



PCTEST ENGINEERING LABORATORY, INC.

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<http://www.pctestlab.com>



MEASUREMENT REPORT

FCC Part 24 & 27

Applicant Name:

Samsung Electronics, Co. Ltd.
18600 Broadwick St.
Rancho Dominguez, CA 90220
United States

Date of Testing:

Jan. 4-6, 2012

Test Site/Location:

PCTEST Lab., Columbia, MD, USA

Test Report Serial No.:

0Y1112292219.A3L

FCC ID : A3LSCHR940

APPLICANT: SAMSUNG ELECTRONICS, CO. LTD.

Application Type:

Certification

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: LTE 3]

Mode	Tx Frequency (MHz)	Emission Designator	Modulation	ERP/EIRP	
				Max. Power (W)	Max. Power (dBm)
LTE Band 4	1710.7 - 1754.3	1M08G7D	QPSK	0.113	20.54
LTE Band 4	1710.7 - 1754.3	1M08W7D	16QAM	0.085	19.27
LTE Band 4	1711.5 - 1753.5	2M67G7D	QPSK	0.087	19.38
LTE Band 4	1711.5 - 1753.5	2M68W7D	16QAM	0.071	18.54
LTE Band 4	1712.5 - 1752.5	4M47G7D	QPSK	0.102	20.10
LTE Band 4	1712.5 - 1752.5	4M47W7D	16QAM	0.082	19.12
LTE Band 2	1850.7 - 1909.3	1M09G7D	QPSK	0.084	19.26
LTE Band 2	1850.7 - 1909.3	1M09W7D	16QAM	0.068	18.30
LTE Band 2	1851.5 - 1908.5	2M68G7D	QPSK	0.136	21.35
LTE Band 2	1851.5 - 1908.5	2M68W7D	16QAM	0.110	20.42
LTE Band 2	1852.5 - 1907.5	4M47G7D	QPSK	0.142	21.52
LTE Band 2	1852.5 - 1907.5	4M47W7D	16QAM	0.115	20.62

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



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

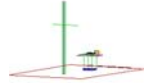
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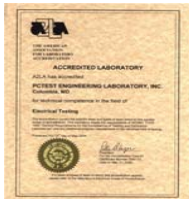


§2.1033 General Information

APPLICANT: Samsung Electronics, Co. Ltd.
APPLICANT ADDRESS: 18600 Broadwick St.
 Rancho Dominguez, CA 90220, United States
TEST SITE: PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS: 6660-B Dobbin Road, Columbia, MD 21045 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)
Test Device Serial No.: LTE 3 ☐ Production ☒ Pre-Production ☐ Engineering
DATE(S) OF TEST: Jan. 4-6, 2012
TEST REPORT S/N: 0Y1112292219.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.

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1.0 INTRODUCTION

1.1 Scope

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

1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity area, 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 in New Concept Business Park, Guilford Industrial Park, Columbia, Maryland. The site address is 6660-B Dobbin Road, Columbia, MD 21045. The test site is one of the highest points in the Columbia area with an elevation of 390 feet above mean sea level. The site coordinates are 39° 11'15" N latitude and 76° 49'38" W longitude. The facility is 1.5 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. There are no FM or TV transmitters within 15 miles of the site. 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 on January 28, 2009.

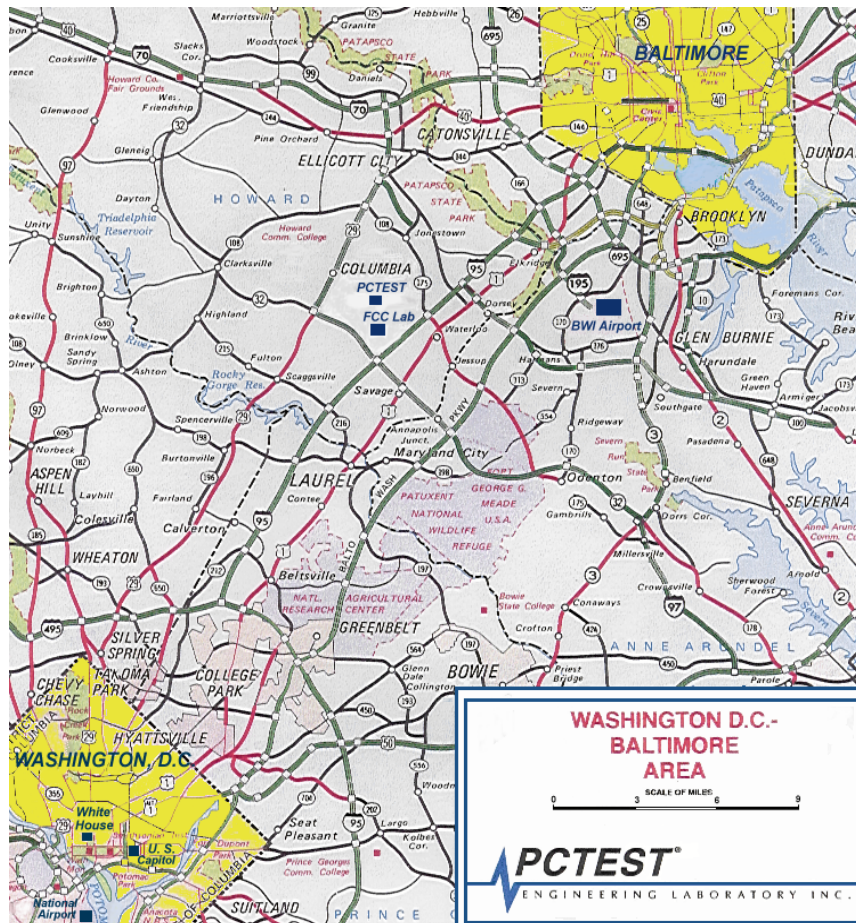


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

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

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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.

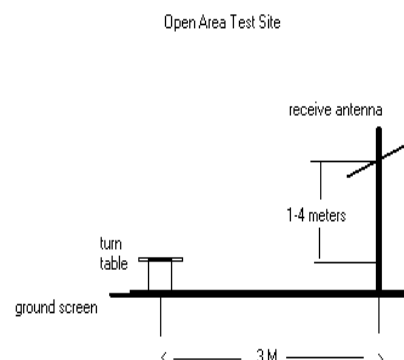


Figure 3-1. Diagram of 3-meter outdoor test range

Deviation from Measurement Procedure.....None

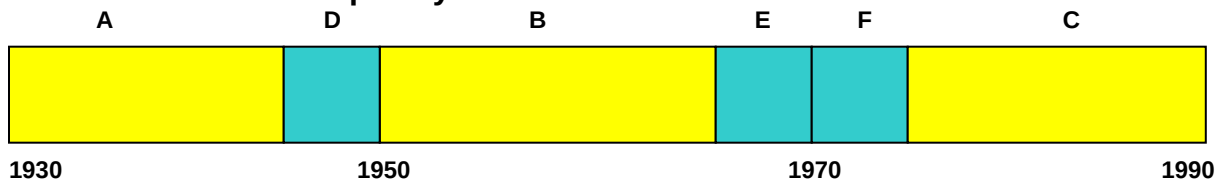
3.2 Occupied Bandwidth Emission Limits

§2.1049, §27.53(g)(1), §27.53(l)(6), RSS-Gen (4.6.1)

- a. 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.
- b. 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.

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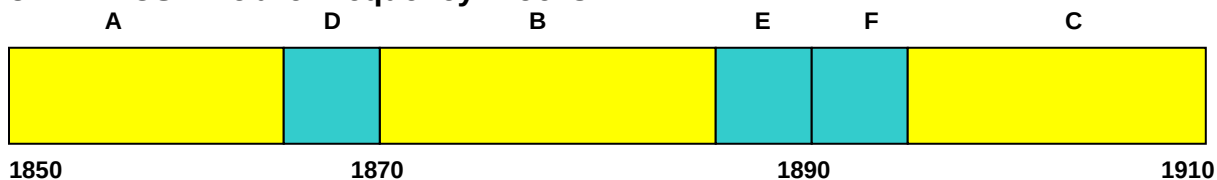
3.3 PCS - Base Frequency Blocks



BLOCK 1: 1930 – 1945 MHz (A)
 BLOCK 2: 1945 – 1950 MHz (D)
 BLOCK 3: 1950 – 1965 MHz (B)

BLOCK 4: 1965 – 1970 MHz (E)
 BLOCK 5: 1970 – 1975 MHz (F)
 BLOCK 6: 1975 – 1990 MHz (C)

3.4 PCS - Mobile Frequency Blocks

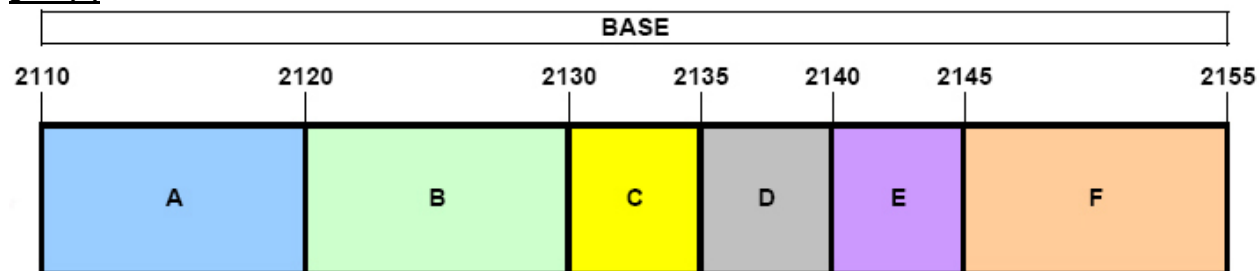


BLOCK 1: 1850 – 1865 MHz (A)
 BLOCK 2: 1865 – 1870 MHz (D)
 BLOCK 3: 1870 – 1885 MHz (B)

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)

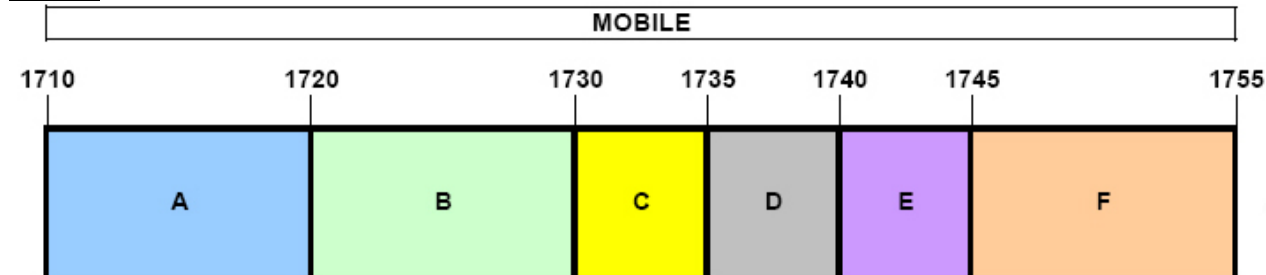


BLOCK 1: 2110 – 2120 MHz (A)
 BLOCK 2: 2120 – 2130 MHz (B)
 BLOCK 3: 2130 – 2135 MHz (C)

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

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)

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3.7 Spurious and Harmonic Emissions at Antenna Terminal

§2.1051, 24.238(a)(b), §27.53(h); RSS-132 (4.5.1), 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. 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, §24.232(c), 24.238(a), §27.53(h), RSS-132(4.5.1.2), 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 LTE 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.

3.10 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.

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Specification – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency.

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.

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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
Agilent	8449B	(1-26.5GHz) Pre-Amplifier	2/8/2011	Annual	2/8/2012	3008A00985
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/8/2011	Annual	4/8/2012	MY45470194
Espec	ESX-2CA	Environmental Chamber	4/21/2011	Annual	4/21/2012	17620
Pasternack	PE2208-6	Bidirectional Coupler	6/3/2011	Annual	6/3/2012	N/A
Pasternack	PE7000-6	6 dB Attenuator	6/3/2011	Annual	6/3/2012	N/A
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	7/22/2011	Annual	7/22/2012	125518
Agilent	N9038A	MXE EMI Receiver	8/5/2011	Annual	8/5/2012	MY51210133
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	10/7/2011	Annual	10/7/2012	103962
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/10/2011	Annual	10/10/2012	3613A00315
Agilent	N9020A	MXA Signal Analyzer	10/10/2011	Annual	10/10/2012	US46470561
Gigatronics	80701A	(0.05-18GHz) Power Sensor	10/12/2011	Annual	10/12/2012	1833460
Gigatronics	8651A	Universal Power Meter	10/12/2011	Annual	10/12/2012	8650319
Anritsu	MA2411B	Pulse Sensor	10/13/2011	Annual	10/13/2012	1027293
Anritsu	ML2495A	Power Meter	10/13/2011	Annual	10/13/2012	1039008
Sunol	DRH-118	Horn Antenna (1-18 GHz)	6/17/2011	Biennial	6/17/2013	A042511
Sunol	DRH-118	Horn Antenna (1 - 18GHz)	7/5/2011	Biennial	7/5/2013	A050307
Schwarzbeck	VULB-9161SE	Trilog Super Broadband Test Antenna	11/8/2011	Biennial	11/8/2013	9161-4075

Table 4-1. Test Equipment

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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).

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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, 24.238(a), 27.53(h)	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(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)	RSS-133 (6.4)	Peak-Average Ratio	$< 13 \text{ dB}$		PASS	Section 7.0
2.1046	RSS-132 (4.4) RSS-133 (4.1)	Transmitter Conducted Output Power	N/A		PASS	Section 6.2
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 6.3
27.50(d)(4)	RSS-139	Equivalent Isotropic Radiated Power (Band 4)	$< 1 \text{ Watts max. EIRP}$		PASS	Section 6.3
2.1053, 27.53(h), 24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Undesirable Emissions	$< 43 + 10\log_{10}(P[\text{Watts}])$ for all out-of-band emissions		PASS	Section 6.4, 6.5
2.1055, 27.54, 24.235	RSS-132 (4.3) RSS-133 (6.3)	Frequency Stability	$< 2.5 \text{ ppm}$		PASS	Section 6.6 6.7

Table 6-1. Summary of Test Results

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6.2 Transmitter Conducted Output Power

§2.1046

The **Samsung Portable Handset FCC ID: A3LSCHR940** was connected to a Rohde and Schwarz CMW500 LTE Base Station Simulator. 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.

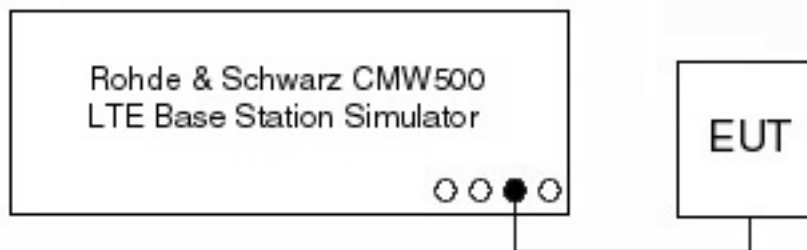


Figure 6-1. Conducted Output Power Test Setup Diagram

Band 4:

Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]
1710.7	19957	1.4	QPSK	1	0	22.84
1710.7	19957	1.4	QPSK	1	5	22.75
1710.7	19957	1.4	QPSK	3	2	22.93
1710.7	19957	1.4	QPSK	6	0	21.67
1710.7	19957	1.4	16-QAM	1	0	21.83
1710.7	19957	1.4	16-QAM	1	5	21.76
1710.7	19957	1.4	16-QAM	3	2	21.88
1710.7	19957	1.4	16-QAM	6	0	20.79
1732.5	20175	1.4	QPSK	1	0	22.63
1732.5	20175	1.4	QPSK	1	5	22.85
1732.5	20175	1.4	QPSK	3	2	22.61
1732.5	20175	1.4	QPSK	6	0	21.63
1732.5	20175	1.4	16-QAM	1	0	21.84
1732.5	20175	1.4	16-QAM	1	5	21.81
1732.5	20175	1.4	16-QAM	3	2	21.61
1732.5	20175	1.4	16-QAM	6	0	20.75
1754.3	20393	1.4	QPSK	1	0	22.70
1754.3	20393	1.4	QPSK	1	5	22.73
1754.3	20393	1.4	QPSK	3	2	22.77
1754.3	20393	1.4	QPSK	6	0	21.77
1754.3	20393	1.4	16-QAM	1	0	21.76
1754.3	20393	1.4	16-QAM	1	5	21.82
1754.3	20393	1.4	16-QAM	3	2	21.96
1754.3	20393	1.4	16-QAM	6	0	20.94

Table 6-2. Maximum Average Conducted Output Power (1.4MHz BW)

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 13 of 85

Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]
1711.5	19965	3	QPSK	1	0	22.93
1711.5	19965	3	QPSK	1	14	23.03
1711.5	19965	3	QPSK	8	4	21.87
1711.5	19965	3	QPSK	15	0	21.60
1711.5	19965	3	16-QAM	1	0	21.58
1711.5	19965	3	16-QAM	1	14	21.82
1711.5	19965	3	16-QAM	8	4	20.60
1711.5	19965	3	16-QAM	15	0	20.66
1732.5	20175	3	QPSK	1	0	22.78
1732.5	20175	3	QPSK	1	14	22.55
1732.5	20175	3	QPSK	8	4	21.75
1732.5	20175	3	QPSK	15	0	21.88
1732.5	20175	3	16-QAM	1	0	21.98
1732.5	20175	3	16-QAM	1	14	21.69
1732.5	20175	3	16-QAM	8	4	20.79
1732.5	20175	3	16-QAM	15	0	20.81
1753.5	20385	3	QPSK	1	0	22.60
1753.5	20385	3	QPSK	1	14	22.76
1753.5	20385	3	QPSK	8	4	21.66
1753.5	20385	3	QPSK	15	0	21.52
1753.5	20385	3	16-QAM	1	0	21.75
1753.5	20385	3	16-QAM	1	14	21.76
1753.5	20385	3	16-QAM	8	4	20.69
1753.5	20385	3	16-QAM	15	0	20.65

Table 6-3. Maximum Average Conducted Output Power (3MHz BW)

FCC ID: A3LSCHR940	 FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset	Page 14 of 85

Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]
1712.5	19975	5	QPSK	1	0	22.51
1712.5	19975	5	QPSK	1	24	22.85
1712.5	19975	5	QPSK	12	6	21.50
1712.5	19975	5	QPSK	25	0	21.51
1712.5	19975	5	16-QAM	1	0	21.63
1712.5	19975	5	16-QAM	1	24	21.62
1712.5	19975	5	16-QAM	12	6	20.72
1712.5	19975	5	16-QAM	25	0	20.81
1732.5	20175	5	QPSK	1	0	22.84
1732.5	20175	5	QPSK	1	24	22.82
1732.5	20175	5	QPSK	12	6	21.68
1732.5	20175	5	QPSK	25	0	21.83
1732.5	20175	5	16-QAM	1	0	21.98
1732.5	20175	5	16-QAM	1	24	22.03
1732.5	20175	5	16-QAM	12	6	20.77
1732.5	20175	5	16-QAM	25	0	20.87
1752.5	20375	5	QPSK	1	0	22.76
1752.5	20375	5	QPSK	1	24	22.80
1752.5	20375	5	QPSK	12	6	21.87
1752.5	20375	5	QPSK	25	0	21.77
1752.5	20375	5	16-QAM	1	0	21.59
1752.5	20375	5	16-QAM	1	24	22.06
1752.5	20375	5	16-QAM	12	6	20.75
1752.5	20375	5	16-QAM	25	0	20.99

Table 6-4. Maximum Average Conducted Output Power (5MHz BW)

FCC ID: A3LSCHR940	 FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
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Band 2:

Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]
1850.7	18607	1.4	QPSK	1	0	22.68
1850.7	18607	1.4	QPSK	1	5	22.65
1850.7	18607	1.4	QPSK	3	2	22.51
1850.7	18607	1.4	QPSK	6	0	21.73
1850.7	18607	1.4	16-QAM	1	0	21.46
1850.7	18607	1.4	16-QAM	1	5	21.48
1850.7	18607	1.4	16-QAM	3	2	21.52
1850.7	18607	1.4	16-QAM	6	0	20.55
1880	18900	1.4	QPSK	1	0	22.70
1880	18900	1.4	QPSK	1	5	22.74
1880	18900	1.4	QPSK	3	2	22.58
1880	18900	1.4	QPSK	6	0	21.72
1880	18900	1.4	16-QAM	1	0	21.57
1880	18900	1.4	16-QAM	1	5	21.55
1880	18900	1.4	16-QAM	3	2	21.57
1880	18900	1.4	16-QAM	6	0	20.60
1909.3	19193	1.4	QPSK	1	0	22.62
1909.3	19193	1.4	QPSK	1	5	22.56
1909.3	19193	1.4	QPSK	3	2	22.52
1909.3	19193	1.4	QPSK	6	0	21.57
1909.3	19193	1.4	16-QAM	1	0	21.78
1909.3	19193	1.4	16-QAM	1	5	21.56
1909.3	19193	1.4	16-QAM	3	2	21.85
1909.3	19193	1.4	16-QAM	6	0	20.58

Table 6-5. Maximum Average Conducted Output Power (1.4MHz BW)

FCC ID: A3LSCHR940			FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]
1851.5	18615	3	QPSK	1	0	22.82
1851.5	18615	3	QPSK	1	14	22.64
1851.5	18615	3	QPSK	8	4	21.80
1851.5	18615	3	QPSK	15	0	21.59
1851.5	18615	3	16-QAM	1	0	21.62
1851.5	18615	3	16-QAM	1	14	21.68
1851.5	18615	3	16-QAM	8	4	20.73
1851.5	18615	3	16-QAM	15	0	20.63
1880	18900	3	QPSK	1	0	22.87
1880	18900	3	QPSK	1	14	22.51
1880	18900	3	QPSK	8	4	21.91
1880	18900	3	QPSK	15	0	21.87
1880	18900	3	16-QAM	1	0	21.90
1880	18900	3	16-QAM	1	14	21.67
1880	18900	3	16-QAM	8	4	20.72
1880	18900	3	16-QAM	15	0	20.88
1908.5	19185	3	QPSK	1	0	22.86
1908.5	19185	3	QPSK	1	14	22.50
1908.5	19185	3	QPSK	8	4	21.65
1908.5	19185	3	QPSK	15	0	21.75
1908.5	19185	3	16-QAM	1	0	21.78
1908.5	19185	3	16-QAM	1	14	21.67
1908.5	19185	3	16-QAM	8	4	20.65
1908.5	19185	3	16-QAM	15	0	20.62

Table 6-6. Maximum Average Conducted Output Power (3MHz BW)

FCC ID: A3LSCHR940	 FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION) 			Reviewed by: Quality Manager
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Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]
1852.5	18625	5	QPSK	1	0	22.74
1852.5	18625	5	QPSK	1	24	22.60
1852.5	18625	5	QPSK	12	6	21.75
1852.5	18625	5	QPSK	25	0	21.80
1852.5	18625	5	16-QAM	1	0	21.63
1852.5	18625	5	16-QAM	1	24	21.95
1852.5	18625	5	16-QAM	12	6	20.70
1852.5	18625	5	16-QAM	25	0	20.85
1880	18900	5	QPSK	1	0	23.00
1880	18900	5	QPSK	1	24	22.75
1880	18900	5	QPSK	12	6	21.95
1880	18900	5	QPSK	25	0	21.88
1880	18900	5	16-QAM	1	0	21.65
1880	18900	5	16-QAM	1	24	21.95
1880	18900	5	16-QAM	12	6	20.75
1880	18900	5	16-QAM	25	0	20.95
1907.5	19175	5	QPSK	1	0	22.88
1907.5	19175	5	QPSK	1	24	22.75
1907.5	19175	5	QPSK	12	6	21.84
1907.5	19175	5	QPSK	25	0	21.69
1907.5	19175	5	16-QAM	1	0	21.90
1907.5	19175	5	16-QAM	1	24	21.70
1907.5	19175	5	16-QAM	12	6	20.89
1907.5	19175	5	16-QAM	25	0	20.97

Table 6-7. Maximum Average Conducted Output Power (5MHz BW)

FCC ID: A3LSCHR940	 FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION) 			Reviewed by: Quality Manager
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6.3 Equivalent Isotropic Radiated Power Output Data §27.50(d)(4), §24.232(c)

	Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	RB Size/Offset	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Battery
Band IV LTE	1710.70	1.4	QPSK	1 / 5	-21.70	11.28	7.95	H	19.23	0.084	Standard
	1732.50	1.4	QPSK	1 / 5	-20.43	12.55	7.99	H	20.54	0.113	Standard
	1754.30	1.4	QPSK	1 / 5	-22.75	10.23	8.06	H	18.29	0.067	Standard
	1710.70	1.4	16-QAM	1 / 5	-22.78	10.20	7.95	H	18.15	0.065	Standard
	1732.50	1.4	16-QAM	1 / 5	-21.70	11.28	7.99	H	19.27	0.085	Standard
	1754.30	1.4	16-QAM	1 / 5	-23.65	9.33	8.06	H	17.39	0.055	Standard
	1711.50	3.0	QPSK	1 / 14	-21.71	11.27	7.95	H	19.22	0.084	Standard
	1732.50	3.0	QPSK	1 / 14	-21.59	11.39	7.99	H	19.38	0.087	Standard
	1753.50	3.0	QPSK	1 / 14	-22.54	10.44	8.06	H	18.50	0.071	Standard
	1711.50	3.0	16-QAM	1 / 14	-22.79	10.19	7.95	H	18.14	0.065	Standard
	1732.50	3.0	16-QAM	1 / 14	-22.43	10.55	7.99	H	18.54	0.071	Standard
	1753.50	3.0	16-QAM	1 / 14	-23.67	9.31	8.06	H	17.37	0.055	Standard
	1712.50	5.0	QPSK	1 / 24	-21.37	11.61	7.95	H	19.56	0.090	Standard
	1732.50	5.0	QPSK	1 / 24	-20.87	12.11	7.99	H	20.10	0.102	Standard
	1752.50	5.0	QPSK	1 / 24	-22.23	10.75	8.06	H	18.81	0.076	Standard
	1712.50	5.0	16-QAM	1 / 24	-22.30	10.68	7.95	H	18.63	0.073	Standard
	1732.50	5.0	16-QAM	1 / 24	-21.85	11.13	7.99	H	19.12	0.082	Standard
	1752.50	5.0	16-QAM	1 / 24	-23.30	9.68	8.06	H	17.74	0.059	Standard

Table 6-8. Equivalent Isotropic Radiated Power Output Data (Band 4)

	Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	RB Size/Offset	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Battery
Band II LTE	1850.70	1.4	QPSK	1 / 0	-22.65	11.31	7.95	H	19.26	0.084	Standard
	1880.00	1.4	QPSK	1 / 0	-23.35	10.61	7.99	H	18.60	0.072	Standard
	1909.30	1.4	QPSK	1 / 0	-24.20	9.76	8.06	H	17.82	0.061	Standard
	1850.70	1.4	16-QAM	1 / 0	-23.61	10.35	7.95	H	18.30	0.068	Standard
	1880.00	1.4	16-QAM	1 / 0	-24.63	9.33	7.99	H	17.32	0.054	Standard
	1909.30	1.4	16-QAM	1 / 0	-25.10	8.86	8.06	H	16.92	0.049	Standard
	1851.50	3.0	QPSK	1 / 0	-21.30	12.66	7.95	H	20.61	0.115	Standard
	1880.00	3.0	QPSK	1 / 0	-20.60	13.36	7.99	H	21.35	0.136	Standard
	1908.50	3.0	QPSK	1 / 0	-21.90	12.06	8.06	H	20.12	0.103	Standard
	1851.50	3.0	16-QAM	1 / 0	-22.24	11.72	7.95	H	19.67	0.093	Standard
	1880.00	3.0	16-QAM	1 / 0	-21.53	12.43	7.99	H	20.42	0.110	Standard
	1908.50	3.0	16-QAM	1 / 0	-22.80	11.16	8.06	H	19.22	0.084	Standard
	1852.50	5.0	QPSK	1 / 0	-21.88	12.08	7.95	H	20.03	0.101	Standard
	1880.00	5.0	QPSK	1 / 24	-20.98	12.98	7.99	H	20.97	0.125	Standard
	1907.50	5.0	QPSK	1 / 0	-20.50	13.46	8.06	H	21.52	0.142	Standard
	1852.50	5.0	16-QAM	1 / 0	-22.75	11.21	7.95	H	19.16	0.082	Standard
	1880.00	5.0	16-QAM	1 / 24	-21.75	12.21	7.99	H	20.20	0.105	Standard
	1907.50	5.0	16-QAM	1 / 0	-21.40	12.56	8.06	H	20.62	0.115	Standard

Table 6-9. 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.

The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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6.4 Band 4 Radiated Measurements

§2.1053, §27.50(d)(4)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1710.70 MHz
 CHANNEL: 19957
 MEASURED OUTPUT POWER: 19.23 dBm = 0.084 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 1.4 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 32.23 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3421.40	-37.16	9.61	-27.55	H	46.8
5132.10	-50.18	10.79	-39.39	H	58.6
6842.80	-41.61	10.60	-31.01	H	50.2
8553.50	-40.86	11.55	-29.31	H	48.5
10264.20	-81.38	12.71	-68.67	H	87.9

Table 6-10. Radiated Spurious Data (Ch. 19957)

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 and channel bandwidth configurations and the worst case emissions are reported in Band 4 using 1.4MHz Bandwidth and in Band 2 using 5MHz Bandwidth. For both Band 4 and 2, the worst case emissions employed 1RB (with offset 5) and QPSK modulation for Band 4 and 1RB (with offset of 0) and QPSK modulation for Band 2. 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 in the horizontal setup. The data reported in the table above was measured in this test setup. Final results were obtained using calibrated cables, couplers, and attenuators.

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Band 4 Radiated Measurements

§2.1053, §27.50(d)(4)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1732.50 MHz
CHANNEL: 20175
MEASURED OUTPUT POWER: 20.54 dBm = 0.113 W
MODULATION SIGNAL: QPSK
BANDWIDTH: 1.4 MHz
DISTANCE: 3 meters
LIMIT: $43 + 10 \log_{10} (W) = 33.54$ dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3465.00	-43.59	9.72	-33.87	H	54.4
5197.50	-49.51	10.75	-38.76	H	59.3
6930.00	-39.02	10.75	-28.28	H	48.8
8662.50	-43.63	11.70	-31.92	H	52.5
10395.00	-81.02	12.66	-68.36	H	88.9

Table 6-11. 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 and channel bandwidth configurations and the worst case emissions are reported in Band 4 using 1.4MHz Bandwidth and in Band 2 using 5MHz Bandwidth. For both Band 4 and 2, the worst case emissions employed 1RB (with offset 5) and QPSK modulation for Band 4 and 1RB (with offset of 0) and QPSK modulation for Band 2. 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 in the horizontal setup. The data reported in the table above was measured in this test setup.

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Band 4 Radiated Measurements

§2.1053, §27.50(d)(4)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1754.30 MHz
 CHANNEL: 20393
 MEASURED OUTPUT POWER: 18.29 dBm = 0.067 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 1.4 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) = 31.29$ dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3508.60	-35.56	9.83	-25.74	H	44.0
5262.90	-51.86	10.88	-40.98	H	59.3
7017.20	-45.10	10.92	-34.19	H	52.5
8771.50	-42.65	11.89	-30.76	H	49.0
10525.80	-80.66	12.62	-68.04	H	86.3

Table 6-12. Radiated Spurious Data (Ch. 20393)

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 and channel bandwidth configurations and the worst case emissions are reported in Band 4 using 1.4MHz Bandwidth and in Band 2 using 5MHz Bandwidth. For both Band 4 and 2, the worst case emissions employed 1RB (with offset 5) and QPSK modulation for Band 4 and 1RB (with offset of 0) and QPSK modulation for Band 2. 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 in the horizontal setup. The data reported in the table above was measured in this test setup.

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6.5 Band 2 Radiated Measurements

§2.1053, §24.232(c)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1852.50 MHz
 CHANNEL: 18625
 MEASURED OUTPUT POWER: 20.03 dBm = 0.101 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 33.03 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3705.00	-39.94	9.92	-30.02	H	50.0
5557.50	-42.08	10.97	-31.11	H	51.1
7410.00	-37.43	10.81	-26.63	H	46.7
9262.50	-82.96	12.32	-70.64	H	90.7
11115.00	-78.37	13.07	-65.30	H	85.3

Table 6-13. Radiated Spurious Data (Ch. 18625)

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 and channel bandwidth configurations and the worst case emissions are reported in Band 4 using 1.4MHz Bandwidth and in Band 2 using 5MHz Bandwidth. For both Band 4 and 2, the worst case emissions employed 1RB (with offset 5) and QPSK modulation for Band 4 and 1RB (with offset of 0) and QPSK modulation for Band 2. 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 in the horizontal setup. The data reported in the table above was measured in this test setup.

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Band 2 Radiated Measurements

§2.1053, §24.232(c)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1880.00 MHz
 CHANNEL: 18900
 MEASURED OUTPUT POWER: 20.97 dBm = 0.125 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) = 33.97$ dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3760.00	-37.22	9.60	-27.62	H	48.6
5640.00	-44.56	11.16	-33.40	H	54.4
7520.00	-41.58	11.08	-30.50	H	51.5
9400.00	-82.74	12.22	-70.51	H	91.5
11280.00	-78.10	13.23	-64.87	H	85.8

Table 6-14. 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 and channel bandwidth configurations and the worst case emissions are reported in Band 4 using 1.4MHz Bandwidth and in Band 2 using 5MHz Bandwidth. For both Band 4 and 2, the worst case emissions employed 1RB (with offset 5) and QPSK modulation for Band 4 and 1RB (with offset of 0) and QPSK modulation for Band 2. 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 in the horizontal setup. The data reported in the table above was measured in this test setup.

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Band 2 Radiated Measurements

§2.1053, §24.232(c)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1907.50 MHz
 CHANNEL: 19175
 MEASURED OUTPUT POWER: 21.52 dBm = 0.142 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) = 34.52$ dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3815.00	-35.18	9.32	-25.86	H	47.4
5722.50	-47.92	11.32	-36.60	H	58.1
7630.00	-37.66	11.34	-26.32	H	47.8
9537.50	-82.94	12.39	-70.55	H	92.1
11445.00	-77.94	13.33	-64.61	H	86.1

Table 6-15. Radiated Spurious Data (Ch. 19175)

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 and channel bandwidth configurations and the worst case emissions are reported in Band 4 using 1.4MHz Bandwidth and in Band 2 using 5MHz Bandwidth. For both Band 4 and 2, the worst case emissions employed 1RB (with offset 5) and QPSK modulation for Band 4 and 1RB (with offset of 0) and QPSK modulation for Band 2. 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 in the horizontal setup. The data reported in the table above was measured in this test setup.

