



PCTEST ENGINEERING LABORATORY, INC.

7185 Oakland Mills Road, Columbia, MD 21046 USA

Tel. 410.290.6652 / Fax 410.290.6654

<http://www.pctestlab.com>



MEASUREMENT REPORT

FCC Part 24 & 27

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 01 - 03, 2012

Test Site/Location:

PCTEST Lab., Columbia, MD, USA

Test Report Serial No.:

0Y1207301068.A3L

FCC ID :**A3LSCHR940****APPLICANT:****SAMSUNG ELECTRONICS CO., LTD.****Application Type:**

Class II Permissive Change

FCC Classification:

PCS Licensed Transmitter Held to Ear (PCE)

FCC Rule Part(s):

§2; §24; §27

EUT Type:

Portable Handset

Model(s):

SCH-R940

Test Device Serial No.:

identical prototype [S/N: B2 LTE B/U]

Class II Permissive Change:

Please see FCC change document.

Original Grant Date

March 13, 2012

Mode	Tx Frequency (MHz)	Emission Designator	Modulation	ERP/EIRP	
				Max. Power (W)	Max. Power (dBm)
LTE Band 4	1715 - 1750	8M91G7D	QPSK	0.106	20.253
LTE Band 4	1715 - 1750	8M90W7D	16QAM	0.086	19.333
LTE Band 2	1855 - 1905	8M90G7D	QPSK	0.160	22.048
LTE Band 2	1855 - 1905	8M92W7D	16QAM	0.085	19.318

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. 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



FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 1 of 36

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

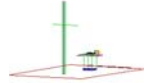
FCC PART 24, 27 MEASUREMENT REPORT	3
1.0 INTRODUCTION	4
1.1 SCOPE	4
1.2 TESTING FACILITY	4
2.0 PRODUCT INFORMATION.....	5
2.1 EQUIPMENT DESCRIPTION	5
2.2 DEVICE CAPABILITIES.....	5
2.3 EMI SUPPRESSION DEVICE(S)/MODIFICATIONS	5
2.4 LABELING REQUIREMENTS.....	5
3.0 DESCRIPTION OF TESTS	6
3.1 MEASUREMENT PROCEDURE	6
3.2 OCCUPIED BANDWIDTH	6
3.3 PCS - BASE FREQUENCY BLOCKS.....	6
3.4 PCS - MOBILE FREQUENCY BLOCKS.....	7
3.5 AWS - BASE FREQUENCY BLOCKS	7
3.6 AWS - MOBILE FREQUENCY BLOCKS	7
3.7 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL.....	8
3.8 RADIATED POWER AND RADIATED SPURIOUS EMISSIONS	8
3.9 PEAK-AVERAGE RATIO	8
3.10 FREQUENCY STABILITY / TEMPERATURE VARIATION	9
4.0 TEST EQUIPMENT CALIBRATION DATA	10
5.0 SAMPLE CALCULATIONS	11
6.0 TEST RESULTS.....	12
6.1 SUMMARY.....	12
6.2 EQUIVALENT ISOTROPIC RADIATED POWER OUTPUT DATA.....	13
6.3 BAND 4 RADIATED MEASUREMENTS.....	14
6.4 BAND 2 RADIATED MEASUREMENTS.....	17
6.5 BAND 4 FREQUENCY STABILITY MEASUREMENTS.....	20
6.6 BAND 2 FREQUENCY STABILITY MEASUREMENTS.....	22
7.0 PLOT(S) OF EMISSIONS – BAND 4 (10 MHZ).....	24
BAND 2 – 10 MHZ BW	30
8.0 CONCLUSION.....	36

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 2 of 36



MEASUREMENT REPORT

FCC Part 24 & 27

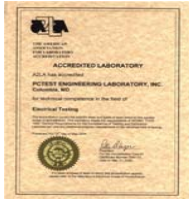


§2.1033 General Information

APPLICANT: Samsung Electronics Co., Ltd.
APPLICANT ADDRESS: 416 Maetan 3-Dong, Yeongtong-gu
 Suwon-si, Gyeonggi-do, 443-742, Republic of Korea
TEST SITE: PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS: 7185 Oakland Mills Road, Columbia, MD 21046 USA
FCC RULE PART(S): §2; §24; §27
BASE MODEL: SCH-R940
FCC ID: A3LSCHR940
FCC CLASSIFICATION: PCS Licensed Transmitter Held to Ear (PCE)
FREQUENCY TOLERANCE: $\pm 0.00025\%$ (2.5 ppm) for Band 5, within frequency block for Bands 2 and 4
Test Device Serial No.: B2 LTE B/U ☐ Production ☒ Pre-Production ☐ Engineering
DATE(S) OF TEST: August 01 - 03, 2012
TEST REPORT S/N: 0Y1207301068.A3L

Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab. located in Columbia, MD 21045, U.S.A.



- PCTEST facility is an FCC registered (PCTEST Reg. No. 90864) 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.

FCC ID: A3LSCHR940	 FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		 Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset	Page 3 of 36

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.

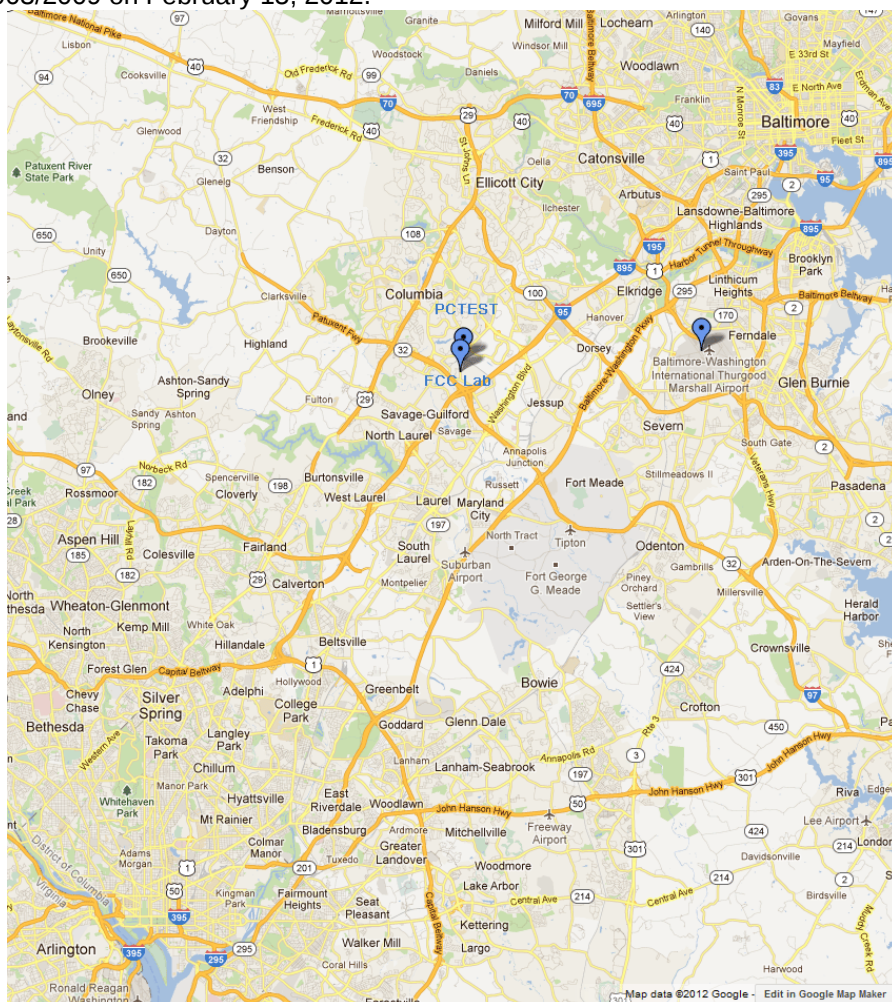


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 4 of 36

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSCHR940**. 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-R940	A3LSCHR940	Portable Handset

Table 2-1. EUT Equipment Description

2.2 Device Capabilities

This device contains the following capabilities:

850/1700/1900 CDMA/EvDO, Band 2, 4 LTE (10MHz BW), 802.11b/g/n WLAN, Bluetooth

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.

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 5 of 36

3.0 DESCRIPTION OF TESTS

3.1 Measurement Procedure

The radiated spurious measurements were made outdoors at a 3-meter test range (See Figure 3-1). The equipment under test is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. This power level was recorded using 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 receive spectrum analyzer reading. This level is recorded with 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 antenna are taken into consideration.

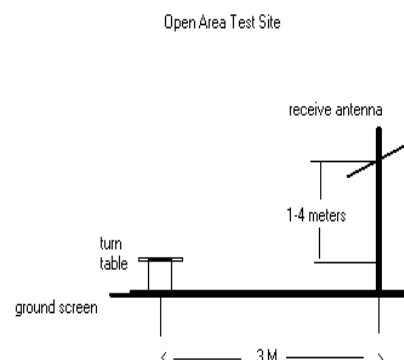


Figure 3-1. Diagram of 3-meter outdoor test range

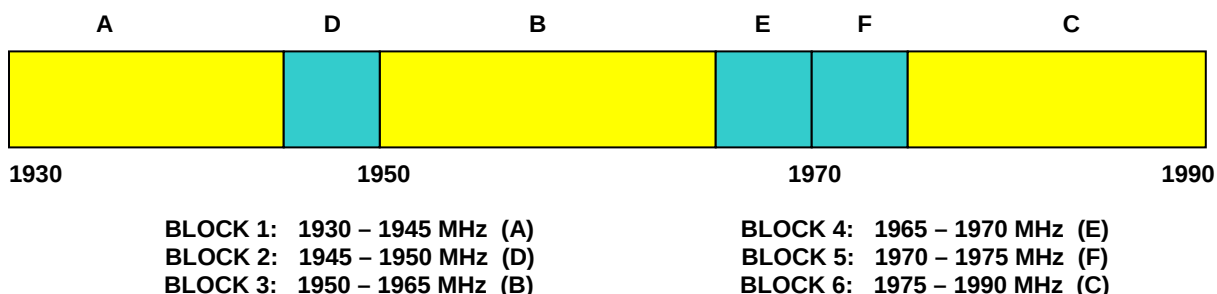
Deviation from Measurement Procedure.....None

3.2 Occupied Bandwidth

§2.1049, RSS-Gen (4.6.1)

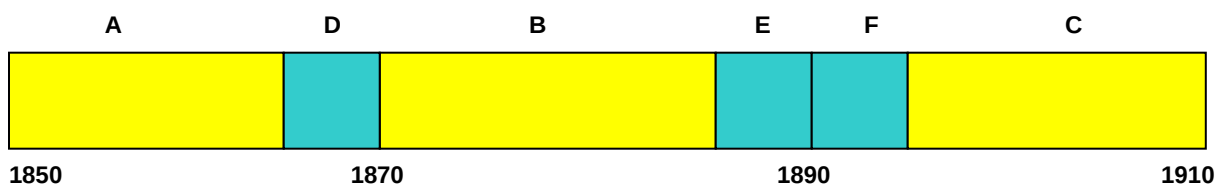
The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upperfrequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The span of the analyzer shall be set to capture all products of the odulation 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.

