RADIO TEST REPORT

Product	:	Wireless SOM Module
Model Name	:	SB35
FCC ID	:	YAISB35
Test Regulation	:	FCC 47 CFR Part 15 Subpart C (Section 15.247)
Received Date	:	2022/6/15
Test Date	:	2022/6/16 ~ 2022/8/5
Issued Date	:	2022/8/9
Applicant	:	InnoComm Mobile Technology Corporation 3F, No. 6, Hsin Ann Rd., Hsinchu Science Park, Hsinchu, Taiwan, 300092
Issued By	:	Underwriters Laboratories Taiwan Co., Ltd. Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Testing Laboratory
3398

The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report are responsible of the test sample(s) provided by the client only and are not to be used to indicate applicability to other similar products.

REVISION HISTORY

Original Test Report No.: 4790446225-US-R0-V0

Rev.	Test report No.	Date	Page revised	Contents
Original	4790446225-US-R0-V0	2022/8/9	-	Initial issue

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1. Attestation of Test Results

APPLICANT:	InnoComm Mobile Technology Corporation 3F, No. 6, Hsin Ann Rd., Hsinchu Science Park, Hsinchu, Taiwan, 300092
MANUFACTURER:	InnoComm Mobile Technology Corporation 3F, No. 6, Hsin Ann Rd., Hsinchu Science Park, Hsinchu, Taiwan, 300092
EUT DESCRIPTION:	Wireless SOM Module
BRAND:	InnoComm
MODEL:	SB35
SAMPLE STAGE:	Design Verification Test sample
DATE of TESTED:	2022/6/16 ~ 2022/8/5

APPLICABLE STANDARDS

STANDARD	Test Results
FCC 47 CFR PART 15 Subpart C (Section 15.247)	PASS

Underwriters Laboratories Taiwan Co., Ltd. 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 Underwriters Laboratories Taiwan Co., Ltd. based on interpretations and/or observations of test results. 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 Underwriters Laboratories Taiwan Co., Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Underwriters Laboratories Taiwan Co., Ltd. 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 any government.

Prepared By:

Sally Lu

Sally Lu Date : 2022/8/9
Project Handler

Approved and Authorized By:

Eric Lee Date : 2022/8/9
Senior Laboratory Engineer

2. Summary of Test Results

Summary of Test Results		
FCC Clause	**Test Items**	**Result**
15.247(a)(2)	6dB Bandwidth	PASS
15.247(b)	Conducted Output Power	PASS
15.247(e)	Power Spectral Density	PASS
15.247(d)	Antenna Port Emission	PASS
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS
15.207	AC Power Conducted Emission	PASS
15.203	Antenna Requirement	PASS

3. Test Methodology and Reference Procedures

The tests documented in this report were performed in accordance with 47 CFR FCC Part 2, KDB558074 D01 Meas Guidance v05r02, KDB414788 D01 Radiated Test Site v01r01, ANSI C63.10-2013 and KDB 662911 D01 Multiple Transmitter Output v02r01.

4. Facilities and Accreditation

Test Location	Underwriters Laboratories Taiwan Co., Ltd.
Address	Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Accreditation Certificate	Underwriters Laboratories Taiwan Co., Ltd. is accredited by TAF, Laboratory Code 3398.

5. Measurement Uncertainty

For statement of conformity, accuracy method (Section 8.2.4 and 8.2.5 of ISO Guide 98-4) was applied as decision rule for measurement in this test report.

The following uncertainties have been calculated to provide a confidence level of 95 % using a coverage factor k=2.

Measurement	Frequency	Uncertainty
Conducted disturbance at mains terminals ports	150kHz ~ 30MHz	±2.9 dB
RF Conducted	9 kHz - 40GHz	±2.4 dB
Radiated disturbance below 30MHz	9 kHz - 30 MHz	±1.9 dB
Radiated disturbance below 1 GHz	30MHz ~ 1GHz	±5.8 dB
Radiated disturbance above 1 GHz	1GHz ~ 40GHz	±4.8 dB

6. Equipment under Test

6.1. Description of EUT

Product	Wireless SOM Module
Brand Name	InnoComm
Model Name	SB35
Operating Frequency	2412MHz ~ 2462MHz
Modulation	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Transfer Rate	802.11b: up to 11 Mbps 802.11g: up to 54 Mbps 802.11n: up to MCS15
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
Maximum Output Power	802.11b: 25.47 dBm 802.11g: 27.90 dBm 802.11n (HT20): 27.99 dBm 802.11n (HT40): 26.02 dBm
Normal Voltage	3.8Vdc
Sample ID	5059965

Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

Modulation Mode	Tx,Rx Function
802.11b	2TX,2RX
802.11g	2TX,2RX
802.11n (HT20)	2TX,2RX
802.11n (HT40)	2TX,2RX

2. The above EUT information is declared by manufacturer and for more detailed features description, please refer the manufacturer's or user's manual.

6.2. Channel List

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	-	-

7 channels are provided for 802.11n (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	7	2442
4	2427	8	2447
5	2432	9	2452
6	2437	-	-

6.3. Test Condition

Test Item	Test Site No.	Environmental Condition	Input Power	Test Date	Tested by
Antenna Port Conducted Measurement	SR4	20~27°C/ 51~69%RH	3.8Vdc	2022/06/16~ 2022/08/05	Rex Chen
Radiated Spurious Emission	966-2	20~27°C/ 51~69%RH	3.8Vdc	2022/06/16~ 2022/07/06	Rex Chen
AC power Line Conducted Emission	SR1	20~27°C/ 51~69%RH	3.8Vdc	2022/06/16~ 2022/06/24	Rex Chen

FCC Test Firm Registration Number: 498077

6.4. Description of Available Antennas

Ant. No.	Transmitter Circuit	Brand Name	Model Name	Ant. Type	Maximum Gain (dBi)
1	Chain (0)+(1)	Walsin	RFDPA171300SBLB801	Dipole	2.4GHz: 5 5GHz: 5
2	Chain (0)+(1)	InnoComm	PCA5016-2B	PCB	2.4GHz: 3.78 5GHz: 4.76

Note: The above antenna information was provided from customer and for more detailed features description, please refer the manufacturer's specification or user's manual.

6.5. Test Mode Applicability and Tested Channel Detail

- The fundamental of the dipole antenna was investigated in two orthogonal (lay and stand), it was determined that stand mode was worst-case. Therefore, all final radiated testing was performed with the dipole antenna in stand mode.
- The fundamental of the PCB Antenna was investigated in three orthogonal axes X-Y/Y-Z/X-Z, it was determined that X-Y axis were worst-case. Therefore, PCB Antenna all final radiated tests were performed with the X-Y axis.
- For Antenna Port Conducted Measurement, this item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel), parallel and perpendicular are the worst orientations, therefore testing was performed on these two orientations only.
- For below 1 GHz radiated emission and AC power line conducted emission have performed all modes of operation were investigated and the worst-case emissions are reported.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Test Item	Mode	Modulation Technology	Modulation Type	Available Channel	Test Channel	Data Rate
Radiated Emissions (Above 1GHz)	802.11b	DSSS	DBPSK	1 to 11	1,2,6,10,11	1 Mbps
	802.11g	OFDM	BPSK	1 to 11	1,2,6,10,11	6 Mbps
	802.11n20	OFDM	BPSK	1 to 11	1,2,6,10,11	MCS0
	802.11n40	OFDM	BPSK	3 to 9	3,4,6,8,9	MCS0
Radiated Emissions (Below 1GHz)	802.11n20	OFDM	BPSK	1 to 11	6	MCS0
AC Power Line Conducted Emission	802.11n20	OFDM	BPSK	1 to 11	6	MCS0
*Antenna Port Conducted Measurement	802.11b	DSSS	DBPSK	1 to 11	1,2,6,10,11	1 Mbps
	802.11g	OFDM	BPSK	1 to 11	1,2,6,10,11	6 Mbps
	802.11n20	OFDM	BPSK	1 to 11	1,2,6,10,11	MCS0
	802.11n40	OFDM	BPSK	3 to 9	3,4,6,8,9	MCS0

*Note: For Antenna Port Conducted Measurement item, Inner channels only test Power and Conducted Out of Band Emission.

Simultaneously transmission condition:

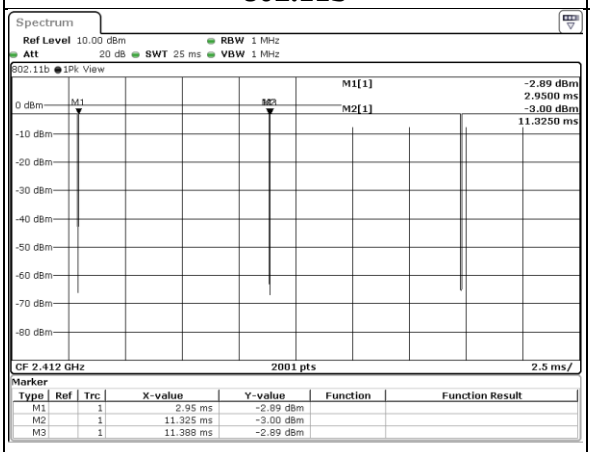
Condition	Technology	
1	BT-LE	WLAN (2GHz)
2	BT-LE	WLAN (5GHz)

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

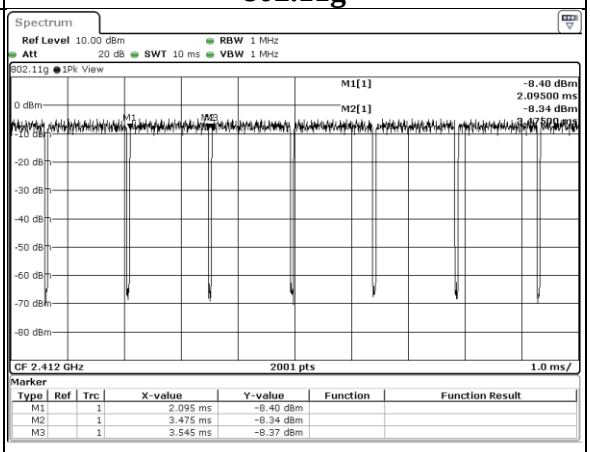
6.6. Duty cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle	Duty Factor (dB)	VBW Set (above 1GHz)
802.11b	8.375	8.437	0.9926	N/A	10Hz
802.11g	1.380	1.450	0.9517	0.21	1kHz
802.11n(HT20)	1.285	1.350	0.9519	0.21	1kHz
802.11n(HT40)	0.650	0.703	0.9253	0.34	2kHz

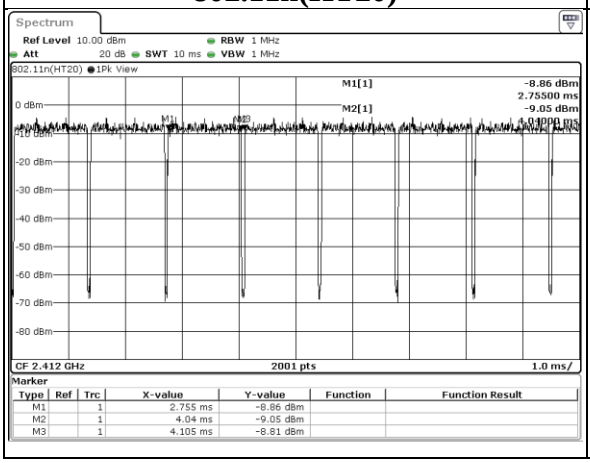
802.11b



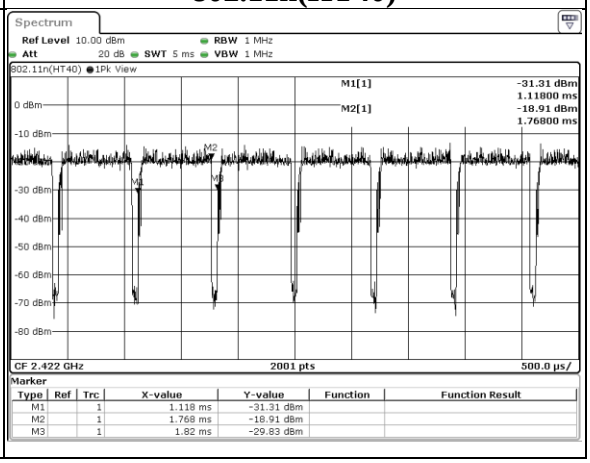
802.11g



802.11n(HT20)



802.11n(HT40)



7. Test Equipment

Test Equipment List					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date**	**Expired date**
Radiated Spurious Emission					
Spectrum Analyzer	Keysight	N9010A	MY56070827	2021/11/9	2022/11/8
EMI Test Receiver	Rohde & Schwarz	ESR7	101754	2021/12/10	2022/12/9
Loop Antenna	ETS lindgren	6502	00213440	2021/12/23	2022/12/22
Trilog-Broadband Antenna with 5dB Attenuator	Schwarzbeck & EMCI	VULB 9168 & N-6-05	774 & AT-N0538	2022/2/8	2023/2/7
Horn Antenna (1-18 GHz)	Schwarzbeck	BBHA 9120 D	01690	2021/12/13	2022/12/12
Horn Antenna (18-40 GHz)	Schwarzbeck	BBHA 9170	781	2021/12/17	2022/12/16
Preamplifier (30-1000 MHz)	EMCI	EMC330E	980405	2022/6/7	2023/6/6
Preamplifier (1-18 GHz)	EMCI	EMC051835BE	980406	2022/2/16	2023/2/15
Preamplifier (18-40GHz)	EMCI	EMC184040SEE	980426	2022/5/17	2023/5/16
Cables	Hanyitek	K1K50-UP0264-K1K50-2500	170214-4 & 170425-2	2021/12/3	2022/12/2
Cables	Hanyitek	K1K50-UP0264-K1K50-2500	170214-1 & 170214-2	2021/12/3	2022/12/2

Test Equipment List					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date**	**Expired date**
Antenna Port Conducted Measurement					
Spectrum Analyzer	Keysight	N9010A	MY56070834	2021/10/29	2022/10/28
Pulse Power Sensor	Anritsu	MA2411B	1531202	2021/12/22	2022/12/21
Power Meter	Anritsu	ML2495A	1645002	2021/12/22	2022/12/21
AC power Line Conducted Emission					
EMI Test Receiver	Rohde & Schwarz	ESR7	101753	2021/11/15	2022/11/14
Two-Line V-Network	Rohde & Schwarz	ENV216	102136	2021/8/30	2022/8/29
Impuls-Begrenzer Pulse Limiter	Rohde & Schwarz	ESH3-Z2	102219-Qt	2021/8/26	2022/8/25
Cables	TITAN	CFD200	T0732ACFD20020A300-1	2022/3/16	2023/3/15

UL Software		
Description	**Name**	**Version**
Radiated measurement	e3	6.191211 (V6)
Conducted measurement	RF-Conducted-FCC 15247	ver 1.0
AC power Line Conducted Emission	EZ_EMC	UL-3A1.2

8. Description of Test Setup

Support Equipment

ID	Equipment	Brand Name	Model Name	S/N	Remark
A	Laptop	DELL	Latitude E5470	3JFKWF2	Provided by Lab
B	Test Tool	InnoComm	SB52-IO-004	Label	Supplied by client
C	AC Adapter	EDAC	EA10681G-120	NA	Supplied by client

