

FCC NFC 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:**

June 8, 2015,

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

Report No. HCT-R-1506-F019

HCT FRN: 0005866421**FCC ID:** A3LSMG9198**APPLICANT:** SAMSUNG Electronics Co.,Ltd.**FCC Model(s):** SM-G9198**EUT Type:** Mobile Phone**RF Output Field Strength:** 15.19 dBuV/m @30 m**Frequency of Operation:** 13.5597 MHz**Modulation type:** ASK**FCC Classification:** Low Power Communication Device – Transmitter**FCC Rule Part(s):** FCC Part 15.225 Subpart C

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
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Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-R-1506-F019	June 08, 2015	- First Approval Report

Table of Contents

1. GENERAL INFORMATION	4
2. EUT DESCRIPTION	4
3. TEST METHODOLOGY	5
3.1 EUT CONFIGURATION	5
3.2 EUT EXERCISE	5
3.3 GENERAL TEST PROCEDURES	5
3.4 DESCRIPTION OF TEST MODES	5
3.5 STANDARDS	6
4. INSTRUMENT CALIBRATION.....	7
5. FACILITIES AND ACCREDITATIONS	7
5.1 FACILITIES	7
5.2 EQUIPMENT	7
6. ANTENNA REQUIREMENTS	7
7. TEST SUMMARY	8
8. RADIATED EMISSION MEASUREMENT	9
8.1. RADIATED EMISSION 9 kHz – 30 MHz	10
8.2. RADIATED EMISSION 30 MHz – 1000 MHz	14
9. EMISSION BANDWIDTH PLOT.....	16
10. FREQUENCY TOLERANCE	17
11. POWERLINE CONDUCTE EMISSIONS.....	18
12. LIST OF TEST EQUIPMENT	27
12.1 LIST OF TEST EQUIPMENT(Conducted Test)	27
12.2 LIST OF TEST EQUIPMENT(Radiated Test).....	28

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: A3LSMG9198
EUT Type: Mobile Phone
Model name(s): SM-G9198
Date(s) of Tests: May 14, 2015 ~ June 03, 2015
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-G9198
EUT Type	Mobile Phone
Power Supply	DC 3.85 V
Battery Type	Li-ion Battery(Standard)
Frequency of Operation	13.5608 MHz
Transmit Power	10.21 dBuV/m @30 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 m
	0.490 ~1.705	24000/F(kHz) uV/m@30 m
	1.705 ~ 30	30 uV/m@30 m
	30 ~ 88	100 ** uV/m@3 m
	88 ~ 216	150 ** uV/m@3 m
	216 ~ 960	200 ** uV/m@3 m
	Above 960	500 uV/m@3 m

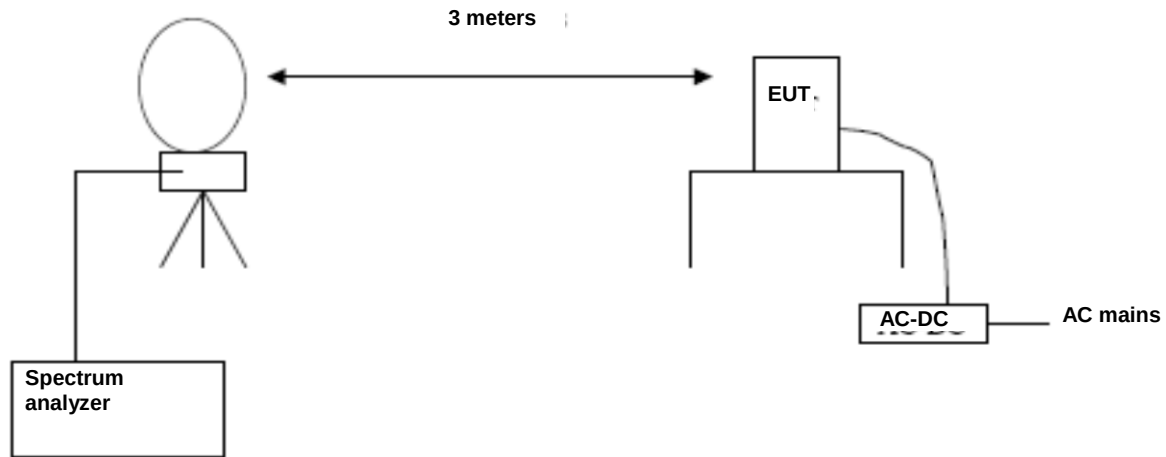
** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, 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(dB μ V/m) + ACF(dB) + Cable Loss(dB) – Distance Correction Factor

