



MEASUREMENT REPORT

FCC Part 22, 24 & 27 LTE

Applicant Name:

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

Date of Testing:

9/19 - 10/8/2012

Test Site/Location:

PCTEST Lab., Columbia, MD, USA

Test Report Serial No.:

0Y1210031468.A3L

FCC ID : A3LSCHR830

APPLICANT: SAMSUNG ELECTRONICS CO., LTD.

FCC Classification:

PCS Licensed Transmitter Held to Ear (PCE)

FCC Rule Part(s):

§2; §22; §24; §27

EUT Type:

Portable Handset

Model(s):

SCH-R830

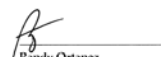
Test Device Serial No.:

identical prototype [S/N: LTE B2, LTE B4, LTE B5, LTE B12]

Mode	Tx Frequency (MHz)	Emission Designator	Modulation	ERP/EIRP	
				Max. Power (W)	Max. Power (dBm)
LTE Band 12	701.5 - 713.5	4M47G7W	QPSK	0.111	20.44
LTE Band 12	701.5 - 713.5	4M49W7W	16QAM	0.086	19.34
LTE Band 12	704 - 711	8M93G7W	QPSK	0.105	20.23
LTE Band 12	704 - 711	8M93W7W	16QAM	0.084	19.23
LTE Band 5	826.5 - 846.5	4M48G7W	QPSK	0.062	17.90
LTE Band 5	826.5 - 846.5	4M50W7W	16QAM	0.055	17.40
LTE Band 5	829 - 844	9M00G7W	QPSK	0.083	19.20
LTE Band 5	829 - 844	8M99W7W	16QAM	0.078	18.90
LTE Band 4	1712.5 - 1752.5	4M47G7W	QPSK	0.067	18.25
LTE Band 4	1712.5 - 1752.5	4M48W7W	16QAM	0.064	18.05
LTE Band 4	1715 - 1750	8M90G7W	QPSK	0.063	18.01
LTE Band 4	1715 - 1750	8M94W7W	16QAM	0.060	17.81
LTE Band 2	1852.5 - 1907.5	4M47G7W	QPSK	0.254	24.06
LTE Band 2	1852.5 - 1907.5	4M48W7W	16QAM	0.241	23.82
LTE Band 2	1855 - 1905	8M93G7W	QPSK	0.249	23.96
LTE Band 2	1855 - 1905	8M92W7W	16QAM	0.247	23.93

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested. I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

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


Randy Ortanez
President



FCC ID: A3LSCHR830		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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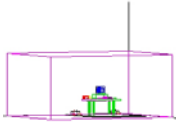
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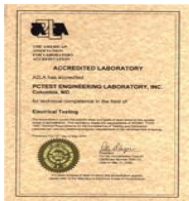


§2.1033 General Information

APPLICANT: Samsung Electronics Co., Ltd.
APPLICANT ADDRESS: 416 Maetan 3-Dong, Yeongtong-gu
 Suwon-si, Gyeonggi-do, 443-742, Republic of Korea
TEST SITE: PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS: 7185 Oakland Mills Road, Columbia, MD 21045 USA
FCC RULE PART(S): §2; §22; §24; §27
BASE MODEL: SCH-R830
FCC ID: A3LSCHR830
FCC CLASSIFICATION: PCS Licensed Transmitter Held to Ear (PCE)
FREQUENCY TOLERANCE: $\pm 0.00025\%$ (2.5 ppm)
Test Device Serial No.: LTE B2, LTE B4, ☐ Production ☒ Pre-Production ☐ Engineering
 LTE B5, LTE B12
DATE(S) OF TEST: 9/19 - 10/8/2012
TEST REPORT S/N: 0Y1210031468.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. 159966) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.
- 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.
- 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 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 and the Industry Canada Certification and Engineering Bureau.

1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity, the Baltimore-Washington Internt'l (BWI) airport, the city of Baltimore and the Washington, DC area. (See Figure 1-1).

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The site coordinates are 39° 10'23" N latitude and 76° 49'50" W longitude. The facility is 0.4 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2003 on February 15, 2012.

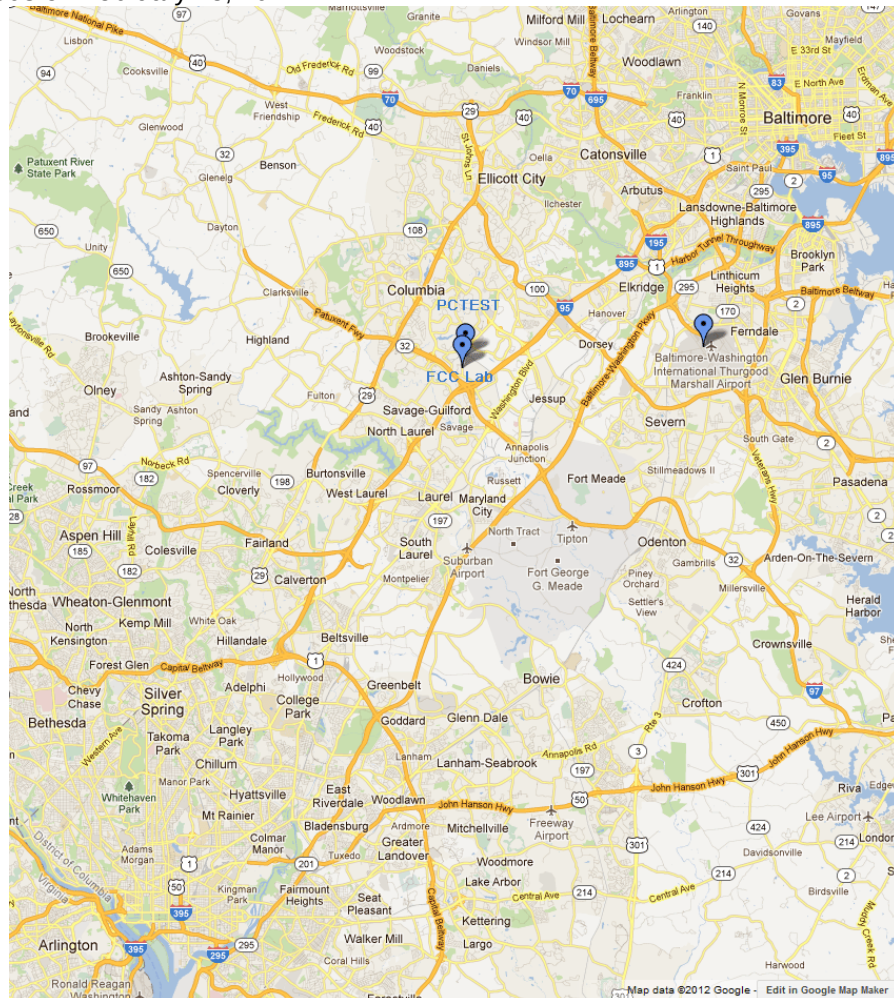


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSCHR830**. The test data contained in this report pertains only to the emissions due to the EUT's LTE function.

2.2 Device Capabilities

This device contains the following capabilities:

850/1700/1900 CDMA/EvDO Rev0/A (BC0, BC1, ,BC15), Band 2, 4, 5, 12 LTE with 5 and 10MHz BW, 802.11a/b/g/n WLAN (DTS/NII) with 20 and 40MHz BW, Bluetooth (1x,EDR, LE), NFC

2.3 EMI Suppression Device(s)/Modifications

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

2.4 Labeling Requirements

Per 2.925

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

Per 15.19; Docket 95-19

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

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

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

Please see attachment for FCC ID label and label location.

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3.0 DESCRIPTION OF TESTS

3.1 Measurement Procedure

The measurement procedures described in the document titled "Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards" (ANSI/TIA-603-C-2004) was used in the measurement of the **Samsung Portable Handset** FCC ID: **A3LSCHR830**.

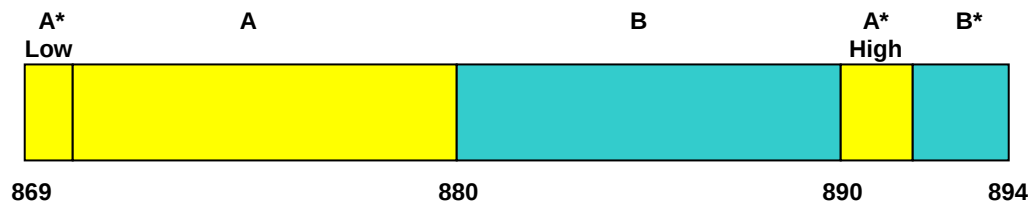
3.2 Block A Frequency Range

§27.5(c)

698-746 MHz band. The following frequencies are available for licensing pursuant to this part in the 698-746 MHz band: (1) Three paired channel blocks of 12 megahertz each are available for assignment as follows:

Block A: 698-704 MHz and 728-734 MHz;
Block B: 704-710 MHz and 734-740 MHz; and
Block C: 710-716 MHz and 740-746 MHz.

3.3 Cellular - Base Frequency Blocks



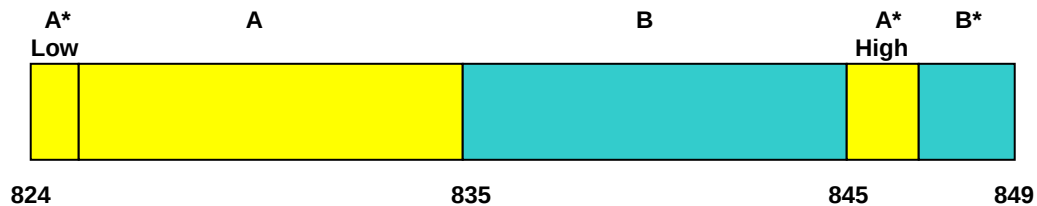
BLOCK 1: 869 – 880 MHz (A* Low + A)

BLOCK 3: 890 – 891.5 MHz (A* High)

BLOCK 2: 880 – 890 MHz (B)

BLOCK 4: 891.5 – 894 MHz (B*)

3.4 Cellular - Mobile Frequency Blocks



BLOCK 1: 824 – 835 MHz (A* Low + A)

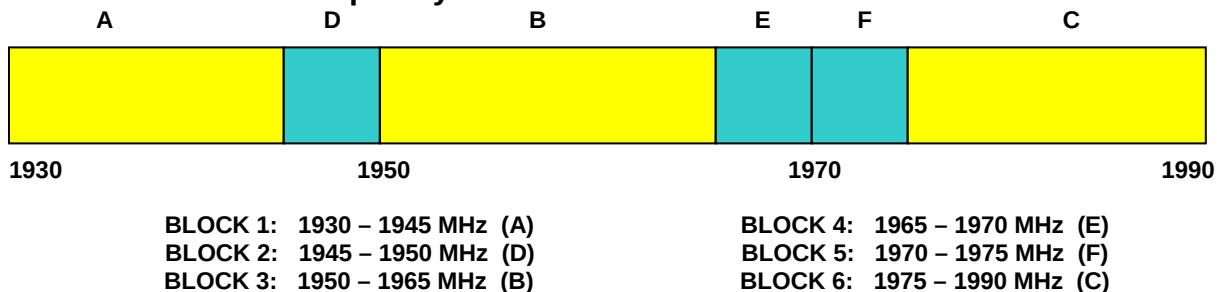
BLOCK 3: 845 – 846.5 MHz (A* High)

BLOCK 2: 835 – 845 MHz (B)

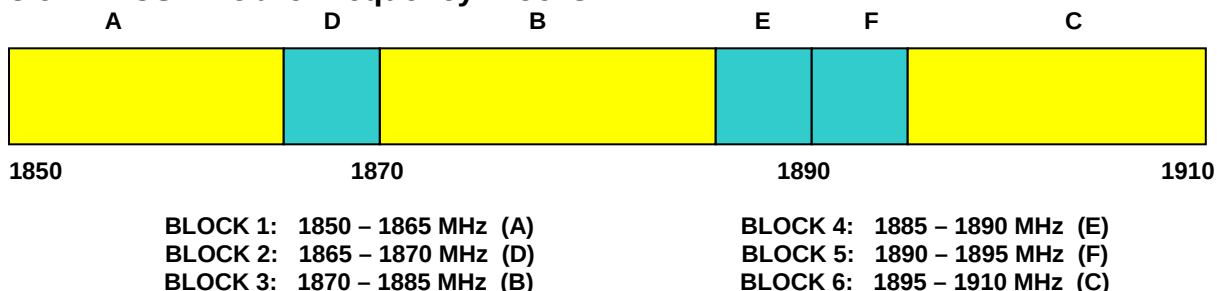
BLOCK 4: 846.5 – 849 MHz (B*)

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3.5 PCS - Base Frequency Blocks

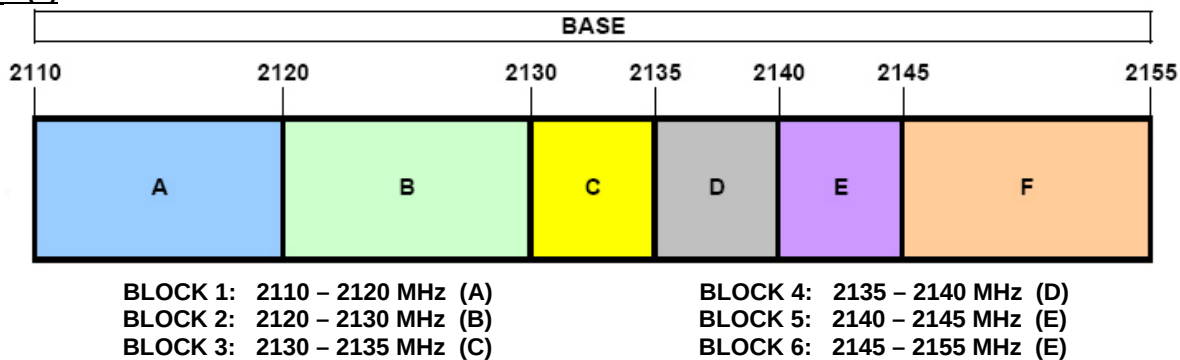


3.6 PCS - Mobile Frequency Blocks



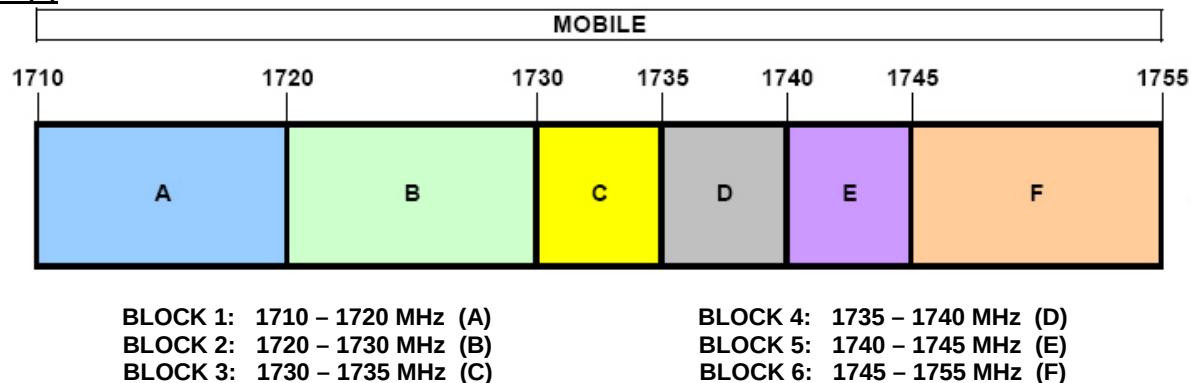
3.7 AWS - Base Frequency Blocks

§27.5(h)



3.8 AWS - Mobile Frequency Blocks

§27.5(h)



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3.9 Occupied Bandwidth

§2.1049, RSS-Gen (4.6.1)

The implementation of this test is performed by the spectrum analyzer's occupied bandwidth function. 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.

3.10 Spurious and Harmonic Emissions at Antenna Terminal

§2.1051, 22.917(a), 24.238(a)(b); RSS-132 (4.5.1), RSS-133 (6.5.1), §27.53(g)(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 (100kHz for Part 22). 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.

3.11 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.

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3.12 Radiated Power and Radiated Spurious Emissions

§2.1053, §22.913(a)(2), 22.917(a), 24.232(c), 24.238(a), §27.53(g)(h), 27.50(d)(4), 27.50(c)(10), RSS-132(4.5.1.2), RSS-133 (6.5.1)

Radiated spurious emissions are investigated indoors in a semi-anechoic chamber to determine the frequencies producing the worst case emissions. Final measurements for radiated power and radiated spurious emissions are performed on the 3 meter OATS per the guidelines of ANSI/TIA-603-C-2004. The measurement area is situated on an 18 meter x 20 meter galvanized 1/2" hardware cloth as the conducting ground plane. This material is sewn together in sections 4 feet wide and 60 feet long. A total of eighteen sections are required to cover the entire measurement area. Sections are laid across the width of the pad, overlapped 1" and sewn and soldered together at intervals of 3" (7.6 cm.) The terrain of the test site is reasonably flat and level. Power and cable to the test site are buried 18" deep into the ground outside the perimeter of the site. An all-weather non-metallic housing is situated on a 2 x 3 meter area adjacent to the measurement area to house the test equipment. The equipment under test was transmitting while connected to its integral antenna and is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer. Emissions are also investigated with the receive antenna horizontally and vertically polarized. The level of the maximized emission is recorded with the spectrum analyzer using a peak detector with RBW = 1MHz, VBW = 3MHz for emissions greater than 1GHz. For emissions below 1GHz, the spectrum analyzer is set to RBW = 100kHz and VBW = 300kHz.

A half-wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

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

Where, P_d is the dipole equivalent power, P_g is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to $P_g \text{ [dBm]} - \text{cable loss [dB]}$.

The calculated P_d levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of $43 + 10\log_{10}(\text{Power [Watts]})$ specified in 22.917(a), 24.238(a), and 27.53(g)(h).

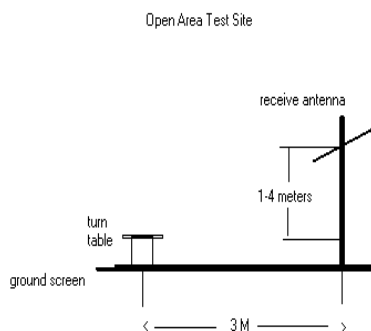


Figure 3-1. Diagram of 3-meter outdoor test range

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3.13 Frequency Stability / Temperature Variation

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

The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block for Part 24 and 27. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency for Part 22.

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
-	LTx1	Licensed Transmitter Cable Set	1/25/2012	Annual	1/25/2013	N/A
-	RE1	Radiated Emissions Cable Set (UHF/EHF)	7/10/2012	Annual	7/10/2013	N/A
-	RE2	Radiated Emissions Cable Set (VHF/UHF)	2/13/2012	Annual	2/13/2013	N/A
Agilent	8447D	Broadband Amplifier	5/8/2012	Annual	5/8/2013	1937A03348
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/10/2011	Annual	10/10/2012	3613A00315
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/5/2012	Annual	4/5/2013	MY45470194
Agilent	E8267C	Vector Signal Generator	10/10/2011	Biennial	10/10/2013	US42340152
Agilent	N9020A	MXA Signal Analyzer	10/10/2011	Annual	10/10/2012	US46470561
Espec	ESX-2CA	Environmental Chamber	4/4/2012	Annual	4/4/2013	17620
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	7/22/2011	Biennial	7/22/2013	125518
ETS Lindgren	3160-09	18-26.5 GHz Standard Gain Horn	5/30/2012	Annual	5/30/2013	135427
Mini-Circuits	VHF-1200+	High Pass Filter	1/15/2012	Annual	1/15/2013	30923
Mini-Circuits	VHF-3100+	High Pass Filter	1/15/2012	Annual	1/15/2013	30841
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	N/A		N/A	102060
Rohde & Schwarz	RS-PR18	1-18 GHz Pre-Amplifier	6/26/2012	Annual	6/26/2013	100071
Rohde & Schwarz	RS-PR26	18-26.5 GHz Pre-Amplifier	5/30/2012	Annual	5/30/2013	100040
Rohde & Schwarz	ESU26	EMI Test Receiver	12/15/2011	Annual	12/15/2012	100342
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Rx	11/14/2011	Biennial	11/14/2013	9105-2404
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Tx	11/14/2011	Biennial	11/14/2013	9105-2403
Seekonk	NC-100	Torque Wrench (8" lb)	3/5/2012	Triennial	3/5/2015	N/A
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	1/26/2012	Biennial	1/26/2014	A051107

Table 4-1. Test Equipment

Note: The CMW500 has a calibration date of "N/A" because this equipment was not used to make any calibrated measurements. It was only used to establish a connection to EUT.

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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 spectrum analyzer reading at 3 meters with the EUT on the turntable was –81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of –81.0 dBm on the spectrum analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 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: A3LSCHR830
 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	Result	Reference
TRANSMITTER MODE (TX)						
2.1049	RSS-Gen (4.6.1) RSS-133 (2.3)	Occupied Bandwidth	N/A	CONDUCTED	PASS	Section 7.0, 8.0, 9.0, 10.0
2.1051, 22.917(a), 24.238(a), 27.53(g)(h)	RSS-133 (6.5.1)	Band Edge / Conducted Spurious Emissions	< 43 + 10log ₁₀ (P[Watts]) at Band Edge and for all out-of-band emissions		PASS	Section 7.0, 8.0, 9.0, 10.0
24.232(d), 27.50(d)(5)	RSS-133 (6.4)	Peak-Average Ratio	< 13 dB		PASS	Section 9.0, 10.0
2.1046	RSS-132 (4.4) RSS-133 (4.1)	Transmitter Conducted Output Power	N/A		PASS	See RF Exposure Report
22.913(a)(2)	RSS-132 (4.4) [SRSP-503(5.1.3)]	Effective Radiated Power (Band 5)	< 7 Watts max. ERP	RADIATED	PASS	Section 6.2
27.50(c)(10)	N/A	Effective Radiated Power (Band 12)	< 3 Watts max. ERP		PASS	Section 6.2
24.232(c)	RSS-133 (6.4) [SRSP-510 (5.1.2)]	Equivalent Isotropic Radiated Power (Band 2)	< 2 Watts max. EIRP		PASS	Section 6.3
27.50(d)(4)	N/A	Equivalent Isotropic Radiated Power (Band 4)	< 1 Watts max. EIRP		PASS	Section 6.3
2.1053, 27.53(g)(h), 22.917(a), 24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Undesirable Emissions	< 43 + 10log ₁₀ (P[Watts]) for all out-of-band emissions		PASS	Section 6.4, 6.5, 6.6, 6.7, 6.8
2.1055, 27.54, 22.355, 24.235	RSS-132 (4.3) RSS-133 (6.3)	Frequency Stability	< 2.5 ppm (Part 22) and fundamental emissions stay within authorized frequency block (Part 24, 27)		PASS	Section 6.9, 6.10, 6.11, 6.12

Table 6-1. Summary of Test Results

Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots shown in Sections 7.0, 8.0, 9.0, and 10.0 were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.

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6.2 Effective Radiated Power (ERP)

§22.913(a)(2), §27.50(c)(10)

Freq [MHz]	BW [MHz]	Mod.	Battery	RB Size/Offset	Substitute Level [dBm]	Antenna Gain [dBd]	Pol [H/V]	ERP [dBm]	ERP [Watts]	Margin [dB]
701.5	5	QPSK	Standard	1 / 24	17.40	2.05	V	19.45	0.088	-15.32
707.5	5	QPSK	Standard	1 / 24	18.30	2.14	V	20.44	0.111	-14.33
713.5	5	QPSK	Standard	1 / 24	17.30	2.23	V	19.53	0.090	-15.24
701.5	5	16-QAM	Standard	1 / 24	16.80	2.05	V	18.85	0.077	-15.92
707.5	5	16-QAM	Standard	1 / 24	17.20	2.14	V	19.34	0.086	-15.43
713.5	5	16-QAM	Standard	1 / 24	16.70	2.23	V	18.93	0.078	-15.84
704.0	10	QPSK	Standard	1 / 49	18.00	2.05	V	20.05	0.101	-14.72
707.5	10	QPSK	Standard	1 / 49	17.70	2.14	V	19.84	0.096	-14.93
711.0	10	QPSK	Standard	1 / 0	18.00	2.23	V	20.23	0.105	-14.54
704.0	10	16-QAM	Standard	1 / 49	17.00	2.05	V	19.05	0.080	-15.72
707.5	10	16-QAM	Standard	1 / 49	16.70	2.14	V	18.84	0.077	-15.93
711.0	10	16-QAM	Standard	1 / 0	17.00	2.23	V	19.23	0.084	-15.54

Table 6-2. ERP Data (Band 12)

Freq [MHz]	BW [MHz]	Mod.	Battery	RB Size/Offset	Substitute Level [dBm]	Antenna Gain [dBd]	Pol [H/V]	ERP [dBm]	ERP [Watts]	Margin [dB]
826.5	5	QPSK	Standard	1 / 0	12.60	4.71	H	17.31	0.054	-21.14
836.5	5	QPSK	Standard	1 / 0	12.40	4.80	H	17.20	0.053	-21.25
846.5	5	QPSK	Standard	1 / 0	13.00	4.90	H	17.90	0.062	-20.56
826.5	5	16-QAM	Standard	1 / 0	12.20	4.71	H	16.91	0.049	-21.54
836.5	5	16-QAM	Standard	1 / 0	12.00	4.80	H	16.80	0.048	-21.65
846.5	5	16-QAM	Standard	1 / 0	12.50	4.90	H	17.40	0.055	-21.06
829.0	10	QPSK	Standard	1 / 49	13.90	4.71	H	18.61	0.073	-19.84
836.5	10	QPSK	Standard	1 / 0	13.80	4.80	H	18.60	0.073	-19.85
844.0	10	QPSK	Standard	1 / 49	14.30	4.90	H	19.20	0.083	-19.26
829.0	10	16-QAM	Standard	1 / 49	13.80	4.71	H	18.51	0.071	-19.94
836.5	10	16-QAM	Standard	1 / 0	13.70	4.80	H	18.50	0.071	-19.95
844.0	10	16-QAM	Standard	1 / 49	14.00	4.90	H	18.90	0.078	-19.56

Table 6-3. ERP Data (Band 5)

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. The configurations that produced the highest ERP is listed above.
2. This unit was tested with its standard battery.
3. The worst case test configuration was found in the vertical setup for Band 12 and in the horizontal setup for all other LTE Bands.

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6.3 Equivalent Isotropic Radiated Power (EIRP)

§27.50(d)(4), §24.232(c)

Freq [MHz]	BW [MHz]	Mod.	Battery	RB Size/Offset	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Margin [dB]
1712.5	5	QPSK	Standard	1 / 0	8.81	8.47	H	17.28	0.053	-12.72
1732.5	5	QPSK	Standard	1 / 0	9.71	8.54	H	18.25	0.067	-11.75
1752.5	5	QPSK	Standard	1 / 24	8.81	8.60	H	17.41	0.055	-12.59
1712.5	5	16-QAM	Standard	1 / 0	8.61	8.47	H	17.08	0.051	-12.92
1732.5	5	16-QAM	Standard	1 / 0	9.51	8.54	H	18.05	0.064	-11.95
1752.5	5	16-QAM	Standard	1 / 24	8.61	8.60	H	17.21	0.053	-12.79
1715.0	10	QPSK	Standard	1 / 49	8.31	8.47	H	16.78	0.048	-13.22
1732.5	10	QPSK	Standard	1 / 0	7.61	8.54	H	16.15	0.041	-13.85
1750.0	10	QPSK	Standard	1 / 49	9.41	8.60	H	18.01	0.063	-11.99
1715.0	10	16-QAM	Standard	1 / 49	8.11	8.47	H	16.58	0.045	-13.42
1732.5	10	16-QAM	Standard	1 / 0	7.41	8.54	H	15.95	0.039	-14.05
1750.0	10	16-QAM	Standard	1 / 49	9.21	8.60	H	17.81	0.060	-12.19

Table 6-4. EIRP Data (Band 4)

Freq [MHz]	BW [MHz]	Mod.	Battery	RB Size/Offset	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Margin [dB]
1852.5	5	QPSK	Standard	1 / 24	15.50	8.56	H	24.06	0.254	-8.95
1880.0	5	QPSK	Standard	1 / 24	13.08	8.55	H	21.63	0.145	-11.38
1907.5	5	QPSK	Standard	12 / 6	11.26	8.54	H	19.80	0.095	-13.21
1852.5	5	16-QAM	Standard	1 / 24	15.26	8.56	H	23.82	0.241	-9.19
1880.0	5	16-QAM	Standard	1 / 24	12.85	8.55	H	21.40	0.138	-11.61
1907.5	5	16-QAM	Standard	12 / 6	11.18	8.54	H	19.72	0.094	-13.29
1855.0	10	QPSK	Standard	25 / 12	15.40	8.56	H	23.96	0.249	-9.05
1880.0	10	QPSK	Standard	1 / 49	13.78	8.55	H	22.33	0.171	-10.68
1905.0	10	QPSK	Standard	25 / 12	10.53	8.54	H	19.07	0.081	-13.94
1855.0	10	16-QAM	Standard	25 / 12	15.37	8.56	H	23.93	0.247	-9.08
1880.0	10	16-QAM	Standard	1 / 49	13.71	8.55	H	22.26	0.168	-10.75
1905.0	10	16-QAM	Standard	25 / 12	10.41	8.54	H	18.95	0.078	-14.06

Table 6-5. EIRP Data (Band 2)

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. The configurations that produced the highest EIRP is listed above.
2. This unit was tested with its standard battery.
3. The worst case test configuration was found in the vertical setup for Band 12 and in the horizontal setup for all other LTE Bands.

