

 MOTOROLA SOLUTIONS	 MS ISO/IEC 17025 TESTING SAMM No. 0825																												
MOTOROLA PENANG ADV. COMM. LABORATORY Motorola Solutions Malaysia Sdn. Bhd. Innoplex Plot 2A Medan Bayan Lepas, Mukim 12, S.W.D. 11900 Bayan Lepas, Penang, Malaysia.	FCC / IC TEST REPORT Report Revision : Rev.A																												
<table><tr><td>Date/s Tested</td><td>: 07-February-2018 – 05-March-2018</td></tr><tr><td>Report Issue Date</td><td>: 15-March-2018</td></tr><tr><td>Manufacturer/Location</td><td>: Motorola Solutions – Penang</td></tr><tr><td>Requestor</td><td>: LEE CHEE KEONG</td></tr><tr><td>Product Type</td><td>: Portable</td></tr><tr><td>Model Number</td><td>: H91TGD9PW9AN</td></tr><tr><td>Frequency Band</td><td>: 2.412 - 2.462 GHz</td></tr><tr><td>Rated / Max RF Output Power</td><td>: 802.11b – 28.3 mWatts \ 28.3 mWatts 802.11g – 11.2 mWatts \ 11.2 mWatts 802.11n – 11.2 mWatts \ 11.2 mWatts</td></tr><tr><td>Applicant Name</td><td>: Motorola Solution Malaysia Sdn Bhd</td></tr><tr><td>Applicant Address</td><td>: Innoplex Plot 2A, Medan Bayan lepas, Mukim 12, S.W.D. 11900 Bayan Lepas, Penang, Malaysia</td></tr><tr><td>FCC Registrations</td><td>: 772092</td></tr><tr><td>IC Registrations</td><td>: 109AK</td></tr><tr><td>Firm Registrations</td><td>: 461337</td></tr></table> The equipment was tested accordance to the requirement listed below: <table><tr><td>(2.4GHz Wifi) Part 15C IC RSS 247</td><td>PASS</td></tr></table>		Date/s Tested	: 07-February-2018 – 05-March-2018	Report Issue Date	: 15-March-2018	Manufacturer/Location	: Motorola Solutions – Penang	Requestor	: LEE CHEE KEONG	Product Type	: Portable	Model Number	: H91TGD9PW9AN	Frequency Band	: 2.412 - 2.462 GHz	Rated / Max RF Output Power	: 802.11b – 28.3 mWatts \ 28.3 mWatts 802.11g – 11.2 mWatts \ 11.2 mWatts 802.11n – 11.2 mWatts \ 11.2 mWatts	Applicant Name	: Motorola Solution Malaysia Sdn Bhd	Applicant Address	: Innoplex Plot 2A, Medan Bayan lepas, Mukim 12, S.W.D. 11900 Bayan Lepas, Penang, Malaysia	FCC Registrations	: 772092	IC Registrations	: 109AK	Firm Registrations	: 461337	(2.4GHz Wifi) Part 15C IC RSS 247	PASS
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Prepared By:  Sharmila Jegatheesan Test Personnel	Approved By:  Vincent Foong Responsible Engineer																												

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REVISION HISTORY

Revision History	Description	Date	Originator
Rev. A	Initial Report	15-March-2018	Sharmila Jegatheesan

1.0. General Information

EUT Description:

Technologies	2.4GHz Wi-Fi
TX Frequency range	2412MHz – 2462MHz
Modulation Type	DSSS, OFDM
Input/Output	RF Port
Connector type	PROGRAMMING, TEST & ALIGNMENT CABLE
Antenna type	INTERNAL BT/WLAN ANTENNA
No. of Antenna	1
Antenna Gain	2.58 dBi
MIMO supported	NO

1.1. Channel number and frequency information:

There are two bandwidth systems.

For 20MHz Bandwidth systems (802.11b, 802.11g, 802.11n), use channel 1 ~ channel 11

For 40MHz Bandwidth systems (802.11n), use channel 3 ~ channel 9

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

The EUT contains following accessory devices and data cable:

Item	Brand	Model or P/N
BATT IMPRES 2 LIION R IP68 5100T	MOTOROLA	PMNN4494A
Programming, Test & Alignment Cable	MOTOROLA	PMKN4013C

General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, the EUT is to comply with the requirements of the following standards:

ANSI C63.10-2013

2.0. Summary of Test Results

FCC Clause	IC Clause	Test Item	Result	Remark
15.247 (a)(2)	RSS-247 5.2(a)	DTS & 99% Channel Bandwidth	Pass	99% Channel Bandwidth:
15.247 (b)(3)	RSS-247 5.4(d)	Conducted RF Output Power (Average)	Pass	
15.247(e)	RSS-247 5.2(b)	Maximum Power Spectral Density	Pass	
15.247(d)	RSS-247 5.5	Conducted Spurious Emissions	Pass	Highest Spur Level:
15.247 (d)	RSS-247 5.5	Band edge Conducted Spurious Emission	Pass	Highest Spur Level:
15.205, 15.209, 15.247 (d)	RSS-247 5.5	Radiated Emission within Restricted Bands	Pass	Highest Spur Level:
15.207	RSS-247 5.5	AC Power Line Conducted Emission	NA	Highest Spur Level:
15.203	RSS-Gen 8.8	Antenna requirement	NA	

NA → Not Available

3.0. Measurement Uncertainty

Measurement	Frequency	Expended Uncertainty (k=1.96) (±)
AC Power Line Conducted Spurious Emission	150KHz ~ 30MHz	3.43
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	5.01
	200MHz ~ 1000MHz	5.01
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.01
	18GHz ~ 25GHz	5.01

4.0. Equipment List

Bluetooth ATE # 1: (SW Version: Ate Main_3.1.9_R1)

DESCRIPTION	MODEL	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
Bluetooth ATE # 1				
POWER SUPPLY	6652A	MY40001437	11-Aug-16	11-Aug-18
SPECTRUM ANALYZER	FSEK30	838495/014	13-July-17	13-July-18
SPECTRUM ANALYZER	E4445A	MY46181597	21-Dec-16	21-Dec-18

Radiated Emission Station (SW Version: EMC FCC RE v1.5.1)

DESCRIPTION	MODEL	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
Radiated Emmision Chamber # 1				
DRG HORN FREQ.	SAS-571	719	18-July-17	18-July-19
DRG HORN FREQ.	SAS-571	720	02-Mar-17	02-Mar-19
POWER SUPPLY	6032A	2615A01178	06-Jun-17	06-Jun-18
MICROWAVE SIGNAL GENERATOR	SMP04	100127	19-July-17	18-July-18
EMI TEST RECEIVER	ESIB26	100336	13-July-17	12-July-18
SIGNAL ANALYZER	FSV40	101103	18-July-17	17-July-18
5m SEMI-ANECHOIC CHAMBER	S800-HX	J2308	No Cal. Req'd	No Cal. Req'd
BILOG ANTENNA	CBL6112D	25224	22-July-17	22-July-18
BILOG ANTENNA	CBL6112B	30991	10-Apr-17	10-Apr-18
BROAD-BAND HORN ANTENNA	BBHA9170	BBHA9170143	20-Mar-17	10-Apr-18
DATA LOGGER	SDL500	A.016776	18-Mar-17	18-Mar-18
LOOP ANTENNA	6502	208416	27-July-17	27-July-18
SYSTEM CONTROLLER	SC104V	050806-1	No Cal. Req'd	No Cal. Req'd
TURNTABLE FLUSH MOUNT 2M	FM2011	NA	No Cal. Req'd	No Cal. Req'd
ANTENNA POSITIONING TOWER	TLT2	NA	No Cal. Req'd	No Cal. Req'd
18 - 40GHz PREAMPLIFIER	BBV9721	9721-007	No Cal. Req'd	No Cal. Req'd
PREAMPLIFIER	PAM-0118P	361	No Cal. Req'd	No Cal. Req'd
TEST SOFTWARE	EMC_FCC_IC_Bluetooth_RE_Test			
VERSION	EMC_FCC_RE_v1.5.1			

5.0. Test Mode Applicability and Test Channel Detail

Radiated Emission Test (Above 1GHz)

☒ 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).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Modulation	Available Channel	Tested Channel	Modulation Technology	Data Modulation Type	Date Rate (Mbps)	Mode
Test Mode	802.11b	1 to 11	1,6,11	DSSS	QPSK	2	SISO
Test Mode	802.11g	1 to 11	1,6,11	OFDM	BPSK	6	SISO
Test Mode	802.11n (HT20)	1 to 11	1,6,11	OFDM	BPSK	6.5	SISO CDD (MIMO)
Test Mode	802.11n (HT40)	3 to 9	3,6,9	OFDM	BPSK	6.5	SISO CDD (MIMO)

Radiated Emission Test (Below 1GHz)

☒ 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).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Modulation	Available Channel	Tested Channel	Modulation Technology	Data Modulation Type	Date Rate (Mbps)	Mode
Test Mode	802.11b	1 to 11	1,6,11	DSSS	QPSK	2	SISO
Test Mode	802.11g	1 to 11	1,6,11	OFDM	BPSK	6	SISO
Test Mode	802.11n (HT20)	1 to 11	1,6,11	OFDM	BPSK	6.5	SISO CDD (MIMO)
Test Mode	802.11n (HT40)	3 to 9	3,6,9	OFDM	BPSK	6.5	SISO CDD (MIMO)

Power Line Conducted Emission Test

☐ 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).

☐ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Modulation	Available Channel	Tested Channel	Modulation Technology	Data Modulation Type	Date Rate (Mbps)
Application Mode	802.11bgn mixed	1 to 11	AUTO	DSSS, OFDM	AUTO	AUTO

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

☒ 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).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Modulation	Available Channel	Tested Channel	Modulation Technology	Data Modulation Type	Data Rate (Mbps)	Mode
Test Mode	802.11b	1 to 11	1,6,11	DSSS	QPSK	2	SISO
Test Mode	802.11g	1 to 11	1,6,11	OFDM	BPSK	6	SISO
Test Mode	802.11n (HT20)	1 to 11	1,6,11	OFDM	BPSK	6.5	SISO CDD (MIMO)
Test Mode	802.11n (HT40)	1 to 11	3,6,9	OFDM	BPSK	6.5	SISO CDD (MIMO)

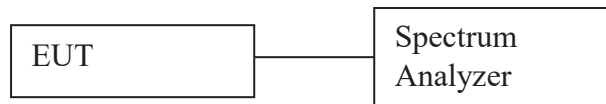
Duty Cycle of Test Signal

802.11b, 802.11g and 802.11n: Duty cycle of test signal is $\geq 98\%$. (Refer to duty cycle test signal)

6.0. Transmitter Test Parameters

6.1. 6dB Channel Bandwidth

6.1.1. Test Setup



- a) Check and ensure the spectrum analyzer well calibrate.
- b) Turn on the DUT and set DUT to transmit maximum power.
- c) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. RBW = 100 kHz
 - b. VBW = 300 kHz
 - c. Detector mode = Peak
 - d. Trace = Max hold
 - e. Sweep = auto
- e) Measure the freq different of two frequencies that were attenuated 6dB from peak of the emission & record the frequency difference as the emission bandwidth.
- f) Measure every antenna port by repeat the step above for MIMO measurement.

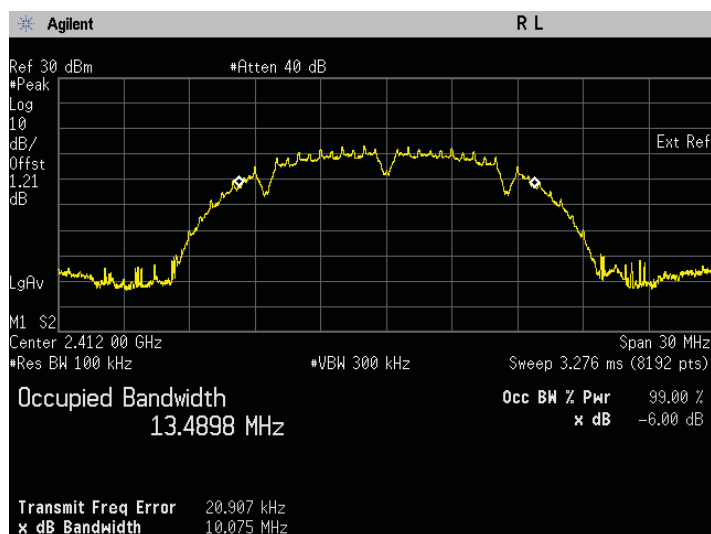
6.1.2. Test Limits:

Normal Condition (25 ° C)
≥ 500 kHz

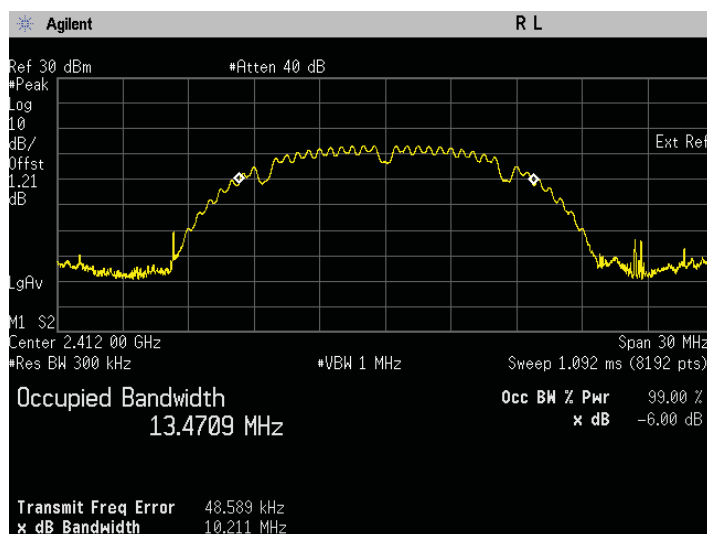
6.1.3. Test Data:

802.11 b

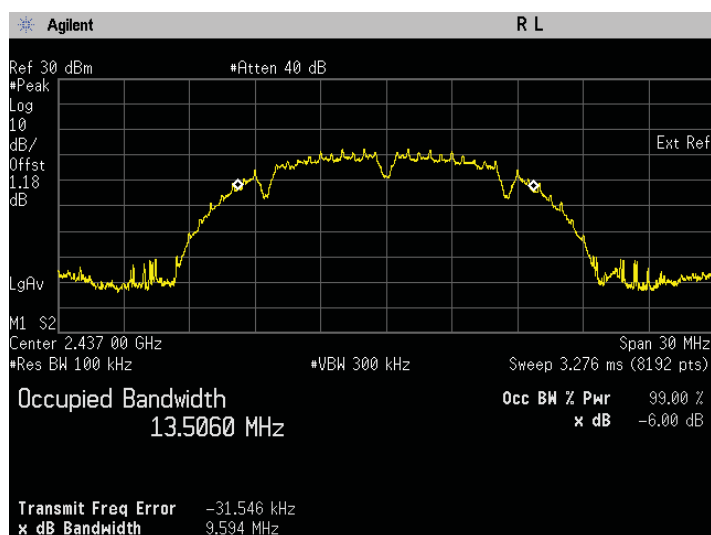
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Status
802.11b	DSSS	QPSK	1	2412	10.075	13.471	Pass
802.11b	DSSS	QPSK	1	2437	9.594	13.473	Pass
802.11b	DSSS	QPSK	1	2462	10.075	13.470	Pass



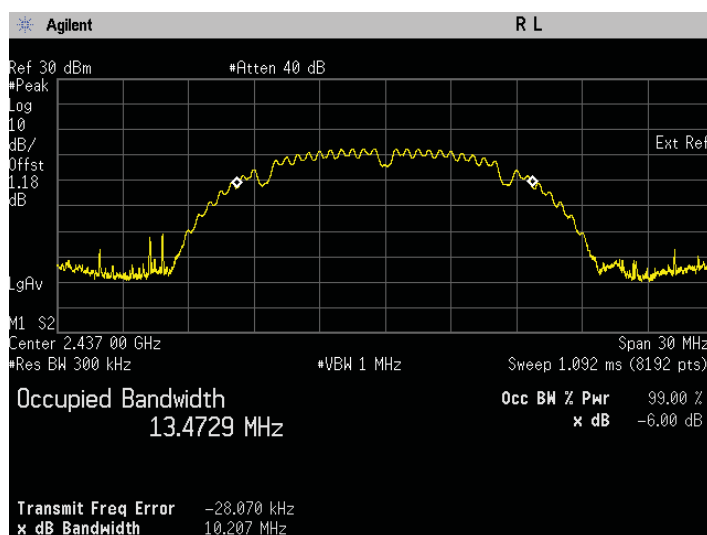
6dB Bandwidth. 802.11b Frequency 2412 MHz



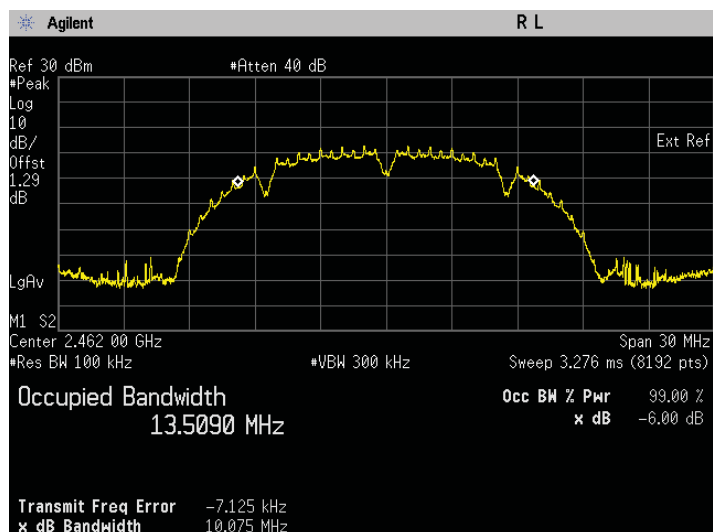
99% Bandwidth. 802.11b Frequency 2412 MHz



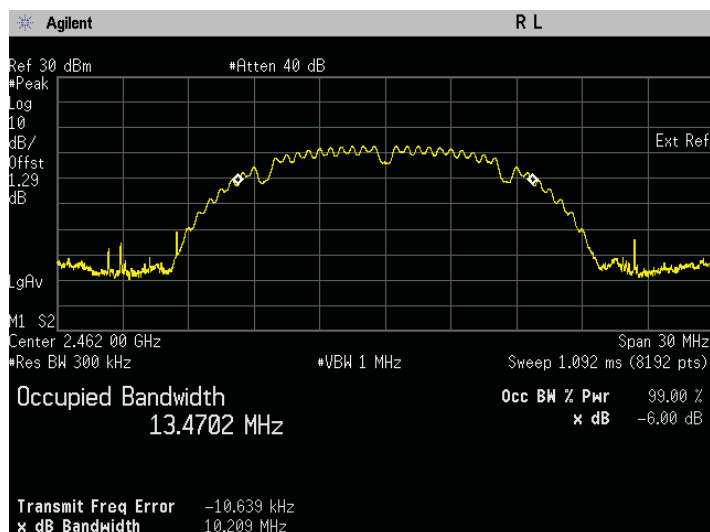
6dB Bandwidth. 802.11b Frequency 2437 MHz



99% Bandwidth. 802.11b Frequency 2437 MHz



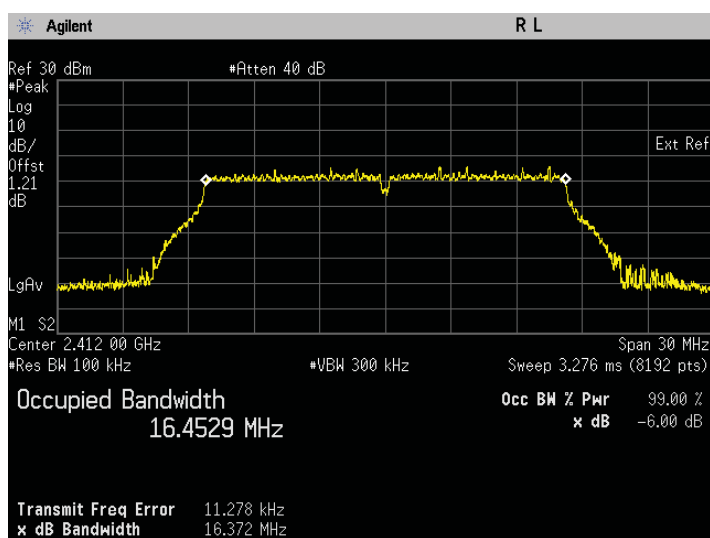
6dB Bandwidth. 802.11b Frequency 2462 MHz



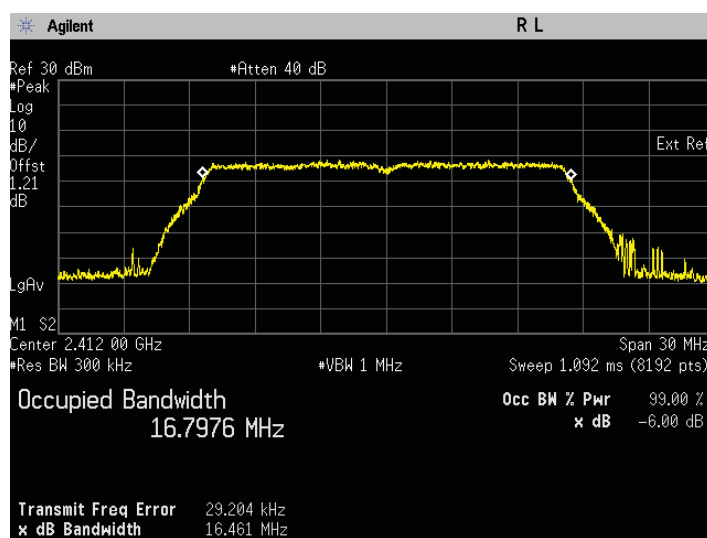
99% Bandwidth. 802.11b Frequency 2462 MHz

802.11 g

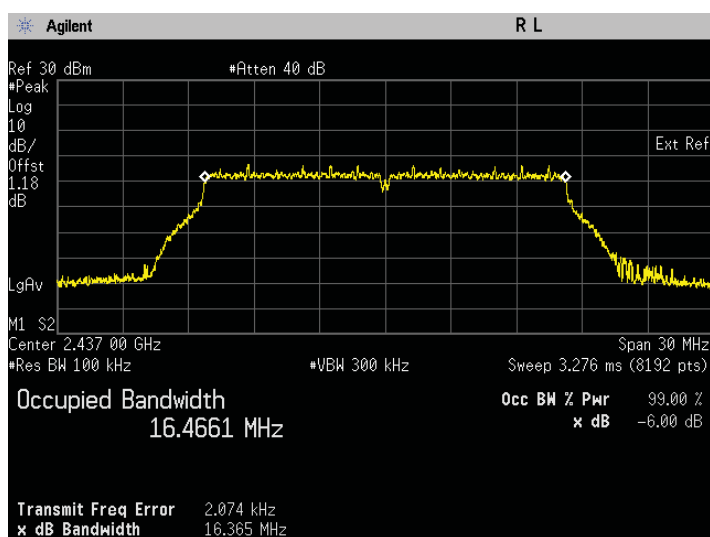
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Status
802.11g	OFDM	BPSK	6	2412	16.372	16.798	Pass
802.11g	OFDM	BPSK	6	2437	16.365	16.785	Pass
802.11g	OFDM	BPSK	6	2462	16.368	16.805	Pass



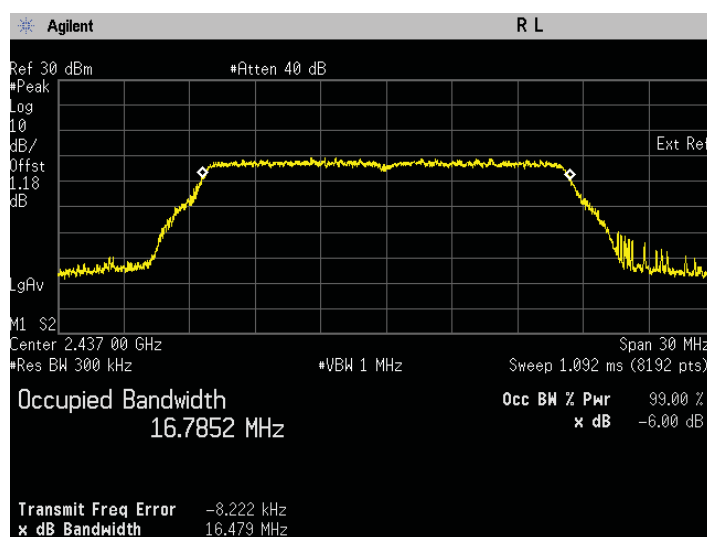
6dB Bandwidth. 802.11g Frequency 2412 MHz



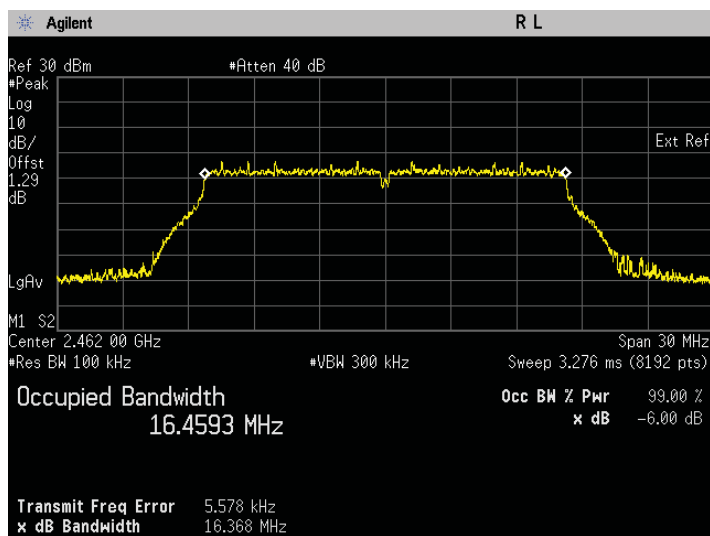
99% Bandwidth. 802.11g Frequency 2412 MHz



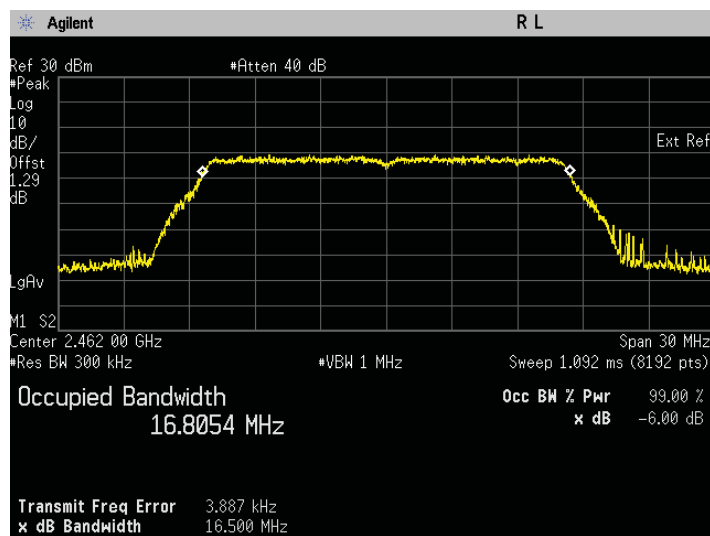
6dB Bandwidth. 802.11g Frequency 2437 MHz



99% Bandwidth. 802.11g Frequency 2437 MHz



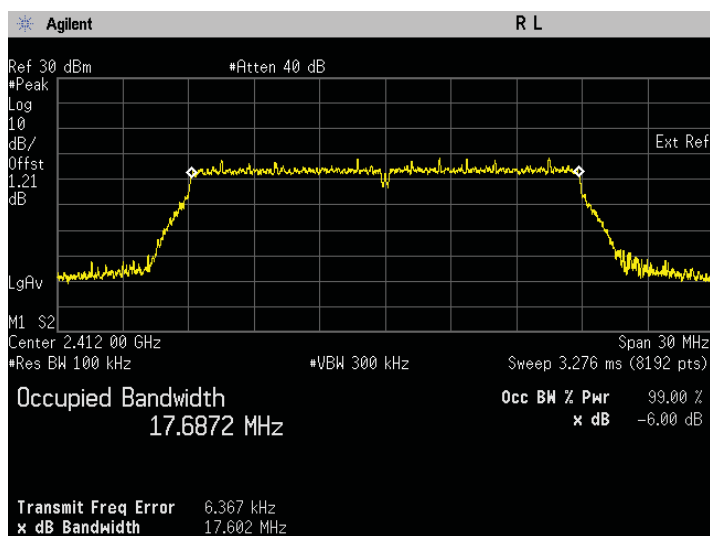
6dB Bandwidth. 802.11g Frequency 2462 MHz



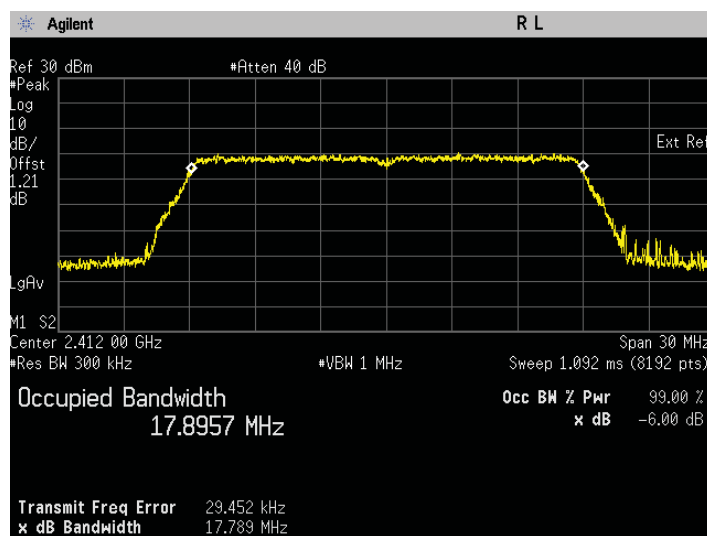
99% Bandwidth. 802.11g Frequency 2462 MHz

802.11 n

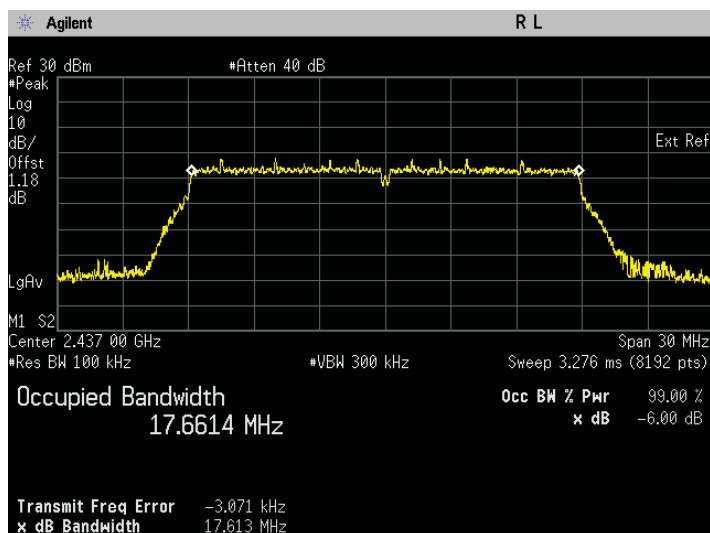
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Status
802.11n	OFDM	BPSK	6.5	2412	17.602	17.896	Pass
802.11n	OFDM	BPSK	6.5	2437	17.613	17.902	Pass
802.11n	OFDM	BPSK	6.5	2462	17.602	17.919	Pass



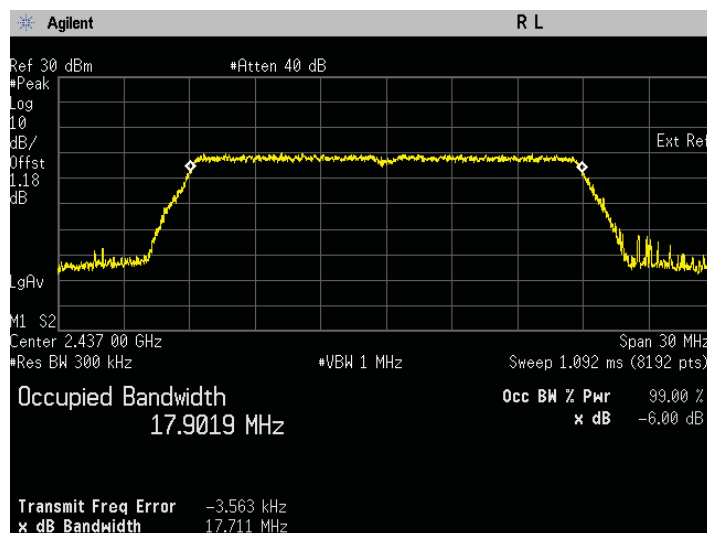
6dB Bandwidth. 802.11n Frequency 2412 MHz



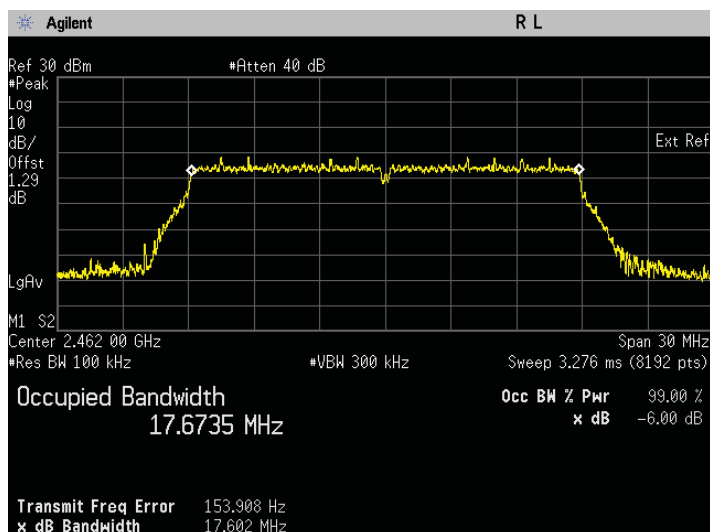
99% Bandwidth. 802.11n Frequency 2412 MHz



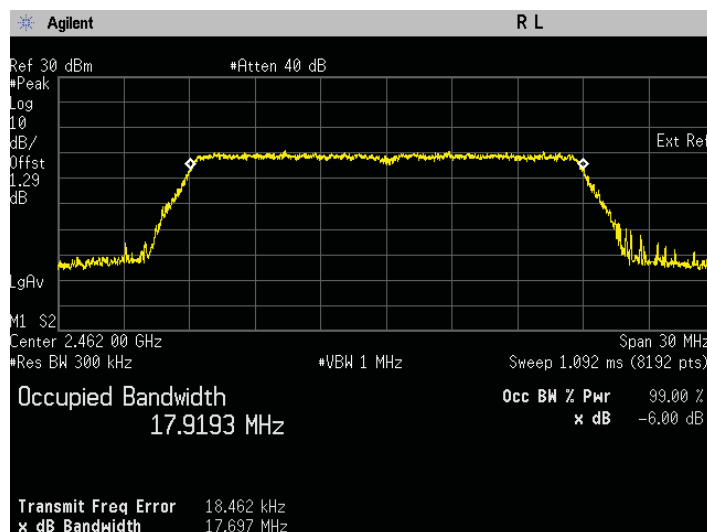
6dB Bandwidth. 802.11n Frequency 2437 MHz



99% Bandwidth. 802.11n Frequency 2437 MHz



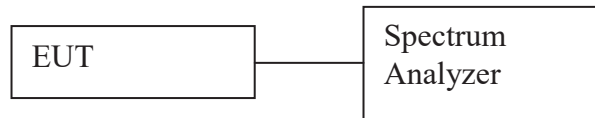
6dB Bandwidth. 802.11n Frequency 2462 MHz



99% Bandwidth. 802.11n Frequency 2462 MHz

6.2. Conducted RF Output Power

6.2.1. Test Setup



Average

- a) Check and ensure the spectrum analyzer well calibrate.
- b) Turn on the DUT and set DUT to transmit maximum power.
- c) Measure the duty cycle of transmitter output signal.
- d) Setting of Spectrum analyzer :
 - a. Set the RBW = 300 kHz.
 - b. Set the VBW $\geq [3 \times \text{RBW}]$.
 - c. Set the span $\geq [1.5 \times \text{OBW bandwidth}]$.
 - d. Detector = average.
 - e. Sweep time = auto couple.
 - f. Trace mode = free run.
 - g. Allow trace to fully stabilize.
- e) Add in duty cycle correction into final test result.
- f) Duty cycle correction is calculated as below:
 $10 \log (1/x)$
- g) Measure every antenna port by repeat the step above for MIMO measurement.

6.2.2. Test Limits:

Normal Condition (25 ° C)
$\leq 1 \text{ Watt}(30 \text{ dBm})$

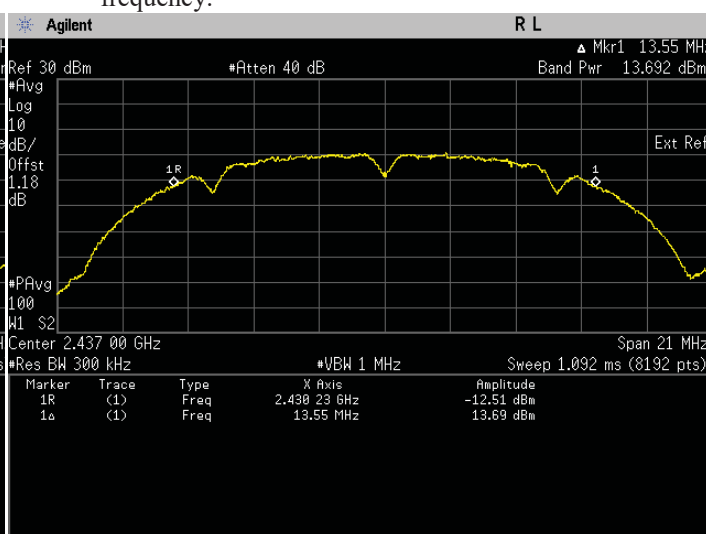
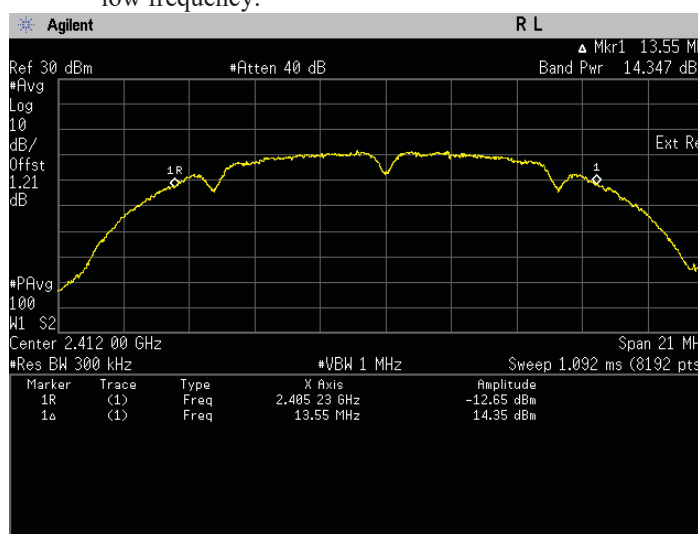
6.2.3. Test Data:

802.11 b

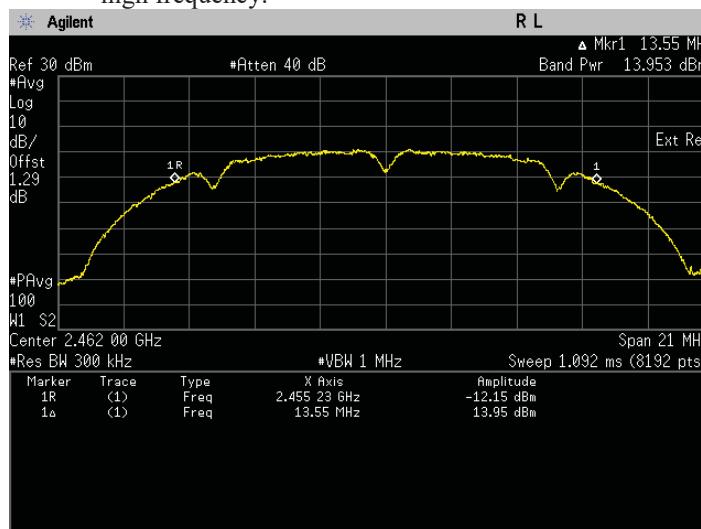
Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Output Power (dBm)	Status
802.11b	DSSS	QPSK	1	2412	14.356	Pass
802.11b	DSSS	QPSK	1	2437	13.701	Pass
802.11b	DSSS	QPSK	1	2462	13.962	Pass

i. The Conducted RF Output Power test with result at low frequency.

ii. The Conducted RF Output Power test with result at mid frequency.



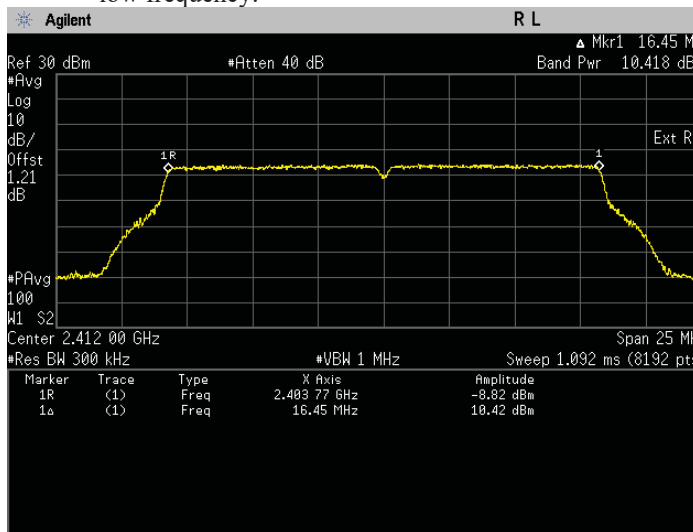
iii. The Conducted RF Output Power test with result at high frequency.



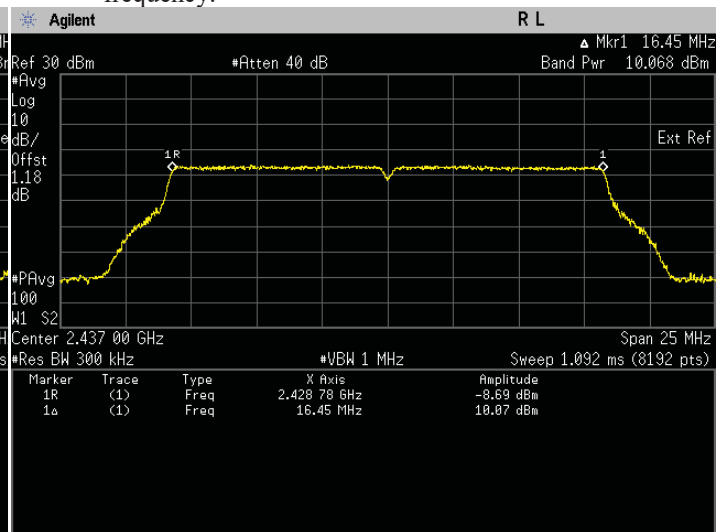
802.11 g

Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Output Power (dBm)	Status
802.11g	OFDM	BPSK	6	2412	10.493	Pass
802.11g	OFDM	BPSK	6	2437	10.143	Pass
802.11g	OFDM	BPSK	6	2462	10.202	Pass

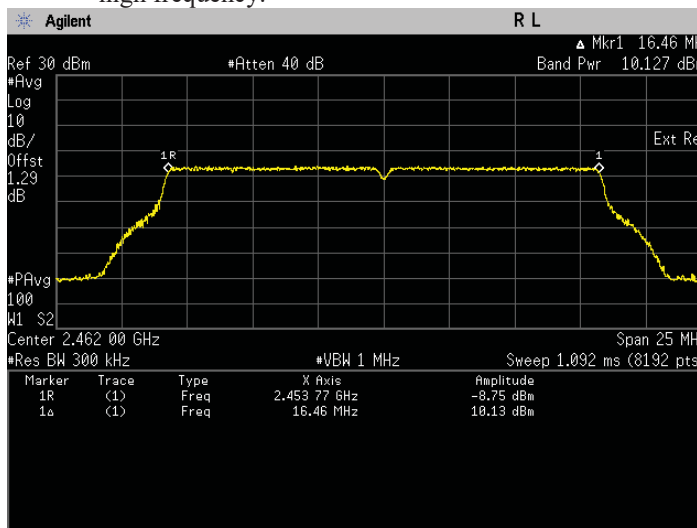
i. The Conducted RF Output Power test with result at low frequency.



ii. The Conducted RF Output Power test with result at mid frequency.



