FCC RF Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	10714
FCC ID	:	IHDT56WC6
STANDARD	:	FCC 47 CFR Part 2, 22(H), 24(E)
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Jun. 12, 2017 and testing was completed on Jul. 05, 2017. We, Sporton International (KunShan) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-D-2010 and has been in 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 (KunShan) INC., the test report shall not be reproduced except in full.

James Huang

Prepared by: James Huang / Manager

Approved by: Jones Tsai / Manager

Testing Laboratory 2627

Sporton International (KunShan) INC.

No.3-2, Pingxiang Road, Kunshan Development Zone, Jiangsu, China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG761213A	Rev. 01	Initial issue of report	Aug. 01, 2017

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§22.913(a)(2)	Effective Radiated Power	< 7 Watts	PASS	-
	§24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
4.4	§2.1053 §22.917(a) §24.238(a)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 35.41 dB at 1672.000 MHz

1 General Description

1.1 Applicant

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	10714
FCC ID	IHDT56WC6
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/HSPA+/LTE WLAN 2.4GHz 802.11b/g/n HT20 Bluetooth v3.0 + EDR/Bluetooth v4.0 LE/ Bluetooth v4.1 LE/Bluetooth v4.2 LE
IMEI Code	Radiation : 355664100050976/355664100050984
HW Version	WKGMA1A4-3
SW Version	woods- userdebug 7.0 NMA25.27 314 intcfg,test-keys
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. This is a variant report for 10714. The product equality declaration could be referred to Appendix D. According to the differences between previous and current project, only the test case of Radiated Spurious Emission, ERP/EIRP, Conducted Power from original test report (Sporton Report Number FG711913A) were verified for the differences.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	**GSM/GPRS/EDGE:** 850: 824.2 MHz ~ 848.8 MHz 1900: 1850.2 MHz ~ 1909.8MHz **WCDMA:** Band V: 826.4 MHz ~ 846.6 MHz Band II: 1852.4 MHz ~ 1907.6 MHz
Rx Frequency	**GSM/GPRS/EDGE:** 850: 869.2 MHz ~ 893.8 MHz 1900: 1930.2 MHz ~ 1989.8 MHz **WCDMA:** Band V: 871.4 MHz ~ 891.6 MHz Band II: 1932.4 MHz ~ 1987.6 MHz
Antenna Type	PIFA Antenna
Maximum Output Power to Antenna	**GSM/GPRS/EDGE:** 850: 33.13 dBm 1900: 29.96 dBm **WCDMA:** Band V: 22.99 dBm Band II: 23.16 dBm
Antenna Gain	Cellular Band: -0.40 dBi PCS Band: 2.10 dBi
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: BPSK (Uplink) HSDPA /DC-HSDPA : QPSK (Uplink) HSUPA : QPSK (Uplink) HSPA+ : 16QAM (uplink) DC-HSDPA : 64QAM

1.5 Modification of EUT

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

1.6 Specification of Accessory

Specification of Accessory				
AC Adapter IN	**Brand Name**	Motorola (AcBel)	**Model Name**	C-P45 SPN5952A
	Power Rating	I/P: 100-240 Vac, 130mA, O/P: 5 Vdc, 1000mA		
AC Adapter US	**Brand Name**	Motorola (AcBel)	**Model Name**	C-P56 SPN5947A
	Power Rating	I/P: 100-240 Vac, 130mA, O/P: 5 Vdc, 1000mA		
AC Adapter EU	**Brand Name**	Motorola (AcBel)	**Model Name**	C-P57 SPN5948A
	Power Rating	I/P: 100-240 Vac, 130mA, O/P: 5 Vdc, 1000mA		
AC Adapter UK	**Brand Name**	Motorola (AcBel)	**Model Name**	C-P58 SPN5950A
	Power Rating	I/P: 100-240 Vac, 130mA, O/P: 5 Vdc, 1000mA		
AC Adapter AU	**Brand Name**	Motorola (AcBel)	**Model Name**	C-P59 SPN5957A
	Power Rating	I/P: 100-240 Vac, 130mA, O/P: 5 Vdc, 1000mA		
Battery 1	**Brand Name**	Motorola (ATL)	**Model Name**	GK40
	Power Rating	3.8Vdc,2685/2800mAh (Min/Typ)	**Type**	Li-ion
Battery 2	**Brand Name**	Motorola (Sunwoda)	**Model Name**	GK40
	Power Rating	3.8Vdc,2685/2800mAh (Min/Typ)	**Type**	Li-ion
Earphone	**Brand Name**	Motorola(hetong)	**Model Name**	PY-13A1602-01KC39
	Signal Line Type	1.4 meter, non-shielded cable, without ferrite core		
USB Cable	**Brand Name**	Motorola (Sai Bao)	**Model Name**	SYD-A015A
	Signal Line Type	1.0 meter, shielded cable, without ferrite core		

