



PART 24 MEASUREMENT REPORT

Applicant Name:
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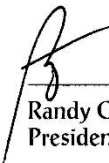
Date of Testing:
8/19/2021 - 8/29/2021
Test Report Issue Date:
9/3/2021
Test Site/Location:
PCTEST Lab. Columbia, MD, USA
Test Report Serial No.:
1M2108160095-02.A3L

FCC ID:	A3LSMA528B
Applicant Name:	Samsung Electronics Co., Ltd.

Application Type: Class II Permissive Change
Model: SM-A528B/DS
Additional Model(s): SM-A528B
EUT Type: Portable Handset
FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part: 24
Test Procedure(s): ANSI C63.26-2015, ANSI/TIA-603-E-2016, KDB 971168 D01 v03r01
Class II Permissive Change: Please see FCC change document
Original Grant Date: 08/03/2021

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







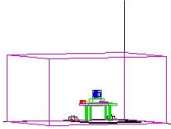
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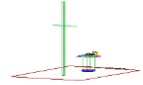
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Mode	Modulation	Tx Frequency Range [MHz]	EIRP	
			Max. Power [W]	Max. Power [dBm]
GSM/GPRS	GMSK	1850.2 - 1909.8	0.726	28.61
EDGE	8-PSK	1850.2 - 1909.8	0.214	23.30
WCDMA	Spread Spectrum	1852.4 - 1907.6	0.198	22.96

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP	
				Max. Power [W]	Max. Power [dBm]
LTE Band 2	20 MHz	QPSK	1860 - 1905	0.209	23.21
		16QAM	1860 - 1905	0.176	22.45
	15 MHz	QPSK	1857.5 - 1907.5	0.211	23.24
		16QAM	1857.5 - 1907.5	0.173	22.39
	10 MHz	QPSK	1855 - 1910	0.216	23.34
		16QAM	1855 - 1910	0.184	22.65
	5 MHz	QPSK	1852.5 - 1912.5	0.222	23.47
		16QAM	1852.5 - 1912.5	0.190	22.78
	3 MHz	QPSK	1851.5 - 1913.5	0.240	23.79
		16QAM	1851.5 - 1913.5	0.191	22.82
	1.4 MHz	QPSK	1850.7 - 1914.3	0.225	23.52
		16QAM	1850.7 - 1914.3	0.188	22.74

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1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) 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 Innovation, Science and Economic Development Canada.



1.2 PCTEST Test Location

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

1.3 Test Facility / Accreditations

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

- PCTEST is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISED.

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSMA528B**. The test data contained in this report pertains only to the emissions due to the EUT's licensed transmitters that operate under the provisions of Part 24.

Test Device Serial No.: 0362M, 0336M, 0382M

2.2 Device Capabilities

This device contains the following capabilities:



850/1900 GSM/GPRS/EDGE, 850/1700/1900, WCDMA/HSPA, Multi-band LTE, 5G NR (FR1), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII, Bluetooth (1x, EDR, LE), NFC.

2.3 Test Configuration

The EUT was tested per the guidance of ANSI/TIA-603-E-2016 and KDB 971168 D01 v03r01.

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-E-2016) and “Measurement Guidance for Certification of Licensed Digital Transmitters” (KDB 971168 D01 v03r01) were used in the measurement of the EUT.

Deviation from Measurement Procedure.....None

3.2 Radiated Power and Radiated Spurious Emissions

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. An 80cm tall test table made of Styrodur is placed on top of the turn table. A Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

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.

For radiated power measurements, substitution method is used per the guidance of ANSI/TIA-603-E-2016. A half-wave dipole is 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:

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

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 $P_g [dBm] - \text{cable loss} [dB]$.

For radiated spurious emissions measurements and calculations, conversion method is used per the formulas in KDB 971168 Section 5.8.4. Field Strength (EIRP) is calculated using the following formulas:



$$E_{[dB\mu V/m]} = \text{Measured amplitude level}_{[dBm]} + 107 + \text{Cable Loss}_{[dB]} + \text{Antenna Factor}_{[dB/m]}$$

And

$$\text{EIRP}_{[dBm]} = E_{[dB\mu V/m]} + 20\log D - 104.8; \text{ where } D \text{ is the measurement distance in meters.}$$

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014. Additionally, radiated emissions below 30MHz are also validated on an Open Area Test Site to assert correlation with the chamber measurements per the requirements of KDB 414788 D01.



