



FCC Test Report

APPLICANT : Samsung Electronics Co., Ltd.
EQUIPMENT : MOBILE PHONE
BRAND NAME : SAMSUNG
MODEL NAME : SM-B550H
FCC ID : A3LSMB550H
STANDARD : FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION : Certification

The product was received on Mar. 05, 2015 and testing was completed on Mar. 09, 2015. We, SPORTON INTERNATIONAL (SHENZHEN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2009 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 (SHENZHEN) INC., the test report shall not be reproduced except in full.

Louis Wu

Reviewed by: Louis Wu / Manager

Jones Tsai

Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL (SHENZHEN) INC.

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SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.107	AC Conducted Emission	< 15.107 limits	PASS	Under limit 10.71 dB at 0.580 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 5.62 dB at 911.800 MHz



1. General Description

1.1. Applicant

Samsung Electronics Co., Ltd.

No. 9 WeiWu Rd., Micro Electronic Industrial Park, Jingang Highway, Xiqing District, Tianjin, China

1.2. Manufacturer

Samsung Electronics Co., Ltd.

Chenjiang Town zhongkai 6th Road 256 Huizhou Guangdong China

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	MOBILE PHONE
Brand Name	SAMSUNG
Model Name	SM-B550H
FCC ID	A3LSMB550H
GSM Operating Band(s)	GSM1900/850MHz
GPRS/EGPRS Multi-slot Class	GPRS Class 12, EGPRS Class 12(Downlink Only)
WCDMA Operating Band(s)	FDD Band I/VIII
Bluetooth Version	Bluetooth v3.0 + EDR
IMEI Code	Conduction: 358635060027399 Radiation: 358635060027449
HW Version	REV1.0
SW Version	B550H.001
EUT Stage	Pre-Production

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 Bluetooth: 2402 MHz ~ 2480 MHz
Rx Frequency	GSM850 : 869.2 MHz ~ 893.8 MHz GSM1900 : 1930.2 MHz ~ 1989.8 MHz Bluetooth: 2402 MHz ~ 2480 MHz FM : 88 MHz ~ 108 MHz
Antenna Type	WWAN : PIFA-Carrier Antenna Bluetooth : Capacitor Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK(Downlink Only) Bluetooth (1Mbps) : GFSK Bluetooth (2Mbps) : $\pi/4$ -DQPSK Bluetooth (3Mbps) : 8-DPSK FM



1.5. Modification of EUT

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

1.6. Test Location

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.	
Test Site Location	1F & 2F, Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili Town, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595	
Test Site No.	Sporton Site No.	
	CO01-SZ	

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.	
Test Site Location	No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755- 3320-2398	
Test Site No.	Sporton Site No.	FCC Registration No.
	03CH01-SZ	831040

1.7. Applicable Standards

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

- ♦ FCC 47 CFR FCC Part 15 Subpart B
- ♦ ANSI C63.4-2009

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 C63.4-2009 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 (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

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

Item	EUT Configuration	Test Condition	
		EMI AC	EMI RE
1.	Data application transferred mode (EUT connected with notebook)	☒	☒

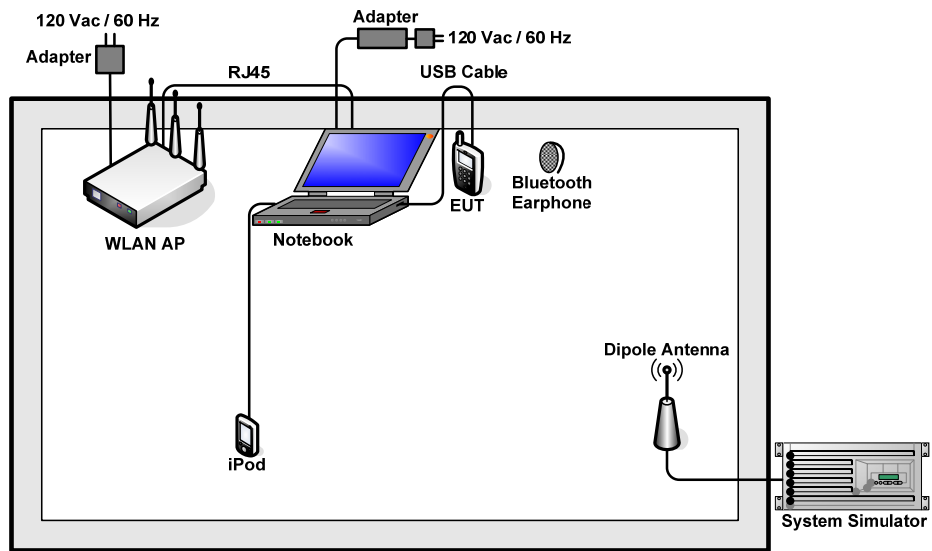
Abbreviations:

