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MEASUREMENT REPORT FCC Part 22

Applicant Name:
Samsung Electronics Co., Ltd.
129, Samsung-ro,
Yeongtong-gu, Suwon-si
Gyeonggi-do, 16677, Korea


Date of Testing:
3/21/2017 - 6/30/2017
Test Site/Location:
PCTEST Lab., Columbia, MD, USA
Test Report Serial No.:
1M1706140195-02.A3L

FCC ID:	A3LSMJ530
APPLICANT:	SAMSUNG ELECTRONICS CO., LTD.



Application Type: Class II Permissive Change
Model: SM-J530K
Additional Model(s): SM-J530S, SM-J530L
EUT Type: Portable Handset
FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s): §22(H)
Test Procedure(s): ANSI/TIA-603-D-2010, KDB 971168 D01 v02r02
Test Device Serial No.: *identical prototype* [S/N: 04159]
Class II Permissive Change: Please see FCC change document
Original Grant Date: 5/16/2017

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.




 Randy Ortanez
 President

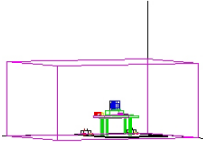


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T A B L E O F C O N T E N T S

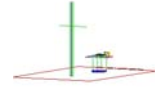
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FCC Part 22, 24, & 27



§2.1033 General Information



APPLICANT: Samsung Electronics Co., Ltd.
APPLICANT ADDRESS: 129, Samsung-ro,
 Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea
TEST SITE: PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS: 7185 Oakland Mills Road, Columbia, MD 21046 USA
FCC RULE PART(S): §22(H)
BASE MODEL: SM-J530K
FCC ID: A3LSMJ530
FCC CLASSIFICATION: PCS Licensed Transmitter Held to Ear (PCE)
MODE: WCDMA / LTE
FREQUENCY TOLERANCE: ±0.00025 % (2.5 ppm)
Test Device Serial No.: 04159 Production Pre-Production Engineering
DATE(S) OF TEST: 3/21/2017 - 6/30/2017
TEST REPORT S/N: 1M1706140195-02.A3L

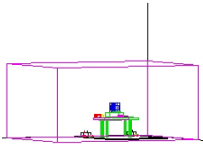
Test Facility / Accreditations

Measurements were performed at **PCTEST Engineering Lab located in Columbia, MD 21046, U.S.A.**

- PCTEST facility is an FCC registered (PCTEST Reg. No. 159966) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (2451B-1).
- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing Aid Compatibility (HAC) testing, CTIA Test Plans, and wireless testing for FCC and Industry Canada Rules.
- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and Industry Canada Standards (RSS).
- PCTEST facility is an IC registered (2451B-1) test laboratory with the site description on file at Industry Canada.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS, CDMA, and EvDO wireless devices and for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, , GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO, and CDMA 1xRTT.



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Mode	FCC Rule Part	Tx Frequency (MHz)	ERP		Emission Designator
			Max. Power (W)	Max. Power (dBm)	
WCDMA850	22H	826.4 - 846.6	0.040	15.97	4M16F9W

Table 1-1. EUT Overview (UMTS)

Mode	FCC Rule Part	Tx Frequency (MHz)	ERP		Emission Designator	Modulation
			Max. Power (W)	Max. Power (dBm)		
LTE Band 5	22H	824.7 - 848.3	0.053	17.21	1M09G7D	QPSK
LTE Band 5	22H	824.7 - 848.3	0.038	15.79	1M09W7D	16QAM
LTE Band 5	22H	825.5 - 847.5	0.055	17.44	2M70G7D	QPSK
LTE Band 5	22H	825.5 - 847.5	0.039	15.89	2M69W7D	16QAM
LTE Band 5	22H	826.5 - 846.5	0.054	17.31	4M49G7D	QPSK
LTE Band 5	22H	826.5 - 846.5	0.040	15.97	4M49W7D	16QAM
LTE Band 5	22H	829 - 844	0.055	17.42	8M98G7D	QPSK
LTE Band 5	22H	829 - 844	0.038	15.85	8M98W7D	16QAM

Table 1-2. EUT Overview (LTE)

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1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity, the Baltimore-Washington Intern't'l (BWI) airport, the city of Baltimore and the Washington, DC area. (See Figure 1-1).

