

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

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

OF

FCC Applicant:	Acer Incorporated 8F., No. 88, Sec. 1, Xintai 5th Rd., Xizhi, New Taipei City 22181, Taiwan
IC Applicant:	(R.O.C) Acer Incorporated 8F., No. 88, Sec. 1, Xintai 5th Rd., Xizhi, New Taipei City 22181, Taiwan (R.O.C)
Product Name:	Smart Video Cycling Computer
Brand Name:	Xplova
Model No.:	X5Evo
Model Difference:	N/A
FCC ID:	HLZX5EVO
IC:	1754F-X5EVO
Report Number:	E2/2018/50061
FCC Rule Part:	§15.247, Cat: DTS
IC Rule Part:	RSS-247 issue 2 Feb 2017
Issue Date:	Jun. 15, 2018
Date of Test:	May 17, 2018~Jun. 01, 2018
Date of EUT Received: We hereby certify that:	May 17, 2018

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

Tested By:

Approved By:

Vito Pei / Engineer

Jim Chang / Manager



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Revision History

Report Number	Revision	Description	Effected Page	Issue Date	Revised By
E2/2018/50061	Rev.00	Initial creation of docu- ment	All	Jun. 15, 2018	Stefanie Yu / Clerk

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GENERAL INFORMATION 1

1.1 Product description

General:

Product Name:	Smart Video Cycling Computer		
Brand Name:	Xplova		
Model No.:	X5Evo		
Model difference:	N/A		
Hardware Version:	N/A		
Software Version:	ALPS.L1.MP9.V3.8_ACER2601.WP.L		
USB Cable:	Model No.: HC.7021.031, Supplier: David Electronics Company Ltd.		
Dowor Supply:	3.8Vdc from Rechargeable Battery or 5Vdc from USB Port.		
Power Supply:	Battery: Model No.:X5, Supplier: Welltech Energy Inc.		

WLAN 2.4GHz:

Wi-Fi	Frequency Range	Channels	Rated Power in dBm (Peak)	Rated Power in dBm (EIRP)	Type of Emission	Modulation Technology	
802.11b			18.55	16.61	13M5G1D	DSSS	
802.11g	2412-2462	11	22.77	15.66	16M9D1D		
802.11n HT20			21.55	13.99	17M7D1D	OFDM	
802.11n HT40	2422-2452	9	20.79	12.92	36M3D1D		
Antenna	Designation:		enna, Gain: 1.09 o.: N/A, Supplier:				
Modulati	on type:	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM					
Transition Rate: 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 - 65.5Mbps 802.11 n_40MHz: 13.5 - 150.0Mbps							

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1.2 Test Methodology of Applied Standards

FCC Part 15, Subpart C §15.247

FCC KDB 558074 D01 DTS Meas. Guidance v04

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

RSS-247 issue 2 Feb. 2017

RSS-Gen. issue 5 Apr. 2018

ANSI C63.10:2013

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

1.3 Test Facility

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

(TAF code 0513)

FCC Registration and Designation number are: 735305 / TW 0002

Canada Registration Number: 4620E-1

1.4 Special Accessories

There are no special accessories used while test was conducted.

1.5 Equipment Modifications

There was no modification incorporated into the EUT.

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SYSTEM TEST CONFIGURATION 2

2.1 EUT Configuration

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

2.2 EUT Exercise

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

2.3 Test Procedure

2.3.1 **Conducted Emissions**

The EUT is a placed on 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 & RSS-Gen §8.8. 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 transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

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2.4 Measurement Results Explanation Example

For all conducted test items:

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

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

Offset:

= RF cable loss (dB)+ attenuation factor(dB) dB =10.6 (dB)

2.5 Configuration of Tested System







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



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



Table 2-1 Equipment	Used in	Tested System
---------------------	---------	----------------------

ltem	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	T420	S0012599	N/A	N/A

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SUMMARY OF TEST RESULTS 3

FCC Rules	IC Rules	IC Rules Description Of Test	
§15.207(a)	RSS-Gen §8.8	AC Power Line Conducted Emission	Compliant
§15.247(b) (3)	RSS-247 §5.4(4)	SS-247 §5.4(4) Peak Output Power	
§15.247(a)(2)	RSS-247 §5.2 (1) RSS-Gen §6.6		
§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 §6.8	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

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

7 channels are provided for 802.11n_HT40

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

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4.2 The Worst Test Modes and Channel Details

- 1. The EUT has been tested under operating condition.
- 2. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.
- 3. Investigation has been done on all the possible configurations for searching the worst case.

RADIATED EMISSION TEST:

RADIATED EMISSION TEST (BELOW 1 GHz)								
MODE AVAILABLE TESTED 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	MODE AVAILABLE TESTED MODULATION									
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 Edge	+/- 0.84 dB				
Peak Power Density	+/- 1.3 dB				
Temperature	+/- 0.65 °C				
Humidity	+/- 4.6 %				
DC / AC Power Source	DC= +/- 0.13%, AC= +/- 0.2%				

Radiated Spurious Emission:

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

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

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

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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 th 2.The limit decreases linearly wit	e transition frequencies h the logarithm of the frequency ir	n the range 0.15 MHz to 0.50					

MHz.

6.2 Measurement Equipment Used

Conducted Emission Test Site											
EQUIPMENT TYPE	MFR	SERIAL NUMBER	LAST CAL.	CAL DUE.							
EMI Test Receiver	R&S	ESCI 7	100950	12/24/2017	12/23/2018						
Coaxial Cables	N/A	N30N30-1042-150cm	N/A	08/30/2017	08/29/2018						
LISN	Schwarzbeck	NSLK 8127	8127-648	06/18/2017	06/17/2018						
Test Software	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R.	N.C.R.						

6.3 EUT Setup

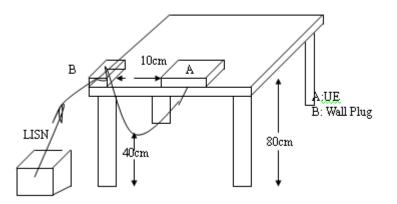
- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI 63.10:2013.
- 2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
- 3. The LISN was connected with 120Vac/60Hz power source.

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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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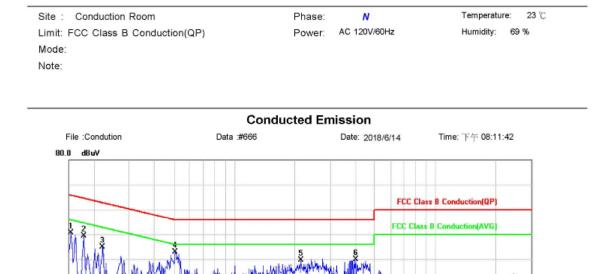
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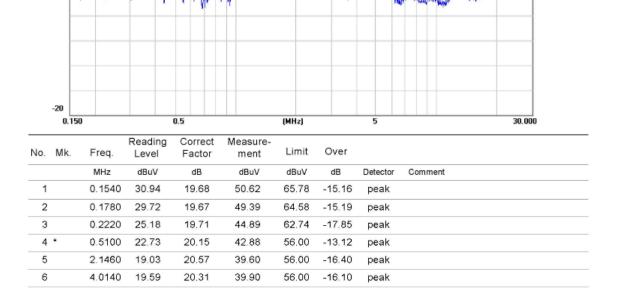


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		AMM-HAMA	0.5	WWW	<u>5</u> ////////////////////////////////////	MH H	5	C Class B 0	Conduction(AVG)
-20	Freq.	Reading	0.5	Measure- ment		Over	My man	C Class B C	en Wannen Man
-20 0.150		Reading	Correct	Measure-	(MHz)		My man	C Class B C	un What Market Anna 30.000
-20 0.150	Freq.	Reading Level	Correct Factor	Measure- ment	(MHz) Limit	Over	5	n dage dage dage dage dage dage dage dage	un What Market Anna 30.000
-20 0.150 No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	(MHz) Limit dBuV	Over	5 Detector	n dage dage dage dage dage dage dage dage	un What Market Anna 30.000
-20 0.150 No. Mk.	Freq. MHz 0.1700	Reading Level dBuV 32.05	Correct Factor dB 19.70	Measure- ment dBuV 51.75	(MHz) Limit dBuV 64.96	Over dB -13.21	5 Detector peak	n dage dage dage dage dage dage dage dage	un What Market Anna 30.000
-20 0.150 No. Mk.	Freq. MHz 0.1700 0.1900	Reading Level dBuV 32.05 26.47	Correct Factor dB 19.70 19.69	Measure- ment dBuV 51.75 46.16	(MHz) Limit dBuV 64.96 64.04	Over dB -13.21 -17.88	5 Detector peak peak	n dage dage dage dage dage dage dage dage	un What Market Anna 30.000
-20 0.150 No. Mk. 1 * 2 3	Freq. MHz 0.1700 0.1900 0.5140	Reading Level dBuV 32.05 26.47 22.03	Correct Factor dB 19.70 19.69 20.17	Measure- ment dBuV 51.75 46.16 42.20	(MHz) Limit dBuV 64.96 64.04 56.00	Over dB -13.21 -17.88 -13.80	5 Detector peak peak	n dage dage dage dage dage dage dage dage	un What Market Anna 30.000

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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 (%)	1/T (kHz)	VBW setting (kHz)	
802.11b	98.81	0.05	0.12	1.00
802.11g	92.91	0.32	0.72	1.00
802.11n_20	92.40	0.34	0.78	1.00
802.11n_40	92.12	0.36	1.57	2.00

b = 98.81%, *g* = 92.91%,*n*_*ht*_20 = 92.4%

Duty Cycle Factor: $10 * \log(1/0.9881) = 0.05$ Duty Cycle Factor: $10 * \log(1/0.9291) = 0.32$ Duty Cycle Factor: 10 * log(1/0.924) = 0.34 Duty Cycle Factor: $10 * \log(1/0.9212) = 0.36$

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7.1 DUTY CYCLE TEST SIGNAL Measurement Result 802.11 b

Agilent Sp	ectrum Analyzer - Si						
Center I	Freq 2.4370	000000 GHz	SENSED	Avg Ty	ALIGN AUTO pe: Log-Pwr	05:18:14 PM May 18, 2018 TRACE 1 2 3 4 5 6	Frequency
	Ref Offset	PNO: Fast IFGain:Lov			Δ	Mkr3 8.484 ms	Auto Tune
10 dB/div	Ref 30.00					-0.67 dB	
20.0 10.0		***			3∆4		Center Freq 2.437000000 GHz
0.00							
-20.0							Start Freq 2.437000000 GHz
-30.0					,		Stop Freq
-50,0							2,437000000 GHz
Center 2 Res BW	2.437000000 8 MHz		BW 8.0 MHz		Sweep 2	Span 0 Hz 0.20 ms (1001 pts)	CF Step 8.000000 MHz Auto Man
MKR MODE		×	Y COLUMN	FUNCTION	UNCTION MDTH	FUNCTION VALUE	Auto Mari
1 Δ2 2 F 3 Δ4 4 F 5	t (Δ) t t (Δ) t	8,383 ms 6,464 ms 8,484 ms 6,464 ms	18.91 dBm				Freq Offset 0 Hz
6 7 8 9 10]	
11			mi			*	
MSG					STATUS		

802.11 g

										nalyzer - Swe	ectrum A	
Frequency	TRACE 1 2 3 4 5 6		ALIGN AU e: Log-P	Avg Ty	VSE:INT	1		Hz	00000 G	50 g	reg	terl
	DET P NNNNN					#Atten: 3		PNO: Fa IFGain:L	F			
Auto Tune	3 1.501 ms 0.78 dB	ΔM								Offset 10		B/div
Center Fred 2.437000000 GHz	when you work some	304 Network		iyalindina Yihani	supliquest	unan di pan	18	ribran	-transformety. Aug.	edierania	rdor the	late
		-					+	++	-		-	
Start Free 2.437000000 GHz		-					-				-	
			4.6				w	h				
Stop Fred 2.437000000 GHz		-						+			-	\vdash
CF Step 8.000000 MH:	Span 0 Hz ms (1001 pts)	3.800	Sweep			8.0 MHz	#VBW	#	GHz	00000 (z	.4370 8 MH	
Auto Mar	UNICTION VALUE	DTH	NCTION M	TION PI		2.48	141	.395 m	×	(A)	NC SCI	Δ2
Freq Offset 0 Hz					Bm dB	16.73 d 0.78 16.73 d	15 15 (Δ)	.357 m .501 m .357 m	1	(Δ) (Δ)	1 t	F A4 F
							-				-	
						191						
		ATUS	ST									

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802.11 n_20 MHz

	Analyzer - Swept SA						
Center Freq	2.437000000	GHz PNO: Fast	Trig: Free R	Avg Type	ALIGN AUTO 06:25 Cog-Pwr	09 PM May 18, 2018 TRACE 1 2 3 4 5 6 TYPE WWWWWWW DET P N N N N N	Frequency
10 dB/div R	ef Offset 10.6 dB	IFGain:Low	#Atten: 30 d			1.396 ms 0.25 dB	Auto Tun
20.0 10.0 0.00	a-n ^a -n ^a -later -people -peo	vert	unglipskinselinderer	℩৻୷୶୲୷ ͳ ͿϨͱϐͻϷϯ <mark>ϸ</mark> ·ϙͻϯ	and have not press	304 Unoberney	Center Fre 2.437000000 GH
20.0							Start Fr 2.437000000 G
40.0 50.0 50.0		hahal			44		Stop Fr 2,437000000 G
enter 2.437 es BW 8 M		#VB	W 8.0 MHz		Sweep 2.533 m		CF St 8.000000 M Auto M
1 Δ2 1 2 F 1 3 Δ4 4 5 6	t (Δ) t t (Δ) t	1.287 ms (/ 843.6 µs 1.396 ms (/ 843.6 µs	15.86 dBn	3 n 3			Freq Offs 0
7 8 9 10 11							
155					STATUS		

802.11 n 40 MHz

	ent Spectrum A			-								-		-c44 -
Cent	er Freq	1 30			Trie	SENSE IN		A		LIGN AUTO	06:44:09 P TRAC	E 1 2 3 4	5.6	Frequency
10 dB		f Offset		PNO: Fast IFGain:Lov		ten: 30 dB					AMkr3 7	44.8 J	us	Auto Tune
20.0 10.0	hele and the		×4	hanna	(^a nd y s. ^{and} y	hormaturi./	- 02	Δ2 (304 m++/	dyaj-cylecality-		hatrophili		Center Freq 2.437000000 GHz
-10,0 -20.0 -30.0														Start Freq 2.437000000 GHz
-40.0 -50.0 -60.0			in the second	_		-		naya.					5	Stop Freq 2.437000000 GHz
Res I	er 2.437 BW 8 MH	lz	GHz	#V	BW 8.0	MHz	FLOW	-	_	Sweep 1	.867 ms (pan 0 1001 p	ts)	CF Step 8.000000 MHz Auto Man
1 4 2 1 3 4 5 6	12 1 t F 1 t 14 1 t F 1 t	(Δ)		636.5 µs 438.7 µs 744.8 µs 438.7 µs	(A) 7	5.63 dB 66 dBm 2.26 dB 66 dBm		_						Freq Offset 0 Hz
7 8 9 10 11														
MSG										STATUS	5			

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PEAK OUTPUT POWER MEASUREMENT 8

8.1 Standard Applicable

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

Per RSS-247 §5.4(4)

For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. Except as provided in Section 5.4(5), 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.

