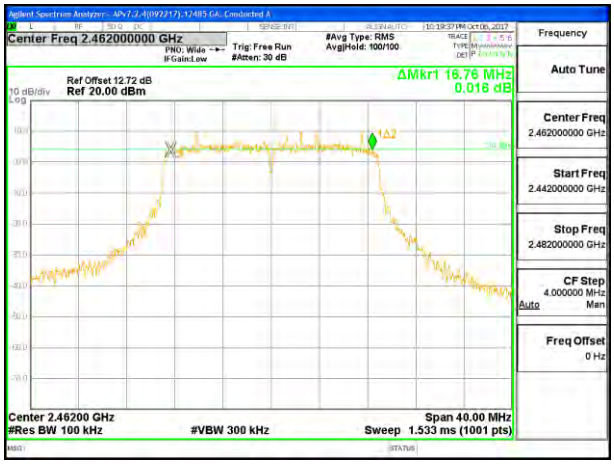


HIGH CHANNEL 8



HIGH CHANNEL 9

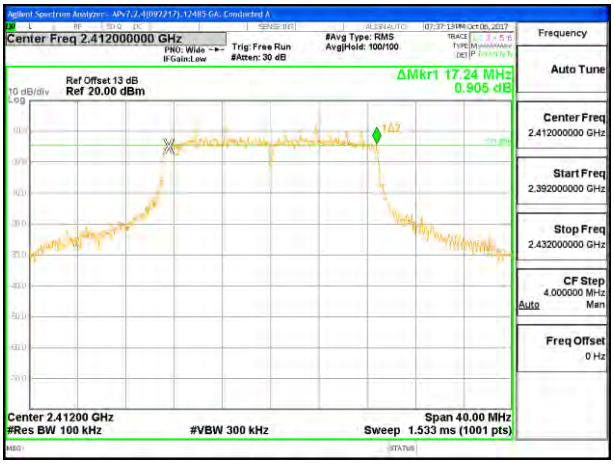
HIGH CHANNEL 10



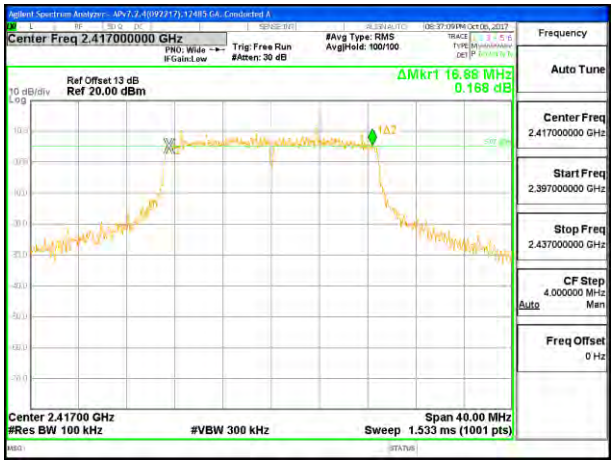
HIGH CHANNEL 11

1TX Chain 1 MODE

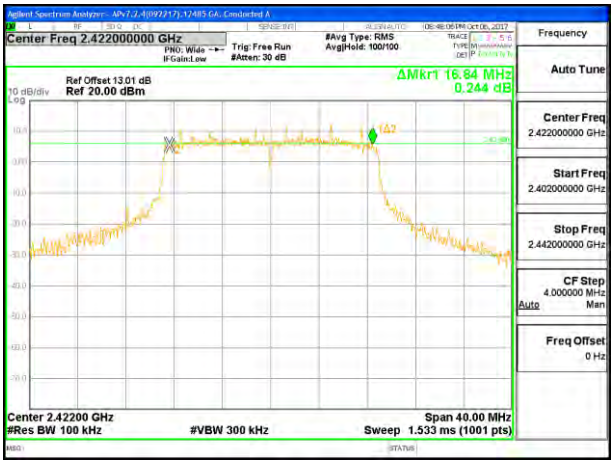
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	17.2400	0.5
Low 2	2417	16.8800	0.5
Low 3	2422	16.8400	0.5
Low 4	2427	16.5600	0.5
Low 5	2432	16.8400	0.5
Mid 6	2437	16.5200	0.5
High 9	2452	16.8000	0.5
High 10	2457	16.8400	0.5
High 11	2462	16.8000	0.5