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The site coordinates are 39° 10'23" N latitude and 76° 49'50" W longitude. The facility is 0.4 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2014 on January 22, 2015.

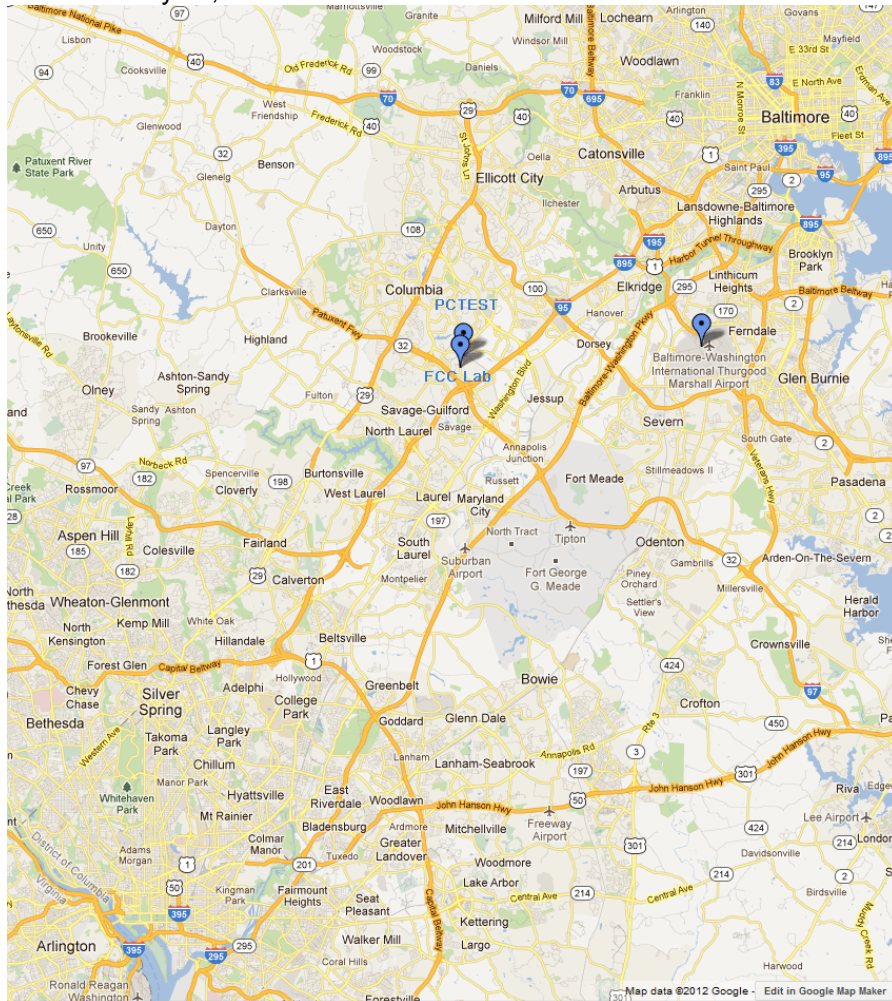


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSMJ530**. The test data contained in this report pertains only to the emissions due to the EUT's 2G/3G licensed transmitters.

2.2 Device Capabilities

This device contains the following capabilities:

1900 GSM/GPRS/EDGE, 850/1900 WCDMA/HSPA, Multi-band LTE, 802.11b/g/n WLAN, 802.11a/n/ac UNII, Bluetooth (1x, EDR, LE), NFC, ANT+



2.3 Test Configuration

The EUT was tested per the guidance of ANSI/TIA-603-D-2010 and KDB 971168 D01 v02r02. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated spurious emission measurements were performed with the EUT lying flat on a certified wireless charging pad (WCP) while operating under normal conditions in a simulated call or data transmission configuration. The worst case radiated emissions data is shown in this report.

