

FCC Test Report

APPLICANT : Hewlett-Packard Company, Palm GBU
EQUIPMENT : Phone
BRAND NAME : HP
MODEL NUMBER : HSTNH-F30CN
FCC ID : B94HHF30CN
STANDARD : FCC Part 15 Subpart C §15.209
CLASSIFICATION : Certification

The product was received on Feb. 14, 2011 and completely tested on Feb. 27, 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 the 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:



Anderson Chiu / Deputy Manager



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
FR121417C	Rev. 01	Initial issue of report	Apr. 01, 2011



SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.209	RSS-210 Section 2.6	Radiated Emission	FCC Part 15.209 IC RSS-Gen, Section 6 IC RSS-210, Section 2.6	PASS	Under limit 6.05 dB at 32.43 MHz



1. General Description

1.1. Applicant

Hewlett-Packard Company, Palm GBU
950 W Maude Avenue, Sunnyvale, CA 94085

1.2. Manufacturer

Hewlett-Packard Company, Palm GBU
950 W Maude Avenue, Sunnyvale, CA 94085

1.3. Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Phone
Brand Name	HP
Model Number	HSTNH-F30CN
FCC ID	B94HHF30CN
Tx Frequency Range	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz WCDMA Band II : 1850 MHz ~ 1910 MHz WCDMA Band V : 824 MHz ~ 849 MHz Bluetooth : 2400 MHz ~ 2483.5 MHz WLAN : 2400 MHz ~ 2483.5 MHz 5150 MHz ~ 5350 MHz 5470 MHz ~ 5725 MHz 5725 MHz ~ 5850 MHz
Rx Frequency Range	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz WCDMA Band II : 1930 MHz ~ 1990 MHz WCDMA Band V : 869 MHz ~ 894 MHz Bluetooth : 2400 MHz ~ 2483.5 MHz WLAN : 2400 MHz ~ 2483.5 MHz 5150 MHz ~ 5350 MHz 5470 MHz ~ 5725 MHz 5725 MHz ~ 5850 MHz
Antenna Type	PIFA Antenna
HW Version	D1
SW Version	WebOS 2.3
Type of Modulation	GSM / GPRS : GMSK WCDMA : QPSK HSDPA : QPSK / 16QAM HSUPA : QPSK Bluetooth (1Mbps) : GFSK Bluetooth EDR (2Mbps) : $\pi/4$ -DQPSK Bluetooth EDR (3Mbps) : 8-DPSK 802.11b : DSSS (BPSK / QPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

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. Test 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: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	Sporton Site No.	
	03CH06-HY	10CH02-HY

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 C §15.209
- ANSI C63.4-2003
- IC RSS-Gen Issue 2
- IC RSS-210 Issue 8

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

2. Test Configuration of Equipment Under Test

2.1. Test Mode

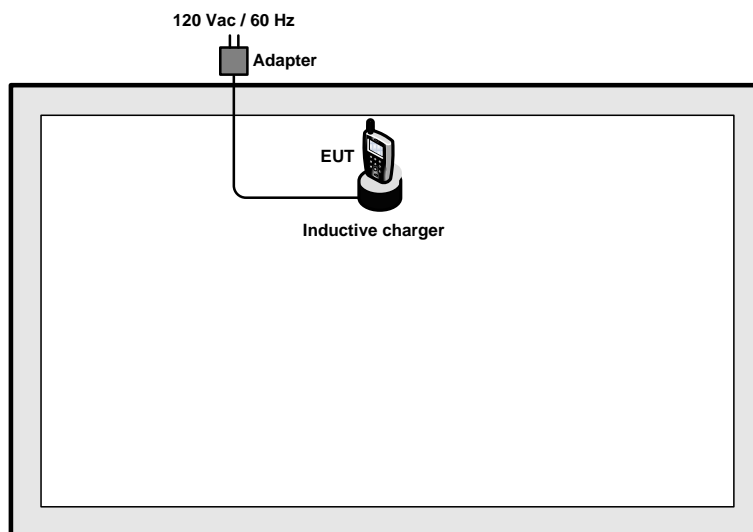
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: radiation (9 kHz to 1000 MHz)

Test Items	Function Type
Radiated Emissions	Mode 1: EUT + Inductive Charger + USB Cable 1 (Charging from Adapter 1)

Note: KDB 680106 "Client Device Considerations" was considered and evaluation performed as applicable to this device. The inductive charger has been certified under FCC ID: O8F-TST1. For more information, please refer to this inductive charger FCC ID. EUT is working in charging mode with the inductive charger. The inductive back cover (receiving hardware) is non-removable, is part of the phone.