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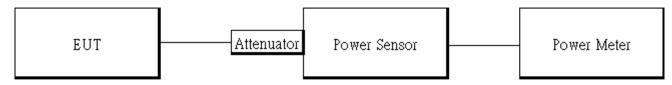


8.2 Measurement Equipment Used

	Condu	cted Emission	n Test Site		
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	06/20/2017	06/19/2018
Power Meter	Anritsu	ML2496A	1326001	06/23/2017	06/22/2018
Power Sensor	Anritsu	MA2411B	1315048	06/23/2017	06/22/2018
Power Sensor	Anritsu	MA2411B	1315049	06/23/2017	06/22/2018
Coaxial Cable 30cm	WOKEN	00100A1F1A1 95C	RF01	12/24/2017	12/23/2018
DC Block	PASTERNACK	PE8210	RF29	12/24/2017	12/23/2018
Splitter	RF-LAMBAD	RFLT2W1G18 G	RF35	12/24/2017	12/23/2018
Attenuator	WOKEN	218FS-10	RF23	12/24/2017	12/23/2018
DC Power Supply	Agilent	E3640A	MY53140006	05/02/2018	05/01/2019

8.3 Test Set-up

Power Meter:



8.4 Measurement Procedure

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

Power Meter:

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

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

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8.5 Measurement Result

802.1	1b Main						
сн	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit RESU			
1	2412	1	18.46	1 Watt =	30.00	dBm	PASS
6	2437	1	18.52	1 Watt =	30.00	dBm	PASS
11	2462	1	18.55	1 Watt =	30.00	dBm	PASS
802.1	1b Main						
СН	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit			RESULT
1	2412	1	16.22	1 Watt =	30.00	dBm	PASS
6	2437	1	16.61	1 Watt =	30.00	dBm	PASS
11	2462	1	16.54	1 Watt =	30.00	dBm	PASS

802.1	1g Main						
СН	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit			RESULT
1	2412	6	22.63	1 Watt =	30.00	dBm	PASS
6	2437	6	22.71	1 Watt =	30.00	dBm	PASS
11	2462	6	22.77	1 Watt =	30.00	dBm	PASS
802.1	1g Main						
СН	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit			RESULT
1	2412	6	15.36	1 Watt =	30.00	dBm	PASS
6	2437	6	15.54	1 Watt =	30.00	dBm	PASS
11	2462	6	15.66	1 Watt =	30.00	dBm	PASS

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802.1	1n_HT20	M Main					
СН	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit			RESULT
1	2412	MCS0	21.37	1 Watt =	30.00	dBm	PASS
6	2437	MCS0	21.26	1 Watt =	30.00	dBm	PASS
11	2462	MCS0	21.55	1 Watt =	30.00	dBm	PASS
802.1	1n_HT20	M Main					
СН	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit			RESULT
1	2412	MCS0	13.79	1 Watt =	30.00	dBm	PASS
6	2437	MCS0	13.82	1 Watt =	30.00	dBm	PASS
11	2462	MCS0	13.99	1 Watt =	30.00	dBm	PASS

802.1	1n_HT40	M Main					
СН	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit			RESULT
3	2422	MCS0	20.52	1 Watt =	30.00	dBm	PASS
6	2437	MCS0	20.79	1 Watt =	30.00	dBm	PASS
9	2452	MCS0	20.28	1 Watt =	30.00	dBm	PASS
802.1	1n_HT40	M Main					
СН	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit			RESULT
3	2422	MCS0	12.87	1 Watt =	30.00	dBm	PASS
6	2437	MCS0	12.92	1 Watt =	30.00	dBm	PASS
9	2452	MCS0	12.37	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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٦



EIRP

802.1	1b Main								
СН	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)		Limit		RESULT
1	2412	1	16.22	1.09	17.31	4W=	36	dBm	PASS
6	2437	1	16.61	1.09	17.70	4W=	36	dBm	PASS
11	2462	1	16.54	1.09	17.63	4W=	36	dBm	PASS

802 11a Main

0UZ.1	802.11g Main									
СН	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)		Limit		RESULT	
1	2412	6	15.36	1.09	16.45	4W=	36	dBm	PASS	
6	2437	6	15.54	1.09	16.63	4W=	36	dBm	PASS	
11	2462	6	15.66	1.09	16.75	4W=	36	dBm	PASS	

802.1 [°]	802.11n_HT20M Main										
СН	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit		RESULT			
1	2412	MCS0	13.79	1.09	14.88	4W=	36	dBm	PASS		
6	2437	MCS0	13.82	1.09	14.91	4W=	36	dBm	PASS		
11	2462	MCS0	13.99	1.09	15.08	4W=	36	dBm	PASS		

802.1 [°]	802.11n_HT40M Main									
СН	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)		Limit		RESULT	
3	2422	MCS0	12.87	1.09	13.96	4W=	36	dBm	PASS	
6	2437	MCS0	12.92	1.09	14.01	4W=	36	dBm	PASS	
9	2452	MCS0	12.37	1.09	13.46	4W=	36	dBm	PASS	

* Note: EIRP = Average Power + Gain

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6DB & 99% BANDWIDTH MEASUREMENT 9

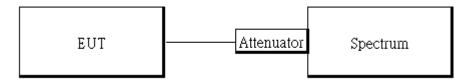
9.1 Standard Applicable

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

9.2 Measurement Equipment Used

	Conduc	ted Emissic	on Test Site		
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	06/20/2017	06/19/2018
Power Meter	Anritsu	ML2496A	1326001	06/23/2017	06/22/2018
Power Sensor	Anritsu	MA2411B	1315048	06/23/2017	06/22/2018
Power Sensor	Anritsu	MA2411B	1315049	06/23/2017	06/22/2018
Coaxial Cable 30cm	WOKEN	00100A1F1 A195C	RF01	12/24/2017	12/23/2018
DC Block	PASTERNACK	PE8210	RF29	12/24/2017	12/23/2018
Splitter	RF-LAMBAD	RFLT2W1G 18G	RF35	12/24/2017	12/23/2018
Attenuator	WOKEN	218FS-10	RF23	12/24/2017	12/23/2018
DC Power Supply	Agilent	E3640A	MY53140006	05/02/2018	05/01/2019

9.3 Test Set-up



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9.4 Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 4. For 6dB Bandwidth:

Set the spectrum analyzer as RBW = 100 kHz, VBW = 3*RBW, Span = 30M/50MHz, Detector=peak, Sweep=auto.

- 5. Mark the peak frequency and –6dB (upper and lower) frequency.
- 6. For 99% Bandwidth:

Set the spectrum analyzer as RBW=1%, VBW = 3*RBW, Span = 30M/50MHz, Detector=Sample, Sweep=auto.

- 7. Turn on the 99% bandwidth function, max reading.
- 8. Repeat above procedures until all frequency of interest measured was complete.

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9.5 Measurement Result

6dB Bandwidth

802.11b Main

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	9060	> 500	PASS
2437	9059	> 500	PASS
2462	9061	> 500	PASS

802.11g Maii	n
--------------	---

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	15548	> 500	PASS
2437	15648	> 500	PASS
2462	15496	> 500	PASS

802.11 n HT20 Main

Freq.	6dB BW	Limit	Result
(MHz)	(kHz)	(kHz)	Result
2412	16793	> 500	PASS
2437	16791	> 500	PASS
2462	16799	> 500	PASS

802.11_n_HT40 Main

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2422	35173	> 500	PASS
2437	35179	> 500	PASS
2452	35173	> 500	PASS

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99% Bandwidth

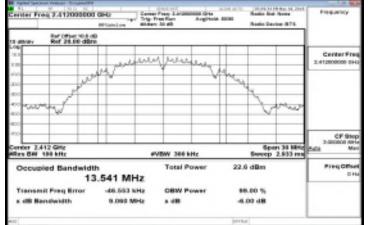
802.11b Ma	802.11b Main 802.11g Main		802.11n_HT20M Main		802.11n_HT40M Main		
Freq. (MHz)	99% BW (MHz)	Freq. (MHz)	99% BW (MHz)	Freq. (MHz)	99% BW (MHz)	Freq. (MHz)	99% BW (MHz)
· /	· · /	· /	\ /	/	· · /	` <i>/</i>	· · · /
2412	13.507	2412	16.912	2412	17.742	2422	36.240
2437	13.468	2437	16.888	2437	17.744	2437	36.261
2462	13.465	2462	16.930	2462	17.741	2452	36.244

*Refer to next page for plots

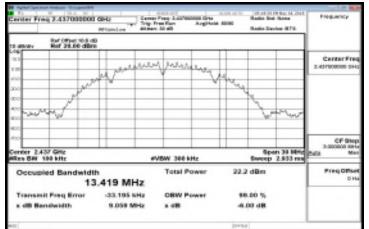
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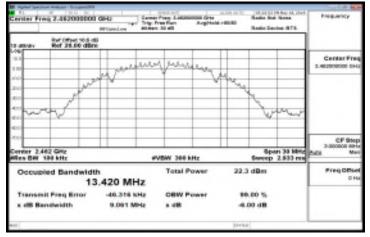
802.11b 6dB Band Width Test Data CH-Low



6dB Band Width Test Data CH-Mid



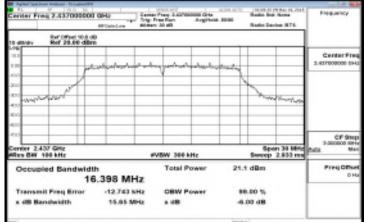
6dB Band Width Test Data CH-High



802.11g 6dB Band Width Test Data CH-Low

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2.412000000	GHU Care	Pres Page 2 Artification Great	Radio Ind Non	 Frequency
for other to 5 di Ref 25.00 dBm				
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and l			hanne	20. m
2.084			Strate 30	CF Stop
00 kHz		VDW 300 kHz	Sweep 2.90	13 ran
		Total Power	21.5 dBm	Freq Offse DH
Freq Error	-6.458 NHz	CBW Power	88.00 %	
sthwidth	15.55 MHz	A 48	-6.00 48	
			12+54	
	2.412008000 ber office visit of for 38.80 day of the set of the office visit of the office visit of the office visit of the 2.Gate bette bette bette 16 Freq Error	2.412005000 GHU Microsoft Ber 93.50 dBm den dige days den dige days	2.4120035000 GHU WTOMALOW Der Office Vis 5 40 Ref 38.56 dBm	2.4.12038000 GH2 BTOMLY BTOM

6dB Band Width Test Data CH-Mid



6dB Band Width Test Data CH-High

Center Freq 2.462000	Trip Inter	Pres Databooosi Gras	Annie Der Annie Annie Der Annie Annie Der Annie Annie Der Annie	Frequency
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13 13	and the second second	manhalasta	turing .	Center Freq 2.462000000 0H0
**************************************			June	An.
800				CF 9top
Center 2.462 GHz ARes BAY 100 kHz		VBW 300 kHz	Sport 39 M Sweep 2,933	3.00000 HP
Occupied Bandw	16.396 MHz	Total Power	21.0 dBm	PregOffse DH
Transmit Freq Error	-18.894 kHz	OBW Power	88.00 %	
x dB Bandwidth	15.50 MHz	A 18	-6.00 48	
			27+9-4	

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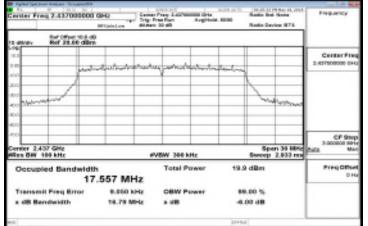


802.11n 20M

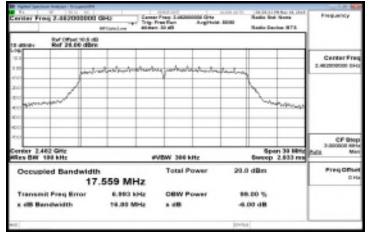
6dB Band Width Test Data CH-Low



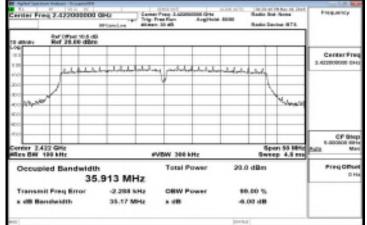
6dB Band Width Test Data CH-Mid



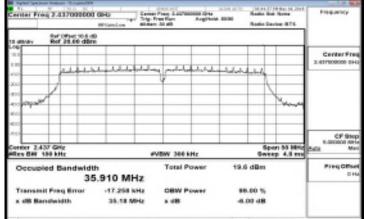
6dB Band Width Test Data CH-High



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



6dB Band Width Test Data CH-Mid



6dB Band Width Test Data CH-High

Ceriter Fre	2.452000000	terrer Trie	Press D. amanopoolis Carta	Autor and Control of Series Autor Deal Series Radio Device 876	Proguency
to allow	Ref 39.00 dBr	0			
10			مر مباطعة الم		Center Fred
200	1		Y		1
and and a second				~	~
800					CF 9top
Center 2.48 Miles Bay 1			VBW 300 kHz	Span 53 M Sweep 4.8	NO 2421 04
Occupi	ed Bandwidt 35	5.904 MHz	Total Power	18.7 dBm	Pres Offse DH
Transmi x dB Bar	Freq Error	-18.768 kHz 35.17 MHz	CBW Power	88.00 %	

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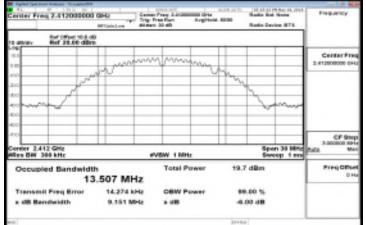
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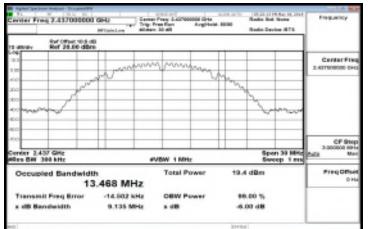
f (886-2) 2298-0488



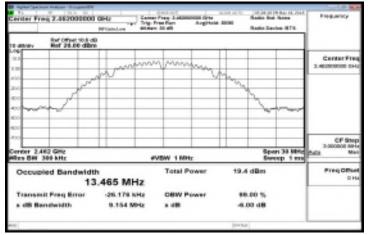
802.11b 99% Band Width Test Data CH-Low



99% Band Width Test Data CH-Mid



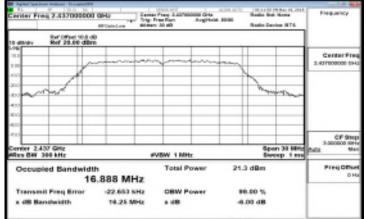
99% Band Width Test Data CH-High



802.11g 99% Band Width Test Data CH-Low



99% Band Width Test Data CH-Mid



99% Band Width Test Data CH-High

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TO HEADY	for other to 5 d Ref 35.00 dBn	5			
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20 20 20				Trent	
400					-
800					
Center 2.46 Mikes Bar 3	2 GHz 99 kHz		VBW 1 MHz	Span 39 M Sweep 1	CF 9NE 3.00000 MH
Occupied Bandwidth 16.930 MHz		Total Power	21.3 dBm	Freq Offse DH	
Transmit x dB Ban	Freq Error	-45.041 KHz 18.24 MHz	OBW Power	88.00 %	
				and a second	

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802.11n 20M

99% Band Width Test Data CH-Low



99% Band Width Test Data CH-Mid



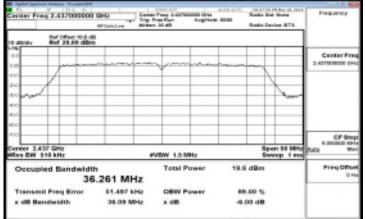
99% Band Width Test Data CH-High

Center Freq 2.462000	the second secon	Press 2 antilococcus Cirks	Radio Device ST&	Prequency
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10		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~	CenterFreq 2.462505000 5H
×0				
CO Derth/ OFT			مار میں اور	
00				
Conter 2,462 GHz			Spen 39 Mile	CF Step 3.00000 MHz
Res Bar 300 kHz		VBW 1 MHz	Sweep 1 ms	
Occupied Bandwidth 17.741 MHz		Total Power	20.2 dBm	Preg Offse DH
Transmit Freq Error	17.105 kHz	CBW Power	88.00 %	
x dB Bandwidth	17.55 MHz	* dB	-6.00 dB	
			22475.0	

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

a spinst partor	e bestjaat - Di ngewolffik			NAMES OF TAXABLE PARTY.	Land at the
Center Fre	a 2.422000000	GHU Cares	Press 2.4208000000 GHz	Radio Sol Name	Frequency
10-dillogry	Ref 29.00 dBm	2			
10			Jones		CenterFre 2.40200000-044
200	4			X	
000 grigoria. 400				~	~
800					
Cervier 2.43	22 GHz 19 kHz		VBW 1.5 MHz	Spon 59 1 Sweep 1	E-scolor and
Occupie	ed Bandwidt 36	.240 MHz	Total Power	19.5 dBm	Freq Offse 0 H
Transmi	Freq Error	68.370 kHz	CBW Power	88.00 %	
x dB Ber	silwidth	38.05 MHz	A 48	-6.00 dB	
				17+11-1	

99% Band Width Test Data CH-Mid



99% Band Width Test Data CH-High

Center Freq 2.45200000	to contract Triat	Pres 2 allaboood Griss	Radio Del Stree Radio Cerico ST	Frequency
Ref 25.06 dB	20 m			
111 Jacob				CenterFre 2.462000000 5H
200				-
20 pm				~
800				
Center 2,452 GHz Alkes BW 518 kHz		VBW 1.5 MHz	Spon 59 Sweep 1	CF Stop 6.00000 MP
Occupied Bandwid	6.244 MHz	Total Power	18.7 dBm	Freq Offse D H
Transmit Freq Error x dB Bendwidth	48.025 kHz 38.03 MHz	OBW Power	88.00 % -6.00 dB	
			22+5:4	

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CONDUCTED BAND EDGE AND SPURIOUS EMISSION MEASUREMENT 10

Standard Applicable 10.1

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

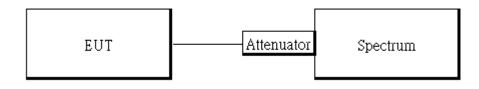
In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a) & RSS-Gen §8.10, must also comply with the radiated emission limits specified in §15.209(a) & RSS-Gen §8.8.

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.