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6.4 Band 12 Radiated Spurious Emissions

§2.1053, §27.53(g)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 701.50 MHz
 CHANNEL: 23035
 MEASURED OUTPUT POWER: 19.45 dBm = 0.088 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W)$ 32.45 dBc

FREQ (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1403.00	-60.19	3.59	-56.60	V	76.05
2104.50	-42.73	3.88	-38.85	V	58.30
2806.00	-59.38	5.00	-54.38	V	73.83
3507.50	-57.16	6.25	-50.91	V	70.36
4209.00	-90.61	7.21	-83.40	V	102.86
4910.50	-90.41	7.84	-82.57	V	102.02

Table 6-6. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. In Band 12 and 2 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = maximum allowed. In Band 4 and 5 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = 0.
2. This unit was tested with its standard battery.
3. The worst case test configuration was found in the vertical setup for Band 12 and in the horizontal setup for all other LTE Bands.

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Band 12 Radiated Spurious Measurements (continued)

§2.1053, §27.53(g)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 707.50 MHz
 CHANNEL: 23095
 MEASURED OUTPUT POWER: 20.44 dBm = 0.111 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) = 33.44$ dBc

FREQ (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1415.00	-50.41	3.64	-46.77	V	67.21
2122.50	-32.92	3.90	-29.02	V	49.46
2830.00	-47.24	5.02	-42.22	V	62.66
3537.50	-53.40	6.25	-47.15	V	67.59
4245.00	-64.80	7.24	-57.56	V	78.00
4952.50	-63.53	7.88	-55.65	V	76.09

Table 6-7. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. In Band 12 and 2 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = maximum allowed. In Band 4 and 5 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = 0.
2. This unit was tested with its standard battery.
3. The worst case test configuration was found in the vertical setup for Band 12 and in the horizontal setup for all other LTE Bands.

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Band 12 Radiated Spurious Measurements (continued)

§2.1053, §27.53(g)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 713.50 MHz
 CHANNEL: 23155
 MEASURED OUTPUT POWER: 19.53 dBm = 0.090 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 32.53 dBc

FREQ (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1427.00	-47.73	3.69	-44.04	V	63.57
2140.50	-27.31	3.92	-23.38	V	42.91
2854.00	-47.40	5.03	-42.37	V	61.90
3567.50	-49.14	6.25	-42.89	V	62.42
4281.00	-60.83	7.25	-53.58	V	73.11
4994.50	-65.34	7.91	-57.42	V	76.96

Table 6-8. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. In Band 12 and 2 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = maximum allowed. In Band 4 and 5 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = 0.
2. This unit was tested with its standard battery.
3. The worst case test configuration was found in the vertical setup for Band 12 and in the horizontal setup for all other LTE Bands.

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6.5 Band 5 Radiated Spurious Emissions

§2.1053, 22.917(a); RSS-132 (4.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 829.00 MHz
 CHANNEL: 20450
 MEASURED OUTPUT POWER: 18.61 dBm = 0.073 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W)$ 31.61 dBc

FREQ (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1658.00	-52.22	2.50	-49.72	H	68.33
2487.00	-59.31	2.82	-56.49	H	75.10
3316.00	-61.12	5.52	-55.60	H	74.22
4145.00	-90.35	7.08	-83.27	H	101.88
4974.00	-90.41	7.91	-82.50	H	101.11
5803.00	-88.78	8.51	-80.27	H	98.89

Table 6-9. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. In Band 12 and 2 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = maximum allowed. In Band 4 and 5 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = 0.
2. This unit was tested with its standard battery.
3. The worst case test configuration was found in the vertical setup for Band 12 and in the horizontal setup for all other LTE Bands.

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Band 5 Radiated Spurious Measurements (continued)

§2.1053, 22.917(a); RSS-132 (4.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 20525
 MEASURED OUTPUT POWER: 18.60 dBm = 0.073 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 31.60 dBc

FREQ (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1673.00	-47.31	2.34	-44.97	H	63.57
2509.50	-57.37	2.84	-54.53	H	73.14
3346.00	-59.73	5.64	-54.08	H	72.69
4182.50	-64.97	7.14	-57.82	H	76.43
5019.00	-90.39	7.97	-82.42	H	101.03
5855.50	-88.48	8.46	-80.01	H	98.62

Table 6-10. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. In Band 12 and 2 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = maximum allowed. In Band 4 and 5 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = 0.
2. This unit was tested with its standard battery.
3. The worst case test configuration was found in the vertical setup for Band 12 and in the horizontal setup for all other LTE Bands.

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Band 5 Radiated Spurious Measurements (continued)

§2.1053, 22.917(a); RSS-132 (4.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 844.00 MHz
 CHANNEL: 20600
 MEASURED OUTPUT POWER: 19.20 dBm = 0.083 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) = 32.20$ dBc

FREQ (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1688.00	-49.40	2.18	-47.22	H	66.41
2532.00	-56.29	3.04	-53.25	H	72.44
3376.00	-61.83	5.76	-56.06	H	75.26
4220.00	-65.31	7.20	-58.11	H	77.30
5064.00	-90.34	8.00	-82.33	H	101.53
5908.00	-88.17	8.42	-79.75	H	98.95

Table 6-11. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. In Band 12 and 2 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = maximum allowed. In Band 4 and 5 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = 0.
2. This unit was tested with its standard battery.
3. The worst case test configuration was found in the vertical setup for Band 12 and in the horizontal setup for all other LTE Bands.

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6.6 Band 4 Radiated Spurious Emissions

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1712.50 MHz
 CHANNEL: 19975
 MEASURED OUTPUT POWER: 17.28 dBm = 0.053 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W)$ 30.28 dBc

FREQ (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3425.00	-50.97	8.09	-42.88	H	60.16
5137.50	-64.38	10.21	-54.17	H	71.45
6850.00	-92.51	11.31	-81.19	H	98.47
8562.50	-92.93	13.02	-79.91	H	97.19
10275.00	-89.78	13.01	-76.77	H	94.04
11987.50	-86.91	13.21	-73.70	H	90.98

Table 6-12. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. In Band 12 and 2 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = maximum allowed. In Band 4 and 5 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = 0.
2. This unit was tested with its standard battery.
3. The worst case test configuration was found in the vertical setup for Band 12 and in the horizontal setup for all other LTE Bands.

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Band 4 Radiated Spurious Measurements (continued)

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1732.50 MHz
 CHANNEL: 20175
 MEASURED OUTPUT POWER: 18.25 dBm = 0.067 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 31.25 dBc

FREQ (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3465.00	-53.19	8.26	-44.92	H	63.17
5197.50	-59.98	10.26	-49.72	H	67.98
6930.00	-92.63	11.42	-81.21	H	99.46
8662.50	-92.78	13.07	-79.71	H	97.96
10395.00	-89.82	13.12	-76.70	H	94.95
12127.50	-86.41	13.25	-73.16	H	91.41

Table 6-13. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. In Band 12 and 2 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = maximum allowed. In Band 4 and 5 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = 0.
2. This unit was tested with its standard battery.
3. The worst case test configuration was found in the vertical setup for Band 12 and in the horizontal setup for all other LTE Bands.

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Band 4 Radiated Spurious Measurements (continued)

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1752.50 MHz
 CHANNEL: 20375
 MEASURED OUTPUT POWER: 17.41 dBm = 0.055 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) = 30.41$ dBc

FREQ (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3505.00	-56.37	8.40	-47.97	H	65.38
5257.50	-68.17	10.32	-57.85	H	75.26
7010.00	-92.72	11.51	-81.21	H	98.62
8762.50	-92.62	13.11	-79.51	H	96.91
10515.00	-89.67	13.20	-76.47	H	93.88
12267.50	-85.91	13.31	-72.60	H	90.01

Table 6-14. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. In Band 12 and 2 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = maximum allowed. In Band 4 and 5 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = 0.
2. This unit was tested with its standard battery.
3. The worst case test configuration was found in the vertical setup for Band 12 and in the horizontal setup for all other LTE Bands.

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6.7 Band 2 Radiated Spurious Emissions

§2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1852.50 MHz
 CHANNEL: 18625
 MEASURED OUTPUT POWER: 24.06 dBm = 0.254 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W)$ 37.06 dBc

FREQ (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3705.00	-58.75	8.40	-50.35	H	74.41
5557.50	-64.71	10.63	-54.08	H	78.14
7410.00	-68.12	11.84	-56.29	H	80.34
9262.50	-92.05	13.29	-78.76	H	102.81
11115.00	-85.28	13.50	-71.78	H	95.84
12967.50	-84.83	13.68	-71.15	H	95.21

Table 6-15. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. In Band 12 and 2 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = maximum allowed. In Band 4 and 5 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = 0.
2. This unit was tested with its standard battery.
3. The worst case test configuration was found in the vertical setup for Band 12 and in the horizontal setup for all other LTE Bands.

FCC ID: A3LSCHR830		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 2 Radiated Spurious Measurements (continued)

§2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1880.00 MHz
 CHANNEL: 18900
 MEASURED OUTPUT POWER: 21.63 dBm = 0.145 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) = 34.63$ dBc

FREQ (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3760.00	-53.03	8.42	-44.61	H	66.24
5640.00	-65.07	10.66	-54.41	H	76.04
7520.00	-92.49	11.92	-80.57	H	102.19
9400.00	-91.88	13.24	-78.64	H	100.27
11280.00	-87.66	13.49	-74.17	H	95.80
13160.00	-84.53	13.83	-70.70	H	92.32

Table 6-16. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. In Band 12 and 2 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = maximum allowed. In Band 4 and 5 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = 0.
2. This unit was tested with its standard battery.
3. The worst case test configuration was found in the vertical setup for Band 12 and in the horizontal setup for all other LTE Bands.

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Band 2 Radiated Spurious Measurements (continued)

§2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1907.50 MHz
 CHANNEL: 19175
 MEASURED OUTPUT POWER: 19.80 dBm = 0.095 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) = 32.80$ dBc

FREQ (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3815.00	-55.60	8.55	-47.05	H	66.85
5722.50	-63.61	10.69	-52.92	H	72.72
7630.00	-92.54	12.05	-80.49	H	100.29
9537.50	-91.65	13.20	-78.45	H	98.25
11445.00	-88.12	13.43	-74.69	H	94.49
13352.50	-84.25	14.00	-70.25	H	90.05

Table 6-17. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. In Band 12 and 2 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = maximum allowed. In Band 4 and 5 LTE, the highest power was found in QPSK modulation with RB size = 1 and RB offset = 0.
2. This unit was tested with its standard battery.
3. The worst case test configuration was found in the vertical setup for Band 12 and in the horizontal setup for all other LTE Bands.

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6.8 SVLTE Radiated Spurious Emissions

§2.1053, §27.53(g)(h), §22.917(a), §24.238(a)

During SVLTE testing, LTE and CDMA are simultaneously operating at maximum power. The EUT was connected to CMW500 with LTE transmitting at max power with 1 RB in the QPSK modulation. The EUT was connected to CMU200 with CDMA transmitting at max power with RC3/SO55 All-Up Bits.

2nd and 3rd order Intermodulation noise were investigated as they produced emissions during SVLTE. Higher order intermodulation noise were investigated but did not produce significant emissions that were within 20dB of the limit. Low, mid, and high channels were investigated for Cellular/PCS CDMA. Various LTE bandwidths, RB configurations, and modulations were investigated. Worst case emissions are reported below.

Field Strength of SPURIOUS Radiation

Tx1 Freq. (f1):	1880.00	MHz
Tx2 Freq. (f2):	836.50	MHz
Tx1 / Tx2 Modulation:	CDMA / QPSK	
LTE Bandwidth:	5	MHz
LTE RB Size / Offset:	1 / 12	
Distance:	3	meters
Limit:	-13	dBm

Intermod Order	Intermod formula	FREQ (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	Margin [dB]
3rd	2f1-f2	2923.50	-38.08	7.24	-30.84	H	-17.8

Table 6-18. SVLTE RSE

NOTES:

1. This unit was tested with its standard battery.
2. The worst case test configuration was found in the vertical setup for Band 12 and in the horizontal setup for all other LTE Bands.

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SVLTE Radiated Spurious Emissions (continued)

§2.1053, §27.53(g)(h), §22.917(a), §24.238(a)

Field Strength of SPURIOUS Radiation

Tx1 Freq. (f1): 1880.00 MHz
 Tx2 Freq. (f2): 1732.50 MHz
 Tx1 / Tx2 Modulation: CDMA / QPSK
 LTE Bandwidth: 5 MHz
 LTE RB Size / Offset: 1 / 12
 Distance: 3 meters
 Limit: -13 dBm

Intermod Order	Intermod formula	FREQ (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	Margin [dB]
3rd	2f1-f2	2027.50	-32.63	5.86	-26.77	H	-13.8

Table 6-19. SVLTE RSE

NOTES:

1. This unit was tested with its standard battery.
2. The worst case test configuration was found in the vertical setup for Band 12 and in the horizontal setup for all other LTE Bands.

FCC ID: A3LSCHR830		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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6.9 Band 12 Frequency Stability Measurements

§2.1055, 27.54

OPERATING FREQUENCY: 707,500,000 Hz

CHANNEL: 23790

REFERENCE VOLTAGE: 3.8 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	707,500,012	12	0.000002
100 %		- 30	707,500,023	23	0.000003
100 %		- 20	707,500,005	5	0.000001
100 %		- 10	707,500,027	27	0.000004
100 %		0	707,500,024	24	0.000003
100 %		+ 10	707,500,006	6	0.000001
100 %		+ 20	707,500,016	16	0.000002
100 %		+ 30	707,500,023	23	0.000003
100 %		+ 40	707,500,016	16	0.000002
100 %		+ 50	707,500,014	14	0.000002
115 %	4.37	+ 20	707,500,015	15	0.000002
85 %	3.23	+ 20	707,500,011	11	0.000002

Table 6-20. Frequency Stability Data (Band 12)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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Band 12 Frequency Stability Measurements (Cont'd)

§2.1055, 27.54

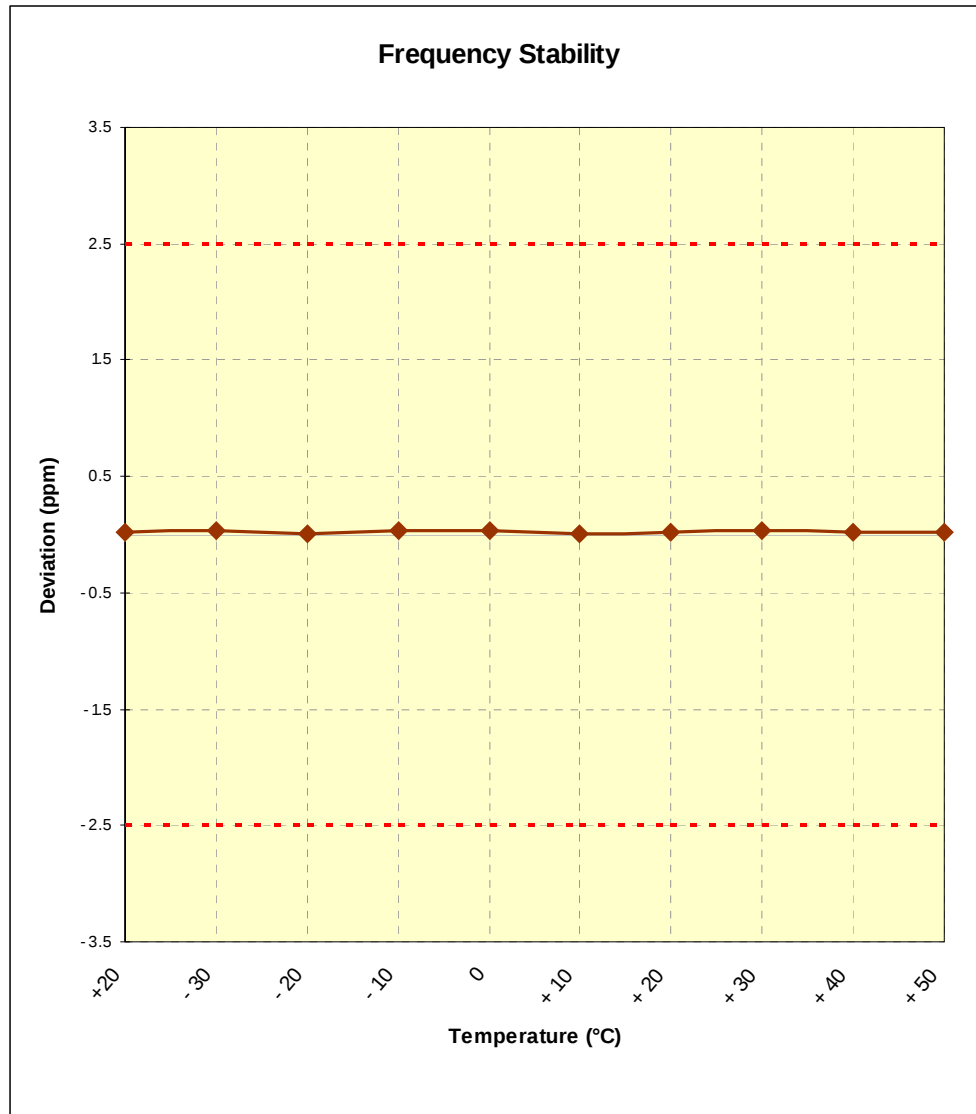


Figure 6-1. Frequency Stability Graph (Band 12)

FCC ID: A3LSCHR830		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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6.10 Band 5 Frequency Stability Measurements

§2.1055, 22.355; RSS-132 (4.3)

OPERATING FREQUENCY: 836,500,000 Hz

CHANNEL: 20525

REFERENCE VOLTAGE: 3.8 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	836,500,014	14	0.000002
100 %		- 30	836,500,021	21	0.000002
100 %		- 20	836,500,017	17	0.000002
100 %		- 10	836,500,011	11	0.000001
100 %		0	836,500,015	15	0.000002
100 %		+ 10	836,500,009	9	0.000001
100 %		+ 20	836,500,016	16	0.000002
100 %		+ 30	836,500,006	6	0.000001
100 %		+ 40	836,500,016	16	0.000002
100 %		+ 50	836,500,020	20	0.000002
115 %	4.37	+ 20	836,500,004	4	0.000001
85 %	3.23	+ 20	836,500,017	17	0.000002

Table 6-21. Frequency Stability Data (Band 5)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: A3LSCHR830		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
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Band 5 Frequency Stability Measurements (Cont'd)

§2.1055, 22.355; RSS-132 (4.3)

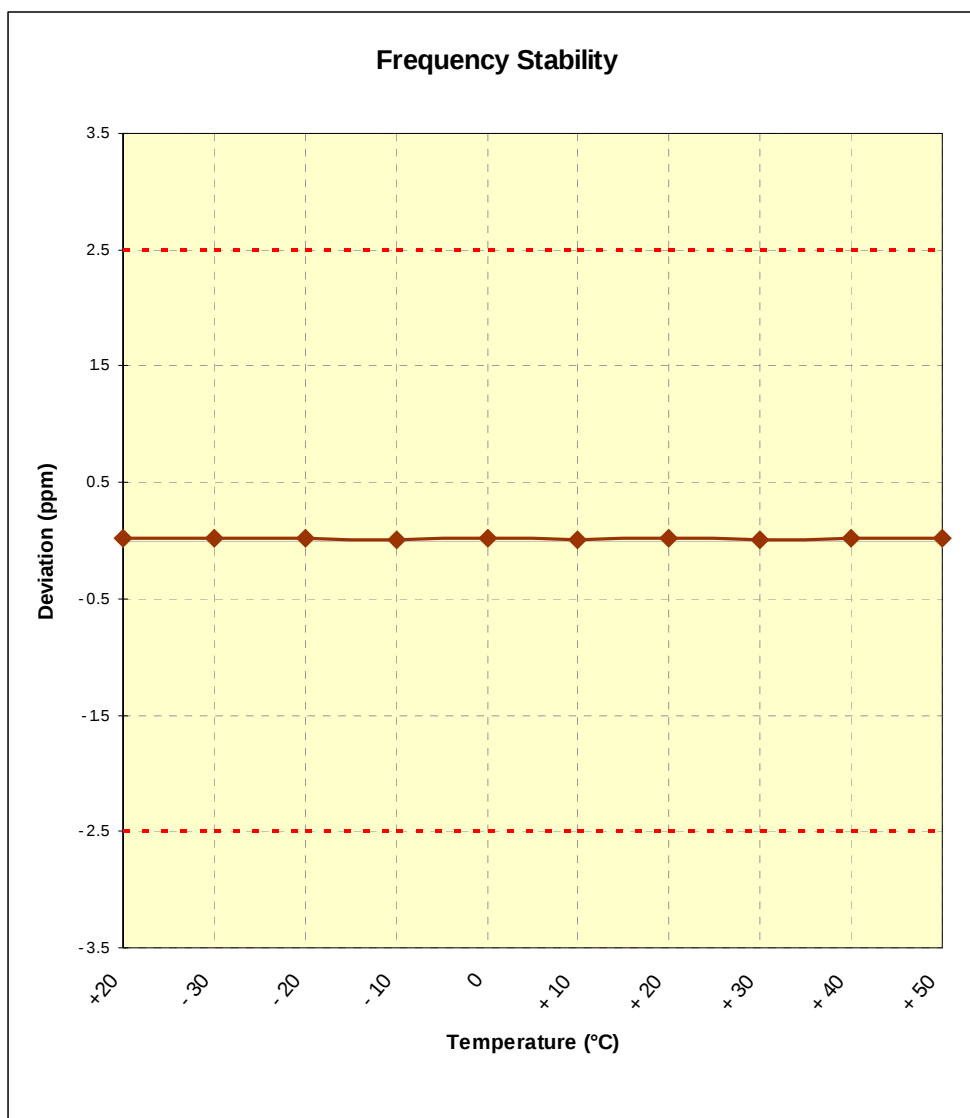


Figure 6-2. Frequency Stability Graph (Band 5)

FCC ID: A3LSCHR830		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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6.11 Band 4 Frequency Stability Measurements

§2.1055, 27.54

OPERATING FREQUENCY: 1,732,500,000 Hz

CHANNEL: 20175

REFERENCE VOLTAGE: 3.8 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,732,500,013	13	0.000001
100 %		- 30	1,732,500,003	3	0.000000
100 %		- 20	1,732,500,025	25	0.000001
100 %		- 10	1,732,500,021	21	0.000001
100 %		0	1,732,500,026	26	0.000002
100 %		+ 10	1,732,500,024	24	0.000001
100 %		+ 20	1,732,500,012	12	0.000001
100 %		+ 30	1,732,500,028	28	0.000002
100 %		+ 40	1,732,500,016	16	0.000001
100 %		+ 50	1,732,500,018	18	0.000001
115 %	4.37	+ 20	1,732,500,022	22	0.000001
85 %	3.23	+ 20	1,732,500,007	7	0.000000

Table 6-22. Frequency Stability Data (Band 4)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: A3LSCHR830		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 4 Frequency Stability Measurements (Cont'd)

§2.1055, 27.54

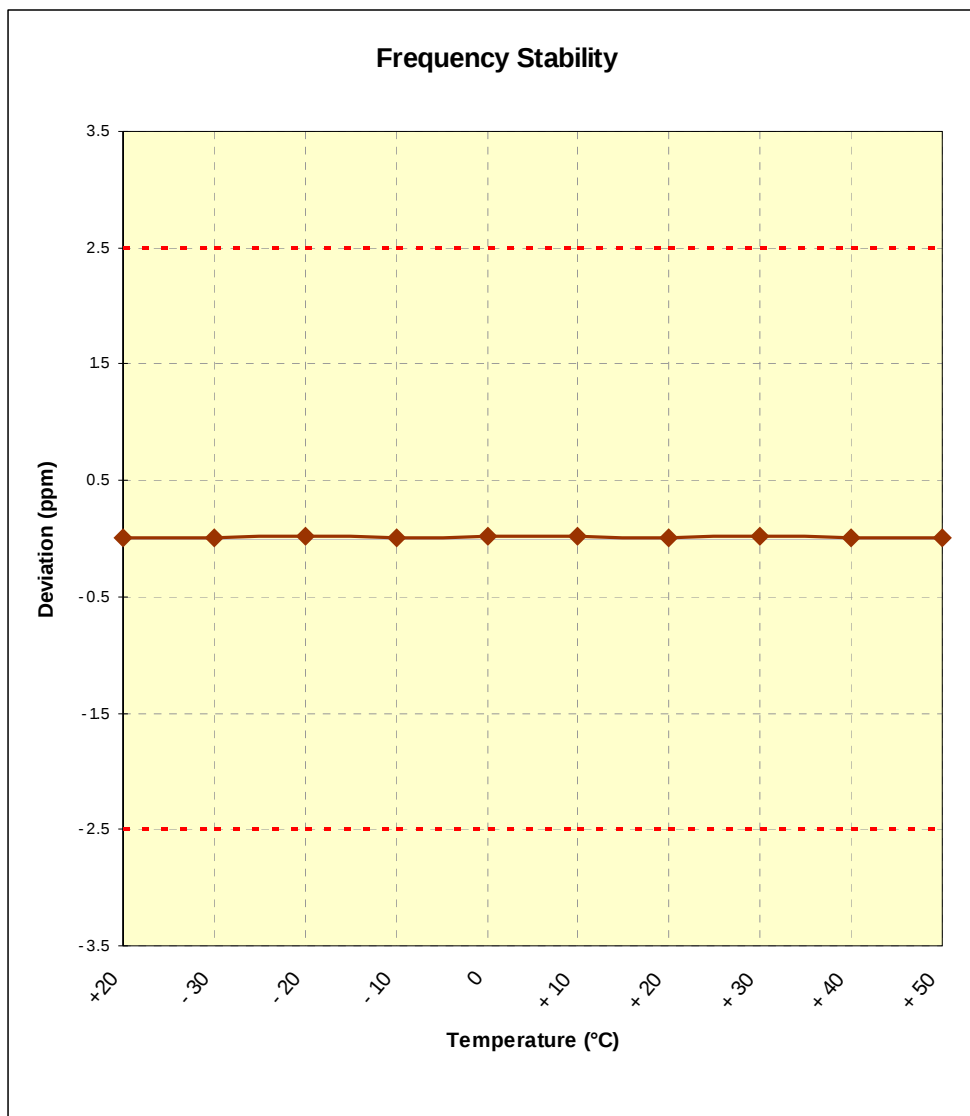


Figure 6-3. Frequency Stability Graph (Band 4)

FCC ID: A3LSCHR830		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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6.12 Band 2 Frequency Stability Measurements

§2.1055, 24.235, RSS-133 (6.3)

OPERATING FREQUENCY: 1,880,000,000 Hz

CHANNEL: 18900

REFERENCE VOLTAGE: 3.8 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,880,000,012	12	0.000001
100 %		- 30	1,880,000,010	10	0.000001
100 %		- 20	1,880,000,017	17	0.000001
100 %		- 10	1,880,000,024	24	0.000001
100 %		0	1,880,000,018	18	0.000001
100 %		+ 10	1,880,000,005	5	0.000000
100 %		+ 20	1,880,000,010	10	0.000001
100 %		+ 30	1,880,000,013	13	0.000001
100 %		+ 40	1,880,000,029	29	0.000002
100 %		+ 50	1,880,000,012	12	0.000001
115 %	4.37	+ 20	1,880,000,015	15	0.000001
85 %	3.23	+ 20	1,880,000,007	7	0.000000

Table 6-23. Frequency Stability Data (Band 2)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: A3LSCHR830		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
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Band 2 Frequency Stability Measurements (Cont'd)

§2.1055, 24.235, RSS-133 (6.3)