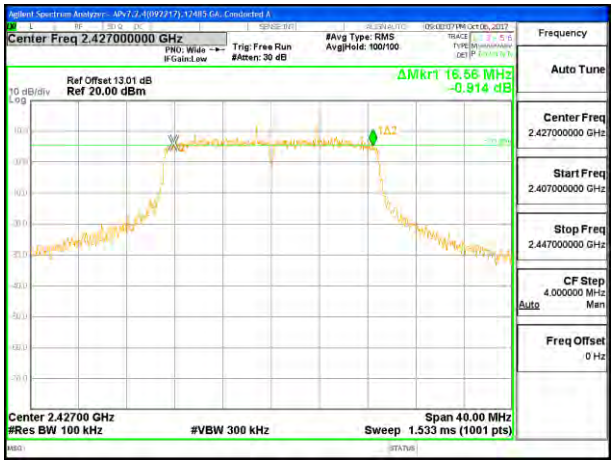
LOW CHANNEL 1



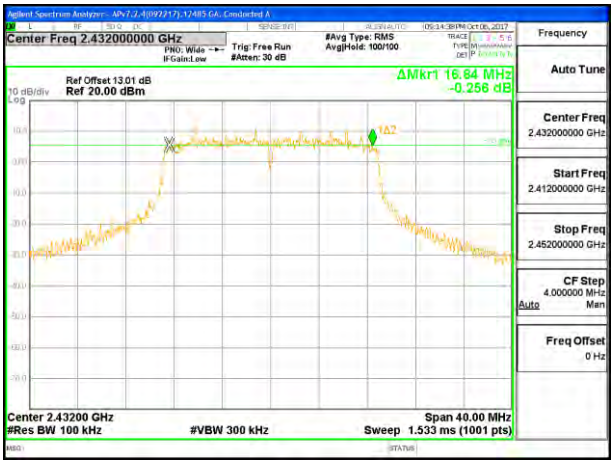
LOW CHANNEL 2



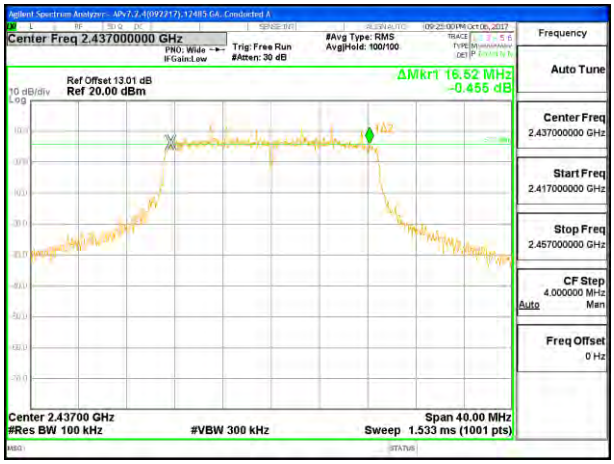
LOW CHANNEL 3



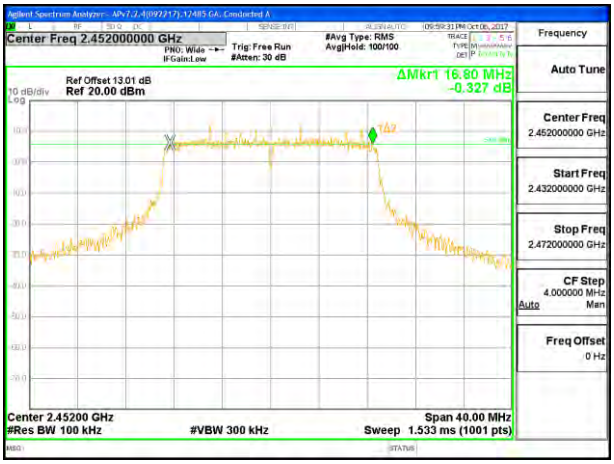
LOW CHANNEL 4



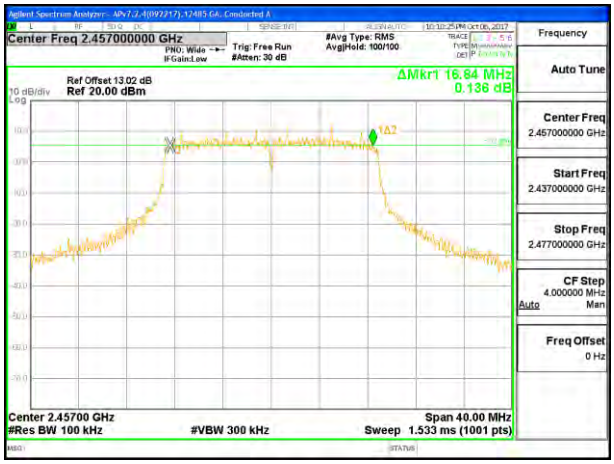
LOW CHANNEL 5



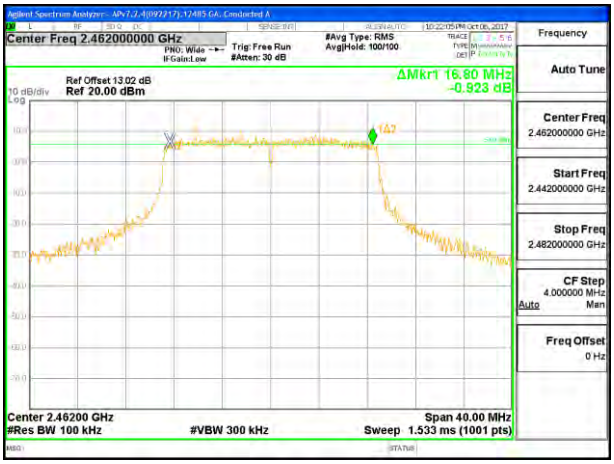
MID CHANNEL 6



HIGH CHANNEL 9



HIGH CHANNEL 10

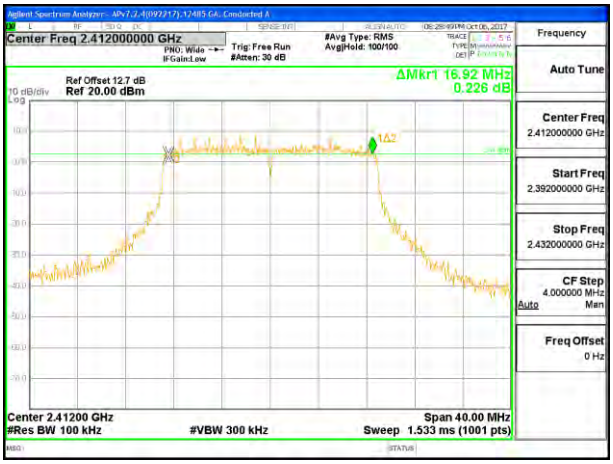


HIGH CHANNEL 11

