



Page 1 of 57

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

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

Product Name: Leap Wear

Brand Name: acer

Model No.: L05

Model Difference: N/A

FCC ID: HLZL05

IC: 1754F- L05

Report No.: E2/2017/50030

Issue Date: May 26, 2017

FCC Rule Part: §15.247, Cat: DTS

IC Rule: RSS-247 issue 2 Feb. 2017

Acer Incorporated

Prepared for: 8F., No. 88, Sec. 1, Xintai 5th Rd., Xizhi, New

Taipei City 22181, Taiwan (R.O.C)

SGS Taiwan Ltd.

Electronics & Communication Laboratory Prepared by:

No.2, Keji 1st Rd., Guishan District, Taoyuan

City, Taiwan 333





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VERIFICATION OF COMPLIANCE

Applicant: Acer Incorporated

8F., No. 88, Sec. 1, Xintai 5th Rd., Xizhi, New Taipei City 22181,

Taiwan (R.O.C)

Product Name: Leap Wear

acer **Brand Name:**

Model No.: L05 **Model Difference:** N/A

FCC ID: HLZL05

IC: 1754F-L05

Report Number: E2/2017/50030

Date of test: May 03, 2017 ~ May 15, 2017

Date of EUT Received: May 03, 2017

We hereby certify that:

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

The test results of this report relate only to the tested sample identified in this report.

Test By:	Aken	Huang	Date	May 26, 2017	
		ng / Engineer	<u></u>		
Prepared By:	Karen	Huang	Date	May 26, 2017	
	Karen Hu	ang / Clerk			
Approved By:	Jim	Ch ang	Date	May 26, 2017	
	Jim Chang /	Asst. Manager			

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Revision History

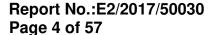
Report Number	Revision	Description	Issue Date
E2/2017/50030	Rev.00	Initial creation of document	May 26, 2017

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GENERAL INFORMATION

1.1 Product Description

General:

Gottoral.				
Product Name:	Leap Wear			
Brand Name:	acer	acer		
Model No.:	L05			
Model Difference:	N/A			
Product HW version:	N/A	N/A		
Product SW version:	N/A			
USB Cable: Model		Nodel No.: N/A, Supplier: N/A		
	3.7 Vdc from Rechargeable Li-polymer Battery or 5 V USB port			
Power Supply:	Battery:	Model No.:CPL381922, Supplier: GOLDEN CEL BATTERY CO., LTD.		

Bluetooth Low Energy:

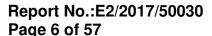
Frequency Range:	2402 – 2480MHz
Bluetooth Version:	V4.2 single mode
Channel number:	40 channels
Modulation type:	GFSK
Transmit Power:	-3.14dBm
Antenna Designation:	IFA Antenna, Gain: -4.49dBi

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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

Canada RSS-247 issue 2: 2017

Canada RSS-Gen issue 4: 2014

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 Numbers are: 735305

Canada Registration Number: 4620A-5

1.4 Special Accessories

There are no special accessories used while test was conducted.

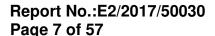
Equipment Modifications 1.5

There was no modification incorporated into the EUT.

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SYSTEM TEST CONFIGURATION

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.

EUT Exercise 2.2

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

2.3.2 Radiated Emissions

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

2.4 Measurement Results Explanation Example

For all conducted test items:

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

Note:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor. Following shows an offset computation example with cable loss and splitter. Offset = RF cable loss (dB)+ splitter(dB) = 10.3 (dB)

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2.5 Configuration of Tested System

Fig. 2-1 Configuration of Conducted and Radiated Tested System

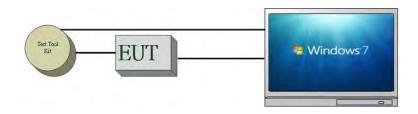


Fig. 2-2 Conduction



Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1.	Bluetooth Test Software	N/A	N/A	N/A	N/A	N/A
2.	Notebook	Lenovo	L430	PK-OCGFF	Shielded	Un-shielded
3.	Test Tool Kit	N/A	N/A	N/A	N/A	N/A

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SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result
§15.207(a)	RSS-Gen §8.8	AC Power Line Conducted Emission	Compliant
§15.247(b) (3)	RSS-247 §5.4(4)	Peak Output Power	Compliant
§15.247(a)(2)	RSS-247 §5.2 (1) RSS-Gen §6.6	6dB & 99% Bandwidth	Compliant
§15.247(d)	RSS-247 §5.5	Conducted Band Edge and Spurious Emission	Compliant
§15.247(d)	RSS-247 §5.5	Radiated Band Edge and Spurious Emission	Compliant
§15.247(e)	RSS-247 §5.2(2)	Peak Power Density	Compliant
§15.203 §15.247(b)	-	Antenna Requirement	Compliant

DESCRIPTION OF TEST MODES

4.1 Operated in 2400 ~ 2483.5MHz Band

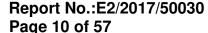
40 channels are provided for Bluetooth LE

To charmolo are provided for Bideteeth EE					
FREQUENCY	CHANNEL	FREQUENCY	CHANNEL	FREQUENCY	
2402 MHz	14	2430 MHz	28	2458 MHz	
2404 MHz	15	2432 MHz	29	2460 MHz	
2406 MHz	16	2434 MHz	30	2462 MHz	
2408 MHz	17	2436 MHz	31	2464 MHz	
2410 MHz	18	2438 MHz	32	2466 MHz	
2412 MHz	19	2440 MHz	33	2468 MHz	
2414 MHz	20	2442 MHz	34	2470 MHz	
2416MHz	21	2444 MHz	35	2472 MHz	
2418 MHz	22	2446 MHz	36	2474 MHz	
2420 MHz	23	2448 MHz	37	2476 MHz	
2422 MHz	24	2450 MHz	38	2478 MHz	
2424 MHz	25	2452 MHz	39	2480 MHz	
2426 MHz	26	2454 MHz			
2428 MHz	27	2456 MHz			
	FREQUENCY 2402 MHz 2404 MHz 2406 MHz 2408 MHz 2410 MHz 2412 MHz 2414 MHz 2416 MHz 2418 MHz 2420 MHz 2422 MHz 2424 MHz 2426 MHz	FREQUENCY CHANNEL 2402 MHz 14 2404 MHz 15 2406 MHz 16 2408 MHz 17 2410 MHz 18 2412 MHz 19 2414 MHz 20 2416MHz 21 2418 MHz 22 2420 MHz 23 2422 MHz 24 2424 MHz 25 2426 MHz 26	FREQUENCY CHANNEL FREQUENCY 2402 MHz 14 2430 MHz 2404 MHz 15 2432 MHz 2406 MHz 16 2434 MHz 2408 MHz 17 2436 MHz 2410 MHz 18 2438 MHz 2412 MHz 19 2440 MHz 2414 MHz 20 2442 MHz 2416 MHz 21 2444 MHz 2418 MHz 22 2446 MHz 2420 MHz 23 2448 MHz 2422 MHz 24 2450 MHz 2424 MHz 25 2452 MHz 2426 MHz 26 2454 MHz	FREQUENCY CHANNEL FREQUENCY CHANNEL 2402 MHz 14 2430 MHz 28 2404 MHz 15 2432 MHz 29 2406 MHz 16 2434 MHz 30 2408 MHz 17 2436 MHz 31 2410 MHz 18 2438 MHz 32 2412 MHz 19 2440 MHz 33 2414 MHz 20 2442 MHz 34 2416 MHz 21 2444 MHz 35 2418 MHz 22 2446 MHz 36 2420 MHz 23 2448 MHz 37 2422 MHz 24 2450 MHz 38 2424 MHz 25 2452 MHz 39 2426 MHz 26 2454 MHz 39	

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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.