The spectrum analyzer is set to:

Frequency Range = 9 kHz ~ 1 GHz

RBW = 9 kHz (9 kHz ~ 30 MHz)
= 120 kHz (30 MHz ~ 1 GHz)

Trace Mode = max hold

Detector Mode = peak / Quasi-peak

Sweep time = auto

Open

Test Results

13.553 MHz-13.567 MHz						
Frequency (MHz)	Read Level (dBuV/m)@3m	Ant.Factor+Cable Loss (dB/m)	Distance Correction (dB)	Result Level (dBuV/m)@30m	Limit (dBuV/m)@30m	Margin (dB)
13.5597(H)	34.82	20.37	-40.00	15.19	84.00	68.81
13.5600(V)	30.05	20.37	-40.00	10.42	84.00	73.58

13.410 MHz-13.553 MHz and 13.567 MHz-13.710 MHz						
Frequency (MHz)	Read Level (dBuV/m)@3m	Ant.Factor+Cable Loss (dB/m)	Distance Correction (dB)	Result Level (dBuV/m)@30m	Limit (dBuV/m)@30m	Margin (dB)
13.5530	22.36	20.37	-40.00	2.73	50.47	47.74
13.5670	22.39	20.37	-40.00	2.76	50.47	47.71

13.110 MHz – 13.410 MHz and 13.710 MHz-14.010 MHz						
Frequency (MHz)	Read Level (dBuV/m)@3m	Ant.Factor+Cable Loss (dB/m)	Distance Correction (dB)	Result Level (dBuV/m)@30m	Limit (dBuV/m)@30m	Margin (dB)
13.3446	13.90	20.37	-40.00	-5.73	40.51	46.24
13.7766	11.54	20.37	-40.00	-8.09	40.51	48.6

9 kHz -30 MHz						
Frequency (MHz)	Read Level (dBuV/m)@3m	Ant.Factor+Cable Loss (dB/m)	Distance Correction (dB)	Result Level (dBuV/m)@30m	Limit (dBuV/m)@30m	Margin (dB)
12.5834	12.71	20.62	-40.00	-6.67	29.54	36.21
15.4322	10.57	20.34	-40.00	-9.09	29.54	38.63
27.1221	8.69	20.65	-40.00	-10.66	29.54	40.2
27.1188	8.13	20.65	-40.00	-11.22	29.54	40.76

Close

Test Results

13.553 MHz-13.567 MHz						
Frequency (MHz)	Read Level (dBuV/m)@3m	Ant.Factor+Cable Loss (dB/m)	Distance Correction (dB)	Result Level (dBuV/m)@30m	Limit (dBuV/m)@30m	Margin (dB)
13.5597(H)	34.20	20.37	-40.00	14.57	84.00	69.43
13.5600(V)	29.00	20.37	-40.00	9.37	84.00	74.63

13.410 MHz-13.553 MHz and 13.567 MHz-13.710 MHz						
Frequency (MHz)	Read Level (dBuV/m)@3m	Ant.Factor+Cable Loss (dB/m)	Distance Correction (dB)	Result Level (dBuV/m)@30m	Limit (dBuV/m)@30m	Margin (dB)
13.5530	21.60	20.37	-40.00	1.97	50.47	48.50
13.5670	21.71	20.37	-40.00	2.08	50.47	48.39

13.110 MHz – 13.410 MHz and 13.710 MHz-14.010 MHz						
Frequency (MHz)	Read Level (dBuV/m)@3m	Ant.Factor+Cable Loss (dB/m)	Distance Correction (dB)	Result Level (dBuV/m)@30m	Limit (dBuV/m)@30m	Margin (dB)
13.2396	10.51	20.37	-40.00	-9.12	40.51	49.63
13.8444	8.82	20.37	-40.00	-10.81	40.51	51.32

