

Partial FCC RF Test Report

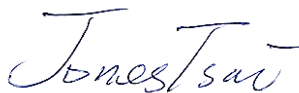
APPLICANT : Getac Technology Corporation.
EQUIPMENT : WLAN module
BRAND NAME : Intel
MODEL NAME : 7260NGW
FCC ID : QYL7260NGW
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DSS) Spread Spectrum Transmitter

This is a partial report which is included the conducted output power and AC conducted emission test items. The product was received on Sep. 12, 2013 and testing was completed on Sep. 23, 2013. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown to be compliant with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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FCC ID : QYL7260NGW

Page Number : 1 of 18

Report Issued Date : Nov. 28, 2013

Report Version : Rev. 01



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR391728A	Rev. 01	Initial issue of report	Nov. 28, 2013



SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.207	RSS-Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 8.00 dB at 4.526 MHz
3.2	15.203 & 15.247(b)	RSS-210 A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Getac Technology Corporation.

5F., Building A, No. 209, Sec. 1, Nangang Rd., Nangang Dist., Taipei City 11568, Taiwan, R.O.C.

1.2 Manufacturer

Getac Technology (Kunshan) Co., LTD.

No. 269, No. 2 Avenue, Kunshan Comprehensive Free Trade Zone, Jiangsu Province, P.R.C

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	WLAN module
Brand Name	Intel
Model Name	7260NGW
FCC ID	QYL7260NGW
Installed into Notebook	Brand Name: Getac Model Name: B300 Marketing Name: B300
EUT supports Radios application	WLAN 11a/b/g/n (HT20/HT40) WLAN 11ac (VHT20/ VHT40/VHT80) Bluetooth 3.0 + EDR / Bluetooth 4.0 - LE
EUT Stage	Production Unit

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

1.4 Product Specification of Equipment Under Test

Product Specification subjective to this standard	
Tx/Rx Frequency Range	2402 MHz ~ 2480 MHz
Number of Channels	79
Carrier Frequency of Each Channel	2402+n*1 MHz; n=0~78
Maximum Output Power to Antenna	Bluetooth BR(1Mbps) : 5.15 dBm (0.0033 W) Bluetooth EDR (2Mbps) : 5.27 dBm (0.0034 W) Bluetooth EDR (3Mbps) : 3.81 dBm (0.0024 W)
Antenna Type	PIFA Antenna type with gain 2.54 dBi
Type of Modulation	Bluetooth BR (1Mbps) : GFSK Bluetooth EDR (2Mbps) : $\pi/4$ -DQPSK Bluetooth EDR (3Mbps) : 8-DPSK



1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Testing Site

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978	
Test Site No.	Sporton Site No.	
	TH02-HY	CO05-HY

Note: The test site complies with ANSI C63.4 2003 requirement.

1.7 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC Public Notice DA 00-705
- ♦ ANSI C63.4-2003

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Descriptions of Test Mode

Preliminary tests were performed in different data rates and recorded the RF output power in the following table:

Channel	Frequency	Bluetooth RF Output Power		
		Data Rate / Modulation		
		GFSK	$\pi/4$ -DQPSK	8-DPSK
		1Mbps	2Mbps	3Mbps
Ch00	2402MHz	3.92 dBm	3.98 dBm	2.33 dBm
Ch39	2441MHz	4.62 dBm	4.71 dBm	3.13 dBm
Ch78	2480MHz	5.15 dBm	5.27 dBm	3.81 dBm

Remark: The data rate was set in 2Mbps for all the test items due to the highest RF output power.

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction (150 kHz to 30 MHz).
- b. AC power line Conducted Emission was tested under maximum output power.