RADIATED EMISSION TEST:

RADIATED EMISSION TEST (BELOW 1 GHz)						
MODE	AVAILABLE	TESTED	MODULATION	DATA RATE	ANTENNA	
IVIODE	CHANNEL	CHANNEL	MODULATION	(Mbps)	PORT	
Bluetooth LE	0 to 39	0,20,39	GFSK	1	MAIN	
	RADIATED EMISSION TEST (ABOVE 1 GHz)					
MODE	AVAILABLE	TESTED	MODULATION	DATA RATE	ANTENNA	
IVIODE	CHANNEL	CHANNEL	MODULATION	(Mbps)	PORT	
Bluetooth LE	0 to 39	0,20,39	GFSK	1	MAIN	

Note:

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

ANTENNA PORT CONDUCTED MEASUREMENT:

CONDUCTED TEST					
MODE	AVAILABLE	TESTED	MODULATION	DATA RATE	ANTENNA
IVIODL	CHANNEL	CHANNEL	WODULATION	(Mbps)	PORT
Bluetooth LE	0 to 39	0,20,39	GFSK	1	MAIN

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MEASUREMENT UNCERTAINTY

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

Radiated Spurious Emission:

Measurement uncertainty	9kHz-30MHz: +/-2.87dB
	30MHz - 180MHz: +/- 3.37dB
	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

Standard Applicable:

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

1 7 0			
Frequency range	Limits dB(uV)		
MHz	Quasi-peak	Average	
0.15 to 0.50	66 to 56	56 to 46	
0.50 to 5	56	46	
5 to 30	60	50	

Note

- 1. The lower limit shall apply at the transition frequencies
- 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

6.2 Measurement Equipment Used:

	Conducted Emission Test Site						
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.		
TYPE		NUMBER	NUMBER	CAL.			
EMI Test Receiver	R&S	ESCI 7	100950	12/12/2016	12/11/2017		
Coaxial Cables	N/A	N30N30-1042-150cm	N/A	08/30/2016	08/29/2017		
LISN	Schwarzbeck	NSLK 8127	8127-648	06/12/2016	06/11/2017		
Test Software	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R.	N.C.R.		

6.3 EUT Setup:

- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10:2013.
- 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.

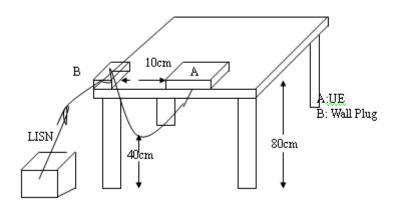
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6.4 Test SET-UP (Block Diagram of Configuration)



6.5 Measurement Procedure:

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

6.6 Measurement Result:

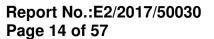
Note: Refer to next page for measurement data and plots.

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

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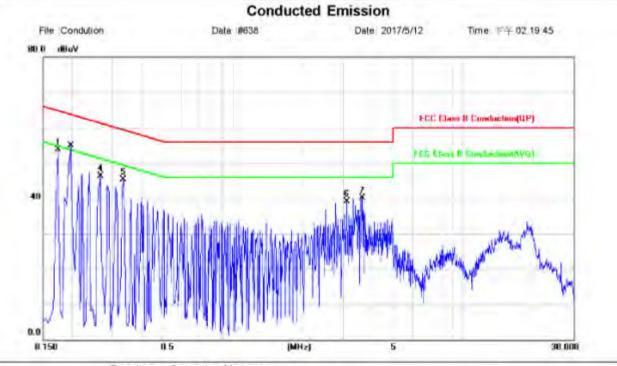


AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode: Operation mode Test By: Aken Huang

Conduction Room Phase: Temperature: 24 % AC 120V/60Hz Limit FCC Class B Conduction(QP) Power. Humidity 73 %

Mode: Halo Note:



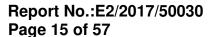
No.	Mk.	Freq	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment	
1		0.1740	53.29	0.34	53.63	64.77	-11.14	peak		
2	+	0.1980	52.20	0.36	52.56	63.69	-11.13	QP		
3		0.1980	39.60	0.36	39.96	53.69	-13.73	AVG		
4		0.2660	45.91	0.36	46.27	61.24	-14.97	peak		
5		0.3340	44.84	0.37	45.21	59.35	-14.14	peak		
6		3.1220	38.62	0.40	39.02	56.00	-16.98	peak		
7		3.6580	39.70	0.40	40.10	56.00	-15.90	peak		

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Conduction Room Site

Phase:

Temperature:

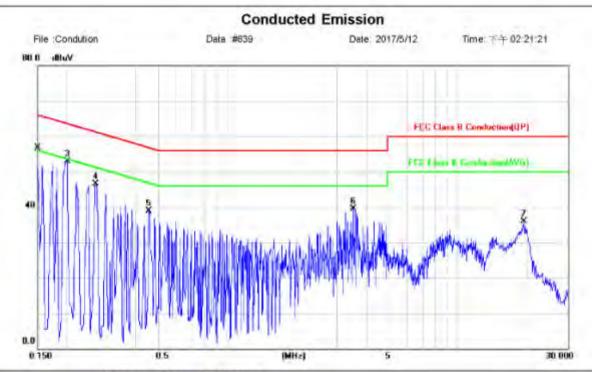
Limit FCC Class B Conduction(QP)

AC 120V/60Hz Power:

Humidity: 73 %

Mode: Halo

Note:



No.	Mk	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	49.60	0.38	49 98	66.00	-16.02	QP	
2		0.1500	19.10	0.38	19.48	56.00	-36.52	AVG	
3	*	0.2020	52.53	0.39	52.92	63.53	-10.61	peak	
4	1 : .	0.2700	46.19	0.39	46.58	61.12	-14.54	peak	
5		0.4580	38.54	0.39	38.93	56.73	-17 80	peak	
6		3,5260	39.01	0.44	39.45	56.00	-16.55	peak	
7	1	19.4260	35.21	0.79	36.00	60.00	-24.00	peak	
_									

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PEAK OUTPUT POWER MEASUREMENT

Standard Applicable:

For systems using digital modulation in the 2400-2483.5 MHz bands, the limit for peak output power is 1Watt and the e.i.r.p. shall not exceed 4 W.

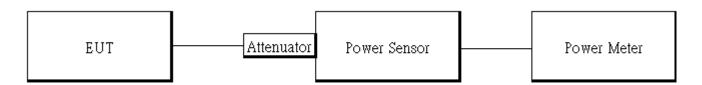
If the transmitting antenna of directional gain greater than 6dBi are used the peak output power form the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the Antenna exceeds 6dBi.

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

7.2 Measurement Equipment Used:

	Conducted Emission Test Site						
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.		
TYPE		NUMBER	NUMBER	CAL.			
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	06/20/2016	06/19/2017		
Power Meter	Anritsu	ML2496A	1326001	06/23/2016	06/22/2017		
Power Sensor	Anritsu	MA2411B	1315048	06/23/2016	06/22/2017		
Power Sensor	Anritsu	MA2411B	1315049	06/23/2016	06/22/2017		
Coaxial Cable 30cm	WOKEN	00100A1F1A 195C	RF01	12/12/2016	12/11/2017		
DC Block	PASTERNACK	PE8210	RF29	12/12/2016	12/11/2017		
Splitter	RF-LAMBAD	RFLT2W1G1 8G	RF35	12/12/2016	12/11/2017		
Attenuator	WOKEN	218FS-10	RF23	12/12/2016	12/11/2017		
DC Power Supply	Agilent	E3640A	MY53140006	05/02/2017	05/01/2018		

7.3 Test Set-up:



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7.4 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.
- 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 Power Meter.
- 5. Repeat above procedures until all test default channel measured was complete.