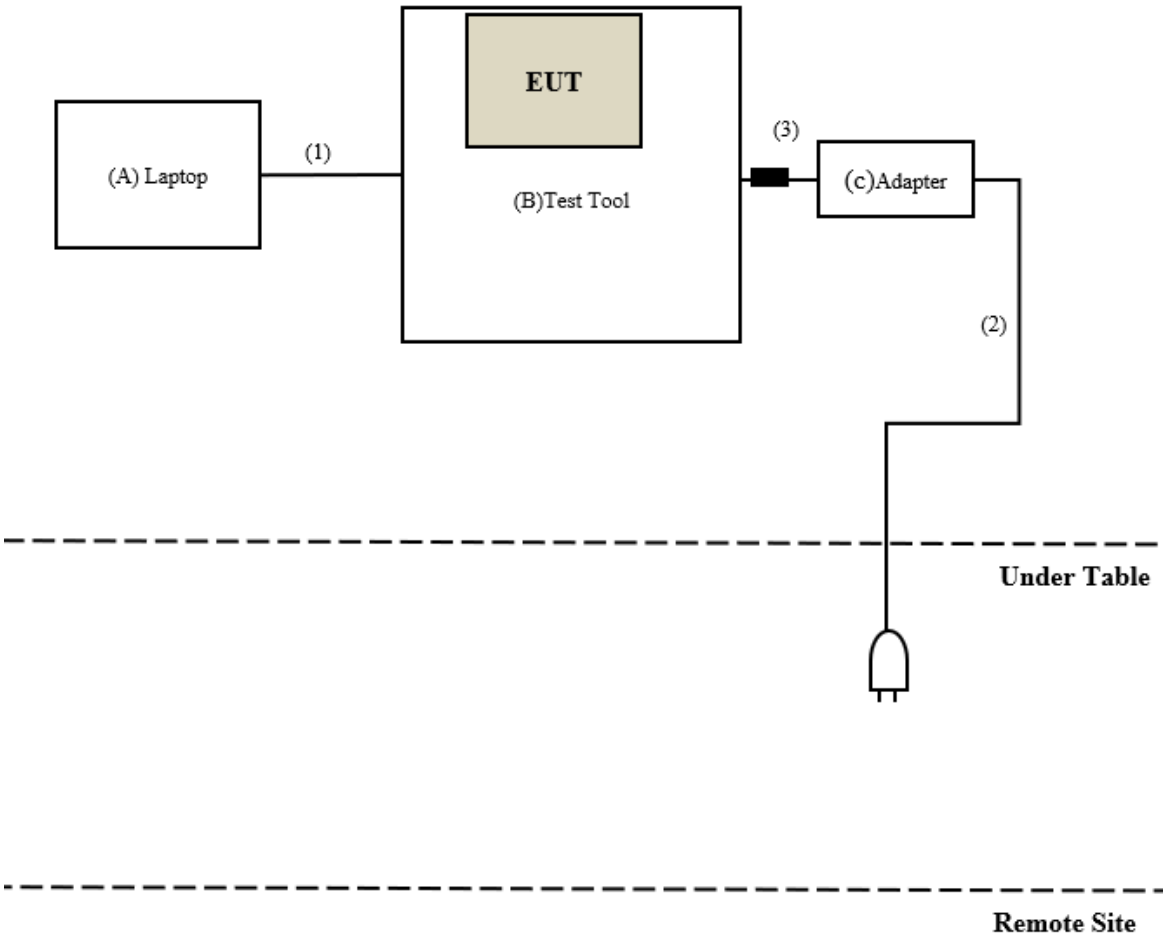
I/O Cables

ID	Equipment	Brand Name	Model Name	Length (m)	Remark
1	Micro USB Cable	WONDER	WA-W07UA	1.44	Provided by Lab
2	Power Cable	NA	NA	1.75	Supplied by client
3	DC Cable	NA	NA	1	Supplied by client, with core

Test Setup

Controlled using a bespoke application (Typing RF command by adb tool (version 1.0.32)) on a test Notebook. The application was used to enable a continuous transmission mode and to select the test channels, data rates, modulation schemes and power setting as required.

Setup Diagram for Test



9. Test Results

9.1. 6dB Bandwidth

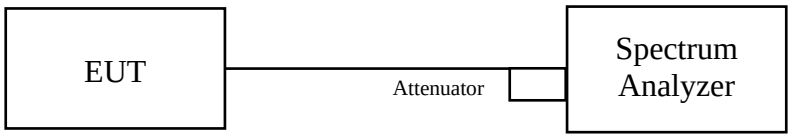
Requirements

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

Test procedure

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

Test Setup

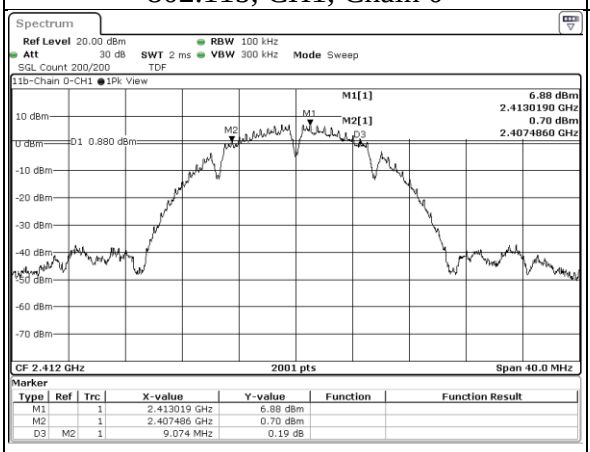


The loss between RF output port of the EUT and the input port of the Spectrum Analyzer has been taken into consideration.

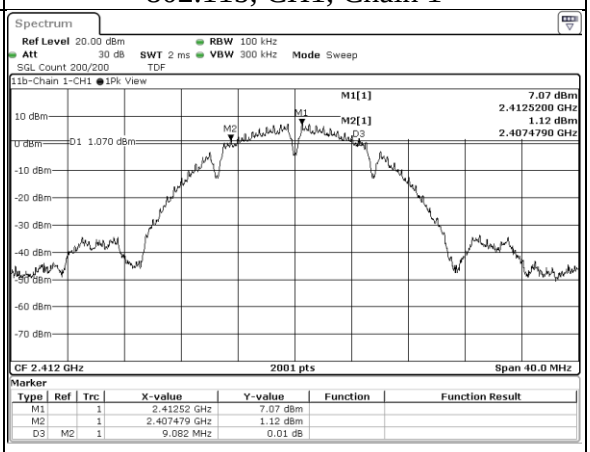
Test Data

Mode	CH	Freq (MHz)	6dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11b	1	2412	9.074	9.082	0.5	Pass
	2	2417	9.088	9.557	0.5	Pass
	6	2437	9.081	9.563	0.5	Pass
	10	2457	9.055	9.062	0.5	Pass
	11	2462	8.566	9.062	0.5	Pass

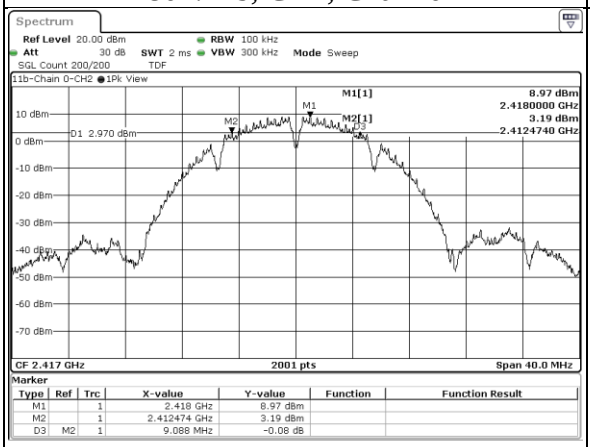
802.11b, CH1, Chain 0



802.11b, CH1, Chain 1



802.11b, CH2, Chain 0



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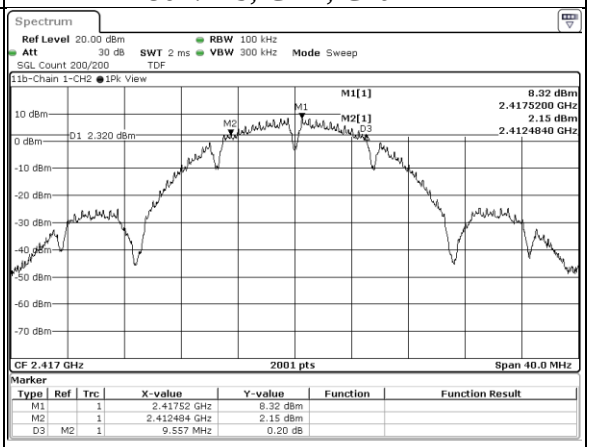
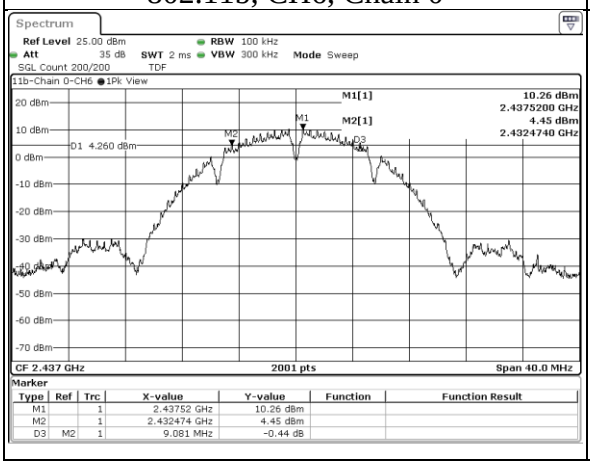
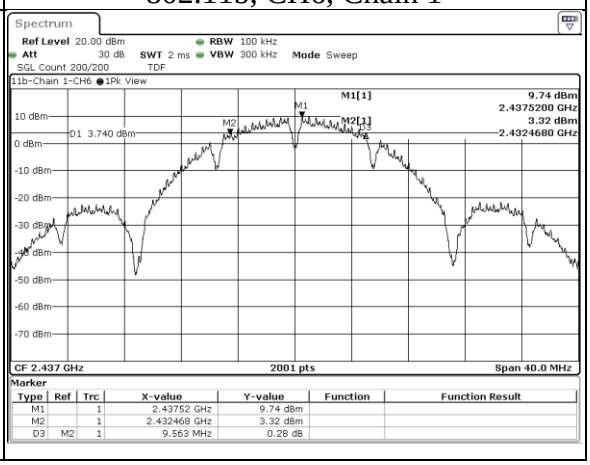


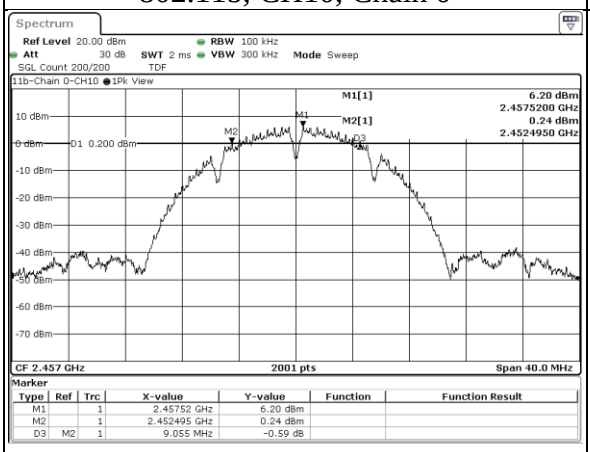
802.11b, CH6, Chain 0



802.11b, CH6, Chain 1



802.11b, CH10, Chain 0



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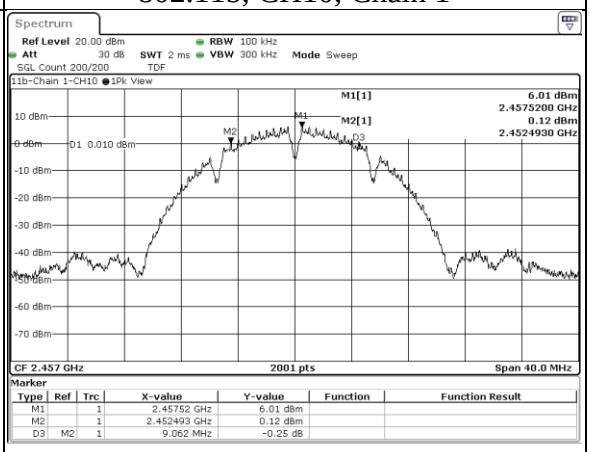
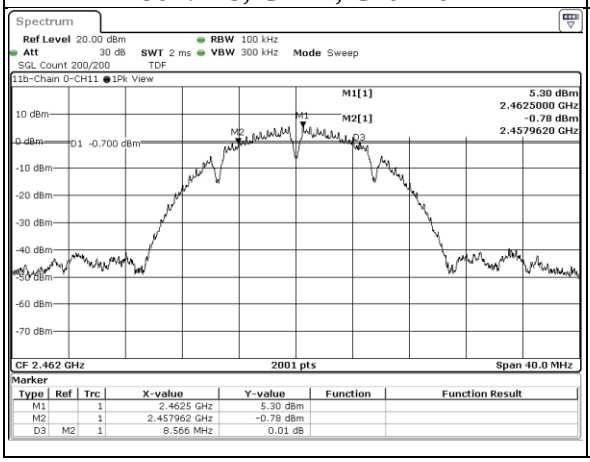
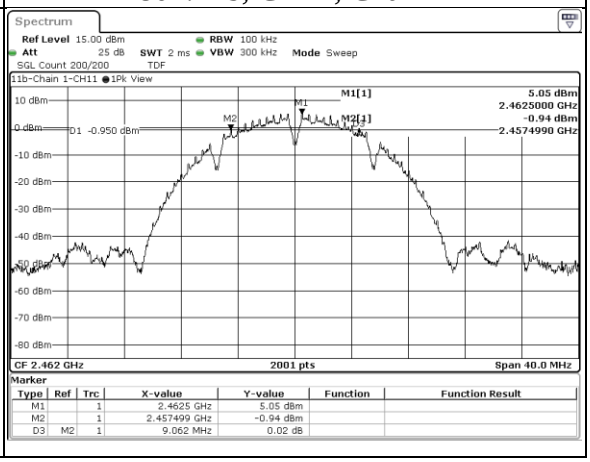


802.11b, CH11, Chain 0

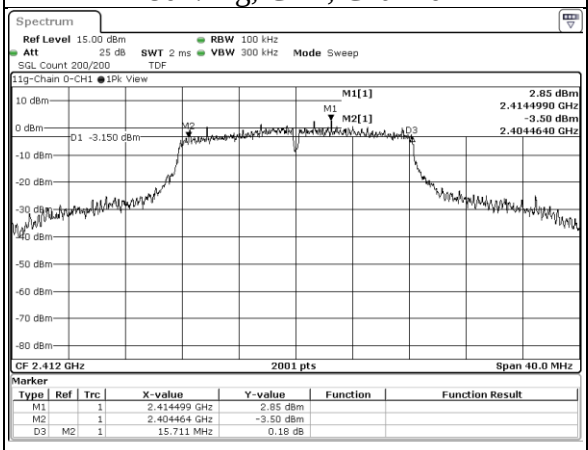


802.11b, CH11, Chain 1

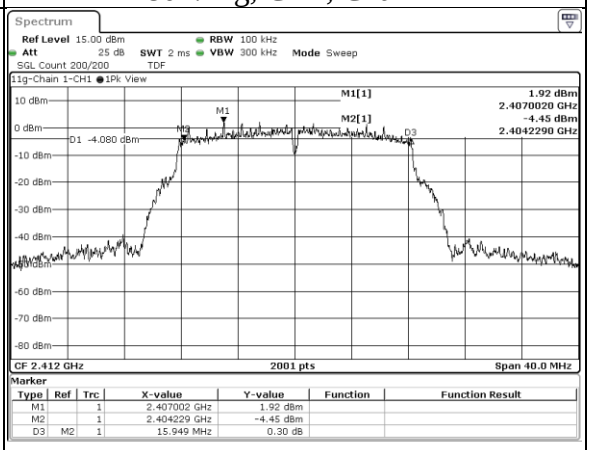


Mode	CH	Freq (MHz)	6dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11g	1	2412	15.711	15.949	0.5	Pass
	2	2417	15.093	15.661	0.5	Pass
	6	2437	15.096	15.648	0.5	Pass
	10	2457	15.121	14.401	0.5	Pass
	11	2462	15.139	15.100	0.5	Pass