	Conducted Emission Test Site							
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.			
TYPE		NUMBER	NUMBER	CAL.				
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	06/20/2017	06/19/2018			
Power Meter	Anritsu	ML2496A	1326001	06/23/2017	06/22/2018			
Power Sensor	Anritsu	MA2411B	1315048	06/23/2017	06/22/2018			
Power Sensor	Anritsu	MA2411B	1315049	06/23/2017	06/22/2018			
Coaxial Cable 30cm	WOKEN	00100A1F1A 195C	RF01	12/24/2017	12/23/2018			
DC Block	PASTERNACK	PE8210	RF29	12/24/2017	12/23/2018			
Splitter	RF-LAMBAD	RFLT2W1G1 8G	RF35	12/24/2017	12/23/2018			
Attenuator	WOKEN	218FS-10	RF23	12/24/2017	12/23/2018			
DC Power Supply	Agilent	E3640A	MY53140006	05/02/2018	05/01/2019			

Measurement Equipment Used 10.2

10.3 Test SET-UP



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10.4 Measurement Procedure

Conducted Band Edge Limt

- 1. Set analyzer center frequency to DTS channel center frequency.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance & ANSI C63.10.
- 3. Set the span to 1.5 times the DTS channel bandwidth.
- 4. Set the RBW = 100kHz & VBW = 300 kHz.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8.Allow trace to fully stabilize.

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

Conducted Spurious Emission:

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

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10.5 **Measurement Result**

2412

2462

2.46

2.68

Referer	nce Leve	l of Limit 802.11b mode	le Reference Level of Limit 802.11g mo						
Freq.	PSD	Reference Level of Limit	Freq.	PSD	Reference Level of Limit				
(MHz)	(dBm)	(dBm)	(MHz)	(dBm)	(dBm)				
2412	7.88	-12.12	2412	4.11	-15.89				
2462	7.00	-13.00	2462	3.54	-16.46				
Reference Level of Limit 802.11n20 mode Reference Level of Limit 802.11n40 MODE									
Freq.	PSD	Reference Level of Limit	Freq.	PSD	Reference Level of Limit				
(MHz)	(dBm)	(dBm)	(MHz)	(dBm)	(dBm)				

2422

2452

-0.72

-1.33

-20.72

-21.33

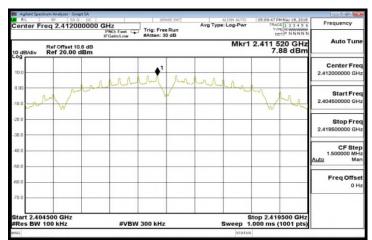
-17.54

-17.32

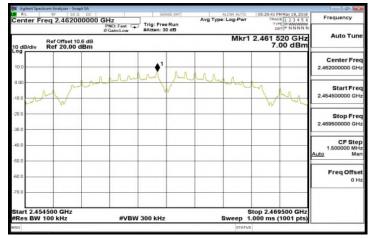
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802.11b Band Edge Limit Test Data CH-Low

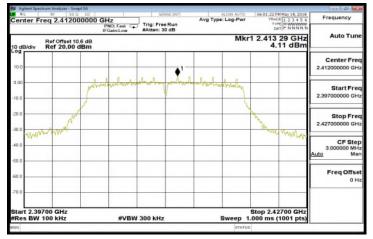
SG



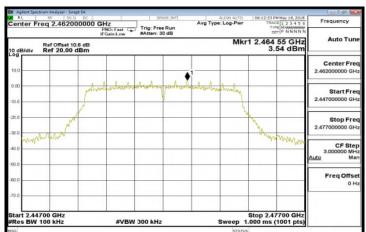
802.11b Band Edge Limit Test Data CH-High



802.11g Band Edge Limit Test Data CH-Low



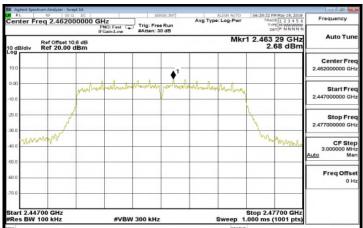
802.11g Band Edge Limit Test Data CH-High



802.11n_HT20 Band Edge Limit Test Data CH-Low



802.11n_HT20 Band Edge Limit Test Data CH-High



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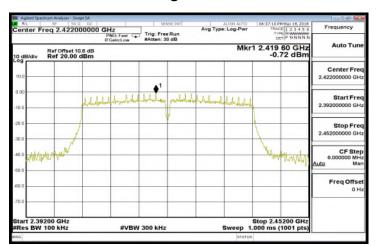
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802.11n HT40 Band Edge Limit Test Data CH-Low



802.11n_HT40 Band Edge Limit Test Data CH-High

M Agitent Spectrum Analyzer - Swept SA			an and the states and				
RL 85 50 0 0C Center Freq 2.452000000 GHz	SENSE INT	Aug Type: Log-Pwr	06:48:50 PM May 18, 2018 TRACE 1 2 3 4 5 6	Frequency			
IF Galacitow #Atten: 20 dB Der[F MINN N Ref Offset 10.6 dB Mkr1 2.449 60 GHz D dBidiy Ref 20.00 dBm -1.33 dBm							
				Center Free 2.452000000 GH			
0.0 10.0	d.I.britaling purbalist	wheel a horal a horal and a horal and a		Start Free 2.422000000 GH			
20.0	¥			Stop Free 2.482000000 GH			
40.0 Will July Will W			MANNIN MAN	CF Ste 6.000000 MH Auto Ma			
50.0				Freq Offse 0 H			
-70.0			Stop 2.48200 GHz				
#Res BW 100 kHz #VE	300 kHz	Sweep 1.	000 ms (1001 pts)				

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Unless to here states the states the states the state here in the test report releasing to the state for an exercisaring etc. and releasing to the states the states are states to be days only. Firs 月 ろは、 and the states are states the states are states are states are states are states to be days only. Firs A states are states the states are states may be prosecuted to the fullest extent of the law.

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802.11b

Band Edge Test Data CH-Low

Frequency	15:15:00 PM May 18, 2018 TRACE 1 2 3 4 5 6	Type: Log-Pwr		SENSE:	łz	0000 GH	2.37000	er Fred	Cen
Auto Tune	DET P NNNN N			Trig: Free Ru #Atten: 30 dE	ND: Fast Ca Gain:Low	p IF			
	Ref Offset 10.5 dB Mkr3 2.390 00 GHz dB/div Ref 20.00 dBm -50.69 dBm								
Center Free 2.37000000 GH	Hules 1212100								.og 10,0 0.00
Start Free 2.310000000 GH		▲3 × 12							10.0 -20.0 -30.0 -40.0
Stop Free 2.43000000 GH	1 an	13 AM			Contraction of the second				50.0 60.0
CF Step 12.000000 MH Auto Ma	Stop 2.43000 GHz 000 ms (1001 pts)		PLACE	300 kHz	#VB		0 kHz	2,3100 BW 10	#Re
Freq Offse 0 H	4. F			7,78 dBm -44,27 dBm -50.69 dBm	0 GHz	2.411 6 2.399 9 2.390 0			1 2 3 4 5 6
									7 8 9 10 11
	,	STATUS							esc.

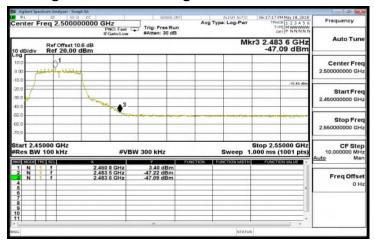
802.11g **Band Edge Test Data CH-Low**



Band Edge Test Data CH-High

10 A							estrum Analys	
Frequency	15:34:24 PM May 18, 2018 TRADE 1 2 3 4 5 6 TVPE M WWWWW DET P N N/N N N	ALIGN AUTO Type: Log-Pwr		SENSE IN	GHz PND: Fast	50 9 DC	req 2.5	nter
Auto Tun				#Atten: 30 dB	IFGain:Low			_
Auto Tun	-50.84 dBm	Mki				set 10.6 dB 0.00 dBm		dB/div
Center Fre		_	_		_		01	0
2.50000000 GH	-1010 (01)					1.	M	0
Start Fre	-7 5 60 1649	_				1	P	0 1
2.450000000 GH							-	D /
Stop Fre		-			Matim	here		D
2.550000000 GH								0
CF Ste	Stop 2.55000 GHz						5000 GH	art 2,4
10.000000 MH Auto Ma	000 ms (1001 pts)	Sweep 1.		300 kHz	#VBW	2	/ 100 kH	es BV
	PARTERVELUE -	FUNCTION WOTH	PONCTION	6,86 dBm -51,31 dBm	461 6 GHz 483 5 GHz		1 1	N
Freq Offse				-50.84 dBm	483 6 GHz	2,48	1 1	R
	1							
					_			
		STATUS						

Band Edge Test Data CH-High



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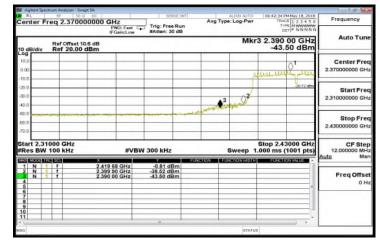
802.11n_HT20 **Band Edge Test Data CH-Low**

Agitert Spectrum Analyzer - Swe					100 AP 1
Center Freq 2.3700	00000 GHz	Trig: Free Run	Avg Type: Log-Pwr	16:23:54 PH M2y 18, 2018 TRACE 1 2 3 4 5 6 TVPE MWWWW DET P NNNN N	Frequency
Ref Offset 10 10 dB/div Ref 20.00	IFGain:Low	#Atten: 30 dB	Mkr3	2.390 00 GHz -45.67 dBm	Auto Tun
10.0			4	alune	Center Fre 2.370000000 GH
-20,0 -20,0 -30,0			A Bunda	-17.54 idles	Start Fre 2.310000000 GH
50 D 50 D 50 D					Stop Fre 2.430000000 GH
Start 2,31000 GHz #Res BW 100 kHz	#VBV	V 300 kHz	Sweep 1.	Stop 2.43000 GHz 000 ms (1001 pts)	CF Ste 12,000000 Mi Auto Ma
1 N 1 F 2 N 1 f 3 N 1 f 4 5 6	2,410 92 GHz 2,399 90 GHz 2,390 00 GHz	2.51 dBm -36.30 dBm -45.67 dBm			Freq Offse 0 F
7 8 9 10 11					
wsg			STATUS		

Band Edge Test Data CH-High

10 A E				-		H	nalyzes : Siver	denarm An		
Frequency	16-34:15 PM May 18, 2018 TRACE 1 2 3 4 5 6 Trace 1 2 3 4 5 6	ALIGN AUTO		SENSE II	łz	0000 GH	2.50000	req 2		en
Auto Tun	DET P NNNN N			#Atten: 30 dB	ND: Fast Call SaintLow	P IF				
Auto Tun	3 2.483 6 GHz -47.14 dBm	Mk					Offset 10		3/div	0 dE
Center Fre							01			10,0
2.50000000 GH						1	where a	dist.	1 miles	10.0
	-17.32 vBev					1		-	1	20.0
Start Fre 2.45000000 GH						1		_	1	30.0
		_			¥3	Mit the as		-	× .	40.0
Stop Fre				water group and	Nores			-	-	60 D
2.550000000 GH										60,0 70,0
CF Ste 10.000000 MH	top 2.55000 GHz 00 ms (1001 pts)			300 kHz			GHz	100	1 2,45	tar
Auto Ma		sweep 1.		300 KHZ	#VBW			100	_	_
FreqOffse			Contention	2.54 dBm	6 GHz 5 GHz	2,483		1	NN	
OF				-47.14 dBm	6 GHz	2,483		1	N	4
									+	5 6 7
					-		-		+	8
					_				-	10
				18						
		STATUS								

802.11n_HT40 **Band Edge Test Data CH-Low**



Band Edge Test Data CH-High

Agilen Spectrum Analyze R.L. S	58 9 DC	1	SENSE INT		ALIGN AUTO	116:53:40 Pt	May 18, 2018	1.00
enter Freq 2.50	PND: I		Free Run	Avg Ty	pe: Log-Pwr	TRACI	123456 HWWWWW	Frequency
	IFGain	Low #Atta	en: 30 dB		D.AL	r3 2.483		Auto Tur
	et 10.6 dB .00 dBm				IVIP		3 dBm	Center Fre 2.50000000 GH
0.0 01			_	_				Center Fr
an aldress un	ALL .		-	-	-			2.50000000 G
0.0							-21.30 (000)	
3.0	1							
3.0	the Man and	3	-					
0.0		- In all the firm	man mant					Stop Fr
0.0								2.550000000 G
art 2,45000 GH		#VBW 300 1	(Hz	-	Sweep 1	Stop 2.55	000 GHz	CF St 10.000000 M
NODE THE SEL	x	Ý	FU	NOTION .	UNCTION WIDTH			Auto M
1 N 1 F 2 N 1 F	2,455 9 G 2,483 5 G	Hz -47.2	7 dBm 7 dBm					Freq Offs
A 1 1 5	2.483 6 G	Hz -47.1	3 dBm					o Preq Oils
6							_	
9								
1								
2		11			STATU			

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802.11b

30M-3GHz Spurious Emission Test Data CH-Low

100 at 100			_			: BA	Analyzes - Sive	Epectnum A	
Frequency	16 PM May 18, 2018 TRACE 1 2 3 4 5 6 TYPE M WWWWWW DET P NNNNN	LIGN AUTO 105: Log-Pwr	Avg Ty	SENSE INT	Fast Ca	0000 GHz	1.51500	Freq	enter
Auto Tun	411 9 GHz 7.84 dBm	Mkr1 2		#Atten: 30 dB	cLow .	IFGair 5-dB	f Offset 10		dB/di
Center Free 1.515000000 GH		1							0.0
Start Free	-12.16 (Be)				_	_			0.0
30.000000 MH					_			_	0.0
Stop Free 3.000000000 GH	And the second data of the secon	demonstration in the second	Company of the local division of the local d	and the local data and the second		مر بالاخلام المرجب ال		-pairles	0.0
CF Step 297.000000 MH Auto Ma	p 3.000 GHz is (1001 pts)	weep 9.667	NCTION F		#VBW		kHz	0 MHz W 100	tart 3 Res B
Freq Offse 0 H				7.84 dBm	Hz	2,411 9 0			1 N 2 3 4 5
									6 7 8 9 0
	· ·		-	m	1		1		1
		STATUS							G

3G-26.5GHz Spurious Emission Test Data CH-Low

Agilent Spectrum Analyzer - Swe					
Center Freq 14.7500	DO0000 GHz	SENSE: INT	Aug Type: Log-Pwr	15:15:30 PM May 18, 2838 TRACE 1 2 3 4 5 6 TVPE M WWWW DET P N N N N N	Frequency
10 dB/div Ref 20.00	IFGain:Low	#Atten: 30 dB	Mkr	26.429 5 GHz -40.75 dBm	Auto Tune
0.00					Center Free 14.75000000 GH
10.0 20.0 30.0 40.0				-1216 (Bin	Start Free 3.000000000 GH
	an a		and the second	and the second	Stop Free 26,50000000 GH
Start 3.00 GHz Res BW 100 kHz	#VBW :		Sweep 70	Stop 26.50 GHz 5.40 ms (1001 pts)	CF Ste 2.350000000 GH Auto Ma
1 N 1 I 2 3 4 5	26.429 5 GHz	-40.75 dBm		6	Freq Offse 0 H
6 7 8 9 10 11					

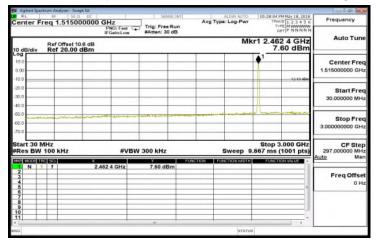
30M-3GHz Spurious Emission Test Data CH-Mid

1-2-1-24 E	45 PM May 18, 2018	15:21-45	ALIGN AUTO			56			lyzer - Swe	211 AND 25	sheres		E P
Frequency	TRACE 1 2 3 4 5 6	TR	e: Log-Pwr	Avg		1	z	00000 GI	51500	q 1	Fre	nter	er
	DET P NNNN N				0 dB	#Atten: 3	O: Fast L.	IF IF					
Auto Tun	435 7 GHz 7.60 dBm		M					dBm	20.00	Ref (v	B/di	
Center Free													inc
1.515000000 GH		1					1						0.00
	12.40 4640			_									10.0
Start Free	_	A	-	-	-		-			+		-	20.0
30.000000 MH	_			-						+		-	30,0
		1								+			40.0
Stop Free			and the second second	-			-level-	Annen	-	~	-11	man	60.0
3.00000000 GH													60,0
CF Ster	p 3.000 GHz	Ston								4.0	0 M		
297.000000 MH	s (1001 pts)	.667 ms	Sweep 9			300 kHz	#VBV		Hz	00 k			
Auto Ma	10110070/2008 ·	FUNCT	NCTION MDTH	NETION		Ý		×			E TRE		
Freq Offse		_		_	Bm	7,60 d	7 GHz	2,435		1	1	N	2
OH			_				-						4
				_							-	-	5
												-	789
							-					-	10
					_								11
					-	181	-						1