2.4 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

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3.0 DESCRIPTION OF TESTS

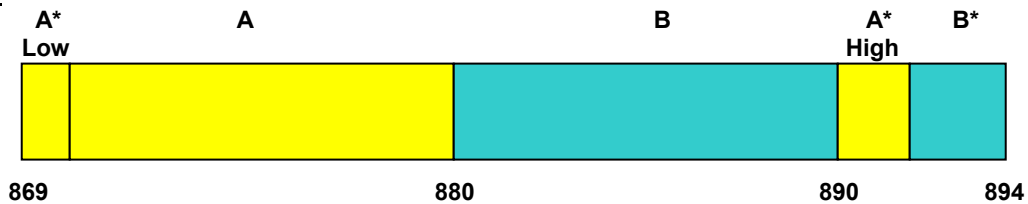
3.1 Evaluation Procedure

The measurement procedures described in the “Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards” (ANSI/TIA-603-D-2010) and “Measurement Guidance for Certification of Licensed Digital Transmitters” (KDB 971168 D01 v02r02) were used in the measurement of the EUT.

Deviation from Measurement Procedure.....None

3.2 Cellular - Base Frequency Blocks

\$22.905



BLOCK 1: 869 – 880 MHz (A* Low + A)

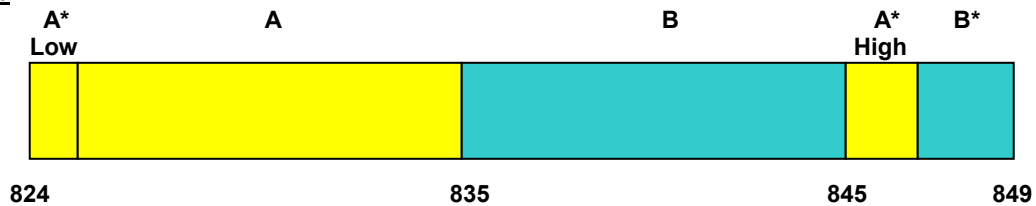
BLOCK 3: 890 – 891.5 MHz (A* High)

BLOCK 2: 880 – 890 MHz (B)

BLOCK 4: 891.5 – 894 MHz (B*)

3.3 Cellular - Mobile Frequency Blocks

\$22.905





BLOCK 1: 824 – 835 MHz (A* Low + A)

BLOCK 3: 845 – 846.5 MHz (A* High)

BLOCK 2: 835 – 845 MHz (B)

BLOCK 4: 846.5 – 849 MHz (B*)

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3.4 Radiated Measurements

§22.913(a.2) §22.917(a)

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. A 72.4cm high PVC support structure is placed on top of the turntable. A 3" (~7.6cm) sheet of high density polystyrene is used as the table top and is placed on top of the PVC supports to bring the total height of the table to 80cm.

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer. Radiated power levels are also investigated with the receive antenna horizontally and vertically polarized. The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration band set to the emissions' occupied bandwidth, a RMS detector, RBW = 100kHz, VBW = 300kHz, and a 1 second sweep time over a minimum of 10 sweeps, per the guidelines of KDB 971168 D01 v02r02.



Per the guidance of ANSI/TIA-603-D-2010, a half-wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

$$P_d \text{ [dBm]} = P_g \text{ [dBm]} - \text{cable loss [dB]} + \text{antenna gain [dBd/dBi]}$$

Where, P_d is the dipole equivalent power, P_g is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to $P_g \text{ [dBm]} - \text{cable loss [dB]}$.

The calculated P_d levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of $43 + 10\log_{10}(\text{Power [Watts]})$.



Radiated power and radiated spurious emission levels are investigated with the receive antenna horizontally and vertically polarized per ANSI/ITA-603-D-2010.