- EMI AC: AC conducted emissions
- EMI RE: EUT radiated emissions

Test Items	EUT Configure Mode	Function Type
AC Conducted Emission	1	Mode 1: GSM850 Idle + Bluetooth Idle + USB Cable (Data Link with Notebook)
Radiated Emissions	1	Mode 1: GSM850 Idle + Bluetooth Idle + USB Cable (Data Link with Notebook)

Remark: Link with Notebook means data application transferred mode between EUT and Notebook.

2.2. Connection Diagram of Test System



2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	D-Link	DIR-815	KA2IR815A1	N/A	Unshielded, 1.8 m
2.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 2.7 m
3.	Bluetooth Earphone	Nokia	BH-108	PYAHS-107W	N/A	N/A
4.	Bluetooth Earphone	Lenovo	LBH301	N/A	N/A	N/A
5.	Notebook	Lenovo	G480	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	Notebook	Lenovo	E540	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
7.	iPod nano 8GB	Apple	MC690ZP/A	FCC DoC	N/A	N/A
8.	iPod	Apple	MC525 ZP/A	FCC DoC	Shielded, 1.0 m	N/A
9.	USB Cable	Motorola	SKN6378A	FCC DoC	Shielded, 1.0 m	N/A

2.4. EUT Operation Test Setup

The EUT was in GSM idle mode during the testing. The EUT was synchronized to the BCCH, and was in continuous receiving mode by setting system simulator's paging reorganization.

At the same time, the EUT was attached to the Bluetooth earphone, and execute the program, "Winthrx" under WIN7 installed in notebook for files transfer with EUT via USB cable.

3. Test Result

3.1. Test of AC Conducted Emission Measurement

3.1.1 Limits of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

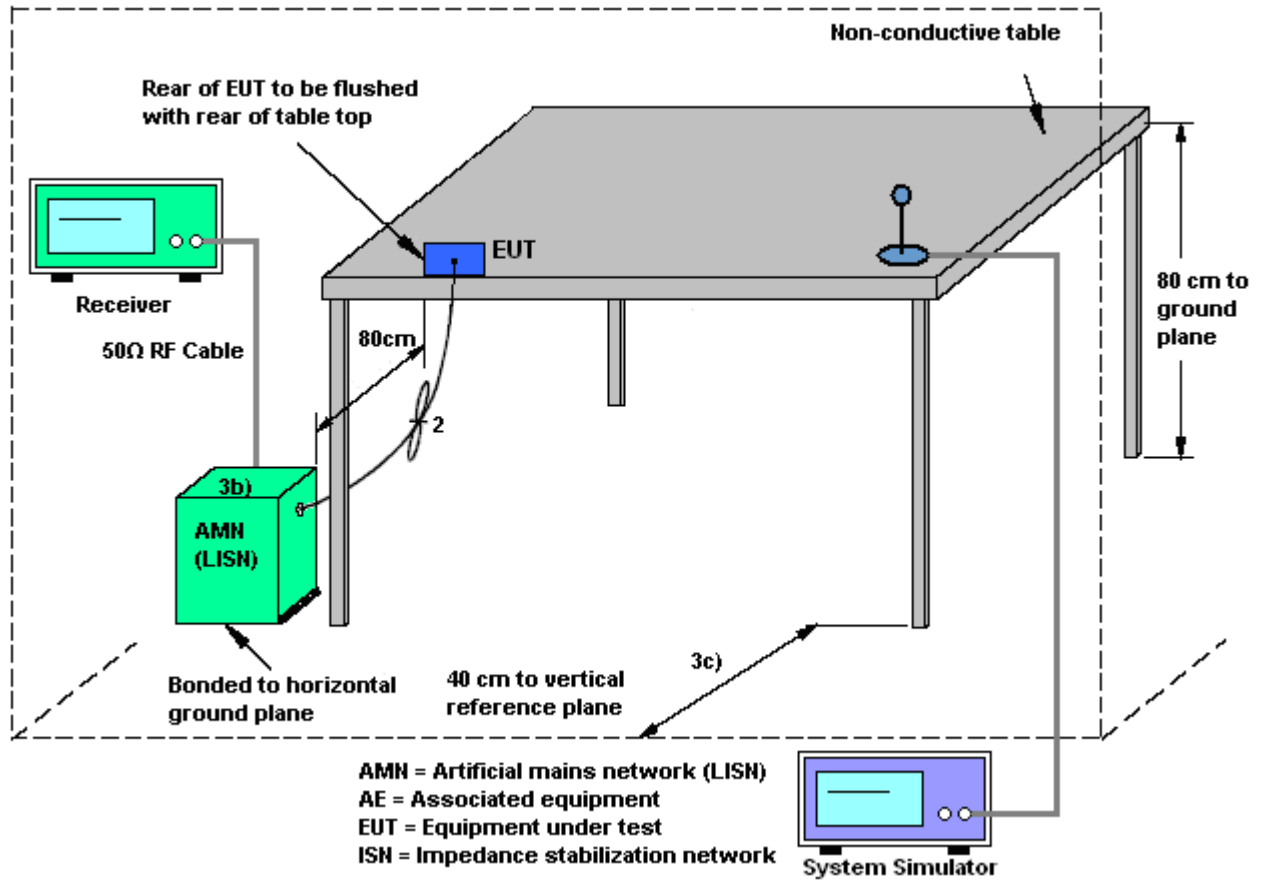
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedure

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

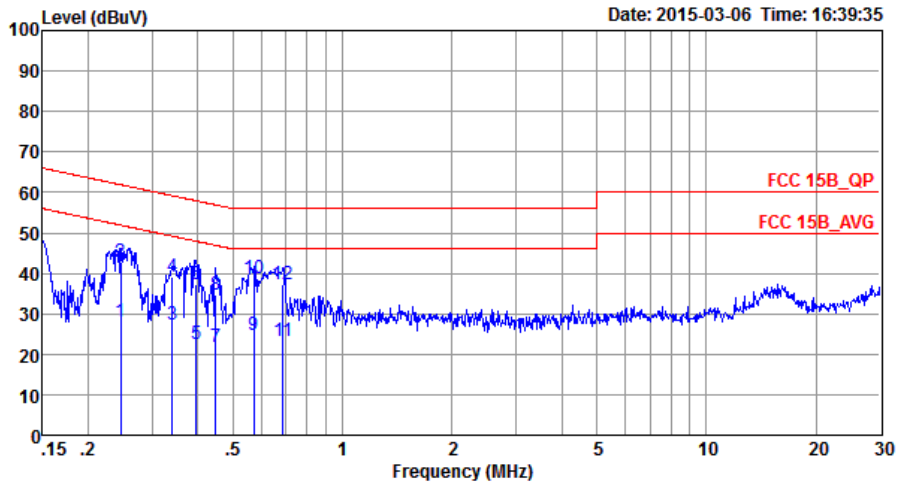
3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	21~22°C
Test Engineer :	Jack Tian	Relative Humidity :	44~45%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Idle + USB Cable (Data Link with Notebook)		