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6.6 Band 4 Frequency Stability Measurements

S2.1055, 24.235, RSS-133 (6.3)

OPERATING FREQUENCY: 1,732,500,000 Hz

CHANNEL: 20175

REFERENCE VOLTAGE: 5 VDC

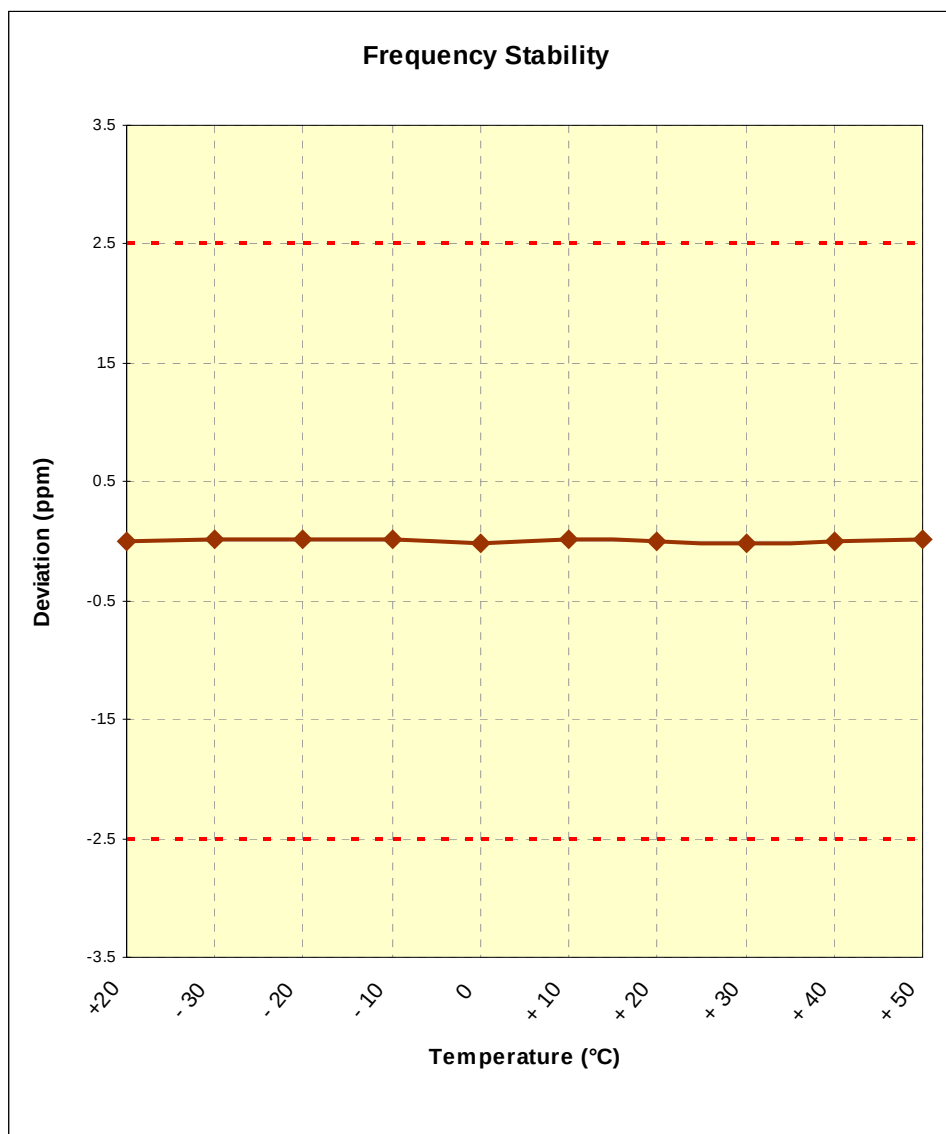
DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	5.00	+ 20 (Ref)	1,732,499,987	-13	-0.000001
100 %		- 30	1,732,500,015	15	0.000001
100 %		- 20	1,732,500,021	21	0.000001
100 %		- 10	1,732,500,023	23	0.000001
100 %		0	1,732,499,983	-17	-0.000001
100 %		+ 10	1,732,500,019	19	0.000001
100 %		+ 20	1,732,499,990	-10	-0.000001
100 %		+ 30	1,732,499,981	-19	-0.000001
100 %		+ 40	1,732,500,014	14	0.000001
100 %		+ 50	1,732,500,018	18	0.000001
115 %	5.75	+ 20	1,732,500,022	22	0.000001
85 %	4.25	+ 20	1,732,499,979	-21	-0.000001

Table 6-16. Frequency Stability Data (Band 4)

Band 4 Frequency Stability Measurements (Cont'd)

§2.1055, 24.235, RSS-133 (6.3)



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6.7 Band 2 Frequency Stability Measurements

§2.1055, 22.355,

OPERATING FREQUENCY: 1,880,000,000 Hz

CHANNEL: 18900

REFERENCE VOLTAGE: 5 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	5.00	+ 20 (Ref)	1,879,999,980	-20	-0.000001
100 %		- 30	1,880,000,018	18	0.000001
100 %		- 20	1,880,000,021	21	0.000001
100 %		- 10	1,880,000,023	23	0.000001
100 %		0	1,879,999,983	-17	-0.000001
100 %		+ 10	1,880,000,019	19	0.000001
100 %		+ 20	1,879,999,986	-14	-0.000001
100 %		+ 30	1,879,999,981	-19	-0.000001
100 %		+ 40	1,880,000,018	18	0.000001
100 %		+ 50	1,880,000,018	18	0.000001
115 %	5.75	+ 20	1,880,000,022	22	0.000001
85 %	4.25	+ 20	1,879,999,979	-21	-0.000001

Table 6-17. Frequency Stability Data (Band 2)

FCC ID: A3LSCHR940		FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 2 Frequency Stability Measurements (Cont'd)

§2.1055, 22.355,

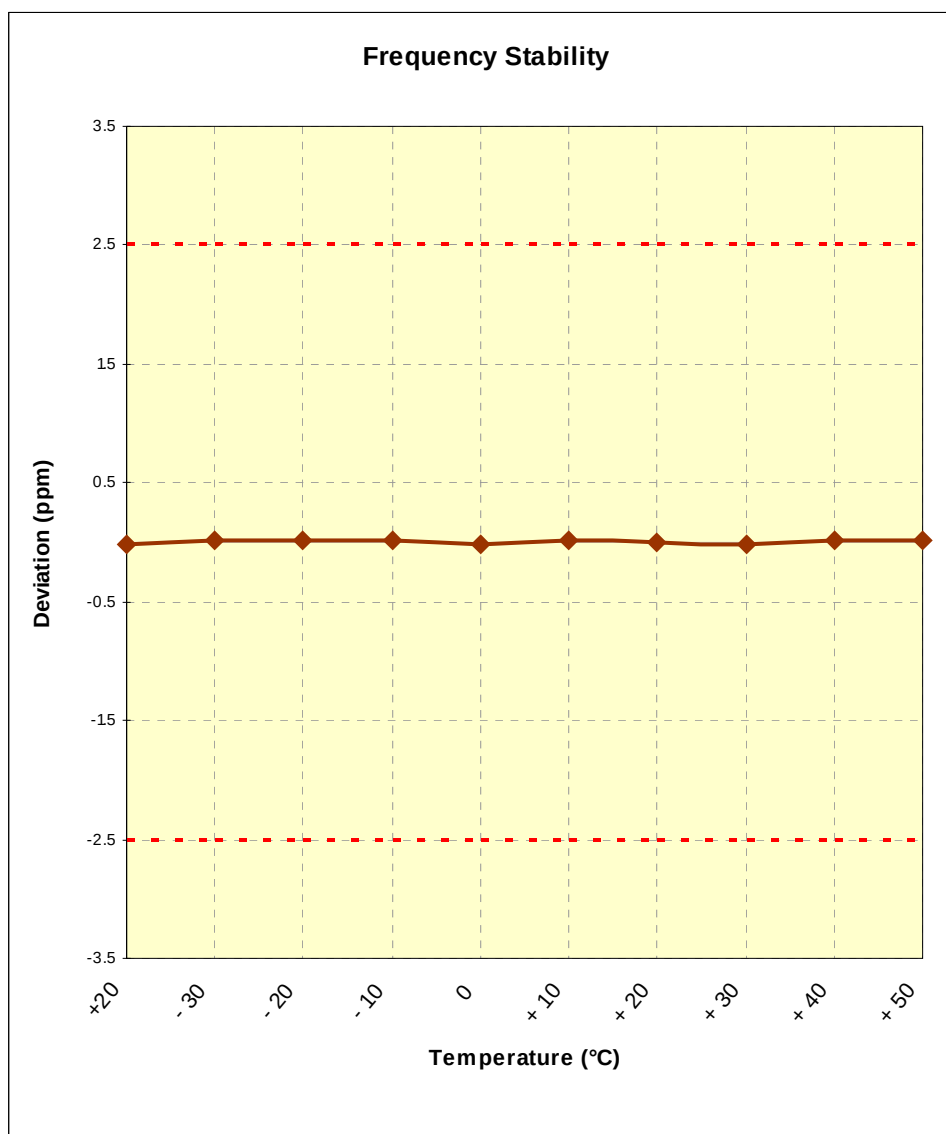


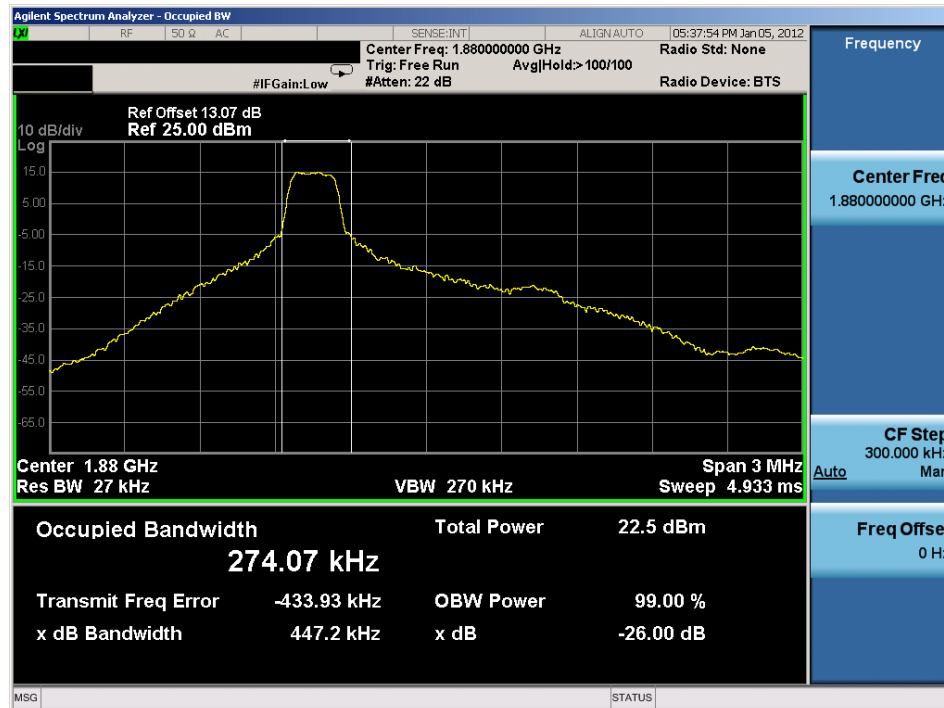
Figure 6-2. Frequency Stability Graph (Band 2)

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7.0 PLOT(S) OF EMISSIONS

Note: For all band edge emissions who spurious limits are subject to the rules of Parts 24 and 27 (Bands 2 and 4, respectively), a resolution bandwidth of at least 1% of the emission bandwidth is used to measure the band edge. Since 1 RB allocation represents the worst case band edge emission, the emission bandwidth at 1 RB is approximately 447 kHz, as shown in the plot below. Thus for all band edge emissions, a RBW of at least 10kHz was used to demonstrate compliance.

All RB sizes, offsets and modulations were tested for compliance and the configurations and modulations that produced the worst-case emissions for band edge and out of band emissions plots are shown below.

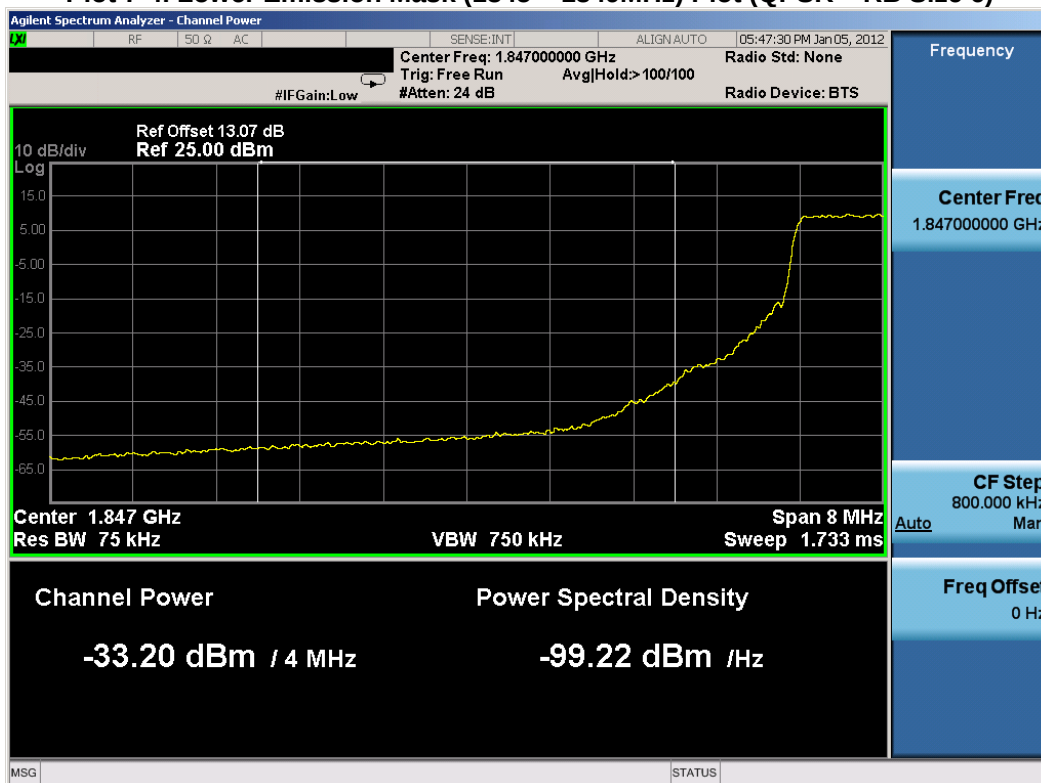


Plot 7-1. Emission Bandwidth for 1 Resource Block

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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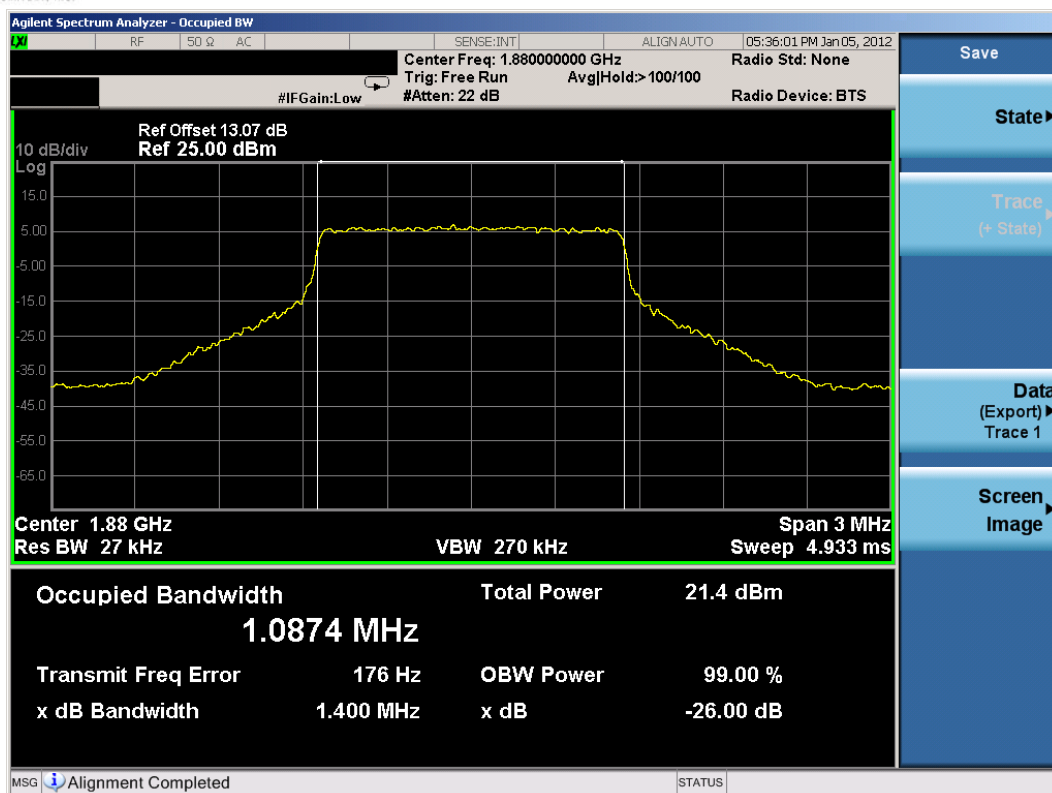


Plot 7-4. Lower Emission Mask (1845 – 1849MHz) Plot (QPSK – RB Size 6)

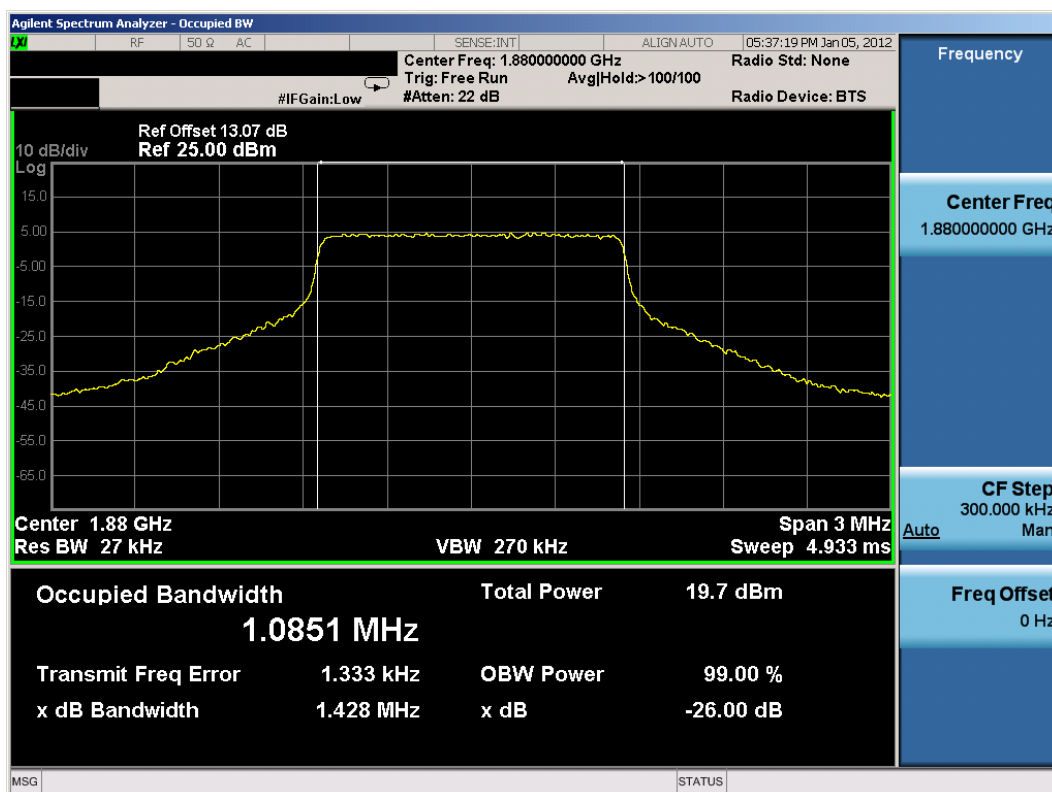


Plot 7-5. Lower Emission Mask (1845 – 1849MHz) Plot (16-QAM – RB Size 6)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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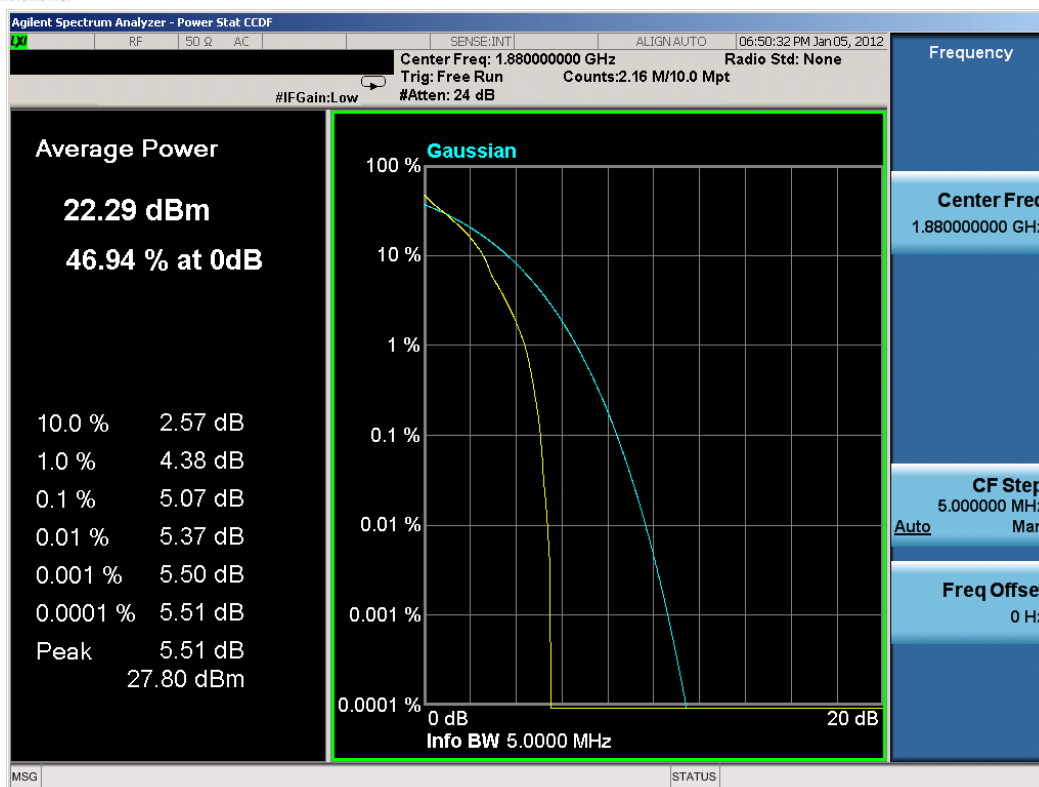


Plot 7-6. Occupied Bandwidth Plot (QPSK – RB Size 6)

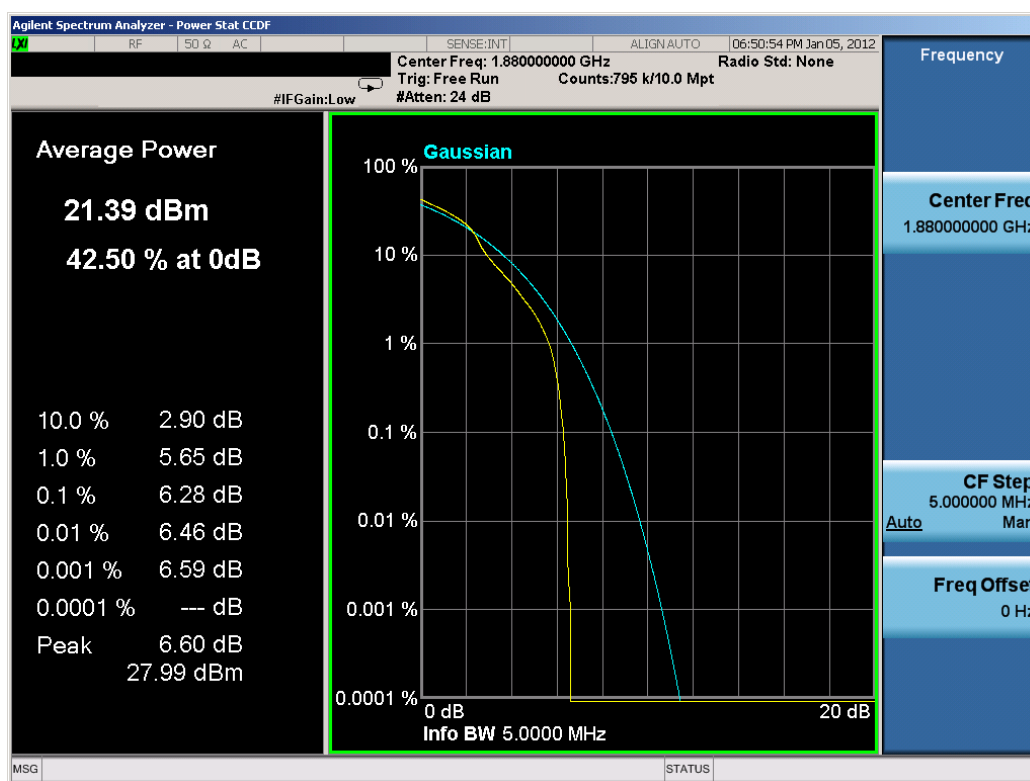


Plot 7-7. Occupied Bandwidth Plot (16-QAM – RB Size 6)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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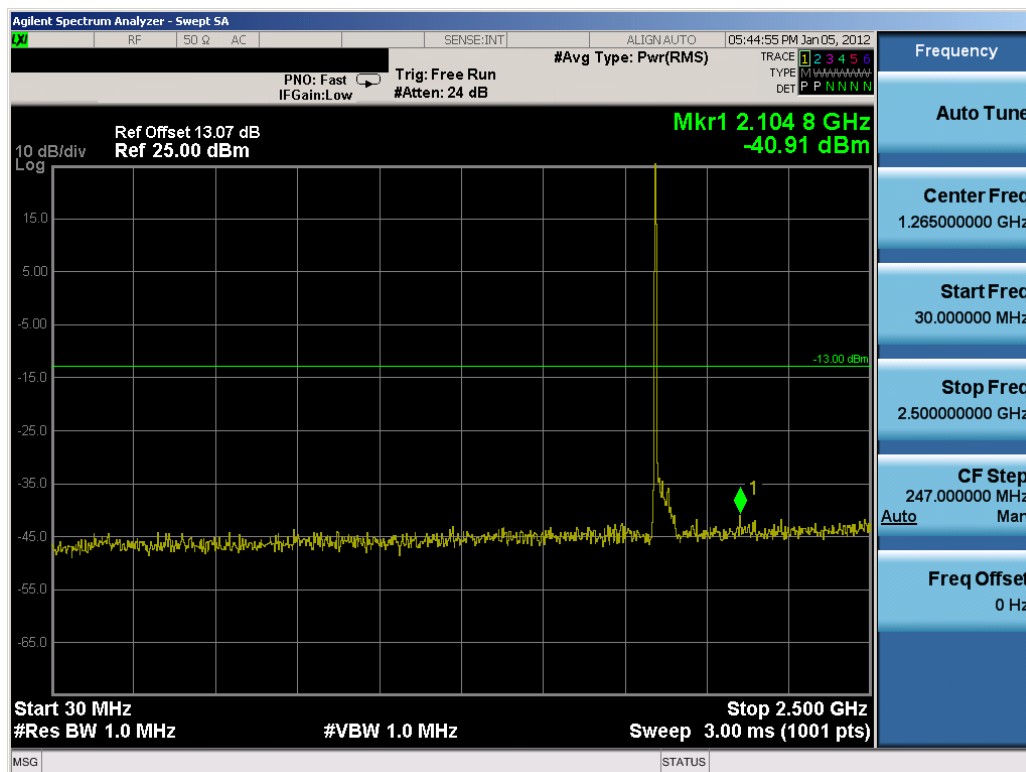


Plot 7-8. Peak to Average Ratio Plot (QPSK RB Size 1)

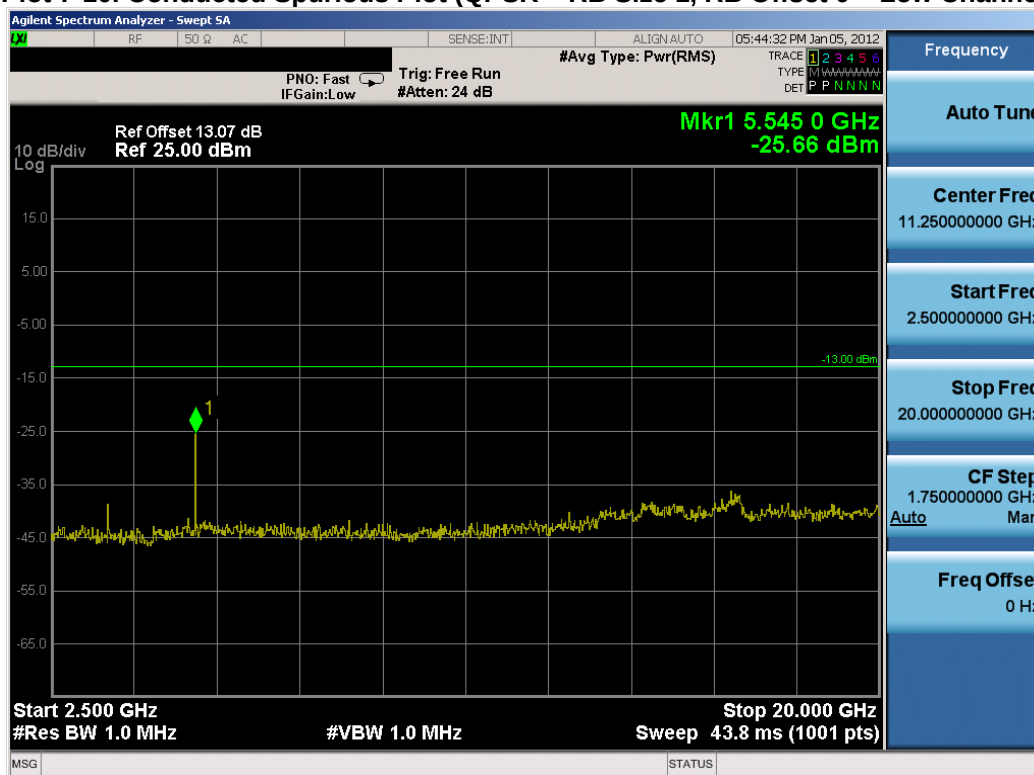


Plot 7-9. Peak to Average Ratio Plot (16QAM RB Size 1)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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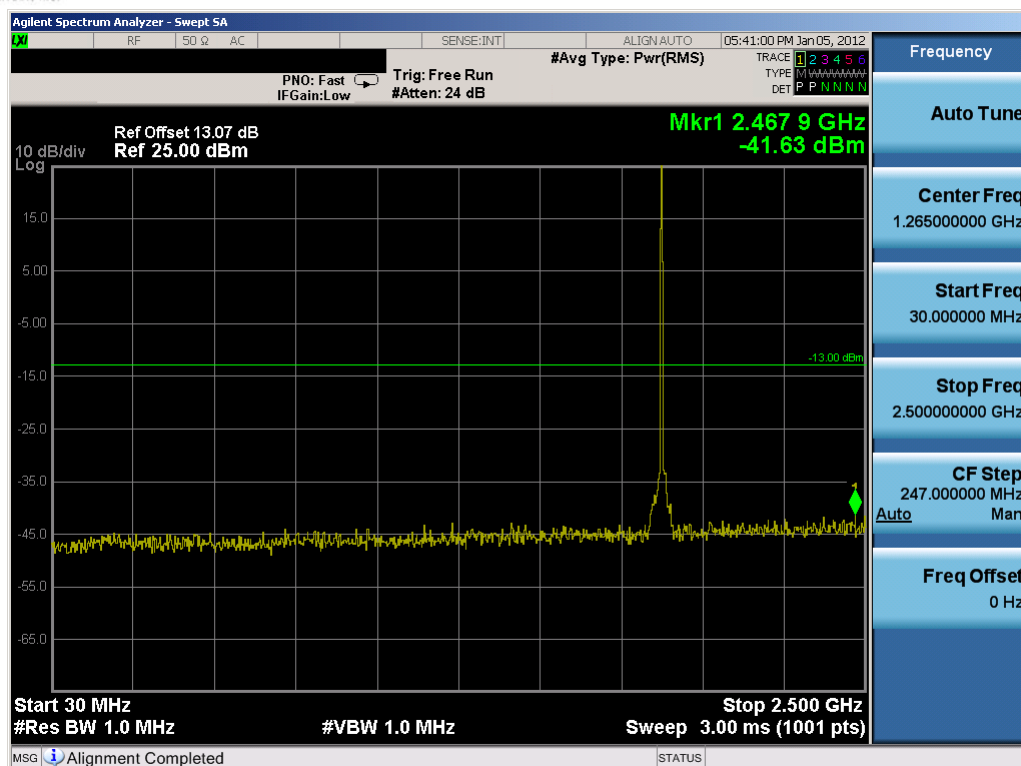


Plot 7-10. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

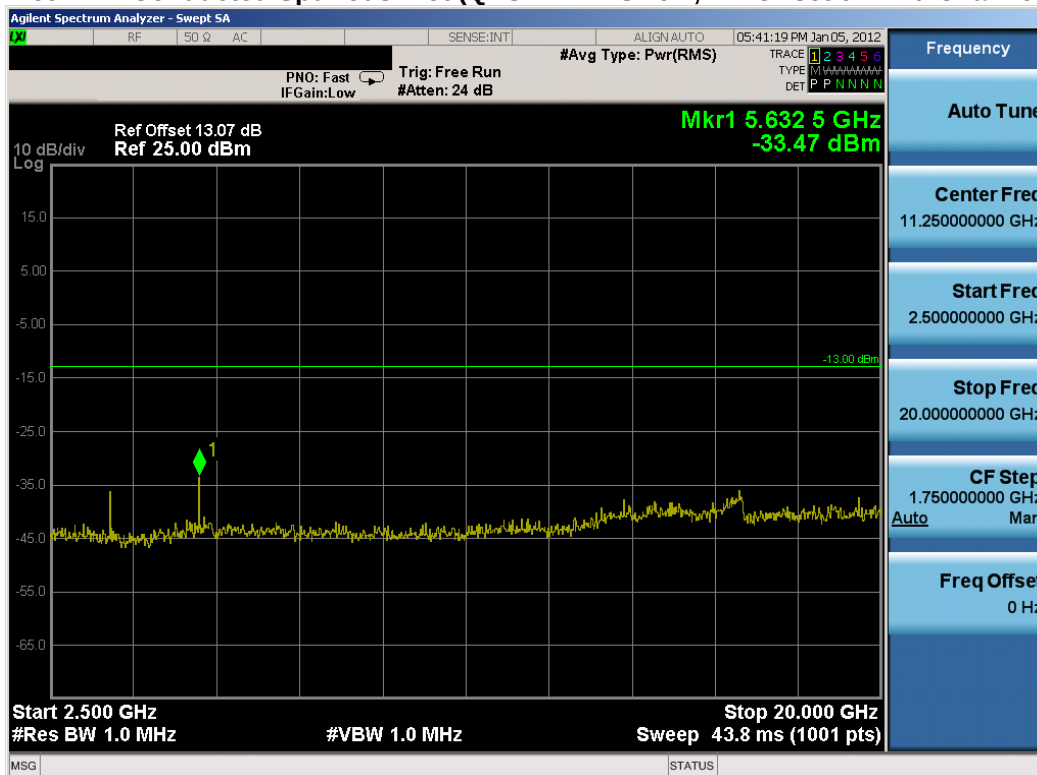


Plot 7-11. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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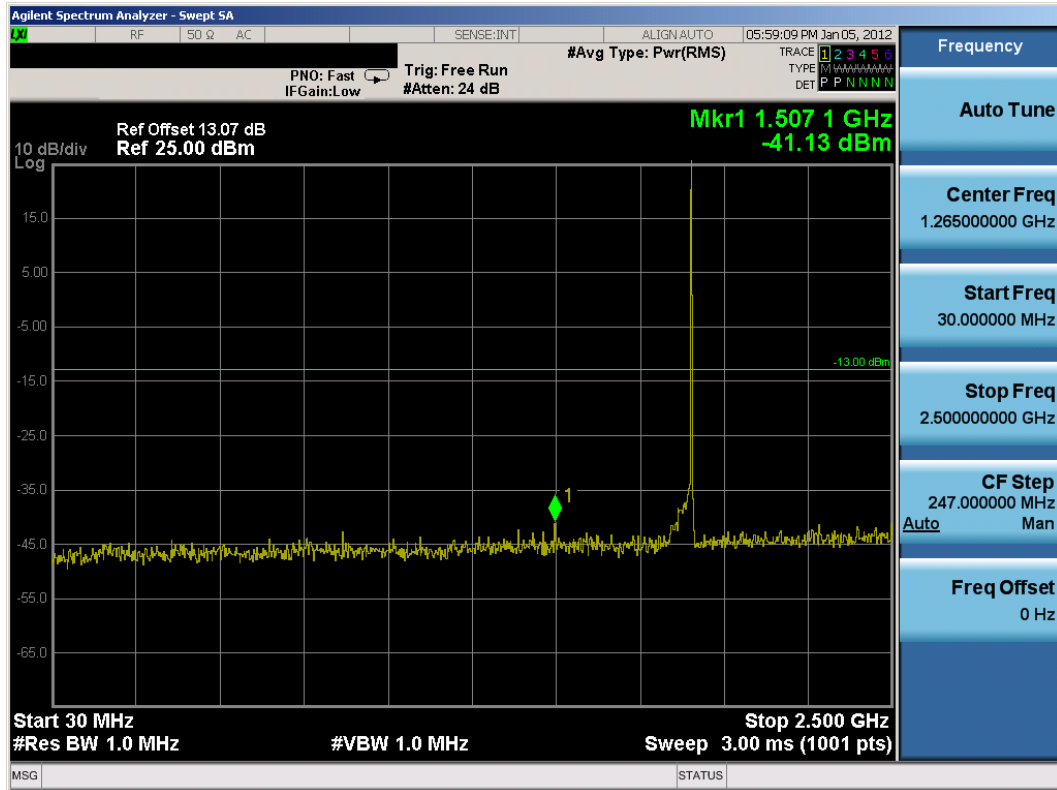


