Variant FCC RF Test Report

APPLICANT	:	HTC Corporation
EQUIPMENT	:	Smartphone
MODEL NAME	:	PG58100
FCC ID	:	NM8PG58100
STANDARD	:	FCC 47 CFR Part 2, 22(H), 24(E), 27(L)
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)
Tx/Rx FREQUENCY RANGE	:	GSM850 : 824.2 ~ 848.8 MHz / 869.2 ~ 893.8 MHz GSM1900 : 1850.2 ~ 1909.8 MHz / 1930.2 ~ 1989.8 MHz WCDMA Band IV : 1712.4 MHz ~ 1752.6 MHz 2112.4 MHz ~ 2152.6 MHz

This is a variant report which is only valid together with the original test report. The product was received on Sep. 07, 2011 and completely tested on Sep. 10, 2011. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA / EIA-603-C-2004 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
FG190794	Rev. 01	This is a variant report. The original report which can be referred to Sporton Report No. FG190794 as appendix B. Detail changes list as below : 1. Add one 1.5 GHz CPU (The CPU is as same as No. FD121019, use overclock upgraded) 2. Add one 1730 mAh battery 3. The new battery is w/o T-coil solution, so the variant PG58100 is only with M3 only, not with T3 only. For the changes, the test case of Radiation was verified.	Sep. 21, 2011

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
2.3	§2.1053 §22.917(a) §24.238(a) §27.53(g)	RSS-132 (4.5.1) RSS-133 (6.5.1) RSS-139 (6.5)	Field Strength of Spurious Radiation	< $43+10\log_{10}$(P[Watts])	PASS	Under limit 29.44 dB at 2509 MHz

1 General Description

1.1 Applicant

HTC Corporation
No. 23, Xinghua Rd., Taoyuan 330, Taiwan

1.2 Manufacturer

HTC Corporation
No. 23, Xinghua Rd., Taoyuan 330, Taiwan

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Smartphone
Model Name	PG58100
FCC ID	NM8PG58100
Tx Frequency	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz WCDMA Band IV : 1710 MHz ~ 1755 MHz
Rx Frequency	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz WCDMA Band IV : 2110 MHz ~ 2155 MHz
Maximum Output Power to Antenna	GSM850 : 33.22 dBm GSM1900 : 29.67 dBm WCDMA Band IV : 23.53 dBm
Antenna Type	Fixed Internal Antenna
Type of Modulation	GSM / GPRS : GMSK EDGE : 8PSK WCDMA : QPSK HSDPA : QPSK / 16QAM HSUPA : QPSK
EUT Stage	Identical Prototype

Remark:

1. For other wireless features of this EUT, the test report will be issued separately.

2. This test report recorded only product characteristics and test results of PCS Licensed Transmitter Held to Ear (PCE).

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: +886-3-327-3456 FAX: +886-3-328-4978		
Test Site No.	**Sporton Site No.**		**FCC/IC Registration No.**
	TH02-HY	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:

- Preliminary Guidance for Receiving Applications for Certification of 3G Device. May 9, 2006.
- 47 CFR Part 2, 22(H), 24(E), 27(L)
- ANSI / TIA / EIA-603-C-2004
- IC RSS-132 Issue 2
- IC RSS-133 Issue 5
- IC RSS-139 Issue 2

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 No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU200	N/A	N/A	Unshielded, 1.8 m

2 Test Configuration of Equipment Under Test

2.1 Test Mode

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

Frequency range investigated for radiated emission is as follows:

1. 30 MHz to 9000 MHz for GSM850.
2. 30 MHz to 18000 MHz for WCDMA Band IV.
3. 30 MHz to 19000 MHz for GSM1900.