Radiated power and radiated spurious emission levels are investigated with the receive antenna horizontally and vertically polarized per ANSI/TIA-603-E-2016.

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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). Measurement antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	AP2	EMC Cable and Switch System	3/4/2021	Annual	3/4/2022	AP2
-	ETS	EMC Cable and Switch System	3/4/2021	Annual	3/4/2022	ETS
Espec	SH - 241	Environmental Chamber	7/2/2020	Biennial	7/2/2022	92002873
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	4/20/2021	Biennial	4/20/2023	00125518
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11208010032
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			100976
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			112347
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	5/25/2021	Annual	5/25/2022	100348
Rohde & Schwarz	ESW44	EMI Test Receiver 2Hz to 44 GHz	1/21/2021	Annual	1/21/2022	101716

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

GSM Emission Designator

Emission Designator = 250KGXW

GSM BW = 250 kHz
 G = Phase Modulation
 X = Cases not otherwise covered
 W = Combination (Audio/Data)

EDGE Emission Designator

Emission Designator = 250KG7W

EDGE BW = 250 kHz
 G = Phase Modulation
 7 = Quantized/Digital Info
 W = Combination (Audio/Data)

WCDMA Emission Designator

Emission Designator = 4M16F9W

WCDMA BW = 4.16 MHz
 F = Frequency Modulation
 9 = Composite Digital Info
 W = Combination (Audio/Data)

QPSK Modulation

Emission Designator = 8M62G7D

LTE BW = 8.62 MHz
 G = Phase Modulation
 7 = Quantized/Digital Info
 D = Data transmission, telemetry, telecommand

QAM 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

Example: Spurious emission at 3700.40 MHz

The receive 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 3700.40 MHz. So, 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.50 dBm so this harmonic was 25.50 dBm $- (-24.80) = 50.3$ dBc.

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7.0 TEST RESULTS

7.1 Summary



Company Name: Samsung Electronics Co., Ltd.
 FCC ID: A3LSMA528B
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
 Mode(s): GSM/GPRS/EDGE/WCDMA/LTE

Test Condition	Test Description	FCC Part Section(s)	Test Limit	Test Result	Reference
RADIATED	Equivalent Isotropic Radiated Power	24.232(c)	< 2 Watts max. EIRP	PASS	Section 7.2
	Radiated Spurious Emissions	2.1053, 24.238(b)	> 43 + 10 log ₁₀ (P[Watts]) for all out-of-band emissions	PASS	Section 7.3

Table 7-1. Summary of Test Results

Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.
- 4) All conducted emissions measurements are performed with automated test software to capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST EMC Software Tool v1.0.

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7.2 Radiated Power (ERP/EIRP)

Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 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 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – 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.