1.7 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator

FCC Rule	System	Type of Modulation	Maximum ERP/EIRP (W)	Frequency Tolerance (ppm)	Emission Designator
Part 22H	GSM850 GSM	GMSK	1.1429	-	-
Part 22H	GSM850 EDGE class 8	8PSK	0.2704	-	-
Part 22H	WCDMA Band V RMC 12.2Kbps	BPSK	0.1107	-	-
Part 24E	GSM1900 GSM	GMSK	1.6069	-	-
Part 24E	GSM1900 EDGE class 8	8PSK	0.5483	-	-
Part 24E	WCDMA Band II RMC 12.2Kbps	BPSK	0.3357	-	-

1.8 Testing Location

Test Site	Sporton International (KunShan) INC.	
Test Site Location	No.3-2, Pingxiang Road, Kunshan Development Zone, Jiangsu, China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958	
Test Site No.	**Sporton Site No.**	**FCC Registration No.**
	03CH02-KS	418269

Note: The test site complies with ANSI C63.4 2014 requirement.

1.9 Applicable Standards

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

- 47 CFR Part 2, 22(H), 24(E)
- ANSI / TIA / EIA-603-D-2010
- FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01

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 Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r02 with maximum output power.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 10th harmonic for GSM850.
2. 30 MHz to 10th harmonic for WCDMA Band II.

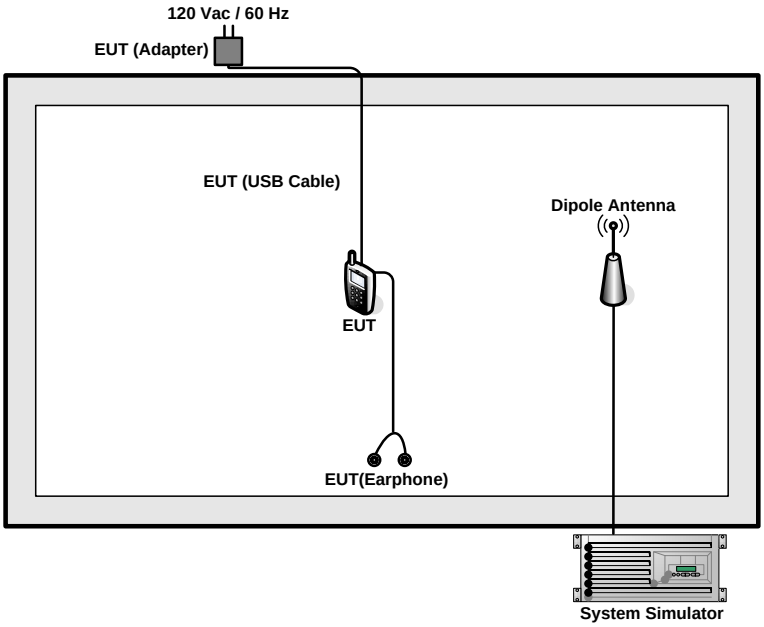
All modes and data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

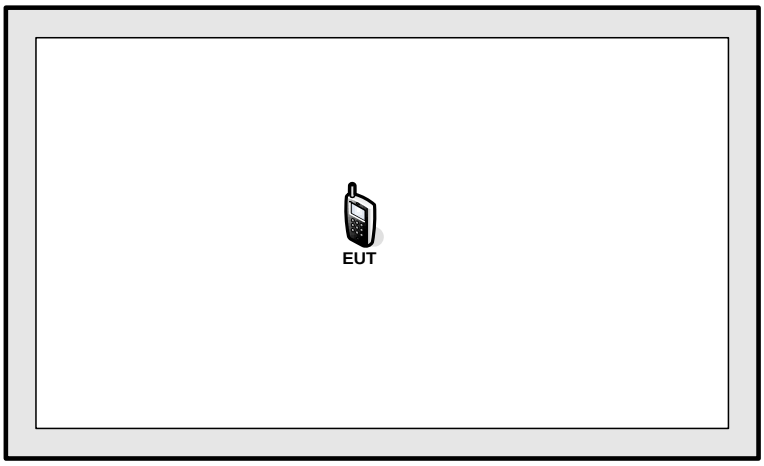
Test Modes	
Band	**Radiated TCs**
GSM 850	■ GSM Link
WCDMA Band II	■ RMC 12.2Kbps Link

