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ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C AND INDUSTRY CANADA RSS 247 REQUIREMENT

OF

CYBERNET Manufacturing Inc Applicant:

5 Holland, Bldg. 201 Irvine. CA92618

Product Name: Cybernet Tablet PC

Cybernet **Brand Name:**

Model No.: CyberMed Rx, Rugged X10

Model Difference: apperance different FCC ID: 2AHZW-CYBRXX10 IC: 24472-CYBRXX10

Report Number: E2/2019/10029 **FCC Rule Part:** §15.247, Cat: DTS

IC Rule Part: RSS-247 issue 2 Feb 2017

Feb. 25, 2019 Issue Date:

Date of Test: Jan. 22, 2019 ~ Jan. 30, 2019

Date of EUT Received: Jan. 09, 2019

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10:2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits. The test results of this report relate only to the tested sample identified in this report.

Tested By:

Approved By:

Vito Pei / Sr. Engineer





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Revision History

Report Number	Revision	Description	Effected Page	Issue Date	Revised By
E2/2019/10029	Rev.00	Initial creation of document	All	Feb. 12, 2019	Karen Huang
E2/2019/10029	Rev.01	Updated model number and measurement data	Page 1,4,9, 65,66,106	Feb. 21, 2019	Karen Huang
E2/2019/10029	Rev.02	Added remark	Page 109	Feb. 25, 2019	Karen Huang

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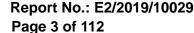




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GENERAL INFORMATION

Product description

General:

General:			
Product Name:	Cybernet Tablet PC		
Brand Name:	Cybernet		
Model No.:	CyberMed Rx, Rugged X10		
Model Difference:	apperance different		
Hardware Version:	N/A		
Software Version:	N/A		
	10.8Vdc from Rechargeable Li-polymer Battery or 19Vdc from AC/DC Adapter		
Dower Cupply	Battery: Model No.: CyberMed Rx/Rugged X10, Supplier: FUJI Electronics (Shenzhen) Co., Ltd.		
Power Supply:	1. Model No.: FSP065-DBBM1, Supplier: FSP GROUP INC. 2. Model No.: EM10681V, Supplier: EDACPOWER ELEC.		

WLAN 2.4GHz:

VE 11 2. 10112.								
Wi-Fi	Frequency	Channels	Rated Power	Rated Power	Type of	Modulation		
	Range		in dBm (Peak)	in dBm (EIRP)	Emission	Technology		
802.11b			20.58	14.34	13M0G1D	DSSS,		
802.11g	2412-2462	11	19.86	11.45	16M8D1D			
802.11n HT20			21.47	14.46	17M7D1D	OFDM		
802.11n HT40	2422-2452	7	19.44	13.73	36M0D1D			
Modulation type	· ·	CCK, DQPSK, DBPSK for DSSS						
Modulation type	5.	64QAM, 16QAM, QPSK, BPSK for OFDM						
		802.11 b: 1/2/5.5/11 Mbps						
Transition Rate:		802.11 g: 6/9/12/18/24/36/48/54 Mbps						
		802.11 n_20MHz: 6.5 – 144.4Mbps						
		802.11 n_40MHz: 13.5 – 300.0Mbps						

Antenna Designation

Antenna Type	Main / Aux	Part Number	Supplier	Peak Gain (dBi)
PIFA	Main	RFA-25-AP238-70B180T	Aristotle	-3
PIFA	Aux	RFA-25-AP238-70B-240	Aristotle	-4.12

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Test Methodology of Applied Standards 1.2

FCC Part 15, Subpart C §15.247

FCC KDB 558074 D01 DTS Meas. Guidance v05r01

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

RSS-247 issue 2 Feb. 2017

RSS-Gen. issue 5 Apr. 2018

ANSI C63.10:2013

Note: All test items have been performed and record as per the above standards.

1.3 **Test Facility**

SGS Taiwan Ltd. Electronics & Communication Laboratory No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333 (TAF code 0513)

FCC Designation number: TW0002

Canada Registration Number: 4620E-1

1.4 **Special Accessories**

There are no special accessories used while test was conducted.

1.5 **Equipment Modifications**

There was no modification incorporated into the EUT.

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SYSTEM TEST CONFIGURATION 2

2.1 **EUT Configuration**

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 **EUT Exercise**

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

2.3 **Test Procedure**

2.3.1 **Conducted Emissions**

The EUT is a placed on a table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz. The CISPR Quasi-Peak and Average detector mode is employed according to §15.207. The two LISNs provide 50uH/50 ohm of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

2.3.2 **Conducted Test (RF)**

The active antenna port of the unlicensed wireless device is connected to the spectrum analyzer with attenuator to protect the instrumentation. If a second antenna port is available, it is tested at one operating frequency, with other port(s) appropriately terminated, to verify it has similar output characteristics as the fully tested port.

2.3.3 **Radiated Emissions**

The EUT is a placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

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2.4 **Measurement Results Explanation Example**

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

Note:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor. Following shows an offset computation example with cable loss and attenuator.

2.5 **Configuration of Tested System**

Fig. 2-1 Radiated Emission Configuration



Fig.2-3 Conducted Emission (Antenna Port) Configuration



Fig. 2-2 Conducted Emission (AC Power Line) Configuration

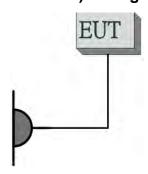


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1	WLAN Test Software	N/A	N/A	N/A	N/A	N/A

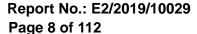
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SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result
§15.207(a)	RSS-Gen §8.8	AC Power Line Conducted Emission	Compliant
§15.247(b) (3)	RSS-247 §5.4(4)	Peak Output Power	Compliant
§15.247(a)(2)	RSS-247 §5.1 (1) RSS-Gen §6.7	6dB & 99% Emission Bandwidth	Compliant
§15.247(d)	RSS-247 §5.5 RSS-Gen §8.10	Conducted Band Edge and Spurious Emission	Compliant
§15.205 §15.209 §15.247(d)	RSS-247 §5.5 RSS-Gen §8.9 RSS-Gen §8.10 RSS-Gen §6.13	Radiated Band Edge and Spurious Emission	Compliant
§15.247(e)	RSS-247 §5.2(2)	Power Spectral Density	Compliant
§15.203 §15.247(b)	RSS- Gen §6.8	Antenna Requirement	Compliant

DESCRIPTION OF TEST MODES 4

Operated in 2400 ~ 2483.5MHz Band 4.1

11 channels are provided for 802.11b, 802.11g and 802.11n_HT20

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

7 channels are provided for 802.11n_HT40

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422 MHz	7	2442 MHz
4	2427 MHz	8	2447 MHz
5	2432 MHz	9	2452 MHz
6	2437 MHz		

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4.2 The Worst Test Modes and Channel Details

- 1. The EUT has been tested under operating condition.
- 2. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

3. Investigation has been done on all the possible configurations for searching the worst case. The gevin UE is pre-scanned among below modes.

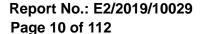
Modulation	Transmission Chain			Multiple Transmission Spatial	
⊠ 802.11 b	⊠ Ch0	⊠ Ch1	☐ Ch2	□ Ch3	□ 2TX
⊠ 802.11 g	⊠ Ch0	⊠ Ch1	□ Ch2	□ Ch3	□ 2TX
⊠ 802.11 n (HT20)	⊠ Ch0	⊠ Ch1	☐ Ch2	☐ Ch3	⊠ MIMO
⊠ 802.11 n (HT40)	⊠ Ch0	⊠ Ch1	□ Ch2	□ Ch3	⊠ MIMO

4. Therefore, below summary is the modes of test configuration that yield the highest reading and generate the highest emission chosen to carry out the relevantly mandatory test items.

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RADIATED EMISSION TEST

	INADIATED EN	RADIATED EMIGOION TEOT:							
RADIATED EMISSION TEST (BELOW 1 GHz)									
	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT			
	802.11g	1 to 11	1,6,11	OFDM	6	Aux			

RADIATED EMISSION TEST (ABOVE 1 GHz)							
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT		
802.11b	1 to 11	1, 6, 11	DSSS	1	Aux		
802.11g	1 to 11	1, 6, 11	OFDM	6	Aux		
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	MCS 8	MIMO		
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	MCS 8	MIMO		

Note:

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11b/g/n WLAN Transmitter for channel Low, Mid and High, the worst case H position was reported.

ANTENNA PORT CONDUCTED MEASUREMENT:

CONDUCTED TEST										
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT					
802.11b	1 to 11	1, 6, 11	DSSS	11	Aux					
802.11g	1 to 11	1, 6, 11	OFDM	54	Aux					
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	MCS 8	MIMO					
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	MCS 8	MIMO					

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MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 2.586 dB
Peak Output Power	+/- 0.84 dB
6dB Bandwidth	+/- 51.33 Hz
100 KHz Bandwidth Of Frequency Band Edge	+/- 0.84 dB
Peak Power Density	+/- 1.3 dB
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC= +/- 0.2%

Radiated Spurious Emission:

	9kHz-30MHz: +/-2.87dB					
	30MHz - 180MHz: +/- 3.37dB					
Measurement uncertainty	180MHz -417MHz: +/- 3.19dB					
(Polarization : Vertical)	0.417GHz-1GHz: +/- 3.19dB					
	1GHz - 18GHz: +/- 4.04dB					
	18GHz - 40GHz: +/- 4.04dB					

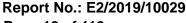
	9kHz-30MHz: +/-2.87dB
	30MHz - 167MHz: +/- 4.22dB
Measurement uncertainty	167MHz -500MHz: +/- 3.44dB
(Polarization : Horizontal)	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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Page 12 of 112

CONDUCTED EMISSION TEST

Standard Applicable 6.1

Frequency range within 150kHz to 30MHz shall not exceed the Limit table as below.

Frequency range	Lin dB(nits uV)
MHz	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

6.2 Measurement Equipment Used

Conducted Emission Test Site											
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.						
EMI Test Receiver	R&S	ESCI 7	100950	12/08/2016	12/07/2017						
Coaxial Cables	N/A	N30N30-1042-150cm	N/A	08/30/2017	08/29/2018						
LISN	Schwarzbeck	NSLK 8127	8127-648	06/18/2017	06/17/2018						
Test Software	Farad	EZ-EMC	Ver. SGS- 03A2	N.C.R.	N.C.R.						

6.3 **EUT Setup**

- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI 63.10:2013.
- 2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
- 3. The LISN was connected with 120Vac/60Hz power source.

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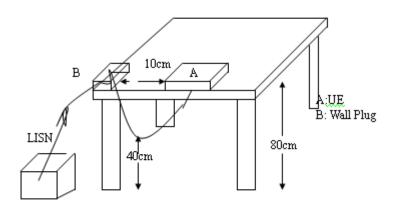
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^{1.} The lower limit shall apply at the transition frequencies

^{2.} The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.



Test SET-UP (Block Diagram of Configuration) 6.4



6.5 **Measurement Procedure**

- 1. The EUT was placed on a table which is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. Repeat above procedures until all phases of power being supplied by given UE are completed

6.6 Measurement Result

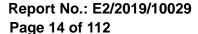
Note: Refer to next page for measurement data and plots.

Note2: The * reveals the worst-case results that closet to the limit

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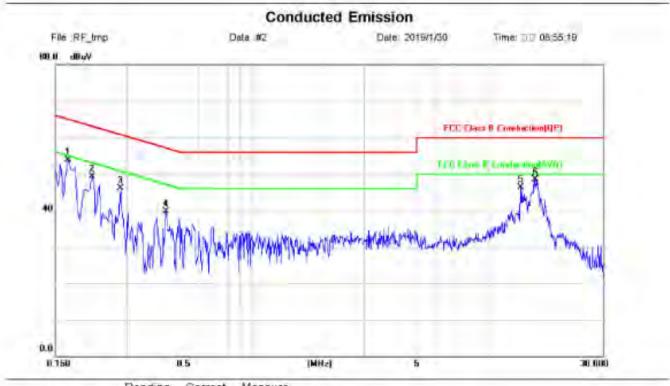


AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode: operation mode Test By: Pony

Adapter 1

Site . Conduction Room B 23 D Phase: LI Temperature: AC 120V/60Hz Humidly. Limit FCC Class B Conduction(QP) Power. Mode: Note



No:	Mk	Freq	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1700	34.25	19.69	53.94	64.96	-11.02	peak	
2		0.2140	29.56	19.76	49.32	63.05	-13,73	peak	
3		0.2820	26,26	19.88	46 14	60.76	-14.62	peak	
4		0.4380	19.57	20.13	39 70	57 10	-17.40	peak	
5		13 5620	26.37	19.97	46.34	60.00	-13.66	peak	
6	-	15,6060	28,44	19.99	48.43	60.00	-11.57	peak	

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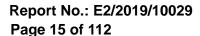
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Conduction Room B

Limit: FCC Class B Conduction(QP)

Mode: Note:

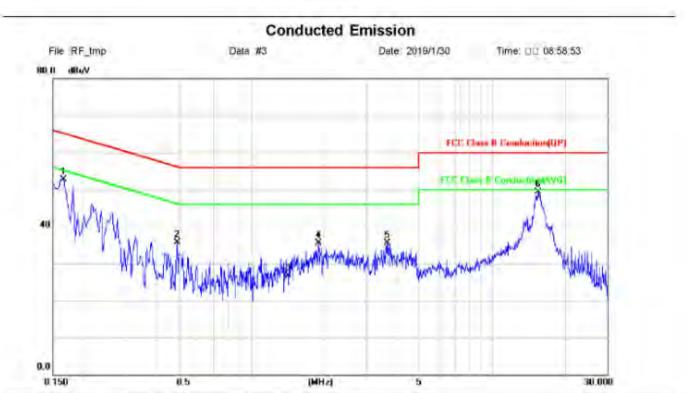
Phase:

N

Temperature:

23 🗆

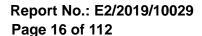
AC 120V/60Hz Humidity 57 % Power:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1660	33.12	19.66	52.78	65,16	-12.38	peak	
2		0.4940	15.53	20.21	35.74	56.10	-20.36	peak	
3		1 4140	6.58	20.12	26.70	56.00	-29.30	peak	
4		1.9060	15.04	20.47	35.51	56.00	-20.49	peak	
5		3.6700	15.33	20.23	35.56	56.00	-20.44	peak	
6	•	15.5100	29.25	20.01	49.26	60.00	-10.74	peak	

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Adapter 2

Conduction Room B

Limit: FCC Class B Conduction(QP)

Power:

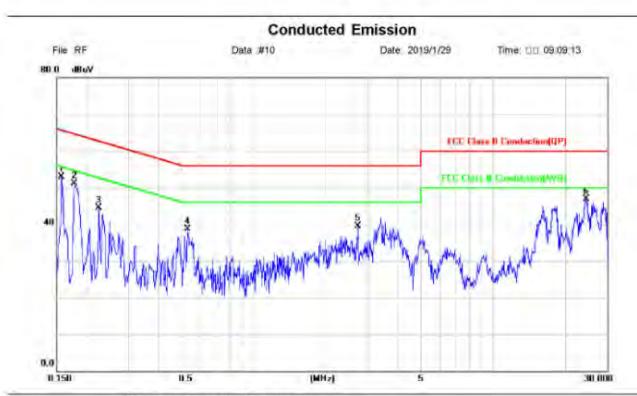
Phase:

L1 AC 120V/60Hz

23 🗆 Temperature:

Humidity. 57 %

Mode: Note:

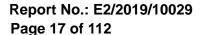


Mk	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
•	0.1580	33.22	19.66	52.88	65.57	-12.69	peak	
-	0.1780	31.42	19.69	51.11	64.58	-13.47	peak	
	0.2260	24.65	19.77	44.42	62.60	-18.18	peak	
	0.5300	18.60	20.20	38.80	56.00	-17.20	peak	
	2 7300	19.04	20:40	39.44	56.00	-16.56	peak	
	24.5940	26.73	20.15	46.88	60.00	-13.12	peak	
	•	MHz 0.1580 0.1780 0.2260 0.5300 2.7300	Mk Freq Level MHz dBuV 0.1580 33.22 0.1780 31.42 0.2260 24.65 0.5300 18.60 2.7300 19.04	Mk Freq Level Factor MHz dBuV dB 0.1580 33.22 19.66 0.1780 31.42 19.69 0.2260 24.65 19.77 0.5300 18.60 20.20 2.7300 19.04 20.40	Mk Freq. Level Factor ment MHz dBuV dB dBuV * 0.1580 33.22 19.66 52.88 0.1780 31.42 19.69 51.11 0.2260 24.65 19.77 44.42 0.5300 18.60 20.20 38.80 2.7300 19.04 20.40 39.44	Mk Freq. Level Factor ment Limit MHz dBuV dB dBuV dBuV * 0.1580 33.22 19.66 52.88 65.57 0.1780 31.42 19.69 51.11 64.58 0.2260 24.65 19.77 44.42 62.60 0.5300 18.60 20.20 38.80 56.00 2.7300 19.04 20.40 39.44 56.00	Mk Freq. Level Factor ment Limit Over MHz dBuV dB dBuV dBuV dB * 0.1580 33.22 19.66 52.88 65.57 -12.69 0.1780 31.42 19.69 51.11 64.58 -13.47 0.2260 24.65 19.77 44.42 62.60 -18.18 0.5300 18.60 20.20 38.80 56.00 -17.20 2.7300 19.04 20.40 39.44 56.00 -16.56	Mk Freq. Level Factor ment Limit Over MHz dBuV dB dBuV dB Detector * 0.1580 33.22 19.66 52.88 65.57 -12.69 peak 0.1780 31.42 19.69 51.11 64.58 -13.47 peak 0.2260 24.65 19.77 44.42 62.60 -18.18 peak 0.5300 18.60 20.20 38.80 56.00 -17.20 peak 2.7300 19.04 20.40 39.44 56.00 -16.56 peak

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23 []



Conduction Room B

Limit: FCC Class B Conduction(QP)

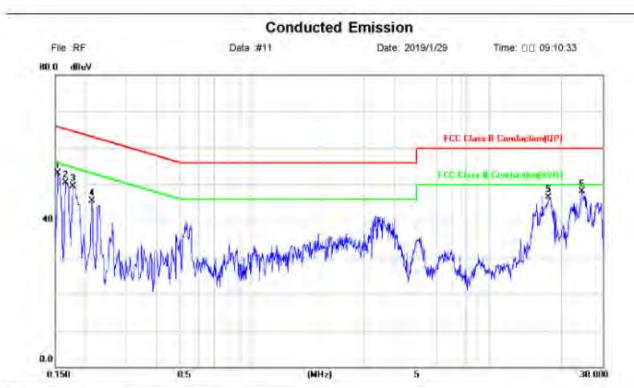
Mode Note:

Phase:

N

Temperature:

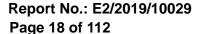
AC 120V/60Hz Humidity: Power:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1540	33.46	19.65	53 11	65.78	-12 67	peak	
2		0.1660	30.75	19.67	50.42	65.16	-14.74	peak	
3	-	0.1787	29.75	19.69	49.44	64.55	-15 11	peak	
4		0.2140	25.78	19.75	45.53	63.05	-17.52	peak	
5		17.8460	26.54	20.06	46.60	60.00	-13.40	peak	
6	•	24.5700	27.94	20.22	48.16	60.00	-11.84	peak	

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DUTY CYCLE OF TEST SIGNAL

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.

