FCC/IC RF Test Report

APPLICANT	:	**Sony Mobile Communications Inc.**
EQUIPMENT	:	**Smart phone**
BRAND NAME	:	**SONY**
TYPE NAME	:	**PM-0385-BV**
FCC ID	:	**PY7PM-0385**
STANDARD	:	**FCC 47 CFR Part 2, 22(H), 24(E) , 27(L)** **IC RSS-132 issue 3** **IC RSS-133 issue 6** **IC RSS-139 Issue 2**
CLASSIFICATION	:	**PCS Licensed Transmitter Held to Ear (PCE)**

This is a partial report which is included the RF power and field strength of spurious radiation test items. The product was received on Sep. 12, 2014 and testing was completed on Sep. 14, 2014. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-C-2004 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 INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / 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
FG450249-03A	Rev. 01	Initial issue of report	Sep. 19, 2014

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	§2.1053 §22.917(a) §24.238(a) §27.53(h)	RSS-GEN(4.9) RSS-132 (5.5) RSS-133 (6.5) RSS-139 (6.5)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 27.66 dB at 7520.000 MHz

1 General Description

1.1 Applicant

Sony Mobile Communications Inc.
Nya Vattentornet, 22188 Lund, Sweden

1.2 Manufacturer

Arima Communication Corp.
6F, No. 866, Jhongjheng Rd., Jhonghe Dist., New Taipei City 23586, Taiwan

1.3 Product Feature of Equipment Under Test

The Equipment Under Test (hereafter called: EUT) is Smart phone supporting, GSM / WCDMA / LTE, Wi-Fi 2.4GHz 802.11b/g/n, Bluetooth with FM Receiver, ANT+, GPS, and NFC features, and below is details of information.

Product Feature	
Equipment	Smart phone
Brand Name	SONY
Marketing Name	PM-0385-BV
FCC ID	PY7PM-0385
GSM Operating Band(s)	GSM 850/900/1800/1900MHz
GPRS / EGPRS Multi Slot Class	GPRS Class 33, EGPRS Class 33
WCDMA Operating Band(s)	FDD Band I / II / IV / V
WCDMA Rel. Version	Rel. 9
LTE Operating Band(s)	FDD Band IV / VII / XVII
LTE Rel. Version	Rel. 8
Wi-Fi Specification	802.11b/g/n (HT20)
Bluetooth Version	v3.0+EDR / v4.0-LE
NFC Specification	ISO14443A / ISO14443B / Felica / ISO15693
ANT+	ANT+
Power Supply	Battery / AC Adapter / Car Charger

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 subjective to this standard

Product Specification subjective to this standard	
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV : 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band IV : 2112.4 MHz ~ 2152.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz
Maximum Output Power to Antenna	GSM850 : 32.63 dBm GSM1900 : 29.84 dBm WCDMA Band V : 23.53 dBm WCDMA Band IV : 23.00 dBm WCDMA Band II : 23.00 dBm
Antenna Type / Gain	I-FA Antenna / 0.22 dBi
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: QPSK (Uplink) HSDPA: 64QAM(Downlink) HSUPA: QPSK (Uplink)

EUT Information List				
IMEI	HW Version	SW Version	S/N	Performed Test Item
IMEI: 004402452493434	A	18.4.C.1.29	N/A	RF Conducted Measurement
IMEI: 004402452493426				Radiated Spurious Emission

Accessory List	
AC Adapter	Model No. : EP800
	Type No. : CAA-0002016-US B
	S/N : 3113W 45 408494
Battery	Model No. : LIS1551ERPC
Earphone	Model No. : MH410c
	Type No. : AG-1100
	S/N : 13511E5B007648E
USB Cable	Model No. : EC 450
	Type No. : AI-0700
	S/N : 134912D80008076

Note:

1. Above EUT list and accessory list used are electrically identical per declared by manufacturer.
2. Above the accessories list are used to exercise the EUT during test.
3. For other wireless features of this EUT, test report will be issued separately.

1.5 Modification of EUT

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

1.6 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

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.**		**IC Registration No.**
	TH02-HY	03CH07-HY	4086B-1

1.7 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), 27(L)
- ANSI / TIA / EIA-603-C-2004
- FCC KDB 971168 D01 Power Meas. License Digital Systems v02r01
- IC RSS-132 Issue 3
- IC RSS-133 Issue 6
- IC RSS-139 Issue 2
- IC RSS-Gen Issue 3
- NOTICE 2012-DRS0126

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. Per the section 2.2.3 of Notice of 2012-DRS0126, " Receivers Excluded from Industry Canada Requirements", only radiocommunication receivers operating in stand-alone mode within the band 30-960 MHz and scanner receivers are subject to Industry Canada requirements.