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4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (\pm dB)
Conducted Bench Top Measurements	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

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5.0 TEST EQUIPMENT CALIBRATION DATA



Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2006.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	RE1	Radiated Emissions Cable Set (UHF/EHF)	7/11/2016	Annual	7/11/2017	RE1
Agilent	N9038A	MXE EMI Receiver	4/26/2017	Annual	4/26/2018	MY51210133
Anritsu	MT8820C	Radio Communication Analyzer	9/15/2016	Annual	9/15/2017	6200901190
Com-Power	PAM-118A	PREAMPLIFIER 500MHZ TO 18GHZ	8/9/2016	Annual	8/9/2017	551079
Emco	3115	Horn Antenna (1-18GHz)	3/10/2016	Biennial	3/10/2018	9704-5182
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	4/26/2016	Biennial	4/26/2018	128337
K & L	13SH10-1000/U1000	N Type High Pass Filter	7/11/2016	Annual	7/11/2017	13SH10-1000/U1000-2
Mini Circuits	PWR-SEN-4GHS	USB Power Sensor	3/24/2017	Annual	3/24/2018	11401010036
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11208010032
PCTEST	-	EMC Switch System	7/11/2016	Annual	7/11/2017	NM1
Rohde & Schwarz	CMW500	Radio Communication Tester	10/13/2016	Annual	10/13/2017	102060
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	7/15/2016	Annual	7/15/2017	100348
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Tx	11/18/2015	Biennial	11/18/2017	91052522TX
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Rx	11/18/2015	Biennial	11/18/2017	91052523RX
Seekonk	NC-100	Torque Wrench 5/16", 8" lbs	3/2/2016	Biennial	3/2/2018	N/A
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	3/14/2016	Biennial	3/14/2018	A051107

Table 5-1. Test Equipment

Notes:

1. For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.
2. Equipment with a calibration date of "N/A" shown in this list was not used to make direct calibrated measurements.

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6.0 SAMPLE CALCULATIONS

WCDMA Emission Designator

Emission Designator = 4M16F9W

WCDMA BW = 4.16 MHz

F = Frequency Modulation

9 = Composite Digital Info

W = Combination (Audio/Data)

LTE Emission Designator

QPSK Modulation

Emission Designator = 8M62G7D

LTE BW = 8.62 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data transmission, telemetry, telecommand

16QAM Modulation

Emission Designator = 8M45W7D

LTE BW = 8.45 MHz

W = Amplitude/Angle Modulated



7 = Quantized/Digital Info

D = Data transmission, telemetry, telecommand

Spurious Radiated Emission – LTE Band

Example: Middle Channel LTE Mode 2nd Harmonic (1564 MHz)

The average spectrum analyzer reading at 3 meters with the EUT on the turntable was -81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of -81.0 dBm on the spectrum analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 1564 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm – (-24.80).

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7.0 TEST RESULTS

7.1 Summary



Company Name: Samsung Electronics Co., Ltd.
 FCC ID: A3LSMJ530
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
 Mode(s): WCDMA / LTE

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
22.913(a.2)	Effective Radiated Power	< 7 Watts max. ERP	RADIATED	PASS	Section 7.2
22.917(a)	Radiated Spurious Emissions	> 43 + log ₁₀ (P[Watts]) for all out-of-band emissions		PASS	Section 7.3

Table 7-1. Summary of Test Results

Note:

All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.

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7.2 Radiated Power (ERP)

§22.913(a)(2)

Test Overview

Effective Radiated Power (ERP) measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at maximum power, and at the appropriate frequencies.



Test Procedures Used

KDB 971168 D01 v02r02 – Section 5.2.1

ANSI/TIA-603-D-2010 – Section 2.2.17

Test Settings

1. Radiated power measurements are performed using the signal analyzer’s “channel power” measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer’s “time domain power” measurement capability is used
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW \geq 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points \geq 2 x span / RBW
6. Detector = RMS
7. Trigger is set to “free run” for signals with continuous operation with the sweep times set to “auto”.
Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the “gating” function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

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Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

