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CERTIFICATE OF COMPLIANCE FCC Part 27 Certification

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

Date of Testing:
June 15-16, 2009
Test Site/Location:
PCTEST Lab., Columbia, MD, USA
Test Report Serial No.:
0906151218.A3L

FCC ID:	A3LSGHT659
APPLICANT:	SAMSUNG ELECTRONICS, CO. LTD.

Application Type: Certification
FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s): §2; §27 Subpart L
EUT Type: 850/1900 GSM/GPRS/EDGE and AWS WCDMA Phone with Bluetooth
Model(s): SGH-T659
Tx Frequency Range: 1712.4 - 1752.5MHz (WCDMA)
Max. RF Output Power: 0.191 W EIRP WCDMA (22.8 dBm)
Emission Designator(s): 4M19F9W
Test Device Serial No.: *identical prototype* [S/N: FG-152-A]

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.

Grant Conditions: Power output listed is EIRP for Part 27.

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




 Randy Ortanez
 President



FCC ID: A3LSGHT659		FCC Pt. 27 WCDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0906151218.A3L	Test Dates: June 15-16, 2009	EUT Type: 850/1900 GSM/GPRS/EDGE and AWS WCDMA Phone with Bluetooth		Page 1 of 24

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

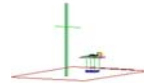
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MEASUREMENT REPORT

FCC Part 27



§2.1033 General Information



APPLICANT: Samsung Electronics, Co. Ltd.
APPLICANT ADDRESS: 18600 Broadwick St.
 Rancho Dominguez, CA 90220
TEST SITE: PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS: 6660-B Dobbin Road, Columbia, MD 21045 USA
FCC RULE PART(S): §2; §27
BASE MODEL: SGH-T659
FCC ID: A3LSGHT659
FCC CLASSIFICATION: PCS Licensed Transmitter Held to Ear (PCE)
EMISSION DESIGNATOR(S): 4M19F9W
MODE: WCDMA
FREQUENCY TOLERANCE: ±0.00025 % (2.5 ppm)
Test Device Serial No.: FG-152-A Production Pre-Production Engineering
DATE(S) OF TEST: June 15-16, 2009
TEST REPORT S/N: 0906151218.A3L

Test Facility / Accreditations

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

- PCTEST facility is an FCC registered (PCTEST Reg. No. 90864) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (2451A-1).
- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing Aid Compatibility (HAC) testing, CTIA Test Plans, and wireless testing for FCC and Industry Canada Rules.
- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and Industry Canada Standards (RSS).
- PCTEST facility is an IC registered (2451A-1) test laboratory with the site description on file at Industry Canada.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS, CDMA, and EvDO wireless devices and for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO, and CDMA 1xRTT.



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1.0 INTRODUCTION

1.1 Scope

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

1.2 Testing Facility

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

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility in New Concept Business Park, Guilford Industrial Park, Columbia, Maryland. The site address is 6660-B Dobbin Road, Columbia, MD 21045. The test site is one of the highest points in the Columbia area with an elevation of 390 feet above mean sea level. The site coordinates are 39° 11'15" N latitude and 76° 49'38" W longitude. The facility is 1.5 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. There are no FM or TV transmitters within 15 miles of the site. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2003 on January 27, 2006.

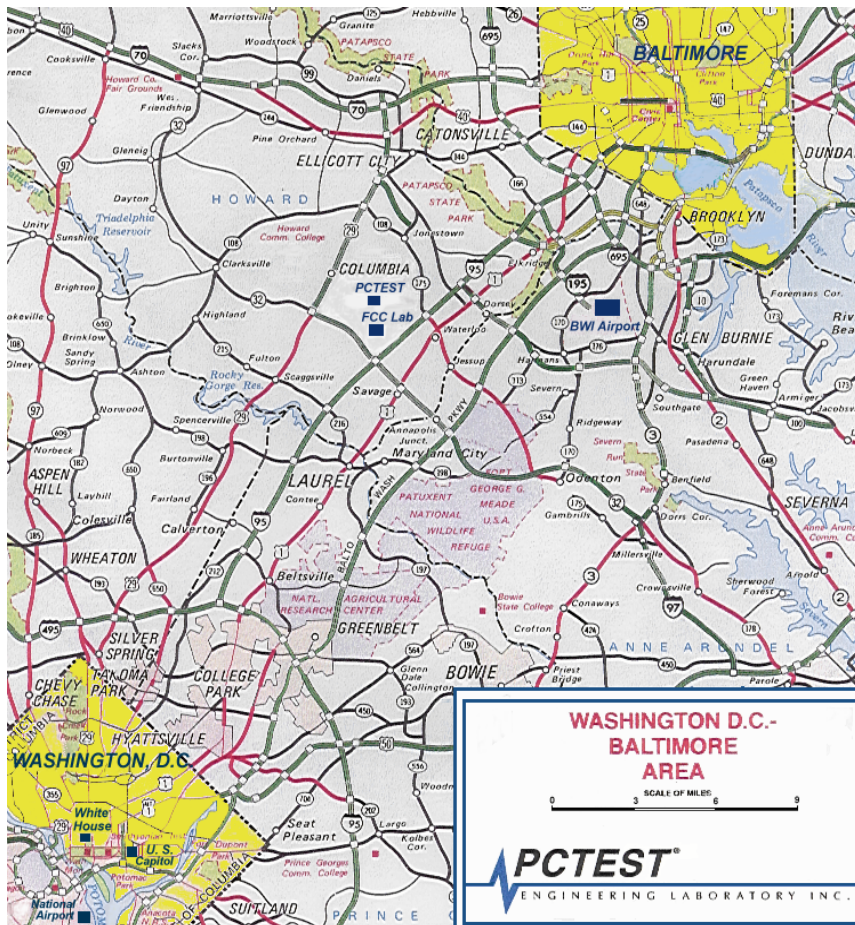


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung 850/1900 GSM/GPRS/EDGE and AWS WCDMA Phone with Bluetooth FCC ID: A3LSGHT659**. The test data contained in this report pertains only to the emissions due to the EUT's AWS WCDMA function. The EUT consisted of the following component(s):

Trade Name / Base Model	FCC ID	Description
Samsung / Model: SGH-T659	A3LSGHT659	850/1900 GSM/GPRS/EDGE and AWS WCDMA Phone with Bluetooth

Table 2-1. EUT Equipment Description

2.2 EMI Suppression Device(s)/Modifications

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

2.3 Labeling Requirements

Per 2.925

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



Per 15.19; Docket 95-19

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

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

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

Please see attachment for FCC ID label and label location.