3G-26.5GHz Spurious Emission Test Data CH-Mid

1-0-1-00 (1	15:22:01 PM May 18, 2018	LIGN AUTO		INT SELINT	SEA		DC	alyzer - Swee 50 12	85	I.,	R
Frequency	THE HWWWWW	Log-Pwr	Avg Ty	Run	Trig: Free #Atten: 30	Hz WD: Fast	00000 G	4.7500	Freq *	ter	Cen
Hz Auto Tuni 3m	26.406 0 GHz -40.66 dBm	Mkr1					6 dB	Offset 10		B/div	
Center Fre											10.0
	32.40.46m								_		10.0
Start Fre 3.000000000 GH	- 1										20.0 30.0
Stop Fre 26.50000000 GH	and a second	م ^{ور} ورومه والدين			aland second	alar a contraction	and a second	non di girmi	and the second	N	50.0 50.0
CF Ste 2.35000000 GH	Stop 26.50 GHz 10 ms (1001 pts)	weep 76			300 kHz	#VBW			0 GHz		
Auto Ma	FUNCTION VALUE	TION WDTH	100		-40.66 dE	GHZ	26.406			N	699
Freq Offse											23456
									-		7 8 9
			_		m						11

30M-3GHz Spurious Emission Test Data CH-High



3G-26.5GHz Spurious Emission Test Data CH-High

Frequency	17 PM May 18, 2018 TRACE 1 2 3 4 5 6		ALIGN AUTO Type: Log-Pwr		SENSE:1	-		50 1	8		R
	DET P NNNNN		Type: Log-r-wr		Trig: Free Rus Atten: 30 dB	SH2 NO: Fast S Gain:Low	000000	14.750	req	ter	en
Auto Tun	382 5 GHz 1.19 dBm		Mki					Offset 10		B/div	
Center Fre									_		10.0
14.75000000 GH		-									0.00
	32.40 4840	-							_	-	10,0
Start Fre		+				-	-		-		20,0
3.00000000 GH	1	-			_				_		30 D
	a service and and a service and	a de ma		-	-	man	man	-	n.hny	-	40 0 50 0
Stop Fre											60.0
26.50000000 GH		_									7D.D
CF Ste	p 26.50 GHz		C		00 644	#VBW			0 GH		
Auto Ma			sweep /	FINITION	OU KHZ	#VDVV	×		100		_
	ALTEN VALUE		PONCTION MOTI	P Grace I form	41.19 dBm	5 GHz			1 1		1
Freq Offse		-							-		234
	1	1						-	-		5
									-		7 8 9
		-							-	-	10
		-									11

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802.11g

30M-3GHz Spurious Emission Test Data CH-Low

um Analyzer - Swept SA	
Set 50:0 DC Serves INT ALIGN AUTO De-06/32 PM May 18, 2018 aq 1.5150000000 GHz Avg Type: Log-Pwr Trace[1,23.4.5.6 Trace[1,23.4.5.6 DBVD: East Trig: Free Run Trig: Serve Summer Sum	Frequency
Trig: Free Run If Called up Trig: Free Run SAtten: 30 dB Trig: Instruction Trig: Instruction Section 12 (Section 12) Ref Offset 10.6 dB Ref 20.00 dBm Mkr1 2.411 9 GHz	Auto Tune
1.	Center Free 51500000 GHz
	Start Free 30.000000 MHa
a contraction of a structure of the stru	Stop Free
Hz Stop 3.000 GHz 00 kHz #VBW 300 kHz Sweep 9.667 ms (1001 pts) 201 X Y 2455107 Parcelowniotel Percentarioses -	CF-Step 297.000000 MH 0 Mar
T 2.411 9 GHz 4.16 dBm	Freq Offse 0 H

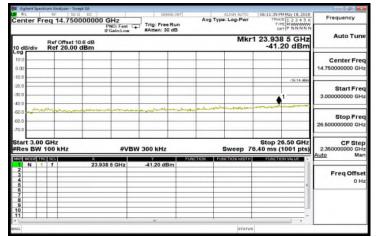
3G-26.5GHz Spurious Emission Test Data CH-Low

1000	16-07-07 PM May 18, 2018	ALIEN AUTO		SENSE		A I	Single Sweet	RETOUTE AR		R
Frequency	TRACE 1 2 3 4 5 6	be: Log-Pwr	A	a: Free Ru		0000 GHz		Freq 1		
Auto Tun	DET P NNNN			tten: 30 dE		PNO: Fast IFGain:Low				
Auto Tun	-40.80 dBm	Mkr1					20.00 di		B/div	
Center Fre				_						10.0
14.750000000 GH			-	-	-		-	-		0.00
	-15.54 (Dr)		_	-	-		_	-		10.0
Start Fre 3.000000000 GH	A1-							_	_	-20,0
	- and a stand of the	- e-me	-		-	manalanatan	www	many		40.0
Stop Fre 26.50000000 GH							_			60,0 70.0
CF Ste 2.35000000 GH Auto Ma	Stop 26.50 GHz 3.40 ms (1001 pts)) kHz	VBW 3		Hz	00 GHz V 100 I	s BV	Re
	FUNCTION VALUE	INCTION WOTH	FUNCTION	0.80 dBm	1	25,442 5 GHz		1 1	N	1
Freq Offse		_								2345
										67
					-					8 9 10
					1					11
		STATUS								56

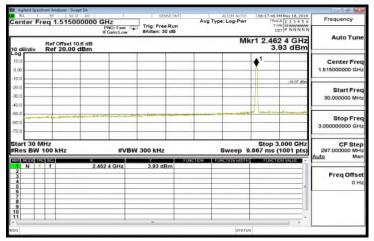
30M-3GHz Spurious Emission Test Data CH-Mid

Rt Bell (1) Stock (2) Stock	Frequency Auto Tune
Ref Offset 10 d B Mkr1 2.438 7 GHz 10 dbidly Ref 20.00 dBm 3.86 dBm 0 dbidly Ref 20.00 dBm 1 0 dbidly Ref 20.00 dBm 1 <t< th=""><th>Auto Tune</th></t<>	Auto Tune
100 100 100 100 100 100 100 100	
300 310 16 16 26 300 310 16 16 26 400 310 16 16 26 600 310 16 16 26 600 310 16 16 26 600 310 16 16 26 600 310 16 16 26 600 310 16 16 26 600 310 16 16 26 600 310 16 16 26 600 310 16 16 26 600 310 16 16 26 600 310 16 16 26 710 310 16 16 26 710 310 16 16 26 710 310 16 16 26 710 310 16 16 26 710 310 16 16 26 710 310 16 16 26 710 310 16 16 26 710 310 16 16 26 710 310 16 16 26 710 310 16 16 26 710 310 16 16 26 710 310 16 16 26 710 310 16 16 26 710 310 16 16 26 710 310 16 16 26 710 310 16 16 26	Center Freq 1.51500000 GHz
500 500 <td>Start Freq 30.000000 MHz</td>	Start Freq 30.000000 MHz
Res BW 100 kHz #VBW 300 kHz Sweep 9.667 ms (1001 pts)	Stop Freq 3.00000000 GHz
MODE TRC SCL X. Y FUNCTION VIDTH FUNCTION VALUE -	CF Step 297.000000 MHz Auto Man
N I I 2.438 7 GHz 3.86 dBm Intercention Intercention	Freq Offset 0 Hz
11 · · · · · · · · · · · · · · · · · ·	

3G-26.5GHz Spurious Emission Test Data CH-Mid



30M-3GHz Spurious Emission Test Data CH-High



3G-26.5GHz Spurious Emission Test Data CH-High

Frequency	16:18:03 PM May 18, 2018 TRACE 1 2 3 4 5 6 TITE MWWWWW DET P NNNNN	ALIGN AUTO Type: Log-Pwr		SENSE II	PMO: East	4.75000000		ent
Auto Tun	26.382 5 GHz -40.79 dBm	Mkr1		#Atten: 30 dB	IFGain:Low	offset 10.6 dB 20.00 dBm		0 dB
Center Fre 14.75000000 GH						20.00 42.00		og 10.0
Start Fre 3.000000000 GH	-16.02 nBm							10,0 20,0 30,0
Stop Fre 26.50000000 GH	a de la construcción de	للمواقعة بيهمو فلارجى		1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	and the state	mannen	min	50.0 50.0 70.0
							3.00 0	tart
2.350000000 GH	Stop 26.50 GHz 5.40 ms (1001 pts)			300 kHz	#VE		BW 1	Res
CF Ste 2.35000000 GH Auto Ma Freq Offse 0 H	5.40 ms (1001 pts)	Sweep 76	PUNET	40.79 dBm	#VE	×	BW 1	Res

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802.11n_HT20

30M-3GHz Spurious Emission Test Data CH-Low

10 a 🖬	PM May 18, 2018		ALIEN MITD		SENS		Anapet BA	Analyzes - 5	pestion		Ag P
Frequency	ACE 1 2 3 4 5 6	TR	g Type: Log-Pwr	n	Trig: Free F	PNO: East La	000000		Freq		
Auto Tun	14 9 GHz 52 dBm	r1 2.4	Mk		#Atten: 30	IFGain:Low		offset		B/div	10 di
Center Free 1.515000000 GH		·'									10.0 0.00
Start Free 30.000000 MH	-17.40 uBes		_								-10,0 -20,0 -30,0 -40,0
Stop Free 3.000000000 GH	Mar Jack or	L				and the second		محمدين	a Batti a Jonika,	-	-50.0 -50.0 -70.0
CF Ste 297.000000 MH Auto Ma	3.000 GHz (1001 pts)	.667 ms	Sweep 9	AL MARTIN	300 kHz	#VBW		kHz	MHz W 100	IS BI	#Re
Freq Offse 0 H					2.52 dBr	4 9 GHz	2.4		1 1		123456789
					191					_	10 11

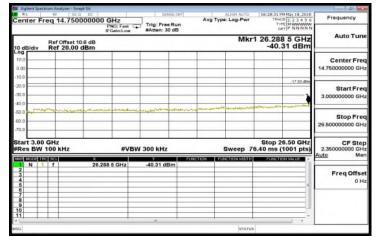
3G-26.5GHz Spurious Emission Test Data CH-Low

10 A M					-			um Analyzes - :		
Frequency	5:24:21 PM May 18, 2018 TRACE 1 2 3 4 5 6 THE M WWWWW DET P NNNNN	ALIEN AUTO	AvgT	e Run	Trig: Fre	PND: Fast C	0000000			Cen
Auto Tune	5.583 5 GHz -41.24 dBm	Mkr1		0 48	#Atten: 3	FGain:Low	10.6 dB	Ref Offsel Ref 20.0	3/div	10 dE
Center Free 14.75000000 GH										10.0 0.00
Start Free	-17.40 uBm					-	-			-10,0 -20,0 -30,0
Stop Free 26.50000000 GH	www.aureline					and the Party defaults	machertona	man	m	-40,0 -50,0 -50,0
CF Ste 2.35000000 GH Auto Ma	Stop 26.50 GHz 0 ms (1001 pts)				/ 300 kHz	#VB		100 kHz		#Re
Freq Offse 0 H	PLANETICH VÄLME -	2-TION WIDTH	(=11574		-41.24 di	3 5 GHZ	25,51	1	N 1	12345
		_							-	6 7 8 9 10
		STATUS			TH			•		4

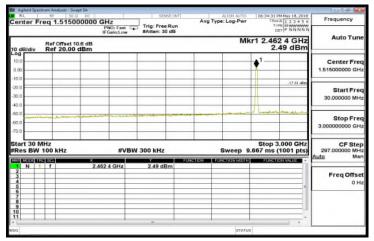
30M-3GHz Spurious Emission Test Data CH-Mid

Agilent Spestrum Analy					
Center Freq 1.	50-12 DC 515000000 GHz PND: Fast	SENSE INT	Aug Type: Log-Pwr	16:28:14 PM May 18, 28:18 TRACE 1 2 3 4 5 6 THE MANNAN DET P NNNNN	Frequency
10 dB/div Ref 2	Tset 10.5 dB	#Atten: 30 dB	Mk	r1 2.438 7 GHz 2.50 dBm	Auto Tune
10.0 0.00				∳ ¹	Center Freq 1.515000000 GHz
10,0 20,0 30,0 40,0				-17.50 dim	Start Freq 30.000000 MHz
60.0 60.0	and and a second to constitute out of the			Langer manalest and	Stop Freq 3.00000000 GHz
Start 30 MHz Res BW 100 ki	lz #VI	3W 300 kHz	Sweep 9	Stop 3.000 GHz .667 ms (1001 pts)	CF Step 297.000000 MHz Auto Man
1 N 1 f 2 3 4 5 6 7 7 8 9 9	2,438 7 GHz	2.50 dBm			Freq Offset 0 Hz
11				· · ·	

3G-26.5GHz Spurious Emission Test Data CH-Mid



30M-3GHz Spurious Emission Test Data CH-High



3G-26.5GHz Spurious Emission Test Data CH-High

Frequency	TRACE 1 2 3 4 5 6 TRACE 1 2 3 4 5 6 TIPE STWWWWW		ALIG Type: Lo	Ave	Run	Trig: Free	ant C.	GHz PND: Fo	000000	4.750	eq 1	er Fr	RL
Auto Tur	26.429 5 GHz -40.30 dBm	Mkr1			108	entien: a	.12W	IF Gain:L	.6 dB	Offset 10		div	dB/
Center Fre									-				10
14.750000000 GH		-		-	-	_	_	-	-		-		00
	-17.51 uBes	_			_		_						0.0
Start Fre 3.000000000 GH		_	_		_			-	-		_) D
	manan	and		me		met			main	Almont	my	Juha .	0.0
Stop Fre 26.50000000 GH		_	_	-		-	_	-			-		0,0
		-	-	-	-			+	-		+		1.0
CF Ste 2.35000000 GH	Stop 26.50 GHz 40 ms (1001 pts)	p 76	Swe			00 kHz	#VBW	*			GHz 100 I		
Auto Ma	FUNCTION VALUE	MDTH	FUNCTIO	NETTON	m	-40.30 dE	12	29 5 GH	26.43				21 RD
Freq Offs													4
													7
					-		-					+	2
				_		181							_

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802.11n_HT40

30M-3GHz Spurious Emission Test Data CH-Low

5 dB	Trig: Free Run #Atten: 30 dB	ALISH AUTO Avg Type: Log-Pwr Mk	12.3255 PM May 18,20128 TPACE 1 2 3 4 5 6 TOTE H WWW LET P NNNNN r1 2.420 9 GHz -0.57 dBm	Frequency Auto Tune
IFGain:Low	#Atten: 30 dB	Mk	r1 2.420 9 GHz	
			1	Center Free 1.515000000 GH
			.30.57 illen	Start Fre 30.000000 MH
		- marken broken and	Laurer aldres was and	Stop Free 3.00000000 GH
#VBV				CF Ste 297.000000 MH Auto Ma
2,420 9 GHz	-0,57 dBm		6	Freq Offse 0 H
	TH.			
	#VBW	#VBW 300 kHz	#VBW 300 kHz Sweep 9. 2.420 9.GHz -0.57 dBm F00451001	#VBW 300 kHz Sweep 9.667 ms (1001 pts)

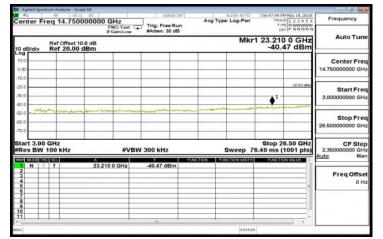
3G-26.5GHz Spurious Emission Test Data CH-Low

Agilent Spectrum Analyzer - Swe					10 a a
Center Freq 14.750		Trig: Free Run	Aug Type: Log-Pwr	16:43:15 PM May 18, 2018 TRACE 1 2 3 4 5 6 TYPE M WWWW DET P NNNNN	Frequency
Ref Offset 10 10 dB/div Ref 20.00	IFGain:Low	#Atten: 30 dB	Mkr	1 26.030 0 GHz -40.42 dBm	Auto Tuni
0.00					Center Fre 14.750000000 GH
10,0 20,0 30,0 40,0				.20 57 UBen	Start Fre 3.000000000 GH
50 0	and the second	and a state of the	a deserve and the second s		Stop Free 26.50000000 GH
Start 3.00 GHz Res BW 100 kHz	#VBW	300 kHz	Sweep 71	Stop 26.50 GHz 5.40 ms (1001 pts)	CF Ste 2.350000000 GH Auto Ma
1 N 1 F 2 3 4 5 6 7 7 8 9	26.030 0 GHz	-40,42 dBm			Freq Offse 0 H
9 10 11 *		m	STATUS		

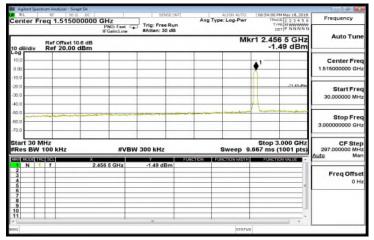
30M-3GHz Spurious Emission Test Data CH-Mid