All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

Formula:

Duty Cycle = Ton / (Ton+Toff)

Measurement Procedure:

- 1. Set span = Zero
- 2. RBW = 8MHz
- 3. VBW = 8MHz,
- 4. Detector = Peak

Duty Cycle:

	Duty Cycle (%)	Duty Factor (dB)	1/T (kHz)	VBW setting (kHz)
802.11b	98.95	0.05	0.08	0.01
802.11g	94.98	0.22	0.49	1.00
802.11n_20	84.60	0.73	1.03	2.00
802.11n_40	84.62	0.73	2.03	3.00

b = 98.95%, *g* = 94.98%,*n*_ht_20 = 84.6%

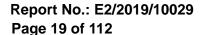
Duty Cycle Factor: $10 * \log(1/0.9895) = 0.05$ Duty Cycle Factor: $10 * \log(1/0.9498) = 0.22$ Duty Cycle Factor: $10 * \log(1/0.846) = 0.73$ Duty Cycle Factor: $10 * \log(1/0.99) = 0.04$

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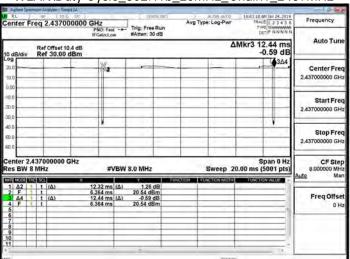
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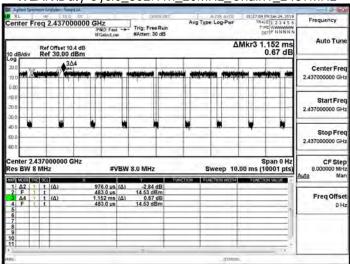


DUTY CYCLE TEST SIGNAL Measurement Result

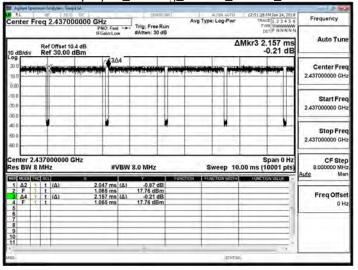
WLAN\Duty Cycle_802.11b_20MHz_Chain1_2437MHz



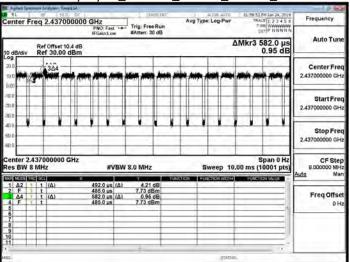
WLAN\Duty Cycle_802.11n_20MHz_Chain1_2437MHz



WLAN\Duty Cycle_802.11g_20MHz_Chain1_2437MHz



WLAN\Duty Cycle 802.11n 40MHz Chain1 2437MHz

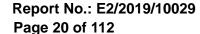


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PEAK OUTPUT POWER MEASUREMENT 8

8.1 **Standard Applicable**

For systems using digital modulation in the 2400-2483.5 MHz bands, the limit for peak output power is 1Watt.

Per RSS-247 §5.4(d)

For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).

If the transmitting antenna of directional gain greater than 6dBi are used the peak output power form the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the Antenna exceeds 6dBi.

In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of Antenna exceeds 6dBi.

As per FCC KDB 662911 D01

Unequal antenna gains, with equal transmit powers. For antenna gains given by G1, G2, ..., GN dBi.

(i) If transmit signals are correlated, then Directional gain

= $10 \log[(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/N_{ANT}] dBi$

[Note the "20"s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

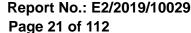
The antenna gain is not grater than 6 dBi. Therefore, reduction of power is not required.

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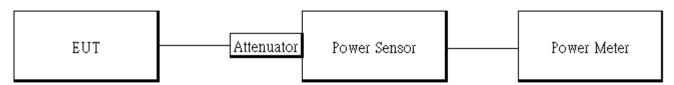


8.2 **Measurement Equipment Used**

Conducted Emission Test Site											
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.						
Power Meter	Anritsu	ML2496A	1326001	08/09/2018	08/02/2019						
Power Sensor	Anritsu	MA2411B	1315048	08/09/2018	08/02/2019						
Power Sensor	Anritsu	MA2411B	1315049	08/09/2018	08/02/2019						
Attenuator	Marvelous	MVE2213-10	RF30	12/25/2018	12/24/2019						

8.3 **Test Set-up**

Power Meter:



8.4 **Measurement Procedure**

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter.

Power Meter:

It is used as the auxiliary test equipment to conduct the output power measurement.

4. Record the max. Reading as observed from Spectrum or Power Meter.

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8.5 **Measurement Result** Antenna Chain 0

802.1	1b Ch0				
СН	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	1	20.07	PASS	
6	2437	1	20.58	30.00	PASS
11	2462	1	20.28	30.00	PASS
802.1	1b Ch0				
СН	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	1	17.12	30.00	PASS
6	2437	1	17.34	30.00	PASS
11	2462	1	17.23	30.00	PASS

802.1	1g Ch0				
СН	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	6	19.53	30.00	PASS
6	2437	6	19.86	30.00	PASS
11	2462	6	17.65	30.00	PASS
802.1	1g Ch0				
СН	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	6	13.92	30.00	PASS
6	2437	6	14.45	30.00	PASS
11	2462	6	12.44	30.00	PASS

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Antenna Chain 1

802.1	1b Ch1				
СН	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	1	20.16	30.00	PASS
6	2437	1	20.45	30.00	PASS
11	2462	1	20.35	30.00	PASS
802.1	1b Ch1				
СН	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	1	17.19	30.00	PASS
6	2437	1	17.47	30.00	PASS
11	2462	1	17.29	30.00	PASS
802.1°	1g Ch1				
СН	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	6	19.81	30.00	PASS
6	2437	6	19.74	30.00	PASS
11	2462	6	17.86	30.00	PASS
802.1	1g Ch1	1	l l		I

Max. Avg. Output

include tune up

tolerance Power

(dBm)

14.38

14.47

12.46

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Freq.

(MHz)

2412

2437

2462

СН

1

6

11

Data

Rate

6

6

6

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Limit

(dBm)

30.00

30.00

30.00

RESULT

PASS

PASS

PASS



MIMO

802.1	1n_HT20I	M MIMO					
СН	CH Freq. (MHz)			Output wer	Total Peak Output Power	Limit (dBm)	RESULT
	(141112)	Rate	CH 0	CH 1	(dBm)	(dDIII)	
1	2412	MCS8	16.94 17.35		20.16	30.00	PASS
6	2437	MCS8	18.57	18.34	21.47	30.00	PASS
11	2462	MCS8	17.67	17.05	20.38	30.00	PASS
802.1	1n_HT20l	M MIMO					
CII	Freq.	Data	Ū	Output wer	Max. Avg. Output include tune up	Limit	DECILIT
СН	(MHz)	Rate	(dE	Bm)	tolerance Power	(dBm)	RESULT
			CH 0	CH 1	(dBm)		
1	2412	MCS8	10.95	11.36	14.90	30.00	PASS
6	2437	MCS8	10.77	10.26	14.26	30.00	PASS
11	2462	MCS8	11.03	11.43	14.97	30.00	PASS

802.1	1n_HT40/	OMIM N					
СН	Freq. (MHz)	Data Rate	Peak (Po	Output wer	Total Peak Output Power	Limit (dBm)	RESULT
	(171112)	Nate	CH 0	CH 1	(dBm)	(dbiii)	
3	2422	MCS8	14.67 14.29		17.49	30.00	PASS
6	2437	MCS8	16.58	16.27	19.44	30.00	PASS
9	2452	MCS8	14.62	14.57	17.61	30.00	PASS
802.1	1n_HT40I	M MIMO					
			Avg. C	utput	Max. Avg. Output		
СН	Freq.	Data	Pov	wer	include tune up	Limit	RESULT
CIT	(MHz)	Rate	(dE	Bm)	tolerance Power	(dBm)	KLJULI
			CH 0	CH 1	(dBm)		
3	2422	MCS8	8.43	8.98	12.45	30.00	PASS
6	2437	MCS8	10.66	10.36	14.25	30.00	PASS
9	2452	MCS8	8.72	8.79	12.49	30.00	PASS

^{*} Note: The duty cycle factor is compensated to obtain the maximum value of measurement in average.

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EIRP

Antenna Chain 0

802.11	802.11b Ch0											
СН	Freq. (MHz)	. ' '		Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT					
1	2412	1	17.12	-3.00	14.12	36	PASS					
6	2437	1	17.34	-3.00	14.34	36	PASS					
11	2462	1	17.23	-3.00	14.23	36	PASS					

802.11	lg Ch0						
СН	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
1	2412	6	13.92	-3.00	10.92	36	PASS
6	2437	6	14.45	-3.00	11.45	36	PASS
11	2462	6	12.44	-3.00	9.44	36	PASS

Antenna Chain 1

802.11	802.11b Ch1 Antenna Supplied to the control of the											
СН	Freq. (MHz)	. " '			EIRP (dBm)	Limit (dBm)	RESULT					
1	2412	1	17.19	-4.12	13.07	36	PASS					
6	2437	1	17.47	-4.12	13.35	36	PASS					
11	2462	1	17.29	-4.12	13.17	36	PASS					

802.11	lg Ch1						
СН	Freq. (MHz)	. " '		Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
1	2412	6	14.38	-4.12	10.26	36	PASS
6	2437	6	14.47	-4.12	10.35	36	PASS
11	2462	6	12.46	-4.12	8.34	36	PASS

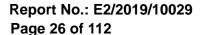
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MIMO

802.11	802.11n_HT20M MIMO											
СН	Freq. Data (MHz) Rate	Avg. C	Output wer	Total Avg. Output Power	Antenna Gain	EIRP (dBm)	Limit (dBm)	RESULT				
	(171112)	Rate	CH 0	CH 1	(dBm)	(dBi)	(ubiii)	(ubiii)				
1	2412	MCS8	16.94	17.35	14.90	-0.51	14.38	36	PASS			
6	2437	MCS8	18.57	18.34	14.26	-0.51	13.75	36	PASS			
11	2462	MCS8	17.67	17.05	14.97	-0.51	14.46	36	PASS			

802.11	802.11n_HT40M MIMO												
СН	Freq. Data (MHz) Rate	Power		Total Avg. Output Power	Antenna Gain	EIRP (dBm)	Limit (dBm)	RESULT					
	(171112)	Nate	CH 0	CH 1	(dBm)	(dBi)	(ubiii)	(ubiii)					
3	2422	MCS8	8.43	8.98	12.45	-0.51	11.94	36	PASS				
6	2437	MCS8	10.66	10.36	14.25	-0.51	13.73	36	PASS				
9	2452	MCS8	8.72	8.79	12.49	-0.51	11.98	36	PASS				

* Note: EIRP = Average Power + Gain

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9 **6DB & 99% BANDWIDTH MEASUREMENT**

9.1 Standard Applicable

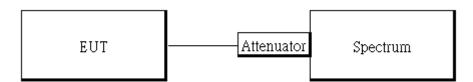
The minimum 6 dB bandwidth shall be at least 500 kHz.

The occupied bandwidth or the "99% emission bandwidth" is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable **RSSs**

9.2 Measurement Equipment Used

	Conducted Emission Test Site										
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.						
TYPE		NUMBER	NUMBER	CAL.							
Spectrum Analyzer	Agilent	N9010A	MY51440113	06/20/2018	06/19/2019						
Attenuator	Marvelous	MVE2213-10	RF30	12/25/2018	12/24/2019						
DC Block	PASTERNACK	PE8210	RF29	12/25/2018	12/24/2019						

9.3 **Test Set-up**



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9.4 **Measurement Procedure**

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 4. For 6dB Bandwidth:
 - Set the spectrum analyzer as RBW = 100 kHz, VBW = 3*RBW, Span = 30M/50MHz, Detector=peak, Sweep=auto.
- 5. Mark the peak frequency and –6dB (upper and lower) frequency.
- 6. For 99% Bandwidth:
 - Set the spectrum analyzer as RBW=1%, VBW = 3*RBW, Span = 30M/50MHz, Detector=Sample, Sweep=auto.
- 7. Turn on the 99% bandwidth function, max reading.
- 8. Repeat above procedures until all frequency of interest measured was complete.

9.5 **Measurement Result**

6dB Bandwidth Antenna Chain 0

802.11b Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	10070.00	> 500	PASS
2437	10080.00	> 500	PASS
2462	10070.00	> 500	PASS

802.11q Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	15130.00	> 500	PASS
2437	15140.00	> 500	PASS
2462	15120.00	> 500	PASS

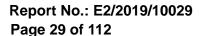
802.11 n HT20 Ch0

Freq.	6dB BW	Limit	Result
(MHz)	(kHz)	(kHz)	
2412	16290.00	> 500	PASS
2437	15720.00	> 500	PASS
2462	15730.00	> 500	PASS

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802.11_n_HT40 Ch0

Freq.	6dB BW	Limit	Result
(MHz)	(kHz)	(kHz)	Result
2422	35150.00	> 500	PASS
2437	35160.00	> 500	PASS
2452	35160.00	> 500	PASS

Antenna Chain 1

802.11b Ch1

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	10080.00	> 500	PASS
2437	10070.00	> 500	PASS
2462	10070.00	> 500	PASS

802.11g Ch1

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	15120.00	> 500	PASS
2437	15140.00	> 500	PASS
2462	15140.00	> 500	PASS

802.11_n_HT20 Ch1

Freq.	6dB BW	Limit	Result
(MHz)	(kHz)	(kHz)	Result
2412	16250.00	> 500	PASS
2437	16280.00	> 500	PASS
2462	15730.00	> 500	PASS

802.11_n_HT40 Ch1

Freq.	6dB BW	Limit	Result
(MHz)	(kHz)	(kHz)	Resuit
2422	35150.00	> 500	PASS
2437	35150.00	> 500	PASS
2452	35160.00	> 500	PASS

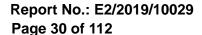
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99% Bandwidth **Antenna Chain 0**

802.11b Ch0	
Freq.	99% BW
(MHz)	(MHz)
2412	12.959
2437	12.732
2462	12.642

802.11g Ch0	
Freq.	99% BW
(MHz)	(MHz)
2412	16.751
2437	16.711
2462	16.619

802.11n_HT20M Ch0	
Freq.	99% BW
(MHz)	(MHz)
2412	17.712
2437	17.694
2462	17.684

802.11n_HT40M Ch0	
Freq.	99% BW
(MHz)	(MHz)
2422	36.013
2437	36.032
2452	36.020

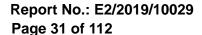
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Antenna Chain 1

