

Test Report
AIR-RM3010L-z-K9
(Where z=A, B, D, N, T or Z)

FCC ID: LDK102094
IC: 2461B-102094

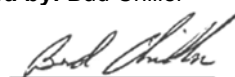
2400-2483.5 MHz

Against the following Specifications:

CFR47 Part 15.247
RSS-247
RSS-Gen

Cisco Systems
170 West Tasman Drive
San Jose, CA 95134

Approved by: Bud Chiller



Revision: 1

This report replaces any previously entered test report under EDCS – **1511861**. This test report has been electronically authorized and archived using the CISCO Engineering Document Control system.

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Section 1: Overview

The samples were assessed against the tests under the requirements of the following specifications:

Emission
CFR47 Part 15.247 RSS247 Issue 1: May 2015 RSS-Gen Issue 4: Nov 2014

Measurements were made in accordance with

- ANSI C63.10:2013
- FCC KDB 662911 D01
- KDB 558074 D01 Meas Guidance v03r03

Section 2: Assessment Information

2.1 General

This report contains an assessment of an apparatus against Electromagnetic Compatibility Standards based upon tests carried out on the samples submitted. The testing was performed by and for the use of Cisco systems Inc:

With regard to this assessment, the following points should be noted:

- a) The results contained in this report relate only to the items tested and were obtained in the period between the date of the initial assessment and the date of issue of the report. Manufactured products will not necessarily give identical results due to production and measurement tolerances.
- b) The apparatus was set up and exercised using the configuration and modes of operation defined in this report only.
- c) Where relevant, the apparatus was only assessed using the susceptibility criteria defined in this report and the Test Assessment Plan (TAP).
- d) All testing was performed under the following environmental conditions:

Temperature	15°C to 35°C (54°F to 95°F)
Atmospheric Pressure	860mbar to 1060mbar (25.4" to 31.3")
Humidity	10% to 75*%

*[Where applicable] For ESD testing the humidity limits used were 30% to 60% and for EFT/B tests the humidity limits used were 25% to 75%.
- e) All AC testing was performed at one or more of the following supply voltages:

110V 60 Hz (+/-20%)

Units of Measurement

The units of measurements defined in the appendices are reported in specific terms, which are test dependent. Where radiated measurements are concerned these are defined at a particular distance. Basic voltage measurements are defined in units of [dBuV]

As an example, the basic calculation for all measurements is as follows:

$$\text{Emission level [dBuV]} = \text{Indicated voltage level [dBuV]} + \text{Cable Loss [dB]} + \text{Other correction factors [dB]}$$

The combinations of correction factors are dependent upon the exact test configurations [see test equipment lists for further details] and may include:-

Antenna Factors, Pre Amplifier Gain, LISN Loss, Pulse Limiter Loss and Filter Insertion Loss..

Note: to convert the results from dBuV/m to uV/m use the following formula:-

$$\text{Level in uV/m} = \text{Common Antilogarithm} [(X \text{ dBuV/m})/20] = Y \text{ uV/m}$$



Custom EMC Test Report No: **EDCS - 1511861**

Measurement Uncertainty Values

voltage and power measurements	± 2 dB
conducted EIRP measurements	± 1.4 dB
radiated measurements	± 3.2 dB
frequency measurements	$\pm 2.4 \times 10^{-7}$
temperature measurements	$\pm 0.54^\circ$
humidity measurements	$\pm 2.3\%$
DC and low frequency measurements	$\pm 2.5\%$

Where relevant measurement uncertainty levels have been estimated for tests performed on the apparatus. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Radiated emissions (expanded uncertainty, confidence interval 95%)

30 MHz - 300 MHz	+/- 3.8 dB
300 MHz - 1000 MHz	+/- 4.3 dB
1 GHz - 10 GHz	+/- 4.0 dB
10 GHz - 18GHz	+/- 8.2 dB
18GHz - 26.5GHz	+/- 4.1 dB
26.5GHz - 40GHz	+/- 3.9 dB

Conducted emissions (expanded uncertainty, confidence interval 95%)

30 MHz – 40GHz	+/- 0.38 dB
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A product is considered to comply with a requirement if the nominal measured value is below the limit line.
The product is considered to not be in compliance in case the nominal measured value is above the limit line.

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Custom EMC Test Report No: **EDCS - 1511861**

2.2 Date of testing

February-15 - March-15

2.3 Report Issue Date

14-August-2015

Cisco uses an electronic system to issue, store and control the revision of test reports. This system is called the Engineering Document Control System (EDCS). The actual report issue date is embedded into the original file on EDCS. Any copies of this report, either electronic or paper, that are not on EDCS must be considered uncontrolled.

2.4 Testing facilities

This assessment was performed by:

Testing Laboratory

Cisco Systems, Inc.,
125 West Tasman Drive
San Jose, CA 95134, USA

Registration Numbers for Industry Canada

Cisco System Site	Address	Site Identifier
Building P, 10m Chamber	125 West Tasman Dr San Jose, CA 95134	Company #: 2461N-2
Building P, 5m Chamber	125 West Tasman Dr San Jose, CA 95134	Company #: 2461N-1
Building I, 5m Chamber	285 W. Tasman Drive San Jose, California 95134	Company #: 2461M-1

Testing occurred in one or more of the above chambers.



Testing - Certificate Number: 1178-01

Test Engineers

John Liscio, Jose Aguirre

Custom EMC Test Report No: **EDCS - 1511861**

2.5 Equipment Assessed (EUT)

AIR-RM3010L-z-K9

2.6 EUT Description

The AIR-RM3010L-Z-K9 Cisco Aironet 802.11n Dual Band Access Points support the following modes of operation. The modes are further defined in the radio Theory of Operation. The modes included in this report represent the worst case data for all modes. Data is recorded at the lowest supported data rate for each mode. This report covers operation on channel 1-11.

802.11n/ac - Legacy CCK, One Antenna, 1 to 11 Mbps
 802.11n/ac - Legacy CCK, Two Antennas, 1 to 11 Mbps
 802.11n/ac - Legacy CCK, Three Antennas, 1 to 11 Mbps
 802.11n/ac - Legacy CCK, Four Antennas, 1 to 11 Mbps

802.11n/ac - Non HT-20, One Antenna, 6 to 54 Mbps
 802.11n/ac - Non HT-20, Two Antennas, 6 to 54 Mbps
 802.11n/ac - Non HT-20, Three Antennas, 6 to 54 Mbps
 802.11n/ac - Non HT-20, Four Antennas, 6 to 54 Mbps

802.11n/ac - HT-20, One Antenna, M0 to M7
 802.11n/ac - HT-20, Two Antennas, M0 to M7
 802.11n/ac - HT-20, Three Antennas, M0 to M7
 802.11n/ac - HT-20, Four Antennas, M0 to M7

802.11n/ac - HT-20 STBC, Two Antennas, M0 to M7
 802.11n/ac - HT-20 STBC, Three Antennas, M0 to M7
 802.11n/ac - HT-20 STBC, Four Antennas, M0 to M7

The following antennas are supported by this product series.
 The data included in this report represent the worst case data for all antennas.

Frequency	Part Number	Antenna Type	Antenna Gain (dBi)	2.4G Location Antenna Gain (dBi)	5G Location Antenna Gain (dBi)	2.4G WiFi Gain (dBi)	5G WiFi Gain (dBi)
2.4 / 5 GHz	NA	WSSI Internal	2	3	4	-	-
	AIR-ANT-LOC-01	Ring - Omni	-	0	0	-	-
	AIR-ANT25-LOC-02	Omni Array	-	0	0	0	0
	AIR-ANT25-LOC-03	Directional Array	-	0	0	0	0

Section 3: Result Summary

3.1 Results Summary Table

Conducted emissions

Basic Standard	Technical Requirements / Details	Result
FCC 15.247 RSS-247	6dB Bandwidth: Systems using digital modulation techniques may operate in the 2400-2483.5MHz band. The minimum 6dB bandwidth shall be at least 500 kHz.	Pass
FCC 15.247 RSS-247	99% & 26 dB Bandwidth: The 99% occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. There is no limit for 99% OBW. The 26 dB emission is the width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.	Pass
FCC 15.247 RSS-247	Output Power: 15.247 The maximum conducted output power of the intentional radiator for systems using digital modulation in the 2400-2483.5 MHz band shall not exceed 1 Watt (30dBm). If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. RSS-247 For DTSSs employing digital modulation techniques operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. Except as provided in Section 5.4(5), the e.i.r.p. shall not exceed 4 W.	Pass
FCC 15.247 RSS-247	Power Spectral Density: For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.	Pass
FCC 15.247 RSS-247	Conducted Spurious Emissions / Band-Edge: 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	Pass
FCC 15.247 RSS-247 FCC 15.205 RSS-Gen	Restricted band: Unwanted emissions falling within the restricted bands, as defined in FCC 15.205 (a) and RSS-Gen 8.10 must also comply with the radiated emission limits specified in FCC 15.209 (a) and RSS-Gen 8.9.	Pass

Radiated Emissions (General requirements)

Basic Standard	Technical Requirements / Details	Result
FCC 15.209 RSS-Gen	TX Spurious Emissions: Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the filed strength limits table in this section. Unwanted emissions falling within the restricted bands, as defined in FCC 15.205 (a) and RSS-Gen 8.10 must also comply with the radiated emission limits specified in FCC 15.209 (a) and RSS-Gen 8.9.	Pass
RSS-Gen	RX Spurious Emissions: RSS-Gen 8.9 Except when the requirements applicable to a given device state otherwise, emissions from licence-exempt transmitters shall comply with the field strength limits shown in Table 4 and Table 5 below. Additionally, the level of any transmitter emission shall not exceed the level of the transmitter's fundamental emission. RSS-Gen 8.10 Unwanted emissions that fall into restricted bands of Table 6 shall comply with the limits specified in RSS-Gen; and (c) Unwanted emissions that do not fall within the restricted frequency bands of Table 6 shall comply either with the limits specified in the applicable RSS or with those specified in this RSS-Gen.	Pass
FCC 15.207 RSS-Gen	AC conducted Emissions: Except when the requirements applicable to a given device state otherwise, for any radio apparatus equipped to operate from the public utility AC power supply, either directly or indirectly (such as with a battery charger), the radio frequency voltage of emissions conducted back onto the AC power lines in the frequency range of 0.15 MHz to 30 MHz shall not exceed the limits shown in the table in these sections. The more stringent limit applies at the frequency range boundaries.	Pass

* MPE calculation is recorded in a separate report

Section 4: Sample Details

Note: Each sample was evaluated to ensure that its condition was suitable to be used as a test sample prior to the commencement of testing.

4.1 Sample Details

Sample No.	Equipment Details	Manufacturer	Hardware Rev.	Firmware Rev.	Software Rev.	Serial Number
S01	AIR-RM3010L-z-K9	Cisco Systems	P2	NA	NA	
S02*	AIR-PWR-C	Meanwell	A0	NA	NA	EB46E93226
S03	AIR-RM3010L-z-K9	Cisco Systems	P2	NA	NA	
S04*	AIR-PWR-C	Cisco Systems	A0	NA	NA	DAB1423M7R2

(*) S02 and S04 are support equipment Power supplies for EUT S01 and S03

4.2 System Details

System #	Description	Samples
1	Test Items A1-A4	S01, S02
2	Test Items B1-B3	S03, S04

4.3 Mode of Operation Details

Mode#	Description	Comments
1	Continuous Transmitting	Continuous Transmitting

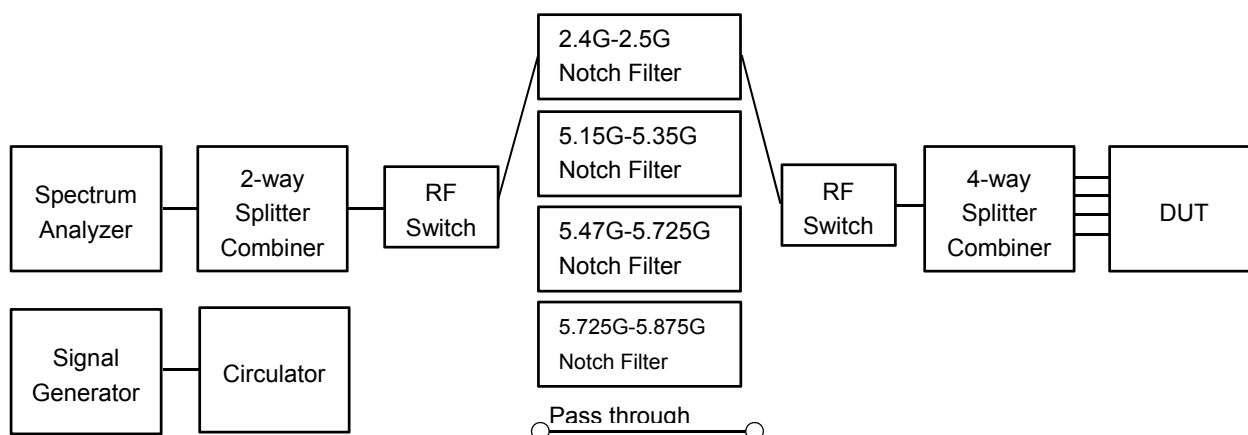
Measurements were made in accordance with

- ANSI C63.10:2013
- FCC KDB 662911 D01
- KDB 558074 D01 Meas Guidance v03r03

Appendix A: Emission Test Results

Testing Laboratory: Cisco Systems, Inc., 4125 Highlander Parkway, Richfield, OH, USA

Conducted Test Setup Diagram



Target Maximum Channel Power

The following table details the targeted maximum supported Total Channel Powers for all operating modes. Actual measured powers are listed in section A3.

Operating Mode	Maximum Channel Power (dBm EIRP)		
	Frequency (MHz)		
	2412	2437	2462
Legacy CCK, 1 to 11 Mbps	20	21	22
Non HT-20, M0 to M7	21	26	23
HT-20 STBC, M0 to M7	21	26	22

A.1 6dB Bandwidth

15.247 / RSS-247 Systems using digital modulation techniques may operate in the 2400-2483.5MHz band. The minimum 6dB bandwidth shall be at least 500 kHz.

Test Procedure

Ref. KDB 558074 D01 DTS Meas Guidance v03r03
ANSI C63.10: 2013

6 BW
Test Procedure
1. Set the radio in the continuous transmitting mode. 2. Allow the trace to stabilize. 3. Setting the x-dB bandwidth mode to -6dB within the measurement set up function. 4. Select the automatic OBW measurement function of an instrument to perform bandwidth measurement. 5. Capture graphs and record pertinent measurement data.

Ref. KDB 558074 D01 DTS Meas Guidance v03r03
ANSI C63.10: 2013 section 11.8.2 Option 2

6 BW
Test parameters
X dB BW = 6dB (using the OBW function of the spectrum analyzer) Span = Large enough to capture the entire EBW RBW = 100 KHz VBW $\geq 3 \times$ RBW Sweep = Auto couple Detector = Peak or where practical sample shall be used Trace = Max. Hold

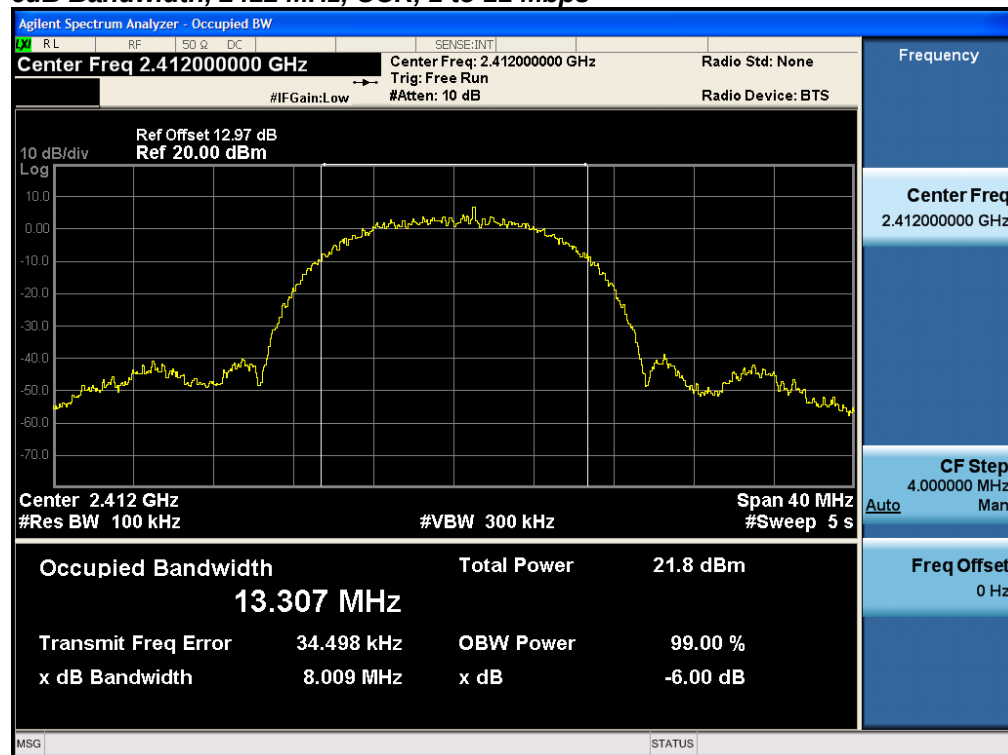
System Number	Description	Samples	System under test	Support equipment
1	EUT	S01	☒	☐
	Support	S02	☐	☒

Tested By : John Liscio	Date of testing: February-15 - March-15
Test Result : PASS	

