PCTEST ENGINEERING LABORATORY, INC.
7185 Oakland Mills Road, Columbia, MD 21046 USA
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MEASUREMENT REPORT
FCC Part 27 LTE

Applicant Name:
Samsung Electronics Co., Ltd.
416 Maetan 3-Dong, Yeongtong-gu
Suwon-si, Gyeonggi-do
443-742 , Republic of Korea

Date of Testing:
August 31 - September 3, 2012
Test Site/Location:
PCTEST Lab., Columbia, MD, USA
Test Report Serial No.:
0Y1208241198.A3L

FCC ID:	**A3LSCHI605**
APPLICANT:	**SAMSUNG ELECTRONICS CO., LTD.**

Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§2; §27
EUT Type:	Portable Handset
Model(s):	SCH-I605
Tx Frequency Range:	782MHz (LTE - Band 13)
Max. RF Output Power:	0.04W ERP (16.06 dBm) (QPSK)
	0.031W ERP (14.87 dBm) (16-QAM)
Emission Designator(s):	8M97G7D (QPSK) / 8M95W7D (16-QAM)
Test Device Serial No.:	*identical prototype* [S/N: FCC#9 EMC Radiation]

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.

PCTEST certifies that no party to this application has been subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.

Randy Ortanez
President

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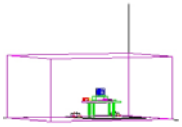
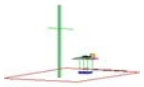


MEASUREMENT REPORT
FCC Part 27



§2.1033 General Information

APPLICANT:	Samsung Electronics Co., Ltd.
APPLICANT ADDRESS:	416 Maetan 3-Dong, Yeongtong-gu Suwon-si, Gyeonggi-do
TEST SITE:	PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS:	6660-B Dobbin Road, Columbia, MD 21045 USA
FCC RULE PART(S):	§2; §27
BASE MODEL:	SCH-I605
FCC ID:	A3LSCHI605
FCC CLASSIFICATION:	PCS Licensed Transmitter Held to Ear (PCE)
EMISSION DESIGNATOR(S):	8M97G7D (QPSK) / 8M95W7D (16-QAM)
MODULATIONS:	QPSK, 16-QAM (Uplink)
FREQUENCY TOLERANCE:	Emission must remain in band
Test Device Serial No.:	FCC#9 EMC Radiation ☐ Production ☒ Pre-Production ☐ Engineering
DATE(S) OF TEST:	August 31 - September 3, 2012
TEST REPORT S/N:	0Y1208241198.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 (2451A-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 (2451A-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, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO, and CDMA 1xRTT.

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.

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 Internt'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 C63.4-2003/2009 on February 15, 2012.

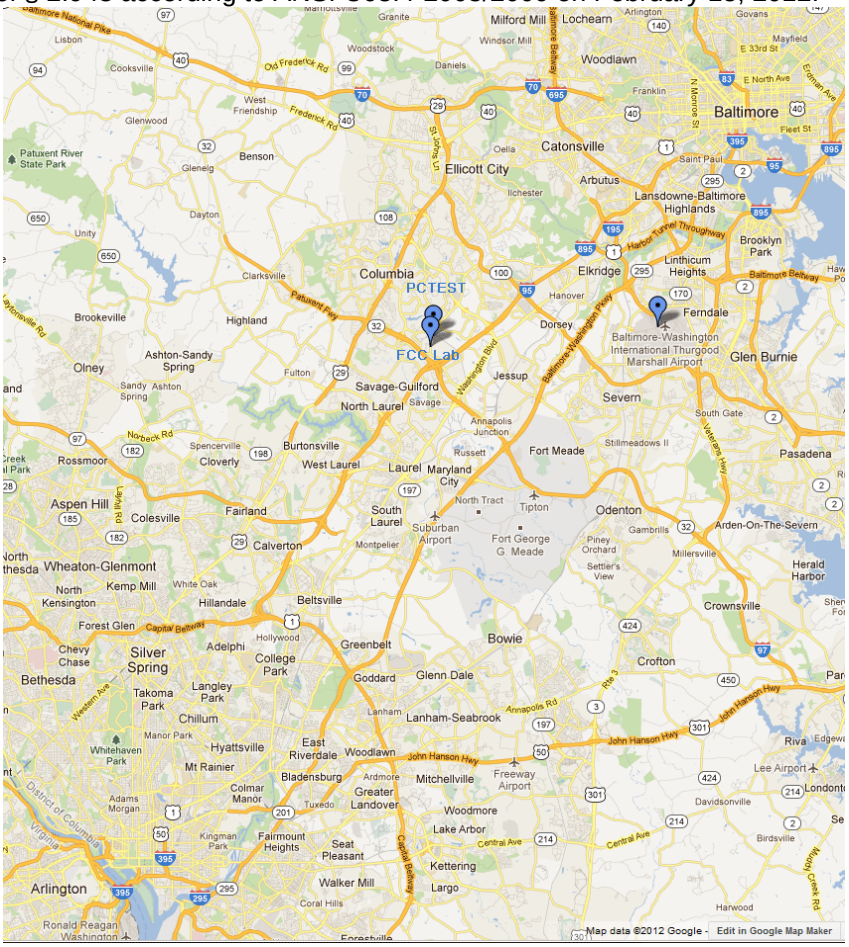


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSCHI605**. The test data contained in this report pertains only to the emissions due to the EUT's LTE function. The EUT consisted of the following component(s):

