



**MEASUREMENT REPORT
FCC Part 22, 24 & 27 LTE**

Applicant Name:
Motorola Mobility LLC
8000 West Sunrise Blvd.
Plantation, FL 33322
United States

Date of Testing:
1/2 -1/8/2014
Test Site/Location:
PCTEST Lab., Columbia, MD, USA
Test Report Serial No.:
0Y1312232487.IHD

FCC ID :	IHDT56PG1
APPLICANT:	MOTOROLA MOBILITY LLC

FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s): §2; §22; §24; §27
EUT Type: Portable Handset
Test Device Serial No.: identical prototype [S/N: Unit 1]

Mode	Tx Frequency (MHz)	Emission Designator	Modulation	ERP/EIRP	
				Max. Power (W)	Max. Power (dBm)
LTE Band 17	706.5 - 713.5	4M50G7D	QPSK	0.147	21.67
LTE Band 17	706.5 - 713.5	4M50W7D	16QAM	0.069	18.38
LTE Band 17	709 - 711	8M99G7D	QPSK	0.139	21.44
LTE Band 17	709 - 711	8M97W7D	16QAM	0.065	18.16
LTE Band 5	824.7 - 848.3	1M12G7D	QPSK	0.064	18.05
LTE Band 5	824.7 - 848.3	1M13W7D	16QAM	0.047	16.70
LTE Band 5	825.5 - 847.5	2M71G7D	QPSK	0.053	17.24
LTE Band 5	825.5 - 847.5	2M71W7D	16QAM	0.032	15.05
LTE Band 5	826.5 - 846.5	4M49G7D	QPSK	0.072	18.58
LTE Band 5	826.5 - 846.5	4M49W7D	16QAM	0.043	16.32
LTE Band 5	829 - 844	9M00G7D	QPSK	0.177	22.48
LTE Band 5	829 - 844	8M96W7D	16QAM	0.107	20.31
LTE Band 4	1710.7 - 1754.3	1M12G7D	QPSK	0.420	26.23
LTE Band 4	1710.7 - 1754.3	1M13W7D	16QAM	0.257	24.10
LTE Band 4	1711.5 - 1753.5	2M72G7D	QPSK	0.327	25.15
LTE Band 4	1711.5 - 1753.5	2M71W7D	16QAM	0.201	23.03
LTE Band 4	1712.5 - 1752.5	4M50G7D	QPSK	0.415	26.18
LTE Band 4	1712.5 - 1752.5	4M52W7D	16QAM	0.246	23.91
LTE Band 4	1715 - 1750	8M97G7D	QPSK	0.321	25.07
LTE Band 4	1715 - 1750	9M00W7D	16QAM	0.196	22.93
LTE Band 4	1717.5 - 1747.5	13M5G7D	QPSK	0.396	25.98
LTE Band 4	1717.5 - 1747.5	13M4W7D	16QAM	0.239	23.78
LTE Band 4	1720 - 1745	18M0G7D	QPSK	0.284	24.54
LTE Band 4	1720 - 1745	17M9W7D	16QAM	0.218	23.38
LTE Band 2	1850.7 - 1909.3	1M12G7D	QPSK	0.345	25.38
LTE Band 2	1850.7 - 1909.3	1M12W7D	16QAM	0.240	23.81
LTE Band 2	1851.5 - 1908.5	2M72G7D	QPSK	0.348	25.42
LTE Band 2	1851.5 - 1908.5	2M72W7D	16QAM	0.230	23.62
LTE Band 2	1852.5 - 1907.5	4M51G7D	QPSK	0.421	26.24
LTE Band 2	1852.5 - 1907.5	4M50W7D	16QAM	0.282	24.50
LTE Band 2	1855 - 1905	8M98G7D	QPSK	0.370	25.68
LTE Band 2	1855 - 1905	9M00W7D	16QAM	0.270	24.32
LTE Band 2	1857.5 - 1902.5	13M5G7D	QPSK	0.377	25.76
LTE Band 2	1857.5 - 1902.5	13M4W7D	16QAM	0.265	24.23
LTE Band 2	1860 - 1900	17M9G7D	QPSK	0.382	25.82
LTE Band 2	1860 - 1900	17M9W7D	16QAM	0.267	24.27

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.


Randy Ortner
President



FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset		Page 1 of 156

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

FCC PART 22, 24 & 27 MEASUREMENT REPORT		3
1.0 INTRODUCTION		4
1.1 SCOPE		4
1.2 TESTING FACILITY		4
2.0 PRODUCT INFORMATION		5
2.1 EQUIPMENT DESCRIPTION		5
2.2 DEVICE CAPABILITIES		5
2.3 EMI SUPPRESSION DEVICE(S)/MODIFICATIONS		5
2.4 LABELING REQUIREMENTS		5
3.0 DESCRIPTION OF TESTS		6
3.1 MEASUREMENT PROCEDURE		6
3.2 BLOCK A FREQUENCY RANGE		6
3.3 CELLULAR - BASE FREQUENCY BLOCKS		6
3.4 CELLULAR - MOBILE FREQUENCY BLOCKS		6
3.5 PCS - BASE FREQUENCY BLOCKS		7
3.6 PCS - MOBILE FREQUENCY BLOCKS		7
3.7 AWS - BASE FREQUENCY BLOCKS		7
3.8 AWS - MOBILE FREQUENCY BLOCKS		8
3.9 OCCUPIED BANDWIDTH		8
3.10 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL		8
3.11 PEAK-AVERAGE RATIO		8
3.12 RADIATED POWER AND RADIATED SPURIOUS EMISSIONS		9
3.13 FREQUENCY STABILITY / TEMPERATURE VARIATION		10
4.0 TEST EQUIPMENT CALIBRATION DATA		11
5.0 SAMPLE CALCULATIONS		12
6.0 TEST RESULTS		13
6.1 SUMMARY		13
6.2 EFFECTIVE RADIATED POWER (ERP)		14
6.3 EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)		16
6.4 BAND 17 RADIATED SPURIOUS EMISSIONS		18
6.5 BAND 5 RADIATED SPURIOUS EMISSIONS		21
6.6 BAND 4 RADIATED SPURIOUS EMISSIONS		24
6.7 BAND 2 RADIATED SPURIOUS EMISSIONS		27
6.8 BAND 17 FREQUENCY STABILITY MEASUREMENTS		30
6.9 BAND 5 FREQUENCY STABILITY MEASUREMENTS		32
6.10 BAND 4 FREQUENCY STABILITY MEASUREMENTS		34
6.11 BAND 2 FREQUENCY STABILITY MEASUREMENTS		36
7.0 BAND 17 PLOTS OF EMISSIONS		38
8.0 BAND 5 PLOTS OF EMISSIONS		49
9.0 BAND 4 PLOTS OF EMISSIONS		70
10.0 BAND 2 PLOTS OF EMISSIONS		113
11.0 CONCLUSION		156

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 2 of 156	



MEASUREMENT REPORT

FCC Part 22, 24 & 27

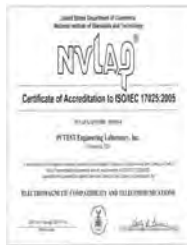
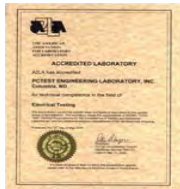


§2.1033 General Information



APPLICANT: Motorola Mobility LLC
APPLICANT ADDRESS: 8000 West Sunrise Blvd.
 Plantation, FL 33322, United States
TEST SITE: PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS: 6660-B Dobbin Road, Columbia, MD 21045 USA
FCC RULE PART(S): §2; §22; §24; §27
FCC ID: IHDT56PG1
FCC CLASSIFICATION: PCS Licensed Transmitter Held to Ear (PCE)
FREQUENCY TOLERANCE: ±0.00025 % (2.5 ppm)
Test Device Serial No.: Unit 1 Production Pre-Production Engineering
DATE(S) OF TEST: 1/2 -1/8/2014
TEST REPORT S/N: 0Y1312232487.IHD

Test Facility / Accreditations

Measurements were performed at **PCTEST Engineering Lab located in Columbia, MD 21046, U.S.A.**



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

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 3 of 156	

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 Intern't'l (BWI) airport, the city of Baltimore and the Washington, DC area. (See Figure 1-1).

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility in New Concept Business Park, Guilford Industrial Park, Columbia, Maryland. The site address is 6660-B Dobbin Road, Columbia, MD 21045. The test site is one of the highest points in the Columbia area with an elevation of 390 feet above mean sea level. The site coordinates are 39° 11'15" N latitude and 76° 49'38" W longitude. The facility is 1.5 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. There are no FM or TV transmitters within 15 miles of the site. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on January 10, 2012.

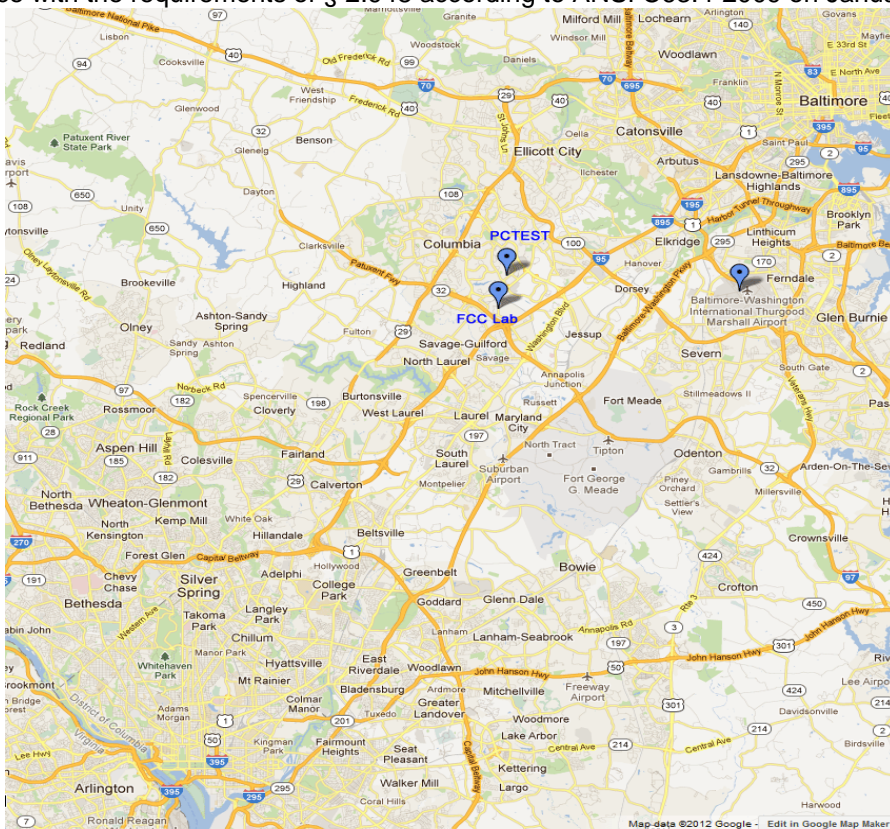


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 4 of 156	

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Motorola Portable Handset FCC ID: IHDT56PG1**. 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:

850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA, Band 2 (1.4, 3, 5, 10, 15, and 20MHz BW), 4(1.4, 3, 5, 10, 15, and 20MHz BW), 5 (1.4, 3, 5, and 10MHz BW), 17 (5 and 10MHz BW) LTE, 802.11b/g/n WLAN, Bluetooth (1x,EDR, LE)



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.

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 5 of 156	

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) and “Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems” (KDB 971168) were used in the measurement of the **Motorola Portable Handset FCC ID: IHDT56PG1**.

3.2 Block A Frequency Range

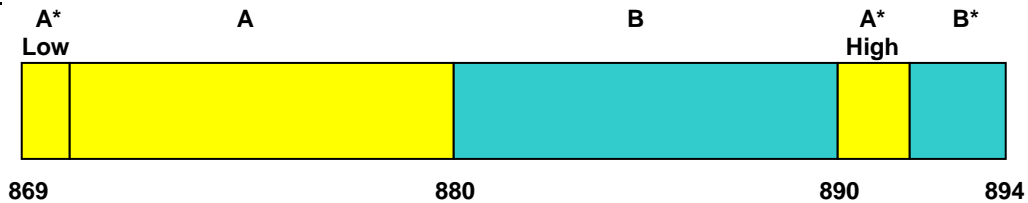
§27.5(c)

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

§22.905

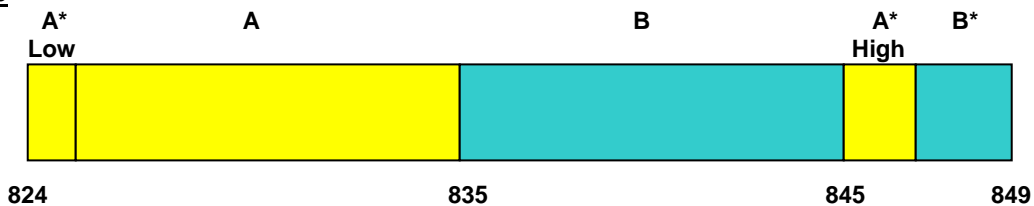


BLOCK 1: 869 – 880 MHz (A* Low + A)
BLOCK 2: 880 – 890 MHz (B)

BLOCK 3: 890 – 891.5 MHz (A* High)
BLOCK 4: 891.5 – 894 MHz (B*)

3.4 Cellular - Mobile Frequency Blocks

§22.905



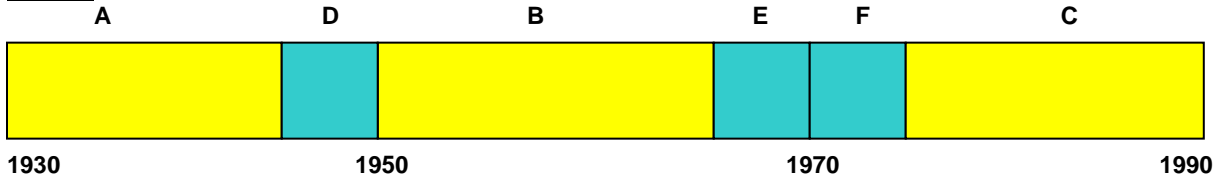
BLOCK 1: 824 – 835 MHz (A* Low + A)
BLOCK 2: 835 – 845 MHz (B)

BLOCK 3: 845 – 846.5 MHz (A* High)
BLOCK 4: 846.5 – 849 MHz (B*)

