Variant FCC RF Test Report

APPLICANT	:	**Honeywell International Inc.**
EQUIPMENT	:	**99EX Mobile computer**
BRAND NAME	:	**Honeywell**
MODEL NAME	:	**99GX**
FCC ID	:	**HD599EXLG**
STANDARD	:	**FCC Part 15 Subpart E**
CLASSIFICATION	:	**Unlicensed National Information Infrastructure (UNII)**

This is a variant report which is only valid together with the original test report. The product was received on Jun. 15, 2011 and completely tested on Jul. 06, 2011. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown compliance 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:

Jones Tsai

Jones Tsai / Manager

Testing Laboratory 1190

SPORTON INTERNATIONAL INC.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR0D0904-15C	Rev. 01	This is a variant report which can be referred Product Equality Declaration as Appendix C. All the test cases were performed on original report which can be referred to Sporton Report Number FR0D0904-03B as appendix D. Based on the original report, only worst cases of Radiated Emission Test were verified.	Aug. 11, 2011

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.407(b)	A9.3	Frequency Band Edges	≤ -17, -27 dBm (depend on band)&15.209(a)	Pass	-
3.2	15.407(b)	A9.3	Transmitter Radiated Emission	≤ -17, -27 dBm (depend on band)&15.209(a)	Pass	Under limit 11.11 dB at 5412 MHz
3.3	15.203 & 15.407(a)	A9.2	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Honeywell International Inc.
9680 Old Bailes Road, Fort Mill, SC 29707 USA

1.2 Manufacturer

Honeywell International Inc.
9680 Old Bailes Road, Fort Mill, SC 29707 USA

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	99EX Mobile computer
Brand Name	Honeywell
Model Name	99GX
FCC ID	HD599EXLG
Sample 1	EUT with 55 keypad options
Sample 2	EUT with 43 keypad options
Sample 3	EUT with 34 keypad options
Tx/Rx Frequency Range	5150 MHz ~ 5250 MHz 5250 MHz ~ 5350 MHz 5470 MHz ~ 5725 MHz
Maximum Output Power to Antenna	**<5150 MHz ~ 5250 MHz>** 802.11a : 15.67 dBm / 0.0369 W 802.11n (BW 20MHz) : 15.03 dBm / 0.0318 W **<5250 MHz ~ 5350 MHz>** 802.11a : 15.70 dBm / 0.0372 W 802.11n (BW 20MHz) : 14.93 dBm / 0.0311 W **<5470 MHz ~ 5725 MHz>** 802.11a : 15.22 dBm / 0.0333 W 802.11n (BW 20MHz) : 15.36 dBm / 0.0344 W
Antenna Type	PIFA Antenna with gain 3.2 dBi
HW Version	5
SW Version	26.02
Type of Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

Remark:

1. For other wireless features of this EUT, test report will be issued separately.
2. This test report recorded only product characteristics and test results of Unlicensed National Information Infrastructure (UNII).
3. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1st 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.	FCC/IC Registration No.
	03CH07-HY	722060/4086B-1

1.5 Applied Standards

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

- FCC Part 15 Subpart E
- FCC Public Notice DA 02-2138, (Measurement Guidelines of UNII)
- ANSI C63.4-2003
- IC RSS-210 Issued 8

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 (DoC), recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
2.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
3.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
4.	Cradle	Honeywell	99EX-HB	N/A	N/A	N/A
5.	Adapter	ENG	3A-902DB12	N/A	N/A	N/A
6.	USB Cable	N/A	N/A	N/A	N/A	N/A

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

802.11a Carrier Frequency Channel							
Channel	**Freq. (MHz)**	**Channel**	**Freq. (MHz)**	**Channel**	**Freq. (MHz)**	**Channel**	**Freq. (MHz)**
36	5180	**40**	5200	**44**	5220	**48**	5240
52	5260	**56**	5280	**60**	5300	**64**	5320
100	5500	**104**	5520	**108**	5540	**112**	5560
116	5580	**132**	5660	**136**	5680	**140**	5700

802.11n (BW 20MHz) Carrier Frequency Channel							
Channel	**Freq. (MHz)**	**Channel**	**Freq. (MHz)**	**Channel**	**Freq. (MHz)**	**Channel**	**Freq. (MHz)**
36	5180	**40**	5200	**44**	5220	**48**	5240
52	5260	**56**	5280	**60**	5300	**64**	5320
100	5500	**104**	5520	**108**	5540	**112**	5560
116	5580	**132**	5660	**136**	5680	**140**	5700