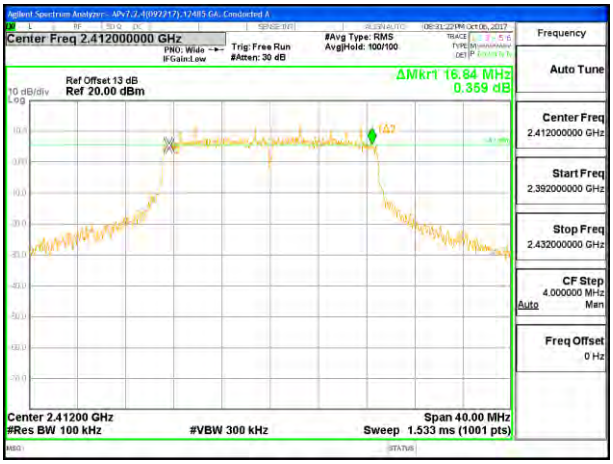
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low 1	2412	16.9200	16.8400	0.5
Low 2	2417	17.2000	16.8400	0.5
Low 3	2422	16.8000	15.6800	0.5
Low 4	2427	16.8400	17.1600	0.5
Low 5	2432	16.8000	17.2000	0.5
Mid 6	2437	16.8800	15.9200	0.5
High 7	2442	16.8400	16.9200	0.5
High 8	2447	16.8400	17.5600	0.5
High 9	2452	16.8400	16.9600	0.5
High 10	2457	16.5600	16.8000	0.5
High 11	2462	17.2000	15.9200	0.5

