

**MEASUREMENT REPORT****FCC PART 15.407 / IC RSS-210 802.11a/n (UNII)****Applicant Name:**

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

**Date of Testing:**

March 14-26, 2012

**Test Site/Location:**

PCTEST Lab, Columbia, MD, USA

**Test Report Serial No.:**

OY1203080272.A3L

**FCC ID:**

**A3LSCHI405U**

**APPLICANT:**

**Samsung Electronics, Co. Ltd.**

**Application Type:**

Certification

**Model(s):**

SCH-I405

**EUT Type:**

Portable Handset

**FCC Classification:**

Unlicensed National Information Infrastructure (UNII)

**FCC Rule Part(s):**

Part 15.407

**IC Specification(s):**

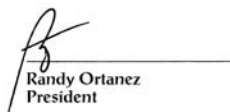
RSS-210 Issue 8

| Mode    | UNII Band | Tx Frequency (MHz) | Conducted Power |                  |
|---------|-----------|--------------------|-----------------|------------------|
|         |           |                    | Max. Power (mW) | Max. Power (dBm) |
| 802.11a | 1         | 5180 - 5240        | 24.434          | 13.88            |
|         | 2         | 5260 - 5320        | 24.378          | 13.87            |
|         | 3         | 5500 - 5700        | 23.281          | 13.67            |
| 802.11n | 1         | 5180 - 5240        | 17.989          | 12.55            |
|         | 2         | 5260 - 5320        | 17.906          | 12.53            |
|         | 3         | 5500 - 5700        | 16.943          | 12.29            |

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 ANSI C-63.4-2003. Test results reported herein relate only to the item(s) tested.

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

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



Randy Ortanez  
President



|                                             |                                                                                                                                   |                                                                         |                                                                                                      |                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|----------------------------------------|
| <b>FCC ID:</b> A3LSCHI405U                  |  <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | <b>FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)</b> |  <b>SAMSUNG</b> | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Report S/N:</b><br>OY1203080272.A3L | <b>Test Dates:</b><br>March 14-26, 2012                                                                                           | <b>EUT Type:</b><br>Portable Handset                                    |                                                                                                      | Page 1 of 72                           |

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| <b>Test Report S/N:</b><br>0Y1203080272.A3L | <b>Test Dates:</b><br>March 14-26, 2012                                             | <b>EUT Type:</b><br>Portable Handset                                        |                                                                                       | Page 2 of 72                           |



# MEASUREMENT REPORT

## FCC Part 15.407



### § 2.1033 General Information

**APPLICANT:** Samsung Electronics, Co. Ltd.

**APPLICANT ADDRESS:** 18600 Broadwick St.  
Rancho Dominguez, CA 90220, United States

**TEST SITE:** PCTEST ENGINEERING LABORATORY, INC.

**TEST SITE ADDRESS:** 6660-B Dobbin Road, Columbia, MD 21045 USA

**FCC RULE PART(S):** Part 15.407

**IC SPECIFICATION(S):** RSS-210 Issue 8

**MODEL NAME:** SCH-I405

**FCC ID:** A3LSCHI405U

**Test Device Serial No.:** 17 ☐ Production ☒ Pre-Production ☐ Engineering

**FCC CLASSIFICATION:** Unlicensed National Information Infrastructure (UNII)

**DATE(S) OF TEST:** March 14-26, 2012

**TEST REPORT S/N:** 0Y1203080272.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 (EMC) 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 PCTEST Test Location

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

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility in New Concept Business Park, Guilford Industrial Park, Columbia, Maryland. The site address is 6660-B Dobbin Road, Columbia, MD 21045. The test site is one of the highest points in the Columbia area with an elevation of 390 feet above mean sea level. The site coordinates are 39° 11'15" N latitude and 76° 49'38" W longitude. The facility is 1.5 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. There are no FM or TV transmitters within 15 miles of the site. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2003 on January 28, 2009.

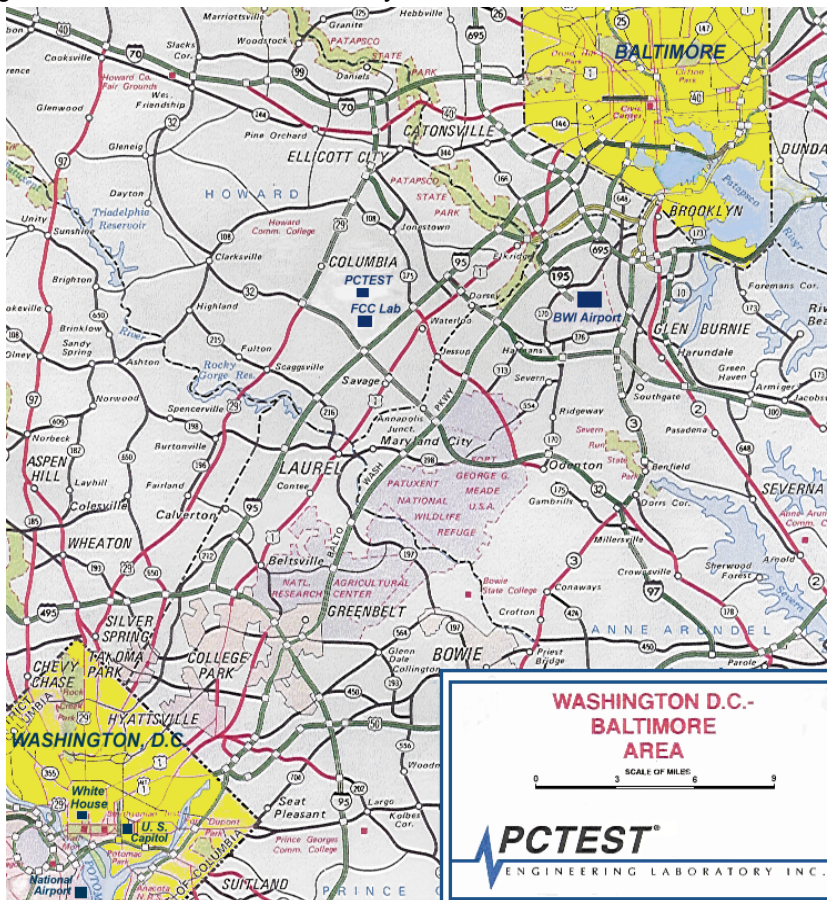


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
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## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSCHI405U**. The EUT consisted of the following component(s):

| Manufacturer / Model      | FCC ID      | Description      |
|---------------------------|-------------|------------------|
| Samsung / Model: SCH-I405 | A3LSCHI405U | Portable Handset |

Table 2-1. EUT Equipment Description

### 2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA/EvDO Rev0/A (BC0, BC1); Band 2,5 LTE with 1.4/3/5MHz Bandwidth and Band 4,12 LTE with 5/10MHz Bandwidth; 802.11a/b/g/n WLAN; 802.11a/n UNII; Bluetooth (1x,EDR)

### 2.3 EMI Suppression Device(s)/Modifications

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

### 2.4 Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

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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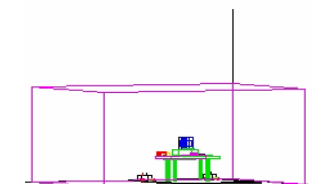
## 3.0 DESCRIPTION OF TEST

### 3.1 Evaluation Procedure

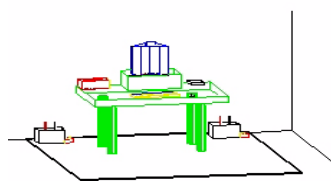
The measurement procedures described in the American National Standard for Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz (ANSI C63.4-2003), and the guidance provided in KDB 789033 were used in the measurement of **Samsung Portable Handset FCC ID: A3LSCHI405U**.

Deviation from measurement procedure.....None

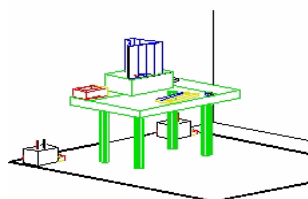
### 3.2 Conducted Emissions



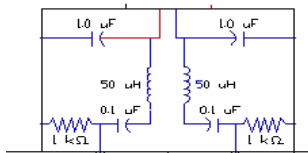
**Figure 3-1. Shielded Enclosure Line-Conducted Test Facility**



**Figure 3-2. Line Conducted Emission Test Set-Up**



**Figure 3-3. Wooden Table & Bonded LISNs**



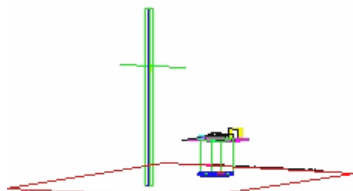
**Figure 3-4. LISN Schematic Diagram**

The line-conducted facility is located inside a 16'x20'x10' shielded enclosure, manufactured by Ray Proof Series 81 (see *Figure 3-1*). The shielding effectiveness of the shielded room is in accordance with MIL-Std-285 or NSA 65-5. A 1m x 1.5m wooden table 80cm high is placed 40cm away from the vertical wall and 1.5m away from the sidewall of the shielded room (see *Figure 3-2*). Solar Electronics and EMCO Model 3725/2 (10kHz-30MHz) 50Ω/50μH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room (see *Figure 3-3*). The EUT is powered from the Solar LISN and the support equipment is powered from the EMCO LISN. Power to the LISNs are filtered by a high-current high-insertion loss Ray Proof power line filter (100dB 14Hz-10GHz). The purpose of the filter is to attenuate ambient signal interference and this filter is also bonded to the shielded enclosure. All electrical cables are shielded by braided tinned copper zipper tubing with an inner diameter of ½". If the EUT is a DC-powered device, power will be derived from the source power supply it normally will be powered from and this supply line(s) will be connected to the Solar LISN. The LISN schematic diagram is shown (see *Figure 3-4*). All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion). Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the spectrum analyzer to determine the frequency producing the maximum EME from the EUT.

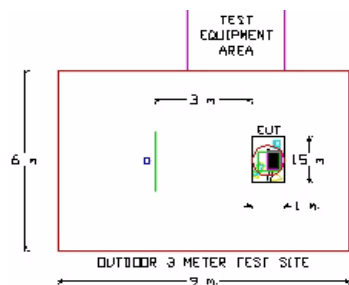
The spectrum was scanned from 150kHz to 30MHz with a spectrum analyzer. The detector function was set to CISPR quasi-peak and average mode. The bandwidth of the analyzer was set to 10kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each EME emission. Each emission was maximized by: switching power lines; varying the mode of operation or resolution; clock or data exchange speed; scrolling H pattern to the EUT and/or support equipment, and powering the monitor from the floor mounted outlet box and the computer aux AC outlet, if applicable; whichever determined the worst-case emission. Photographs of the worst-case emission can be seen in the test setup photographs. Each EME reported was calibrated using the Agilent E8257D (250kHz – 20GHz) PSG Signal Generator.

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
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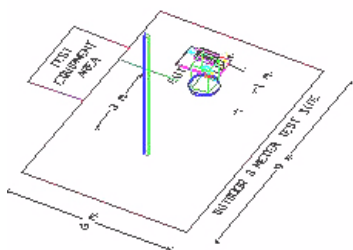
### 3.3 Radiated Emissions



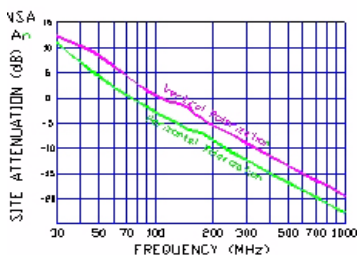
**Figure 3-5. 3-Meter Test Site**



**Figure 3-6. Dimensions of Outdoor Test Site**



**Figure 3-7. Turntable and System Setup**



**Figure 3-8. Normalized Site Attenuation Curves (H&V)**

Preliminary measurements were made indoors at 1-meter using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequency producing the maximum EME. Appropriate precaution was taken to ensure that all EME from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, and turntable azimuth with respect to the antenna was noted for each frequency found. The spectrum was scanned from 30 to 200 MHz using a bi-conical antenna and from 200 to 1000 MHz using a log-spiral antenna. Above 1 GHz, linearly polarized double ridge horn antennas were used.

Final measurements were made outdoors at 3-meter test range using Roberts<sup>TM</sup> Dipole antennas or horn antennas (see Figure 3-5). The test equipment was placed on a wooden and plastic bench situated on a 1.5m x 2m area adjacent to the measurement area (see Figure 3-6). Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The detector function was set to CISPR quasi-peak mode and the bandwidth of the spectrum analyzer was set to 100kHz for frequencies below 1GHz or 1MHz for frequencies above 1GHz. Above 1GHz the detector function was set to average mode (RBW = 1MHz, VBW = 10Hz).

The half-wave dipole antenna was tuned to the frequency found during preliminary radiated measurements. The EUT, support equipment and interconnecting cables were re-configured to the set-up producing the maximum emission for the frequency and were placed on top of a 0.8-meter high non-metallic 1 x 1.5 meter table (see Figure 3-7). The EUT, support equipment, and interconnecting cables were re-arranged and manipulated to maximize each EME emission. The turntable containing the system was rotated and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by: varying the mode of operation or resolution; clock or data exchange speed; scrolling H pattern to the EUT and/or support equipment, and powering the monitor from the floor mounted outlet box and the computer aux AC outlet, if applicable; and changing the polarity of the antenna, whichever determined the worst-case emission. Photographs of the worst-case emission can be seen in the test setup photographs. Each EME reported was calibrated using the Agilent E8257D (250kHz – 20GHz) PSG Signal Generator. The Theoretical Normalized Site Attenuation Curves for both horizontal and vertical polarization are shown in Figure 3-8.

|                                      |                                               |                                                                     |                |                                 |
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## 4.0 ANTENNA REQUIREMENTS

### Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- The antennas of the Portable Handset are **permanently attached**.
- There are no provisions for connection to an external antenna.

### Conclusion:

The **Samsung Portable Handset FCC ID: A3LSCHI405U** unit complies with the requirement of §15.203.

| Band 1 |                 | Band 2 |                 | Band 3 |                 |
|--------|-----------------|--------|-----------------|--------|-----------------|
| Ch.    | Frequency (MHz) | Ch.    | Frequency (MHz) | Ch.    | Frequency (MHz) |
| 36     | 5180            | 52     | 5260            | 100    | 5500            |
| :      | :               | :      | :               | :      | :               |
| 42     | 5210            | 56     | 5280            | 116    | 5580            |
| :      | :               | :      | :               | :      | :               |
| 48     | 5240            | 64     | 5320            | 140    | 5700            |

Table 4-1. 802.11a Frequency / Channel Operations

| Band 1 |                 | Band 2 |                 | Band 3 |                 |
|--------|-----------------|--------|-----------------|--------|-----------------|
| Ch.    | Frequency (MHz) | Ch.    | Frequency (MHz) | Ch.    | Frequency (MHz) |
| 36     | 5180            | 52     | 5260            | 100    | 5500            |
| :      | :               | :      | :               | :      | :               |
| 42     | 5210            | 56     | 5280            | 116    | 5580            |
| :      | :               | :      | :               | :      | :               |
| 48     | 5240            | 64     | 5320            | 140    | 5700            |

Table 4-2. 802.11n Frequency / Channel Operations

|                                      |                                                                                     |                                                                  |  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|--|---------------------------------------------------------------------------------------|---------------------------------|
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## 5.0 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) | 6/7/2011   | Annual       | 6/7/2012   | N/A           |
| -                 | WL25-1           | WLAN Cable Set (25GHz)                 | 2/13/2012  | Annual       | 2/13/2013  | N/A           |
| -                 | RE2              | Radiated Emissions Cable Set (VHF/UHF) | 2/13/2012  | Annual       | 2/13/2013  | N/A           |
| -                 | 40G-1R           | 40GHz Radiated Cable Set               | 2/23/2012  | Annual       | 2/23/2013  | N/A           |
| -                 | WL40-1           | WLAN Cable Set (40GHz)                 | 2/24/2012  | Annual       | 2/24/2013  | N/A           |
| Agilent           | 8447D            | Broadband Amplifier                    | 3/17/2011  | Annual       | 3/17/2012  | 2443A01900    |
| Agilent           | 8449B            | (1-26.5GHz) Pre-Amplifier              | 2/15/2012  | Annual       | 2/15/2013  | 3008A00985    |
| Agilent           | 85650A           | Quasi-Peak Adapter                     | 4/7/2011   | Annual       | 4/7/2012   | 2043A00301    |
| Agilent           | 8566B            | (100Hz-22GHz) Spectrum Analyzer        | 4/7/2011   | Annual       | 4/7/2012   | 2542A11898    |
| Agilent           | E4407B           | ESA Spectrum Analyzer                  | 4/5/2011   | Annual       | 4/5/2012   | US39210313    |
| Agilent           | E4448A           | PSA (3Hz-50GHz) Spectrum Analyzer      | 2/15/2012  | Annual       | 2/15/2013  | US42510244    |
| Agilent           | E8257D           | (250kHz-20GHz) Signal Generator        | 4/8/2011   | Annual       | 4/8/2012   | MY45470194    |
| Agilent           | N9020A           | MXA Signal Analyzer                    | 10/10/2011 | Annual       | 10/10/2012 | US46470561    |
| Agilent           | N9038A           | MXE EMI Receiver                       | 8/5/2011   | Annual       | 8/5/2012   | MY51210133    |
| Anritsu           | MA2411B          | Pulse Sensor                           | 10/13/2011 | Annual       | 10/13/2012 | 1027293       |
| Anritsu           | ML2495A          | Power Meter                            | 10/13/2011 | Annual       | 10/13/2012 | 1039008       |
| Mini-Circuits     | VHF-3100+        | High Pass Filter                       | 2/7/2012   | Annual       | 2/7/2013   | 31144         |
| Mini-Circuits     | VHF-8400+        | 3.4GHz - 9.9GHz High Pass Filter       | 2/28/2012  | Annual       | 2/28/2013  | 31048         |
| Solar Electronics | 8012-50-R-24-BNC | LISN                                   | 6/23/2011  | Biennial     | 6/23/2013  | 310233        |
| Sunol             | DRH-118          | Horn Antenna (1 - 18GHz)               | 7/5/2011   | Biennial     | 7/5/2013   | A050307       |
| Sunol             | JB5              | Bi-Log Antenna (30M - 5GHz)            | 1/26/2012  | Biennial     | 1/26/2014  | A051107       |

**Table 5-1. Annual Test Equipment Calibration Schedule**

**Note:**

Items with calibration dates listed during the testing timeframe are new calibration dates as calibration service was being performed during this same timeframe. These items were still in calibration prior to the date listed and were in calibration during any testing for which they were utilized.

|                                      |                                                                                     |                                                                     |                                                                                       |                                 |
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| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                       |                                                                                       | Page 9 of 72                    |

