



PCTEST ENGINEERING LABORATORY, INC.

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MEASUREMENT REPORT

FCC Part 24 & 27

Applicant Name:

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

Date of Testing:

October 18 - 21, 2011

Test Site/Location:

PCTEST Lab., Columbia, MD, USA

Test Report Serial No.:

0Y1110171814.A3L

FCC ID:

A3LSCHR920

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-R920

Test Device Serial No.:

identical prototype [S/N: #93, #94]

Mode	Bandwidth (MHz)	Tx Frequency (MHz)	Emission Designator	ERP/EIRP	
				Max. Power (W)	Max. Power (dBm)
LTE Band 4	1.4	1710.7 - 1754.3	1M11G7D	0.052	17.18
LTE Band 4	1.4	1710.7 - 1754.3	1M11W7D	0.042	16.26
LTE Band 4	3	1711.5 - 1753.5	2M79G7D	0.039	15.91
LTE Band 4	3	1711.5 - 1753.5	2M76W7D	0.034	15.35
LTE Band 4	5	1712.5 - 1752.5	4M51G7D	0.063	18.00
LTE Band 4	5	1712.5 - 1752.5	4M51W7D	0.055	17.41
LTE Band 2	1.4	1850.7 - 1909.3	1M14G7D	0.082	19.14
LTE Band 2	1.4	1850.7 - 1909.3	1M14W7D	0.068	18.34
LTE Band 2	3	1851.5 - 1908.5	2M75G7D	0.071	18.50
LTE Band 2	3	1851.5 - 1908.5	2M74W7D	0.060	17.78
LTE Band 2	5	1852.5 - 1907.5	4M51G7D	0.115	20.60
LTE Band 2	5	1852.5 - 1907.5	4M49W7D	0.089	19.48

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

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

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


Randy Ortañez
President

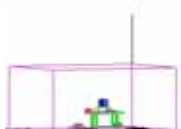


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MEASUREMENT REPORT

FCC Part 24 & 27



§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-R920
FCC ID: A3LSCHR920
FCC CLASSIFICATION: PCS Licensed Transmitter Held to Ear (PCE)
FREQUENCY TOLERANCE: $\pm 0.00025\%$ (2.5 ppm)
Test Device Serial No.: #93, #94 ☐ Production ☒ Pre-Production ☐ Engineering
DATE(S) OF TEST: October 18 - 21, 2011
TEST REPORT S/N: 0Y1110171814.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 are, the Baltimore-Washington Intern't'l (BWI) airport, the city of Baltimore and the Washington, DC area. (See Figure 1-1).

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility 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.

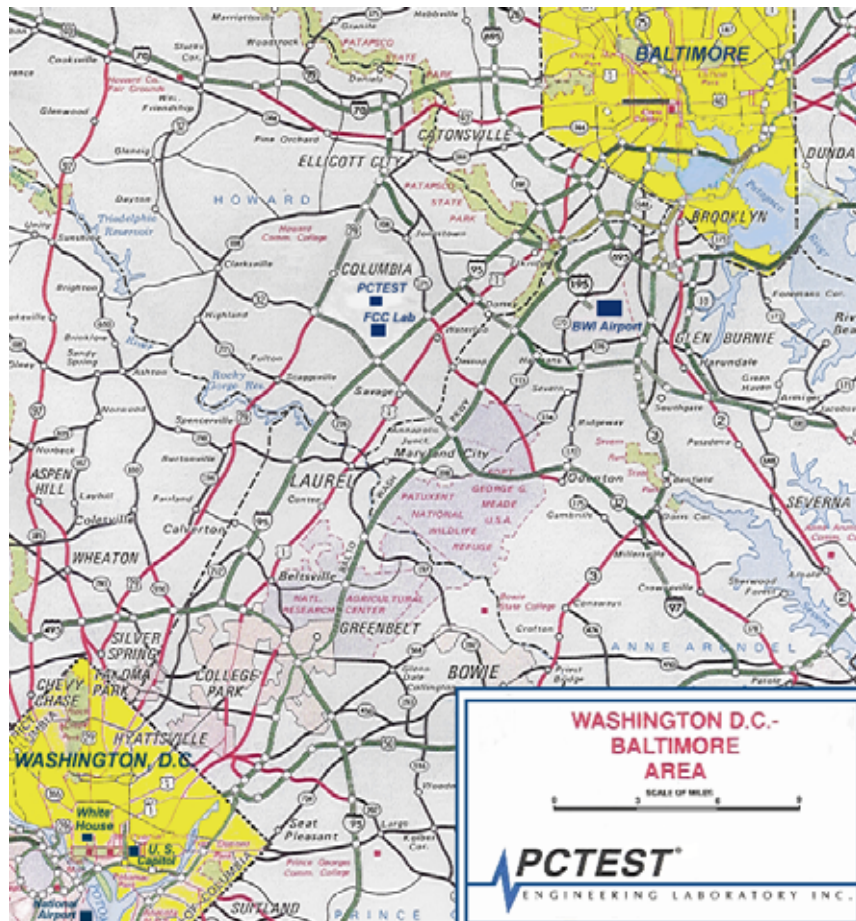


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSCHR920**. 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-R920	A3LSCHR920	Portable Handset

Table 2-1. EUT Equipment Description

2.2 Device Capabilities

This device contains the following capabilities:

850/1700/1900 CDMA/EvDO (BC0, BC1, BC15), 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.

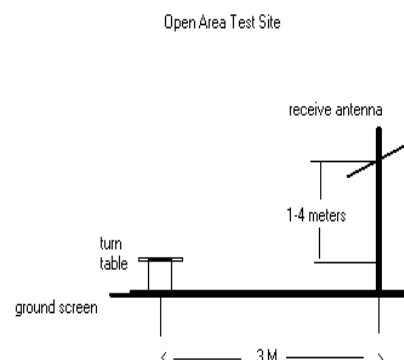


Figure 3-1. Diagram of 3-meter outdoor test range

Deviation from Measurement Procedure.....None

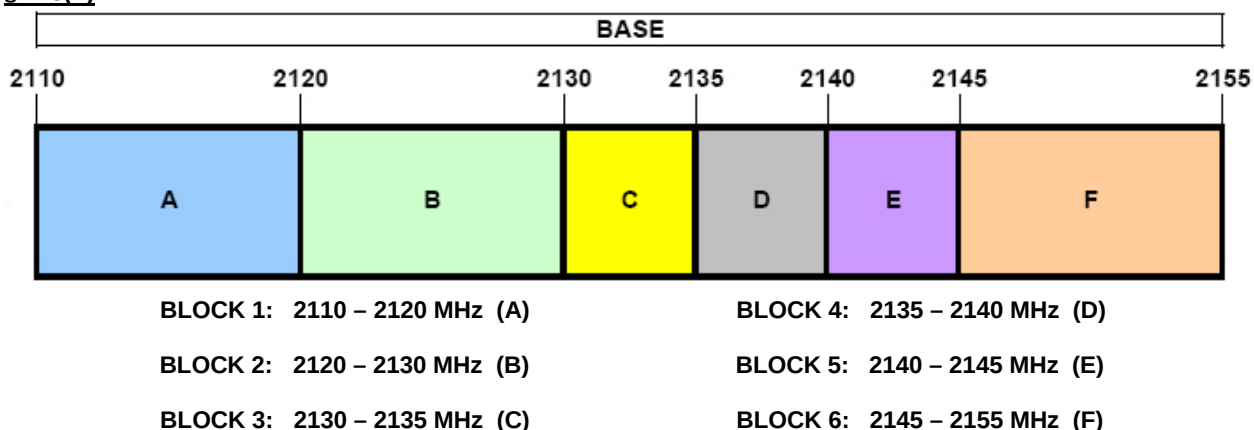
3.2 Occupied Bandwidth Emission Limits

§2.1049, 24.238(a)(b), §27.53(h)(1)

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

3.3 AWS - Base Frequency Blocks

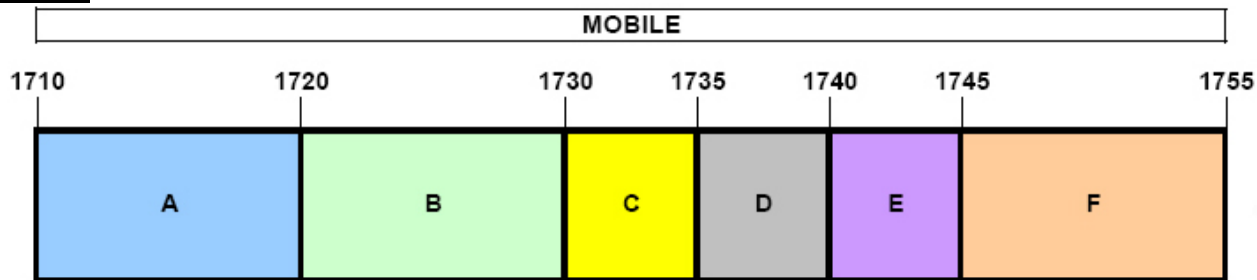
§27.5(h)



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3.4 AWS - Mobile Frequency Blocks

§27.5(h)



BLOCK 1: 1710 – 1720 MHz (A)

BLOCK 4: 1735 – 1740 MHz (D)

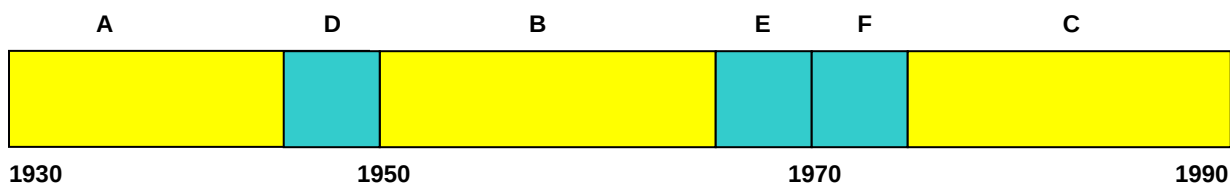
BLOCK 2: 1720 – 1730 MHz (B)

BLOCK 5: 1740 – 1745 MHz (E)

BLOCK 3: 1730 – 1735 MHz (C)

BLOCK 6: 1745 – 1755 MHz (F)

3.5 PCS - Base Frequency Blocks



BLOCK 1: 1930 – 1945 MHz (A)

BLOCK 4: 1965 – 1970 MHz (E)

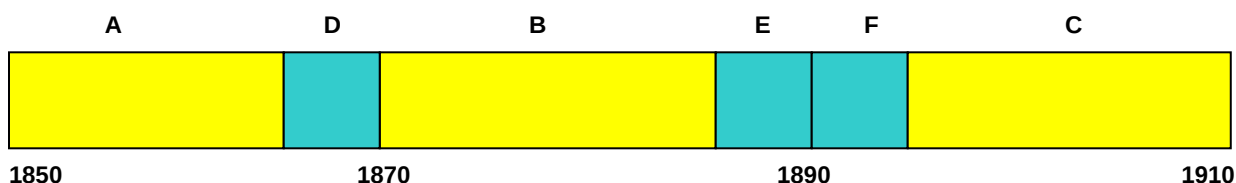
BLOCK 2: 1945 – 1950 MHz (D)

BLOCK 5: 1970 – 1975 MHz (F)

BLOCK 3: 1950 – 1965 MHz (B)

BLOCK 6: 1975 – 1990 MHz (C)

3.6 PCS - Mobile Frequency Blocks



BLOCK 1: 1850 – 1865 MHz (A)

BLOCK 4: 1885 – 1890 MHz (E)

BLOCK 2: 1865 – 1870 MHz (D)

BLOCK 5: 1890 – 1895 MHz (F)

BLOCK 3: 1870 – 1885 MHz (B)

BLOCK 6: 1895 – 1910 MHz (C)

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3.7 Spurious and Harmonic Emissions at Antenna Terminal

§2.1051, 24.238(a), §27.53(h)

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)

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. This device was tested under all modulations and channel bandwidth configurations and the worst case spurious emissions are reported in Band 2 and Band 4 using 5MHz Bandwidth. For Band 2, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 24) and QPSK modulation. For Band 4, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 0) and QPSK modulation.

3.9 Peak-Average Ratio

§24.232(d), §27.50(d)(5)

A peak to average ratio measurement is performed at the conducted port of the EUT. 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.

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3.10 Frequency Stability / Temperature Variation

§2.1055, 24.235, §27.54

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 – 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 period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

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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
-	263-10dB	(DC-18GHz) 10 dB Attenuator	N/A		N/A	N/A
-	No.166	(1000-26500MHz) Microwave RF Cable	N/A		N/A	N/A
-	No.167	(100kHz - 100MHz) RG58 Coax Cable	N/A		N/A	N/A
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
Agilent	E8267C	Vector Signal Generator	10/10/2011	Annual	10/10/2012	US42340152
Agilent	N9020A	MXA Signal Analyzer	10/10/2011	Annual	10/10/2012	US46470561
Agilent	N9038A	MXE EMI Receiver	8/5/2011	Annual	8/5/2012	MY51210133
Anritsu	MA2411B	Pulse Sensor	10/13/2011	Annual	10/13/2012	1027293
Anritsu	ML2495A	Power Meter	10/13/2011	Annual	10/13/2012	1039008
Espec	ESX-2CA	Environmental Chamber	4/21/2011	Annual	4/21/2012	17620
MiniCircuits	VHF-1300+	High Pass Filter	N/A		N/A	30716
MiniCircuits	VHF-3100+	High Pass Filter	N/A		N/A	30721
Pasternack	PE2208-6	Bidirectional Coupler	N/A		N/A	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	N/A		N/A	836536/0005
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	10/7/2011	Annual	10/7/2012	103962
Schwarzbeck	UHA9105	Dipole Antenna (400 - 1GHz) Rx	11/17/2009	Biennial	11/17/2011	9105-2404
Schwarzbeck	UHA9105	Dipole Antenna (400 - 1GHz) Tx	11/17/2009	Biennial	11/17/2011	9105-2403
Sunol	DRH-118	Horn Antenna (1 - 18GHz)	7/5/2011	Biennial	7/5/2013	A050307
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	12/17/2009	Biennial	12/17/2011	A051107
Sunol	DRH-118	Horn Antenna (1-18 GHz)	6/17/2011	Biennial	6/17/2013	A042511

Table 4-1. Test Equipment

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5.0 SAMPLE CALCULATIONS

Emission Designator

Emission Designator = 4M25G7D

QPSK BW = 4.25 MHz

G = Phase Modulation

7 = Two or more channels containing quantized or digital information

D = Data transmission, telemetry, telecommand

Emission Designator = 3M35W7D

16-QAM BW = 3.35 MHz

W = Quadrature Amplitude Modulation

7 = Two or more channels containing quantized or digital information

D = Combination (Audio/Data) (Measured at the 99.75% power bandwidth)

Spurious Radiated Emission – AWS Band

Example: Channel 20150 AWS Mode 2nd Harmonic (3460.0 MHz)

The spectrum analyzer reading at 3 meters with the EUT on the turntable was –81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminal is adjusted to produce a reading of –81.0 dBm on the spectrum analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3460.0 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) = 50.3 dBc.

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6.0 TEST RESULTS

6.1 Summary

Company Name: Samsung Electronics, Co. Ltd.
 FCC ID: A3LSCHR920
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
 Mode(s): LTE

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER MODE (TX)					
2.1049, 24.238(a), 27.53(h)(1)	Occupied Bandwidth	N/A	CONDUCTED	PASS	Sections 7.0, 8.0
2.1046	Transmitter Conducted Output Power	N/A		PASS	See RF Exposure Report
2.1051, 24.238(a), 27.53(h)	Band Edge / Conducted Spurious Emissions	< 43 + 10log ₁₀ (P[Watts]) at Band Edge and for all out-of-band emissions		PASS	Sections 7.0, 8.0
24.232(d), 27.50(d)(5)	Peak-Average Ratio	< 13 dB		PASS	Sections 7.0, 8.0
24.232(c)	Equivalent Isotropic Radiated Power (PCS)	< 2 Watts max. EIRP	RADIATED	PASS	Section 6.2
27.50(d)(2)	Equivalent Isotropic Radiated Power (AWS)	< 1 Watts max. EIRP		PASS	Section 6.2
2.1053, 24.238(a), 27.53(h)	Undesirable Emissions	< 43 + 10log ₁₀ (P[Watts]) for all out-of-band emissions		PASS	Section 6.3, 6.4
2.1055, 24.235, 27.54	Frequency Stability	< 2.5 ppm		PASS	Section 6.5, 6.6

Table 6-1. Summary of Test Results

Note:

The plots shown in Sections 7.0 and 8.0 showing a date outside of the test date range of this report remain applicable to the device covered by this report. The plots were taken from a device with LTE circuitry and RF paths that are electrically identical with the device covered by this report.

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6.2 Equivalent Isotropic Radiated Power Output Data

§24.232(c), §27.50(d)(2)

	Frequency [MHz]	Channel Bandwidth [MHz]	Modulation	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Battery Type
AWS (UMTS Band IV)	1710.70	1.4	QPSK	-24.43	7.82	8.33	H	16.15	0.041	Standard
	1710.70	1.4	16-QAM	-25.51	6.74	8.33	H	15.07	0.032	Standard
	1732.50	1.4	QPSK	-23.38	8.87	8.23	H	17.10	0.051	Standard
	1732.50	1.4	16-QAM	-24.38	7.87	8.23	H	16.10	0.041	Standard
	1754.30	1.4	QPSK	-23.19	9.06	8.12	H	17.18	0.052	Standard
	1754.30	1.4	16-QAM	-24.11	8.14	8.12	H	16.26	0.042	Standard
	1711.50	3.0	QPSK	-25.03	7.22	8.33	H	15.55	0.036	Standard
	1711.50	3.0	16-QAM	-25.91	6.34	8.33	H	14.67	0.029	Standard
	1732.50	3.0	QPSK	-24.77	7.48	8.23	H	15.71	0.037	Standard
	1732.50	3.0	16-QAM	-25.37	6.88	8.23	H	15.11	0.032	Standard
	1753.50	3.0	QPSK	-24.46	7.79	8.12	H	15.91	0.039	Standard
	1753.50	3.0	16-QAM	-25.02	7.23	8.12	H	15.35	0.034	Standard
	1712.50	5.0	QPSK	-23.86	8.39	8.33	H	16.72	0.047	Standard
	1712.50	5.0	16-QAM	-24.61	7.64	8.33	H	15.97	0.040	Standard
	1732.50	5.0	QPSK	-22.53	9.72	8.23	H	17.95	0.062	Standard
	1732.50	5.0	16-QAM	-23.07	9.18	8.23	H	17.41	0.055	Standard
	1752.50	5.0	QPSK	-22.37	9.88	8.12	H	18.00	0.063	Standard
	1752.50	5.0	16-QAM	-23.18	9.07	8.12	H	17.19	0.052	Standard

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

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 and channel bandwidth configurations and the worst case spurious emissions are reported in Band 2 and Band 4 using 5MHz Bandwidth. For Band 2, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 24) and QPSK modulation. For Band 4, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 0) and QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal, slide out setup. The data reported in the table above was measured in this test setup.

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Equivalent Isotropic Radiated Power Output Data (Cont'd)

§24.232(c), §27.50(d)(2)

	Frequency [MHz]	Channel Bandwidth [MHz]	Modulation	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Battery Type
PCS (UMTS Band II)	1850.70	1.4	QPSK	-21.31	11.19	7.95	H	19.14	0.082	Standard
	1850.70	1.4	16-QAM	-22.11	10.39	7.95	H	18.34	0.068	Standard
	1880.00	1.4	QPSK	-23.95	8.55	7.99	H	16.54	0.045	Standard
	1880.00	1.4	16-QAM	-24.70	7.80	7.99	H	15.79	0.038	Standard
	1909.30	1.4	QPSK	-21.63	10.87	8.06	H	18.93	0.078	Standard
	1909.30	1.4	16-QAM	-22.50	10.00	8.06	H	18.06	0.064	Standard
	1851.50	3.0	QPSK	-21.95	10.55	7.95	H	18.50	0.071	Standard
	1851.50	3.0	16-QAM	-22.67	9.83	7.95	H	17.78	0.060	Standard
	1880.00	3.0	QPSK	-24.33	8.17	7.99	H	16.16	0.041	Standard
	1880.00	3.0	16-QAM	-25.14	7.36	7.99	H	15.35	0.034	Standard
	1908.50	3.0	QPSK	-24.02	8.48	8.06	H	16.54	0.045	Standard
	1908.50	3.0	16-QAM	-24.87	7.63	8.06	H	15.69	0.037	Standard
	1852.50	5.0	QPSK	-19.85	12.65	7.95	H	20.60	0.115	Standard
	1852.50	5.0	16-QAM	-21.56	10.94	7.95	H	18.89	0.077	Standard
	1880.00	5.0	QPSK	-21.19	11.31	7.99	H	19.30	0.085	Standard
	1880.00	5.0	16-QAM	-22.56	9.94	7.99	H	17.93	0.062	Standard
	1907.50	5.0	QPSK	-20.69	11.81	8.06	H	19.87	0.097	Standard
	1907.50	5.0	16-QAM	-21.08	11.42	8.06	H	19.48	0.089	Standard

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

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 and channel bandwidth configurations and the worst case spurious emissions are reported in Band 2 and Band 4 using 5MHz Bandwidth. For Band 2, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 24) and QPSK modulation. For Band 4, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 0) and QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal, slide out setup. The data reported in the table above was measured in this test setup.

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6.3 AWS LTE Radiated Measurements

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1712.50 MHz
CHANNEL: 19965
MEASURED OUTPUT POWER: 16.72 dBm = 0.047 W
MODULATION SIGNAL: QPSK
BANDWIDTH: 5 MHz
DISTANCE: 3 meters
LIMIT: $43 + 10 \log_{10} (W) =$ 29.72 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3425.00	-46.80	9.61	-37.19	H	53.9
5137.50	-53.14	10.79	-42.35	H	59.1
6850.00	-48.78	10.60	-38.18	H	54.9
8562.50	-45.38	11.55	-33.83	H	50.5
10275.00	-81.36	12.71	-68.65	H	85.4

Table 6-4. Radiated Spurious Data (5MHz BW, QPSK, AWS Band – Ch. 19965)

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 spurious emissions are reported in Band 2 and Band 4 using 5MHz Bandwidth. For Band 2, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 24) and QPSK modulation. For Band 4, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 0) and QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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AWS LTE Radiated Measurements (Cont'd)

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1732.50 MHz
 CHANNEL: 20175
 MEASURED OUTPUT POWER: 17.95 dBm = 0.062 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 29.72 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3465.00	-46.17	9.72	-36.45	H	54.4
5197.50	-35.74	10.75	-24.99	H	42.9
6930.00	-43.86	10.75	-33.12	H	51.1
8662.50	-82.59	11.70	-70.89	H	88.8
10395.00	-81.02	12.66	-68.36	H	86.3

Table 6-5. Radiated Spurious Data (5MHz BW, QPSK, AWS Band – 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 spurious emissions are reported in Band 2 and Band 4 using 5MHz Bandwidth. For Band 2, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 24) and QPSK modulation. For Band 4, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 0) and QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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AWS LTE Radiated Measurements (Cont'd)

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1752.50 MHz
 CHANNEL: 20385
 MEASURED OUTPUT POWER: 18.00 dBm = 0.063 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 29.72 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3505.00	-48.47	9.83	-38.64	H	56.6
5257.50	-44.12	10.88	-33.24	H	51.2
7010.00	-44.71	10.92	-33.80	H	51.8
8762.50	-44.60	11.89	-32.71	H	50.7
10515.00	-40.25	12.62	-27.63	H	45.6

Table 6-6. Radiated Spurious Data (5MHz BW, QPSK, AWS Band – Ch. 20385)

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 spurious emissions are reported in Band 2 and Band 4 using 5MHz Bandwidth. For Band 2, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 24) and QPSK modulation. For Band 4, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 0) and QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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6.4 PCS LTE Radiated Measurements

§2.1053, 24.238(a)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1852.50 MHz
 CHANNEL: 18625
 MEASURED OUTPUT POWER: 20.60 dBm = 0.115 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 33.60 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3705.00	-47.70	9.62	-38.09	H	54.8
5557.50	-52.42	10.61	-41.81	H	58.5
7410.00	-84.45	10.84	-73.60	H	90.3
9262.50	-82.84	12.20	-70.64	H	87.4
11115.00	-78.16	12.86	-65.30	H	82.0

Table 6-7. Radiated Spurious Data (5MHz BW, QPSK, PCS Band – 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 spurious emissions are reported in Band 2 and Band 4 using 5MHz Bandwidth. For Band 2, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 24) and QPSK modulation. For Band 4, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 0) and QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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PCS LTE Radiated Measurements (Cont'd)

§2.1053, 24.238(a)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1880.00 MHz
 CHANNEL: 18900
 MEASURED OUTPUT POWER: 19.30 dBm = 0.085 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 33.60 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3760.00	-49.57	9.60	-39.97	H	57.9
5640.00	-52.10	11.16	-40.94	H	58.9
7520.00	-84.69	11.08	-73.61	H	91.6
9400.00	-82.74	12.22	-70.51	H	88.5
11280.00	-78.10	13.23	-64.87	H	82.8

Table 6-8. Radiated Spurious Data (5MHz BW, QPSK, PCS Band – 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 spurious emissions are reported in Band 2 and Band 4 using 5MHz Bandwidth. For Band 2, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 24) and QPSK modulation. For Band 4, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 0) and QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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PCS LTE Radiated Measurements (Cont'd)

§2.1053, 24.238(a)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1907.50 MHz
 CHANNEL: 19175
 MEASURED OUTPUT POWER: 19.87 dBm = 0.097 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 33.60 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3815.00	-52.15	9.32	-42.83	H	60.8
5722.50	-52.36	11.32	-41.04	H	59.0
7630.00	-84.89	11.34	-73.55	H	91.6
9537.50	-82.94	12.39	-70.55	H	88.5
11445.00	-77.94	13.33	-64.61	H	82.6

Table 6-9. Radiated Spurious Data (5MHz BW, QPSK, PCS Band – 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 spurious emissions are reported in Band 2 and Band 4 using 5MHz Bandwidth. For Band 2, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 24) and QPSK modulation. For Band 4, the worst case spurious emissions were measured while the EUT employed 1RB (with offset 0) and QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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6.5 AWS CDMA Frequency Stability Measurements

§2.1055, §27.54

OPERATING FREQUENCY: 1,732,500,000 Hz

CHANNEL: 20175

REFERENCE VOLTAGE: 3.7 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	1,732,500,008	8	0.000000
100 %		- 30	1,732,499,985	-15	-0.000001
100 %		- 20	1,732,500,005	5	0.000000
100 %		- 10	1,732,499,996	-4	0.000000
100 %		0	1,732,499,990	-10	-0.000001
100 %		+ 10	1,732,500,013	13	0.000001
100 %		+ 20	1,732,500,010	10	0.000001
100 %		+ 30	1,732,499,979	-21	-0.000001
100 %		+ 40	1,732,499,981	-19	-0.000001
100 %		+ 50	1,732,500,012	12	0.000001
115 %	4.26	+ 20	1,732,499,989	-11	-0.000001
BATT. ENDPOINT	3.42	+ 20	1,732,500,008	8	0.000000

Table 6-10. Frequency Stability Data (5MHz BW, QPSK, AWS Band – Ch. 20175)

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AWS CDMA Frequency Stability Measurements (Cont'd)

§2.1055, §27.54

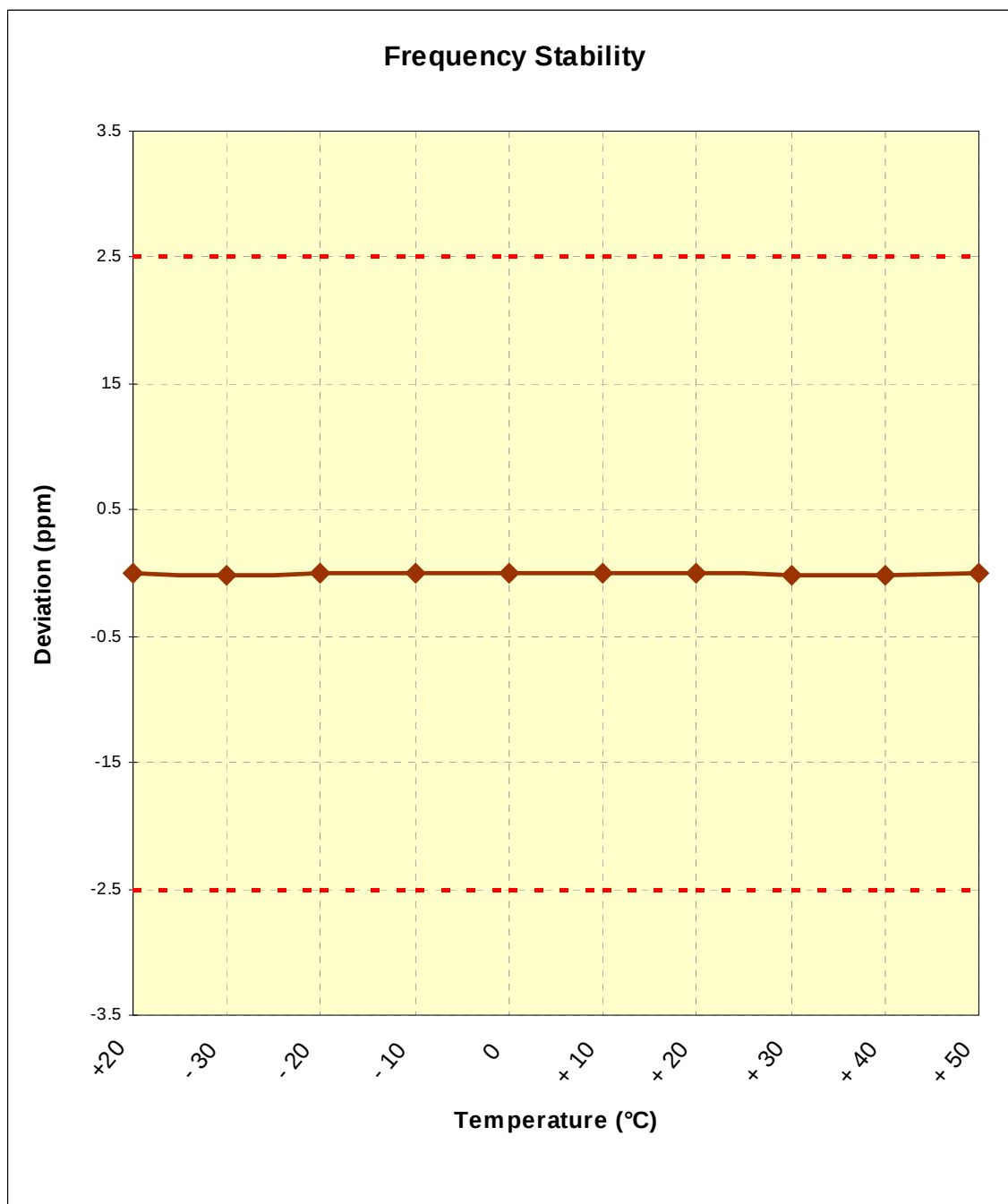


Figure 6-1. Frequency Stability Graph (5MHz BW, QPSK, AWS Band – Ch. 20175)

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6.6 PCS LTE Frequency Stability Measurements