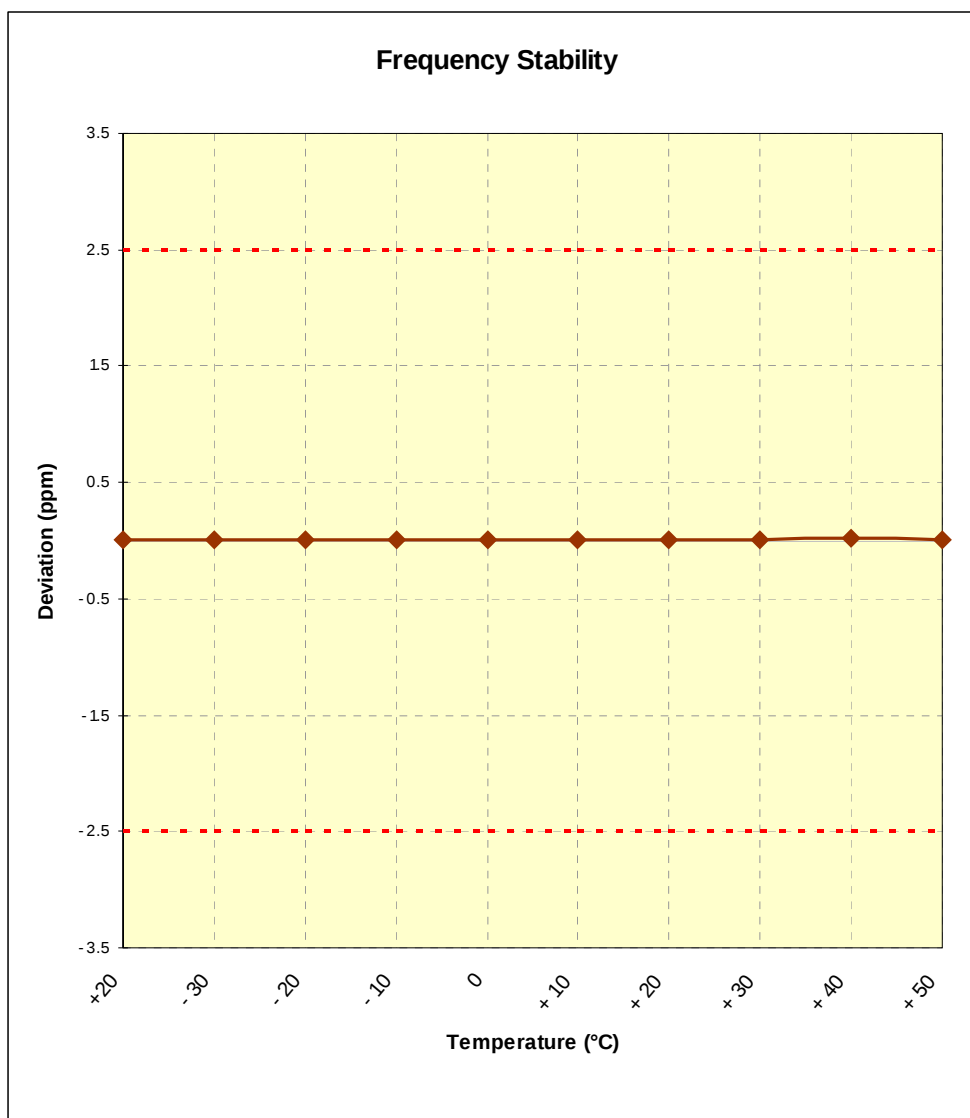
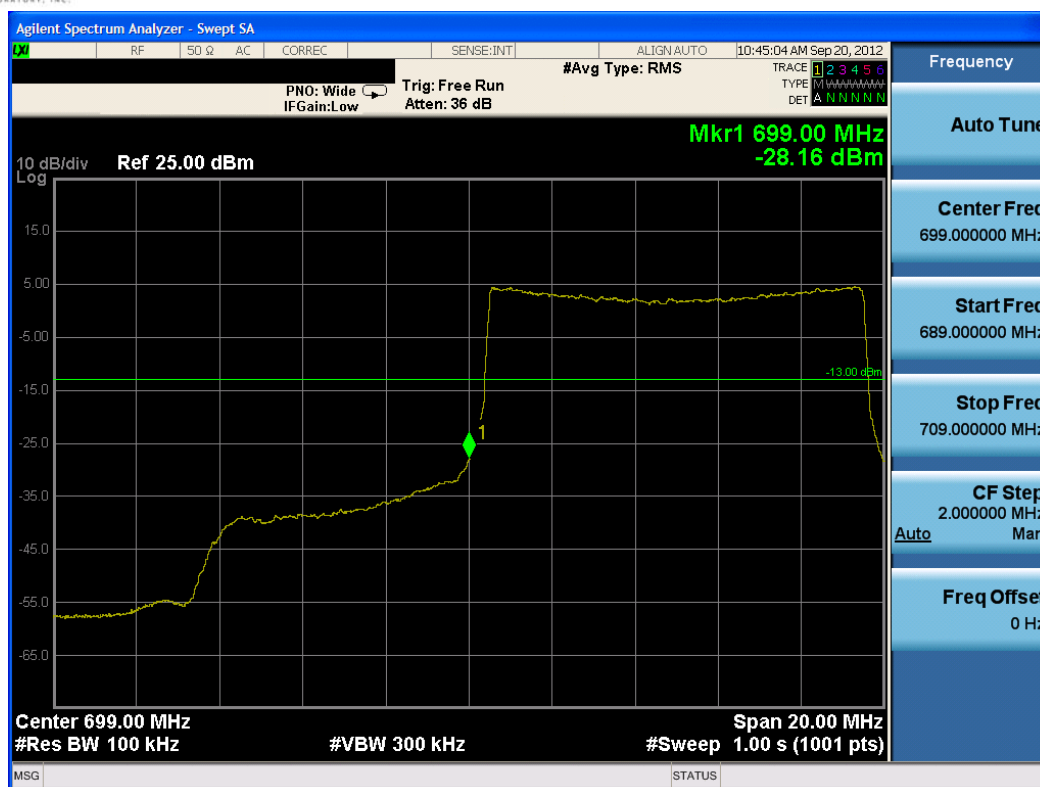
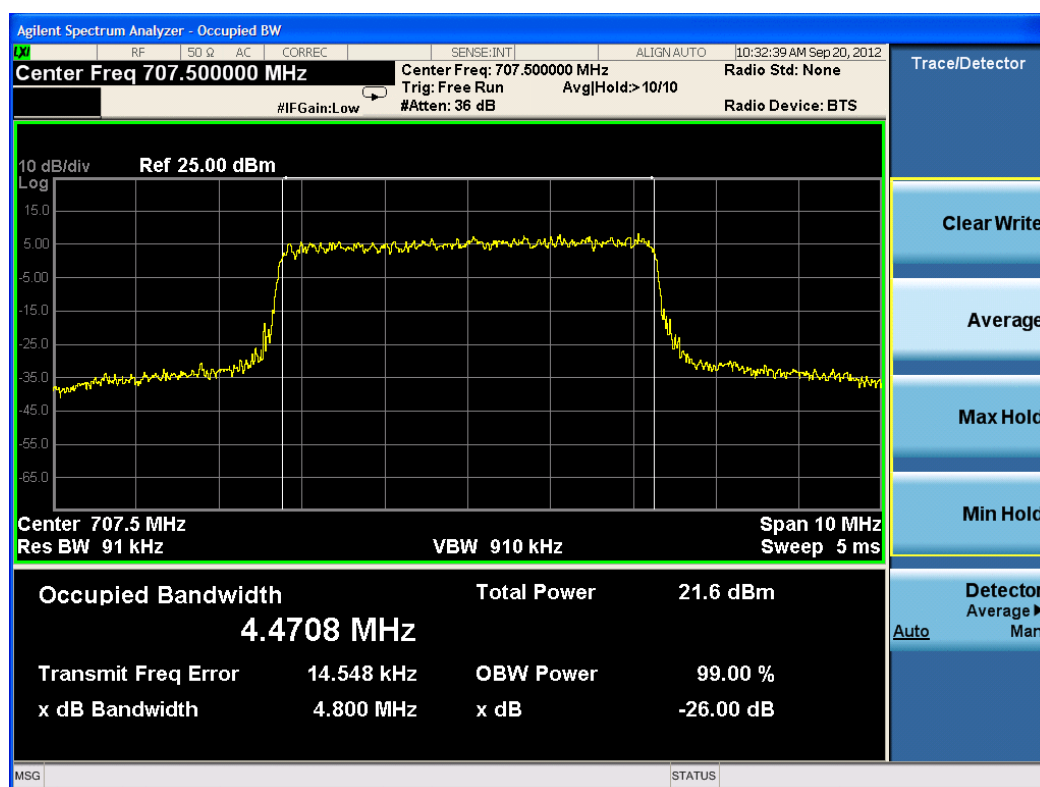


Figure 6-4. Frequency Stability Graph (Band 2)

FCC ID: A3LSCHR830		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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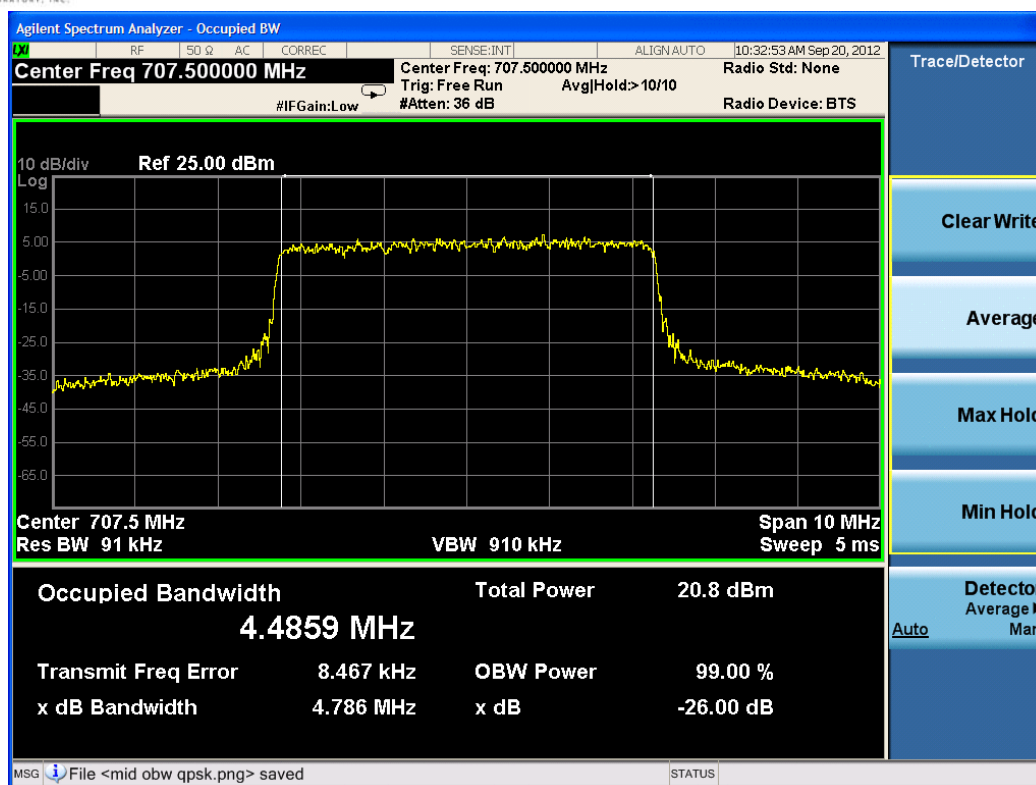


Plot 7-2. Lower Band Edge Plot (10MHz QPSK – RB Size 50)

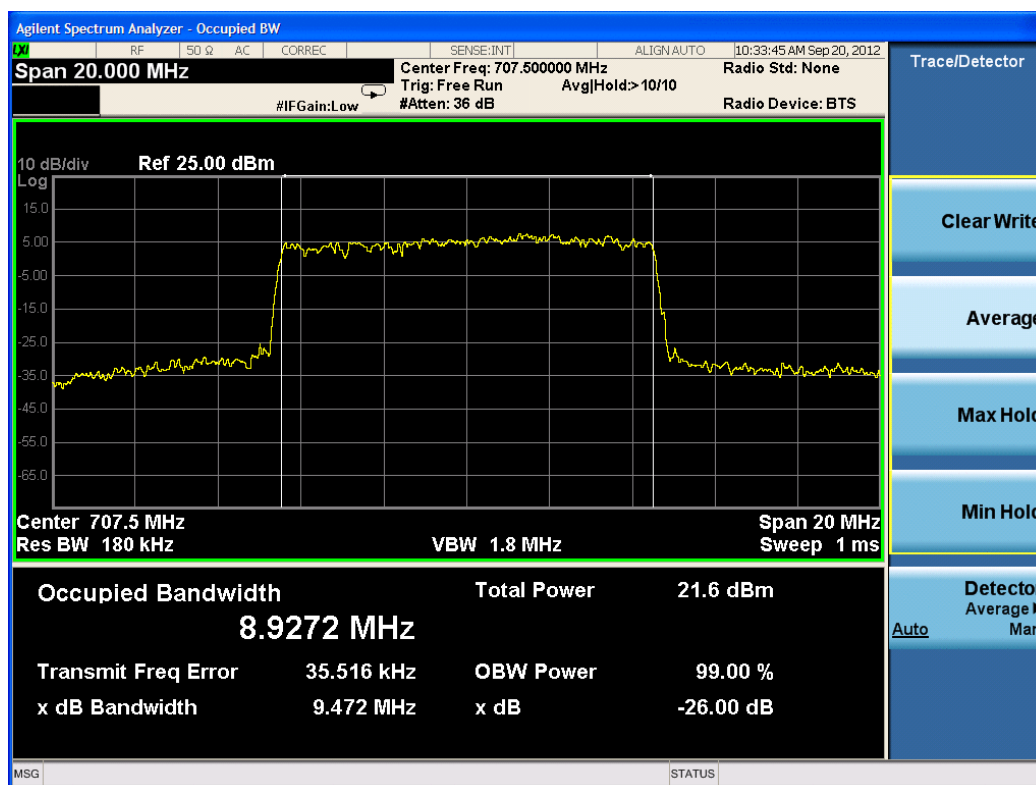


Plot 7-3. Occupied Bandwidth Plot (5MHz QPSK – RB Size 25)

FCC ID: A3LSCHR830	 FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
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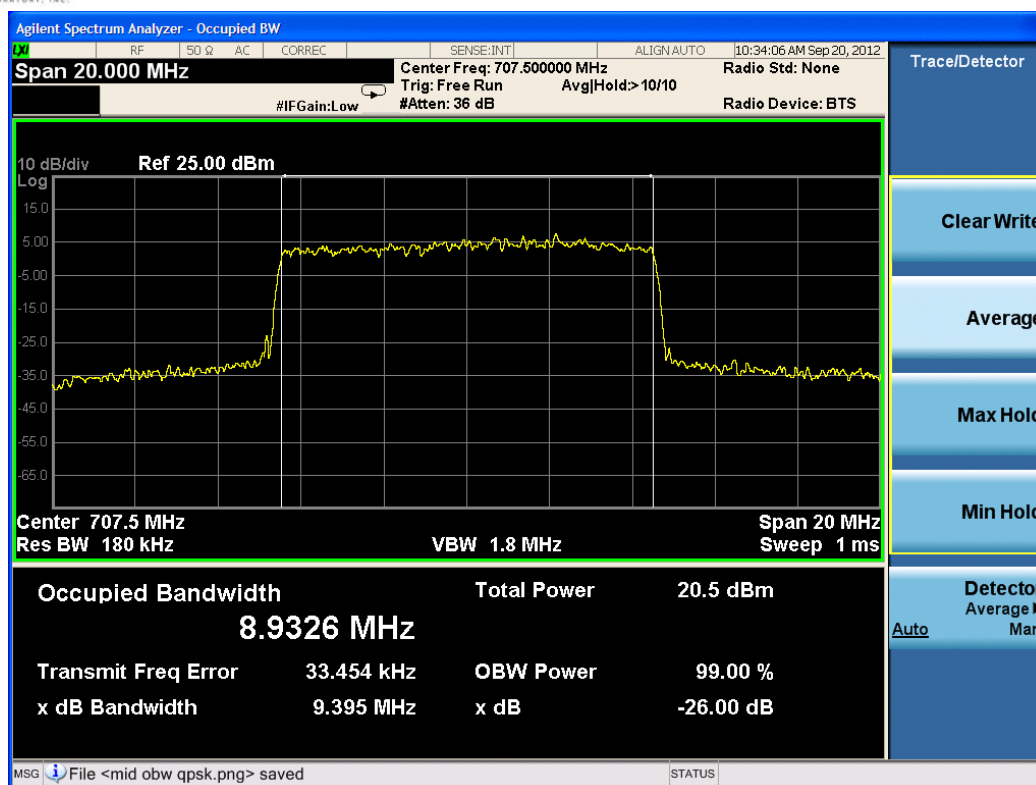


Plot 7-4. Occupied Bandwidth Plot (5MHz 16-QAM – RB Size 25)

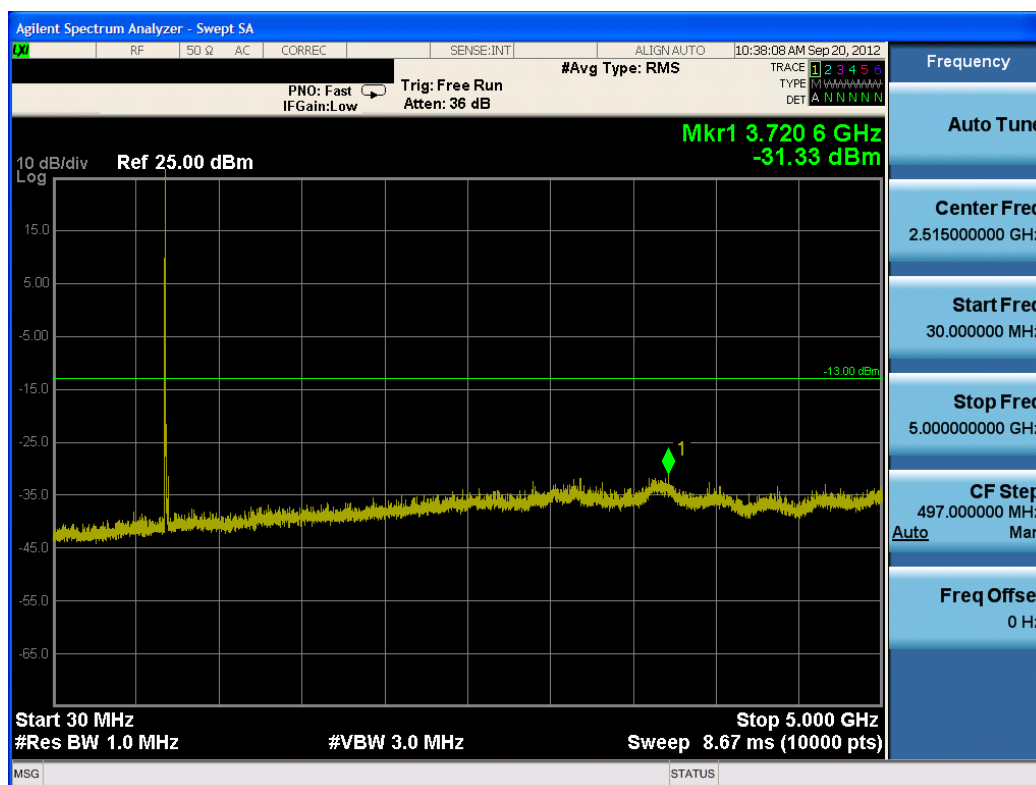


Plot 7-5. Occupied Bandwidth Plot (10MHz QPSK – RB Size 50)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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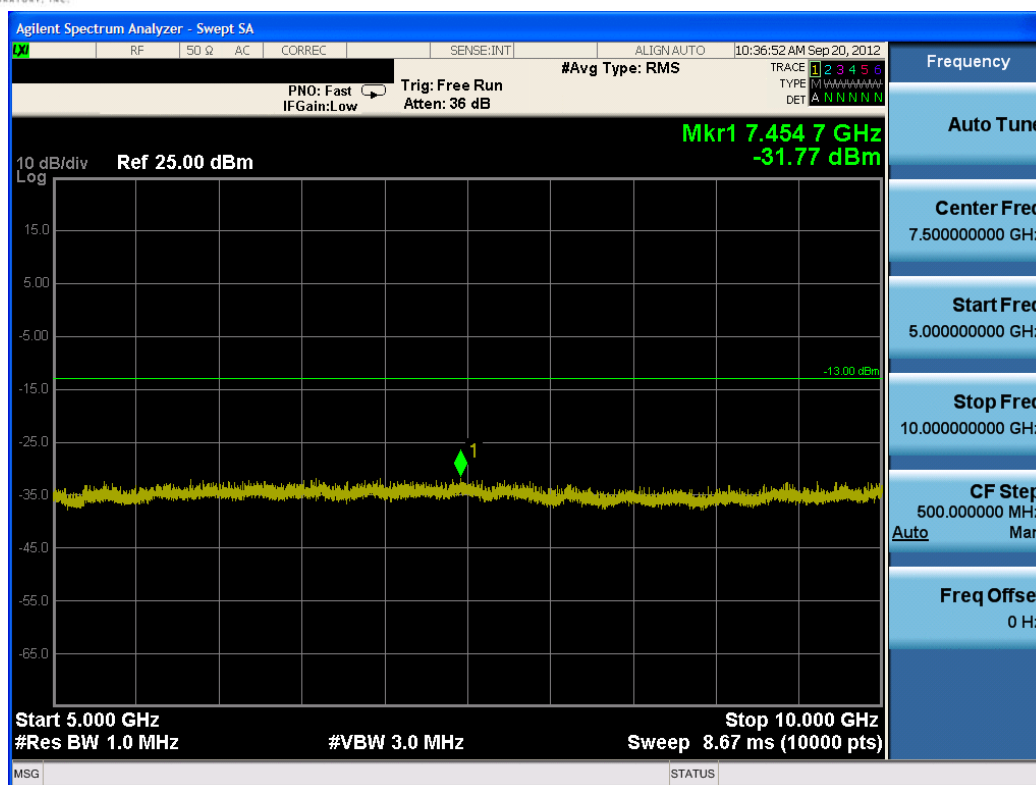


Plot 7-6. Occupied Bandwidth Plot (10MHz 16-QAM – RB Size 50)

