

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

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

	OF		
Product Name:	Notebook		
Brand Name:	AMD		
Model No.:	AMD TED		
Model Difference:	N/A		
FCC ID:	HFS-TED		
IC:	1787B-TED		
Report No.:	E2/2016/90005		
Issue Date:	Sep. 23, 2016		
FCC Rule Part:	§15.247, Cat: DTS		
IC Rule Part:	RSS-247 issue 1 :2015		
Prepared for:	Quanta Computer Inc. No.188, Wenhua 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan SGS Taiwan Ltd.		
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VERIFICATION OF COMPLIANCE

Applicant:	Quanta Computer Inc. No.188, Wenhua 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan
Product Name:	Notebook
Brand Name:	AMD
Model No.:	AMD TED
Model Difference:	N/A
FCC ID:	HFS-TED
IC:	1787B-TED
File Number:	E2/2016/90005
Date of Test:	Aug. 29, 2016 ~ Sep. 20, 2016
Date of EUT Received:	Aug. 29, 2016

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.

Test By:	Aken Huang	Date:	Sep. 23, 2016
Prepared By:	Aken Huang / Engineer Tiffany Kao	Date:	Sep. 23, 2016
Approved By:	Tiffany Kao / Clerk Jim Ch ang	Date:	Sep. 23, 2016
	Jim Chang / Asst. Manager		
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Revision History

Report Number	Revision	Description	Issue Date
E2/2016/90005	Rev.00	Initial creation of document	Sep. 23, 2016

No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.



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GENERAL INFORMATION 1

1.1 Product description

General:				
Notebook				
AMD	AMD			
AMD TED)			
N/A				
N/A / N/A				
N/A / N/A				
N/A				
N/A				
	from Rechargeable Li-polymer Battery or 5V or 12V or AC/DC Adapter			
Battery:	Model No.: TED, Supplier: JMS			
Adapter:	Model No.: ADP-45PE B, Supplier: Delta			
	AMD AMD TEE N/A N/A / N/A N/A / N/A N/A N/A 15.28Vdc 20V from Battery:			

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WLAN 2.4GHz:

Wi-Fi	Frequency Range	Channels	Rated Power / (EIRP)	Type of Emission	Modulation Technology
11b/g	2412-2462	11	b: 24.26dBm b: 25.11dBm (EIRP) g: 26.57dBm g: 23.97dBm (EIRP)	b: 14M2G1D g:16M4D1D	DSSS, OFDM
11n	HT20 / VHT20 2412-2462	11	HT20: 26.83dBm (MIMO Chain 0+1) HT20: 24.20dBm (MIMO Chain 0+1) (EIRP)	17M6D1D	OFDM
11n	HT40 / VHT40 2422-2452	7	HT40: 26.64dBm (MIMO Chain 0+1) HT40: 22.92dBm (MIMO Chain 0+1) (EIRP)	36M1D1D	OFDM
Antenna	Designation		enna, z Gain: 0.21dBi (Main) z Gain: -0.29dBi (Aux)		
Modulati	ion type:	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM			
Transitio	on Rate:	802.11 g: 802.11 n_	802.11 b: 1/2/5.5/11 Mbps 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 – 300Mbps		

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1.2 Product Feature of Equipment Under Test

The equipment under Test (Hereafter Called: EUT) is Notebook, supporting Wi-Fi 802.11a/b/g/n/ac, Bluetooth features, and below is details of information.

Product Feature		
Product Name:	Notebook	
Brand Name:	AMD	
Model No.:	AMD TED	
Model Difference:	N/A	
FCC ID:	HFS-TED	
IC :	1787B-TED	
Bluetooth Version	V4.1 dual mode + HS	
Wi-Fi- Specification802.11a/b/g/n/ac		

Note: The above EUT information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

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1.3 Test Methodology of Applied Standards

FCC Part 15, Subpart C §15.247

FCC KDB 558074 D01 DTS Meas. Guidance

FCC KDB 662911 D01 Multiple Transmitter Output

Canada RSS-247 issue 1 May 2015

Canada RSS-Gen issue 4 Nov. 2014

ANSI C63.10:2013

Note:

- 1. All test items have been performed and record as per the above standards.
- 2. The composite system is compliance with FCC Subpart B is authorized under a DoC procedure.

1.4 Test Facility

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

FCC Registration Numbers are: 735305

Canada Registration Number: 4620A-5.

1.5 Special Accessories

There are no special accessories used while test was conducted.

1.6 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 as turn 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 50 ohm/ 50uH 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 Radiated Emissions

The EUT is a placed on as 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 hand-held 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.

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 2.3dB, and 10dB attenuator (SISO) and cable loss 5.3dB, and 10dB attenuator (MIMO). Offset:

SISO mode offset = RF cable loss (dB)+ attenuation factor(dB) =12.3(dB)MIMO mode offset = RF cable loss (dB)+ attenuation factor(dB)+ 10 log(NANT) dB =15.3(dB)

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2.5 Configuration of Tested System

Fig. 2-1 Radiated Emission & AC Power Line Conducted Emission

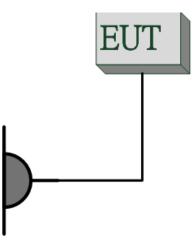


Fig. 2-2 Conducted (Antenna Port) Emission

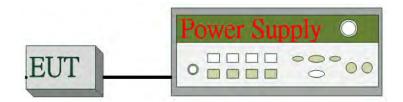


Table 2-1 Equipment Used in Tested System

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
2.	Notebook	Lenovo	L430	R9-YYG88	Shielded	Un-shielded

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SUMMARY OF TEST RESULTS 3

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 §5.2 (1) RSS-Gen §6.6	6dB & 99% Emission Bandwidth	Compliant
§15.247(d) RSS-247 §5.5	Conducted Band Edge and Spurious Emission	Compliant
§15.247(d) RSS-247 §5.5	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 §6.7 RSS- Gen §8.3	Antenna Requirement	Compliant

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DESCRIPTION OF TEST MODES 4

4.1 Operated in 2400 ~ 2483.5MHz Band

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		

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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.

Note: Pre-scanned was done on Antenna Main and Antenna Aux, and Antenna Main results higher emission at 2.4GHz. Therefore, the completed set of measurement was done on Antenna Main (2.4GHz) to be presented on this test report.

		•								
	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	2TX					
	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	2TX					
802.11g	1 to 11	1, 6, 11	OFDM	6	2TX					
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					

RADIATED EMISSION TEST:

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	1	MAIN			
802.11g	1 to 11	1, 6, 11	OFDM	6	MAIN			
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 5

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 Edges	+/- 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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CONDUCTED EMISSION TEST 6

6.1 Standard Applicable

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

Frequency range	Limits dB(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		
Note				

Note

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.

6.2 Measurement Equipment Used

Conducted Emission Test Site								
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.			
TYPE		NUMBER	NUMBER	CAL.				
EMI Test Receiver	R&S	ESCI 7	100950	12/12/2015	12/11/2016			
Coaxial Cables	N/A	N30N30-1042-150 cm	N/A	02/07/2016	02/06/2017			
LISN	Schwarzbeck	NSLK 8127	8127-648	03/11/2016	03/10/2017			
Test Software	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R.	N.C.R.			

6.3 EUT Setup

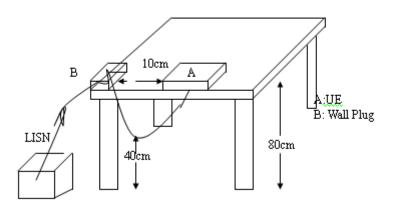
- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI 63.10:2013.
- 2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
- 3. The LISN was connected with 120Vac/60Hz power source.

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6.4 Test SET-UP (Block Diagram of Configuration)



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 Temperature: 20

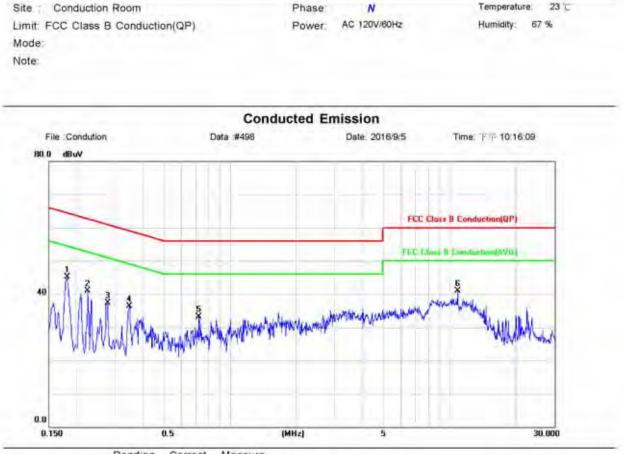
Test Date: Sep. 05, 2016

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Mk	Freq	Level	Factor	ment	Limit	Over			
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment	
	0.1820	25.35	19.72	45.07	64 39	-19.32	peak		
	0.2260	21.17	19.74	40.91	62.60	-21.69	peak		
	0.2780	17.62	19.77	37.39	60.88	-23.49	peak		
	0.3500	16 46	19.81	36.27	58.96	-22.69	peak		
	0.7260	13 19	19.92	33.11	56.00	-22 89	peak		
•	10.8700	20.76	20.14	40.90	60.00	-19.10	peak		
		MHz 0.1820 0.2260 0.2780 0.3500 0.7260	Mk. Freq. Level MHz dBuV 0.1820 25.35 0.2260 21.17 0.2780 17.62 0.3500 16.46 0.7260 13.19	Mk Freq. Level Factor MHz dBuV dB 0.1820 25.35 19.72 0.2260 21.17 19.74 0.2780 17.62 19.77 0.3500 16.46 19.81 0.7260 13.19 19.92	Mk Freq. Level Factor ment MHz dBuV dB dBuV 0.1820 25.35 19.72 45.07 0.2260 21.17 19.74 40.91 0.2780 17.62 19.77 37.39 0.3500 16.46 19.81 36.27 0.7260 13.19 19.92 33.11	Mk. Freq. Level Factor ment Limit MHz dBuV dB dBuV dBuV dBuV 0.1820 25.35 19.72 45.07 64.39 0.2260 21.17 19.74 40.91 62.60 0.2780 17.62 19.77 37.39 60.88 0.3500 16.46 19.81 36.27 58.96 0.7260 13.19 19.92 33.11 56.00	Mk. Freq. Level Factor ment Limit Over MHz dBuV dB dBuV dBuV dB dB dBuV dB <	Mk. Freq. Level Factor ment Limit Over MHz dBuV dB dBuV dBuV dB Detector 0.1820 25.35 19.72 45.07 64.39 -19.32 peak 0.2260 21.17 19.74 40.91 62.60 -21.69 peak 0.2780 17.62 19.77 37.39 60.88 -23.49 peak 0.3500 16.46 19.81 36.27 58.96 -22.69 peak 0.7260 13.19 19.92 33.11 56.00 -22.89 peak	Mk. Freq. Level Factor ment Limit Over MHz dBuV dB dBuV dBuV dB Detector Comment 0.1820 25.35 19.72 45.07 64.39 -19.32 peak 0.2260 21.17 19.74 40.91 62.60 -21.69 peak 0.2780 17.62 19.77 37.39 60.88 -23.49 peak 0.3500 16.46 19.81 36.27 58.96 -22.69 peak 0.7260 13.19 19.92 33.11 56.00 -22.89 peak

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DUTY CYCLE OF TEST SIGNAL 7

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)
802.11b	99.25	0.03
802.11g	95.22	0.21
802.11n_20	90.41	0.44
802.11n_40	83.25	0.80

b = 99.25%, g = 95.22%, n ht 20 = 90.41%, n ht40 = 83.25%

Duty Cycle Factor: $10 * \log(1/0.9925) = 0.03$ Duty Cycle Factor: 10 * log(1/0.9522) = 0.21 Duty Cycle Factor: $10 * \log(1/0.9041) = 0.44$ Duty Cycle Factor: $10 * \log(1/0.8325) = 0.8$

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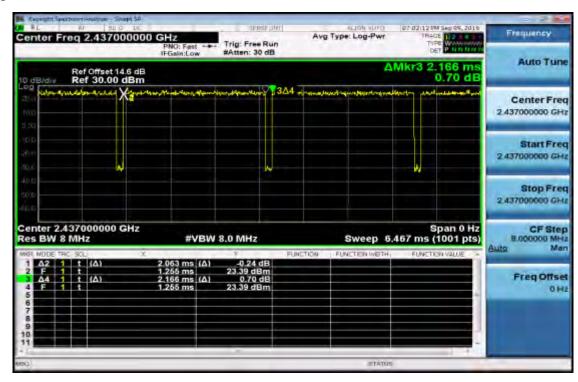


7.1 DUTY CYCLE TEST SIGNAL Measurement Result

802.11 b



802.11 g



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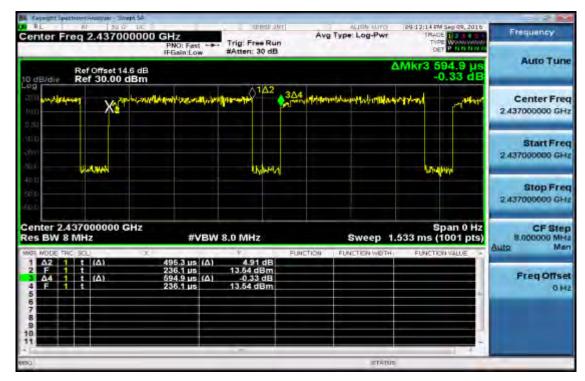
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802.11 n 20 MHz

Ruyaight Spactorer-Headyter - Skapt SA				
Eenter Freq 2.437000000	GHz PNO: Fast Trig: Free F #Atten: 30 o	Avg Type: Log-Pwr	07:26:04 IW Sep 04, 2016 TRADE 1 2 3 4 10 TVPE Woodconstant DET P NEI NEI 1	Frequency
Ref Offset 14.6 dB	Intsain;Low whiten, ave		Mkr3 1.090 ms 0.05 dB	Auto Tun
199 200 1000	Xamerica	γγ 12 3∆4 ensej-a-monTryn#w	rifey structure	Center Fre 2.437000000 GH
1010 				Start Fre 2.437000000 GH
(0.0) 500 500				Stop Fre 2.437000000 GH
Center 2.437000000 GHz Res BW 8 MHz	#VBW 8.0 MHz	Sweep 3	Span 0 Hz 733 ms (1001 pts)	CF Ste 8.000000 Mit Auto Mit
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	985.6 μs (Δ) 1.10 dl 1.034 ms 23.64 dBn 1.090 ms (Δ) 0.05 dl 1.034 ms 23.54 dBn		_	Freq Offs 01
	-	TATUS		

802.11 n 40 MHz



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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

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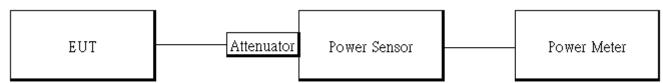
8.2 Measurement Equipment Used

Conducted Emission Test Site								
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.			
TYPE		NUMBER	NUMBER	CAL.				
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	04/14/2016	04/13/2017			
Power Meter	Anritsu	ML2496A	1326001	06/23/2016	06/22/2017			
Power Sensor	Anritsu	MA2411B	1315048	06/23/2016	06/22/2017			
Power Sensor	Anritsu	MA2411B	1315049	06/23/2016	06/22/2017			
Coaxial Cable 30cm	WOKEN	00100A1F1A19 5C	RF01	12/12/2015	12/11/2016			
DC Block	PASTERNACK	PE8210	RF29	12/12/2015	12/11/2016			
Splitter	RF-LAMBAD	RFLT2W1G18 G	RF35	12/12/2015	12/11/2016			
Attenuator	WOKEN	218FS-10	RF23	12/12/2015	12/11/2016			
DC Power Supply	Agilent	E3640A	MY53140006	05/04/2016	05/03/2017			



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

802.1	02.11b_MIMO									
сн	Frequency (MHz)	Data Rate	Peak (Pov (dE CH 0	-	Total Peak Output Power (dBm)	Total Peak Output Power (mW)	Limit	RESULT		
1	2412	1	20.89	21.32	24.12	258.26	1 Watt = 30.00 dE	m PASS		
6	2437	1	21.08	21.25	24.18	261.59	1 Watt = 30.00 dE	m PASS		
11	2462	1	21.19	21.30	24.26	266.42	1 Watt = 30.00 dE	m PASS		
802.1	1b_MIMO		-					-		
сн	Frequency (MHz)	Data Rate	Po	Dutput wer 3m) CH 1	Max. Output include tune up tolerance Power (dBm)	Max. Output include tune up tolerance Power (mW)	Limit	RESULT		
1	2412	1	18.57	18.96	21.78	150.65	1 Watt = 30.00 dE	m PASS		
6	2437	1	18.67	18.96	21.83	152.33	1 Watt = 30.00 dE	m PASS		
11	2462	1	18.76	19.00	21.89	154.60	1 Watt = 30.00 dE	m PASS		

802.1	1g_MIMO							
сн	Frequency (MHz)	Data Rate	Po	Dutput wer 3m) CH 1	Total Peak Output Power (dBm)	Total Peak Output Power (mW)	Limit	RESULT
1	2412	6	22.25	22.81	25.55	358.87	1 Watt = 30.00 dBm	PASS
6	2437	6	23.51	23.61	26.57	454.00	1 Watt = 30.00 dBm	PASS
11	2462	6	22.57	22.62	25.61	363.53	1 Watt = 30.00 dBm	PASS
802.1	1g_MIMO			-			÷	
сн	Frequency (MHz)	Data Rate	Po	Dutput wer 3m)	Avg. Output Power	Avg. Output Power	Limit	RESULT
			CH 0	CH 1	(dBm)	(mW)		
1	2412	6	15.89	16.60	19.27	84.52	1 Watt = 30.00 dBm	PASS
6	2437	6	17.64	17.84	20.75	118.89	1 Watt = 30.00 dBm	PASS
11	2462	6	16.35	16.39	19.38	86.70	1 Watt = 30.00 dBm	PASS

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802.1	1n_HT20M M	IMO						
сн	Frequency (MHz)	Data Rate	Po	Bm)	Total Peak Output Power	Total Peak Output Power	Limit	RESULT
			CH 0	CH 1	(dBm)	(mW)		
1	2412	MCS8	22.13	22.64	25.40	346.96	1 Watt = 30.00 dBm	PASS
6	2437	MCS8	23.72	23.92	26.83	482.11	1 Watt = 30.00 dBm	PASS
11	2462	MCS8	21.37	21.45	24.42	276.73	1 Watt = 30.00 dBm	PASS
802.1	1n_HT20M M	IMO						
сн	Frequency (MHz)	Data Rate	Po	Dutput wer 8m)	Avg. Output Power	Avg. Output Power	Limit	RESULT
			CH 0	CH 1	(dBm)	(mW)		
1	2412	MCS8	15.02	15.50	18.28	67.25	1 Watt = 30.00 dBm	PASS
6	2437	MCS8	17.92	18.01	20.98	125.19	1 Watt = 30.00 dBm	PASS
11	2462	MCS8	14.17	14.26	17.23	52.79	1 Watt = 30.00 dBm	PASS

802.1	1n_VHT20M I	MIMO						
сн	Frequency (MHz)	Data Rate	Pov (dE	Dutput wer Bm)	Total Peak Output Power	Total Peak Output Power	Limit	RESULT
			CH 0	CH 1	(dBm)	(mW)		
1	2412	MCS8	22.07	22.47	25.28	337.67	1 Watt = 30.00 dBm	PASS
6	2437	MCS8	23.54	23.87	26.72	469.72	1 Watt = 30.00 dBm	PASS
11	2462	MCS8	21.24	21.39	24.33	270.77	1 Watt = 30.00 dBm	PASS
802.1	1n_VHT20M I	MIMO						
сн	Frequency (MHz)	Data Rate	Po	Dutput wer Bm)	Avg. Output Power (dBm)	Avg. Output Power (mW)	Limit	RESULT
			CH 0	CH 1	(dBm)	(11100)		
1	2412	MCS8	14.67	14.95	17.82	60.57	1 Watt = 30.00 dBm	PASS
6	2437	MCS8	17.64	17.87	20.77	119.31	1 Watt = 30.00 dBm	PASS
11	2462	MCS8	14.08	14.19	17.15	51.83	1 Watt = 30.00 dBm	PASS