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 6 of 156	

3.5 PCS - Base Frequency Blocks

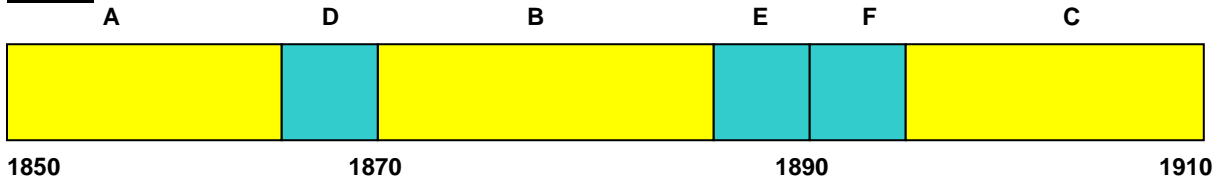
§24.229



- | | |
|------------------------------|------------------------------|
| BLOCK 1: 1930 – 1945 MHz (A) | BLOCK 4: 1965 – 1970 MHz (E) |
| BLOCK 2: 1945 – 1950 MHz (D) | BLOCK 5: 1970 – 1975 MHz (F) |
| BLOCK 3: 1950 – 1965 MHz (B) | BLOCK 6: 1975 – 1990 MHz (C) |

3.6 PCS - Mobile Frequency Blocks

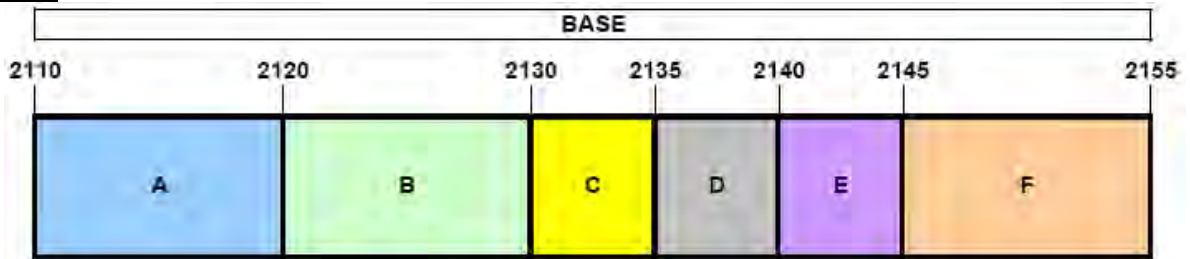
§24.229





- | | |
|------------------------------|------------------------------|
| BLOCK 1: 1850 – 1865 MHz (A) | BLOCK 4: 1885 – 1890 MHz (E) |
| BLOCK 2: 1865 – 1870 MHz (D) | BLOCK 5: 1890 – 1895 MHz (F) |
| BLOCK 3: 1870 – 1885 MHz (B) | BLOCK 6: 1895 – 1910 MHz (C) |

3.7 AWS - Base Frequency Blocks

§27.5(h)

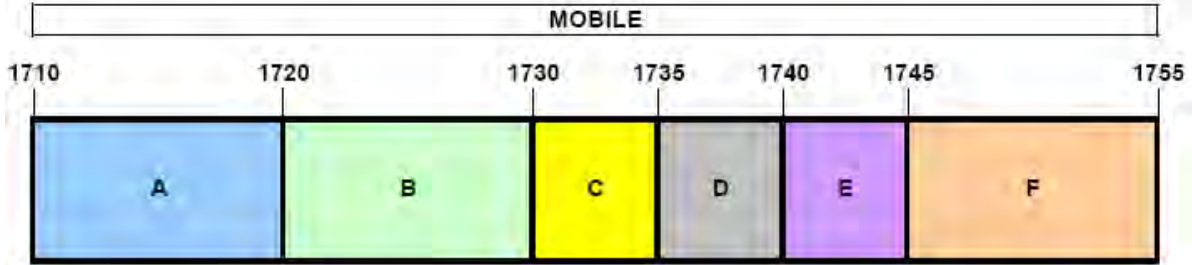


- | | |
|------------------------------|------------------------------|
| BLOCK 1: 2110 – 2120 MHz (A) | BLOCK 4: 2135 – 2140 MHz (D) |
| BLOCK 2: 2120 – 2130 MHz (B) | BLOCK 5: 2140 – 2145 MHz (E) |
| BLOCK 3: 2130 – 2135 MHz (C) | BLOCK 6: 2145 – 2155 MHz (F) |

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 7 of 156	

3.8 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)

3.9 Occupied Bandwidth

§2.1049 RSS-Gen(4.6.1) RSS-133(2.3) RSS-139(2.3)

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)(b) §24.238(a)(b) §27.53(g) §27.53(h) RSS-132(4.5.1) RSS-133(6.5.1) RSS-139(6.5.1)

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for Cell band, 698–746 MHz band, or 1 MHz or greater for PCS band, AWS band. 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 for PCS band, AWS band. 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-132(5.4) RSS-133(6.4) RSS-139(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.

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 8 of 156	

3.12 Radiated Power and Radiated Spurious Emissions

§2.1053 §22.913(a.2) §22.917(a) §24.232(c) §24.238(a) §27.50(c.10) §27.50(d.4) §27.53(g) RSS-132(4.4) RSS-132(4.5.1) RSS-133(6.4) RSS-133(6.5.1) RSS-139(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 $43 + 10\log_{10}(\text{Power}_{\text{[Watts]}})$ specified in 22.917(a), 24.238(a), and 27.53(g)(h).

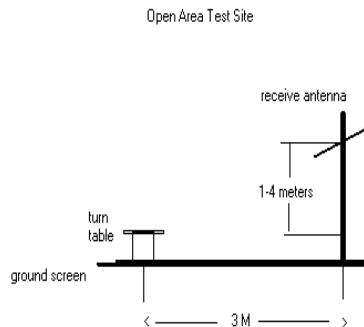




Figure 3-1. Diagram of 3-meter Test Range

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 9 of 156	

3.13 Frequency Stability / Temperature Variation

§2.1055 §22.863 §22.905 §24.229 §24.235 §27.5(c) §27.5(h) §27.54 RSS-132(4.3) RSS-133(6.3) RSS-139(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 ±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.

FCC ID: IHDT56PG1	 FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		 Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 10 of 156

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
-	RE1	Radiated Emissions Cable Set (UHF/EHF)	3/29/2013	Annual	3/29/2014	N/A
-	RE2	Radiated Emissions Cable Set (VHF/UHF)	3/29/2013	Annual	3/29/2014	N/A
-	LTx2	Licensed Transmitter Cable Set	1/17/2013	Annual	1/17/2014	N/A
Agilent	8449B	(1-26.5GHz) Pre-Amplifier	4/17/2013	Annual	4/17/2014	3008A00985
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/28/2013	Annual	10/28/2014	3613A00315
Agilent	N9020A	MXA Signal Analyzer	10/29/2013	Annual	10/29/2014	US46470561
Agilent	N9030A	PXA Signal Analyzer (44GHz)	1/11/2013	Annual	1/11/2014	MY52350166
Agilent	8447D	Broadband Amplifier	5/31/2013	Annual	5/31/2014	1937A03348
Anritsu	MA2411B	Pulse Sensor	11/13/2013	Annual	11/13/2014	846215
Anritsu	ML2495A	Power Meter	10/31/2013	Annual	10/31/2014	1039008
Emco	6502	Active Loop Antenna (10k - 30 MHz)	5/31/2012	Biennial	5/31/2014	267
ETS Lindgren	3160-09	18-26.5 GHz Standard Gain Horn	5/30/2012	Biennial	5/30/2014	135427
ETS Lindgren	3160-10	26.5-40 GHz Standard Gain Horn	6/6/2012	Biennial	6/6/2014	130993
Mini-Circuits	VHF-1300+	High Pass Filter	1/21/2013	Annual	1/21/2014	30716
Mini-Circuits	VHF-3100+	High Pass Filter	1/21/2013	Annual	1/21/2014	31144
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	N/A		N/A	81059
Rohde & Schwarz	TS-PR26	18-26.5 GHz Pre-Amplifier	5/31/2013	Annual	5/31/2014	100040
Rohde & Schwarz	TS-PR40	26.5-40 GHz Pre-Amplifier	6/6/2012	Biennial	6/6/2014	100037
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Tx	11/1/2013	Biennial	11/1/2015	91052522TX
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Rx	11/1/2013	Biennial	11/1/2015	91052523RX
Schwarzbeck	VULB-9161SE	Trilog Super Broadband Test Antenna	10/23/2013	Biennial	10/23/2015	9161-4075
Seekonk	NC-100	Torque Wrench (8" lb)	3/5/2012	Triennial	3/5/2015	N/A
Sunol	DRH-118	Horn Antenna (1 - 18GHz)	6/19/2013	Biennial	6/19/2015	A050307
Sunol	DRH-118	Horn Antenna (1-18 GHz)	6/19/2013	Biennial	6/19/2015	A042511

Table 4-1. Test Equipment

Notes:

1. Equipment used for signaling with a calibration date of "N/A" shown in this list was only used for maintaining a link between the piece of equipment and the EUT. This equipment was not used to make direct calibrated measurements.

FCC ID: IHDT56PG1	 FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 11 of 156	

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).

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 12 of 156	

6.0 TEST RESULTS

6.1 Summary



Company Name: Motorola Mobility LLC
 FCC ID: IHDT56PG1
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
 Mode(s): LTE

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Result	Reference
TRANSMITTER MODE (TX)					
2.1049	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) 27.53(h)	Band Edge / Conducted Spurious Emissions	$> 43 + 10\log_{10}(P[\text{Watts}])$ at Band Edge and for all out-of-band emissions		PASS	Section 7.0, 8.0, 9.0, 10.0
24.232(d) 27.50(d.5)	Peak-Average Ratio	< 13 dB		PASS	Section 9.0, 10.0
2.1046	Transmitter Conducted Output Power	N/A		PASS	See RF Exposure Report
22.913(a.2)	Effective Radiated Power (Band 5)	< 7 Watts max. ERP	RADIATED	PASS	Section 6.2
27.50(c.10)	Effective Radiated Power (Band 17)	< 3 Watts max. ERP		PASS	Section 6.2
24.232(c)	Equivalent Isotropic Radiated Power (Band 2)	< 2 Watts max. EIRP		PASS	Section 6.3
27.50(d.4)	Equivalent Isotropic Radiated Power (Band 4)	< 1 Watts max. EIRP		PASS	Section 6.3
2.1053 22.917(a) 24.238(a) 27.53(g) 27.53(h)	Undesirable Emissions	$> 43 + 10\log_{10}(P[\text{Watts}])$ for all out-of-band emissions		PASS	Section 6.4, 6.5, 6.6, 6.7
2.1055. 22.355 24.235 27.54	Frequency Stability	< 2.5 ppm (Part 22) and fundamental emissions stay within authorized frequency block (Part 24, 27)		PASS	Section 6.8, 6.9, 6.10, 6.11

Table 6-1. Summary of Test Results

Notes:

- All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- The analyzer plots shown in Section 7.0 8.0 9.0 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.
- 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.

FCC ID: IHDT56PG1	 FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 13 of 156	

6.2 Effective Radiated Power (ERP)



§22.913(a.2) §27.50(c.10) RSS-132(4.4)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery	RB Size/Offset	Substitute Level [dBm]	Antenna Gain [dBd]	Pol [H/V]	ERP [dBm]	ERP [Watts]	Margin [dB]
706.50	5	QPSK	Standard	1/24	20.46	0.87	V	21.33	0.136	-13.44
710.00	5	QPSK	Standard	1/24	20.81	0.86	V	21.67	0.147	-13.10
713.50	5	QPSK	Standard	1/0	20.49	0.85	V	21.34	0.136	-13.43
706.50	5	16-QAM	Standard	1/24	17.14	0.87	V	18.01	0.063	-16.76
710.00	5	16-QAM	Standard	1/24	17.52	0.86	V	18.38	0.069	-16.39
713.50	5	16-QAM	Standard	1/0	17.12	0.85	V	17.97	0.063	-16.80
709.00	10	QPSK	Standard	1/49	20.57	0.87	V	21.44	0.139	-13.33
710.00	10	QPSK	Standard	1/49	20.18	0.86	V	21.04	0.127	-13.73
711.00	10	QPSK	Standard	1/4	20.07	0.85	V	20.92	0.124	-13.85
709.00	10	16-QAM	Standard	1/49	17.29	0.87	V	18.16	0.065	-16.61
710.00	10	16-QAM	Standard	1/49	16.87	0.86	V	17.73	0.059	-17.04
711.00	10	16-QAM	Standard	1/49	16.78	0.85	V	17.63	0.058	-17.14

Table 6-2. ERP Data (Band 17)



Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery	RB Size/Offset	Substitute Level [dBm]	Antenna Gain [dBd]	Pol [H/V]	ERP [dBm]	ERP [Watts]	Margin [dB]
824.70	1.4	QPSK	Standard	1/5	17.78	0.27	V	18.05	0.064	-20.41
836.50	1.4	QPSK	Standard	1/0	15.72	0.21	V	15.93	0.039	-22.53
848.30	1.4	QPSK	Standard	1/0	16.23	0.15	V	16.38	0.043	-22.08
824.70	1.4	16-QAM	Standard	1/0	16.43	0.27	V	16.70	0.047	-21.76
836.50	1.4	16-QAM	Standard	1/0	13.69	0.21	V	13.90	0.025	-24.56
848.30	1.4	16-QAM	Standard	1/0	14.20	0.15	V	14.35	0.027	-24.11
825.50	3	QPSK	Standard	1/14	16.66	0.27	V	16.93	0.049	-21.53
836.50	3	QPSK	Standard	1/0	16.80	0.21	V	17.01	0.050	-21.45
847.50	3	QPSK	Standard	1/0	17.09	0.15	V	17.24	0.053	-21.22
825.50	3	16-QAM	Standard	1/0	14.78	0.27	V	15.05	0.032	-23.41
836.50	3	16-QAM	Standard	8/0	14.73	0.21	V	14.94	0.031	-23.52
847.50	3	16-QAM	Standard	1/0	14.79	0.15	V	14.94	0.031	-23.52
826.50	5	QPSK	Standard	1/24	18.31	0.27	V	18.58	0.072	-19.88
836.50	5	QPSK	Standard	1/0	17.87	0.21	V	18.08	0.064	-20.38
846.50	5	QPSK	Standard	1/0	17.47	0.15	V	17.62	0.058	-20.84
826.50	5	16-QAM	Standard	1/24	16.05	0.27	V	16.32	0.043	-22.14
836.50	5	16-QAM	Standard	1/0	15.66	0.21	V	15.87	0.039	-22.59
846.50	5	16-QAM	Standard	1/24	15.14	0.15	V	15.29	0.034	-23.17
829.00	10	QPSK	Standard	1/49	18.09	0.27	V	18.36	0.068	-20.10
836.50	10	QPSK	Standard	1/0	22.27	0.21	V	22.48	0.177	-15.98
844.00	10	QPSK	Standard	1/49	17.43	0.15	V	17.58	0.057	-20.88
829.00	10	16-QAM	Standard	1/49	16.03	0.27	V	16.30	0.043	-22.16
836.50	10	16-QAM	Standard	1/0	20.10	0.21	V	20.31	0.107	-18.15
844.00	10	16-QAM	Standard	1/49	15.32	0.15	V	15.47	0.035	-22.99

Table 6-3. ERP Data (Band 5)

FCC ID: IHDT56PG1	 FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 14 of 156	

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported in the table above
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configurations were found with the EUT in the V positioning (for Bands 5 and 17) and H2 positioning (for Bands 2 and 4) The data reported in the table above was measured in this test setup.



