



**CENTRE OF TESTING SERVICE
INTERNATIONAL**

OPERATE ACCORDING TO ISO/IEC 17025

FCC ID TEST REPORT

TEST REPORT NUMBER : CGZ3130902-00799 & 00800-E



CENTRE OF TESTING SERVICE CO., LTD.

A101, No.65, Zhuji Highway, Tianhe District, Guangzhou, China



TEST REPORT For FCC ID

47 CFR PART 15 OCT, 2012

Report Reference No. CGZ3130902-00799 & 00800-E

Date of issue 05 December 2013

Testing Laboratory Name **CETRE OF TESTING SERVICE CO., LTD.**
Address A101, No.65, Zhuji Highway, Tianhe District, Guangzhou, China

Testing location/ procedure Full application of Harmonised standards ☒

 Partial application of Harmonised standards ☐

 Other standard testing method ☐
Applicant's name Brilliant Technology Inc.

Address 3579 East Foothill Blvd Suite 183 Pasadena CA 91107

Test specification

Standard **47 CFR PART 15 OCT, 2012**
Test Report Form No. CTSEMC-1.0

TRF Originator CENTRE OF TESTING SERVICE CO., LTD.

Master TRF Dated 2009-01

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Test item description : Wifi+BT combo card

Trade Mark Brillianttek

Manufacturer Brilliant Technology Inc.

Model/Type reference WLU6300B(T-RoHS)

Ratings DC 3.3V

Operating Frequency 2402.0 MHz ~2480.0 MHz

Result **Positive**
Compiled by:

Kate zhang / Fileadministrators

Supervised by:

Duke yang / Technique principal

Approved by:

Vincent yao / Manager

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**FCC ID -- T E S T R E P O R T****Test Report No. : CGZ3130902-00799 & 00800-E**05 December 2013
Date of issue

Type / Model..... WLU6300B(T-RoHS)

EUT..... Wifi+BT combo card

Applicant..... Brilliant Technology Inc.

Address..... 3579 East Foothill Blvd Suite 183 Pasadena CA 91107

Telephone..... 408-472-1230

Fax..... 626-551-0407

Contact..... Benny Lee

Manufacturer..... Brilliant Technology Inc.

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Contact..... Benny Lee

Test report holder..... Brilliant Technology Inc.

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Telephone..... 408-472-1230

Fax..... 626-551-0407

Contact..... Benny Lee

Test Result according to the standards on page 1: **PASSED**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1.0 TEST STANDARDS

The tests were performed according to following standards:

- 47 CFR PART 15 OCT, 2012
- ANSI C63.4-2009

2.0 SUMMARY

2.1 GENERAL REMARKS

Date of receipt of test sample	02 September 2013
Testing commenced on	02~25 September 2013
Testing concluded on	05 December 2013

2.2 FINAL ASSESSMENT

The FCC requirements pertaining to the technical standards and tested operation modes are

- - fulfilled.
- - **not** fulfilled.

The equipment under test

- - fulfils the FCC requirements cited on page 1.
- - **does not** fulfil the FCC requirements cited on page 1.

3.0 EQUIPMENT UNDER TEST

3.1 Power supply system utilised

Power supply voltage : ■ DC 3.3V

3.2 Short description of the Equipment under Test (EUT)

Number of tested samples: 1

Serial number: Prototype

3.3 EUT operation mode

The equipment under test was operated during the measurement under the following conditions:

- - Standby
- TX- Y position
- TX- Z position
- TX- X position

Operation mode 1:TX-X Position Low (2402.0 MHz) , TX-X Position Middle (2442.0 MHz) ,
TX-X Position High (2480.0 MHz)

Note:Operation mode 1 TX -X position of EUT is the radiated test worst case. so only these test results be recorded in the test report.

3.4 EUT configuration

3.4.1. Description of configuration (EUT)

Description	:	Wifi+BT combo card
Model Number	:	WLU6300B(T-RoHS)
Operation frequency	:	2402.0 MHz~ 2480.0 MHz ISM Band
Buletooth Version	:	V4.0
Modulation Technology	:	DSSS
Antenna 1	:	PCB antenna, met requirement of FCC 15.203
Antenna 2	:	Chip antenna, met requirement of FCC 15.203

3.4.2. Tested Supporting System Details

3.4.2.1. Notebook

M/N	:	F83VF
S/N	:	AEN0AS64740305D
Manufacturer	:	ASUS
Power Cord	:	Unshielded, Detachabled, 1.5m , 3Pin
FCC ID	:	By DoC

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4.0 TEST ENVIRONMENT

4.1 Address of the test laboratory

A101, No.65, Zhuji Highway, Tianhe District, Guangzhou, China

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4.2 Test facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L3394

CENTRE OF TESTING SERVICE CO., LTD has been assessed and proved to be in compliance with CNAS-CL01: 2006 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

IC-Registration No.: 8374A

The 3m Alternate Test Site of CENTRE OF TESTING SERVICE CO., LTD has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 8374A on June 6, 2011.

FCC-Registration No.: 971995

CENTRE OF TESTING SERVICE CO., LTD, EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration No. 971995, July 13, 2012.

4.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35 ° C
Humidity:	25~75 %
Atmospheric pressure:	86~106 kPa

4.4 Definitions of symbols used in this test report

- - The black square indicates that the listed condition, standard or equipment is applicable for this report.
- - The empty square indicates that the listed condition, standard or equipment is **not** applicable for this report.

4.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the CTS quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

4.6 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Conduction disturbance	150kHz~30MHz	$\pm 1.22\text{dB}$	(1)
Power disturbance	30MHz~300MHz	$\pm 1.38\text{dB}$	(1)
Radiation emission (3m)	30MHz~300MHz	$\pm 3.14\text{dB}$	(1)
	300MHz~1000MHz	$\pm 3.18\text{dB}$	(1)
	1GHz~26.5GHz	$\pm 3.54\text{dB}$	(1)

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

5.0 Summary of standards and results

5.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	Standard	Results
Conducted Emission Test	FCC Part 15 : 15.207 ANSI C63.4-2009	PASSED
6dB Bandwidth Measurement	FCC Part 15.247(a)(2) ANSI C63.4-2009	PASSED
Peak Power	FCC Part 15.247(b)(3)(4) ANSI C63.4-2009	PASSED
Peak Power Spectral Density	15.247(e) Power Density ANSI C63.4-2009	PASSED
Band edges measurement	FCC Part 15.247(d) ANSI C63.4-2009	PASSED
Spurious Emissions	FCC Part 15: 15.209 ANSI C63.4-2009	PASSED
Antenna Requirements	FCC Part 15: 15.203 ANSI C63.4-2009	PASSED
N/A is an abbreviation for Not Applicable.		

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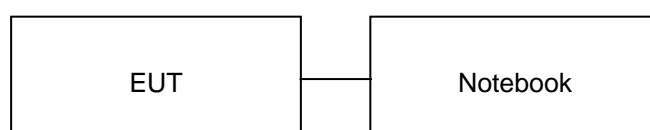
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6.0 Power Line Conducted Emission Test

6.1. Test Equipment

Conducted Disturbance					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESHS10	842884/012	2012/11
2	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/025	2012/11
3	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/026	2012/11
4	Pulse Limiter	ROHDE & SCHWARZ	ESHSZ2	100301	2012/11
5	EMI Test Software	EZ-EMC	Farad	N/A	N/A

6.2. Block Diagram of Test Setup



(EUT: Wifi+BT combo card)

6.3. Power Line Conducted Emission Test Limits

Standard: FCC Part 15 : 15.207, ANSI C63.4-2009

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

6.4. Test Procedure

The XBOX Power connected to the power mains through a line impedance stabilization network (L.I.S.N.#2). This provides a 50 ohm coupling impedance for the EUT. Please refer the block diagram of the test setup and photographs. The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#1). Power on the PC and let it work normally, we use a keyboard test software, let EUT working in test mode, then test it. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC Part 15C on Conducted Emission Test.

6.5. Power Line Conducted Emission Test Results

PASSED.

The frequency range from 150KHz~30MHz is investigated. Please see the following pages.

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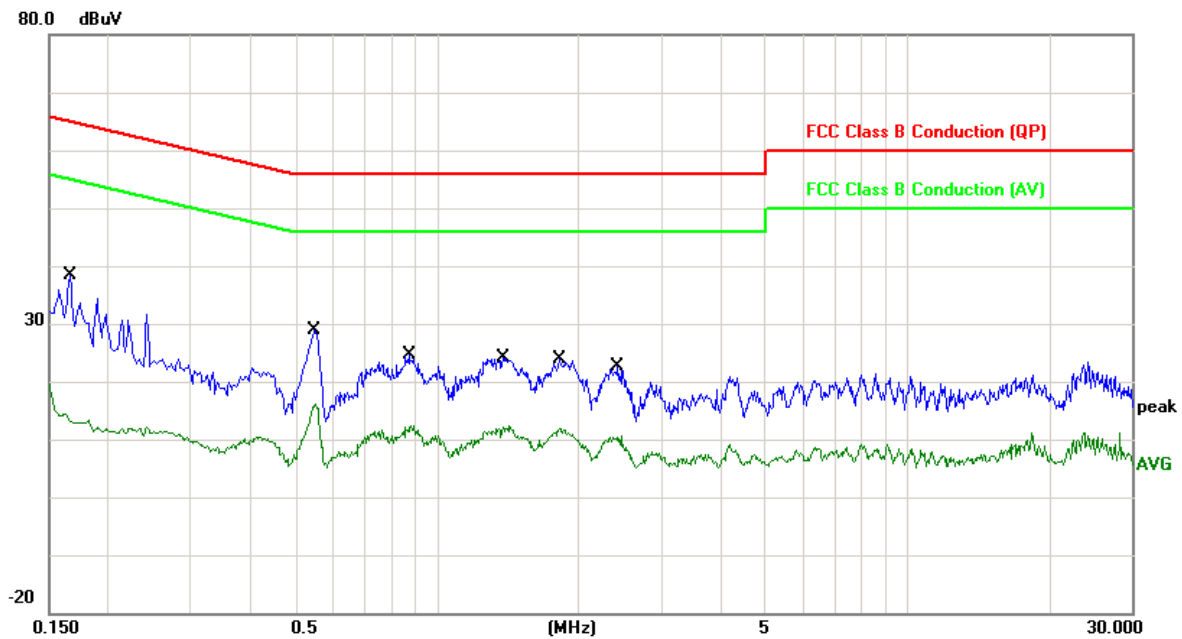
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Test point:	L	Result:	<input checked="" type="checkbox"/> - passed
Frequency range:	0.15MHz~30MHz		<input type="checkbox"/> - not passed

EUT	Wifi+BT combo card
Operating Condition	TX
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	02~23 September 2013
Operator	Duke
MODEL NO	WLU6300B(T-RoHS)