2.2. Connection Diagram of Test System



3. Test Result

3.1. Test of Radiated Emission Measurement

3.1.1. Limit of Radiated Emission

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

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

3.1.2. Measuring Instruments

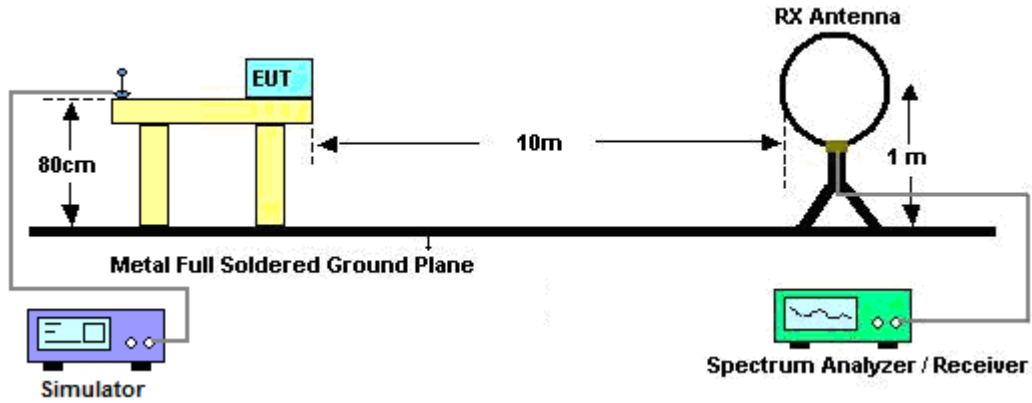
See list of measuring instruments of this test report.

3.1.3. Test Procedures

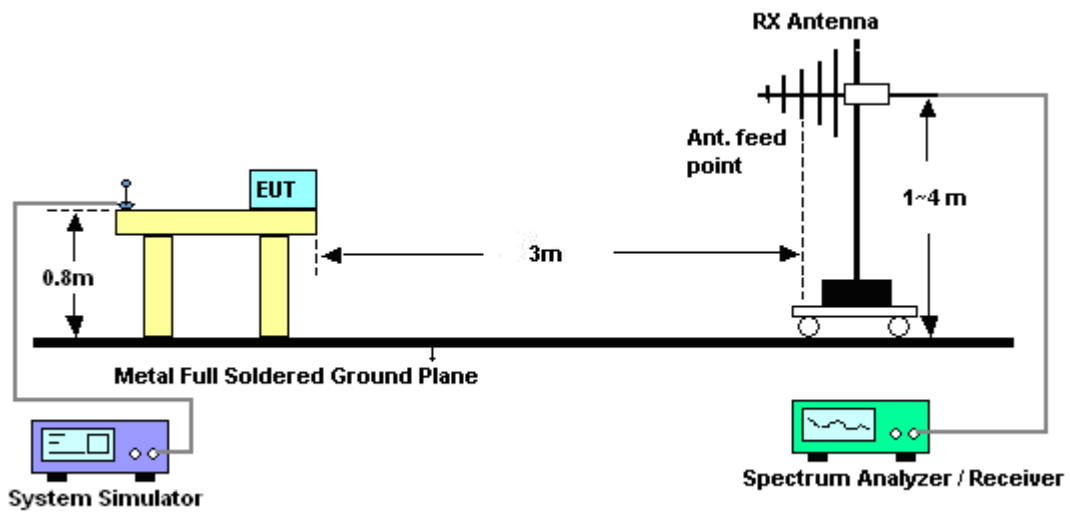
Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