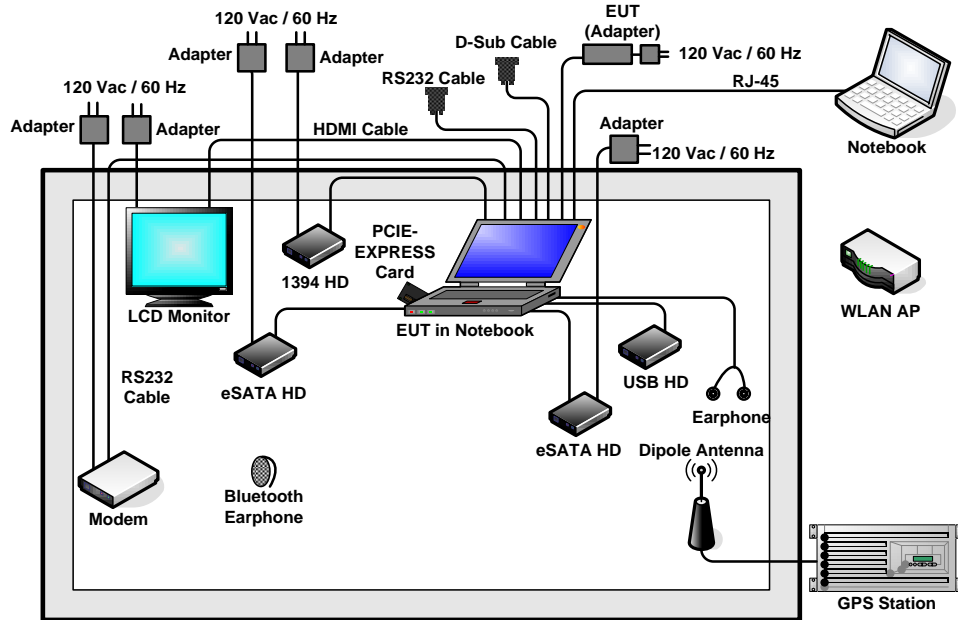
2.2 Test Mode

The following summary table is showing all test modes to demonstrate in compliance with the standard.

Summary table of Test Cases	
AC Conducted Emission	Mode 1 :WLAN Link + Bluetooth Link + H Pattern + MPEG4 + Camera + GPS Rx + TC
<p>Remark: TC stands for Test Configuration, and consists of SD Card, USB HD, Earphone, Adapter, HDMI Cable, RJ-45 Link, D-sub Cable(Load), RS232 Cable(Load), eSATA HD, 1394 HD, Modem, DVD-ROM, and PCIE-EXPRESS Card.</p>	

2.3 Connection Diagram of Test System

<AC Conducted Emission Mode>



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	GPS Station	Pendulum	GSG-54	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
4.	LCD Monitor	DELL	U2410	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
5.	Notebook	DELL	Latitude E6320	FCC DoC	Unshielded, 3.0m	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	Earphone	Ergotech	ET-E200	N/A	Unshielded, 1.8 m	N/A
7.	USB HD	WD	WDBAAR3200ABK-PESN	FCC DoC	Unshielded, 0.5 m	N/A
8.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A
9.	eSATA HD	FReeCOM	Qiattro 1TB AK	FCC DoC	Shielded, 0.8 m	Unshielded, 1.8 m
10.	eSATA HD	WD	WD6400H1Q-00	FCC DoC	Shielded, 0.8 m	Unshielded, 1.8 m
11.	PCIE-EXPRESS Card	BELKIN	FD7010	PD5LMWB800RA	N/A	N/A
12.	1394 HD	WD	WD-6400H1CS-00	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
13.	Modem	ACEEX	DM1414	IFAXDM1414	Shielded, 1.5 m	Unshielded, 1.8 m