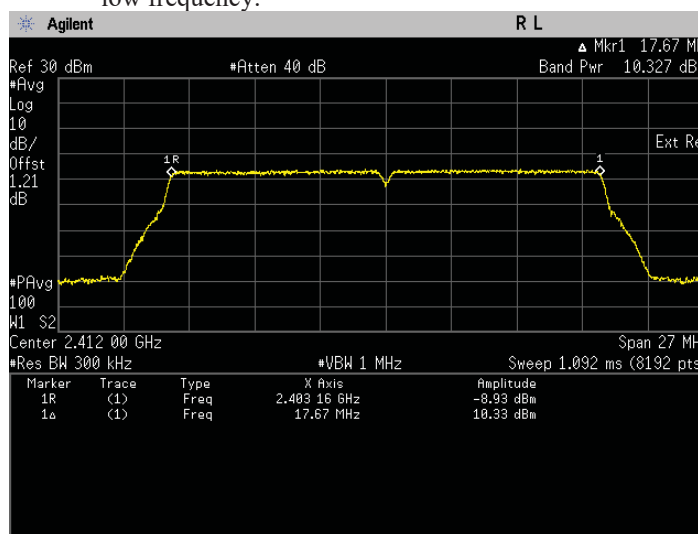
iii. The Conducted RF Output Power test with result at high frequency.



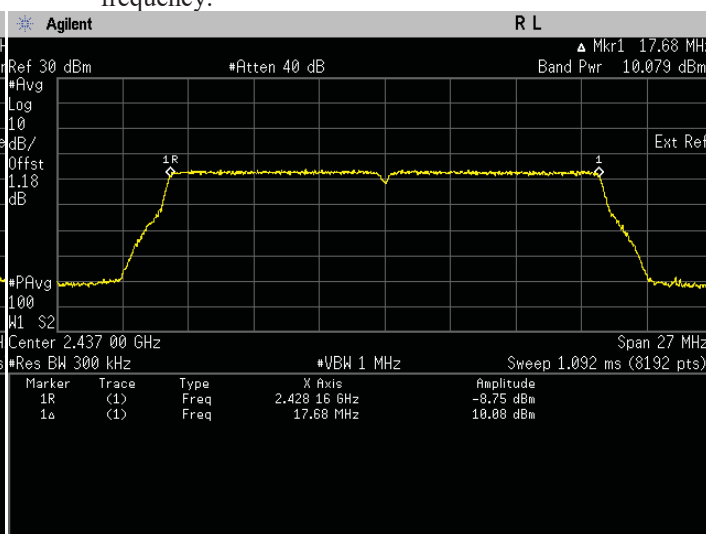
802.11 n

Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Output Power (dBm)	Status
802.11n	OFDM	BPSK	6.5	2412	10.406	Pass
802.11n	OFDM	BPSK	6.5	2437	10.161	Pass
802.11n	OFDM	BPSK	6.5	2462	9.879	Pass

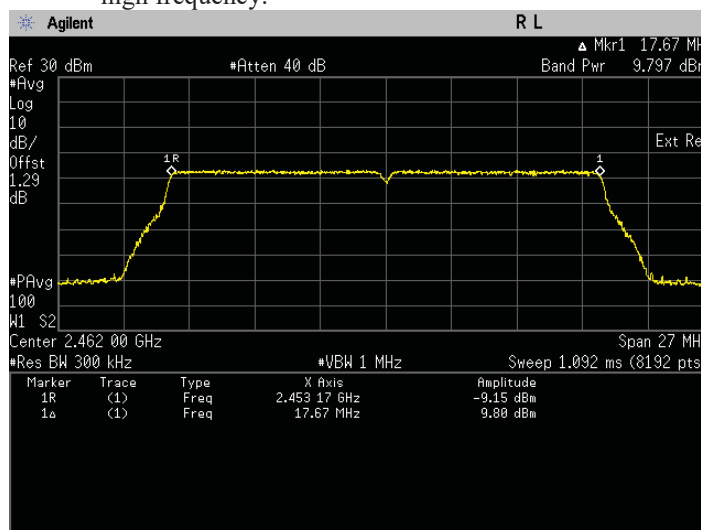
i. The Conducted RF Output Power test with result at low frequency.



ii. The Conducted RF Output Power test with result at mid frequency.

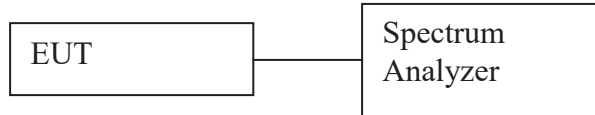


iii. The Conducted RF Output Power test with result at high frequency.



6.3.Duty Cycle of the test signal

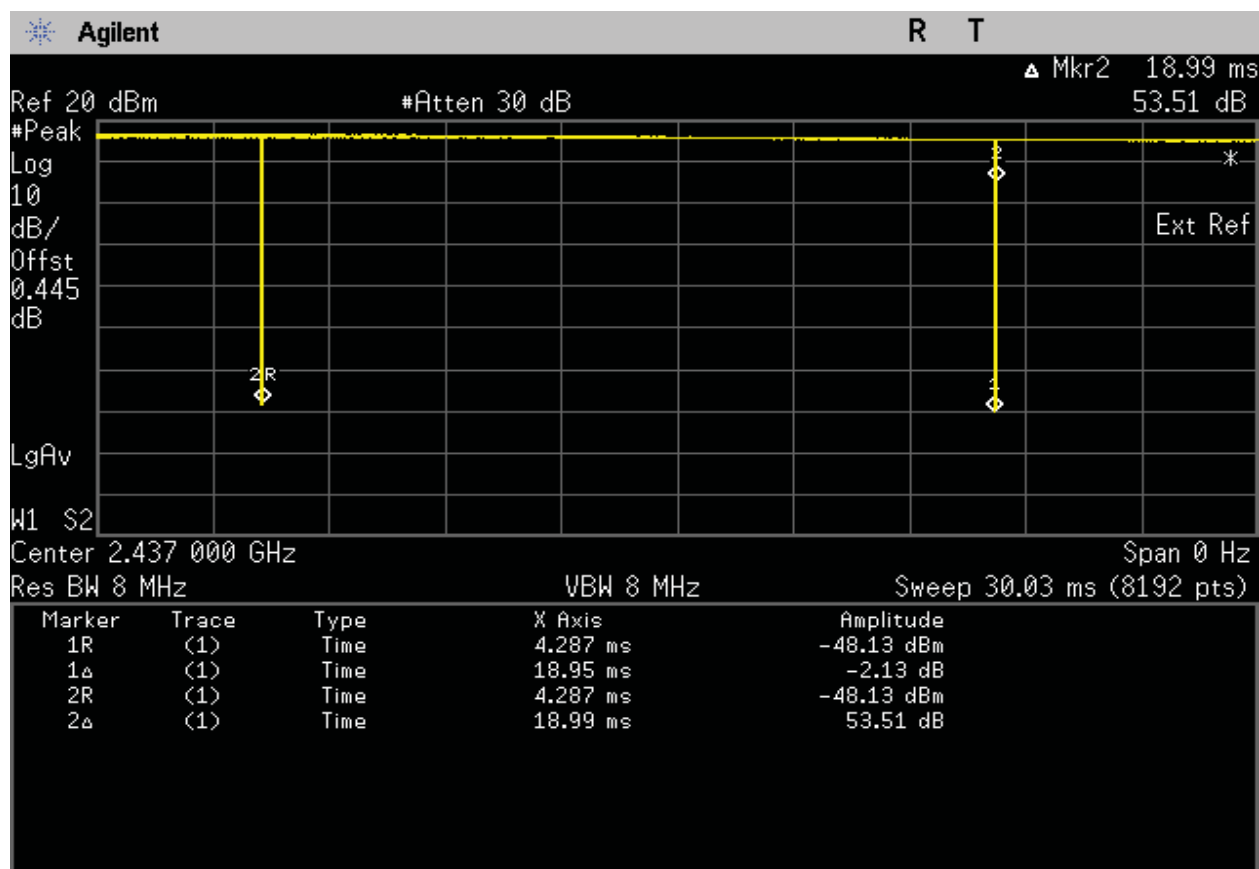
6.3.1. Test Setup



- 1) Check and ensure the spectrum analyzer well calibrate.
- 2) Turn on the DUT and set DUT to transmit maximum power.
- 3) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- 4) Setting of Spectrum analyzer :
 - a. Set the RBW = 10 MHz or the highest RBW available on spectrum analyzer.
 - b. Set the VBW $\geq$ RBW.
 - c. Set the span $\geq [1.5 \times \text{DTS bandwidth}]$.
 - d. Detector = Peak.
 - e. Sweep time = 10ms or others that allow to measure accurate duty cycle.
 - f. Trace mode = max hold.
 - g. Allow trace to fully stabilize.
- 5) Record the duty cycle as X and save the plot.
- 6) Measure every antenna port by repeat the step above for MIMO measurement.

6.3.2. Test Data

802.11b

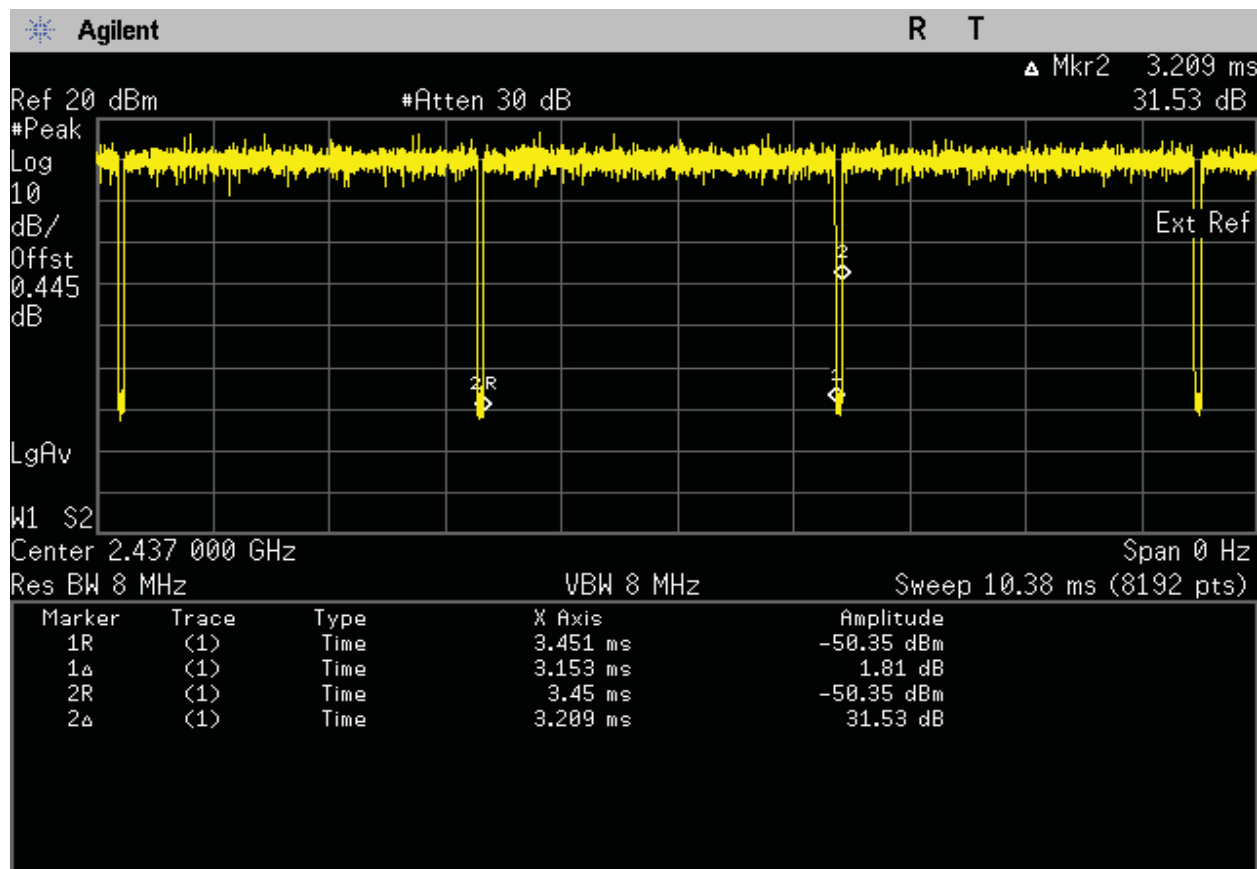


On time (ms)	18.95
On + off time (ms)	18.99
Duty cycle	0.9979
Duty Cycle factor	0.009

*Duty cycle = On time/ On +off time

*Duty Cycle factor = 10*log(1/Duty Cycle)

802.11g

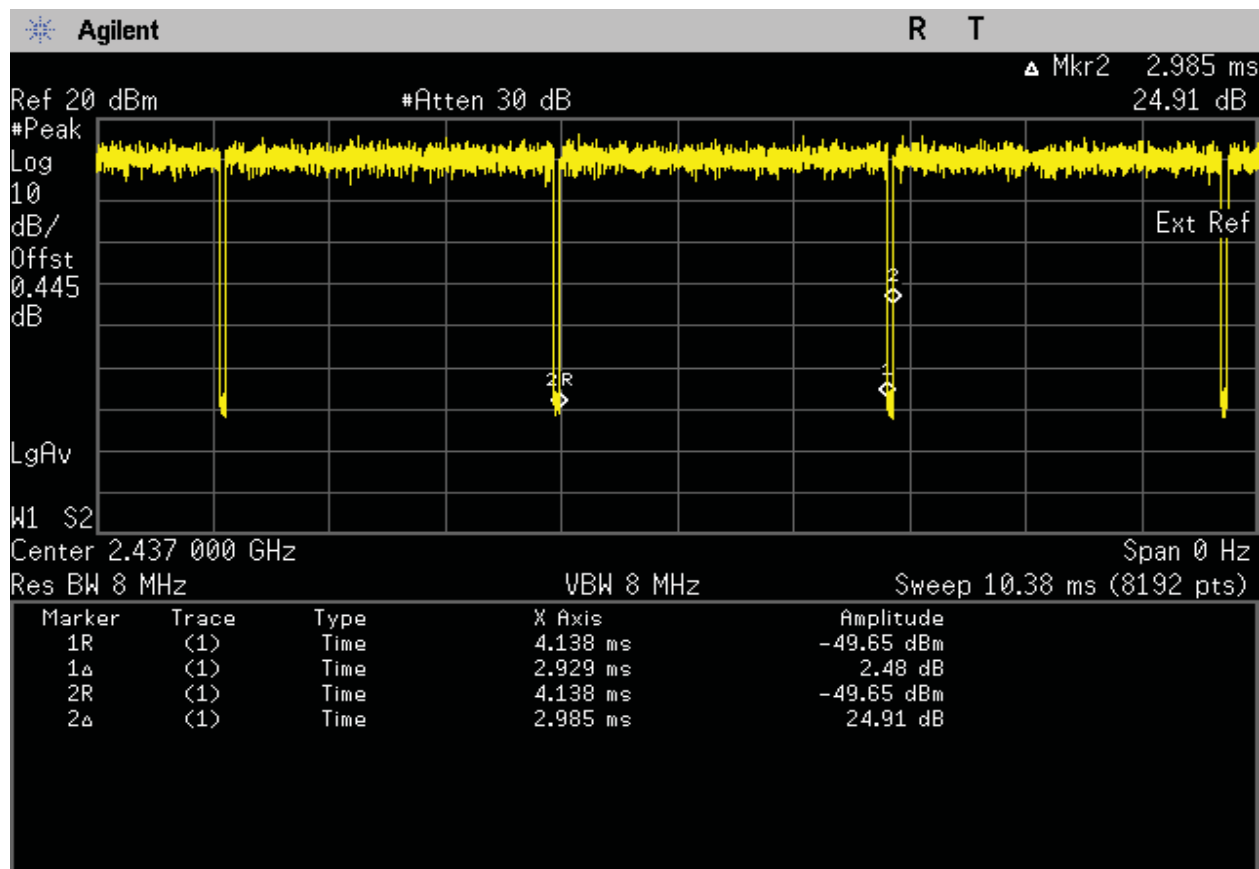


On time (ms)	3.153
On + off time (ms)	3.209
Duty cycle	0.9825
Duty Cycle factor	0.076

*Duty cycle = On time/ On +off time

*Duty Cycle factor = $10 \cdot \log(1/\text{Duty Cycle})$

802.11n



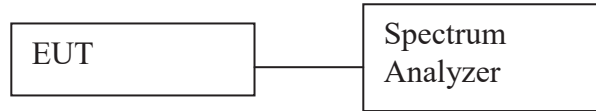
On time (ms)	2.929
On + off time (ms)	2.985
Duty cycle	0.9812
Duty Cycle factor	0.082

*Duty cycle = On time/ On +off time

*Duty Cycle factor = $10 \cdot \log(1/\text{Duty Cycle})$

6.4. Maximum Peak Power Spectral Density

6.4.1. Test Setup



Maximum Peak

- a) Check and ensure the spectrum analyzer well calibrate.
- b) Turn on the DUT and set DUT to transmit maximum power.
- c) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - 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 $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
 - d. Set the VBW $\geq [3 \times \text{RBW}]$.
 - 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.
 - j. If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.
- e) Measure every antenna port by repeat the step above for MIMO measurement.

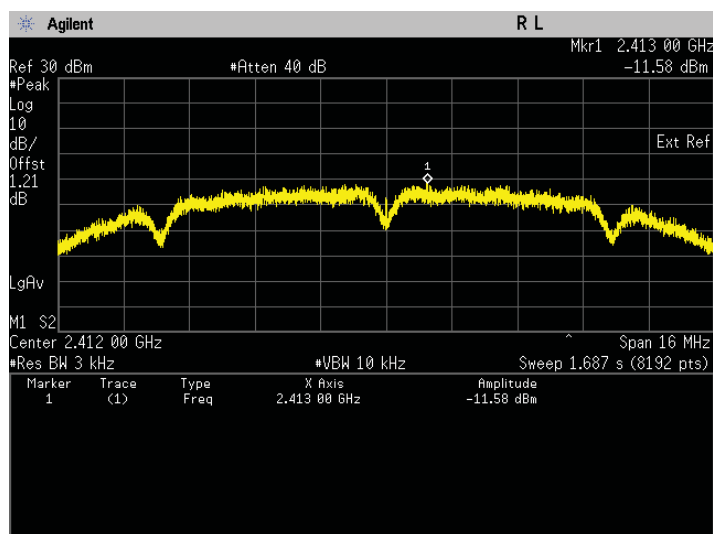
6.4.2. Test Limits

Normal Condition (25 ° C)
$\leq 8 \text{ dBm/3kHz}$

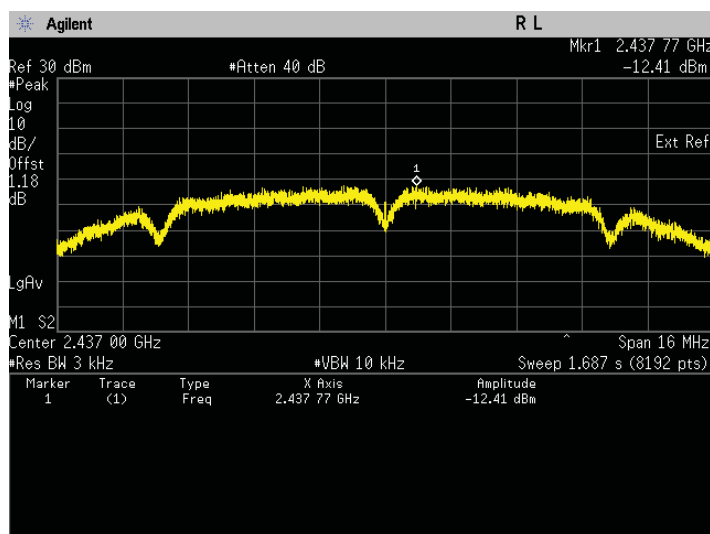
6.4.3. Test Result

802.11b

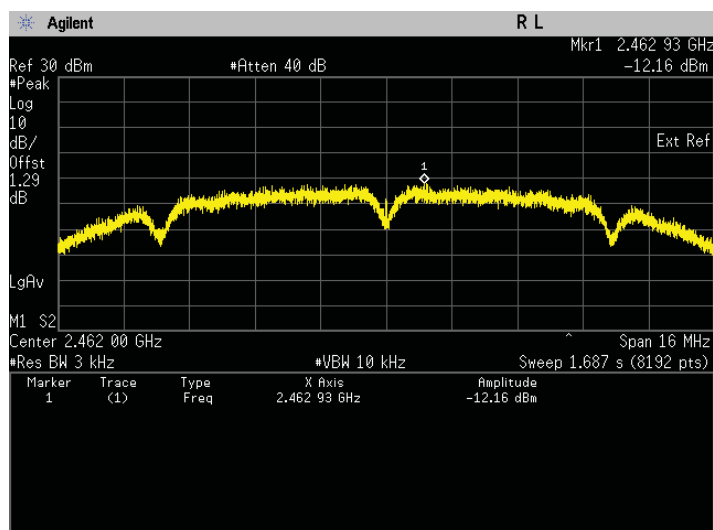
Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Power (dBm/3kHz)	Status
802.11b	DSSS	QPSK	1	2412	-11.58	Pass
802.11b	DSSS	QPSK	1	2437	-12.41	Pass
802.11b	DSSS	QPSK	1	2462	-12.16	Pass



Maximum Power Spectral Density.
 Frequency 2412 MHz



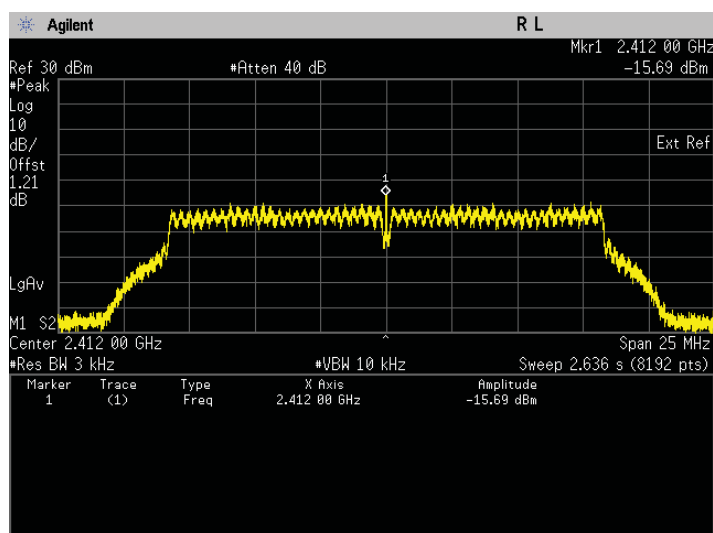
Maximum Power Spectral Density.
 Frequency 2437 MHz



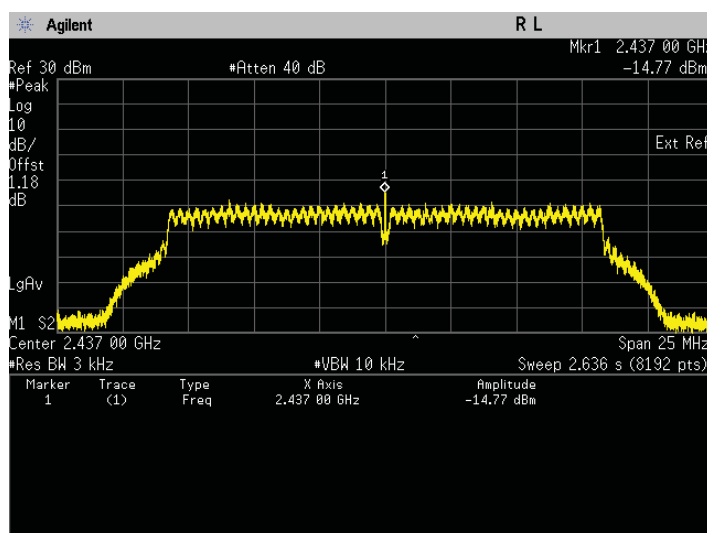
Maximum Power Spectral Density.
 Frequency 2462 MHz

802.11g

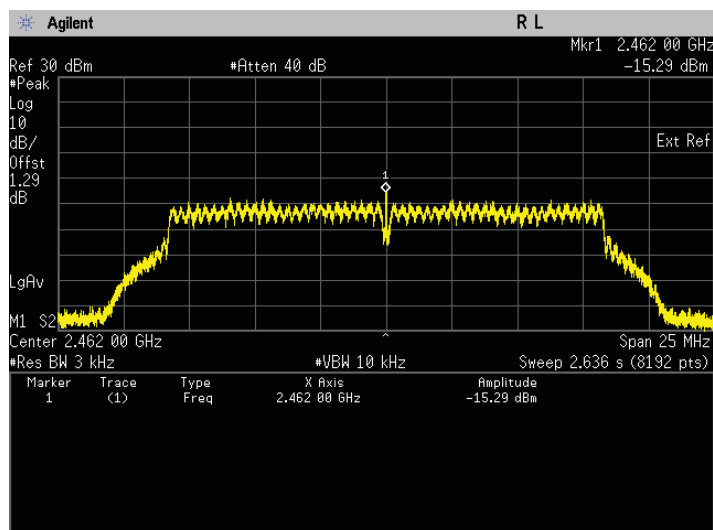
Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Power (dBm/3kHz)	Status
802.11g	OFDM	BPSK	6	2412	-15.69	Pass
802.11g	OFDM	BPSK	6	2437	-14.78	Pass
802.11g	OFDM	BPSK	6	2462	-15.29	Pass



Maximum Power Spectral Density.
 Frequency 2412 MHz



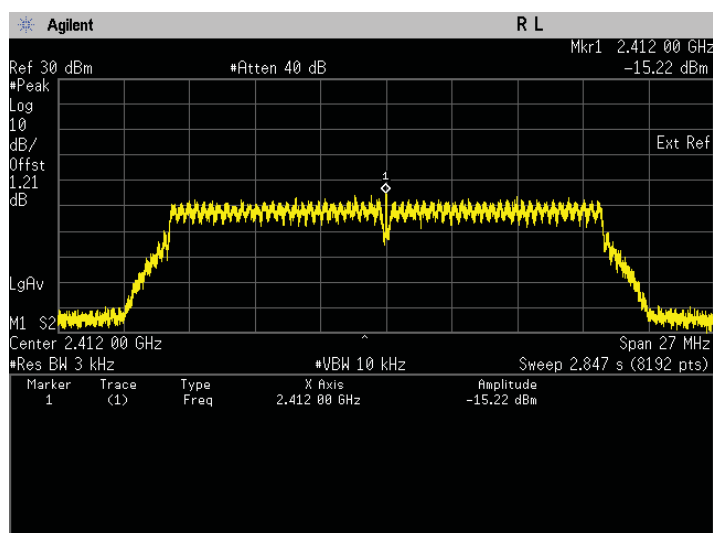
Maximum Power Spectral Density.
 Frequency 2437 MHz



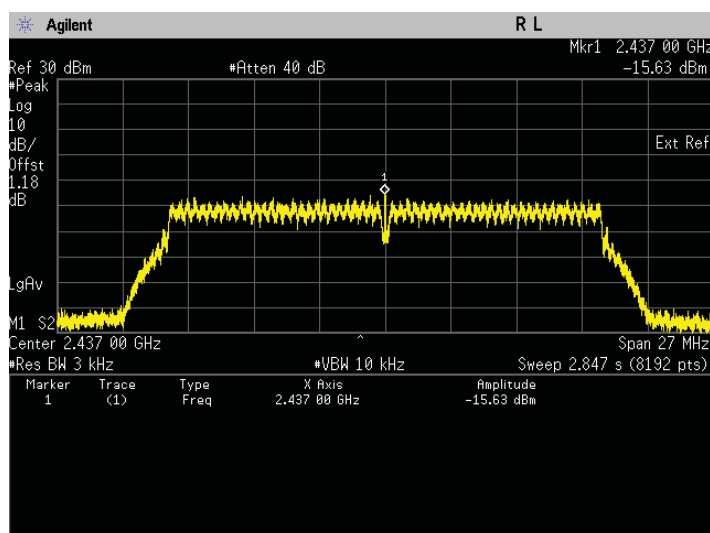
Maximum Power Spectral Density.
 Frequency 2462 MHz

802.11n

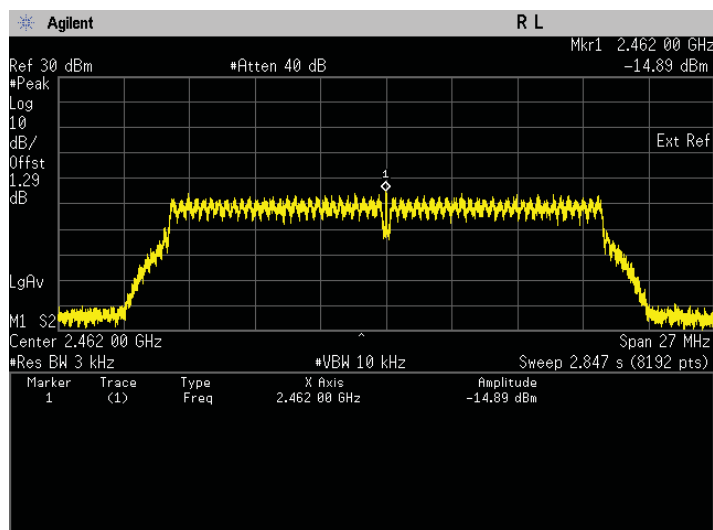
Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Power (dBm/3kHz)	Status
802.11n	OFDM	BPSK	6.5	2412	-15.22	Pass
802.11n	OFDM	BPSK	6.5	2437	-15.63	Pass
802.11n	OFDM	BPSK	6.5	2462	-14.89	Pass



Maximum Power Spectral Density.
 Frequency 2412 MHz



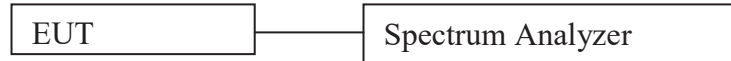
Maximum Power Spectral Density.
 Frequency 2437 MHz



Maximum Power Spectral Density.
 Frequency 2462 MHz

6.5. Conducted Spurious Emission

6.5.1. Test Setup



- a) Check and ensure the spectrum analyzer well calibrate.
- b) Turn on the DUT and set DUT to transmit maximum power.
- c) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. RBW = 100 kHz
 - b. VBW = 300 kHz
 - c. Detector mode = Peak
 - d. Trace = Max Hold
 - e. Sweep = auto
- e) Use the peak marker function to measure highest emission and scan up to 10th harmonic.
- f) Measure every antenna port by repeat the step above for MIMO measurement.

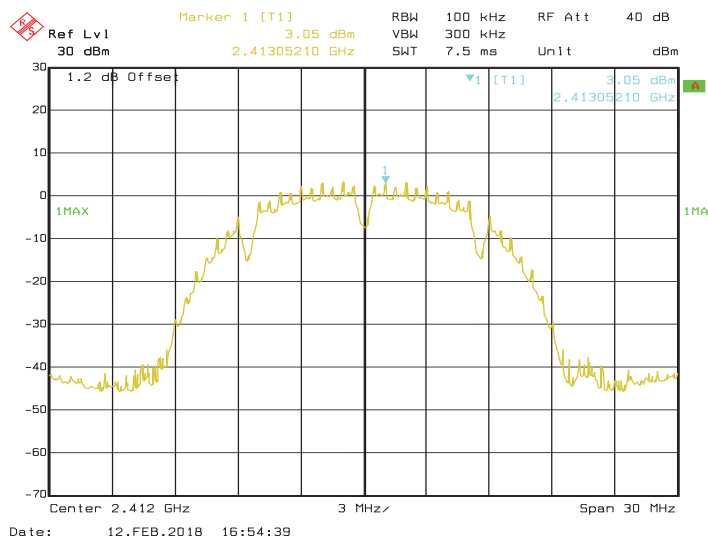
6.5.2. Test Limits:

Normal Condition (25 ° C)
Shall be at least 30 dB below peak (max) power.

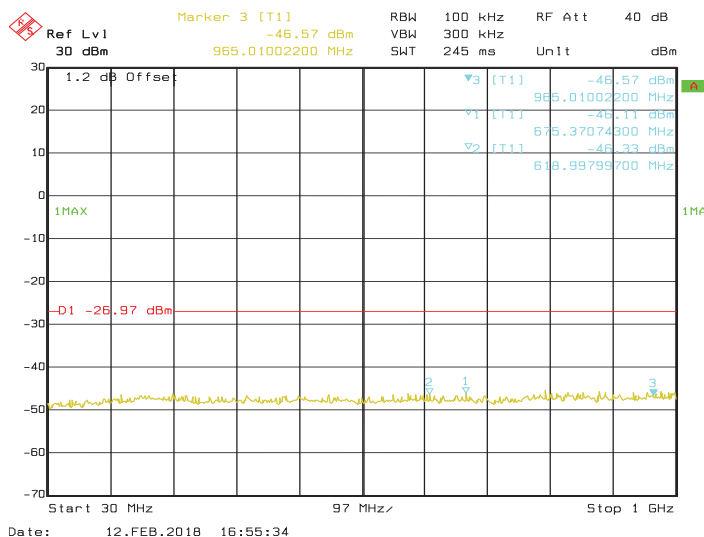
6.5.3. Test Result

802.11b

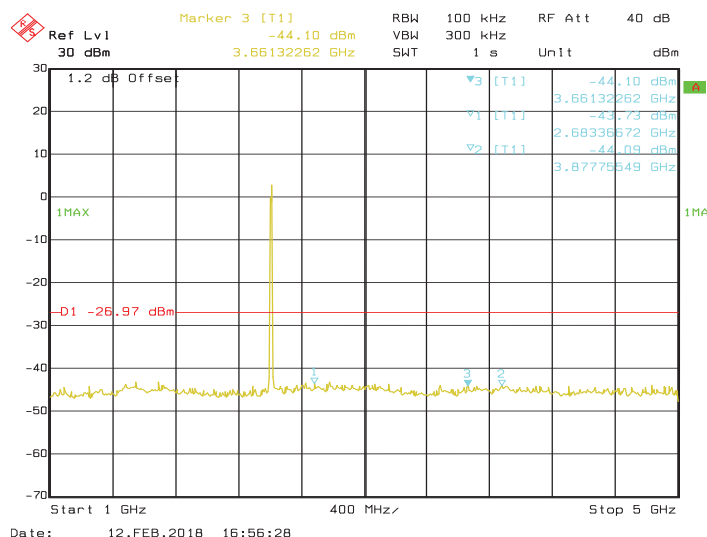
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Spurs (MHz)	Level (dBm)	Status
802.11b	DSSS	QPSK	1	2412	14188.38	-39.72	Pass
					6993.99	-40.65	Pass
					6723.45	-41.33	Pass
802.11b	DSSS	QPSK	1	2437	6693.39	-40.56	Pass
					14188.38	-40.59	Pass
					6993.99	-40.93	Pass
802.11b	DSSS	QPSK	1	2462	6983.97	-40.45	Pass
					6743.49	-40.73	Pass
					14188.38	-40.86	Pass



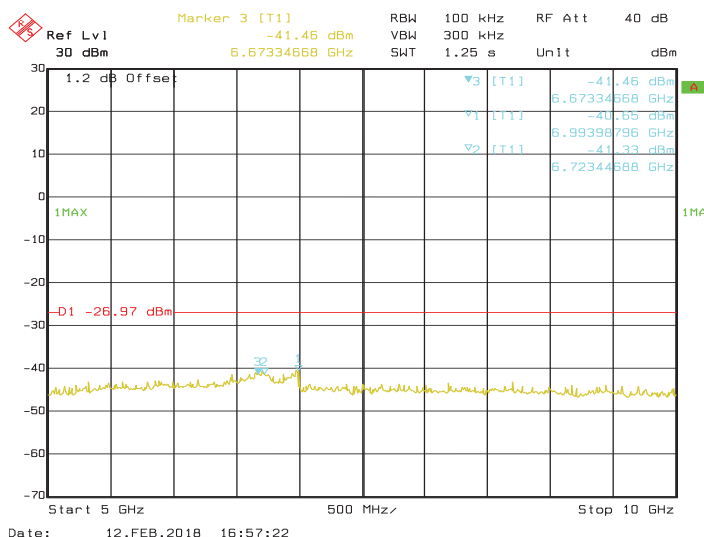
Conducted Emissions. 802.11b, Frequency 2412 MHz Reference Level



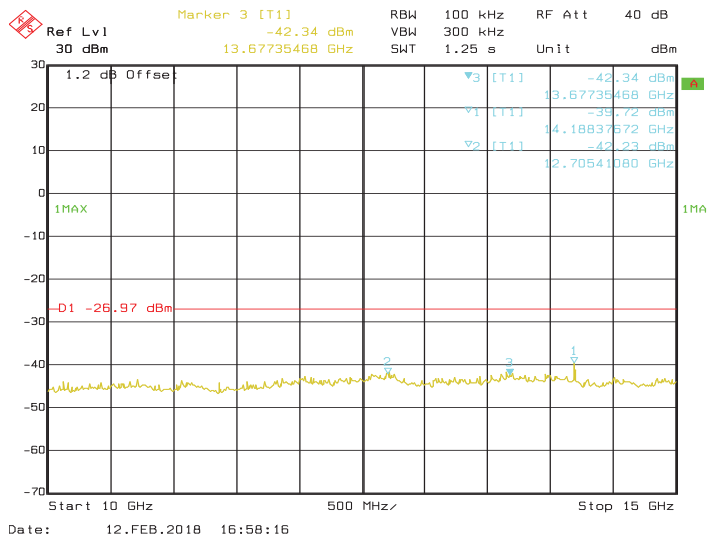
Conducted Emissions. 802.11b, Frequency 2412 MHz Emission Level, 30 MHz -> 1 GHz



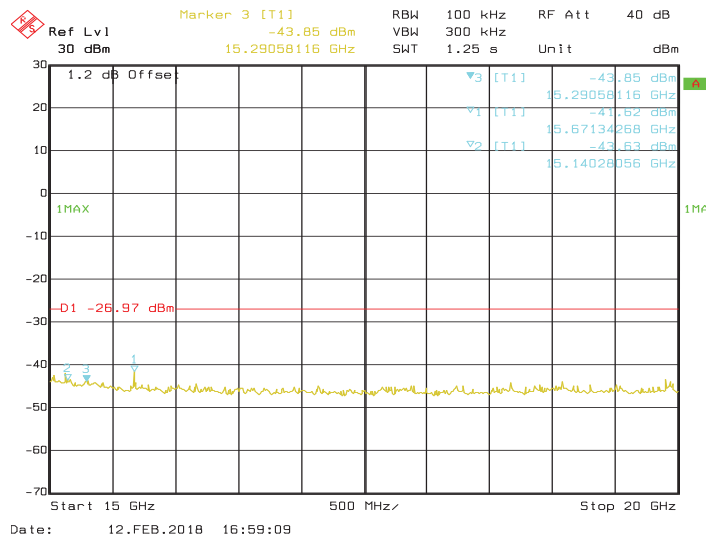
Conducted Emissions. 802.11b, Frequency 2412 MHz Emission Level, 1 GHz -> 5 GHz



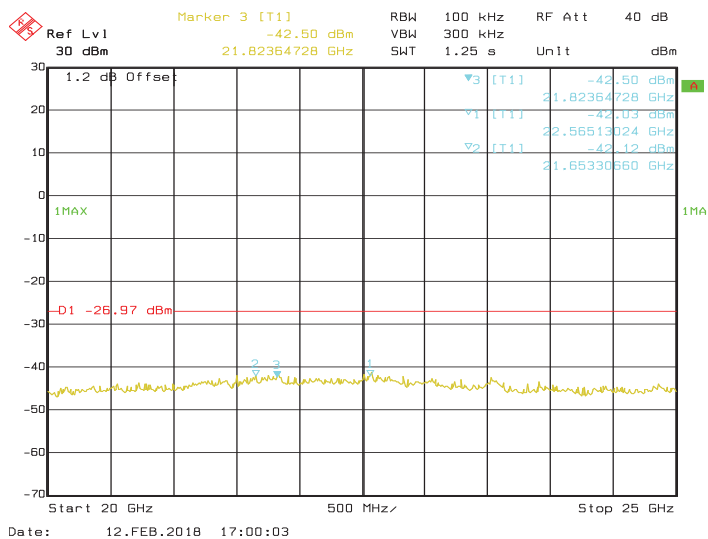
Conducted Emissions. 802.11b, Frequency 2412 MHz Emission Level, 5 GHz -> 10 GHz



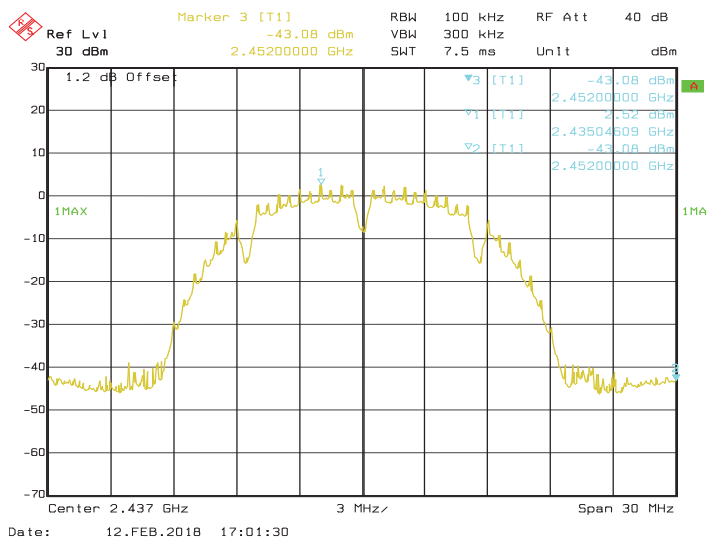
**Conducted Emissions. 802.11b, Frequency
2412 MHz Emission Level, 10 GHz -> 15 GHz**



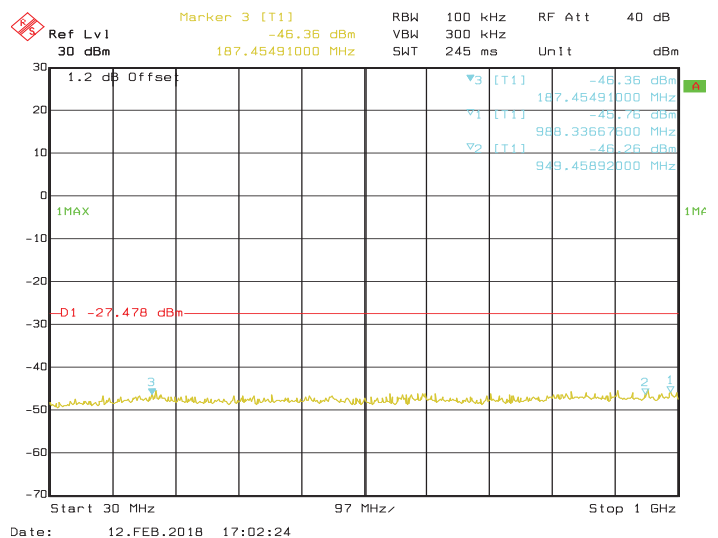
**Conducted Emissions. 802.11b, Frequency
2412 MHz Emission Level, 15 GHz -> 20 GHz**