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 v02r01 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 9000 MHz for GSM850.
2. 30 MHz to 19000 MHz for GSM1900.

Test Modes	
Band	**Radiated TCs**
GSM 850	GPRS class 8 Link
GSM 1900	GPRS class 8 Link

Note: The maximum power levels are chosen to test as the worst case configuration as follows:

GPRS multi-slot class 8 mode for GMSK modulation; only these modes were used for all tests.

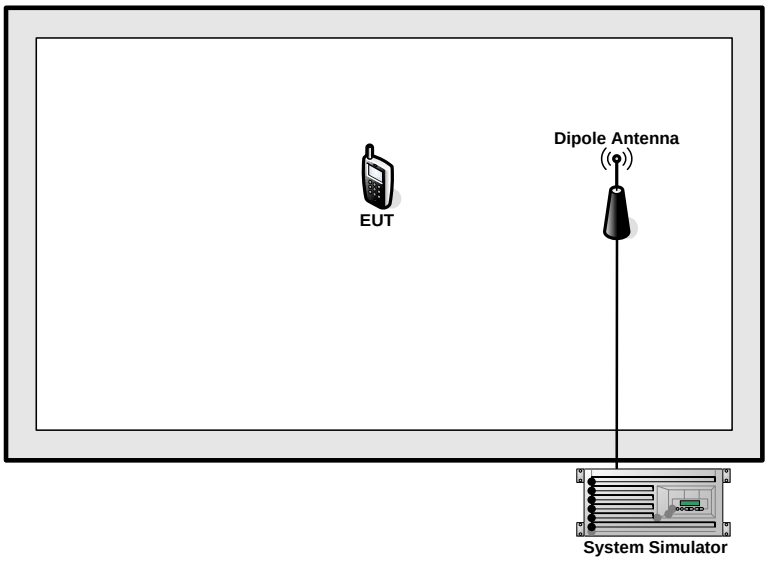
Conducted Power Measurement Results:

Conducted Power		Burst Average Power (dBm)					
Band		GSM850			GSM1900		
Channel		128	189	251	512	661	810
Frequency (MHz)		824.2	836.4	848.8	1850.2	1880.0	1909.8
GSM		32.62	32.43	32.55	29.81	29.75	29.83
GPRS Class 8		**32.63**	32.29	32.57	**29.84**	29.76	**29.84**
GPRS Class 10		29.31	29.26	29.18	26.65	26.40	26.31
GPRS Class 11		27.64	27.85	27.74	25.02	24.94	24.80
GPRS Class 33		27.14	27.17	27.20	24.79	24.65	24.62
EGPRS Class 8		**26.67**	26.66	26.62	**25.95**	25.87	25.83
EGPRS Class 10		24.30	24.32	24.33	23.64	23.58	23.53
EGPRS Class 11		22.77	22.81	22.78	21.82	21.57	21.56
EGPRS Class 33		23.40	23.37	23.30	21.73	21.57	21.52
DTM 5	GSM (GMSK, 1 Tx slot)	29.32	29.28	29.13	26.68	26.46	26.42
	GPRS (GMSK, 1 Tx slot)	29.27	29.25	29.10	26.55	26.32	26.30
DTM 9	GSM (GMSK, 1 Tx slot)	29.31	29.26	29.16	26.67	26.45	26.41
	GPRS (GMSK, 1 Tx slot)	29.26	29.21	29.12	26.53	26.31	26.29
DTM 11	GSM (GMSK, 1 Tx slot)	27.56	27.74	27.62	25.07	24.98	24.93
	GPRS (GMSK, 2 Tx slots)	27.51	27.71	27.59	24.94	24.84	24.80
DTM 5	GSM (GMSK, 1 Tx slot)	29.19	29.14	29.05	26.42	26.35	26.33
	EDGE (8PSK, 1 Tx slot)	24.30	24.30	24.30	23.64	23.59	23.59
DTM 9	GSM (GMSK, 1 Tx slot)	29.28	29.21	29.11	26.40	26.36	26.34
	EDGE (8PSK, 1 Tx slot)	24.26	24.34	24.34	23.44	23.42	23.44
DTM 11	GSM (GMSK, 1 Tx slot)	27.65	27.61	27.75	24.99	24.85	24.91
	EDGE (8PSK, 2 Tx slots)	22.72	22.72	22.67	21.71	21.44	21.63