3.3 PCS - Base Frequency Blocks



FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 6 of 36

3.4 PCS - Mobile Frequency Blocks

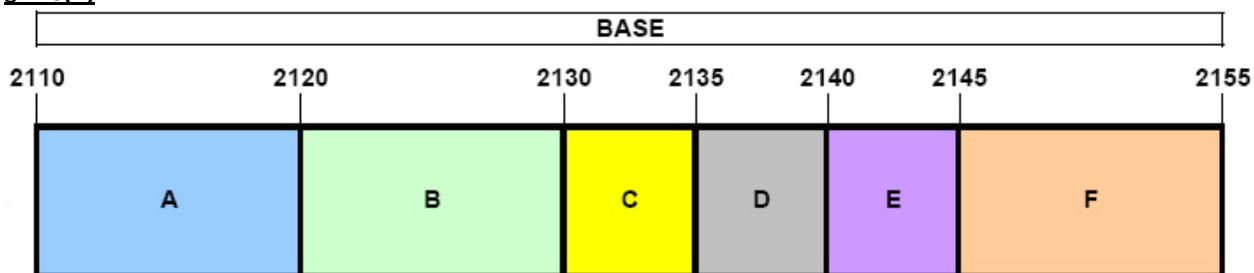


BLOCK 1: 1850 – 1865 MHz (A)
 BLOCK 2: 1865 – 1870 MHz (D)
 BLOCK 3: 1870 – 1885 MHz (B)

BLOCK 4: 1885 – 1890 MHz (E)
 BLOCK 5: 1890 – 1895 MHz (F)
 BLOCK 6: 1895 – 1910 MHz (C)

3.5 AWS - Base Frequency Blocks

§27.5(h)

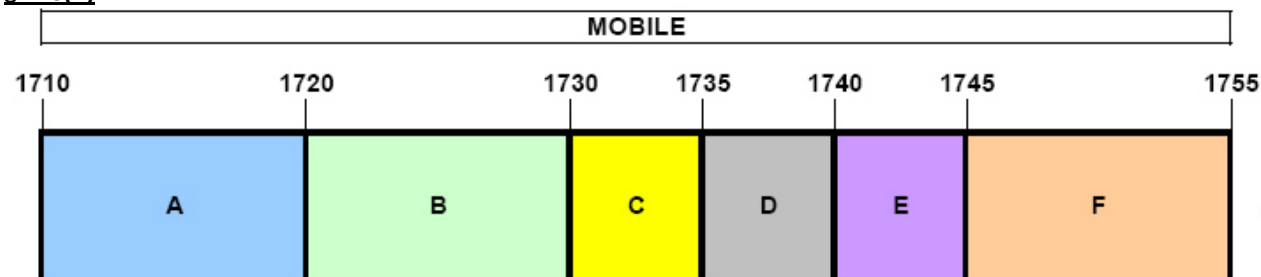


BLOCK 1: 2110 – 2120 MHz (A)
 BLOCK 2: 2120 – 2130 MHz (B)
 BLOCK 3: 2130 – 2135 MHz (C)

BLOCK 4: 2135 – 2140 MHz (D)
 BLOCK 5: 2140 – 2145 MHz (E)
 BLOCK 6: 2145 – 2155 MHz (E)

3.6 AWS - Mobile Frequency Blocks

§27.5(h)



BLOCK 1: 1710 – 1720 MHz (A)
 BLOCK 2: 1720 – 1730 MHz (B)
 BLOCK 3: 1730 – 1735 MHz (C)

BLOCK 4: 1735 – 1740 MHz (D)
 BLOCK 5: 1740 – 1745 MHz (E)
 BLOCK 6: 1745 – 1755 MHz (F)

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 7 of 36

3.7 Spurious and Harmonic Emissions at Antenna Terminal

§2.1051, 24.238(a), §27.53(g), §27.53(h); RSS-133 (6.5.1)

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. For Bands 5 and 12, Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. For Bands 2 and 4, compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter 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.

3.8 Radiated Power and Radiated Spurious Emissions

§2.1053, 24.238(a), §27.53(g), §27.53(h); RSS-133 (6.5.1)

Radiated power and radiated spurious emissions are measured outdoors at our 3-meter test range. The equipment under test is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. This level is then measured with a broadband average power meter. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive average power meter reading. This spurious level is recorded with the power meter. For readings above 1 GHz, 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.

3.9 Peak-Average Ratio

§24.232(d), §27.50(d)(5), RSS-133 (6.4)

A peak to average ratio measurement is performed at the conducted port of the EUT. For CDMA signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 8 of 36

3.10 Frequency Stability / Temperature Variation

§2.1055, §24.235, §27.54, 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 $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency. For Bands 2 and 4 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.

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 9 of 36

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
-	RE2	Radiated Emissions Cable Set (VHF/UHF)	2/13/2012	Annual	2/13/2013	N/A
-	LTx2	Licensed Transmitter Cable Set	2/17/2012	Annual	2/17/2013	N/A
Agilent	8447D	Broadband Amplifier	5/8/2012	Annual	5/8/2013	1937A03348
Agilent	8449B	(1-26.5GHz) Pre-Amplifier	2/15/2012	Annual	2/15/2013	3008A00985
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/10/2011	Annual	10/10/2012	3613A00315
Agilent	E4432B	ESG-D Series Signal Generator	3/15/2012	Annual	3/15/2013	US40053896
Agilent	E4448A	PSA (3Hz-50GHz) Spectrum Analyzer	2/15/2012	Annual	2/15/2013	US42510244
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/5/2012	Annual	4/5/2013	MY45470194
Agilent	E8267C	Vector Signal Generator	10/10/2011	Biennial	10/10/2013	US42340152
Agilent	N9038A	MXE EMI Receiver	8/5/2011	Annual	8/5/2012	MY51210133
Agilent	N9030A	PXA Signal Analyzer	2/23/2012	Annual	2/23/2013	MY49432391
Anritsu	MA2411B	Power Sensor	3/5/2012	Annual	3/5/2013	846215
Anritsu	ML2495A	Power Meter	10/13/2011	Annual	10/13/2012	1039008
Espec	ESX-2CA	Environmental Chamber	4/4/2012	Annual	4/4/2013	17620
Mini-Circuits	VHF-3100+	High Pass Filter	1/15/2012	Annual	1/15/2013	30841
Mini-Circuits	VHF-3100+	High Pass Filter	2/7/2012	Annual	2/7/2013	31144
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	N/A		N/A	100976
Schwarzbeck	VULB-9161SE	Trilog Super Broadband Test Antenna	11/8/2011	Biennial	11/8/2013	9161-4075
Seekonk	NC-100	Torque Wrench (8" lb)	3/5/2012	Triennial	3/5/2015	N/A
Sunol	DRH-118	Horn Antenna (1 - 18GHz)	7/5/2011	Biennial	7/5/2013	A050307
Sunol	DRH-118	Horn Antenna (1-18 GHz)	6/17/2011	Biennial	6/17/2013	A042511

Table 4-1. Test Equipment

Note: Rohde & Schwarz Model: CMW500 was used for signaling purposes only and not for calibrated measurements. Care was taken to ensure that testing occurred while test equipment was in calibration.

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 10 of 36

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).

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 11 of 36

6.0 TEST RESULTS

6.1 Summary

Company Name: Samsung Electronics Co., Ltd.
 FCC ID: A3LSCHR940
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
 Mode(s): LTE

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER MODE (TX)						
2.1049	RSS-Gen (4.6.1) RSS-133 (2.3)	Occupied Bandwidth	N/A	CONDUCTED	PASS	Section 7.0
2.1051, 24.238(a), 27.53(g), 27.53(h)	RSS-133 (6.5.1)	Band Edge / Conducted Spurious Emissions	$< 43 + 10\log_{10}(P[\text{Watts}])$ at Band Edge and for all out-of-band emissions		PASS	Section 7.0
24.232(d), 27.50(d)(5)	RSS-133 (6.4)	Peak-Average Ratio	$< 13 \text{ dB}$		PASS	Section 7.0
2.1046	RSS-133 (4.1)	Transmitter Conducted Output Power	N/A		PASS	SAR Report
24.232(c)	RSS-133 (6.4) [SRSP-510 (5.1.2)]	Equivalent Isotropic Radiated Power (Band 2)	$< 2 \text{ Watts max. EIRP}$	RADIATED	PASS	Section 6.2
27.50(d)(4)		Equivalent Isotropic Radiated Power (Band 4)	$< 1 \text{ Watts max. EIRP}$		PASS	Section 6.2
2.1053, 24.238(a), 27.53(g), 27.53(h)	RSS-133 (6.5.1)	Undesirable Emissions	$< 43 + 10\log_{10}(P[\text{Watts}])$ for all out-of-band emissions		PASS	Section 6.3, 6.4
2.1055, 27.54, 24.235	RSS-133 (6.3)	Frequency Stability	$< 2.5 \text{ ppm}$		PASS	Section 6.5, 6.6

Table 6-1. Summary of Test Results

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 12 of 36

6.2 Equivalent Isotropic Radiated Power Output Data

§24.232(c); §27.50(d)(4)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery	RB Size/Offset	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Margin [dB]
1715.00	10	QPSK	Standard	1 / 49	-19.62	12.16	8.09	H	20.25	0.106	-9.75
1732.50	10	QPSK	Standard	1 / 49	-21.43	10.35	7.97	H	18.32	0.068	-11.68
1750.00	10	QPSK	Standard	1 / 49	-19.91	11.87	7.85	H	19.72	0.094	-10.28
1715.00	10	16-QAM	Standard	1 / 49	-20.54	11.24	8.09	H	19.33	0.086	-10.67
1732.50	10	16-QAM	Standard	1 / 49	-21.30	10.48	7.97	H	18.45	0.070	-11.55
1750.00	10	16-QAM	Standard	1 / 49	-20.83	10.95	7.85	H	18.80	0.076	-11.20

Table 6-2. Equivalent Isotropic Radiated Power Output Data (Band 4)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery	RB Size/Offset	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Margin [dB]
1855.00	10	QPSK	Standard	1 / 49	-20.29	12.87	7.76	H	20.63	0.116	-12.38
1880.00	10	QPSK	Standard	1 / 49	-21.80	11.36	7.83	H	19.19	0.083	-13.82
1905.00	10	QPSK	Standard	1 / 49	-19.02	14.14	7.91	H	22.05	0.160	-10.96
1855.00	10	16-QAM	Standard	1 / 49	-26.32	6.84	7.76	H	14.60	0.029	-18.41
1880.00	10	16-QAM	Standard	1 / 49	-25.40	7.76	7.83	H	15.59	0.036	-17.42
1905.00	10	16-QAM	Standard	1 / 49	-21.75	11.41	7.91	H	19.32	0.085	-13.69

Table 6-3. Equivalent Isotropic Radiated Power Output Data (Band 2)

NOTES:

Equivalent Isotropic Radiated Power 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 Horn antenna was substituted in place of the EUT. This Horn 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 Horn antenna is measured. The difference between the gain of the horn and an isotropic antenna is taken into consideration and the EIRP is recorded.