Plot 7-12. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

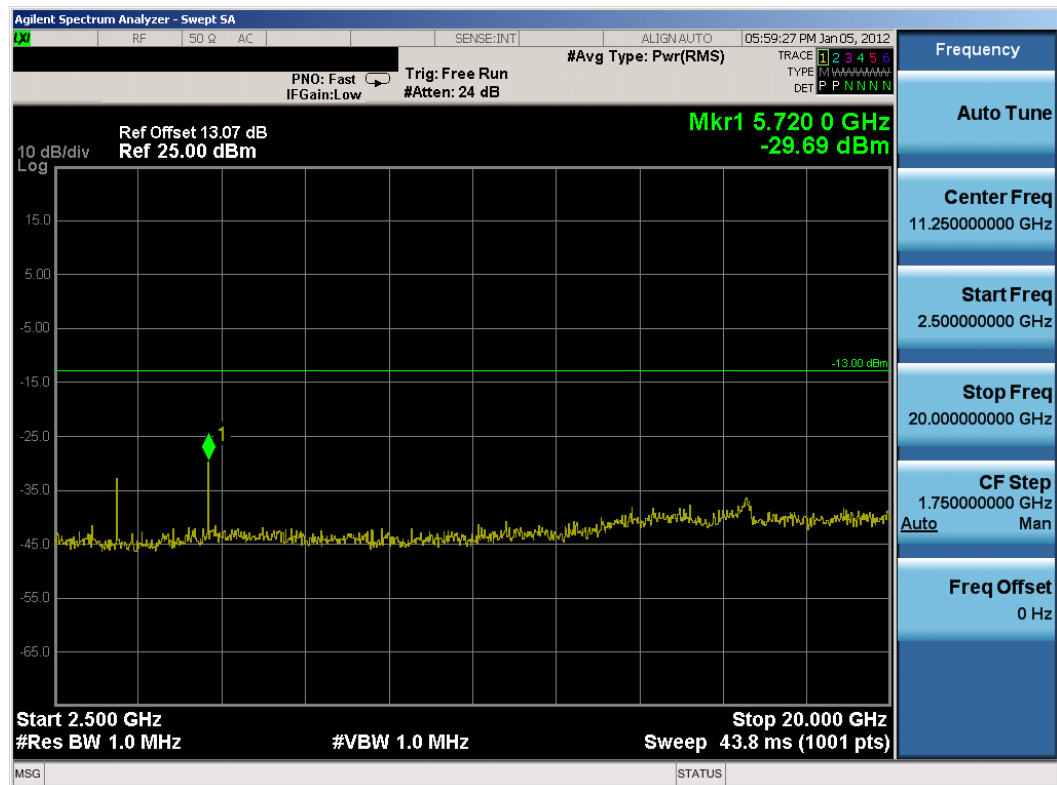


Plot 7-13. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 7-14. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

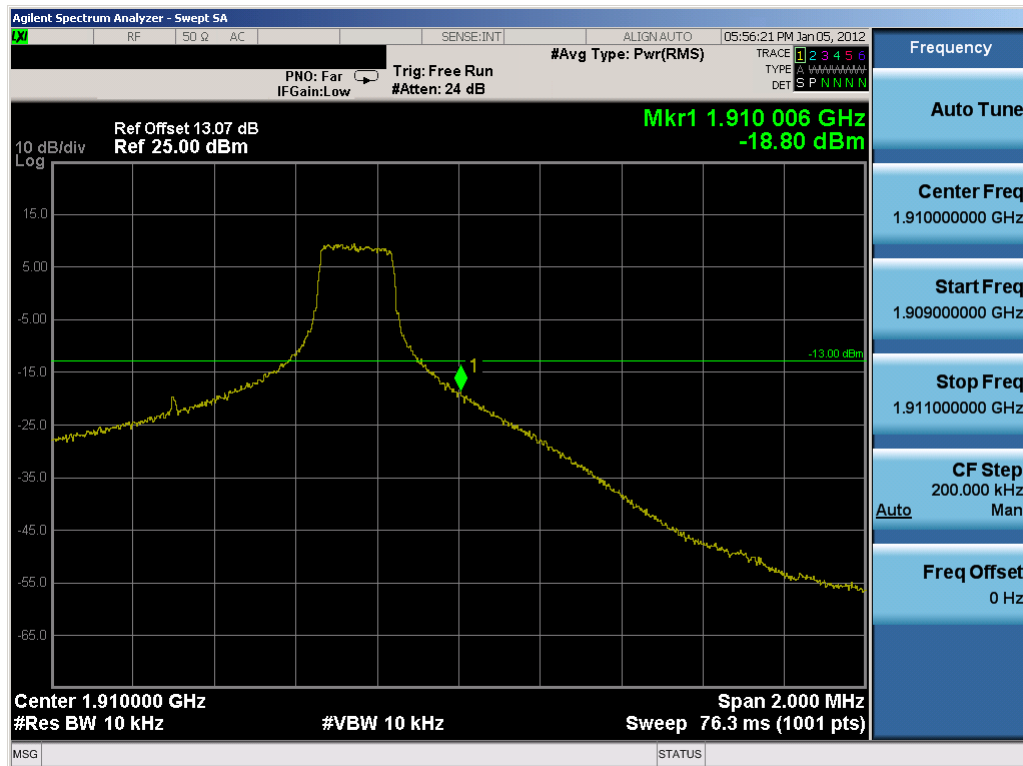


Plot 7-15. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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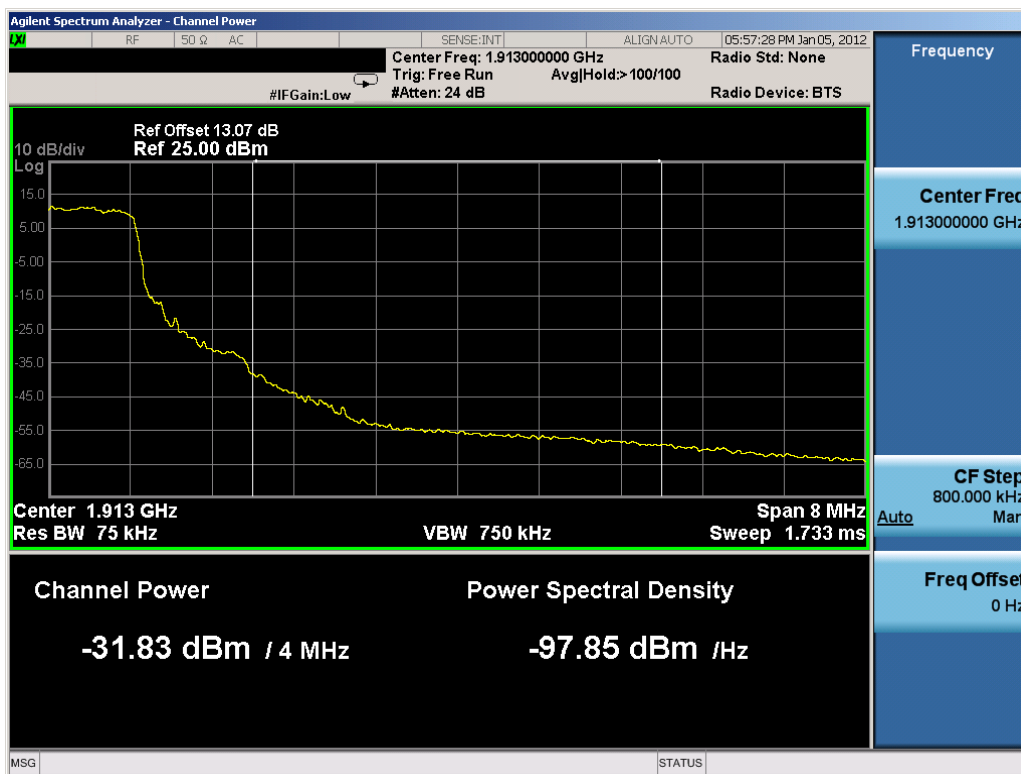


Plot 7-16. Upper Band Edge Plot (QPSK – RB Size 1, Offset 5)

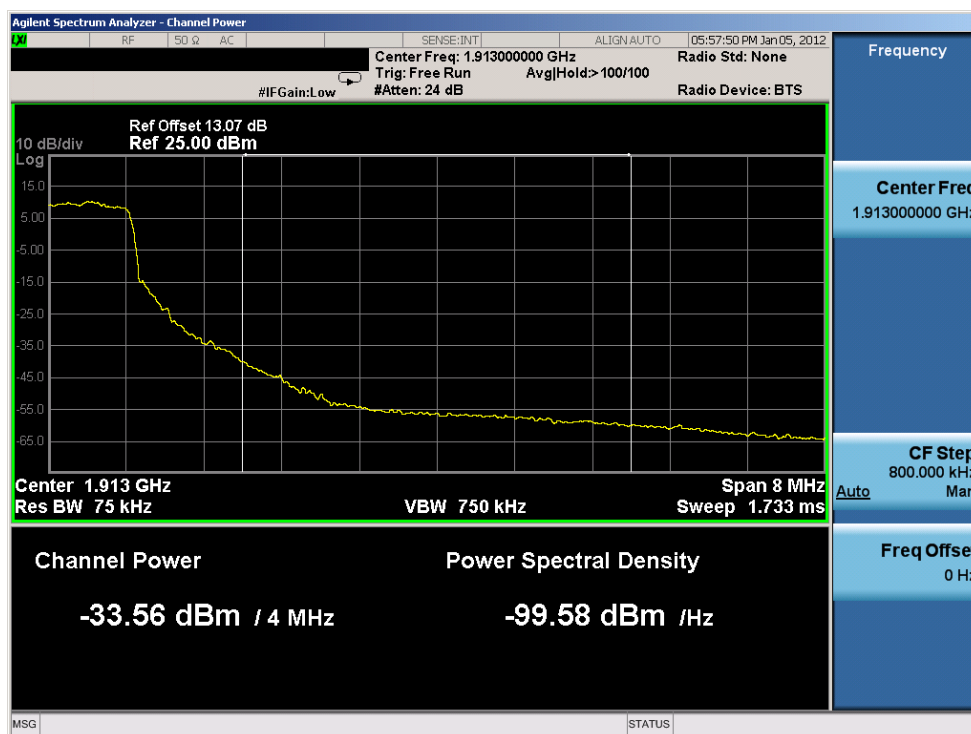


Plot 7-17. Upper Band Edge Plot (16-QAM – RB Size 1, Offset 5)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 7-18. Upper Emission Mask (1911 – 1915MHz) Plot (QPSK – RB Size 6)

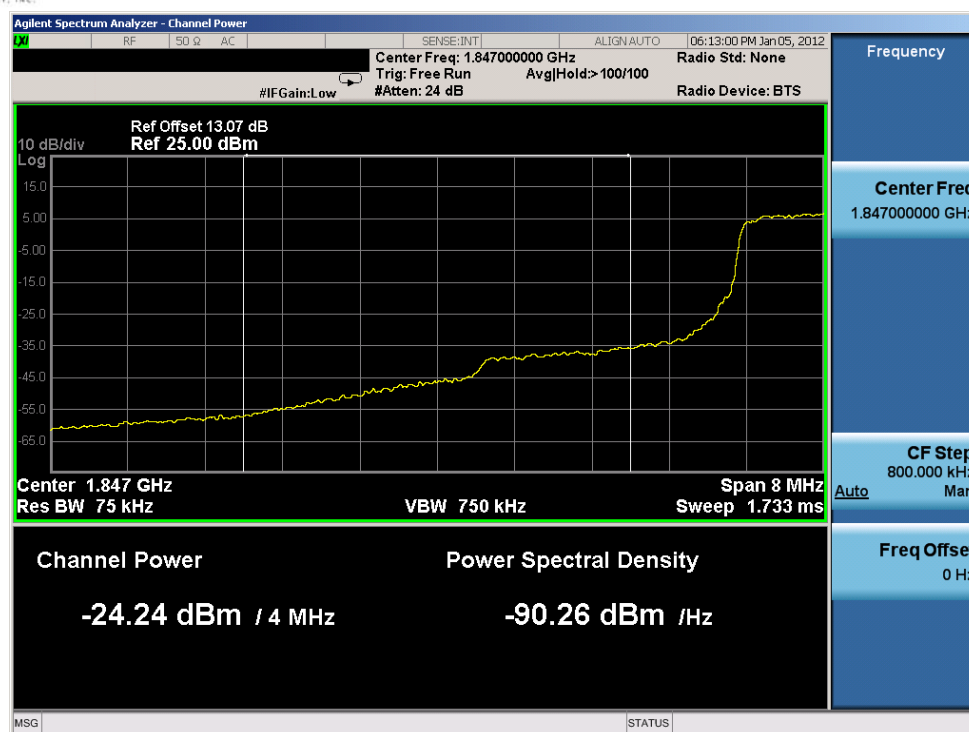


Plot 7-19. Upper Emission Mask (1911 – 1915MHz) Plot (16-QAM – RB Size 6)

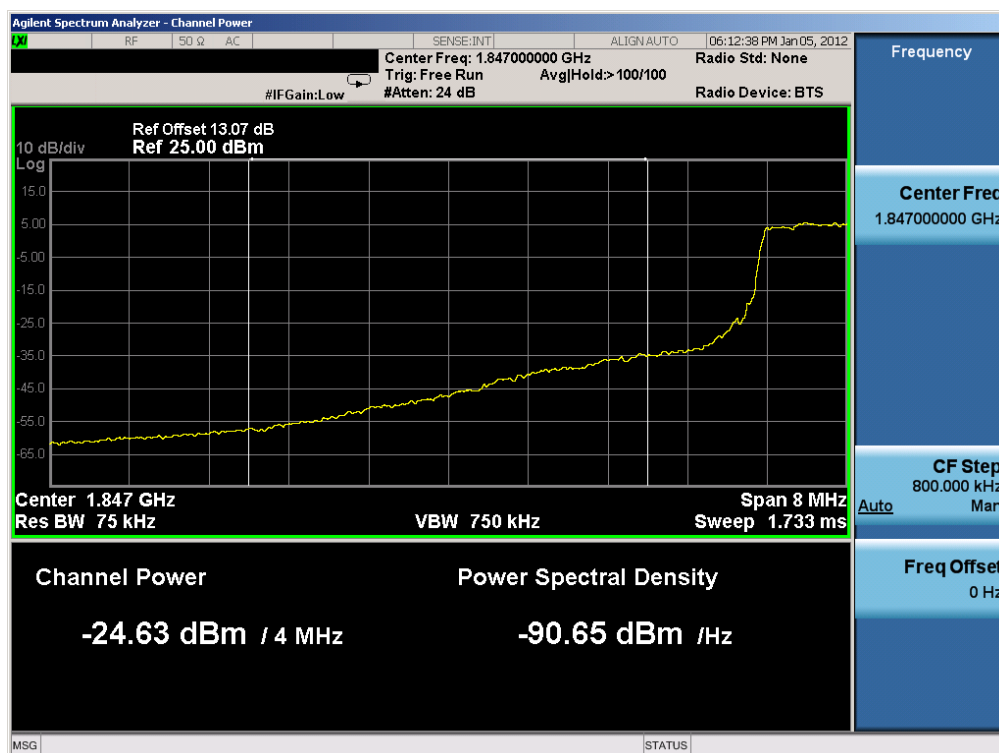
FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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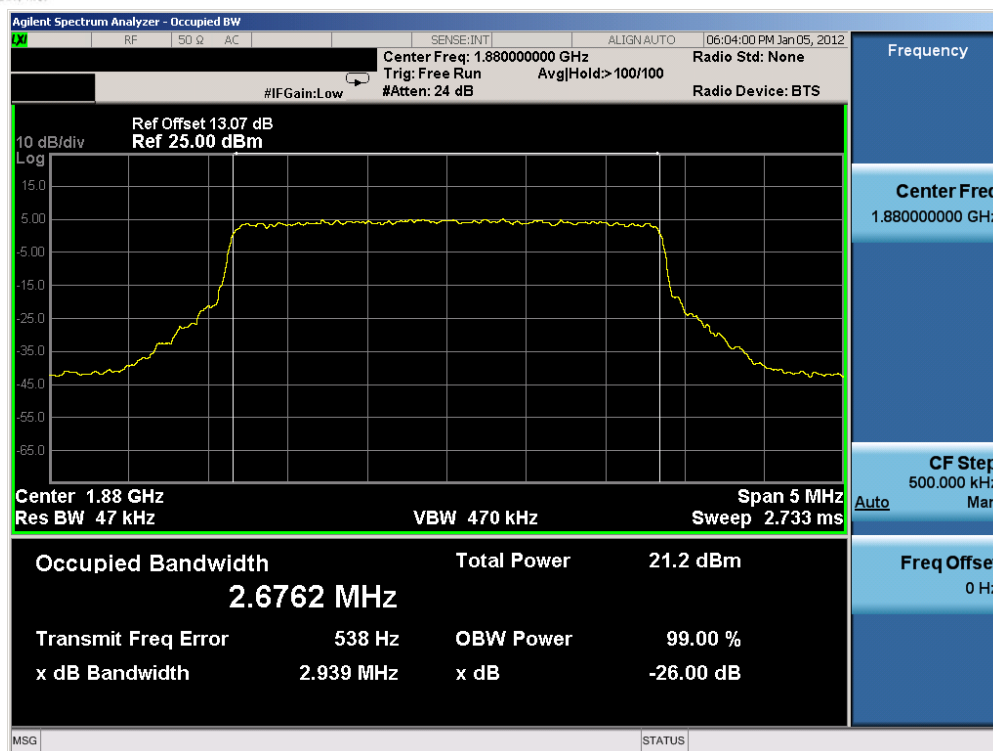


Plot 7-22. Lower Emission Mask (1845-1849 MHz) Plot (QPSK – RB Size 15)

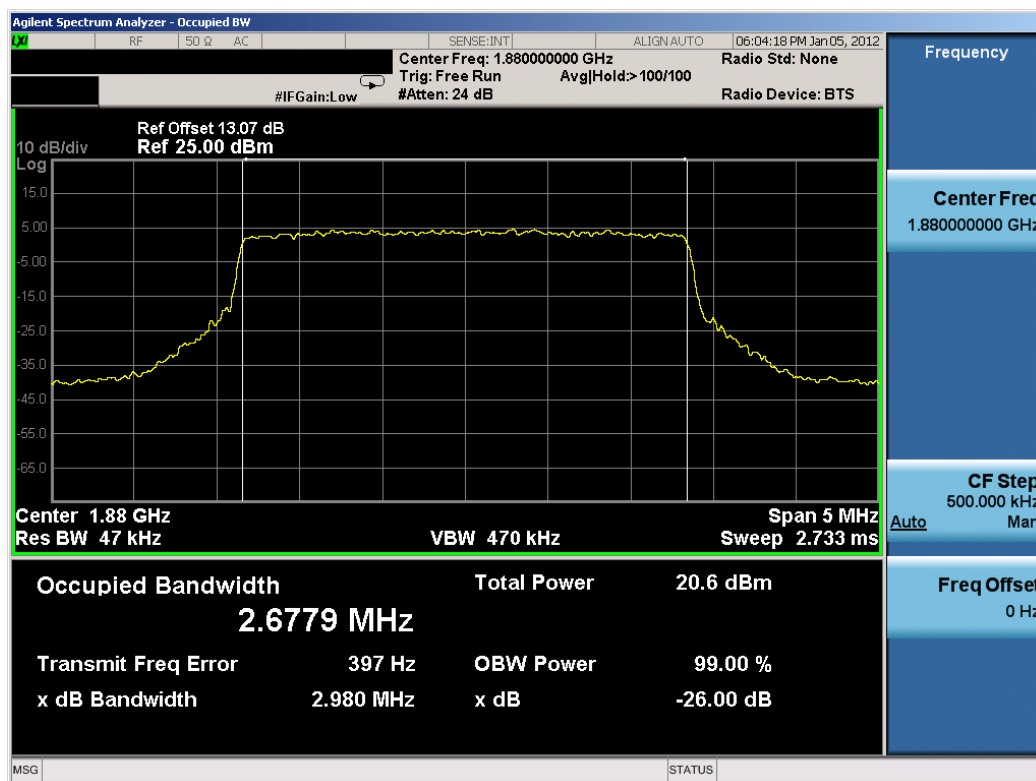


Plot 7-23. Lower Emission Mask (1845-1849 MHz) Plot (16-QAM – RB Size 15)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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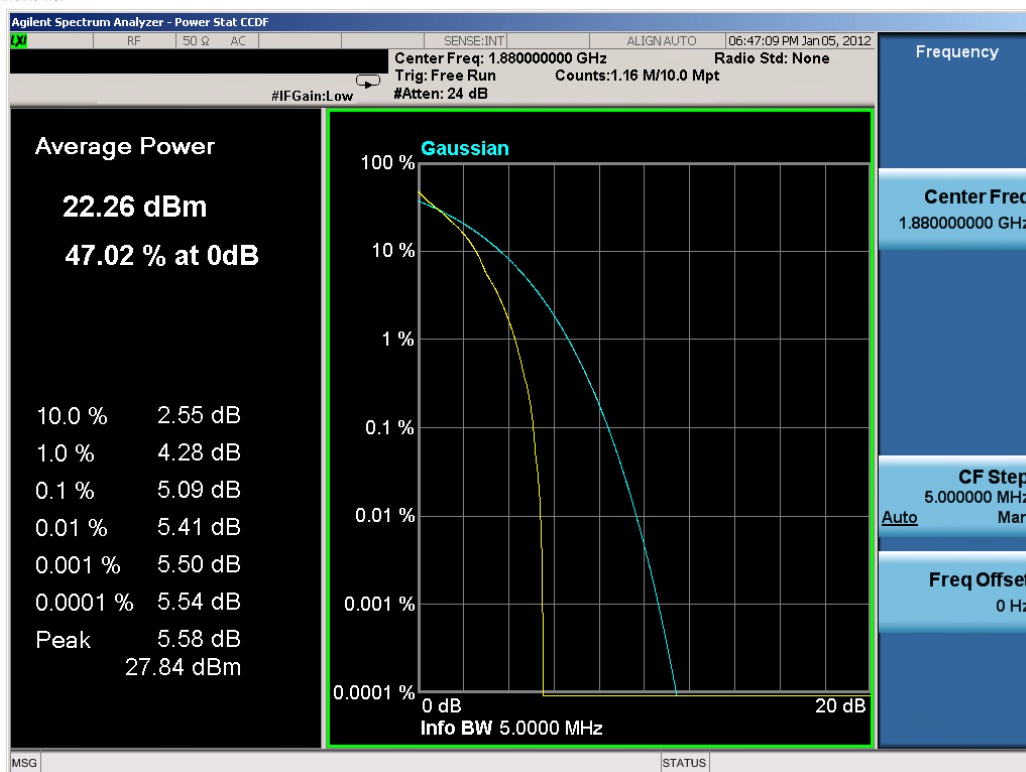


Plot 7-24. Occupied Bandwidth Plot (QPSK – RB Size 15)

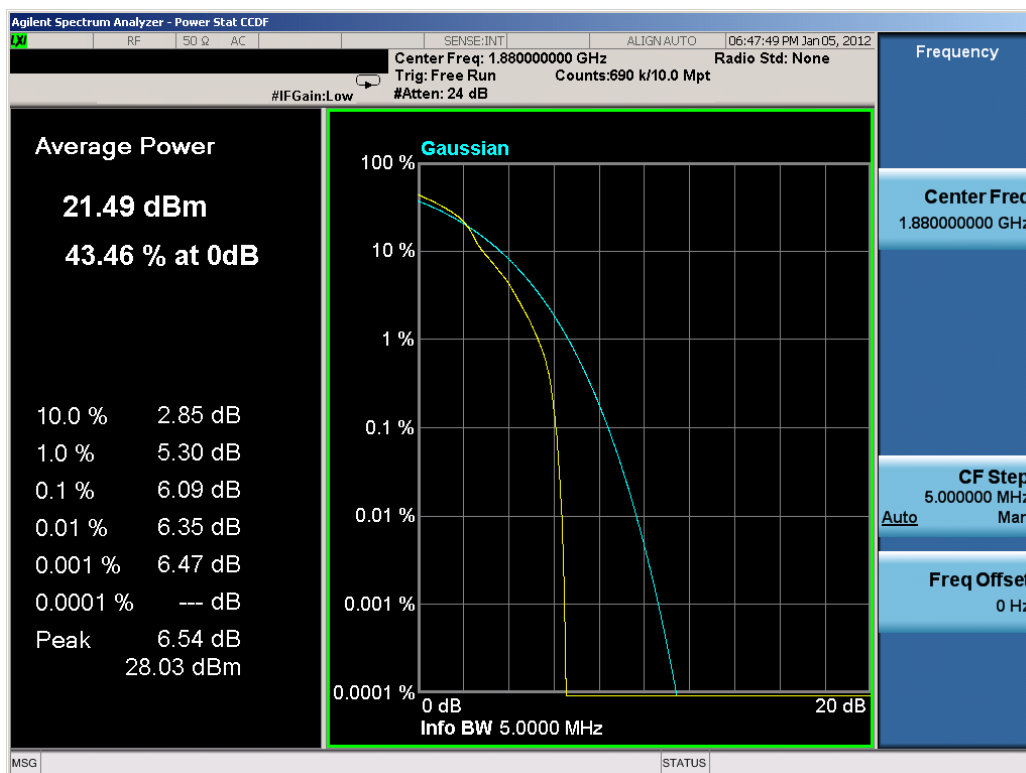


Plot 7-25. Occupied Bandwidth Plot (16-QAM – RB Size 15)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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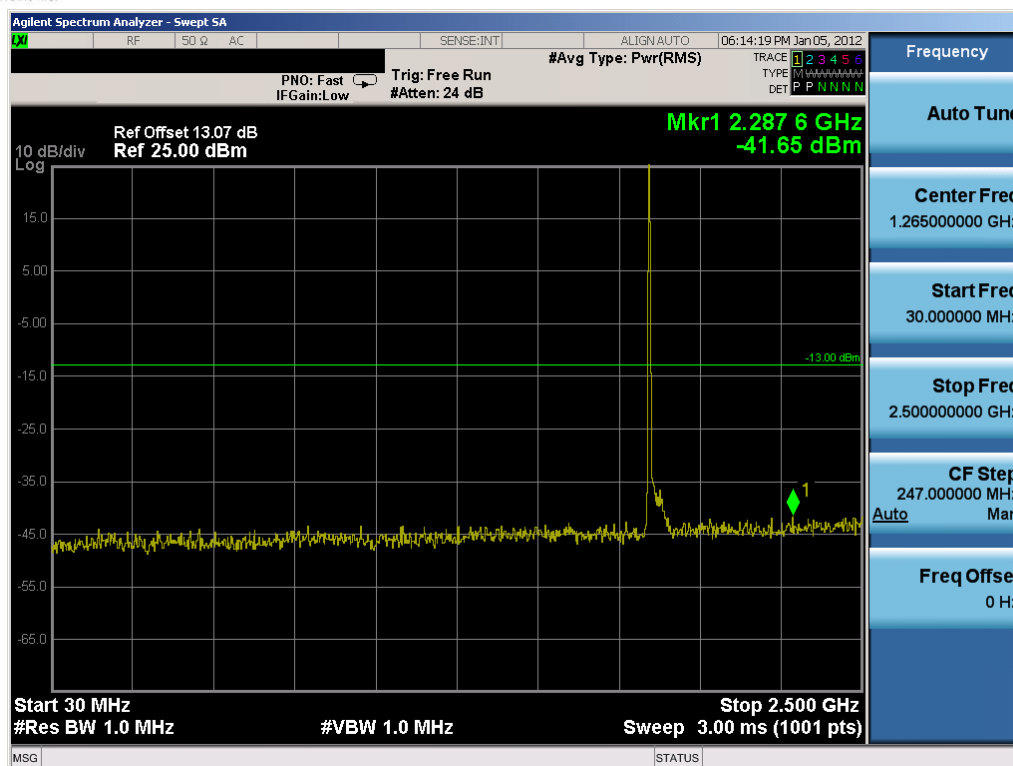


Plot 7-26. Peak to Average Ratio Plot (QPSK RB Size 1)

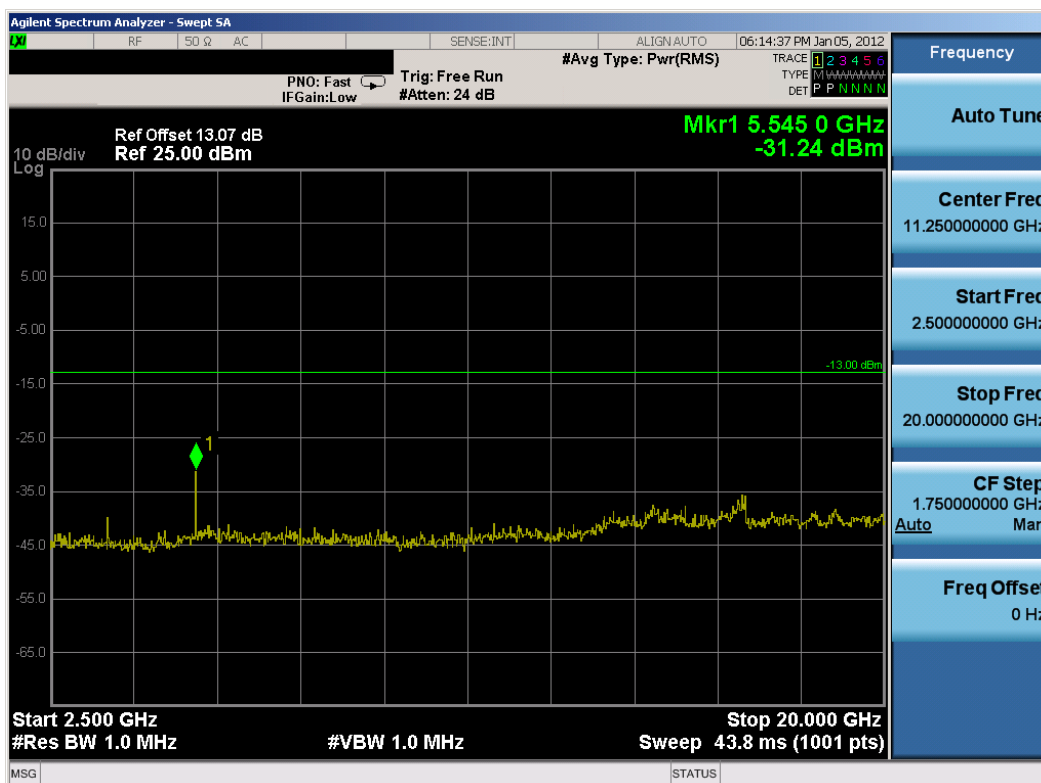


Plot 7-27. Peak to Average Ratio Plot (16QAM RB Size 1)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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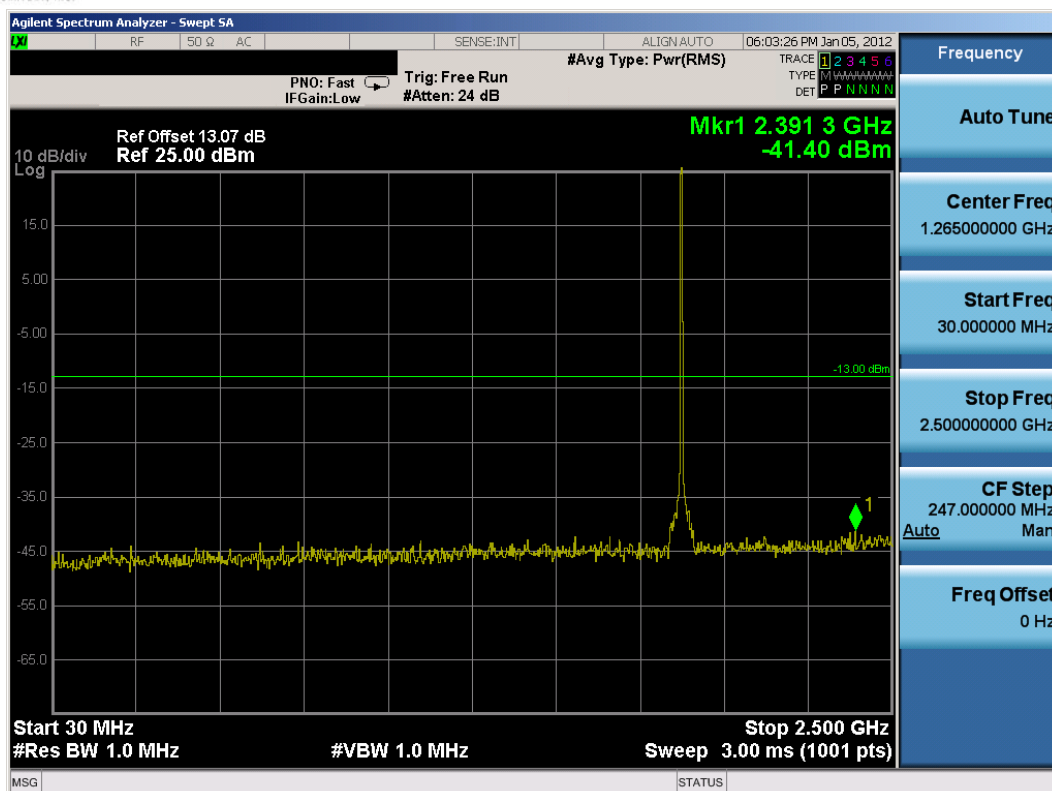