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3.0 DESCRIPTION OF TESTS

3.1 Measurement Procedure

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

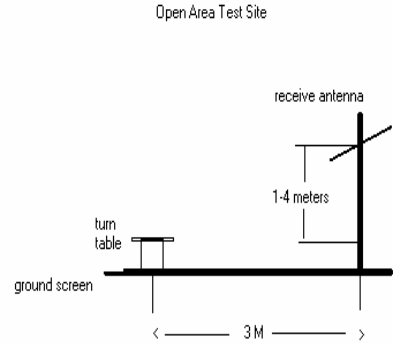




Figure 3-1. Diagram of 3-meter outdoor test range

Deviation from Measurement Procedure.....None

3.2 Occupied Bandwidth Emission Limits

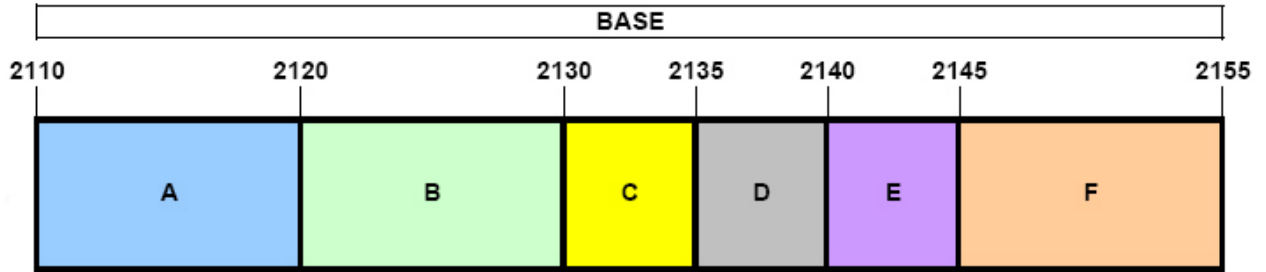
§2.1049, §27.53(g)(1)

- a. On any frequency outside a licensee’s frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB.
- b. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.
- c. When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee’s frequency block edges, both upper and lower, as the design permits.
- d. The measurement of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

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3.3 AWS - Base Frequency Blocks

§27.5(h)

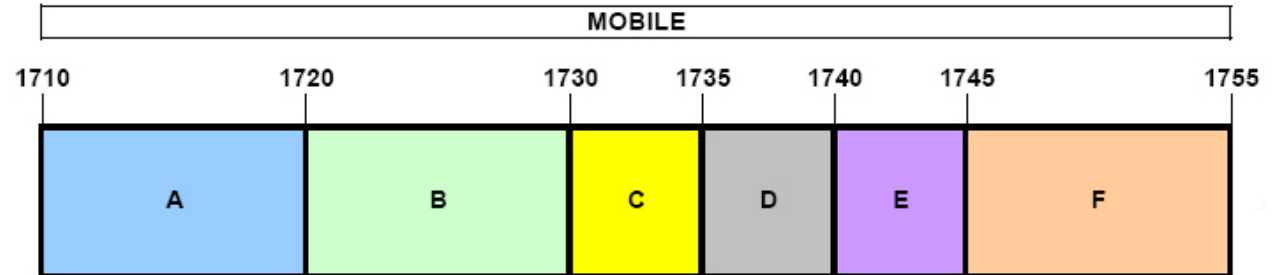


BLOCK 1: 2110 – 2120 MHz (A)
 BLOCK 2: 2120 – 2130 MHz (B)
 BLOCK 3: 2130 – 2135 MHz (C)

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

3.4 AWS - Mobile Frequency Blocks

§27.5(h)



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

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

3.5 Spurious and Harmonic Emissions at Antenna Terminal



§2.1051, §27.53(g)

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.

3.6 Radiated Spurious and Harmonic Emissions

§2.1053, §27.53(g)

Spurious and harmonic radiated 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 configurations and the worst case is reported with HSDPA Active at 12.2 kbps RMC with TPC bits all set to "1".

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3.7 Peak-Average Ratio

§27.50(d)(5)

A peak to average ratio measurement is performed at the conducted port of the EUT. For CDMA and WCDMA 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. For GSM signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth.

3.8 Frequency Stability / Temperature Variation

§2.1055, §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 ±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.165	(30MHz - 1000MHz) RG58 Coax Cable	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	11713A	Attenuation/Switch Driver	12/4/2008	Annual	12/4/2009	3439A02645
Agilent	8449B	(1-26.5GHz) Pre-Amplifier	12/4/2008	Annual	12/4/2009	3008A00985
Agilent	8495A	(0-70dB) DC-4GHz Attenuator	N/A		N/A	N/A
Agilent	85650A	Quasi-Peak Adapter	12/4/2008	Annual	12/4/2009	3303A01872
Agilent	85650A	Quasi-Peak Adapter	3/24/2009	Annual	3/24/2010	2043A00301
Agilent	8566B	(100Hz-22GHz) Spectrum Analyzer	12/5/2008	Annual	12/5/2009	3638A08713
Agilent	8591A	(9kHz-1.8GHz) Spectrum Analyzer	8/19/2008	Annual	8/19/2009	3144A02458
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/11/2007	Biennial	10/11/2009	3613A00315
Agilent	8901A	Modulation Analyzer	8/18/2008	Annual	8/18/2009	2432A03467
Agilent	8903B	Audio Analyzer	8/18/2008	Annual	8/18/2009	3011A09025
Agilent	E4407B	ESA Spectrum Analyzer	3/24/2009	Annual	3/24/2010	US39210313
Agilent	E4432B	ESG-D Series Signal Generator	8/18/2008	Annual	8/18/2009	US40053896
Agilent	E4448A	PSA (3Hz-50GHz) Spectrum Analyzer	12/5/2008	Annual	12/5/2009	US42510244
Agilent	E5515C	Wireless Communications Test Set	9/10/2008	Biennial	9/10/2010	GB41450275
Agilent	E8257D	(250kHz-20GHz) Signal Generator	3/25/2009	Biennial	3/25/2011	MY45470194
Agilent	E8267C	Vector Signal Generator	11/15/2007	Biennial	11/15/2009	US42340152
Agilent	N9020A	MXA Signal Analyzer	9/17/2008	Annual	9/17/2009	US46470561
Compliance Design	Roberts	Dipole Set	11/9/2007	Biennial	11/9/2009	146
Compliance Design	Roberts	Dipole Set	11/9/2007	Biennial	11/9/2009	147
Emco	3115	Horn Antenna (1-18GHz)	9/24/2007	Biennial	9/24/2009	9704-5182
Emco	3115	Horn Antenna (1-18GHz)	10/4/2007	Biennial	10/4/2009	9205-3874
Espec	ESX-2CA	Environmental Chamber	3/30/2009	Annual	3/30/2010	17620
Gigatronics	80701A	(0.05-18GHz) Power Sensor	8/18/2008	Annual	8/18/2009	1833460
Gigatronics	8651A	Universal Power Meter	8/18/2008	Annual	8/18/2009	1835299
Gigatronics	8651A	Universal Power Meter	8/18/2008	Annual	8/18/2009	8650319
K & L	11SH10	Band Pass Filter	N/A	Annual	N/A	1300/4000
K & L	11SH10	Band Pass Filter	N/A	Annual	N/A	4000/12000
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	7/23/2008	Annual	7/23/2009	109892
Rohde & Schwarz	NRVD	Dual Channel Power Meter	8/20/2008	Biennial	8/20/2010	101695
Rohde & Schwarz	NRVS	Single Channel Power Meter	7/3/2007	Biennial	7/3/2009	835360/0079
Rohde & Schwarz	NRV-Z32	Peak Power Sensor (100uW-2W)	12/5/2008	Biennial	12/5/2010	100155
Rohde & Schwarz	NRV-Z33	Peak Power Sensor (1mW-20W)	12/5/2008	Biennial	12/5/2010	100004
Rohde & Schwarz	NRV-Z53	Power Sensor	7/3/2007	Biennial	7/3/2009	846076/0007
Schwarzbeck	UHA9105	Dipole Antenna (400 - 1GHz) Rx	6/19/2007	Biennial	6/18/2009	9105-2404
Schwarzbeck	UHA9105	Dipole Antenna (400 - 1GHz) Tx	6/19/2007	Biennial	6/18/2009	9105-2403
Solar Electronics	8012-50-R-24-BNC	LISN	11/8/2007	Biennial	11/8/2009	310233
Sunol	DRH-118	Horn Antenna (1 - 18GHz)	5/14/2009	Biennial	5/14/2011	A050307
Rohde & Schwarz	CMU200	Base Station Simulator	6/12/2009	Annual	6/12/2010	836536/0005
Rohde & Schwarz	FSQ 26	Spectrum Analyzer	9/29/2008	Annual	9/29/2009	200452