## 6.0 TEST RESULTS

### 6.1 Summary

Company Name: Samsung Electronics, Co. Ltd.  
 FCC ID: A3LSCHI405U  
 Method/System: Unlicensed National Information Infrastructure (UNII)  
 Data Rate(s) Tested: 6, 9, 12, 18, 24, 36, 48, 54Mbps (802.11a)  
6.5/7.2, 13/14.4, 19.5/21.7, 26/28.9, 39/43.3, 52/57.8, 58.5/65, 65/72.2 (n – 20MHz)

| FCC Part Section(s)                           | RSS Section(s)    | Test Description                                                               | Test Limit                                                                                                                                                                                                                     | Test Condition                   | Test Result | Reference            |
|-----------------------------------------------|-------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------------|----------------------|
| <b>TRANSMITTER MODE (TX)</b>                  |                   |                                                                                |                                                                                                                                                                                                                                |                                  |             |                      |
| N/A                                           | RSS-210 [A9.2]    | 26dB Bandwidth [FCC]<br>Occupied Bandwidth [IC]                                | N/A                                                                                                                                                                                                                            | CONDUCTED                        | PASS        | Section 6.2          |
| 15.407 (a)(1)                                 | RSS-210 [A9.2]    | Maximum Conducted Output Power                                                 | < 4 + 10log <sub>10</sub> (BW) dBm (5150-5250MHz) [FCC]<br>< 10 + 10log <sub>10</sub> (BW) dBm (5150-5250MHz) [IC]<br>< 11 + 10log <sub>10</sub> (B) dBm (5250-5350MHz)<br>< 11 + 10log <sub>10</sub> (B) dBm (5470 – 5725MHz) |                                  | PASS        | Section 6.3          |
| 15.407 (a)(1), (5)                            | RSS-210 [A9.2]    | Peak Power Spectral Density                                                    | < 4 dBm/MHz (5150-5250) [FCC]<br>< 10dBm/MHz (5150-5250) [IC]<br>< 11dBm/MHz (5250-5350)<br>< 11dBm/MHz (5470-5725)                                                                                                            |                                  | PASS        | Section 6.4          |
| 15.407(a)(6)                                  | N/A               | Peak Excursion                                                                 | < 13 dB/MHz maximum difference                                                                                                                                                                                                 |                                  | PASS        | Section 6.5          |
| 15.407(g)                                     | N/A               | Frequency Stability                                                            | N/A                                                                                                                                                                                                                            |                                  | PASS        | Section 6.6          |
| 15.407(b)(1), (2),(3)                         | RSS-210 [A9.2]    | Undesirable Emissions                                                          | < -27 dBm/MHz EIRP (5150-5350MHz, 5470-5725MHz)                                                                                                                                                                                | RADIATED                         | PASS        | Section 6.7          |
| 15.407(h)                                     | RSS-210 [A9.3]    | Dynamic Frequency Selection                                                    | See DFS Test Report                                                                                                                                                                                                            |                                  | PASS        | See DFS Test Report  |
| 15.205, 15.407(b)(1), (5), (6)                | RSS-Gen [7.2.3.2] | General Field Strength Limits (Restricted Bands and Radiated Emission Limits)  | Emissions in restricted bands must meet the radiated limits detailed in 15.209 (RSS-210 table 3 limits)                                                                                                                        |                                  | PASS        | Section 6.8          |
| 15.207                                        | RSS-Gen [7.2.2]   | AC Conducted Emissions 150kHz – 30MHz                                          | < FCC 15.207 limits or<br>< RSS-Gen table 2 limits                                                                                                                                                                             | LINE CONDUCTED                   | PASS        | Section 6.9          |
| <b>RECEIVER MODE (RX) / DIGITAL EMISSIONS</b> |                   |                                                                                |                                                                                                                                                                                                                                |                                  |             |                      |
| 15.107                                        | RSS-Gen [7.2.2]   | AC Conducted Emissions 150kHz – 30MHz                                          | < FCC 15.107 limits or<br>< RSS-Gen table 2 limits                                                                                                                                                                             | LINE CONDUCTED                   | PASS        | Part 15B Test Report |
| 15.109                                        | RSS-Gen [7.2.3.2] | General Field Strength Limits (Restricted Bands and Radiated Emissions Limits) | < FCC 15.109 limits or<br>< RSS-210 table 3 limits                                                                                                                                                                             | RADIATED (30MHz-1GHz) (1-25 GHz) | PASS        | Part 15B Test Report |

**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.
- 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 and attenuators.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                    |                                                                                       | Page 10 of 72                   |

## 6.2 26dB Bandwidth Measurement – 802.11a/n

The bandwidth at 26dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating at its maximum power control level, as defined in KDB 789033, at the appropriate frequencies. The spectrum analyzer's bandwidth measurement function is configured to measure the 26dB bandwidth.

|          | Frequency [MHz] | Channel No. | 802.11 Mode | Data Rate [Mbps] | Measured 26dB Bandwidth [MHz] |
|----------|-----------------|-------------|-------------|------------------|-------------------------------|
| Band I   | 5180            | 36          | a           | 6                | 18.73                         |
|          | 5200            | 40          | a           | 6                | 18.76                         |
|          | 5240            | 48          | a           | 6                | 18.69                         |
|          | 5180            | 36          | n           | 6.5/7.2 (MCS0)   | 19.06                         |
|          | 5200            | 40          | n           | 6.5/7.2 (MCS0)   | 18.98                         |
|          | 5240            | 48          | n           | 6.5/7.2 (MCS0)   | 19.00                         |
| Band II  | 5260            | 52          | a           | 6                | 18.69                         |
|          | 5280            | 56          | a           | 6                | 18.76                         |
|          | 5320            | 64          | a           | 6                | 18.67                         |
|          | 5260            | 52          | n           | 6.5/7.2 (MCS0)   | 19.06                         |
|          | 5280            | 56          | n           | 6.5/7.2 (MCS0)   | 18.94                         |
|          | 5320            | 64          | n           | 6.5/7.2 (MCS0)   | 19.02                         |
| Band III | 5500            | 100         | a           | 6                | 18.68                         |
|          | 5580            | 116         | a           | 6                | 18.61                         |
|          | 5700            | 140         | a           | 6                | 18.57                         |
|          | 5500            | 100         | n           | 6.5/7.2 (MCS0)   | 18.91                         |
|          | 5580            | 116         | n           | 6.5/7.2 (MCS0)   | 18.99                         |
|          | 5700            | 140         | n           | 6.5/7.2 (MCS0)   | 19.01                         |

Table 6-2. Conducted Bandwidth Measurements

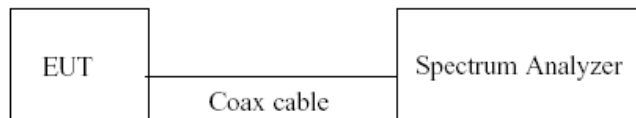
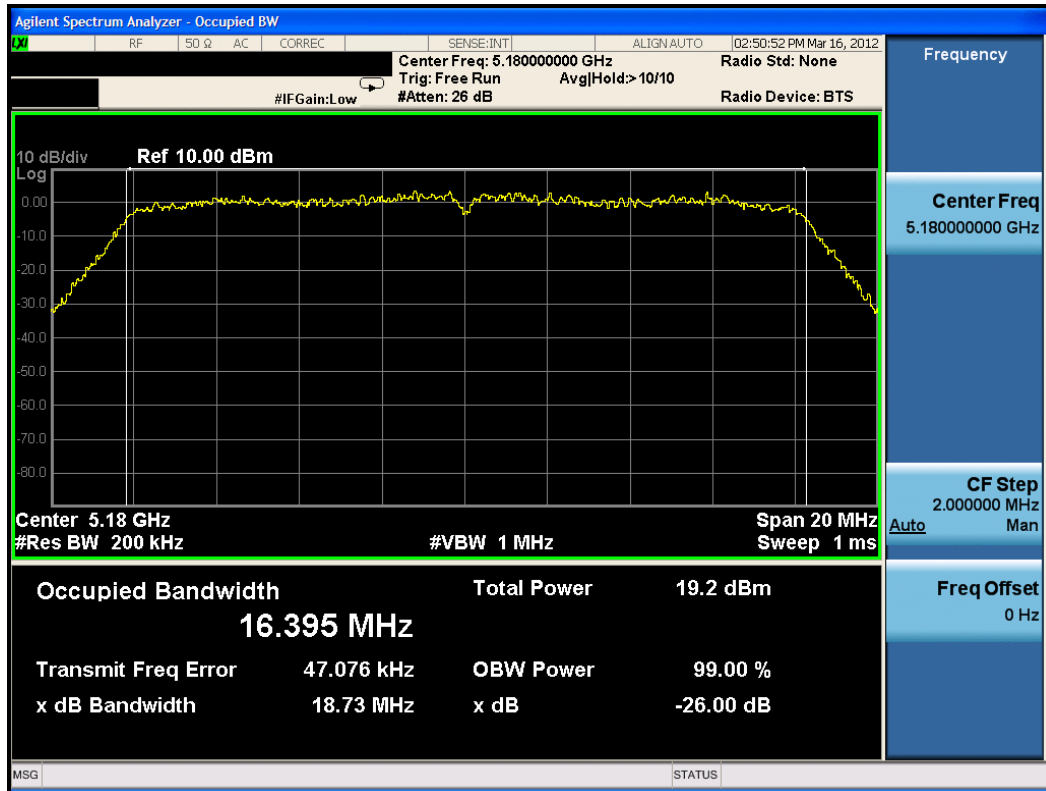
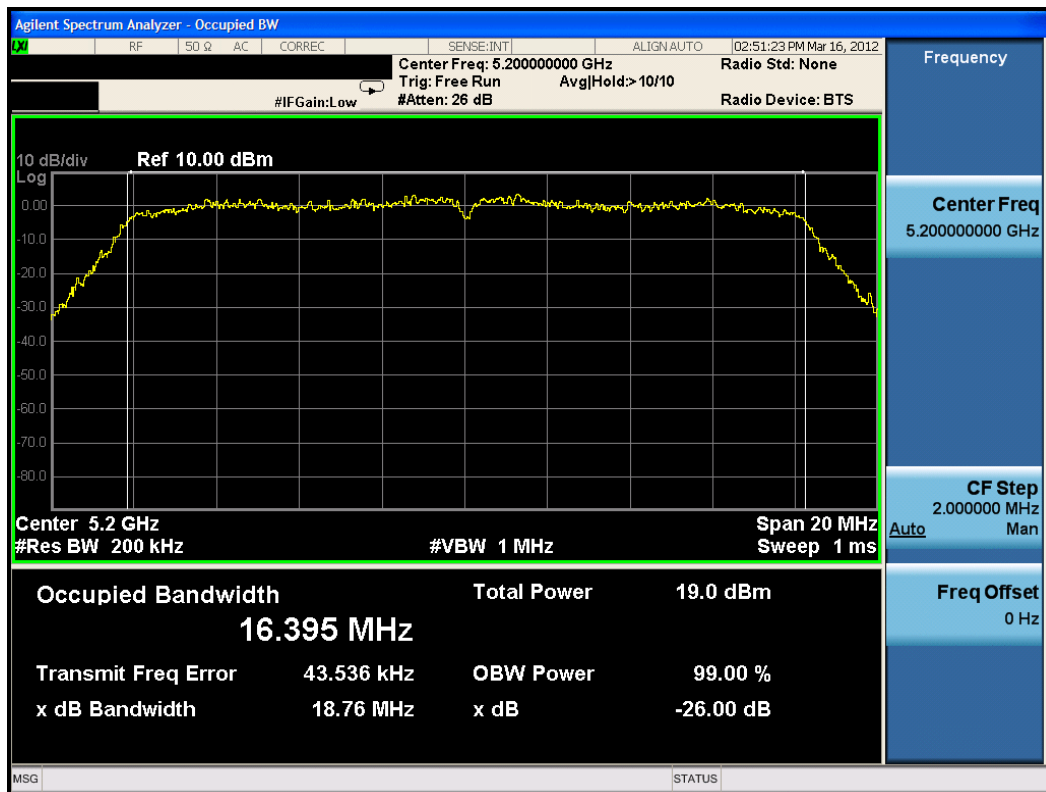


Figure 6-1. Test Instrument & Measurement Setup

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                    |                                                                                       | Page 11 of 72                   |

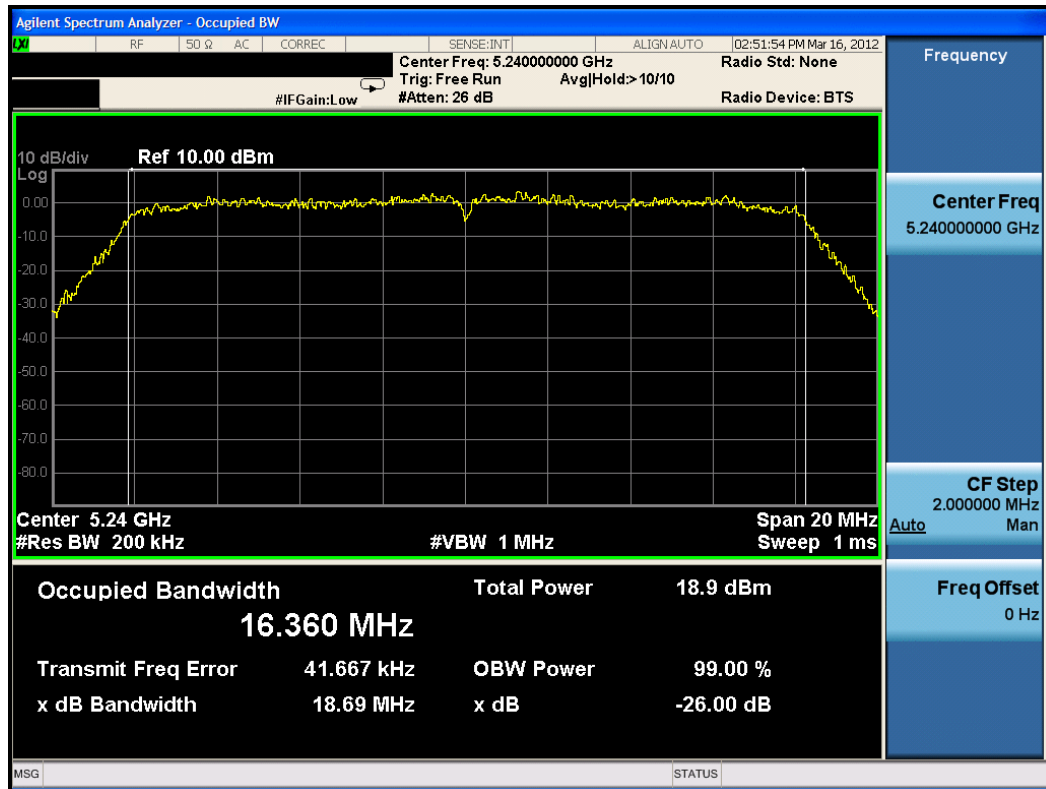


Plot 6-1. 26dB Bandwidth Plot (802.11a (UNII Band 1) – Ch. 36)

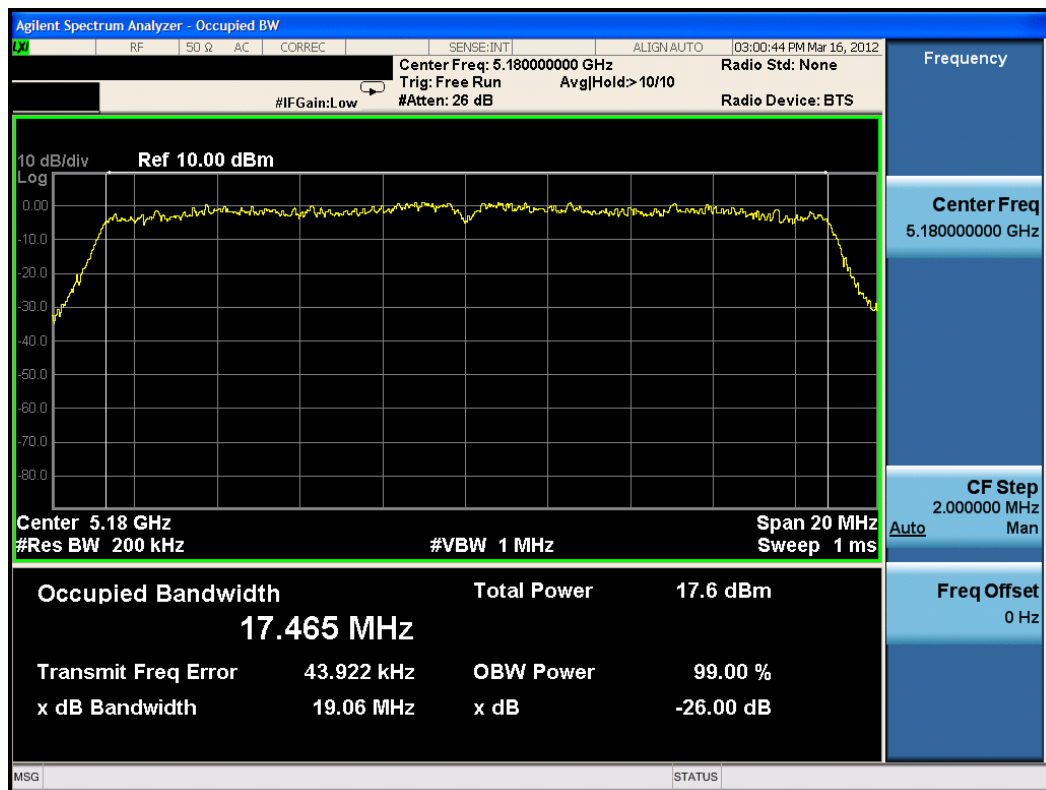


Plot 6-2. 26dB Bandwidth Plot (802.11a (UNII Band 1) – Ch. 40)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 12 of 72                   |

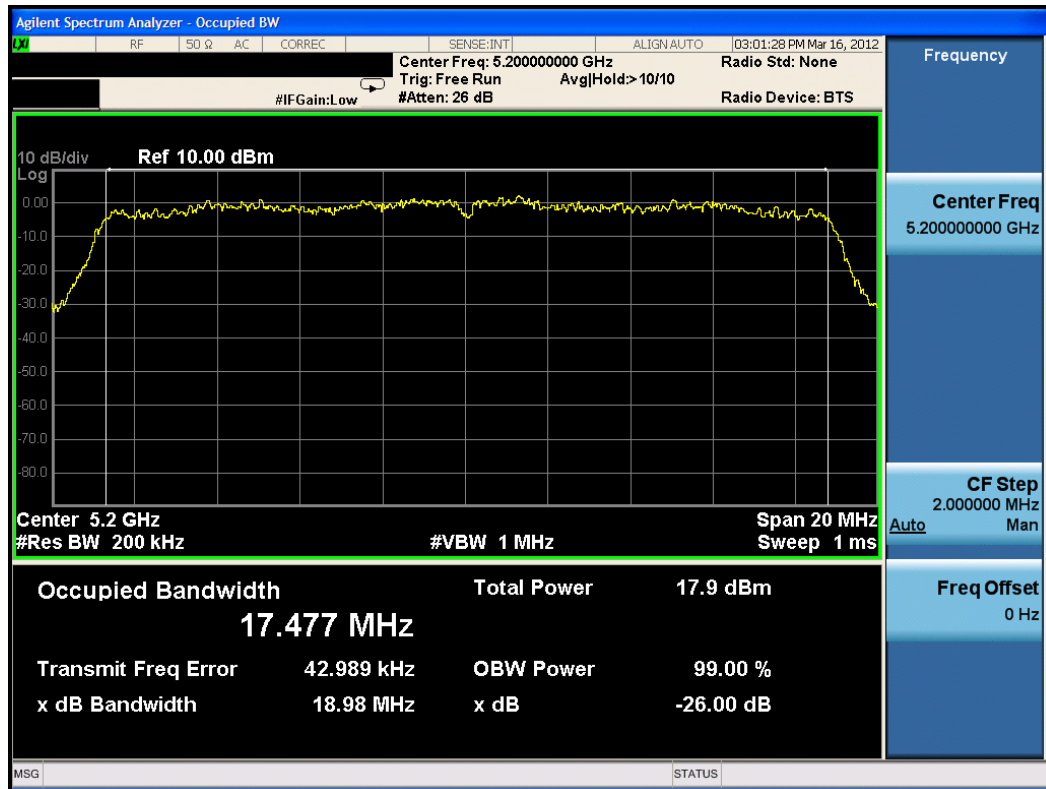


Plot 6-3. 26dB Bandwidth Plot (802.11a (UNII Band 1) – Ch. 48)

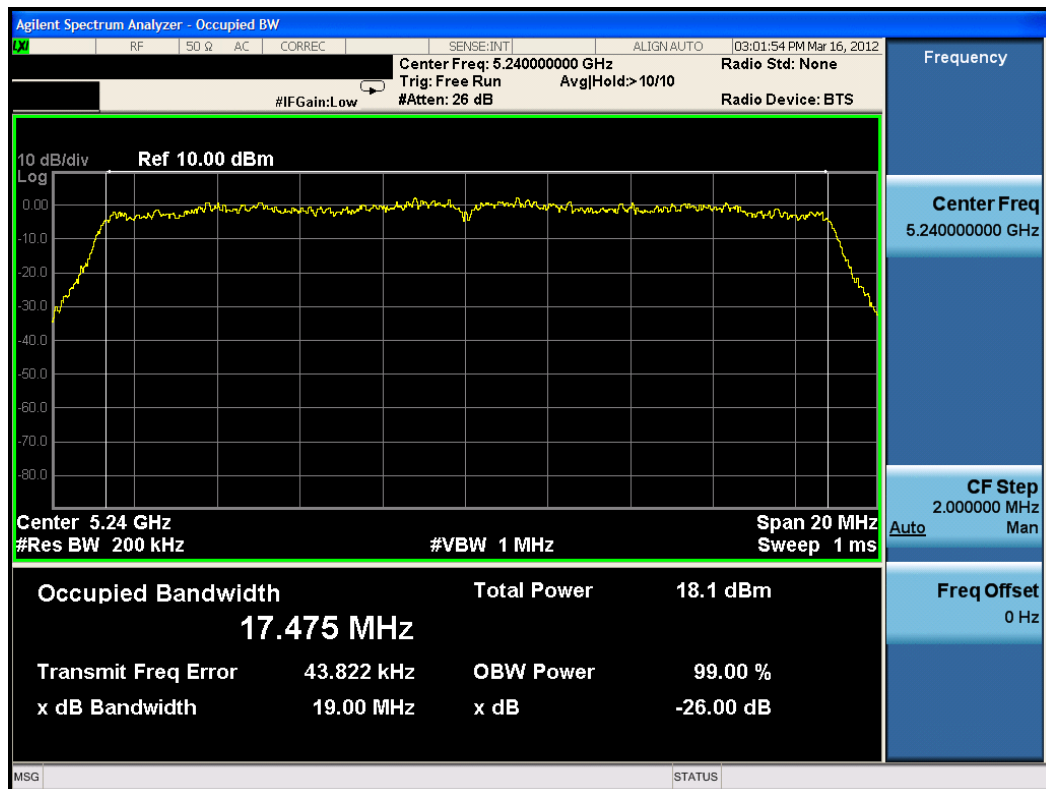


Plot 6-4. 26dB Bandwidth Plot (802.11n (UNII Band 1) – Ch. 36)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 13 of 72                   |