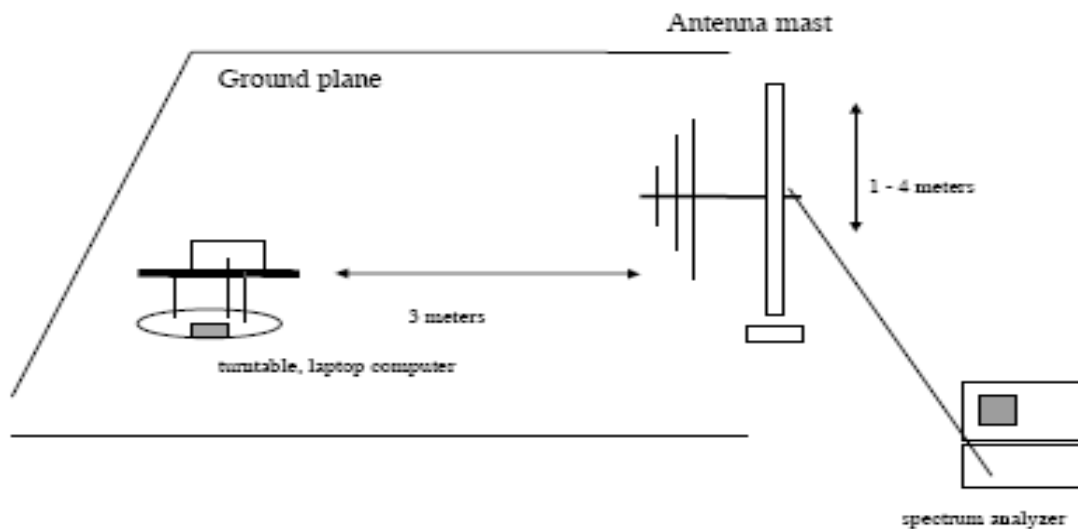
9 kHz -30 MHz						
Frequency (MHz)	Read Level (dBuV/m)@3m	Ant.Factor+Cable Loss (dB/m)	Distance Correction (dB)	Result Level (dBuV/m)@30m	Limit (dBuV/m)@30m	Margin (dB)
5.05420	11.53	20.62	-40.00	-7.85	29.54	37.39
14.2530	9.42	20.34	-40.00	-10.24	29.54	39.78
27.1243	8.43	20.65	-40.00	-10.92	29.54	40.46
27.1169	8.16	20.65	-40.00	-11.19	29.54	40.73

Note :

1. Distance Correction Below 30MHz = $40\log(3m/30m) = -40 \text{ dB}$
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.

Open

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dB μ V	dB /m	dB	(H/V)	dB μ V/m	dB μ V/m	dB
*37.83	19.54	11.95	0.66	H	32.15	40.00	7.85
62.44	18.78	11.82	0.74	H	31.34	40.00	8.66
80.59	19.54	8.19	0.78	V	28.51	40.00	11.49
100.21	18.21	9.27	0.88	H	28.36	43.50	15.14
121.95	18.43	11.64	0.96	H	31.03	43.50	12.47
*137.11	19.03	12.84	1.03	V	32.90	43.50	10.60

Close

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dB μ V	dB /m	dB	(H/V)	dB μ V/m	dB μ V/m	dB
*37.54	19.15	11.95	0.66	H	31.76	40.00	8.24
44.54	18.57	12.3	0.68	H	31.55	40.00	8.45
78.69	19.32	8.19	0.78	V	28.29	40.00	11.71
88.43	17.89	7.73	0.86	H	26.48	43.50	17.02
*123.49	18.03	11.64	0.96	H	30.63	43.50	12.87
138.66	18.76	12.84	1.03	V	32.63	43.50	10.87

Remark

1. Result Level = Read Level + (Antenna Factor+ Cable Loss)
2. Margin = Limit – Result Level
3. “*” is the result for restricted band.