§2.1055, §24.235

OPERATING FREQUENCY: 1,880,000,000 Hz

CHANNEL: 18900

REFERENCE VOLTAGE: 3.7 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	1,879,999,989	-11	-0.000001
100 %		- 30	1,880,000,020	20	0.000001
100 %		- 20	1,880,000,021	21	0.000001
100 %		- 10	1,880,000,015	15	0.000001
100 %		0	1,879,999,990	-10	-0.000001
100 %		+ 10	1,880,000,013	13	0.000001
100 %		+ 20	1,879,999,998	-2	0.000000
100 %		+ 30	1,879,999,986	-14	-0.000001
100 %		+ 40	1,880,000,017	17	0.000001
100 %		+ 50	1,880,000,006	6	0.000000
115 %	4.26	+ 20	1,879,999,982	-18	-0.000001
BATT. ENDPOINT	3.42	+ 20	1,880,000,013	13	0.000001

Table 6-11. Frequency Stability Data (5MHz BW, QPSK, PCS Band – Ch. 18900)

FCC ID: A3LSCHR920		FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 23 of 68

PCS LTE Frequency Stability Measurements (Cont'd)

§2.1055, §24.235

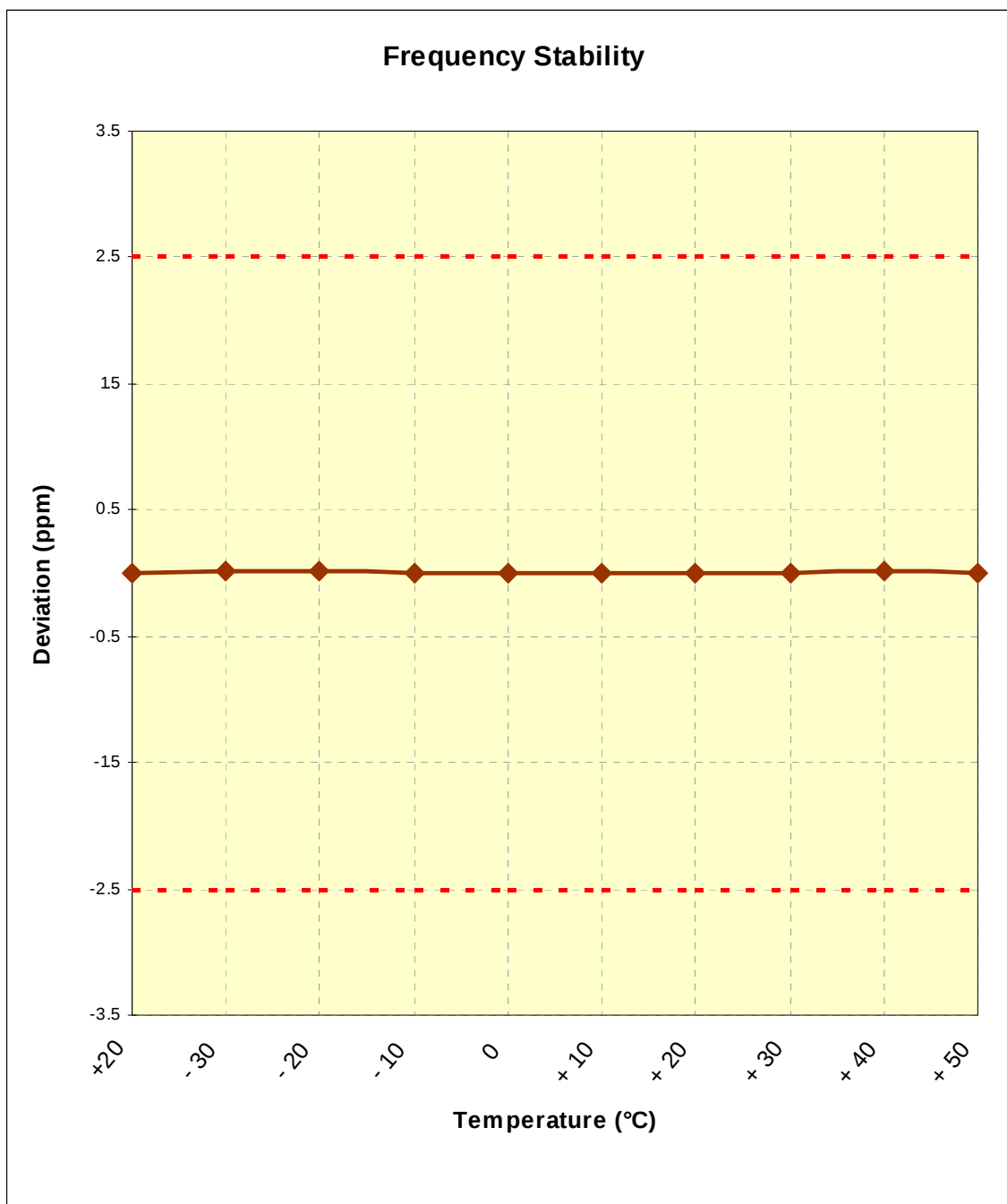


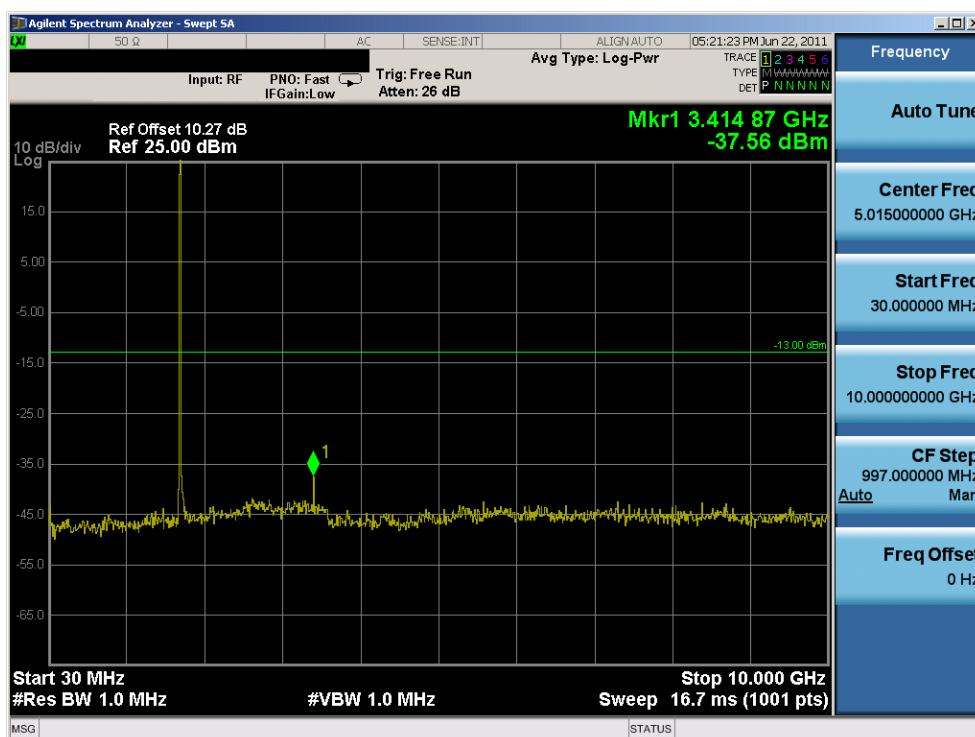
Figure 6-2. Frequency Stability Graph (5MHz BW, QPSK, PCS Band – Ch. 18900)

FCC ID: A3LSCHR920			FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset			Page 24 of 68

7.0 PLOT(S) OF EMISSIONS – AWS BAND

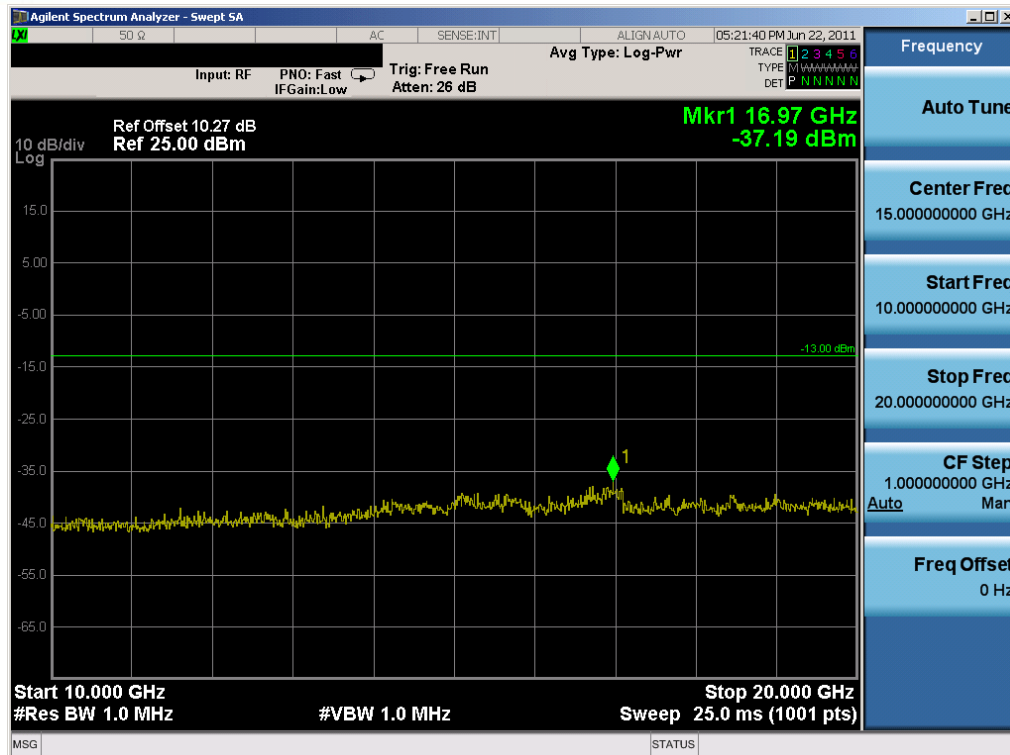
In the following sets of plots (Sections 7.0 and 8.0), the worst case emissions were found in the following configurations:

Test	Worst Case Configuration
Out of band spurious emissions	1 RB, 0 RB Offset
Out of band emissions at the band edge	1 RB, 0 RB Offset (low channel), max RB Offset (high channel)
Out of band emissions 1MHz removed from the band edge (Bands 2, 4, 5) and 100kHz removed from the band edge (Band 12)	Max RB's
Peak to Average Ratio	Max RB's

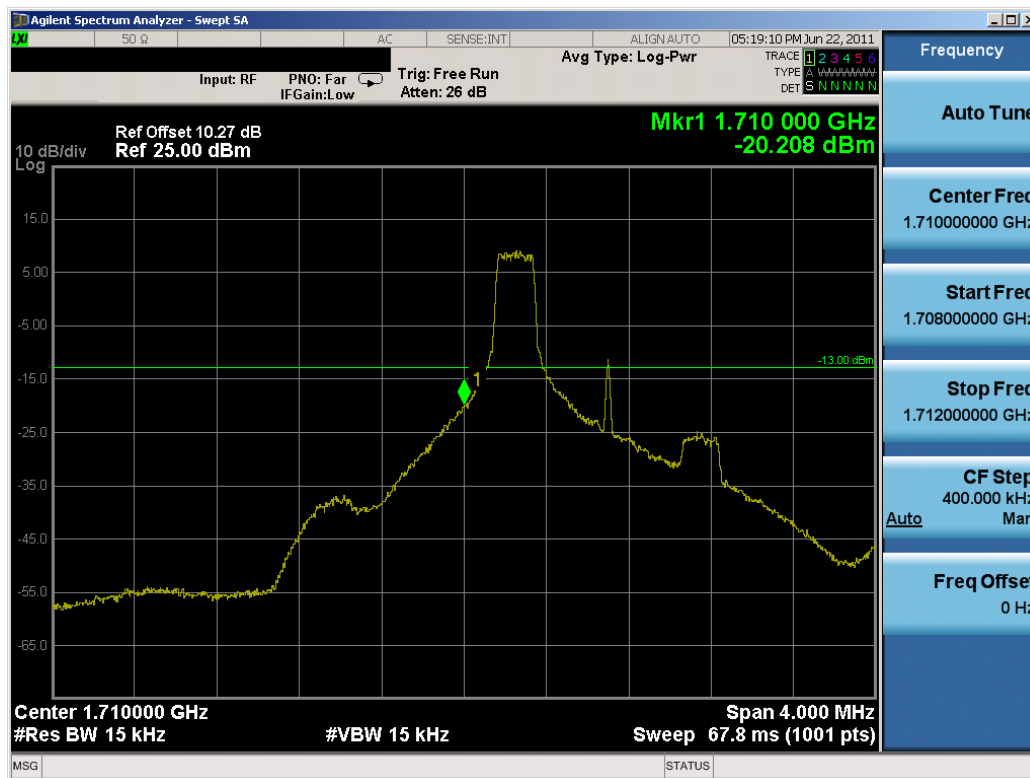


Plot 7-1. Conducted Spurious Plot (1.4MHz BW, QPSK, AWS Band – Low Channel)

FCC ID: A3LSCHR920		FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 25 of 68

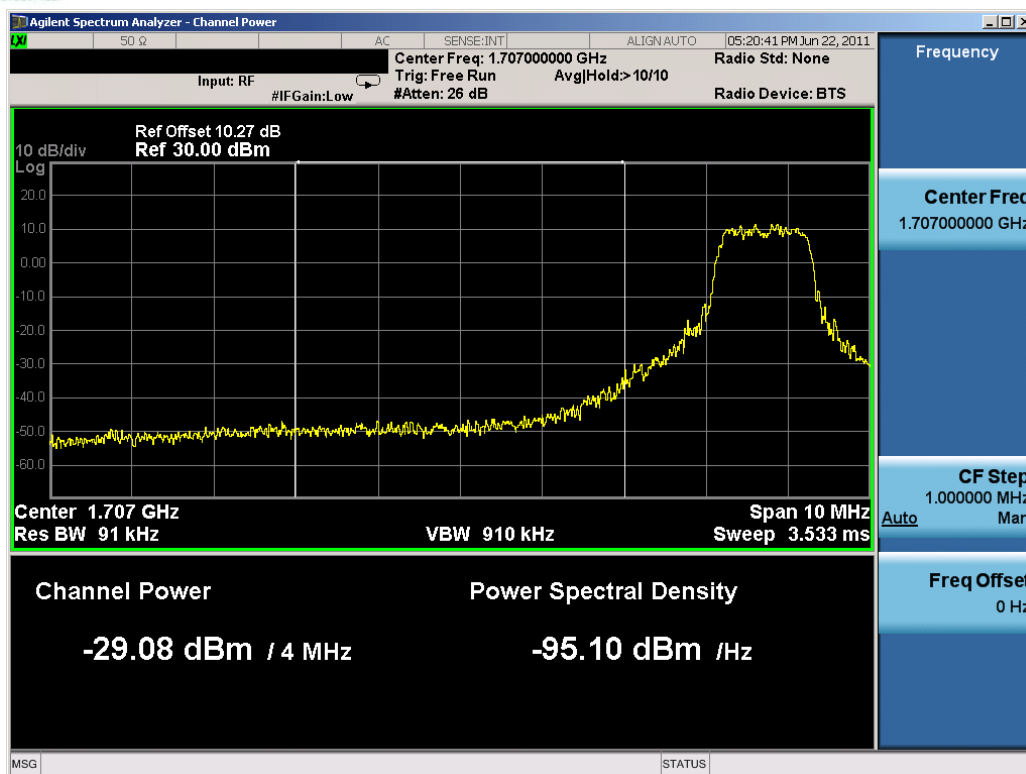


Plot 7-2. Conducted Spurious Plot (1.4MHz BW, QPSK, AWS Band – Low Channel)

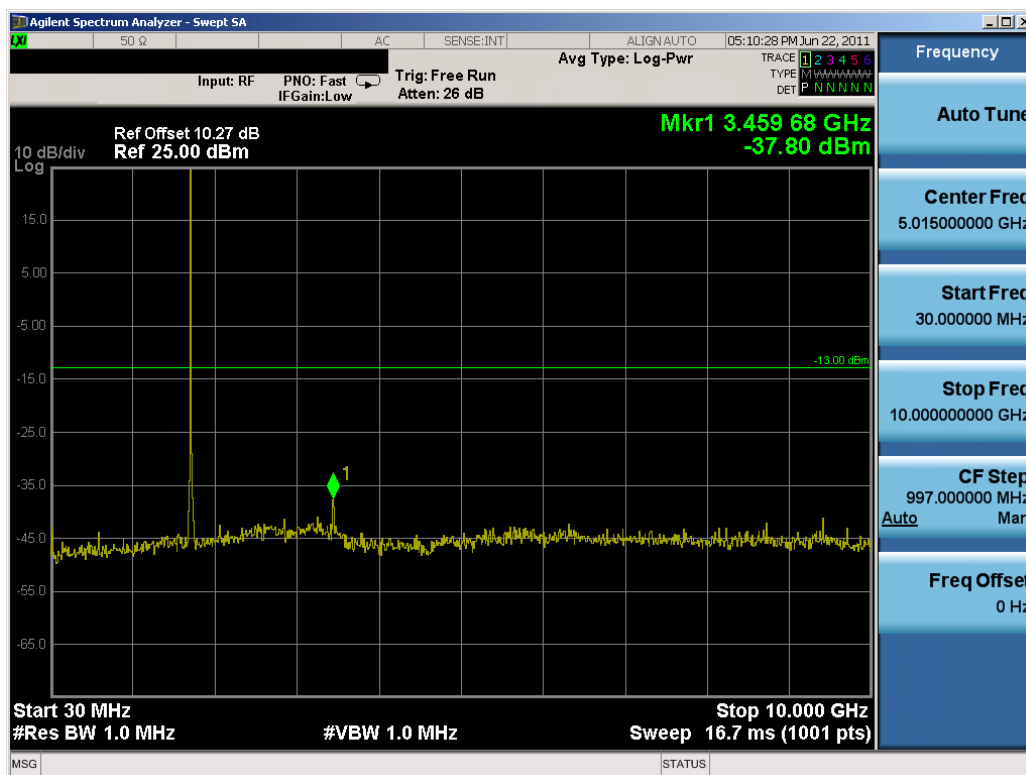


Plot 7-3. Band Edge Plot (1.4MHz BW, QPSK, AWS Band – Low Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 26 of 68

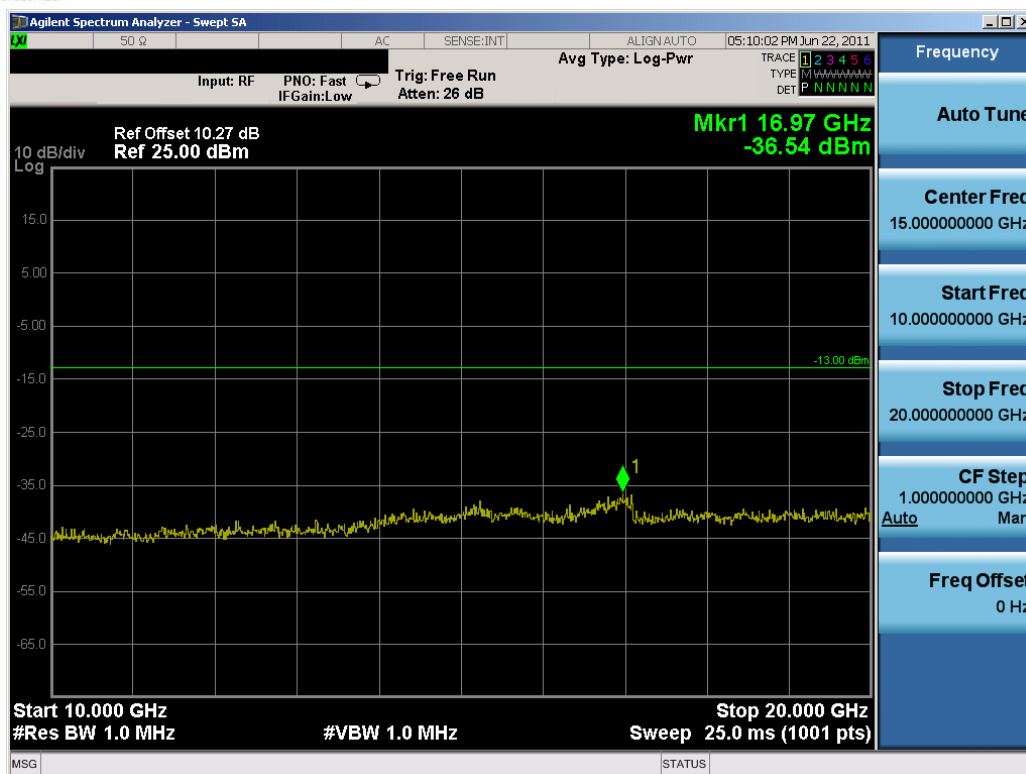


Plot 7-4. 4MHz Span Plot (1.4MHz BW, QPSK, AWS Band – Low Channel)

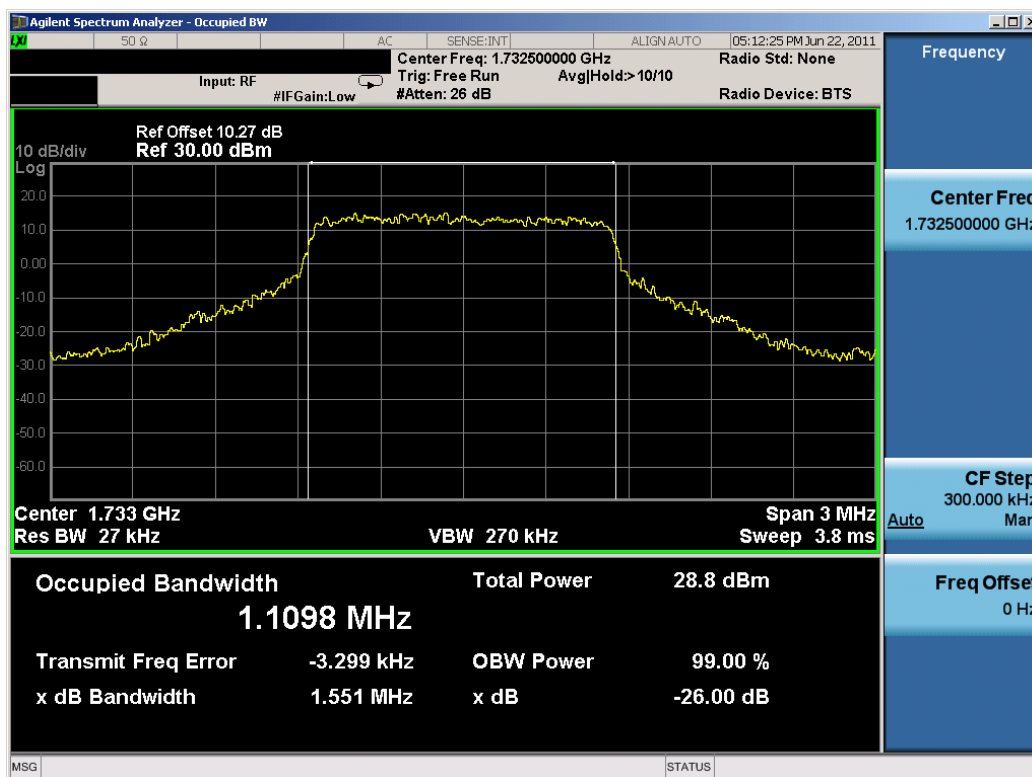


Plot 7-5. Conducted Spurious Plot (1.4MHz BW, QPSK, AWS Band – Mid Channel)

FCC ID: A3LSCHR920		FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 27 of 68

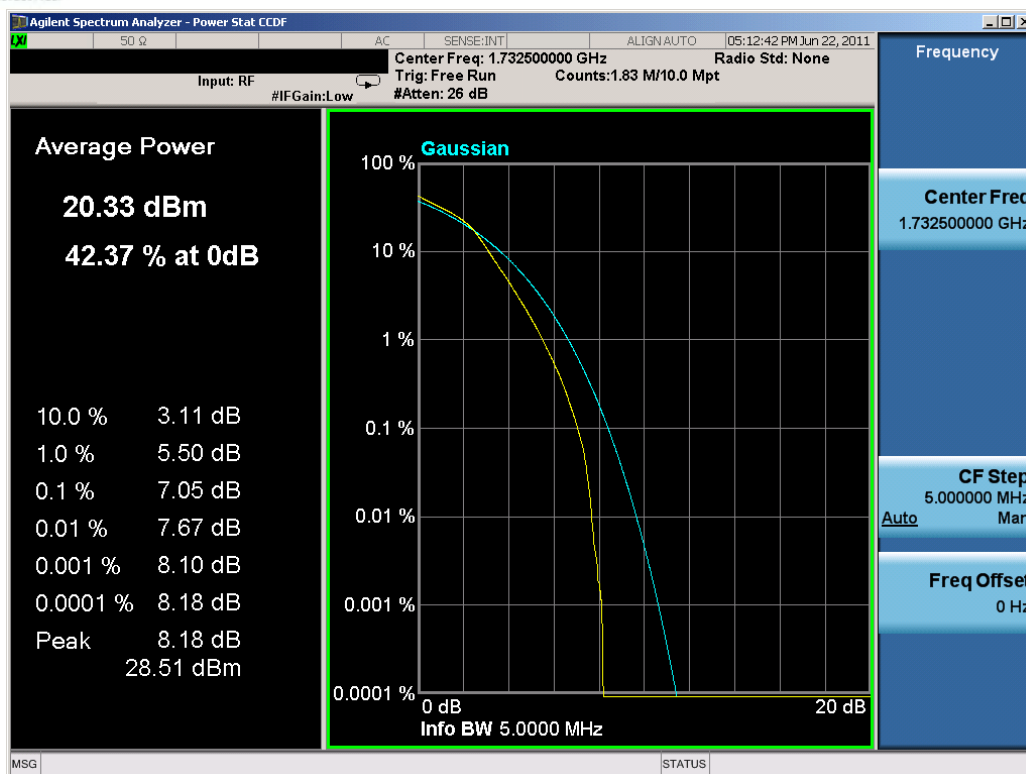


Plot 7-6. Conducted Spurious Plot (1.4MHz BW, QPSK, AWS Band – Mid Channel)

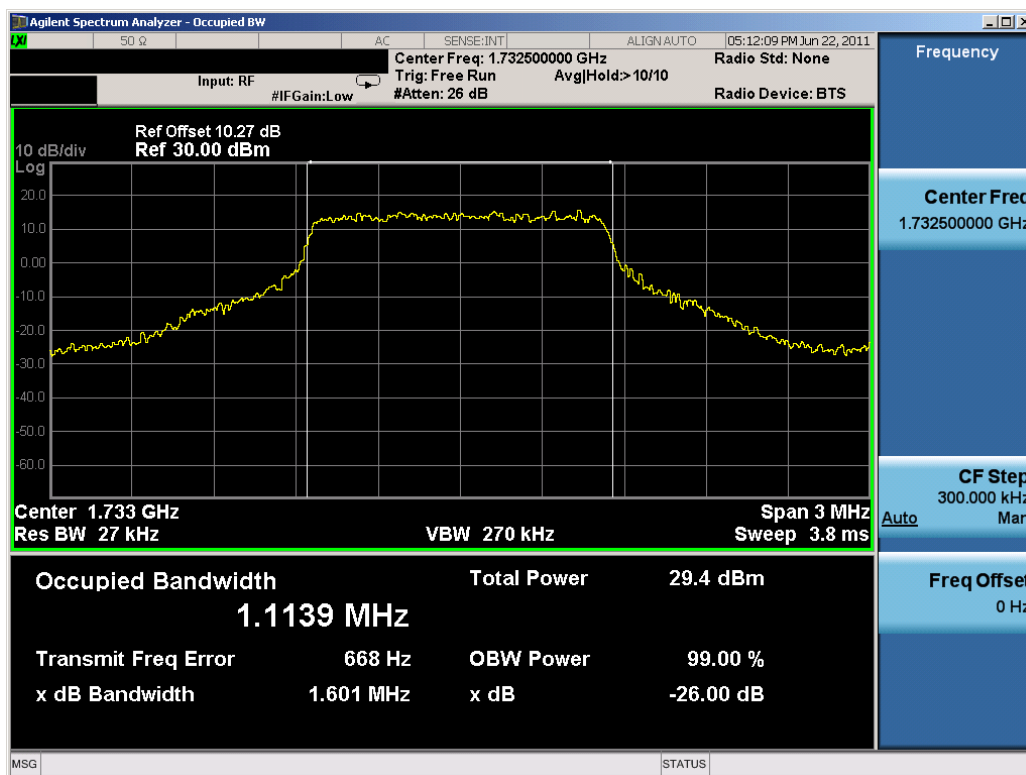


Plot 7-7. Occupied Bandwidth Plot (1.4MHz BW, QPSK, AWS Band – Mid Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 28 of 68

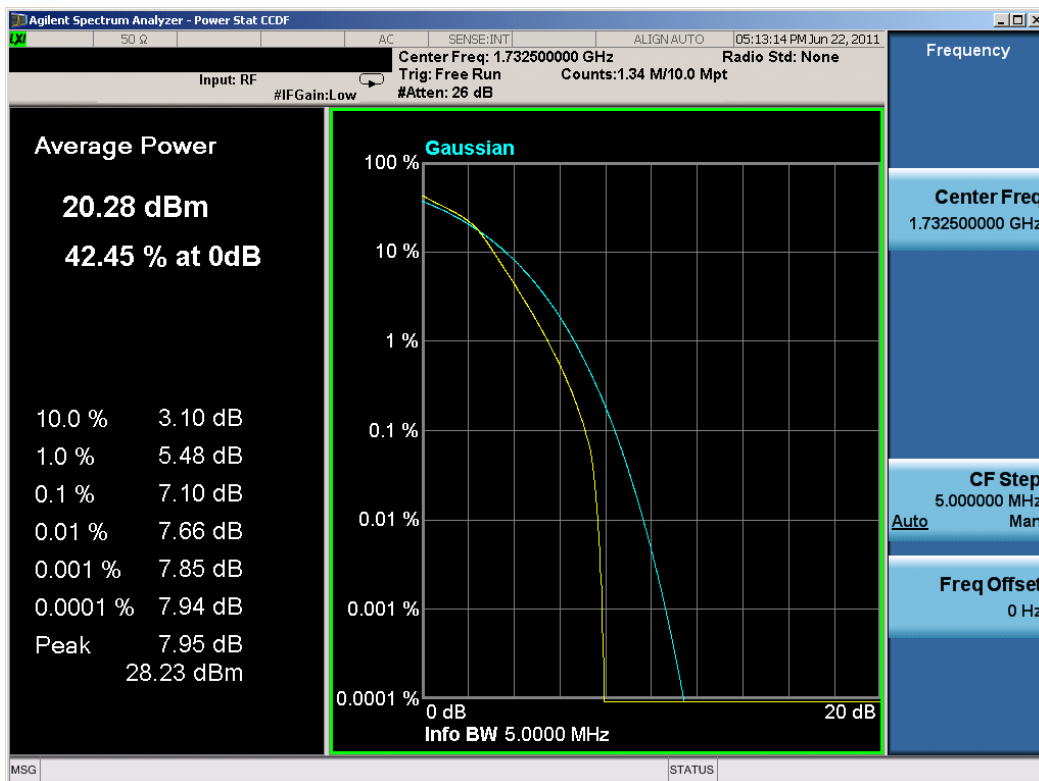


Plot 7-8. Peak-Average Ratio Plot (1.4MHz BW, QPSK, AWS Band – Mid Channel)