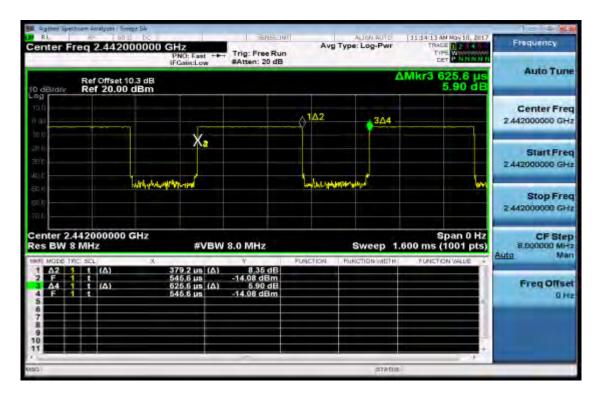
Formula:

Duty Cycle = Ton / (Ton+Toff)

Duty Factor:

	Duty Cycle (%)	Duty Factor (dB)
BLE	60.61	2.17

Duty Cycle Factor:10*log(1/60.61/100)=2.17



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Measurement Result:

DI E mada

BLE mode:						
СН	Frequency (MHz)	Peak Power Output (dBm)	Required Limit			
0	2402	-3.14	1 Watt = 30 dBm			
20	2442	-3.16	1 Watt = 30 dBm			
39	2480	-3.32	1 Watt = 30 dBm			
BLE mo	BLE mode:					
СН	Frequency (MHz)	Max. Avg. Output include tune up tolerance Power (dBm)	Required Limit			
0	2402	-5.64	1 Watt = 30 dBm			
20	2442	-5.92	1 Watt = 30 dBm			
39	2480	-5.83	1 Watt = 30 dBm			

^{*}Note: Measured by power meter, cable loss as 10.3 dB that offsets on the power meter in Peak

EIRP

СН	Frequency (MHz)	Max. Avg. Output include tune up tolerance Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit
0	2402	-5.64	-4.49	-10.13	4W= 36 dBm
20	2442	-5.92	-4.49	-10.41	4W= 36 dBm
39	2480	-5.83	-4.49	-10.32	4W= 36 dBm

^{*} Note: EIRP = Average Power + Gain

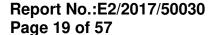
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f (886-2) 2298-0488

^{*}Note: Measured by power meter, as cable loss+ Duty cycle factor that offsets on the power meter

^{*}Note: Max. Output include tune up tolerance Power is average power





6dB & 99% BANDWIDTH MEASUREMENT

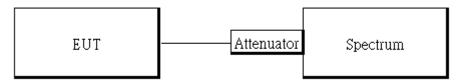
8.1 Standard Applicable

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

Measurement Equipment Used

	Conducted Emission Test Site						
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.		
TYPE		NUMBER	NUMBER	CAL.			
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	06/20/2016	06/19/2017		
DC Block	PASTERNACK	PE8210	RF29	12/12/2016	12/11/2017		
Splitter	RF-LAMBAD	RFLT2W1G1 8G	RF35	12/12/2016	12/11/2017		
Attenuator	WOKEN	218FS-10	RF23	12/12/2016	12/11/2017		

Test Set-up:



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8.4 Measurement Procedure:

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas.
- 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 = 5MHz, 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%~5%, VBW=3*RBW, Span = 2MHz, Detector=Sample, Sweep=auto.
- 7. Turn on the 99% bandwidth function, max reading.
- 8. Repeat above procedures until all test default channel is completed

8.5 **Measurement Result:**

BLE mode

Frequency (MHz)	6dB BW (MHz)	BW (MHz)	Result
2402	0.7201	> 0.5	PASS
2442	0.7191	> 0.5	PASS
2480	0.7195	> 0.5	PASS

BLE mode

Frequency (MHz)	99%Bandwidth (MHz)
2402	1.0562
2442	1.0475
2480	1.0642

Note: Refer to next page for plots.

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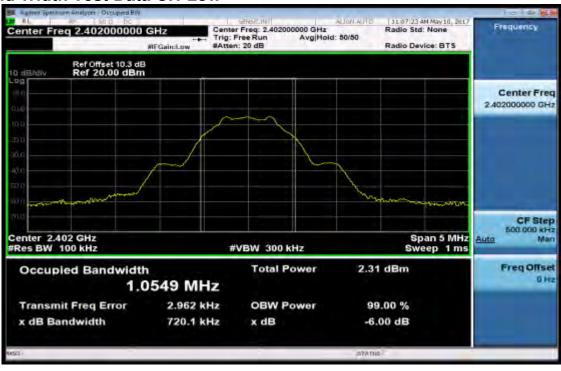
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BLE mode 6dB Band Width Test Data CH-Low



6dB Band Width Test Data CH-Mid



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6dB Band Width Test Data CH-High



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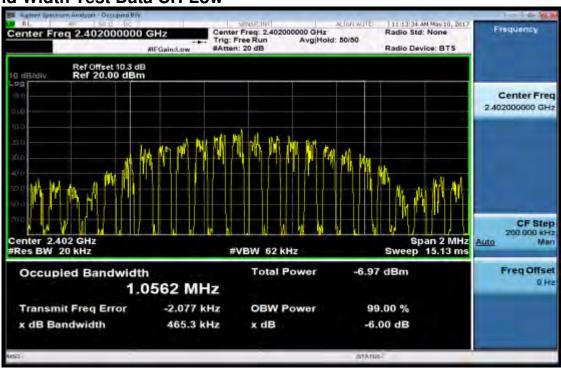
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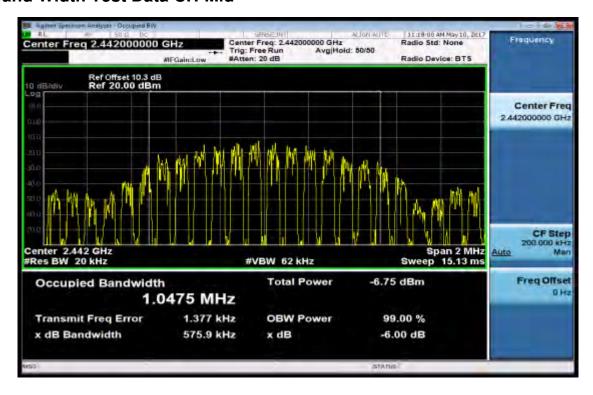
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99% Band Width Test Data CH-Low



99% Band Width Test Data CH-Mid



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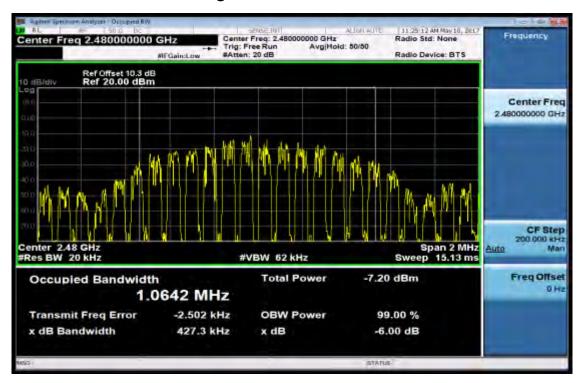
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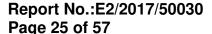


99% Band Width Test Data CH-High



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CONDUCTED BAND EDGES AND SPURIOUS EMISSION MEASUREMENT

9.1 Standard Applicable

As per KDB 558074 D01 11.1 a)

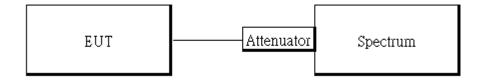
If the maximum peak conducted output power procedure was used to demonstrate compliance as described in 9.1, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100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

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) & RSS-Gen §8.10 Table 6.