Table 4-1. Test Equipment

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5.0 SAMPLE CALCULATIONS

Emission Designator

Emission Designator = 4M15F9W

WCDMA BW = 4.15 MHz

F = Frequency Modulation



9 = Composite Digital Info

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

Spurious Radiated Emission – AWS Band

Example: Channel 1412 AWS Mode 2nd Harmonic (3464.80 MHz)

The average receive power meter reading at 3 meters with the EUT on the turntable was -81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminal is adjusted to produce a reading of -81.0 dBm on the power meter. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3464.80 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: A3LSGHT659
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
 Mode(s): WCDMA

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER MODE (TX)					
2.1049, 27.53(g)(1)	Occupied Bandwidth	N/A	CONDUCTED	PASS	Section 7.0
2.1051, 27.53(g)	Band Edge / Conducted Spurious Emissions	< 43 + 10log ₁₀ (P[Watts]) at Band Edge and for all out-of-band emissions		PASS	Section 7.0
2.1046	Transmitter Conducted Output Power	N/A		PASS	RF Exposure Report
27.50(d)(2)	Equivalent Isotropic Radiated Power	< 1 Watts max. EIRP	RADIATED	PASS	Section 6.2
2.1053, 27.53(g)	Undesirable Emissions	< 43 + 10log ₁₀ (P[Watts]) for all out-of-band emissions		PASS	Section 6.3
2.1055, 27.54	Frequency Stability	< 2.5 ppm		PASS	Section 6.4

Table 6-1. Summary of Test Results

FCC ID: A3LSGHT659		FCC Pt. 27 WCDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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6.2 Equivalent Isotropic Radiated Power Output Data §27.50(d)(2):

POWER: "All Up" Bits (AWS WCDMA Mode)

Frequency [MHz]	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Battery Type
1712.40	-20.200	13.70	8.00	H	21.70	0.148	Standard
1732.40	-20.300	13.60	8.00	H	21.60	0.145	Standard
1752.50	-19.100	14.80	8.00	H	22.80	0.191	Standard



Table 6-2. Equivalent Isotropic Radiated Power Output Data

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 configurations and the worst case is reported with HSDPA Active at 12.2 kbps RMC with TPC bits all set to "1". This unit was tested with its standard battery.

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6.3 AWS WCDMA Radiated Measurements §2.1053, §27.53(g)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1712.40 MHz
 CHANNEL: 1312
 MEASURED OUTPUT POWER: 22.800 dBm = 0.191 W
 MODULATION SIGNAL: WCDMA (Internal)
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 35.80 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3424.80	-64.15	9.07	-55.08	H	77.9
5137.20	-90.90	10.47	-80.43	H	103.2
6849.60	-86.91	10.28	-76.64	H	99.4
8562.00	-86.22	11.40	-74.82	H	97.6
10274.40	-85.25	12.11	-73.14	H	95.9



Table 6-3. Radiated Spurious Data (AWS WCDMA Mode – Ch. 1312)

NOTES:

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

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

This device was tested under all configurations and the worst case is reported with HSDPA Active at 12.2 kbps RMC with TPC bits all set to "1". This unit was tested with its standard battery.

FCC ID: A3LSGHT659		FCC Pt. 27 WCDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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AWS WCDMA Radiated Measurements (Cont'd)
§2.1053, §27.53(g)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1732.40 MHz
 CHANNEL: 1412
 MEASURED OUTPUT POWER: 22.800 dBm = 0.191 W
 MODULATION SIGNAL: WCDMA (Internal)
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 35.80 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3464.80	-64.40	9.09	-55.31	H	78.1
5197.20	-90.73	10.46	-80.27	H	103.1
6929.60	-86.61	10.18	-76.43	H	99.2
8662.00	-86.30	11.56	-74.74	H	97.5
10394.40	-85.14	12.16	-72.98	H	95.8



Table 6-4. Radiated Spurious Data (AWS WCDMA Mode – Ch. 1412)

NOTES:

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

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

This device was tested under all configurations and the worst case is reported with HSDPA Active at 12.2 kbps RMC with TPC bits all set to "1". This unit was tested with its standard battery.

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AWS WCDMA Radiated Measurements (Cont'd)
§2.1053, §27.53(g)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1752.50 MHz
 CHANNEL: 1862
 MEASURED OUTPUT POWER: 22.800 dBm = 0.191 W
 MODULATION SIGNAL: WCDMA (Internal)
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 35.80 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3505.00	-63.21	9.10	-54.11	H	76.9
5257.50	-90.56	10.45	-80.11	H	102.9
7010.00	-86.35	10.11	-76.24	H	99.0
8762.50	-86.38	11.73	-74.66	H	97.5
10515.00	-85.01	12.22	-72.79	H	95.6



Table 6-5. Radiated Spurious Data (AWS WCDMA Mode – Ch. 1862)

NOTES:

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

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

This device was tested under all configurations and the worst case is reported with HSDPA Active at 12.2 kbps RMC with TPC bits all set to "1". This unit was tested with its standard battery.

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6.4 AWS WCDMA Frequency Stability Measurements

§2.1055, §27.54

OPERATING FREQUENCY: 1,732,400,000 Hz
 CHANNEL: 1412
 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)	1,732,399,984	-16	-0.000001
100 %		- 30	1,732,399,976	-24	-0.000001
100 %		- 20	1,732,399,981	-19	-0.000001
100 %		- 10	1,732,399,978	-22	-0.000001
100 %		0	1,732,399,973	-27	-0.000002
100 %		+ 10	1,732,399,983	-17	-0.000001
100 %		+ 20	1,732,399,984	-16	-0.000001
100 %		+ 30	1,732,399,977	-23	-0.000001
100 %		+ 40	1,732,399,981	-19	-0.000001
100 %		+ 50	1,732,400,016	16	0.000001
115 %		4.26	+ 20	1,732,399,972	-28
BATT. ENDPOINT	3.39	+ 20	1,732,399,968	-32	-0.000002

Table 6-6. Frequency Stability Data (AWS WCDMA Mode – Ch. 1412)

FCC ID: A3LSGHT659		FCC Pt. 27 WCDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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AWS WCDMA Frequency Stability Measurements (Cont'd)
§2.1055, §27.54