FCC ID: IHDT56PG1	 FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		 Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 15 of 156

6.3 Equivalent Isotropic Radiated Power (EIRP)

§24.232(c) §27.50(d.4) RSS-133(6.4) RSS-139(6.4)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery	RB Size/Offset	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Margin [dB]
1710.70	1.4	QPSK	Standard	1/5	18.02	8.21	H2	26.23	0.420	-3.77
1732.50	1.4	QPSK	Standard	1/0	16.91	8.13	H2	25.04	0.319	-4.96
1754.30	1.4	QPSK	Standard	1/0	14.69	8.05	H2	22.74	0.188	-7.26
1710.70	1.4	16-QAM	Standard	3/0	15.89	8.21	H2	24.10	0.257	-5.90
1732.50	1.4	16-QAM	Standard	3/0	14.77	8.13	H2	22.90	0.195	-7.10
1754.30	1.4	16-QAM	Standard	3/0	12.57	8.05	H2	20.62	0.115	-9.38
1711.50	3	QPSK	Standard	1/14	16.59	8.21	H2	24.80	0.302	-5.20
1732.50	3	QPSK	Standard	1/0	17.02	8.13	H2	25.15	0.327	-4.85
1753.50	3	QPSK	Standard	1/0	16.17	8.05	H2	24.22	0.264	-5.78
1711.50	3	16-QAM	Standard	1/14	14.39	8.21	H2	22.60	0.182	-7.40
1732.50	3	16-QAM	Standard	1/0	14.90	8.13	H2	23.03	0.201	-6.97
1753.50	3	16-QAM	Standard	1/0	14.01	8.05	H2	22.06	0.161	-7.94
1712.50	5	QPSK	Standard	1/0	17.97	8.21	H2	26.18	0.415	-3.82
1732.50	5	QPSK	Standard	1/24	17.01	8.13	H2	25.14	0.327	-4.86
1752.50	5	QPSK	Standard	1/0	16.97	8.05	H2	25.02	0.318	-4.98
1712.50	5	16-QAM	Standard	1/0	15.70	8.21	H2	23.91	0.246	-6.09
1732.50	5	16-QAM	Standard	1/24	14.84	8.13	H2	22.97	0.198	-7.03
1752.50	5	16-QAM	Standard	1/0	14.88	8.05	H2	22.93	0.196	-7.07
1715.00	10	QPSK	Standard	1/49	16.86	8.21	H2	25.07	0.321	-4.93
1732.50	10	QPSK	Standard	1/0	16.20	8.13	H2	24.33	0.271	-5.67
1750.00	10	QPSK	Standard	1/49	13.43	8.05	H2	21.48	0.141	-8.52
1715.00	10	16-QAM	Standard	1/0	14.72	8.21	H2	22.93	0.196	-7.07
1732.50	10	16-QAM	Standard	1/0	13.99	8.13	H2	22.12	0.163	-7.88
1750.00	10	16-QAM	Standard	1/49	11.25	8.05	H2	19.30	0.085	-10.70
1717.50	15	QPSK	Standard	1/0	17.77	8.21	H2	25.98	0.396	-4.02
1732.50	15	QPSK	Standard	1/74	16.88	8.13	H2	25.01	0.317	-4.99
1747.50	15	QPSK	Standard	1/74	14.87	8.05	H2	22.92	0.196	-7.08
1717.50	15	16-QAM	Standard	1/0	15.57	8.21	H2	23.78	0.239	-6.22
1732.50	15	16-QAM	Standard	1/74	15.28	8.13	H2	23.41	0.219	-6.59
1747.50	15	16-QAM	Standard	1/74	12.71	8.05	H2	20.76	0.119	-9.24
1720.00	20	QPSK	Standard	1/0	16.33	8.21	H2	24.54	0.284	-5.46
1732.50	20	QPSK	Standard	1/99	16.40	8.13	H2	24.53	0.284	-5.47
1745.00	20	QPSK	Standard	1/0	16.04	8.05	H2	24.09	0.256	-5.91
1720.00	20	16-QAM	Standard	1/99	14.62	8.21	H2	22.83	0.192	-7.17
1732.50	20	16-QAM	Standard	1/99	15.25	8.13	H2	23.38	0.218	-6.62
1745.00	20	16-QAM	Standard	1/0	15.26	8.05	H2	23.31	0.214	-6.69

Table 6-4. EIRP Data (Band 4)



FCC ID: IHDT56PG1	 FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 16 of 156	

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery	RB Size/Offset	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Margin [dB]
1850.70	1.4	QPSK	Standard	1/0	16.58	7.98	H2	24.56	0.286	-8.45
1880.00	1.4	QPSK	Standard	1/5	17.36	8.02	H2	25.38	0.345	-7.63
1909.30	1.4	QPSK	Standard	1/0	16.06	8.08	H2	24.14	0.259	-8.87
1850.70	1.4	16-QAM	Standard	1/0	14.90	7.98	H2	22.88	0.194	-10.13
1880.00	1.4	16-QAM	Standard	3/0	15.79	8.02	H2	23.81	0.240	-9.20
1909.30	1.4	16-QAM	Standard	3/0	14.45	8.08	H2	22.53	0.179	-10.48
1851.50	3	QPSK	Standard	1/14	16.85	7.98	H2	24.83	0.304	-8.18
1880.00	3	QPSK	Standard	1/14	17.40	8.02	H2	25.42	0.348	-7.59
1908.50	3	QPSK	Standard	1/0	16.15	8.08	H2	24.23	0.265	-8.78
1851.50	3	16-QAM	Standard	1/14	15.14	7.98	H2	23.12	0.205	-9.89
1880.00	3	16-QAM	Standard	1/14	15.60	8.02	H2	23.62	0.230	-9.39
1908.50	3	16-QAM	Standard	1/0	14.57	8.08	H2	22.65	0.184	-10.36
1852.50	5	QPSK	Standard	1/24	17.49	7.98	H2	25.47	0.352	-7.54
1880.00	5	QPSK	Standard	1/0	17.13	8.02	H2	25.15	0.327	-7.86
1907.50	5	QPSK	Standard	1/0	18.16	8.08	H2	26.24	0.421	-6.77
1852.50	5	16-QAM	Standard	1/24	15.87	7.98	H2	23.85	0.243	-9.16
1880.00	5	16-QAM	Standard	1/0	15.51	8.02	H2	23.53	0.225	-9.48
1907.50	5	16-QAM	Standard	1/0	16.42	8.08	H2	24.50	0.282	-8.51
1855.00	10	QPSK	Standard	1/49	16.74	7.98	H2	24.72	0.296	-8.29
1880.00	10	QPSK	Standard	1/49	17.23	8.02	H2	25.25	0.335	-7.76
1905.00	10	QPSK	Standard	1/49	17.60	8.08	H2	25.68	0.370	-7.33
1855.00	10	16-QAM	Standard	1/49	15.08	7.98	H2	23.06	0.202	-9.95
1880.00	10	16-QAM	Standard	1/49	15.69	8.02	H2	23.71	0.235	-9.30
1905.00	10	16-QAM	Standard	1/49	16.24	8.08	H2	24.32	0.270	-8.69
1857.50	15	QPSK	Standard	1/0	17.78	7.98	H2	25.76	0.377	-7.25
1880.00	15	QPSK	Standard	1/74	16.75	8.02	H2	24.77	0.300	-8.24
1902.50	15	QPSK	Standard	1/74	15.19	8.08	H2	23.27	0.212	-9.74
1857.50	15	16-QAM	Standard	1/0	16.25	7.98	H2	24.23	0.265	-8.78
1880.00	15	16-QAM	Standard	1/0	15.05	8.02	H2	23.07	0.203	-9.94
1902.50	15	16-QAM	Standard	1/74	13.54	8.08	H2	21.62	0.145	-11.39
1860.00	20	QPSK	Standard	1/0	17.84	7.98	H2	25.82	0.382	-7.19
1880.00	20	QPSK	Standard	1/0	16.25	8.02	H2	24.27	0.267	-8.74
1900.00	20	QPSK	Standard	1/99	15.77	8.08	H2	23.85	0.243	-9.16
1860.00	20	16-QAM	Standard	1/0	16.29	7.98	H2	24.27	0.267	-8.74
1880.00	20	16-QAM	Standard	1/99	15.13	8.02	H2	23.15	0.206	-9.86
1900.00	20	16-QAM	Standard	1/0	14.88	8.08	H2	22.96	0.198	-10.05

Table 6-5. EIRP Data (Band 2)

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported in the table above
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configurations were found with the EUT in the V positioning (for Bands 5 and 17) and H2 positioning (for Bands 2 and 4) The data reported in the table above was measured in this test setup.

FCC ID: IHDT56PG1	 FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 17 of 156	

6.4 Band 17 Radiated Spurious Emissions §2.1053 §27.53(g)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 706.50 MHz
 MEASURED OUTPUT POWER: 21.33 dBm = 0.136 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 34.33 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1413.00	-48.66	8.25	-40.42	H	61.75
2119.50	-56.03	9.05	-46.98	H	68.31
2826.00	-87.23	10.23	-77.00	H	98.33
3532.50	-83.82	9.83	-73.99	H	95.32
4239.00	-82.39	10.40	-71.99	H	93.33

Table 6-6. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported in the table above
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configurations were found with the EUT in the V positioning (for Bands 5 and 17) and H2 positioning (for Bands 2 and 4) The data reported in the table above was measured in this test setup.

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 18 of 156	

Band 17 Radiated Spurious Measurements (continued)
§2.1053 §27.53(g)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 710.00 MHz
 MEASURED OUTPUT POWER: 21.67 dBm = 0.147 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 34.67 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1420.00	-46.31	8.26	-38.05	H	59.72
2130.00	-55.92	9.05	-46.87	H	68.54
2840.00	-87.19	10.24	-76.95	H	98.62
3550.00	-83.90	9.90	-74.00	H	95.67
4260.00	-82.48	10.48	-72.00	H	93.67

Table 6-7. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported in the table above
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configurations were found with the EUT in the V positioning (for Bands 5 and 17) and H2 positioning (for Bands 2 and 4) The data reported in the table above was measured in this test setup.

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 19 of 156	

Band 17 Radiated Spurious Measurements (continued)
§2.1053 §27.53(g)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 713.50 MHz
 MEASURED OUTPUT POWER: 21.34 dBm = 0.136 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 34.34 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1427.00	-47.88	8.28	-39.60	H	60.94
2140.50	-56.99	9.04	-47.95	H	69.29
2854.00	-87.15	10.25	-76.91	H	98.25
3567.50	-83.98	9.98	-74.00	H	95.35
4281.00	-82.56	10.56	-72.01	H	93.35

Table 6-8. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported in the table above
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configurations were found with the EUT in the V positioning (for Bands 5 and 17) and H2 positioning (for Bands 2 and 4) The data reported in the table above was measured in this test setup.

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 20 of 156	

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
 MEASURED OUTPUT POWER: 18.36 dBm = 0.068 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 31.36 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1658.00	-57.76	8.43	-49.33	H	67.68
2487.00	-85.47	8.72	-76.75	H	95.10
3316.00	-83.24	9.18	-74.06	H	92.41
4145.00	-81.68	9.90	-71.78	H	90.14
4974.00	-81.20	11.20	-70.00	H	88.36

Table 6-9. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported in the table above
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configurations were found with the EUT in the V positioning (for Bands 5 and 17) and H2 positioning (for Bands 2 and 4) The data reported in the table above was measured in this test setup.

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 21 of 156	

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
 MEASURED OUTPUT POWER: 22.48 dBm = 0.177 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 35.48 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1673.00	-58.04	8.34	-49.70	H	72.18
2509.50	-85.36	8.73	-76.63	H	99.11
3346.00	-83.38	9.31	-74.07	H	96.54
4182.50	-82.06	10.14	-71.92	H	94.39
5019.00	-80.87	11.13	-69.74	H	92.22

Table 6-10. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported in the table above
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configurations were found with the EUT in the V positioning (for Bands 5 and 17) and H2 positioning (for Bands 2 and 4) The data reported in the table above was measured in this test setup.

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 22 of 156	

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
 MEASURED OUTPUT POWER: 17.58 dBm = 0.057 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 30.58 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1688.00	-53.60	8.24	-45.36	H	62.93
2532.00	-85.45	8.81	-76.64	H	94.21
3376.00	-83.51	9.43	-74.08	H	91.65
4220.00	-82.32	10.33	-71.99	H	89.56
5064.00	-80.47	11.04	-69.44	H	87.01

Table 6-11. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported in the table above
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configurations were found with the EUT in the V positioning (for Bands 5 and 17) and H2 positioning (for Bands 2 and 4) The data reported in the table above was measured in this test setup.

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 23 of 156	

6.6 Band 4 Radiated Spurious Emissions
§2.1053 §27.53(h) RSS-139(6.5.1)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 1712.50 MHz
 MEASURED OUTPUT POWER: 26.18 dBm = 0.415 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 39.18 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3425.00	-46.55	9.56	-36.99	H	63.17
5137.50	-81.20	10.96	-70.25	H	96.42
6850.00	-76.79	10.78	-66.00	H	92.18
8562.50	-73.78	11.22	-62.57	H	88.74
10275.00	-73.31	12.51	-60.81	H	86.98

Table 6-12. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported in the table above
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configurations were found with the EUT in the V positioning (for Bands 5 and 17) and H2 positioning (for Bands 2 and 4) The data reported in the table above was measured in this test setup.