Test Modes	
Band	**Radiated TCs**
GSM 850	■ GSM Link
GSM 1900	■ GSM Link
WCDMA Band IV	■ RMC 12.2Kbps Link

Note:

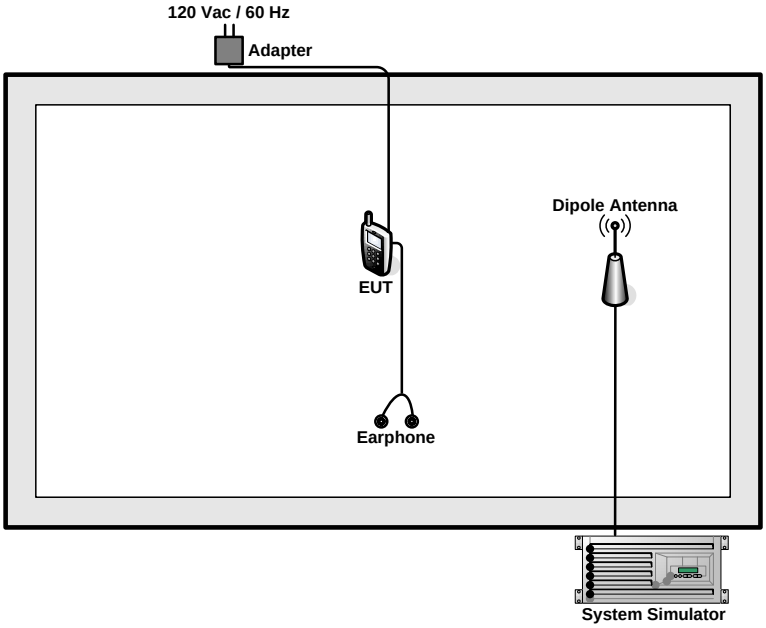
1. The Radiated TCs test was performed together with USB Cable 2 (Charging from Adapter 2), Battery 2 and Earphone 2 for Sample 2.
2. The maximum power levels are GSM mode for GMSK link and RMC 12.2Kbps mode for WCDMA band IV, only these modes were used for all tests.
3. Because there are individual antennas for each WWAN, WLAN, and Bluetooth, the co-location test modes are not required.

The conducted power tables are as follows:

Conducted Power (*Unit: dBm)						
Band	**GSM850**			**GSM1900**		
Channel	**128**	**189**	**251**	**512**	**661**	**810**
Frequency	**824.2**	**836.4**	**848.8**	**1850.2**	**1880**	**1909.8**
GSM	32.93	**33.22**	33.00	**29.67**	29.57	29.58
GPRS 8	32.94	33.19	33.03	29.59	29.47	29.49
GPRS 10	32.02	32.24	32.08	29.08	28.86	28.91
EGPRS 8	26.47	26.46	26.47	25.69	25.44	25.46
EGPRS 10	25.39	25.40	25.39	24.57	24.40	24.35

Conducted Power (*Unit: dBm)			
Band	**WCDMA Band IV**		
Tx Channel	**1312**	**1413**	**1513**
Rx Channel	**1537**	**1638**	**1738**
Frequency	**1712.4**	**1732.6**	**1752.6**
RMC 12.2K	23.46	23.49	**23.53**
HSDPA Subtest-1	22.85	22.99	22.92
HSDPA Subtest-2	22.86	22.98	22.96
HSDPA Subtest-3	22.60	22.68	22.64
HSDPA Subtest-4	22.63	22.67	22.62
HSUPA Subtest-1	21.88	21.93	22.20
HSUPA Subtest-2	21.37	21.39	21.38
HSUPA Subtest-3	21.67	21.69	21.63
HSUPA Subtest-4	21.78	21.80	21.67
HSUPA Subtest-5	21.81	21.92	22.34

