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74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea
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REPORT

FCC Certification

Applicant Name:
SAMSUNG Electronics Co., Ltd.

Address:
129, Samsung-ro, Yeongtong-gu Suwon-si, Gyeonggi-do, 443-742 Rep. of Korea

Date of Issue:
December 17, 2014

Test Site/Location:
HCT CO., LTD., 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea

Report No.: HCT-R-1412-F032

HCT FRN: 0005866421

FCC ID : A3LSME7000

APPLICANT : SAMSUNG Electronics Co., Ltd.

FCC Model(s):	SM-E7000
EUT Type:	Mobile Phone
RF Output Field Strength	11.66 dBuV/m
Frequency of Operation:	13.55994 MHz
Modulation type	ASK
FCC Classification:	Low Power Communication Device – Transmitter
FCC Rule Part(s):	FCC Part 15.225 Subpart C

Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

Report prepared by
: Jong Seok Lee
Test Engineer of RF Team

Approved by
: Chang Seok Choi
Manager of RF Team

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Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-R-1412-F032	December 17,2014	- First Approval Report

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1. GENERAL INFORMATION

Applicant:	SAMSUNG Electronics Co., Ltd.
Address:	129, Samsung-ro, Yeongtong-gu Suwon-si, Gyeonggi-do, 443-742 Rep. of Korea
FCC ID:	A3LSME7000
EUT Type:	Mobile Phone
Model name(s):	SM-E7000
Date(s) of Tests:	December 10, 2014 ~ December 16, 2014
Place of Tests:	HCT Co., Ltd. 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea (IC Recognition No. : 5944A-3)

2. EUT DESCRIPTION

FCC Model Name	SM-E7000
EUT Type	Mobile Phone
Power Supply	DC 3.8 V
Battery Type	Li-ion Battery(Standard)
Frequency of Operation	13.55994 MHz
Transmit Power	11.66 dBuV/m
Modulation Type	ASK
Antenna Specification	Manufacturer: AMOTECH Co.Ltd. Antenna type: FPCB Antenna

3. TEST METHODOLOGY

The measurement procedure described in the American National Standard for Testing Unlicensed Wireless Devices(ANSI C63.10-2009).

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.225 under the FCC Rules Part 15 Subpart C.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 6.2 of ANSI C63.10. (Version :2009) Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements in Section 6.3 of ANSI C63.10. (Version: 2009).

3.4 DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

3.5 STANDARDS

The following tests were conducted on a sample of the equipment for the purpose of demonstrating compliance With
FCC Part 15.Subpart C

Regulation	Measurement standard	Range
Title 47 of the CFR: Part 15 Subpart (c), Clause 15.225(a)	ANSI C63.10:2009	13.553MHz to 13.567MHz
Title 47 of the CFR: Part 15 Subpart (c), Clause 15.225(d)	ANSI C63.10:2009	outside of the 13.110-14.010 MHz band
Title 47 of the CFR: Part 15 Subpart (c), Clause 15.209	ANSI C63.10:2009	9kHz to 30MHz
Title 47 of the CFR: Part 15 Subpart (c), Clause 15.209	ANSI C63.10:2009	30MHz to 1GHz
Title 47 of the CFR: Part 15 Subpart (c), Clause 15.207	ANSI C63.10:2009	150kHz to 30MHz
Title 47 of the CFR: Part 15 Subpart (c), Clause 15.225(e)	ANSI C63.10:2009	0.01% of nominal
Title 47 of the CFR: Part 15 Subpart (c), Clause 15.215(c)	ANSI C63.10:2009	-

4. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipments, which is traceable to recognized national standards.

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

The 10 m semi anechoic chamber used to collect the Conducted and Radiated data is located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea. Those measurement facilities are constructed in conformance with the requirements of ANSI C63.4. Detailed description of test facilities was submitted to the Commission and accepted dated February 28, 2014 (Registration Number: 90661)

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned loop, dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.
Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.
All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

6. ANTENNA REQUIREMENTS

According to FCC 47 CFR §15.203:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

* The antennas of this E.U.T are permanently attached.

*The E.U.T Complies with the requirement of §15.203

7. TEST SUMMARY

The results in this report apply only to sample tested

Regulation	Test Type	Range	Result
Title 47 of the CFR: Part 15 Subpart (c), Clause 15.225(a)	Radiated Electric Field Emissions	13.553MHz to 13.567MHz	Pass
Title 47 of the CFR: Part 15 Subpart (c), Clause 15.225(b)	Radiated Electric Field Emissions	13.410MHz to 13.553MHz and 13.567MHz to 13.710MHz	Pass
Title 47 of the CFR: Part 15 Subpart (c), Clause 15.225(c)	Radiated Electric Field Emissions	13.110 MHz to 13.410 MHz and 13.710 MHz to 14.010 MHz	Pass
Title 47 of the CFR: Part 15 Subpart (c), Clause 15.209 (d)	Radiated Electric Field Emissions	9kHz to 30MHz	Pass
Title 47 of the CFR: Part 15 Subpart (c), Clause 15.209	Radiated Electric Field Emissions	30MHz to 1GHz	Pass
Title 47 of the CFR: Part 15 Subpart (c), Clause 15.207	AC power conducted emissions	150kHz to 30MHz	Pass
Title 47 of the CFR: Part 15 Subpart (c), Clause 15.225(e)	Frequency Stability	0.01% of nominal	Pass
Title 47 of the CFR: Part 15 Subpart (c), Clause 15.215(c)	20 dB Bandwidth	-	Pass