Trade Name / Base Model	FCC ID	Description
Samsung / Model: SCH-I605	A3LSCHI605	Portable Handset

Table 2-1. EUT Equipment Description

A CMW500 call box was used to set the EUT to transmit at full power. Each available modulation type (i.e. QPSK, 16-QAM) and RB size/RB offset combination was tested to determine the configuration producing the highest power and the worst case emissions.

2.2 Device Capabilities

850/1900 CDMA (BC0, BC1), 850/1900 GSM/GPRS/EDGE, 850/1900 WCDMA/HSPA, Band 13 LTE, 802.11a/b/g/n WLAN (DTS/NII), Bluetooth (1x,EDR, LE), NFC

2.3 EMI Suppression Device(s)/Modifications

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

2.4 Labeling Requirements

Per 2.925

The FCC identifier shall be permanently affixed to the equipment and shall be readily visible to the purchaser at the time of purchase.

Per 15.19; Docket 95-19

In addition to this requirement, a device subject to certification shall be labeled as follows:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the trade name and FCC ID must be displayed on the device per Section 15.19(b)(2).

Please see attachment for FCC ID label and label location.

3.0 DESCRIPTION OF TESTS

3.1 Occupied Bandwidth Emission Limits

§2.1049, §27.53(l)(6)

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

3.2 Block C Frequency Range

§27.5(b)(3)

Two paired channels of 11 megahertz each are available for assignment in Block C in the 746-757 MHz and 776-787 MHz bands. In the event that no licenses for two channels in this Block C are assigned based on the results of the first auction in which such licenses were offered because the auction results do not satisfy the applicable reserve price, the spectrum in the 746-757 MHz and 776-787 MHz bands will instead be made available for assignment at a subsequent auction as follows: (i) Two paired channels of 6 megahertz each available for assignment in Block C1 in the 746-752 MHz and 776-782 MHz bands. (ii) Two paired channels of 5 megahertz each available for assignment in Block C2 in the 752-757 MHz and 782-787 MHz bands.

3.3 Spurious and Harmonic Emissions at Antenna Terminal

§2.1051, §27.53(c)

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 100kHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

3.4 Radiated Power and Radiated Spurious Emissions

§2.1053, 22.913(a)(2), 22.917(a), 24.232(c), 24.238(a); RSS-132 (4.5.1), RSS-133 (6.5.1)

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. For measurements above 1GHz 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 below 1GHz, the absorbers are removed. An ETS Lindgren Model 2188 raised turntable is used for radiated measurement. It 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 78cm high PVC support structure is placed on top of the turntable. A ¾" (~1.9cm) sheet of high density polyethylene 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 wooden turntable 80cm above the ground plane and 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.

Per the guidance of ANSI/TIA-603-C-2004, 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:

$$P_{d\ [dBm]} = P_{g\ [dBm]} - \text{cable loss}_{\ [dB]} + \text{antenna gain}_{\ [dBd/dBi]}$$

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 $P_{g\ [dBm]}$ – 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 $43 + 10\log_{10}(\text{Power}_{[Watts]})$ specified in 22.917(a) and 24.238(a).

3.5 Frequency Stability / Temperature Variation

§2.1055, §22.355, §24.235, §27.54, RSS-132 (4.3), RSS-133 (6.3)

The frequency stability of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification – For Band 5, the frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency. For Bands 2, 4, and 17 the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Time Period and Procedure:

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).

2. The equipment is turned on in a "standby" condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.

3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A sufficient stabilization period at each temperature shall be used prior to each frequency requirement.

4.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST).

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	LTx1	Licensed Transmitter Cable Set	1/25/2012	Annual	1/25/2013	N/A
-	RE1	Radiated Emissions Cable Set (UHF/EHF)	7/10/2012	Annual	7/10/2013	N/A
Agilent	8447D	Broadband Amplifier	5/8/2012	Annual	5/8/2013	1937A03348
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/5/2012	Annual	4/5/2013	MY45470194
Agilent	N9030A	PXA Signal Analyzer	2/23/2012	Annual	2/23/2013	MY49432391
Espec	ESX-2CA	Environmental Chamber	4/4/2012	Annual	4/4/2013	17620
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	7/22/2011	Biennial	7/22/2013	125518
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	10/1/2010	Biennial	10/1/2012	128337
Mini-Circuits	VHF-1300+	High Pass Filter	2/7/2012	Annual	2/7/2013	30716
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	N/A		N/A	100976
Rohde & Schwarz	RS-PR18	1-18 GHz Pre-Amplifier	6/26/2012	Annual	6/26/2013	100071
Rohde & Schwarz	ESU26	EMI Test Receiver	12/15/2011	Annual	12/15/2012	100342
Seekonk	NC-100	Torque Wrench (8" lb)	3/5/2012	Triennial	3/5/2015	N/A
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	1/26/2012	Biennial	1/26/2014	A051107

Table 4-1. Test Equipment

Note:
Equipment used for signaling with a calibration date of "N/A" shown in this list was only used for maintaining a link between the piece of equipment and the EUT. This equipment was not used to make direct calibrated measurements.