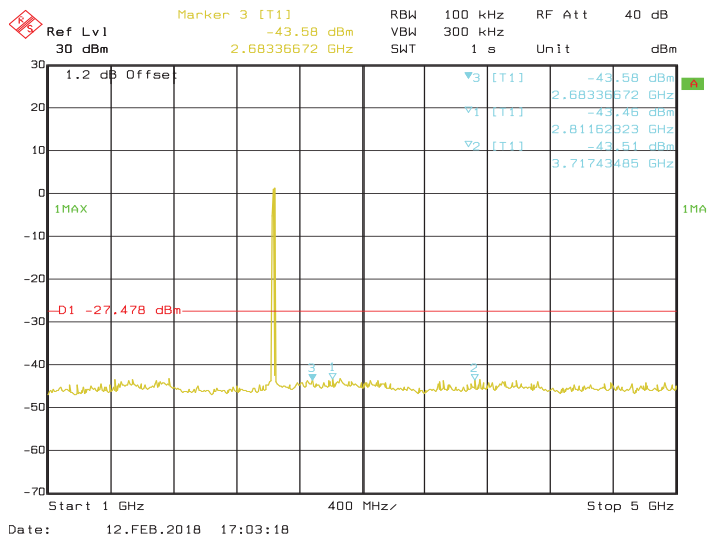
**Conducted Emissions. 802.11b, Frequency
2412 MHz Emission Level, 20 GHz -> 25 GHz**



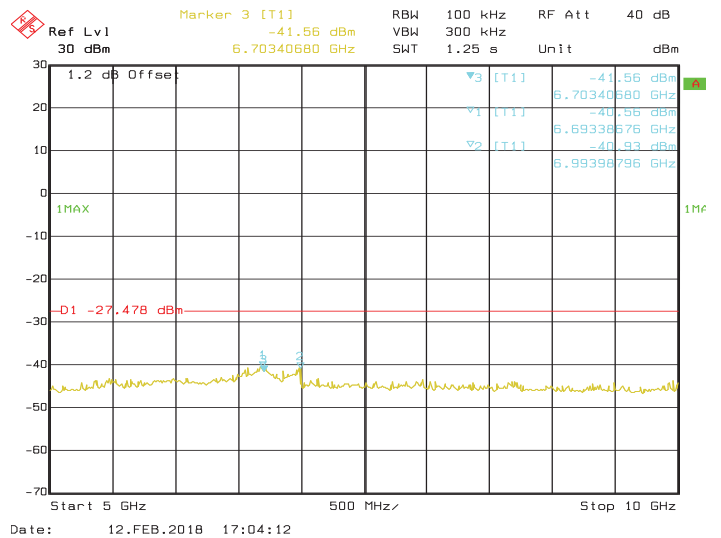
**Conducted Emissions. 802.11b, Frequency
2437 MHz Reference Level**



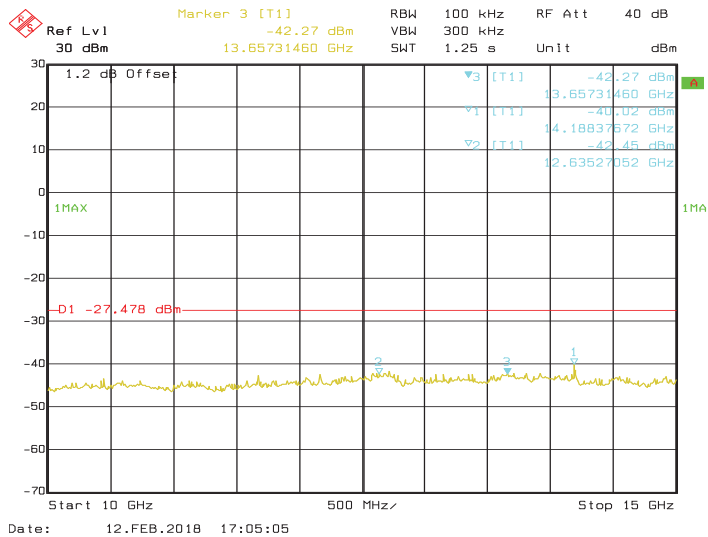
**Conducted Emissions. 802.11b, Frequency
2437 MHz Emission Level, 30 MHz -> 1 GHz**



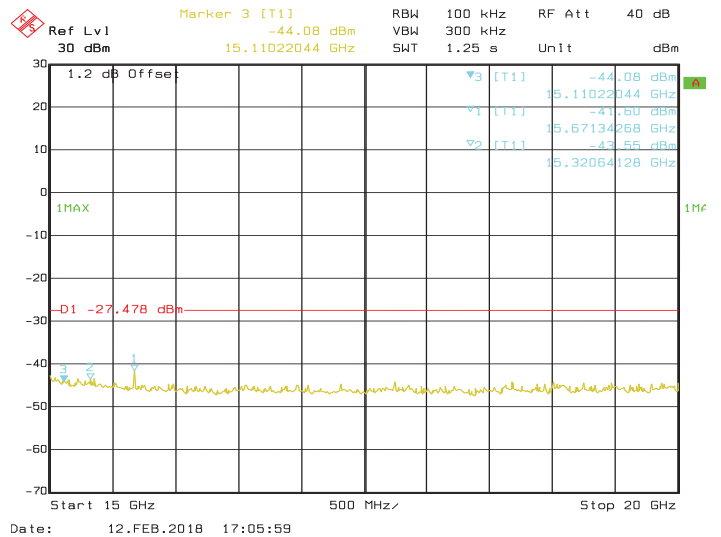
**Conducted Emissions. 802.11b, Frequency
2437 MHz Emission Level, 1 GHz -> 5 GHz**



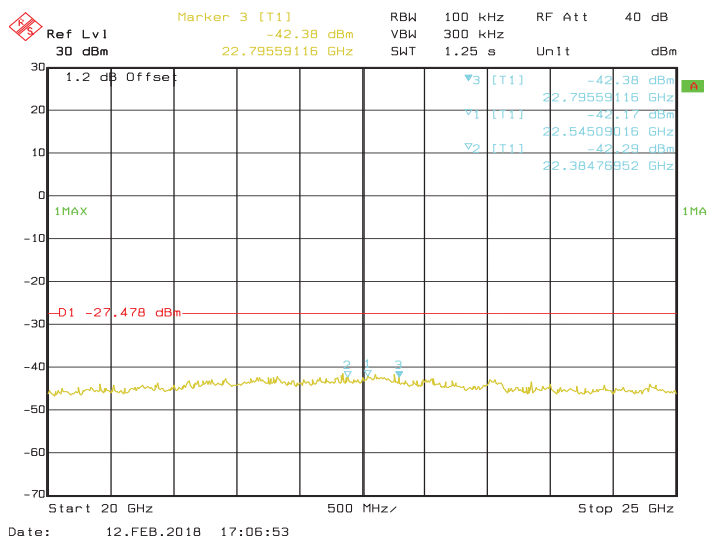
**Conducted Emissions. 802.11b, Frequency
2437 MHz Emission Level, 5 GHz -> 10 GHz**



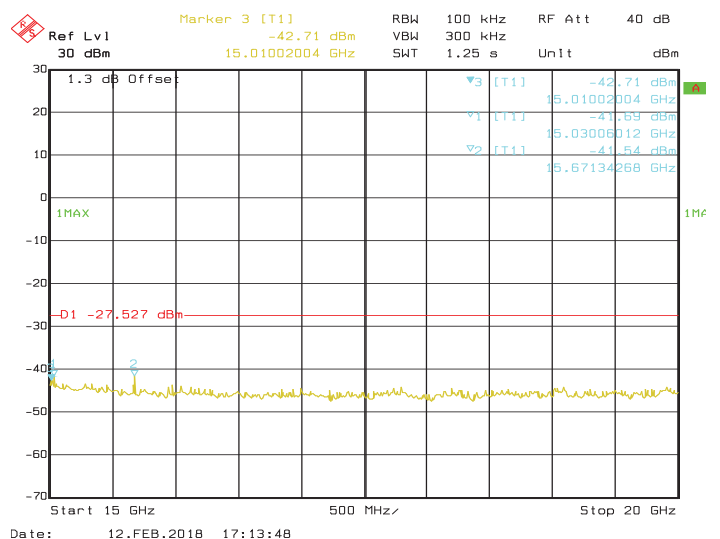
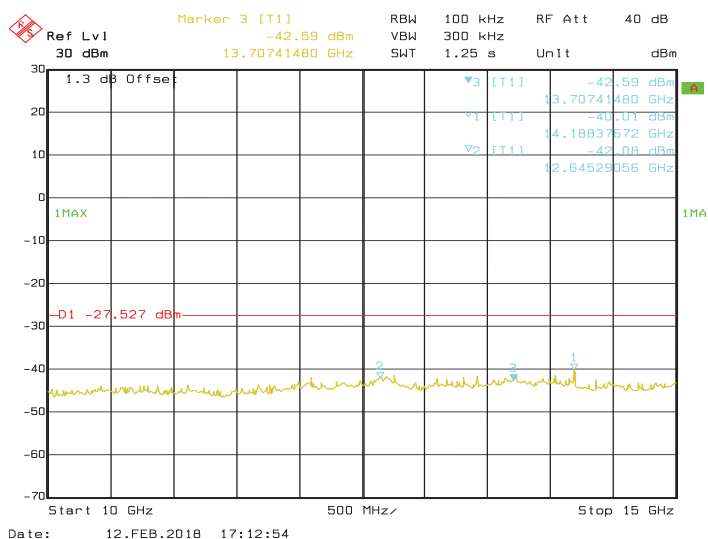
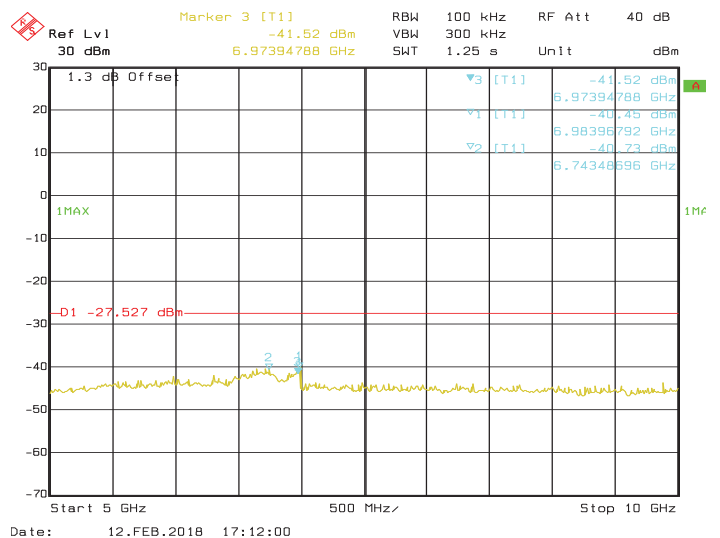
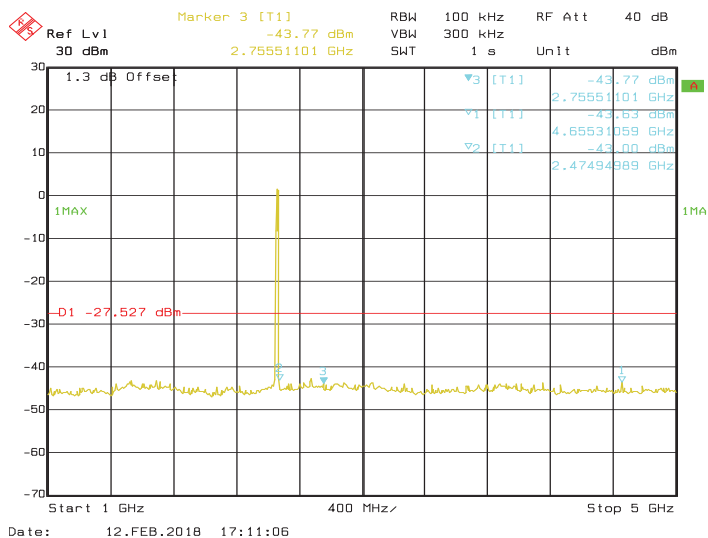
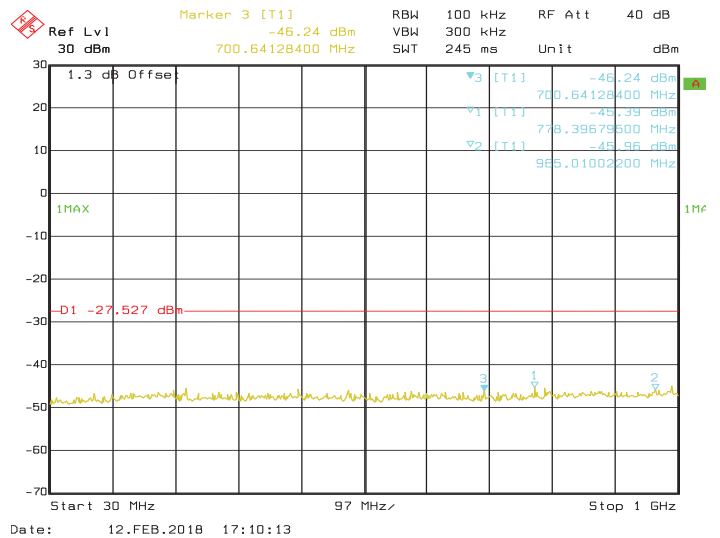
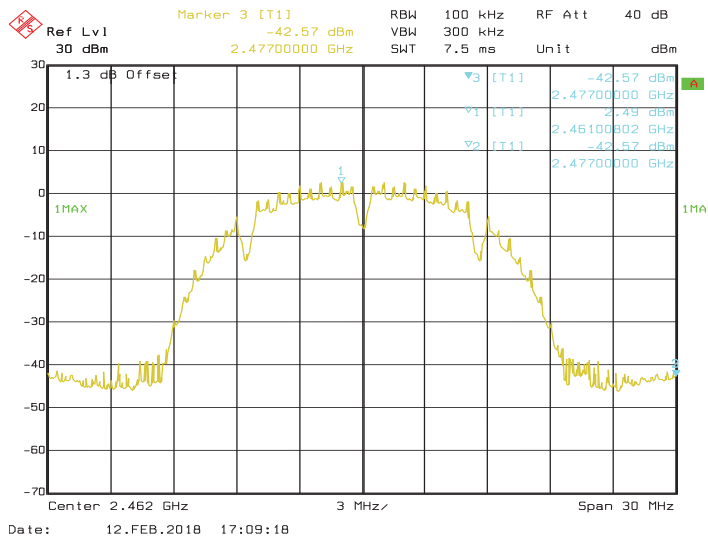
**Conducted Emissions. 802.11b, Frequency
2437 Emission Level, 10 GHz -> 15 GHz**

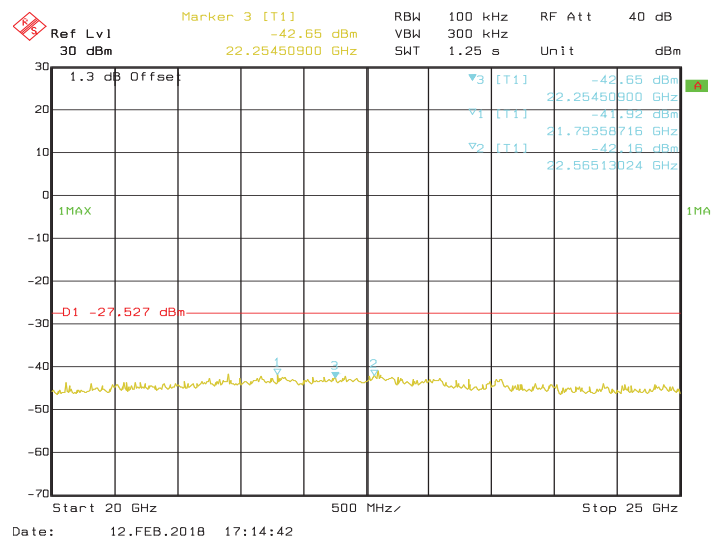


**Conducted Emissions. 802.11b, Frequency
2437 MHz Emission Level, 15 GHz -> 20 GHz**



**Conducted Emissions. 802.11b, Frequency
2437 MHz Emission Level, 20 GHz -> 25 GHz**

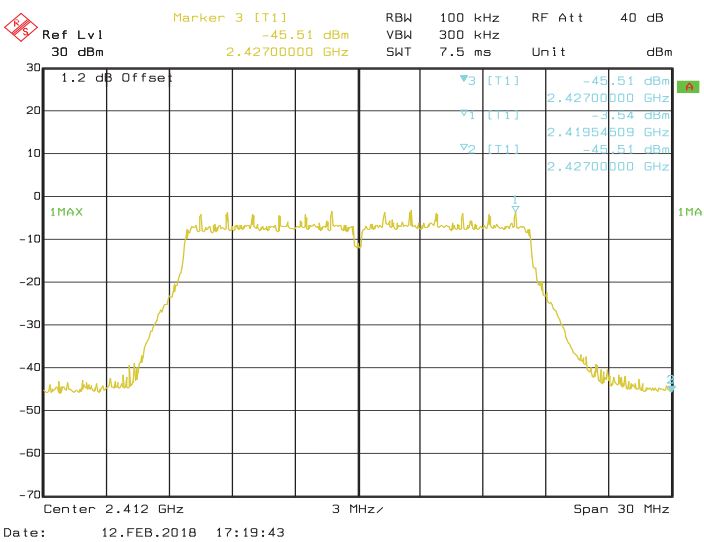




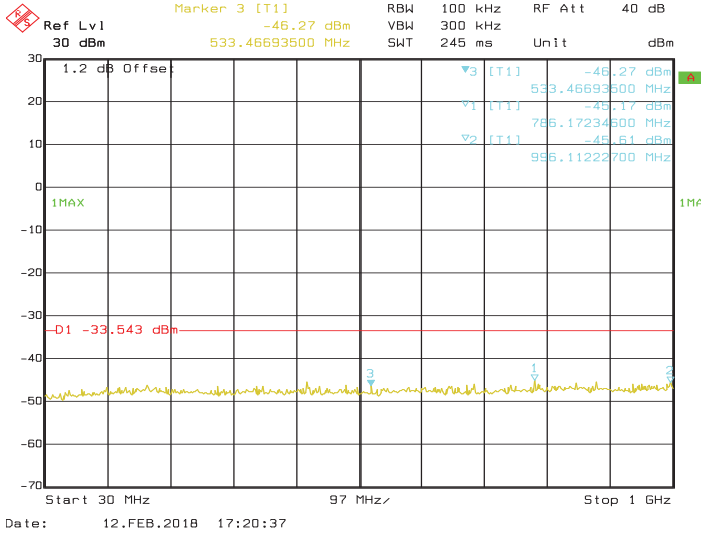
**Conducted Emissions. 802.11b, Frequency
2462 MHz Emission Level, 20 GHz -> 25 GHz**

802.11g

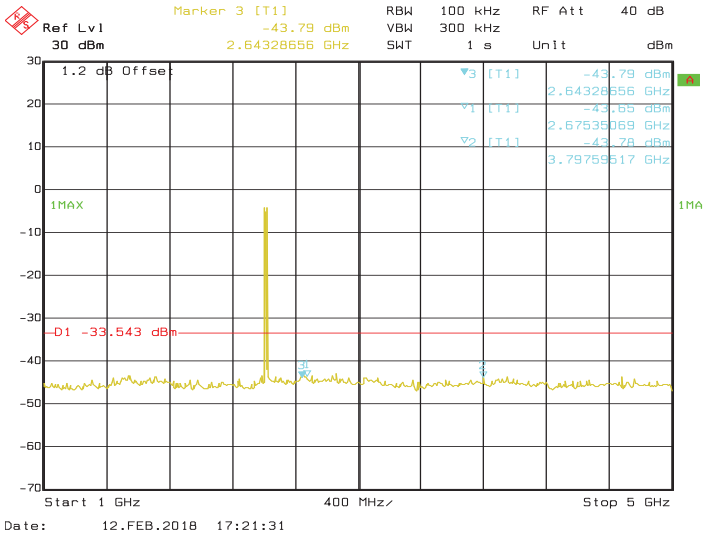
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Spurs (MHz)	Level (dBm)	Status
802.11g	OFDM	BPSK	6	2412	14188.38	-39.92	Pass
					6623.25	-40.27	Pass
					6543.09	-41.10	Pass
802.11g	OFDM	BPSK	6	2437	14188.38	-38.60	Pass
					6673.35	-40.48	Pass
					6733.47	-40.98	Pass
802.11g	OFDM	BPSK	6	2462	14188.38	-39.51	Pass
					6683.37	-40.86	Pass
					15671.34	-41.39	Pass



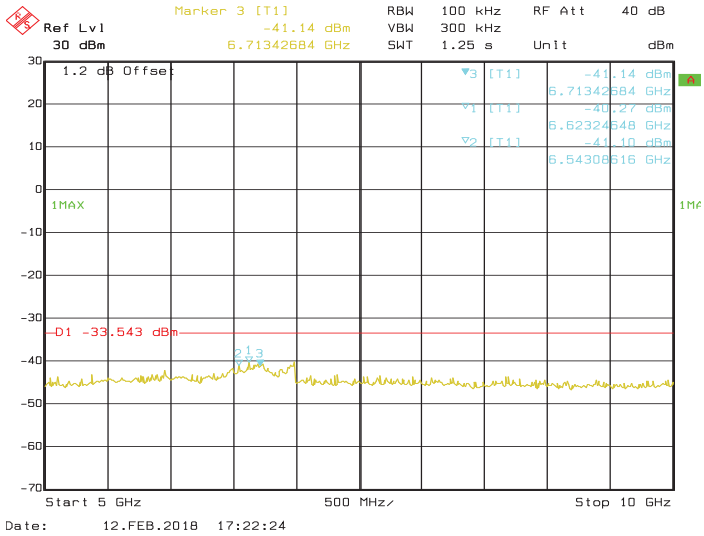
Conducted Emissions. 802.11g, Frequency 2412 MHz Reference Level



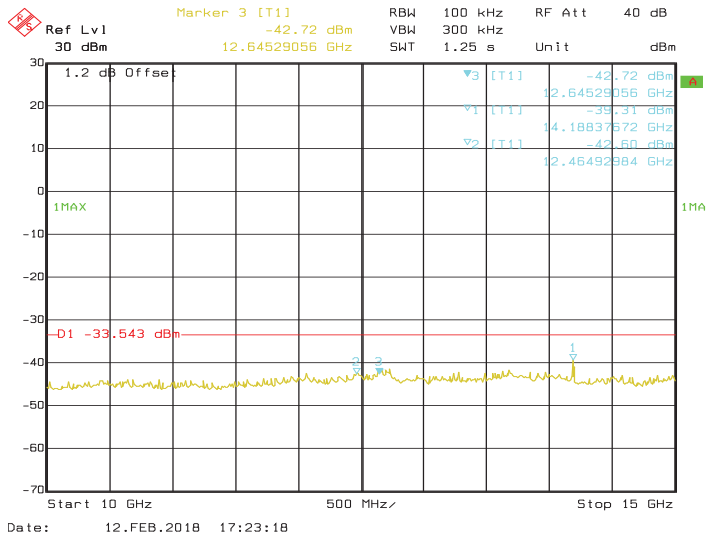
Conducted Emissions. 802.11g, Frequency 2412 MHz Emission Level, 30 MHz -> 1 GHz



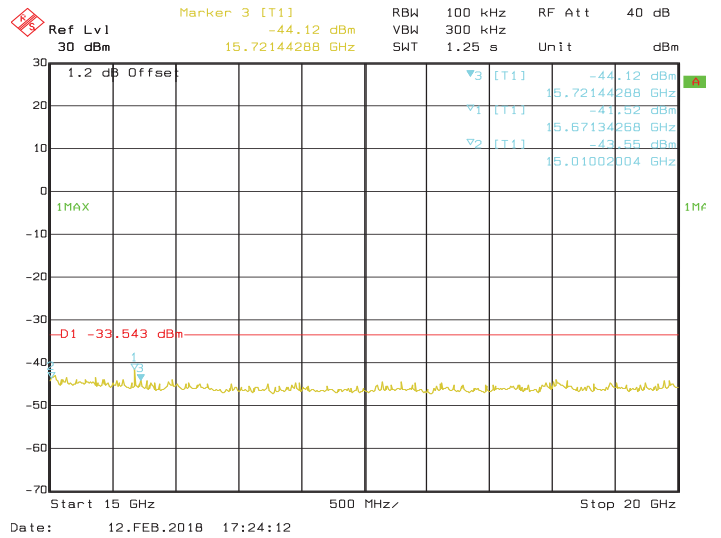
Conducted Emissions. 802.11g, Frequency 2412 MHz Emission Level, 1 GHz -> 5 GHz



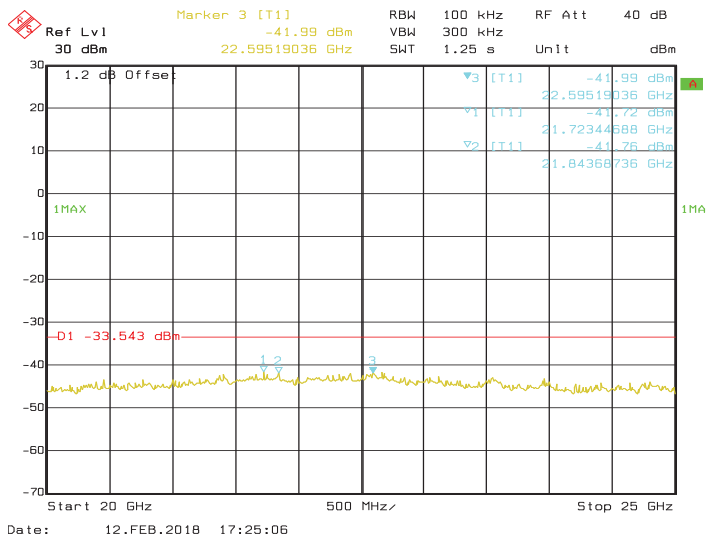
Conducted Emissions. 802.11g, Frequency 2412 MHz Emission Level, 5 GHz -> 10 GHz



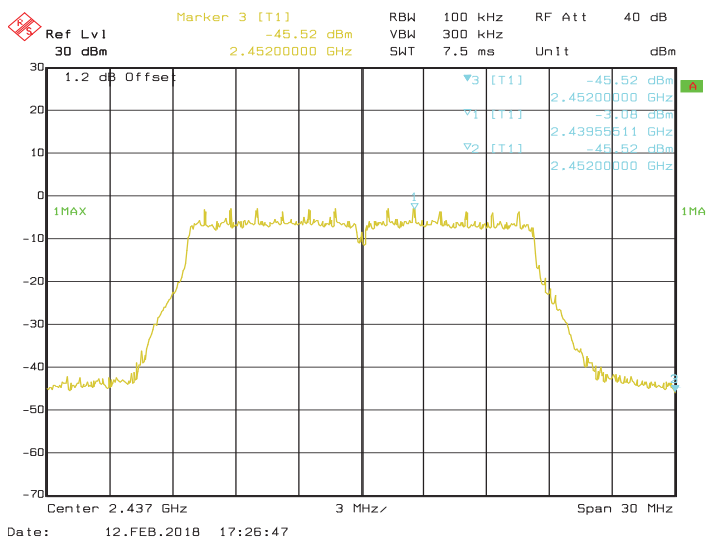
**Conducted Emissions. 802.11g, Frequency
2412 MHz Emission Level, 10 GHz -> 15 GHz**



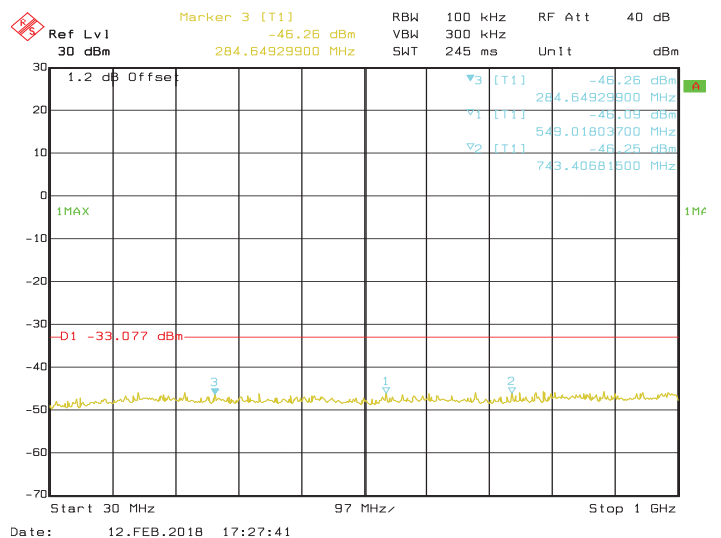
**Conducted Emissions. 802.11g, Frequency
2412 MHz Emission Level, 15 GHz -> 20 GHz**



**Conducted Emissions. 802.11g, Frequency
2412 MHz Emission Level, 20 GHz -> 25 GHz**

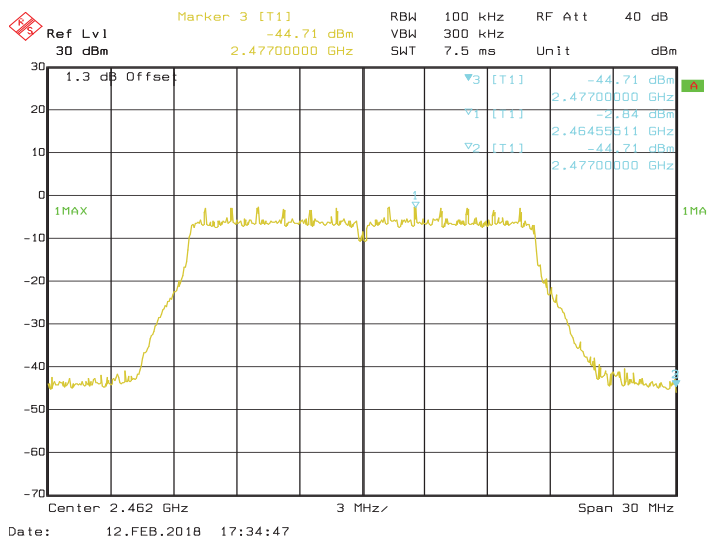


**Conducted Emissions. 802.11g, Frequency
2437 MHz Reference Level**

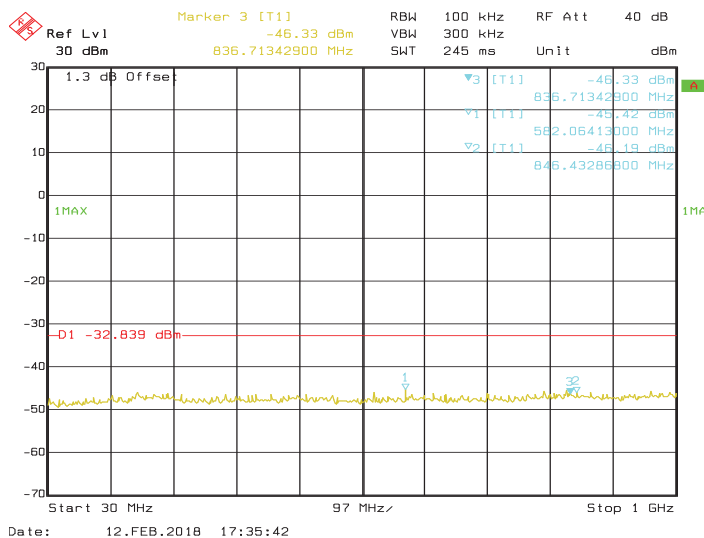


**Conducted Emissions. 802.11g, Frequency
2437 MHz Emission Level, 30 MHz -> 1 GHz**

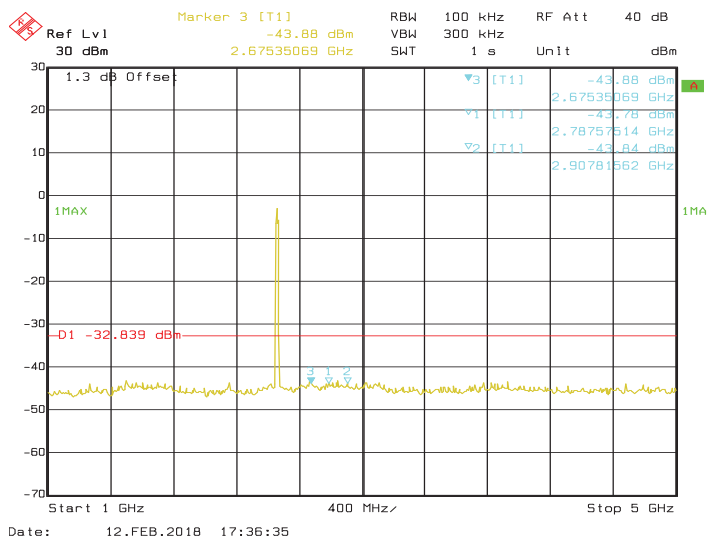




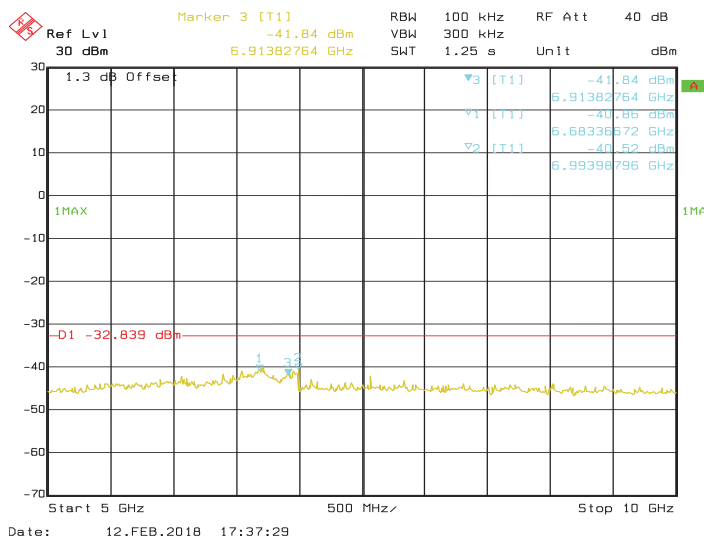
**Conducted Emissions. 802.11g, Frequency
2462 MHz Reference Level**



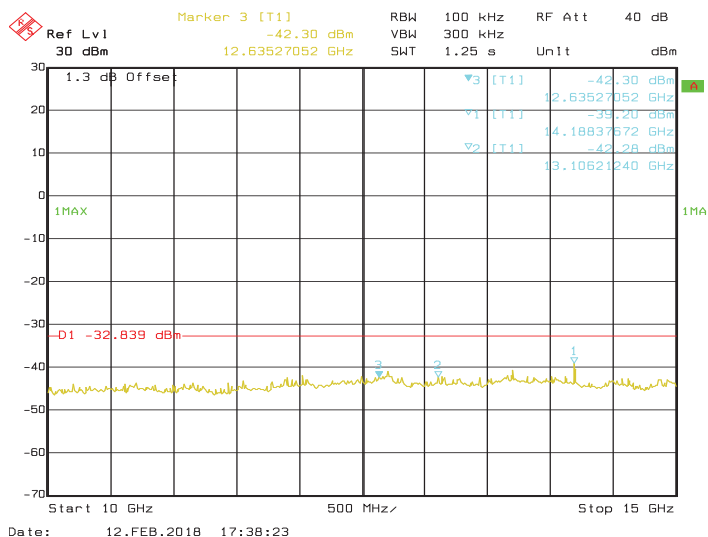
**Conducted Emissions. 802.11g, Frequency
2462 MHz Emission Level, 30 MHz -> 1 GHz**



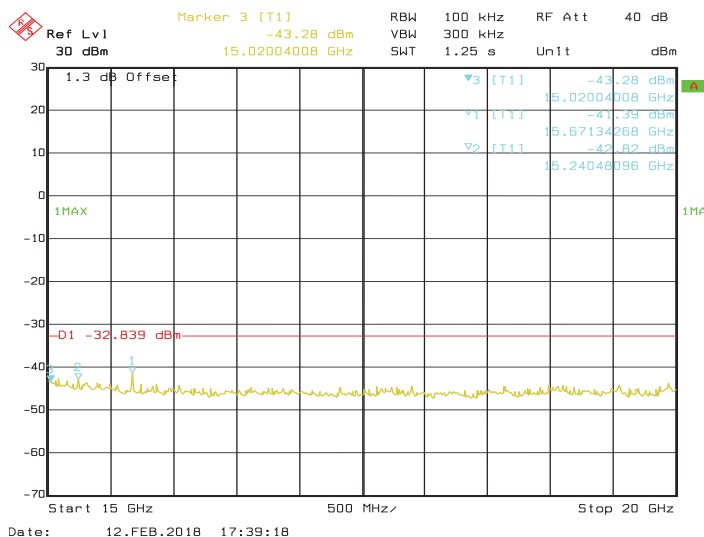
**Conducted Emissions. 802.11g, Frequency
2462 MHz Emission Level, 1 GHz -> 5 GHz**



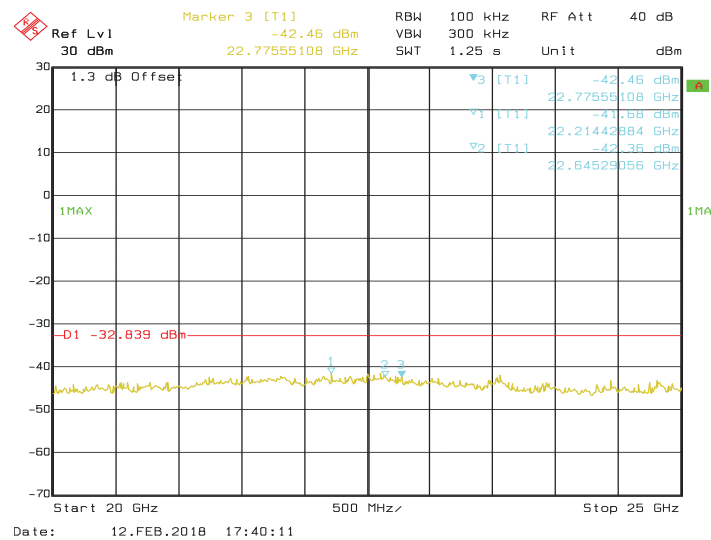
**Conducted Emissions. 802.11g, Frequency
2462 MHz Emission Level, 5 GHz -> 10 GHz**



**Conducted Emissions. 802.11g, Frequency
2462 MHz Emission Level, 10 GHz -> 15 GHz**



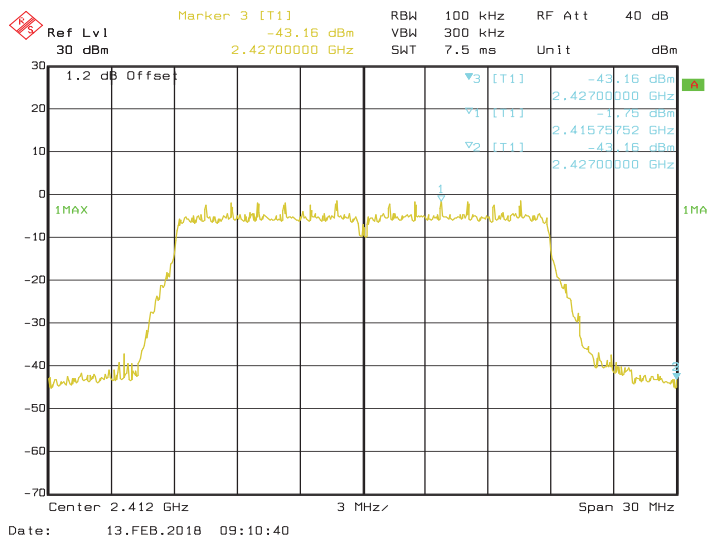
**Conducted Emissions. 802.11g, Frequency
2462 MHz Emission Level, 15 GHz -> 20 GHz**



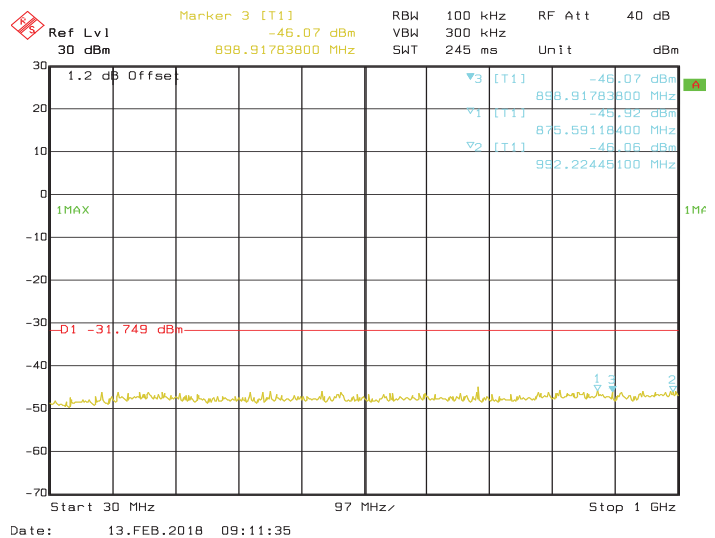
**Conducted Emissions. 802.11g, Frequency
2462 MHz Emission Level, 20 GHz -> 25 GHz**

802.11n

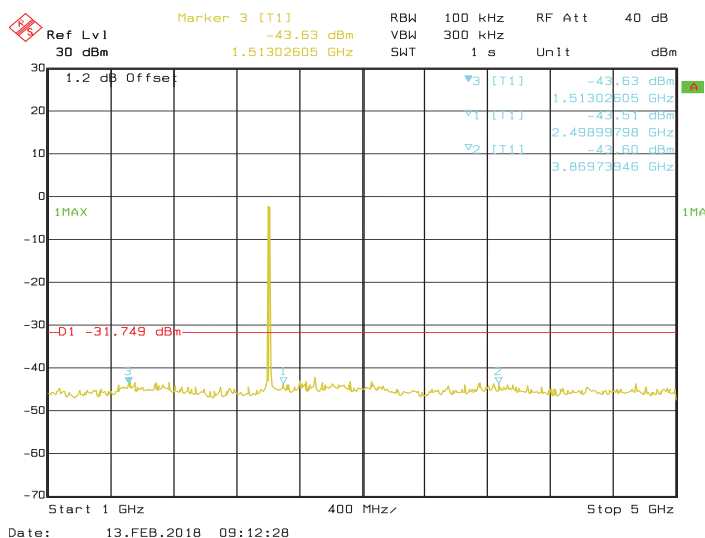
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Spurs (MHz)	Level (dBm)	Status
802.11n	OFDM	BPSK	6.5	2412	14188.38	-40.22	Pass
					6993.99	-40.45	Pass
					22545.09	-40.88	Pass
802.11n	OFDM	BPSK	6.5	2437	6703.41	-40.26	Pass
					14188.38	-41.02	Pass
					6603.21	-41.33	Pass
802.11n	OFDM	BPSK	6.5	2462	14188.38	-39.39	Pass
					6983.97	-40.66	Pass
					6713.43	-40.78	Pass



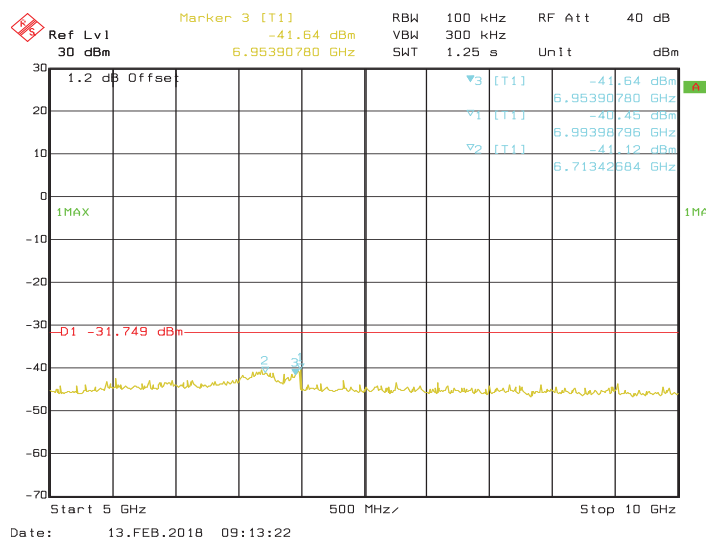
Conducted Emissions. 802.11b, Frequency 2412 MHz Reference Level