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
(%)	(VDC)	(°C)	(MHz)	(Hz)
100%	3.85	-20	13.560165	165.00
100%		-10	13.560168	168.00
100%		0	13.560182	182.00
100%		10	13.560202	202.00
100%		20	13.560218	218.00
100%		30	13.560229	229.00
100%		40	13.560238	238.00
100%		50	13.560245	245.00
Batt. Endpoint	3.27	20	13.560198	198.00

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 (dB μ V)	
	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 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

Underminate the Antenna

Conducted Emissions (Line 1)

EMI Auto Test(5)

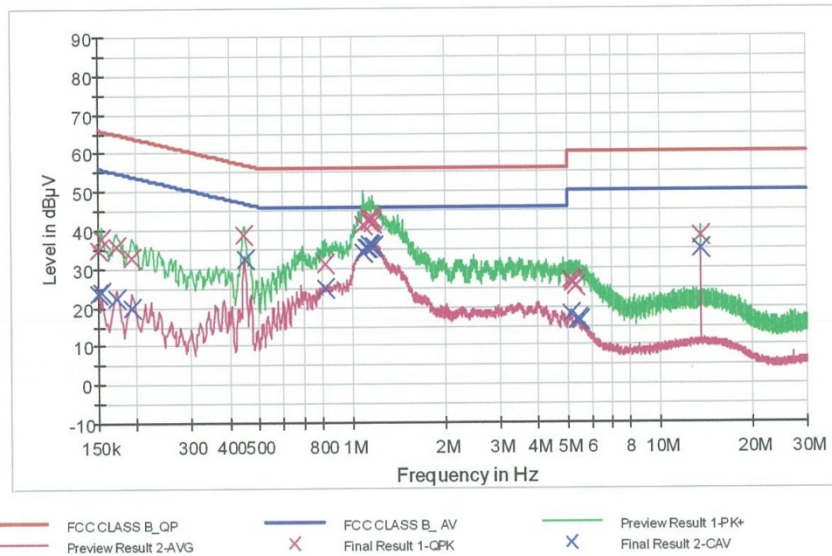
1 / 2

HCT TEST Report

Common Information

EUT: SM-G9198
Manufacturer: SAMSUNG
Test Site: SHIELD ROOM
Operating Conditions: NFC MODE (UNTERMINATION)
Operator Name: KS KANG

FCC CLASS B



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	34.8	9.000	Off	L1	9.6	31.2	66.0
0.154000	37.9	9.000	Off	L1	9.6	27.9	65.8
0.172000	35.6	9.000	Off	L1	9.6	29.3	64.9
0.192000	33.1	9.000	Off	L1	9.6	30.8	63.9
0.446000	38.9	9.000	Off	L1	9.7	18.0	56.9
0.820000	31.1	9.000	Off	L1	9.7	24.9	56.0
1.092000	41.3	9.000	Off	L1	9.7	14.7	56.0
1.136000	42.3	9.000	Off	L1	9.7	13.7	56.0
1.140000	42.9	9.000	Off	L1	9.7	13.1	56.0
1.150000	42.7	9.000	Off	L1	9.7	13.3	56.0
1.162000	43.0	9.000	Off	L1	9.7	13.0	56.0
1.170000	41.8	9.000	Off	L1	9.7	14.2	56.0
5.130000	27.0	9.000	Off	L1	9.9	33.0	60.0
5.178000	26.5	9.000	Off	L1	9.9	33.5	60.0
5.182000	26.0	9.000	Off	L1	9.9	34.0	60.0
5.194000	26.4	9.000	Off	L1	9.9	33.6	60.0

5/27/2015

12:00:41

EMI Auto Test(5)