This device was tested under all modulations, RB sizes and offset, and channel bandwidth configurations and the worst case emissions are reported with 1RB (with 49 offset) and QPSK modulation. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 13 of 36

6.3 Band 4 Radiated Measurements

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1715.00 MHz
 CHANNEL: 20000
 MEASURED OUTPUT POWER: 20.25 dBm = 0.106 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 33.25 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3430.00	-39.59	9.34	-30.25	H	50.51
5145.00	-53.52	10.96	-42.55	H	62.81
6860.00	-85.82	10.51	-75.31	H	95.56
8575.00	-83.08	11.07	-72.01	H	92.27
10290.00	-82.10	12.47	-69.63	H	89.88
12005.00	-77.49	12.45	-65.04	H	85.29

Table 6-4. Radiated Spurious Data (Ch. 20000)

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 modulations, RB sizes and offset, and channel bandwidth configurations and the worst case emissions are reported with 1RB (with 49 offset) and QPSK modulation. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 14 of 36

Band 4 Radiated Measurements (cont'd)

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1732.50 MHz
 CHANNEL: 20175
 MEASURED OUTPUT POWER: 18.32 dBm = 0.068 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 31.32 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3465.00	-38.43	9.47	-28.97	H	47.29
5197.50	-54.08	10.87	-43.21	H	61.53
6930.00	-85.92	10.68	-75.24	H	93.56
8662.50	-83.06	11.25	-71.81	H	90.13
10395.00	-81.81	12.52	-69.29	H	87.61
12127.50	-76.83	12.28	-64.55	H	82.87

Table 6-5. Radiated Spurious Data (Ch. 20175)

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 modulations, RB sizes and offset, and channel bandwidth configurations and the worst case emissions are reported with 1RB (with 49 offset) and QPSK modulation. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 15 of 36

Band 4 Radiated Measurements (cont'd)

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1750.00 MHz
 CHANNEL: 20350
 MEASURED OUTPUT POWER: 19.72 dBm = 0.094 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) = 32.72$ dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3500.00	-40.10	9.58	-30.52	H	50.24
5250.00	-53.58	10.54	-43.04	H	62.76
7000.00	-86.04	10.86	-75.18	H	94.91
8750.00	-83.27	11.52	-71.75	H	91.47
10500.00	-81.51	12.56	-68.95	H	88.67
12250.00	-76.79	12.40	-64.39	H	84.12

Table 6-6. Radiated Spurious Data (Ch. 20350)

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 modulations, RB sizes and offset, and channel bandwidth configurations and the worst case emissions are reported with 1RB (with 49 offset) and QPSK modulation. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 16 of 36

6.4 Band 2 Radiated Measurements

§2.1053, §24.238(a)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1855.00 MHz
 CHANNEL: 18650
 MEASURED OUTPUT POWER: 20.63 dBm = 0.116 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 33.63 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3710.00	-47.03	9.58	-37.45	H	58.09
5565.00	-52.88	10.65	-42.23	H	62.86
7420.00	-85.22	10.84	-74.38	H	95.01
9275.00	-83.90	12.20	-71.70	H	92.33
11130.00	-80.50	12.87	-67.62	H	88.26
12985.00	-75.63	12.67	-62.97	H	83.60

Table 6-7. Radiated Spurious Data (Ch. 18650)

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 modulations, RB sizes and offset, and channel bandwidth configurations and the worst case emissions are reported with 1RB (with 49 offset) and QPSK modulation. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 17 of 36

Band 2 Radiated Measurements (cont'd)

§2.1053, §24.238(a)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1880.00 MHz
 CHANNEL: 18900
 MEASURED OUTPUT POWER: 19.19 dBm = 0.083 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) = 32.19$ dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3760.00	-50.54	9.30	-41.24	H	60.43
5640.00	-52.72	10.89	-41.83	H	61.02
7520.00	-85.04	10.85	-74.19	H	93.38
9400.00	-83.69	12.17	-71.51	H	90.70
11280.00	-80.60	13.05	-67.55	H	86.74
13160.00	-75.57	12.70	-62.86	H	82.05

Table 6-8. Radiated Spurious Data (Ch. 18900)

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 modulations, RB sizes and offset, and channel bandwidth configurations and the worst case emissions are reported with 1RB (with 49 offset) and QPSK modulation. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 18 of 36

Band 2 Radiated Measurements (cont'd)

§2.1053, §24.238(a)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1905.00 MHz
 CHANNEL: 19150
 MEASURED OUTPUT POWER: 22.05 dBm = 0.160 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) = 35.05$ dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3810.00	-47.00	9.06	-37.94	H	59.99
5715.00	-53.05	11.06	-41.99	H	64.04
7620.00	-85.31	11.09	-74.21	H	96.26
9525.00	-83.79	12.32	-71.48	H	93.52
11430.00	-80.36	13.20	-67.17	H	89.21
13335.00	-75.82	12.98	-62.84	H	84.89

Table 6-9. Radiated Spurious Data (Ch. 19150)

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 modulations, RB sizes and offset, and channel bandwidth configurations and the worst case emissions are reported with 1RB (with 49 offset) and QPSK modulation. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 19 of 36

6.5 Band 4 Frequency Stability Measurements

§2.1055, §27.54, RSS-133 (6.3)

OPERATING FREQUENCY: 1,732,500,000 Hz
 CHANNEL: 20175
 REFERENCE VOLTAGE: 3.7 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	1,732,499,984	-16	-0.000001
100 %		- 30	1,732,499,988	-12	-0.000001
100 %		- 20	1,732,500,014	14	0.000001
100 %		- 10	1,732,499,982	-18	-0.000001
100 %		0	1,732,499,981	-19	-0.000001
100 %		+ 10	1,732,500,020	20	0.000001
100 %		+ 20	1,732,499,984	-16	-0.000001
100 %		+ 30	1,732,499,977	-23	-0.000001
100 %		+ 40	1,732,500,017	17	0.000001
100 %		+ 50	1,732,500,016	16	0.000001
115 %	4.26	+ 20	1,732,499,977	-23	-0.000001
85 %	3.15	+ 20	1,732,499,972	-28	-0.000002

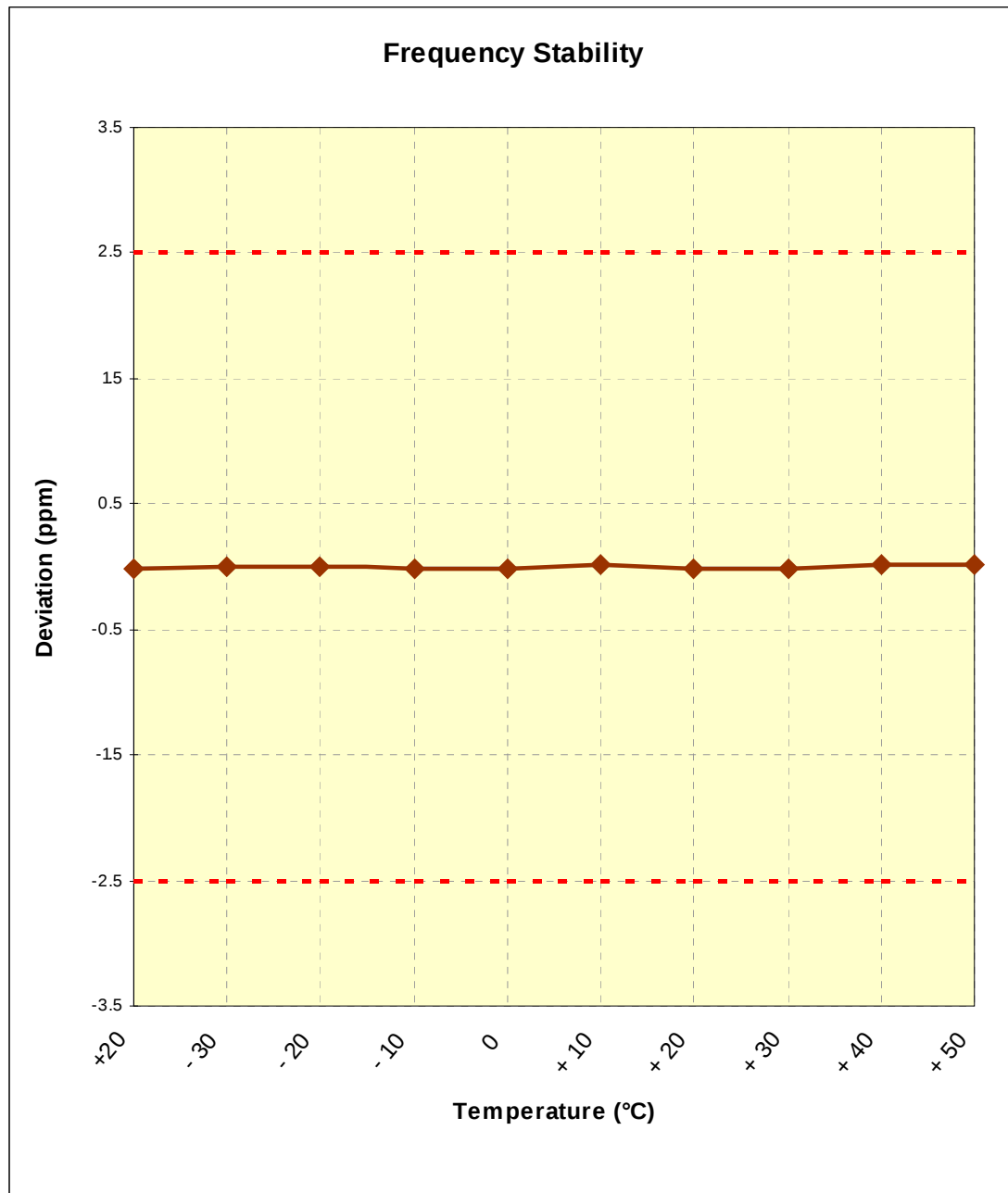
Table 6-10. Frequency Stability Data (Band 4)

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 20 of 36

Band 4 Frequency Stability Measurements (Cont'd)
§2.1055, §27.54; RSS-133 (6.3)



The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

FCC ID: A3LSCHR940	 FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset	Page 21 of 36

6.6 Band 2 Frequency Stability Measurements

\$2.1055, \$24.235

OPERATING FREQUENCY: 1,880,000,000 Hz
 CHANNEL: 18900
 REFERENCE VOLTAGE: 3.7 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	1,879,999,982	-18	-0.000001
100 %		- 30	1,880,000,010	10	0.000001
100 %		- 20	1,880,000,016	16	0.000001
100 %		- 10	1,879,999,981	-19	-0.000001
100 %		0	1,879,999,988	-12	-0.000001
100 %		+ 10	1,879,999,983	-17	-0.000001
100 %		+ 20	1,879,999,982	-18	-0.000001
100 %		+ 30	1,879,999,986	-14	-0.000001
100 %		+ 40	1,879,999,982	-18	-0.000001
100 %		+ 50	1,879,999,989	-11	-0.000001
115 %	4.26	+ 20	1,879,999,979	-21	-0.000001
85 %	3.15	+ 20	1,879,999,974	-26	-0.000001

Table 6-11. Frequency Stability Data (Band 2)