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802.1	1n_HT40M M	IMO						
сн	Frequency (MHz)	Data Rate	Po	Output wer 3m)	Total Peak Output Power	Total Peak Output Power	Limit	RESULT
			CH 0	CH 1	(dBm)	(mW)		
3	2422	MCS8	18.46	19.27	21.89	154.67	1 Watt = 30.00 dBm	PASS
6	2437	MCS8	23.48	23.78	26.64	461.62	1 Watt = 30.00 dBm	PASS
9	2452	MCS8	16.77	17.13	19.96	99.18	1 Watt = 30.00 dBm	PASS
802.1	1n_HT40M M	IMO						
сн	Frequency (MHz)	Data Rate	Po	Dutput wer 3m)	Avg. Output Power	Avg. Output Power	Limit	RESULT
			CH 0	CH 1	(dBm)	(mW)		
3	2422	MCS8	10.94	11.54	14.26	26.67	1 Watt = 30.00 dBm	PASS
6	2437	MCS8	16.50	16.87	19.70	93.31	1 Watt = 30.00 dBm	PASS
9	2452	MCS8	9.15	9.24	12.21	16.62	1 Watt = 30.00 dBm	PASS

802.1	1n_VHT40M I	MIMO						
сн	Frequency (MHz)			wer 3m)	Total Peak Output Power	Total Peak Output Power	Limit	RESULT
					(dBm)	(mW)		
3	2422	MCS8	18.41	19.07	21.76	150.07	1 Watt = 30.00 dBm	PASS
6	2437	MCS8	23.37	23.64	26.52	448.48	1 Watt = 30.00 dBm	PASS
9	2452	MCS8	16.61	17.08	19.86	96.86	1 Watt = 30.00 dBm	PASS
802.1	1n_VHT40M I	MIMO				-	-	
сн	Frequency (MHz)	Data Rate	Po	Dutput wer Bm)	Avg. Output Power	Avg. Output Power	Limit	RESULT
	()		CH 0	CH 1	(dBm)	(mW)		
3	2422	MCS8	10.84	11.47	14.18	26.16	1 Watt = 30.00 dBm	PASS
6	2437	MCS8	16.42	16.76	19.60	91.28	1 Watt = 30.00 dBm	PASS
9	2452	MCS8	9.06	9.14	12.11	16.26	1 Watt = 30.00 dBm	PASS

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

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EIRP

802. ⁻	11b_MIMO											
СН	Frequency (MHz)	Data Rate	Avg. C Pov (dE	wer	Avg. Output Power	Total Peak Output Power	Antenna Gain (dBi)	EIRP (dBm)	Limit		t	RESULT
			CH 0	CH 1	(dBm)	(mW)						
1	2412	1	18.57	18.96	21.78	150.65	3.22	25.00	4W=	36	dBm	PASS
6	2437	1	18.67	18.96	21.83	152.33	3.22	25.05	4W=	36	dBm	PASS
11	2462	1	18.76	19.00	21.89	154.60	3.22	25.11	4W=	36	dBm	PASS

802 11a MIMO

002.												
сн	Frequency (MHz)	Data Rate	Avg. C Pov (dB	ver	Avg. Output Power	Total Peak Output Power	Antenna Gain (dBi)	EIRP (dBm)	Limit		RESULT	
			CH 0	CH 1	(dBm)	(mW)						
1	2412	6	15.89	16.60	19.27	84.52	3.22	22.49	4W=	36	dBm	PASS
6	2437	6	17.64	17.84	20.75	118.89	3.22	23.97	4W=	36	dBm	PASS
11	2462	6	16.35	16.39	19.38	86.70	3.22	22.60	4W=	36	dBm	PASS

802.	11n_HT20M MI	MO										
сн	Frequency (MHz)	Data Rate	_)utput wer Sm)	Avg. Output Power	Total Peak Output Power	Antenna Gain (dBi)	EIRP (dBm)	Limit		t	RESULT
			CH 0	CH 1	(dBm)	(mW)	(421)					
1	2412	MCS8	15.02	15.50	18.28	67.25	3.22	21.50	4W=	36	dBm	PASS
6	2437	MCS8	17.92	18.01	20.98	125.19	3.22	24.20	4W=	36	dBm	PASS
11	2462	MCS8	14.17	14.26	17.23	52.79	3.22	20.45	4W=	36	dBm	PASS

802.11n_VHT20M MIMO Avg. Output **Total Peak** Avg. Antenna Output EIRP Frequency Data Power Output RESULT CH Gain Limit (MHz) Rate (dBm) Power Power (dBm) (dBi) (dBm) (mW) CH 0 CH 1 2412 MCS8 14.67 14.95 17.82 60.57 3.22 21.04 4W= 36 dBm PASS 1 MCS8 17.64 17.87 4W= dBm PASS 6 2437 20.77 119.31 3.22 23.99 36 MCS8 14.19 4W =11 2462 14.08 17.15 51.83 3.22 20.37 36 dBm PASS

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802.1	11n_HT40M MII	MO										
сн	Frequency (MHz)	Data Rate	Avg.0 Pov (dB	•	Avg. Output Power	Total Peak Output Power	Antenna Gain (dBi)	EIRP (dBm)	Limit		RESULT	
			CH 0	CH 1	(dBm)	(mW)	(==-)					
3	2422	MCS8	####	####	14.26	26.67	3.22	17.48	4W=	36	dBm	PASS
6	2437	MCS8	####	####	19.70	93.31	3.22	22.92	4W=	36	dBm	PASS
9	2452	MCS8	9.15	9.24	12.21	16.62	3.22	15.43	4W=	36	dBm	PASS

802.1	11n_VHT40M M	MMO										
сн	Frequency (MHz)	Data Rate	Avg. C Pov (dE	•	Avg. Output Power	Total Peak Output Power	Antenna Gain (dBi)	EIRP (dBm)	Limit		RESULT	
			CH 0	CH 1	(dBm)	(mW)	(421)					
3	2422	MCS8	####	####	14.18	26.16	3.22	17.40	4W=	36	dBm	PASS
6	2437	MCS8	####	####	19.60	91.28	3.22	22.82	4W=	36	dBm	PASS
9	2452	MCS8	9.06	9.14	12.11	16.26	3.22	15.33	4W=	36	dBm	PASS

* Note: EIRP = Average Power + Gain



6DB & 99% BANDWIDTH MEASUREMENT 9

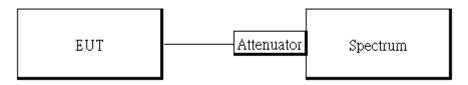
9.1 Standard Applicable

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

9.2 Measurement Equipment Used

	Conducte	ed Emission	Test Site							
EQUIPMENT MFR MODEL SERIAL LAST CAL DUE.										
TYPE		NUMBER	NUMBER	CAL.						
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	04/14/2016	04/13/2017					
DC Block	PASTERNACK	PE8210	RF29	12/12/2015	12/11/2016					
Attenuator	WOKEN	218FS-10	RF23	12/12/2015	12/11/2016					

9.3 Test Set-up



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.

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9.5 Measurement Result

6dB Bandwidth

802.11b Main

802.11b Mai	n			802.11b Aux1						
Frequency (MHz)	6d B Bandwid th (kHz)	Limit (kHz)	Result	Frequency (MHz)	6d B Bandwidth (kHz)	Limit (kHz)	Result			
2412	8105	> 500	PASS	2412	8098	> 500	PASS			
2437	8103	> 500	PASS	2437	8099	> 500	PASS			
2462	8103	> 500	PASS	2462	8097	> 500	PASS			

802.11g Main

802.11g Aux1

Frequency (MHz)	6d B Bandwid th (kHz)	Limit (kHz)	Result	Frequency (MHz)	6d B Bandwidth (kHz)	Limit (kHz)	Result
2412	15140	> 500	PASS	2412	15160	> 500	PASS
2437	15160	> 500	PASS	2437	15150	> 500	PASS
2462	15150	> 500	PASS	2462	15140	> 500	PASS

802.11 n HT20 Main

802.11 n HT20 Aux1

Fi	requency (MHz)	6d B Bandwid th (kHz)	Limit (kHz)	Result	Frequency (MHz)	6d B Bandwidth (kHz)	Limit (kHz)	Result
	2412	15170	> 500	PASS	2412	15170	> 500	PASS
	2437	15160	> 500	PASS	2437	15170	> 500	PASS
	2462	15710	> 500	PASS	2462	15170	> 500	PASS

802.11 n HT40 Main

802.11 n HT40 Aux1

Frequency (MHz)	6d B Bandwid th (kHz)	Limit (kHz)	Result	Frequency (MHz)	6d B Bandwidth (kHz)	Limit (kHz)	Result
2422	35140	> 500	PASS	2422	35160	> 500	PASS
2437	35140	> 500	PASS	2437	35150	> 500	PASS
2452	35140	> 500	PASS	2452	35160	> 500	PASS

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99% Bandwidth

802.11b Main		802.11b Aux1		
Frequency	99%Bandwidth	Frequency	99%Bandwidth	
(MHz)	(MHz)	(MHz)	(MHz)	
2412	13.598	2412	13.377	
2437	13.798	2437	13.462	
2462	14.209	2462	13.695	

802.11g Main		802.11g Aux1		
Frequency	99%Bandwidth	Frequency	99%Bandwidth	
(MHz)	(MHz)	(MHz)	(MHz)	
2412	16.347	2412	16.361	
2437	16.332	2437	16.448	
2462	16.368	2462	16.306	

802.11n_HT20	OM Main	802.11n_HT20M Aux1		
Frequency 99%Bandwidth		Frequency	99%Bandwidth	
(MHz)	(MHz)	(MHz)	(MHz)	
2412	17.602	2412	17.484	
2437	17.607	2437	17.468	
2462	17.558	2462	17.566	

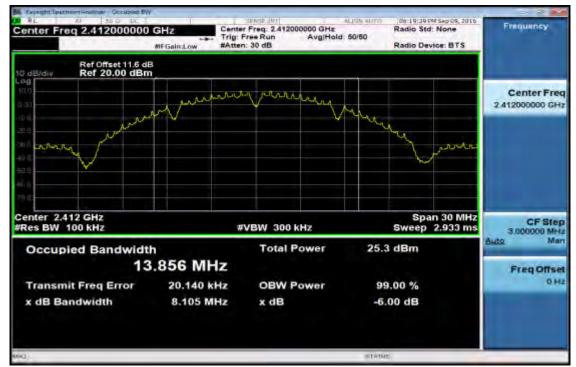
802.11n_HT40	OM Main	802.11n_HT40M Aux1		
Frequency 99%Bandwidth		Frequency	99%Bandwidth	
(MHz)	(MHz)	(MHz)	(MHz)	
2422	36.073	2422	35.914	
2437	35.943	2437	36.023	
2452	36.069	2452	36.009	

*Refer to next page for plots

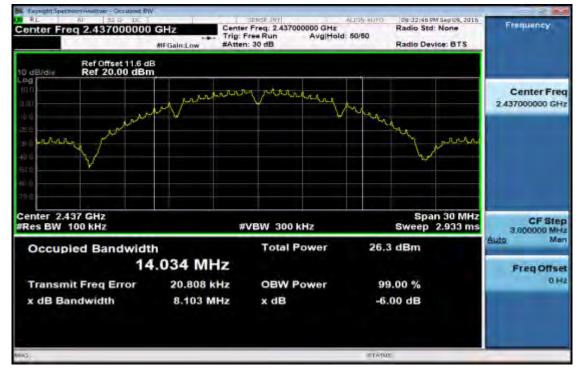
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802.11b (Main) 6dB Band Width Test Data CH-Low



6dB Band Width Test Data CH-Mid

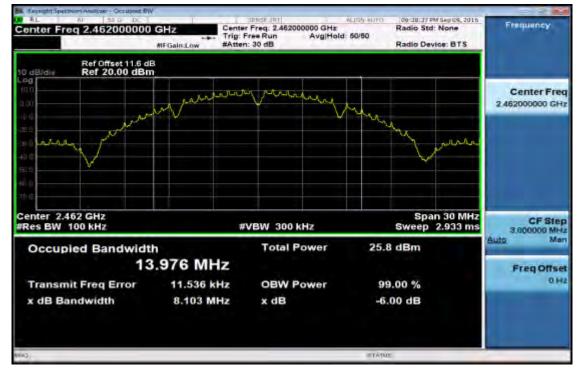


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6dB Band Width Test Data CH-High



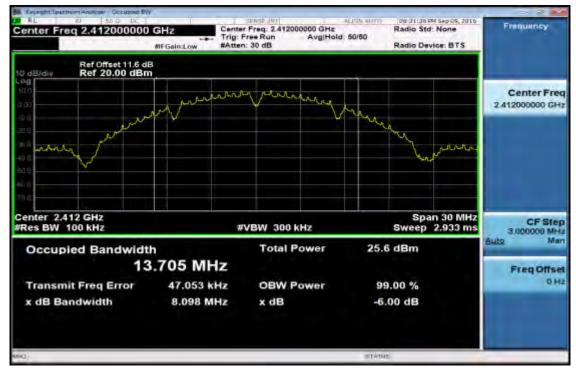
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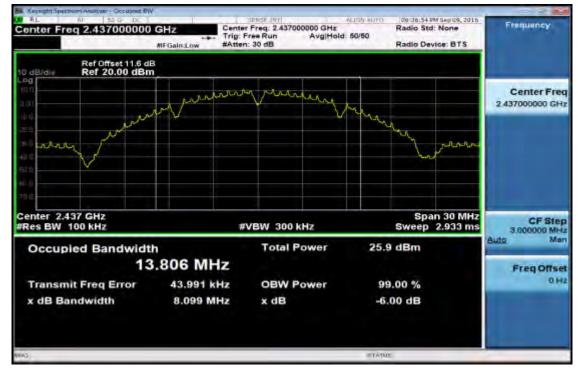
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802.11b (Aux) 6dB Band Width Test Data CH-Low



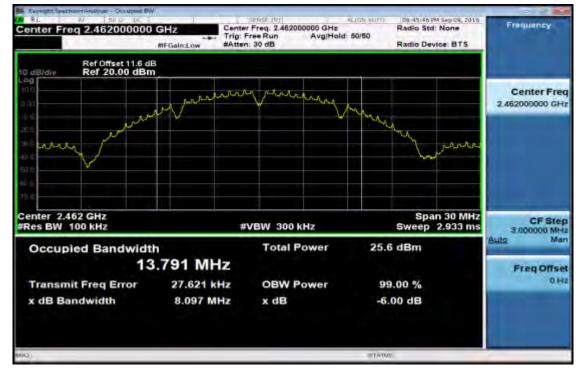
6dB Band Width Test Data CH-Mid



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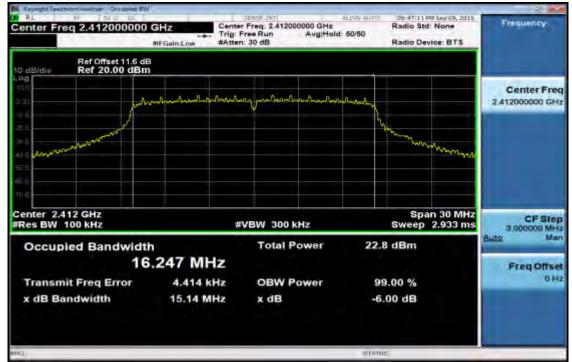


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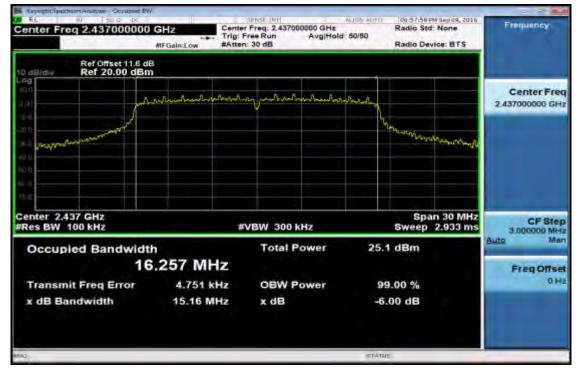
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802.11g (Main) 6dB Band Width Test Data CH-Low



6dB Band Width Test Data CH-Mid



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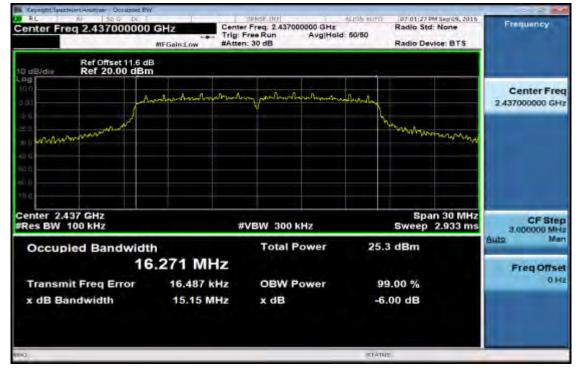
Transmit Freq Error 2		2.010	5 kHz	OBW x dB	OBW Power x dB		99.00 % -6.00 dB				0 HJ		
Occupied Bandwidth 16.251 MHz					IHz				23.5 dBm			Auto Mar Freg Offse	
Center 2.4 #Res BW 1					#	VBW 300	kHz				n 30 MHz 2.933 ms	CF1 3,000000	MH
-10 0 -20 0 -20 0 -40 0 -50 0 -50 0 -10 0 -70 0	-	2								Nerrow Marrow	Manton		
10 dB/div Log 10 0	Ref Offset Ref 20.0		Bm	manhood	man	re not the	Annala	andreak				Center 2.462000000	
Center Fre	g 2.46200	000		Gain:Low	Trig: I	Freq: 2.462 Free Run :: 30 dB	000000 GHz AvgiHol			Radio Std Radio Der		Frequency	



802.11g (Aux) 6dB Band Width Test Data CH-Low



6dB Band Width Test Data CH-Mid



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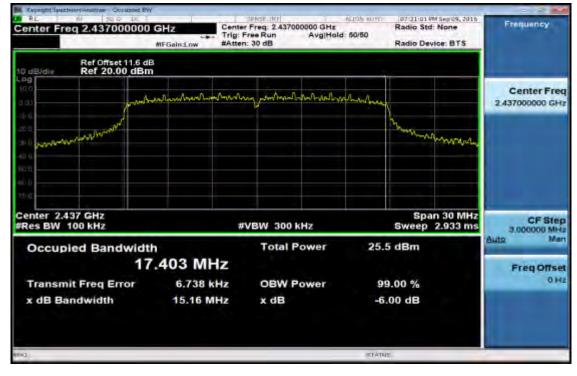
		4.792 15.14		OBW x dB			99.00 % -6.00 dB				0 H.		
Occupi	Occupied Bandwidth 16.233 MHz					Total Power 2		23.3 dBm			Auto M Freg Offs	Ma Offse	
Center 2.40 #Res BW 1					#	VBW 300	kHz				n 30 MHz 2.933 ms	3,000	OOD MI
10.0 0.00 0.01 0.0 0.0 0.0 0.0 0.	and the second s		are lla	, and transfer	nel-milo	a factoric	AronAnaeth	ver on An		Wenterer	mana	Cen 2.462000	ter Fre
10 dB/div	Ref Offset Ref 20.0				ī.	_			-				
RL III Sin Contention Sin Content and the latence Auton Harrow Instant Sin								I: None	Frequ	Incy			