2 / 2

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
5.318000	25.4	9.000	Off	L1	9.9	34.6	60.0
13.560000	38.4	9.000	Off	L1	10.1	21.6	60.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	23.5	9.000	Off	L1	9.6	32.6	56.0
0.154000	23.9	9.000	Off	L1	9.6	31.9	55.8
0.172000	22.2	9.000	Off	L1	9.6	32.7	54.9
0.192000	19.6	9.000	Off	L1	9.6	34.3	53.9
0.448000	32.3	9.000	Off	L1	9.7	14.6	46.9
0.820000	24.9	9.000	Off	L1	9.7	21.1	46.0
1.092000	34.3	9.000	Off	L1	9.7	11.7	46.0
1.116000	35.3	9.000	Off	L1	9.7	10.7	46.0
1.126000	35.5	9.000	Off	L1	9.7	10.5	46.0
1.140000	36.1	9.000	Off	L1	9.7	9.9	46.0
1.148000	35.8	9.000	Off	L1	9.7	10.2	46.0
1.180000	36.0	9.000	Off	L1	9.7	10.0	46.0
5.130000	18.1	9.000	Off	L1	9.9	31.9	50.0
5.366000	16.5	9.000	Off	L1	9.9	33.5	50.0
5.396000	16.5	9.000	Off	L1	9.9	33.5	50.0
5.430000	17.0	9.000	Off	L1	9.9	33.0	50.0
5.464000	16.7	9.000	Off	L1	9.9	33.3	50.0
13.560000	34.8	9.000	Off	L1	10.1	15.2	50.0

5/27/2015

12:00:41

Conducted Emissions (Line 2)

EMI Auto Test(5)

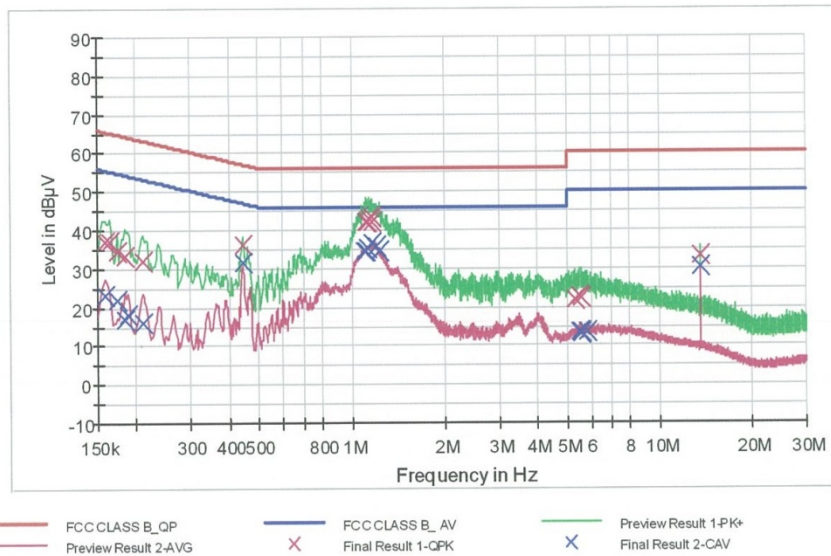
1 / 2

HCT TEST Report

Common Information

EUT: SM-G9198
 Manufacturer: SAMSUNG
 Test Site: SHIELD ROOM
 Operating Conditions: NFC MODE (UNTERMINATION)
 Operator Name: KS KANG

FCC CLASS B



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	37.0	9.000	Off	N	9.6	28.6	65.6
0.164000	37.1	9.000	Off	N	9.6	28.2	65.3
0.174000	34.6	9.000	Off	N	9.6	30.2	64.8
0.184000	33.3	9.000	Off	N	9.6	31.0	64.3
0.210000	31.9	9.000	Off	N	9.6	31.3	63.2
0.444000	36.1	9.000	Off	N	9.7	20.9	57.0
1.116000	42.3	9.000	Off	N	9.7	13.7	56.0
1.124000	42.2	9.000	Off	N	9.7	13.8	56.0
1.140000	43.1	9.000	Off	N	9.7	12.9	56.0
1.158000	42.1	9.000	Off	N	9.7	13.9	56.0
1.164000	43.6	9.000	Off	N	9.7	12.4	56.0
1.168000	42.1	9.000	Off	N	9.7	13.9	56.0
5.284000	22.0	9.000	Off	N	9.9	38.0	60.0
5.512000	22.6	9.000	Off	N	9.9	37.4	60.0
5.538000	22.2	9.000	Off	N	9.9	37.8	60.0
5.564000	22.3	9.000	Off	N	9.9	37.7	60.0

