

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

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

OF
Tablet
TomTom
4FI76
N/A
S4L4FI76
5767A-4FI76
E2/2016/80013
Aug. 31,2016
§15.247, Cat: DTS
TomTom International B.V. 8F., No. 88, Sec. 1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien, 221, Taiwan (R.O.C)
TomTom International B.V. De Ruijerterkade 154, 1011 AC Amsterdam, The Neth-erlands
SGS Taiwan Ltd.
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No.2, Keji 1st Rd., Guishan District, Taoyuan
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VERIFICATION OF COMPLIANCE

Applicant:	TomTom International B.V. De Ruijerterkade 154, 1011 AC Amsterdam, The Neth-erlands		
Product Name:	Tablet		
Brand Name:	TomTom		
Model No.:	4FI76		
Model Difference:	N/A		
FCC ID:	S4L4FI76		
IC :	5767A-4FI76		
Report Number:	E2/2016/80013		
Date of test:	Aug. 01, 2016 ~ Aug. 26, 2016		
Date of EUT Received:	Aug. 01, 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:	Jerry Lu	Date:	Aug. 31,2016
_	Jerry Lu / Sr.Engineer		
Prepared By:	Allen Isai	Date:	Aug. 31,2016
Approved By:	Allen Tsai / Engineer Jim Chang	Date:	Aug. 31,2016

Jim Chang / Asst. Manager

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Revision History

Report Number	Revision	Description	Issue Date
E2/2016/80013	Rev.00	Initial creation of document	Aug. 31,2016

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GENERAL INFORMATION 1

1.1 Product description

General:

Product Name:	Tablet		
Brand Name:	TomTom		
Model No.:	4FI76		
Model Difference:	N/A		
Hardware Version:	PR1.1		
Software Version:	14.451		
Car charger	Model No.: 4UFI0	Brand: TomTom	
USB cable	Model No.: 4UUC.001.24	Brand: TomTom	
MIC cable	Model No.: P7051-13	Brand: TomTom	
MIC	Model No.: NEIM1100106	Brand: TomTom	
Car cable	Model No.: NA	Brand: TomTom	
Video cradle	Model No.: 4FI75	Brand: TomTom	
Daimler cradle	Model No.: 4FI77	Brand: TomTom	
Basic cradle	Model No.: 4FI74	Brand: TomTom	
Power Supply:	3.8VDC from Rechargeabl port	e Li-ion battery, 5VDC from USB	
	Battery: Model No.: UZ6	Brand: TomTom	

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WLAN 2.4GHz:

Wi-Fi	Frequency Range	Channels	Rated Power	Type of Emission 99%	Modulation Technology
11b/g	2412-2462	11	b: 17.67dBm g: 20.47dBm	b:13M5G1D g:16M6D1D	DSSS, OFDM
11n	HT20 2412-2462	11	HT20:20.37dBm	HT20:17M7D1D	OFDM
Antenna	Antenna Designation: Chip Antenna, Model No.: ACM3-5036, Sup Gain:2.86dBi			86, Supplier: INPA	Q
Modulati	Modulation type:		CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM		
802.11 n_20MHz: 6		: 1/2/5.5/11 Mbps : 6/9/12/18/24/36/48/54 Mbp _20MHz: 6.5 – 72.2Mbps _40MHz: 13.5 - 150.0Mbps	S		

1.2 Product Feature of Equipment Under Test

T he equipment under Test (Hereafter Called: EUT) is supporting below features.

Product Feature		
GSM Operating Band(s)	GSM 850/1900MHz	
WCDMA Operating Band(s)	FDD Band II / V	
Bluetooth Version	V4.0 dual mode	
Wi-Fi- Specification	802.11a/b/g/n	
NFC Specification	NFC	

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

Canada RSS-247 issue 1 May 2015

Canada RSS-Gen issue 4 Nov. 2014

ANSI C63.10:2013

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

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 1dB and 10dB attenuator.

offset = RF cable loss (dB)+ attenuation factor(dB)=11.2dB)

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2.5 Configuration of Tested System Fig. 2-1 Conducted (Antenna Port) Configuration

	 Windows 7
Power Supply	EUT

Fig.2-2 Radiated Emission Configuration



Fig 2-3 Conducted (AC Power Line) Configuration

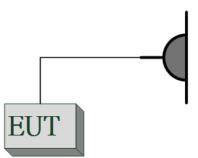


Table 2-1 Equipment Used in Tested System

ltem	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1.	Notebook	Lenovo	L412	LR-027LM	Shielded	Unshielded
2.	WLAN Test Software	N/A	N/A	N/A	N/A	N/A
3.	Notebook	Lenovo	L430	PK-OCGFF	Shielded	Unshielded

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3 SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result
§15.207(a)	RSS-Gen §8.8	AC Power Line Conducted Emission	Compliant
§15.247(b) (3)	RSS-247 §5.4(4)	Peak Output Power	Compliant
§15.247(a)(2)	RSS-247 §5.2 (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 §8.3	Antenna Requirement	Compliant

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

)	3	
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.

RADIATED EMISSION TEST:

RADIATED EMISSION TEST (BELOW 1 GHz)								
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)				
802.11g	1 to 11	1,6,11	OFDM	6				

	RADIATED EMISSION TEST (ABOVE 1 GHz)								
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)					
802.11b	1 to 11	1, 6, 11	DSSS	1					
802.11g	1 to 11	1, 6, 11	OFDM	6					
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	MCS 0					
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	MCS 0					

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)					
802.11b	1 to 11	1, 6, 11	DSSS	1					
802.11g	1 to 11	1, 6, 11	OFDM	6					
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	MCS 0					
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	MCS 0					

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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: +/- 2.87 dB				
	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: +/- 2.87 dB
	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						
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	QUIPMENT MFR MODEL SERIAL							
TYPE		NUMBER	NUMBER	CAL.				
EMI Test Receiver	R&S	ESCI 7	100950	12/12/2015	12/11/2016			
Coaxial Cables	N/A	N30N30-1042-150c m	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

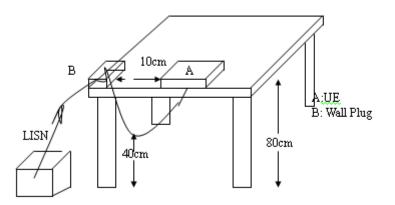
- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI 63.10:2013.
- 2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
- 3. The LISN was connected with 120Vac/60Hz power source.

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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 By: Vito

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22 °C

Temperature:

Humidity: 63 %

Site : Conduction Room Limit: FCC Class B Conduction(QP) Mode: UZ6A Note:

Conducted Emission File :Condution Data :#477 Date: 2016/8/29 Time: 下午 02:29:53 80.0 dBuV FCC Class B Conduction(QP) FEE Class B Conduction(AVG) 40 the state of the s Manylur 1 PAR 0.0 0.5 (MHz) 5 30.000 0.150

Phase:

Power:

N

AC 120V/60Hz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1500	26.92	19.73	46.65	66.00	-19.35	peak	
2		0.1740	23.08	19.73	42.81	64.77	-21.96	peak	
3		0.1940	18.96	19.72	38.68	63.86	-25.18	peak	
4		0.5460	12.75	19.91	32.66	56.00	-23.34	peak	
5		2.9100	16.04	19.95	35.99	56.00	-20.01	peak	
6		12.7460	10.02	20.24	30.26	60.00	-29.74	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:

	Hee	NE		Settim	æø	Ata	linh	Maijn
			Nde	Recipiede		Æ	@ n	
_	Nat	FF#ES	FRC PAV	d∰r/	ď₿	d∰aµ/m	d∰n/m	ď₿
	48740)	Н	Ret	300	79	49	74	-29
	48400	Н	Accep	32	79	392	5	-1488

Duty Cycle Factor: $10 * \log(1/0.9761) = 0.11$ Duty Cycle Factor: $10 * \log(1/0.8741) = 0.58$ Duty Cycle Factor: $10 * \log(1/0.8646) = 0.63$

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7.1 DUTY CYCLE TEST SIGNAL Measurement Result

802.11 b



802.11 g



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802.11 n_20 MHz

RL III Succession Strapp So RL III Succession Center Freq 2.4370000	And the second second	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr	62-20:40 PM Aug 12, 2016 TRADE 1 2 3 4 5 TYPE Westerney OFT P N 11 M 11	Frequency
Ref Offset 11.2 d Ref 30.00 dBr			۵	Mkr3 1.473 ms 0.00 dB	Auto Tune
200 andronengittingini asalimda 100	X1	wise front officians	annut the 102	304 Managaran	Center Free 2.437000000 GH
(pp 					Start Free 2,437000000 GH
40.0 60.0 60.0	Kenga				Stop Free 2.437000000 GH
Center 2.437000000 GHz Res BW 8 MHz	#VBW	/ 8.0 MHz		Span 0 Hz .733 ms (1001 pts)	CF Ster 8.000000 MH Auto Me
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	× 1.274 ms (Δ) 751.7 μs 1.473 ms (Δ) 751.7 μs	-0.49 dB 13.04 dBm 0.00 dB 13.04 dBm	NCTION FUNCTION WETH	FUNCTION VALUE >	Freq Offse OH
		-	STATU		

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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, and the e.i.r.p.shall not exceed 4 W.

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

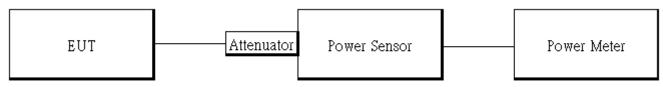
In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of Antenna exceeds 6dBi.

8.2 Measurement Equipment Used

Conducted Emission Test Site									
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.				
ТҮРЕ		NUMBER	NUMBER	CAL.					
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	00100A1F1A1 95C	RF01	12/12/2015	12/11/2016				
DC Block	PASTERNACK	PE8210	RF29	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:



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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.

8.5 Measurement Result

802.11b Main								
СН	Frequency (MHz)	Data Rate	Peak Output Power (dBm)	Peak Output Power (mW)	Limit		RESULT	
1	2412	1	17.67	58.48	1 Watt =	30.00	dBm	PASS
6	2437	1	17.46	55.72	1 Watt =	30.00	dBm	PASS
11	2462	1	17.27	53.33	1 Watt =	30.00	dBm	PASS
802.11	b Main							
СН	Frequency (MHz)	Data Rate	Avg. Output Power (dBm)	Avg. Output Power (mW)		_imit		RESULT
1	2412	1	14.94	31.19	1 Watt =	30.00	dBm	PASS
6	2437	1	14.81	30.27	1 Watt =	30.00	dBm	PASS
11	2462	1	14.63	29.04	1 Watt =	30.00	dBm	PASS

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802.11	802.11g Main							
СН	Frequency (MHz)	Data Rate	Peak Output Power (dBm)	Peak Output Power (mW)	Limit		RESULT	
1	2412	6	20.32	107.65	1 Watt =	30.00	dBm	PASS
6	2437	6	20.45	110.92	1 Watt =	30.00	dBm	PASS
11	2462	6	20.47	111.43	1 Watt =	30.00	dBm	PASS
802.11	g Main							
СН	Frequency (MHz)	Data Rate	Avg. Output Power (dBm)	Avg. Output Power (mW)	I	_imit		RESULT
1	2412	6	11.77	15.03	1 Watt =	30.00	dBm	PASS
6	2437	6	11.89	15.45	1 Watt =	30.00	dBm	PASS
11	2462	6	11.7	14.79	1 Watt =	30.00	dBm	PASS

802.11	n_HT20M Main							
СН	Frequency (MHz)	Data Rate	Peak Output Power (dBm)	Peak Output Power (mW)		_imit		RESULT
1	2412	MCS0	20.37	108.89	1 Watt =	30.00	dBm	PASS
6	2437	MCS0	20.32	107.65	1 Watt =	30.00	dBm	PASS
11	2462	MCS0	19.78	95.06	1 Watt =	30.00	dBm	PASS
802.11	802.11n_HT20M Main							
СН	Frequency (MHz)	Data Rate	Avg. Output Power (dBm)	Avg. Output Power (mW)	L	_imit		RESULT
1	2412	MCS0	11.76	15.00	1 Watt =	30.00	dBm	PASS
6	2437	MCS0	11.92	15.56	1 Watt =	30.00	dBm	PASS
11	2462	MCS0	10.52	11.27	1 Watt =	30.00	dBm	PASS