2.2 Connection Diagram of Test System

Part 22H



Part 24E



2.3 Support Unit used in test configuration

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m

3 Conducted Output Power and ERP/EIRP

3.1.1 Description of the Conducted Output Power and ERP/EIRP

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 7 Watts for GSM850 and WCDMA Band V.

The EIRP of mobile transmitters must not exceed 2 Watts for GSM1900 and WCDMA Band II.

According to KDB 412172 D01 Power Approach,

EIRP = $P_T + G_T – L_C$, ERP = EIRP -2.15, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.1.2 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.

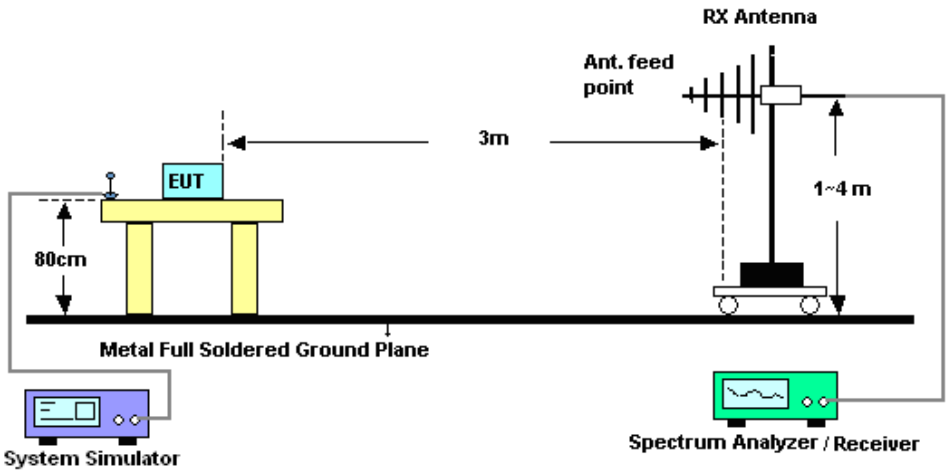
4 Radiated Test Items

4.1 Measuring Instruments

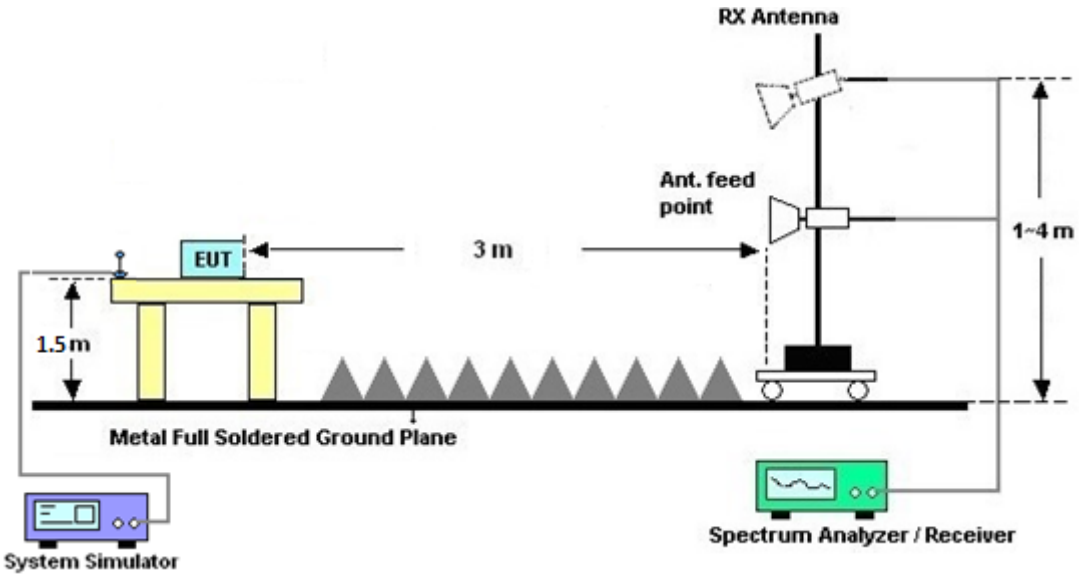
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test from 30MHz to 1GHz



4.2.2 For radiated test above 1GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.

4.4 Field Strength of Spurious Radiation Measurement

4.4.1 Description of Field Strength of Spurious Radiated Measurement

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.