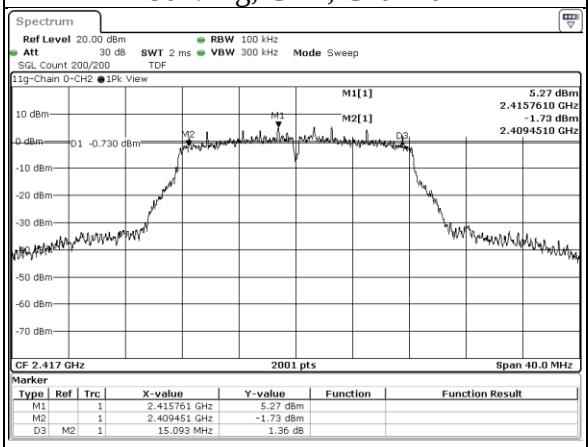
802.11g, CH1, Chain 0



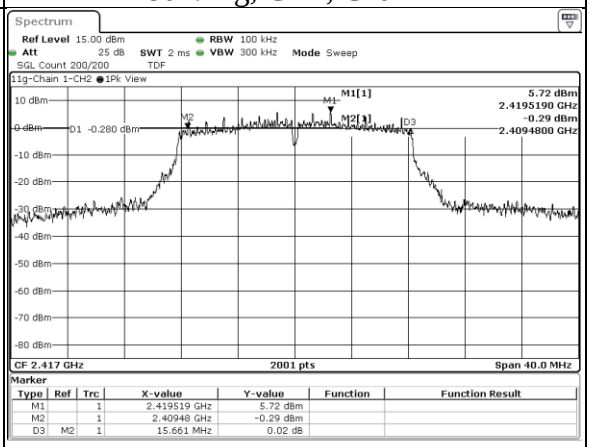
802.11g, CH1, Chain 1



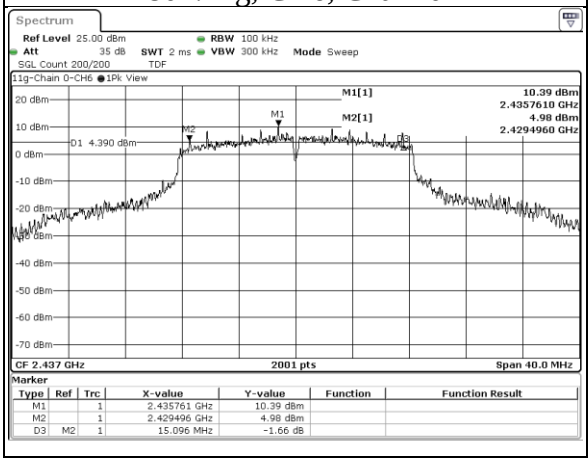
802.11g, CH2, Chain 0



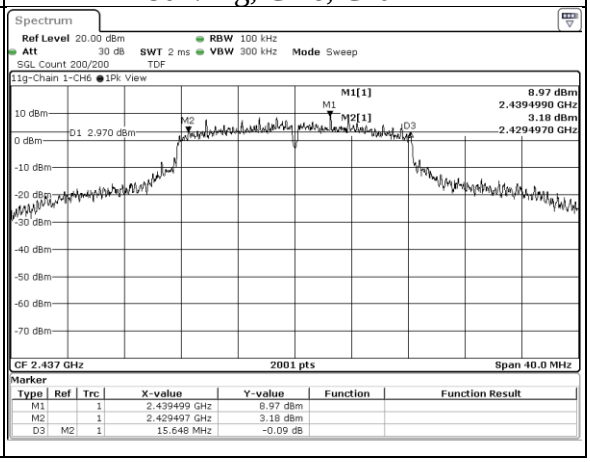
802.11g, CH2, Chain 1



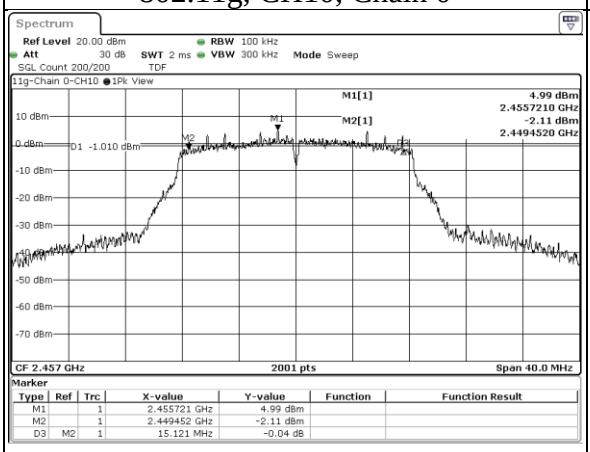
802.11g, CH6, Chain 0



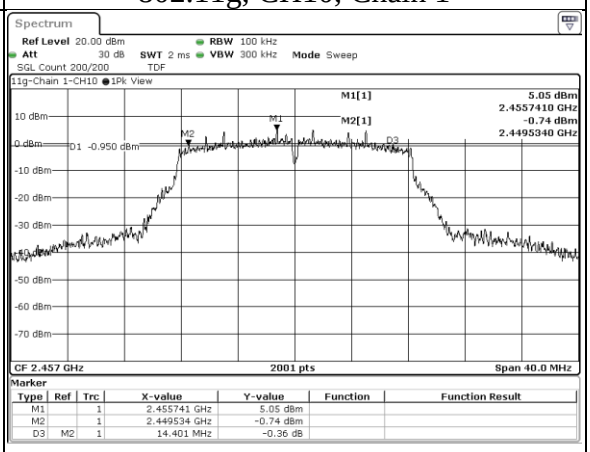
802.11g, CH6, Chain 1



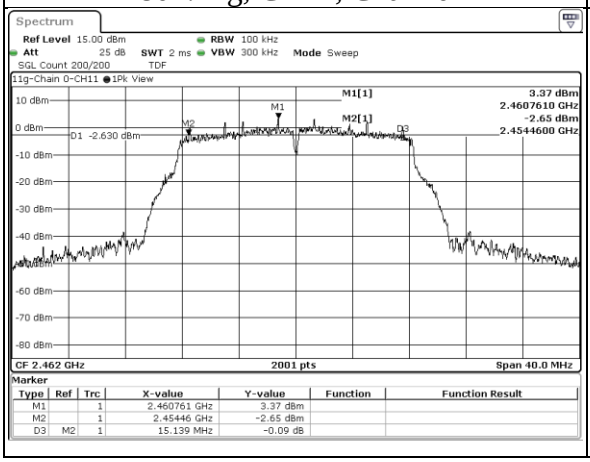
802.11g, CH10, Chain 0



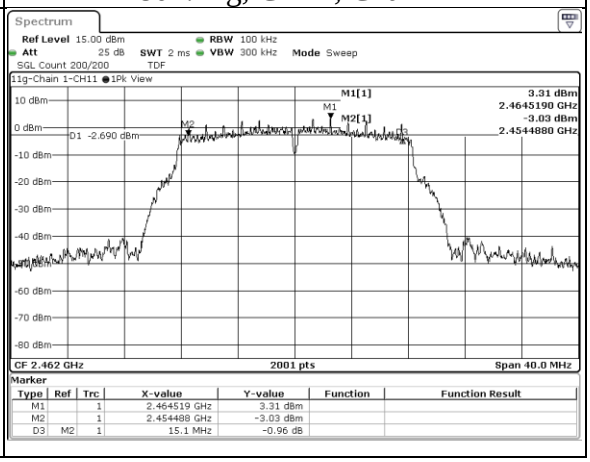
802.11g, CH10, Chain 1



802.11g, CH11, Chain 0

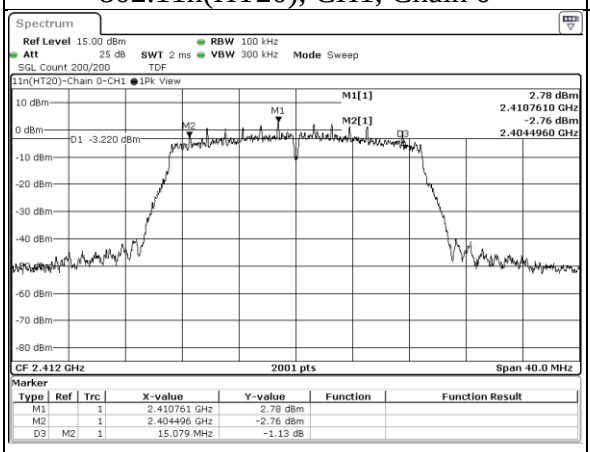


802.11g, CH11, Chain 1

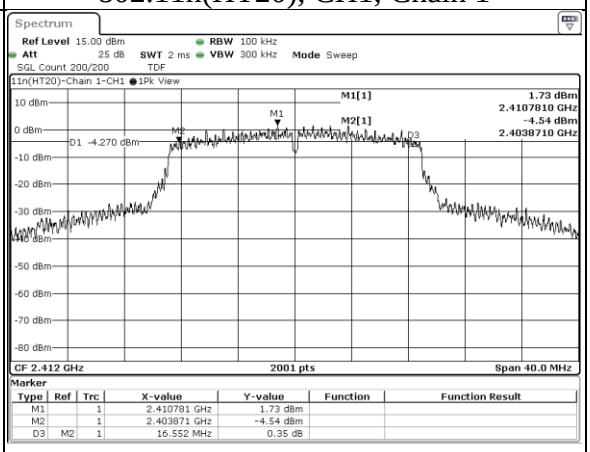


Mode	CH	Freq (MHz)	6dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11n(HT 20)	1	2412	15.079	16.552	0.5	Pass
	2	2417	14.776	15.119	0.5	Pass
	6	2437	15.057	14.251	0.5	Pass
	10	2457	15.080	15.310	0.5	Pass
	11	2462	15.124	16.325	0.5	Pass