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 24 of 156	

Band 4 Radiated Spurious Measurements (continued)
§2.1053 §27.53(h) RSS-139(6.5.1)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 1732.50 MHz
 MEASURED OUTPUT POWER: 25.14 dBm = 0.327 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 38.14 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3465.00	-48.48	9.63	-38.85	H	63.99
5197.50	-81.09	10.93	-70.16	H	95.29
6930.00	-76.68	10.88	-65.80	H	90.94
8662.50	-74.05	11.45	-62.60	H	87.74
10395.00	-73.20	12.58	-60.62	H	85.76

Table 6-13. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported in the table above
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configurations were found with the EUT in the V positioning (for Bands 5 and 17) and H2 positioning (for Bands 2 and 4) The data reported in the table above was measured in this test setup.

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 25 of 156	

Band 4 Radiated Spurious Measurements (continued)
§2.1053 §27.53(h) RSS-139(6.5.1)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 1752.50 MHz
 MEASURED OUTPUT POWER: 25.02 dBm = 0.318 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 38.02 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3505.00	-51.18	9.73	-41.46	H	66.48
5257.50	-80.97	11.00	-69.97	H	94.99
7010.00	-76.78	11.06	-65.72	H	90.74
8762.50	-74.21	11.62	-62.58	H	87.60
10515.00	-73.09	12.63	-60.46	H	85.48

Table 6-14. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported in the table above
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configurations were found with the EUT in the V positioning (for Bands 5 and 17) and H2 positioning (for Bands 2 and 4) The data reported in the table above was measured in this test setup.

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 26 of 156	

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
 MEASURED OUTPUT POWER: 25.47 dBm = 0.352 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 38.47 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3705.00	-48.96	9.89	-39.07	H	64.54
5557.50	-52.55	11.14	-41.41	H	66.88
7410.00	-75.44	10.78	-64.66	H	90.13
9262.50	-74.68	12.30	-62.38	H	87.85
11115.00	-71.89	12.89	-59.00	H	84.47

Table 6-15. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported in the table above
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configurations were found with the EUT in the V positioning (for Bands 5 and 17) and H2 positioning (for Bands 2 and 4) The data reported in the table above was measured in this test setup.

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 27 of 156	

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
 MEASURED OUTPUT POWER: 25.15 dBm = 0.327 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 38.15 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3760.00	-52.58	9.70	-42.88	H	68.03
5640.00	-52.57	11.25	-41.32	H	66.47
7520.00	-75.49	10.99	-64.51	H	89.65
9400.00	-74.45	12.26	-62.19	H	87.34
11280.00	-71.45	12.95	-58.49	H	83.64

Table 6-16. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported in the table above
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configurations were found with the EUT in the V positioning (for Bands 5 and 17) and H2 positioning (for Bands 2 and 4) The data reported in the table above was measured in this test setup.

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 28 of 156	

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
 MEASURED OUTPUT POWER: 26.24 dBm = 0.421 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 39.24 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3815.00	-51.49	9.51	-41.97	H	68.21
5722.50	-53.09	11.29	-41.79	H	68.03
7630.00	-75.78	11.20	-64.59	H	90.83
9537.50	-74.34	12.30	-62.04	H	88.28
11445.00	-71.04	13.08	-57.96	H	84.20

Table 6-17. Radiated Spurious Data

NOTES:

1. This device was tested under all bandwidths, and RB configurations, and modulations. This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported in the table above
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing upright. The worst case test configurations were found with the EUT in the V positioning (for Bands 5 and 17) and H2 positioning (for Bands 2 and 4) The data reported in the table above was measured in this test setup.

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 29 of 156	

6.8 Band 17 Frequency Stability Measurements

\$2.1055 \$22.355 \$27.54



OPERATING FREQUENCY: 710,000,000 Hz
 CHANNEL: 23090
 REFERENCE VOLTAGE: 3.8 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	709,999,990	-10	-0.0000014
100 %		- 30	709,999,991	-9	-0.0000012
100 %		- 20	709,999,998	-2	-0.0000003
100 %		- 10	709,999,995	-5	-0.0000007
100 %		0	709,999,999	-1	-0.0000002
100 %		+ 10	709,999,981	-19	-0.0000027
100 %		+ 20	710,000,000	0	0.0000000
100 %		+ 30	709,999,987	-13	-0.0000018
100 %		+ 40	709,999,986	-14	-0.0000020
100 %		+ 50	709,999,990	-10	-0.0000015
115 %	4.37	+ 20	709,999,991	-9	-0.0000013
BATT. ENDPOINT	3.40	+ 20	709,999,986	-14	-0.0000020

Table 6-18. Frequency Stability Data (Band 17)

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: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 30 of 156	

Band 17 Frequency Stability Measurements (Cont'd)
§2.1055 §22.355 §27.54

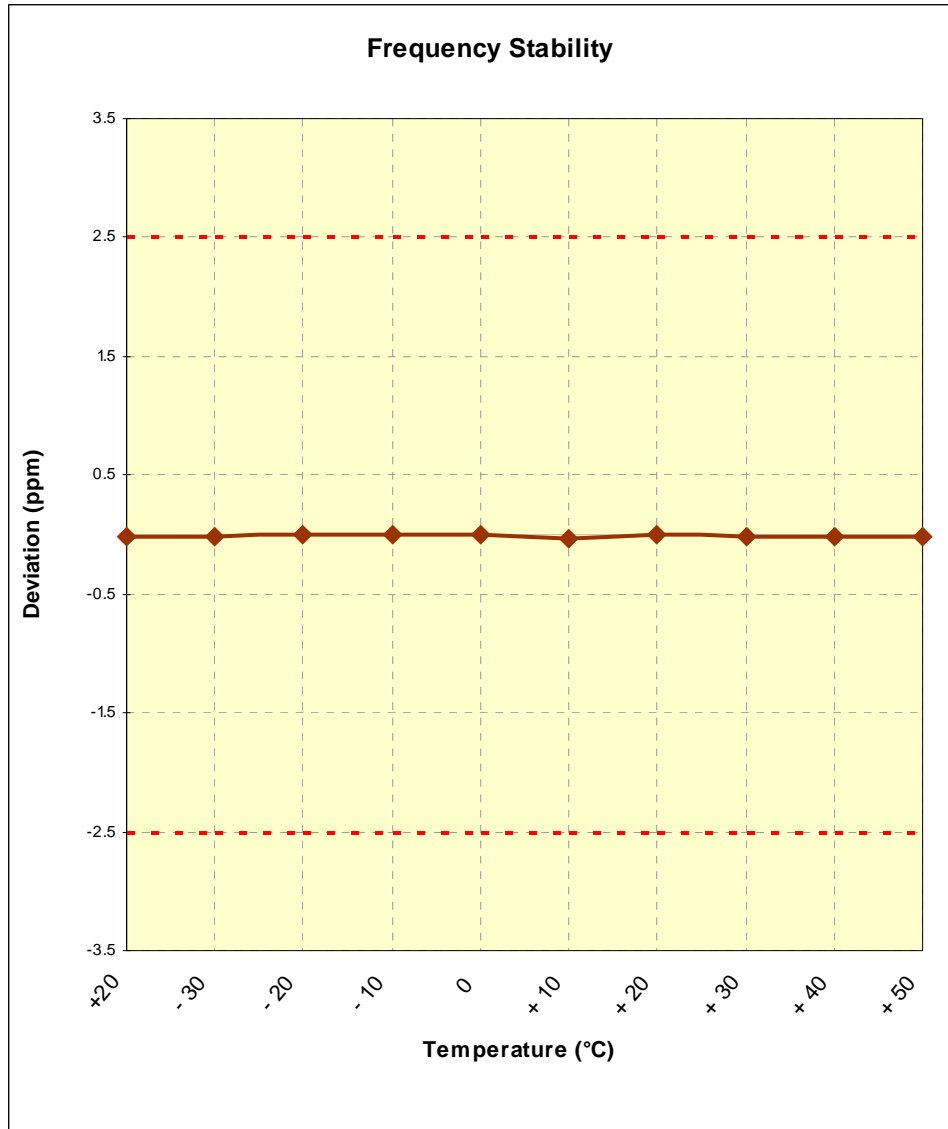




Figure 6-1. Frequency Stability Graph (Band 17)

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 31 of 156	

6.9 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)	836,499,999	-1	-0.0000001
100 %		- 30	836,499,988	-12	-0.0000015
100 %		- 20	836,499,999	-1	-0.0000001
100 %		- 10	836,500,000	0	-0.0000001
100 %		0	836,499,989	-11	-0.0000014
100 %		+ 10	836,499,985	-15	-0.0000018
100 %		+ 20	836,499,991	-9	-0.0000011
100 %		+ 30	836,499,981	-19	-0.0000023
100 %		+ 40	836,499,994	-6	-0.0000007
100 %		+ 50	836,499,997	-3	-0.0000004
115 %	4.37	+ 20	836,499,980	-20	-0.0000024
BATT. ENDPOINT	3.40	+ 20	836,499,993	-7	-0.0000009

Table 6-19. 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: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 32 of 156	

Band 5 Frequency Stability Measurements (Cont'd)
§2.1055 §22.355 RSS-132(4.3)

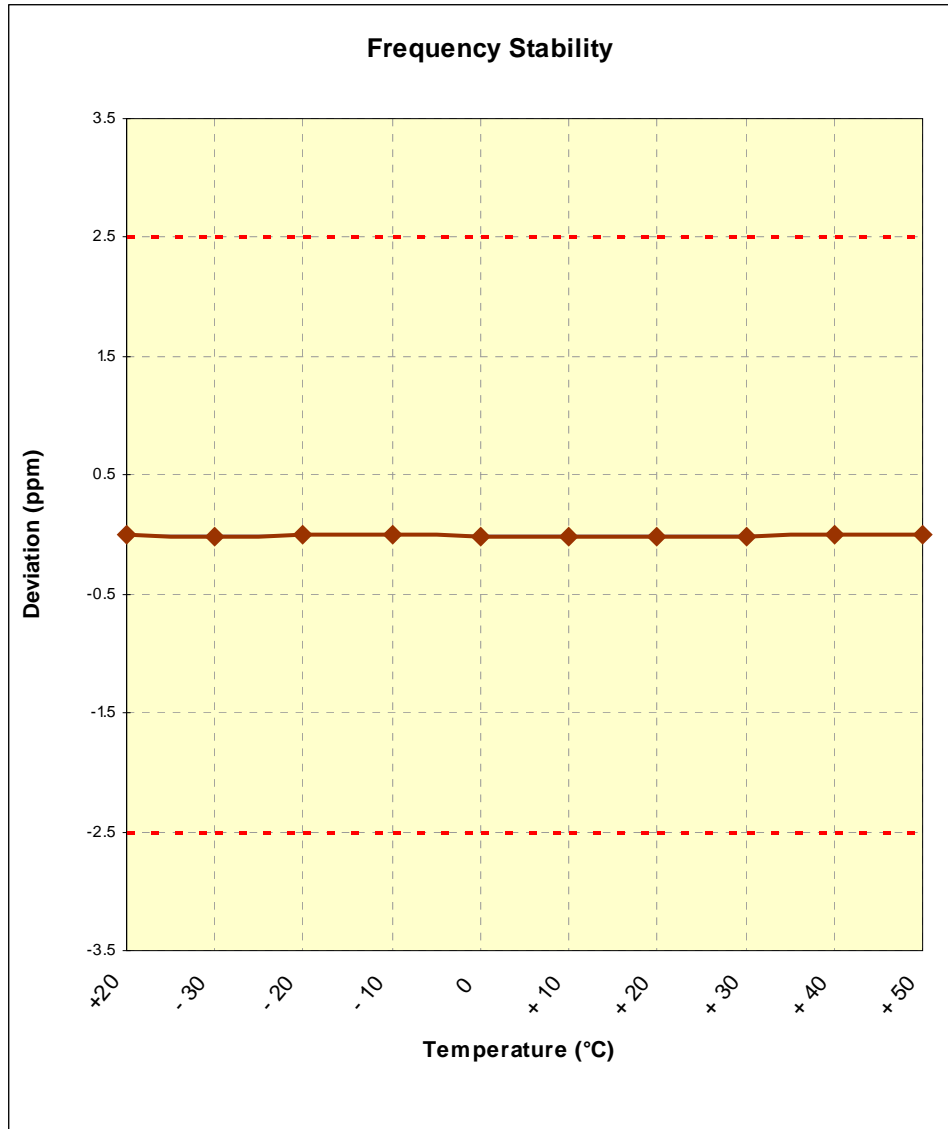




Figure 6-2. Frequency Stability Graph (Band 5)

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 33 of 156	

6.10 Band 4 Frequency Stability Measurements

§2.1055 §27.54 RSS-139(6.3)



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)	1,732,499,995	-5	-0.0000003
100 %		- 30	1,732,499,993	-7	-0.0000004
100 %		- 20	1,732,499,988	-12	-0.0000007
100 %		- 10	1,732,499,997	-3	-0.0000002
100 %		0	1,732,499,995	-5	-0.0000003
100 %		+ 10	1,732,499,989	-11	-0.0000007
100 %		+ 20	1,732,499,986	-14	-0.0000008
100 %		+ 30	1,732,499,985	-15	-0.0000008
100 %		+ 40	1,732,499,991	-9	-0.0000005
100 %		+ 50	1,732,499,997	-3	-0.0000002
115 %	4.37	+ 20	1,732,499,988	-12	-0.0000007
BATT. ENDPOINT	3.40	+ 20	1,732,499,996	-4	-0.0000002

Table 6-20. 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: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 34 of 156	

Band 4 Frequency Stability Measurements (Cont'd)
§2.1055 §§27.54 RSS-139(6.3)