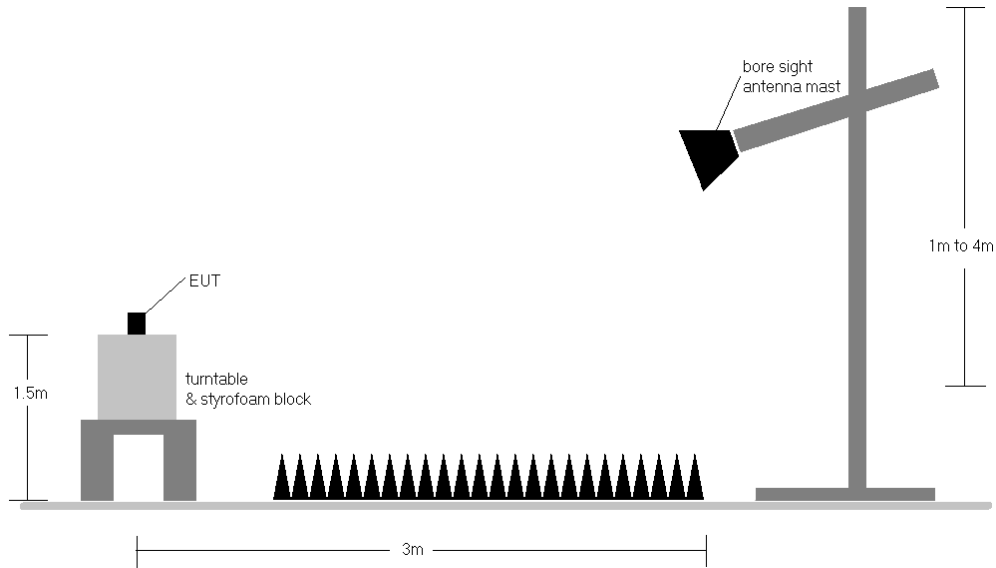


Figure 7-1. Radiated Test Setup >1GHz

Test Notes

- 1) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest powers is reported in GPRS mode while transmitting with one slot active.
- 2) This device employs UMTS technology with WCDMA (AMR/RMC) and HSDPA capabilities. The EUT was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1".
- 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) This unit was tested with its standard battery.

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Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	QPSK	1860.0	H	163	18	9.55	1 / 50	12.98	22.53	0.179	33.01	-10.48
	QPSK	1880.0	H	122	14	9.79	1 / 50	13.29	23.08	0.203	33.01	-9.93
	QPSK	1900.0	H	108	17	10.07	1 / 99	13.14	23.21	0.209	33.01	-9.80
	16-QAM	1900.0	H	108	17	10.07	1 / 99	12.38	22.45	0.176	33.01	-10.56
15 MHz	QPSK	1857.5	H	163	18	9.51	1 / 37	13.02	22.53	0.179	33.01	-10.48
	QPSK	1880.0	H	122	14	9.79	1 / 37	13.31	23.11	0.204	33.01	-9.90
	QPSK	1902.5	H	108	17	10.11	1 / 37	13.12	23.24	0.211	33.01	-9.77
	16-QAM	1902.5	H	108	17	10.11	1 / 37	12.28	22.39	0.173	33.01	-10.62
10 MHz	QPSK	1855.0	H	163	18	9.48	1 / 25	13.08	22.56	0.180	33.01	-10.45
	QPSK	1880.0	H	122	14	9.79	1 / 25	13.36	23.15	0.207	33.01	-9.86
	QPSK	1905.0	H	108	17	10.16	1 / 0	13.18	23.34	0.216	33.01	-9.67
	16-QAM	1905.0	H	108	17	10.16	1 / 0	12.49	22.65	0.184	33.01	-10.36
5 MHz	QPSK	1852.5	H	163	18	9.44	1 / 12	13.17	22.61	0.182	33.01	-10.40
	QPSK	1880.0	H	122	14	9.79	1 / 12	13.58	23.37	0.217	33.01	-9.64
	QPSK	1907.5	H	108	17	10.21	1 / 12	13.26	23.47	0.222	33.01	-9.54
	16-QAM	1907.5	H	108	17	10.21	1 / 12	12.58	22.78	0.190	33.01	-10.23
3 MHz	QPSK	1851.5	H	163	18	9.43	1 / 7	13.22	22.65	0.184	33.01	-10.36
	QPSK	1880.0	H	122	14	9.79	1 / 7	13.51	23.31	0.214	33.01	-9.70
	QPSK	1908.5	H	108	17	10.22	1 / 0	13.57	23.79	0.240	33.01	-9.22
	16-QAM	1908.5	H	108	17	10.22	1 / 7	12.59	22.82	0.191	33.01	-10.19
1.4 MHz	QPSK	1850.7	H	163	18	9.42	1 / 3	13.15	22.57	0.181	33.01	-10.44
	QPSK	1880.0	H	122	14	9.79	1 / 3	13.43	23.23	0.210	33.01	-9.78
	QPSK	1909.3	H	108	17	10.24	1 / 3	13.28	23.52	0.225	33.01	-9.49
	16-QAM	1909.3	H	108	17	10.24	1 / 3	12.50	22.74	0.188	33.01	-10.27
3 MHz	Opposite Pol.	1908.5	V	106	115	10.16	1 / 0	11.58	21.74	0.149	33.01	-11.27