802.11n (BW 40MHz) Carrier Frequency Channel							
Channel	**Freq. (MHz)**	**Channel**	**Freq. (MHz)**	**Channel**	**Freq. (MHz)**	**Channel**	**Freq. (MHz)**
38	5190	**46**	5230	**54**	5270	**62**	5310
102	5510	**110**	5550	**118**	5590	**134**	5670

2.2 RF Power

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

Channel	Frequency	5GHz 802.11a RF Power (dBm)
		Data Rate
		6 Mbps
CH 36	5180 MHz	15.67
CH 44	5220 MHz	15.64
CH 48	5240 MHz	15.52
CH 52	5260 MHz	15.68
CH 60	5300 MHz	**15.70**
CH 64	5320 MHz	15.50
CH 100	5500 MHz	15.02
CH 116	5580 MHz	15.22
CH 140	5700 MHz	15.05

Channel	Frequency	5GHz 802.11n (BW 20MHz) RF Power (dBm)
		Data Rate
		6.5 Mbps
CH 36	5180 MHz	15.03
CH 44	5220 MHz	14.89
CH 48	5240 MHz	14.83
CH 52	5260 MHz	14.93
CH 60	5300 MHz	14.89
CH 64	5320 MHz	14.83
CH 100	5500 MHz	15.33
CH 116	5580 MHz	15.03
CH 140	5700 MHz	**15.36**

Remark:

1. The data rates of WLAN 802.11a/n were set in 6Mbps for 802.11a and 6.5Mbps for 802.11n (BW 20MHz) for all the test cases due to the highest RF output power.
2. The EUT is programmed to transmit signal continuously for all testing.
3. Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports.
4. For C2PC, the worst data rates were set in 6Mbps for 802.11a and 6.5Mbps for 802.11n (BW 20MHz) from the original report.

2.3 Test Mode

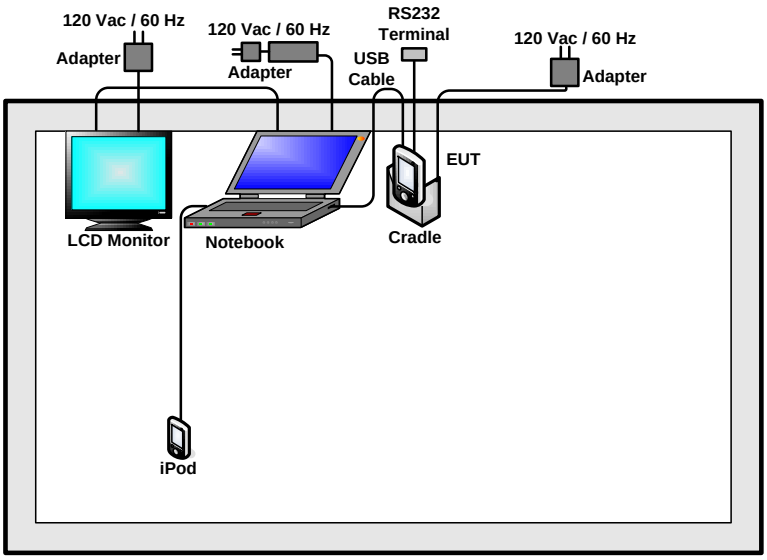
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

The following tables are showing the test modes as the worst cases and recorded in this report.

	Test Cases
Test Item	**802.11a/n (Modulation : OFDM)**
Radiated TCs	■ Mode 1: 802.11a_CH52_5260 MHz + TC for Sample 1 ■ Mode 2: 802.11a_CH100_5500 MHz + TC for Sample 1
Remark: TC stands for Test Configuration, and consists of USB cable, RS232 terminal, cradle, and adapter.	

2.4 Connection Diagram of Test System



2.5 RF Utility

The programmed RF Utility “TI1273 WLAN FCC”, is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

3 Test Result

3.1 Band Edges Measurement

3.1.1 Limit of Band Edges

(1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz. For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz. Devices operating in the 5.25–5.35 GHz band that generate emissions in the 5.15–5.25 GHz band must meet all applicable technical requirements for operation in the 5.15–5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of –27 dBm/MHz in the 5.15–5.25 GHz band. For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.

(2) The provisions of Section 15.205 Restricted bands of operation of this part apply to intentional radiators operating under this section.