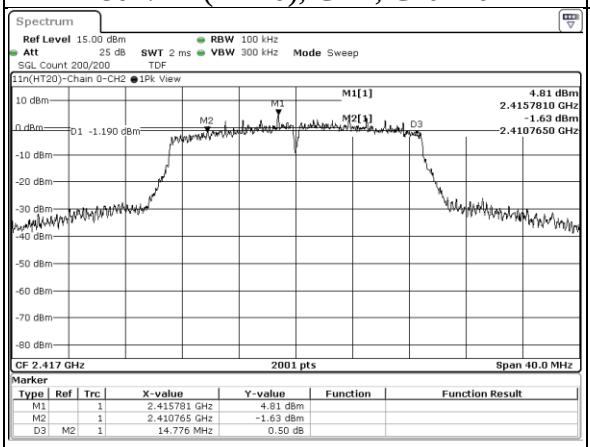
802.11n(HT20), CH1, Chain 0



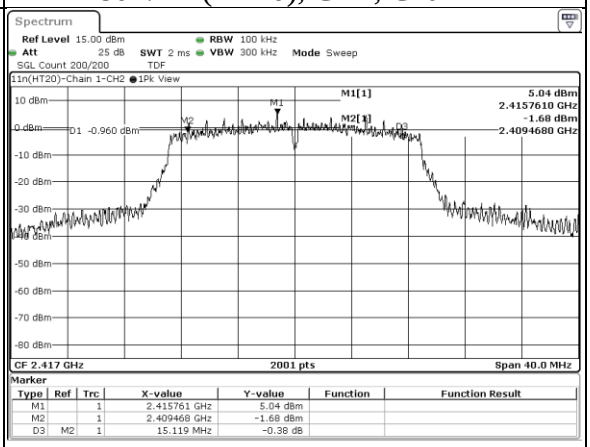
802.11n(HT20), CH1, Chain 1



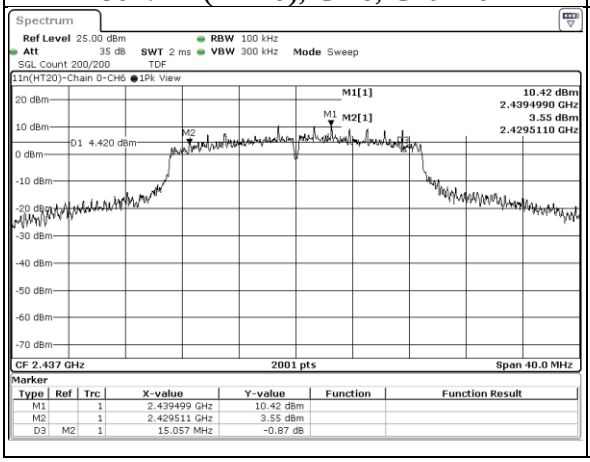
802.11n(HT20), CH2, Chain 0



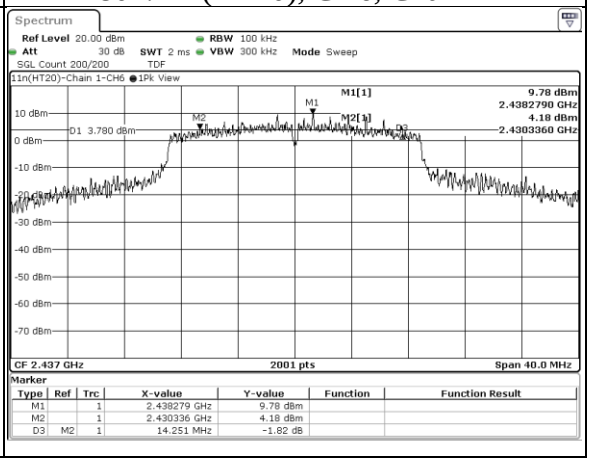
802.11n(HT20), CH2, Chain 1



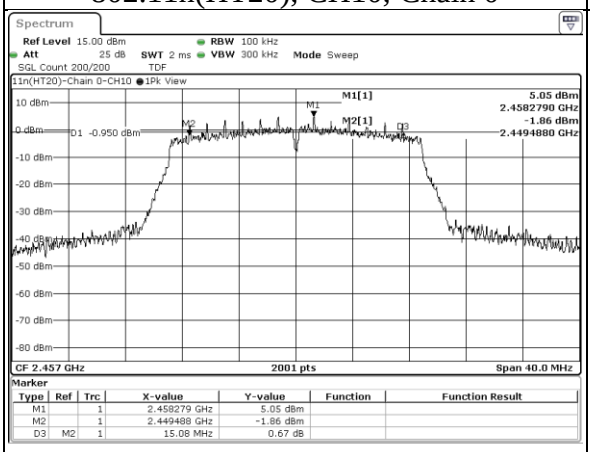
802.11n(HT20), CH6, Chain 0



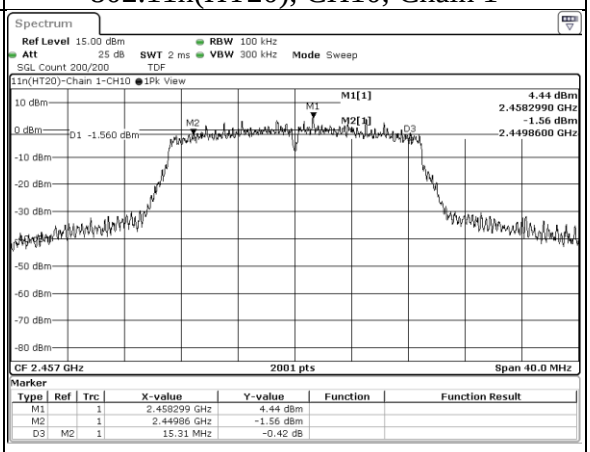
802.11n(HT20), CH6, Chain 1



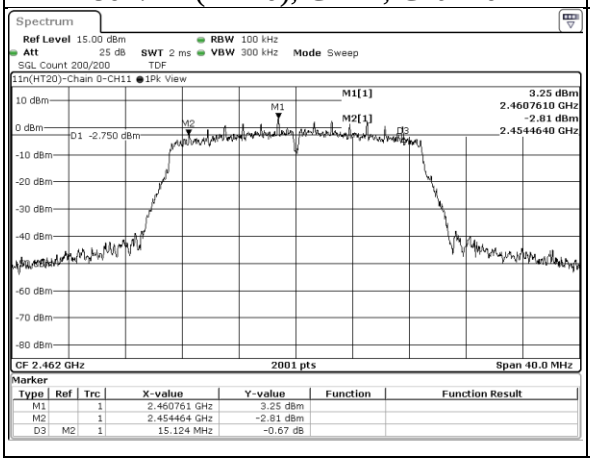
802.11n(HT20), CH10, Chain 0



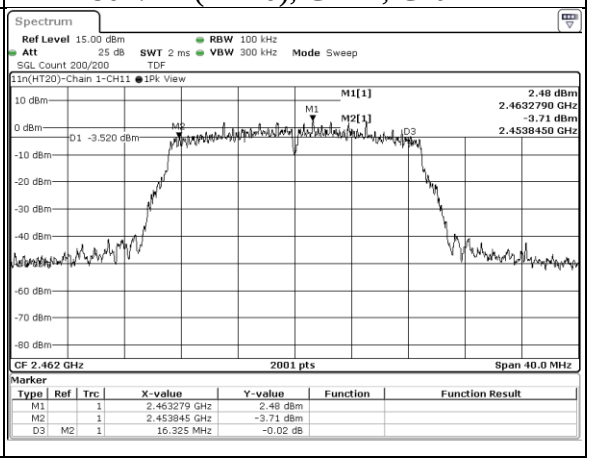
802.11n(HT20), CH10, Chain 1



802.11n(HT20), CH11, Chain 0

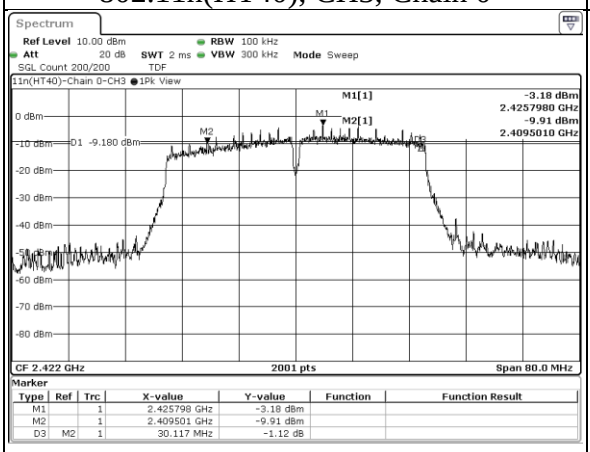


802.11n(HT20), CH11, Chain 1

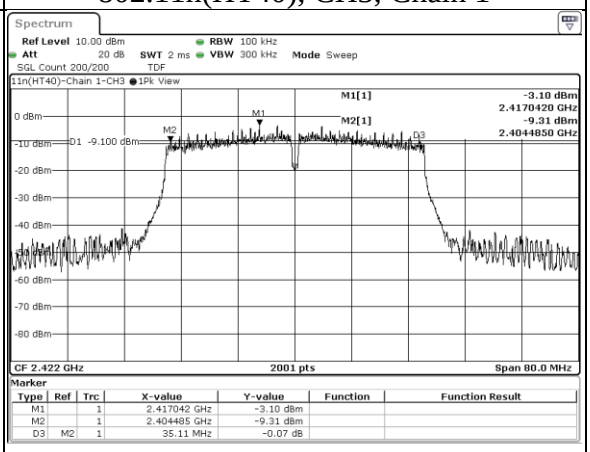


Mode	CH	Freq (MHz)	6dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11n(HT 40)	3	2422	30.117	35.110	0.5	Pass
	4	2427	30.110	33.829	0.5	Pass
	6	2437	33.902	35.098	0.5	Pass
	8	2447	35.045	33.847	0.5	Pass
	9	2452	33.860	35.137	0.5	Pass

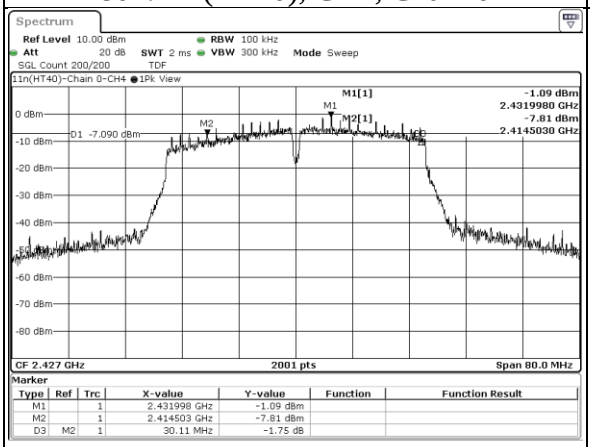
802.11n(HT40), CH3, Chain 0



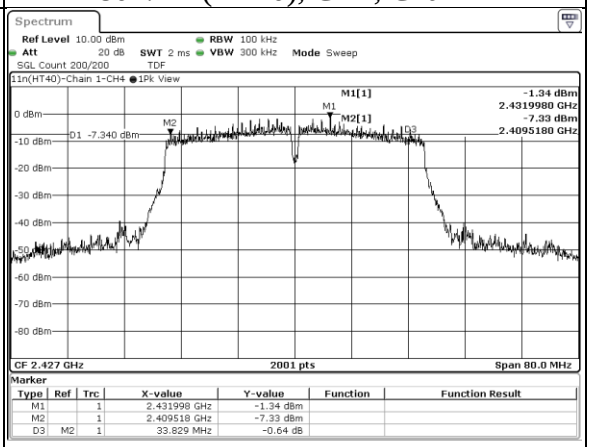
802.11n(HT40), CH3, Chain 1



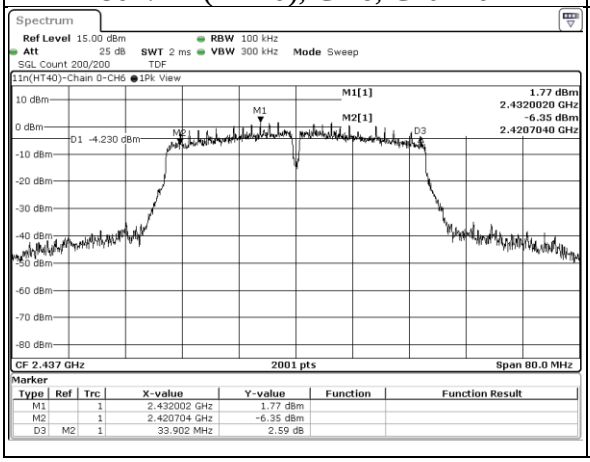
802.11n(HT40), CH4, Chain 0



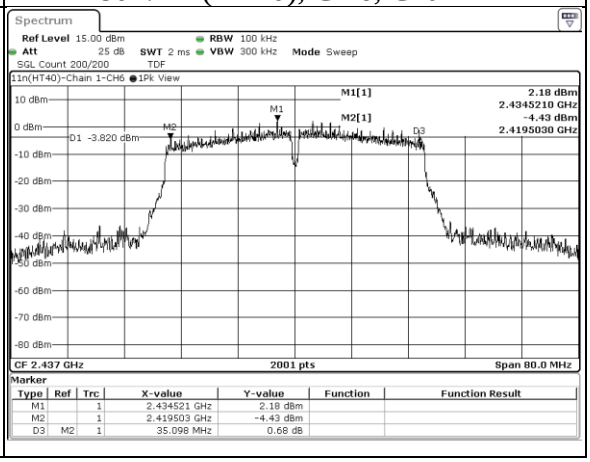
802.11n(HT40), CH4, Chain 1



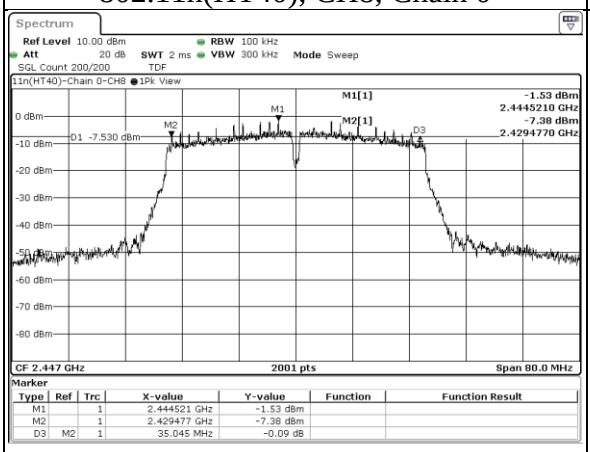
802.11n(HT40), CH6, Chain 0



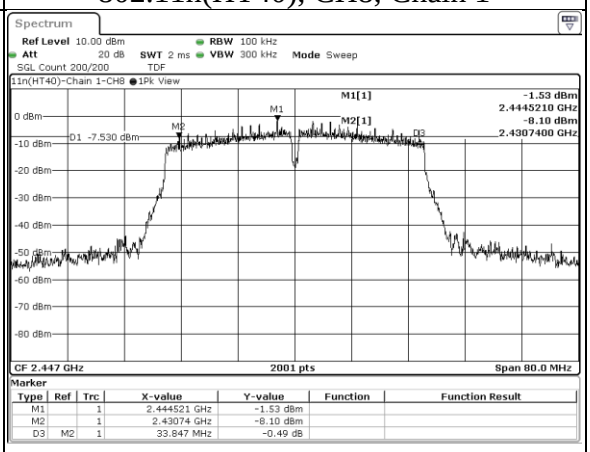
802.11n(HT40), CH6, Chain 1



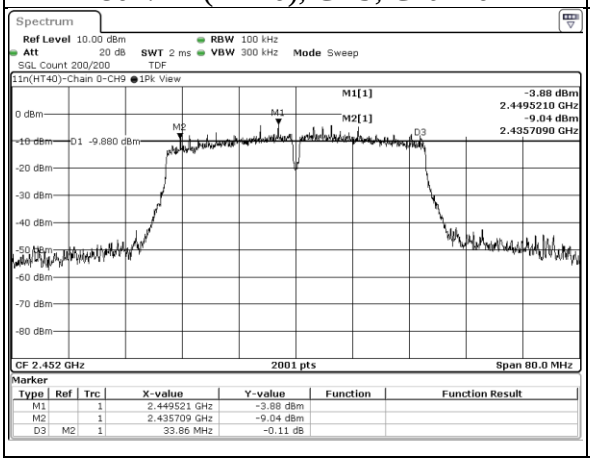
802.11n(HT40), CH8, Chain 0



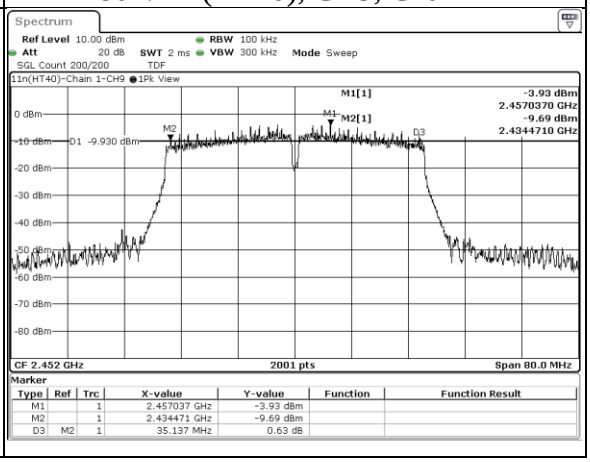
802.11n(HT40), CH8, Chain 1



802.11n(HT40), CH9, Chain 0



802.11n(HT40), CH9, Chain 1



9.2. Conducted Output Power

Requirements

For systems using digital modulation in the 2400-2483.5 MHz bands: 1 Watt.

Note:

1. Directional Gain = G_{ant} + 10 log (Nant) dBi.

   N*a*nt: Number of Transmit Antennas
   G1, G2,..., Gn: Gain of Individual Antennas (Same for Each Antenna)

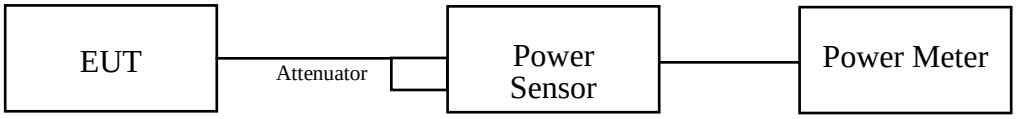
2. Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

   Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
   Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
   Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

Test Procedure

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

Test Setup



The loss between RF output port of the EUT and the input port of the Power Meter has been taken into consideration.

Test Data

Peak Power

802.11b

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.51	19.44	177.419	22.49	30	PASS
2	2417	21.63	20.77	264.85	24.23	30	PASS
6	2437	22.77	22.13	352.371	25.47	30	PASS
10	2457	18.68	18.61	146.555	21.66	30	PASS
11	2462	17.76	17.37	114.288	20.58	30	PASS

802.11g

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	23.75	22.01	396.278	25.98	30	PASS
2	2417	23.53	23.35	441.57	26.45	30	PASS
6	2437	25.45	24.24	616.595	27.90	30	PASS
10	2457	23.62	22.80	420.727	26.24	30	PASS
11	2462	22.18	21.61	309.742	24.91	30	PASS

802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	23.37	21.79	368.129	25.66	30	PASS
2	2417	23.59	23.25	439.542	26.43	30	PASS
6	2437	25.57	24.29	629.506	27.99	30	PASS
10	2457	23.86	22.66	427.563	26.31	30	PASS
11	2462	22.04	22.18	325.087	25.12	30	PASS

802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	19.20	19.41	170.608	22.32	30	PASS
4	2427	20.15	20.12	206.538	23.15	30	PASS
6	2437	22.84	23.18	399.945	26.02	30	PASS
8	2447	19.46	19.17	171.002	22.33	30	PASS
9	2452	18.78	19.01	155.239	21.91	30	PASS

Average Power (Reference Only)

802.11b

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	17.41	17.41	110.154	20.42
2	2417	19.48	19.00	168.267	22.26
6	2437	20.73	20.37	226.986	23.56
10	2457	16.48	16.40	88.105	19.45
11	2462	15.64	15.19	69.663	18.43

802.11g

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	14.59	14.35	55.976	17.48
2	2417	16.70	17.24	99.77	19.99
6	2437	21.33	20.56	249.459	23.97
10	2457	16.74	16.48	91.622	19.62
11	2462	14.75	14.62	58.884	17.70

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	13.99	13.93	49.774	16.97
2	2417	16.04	16.64	86.298	19.36
6	2437	21.50	20.76	260.615	24.16
10	2457	15.99	15.88	78.524	18.95
11	2462	14.13	14.33	52.966	17.24

802.11n (HT40)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	10.36	10.69	22.594	13.54
4	2427	12.29	12.57	34.995	15.44
6	2437	15.99	15.65	76.384	18.83
8	2447	12.00	11.93	31.477	14.98
9	2452	10.19	10.19	20.893	13.20

9.3. Power Spectral Density

Requirements

The Maximum of Power Spectral Density Measurement is 8dBm in any 3 kHz (If G_{TX} > 6 dBi, then PSD = 8 – (G_{TX} – 6)).