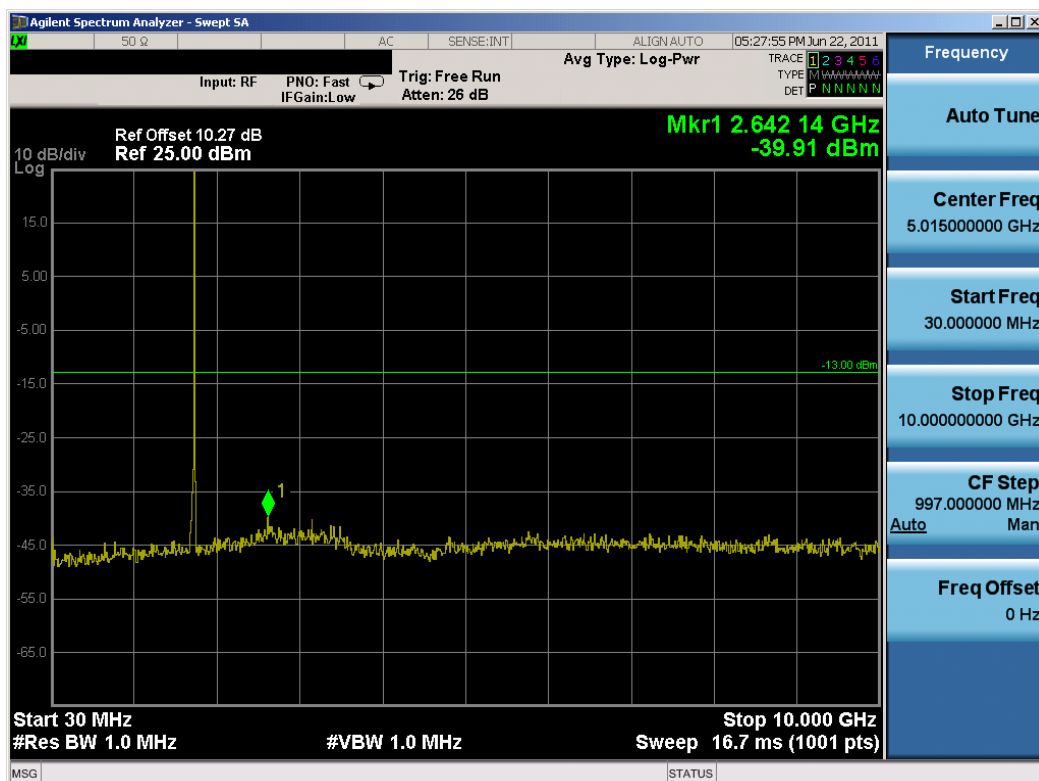


Plot 7-9. Occupied Bandwidth Plot (1.4MHz BW, 16-QAM, AWS Band – Mid Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 29 of 68

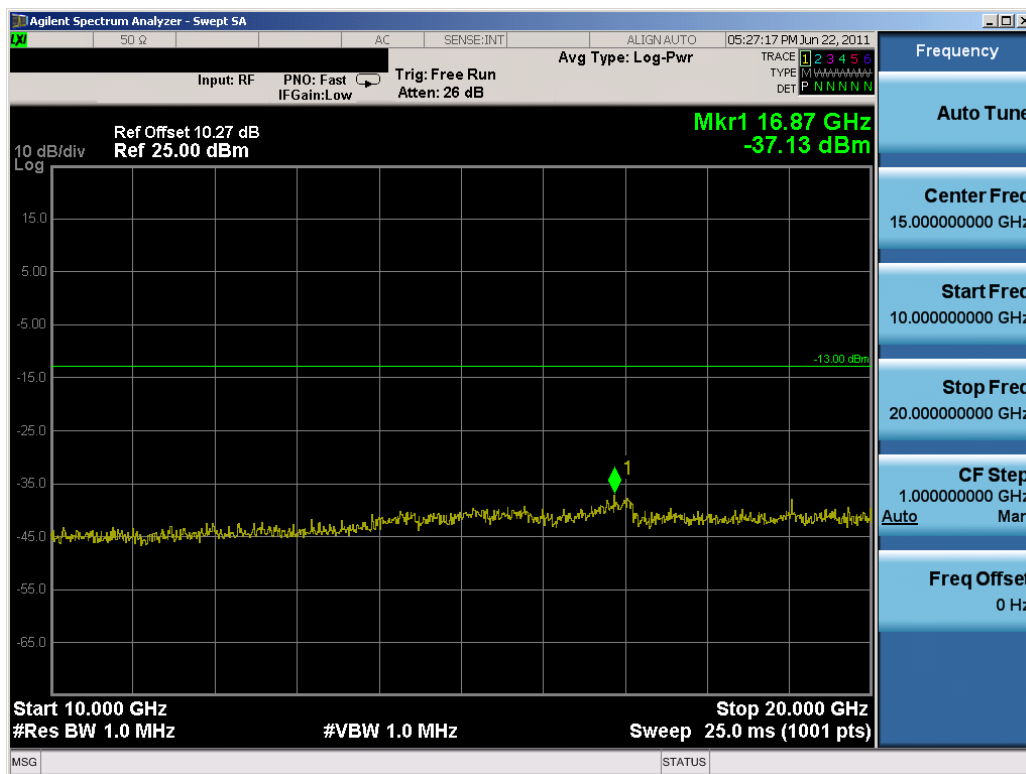


Plot 7-10. Peak-Average Ratio Plot (1.4MHz BW, 16-QAM, AWS Band – Mid Channel)

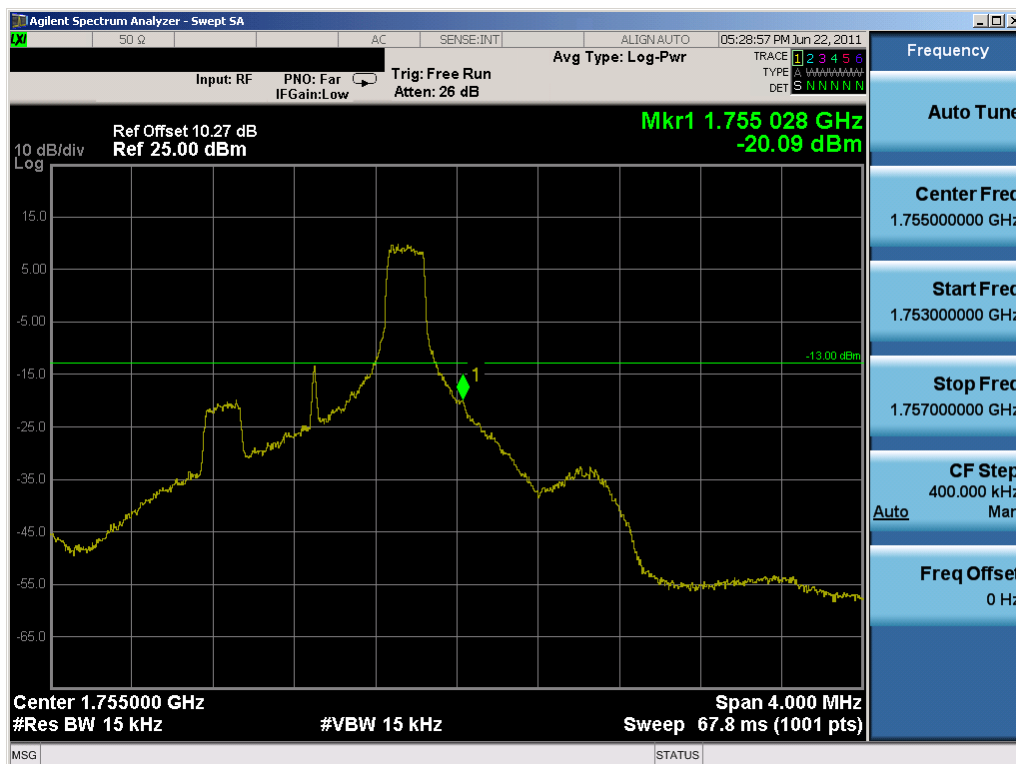


Plot 7-11. Conducted Spurious Plot (1.4MHz BW, QPSK, AWS Band – High Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 30 of 68

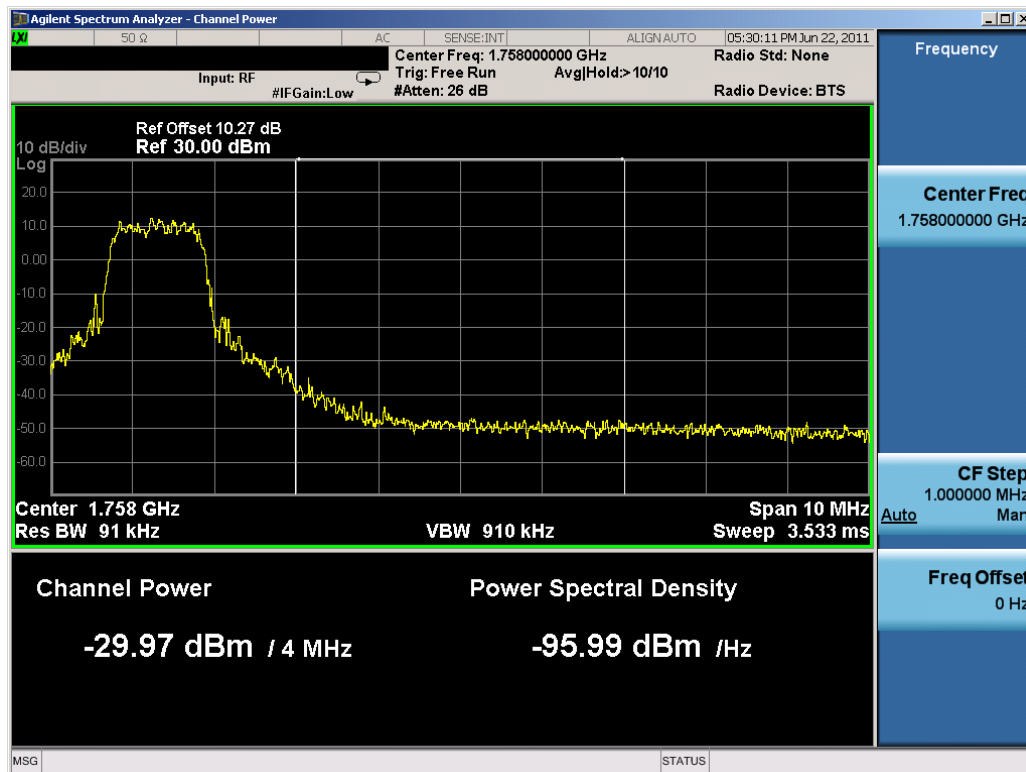


Plot 7-12. Conducted Spurious Plot (1.4MHz BW, QPSK, AWS Band – High Channel)

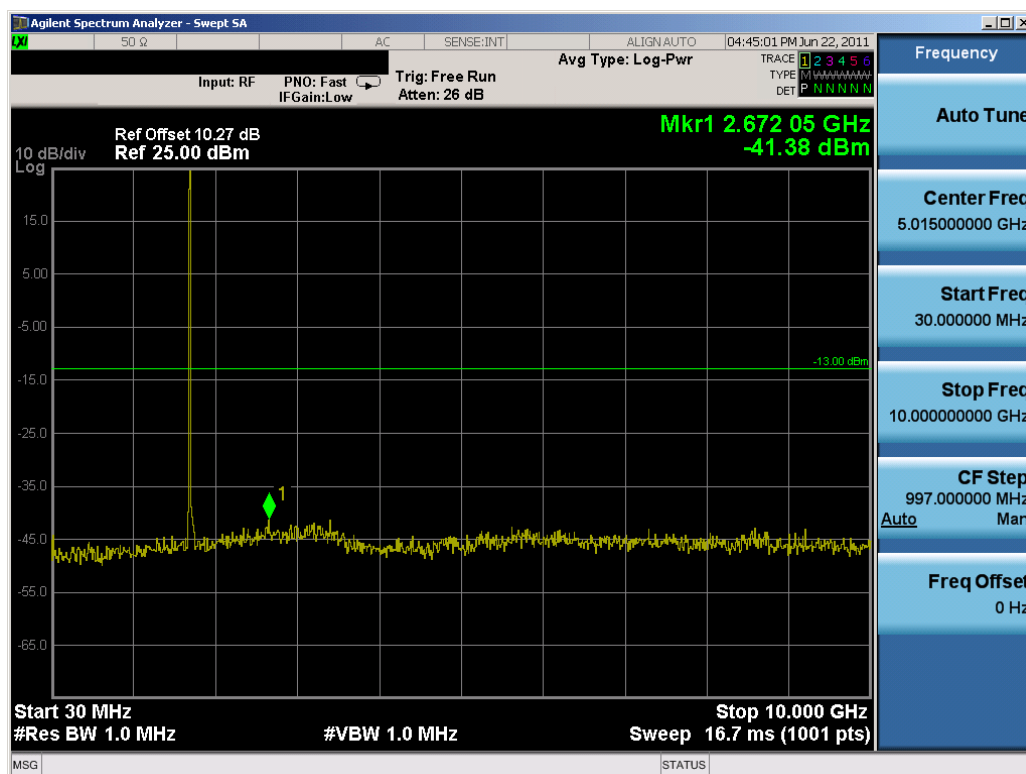


Plot 7-13. Band Edge Plot (1.4MHz BW, QPSK, AWS Band – High Channel)

FCC ID: A3LSCHR920	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset	Page 31 of 68

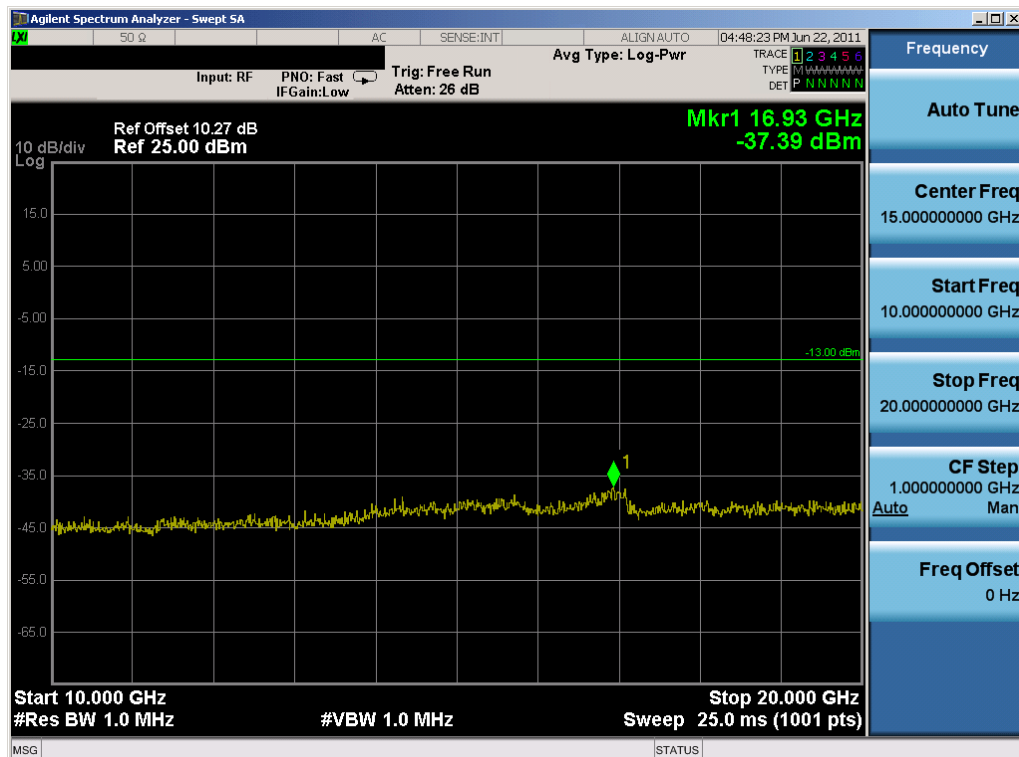


Plot 7-14. 4MHz Span Plot (1.4MHz BW, QPSK, AWS Band – High Channel)

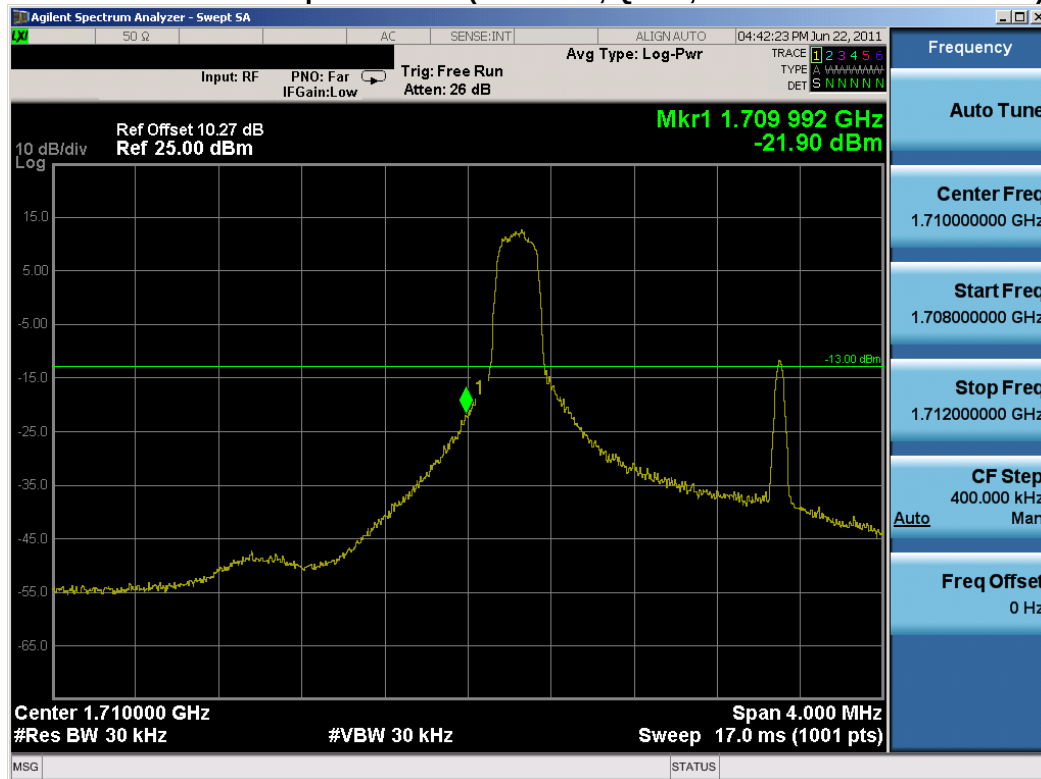


Plot 7-15. Conducted Spurious Plot (3MHz BW, QPSK, AWS Band – Low Channel)

FCC ID: A3LSCHR920		FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 32 of 68



Plot 7-16. Conducted Spurious Plot (3MHz BW, QPSK, AWS Band – Low Channel)

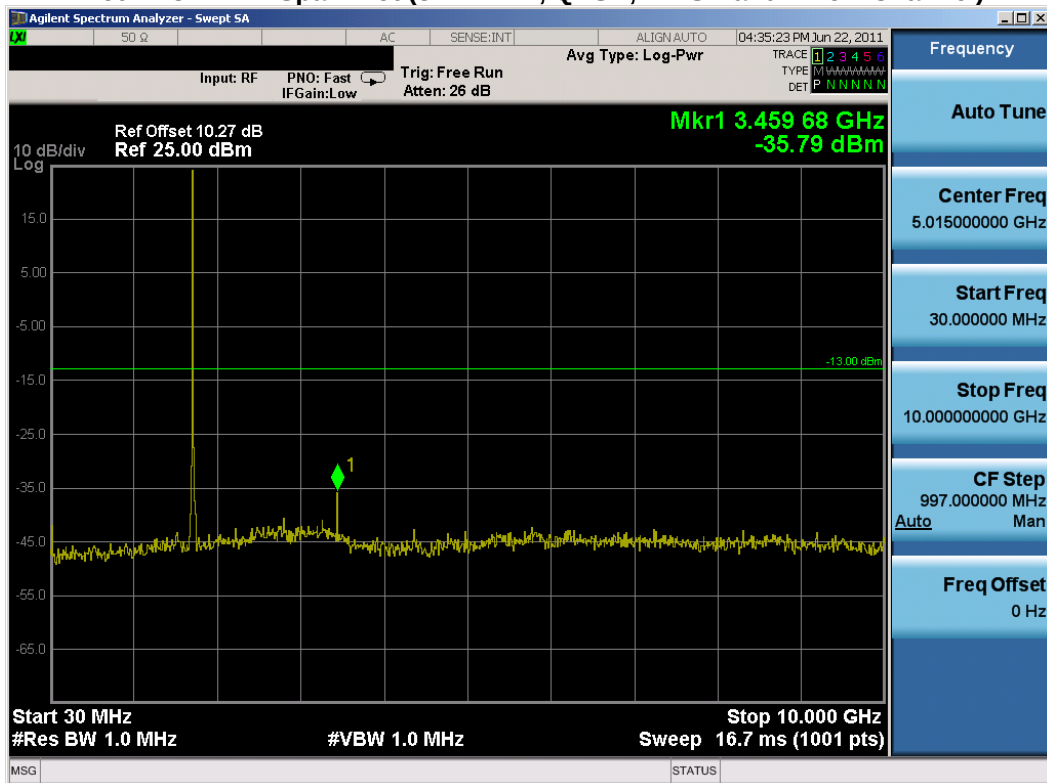


Plot 7-17. Band Edge Plot (3MHz BW, QPSK, AWS Band – Low Channel)

FCC ID: A3LSCHR920		FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 33 of 68

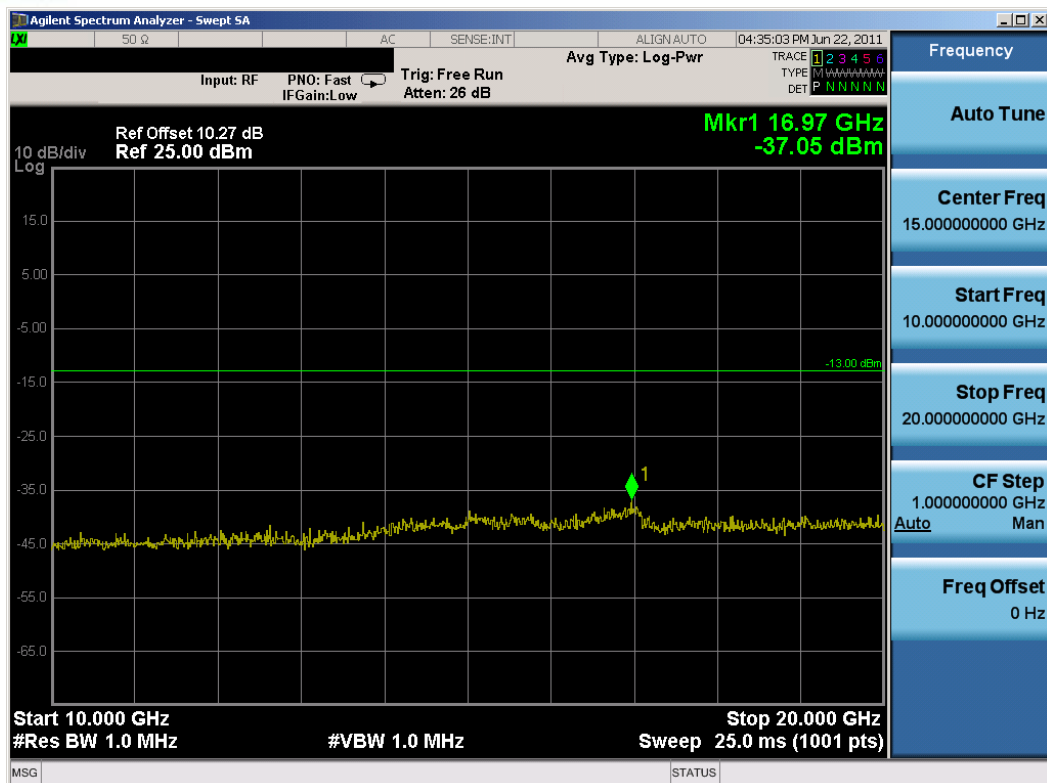


Plot 7-18. 4MHz Span Plot (3MHz BW, QPSK, AWS Band – Low Channel)

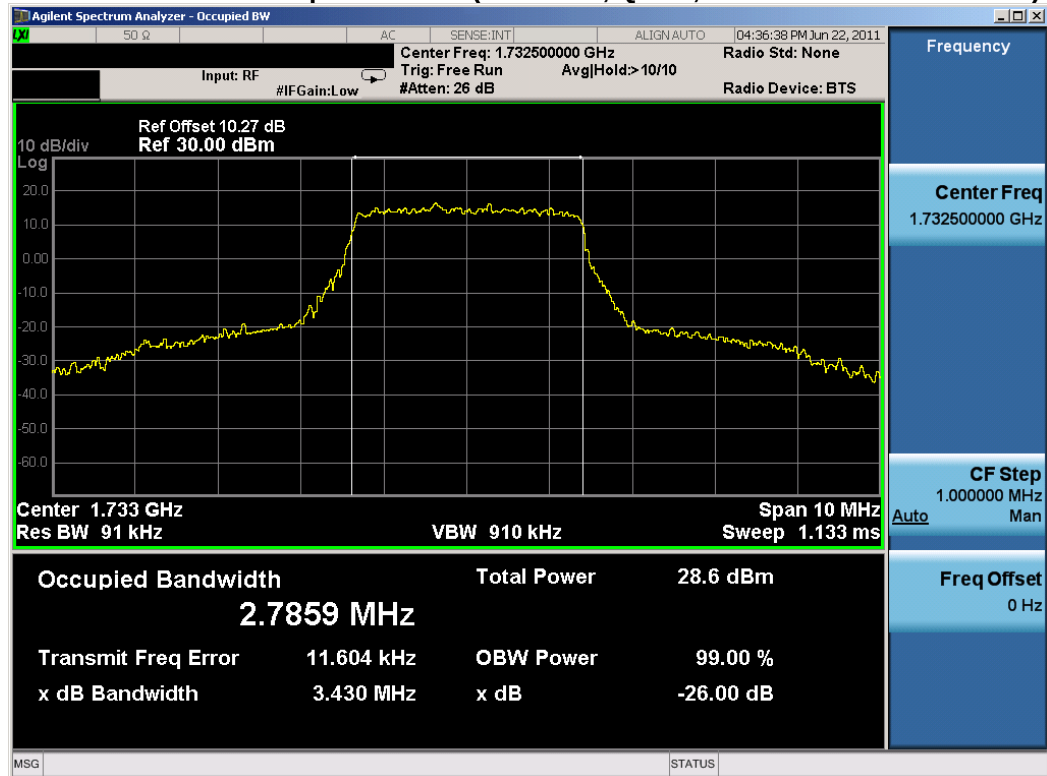


Plot 7-19. Conducted Spurious Plot (3MHz BW, QPSK, AWS Band – Mid Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 34 of 68

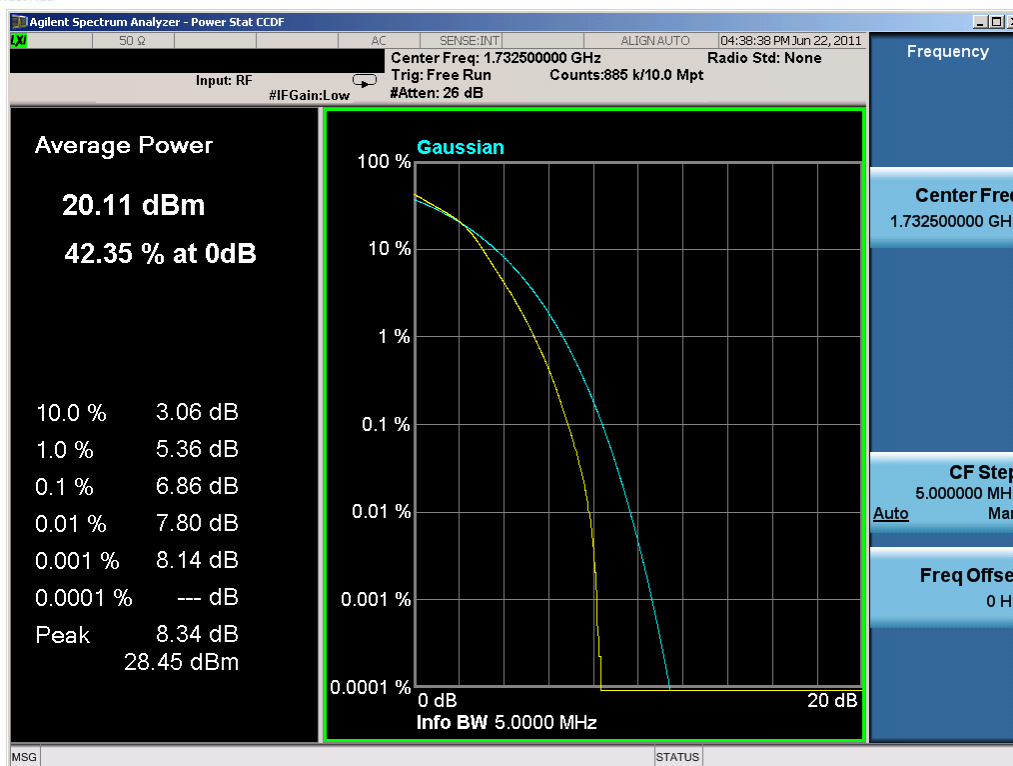


Plot 7-20. Conducted Spurious Plot (3MHz BW, QPSK, AWS Band – Mid Channel)

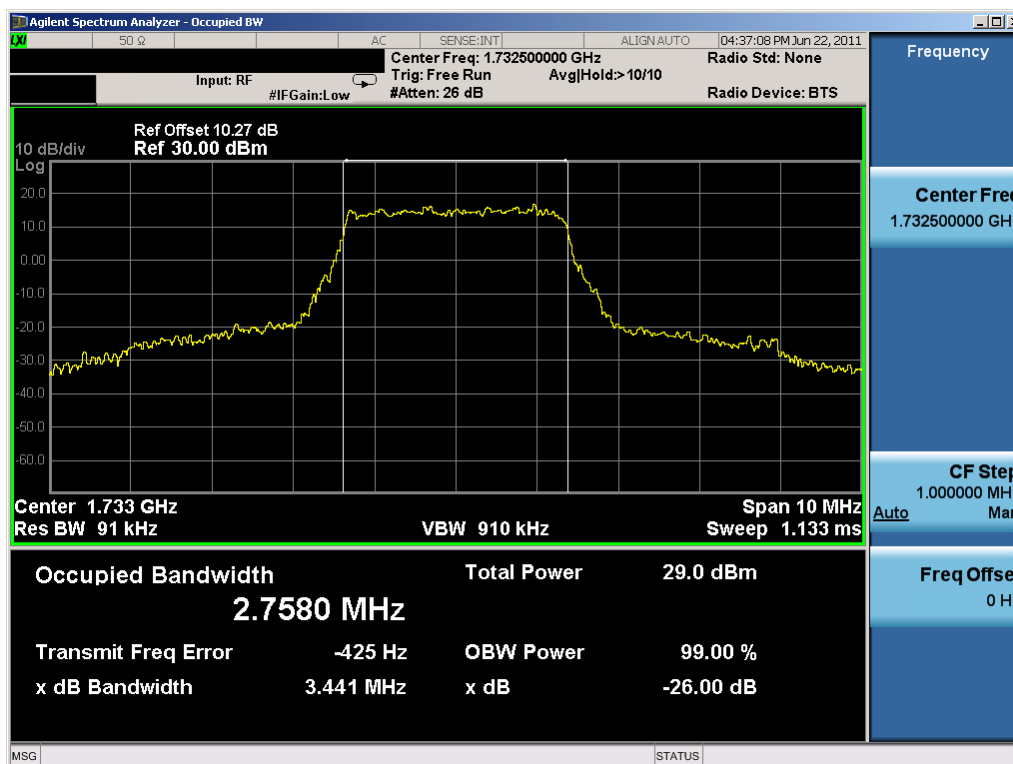


Plot 7-21. Occupied Bandwidth Plot (3MHz BW, QPSK, AWS Band – Mid Channel)