Table 7-2. EIRP Data (LTE Band 2)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.2	GSM1900	H	160	21	17.69	9.41	27.10	0.513	33.01	-5.91
1880.0	GSM1900	H	145	12	18.09	9.79	27.88	0.614	33.01	-5.13
1909.8	GSM1900	H	155	11	18.36	10.25	28.61	0.726	33.01	-4.40
1909.8	GSM1900	V	114	24	16.62	10.20	26.82	0.481	33.01	-6.19
1909.8	EDGE1900	H	155	11	13.05	10.25	23.30	0.214	33.01	-9.71

Table 7-3. EIRP Data (GPRS PCS)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1852.4	WCDMA1900	H	162	14	12.36	9.44	21.80	0.151	33.01	-11.21
1880.0	WCDMA1900	H	153	241	12.13	9.79	21.92	0.156	33.01	-11.09
1907.6	WCDMA1900	H	113	15	12.75	10.21	22.96	0.198	33.01	-10.05
1907.6	WCDMA1900	V	107	62	10.93	10.19	21.12	0.129	33.01	-11.89

Table 7-4. EIRP Data (WCDMA PCS)

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7.3 Radiated Spurious Emissions Measurements

Test Overview



Radiated spurious emissions measurements are performed using the field strength conversion method described in KDB 971168 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 RMS measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW $\geq 3 \times$ RBW
3. Span = 1.5 times the OBW
4. No. of sweep points $\geq 2 \times$ 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.