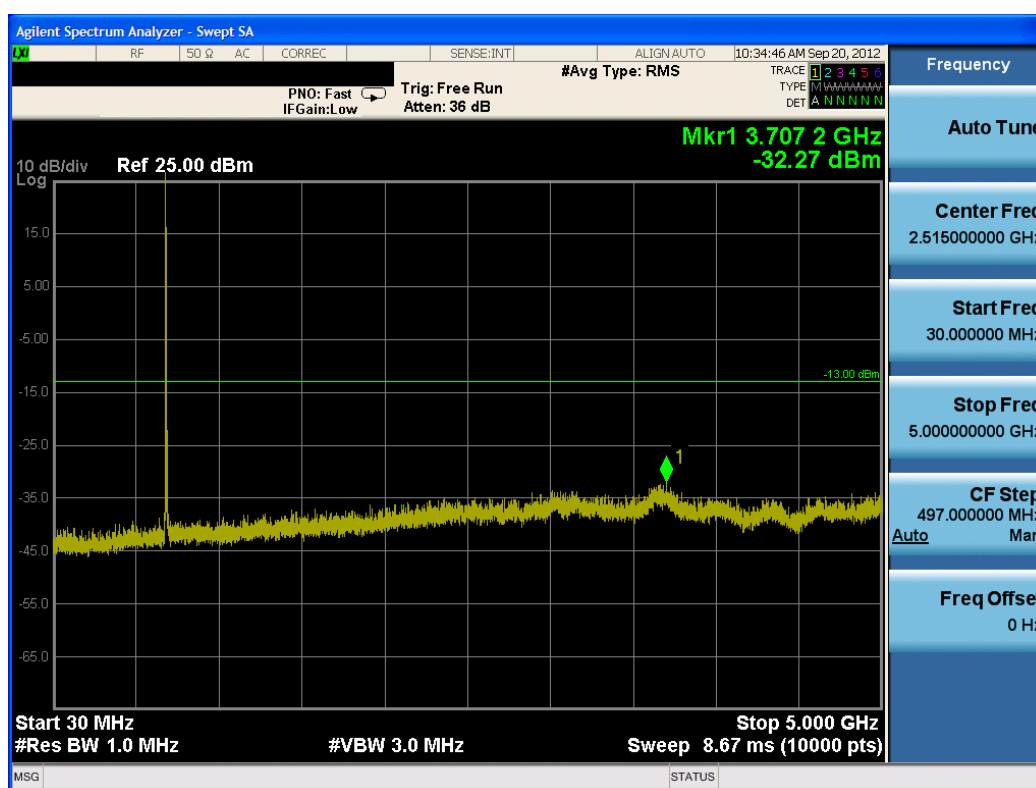


Plot 7-7. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 42 of 79

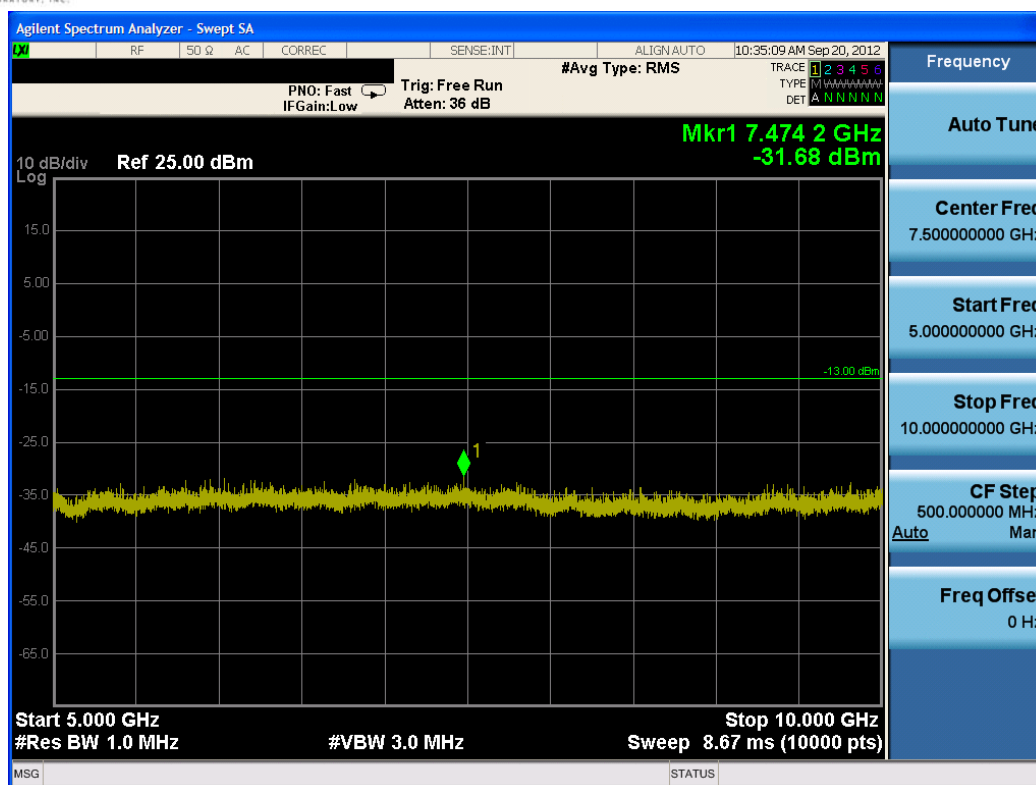


Plot 7-8. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

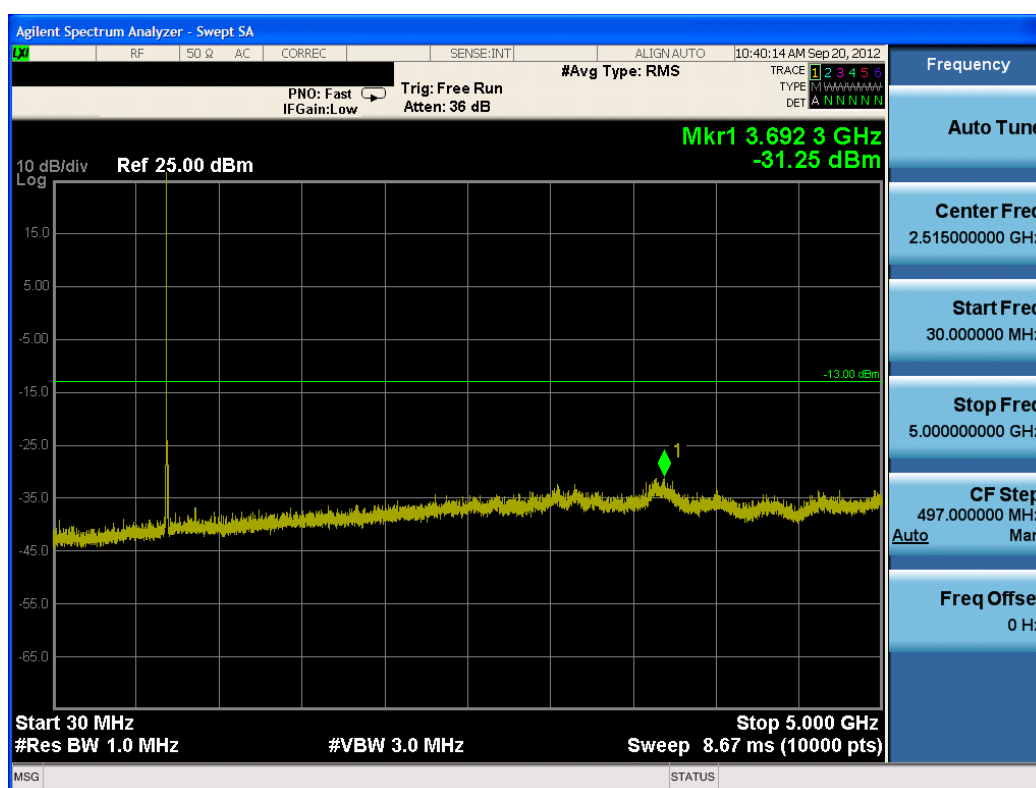


Plot 7-9. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 43 of 79

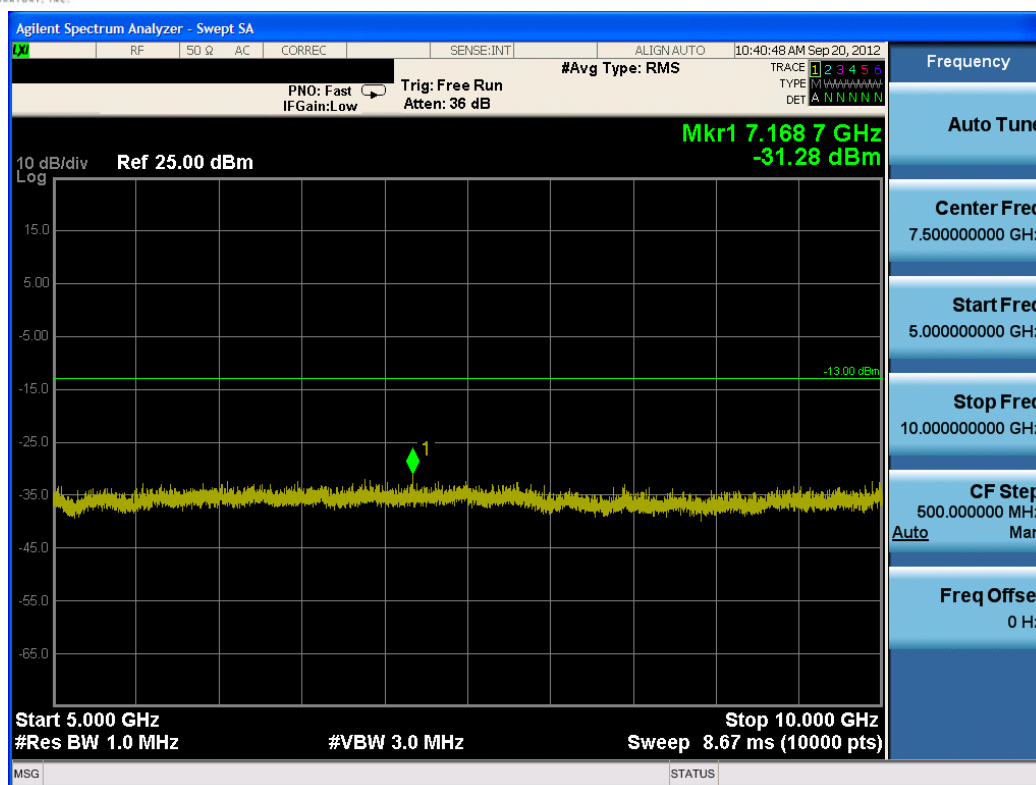


Plot 7-10. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

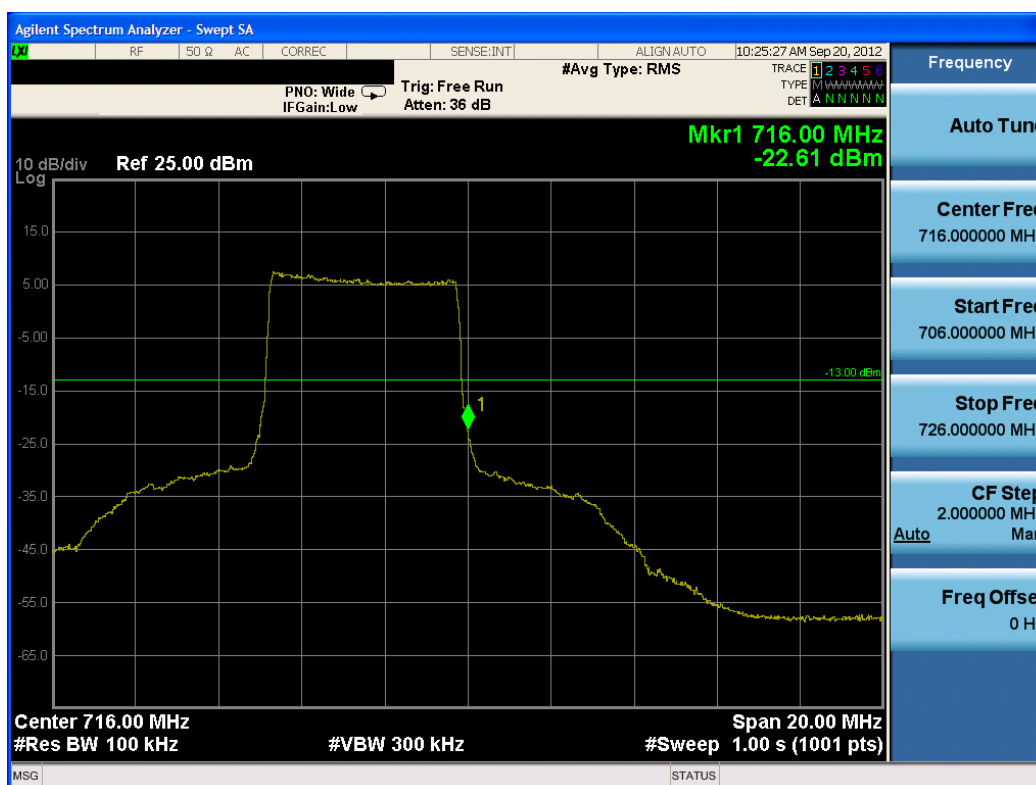


Plot 7-11. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 44 of 79



Plot 7-12. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

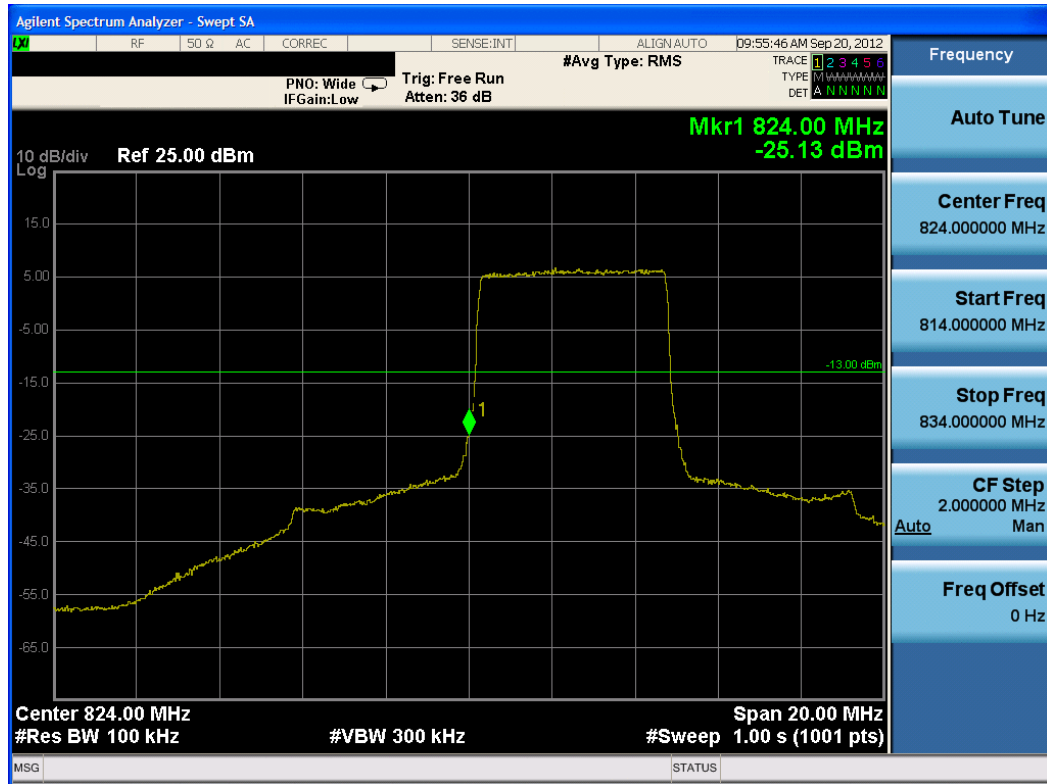


Plot 7-13. Upper Band Edge Plot (5MHz QPSK – RB Size 25)

FCC ID: A3LSCHR830	 FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset	Page 45 of 79

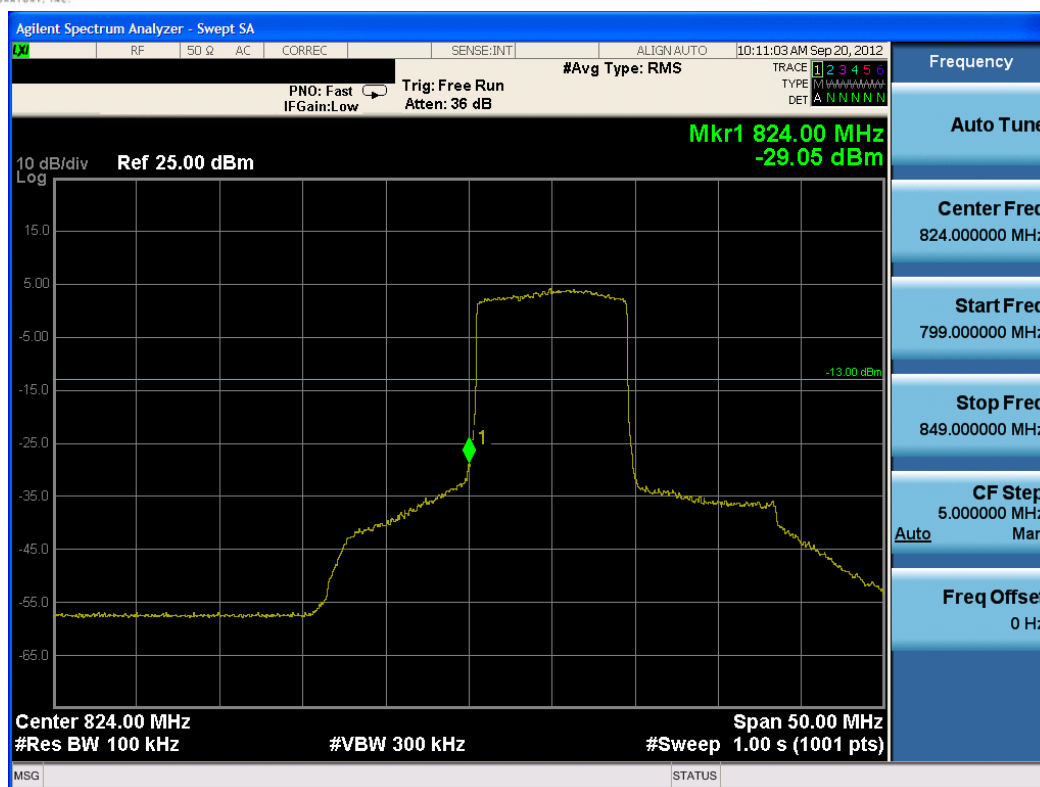
8.0 BAND 5 PLOTS OF EMISSIONS

Note: All bandwidths, RB configurations, and modulations were investigated. The worst case test results are reported below.

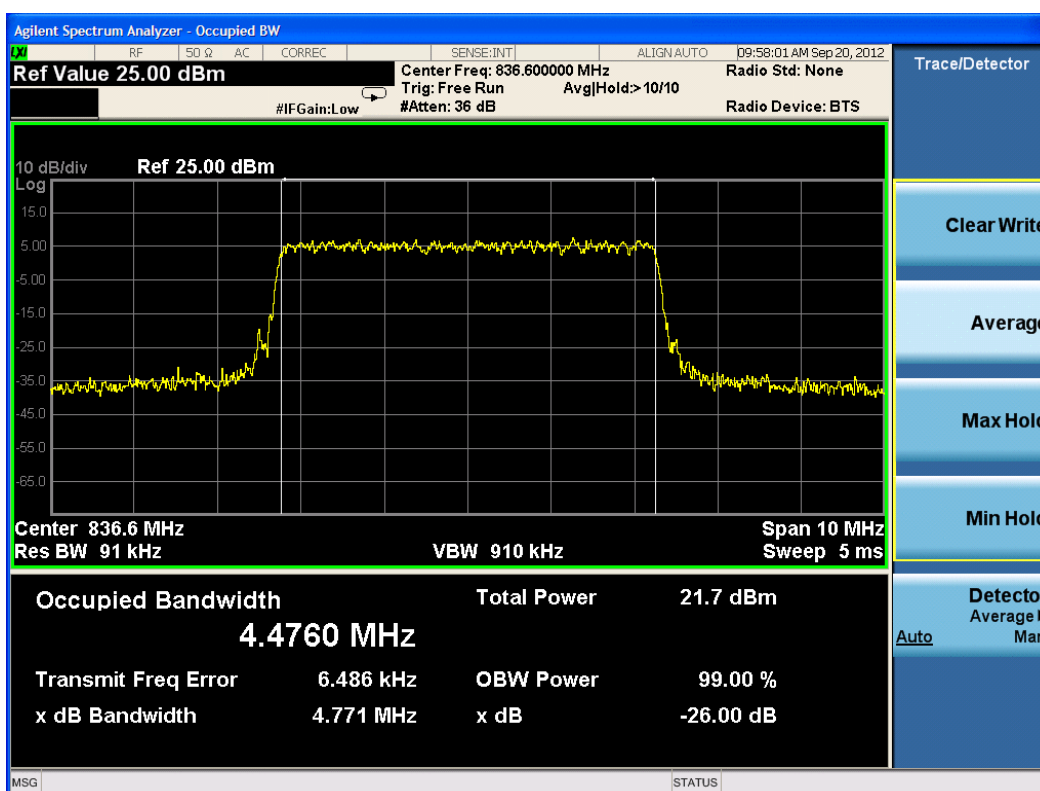


Plot 8-1. Lower Band Edge Plot (5MHz QPSK – RB Size 25)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 47 of 79

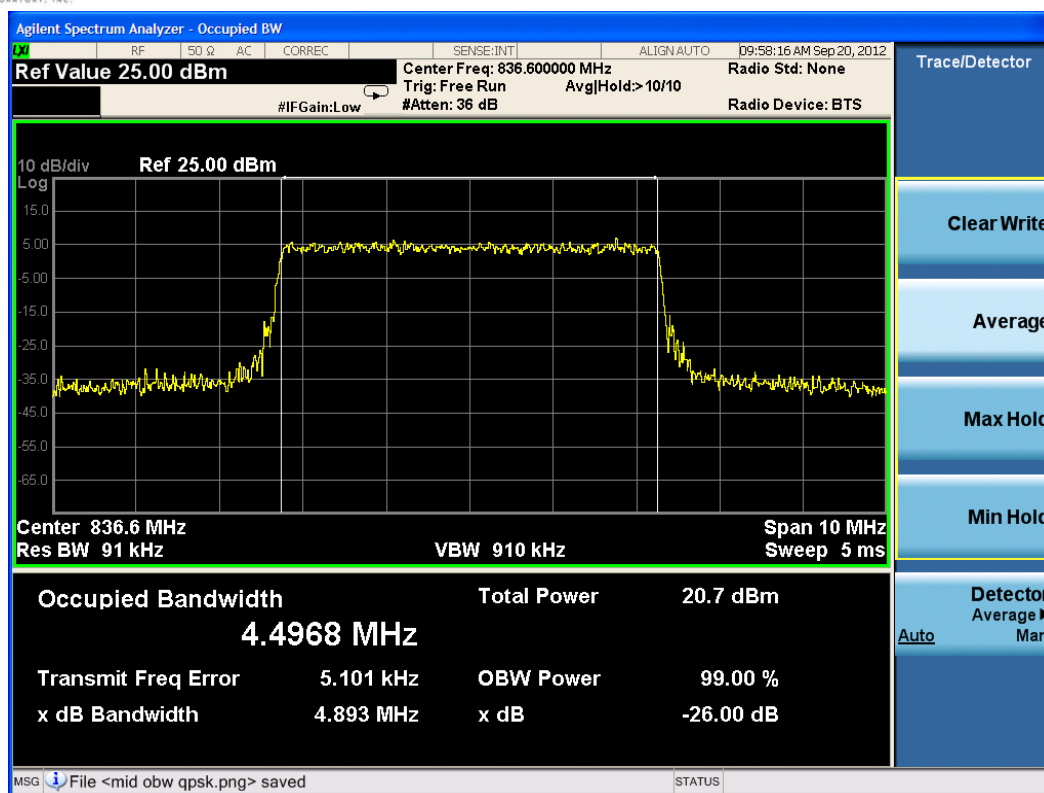


Plot 8-2. Lower Band Edge Plot (10MHz QPSK – RB Size 50)

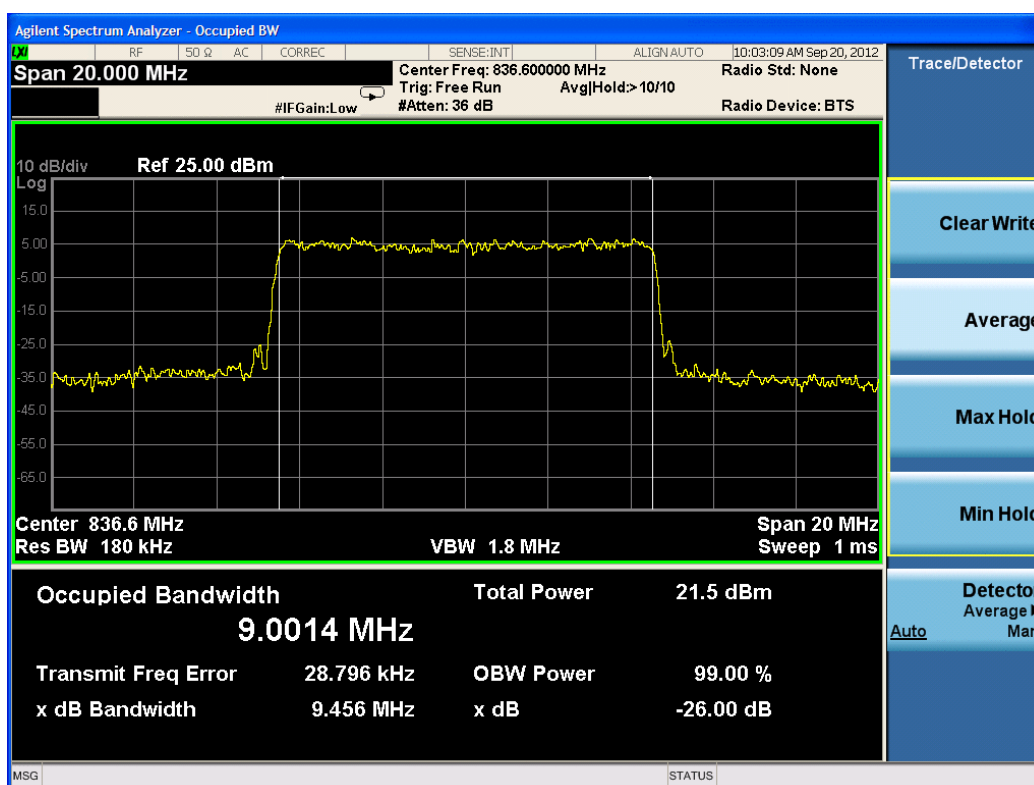


Plot 8-3. Occupied Bandwidth Plot (5MHz QPSK – RB Size 25)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 48 of 79

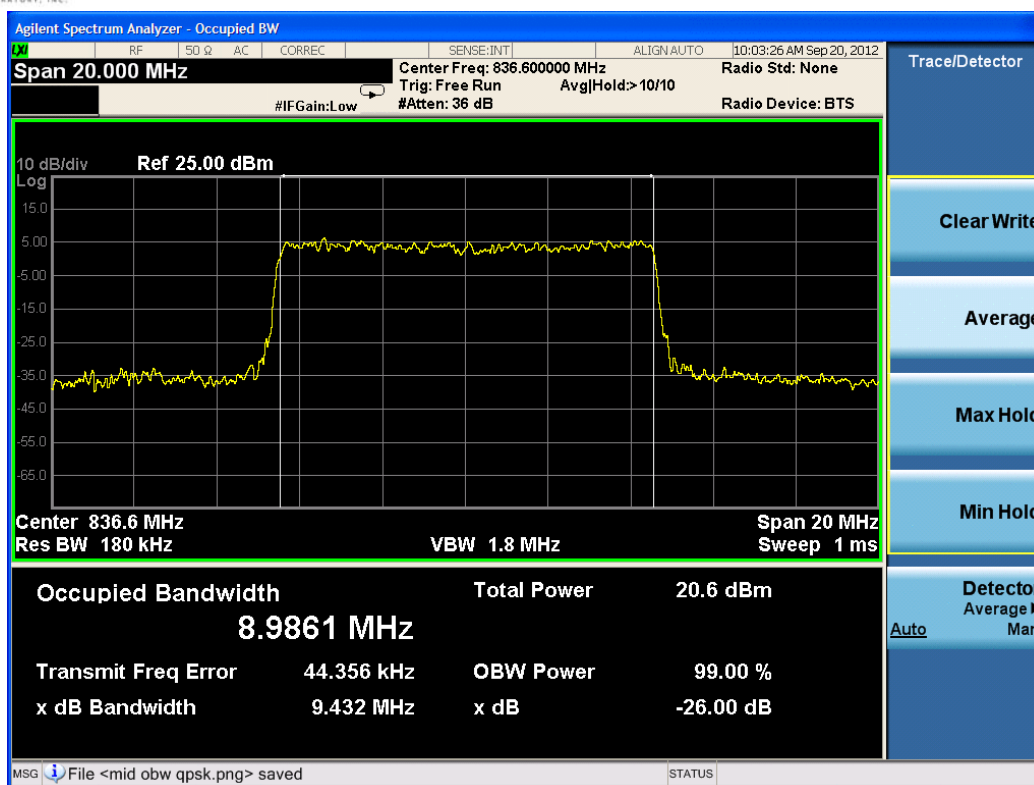


Plot 8-4. Occupied Bandwidth Plot (5MHz 16-QAM – RB Size 25)

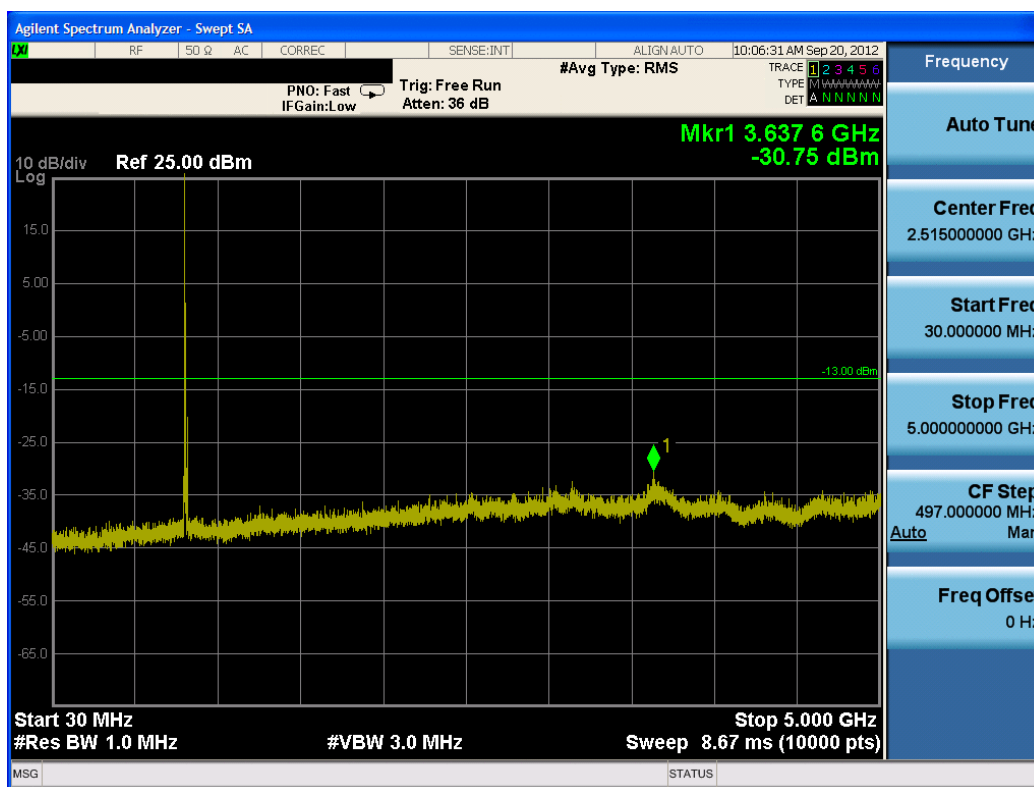


Plot 8-5. Occupied Bandwidth Plot (10MHz QPSK – RB Size 50)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 49 of 79

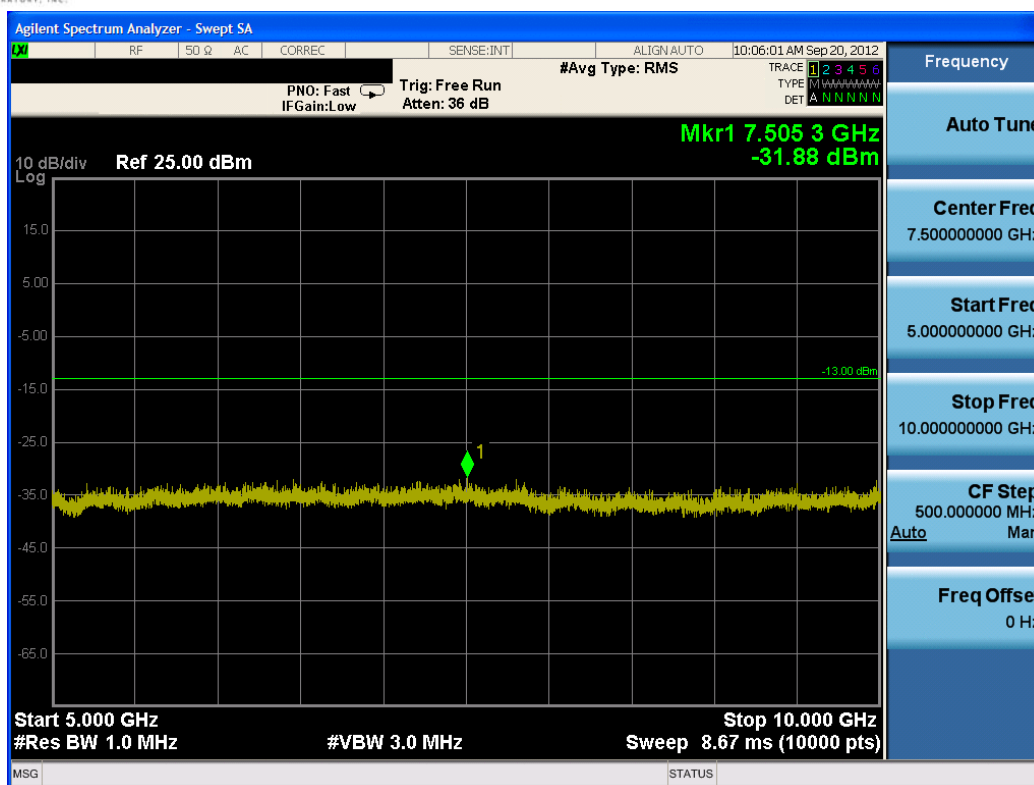


Plot 8-6. Occupied Bandwidth Plot (10MHz 16-QAM – RB Size 50)