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	0.1660	9.78	14.39	24.17	65.16	-40.99	QP
2	0.1660	9.78	3.44	13.22	55.16	-41.94	AVG
3	0.5500	9.84	15.22	25.06	56.00	-30.94	QP
4	0.5500	9.84	6.69	16.53	46.00	-29.47	AVG
5	0.8740	9.83	8.91	18.74	56.00	-37.26	QP
6	0.8740	9.83	1.76	11.59	46.00	-34.41	AVG
7	1.3820	9.84	8.67	18.51	56.00	-37.49	QP
8	1.3820	9.84	1.64	11.48	46.00	-34.52	AVG
9	1.8220	9.86	7.99	17.85	56.00	-38.15	QP
10	1.8220	9.86	1.09	10.95	46.00	-35.05	AVG
11	2.4300	9.88	6.89	16.77	56.00	-39.23	QP
12	2.4300	9.88	-0.51	9.37	46.00	-36.63	AVG

Remark: Other frequency mini margin all >6 dB of Limit

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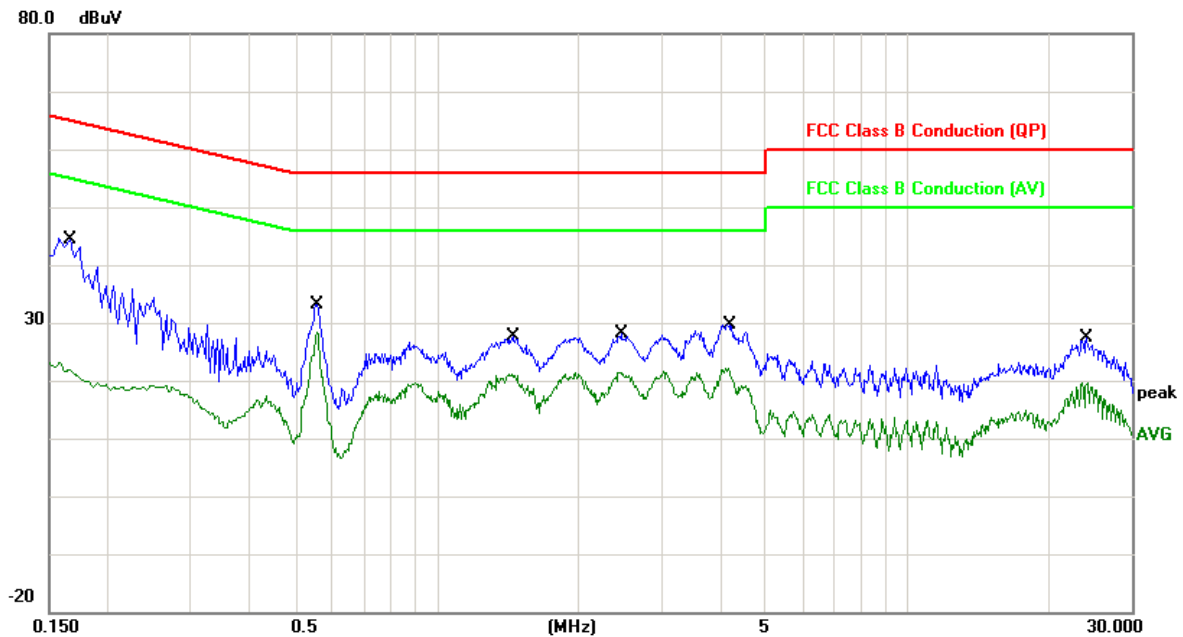
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Test point:	N	Result:	<input checked="" type="checkbox"/> - passed
Frequency range:	0.15MHz~30MHz		<input type="checkbox"/> - not passed



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	0.1660	9.78	21.88	31.66	65.16	-33.50	QP
2	0.1660	9.78	10.98	20.76	55.16	-34.40	AVG
3	0.5580	9.84	20.31	30.15	56.00	-25.85	QP
4	0.5580	9.84	18.61	28.45	46.00	-17.55	AVG
5	1.4500	9.85	13.25	23.10	56.00	-32.90	QP
6	1.4500	9.85	10.28	20.13	46.00	-25.87	AVG
7	2.4660	9.88	13.88	23.76	56.00	-32.24	QP
8	2.4660	9.88	10.47	20.35	46.00	-25.65	AVG
9	4.1900	9.91	15.09	25.00	56.00	-31.00	QP
10	4.1900	9.91	10.20	20.11	46.00	-25.89	AVG
11	24.1140	10.04	11.57	21.61	60.00	-38.39	QP
12	24.1140	10.04	4.68	14.72	50.00	-35.28	AVG

Remark: Other frequency mini margin all >6 dB of Limit

Note: Level=Reading+Factor. Margin= Level-Limit

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7.0 6dB BANDWIDTH MEASUREMENT

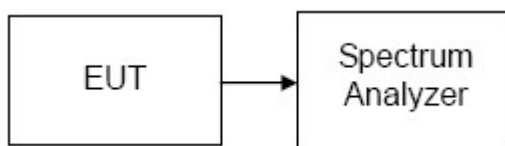
7.1 LIMITS

According to §15.247(a)(2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

7.2 MEASUREMENT EQUIPMENT USED

20dB Bandwidth					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2013/03

7.3 TEST CONFIGURATION



7.4 TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 100kHz, VBW = 300kHz, Span = 3MHz, Sweep = auto.
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated

7.5 TEST RESULTS

Channel	Frequency (MHz)	Bandwidth (KHz)	Limit (KHz)	Result (KHz)
Low	2402	798	>500	PASSED
Middle	2442	792		PASSED
High	2480	786		PASSED

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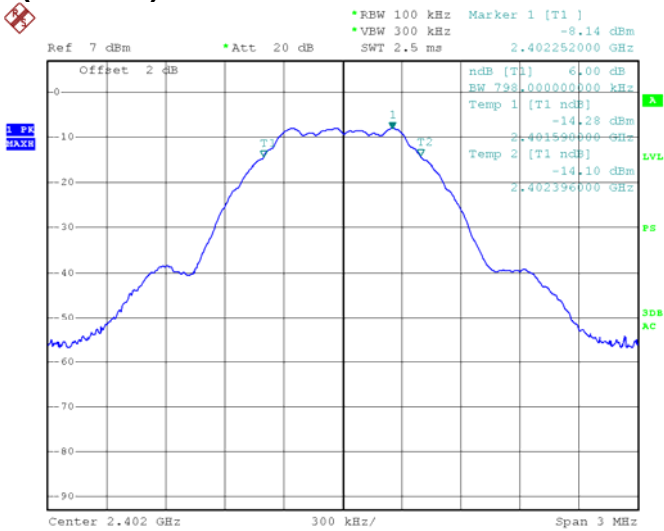
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Test Plot

6dB Bandwidth(CH Low)



8.0 PEAK POWER

8.1 LIMIT

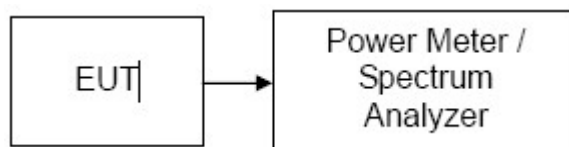
The maximum peak output power of the intentional radiator shall not exceed the following:

1. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.
2. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

8.2 MEASUREMENT EQUIPMENT USED

Peak Power					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2013/03
2	Power meter	ROHDE & SCHWARZ	NRVS	842856/049	2013/03

8.3 TEST CONDIGURATION



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8.4 TEST PROCEDURE

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz.
3. Set VBW = 1 MHz.
4. Use sample detector mode if bin width (i.e., span/number of points in spectrum display) < 0.5 RBW. Otherwise use peak detector mode.
5. Use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at full control power for entire sweep of every sweep. If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to "free run".
6. Trace average 100 traces in power averaging mode.
7. Compute power by integrating the spectrum across the 26 dB EBW of the signal. The integration can be performed using the spectrum analyzer's band power measurement function with band limits set equal to the EBW band edges or by summing power levels in each 1 MHz band in linear power terms. The 1 MHz band power levels to be summed can be obtained by averaging, in linear power terms, power levels in each frequency bin across the 1 MHz.

8.5 TEST RESULTS

Passed Test Data

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Result
Low	2402	-4.35	30	PASS
Middle	2442	-5.99	30	PASS
High	2480	-5.07	30	PASS

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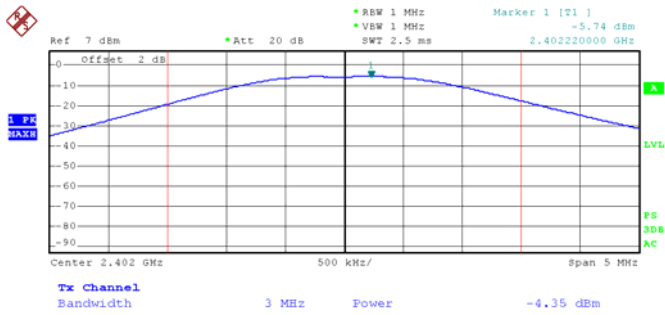
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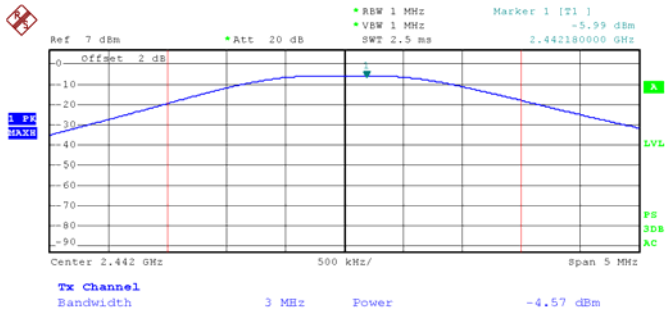


CH Low



Date: 3.DEC.2013 08:37:35

CH Middle



Date: 3.DEC.2013 08:41:48

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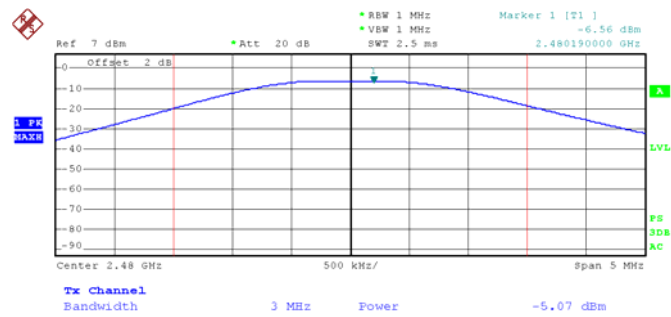
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CH High



Date: 3.DEC.2013 08:48:31

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9.0 PEAK POWER SPECTRAL DENSITY

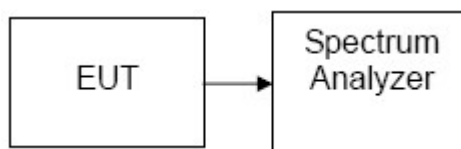
9.1 LIMIT

1. For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.
2. The direct sequence operating of the hybrid system, with the frequency hopping operation turned off, shall comply with the power density requirements of paragraph (d) of this section

9.2 MEASUREMENT EQUIPMENT USED

Peak Power Spectral Density					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2013/03

9.3 TEST CONFIGURATION



9.4 TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 100kHz, VBW = 300kHz, Span = 1.5 times the bandwidth, Sweep=Auto couple
4. Record the max. reading.
5. Repeat the above procedure until the measurements for all frequencies are completed.