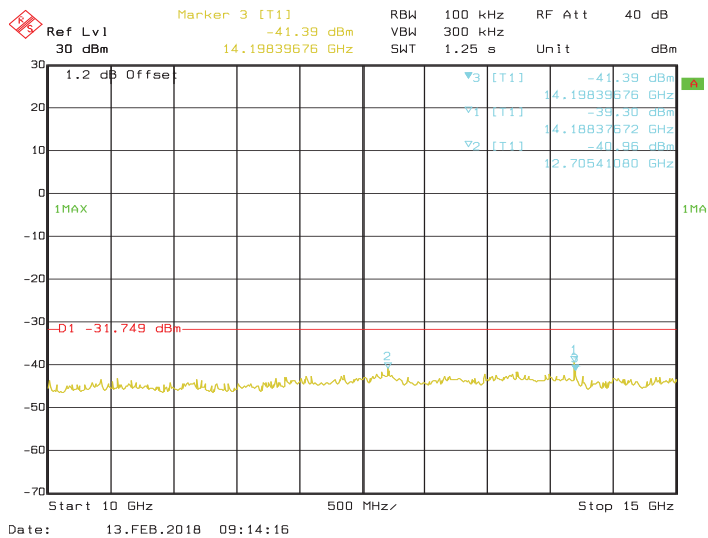
Conducted Emissions. 802.11b, Frequency 2412 MHz Emission Level, 30 MHz -> 1 GHz



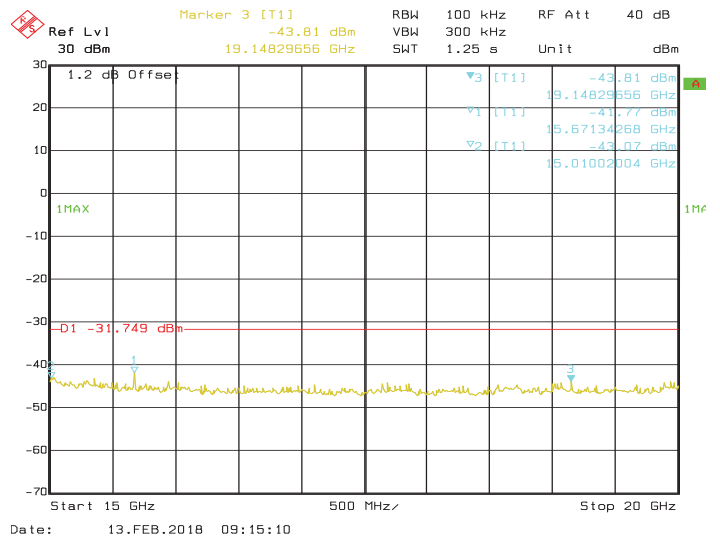
Conducted Emissions. 802.11b, Frequency 2412 MHz Emission Level, 1 GHz -> 5 GHz



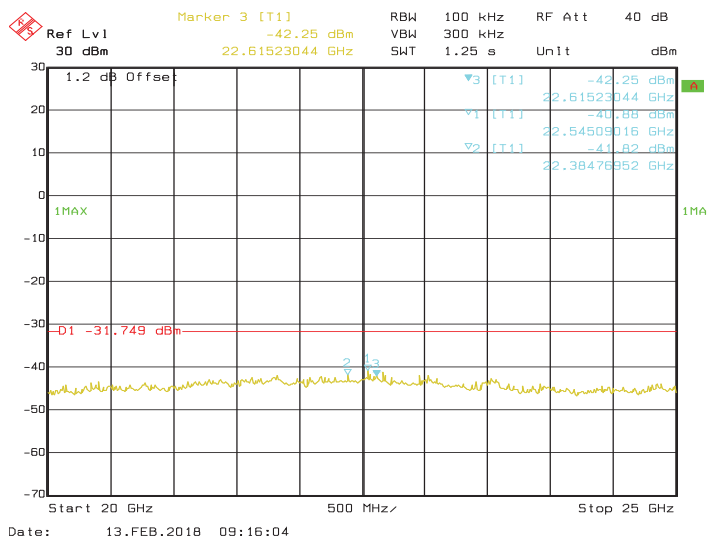
Conducted Emissions. 802.11n, Frequency 2412 MHz Emission Level, 5 GHz -> 10 GHz



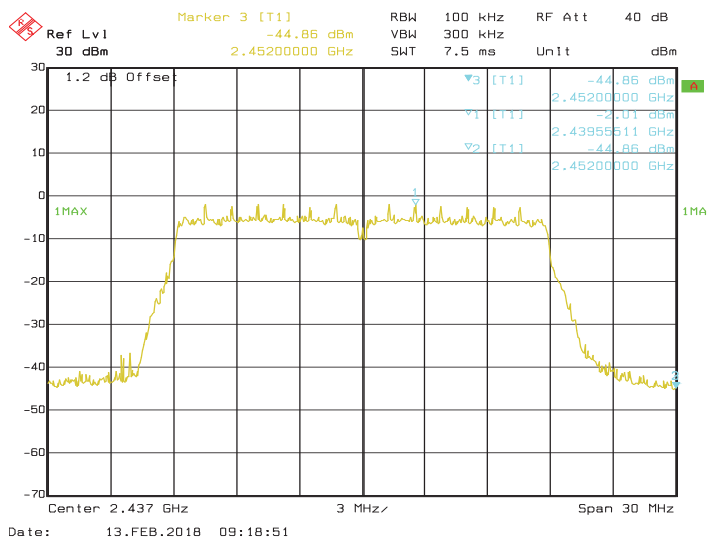
**Conducted Emissions. 802.11n, Frequency
2412 MHz Emission Level, 10 GHz -> 15 GHz**



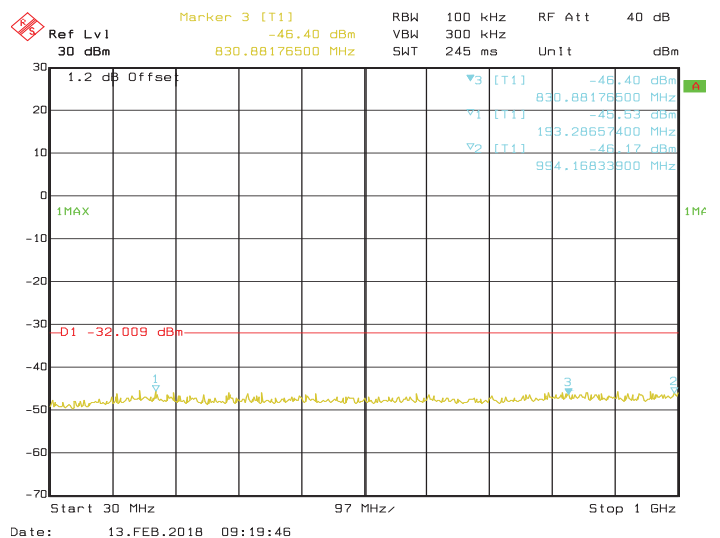
**Conducted Emissions. 802.11n, Frequency
2412 MHz Emission Level, 15 GHz -> 20 GHz**



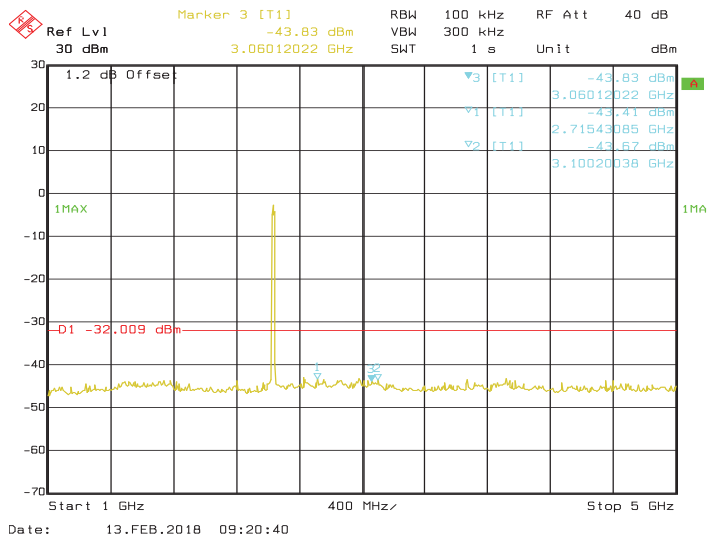
**Conducted Emissions. 802.11n, Frequency
2412 MHz Emission Level, 20 GHz -> 25 GHz**



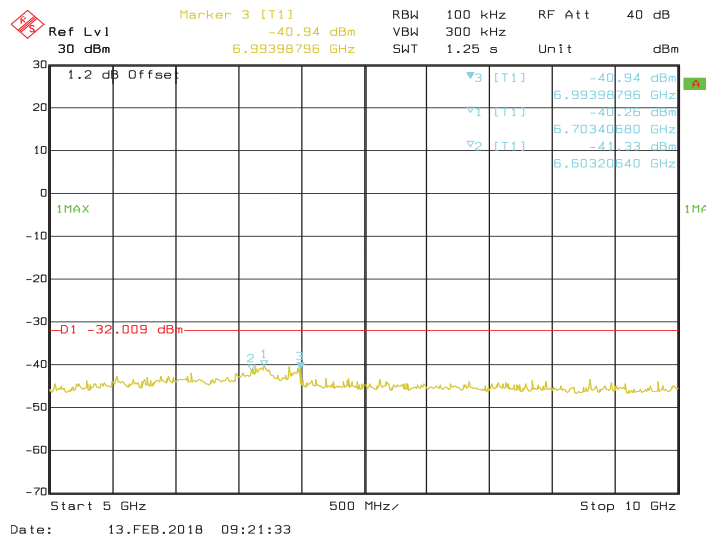
**Conducted Emissions. 802.11n, Frequency
2437 MHz Reference Level**



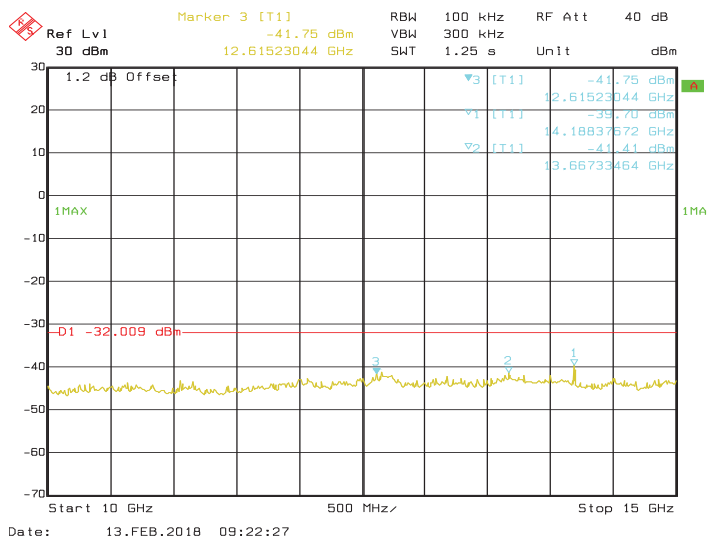
**Conducted Emissions. 802.11n, Frequency
2437 MHz Emission Level, 30 MHz -> 1 GHz**



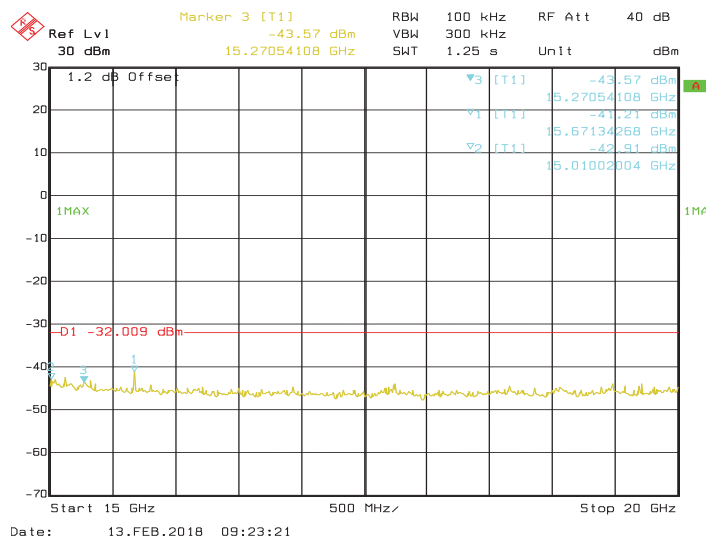
**Conducted Emissions. 802.11n, Frequency
2437 MHz Emission Level, 1 GHz -> 5 GHz**



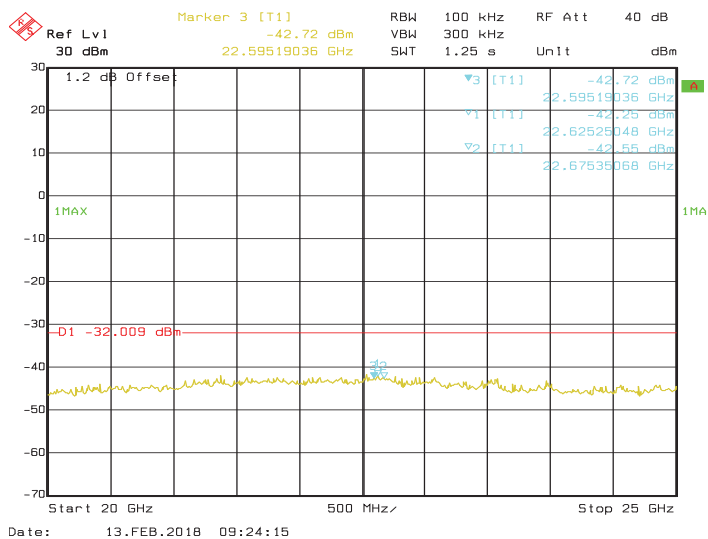
**Conducted Emissions. 802.11n, Frequency
2437 MHz Emission Level, 5 GHz -> 10 GHz**



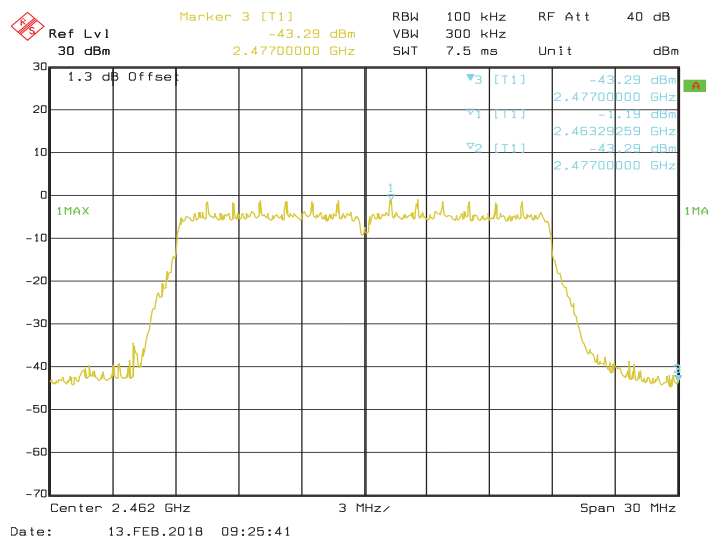
**Conducted Emissions. 802.11n, Frequency
2437 Emission Level, 10 GHz -> 15 GHz**



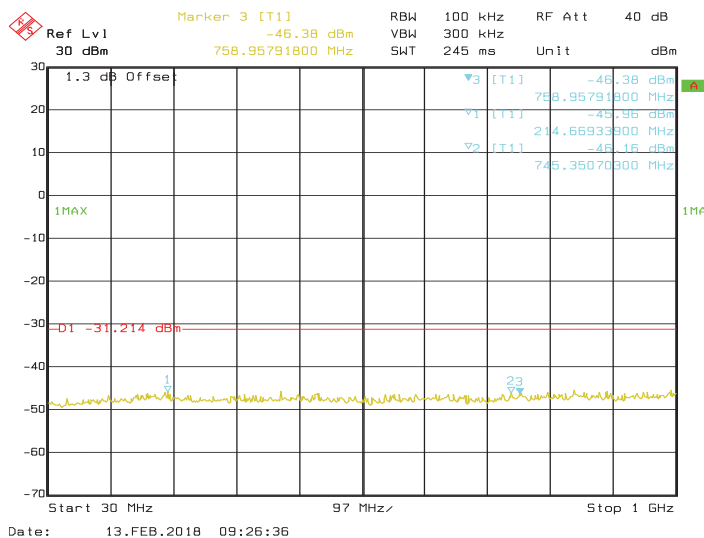
**Conducted Emissions. 802.11n, Frequency
2437 MHz Emission Level, 15 GHz -> 20 GHz**



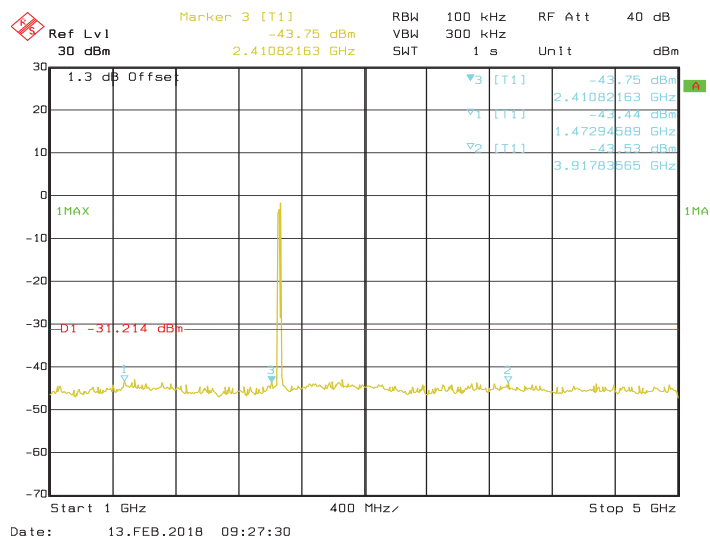
**Conducted Emissions. 802.11n, Frequency
2437 MHz Emission Level, 20 GHz -> 25 GHz**



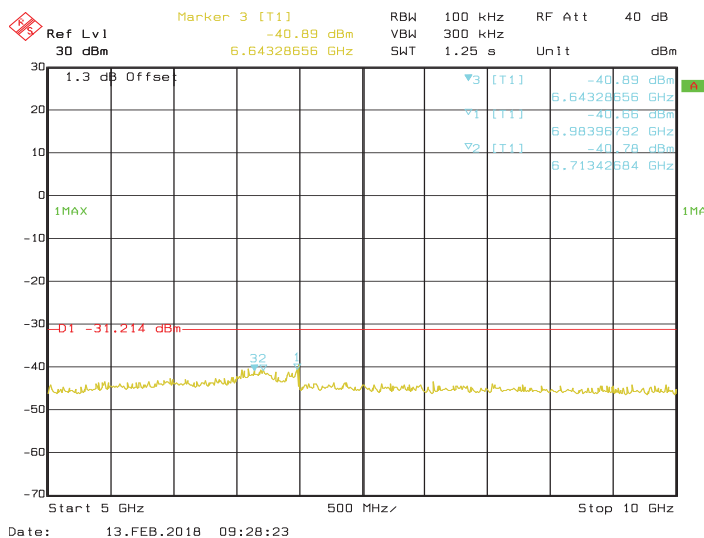
Conducted Emissions. 802.11n, Frequency
2462 MHz Reference Level



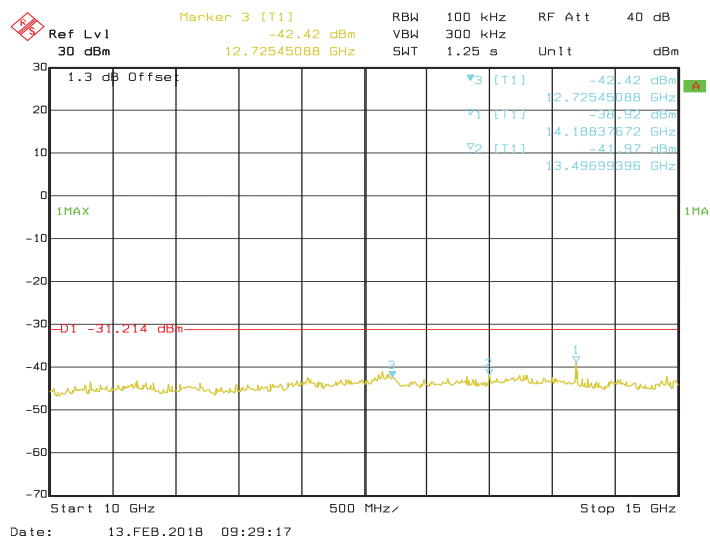
Conducted Emissions. 802.11n, Frequency
2462 MHz Emission Level, 30 MHz -> 1 GHz



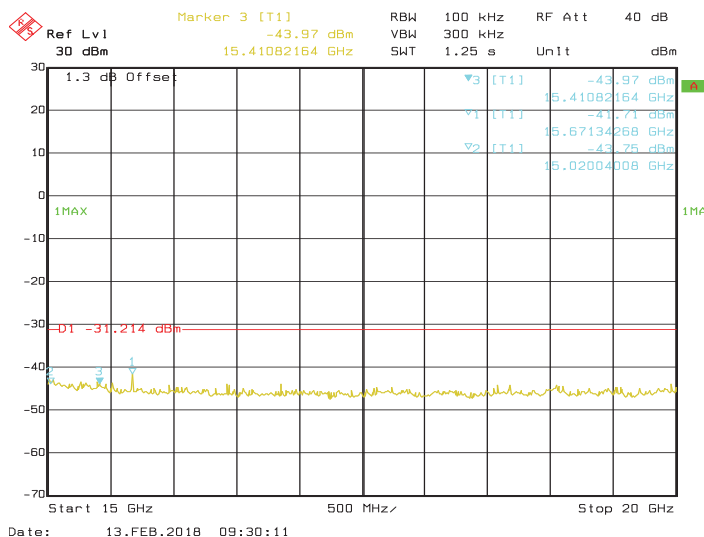
Conducted Emissions. 802.11n, Frequency
2462 MHz Emission Level, 1 GHz -> 5 GHz



Conducted Emissions. 802.11n, Frequency
2462 MHz Emission Level, 5 GHz -> 10 GHz



Conducted Emissions. 802.11n, Frequency
2462 MHz Emission Level, 10 GHz -> 15 GHz

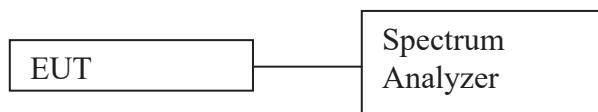


Conducted Emissions. 802.11n, Frequency
2462 MHz Emission Level, 15 GHz -> 20 GHz



6.6. Band edge Conducted Spurious Emission

6.6.1. Test Setup



- a) Check and ensure the spectrum analyzer well calibrate.
- b) Turn on the DUT and set DUT to transmit maximum power.
- c) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. RBW = 100 kHz
 - b. VBW = 300 kHz
 - c. Detector mode = Peak
 - d. Trace = Max Hold
 - e. Sweep = auto
- e) Use the peak marker function to measure highest emission.
- f) Measure every antenna port by repeat the step above for MIMO measurement.

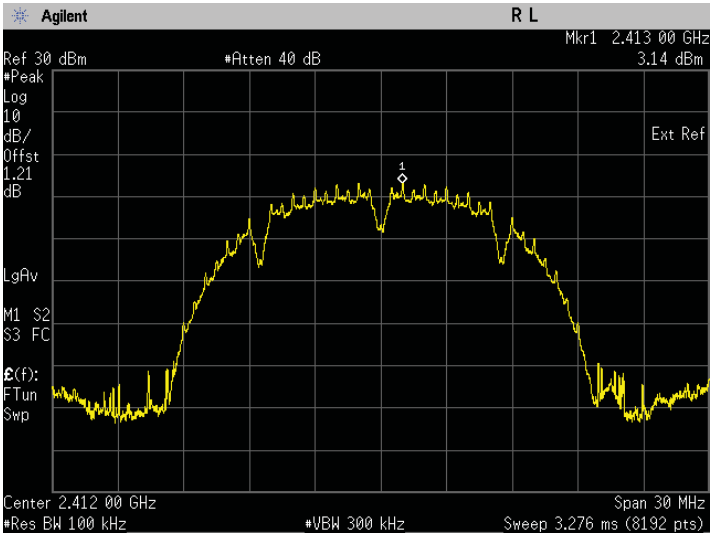
6.6.2. Test Limits:

Normal Condition (25 ° C)
Shall be at least 30 dB below peak (max) power.

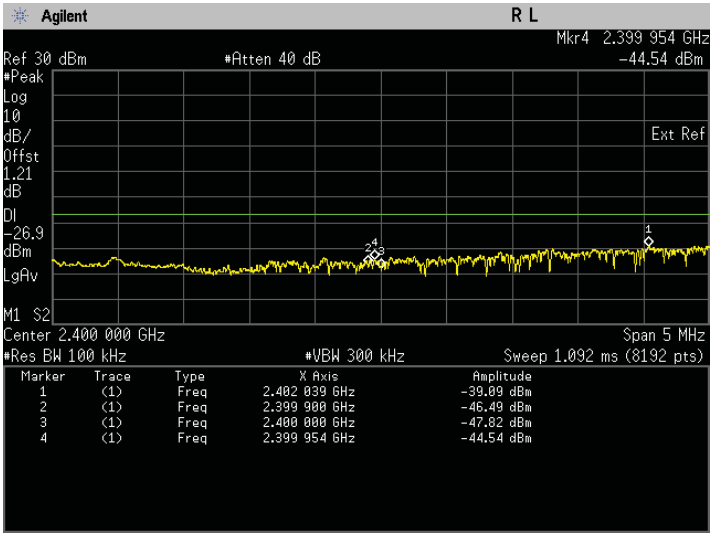
6.6.3. Test Result

802.11b

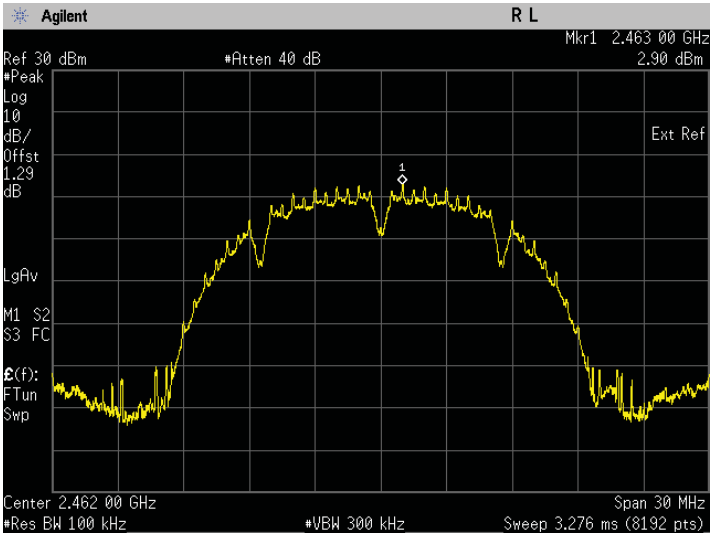
Test Conditions					Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Test Frequency (MHz)	Frequencies (MHz)	Level (dBm)	Status
802.11b	DSSS	QPSK	1	2412	2399.95	-44.54	Pass
802.11b	DSSS	QPSK	1	2462	2483.59	-49.97	Pass



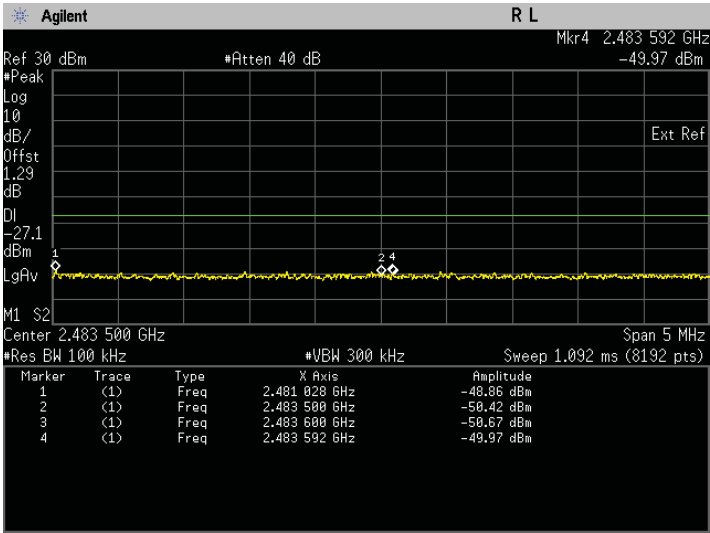
Band Edge. 802.11b Frequency 2412 MHz
Reference Level



Band Edge. 802.11b Frequency 2412 MHz
Band Edge



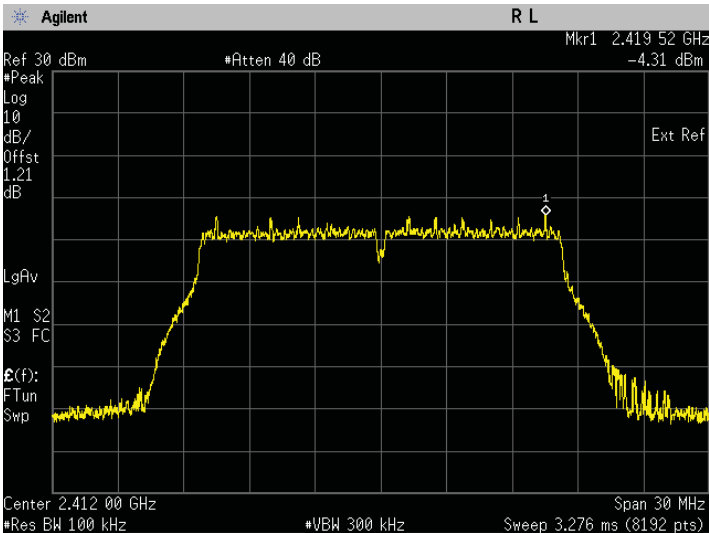
Band Edge. 802.11b Frequency 2462 MHz
Reference Level



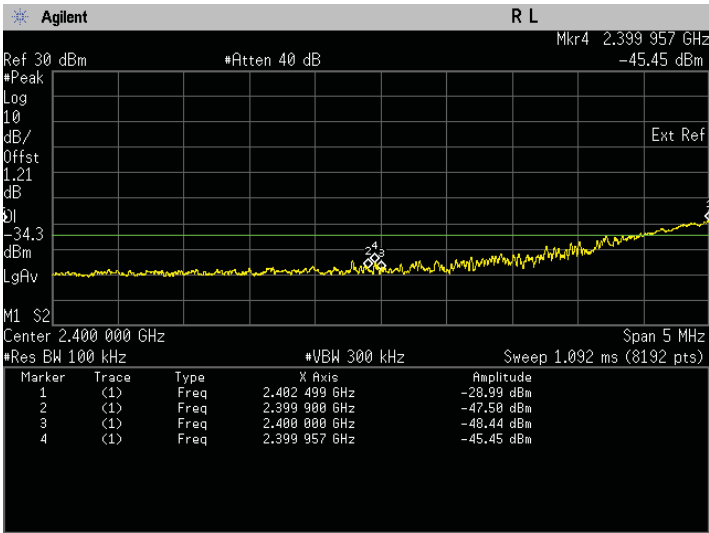
Band Edge. 802.11b Frequency 2462 MHz
Band Edge

802.11g

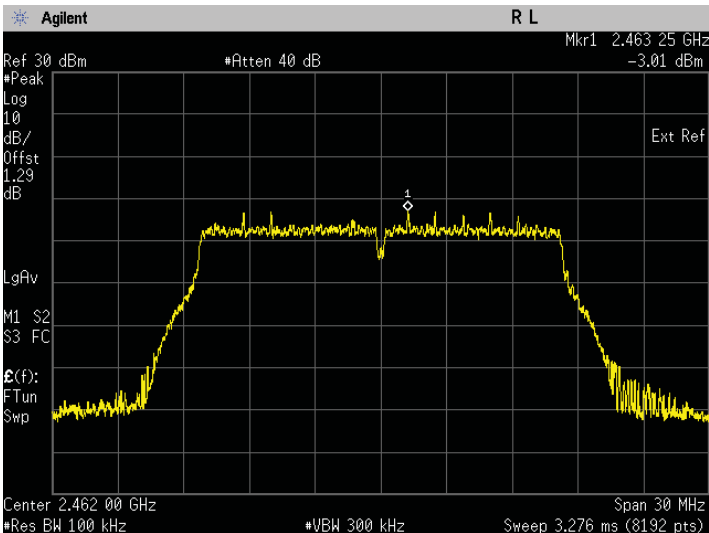
Test Conditions					Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Test Frequency (MHz)	Frequencies (MHz)	Level (dBm)	Status
802.11g	OFDM	BPSK	6	2412	2399.96	-45.45	Pass
802.11g	OFDM	BPSK	6	2462	2483.51	-50.40	Pass



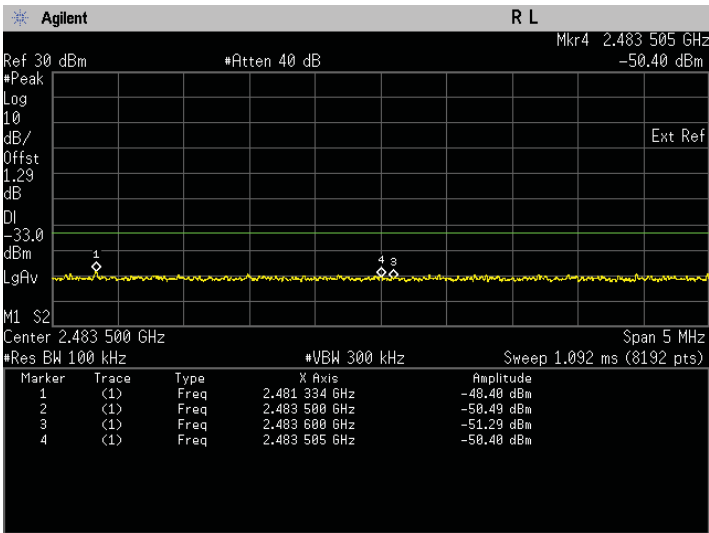
Band Edge. 802.11g Frequency 2412 MHz
Reference Level



Band Edge. 802.11g Frequency 2412 MHz
Band Edge



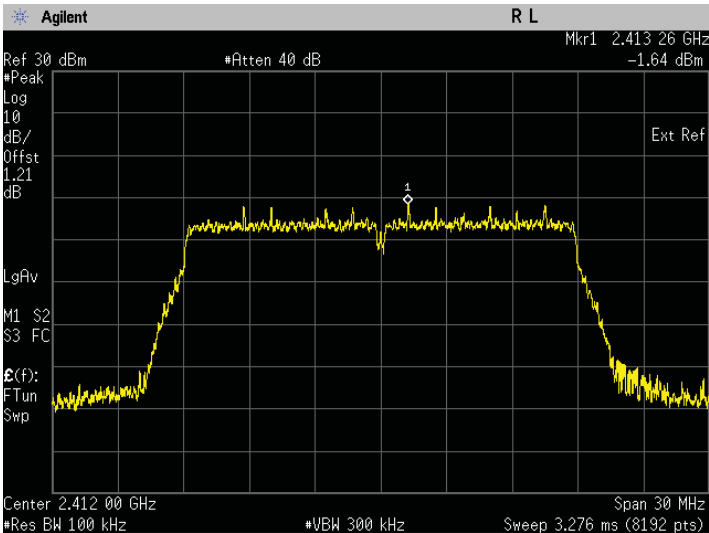
Band Edge. 802.11g Frequency 2462 MHz
Reference Level



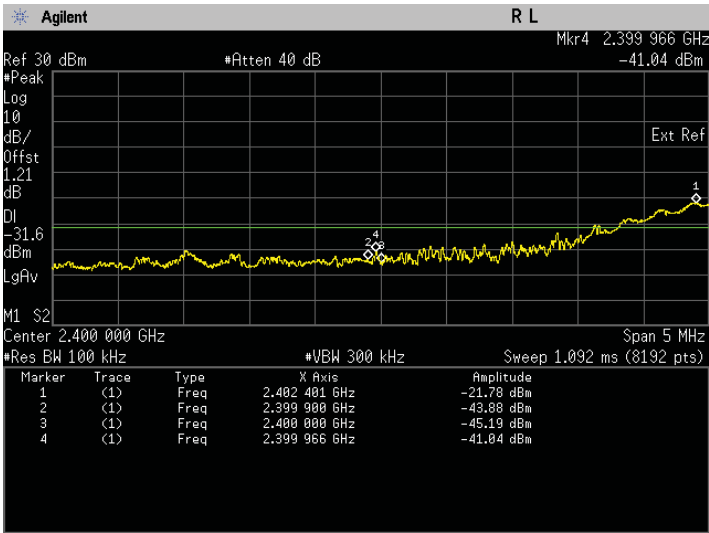
Band Edge. 802.11g Frequency 2462 MHz
Band Edge

802.11n

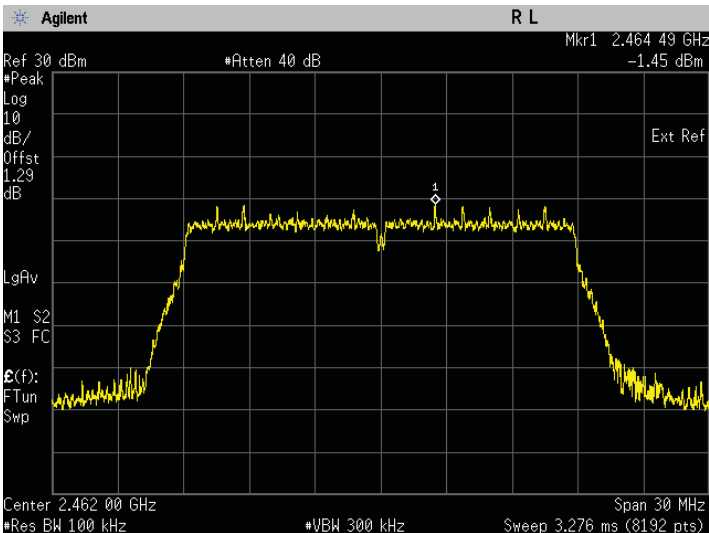
Test Conditions					Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Test Frequency (MHz)	Frequencies (MHz)	Level (dBm)	Status
802.11n	OFDM	BPSK	6.5	2412	2399.97	-41.04	Pass
802.11n	OFDM	BPSK	6.5	2462	2483.55	-48.07	Pass



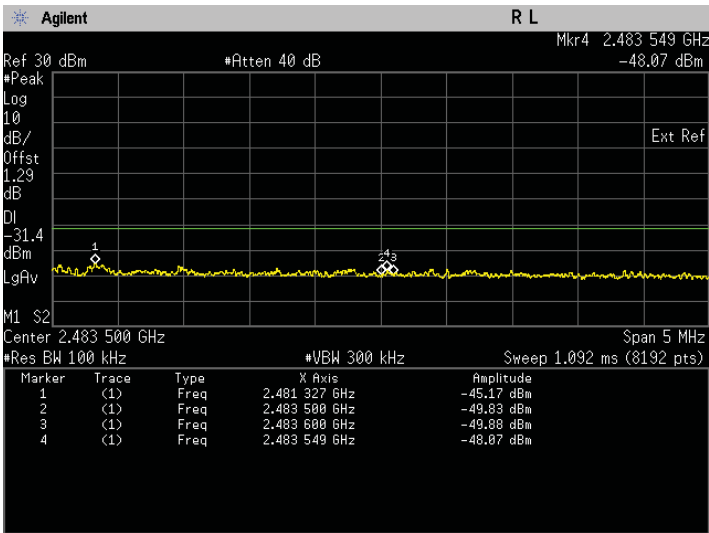
Band Edge. 802.11n Frequency 2412 MHz
Reference Level



Band Edge. 802.11n Frequency 2412 MHz
Band Edge



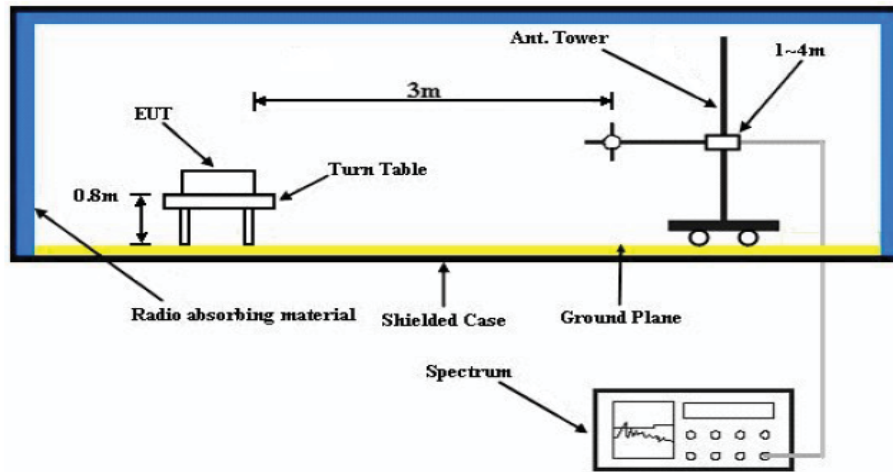
Band Edge. 802.11n Frequency 2462 MHz
Reference Level



Band Edge. 802.11n Frequency 2462 MHz
Band Edge

6.7. Radiated Emission within restricted Bands

6.7.1. Test Setup



- The EUT is placed on the top of a rotating table 0.8m above the ground (<1GHz) and 1.5m above the ground (>1GHz) at a 3m semi-anechoic chamber. The table is rotated 360 degrees to determine the position of the highest radiation.
- The EUT is set 3m away from the interference-receiving antenna, which is mounted on the top of a variable-height antenna tower.
- The antenna is Bilog/Horn antenna depend on which frequency range uses, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT is arranged to its worst case and then the antenna is tuned to heights from 1m to 4m and the rotatable table is turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system is set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode is fall within the range of 10dB from the limit specified, the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. Otherwise, the testing could be stopped and the peak values of the EUT would be reported.

NOTE:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1 GHz.
- All modes of operation were investigated and the worst-case emissions are reported.

6.7.2. Test Limits:

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power.