5.0 SAMPLE CALCULATIONS

Emission Designator

QPSK Modulation

Emission Designator = 8M62G7D

LTE BW = 8.62 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Amplitude/Angle Modulated

16QAM Modulation

Emission Designator = 8M45W7D

LTE BW = 8.45 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Combination (Audio/Data)

Spurious Radiated Emission – LTE Band

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

The average receive power meter 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 power meter. 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).

6.0 TEST RESULTS

6.1 Summary

Company Name: Samsung Electronics Co., Ltd.

FCC ID: A3LSCHI605

FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)

Mode(s): LTE

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER MODE (Tx)					
2.1049	Occupied Bandwidth	N/A	CONDUCTED	PASS	Section 7.0
2.1051, 27.53(c)(2), 27.53(c)(4)	Band Edge / Conducted Spurious Emissions **(*)**	< 43 + 10log$_{10}$ (P[Watts]) <65 + 10log$_{10}$ (P[Watts]) in a 6.25kHz bandwidth for emissions in the 763-775 and 793 – 805MHz bands		PASS	Section 7.0
2.1046	Transmitter Conducted Output Power Measurements	N/A		N/A	Section 6.2
2.1055, 27.54	Frequency Stability	Fundamental emissions must stay within the allotted band		PASS	Section 6.6
27.50(b)(10)	Effective Radiated Power	< 3 Watts max. ERP	RADIATED	PASS	Section 6.3
2.1053, 27.53(c)(2), 27.53(c)(4)	Undesirable Out-of-Band Emissions	< 43 + 10log$_{10}$ (P[Watts]) for all out-of-band emissions		PASS	Section 6.4
2.1053, 27.53(f)	Undesirable Emissions in the 1559 – 1610MHz band	< -40dBm/MHz EIRP (wideband) < -50dBm EIRP (narrowband)		PASS	Section 6.5

Table 6-1. Summary of Test Results

Notes:

* - For out of band conducted spurious emissions (including those at the band edges), the emissions of both QPSK and 16-QAM modulations were investigated. The worst case transmitter emissions are shown in Section 7.0.

6.2 Transmitter Conducted Output Power

§2.1046

The **Samsung Portable Handset FCC ID: A3LSCHI605** was connected to a Rohde and Schwarz LTE Radio Communication Tester (Model: CMW500). Conducted powers for the EUT were measured for different combinations of resource block sizes, resource block offsets, and MCS indices and the worst case is reported.

Frequency	BW	Modulation	RB Size	RB Offset	Maximum Average Power [dBm]
782 MHz	10 MHz	QPSK	1	0	22.93
		16QAM	1	0	21.63
		QPSK	1	49	23.13
		16QAM	1	49	21.79
		QPSK	25	12	21.87
		16QAM	25	12	20.80
		QPSK	50	0	21.76
		16QAM	50	0	20.70

Table 6-2. Maximum Average Conducted Output Power

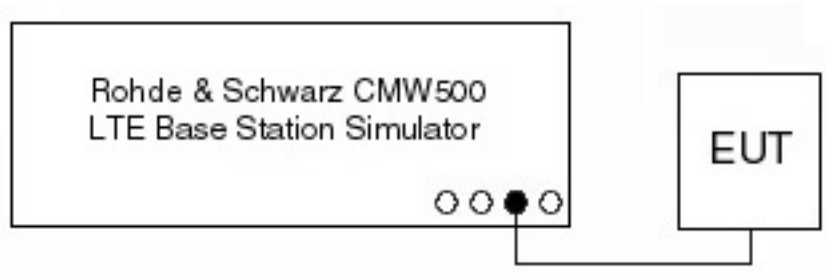


Figure 6-1. Conducted Output Power Test Setup Diagram

6.3 Effective Radiated Power Output Data

§27.50(b)(10)

Frequency [MHz]	Modulation	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBd]	Pol [H/V]	ERP [dBm]	ERP [Watts]	Power Source
782.00	QPSK	-18.880	12.12	3.94	H	16.06	0.040	Battery
782.00	16-QAM	-20.070	10.93	3.94	H	14.87	0.031	Battery

Table 6-3. Effective Radiated Power Output Data

NOTES:

Effective Radiated Power Output Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This level is recorded using the power meter. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

This device was tested under all configurations and the worst case radiated power is reported while transmitting with 1 resource block with no offset using QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the EUT in the horizontal setup. The data reported in the table above was measured in this test setup.