802.11b Ch1	
Freq.	99% BW
(MHz)	(MHz)
2412	12.973
2437	12.733
2462	12.711

802.11g Ch1	
Freq.	99% BW
(MHz)	(MHz)
2412	16.735
2437	16.694
2462	16.672

802.11n_HT20M Ch1	
Freq.	99% BW
(MHz)	(MHz)
2412	17.724
2437	17.699
2462	17.701

802.11n_HT40M Ch1	
Freq.	99% BW
(MHz)	(MHz)
2422	36.008
2437	36.026
2452	36.024

*Refer to next page for plots

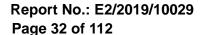
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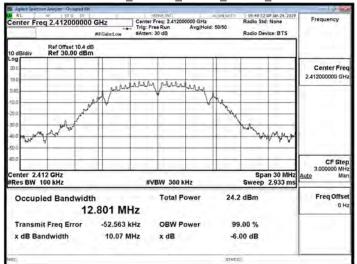
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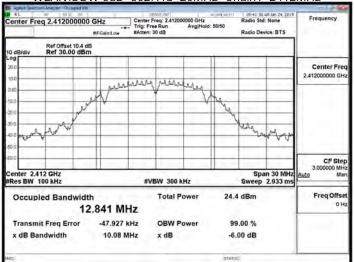
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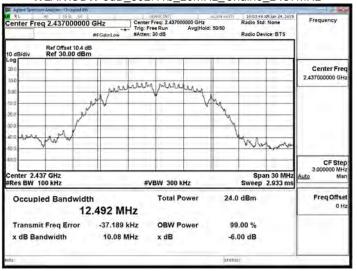
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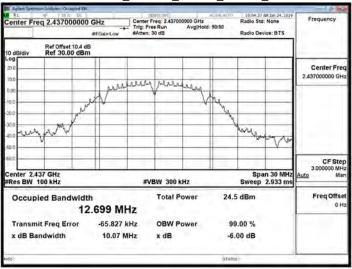
WLAN\OBW 6dB 802.11b 20MHz Chain1 2412MHz



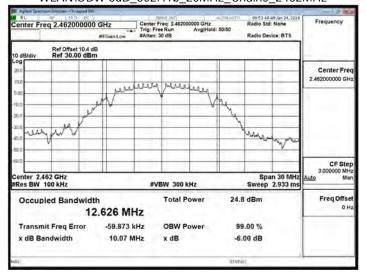
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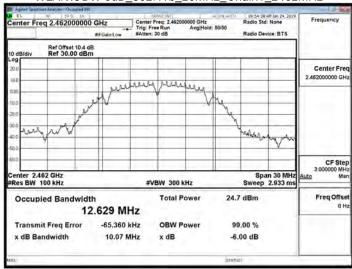
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WLAN\OBW 6dB_802.11b_20MHz_Chain0_2462MHz



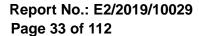
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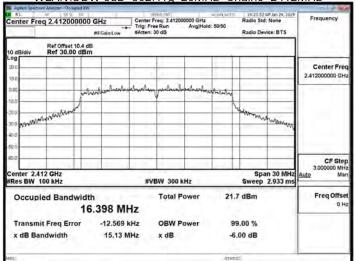
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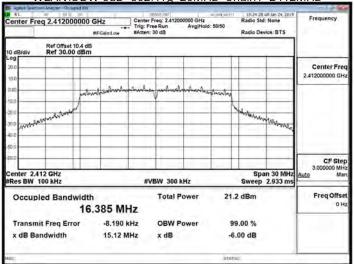




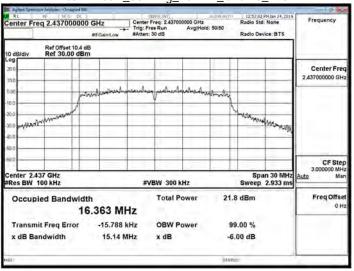




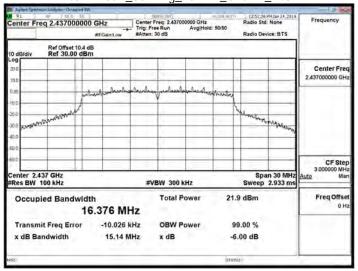
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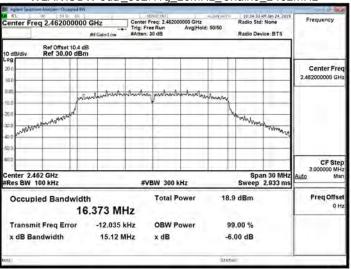
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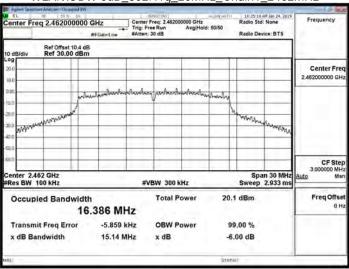
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WLAN\OBW 6dB_802.11g_20MHz_Chain0_2462MHz



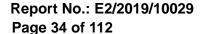
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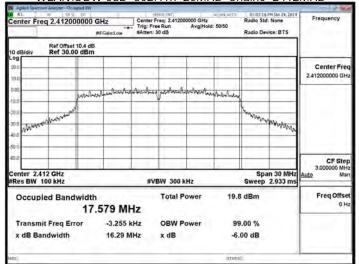
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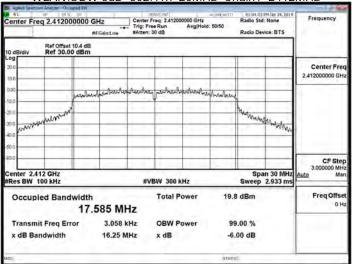




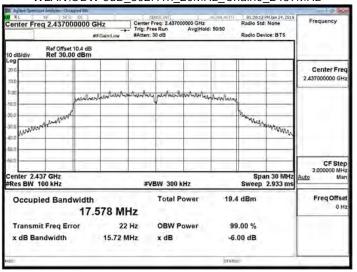
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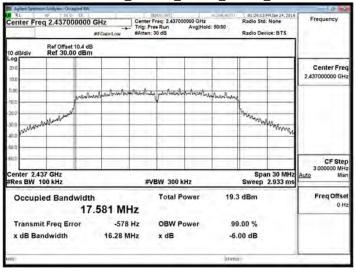
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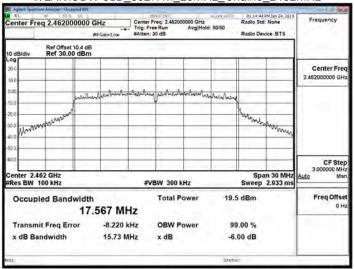
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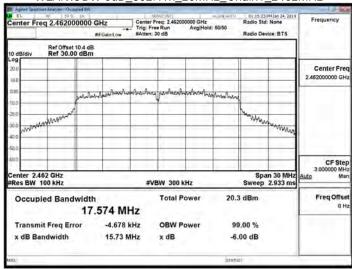
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WLAN\OBW 6dB_802.11n_20MHz_Chain0_2462MHz



WLAN\OBW 6dB_802.11n_20MHz_Chain1_2462MHz

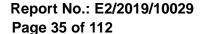


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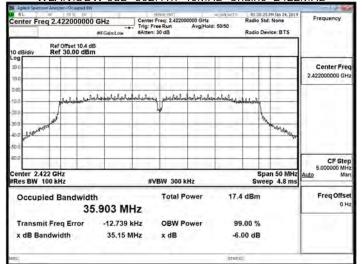
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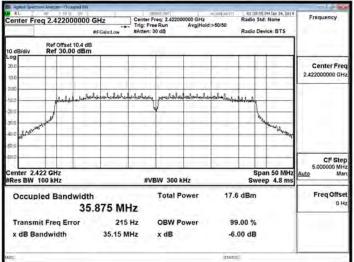




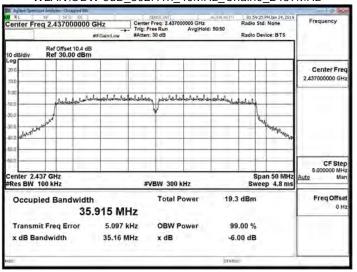
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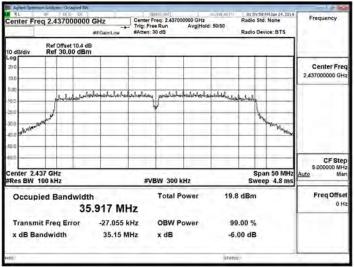
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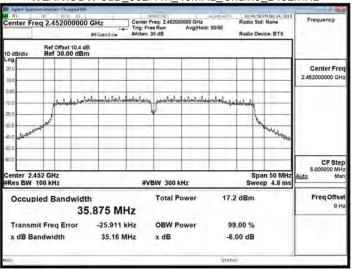
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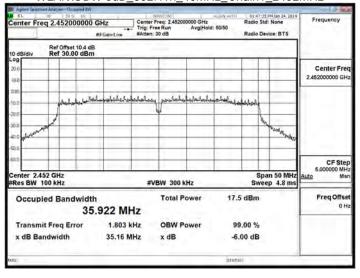
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WLAN\OBW 6dB_802.11n_40MHz_Chain0_2452MHz



WLAN\OBW 6dB 802.11n 40MHz Chain1 2452MHz

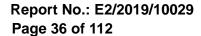


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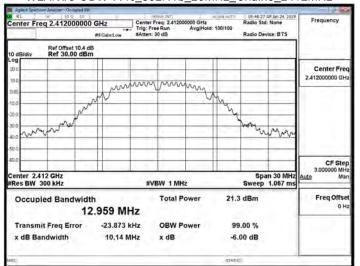
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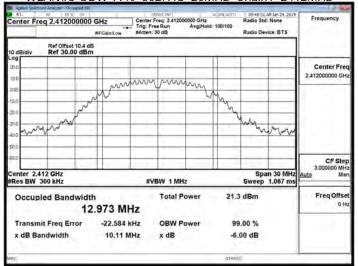
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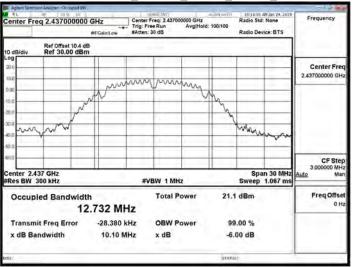
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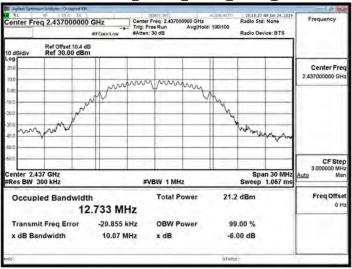
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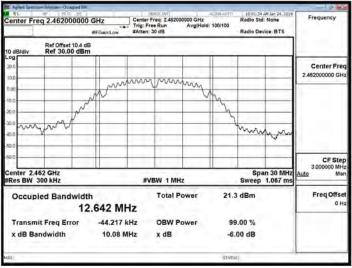
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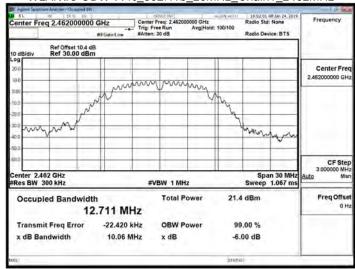
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WLAN\IC OBW 99%_802.11b_20MHz_Chain0_2462MHz



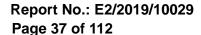
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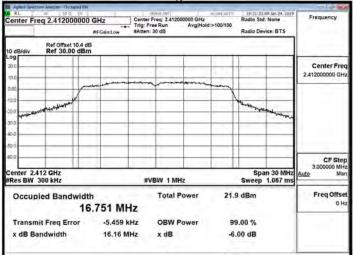
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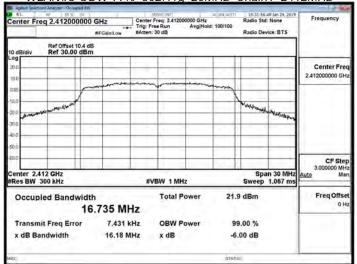
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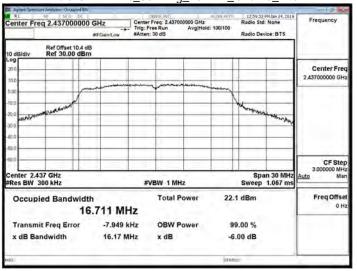




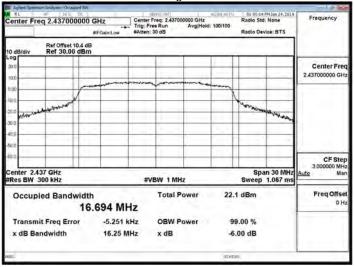
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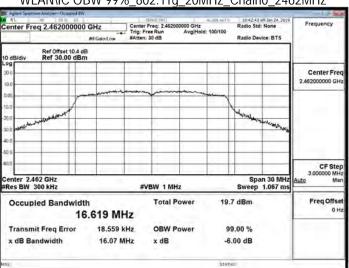
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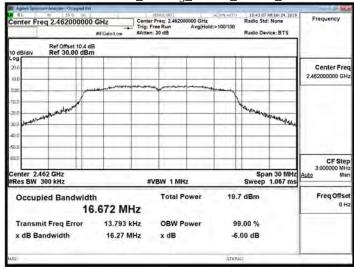
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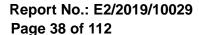
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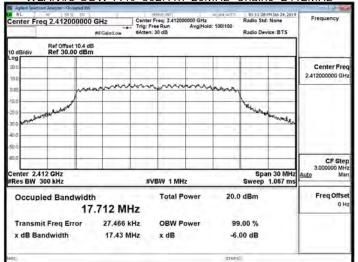
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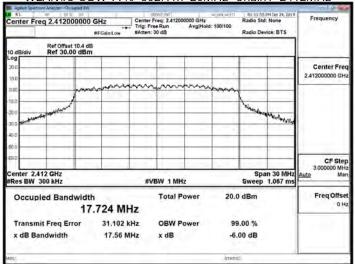




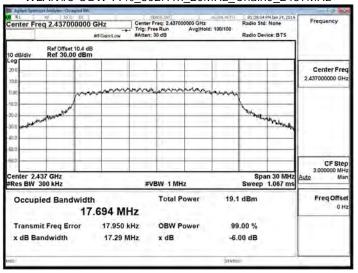
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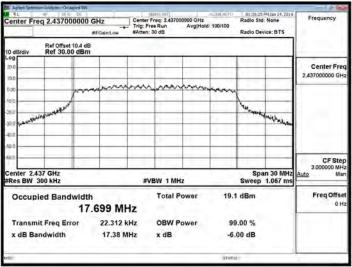
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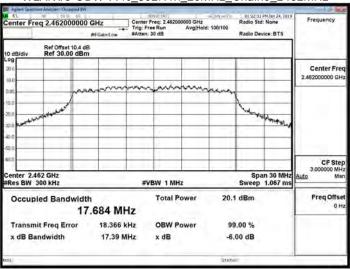
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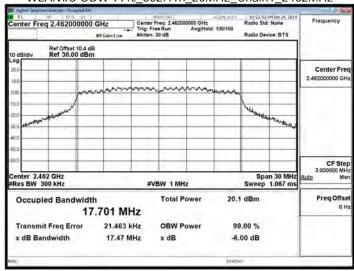
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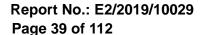
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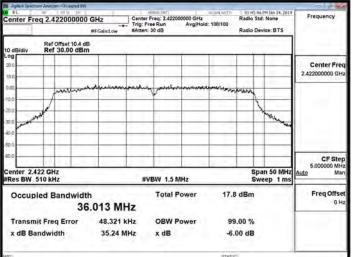
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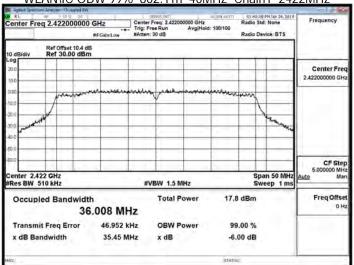
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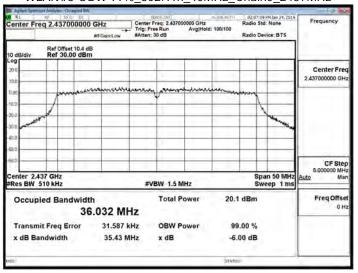




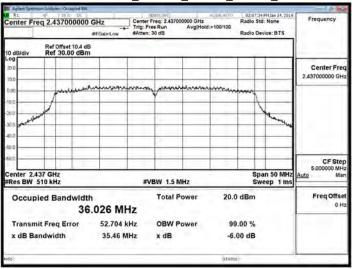
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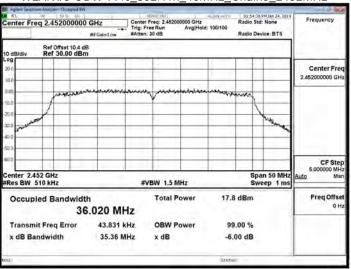
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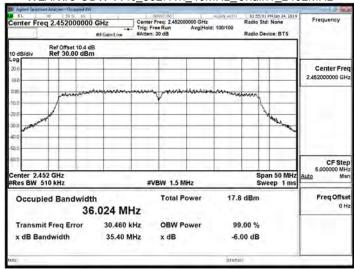
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WLAN\IC OBW 99% 802.11n 40MHz Chain0 2452MHz



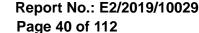
WLAN\IC OBW 99% 802.11n 40MHz Chain1 2452MHz



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CONDUCTED BAND EDGE AND SPURIOUS EMISSION MEASUREMENT 10

10.1 Standard Applicable

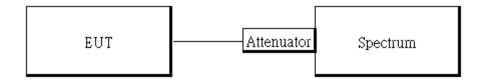
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a) & RSS-Gen §8.10, must also comply with the radiated emission limits specified in §15.209(a) & RSS-Gen §8.9.