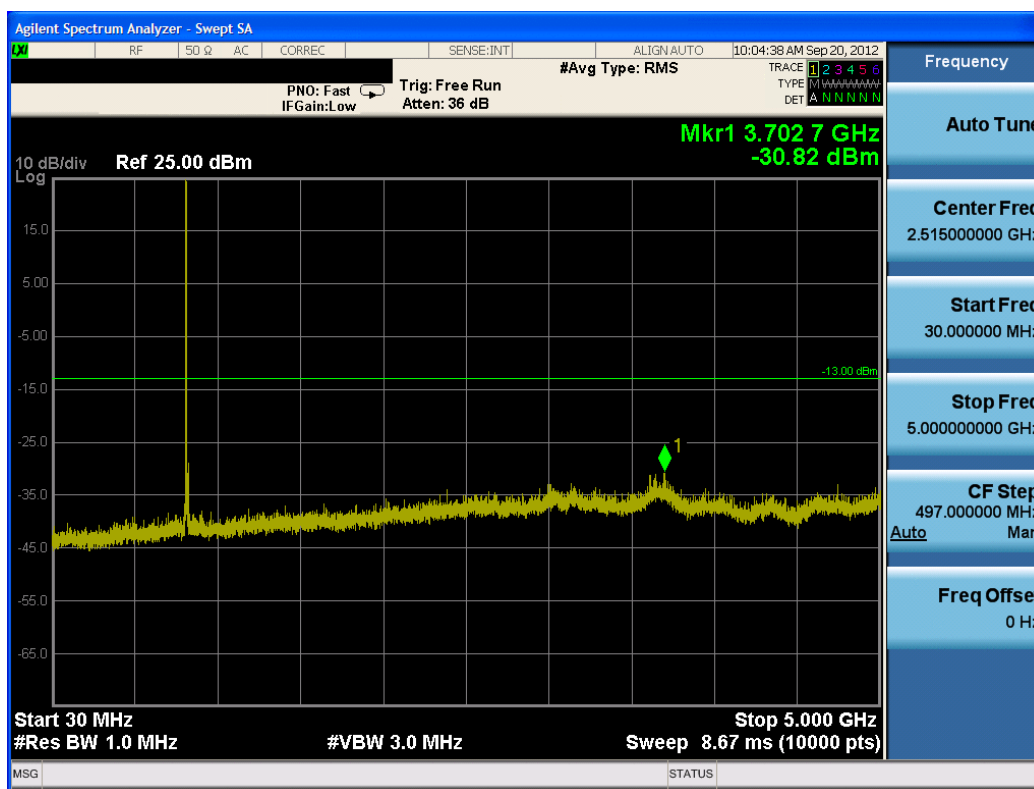


Plot 8-7. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 50 of 79

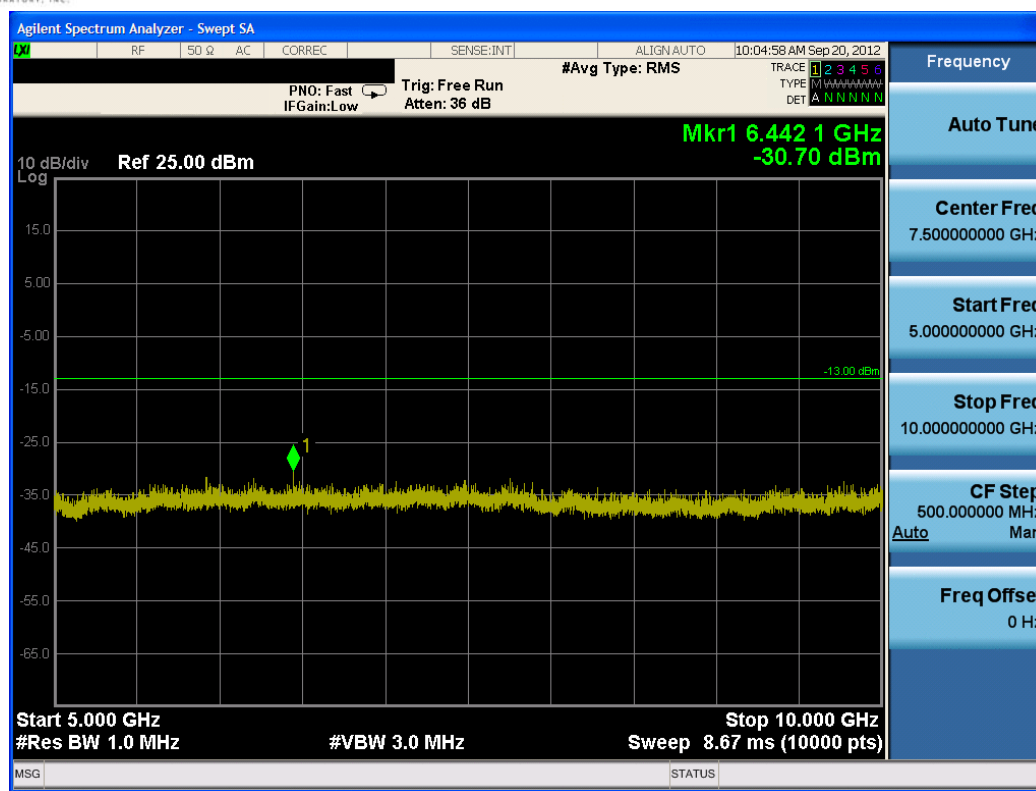


Plot 8-8. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

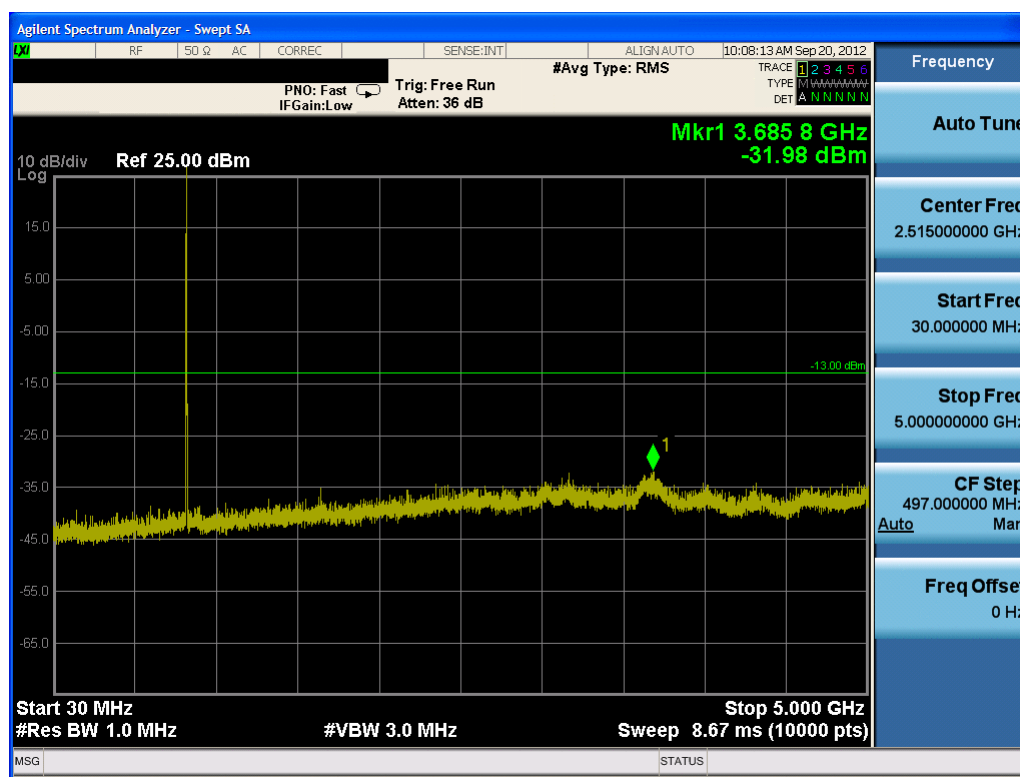


Plot 8-9. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSCHR830	 FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset	Page 51 of 79

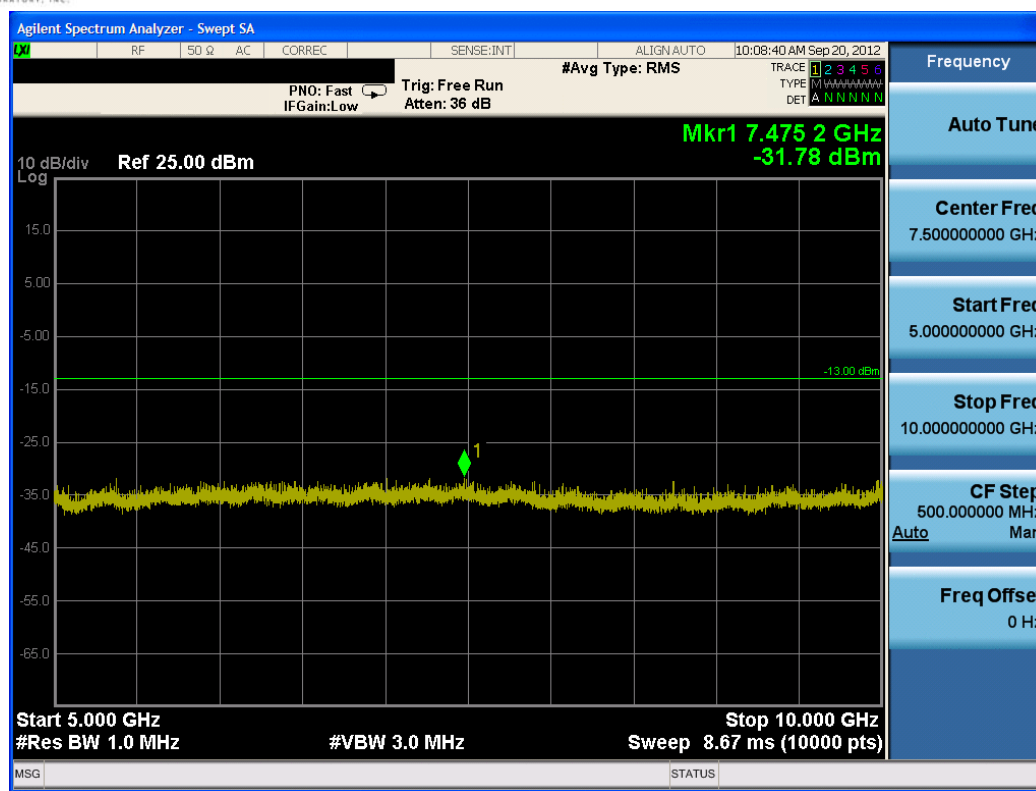


Plot 8-10. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

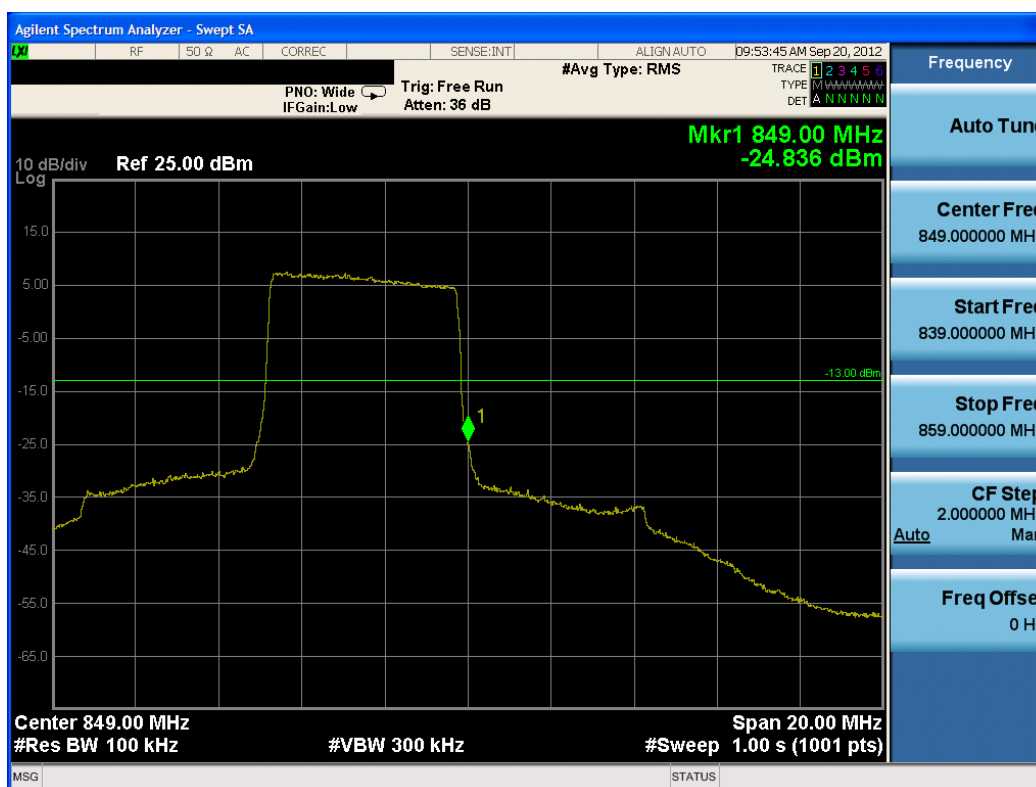


Plot 8-11. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 52 of 79

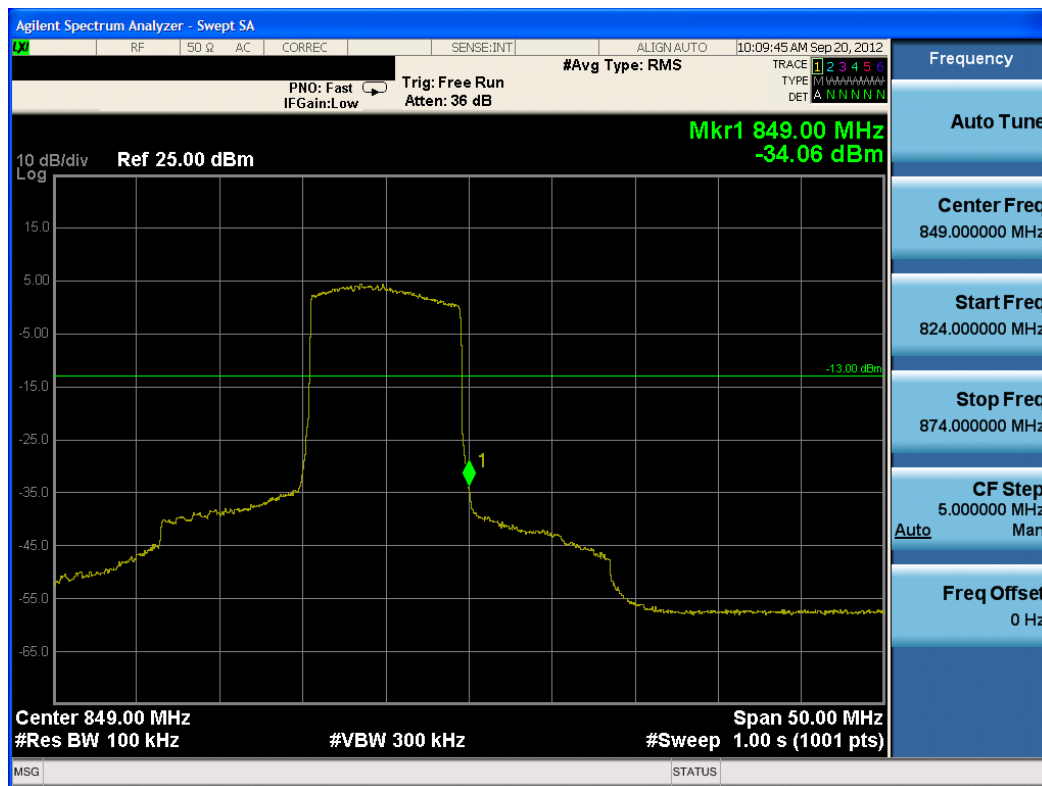


Plot 8-12. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – High Channel)



Plot 8-13. Upper Band Edge Plot (5MHz QPSK – RB Size 25)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 53 of 79

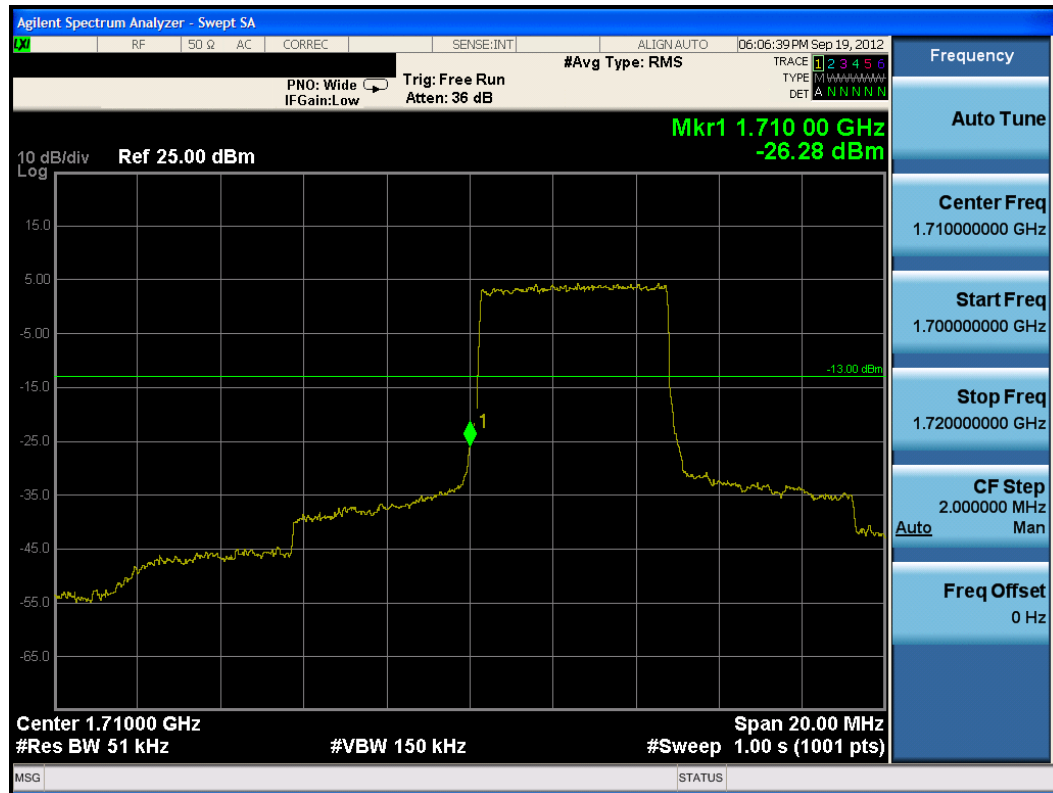


Plot 8-14. Upper Band Edge Plot (10MHz QPSK – RB Size 50)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 54 of 79

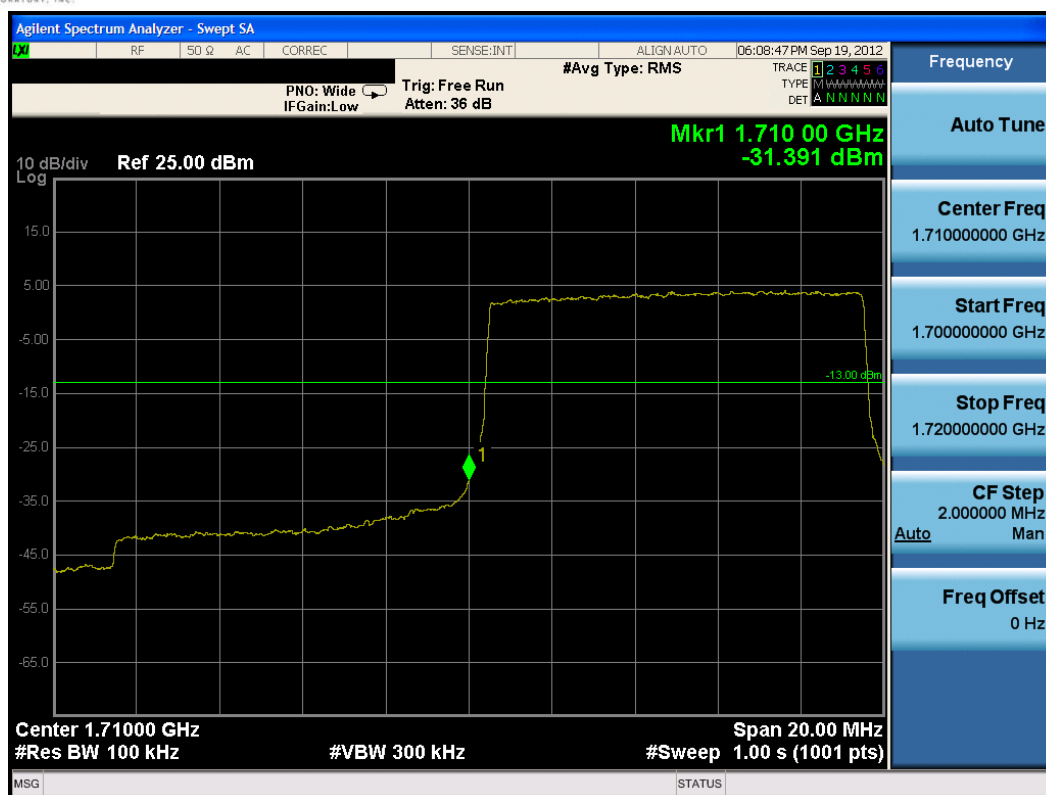
9.0 BAND 4 PLOTS OF EMISSIONS

Note: All bandwidths, RB configurations, and modulations were investigated. The worst case test results are reported below.

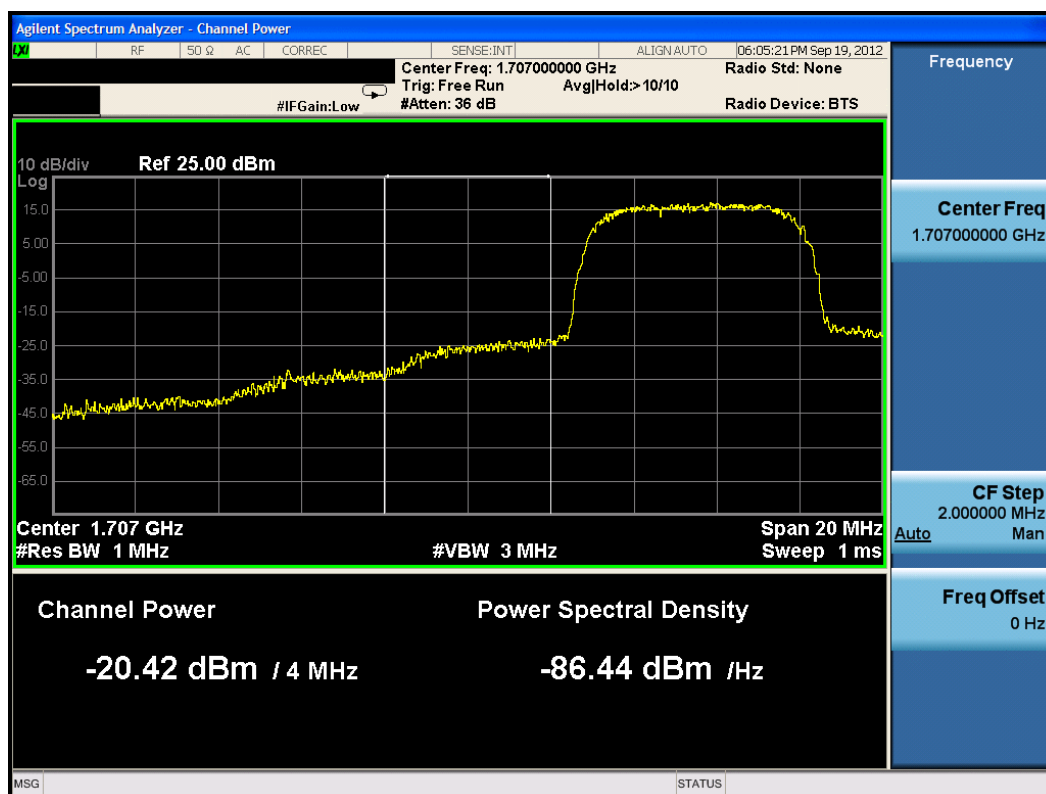


Plot 9-1. Lower Band Edge Plot (5MHz QPSK – RB Size 25)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 55 of 79



Plot 9-2. Lower Band Edge Plot (10MHz QPSK – RB Size 50)

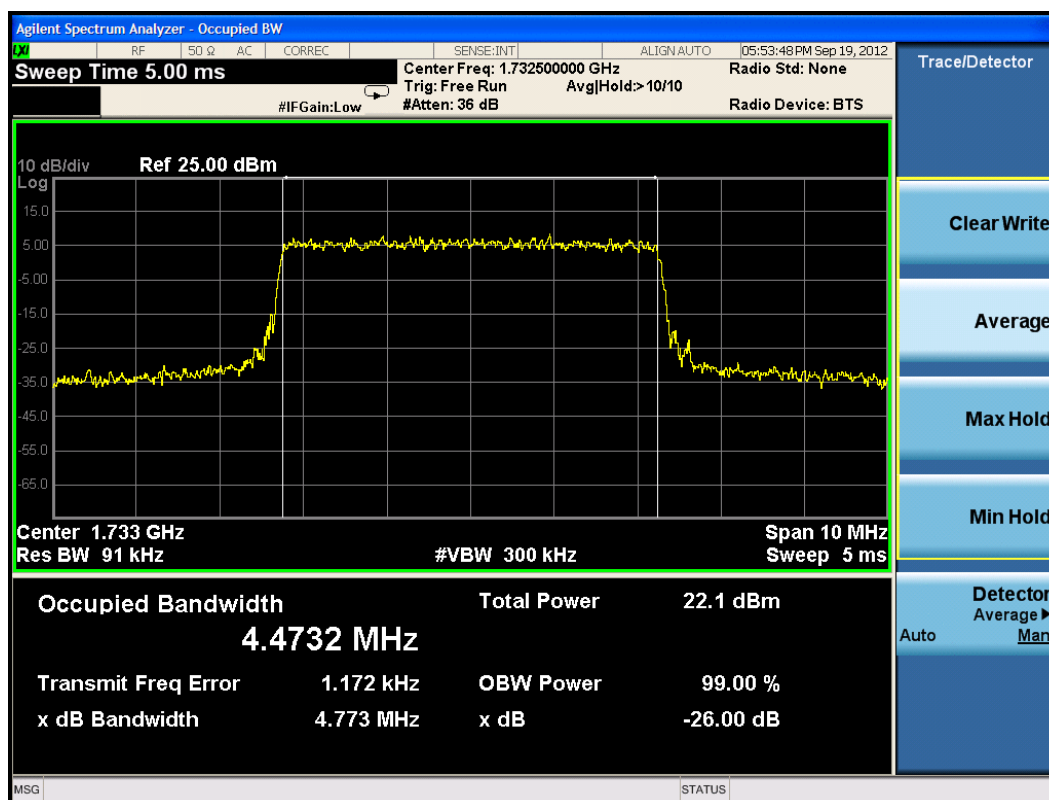


Plot 9-3. Lower Extended Band Edge Plot (5MHz QPSK– RB Size 25)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 56 of 79

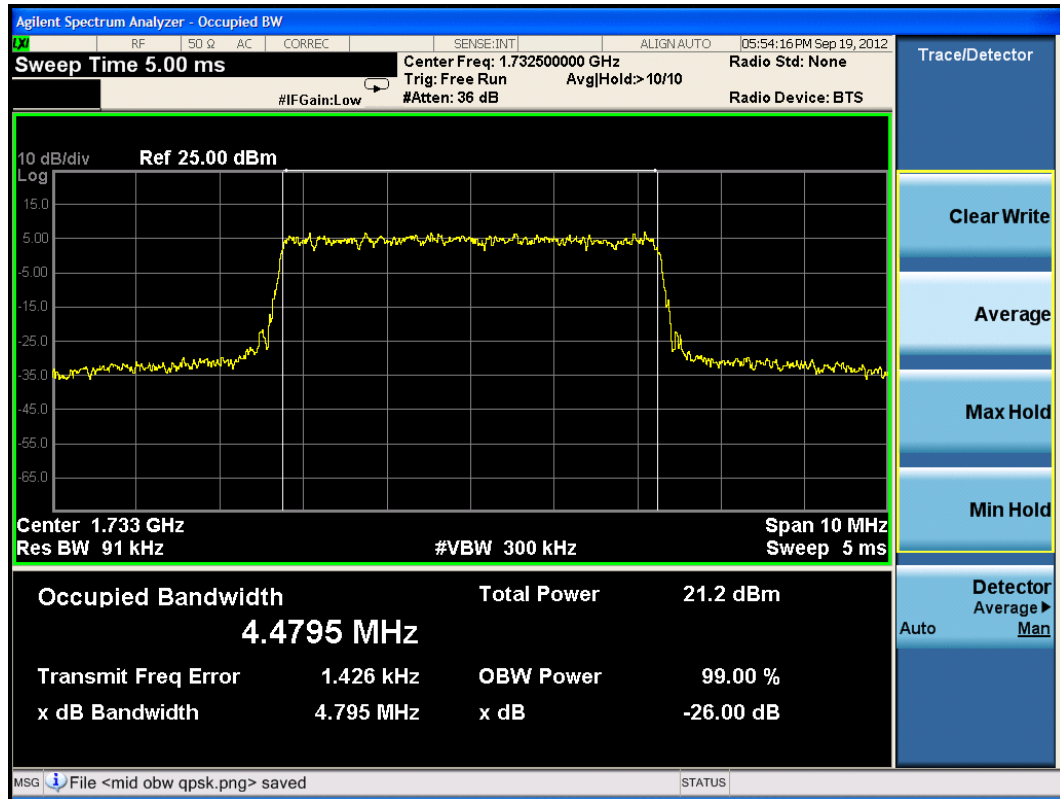


Plot 9-4. Lower Extended Band Edge Plot (10MHz QPSK– RB Size 50)

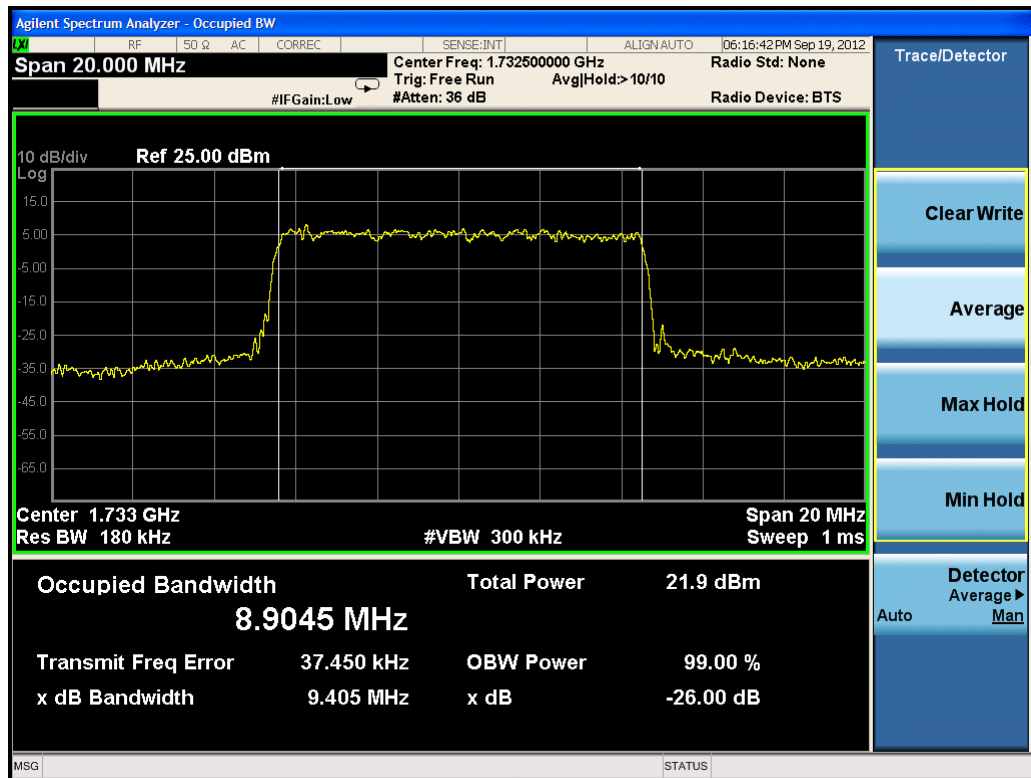


Plot 9-5. Occupied Bandwidth Plot (5MHz QPSK – RB Size 25)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 57 of 79