Note:
1. PSD = power spectral density that he same method as used to determine the conducted output power shall be used to determine the power spectral density. And power spectral density in dBm/MHz.
2. G_{TX} = the maximum transmitting antenna directional gain in dBi.
3. Directional Gain = G_{ant} + 10 log (Nant) dBi.

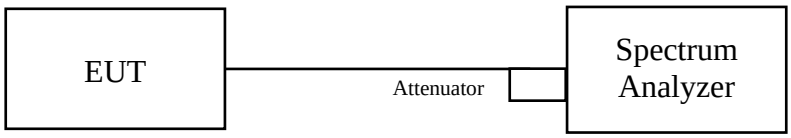
   Nant: Number of Transmit Antennas
   G1, G2,..., Gn: Gain of Individual Antennas (Same for Each Antenna)

4. "PSD per chain" of the report shown is maximum value for each chain, at the "Total PSD" is summing entire spectra across corresponding frequency bins on the various outputs by computer, refer KDB 662911 Method a) for calculating total power density.

Test procedure

a. Set analyzer center frequency to DTS channel center frequency.
b. Set the span to 1.5 times the DTS bandwidth.
c. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d. Set the VBW ≥ 3 × RBW.
e. Detector = peak.
f. Sweep time = auto couple.
g. Trace mode = max hold.
h. Allow trace to fully stabilize.
i. Use the peak marker function to determine the maximum amplitude level within the RBW.

Test Setup



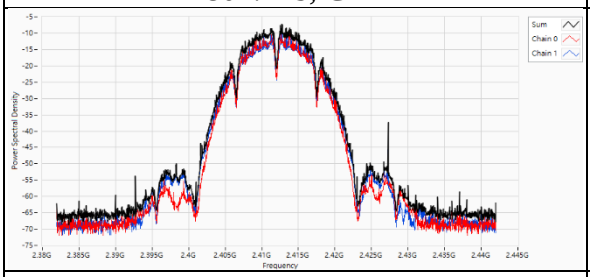
The loss between RF output port of the EUT and the input port of the Spectrum Analyzer has been taken into consideration.

Test Data

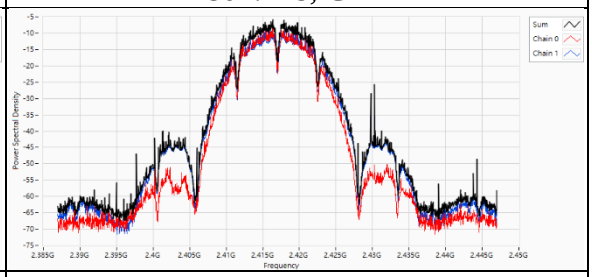
Mode	CH	Freq (MHz)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Directional Gain (dBi)	Result
802.11b	1	2412	-7.13	5.99	8.01	Pass
	2	2417	-5.79	5.99	8.01	Pass
	6	2437	-3.45	5.99	8.01	Pass
	10	2457	-7.05	5.99	8.01	Pass
	11	2462	-7.12	5.99	8.01	Pass

Mode	CH	Freq (MHz)	PSD per Chain (dBm/3kHz)	
			Chain 0	Chain 1
802.11b	1	2412	-9.646	-8.383
	2	2417	-7.175	-7.792
	6	2437	-5.81	-6.605
	10	2457	-9.479	-8.495
	11	2462	-10.645	-9.399

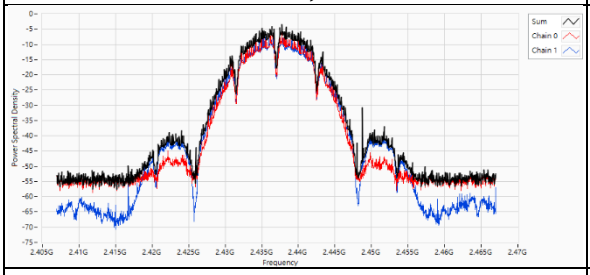
802.11b, CH1



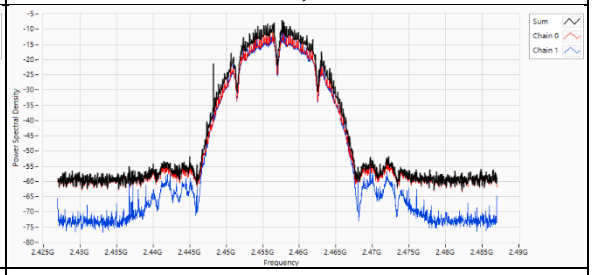
802.11b, CH2



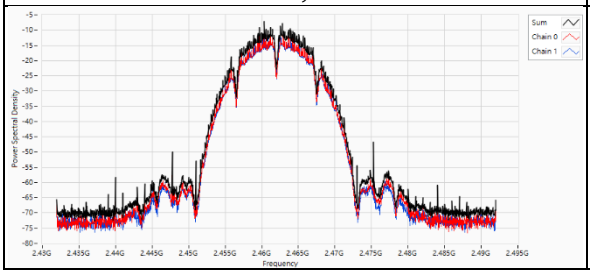
802.11b, CH6



802.11b, CH10



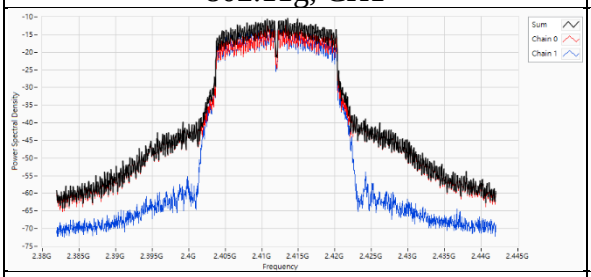
802.11b, CH11



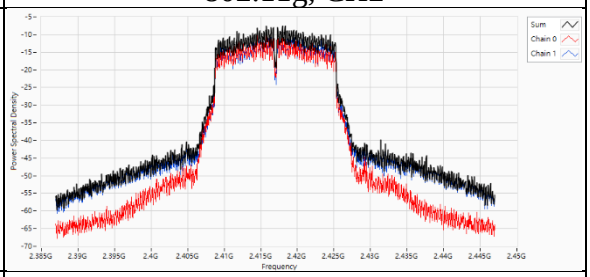
Mode	CH	Freq (MHz)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Directional Gain (dBi)	Result
802.11g	1	2412	-10.29	5.99	8.01	Pass
	2	2417	-7.54	5.99	8.01	Pass
	6	2437	-3.27	5.99	8.01	Pass
	10	2457	-6.63	5.99	8.01	Pass
	11	2462	-9.37	5.99	8.01	Pass

Mode	CH	Freq (MHz)	PSD per Chain (dBm/3kHz)	
			Chain 0	Chain 1
802.11g	1	2412	-11.714	-12.557
	2	2417	-9.779	-10.65
	6	2437	-5.029	-6.17
	10	2457	-9.897	-9.392
	11	2462	-11.021	-12.15

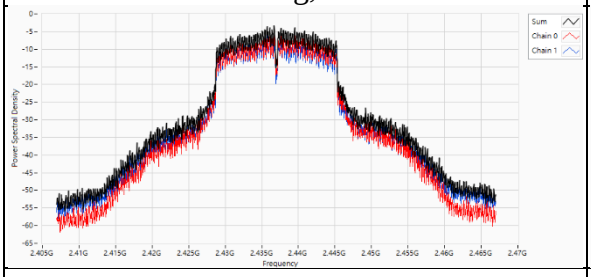
802.11g, CH1



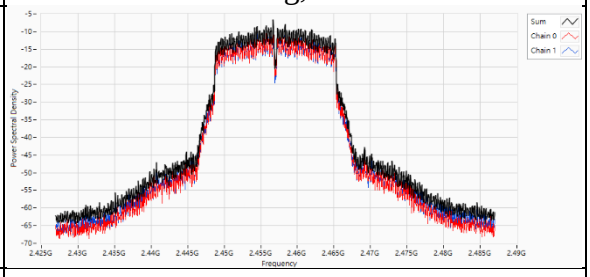
802.11g, CH2



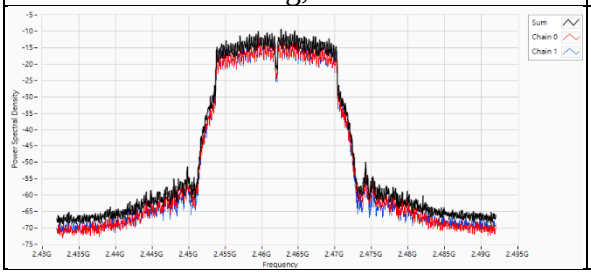
802.11g, CH6



802.11g, CH10



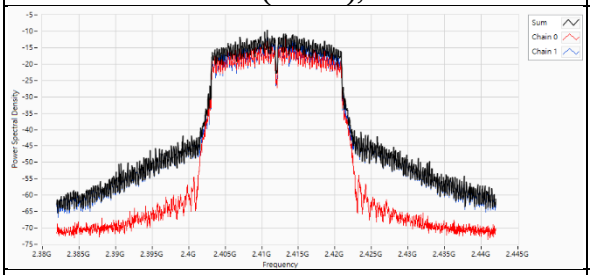
802.11g, CH11



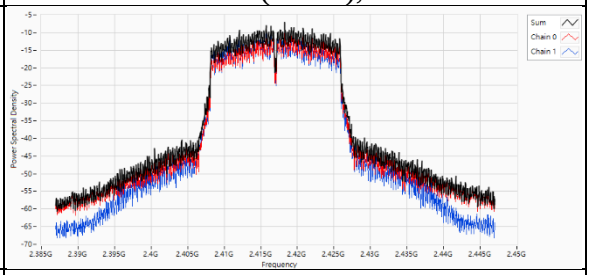
Mode	CH	Freq (MHz)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Directional Gain (dBi)	Result
802.11n(HT20)	1	2412	-9.68	5.99	8.01	Pass
	2	2417	-7.02	5.99	8.01	Pass
	6	2437	-1.14	5.99	8.01	Pass
	10	2457	-7.25	5.99	8.01	Pass
	11	2462	-10.6	5.99	8.01	Pass

Mode	CH	Freq (MHz)	PSD per Chain (dBm/3kHz)	
			Chain 0	Chain 1
802.11n(HT20)	1	2412	-12.445	-11.809
	2	2417	-9.911	-10.152
	6	2437	-4.837	-2.988
	10	2457	-10.167	-10.297
	11	2462	-13.533	-13.182

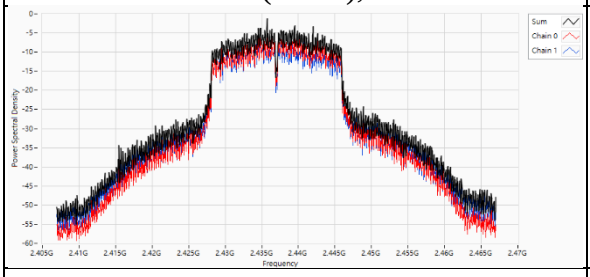
802.11n(HT20), CH1



802.11n(HT20), CH2



802.11n(HT20), CH6



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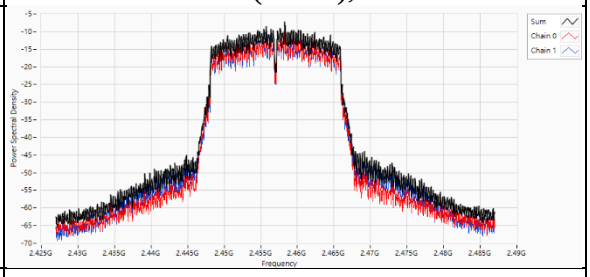
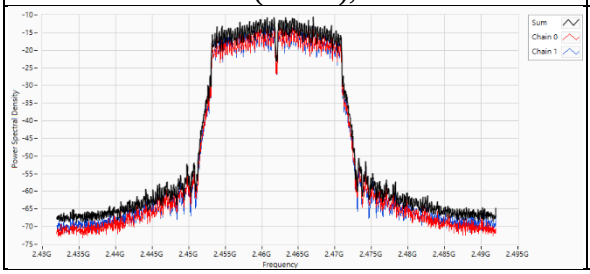


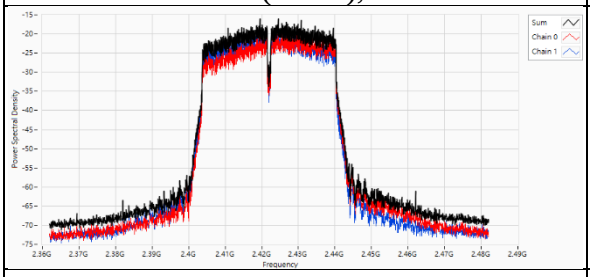
802.11n(HT20), CH11



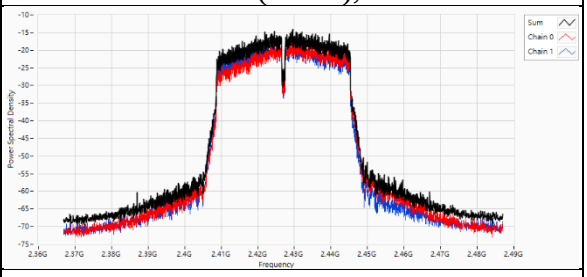
Mode	CH	Freq (MHz)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Directional Gain (dBi)	Result
802.11n(HT40)	3	2422	-16.06	5.99	8.01	Pass
	4	2427	-14.09	5.99	8.01	Pass
	6	2437	-11.02	5.99	8.01	Pass
	8	2447	-14.42	5.99	8.01	Pass
	9	2452	-16.75	5.99	8.01	Pass

Mode	CH	Freq (MHz)	PSD per Chain (dBm/3kHz)	
			Chain 0	Chain 1
802.11n(HT40)	3	2422	-19.339	-17.847
	4	2427	-16.848	-16.906
	6	2437	-13.3	-13.844
	8	2447	-16.477	-17.645
	9	2452	-19.527	-19.555

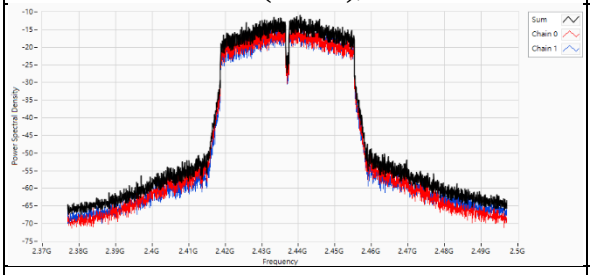
802.11n(HT40), CH3



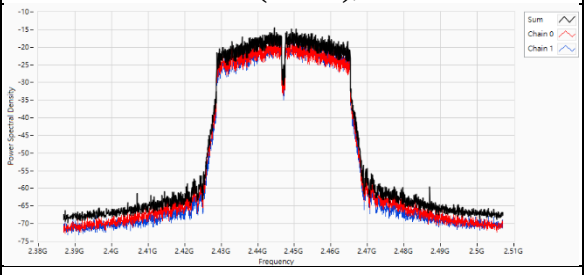
802.11n(HT40), CH4



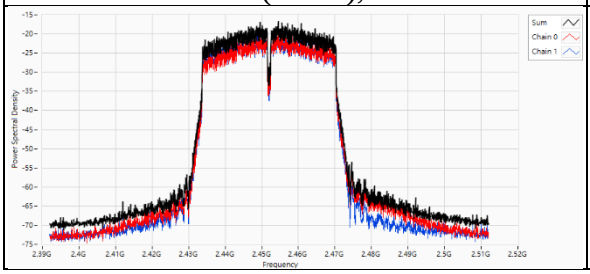
802.11n(HT40), CH6



802.11n(HT40), CH8



802.11n(HT40), CH9



9.4. Conducted Out of Band Emission

Requirements

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b) (3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209 (a) is not required.