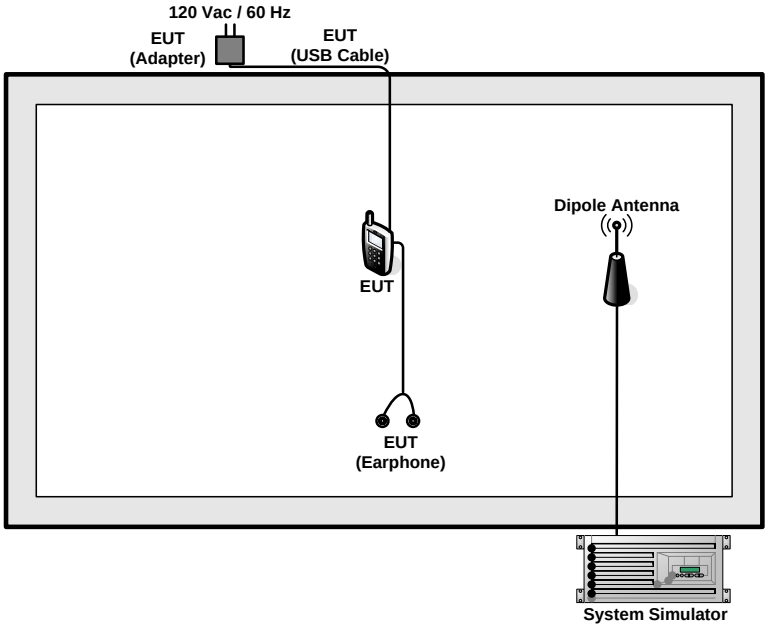
Conducted Power	Burst Average Power (dBm)								
Band	WCDMA Band V			WCDMA Band II			WCDMA Band IV		
Channel	4132	4182	4233	9262	9400	9538	1312	1413	1513
Frequency (MHz)	826.4	836.4	846.6	1852.4	1880.0	1907.6	1712.4	1732.6	1752.6
RMC 12.2K	23.53	23.41	23.46	22.80	22.98	23.00	23.00	22.96	22.93
HSDPA Subtest-1	23.02	22.97	22.99	21.89	22.00	22.15	22.04	21.92	22.03
HSDPA Subtest-2	23.10	22.99	23.02	22.01	22.08	22.11	21.54	21.51	21.53
HSDPA Subtest-3	22.60	22.55	22.61	21.40	21.49	21.62	21.54	21.51	21.53
HSDPA Subtest-4	22.66	22.40	22.69	21.40	21.55	21.59	21.52	21.50	21.50
HSUPA Subtest-1	22.53	22.56	22.59	21.52	21.69	21.55	21.67	21.55	21.91
HSUPA Subtest-2	21.50	21.49	21.44	20.35	20.33	20.39	20.91	21.02	20.81
HSUPA Subtest-3	21.50	21.50	21.59	20.52	20.51	20.58	20.69	20.56	20.60
HSUPA Subtest-4	22.26	22.13	22.09	21.06	21.07	21.26	20.83	21.12	21.17
HSUPA Subtest-5	22.90	22.80	22.90	21.80	21.90	21.90	22.00	21.90	21.90

2.2 Connection Diagram of Test System

<EUT in Cellular Band>



<EUT in PCS Band>



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 Test Result

3.1 Field Strength of Spurious Radiation Measurement

3.1.1 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.

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 on a rotatable wooden table 0.8 meters above the 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 for the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking 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
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
13. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)

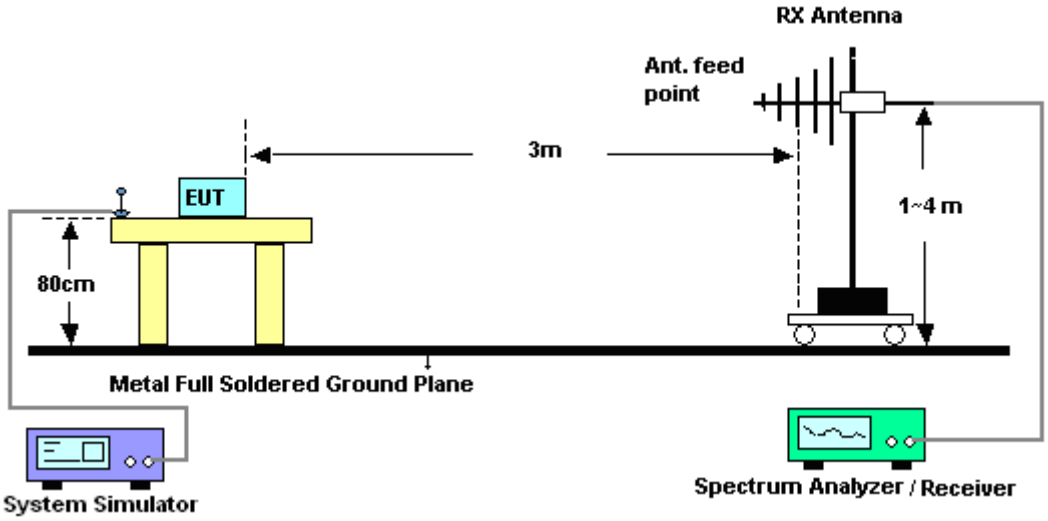
    = P(W) - [43 + 10log(P)] (dB)