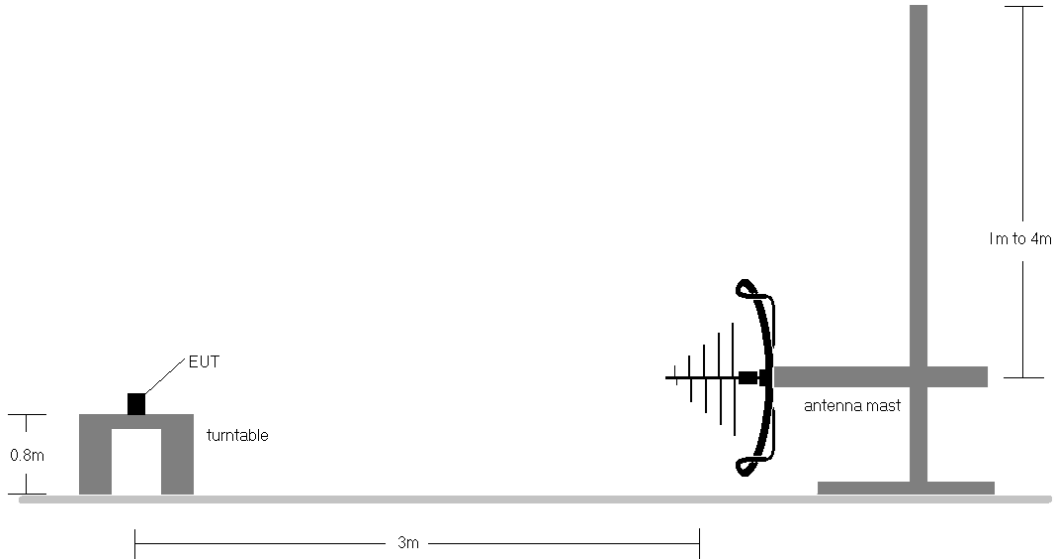


Figure 7-2. Test Instrument & Measurement Setup < 1GHz

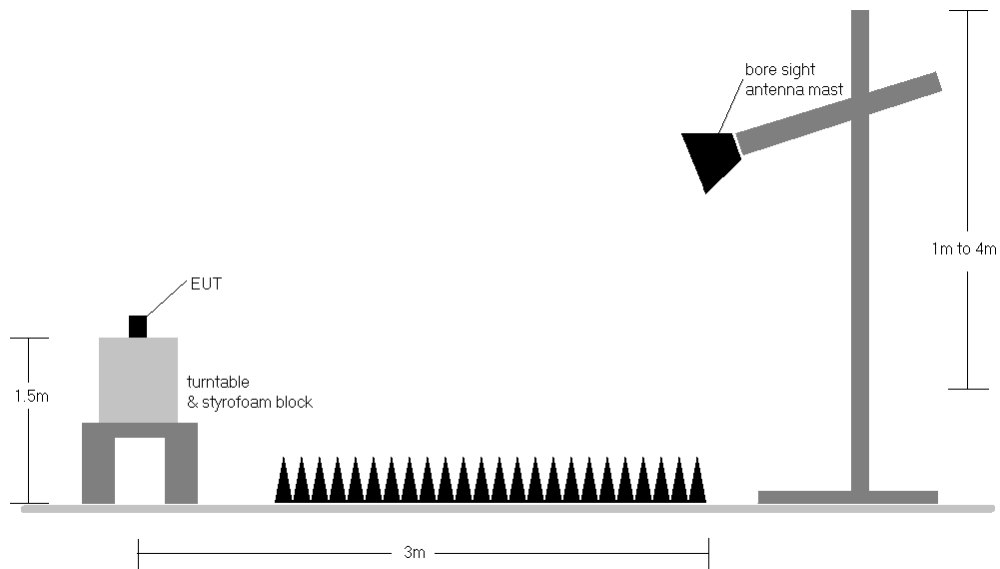




Figure 7-3. Test Instrument & Measurement Setup >1 GHz

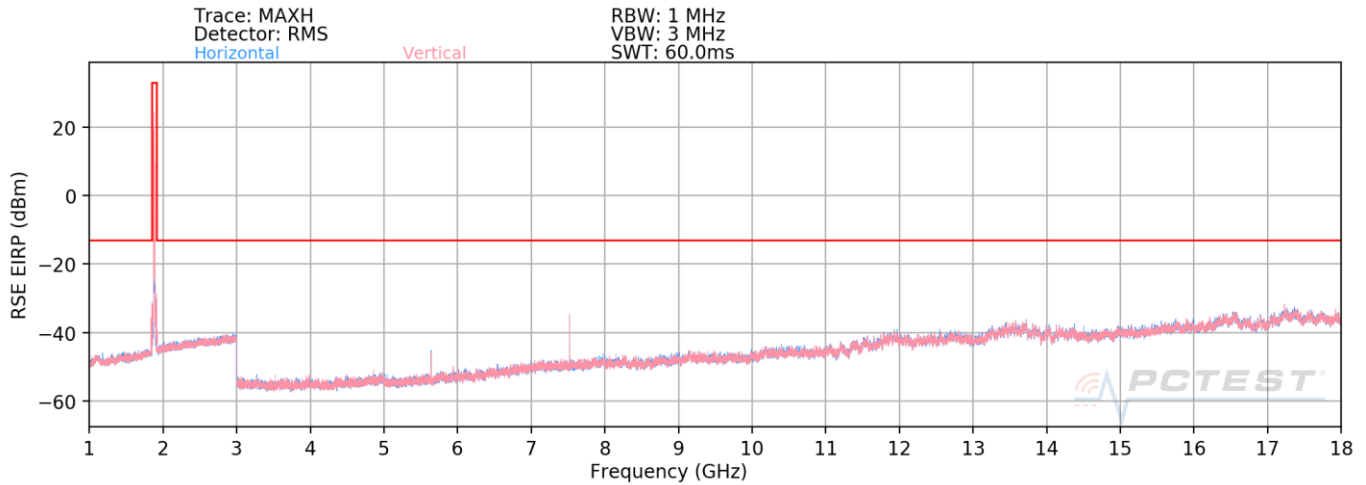
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Test Notes

- 1) Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4.
 - a) $E(\text{dB}\mu\text{V}/\text{m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
 - b) $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V}/\text{m}) + 20\log D - 104.8$; where D is the measurement distance in meters.
- 2) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest powers is reported in GPRS mode while transmitting with one slot active.
- 3) This device employs UMTS technology with WCDMA (AMR/RMC) and HSDPA capabilities. The EUT was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1".
- 4) 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.
- 5) This unit was tested with its standard battery.
- 6) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 7) 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.
- 8) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