2.2 Connection Diagram of Test System



2.3 Field Strength of Spurious Radiation Measurement

2.3.1 Description of Field Strength of Spurious Radiated Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

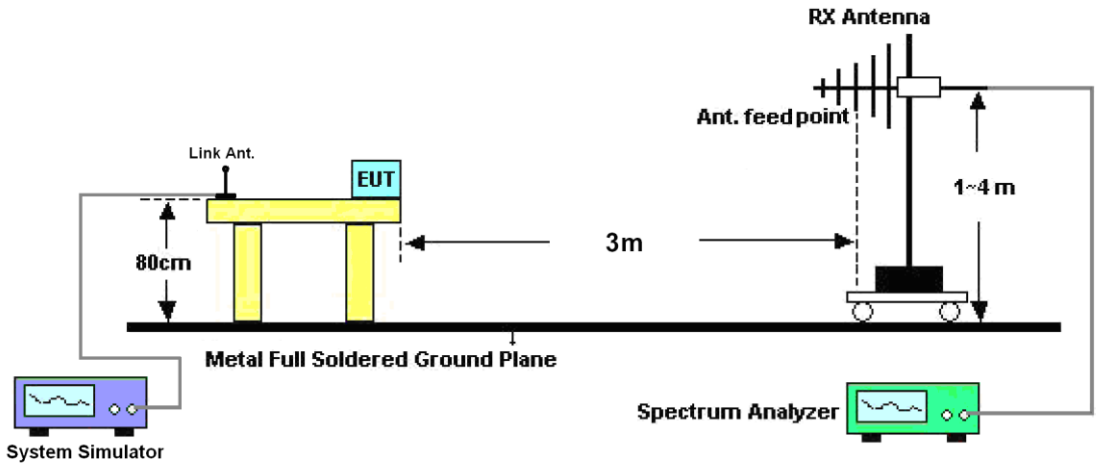
2.3.2 Measuring Instruments

See list of measuring instruments of this test report.

2.3.3 Test Procedures

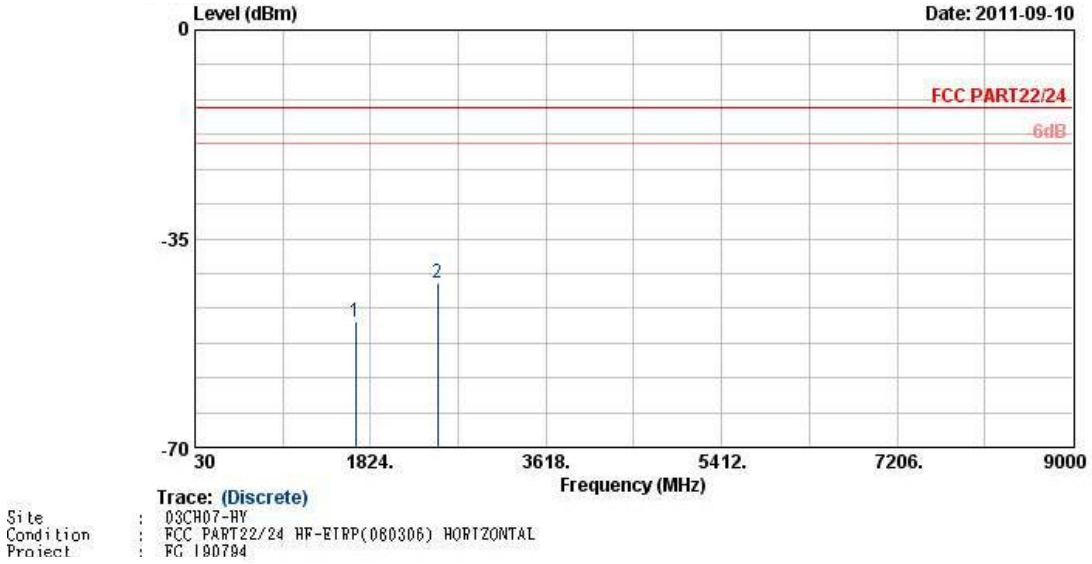
1. The EUT was placed on a rotatable wooden table with 0.8 meter about ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
11. ERP (dBm) = EIRP - 2.15