RL.	estmann Analyze Se	50 9 DC	-	SENS	EINT	ALIGN AUTO	06:47:23 PM May	18.2018	4
Center F	req 1.5	15000000 GH	HZ NO: Fast Ca	Trig: Free F	Run	Avg Type: Log-Pwr	TRACE 1 7	E 3 4 5 6 Freque	incy
10 dB/div		iF set 10.6 dB 0.00 dBm	Gain:Low	#Atten: 30	dB	м	cr1 2.435 7 -0.63	GHz Aut	o Tune
10.0 0.00							₹ ¹		er Freq 000 GHz
20.0 30.0 40.0									oo MHz
60.0 60.0 70.0			144 - J J. Harden (j. Ar				-	3,000000	op Freq
INCIDE	100 kH	×		V 300 kHz	FUNC		Stop 3.000 .667 ms (100	1 pts) 297.000	F Step 000 MHz Man
2 3 4 5 6 7 8 9	1 7	2.435	7 GHz	-0,63 dBr	n			Free	0ffset 0 Hz
10				т	-				
isig.						STATU			

3G-26.5GHz Spurious Emission Test Data CH-Mid



30M-3GHz Spurious Emission Test Data CH-High



3G-26.5GHz Spurious Emission Test Data CH-High

Frequency	16:54:19 PM May 18, 2018 TRACE 1 2 3 4 5 6 THE M WANNER DET P NNNN N	ALIGN AUTO Type: Log-Pwr		Trig: Free Rur	PNO: Fast	58 0 DC	eq 14.	er Fr	ente
Auto Tun	1 26.218 0 GHz -40.95 dBm	Mkr		#Atten: 30 dB	IFGain:Low	et 10.6 dB			dBr
	40.00 0.011					.00 dBm	Ref 21	div	PaL
Center Fre							-		0.0
14.75000000 GH									00
	-77 40 -894								0.0
Start Fre									0.0
3.00000000 GH	•								0.0
	and the second second	100 million	-	- company	and the second	mun	manie	my	0.0
Stop Fre									0.0
26.50000000 GH					_	_	-		0.0
	Stop 26.50 GHz				-	_		3.00	
				/ 300 kHz	#VE		100 kH	BW	Res
CF Ste 2.35000000 GH Auto Ma	6.40 ms (1001 pts)		_						
2.350000000 GH	5.40 ms (1001 pts)	Sweep 70	FUNCTIO	Ý	218 0 GHz	26.3	1		1 N
2.350000000 GH Auto Ma			РИНСТІО	-40.95 dBm	218 0 GHz				1 1
2.350000000 GH			PUNCTIO	Ý	5,218 0 GHz				1 1
2.35000000 GH Auto Ma			POINTIO	Ý	5.218 0 GHz				1 N 2 3 4 5 6
2.35000000 GH Auto Ma			PONCTION	Ý	5,218 0 GHz				1 N 2 3 4 5 6 7 8
2.35000000 GH Auto Ma			PONETIO	Ý	5.218 0 GHz				1 N 2 3 4 5 6 7 8 9 0
2.35000000 GH Auto Ma			PUNCTIO	Ý	5,218 0 GHz				1 N 2 3 4 5 6 7 8 9

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11 RADIATED BANDEDGE AND SPURIOUS EMISSION MEASUREMENT

Standard Applicable 11.1

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands must also comply with the §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:

		966 Chamber			
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Broadband Anten- na	TESEQ	CBL 6112D	35243	2017/11/10	2018/11/9
Horn Antenna	Schwarzbeck	BBHA9120D	1187	2018/01/04	2019/1/3
Loop Antenna	ETS.LINDGREN	6502	148045	2017/09/26	2018/9/25
Horn Antenna	SCHWAZBECK	BBHA9170	184	2017/12/12	2018/12/11
EMI Test Receiver	R&S	ESU 40	100363	2018/04/11	2019/4/10
Pre-Amplifier	EMC Instruments	EMC330	980096	2017/12/26	2018/12/25
Pre-Amplifier	EMC Instruments	EMC0011830	980199	2017/12/26	2018/12/25
Pre-Amplifier	EMC Instruments	EMC184045B	980135	2017/10/27	2018/10/26
Coaxial Cable	Huber Suhner	SUCOFLEX 104	MY17388/4	2017/12/26	2018/12/25
Coaxial Cable	Huber Suhner	RG 214/U	W22.03	2017/12/26	2018/12/25

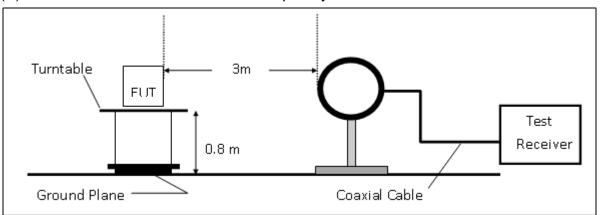
NOTE: N.C.R refers to Not Calibrated Required.

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.

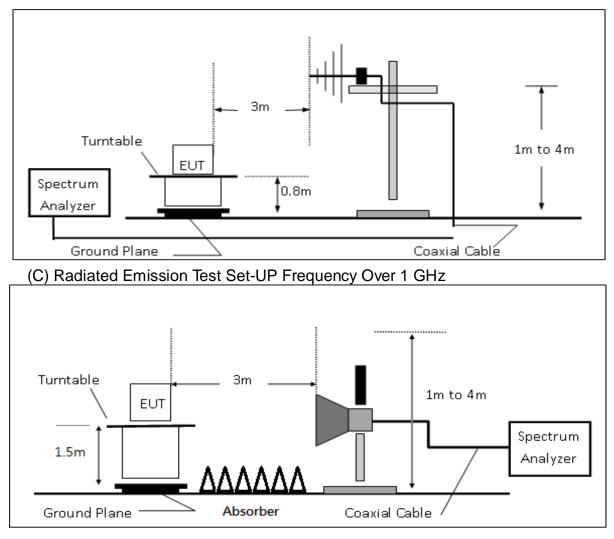


11.3 Test SET-UP

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



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



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.



11.4 Measurement Procedure

- 1. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance & ANSI C63.10.
- 2. The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m for frequency> 1GHz above ground plane.
- 3. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
- 4. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
- 5. When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.
- 6. Set the spectrum analyzer as RBW=120 kHz and VBW=300 kHz for Peak Detector (PK) and Quasi-peak (QP) at frequency below 1 GHz.
- 7. Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
- 8. Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW ≥ 1/T (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
- 9. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- 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	•	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

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

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

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.

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.



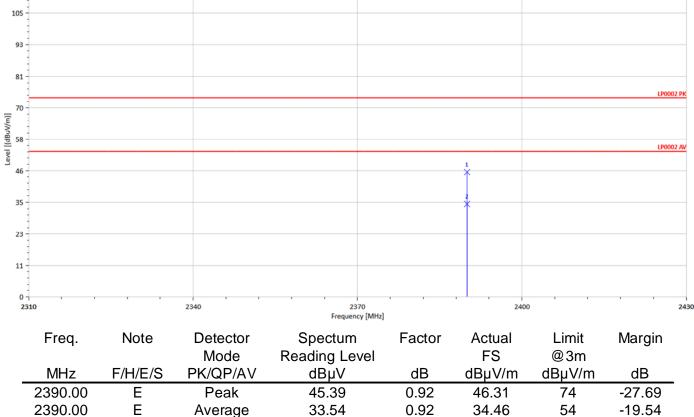
Radiated Band Edge Measurement Result (802.11b)

	Operation N Fundament Operation E EUT Pol. :	al Frequenc	802.11 sy : 2412 M BE CH H	1Hz Temp Low Test	Date : b. / Humi. : Engineer : surement Ante	enna Pol. :	2018/5/18 22.7deg_0 Ashton Vertical	C/57RH
117 105 93								
81								LP0002 PK
لافرام [(dBuV/m)] 20 8	-							LP0002 AV
ی 46 35						1 3 4 **		
23								
11 0 2	310		2340	23 Frequen		240	0	2430
	Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectum Reading Le dBµV	Factor	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
-	2388.72 2388.72 2390.00 2390.00	S S E E E	Peak Average Peak Average	48.98 34.99 47.10 34.85	0.90 0.90 0.92 0.92	49.88 35.89 48.03 35.77	<u>авру/т</u> 74 54 74 54	-24.12 -18.11 -25.97 -18.23

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 :	802.11b	Test Date :	2018/5/18
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	BE CH Low	Test Engineer :	Ashton
EUT Pol. :	H	Measurement Antenna Pol. :	Horizontal
-			





46

35

23

11

0 -

Operation Mode :802.11bTest Date :Fundamental Frequency :2462 MHzTemp. / Humi. :Operation Band :BE CH HighTest Engineer :EUT Pol. :HMeasurement Antenna Pol.	2018/5/18 22.7deg_C/57RH Ashton : Vertical
105	
81	
70	LP0002 PM
1	LP0002 AV

24	150		2475	2500 Frequency (MHz]		2525	i		255
	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	50.85	1.16	52.01	74	-21.99	•
	2483.50	Е	Average	37.01	1.16	38.17	54	-15.83	

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.

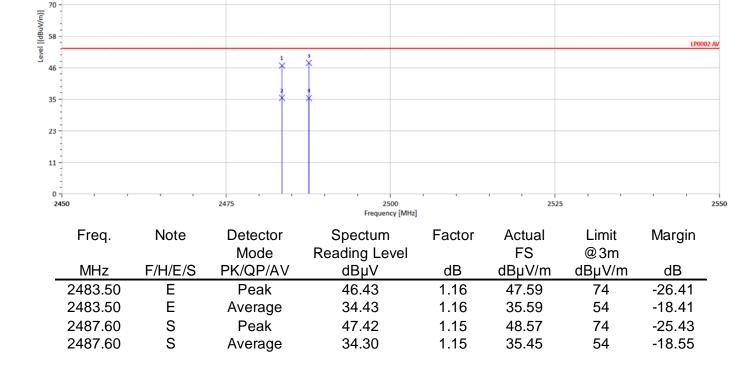


81

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LP0002 PF

Operation Mode : Fundamental Frequency : Operation Band : EUT Pol. :	802.11b 2462 MHz BE CH High H	Test Date : Temp. / Humi. : Test Engineer : Measurement Antenna Pol. :	2018/5/18 22.7deg_C/57RH Ashton Horizontal	
117				
93				



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.



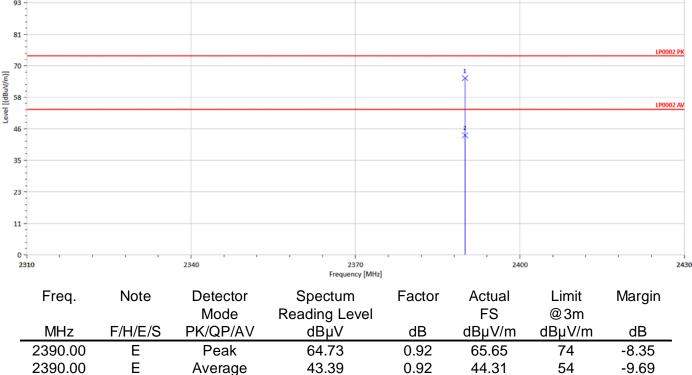
Radiated Band Edge Measurement Result (802.11g)

	Operation N Fundament Operation E EUT Pol. :	al Frequenc	802.11) cy : 2412 N BE CH H	IHz Tem Low Test	Date : p. / Humi. : Engineer : surement Ant	enna Pol. :	2018/5/18 22.7deg_0 Ashton Vertical	C/57RH	
117	-								
105									
93									_
81	-								
						h		LPOOD	<u>02 PK</u>
70 [{ɯ//	-					Ť			
Level [(dBuV/m)] 8	-							LPOOD	02 AV
مم 46						*			_
35									
35									
23									
11									_
0	· · · ·								_
2	310		2340		370 ncy [MHz]	240	00		2430
	Freq.	Note	Detector	Spectum			Limit	Margin	
	MHz	F/H/E/S	Mode PK/QP/AV	Reading Le dBµV	evel dB	FS dBµV/m	@3m dBµV/m	dB	
-	2389.68	<u>г/п/Е/З</u> S	Peak	<u>авру</u> 69.11	0.92	<u>ивµv/ш</u> 70.03	<u>ивµv/ш</u> 74	-3.97	•
	2389.68	S	Average	46.05	0.92	46.97	54	-7.03	
	2390.00	Е	Peak	68.69	0.92	69.62	74	-4.38	
	2390.00	Е	Average	46.87	0.92	47.79	54	-6.21	

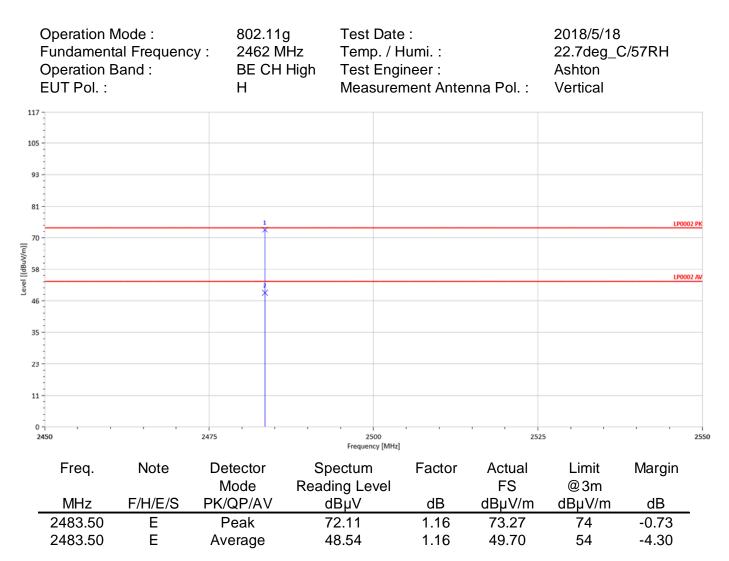
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



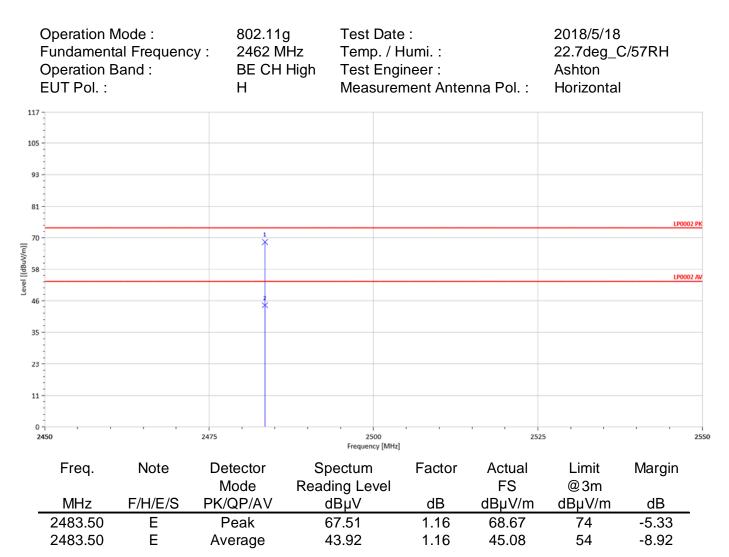
Fundamental Frequency : 2 Operation Band :	2412 MHz Temp BE CH Low Test	Date : b. / Humi. : Engineer : surement Antenna Pol. :	2018/5/18 22.7deg_C/57RH Ashton Horizontal
17			
93			







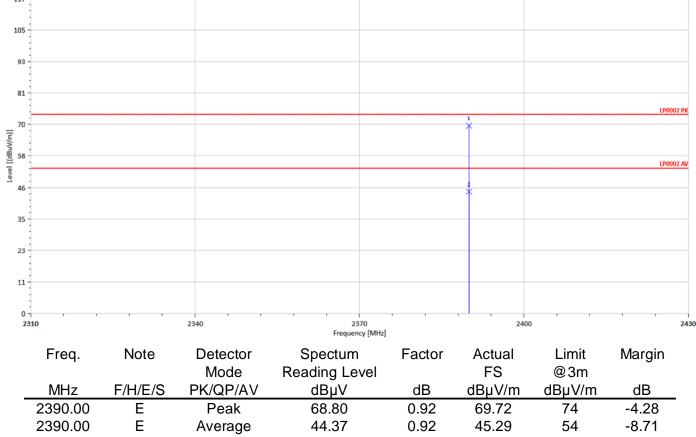






Radiated Band Edge Measurement Result (802.11_HT20)

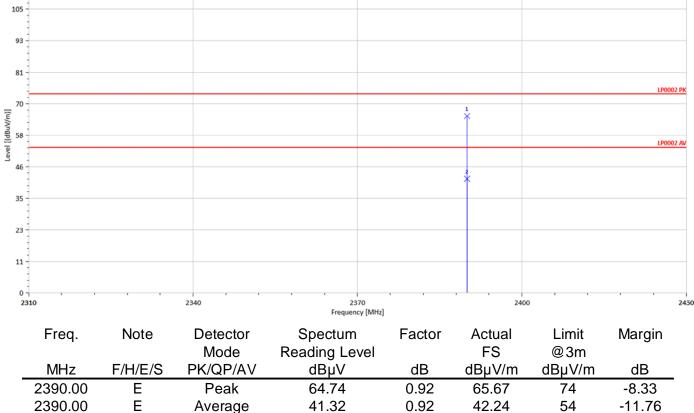
Operation Mode :802.11n20Test DateFundamental Frequency :2412 MHzTemp. / HOperation Band :BE CH LowTest EngiEUT Pol. :HMeasurent	łumi. : 22.7deg_C/57RH
--	------------------------



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.