9.5 TEST RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2402	-8.11	8.0	PASS
Middle	2442	-8.24	8.0	PASS
High	2480	-9.17	8.0	PASS

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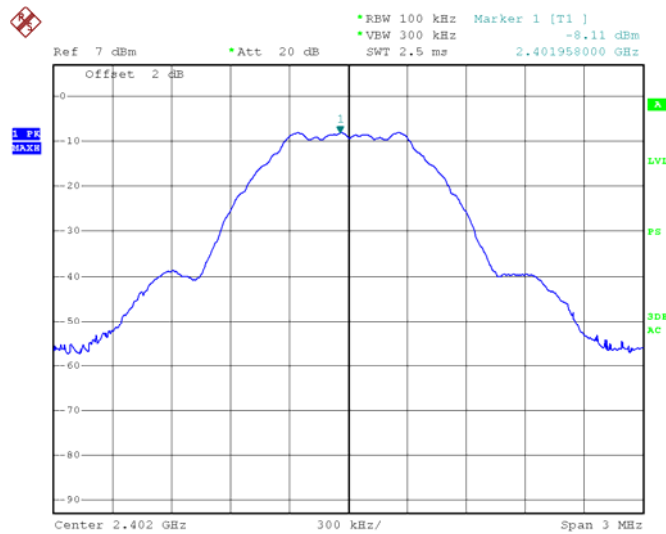
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Fax: +86-20-38780406

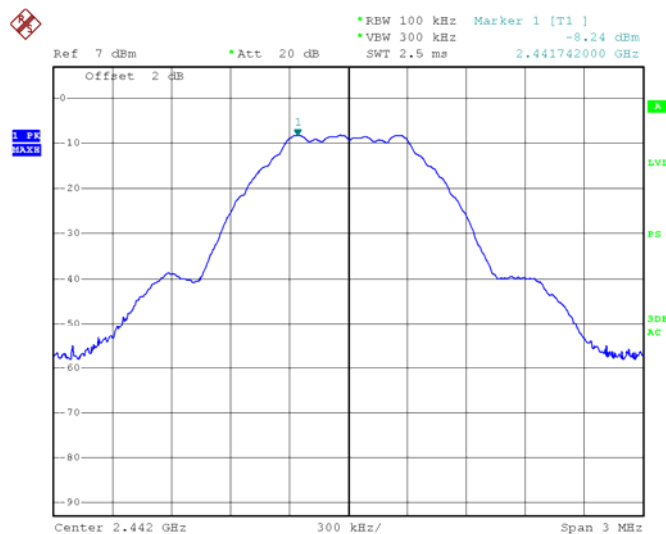
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CH Low

Date: 3.DEC.2013 08:52:22

CH Middle

Date: 3.DEC.2013 08:53:18

CH High

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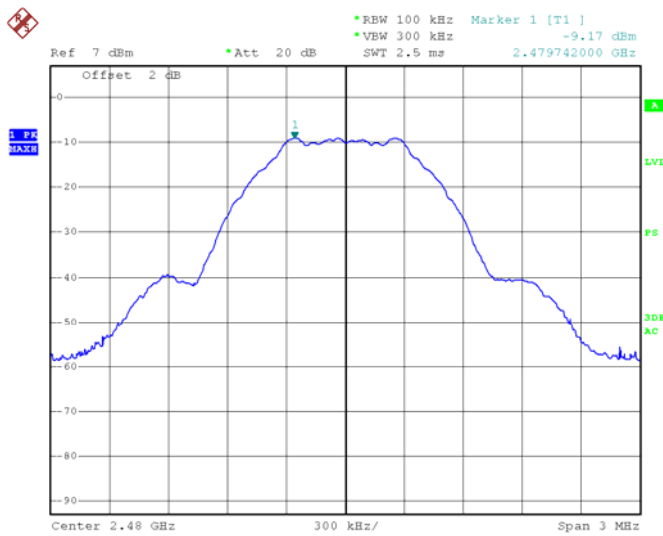
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10.0 BAND EDGES MEASUREMENT

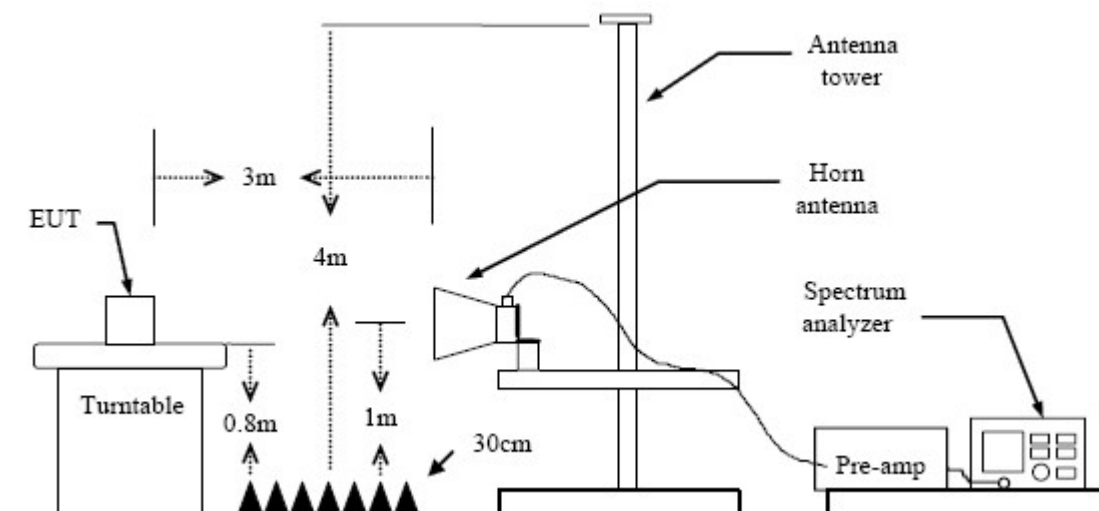
10.1 LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum 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) (see Section 15.205(c)).

10.2 MEASUREMENT EQUIPMENT USED

Radiated disturbance (electric field)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100868	2012/11
2	Biconical Antenna	ROHDE & SCHWARZ	HK116	100221	2013/03
3	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2013/03
4	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	2013/03
5	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2013/03
6	Loop Antenna	A.R.A	PLA-1030/B	1030	2012/11
7	EMI Test Software	EZ-EMC	Farad	N/A	N/A

10.3 Test Configuration



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10.4 TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 - (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
 - (b) AVERAGE: RBW=1MHz / VBW=3kHz(1/duty cycle) / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

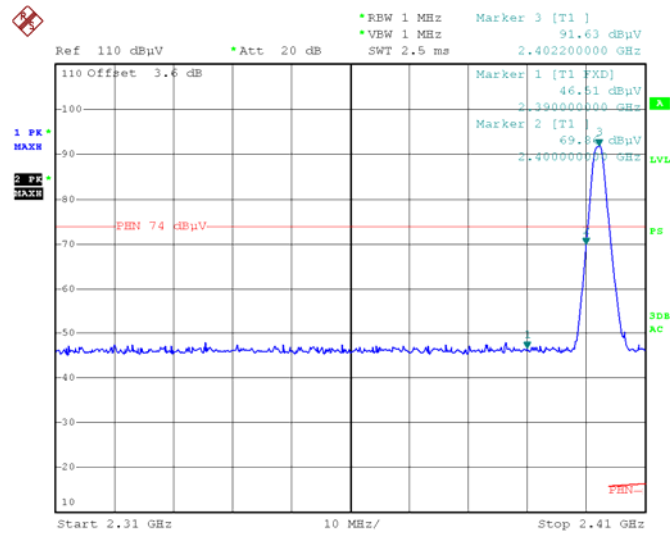
10.5 TEST RESULTS

Refer to attach spectrum analyzer data chart.

Chip antenna**Band Edges (CH-Low)**

Detector mode: Peak

Polarity: Horizontal

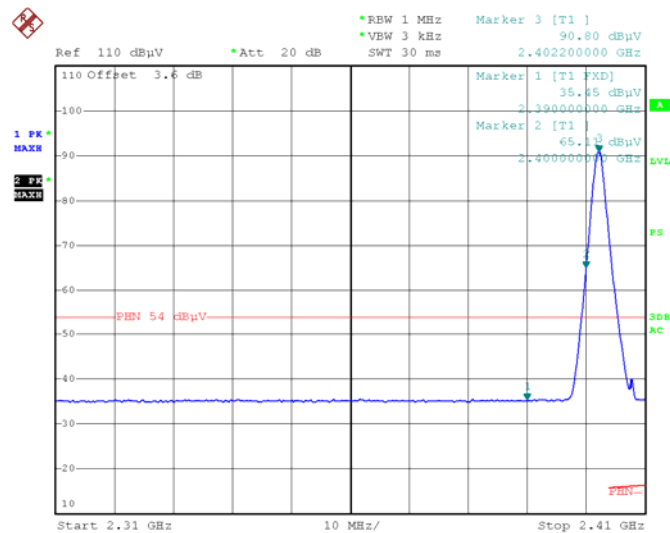


Date: 5.DEC.2013 14:45:32

Band Edges (CH-Low)

Detector mode: Average

Polarity: Horizontal



Date: 5.DEC.2013 14:49:31

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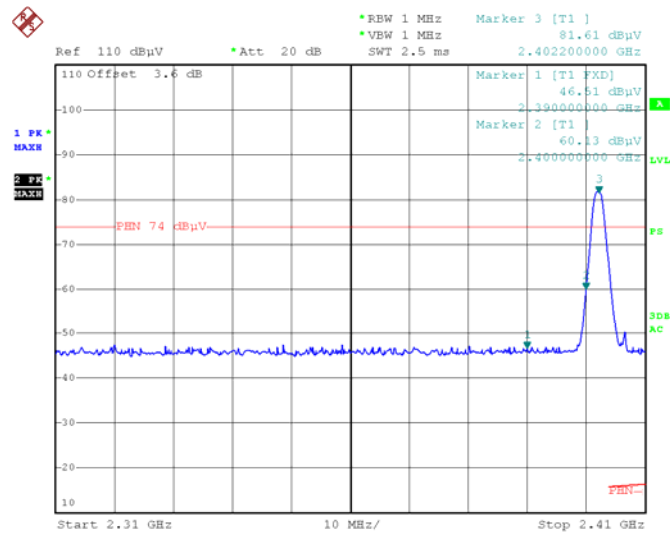
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Band Edges (CH-Low)