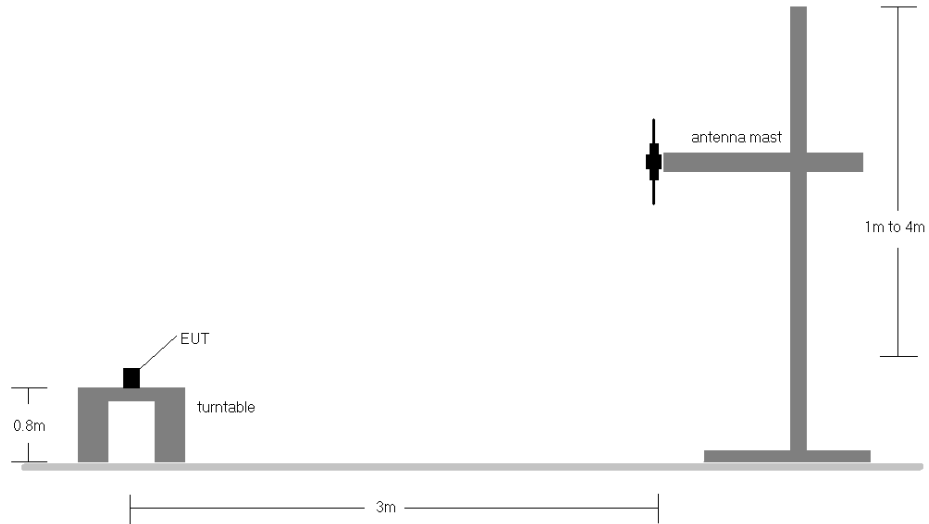


Figure 7-1. Radiated Test Setup <1GHz

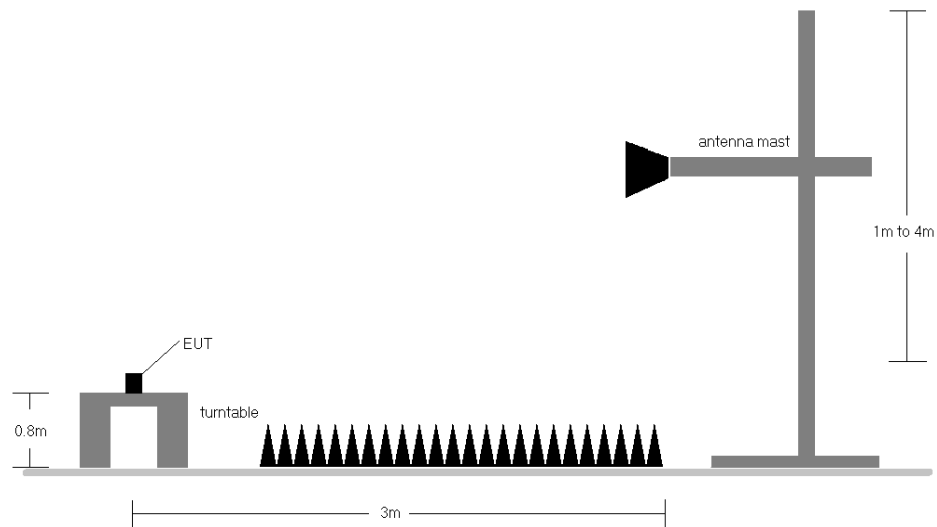




Figure 7-2. Radiated Test Setup >1GHz

Test Notes

- 1) This device employs UMTS technology with WCDMA (AMR/RMC), HSDPA, and HSUPA capabilities. For WCDMA and HSUPA transmission, all configurations were investigated and the worst case UMTS emissions were found in FMC WCDMA mode at 12.2kbps with HSDPA inactive and TPC bits all set to "1."
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below



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Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
826.40	WCDMA850	H	13	276	16.62	-0.65	15.97	0.040	38.45	-22.48
836.60	WCDMA850	H	5	275	16.25	-0.65	15.60	0.036	38.45	-22.85
846.60	WCDMA850	H	25	282	15.17	-0.65	14.52	0.028	38.45	-23.93
826.40	WCDMA850	V	265	87	15.38	-0.65	14.73	0.030	38.45	-23.72