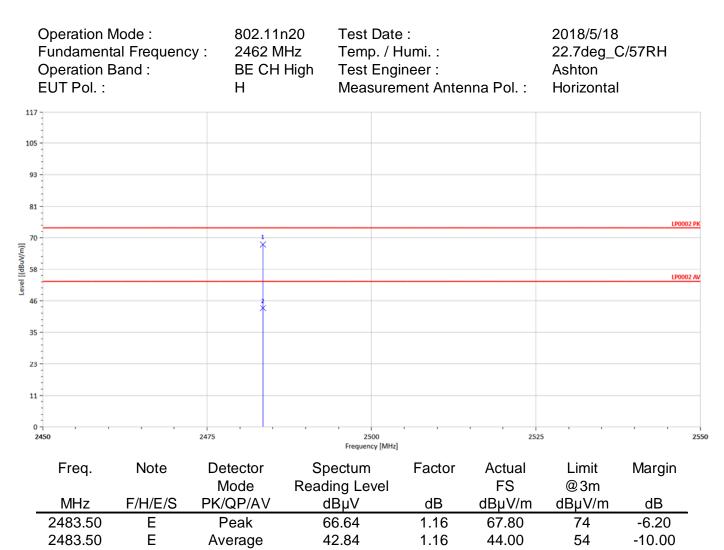
Operation Mode :	802.11n20	Test Date :	2018/5/18
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	BE CH Low	Test Engineer :	Ashton
EUT Pol. :	H	Measurement Antenna Pol. :	Horizontal
105			





l	Operation N Fundament Operation E EUT Pol. :	al Frequenc	802.11 cy : 2462 M BE CH H	1Hz Tem _l High Test	Date : b. / Humi. : Engineer : surement Ante	enna Pol. :	2018/5/18 22.7deg_(Ashton Vertical	
117	-							
105 -								
93 -	-							
81	-							
70			X					LP0002 PK
Level [(dBuV/m)]	-							LP0002 AV
laval 46	-		2 *					
35 -								
	-							
23 -								
11 -	-							
0 · 24	\$50		2475	25 Frequen	oo cy [MHz]	25	25	2550
	Freq.	Note	Detector Mode	Spectum Reading Le		Actual FS	Limit @3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
_	2483.50 2483.50	E E	Peak Average	71.68 46.43	1.16 1.16	72.84 47.59	74 54	-1.16 -6.41





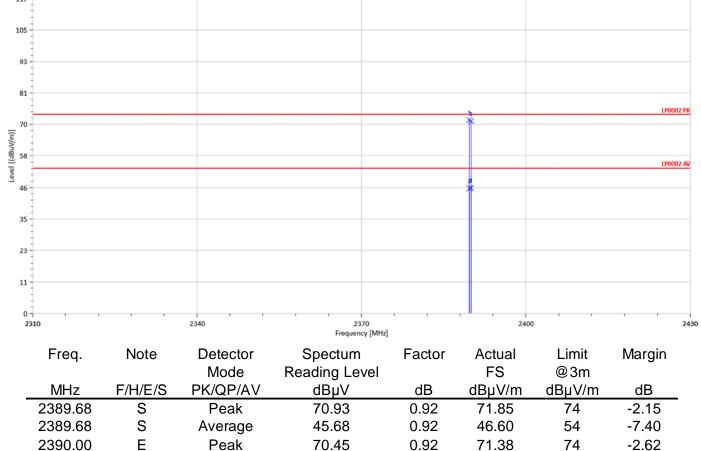


2390.00

Е

Radiated Band Edge Measurement Result (802.11_HT40)

Fundamental Frequency : Operation Band :	802.11n40 2422 MHz BE CH Low H	Test Date : Temp. / Humi. : Test Engineer : Measurement Antenna Pol. :	2018/5/18 22.7deg_C/57RH Ashton Vertical
---	---	---	---



45.82

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

Unless to herwise stated the textus single(s) textual and textual to be the state and state textual to be days only. 防非方式 就明 : 此報告結果僅針測試之樣品負責、同時此樣品僅保留的人気。本報告未經公司書面許可,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_edocument.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 its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document is under the produced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

0.92

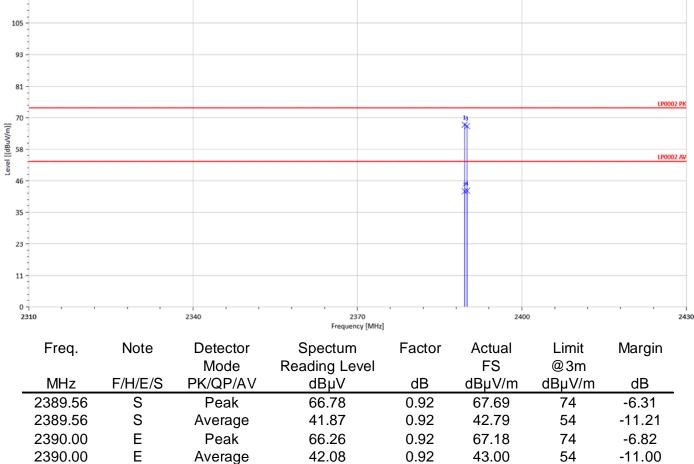
46.74

54

-7.26



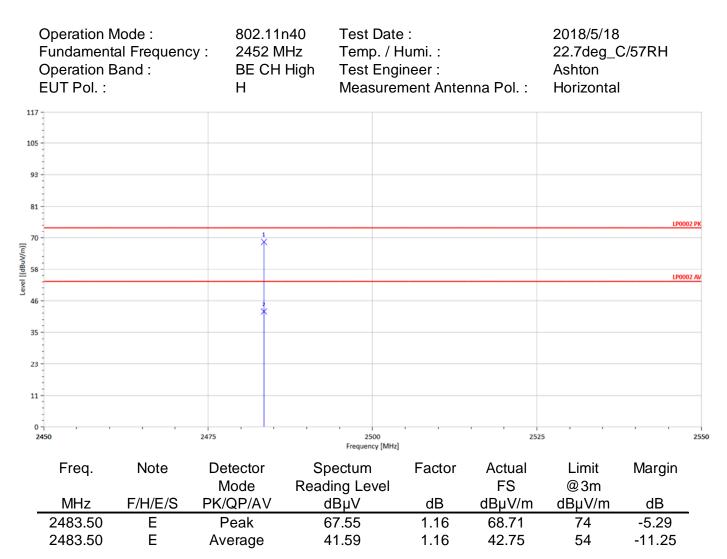
Operation Mode :	802.11n40	Test Date :	2018/5/18
Fundamental Frequency :	2422 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	BE CH Low	Test Engineer :	Ashton
EUT Pol. :	H	Measurement Antenna Pol. :	Horizontal





l	Operation N Fundament Operation E EUT Pol. :	al Frequenc	802.11 y : 2452 M BE CH H	1Hz Tem _l High Test	Date : b. / Humi. : Engineer : surement Ant	enna Pol. :	2018/5/18 22.7deg_(Ashton Vertical	
117								
105 -								
93 -	-							
81	-		1					LP0002 PK
70 · E	* 		×					LPOUZ PR
Level [{dBuV/m]]								LP0002 AV
avan 46 ·	-		*					
35 -	-							
23 -	•							
11								
	-							
0 · 24	\$50		2475		600 cy [MHz]	25	25	2550
	Freq.	Note	Detector Mode	Spectum Reading Le		Actual FS	Limit @3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	гз dBµV/m	dBµV/m	dB
_	2483.50 2483.50	E E	Peak Average	72.64 44.90	1.16 1.16	73.80 46.06	74 54	-0.20 -7.94



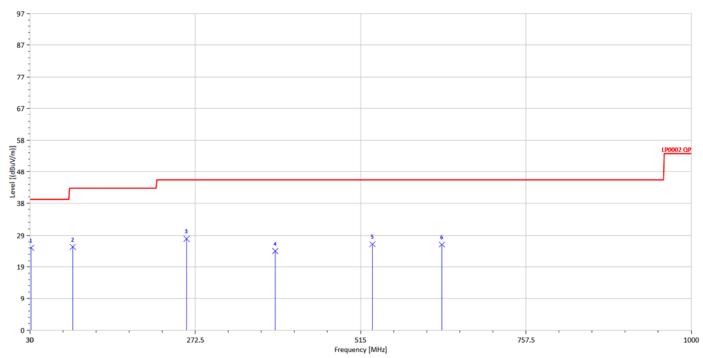




Below 1GHz Worst-Case Data:

Radiated Spurious Emission Measurement Result (802.11 g)

Operation Mode :	802.11g	Test Date :	2018/5/18
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	Н	Measurement Antenna Pol. :	Vertical

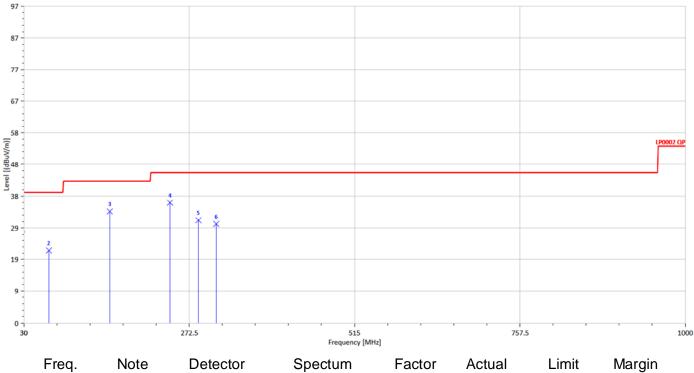


	Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
_	31.94	S	Peak	33.45	-8.22	25.23	40	-14.77
	93.05	S	Peak	44.48	-18.95	25.53	43.5	-17.97
	259.89	S	Peak	41.70	-13.64	28.06	46	-17.94
	389.87	S	Peak	34.28	-10.03	24.26	46	-21.74
	532.46	S	Peak	33.47	-7.09	26.38	46	-19.62
	634.31	S	Peak	31.65	-5.37	26.28	46	-19.72

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.



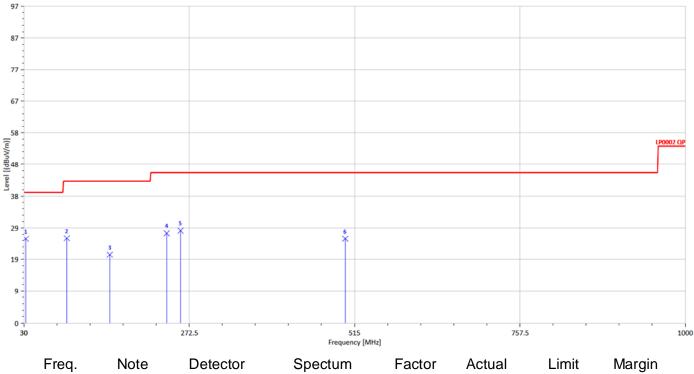
Operation Mode :802.11Fundamental Frequency :2412 NOperation Band :Tx CHEUT Pol. :H	NHz Temp. / Humi. :	2018/5/18 22.7deg_C/57RH Ashton : Horizontal
---	---------------------	---



		Mode	Reading Level		FS	@3m	C
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
30.00	S	Peak	33.30	-7.18	26.12	40	-13.88
66.86	S	Peak	44.36	-22.18	22.18	40	-17.82
156.10	S	Peak	51.29	-17.14	34.15	43.5	-9.35
244.37	S	Peak	51.87	-15.04	36.83	46	-9.17
286.08	S	Peak	44.84	-13.41	31.42	46	-14.58
312.27	S	Peak	42.78	-12.52	30.27	46	-15.73



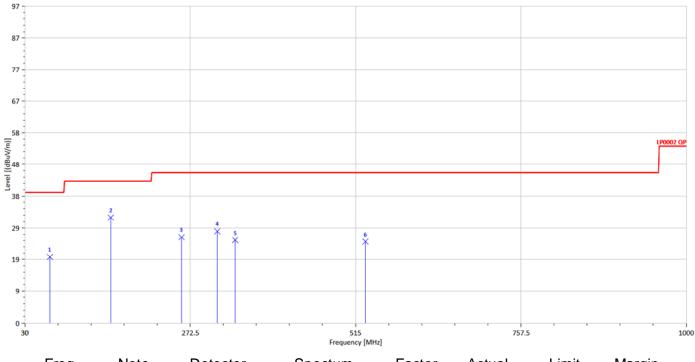
Operation Mode :	802.11g	Test Date :	2018/5/18
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	H	Measurement Antenna Pol. :	Vertical



•			•				0
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
32.91	S	Peak	34.46	-8.75	25.71	40	-14.29
93.05	S	Peak	44.86	-18.95	25.90	43.5	-17.60
156.10	S	Peak	38.01	-17.14	20.87	43.5	-22.63
239.52	S	Peak	42.75	-15.28	27.46	46	-18.54
259.89	S	Peak	41.90	-13.64	28.25	46	-17.75
501.42	S	Peak	33.34	-7.59	25.75	46	-20.25

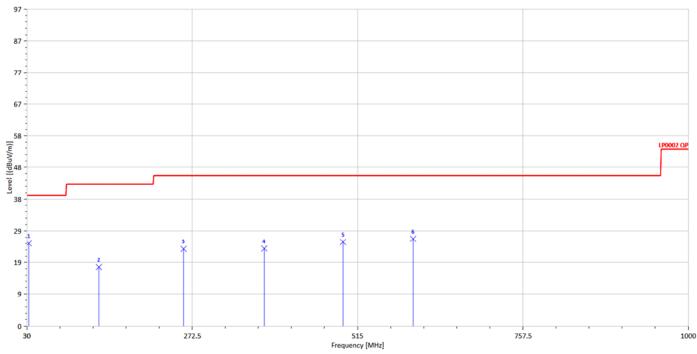


Operation Mode :	802.11g	Test Date :	2018/5/18
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	H	Measurement Antenna Pol. :	Horizontal



⊢req.	Note	Detector	Spectum	⊢actor	Actual	Limit	Margın	
		Mode	Reading Level		FS	@3m		
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
66.86	S	Peak	42.33	-22.18	20.15	40	-19.85	
156.10	S	Peak	49.40	-17.14	32.26	43.5	-11.24	
259.89	S	Peak	39.87	-13.64	26.22	46	-19.78	
312.27	S	Peak	40.56	-12.52	28.04	46	-17.96	
338.46	S	Peak	37.25	-11.93	25.33	46	-20.67	
529.55	S	Peak	32.08	-7.21	24.87	46	-21.13	

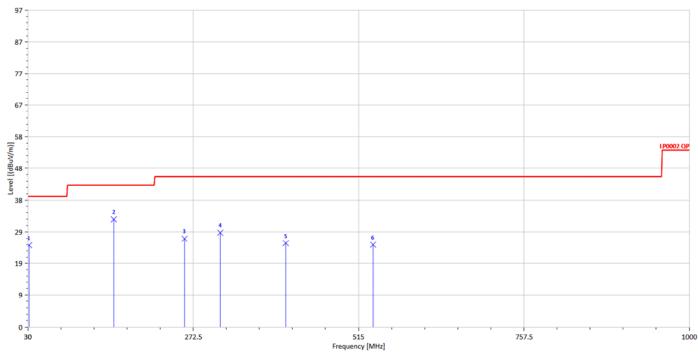




	Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
-	32.91	S	Peak	33.99	-8.75	25.24	40	-14.76
	135.73	S	Peak	33.67	-15.73	17.95	43.5	-25.55
	259.89	S	Peak	37.21	-13.64	23.56	46	-22.44
	378.23	S	Peak	34.15	-10.46	23.69	46	-22.31
	493.66	S	Peak	33.39	-7.73	25.66	46	-20.34
	596.48	S	Peak	32.89	-6.27	26.63	46	-19.37



Operation Mode :	802.11g	Test Date :	2018/5/18
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	33.19	-8.22	24.97	40	-15.03
	156.10	S	Peak	50.14	-17.14	33.00	43.5	-10.50
	259.89	S	Peak	40.65	-13.64	27.00	46	-19.00
	312.27	S	Peak	41.37	-12.52	28.85	46	-17.15
	408.30	S	Peak	34.87	-9.25	25.62	46	-20.38
	536.34	S	Peak	32.42	-7.30	25.13	46	-20.87



Above 1GHz Data:

Radiated Spurious Emission Measurement Result (802.11 b)

07	Operation I Fundamen Operation I EUT Pol. :	tal Frequer	802.11 ncy : 2412 M Tx CH H	/IHz Temp Low Test	Date : b. / Humi. : Engineer : surement Ante	nna Pol. :	2018/5/18 22.7deg_C Ashton Vertical	/57RH
97 -								
87 -								
77 -								LP0002 PK
67 -								
58 -								
(m//u								LPO002 AV
Level [(dBuV/m)]								
ي 38 -		1 X						
29 -								
19 -								
9 -								
0 - 10			7375		8750 hcy [MHz]	201	25	26500
	Freq.	Note	Detector Mode	Spectum Reading Le		Actual FS	Limit @3m	Margin
-	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
	4824.00 4824.00	H H	Peak	30.90 21.47	7.58 7.58	38.48 29.05	74 54	-35.52 -24.95
	4024.00	П	Average	21.47	06.1	29.00	54	-24.90

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.