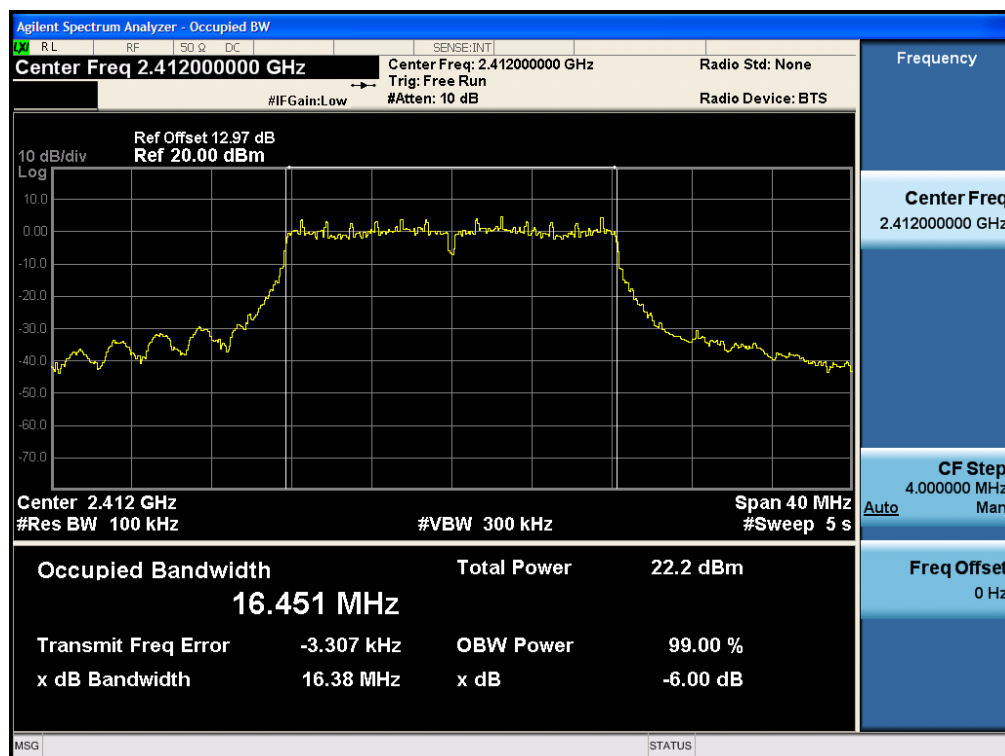
See Appendix C for list of test equipment

Frequency (MHz)	Mode	Data Rate (Mbps)	6dB BW (MHz)	Limit (kHz)	Margin (MHz)
2412	CCK, 1 to 11 Mbps	11	10	>500	9.5
	Non HT-20, M0 to M7	6	16.4	>500	15.9
	HT-20 STBC, M0 to M7	m0	17.6	>500	17.1
2437	CCK, 1 to 11 Mbps	11	9.6	>500	9.1
	Non HT-20, M0 to M7	6	16.3	>500	15.8
	HT-20 STBC, M0 to M7	m0	17	>500	16.5
2462	CCK, 1 to 11 Mbps	11	9.6	>500	9.1
	Non HT-20, M0 to M7	6	16.4	>500	15.9
	HT-20 STBC, M0 to M7	m0	17.3	>500	16.8

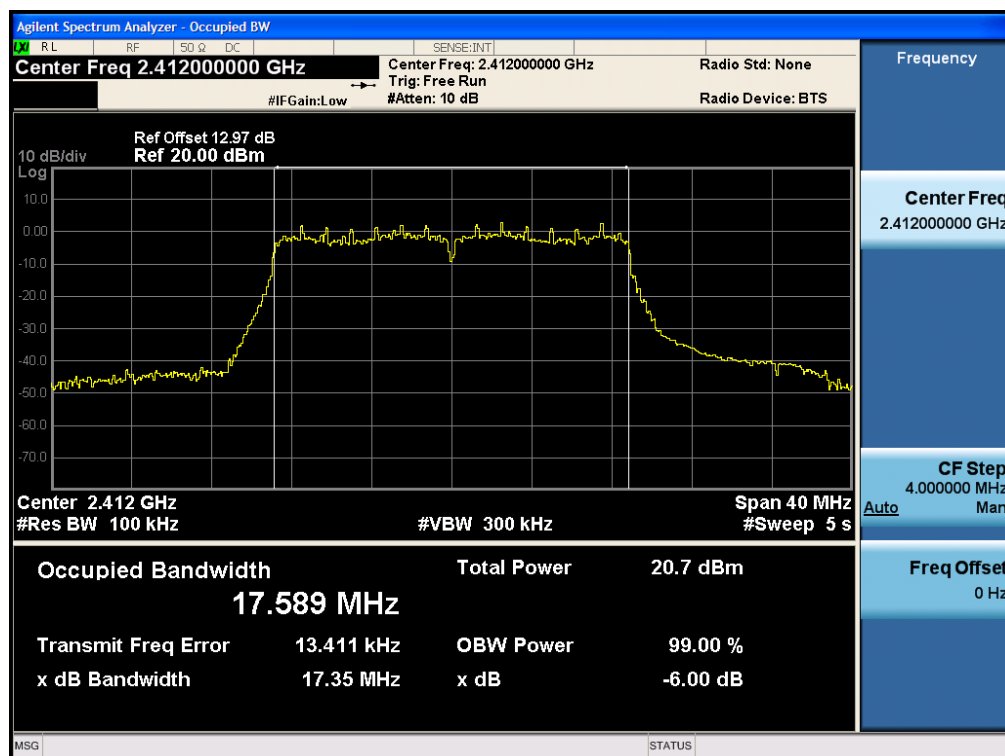
6dB Bandwidth, 2412 MHz, CCK, 1 to 11 Mbps



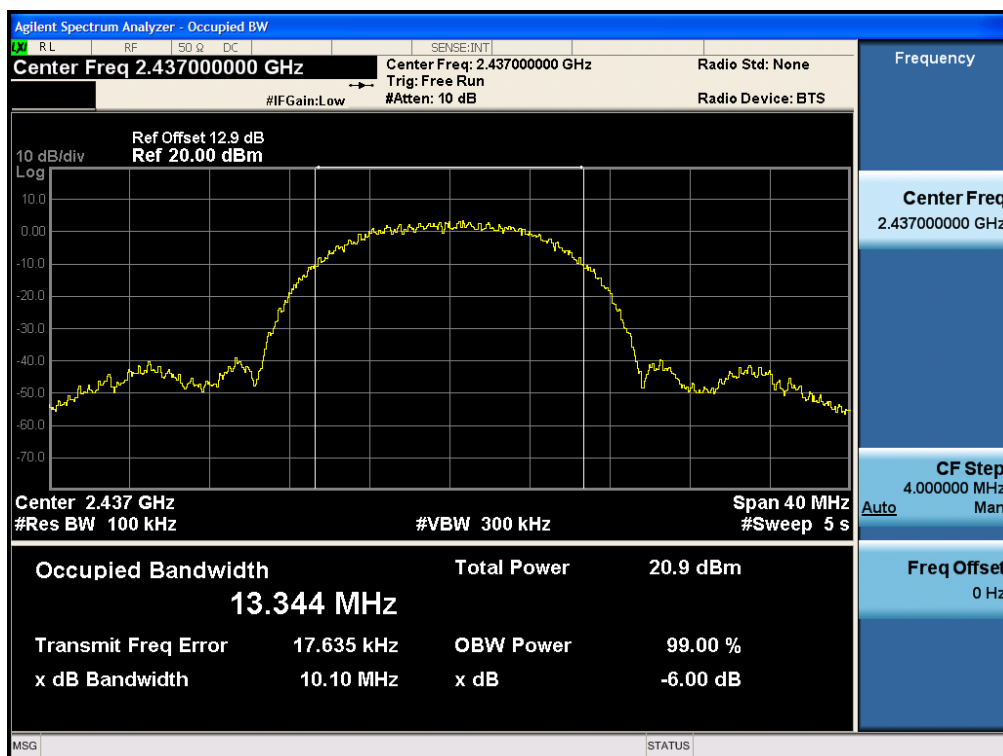
6dB Bandwidth, 2412 MHz, Non HT-20, M0 to M7



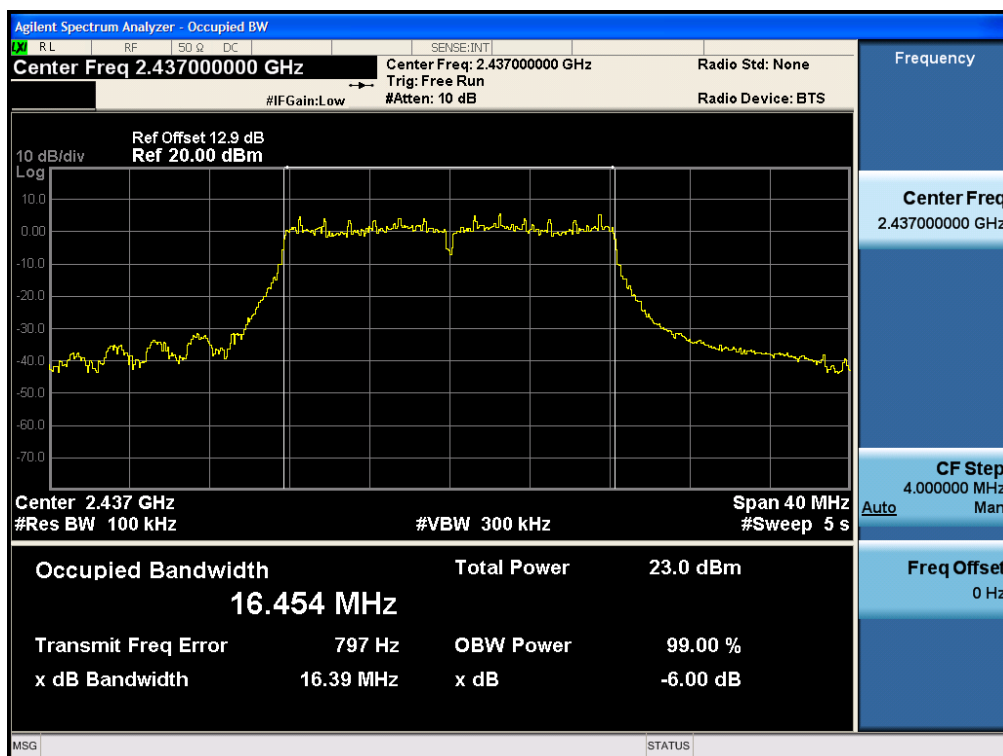
6dB Bandwidth, 2412 MHz, HT-20 STBC, M0 to M7



6dB Bandwidth, 2437 MHz, CCK, 1 to 11 Mbps

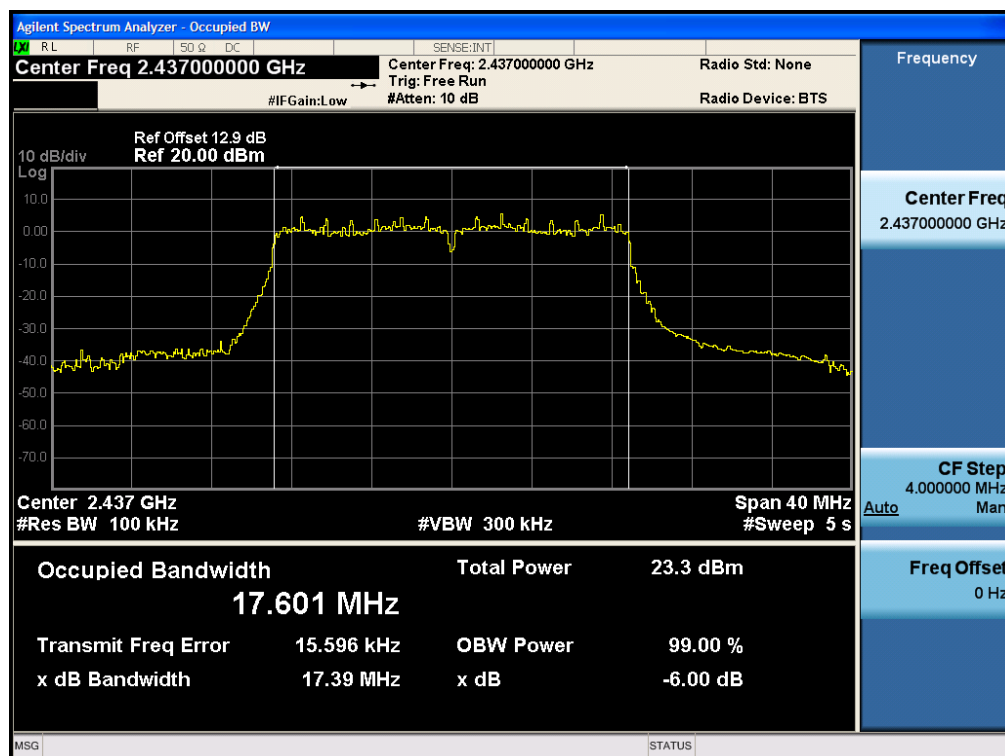


6dB Bandwidth, 2437 MHz, Non HT-20, M0 to M7

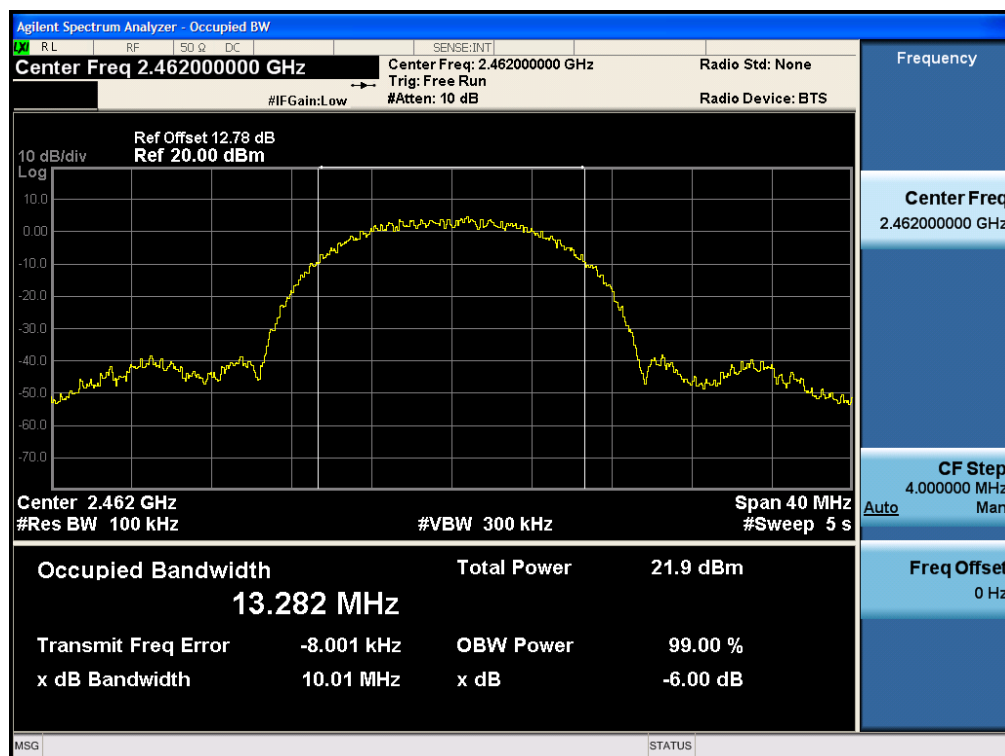


6dB Bandwidth, 2437 MHz, HT-20 STBC, M0 to M7

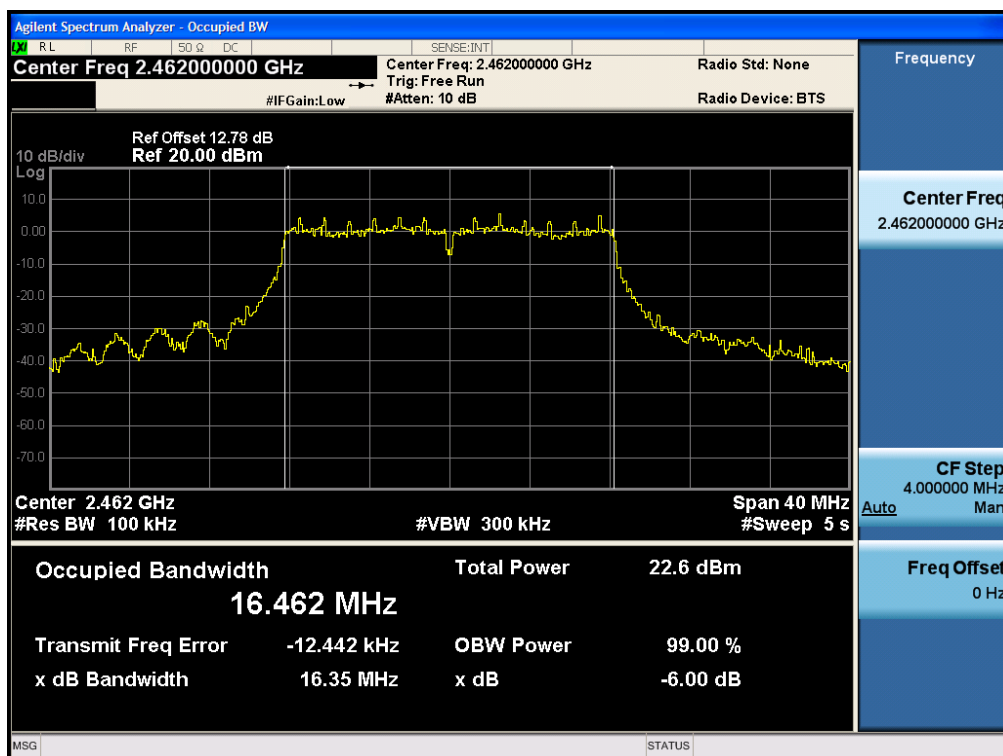
Custom EMC Test Report No: **EDCS - 1511861**



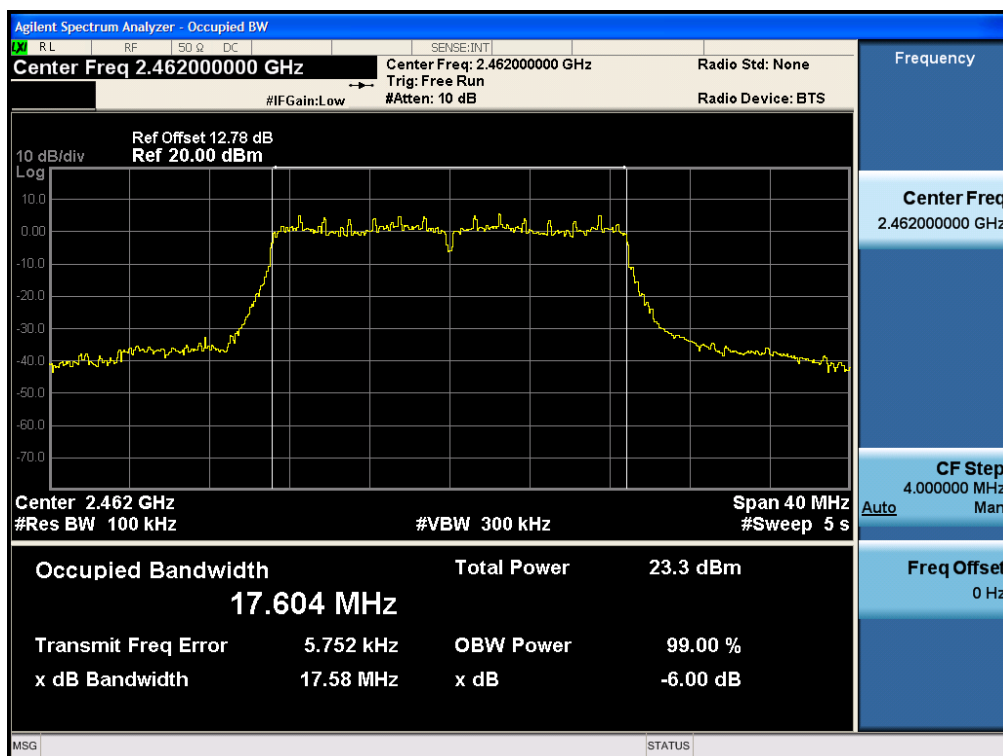
6dB Bandwidth, 2462 MHz, CCK, 1 to 11 Mbps



6dB Bandwidth, 2462 MHz, Non HT-20, M0 to M7



6dB Bandwidth, 2462 MHz, HT-20 STBC, M0 to M7



A.2 99% and 26dB Bandwidth

The 99% occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. There is no limit for 99% OBW.