2.3.4 Test Setup



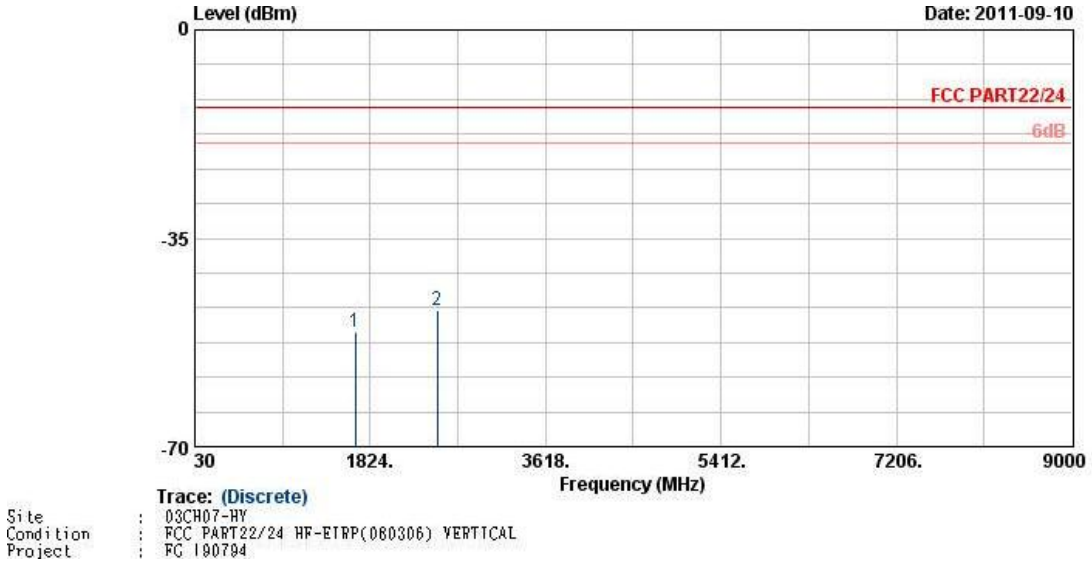
2.3.5 Test Result of Field Strength of Spurious Radiated

Band :	GSM850	**Temperature :**	24~25°C
Test Mode :	GSM Link	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



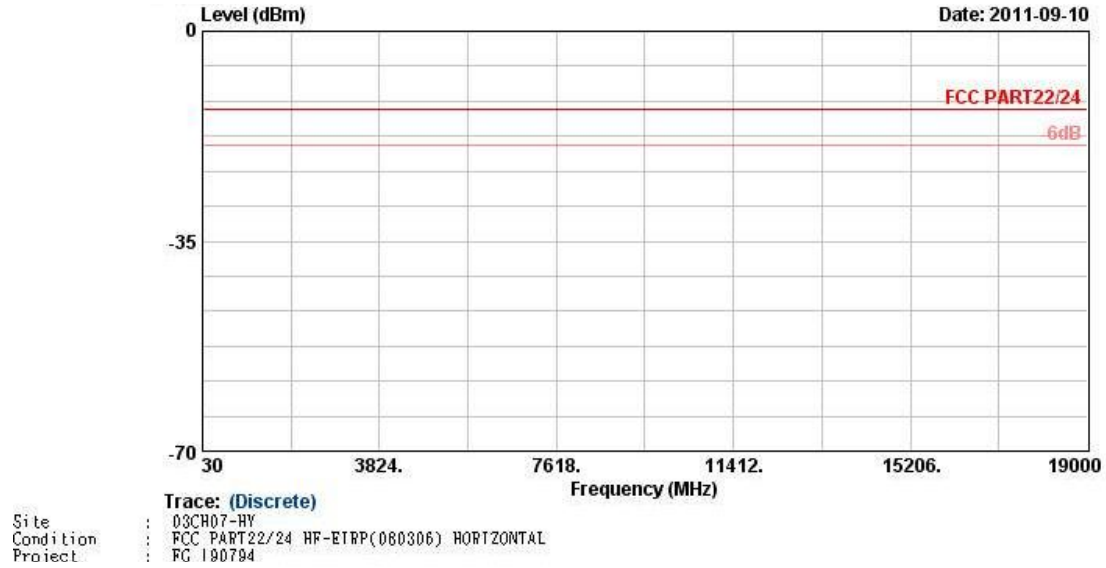
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1669	-48.92	-13	-35.92	-57.93	-50.64	1.62	5.49	H	Pass
2509	-42.44	-13	-29.44	-55.84	-44.41	2.1	6.22	H	Pass

Band :	GSM850	Temperature :	24~25°C
Test Mode :	GSM Link	Relative Humidity :	49~51%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