3.1.4. Test Setup of Radiated Emission

For radiated emissions below 30MHz



For radiated emissions above 30MHz





3.1.5. Test Result of Radiated Emission (9k Hz ~ 30M Hz)

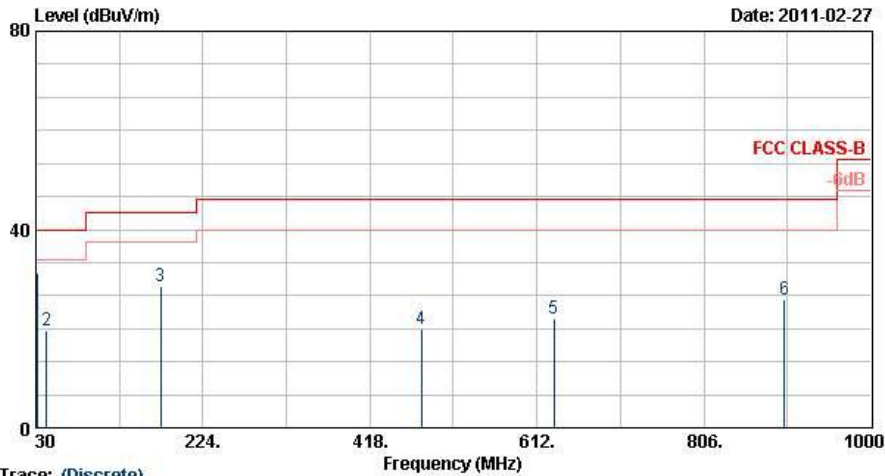
Frequency	Measurement Distance	Field Strength	Antenna Factor	Distance Factor	Limit Distance	Field Strength at Limit Distance	Limit
(MHz)	(m)	(dBuV/m)	(dB/m)	(dB/decade)	(m)	(dBuV/m)	(dBuV/m)
3.1	10	33.13	19.7	40	30	14.05	29.54

- Note:**
- 3.1 MHz is the fundamental frequency, and no other emissions observed up to 30MHz.
 - In accordance with 15.31 (f)(2): For each frequency at which a measurement is made at only one distance, the square of an inverse linear distance extrapolation factor (40 dB/decade) is applied.
Distance extrapolation factor = $40 \log(\text{specific distance} / \text{test distance})$ (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor.
 - The field strength measured is direct conversion of all parameters (antenna factor and distance extrapolation factor) and loaded into the spectrum.



3.1.6. Test Result of Radiated Emission (30M Hz ~ 1000M Hz)

Test Mode :	Mode 1	Temperature :	23~24°C
Test Engineer :	Kai Wang	Relative Humidity :	46~47%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	EUT + Inductive Charger + USB Cable 1 (Charging from Adapter 1)		



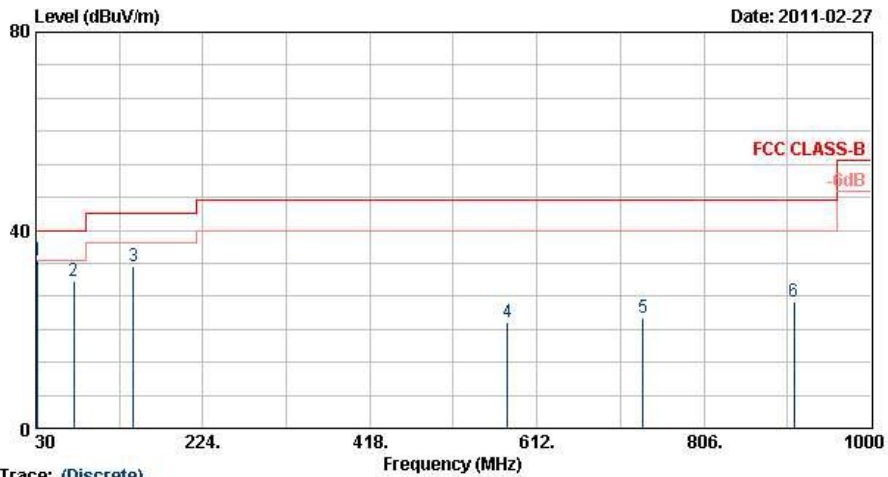
Trace: (Discrete)
 Site : D3CH06-HY
 Condition : FCC CLASS-B 3m BTLOC_101103 HORIZONTAL
 Power : 120Vac/60Hz