Test procedure

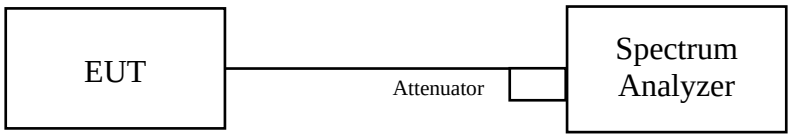
Measurement Procedure REF

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 300 kHz.
3. Set the span to 1.5 times the DTS bandwidth.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

Measurement Procedure OOBE

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

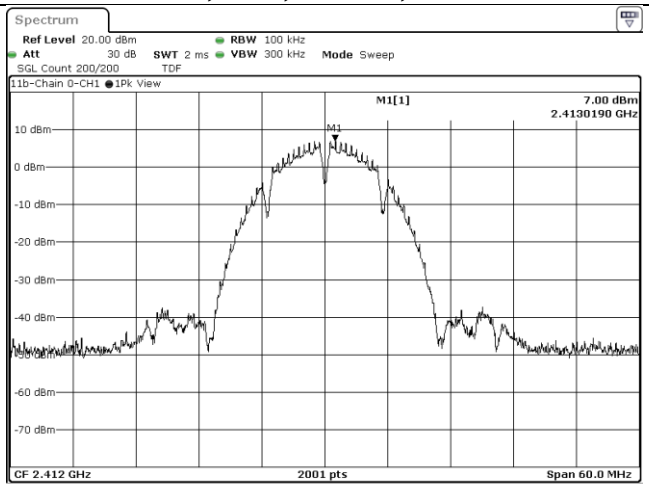
Test Setup



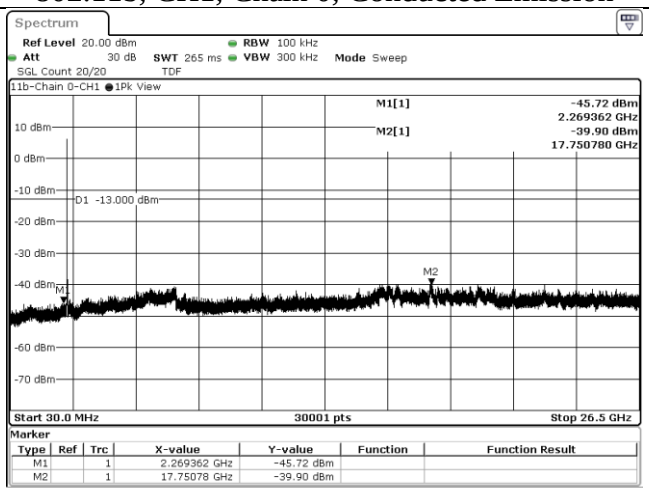
The loss between RF output port of the EUT and the input port of the Spectrum Analyzer has been taken into consideration.

Test Data

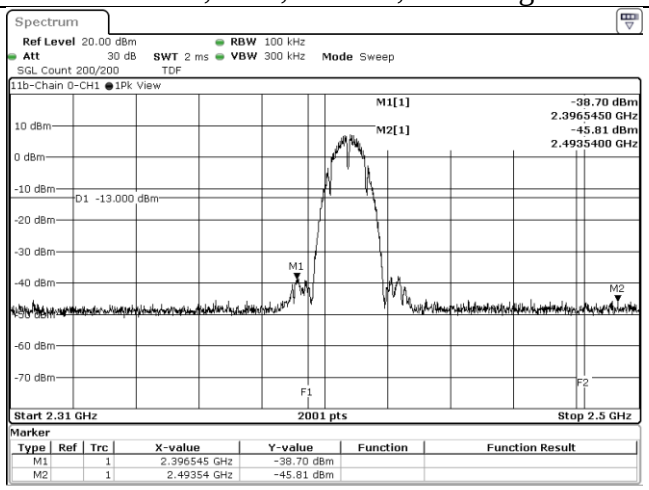
802.11b, CH1, Chain 0, Reference



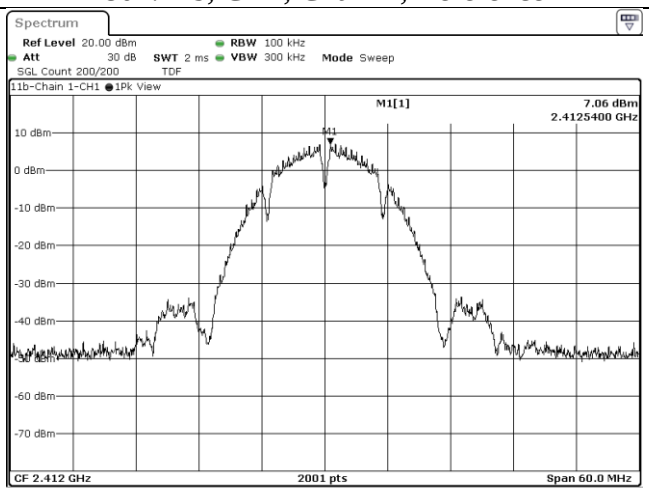
802.11b, CH1, Chain 0, Conducted Emission



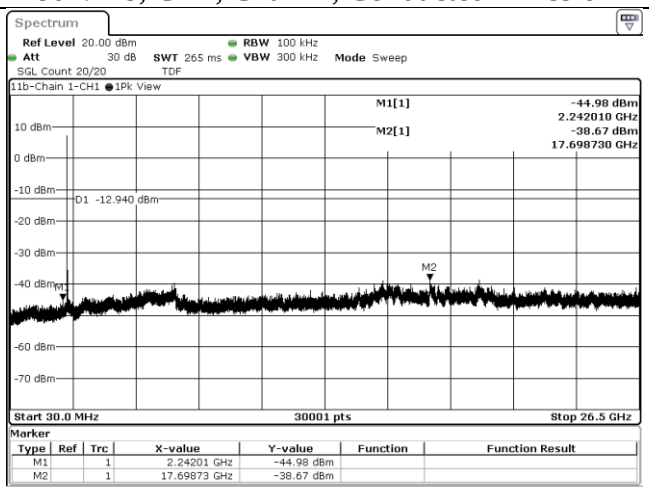
802.11b, CH1, Chain 0, Band edge



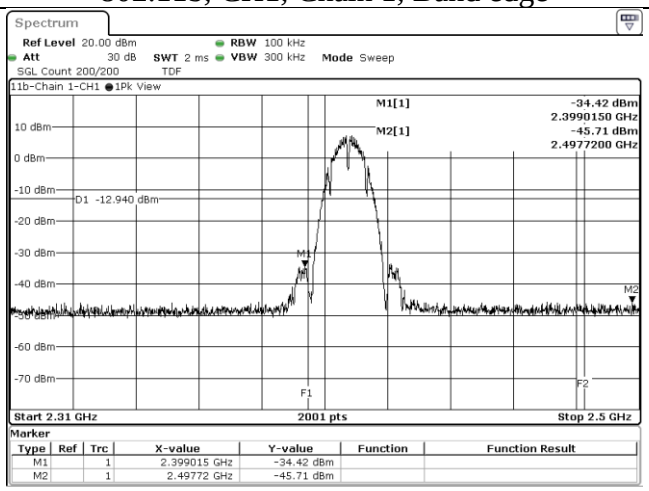
802.11b, CH1, Chain 1, Reference



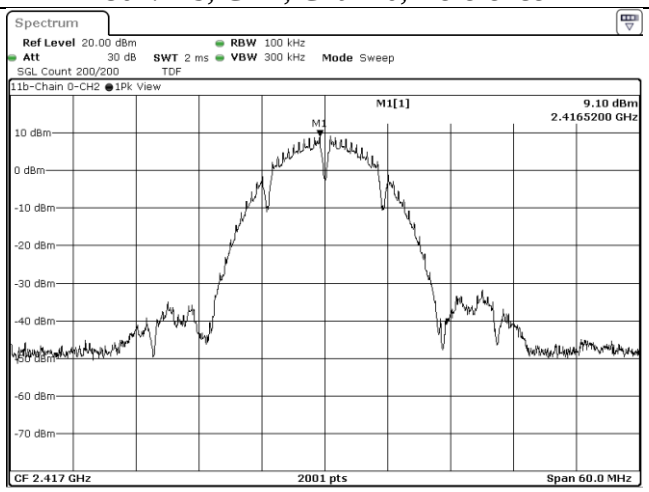
802.11b, CH1, Chain 1, Conducted Emission



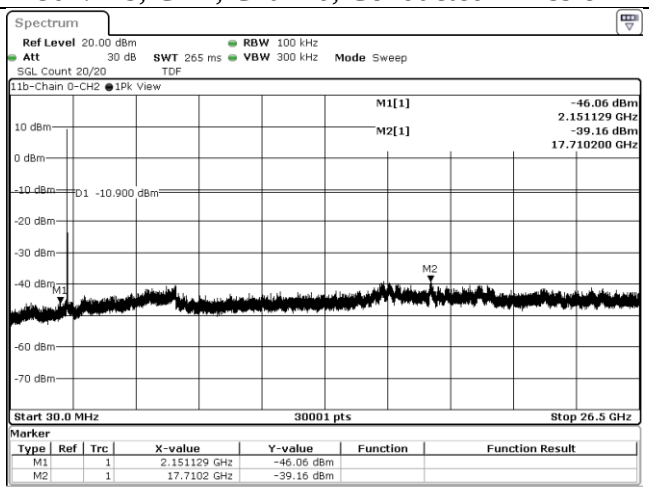
802.11b, CH1, Chain 1, Band edge



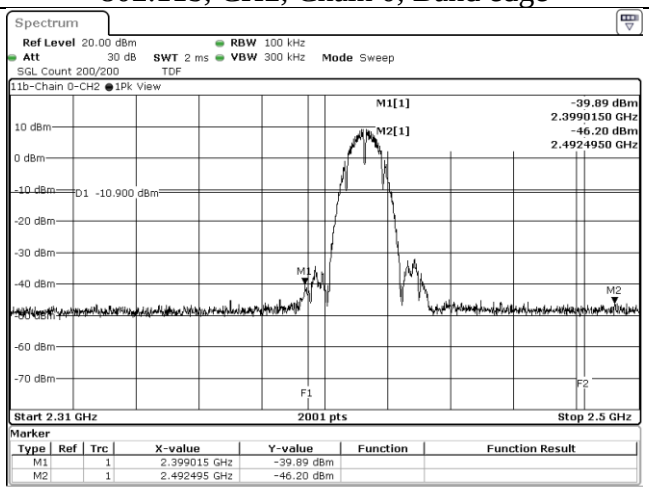
802.11b, CH2, Chain 0, Reference



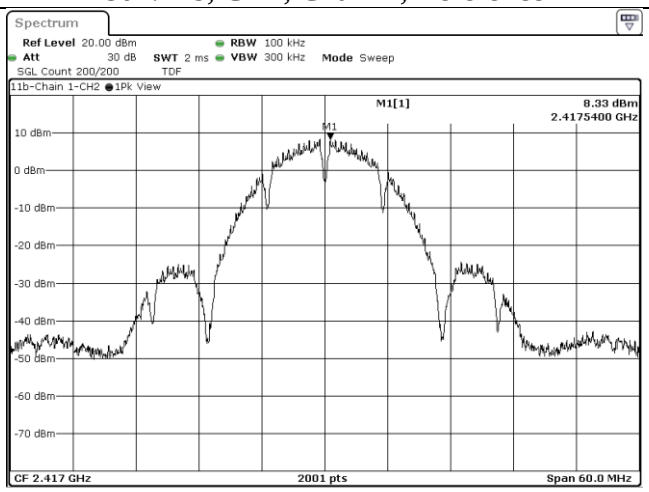
802.11b, CH2, Chain 0, Conducted Emission



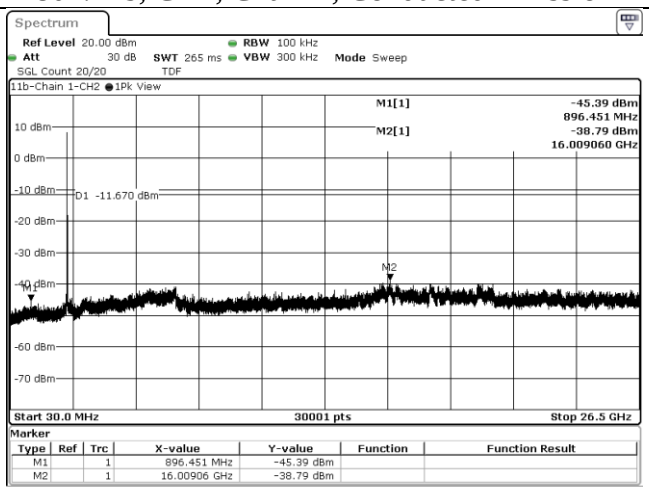
802.11b, CH2, Chain 0, Band edge



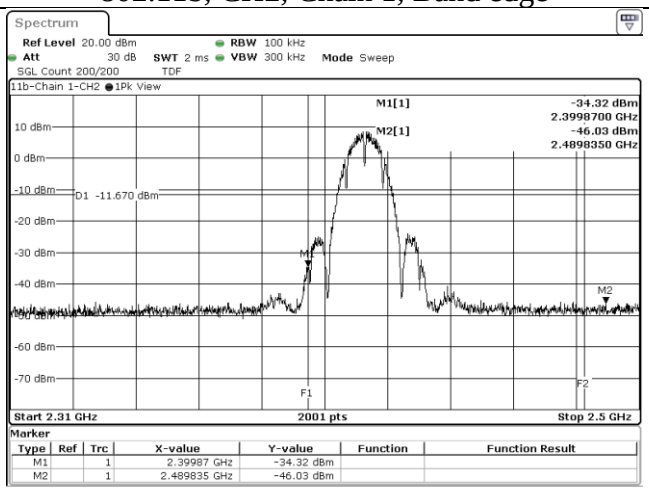
802.11b, CH2, Chain 1, Reference



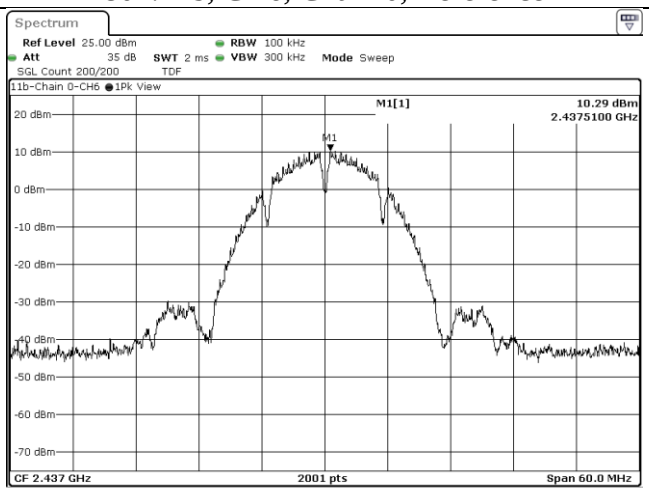
802.11b, CH2, Chain 1, Conducted Emission