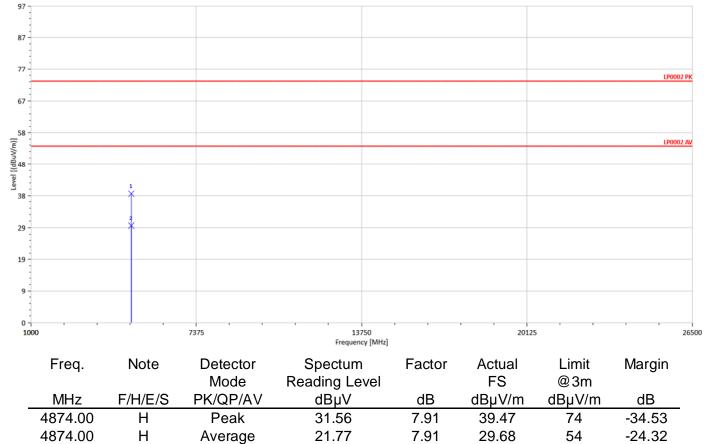


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Fundamental Frequency :2412 MHzTemp. / Humi. :22.7deg_Operation Band :Tx CH LowTest Engineer :AshtonEUT Pol. :HMeasurement Antenna Pol. :Horizonta	2018/5/18 22.7deg_C/57RH Ashton Horizontal	
97		
87		
	LP0002 PK	
67		
	LP0002 AV	
29		
19		
9		
0	26500	
Freq. Note Detector Spectum Factor Actual Limit Mode Reading Level FS @3m	Margin	
MHz F/H/E/S PK/QP/AV dBµV dB dBµV/m dBµV/m		
4824.00HPeak31.097.5838.66744824.00HAverage21.487.5829.0654	-35.34 -24.94	

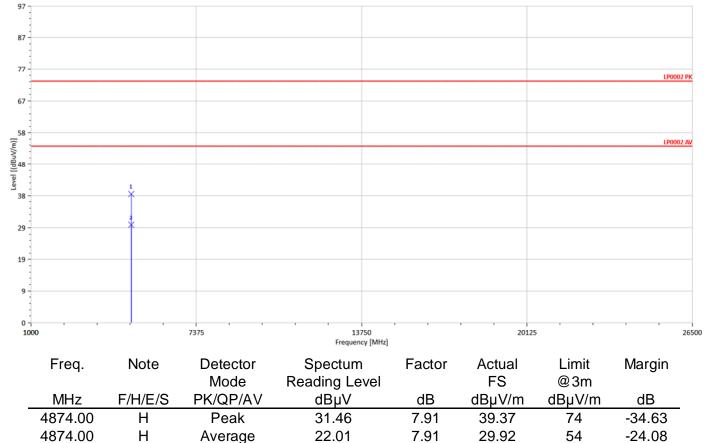


Operation Mode :	802.11b	Test Date :	2018/5/18
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	H	Measurement Antenna Pol. :	Vertical

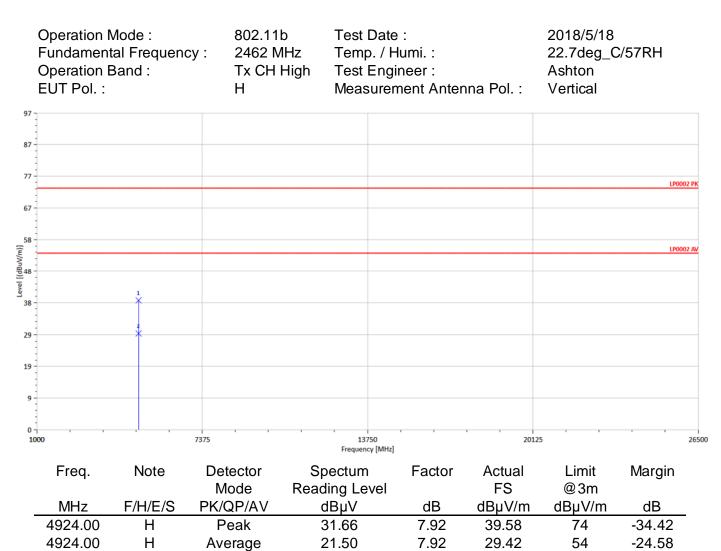




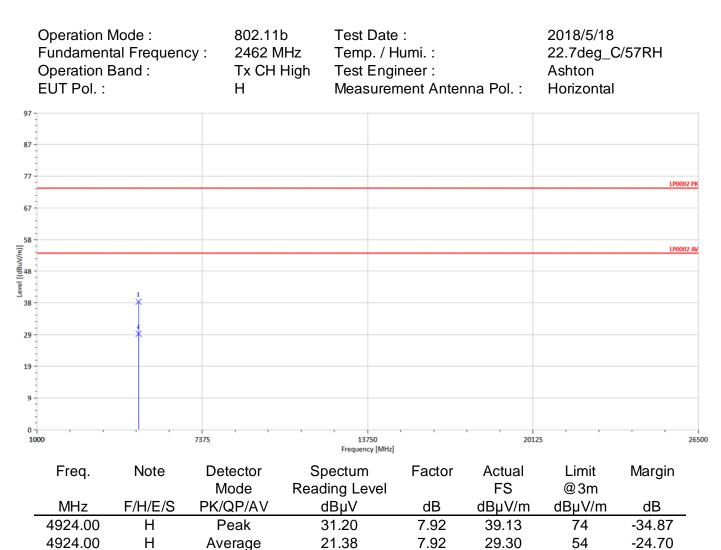
Operation Mode :	802.11b	Test Date :	2018/5/18
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	H	Measurement Antenna Pol. :	Horizontal













Radiated Spurious Emission Measurement Result (802.11 g)

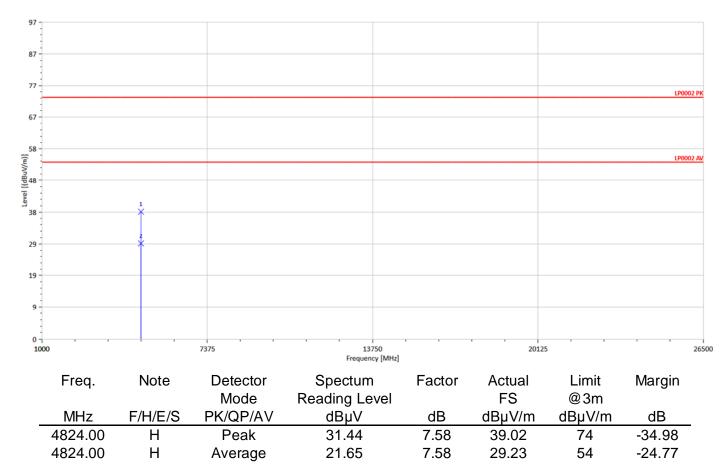
	Operation Fundamen Operation EUT Pol. :	ital Frequer	802.11 ncy : 2412 M Tx CH H	VHz Temp Low Test I	o. / Hum Enginee	er:	na Pol. :	2018/5/18 22.7deg_C/ Ashton Vertical	/57RH
97 -									
-									
77 -									LPO002 PK
67 -									
58 - [(ɯ//									LP0002 AV
Level [(dBuV/m)]									
ي تر - 38 -		Ť							
29 -		*							
19 -									
9-									
- - - 0	· · ·		,	, ,				, ,	
10	00		7375		750 ncy [MHz]		2012	5	26500
	Freq.	Note	Detector Mode	Spectum Reading Le		actor	Actual FS	Limit @3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBµV		dB	dBµV/m	dBµV/m	dB
_	4824.00 4824.00	H H	Peak Average	31.79 21.71		7.58 7.58	39.37 29.29	74 54	-34.63 -24.71

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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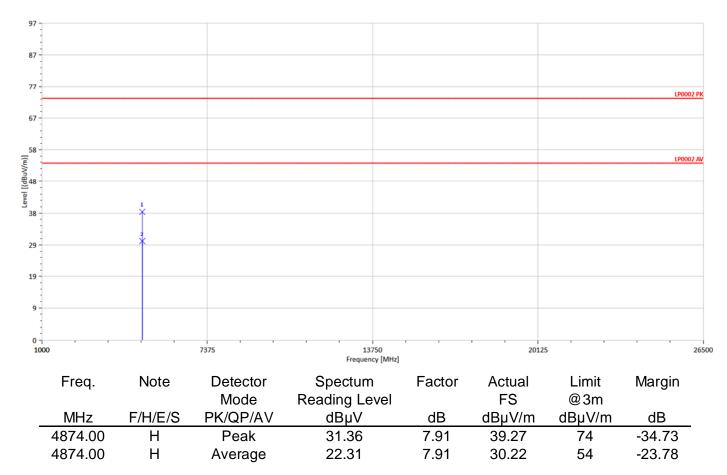


Operation Mode :	802.11g	Test Date :	2018/5/18
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	H	Measurement Antenna Pol. :	Horizontal



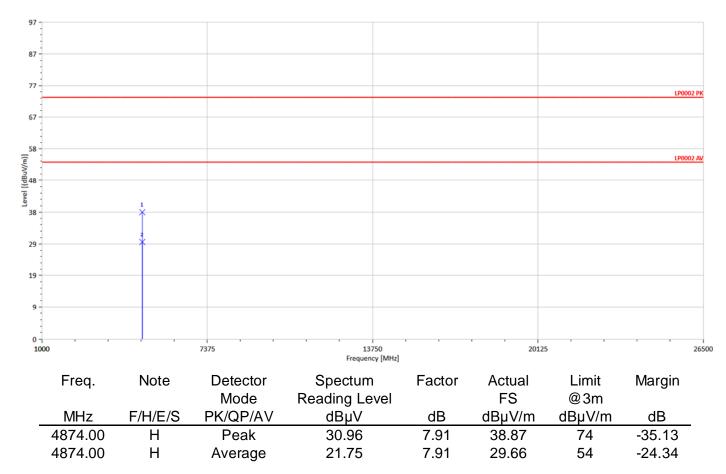


Operation Mode :	802.11g	Test Date :	2018/5/18
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band : EUT Pol. :	Tx CH Mid H	Test Engineer : Measurement Antenna Pol. :	Ashton Vertical

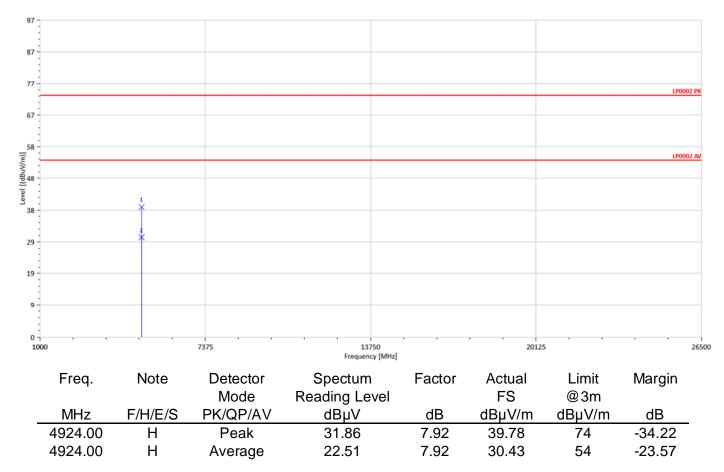




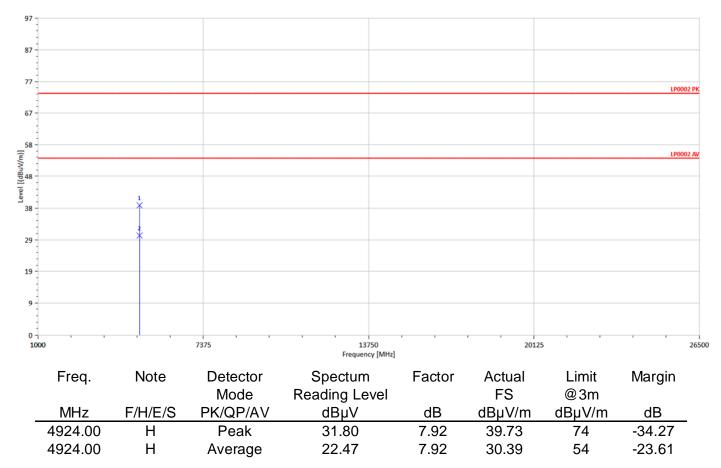
Operation Mode :	802.11g	Test Date :	2018/5/18
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	H	Measurement Antenna Pol. :	Horizontal













Radiated Spurious Emission Measurement Result (802.11n_HT20)

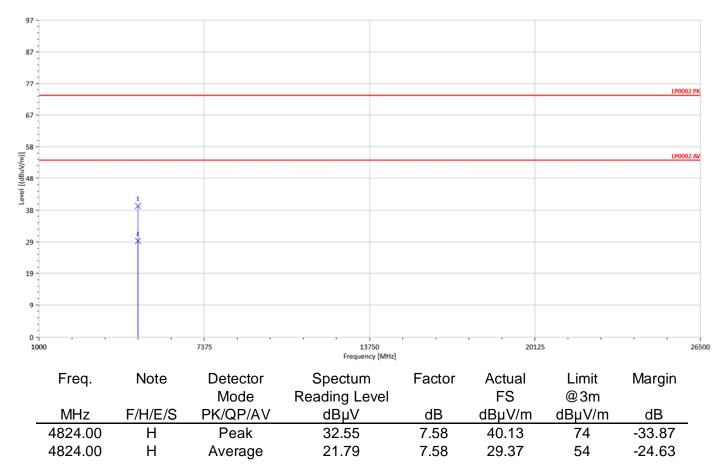
	Operation I Fundamen Operation I EUT Pol. :	tal Frequen	802.11 cy : 2412 M Tx CH H	/Hz Temp Low Test	Date : b. / Humi. : Engineer : urement Ant	tenna Pol. :	2018/5/18 22.7deg_C Ashton Vertical	/57RH
97 -								
77 -	-							
67 -	-							LP0002 PK
58 -	-							
Level [(dBuV/m)]] 							LP0002 AV
level 8	-	×						
29 -	-							
19 -	-							
9 -	-							
0-10			7375		750 cy [MHz]	201		26500
	Freq.	Note	Detector Mode	Spectum Reading Le		or Actual FS	Limit @3m	Margin
	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
	4824.00 4824.00	H H	Peak Average	31.88 21.72	7.58 7.58		74 54	-34.55 -24.70

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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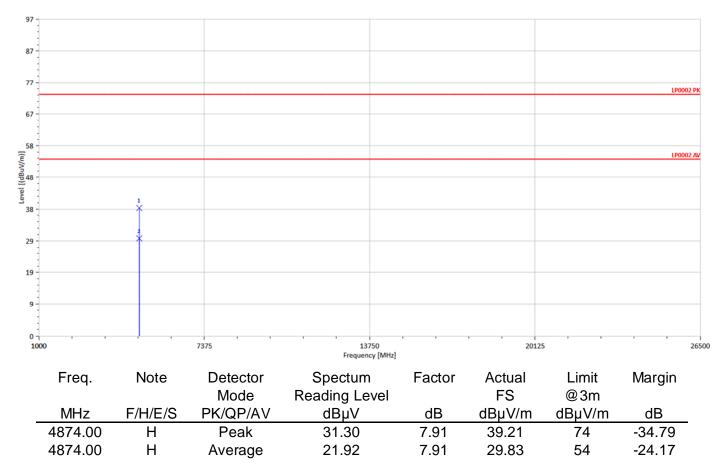


Operation Mode :	802.11n20	Test Date :	2018/5/18
Fundamental Frequency :	2412 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	Н	Measurement Antenna Pol. :	Horizontal

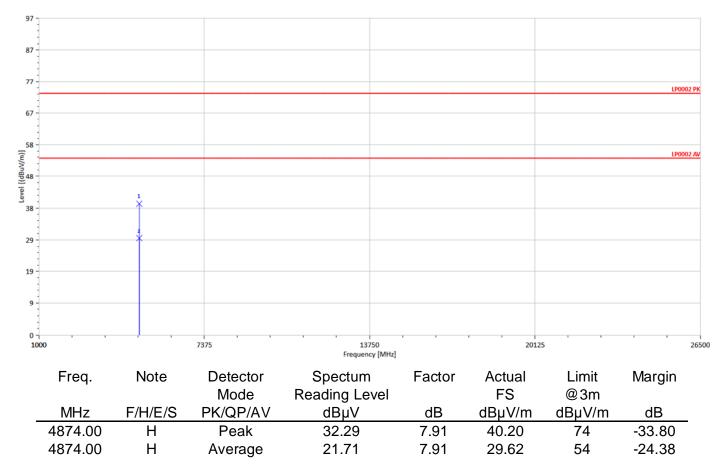




Operation Mode :802.11Fundamental Frequency :2437 MOperation Band :Tx CHEUT Pol. :H	Hz Temp. / Humi. :	2018/5/18 22.7deg_C/57RH Ashton Vertical
---	--------------------	---