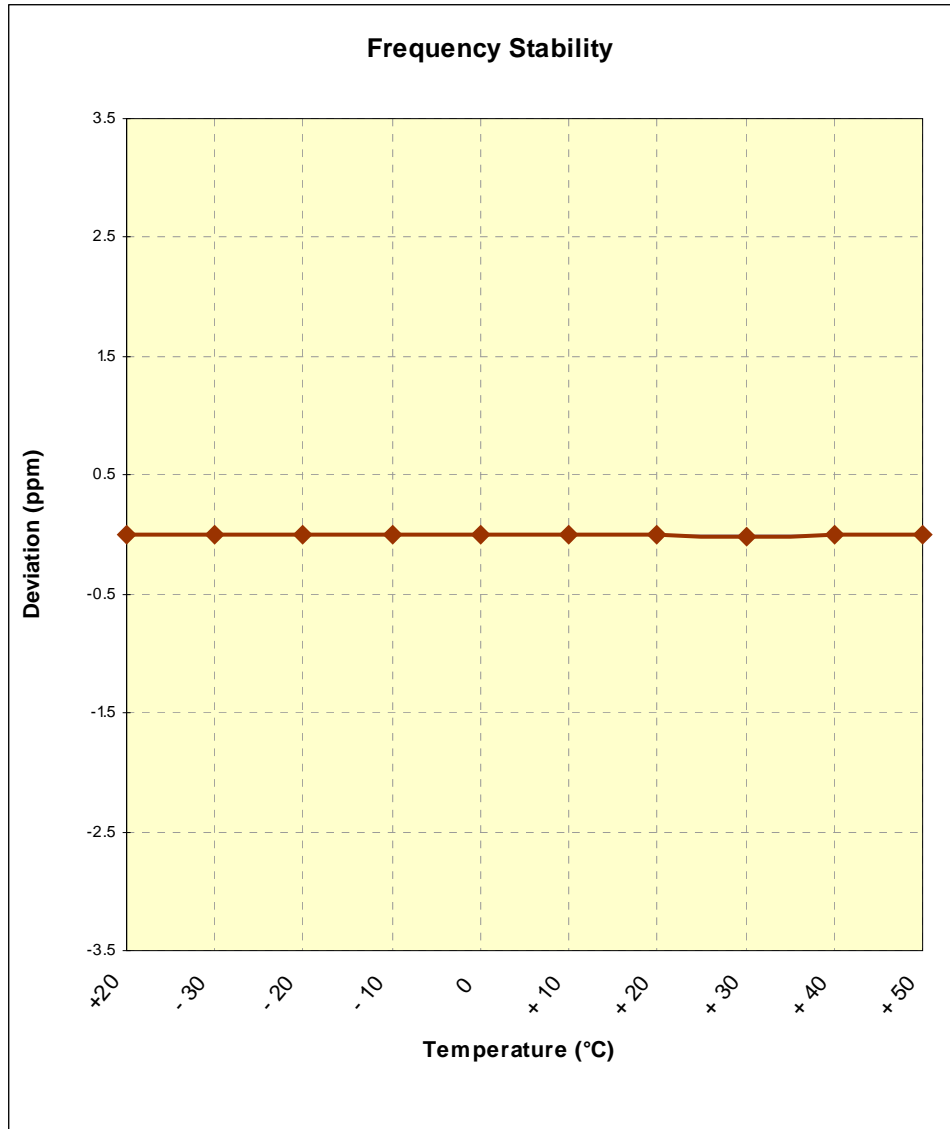




Figure 6-3. Frequency Stability Graph (Band 4)

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 35 of 156	

6.11 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)	1,879,999,991	-9	-0.0000005
100 %		- 30	1,879,999,995	-5	-0.0000003
100 %		- 20	1,879,999,983	-17	-0.0000009
100 %		- 10	1,879,999,982	-18	-0.0000010
100 %		0	1,879,999,988	-12	-0.0000006
100 %		+ 10	1,879,999,988	-12	-0.0000006
100 %		+ 20	1,879,999,983	-17	-0.0000009
100 %		+ 30	1,879,999,996	-4	-0.0000002
100 %		+ 40	1,879,999,981	-19	-0.0000010
100 %		+ 50	1,879,999,987	-13	-0.0000007
115 %		4.37	+ 20	1,879,999,980	-20
BATT. ENDPOINT	3.40	+ 20	1,879,999,990	-10	-0.0000005

Table 6-21. 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: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 36 of 156	

Band 2 Frequency Stability Measurements (Cont'd)
§2.1055 §24.235 RSS-133(6.3)

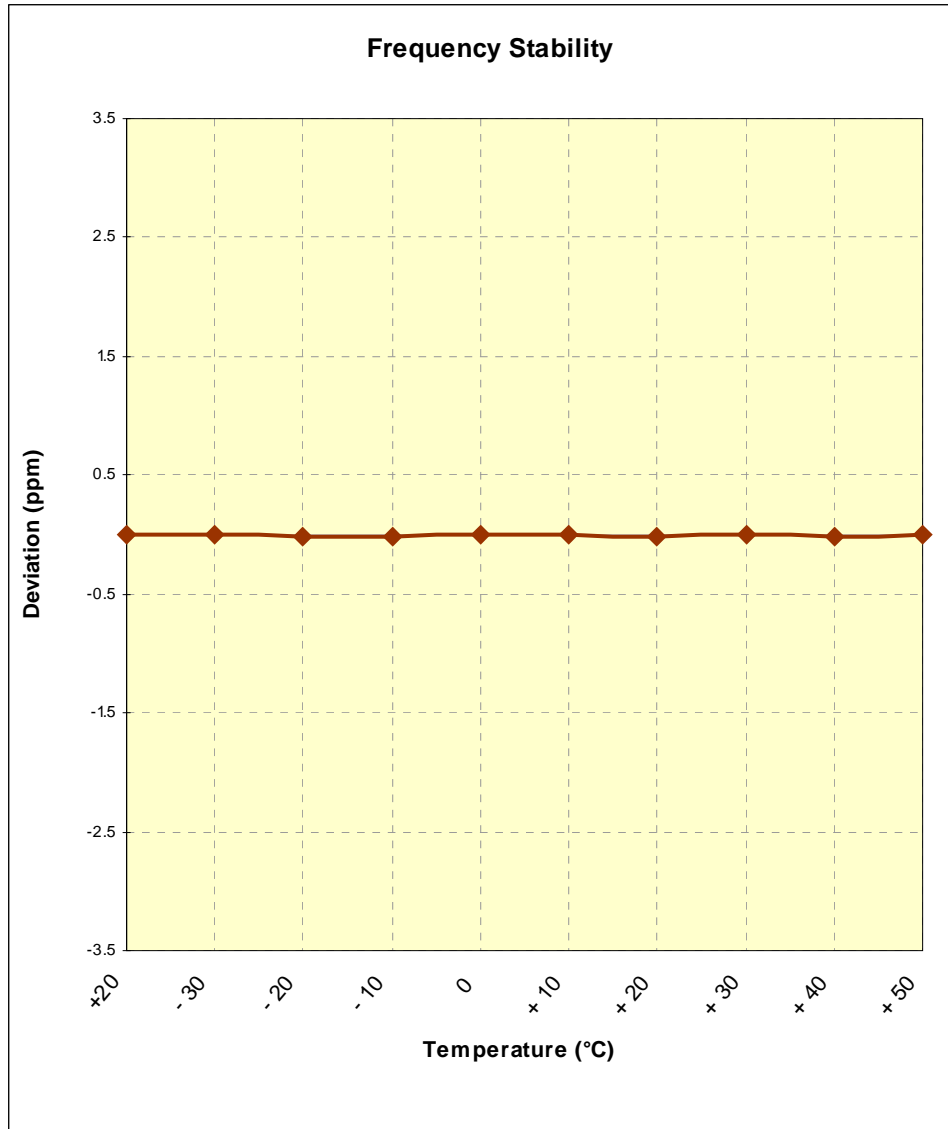


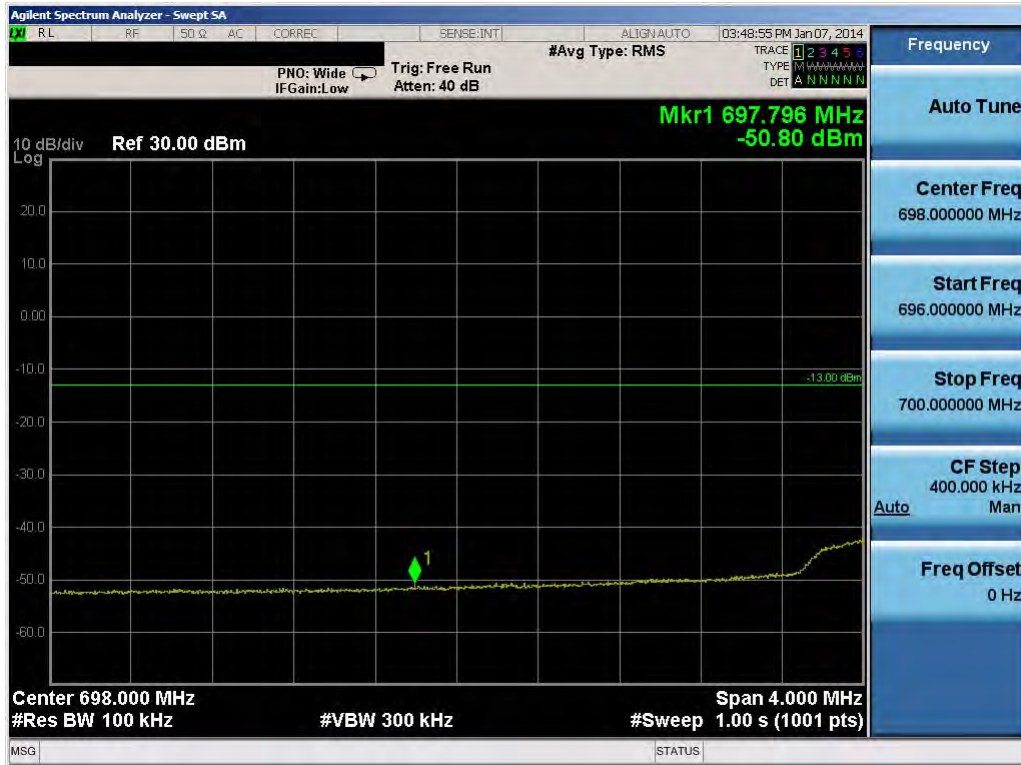


Figure 6-4. Frequency Stability Graph (Band 2)

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 37 of 156	

7.0 BAND 17 PLOTS OF EMISSIONS

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

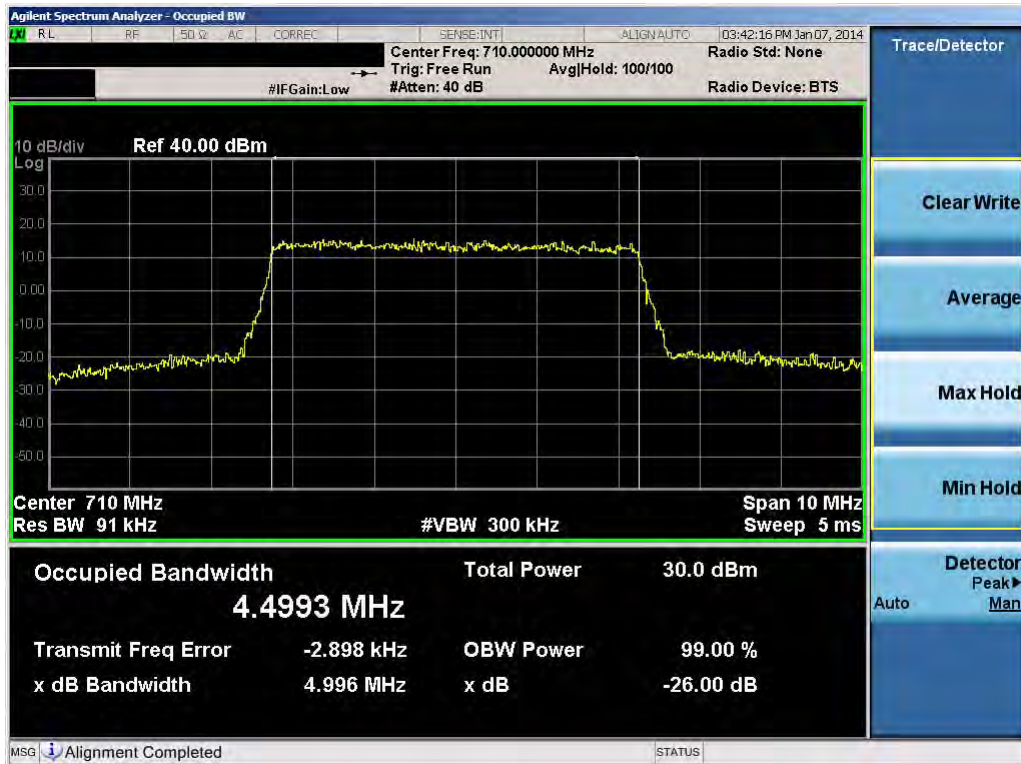


Plot 7-1. Lower Band Edge Plot (5.0MHz QPSK – RB Size 25)

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset		Page 38 of 156

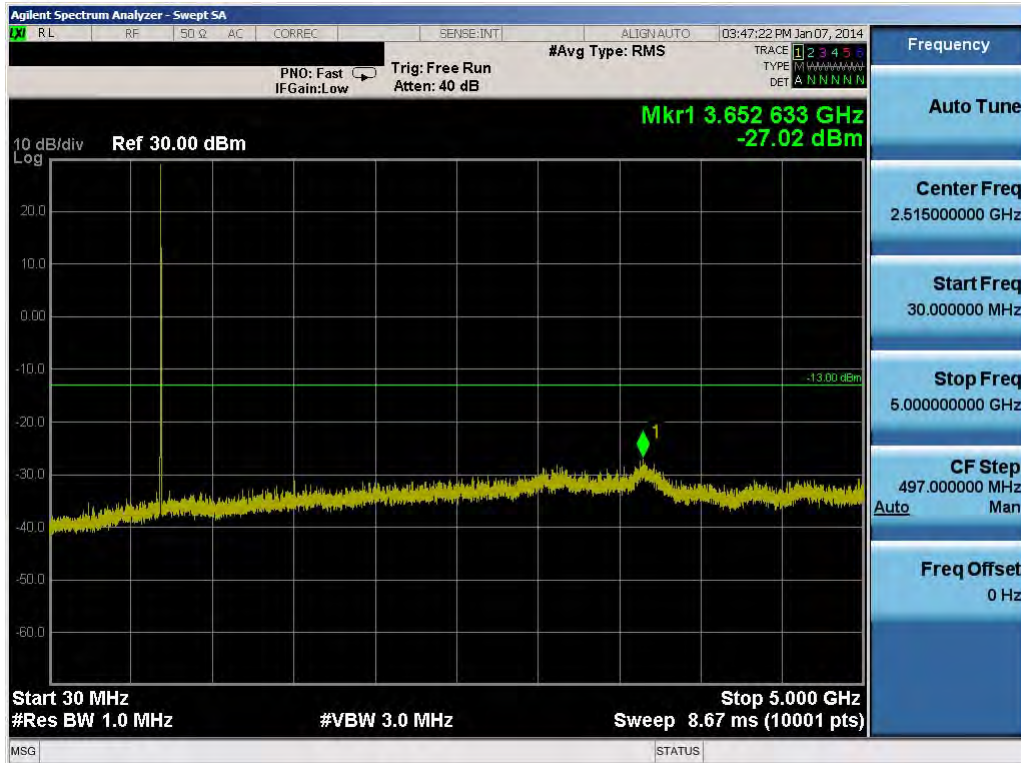


Plot 7-2. Occupied Bandwidth Plot (5.0MHz QPSK – RB Size 25)