LOW CHANNEL 1

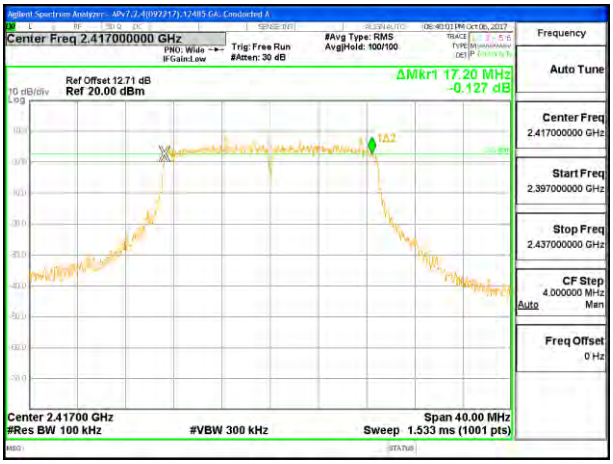


LOW CHANNEL 1 CHAIN 0

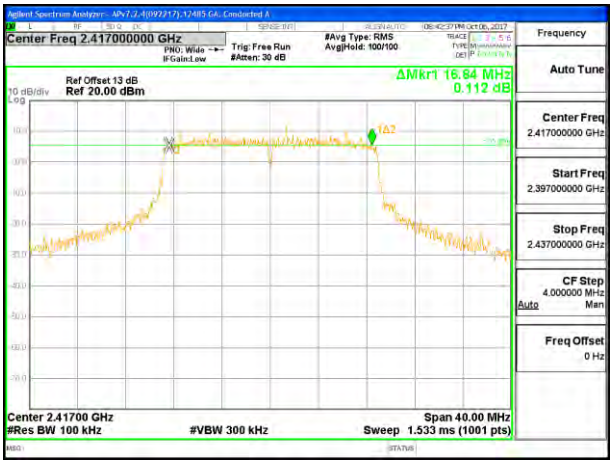


LOW CHANNEL 1 CHAIN 1

LOW CHANNEL 2

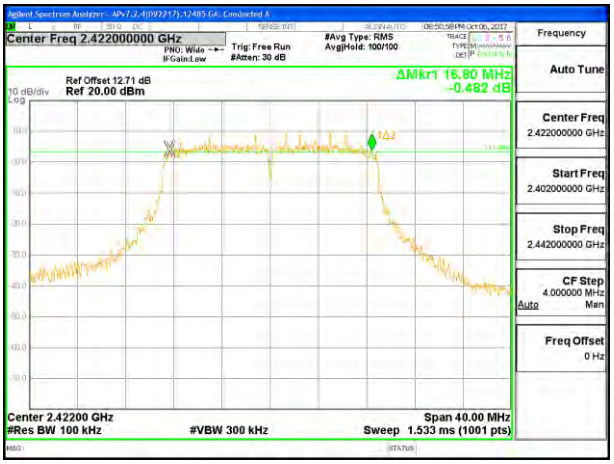


LOW CHANNEL 2 CHAIN 0

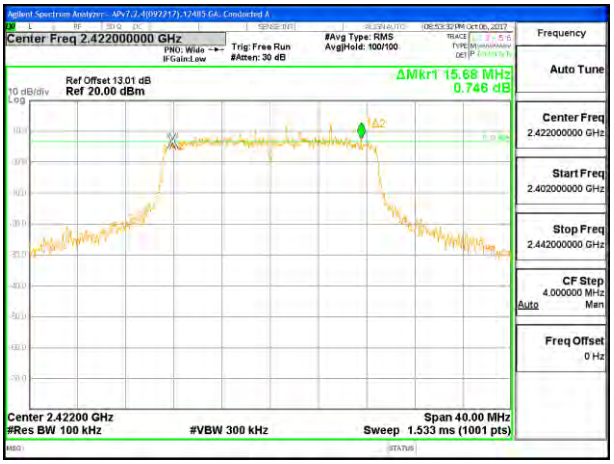


LOW CHANNEL 2 CHAIN 1

LOW CHANNEL 3

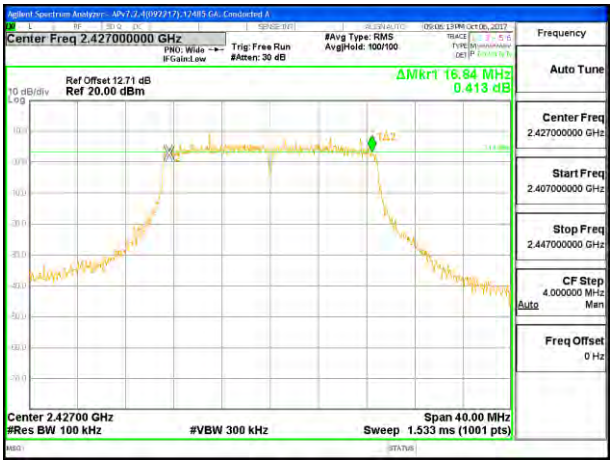


LOW CHANNEL 3 CHAIN 0

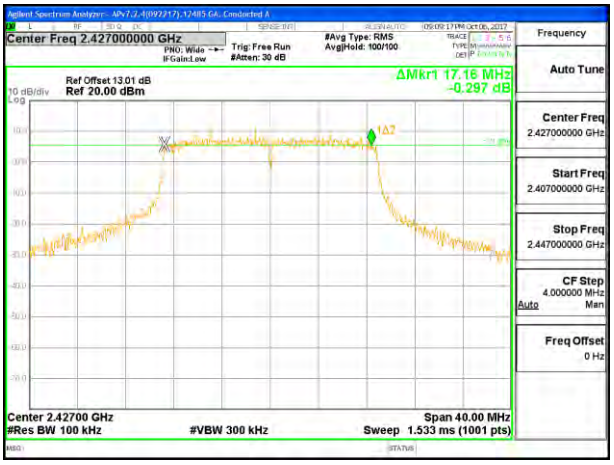


LOW CHANNEL 3 CHAIN 1

LOW CHANNEL 4

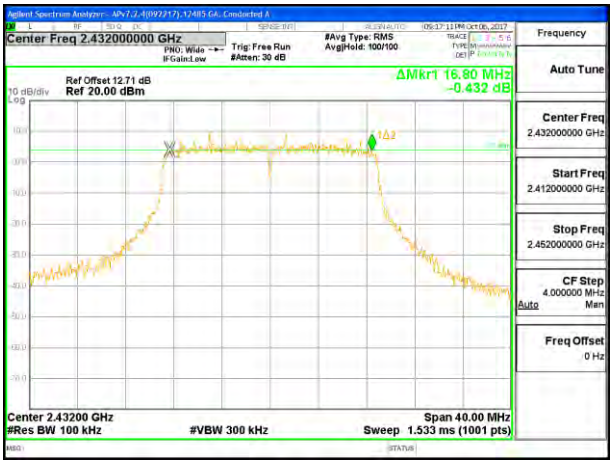