The 26 dB emission is the width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

Test Procedure

Ref. ANSI C63.10: 2013

26 BW & 99% BW
Test Procedure
1. Set the radio in the continuous transmitting mode. 2. Allow the trace to stabilize. 3. Setting the x-dB bandwidth mode to -26dB & OBW to 99% within the measurement set up function. 4. Select the automatic OBW measurement function of an instrument to perform bandwidth measurement. 5. Capture graphs and record pertinent measurement data.

Ref. ANSI C63.10: 2013 section 6.9.3

26 BW & 99% BW
Test parameters
X dB BW = -26dB (using the OBW function of the spectrum analyzer) OBW = 99% Span = 1.5 to 5 times the OBW RBW = 1% to 5% of the OBW VBW $\geq 3 \times$ RBW Sweep = Auto couple Detector = Peak or where practical sample shall be used Trace = Max. Hold

System Number	Description	Samples	System under test	Support equipment
1	EUT	S01	☒	☐
	Support	S02	☐	☒

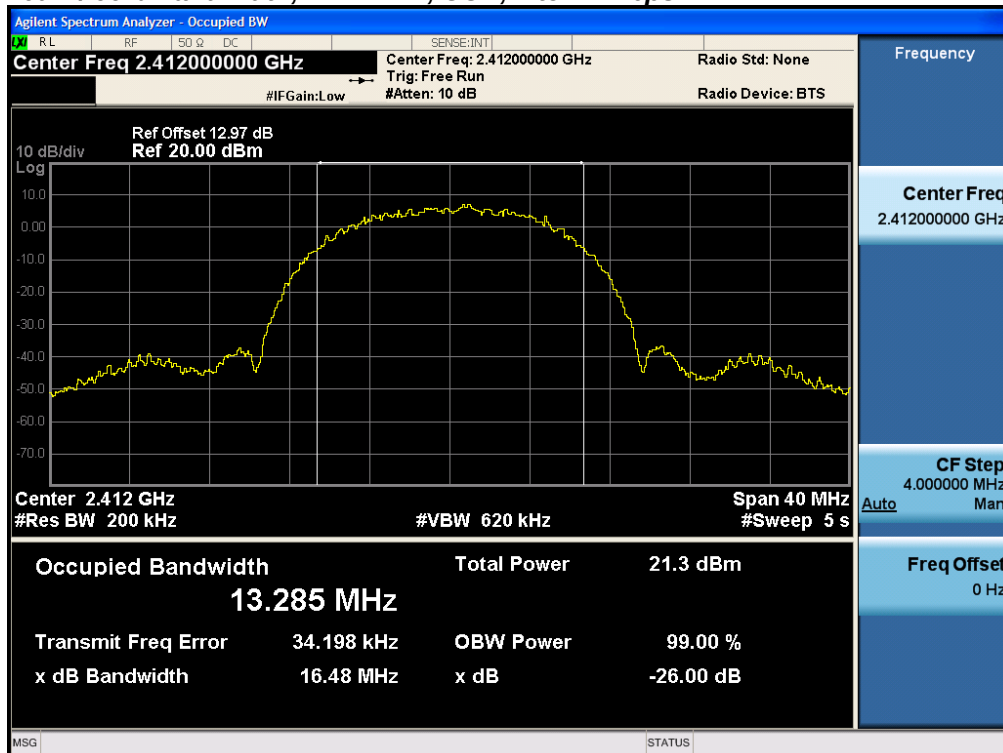
Tested By : John Liscio	Date of testing: February-15 - March-15
Test Result : PASS	

See Appendix C for list of test equipment

Custom EMC Test Report No: **EDCS - 1511861**

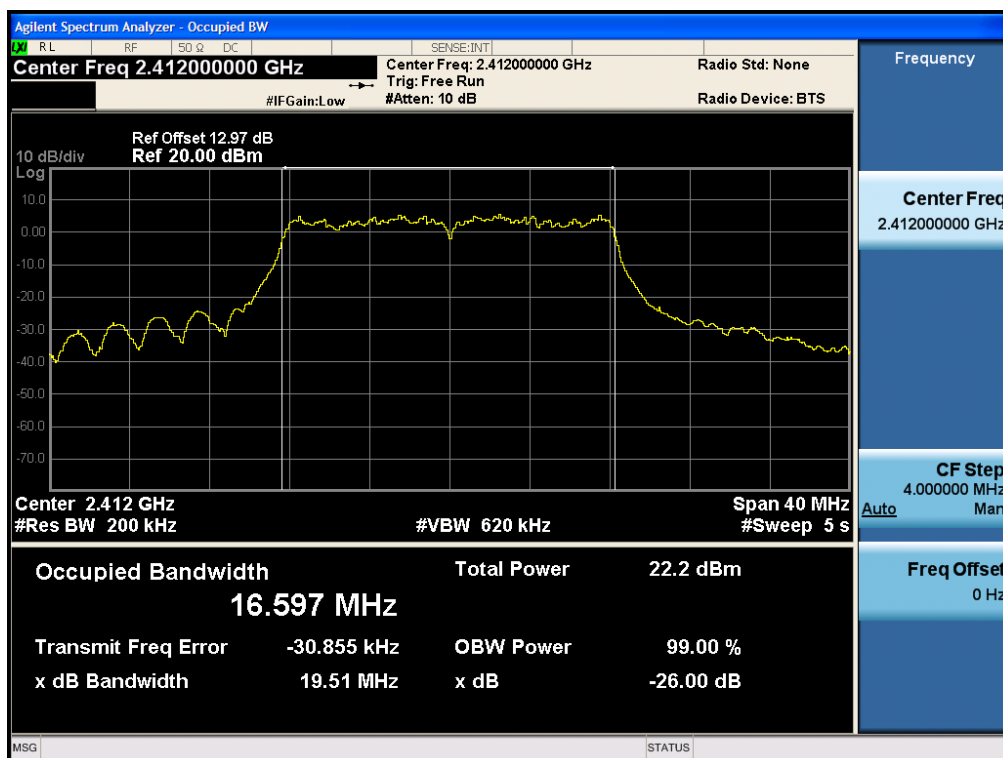
Frequency (MHz)	Mode	Data Rate (Mbps)	26dB BW (MHz)	99% BW (MHz)
2412	CCK, 1 to 11 Mbps	11	16.4	13.2
	Non HT-20, M0 to M7	6	18.6	16.5
	HT-20 STBC, M0 to M7	m0	19.4	17.6
2437	CCK, 1 to 11 Mbps	11	16.4	13.1
	Non HT-20, M0 to M7	6	18.5	16.4
	HT-20 STBC, M0 to M7	m0	19.4	17.6
2462	CCK, 1 to 11 Mbps	11	16.6	13.3
	Non HT-20, M0 to M7	6	18.6	16.5
	HT-20 STBC, M0 to M7	m0	19.3	17.6

26dB / 99% Bandwidth, 2412 MHz, CCK, 1 to 11 Mbps

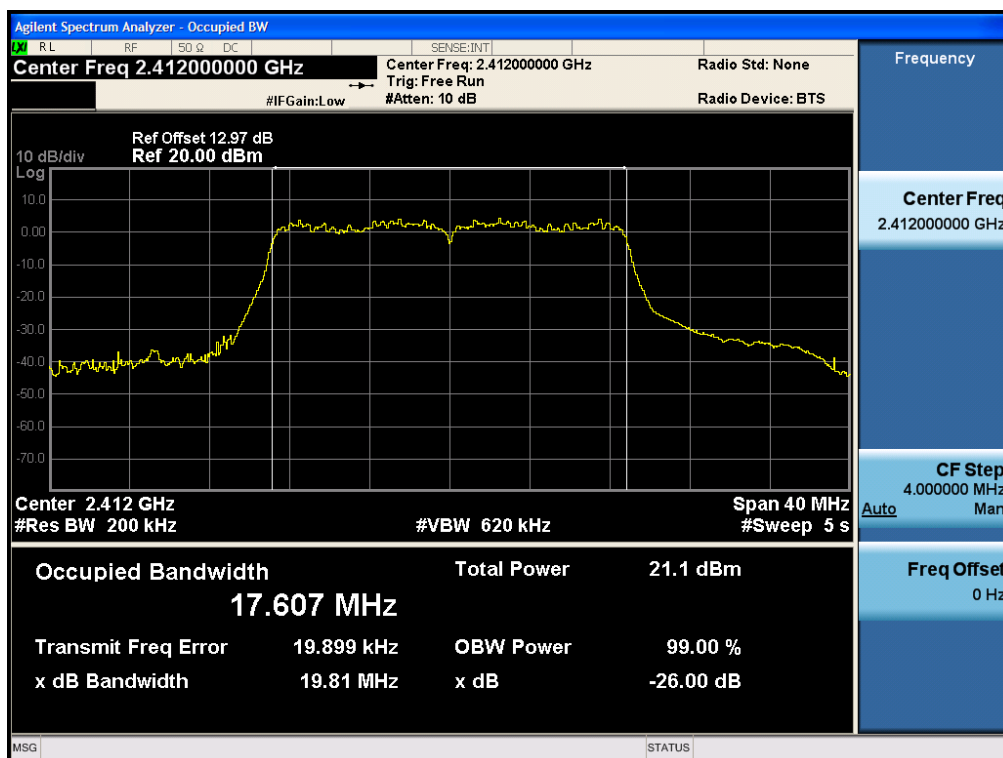


26dB / 99% Bandwidth, 2412 MHz, Non HT-20, M0 to M7

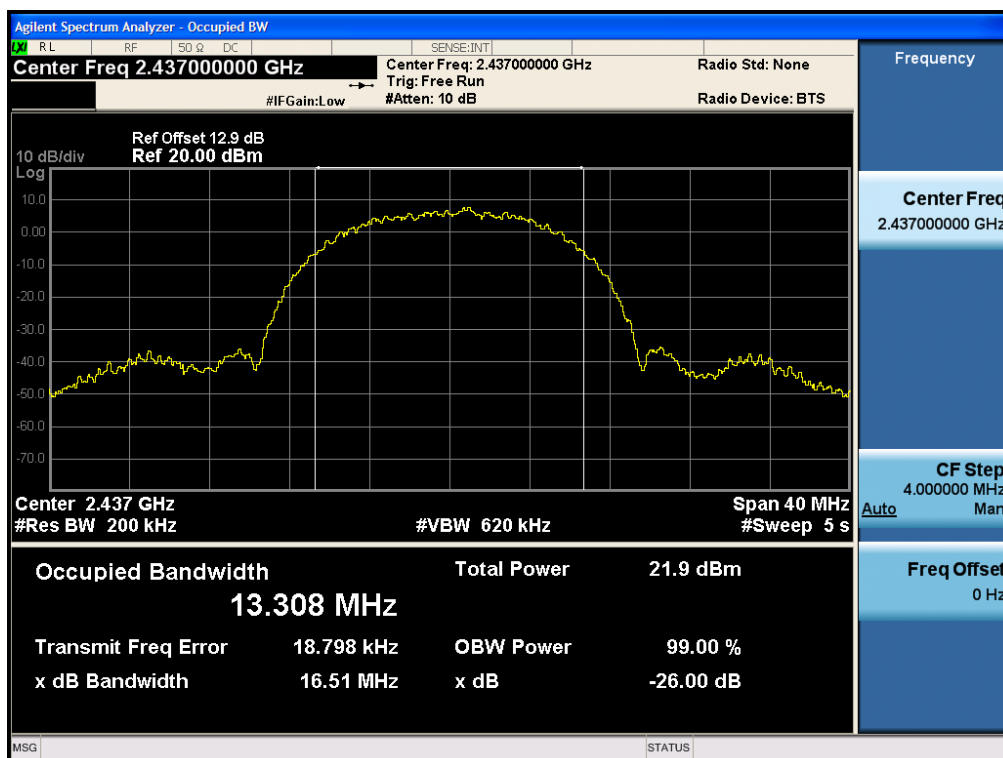
Custom EMC Test Report No: EDCS - 1511861



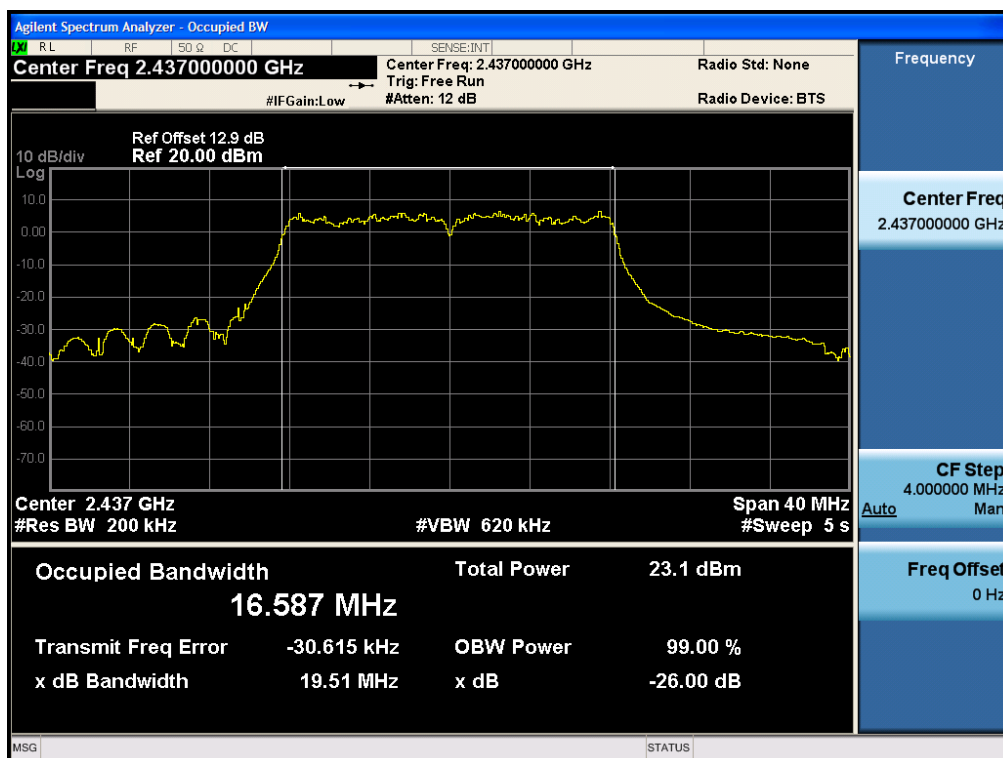
26dB / 99% Bandwidth, 2412 MHz, HT-20 STBC, M0 to M7