Plot 7-28. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

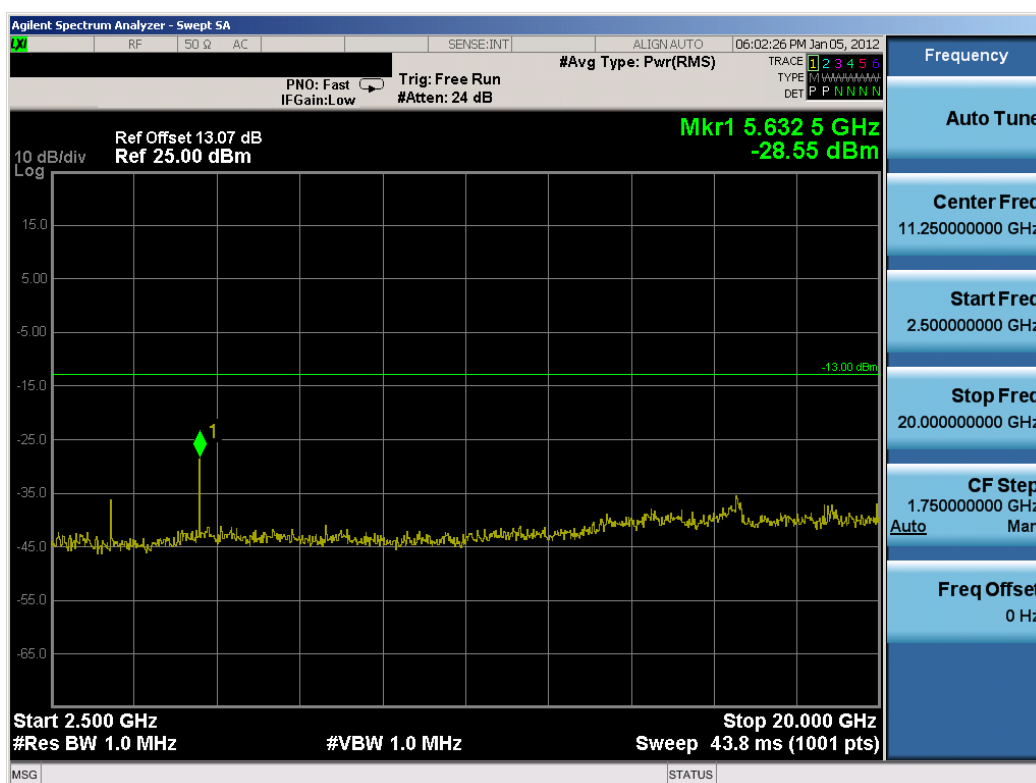


Plot 7-29. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSCHR940			FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset			Page 44 of 85

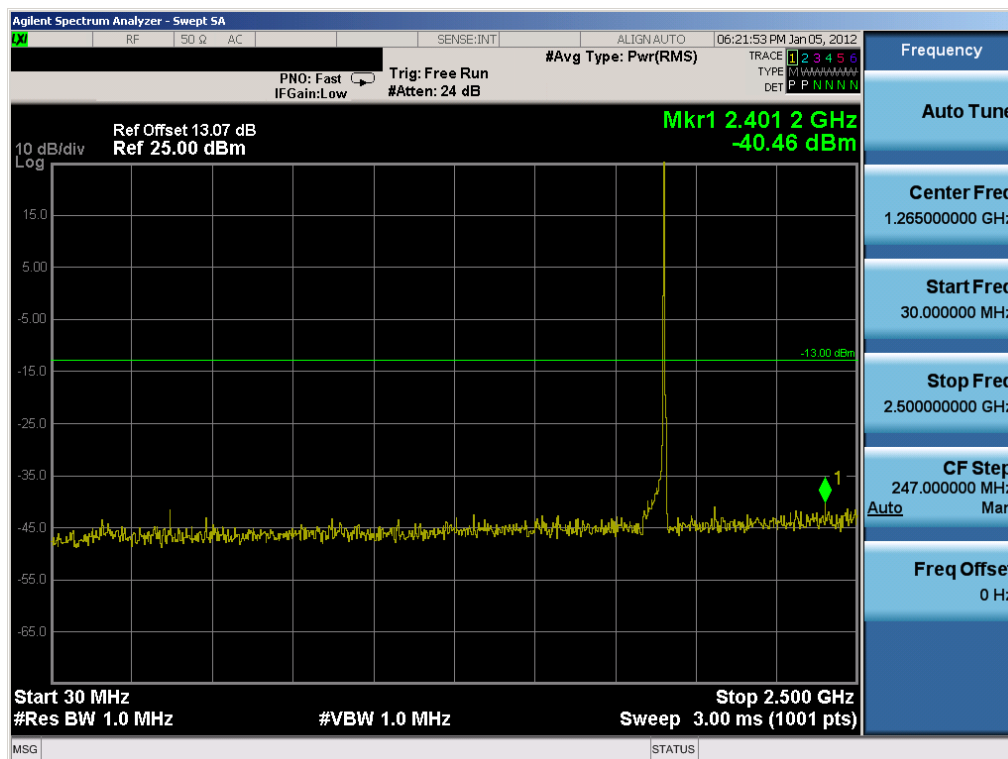


Plot 7-30. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

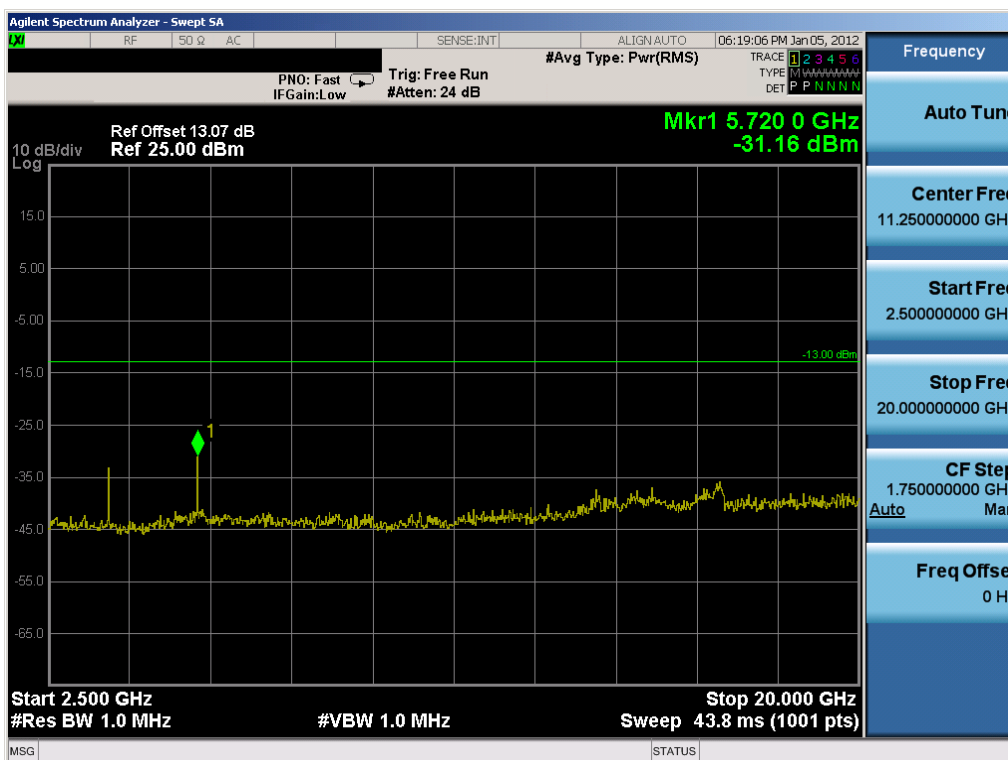


Plot 7-31. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 45 of 85

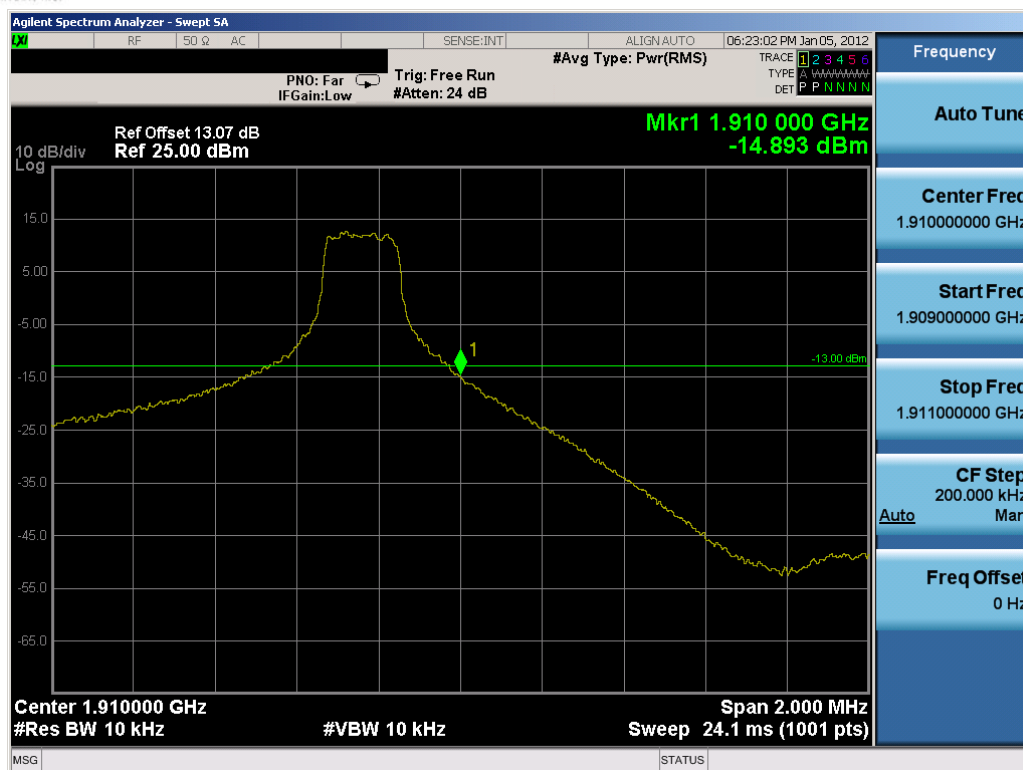


Plot 7-32. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

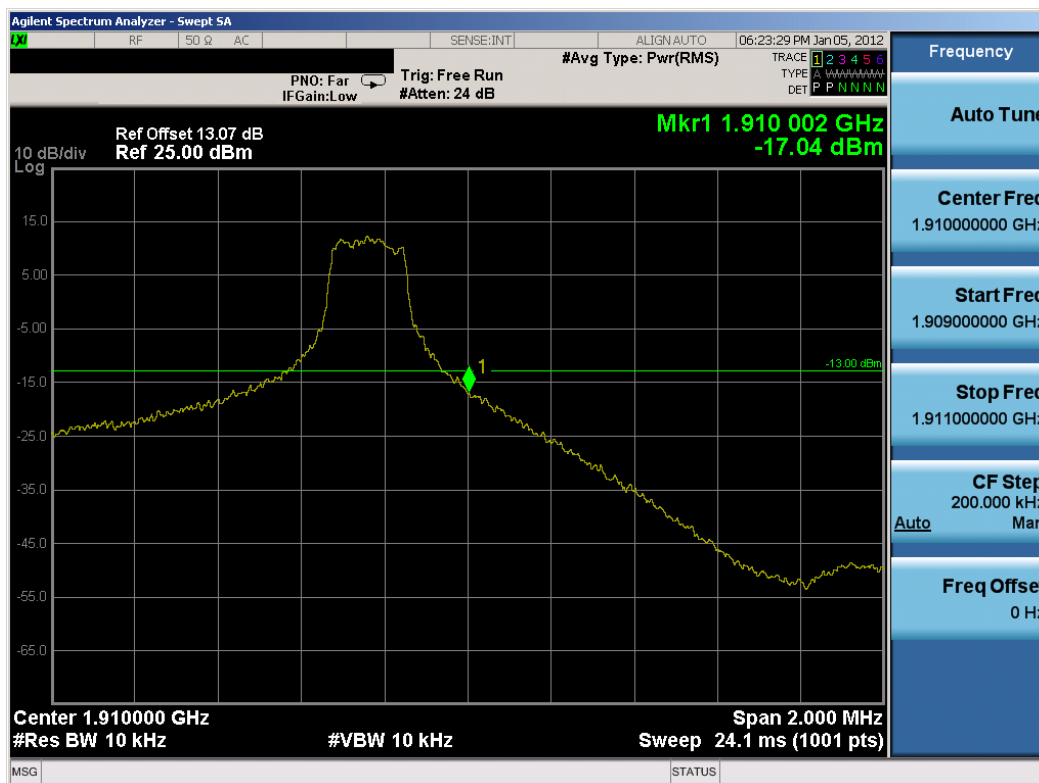


Plot 7-33. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 46 of 85

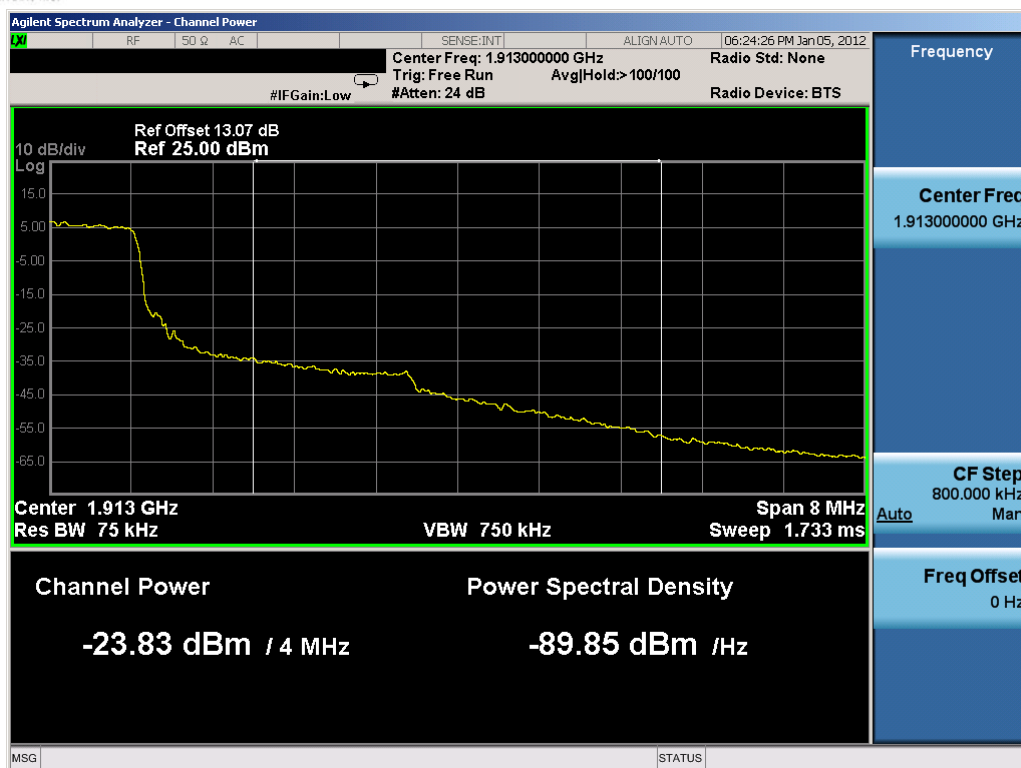


Plot 7-34. Upper Band Edge Plot (QPSK – RB Size 1, Offset 14)



Plot 7-35. Upper Band Edge Plot (16-QAM – RB Size 1, Offset 14)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 47 of 85



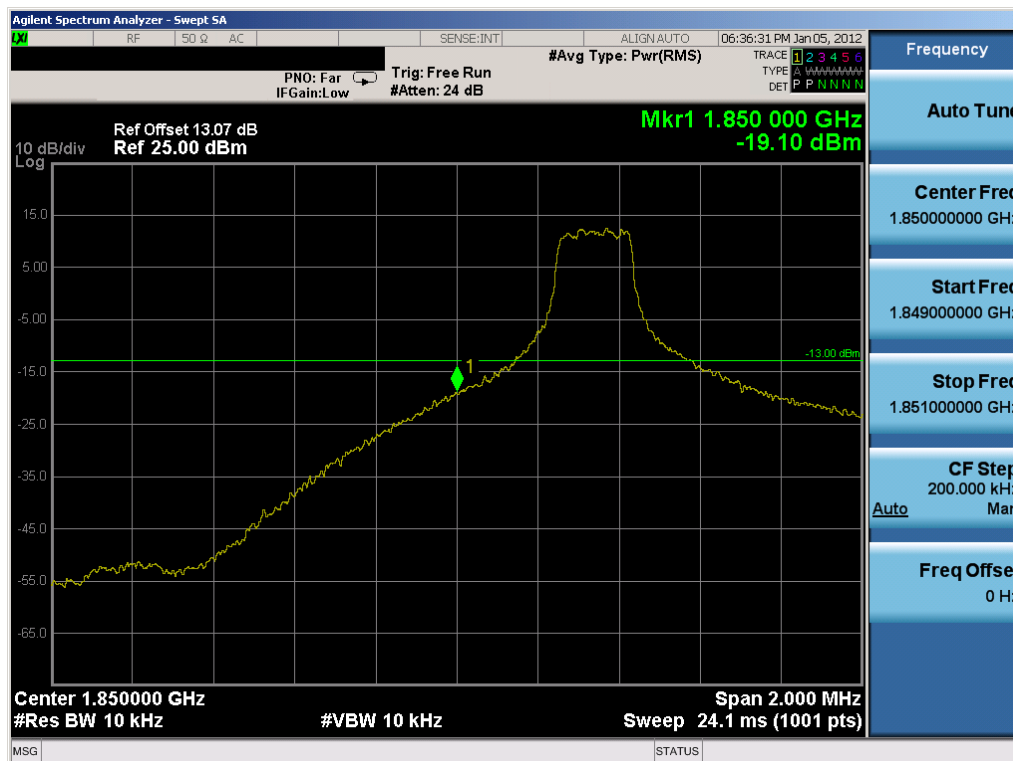
Plot 7-36. Upper Emission Mask (1911-1915 MHz) Plot (QPSK – RB Size 15)



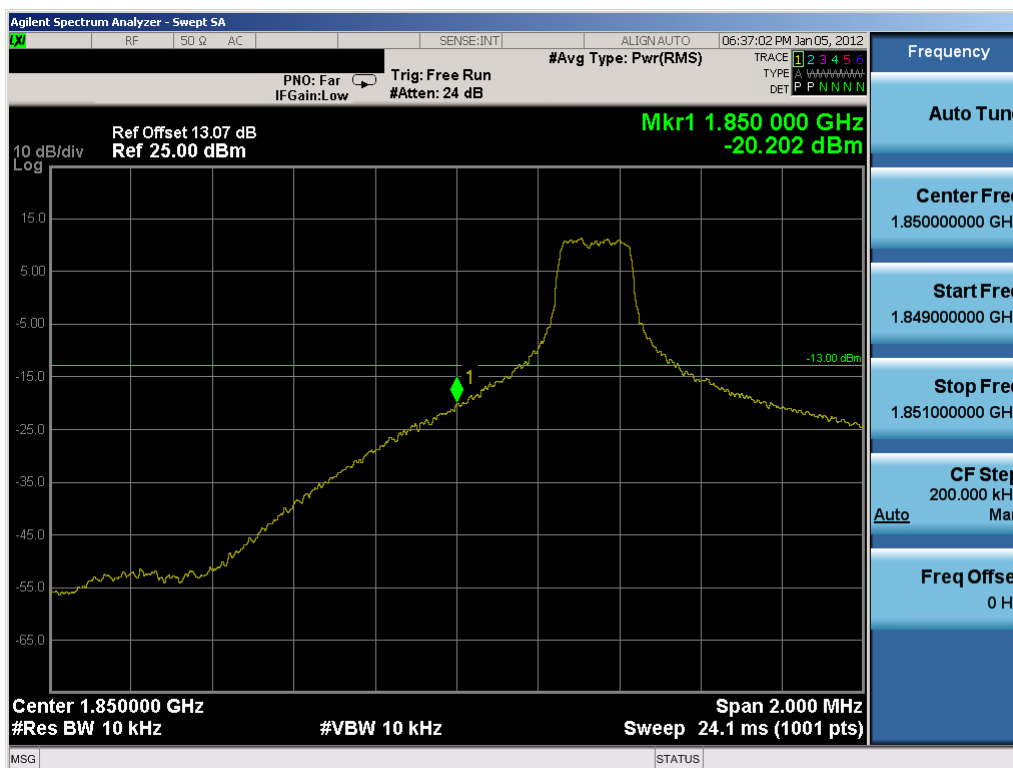
Plot 7-37. Upper Emission Mask (1911-1915 MHz) Plot (16-QAM – RB Size 15)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 48 of 85

5MHz

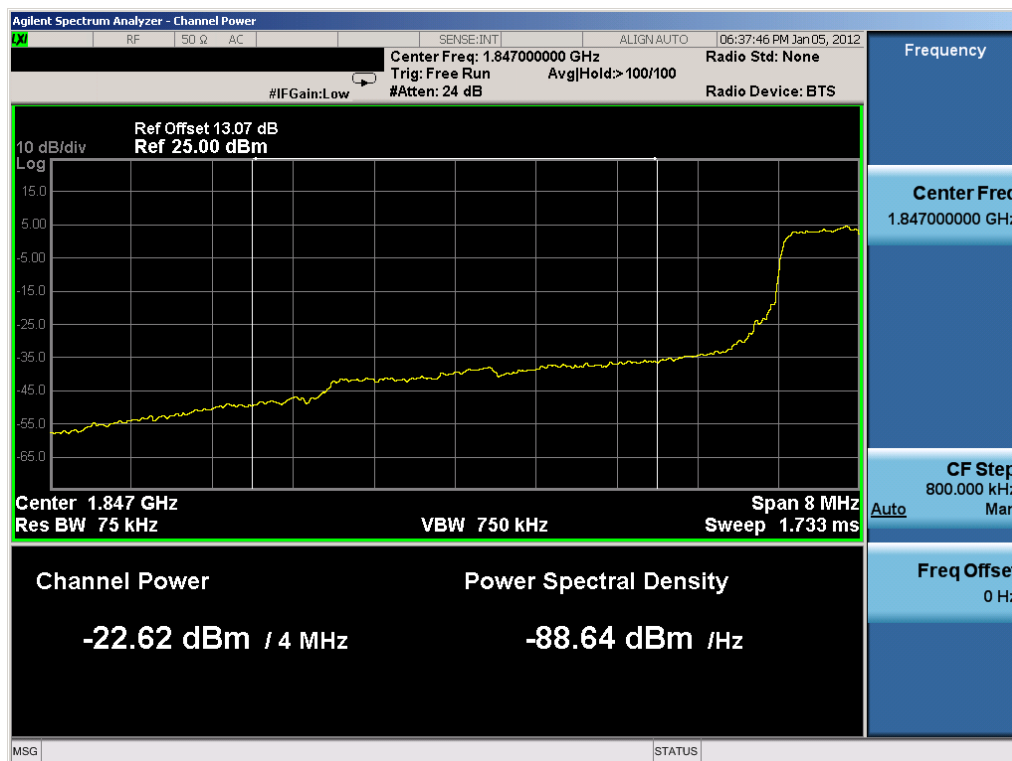


Plot 7-38. Lower Band Edge Plot (QPSK – RB Size 1, Offset 0)

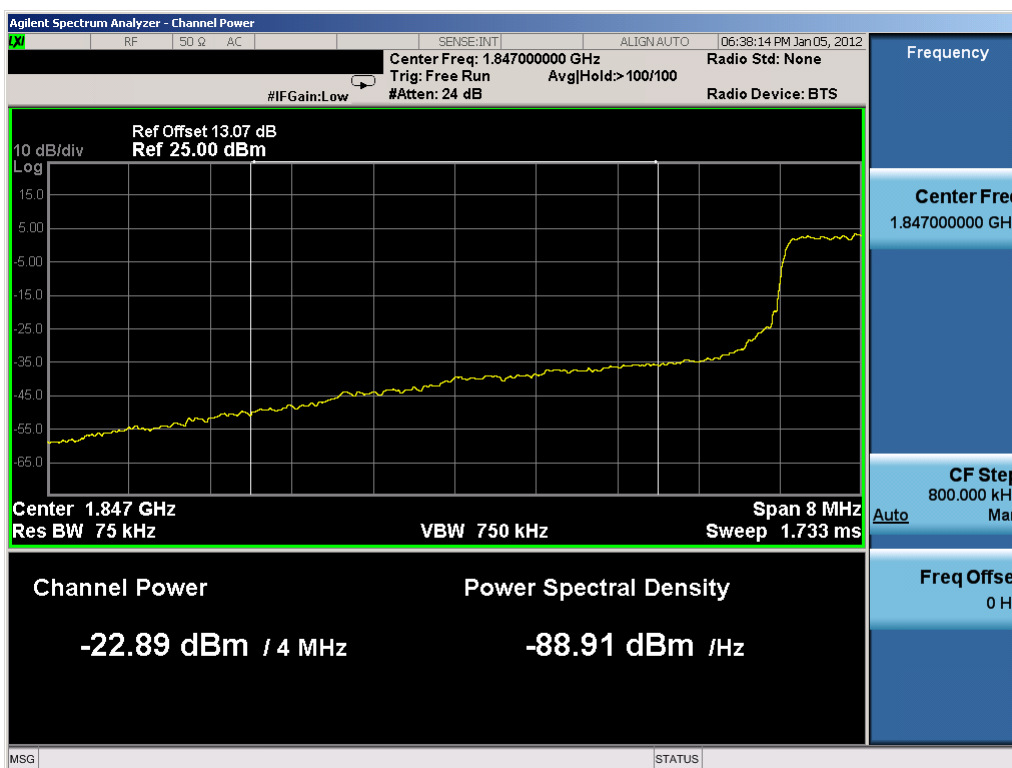


Plot 7-39. Lower Band Edge Plot (16-QAM – RB Size 1, Offset 0)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 49 of 85

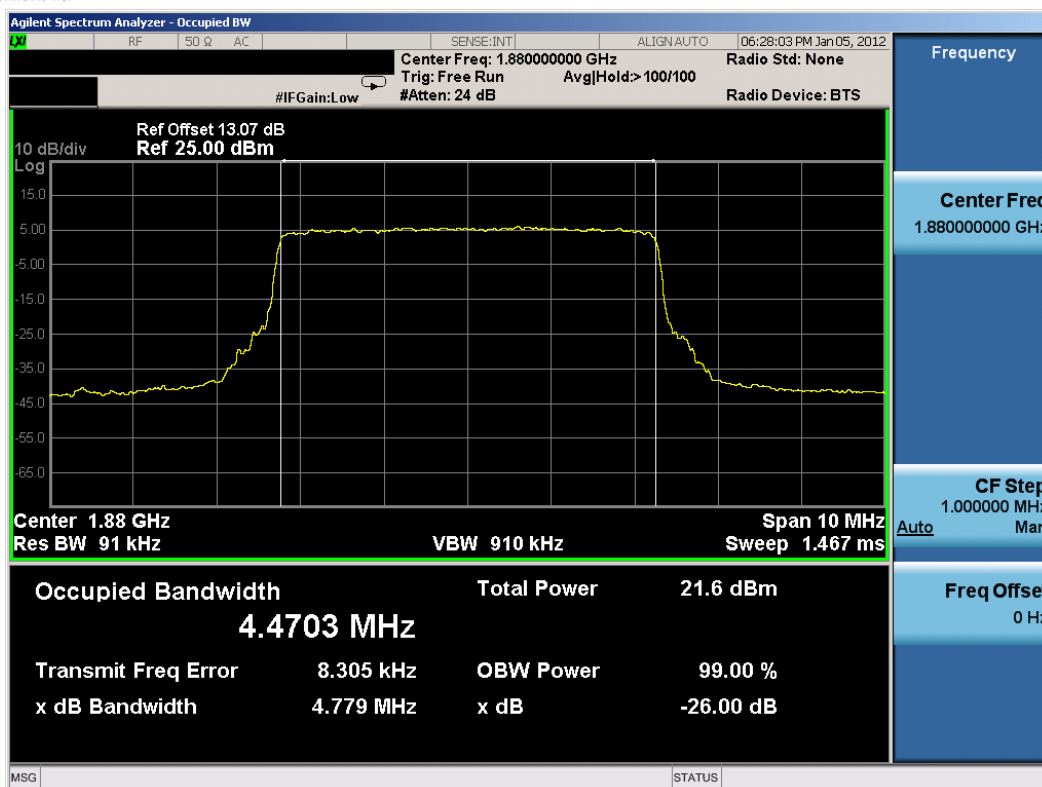


Plot 7-40. Lower Emission Mask (1845-1849MHz) Plot (QPSK – RB Size 25)

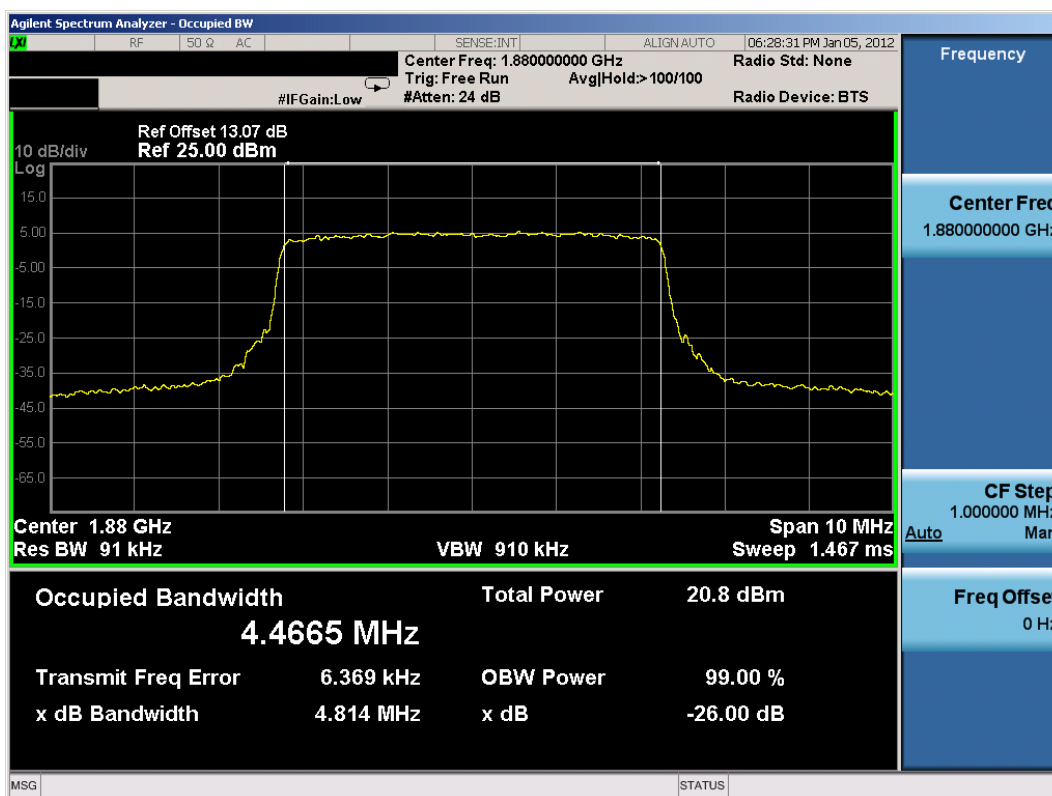


Plot 7-41. Lower Emission Mask (1845-1849MHz) Plot (16-QAM – RB Size 25)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 50 of 85

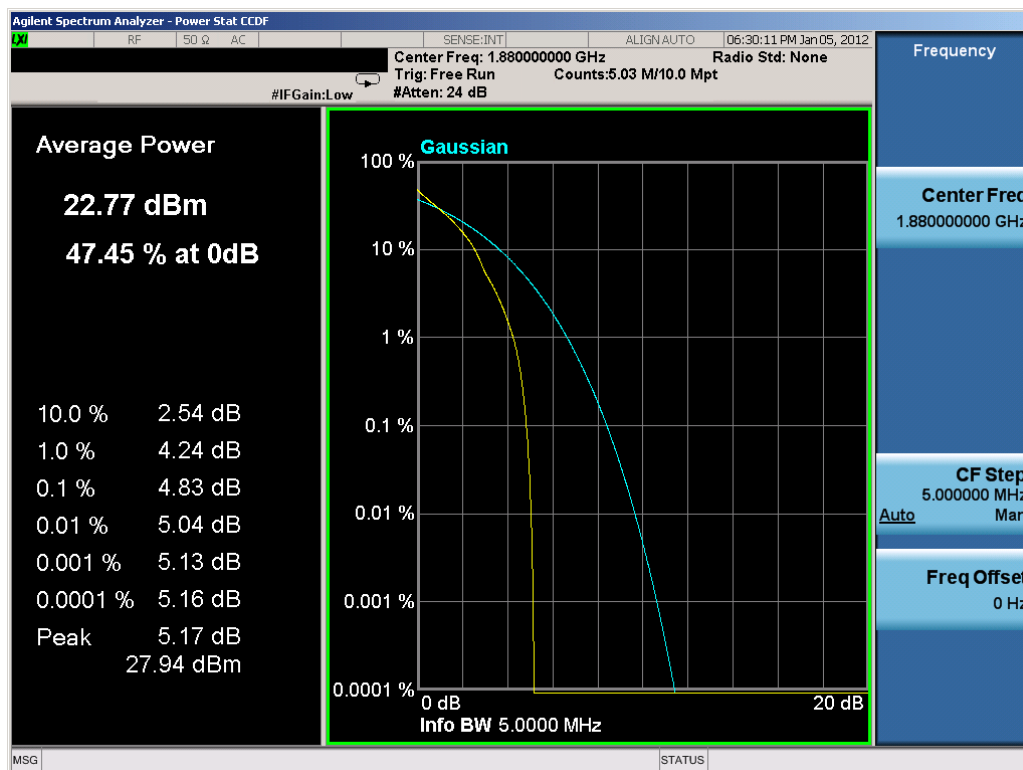


Plot 7-42. Occupied Bandwidth Plot (QPSK – RB Size 25)