802.11n 20M (Main) 6dB Band Width Test Data CH-Low

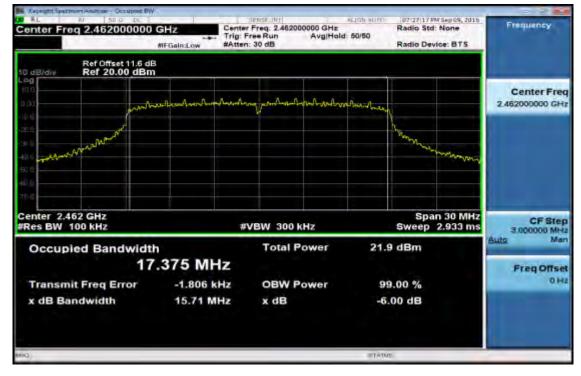


6dB Band Width Test Data CH-Mid



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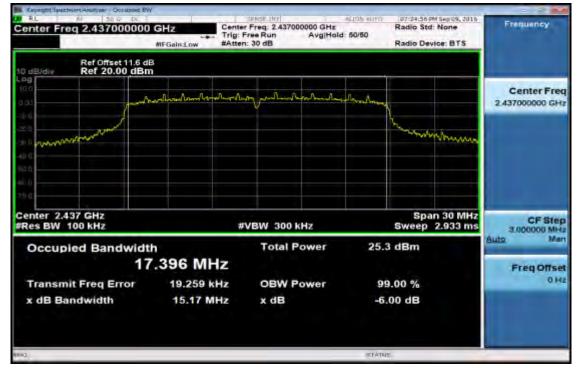
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802.11n 20M (AUX1) 6dB Band Width Test Data CH-Low

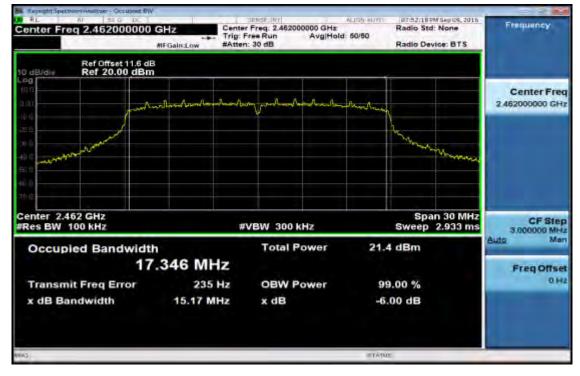


6dB Band Width Test Data CH-Mid



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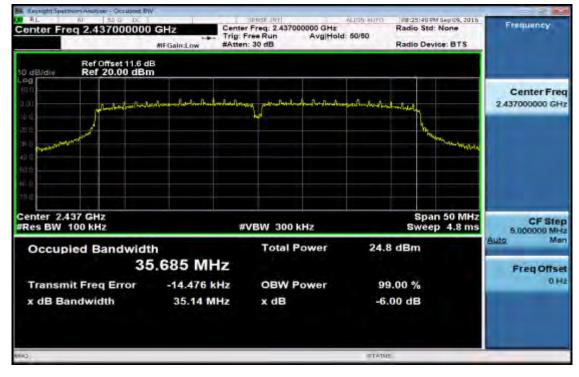
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802.11n 40M (Main) 6dB Band Width Test Data CH-Low

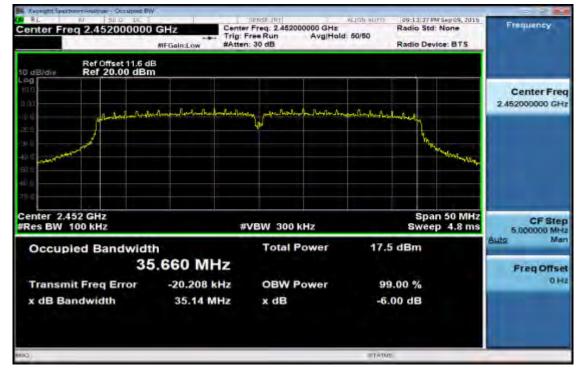


6dB Band Width Test Data CH-Mid



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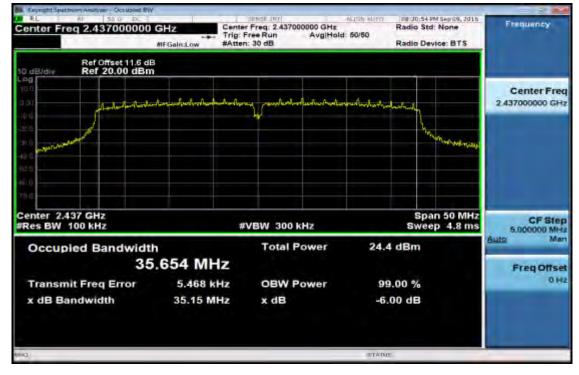
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802.11n 40M (AUX1) 6dB Band Width Test Data CH-Low

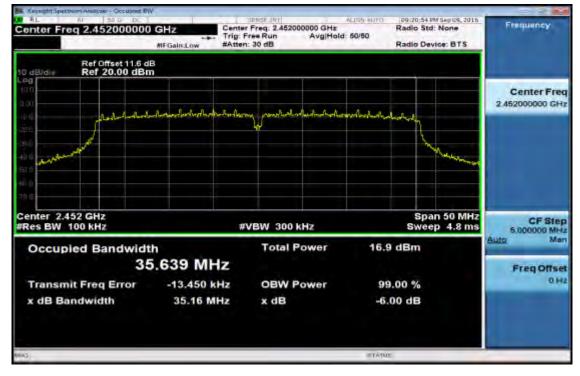


6dB Band Width Test Data CH-Mid



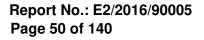
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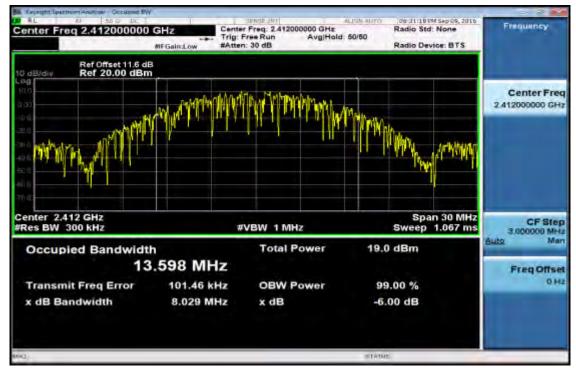
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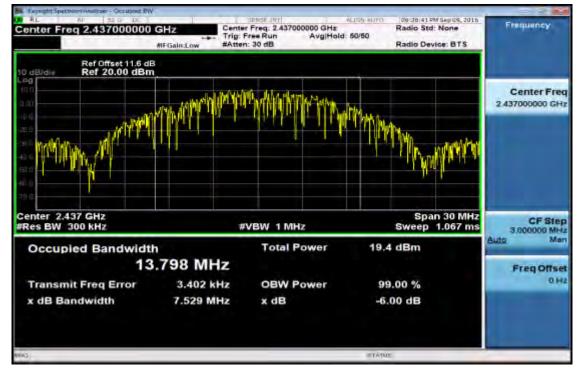




802.11b (Main) 99% Band Width Test Data CH-Low

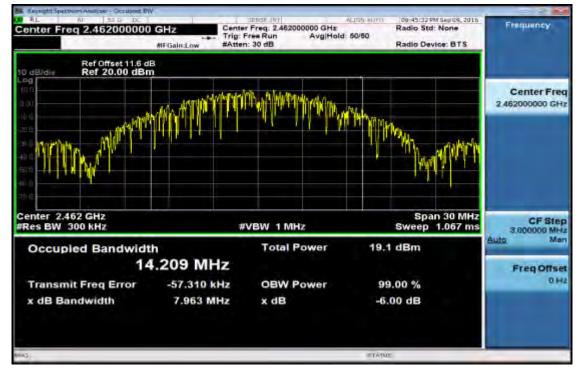


99% Band Width Test Data CH-Mid



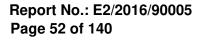
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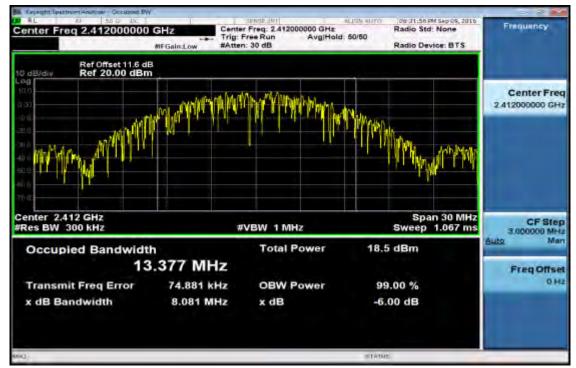
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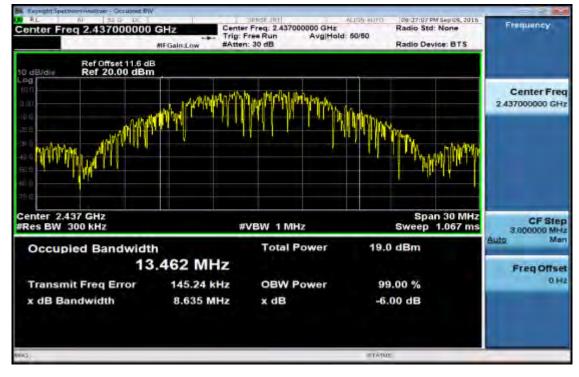




802.11b (Aux) 99% Band Width Test Data CH-Low

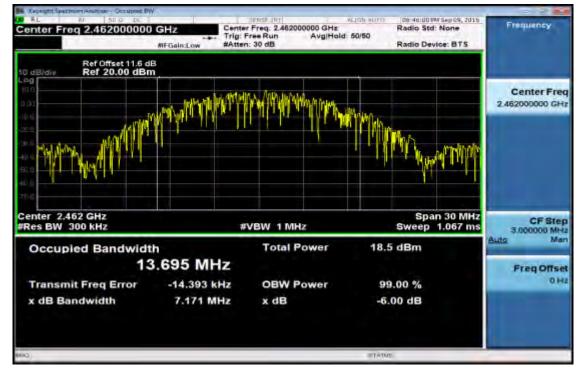


99% Band Width Test Data CH-Mid



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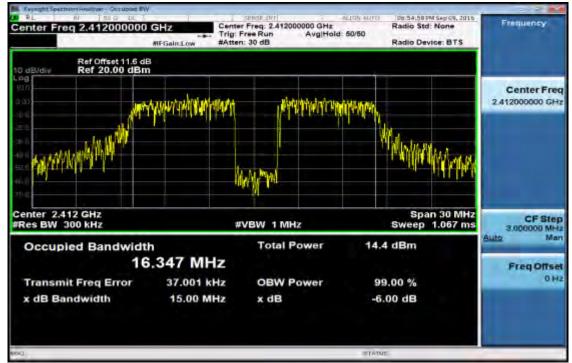


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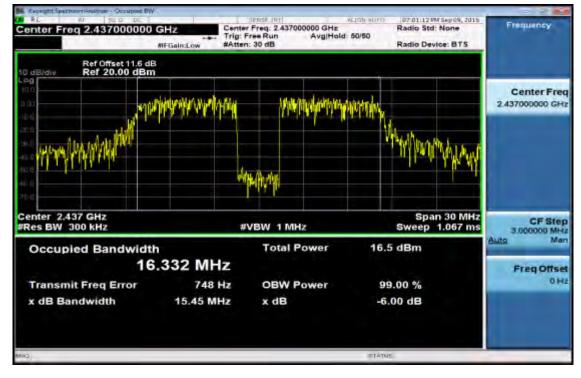
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802.11g (Main) 99% Band Width Test Data CH-Low

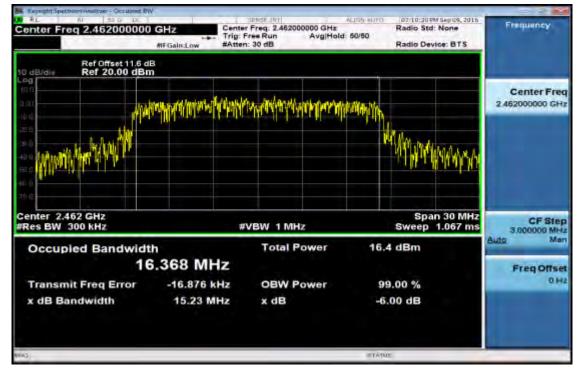


99% Band Width Test Data CH-Mid



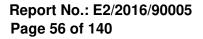
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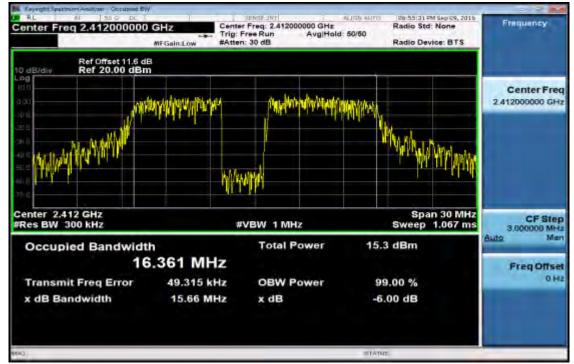
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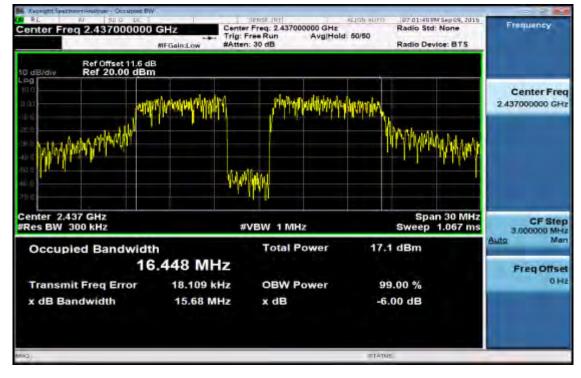




802.11g (Aux) 99% Band Width Test Data CH-Low

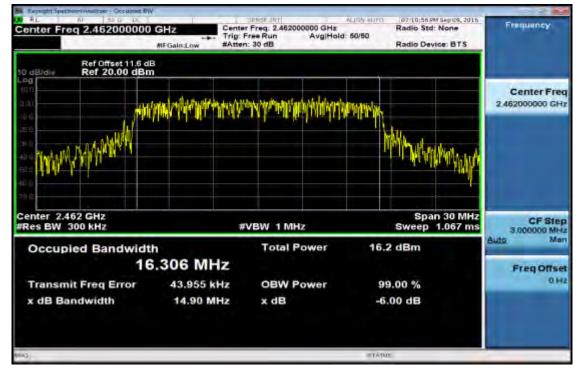


99% Band Width Test Data CH-Mid



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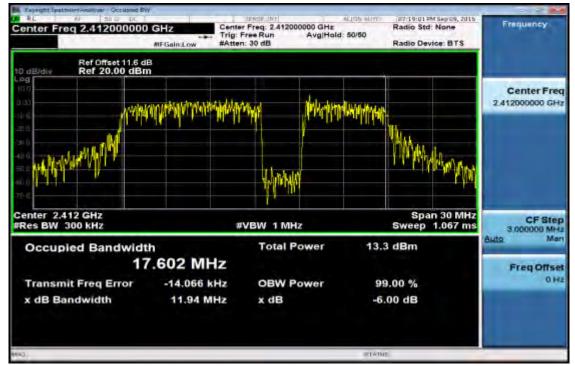


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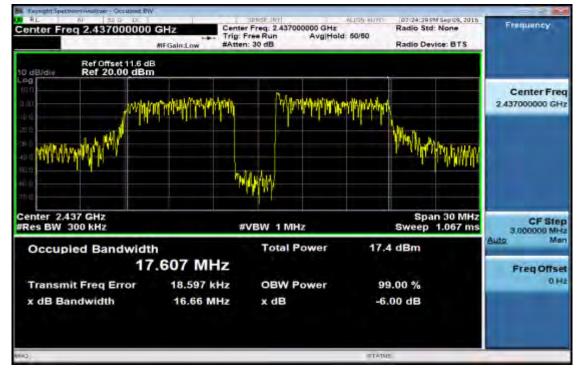
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802.11n 20M (Main) 99% Band Width Test Data CH-Low

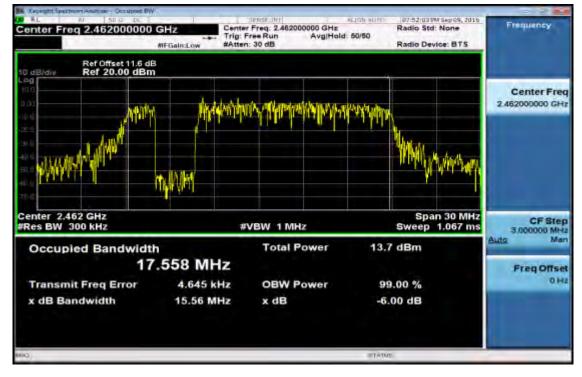


99% Band Width Test Data CH-Mid



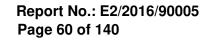
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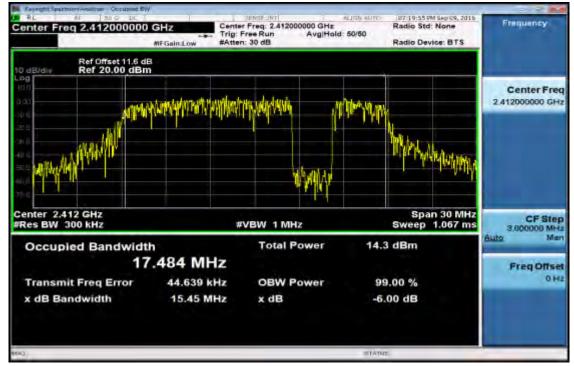
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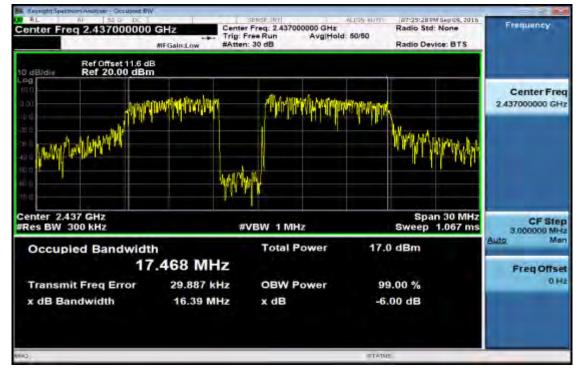




802.11n 20M (AUX1) 99% Band Width Test Data CH-Low

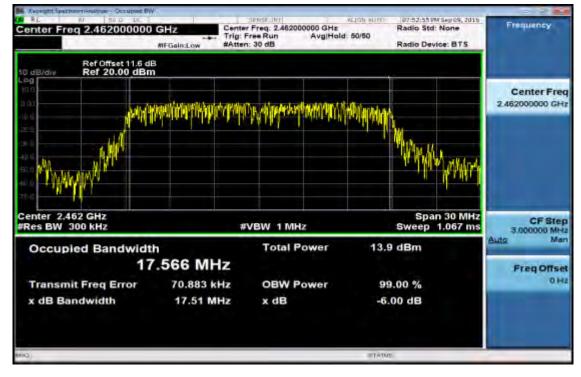


99% Band Width Test Data CH-Mid



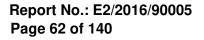
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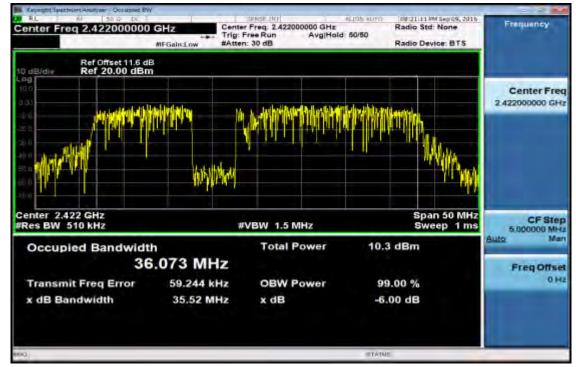
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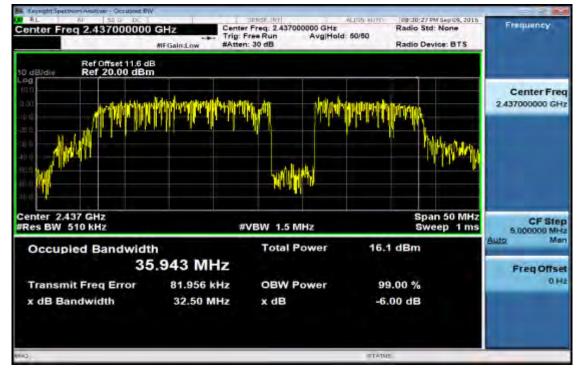