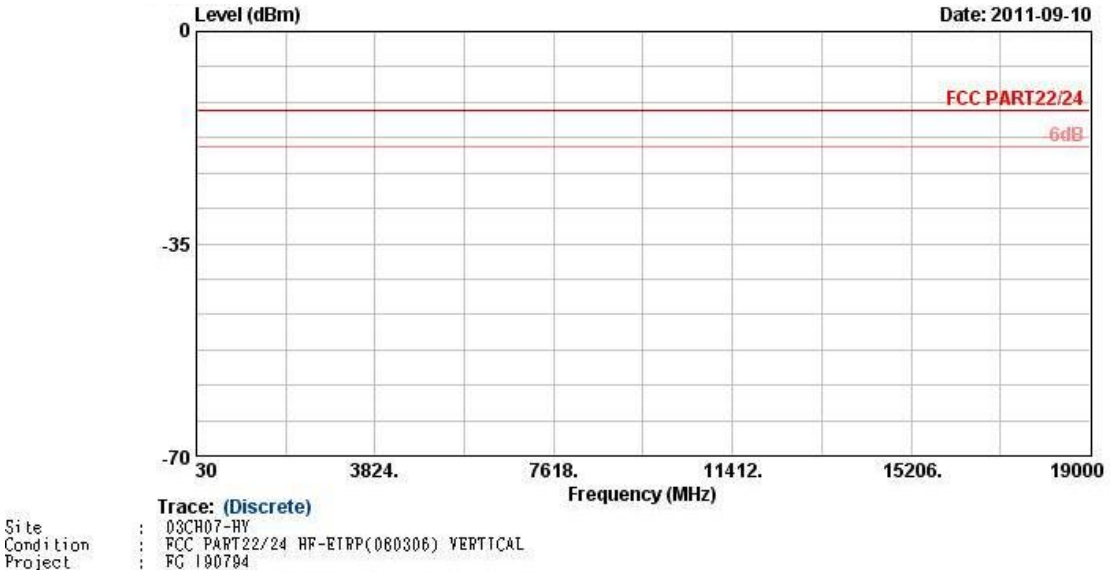


Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1669	-50.79	-13	-37.79	-61.91	-52.51	1.62	5.49	V	Pass
2509	-47.21	-13	-34.21	-61.11	-49.18	2.1	6.22	V	Pass

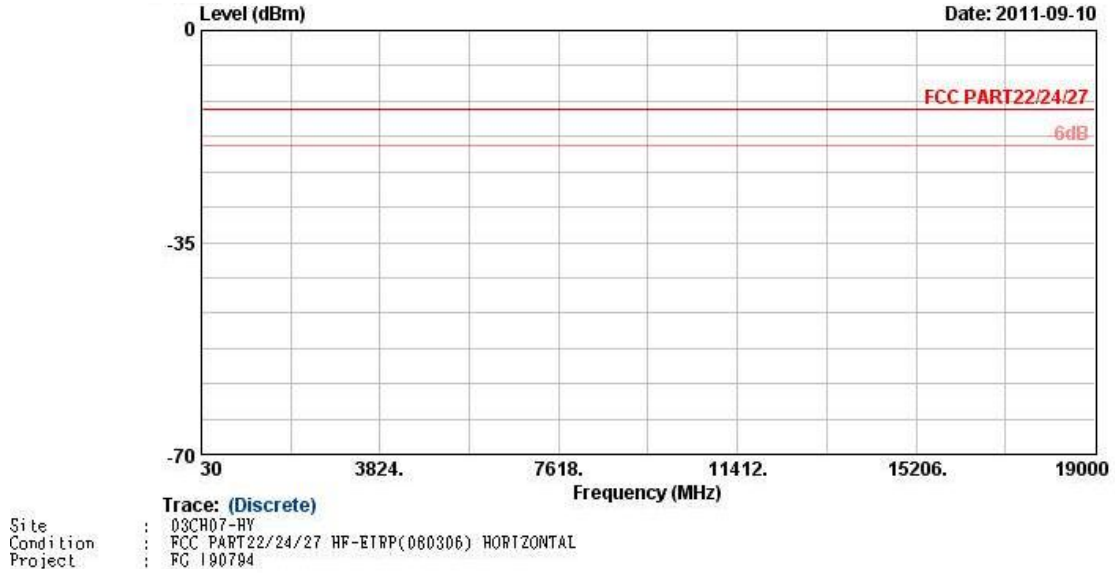
Band :	GSM1900	**Temperature :**	23~24°C
Test Mode :	GSM Link	**Relative Humidity :**	49~50%
Test Engineer :	David Yang	**Polarization :**	Horizontal
Remark :	1. Spurious emissions within 30-1000MHz were found more than 20dB below limit line. 2. Spurious emissions within 1000MHz ~ 10th harmonic were not found any signals.		