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

NOTE:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

802.11b

Model Number: H91TGD9PW9AN	S/N: 673TUB0280	EMC SR ID#: 09225-EMC-00019
Battery: PMNN4487A	Accessory: NA	
Test Channel: Low	Test Frequency: 2412.0000 MHz	Test Standard: ANSI C63.10-2013
Worst Case Plane: Z Plane (802.11b)		

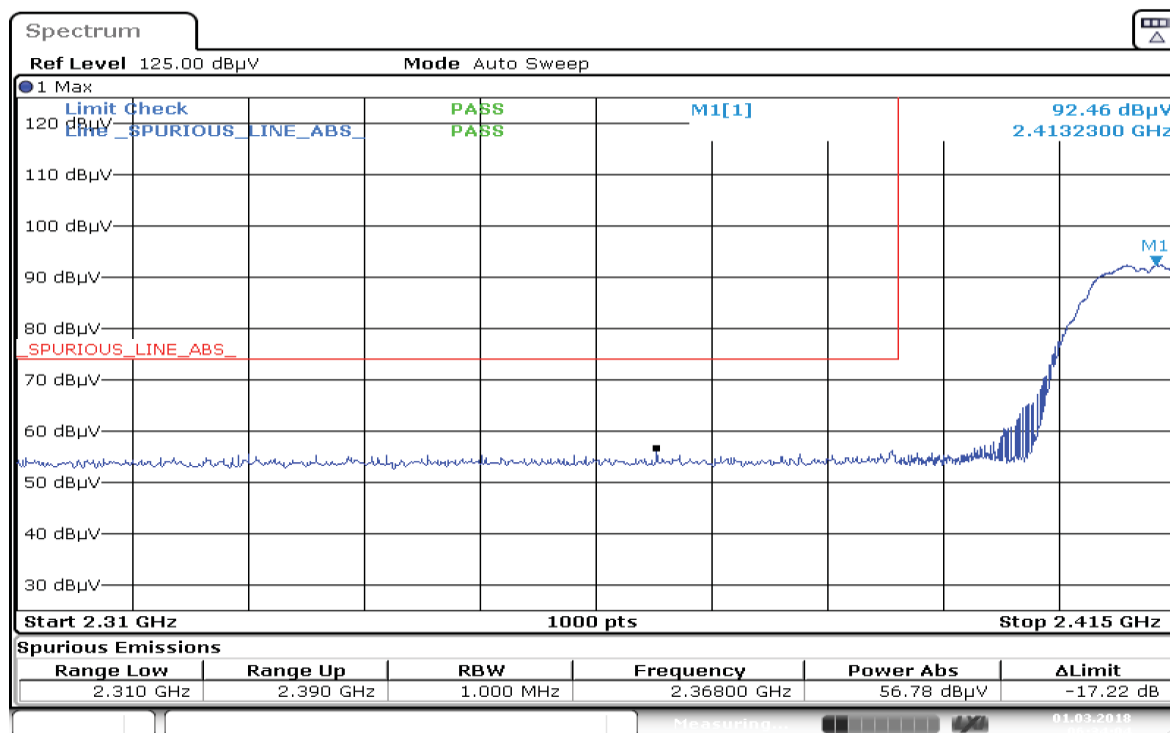
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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Humidity (%): 66.3
Test Date: Thu, Mar 01, 2018
Duty Cycle (%): > 98%

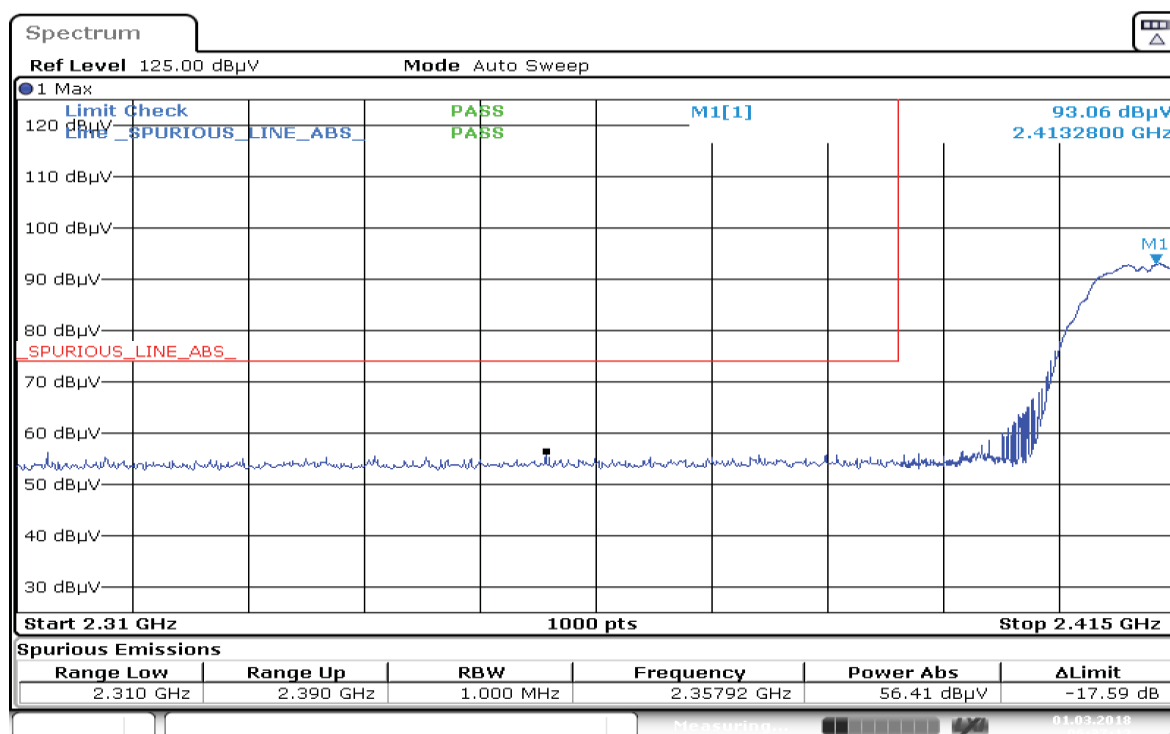
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Restricted Band Edge (Low Channel, Vertical, Peak) graphical screen shot



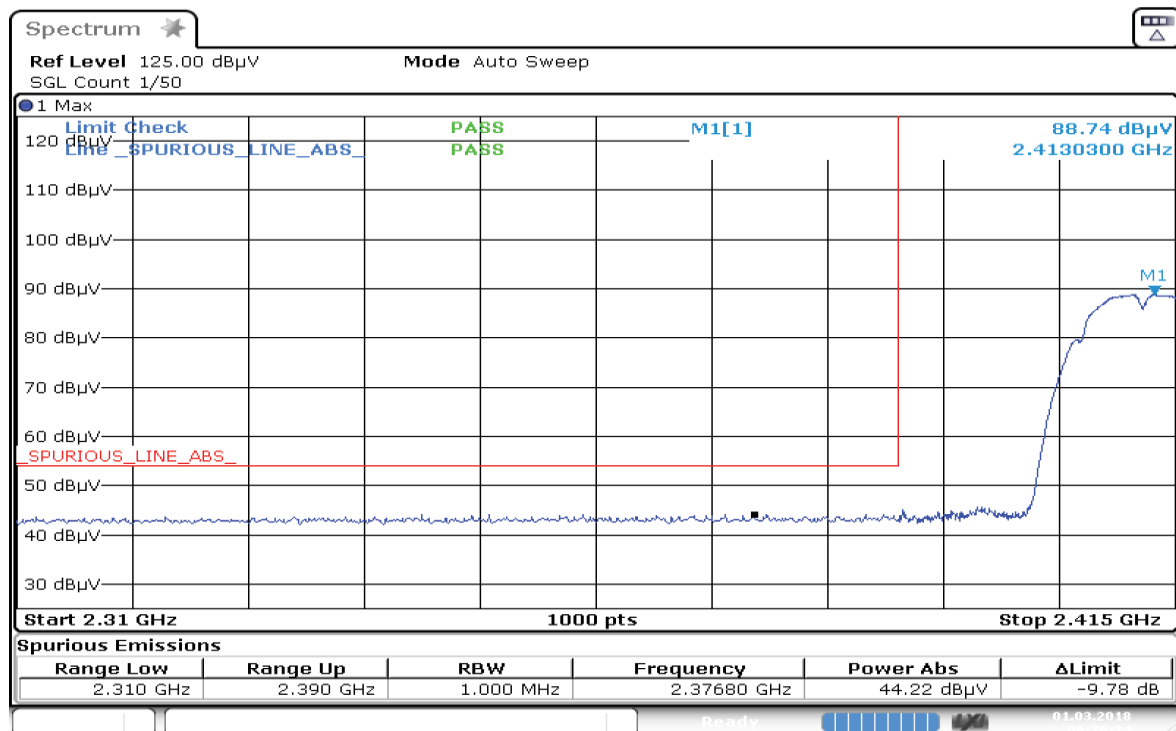
Date: 1.MAR.2018 06:34:04

Restricted Band Edge (Low Channel, Horizontal, Peak) graphical screen shot



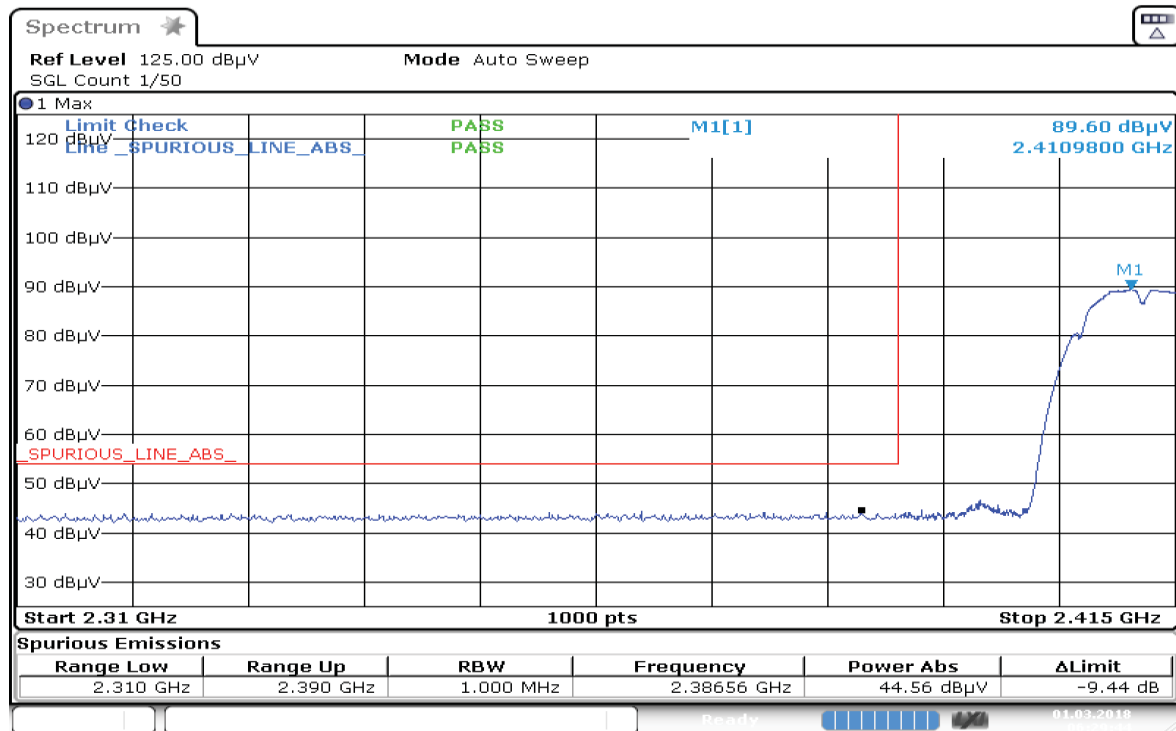
Date: 1.MAR.2018 06:37:12

Restricted Band Edge (Low Channel, Vertical, Average) graphical screen shot



Date: 1.MAR.2018 06:26:14

Restricted Band Edge (Low Channel, Horizontal, Average) graphical screen shot



Date: 1.MAR.2018 06:29:44

Model Number: H91TGD9PW9AN	S/N: 673TUB0280	EMC SR ID#: 09225-EMC-00019
Battery: PMNN4487A	Accessory: NA	
Test Channel: High	Test Frequency: 2462.0000 MHz	Test Standard: ANSI C63.10-2013
Worst Case Plane: Z Plane (802.11b)		

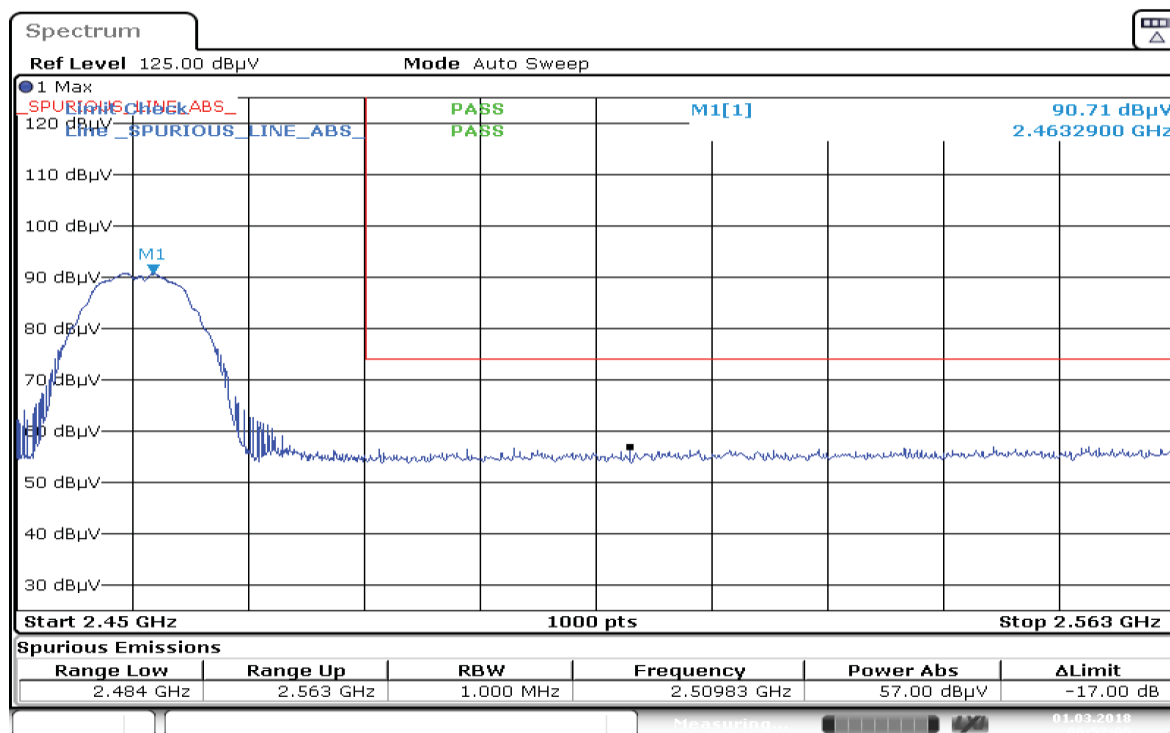
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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Humidity (%): 66.3
Test Date: Thu, Mar 01, 2018
Duty Cycle (%): > 98%

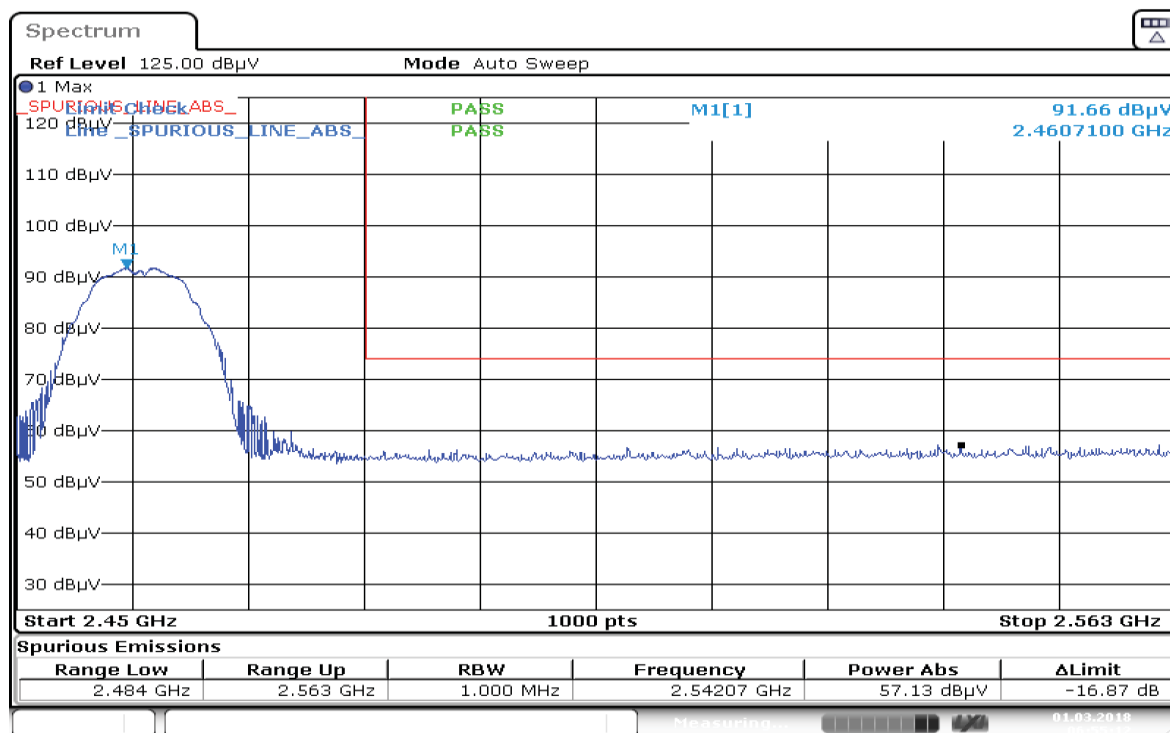
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Restricted Band Edge (High Channel, Vertical, Peak) graphical screen shot



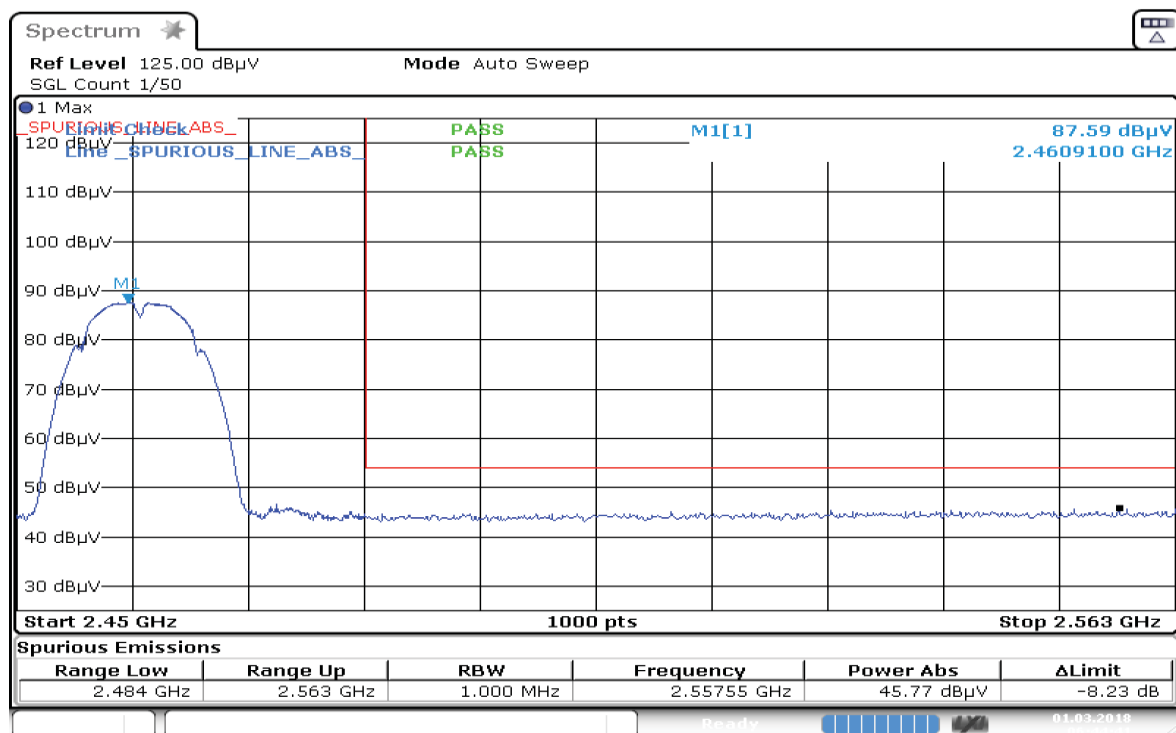
Date: 1.MAR.2018 06:52:07

Restricted Band Edge (High Channel, Horizontal, Peak) graphical screen shot



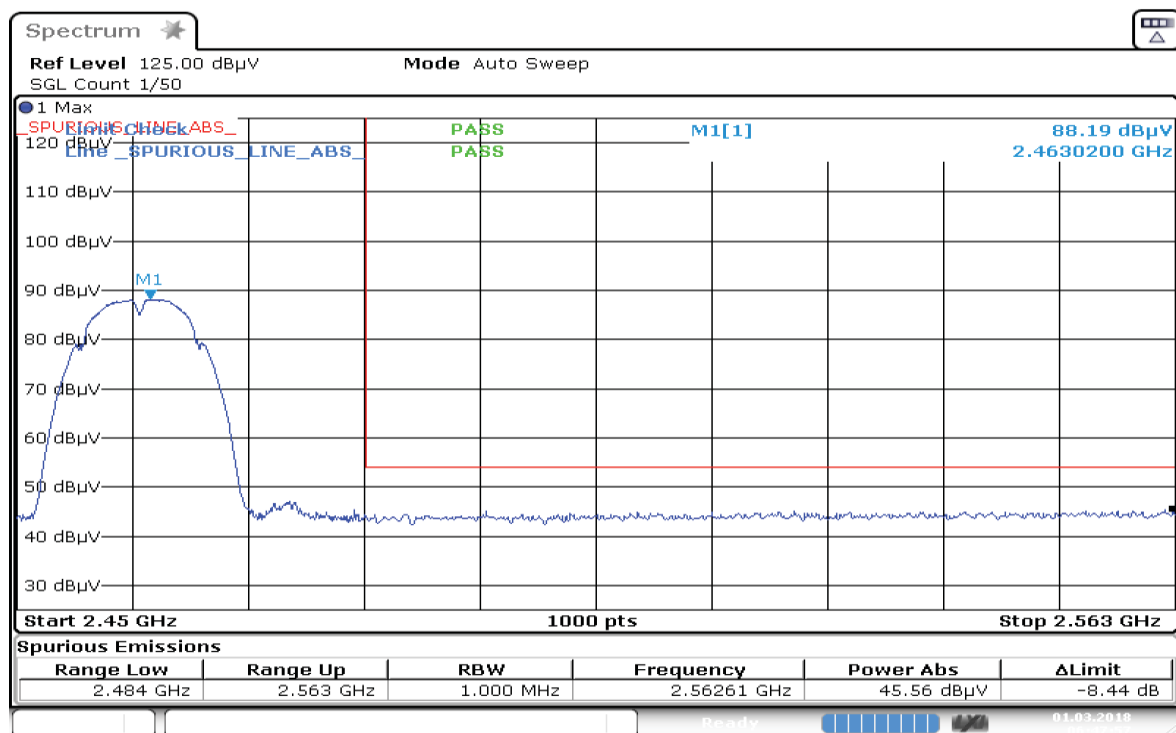
Date: 1.MAR.2018 06:55:12

Restricted Band Edge (High Channel, Vertical, Average) graphical screen shot



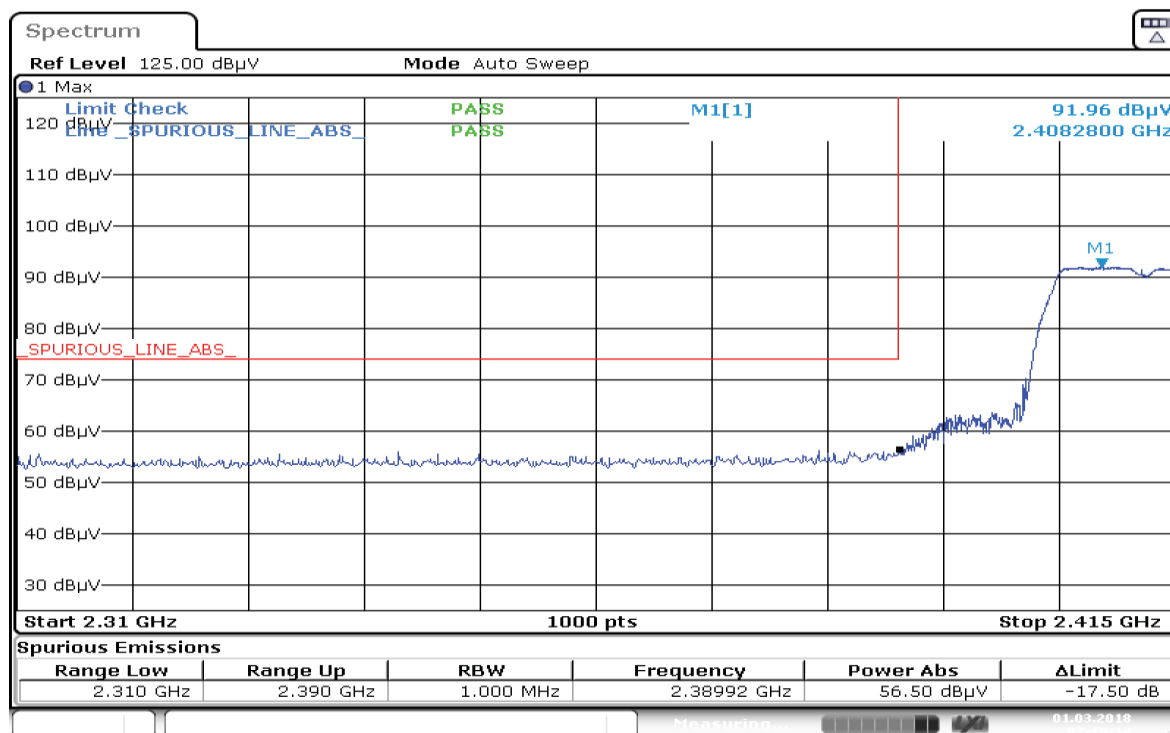
Date: 1.MAR.2018 06:44:42

Restricted Band Edge (High Channel, Horizontal, Average) graphical screen shot



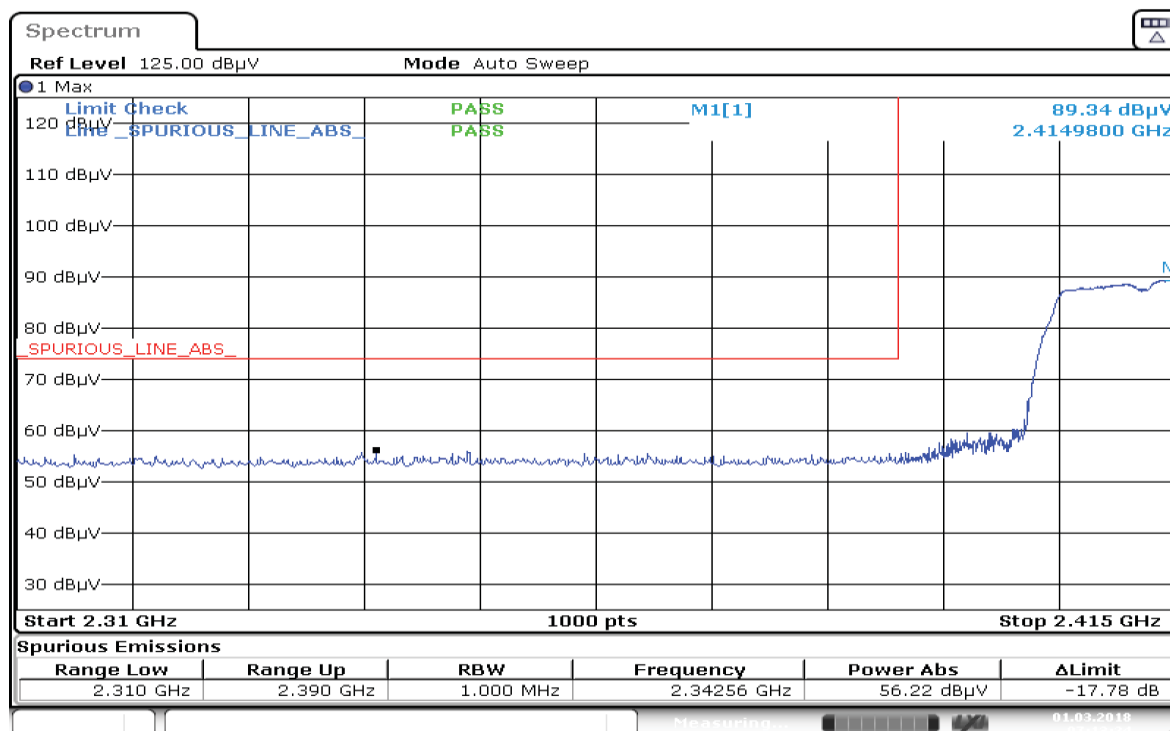
Date: 1.MAR.2018 06:47:57

Restricted Band Edge (Low Channel, Vertical, Peak) graphical screen shot



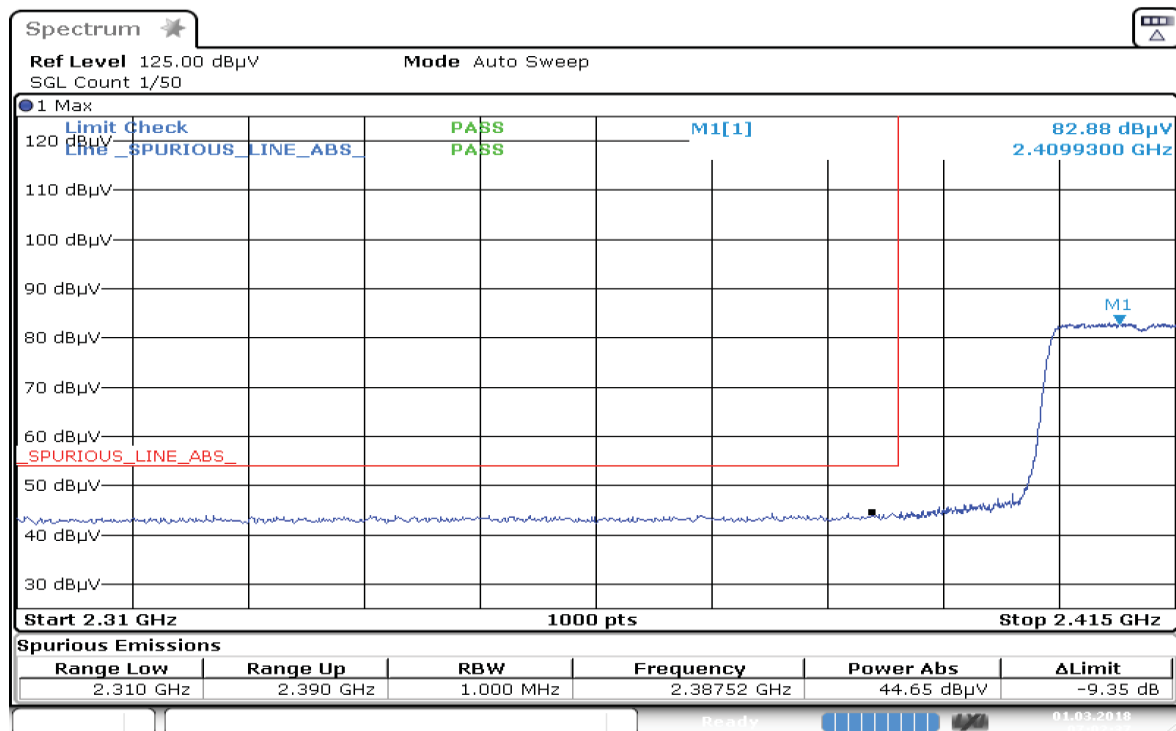
Date: 1.MAR.2018 07:10:14

Restricted Band Edge (Low Channel, Horizontal, Peak) graphical screen shot



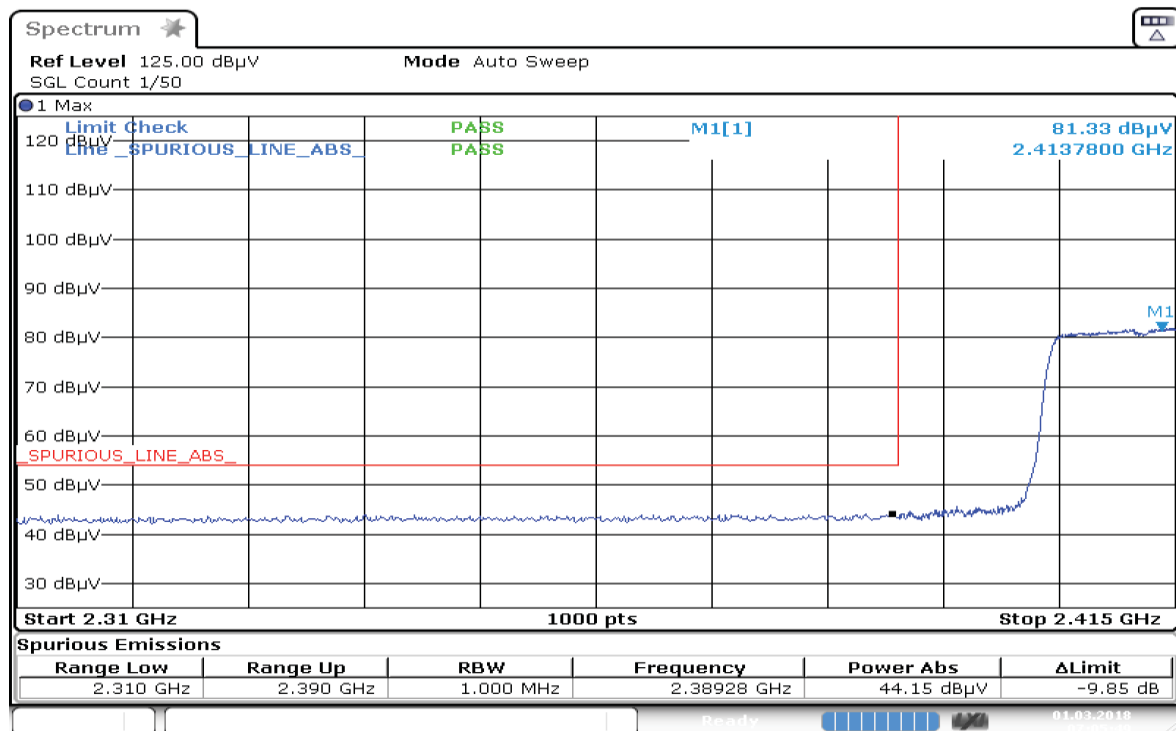
Date: 1.MAR.2018 07:13:24

Restricted Band Edge (Low Channel, Vertical, Average) graphical screen shot



Date: 1.MAR.2018 07:02:37

Restricted Band Edge (Low Channel, Horizontal, Average) graphical screen shot



Date: 1.MAR.2018 07:05:49

Model Number: H91TGD9PW9AN	S/N: 673TUB0280	EMC SR ID#: 09225-EMC-00019
Battery: PMNN4487A	Accessory: NA	
Test Channel: High	Test Frequency: 2462.0000 MHz	Test Standard: ANSI C63.10-2013
Worst Case Plane: Z Plane (802.11g)		

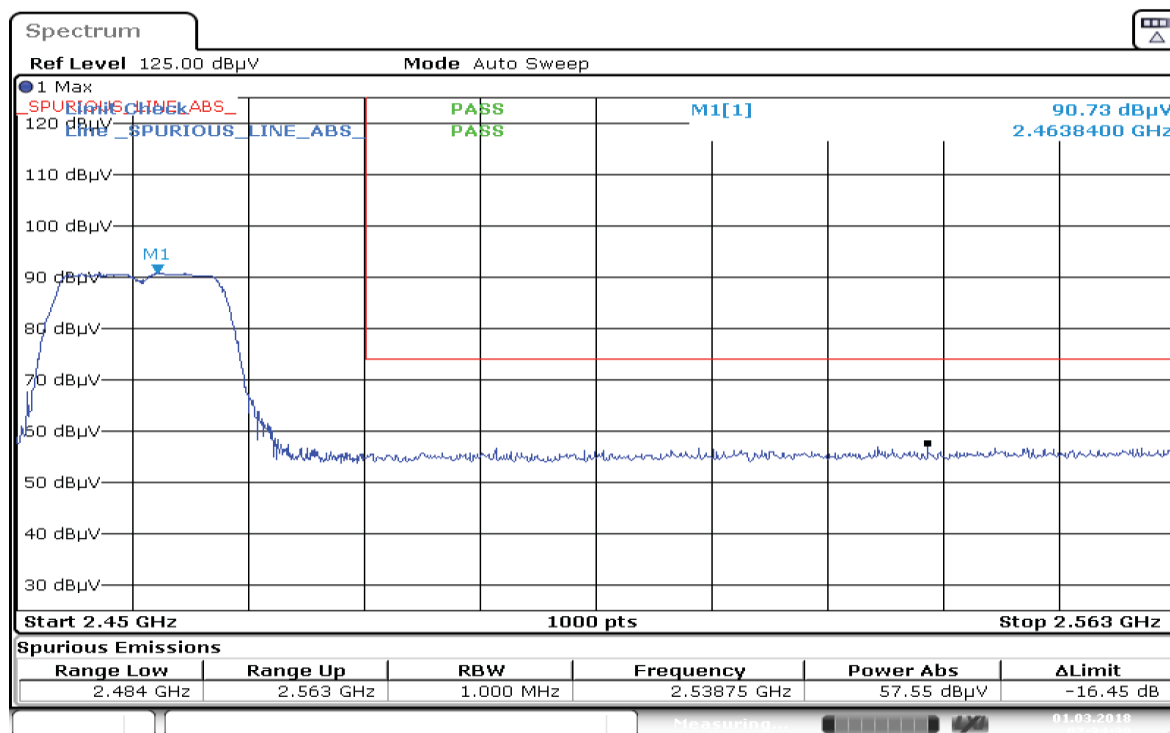
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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Humidity (%): 66.3
Test Date: Thu, Mar 01, 2018
Duty Cycle (%): > 98%

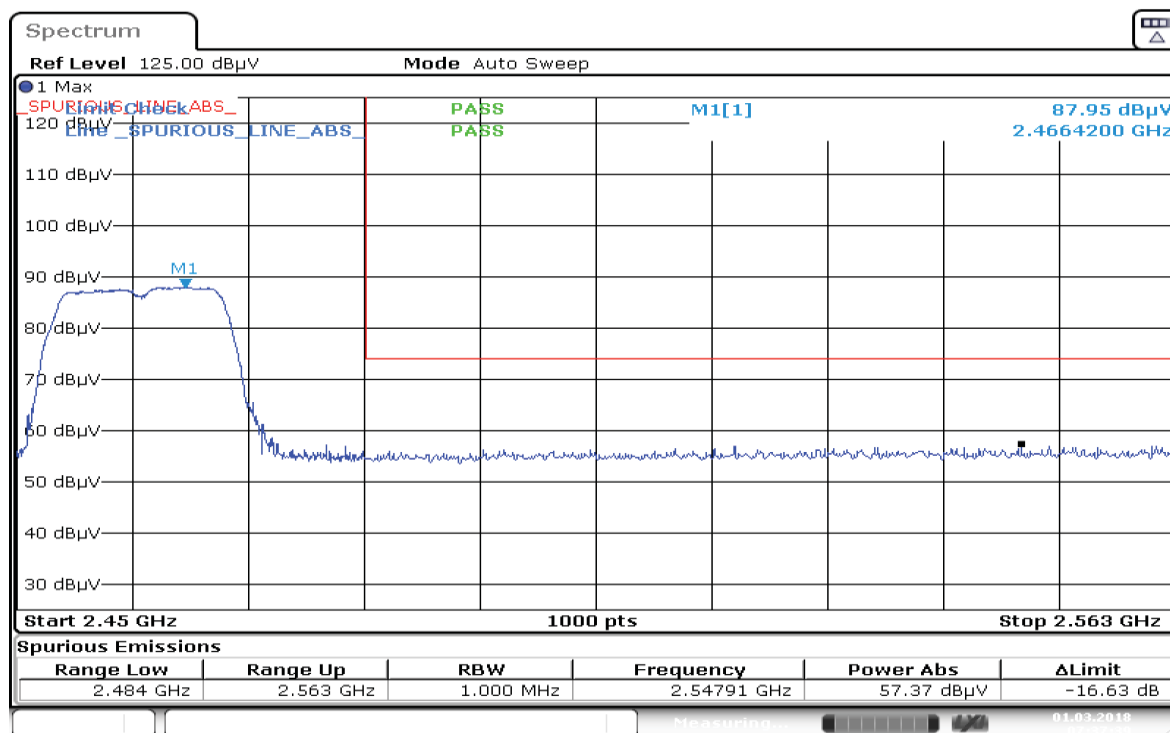
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Restricted Band Edge (High Channel, Vertical, Peak) graphical screen shot



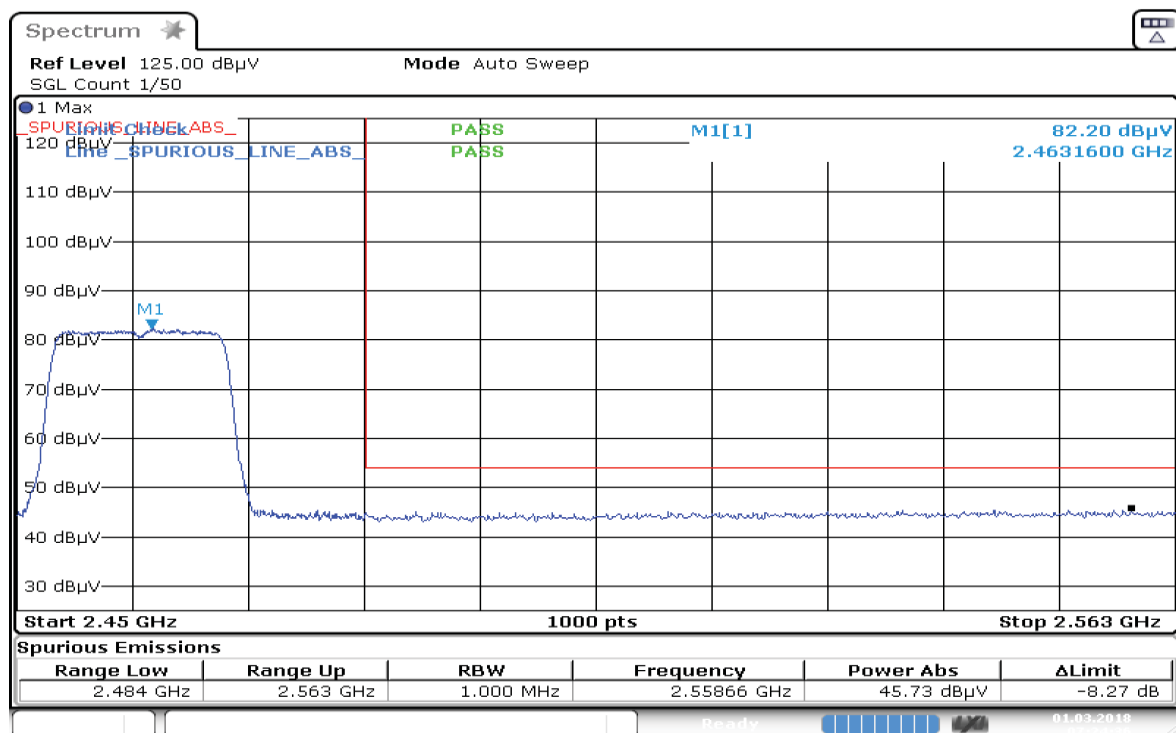
Date: 1.MAR.2018 07:34:39

Restricted Band Edge (High Channel, Horizontal, Peak) graphical screen shot



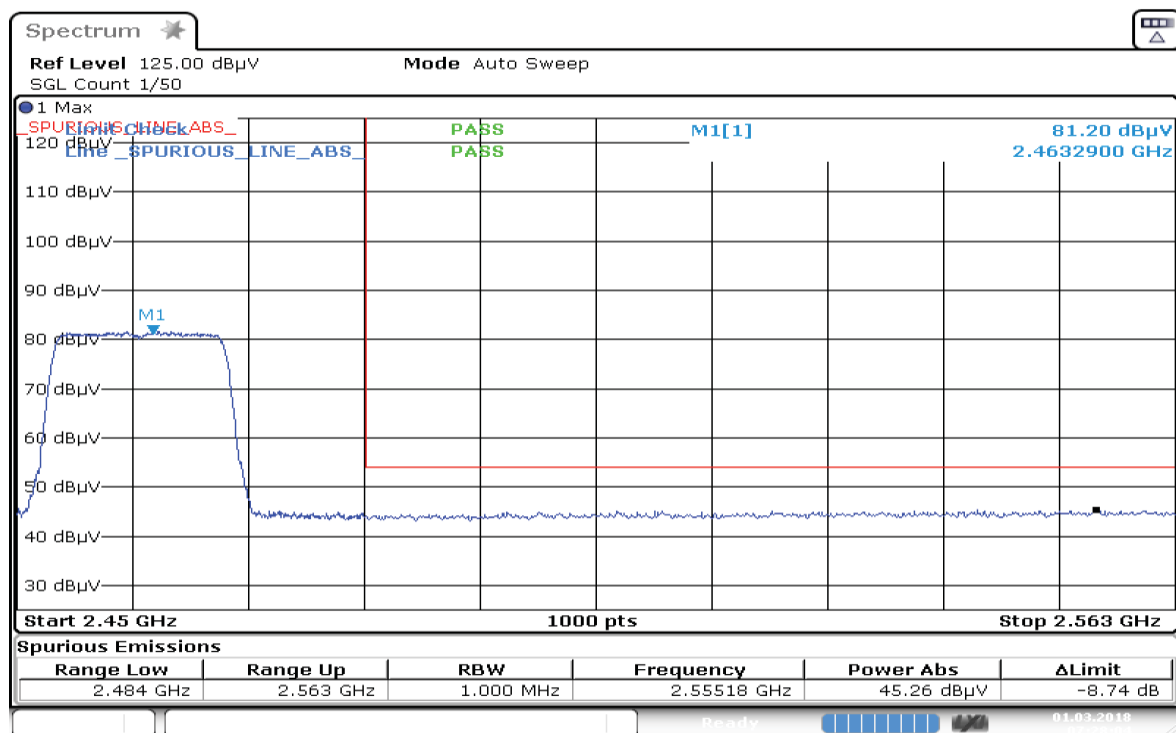
Date: 1.MAR.2018 07:37:39

Restricted Band Edge (High Channel, Vertical, Average) graphical screen shot



Date: 1.MAR.2018 07:24:37

Restricted Band Edge (High Channel, Horizontal, Average) graphical screen shot



Date: 1.MAR.2018 07:28:04

Test: WIFI SAC Restricted Band Edge

Test Standard: ANSI C63.10-2013

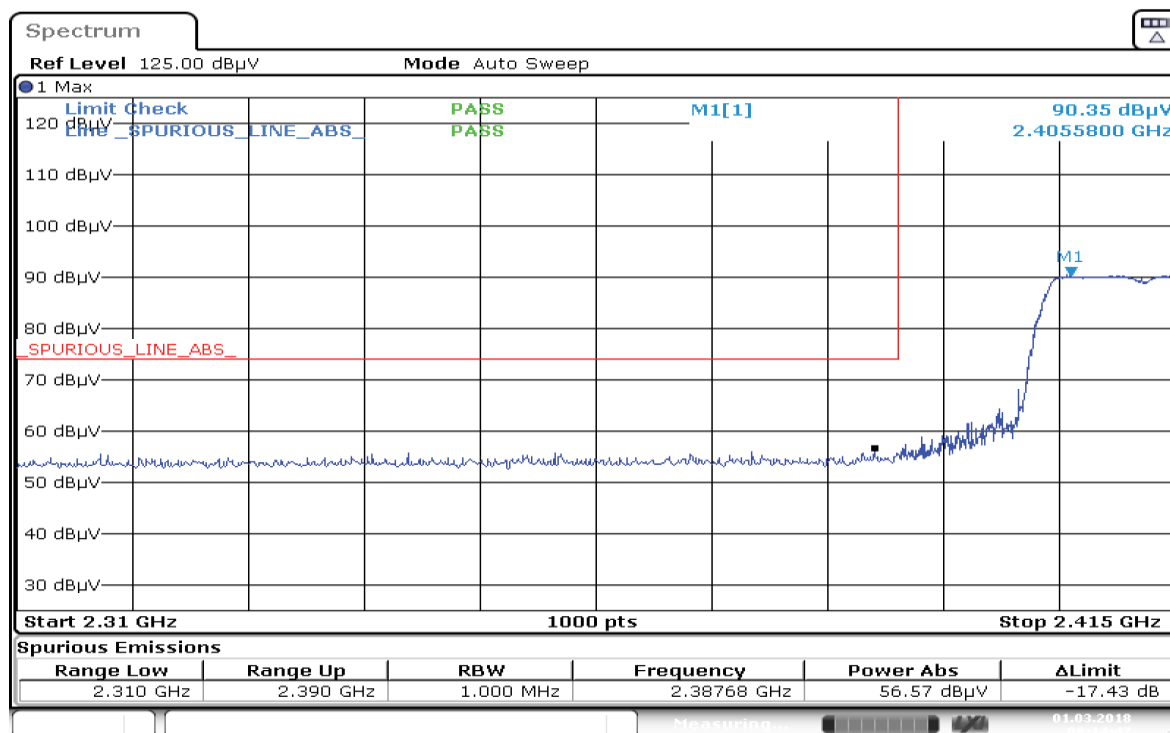
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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Humidity (%): 66.3
Test Date: Thu, Mar 01, 2018
Duty Cycle (%): > 98%