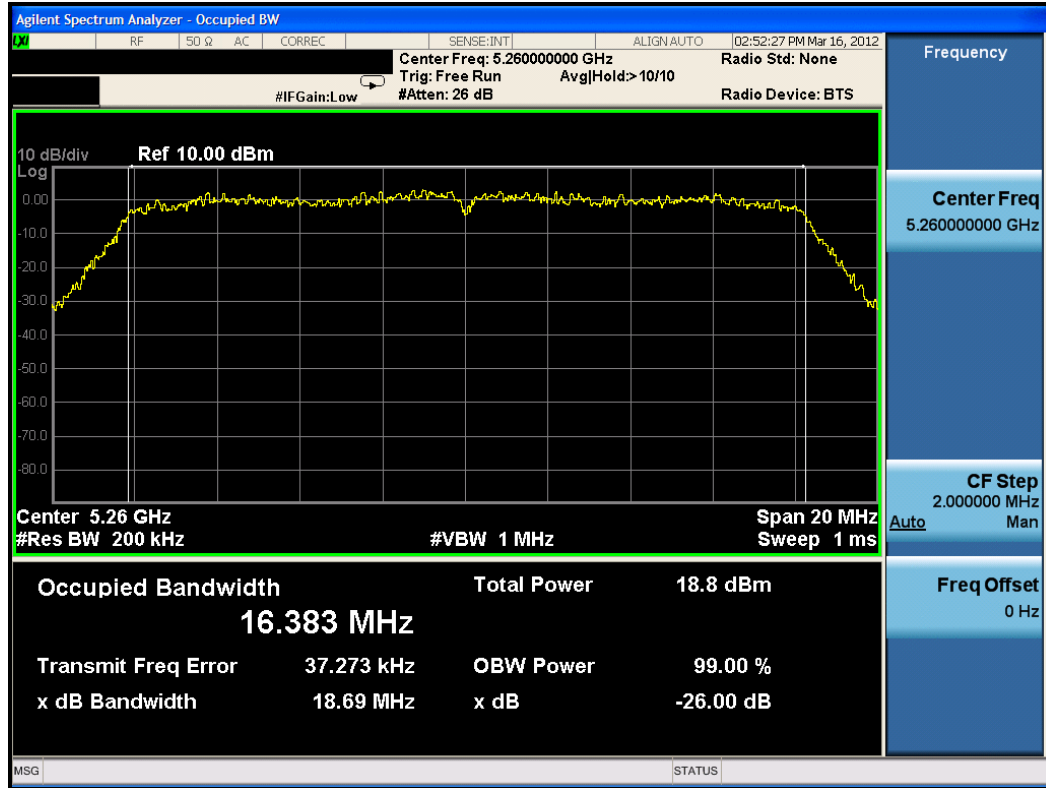


Plot 6-5. 26dB Bandwidth Plot (802.11n (UNII Band 1) – Ch. 40)

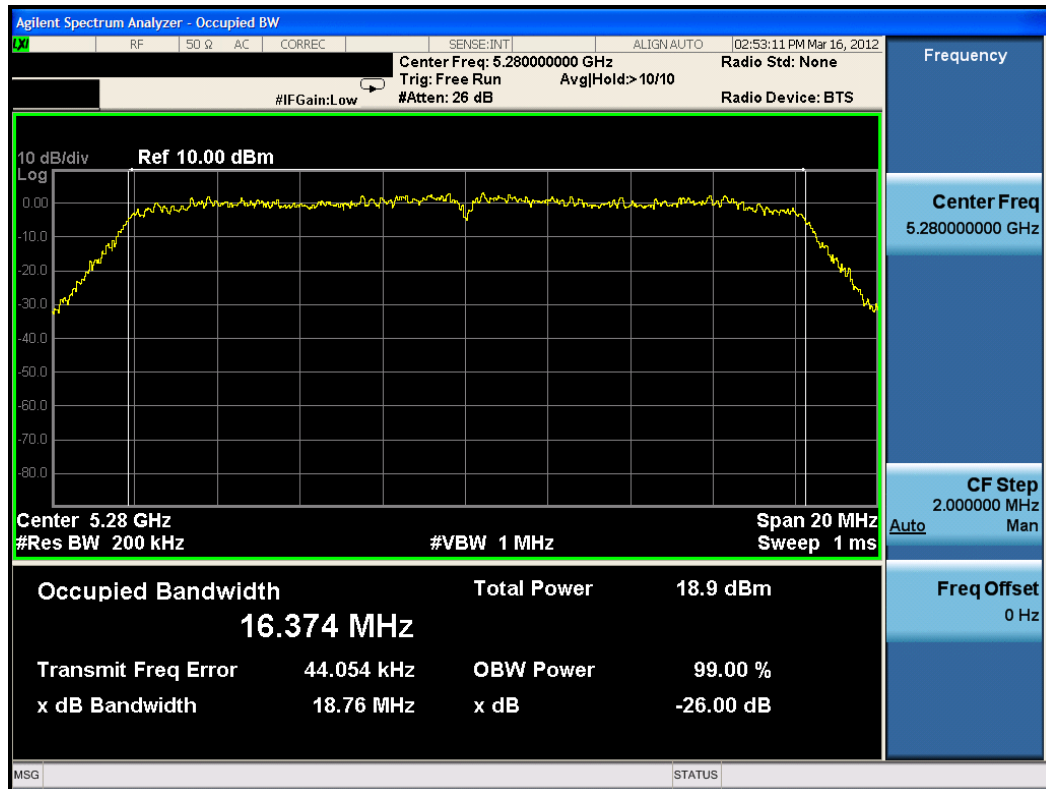


Plot 6-6. 26dB Bandwidth Plot (802.11n (UNII Band 1) – Ch. 48)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 14 of 72                   |

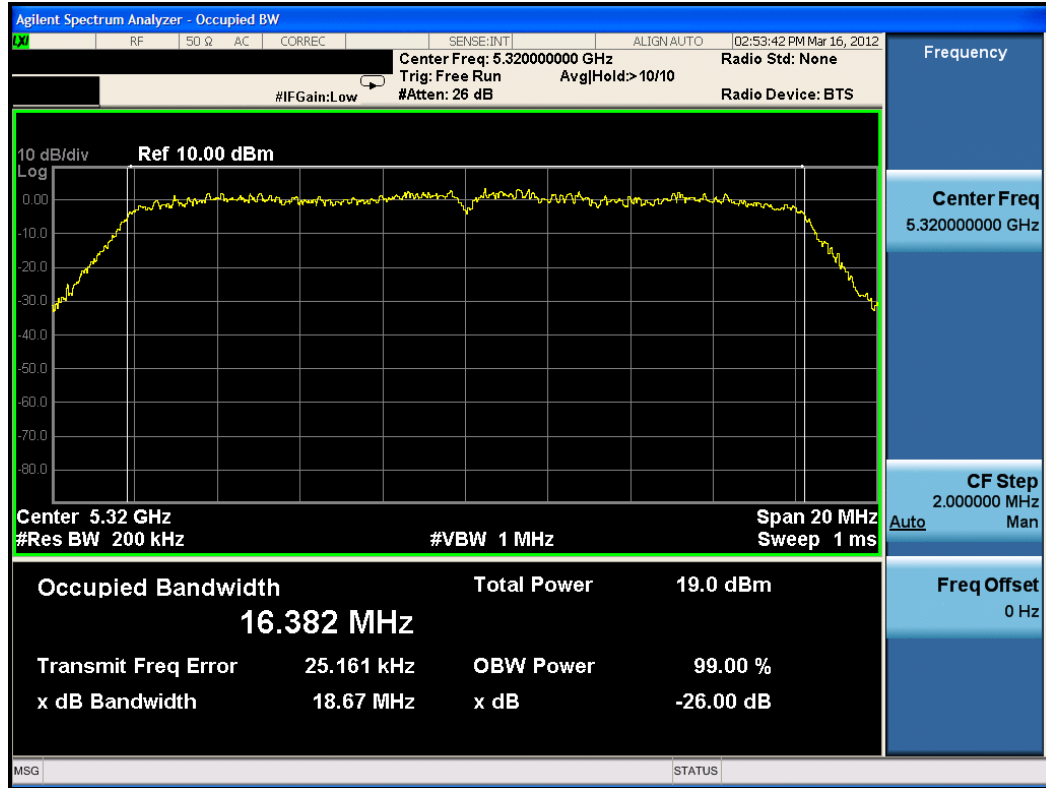


Plot 6-7. 26dB Bandwidth Plot (802.11a (UNII Band 2) – Ch. 52)

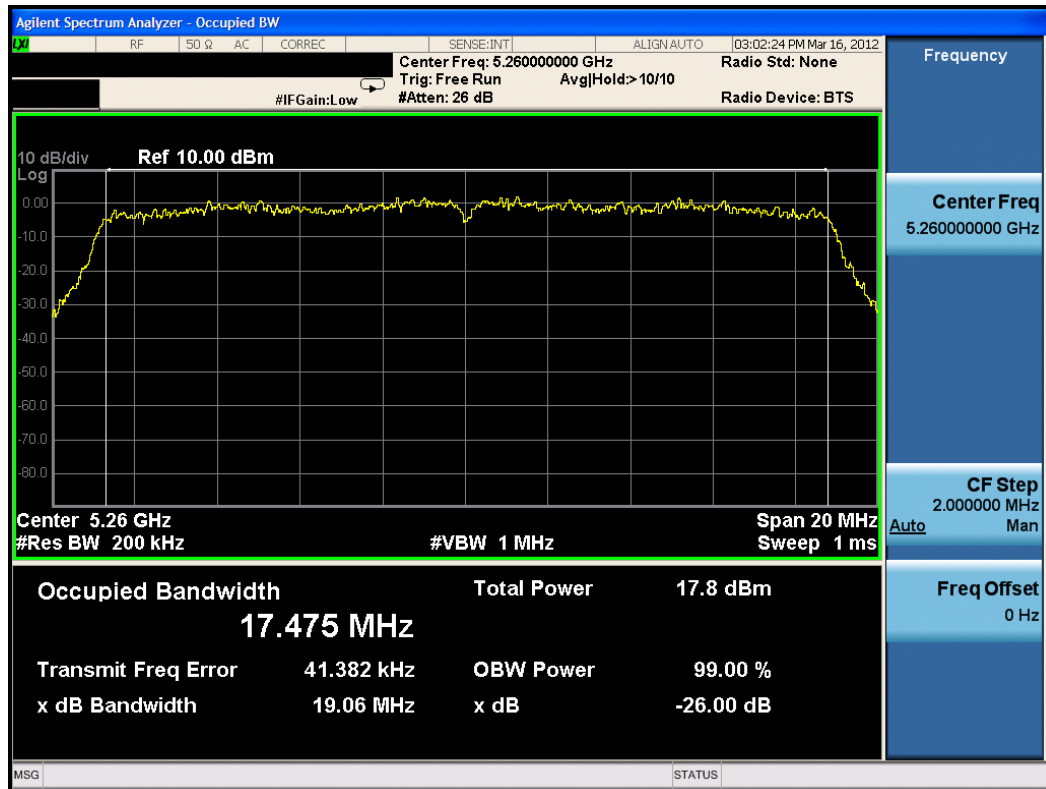


Plot 6-8. 26dB Bandwidth Plot (802.11a (UNII Band 2) – Ch. 56)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 15 of 72                   |

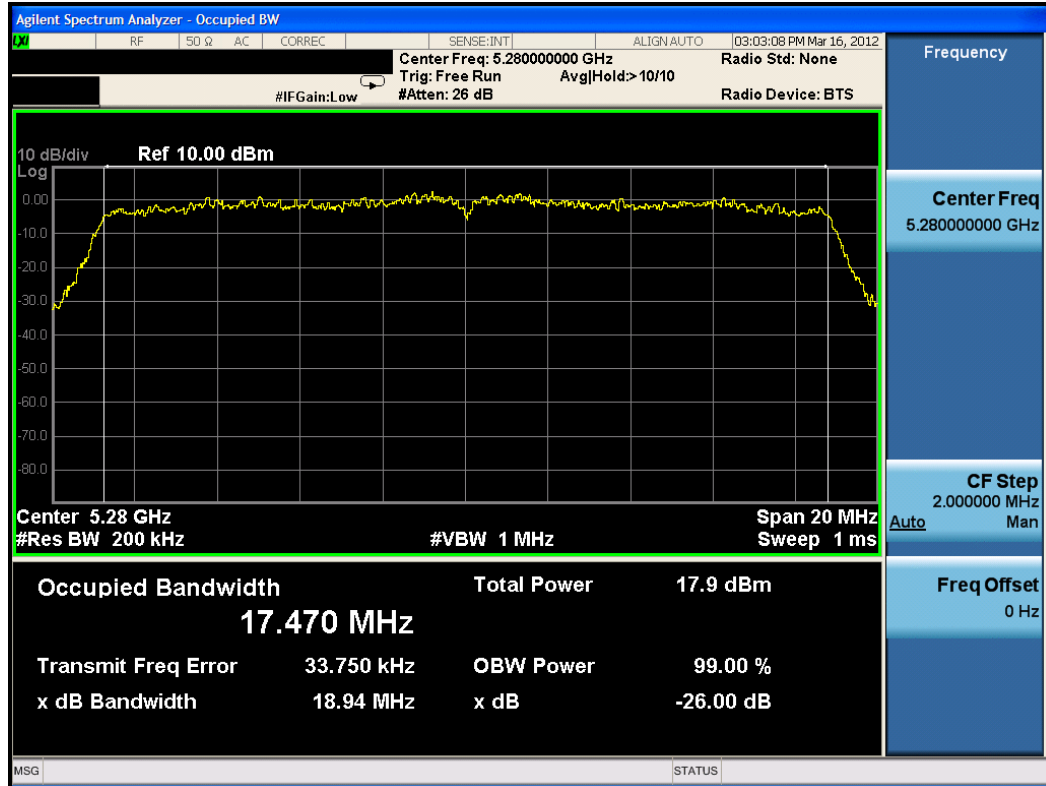


Plot 6-9. 26dB Bandwidth Plot (802.11a (UNII Band 2) – Ch. 64)

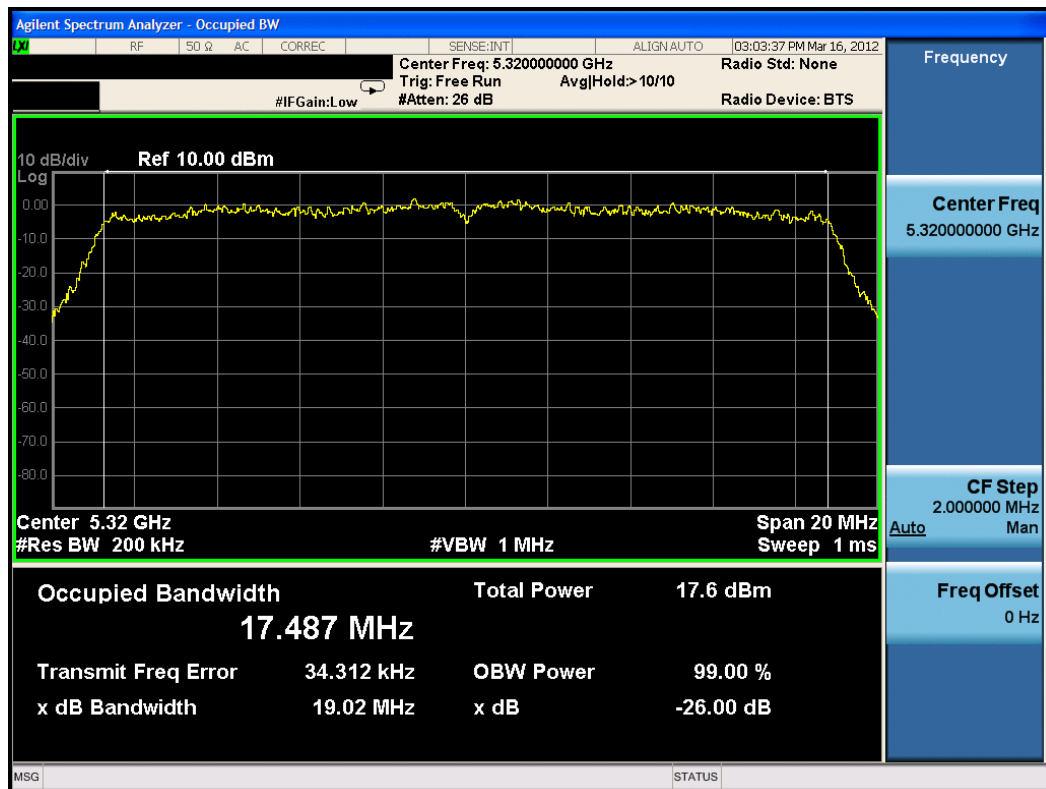


Plot 6-10. 26dB Bandwidth Plot (802.11n (UNII Band 2) – Ch. 52)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 16 of 72                   |

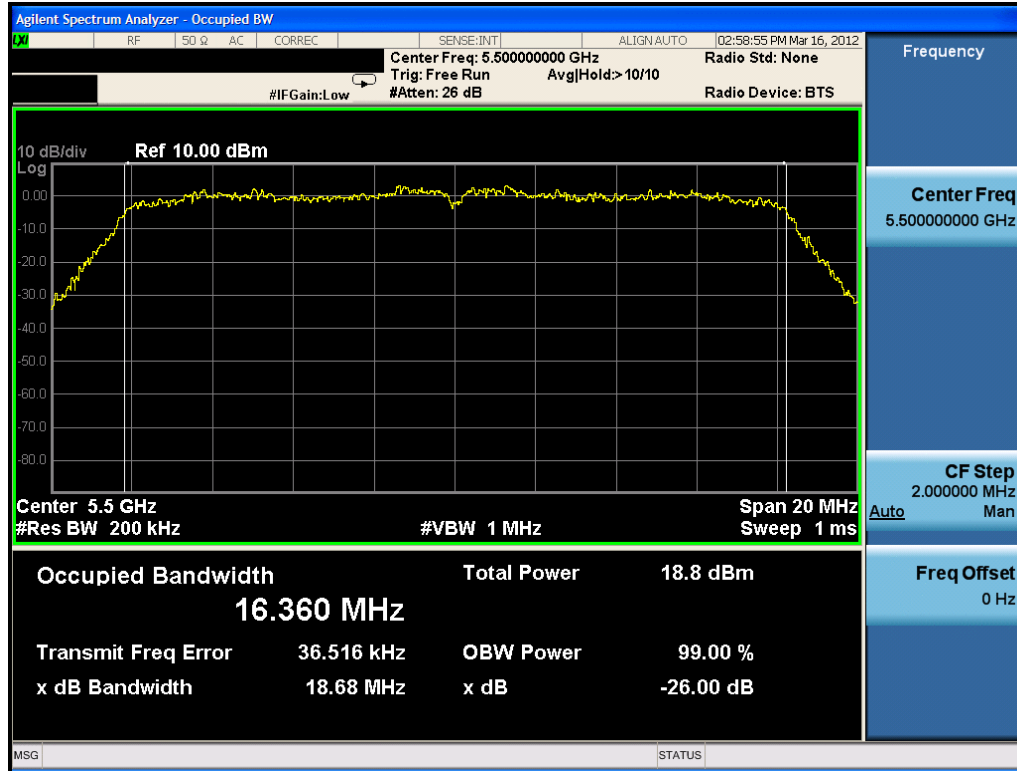


Plot 6-11. 26dB Bandwidth Plot (802.11n (UNII Band 2) – Ch. 56)