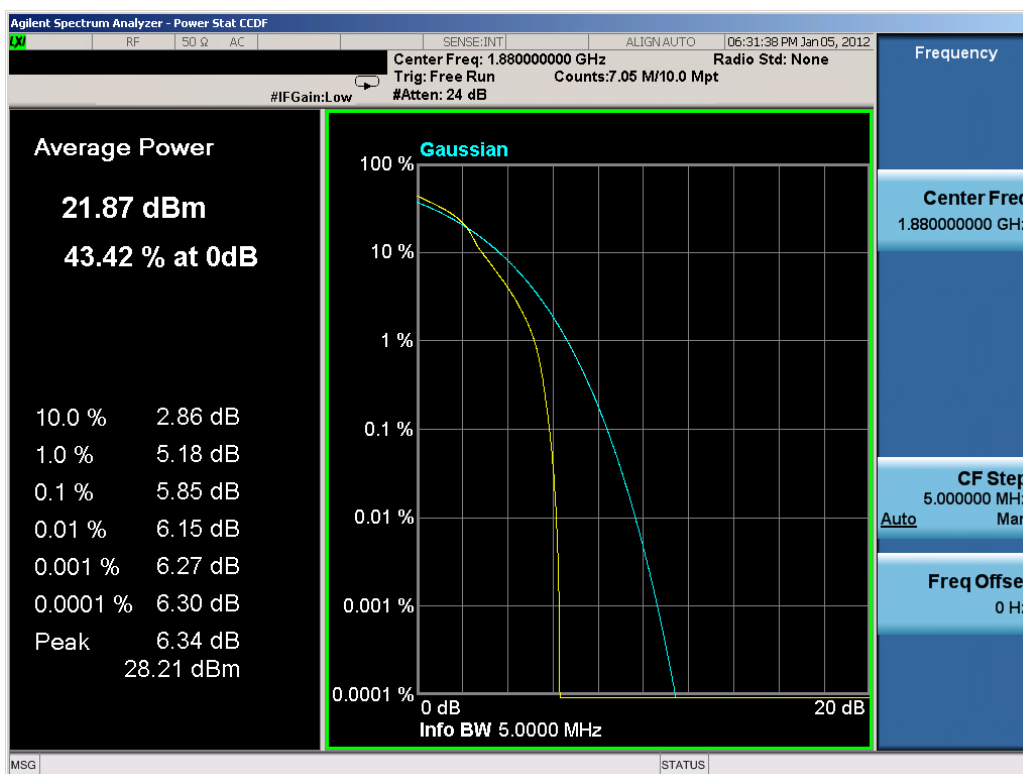


Plot 7-43. Occupied Bandwidth Plot (16-QAM – RB Size 25)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 51 of 85

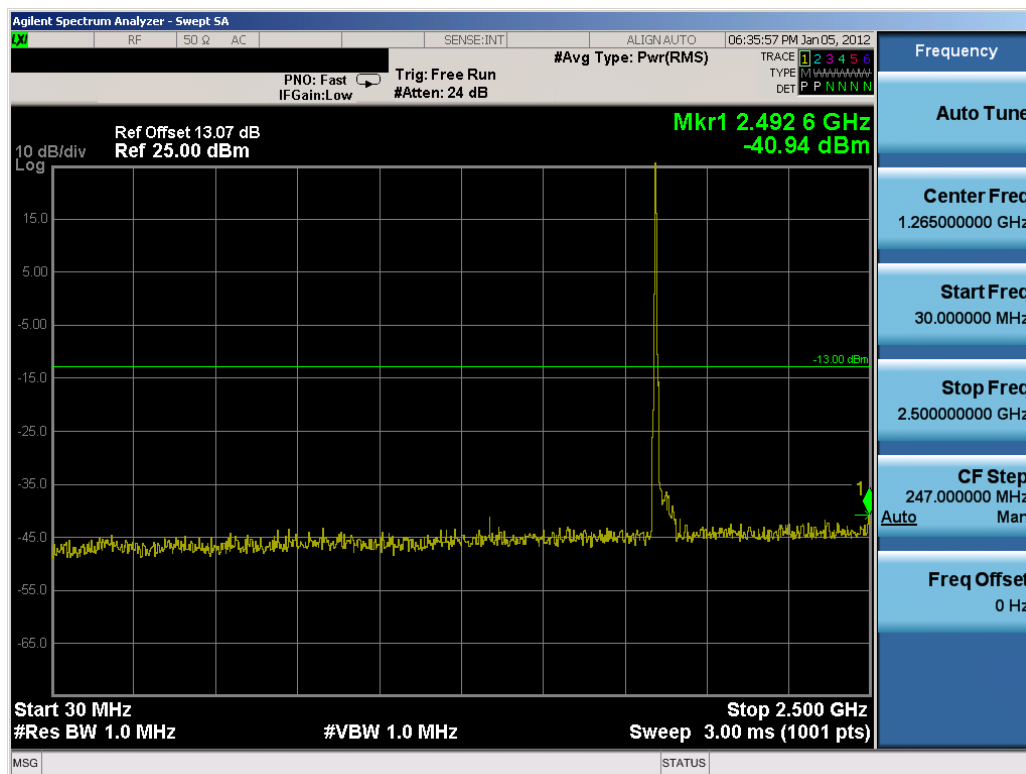


Plot 7-44. Peak to Average Ratio Plot (QPSK RB Size 1)

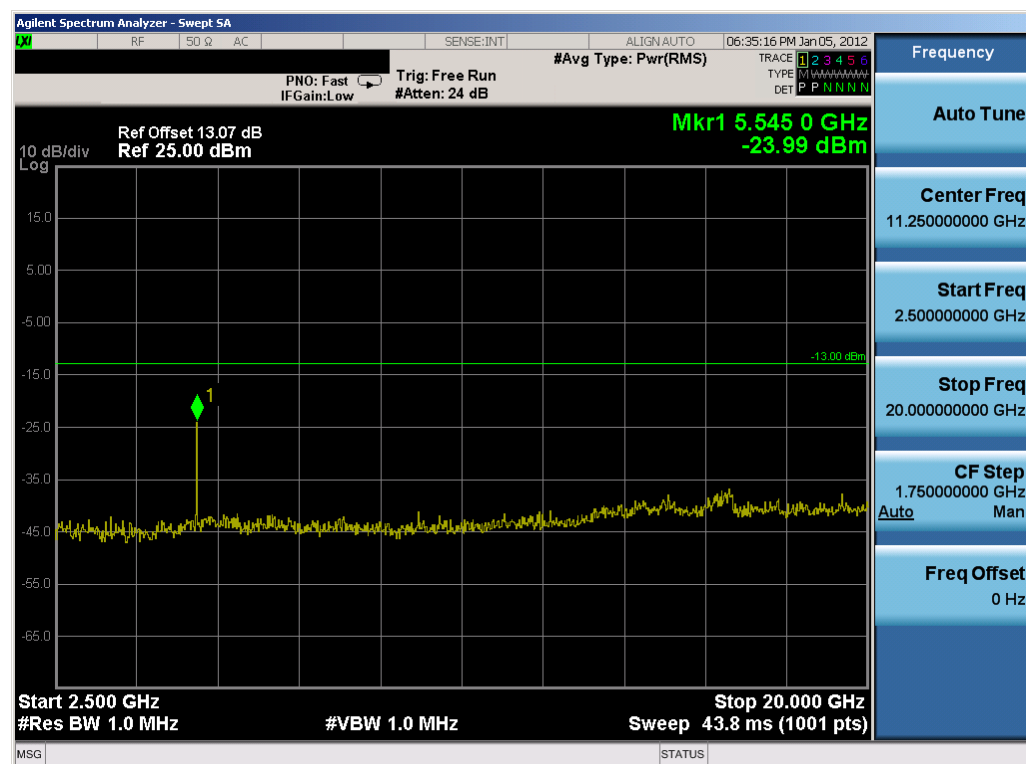


Plot 7-45. Peak to Average Ratio Plot (16QAM RB Size 1)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 52 of 85

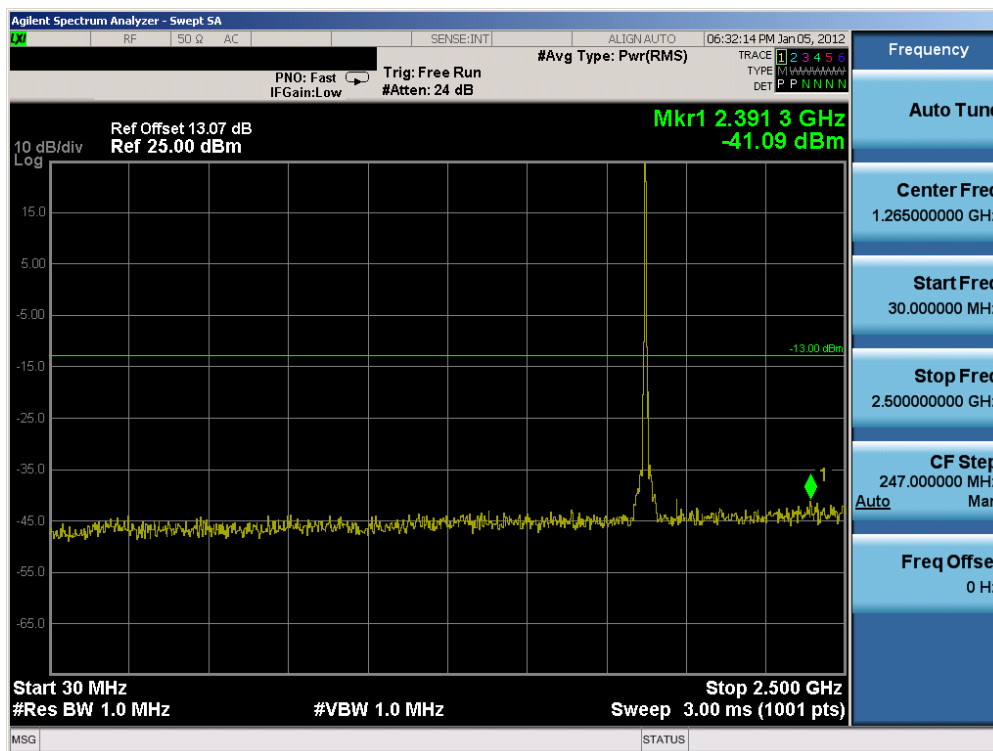


Plot 7-46. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

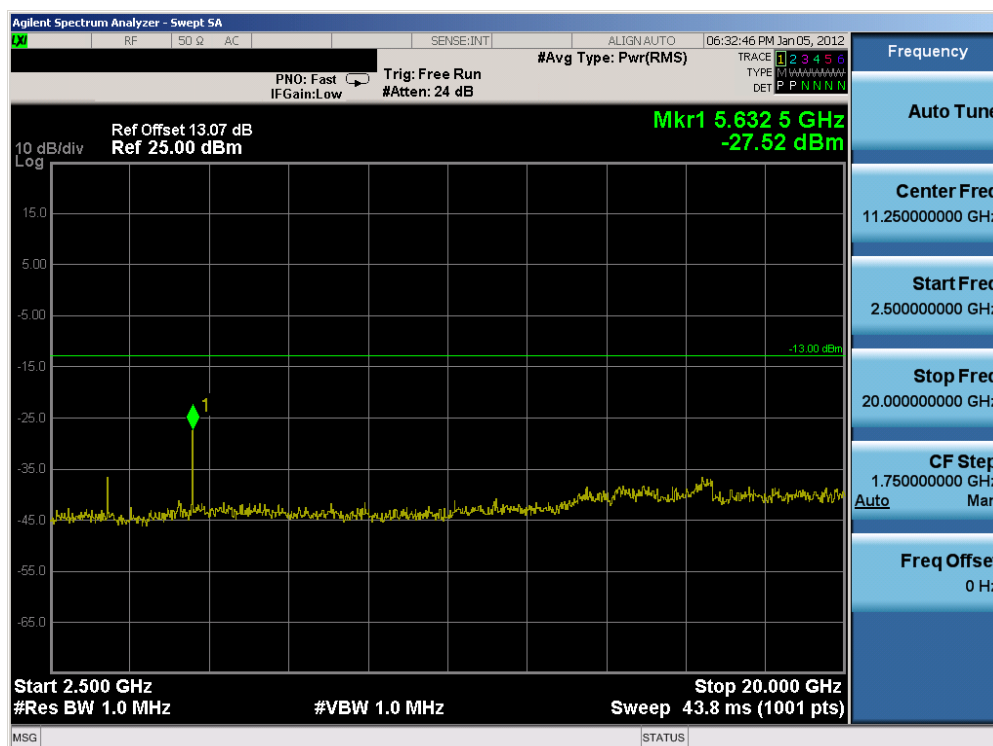


Plot 7-47. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSCHR940	 FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset	Page 53 of 85

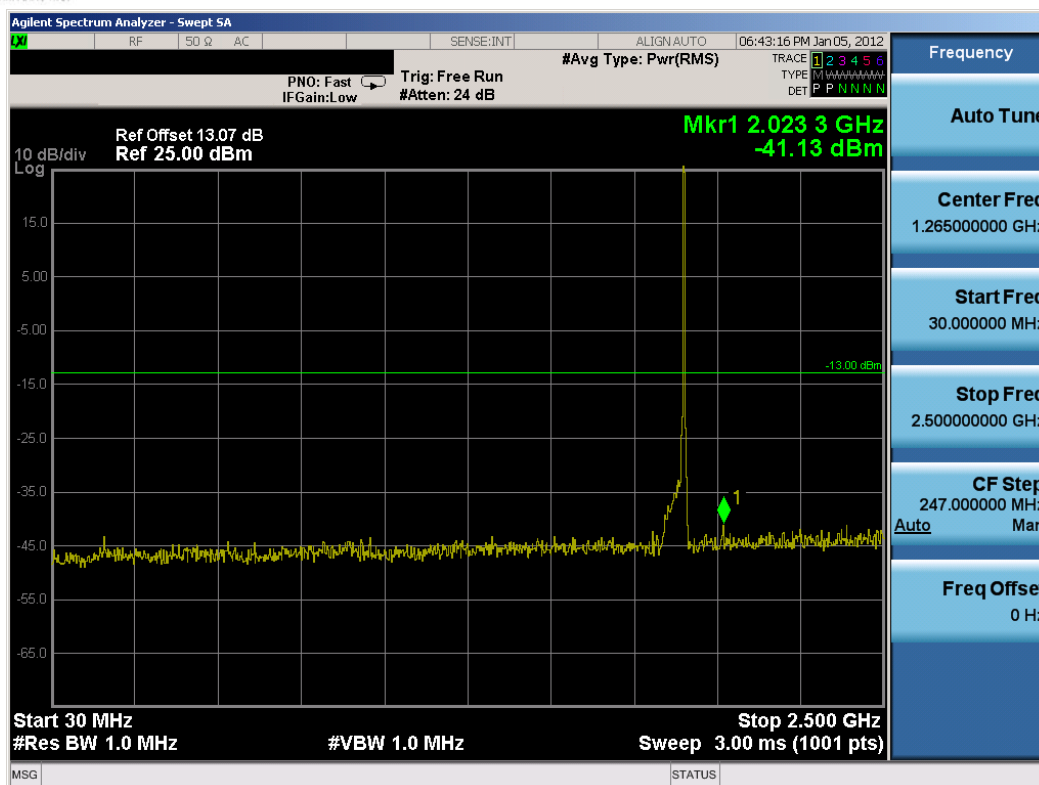


Plot 7-48. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

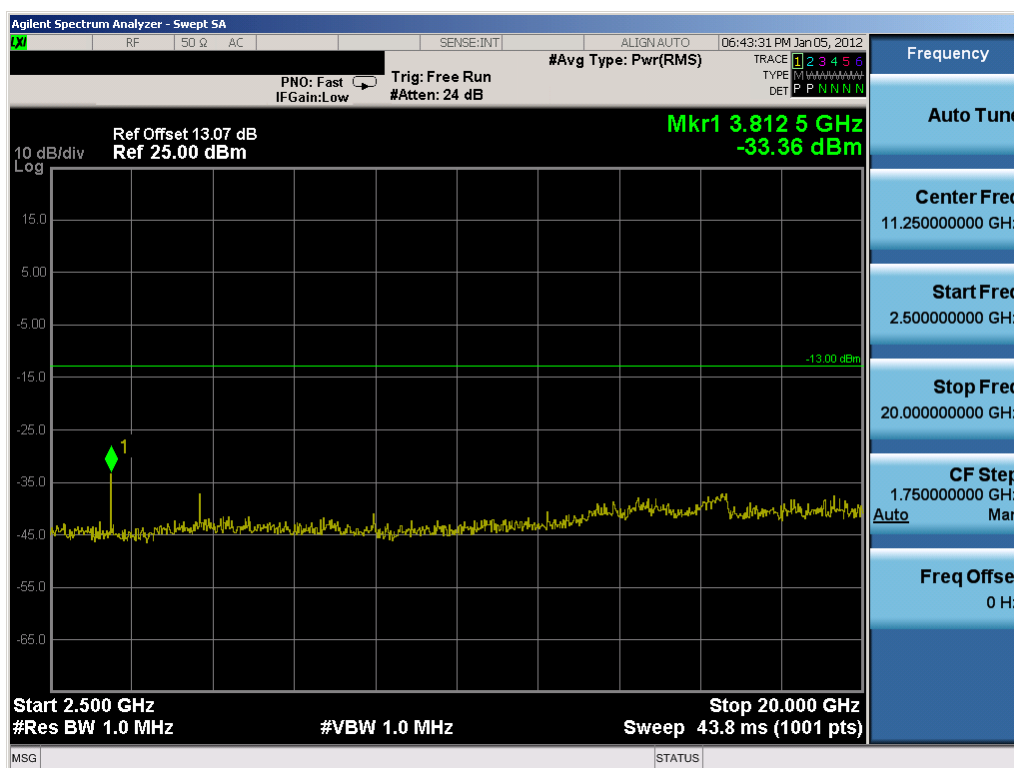


Plot 7-49. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSCHR940	 FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset	Page 54 of 85

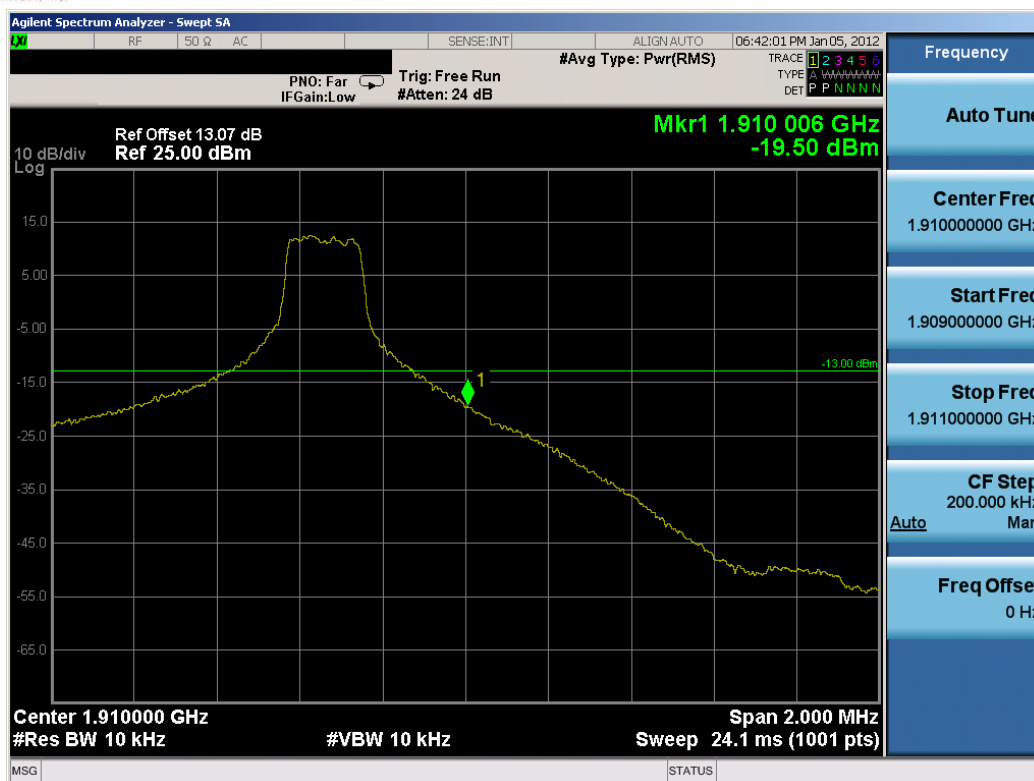


Plot 7-50. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

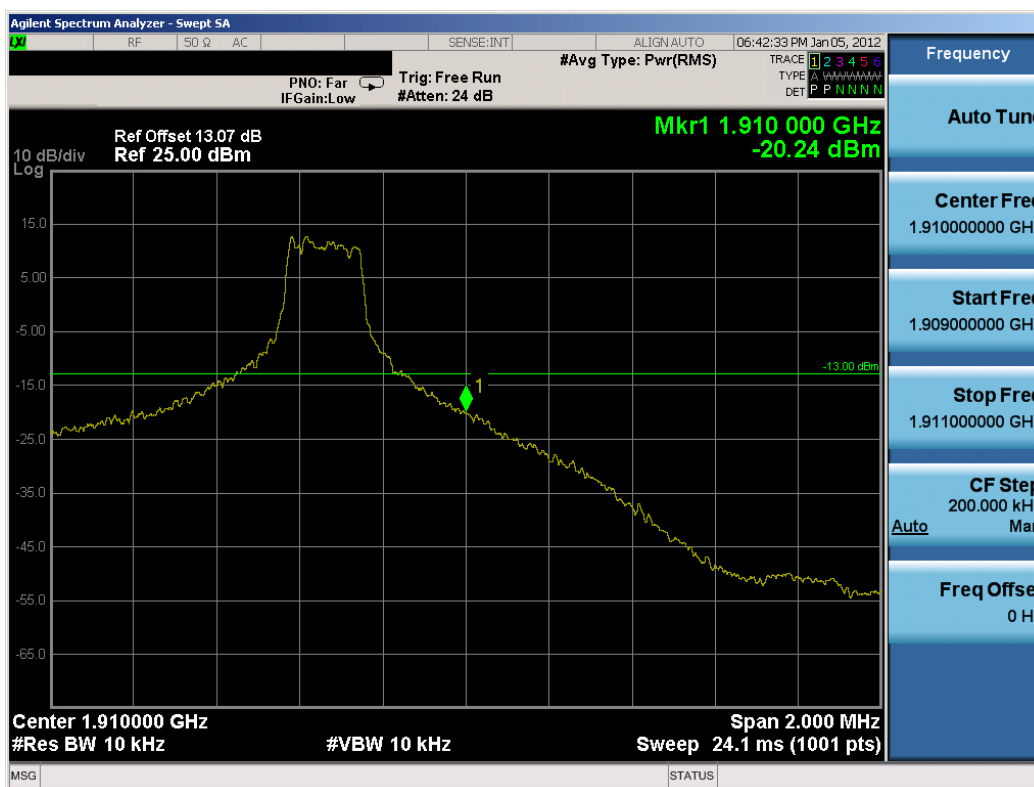


Plot 7-51. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 55 of 85

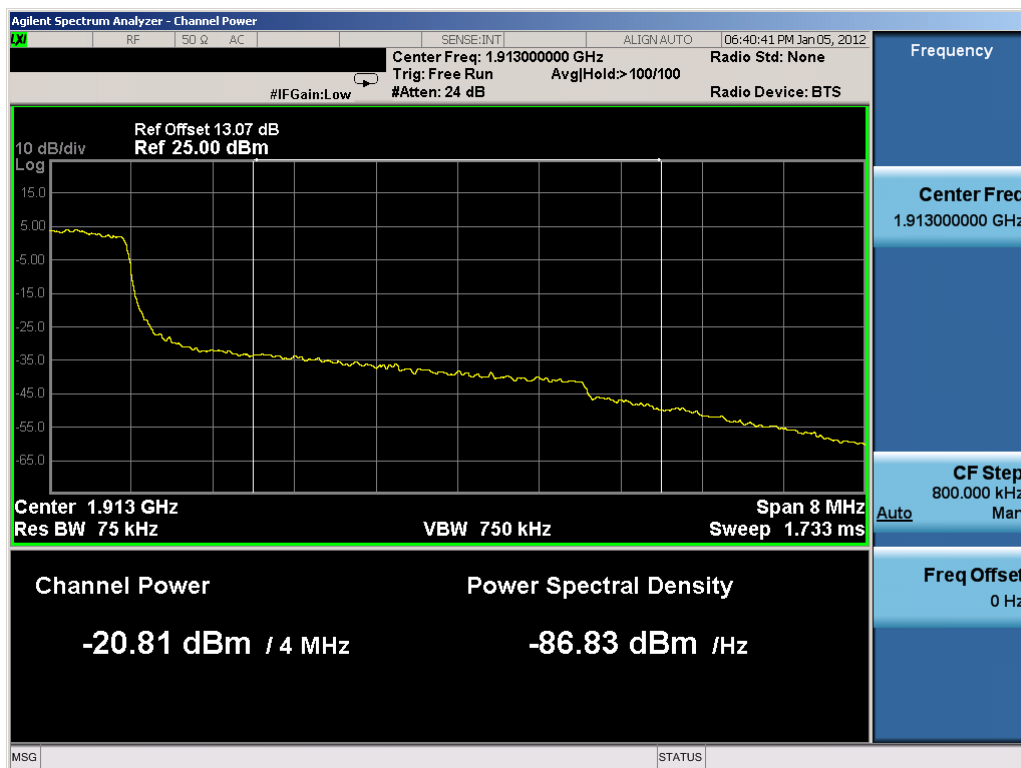


Plot 7-52. Upper Band Edge Plot (QPSK – RB Size 1, Offset 24)

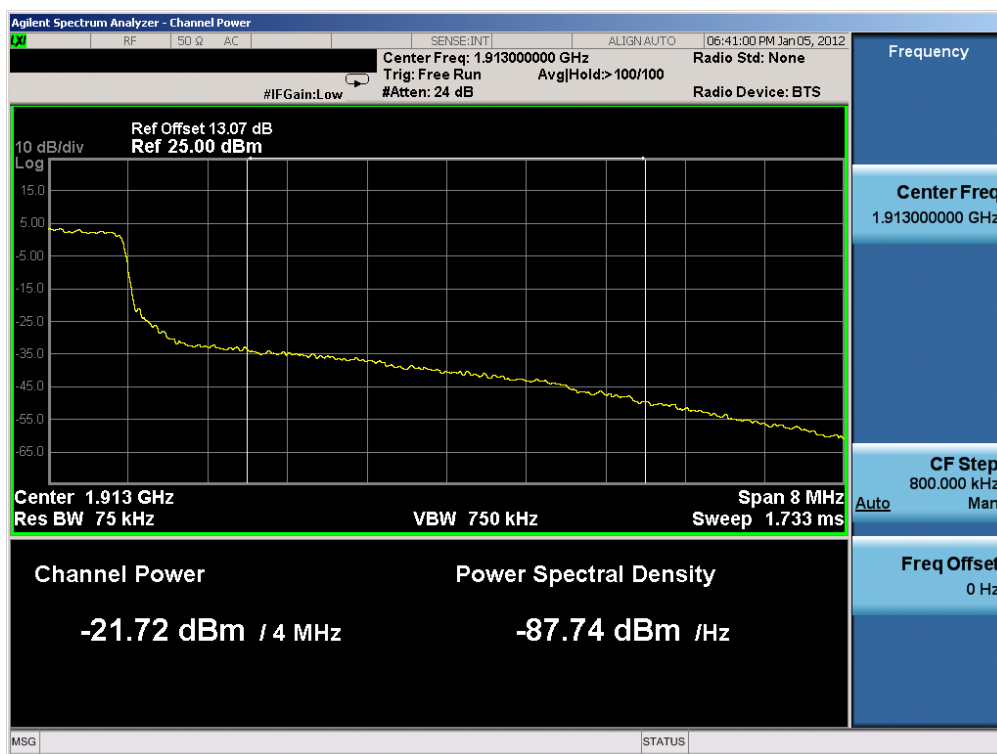


Plot 7-53. Upper Band Edge Plot (16-QAM – RB Size 1, Offset 24)

FCC ID: A3LSCHR940	 FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset	Page 56 of 85



Plot 7-54. Upper Emission Mask (1911-1915 MHz) Plot (QPSK – RB Size 25)



Plot 7-55. Upper Emission Mask (1911-1915 MHz) Plot (16-QAM – RB Size 25)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 57 of 85



FCC ID: A3LSCHR940	 FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset	Page 58 of 85

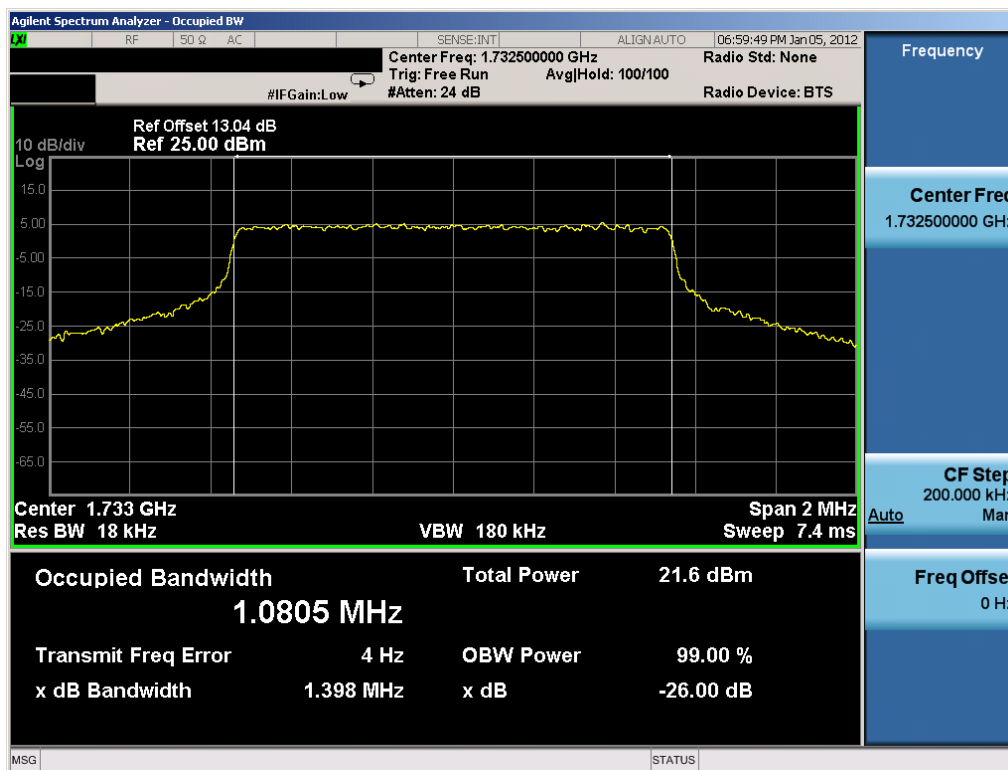


Plot 7-58. Lower Emission Mask (1705-1709 MHz) Plot (QPSK – RB Size 6)

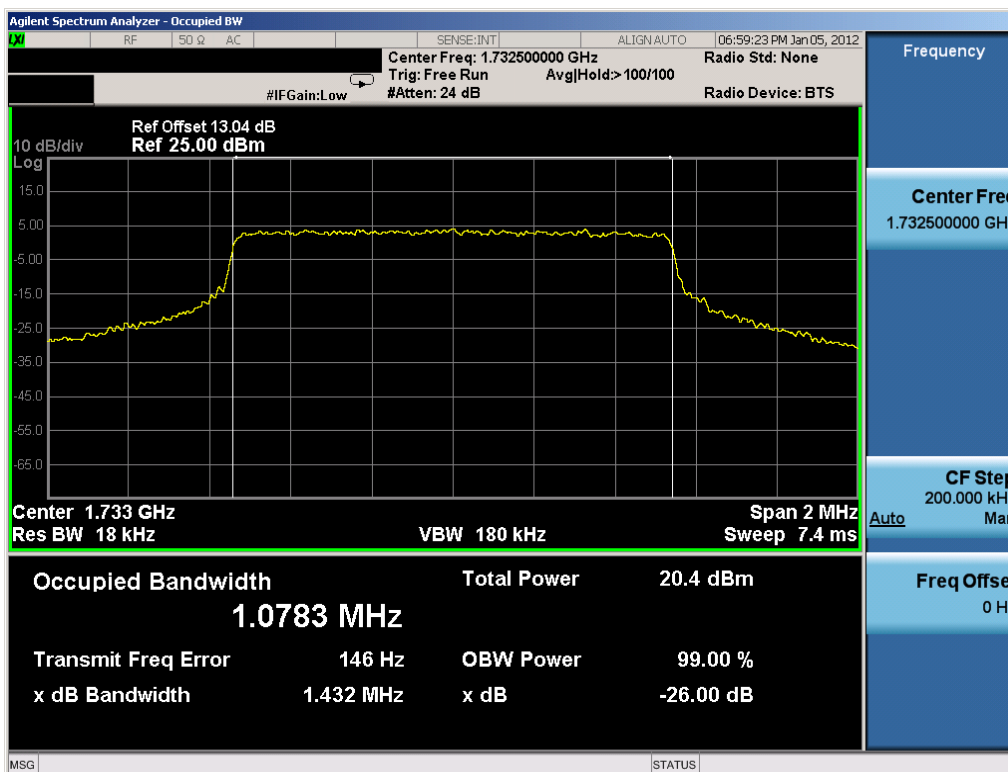


Plot 7-59. Lower Emission Mask (1705-1709 MHz) Plot (16-QAM – RB Size 6)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 59 of 85

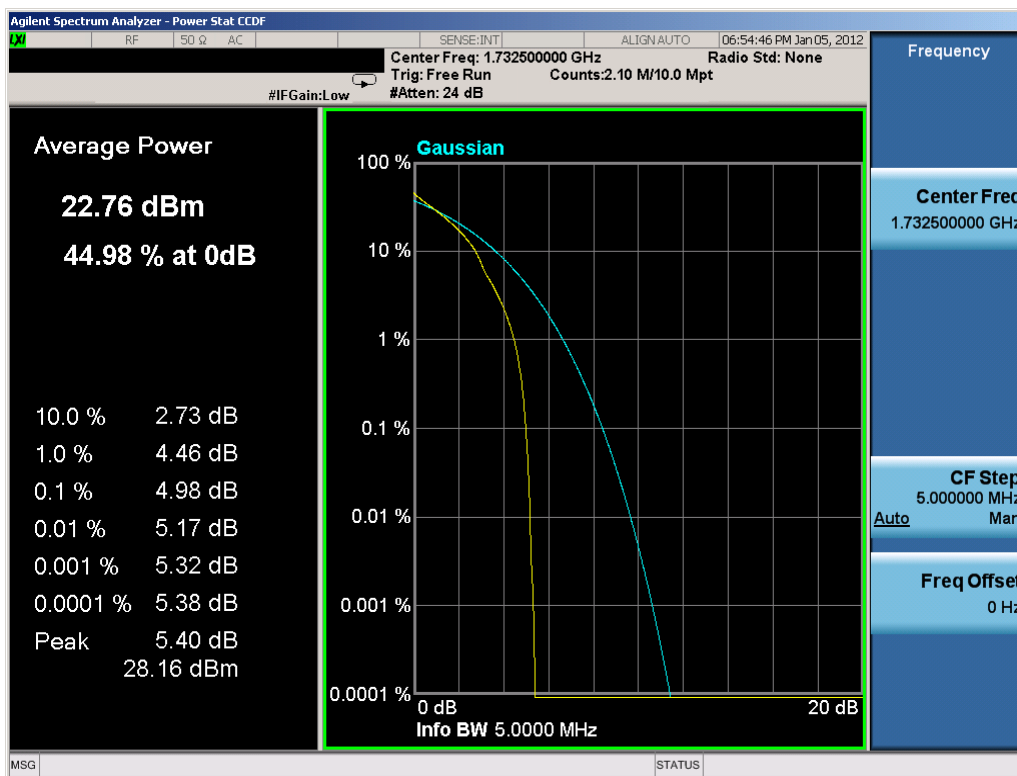


Plot 7-60. Occupied Bandwidth Plot (QPSK – RB Size 6)