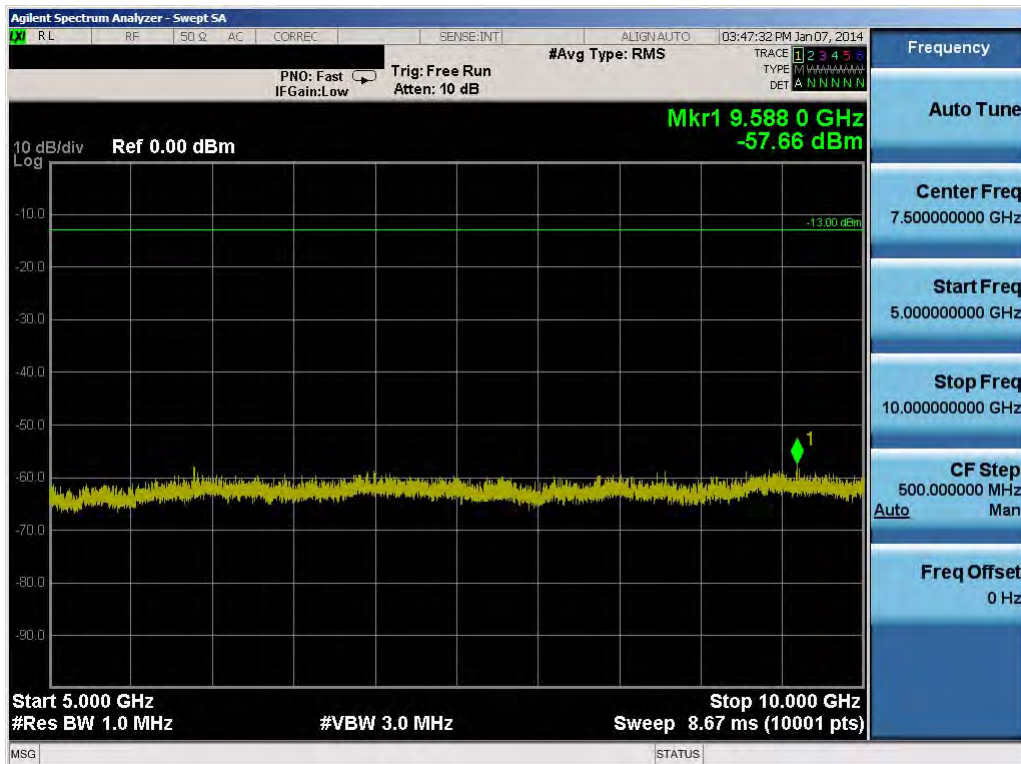


Plot 7-3. Occupied Bandwidth Plot (5.0MHz 16-QAM – RB Size 25)

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset		Page 39 of 156

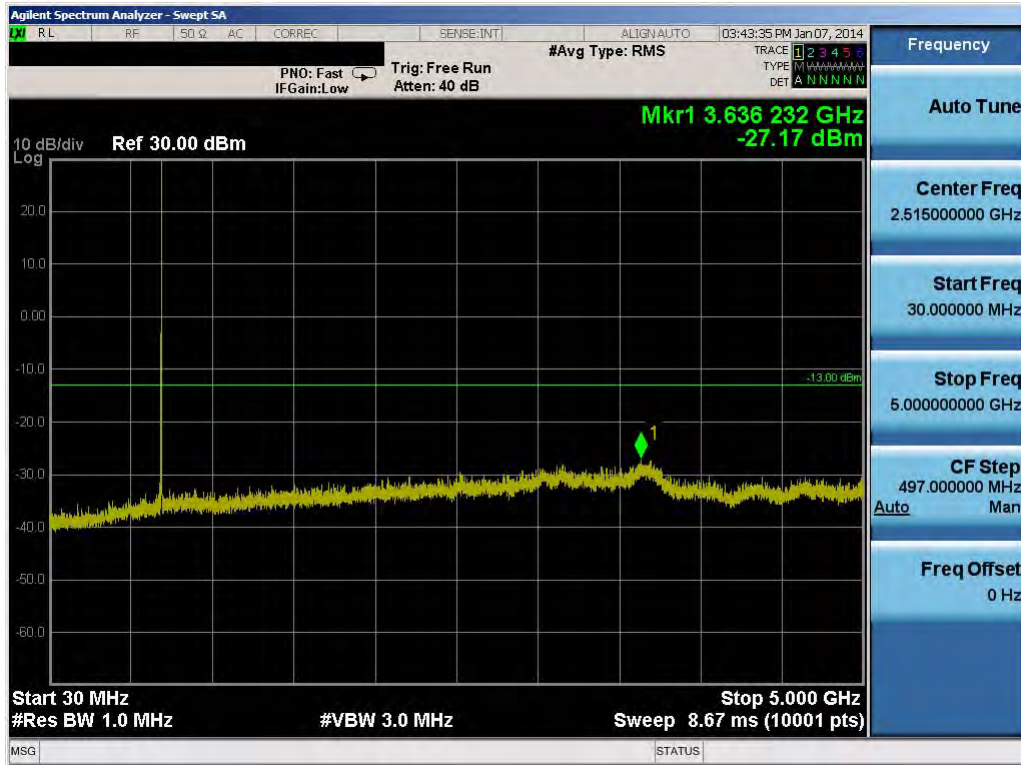


Plot 7-4. Conducted Spurious Plot (5.0MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

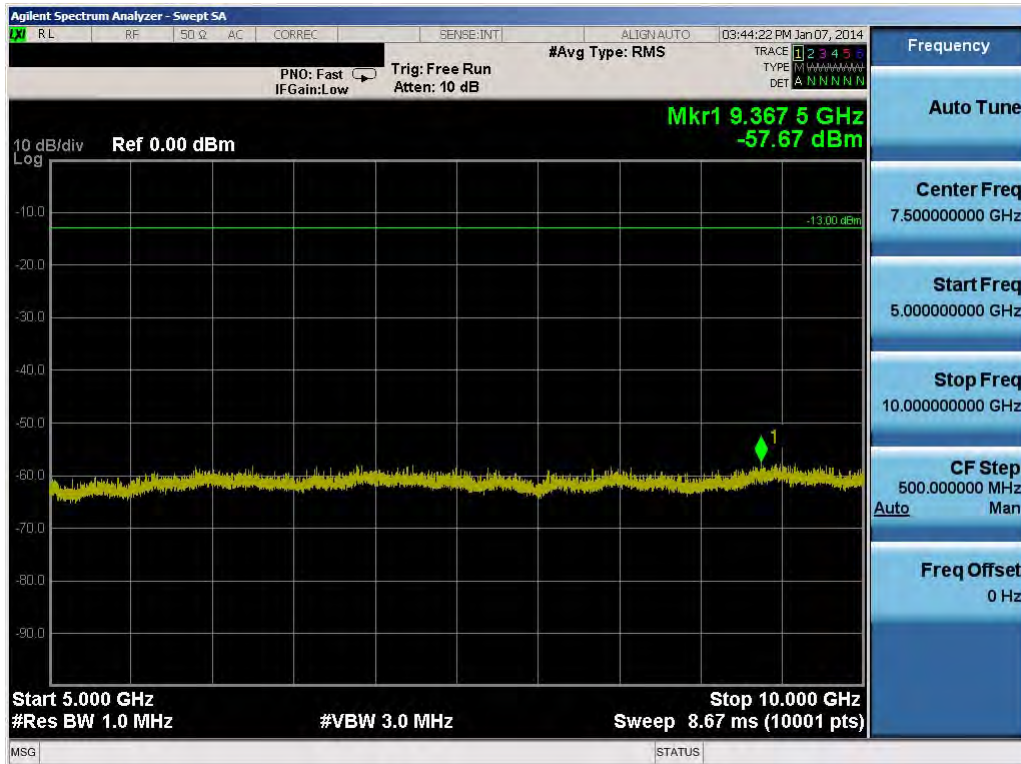


Plot 7-5. Conducted Spurious Plot (5.0MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset		Page 40 of 156

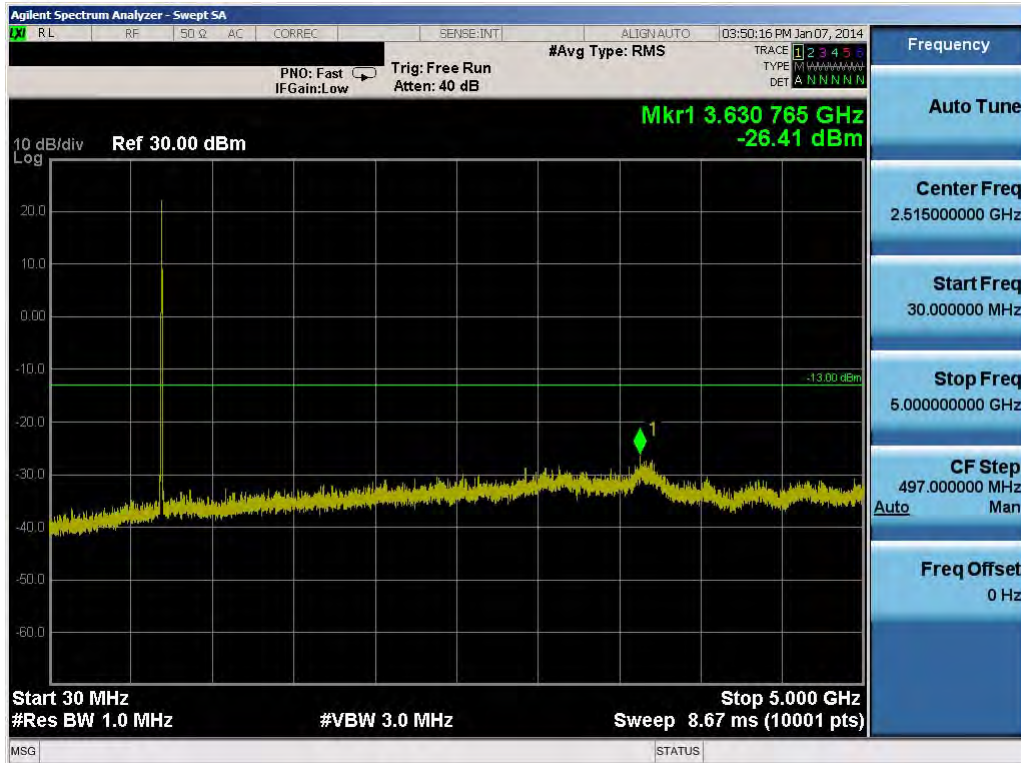


Plot 7-6. Conducted Spurious Plot (5.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

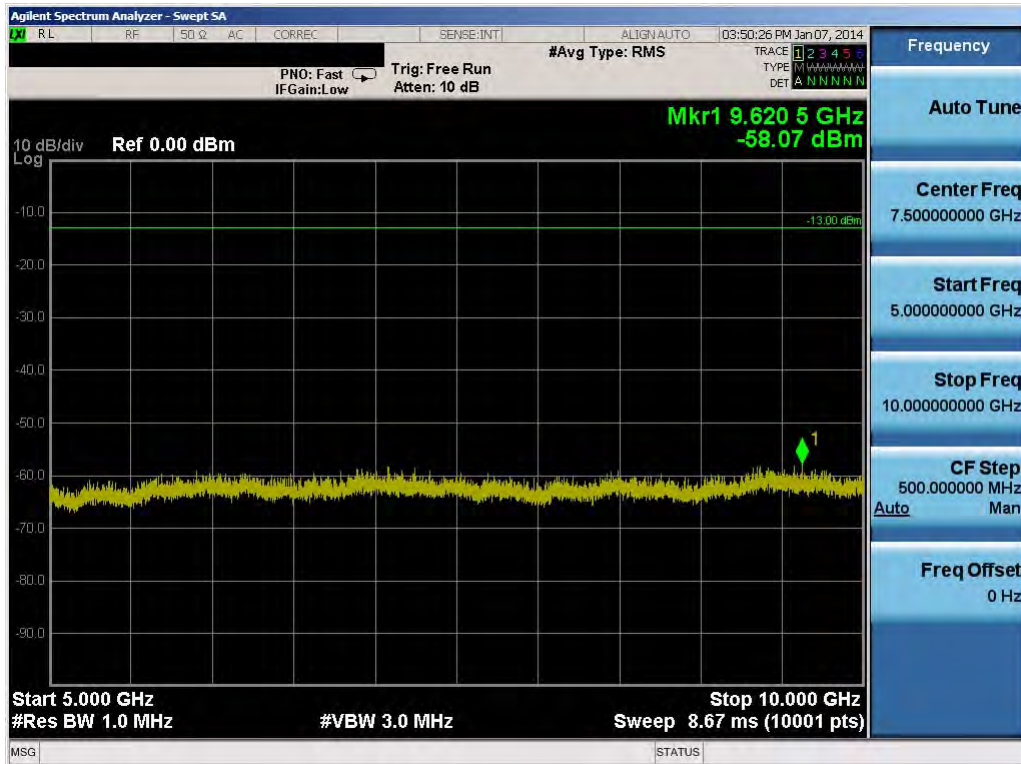


Plot 7-7. Conducted Spurious Plot (5.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset		Page 41 of 156



Plot 7-8. Conducted Spurious Plot (5.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)



Plot 7-9. Conducted Spurious Plot (5.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset		Page 42 of 156



Plot 7-10. Upper Band Edge Plot (5.0MHz QPSK – RB Size 25)



Plot 7-11. Lower Band Edge Plot (10.0MHz QPSK – RB Size 50)

FCC ID: IHDT56PG1	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	MOTOROLA	Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset		Page 43 of 156