802.11n 40M (Main) 99% Band Width Test Data CH-Low

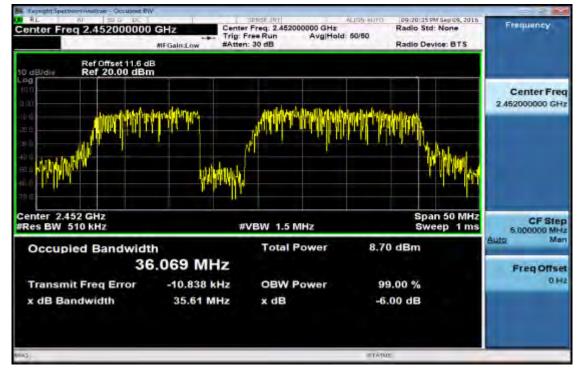


99% Band Width Test Data CH-Mid



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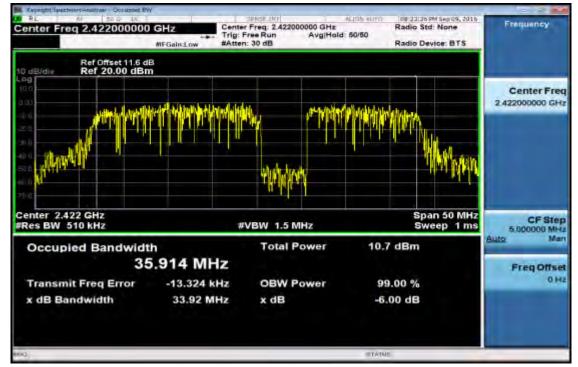


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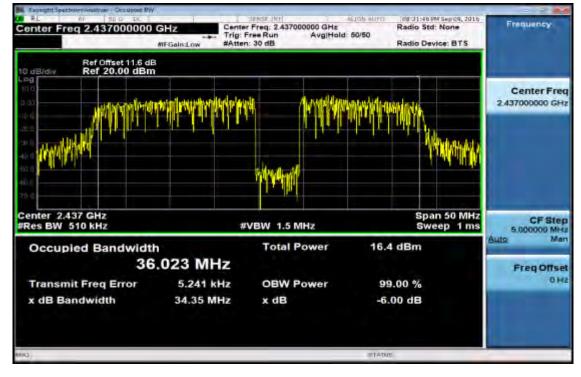
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802.11n_40M (AUX1) 99% Band Width Test Data CH-Low

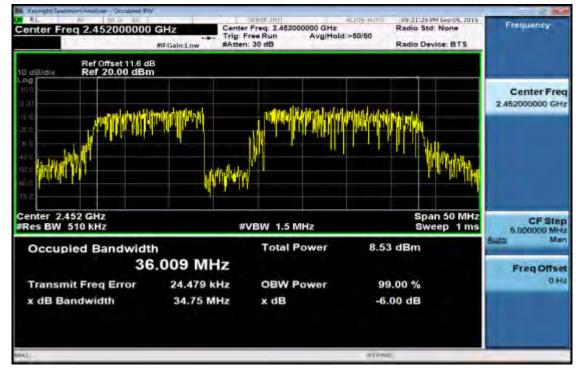


99% Band Width Test Data CH-Mid



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10 CONDUCTED BAND EDGES AND SPURIOUS EMISSION MEASUREMENT

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.

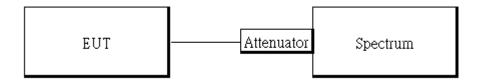
In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a) & RSS-Gen §8.10, must also comply with the radiated emission limits specified in §15.209(a) & RSS-Gen §8.8.

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(4), 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.

10.2 Measurement Equipment Used

Conducted Emission Test Site									
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.				
TYPE		NUMBER	NUMBER	CAL.					
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	04/14/2016	04/13/2017				
DC Block	PASTERNACK	PE8210	RF29	12/12/2015	12/11/2016				
Attenuator	WOKEN	218FS-10	RF23	12/12/2015	12/11/2016				

10.3 Test SET-UP



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10.4 Measurement Procedure

Conducted Band Edge:

- 1. To connect Antenna Port of EUT to Spectrum.
- 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. 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:

- To connect Antenna Port of EUT to Spectrum
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance.
- 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.

10.5 Measurement Result

- 1. Refer to next page spectrum analyzer data chart and tabular data sheets.
- 2. For restricted Band Edge Limit, please refer to section 12.5 of this report for measurement result.

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802.11b **Band Edges Test Data CH-Low**



Band Edges Test Data CH-High



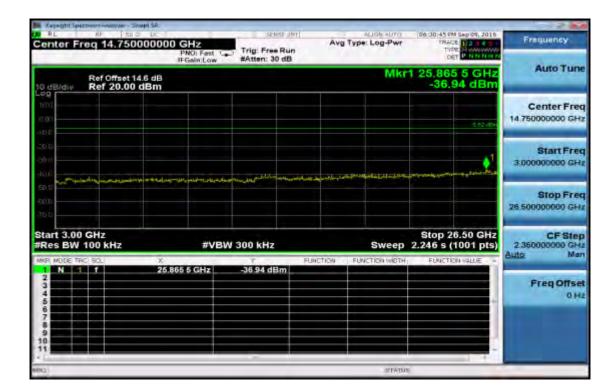
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802.11b **Spurious Emission Test Data CH-Low**

Repeight Spectreter Analyzer - Strept SP			
Center Freq 1.5150000		AUGVIEUTO (00:30:27 PM Sep 99, 2016 Avg Type: Log-Pwr TRACE 12 2 4 Type: Dog-Pwr TRACE 12 2 4	Frequency
Ref Offset 14.6 d	Auto Tun		
		13,48 dBm	Center Fre 1.515000000 GH
20-D 90-0		مورد بر المراجع	Start Fre 30,00000 MH
50 D	۵۰٬۰۰۰ میلومه و به وی ۲ - ماجوه ادامه دار <mark>سته پیرمه داده درست</mark>		Stop Fre 3.00000000 GR
start 30 MHz Res BW 100 kHz	#VBW 300 kHz	Stop 3.000 GHz Sweep 283.9 ms (1001 pts)	
MRR. MODE TRC. SCL.	X Y FUILTIC 2.411 9 GHz 13.48 dBm	DN FUNCTION WEITH, FUNCTION VALUE	Freq Offs 01
(a)		STATUS	

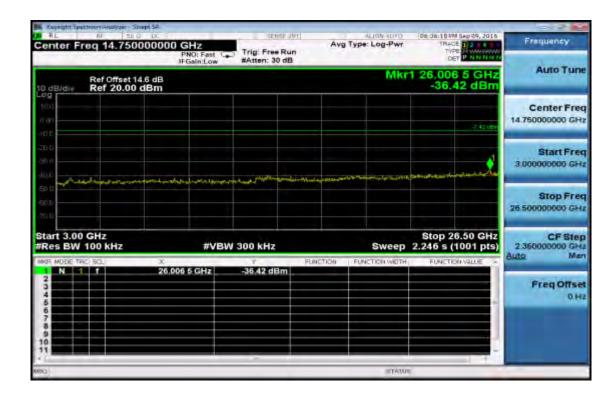


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Spurious Emission Test Data CH-Mid

Keynight Spactram Analyzer - Skapt SA			Contractor and the second	100 P				
enter Freq 1.515000000 G	NO: Fast C Trig: Free Run	Avg Type: Log-Pwr	06:35:33 PM Sep 04, 2016 TRACE 1 2 3 4 5 TVPE 14 00000000000000000000000000000000000	Frequency				
IFGain:Low #Atten: 30 dB Mkr1 2,438 7 GHz Ref Offset 14.6 dB Mkr1 2,58 dBm 12,58 dBm								
eg (0) 0 01			-7,42 (6)	Center Fre 1.515000000 GH				
50 D				Start Fre 30.000000 MH				
50 D	وي المراجعة المراجعة المراجعة المراجعة الم	مىدەتلىتەرلىلارەتچەنبىيەتلەتىيەتى مۇلسۇلەت ولىس	**************************************	Stop Fre 3,000000000 GH				
start 30 MHz Res BW 100 kHz	#VBW 300 kHz	Sweep 2	Stop 3.000 GHz 83.9 ms (1001 pts)	CF Ste 297.000000 MH				
RR MODE TRC SCL X	7 GHz 12.58 dBm	FUNCTION FUNCTION WETH	FUNCTION VALUE	Auto Ma				
2 3 4 5 6 7 8 9				Freq Offse 0 H				
5	-	STATUS	1.1					



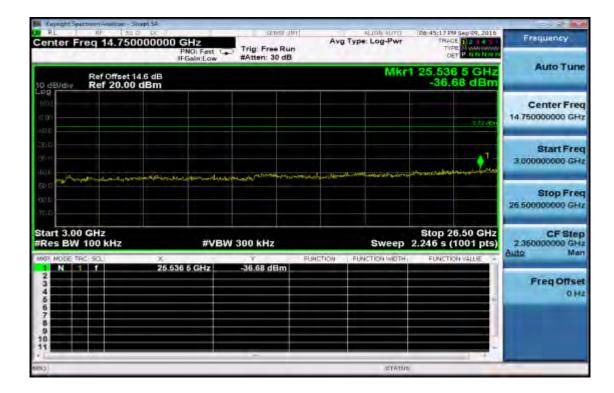
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Spurious Emission Test Data CH-High

Repeated Spectrolers Analyzer - Sharpt SA					
enter Freq 1.515000000	PNO: Fast C Trig:	Free Run	Avg Type: Log-Pwr	C0:45:03 PM Sep 09, 201 TRADE 1 2 1 4 TYPE NUMBER DET P N N N	Frequency
Ref Offset 14.6 dB	Auto Tuni				
				272/8	Center Fre 1.515000000 GH
					Start Fre 30,000000 MH
10 marylan analar an dan dan dan dan dan dan dan dan dan	والمحمد المراحي المرجوع ومراجع	and the state of the second	add yn anwrae yn ar yw ar y Yw ar yw a	a, jugaranta and adark	Stop Fre 3.000000000 GH
rant 30 MHz Res BW 100 kHz	#VBW 300 k			Stop 3.000 GH 83.9 ms (1001 pts	
1 N 1 f 2.4	162 4 GHz 13.2	FLINC B dBm	TION : FUNCTION WETH:	FUNCTION VALUE	Freq Offse 0 H
6 7 8 9 9 1 1					
a .			STATUS		-



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802.11g **Band Edges Test Data CH-Low**



Band Edges Test Data CH-High



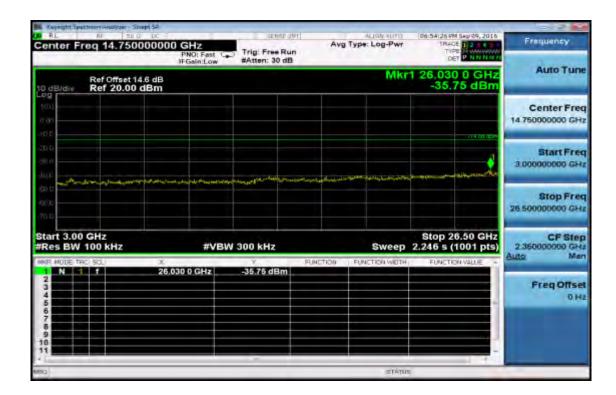
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802.11g **Spurious Emission Test Data CH-Low**

Keynight Spectram Analyzer - Skrept S RL R/ 150 G		and the second second		06 54:01 PM Sep 05, 2016	
enter Freq 1.5150000		Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr	THACE 1 2 14 1 THACE 1 2 14 1 TYPE NORMALINE	Frequency
Ref Offset 14.6 o	dE	ANULAIL OF UD	M	r1 2.409 0 GHz 5.92 dBm	Auto Tuni
					Center Fre 1.515000000 GH
60 01				-14 US DEAR	Start Fre 30,00000 MH
0 0 - 4 - 4	فسيقدي فارغاني ومستوقاتهم	a for a for the second s	an a		Stop Fre 3.000000000 GH
tart 30 MHz Res BW 100 kHz	#VBV	/ 300 kHz	Sweep 2	Stop 3.000 GHz 83.9 ms (1001 pts)	
KR MODE TRC SOL	× 2.409 0 GHz	Y F. 5.92 dBm	NETION FUNCTION WETH	FUNCTION VALUE	Auto Ma
2 3 4 5 6 7 8 9 9					Freq Offse 0 H
			STÁTU		



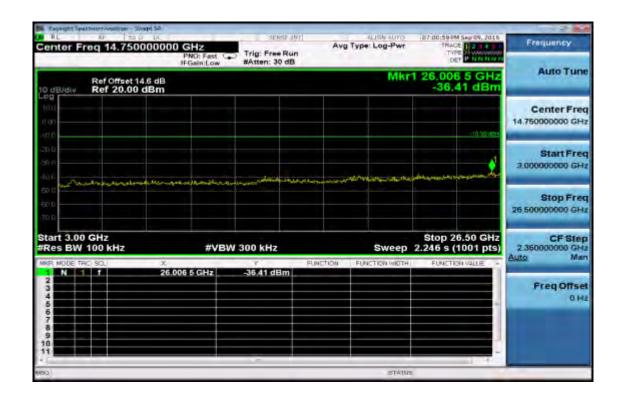
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Spurious Emission Test Data CH-Mid

Keynight Spectromer-Analyzer - Skrept SA			and the second		10.12 M
Center Freq 1.515000000	GHZ PNO: Fast	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr	07:00:44 PM Sep 09, 2016 TRACE 1 2 3 4 7 P TYPE NUMBER DET P NO TRACE	Frequency
Ref Offset 14.6 dB	- Contractor		Mk	r1 2.429 8 GHz 9.02 dBm	Auto Tune
1001 1001 1001				-0.0000	Center Fred 1.515000000 GH
26.0 \$911					Start Free 30,000000 MHz
50 D - Annou-publica/80(mhilling) (Barrish) 60 D 70 D		and an	a yan belen in an ampuna da bahan manyar		Stop Free 3.000000000 GH
Start 30 MHz #Res BW 100 kHz	#VBW	300 kHz	Sweep 2	Stop 3.000 GHz 83.9 ms (1001 pts)	CF Step 297.000000 MHz Auto Mar
	129 8 GHz	9.02 dBm			Freq Offset 0 Hi
7 8 9 10 11					
53			STATU		



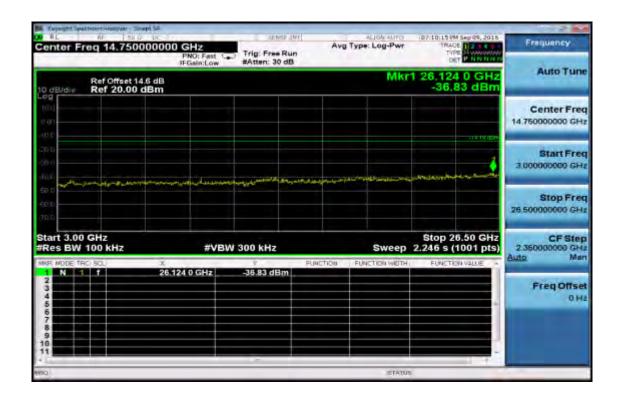
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Spurious Emission Test Data CH-High

RL AF Sugart Street Street SA		Sanes Juri	ALIGN AUTO	07:10:01 PM Sep 09, 2016	
enter Freg 1.51500000	PNO: Fast	1.000 C	Avg Type: Log-Pwr	TRACE 12 4 4 11 TYPE Disastering DET PINN NOT	Frequency
Ref Offset 14.6 dB			Mk	r1 2.459 5 GHz 5.82 dBm	Auto Tun
1001 1001				1	Center Fre 1.515000000 GH
2010 2011					Start Fre 30,000000 MH
1001 50 D - Alexandrik (Alexandrik) (Alexan	معرضا سلالة المراسيسة	an shuman an a		e Hannerstaltening an star	Stop Fre 3.000000000 GH
Res BW 100 kHz	#VBW	300 kHz		Stop 3.000 GHz 83.9 ms (1001 pts) FUNCTION VALUE	CF Ste 297.000000 Mit Auto Mit
	.459 5 GHz	5.82 dBm	ANCTION FUNCTION WETH	FUNCTION VALUE	Freq Offs 01
7 8 9 10 11					

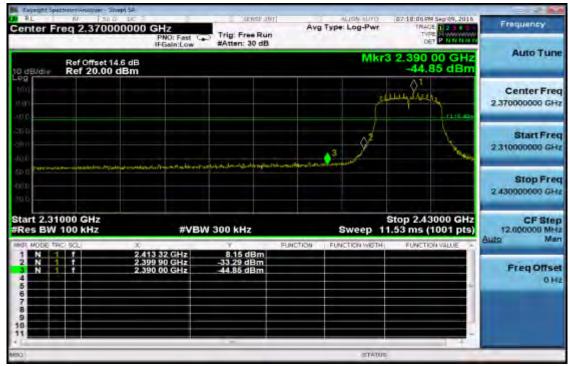


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802.11n HT20 **Band Edges Test Data CH-Low**



Band Edges Test Data CH-High



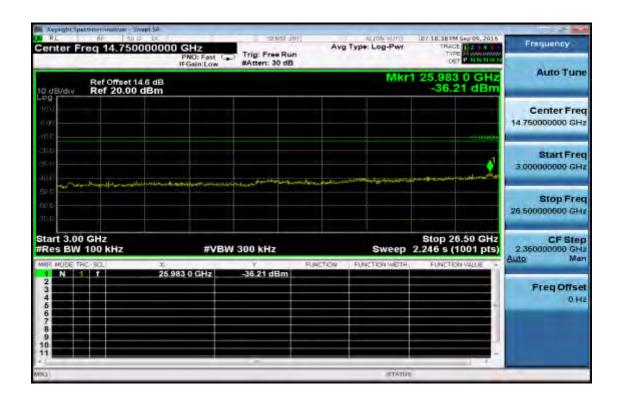
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802.11n HT20 **Spurious Emission Test Data CH-Low**

enter Freq 1.51500000	PNO: Fast C Trig: Free Run	Avg Type: Log-Pwr	07:10:24 PM Sep 09, 2016 TRACE 2 2 4 4 5 TVPE PL MANAGEMENT	Frequency
Ref Offset 14.6 dE		Mkr	1 2.411 9 GHz 7.00 dBm	Auto Tuni
			1	Center Free 1.515000000 GH
00 00			المحمود ورواح محمد	Start Fre 30.000000 MH
0 C MARANANANANANANAN 0 D 0 D	n an	hay A water of the lay		Stop Fre 3.000000000 GH
tart 30 MHz Res BW 100 kHz	#VBW 300 kHz		Stop 3.000 GHz 3.9 ms (1001 pts)	CF Ste 297.000000 MH Auto Ma
1 N 1 f 23 4 5 6 6 7 7 8 9 0	2.411 9 GHz 7.00 dBm			Freq Offse 0 H



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Spurious Emission Test Data CH-Mid