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LTE Band 2



Plot 7-1. Radiated Spurious Plot (LTE Band 2)

Bandwidth (MHz):		20							
Frequency (MHz):		1860							
RB / Offset:		1 / 50							
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3720.0	H	177	348	-79.21	8.11	35.90	-59.36	-13.00	-46.36
5580.0	H	120	336	-70.87	11.71	47.84	-47.42	-13.00	-34.42
7440.0	H	163	3	-65.11	15.81	57.70	-37.56	-13.00	-24.56
9300.0	H	164	350	-79.63	19.05	46.42	-48.83	-13.00	-35.83
11160.0	H	-	-	-83.95	20.64	43.69	-51.57	-13.00	-38.57
13020.0	H	-	-	-84.79	25.59	47.80	-47.46	-13.00	-34.46

Table 7-5. Radiated Spurious Data (LTE Band 2 – Low Channel)



Bandwidth (MHz):		20							
Frequency (MHz):		1880							
RB / Offset:		1 / 50							
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3760.0	H	189	358	-78.19	7.74	36.55	-58.70	-13.00	-45.70
5640.0	H	109	333	-72.11	10.56	45.45	-49.81	-13.00	-36.81
7520.0	H	155	3	-65.26	15.71	57.45	-37.81	-13.00	-24.81
9400.0	H	170	348	-79.63	18.38	45.75	-49.51	-13.00	-36.51
11280.0	H	-	-	-84.24	21.45	44.21	-51.04	-13.00	-38.04
13160.0	H	-	-	-84.77	25.50	47.73	-47.53	-13.00	-34.53

Table 7-6. Radiated Spurious Data (LTE Band 2 – Mid Channel)

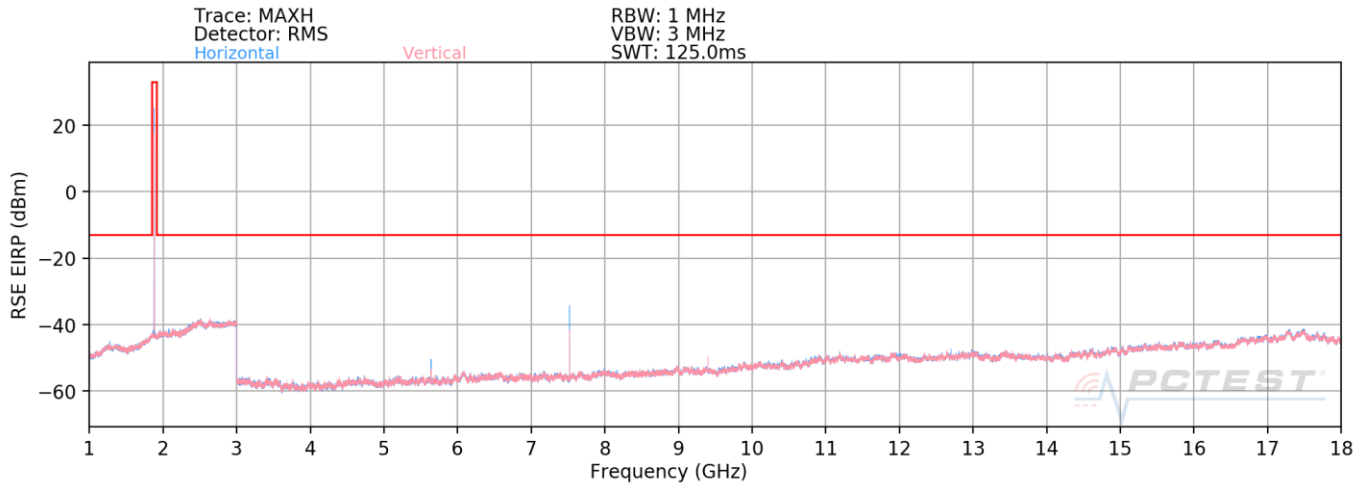
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Bandwidth (MHz):	20								
Frequency (MHz):	1900								
RB / Offset:	1 / 50								
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3800.0	H	204	349	-78.33	8.27	36.94	-58.32	-13.00	-45.32
5700.0	H	120	342	-74.06	10.86	43.80	-51.46	-13.00	-38.46
7600.0	H	157	4	-65.74	16.14	57.40	-37.86	-13.00	-24.86
9500.0	H	155	349	-79.01	19.24	47.23	-48.03	-13.00	-35.03
11400.0	H	-	-	-84.01	22.69	45.68	-49.58	-13.00	-36.58
13300.0	H	-	-	-84.74	26.46	48.72	-46.53	-13.00	-33.53