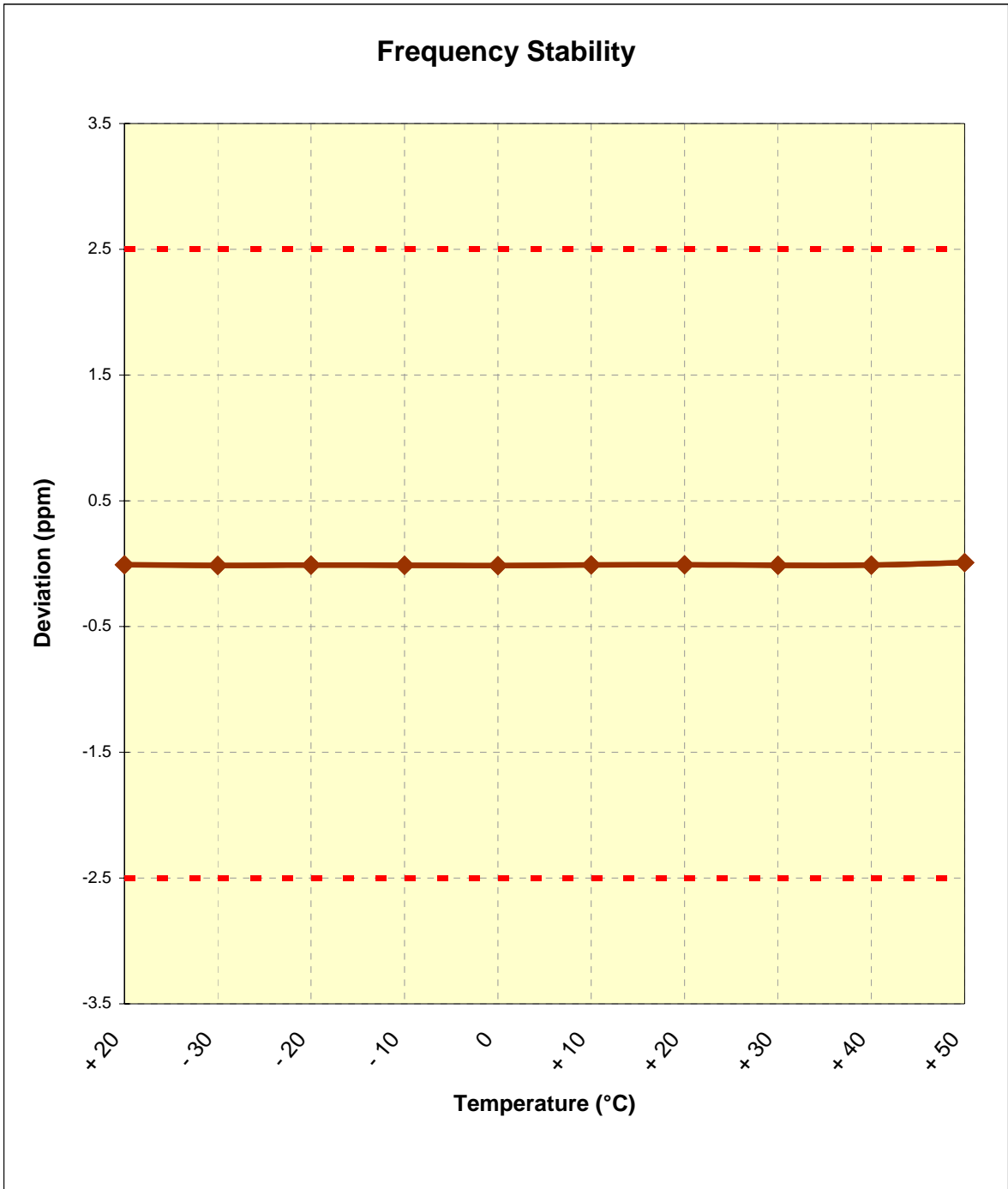


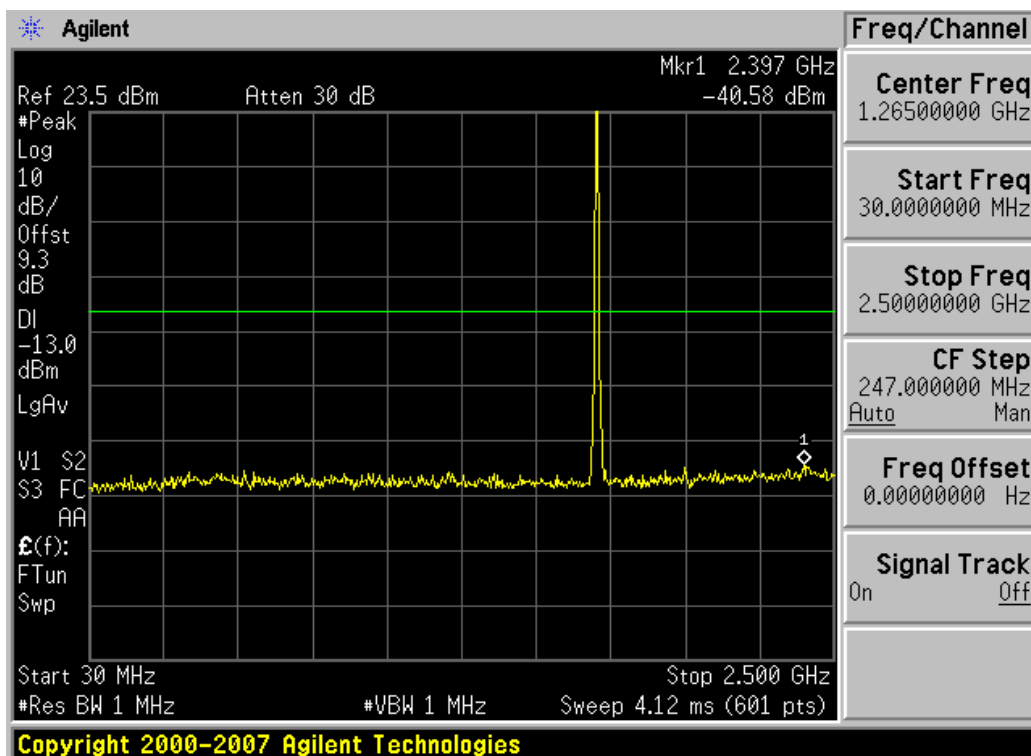


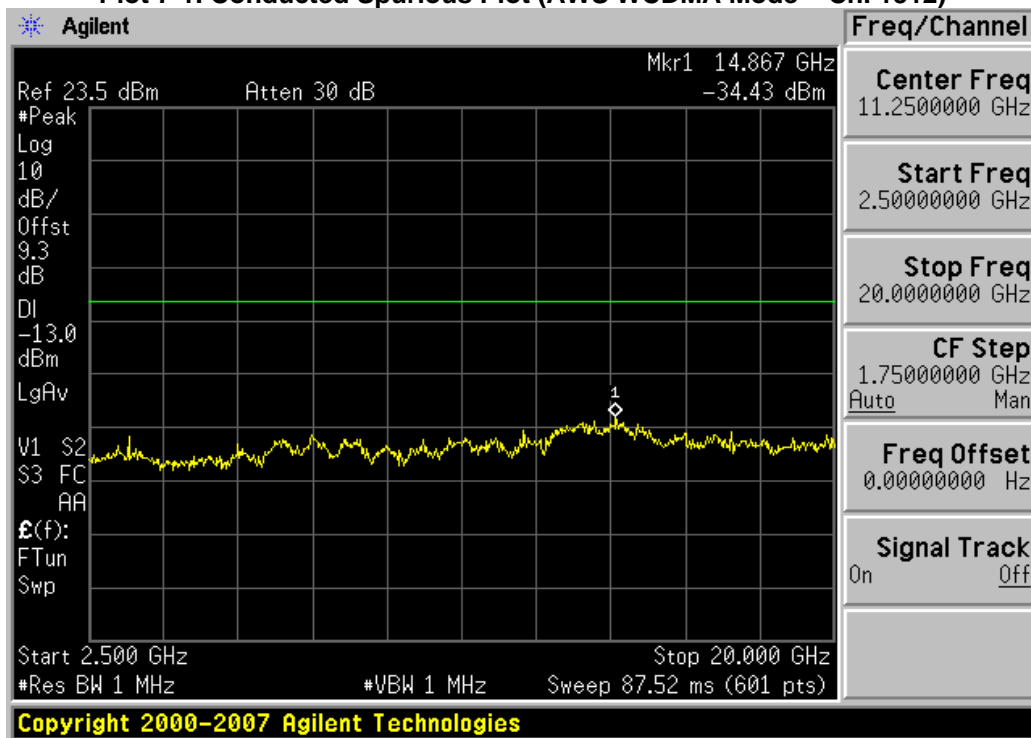
Figure 6-1. Frequency Stability Graph (AWS WCDMA Mode – Ch. 1412)