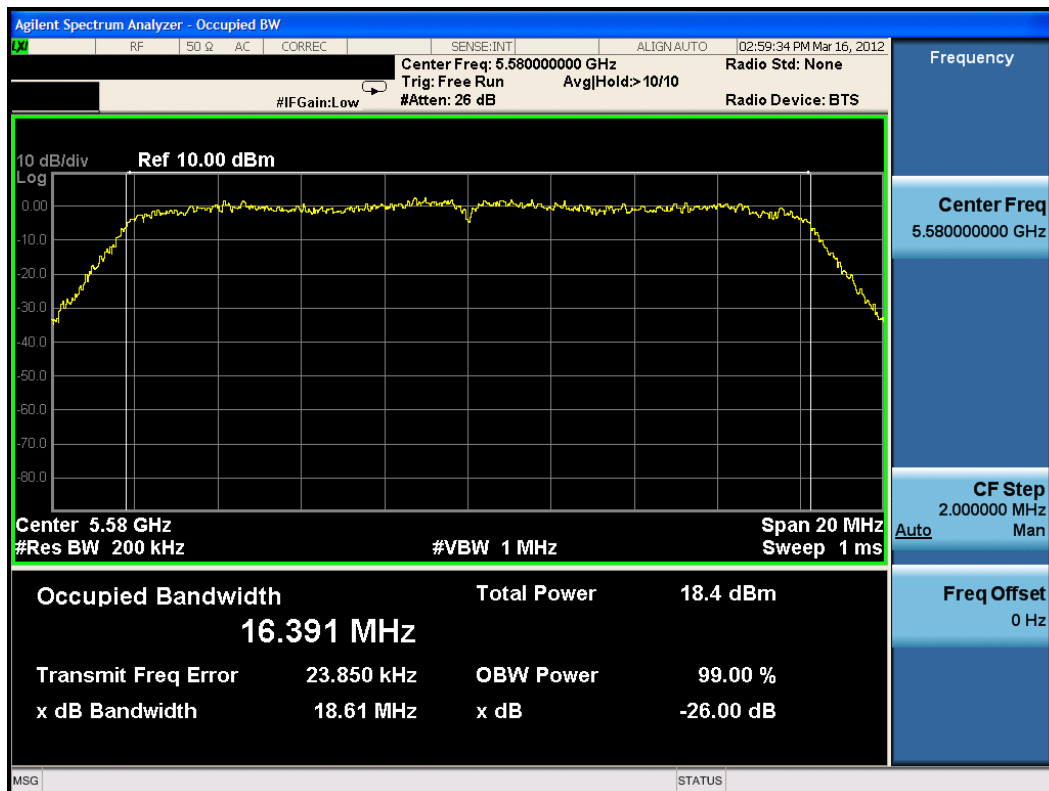


Plot 6-12. 26dB Bandwidth Plot (802.11n (UNII Band 2) – Ch. 64)

|                                      |                                                                                     |                                                                     |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                       |                                                                                       | Page 17 of 72                   |

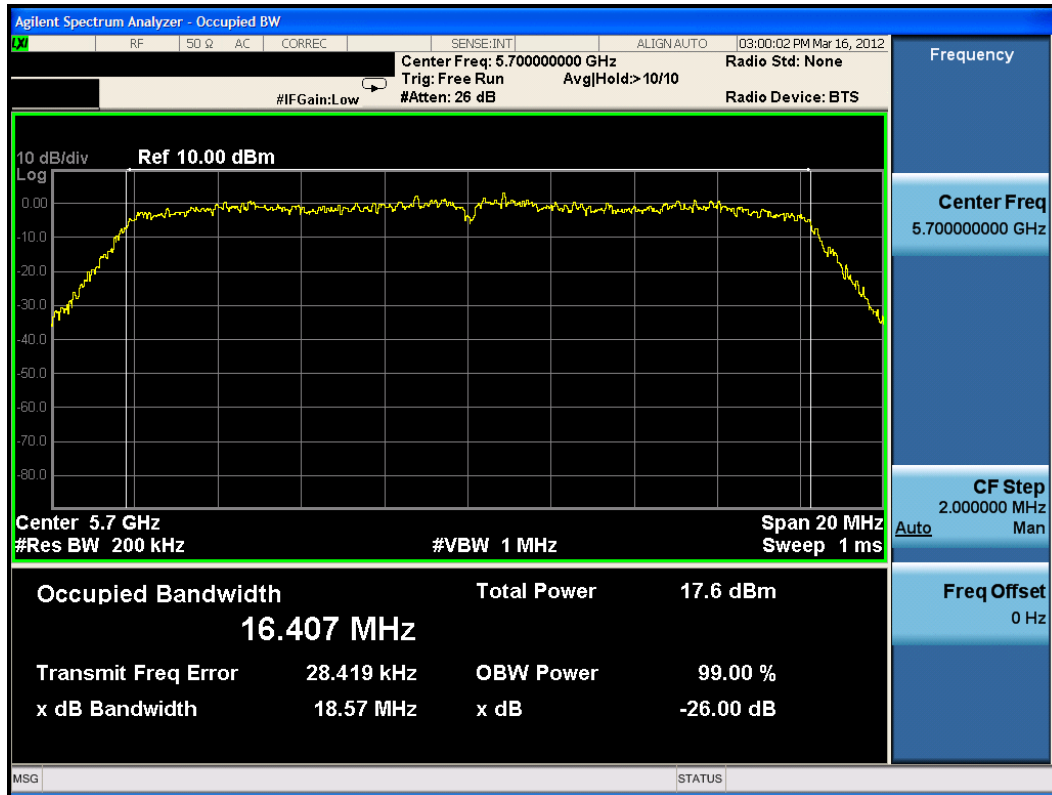


Plot 6-13. 26dB Bandwidth Plot (802.11a (UNII Band 3) – Ch. 100)

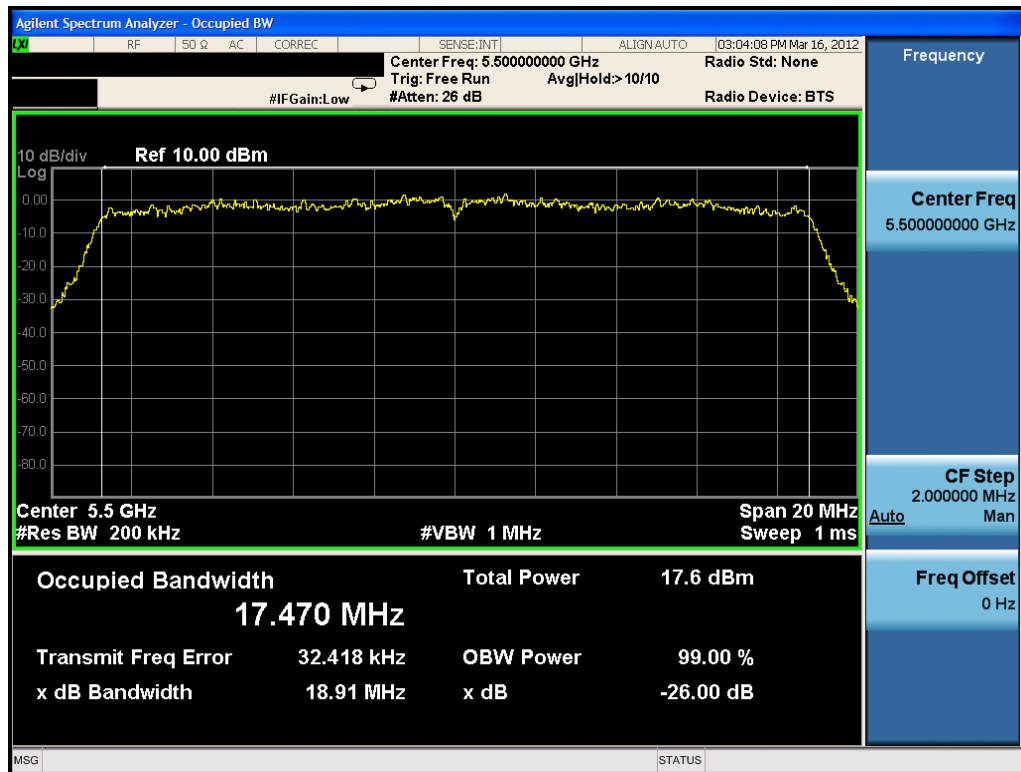


Plot 6-14. 26dB Bandwidth Plot (802.11a (UNII Band 3) – Ch. 116)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 18 of 72                   |

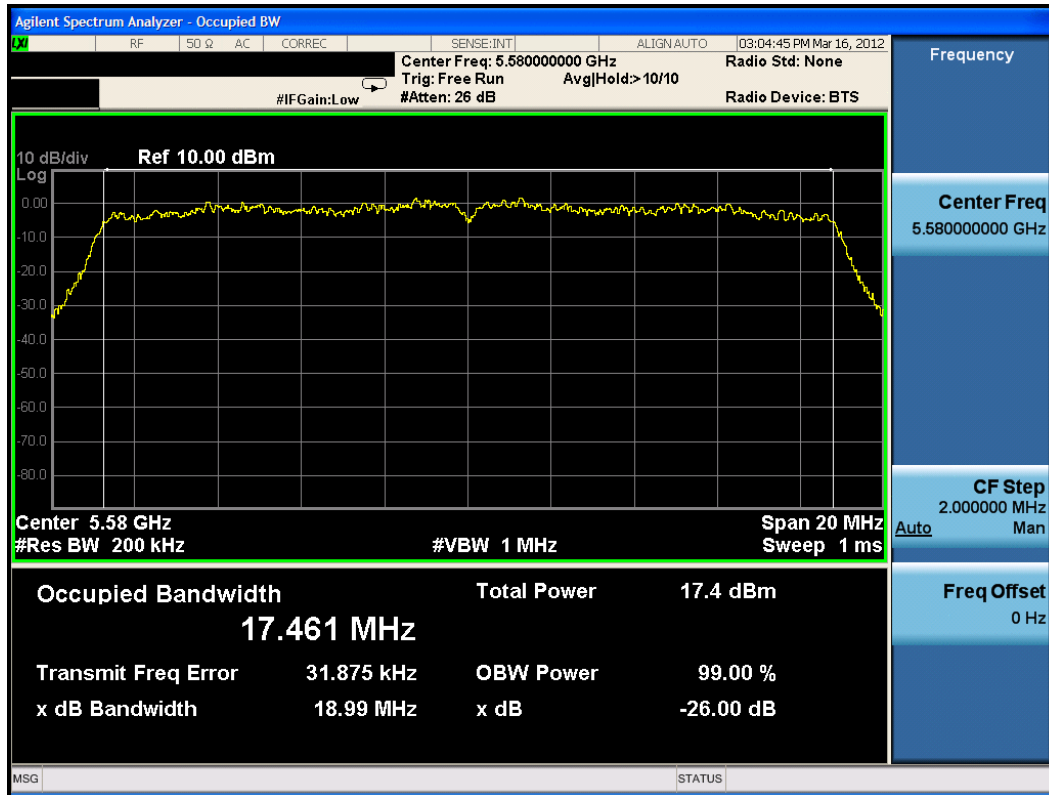


Plot 6-15. 26dB Bandwidth Plot (802.11a (UNII Band 3) – Ch. 140)

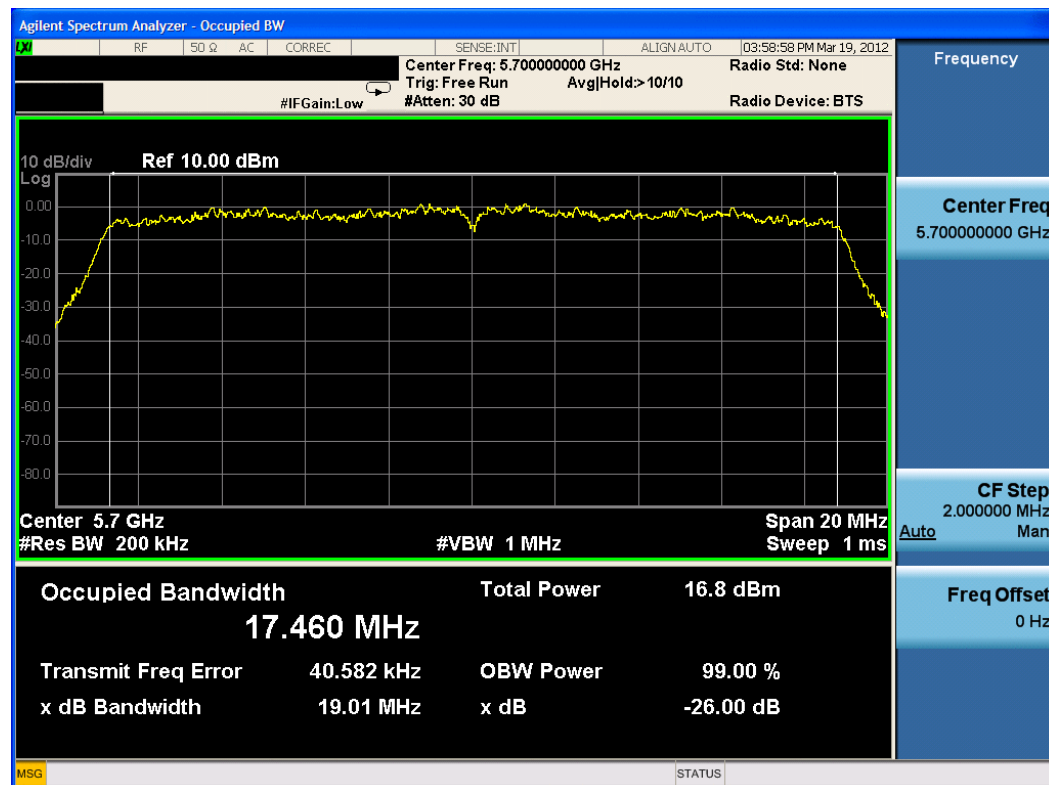


Plot 6-16. 26dB Bandwidth Plot (802.11n (UNII Band 3) – Ch. 100)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 19 of 72                   |



Plot 6-17. 26dB Bandwidth Plot (802.11n (UNII Band 3) – Ch. 116)



Plot 6-18. 26dB Bandwidth Plot (802.11n (UNII Band 3) – Ch. 140)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 20 of 72                   |

### 6.3 UNII Output Power Measurement – 802.11a/n §15.407 (a)(1); RSS-210 [A9.2]

A transmitter antenna terminal of EUT is connected to the input of a RF power sensor. Measurement is made using a broadband power meter while the EUT is operating in transmission mode at the appropriate frequencies.

*In the 5.15 – 5.25GHz band, the maximum permissible conducted output power is the lesser of 50mW (16.99dBm) and  $4 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 4 \text{ dBm} + 10\log_{10}(18.69) = 16.72\text{dBm}$ .*

*In the 5.25 – 5.35GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) and  $11 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 11 \text{ dBm} + 10\log_{10}(18.67) = 23.71\text{dBm}$ .*

*In the 5.47 – 5.725GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) and  $11 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 11 \text{ dBm} + 10\log_{10}(18.57) = 23.69\text{dBm}$ .*

| Mode    | Freq<br>[MHz] | Channel | Detector | 802.11a Conducted Power [dBm] |       |       |       |       |       |       |       |
|---------|---------------|---------|----------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|
|         |               |         |          | Data Rate [Mbps]              |       |       |       |       |       |       |       |
|         |               |         |          | 6                             | 9     | 12    | 18    | 24    | 36    | 48    | 54    |
| 802.11a | 5180          | 36      | AVG      | 13.63                         | 13.73 | 13.64 | 13.75 | 13.70 | 13.74 | 13.80 | 13.77 |
| 802.11a | 5200          | 40      | AVG      | 13.70                         | 13.66 | 13.73 | 13.73 | 13.74 | 13.80 | 13.79 | 13.81 |
| 802.11a | 5220          | 44      | AVG      | 13.70                         | 13.69 | 13.67 | 13.71 | 13.72 | 13.76 | 13.81 | 13.80 |
| 802.11a | 5240          | 48      | AVG      | 13.65                         | 13.72 | 13.74 | 13.71 | 13.77 | 13.75 | 13.81 | 13.88 |
| 802.11a | 5260          | 52      | AVG      | 13.76                         | 13.79 | 13.76 | 13.74 | 13.76 | 13.78 | 13.82 | 13.81 |
| 802.11a | 5280          | 56      | AVG      | 13.70                         | 13.70 | 13.74 | 13.75 | 13.79 | 13.86 | 13.79 | 13.87 |
| 802.11a | 5300          | 60      | AVG      | 13.66                         | 13.66 | 13.69 | 13.82 | 13.76 | 13.79 | 13.78 | 13.80 |
| 802.11a | 5320          | 64      | AVG      | 13.62                         | 13.64 | 13.68 | 13.72 | 13.67 | 13.76 | 13.74 | 13.81 |
| 802.11a | 5500          | 100     | AVG      | 13.51                         | 13.56 | 13.50 | 13.60 | 13.67 | 13.56 | 13.67 | 13.58 |
| 802.11a | 5520          | 104     | AVG      | 13.39                         | 13.38 | 13.44 | 13.46 | 13.51 | 13.55 | 13.62 | 13.56 |
| 802.11a | 5540          | 108     | AVG      | 13.36                         | 13.38 | 13.37 | 13.39 | 13.45 | 13.45 | 13.46 | 13.53 |
| 802.11a | 5560          | 112     | AVG      | 13.25                         | 13.29 | 13.40 | 13.45 | 13.27 | 13.41 | 13.42 | 13.48 |
| 802.11a | 5580          | 116     | AVG      | 13.19                         | 13.20 | 13.15 | 13.26 | 13.26 | 13.31 | 13.30 | 13.33 |
| 802.11a | 5660          | 132     | AVG      | 12.96                         | 12.95 | 12.99 | 13.11 | 13.08 | 12.99 | 13.02 | 13.07 |
| 802.11a | 5680          | 136     | AVG      | 12.94                         | 12.96 | 12.92 | 13.05 | 12.86 | 13.00 | 12.98 | 13.05 |
| 802.11a | 5700          | 140     | AVG      | 12.97                         | 12.82 | 12.85 | 12.80 | 12.92 | 12.88 | 12.93 | 12.91 |

Table 6-3. UNII (802.11a) Maximum Conducted Output Power

| Mode    | Freq<br>[MHz] | Channel | Detector | 802.11n (5GHz) Conducted Power [dBm] |         |           |         |         |         |         |         |
|---------|---------------|---------|----------|--------------------------------------|---------|-----------|---------|---------|---------|---------|---------|
|         |               |         |          | Data Rate [Mbps]                     |         |           |         |         |         |         |         |
|         |               |         |          | 6.5/7.2                              | 13/14.4 | 19.5/21.7 | 26/28.9 | 39/43.4 | 52/57.8 | 58.5/65 | 65/72.2 |
| 802.11n | 5180          | 36      | AVG      | 12.18                                | 12.25   | 12.30     | 12.33   | 12.29   | 12.36   | 12.39   | 12.37   |
| 802.11n | 5200          | 40      | AVG      | 12.26                                | 12.27   | 12.28     | 12.31   | 12.22   | 12.35   | 12.27   | 12.42   |
| 802.11n | 5220          | 44      | AVG      | 12.26                                | 12.32   | 12.36     | 12.33   | 12.40   | 12.39   | 12.49   | 12.48   |
| 802.11n | 5240          | 48      | AVG      | 12.32                                | 12.31   | 12.39     | 12.42   | 12.44   | 12.55   | 12.47   | 12.49   |
| 802.11n | 5260          | 52      | AVG      | 12.31                                | 12.29   | 12.34     | 12.35   | 12.40   | 12.30   | 12.43   | 12.39   |
| 802.11n | 5280          | 56      | AVG      | 12.27                                | 12.37   | 12.39     | 12.37   | 12.39   | 12.46   | 12.53   | 12.44   |
| 802.11n | 5300          | 60      | AVG      | 12.29                                | 12.33   | 12.40     | 12.40   | 12.44   | 12.46   | 12.42   | 12.41   |
| 802.11n | 5320          | 64      | AVG      | 12.28                                | 12.27   | 12.27     | 12.34   | 12.42   | 12.40   | 12.44   | 12.47   |
| 802.11n | 5500          | 100     | AVG      | 12.05                                | 12.12   | 12.08     | 12.12   | 12.20   | 12.29   | 12.25   | 12.28   |
| 802.11n | 5520          | 104     | AVG      | 12.04                                | 11.99   | 12.15     | 12.11   | 12.24   | 12.15   | 12.16   | 12.09   |
| 802.11n | 5540          | 108     | AVG      | 12.01                                | 12.01   | 12.10     | 12.16   | 12.02   | 12.13   | 12.09   | 12.15   |
| 802.11n | 5560          | 112     | AVG      | 11.96                                | 12.02   | 12.08     | 11.92   | 12.02   | 12.17   | 12.07   | 12.09   |
| 802.11n | 5580          | 116     | AVG      | 11.95                                | 11.93   | 11.94     | 11.93   | 12.05   | 11.92   | 12.06   | 11.97   |
| 802.11n | 5660          | 132     | AVG      | 11.71                                | 11.71   | 11.57     | 11.73   | 11.63   | 11.70   | 11.70   | 11.75   |
| 802.11n | 5680          | 136     | AVG      | 11.60                                | 11.44   | 11.46     | 11.78   | 11.75   | 11.66   | 11.72   | 11.72   |
| 802.11n | 5700          | 140     | AVG      | 11.55                                | 11.50   | 11.61     | 11.47   | 11.73   | 11.58   | 11.55   | 11.76   |

Table 6-4. UNII (802.11n) Maximum Conducted Output Power

|                                      |                                                                                     |                                                                     |  |  |  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------|--|--|--|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) |  |  |  |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                       |  |  |  | Page 21 of 72                                                                         |                                 |

## 6.4 Peak Power Spectral Density – 802.11a/n

§15.407 (a)(1),(5)

The spectrum analyzer was connected to the antenna terminal while the EUT was operating in a continuous transmission mode at the appropriate center frequencies. Method SA-1, as defined in KDB 789033, was used to measure the power spectral density as described below.