Table 7-7. Radiated Spurious Data (LTE Band 2 – High Channel)

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GSM/GPRS PCS



Plot 7-2. Radiated Spurious Plot (GPRS PCS)

Mode:		GPRS 1 Tx Slot							
Channel:		512							
Frequency (MHz):		1850.2							
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3700.4	H	391	322	-64.99	3.93	45.94	-49.32	-13.00	-36.32
5550.6	H	118	333	-56.88	5.33	55.45	-39.81	-13.00	-26.81
7400.8	H	122	364	-47.74	8.40	67.66	-27.60	-13.00	-14.60
9251.0	H	116	354	-64.83	9.26	51.43	-43.83	-13.00	-30.83
11101.2	H	124	357	-75.24	13.79	45.55	-49.71	-13.00	-36.71
12951.4	H	211	352	-68.44	14.29	52.85	-42.41	-13.00	-29.41
14801.6	H	-	-	-79.04	15.79	43.75	-51.50	-13.00	-38.50
16651.8	H	-	-	-79.12	19.92	47.80	-47.46	-13.00	-34.46

Table 7-8. Radiated Spurious Data (GPRS PCS – Low Channel)



Mode:		GPRS 1 Tx Slot							
Channel:		661							
Frequency (MHz):		1880							
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3760.0	H	380	317	-64.65	4.19	46.54	-48.72	-13.00	-35.72
5640.0	H	111	345	-60.53	6.34	52.81	-42.45	-13.00	-29.45
7520.0	H	133	356	-47.42	7.60	67.18	-28.08	-13.00	-15.08
9400.0	H	111	342	-65.11	10.30	52.19	-43.07	-13.00	-30.07
11280.0	H	128	357	-71.52	13.98	49.46	-45.79	-13.00	-32.79
13160.0	H	200	350	-70.93	14.63	50.70	-44.55	-13.00	-31.55
15040.0	H	112	280	-76.70	16.60	46.90	-48.36	-13.00	-35.36
16920.0	H	-	-	-78.62	19.84	48.22	-47.04	-13.00	-34.04

Table 7-9. Radiated Spurious Data (GPRS PCS – Mid Channel)