FCC ID: A3LSGHT659		FCC Pt. 27 WCDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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7.0 PLOT(S) OF EMISSIONS

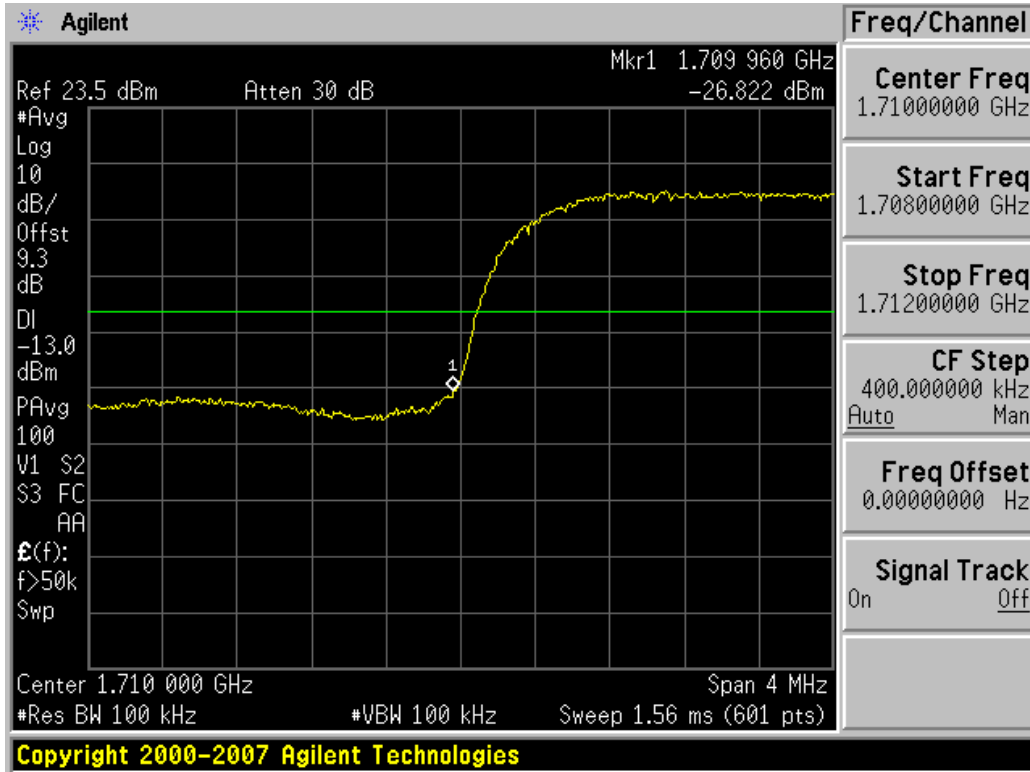


Plot 7-1. Conducted Spurious Plot (AWS WCDMA Mode – Ch. 1312)

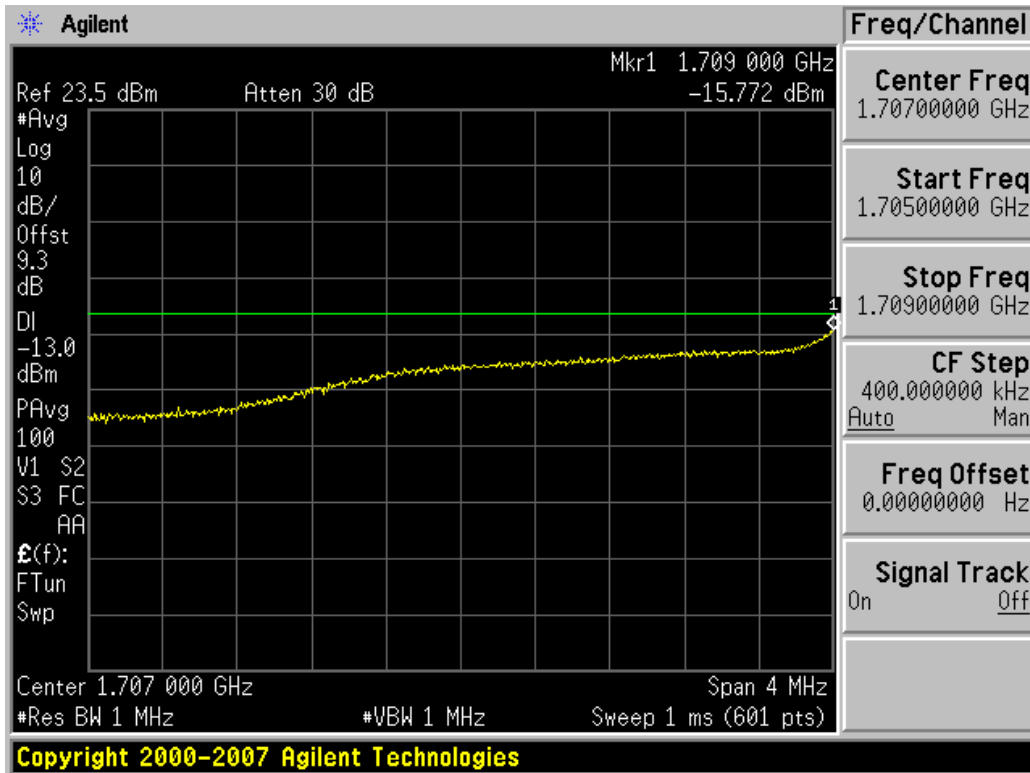


Plot 7-2. Conducted Spurious Plot (AWS WCDMA Mode – Ch. 1312)