4.4.2 Test Procedures

1. The testing follows FCC KDB 971168 D01 v02r02 Section 5.8 and ANSI / TIA-603-D-2010 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table 0.8 meters for frequency below 1GHz and 1.5 meter for frequency above 1GHz above the ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
12. ERP (dBm) = EIRP - 2.15
13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
14. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)

    = P(W) - [43 + 10log(P)] (dB)

    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)

    = -13dBm.

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz~44GHz	Apr. 18, 2017	Jul. 05, 2017	Apr. 17, 2018	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	35406	25MHz-2GHz	Apr. 22, 2017	Jul. 05, 2017	Apr. 21, 2018	Radiation (03CH03-KS)
Horn Antenna	Schwarzbeck	BBHA9120 D	9120D-1356	1GHz~18GHz	Apr. 22, 2017	Jul. 05, 2017	Apr. 21, 2018	Radiation (03CH03-KS)
SHF-EHF Horn	com-power	AH-840	101070	18GHz ~40GHz	Oct. 19, 2016	Jul. 05, 2017	Oct. 18, 2017	Radiation (03CH03-KS)
Amplifier	com-power	PA-103A	161069	1MHz ~1000MHz / 32 dB	Apr. 18, 2017	Jul. 05, 2017	Apr. 17, 2018	Radiation (03CH03-KS)
high gain Amplifier	MITEQ	AMF-7D-00 101800-30-	2025788	1Ghz-18Ghz	Apr. 18, 2017	Jul. 05, 2017	Apr 17, 2018	Radiation (03CH03-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Oct. 13, 2016	Jul. 05, 2017	Oct. 12, 2017	Radiation (03CH03-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jul. 05, 2017	NCR	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jul. 05, 2017	NCR	Radiation (03CH03-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jul. 05, 2017	NCR	Radiation (03CH03-KS)

NCR: No Calibration Required

6 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.8dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.3dB**

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

Conducted Power (*Unit: dBm)						
Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency	824.2	836.4	848.8	1850.2	1880.0	1909.8
GSM	33.11	33.13	33.12	29.61	29.81	29.96
GPRS class 8	33.09	33.12	33.11	29.59	29.79	29.94
GPRS class 10	32.20	32.23	32.22	28.65	28.84	28.97
GPRS class 11	29.95	29.37	29.34	26.72	26.88	27.02
GPRS class 12	28.85	28.86	28.81	25.68	25.87	26.00
EGPRS class 8	26.87	26.85	26.86	25.13	25.27	25.29
EGPRS class 10	25.84	25.83	25.84	23.98	24.13	24.15
EGPRS class 11	23.87	23.85	23.86	21.90	22.02	22.07
EGPRS class 12	22.61	22.60	22.56	20.65	20.72	20.80

Conducted Power (*Unit: dBm)						
Band	WCDMA Band V			WCDMA Band II		
Channel	4132	4182	4233	9262	9400	9538
Frequency	826.4	836.4	846.6	1852.4	1880	1907.6
AMR 12.2Kbps	22.92	22.98	22.90	22.91	23.07	23.15
RMC 12.2Kbps	22.93	22.99	22.92	22.93	23.08	23.16
HSDPA Subtest-1	21.77	21.97	21.90	21.95	22.16	22.07
HSDPA Subtest-2	21.78	21.94	21.93	21.93	22.19	22.04
HSDPA Subtest-3	21.31	21.50	21.44	21.49	21.72	21.61
HSDPA Subtest-4	21.31	21.48	21.43	21.45	21.68	21.58
DC-HSDPA Subtest-1	21.23	21.45	21.43	21.44	21.56	21.48
DC-HSDPA Subtest-2	21.20	21.43	21.41	21.40	21.55	21.46
DC-HSDPA Subtest-3	20.85	20.98	20.92	20.95	21.23	21.08
DC-HSDPA Subtest-4	20.81	20.95	20.90	20.93	21.21	21.02
HSUPA Subtest-1	19.73	19.97	19.93	19.97	20.17	20.08
HSUPA Subtest-2	19.88	19.99	19.94	19.93	20.22	20.12
HSUPA Subtest-3	20.91	20.95	20.92	20.90	21.20	21.05
HSUPA Subtest-4	19.21	19.39	19.31	19.35	19.63	19.55
HSUPA Subtest-5	21.80	21.90	21.90	21.90	22.10	22.00
HSPA+ (16QAM) Subtest-1	19.68	19.88	19.79	19.62	19.71	19.66