Table 7-2. ERP (Cellular WCDMA)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	H	12	278	1 / 0	17.86	-0.65	17.21	38.45	-21.24
836.50	1.4	QPSK	H	349	278	1 / 0	17.57	-0.65	16.92	38.45	-21.53
848.30	1.4	QPSK	H	347	260	1 / 3	16.70	-0.65	16.05	38.45	-22.40
824.70	1.4	16-QAM	H	12	278	1 / 0	16.44	-0.65	15.79	38.45	-22.66
825.50	3	QPSK	H	15	272	1 / 14	18.09	-0.65	17.44	38.45	-21.01
836.50	3	QPSK	H	0	279	1 / 0	17.97	-0.65	17.32	38.45	-21.13
847.50	3	QPSK	H	5	267	1 / 7	16.93	-0.65	16.28	38.45	-22.17
825.50	3	16-QAM	H	15	272	1 / 14	16.54	-0.65	15.89	38.45	-22.56
826.50	5	QPSK	H	12	282	1 / 24	17.96	-0.65	17.31	38.45	-21.14
836.50	5	QPSK	H	20	277	1 / 0	17.72	-0.65	17.07	38.45	-21.38
846.50	5	QPSK	H	7	263	1 / 0	17.10	-0.65	16.45	38.45	-22.00
826.50	5	16-QAM	H	12	282	1 / 24	16.62	-0.65	15.97	38.45	-22.48
829.00	10	QPSK	H	2	278	1 / 0	18.07	-0.65	17.42	38.45	-21.03
836.50	10	QPSK	H	10	288	1 / 0	17.71	-0.65	17.06	38.45	-21.39
844.00	10	QPSK	H	7	273	1 / 0	17.48	-0.65	16.83	38.45	-21.62
829.00	10	16-QAM	H	2	278	1 / 0	16.50	-0.65	15.85	38.45	-22.60
825.50	3	QPSK	V	260	97	1 / 7	16.56	-0.65	15.91	38.45	-22.54

Table 7-3. ERP (LTE Band 5)

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7.3 Radiated Spurious Emissions Measurements §22.917(a)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using horizontally and vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as peak measurements while the EUT is operating at maximum power, and at the appropriate frequencies.



Test Procedures Used

KDB 971168 D01 v02r02 – Section 5.8

ANSI/TIA-603-D-2010 – Section 2.2.12

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW \geq 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points \geq 2 x span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

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Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

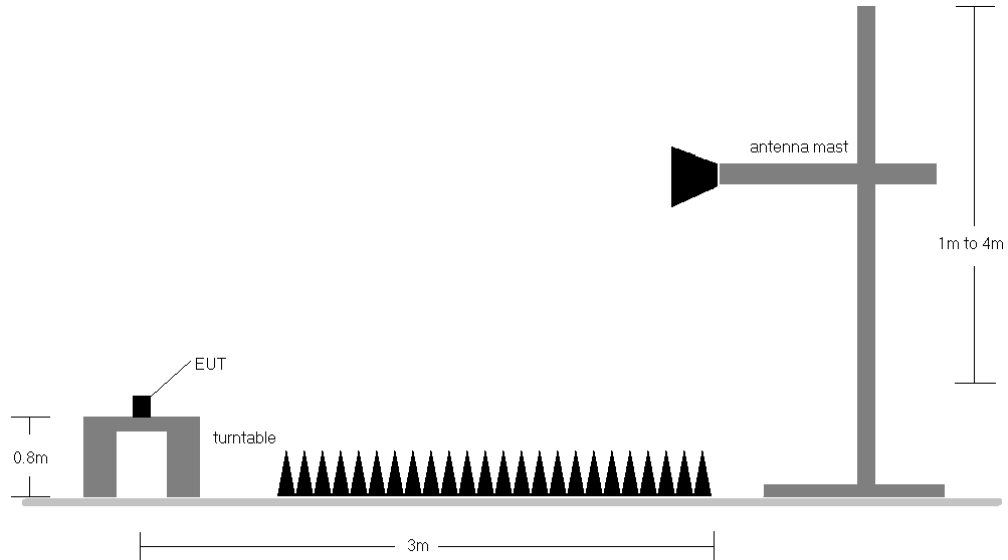




Figure 7-3. Test Instrument & Measurement Setup

Test Notes

- 1) This device employs UMTS technology with WCDMA (AMR/RMC), HSDPA, and HSUPA capabilities. For WCDMA and HSUPA transmission, all configurations were investigated and the worst case UMTS emissions were found in FMC WCDMA mode at 12.2kbps with HSDPA inactive and TPC bits all set to "1."
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 5) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 6) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