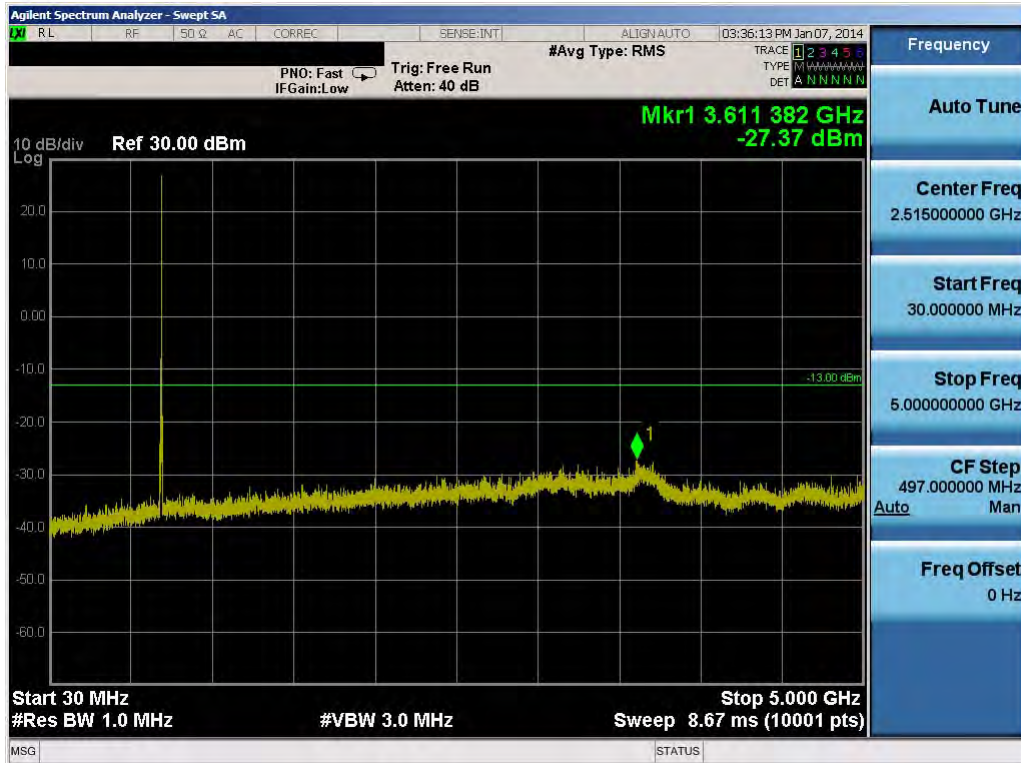


Plot 7-12. Occupied Bandwidth Plot (10.0MHz QPSK – RB Size 50)

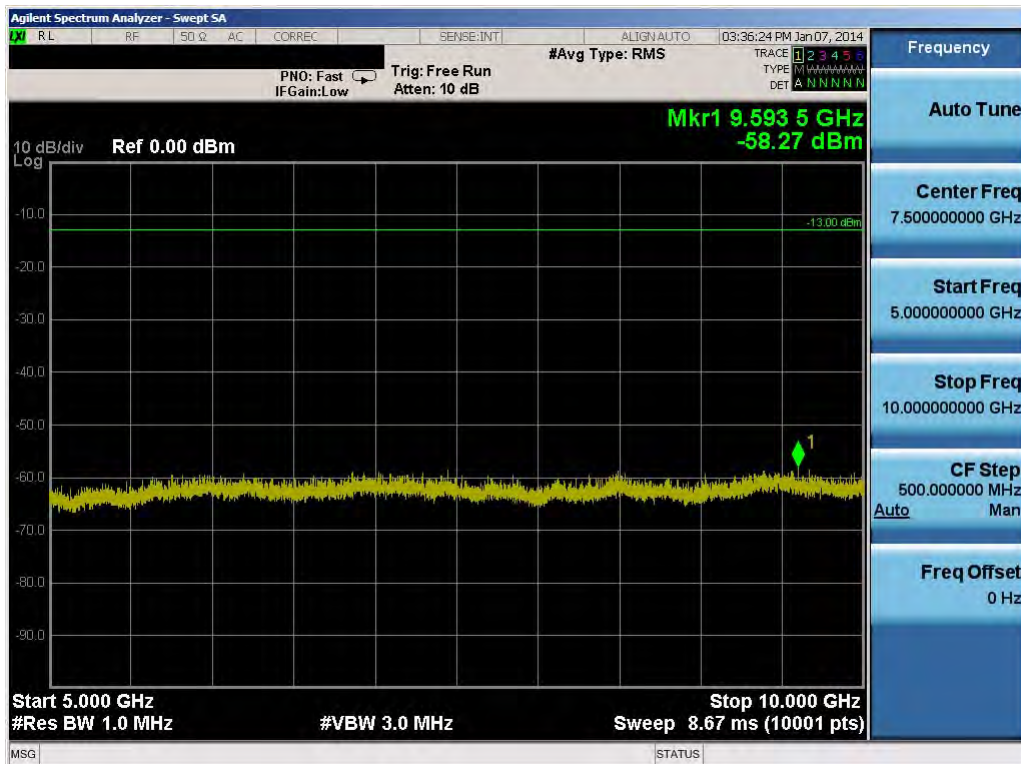


Plot 7-13. Occupied Bandwidth Plot (10.0MHz 16-QAM – RB Size 50)

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset		Page 44 of 156

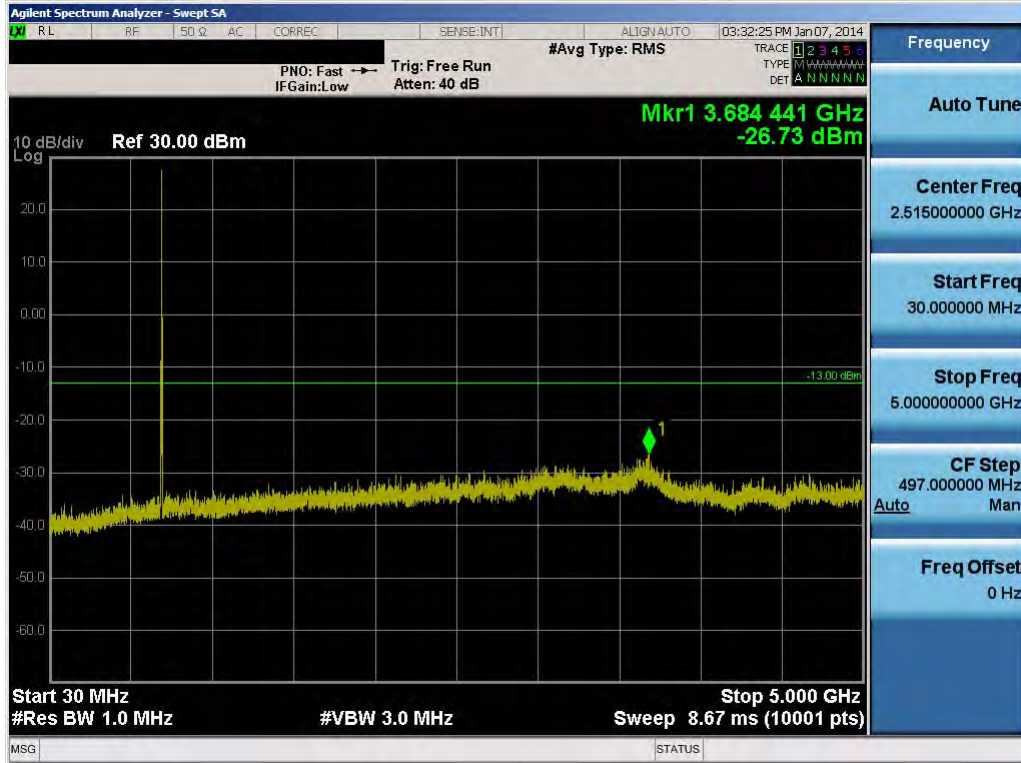


Plot 7-14. Conducted Spurious Plot (10.0MHz QPSK – RB Size 1, RB Offset 0– Low Channel)

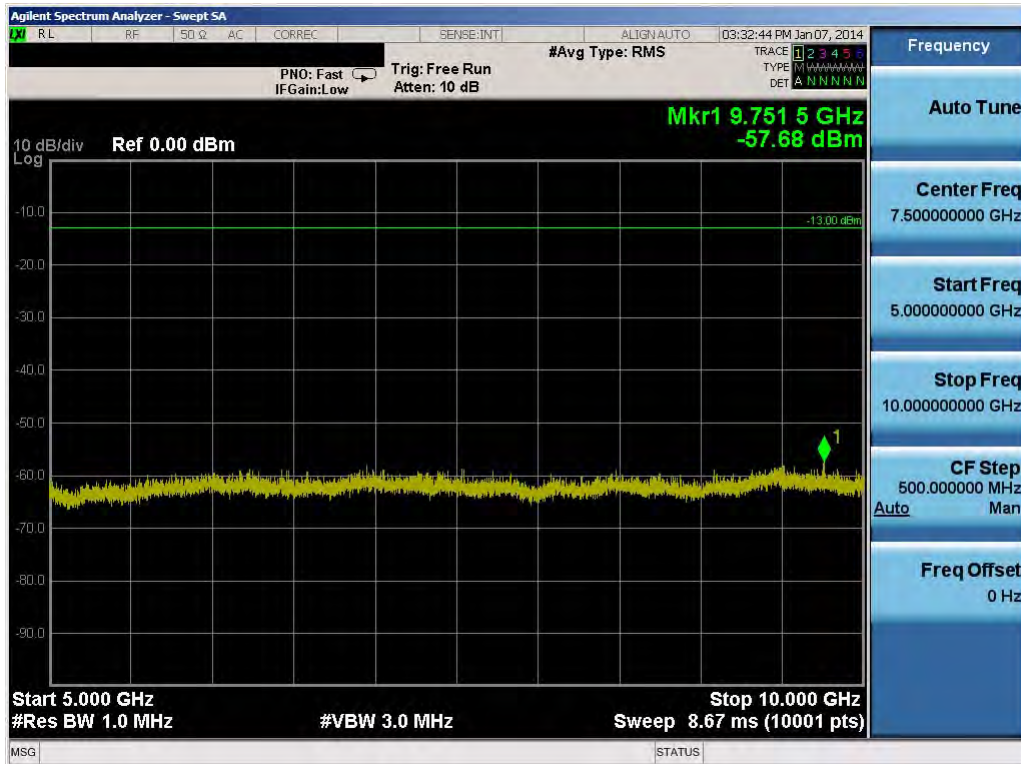


Plot 7-15. Conducted Spurious Plot (10.0MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)



FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset		Page 45 of 156

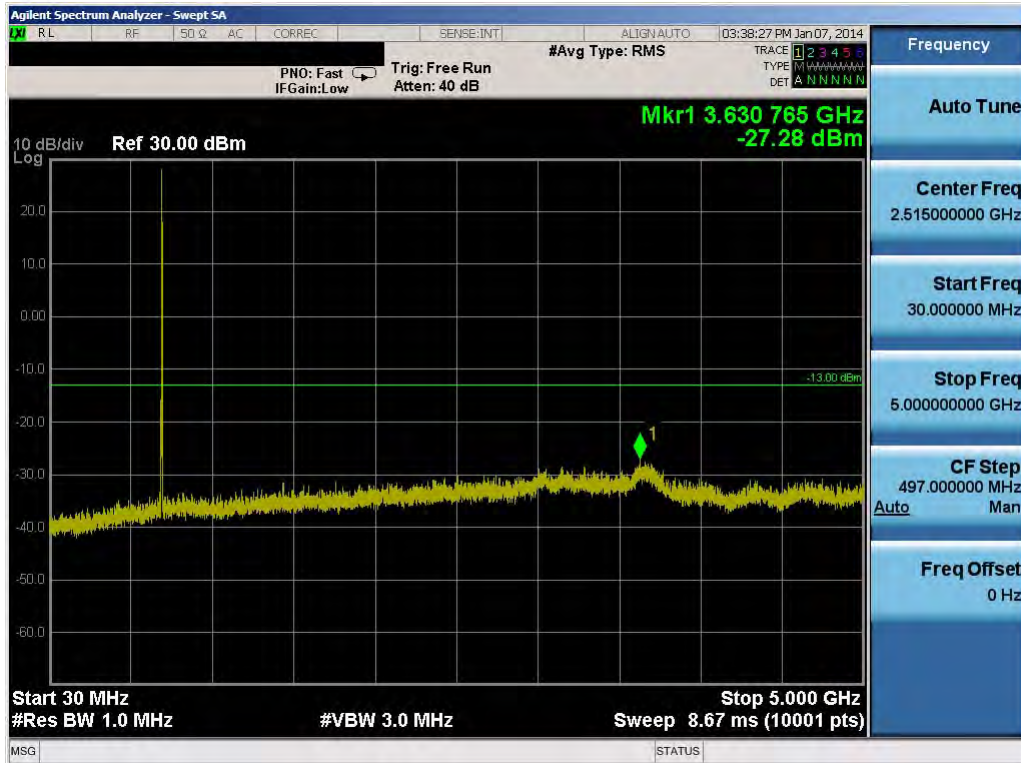


Plot 7-16. Conducted Spurious Plot (10.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

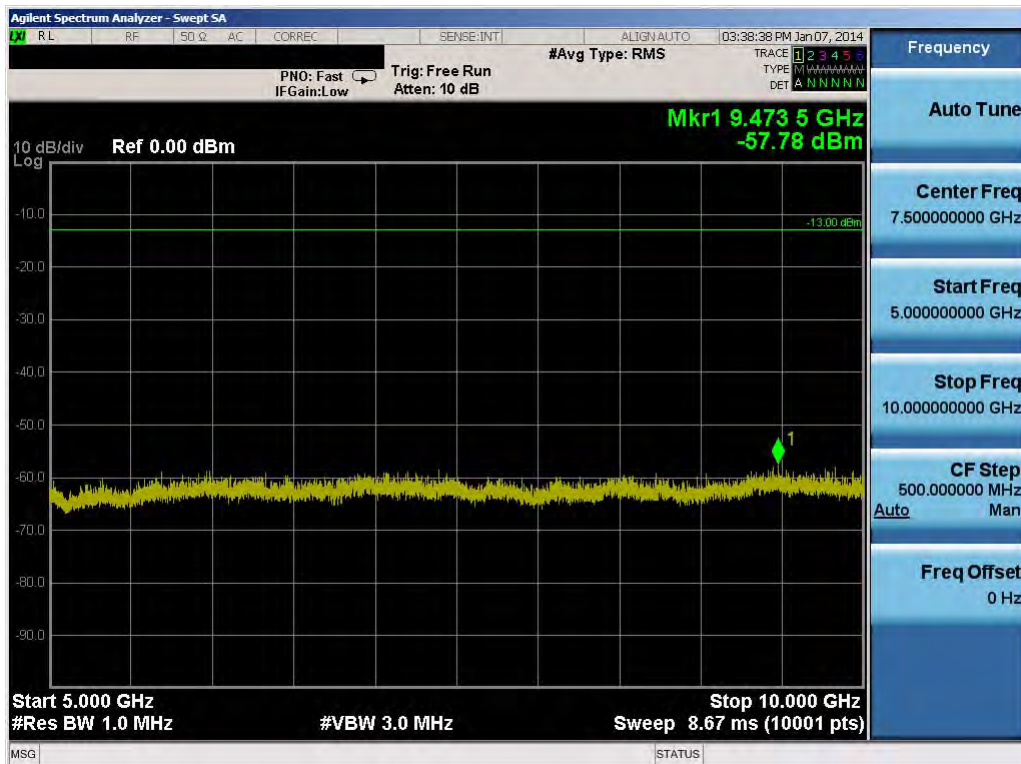


Plot 7-17. Conducted Spurious Plot (10.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset		Page 46 of 156