Detector mode: Peak

Polarity: Vertical

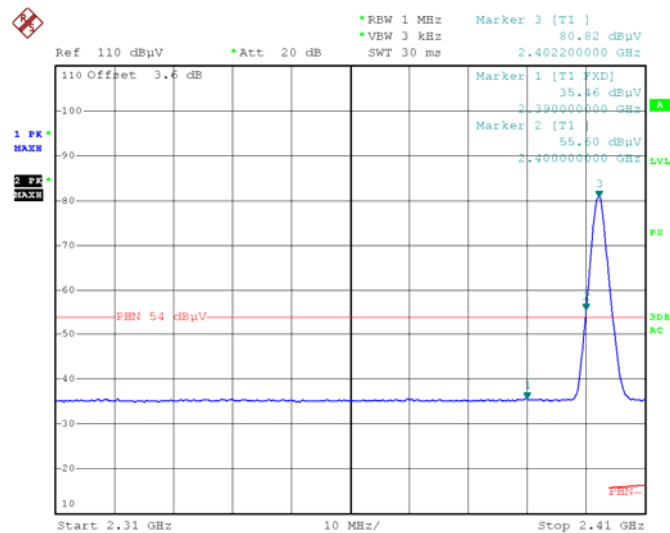


Date: 5.DEC.2013 14:44:59

Band Edges (CH-Low)

Detector mode: Average

Polarity: Vertical



Date: 5.DEC.2013 14:44:26

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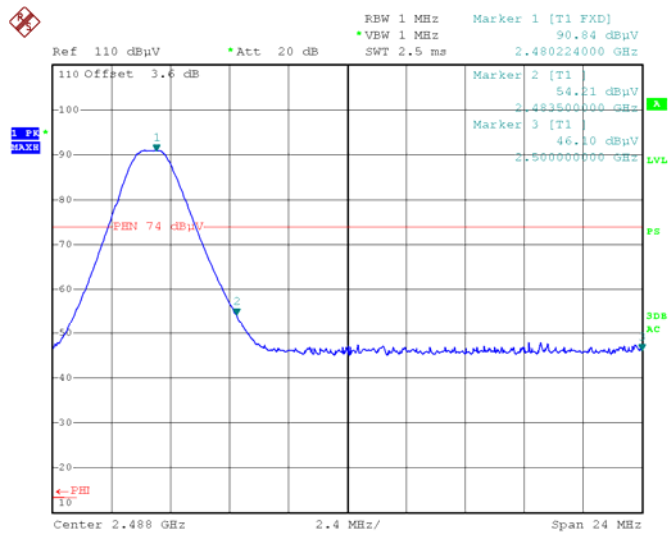
E-mail: cts@cts-lab.com.cn

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Band Edges (CH-High)
Detector mode: Peak

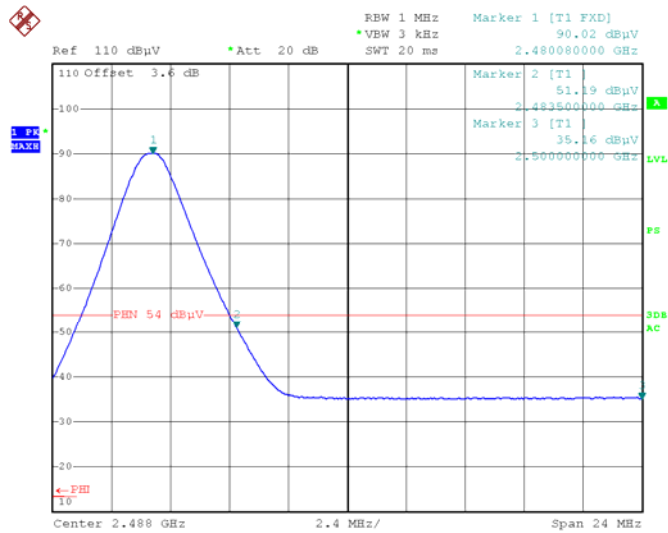
Polarity: Horizontal



Date: 5.DEC.2013 14:36:55

Band Edges (CH-High)
Detector mode: Average

Polarity: Horizontal



Date: 5.DEC.2013 14:35:53

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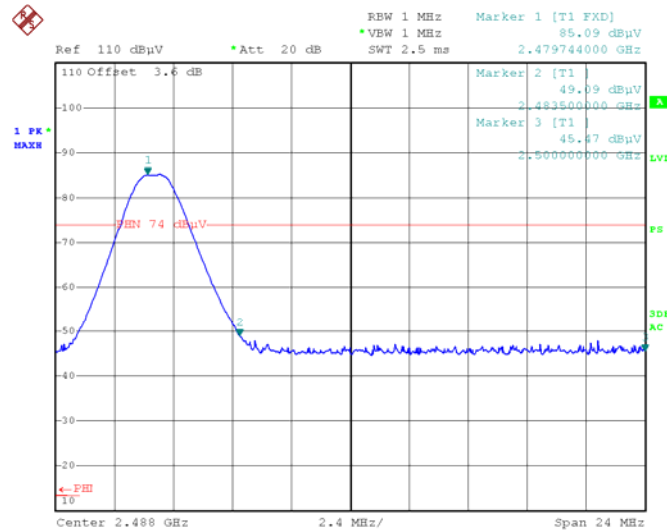
E-mail: cts@cts-lab.com.cn

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**Band Edges (CH-High)**

Detector mode: Peak

Polarity: Vertical

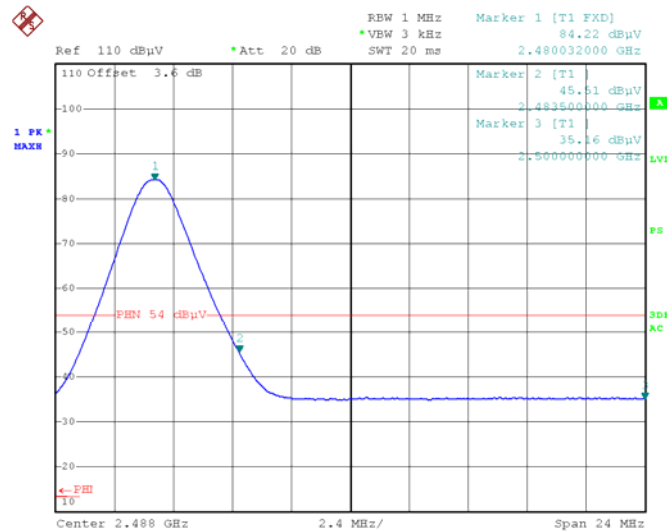


Date: 5.DEC.2013 14:42:00

Band Edges (CH-High)

Detector mode: Average

Polarity: Vertical



Date: 5.DEC.2013 14:42:28

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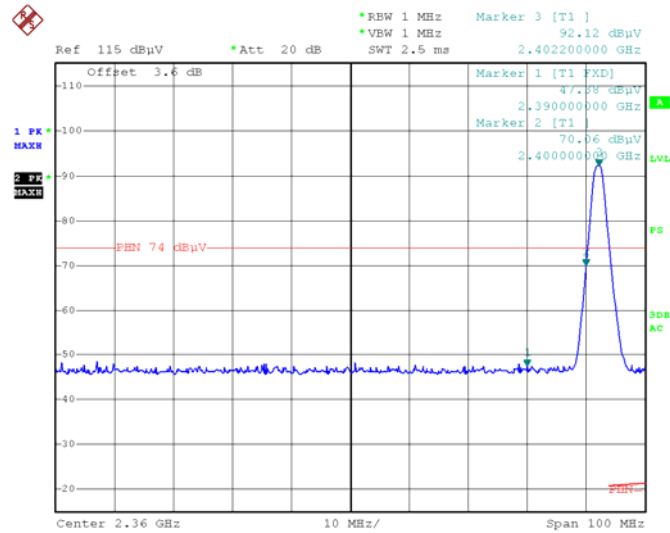
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PCB Antenna**Band Edges (CH-Low)**

Detector mode: Peak

Polarity: Horizontal

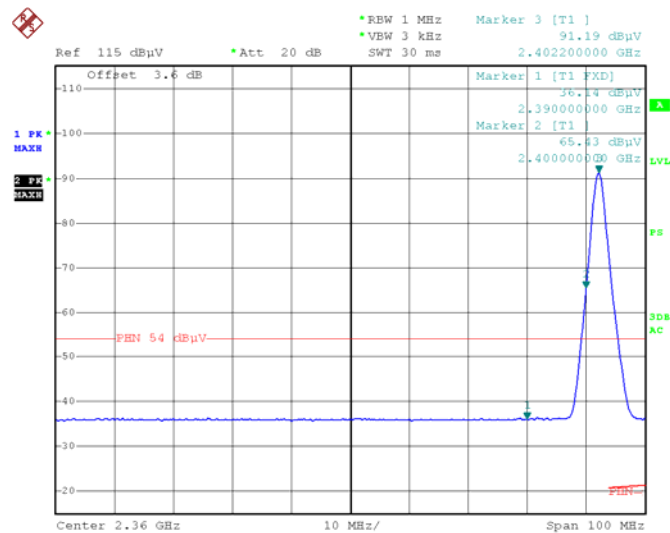


Date: 2.DEC.2013 14:36:29

Band Edges (CH-Low)

Detector mode: Average

Polarity: Horizontal



Date: 2.DEC.2013 14:37:02

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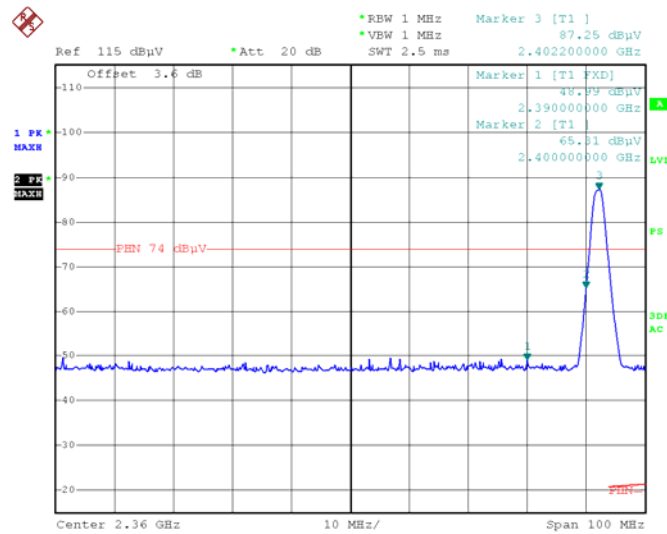
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Band Edges (CH-Low)