5/27/2015

11:49:10

EMI Auto Test(5)

2 / 2

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
13.558000	33.4	9.000	Off	N	10.1	26.6	60.0
13.562000	33.1	9.000	Off	N	10.1	26.9	60.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	23.0	9.000	Off	N	9.6	32.6	55.6
0.174000	22.1	9.000	Off	N	9.6	32.7	54.8
0.184000	16.8	9.000	Off	N	9.6	37.5	54.3
0.188000	18.2	9.000	Off	N	9.6	35.9	54.1
0.210000	16.1	9.000	Off	N	9.6	37.1	53.2
0.444000	31.7	9.000	Off	N	9.7	15.3	47.0
1.094000	34.4	9.000	Off	N	9.7	11.6	46.0
1.110000	34.6	9.000	Off	N	9.7	11.4	46.0
1.130000	35.4	9.000	Off	N	9.7	10.6	46.0
1.162000	36.5	9.000	Off	N	9.7	9.5	46.0
1.202000	35.6	9.000	Off	N	9.7	10.4	46.0
1.236000	34.4	9.000	Off	N	9.7	11.6	46.0
5.518000	13.4	9.000	Off	N	9.9	36.6	50.0
5.528000	13.3	9.000	Off	N	9.9	36.7	50.0
5.542000	13.4	9.000	Off	N	9.9	36.6	50.0
5.562000	13.3	9.000	Off	N	9.9	36.7	50.0
5.796000	13.6	9.000	Off	N	9.9	36.4	50.0
13.560000	30.4	9.000	Off	N	10.1	19.6	50.0

5/27/2015

11:49:10

Terminate the Antenna Conducted Emissions (Line 1)

NFC TERMINATION L1

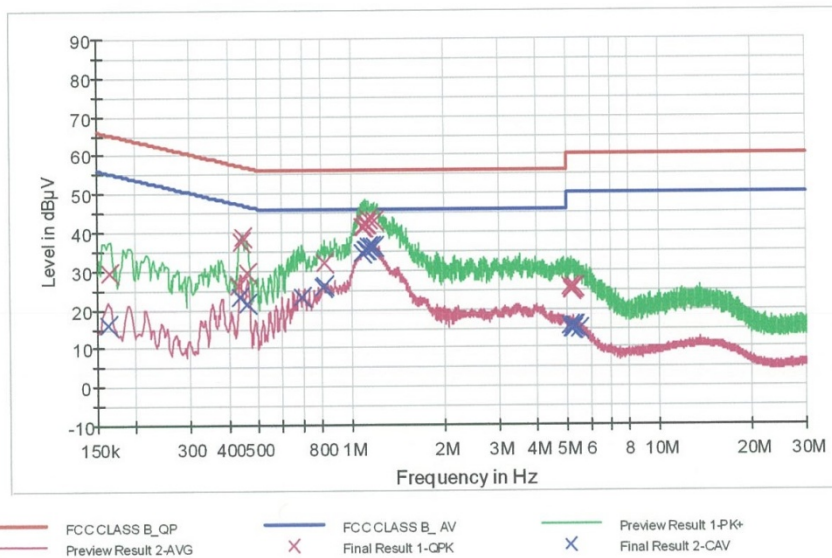
1 / 2

HCT TEST Report

Common Information

EUT: SM-G9198
Manufacturer: SAMSUNG
Test Site: SHIELD ROOM
Operating Conditions: NFC MODE (TERMINATION)
Operator Name: KS KANG