Plot 7-18. Conducted Spurious Plot (10.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)





Plot 7-19. Conducted Spurious Plot (10.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: IHDT56PG1	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	MOTOROLA	Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset		Page 47 of 156



Plot 7-20. Upper Band Edge Plot (10.0MHz QPSK – RB Size 50)

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 48 of 156	

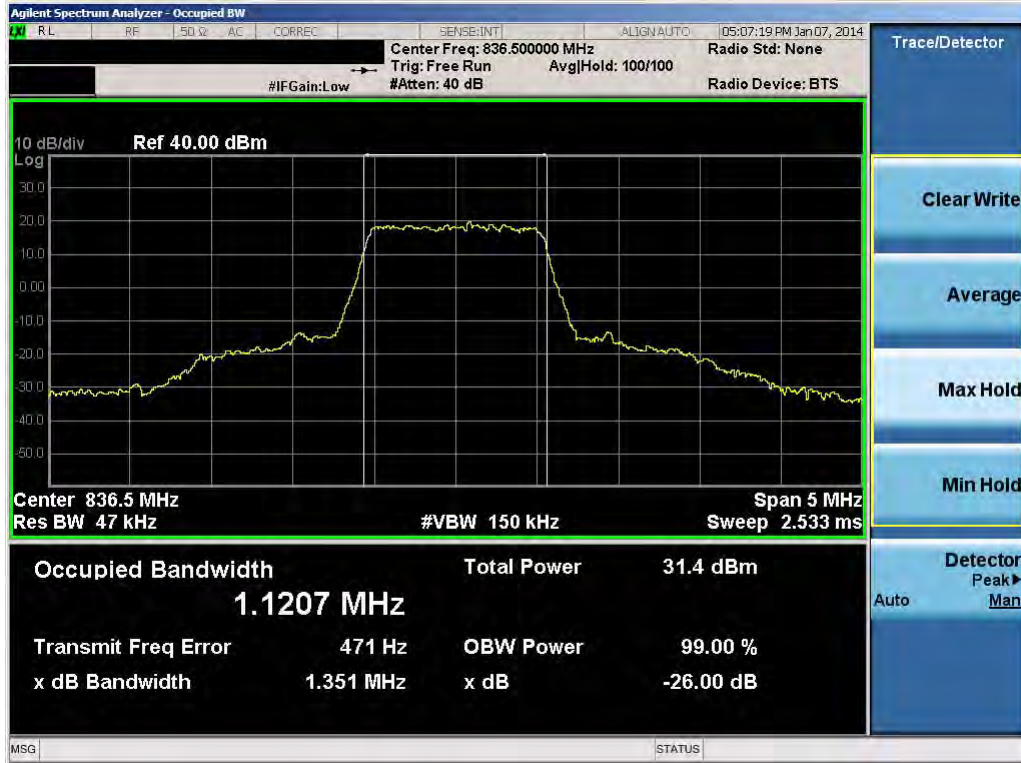
8.0 BAND 5 PLOTS OF EMISSIONS

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



Plot 8-1. Lower Band Edge Plot (1.4MHz QPSK – RB Size 6)

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset	Page 49 of 156	

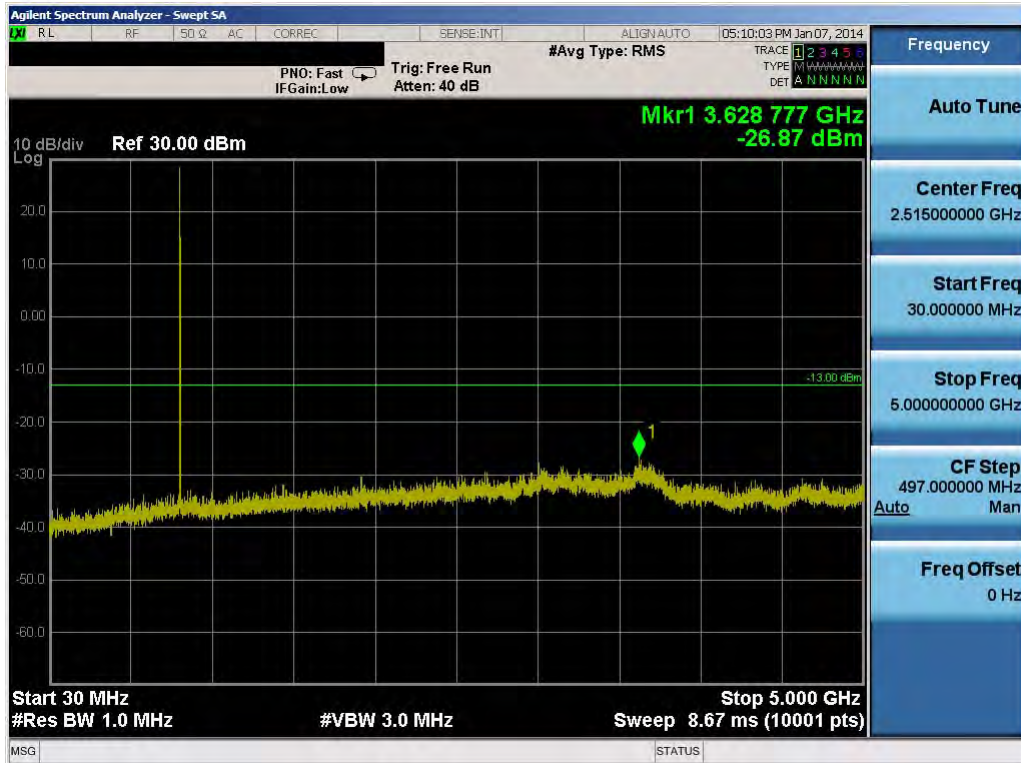


Plot 8-2. Occupied Bandwidth Plot (1.4MHz QPSK – RB Size 6)

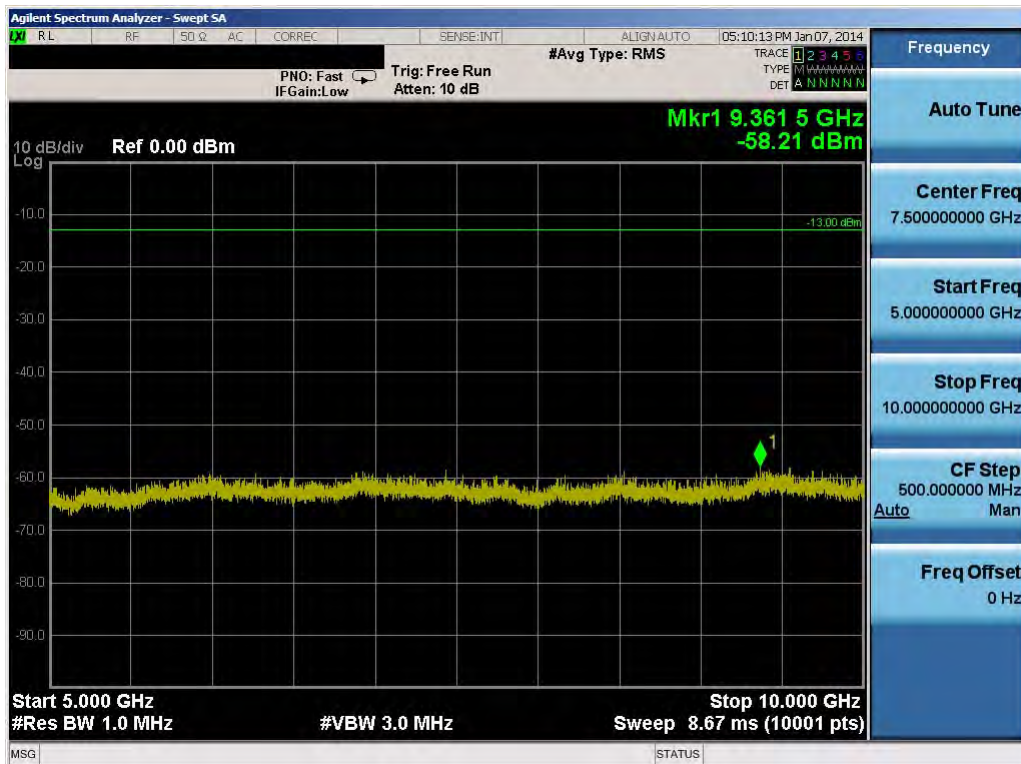


Plot 8-3. Occupied Bandwidth Plot (1.4MHz 16-QAM – RB Size 6)

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset		Page 50 of 156

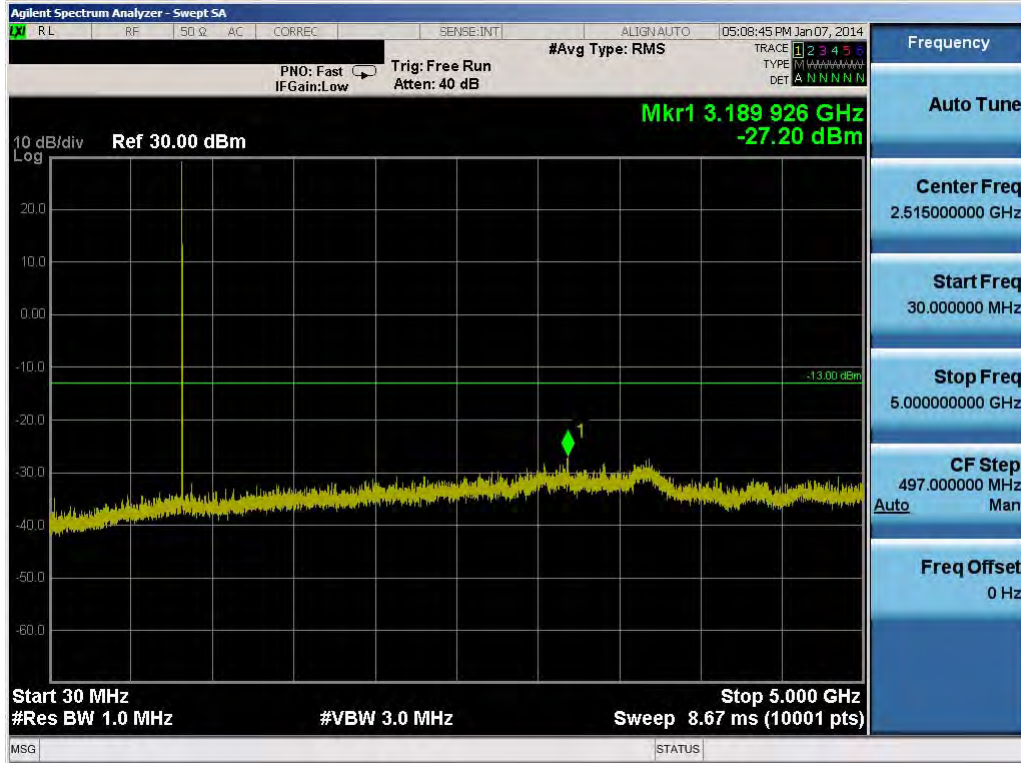


Plot 8-4. Conducted Spurious Plot (1.4MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

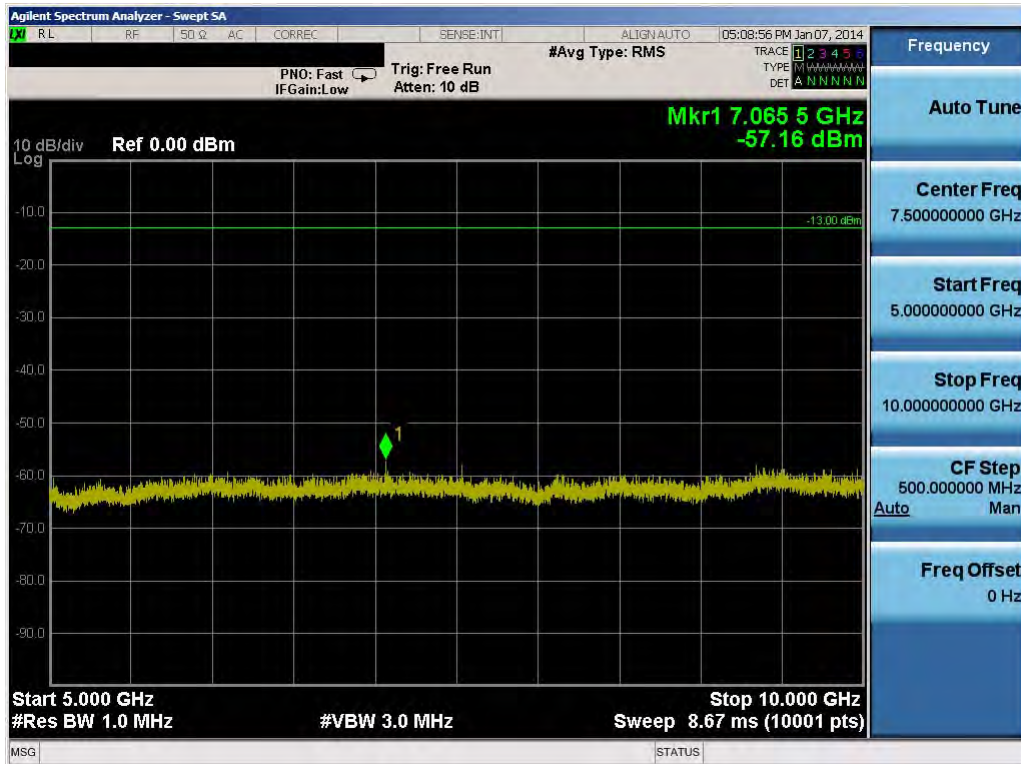


Plot 8-5. Conducted Spurious Plot (1.4MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset		Page 51 of 156



Plot 8-6. Conducted Spurious Plot (1.4MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)



Plot 8-7. Conducted Spurious Plot (1.4MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: IHDT56PG1		FCC Pt. 22, 24 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1312232487.IHD	Test Dates: 1/2 -1/8/2014	EUT Type: Portable Handset		Page 52 of 156