FCC ID: A3LSCHR920	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset	Page 35 of 68

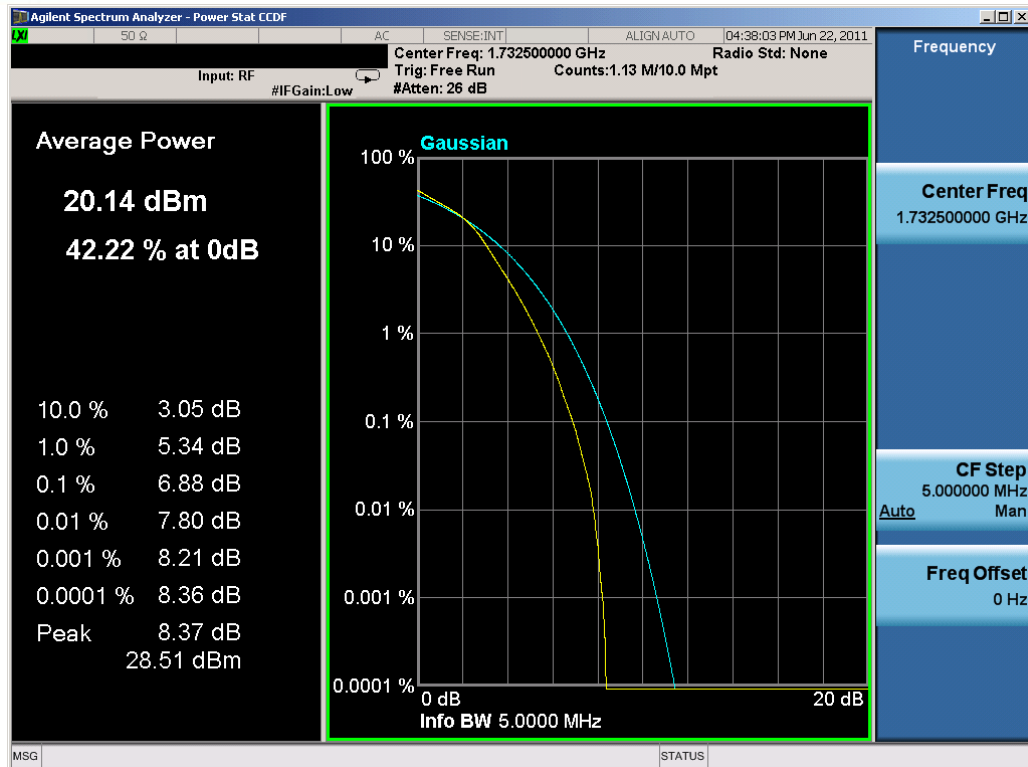


Plot 7-22. Peak-Average Ratio Plot (3MHz BW, QPSK, AWS Band – Mid Channel)

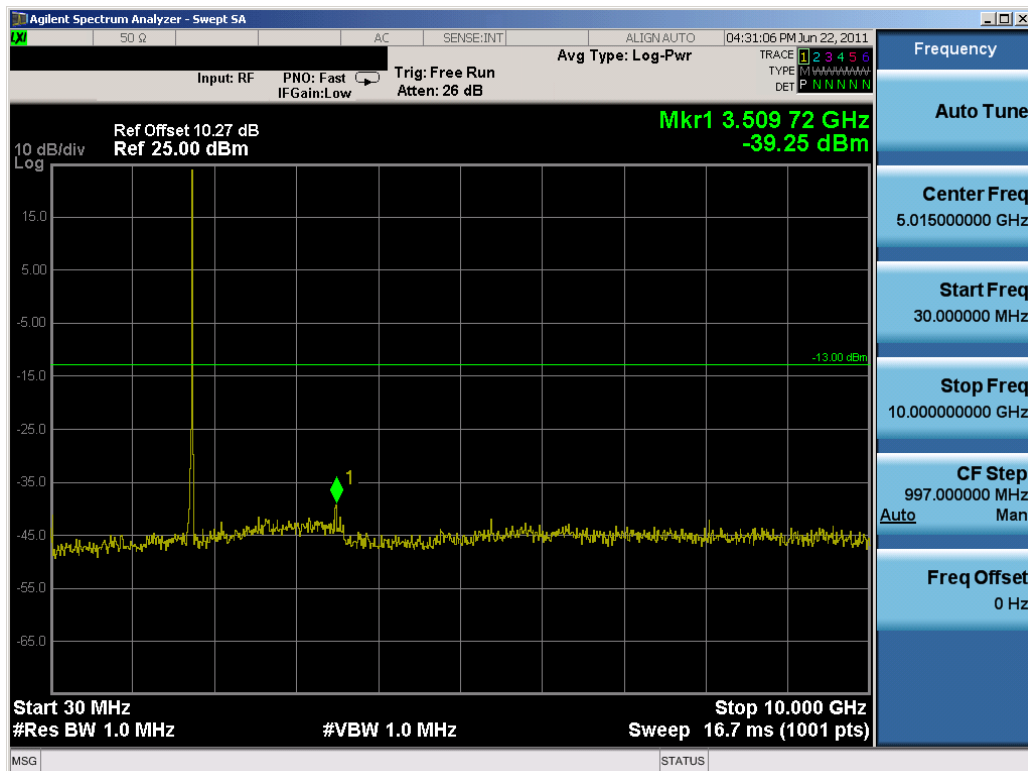


Plot 7-23. Occupied Bandwidth Plot (3MHz BW, 16-QAM, AWS Band – Mid Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 36 of 68

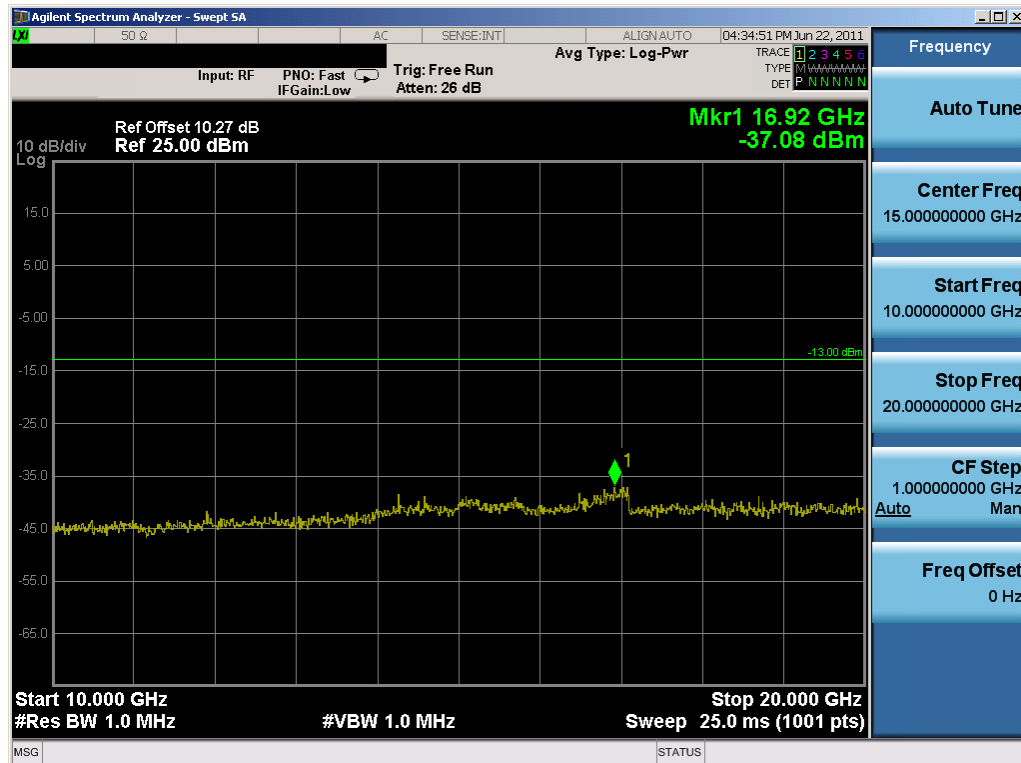


Plot 7-24. Peak-Average Ratio Plot (3MHz BW, 16-QAM, AWS Band – Mid Channel)

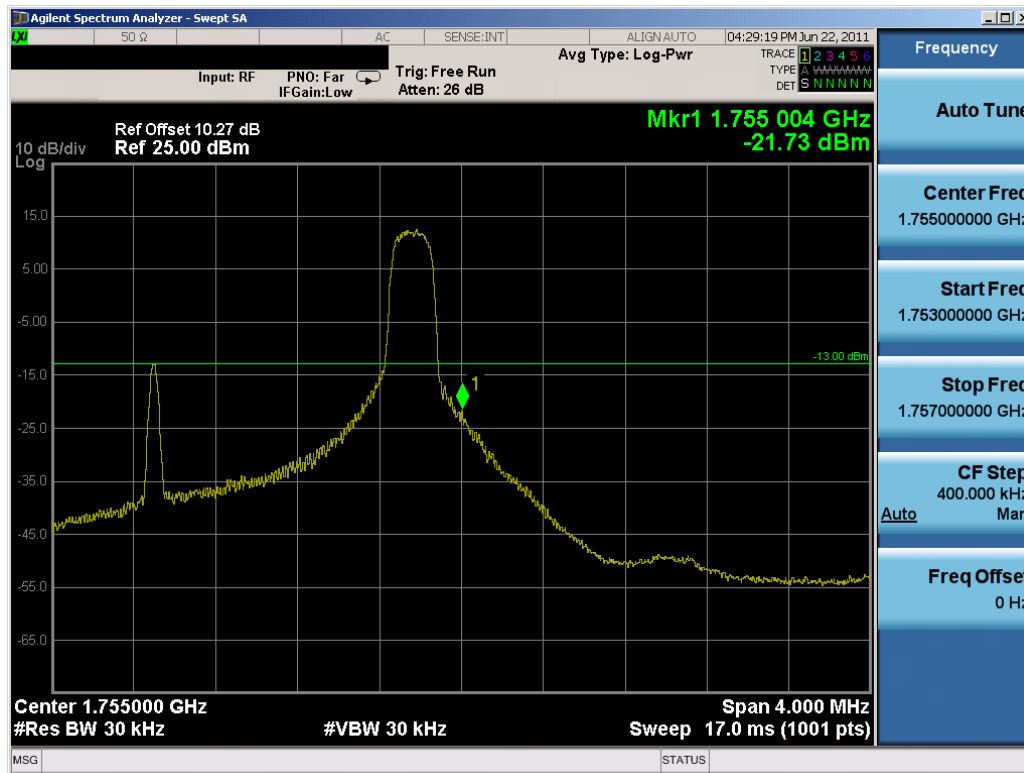


Plot 7-25. Conducted Spurious Plot (3MHz BW, QPSK, AWS Band – High Channel)

FCC ID: A3LSCHR920	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset	Page 37 of 68

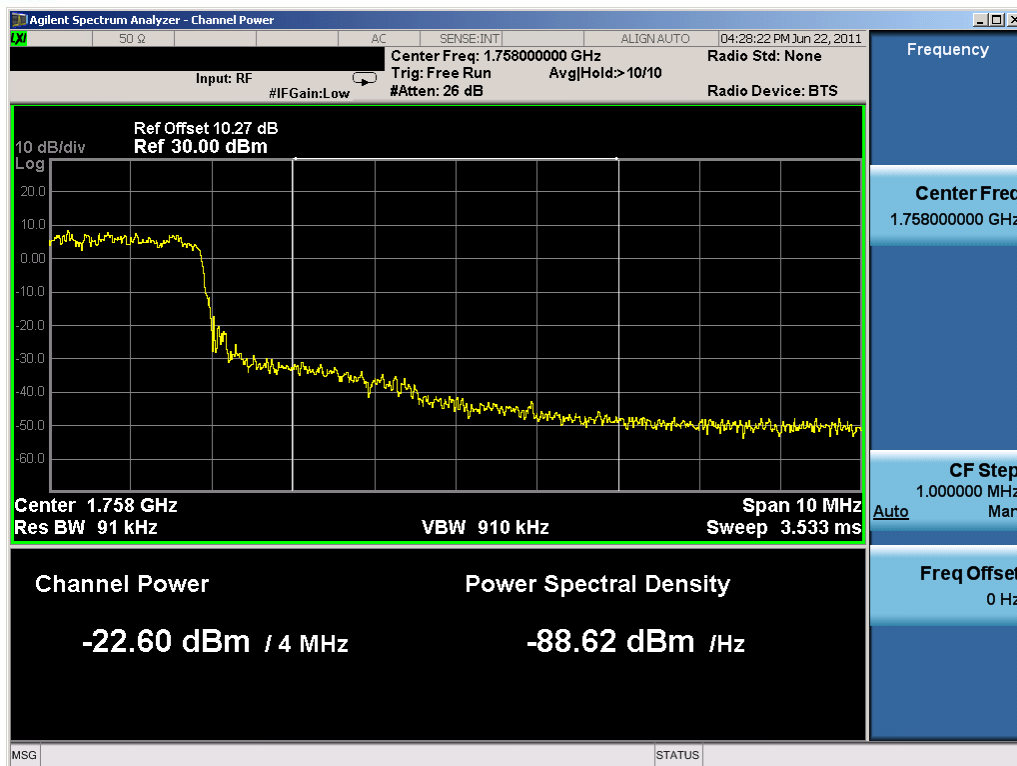


Plot 7-26. Conducted Spurious Plot (3MHz BW, QPSK, AWS Band – High Channel)

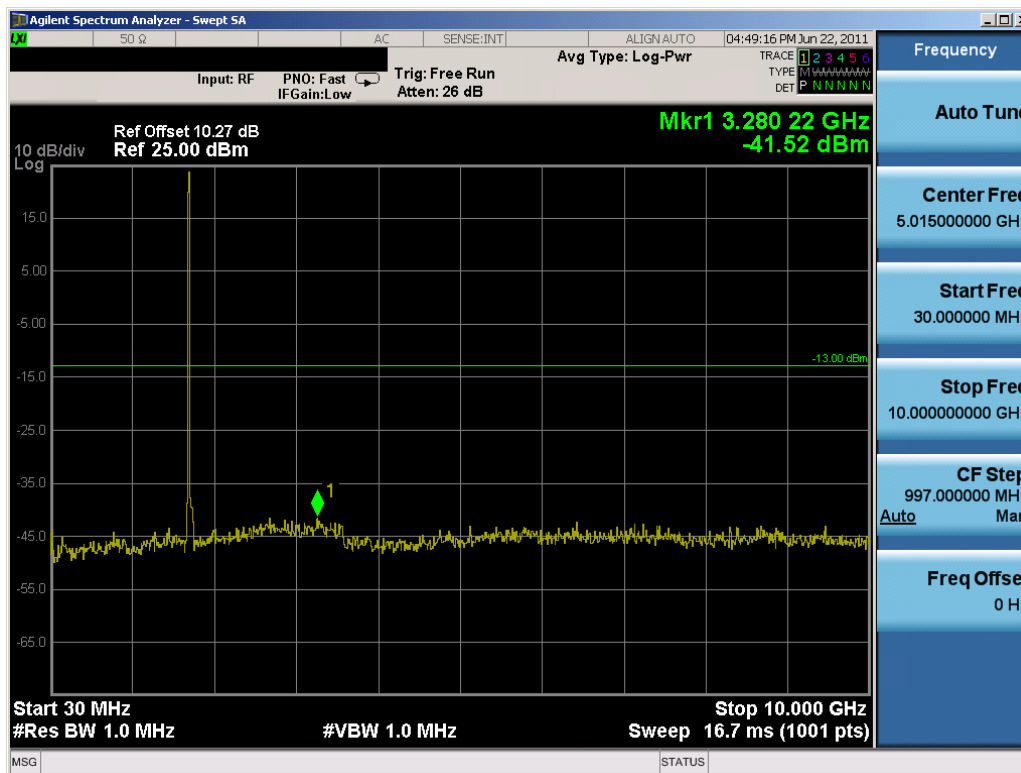


Plot 7-27. Band Edge Plot (3MHz BW, QPSK, AWS Band – High Channel)

FCC ID: A3LSCHR920	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset	Page 38 of 68

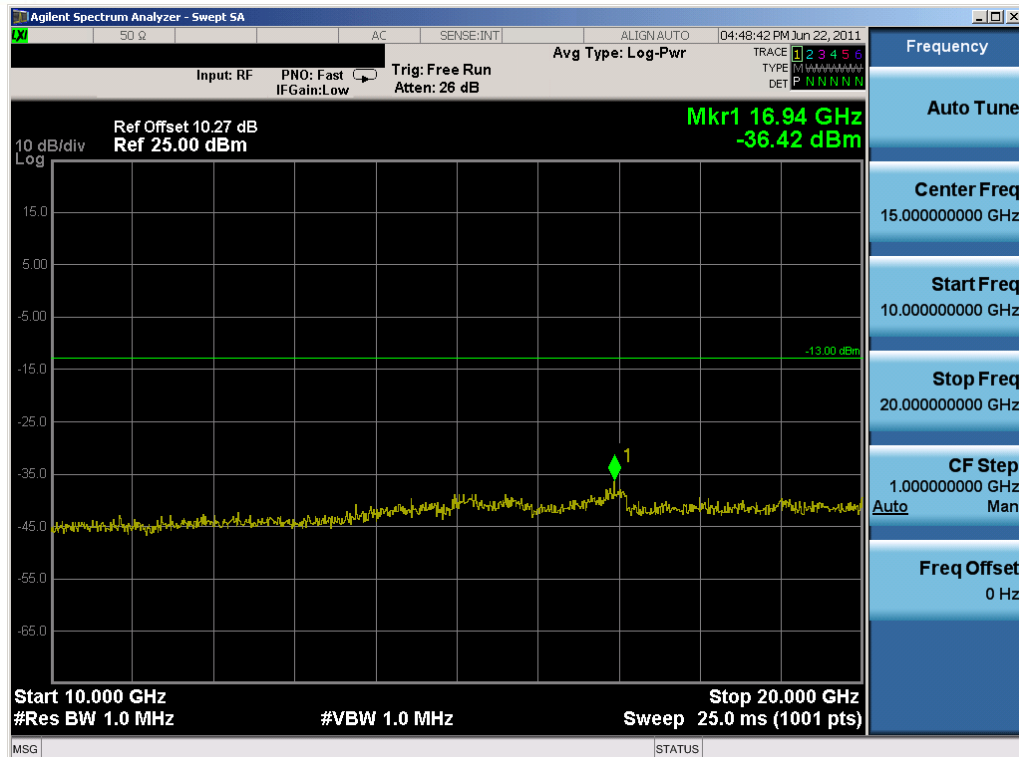


Plot 7-28. 4MHz Span Plot (3MHz BW, QPSK, AWS Band – High Channel)

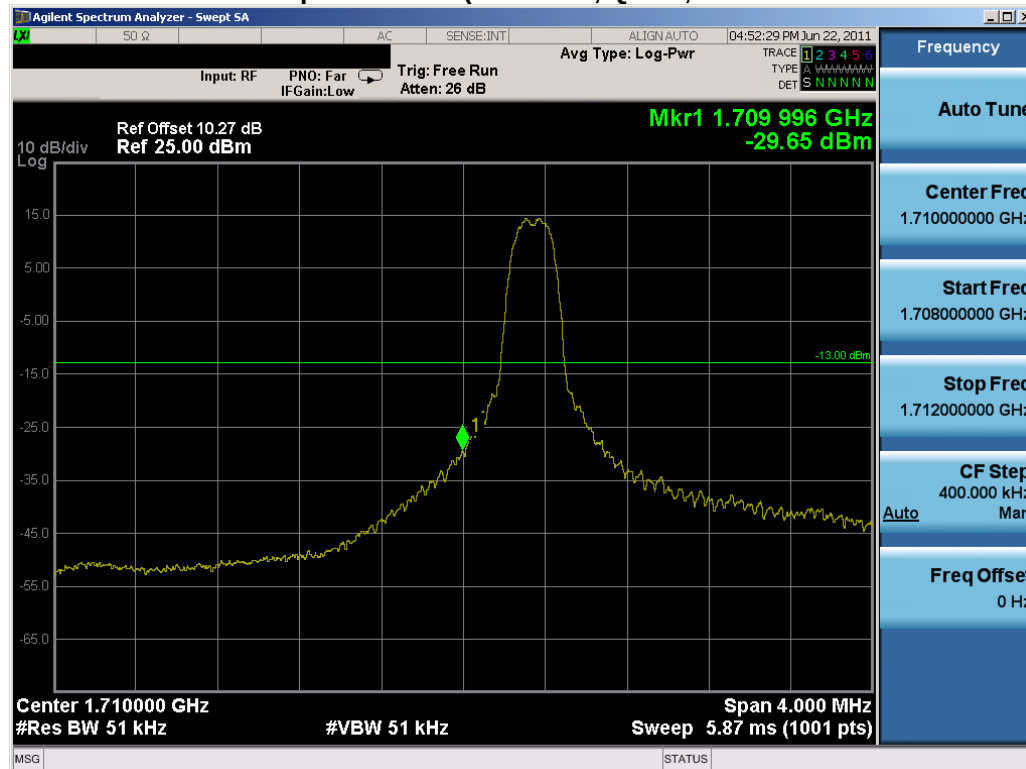


Plot 7-29. Conducted Spurious Plot (5MHz BW, QPSK, AWS Band – Low Channel)

FCC ID: A3LSCHR920	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset	Page 39 of 68

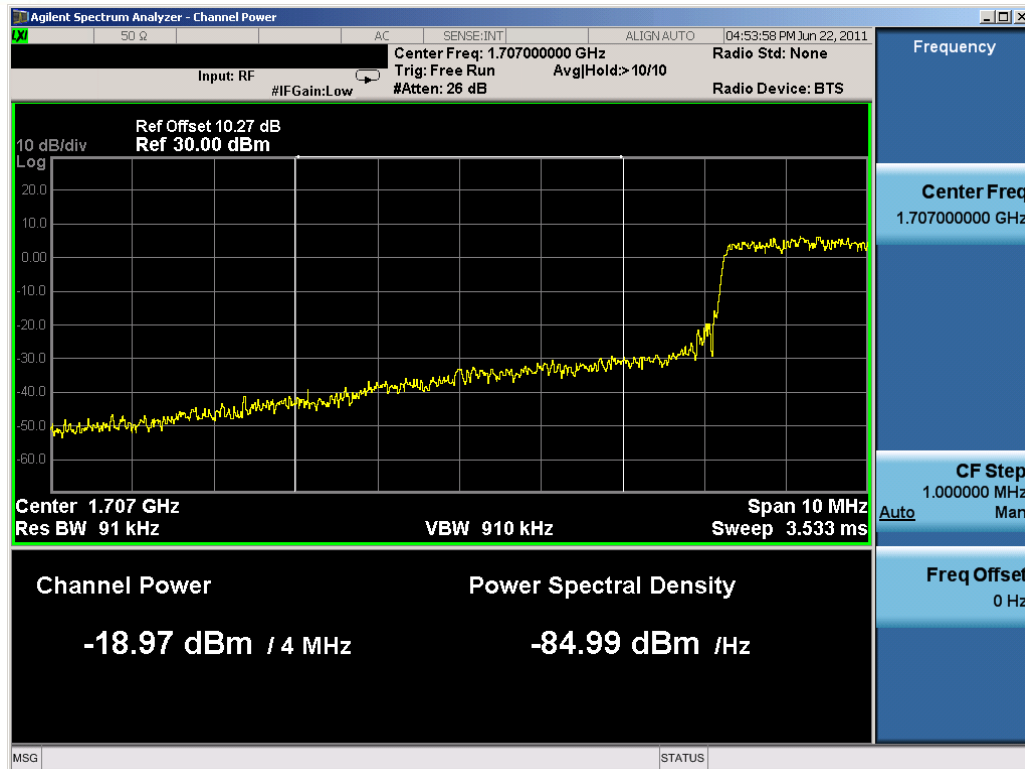


Plot 7-30. Conducted Spurious Plot (5MHz BW, QPSK, AWS Band – Low Channel)

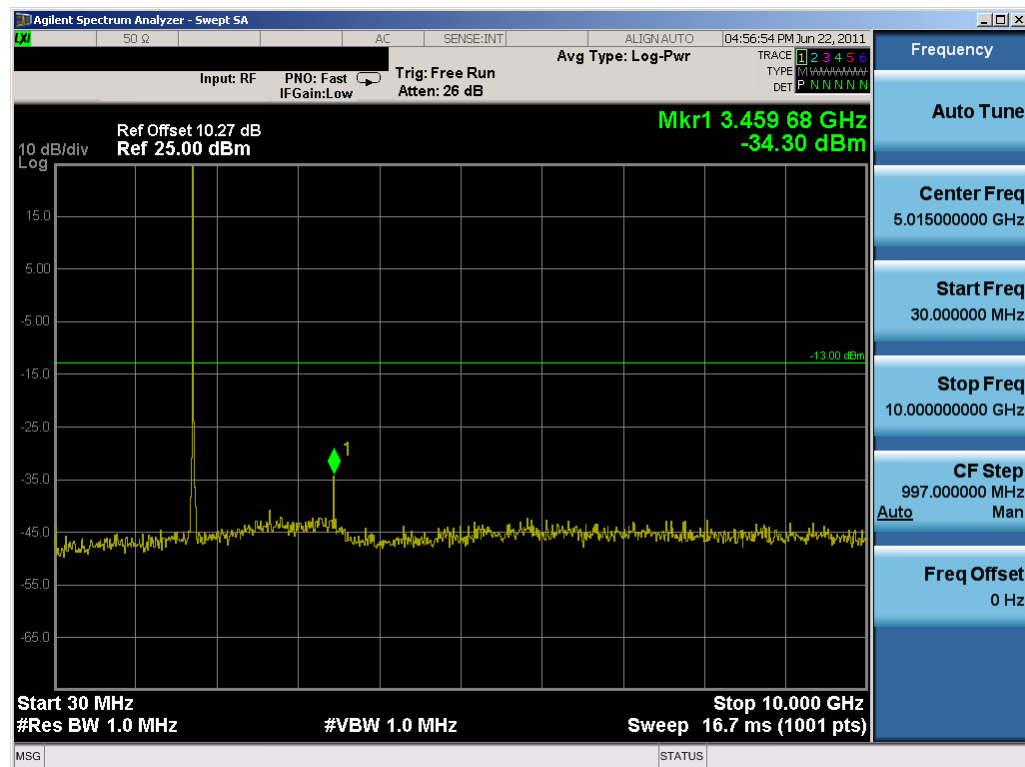


Plot 7-31. Band Edge Plot (5MHz BW, QPSK, AWS Band – Low Channel)

FCC ID: A3LSCHR920		FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 40 of 68

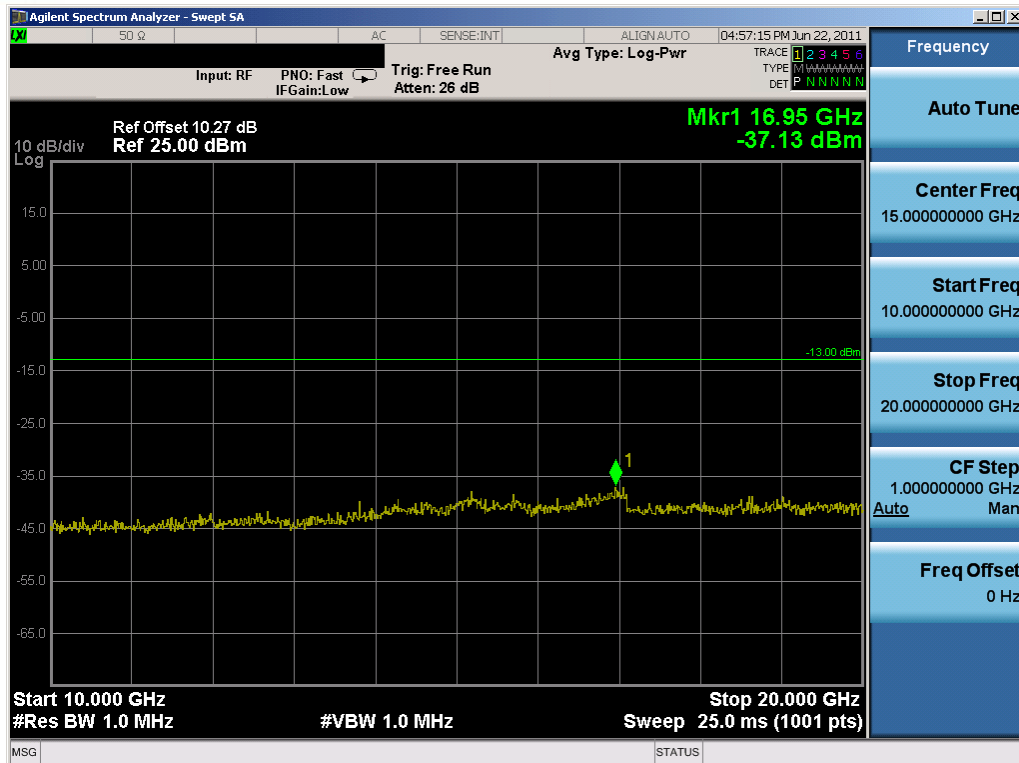


Plot 7-32. 4MHz Span Plot (5MHz BW, QPSK, AWS Band – Low Channel)

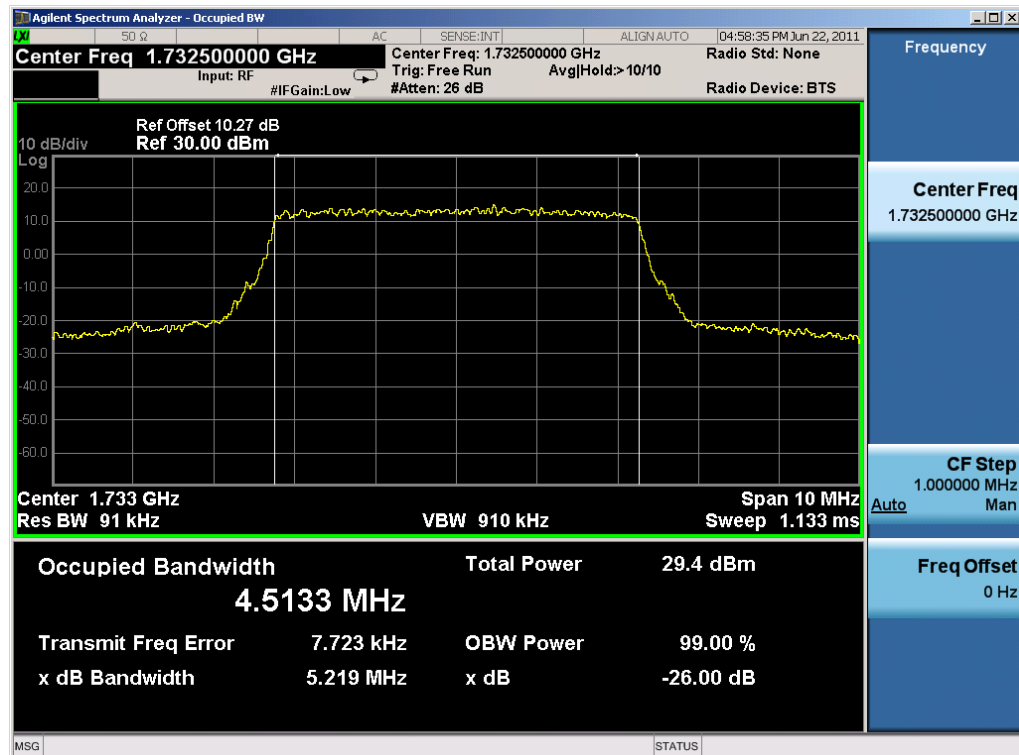


Plot 7-33. Conducted Spurious Plot (5MHz BW, QPSK, AWS Band – Mid Channel)