FCC CLASS B



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.164000	29.4	9.000	Off	L1	9.6	35.9	65.3
0.432000	26.3	9.000	Off	L1	9.7	30.9	57.2
0.440000	37.6	9.000	Off	L1	9.7	19.5	57.1
0.446000	38.6	9.000	Off	L1	9.7	18.3	56.9
0.460000	29.6	9.000	Off	L1	9.7	27.1	56.7
0.818000	32.2	9.000	Off	L1	9.7	23.8	56.0
1.090000	41.1	9.000	Off	L1	9.7	14.9	56.0
1.100000	41.5	9.000	Off	L1	9.7	14.5	56.0
1.118000	42.3	9.000	Off	L1	9.7	13.7	56.0
1.124000	42.0	9.000	Off	L1	9.7	14.0	56.0
1.142000	43.5	9.000	Off	L1	9.7	12.5	56.0
1.190000	43.0	9.000	Off	L1	9.7	13.0	56.0
5.156000	25.8	9.000	Off	L1	9.9	34.2	60.0
5.186000	25.5	9.000	Off	L1	9.9	34.5	60.0
5.190000	24.9	9.000	Off	L1	9.9	35.1	60.0
5.194000	24.8	9.000	Off	L1	9.9	35.2	60.0

5/27/2015

11:28:49

NFC TERMINATION L1

2 / 2

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
5.242000	25.3	9.000	Off	L1	9.9	34.7	60.0
5.316000	25.9	9.000	Off	L1	9.9	34.1	60.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.162000	15.9	9.000	Off	L1	9.6	39.5	55.4
0.436000	23.0	9.000	Off	L1	9.7	24.1	47.1
0.462000	21.5	9.000	Off	L1	9.7	25.2	46.7
0.694000	23.0	9.000	Off	L1	9.7	23.0	46.0
0.806000	25.8	9.000	Off	L1	9.7	20.2	46.0
0.818000	26.2	9.000	Off	L1	9.7	19.8	46.0
1.090000	34.4	9.000	Off	L1	9.7	11.6	46.0
1.114000	35.2	9.000	Off	L1	9.7	10.8	46.0
1.124000	35.3	9.000	Off	L1	9.7	10.7	46.0
1.142000	36.0	9.000	Off	L1	9.7	10.0	46.0
1.162000	36.2	9.000	Off	L1	9.7	9.8	46.0
1.190000	36.3	9.000	Off	L1	9.7	9.7	46.0
5.156000	15.5	9.000	Off	L1	9.9	34.5	50.0
5.188000	14.7	9.000	Off	L1	9.9	35.3	50.0
5.240000	14.9	9.000	Off	L1	9.9	35.1	50.0
5.272000	15.5	9.000	Off	L1	9.9	34.5	50.0
5.284000	15.6	9.000	Off	L1	9.9	34.4	50.0
5.472000	14.7	9.000	Off	L1	9.9	35.3	50.0

5/27/2015

11:28:49

Conducted Emissions (Line 2)

NFC TERMINATION N

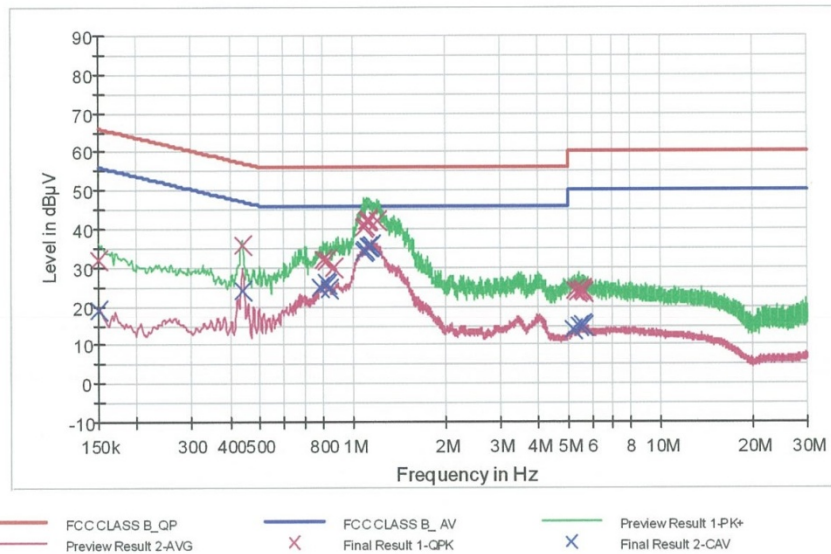
1 / 2

HCT TEST Report

Common Information

EUT: SM-G9198
 Manufacturer: SAMSUNG
 Test Site: SHIELD ROOM
 Operating Conditions: NFC MODE (TERMINATION)
 Operator Name: KS KANG