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OPERATING FREQUENCY: 826.40 MHz
 CHANNEL: 4132
 MEASURED OUTPUT POWER: 15.97 dBm = 0.040 W
 MODULATION SIGNAL: WCDMA
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 28.97 dBc



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1652.80	H	352	5	-72.29	6.81	-65.49	81.5
2479.20	H	15	19	-71.64	7.87	-63.77	79.7
3305.60	H	129	8	-74.68	7.85	-66.83	82.8
4132.00	H	-	-	-72.38	7.47	-64.91	80.9

Table 7-4. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4132)

OPERATING FREQUENCY: 836.60 MHz
 CHANNEL: 4183
 MEASURED OUTPUT POWER: 15.60 dBm = 0.036 W
 MODULATION SIGNAL: WCDMA
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 28.60 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1673.20	H	354	171	-73.32	6.90	-66.42	82.0
2509.80	H	2	17	-70.82	7.95	-62.87	78.5
3346.40	H	-	-	-75.72	7.85	-67.87	83.5

Table 7-5. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4183)

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OPERATING FREQUENCY: 846.60 MHz
 CHANNEL: 4233
 MEASURED OUTPUT POWER: 14.52 dBm = 0.028 W
 MODULATION SIGNAL: WCDMA
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 27.52 dBc



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1693.20	H	10	10	-72.89	6.99	-65.90	80.4
2539.80	H	15	22	-70.58	7.93	-62.65	77.2
3386.40	H	-	-	-75.85	7.85	-68.00	82.5

Table 7-6. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4233)

OPERATING FREQUENCY: 825.50 MHz
 CHANNEL: 20415
 MEASURED OUTPUT POWER: 17.44 dBm = 0.055 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 30.44 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1651.00	H	12	1	-71.88	6.80	-65.09	82.5
2476.50	H	354	13	-72.43	7.86	-64.57	82.0
3302.00	H	340	242	-70.50	7.85	-62.65	80.1
4127.50	H	355	52	-70.33	7.46	-62.87	80.3
4953.00	H	-	-	-71.87	8.48	-63.39	80.8

Table 7-7. Radiated Spurious Data (LTE Band 5 – Low Channel)

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OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 20525
 MEASURED OUTPUT POWER: 17.32 dBm = 0.054 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 30.32 dBc



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1673.00	H	357	175	-68.98	6.90	-62.08	79.4
2509.50	H	355	30	-70.11	7.95	-62.16	79.5
3346.00	H	10	247	-73.77	7.85	-65.92	83.2
4182.50	H	0	319	-71.85	7.59	-64.26	81.6
5019.00	H	-	-	-72.26	8.57	-63.70	81.0

Table 7-8. Radiated Spurious Data (LTE Band 5 – Mid Channel)

OPERATING FREQUENCY: 847.50 MHz
 CHANNEL: 20635
 MEASURED OUTPUT POWER: 16.28 dBm = 0.042 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 Substitute Antenna Gain [dBd]
 LIMIT: $43 + 10 \log_{10}(W) =$ 29.28 dBc



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1695.00	H	5	187	-70.32	7.00	-63.32	79.6
2542.50	H	349	19	-66.84	7.93	-58.91	75.2
3390.00	H	345	241	-74.51	7.85	-66.66	82.9
4237.50	H	357	260	-72.09	7.72	-64.36	80.6
5085.00	H	-	-	-72.42	8.62	-63.81	80.1

Table 7-9. Radiated Spurious Data (LTE Band 5 – High Channel)

FCC ID: A3LSMJ530		FCC Pt. 22 WCDMA / LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMJ530** complies with all the requirements of Part 22 of the FCC rules.

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