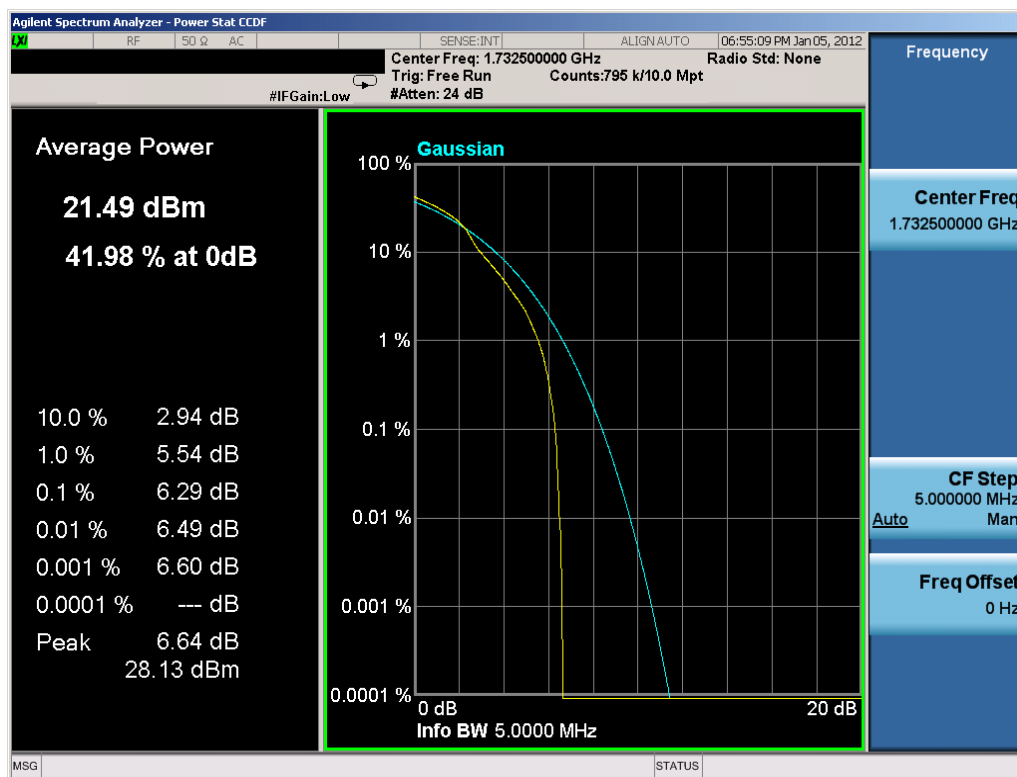


Plot 7-61. Occupied Bandwidth Plot (16-QAM – RB Size 6)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 60 of 85

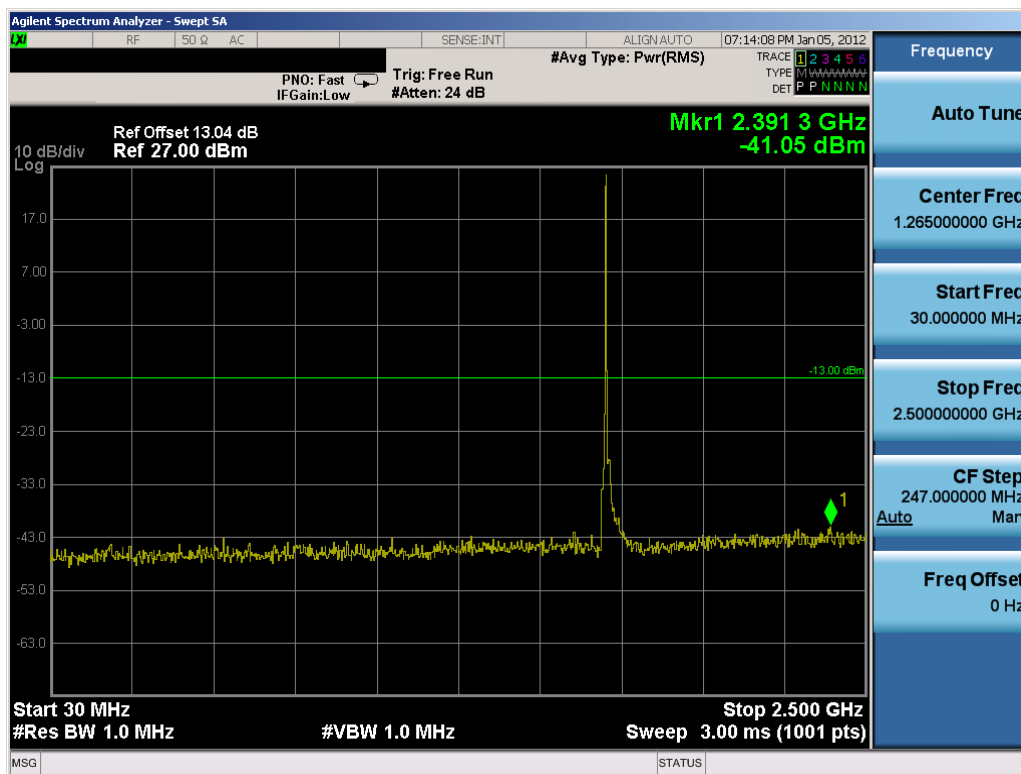


Plot 7-62. Peak to Average Ratio Plot (QPSK RB Size 1)

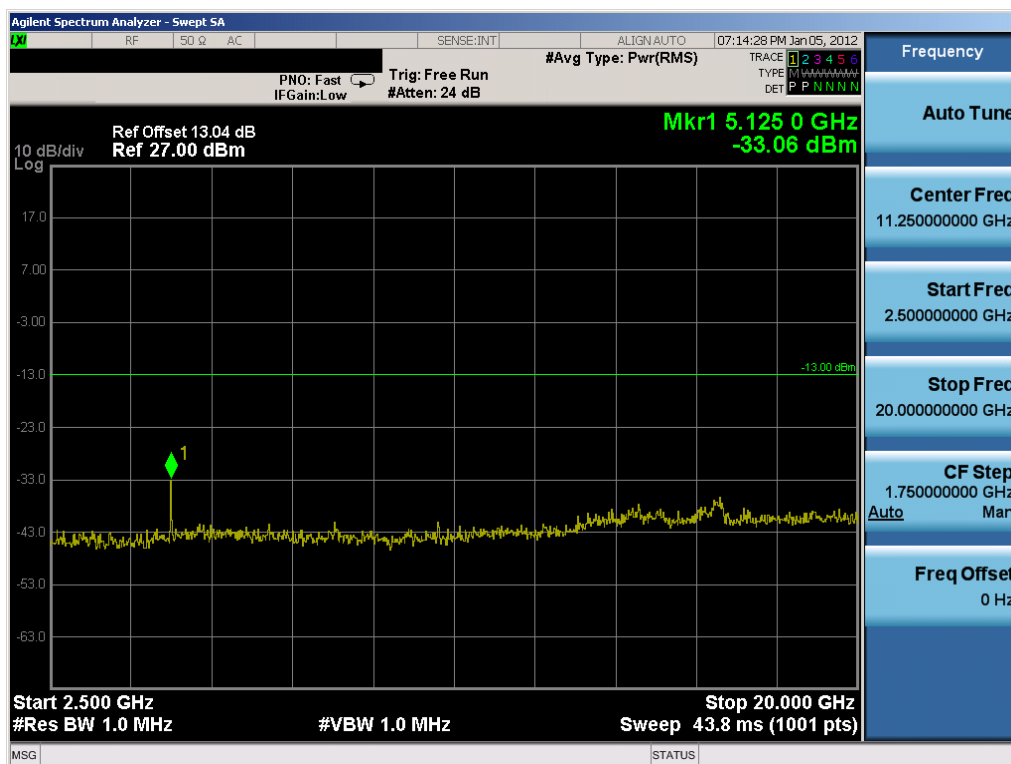


Plot 7-63. Peak to Average Ratio Plot (16QAM RB Size 1)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 61 of 85

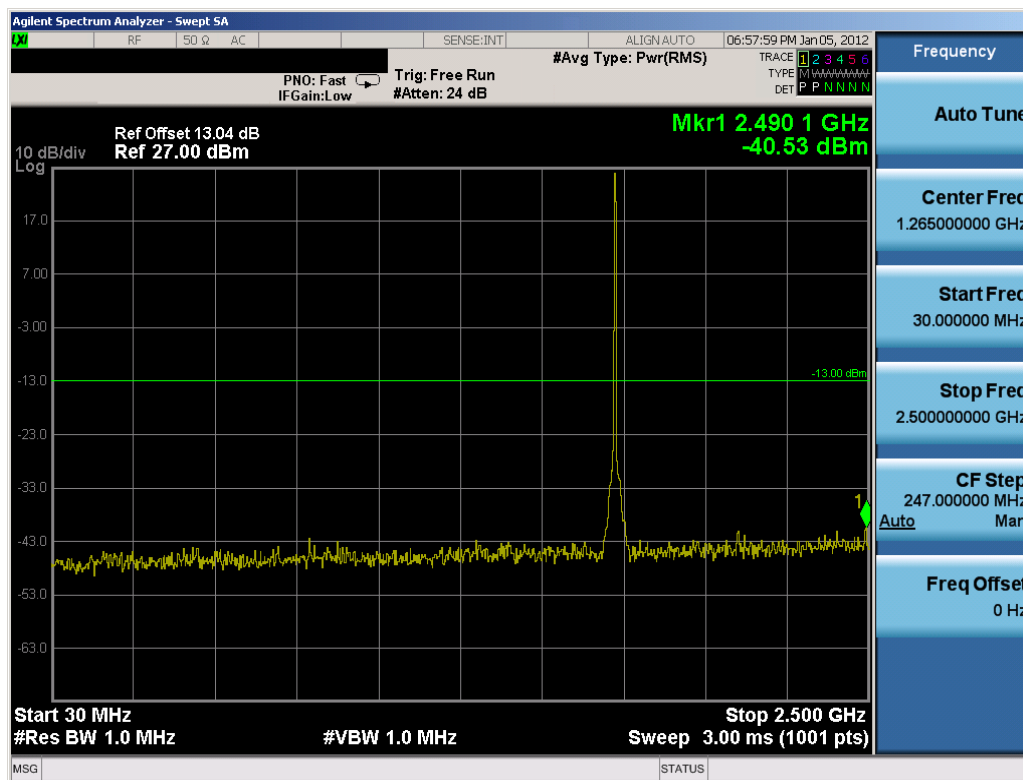


Plot 7-64. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

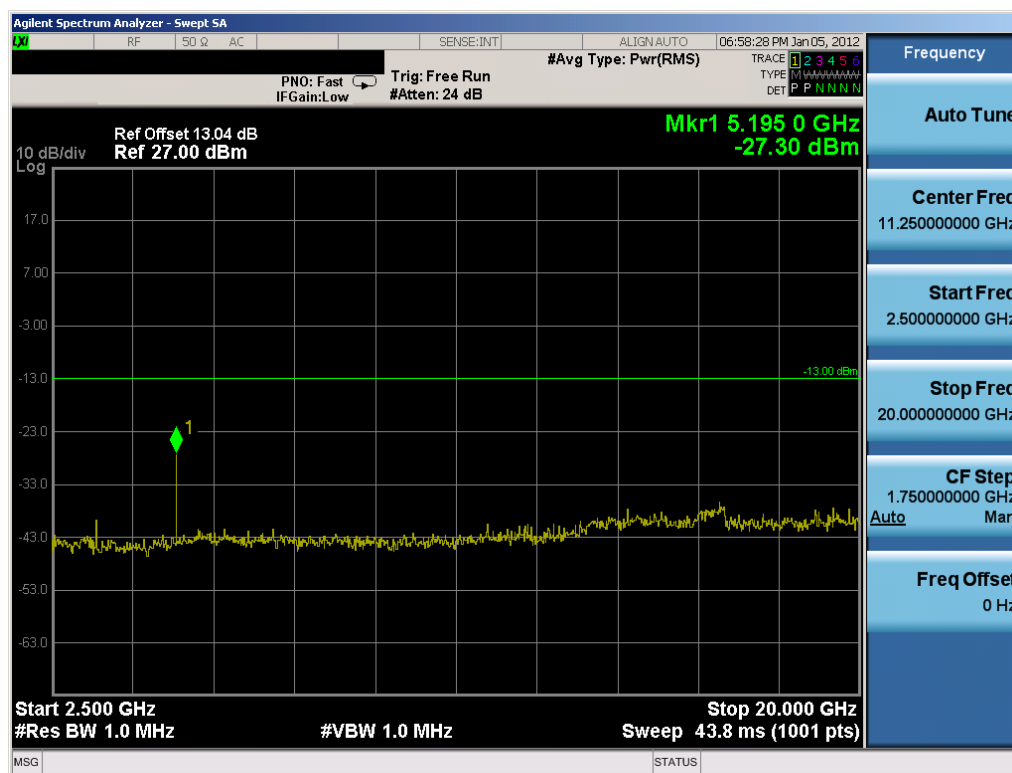


Plot 7-65. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 62 of 85

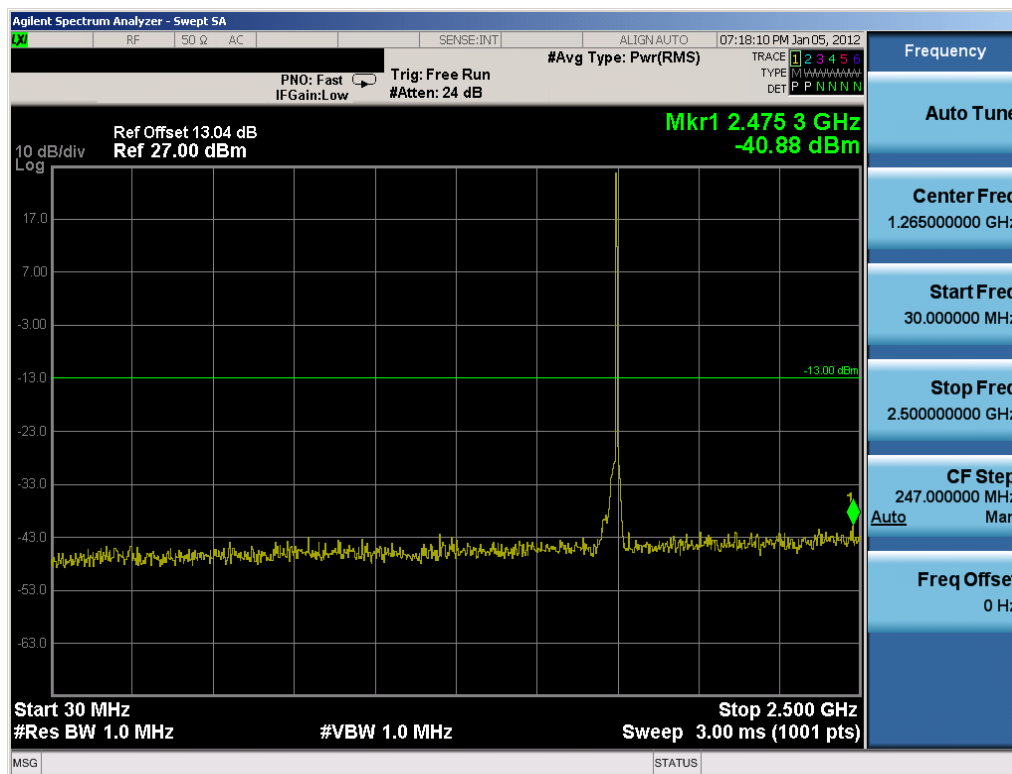


Plot 7-66. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

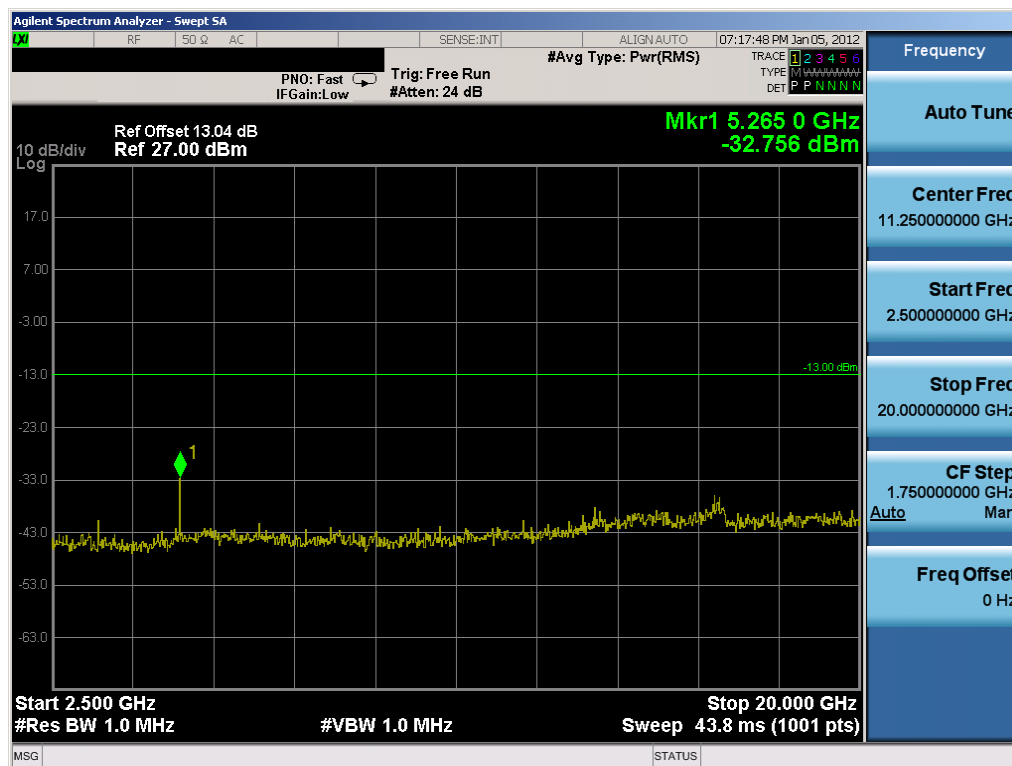


Plot 7-67. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSCHR940	 FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset	Page 63 of 85

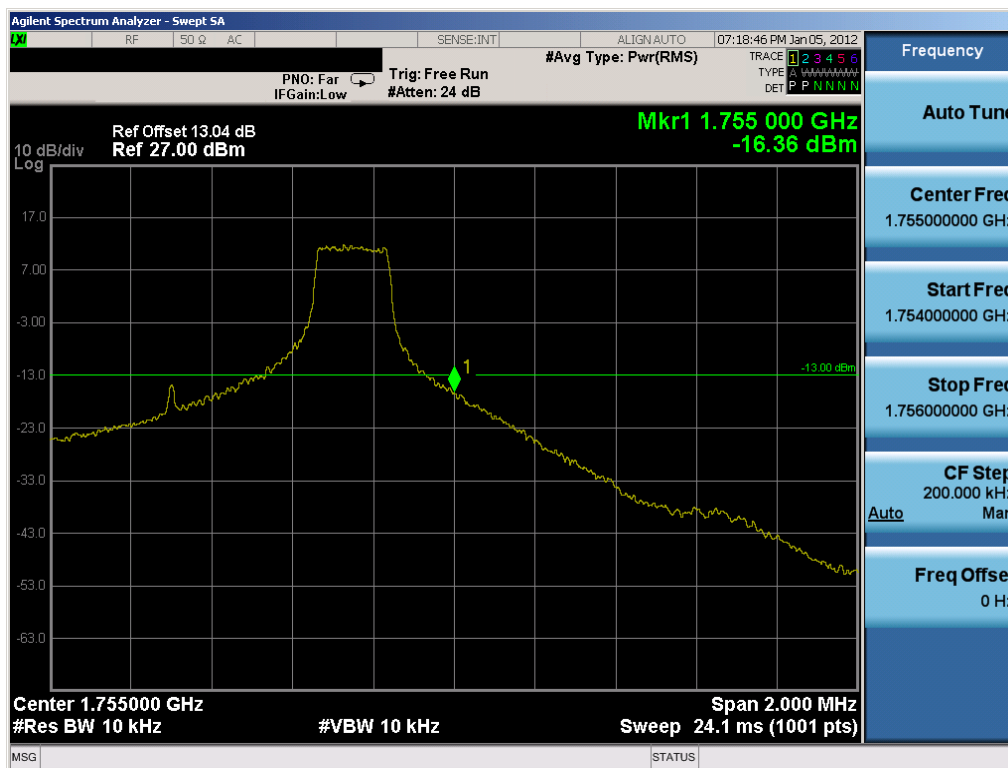


Plot 7-68. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

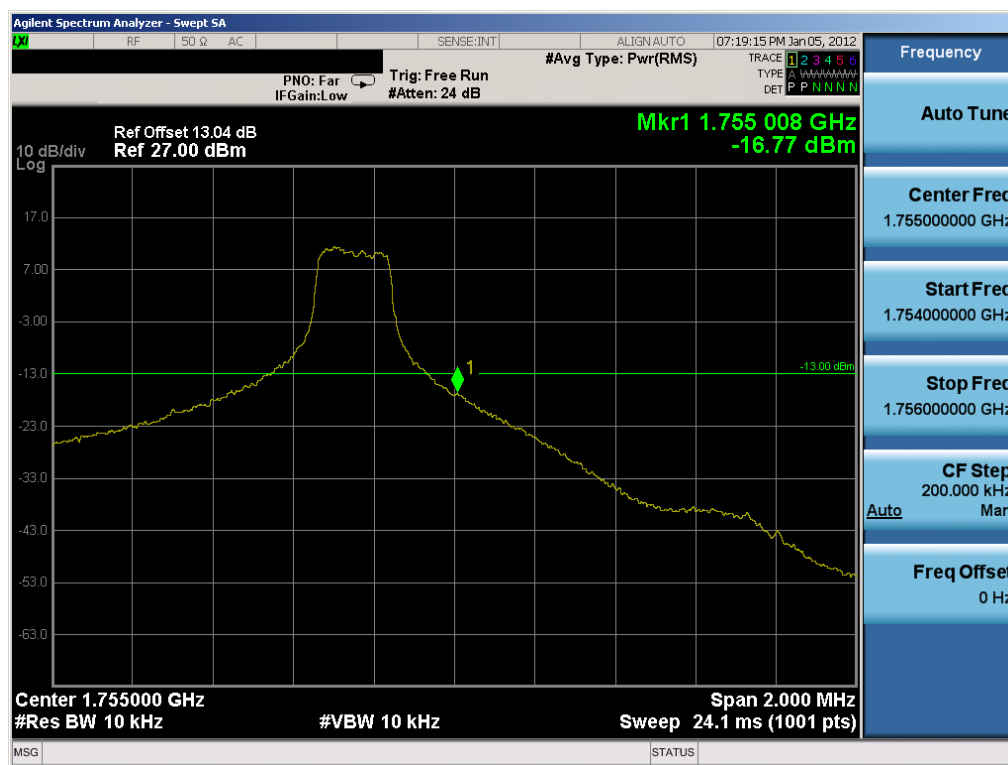


Plot 7-69. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 64 of 85

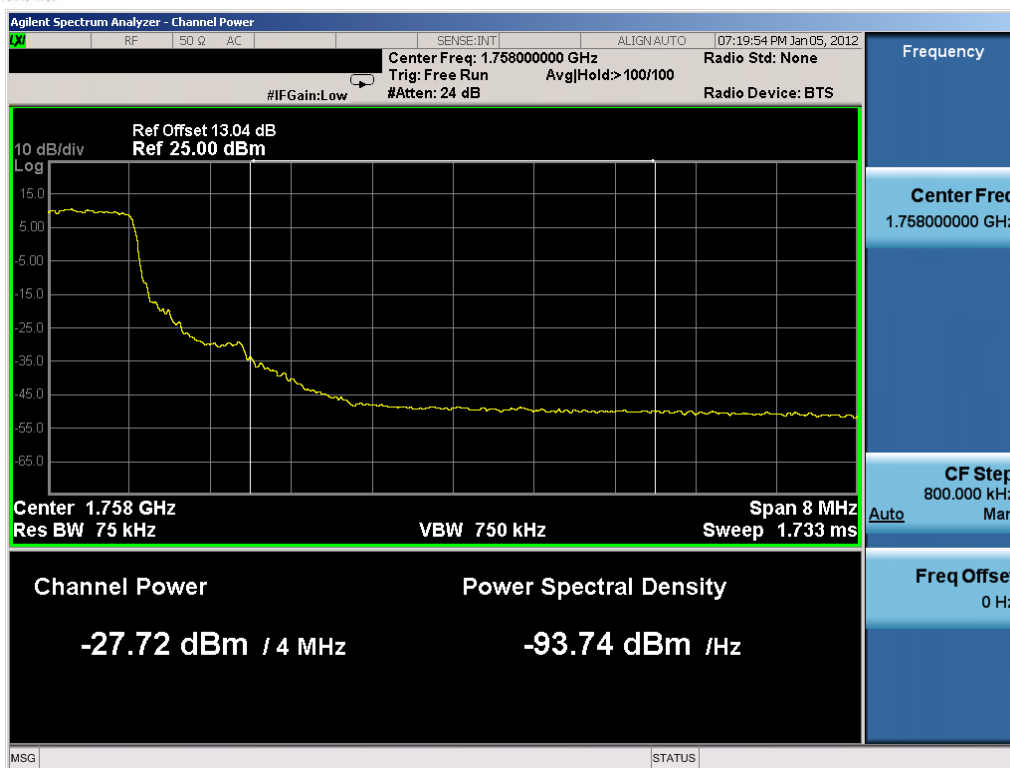


Plot 7-70. Upper Band Edge Plot (QPSK - RB Size 1, Offset 5)

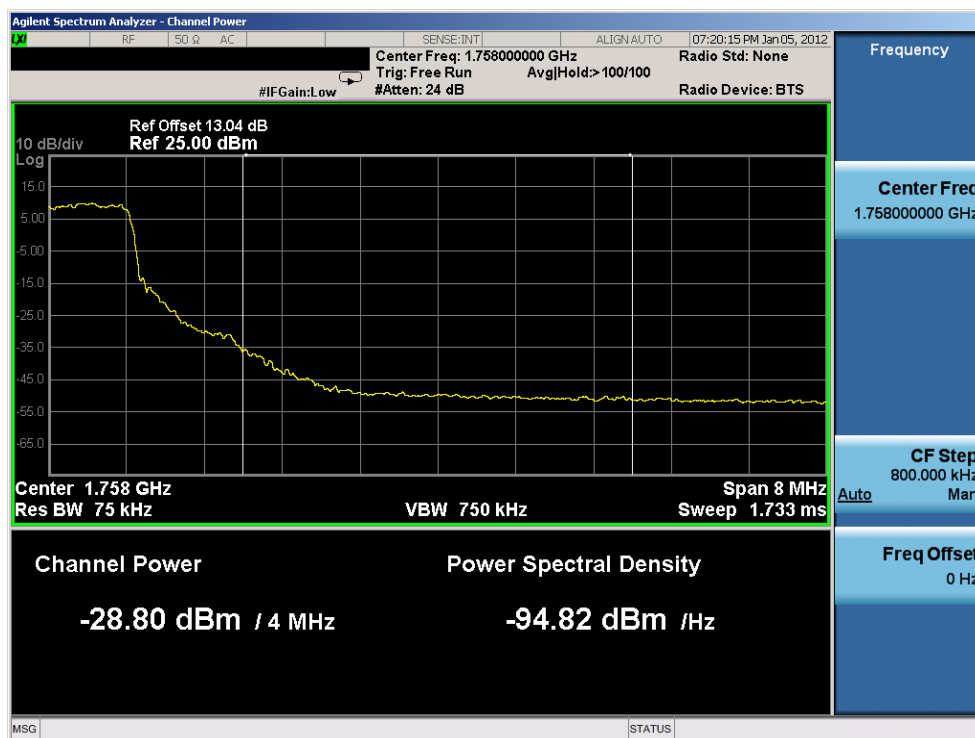


Plot 7-71. Upper Band Edge Plot (16-QAM - RB Size 1, Offset 5)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 65 of 85



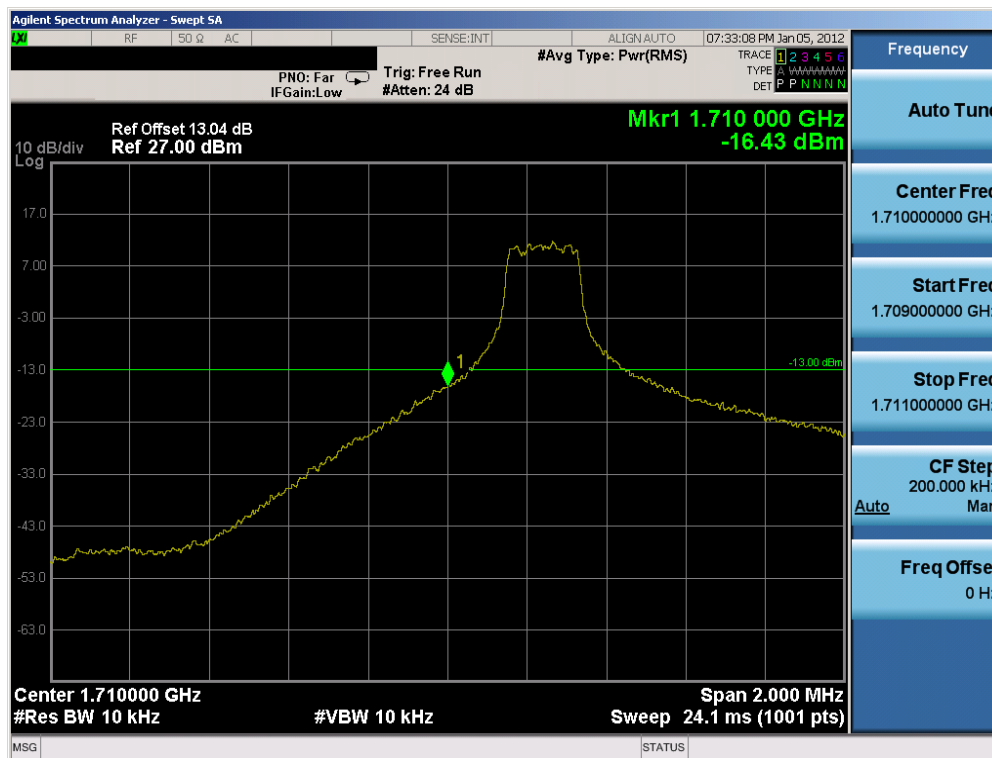
Plot 7-72. Upper Emission Mask (1756-1760 MHz) Plot (QPSK – RB Size 6)



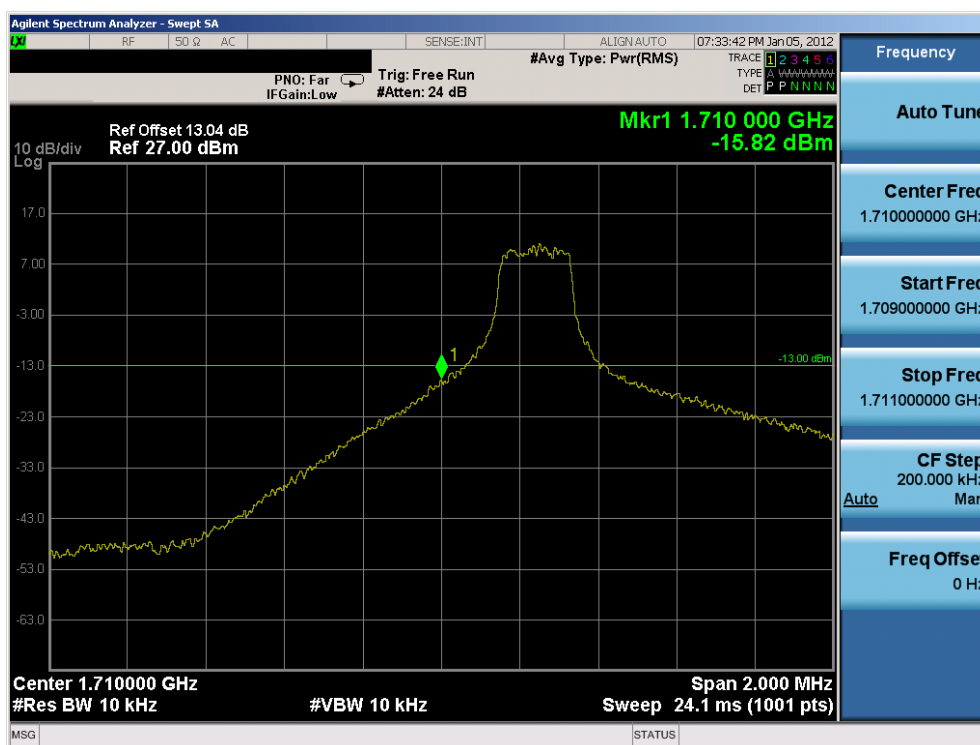
Plot 7-73. Upper Emission Mask (1756-1760 MHz) Plot (16-QAM – RB Size 6)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 66 of 85

3MHz

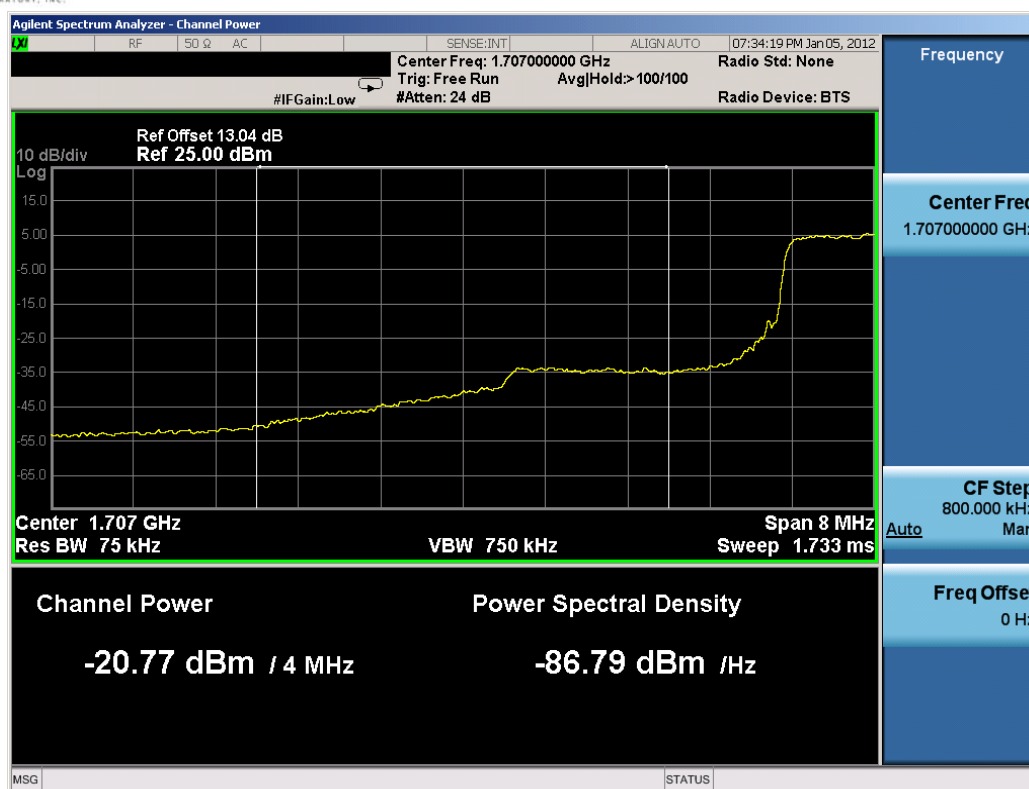


Plot 7-74. Lower Band Edge Plot (QPSK – RB Size 1, Offset 0)