6.4 LTE Radiated Measurements

§2.1053, §27.53(c)(2)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	782.00	MHz		
MEASURED OUTPUT POWER:	16.060	dBm	=	0.040 W
MODULATION SIGNAL:	QPSK			
DISTANCE:	3	meters		
LIMIT:	$43 + 10 \log_{10} (W) =$	29.06	dBc	

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
2346.00	-92.92	3.57	-89.35	H	105.4
3128.00	-88.84	3.64	-85.20	H	101.3
3910.00	-89.21	5.20	-84.02	H	100.1
4692.00	-89.25	6.61	-82.64	H	98.7

Table 6-4. Radiated Spurious Data (QPSK Modulation)

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the worst case radiated spurious emissions are reported while transmitting with 1 resource block with no offset using QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the EUT in the horizontal setup. The data reported in the table above was measured in this test setup.

6.5 LTE Radiated Measurements in 1559 – 1610MHz Band

§2.1053, §27.53(f)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	782.00	MHz		
MEASURED OUTPUT POWER:	16.060	dBm	=	0.040 W
MODULATION SIGNAL:	QPSK			
DISTANCE:	3	meters		
NARROWBAND EMISSION LIMIT:	-50	dBm		
WIDEBAND EMISSION LIMIT:	-40	dBm/MHz		

FREQUENCY (MHz)	EMISSION TYPE	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	MARGIN (dB)
1562.70	WIDEBAND	-75.13	8.53	-66.60	H	-26.60

Table 6-5. Radiated Spurious Data

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the worst case radiated spurious emissions are reported while transmitting with 1 resource block with no offset using QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the EUT in the horizontal setup. The data reported in the table above was measured in this test setup.

6.6 LTE Frequency Stability Measurements

§2.1055, §27.54

OPERATING FREQUENCY: 782,000,000 Hz

REFERENCE VOLTAGE: 3.8 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	782,000,032	32	0.000004
100 %		- 30	782,000,021	21	0.000003
100 %		- 20	782,000,022	22	0.000003
100 %		- 10	781,999,987	-13	-0.000002
100 %		0	781,999,982	-18	-0.000002
100 %		+ 10	781,999,980	-20	-0.000003
100 %		+ 20	782,000,035	35	0.000004
100 %		+ 30	782,000,028	28	0.000004
100 %		+ 40	781,999,987	-13	-0.000002
100 %		+ 50	781,999,981	-19	-0.000002
115 %	4.37	+ 20	782,000,022	22	0.000003
BATT. ENDPOINT	3.30	+ 20	781,999,976	-24	-0.000003

Table 6-6. Frequency Stability Data

LTE Frequency Stability Measurements (Cont'd)