FCC ID: A3LSCHR920		FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 41 of 68

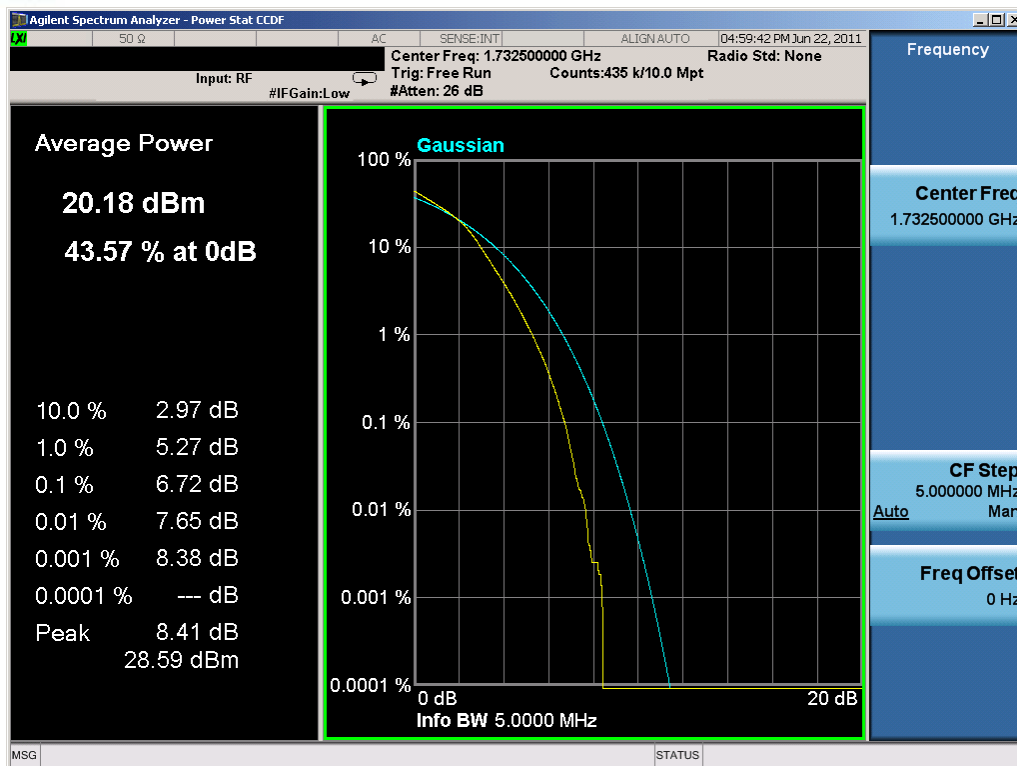


Plot 7-34. Conducted Spurious Plot (5MHz BW, QPSK, AWS Band – Mid Channel)

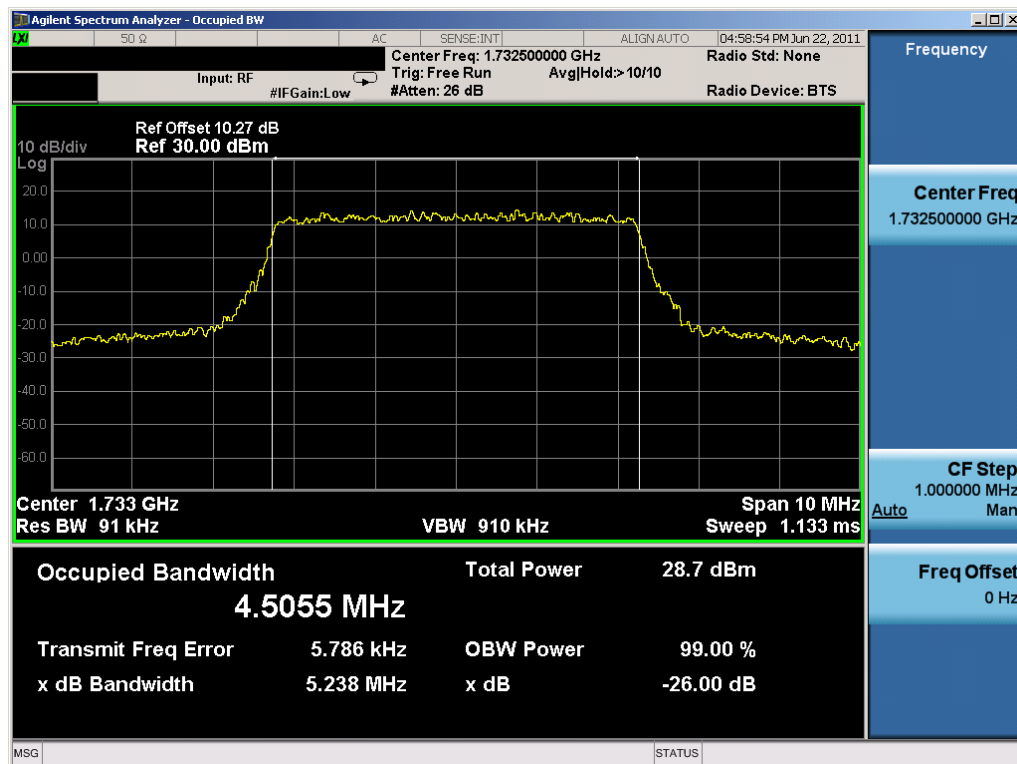


Plot 7-35. Occupied Bandwidth Plot (5MHz BW, QPSK, AWS Band – Mid Channel)

FCC ID: A3LSCHR920	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset	Page 42 of 68

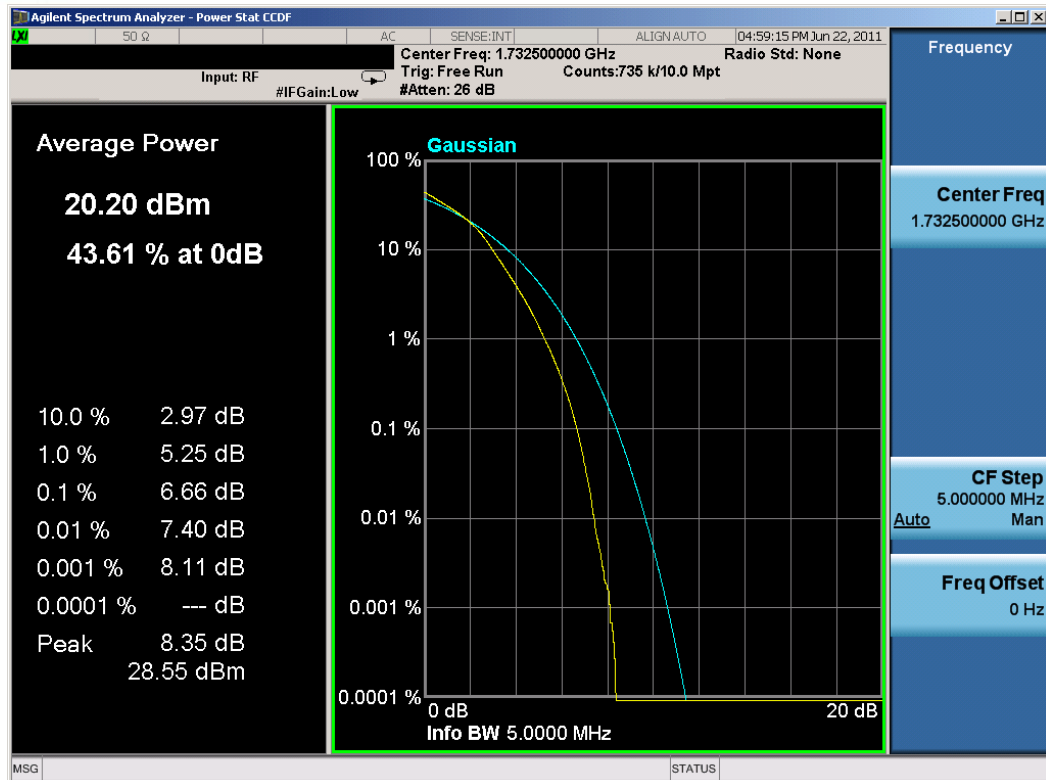


Plot 7-36. Peak-Average Ratio Plot (5MHz BW, QPSK, AWS Band – Mid Channel)

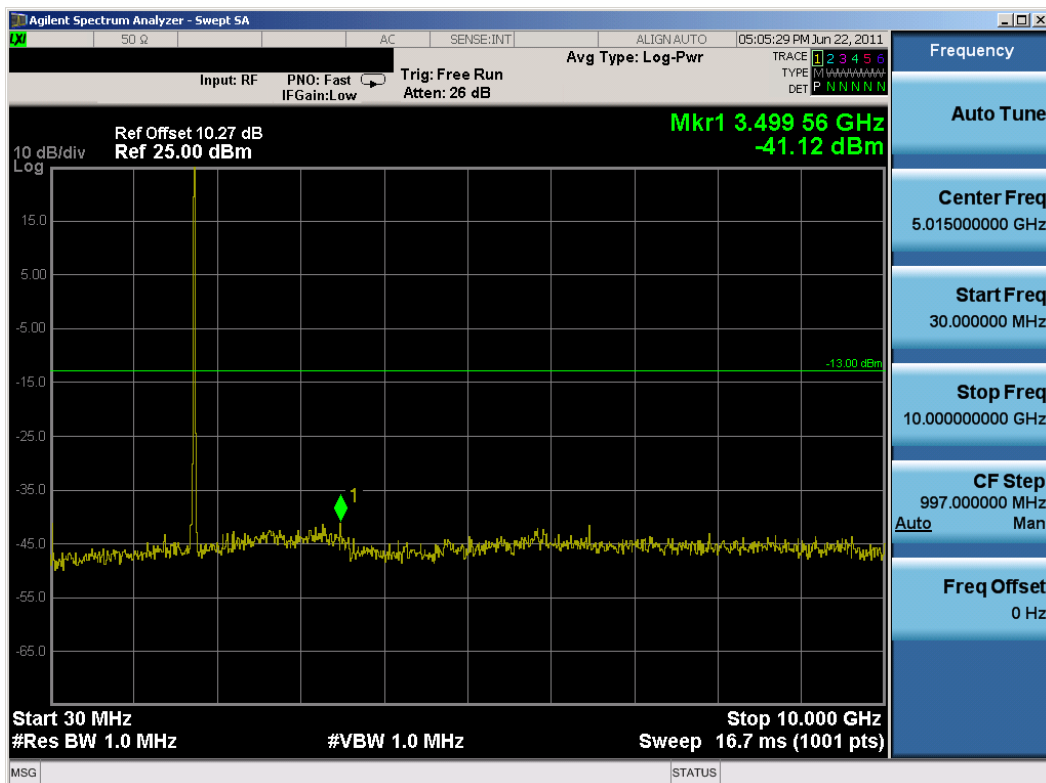


Plot 7-37. Occupied Bandwidth Plot (5MHz BW, 16-QAM, AWS Band – Mid Channel)

FCC ID: A3LSCHR920	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset	Page 43 of 68

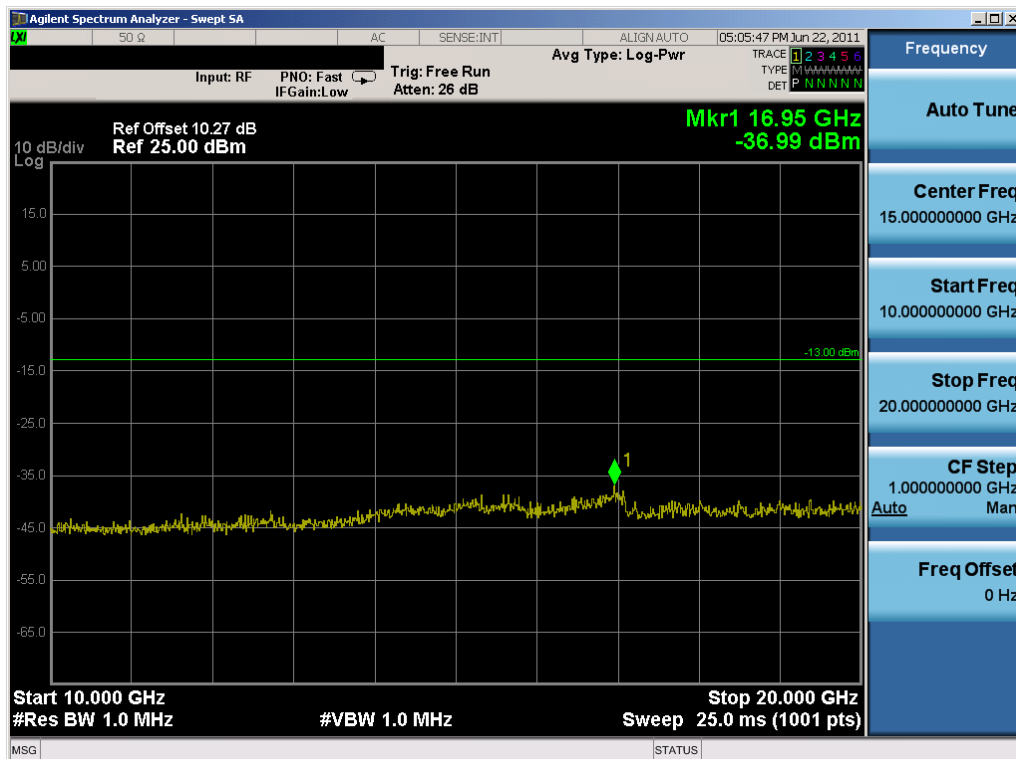


Plot 7-38. Peak-Average Ratio Plot (5MHz BW, 16-QAM, AWS Band – Mid Channel)

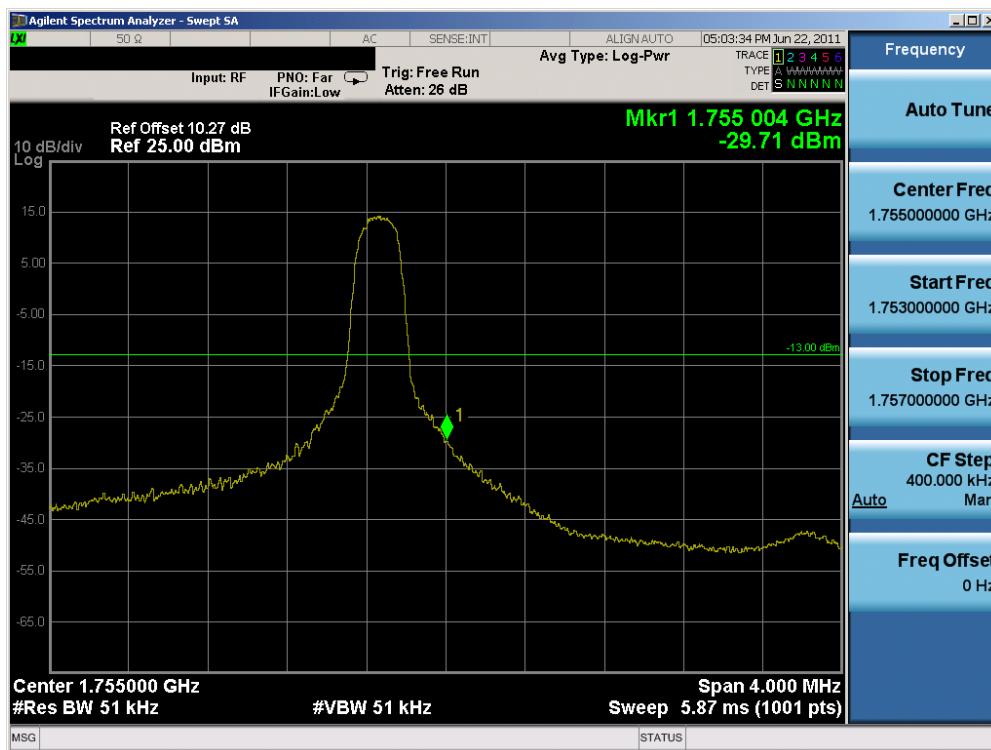


Plot 7-39. Conducted Spurious Plot (5MHz BW, QPSK, AWS Band – High Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 44 of 68



Plot 7-40. Conducted Spurious Plot (5MHz BW, QPSK, AWS Band – High Channel)



Plot 7-41. Band Edge Plot (5MHz BW, QPSK, AWS Band – High Channel)

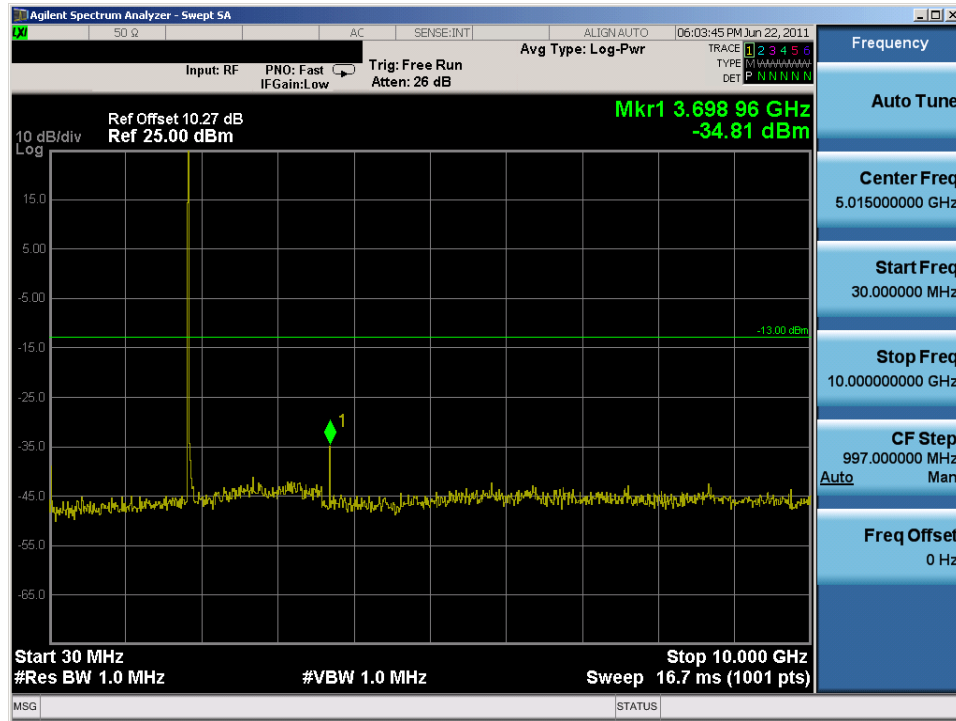
FCC ID: A3LSCHR920		FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 45 of 68



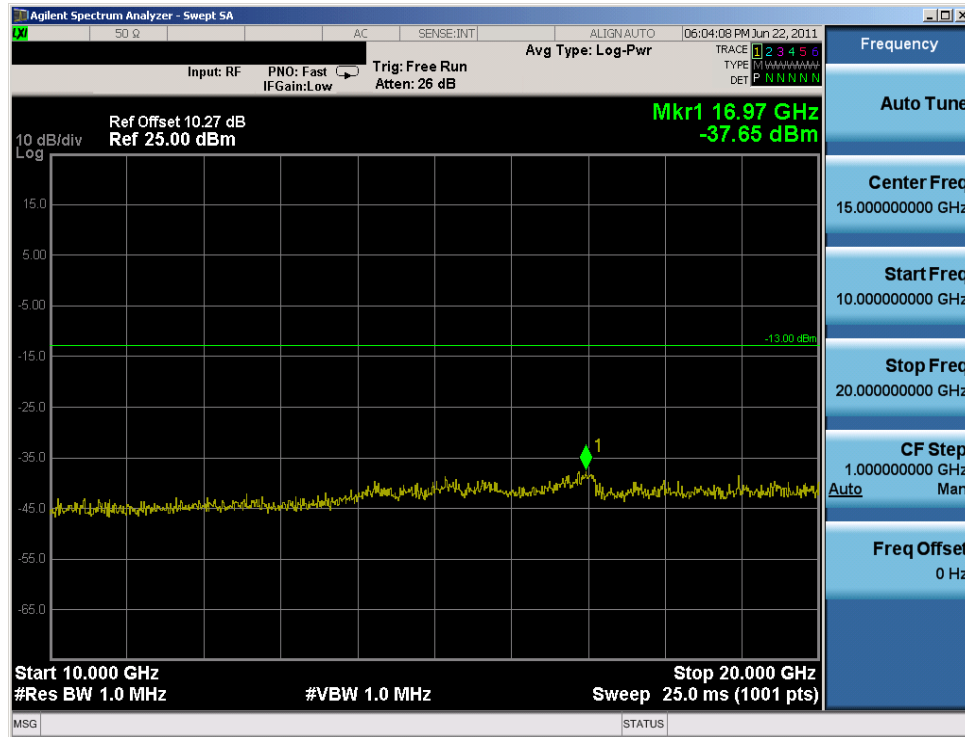
Plot 7-42. 4MHz Span Plot (5MHz BW, QPSK, AWS Band – High Channel)

FCC ID: A3LSCHR920			FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset	Page 46 of 68		

8.0 PLOT(S) OF EMISSIONS – PCS BAND

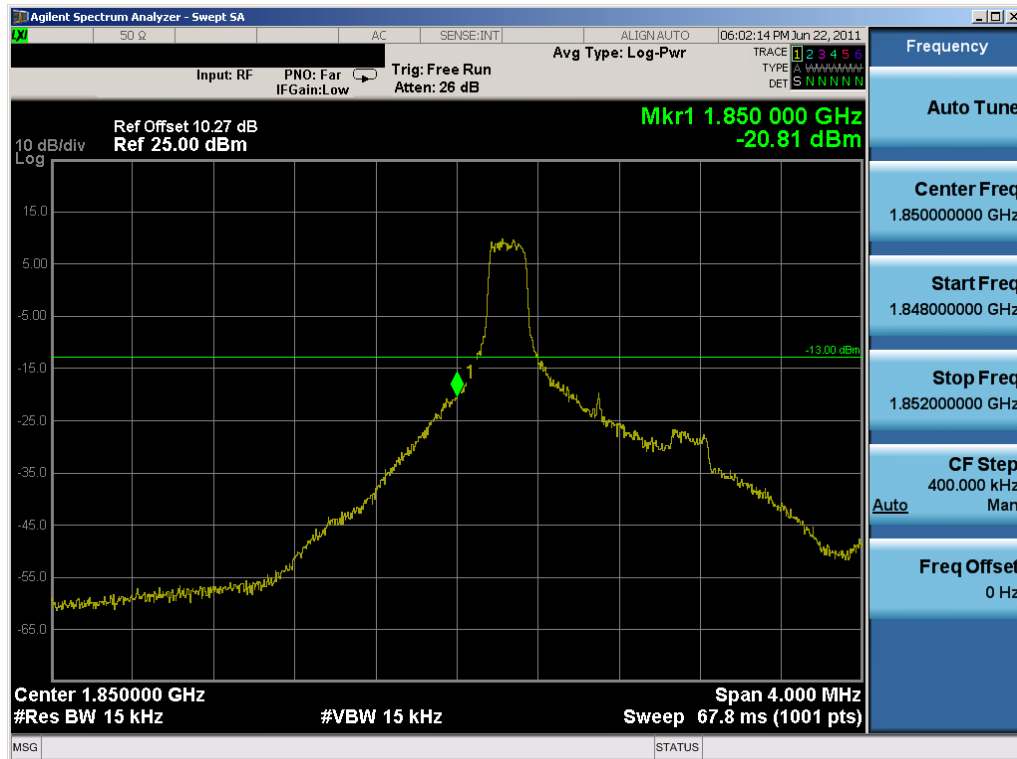


Plot 8-1. Conducted Spurious Plot (1.4MHz BW, QPSK, PCS Band – Low Channel)

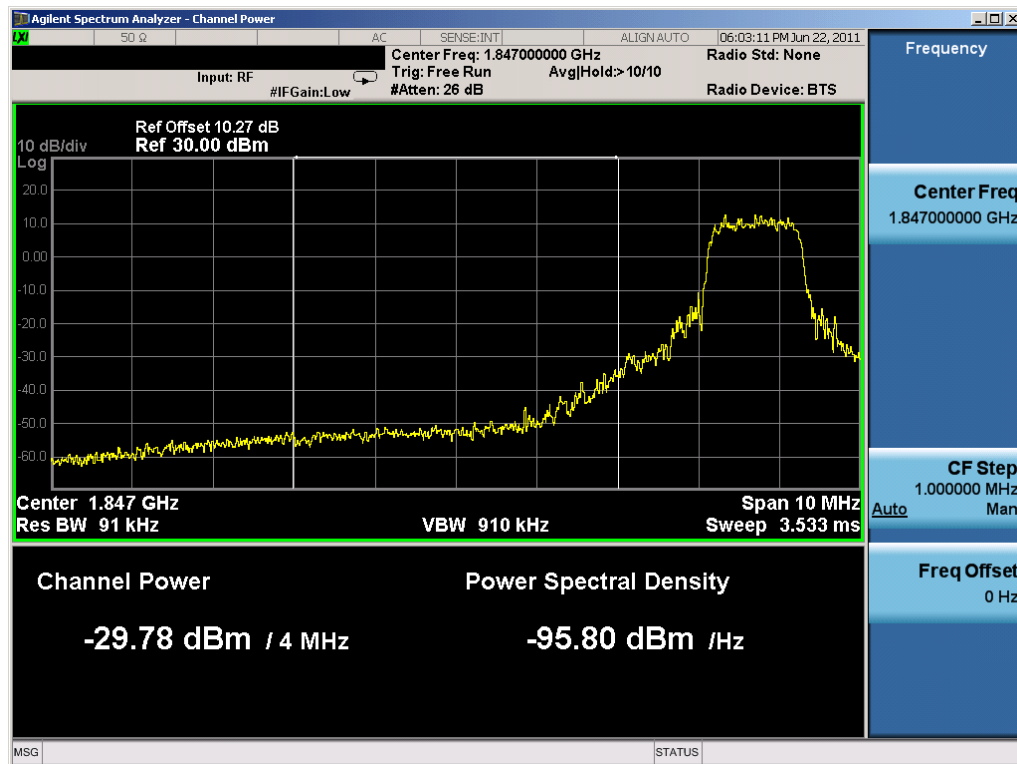


Plot 8-2. Conducted Spurious Plot (1.4MHz BW, QPSK, PCS Band – Low Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 47 of 68

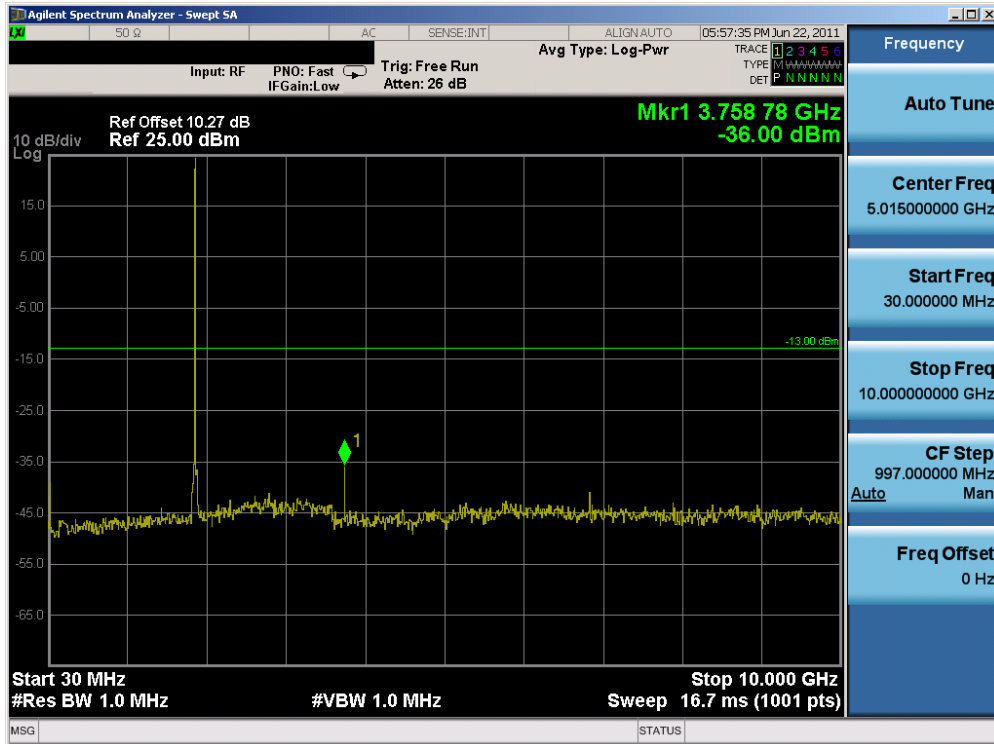


Plot 8-3. Band Edge Plot (1.4MHz BW, QPSK, PCS Band – Low Channel)

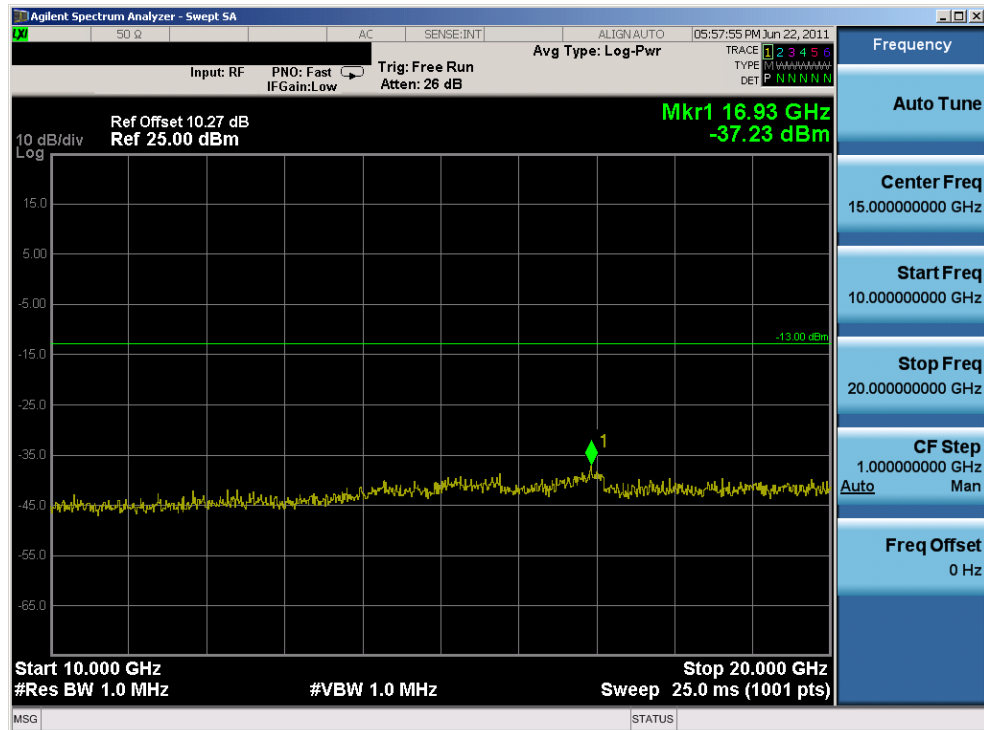


Plot 8-4. 4MHz Span Plot (1.4MHz BW, QPSK, PCS Band – Low Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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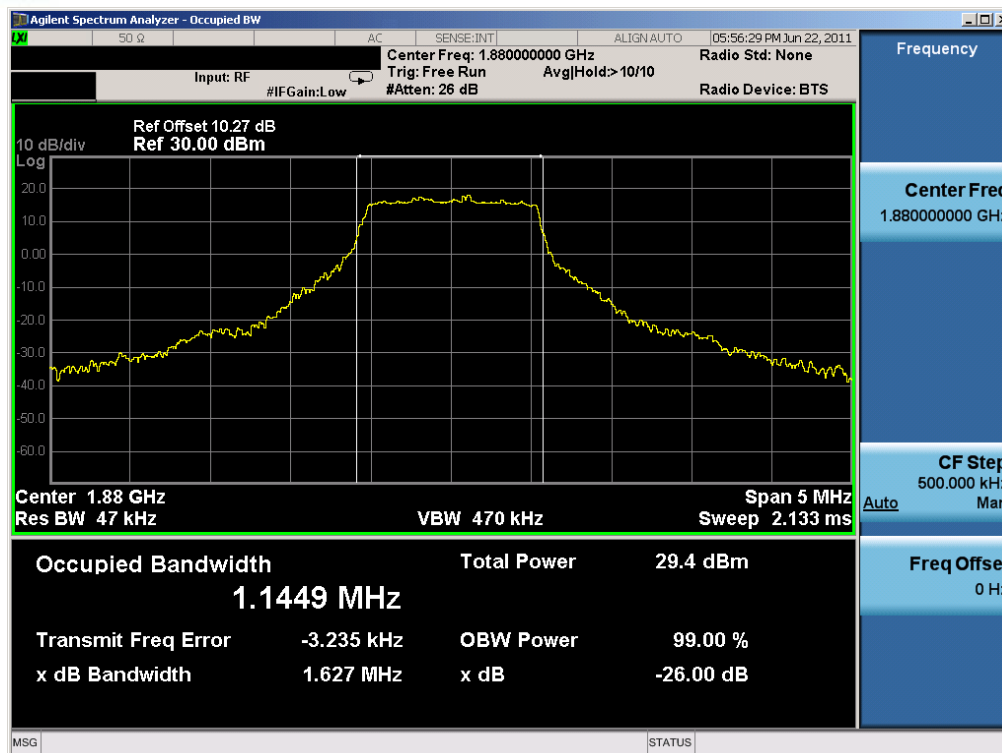