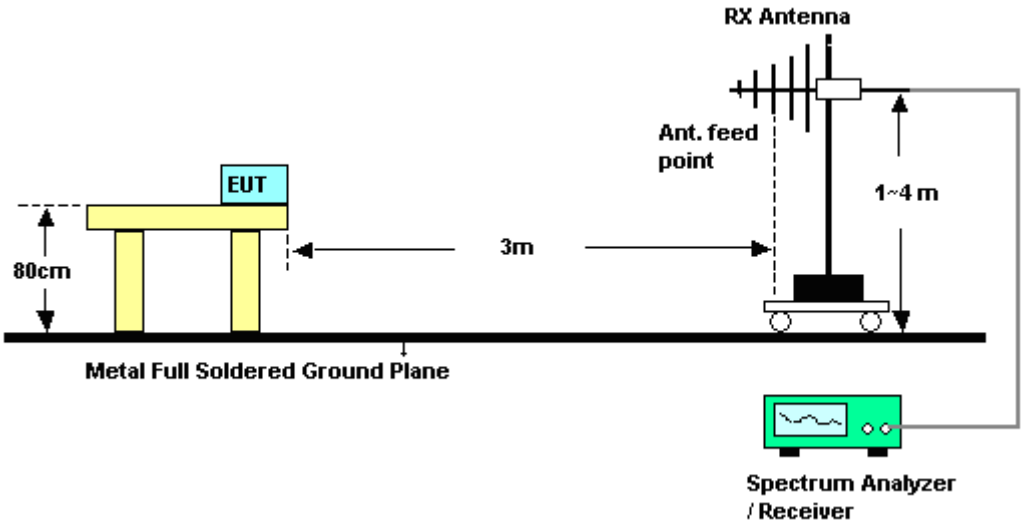
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. Set both RBW / VBW of spectrum analyzer to 1MHz / 3MHz with convenient frequency span including 1MHz bandwidth from band edge.
2. The band edges was measured and recorded.

3.1.4 Test Setup



3.1.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	23~24°C
Test Band :	802.11a	Relative Humidity :	49~50%
Test Channel :	52	Test Engineer :	David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5092	56.39	-17.61	74	46.7	34.2	9.29	33.8	170	272	Peak
5092	41.04	-12.96	54	31.35	34.2	9.29	33.8	170	272	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5036	52.45	-21.55	74	43.01	34.13	9.21	33.9	123	35	Peak
5036	39.52	-14.48	54	30.08	34.13	9.21	33.9	123	35	Average

Test Mode :	Mode 2	Temperature :	23~24°C
Test Band :	802.11a	Relative Humidity :	49~50%
Test Channel :	100	Test Engineer :	David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	65.72	-22.58	88.3	54.22	34.57	9.94	33.01	104	282	Peak
5470	47.97	-20.33	68.3	36.47	34.57	9.94	33.01	104	282	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	63.31	-24.99	88.3	51.81	34.57	9.94	33.01	100	55	Peak
5470	45.84	-22.46	68.3	34.34	34.57	9.94	33.01	100	55	Average

3.2 Radiated Emission Measurement

3.2.1 Limit of Radiated Emission

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

(1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz.

(2) For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz. Devices operating in the 5.25–5.35 GHz band that generate emissions in the 5.15–5.25 GHz band must meet all applicable technical requirements for operation in the 5.15–5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of –27 dBm/MHz in the 5.15–5.25 GHz band.

(3) For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.

(4) The provisions of Section 15.205 Restricted bands of operation of this part apply to intentional radiators operating under this section.

Note: The following formula is used to convert the EIRP to field strength.

$$E=\frac{1000000\sqrt{30P}}{3}$$ μV/m, where P is the eirp (Watts)