8. RADIATED EMISSION MEASUREMENT

Requirement(s): 15.209, 15.225

Except as provided elsewhere in this paragraph the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Minimum Standard: FCC Part 15.225 / 15.209

Rule Part	Frequency (MHz)	Limit
Part 15.209	0.009 ~ 0.490	2400/F(kHz)uV/m@300
	0.490 ~1.705	24000/F(kHz)uV/m@30
	1.705 ~ 30	30 uV/m@30
	30 ~ 88	100 ** uV/m@3m
	88 ~ 216	150 ** uV/m@3m
	216 ~ 960	200 ** uV/m@3m
	Above 960	500 uV/m@3m

** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88MHz, 174-216MHz or 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

15.225 Operation within the band 13.110 – 14.010 MHz.

(a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter (= 84 dBuV/m) at 30 meters.

(b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter (=50.5dBuV/m) at 30 meters.

(c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter (=40.5 dBuV/m) at 30 meters.

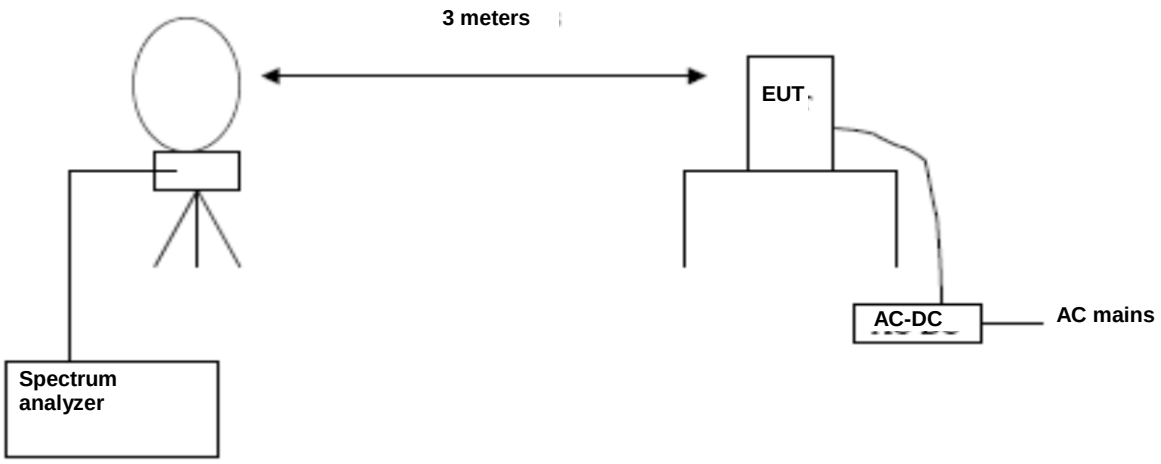
(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

(e) The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of –20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

(f) In the case of radio frequency powered tags designed to operate with a device authorized under this section, the tag may be approved with the device or be considered as a separate device subject to its own authorization. Powered tags approved with a device under a single application shall be labeled with the same identification number as the device.

8.1. RADIATED EMISSION 9 kHz – 30 MHz

Test Set-up



Test Procedure

The EUT was placed on a non-conductive table located on a large open test site.
The loop antenna was placed at a location 3m from the EUT. Radiated emissions were measured with the loop antenna both parallel and perpendicular to the plane of the EUT loop antenna and with x, y, z planes in EUT.

The limit is converted from microvolts/meter to decibel microvolts/meter. Sample Calculation:

Corrected Amplitude = Raw Amplitude(dBµV/m) + ACF(dB) + Cable Loss(dB) – Distance Correction Factor

The spectrum analyzer is set to:
Frequency Range = 9 kHz ~ 1GHz
RBW = 9 kHz (9 kHz ~ 30MHz)
= 120 kHz (30 MHz ~ 1 GHz)

Trace Mode = max hold
Detector Mode = peak / Quasi-peak
Sweep time = auto

Test Results

13.553 MHz-13.567 MHz						
Frequency (MHz)	Read Level (dBuV)@3m	Ant.Factor+Cable Loss (dB/m)	Distance Correction (dB)	Result Level (dBuV/m)@30m	Limit (dBuV/m)@30m	Margin (dB)
13.55994	31.29(H)*	20.37	-40	11.66	84	72.34
13.55994	25.64(V)*	20.37	-40	6.01	84	77.99

13.410 MHz-13.553 MHz and 13.567 MHz-13.710 MHz						
Frequency (MHz)	Read Level (dBuV)@3m	Ant.Factor+Cable Loss (dB/m)	Distance Correction (dB)	Result Level (dBuV/m)@30m	Limit (dBuV/m)@30m	Margin (dB)
13.553	25.94	20.37	-40	6.31	50.47	44.16
13.567	25.02	20.37	-40	5.39	50.47	45.08