RL N/ Spectration - Shapt SA	Street and	6LIGH NUTO (07-23:496M Sept09, 2016	
enter Freg 1.515000000		Avg Type: Log-Pwr THACE TO A GROUP	Frequency
Ref Offset 14.6 dB	In Salery Doly	Mkr1 2.435 7 GHz 9.67 dBm	Auto Tun
001 001 000		-11/23 (53)	Center Fre 1.515000000 GH
20.0 			Start Free 30,000000 MH
50 C	nan da kana yang da dan dan dan da makata da panang ka	na po na	Stop Fre 3.000000000 GH
Start 30 MHz #Res BW 100 kHz	#VBW 300 kHz	Stop 3.000 GHz Sweep 283.9 ms (1001 pts)	CF Ster 297.000000 MH Auto Ma
	.435.7 GHz 9.67 dBm		Freq Offse 0H
9 10 11	~	STATUS	

UPM Sep 09, 2016	07:24:109	ALTON AUTO		31181		2 DL	80 50	RL
	TY	Type: Log-Pwr			Fast 😱	PNC	eq 14.750	enter Fi
59 5 GHz 6.76 dBm	1 25,95	Mkr						dB/div
-10.03 93%								
		والملاقع مريد مريد مريد						(D) (1) (1)
					7.347463.34	19 194 mart - 414 - 414 - 414 - 414	6-1-141/41/4-1-1-	
s (1001 pts)	2.246 s	and the second	Election	0 kHz	#VBW	X	100 kHz	art 3.00 les BW
				16.76 dBm	iHz	and the second se	1	N 1
	9 5 GHz 76 dBm	1 25,959 5 GHz -36.76 dBm -1103 954	Mkr1 25,959 5 GHz -36,76 dBm -1103 954 -1103 954 -1100 955 -1100 955 -1100 955 -1100 955 -1100 955 -1100 955 -1100 9	Avg Type: Log-Pwr B Mikr1 25,959 5 GHz -36,76 dBm -100 954 -100 955 -100 954 -100 955 -100 9	Avg Type: Log-Pwr #Atten: 30 dB Mkr1 25,959 5 GHz -36.76 dBm -1003 954 -1003 955 -1003 9555 -1003 955 -1003 955 -1003 955 -10	Zz Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr UP Trig: Free Run UP Mikr1 25,959 5 GHz -36.76 dBm	Augustation (27.34.1998 3.9799, 2019) PND: Fast PFGalm:Low Trig: Free Run #Atten: 30 dB Augustation (27.34.1998 3.9799, 2019) Avg Type: Log-Pwr TRade Trig: Free Run #Atten: 30 dB Augustation (27.34.1998 3.9799, 2019) TRade Trig: Free Run #Atten: 30 dB Augustation (27.34.1998 3.9799, 2019) Trig: Free Run #Atten: 30 dB Augustation (27.34.1998 3.9799, 2019) Trig: Free Run #Atten: 30 dB Augustation (27.34.1998 3.9799, 2019) Avg Type: Log-Pwr Trig: Free Run #Atten: 30 dB Augustation (27.34.1998 3.9799, 2019) Trig: Free Run #Atten: 30 dB Augustation (27.34.1998 3.9799, 2019) Avg Type: Log-Pwr Trig: Free Run #Atten: 30 dB Augustation (27.34.1998) Avg Type: Log-Pwr Trig: Free Run *Atten: 30 dB Augustation (27.34.1998 3.9799, 20.999	PNO: Fast IFGSIN:Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr 100 mm Trig: Free Run Type: Log-Pwr 200 dBm Ref Offset 14.6 dB Ref 20.00 dBm Mkr1 25,959 5 GHz -36.76 dBm GHz 100 kHz Stop 26,50 GHz Sweep 2.246 s (1001 pts)

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Spurious Emission Test Data CH-High

Revenue of the second s				1979 M
RL III 1.515000000	PNO: Fast Trig: Free Run IFGain:Low #Atten: 30 dB	Avg Type: Log-Pwr	51:36 PM Sep 09, 2018 TRACE 1 2 4 4 5 TYPE NUMBER OF DET PININ RUME	Frequency
Ref Offset 14.6 dB	Control Protection	Mkr1 2	2.459 5 GHz 4.72 dBm	Auto Tune
(0) (0)				Center Free 1.515000000 GH
100 200 3011			-15.22 den	Start Fre 30.000000 MH
60 0 	م يه جو معني المراجع الم المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع الم المراجع ا	ne ni prin de la disconte principal de la construcción de la construcción de la construcción de la construcción		Stop Free 3,000000000 GH
Start 30 MHz #Res BW 100 kHz	#VBW 300 kHz	Sweep 283.9	top 3.000 GHz ms (1001 pts)	CF Step 297,000000 MH Auto Me
	.459 5 GHz 4.72 dBm		-	Freq Offse 0 H
8 9 10 11 11	-	STÁTUS		

RL RF SLO DC	SENSE JUT	ALIGN NOLA	07:51:49 PM Sep 09, 2016	Frequency
enter Freq 14.7500000	PNO: Fast Trig: Free Run IFGain:Low #Atten: 30 dB	Avg Type: Log-Pwr	TYPE Noncontraction	Frequency
Ref Offset 14.6 dB		Mkr	1 25,912 5 GHz -36,57 dBm	Auto Tun
00) (0)				Center Fre
00			14.20 dbs	
	والمراجعة والمحالية والمراجع والمراجع والمراجع	مالال بالمراجع المراجع		Start Fre 3.000000000 GH
				Stop Fre 26 50000000 Gi
tart 3.00 GHz Res BW 100 kHz	#VBW 300 kHz		Stop 26.50 GHz 2.246 s (1001 pts)	CF Ste 2.35000000 GR
KR MODE TRC SOL X	.912 5 GHz -36.57 dBm	FUNCTION FUNCTION WOTH	FUNCTION VALUE	
2 3 4 5 5 7 8			+	Freq Offs 01
9				



802.11n HT40 **Band Edges Test Data CH-Low**



Band Edges Test Data CH-High



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802.11n HT40 **Spurious Emission Test Data CH-Low**

	2 DL	TWL ISHES	ALIG5 ADIO	The second second second	Sep109, 2016	Frequency
enter Freq 1.5150	PNO: Fast	Trig: Free Run	Avg Type: Log-Pwr		12349	rrequency
	IFGain:Low	#Atten: 30 dB		DET	PRINKING	Auto Tu
Ref Offset 14	4.6 dB		MK	r1 2,426		Autoru
dB/div Ref 20.00	dBm			0.8	7 dBm	-
ni				1		Center Fr
071				2		1.515000000 G
0				0		
0					-19.11.054	Start Fr
					_	30.000000 M
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California and the second seco	Contraction Resident constraints	AND REAL PROPERTY OF THE PARTY	معتريقا والمواست والمترك والمراجد والمراجد			
(p						Stop Fr 3.00000000 G
0						3,000000000
art 30 MHz				Stop 3	000 GHz	CF St
les BW 100 kHz	#VBW	300 kHz	Sweep 2	83.9 ms (1		297.000000 M
R MODE TRC SOL	x		NCTION FUNCTION WETH	FUNCTION		Auto M
N 1 f	2.426 8 GHz	0.87.dBm				
						Freq Offs
						0
					1	
				_		
Keenott Seastern - seaster - Se	Avent SA		STATU	(- 24
Keynight Spectralm Analyzer - Si	000000 GHz	striet awr	erana Autok suro Avg Type: Log-Pwr	00-20:07 PM	5ag 09, 2016	Frequency
Keynight Spectroler Analyzer - Sy R.L. RJ So C	a bu	Strict Jur Trig: Free Run #Atten: 30 dB	ALIGN IUTO	00-20:07 PM	Sep 69, 2016	
RL R 10 RL R 10 Phter Freq 14.750	0000000 GHz PNO: Fast IFGain:Low	Trig: Free Run	Avg Type: Log-Pwr	08-20:07 PM TRACI TYP DE 1 25 930	P NN NIN W	Frequency Auto Tu
RL III III Content of the second se	000000 GHz PN0: Fast Ca IFGain:Low 4.6 dB	Trig: Free Run	Avg Type: Log-Pwr	08-20:07 PM TRACI TYP DE 1 25 930	P N N RANK	
RL III BI C RL III BI C enter Freq 14.750 Ref Offset 1-	000000 GHz PN0: Fast Ca IFGain:Low 4.6 dB	Trig: Free Run	Avg Type: Log-Pwr	08-20:07 PM TRACI TYP DE 1 25 930	P NN NIN W	Auto Tu
RL Ref Offset 1 RL Ref Offset 1 dEVduy Ref 20.00	000000 GHz PN0: Fast Ca IFGain:Low 4.6 dB	Trig: Free Run	Avg Type: Log-Pwr	08-20:07 PM TRACI TYP DE 1 25 930	P NN NIN W	Auto Tu Center Fr
RL Ref Offset 1. RL Ref Offset 1. Ref 20.00	000000 GHz PN0: Fast Ca IFGain:Low 4.6 dB	Trig: Free Run	Avg Type: Log-Pwr	08-20:07 PM TRACI TYP DE 1 25 930	P NN NIN W	Auto Tu Center Fr
RL Ref Offset 1.	000000 GHz PN0: Fast Ca IFGain:Low 4.6 dB	Trig: Free Run	Avg Type: Log-Pwr	08-20:07 PM TRACI TYP DE 1 25 930	P NN NIN W	Auto Tu Center Fr 14.750000000 d
RE Ref Offset 1.	000000 GHz PN0: Fast Ca IFGain:Low 4.6 dB	Trig: Free Run	Avg Type: Log-Pwr	08-20:07 PM TRACI TYP DE 1 25 930	P NN ANA	Auto Tu Center Fr 14.75000000 d Start Fr
Ref Offset 1- RE Ref Offset 1- Ref Offset 1- Ref 20.00	4.6 dB	Trig: Free Run #Atten: 30 dB	Aug Type: Log-Pwr	08-20:07 PM TRACI TYP DE 1 25 930	P NN ANA	Auto Tu Center Fr 14.75000000 d Start Fr
Ref Offset 1- RE Ref Offset 1- Ref Offset 1- Ref 20.00	000000 GHz PN0: Fast Ca IFGain:Low 4.6 dB	Trig: Free Run #Atten: 30 dB	Aug Type: Log-Pwr	08-20:07 PM TRACI TYP DE 1 25 930	P NN ANA	Auto Tu Center Fr 14.75000000 6 Start Fr 3.00000000 6
Ref Offset 1. Ref 20.00	4.6 dB	Trig: Free Run #Atten: 30 dB	Aug Type: Log-Pwr	08-20:07 PM TRACI TYP DE 1 25 930	P NN ANA	Auto Tu Center Fr 14.75000000 0 Start Fr 3.00000000 0 Stop Fr
Ref Offset 1. Ref 20.00	4.6 dB	Trig: Free Run #Atten: 30 dB	Aug Type: Log-Pwr	08-20:07 PM TRACI TYP DE 1 25 930	P NN ANA	Auto Tu Center Fr 14.750000000 0 Start Fr 3.000000000 0 Stop Fr
Ref Offset 1. Ref 20.00	4.6 dB	Trig: Free Run #Atten: 30 dB	Aug Type: Log-Pwr	(64-28:87 FM (FR4C) TYPP CE 1 25,936 -35,4	-13-13 CEN	Auto Tu Center Fi 14.75000000 0 Start Fi 3.00000000 0 Stop Fi 26.50000000 0
Ref Offset 1. Ref Offset 1. Ref 20.00	2 De Barrier Contractor Contracto	Trig: Free Run #Atten: 30 dB	Aug Type: Log Pwr	(68-28:87 PM (FRAC) TYPE 00 1 255,938 -35,4 -35,5 -35,4 -	0 GHz 2 dBm	Auto Tu Center Fr 14.750000000 0 Start Fr 3.000000000 0 Stop Fr 26 50000000 0 CF St
Ref Offset 1. Ref Offset 1. Ref 20.00	2 DE 000000 GHZ PNO: Fast IFGain:Low 4.6 dB dBm #VBW	Trig: Free Run #Atten: 30 dB	Aug Type: Log-Pwr	(04.20:07 PM (FAC) THE C 1 25.930 -35.4 -35.4 Stop 20 2.246 s (1	10 GHz 2 dBm -13:13 dB	Auto Tu Center Fr 14.750000000 0 Start Fr 3.00000000 0 Stop Fr 26 50000000 0 CF St 2.350000000 0
Ref Offset 1. Ref Offset 1. Ref 20.00	2 De Barrier Contractor Contracto	Trig: Free Run #Atten: 30 dB	Aug Type: Log Pwr	(64-28:87 FM (FA2) TPC 1 25.936 -35.4 -35.4 Stop 20 2.246 s (1	10 GHz 2 dBm -13:13 dB	Auto Tu Center Fr 14.75000000 0 Start Fr 3.00000000 0 Stop Fr 26 50000000 0 CF St 2.35000000 0
Ref Offset 1. Ref Offset 1. Ref 20.00 Ref 20.0	2 DE 0000000 GHZ PNO: Fast PRO: Fast PNO: Fast PHO: Pho: Pho: Pho: Pho: Pho: Pho: Pho:	Trig: Free Run #Atten: 30 dB	Aug Type: Log-Pwr	(04.20:07 PM (FAC) THE C 1 25.930 -35.4 -35.4 Stop 20 2.246 s (1	10 GHz 2 dBm -13:13 dB	Auto Tu Center Fr 14.75000000 G Start Fr 3.00000000 G Stop Fr 26.50000000 G CF St 2.350000000 G Auto N
Ref Offset 1. Ref Offset 1. Ref 20.00 Ref 20.0	2 DE 0000000 GHZ PNO: Fast PRO: Fast PNO: Fast PHO: Pho: Pho: Pho: Pho: Pho: Pho: Pho:	Trig: Free Run #Atten: 30 dB	Aug Type: Log-Pwr	(04.20:07 PM (FAC) THE C 1 25.930 -35.4 -35.4 Stop 20 2.246 s (1	10 GHz 2 dBm -13:13 dB	Auto Tu Center Fr 14.75000000 0 Start Fr 3.00000000 0 Stop Fr 26 50000000 0 CF St 2.35000000 0
Ref Offset 1. Ref Offset 1. Ref 20.00 Ref 20.0	2 DE 0000000 GHZ PNO: Fast PRO: Fast PNO: Fast PHO: Pho: Pho: Pho: Pho: Pho: Pho: Pho:	Trig: Free Run #Atten: 30 dB	Aug Type: Log-Pwr	(04.20:07 PM (FAC) THE C 1 25.930 -35.4 -35.4 Stop 20 2.246 s (1	10 GHz 2 dBm -13:13 dB	Auto Tu Center Fr 14.75000000 0 Start Fr 3.00000000 0 Stop Fr 26 50000000 0 CF St 2.35000000 0 Auto N Freq Off
Ref Offset 1. Ref Offset 1. Ref 20.00 Ref 20.0	2 DE 0000000 GHZ PNO: Fast PRO: Fast PNO: Fast PHO: Pho: Pho: Pho: Pho: Pho: Pho: Pho:	Trig: Free Run #Atten: 30 dB	Aug Type: Log-Pwr	(04.20:07 PM (FAC) THE C 1 25.930 -35.4 -35.4 Stop 20 2.246 s (1	10 GHz 2 dBm -13:13 dB	Auto Tu Center Fri 14.750000000 0 Start Fri 3.000000000 0 Stop Fri 26.500000000 0 Auto h Freq Off
Ref Offset 1. Ref Offset 1. Ref 20.00 Ref 20.0	2 DE 0000000 GHZ PNO: Fast PRO: Fast PNO: Fast PHO: Pho: Pho: Pho: Pho: Pho: Pho: Pho:	Trig: Free Run #Atten: 30 dB	Aug Type: Log-Pwr	(04.20:07 PM (FAC) THE C 1 25.930 -35.4 -35.4 Stop 20 2.246 s (1	10 GHz 2 dBm -13:13 dB	Auto Tu Center Fri 14.750000000 0 Start Fri 3.000000000 0 Stop Fri 26.500000000 0 Auto h Freq Off
Ref Offset 1. Ref Offset 1. Ref 20.00 Ref 20.0	2 DE 0000000 GHZ PNO: Fast PRO: Fast PNO: Fast PHO: Pho: Pho: Pho: Pho: Pho: Pho: Pho:	Trig: Free Run #Atten: 30 dB	Aug Type: Log-Pwr	(04.20:07 PM (FAC) THE C 1 25.930 -35.4 -35.4 Stop 20 2.246 s (1	10 GHz 2 dBm -13:13 dB	Auto Tu Center Fri 14.750000000 0 Start Fri 3.000000000 0 Stop Fri 26.500000000 0 Auto h Freq Off

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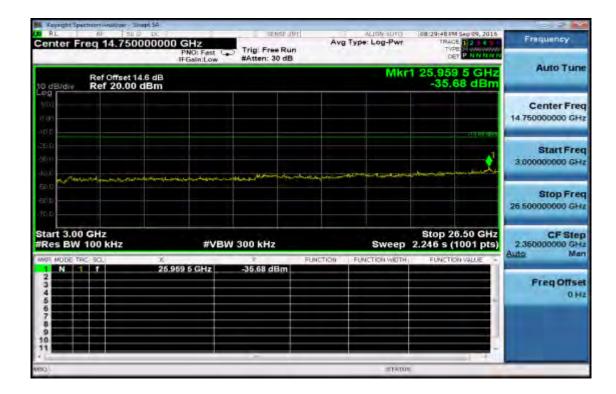
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Spurious Emission Test Data CH-Mid

Keynight Spectrom Analyzer - Skript SA	-			The street start branches and the second	100 P
Center Freq 1.515000000	PNO: Fast	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr	08-29;26 PM Sep 09, 2016 TRACE 1 2 3 4 9 TYPE P NIN NIN Y	Frequency
Ref Offset 14.6 dB			Mi	r1 2.426 8 GHz 6.35 dBm	Auto Tune
1001 1001 1001 1001					Center Free 1.515000000 GH
-200					Start Free 30.000000 MH
60 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Elevitti el prosi de sè espera	اراد وروبا میوم کمل وروم براهامه	ne figer start free parties and a second damanter of		Stop Free 3.000000000 GH
Start 30 MHz #Res BW 100 kHz	#VBW	300 kHz	Sweep 2	Stop 3.000 GHz 83.9 ms (1001 pts)	CF Step 297.000000 MH Auto Ma
	.426 8 GHz	6.35.dBm			Freq Offse 0 H
		-	STATU	-	



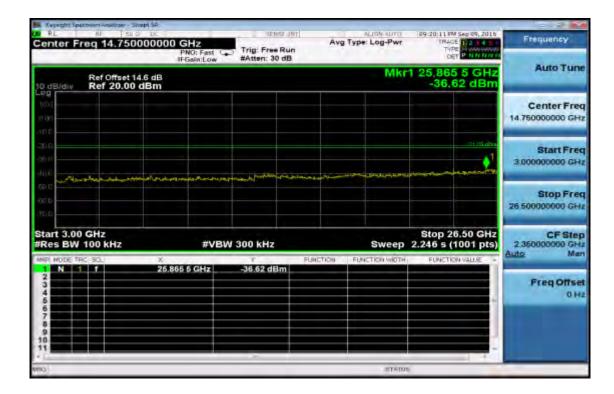
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Spurious Emission Test Data CH-High

enter Freq 1.515000000	GHz PNO: Fast C.	Trig: Free Run	Avg Type: Log-Pwr	C9:19:50 PM Sep C9, 2016 TRACE 1 2 14 15 Type	Frequency
Ref Offset 14.6 dB dB/div Ref 20.00 dBm	IFGain:Low	#Atten: 30 dB	M	(r1 2,450 6 GHz -1.59 dBm	Auto Tun
				2	Center Fre 1.515000000 GF
900				C100 dim	Start Fre 30.000000 MH
50 D	P ^M inina ta katingatikan	anna a È agas pintan birrist.	han a sea a se a la contra de la		Stop Fre 3,00000000 GH
Res BW 100 kHz	#VBV	V 300 kHz	Sweep 2	Stop 3.000 GHz 83.9 ms (1001 pts)	CF Ste 297.000000 Mr Auto Mr
	150 5 GHz	-1.59 dBm			Freq Offs 01
53			STATU	5	-



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11 RADIATED BANDEDGE AND SPURIOUS EMISSION MEASUREMENT

11.1 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 must also comply with the §15.209 & RSS-Gen §8.8, 8.9 limit as below.