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset	Page 22 of 36	

Band 2 Frequency Stability Measurements (Cont'd)
§2.1055, §24.235

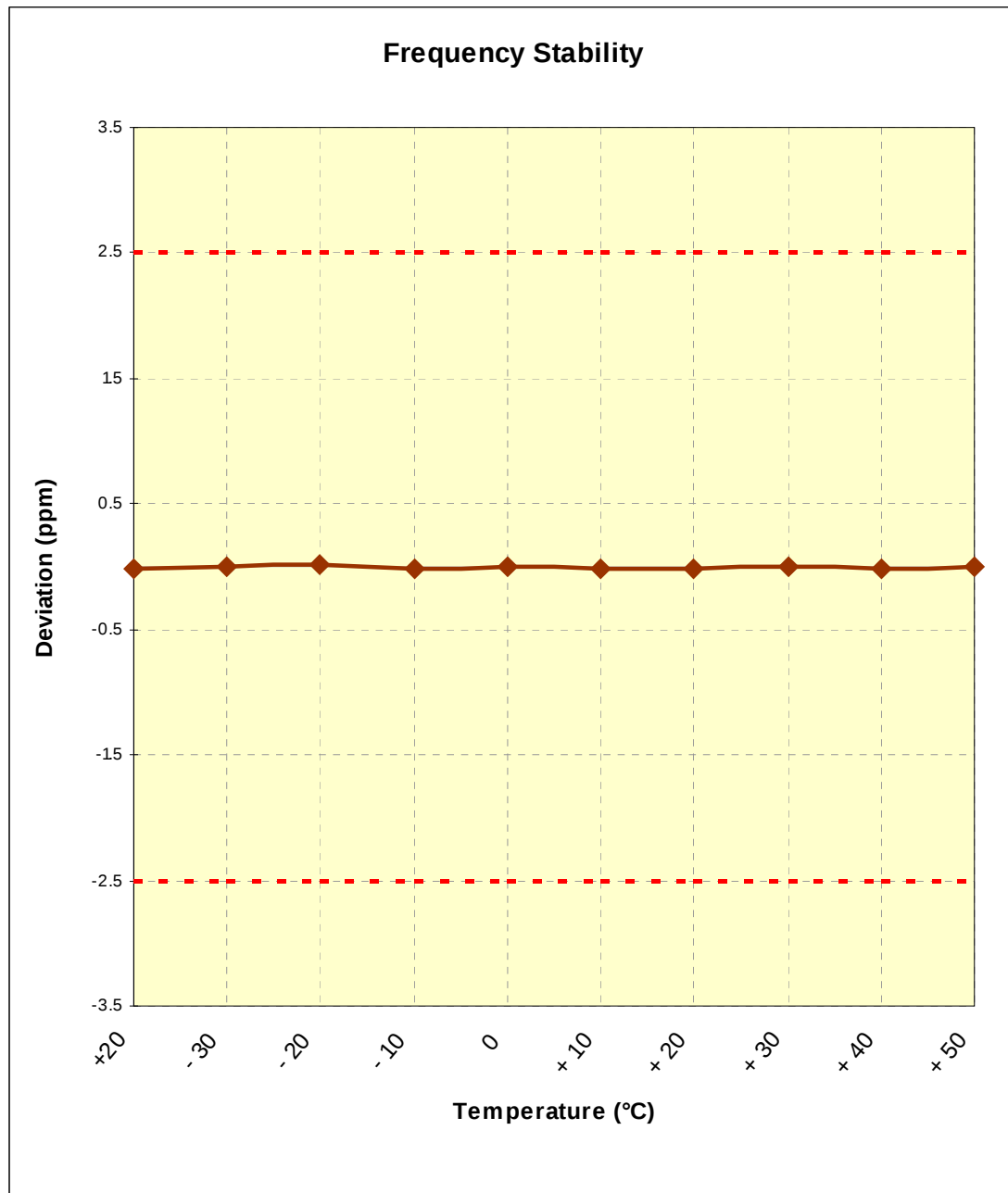


Figure 6-1. Frequency Stability Graph (Band 2)

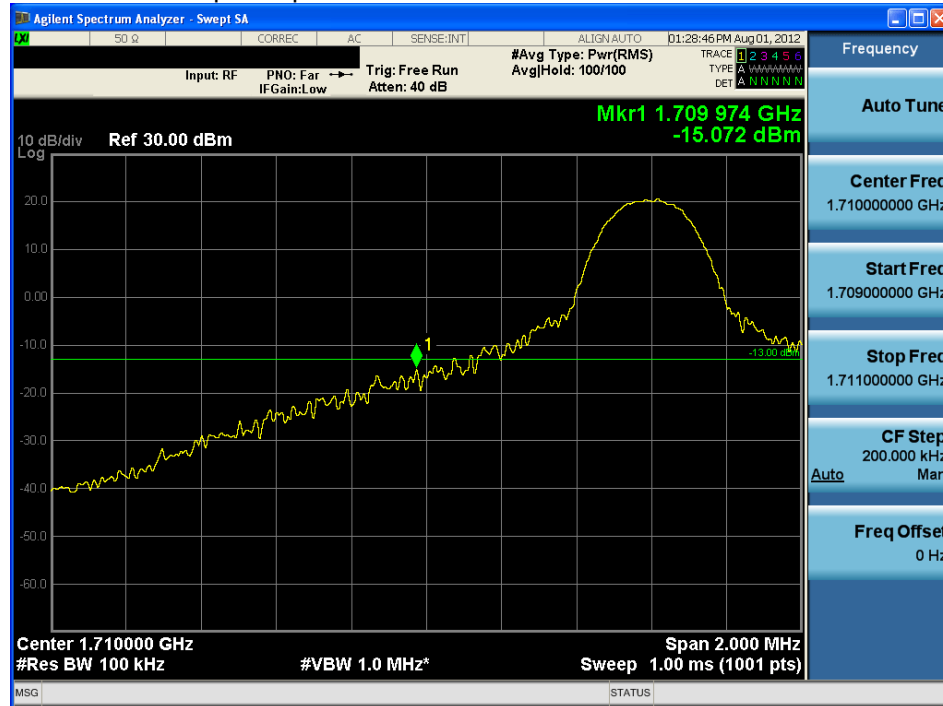
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

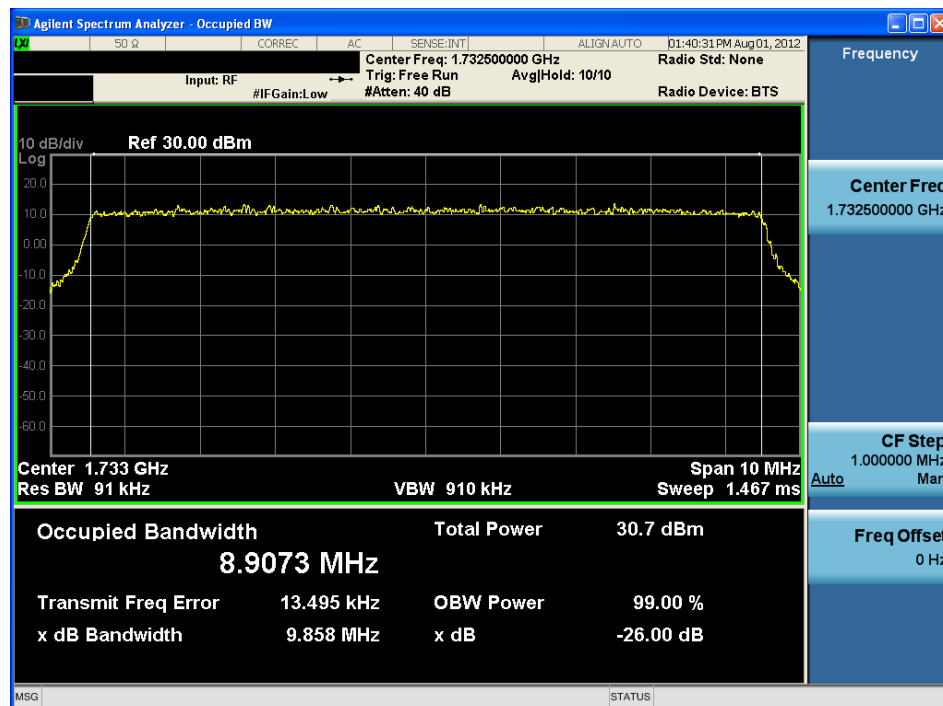
FCC ID: A3LSCHR940	 FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		 Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset	Page 23 of 36

7.0 PLOT(S) OF EMISSIONS – BAND 4 (10 MHz)

Note: For all out-of-band spurious emissions, the RB sizes and offsets that produced the worst case emissions are indicated in the plot captions.

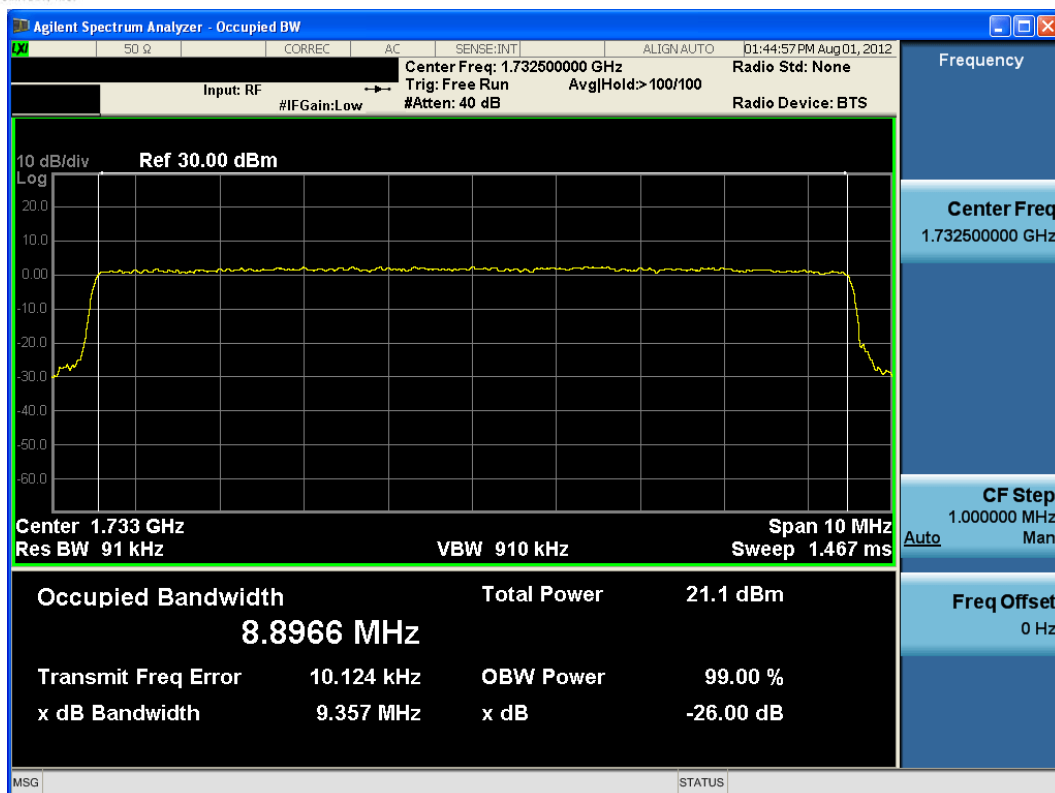


Plot 7-1. Lower Band Edge Plot (QPSK – RB Size 1, Offset 0)



Plot 7-2. Occupied Bandwidth Plot (QPSK – RB Size 50)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 24 of 36