26dB / 99% Bandwidth, 2437 MHz, CCK, 1 to 11 Mbps

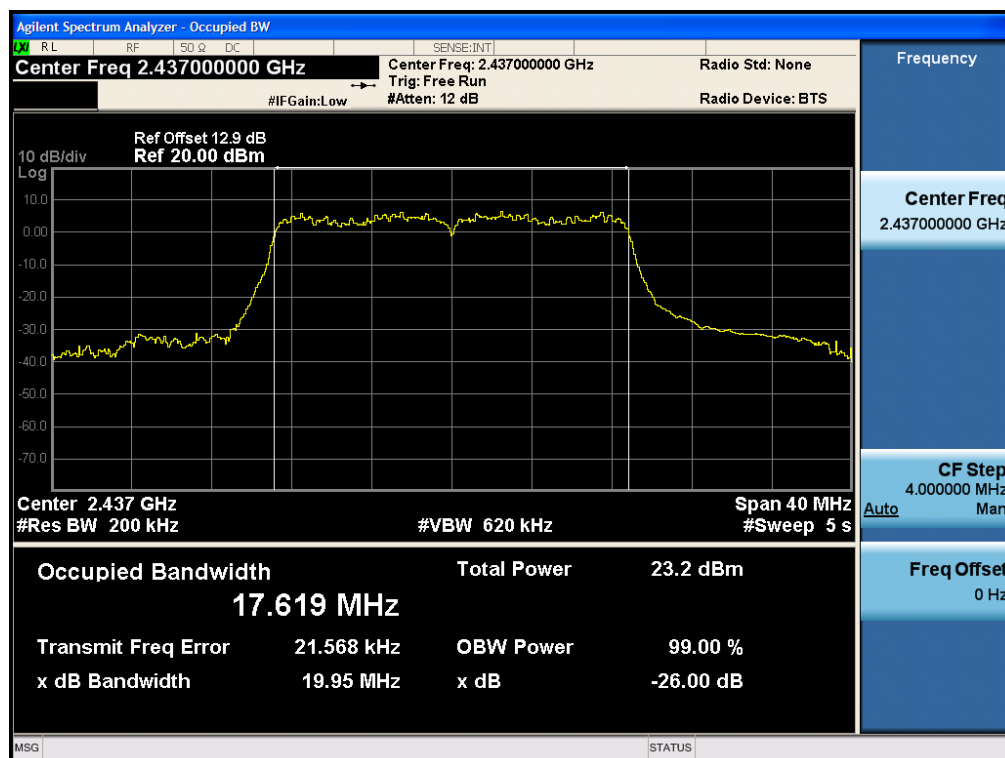


26dB / 99% Bandwidth, 2437 MHz, Non HT-20, M0 to M7



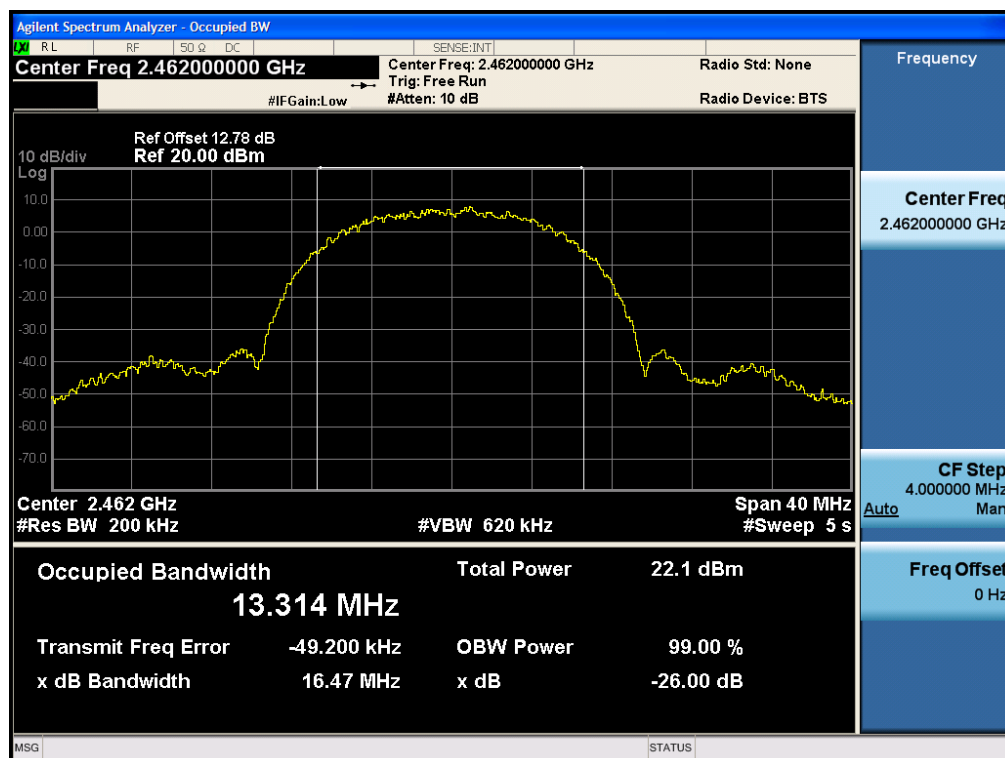
26dB / 99% Bandwidth, 2437 MHz, HT-20 STBC, M0 to M7

Custom EMC Test Report No: EDCS - 1511861



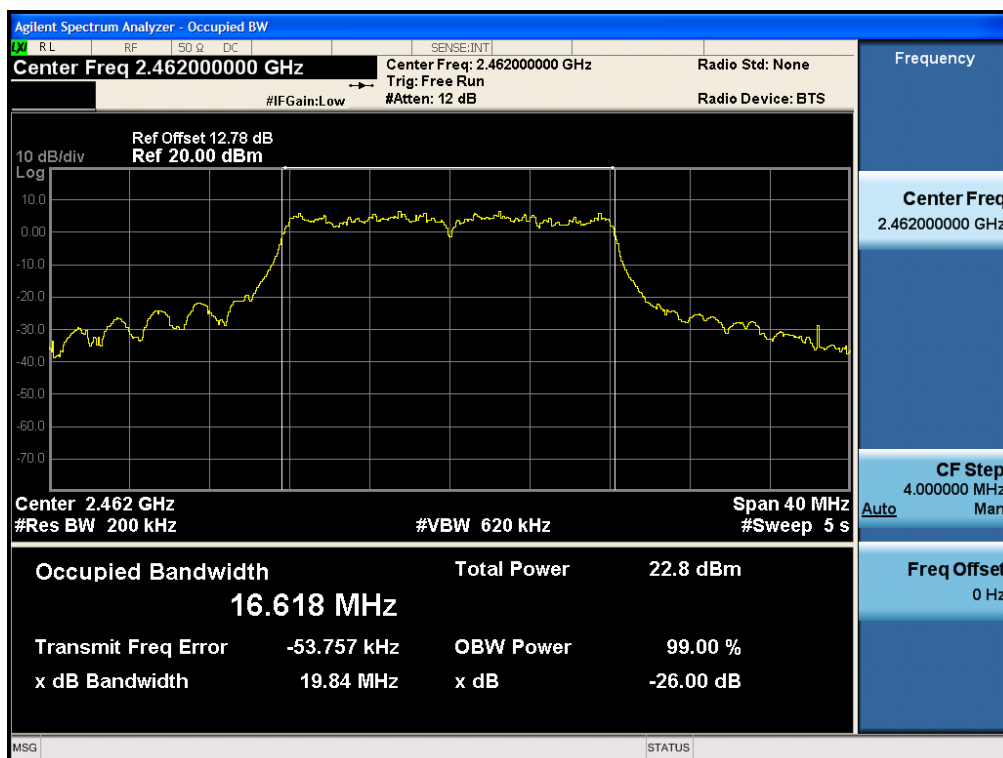
26dB / 99% Bandwidth, 2462 MHz, CCK, 1 to 11 Mbps

Custom EMC Test Report No: EDCS - 1511861

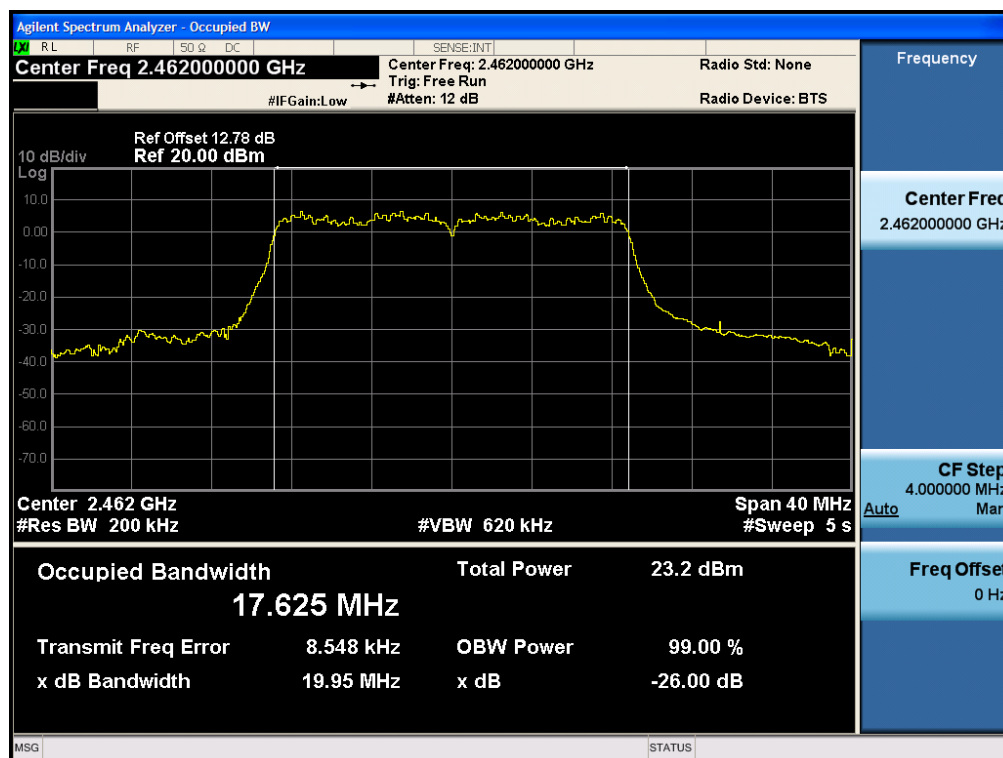


26dB / 99% Bandwidth, 2462 MHz, Non HT-20, M0 to M7

Custom EMC Test Report No: EDCS - 1511861



26dB / 99% Bandwidth, 2462 MHz, HT-20 STBC, M0 to M7



A.3 Maximum Conducted Output Power

15.247 / RSS-247 section 5.4 The maximum conducted output power of the intentional radiator for systems using digital modulation in the 2400-2483.5 MHz band shall not exceed 1 Watt (30dBm). If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.

The maximum supported antenna gain is 3dBi. The peak correlated gain for each mode is listed in the table below. See the Theory of Operation for details on the correlated gain for each mode.

Test Procedure

Ref. KDB 558074 D01 DTS Meas Guidance v03r03
ANSI C63.10: 2013

Maximum Conducted Output power
Test Procedure
1. Set the radio in the continuous transmitting mode at full power 2. Compute power by integrating the spectrum across the EBW (or alternatively entire 99% OBW) of the signal using the instrument's band power measurement function. The integration shall be performed using the spectrum analyzer band-power measurement function with band limits set equal to the EBW or the OBW band edges. 3. Capture graphs and record pertinent measurement data.

Ref. 558074 D01 DTS Meas Guidance v03r03 section 9.2 Method AVGSA-1
ANSI C63.10: 2013 section 11.9.2 Method AVGSA-1

Maximum Conducted Output power
Test parameters
Span = >1.5 times the OBW RBW = 1MHz VBW ≥ 3 x RBW Sweep = Auto couple Detector = Sample, (RMS or where practical sample shall be used) Trace = Trace Average 100

The "measure-and-sum technique" is used for measuring in-band transmit power of a device. In the measure-and-sum approach, the conducted emission level is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in linear power units. (See ANSI C63.10 section 14.3 for Guidance)

System Number	Description	Samples	System under test	Support equipment
1	EUT	S01	☒	☐

Custom EMC Test Report No: **EDCS - 1511861**

	Support	S02	☐	☒
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Tested By : John Liscio	Date of testing: February-15 - March-15
Test Result : PASS	

See Appendix C for list of test equipment

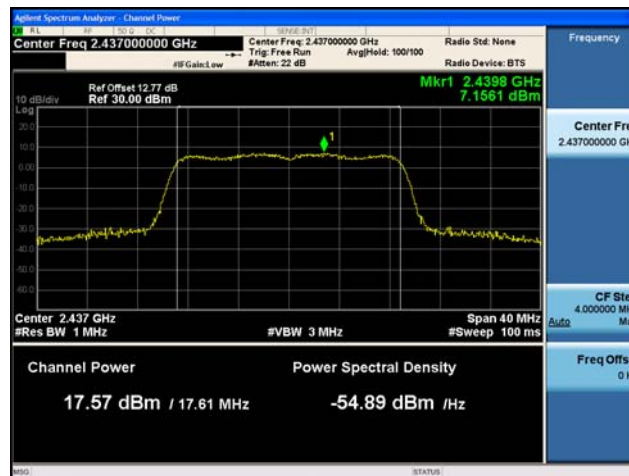
Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Max Power (dBm)	Tx 2 Max Power (dBm)	Tx 3 Max Power (dBm)	Tx 4 Max Power (dBm)	Total Tx Channel Power (dBm)	Limit (dBm)	Margin (dB)
2412	CCK, 1 to 11 Mbps	1	3	14.4				17.4	36.0	18.6
	CCK, 1 to 11 Mbps	2	3	14.4	14.1			20.3	36.0	15.7
	CCK, 1 to 11 Mbps	3	3	12.8	12.5	12.6		20.4	36.0	15.6
	CCK, 1 to 11 Mbps	4	3	11.2	10.7	11.3	11.1	20.1	36.0	15.9
	Non HT-20, 6 to 54 Mbps	1	3	15.8				18.8	36.0	17.2
	Non HT-20, 6 to 54 Mbps	2	3	14.8	14.3			20.6	36.0	15.4
	Non HT-20, 6 to 54 Mbps	3	3	12.6	12.0	12.8		20.3	36.0	15.7
	Non HT-20, 6 to 54 Mbps	4	3	12.6	12.0	12.8	12.3	21.5	36.0	14.5
	HT-20, M0 to M7	1	3	15.0				18.0	36.0	18.0
	HT-20, M0 to M7	2	3	12.8	12.3			18.6	36.0	17.4
	HT-20, M0 to M7	3	3	11.8	11.3	11.9		19.4	36.0	16.6
	HT-20, M0 to M7	4	3	11.8	11.3	11.9	11.7	20.7	36.0	15.3
	HT-20 STBC, M0 to M7	2	3	12.8	12.3			18.6	36.0	17.4
	HT-20 STBC, M0 to M7	3	3	11.8	11.3	11.9		19.4	36.0	16.6
	HT-20 STBC, M0 to M7	4	3	11.8	11.3	11.9	11.7	20.7	36.0	15.3
2437	CCK, 1 to 11 Mbps	1	3	14.7				17.7	36.0	18.3
	CCK, 1 to 11 Mbps	2	3	14.7	14.8			20.8	36.0	15.2
	CCK, 1 to 11 Mbps	3	3	13.2	13.2	12.7		20.8	36.0	15.2
	CCK, 1 to 11 Mbps	4	3	12.7	12.7	11.9	12.4	21.5	36.0	14.5
	Non HT-20, 6 to 54 Mbps	1	3	17.2				20.2	36.0	15.8
	Non HT-20, 6 to 54 Mbps	2	3	17.2	17.2			23.2	36.0	12.8
	Non HT-20, 6 to 54 Mbps	3	3	17.2	17.2	16.4		24.7	36.0	11.3
	Non HT-20, 6 to 54 Mbps	4	3	17.2	17.2	16.4	17.2	26.0	36.0	10.0
	HT-20, M0 to M7	1	3	17.6				20.6	36.0	15.4
	HT-20, M0 to M7	2	3	17.6	17.6			23.6	36.0	12.4
	HT-20, M0 to M7	3	3	17.6	17.6	16.8		25.1	36.0	10.9
	HT-20, M0 to M7	4	3	17.6	17.6	16.8	17.5	26.4	36.0	9.6
	HT-20 STBC, M0 to M7	2	3	17.6	17.6			23.6	36.0	12.4
	HT-20 STBC, M0 to M7	3	3	17.6	17.6	16.8		25.1	36.0	10.9
	HT-20 STBC, M0 to M7	4	3	17.6	17.6	16.8	17.5	26.4	36.0	9.6

2462	CCK, 1 to 11 Mbps	1	3	14.0				17.0	36.0	19.0
	CCK, 1 to 11 Mbps	2	3	14.0	14.1			20.1	36.0	15.9
	CCK, 1 to 11 Mbps	3	3	14.0	14.1	14.2		21.9	36.0	14.1
	CCK, 1 to 11 Mbps	4	3	13.3	13.1	13.1	13.6	22.3	36.0	13.7
	Non HT-20, 6 to 54 Mbps	1	3	15.4				18.4	36.0	17.6
	Non HT-20, 6 to 54 Mbps	2	3	14.4	14.0			20.2	36.0	15.8
	Non HT-20, 6 to 54 Mbps	3	3	14.4	14.0	14.2		22.0	36.0	14.0
	Non HT-20, 6 to 54 Mbps	4	3	13.4	13.5	13.2	13.9	22.5	36.0	13.5
	HT-20, M0 to M7	1	3	15.4				18.4	36.0	17.6
	HT-20, M0 to M7	2	3	14.5	14.6			20.6	36.0	15.4
	HT-20, M0 to M7	3	3	13.9	13.6	13.3		21.4	36.0	14.6
	HT-20, M0 to M7	4	3	12.7	12.4	12.2	13.1	21.6	36.0	14.4
	HT-20 STBC, M0 to M7	2	3	14.5	14.6			20.6	36.0	15.4
	HT-20 STBC, M0 to M7	3	3	13.9	13.6	13.3		21.4	36.0	14.6
	HT-20 STBC, M0 to M7	4	3	12.7	12.4	12.2	13.1	21.6	36.0	14.4

Peak Output Power, 2437 MHz, HT-20, M0 to M7



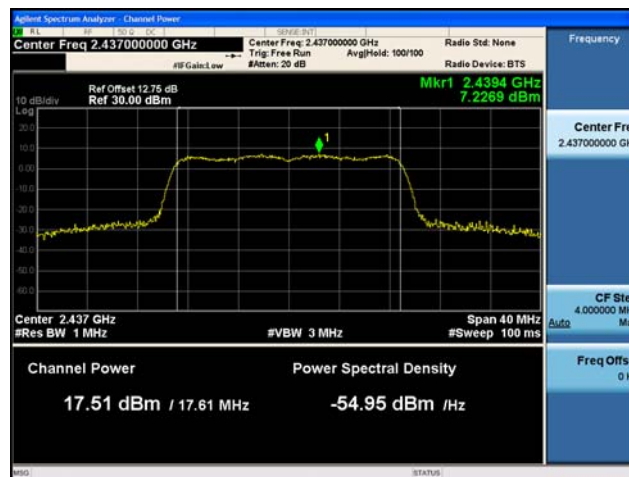
Antenna A



Antenna B



Antenna C



Antenna D

A.4 Power Spectral Density

15.247 / RSS-247 For digitally modulated systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Test Procedure

Ref. KDB 558074 D01 DTS Meas Guidance v03r03
ANSI C63.10: 2013

Power Spectral Density
Test Procedure
1. Set the radio in the continuous transmitting mode at full power 2. Configure Spectrum analyzer as per test parameters below and Peak search marker 3. Capture graphs and record pertinent measurement data.