LOW CHANNEL 4 CHAIN 0

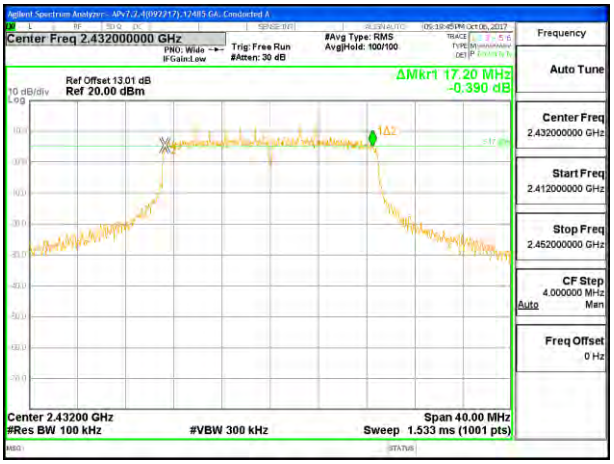


LOW CHANNEL 4 CHAIN 1

LOW CHANNEL 5

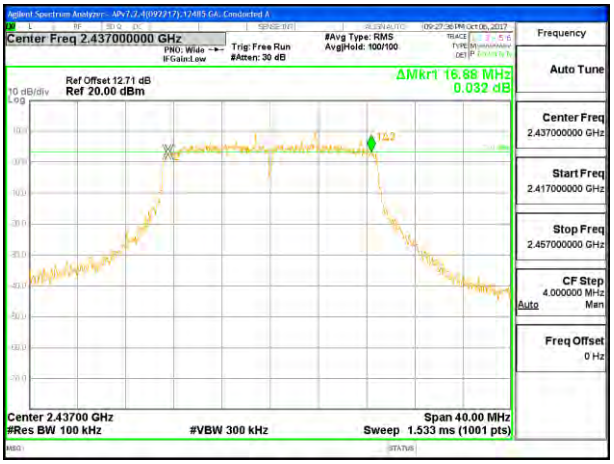


LOW CHANNEL 5 CHAIN 0

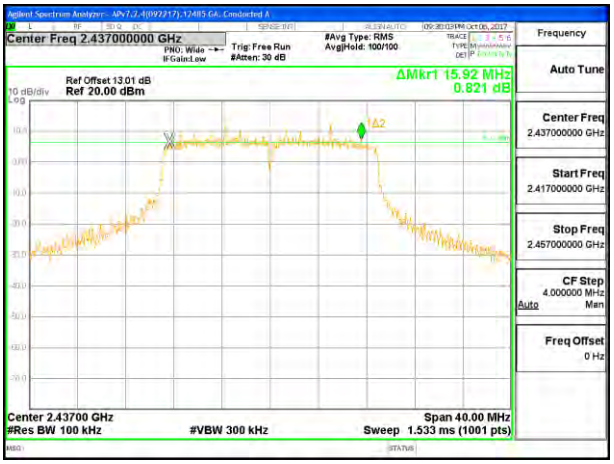


LOW CHANNEL 5 CHAIN 1

MID CHANNEL 6

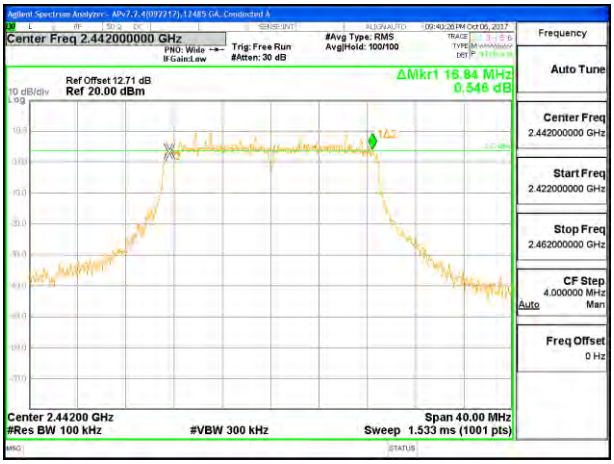


MID CHANNEL 6 CHAIN 0

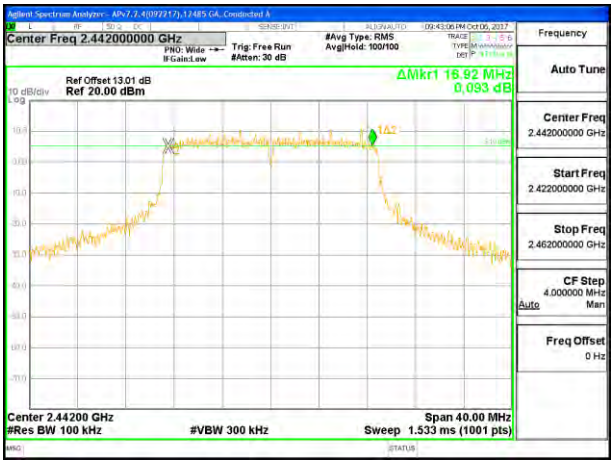


MID CHANNEL 6 CHAIN 1

HIGH CHANNEL 7

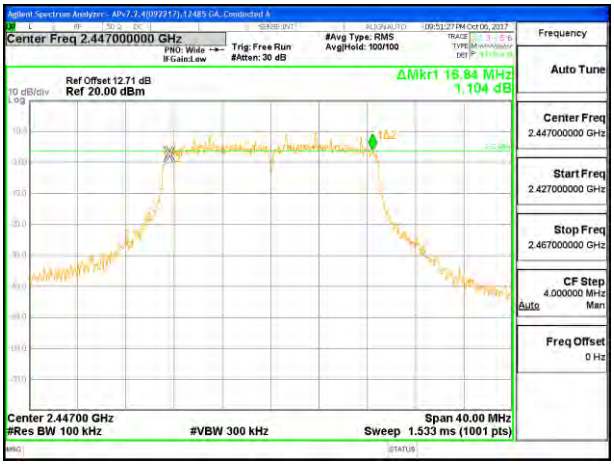


HIGH CHANNEL 7 CHAIN 0