Plot 8-5. Conducted Spurious Plot (1.4MHz BW, QPSK, PCS Band – Mid Channel)

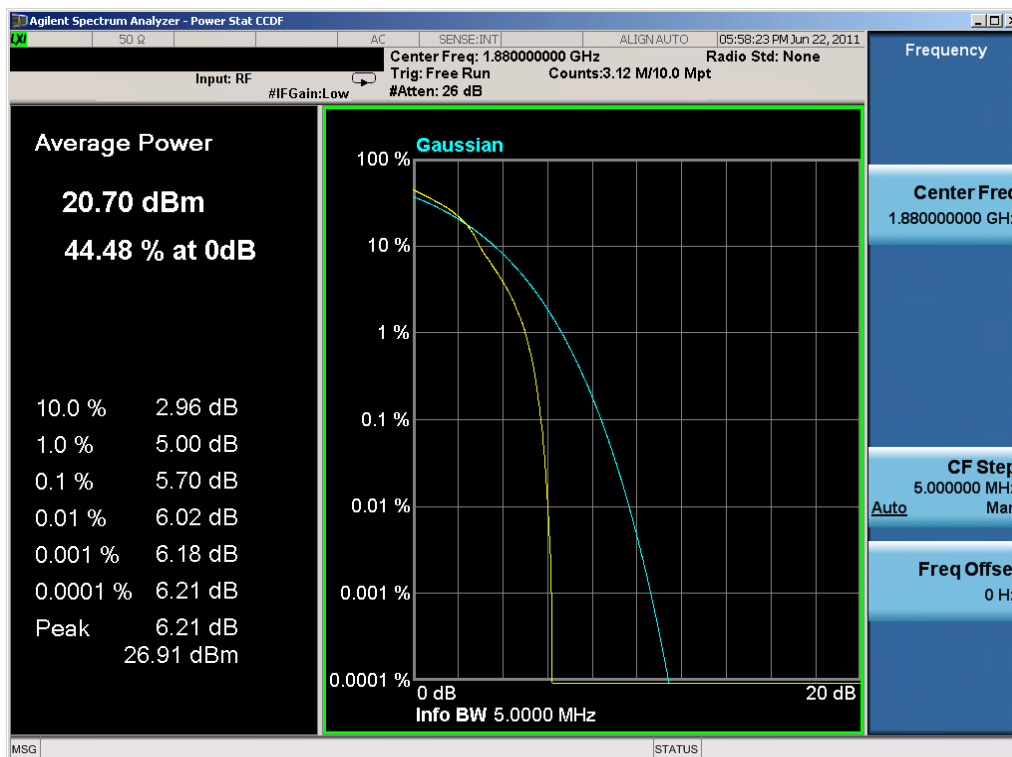


Plot 8-6. Conducted Spurious Plot (1.4MHz BW, QPSK, PCS Band – Mid Channel)

FCC ID: A3LSCHR920	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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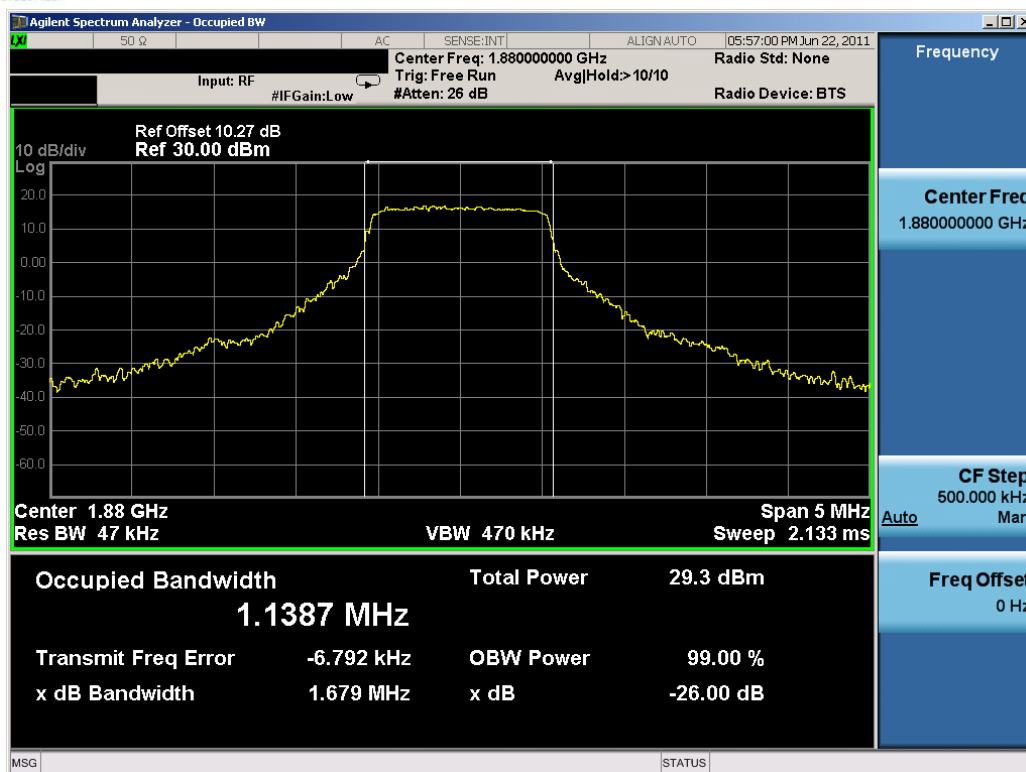


Plot 8-7. Occupied Bandwidth Plot (1.4MHz BW, QPSK, PCS Band – Mid Channel)

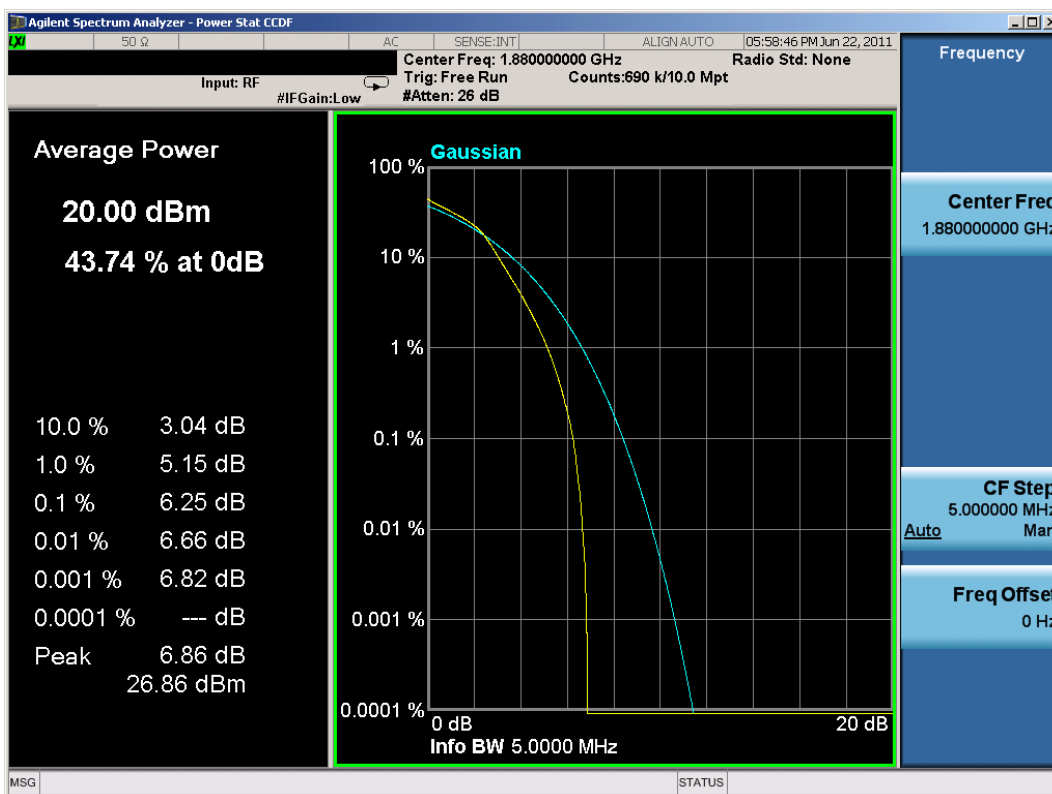


Plot 8-8. Peak-Average Ratio Plot (1.4MHz BW, QPSK, PCS Band – Mid Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 50 of 68

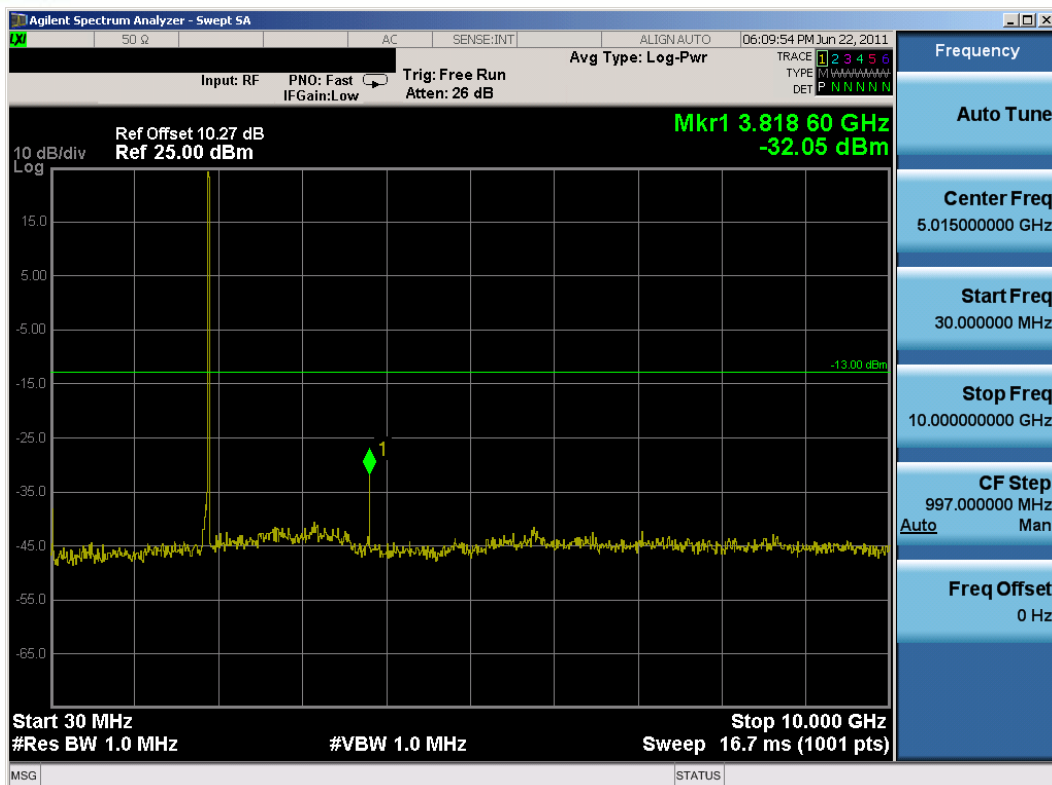


Plot 8-9. Occupied Bandwidth Plot (1.4MHz BW, 16-QAM, PCS Band – Mid Channel)

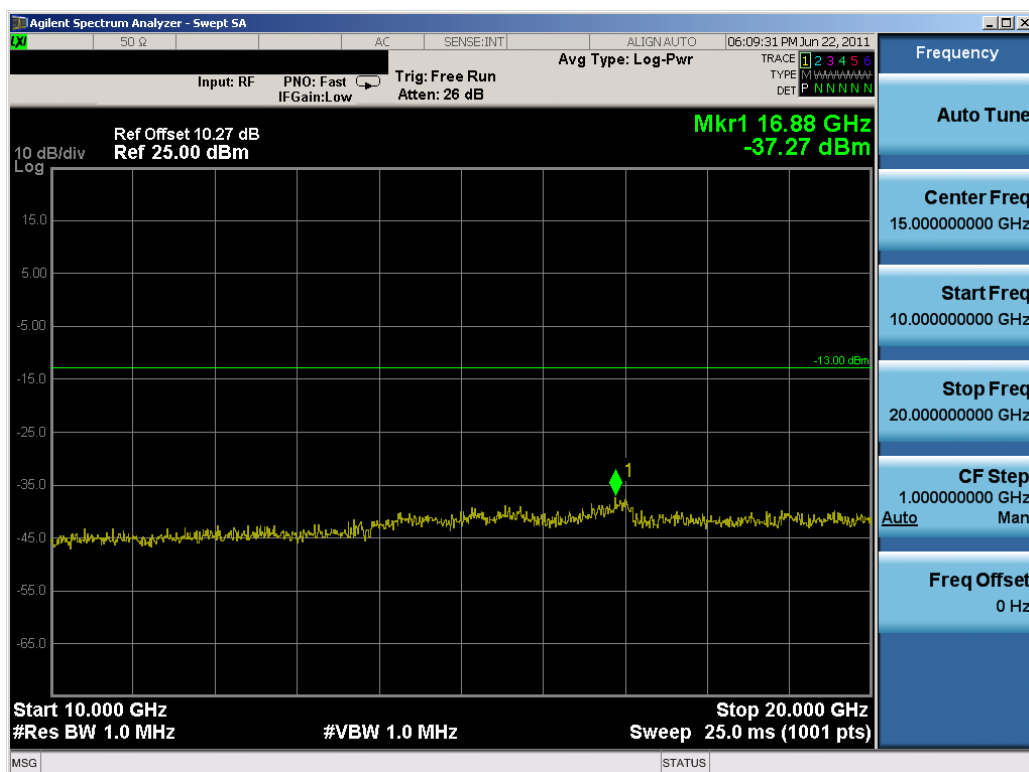


Plot 8-10. Peak-Average Ratio Plot (1.4MHz BW, 16-QAM, PCS Band – Mid Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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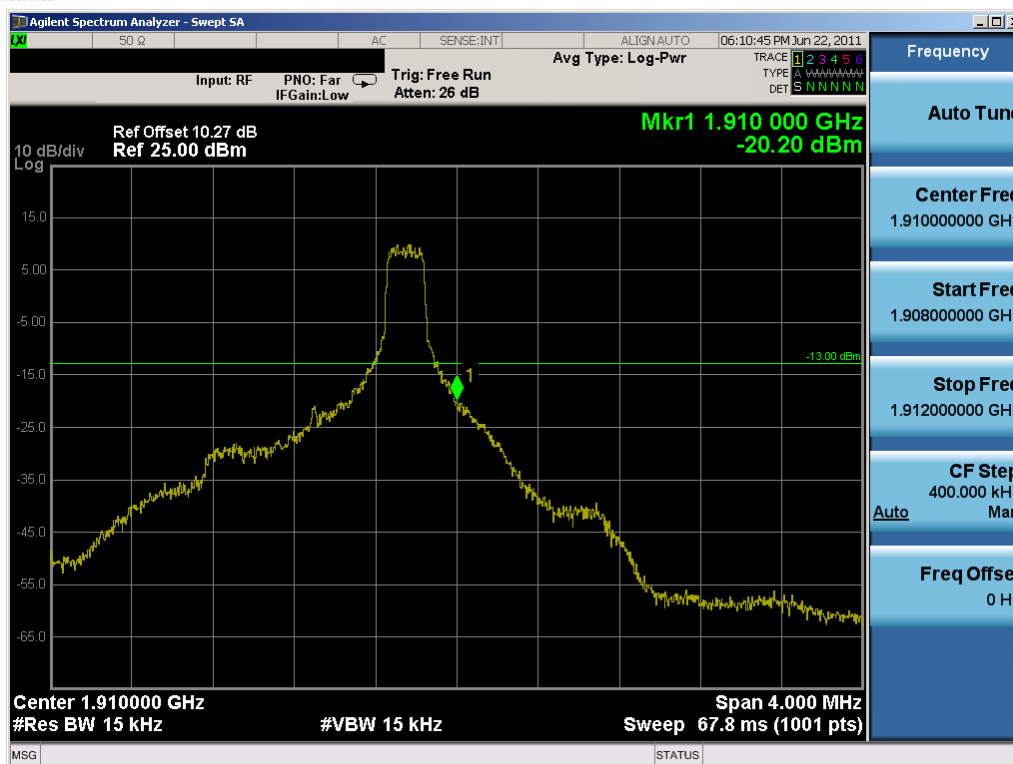


Plot 8-11. Conducted Spurious Plot (1.4MHz BW, QPSK, PCS Band – High Channel)

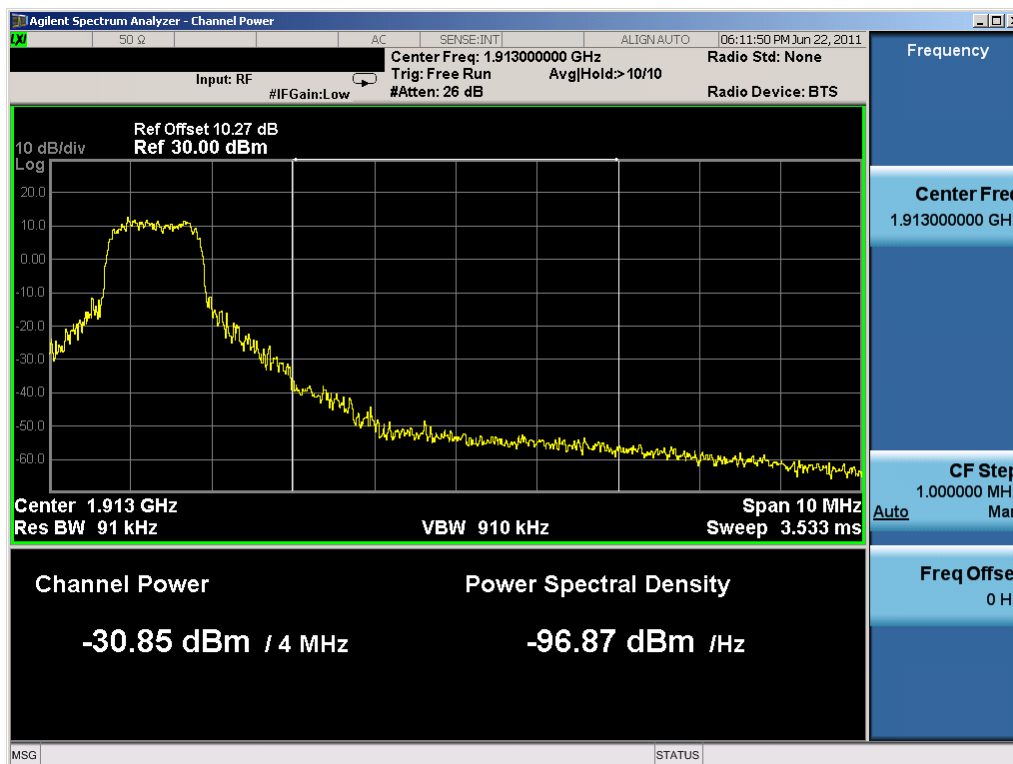


Plot 8-12. Conducted Spurious Plot (1.4MHz BW, QPSK, PCS Band – High Channel)

FCC ID: A3LSCHR920	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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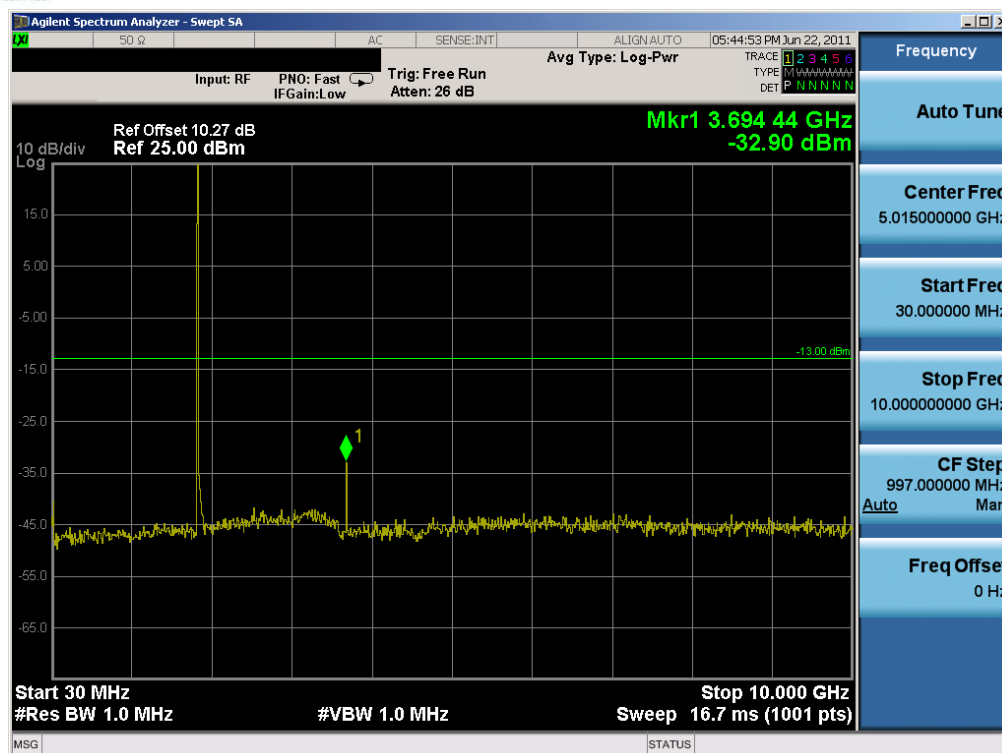


Plot 8-13. Band Edge Plot (1.4MHz BW, QPSK, PCS Band – High Channel)

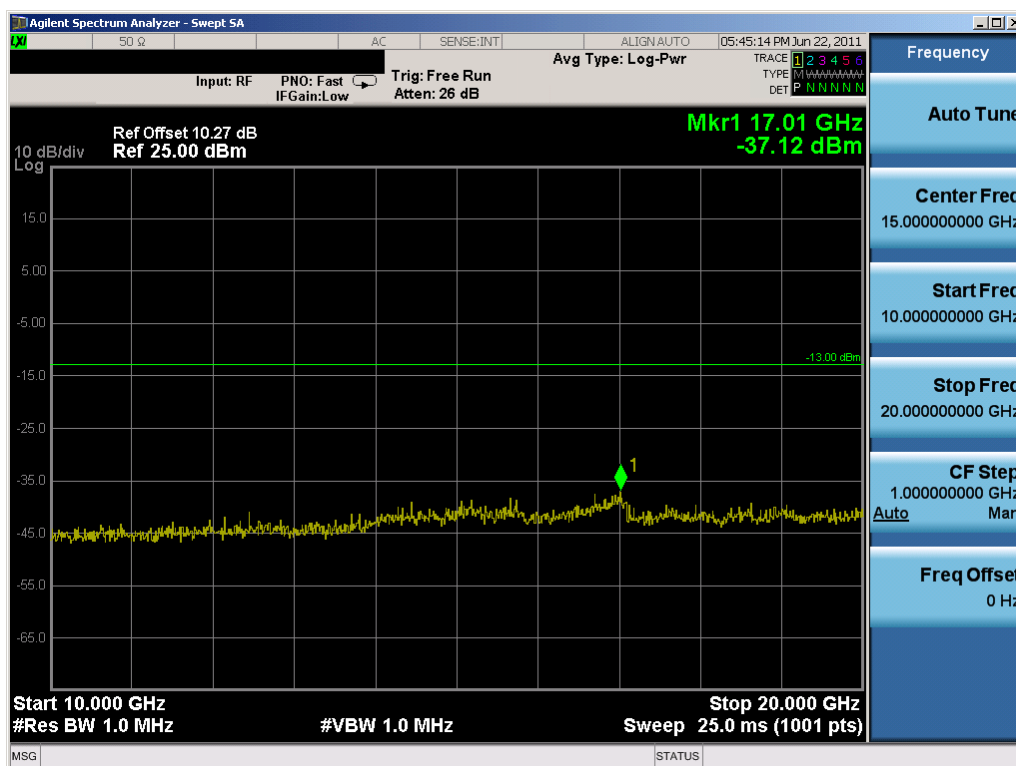


Plot 8-14. 4MHz Span Plot (1.4MHz BW, QPSK, PCS Band – High Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 53 of 68

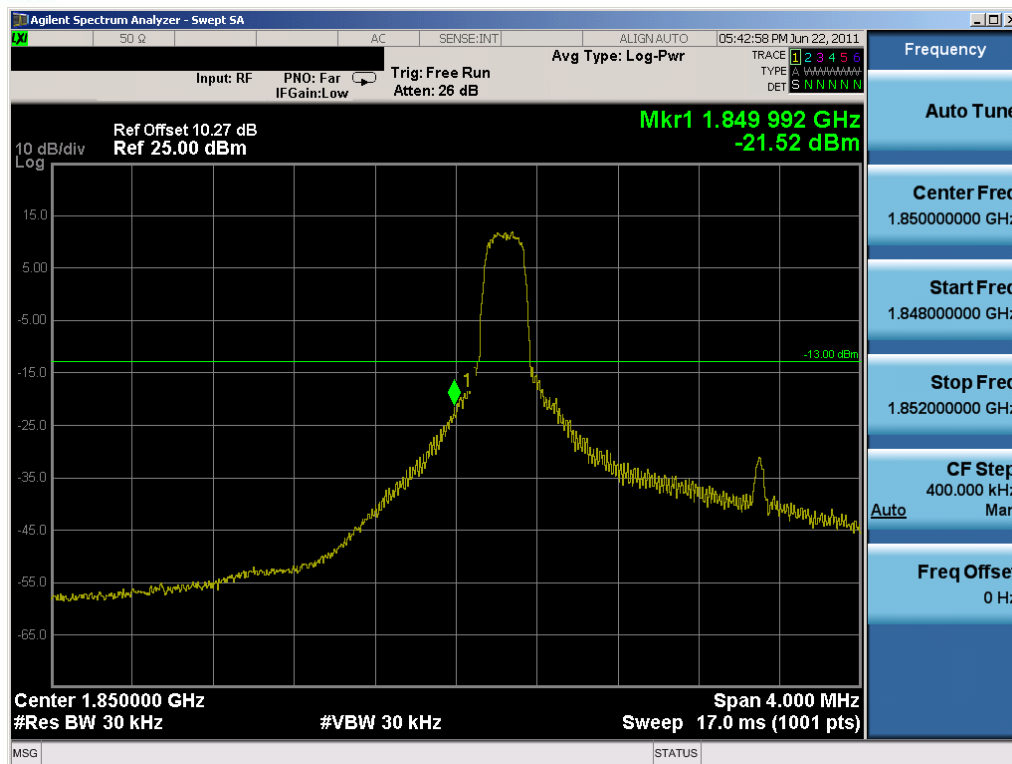


Plot 8-15. Conducted Spurious Plot (3MHz BW, QPSK, PCS Band – Low Channel)

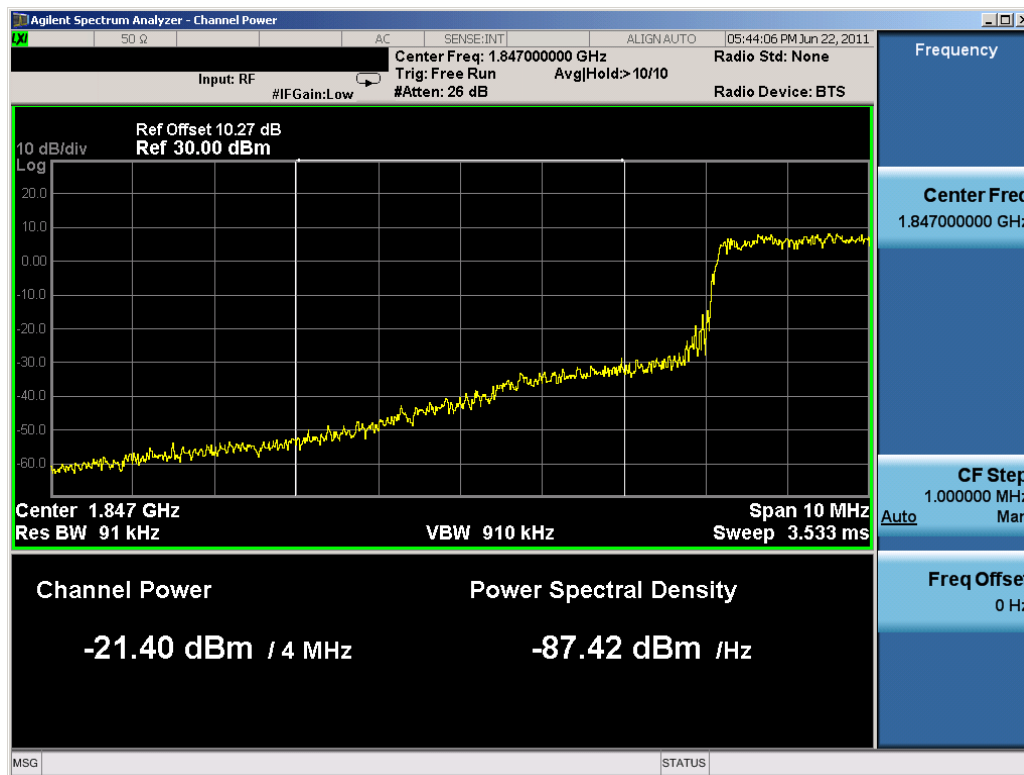


Plot 8-16. Conducted Spurious Plot (3MHz BW, QPSK, PCS Band – Low Channel)