802.11	802.11b Main								
СН	Frequency (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	I	Limit		RESULT
1	2412	1	14.94	2.86	17.80	4W=	36	dBm	PASS
6	2437	1	14.81	2.86	17.67	4W=	36	dBm	PASS
11	2462	1	14.63	2.86	17.49	4W=	36	dBm	PASS
802.11	lg Main								
СН	Frequency (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	I	Limit		RESULT
1	2412	6	11.77	2.86	14.63	4W=	36	dBm	PASS
6	2437	6	11.89	2.86	14.75	4W=	36	dBm	PASS
11	2462	6	11.70	2.86	14.56	4W=	36	dBm	PASS
802.11n HT20M Main									
802.11	In_HT20M Mair	1							
802.11 CH	Frequency (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	I	Limit		RESULT
	Frequency	Data	Output Power	Gain		4W=	Limit	dBm	RESULT PASS

Note:

11.20 dB offset

2462

MCS0

10.52

11

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

2.86

13.38

4W =

36

dBm

PASS

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6dB & 99% BANDWIDTH MEASUREMENT 9

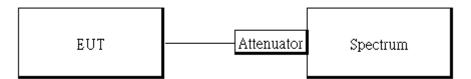
9.1 Standard Applicable

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

9.2 Measurement Equipment Used

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	
DC Power Supply	Agilent	E3640A	MY53140006	05/04/2016	05/03/2017	

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

802.11b Main

Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)	Result
2412	9040	> 500	PASS
2437	8579	> 500	PASS
2462	9068	> 500	PASS

802.11g Main						
Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)	Result			
2412	16390	> 500	PASS			
2437	16400	> 500	PASS			
2462	16400	> 500	PASS			

802.11_n_HT20 Main

Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)	Result
2412	17620	> 500	PASS
2437	17620	> 500	PASS
2462	17610	> 500	PASS

802.11b Main		802.11g Main	
Frequency (MHz)	99%Bandwidth (MHz)	Frequency (MHz)	99%Bandwidth (MHz)
2412	13.498	2412	16.615
2437	13.245	2437	16.516
2462	13.223	2462	16.715

802.11n_HT20M Main			
Frequency	99%Bandwidth		
(MHz)	(MHz)		
2412	17.698		
2437	17.678		
2462	17.751		

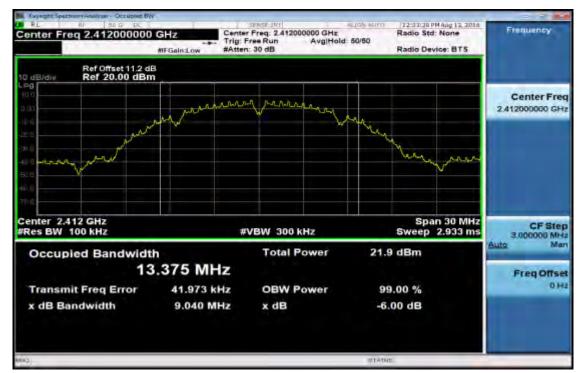
*Refer to next page for plots

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6dB 802.11b CH-Low



CH-Mid

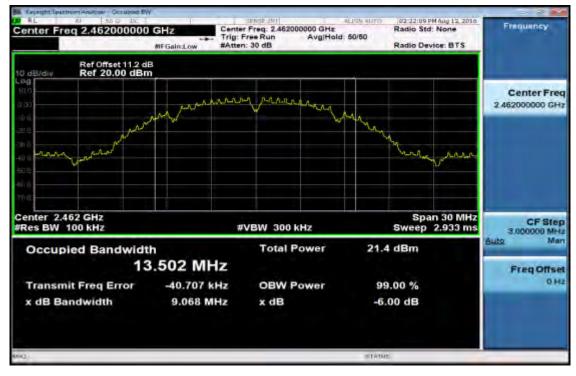


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CH-High



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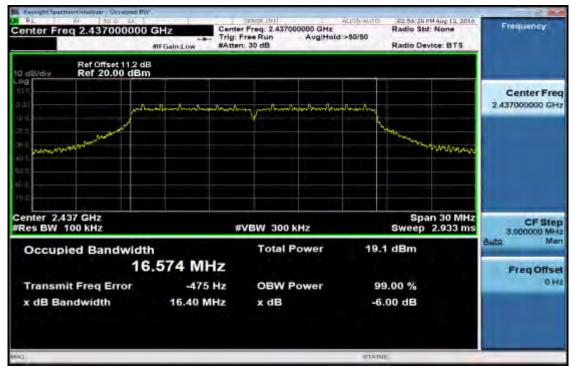


6dB 802.11g

CH-Low



CH-Mid

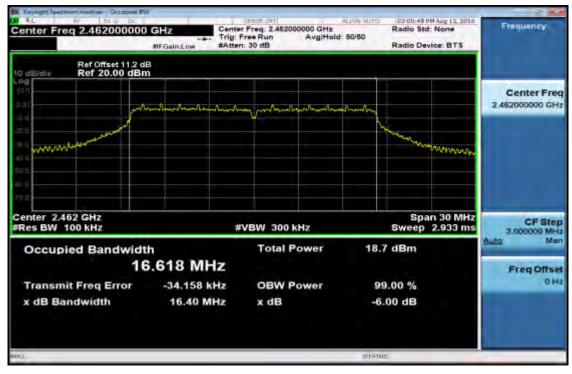


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CH-High



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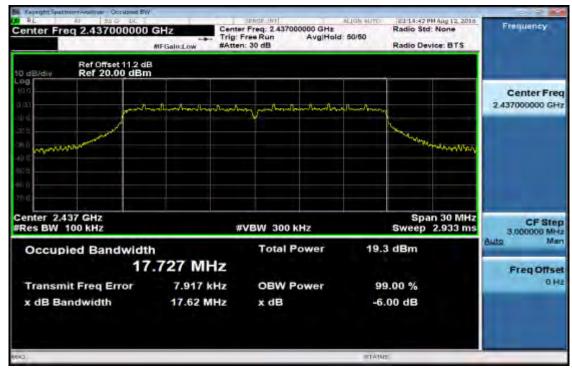


6dB 802.11n HT20M

CH-Low



CH-Mid

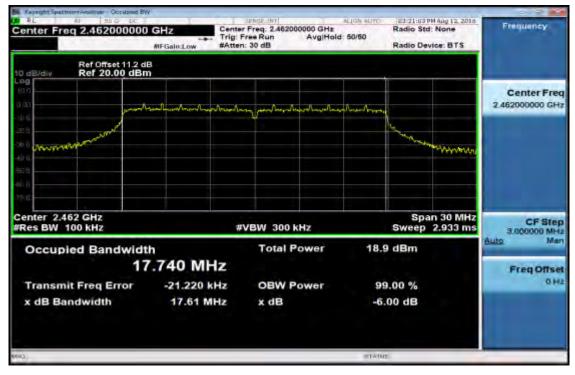


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CH-High



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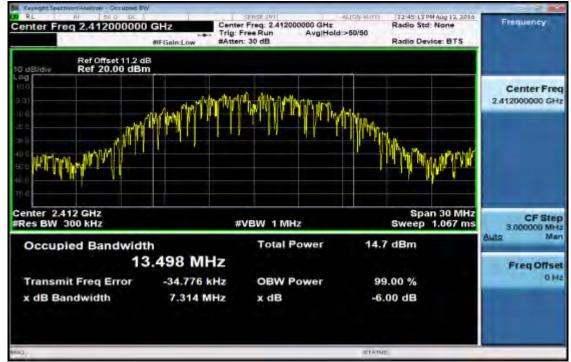
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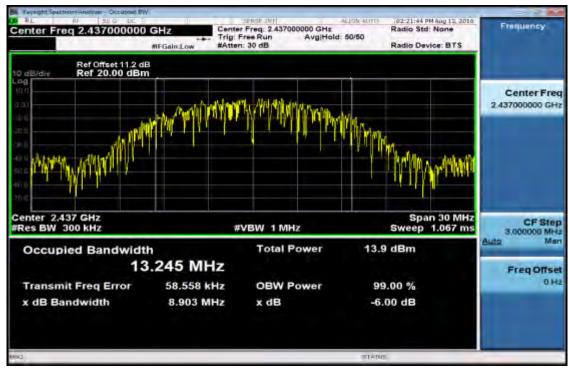


99% 802.11b

CH-Low



CH-Mid

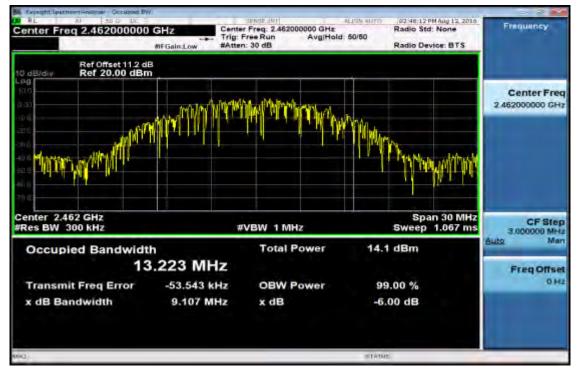


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CH-High



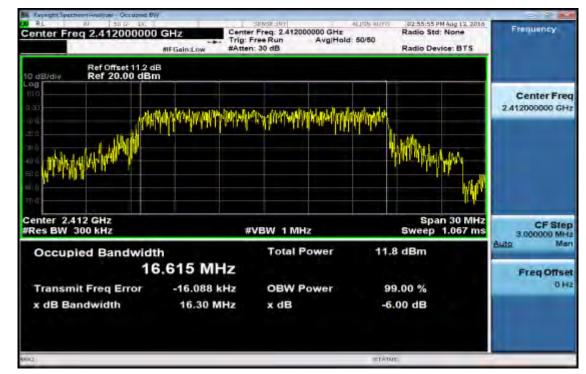
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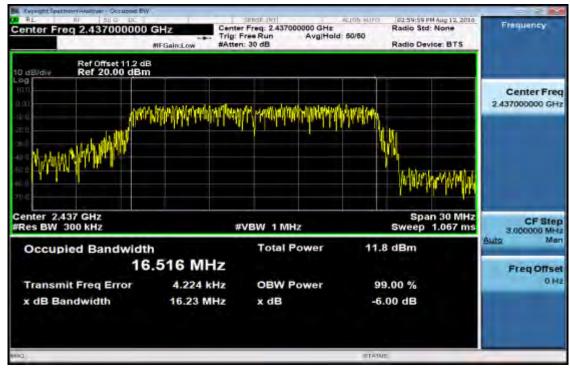
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99% 802.11q **CH-Low**



CH-Mid

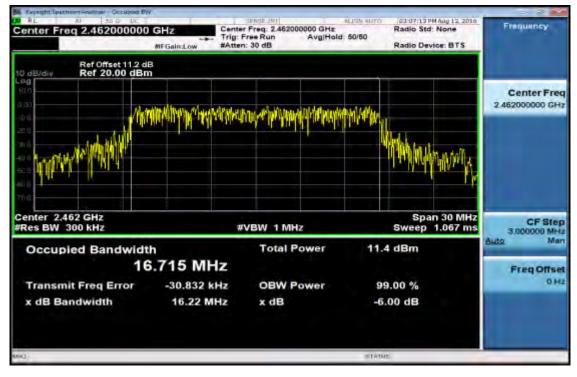


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CH-High



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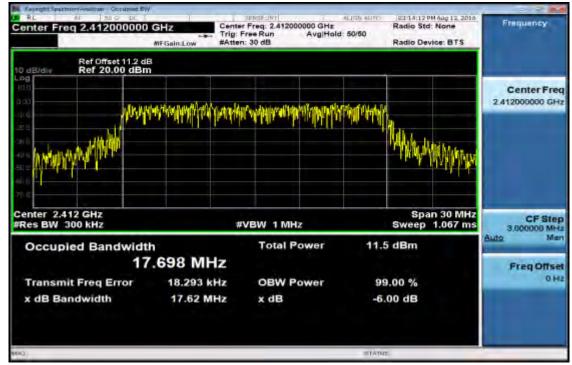
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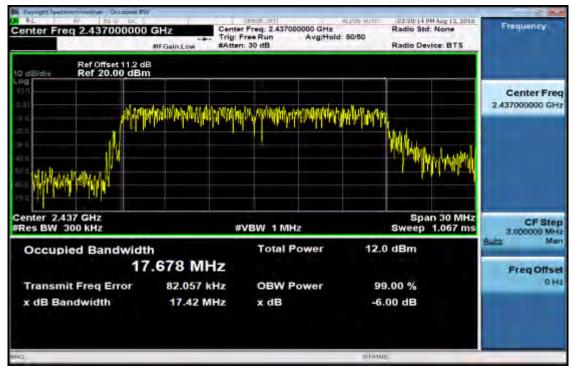


99% 802.11n HT20M

CH-Low



CH-Mid

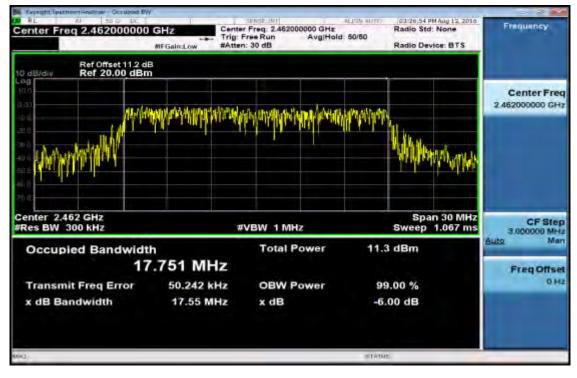


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CH-High



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CONDUCTED BAND EDGES AND SPURIOUS EMISSION MEASUREMENT 10

10.1 Standard Applicable

As per KDB 558074 D01 11.1 a)

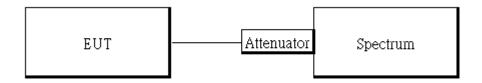
If the maximum peak conducted output power procedure was used to demonstrate compliance as described in 9.1, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).