FCC ID: A3LSGHT659	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 27 WCDMA MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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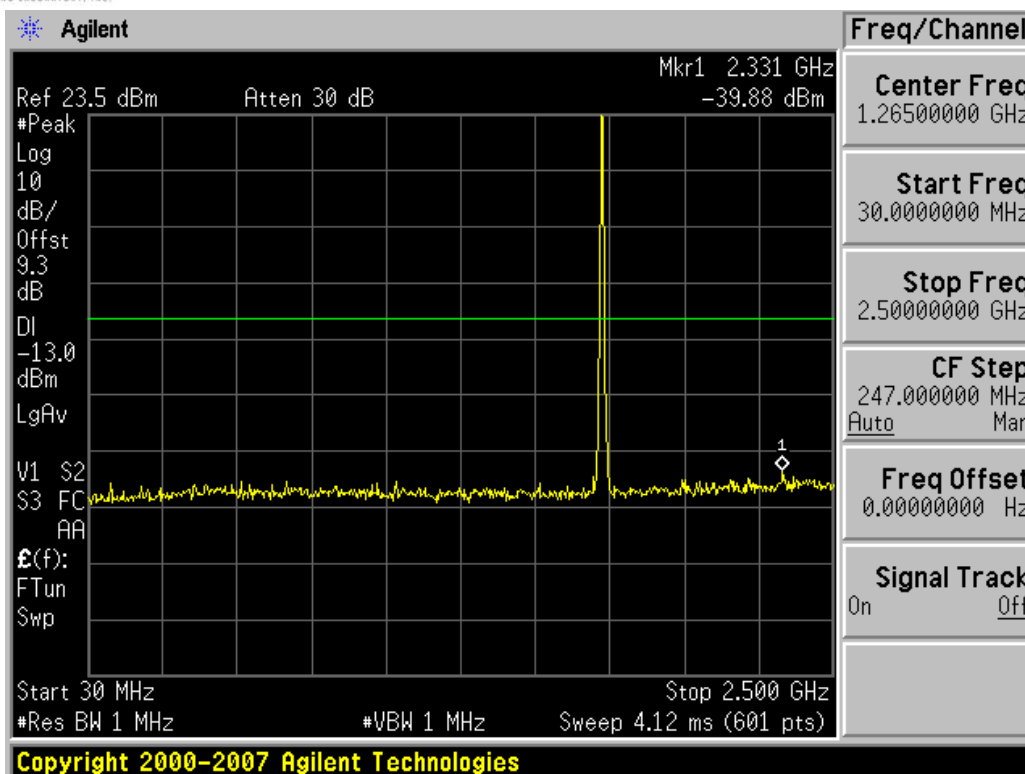


Plot 7-3. Band Edge Plot (AWS WCDMA Mode – Ch. 1312)

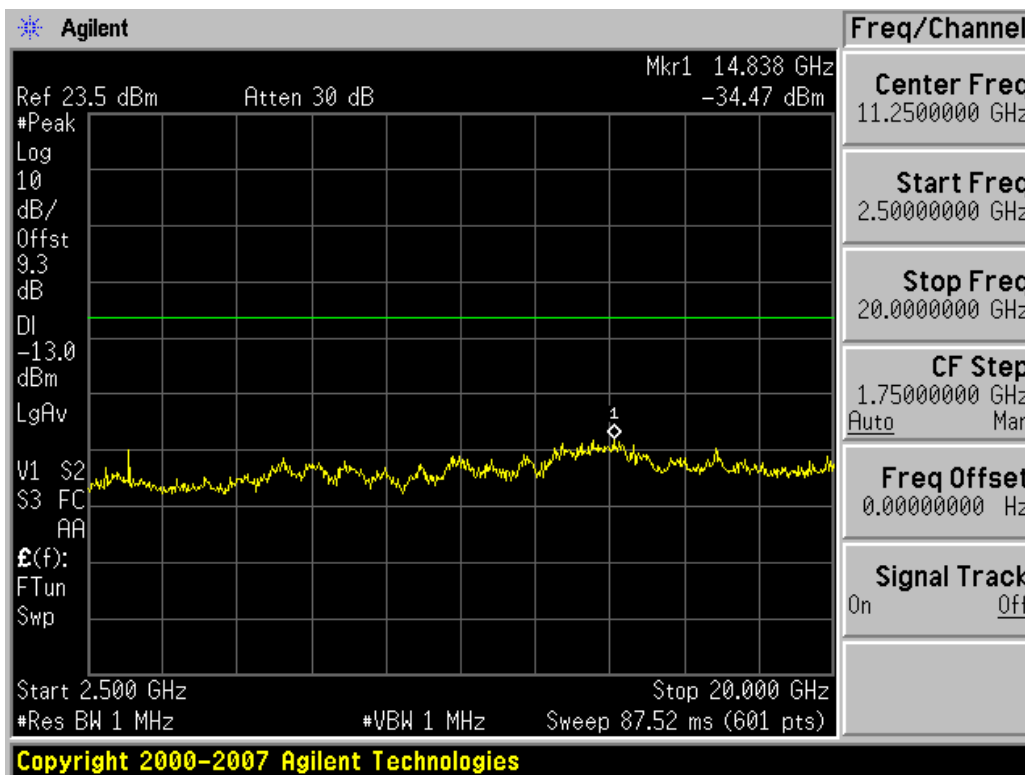


Plot 7-4. 4MHz Span Plot (AWS WCDMA Mode – Ch. 1312)

FCC ID: A3LSGHT659	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 27 WCDMA MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0906151218.A3L	Test Dates: June 15-16, 2009	EUT Type: 850/1900 GSM/GPRS/EDGE and AWS WCDMA Phone with Bluetooth		Page 19 of 24

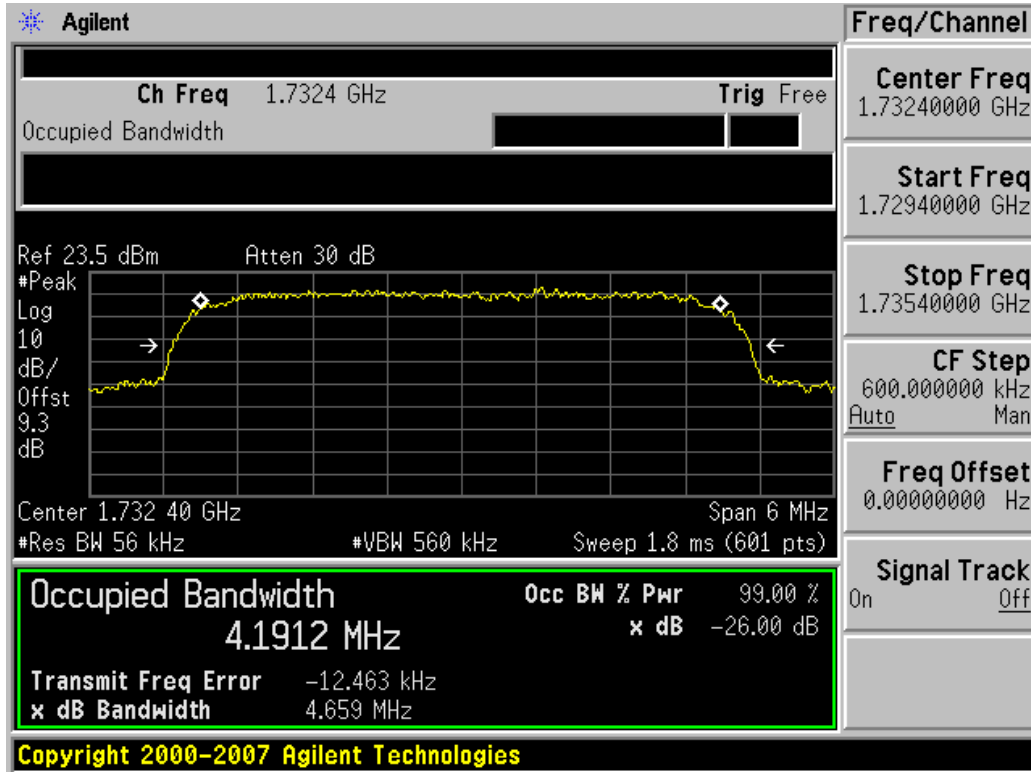


Plot 7-5. Conducted Spurious Plot (AWS WCDMA Mode – Ch. 1412)