If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

Measurement Equipment Used 10.2

Conducted Emission Test Site									
EQUIPMENT MFR MODEL SERIAL LAST CALI									
TYPE		NUMBER	NUMBER	CAL.					
Spectrum Analyzer	Agilent	N9010A	MY51440113	06/20/2018	06/19/2019				
Attenuator	Marvelous	MVE2213-10	RF30	12/25/2018	12/24/2019				
DC Block	PASTERNACK	PE8210	RF29	12/25/2018	12/24/2019				

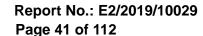
10.3 **Test SET-UP**



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10.4 Measurement Procedure

Conducted Band Edge Limt

- Set analyzer center frequency to DTS channel center frequency.
- The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance & ANSI C63.10.
- Set the span to 1.5 times the DTS channel bandwidth.
- Set the RBW = 100kHz & VBW = 300 kHz.
- 5. Detector = peak.
- Sweep time = auto couple.
- 7. Trace mode = max hold.
- Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum amplitude level.

Conducted Band Edge:

- To connect Antenna Port of EUT to Spectrum.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance & ANSI C63.10.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 4. Set start to edge frequency, and stop frequency of spectrum analyzer so as to encompass the spectrum to be examined.
- 5. Set the spectrum analyzer as RBW=100 kHz, VBW=300 kHz, Detector = Peak, Sweep = auto
- 6. Mark the highest reading of the emission as the reference level measurement.
- 7. Set DL as the limit = reading on marker 1 20dBm
- 8. Marker on frequency, 2.3999GHz and 2.4836GHz, and examine shall 100 kHz immediately outside the authorized (2400~2483.5) be attenuated by 20dB at least relative to the maximum emission of power.
- 9. Repeat above procedures until all default test channel (low, middle, and high) was complete.

Conducted Spurious Emission:

- 1. To connect Antenna Port of EUT to Spectrum
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance & ANSI C63.10.
- 3. Set RBW = 100 kHz & VBW= 300 kHz, Detector = Peak, Sweep = Auto.
- 4. Allow trace to fully stabilize.
- 5. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
- 6. Repeat above procedures until all default test channel measured were complete.

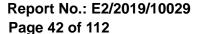
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10.5 **Measurement Result**

Refere	nce Leve	l of Limit 802.11b mode	Refere	nce Leve	l of Limit 802.11g mode
Freq.	PSD	Reference Level of Limit	Freq.	PSD	Reference Level of Limit
(MHz)	(dBm)	(dBm)	(MHz)	(dBm)	(dBm)
2412	8.79	-11.21	2412	4.84	-15.16
2437	8.97	-11.03	2437	5.15	-14.85
2462	9.07	-10.93	2462	2.93	-17.07

Referen	ce Level	of Limit 802.11n20 mode	Referen	ce Level o	of Limit 802.11n40 MODE
Freq.	PSD	Reference Level of Limit	Freq.	PSD	Reference Level of Limit
(MHz)	(dBm)	(dBm)	(MHz)	(dBm)	(dBm)
2412	5.46	-14.54	2422	-0.24	-20.24
2437	4.93	-15.07	2437	2.02	-17.98
2462	5.89	-14.11	2452	-0.21	-20.21

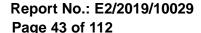
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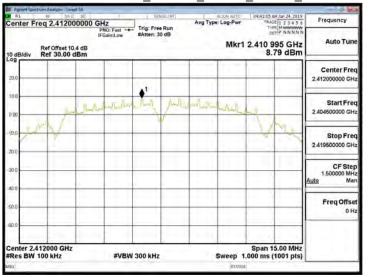
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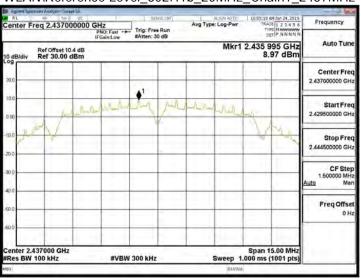
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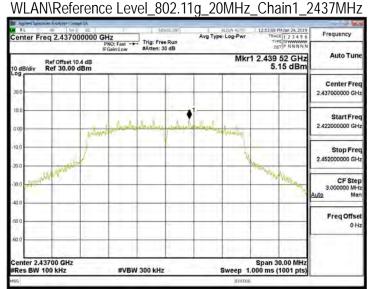
WLAN\Reference Level_802.11g_20MHz_Chain1_2412MHz



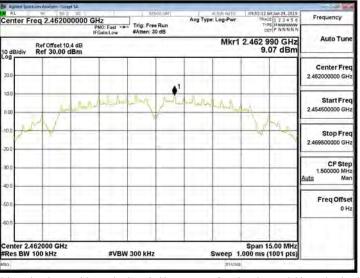


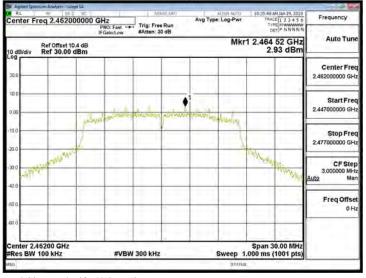
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WLAN\Reference Level_802.11b_20MHz_Chain1_2462MHz





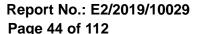
WLAN\Reference Level 802.11g 20MHz Chain1 2462MHz

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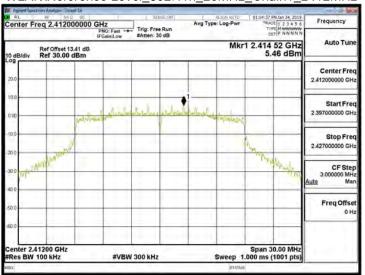
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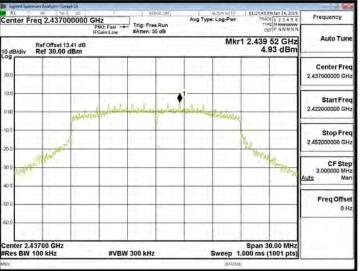
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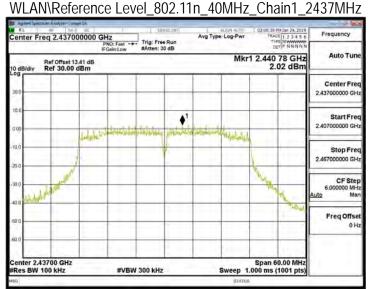
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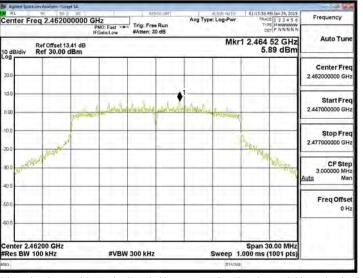


WLAN\Reference Level_802.11n_20MHz_Chain1_2437MHz





WLAN\Reference Level 802.11n 20MHz Chain1 2462MHz





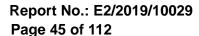
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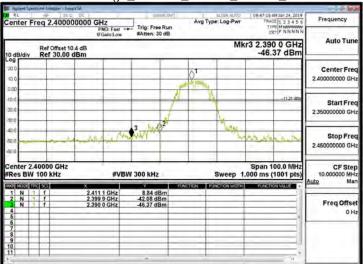
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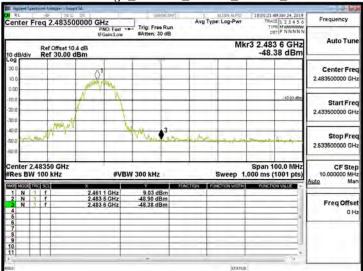
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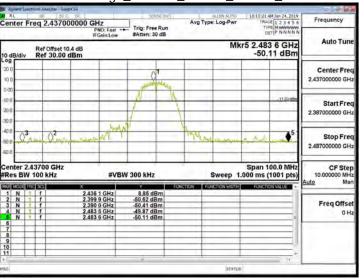
WLAN\Band Edge_802.11b_20MHz_Chain1_2412MHz



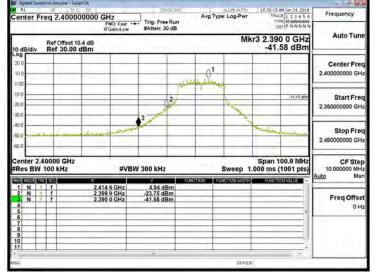
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WLAN\Band Edge 802.11b 20MHz Chain1 2437MHz



WLAN\Band Edge 802.11g 20MHz Chain1 2412MHz

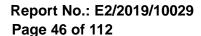


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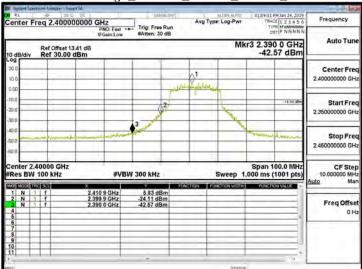
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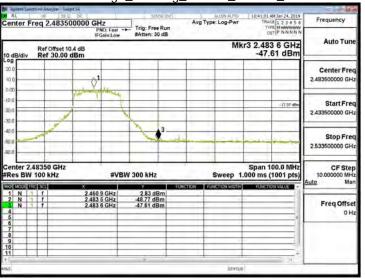
WLAN\Band Edge_802.11g_20MHz_Chain1_2437MHz

enter Freq 2.437000000 GHz Avg Type: Log-Pwr Auto Tun Mkr5 2.483 6 GHz Ref Offset 10.4 dB Ref 30.00 dBm Center Fre Start Free 2.387000000 GH Stop Fre 2 487000000 GH Span 100.0 MHz Sweep 1.000 ms (1001 pts) CF Step **#VBW 300 kHz** Res BW 100 kHz OH

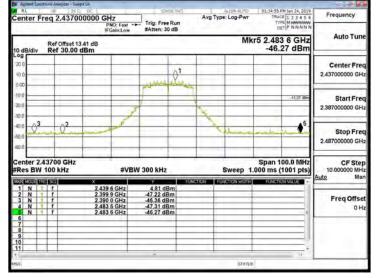
WLAN\Band Edge_802.11n_20MHz_Chain1_2412MHz



WLAN\Band Edge 802.11g 20MHz Chain1 2462MHz



WLAN\Band Edge 802.11n 20MHz Chain1 2437MHz

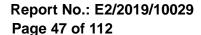


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enter Freq 2.483500000 GHz

Center 2.48350 GHz Res BW 100 kHz

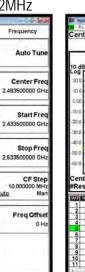
WLAN\Band Edge_802.11n_20MHz_Chain1_2462MHz

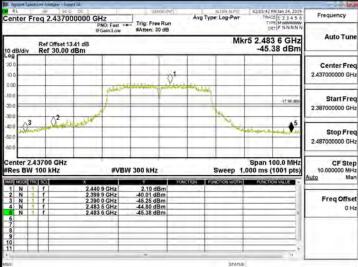
Avg Type: Log-Pwr

Mkr3 2.483 6 GHz

Span 100.0 MHz Sweep 1.000 ms (1001 pts)

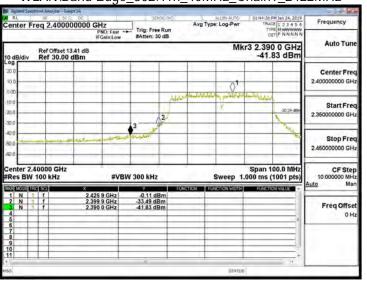
WLAN\Band Edge_802.11n_40MHz_Chain1_2437MHz



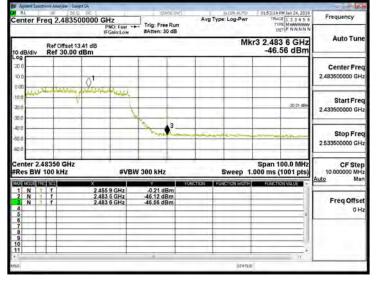


WLAN\Band Edge 802.11n 40MHz Chain1 2422MHz

#VBW 300 kHz



WLAN\Band Edge 802.11n 40MHz Chain1 2452MHz

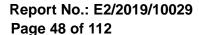


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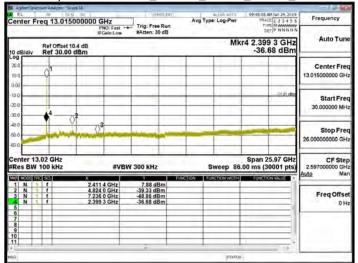
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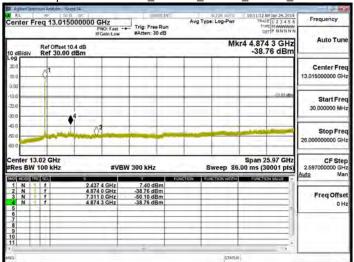




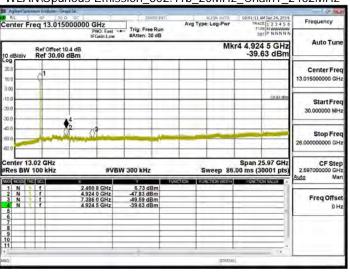


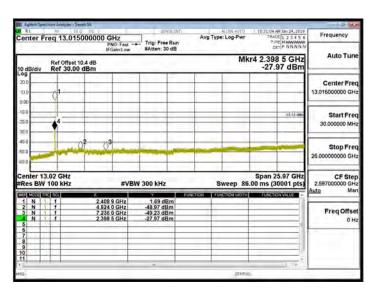


WLAN\Spurious Emission_802.11b_20MHz_Chain1_2437MHz

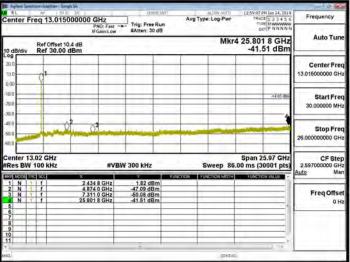


WLAN\Spurious Emission 802.11b 20MHz Chain1 2462MHz

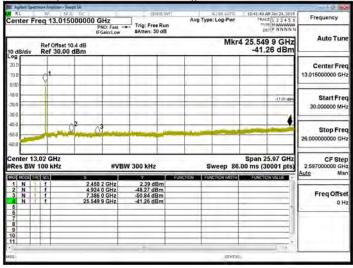




WLAN\Spurious Emission_802.11g_20MHz_Chain1_2437MHz



WLAN\Spurious Emission_802.11g_20MHz_Chain1_2462MHz

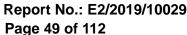


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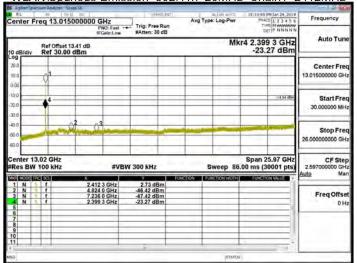
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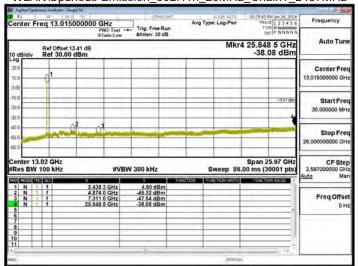
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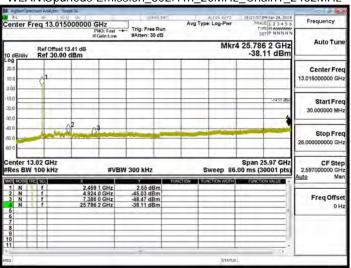




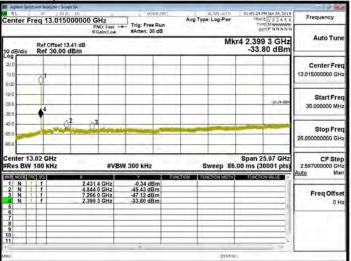
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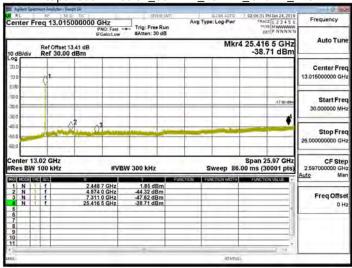
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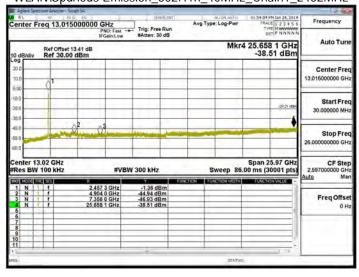
WLAN\Spurious Emission 802.11n 40MHz Chain1 2422MHz



WLAN\Spurious Emission 802.11n 40MHz Chain1 2437MHz



WLAN\Spurious Emission_802.11n_40MHz_Chain1_2452MHz

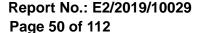


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RADIATED BANDEDGE AND SPURIOUS EMISSION MEASUREMENT 11

Standard Applicable 11.1

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. In addition, radiated emissions which fall in the restricted bands must also comply with the RSS-Gen §8.10 Table 7.