FCC ID: A3LSCHR920		FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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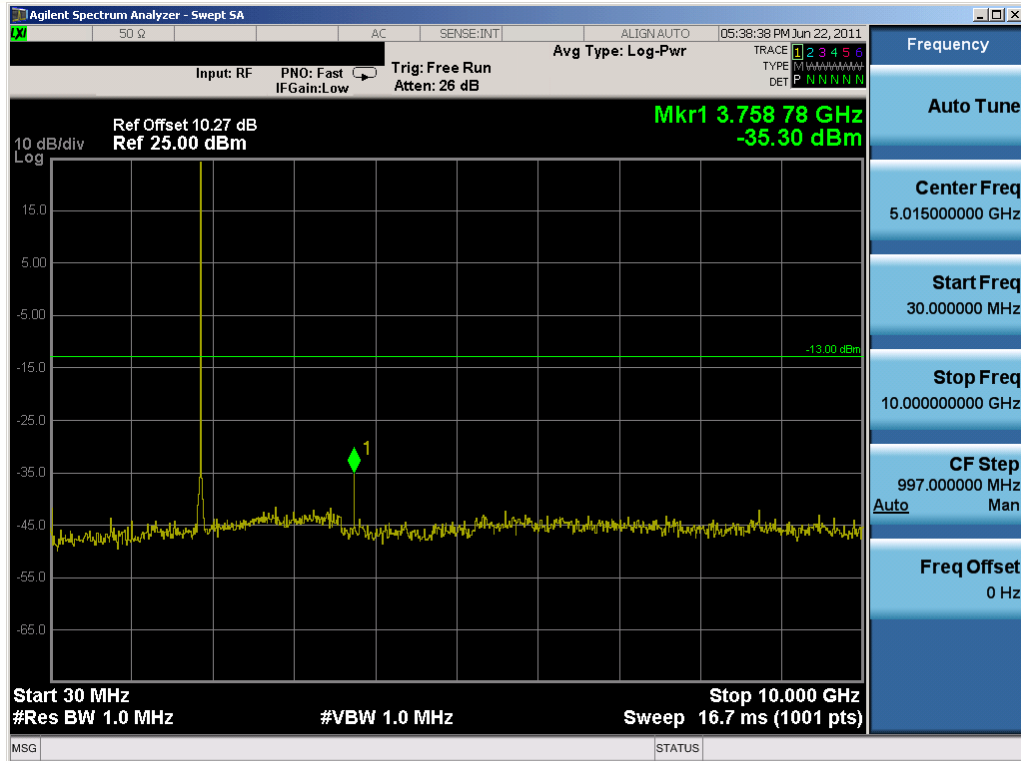


Plot 8-17. Band Edge Plot (3MHz BW, QPSK, PCS Band – Low Channel)

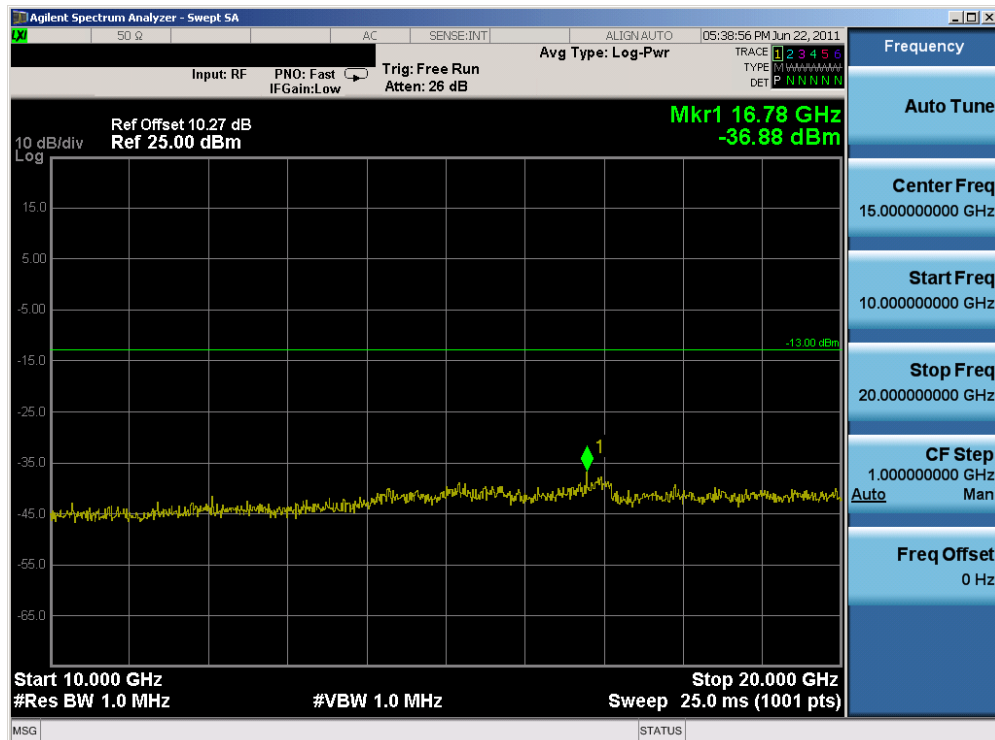


Plot 8-18. 4MHz Span Plot (3MHz BW, QPSK, PCS Band – Low Channel)

FCC ID: A3LSCHR920	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset	Page 55 of 68

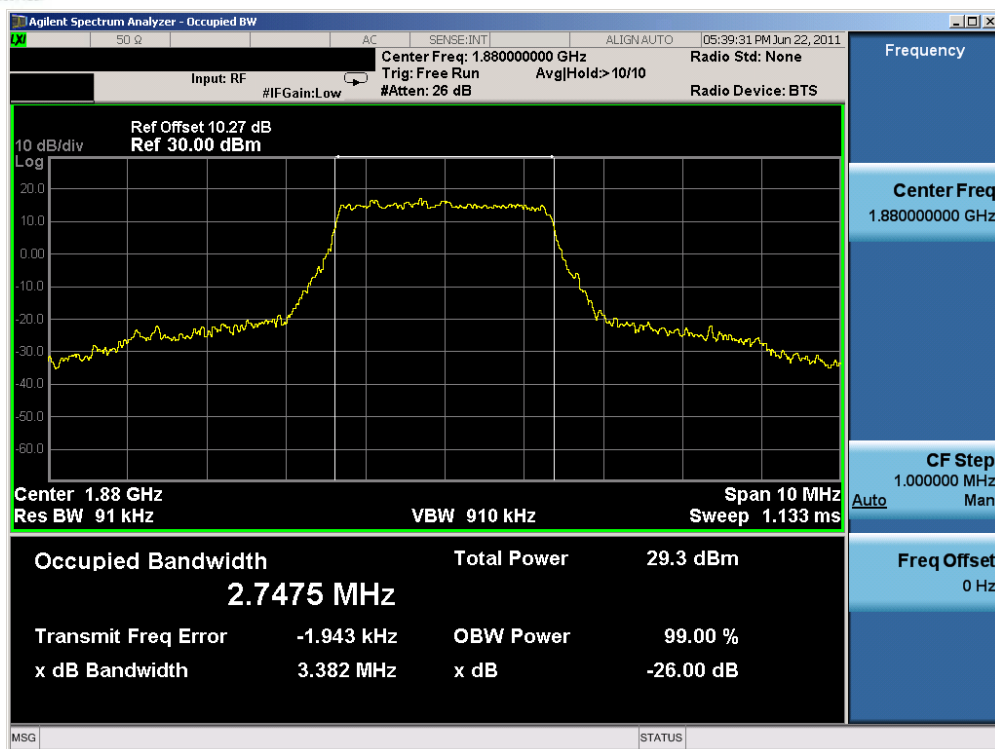


Plot 8-19. Conducted Spurious Plot (3MHz BW, QPSK, PCS Band – Mid Channel)

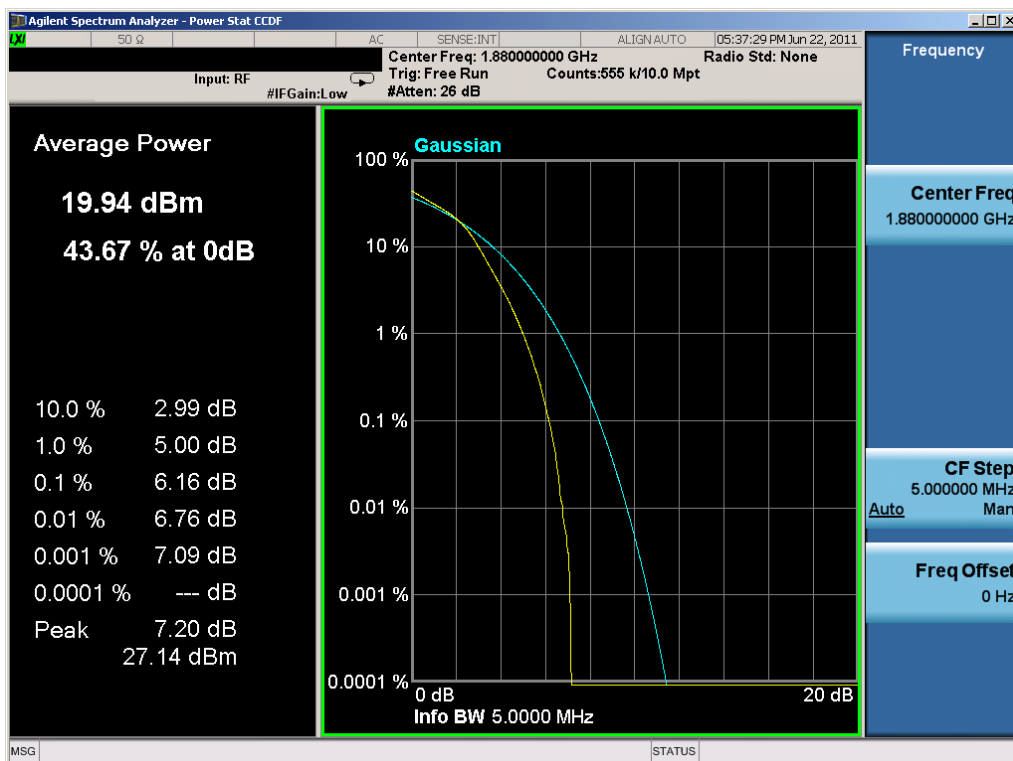


Plot 8-20. Conducted Spurious Plot (3MHz BW, QPSK, PCS Band – Mid Channel)

FCC ID: A3LSCHR920	 FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
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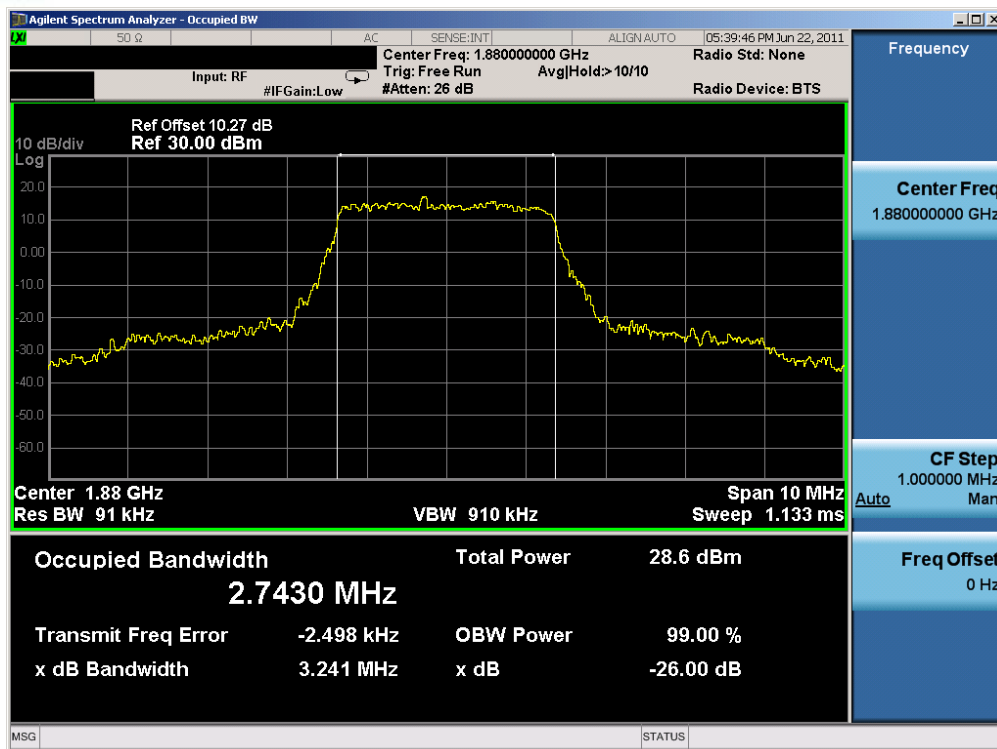


Plot 8-21. Occupied Bandwidth Plot (3MHz BW, QPSK, PCS Band – Mid Channel)

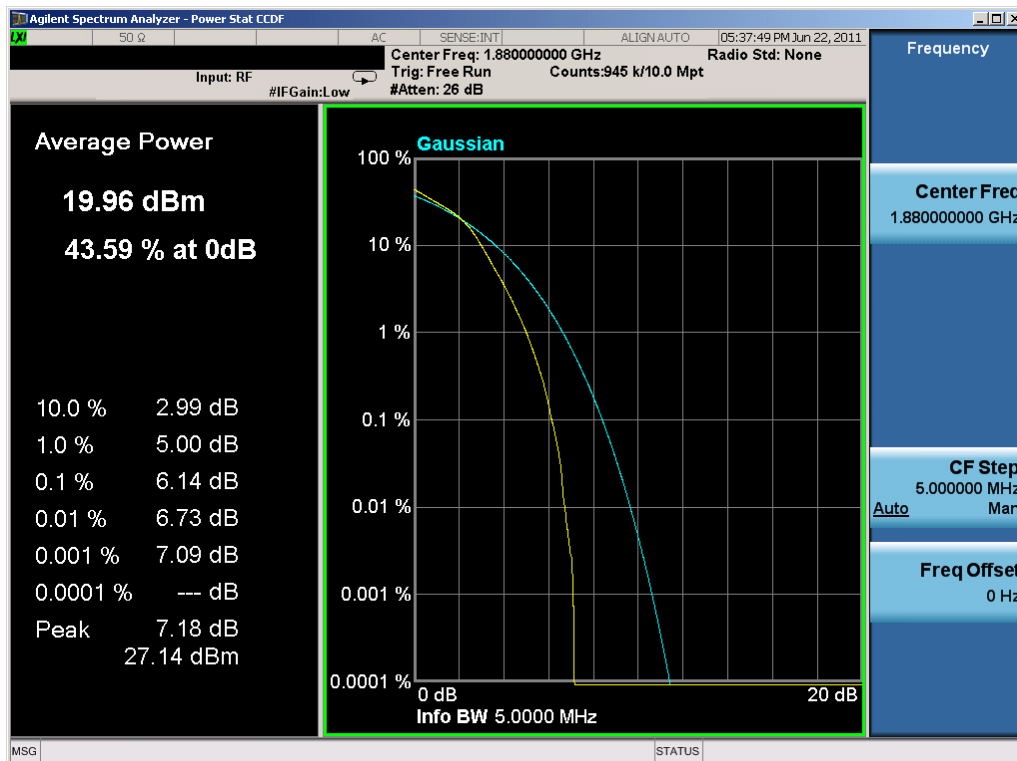


Plot 8-22. Peak-Average Ratio Plot (3MHz BW, QPSK, PCS Band – Mid Channel)

FCC ID: A3LSCHR920		FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 57 of 68

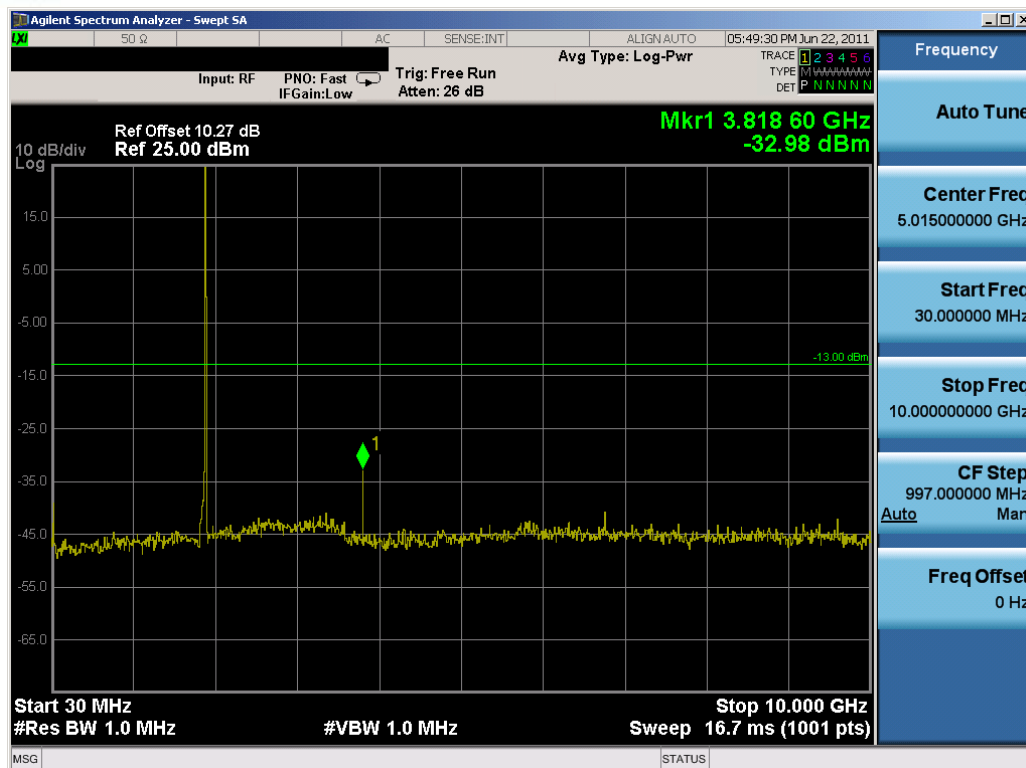


Plot 8-23. Occupied Bandwidth Plot (3MHz BW, 16-QAM, PCS Band – Mid Channel)

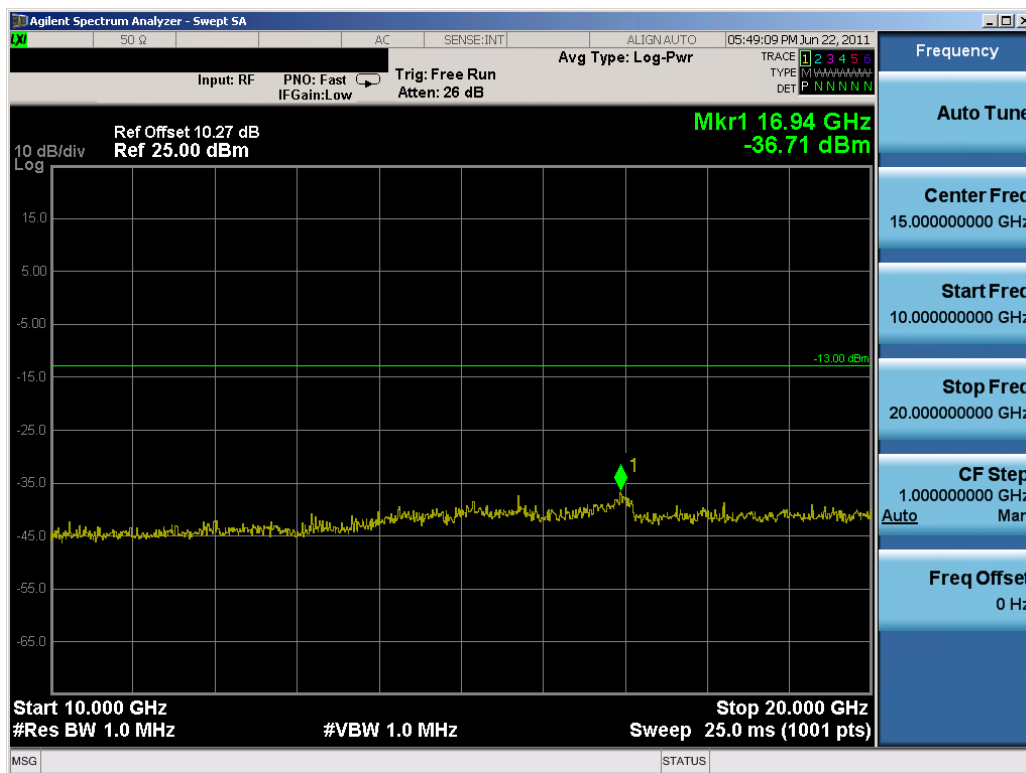


Plot 8-24. Peak-Average Ratio Plot (3MHz BW, 16-QAM, PCS Band – Mid Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 58 of 68

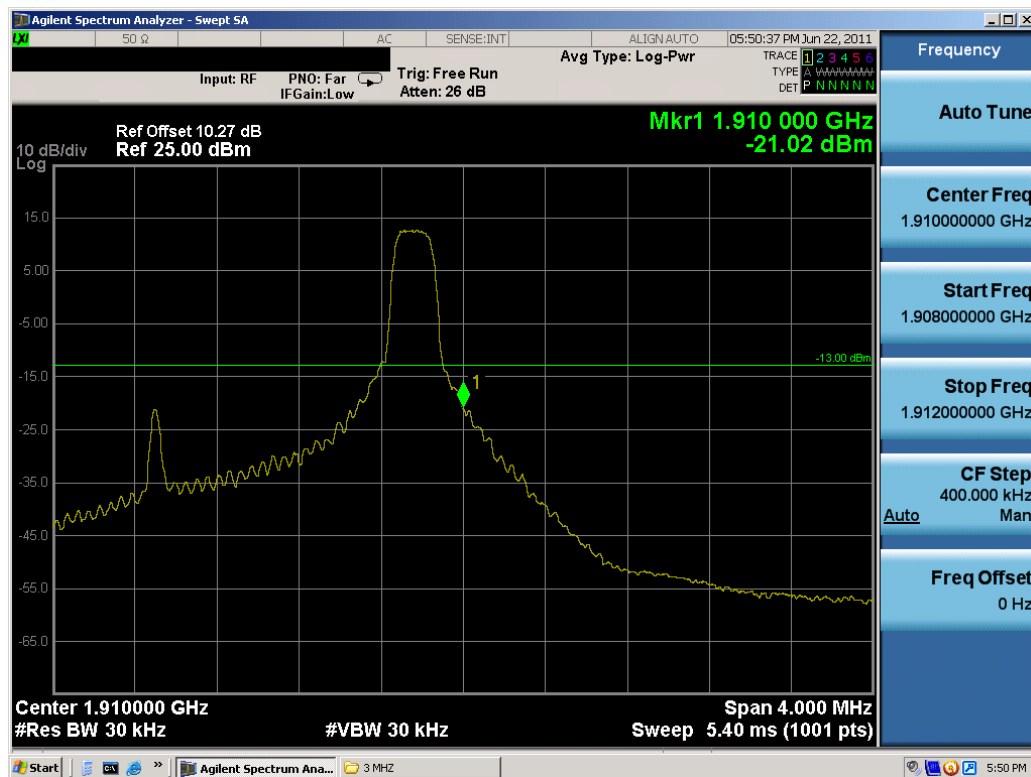


Plot 8-25. Conducted Spurious Plot (3MHz BW, QPSK, PCS Band – High Channel)

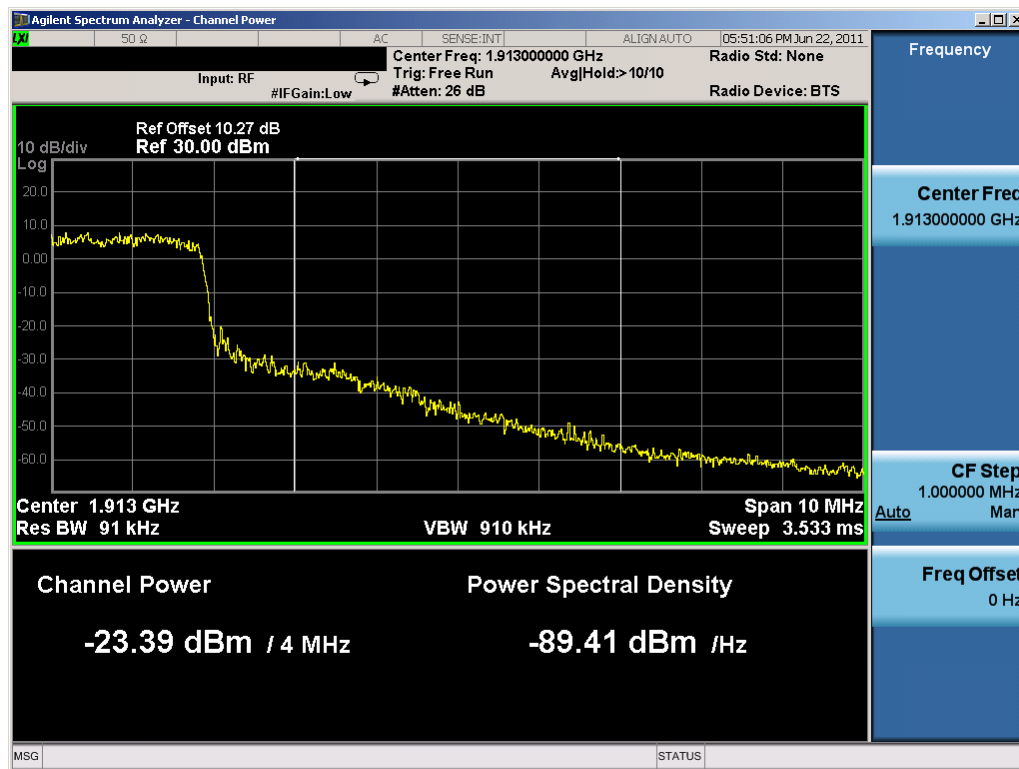


Plot 8-26. Conducted Spurious Plot (3MHz BW, QPSK, PCS Band – High Channel)

FCC ID: A3LSCHR920	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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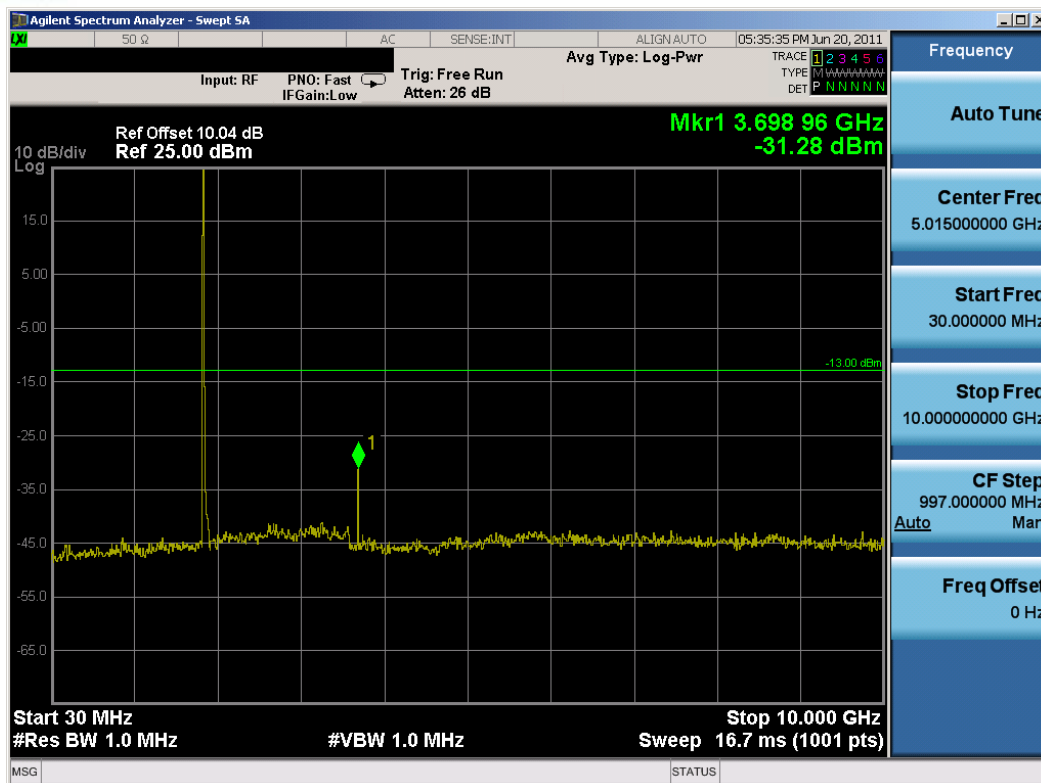


Plot 8-27. Band Edge Plot (3MHz BW, QPSK, PCS Band – High Channel)

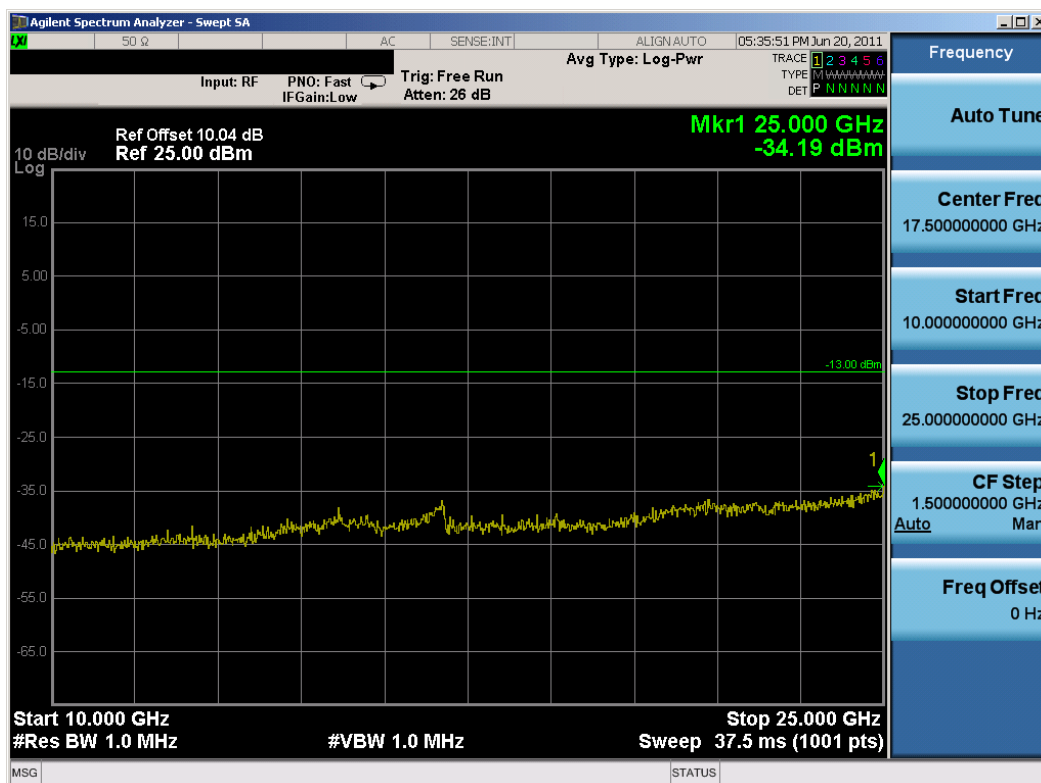


Plot 8-28. 4MHz Span Plot (3MHz BW, QPSK, PCS Band – High Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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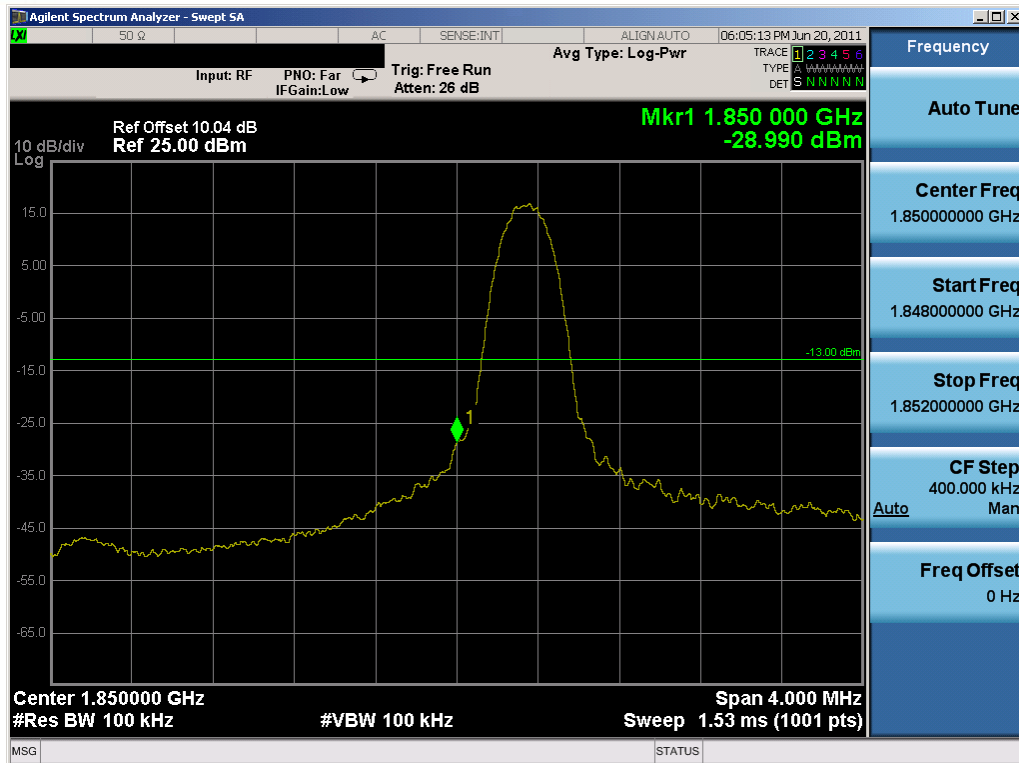