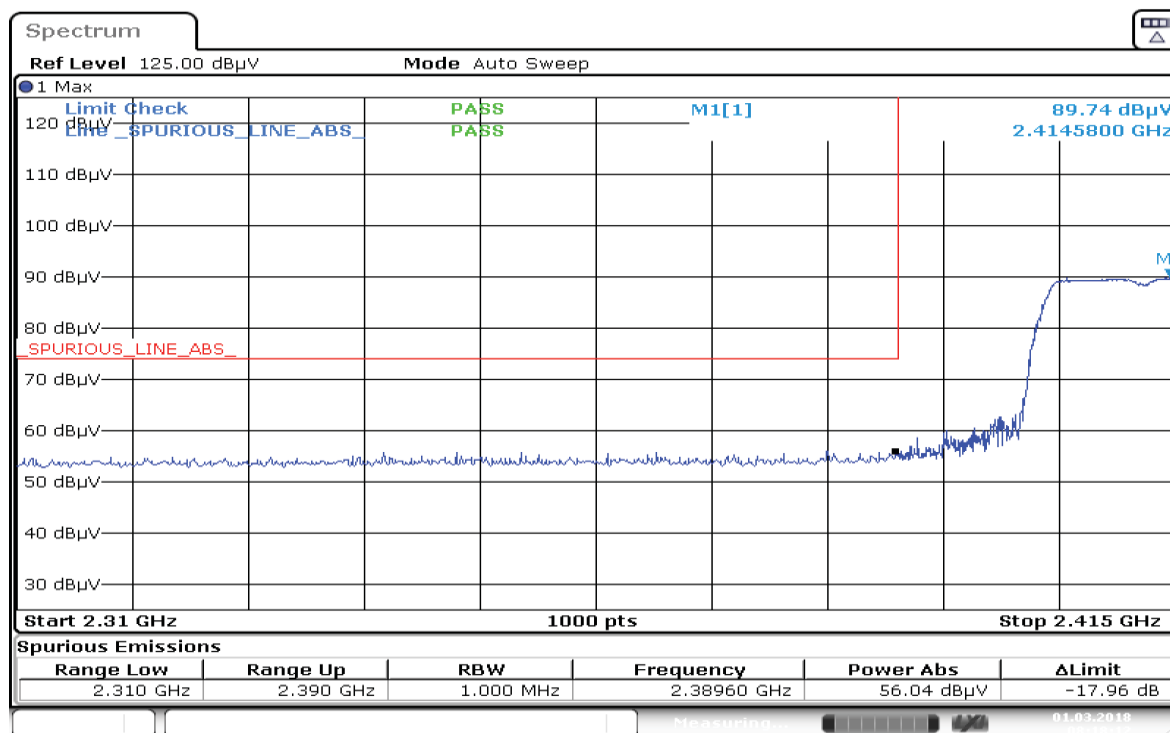
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Restricted Band Edge (Low Channel, Vertical, Peak) graphical screen shot



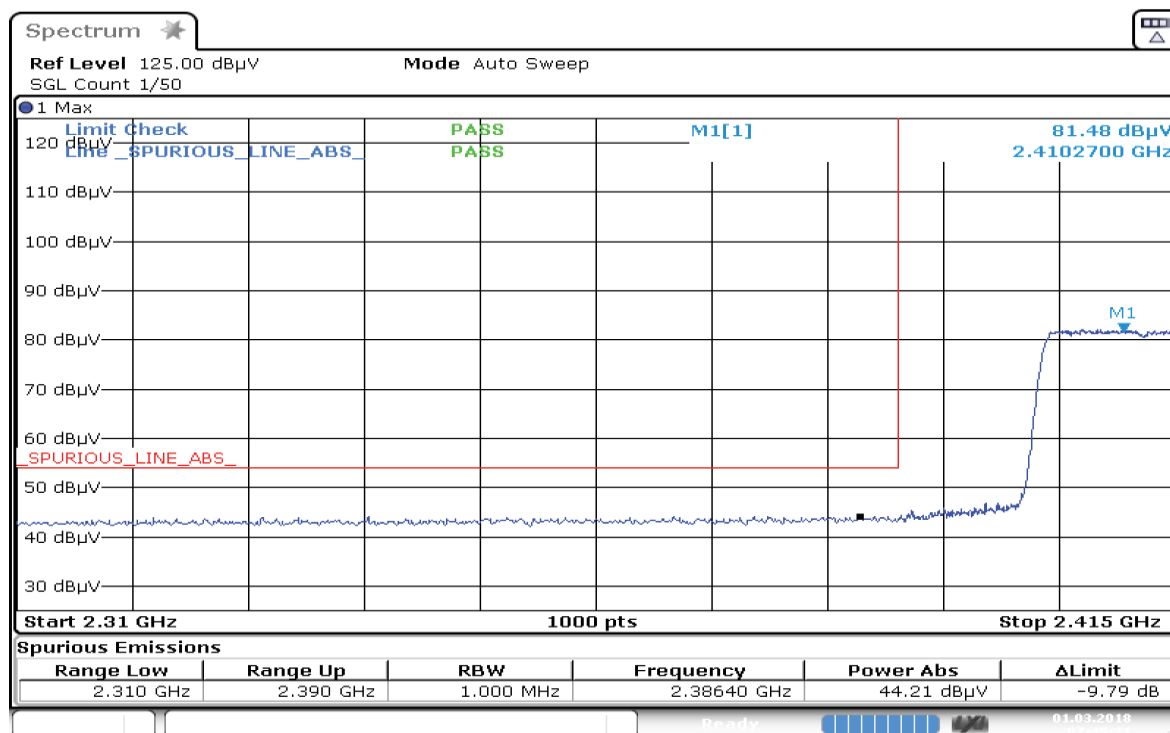
Date: 1.MAR.2018 08:14:47

Restricted Band Edge (Low Channel, Horizontal, Peak) graphical screen shot



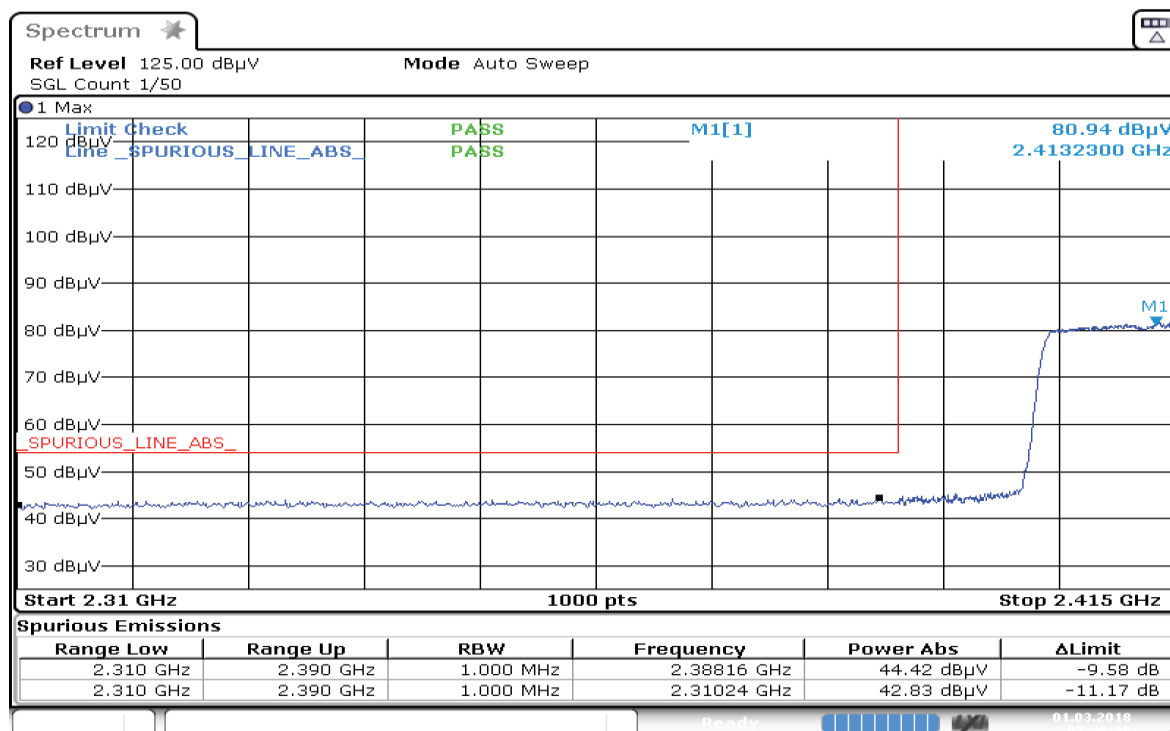
Date: 1.MAR.2018 08:18:12

Restricted Band Edge (Low Channel, Vertical, Average) graphical screen shot



Date: 1.MAR.2018 07:45:22

Restricted Band Edge (Low Channel, Horizontal, Average) graphical screen shot



Date: 1.MAR.2018 07:48:37

Model Number: H91TGD9PW9AN	S/N: 673TUB0280	EMC SR ID#: 09225-EMC-00019
Battery: PMNN4487A	Accessory: NA	
Test Channel: High	Test Frequency: 2462.0000 MHz	Test Standard: ANSI C63.10-2013
Worst Case Plane: Z Plane (802.11n)		

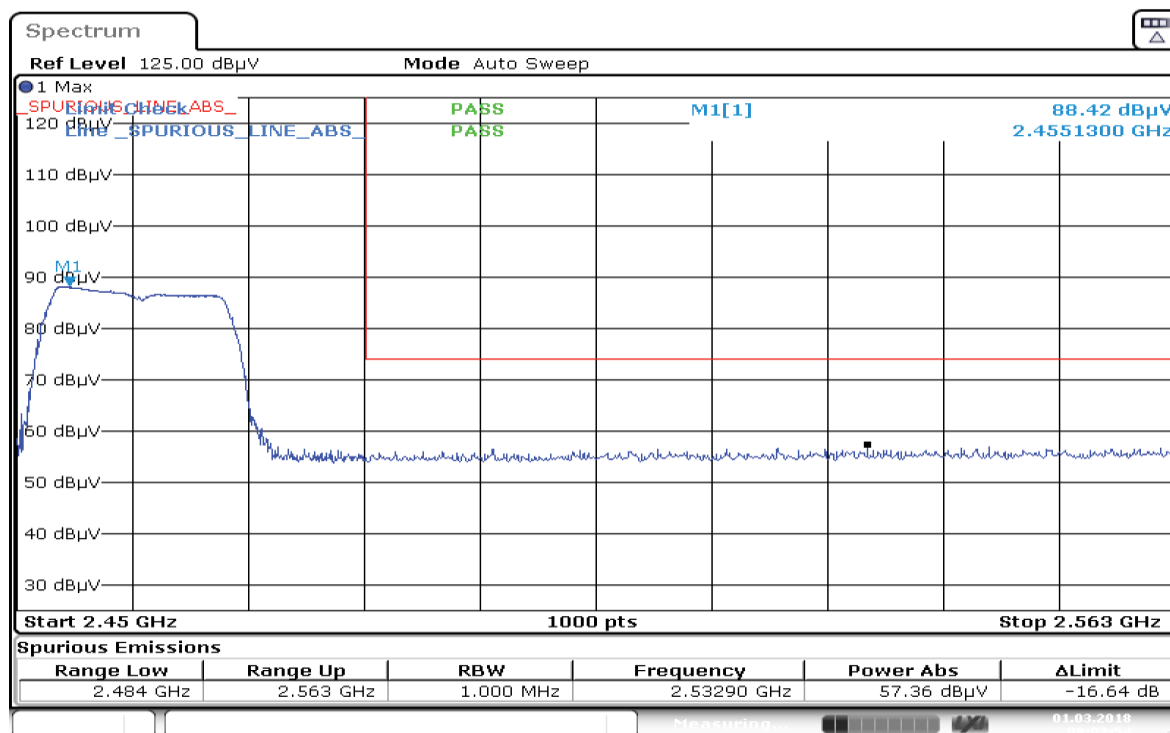
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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Humidity (%): 66.3
Test Date: Thu, Mar 01, 2018
Duty Cycle (%): > 98%

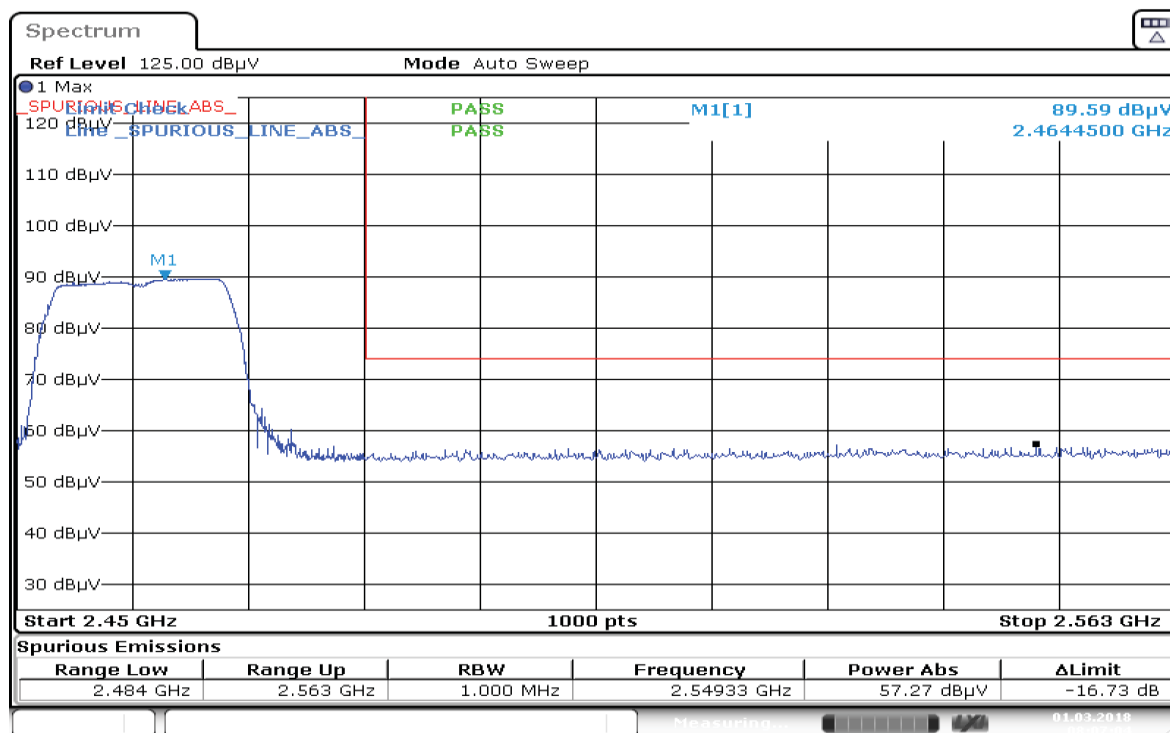
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Restricted Band Edge (High Channel, Vertical, Peak) graphical screen shot



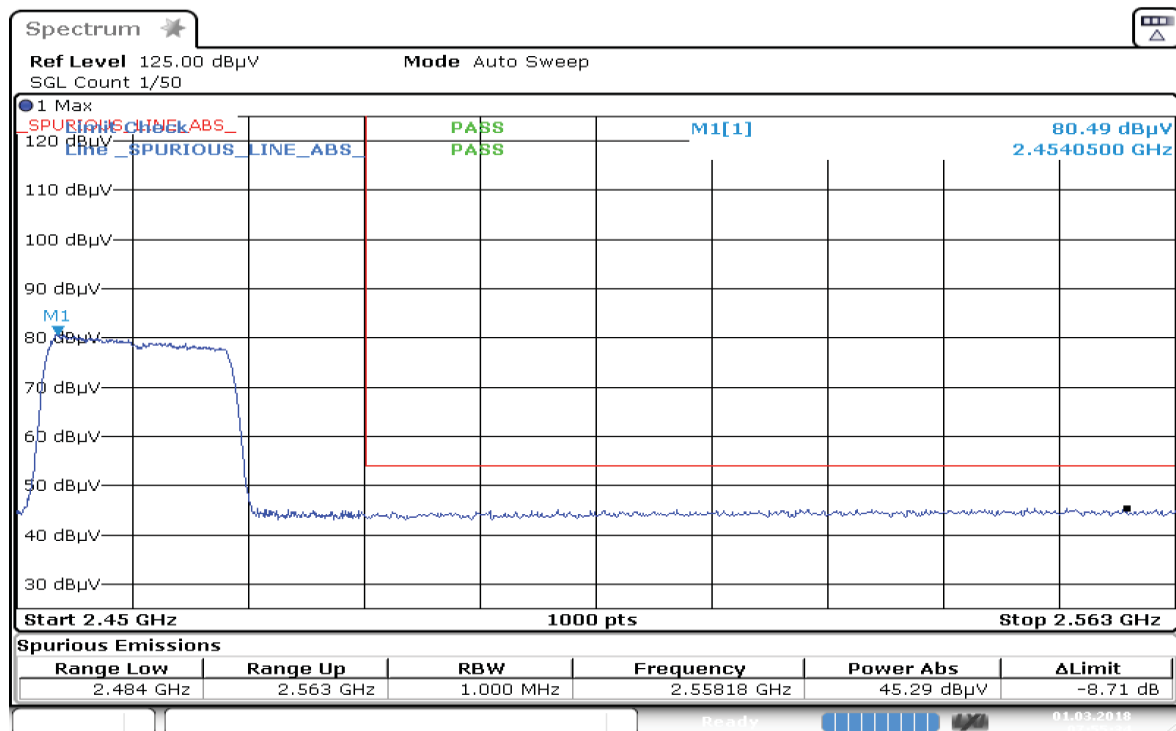
Date: 1.MAR.2018 08:03:54

Restricted Band Edge (High Channel, Horizontal, Peak) graphical screen shot



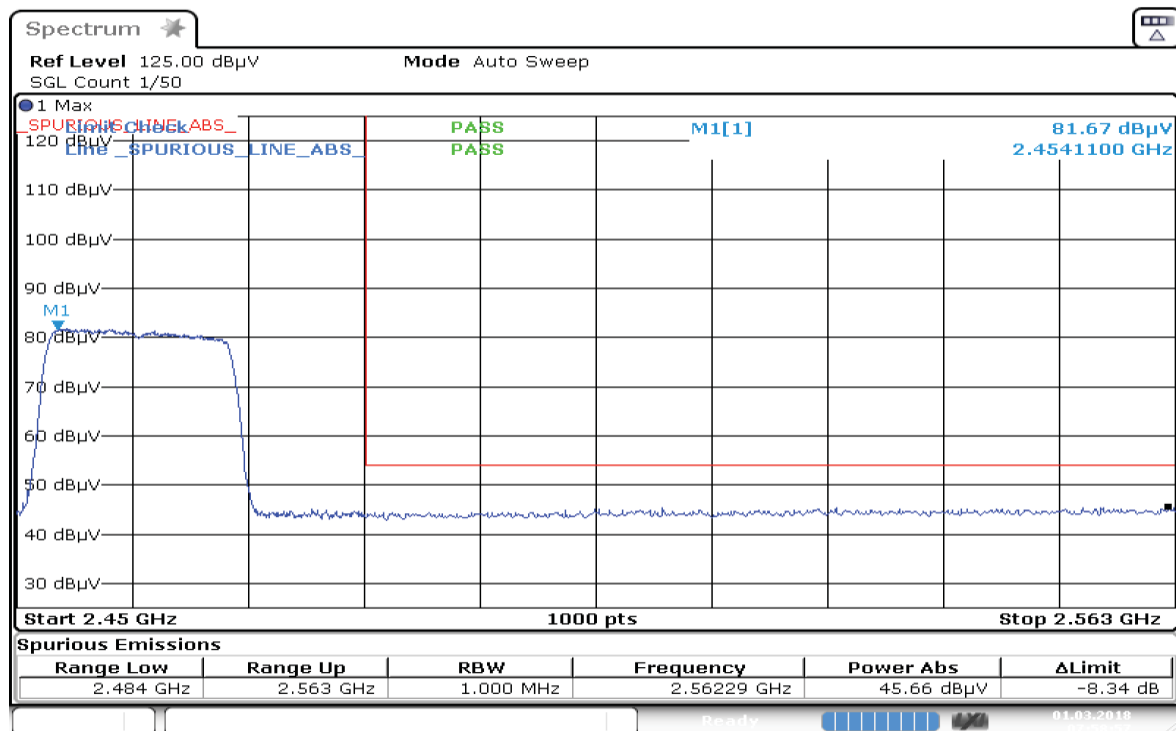
Date: 1.MAR.2018 08:07:04

Restricted Band Edge (High Channel, Vertical, Average) graphical screen shot



Date: 1.MAR.2018 07:55:34

Restricted Band Edge (High Channel, Horizontal, Average) graphical screen shot



Date: 1.MAR.2018 07:58:57

Test: WIFI SAC Transmitter Radiated Emission

Test Frequency: 2412.0000 MHz Test Standard: ANSI C63.10-2013

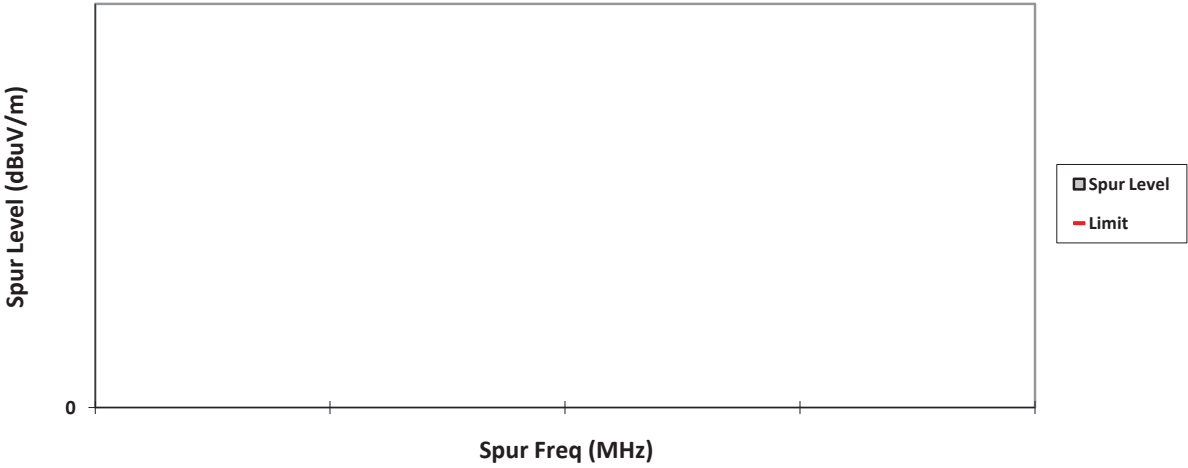
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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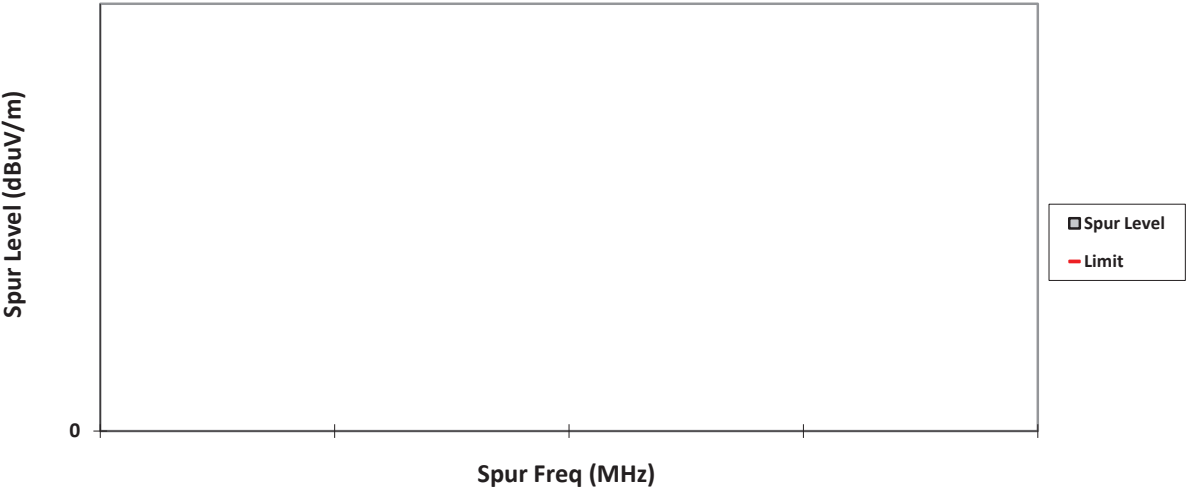
Humidity (%): 66.3
Test Date: Fri, Mar 02, 2018
Duty Cycle (%): > 98%

67

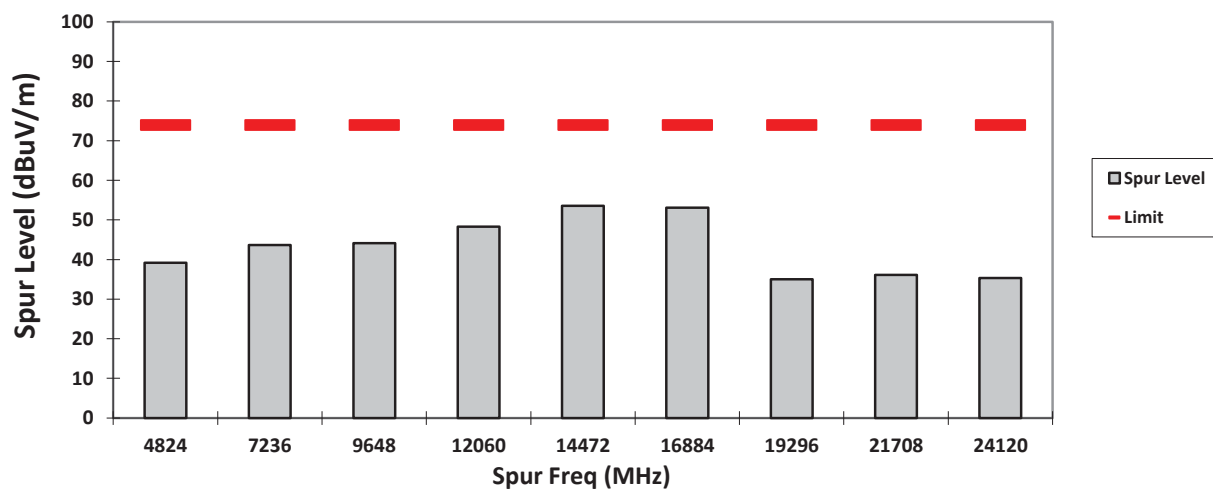
VERTICAL, QPK



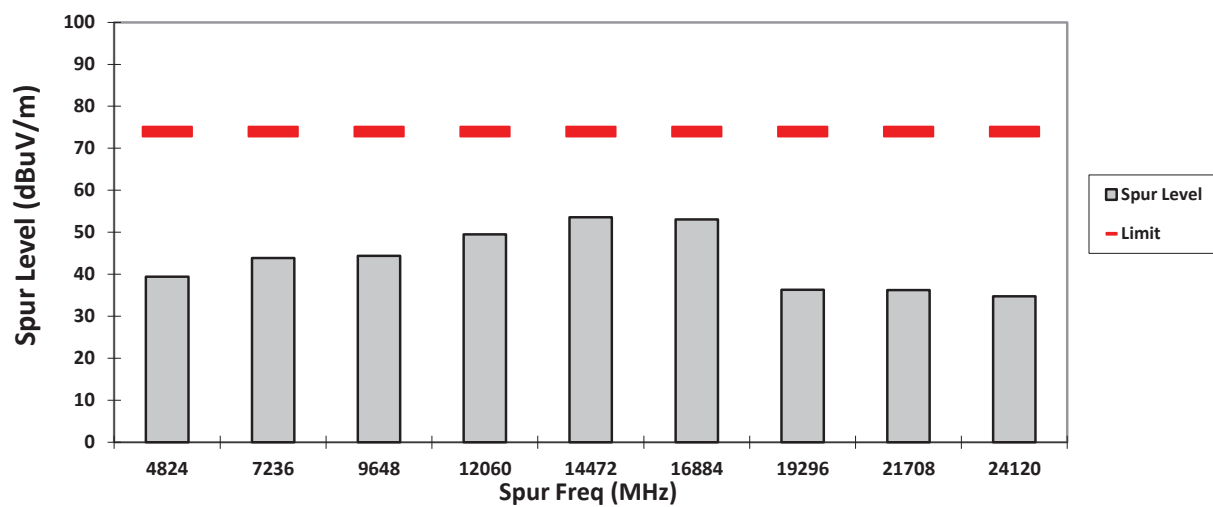
HORIZONTAL, QPK



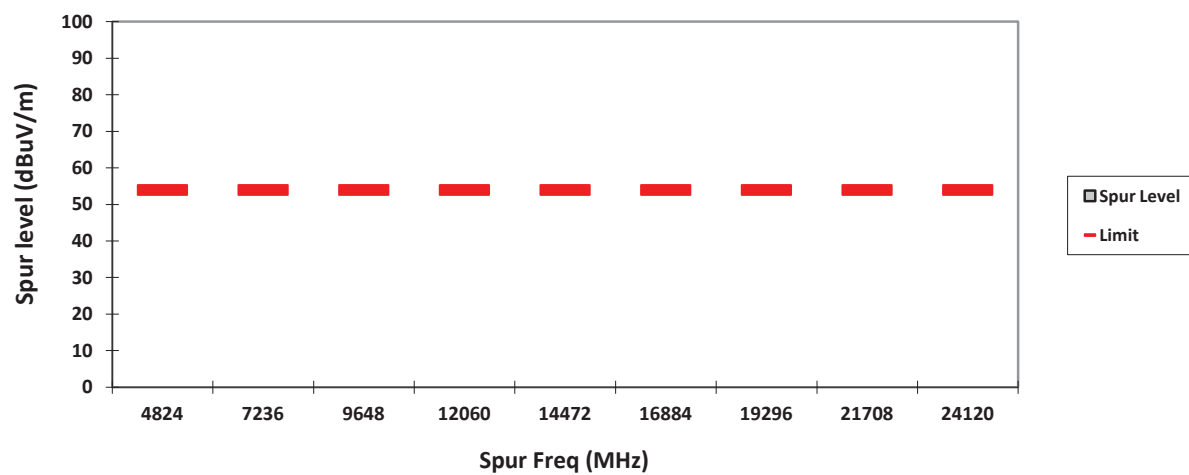
VERTICAL, PK



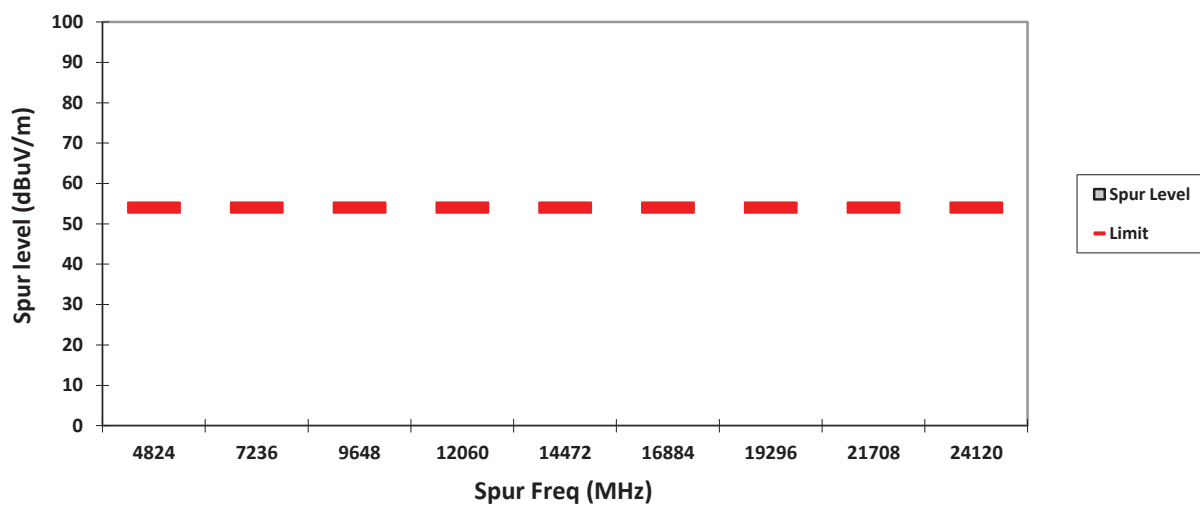
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Model Number: H91TGD9PW9AN	S/N: 673TUB0280	EMC SR ID#: 09225-EMC-00019
Battery: PMNN4487A	Accessory: NA	
Test Channel: Mid	Test Frequency: 2437.0000 MHz	Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11b)		

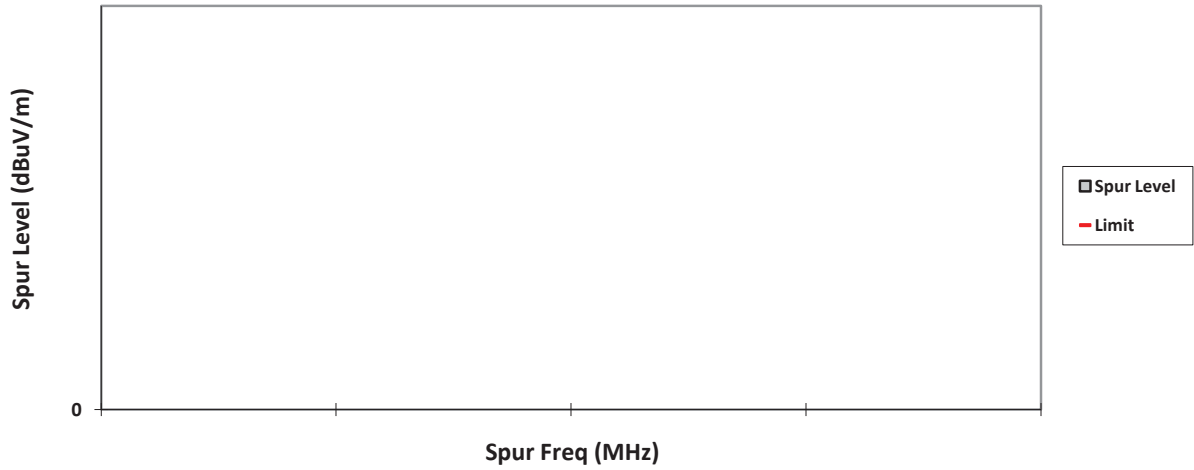
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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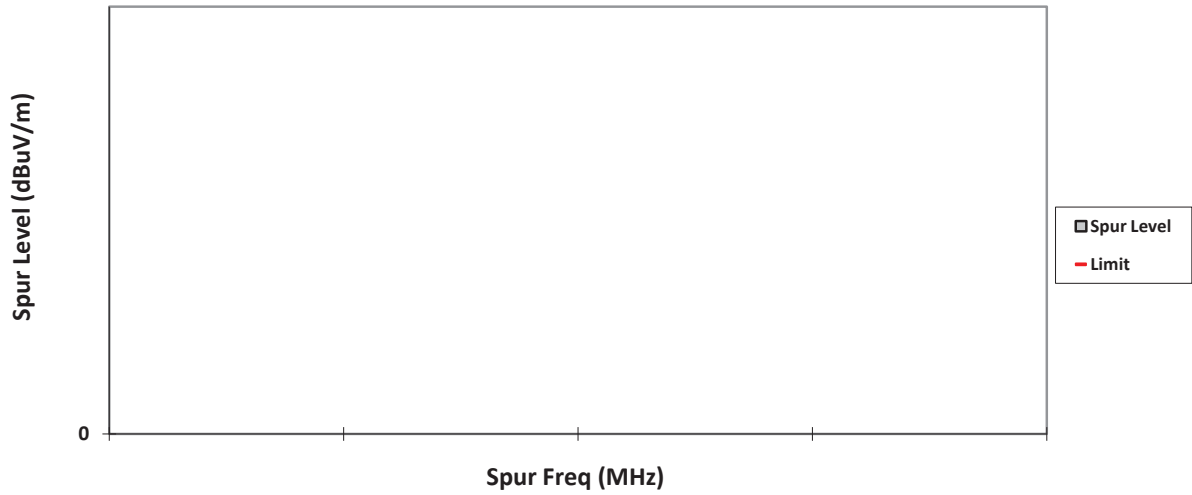
Humidity (%): 66.3
Test Date: Fri, Mar 02, 2018
Duty Cycle (%): > 98%

71

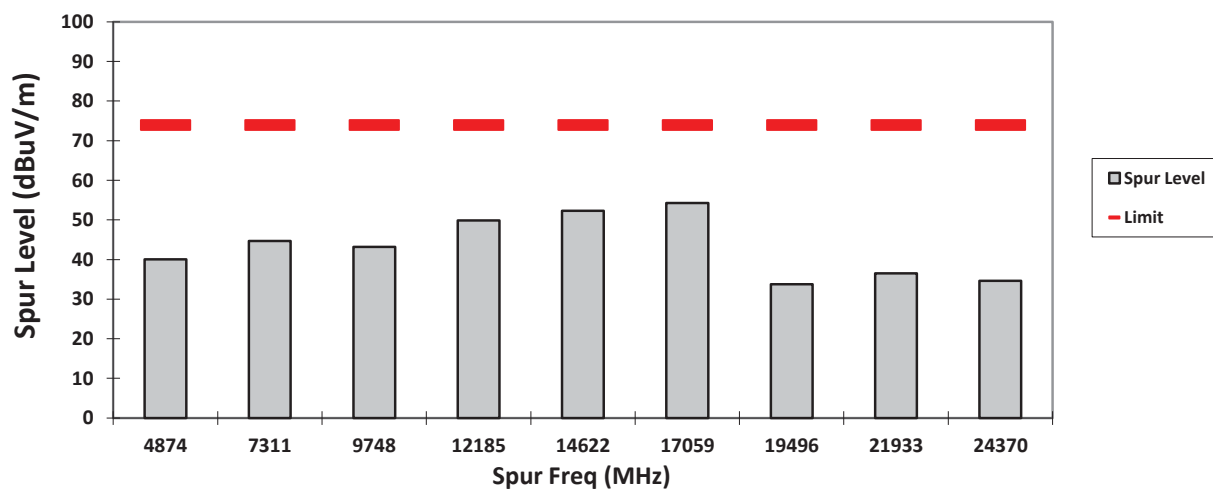
VERTICAL, QPK



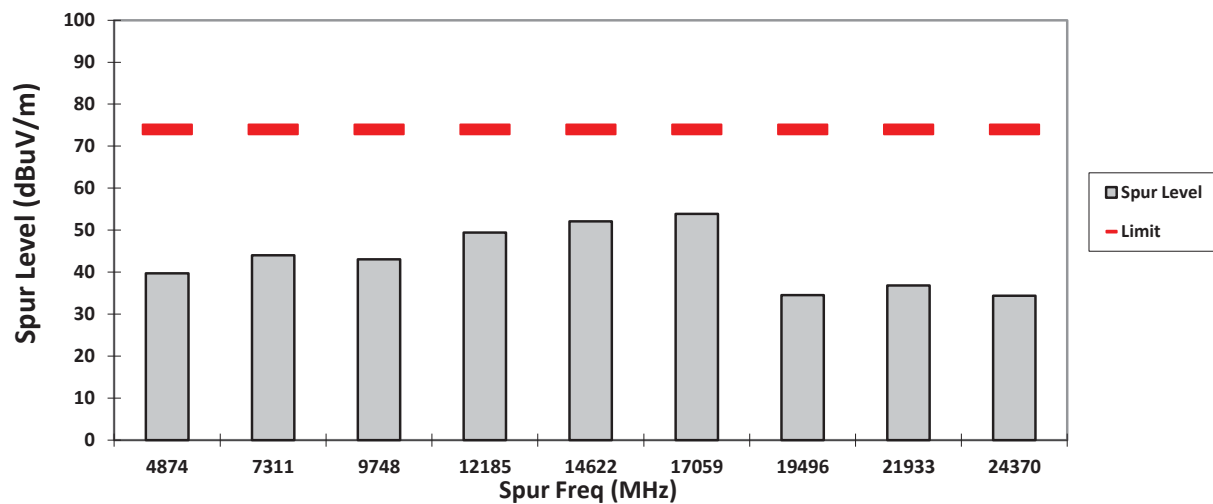
HORIZONTAL, QPK



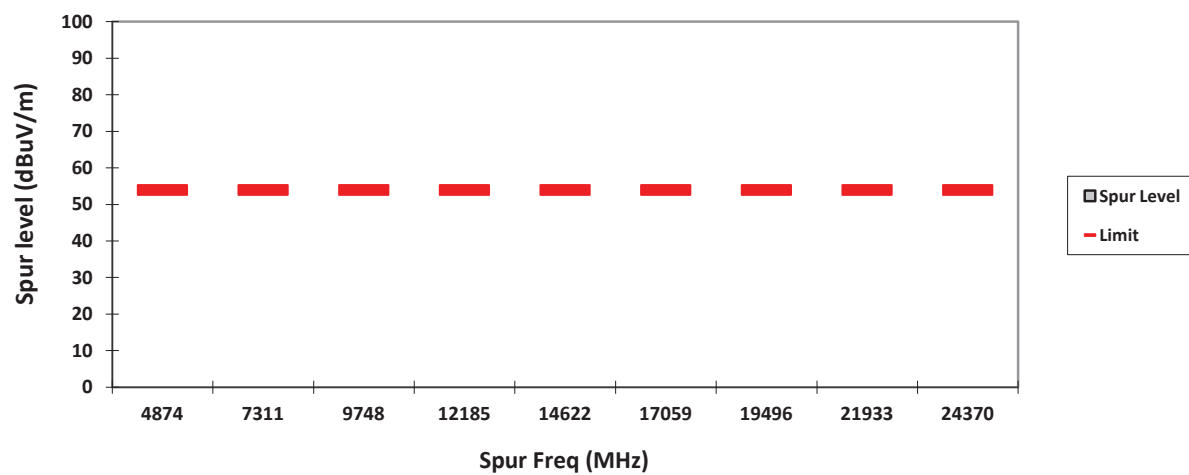
VERTICAL, PK



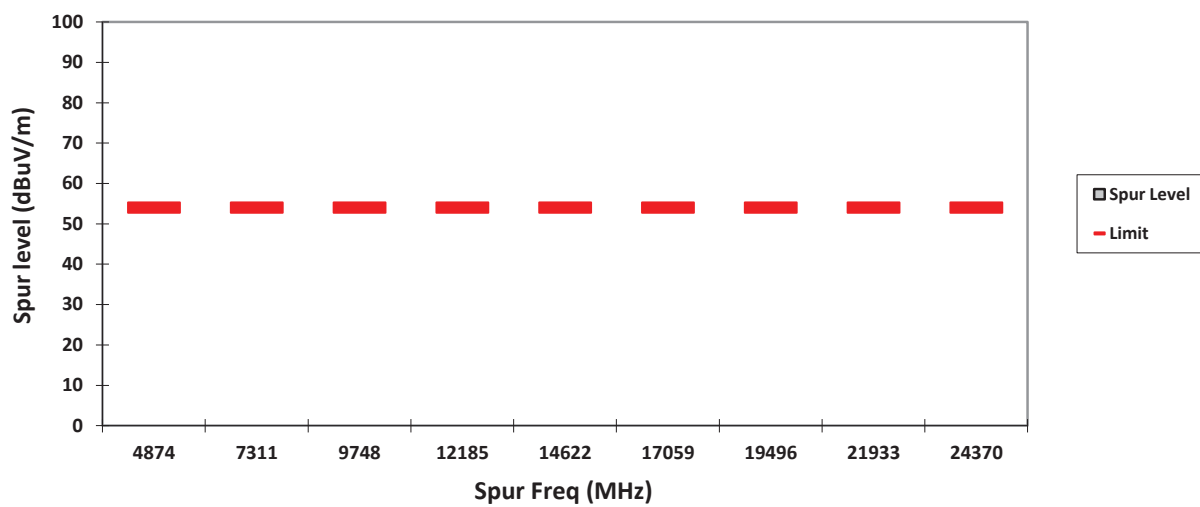
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Model Number: H91TGD9PW9AN	S/N: 673TUB0280	EMC SR ID#: 09225-EMC-00019
Battery: PMNN4487A	Accessory: NA	
Test Channel: High	Test Frequency: 2462.0000 MHz	Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11b)		