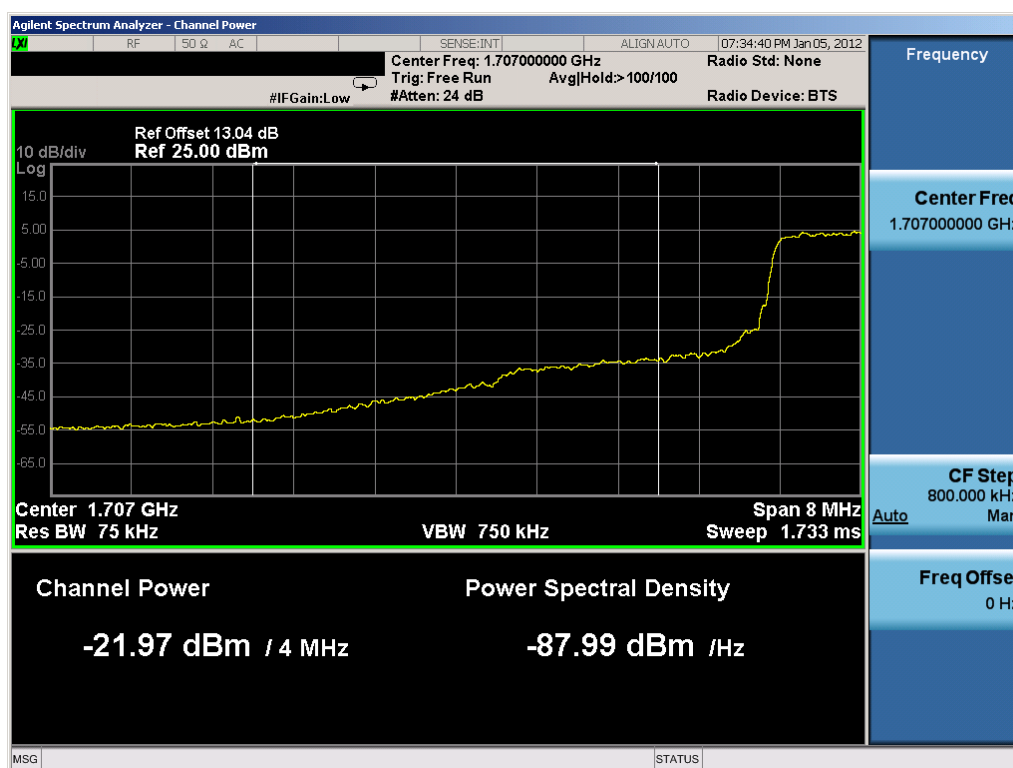


Plot 7-75. Lower Band Edge Plot (16-QAM – RB Size 1, Offset 0)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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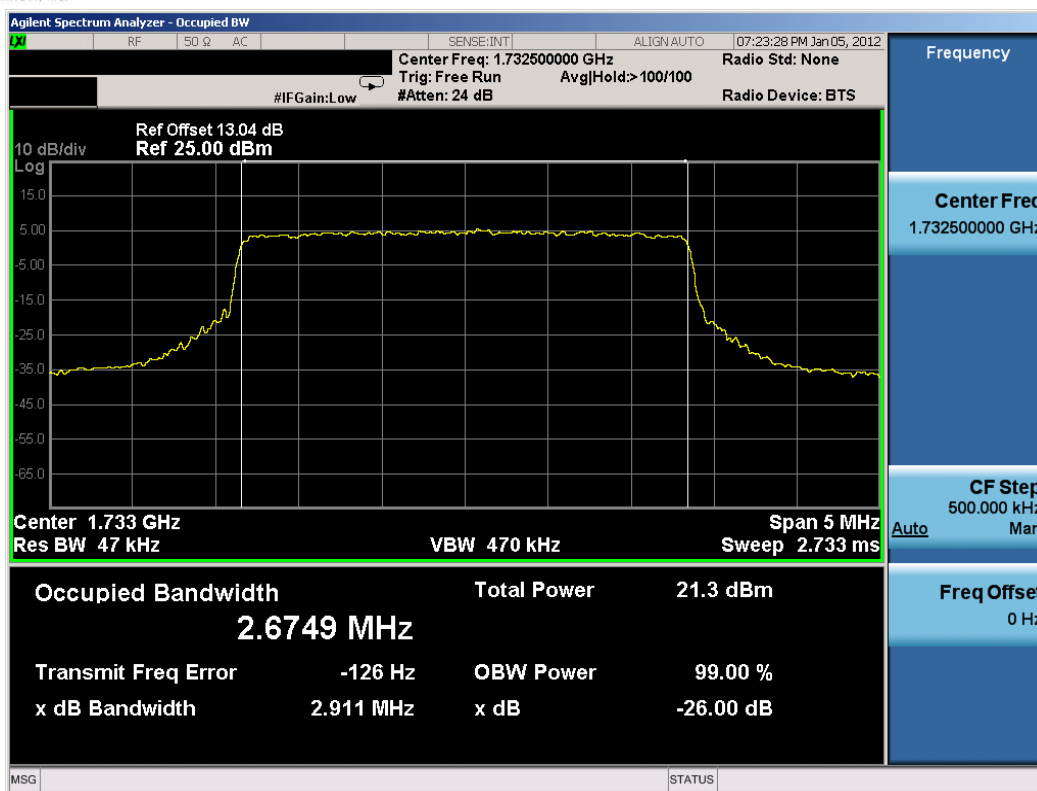


Plot 7-76. Lower Emission Mask (1705-1709 MHz) Plot (QPSK – RB Size 15)

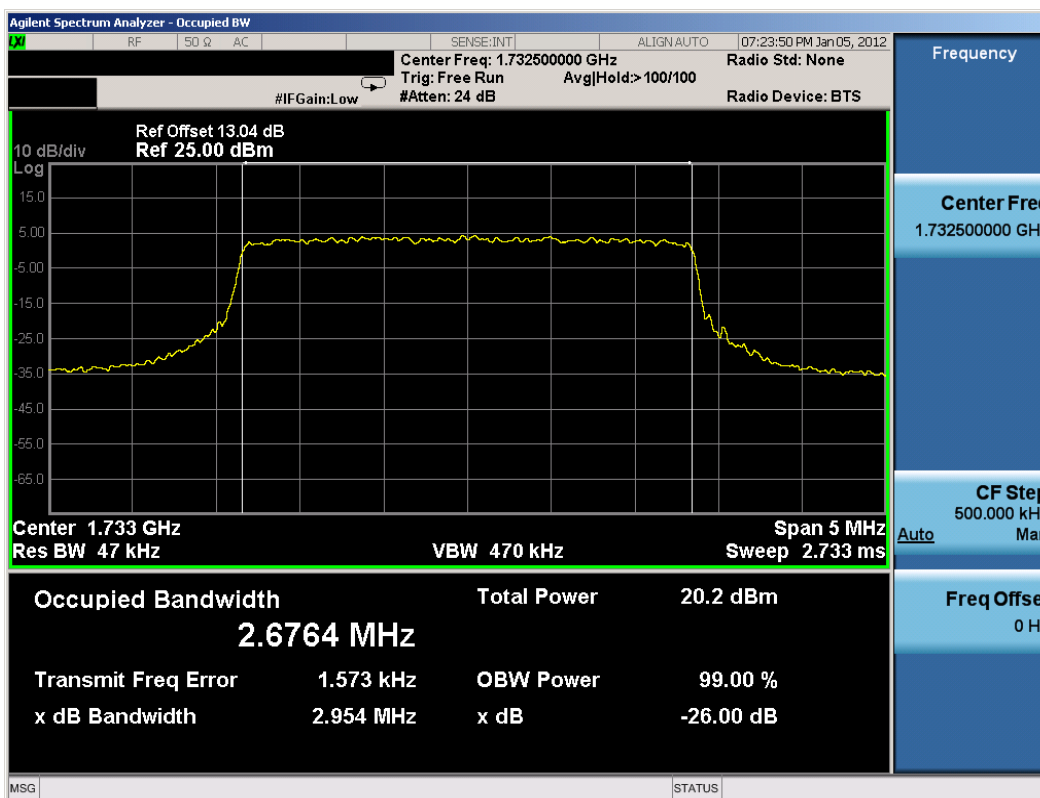


Plot 7-77. Lower Emission Mask (1705-1709 MHz) Plot (16-QAM – RB Size 15)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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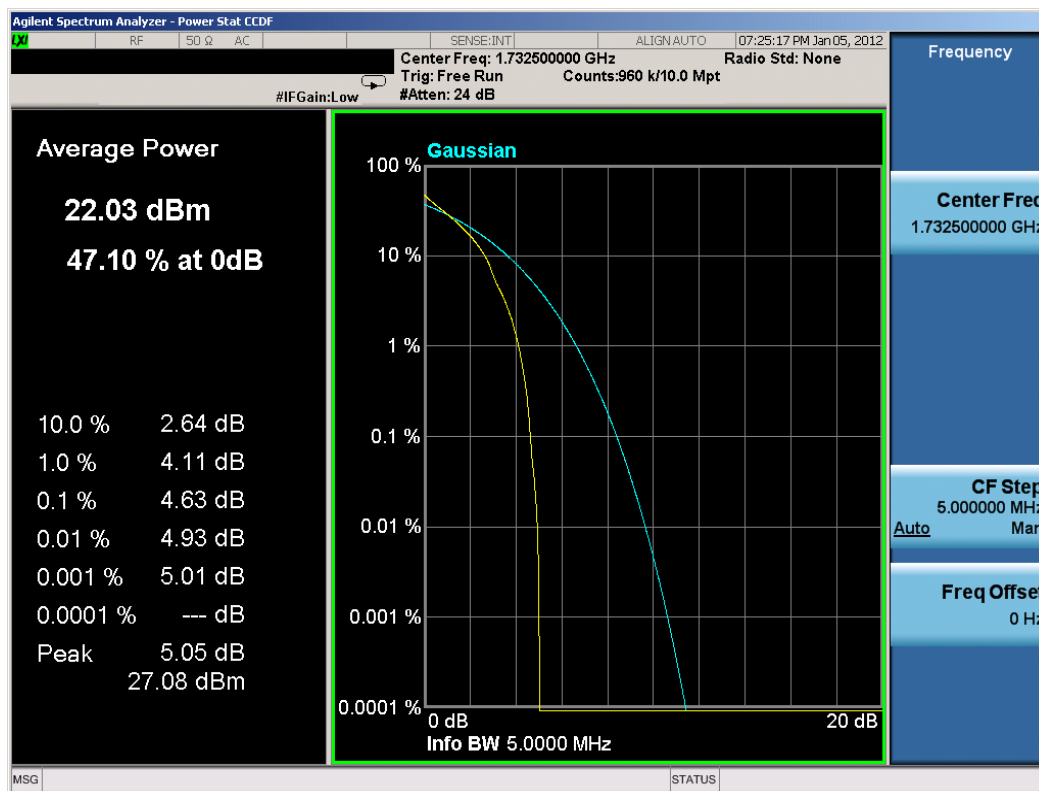


Plot 7-78. Occupied Bandwidth Plot (QPSK – RB Size 15)

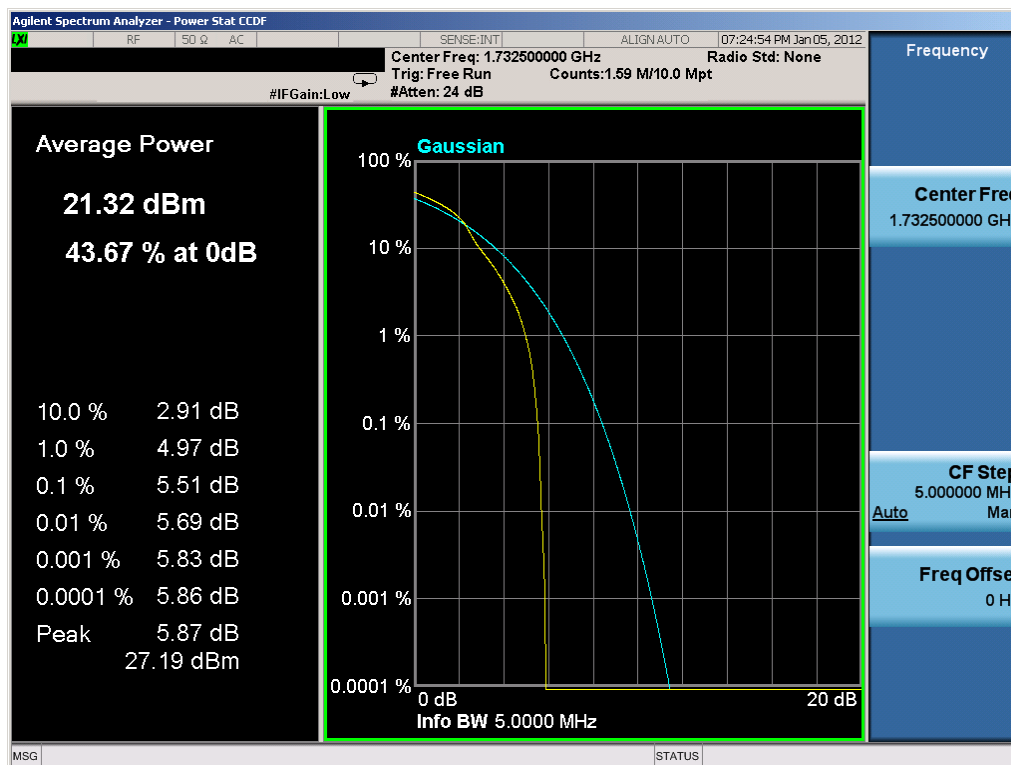


Plot 7-79. Occupied Bandwidth Plot (16-QAM – RB Size 15)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 69 of 85

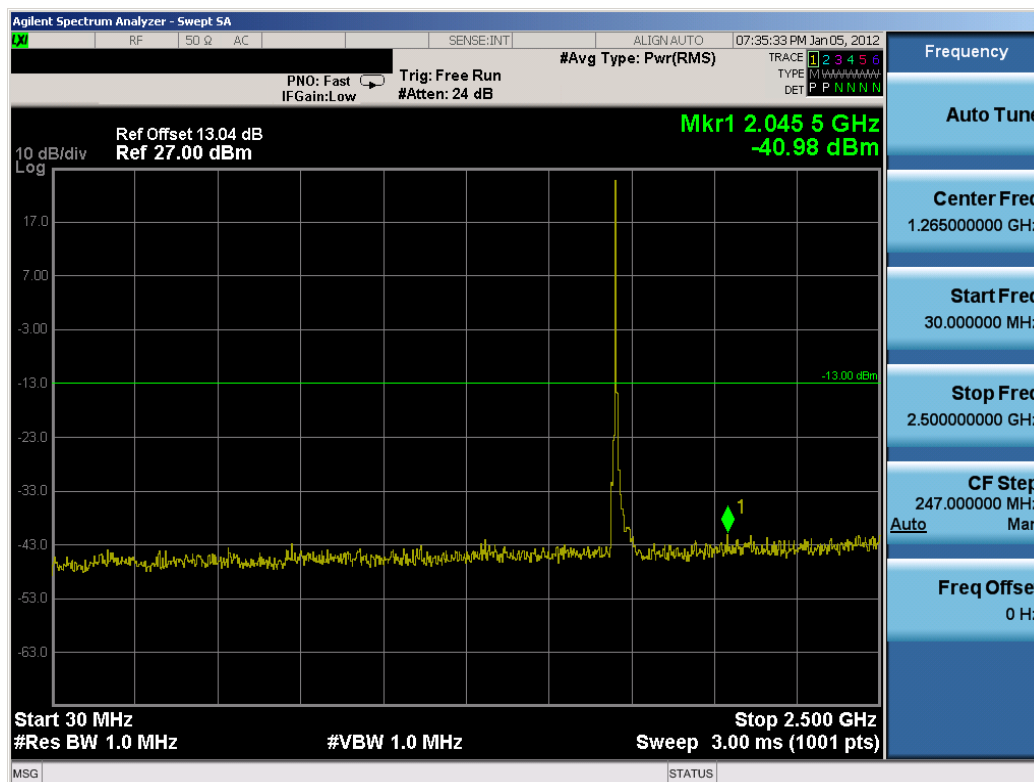


Plot 7-80. Peak to Average Ratio Plot (QPSK RB Size 1)

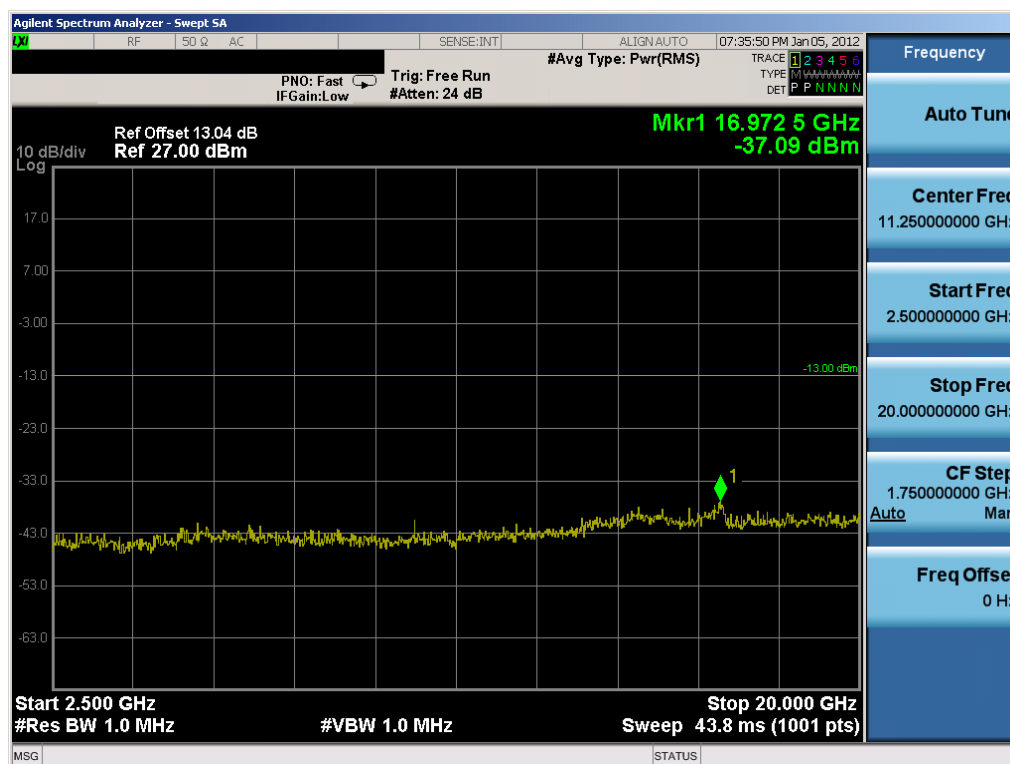


Plot 7-81. Peak to Average Ratio Plot (16QAM RB Size 1)

FCC ID: A3LSCHR940			FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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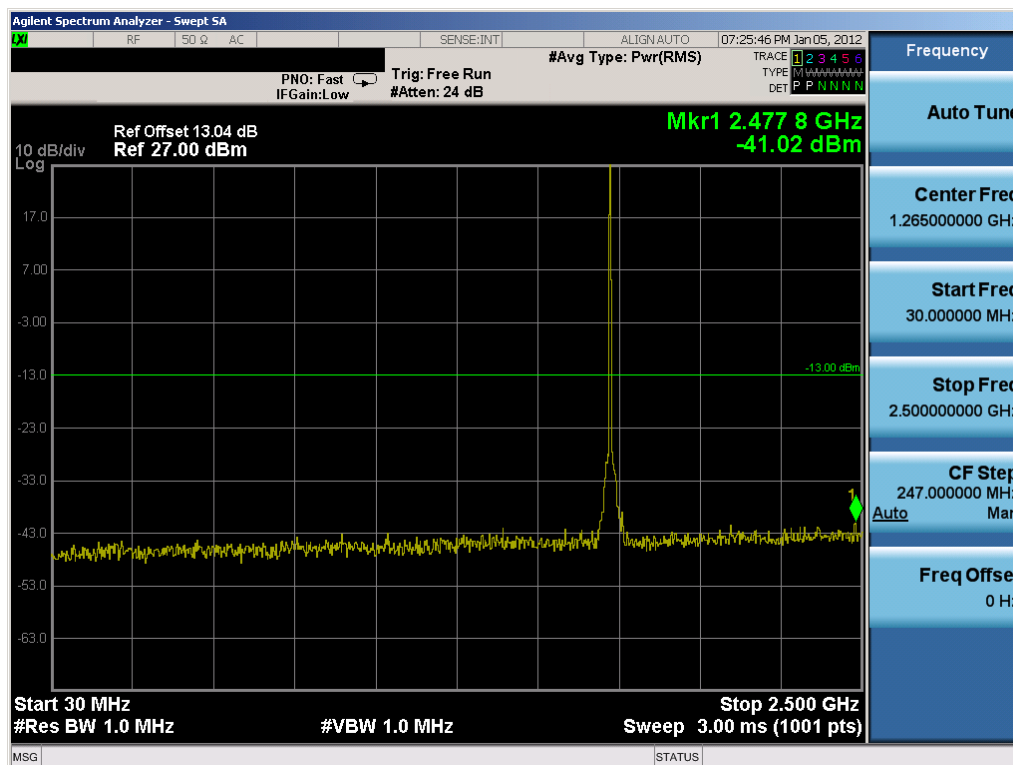


Plot 7-82. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

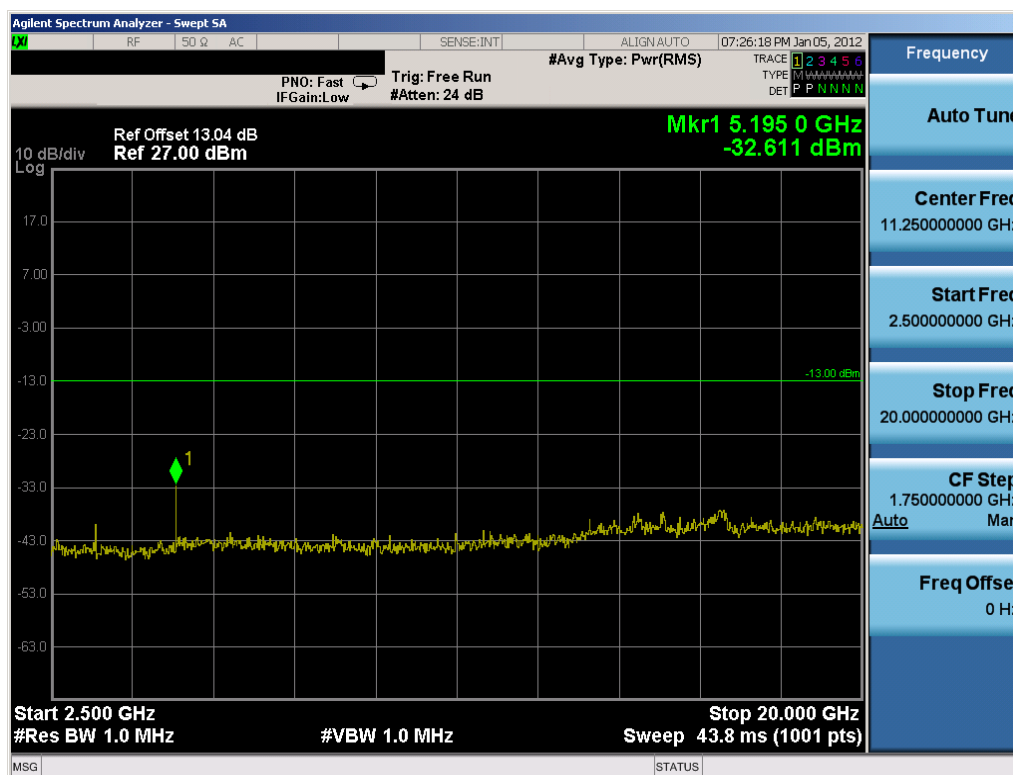


Plot 7-83. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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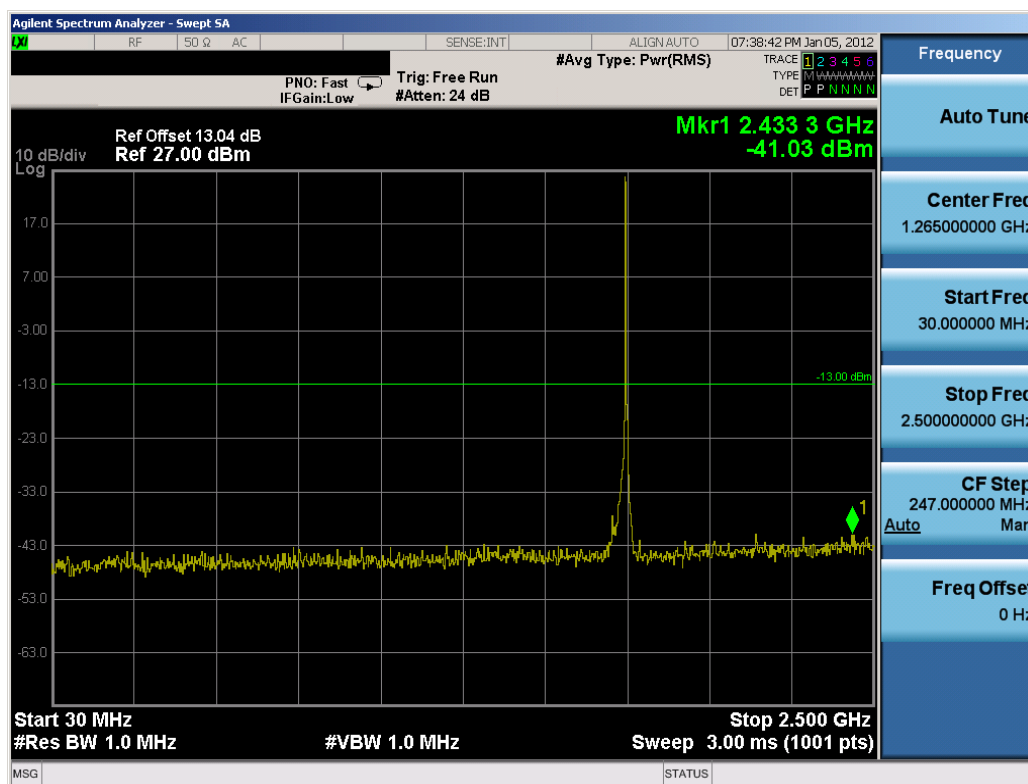


Plot 7-84. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

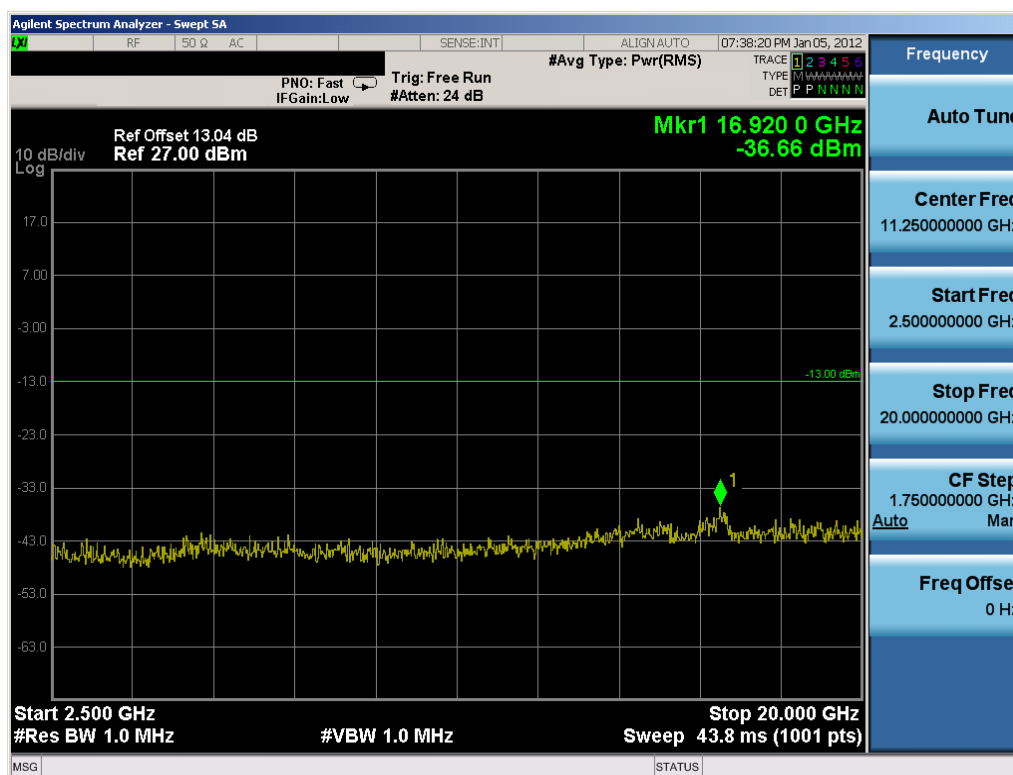


Plot 7-85. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 72 of 85

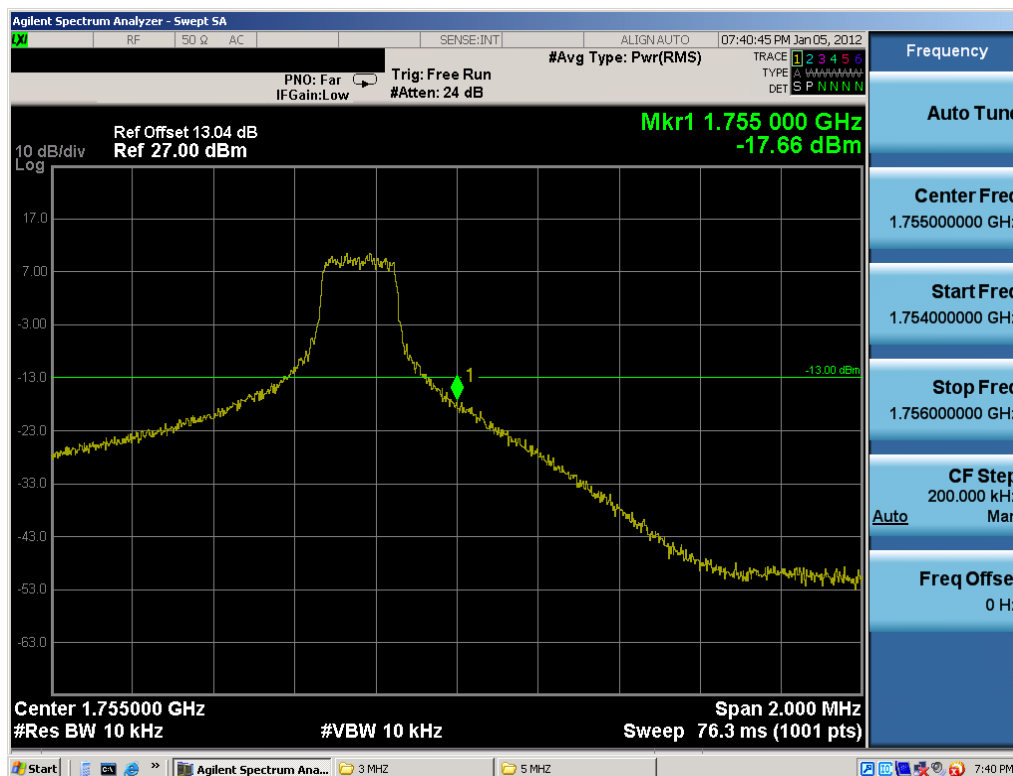


Plot 7-86. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

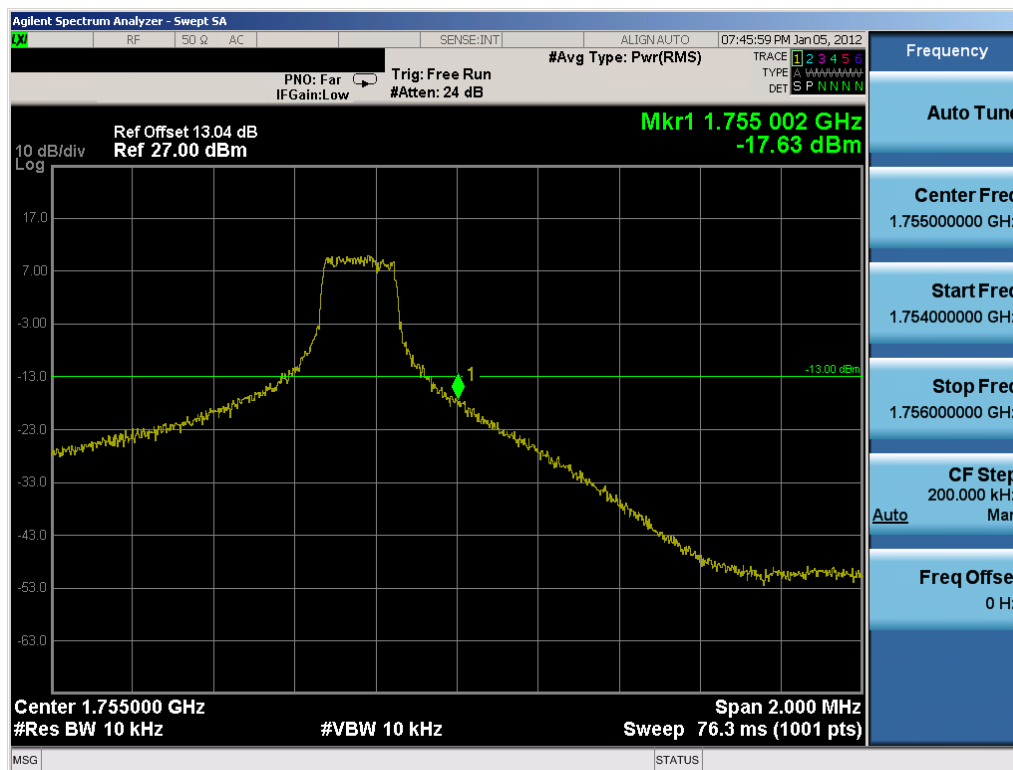


Plot 7-87. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 7-88. Upper Band Edge Plot (QPSK – RB Size 1, Offset 14)