13.110 MHz – 13.410 MHz and 13.710 MHz-14.010 MHz						
Frequency (MHz)	Read Level (dBuV)@3m	Ant.Factor+Cable Loss (dB/m)	Distance Correction (dB)	Result Level (dBuV/m)@30m	Limit (dBuV/m)@30m	Margin (dB)
13.3446	14.37	20.37	-40	-5.26	40.51	45.77
13.7634	9.11	20.37	-40	-10.52	40.51	51.03

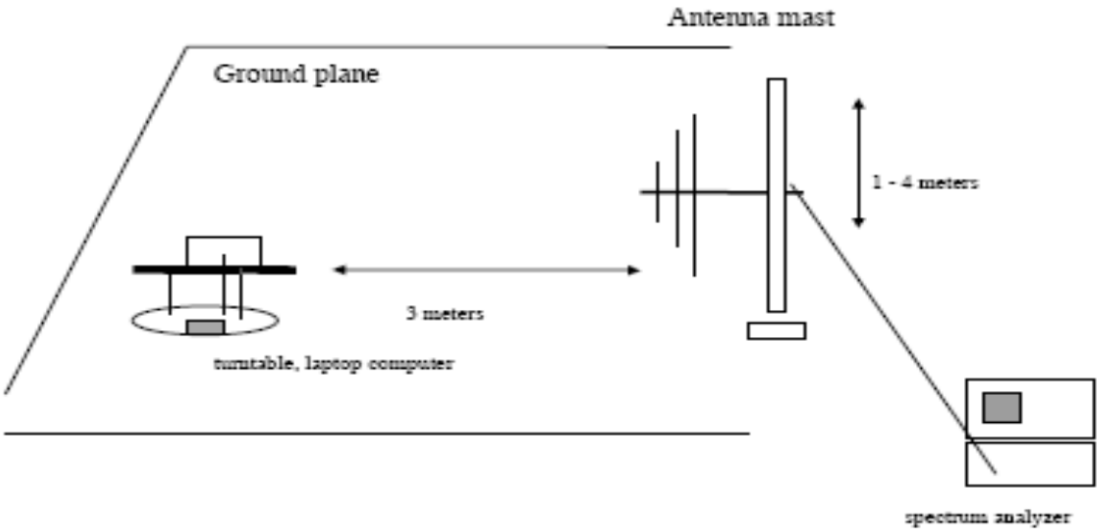
9 kHz -30 MHz						
Frequency (MHz)	Read Level (dBuV)@3m	Ant.Factor+Cable Loss (dB/m)	Distance Correction (dB)	Result Level (dBuV/m)@30m	Limit (dBuV/m)@30m	Margin (dB)
12.9595	9.89	20.26	-40	-9.85	29.54	39.39
14.7275	8.23	20.35	-40	-11.42	29.54	40.96
27.1200	9.35	20.65	-40	-10.00	29.54	39.54
27.1200	8.36	20.65	-40	-10.99	29.54	40.53

Note :

1. Distance Correction Below 30MHz = 40log(3m/30m) = - 40 dB
   Measurement Distance : 3 m (Below 30 MHz)
2. Factor = Antenna Factor + Cable Loss
3. Result Level = Read Level + Factor + Distance Correction
4. Margin = Limit – Result Level
5. We have done x, y, z planes in EUT
6. Antenna rotated about its vertical/horizontal axis for maximum response at each azimuth position around the EUT.
7. Worst case of operating mode is type A, analog mode and 106 kbps.

8.2. RADIATED EMISSION 30 MHz – 1000 MHz

Test Set-up



Test Procedures: Radiated emissions were measured according to ANSI C63.10.

The EUT was set to transmit at the highest output power.

The EUT was set 3 meter away from the measuring antenna.

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBμV	dB /m	dB	(H/V)	dBμV/m	dBμV/m	dB
35.00	19.55	12.01	0.97	H	32.53	40.00	7.47
43.22	20.01	12.79	1.08	H	33.88	40.00	6.12
50.11	20.47	13.25	1.17	V	34.89	40.00	5.11
81.32	22.15	9.16	1.46	H	32.77	40.00	7.23
127.60	22.35	12.01	1.89	H	36.25	43.5	7.25
147.60	20.69	13.26	2.12	V	36.07	43.5	7.43