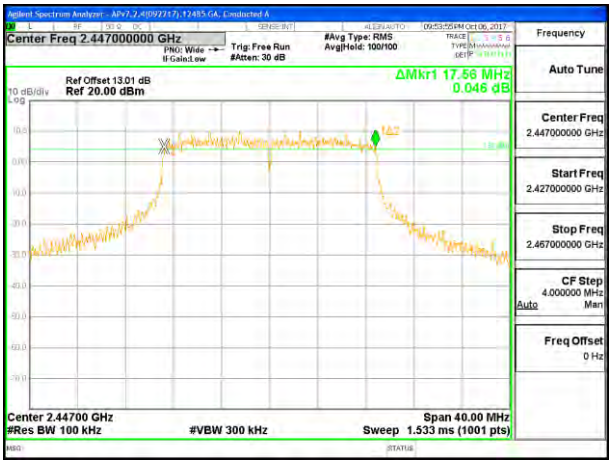


HIGH CHANNEL 7 CHAIN 1

HIGH CHANNEL 8

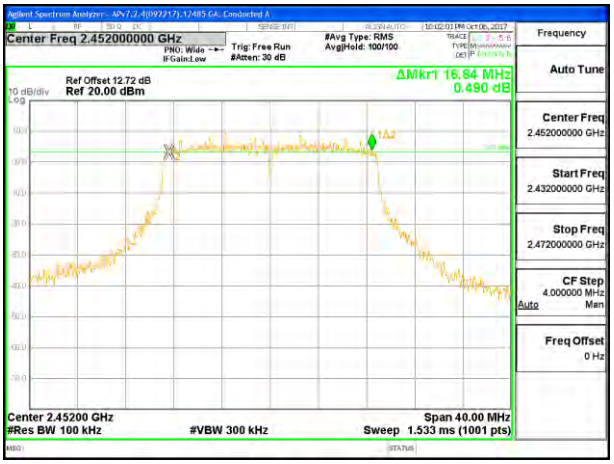


HIGH CHANNEL 8 CHAIN 0

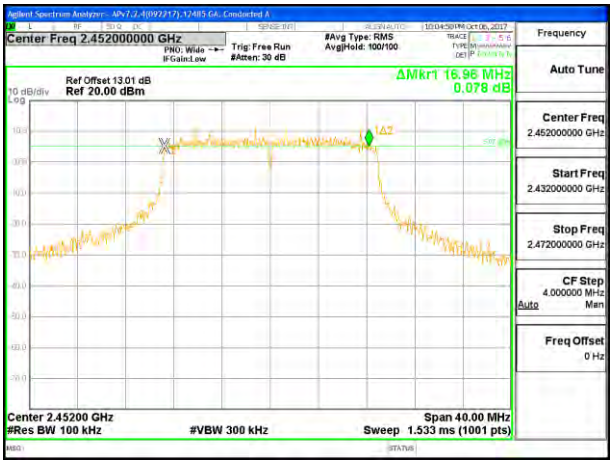


HIGH CHANNEL 8 CHAIN 1

HIGH CHANNEL 9

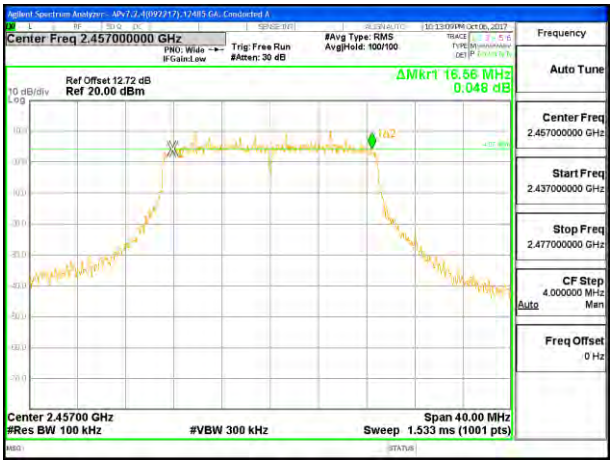


HIGH CHANNEL 9 CHAIN 0

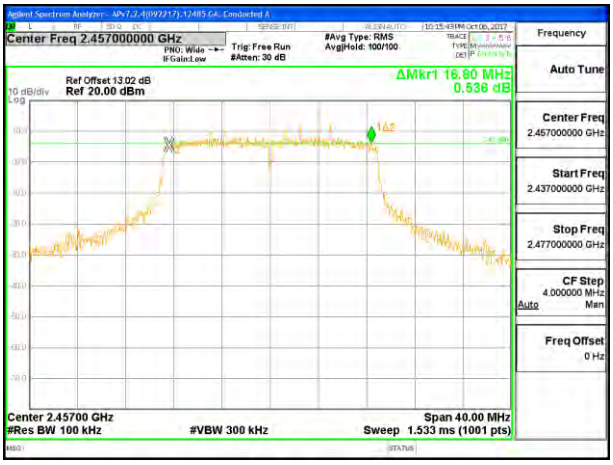


HIGH CHANNEL 9 CHAIN 1

HIGH CHANNEL 10

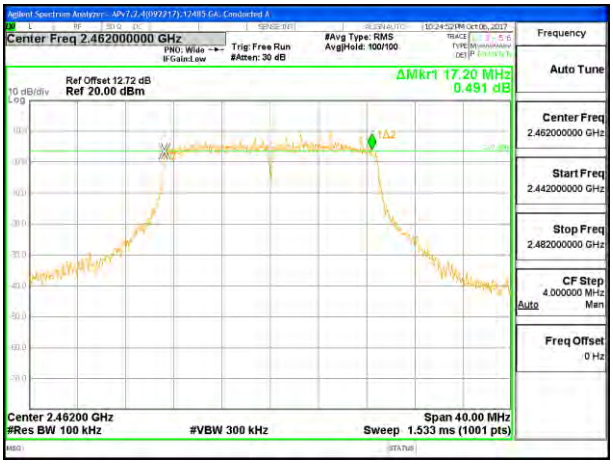


HIGH CHANNEL 10 CHAIN 0

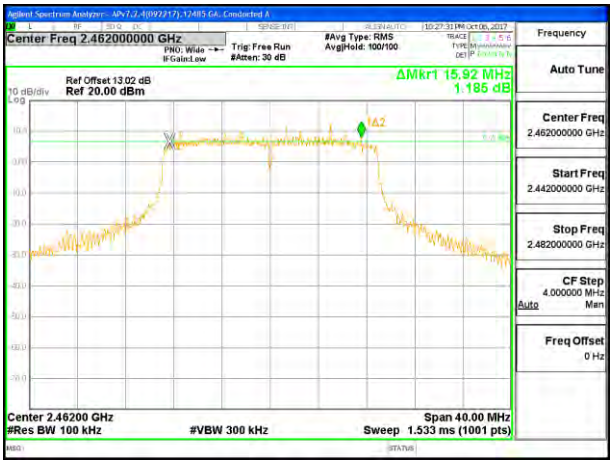