3 Test Result

3.1 AC Conducted Emission Measurement

3.1.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

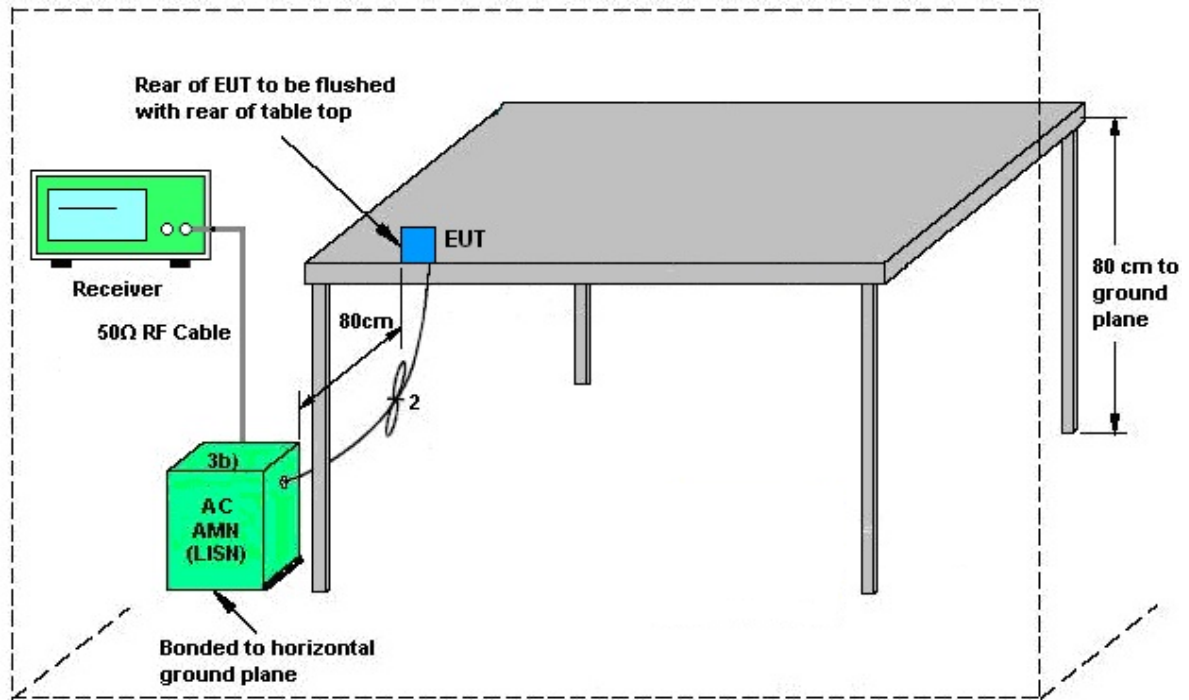
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