Span was set to encompass the entire emission bandwidth (EBW) of the signal with RBW = 1 MHz and VBW ≥ 3 MHz. A video trigger with the trigger level was set to enable triggering only on full power pulses. The trace averaged for at least 100 traces in power averaging (i.e., RMS) mode. The peak search function on the spectrum analyzer was then used to find the peak of the spectrum.

**The maximum permissible peak power spectral density is 4dBm/MHz in the 5.15GHz – 5.25GHz band and 11dBm/MHz in the 5.25GHz – 5.35 GHz and 5.47 – 5.725GHz bands.**

|          | Freq [MHz] | Channel No. | 802.11 Mode | Data Rate [Mbps] | Measured Power Density [dBm] | Max Permissible Power Density [dBm/MHz] | Margin [dB] |
|----------|------------|-------------|-------------|------------------|------------------------------|-----------------------------------------|-------------|
| Band I   | 5180       | 36          | a           | 6                | 3.560                        | 4.0                                     | -0.44       |
|          | 5200       | 40          | a           | 6                | 3.142                        | 4.0                                     | -0.86       |
|          | 5240       | 48          | a           | 6                | 3.590                        | 4.0                                     | -0.41       |
|          | 5180       | 36          | n           | 6.5/7.2 (MCS0)   | 2.090                        | 4.0                                     | -1.91       |
|          | 5200       | 40          | n           | 6.5/7.2 (MCS0)   | 1.970                        | 4.0                                     | -2.03       |
|          | 5240       | 48          | n           | 6.5/7.2 (MCS0)   | 1.820                        | 4.0                                     | -2.18       |
| Band II  | 5260       | 52          | a           | 6                | 3.990                        | 11.0                                    | -7.01       |
|          | 5280       | 56          | a           | 6                | 3.680                        | 11.0                                    | -7.32       |
|          | 5320       | 64          | a           | 6                | 3.620                        | 11.0                                    | -7.38       |
|          | 5260       | 52          | n           | 6.5/7.2 (MCS0)   | 1.410                        | 11.0                                    | -9.59       |
|          | 5280       | 56          | n           | 6.5/7.2 (MCS0)   | 1.570                        | 11.0                                    | -9.43       |
|          | 5320       | 64          | n           | 6.5/7.2 (MCS0)   | 1.946                        | 11.0                                    | -9.05       |
| Band III | 5500       | 100         | a           | 6                | 3.450                        | 11.0                                    | -7.55       |
|          | 5580       | 116         | a           | 6                | 3.970                        | 11.0                                    | -7.03       |
|          | 5700       | 140         | a           | 6                | 3.620                        | 11.0                                    | -7.38       |
|          | 5500       | 100         | n           | 6.5/7.2 (MCS0)   | 1.000                        | 11.0                                    | -10.00      |
|          | 5580       | 116         | n           | 6.5/7.2 (MCS0)   | 0.420                        | 11.0                                    | -10.58      |
|          | 5700       | 140         | n           | 6.5/7.2 (MCS0)   | -0.568                       | 11.0                                    | -11.57      |

Table 6-5. Conducted Power Spectral Density Measurements

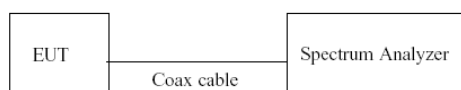
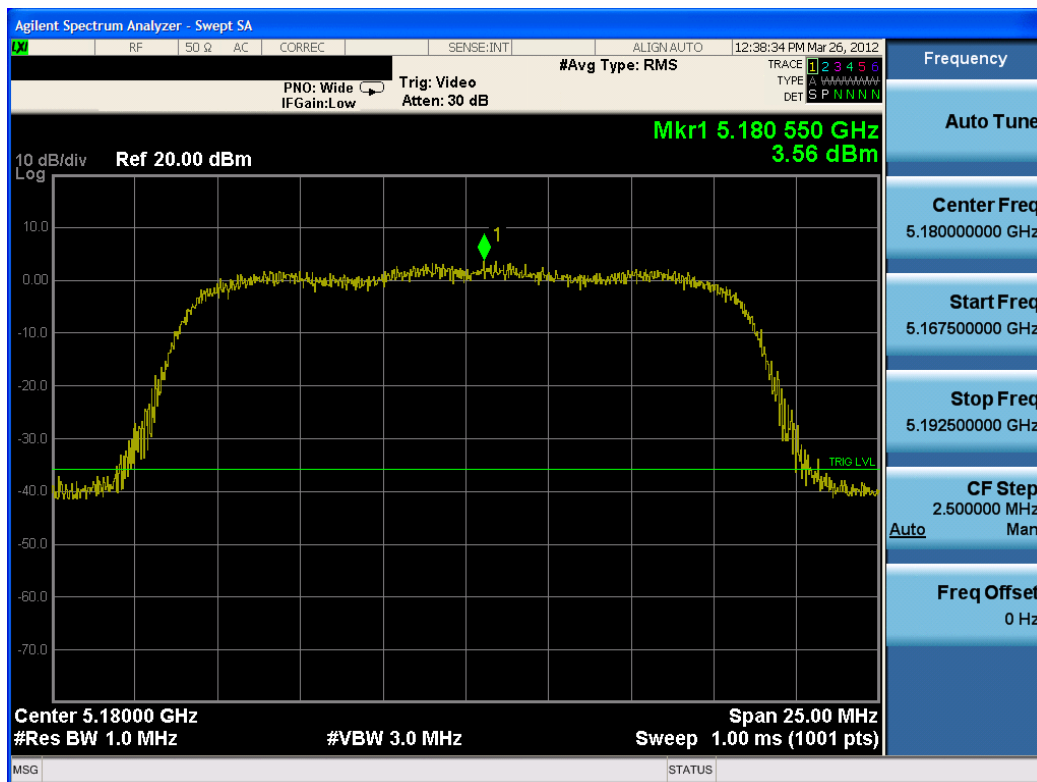
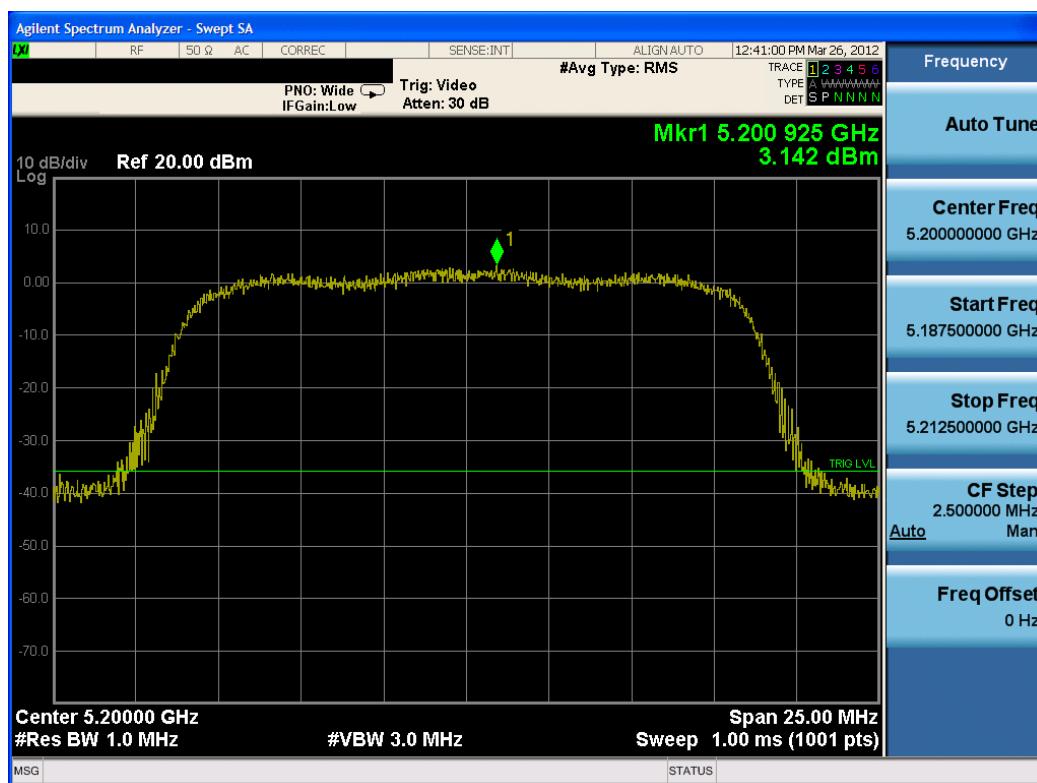


Figure 6-2. Test Instrument & Measurement Setup

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                    |                                                                                       | Page 22 of 72                   |

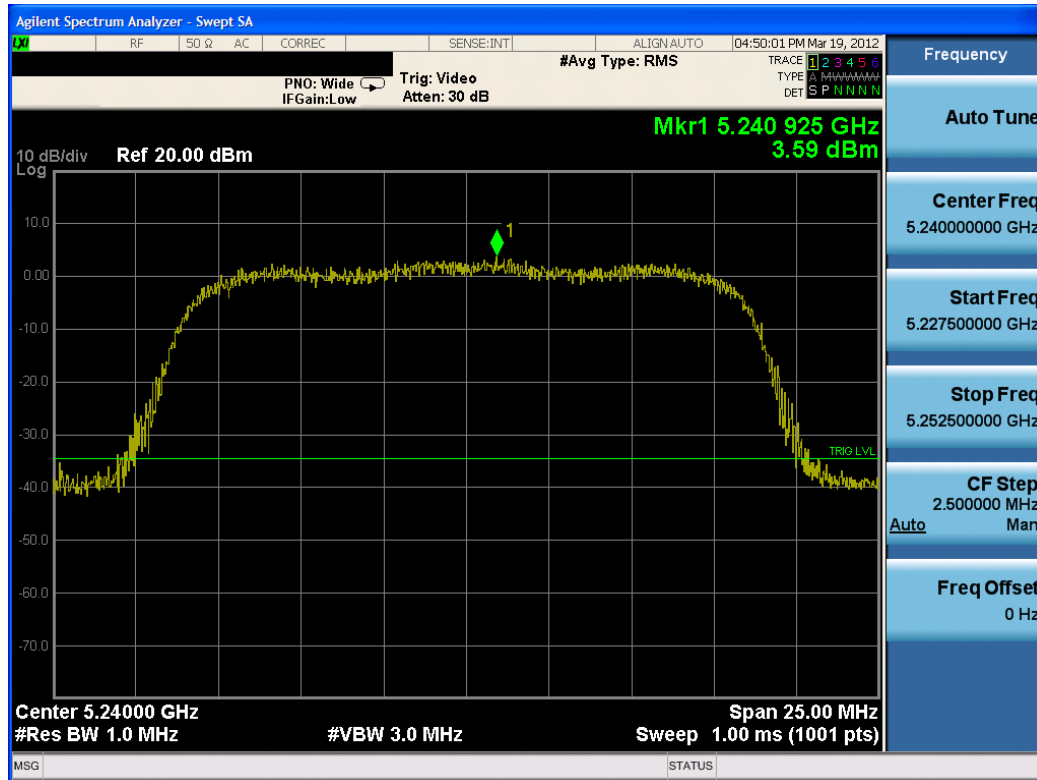


### Plot 6-19. Peak Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 36)

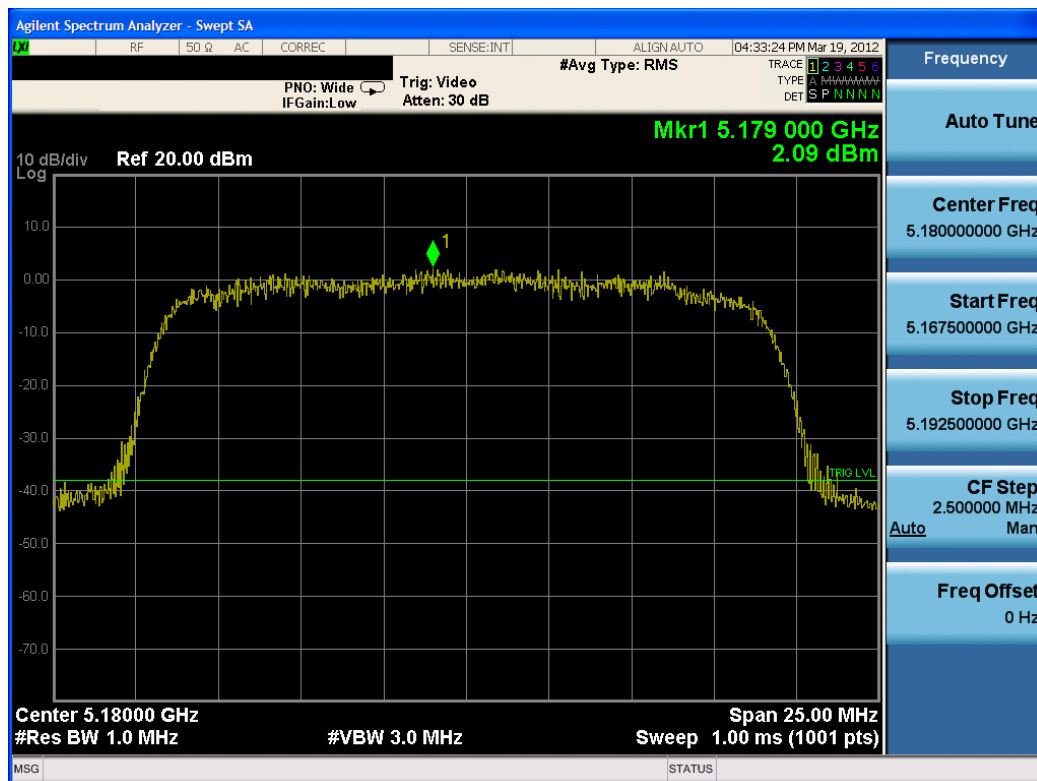


### Plot 6-20. Peak Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 40)

|                                      |                                                                                                                                                                                                                                                       |                               |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  <b>FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                                                                                                                                                                                      | EUT Type:<br>Portable Handset | Page 23 of 72                   |

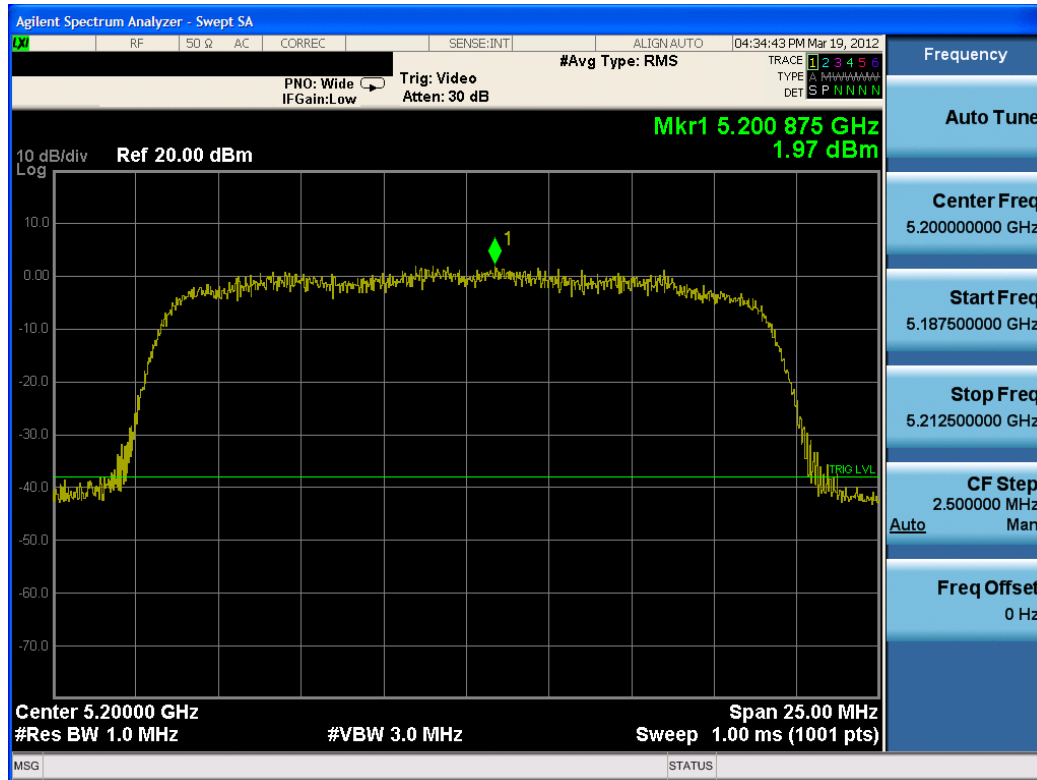


Plot 6-21. Peak Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 48)

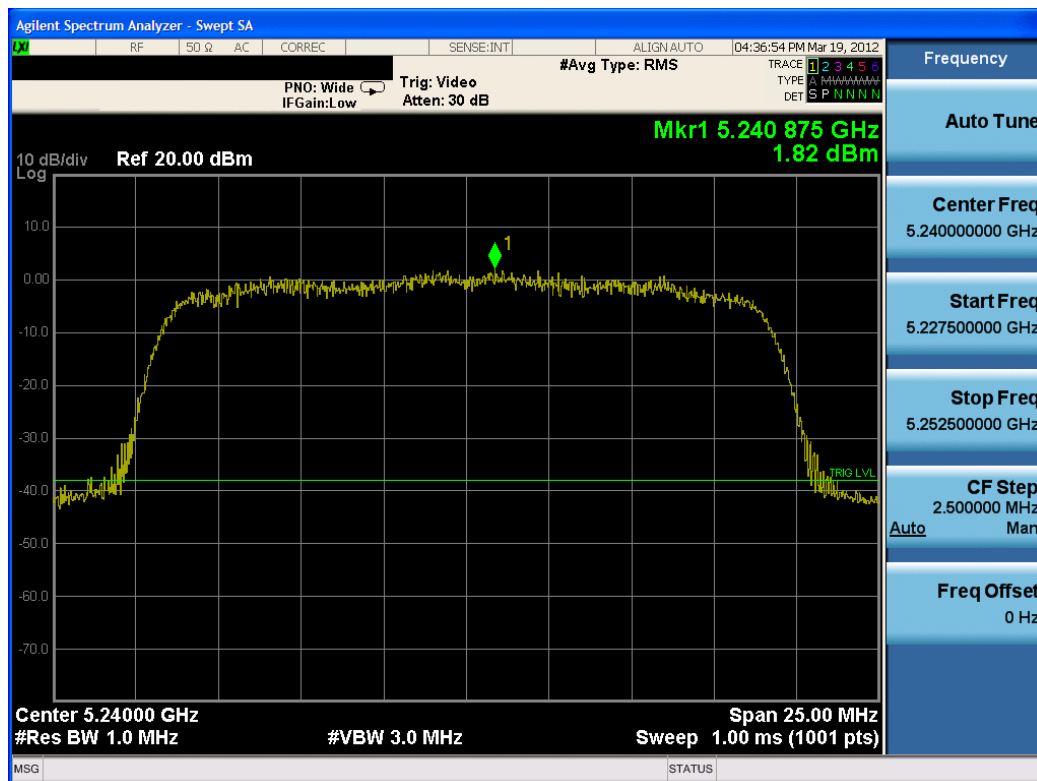


Plot 6-22. Peak Power Spectral Density Plot (802.11n (UNII Band 1) – Ch. 36)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 24 of 72                   |