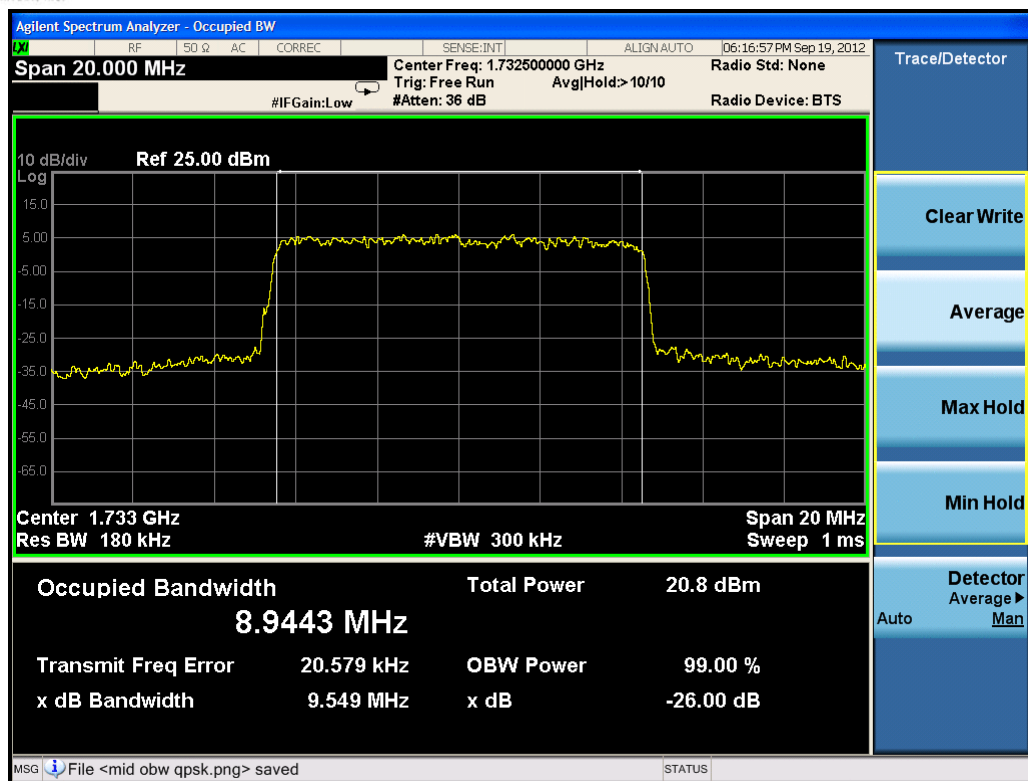


Plot 9-6. Occupied Bandwidth Plot (5MHz 16-QAM – RB Size 25)

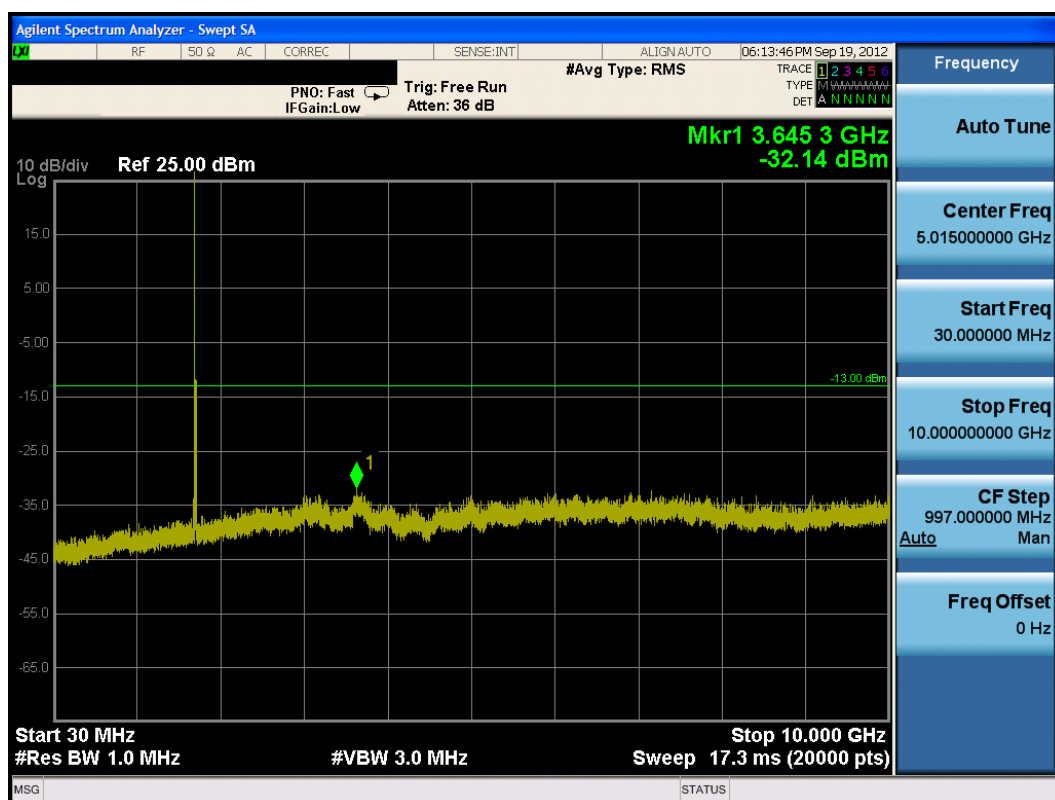


Plot 9-7. Occupied Bandwidth Plot (10MHz QPSK – RB Size 50)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 58 of 79

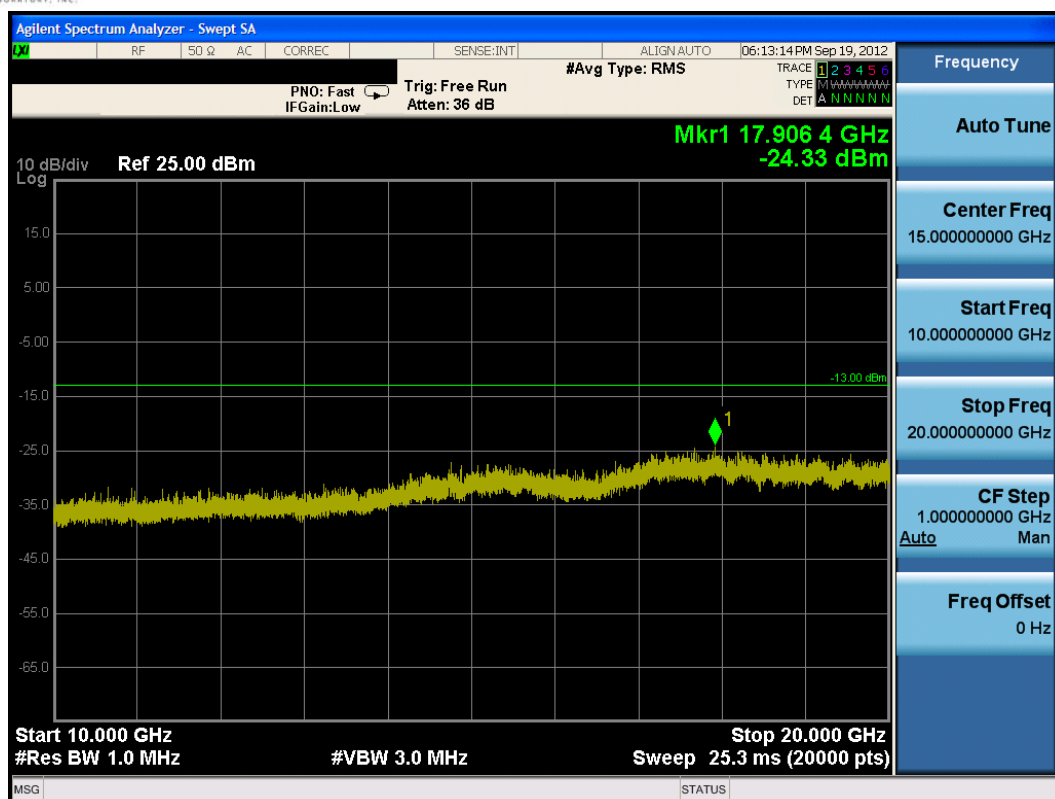


Plot 9-8. Occupied Bandwidth Plot (10MHz 16-QAM – RB Size 50)

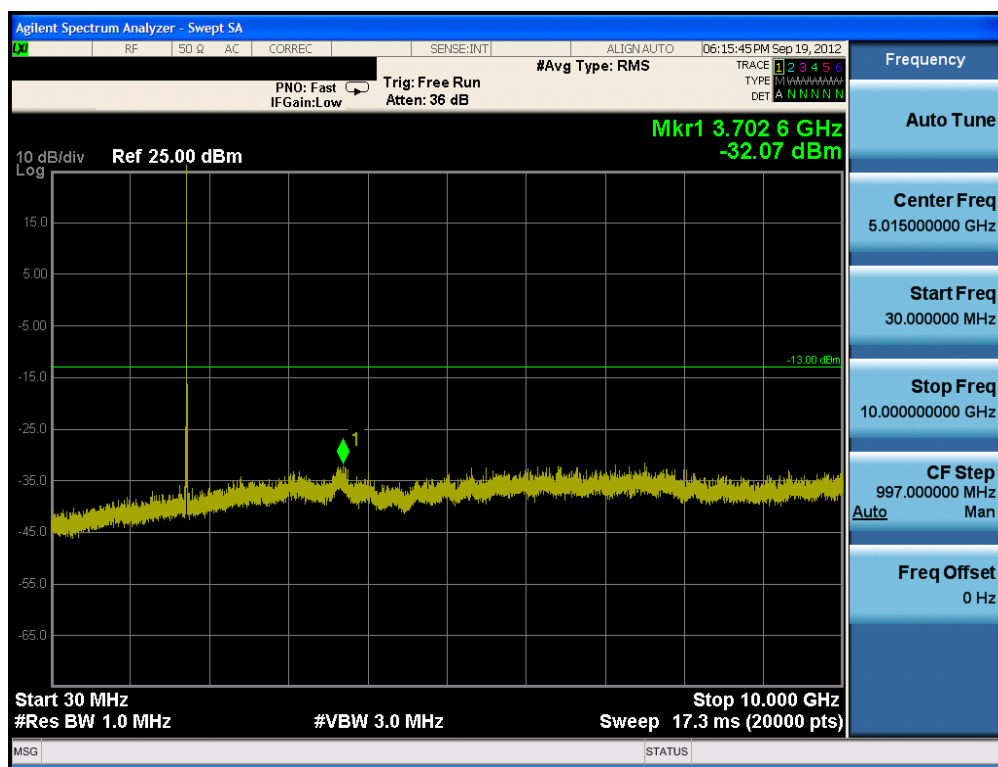


Plot 9-9. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 59 of 79

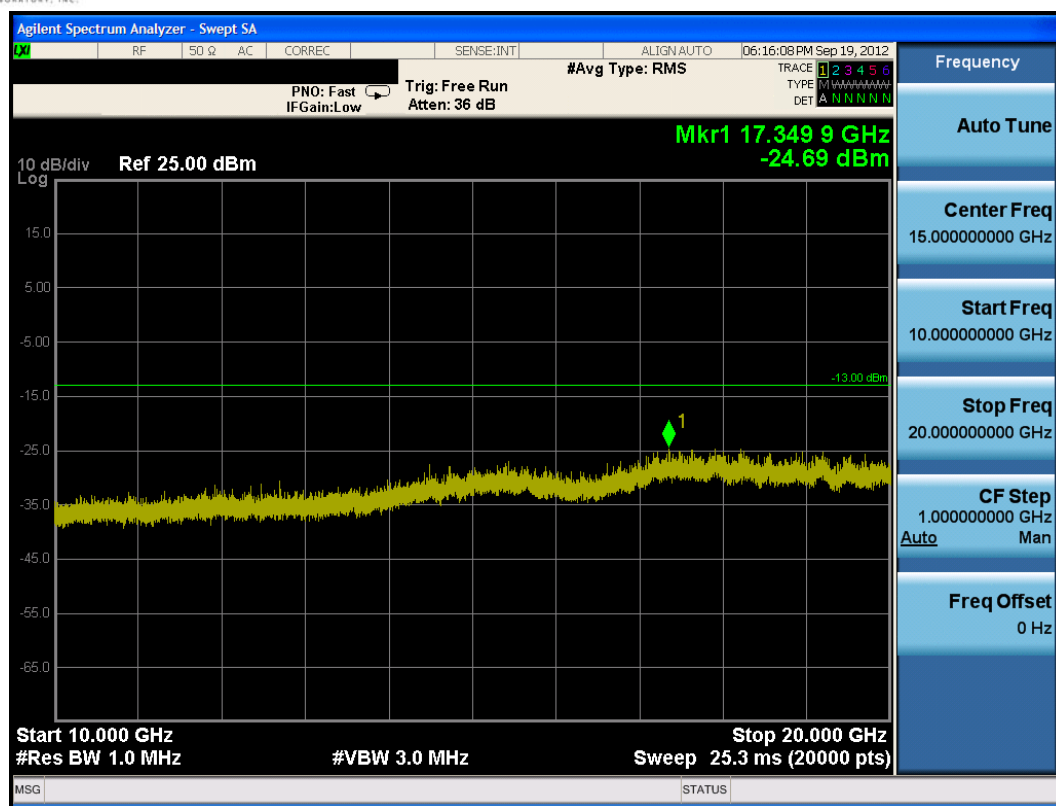


Plot 9-10. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

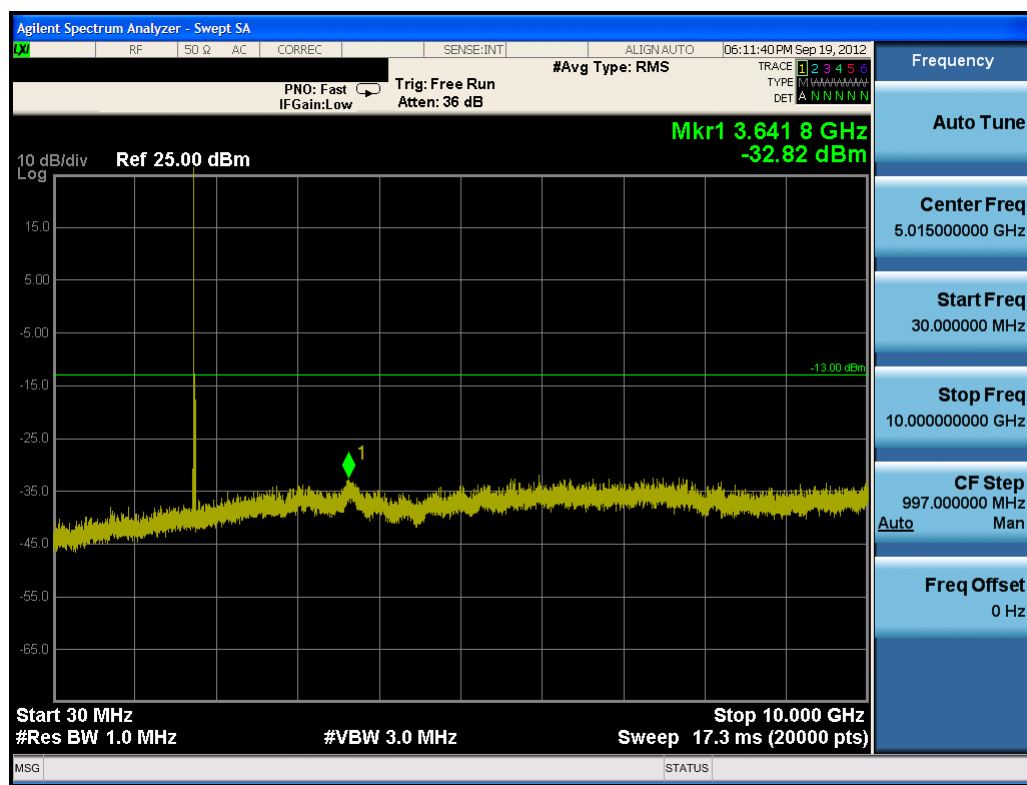


Plot 9-11. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSCHR830	 FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset	Page 60 of 79

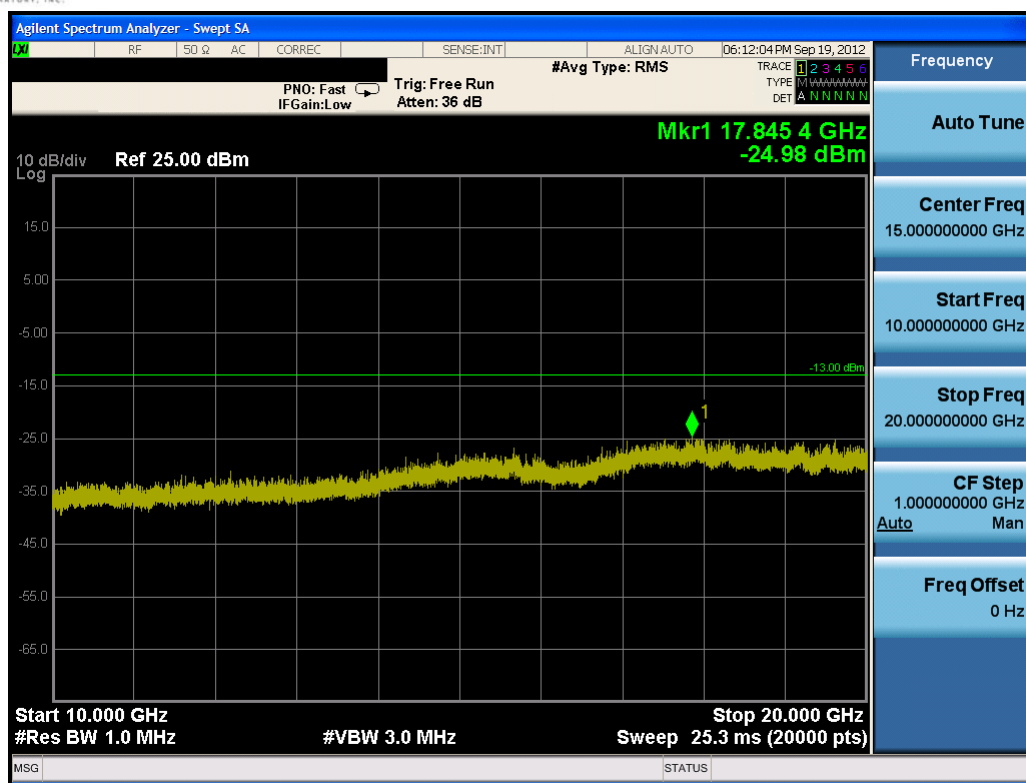


Plot 9-12. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

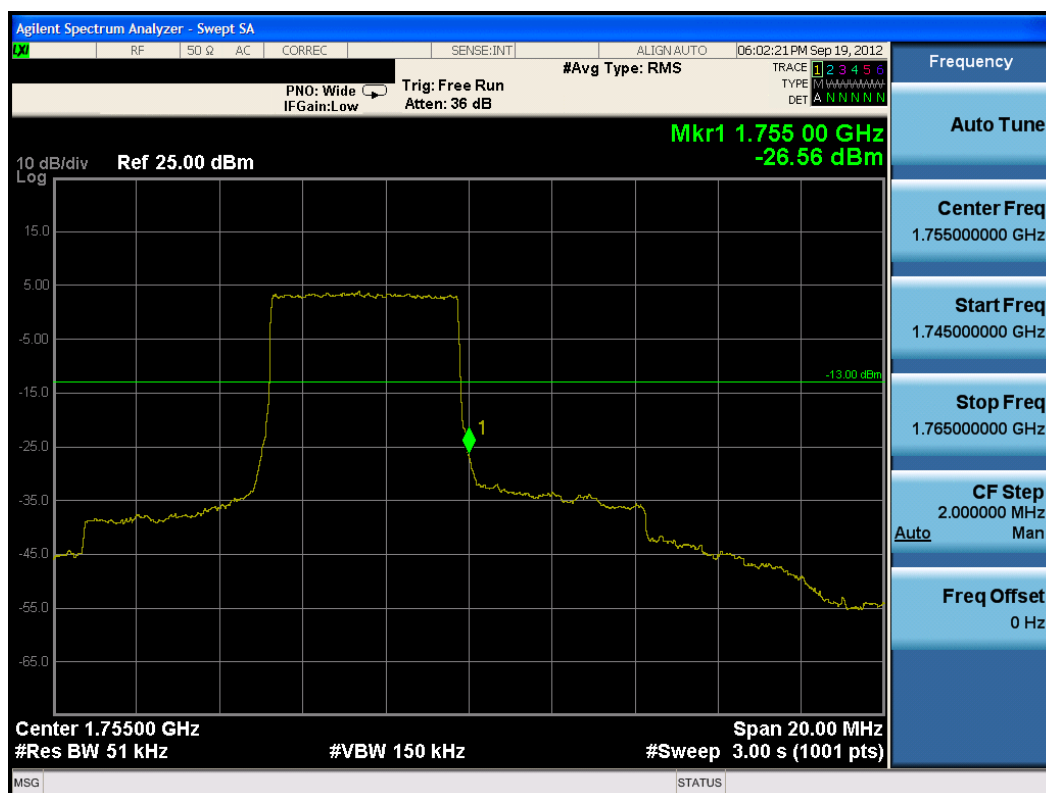


Plot 9-13. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 61 of 79



Plot 9-14. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – High Channel)



Plot 9-15. Upper Band Edge Plot (5MHz QPSK – RB Size 25)

FCC ID: A3LSCHR830	 FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset	Page 62 of 79



Plot 9-16. Upper Band Edge Plot (10MHz QPSK – RB Size 50)

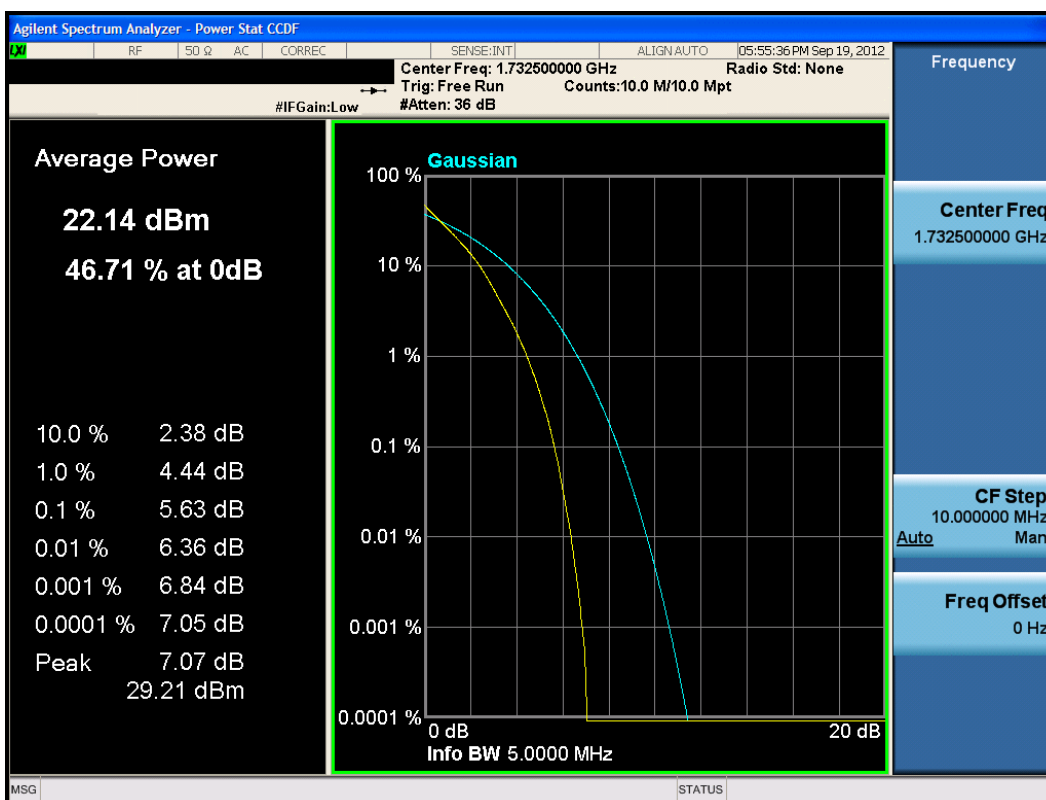


Plot 9-17. Upper Extended Band Edge Plot (5MHz QPSK– RB Size 25)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 63 of 79

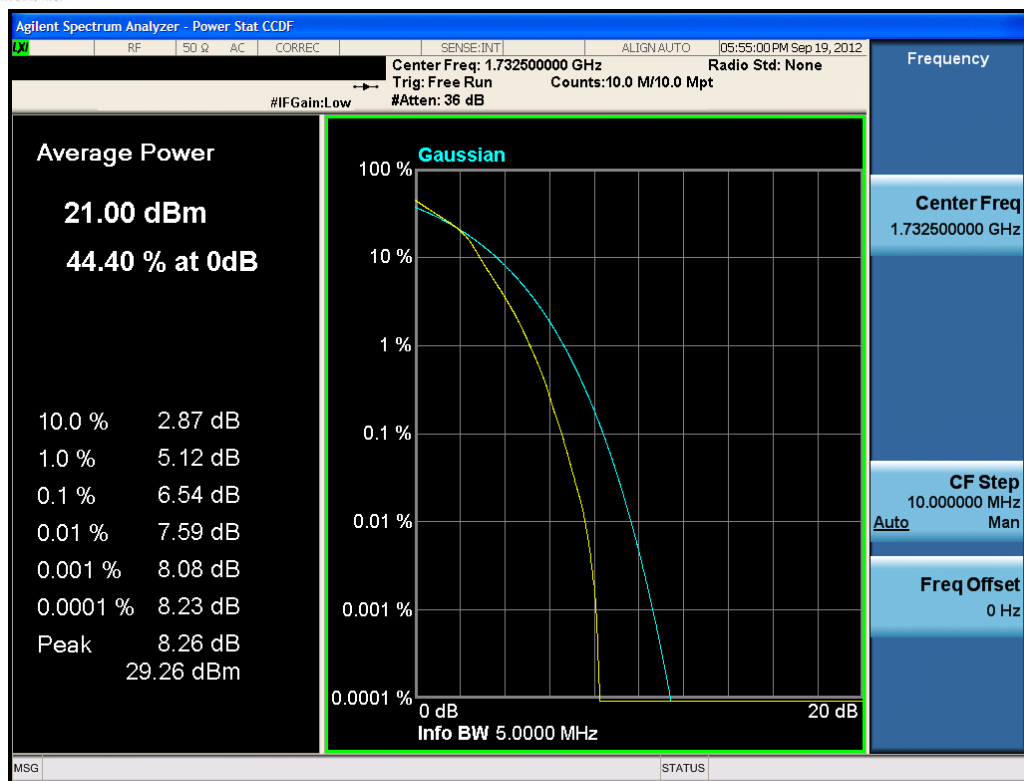


Plot 9-18. Upper Extended Band Edge Plot (10MHz QPSK– RB Size 50)



Plot 9-19. PAR Plot (5MHz QPSK – RB Size 25)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 64 of 79