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 Table 6, must also comply with the radiated emission limits specified in §15.209(a) & RSS-Gen §8.9 Table4 &5.

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				
DC Power Supply	Agilent	E3640A	MY53140006	05/04/2016	05/03/2017				

10.3 Test SET-UP



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10.4 Measurement Procedure

Conducted Band Edge Limit

- 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 = 100kHz & VBW = 300 kHz
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level.

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.

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Report No.: E2/2016/80013 Issue Date: Aug. 31, 2016 Page 40 of 99

Conducted Spurious Emission:

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

Banded	ge Limit 802	.11b MODE	Bandedge Limit 802.11 g MODE			
Frequency (MHz)	RF Power Density (dBm)	Bandedge Limit (dBm)	Frequency (MHz)	RF Power Density (dBm)	Band edge Limit (dBm)	
2412	6.26	-13.74	2412	0.74	-19.26	
2462	5.63	-14.37	2462	0.61	-19.39	
Bandedge	e Limit 802. ⁻	11n20 MODE				
Frequency	RF Power	Bandedge				

Eroquonov		Danabago
Frequency (MHz)	Density	Limit
	(dBm)	(dBm)
2412	0.59	-19.41
2462	0.64	-19.36

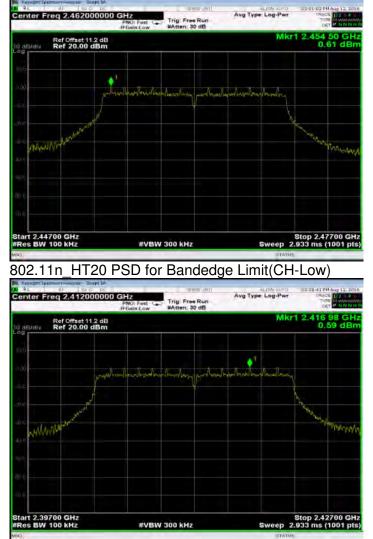
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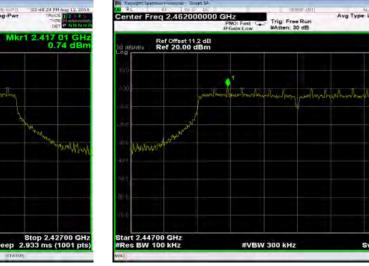


802.11b PSD for Band edge Limit (CH-Low)



802.11g PSD for Bandedge Limit(CH-High)





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

0 64 d

Stop 2.47700 GH

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t (886-2) 2299-3279

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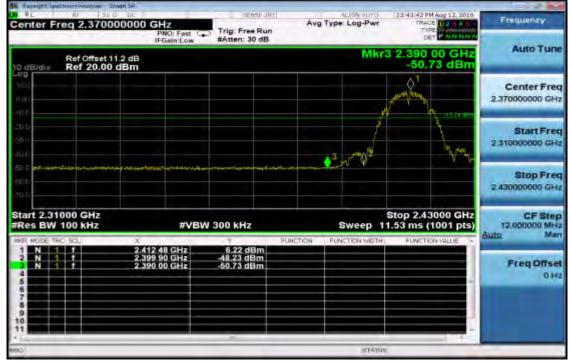
台灣檢驗科技股份有限公司

SGS Taiwan Ltd.

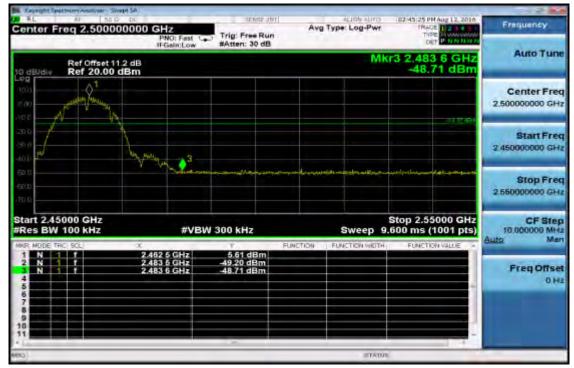
f (886-2) 2298-0488



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



Band Edges Test Data CH-High



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



Band Edges Test Data CH-High



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



Band Edges Test Data CH-High



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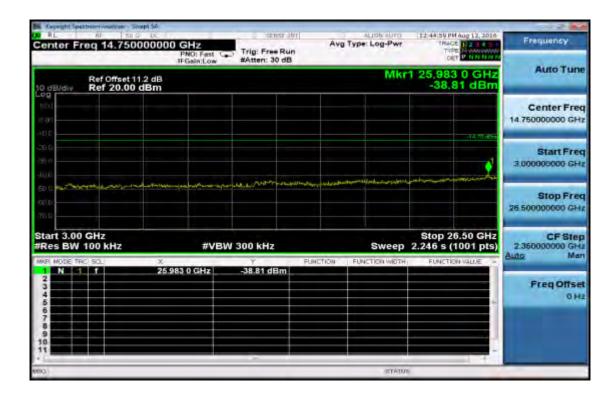
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802.11b **Spurious Emission Test Data CH-Low**

RL.	AP 50 C		SENSE JUT	ALION NUTO	12-44:38 PM Aug 12, 2016	
Center Fre	q 1.515000			Avg Type: Log-Pwr	TYPE DOMESTIC	Frequency
	Ref Offset 11.2 dB Mkr1 2.411 9 GHz					
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0.0					-14.10 alter	
90 90 00						Start Fre 30.000000 MH
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tart 30 Mi Res BW 1		#VE	W 300 kHz	Sweep 2	Stop 3.000 GHz 83.9 ms (1001 pts)	CF Ster 297,000000 MH Auto Ma
KR MODE TRO	so.	× 2.411 9 GHz	Y FL 5.30 dBm	PICTION FUNCTION WETH	FUNCTION VALUE	Butty ma
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			-			
0				#TATU	5	



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Spurious Emission Test Data CH-Mid

RL AF Sugar DC		SENSE SWI	ALIGN AUTO	02-19:57 PM Aug 12, 2016	
enter Freq 1.515000000	PNO: Fast C	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr	TRACE 2 2 4 9 TYPE	Frequency
Ref Offset 11.2 dB			Mk	r1 2.438 7 GHz 4.97 dBm	Auto Tun
9 01 07				2	Center Fre 1.515000000 GP
				1533.691	Start Fre 30,000000 Mi
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art 30 MHz Res BW 100 kHz	#VBV	V 300 kHz	Sweep 2	Stop 3.000 GHz 83.9 ms (1001 pts)	
R MODE TRC SCL X	438 7 GHz	9 FU 4.97 dBm	NETION FUNCTION WETH	FUNCTION VALUE	Auto M
2 3 4 5 6 7 8 9 0					Freq Offs 01
		1. A.	STATUS	17	,•

enter Freg 14.750000		Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr	02-21:31 PM Aug 12, 2016 TRACE 12:34 ST TYPE Noncommune OET P N P R of the	Frequency
dB/div Ref 0ffset 11.2 d			Mkr	1 25,983 0 GHz -39,25 dBm	AutoTun
an					Center Fre 14.750000000 GH
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10				and the second s	Start Fre 3.000000000 GH
D		all - and the second			Stop Fre 26 50000000 GH
art 3.00 GHz es BW 100 kHz	#VB	W 300 kHz	Sweep	Stop 26.50 GHz 2.246 s (1001 pts)	CF Ste 2.35000000 GH Auto Ma
	x 25.983 0 GHz	-39.25 dBm	UNCTION FUNCTION WIDTH	FUNCTION VALUE	CALL INC
				-	Freq Offse

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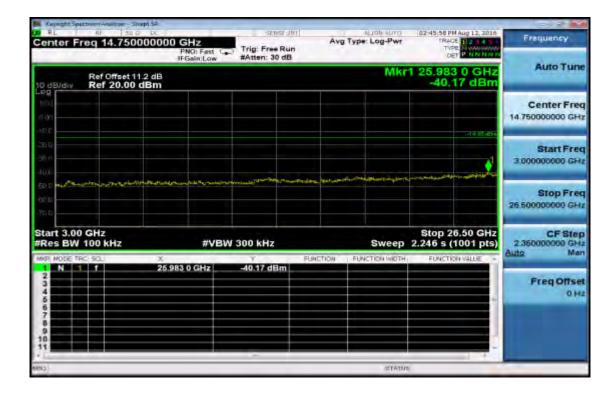
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Spurious Emission Test Data CH-High

Reprint Spectroser - Swept SA RL Nr Sso Conter Freq 1.51500000	O GHz PNO: Fast	Trig: Free Run	Avg Type: Log-Pwr	(62-45:44 PM Aug 12, 2016 TRACE 11 2 3 4 9 1 TYPE 10 00000000 CET P N N NO	Frequency
Ref Offset 11.2 dE	IFGain:Low	#Atten: 30 dB	MR	r1 2,462 4 GHz 5,14 dBm	Auto Tun
eg 101 1 on					Center Fre 1.515000000 GH
19 0 19 0 19 0 10 0				-1485-65v	Start Fre 30,000000 Mi
60 0 Deserver and the function of the low second se	والمستعدية والمراجع والمستعدين	nengel annormal Ministry Inco	naga dana dinangkatan di Serang and		Stop Fre 3.000000000 GH
Start 30 MHz Res BW 100 kHz	#VBW	1 300 kHz	Sweep 2	Stop 3.000 GHz 83.9 ms (1001 pts)	CF Ste 297.000000 MH Auto Ma
2 3 4 5 6	2.462 4 GHz	5.14 dBm		-	Freq Offse 0 H
7 8 9 10 11					
(CR			STATUS	(



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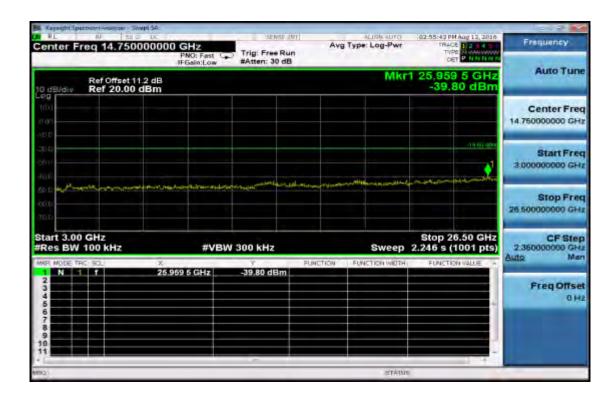
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802.11g **Spurious Emission Test Data CH-Low**

enter Freq 1.515000000	GHz PNO: Fast G	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr	62-55:26 PM Aug 12, 2016 TRACE 1 2 3 4 9 TVPE PLANAULT	Frequency
Ref Offset 11.2 dB	IFGain,Low	ACTURENT. OF UD	M	(r1 2.406 0 GHz 0.40 dBm	Auto Tun
01 01				1	Center Fre 1.515000000 GH
С С				. 14 Ki 1691	Start Fre 30.000000 Mil
10	astrone who are	and and an in the second	- and	-	Stop Fre
art 30 MHz	#VB/	V 300 kHz	Sweep 2	Stop 3.000 GHz 83.9 ms (1001 pts)	3.000000000 Gi CF Ste 297.000000 M
art 30 MHz Res BW 100 kHz P MODE TRC SCL X	#VBV		Sweep 2	Stop 3.000 GHz 83.9 ms (1001 pts) FUNCTION VALUE	3,00000000 GI
		Ŷ FU		83.9 ms (1001 pts)	3,000000000 G CF St 297,000000 M