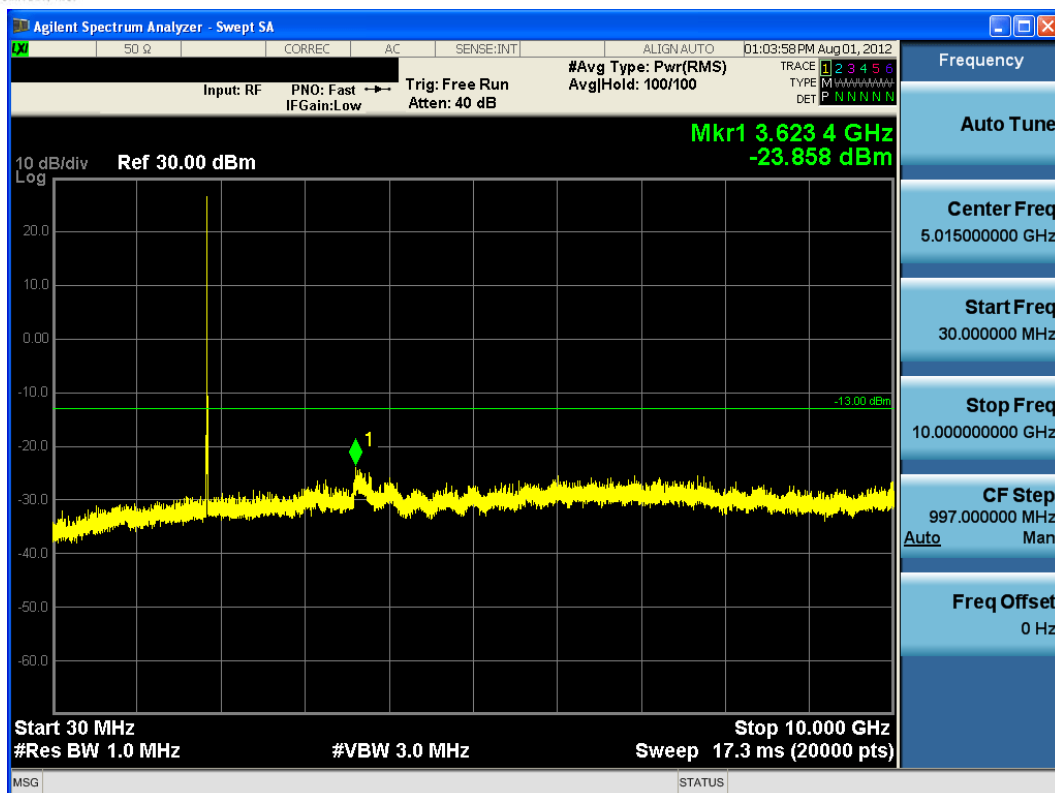


Plot 7-3. Occupied Bandwidth Plot (16-QAM – RB Size 50)

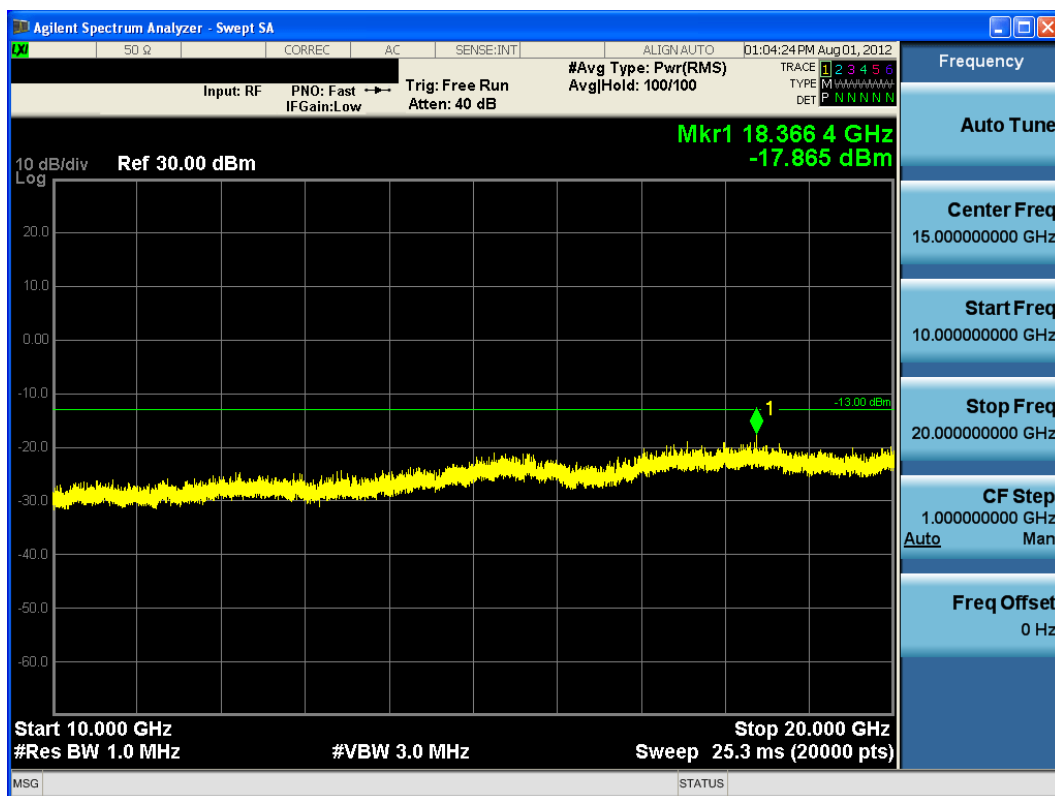


Plot 7-4. Peak to Average Ratio Plot (QPSK - RB Size 50)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 25 of 36

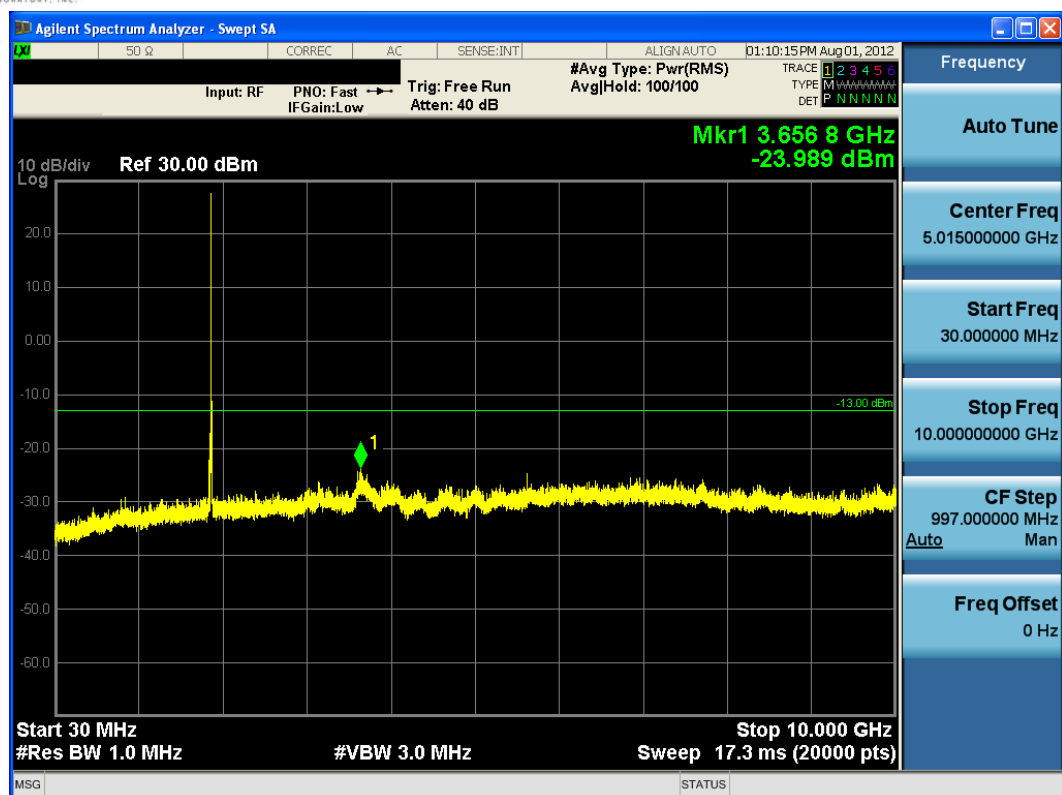


Plot 7-5. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0– Low Channel)