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.

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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11.2 Measurement Equipment Used:

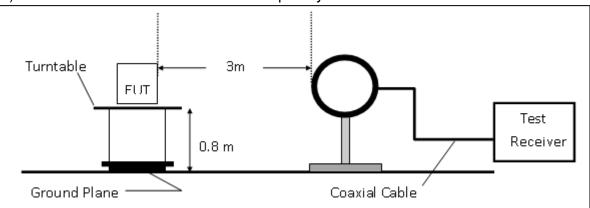
SGS SAC-III									
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.				
ТҮРЕ		NUMBER	NUMBER	CAL.					
EMI Test Receiver	R&S	ESU 40	100363	04/12/2016	04/11/2017				
Loop Antenna	ETS-Lindgren	6502	00143303	12/23/2015	12/22/2016				
Broadband Antenna	TESEQ	CBL 6112D	35240	10/28/2015	10/27/2016				
Horn Antenna	ETS-Lindgren	3117	00143272	12/16/2015	12/15/2016				
Horn Antenna	Schwarzbeck	BBHA9170	185	07/18/2016	07/17/2017				
Pre Amplifier	EMC Instruments	EMC330	980096	12/12/2015	12/11/2016				
Pre Amplifier	EMC Instruments	EMC0011830	980199	12/12/2015	12/11/2016				
Pre Amplifier	R&S	SCU-18	10204	12/12/2015	12/11/2016				
Pre Amplifier	R&S	SCU-26	100780	12/12/2015	12/11/2016				
Coaxial Cable	Coaxial Cable Huber+Suhner RG 214/U 966Rx 9K-30M		12/12/2015	12/11/2016					
Coaxial Cable	Huber+Suhner	RG 214/U SUCOFLEX 104	966Rx 30M-3G	12/12/2015	12/11/2016				
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Rx 1G-18G	12/12/2015	12/11/2016				
Coaxial Cable	Huber+Suhner	mini 141-12 SUCOFLEX 104	966Rx 18G-40G	12/12/2015	12/11/2016				
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Tx 30M-18G	12/12/2015	12/11/2016				
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	966Tx 18G-40G	12/12/2015	12/11/2016				
Attenuator	WOKEN	218FS-10	RF27	12/12/2015	12/11/2016				
Site NSA	SGS	966 Chamber C	SAC-C	03/04/2016	03/03/2017				
Site VSWR	SGS	966 Chamber C	SAC-C	03/04/2016	03/03/2017				
DC Power Supply	HOLA	DP-3003	D7070035	05/04/2016	05/03/2017				
Controller	MF	MF-7802	N/A	N.C.R.	N.C.R.				
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.				
Turn Table	MF	N/A	N/A	N.C.R.	N.C.R.				
Test Software	World-Pallas	Dr. E	V 3.0 Lite	N.C.R.	N.C.R.				

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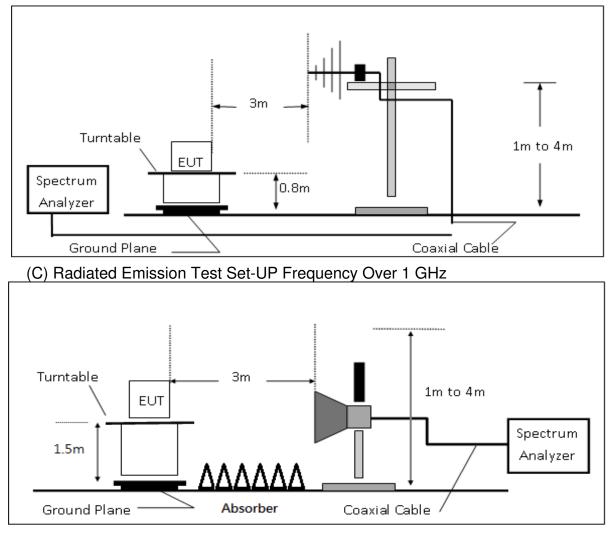


11.3 Test SET-UP





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



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11.4 Measurement Procedure

- 1. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance.
- 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 \geq 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.
- 10. 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.

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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	6	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(dB μ V/m) + Cable Loss(dB) – Pre Amplifier Gain(dB)

Note :

"F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

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

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.

Note: WPC wireless charging functions are implemented in field strength of spurious radiation measurement.

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Radiated Band Edge Measurement Result (802.11b)

Operation Mode :802.11bFundamental Frequency :2412 MHzOperation Band :BE CH LowEUT Pol. :H			IHz Temp. / H Low Test Eng	Humi. :	nna Pol.:	2016/9/5 22.7deg_0 Pony Vertical	C/57RH
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	E	Peak	52.86	0.92	53.78	74	-20.22
2390.00	Е	Average	39.40	0.92	40.32	54	-13.68
Operation Mode : 802.11b Fundamental Frequency : 2412 MHz Operation Band : BE CH Low EUT Pol. : H			IHz Temp. / H Low Test Eng	Humi. :	nna Pol. :	2016/9/5 22.7deg_0 Pony Horizontal	
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	E	Peak	52.47	0.92	53.40	74	-20.60
2390.00	E	Average	38.84	0.92	39.76	54	-14.24



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Operation Mode :802.11bFundamental Frequency :2462 MHzOperation Band :BE CH HighEUT Pol. :H		Hz Temp./H High Test Eng	Test Date: Temp. / Humi.: Test Engineer: Measurement Antenna Pol.:		2016/9/5 22.7deg_C/57RH Pony Vertical		
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	E	Peak	50.74	1.16	51.90	74	-22.10
2483.50	E	Average	38.15	1.16	39.31	54	-14.69
Operation Mode :802.11bFundamental Frequency :2462 MHzOperation Band :BE CH HighEUT Pol. :H			Hz Temp./H High Test Eng	łumi. :	nna Pol. :	2016/9/5 22.7deg_0 Pony Horizontal	C/57RH
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµ V/m	dBµV/m	dB
2483.50	Е	Peak	50.99	1.16	52.15	74	-21.85
2483.50	E	Average	38.35	1.16	39.51	54	-14.49

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Radiated Band Edge Measurement Result (802.11g)

Operation Mode :802.11gFundamental Frequency :2412 MHzOperation Band :BE CH LowEUT Pol. :H		IHz Temp. / I Low Test Eng	Test Date : Temp. / Humi. : Test Engineer : Measurement Antenna Pol. :			2016/9/5 22.7deg_C/57RH Pony Vertical	
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	E	Peak	59.79	0.92	60.72	74	-13.28
2390.00	Е	Average	43.09	0.92	44.01	54	-9.99
Operation Mode : 802.11g Fundamental Frequency : 2412 MHz Operation Band : BE CH Low EUT Pol. : H			IHz Temp. / I Low Test Eng	Humi. :	nna Pol. :	2016/9/5 22.7deg_0 Pony Horizontal	
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	E	Peak	59.89	0.92	60.82	74	-13.18
2390.00	E	Average	43.20	0.92	44.12	54	-9.88



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Operation Mode :802.11gFundamental Frequency :2462 MHzOperation Band :BE CH HighEUT Pol. :H		Hz Temp./H High Test Eng	lumi. :	nna Pol. :	2016/9/5 22.7deg_0 Pony Vertical	C/57RH	
Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	E	Peak	61.38	1.16	62.54	74	-11.46
2483.50	E	Average	44.41	1.16	45.57	54	-8.43
2484.00	S	Peak	63.09	1.16	64.25	74	-9.75
2484.00	S	Average	43.40	1.16	44.56	54	-9.44
Operation Mode :802.11gTest Date :Fundamental Frequency :2462 MHzTemp. / Humi. :Operation Band :BE CH HighTest Engineer :EUT Pol. :HMeasurement Antenna Pol. :					2016/9/5 22.7deg_C Pony Horizontal	C/57RH	
Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin
N 41 1-		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2484.00	E	Peak	59.28	1.16	60.44	74	-13.56
2484.00	Е	Average	43.25	1.16	44.41	54	-9.59

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. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms and conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to Electronic Documents are approval of the Company. Any unauthorized alteration, forgery or falsification of the content or ap-pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipei/IQXAF,Wukubistrict,NewTaipei/City,Taiwan24803/新北市五股區新北產業園區五工路 134 號



Radiated Band Edge Measurement Result (802.11_HT20)

Operation Mode :802.11n20Fundamental Frequency :2412 MHzOperation Band :BE CH LowEUT Pol. :H			IHz Temp. / H Low Test Engi	łumi. :	nna Pol. :	2016/9/5 22.7deg_0 Pony Vertical	C/57RH
Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2388.48	S	Peak	59.42	0.90	60.32	74	-13.68
2388.48	S	Average	41.05	0.90	41.95	54	-12.05
2390.00	E	Peak	57.59	0.92	58.51	74	-15.49
2390.00	E	Average	41.80	0.92	42.72	54	-11.28
Operation Mode :802.11n20Test Date :Fundamental Frequency :2412 MHzTemp. / Humi. :Operation Band :BE CH LowTest Engineer :EUT Pol. :HMeasurement Ante				łumi. : neer:	nna Pol. :	2016/9/5 22.7deg_0 Pony Horizontal	C/57RH
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	E	Peak	57.02	0.92	57.95	74	-16.05
2390.00	Е	Average	41.29	0.92	42.21	54	-11.79
		0-					



Operation Mode :802.11n20Fundamental Frequency :2462 MHzOperation Band :BE CH Hig			1Hz Temp./H High TestEng	Humi. : ineer :	ana Dal I	2016/9/5 22.7deg_0 Pony	C/57RH
EUT Pol. :		Н	Measure	ment Anter	nna Pol. :	Vertical	
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	Е	Peak	54.93	1.16	56.09	74	-17.91
2483.50	Е	Average	40.51	1.16	41.67	54	-12.33
Operation Mode : 802.11n20 Fundamental Frequency : 2462 MHz Operation Band : BE CH High EUT Pol. : H			1Hz Temp./H High Test Eng	lumi. :	nna Pol. :	2016/9/5 22.7deg_0 Pony Horizontal	
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
2483.50	E	Peak	55.45	1.16	56.61	74	-17.39
2483.50	Е	Average	40.82	1.16	41.98	54	-12.02

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Radiated Band Edge Measurement Result (802.11_HT40)

Operation Mode :802.11n40Fundamental Frequency :2422 MHzOperation Band :BE CH LowEUT Pol. :H		IHz Temp. / H Low Test Engi	Test Date : Temp. / Humi. : Test Engineer : Measurement Antenna Pol. :		2016/9/5 22.7deg_C/57RH Pony Vertical		
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2388.24	S	Peak	69.46	0.90	70.36	74	-3.64
2388.24	S	Average	41.04	0.90	41.94	54	-12.06
2390.00	Е	Peak	66.52	0.92	67.44	74	-6.56
2390.00	E	Average	41.24	0.92	42.16	54	-11.84
Operation Mode : 802.11n40 Fundamental Frequency : 2422 MHz Operation Band : BE CH Low EUT Pol. : H		IHz Temp. / H Low Test Engi	lumi. :	nna Pol. :	2016/9/5 22.7deg_0 Pony Horizontal		
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2388.36	S	Peak	69.11	0.90	70.00	74	-4.00
2388.36	S	Average	40.20	0.90	41.10	54	-12.90
2390.00	Е	Peak	67.60	0.92	68.52	74	-5.48
2390.00	Е	Average	40.42	0.92	41.34	54	-12.66



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Fundamental Frequency : 2452		BECH	Hz Temp./ High Test Eng	Humi. :	nna Pol. :	2016/9/5 22.7deg_0 Pony Vertical	C/57RH
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	E	Peak	61.15	1.16	62.31	74	-11.69
2483.50	E	Average	38.82	1.16	39.98	54	-14.02
2485.80	S	Peak	64.27	1.15	65.42	74	-8.58
2485.80	S	Average	38.79	1.15	39.94	54	-14.06

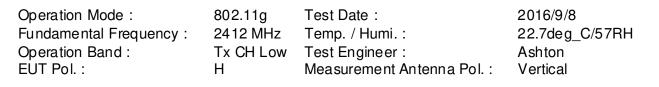
Operation Mode :	802.11n40	Test Date :	2016/9/5
Fundamental Frequency :	2452 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	BE CH High	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal

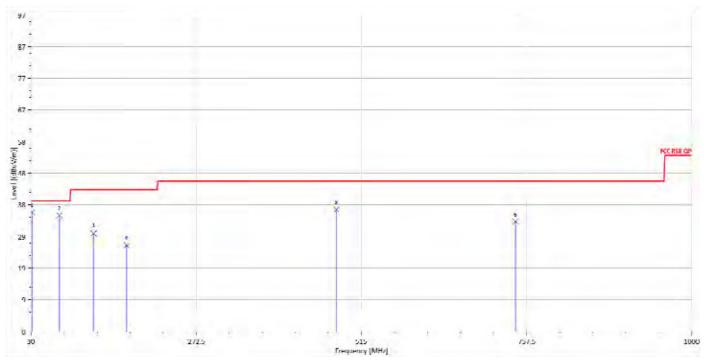
Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	d Bµ V/m	dB
2483.50	E	Peak	59.59	1.16	60.75	74	-13.25
2483.50	E	Average	38.84	1.16	40.00	54	-14.00
2485.40	S	Peak	64.81	1.15	65.97	74	-8.03
2485.40	S	Average	38.78	1.15	39.93	54	-14.07



Below 1GHz Worst-Case Data:

Radiated Spurious Emission Measurement Result (802.11 g)



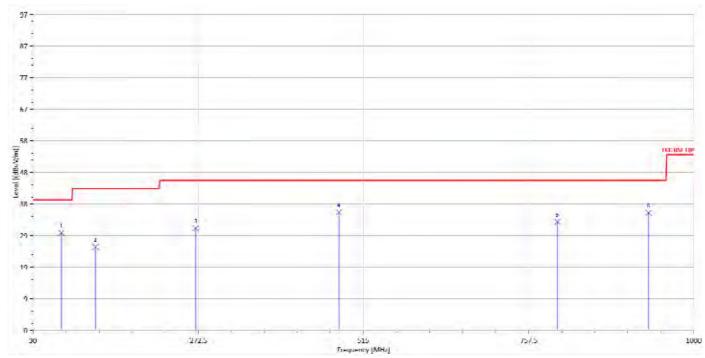


F	req.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
Ν	/Hz	F/H/E/S	PK/QP/AV	dBµV	dB	d Bµ V/m	dBµV/m	dB
3	1.94	S	Peak	44.79	-8.22	36.57	40	-3.43
7	1.71	S	Peak	57.21	-21.65	35.56	40	-4.44
12	2.15	S	Peak	45.86	-15.77	30.08	43.5	-13.42
17	'0.65	S	Peak	44.71	-18.31	26.39	43.5	-17.11
47	'8.14	S	Peak	45.27	-7.87	37.41	46	-8.59
74	1.01	S	Peak	37.89	-4.25	33.64	46	-12.36

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.



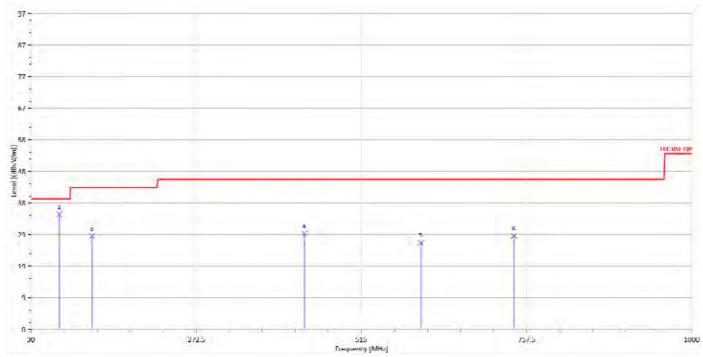
Operation Mode :	802.11g	Test Date:	2016/9/8
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	H	Measurement Antenna Pol. :	Horizontal



Fi	req.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
N	1Hz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
71	1.71	S	Peak	51.51	-21.65	29.87	40	-10.13
12	2.15	S	Peak	41.37	-15.77	25.59	43.5	-17.91
26	8.62	S	Peak	45.17	-13.88	31.29	46	-14.71
47	9.11	S	Peak	43.99	-7.76	36.23	46	-9.77
80	0.18	S	Peak	36.84	-3.56	33.28	46	-12.72
93	4.04	S	Peak	37.68	-1.58	36.10	46	-9.90



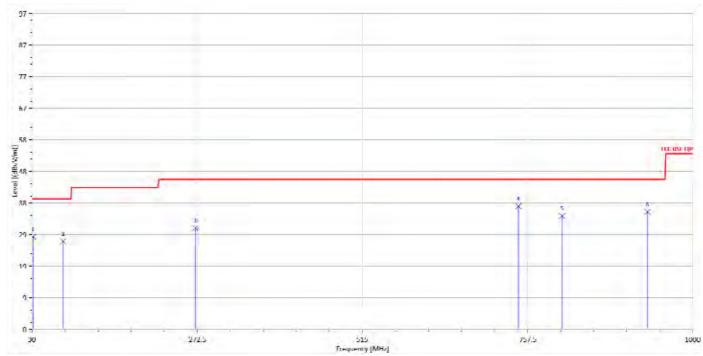
Operation Mode :	802.11g	Test Date:	2016/9/8
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	H	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
30.00	S	Peak	43.27	-7.18	36.10	40	-3.90
71.68	S	QP	57.01	-21.65	35.36	40	-4.64
120.21	S	Peak	44.36	-15.84	28.51	43.5	-14.99
431.58	S	Peak	38.76	-9.39	29.36	46	-16.64
602.30	S	Peak	32.92	-6.38	26.54	46	-19.46
739.07	S	Peak	32.71	-4.04	28.67	46	-17.33



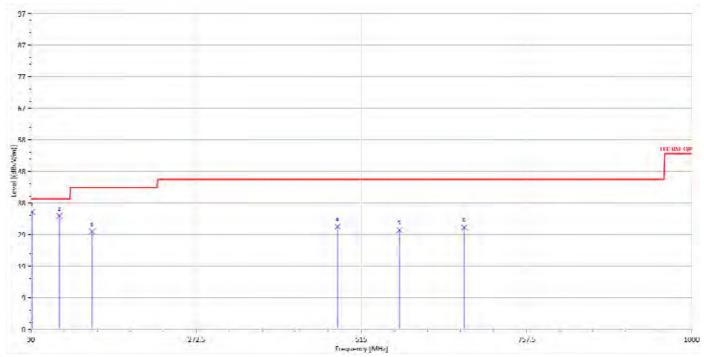
Operation Mode :	802.11g	Test Date:	2016/9/8
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	H	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
31.94	S	Peak	36.57	-8.22	28.35	40	-11.65
75.59	S	Peak	48.34	-21.38	26.96	40	-13.04
269.59	S	Peak	44.92	-13.90	31.03	46	-14.97
743.92	S	Peak	42.16	-4.35	37.81	46	-8.19
807.94	S	Peak	38.04	-3.20	34.84	46	-11.16
934.04	S	Peak	37.68	-1.58	36.10	46	-9.90



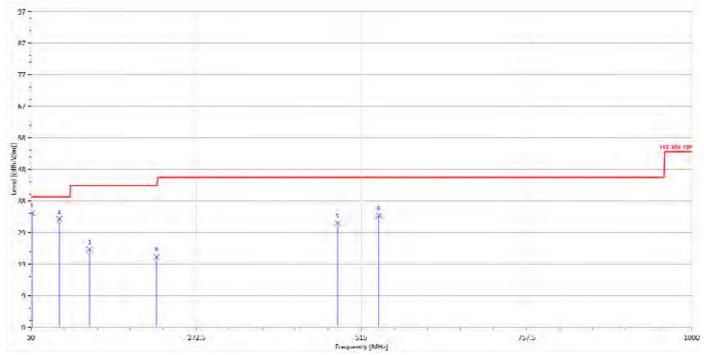
Operation Mode :	802.11g	Test Date:	2016/9/8
Fundamental Frequency :	2462 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Ashton
EUT Pol. :	H	Measurement Antenna Pol. :	Vertical