Detector mode: Peak

Polarity: Vertical

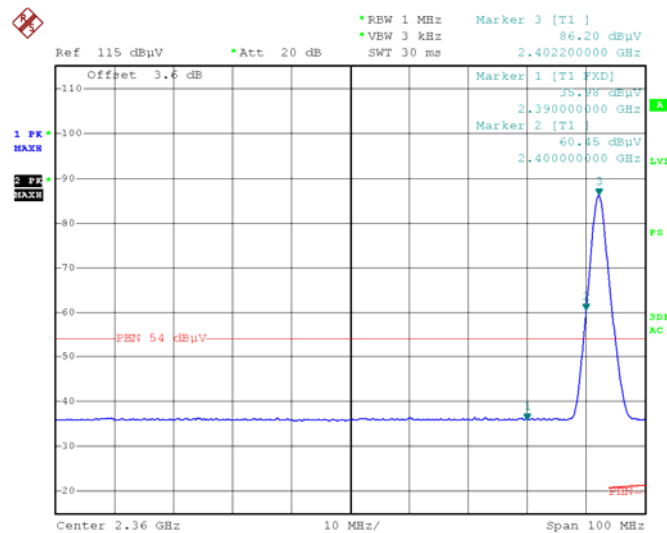


Date: 2.DEC.2013 14:44:06

Band Edges (CH-Low)

Detector mode: Average

Polarity: Vertical



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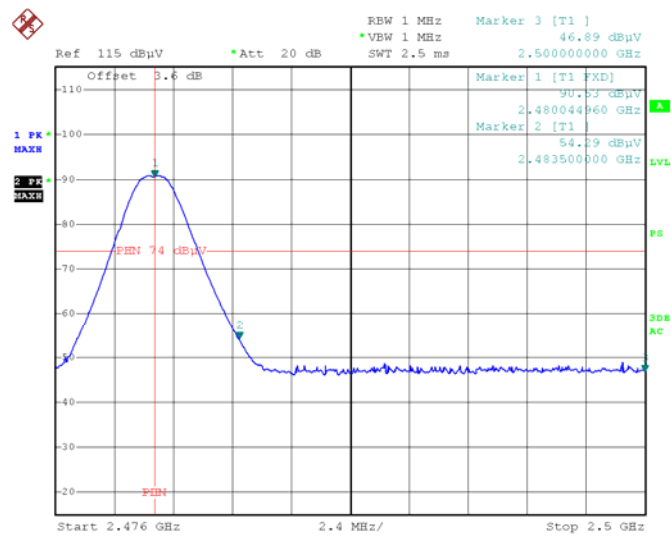
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Band Edges (CH-High)
Detector mode: Peak

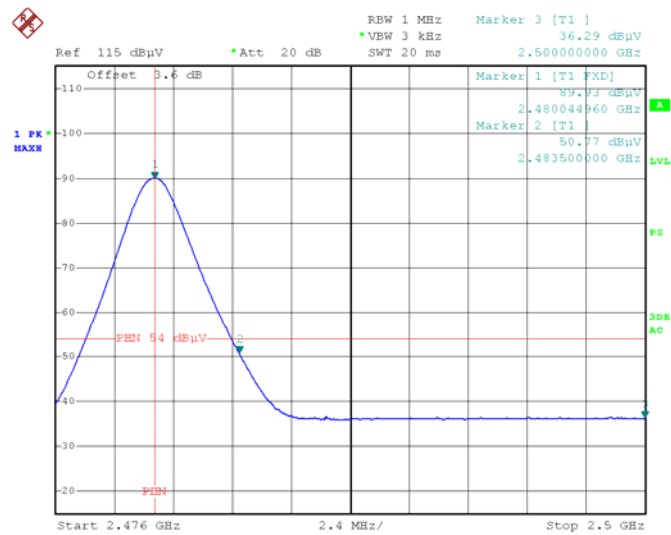
Polarity: Horizontal



Date: 2.DEC.2013 14:26:46

Band Edges (CH-High)
Detector mode: Average

Polarity: Horizontal



Date: 2.DEC.2013 14:23:51

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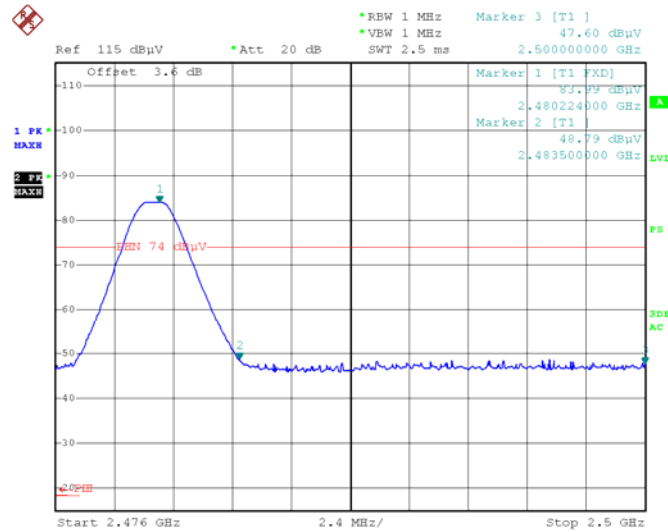
E-mail: cts@cts-lab.com.cn

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Band Edges (CH-High)

Detector mode: Peak

Polarity: Vertical

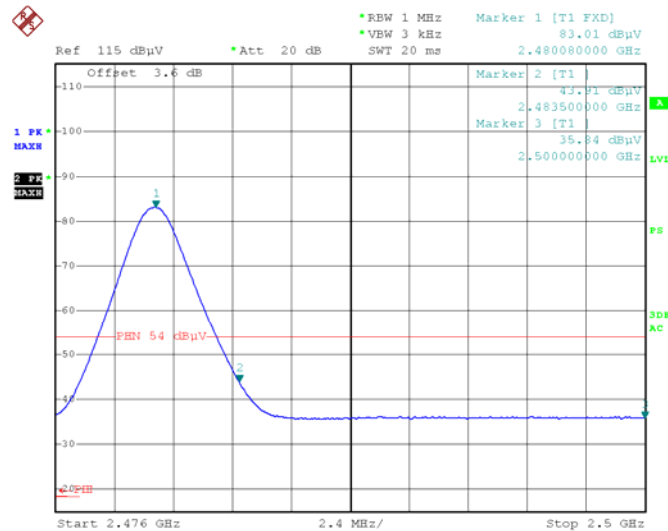


Date: 2.DEC.2013 14:50:39

Band Edges (CH-High)

Detector mode: Average

Polarity: Vertical



Date: 2.DEC.2013 14:51:20

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11.0 SPURIOUS EMISSIONS

11.1 LIMIT

Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
0.009 ~ 0.490	300	2400/F(kHz)	---
0.490 ~ 1.705	30	24000/F(kHz)	---
1.705 ~ 30	30	30	---
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	Other: 74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Note: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

11.2 Test Equipment

Radiated disturbance (electric field)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100868	2012/11
2	Biconical Antenna	ROHDE & SCHWARZ	HK116	100221	2013/03
3	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2013/03
4	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	2013/03
5	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2013/03
6	Loop Antenna	A.R.A	PLA-1030/B	1030	2012/11
7	EMI Test Software	EZ-EMC	Farad	N/A	N/A

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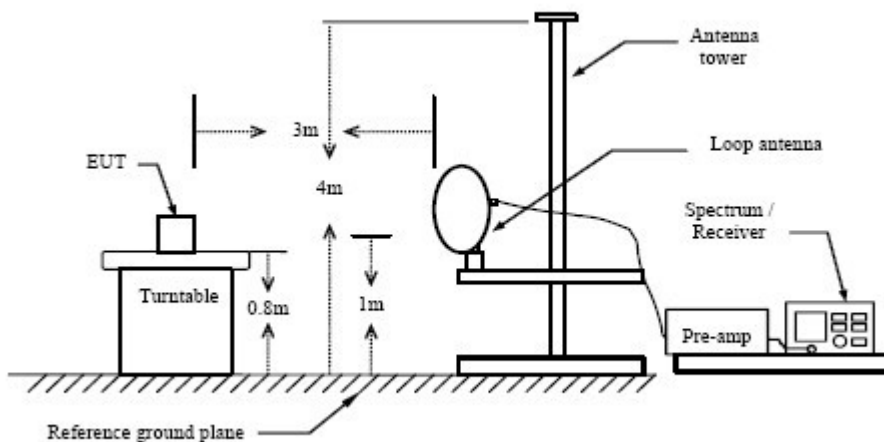
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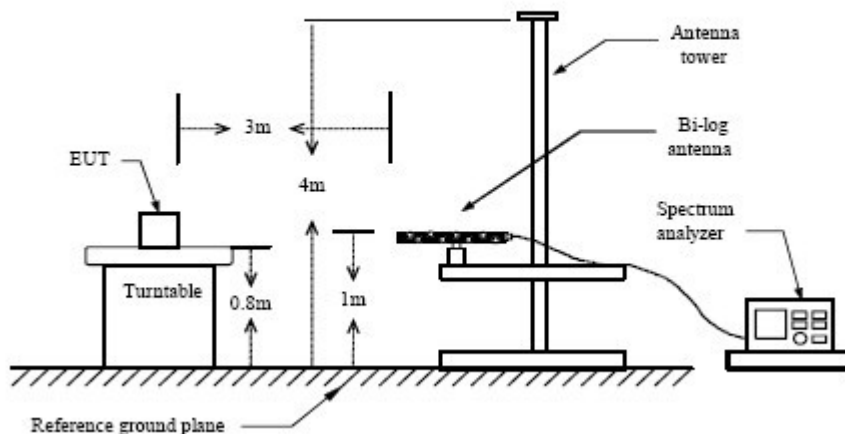
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11.3 TEST CONFIGURATION

Below 30MHz



Below 1 GHz



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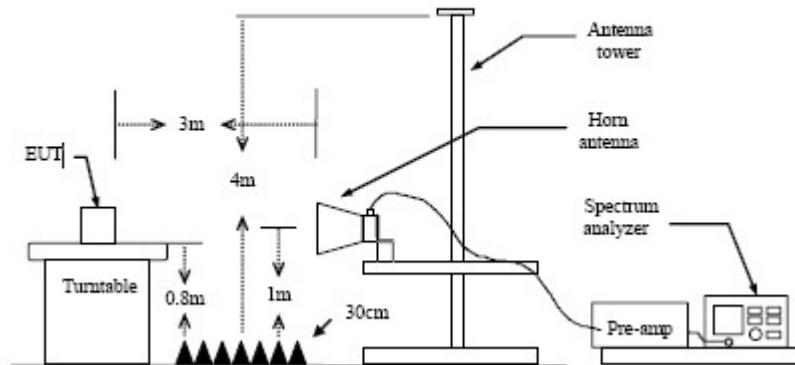
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Above 1 GHz



11.4 TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

11.5 TEST RESULTS

The frequency range from 9KHz~30MHz, 30MHz to 230MHz, 230MHz to 1000MHz and above 1GHz. is investigated. Please see the following pages.