EIRP (dBm)	Field Strength at 3m (dBuV/m)
- 27	68.3

3.2.2 Measuring Instruments

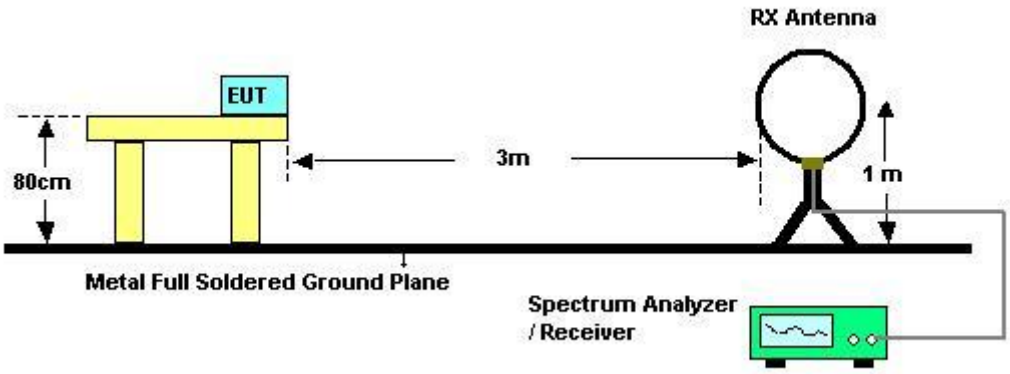
See list of measuring instruments of this test report.

3.2.3 Test Procedures

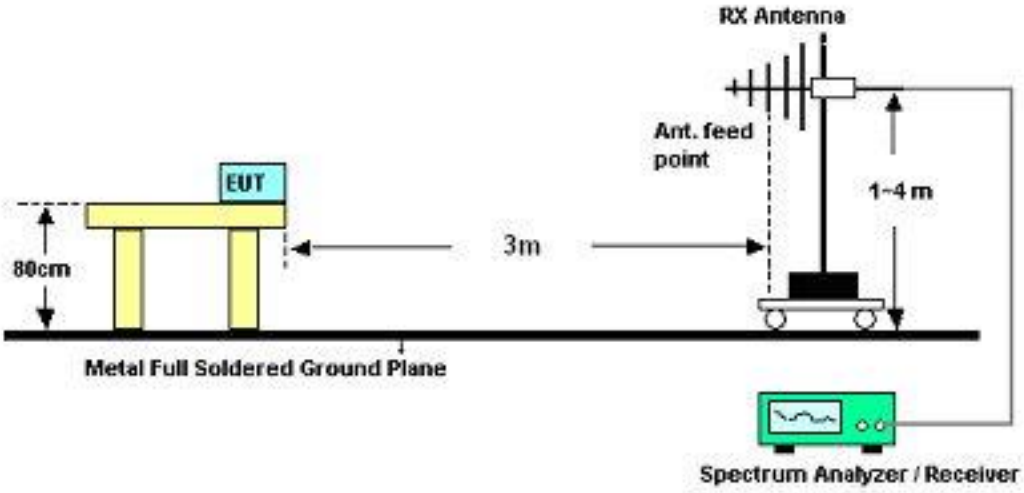
1. The testing follows the guidelines in FCC Public Notice DA 02-2138, (Measurement Guidelines of UNII)
2. The EUT was placed on a rotatable table top 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest radiation.
5. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
6. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
7. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
8. For testing below 1GHz, If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the quasi-peak method and reported.
9. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.2.4 Test Setup

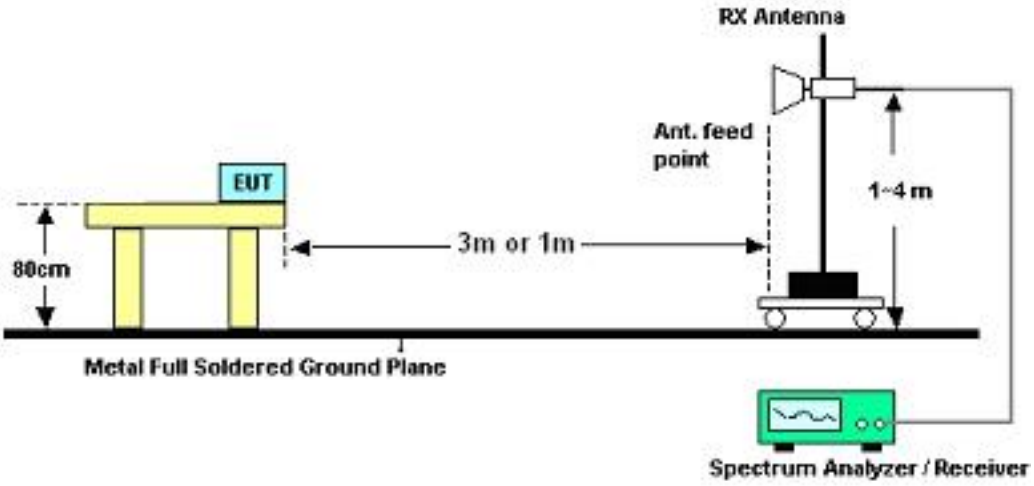
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.2.5 Test Results of Radiated Emissions (9kHz ~ 30MHz)