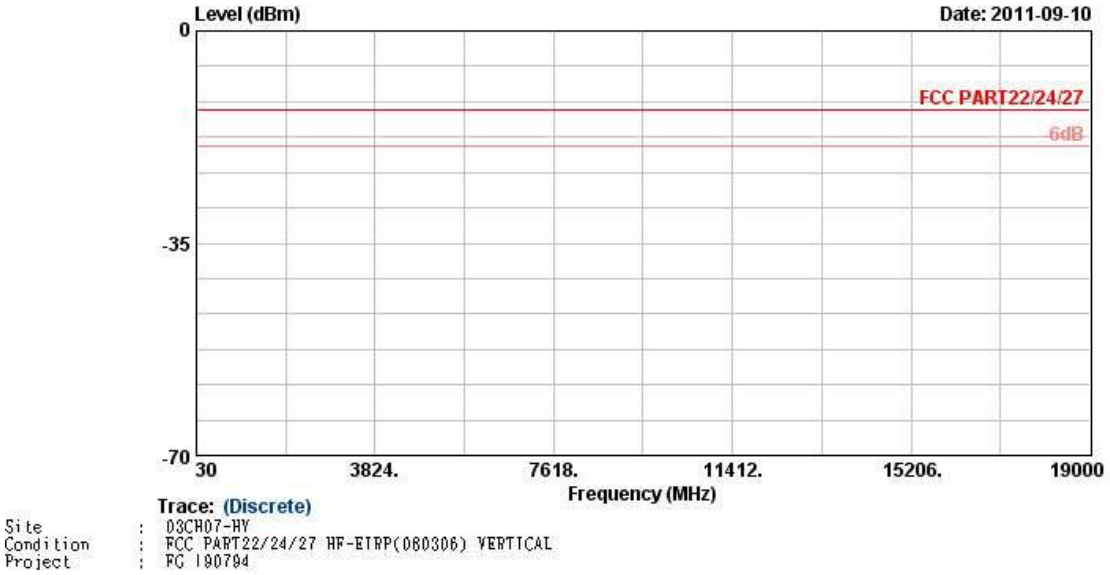
Band :	GSM1900	**Temperature :**	23~24°C
Test Mode :	GSM Link	**Relative Humidity :**	49~50%
Test Engineer :	David Yang	**Polarization :**	Vertical
Remark :	1. Spurious emissions within 30-1000MHz were found more than 20dB below limit line. 2. Spurious emissions within 1000MHz ~ 10th harmonic were not found any signals.		



Band :	WCDMA Band IV	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link	**Relative Humidity :**	49~50%
Test Engineer :	David Yang	**Polarization :**	Horizontal
Remark :	1. Spurious emissions within 30-1000MHz were found more than 20dB below limit line. 2. Spurious emissions within 1000MHz ~ 10th harmonic were not found any signals.		



Band :	WCDMA Band IV	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link	**Relative Humidity :**	49~50%
Test Engineer :	David Yang	**Polarization :**	Vertical
Remark :	1. Spurious emissions within 30-1000MHz were found more than 20dB below limit line. 2. Spurious emissions within 1000MHz ~ 10th harmonic were not found any signals.		



3 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 30, 2010	Oct. 29, 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. 10, 2011	Aug. 09, 2012	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.32dB. GAIN	Mar. 29, 2011	Mar. 28, 2012	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Aug. 21, 2012	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-00 101800-30-1	159088	1GHz ~ 18GHz	Feb. 21, 2011	Feb. 20, 2012	Radiation (03CH07-HY)
System Simulator	R&S	CMU200	106656	N/A	May 14, 2010	May 13, 2012	Radiation (03CH07-HY)

4 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 Uc(y)	**1.27**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**		

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

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 B. Original Report

Please refer to Sporton report number FG121019 as below.