802.11b, CH2, Chain 1, Band edge



802.11b, CH6, Chain 0, Reference



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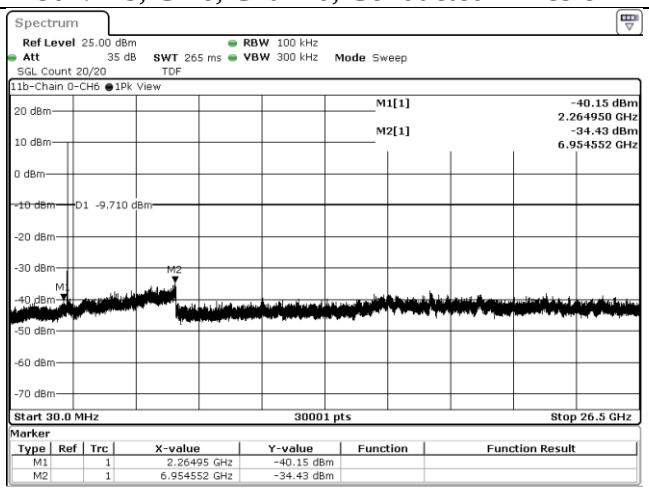

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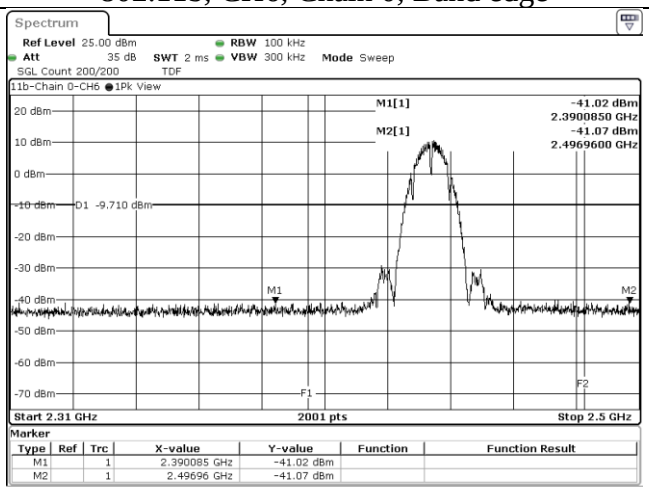

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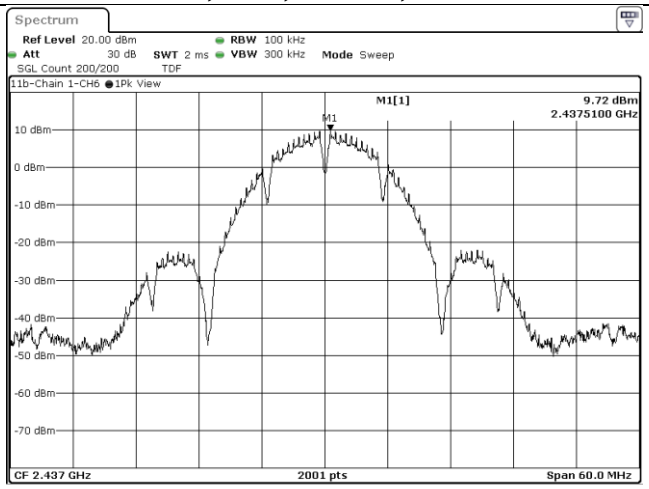

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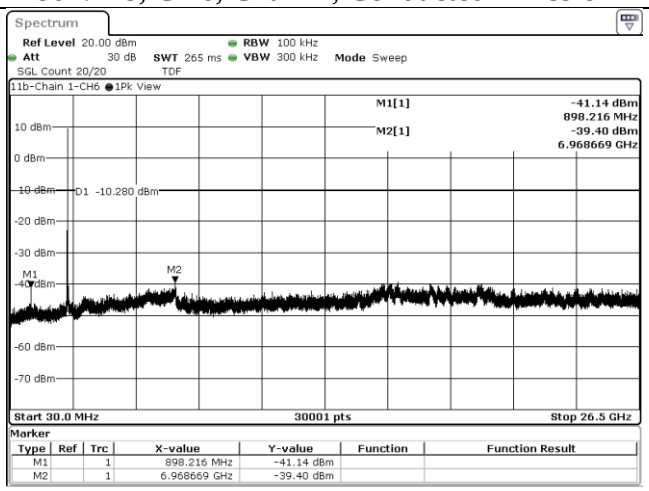

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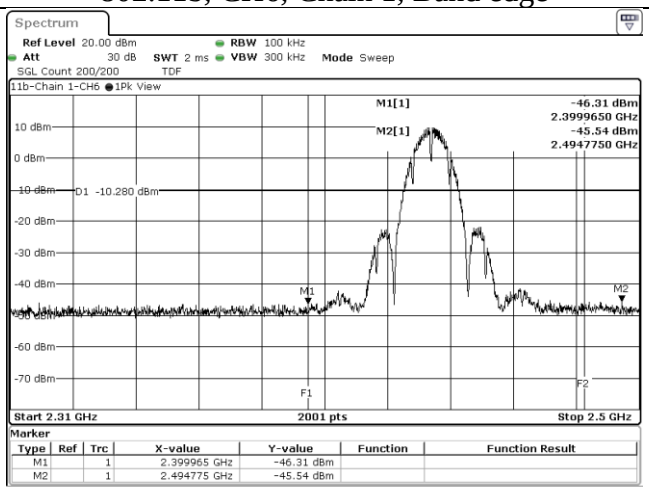
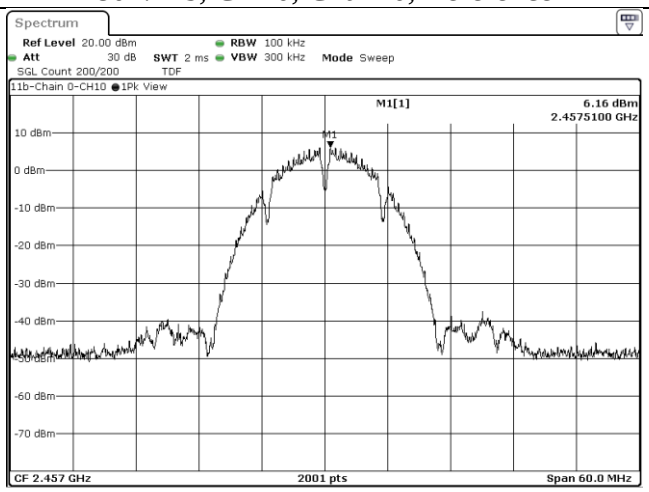
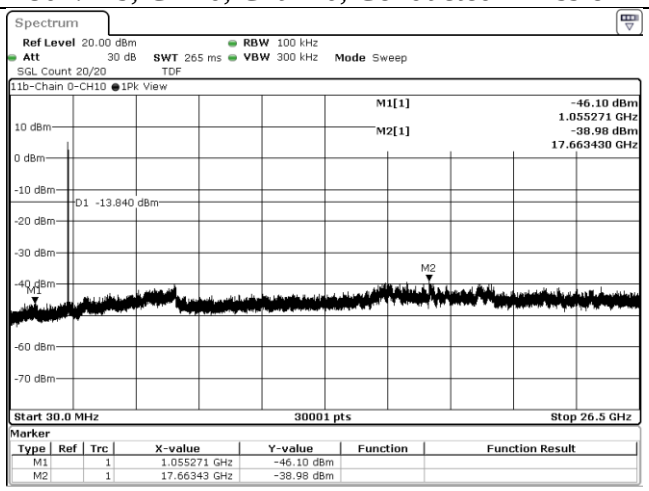


802.11b, CH10, Chain 0, Reference



802.11b, CH10, Chain 0, Conducted Emission



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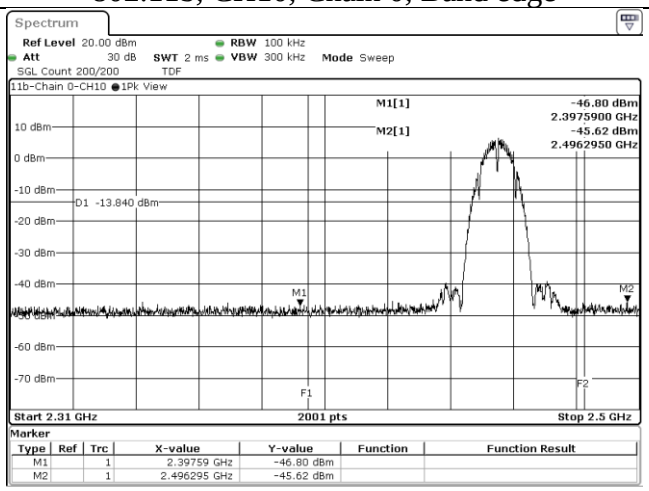

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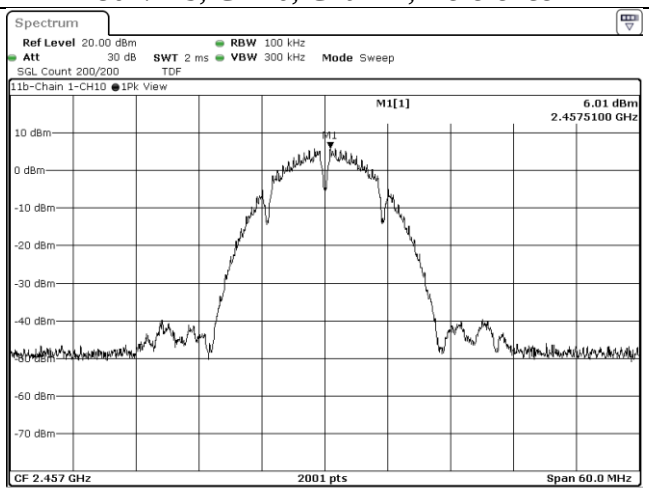

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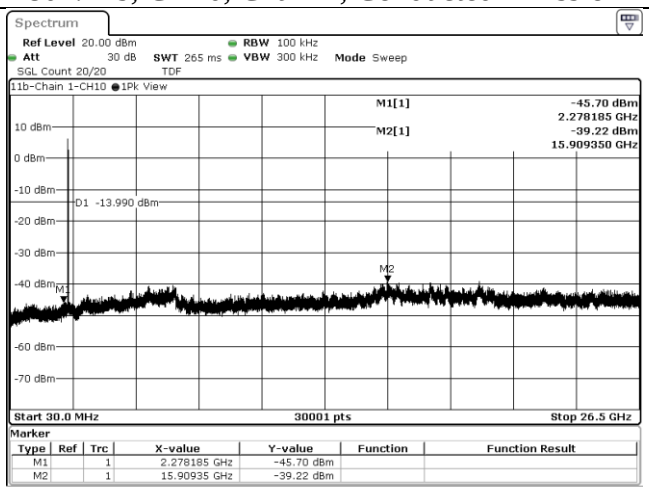

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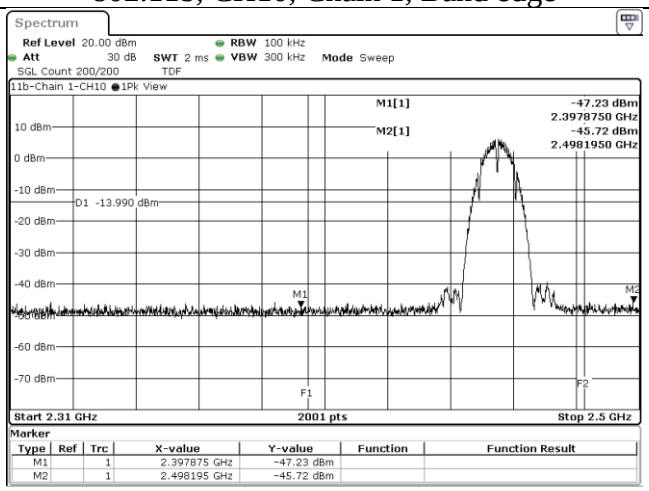
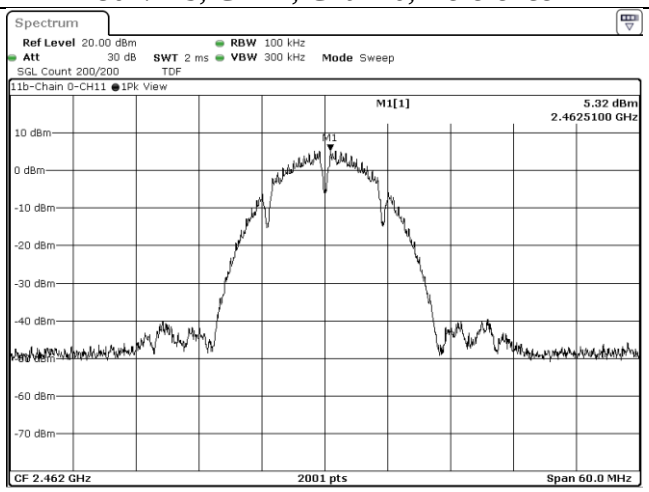
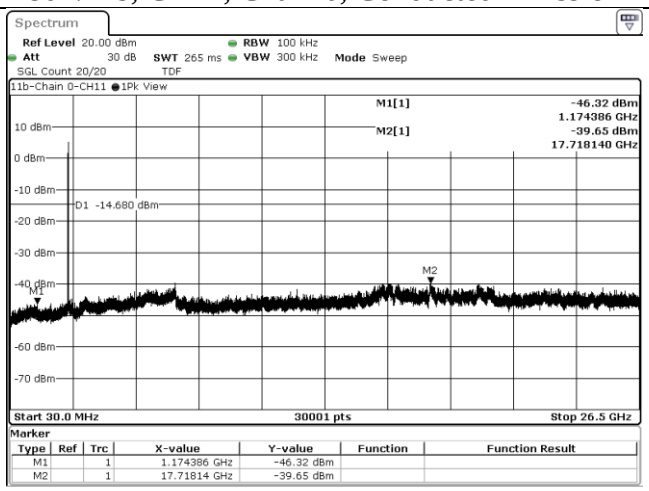


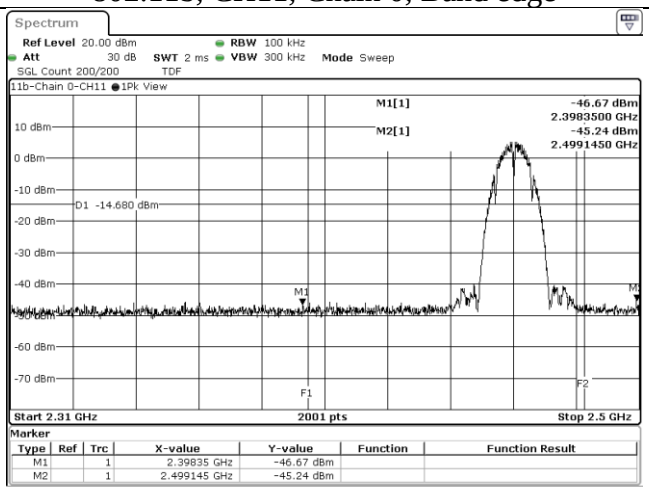
802.11b, CH11, Chain 0, Reference



802.11b, CH11, Chain 0, Conducted Emission



802.11b, CH11, Chain 0, Band edge



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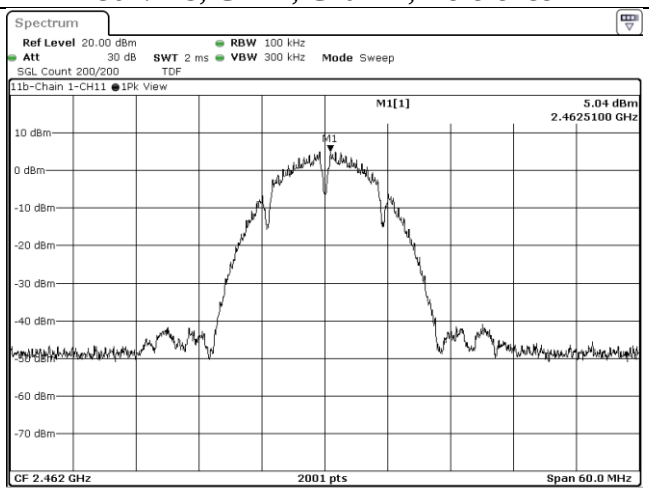