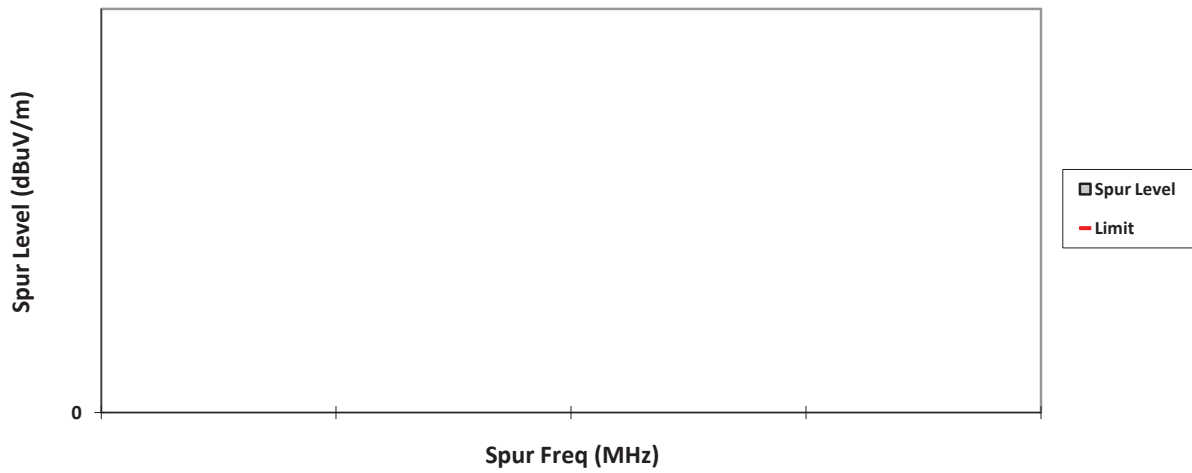
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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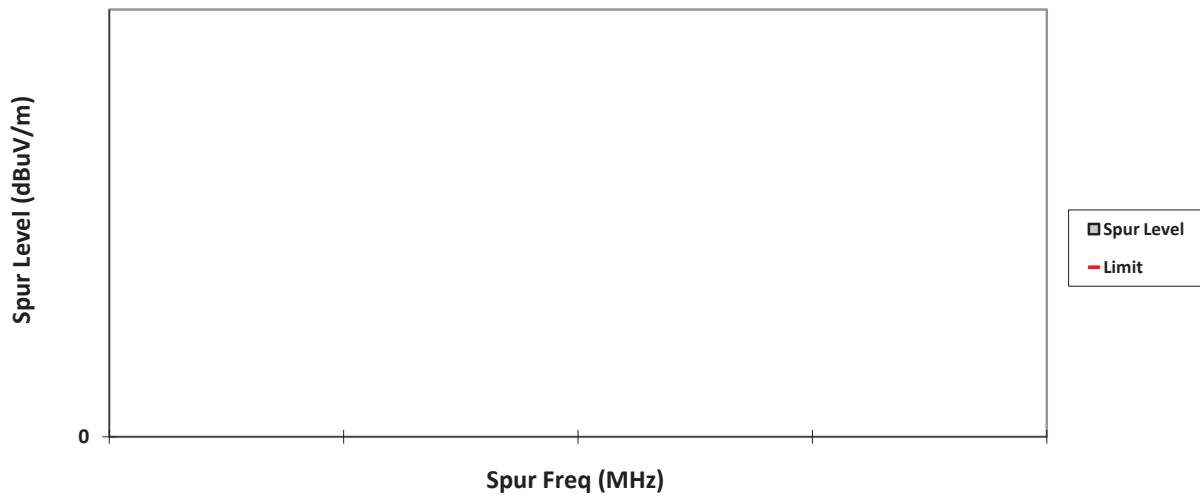
Humidity (%): 66.3
Test Date: Fri, Mar 02, 2018
Duty Cycle (%): > 98%

75

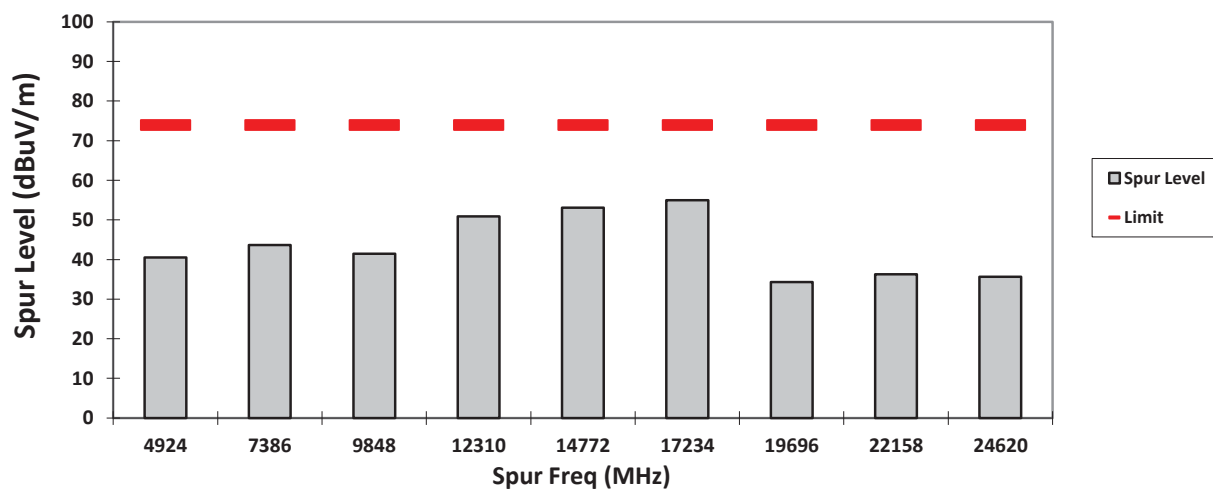
VERTICAL, QPK



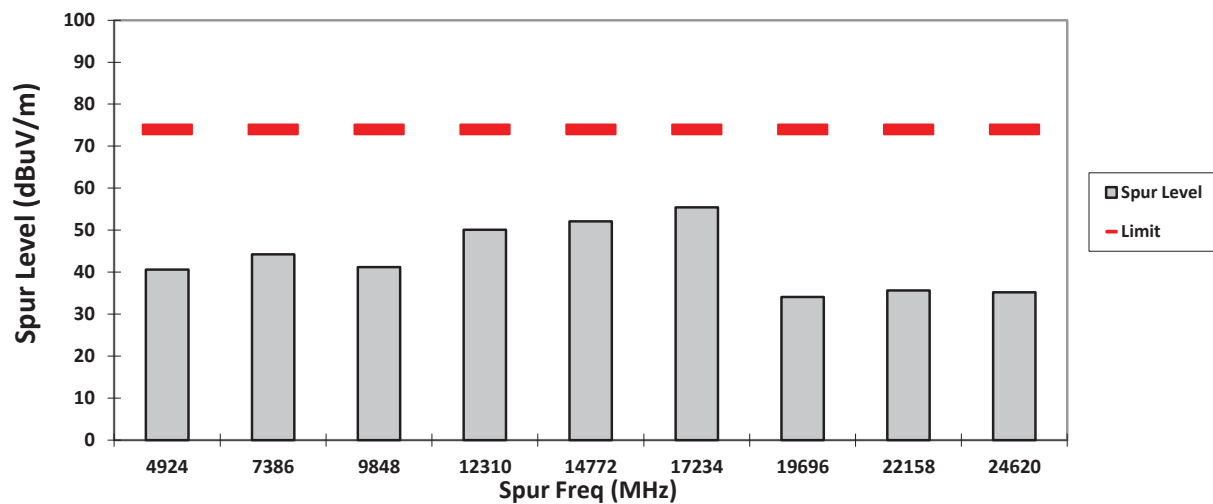
HORIZONTAL, QPK



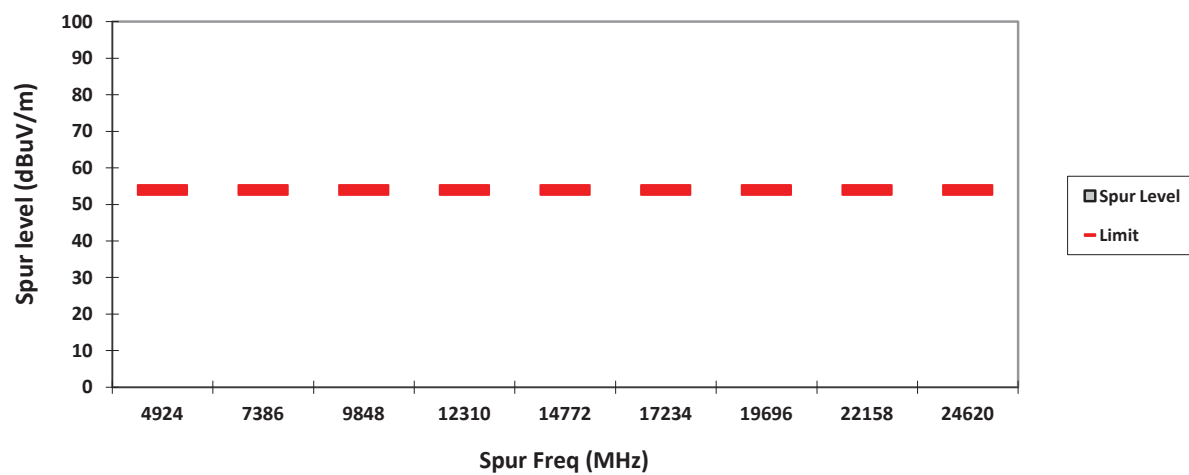
VERTICAL, PK



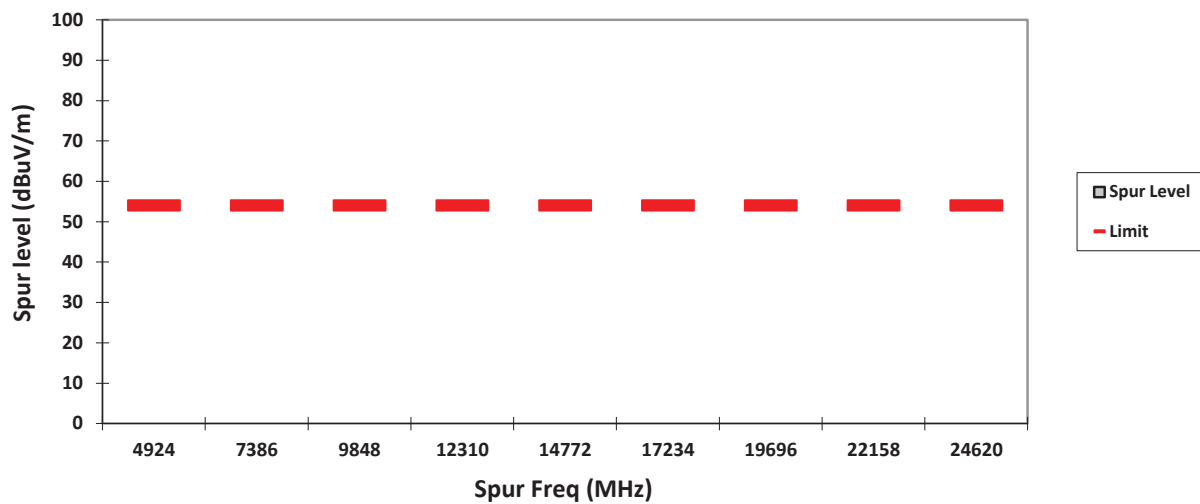
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission

Test Frequency: 2412.0000 MHz Test Standard: ANSI C63.10-2013

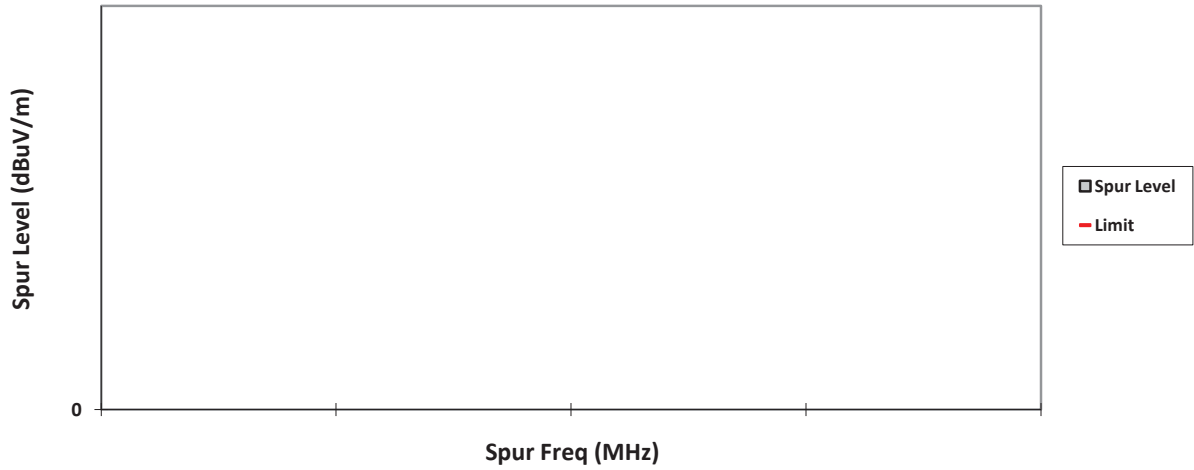
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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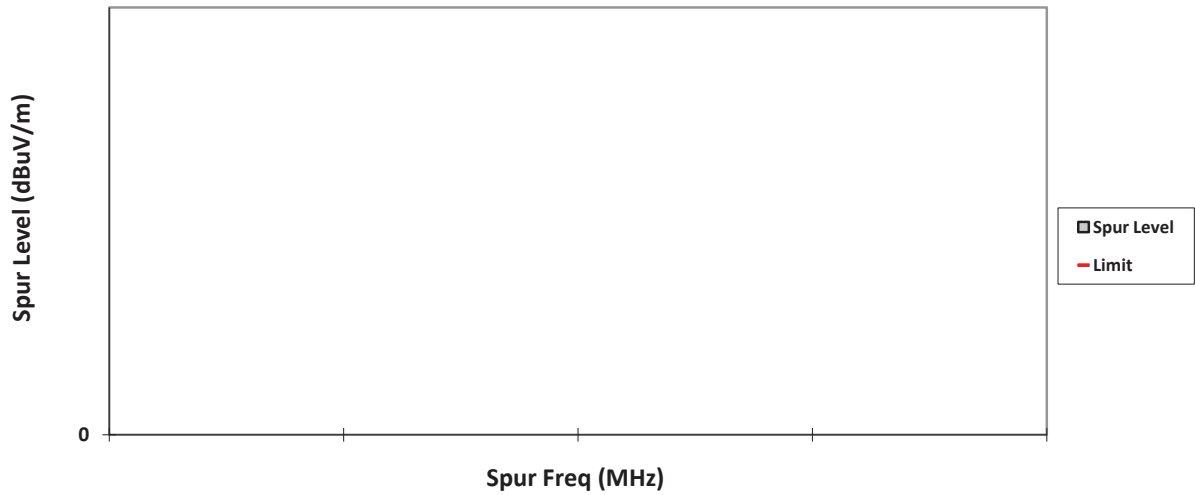
Humidity (%): 66.3
Test Date: Fri, Mar 02, 2018
Duty Cycle (%): > 98%

79

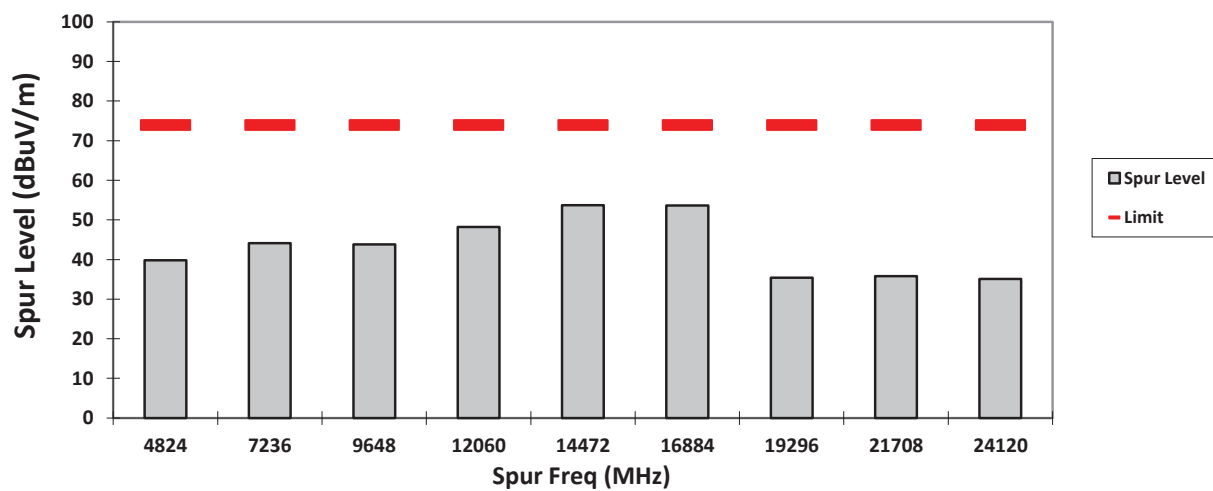
VERTICAL, QPK



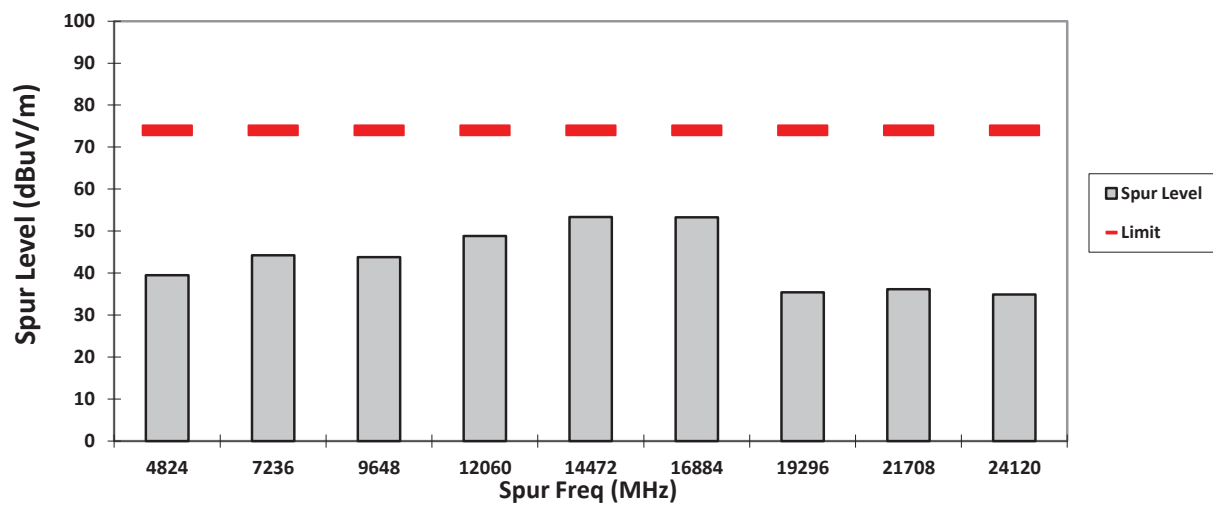
HORIZONTAL, QPK



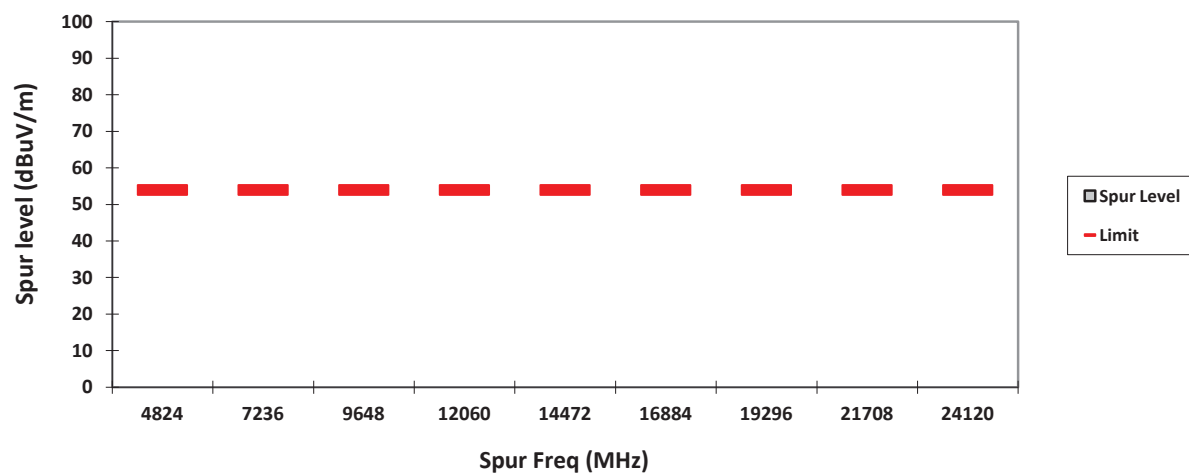
VERTICAL, PK



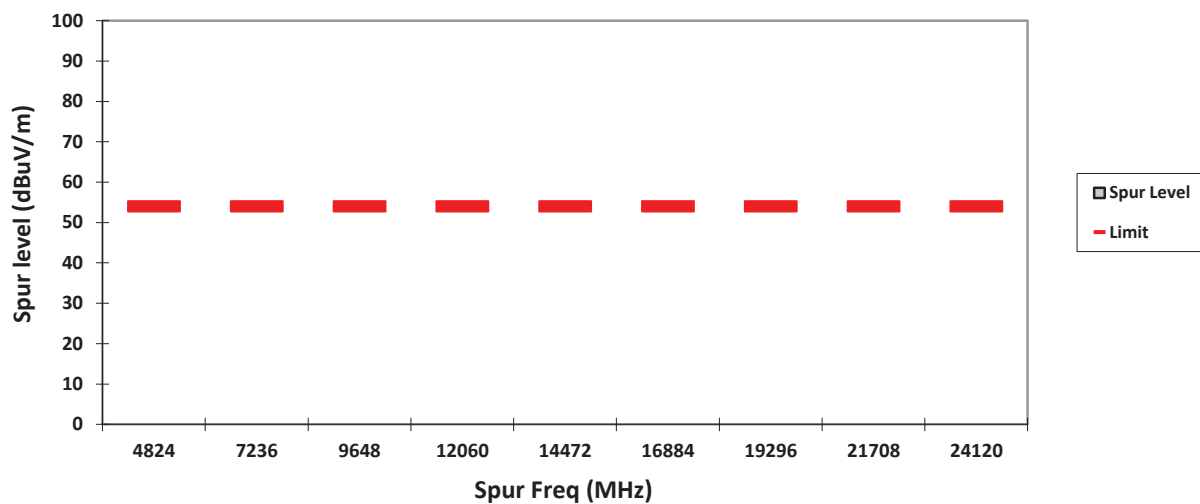
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Model Number: H91TGD9PW9AN	S/N: 673TUB0280	EMC SR ID#: 09225-EMC-00019
Battery: PMNN4487A	Accessory: NA	
Test Channel: Mid	Test Frequency: 2437.0000 MHz	Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11g)		

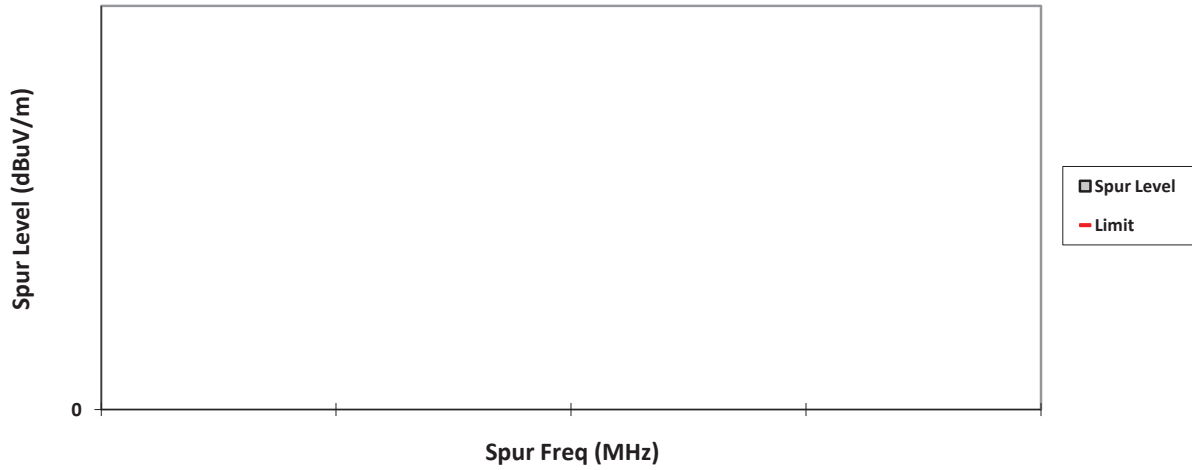
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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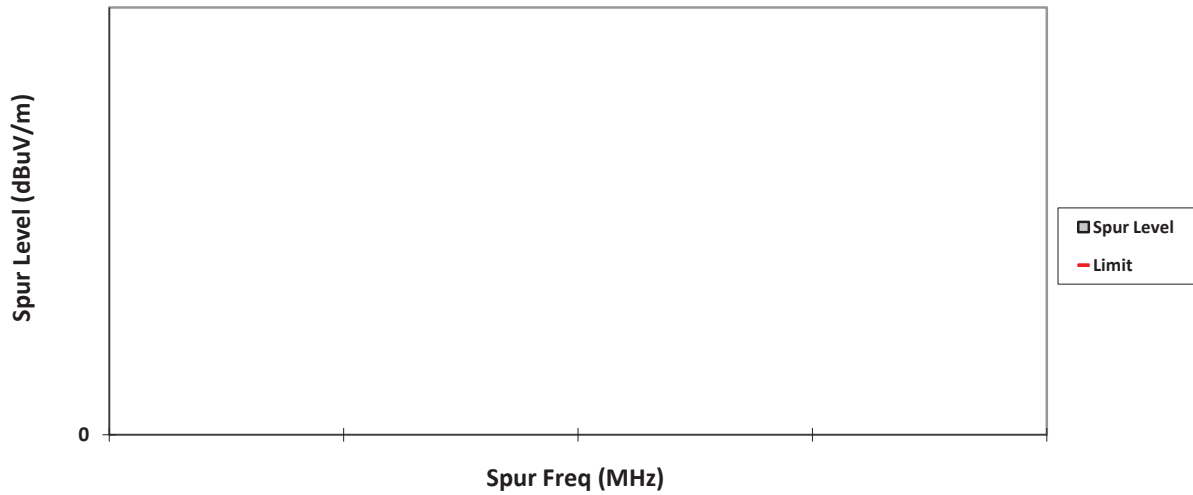
Humidity (%): 66.3
Test Date: Fri, Mar 02, 2018
Duty Cycle (%): > 98%

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.

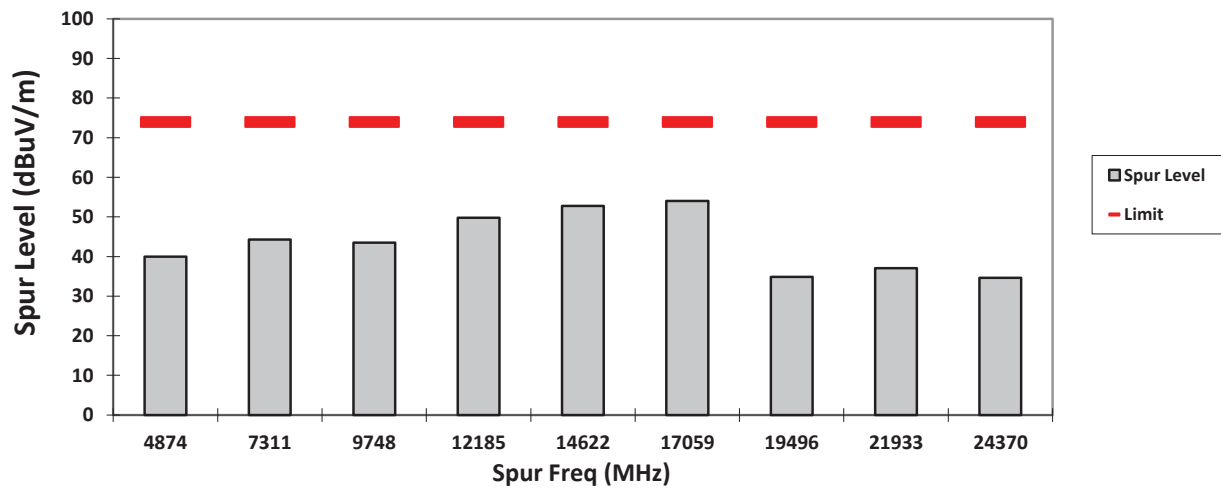
VERTICAL, QPK



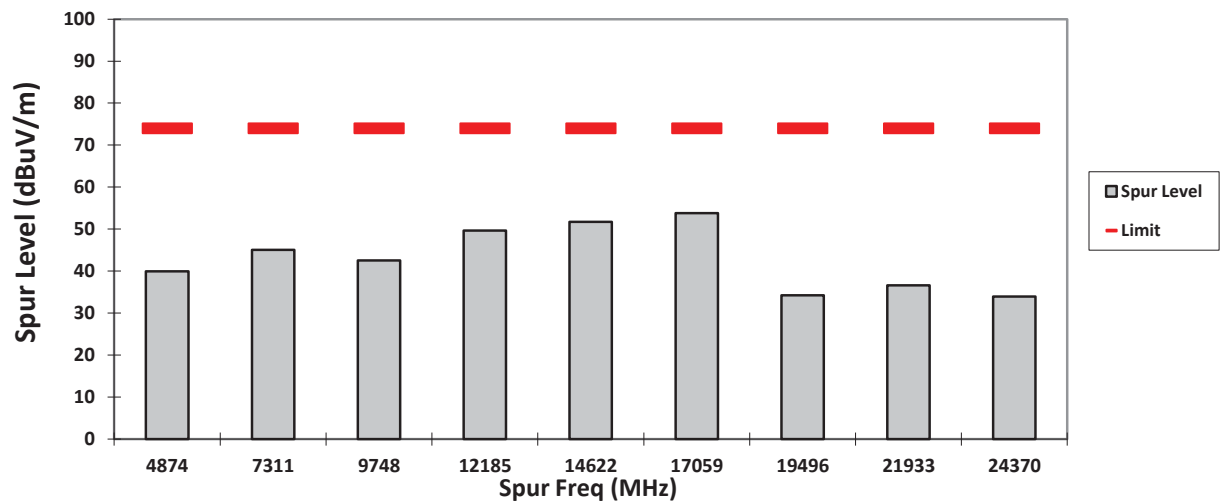
HORIZONTAL, QPK



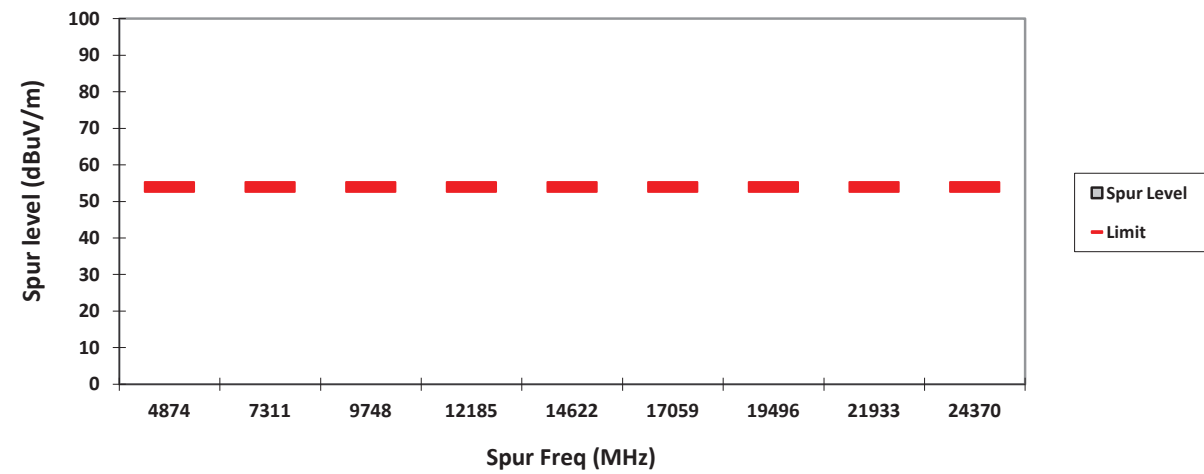
VERTICAL, PK



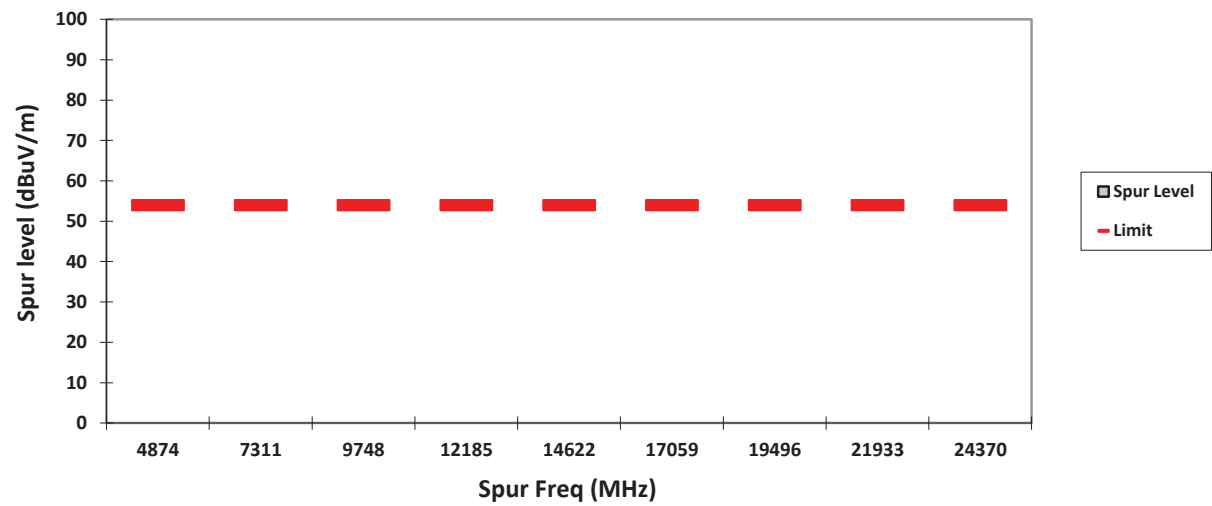
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Model Number: H91TGD9PW9AN	S/N: 673TUB0280	EMC SR ID#: 09225-EMC-00019
Battery: PMNN4487A	Accessory: NA	
Test Channel: High	Test Frequency: 2462.0000 MHz	Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11g)		

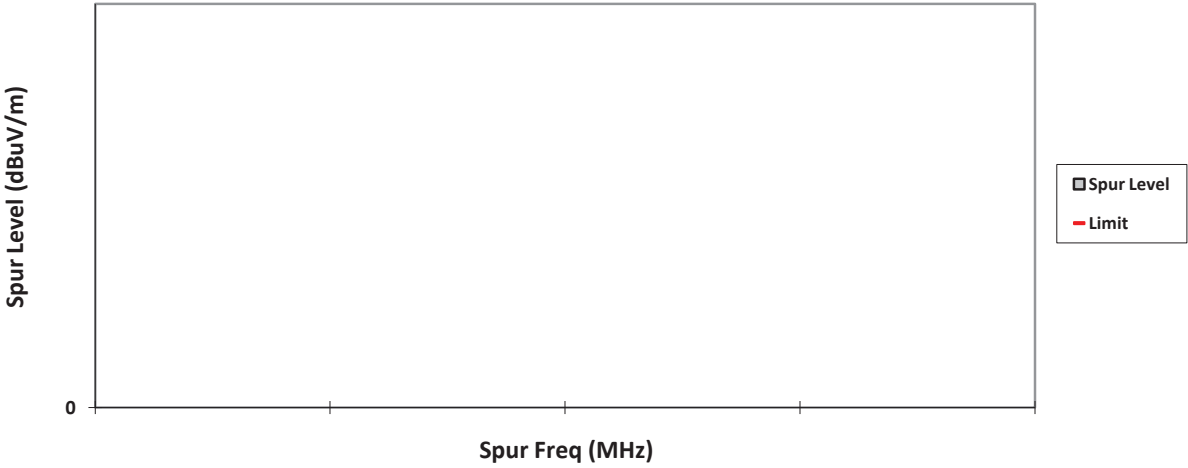
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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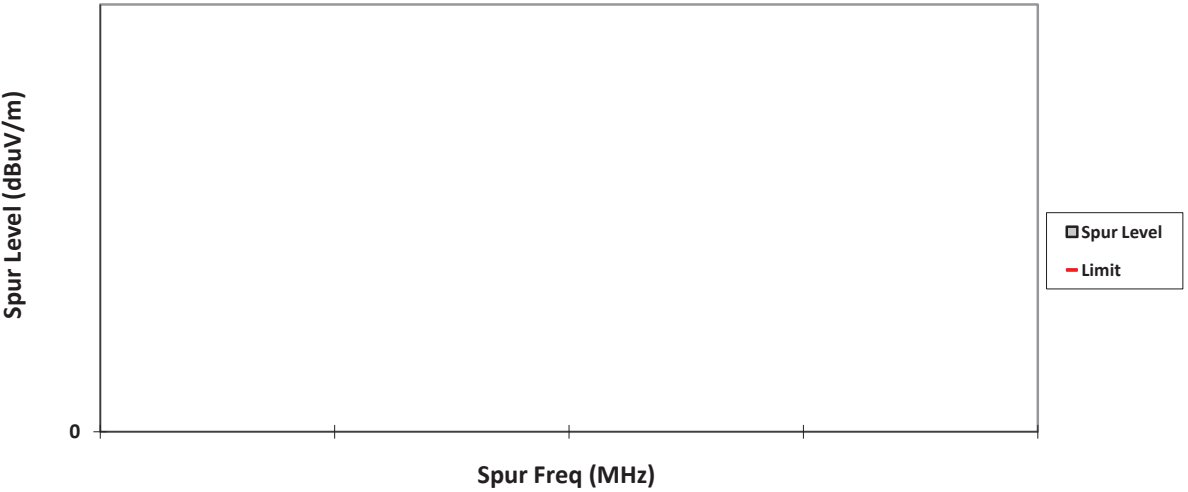
Humidity (%): 66.3
Test Date: Fri, Mar 02, 2018
Duty Cycle (%): > 98%