9.2 Measurement Equipment Used:

Conducted Emission Test Site						
EQUIPMENT	MFR MODEL SERIAL		LAST	CAL DUE.		
TYPE		NUMBER	NUMBER	CAL.		
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	06/20/2016	06/19/2017	
DC Block	PASTERNACK	PE8210	RF29	12/12/2016	12/11/2017	
Splitter	RF-LAMBAD	RFLT2W1G1 8G	RF35	12/12/2016	12/11/2017	
Attenuator	WOKEN	218FS-10	RF23	12/12/2016	12/11/2017	

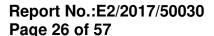
Test SET-UP: 9.3



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9.4 Measurement Procedure

Conducted Band Edge:

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

9.5 Measurement Result

- 1. Refer to next page spectrum analyzer data chart and tabular data sheets.
- 2. For restricted Band Edge Limit, please refer to section 11.5 of this report for measurement result.

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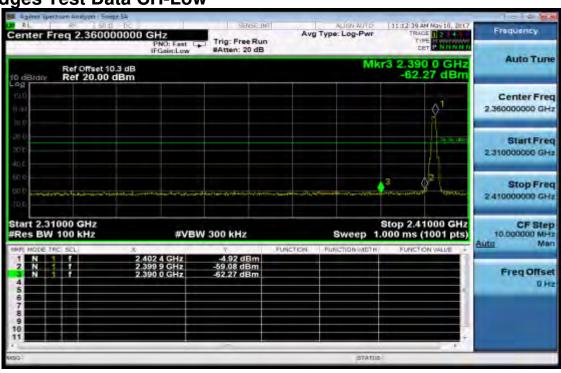
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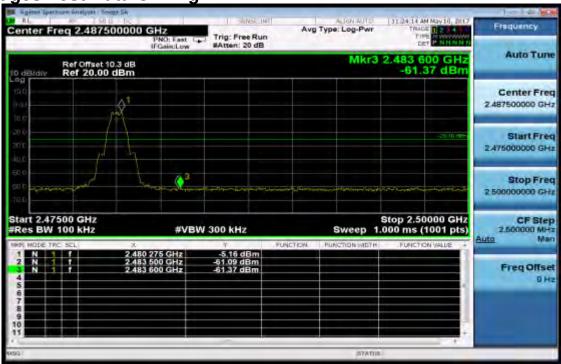
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BLE mode **Band Edges Test Data CH-Low**



Band Edges Test Data CH-High



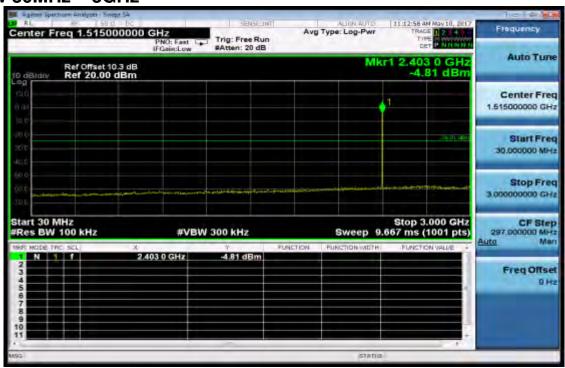
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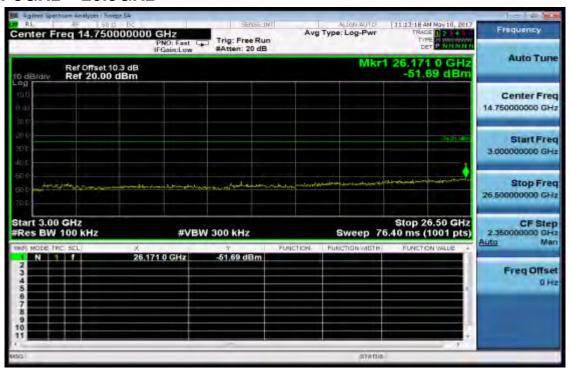
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Conducted Spurious Emission Measurement Result CH-Low 30MHz - 3GHz



CH-Low 3GHz – 26.5GHz



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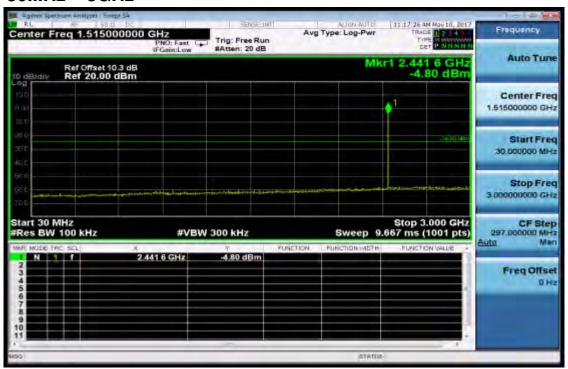
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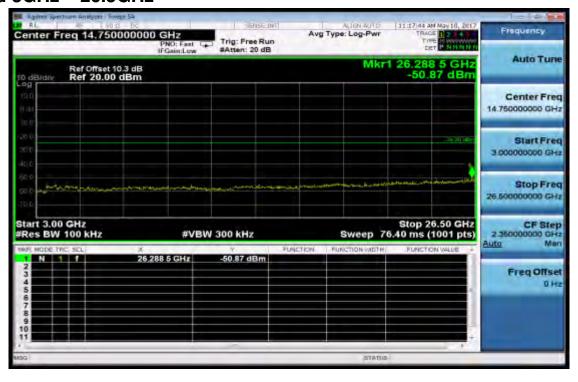
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CH-Mid 30MHz - 3GHz



CH-Mid 3GHz - 26.5GHz



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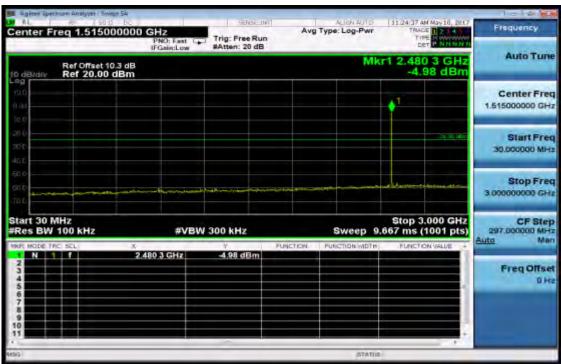
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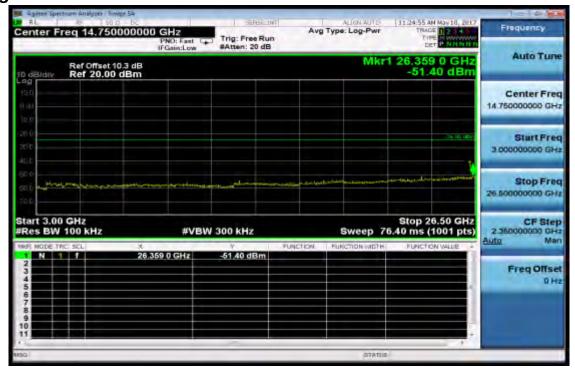
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CH-High 30MHz - 3GHz



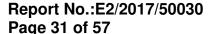
CH- High 3GHz - 26.5GHz



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10 RADIATED BANDEDGE AND SPURIOUS EMISSION MEASUREMENT

10.1 Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands must also comply with the §15.209 & RSS-Gen §8.10 Table 6 limit as below.