And according to 15.33(a)(1) & RSS-Gen §6.13(a) for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

According to RSS-Gen §8.9 Table 5 & 6 Except where otherwise indicated in the applicable RSS, radiated emissions shall comply with the field strength limits shown in table 5 and table 6. Additionally, the level of any transmitter unwanted emission shall not exceed the level of the transmitter's fundamental emission

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

Note:

- 1. The lower limit shall apply at the transition frequencies.
- 2. Emission level $(dB\mu V/m) = 20 \log Emission level (dB\mu V/m)$

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Report No.: E2/2019/10029

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11.2 Measurement Equipment Used:

	966 Chamber								
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.				
Broadband Antenna	TESEQ	CBL 6112D	35243	2018/10/30	2019/10/29				
Horn Antenna	Schwarzbeck	BBHA9120D	1187	2019/01/09	2020/1/8				
Horn Antenna	SCHWAZBECK	BBHA9170	185	2018/08/02	2019/8/1				
Loop Antenna	ETS.LINDGREN	6502	148045	2018/04/19	2019/4/18				
EMI Test Receiver	R&S	ESU 40	100363	2018/04/11	2019/4/10				
Pre-Amplifier	EMC Instruments	EMC330	980096	2018/12/25	2019/12/24				
Pre-Amplifier	EMC Instruments	EMC0011830	980199	2018/12/25	2019/12/24				
Pre-Amplifier	EMC Instruments	EMC184045B	980135	2018/12/25	2019/12/24				
Attenuator	Marvelous	WATT-218FS-10	RF246	2018/12/25	2019/12/24				
Band Rejection Filter	Micro-Tronics	G015	RF100	2018/12/25	2019/12/24				
Band Rejection Filter	Micro-Tronics	G016	RF101	2018/12/25	2019/12/24				
Band Rejection Filter	Micro-Tronics	G021	RF102	2018/12/25	2019/12/24				
Coaxial Cable	Huber+Suhner	RG 214/U	W21.01	2018/12/25	2019/12/24				
Coaxial Cable	Huber Suhner	EMC106-SM- SM-7200	150703	2018/12/25	2019/12/24				
Coaxial Cable	Huber Suhner	SUCOFLEX 104	MY17388/4	2018/12/25	2019/12/24				

NOTE: N.C.R refers to Not Calibrated Required.

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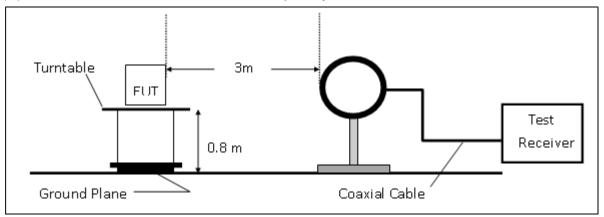
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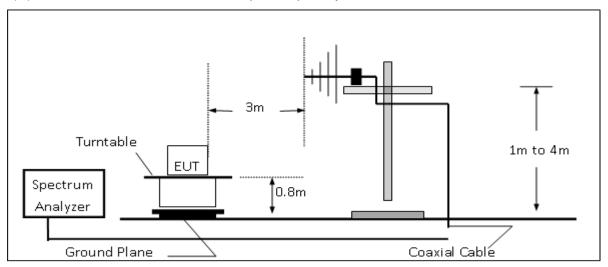


11.3 Test SET-UP

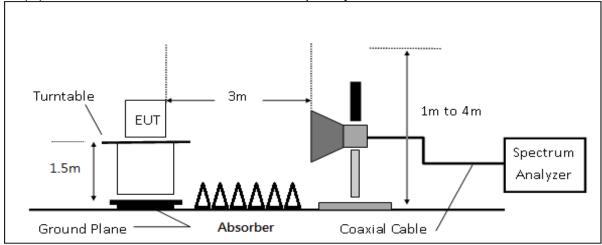
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



(B) Radiated Emission Test Set-Up, Frequency form 30MHz to 1000MHz



(C) Radiated Emission Test Set-UP Frequency Over 1 GHz



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11.4 Measurement Procedure

- The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance & ANSI C63.10.
- 2. The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m for frequency> 1GHz above ground plane.
- 3. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
- 4. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
- 5. When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.
- 6. Set the spectrum analyzer as RBW=120 kHz and VBW=300 kHz for Peak Detector (PK) and Quasi-peak (QP) at frequency below 1 GHz.
- 7. Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
- 8. Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW ≥ 1/T (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
- 9. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 11. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. On spectrum, change spectrum mode in linear display mode, and reduce VBW = 10Hz if average reading is measured.
- 12. Repeat above procedures until all default test channel measured were complete.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only

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11.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where	S .	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

Actual FS(dB μ V/m) = SPA. Reading level(dB μ V) + Factor(dB)

Factor(dB) = Antenna Factor(dBµV/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)

Test Results of Radiated Spurious Emissions form 9 kHz to 30 MHz 11.6

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit per 15.31(o) was not reported.

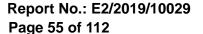
11.7 **Measurement Result**

Note: Refer to next page spectrum analyzer data chart and tabular data sheets.

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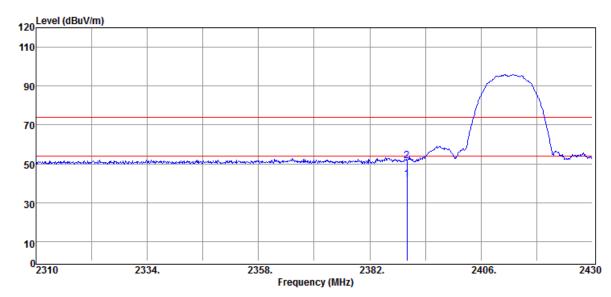
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Radiated Band Edge Measurement Result

Operation Mode :802.11b **Test Date** :2019-01-24 Test Mode :BE CH LOW Temp./Humi. :23/51 **EUT Pol** :H Plan Antenna Pol. :VERTICAL Test Channel :2412 MHz Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
2390.00	Average	38.87	2.98	41.85	54.00	-12.15
2390.00	Peak	48.71	2.98	51.69	74.00	-22.31

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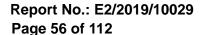
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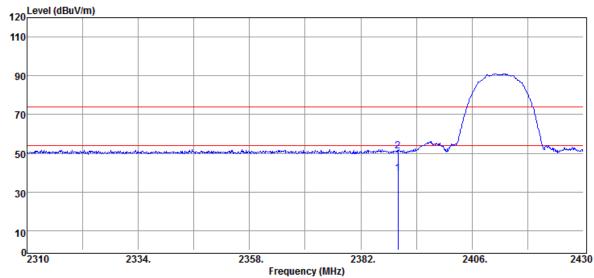
:2019-01-24



Operation Mode :802.11b **Test Date** Test Mode :BE CH LOW Temp./Humi.

:23/51 **EUT Pol** :H Plan Antenna Pol. :HORIZONTAL





Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
2390.00	Average	36.63	2.98	39.61	54.00	-14.39
2390.00	Peak	47.90	2.98	50.88	74.00	-23.12

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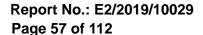
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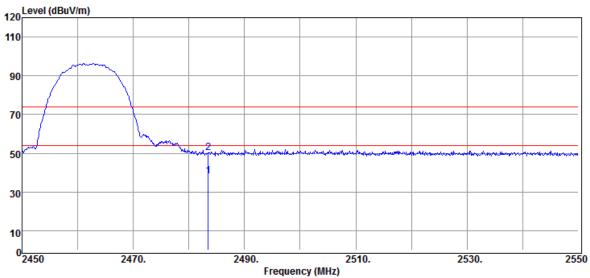




Operation Mode Test Mode **EUT Pol** Test Channel

:802.11b :BE CH HIGH :H Plan :2462 MHz

Test Date :2019-01-24 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton



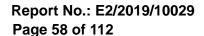
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin	
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB	
2483.50	Average	35.09	2.97	38.06	54.00	-15.94	
2483.50	Peak	47.43	2.97	50.40	74.00	-23.60	

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Operation Mode Test Mode **EUT Pol**

Test Channel

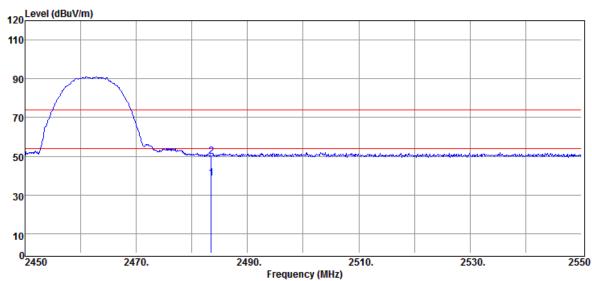
:802.11b :BE CH HIGH :H Plan

:2462 MHz

Test Date :2019-01-24 Temp./Humi. :23/51

Antenna Pol. :HORIZONTAL

Engineer :Ashton

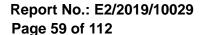


Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB	
2483.50 2483.50	Average Peak	35.48 46.94	2.97 2.97	38.45 49.91	54.00 74.00	-15.55 -24.09	

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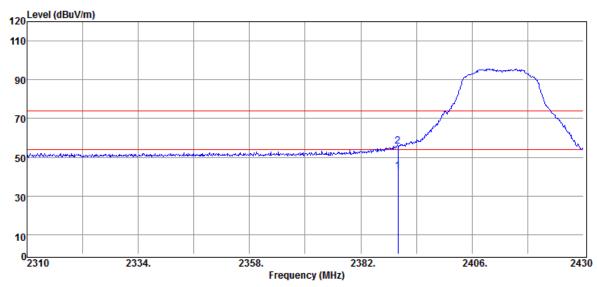
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Operation Mode :802.11g Test Mode :BE CH LOW **EUT Pol** :H Plan Test Channel :2412 MHz

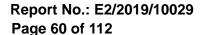
Test Date :2019-01-24 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
2390.00	Average	39.68	2.98	42.66	54.00	-11.34
2390.00	Peak	52.57	2.98	55.55	74.00	-18.45

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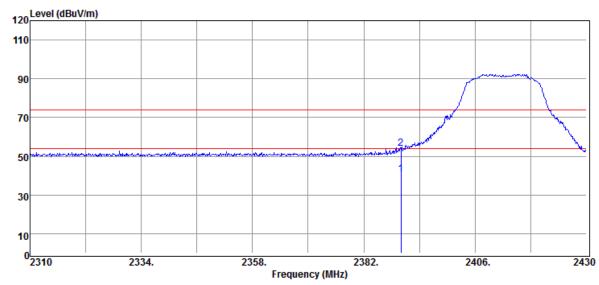


Operation Mode :802.11g Test Mode :BE CH LOW

EUT Pol :H Plan Test Channel :2412 MHz **Test Date** :2019-01-24 Temp./Humi. :23/51

Antenna Pol. :HORIZONTAL

Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
2390.00	Average	37.86	2.98	40.84	54.00	-13.16
2390.00	Peak	50.92	2.98	53.90	74.00	-20.10

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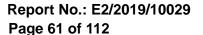
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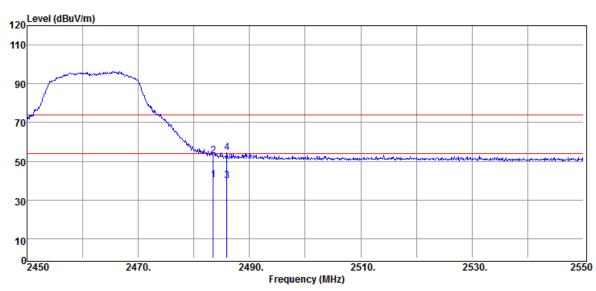
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Operation Mode :802.11g :BE CH HIGH Test Mode **EUT Pol** :H Plan Test Channel :2462 MHz

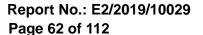
Test Date :2019-01-24 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
2483.50	Average	37.41	2.97	40.38	54.00	-13.62
2483.50	Peak	49.94	2.97	52.91	74.00	-21.09
2485.90	Average	36.74	2.97	39.71	54.00	-14.29
2485.90	Peak	51.49	2.97	54.46	74.00	-19.54

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Operation Mode Test Mode **EUT Pol**

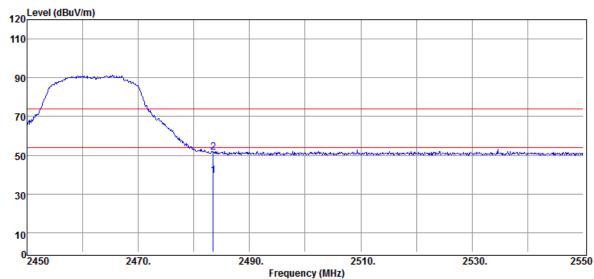
Test Channel

:802.11g :BE CH HIGH :H Plan :2462 MHz

Test Date :2019-01-24 Temp./Humi. :23/51

Antenna Pol. :HORIZONTAL

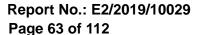
Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin	
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB	
2483.50	Average	36.50	2.97	39.47	54.00	-14.53	
2483.50	Peak	48.66	2.97	51.63	74.00	-22.37	

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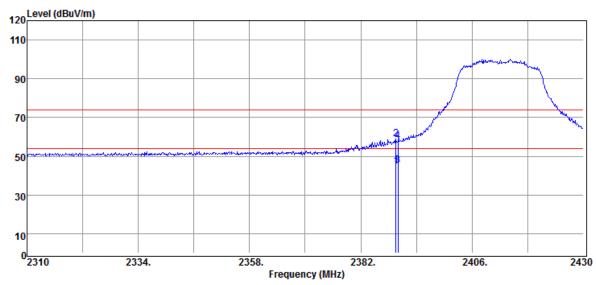
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Operation Mode :802.11n20 Test Mode :BE CH LOW **EUT Pol** :H Plan Test Channel :2412 MHz

Test Date :2019-01-24 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton



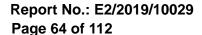
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
2389.56	Average	41.81	2.98	44.79	54.00	-9.21
2389.56	Peak	55.99	2.98	58.97	74.00	-15.03
2390.00	Average	42.12	2.98	45.10	54.00	-8.90
2390.00	Peak	54.77	2.98	57.75	74.00	-16.25

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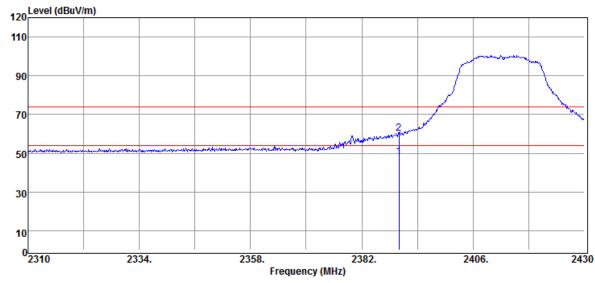


Operation Mode :802.11n20 Test Mode :BE CH LOW **EUT Pol** :H Plan

Test Channel :2412 MHz **Test Date** :2019-01-24 Temp./Humi. :23/51

Antenna Pol. :HORIZONTAL

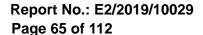
Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
2390.00	Average	45.23	2.98	48.21	54.00	-5.79
2390.00	Peak	57.12	2.98	60.10	74.00	-13.90

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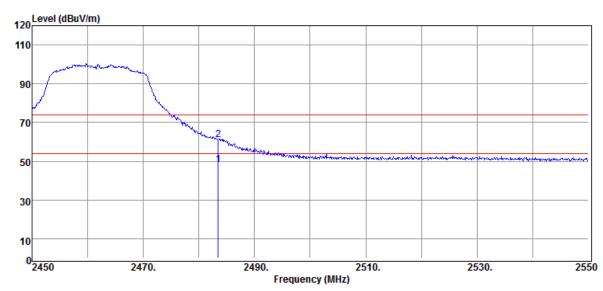
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Operation Mode :802.11n20 Test Mode :BE CH HIGH **EUT Pol** :H Plan Test Channel :2462 MHz

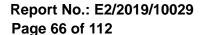
Test Date :2019-01-24 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
2483.50	Average	45.22	2.97	48.19	54.00	-5.81
2483.50	Peak	58.05	2.97	61.02	74.00	-12.98

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Operation Mode Test Mode **EUT Pol**

Test Channel

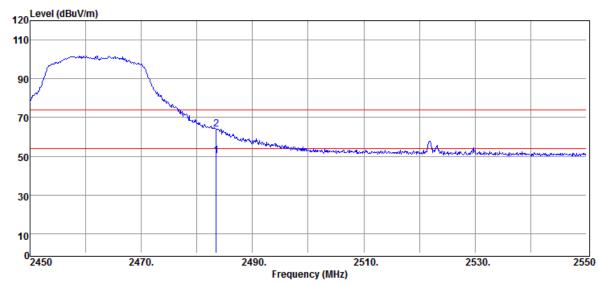
:802.11n20 :BE CH HIGH :H Plan

:2462 MHz

Test Date :2019-01-24 Temp./Humi. :23/51

Antenna Pol. :HORIZONTAL

Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
2483.50	Average	47.41	2.97	50.38	54.00	-3.62
2483.50	Peak	60.84	2.97	63.81	74.00	-10.19

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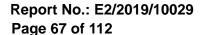
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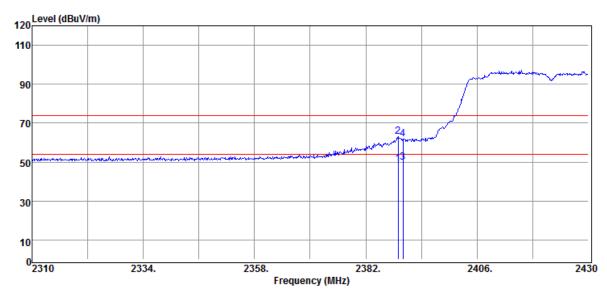
t (886-2) 2299-3279





Operation Mode :802.11n40 Test Mode :BE CH LOW **EUT Pol** :H Plan Test Channel :2422 MHz

Test Date :2019-01-24 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton



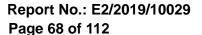
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
2388.96	Average	46.13	2.98	49.11	54.00	-4.89
2388.96	Peak	60.13	2.98	63.11	74.00	-10.89
2390.00	Average	46.87	2.98	49.85	54.00	-4.15
2390.00	Peak	58.99	2.98	61.97	74.00	-12.03