Fre	q. N	lote	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MH	lz F/ŀ	H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
31.9	94	S	Peak	44.29	-8.22	36.07	40	-3.93
71.7	71	S	Peak	56.46	-21.65	34.81	40	-5.19
120.	.21	S	Peak	45.85	-15.84	30.00	43.5	-13.50
480.	.08	S	Peak	39.28	-7.81	31.47	46	-14.53
571.	.26	S	Peak	36.75	-6.37	30.38	46	-15.62
666.	.32	S	Peak	36.53	-5.25	31.28	46	-14.72



Operation Mode :	802.11g	Test Date:	2016/9/8
Fundamental Frequency :	2462 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Ashton
EUT Pol. :	H	Measurement Antenna Pol. :	Horizontal



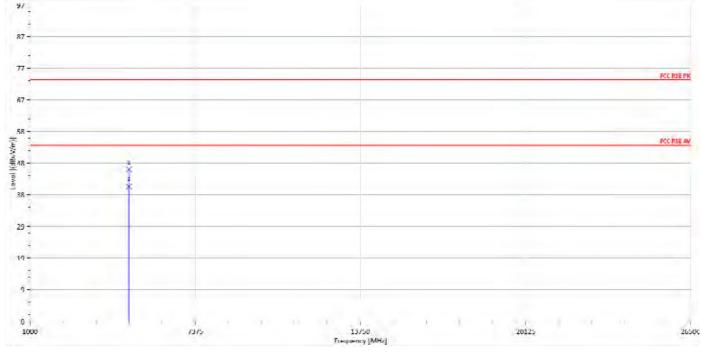
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
31.94	S	Peak	43.39	-8.22	35.17	40	-4.83
71.71	S	Peak	54.97	-21.65	33.32	40	-6.68
116.33	S	Peak	40.06	-16.08	23.98	43.5	-19.52
214.30	S	Peak	38.76	-17.15	21.62	43.5	-21.88
480.08	S	Peak	39.73	-7.81	31.92	46	-14.08
540.22	S	Peak	41.53	-7.19	34.34	46	-11.66



Above 1GHz Data:

Radiated Spurious Emission Measurement Result (802.11 b)

Operation Mode :	802.11b	Test Date :	2016/9/5
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Vertical



	Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin	
			Mode	Reading Level		FS	@3m		
	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
-	4824.00	Н	Peak	38.99	7.58	46.57	74	-27.43	
	4824.00	Н	Average	33.80	7.58	41.38	54	-12.62	

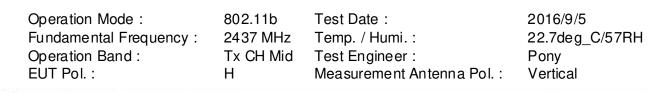
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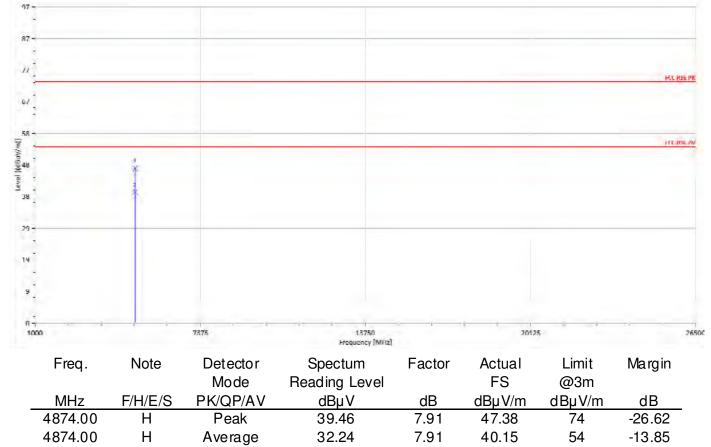


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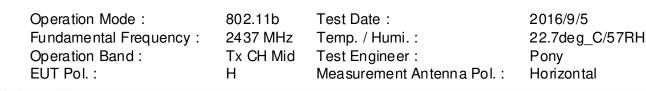
Fundame Operatior	Operation Mode : Fundamental Frequency : Operation Band : EUT Pol. :		MHz Tem I Low Test	Test Date: Temp. / Humi.: Test Engineer: Measurement Antenna Pol.:			2016/9/5 22.7deg_C/57RH Pony Horizontal		
97 -									
87 -							-		
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n . 1000	73.75		13750 Гледченку [МНи]		· · · · · · · · · · · · · · · · · · ·		25-	26500	
Freq.	Note	Detector Mode	Spectu Reading L		Factor	Actual FS	Limit @3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dBµV		dB	dBµV/m	dBµV/m	dB	
4824.00	Н	Peak	36.35		7.58	43.92	74	-30.08	
4824.00	Н	Average	29.17	•	7.58	36.75	54	-17.25	

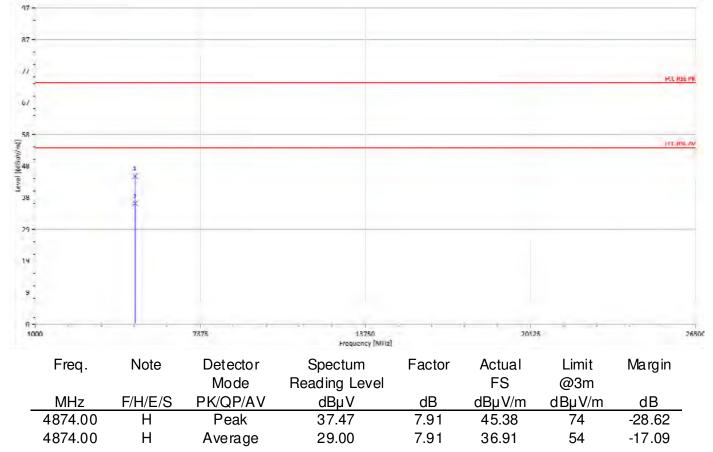




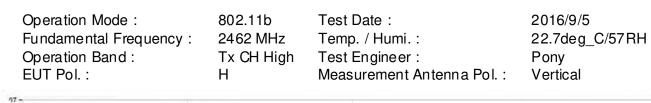


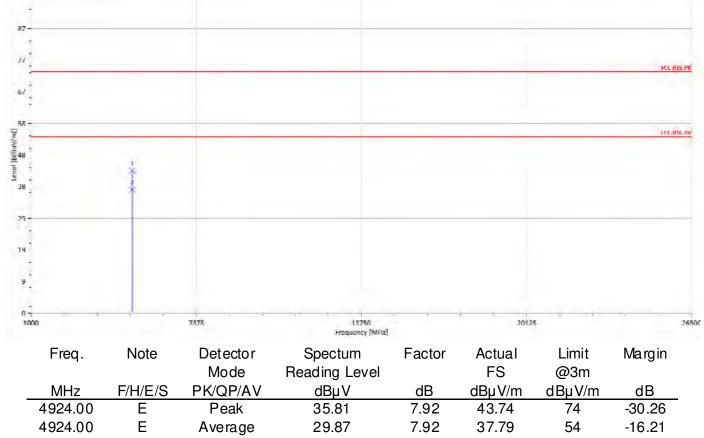




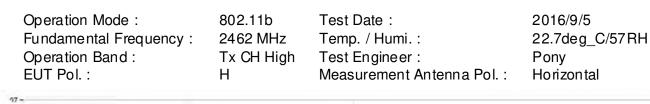


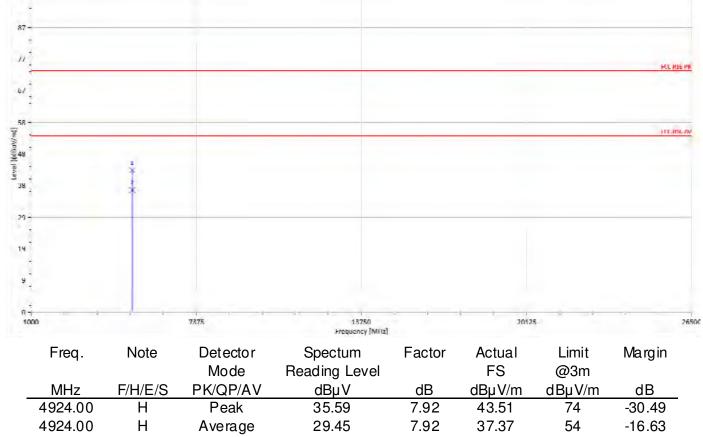






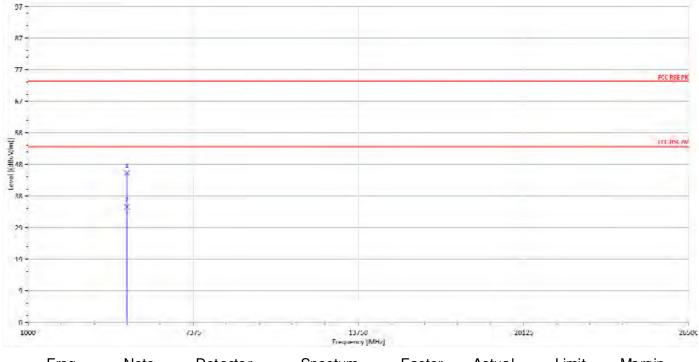






Radiated Spurious Emission Measurement Result (802.11 g)

Operation Mode :	802.11g	Test Date :	2016/9/5
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Vertical



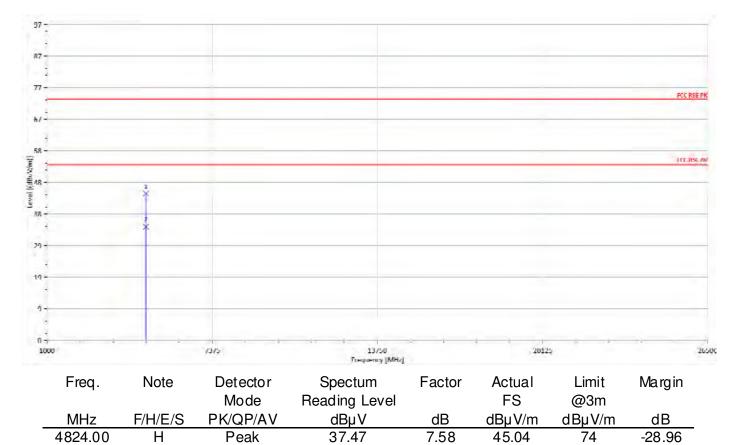
	⊢req.	Note	Detector	Spectum	Factor	Actual	Limit	iviargin	
			Mode	Reading Level		FS	@3m		
_	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	d Bµ V/m	dB	
-	4824.00	Н	Peak	38.30	7.58	45.87	74	-28.13	
	4824.00	Н	Average	27.89	7.58	35.47	54	-18.53	

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.



Н

Operation Mode :	802.11g	Test Date :	2016/9/5
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal



27.30

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.

Average

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7.58

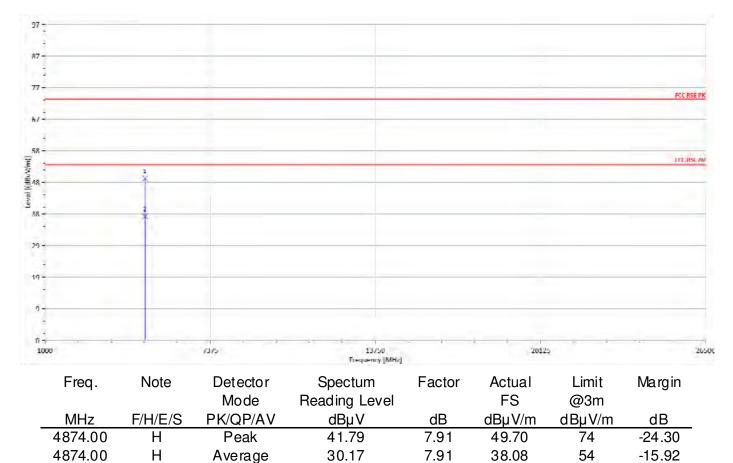
34.88

54

-19.12

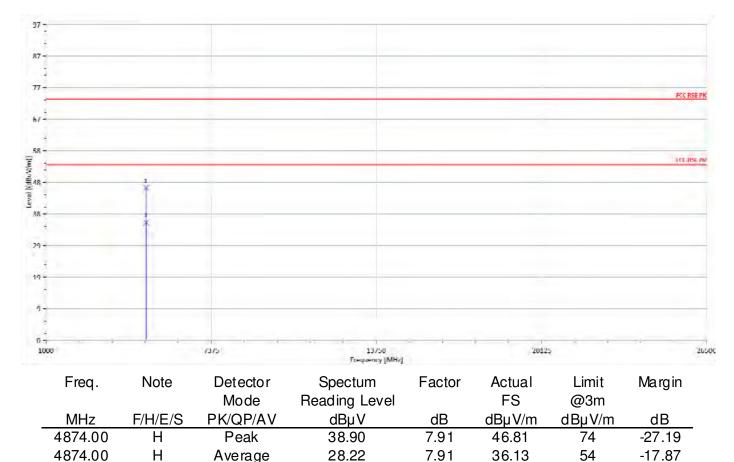


Operation Mode :	802.11g	Test Date :	2016/9/5
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Vertical





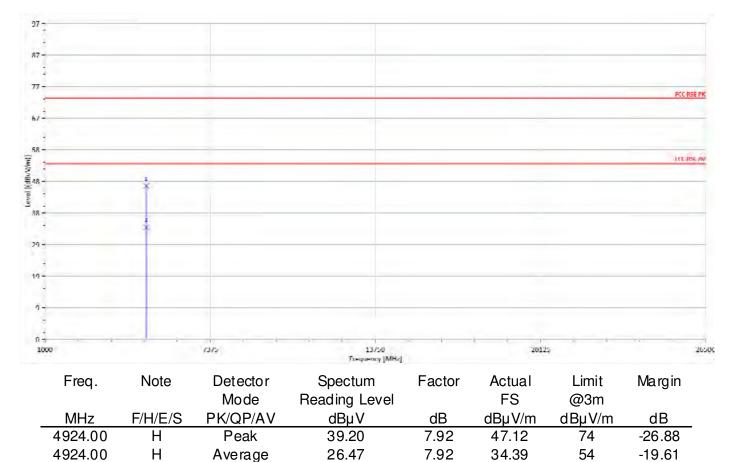
Operation Mode :	802.11g	Test Date :	2016/9/5
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal



Average



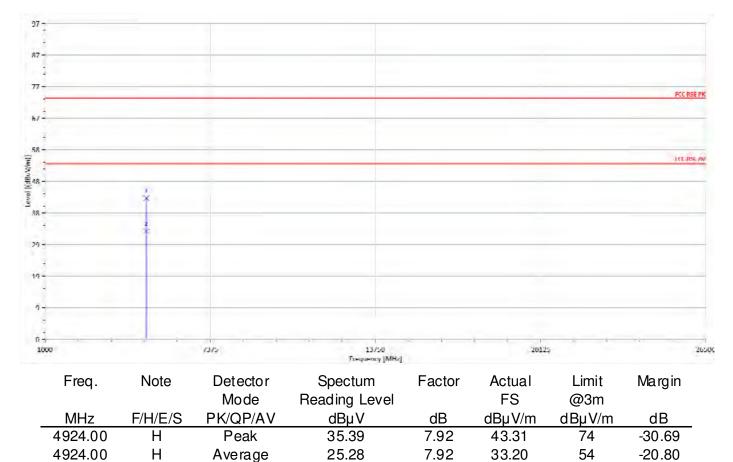
Operation Mode :	802.11g	Test Date :	2016/9/5
Fundamental Frequency :	2462 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Vertical



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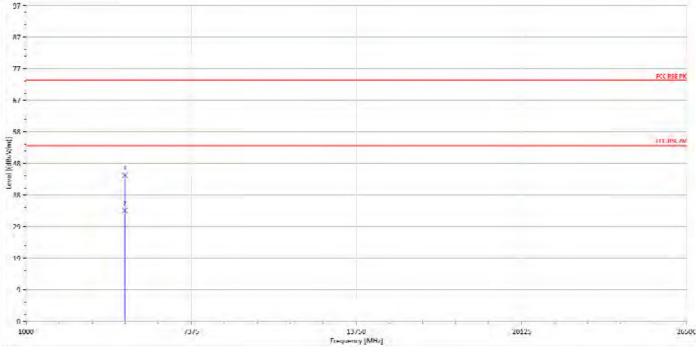
Operation Mode :	802.11g	Test Date :	2016/9/5
Fundamental Frequency :	2462 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal





Radiated Spurious Emission Measurement Result (802.11_HT20)

Operation Mode :	802.11n20	Test Date :	2016/9/5
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Pony
EUT Pol. :	H	Measurement Antenna Pol. :	Vertical



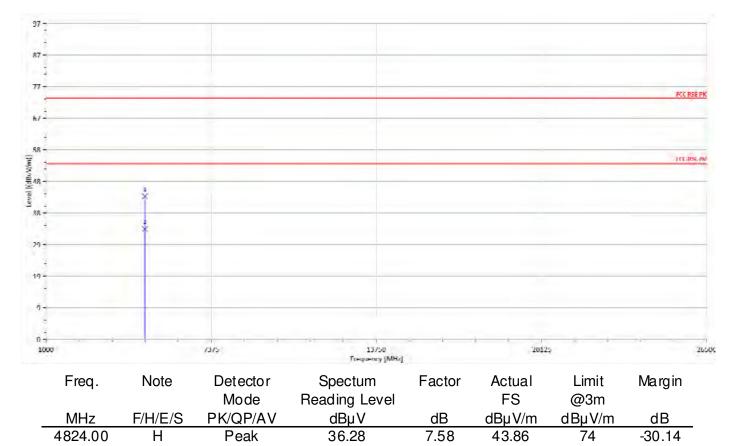
	Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin	
			Mode	Reading Level		FS	@3m		
	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
-	4824.00	Н	Peak	37.24	7.58	44.82	74	-29.18	
	4824.00	Н	Average	26.50	7.58	34.08	54	-19.92	

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Н

Operation Mode :	802.11n20	Test Date :	2016/9/5
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal



26.30

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7.58

33.88

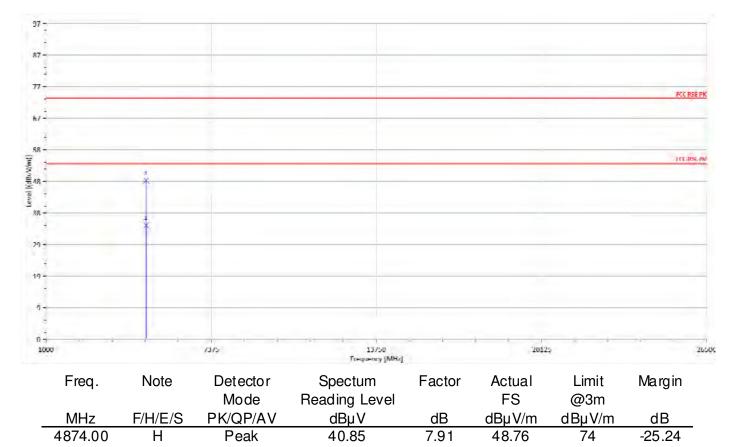
54

-20.12



Н

Operation Mode :	802.11n20	Test Date :	2016/9/5
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Vertical