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Test Mode:	TX –X Position Mode	Result:	<input checked="" type="checkbox"/> - passed
Frequency range:	9KHz~30MHz		<input type="checkbox"/> - not passed

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
Remark: The test result reading value is to low, margin all > 10dB of the limit.							

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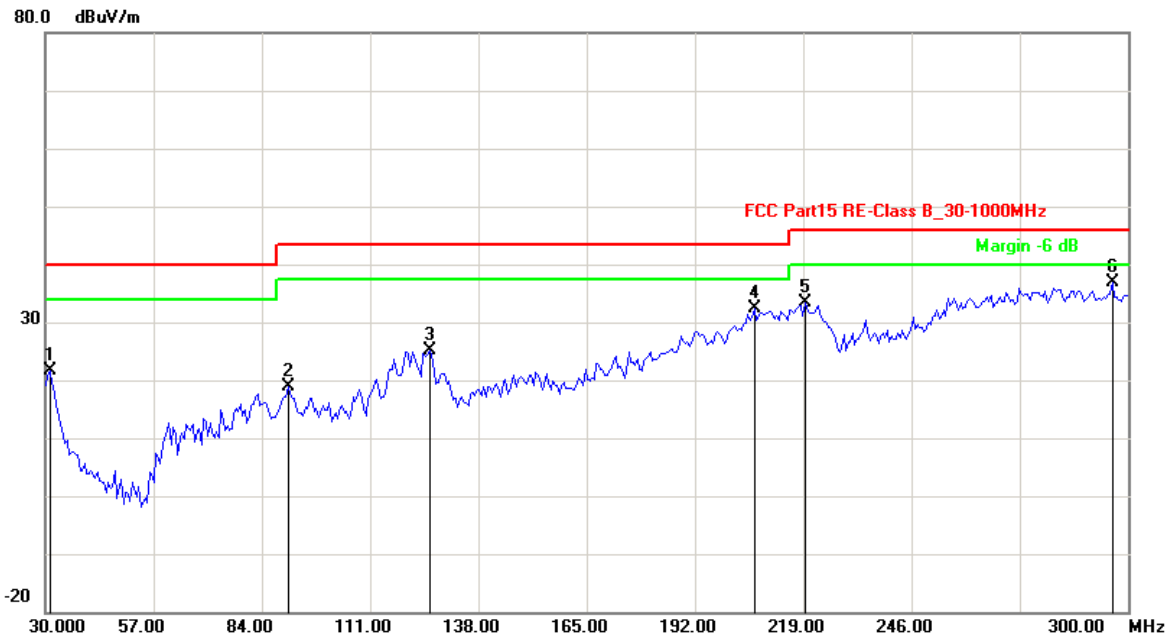
E-mail: cts@cts-lab.com.cn

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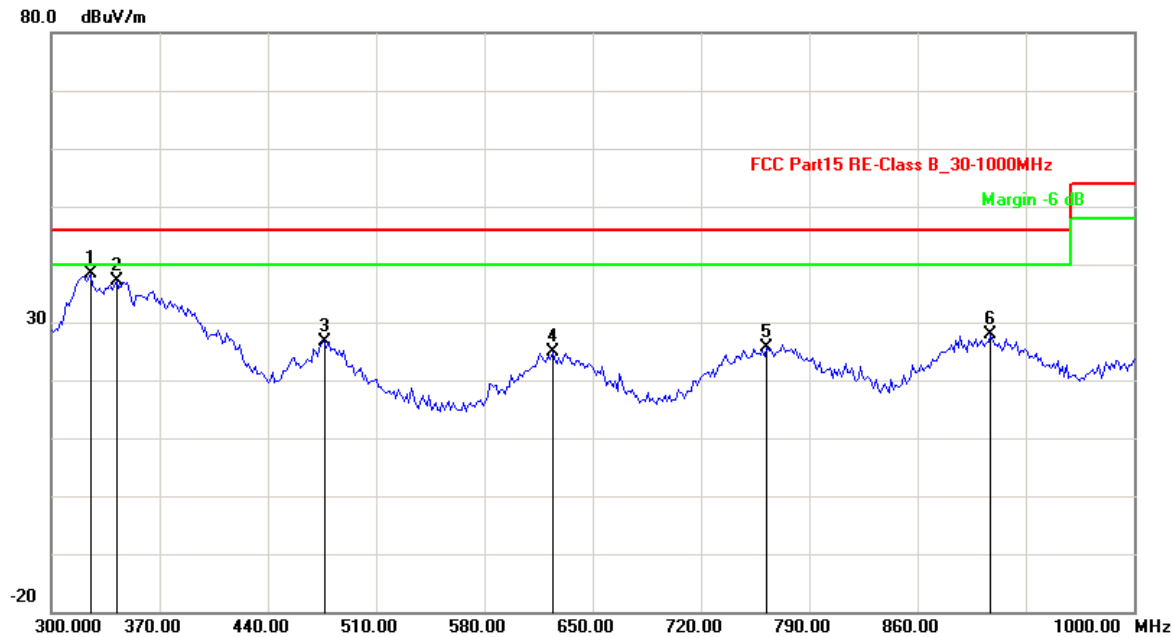


EUT	Wifi+BT combo card
Antenna Type	PCB Antenna
Operating Condition	DC 3.3V
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test distance	3 Meter
Test Date:	02~23 September 2013
Operator	Duke
MODEL NO	WLU6300B(T-RoHS)

Channel:	TX -X Position	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Horizontal		<input type="checkbox"/> - not passed
Frequency range:	30MHz-1GHz		



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	31.0822	-19.43	41.16	21.73	40.00	-18.27	QP
2	90.6012	-22.69	41.52	18.83	43.50	-24.67	QP
3	125.7715	-17.51	42.52	25.01	43.50	-18.49	QP
4	206.9339	-12.24	44.70	32.46	43.50	-11.04	QP
5	219.3788	-12.41	45.69	33.28	46.00	-12.72	QP
6	296.2124	-6.13	42.91	36.78	46.00	-9.22	QP
Remark: Other frequency mini margin all >10 dB of Limit							



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	325.2505	-16.70	55.00	38.30	46.00	-7.70	QP
2	342.0842	-13.19	50.30	37.11	46.00	-8.89	QP
3	476.7535	-10.28	36.97	26.69	46.00	-19.31	QP
4	624.0481	-7.18	32.05	24.87	46.00	-21.13	QP
5	762.9259	-5.56	31.11	25.55	46.00	-20.45	QP
6	907.4148	-4.14	31.90	27.76	46.00	-18.24	QP
Remark: Other frequency mini margin all >10 dB of Limit							

Channel:	Low Channel	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Horizontal		<input type="checkbox"/> - not passed
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1396.794	-2.28	48.31	46.03	74.00	-27.97	peak
2	1396.794	-2.28	33.56	31.28	54.00	-22.72	AVG
3	3777.555	9.10	40.64	49.74	74.00	-24.26	peak
4	3777.555	9.10	25.09	34.19	54.00	-19.81	AVG
5	7547.094	18.56	37.88	56.44	74.00	-17.56	peak
6	7547.094	18.56	22.82	41.38	54.00	-12.62	AVG
Remark: Other frequency mini margin all >10 dB of Limit							

Channel:	Middle Channel	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Horizontal		<input type="checkbox"/> - not passed
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1286.573	-3.25	55.77	52.52	74.00	-21.48	peak
2	1286.573	-3.25	41.10	37.85	54.00	-16.15	AVG
3	1595.190	-1.34	48.00	46.66	74.00	-27.34	peak
4	1595.190	-1.34	32.60	31.26	54.00	-22.74	AVG
5	6004.008	15.39	42.37	57.76	74.00	-16.24	peak
6	6004.008	15.39	27.19	42.58	54.00	-11.42	AVG

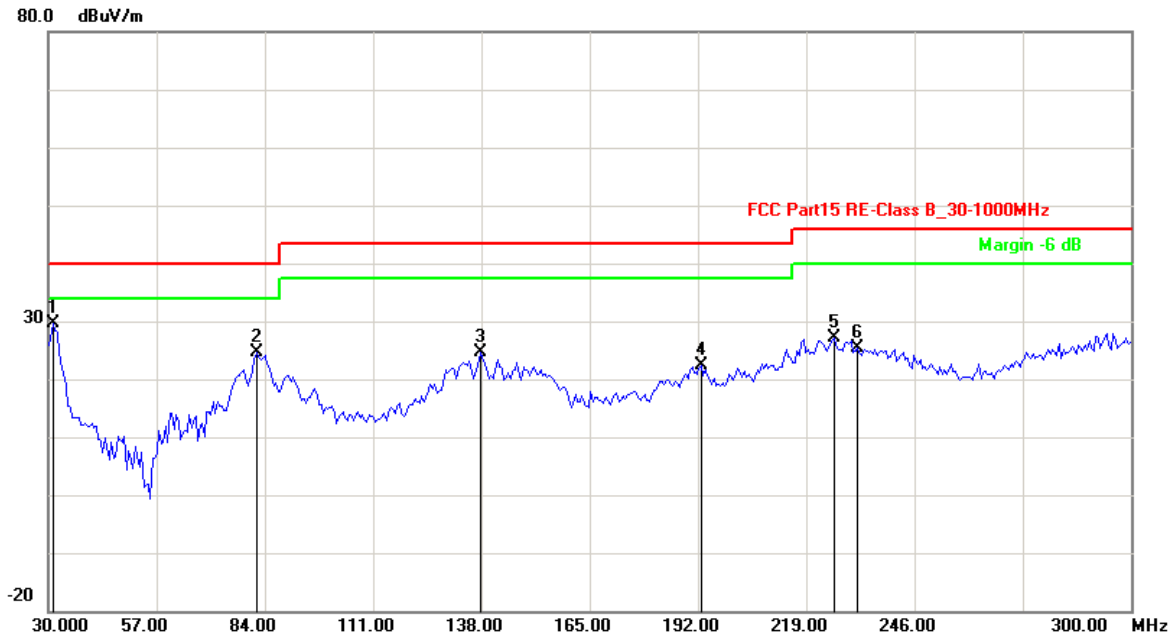
Remark: Other frequency mini margin all >10 dB of Limit

Channel:	High Channel	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Horizontal		<input type="checkbox"/> - not passed
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1220.441	-3.82	45.95	42.13	74.00	-31.87	peak
2	1220.441	-3.82	31.37	27.55	54.00	-26.45	AVG
3	1991.984	-1.15	46.19	45.04	74.00	-28.96	peak
4	1991.984	-1.15	32.00	30.85	54.00	-23.15	AVG
5	5937.876	15.18	41.20	56.38	74.00	-17.62	peak
6	5937.876	15.18	26.69	41.87	54.00	-12.13	AVG

Remark: Other frequency mini margin all >10 dB of Limit

Channel:	TX -X Position	Result:	■ - passed
Test point:	Vertical		□ - not passed
Frequency range:	30MHz-1GHz		