Ref. 558074 D01 DTS Meas Guidance v03r03 section 10.2 Peak PSD
ANSI C63.10: 2013 section 11.10.2 Peak PSD

Power Spectral Density
Test parameters
Span = >1.5 times the OBW RBW = 3 kHz ≤ RBW ≤ 100 kHz. VBW ≥ 3 x RBW Sweep = Auto couple Detector = RMS or where practical sample shall be used Trace = Trace Average 100

The "Measure and add 10 log(N) dB technique", where N is the number of outputs, is used for measuring in-band Power Spectral Density. With this technique, spectrum measurements are performed at each output of the device, and the quantity 10 log(4) (or 6dB) is added to the worst case spectrum value before comparing to the emission limit. (See ANSI C63.10 section 14.3.2.3)

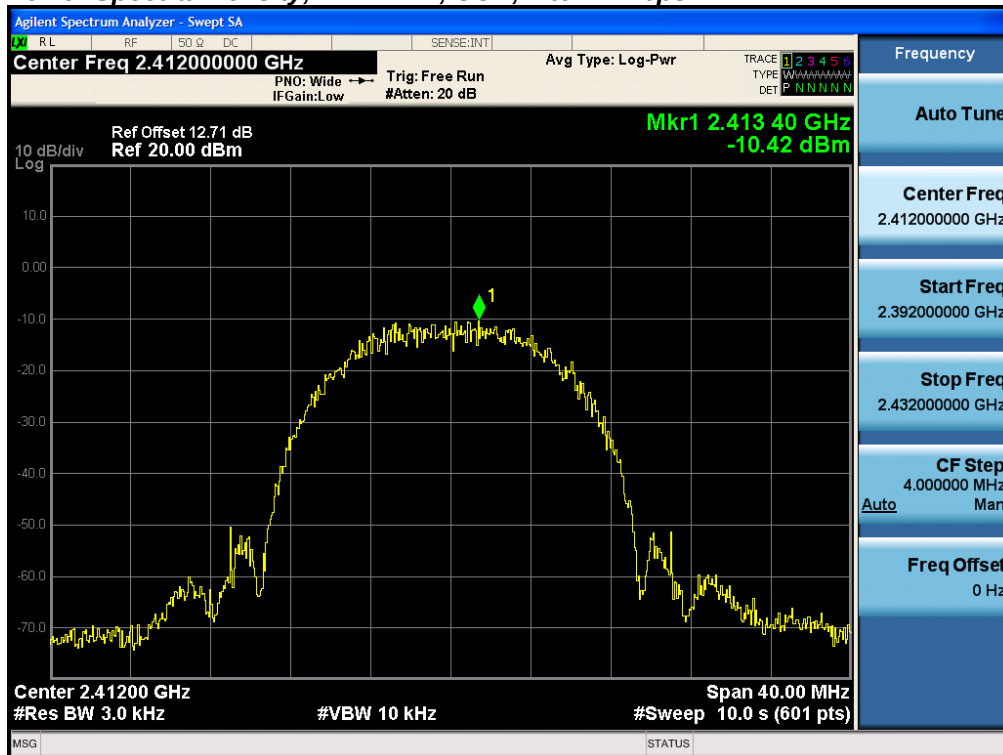
System Number	Description	Samples	System under test	Support equipment
1	EUT	S01	☒	☐
	Support	S02	☐	☒

Tested By : John Liscio	Date of testing: February-15 - March-15
Test Result : PASS	

See Appendix C for list of test equipment

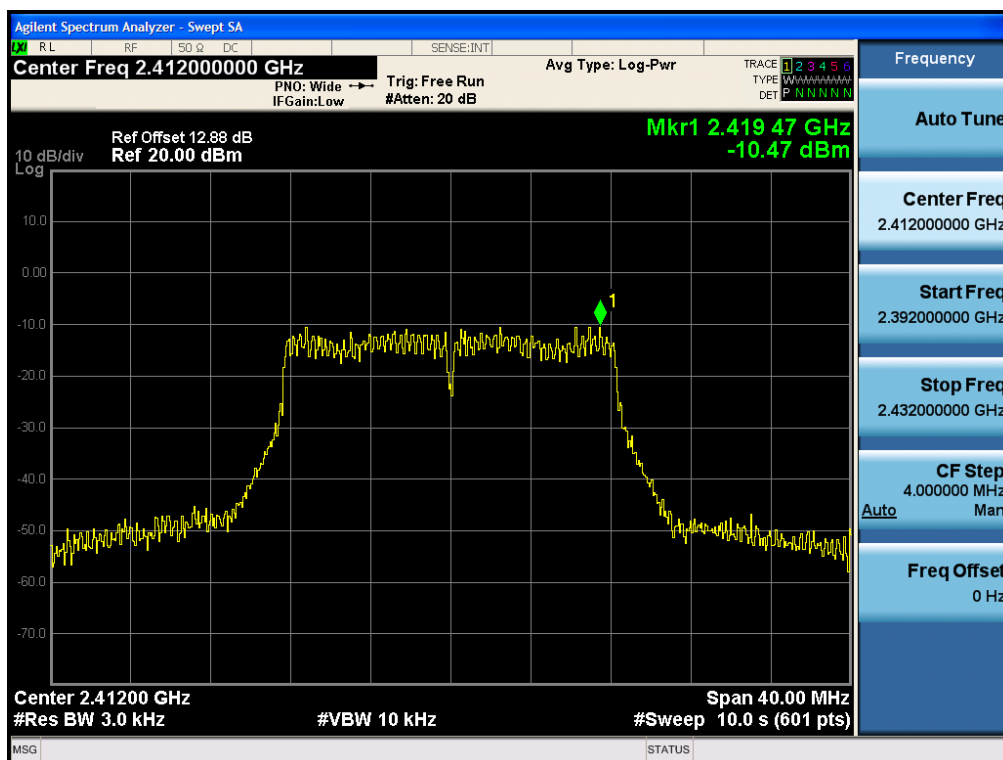
Frequency (MHz)	Mode	Data Rate (Mbps)	PSD / Antenna (dBm/3kHz)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
2412	CCK, 1 to 11 Mbps	11	-10.4	-4.4	8.0	12.4
	Non HT-20, M0 to M7	6	-10.5	-4.5	8.0	12.5
	HT-20 STBC, M0 to M7	m0	-9.9	-3.9	8.0	11.9
2437	CCK, 1 to 11 Mbps	11	-9.8	-3.8	8.0	11.8
	Non HT-20, M0 to M7	6	-10.4	-4.4	8.0	12.4
	HT-20 STBC, M0 to M7	m0	-9.1	-3.1	8.0	11.1
2462	CCK, 1 to 11 Mbps	11	-10.4	-4.4	8.0	12.4
	Non HT-20, M0 to M7	6	-11.1	-5.1	8.0	13.1
	HT-20 STBC, M0 to M7	m0	-9.3	-3.3	8.0	11.3

Power Spectral Density, 2412 MHz, CCK, 1 to 11 Mbps

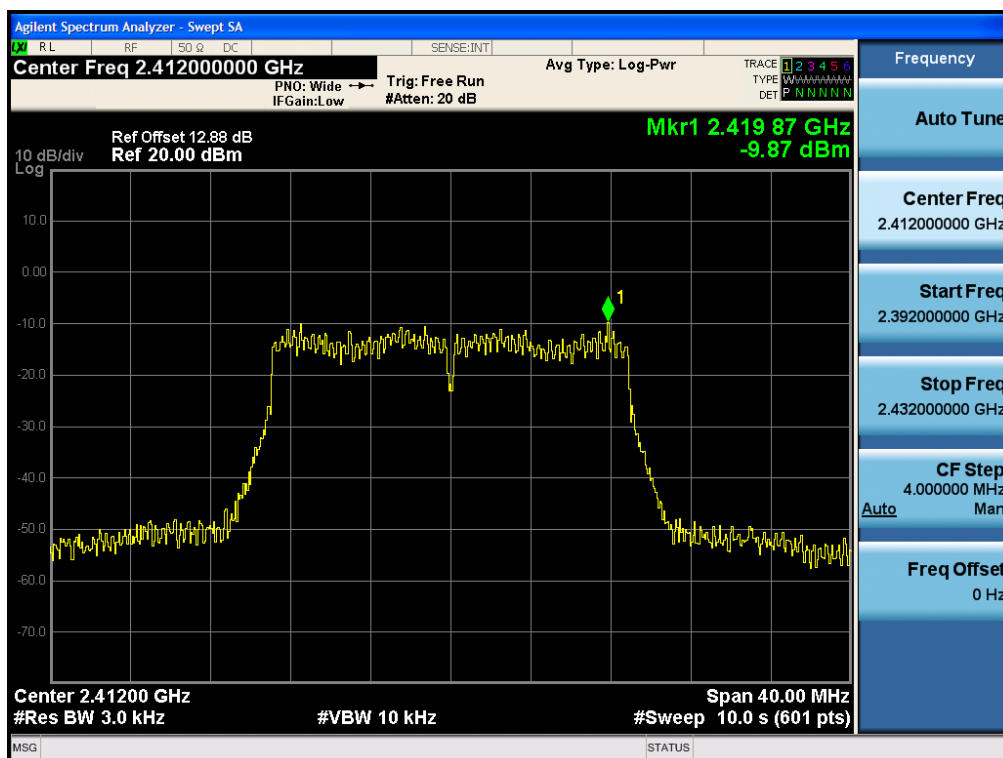


Power Spectral Density, 2412 MHz, Non HT-20, M0 to M7

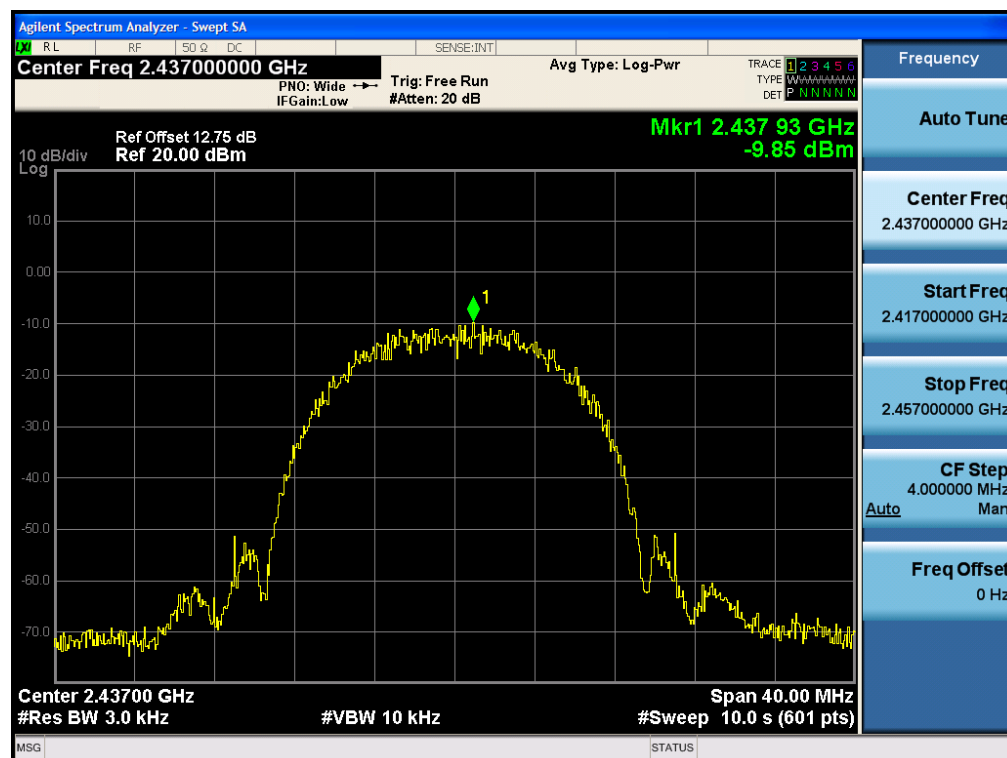
Custom EMC Test Report No: EDCS - 1511861



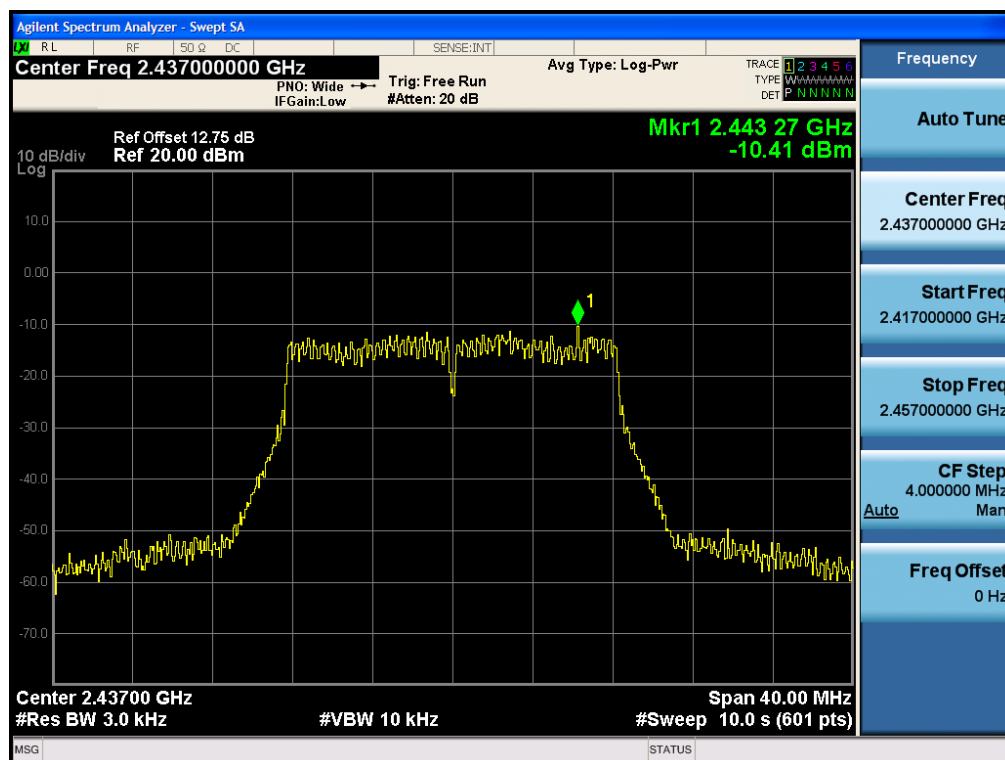
Power Spectral Density, 2412 MHz, HT-20 STBC, M0 to M7