§2.1055, §27.54

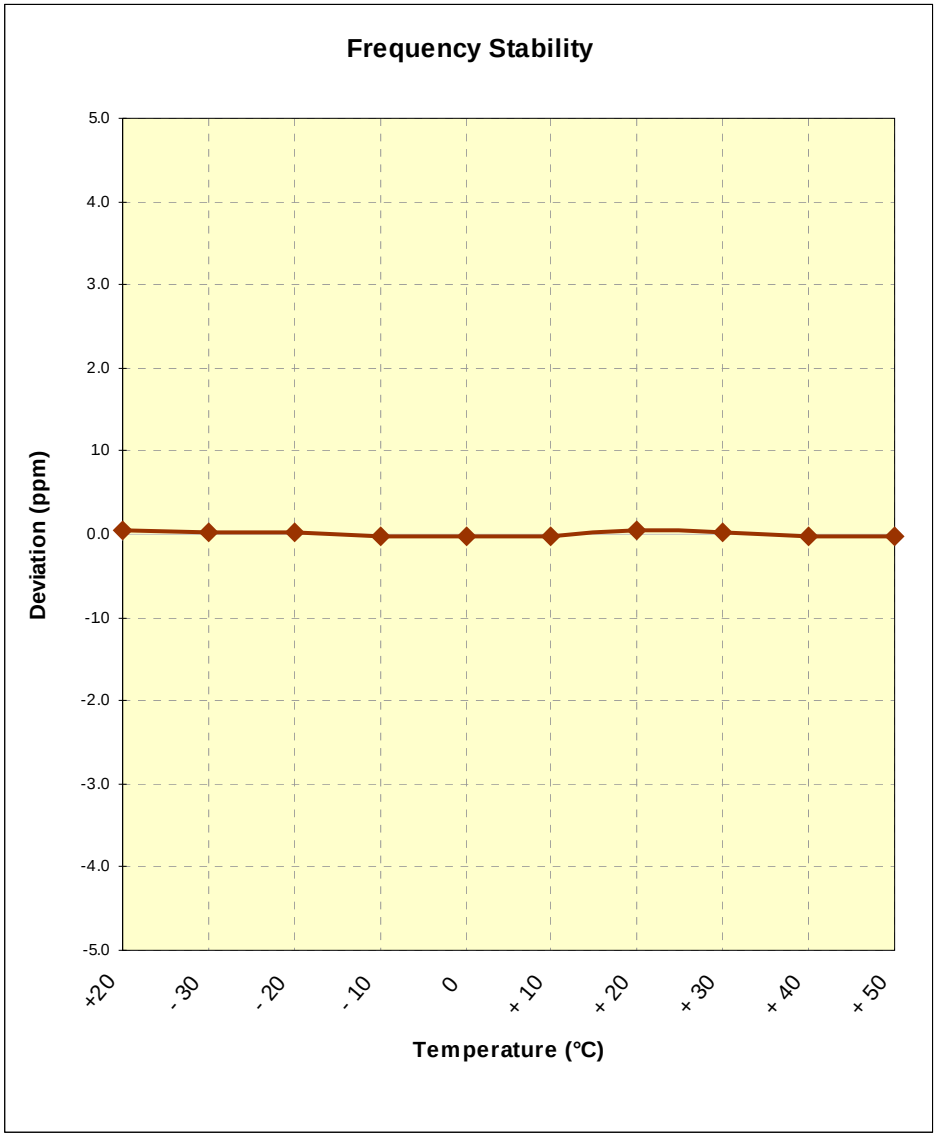
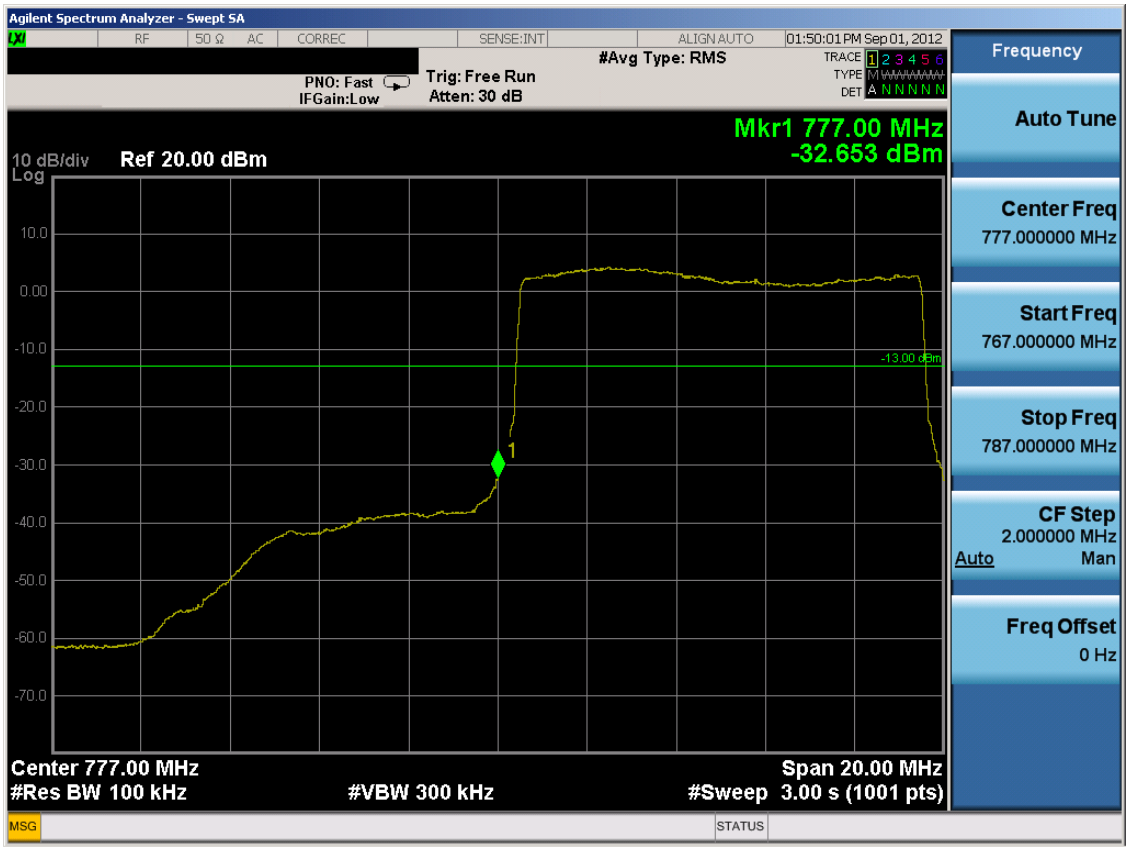