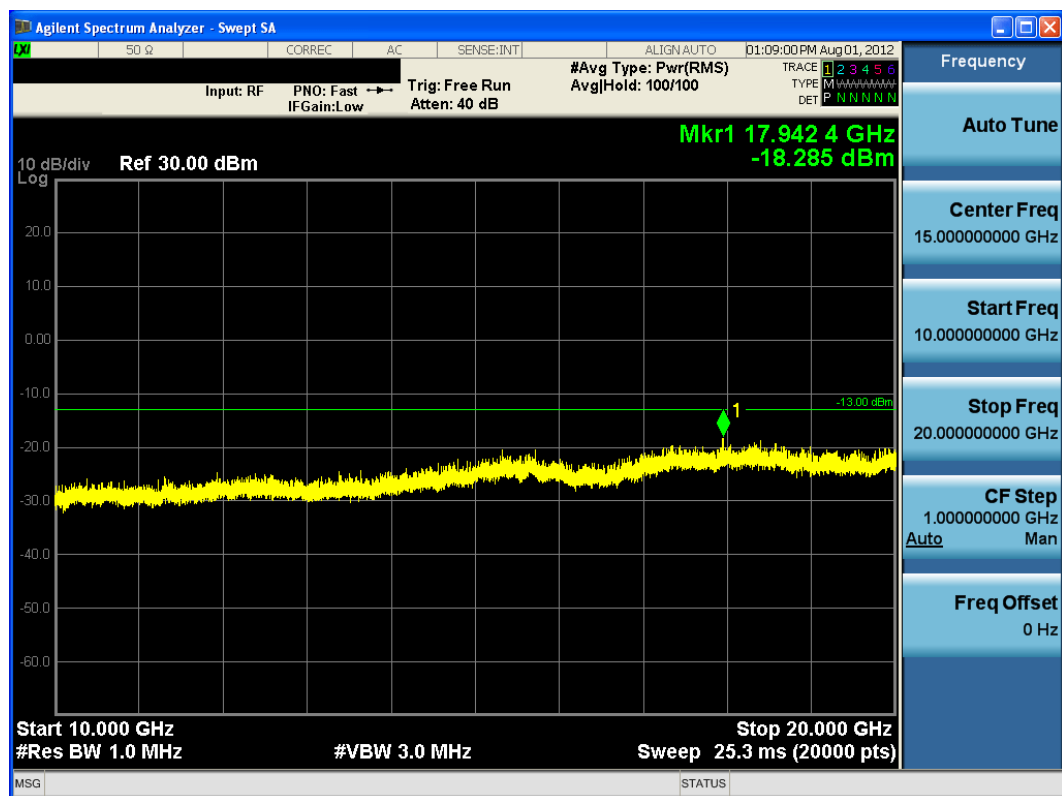


Plot 7-6. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 26 of 36

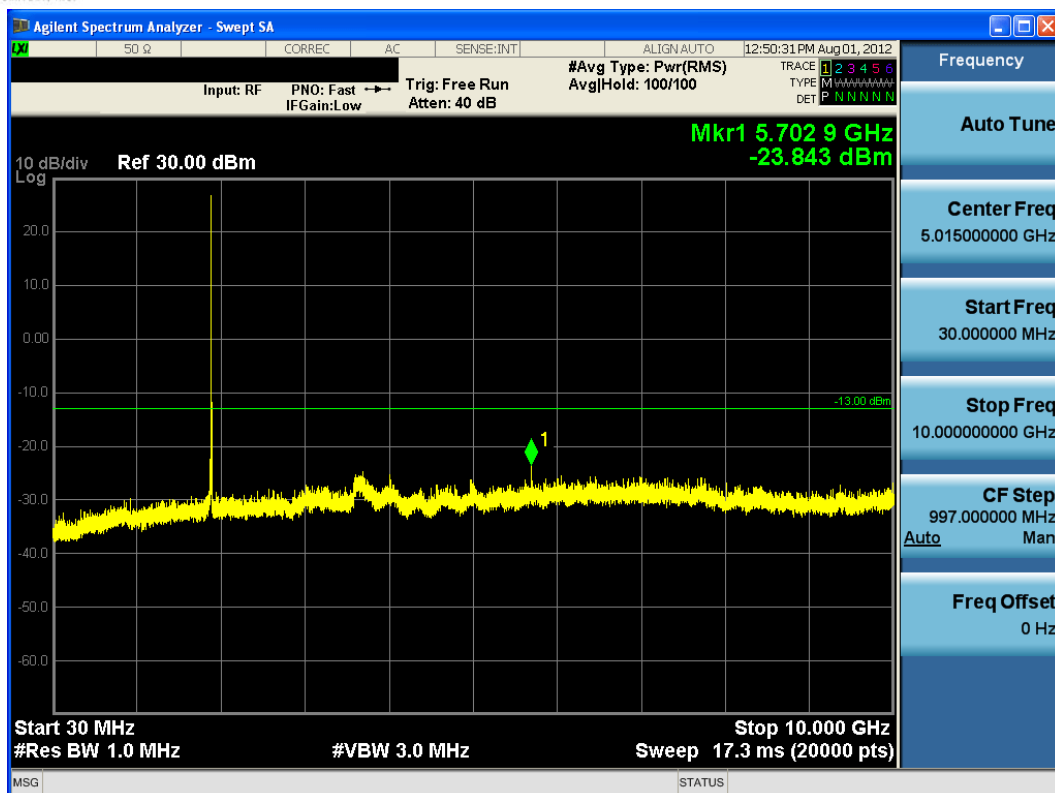


Plot 7-7. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

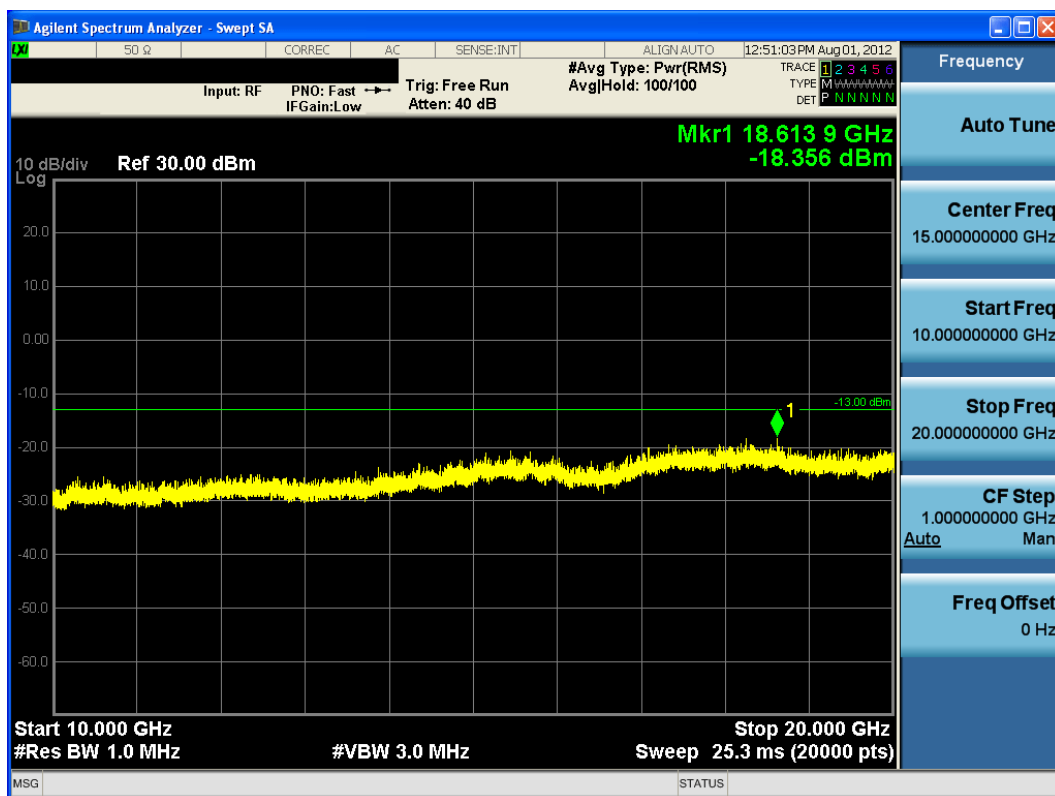


Plot 7-8. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 27 of 36

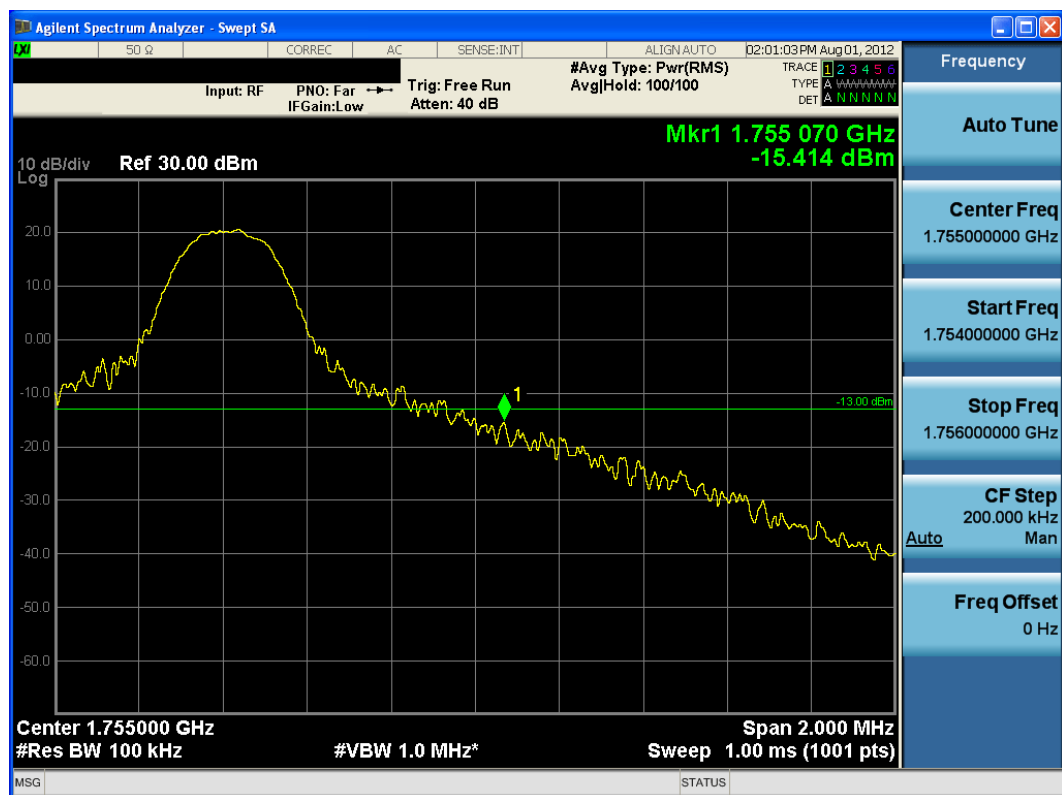


Plot 7-9. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)



Plot 7-10. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

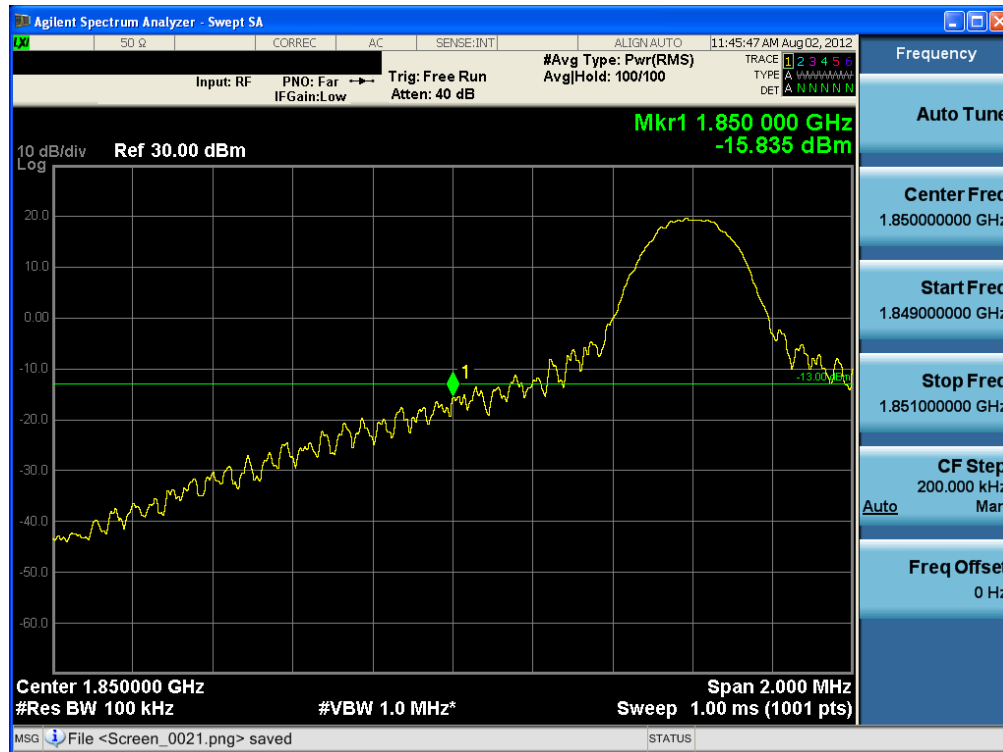
FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 28 of 36



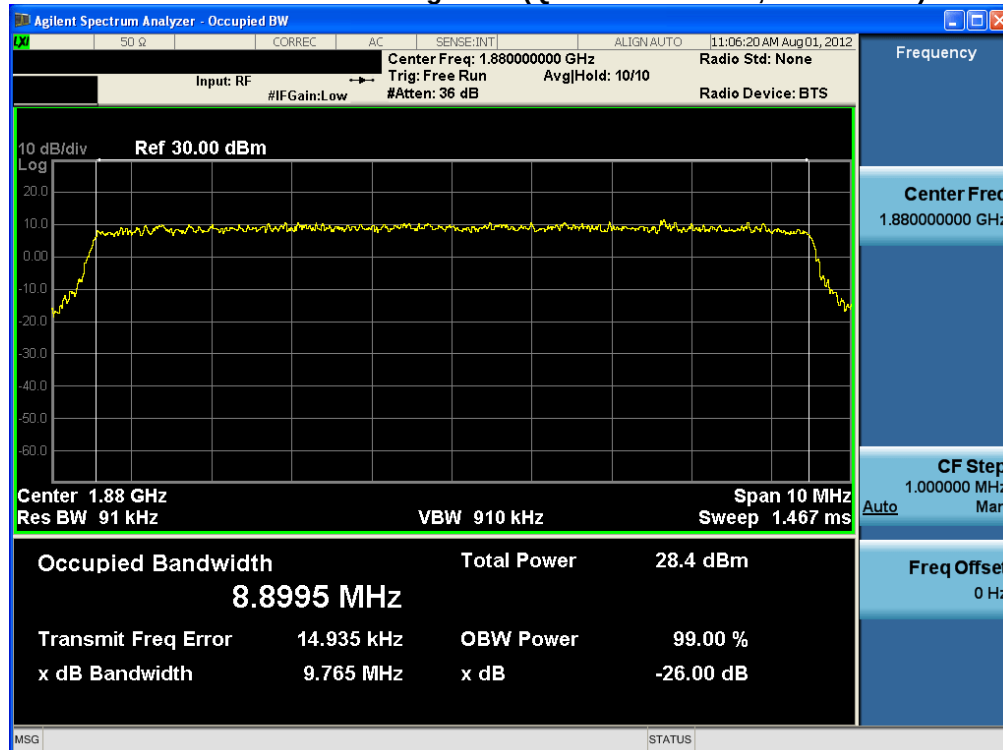
Plot 7-11. Upper Band Edge Plot (QPSK – RB Size 1, Offset 49)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 29 of 36