Power Spectral Density, 2437 MHz, CCK, 1 to 11 Mbps

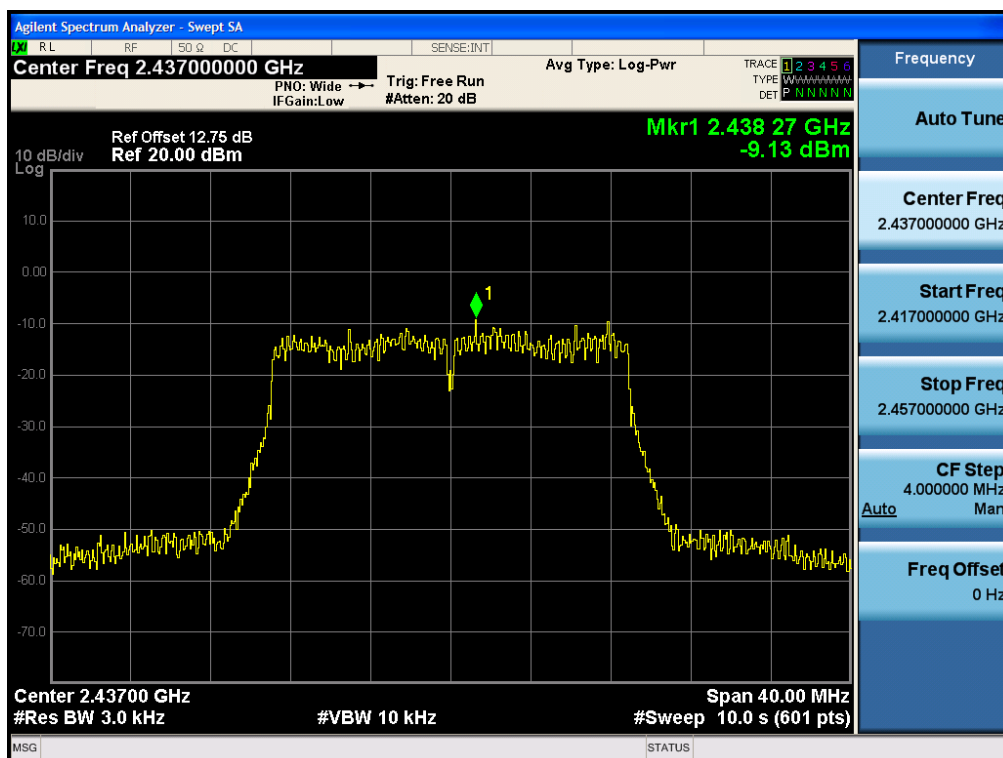


Power Spectral Density, 2437 MHz, Non HT-20, M0 to M7

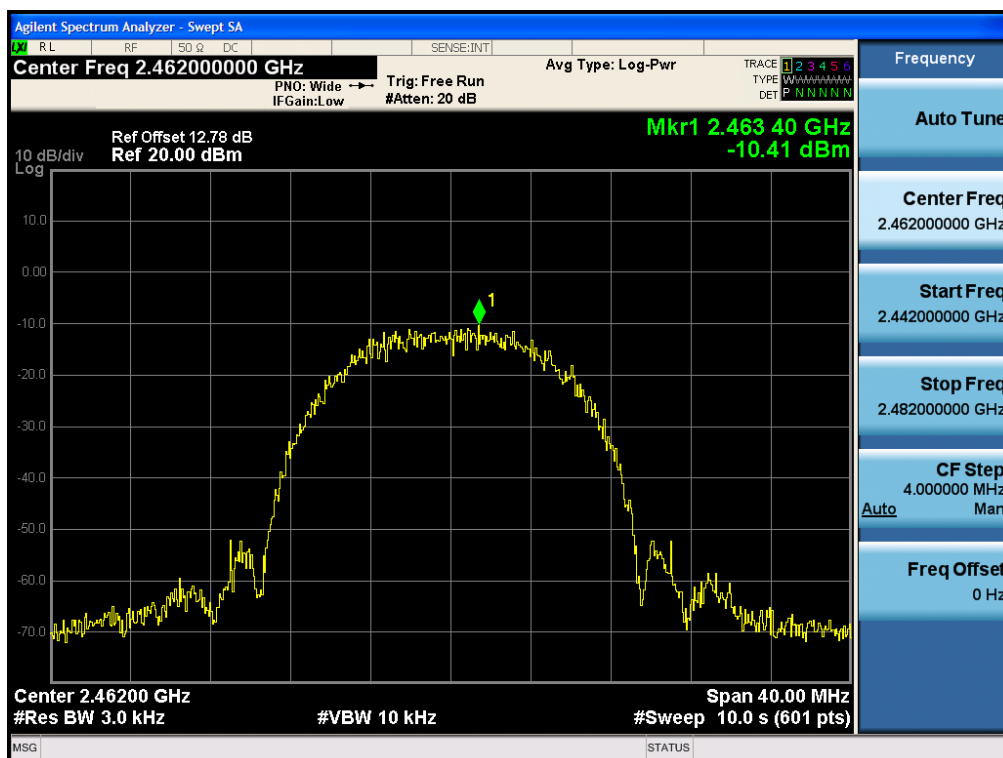


Power Spectral Density, 2437 MHz, HT-20 STBC, M0 to M7

Custom EMC Test Report No: EDCS - 1511861

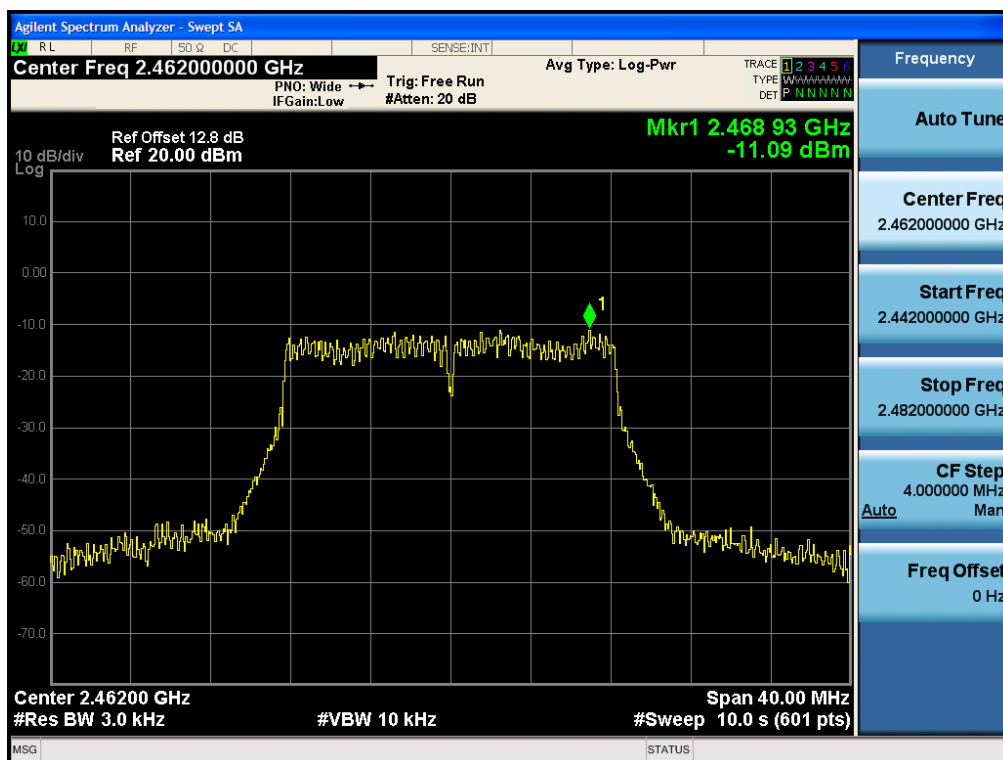


Power Spectral Density, 2462 MHz, CCK, 1 to 11 Mbps



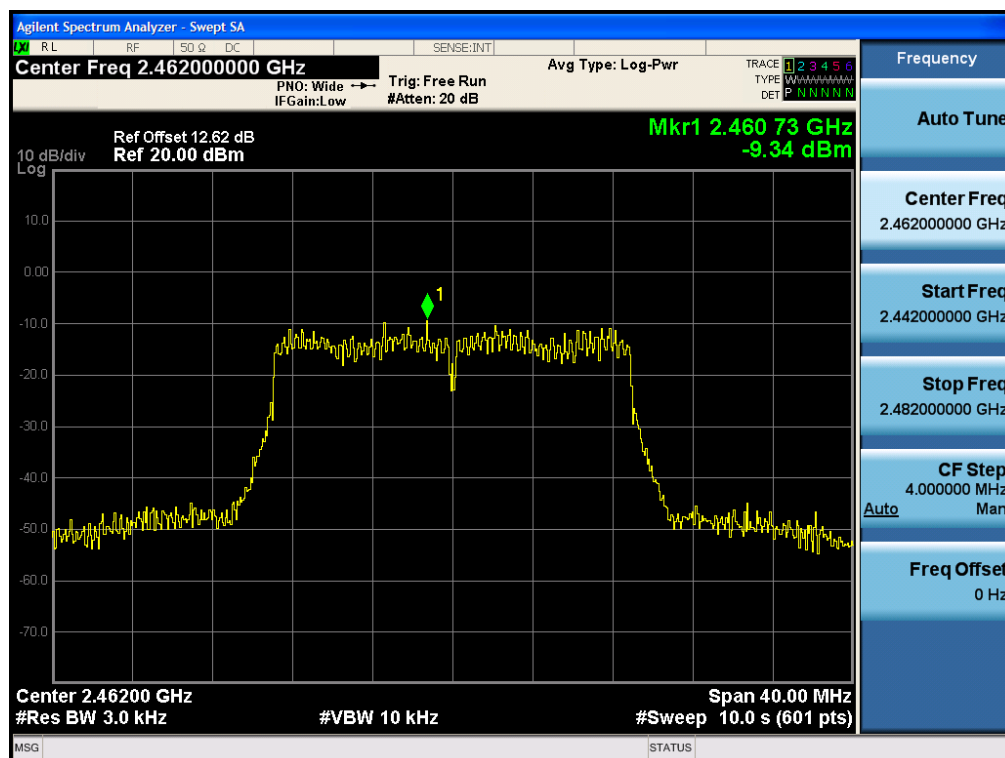
Power Spectral Density, 2462 MHz, Non HT-20, M0 to M7

Custom EMC Test Report No: EDCS - 1511861



Power Spectral Density, 2462 MHz, HT-20 STBC, M0 to M7

Custom EMC Test Report No: EDCS - 1511861



A.5 Conducted Spurious Emissions

15.205 / RSS-Gen Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) and RSS-Gen section 8.10, must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)) and RSS-Gen section 8.9.

RSS-Gen 8.9 Except when the requirements applicable to a given device state otherwise, emissions from licence-exempt transmitters shall comply with the field strength limits shown in Table 4 and Table 5 below. Additionally, the level of any transmitter emission shall not exceed the level of the transmitter's fundamental emission.

RSS-Gen 8.10 Unwanted emissions that fall into restricted bands of Table 6 shall comply with the limits specified in RSS-Gen; and (c) Unwanted emissions that do not fall within the restricted frequency bands of Table 6 shall comply either with the limits specified in the applicable RSS or with those specified in this RSS-Gen.

Test Procedure

Ref. KDB 558074 D01 DTS Meas Guidance v03r03
ANSI C63.10: 2013

Conducted Spurious Emissions
Test Procedure
1. Connect the antenna port(s) to the spectrum analyzer input. 2. Place the radio in continuous transmit mode 3. Configure Spectrum analyzer as per test parameters below (be sure to enter all losses between the transmitter output and the spectrum analyzer). 4. Use the peak marker function to determine the maximum spurs amplitude level. 5. The "measure-and-sum technique" is used for measuring in-band transmit power of a device. In the measure-and-sum approach, the conducted emission level is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in linear power units. The worst case output is recorded. (see ANSI C63.10 2013 section 14.3.2.2) 6. Capture graphs and record pertinent measurement data.

Ref. 558074 D01 DTS Meas Guidance v03r03 section 11.1b, 11.2-3, 12.2.4 & 12.2.5.3
ANSI C63.10: 2013 section 11.10.3 & 11.12.2.4 & 11.12.2.5.3

Conducted Spurious Emissions
Test parameters
Span = 30 MHz-26 GHz RBW = 100 kHz. VBW $\geq 3 \times$ RBW Sweep = Auto couple Detector = Peak Trace = Max Hold

KDB: 558074 D01 DTS Meas Guidance v03r03 section 12.2.2 © add the max antenna gain + ground reflection factor (4.7 dB for frequencies between 30 MHz and 1000 MHz, and 0 dB for frequencies > 1000 MHz).

Custom EMC Test Report No: **EDCS - 1511861**

System Number	Description	Samples	System under test	Support equipment
1	EUT	S01	☒	☐
	Support	S02	☐	☒

Tested By : John Liscio	Date of testing: February-15 - March-15
Test Result : PASS	

See Appendix C for list of test equipment

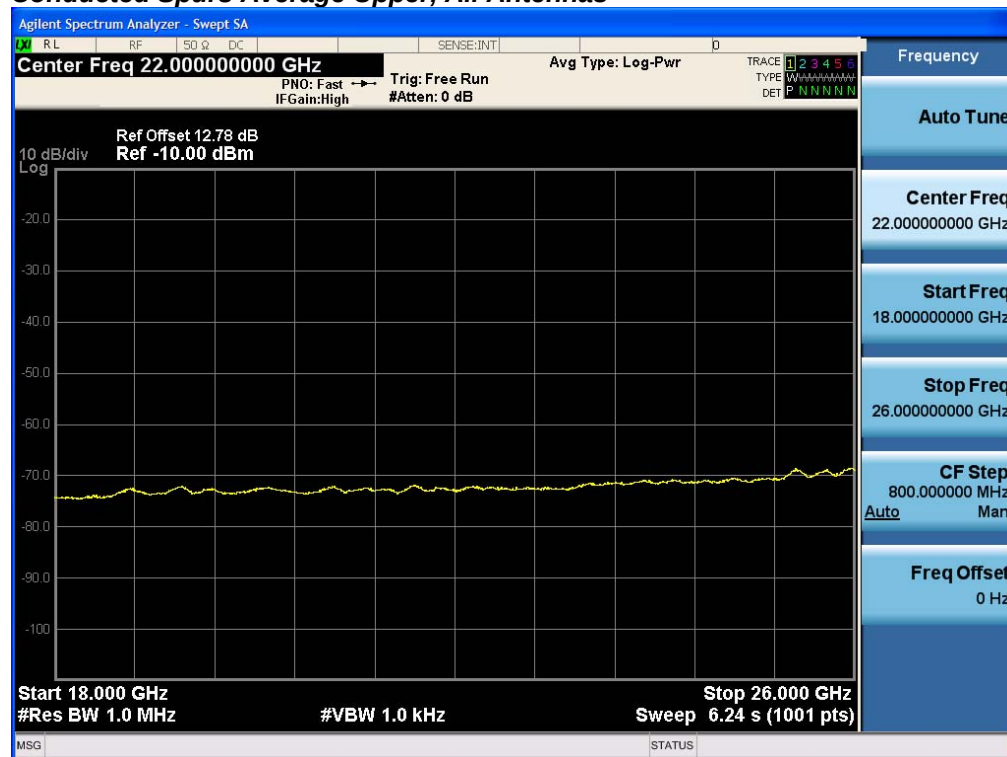
Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Spur Power (dBm)	Tx 2 Spur Power (dBm)	Tx 3 Spur Power (dBm)	Tx 4 Spur Power (dBm)	Total Conducted Spur (dBm)	Limit (dBm)	Margin (dB)
2412	CCK, 1 to 11 Mbps	1	3	-49.9				-46.9	-41.25	5.7
	CCK, 1 to 11 Mbps	2	3	-49.9	-46.5			-41.9	-41.25	0.6
	CCK, 1 to 11 Mbps	3	3	-50.9	-49.1	-48.7		-41.7	-41.25	0.4
	CCK, 1 to 11 Mbps	4	3	-52.2	-52.0	-52.7	-52.9	-43.4	-41.25	2.2
	Non HT-20, 6 to 54 Mbps	1	3	-54.9				-51.9	-41.25	10.7
	Non HT-20, 6 to 54 Mbps	2	3	-55.8	-55.1			-49.4	-41.25	8.2
	Non HT-20, 6 to 54 Mbps	3	3	-58.5	-57.6	-57.0		-49.9	-41.25	8.6
	Non HT-20, 6 to 54 Mbps	4	3	-58.5	-57.6	-57.0	-58.1	-48.7	-41.25	7.5
	HT-20, M0 to M7	1	3	-56.7				-53.7	-41.25	12.5
	HT-20, M0 to M7	2	3	-58.8	-58.2			-52.5	-41.25	11.2
	HT-20, M0 to M7	3	3	-60.0	-59.4	-58.7		-51.6	-41.25	10.3
	HT-20, M0 to M7	4	3	-60.0	-59.4	-58.7	-59.2	-50.3	-41.25	9.0
	HT-20 STBC, M0 to M7	2	3	-58.8	-58.2			-52.5	-41.25	11.2
	HT-20 STBC, M0 to M7	3	3	-60.0	-59.4	-58.7		-51.6	-41.25	10.3
	HT-20 STBC, M0 to M7	4	3	-60.0	-59.4	-58.7	-59.2	-50.3	-41.25	9.0
2437	CCK, 1 to 11 Mbps	1	3	-48.5				-45.5	-41.25	4.3
	CCK, 1 to 11 Mbps	2	3	-48.5	-47.4			-41.9	-41.25	0.7
	CCK, 1 to 11 Mbps	3	3	-51.4	-48.9	-49.6		-42.1	-41.25	0.8
	CCK, 1 to 11 Mbps	4	3	-50.4	-52.4	-49.2	-53.3	-42.0	-41.25	0.8
	Non HT-20, 6 to 54 Mbps	1	3	-54.1				-51.1	-41.25	9.9
	Non HT-20, 6 to 54 Mbps	2	3	-54.1	-52.8			-47.4	-41.25	6.1
	Non HT-20, 6 to 54 Mbps	3	3	-54.1	-52.8	-52.4		-45.3	-41.25	4.0
	Non HT-20, 6 to 54 Mbps	4	3	-54.1	-52.8	-52.4	-47.7	-42.0	-41.25	0.7
	HT-20, M0 to M7	1	3	-54.4				-51.4	-41.25	10.2
	HT-20, M0 to M7	2	3	-54.4	-53.4			-47.9	-41.25	6.6
	HT-20, M0 to M7	3	3	-54.4	-53.4	-52.9		-45.8	-41.25	4.5
	HT-20, M0 to M7	4	3	-54.4	-53.4	-52.9	-47.5	-42.1	-41.25	0.8
	HT-20 STBC, M0 to M7	2	3	-54.4	-53.4			-47.9	-41.25	6.6
	HT-20 STBC, M0 to M7	3	3	-54.4	-53.4	-52.9		-45.8	-41.25	4.5
	HT-20 STBC, M0 to M7	4	3	-54.4	-53.4	-52.9	-47.5	-42.1	-41.25	0.8