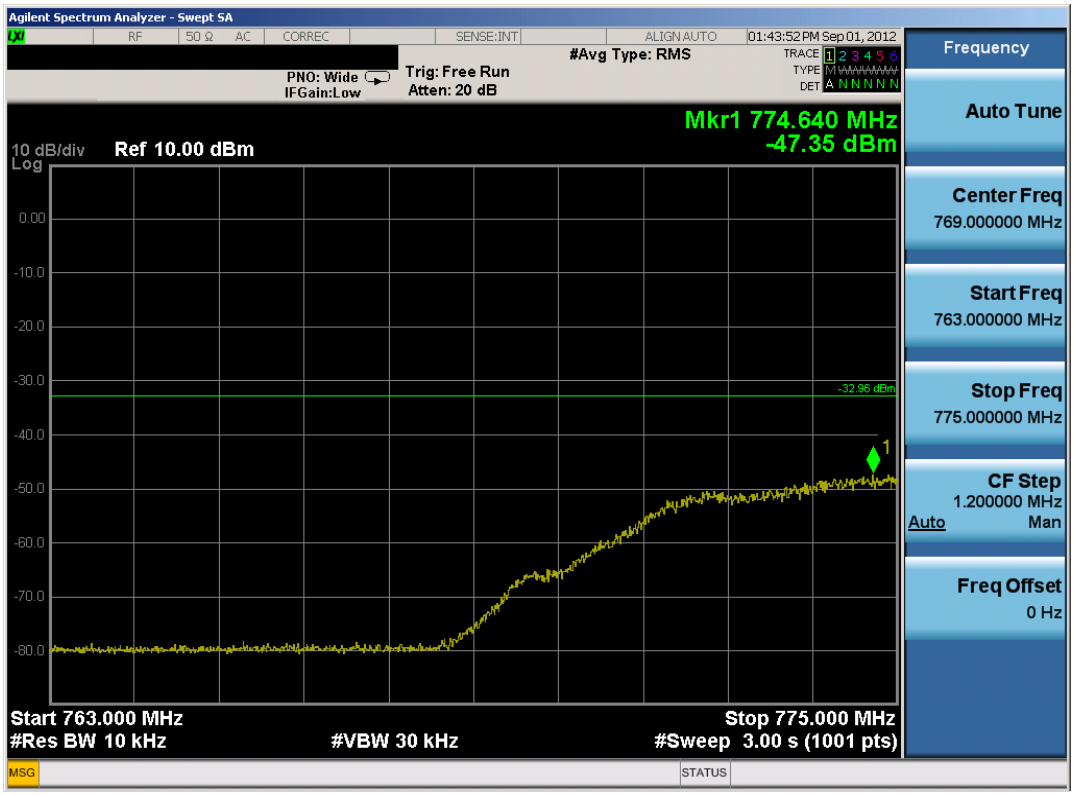
Figure 6-2. Frequency Stability Graph

7.0 PLOT(S) OF EMISSIONS

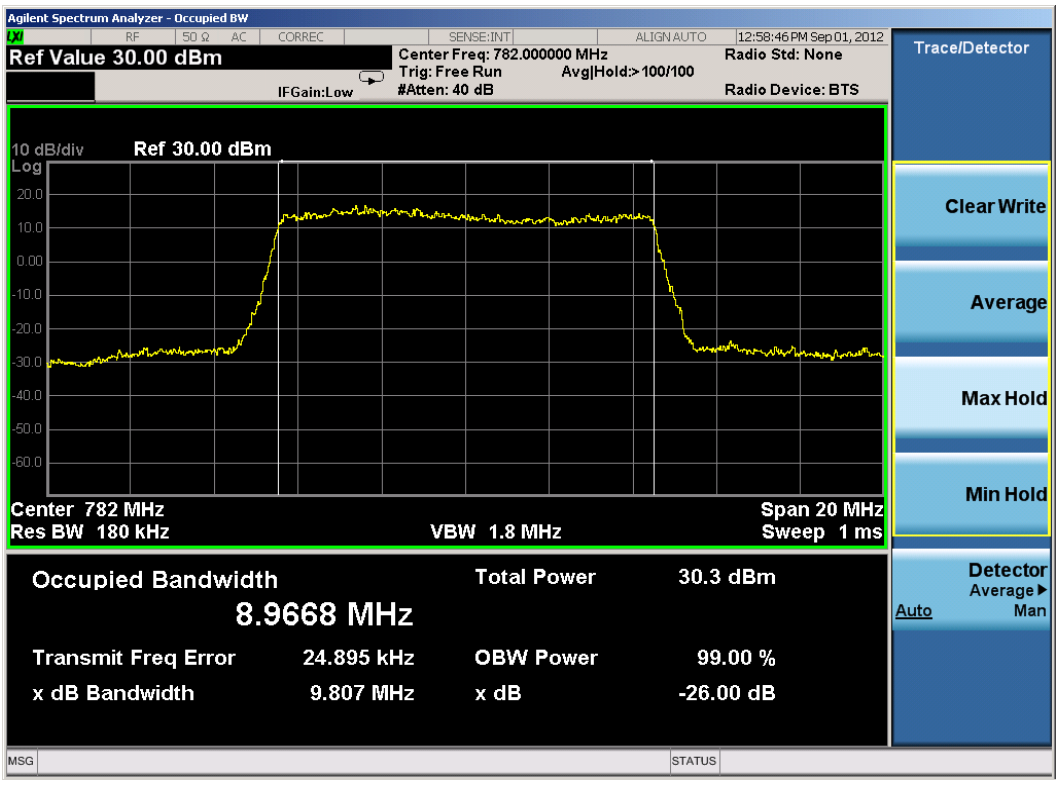
For all plots in Section 7.0 showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit is 65 + 10log10(P[Watts]) = -35dBm in a 6.25kHz bandwidth. Since it was not possible to set the resolution bandwidth to 6.25kHz with the available equipment, a bandwidth of 10kHz was used instead to show compliance. By using a 10kHz bandwidth, the limit was adjusted by 10log10(10kHz/6.25kHz) = 2.04dB. Thus, the limit shown in all plots in the 763 – 775MHz and 793 – 805MHz bands for all available modulation types was -35dBm + 2.04dB = -32.96dBm.