HIGH CHANNEL 10 CHAIN 1

HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0

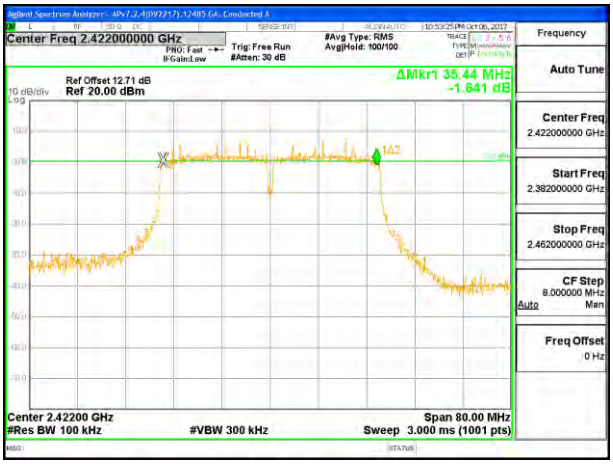


HIGH CHANNEL 11 CHAIN 1

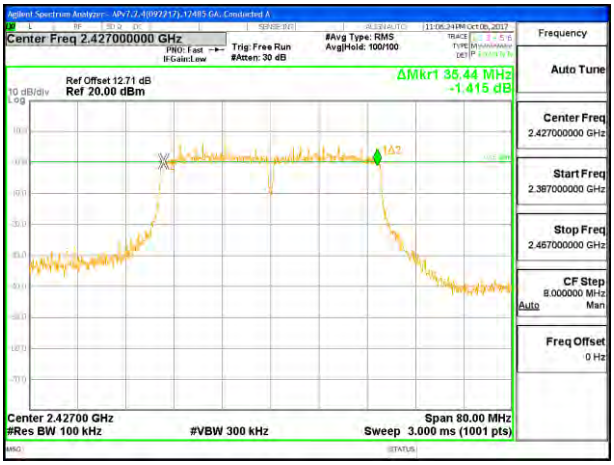
8.3.4. 802.11n HT40 MODE

1TX Chain 0 MODE

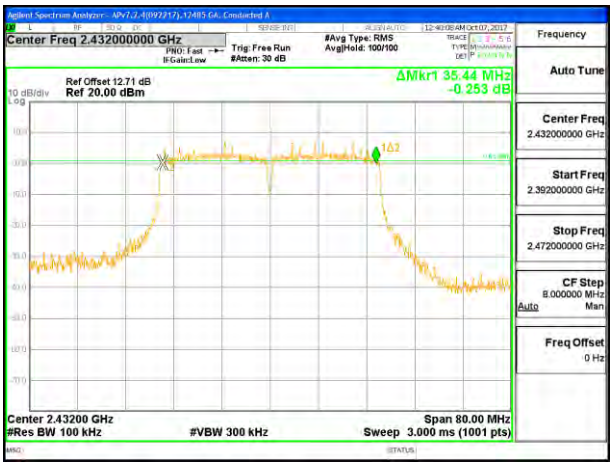
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 3	2422	35.4400	0.5
Low 4	2427	35.4400	0.5
Low 5	2432	35.4400	0.5
Mid 6	2437	35.5200	0.5
High 7	2442	35.9200	0.5
High 8	2447	35.3600	0.5
High 9	2452	35.3600	0.5