And according to §15.33(a) (1) & RSS-Gen §8.9 Table 4 & 5, for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

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

Note:

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

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10.2 Measurement Equipment Used

	966 Chamber						
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.		
TYPE		NUMBER	NUMBER	CAL.			
EMI Test Receiver	R&S	ESU 40	100363	04/18/2017	04/17/2018		
Loop Antenna	ETS-Lindgren	6502	00143303	12/23/2016	12/22/2017		
Broadband Antenna	TESEQ	CBL 6112D	35240	11/03/2016	11/02/2017		
Horn Antenna	ETS-Lindgren	3117	00143272	12/15/2016	12/16/2017		
Horn Antenna	Schwarzbeck	BBHA9170	185	07/24/2016	07/23/2017		
Pre Amplifier	EMC Instruments	EMC330	980096	12/12/2016	12/11/2017		
Pre Amplifier	EMC Instruments	EMC0011830	980199	12/12/2016	12/11/2017		
Pre Amplifier	R&S	SCU-18	10204	12/12/2016	12/11/2017		
Pre Amplifier	R&S	SCU-26	100780	12/12/2016	12/11/2017		
Coaxial Cable	Huber+Suhner	RG 214/U	966Rx 9K-30M	12/12/2016	12/11/2017		
Coaxial Cable	Huber+Suhner	RG 214/U SUCOFLEX 104	966Rx 30M-3G	12/12/2016	12/11/2017		
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Rx 1G-18G	12/12/2016	12/11/2017		
Coaxial Cable	Huber+Suhner	mini 141-12 SUCOFLEX 104	966Rx 18G-40G	12/12/2016	12/11/2017		
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Tx 30M-18G	12/12/2016	12/11/2017		
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	966Tx 18G-40G	12/12/2016	12/11/2017		
Attenuator	WOKEN	218FS-10	RF27	12/12/2016	12/11/2017		
Site NSA	SGS	966 Chamber C	SAC-C	03/02/2017	03/01/2018		
Site VSWR	SGS	966 Chamber C	SAC-C	03/02/2017	03/01/2018		
DC Power Supply	HOLA	DP-3003	D7070035	05/04/2017	05/03/2018		
Controller	MF	MF-7802	N/A	N.C.R.	N.C.R.		
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.		
Turn Table	MF	N/A	N/A	N.C.R.	N.C.R.		
Test Software	World-Pallas	Dr. E	V 3.0 Lite	N.C.R.	N.C.R.		

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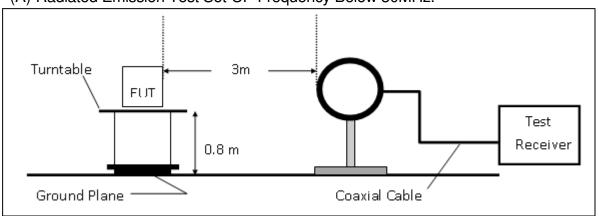
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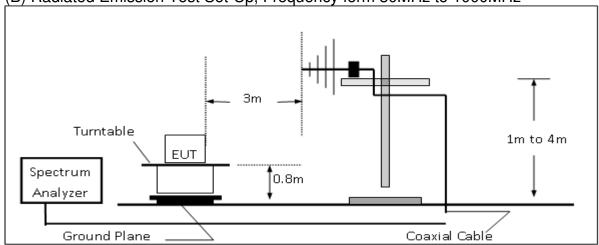


10.3 Test SET-UP

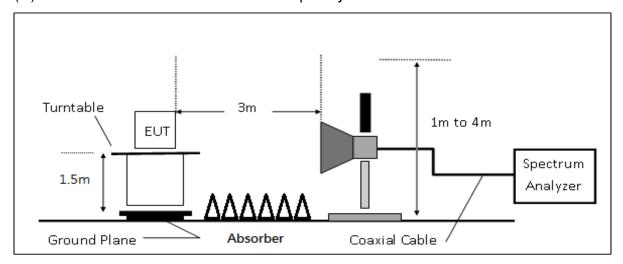
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



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

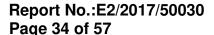


(C) Radiated Emission Test Set-UP Frequency Over 1 GHz



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10.4 Measurement Procedure

- 1. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas.
- The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m for frequen-2. cy> 1GHz above ground plan.
- 3. 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 4. highest emissions.
- 5. 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.
- Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency 6. above 1 GHz.
- 7. 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.
- When measurement procedures for electric field radiated emissions above 1 GHz the EUT 8. 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.
- Maximum procedure was performed on the six highest emissions to ensure EUT compli-9. ance.
- 10. 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.
- 11. Repeat above procedures until all default test channel measured were complete.

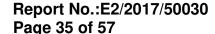
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10.5 Field Strength Calculation

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

FS = RA + AF + CL - AG

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

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

Factor(dB) = Antenna Factor(dB μ V/m) + Cable Loss(dB) – Pre Amplifier Gain(dB)

Note:

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. "E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

10.6 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.

10.7 Measurement Result:

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

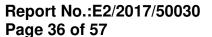
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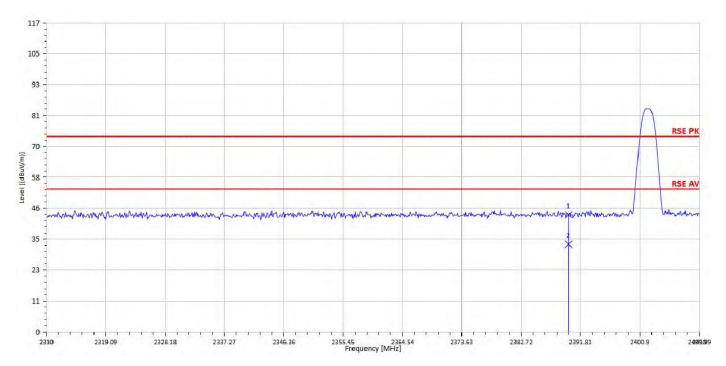


Radiated Band Edge Measurement Result (BLE mode)

Operation Mode: **BLE** Test Date: 2017/5/10

Fundamental Frequency: 2402 MHz Temp. / Humi.: 22.7deg_C/57RH

Operation Band: Test Engineer: **BE CH Low** Pony EUT Pol.: Measurement Antenna Pol.: Vertical E2



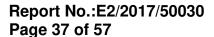
Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	Е	Peak	51.13	-6.84	44.28	74	-29.72
2390.00	Е	Average	40.00	-6.84	33.16	54	-20.84

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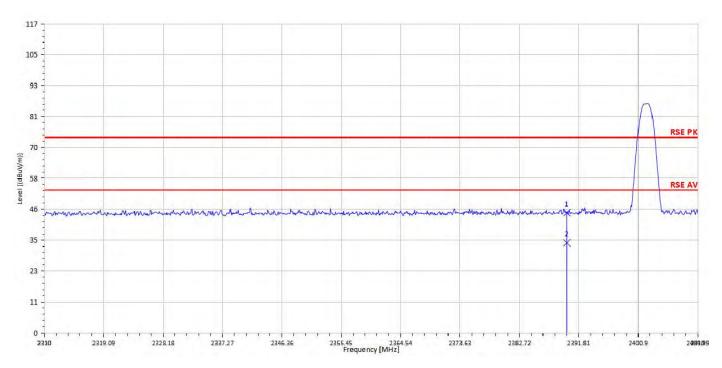




Operation Mode: Test Date: 2017/5/10 BLE

Fundamental Frequency: 2402 MHz Temp. / Humi.: 22.7deg_C/57RH

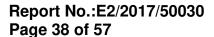
Operation Band: Test Engineer: **BE CH Low** Pony EUT Pol.: Measurement Antenna Pol.: Horizontal E2



Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
2390.00	E	Peak	52.30	-6.84	45.46	74	-28.54
2390.00	Е	Average	40.90	-6.84	34.06	54	-19.94

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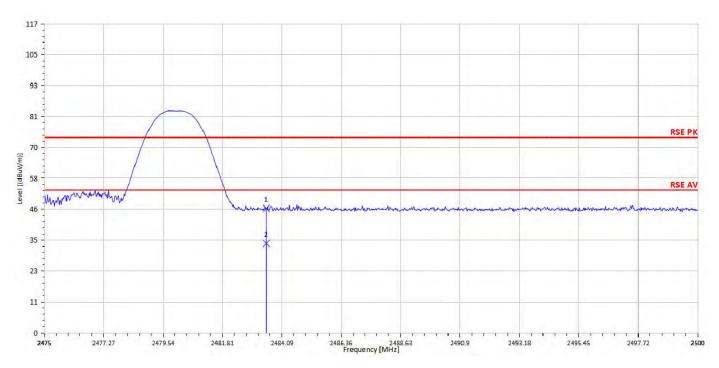
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Fundamental Frequency: Temp. / Humi.: 2480 MHz 22.7deg_C/57RH