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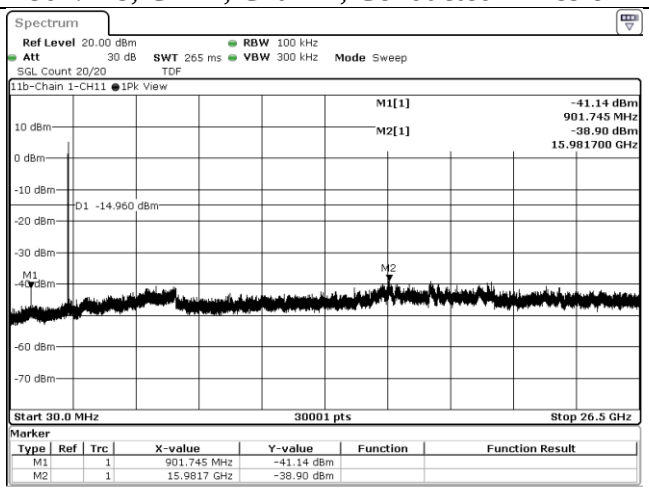
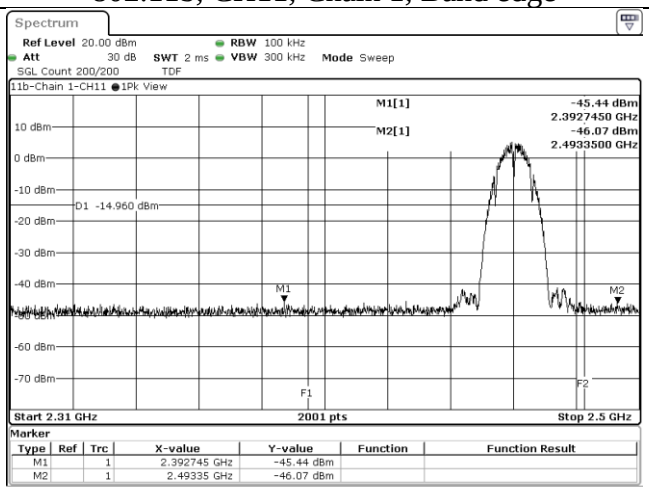
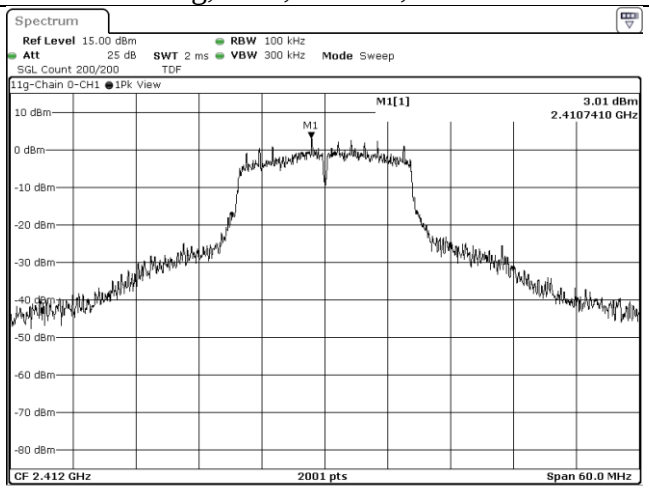


802.11b, CH11, Chain 1, Band edge



802.11g, CH1, Chain 0, Reference



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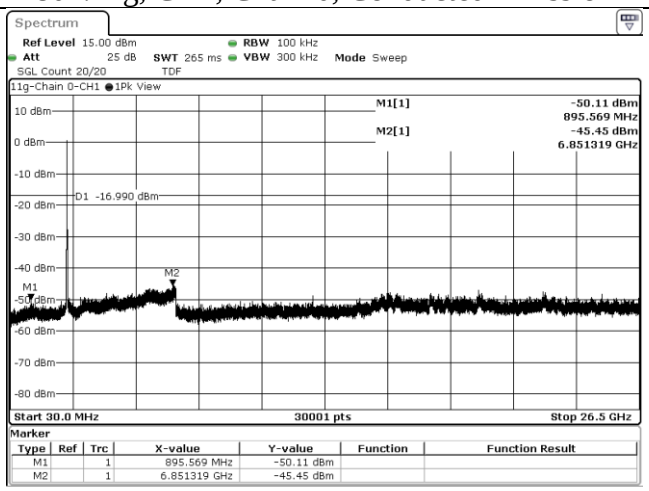

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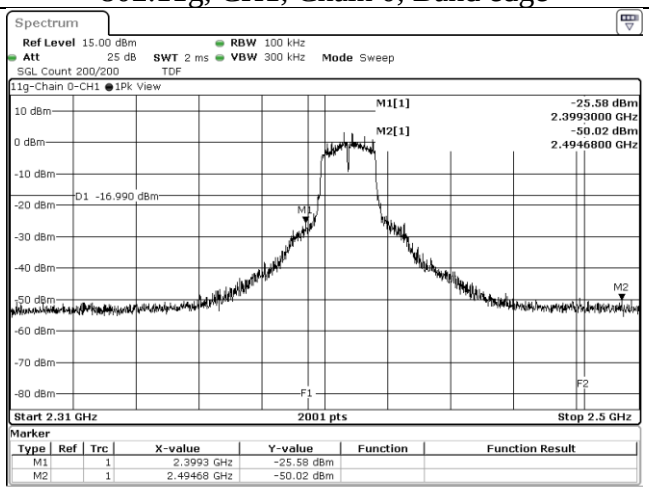

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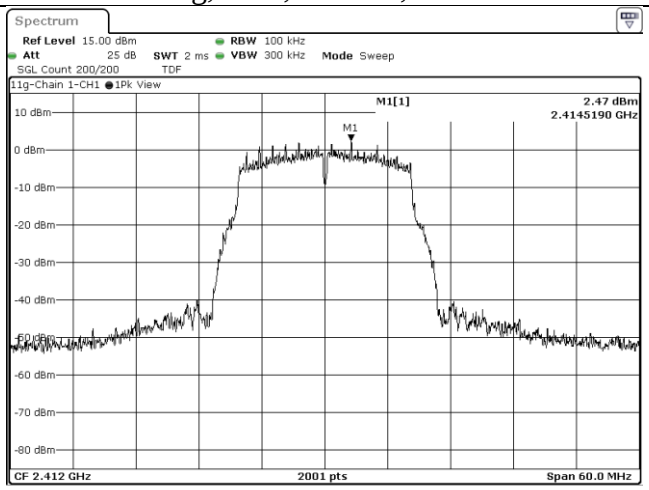

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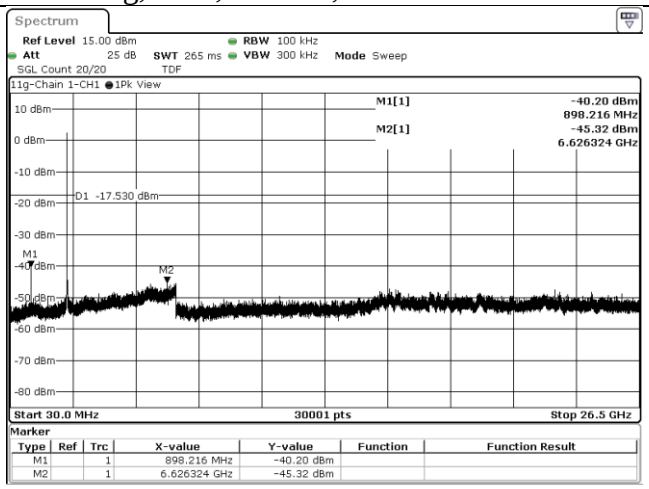

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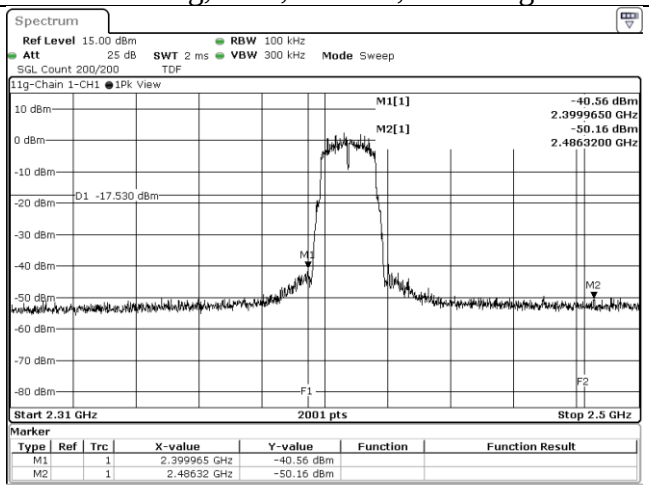
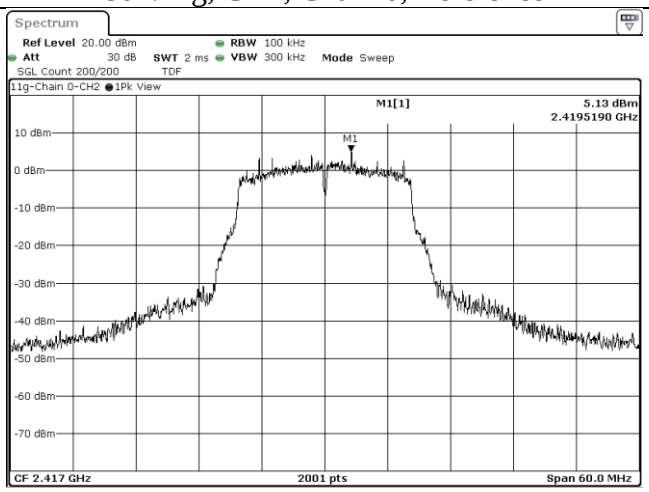


802.11g, CH2, Chain 0, Reference



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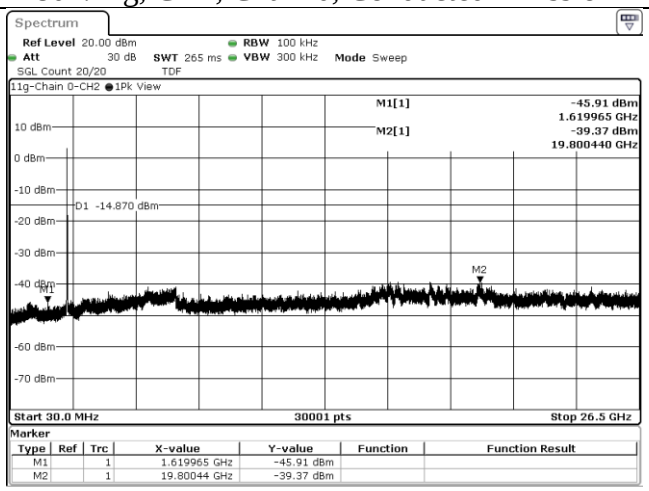

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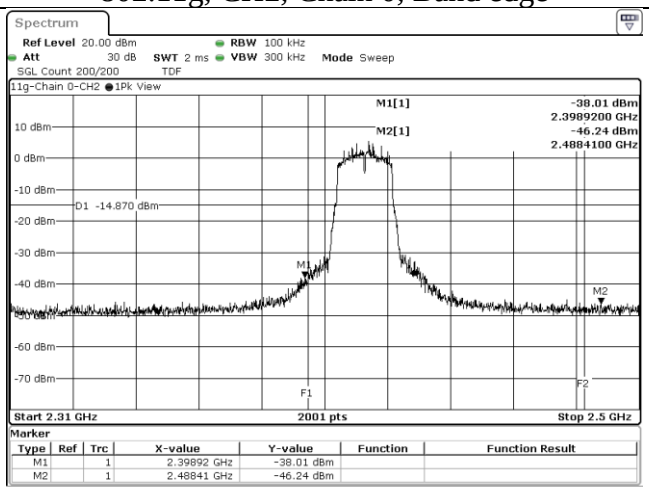

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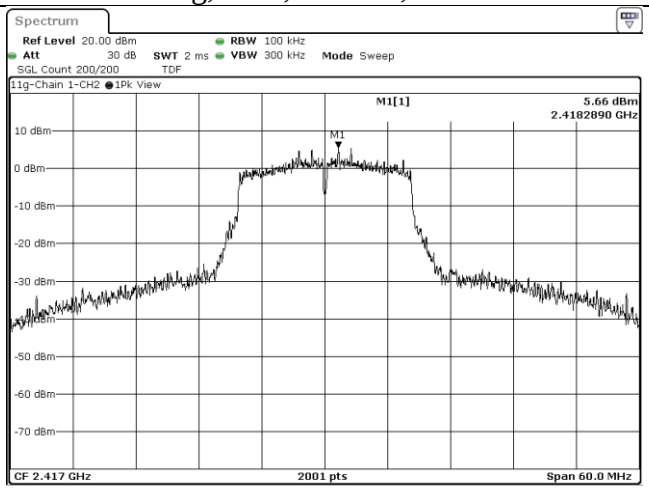

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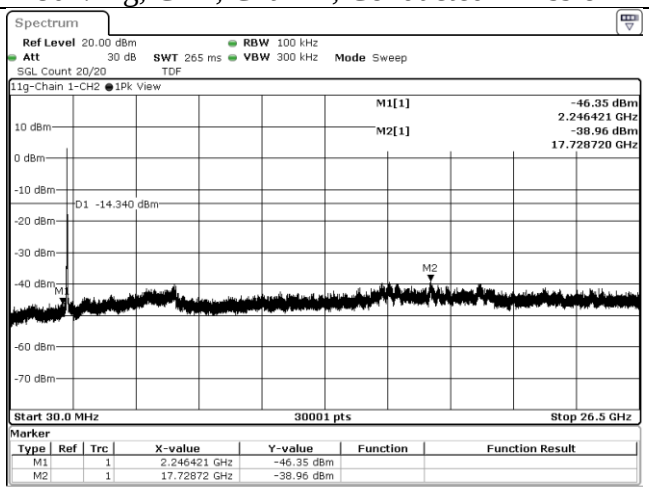
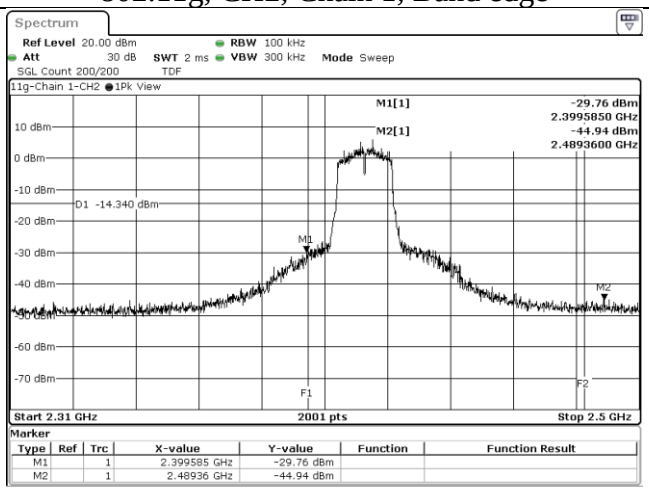
802.11g, CH2, Chain 1, Band edge