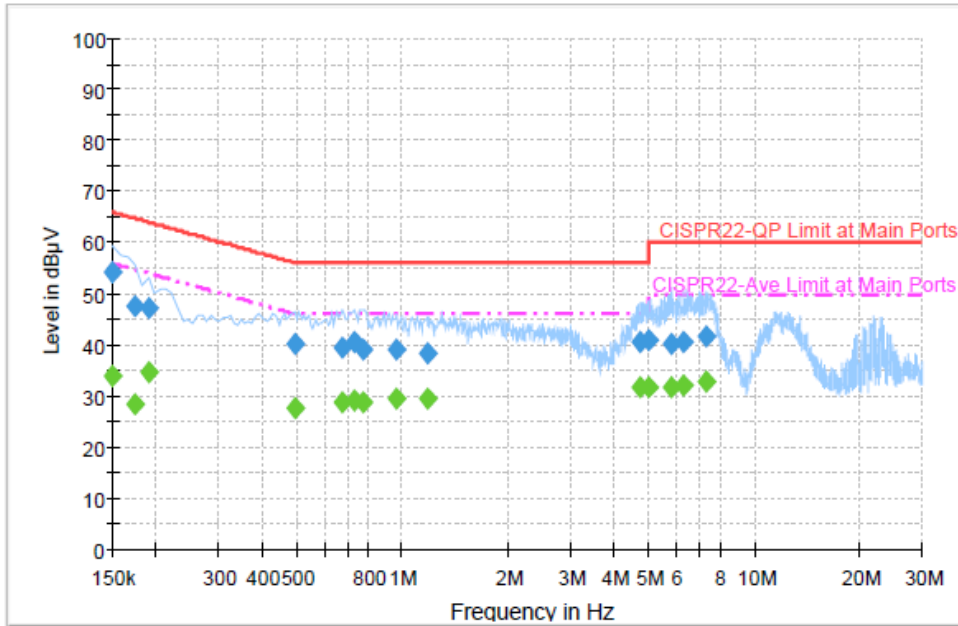
3.1.4 Test Setup



AMN = Artificial mains network (LISH)
 AE = Associated equipment
 EUT = Equipment under test
 ISN = Impedance stabilization network

3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + Bluetooth Link + H Pattern + MPEG4 + Camera + GPS Rx + TC		

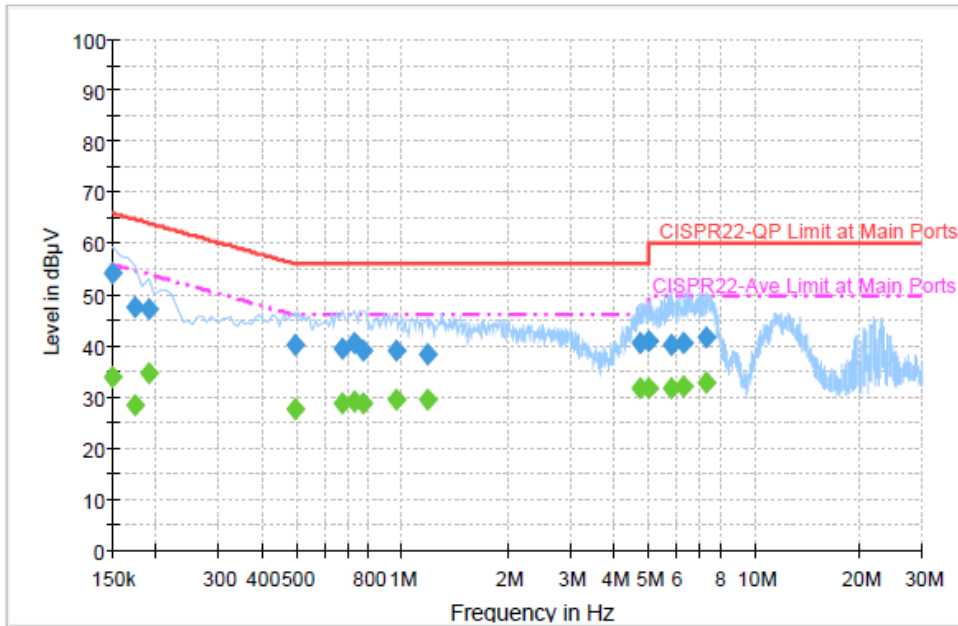


Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	54.1	Off	L1	19.4	11.9	66.0
0.174000	47.7	Off	L1	19.4	17.1	64.8
0.190000	47.2	Off	L1	19.4	16.8	64.0
0.494000	40.2	Off	L1	19.3	15.9	56.1
0.678000	39.7	Off	L1	19.5	16.3	56.0
0.734000	40.6	Off	L1	19.4	15.4	56.0
0.774000	39.1	Off	L1	19.5	16.9	56.0
0.966000	39.1	Off	L1	19.4	16.9	56.0
1.174000	38.4	Off	L1	19.5	17.6	56.0
4.726000	40.6	Off	L1	19.6	15.4	56.0
4.990000	41.0	Off	L1	19.7	15.0	56.0
5.846000	40.3	Off	L1	19.7	19.7	60.0
6.318000	40.8	Off	L1	19.6	19.2	60.0
7.278000	41.7	Off	L1	19.6	18.3	60.0



Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + Bluetooth Link + H Pattern + MPEG4 + Camera + GPS Rx + TC		