Operation Band: BE CH High Test Engineer: Pony EUT Pol.: Measurement Antenna Pol.: Vertical E2

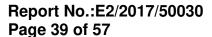


Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
2483.50	Е	Peak	53.52	-6.38	47.13	74	-26.87
2483.50	Е	Average	40.20	-6.38	33.82	54	-20.18

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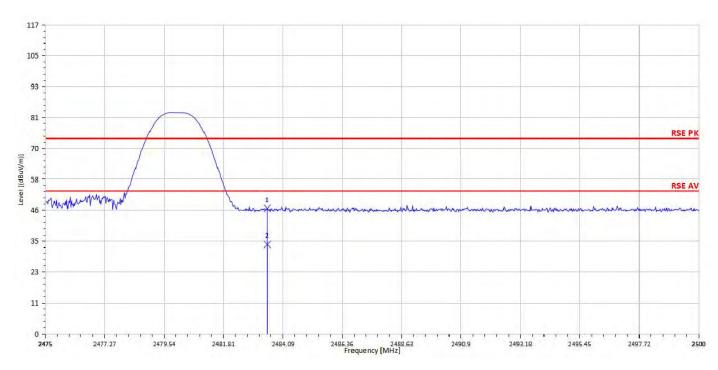
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Fundamental Frequency: Temp. / Humi.: 2480 MHz 22.7deg_C/57RH

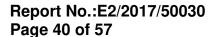
Operation Band: BE CH High Test Engineer: Pony EUT Pol.: Measurement Antenna Pol.: E2 Horizontal



Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
2483.50	E	Peak	53.89	-6.38	47.51	74	-26.49
2483.50	E	Average	40.20	-6.38	33.81	54	-20.19

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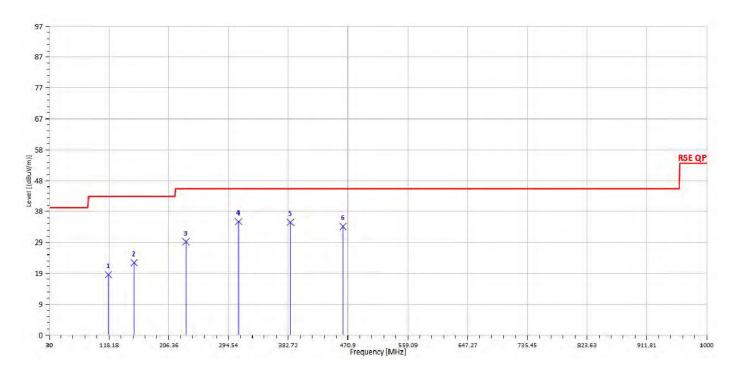


Radiated Spurious Emission Measurement Result (BLE mode) For Frequency form 30MHz to 1000MHz

Operation Mode: Test Date: 2017/5/10 **BLE**

Fundamental Frequency: 2402 MHz Temp. / Humi.: 22.7deg C/57RH

Operation Band: Tx Ch Low Test Engineer: Pony EUT Pol.: Measurement Antenna Pol. : E2 Vertical



Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
117.30	S	Peak	43.94	-24.95	18.99	43.5	-24.51
155.13	S	Peak	44.86	-22.16	22.70	43.5	-20.80
231.76	S	Peak	53.10	-23.80	29.30	46	-16.70
309.36	S	Peak	56.88	-21.27	35.61	46	-10.39
385.99	S	Peak	54.64	-19.24	35.40	46	-10.60
463.59	S	Peak	51.24	-17.16	34.08	46	-11.92

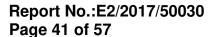
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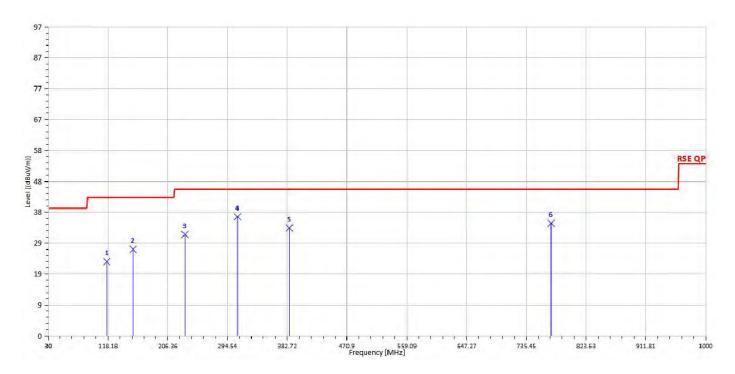
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Fundamental Frequency: Temp. / Humi.: 22.7deg_C/57RH 2402 MHz

Operation Band: Test Engineer: Tx Ch Low Pony EUT Pol.: Measurement Antenna Pol. : Horizontal E2



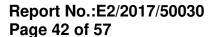
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
116.33	S	Peak	48.32	-25.04	23.28	43.5	-20.22
155.13	S	Peak	49.30	-22.16	27.14	43.5	-16.36
231.76	S	Peak	55.62	-23.80	31.82	46	-14.18
309.36	S	Peak	58.65	-21.27	37.38	46	-8.62
385.99	S	Peak	53.12	-19.24	33.88	46	-12.12
772.05	S	Peak	46.95	-11.62	35.33	46	-10.67

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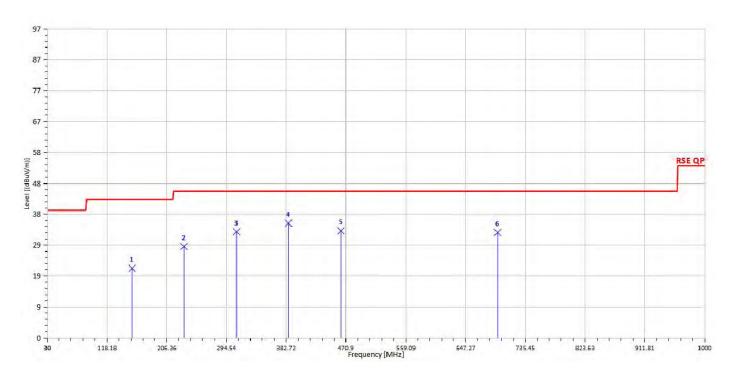
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Fundamental Frequency: Temp. / Humi.: 2442 MHz 22.7deg_C/57RH

Operation Band: Test Engineer: Tx Ch Mid Pony EUT Pol.: E2 Measurement Antenna Pol. : Vertical



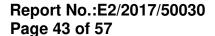
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
155.13	S	Peak	43.99	-22.16	21.83	43.5	-21.67
231.76	S	Peak	52.46	-23.80	28.66	46	-17.34
309.36	S	Peak	54.57	-21.27	33.30	46	-12.70
385.99	S	Peak	55.21	-19.24	35.98	46	-10.02
463.59	S	Peak	50.74	-17.16	33.59	46	-12.41
694.45	S	Peak	46.32	-13.26	33.06	46	-12.94

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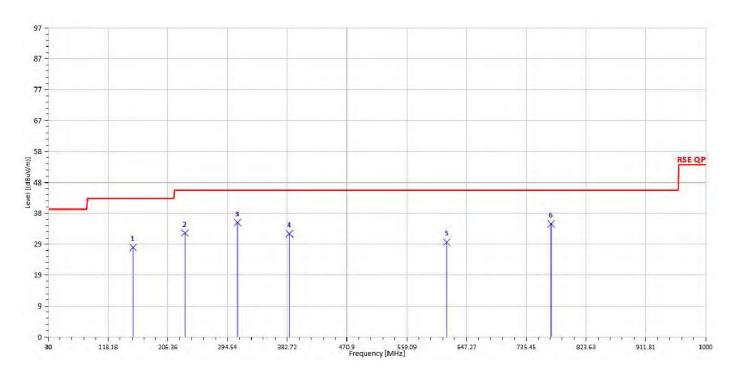
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Fundamental Frequency: Temp. / Humi.: 22.7deg_C/57RH 2442 MHz