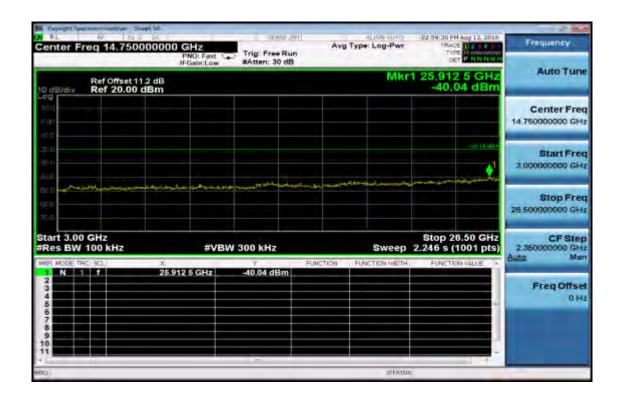
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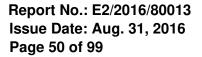
Spurious Emission Test Data CH-Mid

Keynight Spectromi-Analyzer - Sympt SA	-	and the second	and the second second		100 M
Center Freq 1.515000000	GHz PN0: Fast Ca	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr	62.59:15 PM Aug 12, 2016 TRADE 12, 24 9 TIPE PLANE 12, 24 9 DET PLANE 11	rrequency
Ref Offset 11.2 dB 10 dE/div Ref 20.00 dBm	TO BRILLOW		M	kr1 2.444 6 GHz -0.19 dBm	Auto Tune
-00 1001 0101				• ¹	Center Free 1.515000000 GH
19 D 19 D 19 N 19 N					Start Free 30,000000 MH
50 0 60 0 70 0	in me to complete point	angangganangan ngalar baharan	and the second	A Second spectra and a second se	Stop Free 3.000000000 GH
Start 30 MHz #Res BW 100 kHz wrr. Mode that sol. x	#VBV	V 300 kHz	Sweep 2	Stop 3.000 GHz 283.9 ms (1001 pts) FUNCTION VALUE	CF Step 297,000000 MH Auto Mar
	144 6 GHz	-0.19 dBm			Freq Offse 0 H
8 9 10 11		×.	eránu		



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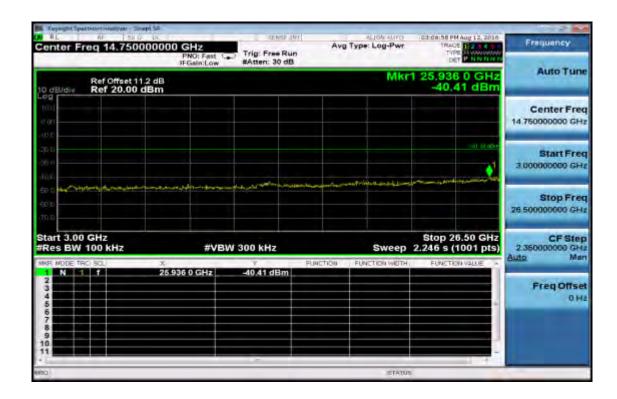
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Spurious Emission Test Data CH-High

Keynight Spectrom Analyzer - Skept SP	-		and the second		10.72 M
Center Freq 1.515000000	PNO: Fast	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr	(03:00:43 PM Aug 12, 2010 TRACE 1 2 4 4 5 TYPE PARAMETER OFT P N W 11 0	Frequency
Ref Offset 11.2 dB	POSSILOW	WEINER OF OLD	M	r1 2.456 5 GHz -0.32 dBm	Auto Tuni
1001 1001				• ¹	Center Fre 1.515000000 GH
40.0				J) (2 (54)	Start Fre 30,000000 MH
60 0 60 0 70 0	استعبيت والريزيت والمناه وتيتط	antes que de serverteur	an a	af Annanan-manyanaharana	Stop Fre 3,000000000 GH
Start 30 MHz #Res BW 100 kHz	#VBV	/ 300 kHz		Stop 3.000 GHz 83.9 ms (1001 pts)	CF Ste 297.000000 MH Auto Ma
2 3 4 5 6 7 8	.456 5 GHz	-0.32 dBm	FUNCTION (FUNCTION WEITH	FUNCTION VALUE	Freq Offse 0 H
9 10 11 11		-	STATE	-	



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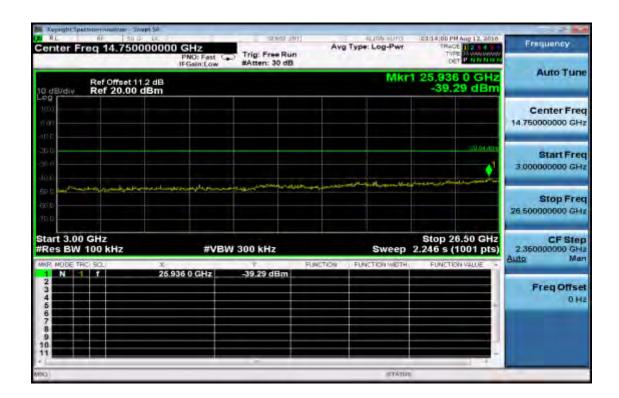
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802.11n HT20 **Spurious Emission Test Data CH-Low**

RL 810 0000000000000000000000000000000000	SENSE JUT	Avg Type: Log-Pwr	03:13:46 PM Aug 12, 2010 TRACE TRACE	Frequency
enter Preg 1.51500000	PNO: Fest C Trig: Free Run IFGain:Low #Atten: 30 dB		DET P NOTATION	
Ref Offset 11.2 dB Ref 20.00 dBm		MK	r1 2.406 0 GHz -0.84 dBm	Auto Tun
				Center Fre 1.515000000 GH
			-50.04.00m	Start Fre
10.1 50 U <mark>kay kanglung dia kanglung kang 1950</mark>	alisten an	den men fallen er fan fallen an staat de skaar e	lander and the second sector of the	Stop Fre 3.00000000 GH
tart 30 MHz			Stop 3.000 GHz	
Res BW 100 kHz	#VBW 300 kHz	Sweep 2	83.9 ms (1001 pts)	297,000000 MH
Res BW 100 kHz	Ŷ F	Sweep 2		297,000000 MH
Res BW 100 kHz			83.9 ms (1001 pts)	297.000000 Mit Auto Ma Freq Offse
Res BW 100 kHz	Ŷ F		83.9 ms (1001 pts)	CF Ste 297.000000 MH Auto Me Freq Offse 0 H



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Spurious Emission Test Data CH-Mid

Keynight Spectrom Analyzer - Shapt SA					12.2.2
Center Freq 1.51500000	PNO: Fast	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr	62:18:27 PM Aug 12, 2016 TRACE 1 2 3 4 5 TYPE DET P N N N N	Frequency
Ref Offset 11.2 dB Ref 20.00 dBm	in Gain, Low		M	(r1 2,444 6 GHz 0.33 dBm	Auto Tune
eg (m) (m)				↓1	Center Free 1.515000000 GH
90 0 10 0				114 67 d54	Start Free 30,000000 MH
50 D BOD 70 D	مىيىرى بەرى يېرىپ ئە ^ر اياسە ھ	ىرى بەر يەر يەر يەر يەر يەر يەر يەر يەر يەر ي	an a	, www.arekon.co.arekon.co.goria.pdyk	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 Mer
	444 6 GHz	0.33 dBm			Freq Offse 0 Hi
8 9 10 11					

	SPRSF UNIT	ALTON ALTO	03:19:11 PM Aug 12, 2010	English
enter Freg 14.750000000 GHz PN0: Fast IFGain:Lot	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr	TYPE IN WARMANNER	Frequency
Ref Offset 11.2 dB dB/div Ref 20.00 dBm		Mkr	1 25.959 5 GHz -40.24 dBm	Auto Tun
9 01 01				Center Fre 14.750000000 GH
			114 57 dBm	Start Fre 3.000000000 GH
) () have been fallen for a start of the sta	and the second se			Stop Fre 26 50000000 GH
	/BW 300 kHz		Stop 26.50 GHz 2.246 s (1001 pts)	CF Ste 2.35000000 GH Auto Mr
		CTION FUNCTION WIGTH:	FUNCTION VALUE .	100 million - 100
R MODE TRC SOL X. 25,959 5 GHz				
			+	Freq Offs 01

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Spurious Emission Test Data CH-High

Center Freq 1.51500000	0 GHz PNO: Fast	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr	03.26;26 PM Aug 12, 2016 TRACE 12 14 TYPE P NO 100 T DET P NIN NUT	Frequency
Ref Offset 11.2 dB			Mk	r1 2.456 5 GHz 0.15 dBm	Auto Tuni
101 non				♦ ¹	Center Fre 1.515000000 GH
20 D				11 65 454	Start Fre 30,000000 MH
έο σ δού 76 b	and many states and the states of the states	and a second	ang ana disebut pinter bilan (data) na disebut disebut disebut disebut disebut disebut disebut disebut disebut	al hayaaroonaa aayaa aaroo	Stop Fre 3,000000000 GH
Start 30 MHz Res BW 100 kHz MR MODE TRC SCL ×			Sweep 2	Stop 3.000 GHz 83.9 ms (1001 pts) FUNCTION VALUE	CF Ste 297,000000 MH Auto Me
2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	2.456 5 GHz	0.15.dBm		-	Freq Offse 0 H
9		-	STATU		

	in the second	TWL USINE		ALTON ALTO	01-26:41 PM Au		Frequency
enter Freq 14.75000000	PNO: Fast C.	Trig: Free Run #Atten: 30 dB	Avg Ty	pe: Log-Pwr		2.3.4.9 +	Transferrary
Ref Offset 11.2 dB				Mkr	1 26.030 0	GHz dBm	Auto Tun
00) (0)							Center Fre 14.750000000 GF
						11 05 d5+	Start Fre 3.000000000 Gi
	an a trainin a trainin a	an a	and sime and		and the second sec		Stop Fre 26 50000000 Gi
tart 3.00 GHz Res BW 100 kHz	#VBV	/ 300 kHz			Stop 26.5 2.246 s (10	01 pts)	CF St 2.350000000 G Auto M
KR MODE TRC SQ. X 1 N 1 f 26,	030 0 GHz	-40.34 dBm	UNCTION F	UNCTION WIDTH:	FUNCTION V	ALLE	
							Freq Offs
4 5 6 7 8 9							

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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 §8.10 Table 6 limit as below.

And according to §15.33(a) (1) & RSS-Gen §8.9 Table 4 & 5, 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:

966 Chamber								
EQUIPMENT	EQUIPMENT MFR MODEL SERIAL		LAST	CAL DUE.				
TYPE		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	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.			

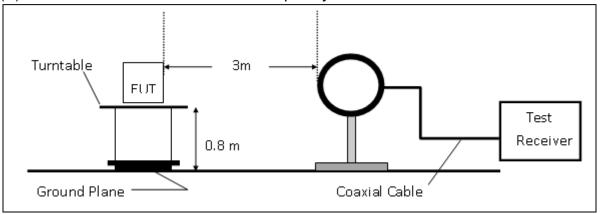
NOTE: N.C.R refers to Not Calibrated Required.

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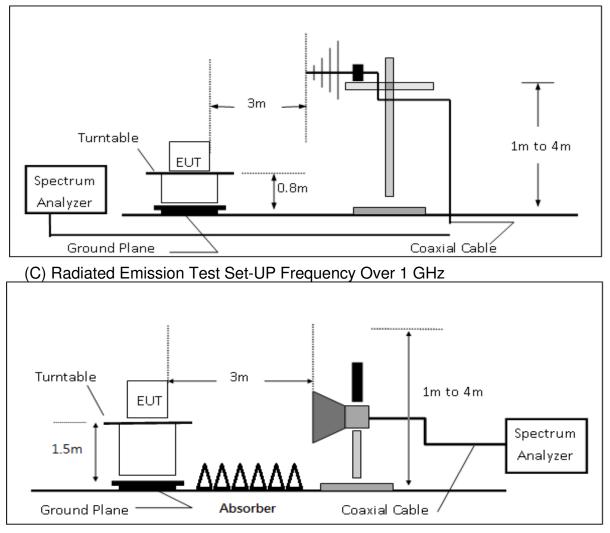


11.3 Test SET-UP

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



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



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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 ≥ 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.