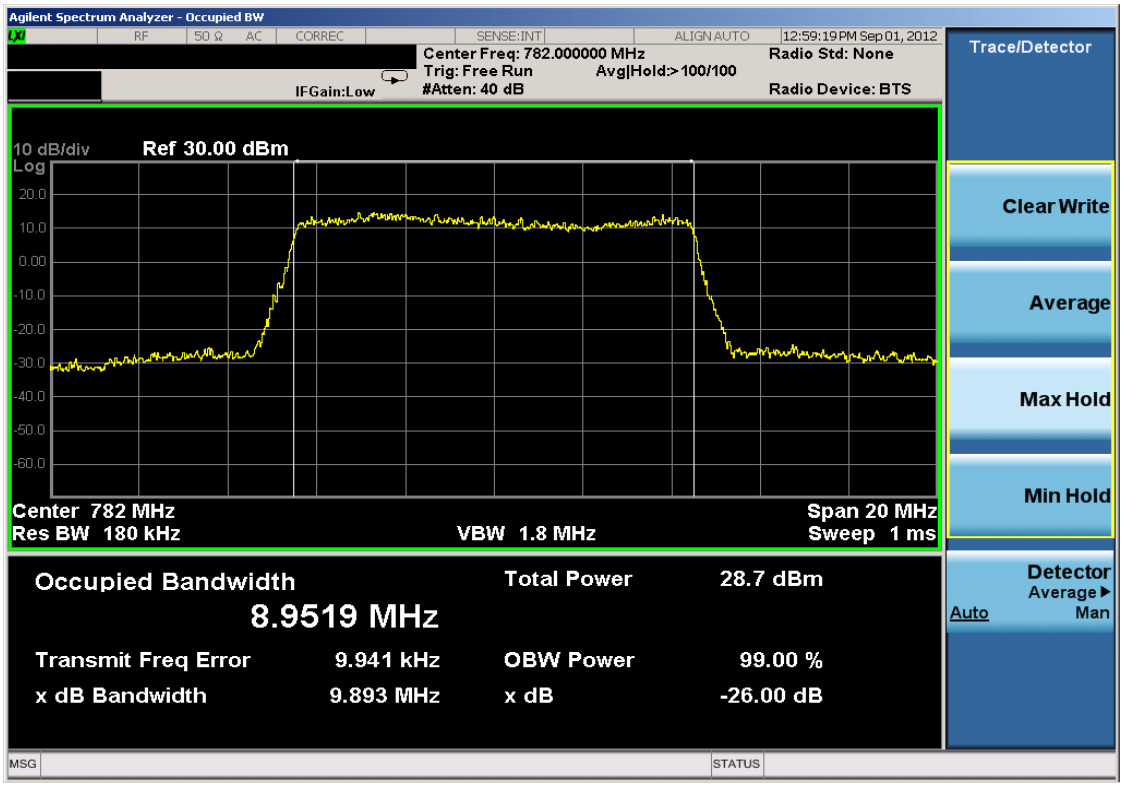
Plot 7-1. Lower Band Edge Plot (QPSK – RB Size 50)