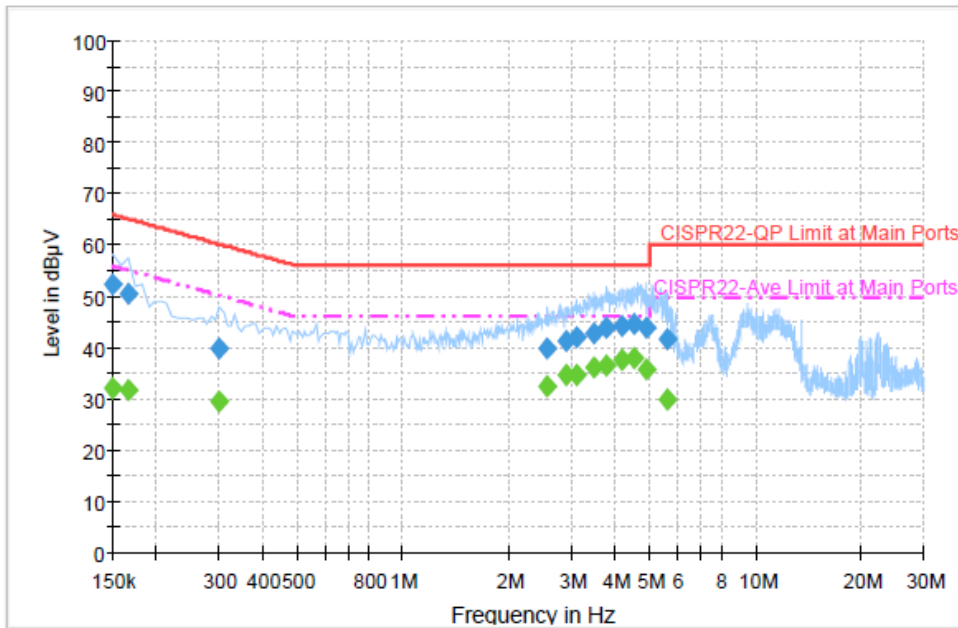


Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	34.0	Off	L1	19.4	22.0	56.0
0.174000	28.5	Off	L1	19.4	26.3	54.8
0.190000	34.6	Off	L1	19.4	19.4	54.0
0.494000	27.8	Off	L1	19.3	18.3	46.1
0.678000	28.8	Off	L1	19.5	17.2	46.0
0.734000	29.2	Off	L1	19.4	16.8	46.0
0.774000	28.9	Off	L1	19.5	17.1	46.0
0.966000	29.5	Off	L1	19.4	16.5	46.0
1.174000	29.6	Off	L1	19.5	16.4	46.0
4.726000	31.7	Off	L1	19.6	14.3	46.0
4.990000	31.6	Off	L1	19.7	14.4	46.0
5.846000	31.9	Off	L1	19.7	18.1	50.0
6.318000	32.2	Off	L1	19.6	17.8	50.0
7.278000	32.8	Off	L1	19.6	17.2	50.0



Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + Bluetooth Link + H Pattern + MPEG4 + Camera + GPS Rx + TC		