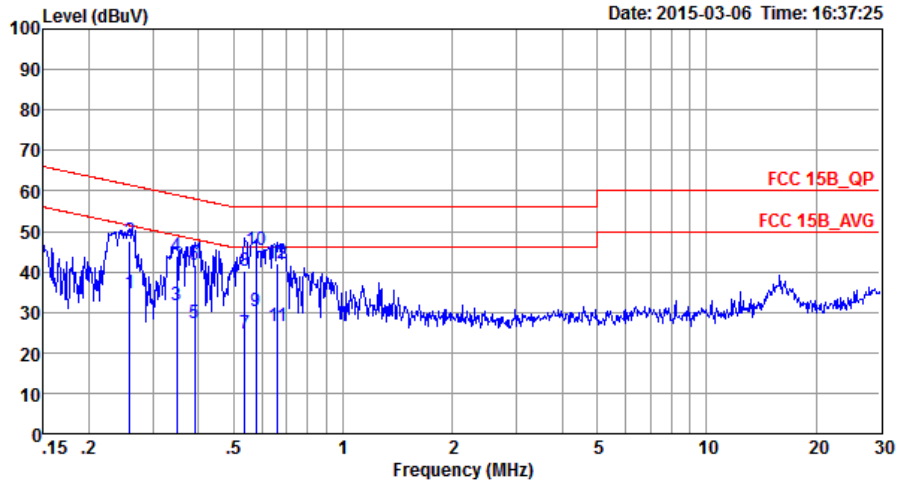


Site : CO01-SZ
 Condition: FCC 15B_QP LISN_L_20140304 LINE

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.25	27.88	-24.03	51.91	17.39	0.24	10.25	Average
2	0.25	42.98	-18.93	61.91	32.49	0.24	10.25	QP
3	0.34	27.25	-21.93	49.18	16.79	0.27	10.19	Average
4	0.34	38.95	-20.23	59.18	28.49	0.27	10.19	QP
5	0.40	22.65	-25.30	47.95	12.20	0.28	10.17	Average
6	0.40	37.15	-20.80	57.95	26.70	0.28	10.17	QP
7	0.45	21.85	-25.04	46.89	11.40	0.29	10.16	Average
8	0.45	34.55	-22.34	56.89	24.10	0.29	10.16	QP
9	0.57	24.61	-21.39	46.00	14.21	0.25	10.15	Average
10 *	0.57	38.61	-17.39	56.00	28.21	0.25	10.15	QP
11	0.69	23.14	-22.86	46.00	12.80	0.19	10.15	Average
12	0.69	37.24	-18.76	56.00	26.90	0.19	10.15	QP



Test Mode :	Mode 1	Temperature :	21~22°C
Test Engineer :	Jack Tian	Relative Humidity :	44~45%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Idle + USB Cable (Data Link with Notebook)		



Site : C001-SZ
 Condition: FCC 15B_QP LISN_N_20140304 NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.26	34.68	-16.79	51.47	24.10	0.35	10.23	Average
2	0.26	47.58	-13.89	61.47	37.00	0.35	10.23	QP
3	0.35	31.56	-17.44	49.00	21.00	0.37	10.19	Average
4	0.35	44.06	-14.94	59.00	33.50	0.37	10.19	QP
5	0.39	27.26	-20.77	48.03	16.70	0.39	10.17	Average
6	0.39	41.76	-16.27	58.03	31.20	0.39	10.17	QP
7	0.54	24.63	-21.37	46.00	14.10	0.38	10.15	Average
8	0.54	40.23	-15.77	56.00	29.70	0.38	10.15	QP
9	0.58	30.29	-15.71	46.00	19.80	0.34	10.15	Average
10 *	0.58	45.29	-10.71	56.00	34.80	0.34	10.15	QP
11	0.66	26.53	-19.47	46.00	16.10	0.28	10.15	Average
12	0.66	41.93	-14.07	56.00	31.50	0.28	10.15	QP

3.2. Test of Radiated Emission Measurement

3.2.1. Limit of Radiated Emission

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

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.2.2. Measuring Instruments

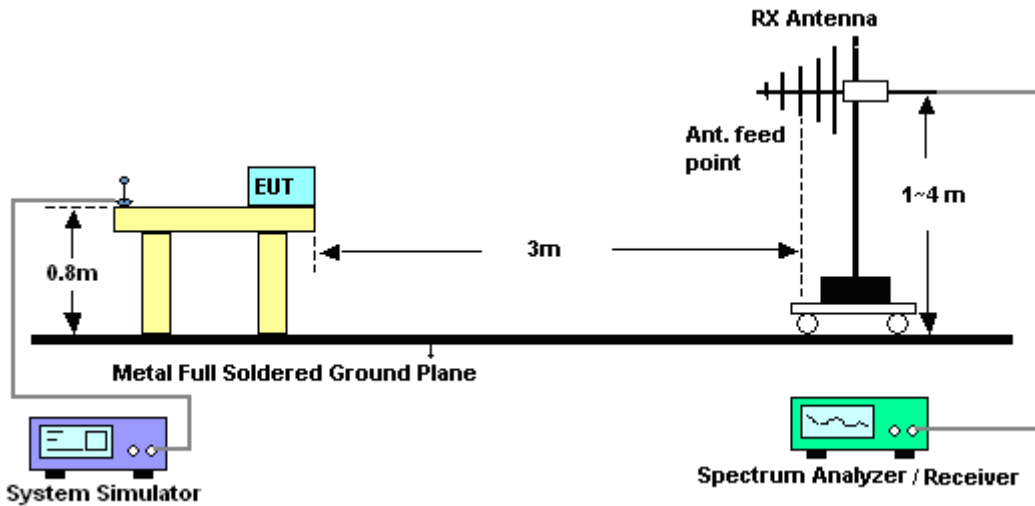
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