Temperature	23~24°C	Humidity	49~50%
Test Engineer	David Yang		

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

3.2.6 Test Result of Radiated Emission (30MHz ~ 10th Harmonic)

Test Mode :	Mode 1	**Temperature :**	23~24°C
Test Channel :	52	**Relative Humidity :**	49~50%
Test Engineer :	David Yang	**Polarization :**	Horizontal
Remark :	1. 5260 MHz is Fundamental Signals which can be ignored. 2. 6926 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.62	19.22	-20.78	40	34.09	16.04	0.55	31.46	136	201	Peak
190.38	21.17	-22.33	43.5	42.33	9.07	1.28	31.51	-	-	Peak
281.37	22.87	-23.13	46	39.41	13.17	1.64	31.35	-	-	Peak
304.9	23.63	-22.37	46	39.57	13.61	1.78	31.33	-	-	Peak
542.9	20.16	-25.84	46	29.72	18.89	2.54	30.99	-	-	Peak
786.5	23.49	-22.51	46	28.8	22.26	3.12	30.69	-	-	Peak
5092	56.39	-17.61	74	46.7	34.2	9.29	33.8	170	272	Peak
5092	41.04	-12.96	54	31.35	34.2	9.29	33.8	170	272	Average
5260	110.55	-	-	100.08	34.35	9.57	33.45	170	272	Peak
5260	100.23	-	-	89.65	34.37	9.62	33.41	170	272	Average
5412	54.22	-19.78	74	42.95	34.52	9.86	33.11	170	272	Peak
5412	42.89	-11.11	54	31.62	34.52	9.86	33.11	170	272	Average
6926	59.45	-28.85	88.3	48.14	35.67	9.9	34.26	170	272	Peak
6926	40.32	-27.98	68.3	29.01	35.67	9.9	34.26	170	272	Average

Test Mode :	Mode 1	Temperature :	23~24°C
Test Channel :	52	Relative Humidity :	49~50%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	1. 5260 MHz is Fundamental Signals which can be ignored. 2. 6924 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.4	-17.6	40	36.82	16.51	0.53	31.46	-	-	Peak
76.98	24.44	-15.56	40	48.24	6.88	0.86	31.54	113	245	Peak
182.01	25.35	-18.15	43.5	46.57	9.05	1.26	31.53	-	-	Peak
312.6	21.32	-24.68	46	37	13.85	1.79	31.32	-	-	Peak
500.2	20.6	-25.4	46	30.99	18.23	2.45	31.07	-	-	Peak
757.8	25.62	-20.38	46	31.45	21.8	3.07	30.7	-	-	Peak
5036	52.45	-21.55	74	43.01	34.13	9.21	33.9	123	35	Peak
5036	39.52	-14.48	54	30.08	34.13	9.21	33.9	123	35	Average
5260	108.24	-	-	97.66	34.37	9.62	33.41	123	35	Peak
5260	97.94	-	-	87.36	34.37	9.62	33.41	123	35	Average
5414	54.26	-19.74	74	42.99	34.52	9.86	33.11	123	35	Peak
5414	41.37	-12.63	54	30.1	34.52	9.86	33.11	123	35	Average
6924	63.98	-24.32	88.3	52.67	35.67	9.9	34.26	123	35	Peak
6924	40.38	-27.92	68.3	29.07	35.67	9.9	34.26	123	35	Average