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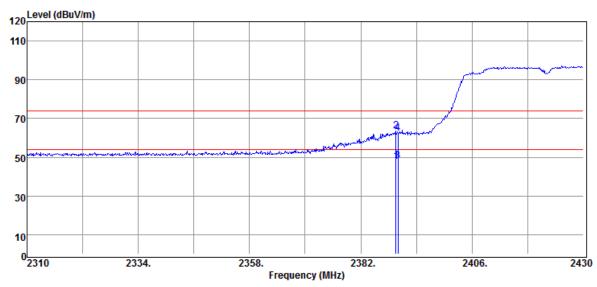


Operation Mode :802.11n40 Test Mode :BE CH LOW **EUT Pol** :H Plan

Test Channel :2422 MHz **Test Date** :2019-01-24 Temp./Humi. :23/51

Antenna Pol. :HORIZONTAL

Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
2389.56	Average	44.82	2.98	47.80	54.00	-6.20
2389.56	Peak	60.57	2.98	63.55	74.00	-10.45
2390.00	Average	44.98	2.98	47.96	54.00	-6.04
2390.00	Peak	59.18	2.98	62.16	74.00	-11.84

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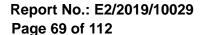
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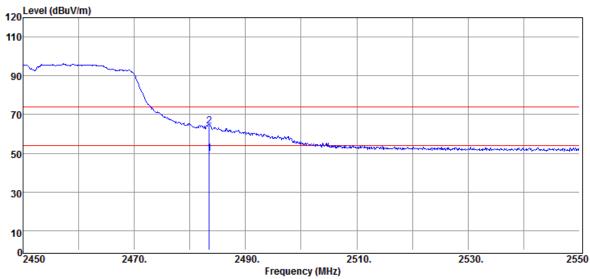
f (886-2) 2298-0488





Operation Mode :802.11n40 Test Mode :BE CH HIGH **EUT Pol** :H Plan Test Channel :2452 MHz

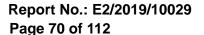
Test Date :2019-01-24 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin	
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB	
2483.50	Average	46.97	2.97	49.94	54.00	-4.06	
2483.50	Peak	61.17	2.97	64.14	74.00	-9.86	

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Operation Mode Test Mode **EUT Pol**

Test Channel

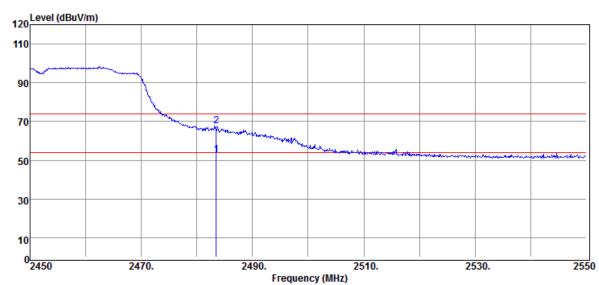
:802.11n40 :BE CH HIGH :H Plan

:2452 MHz

Test Date Temp./Humi. Antenna Pol. :2019-01-24 :23/51

:HORIZONTAL

Engineer :Ashton



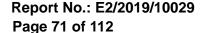
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin	
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB	
2483.50	Average	49.82	2.97	52.79	54.00	-1.21	
2483.50	Peak	64.60	2.97	67.57	74.00	-6.43	

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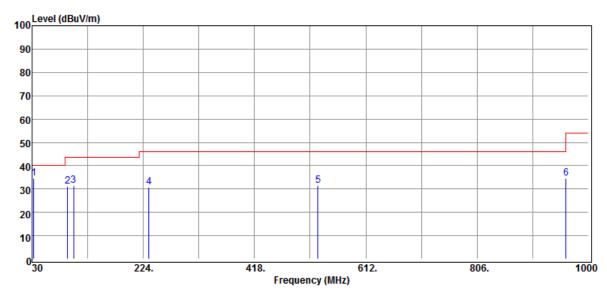
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Radiated Spurious Emission Measurement Result Below 1GHz Worst-Case Data:

Operation Mode :802.11g **Test Date** :2019-01-28 Test Mode :TX CH LOW Temp./Humi. :21/57 **EUT Pol** :H Plan Antenna Pol. :VERTICAL Test Channel :2412 MHz Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμ̈V	dB	dBμV/m	dBμV/m	dB
32.91	Peak	38.50	-3.88	34.62	40.00	-5.38
92.08	Peak	47.34	-16.29	31.05	43.50	-12.45
102.75	Peak	46.29	-14.77	31.52	43.50	-11.98
233.70	Peak	43.35	-12.61	30.74	46.00	-15.26
528.58	Peak	35.60	-4.13	31.47	46.00	-14.53
961.20	Peak	31.21	3.41	34.62	54.00	-19.38

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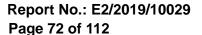
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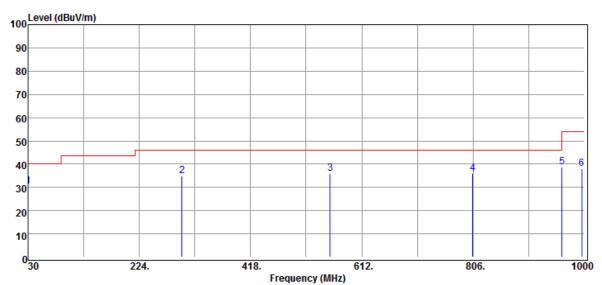
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Operation Mode :802.11g Test Mode :TX CH LOW **EUT Pol** :H Plan Test Channel :2412 MHz

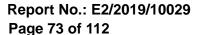
Test Date :2019-01-28 Temp./Humi. :21/57 Antenna Pol. :HORIZONTAL Engineer :Ashton



		_				
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
						_
30.00	Peak	32.83	-2.36	30.47	40.00	-9.53
298.69	Peak	44.87	-10.08	34.79	46.00	-11.21
556.71	Peak	39.37	-3.28	36.09	46.00	-9.91
805.03	Peak	36.07	0.02	36.09	46.00	-9.91
961.20	Peak	35.41	3.41	38.82	54.00	-15.18
995.15	Peak	34.44	3.47	37.91	54.00	-16.09

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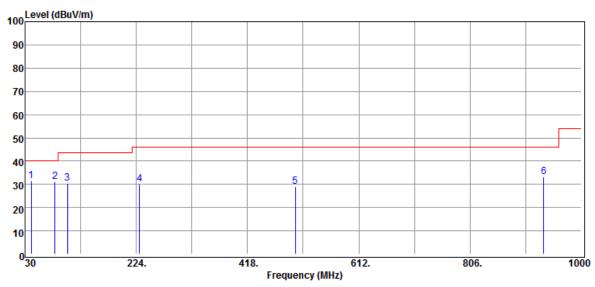
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Operation Mode :802.11g Test Mode :TX CH MID **EUT Pol** :H Plan Test Channel :2437 MHz

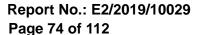
Test Date :2019-01-28 Temp./Humi. :21/57 Antenna Pol. :VERTICAL Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
40.67	Peak	40.22	-8.57	31.65	40.00	-8.35
82.38	Peak	48.35	-17.13	31.22	40.00	-8.78
103.72	Peak	44.96	-14.61	30.35	43.50	-13.15
229.82	Peak	42.96	-13.02	29.94	46.00	-16.06
501.42	Peak	33.50	-4.51	28.99	46.00	-17.01
934.04	Peak	31.16	2.21	33.37	46.00	-12.63

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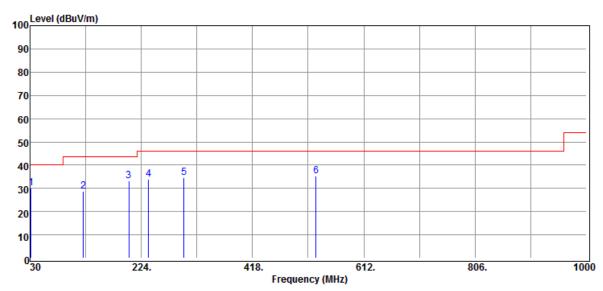
Operation Mode Test Mode **EUT Pol**

Test Channel

:802.11g :TX CH MID :H Plan :2437 MHz

Test Date :2019-01-28 Temp./Humi. :21/57 Antenna Pol. :HORIZONTAL

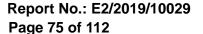
Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
31.94	Peak	33.31	-3.13	30.18	40.00	-9.82
123.12	Peak	41.29	-12.57	28.72	43.50	-14.78
202.66	Peak	47.08	-14.00	33.08	43.50	-10.42
236.61	Peak	46.14	-12.30	33.84	46.00	-12.16
298.69	Peak	44.66	-10.08	34.58	46.00	-11.42
528.58	Peak	39.46	-4.13	35.33	46.00	-10.67

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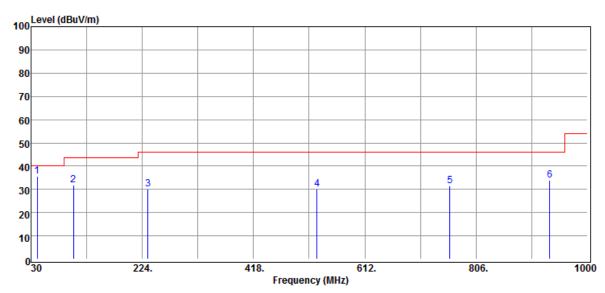
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Operation Mode :802.11g Test Mode :TX CH HIGH **EUT Pol** :H Plan Test Channel :2462 MHz

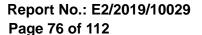
Test Date :2019-01-28 Temp./Humi. :21/57 Antenna Pol. :VERTICAL Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
40.67	Peak	44.12	-8.57	35.55	40.00	-4.45
103.72	Peak	46.35	-14.61	31.74	43.50	-11.76
233.70	Peak	42.87	-12.61	30.26	46.00	-15.74
528.58	Peak	34.17	-4.13	30.04	46.00	-15.96
760.41	Peak	31.79	-0.42	31.37	46.00	-14.63
934.04	Peak	31.82	2.21	34.03	46.00	-11.97

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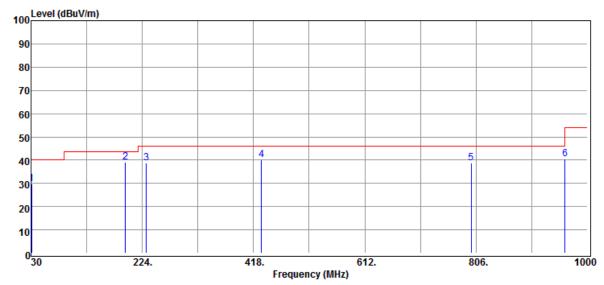


Operation Mode :802.11g Test Mode :TX CH HIGH **EUT Pol** :H Plan

Test Channel :2462 MHz **Test Date** :2019-01-28 Temp./Humi. :21/57

Antenna Pol. :HORIZONTAL

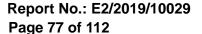
Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
30.97	Peak	32.37	-2.64	29.73	40.00	-10.27
194.90	Peak	53.68	-14.66	39.02	43.50	-4.48
230.79	Peak	51.53	-12.93	38.60	46.00	-7.40
431.58	Peak	46.54	-6.38	40.16	46.00	-5.84
797.27	Peak	38.87	0.00	38.87	46.00	-7.13
961.20	Peak	37.19	3.41	40.60	54.00	-13.40

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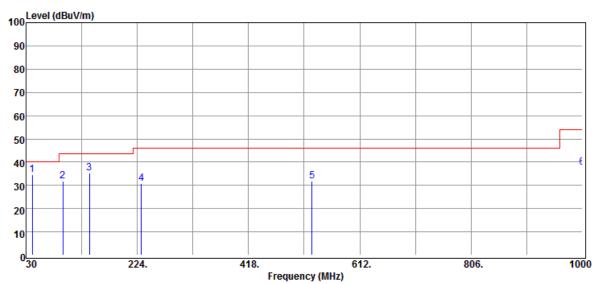
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Operation Mode :802.11n40 Test Mode :TX CH LOW **EUT Pol** :H Plan Test Channel :2422 MHz

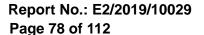
Test Date :2019-01-28 Temp./Humi. :21/57 Antenna Pol. :VERTICAL Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
40.67	Peak	43.19	-8.57	34.62	40.00	-5.38
94.02	Peak	47.68	-16.01	31.67	43.50	-11.83
140.58	Peak	47.97	-12.60	35.37	43.50	-8.13
230.79	Peak	43.72	-12.93	30.79	46.00	-15.21
528.58	Peak	36.00	-4.13	31.87	46.00	-14.13
1000.00	Peak	33.87	3.82	37.69	54.00	-16.31

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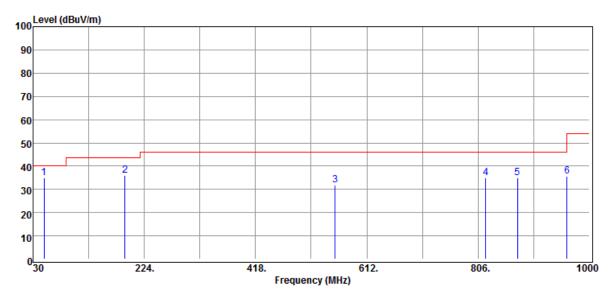
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Operation Mode :802.11n40 Test Mode :TX CH LOW **EUT Pol** :H Plan Test Channel :2422 MHz

Test Date :2019-01-28 Temp./Humi. :21/57 Antenna Pol. :HORIZONTAL Engineer :Ashton

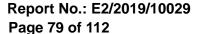


Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
49.40	Peak	49.41	-14.54	34.87	40.00	-5.13
190.05	Peak	50.66	-14.84	35.82	43.50	-7.68
556.71	Peak	35.09	-3.28	31.81	46.00	-14.19
819.58	Peak	34.79	0.02	34.81	46.00	-11.19
874.87	Peak	32.98	1.81	34.79	46.00	-11.21
961.20	Peak	32.08	3.41	35.49	54.00	-18.51

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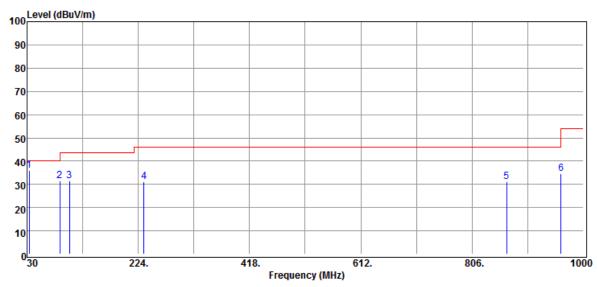
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Operation Mode :802.11n40 Test Mode :TX CH MID **EUT Pol** :H Plan Test Channel :2437 MHz

Test Date :2019-01-28 Temp./Humi. :21/57 Antenna Pol. :VERTICAL Engineer :Ashton

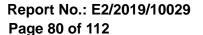


Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
33.88	Peak	40.21	-4.29	35.92	40.00	-4.08
87.23	Peak	48.21	-16.85	31.36	40.00	-8.64
103.72	Peak	46.12	-14.61	31.51	43.50	-11.99
233.70	Peak	43.68	-12.61	31.07	46.00	-14.93
866.14	Peak	29.02	2.24	31.26	46.00	-14.74
961.20	Peak	31.36	3.41	34.77	54.00	-19.23

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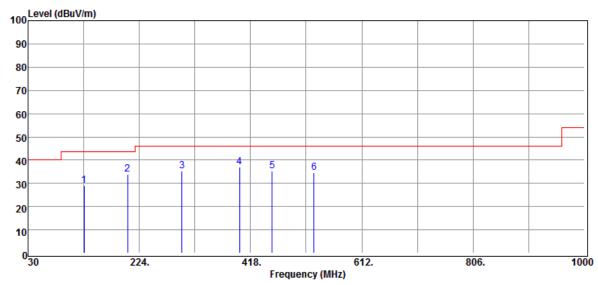


Operation Mode :802.11n40 Test Mode :TX CH MID **EUT Pol** :H Plan

Test Channel :2437 MHz **Test Date** :2019-01-28 Temp./Humi. :21/57

Antenna Pol. :HORIZONTAL

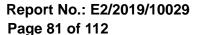
Engineer :Ashton



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
				5- p 1,111		
127.97	Peak	41.44	-12.35	29.09	43.50	-14.41
203.63	Peak	47.88	-13.94	33.94	43.50	-9.56
298.69	Peak	45.29	-10.08	35.21	46.00	-10.79
398.60	Peak	43.22	-6.19	37.03	46.00	-8.97
455.83	Peak	41.52	-6.14	35.38	46.00	-10.62
528.58	Peak	38.70	-4.13	34.57	46.00	-11.43

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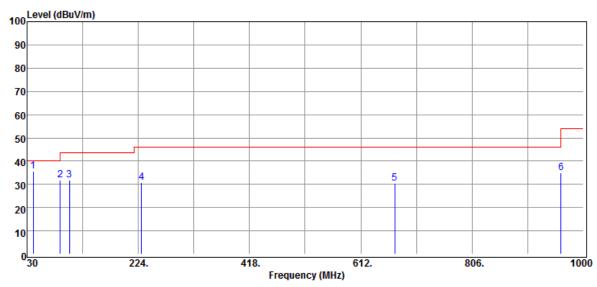
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Operation Mode :802.11n40 Test Mode :TX CH HIGH **EUT Pol** :H Plan Test Channel :2452 MHz