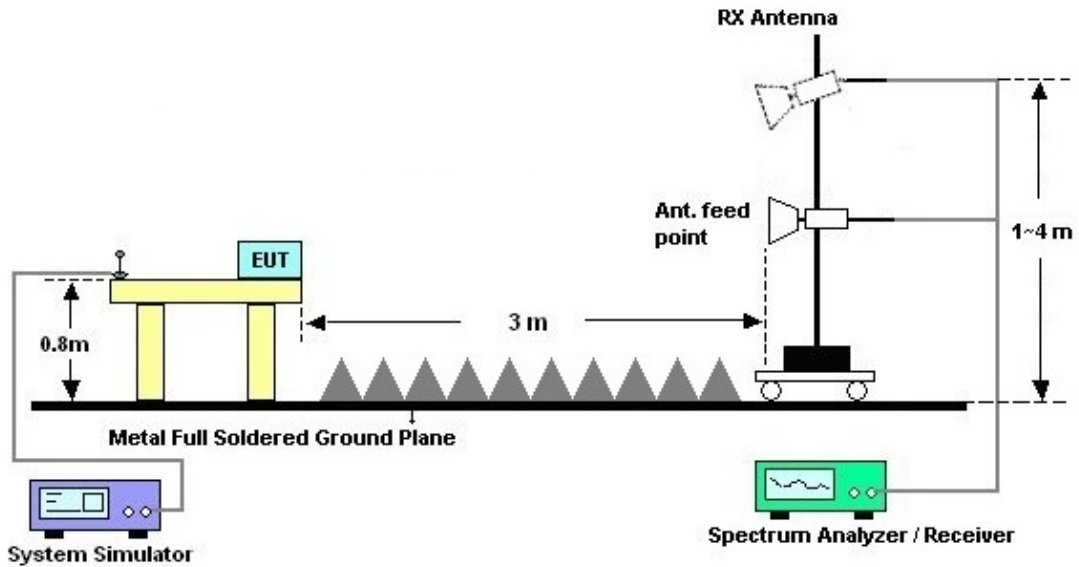
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
8. Emission level (dB μ V/m) = 20 log Emission level (μ V/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz



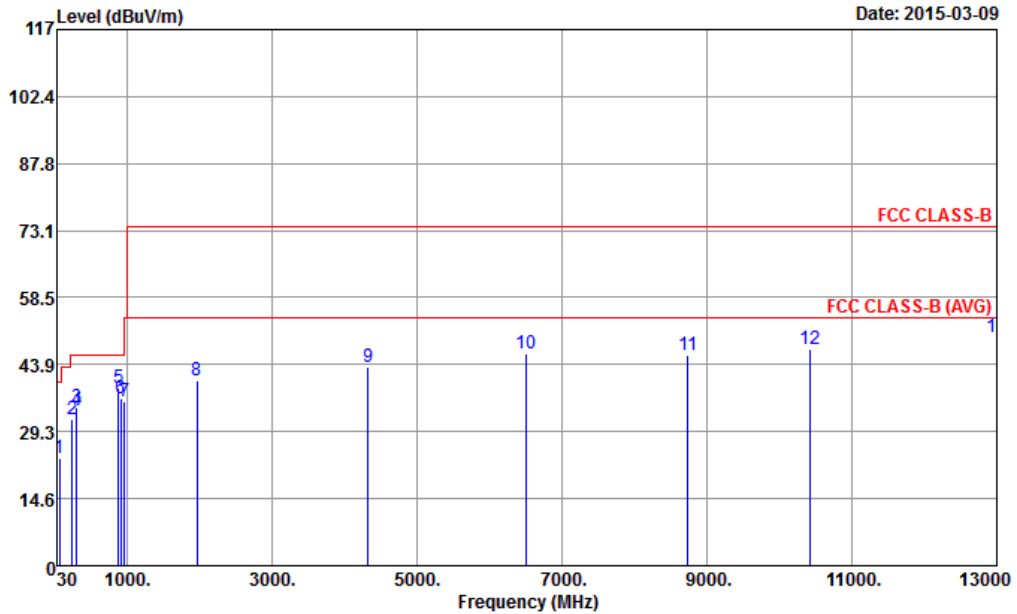
For radiated emissions above 1GHz





3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 1	Temperature :	23~25°C
Test Engineer :	Gavin Zhang	Relative Humidity :	48~52%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	GSM850 Idle + Bluetooth Idle + USB Cable (Data Link with Notebook)		
Remark :	#5 is system simulator signal which can be ignored.		

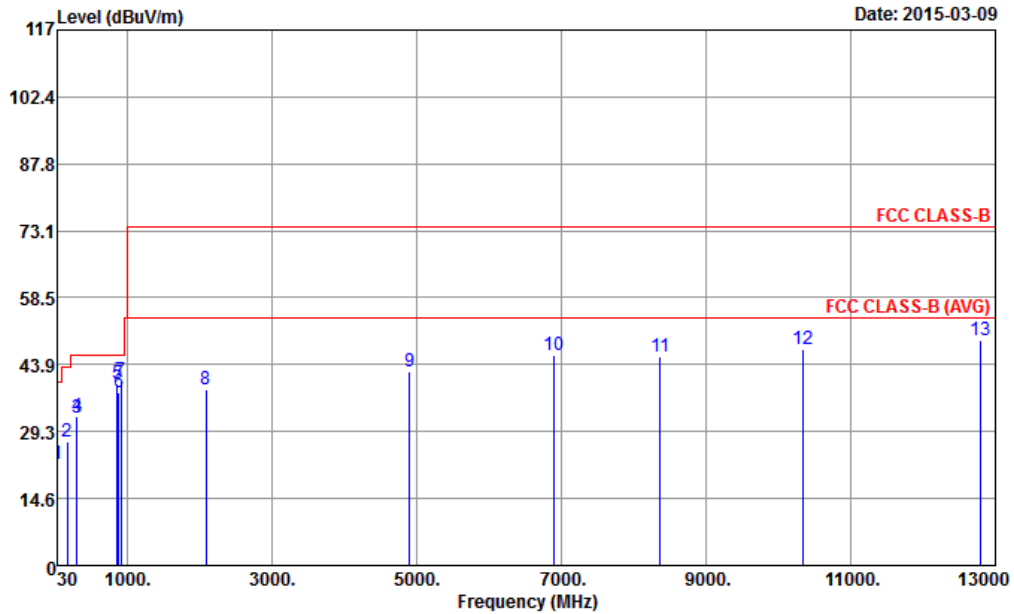


Site : 03CH01-SZ
 Condition : FCC CLASS-B 3m LF ANT_141107 HORIZONTAL

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	68.88	23.60	-16.40	40.00	39.66	8.59	1.26	25.91	---	---	Peak
2	239.79	31.98	-14.02	46.00	42.50	12.23	2.42	25.17	---	---	Peak
3	298.65	34.46	-11.54	46.00	42.70	14.07	2.73	25.04	---	---	Peak
4	300.00	34.02	-11.98	46.00	42.23	14.10	2.73	25.04	---	---	Peak
5	881.66	38.79			38.06	21.77	4.89	25.93	---	---	Peak
6	911.80	36.34	-9.66	46.00	35.65	21.55	4.92	25.78	100	360	Peak
7	960.10	35.83	-18.17	54.00	34.82	21.36	5.06	25.41	---	---	Peak
8	1968.00	40.54	-33.46	74.00	51.77	31.89	7.90	51.02	---	---	Peak
9	4320.00	43.42	-30.58	74.00	48.65	34.09	12.47	51.79	---	---	Peak
10	6514.00	46.21	-27.79	74.00	45.82	36.30	14.41	50.32	---	---	Peak
11	8736.00	46.10	-27.90	74.00	42.50	36.48	16.69	49.57	---	---	Peak
12	10418.00	47.12	-26.88	74.00	41.64	38.43	17.39	50.34	---	---	Peak
13	12990.00	49.74	-24.26	74.00	41.96	39.01	18.81	50.04	200	360	Peak



Test Mode :	Mode 1	Temperature :	23~25°C
Test Engineer :	Gavin Zhang	Relative Humidity :	48~52%
Test Distance :	3m	Polarization :	Vertical
Function Type :	GSM850 Idle + Bluetooth Idle + USB Cable (Data Link with Notebook)		
Remark :	#6 is system simulator signal which can be ignored.		