Operation Band: Test Engineer: Tx Ch Mid Pony EUT Pol.: E2 Measurement Antenna Pol. : Horizontal



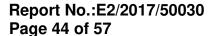
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3 m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dΒμV/m	dBµV/m	dB
155.13	S	Peak	50.18	-22.16	28.02	43.5	-15.48
231.76	S	Peak	56.40	-23.80	32.60	46	-13.40
309.36	S	Peak	57.15	-21.27	35.88	46	-10.12
385.99	S	Peak	51.58	-19.24	32.34	46	-13.66
617.82	S	Peak	44.82	-15.10	29.72	46	-16.28
772.05	S	Peak	47.04	-11.62	35.43	46	-10.57

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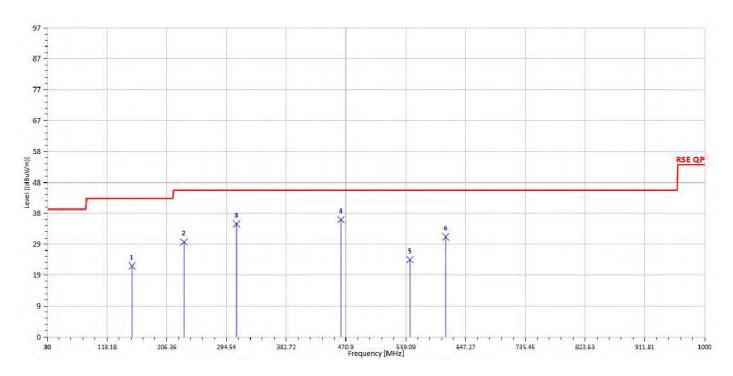
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Temp. / Humi.: Fundamental Frequency: 2480 MHz 22.7deg_C/57RH

Operation Band: Tx Ch High Test Engineer: Pony EUT Pol.: E2 Measurement Antenna Pol. : Vertical



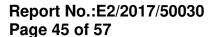
Freq.	Note	Detector Mode	Spectum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
155.13	S	Peak	44.41	-22.16	22.25	43.5	-21.25
231.76	S	Peak	53.58	-23.80	29.78	46	-16.22
309.36	S	Peak	56.70	-21.27	35.43	46	-10.57
463.59	S	Peak	53.91	-17.16	36.76	46	-9.24
565.44	S	Peak	39.90	-15.71	24.19	46	-21.81
617.82	S	Peak	46.48	-15.10	31.38	46	-14.62

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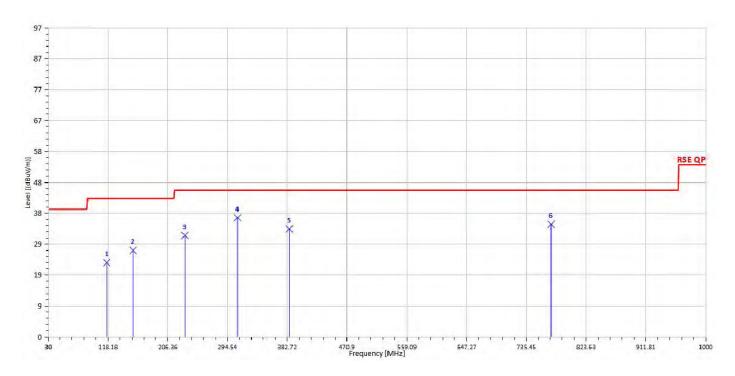
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Temp. / Humi.: 22.7deg_C/57RH Fundamental Frequency: 2480 MHz

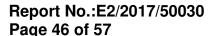
Operation Band: Tx Ch High Test Engineer: Pony EUT Pol.: E2 Measurement Antenna Pol. : Horizontal



Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
155.13	S	Peak	50.11	-22.16	27.95	43.5	-15.55
231.76	S	Peak	56.19	-23.80	32.39	46	-13.61
309.36	S	Peak	59.33	-21.27	38.06	46	-7.94
385.99	S	Peak	52.71	-19.24	33.47	46	-12.53
617.82	S	Peak	44.84	-15.10	29.73	46	-16.27
772.05	S	Peak	46.61	-11.62	34.99	46	-11.01

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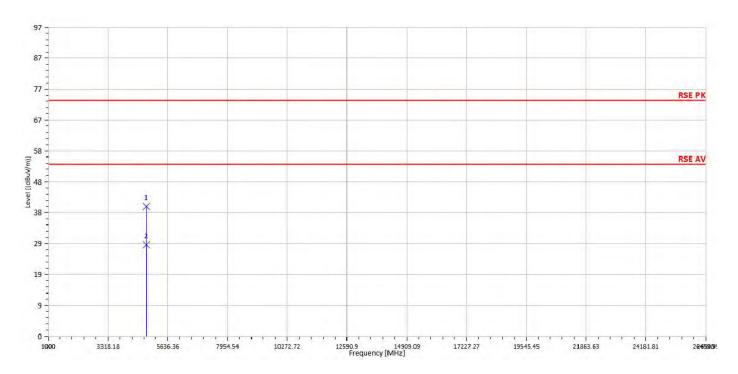


Radiated Spurious Emission Measurement Result (BLE mode) For Frequency above 1GHz

Operation Mode: **BLE** Test Date: 2017/5/10

Fundamental Frequency: 2402 MHz Temp. / Humi.: 22.7deg_C/57RH

Operation Band: Test Engineer: Tx Ch Low Pony EUT Pol.: Measurement Antenna Pol. : Vertical E2

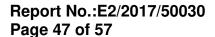


Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
4804.00	Н	Peak	41.89	-1.16	40.73	74	-33.27
4804.00	Н	Average	29.90	-1.16	28.74	54	-25.26

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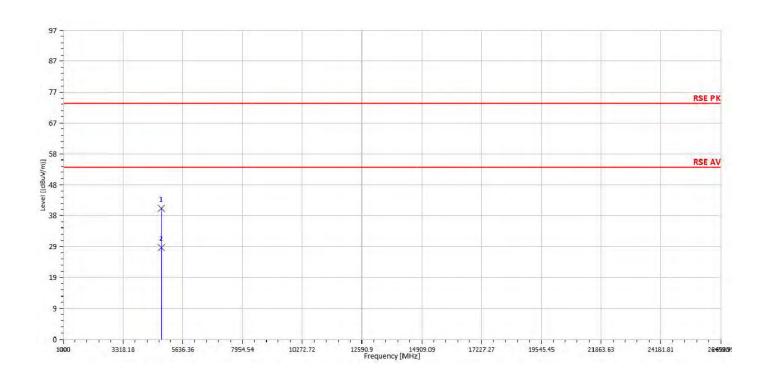
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Temp. / Humi.: 22.7deg_C/57RH Fundamental Frequency: 2402 MHz

Operation Band: Test Engineer: Tx Ch Low Pony EUT Pol.: Horizontal Measurement Antenna Pol. : E2



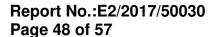
Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin	
		Mode	Reading Level		FS	@3m		
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB	
4804.00	Н	Peak	42.26	-1.16	41.10	74	-32.90	
4804.00	Н	Average	29.96	-1.16	28.80	54	-25.20	