27.11

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7.91

35.02

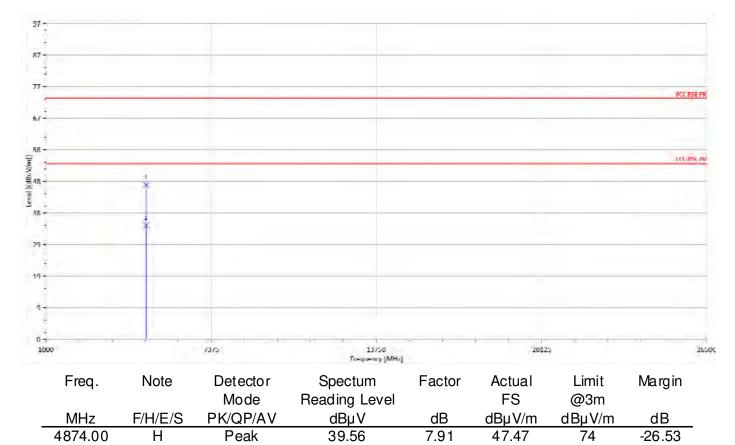
54

-18.98



Н

Operation Mode :	802.11n20	Test Date :	2016/9/5
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal



27.10

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7.91

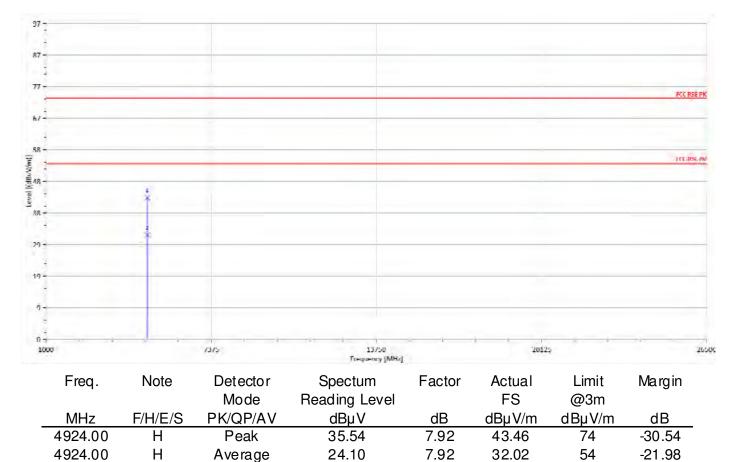
35.01

54

-18.99

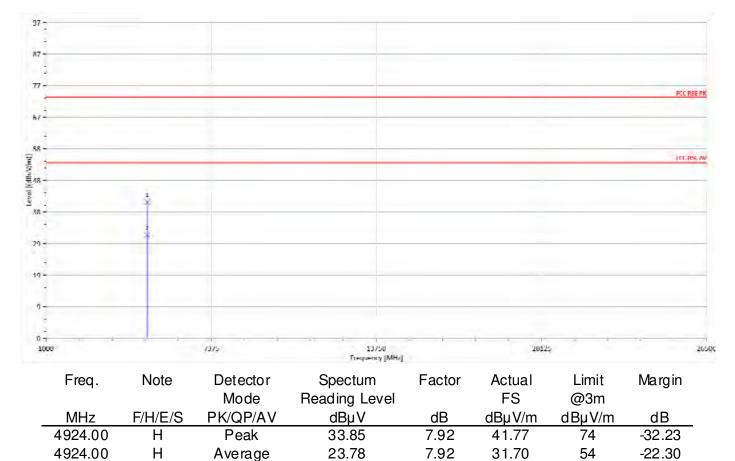


Operation Mode :	802.11n20	Test Date :	2016/9/5
Fundamental Frequency :	2462 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Vertical





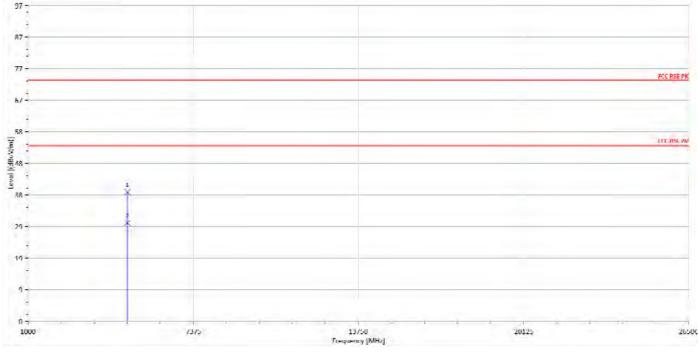
Operation Mode :	802.11n20	Test Date :	2016/9/5
Fundamental Frequency :	2462 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal





Radiated Spurious Emission Measurement Result (802.11_HT40)

Operation Mode :	802.11n40	Test Date :	2016/9/5
Fundamental Frequency :	2422 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Vertical



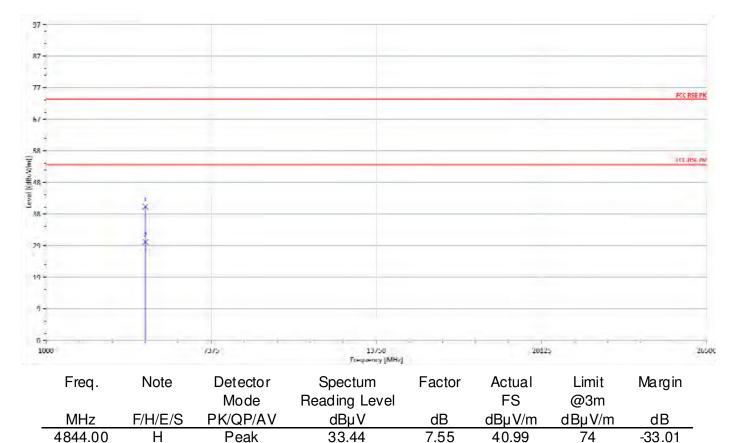
	Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin	
			Mode	Reading Level		FS	@3m		
-	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
	4844.00	Н	Peak	32.13	7.55	39.68	74	-34.32	
	4844.00	Н	Average	22.62	7.55	30.17	54	-23.83	

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Н

Operation Mode :	802.11n40	Test Date :	2016/9/5
Fundamental Frequency :	2422 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal



22.57

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Average

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7.55

30.12

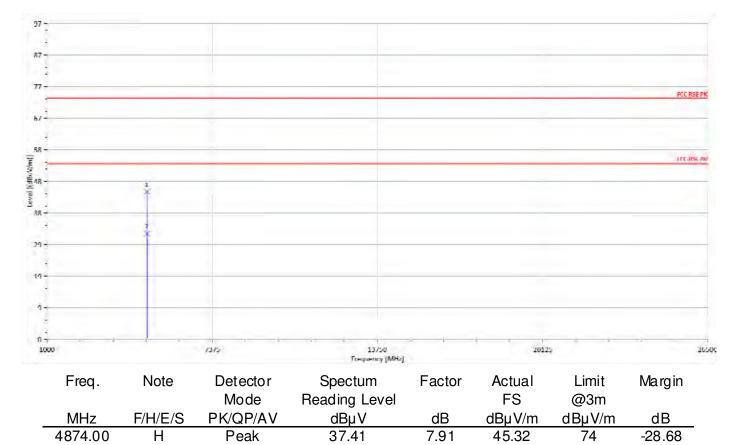
54

-23.88



Н

Operation Mode :	802.11n40	Test Date :	2016/9/5
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Vertical



24.56

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7.91

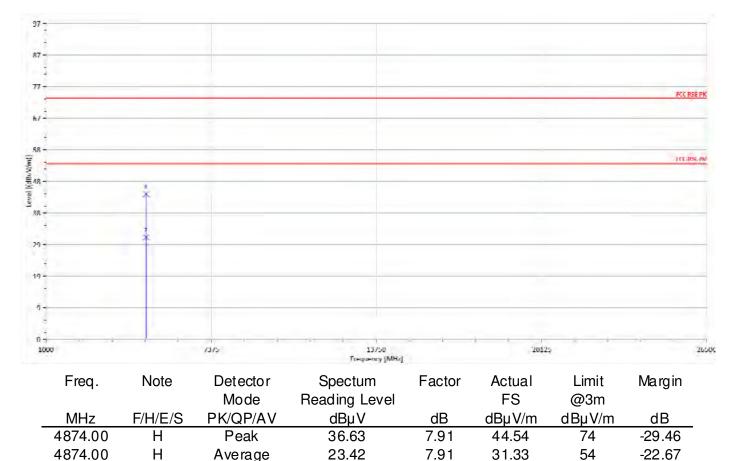
32.47

54

-21.53



Operation Mode :	802.11n40	Test Date :	2016/9/5
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal



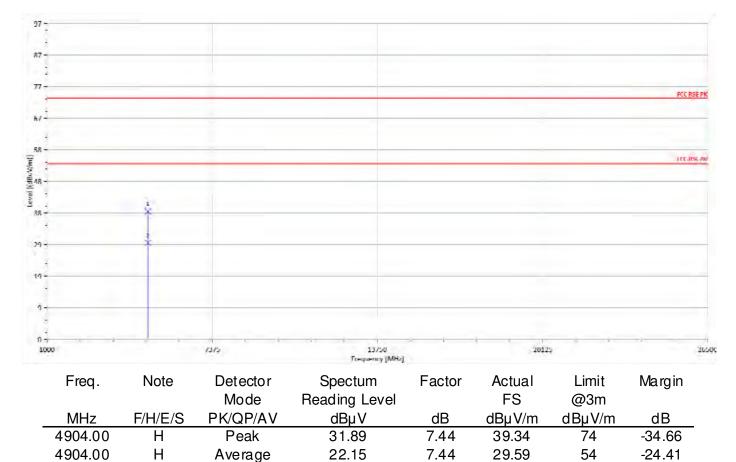
Average

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31.33

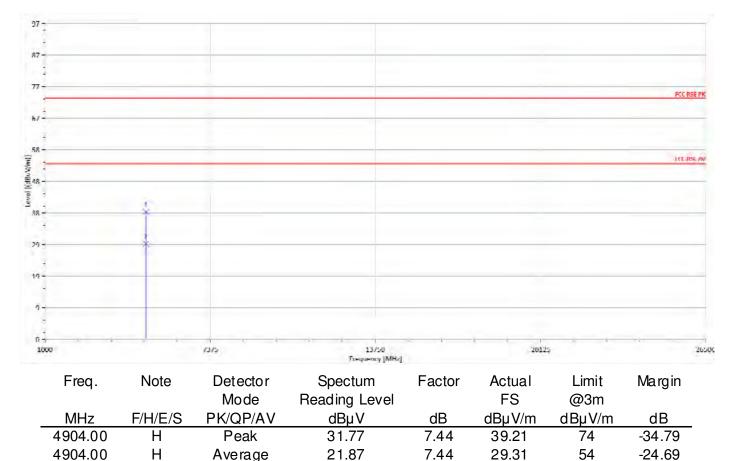


Operation Mode :	802.11n40	Test Date :	2016/9/5
Fundamental Frequency :	2452 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Vertical





Operation Mode :	802.11n40	Test Date :	2016/9/5
Fundamental Frequency :	2452 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal



Average



12 PEAK POWER SPECTRAL DENSITY

12.1 Standard Applicable

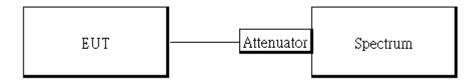
The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

Note:	
Antenna Gain:	<i>0.21</i> dBi
Aux1 Antenna Gain:	- <i>0.29</i> dBi
Number Antenna:	<i>2</i> pcs
Limit:	<i>8</i> dBm
The antenna gain is grater than 60	Bi in MIMO mode the limit reduce as below:
Directional gain = gain of antenna	element + 10 log (# of TX antenna elements)
Effective Legacy Gain (dBi) = 0.21	+3.01=3.22dBi

12.2 Measurement Equipment Used

Conducted Emission Test Site								
EQUIPMENT MFR MODEL SERIAL LAST CAL DU								
ТҮРЕ		NUMBER	NUMBER	CAL.				
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	04/14/2016	04/13/2017			
DC Block	PASTERNACK	PE8210	RF29	12/12/2015	12/11/2016			
Attenuator	WOKEN	218FS-10	RF23	12/12/2015	12/11/2016			

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.
- 3. Set the span to 1.5 times the DTS channel bandwidth.
- 4. Set the RBW = 3 kHz & 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.
- 11.802.11n MIMO mode: offset is set following "measure and add 10 Log (N)" on spectrum to measure the PSD for MIMO mode. Offset = cable loss + 10 log (N), where N is number of transmitting antenna. N=2 for this given application.

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12.5 Measurement Result

POWER DENSITY 802.11b MODE				POWER	DENSITY	802.11g M	ODE		
Frequency	RF Power	Maximum		Frequency	RF Power	Maximum			
(MHz)	Density	Limit	Result	(MHz)	Density	Limit	Result		
	(dBm)	(dBm)				()	(dBm)	(dBm)	
2412	-4.10	8.00	PASS	2412	-8.68	8.00	PASS		
2437	-4.29	8.00	PASS	2437	-6.60	8.00	PASS		
2462	-3.22	8.00	PASS	2462	-8.65	8.00	PASS		

POWER DENSITY 802.11n HT20 MODE POWER DENSITY 802.11n HT40 MODE

Frequency (MHz)	RF Power Density (dBm)	Maximum Limit (dBm)	Result	Frequency (MHz)	RF Power Density (dBm)	Maximum Limit (dBm)	Result
2412	-8.68	8.00	PASS	2422	-14.19	8.00	PASS
2437	-6.96	8.00	PASS	2437	-9.27	8.00	PASS
2462	-9.32	8.00	PASS	2452	-16.45	8.00	PASS

*Refer to next page for plots

Banded	ge Limit 802	.11b MODE	Bandedge Limit 802.11g MODE			
Frequency (MHz)	RF Power Density (dBm)	Bandedge Limit (dBm)	Frequency (MHz)	RF Power Density (dBm)	Bandedge Limit (dBm)	
2412	13.49	-6.51	2412	9.06	-10.94	
2462	13.63	-6.37	2462	8.58	-11.42	
Bandedge Limit 802.11 n20 MODE			Bandedge Limit 802.11 n40 MODE			
Bandedge	e Limit 802. ⁻	11n20 MODE	Bandedge	e Limit 802. ⁻	11n40 MODE	
Frequency (MHz)	e Limit 802. ⁻ RF Power Density (dBm)	11 n20 MODE Bandedge Limit (dBm)	Bandedge Frequency (MHz)	e Limit 802. RF Power Density (dBm)	11 n40 MODE Bandedge Limit (dBm)	
Frequency	RF Power Density	Bandedge Limit	Frequency	RF Power Density	Bandedge Limit	



802.11b Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)



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Power Spectral Density Test Plot (CH-High)



802.11g

Power Spectral Density Test Plot (CH-Low)



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Power Spectral Density Test Plot (CH-Mid)



Power Spectral Density Test Plot (CH-High)



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802.11n HT20 (MIMO) Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)

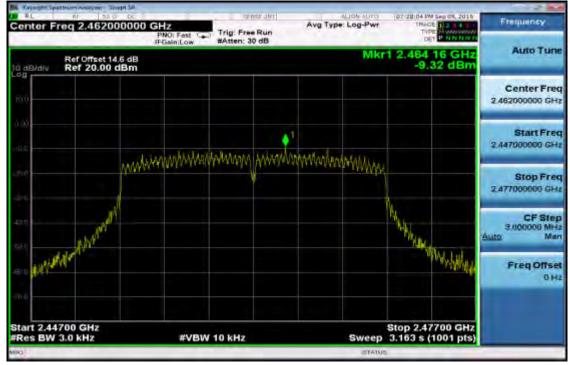


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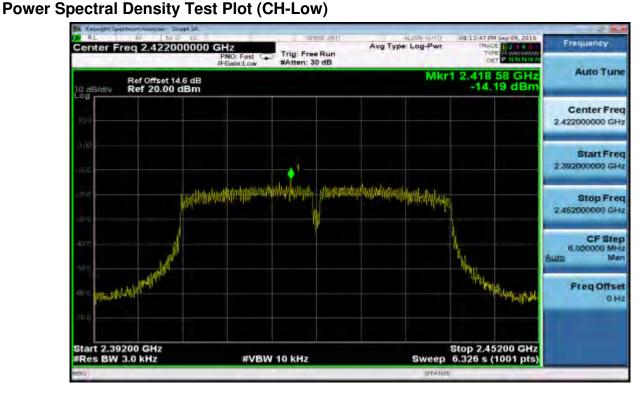
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Power Spectral Density Test Plot (CH-High)



802.11n HT40 (MIMO)



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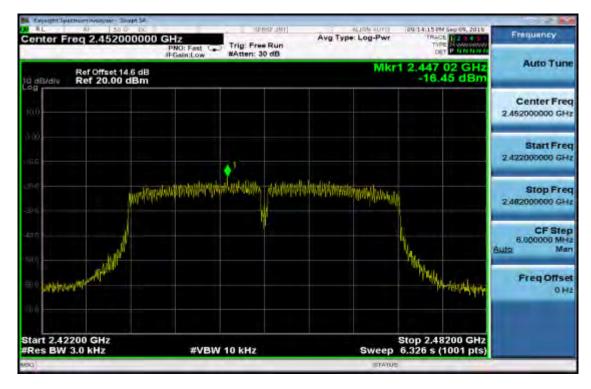
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Power Spectral Density Test Plot (CH-Mid)



Power Spectral Density Test Plot (CH-High)



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802.11b PSD for Band edge Limit (CH-Low)



802.11b PSD for Bandedge Limit(CH-High)



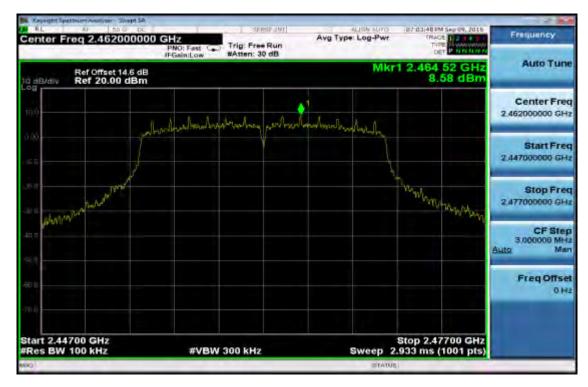
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802.11g PSD for Bandedge Limit(CH-Low)



802.11g PSD for Bandedge Limit(CH-High)



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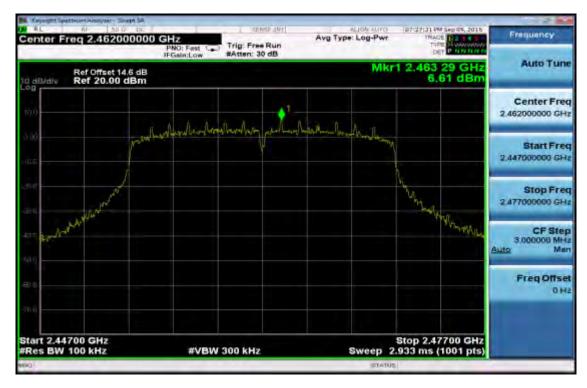
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802.11n HT20 PSD for Bandedge Limit(CH-Low)



802.11n_HT20 PSD for Bandedge Limit(CH-High)



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802.11n HT40 PSD for Bandedge Limit(CH-Low)



802.11n_HT40 PSD for Bandedge Limit(CH-High)



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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.

According to RSS-GEN 8.3

The applicant for equipment certification, as per RSP-100, must provide a list of all antenna types that may be used with the licence-exempt transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. Licence-exempt transmitters that have received equipment certification may operate with different types of antennas. However, it is not permissible to exceed the maximum equivalent isotropically radiated power (e.i.r.p.) limits specified in the applicable standard (RSS) for the licence-exempt apparatus.

Testing shall be performed using the highest gain antenna of each combination of licence-exempt transmitter and antenna type, with the transmitter output power set at the maximum level.9 When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna manufacturer.

13.2 Antenna Connected Construction

An embedded-in antenna design is used.

The antenna connector is designed with unique type RF connector and no consideration of replacement. Please see EUT photo and antenna spec. for details.

The antenna gain is less than 6dBi. Therefore, it is not necessary to reduce maximum output power limit.

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