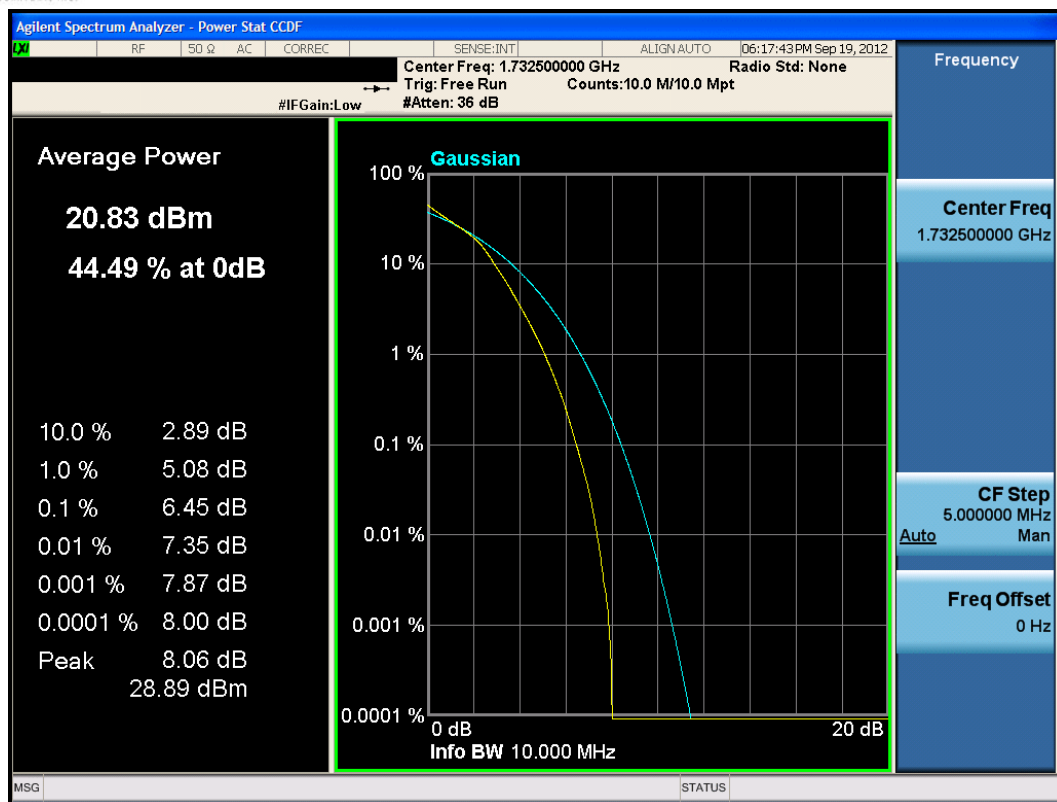


Plot 9-20. PAR Plot (5MHz 16QAM – RB Size 25)



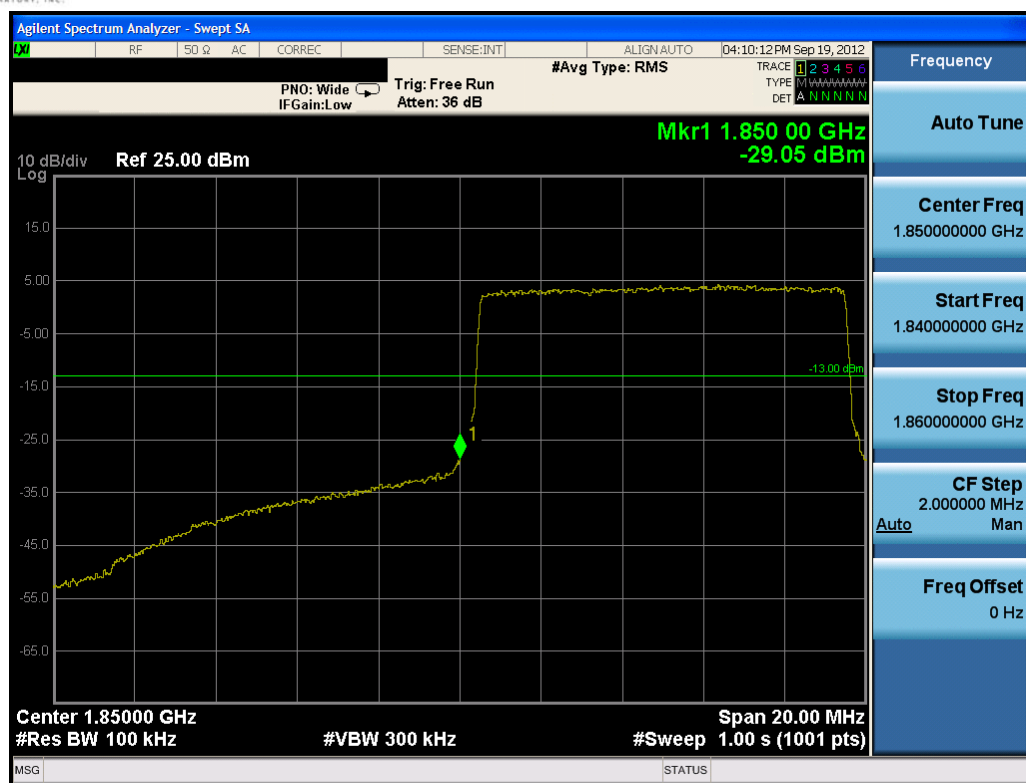
Plot 9-21. PAR Plot (10MHz QPSK – RB Size 50)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 65 of 79

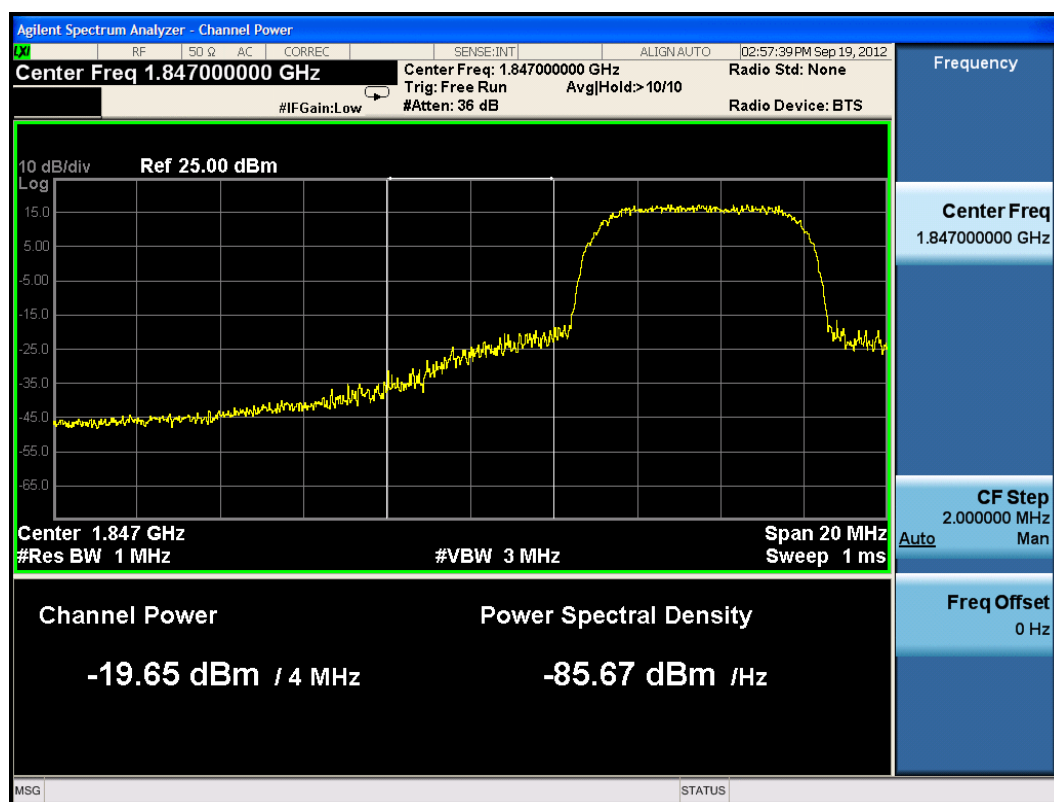


Plot 9-22. PAR Plot (10MHz 16QAM – RB Size 50)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 66 of 79

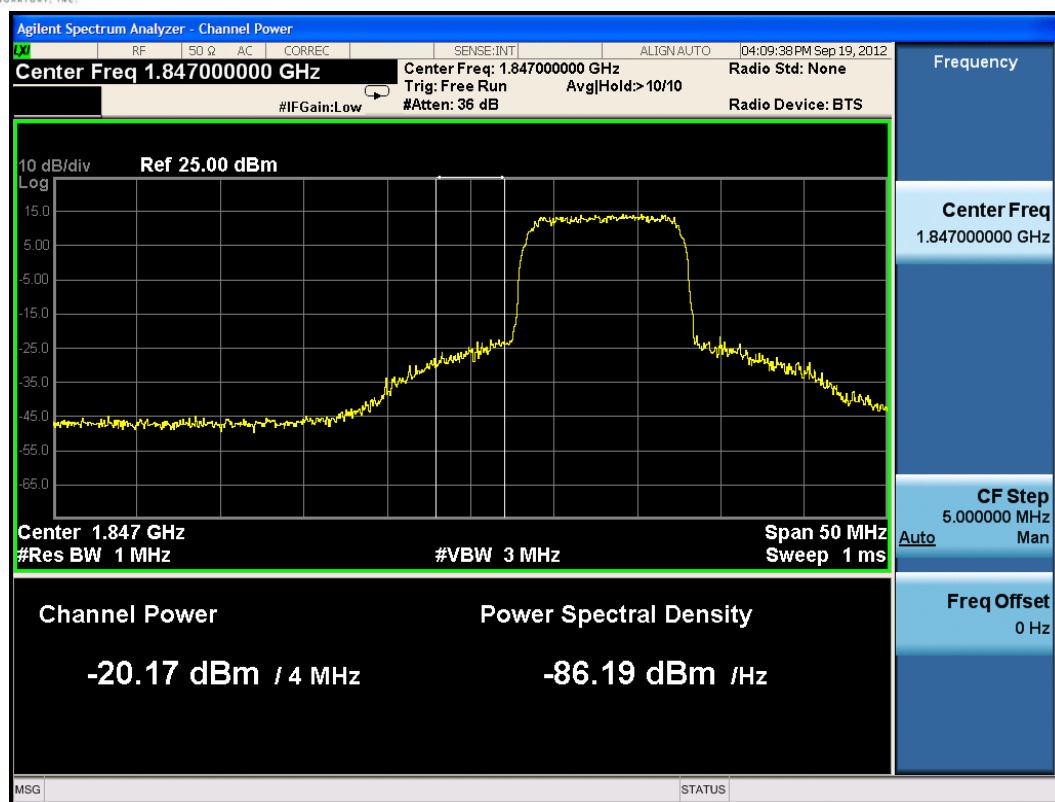


Plot 10-2. Lower Band Edge Plot (10MHz QPSK – RB Size 50)

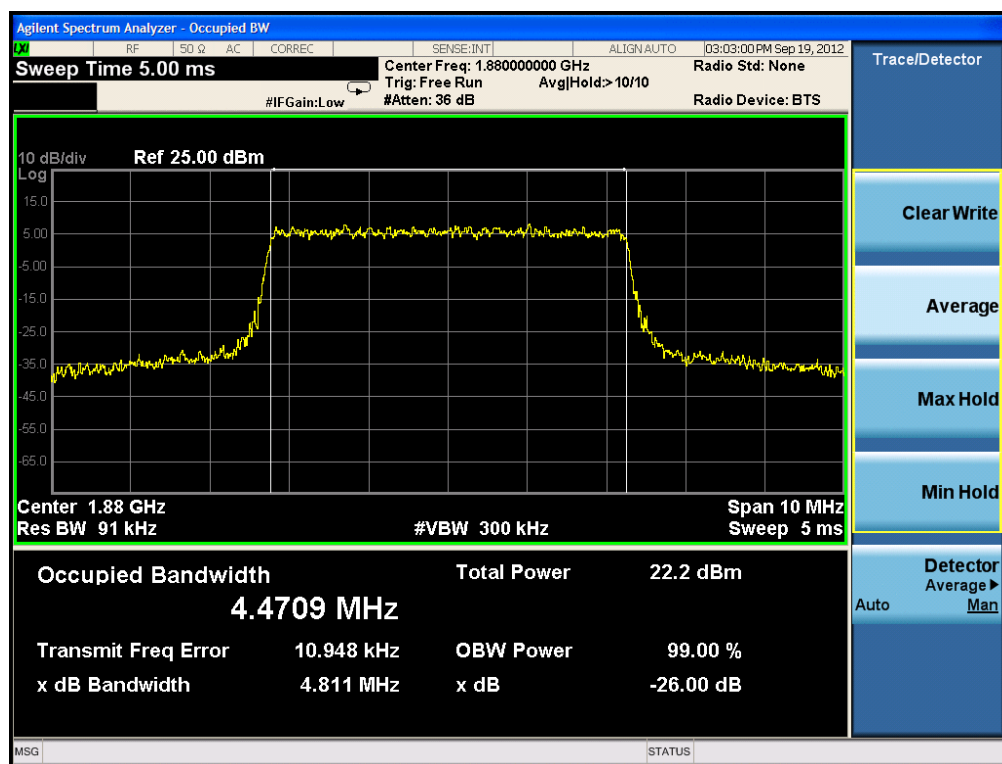


Plot 10-3. Lower Extended Band Edge Plot (5MHz QPSK – RB Size 25)

FCC ID: A3LSCHR830	 FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset	Page 68 of 79

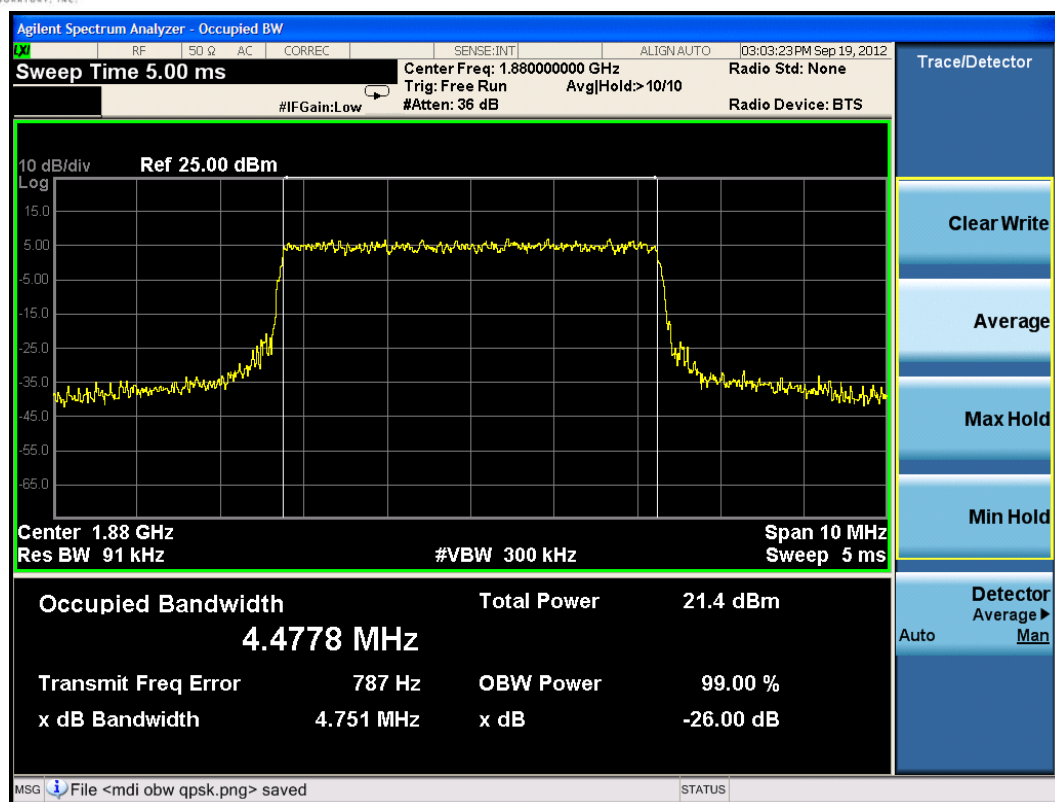


Plot 10-4. Lower Extended Band Edge Plot (10MHz QPSK – RB Size 50)

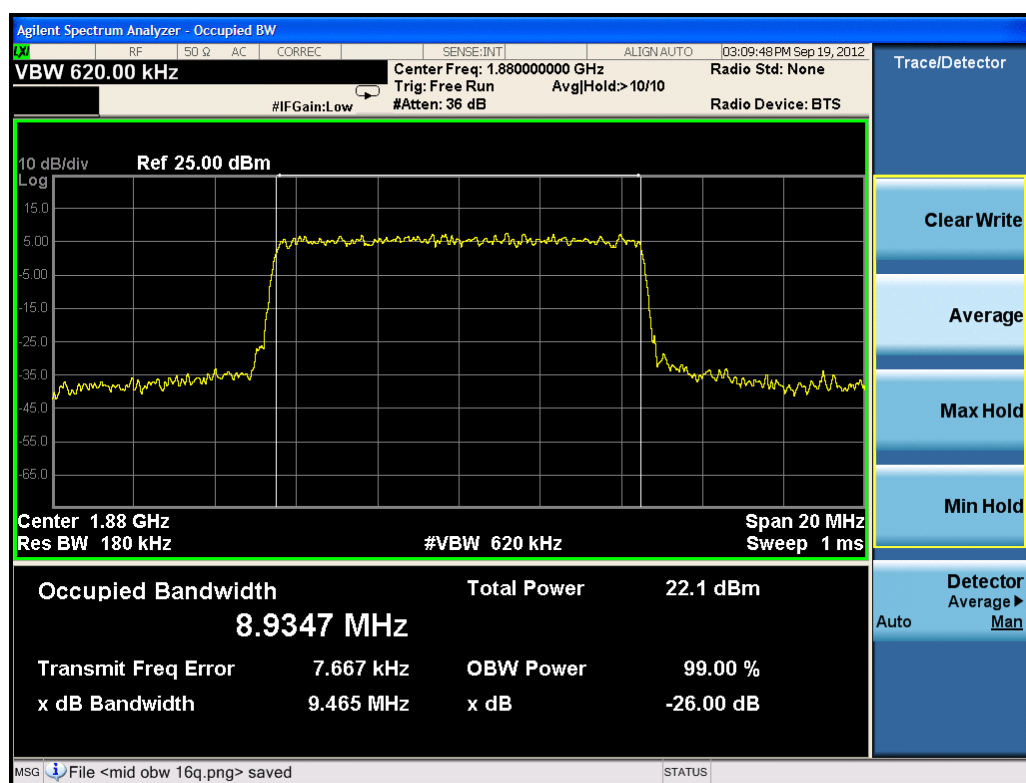


Plot 10-5. Occupied Bandwidth Plot (5MHz QPSK – RB Size 25)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 69 of 79

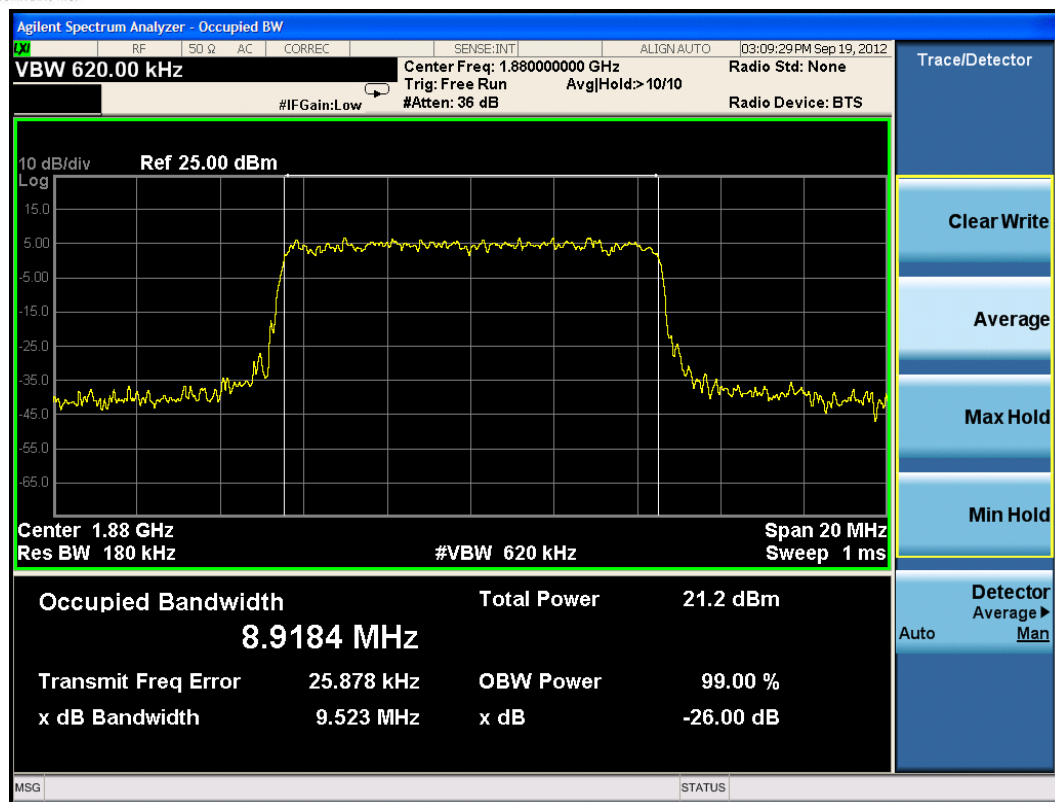


Plot 10-6. Occupied Bandwidth Plot (5MHz 16-QAM – RB Size 25)

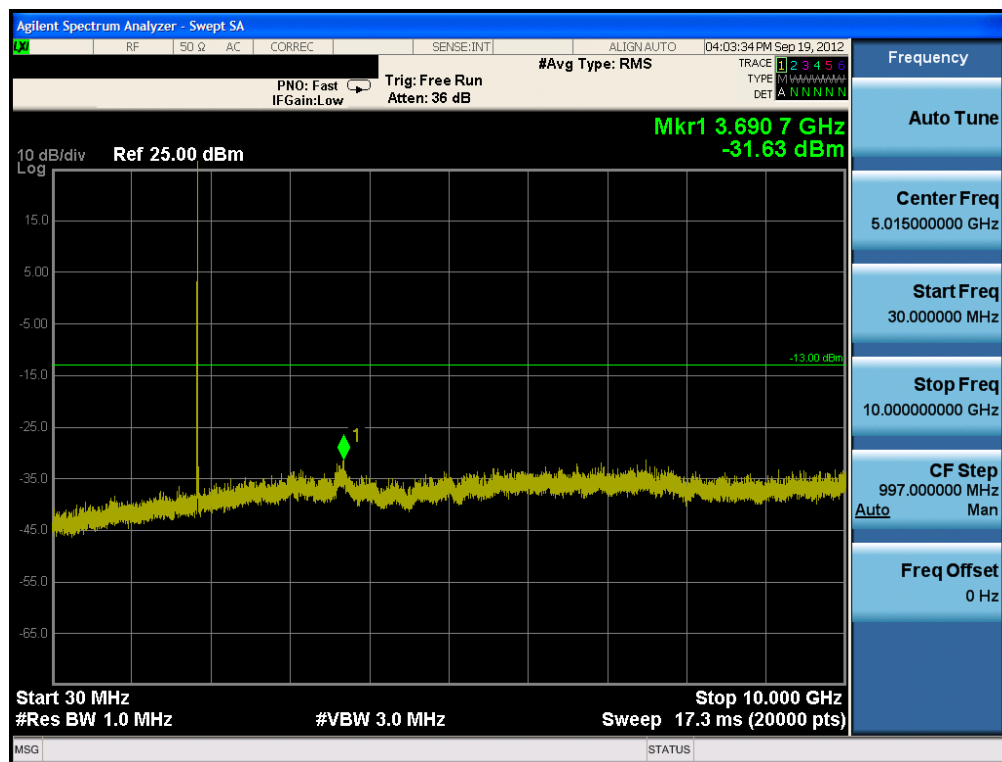


Plot 10-7. Occupied Bandwidth Plot (10MHz QPSK – RB Size 50)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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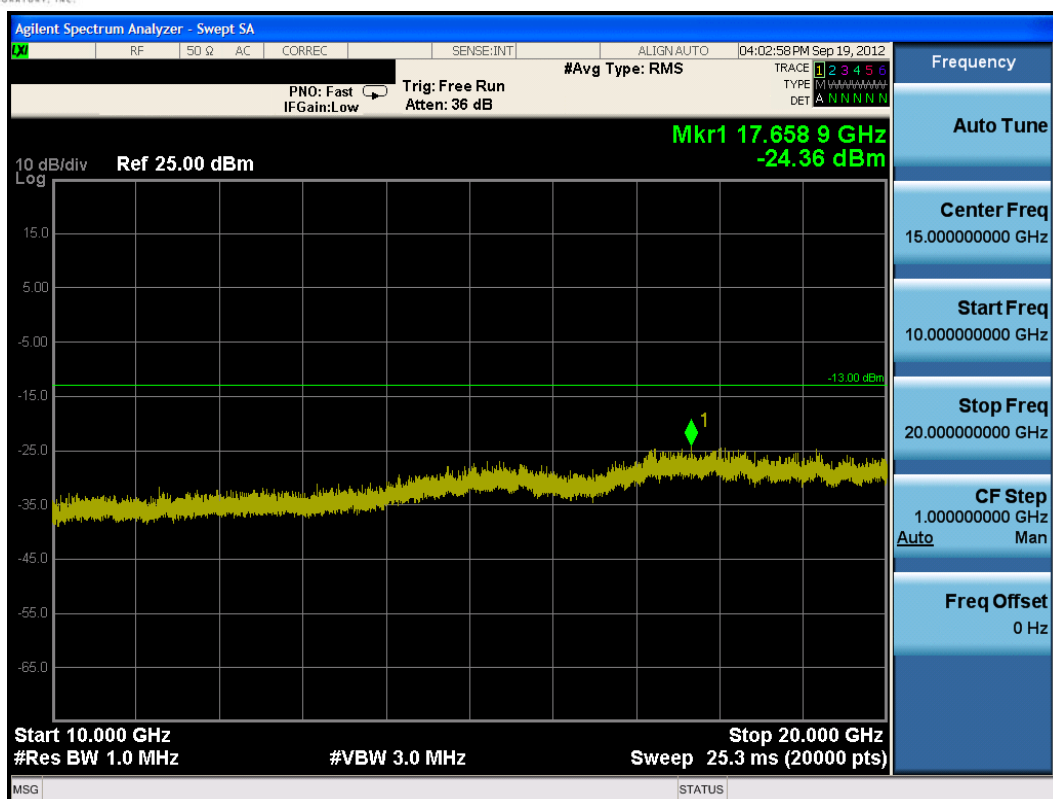


Plot 10-8. Occupied Bandwidth Plot (10MHz 16-QAM – RB Size 50)

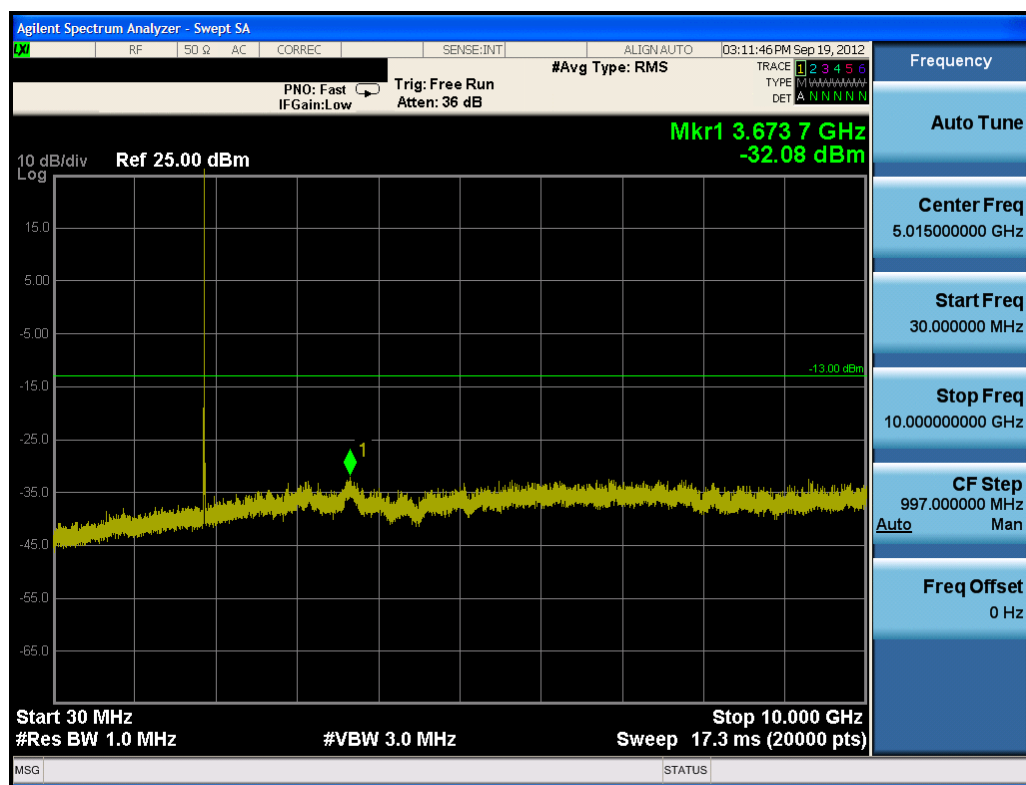


Plot 10-9. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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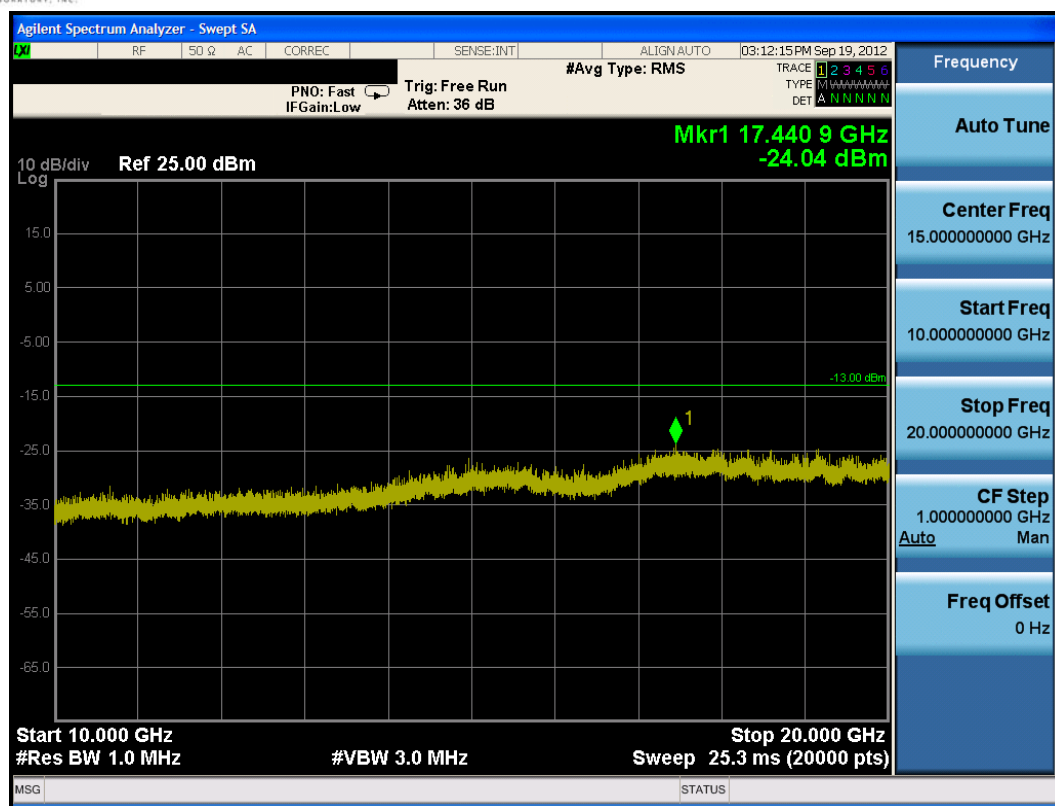