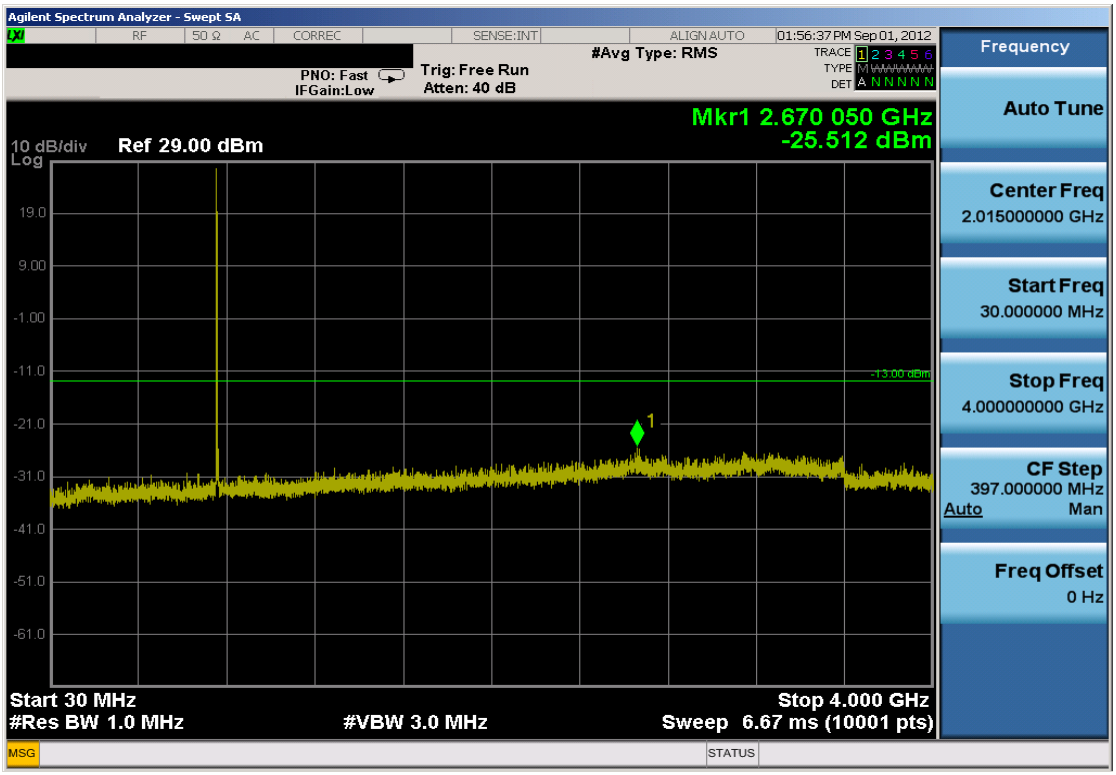
Plot 7-2. Lower Emission Mask (763 – 775MHz) Plot (QPSK – RB Size 50)



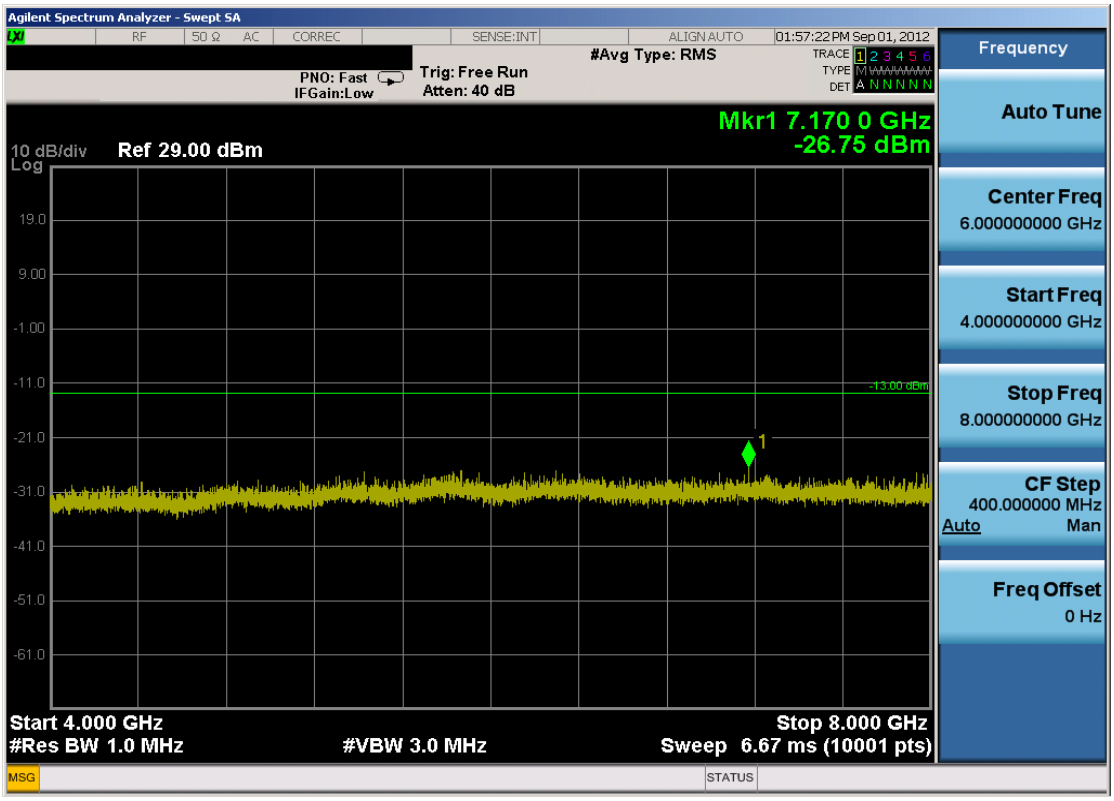
Plot 7-3. Occupied Bandwidth Plot (QPSK – RB Size 50)



Plot 7-4. Occupied Bandwidth Plot (16-QAM – RB Size 50)



Plot 7-5. Conducted Spurious Plot (QPSK – RB Size 1)



Plot 7-6. Conducted Spurious Plot (QPSK – RB Size 1)

Plot 7-7. Upper Band Edge Plot (QPSK – RB Size 50)

Plot 7-8. Upper Emission Mask (793 – 805MHz) Plot (QPSK – RB Size 50)

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSCHI605** complies with all the requirements of Parts 2 and 27 of the FCC rules.