2462	CCK, 1 to 11 Mbps	1	3	-52.1				-49.1	-41.25	7.9
	CCK, 1 to 11 Mbps	2	3	-52.1	-49.0			-44.3	-41.25	3.0
	CCK, 1 to 11 Mbps	3	3	-52.1	-49.0	-49.1		-42.1	-41.25	0.8
	CCK, 1 to 11 Mbps	4	3	-52.4	-50.2	-51.8	-50.4	-42.1	-41.25	0.8
	Non HT-20, 6 to 54 Mbps	1	3	-58.4				-55.4	-41.25	14.2
	Non HT-20, 6 to 54 Mbps	2	3	-59.1	-57.8			-52.4	-41.25	11.1
	Non HT-20, 6 to 54 Mbps	3	3	-59.1	-57.8	-57.2		-50.2	-41.25	8.9
	Non HT-20, 6 to 54 Mbps	4	3	-60.5	-58.7	-58.3	-54.9	-48.6	-41.25	7.3
	HT-20, M0 to M7	1	3	-58.5				-55.5	-41.25	14.3
	HT-20, M0 to M7	2	3	-59.9	-57.8			-52.7	-41.25	11.5
	HT-20, M0 to M7	3	3	-60.5	-58.9	-58.9		-51.6	-41.25	10.3
	HT-20, M0 to M7	4	3	-61.3	-60.4	-60.0	-57.2	-50.4	-41.25	9.2
	HT-20 STBC, M0 to M7	2	3	-59.9	-57.8			-52.7	-41.25	11.5
	HT-20 STBC, M0 to M7	3	3	-60.5	-58.9	-58.9		-51.6	-41.25	10.3
	HT-20 STBC, M0 to M7	4	3	-61.3	-60.4	-60.0	-57.2	-50.4	-41.25	9.2

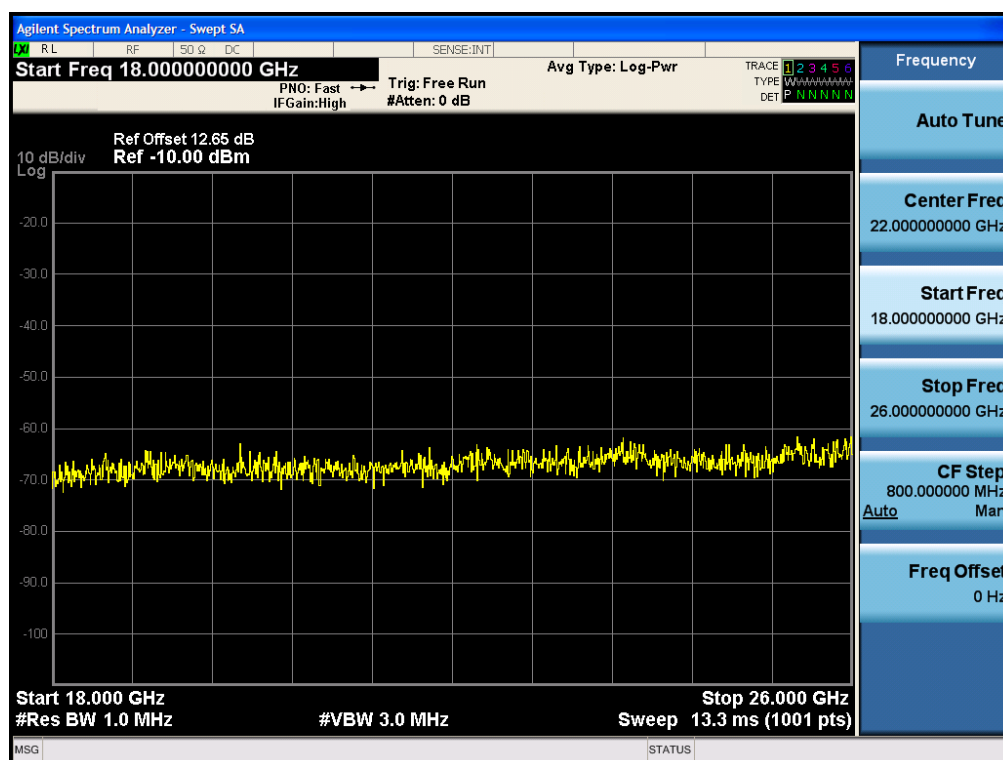
Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Spur Power (dBm)	Tx 2 Spur Power (dBm)	Tx 3 Spur Power (dBm)	Tx 4 Spur Power (dBm)	Total Conducted Spur (dBm)	Limit (dBm)	Margin (dB)
2412	CCK, 1 to 11 Mbps	1	3	-49.1				-46.1	-21.25	24.9
	CCK, 1 to 11 Mbps	2	3	-49.1	-44.0			-39.8	-21.25	18.6
	CCK, 1 to 11 Mbps	3	3	-43.7	-44.9	-44.9		-36.7	-21.25	15.4
	CCK, 1 to 11 Mbps	4	3	-53.9	-54.1	-45.0	-48.5	-39.7	-21.25	18.4
	Non HT-20, 6 to 54 Mbps	1	3	-50.9				-47.9	-21.25	26.7
	Non HT-20, 6 to 54 Mbps	2	3	-49.4	-48.4			-42.9	-21.25	21.6
	Non HT-20, 6 to 54 Mbps	3	3	-52.6	-46.8	-52.2		-41.9	-21.25	20.6
	Non HT-20, 6 to 54 Mbps	4	3	-52.6	-46.8	-52.2	-46.2	-39.5	-21.25	18.2
	HT-20, M0 to M7	1	3	-47.3				-44.3	-21.25	23.1
	HT-20, M0 to M7	2	3	-50.1	-56.5			-46.2	-21.25	25.0
	HT-20, M0 to M7	3	3	-53.3	-55.6	-49.6		-44.4	-21.25	23.1
	HT-20, M0 to M7	4	3	-53.3	-55.6	-49.6	-45.6	-40.4	-21.25	19.1
	HT-20 STBC, M0 to M7	2	3	-50.1	-56.5			-46.2	-21.25	25.0
	HT-20 STBC, M0 to M7	3	3	-53.3	-55.6	-49.6		-44.4	-21.25	23.1
	HT-20 STBC, M0 to M7	4	3	-53.3	-55.6	-49.6	-45.6	-40.4	-21.25	19.1
2437	CCK, 1 to 11 Mbps	1	3	-47.4				-44.4	-21.25	23.2
	CCK, 1 to 11 Mbps	2	3	-47.4	-41.4			-37.4	-21.25	16.2
	CCK, 1 to 11 Mbps	3	3	-44.7	-48.7	-43.4		-37.3	-21.25	16.1
	CCK, 1 to 11 Mbps	4	3	-50.5	-53.4	-43.9	-49.8	-38.9	-21.25	17.6
	Non HT-20, 6 to 54 Mbps	1	3	-47.8				-44.8	-21.25	23.6
	Non HT-20, 6 to 54 Mbps	2	3	-47.8	-51.7			-43.3	-21.25	22.1
	Non HT-20, 6 to 54 Mbps	3	3	-47.8	-51.7	-44.4		-39.2	-21.25	18.0
	Non HT-20, 6 to 54 Mbps	4	3	-47.8	-51.7	-44.4	-41.7	-36.0	-21.25	14.7
	HT-20, M0 to M7	1	3	-47.7				-44.7	-21.25	23.5
	HT-20, M0 to M7	2	3	-47.7	-49.9			-42.7	-21.25	21.4
	HT-20, M0 to M7	3	3	-47.7	-49.9	-44.4		-39.0	-21.25	17.7
	HT-20, M0 to M7	4	3	-47.7	-49.9	-44.4	-33.4	-29.8	-21.25	8.6
	HT-20 STBC, M0 to M7	2	3	-47.7	-49.9			-42.7	-21.25	21.4
	HT-20 STBC, M0 to M7	3	3	-47.7	-49.9	-44.4		-39.0	-21.25	17.7
	HT-20 STBC, M0 to M7	4	3	-47.7	-49.9	-44.4	-33.4	-29.8	-21.25	8.6

2462	CCK, 1 to 11 Mbps	1	3	-47.4				-44.4	-21.25	23.2
	CCK, 1 to 11 Mbps	2	3	-47.4	-42.5			-38.3	-21.25	17.0
	CCK, 1 to 11 Mbps	3	3	-47.4	-42.5	-51.6		-37.9	-21.25	16.6
	CCK, 1 to 11 Mbps	4	3	-52.9	-52.6	-50.4	-49.8	-42.2	-21.25	20.9
	Non HT-20, 6 to 54 Mbps	1	3	-50.1				-47.1	-21.25	25.9
	Non HT-20, 6 to 54 Mbps	2	3	-55.5	-55.2			-49.3	-21.25	28.1
	Non HT-20, 6 to 54 Mbps	3	3	-55.5	-55.2	-49.5		-44.7	-21.25	23.4
	Non HT-20, 6 to 54 Mbps	4	3	-55.3	-50.7	-51.2	-46.2	-40.7	-21.25	19.4
	HT-20, M0 to M7	1	3	-53.6				-50.6	-21.25	29.4
	HT-20, M0 to M7	2	3	-55.0	-55.3			-49.1	-21.25	27.9
	HT-20, M0 to M7	3	3	-56.6	-57.1	-49.1		-44.8	-21.25	23.6
	HT-20, M0 to M7	4	3	-54.9	-50.5	-52.7	-48.7	-42.1	-21.25	20.8
	HT-20 STBC, M0 to M7	2	3	-55.0	-55.3			-49.1	-21.25	27.9
	HT-20 STBC, M0 to M7	3	3	-56.6	-57.1	-49.1		-44.8	-21.25	23.6
	HT-20 STBC, M0 to M7	4	3	-54.9	-50.5	-52.7	-48.7	-42.1	-21.25	20.8

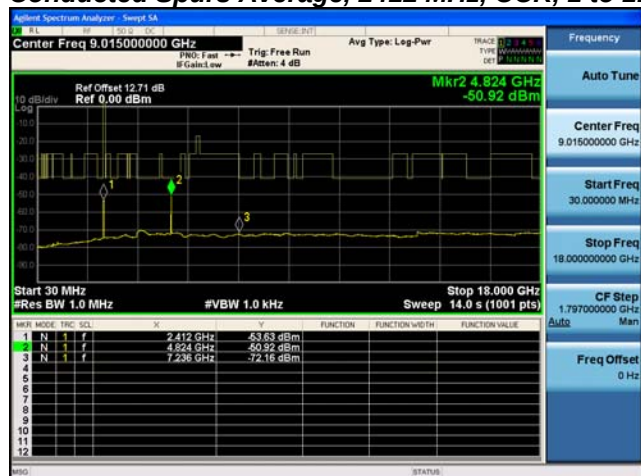
Conducted Spurs Average Upper, All Antennas



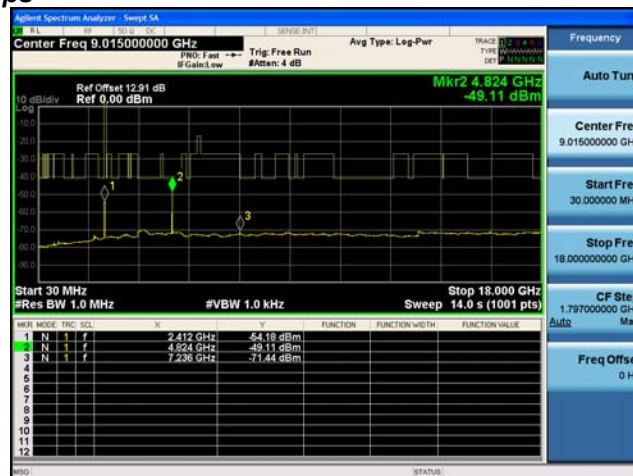
Conducted Spurs Peak Upper, All Antennas



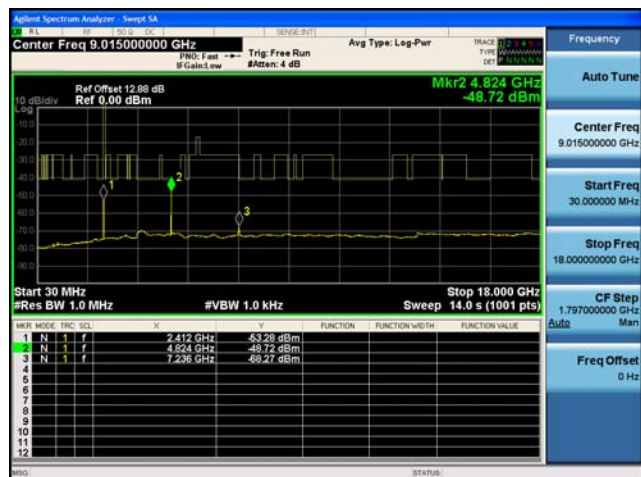
Conducted Spurs Average, 2412 MHz, CCK, 1 to 11 Mbps



Antenna A

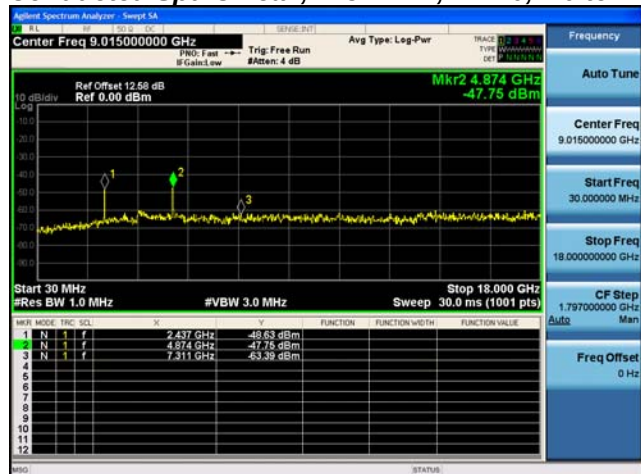


Antenna B

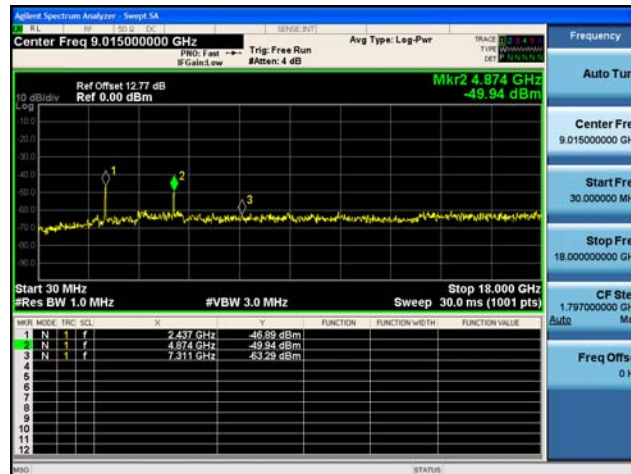


Antenna C

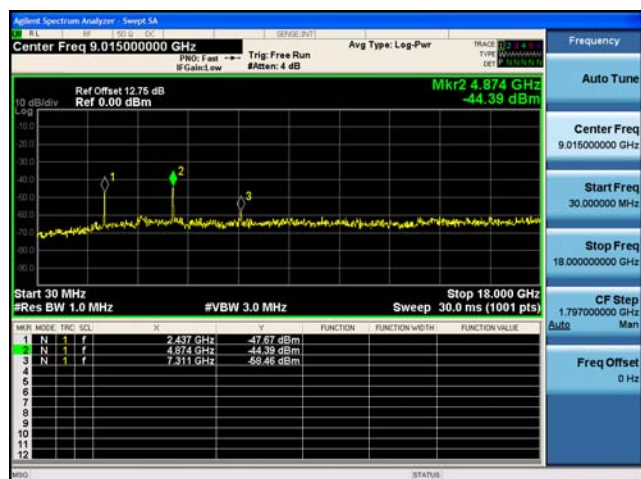
Conducted Spurs Peak, 2437 MHz, HT-20, M0 to M7



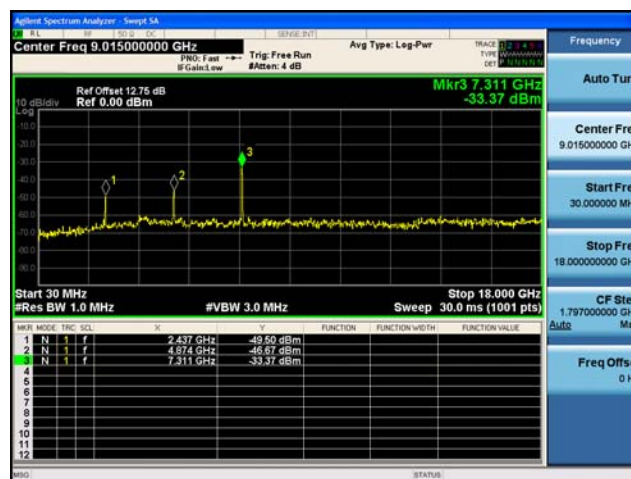
Antenna A



Antenna B



Antenna C



Antenna D

A.6 Conducted Bandedge

15.205 / 15.247 / RSS-Gen / RSS-247 In any 100 kHz bandwidth outside the frequency band in which the digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), and RSS-Gen 8.10 must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)) and RSS-Gen 8.9.

Test Procedure

Ref. KDB 558074 D01 DTS Meas Guidance v03r03
ANSI C63.10: 2013

Conducted Band edge Test Procedure	
1. Connect the antenna port(s) to the spectrum analyzer input. 2. Place the radio in continuous transmit mode. Use the procedures in KDB 558074 D01 DTS Meas Guidance v03r03 to substitute conducted measurements in place of radiated measurements. 3. Configure Spectrum analyzer as per test parameters below (be sure to enter all losses between the transmitter output and the spectrum analyzer). 4. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands.. 5. The "measure-and-sum technique" is used for measuring in-band transmit power of a device. In the measure-and-sum approach, the conducted emission level is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in linear power units. The worst case output is recorded. 6. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands 7. Capture graphs and record pertinent measurement data.	

Conducted Bandedge Test parameters non-restricted Band KDB 558074 D01 v03r03 section 11.1b, 11.2-3, also see ANSI C63.10: 2013 section 11.10.3	Conducted Bandedge Test parameters restricted Band KDB 558074 D01 v03r03 section 12.2.4 & 12.2.5.3 also see ANSI C63.10: 2013 section 11.12.4 & 11.12.5.3
RBW = 100 kHz VBW ≥ 3 x RBW Sweep = Auto couple Detector = Peak Trace = Max Hold.	RBW = 1 MHz VBW ≥ 3 x RBW for Peak, 100Hz for Average Sweep = Auto couple Detector = Peak Trace = Max Hold.