87

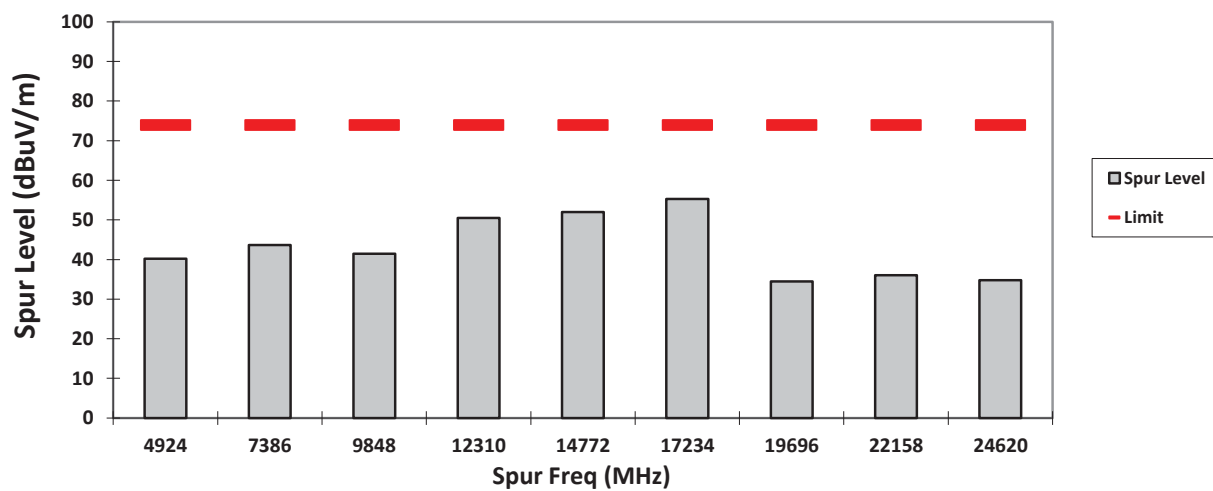
VERTICAL, QPK



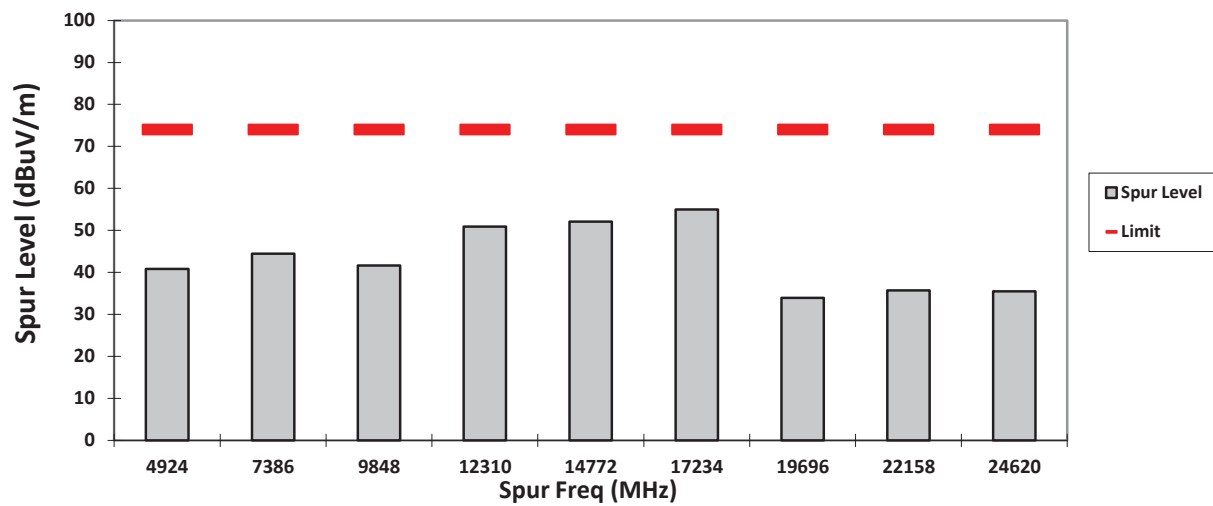
HORIZONTAL, QPK



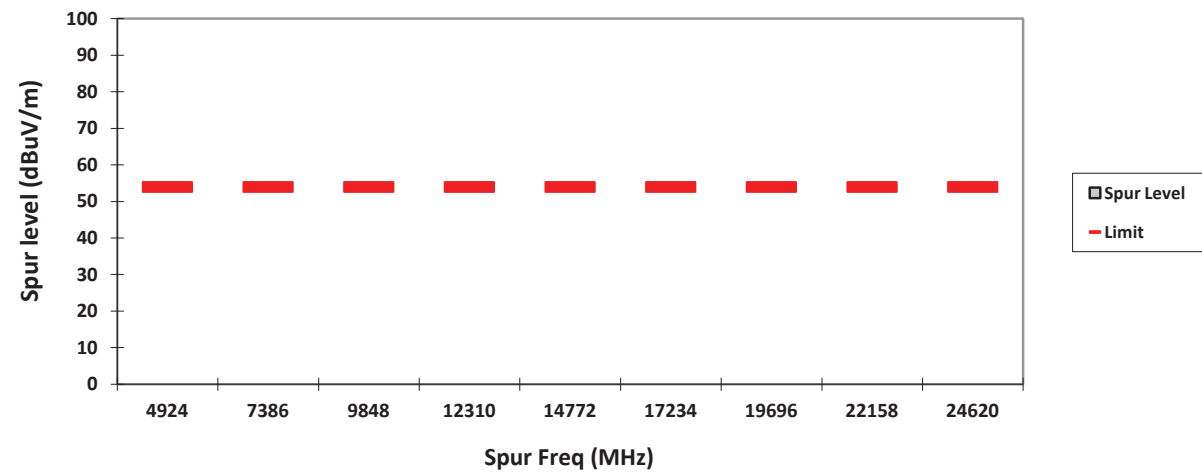
VERTICAL, PK



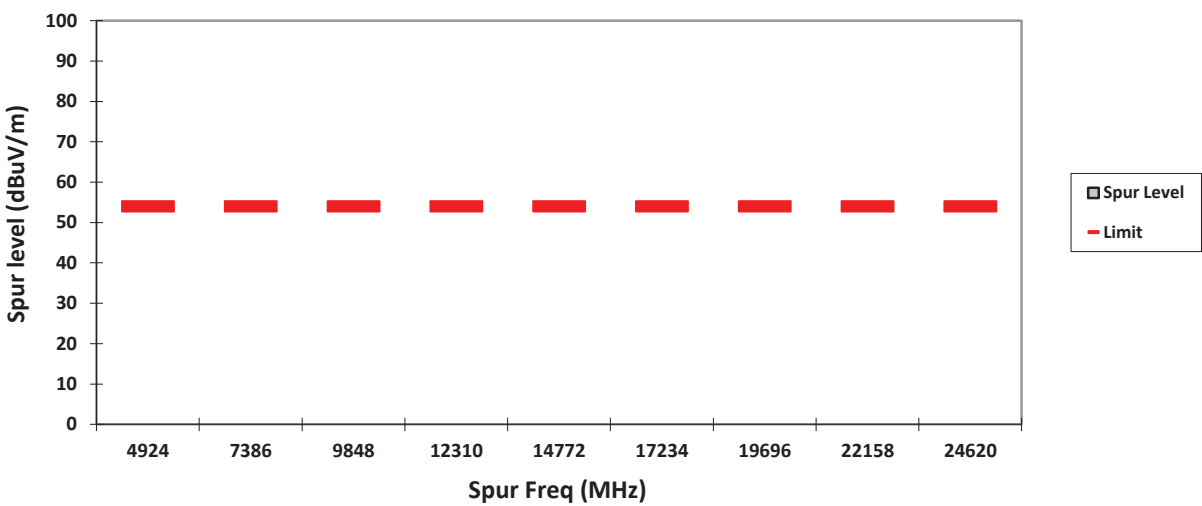
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission

Test Frequency: 2412.0000 MHz Test Standard: ANSI C63.10-2013

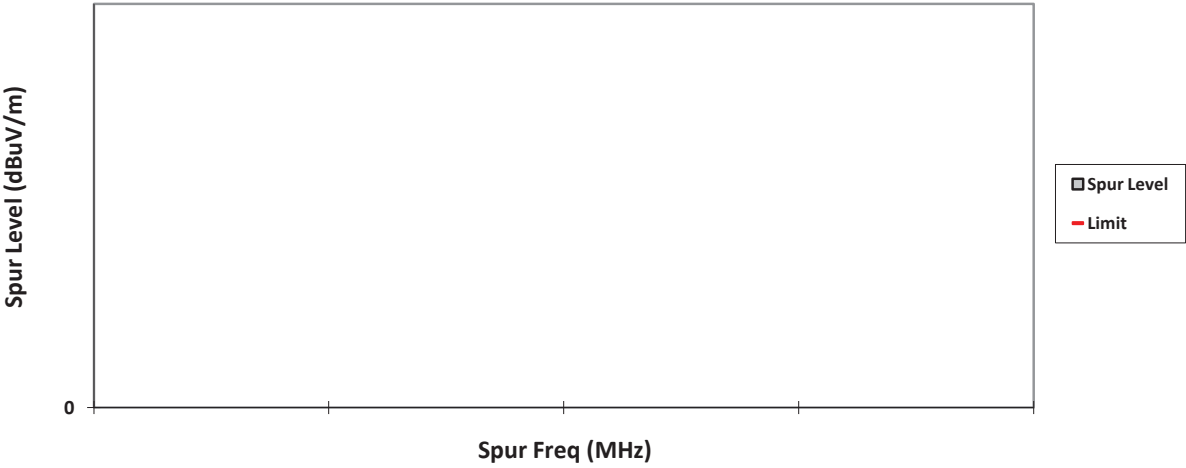
[illegible]

Temperature (degC): 22.4
Test Performed by: Nazrin & Qawiman
System MU: 5.01dB

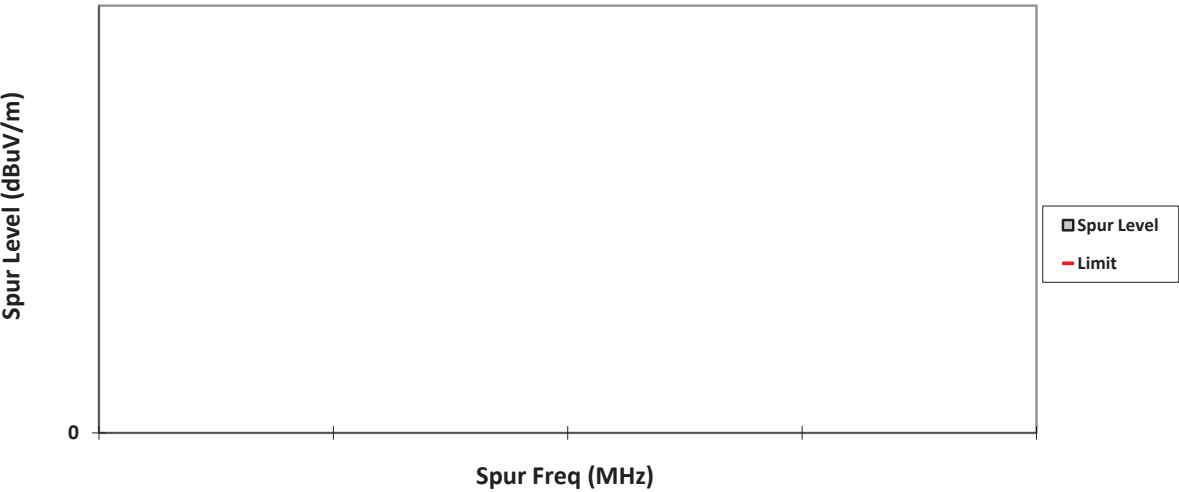
Humidity (%): 66.3
Test Date: Fri, Mar 02, 2018
Duty Cycle (%): > 98%

91

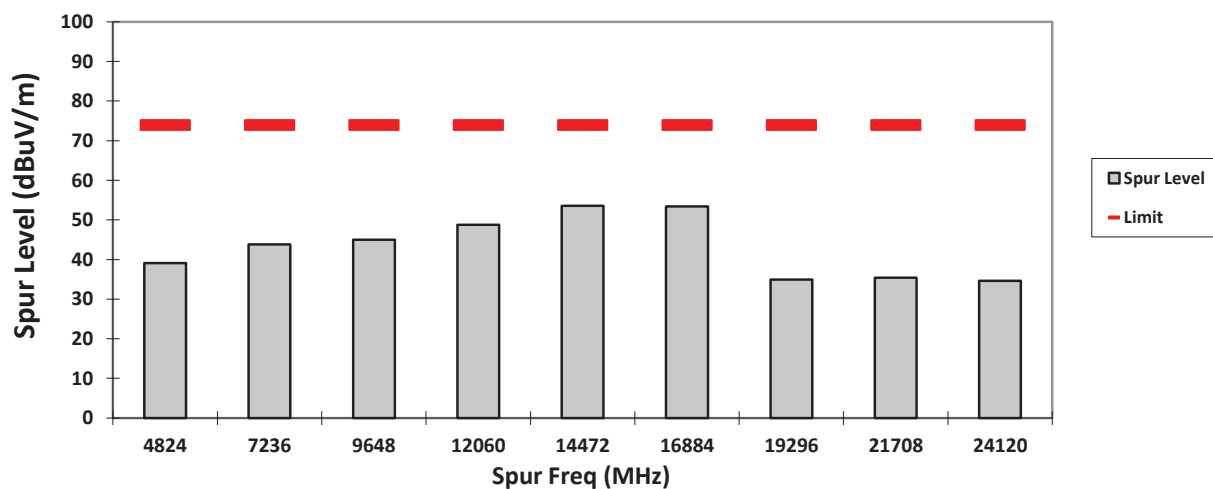
VERTICAL, QPK



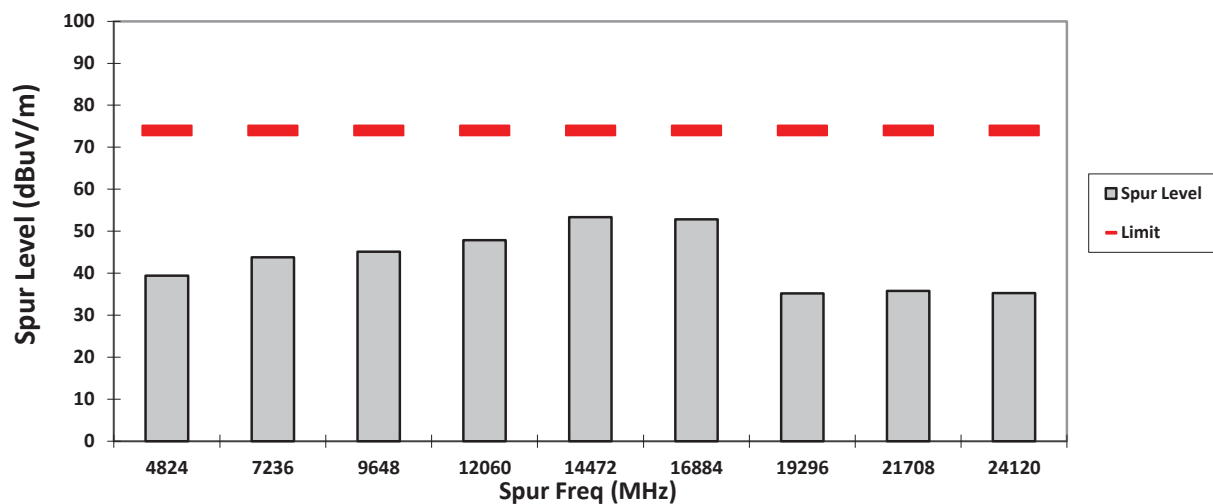
HORIZONTAL, QPK



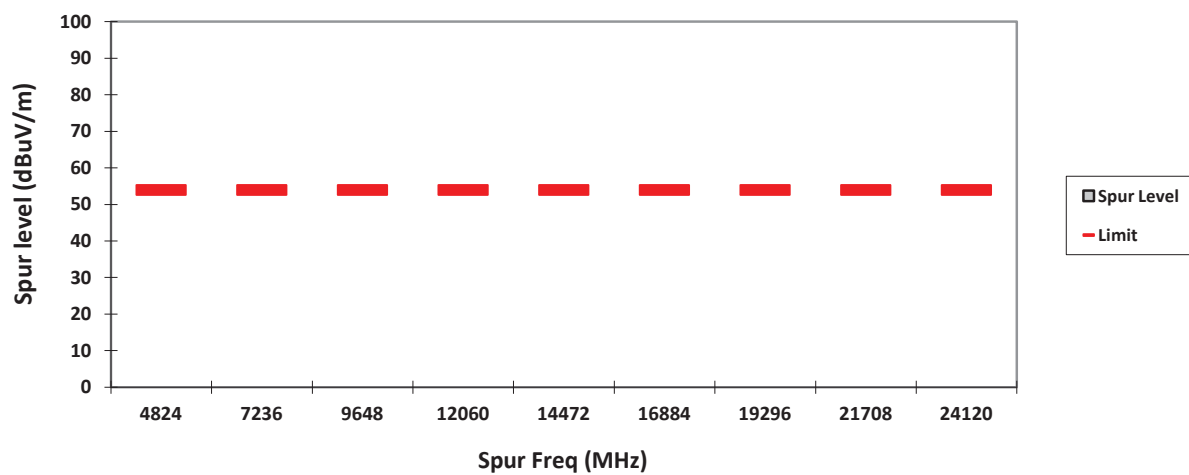
VERTICAL, PK



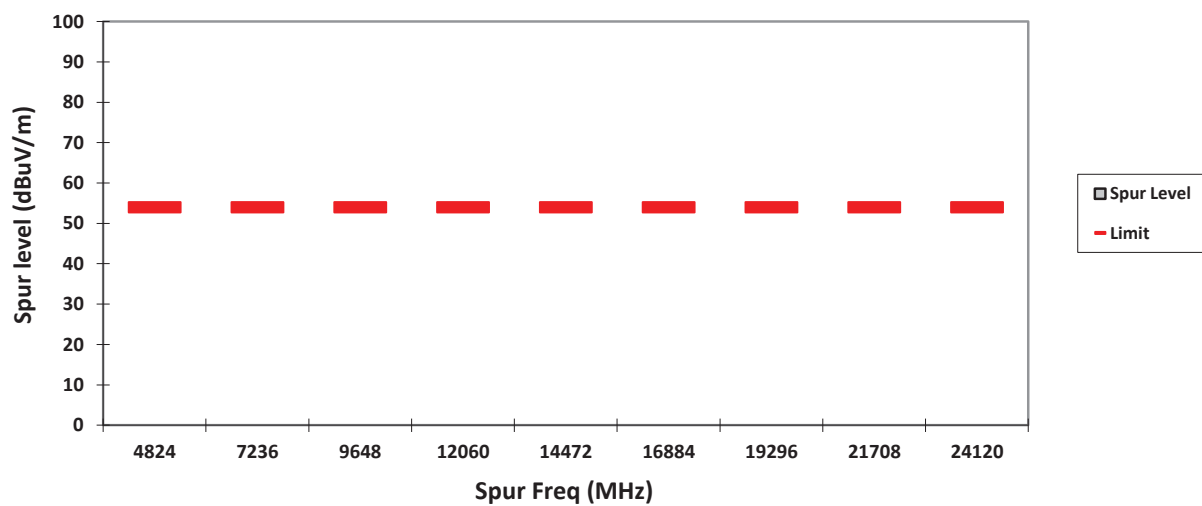
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Model Number: H91TGD9PW9AN	S/N: 673TUB0280	EMC SR ID#: 09225-EMC-00019
Battery: PMNN4487A	Accessory: NA	
Test Channel: Mid	Test Frequency: 2437.0000 MHz	Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11n)		

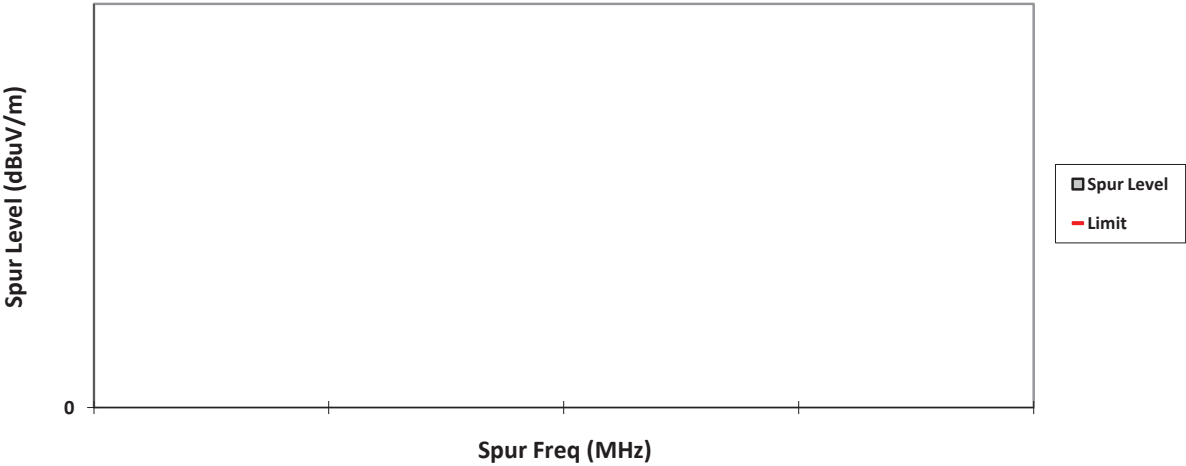
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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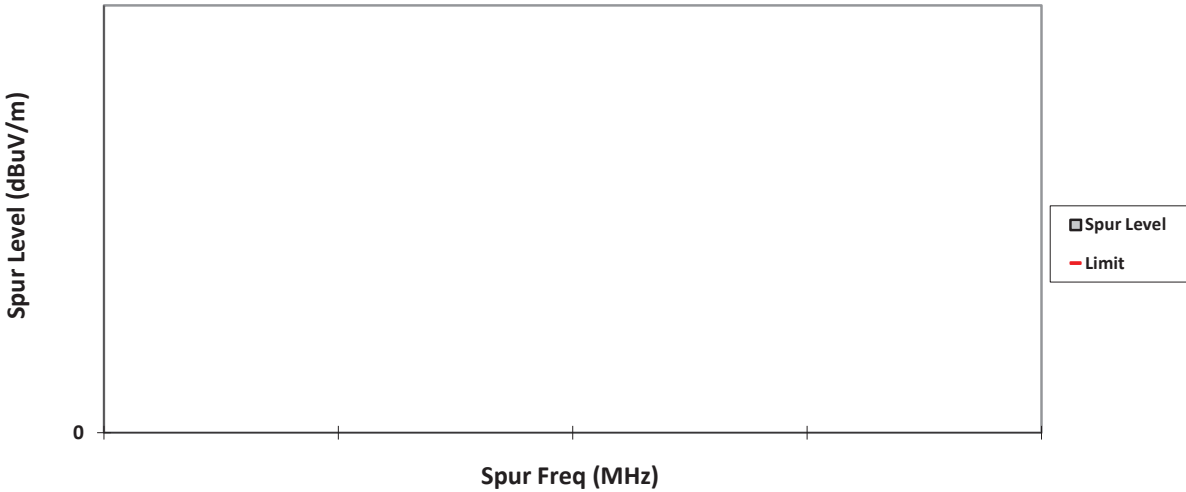
Humidity (%): 66.3
Test Date: Fri, Mar 02, 2018
Duty Cycle (%): > 98%

95

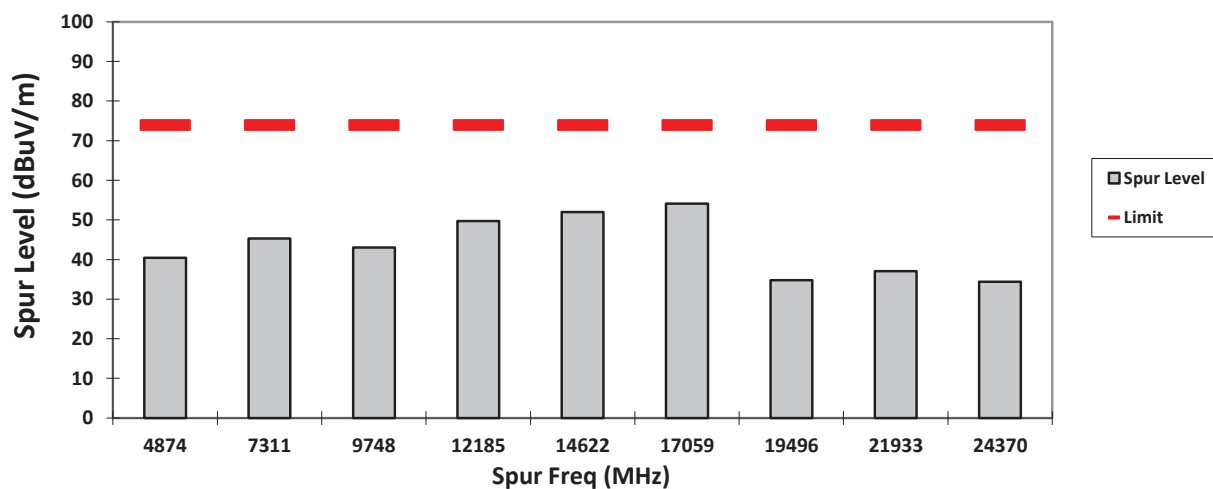
VERTICAL, QPK



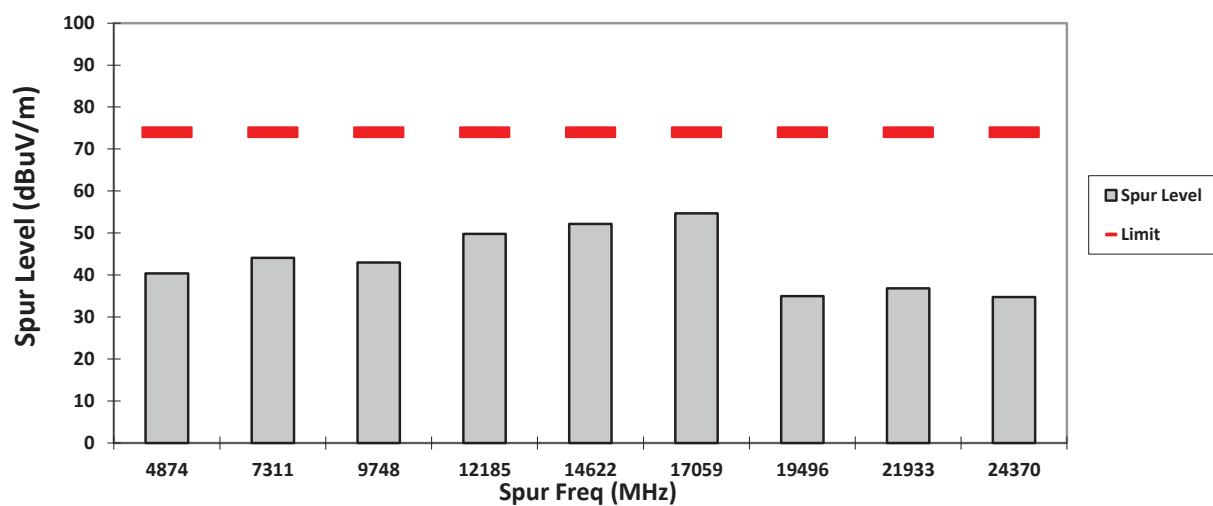
HORIZONTAL, QPK



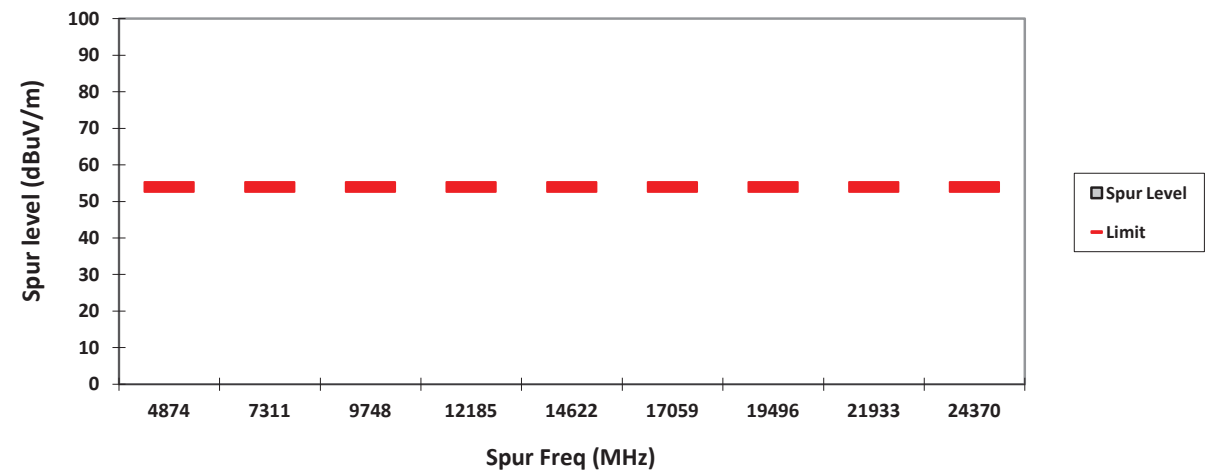
VERTICAL, PK



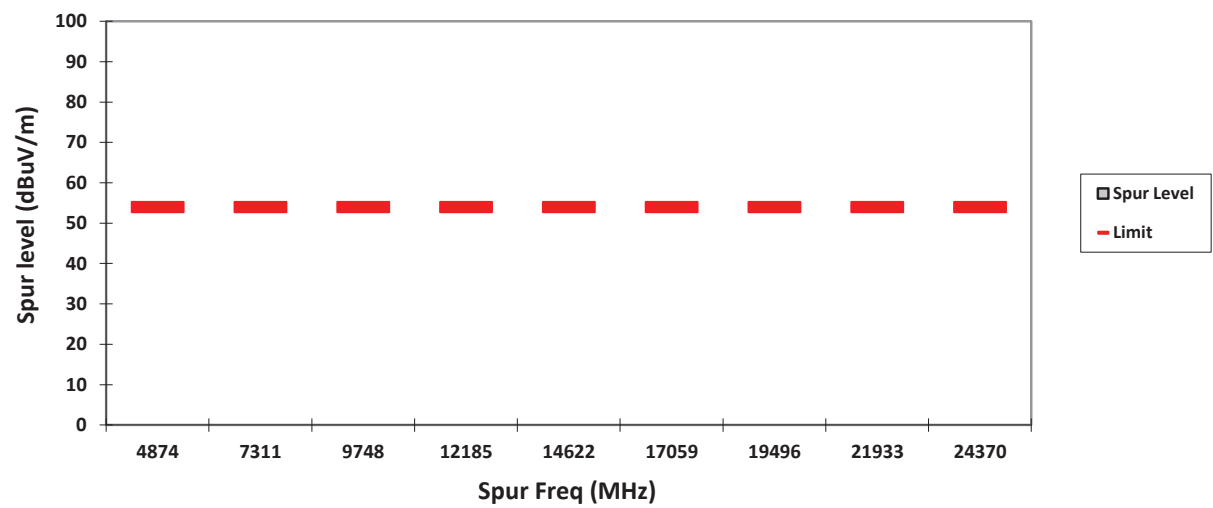
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Model Number: H91TGD9PW9AN	S/N: 673TUB0280	EMC SR ID#: 09225-EMC-00019
Battery: PMNN4487A	Accessory: NA	
Test Channel: High	Test Frequency: 2462.0000 MHz	Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11n)		

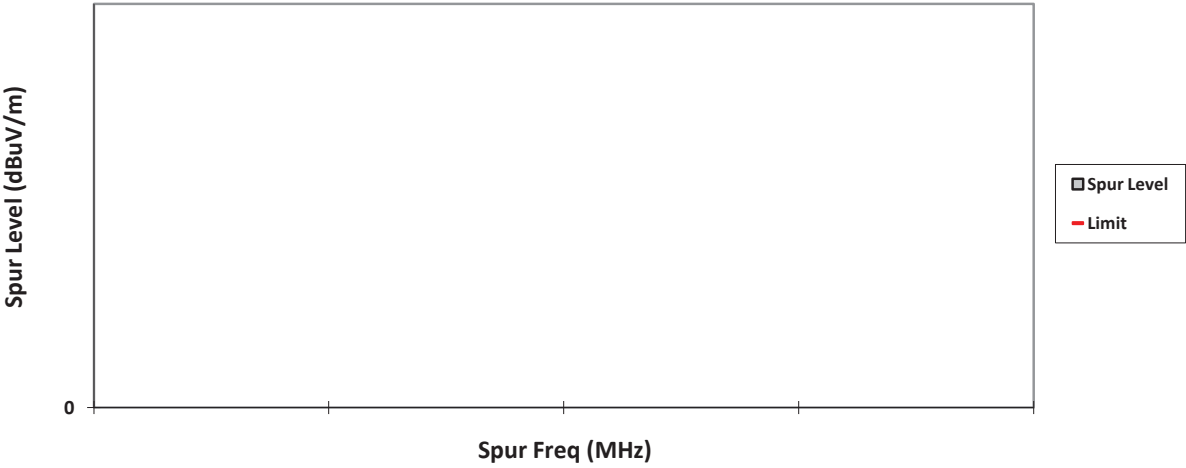
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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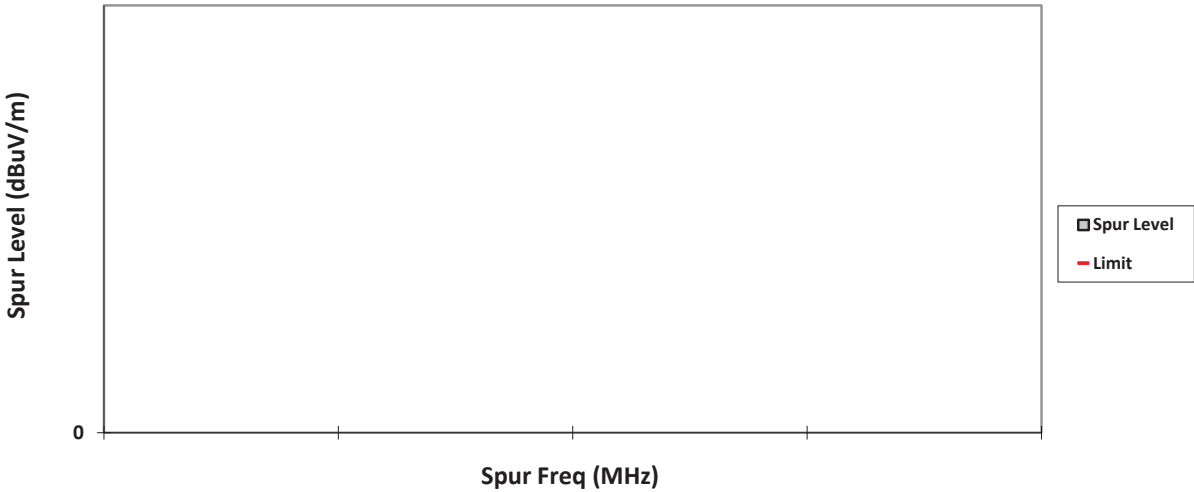
Humidity (%): 66.3
Test Date: Fri, Mar 02, 2018
Duty Cycle (%): > 98%

99

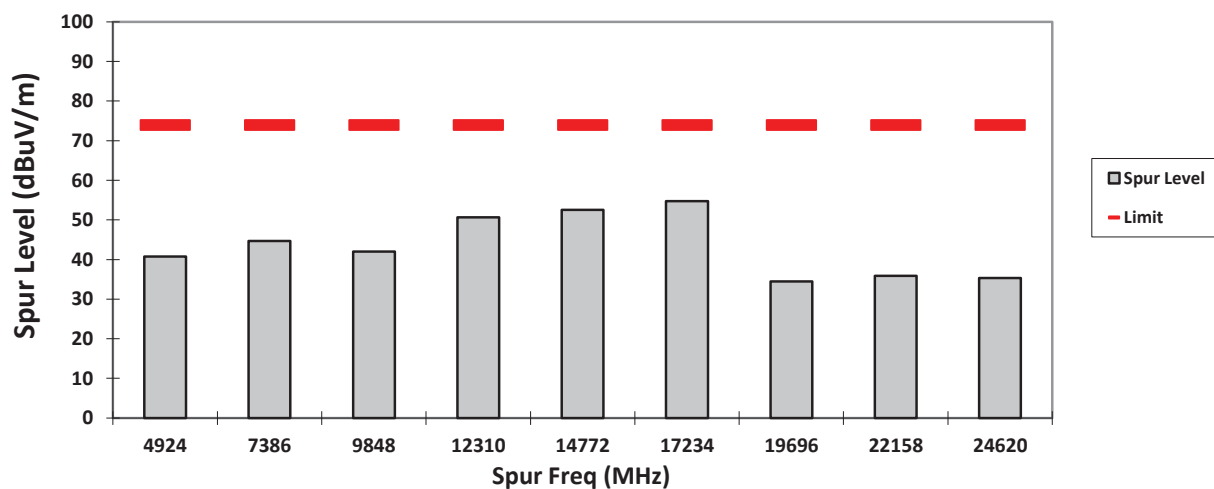
VERTICAL, QPK



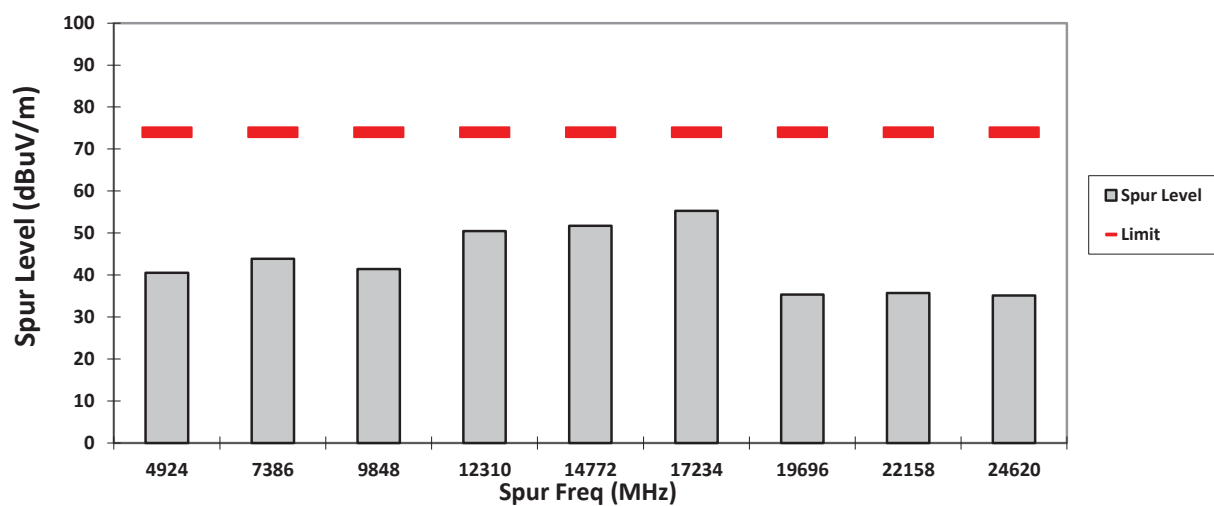
HORIZONTAL, QPK



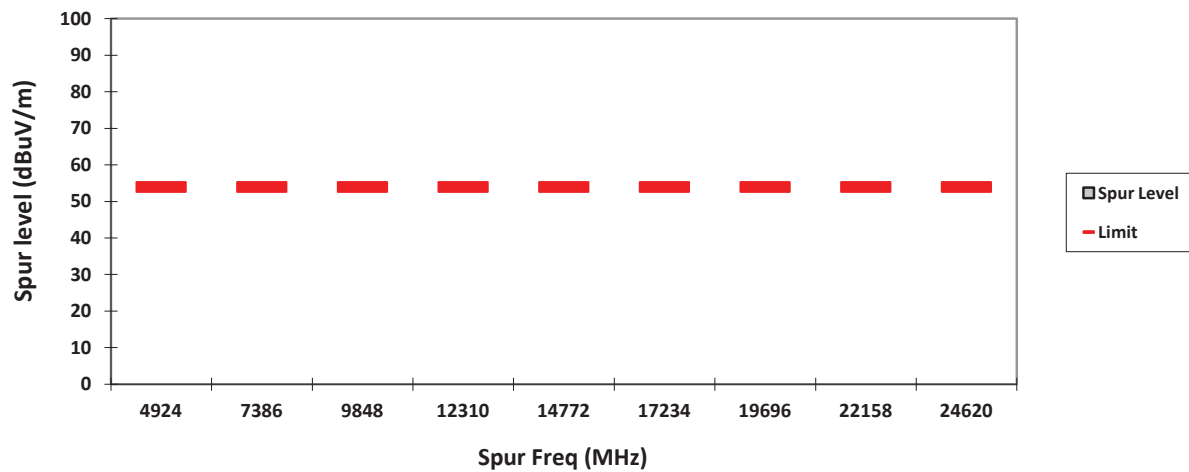
VERTICAL, PK



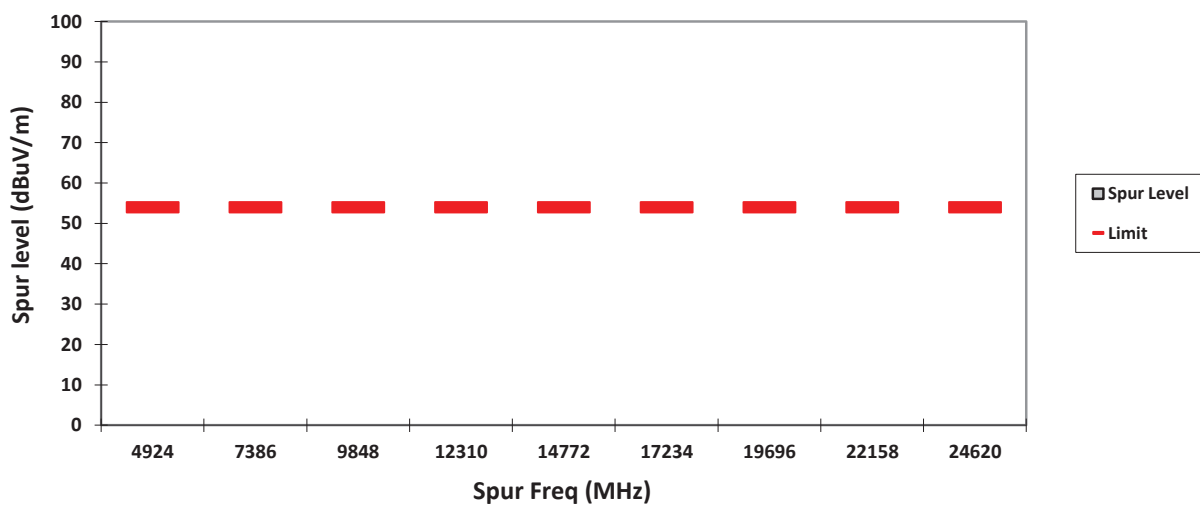
HORIZONTAL, PK



VERTICAL, AV

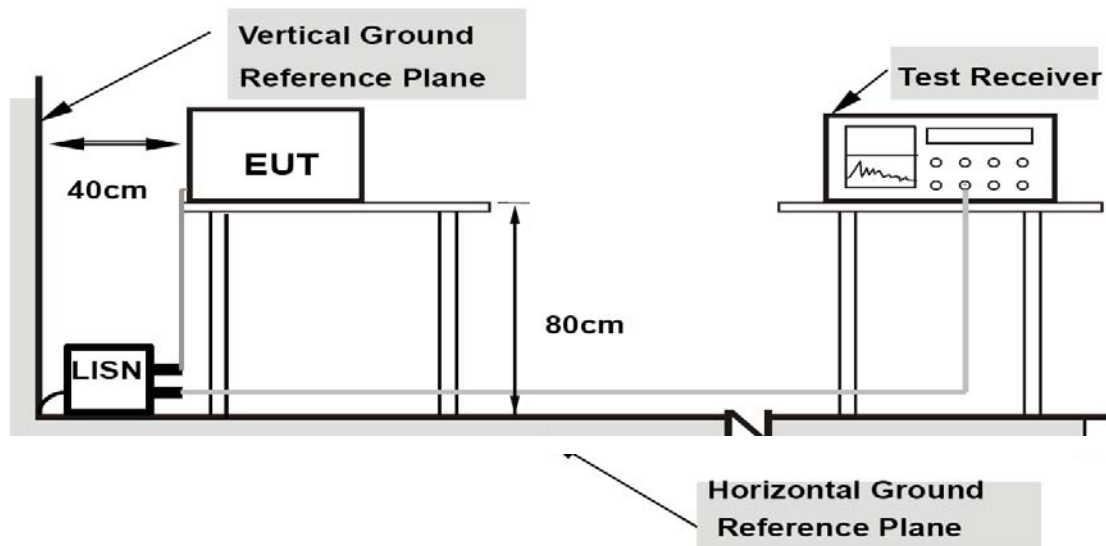


HORIZONTAL, AV



6.8. AC Powerline Conducted Emission

6.8.1. Test Setup



- 1) Tests were conducted for both Receive and Transmit Mode of the EUT.
- 2) The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50uH of coupling impedance for the measuring instrument.
- 3) Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- 4) The frequency range from 150 kHz to 30MHz was measured.

6.8.2. Test Limits:

For AC Power Line Conducted Test Limit can be Class A or B depends on product classification.

**Limits for conducted disturbance at the mains ports
of class A ITE**

Frequency range MHz	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	79	66
0,50 to 30	73	60
NOTE The lower limit shall apply at the transition frequency.		

Table 1: Limits for Conducted Disturbance at the Mains Ports of Class A ITE.

**Limits for conducted disturbance at the mains ports
of class B ITE**

Frequency range MHz	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50
NOTE 1 The lower limit shall apply at the transition frequencies. NOTE 2 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.		

Table 2: Limits for Conducted Disturbance at the Mains Ports of Class B ITE.

6.8.3. Test Result

Not Applicable. Testing is not required, radio shall turn off during charging mode.