BAND 2 – 10 MHz BW

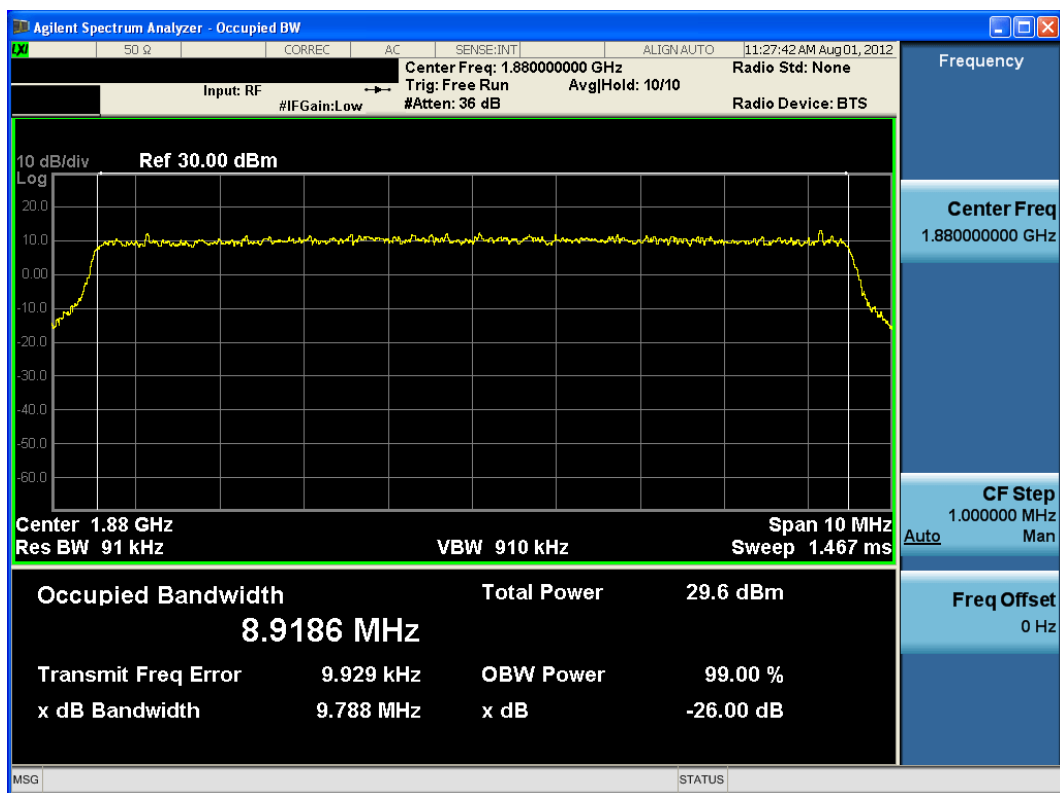


Plot 7-12. Lower Band Edge Plot (QPSK – RB Size 1, RB Offset 0)

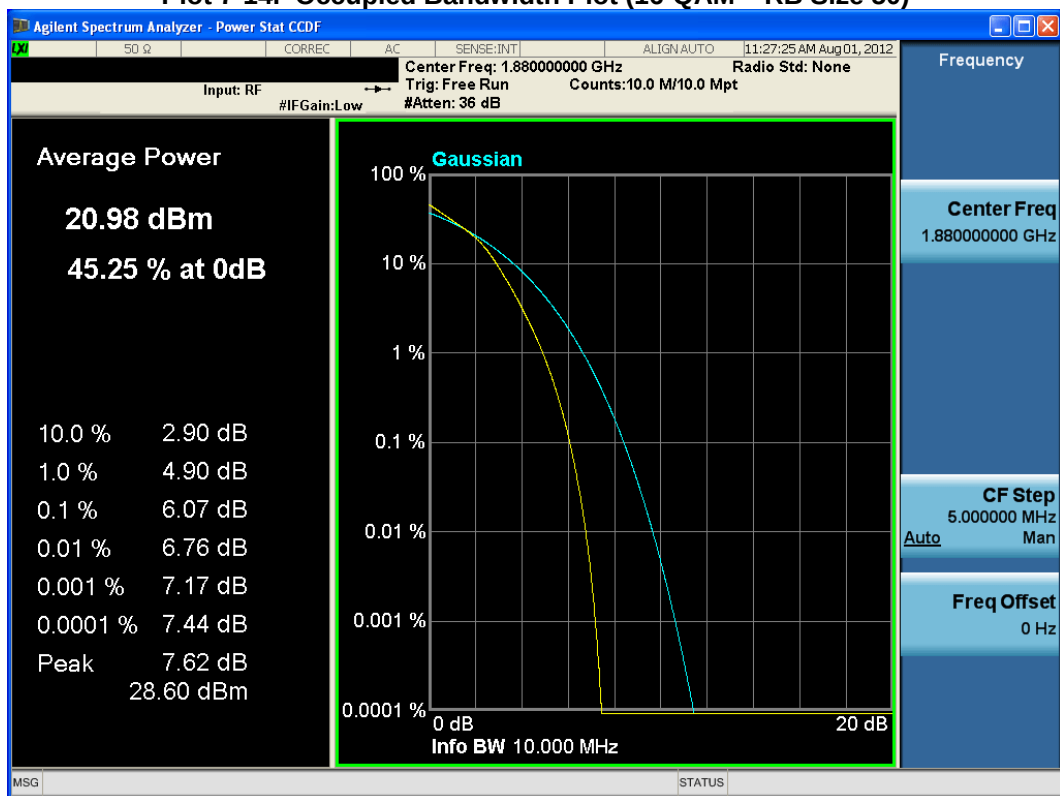


Plot 7-13. Occupied Bandwidth Plot (QPSK – RB Size 50)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 30 of 36

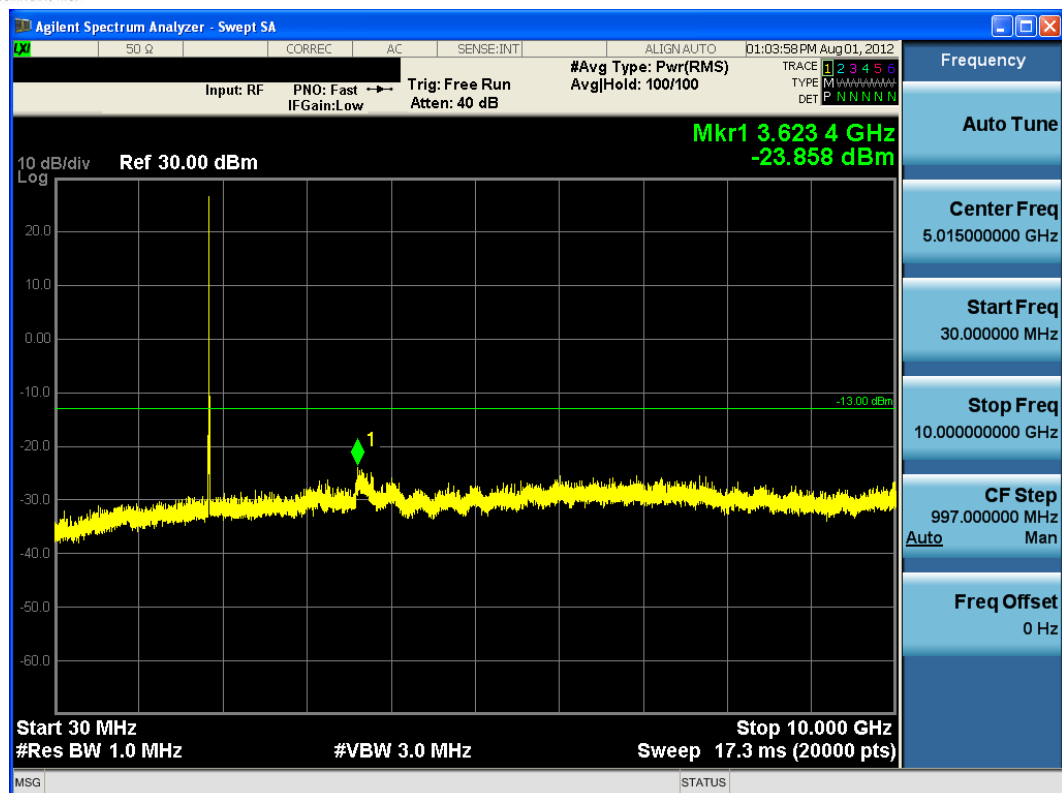


Plot 7-14. Occupied Bandwidth Plot (16-QAM – RB Size 50)

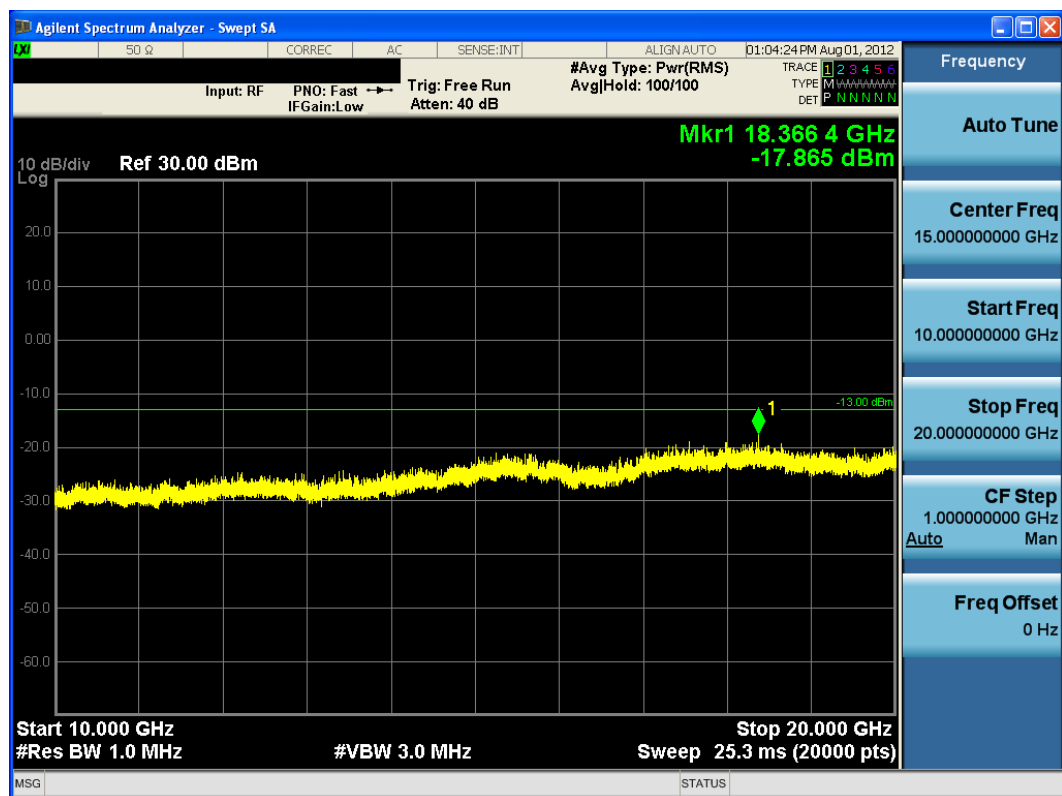


Plot 7-15. Peak to Average Ratio Plot (16QAM – RB Size 50)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 31 of 36