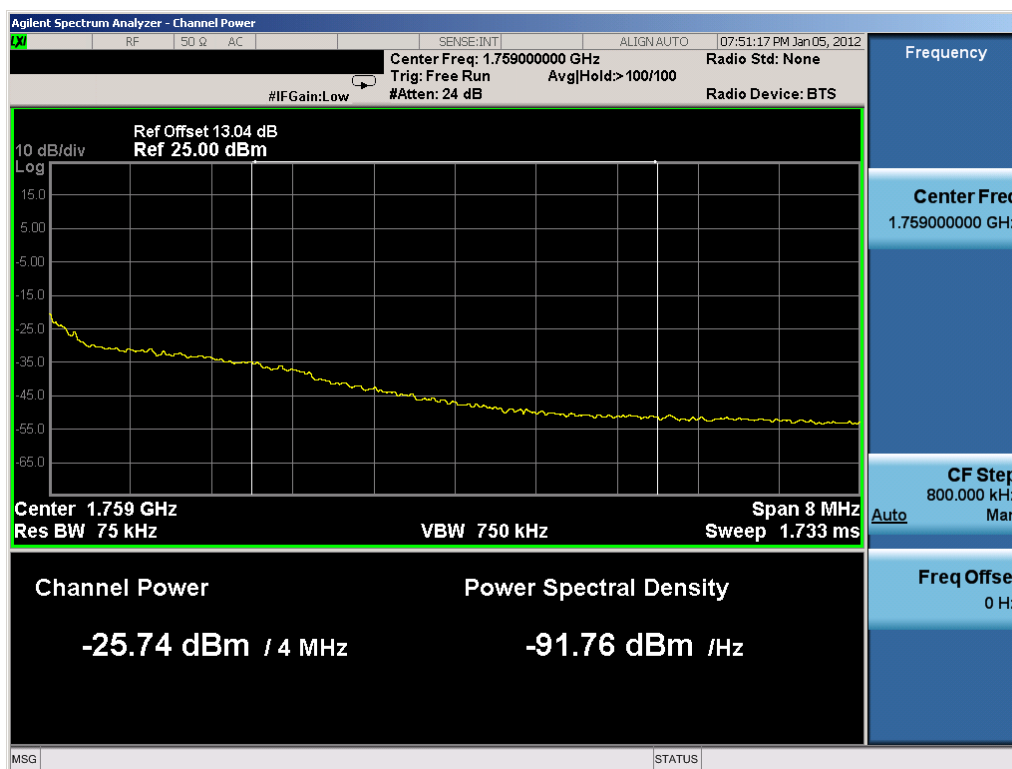


Plot 7-89. Upper Band Edge Plot (16-QAM – RB Size 1, Offset 14)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 7-90. Upper Emission Mask (1756-1760 MHz) Plot (QPSK – RB Size 15)



Plot 7-91. Upper Emission Mask (1756-1760 MHz) Plot (16-QAM – RB Size 15)

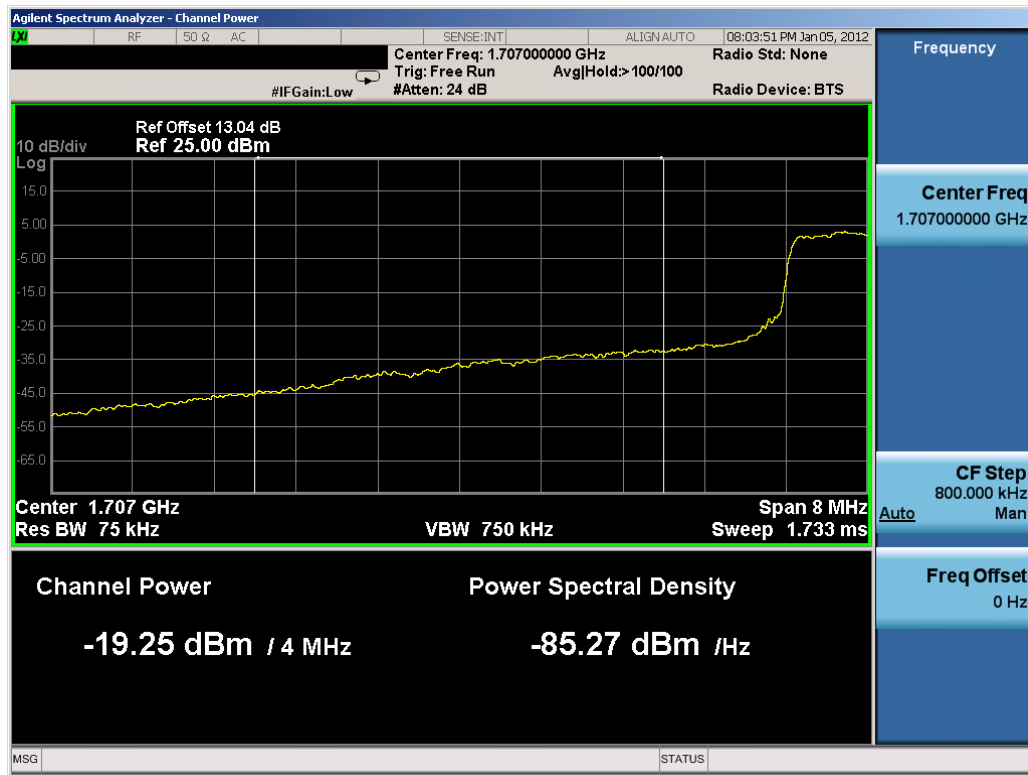
FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 75 of 85



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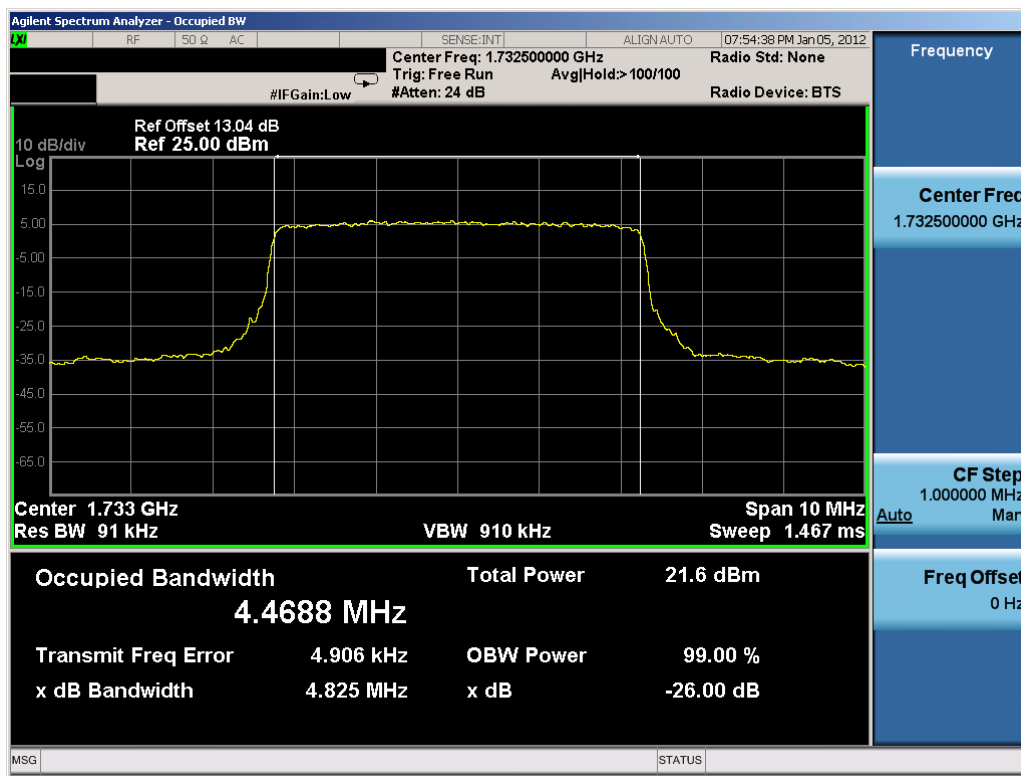


Plot 7-94. Lower Emission Mask (1705-1709 MHz) Plot (QPSK – RB Size 25)

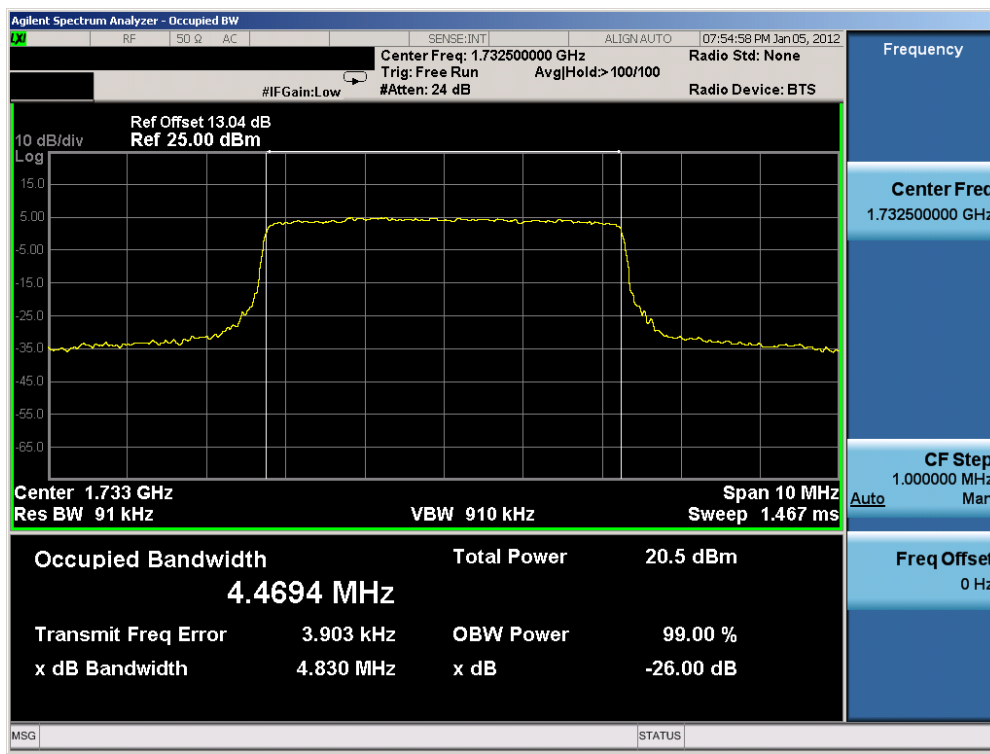


Plot 7-95. Lower Emission Mask (1705-1709 MHz) Plot (16QAM – RB Size 25)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 77 of 85

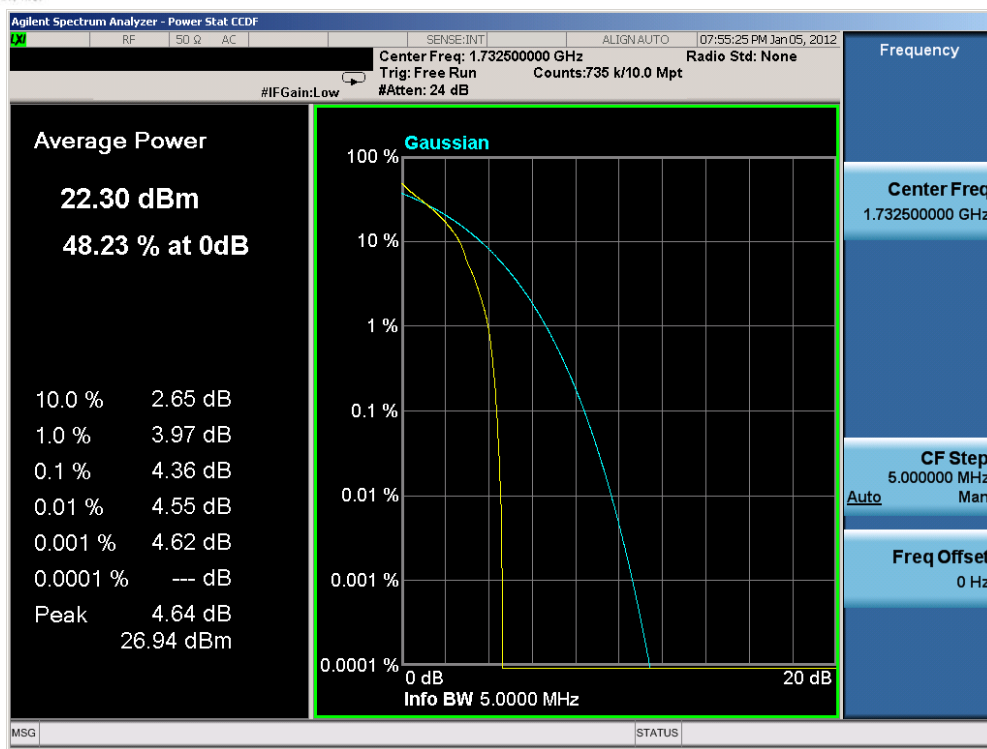


Plot 7-96. Occupied Bandwidth Plot (QPSK – RB Size 25)

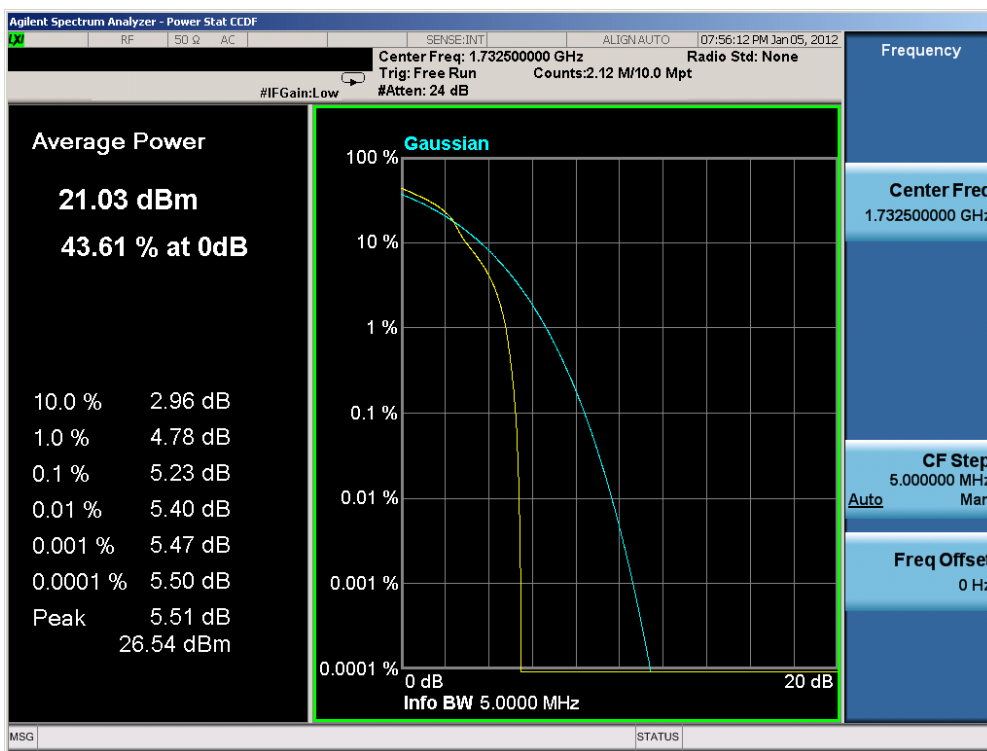


Plot 7-97. Occupied Bandwidth Plot (16QAM – RB Size 25)

FCC ID: A3LSCHR940	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 78 of 85

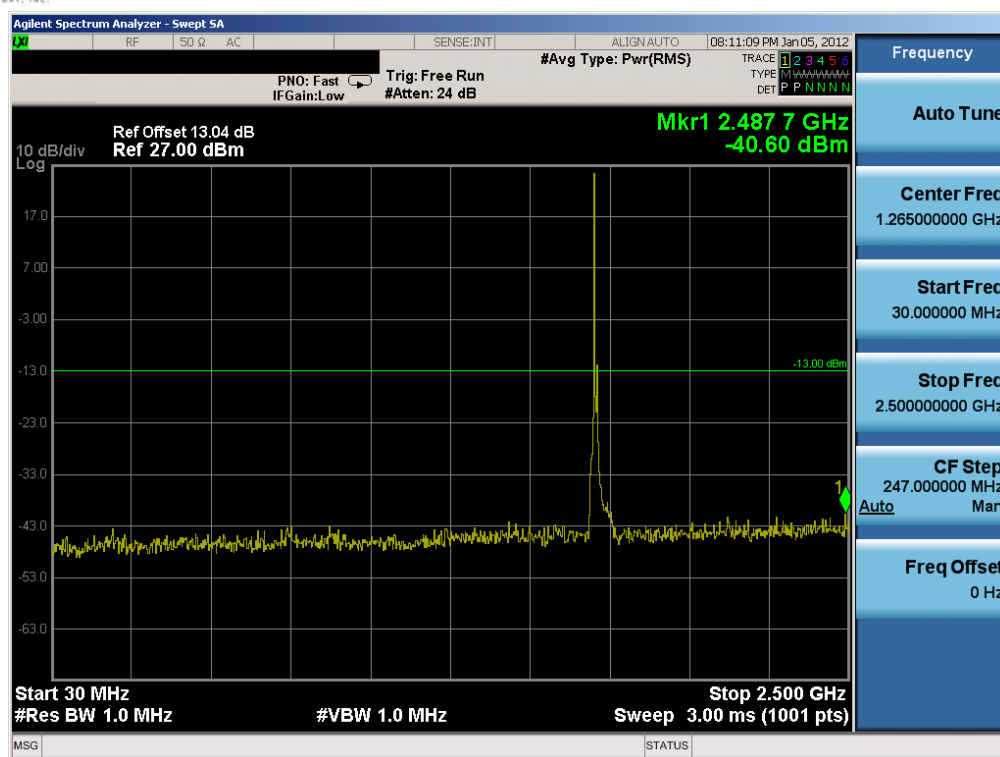


Plot 7-98. Peak to Average Ratio Plot (QPSK RB Size 1)

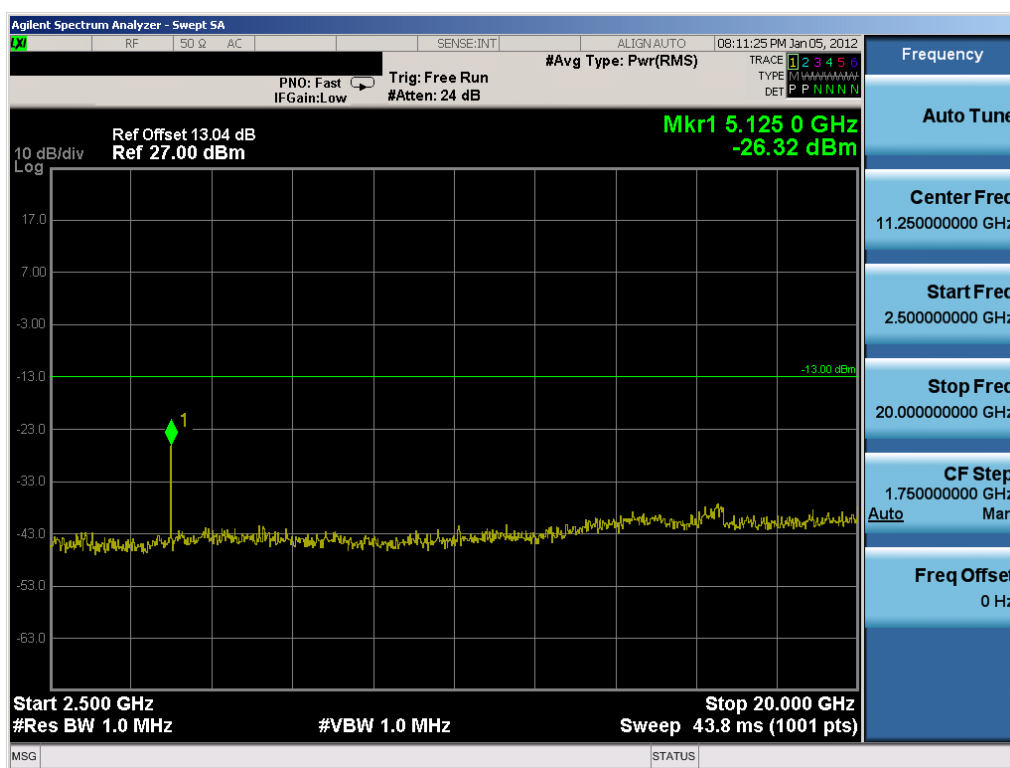


Plot 7-99. Peak to Average Ratio Plot (16QAM RB Size 1)

FCC ID: A3LSCHR940	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset		Page 79 of 85

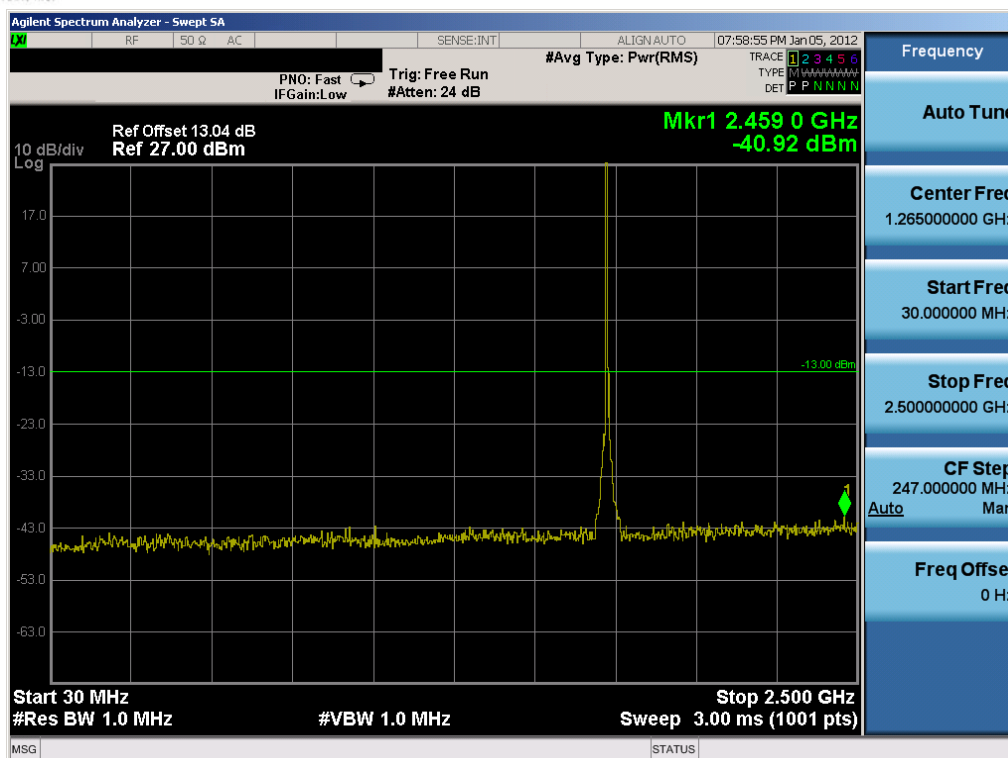


Plot 7-100. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

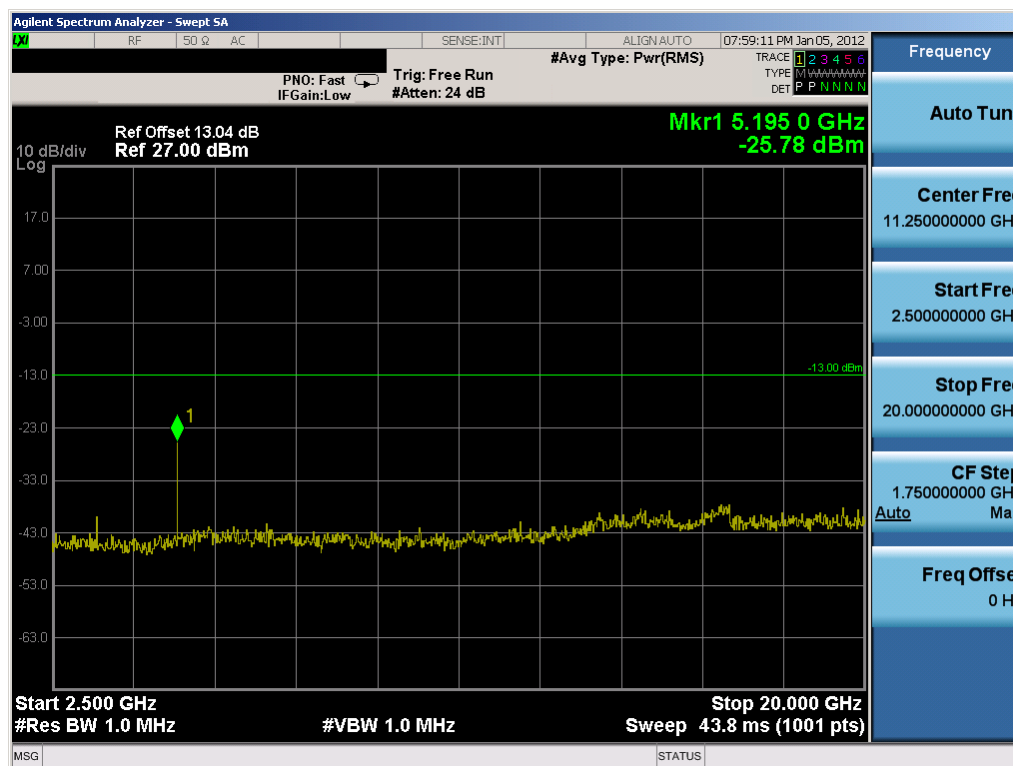


Plot 7-101. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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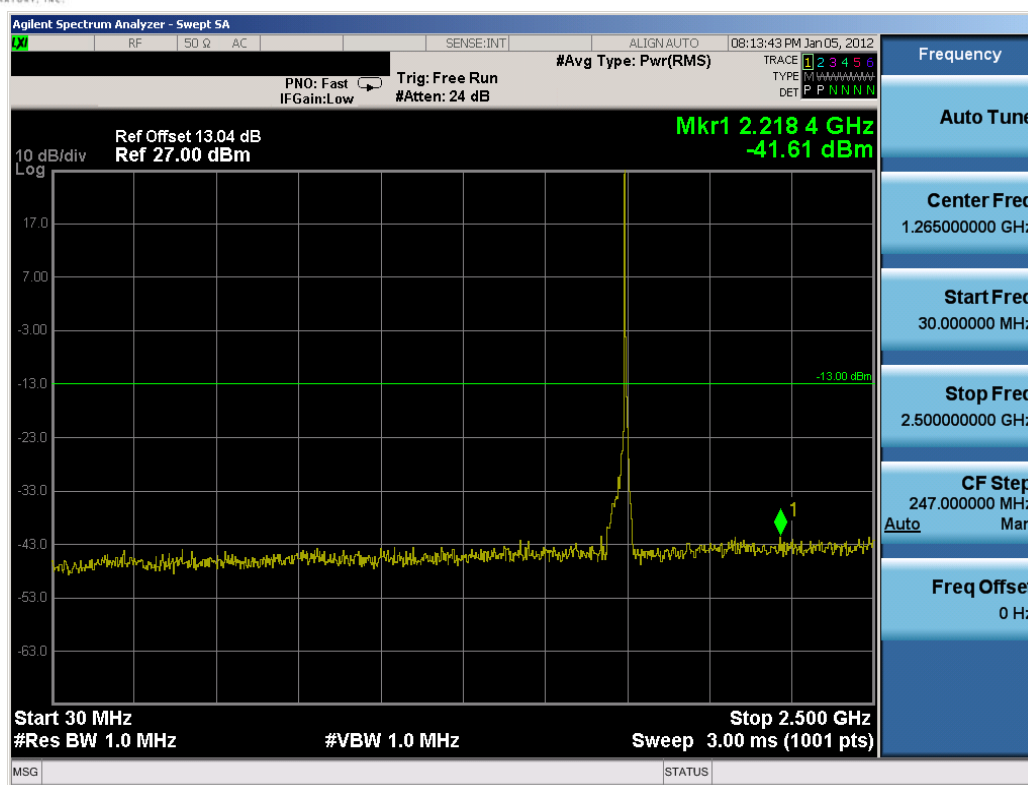


Plot 7-102. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

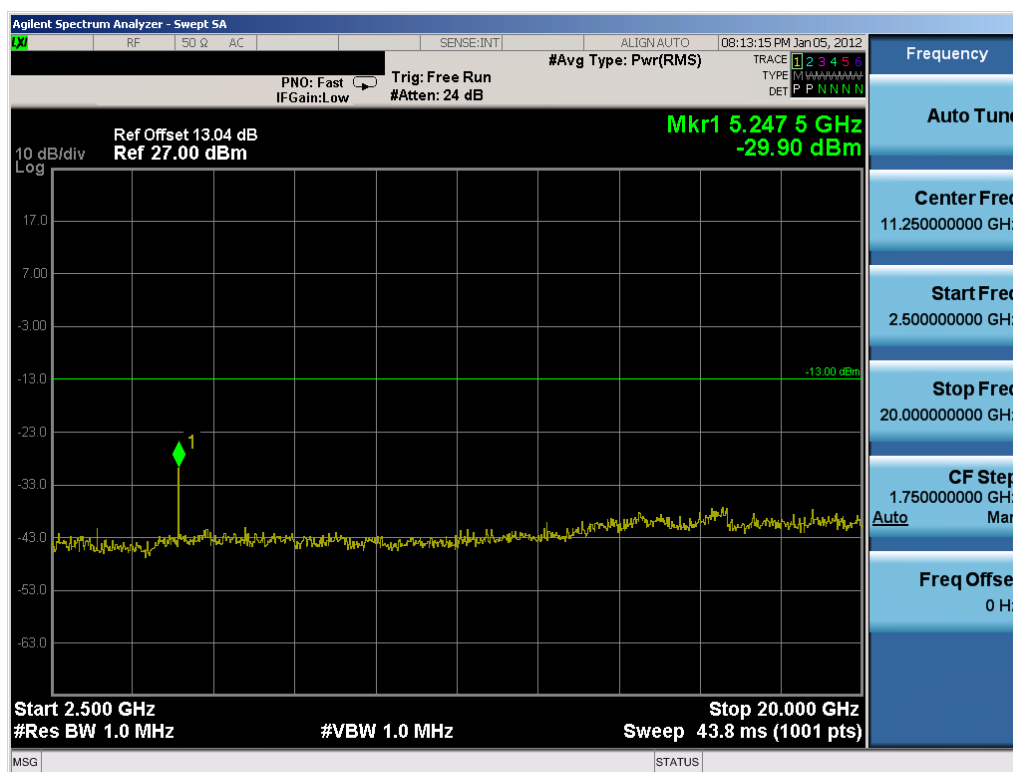


Plot 7-103. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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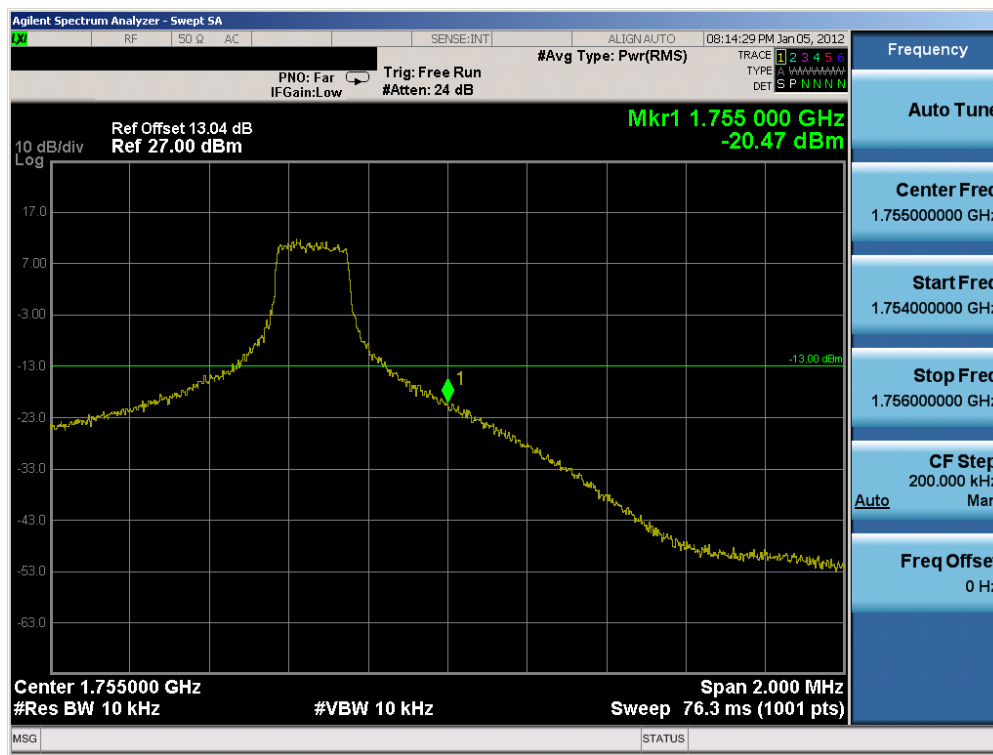


Plot 7-104. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

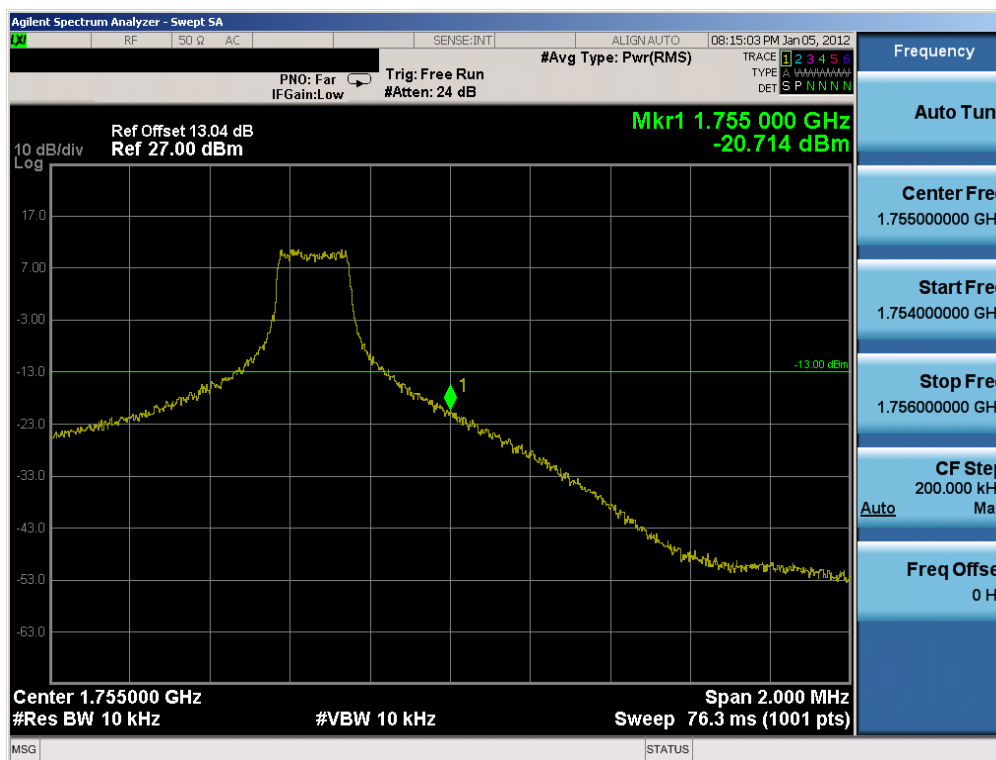


Plot 7-105. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSCHR940	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 7-106. Upper Band Edge Plot (QPSK – RB Size 1, Offset 24)



Plot 7-107. Upper Band Edge Plot (16QAM – RB Size 1, Offset 24)

FCC ID: A3LSCHR940	FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
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Plot 7-108. Upper Emission Mask (1756-1760 MHz) Plot (QPSK – RB Size 25)



Plot 7-109. Upper Emission Mask (1756-1760 MHz) Plot (16QAM – RB Size 25)

FCC ID: A3LSCHR940			FCC Pt. 24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y112292219.A3L	Test Dates: Jan. 4-6, 2012	EUT Type: Portable Handset			Page 84 of 85

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 (CERTIFICATION)		Reviewed by: Quality Manager
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