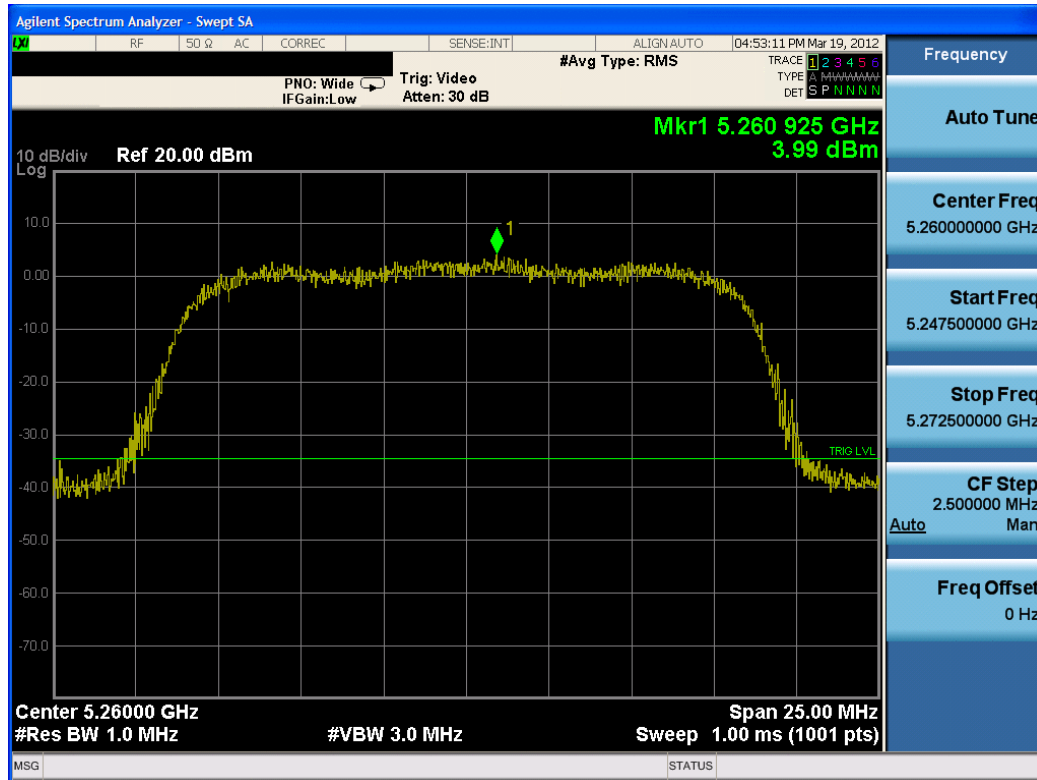


Plot 6-23. Peak Power Spectral Density Plot (802.11n (UNII Band 1) – Ch. 40)

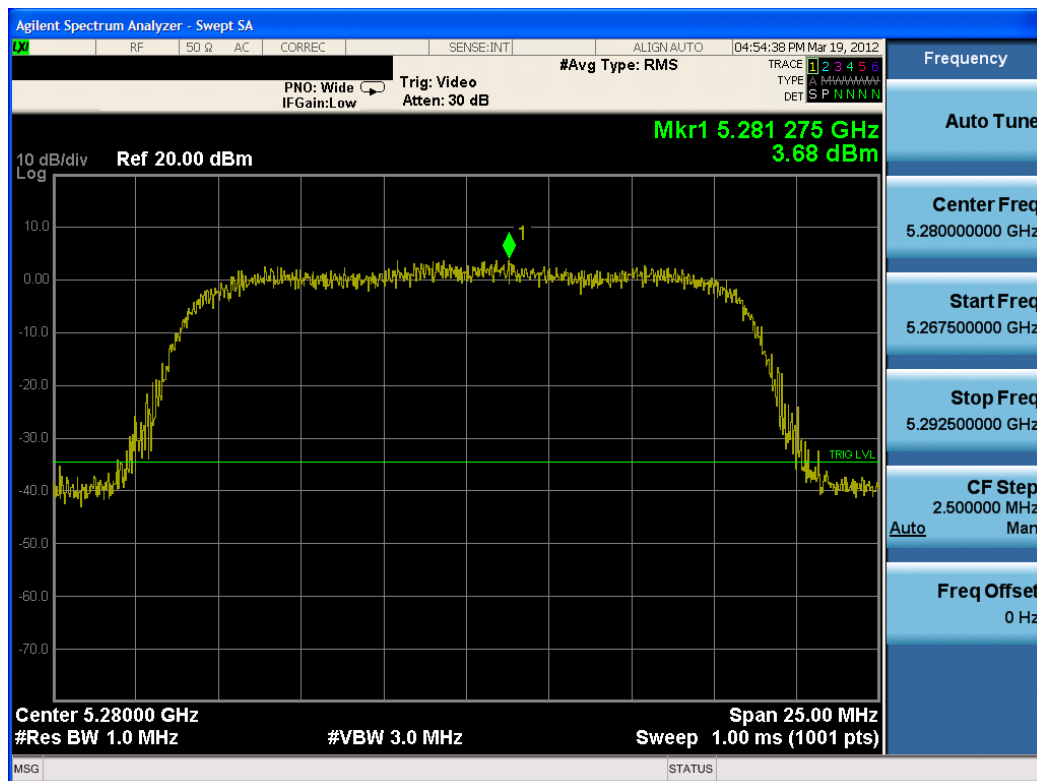


Plot 6-24. Peak Power Spectral Density Plot (802.11n (UNII Band 1) – Ch. 48)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 25 of 72                   |

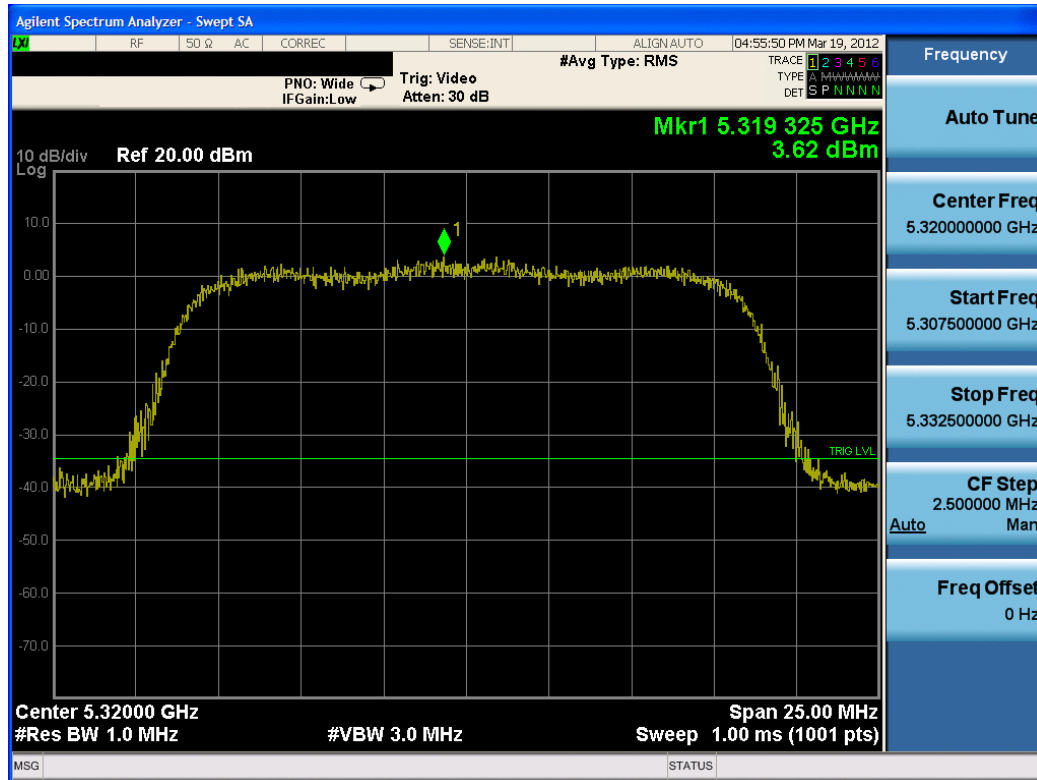


Plot 6-25. Peak Power Spectral Density Plot (802.11a (UNII Band 2) – Ch. 52)

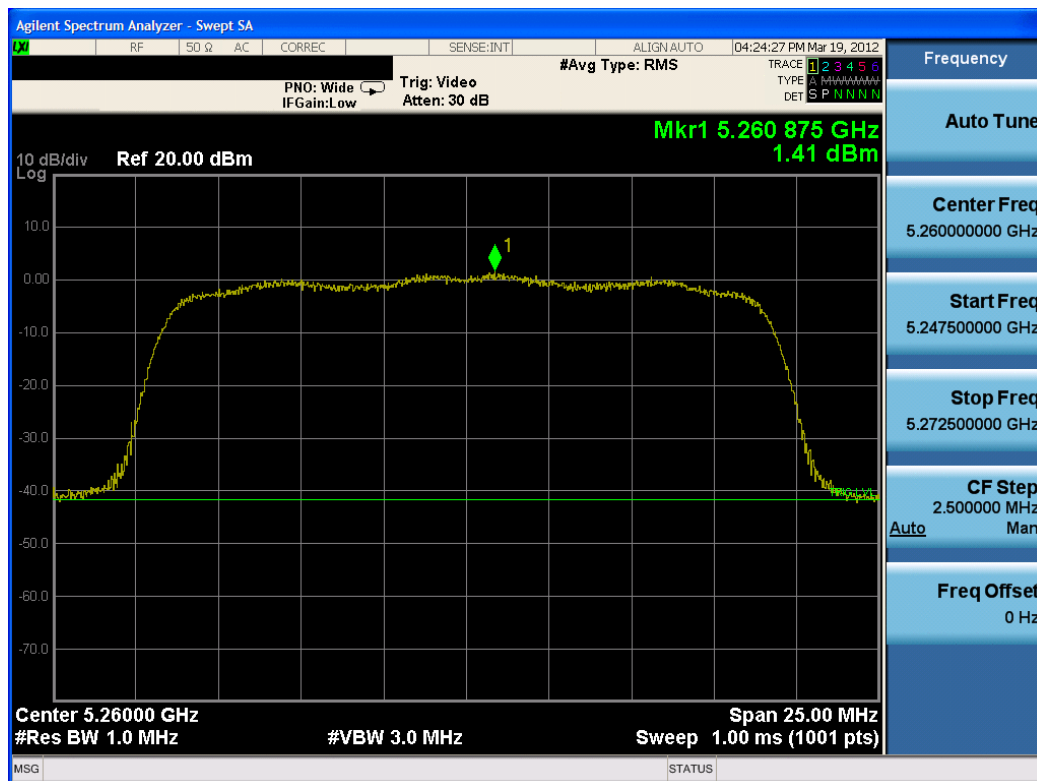


Plot 6-26. Peak Power Spectral Density Plot (802.11a (UNII Band 2) – Ch. 56)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 26 of 72                   |

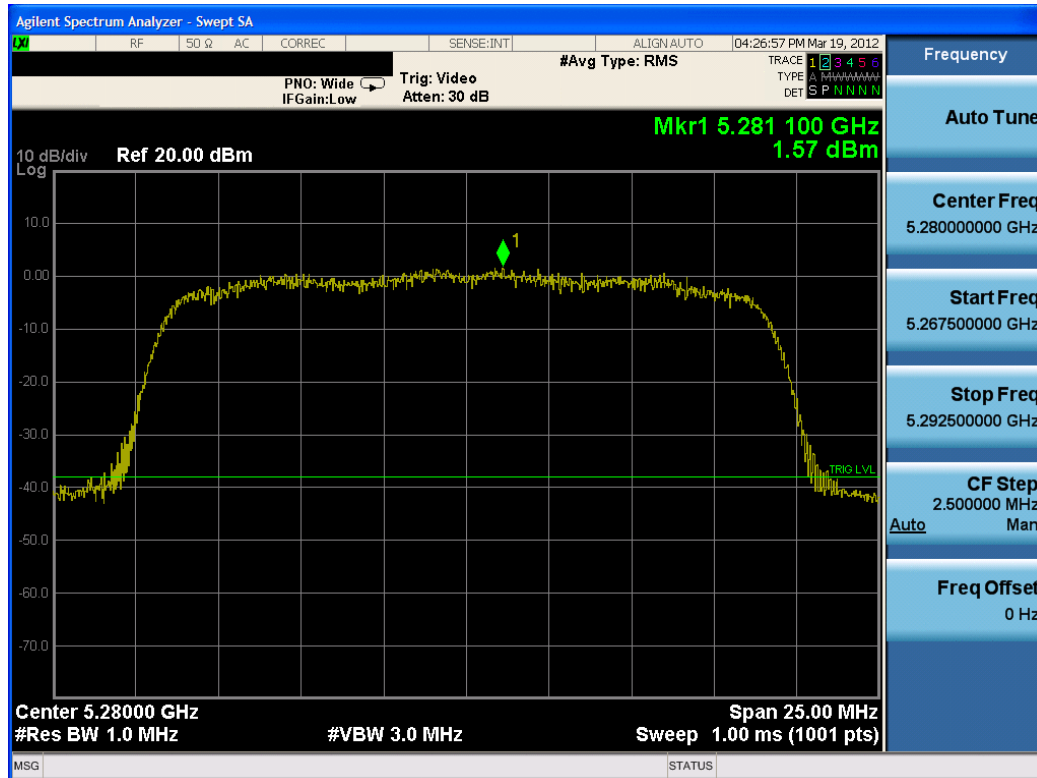


Plot 6-27. Peak Power Spectral Density Plot (802.11a (UNII Band 2) - Ch. 64)

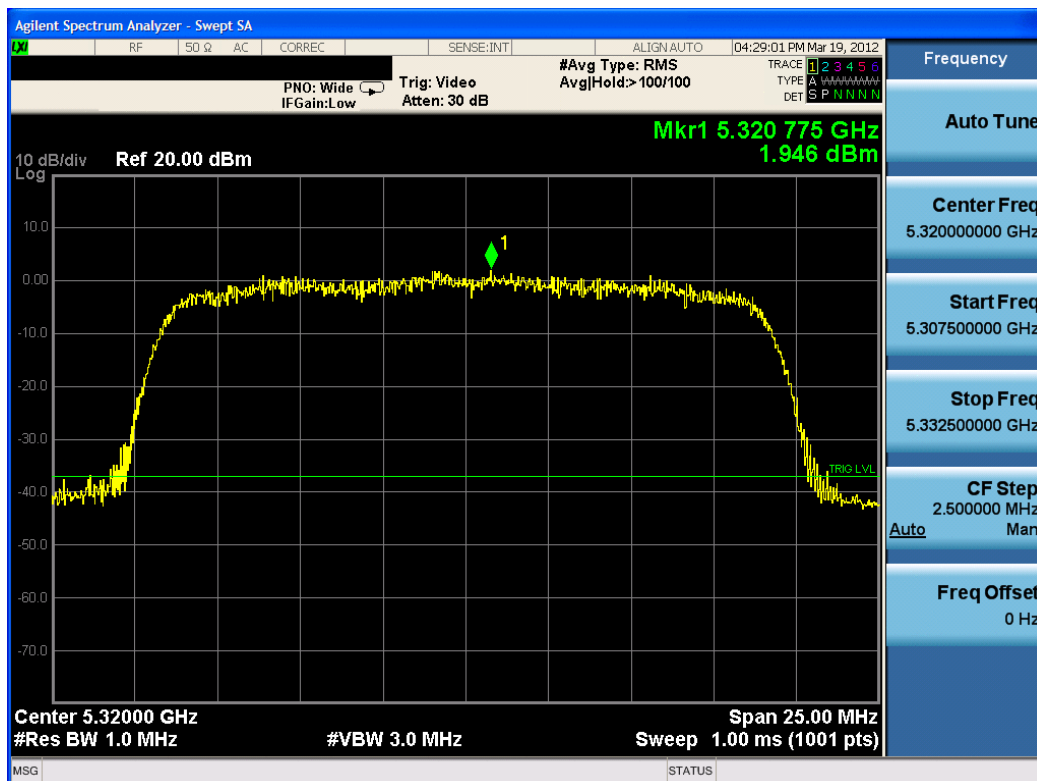


Plot 6-28. Peak Power Spectral Density Plot (802.11n (UNII Band 2) - Ch. 52)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 27 of 72                   |

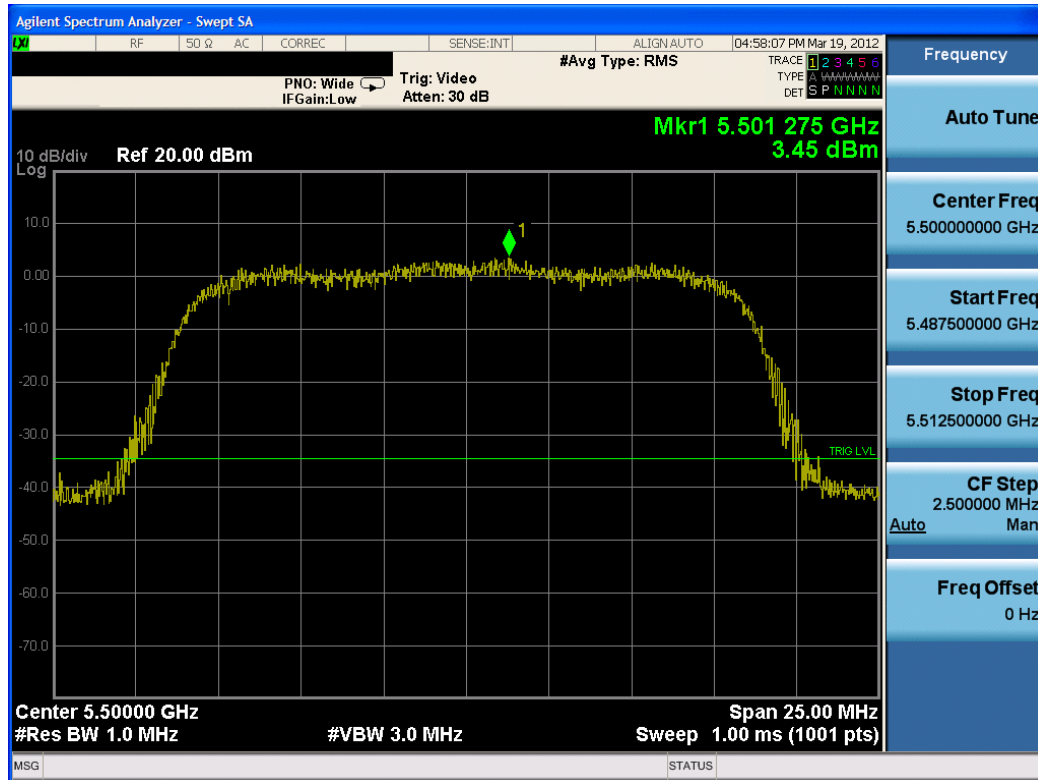


**Plot 6-29. Peak Power Spectral Density Plot (802.11n (UNII Band 2) – Ch. 56)**

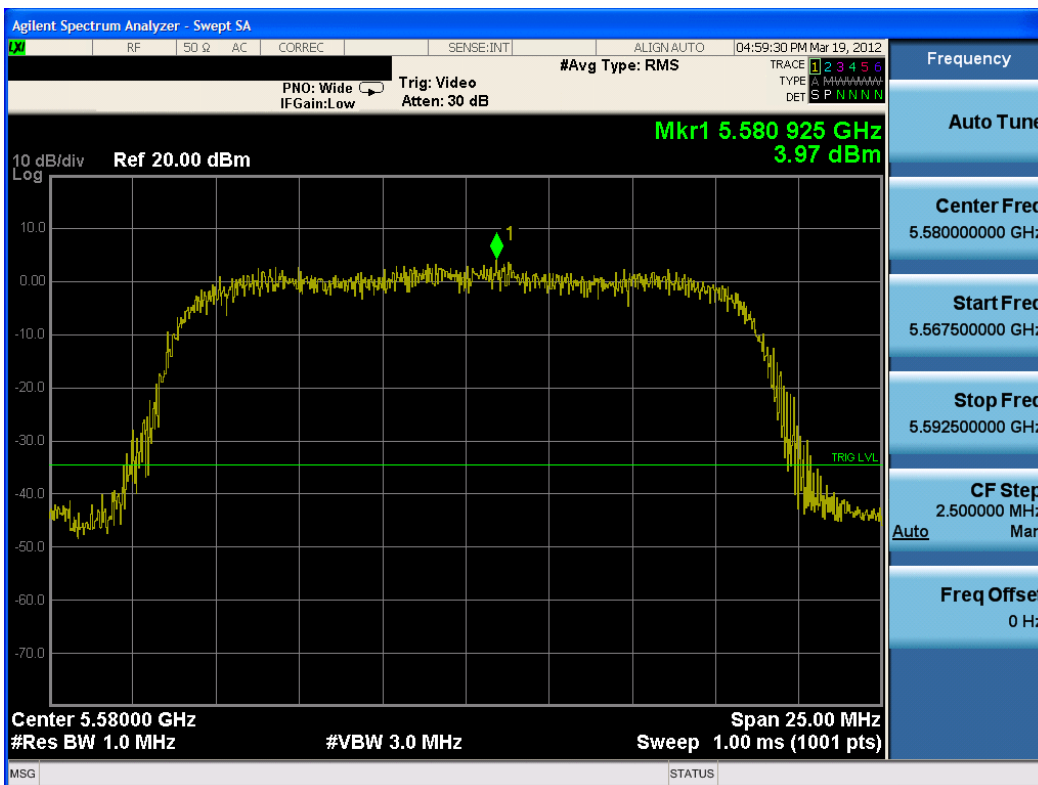


**Plot 6-30. Peak Power Spectral Density Plot (802.11n (UNII Band 2) – Ch. 64)**

|                                             |                                                                                                                                                                                                                                                       |                                      |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------------|
| FCC ID: A3LSCHI405U                         |  <b>FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                                      | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Report S/N:</b><br>0Y1203080272.A3L | <b>Test Dates:</b><br>March 14-26, 2012                                                                                                                                                                                                               | <b>EUT Type:</b><br>Portable Handset | Page 28 of 72                          |