Custom EMC Test Report No: **EDCS - 1511861**

System Number	Description	Samples	System under test	Support equipment
1	EUT	S01	☒	☐
	Support	S02	☐	☒

Tested By : John Liscio	Date of testing: February-15 - March-15
Test Result : PASS	

See Appendix C for list of test equipment

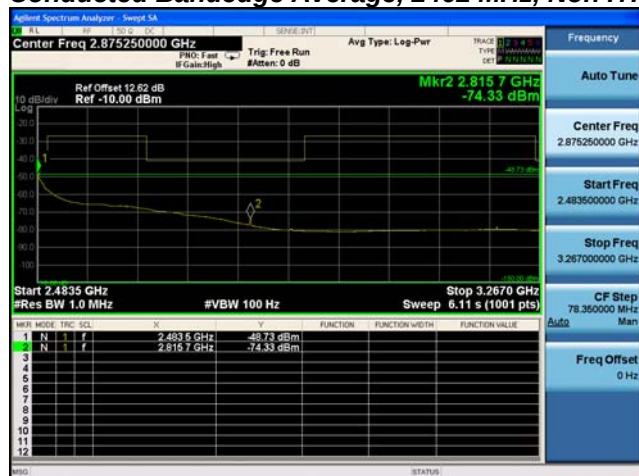
Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Bandedge Level (dBm)	Tx 2 Bandedge Level (dBm)	Tx 3 Bandedge Level (dBm)	Tx 4 Bandedge Level (dBm)	Total Tx Bandedge Level (dBm)	Limit (dBm)	Margin (dB)
2412	CCK, 1 to 11 Mbps	1	3	-54.9				-51.9	-41.25	10.7
	CCK, 1 to 11 Mbps	2	3	-54.9	-54.9			-48.9	-41.25	7.6
	CCK, 1 to 11 Mbps	3	3	-54.9	-54.9	-55.9		-47.4	-41.25	6.2
	CCK, 1 to 11 Mbps	4	3	-54.9	-54.9	-55.9	-53.5	-45.7	-41.25	4.4
	Non HT-20, 6 to 54 Mbps	1	3	-44.4				-41.4	-41.25	0.2
	Non HT-20, 6 to 54 Mbps	2	3	-47.0	-47.8			-41.4	-41.25	0.1
	Non HT-20, 6 to 54 Mbps	3	3	-52.3	-52.6	-49.1		-43.3	-41.25	2.0
	Non HT-20, 6 to 54 Mbps	4	3	-52.3	-52.6	-49.1	-52.5	-42.3	-41.25	1.1
	HT-20, M0 to M7	1	3	-45.9				-42.9	-41.25	1.7
	HT-20, M0 to M7	2	3	-50.3	-50.5			-44.4	-41.25	3.1
	HT-20, M0 to M7	3	3	-51.8	-52.0	-49.3		-43.1	-41.25	1.8
	HT-20, M0 to M7	4	3	-51.8	-52.0	-49.3	-53.0	-42.3	-41.25	1.0
	HT-20 STBC, M0 to M7	2	3	-50.3	-50.5			-44.4	-41.25	3.1
	HT-20 STBC, M0 to M7	3	3	-51.8	-52.0	-49.3		-43.1	-41.25	1.8
	HT-20 STBC, M0 to M7	4	3	-51.8	-52.0	-49.3	-53.0	-42.3	-41.25	1.0
2462	CCK, 1 to 11 Mbps	1	3	-52.4				-49.4	-41.25	8.2
	CCK, 1 to 11 Mbps	2	3	-52.4	-52.5			-46.4	-41.25	5.2
	CCK, 1 to 11 Mbps	3	3	-52.4	-52.5	-52.2		-44.6	-41.25	3.3
	CCK, 1 to 11 Mbps	4	3	-52.4	-52.5	-52.2	-53.4	-43.6	-41.25	2.3
	Non HT-20, 6 to 54 Mbps	1	3	-45.9				-42.9	-41.25	1.7
	Non HT-20, 6 to 54 Mbps	2	3	-48.7	-50.3			-43.4	-41.25	2.2
	Non HT-20, 6 to 54 Mbps	3	3	-48.7	-50.3	-48.4		-41.3	-41.25	0.0
	Non HT-20, 6 to 54 Mbps	4	3	-50.6	-50.8	-49.9	-50.7	-41.5	-41.25	0.2
	HT-20, M0 to M7	1	3	-45.9				-42.9	-41.25	1.7
	HT-20, M0 to M7	2	3	-48.5	-49.1			-42.8	-41.25	1.5
	HT-20, M0 to M7	3	3	-49.4	-50.6	-49.2		-41.9	-41.25	0.7
	HT-20, M0 to M7	4	3	-51.4	-52.5	-51.4	-51.7	-42.7	-41.25	1.5
	HT-20 STBC, M0 to M7	2	3	-48.5	-49.1			-42.8	-41.25	1.5
	HT-20 STBC, M0 to M7	3	3	-49.4	-50.6	-49.2		-41.9	-41.25	0.7
	HT-20 STBC, M0 to M7	4	3	-51.4	-52.5	-51.4	-51.7	-42.7	-41.25	1.5

Custom EMC Test Report No: **EDCS - 1511861**

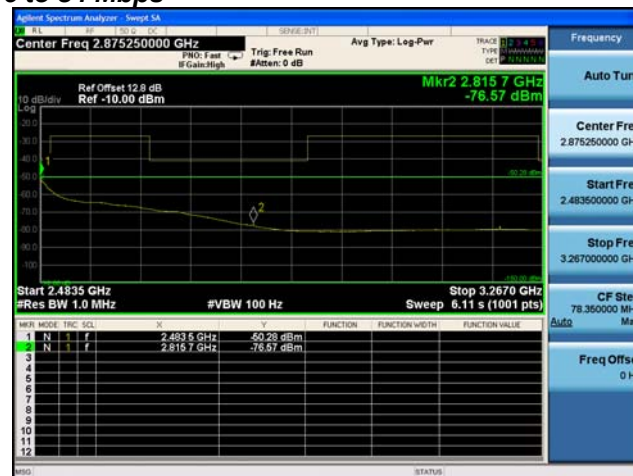
Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Bandedge Level (dBm)	Tx 2 Bandedge Level (dBm)	Tx 3 Bandedge Level (dBm)	Tx 4 Bandedge Level (dBm)	Total Tx Bandedge Level (dBm)	Limit (dBm)	Margin (dB)
2412	CCK, 1 to 11 Mbps	1	3	-47.6				-44.6	-21.25	23.4
	CCK, 1 to 11 Mbps	2	3	-47.6	-48.2			-41.9	-21.25	20.6
	CCK, 1 to 11 Mbps	3	3	-47.6	-48.2	-49.1		-40.5	-21.25	19.2
	CCK, 1 to 11 Mbps	4	3	-47.6	-48.2	-49.1	-45.5	-38.4	-21.25	17.1
	Non HT-20, 6 to 54 Mbps	1	3	-28.3				-25.3	-21.25	4.1
	Non HT-20, 6 to 54 Mbps	2	3	-28.6	-30.8			-23.6	-21.25	2.3
	Non HT-20, 6 to 54 Mbps	3	3	-38.4	-35.8	-31.9		-26.8	-21.25	5.5
	Non HT-20, 6 to 54 Mbps	4	3	-38.4	-35.8	-31.9	-39.9	-26.4	-21.25	5.1
	HT-20, M0 to M7	1	3	-29.6				-26.6	-21.25	5.4
	HT-20, M0 to M7	2	3	-36.4	-34.0			-29.0	-21.25	7.8
	HT-20, M0 to M7	3	3	-35.5	-34.6	-31.4		-25.7	-21.25	4.4
	HT-20, M0 to M7	4	3	-35.5	-34.6	-31.4	-41.3	-25.5	-21.25	4.2
	HT-20 STBC, M0 to M7	2	3	-36.4	-34.0			-29.0	-21.25	7.8
	HT-20 STBC, M0 to M7	3	3	-35.5	-34.6	-31.4		-25.7	-21.25	4.4
	HT-20 STBC, M0 to M7	4	3	-35.5	-34.6	-31.4	-41.3	-25.5	-21.25	4.2
2462	CCK, 1 to 11 Mbps	1	3	-44.1				-41.1	-21.25	19.9
	CCK, 1 to 11 Mbps	2	3	-44.1	-43.8			-37.9	-21.25	16.7
	CCK, 1 to 11 Mbps	3	3	-44.1	-43.8	-43.8		-36.1	-21.25	14.9
	CCK, 1 to 11 Mbps	4	3	-44.1	-43.8	-43.8	-45.5	-35.2	-21.25	14.0
	Non HT-20, 6 to 54 Mbps	1	3	-32.9				-29.9	-21.25	8.7
	Non HT-20, 6 to 54 Mbps	2	3	-31.4	-32.2			-25.8	-21.25	4.5
	Non HT-20, 6 to 54 Mbps	3	3	-31.4	-32.2	-30.6		-23.6	-21.25	2.3
	Non HT-20, 6 to 54 Mbps	4	3	-33.9	-34.5	-33.1	-32.9	-24.5	-21.25	3.3
	HT-20, M0 to M7	1	3	-27.5				-24.5	-21.25	3.3
	HT-20, M0 to M7	2	3	-26.6	-35.5			-23.1	-21.25	1.8
	HT-20, M0 to M7	3	3	-33.2	-37.0	-35.3		-27.1	-21.25	5.9
	HT-20, M0 to M7	4	3	-37.2	-38.7	-36.7	-35.9	-28.0	-21.25	6.7
	HT-20 STBC, M0 to M7	2	3	-26.6	-35.5			-23.1	-21.25	1.8
	HT-20 STBC, M0 to M7	3	3	-33.2	-37.0	-35.3		-27.1	-21.25	5.9
	HT-20 STBC, M0 to M7	4	3	-37.2	-38.7	-36.7	-35.9	-28.0	-21.25	6.7

Custom EMC Test Report No: **EDCS - 1511861**

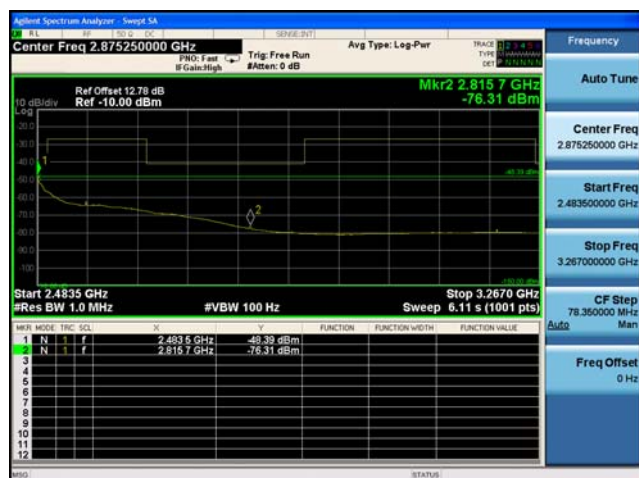
Conducted Bandedge Average, 2462 MHz, Non HT-20, 6 to 54 Mbps



Antenna A

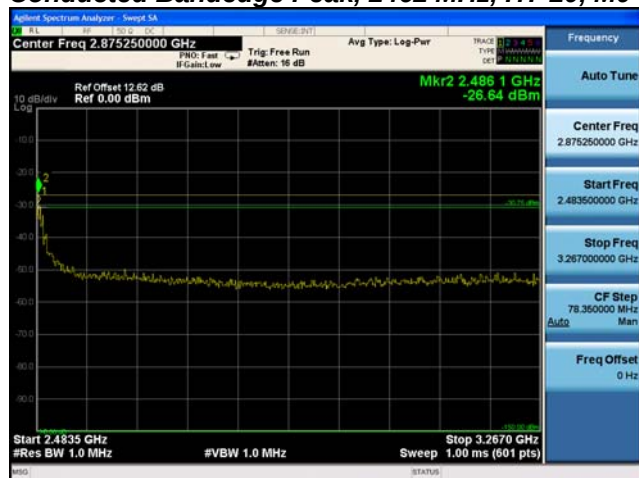


Antenna B

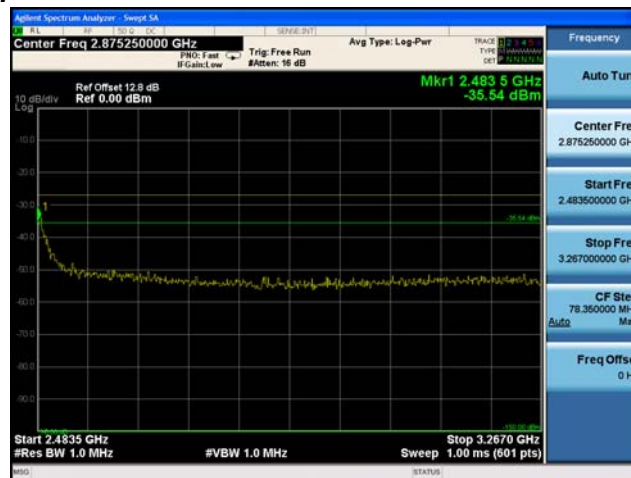


Antenna C

Conducted Bandedge Peak, 2462 MHz, HT-20, M0 to M7



Antenna A



Antenna B

Appendix B: List of Test Equipment Used to perform the test

Cis Number	Manufacturer	Model	Description	Calibration Due Date
3003	HP	83731B	Synthesized Signal Generator	3/13/2016
4882	EMC Test Systems	3115	Double Ridged Guide Horn Antenna	7/24/2015
5691	Miteq	NSP1800-25-S1	Broadband Preamplifier (1-18GHz)	1/29/2016
8166	HP	8491B Opt 010	10dB Attenuator	2/2/2016
20975	Micro-Coax	UFB311A-0-1344-520520	RF Coaxial Cable, to 18GHz, 134.4 in	2/18/2016
30559	Micro-Coax	UFB311A-1-0950-504504	RF Coaxial Cable, to 18GHz, 95 in	2/20/2016
30652	Sunol Sciences	JB1	Combination Antenna, 30MHz-2GHz	11/5/2015
33988	Agilent	E4446A	Spectrum Analyzer, 3Hz-44GHz	12/9/2015
41929	Newport	iBTHP-5-DB9	5 inch Temp/RH/Press Sensor w/20ft cable	12/20/2015
41979	Cisco	1840	18-40GHz EMI Test Head/Verification Fixture	7/9/2015
43124	Cisco	Above 1GHz Site Cal	Above 1GHz Cispri Site Verification	1/15/2016
CIS-50378	Agilent	N9030A	PXA Spectrum Analyzer	1/5/2016
47282	Huber + Suhner	Sucoflex 102E	40GHz Cable K Connector	5/2/2015
47410	Agilent	N9038A	EMI Receiver	1/5/2016
51642	Huber+Suhner	Sucoflex 106PA	RF N Type Cable 8.5m	2/10/2016
51684	Dynaware	5400-9810-6251	SMA 50 Ohm Termination 18GHz	5/22/2015
51690	Dynaware	5400-9810-6251	SMA 50 Ohm Termination 18GHz	5/22/2015
51692	Dynaware	5400-9810-6251	SMA 50 Ohm Termination 18GHz	5/22/2015
51695	Dynaware	5400-9810-6251	SMA 50 Ohm Termination 18GHz	5/22/2015
CIS-32307	Micro-Tronics	BRM50702-02	2.4-2.5G Notch Filter	10/3/2015
CIS-35606	Micro-Tronics	BRC50704-02	5.47-5.725G Notch Filter	10/3/2015
CIS-43988	Micro-Tronics	BRC50703-02	5.15-5.35G Notch Filter	10/3/2015
CIS-43989	Micro-Tronics	BRC50705-02	5.725-5.875G Notch Filter	10/3/2015

Appendix C: Abbreviation Key and Definitions

The following table defines abbreviations used within this test report.

Abbreviation	Description	Abbreviation	Description
EMC	Electro Magnetic Compatibility	°F	Degrees Fahrenheit
EMI	Electro Magnetic Interference	°C	Degrees Celsius
EUT	Equipment Under Test	Temp	Temperature
ITE	Information Technology Equipment	S/N	Serial Number
TAP	Test Assessment Schedule	Qty	Quantity
ESD	Electro Static Discharge	emf	Electromotive force
EFT	Electric Fast Transient	RMS	Root mean square
EDCS	Engineering Document Control System	Qp	Quasi Peak
Config	Configuration	Av	Average
CIS#	Cisco Number (unique identification number for Cisco test equipment)	Pk	Peak
Cal	Calibration	kHz	Kilohertz (1×10^3)
EN	European Norm	MHz	MegaHertz (1×10^6)
IEC	International Electro technical Commission	GHz	Gigahertz (1×10^9)
CISPR	International Special Committee on Radio Interference	H	Horizontal
CDN	Coupling/Decoupling Network	V	Vertical
LISN	Line Impedance Stabilization Network	dB	decibel
PE	Protective Earth	V	Volt
GND	Ground	kV	Kilovolt (1×10^3)
L1	Line 1	μ V	Microvolt (1×10^{-6})
L2	Line2	A	Amp
L3	Line 3	μ A	Micro Amp (1×10^{-6})
DC	Direct Current	mS	Milli Second (1×10^{-3})
RAW	Uncorrected measurement value, as indicated by the measuring device	μ S	Micro Second (1×10^{-6})
RF	Radio Frequency	μ S	Micro Second (1×10^{-6})
SLCE	Signal Line Conducted Emissions	m	Meter
Meas dist	Measurement distance	Spec dist	Specification distance
N/A or NA	Not Applicable	SL	Signal Line (or Telecom Line)
P	Power Line	L	Live Line
N	Neutral Line	R	Return
S	Supply	AC	Alternating Current

End