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	31.0822	-19.43	49.02	29.59	40.00	-10.41	QP
2	81.9439	-21.84	46.44	24.60	40.00	-15.40	QP
3	137.6754	-16.54	41.16	24.62	43.50	-18.88	QP
4	192.8657	-12.20	34.49	22.29	43.50	-21.21	QP
5	225.8717	-12.38	39.44	27.06	46.00	-18.94	QP
6	231.8236	-12.48	37.98	25.50	46.00	-20.50	QP

Remark: Other frequency mini margin all >10 dB of Limit

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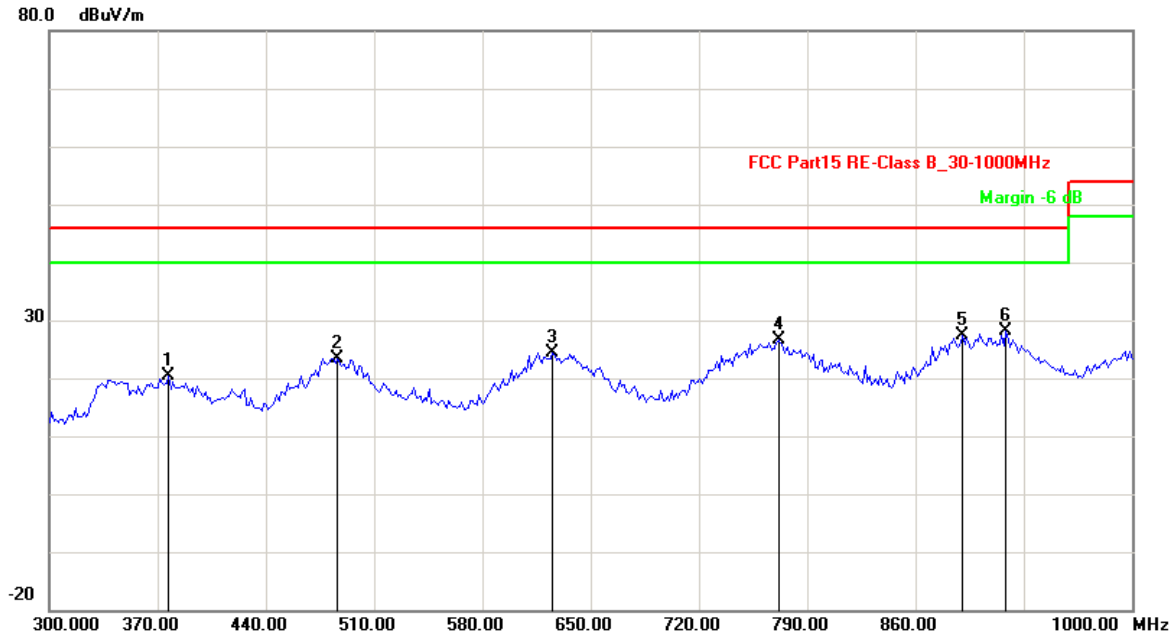
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No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	377.1543	-14.72	35.21	20.49	46.00	-25.51	QP
2	486.5731	-9.85	33.27	23.42	46.00	-22.58	QP
3	625.4509	-7.22	31.59	24.37	46.00	-21.63	QP
4	771.3427	-5.75	32.37	26.62	46.00	-19.38	QP
5	890.5812	-4.40	31.67	27.27	46.00	-18.73	QP
6	918.6373	-4.48	32.64	28.16	46.00	-17.84	QP
Remark: Other frequency mini margin all >10 dB of Limit							

Channel:	Low Channel	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Vertical		<input type="checkbox"/> - not passed
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	3094.188	6.90	43.32	50.22	74.00	-23.78	peak
2	3094.188	6.90	28.36	35.26	54.00	-18.74	AVG
3	4549.098	11.10	40.40	51.50	74.00	-22.50	peak
4	4549.098	11.10	25.24	36.34	54.00	-17.66	AVG
5	7591.182	18.62	39.62	58.24	74.00	-15.76	peak
6	7591.182	18.62	24.67	43.29	54.00	-10.71	AVG
Remark: Other frequency mini margin all >10 dB of Limit							

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Channel:	Middle Channel	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Vertical		<input type="checkbox"/> - not passed
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	4549.098	11.10	39.52	50.62	74.00	-23.38	peak
2	4549.098	11.10	24.59	35.69	54.00	-18.31	AVG
3	5519.038	13.83	40.46	54.29	74.00	-19.71	peak
4	5519.038	13.83	25.74	39.57	54.00	-14.43	AVG
5	7547.094	18.56	38.35	56.91	74.00	-17.09	peak
6	7547.094	18.56	22.73	41.29	54.00	-12.71	AVG

Remark: Other frequency mini margin all >10 dB of Limit

Channel:	High Channel	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Vertical		<input type="checkbox"/> - not passed
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	3689.379	8.81	41.00	49.81	74.00	-24.19	peak
2	3689.379	8.81	26.33	35.14	54.00	-18.86	AVG
3	4791.583	11.67	37.22	48.89	74.00	-25.11	peak
4	4791.583	11.67	22.02	33.69	54.00	-20.31	AVG
5	7260.521	18.16	36.52	54.68	74.00	-19.32	peak
6	7260.521	18.16	22.02	40.18	54.00	-13.82	AVG

Remark: Other frequency mini margin all >10 dB of Limit

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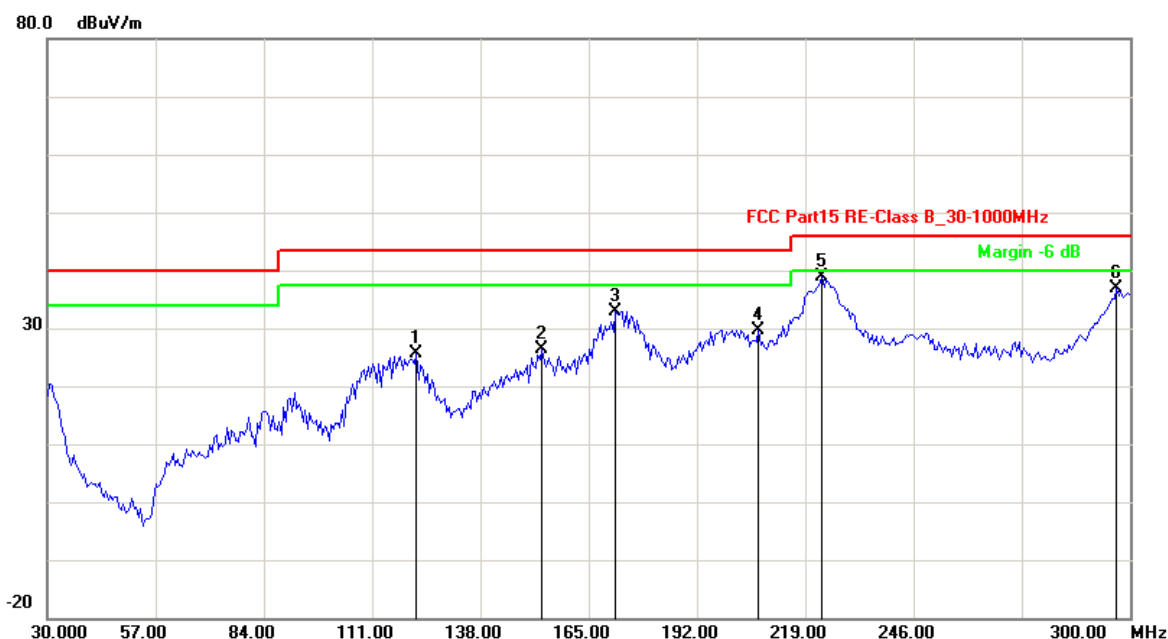
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EUT	Wifi+BT combo card
Antenna Type	Chip antenna
Operating Condition	DC 3.3V
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test distance	3 Meter
Test Date:	02~23 September 2013
Operator	Duke
MODEL NO	WLU6300B(T-RoHS)

Channel:	TX -X Position	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Horizontal		<input type="checkbox"/> - not passed
Frequency range:	30MHz-1GHz		



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	121.9840	-17.92	43.43	25.51	43.50	-17.99	QP
2	153.3667	-17.88	44.17	26.29	43.50	-17.21	QP
3	171.7635	-16.44	49.43	32.99	43.50	-10.51	QP
4	207.4750	-12.21	41.95	29.74	43.50	-13.76	QP
5	223.1663	-12.40	51.17	38.77	46.00	-7.23	QP
6	296.7535	-6.05	43.01	36.96	46.00	-9.04	QP

Remark: Other frequency mini margin all >10 dB of Limit

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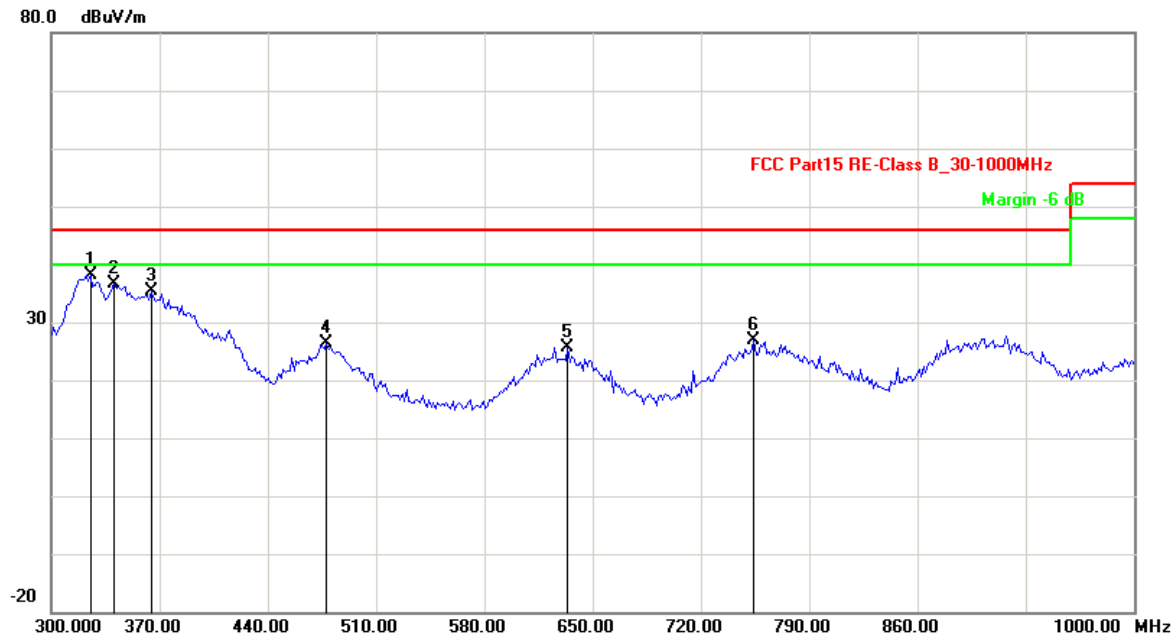
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No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	325.2505	-16.70	54.87	38.17	46.00	-7.83	QP
2	340.6814	-13.14	49.75	36.61	46.00	-9.39	QP
3	364.5291	-14.11	49.47	35.36	46.00	-10.64	QP
4	478.1563	-10.03	36.38	26.35	46.00	-19.65	QP
5	633.8677	-7.44	32.95	25.51	46.00	-20.49	QP
6	754.5090	-5.95	32.79	26.84	46.00	-19.16	QP
Remark: Other frequency mini margin all >10 dB of Limit							