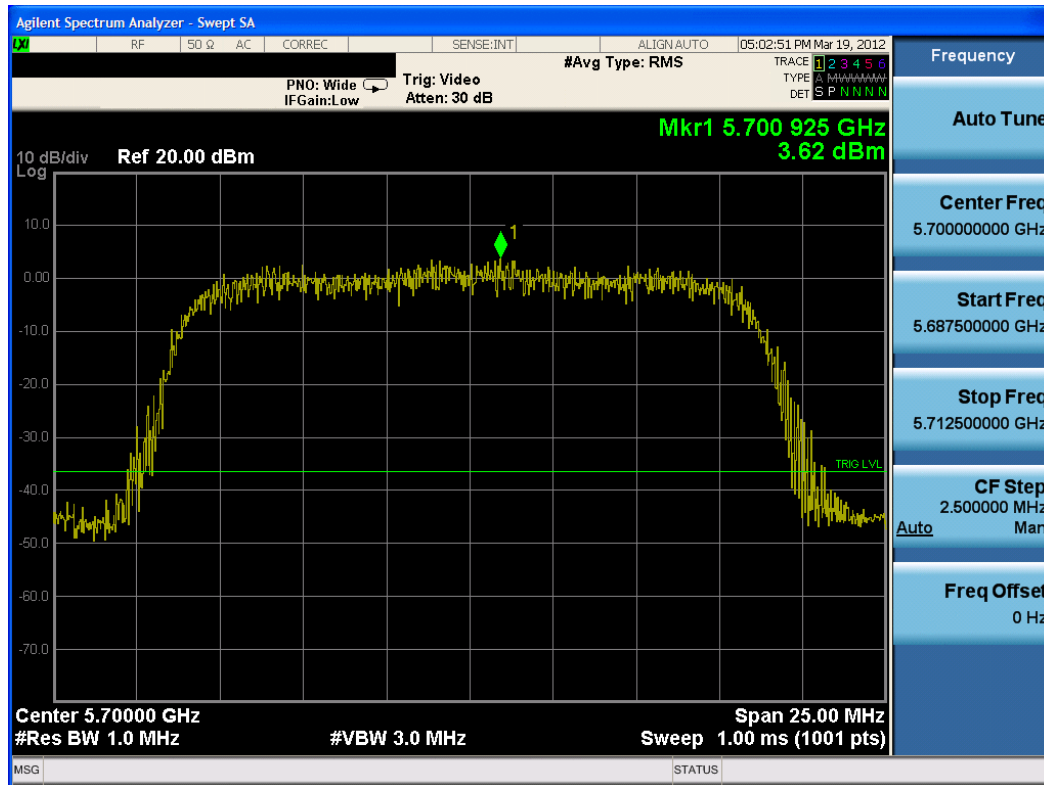


Plot 6-31. Peak Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 100)

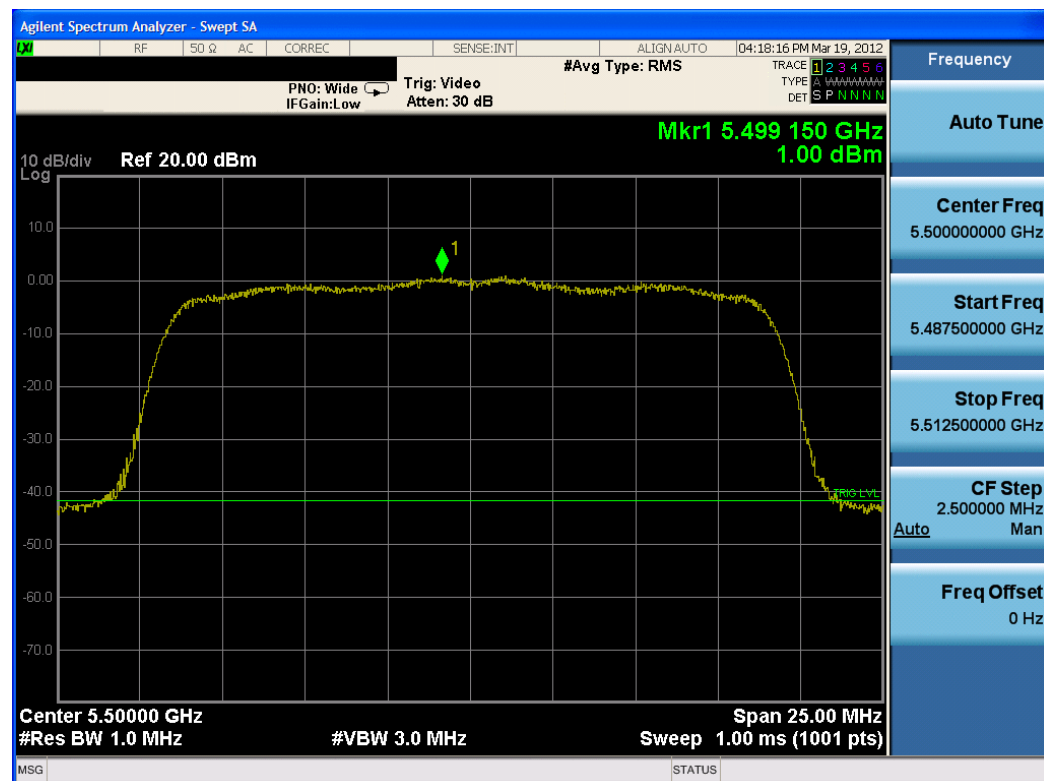


Plot 6-32. Peak Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 116)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 29 of 72                   |

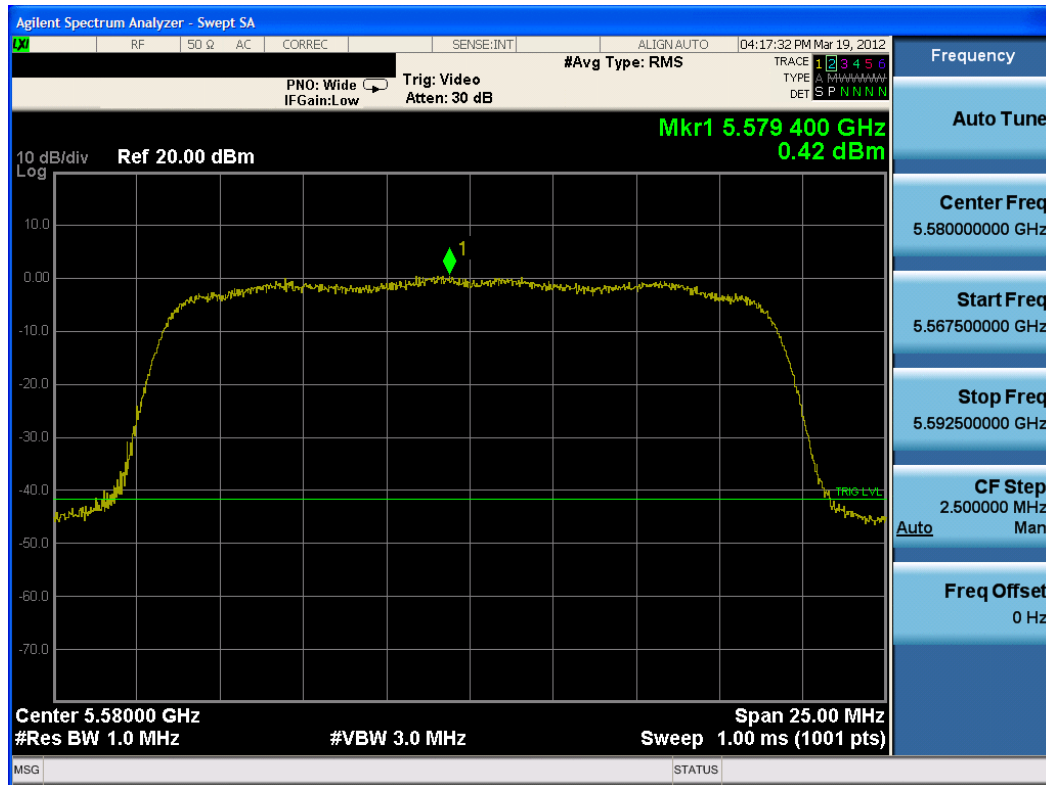


### Plot 6-33. Peak Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 140)

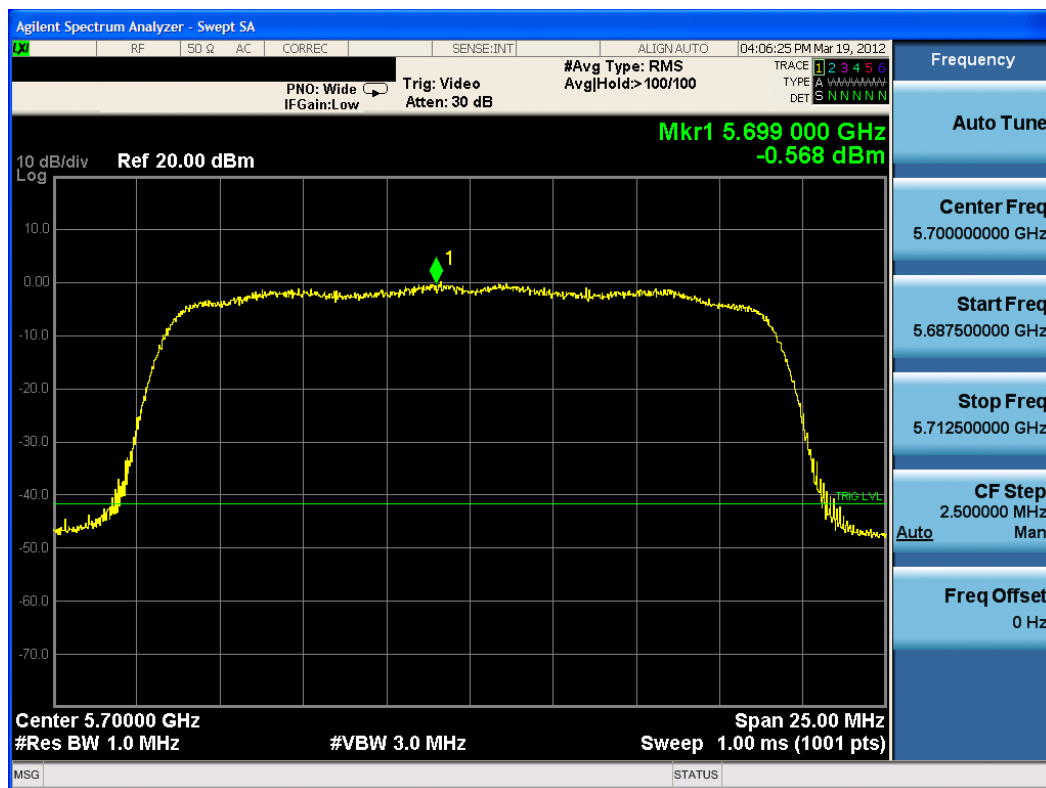


### Plot 6-34. Peak Power Spectral Density Plot (802.11n (UNII Band 3) – Ch. 100)

|                                      |                                                                                                                                                                                                                                                       |                               |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  <b>FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                                                                                                                                                                                      | EUT Type:<br>Portable Handset | Page 30 of 72                   |



Plot 6-35. Peak Power Spectral Density Plot (802.11n (UNII Band 3) – Ch. 116)



Plot 6-36. Peak Power Spectral Density Plot (802.11n (UNII Band 3) – Ch. 140)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 31 of 72                   |

## 6.5 Peak Excursion Ratio – 802.11a/n

§15.407(a)(6)

The spectrum analyzer was connected to the antenna terminal while the EUT was operating in a continuous transmission mode at the appropriate center frequencies. Method SA-1, as defined in KDB 789033, was used to measure the power spectral density as described below. Span was set to encompass the entire emission bandwidth (EBW) of the signal with RBW = 1 MHz and VBW  $\geq$  3 MHz. A video trigger with the trigger level was set to enable triggering only on full power pulses. The trace averaged for at least 100 traces in power averaging (i.e., RMS) mode. The peak search function on the spectrum analyzer was then used to find the peak of the spectrum.

A second trace was measured in peak detector mode with the span set to encompass the entire emission bandwidth and RBW = 1 MHz and VBW  $\geq$  3 MHz. The trace was swept until the trace stabilized and then the peak search function was used to find the peak of the spectrum. Compliance was observed when the ratio of the maximum of the peak-max-hold spectrum to the maximum of the average spectrum for continuous transmission did not exceed 13 dB.

|                                      |                                                                                     |                                                                     |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                       | Page 32 of 72                                                                         |                                 |

## Peak Excursion Ratio – 802.11a/n (Cont'd.) §15.407(a)(6)

*The largest permissible difference between the modulation envelope (measured using a peak hold function) and the maximum conducted output power is 13 dBm/MHz.*

|          | Freq [MHz] | Channel No. | 802.11 Mode | Data Rate [Mbps] | Measured Peak Excursion Ratio [dBm] | Max Permissible Peak Excursion Ratio [dBm/MHz] | Margin [dB] |
|----------|------------|-------------|-------------|------------------|-------------------------------------|------------------------------------------------|-------------|
| Band I   | 5180       | 36          | a           | 6                | 7.08                                | 13.0                                           | -5.92       |
|          | 5200       | 40          | a           | 6                | 7.04                                | 13.0                                           | -5.96       |
|          | 5240       | 48          | a           | 6                | 7.12                                | 13.0                                           | -5.88       |
|          | 5180       | 36          | n           | 6.5/7.2 (MCS0)   | 6.56                                | 13.0                                           | -6.44       |
|          | 5200       | 40          | n           | 6.5/7.2 (MCS0)   | 7.61                                | 13.0                                           | -5.39       |
|          | 5240       | 48          | n           | 6.5/7.2 (MCS0)   | 6.86                                | 13.0                                           | -6.14       |
| Band II  | 5260       | 52          | a           | 6                | 5.89                                | 13.0                                           | -7.11       |
|          | 5280       | 56          | a           | 6                | 7.02                                | 13.0                                           | -5.98       |
|          | 5320       | 64          | a           | 6                | 6.98                                | 13.0                                           | -6.02       |
|          | 5260       | 52          | n           | 6.5/7.2 (MCS0)   | 9.07                                | 13.0                                           | -3.93       |
|          | 5280       | 56          | n           | 6.5/7.2 (MCS0)   | 6.99                                | 13.0                                           | -6.01       |
|          | 5320       | 64          | n           | 6.5/7.2 (MCS0)   | 6.29                                | 13.0                                           | -6.71       |
| Band III | 5500       | 100         | a           | 6                | 6.26                                | 13.0                                           | -6.74       |
|          | 5580       | 116         | a           | 6                | 5.39                                | 13.0                                           | -7.61       |
|          | 5700       | 140         | a           | 6                | 4.92                                | 13.0                                           | -8.08       |
|          | 5500       | 100         | n           | 6.5/7.2 (MCS0)   | 7.91                                | 13.0                                           | -5.09       |
|          | 5580       | 116         | n           | 6.5/7.2 (MCS0)   | 7.81                                | 13.0                                           | -5.19       |
|          | 5700       | 140         | n           | 6.5/7.2 (MCS0)   | 7.86                                | 13.0                                           | -5.14       |

Table 6-6. Conducted Peak Excursion Ratio Measurements

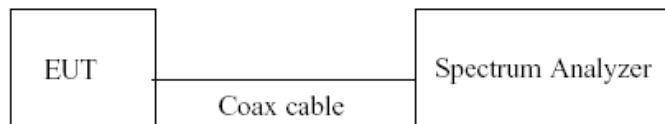
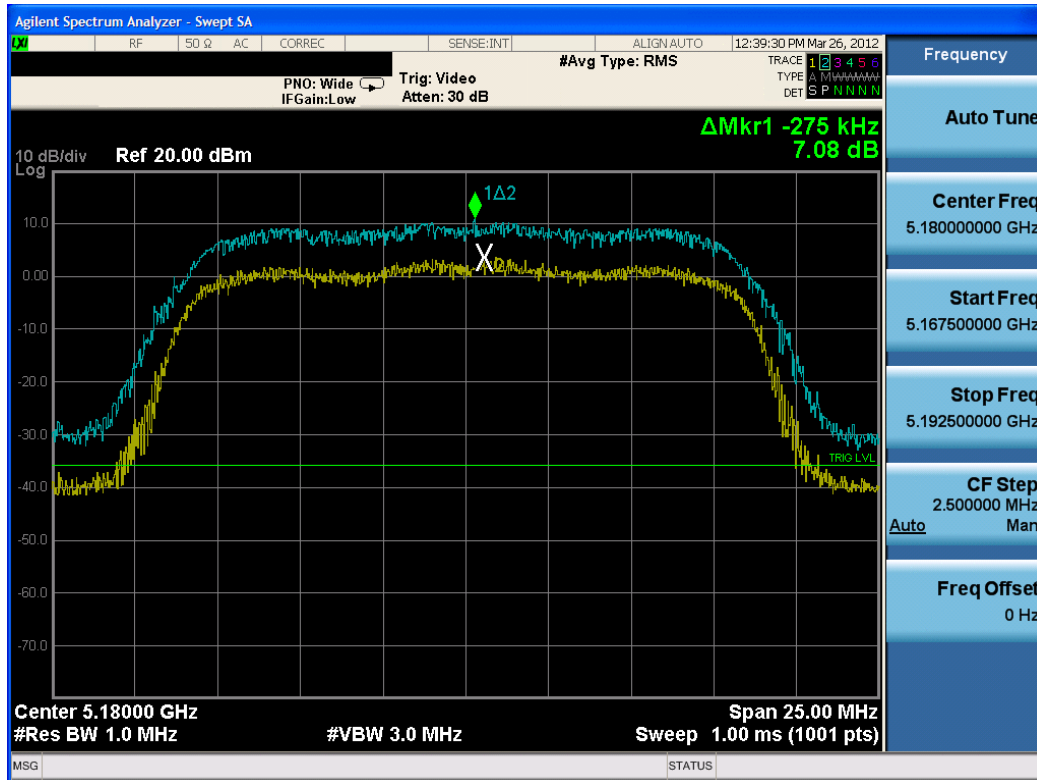
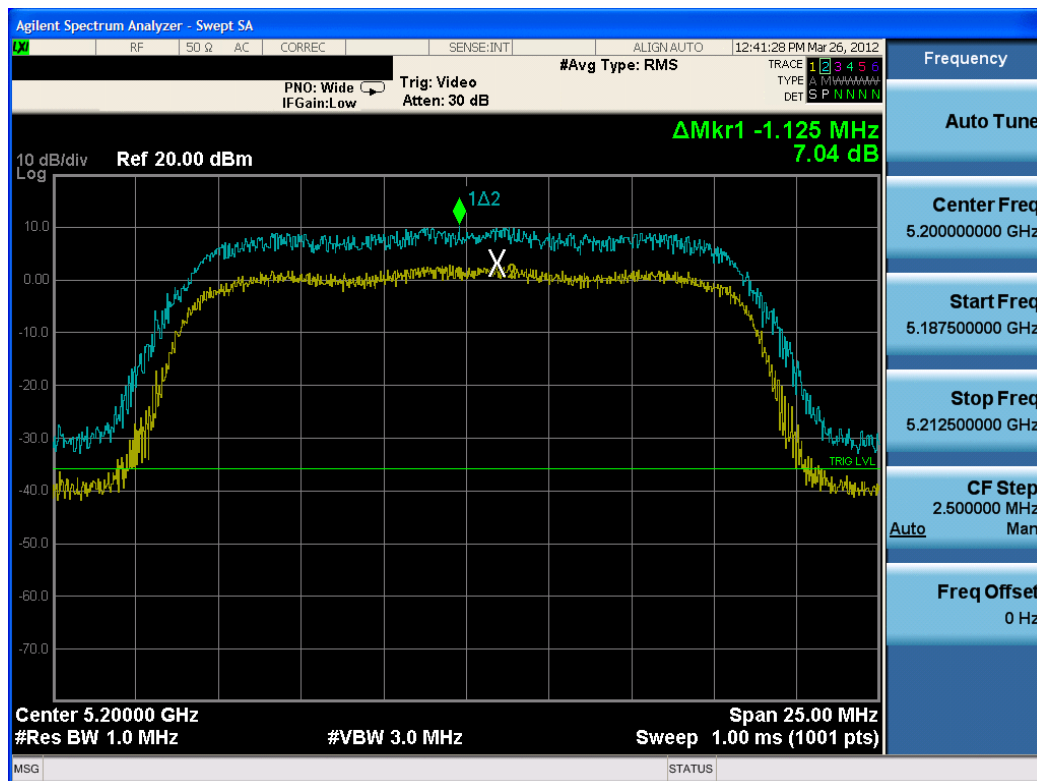