Remark

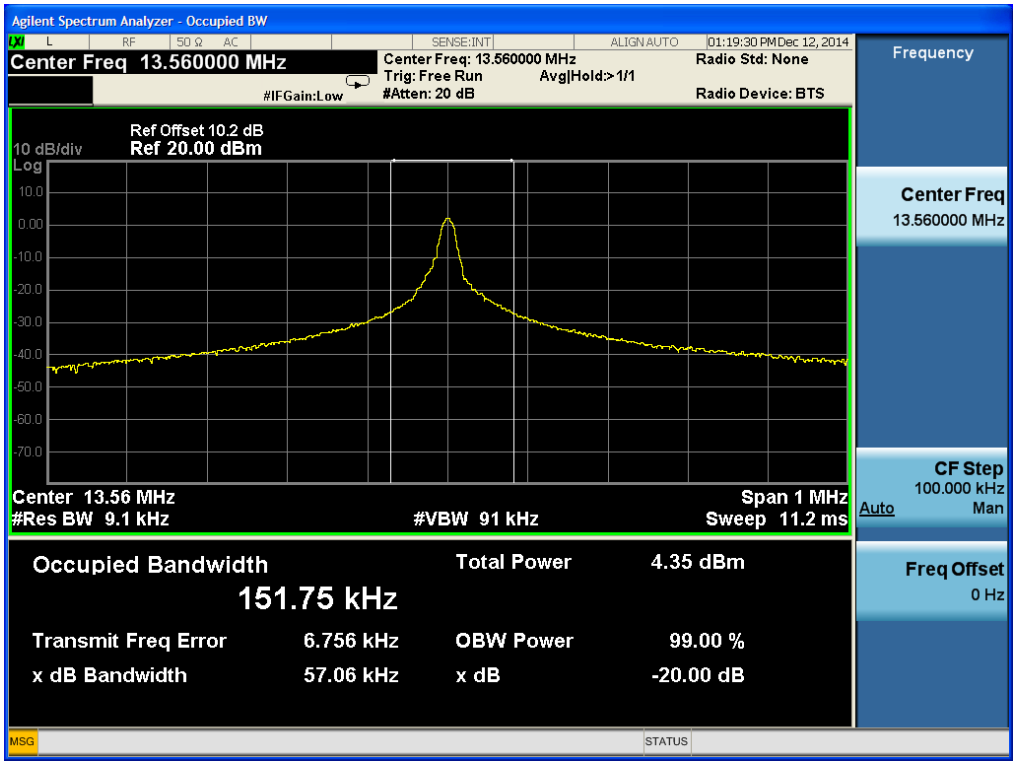
1. Result Level = Read Level + (Antenna Factor+ Cable Loss)
2. Margin = Limit – Result Level

9. EMISSION BANDWIDTH PLOT.

Requirement(s):

Test Set-up: The EUT was connected to a spectrum analyzer.

Test Procedure: The 20 dB bandwidth was measured by using a spectrum analyzer.



10. FREQUENCY TOLERANCE

Procedure: Part 15.225, ANSI 63.10

If required, the operating or transmitting frequency of an intentional radiator should be measured in accordance with the following procedure to ensure that the device operates outside certain precluded frequency bands and within the frequency range. No modulation needs to be supplied to the intentional radiator during these tests, unless modulation is required to produce an output, e.g., single-sideband suppressed carrier transmitters.

The frequency stability of the transmitter is measured by:

a) Temperature: The temperature is varied from -20°C to + 50°C using an environmental chamber.

b) For battery operated equipment, the equipment tests shall be performed using a new battery.

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency.

Measurement Result:

VOLTAGE	POWER	Temperature	Frequency	Frequency Error
(%)		(°C)	(MHz)	(Hz)
100%	3.8 V	-20	13.559170	-830.00
100%		-10	13.559230	-770.00
100%		0	13.559290	-710.00
100%		10	13.559360	-640.00
100%		20	13.559400	-600.00
100%		30	13.559680	-320.00
100%		40	13.559960	-40.00
100%		50	13.560130	130.00
115%	4.37	20	13.560540	540.00
Batt. Endpoint	3.23	20	13.560380	380.00

11. POWERLINE CONDUCTE EMISSIONS

LIMIT

For an intentional radiator which 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 250 microvolt (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dBµV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

Test Configuration

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT is placed on a wooden table 80 cm above the reference ground plane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Detectors – Quasi Peak and Average Detector.
5. The EUT is the device with a detachable antenna operating below 30 MHz.
   - For unterminated the Antenna, the AC line conducted tests are performed with the antenna connected
   - For terminated the Antenna, the AC line conducted tests are performed with a dummy load connected to the EUT antenna output terminal.

Test Plots

Unterminate the Antenna

Conducted Emissions (Line 1)

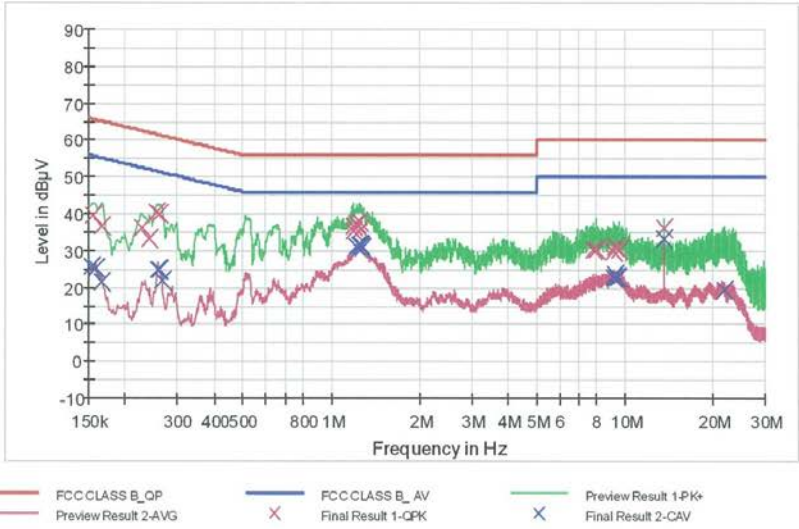
EMI Auto Test(2) 1 / 2

HCT TEST Report

Common Information

EUT:	SM-E7000
Manufacturer:	SAMSUNG
Test Site:	SHIELD ROOM
Operating Conditions:	NFC MODE(UNTERMINATION)
Operator Name:	JS LEE