Site : 03CH01-SZ
 Condition : FCC CLASS-B 3m LF_ANT_141107 VERTICAL

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	33.24	22.05	-17.95	40.00	29.15	18.07	0.88	26.05	---	---	Peak
2	166.62	27.14	-16.36	43.50	38.58	11.97	2.01	25.42	---	---	Peak
3	298.65	32.42	-13.58	46.00	40.66	14.07	2.73	25.04	---	---	Peak
4	300.00	32.47	-13.53	46.00	40.68	14.10	2.73	25.04	---	---	Peak
5	864.20	39.68	-6.32	46.00	38.91	21.92	4.83	25.98	---	---	Peak
6	881.66	37.83			37.10	21.77	4.89	25.93	---	---	Peak
7	911.80	40.38	-5.62	46.00	39.69	21.55	4.92	25.78	200	360	Peak
8	2082.00	38.58	-35.42	74.00	49.12	32.29	8.10	50.93	---	---	Peak
9	4898.00	42.40	-31.60	74.00	45.51	34.44	12.98	50.53	---	---	Peak
10	6900.00	45.96	-28.04	74.00	46.07	36.14	14.51	50.76	---	---	Peak
11	8362.00	45.67	-28.33	74.00	42.81	36.28	16.22	49.64	---	---	Peak
12	10340.00	47.10	-26.90	74.00	41.53	38.37	17.46	50.26	---	---	Peak
13	12800.00	49.29	-24.71	74.00	41.38	39.12	18.72	49.93	100	360	Peak



4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI TEST Receiver	R&S	ESCI7	100768	9kHz~3GHz	May 04, 2014	Mar. 06, 2015	May 03, 2015	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Feb. 02, 2015	Mar. 06, 2015	Feb. 01, 2016	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Feb. 02, 2015	Mar. 06, 2015	Feb. 01, 2016	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Sep. 29, 2014	Mar. 06, 2015	Sep. 28, 2015	Conduction (CO01-SZ)
System Simulator	R&S	CMU 200	116456	Full-Band	Aug. 11, 2014	Mar. 06, 2015	Aug. 10, 2015	Conduction (CO01-SZ)
EMI TEST Receiver	R&S	ESCI7	100768	9kHz~3GHz	May 04, 2014	Mar. 09, 2015	May 03, 2015	Radiation (03CH01-SZ)
Spectrum Analyzer	Agilent Technologies	N9038A	MY52260185	20Hz~26.5GHz	May 26, 2014	Mar. 09, 2015	May 25, 2015	Radiation (03CH01-SZ)
Bilog Antenna	TESEQ	CBL 6112D	37877	30MHz~2GHz	Oct. 15, 2014	Mar. 09, 2015	Oct. 14, 2015	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS Lindgren	3117	00119436	1GHz~18GHz	Oct. 15, 2014	Mar. 09, 2015	Oct. 14, 2015	Radiation (03CH01-SZ)
Amplifier	com-power	PA-103A	161069	1~1000MHz	May 04, 2014	Mar. 09, 2015	May 03, 2015	Radiation (03CH01-SZ)
Amplifier	Yiai	AV3860B	04030	2GHz~26.5GHz	May 08, 2014	Mar. 09, 2015	May 07, 2015	Radiation (03CH01-SZ)
AC Source	Chroma	61601ACSOU RCE	616010002470	100Vac~240Vac	NCR	Mar. 09, 2015	NCR	Radiation (03CH01-SZ)
Turn Table	EM Electronics	EM 1000	N/A	0~360 degree	NCR	Mar. 09, 2015	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM Electronics	EM 1000	N/A	1 m~4 m	NCR	Mar. 09, 2015	NCR	Radiation (03CH01-SZ)
System Simulator	R&S	CMU 200	116456	Full-Band	Aug. 11, 2014	Mar. 09, 2015	Aug. 10, 2015	Radiation (03CH01-SZ)



5. Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.3 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.9 dB
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