Sample : MDICN-2027
 TWT : 004401451518639
 S/N : MDICN1TB2027

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	31.62	31.32	-8.68	40.00	45.59	16.72	0.73	31.71	100	281	Peak
2	42.15	19.76	-20.24	40.00	39.40	11.25	0.81	31.70	---	---	Peak
3	174.99	28.42	-15.08	43.50	48.96	9.57	1.57	31.68	---	---	Peak
4	477.80	20.05	-25.95	46.00	31.87	17.37	2.59	31.78	---	---	Peak
5	631.80	22.00	-24.00	46.00	31.79	19.24	3.00	32.03	---	---	Peak
6	899.90	25.84	-20.16	46.00	32.05	21.63	3.76	31.60	---	---	Peak



Test Mode :	Mode 1	Temperature :	25~27°C
Test Engineer :	Kai Wang	Relative Humidity :	48~50%
Test Distance :	3m	Polarization :	Vertical
Function Type :	EUT + Inductive Charger + USB Cable 1 (Charging from Adapter 1)		



Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m BILOG_101103 VERTICAL

Sample : MDICN-2027
 TIME : 004401451518639
 S/N : MDICNITB2027

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBUV/m	dB	dBUV/m	dBUV	dB/m	dB	dB	cm	deg	
1	32.43	33.95	-6.05	40.00	48.80	16.12	0.73	31.71	400	357	QP
2	73.74	29.73	-10.27	40.00	53.80	6.56	1.07	31.69	---	---	Peak
3	143.13	32.61	-10.89	43.50	51.72	11.15	1.45	31.70	---	---	Peak
4	577.90	21.31	-24.69	46.00	31.57	18.87	2.89	32.02	---	---	Peak
5	735.40	22.28	-23.72	46.00	31.17	19.87	3.33	32.08	---	---	Peak
6	910.40	25.46	-20.54	46.00	31.51	21.68	3.77	31.50	---	---	Peak

4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Amplifier	Agilent	8447D	2944A10827	100kHz~1.3GHz z	May 14, 2010	May 13, 2011	Radiation (10CH02-HY)
Amplifier	Agilent	8447D	2944A10828	100kHz~1.3GHz z	May 14, 2010	May 13, 2011	Radiation (10CH02-HY)
Receiver	R&S	ESI	838496/008	20Hz~7GHz	Apr. 26, 2010	Apr. 25, 2011	Radiation (10CH02-HY)
Spectrum Analyzer	R&S	FSP7	100645	9KHz – 7GHz	Aug. 10, 2010	Aug. 09, 2011	Radiation (10CH02-HY)
Biconical Antenna	Schwarzbeck	VHBB 9124	287	30MHz~200MHz z	Dec. 20, 2010	Dec. 19, 2011	Radiation (10CH02-HY)
Log Antenna	Schwarzbeck	VUSLP 9111	207	200MHz~1GHz	Dec. 20, 2010	Dec. 19, 2011	Radiation (10CH02-HY)
Amplifier	EMCI	EMC330	980007	1 -8GHz	May 13, 2010	May 12, 2011	Radiation (10CH02-HY)
Horn antenna	EMCO	3115	6903	1~18GHz	May 03, 2010	May 02, 2011	Radiation (10CH02-HY)
Receiver	R&S	ESI	838496/008	20Hz~7GHz	Apr. 26, 2010	Apr. 25, 2011	Radiation (10CH02-HY)
Spectrum Analyzer	R&S	FSP40	100057	9KHz-40GHz	Oct. 25, 2010	Oct. 24, 2011	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/003	20MHz-1000MHz	Apr. 28, 2010	Apr. 27, 2011	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Oct. 31, 2010	Oct. 31, 2011	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz~18GHz	Aug. 02, 2010	Aug. 01, 2011	Radiation (03CH06-HY)
Double Ridge Horn Antenna	Training Research	AH-0801	95119	8GHz~18GHz	Oct. 20, 2010	Oct. 19, 2011	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA917025 1	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz- 26.5GHz	Apr. 15, 2010	Apr. 14, 2011	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9KHz~1GHz	Apr. 15, 2010	Apr. 14, 2011	Radiation (03CH06-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	-

5. Uncertainty of Evaluation

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

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 $U_c(y)$	1.27		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.54		