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

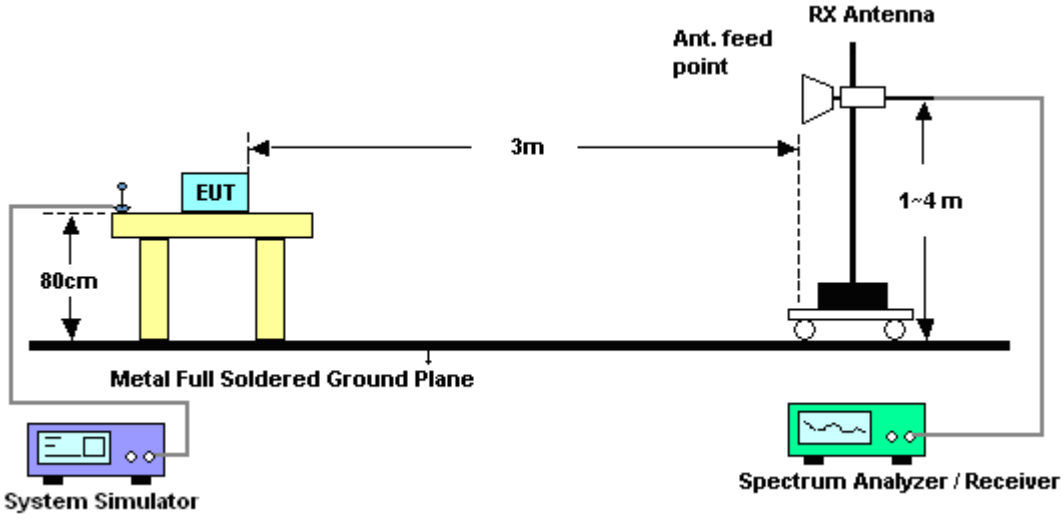
    = -13dBm.

3.1.4 Test Setup

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.1.5 Test Result of Field Strength of Spurious Radiated

<High Channel>

Band :	GSM850	**Temperature :**	23~24°C
Test Mode :	GPRS class 8 Link (GMSK)	**Relative Humidity :**	46~48%
Test Engineer :	Stan Hsieh, Ken Wu, and Derreck Chen	**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
1698	-54.85	-13	-41.85	-63.9	-56.45	1.00	4.75	H	Pass
2544	-44.62	-13	-31.62	-57.93	-46.6	1.30	5.44	H	Pass
3395	-52.03	-13	-39.03	-66.24	-55.85	1.57	7.54	H	Pass

Band :	GSM850	**Temperature :**	23~24°C
Test Mode :	GPRS class 8 Link (GMSK)	**Relative Humidity :**	46~48%
Test Engineer :	Stan Hsieh, Ken Wu, and Derreck Chen	**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
1698	-53.82	-13	-40.82	-65.12	-55.42	1.00	4.75	V	Pass
2544	-49.86	-13	-36.86	-63.76	-51.84	1.30	5.44	V	Pass
3395	-50.69	-13	-37.69	-66.29	-54.51	1.57	7.54	V	Pass

<Middle Channel>

Band :	GSM1900	**Temperature :**	23~24°C
Test Mode :	GPRS class 8 Link (GMSK)	**Relative Humidity :**	46~48%
Test Engineer :	Stan Hsieh, Ken Wu, and Derreck Chen	**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
3760	-51.72	-13	-38.72	-67.13	-58.35	1.69	8.31	H	Pass
5640	-46.35	-13	-33.35	-67.12	-53.4	2.71	9.76	H	Pass
7520	-40.66	-13	-27.66	-67.97	-50.05	2.42	11.81	H	Pass