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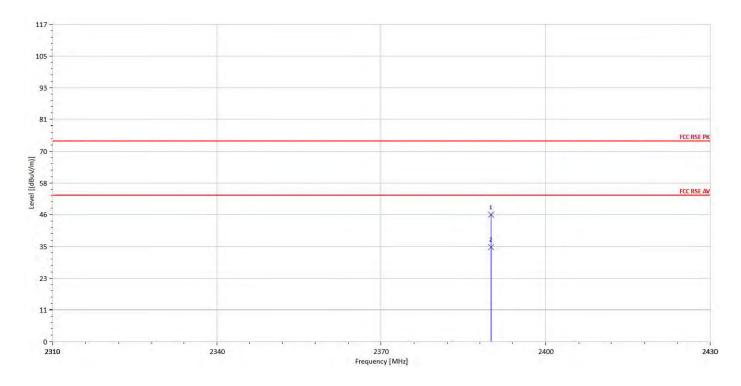
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Radiated Band Edge Measurement Result (802.11b)

Operation Mode :	802.11b	Test Date :	2016/8/11
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg C/57RH
Operation Band :	BE 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
2390.00	E	Peak	45.85	0.92	46.77	74	-27.23
2390.00	E	Average	33.93	0.92	34.85	54	-19.15

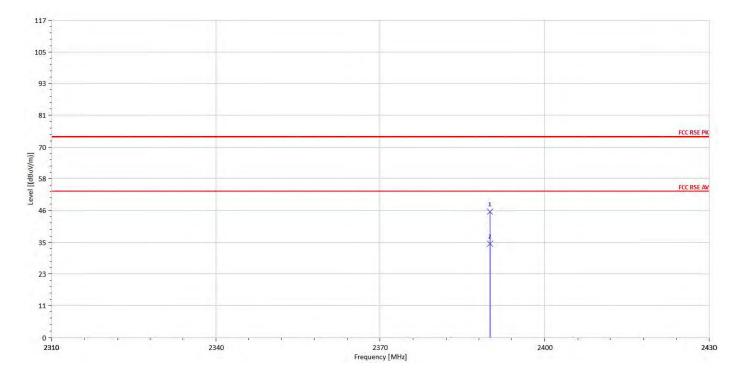
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Operation Mode : Fundamental Frequency : Operation Band :	802.11b 2412 MHz BE CH Low	Temp. / Humi. : Test Engineer :	2016/8/11 22.7deg_C/57RH Pony
EUT Pol. :	Н	0	Horizontal



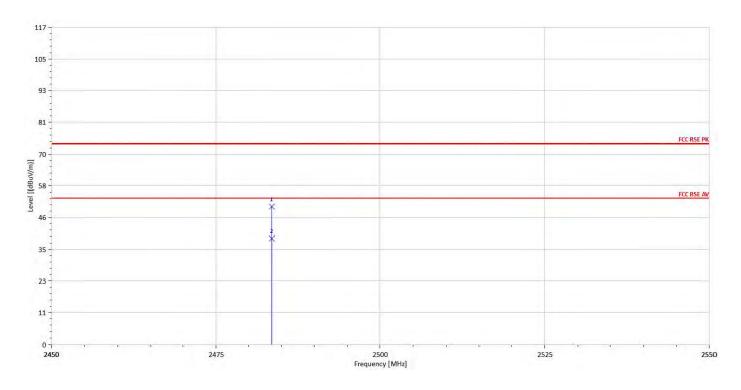
Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	E	Peak	45.43	0.92	46.35	74	-27.65
2390.00	Е	Average	33.66	0.92	34.58	54	-19.42

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Operation Mode : Test Date : 802.11b 2016/8/11 Fundamental Frequency : 2462 MHz Temp. / Humi. : 22.7deg_C/57RH **Operation Band :** BE CH High Test Engineer : Pony EUT Pol. : Measurement Antenna Pol. : Vertical Н



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	49.74	1.16	50.90	74	-23.10
2483.50	Е	Average	37.94	1.16	39.10	54	-14.90

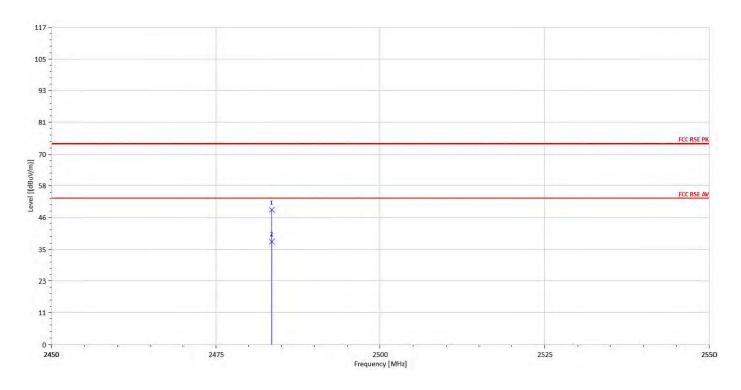
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Operation Mode : Test Date : 802.11b 2016/8/11 Fundamental Frequency : 2462 MHz Temp. / Humi. : 22.7deg_C/57RH **Operation Band :** BE CH High Test Engineer : Pony EUT Pol. : Measurement Antenna Pol. : Horizontal Н



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	48.50	1.16	49.66	74	-24.34
2483.50	Е	Average	36.83	1.16	37.99	54	-16.01

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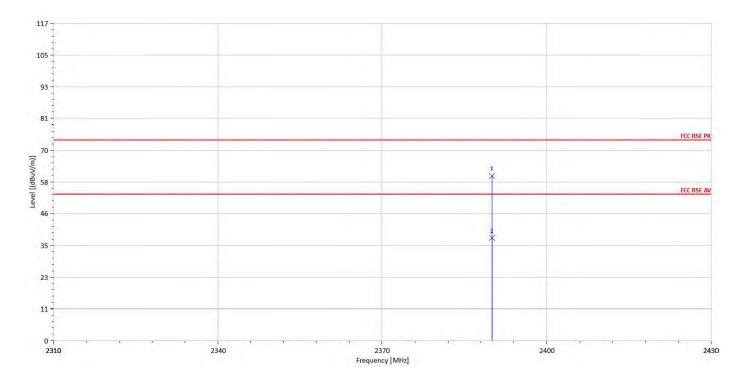
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Radiated Band Edge Measurement Result (802.11g)

Operation Mode:	802.11g	Test Date :	2016/8/11
Fundamental Frequency:	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	BE 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
2390.00	E	Peak	59.87	0.92	60.79	74	-13.21
2390.00	E	Average	36.97	0.92	37.89	54	-16.11

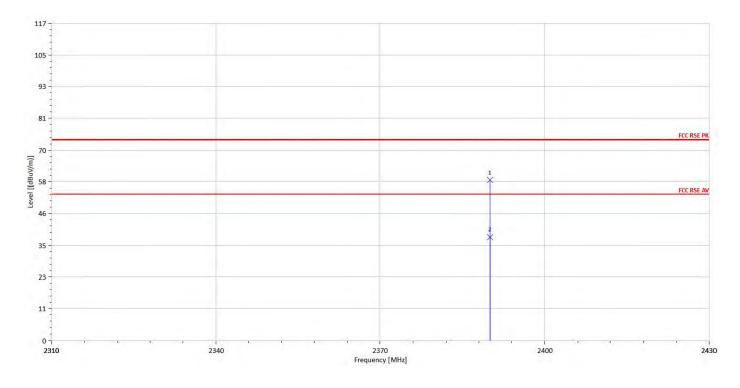
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Operation Mode : Fundamental Frequency : Operation Band : FUT Pol	802.11g 2412 MHz BE CH Low H	Temp. / Humi. : Test Engineer :	2016/8/11 22.7deg_C/57RH Pony Horizontal
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal



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	dBµV/m	dB
2390.00	E	Peak	58.20	0.92	59.12	74	-14.88
2390.00	Е	Average	37.21	0.92	38.13	54	-15.87

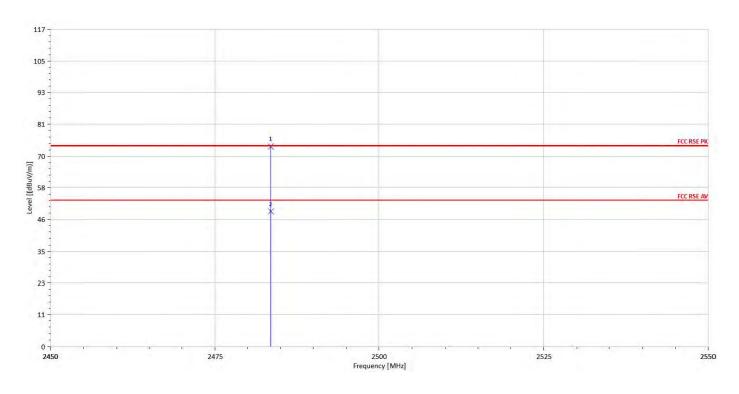
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Operation Mode : Test Date : 802.11g Fundamental Frequency : 2462 MHz Temp. / Humi. : **Operation Band :** BE CH High Test Engineer : Pony EUT Pol. : Measurement Antenna Pol. : Vertical Н

2016/8/11 22.7deg_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	72.58	1.16	73.74	74	-0.26
2483.50	E	Average	48.70	1.16	49.86	54	-4.14

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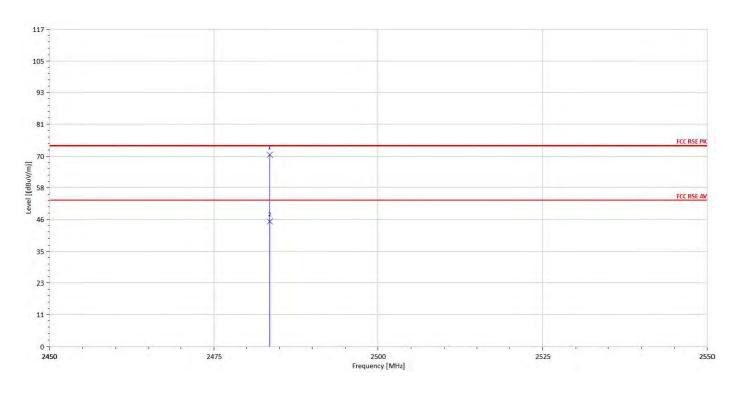
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Operation Mode : Test Date : 802.11g Fundamental Frequency : 2462 MHz Temp. / Humi. : **Operation Band :** BE CH High Test Engineer : EUT Pol. : Measurement Antenna Pol. : Н

2016/8/11 22.7deg_C/57RH Pony 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	dBµV/m	dB
2483.50	E	Peak	69.59	1.16	70.75	74	-3.25
2483.50	Е	Average	44.90	1.16	46.06	54	-7.94

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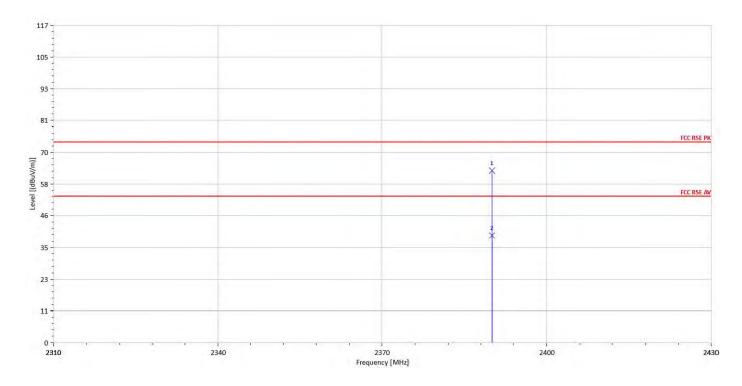
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Radiated Band Edge Measurement Result (802.11_HT20)

Operation Mode :	802.11n20	Test Date :	2016/8/11
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	BE 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
2390.00	E	Peak	62.49	0.92	63.41	74	-10.59
2390.00	E	Average	38.60	0.92	39.52	54	-14.48

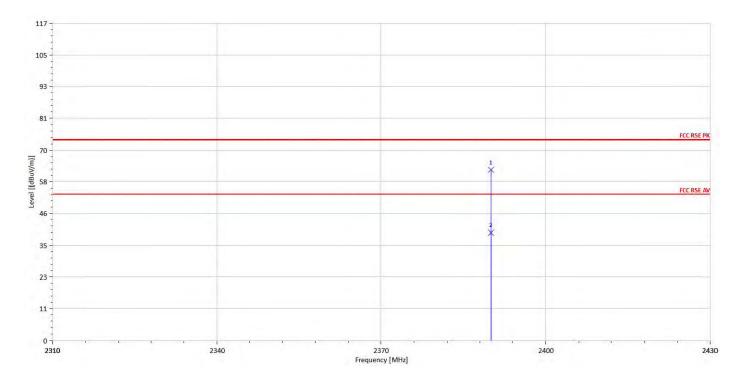
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Operation Mode :	802.11n20	Test Date :	2016/8/11
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg C/57RH
Operation Band :	BE CH Low	Test Engineer :	Pony
EUT Pol. :	H	Measurement Antenna Pol. :	Horizontal