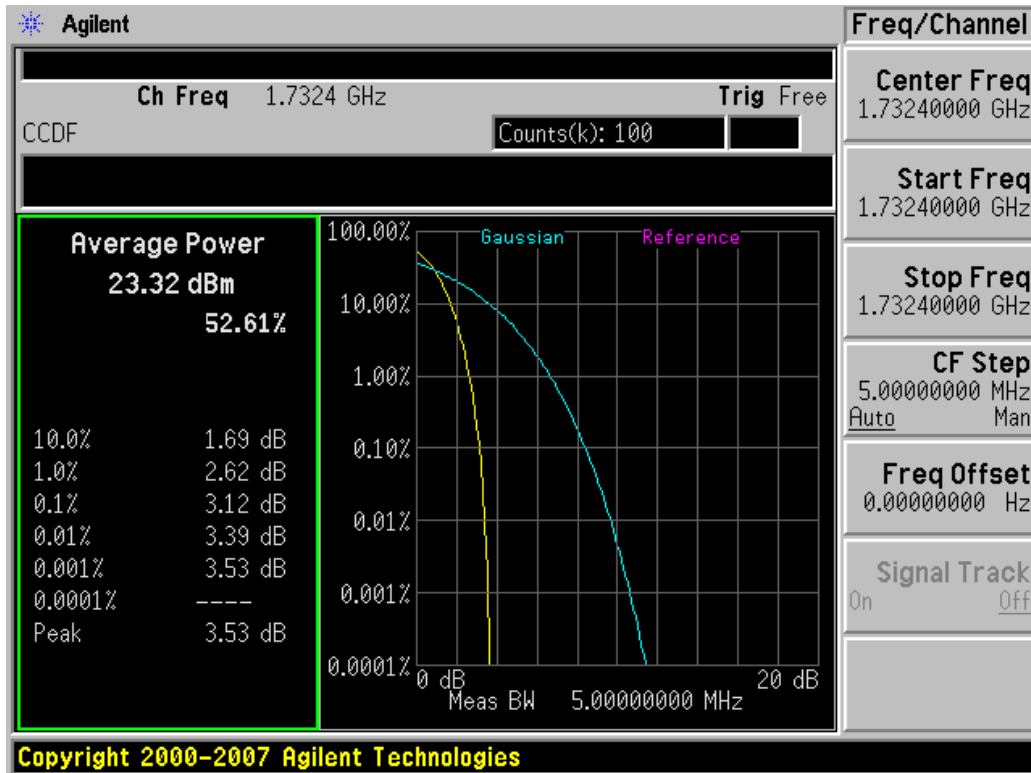


Plot 7-6. Conducted Spurious Plot (AWS WCDMA Mode – Ch. 1412)

FCC ID: A3LSGHT659	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 27 WCDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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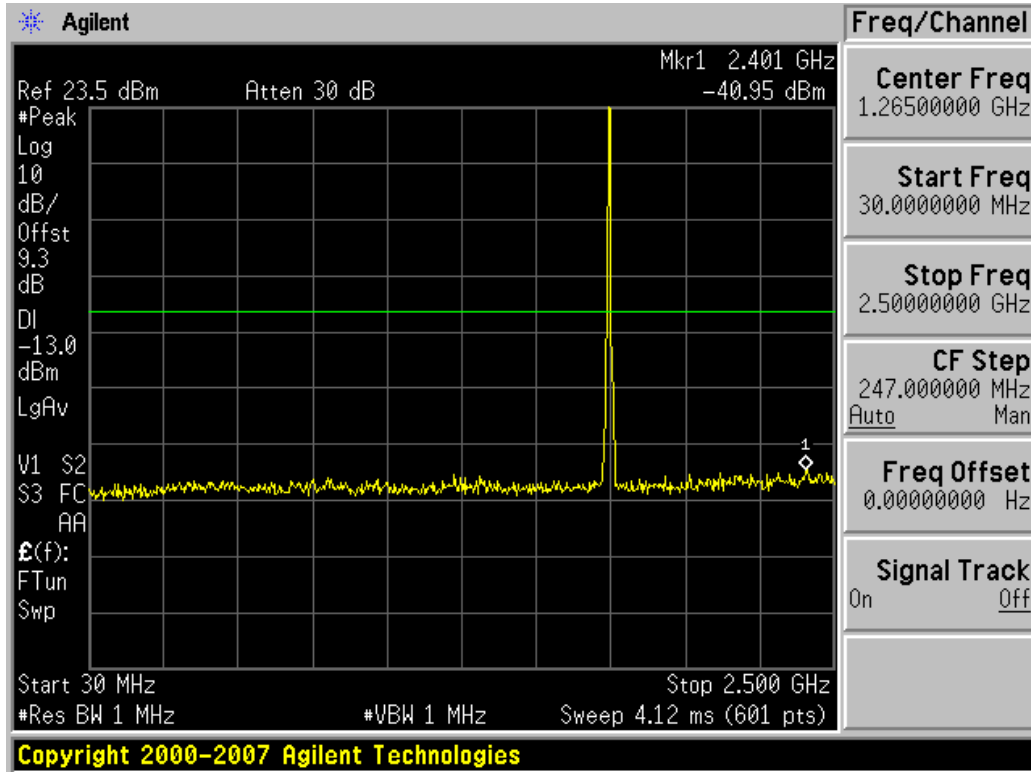


Plot 7-7. Occupied Bandwidth Plot (AWS WCDMA Mode – Ch. 1412)