Channel:	Low Channel	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Horizontal		<input type="checkbox"/> - not passed
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1330.661	-2.86	54.07	51.21	74.00	-22.79	peak
2	1330.661	-2.86	39.43	36.57	54.00	-17.43	AVG
3	3402.806	7.89	43.48	51.37	74.00	-22.63	peak
4	3402.806	7.89	28.06	35.95	54.00	-18.05	AVG
5	7304.609	18.22	38.34	56.56	74.00	-17.44	peak
6	7304.609	18.22	23.07	41.29	54.00	-12.71	AVG
Remark: Other frequency mini margin all >10 dB of Limit							

Channel:	Middle Channel	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Horizontal		<input type="checkbox"/> - not passed
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1242.485	-3.63	49.26	45.63	74.00	-28.37	peak
2	1242.485	-3.63	33.78	30.15	54.00	-23.85	AVG
3	3270.541	7.47	43.18	50.65	74.00	-23.35	peak
4	3270.541	7.47	28.15	35.62	54.00	-18.38	AVG
5	7547.094	18.56	38.24	56.80	74.00	-17.20	peak
6	7547.094	18.56	23.01	41.57	54.00	-12.43	AVG

Remark: Other frequency mini margin all >10 dB of Limit

Channel:	High Channel	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Horizontal		<input type="checkbox"/> - not passed
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1991.984	-1.15	46.30	45.15	74.00	-28.85	peak
2	1991.984	-1.15	31.27	30.12	54.00	-23.88	AVG
3	3821.643	9.24	41.34	50.58	74.00	-23.42	peak
4	3821.643	9.24	25.91	35.15	54.00	-18.85	AVG
5	7503.006	18.50	37.48	55.98	74.00	-18.02	peak
6	7503.006	18.50	22.25	40.75	54.00	-13.25	AVG

Remark: Other frequency mini margin all >10 dB of Limit

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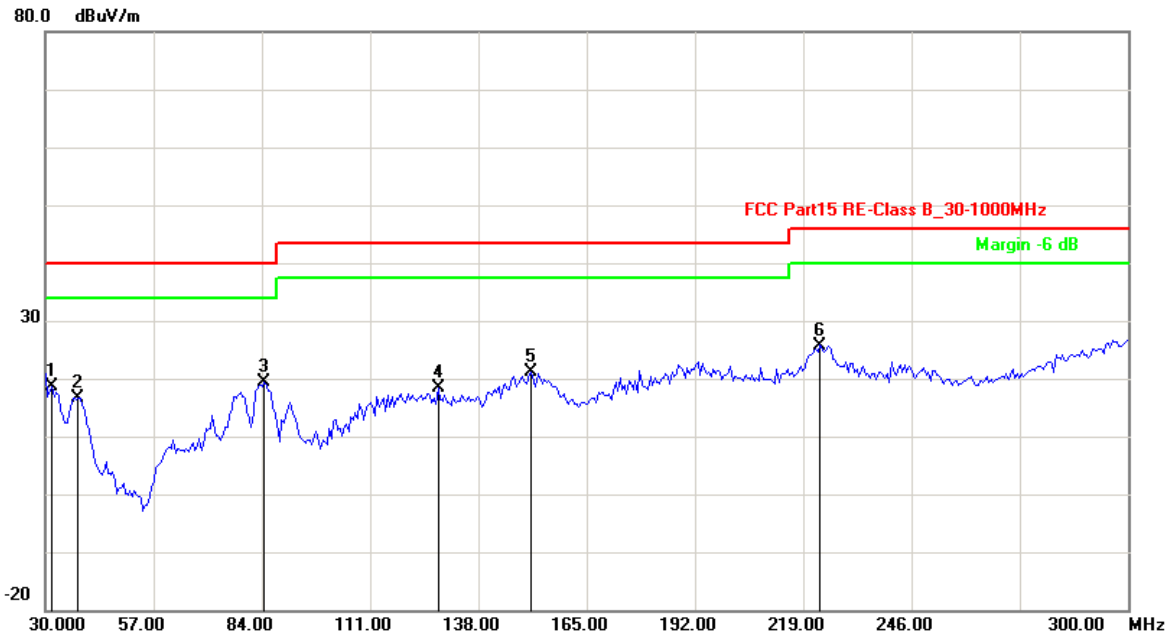
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Channel:	TX -X Position	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Vertical		<input type="checkbox"/> - not passed
Frequency range:	30MHz-1GHz		



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	31.6232	-19.92	38.65	18.73	40.00	-21.27	QP
2	38.1162	-24.88	41.47	16.59	40.00	-23.41	QP
3	84.6493	-22.43	41.77	19.34	40.00	-20.66	QP
4	127.9359	-17.28	35.70	18.42	43.50	-25.08	QP
5	151.2024	-17.53	38.55	21.02	43.50	-22.48	QP
6	223.1663	-12.40	38.15	25.75	46.00	-20.25	QP
Remark: Other frequency mini margin all >10 dB of Limit							

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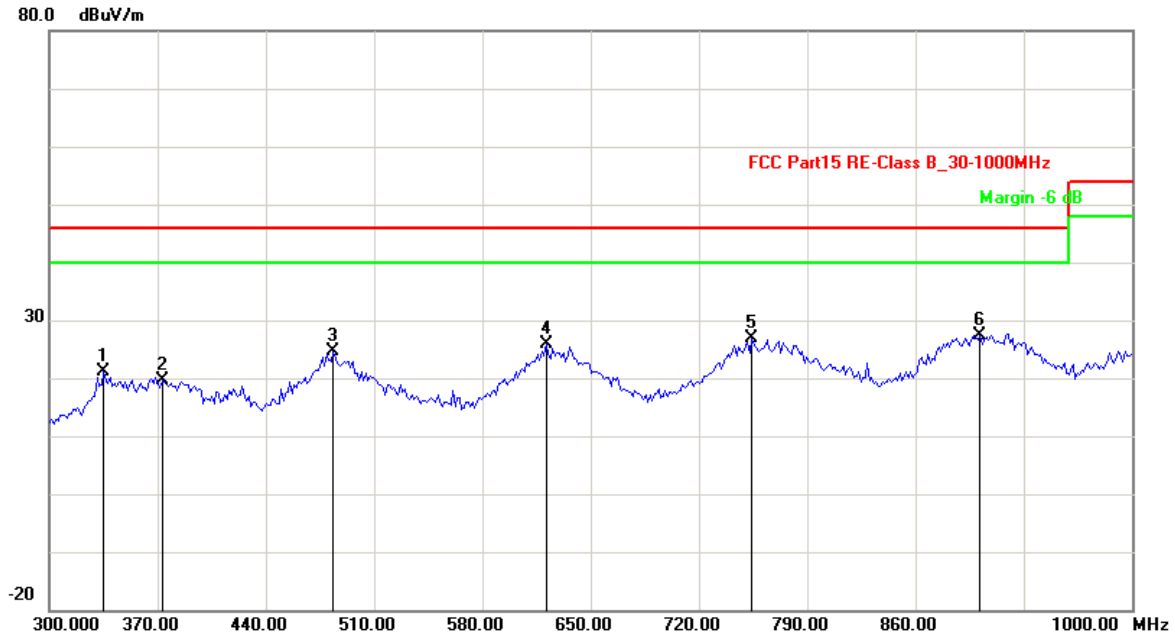
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No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	335.0701	-14.31	35.48	21.17	46.00	-24.83	QP
2	372.9459	-14.52	34.15	19.63	46.00	-26.37	QP
3	483.7675	-9.78	34.34	24.56	46.00	-21.44	QP
4	621.2425	-7.10	32.95	25.85	46.00	-20.15	QP
5	754.5090	-5.95	32.89	26.94	46.00	-19.06	QP
6	901.8036	-3.97	31.36	27.39	46.00	-18.61	QP

Remark: Other frequency mini margin all >10 dB of Limit

Channel:	Low Channel	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Vertical		<input type="checkbox"/> - not passed
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2961.924	6.38	42.65	49.03	74.00	-24.97	peak
2	2961.924	6.38	27.62	34.00	54.00	-20.00	AVG
3	3601.202	8.53	41.07	49.60	74.00	-24.40	peak
4	3601.202	8.53	41.07	49.60	54.00	-4.40	AVG
5	6092.184	15.60	40.40	56.00	74.00	-18.00	peak
6	6092.184	15.60	25.69	41.29	54.00	-12.71	AVG

Remark: Other frequency mini margin all >10 dB of Limit

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Channel:	Middle Channel	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Vertical		<input type="checkbox"/> - not passed
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2961.924	6.38	42.65	49.03	74.00	-24.97	peak
2	2961.924	6.38	27.83	34.21	54.00	-19.79	AVG
3	3601.202	8.53	41.07	49.60	74.00	-24.40	peak
4	3601.202	8.53	25.63	34.16	54.00	-19.84	AVG
5	6092.184	15.60	40.40	56.00	74.00	-18.00	peak
6	6092.184	15.60	26.08	41.68	54.00	-12.32	AVG

Remark: Other frequency mini margin all >10 dB of Limit

Channel:	High Channel	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Vertical		<input type="checkbox"/> - not passed
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	4042.084	9.91	39.98	49.89	74.00	-24.11	peak
2	4042.084	9.91	24.66	34.57	54.00	-19.43	AVG
3	5474.950	13.69	38.59	52.28	74.00	-21.72	peak
4	5474.950	13.69	24.16	37.85	54.00	-16.15	AVG
5	7569.138	18.59	38.09	56.68	74.00	-17.32	peak
6	7569.138	18.59	22.80	41.39	54.00	-12.61	AVG
1	4042.084	9.91	39.98	49.89	74.00	-24.11	peak

Remark: Other frequency mini margin all >10 dB of Limit

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12.0 Antenna Requirements

12.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

12.2 Antenna Construction and Directional Gain

Antenna 1:

Antenna type: PCB Antenna

Antenna Gain: 2 dBi

Antenna 2:

Antenna type: Chip antenna

Antenna Gain: 2 dBi

13.Deviation to test specifications

The following identical model(s):

N/A

Belong to the tested device:

Product description: **Wifi+BT combo card**

Model name: **WLU6300B(T-RoHS)**