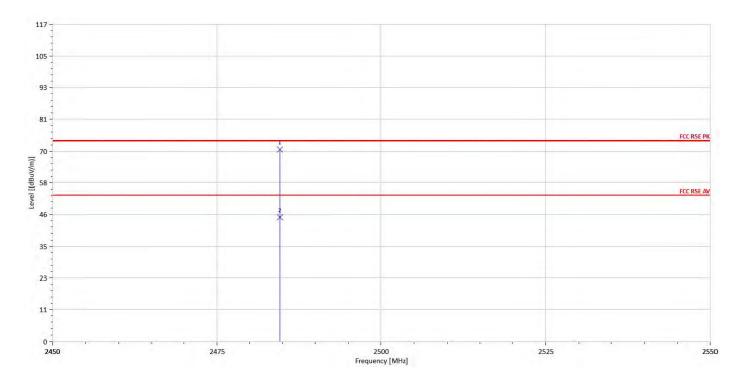
Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	E	Peak	62.02	0.92	62.94	74	-11.06
2390.00	Е	Average	38.82	0.92	39.74	54	-14.26

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Operation Mode:	802.11n20	Test Date :	2016/8/11
Fundamental Frequency:	2462 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	BE CH High	Test Engineer :	Pony
EUT Pol. :	H	Measurement Antenna Pol. :	Vertical

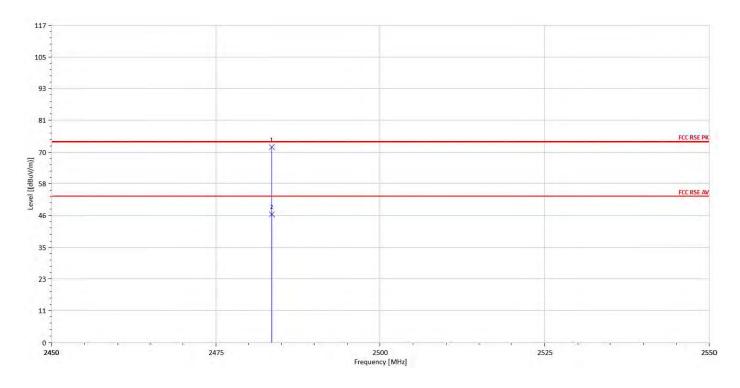


Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2484.60	E	Peak	69.69	1.16	70.85	74	-3.15
2484.60	Е	Average	44.60	1.16	45.76	54	-8.24

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Operation Mode:	802.11n20	Test Date :	2016/8/11
Fundamental Frequency:	2462 MHz	Temp. / Humi. :	22.7deg C/57RH
Operation Band :	BE CH High	Test Engineer :	Pony
EUT Pol. :	H	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	dBµV/m	dB
2483.50	E	Peak	70.94	1.16	72.10	74	-1.90
2483.50	Е	Average	46.09	1.16	47.25	54	-6.75

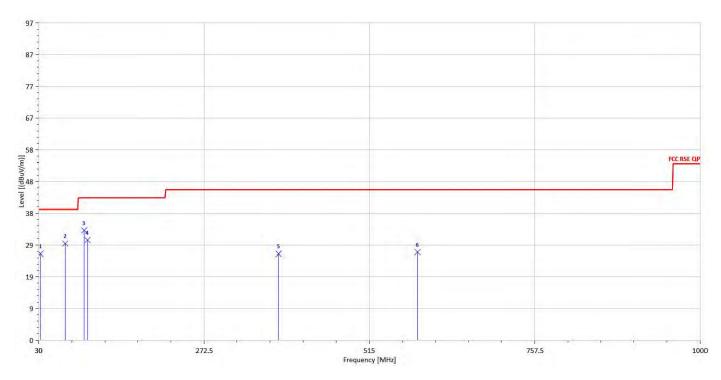
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Below 1GHz Worst-Case Data:

Radiated Spurious Emission Measurement Result (802.11 g)

Operation Mode :	802.11g	Test Date :	2016/8/14
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



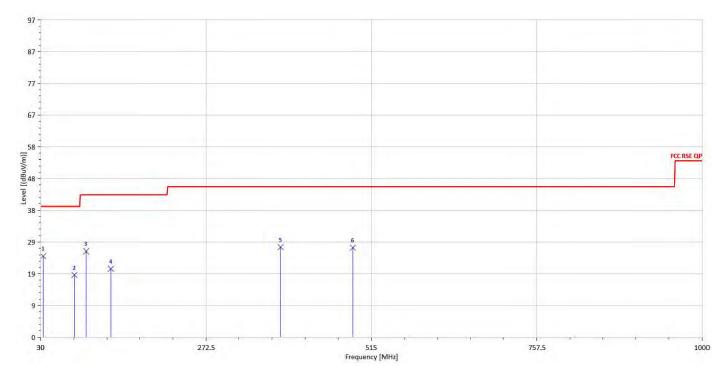
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
32.91	S	Peak	35.16	-8.75	26.41	40	-13.59
68.80	S	Peak	51.48	-21.95	29.53	40	-10.47
96.93	S	Peak	51.87	-18.27	33.60	43.5	-9.90
101.78	S	Peak	48.11	-17.52	30.59	43.5	-12.91
382.11	S	Peak	36.73	-10.33	26.40	46	-19.60
585.81	S	Peak	33.21	-6.29	26.91	46	-19.09

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Operation Mode:	802.11g	Test Date :	2016/8/14
Fundamental Frequency:	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band : EUT Pol. :	Tx CH Low H	Test Engineer : Measurement Antenna Pol. :	Pon y Horizontal

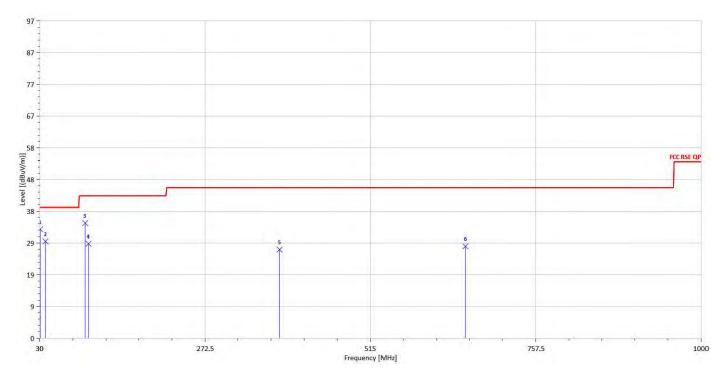


Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
33.88	S	Peak	34.11	-9.27	24.83	40	-15.17
79.47	S	Peak	40.05	-21.01	19.04	40	-20.96
96.93	S	Peak	44.52	-18.27	26.25	43.5	-17.25
132.82	S	Peak	36.70	-15.76	20.93	43.5	-22.57
382.11	S	Peak	37.81	-10.33	27.48	46	-18.52
487.84	S	Peak	35.24	-7.93	27.31	46	-18.69

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Operation Mode:	802.11g	Test Date :	2016/8/14
Fundamental Frequency:	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Pony
EUT Pol. :	H	Measurement Antenna Pol. :	Vertical

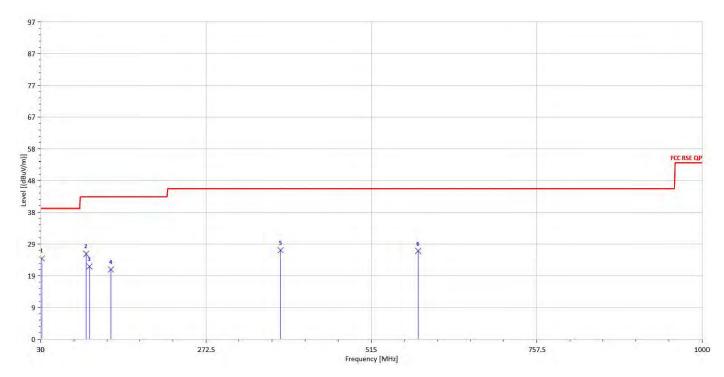


Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
30.97	S	Peak	41.02	-7.70	33.32	40	-6.68
38.73	S	Peak	41.61	-12.04	29.57	40	-10.43
96.93	S	Peak	53.48	-18.27	35.21	43.5	-8.29
101.78	S	Peak	46.37	-17.52	28.84	43.5	-14.66
382.11	S	Peak	37.38	-10.33	27.04	46	-18.96
654.68	S	Peak	33.23	-5.19	28.04	46	-17.96

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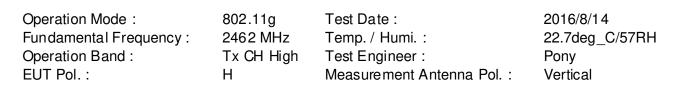
Operation Mode:	802.11g	Test Date :	2016/8/14
Fundamental Frequency:	2437 MHz	Temp. / Humi. :	22.7deg C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Pony
EUT Pol. :	H	Measurement Antenna Pol. :	Horizontal

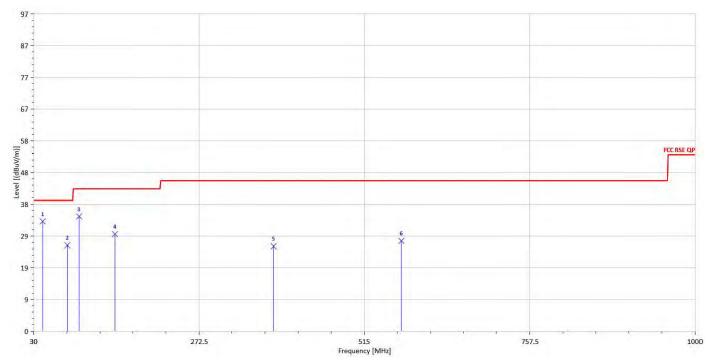


Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
31.94	S	Peak	32.99	-8.22	24.77	40	-15.23
96.93	S	Peak	44.36	-18.27	26.09	43.5	-17.41
101.78	S	Peak	39.79	-17.52	22.27	43.5	-21.23
132.82	S	Peak	37.12	-15.76	21.36	43.5	-22.14
382.11	S	Peak	37.50	-10.33	27.17	46	-18.83
583.87	S	Peak	32.92	-5.98	26.94	46	-19.06

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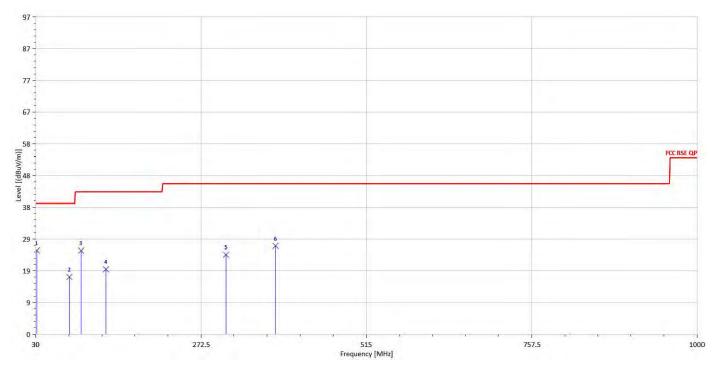


Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
43.58	S	Peak	48.94	-15.35	33.59	40	-6.41
79.47	S	Peak	47.28	-21.01	26.27	40	-13.73
96.93	S	Peak	53.40	-18.27	35.13	43.5	-8.37
149.31	S	Peak	46.38	-16.73	29.65	43.5	-13.85
382.11	S	Peak	36.30	-10.33	25.97	46	-20.03
569.32	S	Peak	34.15	-6.58	27.57	46	-18.43

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Operation Mode:	802.11g	Test Date :	2016/8/14
Fundamental Frequency:	2462 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band:	Tx CH High	Test Engineer :	Pony
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	33.83	-8.22	25.60	40	-14.40
79.47	S	Peak	38.50	-21.01	17.49	40	-22.51
96.93	S	Peak	43.84	-18.27	25.57	43.5	-17.93
132.82	S	Peak	35.60	-15.76	19.84	43.5	-23.66
309.36	S	Peak	36.97	-12.62	24.36	46	-21.64
382.11	S	Peak	37.29	-10.33	26.96	46	-19.04

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Above 1GHz Data:

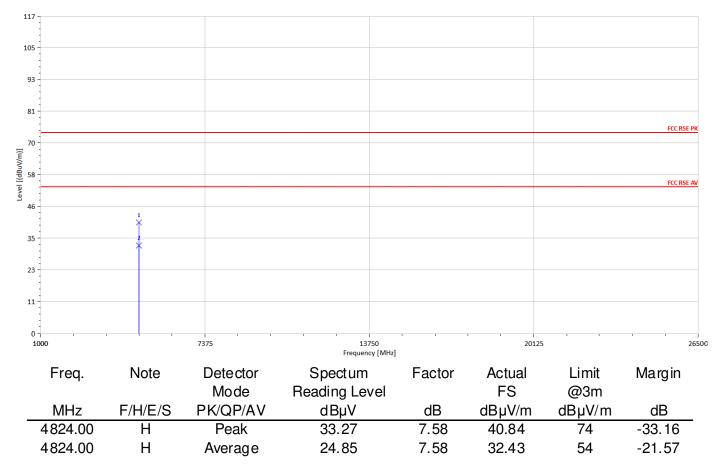
Radiated Spurious Emission Measurement Result (802 11 h)