Test Mode :	Mode 2	**Temperature :**	23~24°C
Test Channel :	100	**Relative Humidity :**	49~50%
Test Engineer :	David Yang	**Polarization :**	Horizontal
Remark :	1. 5500 MHz is Fundamental Signals which can be ignored. 2. 5470 MHz, 5725 MHz and 6924 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
34.05	18.75	-21.25	40	34.08	15.57	0.57	31.47	144	127	Peak
188.49	21.75	-21.75	43.5	42.93	9.06	1.27	31.51	-	-	Peak
280.29	23.68	-22.32	46	40.24	13.15	1.64	31.35	-	-	Peak
307.7	21.3	-24.7	46	37.14	13.7	1.79	31.33	-	-	Peak
477.8	20.31	-25.69	46	31.14	17.86	2.37	31.06	-	-	Peak
750.1	23.26	-22.74	46	29.23	21.67	3.06	30.7	-	-	Peak
5470	65.72	-22.58	88.3	54.22	34.57	9.94	33.01	104	282	Peak
5470	47.97	-20.33	68.3	36.47	34.57	9.94	33.01	104	282	Average
5500	109.7	-	-	98.1	34.58	9.98	32.96	104	282	Peak
5500	99	-	-	87.29	34.6	10.02	32.91	104	282	Average
5725	52.02	-36.28	88.3	40.46	34.82	9.92	33.18	104	282	Peak
5725	41.06	-27.24	68.3	29.5	34.82	9.92	33.18	104	282	Average
6924	64.4	-23.9	88.3	53.09	35.67	9.9	34.26	104	282	Peak
6924	40.63	-27.67	68.3	29.32	35.67	9.9	34.26	104	282	Average

Test Mode :	Mode 2	Temperature :	23~24°C
Test Channel :	100	Relative Humidity :	49~50%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	1. 5500 MHz is Fundamental Signals which can be ignored. 2. 5470 MHz, 5725 MHz and 6916 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	22.1	-17.9	40	36.75	16.27	0.54	31.46	-	-	Peak
78.06	24.1	-15.9	40	47.71	7.05	0.87	31.53	112	91	Peak
183.09	26.24	-17.26	43.5	47.45	9.05	1.26	31.52	-	-	Peak
302.1	23.89	-22.11	46	39.89	13.55	1.78	31.33	-	-	Peak
480.6	21.43	-24.57	46	32.2	17.91	2.38	31.06	-	-	Peak
666.1	23.76	-22.24	46	31.23	20.51	2.87	30.85	-	-	Peak
5470	63.31	-24.99	88.3	51.81	34.57	9.94	33.01	100	55	Peak
5470	45.84	-22.46	68.3	34.34	34.57	9.94	33.01	100	55	Average
5500	107.02	-	-	95.31	34.6	10.02	32.91	100	55	Peak
5500	96.33	-	-	84.62	34.6	10.02	32.91	100	55	Average
5725	53.38	-34.92	88.3	41.82	34.82	9.92	33.18	100	55	Peak
5725	40.9	-27.4	68.3	29.34	34.82	9.92	33.18	100	55	Average
6916	62.47	-25.83	88.3	51.16	35.67	9.89	34.25	100	55	Peak
6916	40.39	-27.91	68.3	29.08	35.67	9.89	34.25	100	55	Average

3.3 Antenna Requirements

3.3.1 Standard Applicable

According to FCC 47 CFR Section 15.407(a)(1)(2) ,if transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.2 Antenna Connected Construction

The antennas type used in this product is PIFA Antenna without connector and it is considered to meet antenna requirement of FCC.

3.3.3 Antenna Gain

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

4 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 13, 2011	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 13, 2010	Sep. 12, 2011	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 14, 2010	Sep. 13, 2011	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2010	Oct. 30, 2011	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 03, 2010	Dec. 02, 2011	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 19, 2010	Aug. 18, 2011	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 06, 2010	Dec. 05, 2011	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 29, 2011	Mar. 28, 2012	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty Uc(y)	**1.13**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.26**		

Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty Uc(y)	**1.27**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**		

Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR Γ1 = 0.197 Antenna VSWR Γ2 = 0.194 Uncertainty = 20Log(1-Γ1*Γ2)	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty Uc(y)	**2.36**				
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.72**				

Appendix A. Photographs of EUT

Please refer to Sporton report number EP0D0904-15 as below.

Appendix C. Product Equality Declaration

Honeywell

Honeywell Scanning and Mobility
9680 Old Bailes Road
Fort Mill, SC 29707 USA

Date: August 8, 2011

Product Equality Declaration

We, Honeywell International Inc., declare on our sole responsibility for the product of 99GX (model name) as below:

The difference between 99GX and 99EX is:

1. Remove Camera
2. Remove GPS
3. Add handle and trigger

Except Listings above, the others are the same as previous version.

Should you have any questions or comments regarding this matter, please have my best attention.

Sincerely yours,

Contact Person: Michael Robinson
Applicant: Honeywell International Inc.
Tel: 315.554.6387
Fax: 315.554.6393
E-Mail: michael.robinson3@honeywell.com

Appendix D. Original Report

Please refer to Sporton report number FR0D0904-03B as below.