Test Date :2019-01-28 Temp./Humi. :21/57 Antenna Pol. :VERTICAL Engineer :Ashton

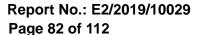


Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
40.67	Peak	44.17	-8.57	35.60	40.00	-4.40
88.20	Peak	48.55	-16.82	31.73	43.50	-11.77
103.72	Peak	46.46	-14.61	31.85	43.50	-11.65
229.82	Peak	43.98	-13.02	30.96	46.00	-15.04
671.17	Peak	32.10	-1.70	30.40	46.00	-15.60
961.20	Peak	31.46	3.41	34.87	54.00	-19.13

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:Ashton

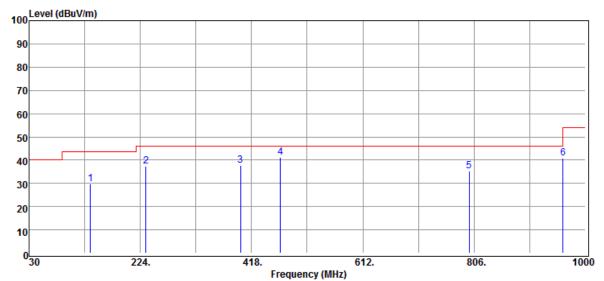


Operation Mode :802.11n40 Test Mode **EUT Pol** :H Plan Test Channel

:TX CH HIGH :2452 MHz

Test Date :2019-01-28 Temp./Humi. :21/57 Antenna Pol. :HORIZONTAL

Engineer

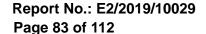


	Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
_	MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
							_
	136.70	Peak	42.11	-12.39	29.72	43.50	-13.78
	233.70	Peak	50.14	-12.61	37.53	46.00	-8.47
	398.60	Peak	43.87	-6.19	37.68	46.00	-8.32
	468.44	Peak	46.67	-5.62	41.05	46.00	-4.95
	797.27	Peak	35.31	0.00	35.31	46.00	-10.69
	961.20	Peak	37.52	3.41	40.93	54.00	-13.07

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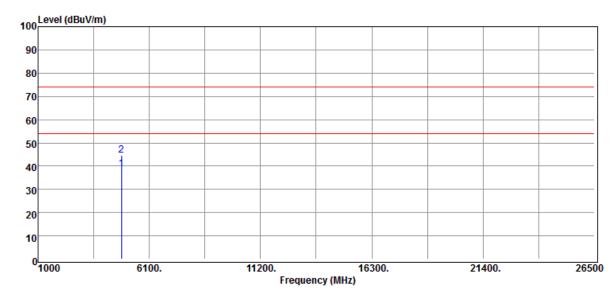




Radiated Spurious Emission Measurement Result Above 1GHz Data:

Operation Mode :802.11b **Test Date** :2019-01-24

Test Mode :TX CH LOW Temp./Humi. :23/51 **EUT Pol** :H Plan Antenna Pol. :VERTICAL Test Channel :2412 MHz Engineer :Ashton

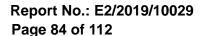


Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
4824.00	Average	27.70	10.96	38.66	54.00	-15.34
4824.00	Peak	33.81	10.96	44.77	74.00	-29.23

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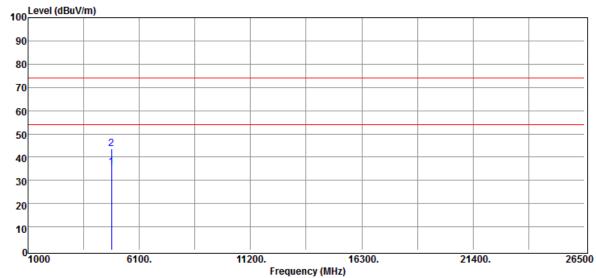


Operation Mode :802.11b Test Mode :TX CH LOW **EUT Pol** :H Plan

Test Channel :2412 MHz **Test Date** :2019-01-24 Temp./Humi. :23/51

Antenna Pol. :HORIZONTAL

Engineer :Ashton

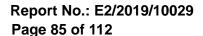


Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB	
4824.00 4824.00	Average Peak	24.74 32.74	10.96 10.96	35.70 43.70	54.00 74.00	-18.30 -30.30	

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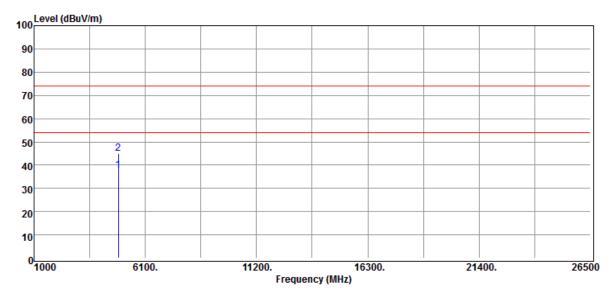
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Operation Mode :802.11b Test Mode :TX CH MID **EUT Pol** :H Plan Test Channel :2437 MHz

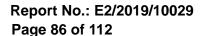
Test Date :2019-01-24 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
4874.00	Average	26.69	11.03	37.72	54.00	-16.28
4874.00	Peak	33.87	11.03	44.90	74.00	-29.10

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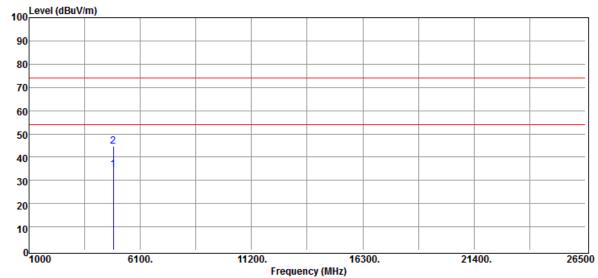


Operation Mode :802.11b Test Mode :TX CH MID

EUT Pol :H Plan Test Channel :2437 MHz **Test Date** :2019-01-24 Temp./Humi. :23/51

Antenna Pol. :HORIZONTAL

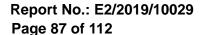
Engineer :Ashton



	Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBµV/m	Limit @3m dBuV/m	Margin dB	
_	4874.00	Average	23.73	11.03	34.76	54.00	-19.24	
	4874.00	Peak	33.62	11.03	44.65	74.00	-29.35	

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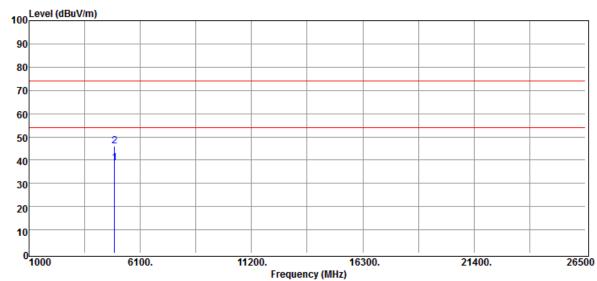
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Operation Mode :802.11b Test Mode :TX CH HIGH **EUT Pol** :H Plan Test Channel :2462 MHz

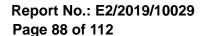
Test Date :2019-01-24 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin	
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB	
4924.00	Average	27.74	11.17	38.91	54.00	-15.09	
4924.00	Peak	34.92	11.17	46.09	74.00	-27.91	

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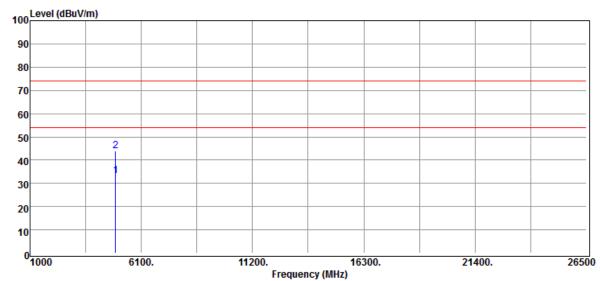


Operation Mode :802.11b Test Mode :TX CH HIGH **EUT Pol** :H Plan

Test Channel :2462 MHz **Test Date** :2019-01-24 Temp./Humi. :23/51

Antenna Pol. :HORIZONTAL

Engineer :Ashton

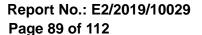


	Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB	
_	4924.00 4924.00	Average Peak	22.12 32.91	11.17 11.18	33.29 44.09	54.00 74.00	-20.71 -29.91	•

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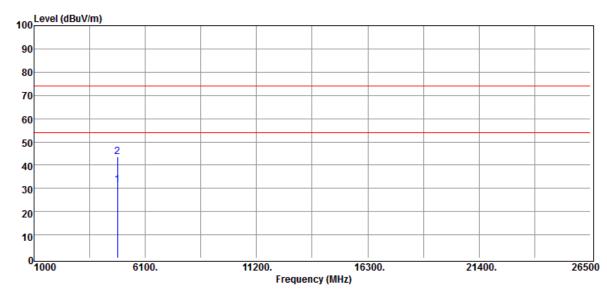
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Operation Mode :802.11g Test Mode :TX CH LOW **EUT Pol** :H Plan Test Channel :2412 MHz

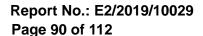
Test Date :2019-01-24 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
4824.00	Average	20.49	10.96	31.45	54.00	-22.55
4824.00	Peak	32.69	10.96	43.65	74.00	-30.35

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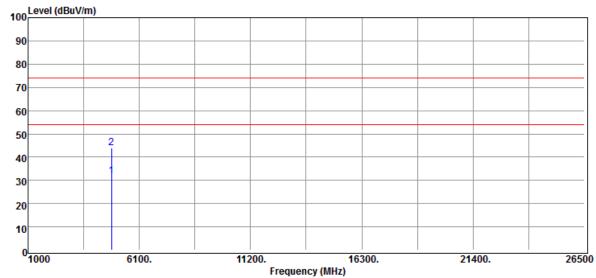


Operation Mode :802.11g Test Mode :TX CH LOW

EUT Pol :H Plan Test Channel :2412 MHz **Test Date** :2019-01-24 Temp./Humi. :23/51

Antenna Pol. :HORIZONTAL

Engineer :Ashton

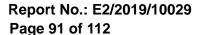


Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB	
4824.00	Average	20.73	10.96	31.69	54.00	-22.31	•
4824.00	Peak	33.07	10.96	44.03	74.00	-29.97	

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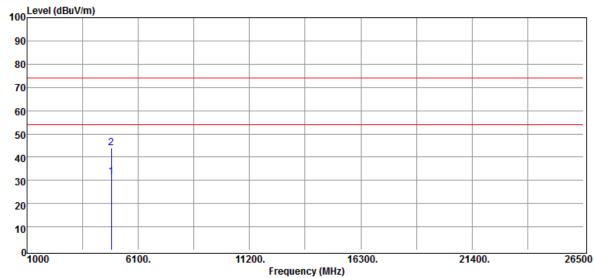


Operation Mode :802.11g Test Mode :TX CH MID **EUT Pol** :H Plan

Test Channel :2437 MHz **Test Date** :2019-01-24 Temp./Humi. :23/51

Antenna Pol. :HORIZONTAL

Engineer :Ashton

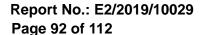


	Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB	
_	4874.00	Average	20.45	11.03	31.48	54.00	-22.52	_
	4874.00	Peak	32.89	11.03	43.92	74.00	-30.08	

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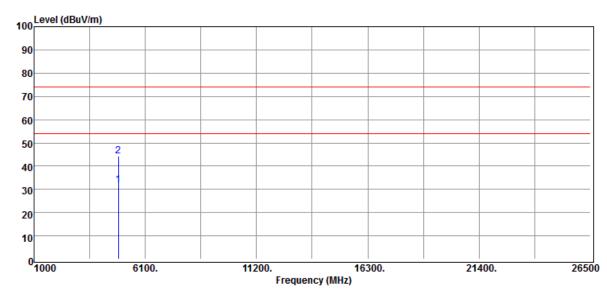
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Operation Mode :802.11g Test Mode :TX CH MID **EUT Pol** :H Plan Test Channel :2437 MHz

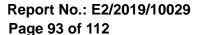
Test Date :2019-01-24 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
4874.00	Average	20.76	11.03	31.79	54.00	-22.21
4874.00	Peak	33.13	11.03	44.16	74.00	-29.84

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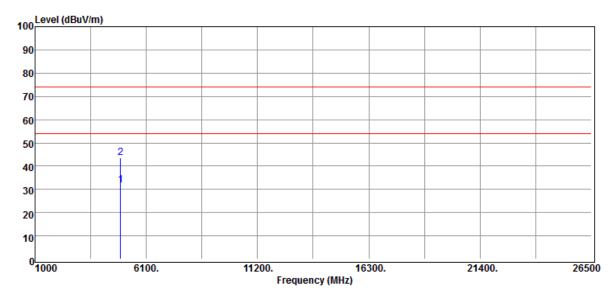
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Operation Mode :802.11g Test Mode :TX CH HIGH **EUT Pol** :H Plan Test Channel :2462 MHz

Test Date :2019-01-24 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
4924.00	Average	20.60	11.17	31.77	54.00	-22.23
4924.00	Peak	32.56	11.17	43.73	74.00	-30.27

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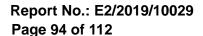
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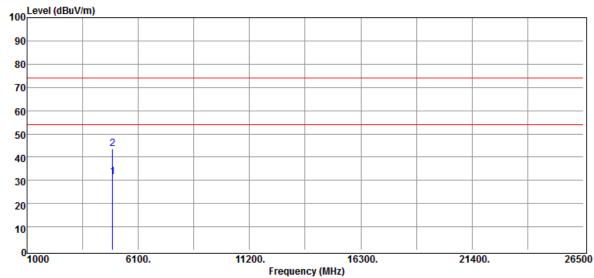


Operation Mode :802.11g Test Mode :TX CH HIGH

EUT Pol :H Plan Test Channel :2462 MHz **Test Date** :2019-01-24 Temp./Humi. :23/51

Antenna Pol. :HORIZONTAL

Engineer :Ashton



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB	
4924.00 4924.00	Average Peak	20.20 32.32	11.17 11.17	31.37 43.49	54.00 74.00	-22.63 -30.51	

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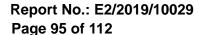
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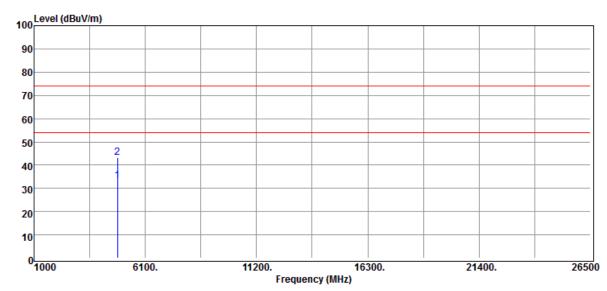
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Operation Mode :802.11n20 Test Mode :TX CH LOW **EUT Pol** :H Plan Test Channel :2412 MHz

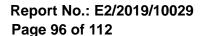
Test Date :2019-01-25 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
4824.00	Average	22.11	10.96	33.07	54.00	-20.93
4824.00	Peak	32.39	10.96	43.35	74.00	-30.65

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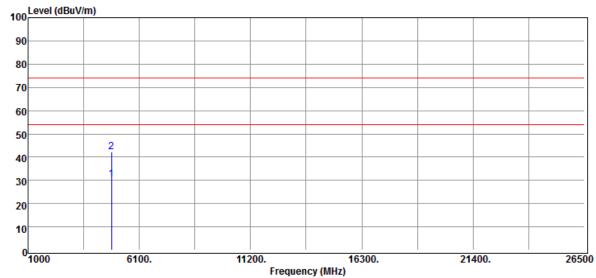


Operation Mode :802.11n20 Test Mode :TX CH LOW

EUT Pol :H Plan Test Channel :2412 MHz **Test Date** :2019-01-25 Temp./Humi. :23/51

Antenna Pol. :HORIZONTAL

Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
-				_		
4824.00	Average	19.47	10.96	30.43	54.00	-23.57
4824.00	Peak	31.12	10.96	42.08	74.00	-31.92

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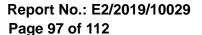
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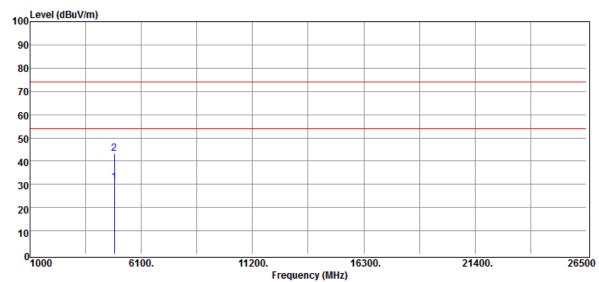
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Operation Mode :802.11n20 Test Mode :TX CH MID **EUT Pol** :H Plan Test Channel :2437 MHz

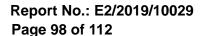
Test Date :2019-01-25 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin	
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
4874.00	Avorago	19.70	11.03	30.73	54.00	-23.27	_
4074.00	Average	19.70	11.03	30.73	54.00	-23.21	
4874.00	Peak	32.08	11.03	43.11	74.00	-30.89	

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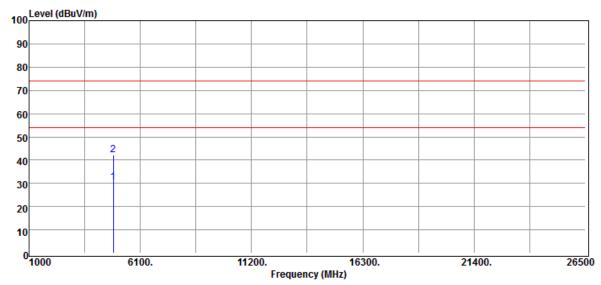


Operation Mode :802.11n20 Test Mode :TX CH MID

EUT Pol :H Plan Test Channel :2437 MHz **Test Date** :2019-01-25 Temp./Humi. :23/51

Antenna Pol. :HORIZONTAL

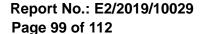
Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
4874.00	Average	19.41	11.03	30.44	54.00	-23.56
4874.00	Peak	31.32	11.03	42.35	74.00	-31.65

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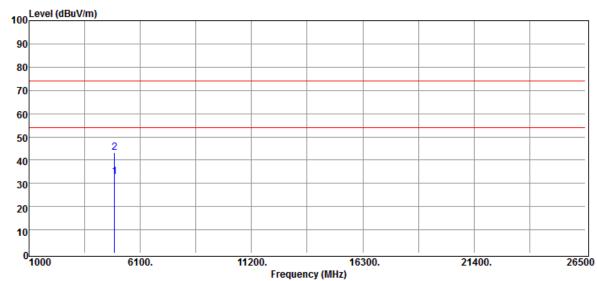
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Operation Mode :802.11n20 Test Mode :TX CH HIGH **EUT Pol** :H Plan Test Channel :2462 MHz

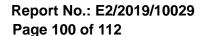
Test Date :2019-01-25 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB	
4924.00	Average	21.71	11.17	32.88	54.00	-21.12	
4924.00	Peak	32.12	11.17	43.29	74.00	-30.71	

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Operation Mode Test Mode **EUT Pol**

Test Channel

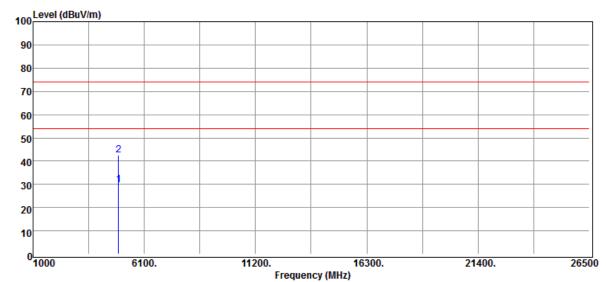
:802.11n20 :TX CH HIGH :H Plan :2462 MHz

Test Date Temp./Humi. Antenna Pol.