Radiated Sp	ourious Emissi	on Measureme	ent Res	ult (802.11 b)		
Operation Mode: Fundamental Frequency: Operation Band: EUT Pol.:		In damental Frequency: 2412 MHz Temp. / Humi. : Deration Band : Tx CH Low Test Engineer :		2016/8/11 22.7deg_C/57R Pony Vertical	Ή	
117						
105 -						
93 -						
81						
70 -						FCC RSE PK
58						
46	1					FCC RSE AV
35	× ×					
23						
11						
0 1000	7375	5		750 2 cv [MHz]	0125	2650

			Frequency [WHz]				
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
			Ũ		-	-	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4824.00	Н	Peak	32.85	7.58	40.43	74	-33.57
4824.00	Н	Average	25.67	7.58	33.25	54	-20.75

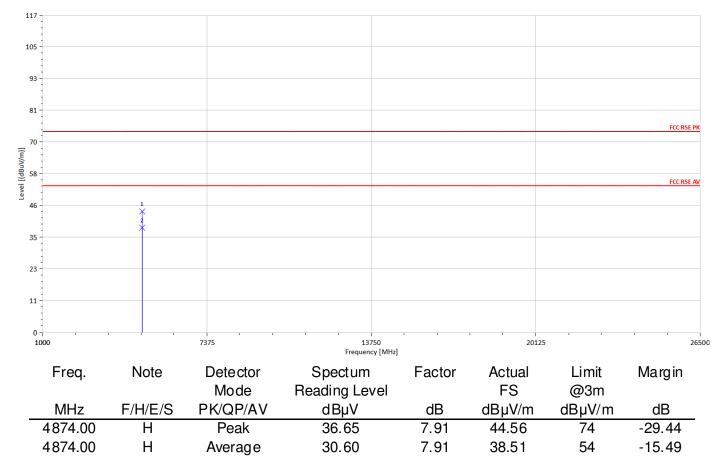


Operation Mode :	802.11b	Test Date :	2016/8/11
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal



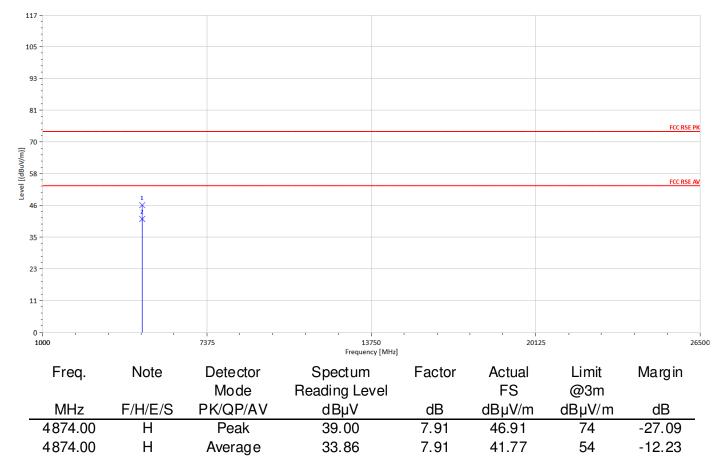


Operation Mode :	802.11b	Test Date :	2016/8/11
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Vertical





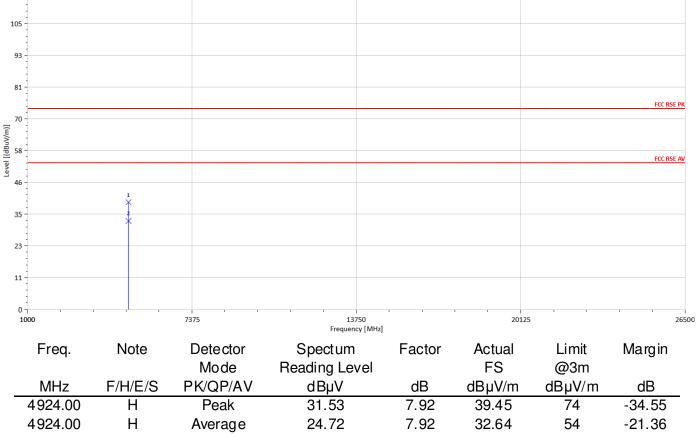
Operation Mode :	802.11b	Test Date :	2016/8/11
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal





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Operation Mode :	802.11b	Test Date :	2016/8/11
Fundamental Frequency :	2462 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Pony
EUT Pol. :	H	Measurement Antenna Pol. :	Vertical
117]			

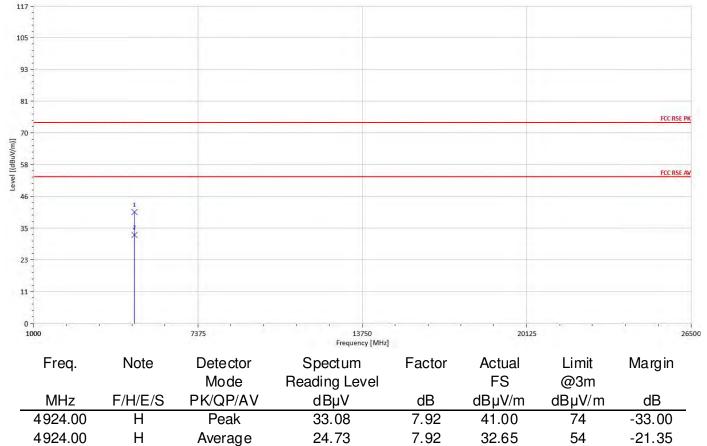


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•	Operation Band :	Tx CH High	Test Engineer :	-)
---	------------------	------------	-----------------	-----

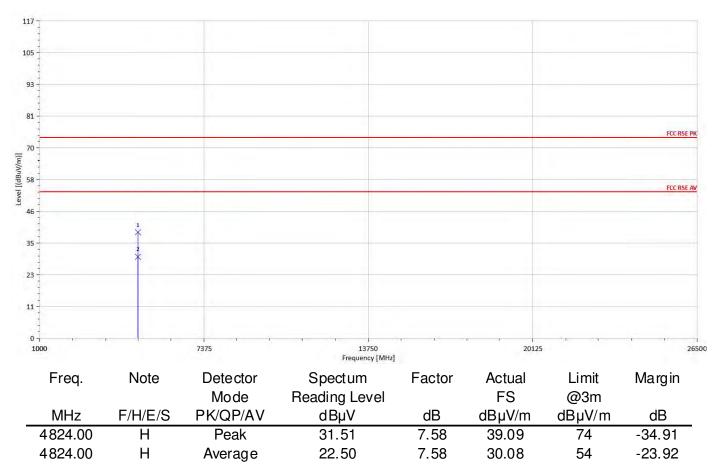


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Radiated Spurious Emission Measurement Result (802.11 g)

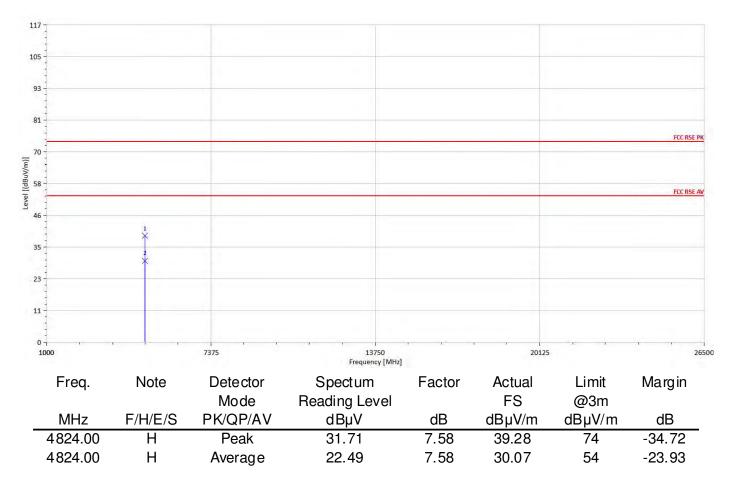
Fundamental Frequency: 2412 MHz Temp.	Uumi :	
Operation Band : Tx CH Low Test En EUT Pol. : H Measur		,



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.

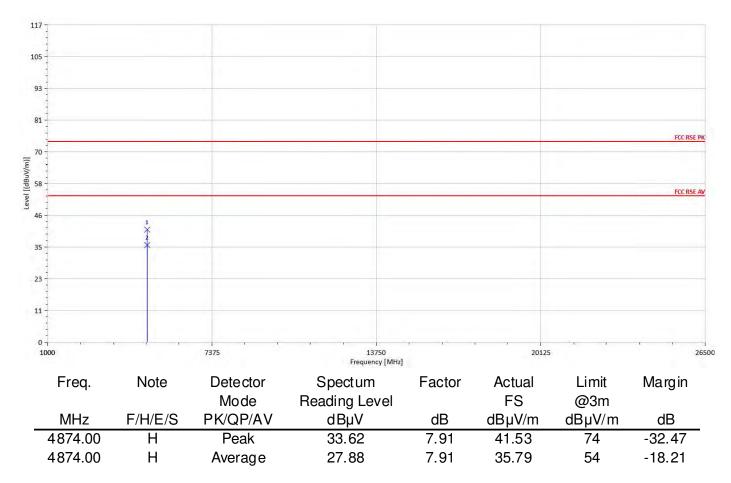


Operation Mode :	802.11g	Test Date :	2016/8/11
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal



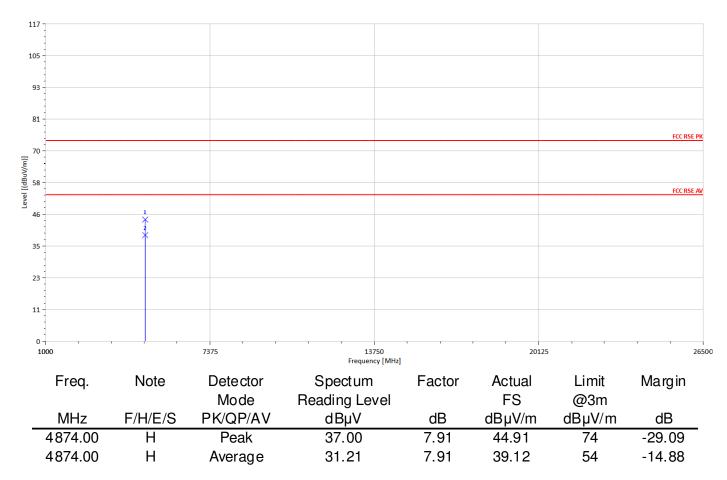


Operation Mode :	802.11g	Test Date :	2016/8/11
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Vertical



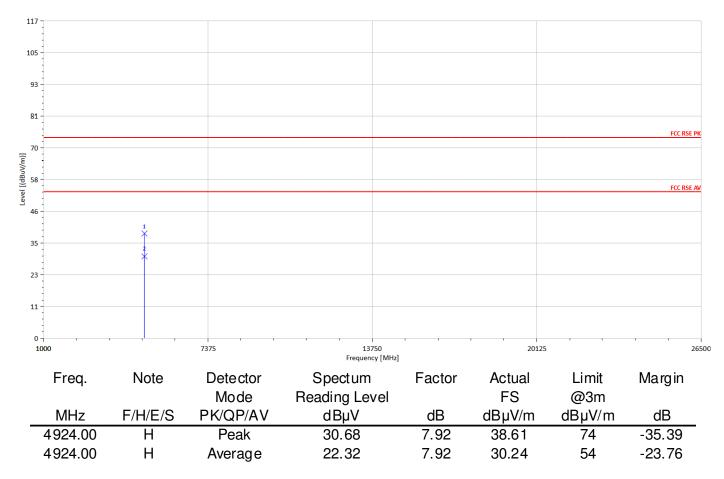


Operation Mode :	802.11g	Test Date :	2016/8/11
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal



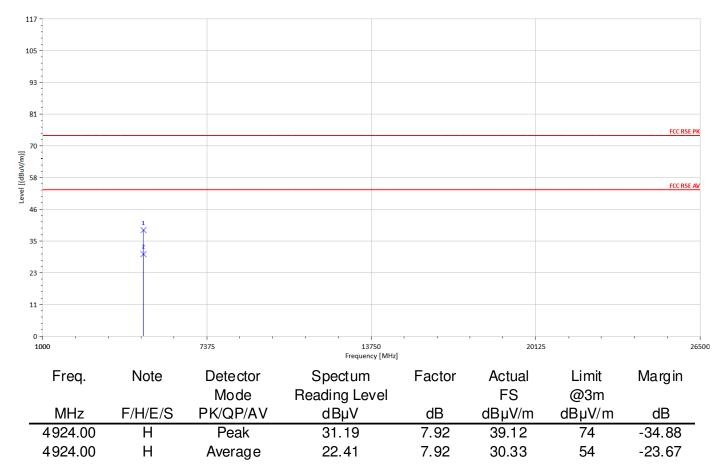


Operation Mode :	802.11g	Test Date :	2016/8/11
Fundamental Frequency :	2462 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Pony
EUT Pol. :	H	Measurement Antenna Pol. :	Vertical