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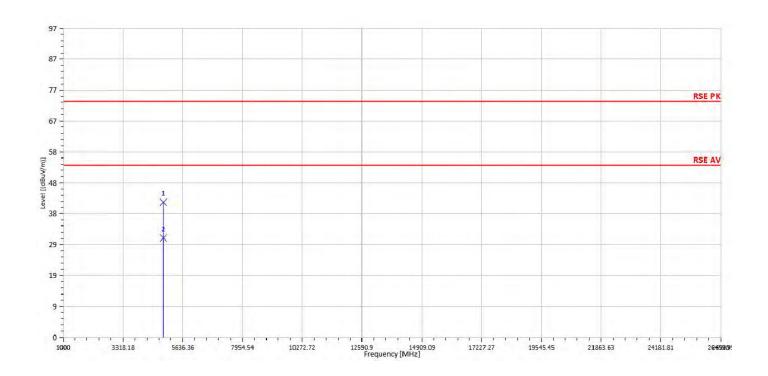
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Temp. / Humi.: Fundamental Frequency: 2442 MHz 22.7deg_C/57RH

Operation Band: Test Engineer: Tx Ch Mid Pony EUT Pol.: E2 Measurement Antenna Pol. : Vertical



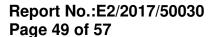
Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
4884.00	Н	Peak	43.09	-0.69	42.40	74	-31.60
4884.00	Н	Average	31.86	-0.69	31.17	54	-22.83

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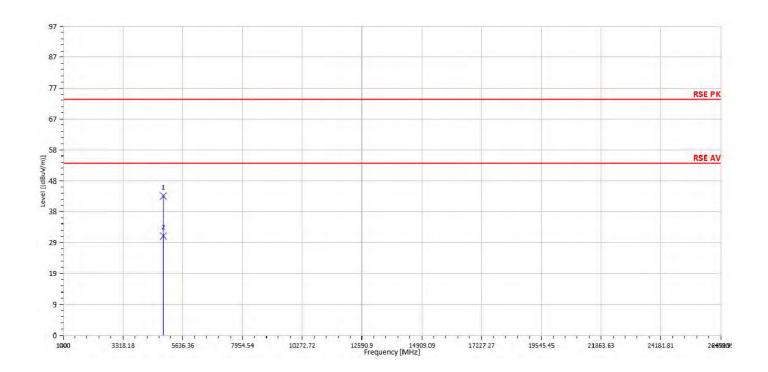
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Temp. / Humi.: Fundamental Frequency: 2442 MHz 22.7deg_C/57RH

Operation Band: Test Engineer: Tx Ch Mid Pony EUT Pol.: Horizontal E2 Measurement Antenna Pol. :



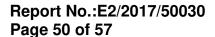
	Freq.	Note	Detector Mode	Spectum	Factor	Actual FS	Limit @3m	Margin	
	MHz	F/H/E/S	PK/QP/AV	Reading Level dBµV	dB	rS dBµV/m	dBµV/m	dB	
•	4884.00	Н	Peak	44.42	-0.69	43.74	74	-30.26	
	4884.00	Н	Average	31.83	-0.69	31.14	54	-22.86	

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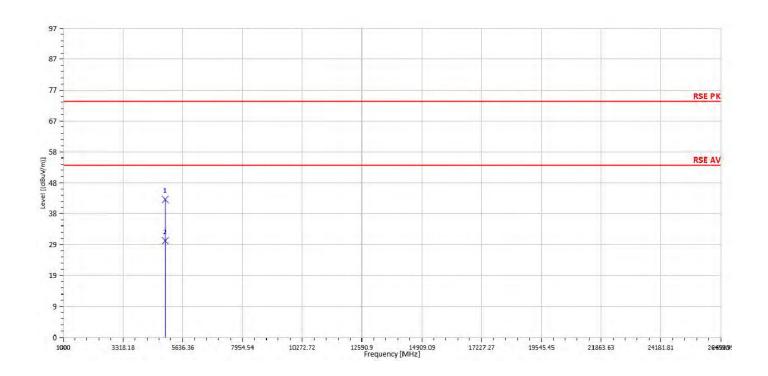
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Temp. / Humi.: Fundamental Frequency: 2480 MHz 22.7deg_C/57RH

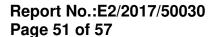
Operation Band: Tx Ch High Test Engineer: Pony EUT Pol.: E2 Measurement Antenna Pol. : Vertical



Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
4960.00	Н	Peak	43.93	-0.66	43.27	74	-30.73
4960.00	Н	Average	30.95	-0.66	30.29	54	-23.71

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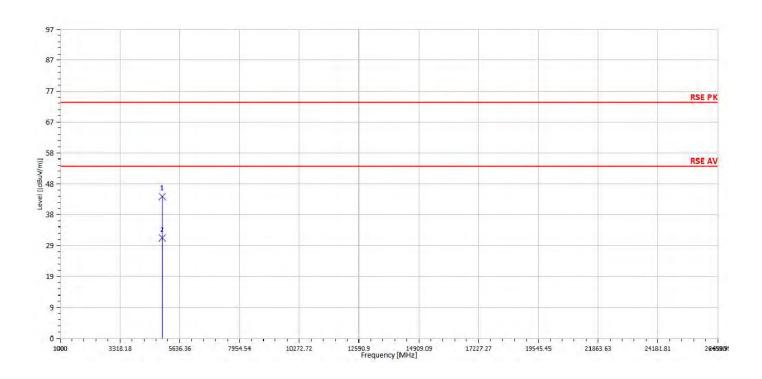




Temp. / Humi.: 22.7deg_C/57RH Fundamental Frequency: 2480 MHz

Operation Band: Tx Ch High Test Engineer: Pony

EUT Pol.: E2 Measurement Antenna Pol. : Horizontal



Freq.	Note	Detector	Spectum	Factor	Actual	Limit	Margin	
		Mode	Reading Level		FS	@3m		
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB	_
4960.00	Н	Peak	45.14	-0.66	44.48	74	-29.52	_
4960.00	Н	Average	32.14	-0.66	31.48	54	-22.52	

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11 PEAK POWER SPECTRAL DENSITY

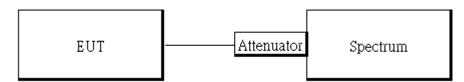
11.1 Standard Applicable:

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

11.2 Measurement Equipment Used:

Conducted Emission Test Site								
EQUIPMENT			SERIAL	LAST	CAL DUE.			
TYPE		NUMBER	NUMBER	CAL.				
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	06/20/2016	06/19/2017			
DC Block	PASTERNACK	PE8210	RF29	12/12/2016	12/11/2017			
Splitter RF-LAMBAD		RFLT2W1G1 8G	RF35	12/12/2016	12/11/2017			
Attenuator WOKEN		218FS-10	RF23	12/12/2016	12/11/2017			

11.3 Test Set-up:



11.4 Measurement Procedure:

- 1. Set analyzer center frequency to DTS channel center frequency.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas.
- 3. Set the span to 1.5 times the DTS channel bandwidth.
- 4. Set the RBW = 3 kHz.
- 5. Set the VBW = 10 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.

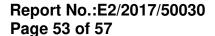
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11.5 Measurement Result:

RI F mode

	DLL mode						
Frequency (MHz)		RF Power Density (dBm)	Maximum Limit (dBm)	Result			
	2402	-19.53	8	PASS			
	2442	-19.56	8	PASS			
	2480	-19.73	8	PASS			

NOTE: cable loss as 10.3dB that offsets in the spectrum

Band Edge Limit

Frequency (MHz)	RF Power Density (dBm)	Bandedge Limit = PSD - 20dB		
2402 -4.94		-24.94		
2480	-5.16	-25.16		

NOTE: cable loss as dB that offsets in the spectrum

NOTE: Refer to next page for plots.

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BLE mode

Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)



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Power Spectral Density Test Plot (CH-High)



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Power Spectral Density for Bandedge Limit (CH-Low)



Power Spectral Density for Bandedge Limit (CH-High)

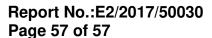


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12 ANTENNA REQUIREMENT

12.1 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.

12.2 Antenna Connected Construction:

An embedded-in antenna design is used.

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

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

~ End of Report ~

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