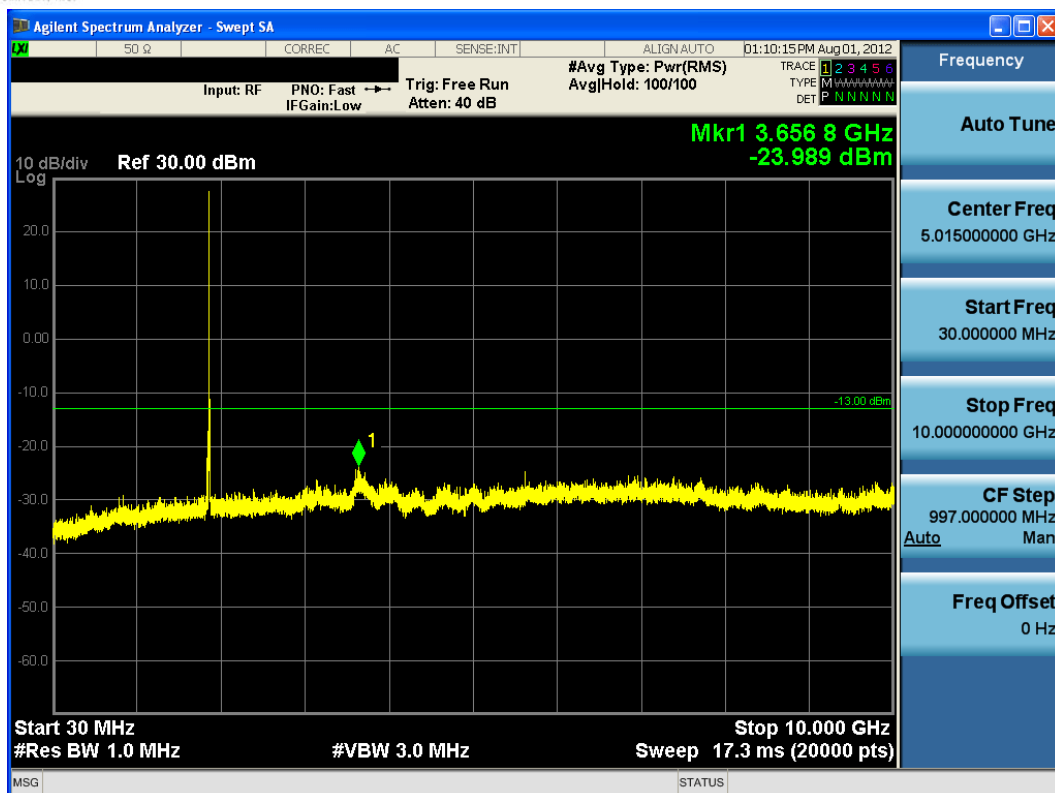


Plot 7-16. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

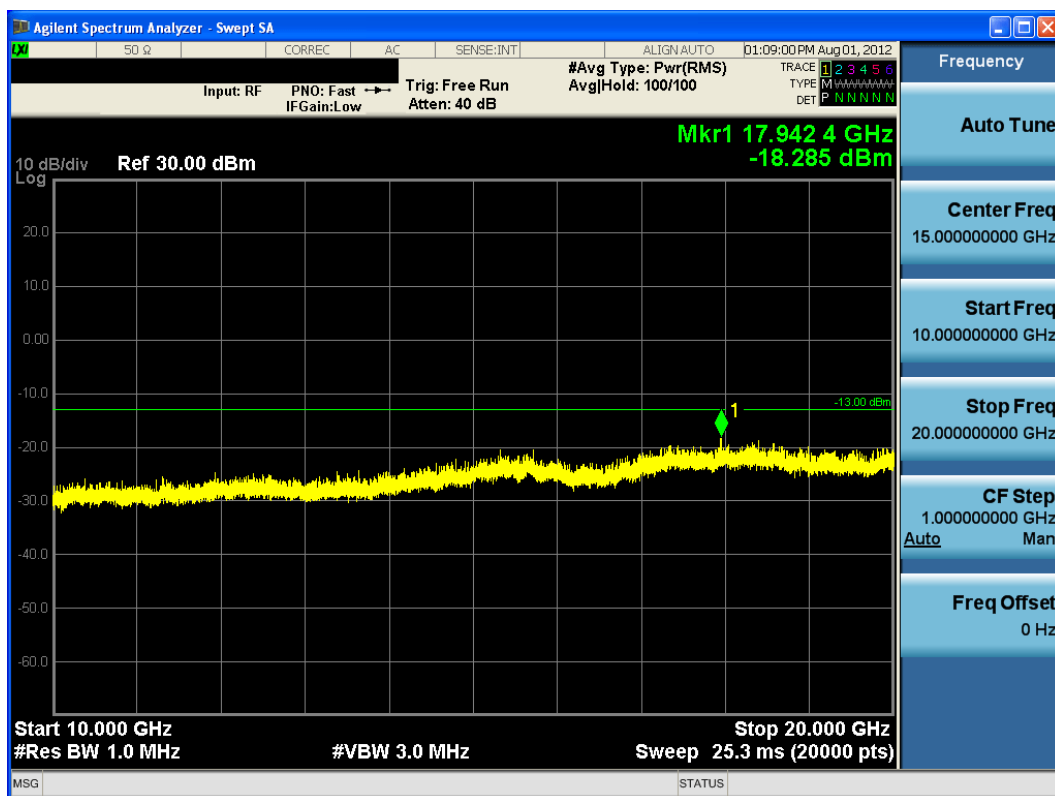


Plot 7-17. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 32 of 36

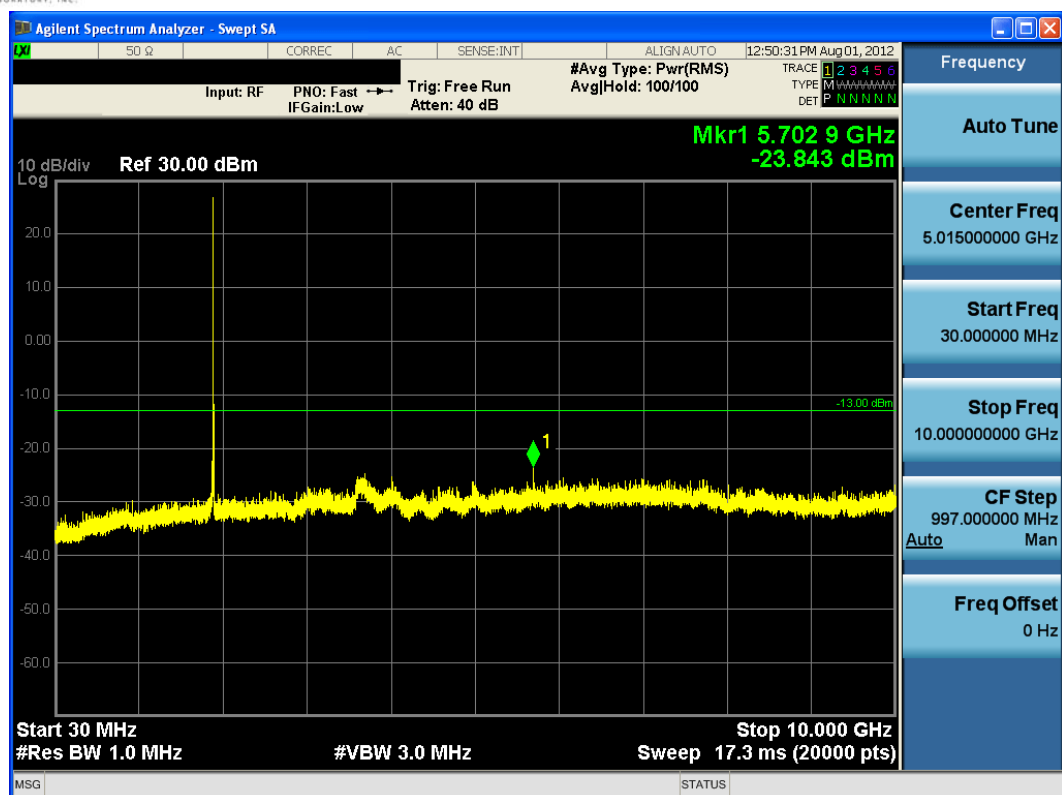


Plot 7-18. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

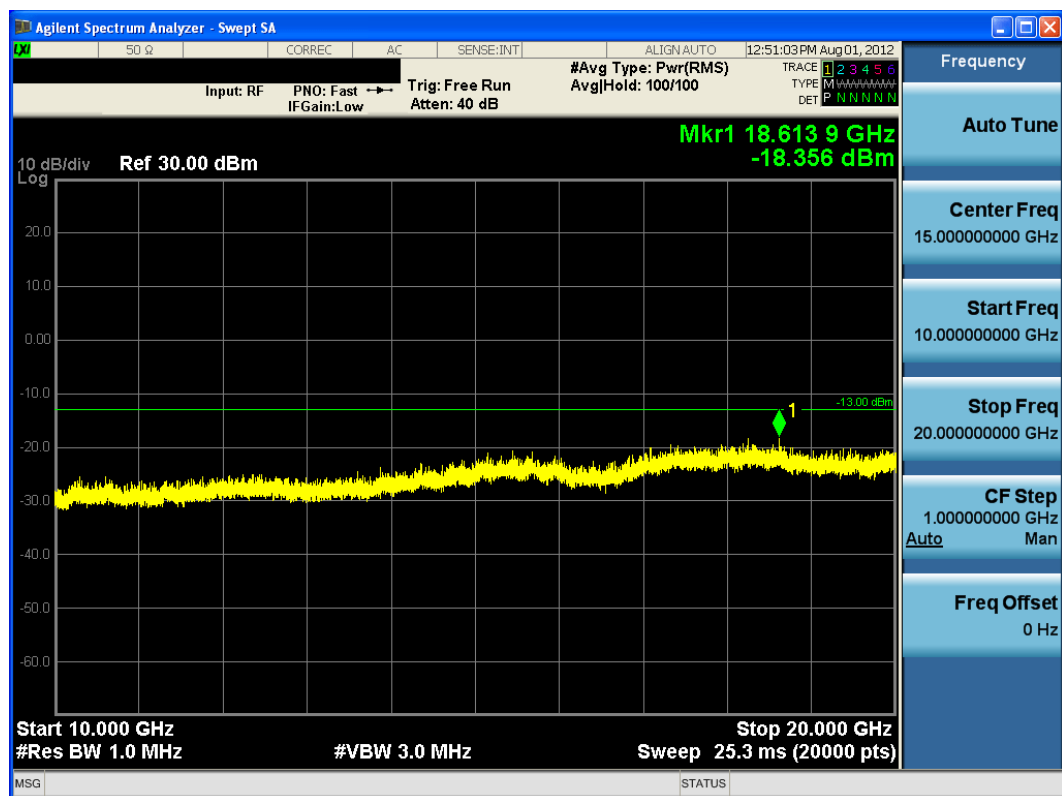


Plot 7-19. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 33 of 36



Plot 7-20. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)



Plot 7-21. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 34 of 36



Plot 7-22. Upper Band Edge Plot (QPSK – RB Size 1, RB Offset 0)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 35 of 36

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSCHR940** complies with all the requirements of Parts 2, 24 and 27 of the FCC rules for LTE operation only.

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y1207301068.A3L	Test Dates: August 01 - 03, 2012	EUT Type: Portable Handset		Page 36 of 36