Plot 10-10. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

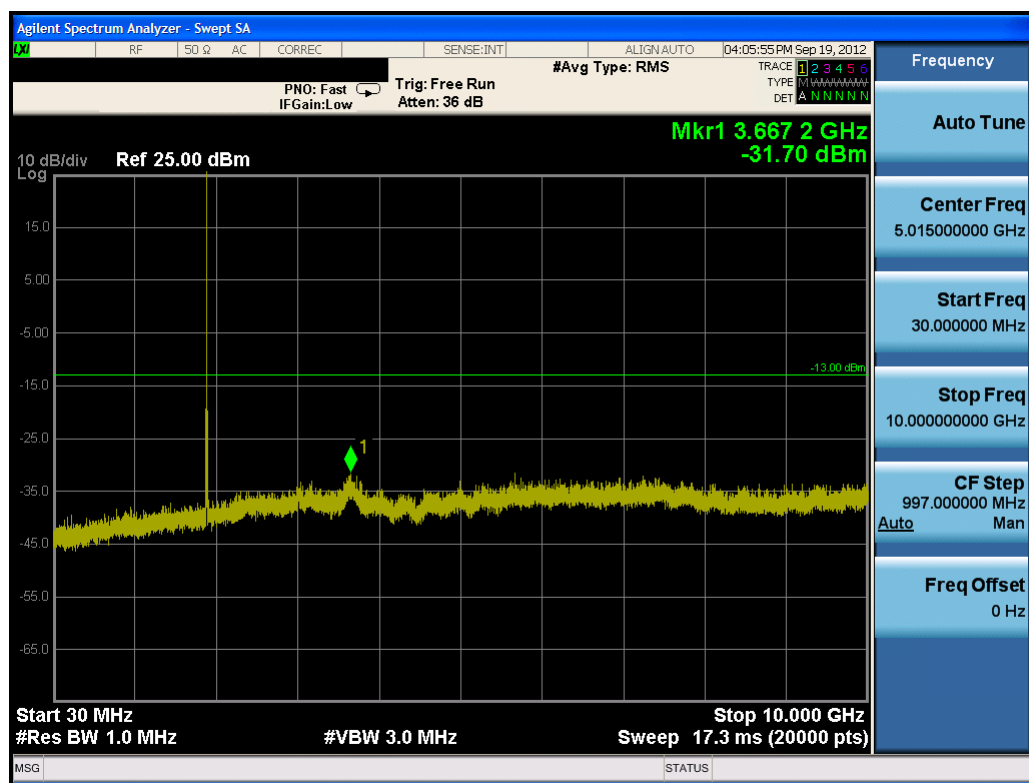


Plot 10-11. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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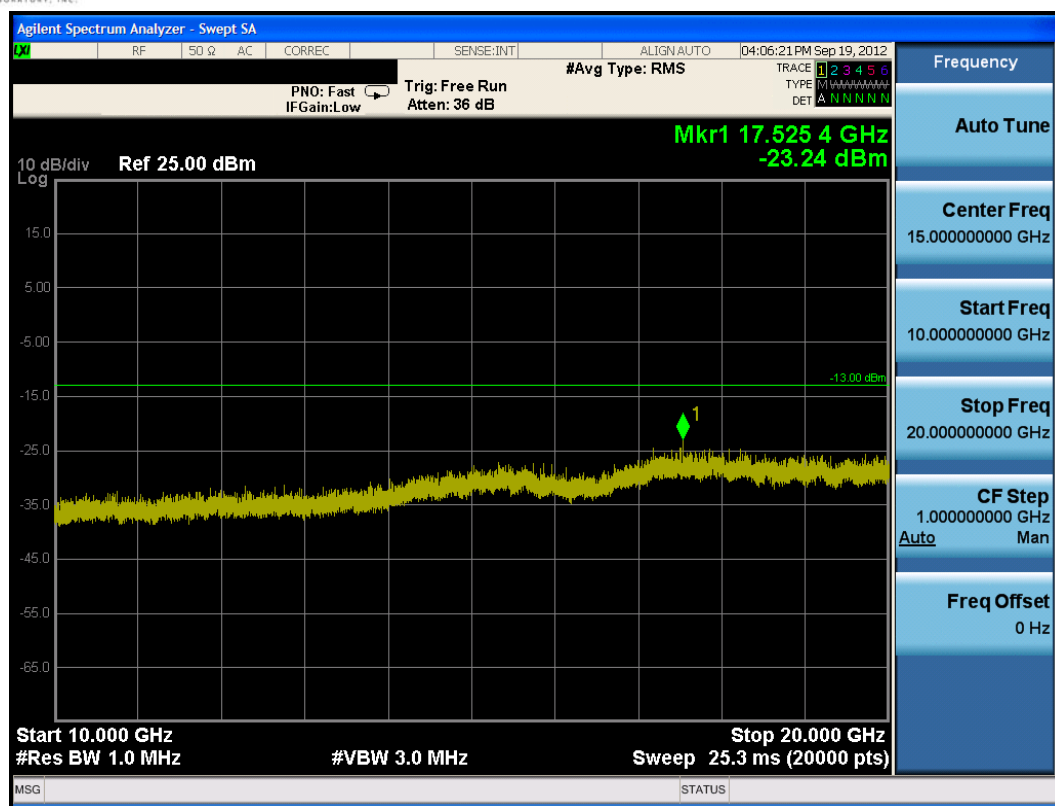


Plot 10-12. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

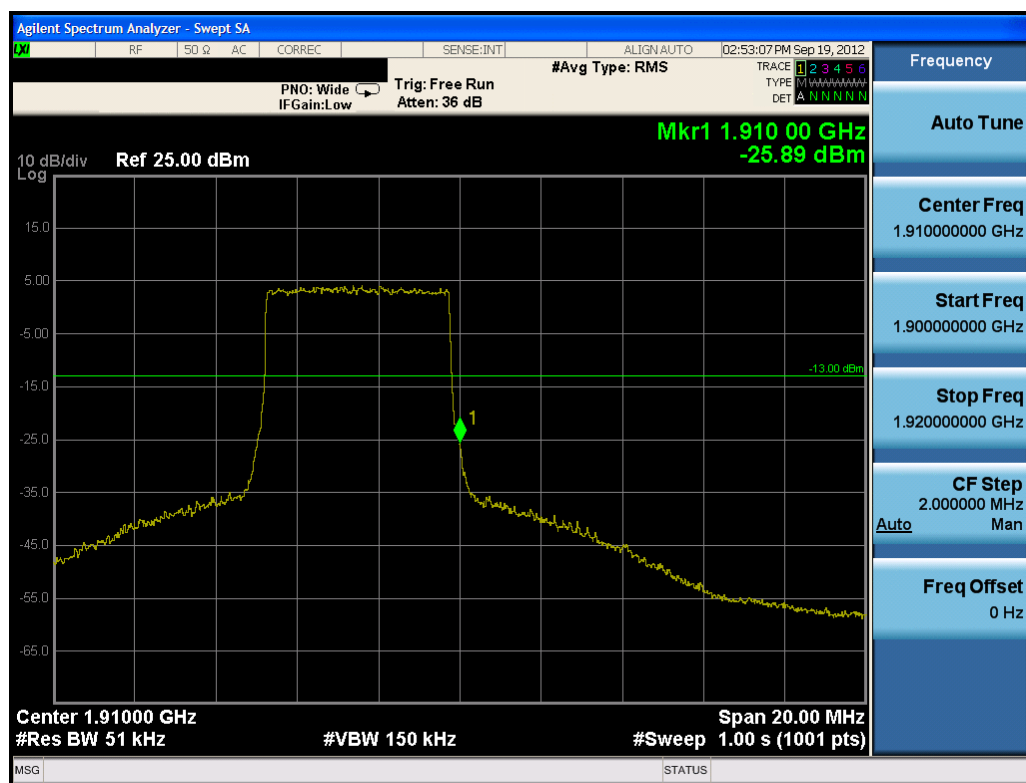


Plot 10-13. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210031468.A3L	Test Dates: 9/19 - 10/8/2012	EUT Type: Portable Handset		Page 73 of 79

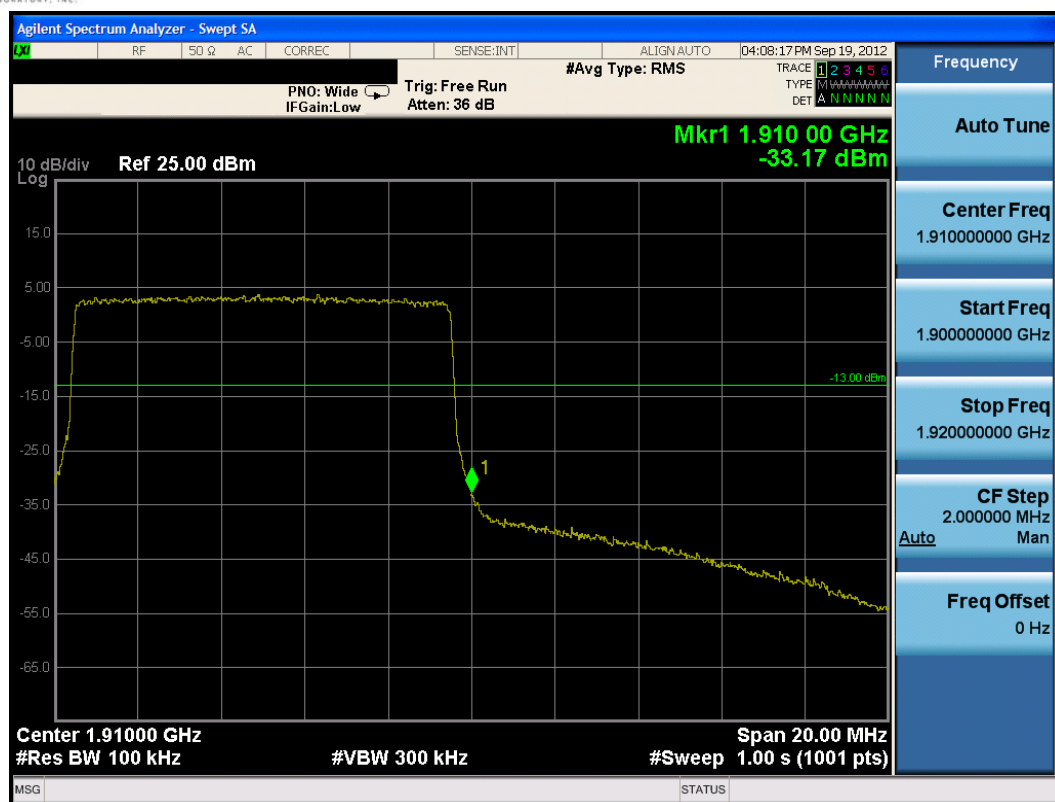


Plot 10-14. Conducted Spurious Plot (10MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

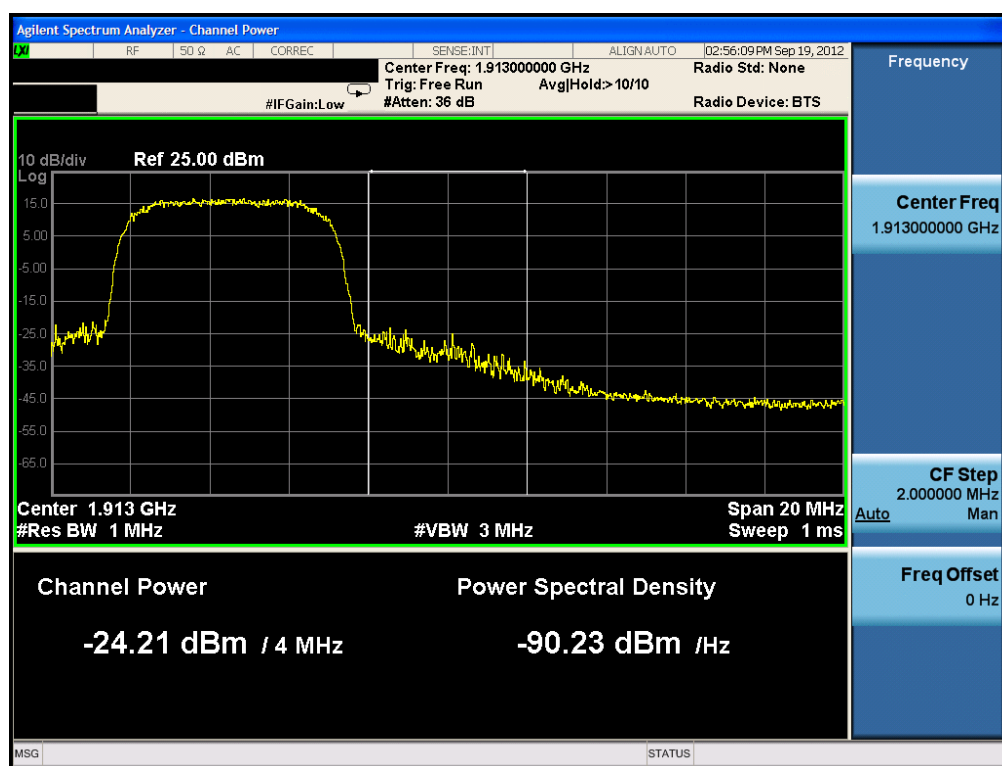


Plot 10-15. Upper Band Edge Plot (5MHz QPSK – RB Size 25)

FCC ID: A3LSCHR830	 FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
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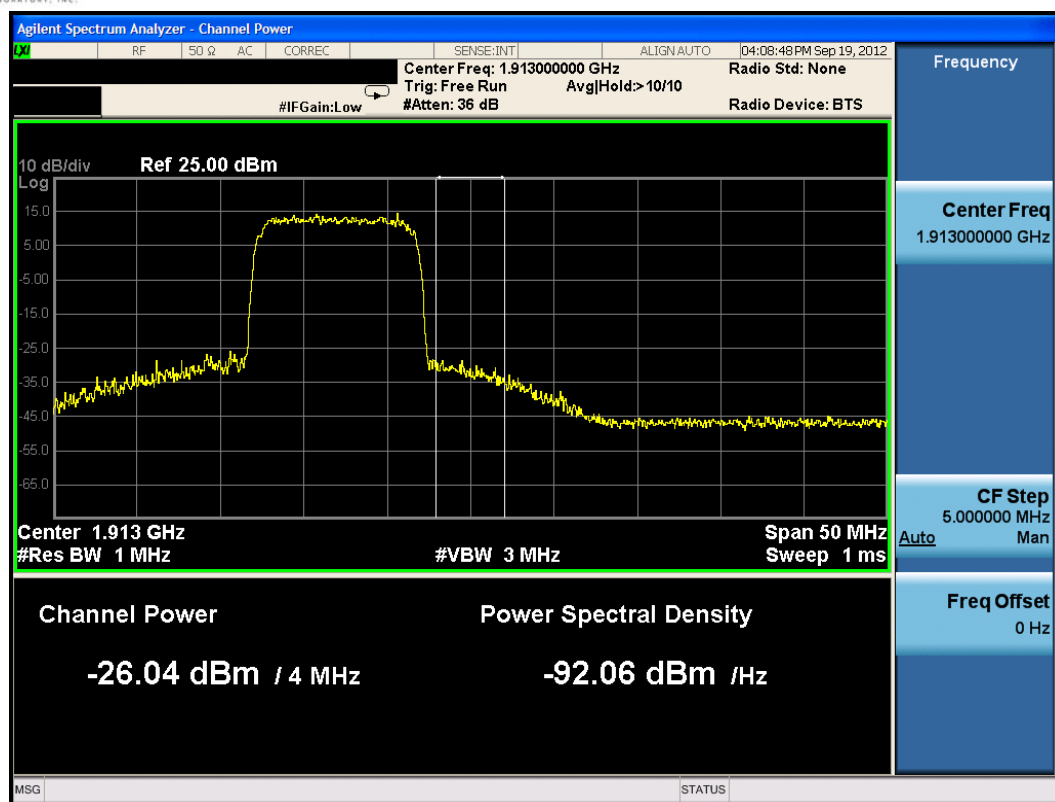


Plot 10-16. Upper Band Edge Plot (10MHz QPSK – RB Size 50)

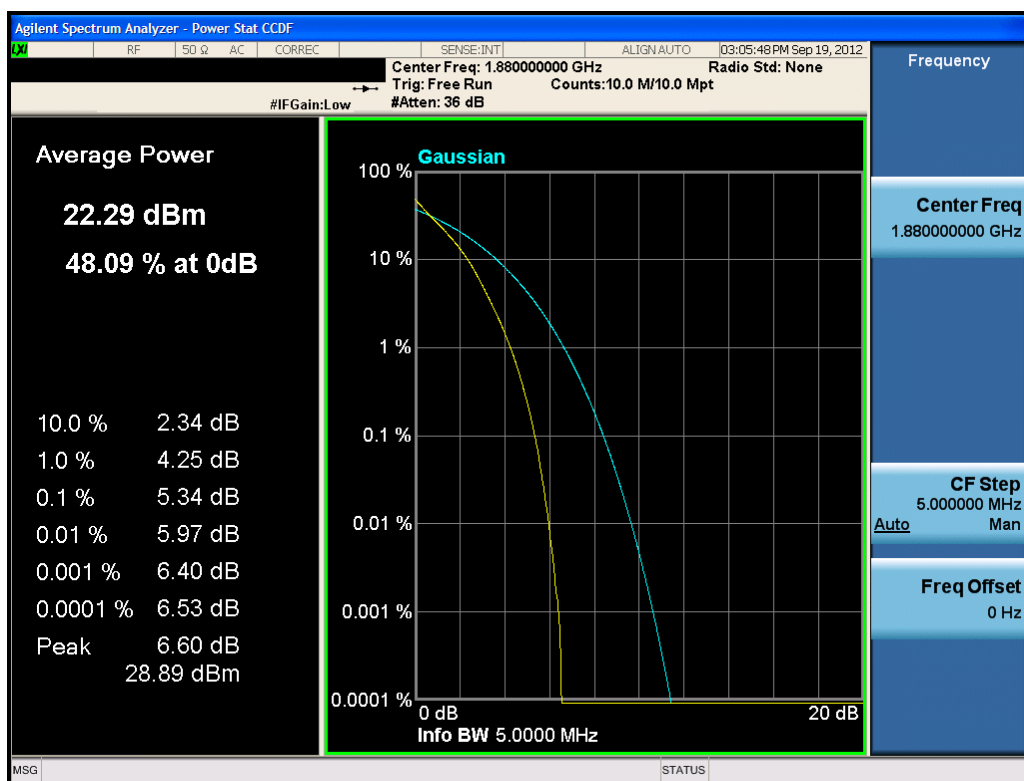


Plot 10-17. Upper Extended Band Edge Plot (5MHz QPSK – RB Size 25)

FCC ID: A3LSCHR830	 FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
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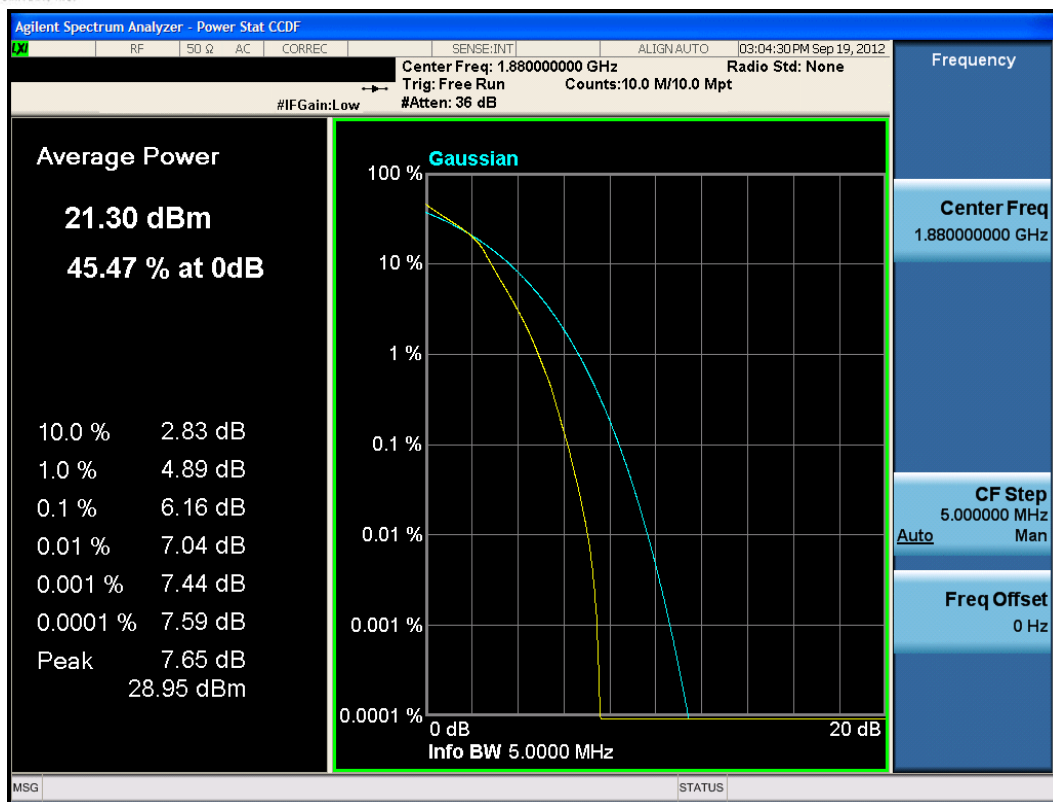


Plot 10-18. Upper Extended Band Edge Plot (10MHz QPSK – RB Size 50)

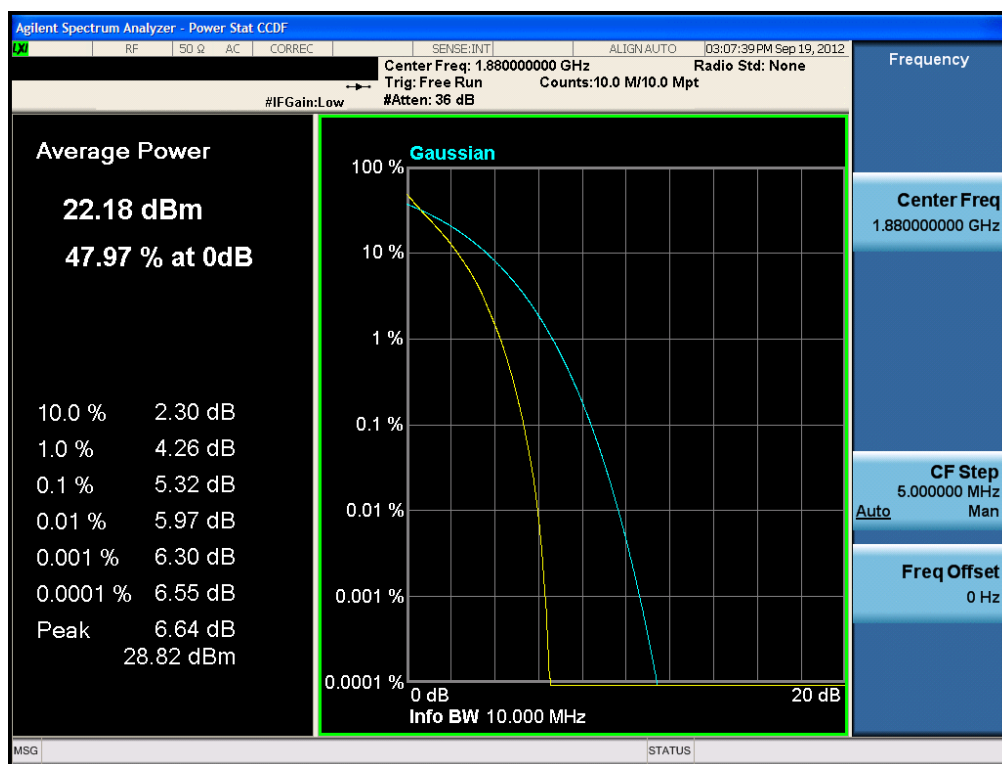


Plot 10-19. PAR Plot (5MHz QPSK – RB Size 25)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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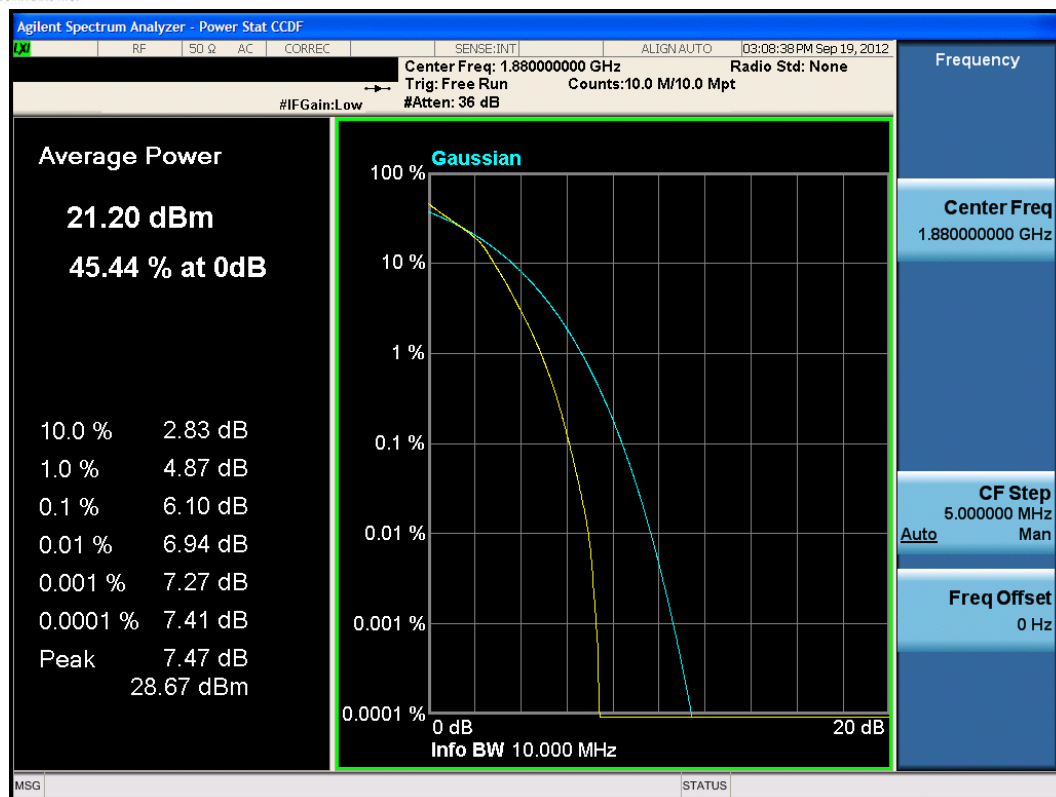


Plot 10-20. PAR Plot (5MHz 16QAM – RB Size 25)



Plot 10-21. PAR Plot (10MHz QPSK – RB Size 50)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 10-22. PAR Plot (10MHz 16QAM – RB Size 50)

FCC ID: A3LSCHR830	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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11.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSCHR830** complies with all the requirements of Parts 2, 22, 24 and 27 of the FCC rules for LTE operation only.

FCC ID: A3LSCHR830		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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