Band :	GSM1900	**Temperature :**	23~24°C
Test Mode :	GPRS class 8 Link (GMSK)	**Relative Humidity :**	46~48%
Test Engineer :	Stan Hsieh, Ken Wu, and Derreck Chen	**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
3760	-50.78	-13	-37.78	-67.13	-57.41	1.69	8.31	V	Pass
5640	-46.88	-13	-33.88	-67.47	-53.93	2.71	9.76	V	Pass
7520	-41.31	-13	-28.31	-68.36	-50.7	2.42	11.81	V	Pass

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
System Simulator	Rohde & Schwarz	CMU200	117995	N/A	Jul. 29, 2014	Sep. 12, 2014	Jul. 28, 2015	Conducted (TH02-HY)
Hygrometer	Testo	608-H2	41410069	N/A	Jul. 17, 2014	Sep. 12, 2014	Jul. 16, 2015	Conducted (TH02-HY)
RF cable	WOKEN	S05	S05-130708-022	N/A	Jan. 22, 2014	Sep. 12, 2014	Jan. 21, 2015	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV30	101749	10Hz ~ 30GHz	Feb. 10, 2014	Sep. 14, 2014	Feb. 09, 2015	Radiation (03CH07-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 10, 2013	Sep. 14, 2014	Oct. 09, 2014	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1GHz~18GHz	Aug. 19, 2014	Sep. 14, 2014	Aug. 18, 2015	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 03, 2013	Sep. 14, 2014	Oct. 02, 2014	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10 MHz ~ 1GHz	Mar. 17, 2014	Sep. 14, 2014	Mar. 16, 2015	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~26.5GHz	Nov. 29, 2013	Sep. 14, 2014	Nov. 28, 2014	Radiation (03CH07-HY)
Filter	Microwave Circuits	H1G013G1	SN477215	1GHz HPF	Nov. 28, 2013	Sep. 14, 2014	Nov. 27, 2014	Radiation (03CH07-HY)
Filter	Wainwright Instruments Gmbh	WHKX1.5G/15G-10SS	SN32	1.5GHz HPF	Nov. 28, 2013	Sep. 14, 2014	Nov. 27, 2014	Radiation (03CH07-HY)
Filter	Wainwright Instruments Gmbh	WLKS1200-8SS	SN3	1.2GHz LPF	Nov. 28, 2013	Sep. 14, 2014	Nov. 27, 2014	Radiation (03CH07-HY)
Filter	Wainwright Instruments Gmbh	WHKX2.0/18G-10SS	SN12	2GHz HPF	Nov. 28, 2013	Sep. 14, 2014	Nov. 27, 2014	Radiation (03CH07-HY)
Filter	Microwave Circuits	H3G018G1	SN477220	3GHz HPF	Nov. 28, 2013	Sep. 14, 2014	Nov. 27, 2014	Radiation (03CH07-HY)
Notch Filter	Wainwright	WRCT 1800/2000-20/40-10ssk	SN1	GSM 1900	Nov. 28, 2013	Sep. 14, 2014	Nov. 27, 2014	Radiation (03CH07-HY)
Notch Filter	Wainwright	WRCG 824/849/814/859-40 8SS	SN35	GSM850 / WCDMA 850	Nov. 28, 2013	Sep. 14, 2014	Nov. 27, 2014	Radiation (03CH07-HY)
HF RF Cable	HUBER SUHNER	SUCOFLEX 104	38411/6	1GHz ~ 18GHz	Nov. 28, 2013	Sep. 14, 2014	Nov. 27, 2014	Radiation (03CH07-HY)
LF RF Cable	Warison+HUBER SUHNER	WCBA-WC04NM.NM2	N/A	30MHz ~ 1GHz	Nov. 28, 2013	Sep. 14, 2014	Nov. 27, 2014	Radiation (03CH07-HY)
Turn Table	ChainTek	ChainTek 3000	N/A	0 ~ 360 degree	N/A	Sep. 14, 2014	N/A	Radiation (03CH07-HY)
Antenna Mast	ChainTek	M-400-0	114/8000604/L	N/A	N/A	Sep. 14, 2014	N/A	Radiation (03CH07-HY)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Test Software	Audix	E3	Version 6.2009-08-24	N/A	N/A	Sep. 14, 2014	N/A	Radiation (03CH07-HY)
Hygrometer	Testo	608-H1	34897197	N/A	May 06, 2014	Sep. 14, 2014	May 05, 2015	Radiation (03CH07-HY)

Note: Test equipment calibration is traceable to the procedure of ISO17025.

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.50**