Plot 8-29. Conducted Spurious Plot (5MHz BW, QPSK, PCS Band – Low Channel)

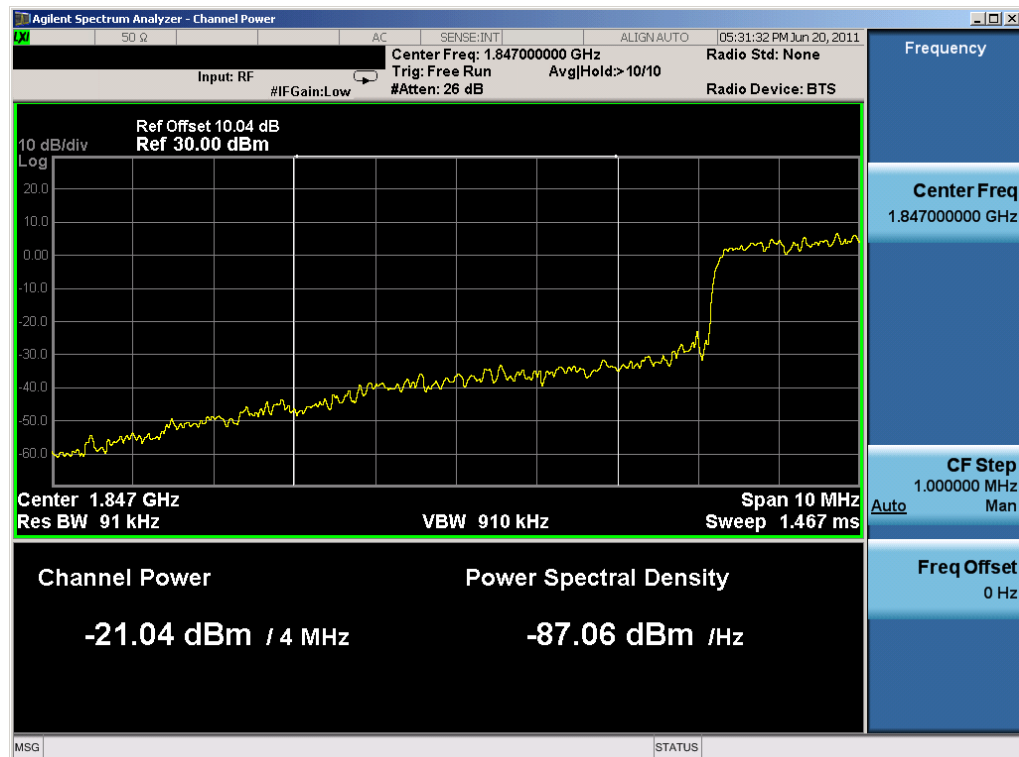


Plot 8-30. Conducted Spurious Plot (5MHz BW, QPSK, PCS Band – Low Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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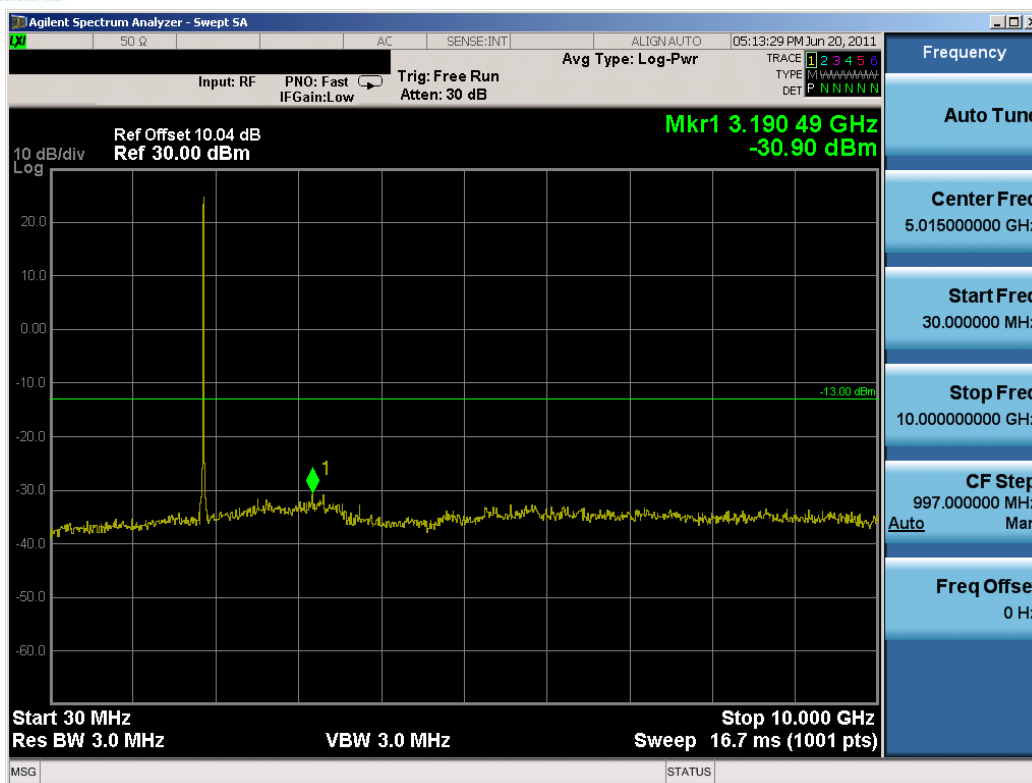


Plot 8-31. Band Edge Plot (5MHz BW, QPSK, PCS Band – Low Channel)

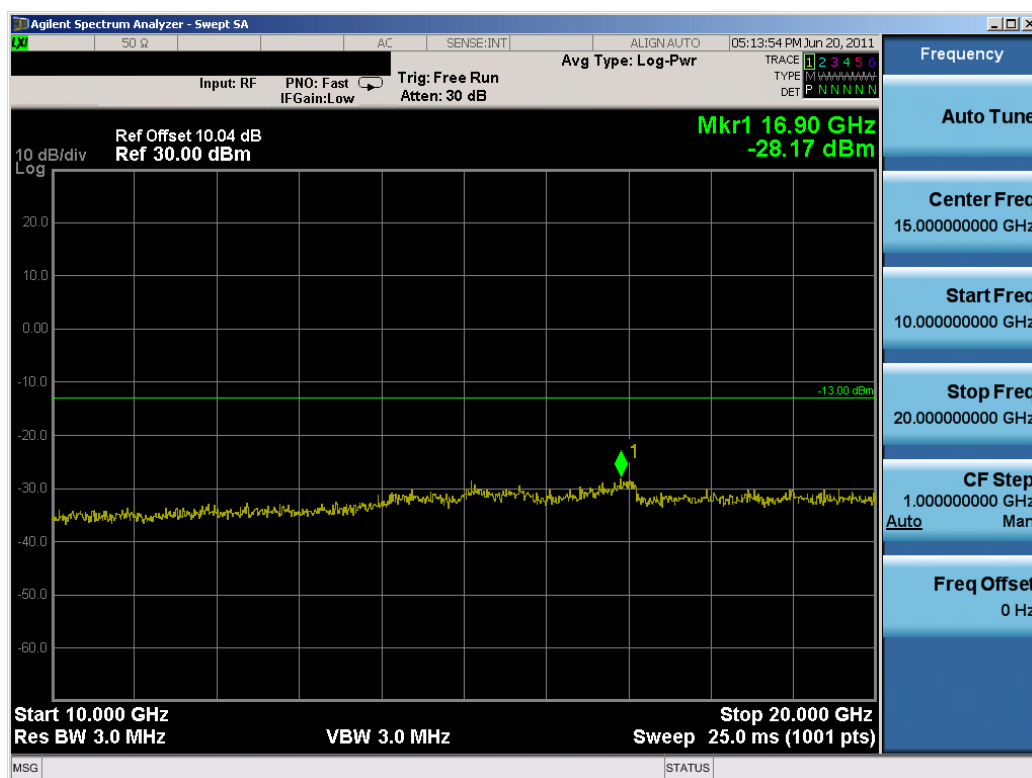


Plot 8-32. 4MHz Span Plot (5MHz BW, QPSK, PCS Band – Low Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1110171814.A3L	Test Dates: October 18 - 21, 2011	EUT Type: Portable Handset		Page 62 of 68

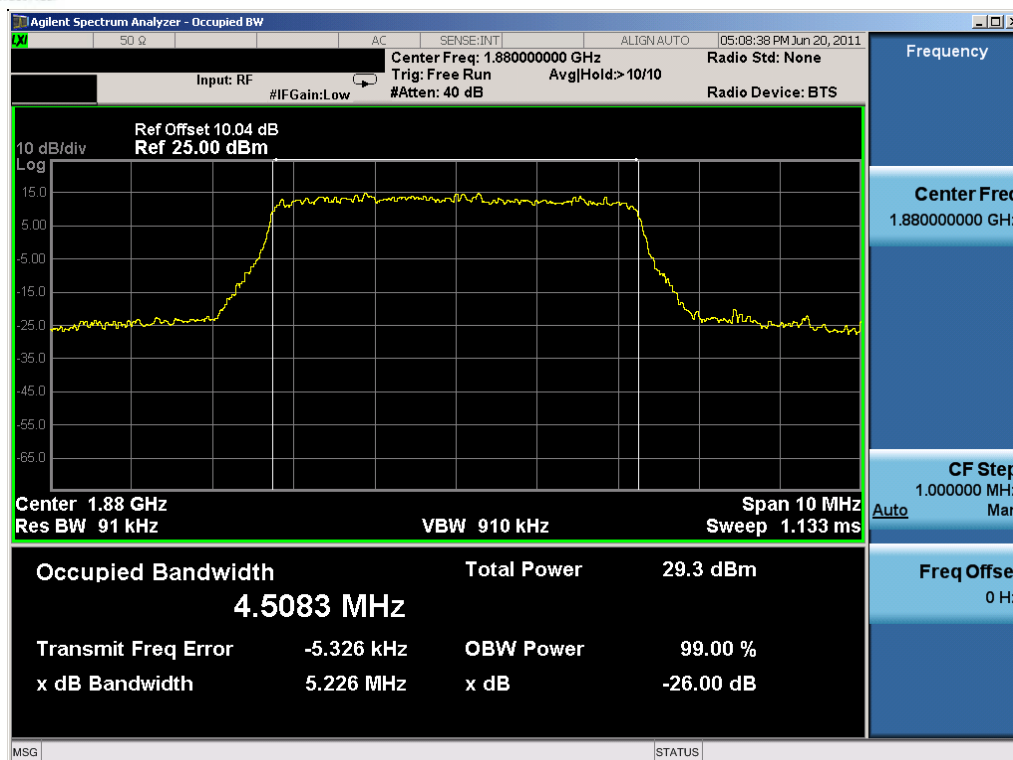


Plot 8-33. Conducted Spurious Plot (5MHz BW, QPSK, PCS Band – Mid Channel)

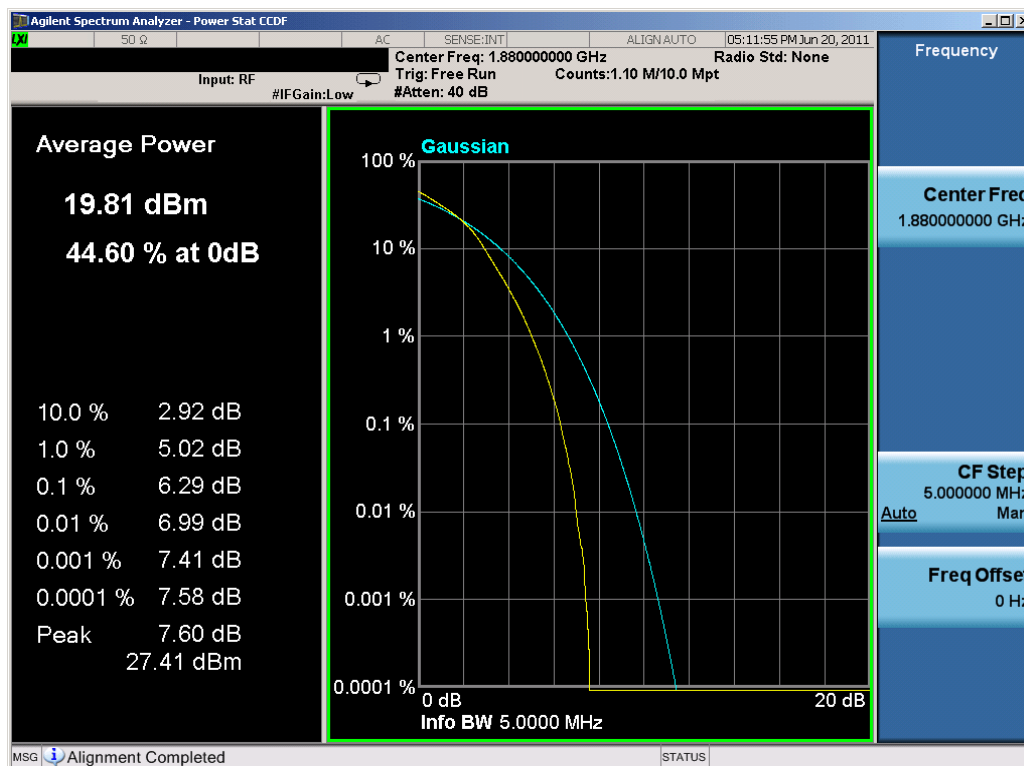


Plot 8-34. Conducted Spurious Plot (5MHz BW, QPSK, PCS Band – Mid Channel)

FCC ID: A3LSCHR920	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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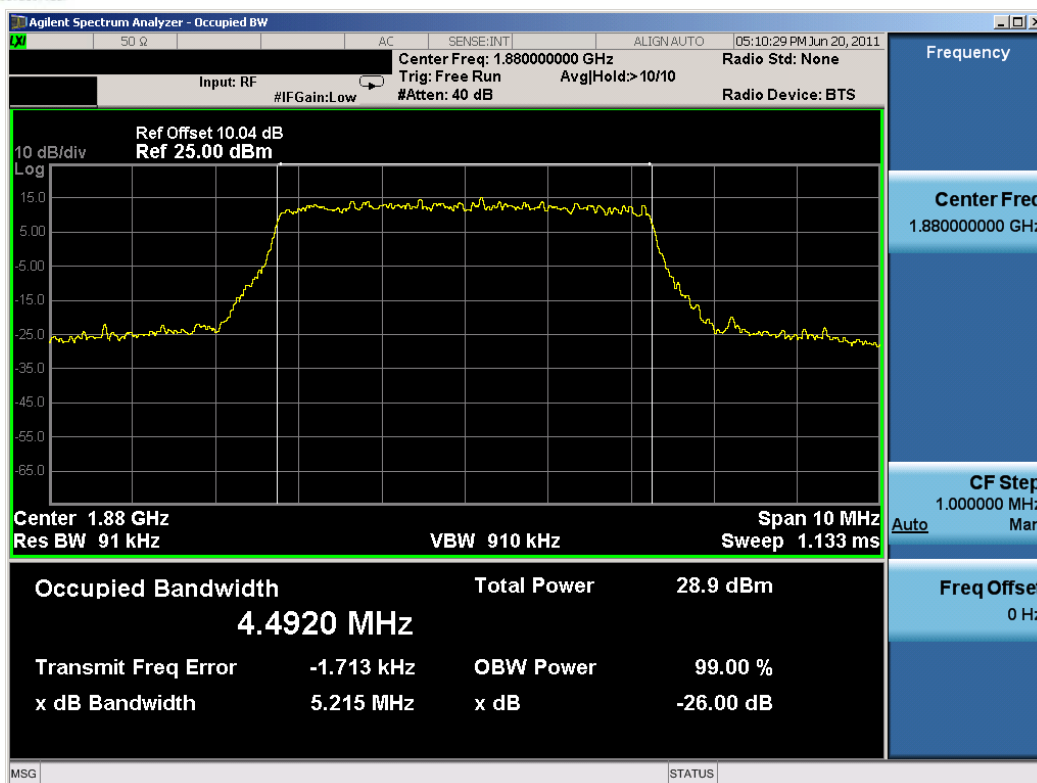


Plot 8-35. Occupied Bandwidth Plot (5MHz BW, QPSK, PCS Band – Mid Channel)

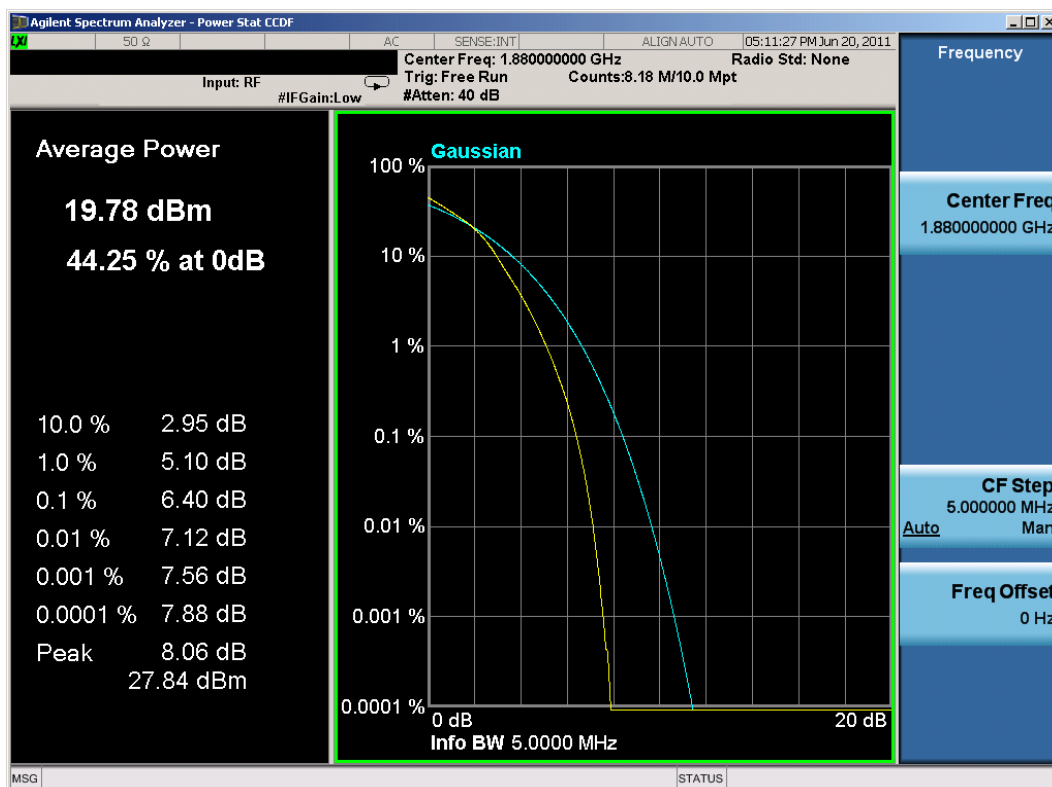


Plot 8-36. Peak-Average Ratio Plot (5MHz BW, QPSK, PCS Band – Mid Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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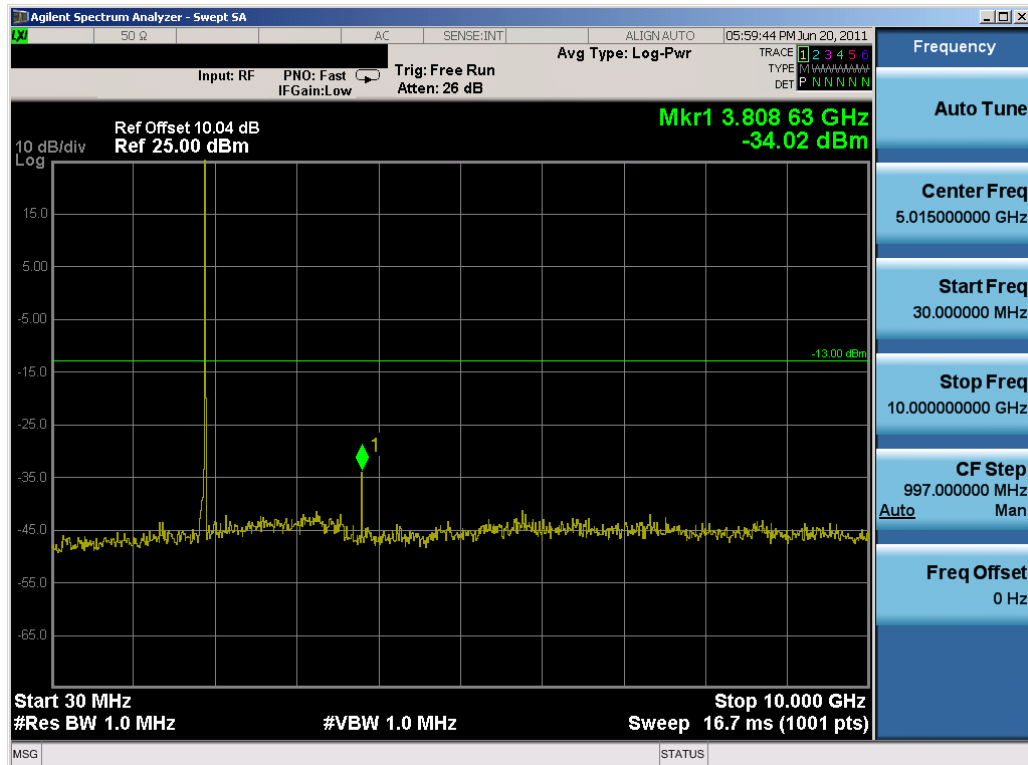


Plot 8-37. Occupied Bandwidth Plot (5MHz BW, 16-QAM, PCS Band – Mid Channel)

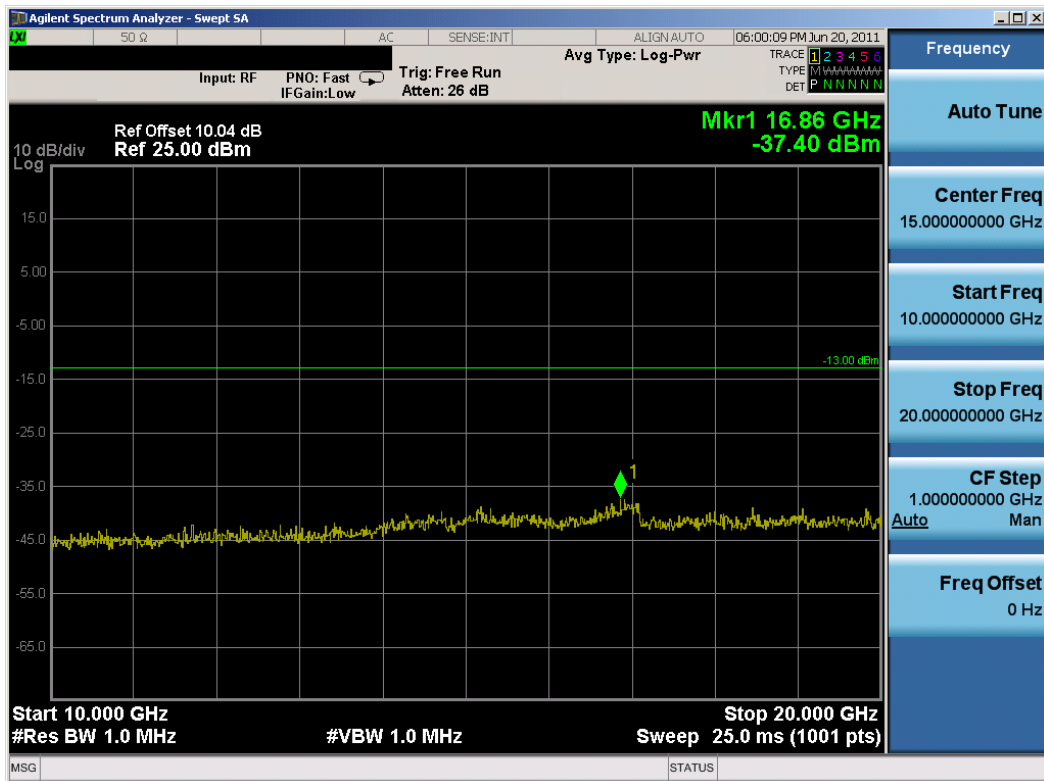


Plot 8-38. Peak-Average Ratio Plot (5MHz BW, 16-QAM, PCS Band – Mid Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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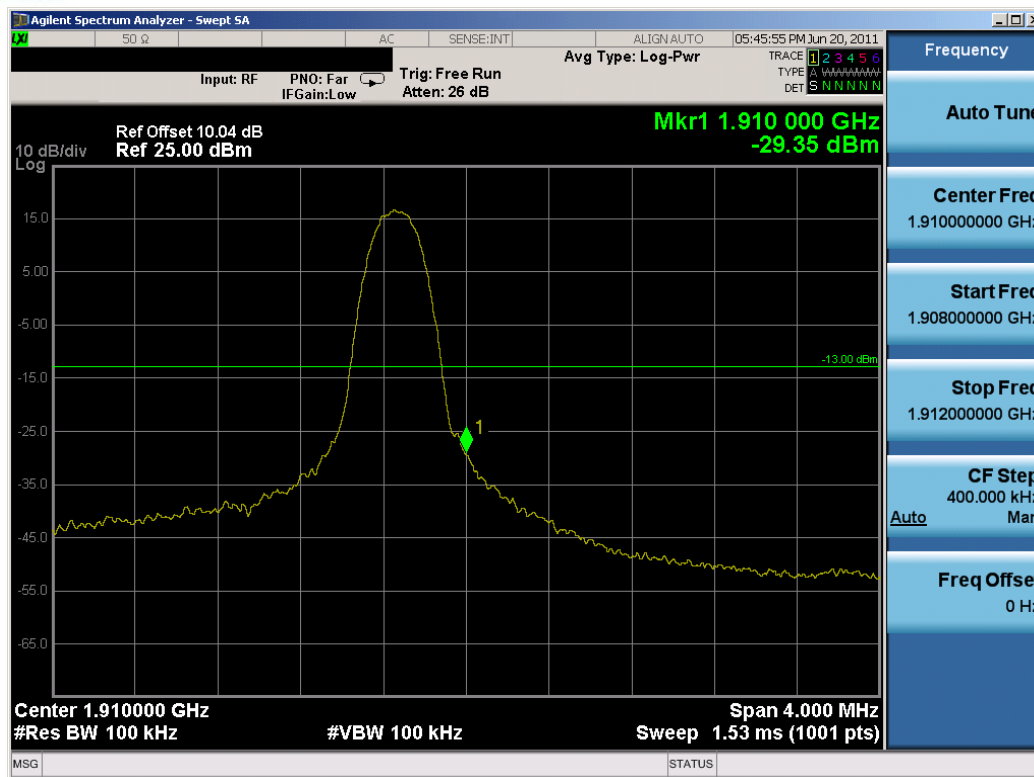


Plot 8-39. Conducted Spurious Plot (5MHz BW, QPSK, PCS Band – High Channel)

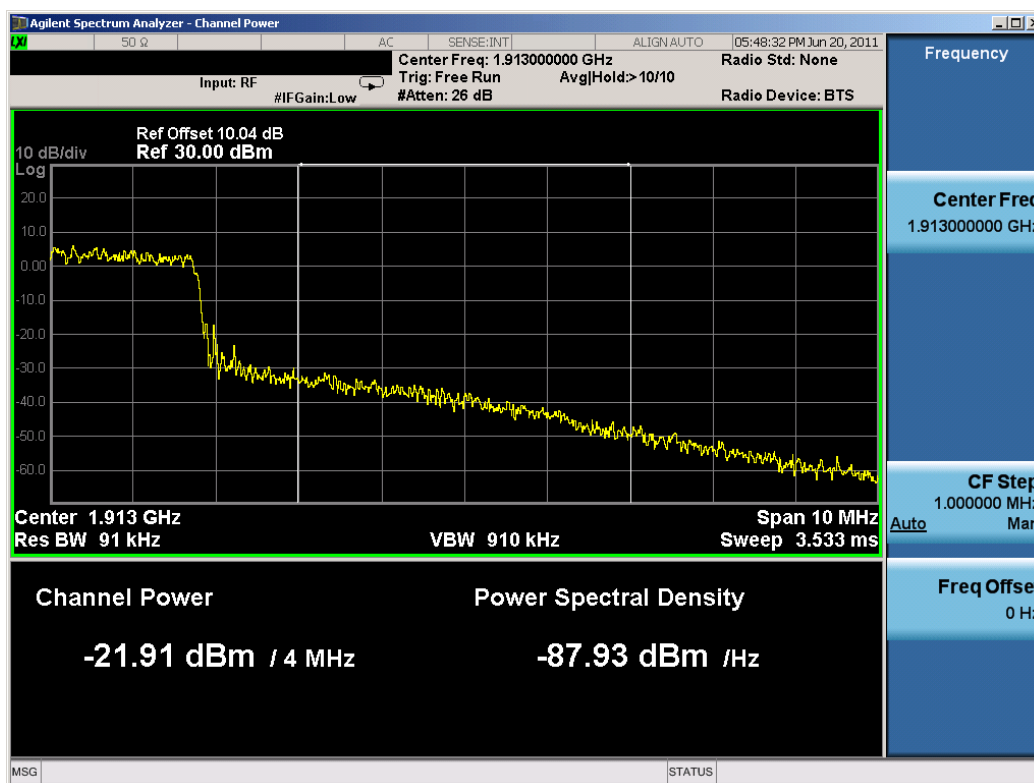


Plot 8-40. Conducted Spurious Plot (5MHz BW, QPSK, PCS Band – High Channel)

FCC ID: A3LSCHR920	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Plot 8-41. Band Edge Plot (5MHz BW, QPSK, PCS Band – High Channel)



Plot 8-42. 4MHz Span Plot (5MHz BW, QPSK, PCS Band – High Channel)

FCC ID: A3LSCHR920	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 24 / 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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9.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSCHR920** complies with all the requirements of Parts 2, 24, and 27 of the FCC rules for LTE operation only.

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