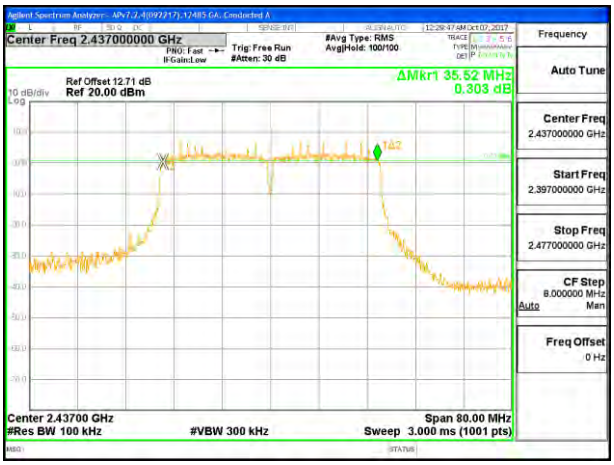
LOW CHANNEL 3



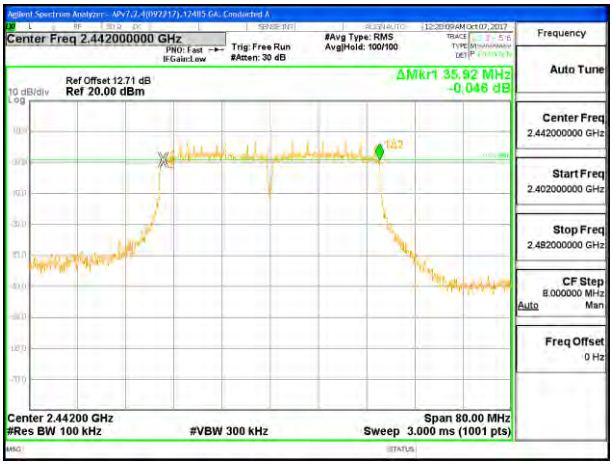
LOW CHANNEL 4



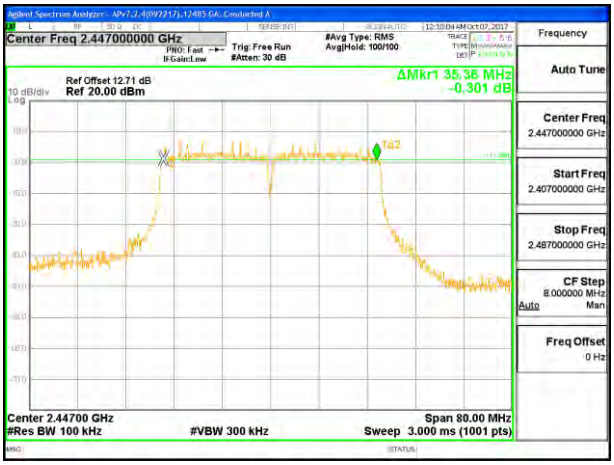
LOW CHANNEL 5



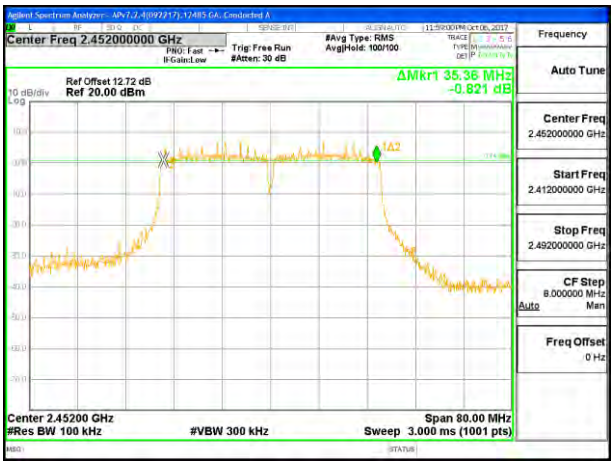
MID CHANNEL 6



HIGH CHANNEL 7



HIGH CHANNEL 8



HIGH CHANNEL 9

1TX Chain 1 MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 3	2422	35.1200	0.5
Low 4	2427	35.2000	0.5
Low 5	2432	35.9200	0.5
Mid 6	2437	35.2000	0.5
High 7	2442	35.4400	0.5
High 8	2447	35.4400	0.5
High 9	2452	35.7600	0.5

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888