:23/51 :HORIZONTAL

:2019-01-25

Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
4924.00	Average	18.50	11.17	29.67	54.00	-24.33
4924.00	Peak	31.34	11.17	42.51	74.00	-31.49

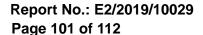
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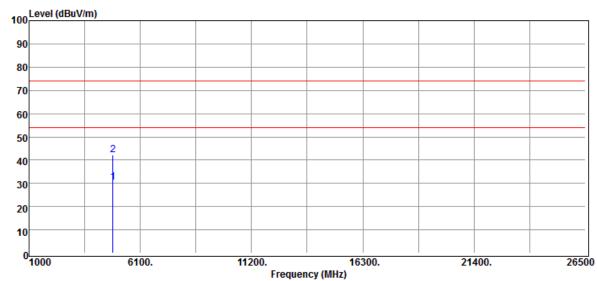
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Operation Mode :802.11n40 Test Mode :TX CH LOW **EUT Pol** :H Plan Test Channel :2422 MHz

Test Date :2019-01-28 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton

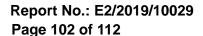


Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB	
4844.00 4844.00	Average Peak	19.33 31.30	10.98 10.98	30.31 42.28	54.00 74.00	-23.69 -31.72	

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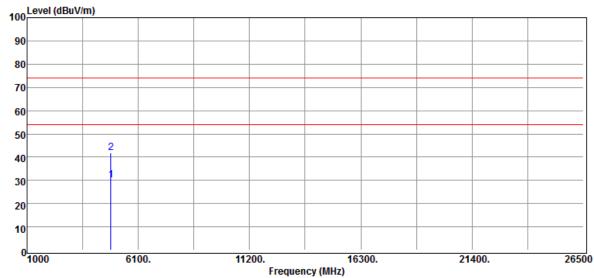


Operation Mode :802.11n40 Test Mode :TX CH LOW **EUT Pol** :H Plan

Test Channel :2422 MHz **Test Date** :2019-01-28 Temp./Humi. :23/51

Antenna Pol. :HORIZONTAL

Engineer :Ashton



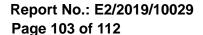
	Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB	
_	4844.00	Average	19.24	10.98	30.22	54.00	-23.78	
	4844.00	Peak	30.79	10.98	41.77	74.00	-32.23	

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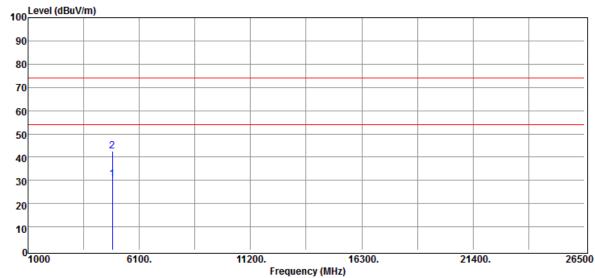
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Operation Mode :802.11n40 Test Mode :TX CH MID **EUT Pol** :H Plan Test Channel :2437 MHz

Test Date :2019-01-28 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton

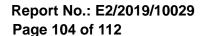


Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB	
4874.00	Average	19.47	11.03	30.50	54.00	-23.50	
4874.00	Peak	31.47	11.03	42.50	74.00	-31.50	

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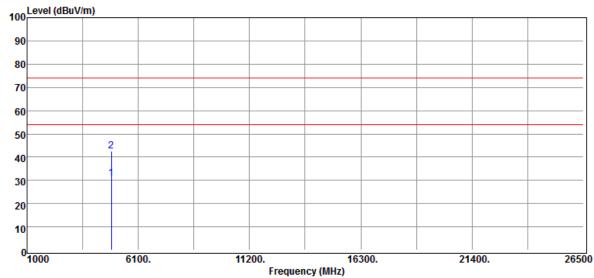


Operation Mode :802.11n40 Test Mode :TX CH MID **EUT Pol** :H Plan

Test Channel :2437 MHz **Test Date** :2019-01-28 Temp./Humi. :23/51

Antenna Pol. :HORIZONTAL

Engineer :Ashton

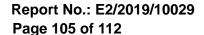


4974.00 Average 40.05 44.02 20.00 E4.00	Margin dB	
3	-23.32 -31.37	

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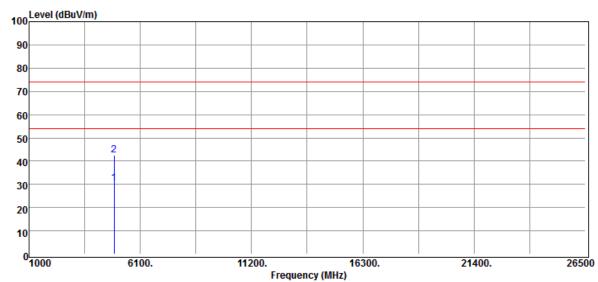
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Operation Mode :802.11n40 Test Mode :TX CH HIGH **EUT Pol** :H Plan Test Channel :2452 MHz

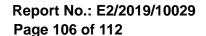
Test Date :2019-01-28 Temp./Humi. :23/51 Antenna Pol. :VERTICAL Engineer :Ashton



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
4904.00	Average	19.30	11.09	30.39	54.00	-23.61
4904.00	Peak	31.58	11.09	42.67	74.00	-31.33

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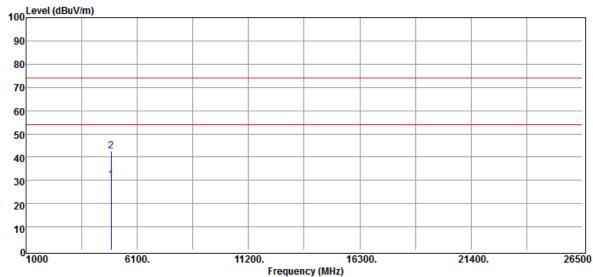


Operation Mode :802.11n40 Test Mode :TX CH HIGH **EUT Pol** :H Plan

Test Channel :2452 MHz **Test Date** :2019-01-28 Temp./Humi. :23/51

Antenna Pol. :HORIZONTAL

Engineer :Ashton

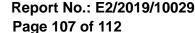


Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin	
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB	
4904.00	Average	19.14	11.09	30.23	54.00	-23.77	
4904.00	Peak	31.32	11.09	42.41	74.00	-31.59	

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12 POWER SPECTRAL DENSITY

12.1 **Standard Applicable**

Per Part 15.247 (e)

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

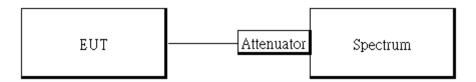
Per RSS-247 section 5.4 d

For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).

12.2 **Measurement Equipment Used**

Conducted Emission Test Site						
EQUIPMENT	MFR	SERIAL	LAST	CAL DUE.		
TYPE		NUMBER	NUMBER	CAL.		
Spectrum Analyzer	Agilent	N9010A	MY51440113	06/20/2018	06/19/2019	
Attenuator	Marvelous	MVE2213-10	RF30	12/25/2018	12/24/2019	
DC Block	PASTERNACK	PE8210	RF29	12/25/2018	12/24/2019	

12.3 Test Set-up

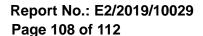


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12.4 Measurement Procedure

- 1. Set analyzer center frequency to DTS channel center frequency.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance & ANSI C63.10.
- 3. Set the span to 1.5 times the DTS channel bandwidth.
- 4. Set the RBW = 3 kHz. & the VBW = 10 kHz
- 5. For defining Restricted Band Edge Limit: Set the RBW = 100kHz & VBW = 300 kHz.
- 6. Detector = peak.
- 7. Sweep time = auto couple.
- 8. Trace mode = max hold.
- 9. Allow trace to fully stabilize.
- 10. Use the peak marker function to determine the maximum amplitude level.

As per FCC KDB 662911 D01

Unequal antenna gains, with equal transmit powers. For antenna gains given by G1, G2, ..., GN dBi.

- (i) If transmit signals are correlated, then Directional gain
- = $10 \log[(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/N_{ANT}] dBi$

[Note the "20"s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.].

The antenna gain is not grater than 6 dBi. Therefore, reduction of power is not required.

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12.5 Measurement Result

	POWER DENSITY 802.11b							
Freq.	PPSD	Limit	Result					
(MHz)	(dBm/3kHz)	(dBm/3kHz)	Result					
2412	-4.20	8.00	PASS					
2437	-4.41	8.00	PASS					
2462	-4.13	8.00	PASS					

POWER DENSITY 802.11g				
Freq.	PPSD	Limit	Result	
(MHz)	(dBm/3kHz)	(dBm/3kHz)	Result	
2412	-9.92	8.00	PASS	
2437	-9.23	8.00	PASS	
2462	-11.41	8.00	PASS	

POWER DENSITY 802.11n HT20 (MIMO)				
Freq.	PPSD	Limit	Result	
(MHz)	(dBm/3kHz)	(dBm/3kHz)	Result	
2412	-13.80	8.00	PASS	
2437	-9.16	8.00	PASS	
2462	-9.02	8.00	PASS	

POWER DENSITY 802.11n HT40 (MIMO)				
Freq.	PPSD	Limit	Result	
(MHz)	(dBm/3kHz)	(dBm/3kHz)	Result	
2422	-15.08	8.00	PASS	
2437	-12.13	8.00	PASS	
2452	-14.5	8.00	PASS	

Note

10.40 Cable Loss dВ

*Refer to next page for plots

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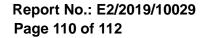
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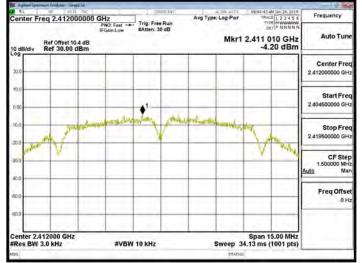
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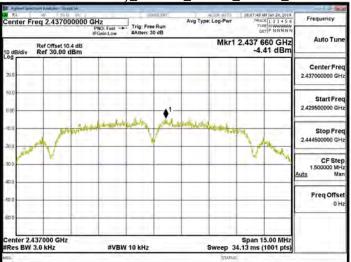




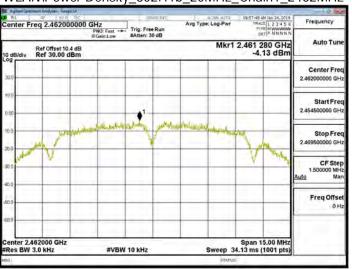
WLAN\Power Density_802.11b_20MHz_Chain1_2412MHz



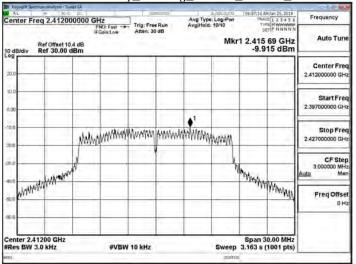
WLAN\Power Density 802.11b 20MHz Chain1 2437MHz



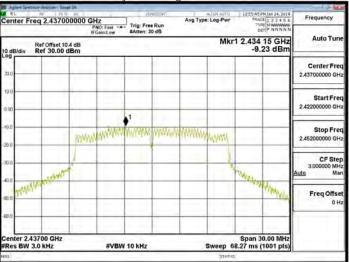
WLAN\Power Density_802.11b_20MHz_Chain1_2462MHz



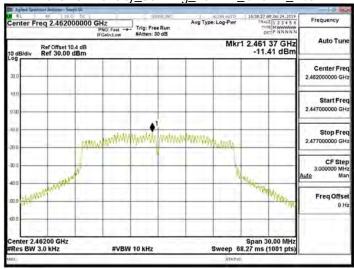
WLAN\Power Density_802.11g_20MHz_Chain1_2412MHz



WLAN\Power Density 802.11g 20MHz Chain1 2437MHz



WLAN\Power Density 802.11g 20MHz Chain1 2462MHz

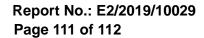


Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

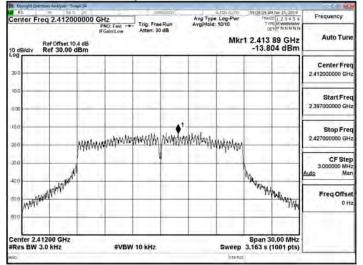
Unless otherwise stated the results shown in this test report teer only to the sample(s) tested and such as a retained to so days only.

Ref. \$45 \text{ Ref. \$45 \text{ Ref. \$16 \text{ Ref may be prosecuted to the fullest extent of the law.

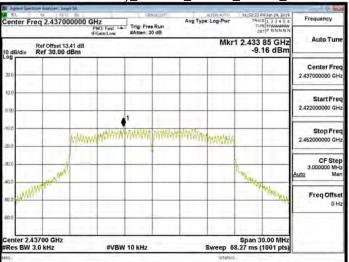
SGS Taiwan Ltd.



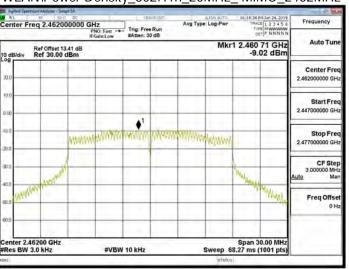
WLAN\Power Density_802.11n_20MHz_MIMO_2412MHz



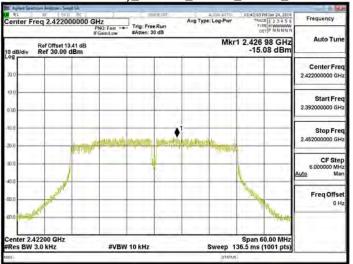
WLAN\Power Density 802.11n 20MHz MIMO 2437MHz



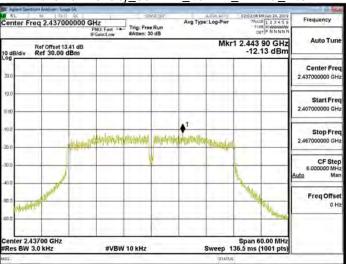
WLAN\Power Density_802.11n_20MHz_ MIMO_2462MHz



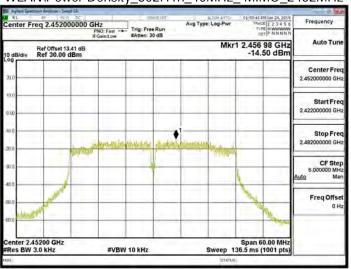
WLAN\Power Density_802.11n_40MHz_ MIMO_2422MHz



WLAN\Power Density 802.11n 40MHz MIMO 2437MHz



WLAN\Power Density_802.11n_40MHz_ MIMO_2452MHz



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Ref. \$45 \text{ Ref. \$45 \text{ Ref. \$16 \text{ Ref may be prosecuted to the fullest extent of the law.

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13 ANTENNA REQUIREMENT

13.1 **Standard Applicable**

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device.

If the transmitting antenna is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi.

13.2 **Antenna Connected Construction**

The antenna is designed as permanently attached and no consideration of replacement. Please see EUT photo for details.

~ End of Report ~

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