FCC CLASS B



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	32.2	9.000	Off	N	9.6	33.8	66.0
0.438000	36.0	9.000	Off	N	9.7	21.1	57.1
0.802000	31.9	9.000	Off	N	9.7	24.1	56.0
0.816000	31.7	9.000	Off	N	9.7	24.3	56.0
0.828000	31.8	9.000	Off	N	9.7	24.2	56.0
0.864000	30.1	9.000	Off	N	9.7	25.9	56.0
1.088000	40.6	9.000	Off	N	9.7	15.4	56.0
1.098000	41.0	9.000	Off	N	9.7	15.0	56.0
1.112000	42.1	9.000	Off	N	9.7	13.9	56.0
1.122000	42.0	9.000	Off	N	9.7	14.0	56.0
1.130000	42.5	9.000	Off	N	9.7	13.5	56.0
1.200000	42.0	9.000	Off	N	9.7	14.0	56.0
5.228000	24.2	9.000	Off	N	9.9	35.8	60.0
5.378000	23.8	9.000	Off	N	9.9	36.2	60.0
5.400000	23.9	9.000	Off	N	9.9	36.1	60.0
5.524000	24.0	9.000	Off	N	9.9	36.0	60.0

5/27/2015

11:18:51

NFC TERMINATION N

2 / 2

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
5.568000	24.3	9.000	Off	N	9.9	35.7	60.0
5.602000	23.5	9.000	Off	N	9.9	36.5	60.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	18.9	9.000	Off	N	9.6	37.1	56.0
0.440000	24.1	9.000	Off	N	9.7	23.0	47.1
0.780000	24.8	9.000	Off	N	9.7	21.2	46.0
0.816000	26.0	9.000	Off	N	9.7	20.0	46.0
0.828000	25.9	9.000	Off	N	9.7	20.1	46.0
0.838000	24.6	9.000	Off	N	9.7	21.4	46.0
1.088000	34.0	9.000	Off	N	9.7	12.0	46.0
1.092000	34.3	9.000	Off	N	9.7	11.7	46.0
1.098000	34.5	9.000	Off	N	9.7	11.5	46.0
1.124000	35.4	9.000	Off	N	9.7	10.6	46.0
1.132000	35.4	9.000	Off	N	9.7	10.6	46.0
1.146000	35.7	9.000	Off	N	9.7	10.3	46.0
5.190000	14.0	9.000	Off	N	9.9	36.0	50.0
5.400000	14.7	9.000	Off	N	9.9	35.3	50.0
5.414000	14.7	9.000	Off	N	9.9	35.3	50.0
5.524000	15.1	9.000	Off	N	9.9	34.9	50.0
5.568000	15.4	9.000	Off	N	9.9	34.6	50.0
5.612000	14.9	9.000	Off	N	9.9	35.1	50.0

5/27/2015

11:18:51

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	01/13/2015	Annual	100073
Agilent	E4440A/ Spectrum Analyzer	03/18/2015	Annual	US45303008
Agilent	N9020A/ SIGNAL ANALYZER	04/29/2015	Annual	MY51110063
Agilent	N1911A/Power Meter	01/15/2015	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	04/30/2015	Annual	11275
ITECH	IT6720 / DC POWER SUPPLY	11/04/2014	Annual	010002156287001199
Rohde & Schwarz	CBT / BLUETOOTH TESTER	03/13/2015	Annual	100808
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
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
Schwarzbeck	BBHA 9120D/ Horn Antenna	07/05/2013	Biennial	1151
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	07/05/2013	Biennial	BBHA9170541
Rohde & Schwarz	FSP / Spectrum Analyzer	10/23/2014	Annual	836650/016
Wainwright Instrument	WHF3.0/18G-10EF / High Pass Filter	06/23/2014	Annual	8
Wainwright Instrument	WRCJ2400/2483.5-2370/2520-60/14SS / Band Reject Filter	06/17/2014	Annual	1
Rohde & Schwarz	CBT / BLUETOOTH TESTER	03/13/2015	Annual	100808
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