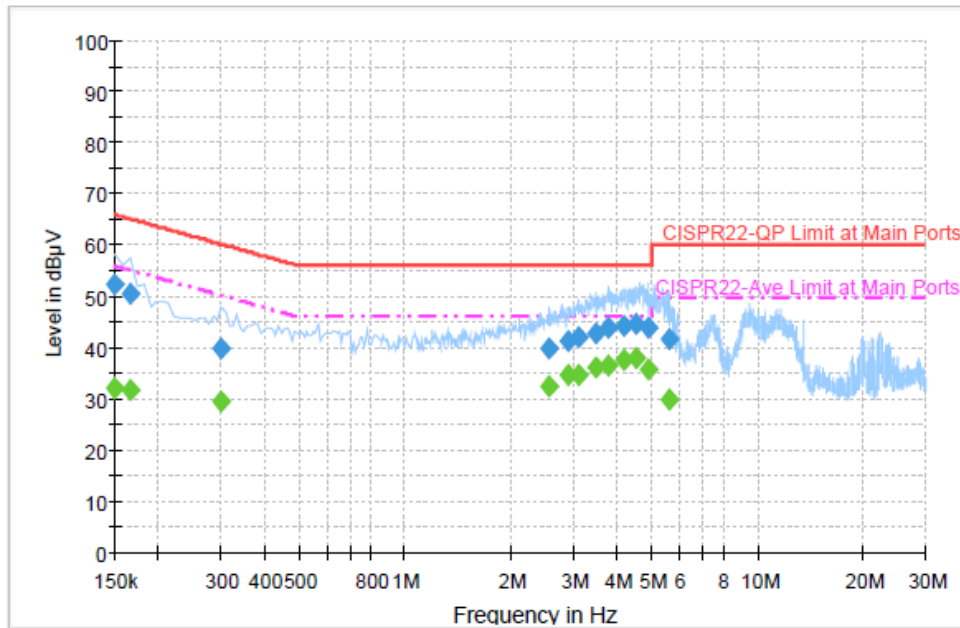


Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	52.5	Off	N	19.4	13.5	66.0
0.166000	50.4	Off	N	19.4	14.8	65.2
0.302000	39.7	Off	N	19.4	20.5	60.2
2.574000	39.8	Off	N	19.6	16.2	56.0
2.910000	41.3	Off	N	19.6	14.7	56.0
3.094000	42.0	Off	N	19.6	14.0	56.0
3.486000	42.9	Off	N	19.6	13.1	56.0
3.782000	43.8	Off	N	19.6	12.2	56.0
4.182000	44.2	Off	N	19.6	11.8	56.0
4.526000	44.6	Off	N	19.6	11.4	56.0
4.902000	43.9	Off	N	19.7	12.1	56.0
5.630000	41.7	Off	N	19.7	18.3	60.0



Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + Bluetooth Link + H Pattern + MPEG4 + Camera + GPS Rx + TC		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	31.9	Off	N	19.4	24.1	56.0
0.166000	31.7	Off	N	19.4	23.5	55.2
0.302000	29.6	Off	N	19.4	20.6	50.2
2.574000	32.5	Off	N	19.6	13.5	46.0
2.910000	34.8	Off	N	19.6	11.2	46.0
3.094000	34.8	Off	N	19.6	11.2	46.0
3.486000	36.0	Off	N	19.6	10.0	46.0
3.782000	36.6	Off	N	19.6	9.4	46.0
4.182000	37.6	Off	N	19.6	8.4	46.0
4.526000	38.0	Off	N	19.6	8.0	46.0
4.902000	35.9	Off	N	19.7	10.1	46.0
5.630000	30.0	Off	N	19.7	20.0	50.0



3.2 Antenna Requirements

3.2.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.2.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.2.3 Antenna Gain

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



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Agilent	E4416A	GB41292344	300MHz~40GHz	Feb. 05, 2013	Sep. 23, 2013	Feb. 04, 2014	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	300MHz~40GHz	Feb. 05, 2013	Sep. 23, 2013	Feb. 04, 2014	Conducted (TH02-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9kHz ~ 2.75GHz	Nov. 13, 2012	Sep. 12, 2013	Nov. 12, 2013	Conduction (CO05-HY)
Two-LISN (for auxiliary equipment)	Rohde & Schwarz	ENV216	100081	9kHz ~ 30MHz	Dec. 12, 2012	Sep. 12, 2013	Dec. 11, 2013	Conduction (CO05-HY)
Two-LISN	Rohde & Schwarz	ENV216	100080	9kHz ~ 30MHz	Dec. 06, 2012	Sep. 12, 2013	Dec. 05, 2013	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Sep. 12, 2013	N/A	Conduction (CO05-HY)



5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.26
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