FCC CLASS B



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.156000	39.6	9.000	Off	N	9.6	26.1	65.7
0.166000	36.7	9.000	Off	N	9.6	28.5	65.2
0.228000	36.2	9.000	Off	N	9.7	26.3	62.5
0.242000	33.3	9.000	Off	N	9.7	28.7	62.0
0.256000	40.5	9.000	Off	N	9.7	21.1	61.6
0.262000	40.2	9.000	Off	N	9.7	21.2	61.4
1.188000	35.3	9.000	Off	N	9.7	20.7	56.0
1.194000	36.6	9.000	Off	N	9.7	19.4	56.0
1.216000	37.5	9.000	Off	N	9.7	18.5	56.0
1.240000	37.9	9.000	Off	N	9.7	18.1	56.0
1.260000	35.7	9.000	Off	N	9.8	20.3	56.0
1.266000	35.9	9.000	Off	N	9.8	20.1	56.0
7.806000	30.3	9.000	Off	N	10.0	29.7	60.0
7.936000	30.1	9.000	Off	N	10.0	29.9	60.0
9.124000	30.0	9.000	Off	N	10.0	30.0	60.0
9.266000	31.3	9.000	Off	N	10.0	28.7	60.0

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EMI Auto Test(2) 2 / 2

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
9.568000	30.4	9.000	Off	N	10.0	29.6	60.0
13.560000	36.2	9.000	Off	N	10.1	23.8	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.154000	25.6	9.000	Off	N	9.6	30.2	55.8
0.158000	25.2	9.000	Off	N	9.6	30.4	55.6
0.166000	21.5	9.000	Off	N	9.6	33.7	55.2
0.258000	25.1	9.000	Off	N	9.7	26.4	51.5
0.262000	25.0	9.000	Off	N	9.7	26.4	51.4
0.266000	22.1	9.000	Off	N	9.7	29.1	51.2
1.216000	31.4	9.000	Off	N	9.7	14.6	46.0
1.220000	31.1	9.000	Off	N	9.7	14.9	46.0
1.250000	31.4	9.000	Off	N	9.8	14.6	46.0
1.262000	31.3	9.000	Off	N	9.8	14.7	46.0
1.266000	31.5	9.000	Off	N	9.8	14.5	46.0
1.276000	30.9	9.000	Off	N	9.8	15.1	46.0
9.150000	22.7	9.000	Off	N	10.0	27.3	50.0
9.264000	23.5	9.000	Off	N	10.0	26.5	50.0
9.380000	22.9	9.000	Off	N	10.0	27.1	50.0
9.472000	22.9	9.000	Off	N	10.0	27.1	50.0
13.560000	33.3	9.000	Off	N	10.1	16.7	50.0
21.916000	19.5	9.000	Off	N	10.4	30.5	50.0

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Conducted Emissions (Line 2)

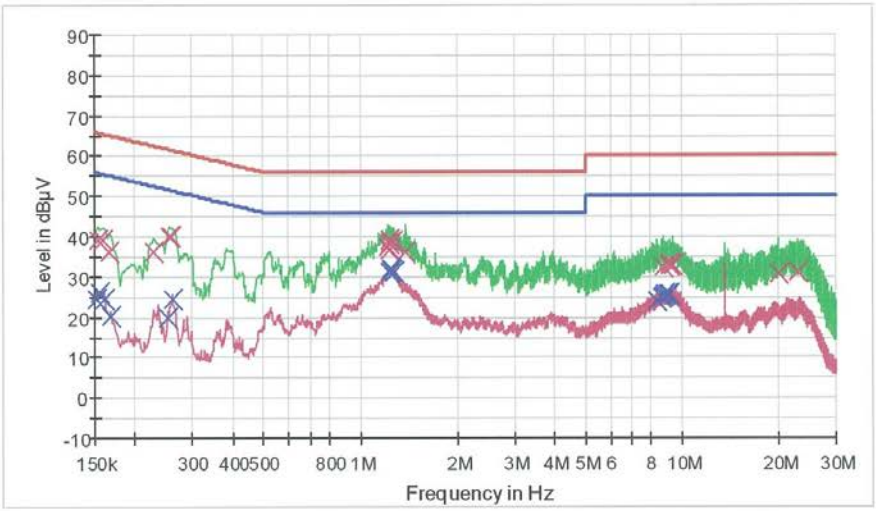
EMI Auto Test(2) 1 / 2

HCT TEST Report

Common Information

EUT:	SM-E7000
Manufacturer:	SAMSUNG
Test Site:	SHIELD ROOM
Operating Conditions:	NFC MODE(UNTERMINATION)
Operator Name:	JS LEE