ERP/EIRP

GSM850 (G_T - L_C= -0.40 dB)			
Channel	128	189	251
	(Low)	(Mid)	(High)
Frequency (MHz)	824.2	836.4	848.8
Conducted Power (dBm)	33.11	33.13	33.12
Conducted Power (Watts)	2.0464	2.0559	2.0512
ERP(dBm)	30.56	30.58	30.57
ERP(Watts)	1.1376	1.1429	1.1402

EDGE850 (G_T - L_C= -0.40 dB)			
Channel	128	189	251
	(Low)	(Mid)	(High)
Frequency (MHz)	824.2	836.4	848.8
Conducted Power (dBm)	26.87	26.85	26.86
Conducted Power (Watts)	0.4864	0.4842	0.4853
ERP(dBm)	24.32	24.30	24.31
ERP(Watts)	0.2704	0.2692	0.2698

GSM1900 (G_T - L_C= 2.10 dB)			
Channel	512	661	810
	(Low)	(Mid)	(High)
Frequency (MHz)	1850.2	1880	1909.8
Conducted Power (dBm)	29.61	29.81	29.96
Conducted Power (Watts)	0.9141	0.9572	0.9908
EIRP(dBm)	31.71	31.91	32.06
EIRP(Watts)	1.4825	1.5524	1.6069

EDGE1900 (G_T - L_C= 2.10 dB)			
Channel	512	661	810
	(Low)	(Mid)	(High)
Frequency (MHz)	1850.2	1880	1909.8
Conducted Power (dBm)	25.13	25.27	25.29
Conducted Power (Watts)	0.3258	0.3365	0.3381
EIRP(dBm)	27.23	27.37	27.39
EIRP(Watts)	0.5284	0.5458	0.5483

WCDMA Band V (G_T - L_C= -0.40 dB)			
Channel	4132	4182	4233
	(Low)	(Mid)	(High)
Frequency (MHz)	826.4	836.4	846.6
Conducted Power (dBm)	22.93	22.99	22.92
Conducted Power (Watts)	0.1963	0.1991	0.1959
ERP(dBm)	20.38	20.44	20.37
ERP(Watts)	0.1091	0.1107	0.1089

WCDMA Band II (G_T - L_C= 2.10 dB)			
Channel	9262	9400	9538
	(Low)	(Mid)	(High)
Frequency (MHz)	1852.4	1880	1907.6
Conducted Power (dBm)	22.93	23.08	23.16
Conducted Power (Watts)	0.1963	0.2032	0.2070
EIRP(dBm)	25.03	25.18	25.26
EIRP(Watts)	0.3184	0.3296	0.3357

Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

GSM850 (GSM)									
Channel	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)
Middle	1672	-49.98	-13	-36.98	-50.69	-51.84	1.19	5.20	H
	2508	-53.67	-13	-40.67	-56.66	-55.89	1.53	5.90	H
	3345	-67.22	-13	-54.22	-71.17	-70.01	1.76	6.70	H
	1672	-48.41	-13	-35.41	-48.16	-50.27	1.19	5.20	V
	2508	-51.69	-13	-38.69	-54.08	-53.91	1.53	5.90	V
	3345	-68.28	-13	-55.28	-71.6	-71.07	1.76	6.70	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

WCDMA Band II(RMC 12.2Kbps)									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3759	-68.43	-13	-55.43	-71.94	-73.42	1.88	6.87	H
	5640	-64.18	-13	-51.18	-72.37	-71.48	2.38	9.68	H
	7521	-62.59	-13	-49.59	-74.62	-71.66	2.74	11.81	H
	3759	-67.39	-13	-54.39	-71.18	-72.38	1.88	6.87	V
	5640	-64.52	-13	-51.52	-73.09	-71.82	2.38	9.68	V
	7521	-63.74	-13	-50.74	-74.45	-72.81	2.74	11.81	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Appendix D. Product Equality Declaration

Appendix E. Original Report

Please refer to Sporton report number FG711913A which is issued separately.