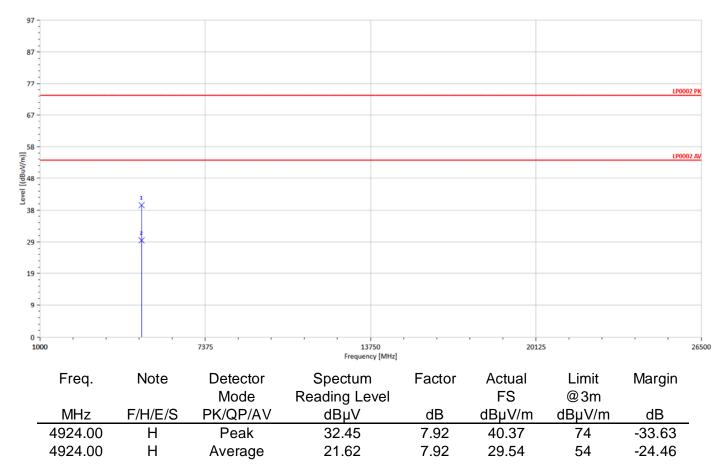






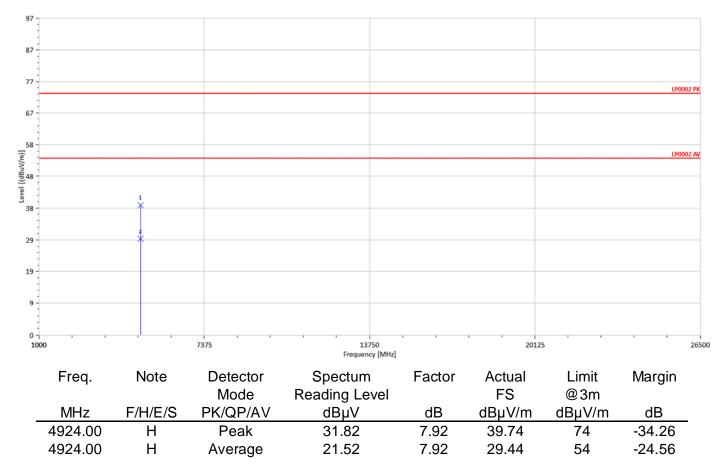


Operation Mode :	802.11n20	Test Date :	2018/5/18
Fundamental Frequency :	2462 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Ashton
EUT Pol. :	H	Measurement Antenna Pol. :	Vertical





Operation Mode :	802.11n20	Test Date :	2018/5/18
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



Radiated Spurious Emission Measurement Result (802.11n_HT40)

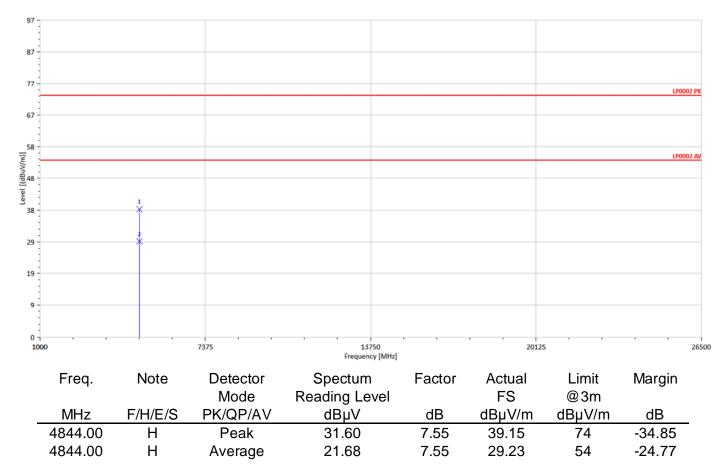
	Operation Fundamen Operation EUT Pol. :	tal Frequer	802.11 icy : 2422 M Tx CH H	VIHz Temp Low Test I	Date : 5. / Humi. : Engineer : urement Ante	enna Pol. :	2018/5/18 22.7deg_C Ashton Vertical	/57RH
97 - - - - 87 -								
67 -								LP0002 PK
-								
58 - [(ш/\л								LP0002 AV
Level [(dBuV/m)]		1						
38 -		Ť						
29 -								
19 -								
9 - -								
0 - 10			7375		750 cy [MHz]	201	25	26500
	Freq.	Note	Detector Mode	Spectum Reading Le		· Actual FS	Limit @3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
	4844.00 4844.00	H H	Peak Average	31.73 21.74	7.55 7.55	39.28 29.29	74 54	-34.72 -24.71

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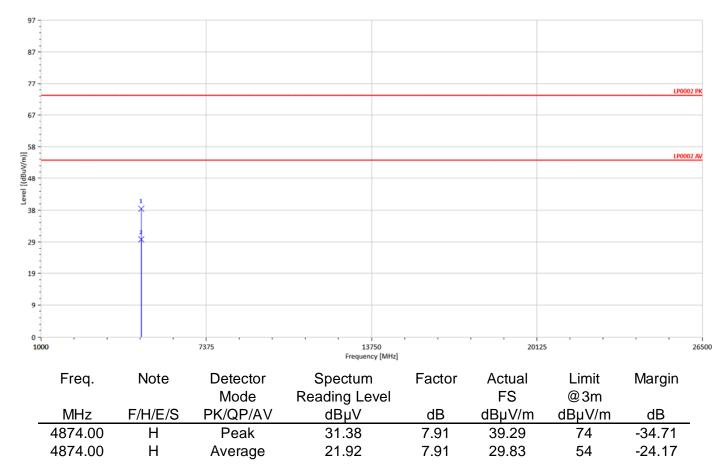


Operation Mode :	802.11n40	Test Date :	2018/5/18
Fundamental Frequency :	2422 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	H	Measurement Antenna Pol. :	Horizontal



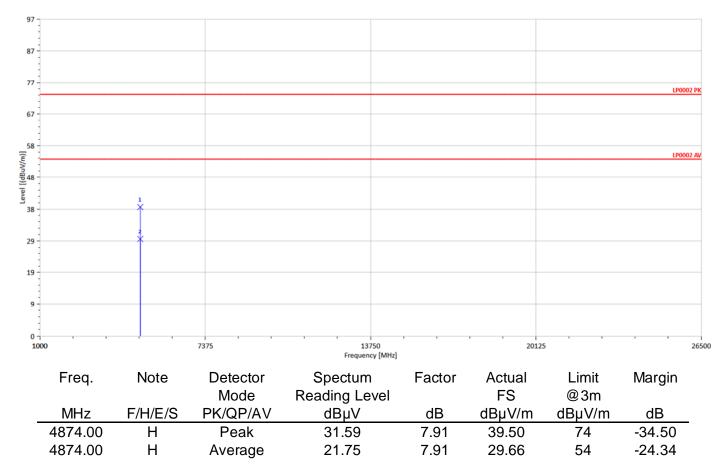


Operation Mode :	802.11n40	Test Date :	2018/5/18
Fundamental Frequency :	2437 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	Н	Measurement Antenna Pol. :	Vertical



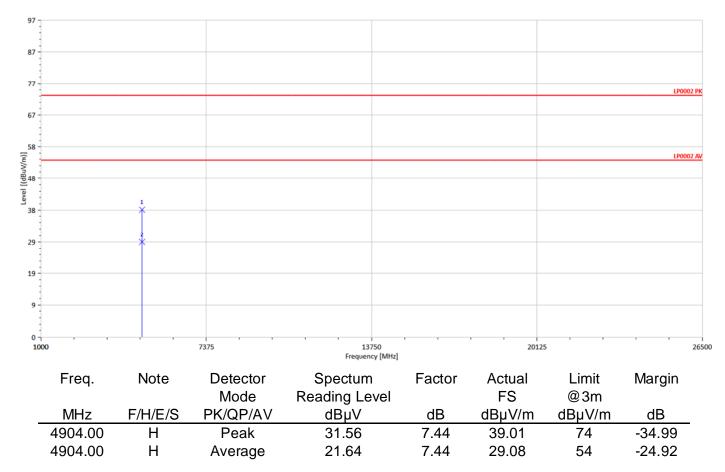


Fundamental Frequency: 24	02.11n40 Test Date : 437 MHz Temp. / Humi. x CH Mid Test Engineer Measurement	: Ashton
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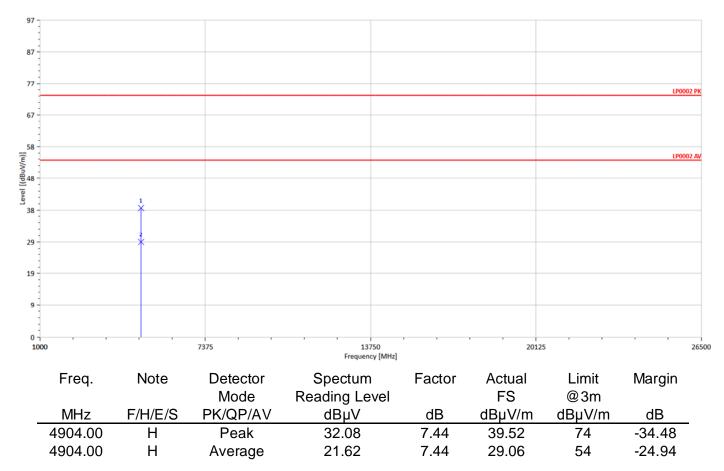


Operation Mode :		Test Date :	2018/5/18
Fundamental Frequency :		Temp. / Humi. :	22.7deg_C/57RH
Operation Band :		Test Engineer :	Ashton
EUT Pol. :	Н	Measurement Antenna Pol. :	Vertical





Operation Mode :802.11n40Fundamental Frequency :2452 MHzOperation Band :Tx CH HighEUT Pol. :H	Test Date : Temp. / Humi. : Test Engineer : Measurement Antenna Pol. :	2018/5/18 22.7deg_C/57RH Ashton Horizontal
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12 PEAK POWER SPECTRAL DENSITY

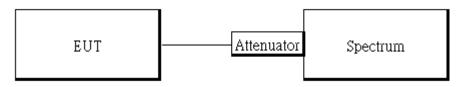
Standard Applicable 12.1

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	MY51440113	06/20/2017	06/19/2018		
Coaxial Cable 30cm	WOKEN	00100A1F1A 195C	RF01	12/24/2017	12/23/2018		
DC Block	PASTERNACK	PE8210	RF29	12/24/2017	12/23/2018		
Attenuator	WOKEN	218FS-10	RF23	12/24/2017	12/23/2018		

12.3 Test Set-up



12.4 Measurement Procedure

- Set analyzer center frequency to DTS channel center frequency.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance & ANSI C63.10.
- 3. Set the span to 1.5 times the DTS channel bandwidth.
- 4. Set the RBW = 3 kHz. & the VBW = 10 kHz
- 5. For defining Restricted Band Edge Limit:

Set the RBW = 100kHz & VBW = 300 kHz.

- 6. Detector = peak.
- 7. Sweep time = auto couple.
- 8. Trace mode = max hold.
- 9. Allow trace to fully stabilize.
- 10. Use the peak marker function to determine the maximum amplitude level.

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12.5 Measurement Result

POWER DENSITY 802.11b				POWER DENSITY 802.11g			
Freq.	PPSD	Limit	Result	Freq.	PPSD	Limit	Deput
(MHz)	(dBm)	(dBm)	Result	(MHz)	(dBm)	(dBm)	Result
2412	7.50	8.00	PASS	2412	-11.25	8.00	PASS
2437	7.35	8.00	PASS	2437	-11.97	8.00	PASS
2462	6.68	8.00	PASS	2462	-11.38	8.00	PASS

POWER DENSITY 802.11n HT20							
Freq.	PPSD	Limit	Result				
(MHz)	(dBm)	(dBm)	Result				
2412	-11.95	8.00	PASS				
2437	-13.04	8.00	PASS				
2462	-12.09	8.00	PASS				

POWER DENSITY 802.11n HT40							
Freq.	PPSD	Limit	Result				
(MHz)	(dBm)	(dBm)	Result				
2422	-16.29	8.00	PASS				
2437	-15.73	8.00	PASS				
2452	-16.54	8.00	PASS				

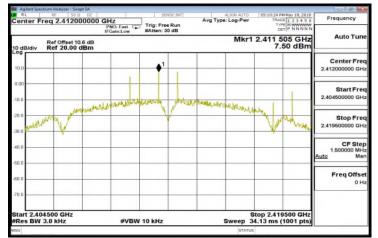
offset 10.60

dB for SISO mode

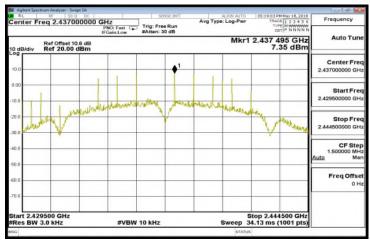
*Refer to next page for plots



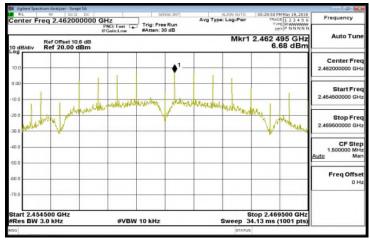
802.11b **Power Spectral Density Test Plot (CH-Low)**



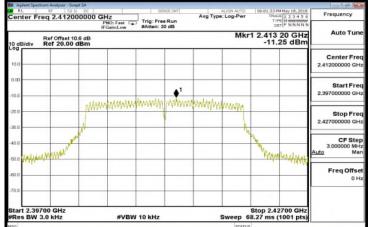
Power Spectral Density Test Plot (CH-Mid)



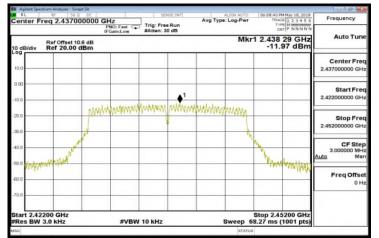
Power Spectral Density Test Plot (CH-High)



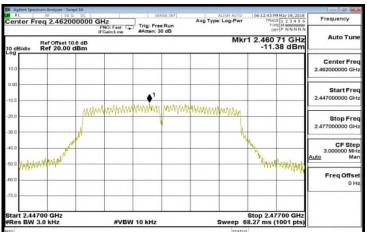
802.11g **Power Spectral Density Test Plot (CH-Low)**



Power Spectral Density Test Plot (CH-Mid)



Power Spectral Density Test Plot (CH-High)



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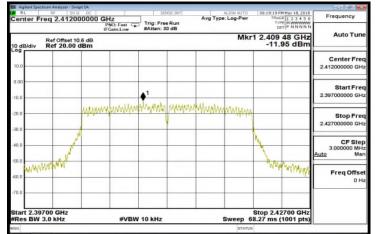
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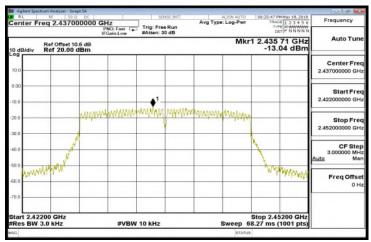
www.tw.sqs.com



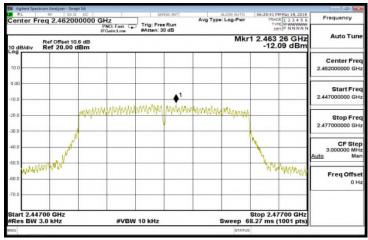
802.11n HT20 **Power Spectral Density Test Plot (CH-Low)**



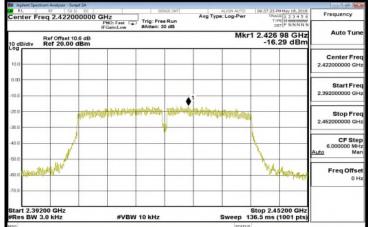
Power Spectral Density Test Plot (CH-Mid)



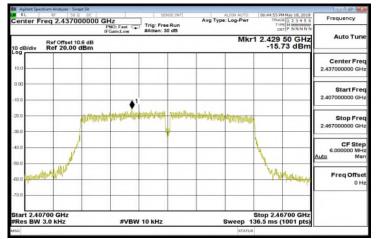
Power Spectral Density Test Plot (CH-High)



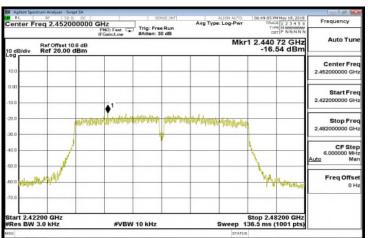
802.11n HT40 **Power Spectral Density Test Plot (CH-Low)**



Power Spectral Density Test Plot (CH-Mid)



Power Spectral Density Test Plot (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 ~

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