FCC CLASS B



FCC CLASS B_QP
Preview Result 2-AVG
FCC CLASS B_ AV
Final Result 1-QPK
Preview Result 1-PK+
Final Result 2-CAV

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.154000	39.1	9.000	Off	L1	9.6	26.7	65.8
0.158000	39.0	9.000	Off	L1	9.6	26.6	65.6
0.166000	36.0	9.000	Off	L1	9.6	29.2	65.2
0.228000	36.1	9.000	Off	L1	9.6	26.4	62.5
0.254000	39.8	9.000	Off	L1	9.7	21.8	61.6
0.258000	40.0	9.000	Off	L1	9.7	21.5	61.5
1.218000	37.3	9.000	Off	L1	9.7	18.7	56.0
1.230000	38.4	9.000	Off	L1	9.7	17.6	56.0
1.234000	36.4	9.000	Off	L1	9.7	19.6	56.0
1.238000	39.3	9.000	Off	L1	9.7	16.7	56.0
1.266000	38.6	9.000	Off	L1	9.7	17.4	56.0
1.386000	36.2	9.000	Off	L1	9.7	19.8	56.0
8.710000	32.5	9.000	Off	L1	10.0	27.5	60.0
9.110000	33.0	9.000	Off	L1	10.0	27.0	60.0
9.174000	33.2	9.000	Off	L1	10.0	26.8	60.0
9.306000	32.9	9.000	Off	L1	10.0	27.1	60.0

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EMI Auto Test(2) 2 / 2

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
19.892000	30.7	9.000	Off	L1	10.4	29.3	60.0
22.910000	31.2	9.000	Off	L1	10.5	28.8	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.152000	24.7	9.000	Off	L1	9.6	31.2	55.9
0.156000	26.0	9.000	Off	L1	9.6	29.7	55.7
0.160000	24.4	9.000	Off	L1	9.6	31.1	55.5
0.168000	20.3	9.000	Off	L1	9.6	34.8	55.1
0.252000	19.8	9.000	Off	L1	9.7	31.9	51.7
0.260000	24.4	9.000	Off	L1	9.7	27.0	51.4
1.228000	31.3	9.000	Off	L1	9.7	14.7	46.0
1.232000	31.3	9.000	Off	L1	9.7	14.7	46.0
1.240000	31.8	9.000	Off	L1	9.7	14.2	46.0
1.252000	31.9	9.000	Off	L1	9.7	14.1	46.0
1.256000	31.5	9.000	Off	L1	9.7	14.5	46.0
1.276000	31.4	9.000	Off	L1	9.7	14.6	46.0
8.344000	24.2	9.000	Off	L1	10.0	25.8	50.0
8.598000	24.8	9.000	Off	L1	10.0	25.2	50.0
8.748000	25.4	9.000	Off	L1	10.0	24.6	50.0
8.874000	25.5	9.000	Off	L1	10.0	24.5	50.0
9.004000	25.7	9.000	Off	L1	10.0	24.3	50.0
9.172000	25.7	9.000	Off	L1	10.0	24.3	50.0

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Terminate the Antenna

Conducted Emissions (Line 1)

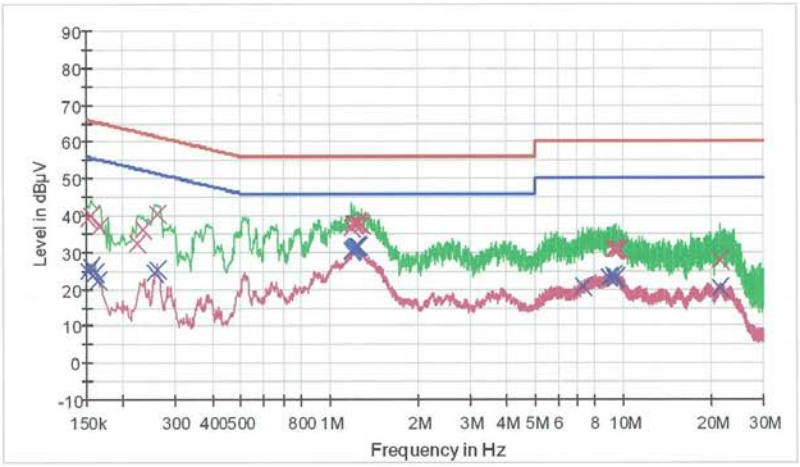
EMI Auto Test(2) 1 / 2

HCT TEST Report

Common Information

EUT:	SM-E7000
Manufacturer:	SAMSUNG
Test Site:	SHIELD ROOM
Operating Conditions:	NFC MODE(TERMINATION)
Operator Name:	JS LEE

FCC CLASS B



FCC CLASS B_QP
Preview Result 2-AVG
FCC CLASS B_ AV
Final Result 1-QPK
Preview Result 1-PK+
Final Result 2-CAV