Operation Mode:	802.11g	Test Date :	2016/8/11
Fundamental Frequency:	2462 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Pony
EUT Pol. :	H	Measurement Antenna Pol. :	Horizontal

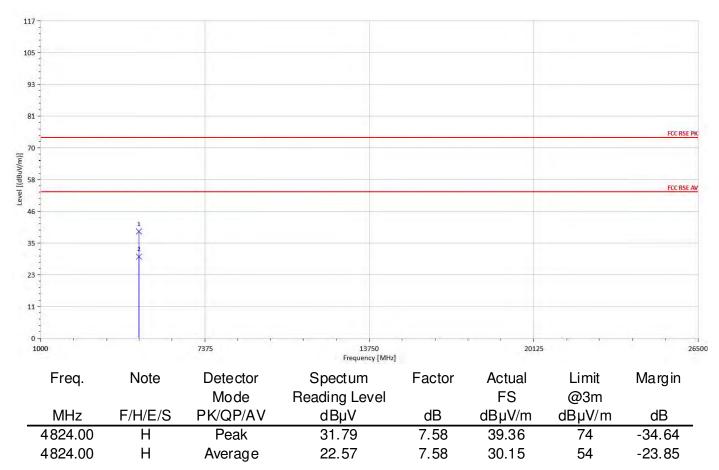




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Radiated Spurious Emission Measurement Result (802.11_HT20)

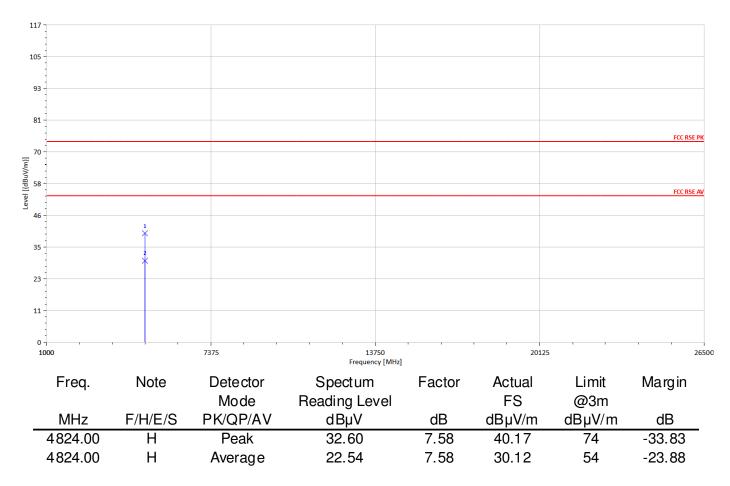
Operation Mode :	802.11n20	Test Date :	2016/8/11
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol.:	Vertical



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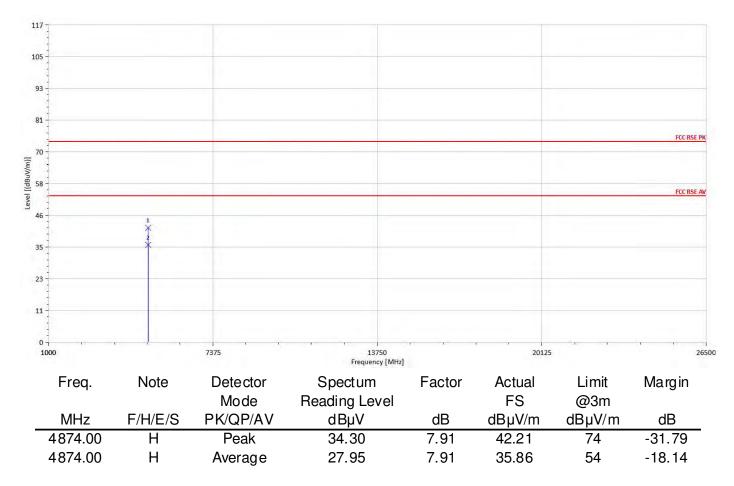


Operation Mode :	802.11n20	Test Date :	2016/8/11
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal



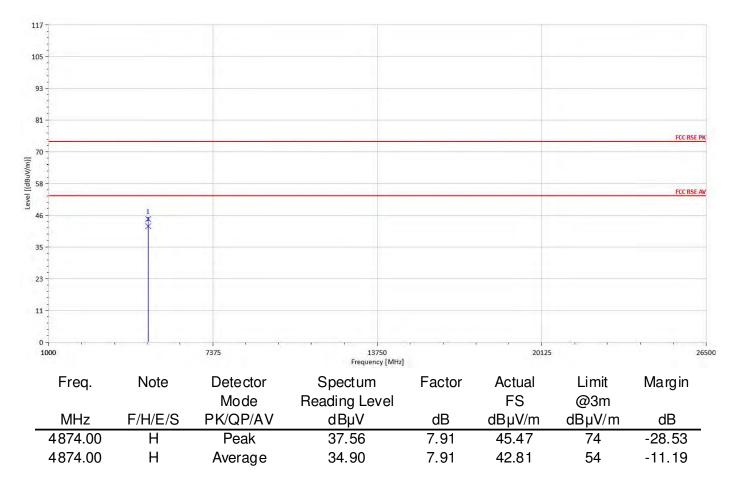


Operation Mode :	802.11n20	Test Date :	2016/8/11
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Vertical



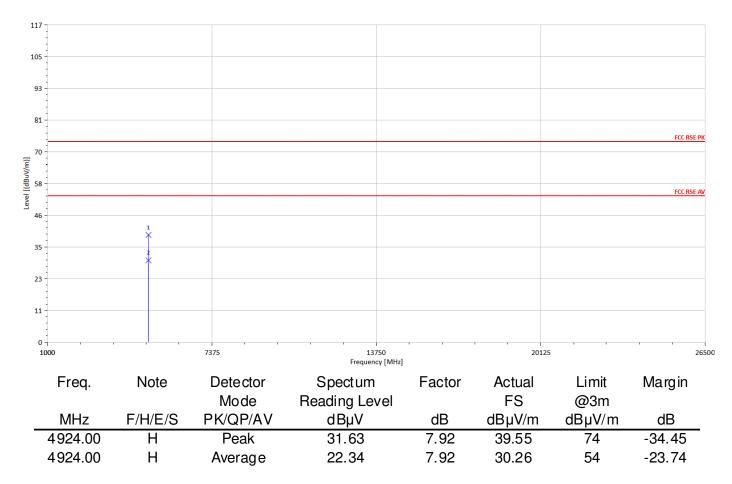


Operation Mode :	802.11n20	Test Date :	2016/8/11
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal



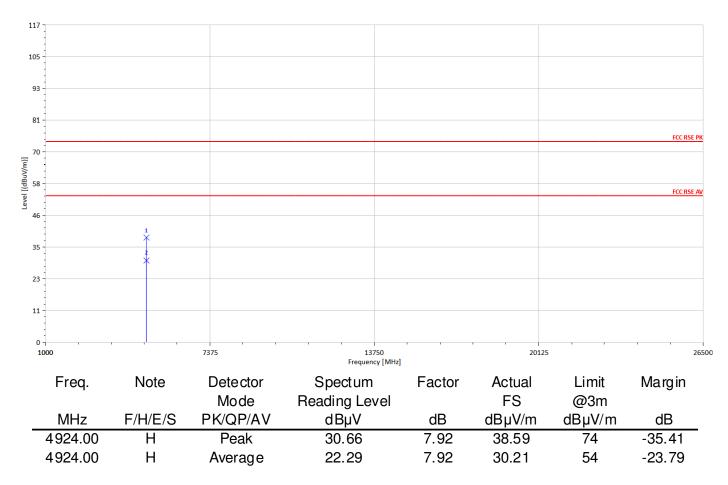


Operation Mode :	802.11n20	Test Date :	2016/8/11
Fundamental Frequency :	2462 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Pony
EUT Pol. :	Н	Measurement Antenna Pol. :	Vertical





Operation Mode :	802.11n20	Test Date :	2016/8/11
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





12 PEAK POWER SPECTRAL DENSITY

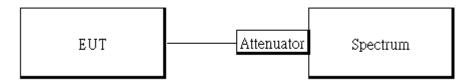
12.1 Standard Applicable

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.

12.2 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
DC Power Supply	Agilent	E3640A	MY53140006	05/04/2016	05/03/2017

12.3 Test Set-up



12.4 Measurement Procedure

- 9. Set analyzer center frequency to DTS channel center frequency.
- 10. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance.
- 11. Set the span to 1.5 times the DTS channel bandwidth.
- 12. Set the RBW = 3 kHz & VBW = 10 kHz.
- 13. Detector = peak.
- 14. Sweep time = auto couple.
- 15. Trace mode = max hold.
- 16. Allow trace to fully stabilize.
- 17. Use the peak marker function to determine the maximum amplitude level.

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

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12.5 Measurement Result

POWER DENSITY 802.11b MODE				
Frequency	RF Power	Maximum		
(MHz)	Density	Limit	Result	
(101112)	(dBm)	(dBm)		
2412	-8.57	8.00	PASS	
2437	-8.69	8.00	PASS	
2462	-8.53	8.00	PASS	

POWER DENSITY 802.11g MODE				
Frequency (MHz)	RF Power	Maximum		
	Density	Limit	Result	
	(dBm)	(dBm)		
2412	-13.37	8.00	PASS	
2437	-13.23	8.00	PASS	
2462	-14.34	8.00	PASS	

POWER DENSITY 802.11n HT20 MODE REPower Maximum

Frequency (MHz)	Density	Limit	Result
(101112)	(dBm)	(dBm)	
2412	-14.70	8.00	PASS
2437	-13.56	8.00	PASS
2462	-14.67	8.00	PASS

*Refer to next page for plots

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802.11b PSD(CH-Low)



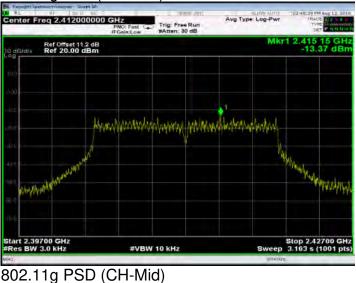
802.11b PSD (CH-Mid)



802.11b PSD (CH-High)

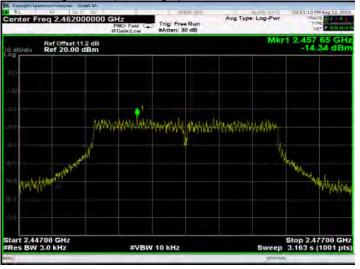


802.11g PSD(CH-Low)



RL 8/ 200 Dc enter Freq 2.437000000 GHz PNo: 1 Ava Type: Log-Pr Trig: Free Run #Atten: 30 dB Ref Offset 11.2 dB Ref 20.00 dBm 13.23 di anticophecistrativiporeersh retransitivitativitative Web Res BW 3.0 kHz Stop 2.45200 G 3.163 s (1001 p #VBW 10 kHz

P802.11g PSD (CH-High)



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台灣檢驗科技股份有限公司

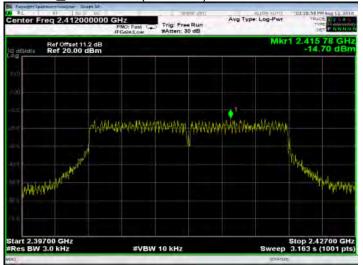
f (886-2) 2298-0488

www.tw.sas.com

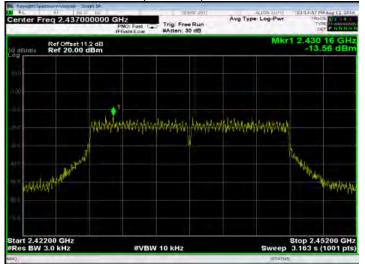


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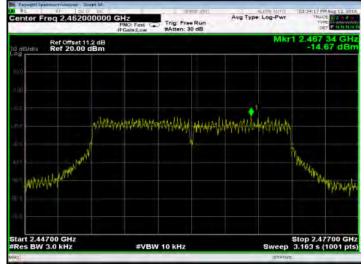
802.11n HT20 PSD (CH-Low)



802.11n HT20 PSD (CH-Mid)



802.11n_HT20 PSD (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.

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.

~ End of Report ~

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

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