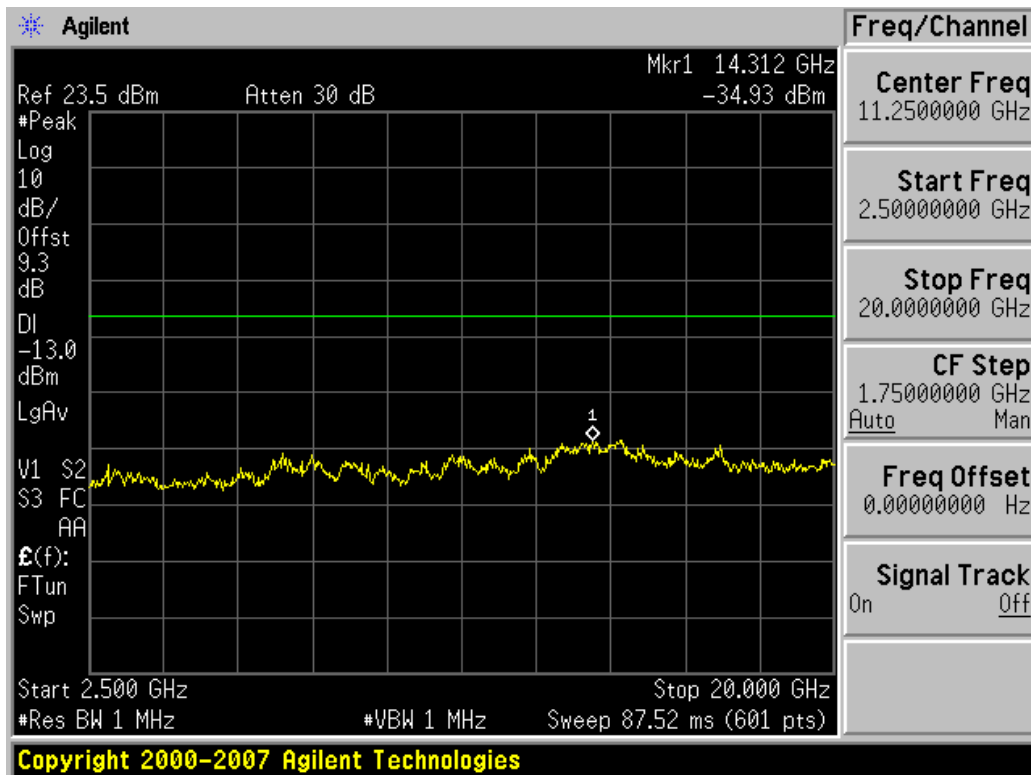


Plot 7-8. Peak-Average Ratio Plot (AWS WCDMA Mode – Ch. 1412)

FCC ID: A3LSGHT659	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 27 WCDMA MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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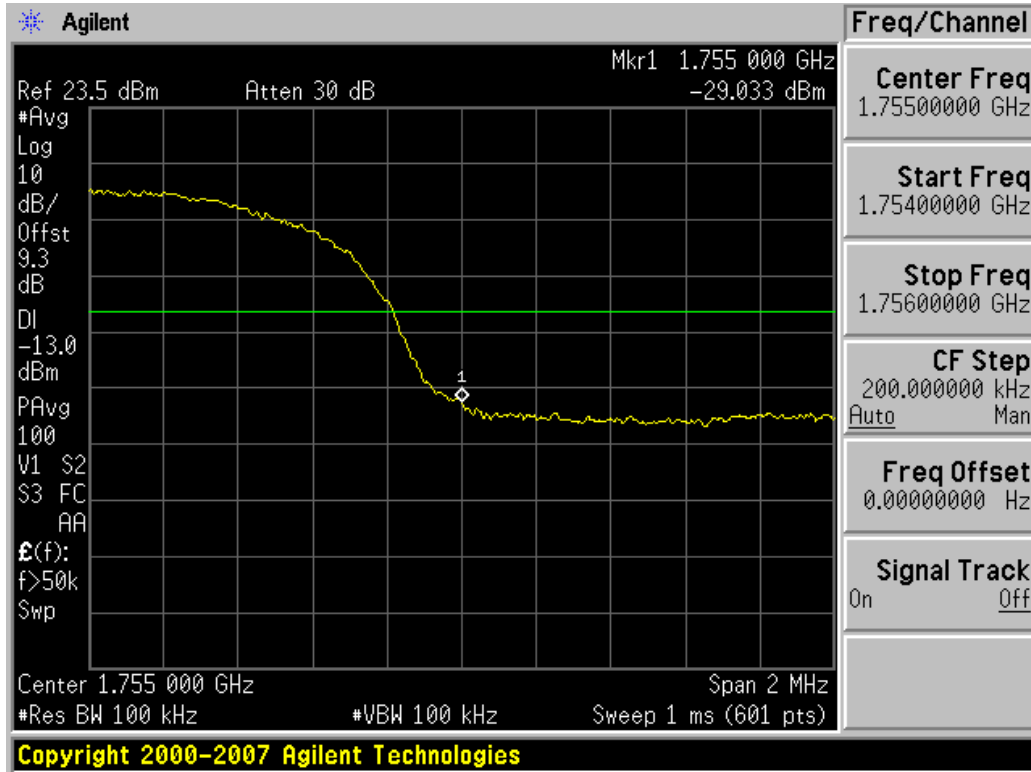


Plot 7-9. Conducted Spurious Plot (AWS WCDMA Mode – Ch. 1862)

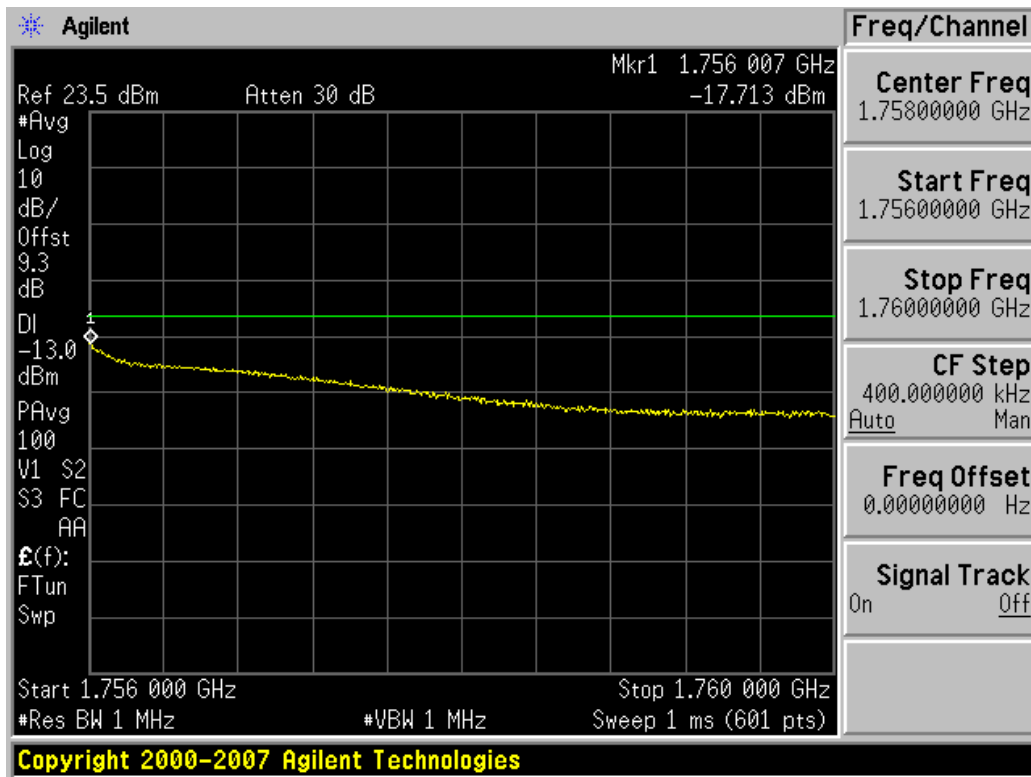


Plot 7-10. Conducted Spurious Plot (AWS WCDMA Mode – Ch. 1862)

FCC ID: A3LSGHT659	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 27 WCDMA MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 7-11. Band Edge Plot (AWS WCDMA Mode – Ch. 1862)





Plot 7-12. 4MHz Span Plot (AWS WCDMA Mode – Ch. 1862)

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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung 850/1900 GSM/GPRS/EDGE and AWS WCDMA Phone with Bluetooth FCC ID: A3LSGHT659** complies with all the requirements of Parts 2 and 27 of the FCC rules.

FCC ID: A3LSGHT659		FCC Pt. 27 WCDMA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0906151218.A3L	Test Dates: June 15-16, 2009	EUT Type: 850/1900 GSM/GPRS/EDGE and AWS WCDMA Phone with Bluetooth		Page 24 of 24