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.152000	39.3	9.000	Off	N	9.6	26.6	65.9
0.156000	40.0	9.000	Off	N	9.6	25.7	65.7
0.166000	36.9	9.000	Off	N	9.6	28.4	65.2
0.222000	32.5	9.000	Off	N	9.7	30.2	62.7
0.234000	36.1	9.000	Off	N	9.7	26.2	62.3
0.262000	40.4	9.000	Off	N	9.7	21.0	61.4
1.196000	36.7	9.000	Off	N	9.7	19.3	56.0
1.206000	38.1	9.000	Off	N	9.7	17.9	56.0
1.218000	37.6	9.000	Off	N	9.7	18.4	56.0
1.228000	37.9	9.000	Off	N	9.7	18.1	56.0
1.264000	37.9	9.000	Off	N	9.8	18.1	56.0
1.290000	37.5	9.000	Off	N	9.8	18.5	56.0
9.204000	30.9	9.000	Off	N	10.0	29.1	60.0
9.352000	30.7	9.000	Off	N	10.0	29.3	60.0
9.412000	30.9	9.000	Off	N	10.0	29.1	60.0
9.416000	30.6	9.000	Off	N	10.0	29.4	60.0

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EMI Auto Test(2) 2 / 2

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
9.706000	30.8	9.000	Off	N	10.0	29.2	60.0
21.458000	27.8	9.000	Off	N	10.4	32.2	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.152000	25.0	9.000	Off	N	9.6	30.9	55.9
0.156000	26.2	9.000	Off	N	9.6	29.5	55.7
0.160000	24.6	9.000	Off	N	9.6	30.9	55.5
0.164000	22.4	9.000	Off	N	9.6	32.9	55.3
0.256000	24.4	9.000	Off	N	9.7	27.2	51.6
0.260000	25.3	9.000	Off	N	9.7	26.1	51.4
1.196000	30.2	9.000	Off	N	9.7	15.8	46.0
1.206000	30.8	9.000	Off	N	9.7	15.2	46.0
1.218000	31.3	9.000	Off	N	9.7	14.7	46.0
1.228000	31.6	9.000	Off	N	9.7	14.4	46.0
1.242000	31.7	9.000	Off	N	9.7	14.3	46.0
1.264000	31.7	9.000	Off	N	9.8	14.3	46.0
7.286000	20.9	9.000	Off	N	10.0	29.1	50.0
8.974000	23.1	9.000	Off	N	10.0	26.9	50.0
9.204000	23.6	9.000	Off	N	10.0	26.4	50.0
9.314000	23.0	9.000	Off	N	10.0	27.0	50.0
9.412000	23.2	9.000	Off	N	10.0	26.8	50.0
21.458000	20.3	9.000	Off	N	10.4	29.7	50.0

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Conducted Emissions (Line 2)

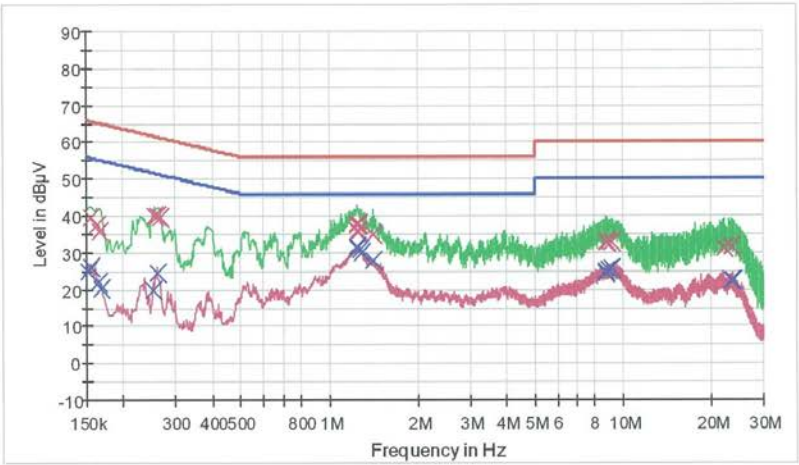
EMI Auto Test(2) 1 / 2

HCT TEST Report

Common Information

EUT:	SM-E7000
Manufacturer:	SAMSUNG
Test Site:	SHIELD ROOM
Operating Conditions:	NFC MODE(TERMINATION)
Operator Name:	JS LEE

FCC CLASS B



FCC CLASS B_QP
Preview Result 2-AVG
FCC CLASS B_ AV
Final Result 1-QPK
Preview Result 1-PK+
Final Result 2-CAV

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.156000	39.4	9.000	Off	L1	9.6	26.3	65.7
0.162000	37.4	9.000	Off	L1	9.6	28.0	65.4
0.166000	35.8	9.000	Off	L1	9.6	29.4	65.2
0.254000	39.9	9.000	Off	L1	9.7	21.7	61.6
0.260000	39.9	9.000	Off	L1	9.7	21.5	61.4
0.266000	39.5	9.000	Off	L1	9.7	21.7	61.2
1.242000	37.8	9.000	Off	L1	9.7	18.2	56.0
1.248000	36.0	9.000	Off	L1	9.7	20.0	56.0
1.252000	37.7	9.000	Off	L1	9.7	18.3	56.0
1.260000	35.9	9.000	Off	L1	9.7	20.1	56.0
1.266000	37.8	9.000	Off	L1	9.7	18.2	56.0
1.410000	34.9	9.000	Off	L1	9.7	21.1	56.0
8.716000	32.8	9.000	Off	L1	10.0	27.2	60.0
8.816000	32.8	9.000	Off	L1	10.0	27.2	60.0
8.846000	33.0	9.000	Off	L1	10.0	27.0	60.0
9.174000	33.1	9.000	Off	L1	10.0	26.9	60.0