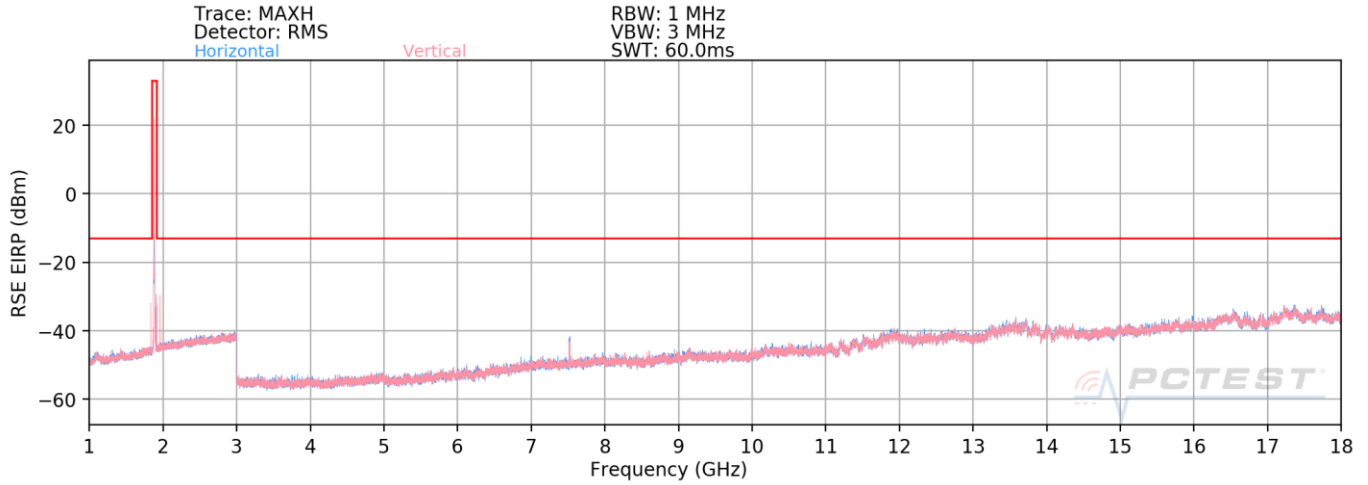
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Mode:	GPRS 1 Tx Slot								
Channel:	810								
Frequency (MHz):	1909.8								
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3819.6	H	370	332	-67.20	3.27	43.07	-52.19	-13.00	-39.19
5729.4	H	113	346	-61.91	5.55	50.64	-44.61	-13.00	-31.61
7639.2	H	142	356	-48.84	8.63	66.79	-28.47	-13.00	-15.47
9549.0	H	116	341	-66.18	10.26	51.08	-44.17	-13.00	-31.17
11458.8	H	118	353	-71.18	14.06	49.88	-45.38	-13.00	-32.38
13368.6	H	208	353	-71.06	14.29	50.23	-45.03	-13.00	-32.03
15278.4	H	111	286	-76.50	17.13	47.63	-47.63	-13.00	-34.63
17188.2	H	-	-	-78.67	20.36	48.69	-46.57	-13.00	-33.57

Table 7-10. Radiated Spurious Data (GPRS PCS – High Channel)

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WCDMA PCS



Plot 7-3. Radiated Spurious Plot (WCDMA PCS)

Mode:		WCDMA RMC							
Channel:		9262							
Frequency (MHz):		1852.4							
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turtable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3704.8	H	166	359	-79.89	8.38	35.49	-59.77	-13.00	-46.77
5557.2	H	130	343	-76.54	11.33	41.79	-53.47	-13.00	-40.47
7409.6	H	137	294	-70.84	15.62	51.78	-43.48	-13.00	-30.48
9262.0	H	-	-	-82.71	18.01	42.30	-52.96	-13.00	-39.96
11114.4	H	-	-	-84.11	21.28	44.17	-51.08	-13.00	-38.08

Table 7-11. Radiated Spurious Data (WCDMA PCS – Low Channel)



Mode:		WCDMA RMC							
Channel:		9400							
Frequency (MHz):		1880							
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turtable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3760.0	H	168	358	-79.78	7.74	34.96	-60.29	-13.00	-47.29
5640.0	H	143	342	-78.02	10.56	39.54	-55.72	-13.00	-42.72
7520.0	H	139	294	-72.62	15.71	50.09	-45.17	-13.00	-32.17
9400.0	H	-	-	-83.61	18.38	41.77	-53.49	-13.00	-40.49
11280.0	H	-	-	-84.21	21.45	44.24	-51.01	-13.00	-38.01

Table 7-12. Radiated Spurious Data (WCDMA PCS – Mid Channel)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
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Mode:	WCDMA RMC								
Channel:	9538								
Frequency (MHz):	1907.6								
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3815.2	H	170	357	-80.24	8.30	35.06	-60.20	-13.00	-47.20
5722.8	H	134	340	-78.65	11.50	39.85	-55.41	-13.00	-42.41
7630.4	H	124	303	-73.66	16.44	49.78	-45.48	-13.00	-32.48
9538.0	H	-	-	-83.65	18.64	41.99	-53.27	-13.00	-40.27
11445.6	H	-	-	-84.36	22.07	44.71	-50.55	-13.00	-37.55

Table 7-13. Radiated Spurious Data (WCDMA PCS – High Channel)

FCC ID: A3LSMA528B	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Technical 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: A3LSMA528B** complies with all the requirements of Part 24 of the FCC rules.

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