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EMI Auto Test(2) 2 / 2

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
22.086000	31.1	9.000	Off	L1	10.5	28.9	60.0
23.508000	31.4	9.000	Off	L1	10.5	28.6	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.152000	24.8	9.000	Off	L1	9.6	31.1	55.9
0.156000	26.2	9.000	Off	L1	9.6	29.5	55.7
0.164000	22.1	9.000	Off	L1	9.6	33.2	55.3
0.168000	20.3	9.000	Off	L1	9.6	34.8	55.1
0.252000	19.6	9.000	Off	L1	9.7	32.1	51.7
0.260000	24.4	9.000	Off	L1	9.7	27.0	51.4
1.240000	31.4	9.000	Off	L1	9.7	14.6	46.0
1.244000	31.1	9.000	Off	L1	9.7	14.9	46.0
1.252000	31.4	9.000	Off	L1	9.7	14.6	46.0
1.276000	30.9	9.000	Off	L1	9.7	15.1	46.0
1.292000	30.1	9.000	Off	L1	9.7	15.9	46.0
1.410000	27.7	9.000	Off	L1	9.7	18.3	46.0
8.716000	25.0	9.000	Off	L1	10.0	25.0	50.0
8.736000	24.6	9.000	Off	L1	10.0	25.4	50.0
8.912000	25.5	9.000	Off	L1	10.0	24.5	50.0
9.174000	25.6	9.000	Off	L1	10.0	24.4	50.0
23.508000	22.3	9.000	Off	L1	10.5	27.7	50.0
23.546000	22.2	9.000	Off	L1	10.5	27.8	50.0

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12. LIST OF TEST EQUIPMENT

12.1 LIST OF TEST EQUIPMENT(Conducted Test)

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Rohde & Schwarz	ENV216/ LISN	01/29/2014	Annual	100073
Agilent	E4440A/ Spectrum Analyzer	04/09/2014	Annual	US45303008
Agilent	N9020A/ SIGNAL ANALYZER	05/23/2014	Annual	MY51110063
Agilent	N1911A/Power Meter	01/24/2014	Annual	MY45100523
Agilent	N1921A /POWER SENSOR	07/09/2014	Annual	MY45241059
Agilent	87300B/Directional Coupler	12/08/2014	Annual	3116A03621
Hewlett Packard	11667B / Power Splitter	01/27/2014	Annual	10545
ITECH	IT6720 / DC POWER SUPPLY	11/04/2014	Annual	010002156287001199
TESCOM	TC-3000C / BLUETOOTH TESTER	04/11/2014	Annual	3000C000276
Rohde & Schwarz	CBT / BLUETOOTH TESTER	05/07/2014	Annual	100422
Agilent	8493C / Attenuator(10 dB)	07/21/2014	Annual	76649

12.2 LIST OF TEST EQUIPMENT(Radiated Test)

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Schwarzbeck	VULB 9160/ TRILOG Antenna	10/10/2014	Biennial	3368
Rohde & Schwarz	ESCI / EMI TEST RECEIVER	01/24/2014	Annual	100584
HD	MA240/ Antenna Position Tower	N/A	N/A	556
EMCO	1050/ Turn Table	N/A	N/A	114
HD GmbH	HD 100/ Controller	N/A	N/A	13
HD GmbH	KMS 560/ SlideBar	N/A	N/A	12
Rohde & Schwarz	SCU-18/ Signal Conditioning Unit	09/04/2014	Annual	10094
CERNEX	CBL18265035 / POWER AMP	07/23/2014	Annual	22966
CERNEX	CBL26405040 / POWER AMP	04/04/2014	Annual	19660
Rohde & Schwarz	FSP / Spectrum Analyzer	01/24/2014	Annual	839117/011
Wainwright Instrument	WHF3.0/18G-10EF / High Pass Filter	02/03/2014	Annual	F6
Wainwright Instrument	WHNX6.0/26.5G-6SS / High Pass Filter	04/09/2014	Annual	1
Wainwright Instrument	WHNX7.0/18G-8SS / High Pass Filter	04/04/2014	Annual	29
Wainwright Instrument	WRCJ2400/2483.5-2370/2520-60/14SS / Band Reject Filter	06/17/2014	Annual	1
TESCOM	TC-3000C / BLUETOOTH TESTER	04/11/2014	Annual	3000C000276
Rohde & Schwarz	CBT / BLUETOOTH TESTER	05/07/2014	Annual	100422
Rohde & Schwarz	LOOP ANTENNA	09/03/2014	Biennial	1513-175
CERNEX	CBL06185030 / POWER AMP	07/21/2014	Annual	22965
CERNEX	CBLU1183540 / POWER AMP	07/21/2014	Annual	22964