Figure 6-3. Test Instrument & Measurement Setup

|                                      |                                                                                     |                                                                     |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                       |                                                                                       | Page 33 of 72                   |

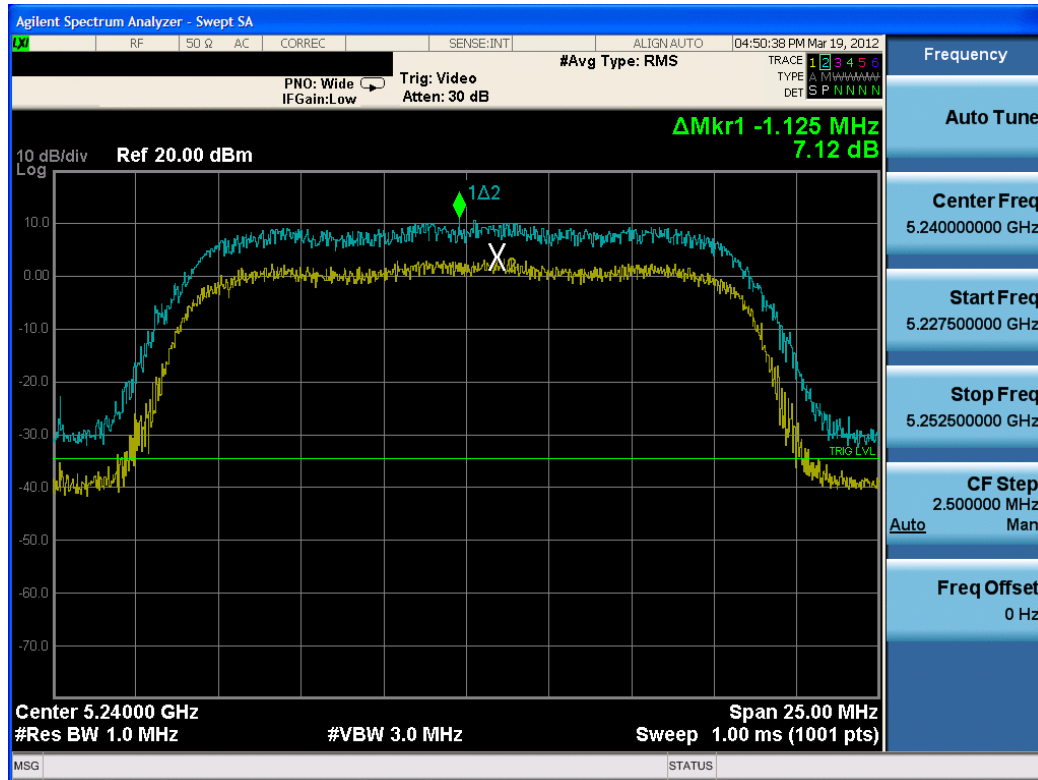


**Plot 6-37. Peak Excursion Ratio Plot (802.11a (UNII Band 1) – Ch. 36)**

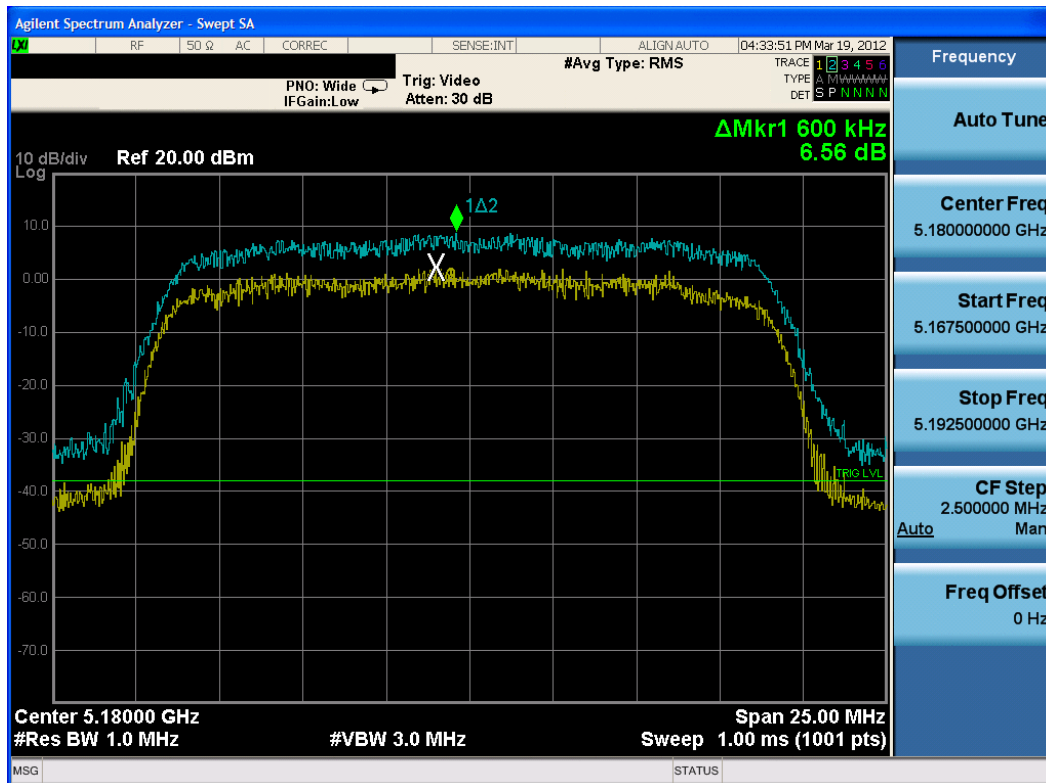


**Plot 6-38. Peak Excursion Ratio Plot (802.11a (UNII Band 1) – Ch. 40)**

|                                      |                                                                                                                                                                                                                                                       |                               |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  <b>FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                                                                                                                                                                                      | EUT Type:<br>Portable Handset | Page 34 of 72                   |

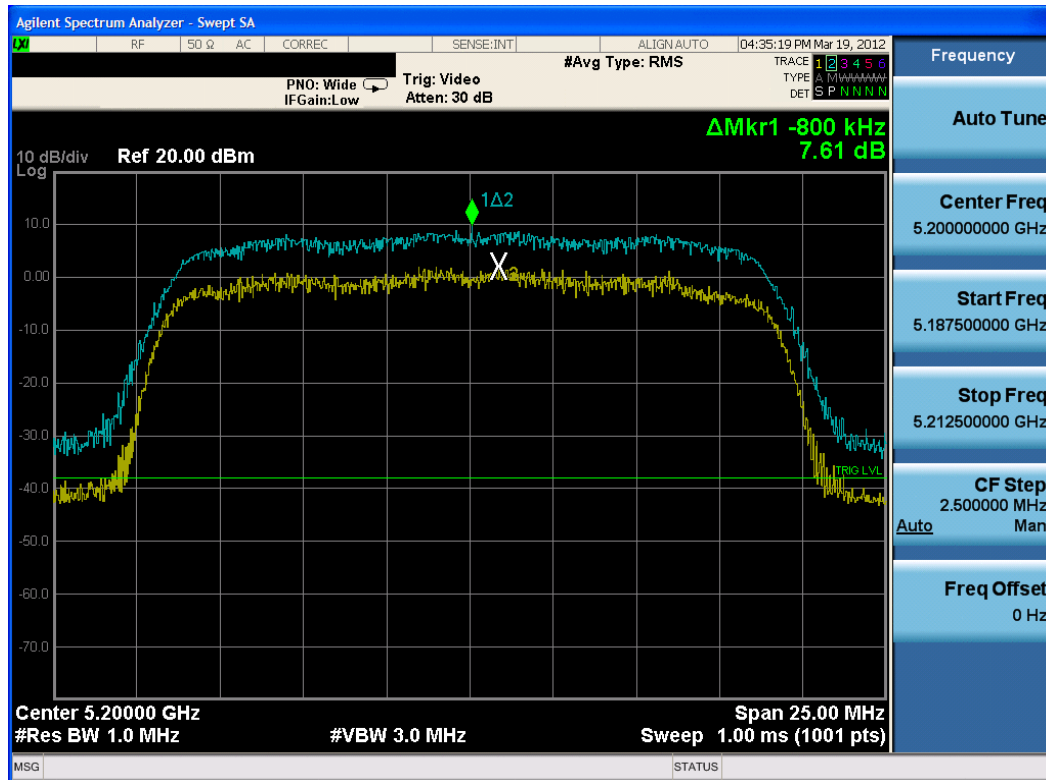


Plot 6-39. Peak Excursion Ratio Plot (802.11a (UNII Band 1) – Ch. 48)

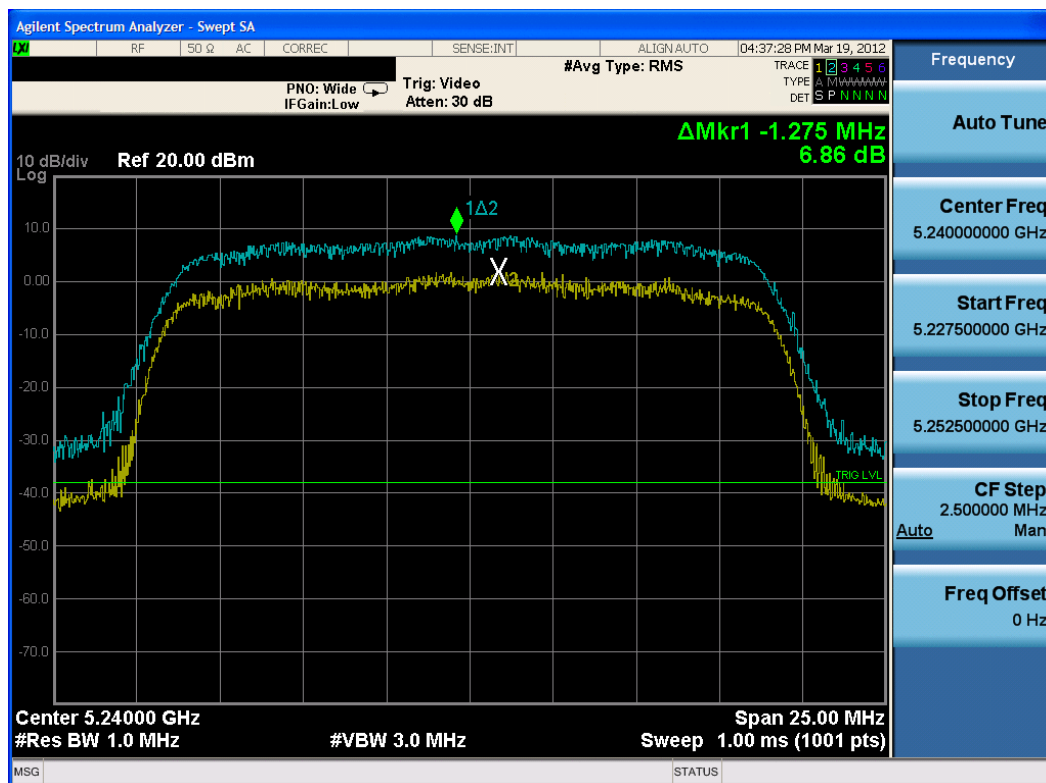


Plot 6-40. Peak Excursion Ratio Plot (802.11n (UNII Band 1) – Ch. 36)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 35 of 72                   |

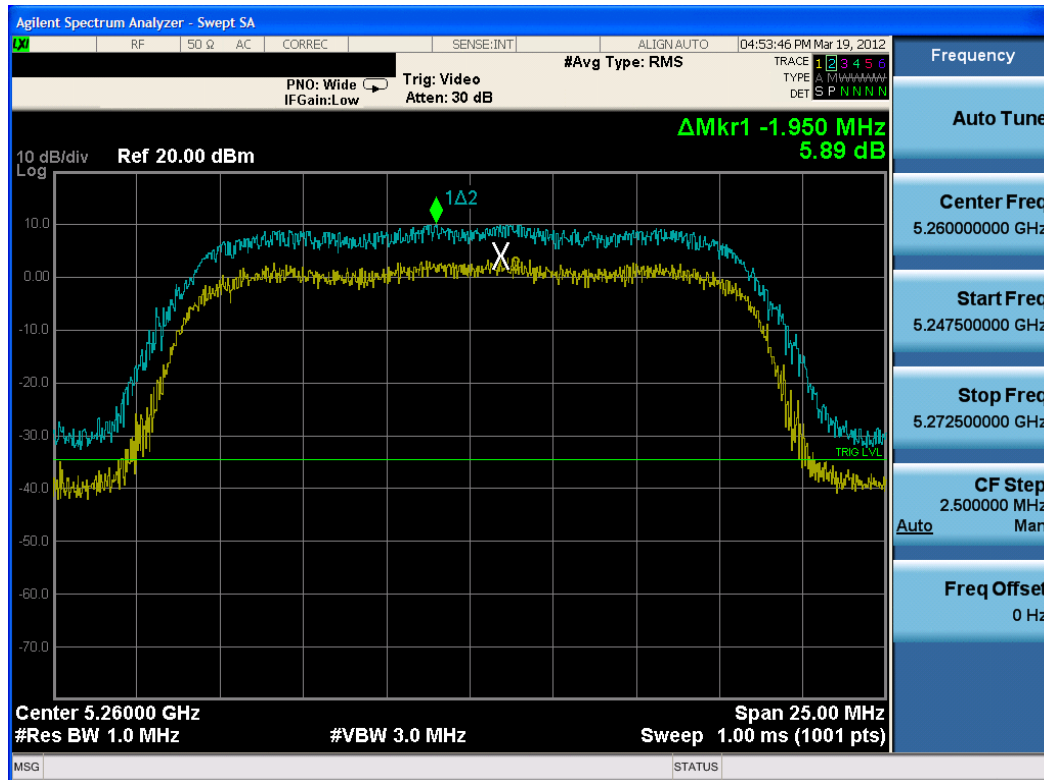


**Plot 6-41. Peak Excursion Ratio Plot (802.11n (UNII Band 1) – Ch. 40)**

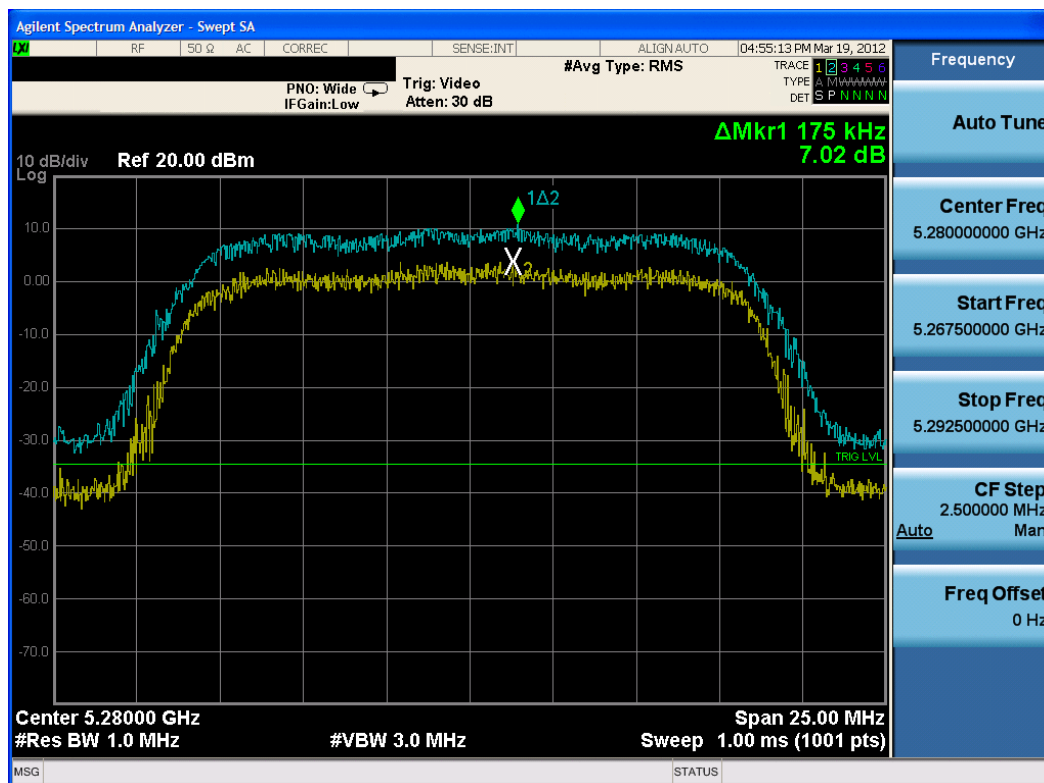


**Plot 6-42. Peak Excursion Ratio Plot (802.11n (UNII Band 1) – Ch. 48)**

|                                             |                                                                                                                                                                                                                                                       |                                      |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------------|
| FCC ID: A3LSCHI405U                         |  <b>FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                                      | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Report S/N:</b><br>0Y1203080272.A3L | <b>Test Dates:</b><br>March 14-26, 2012                                                                                                                                                                                                               | <b>EUT Type:</b><br>Portable Handset | Page 36 of 72                          |

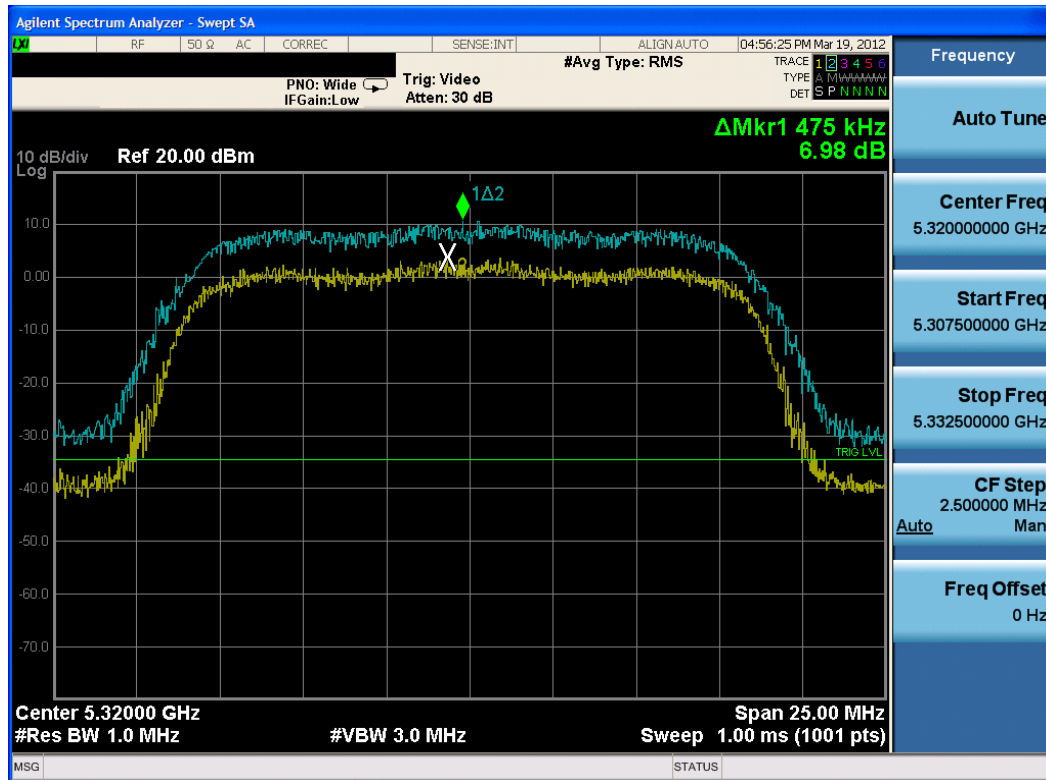


**Plot 6-43. Peak Excursion Ratio Plot (802.11a (UNII Band 2) – Ch. 52)**

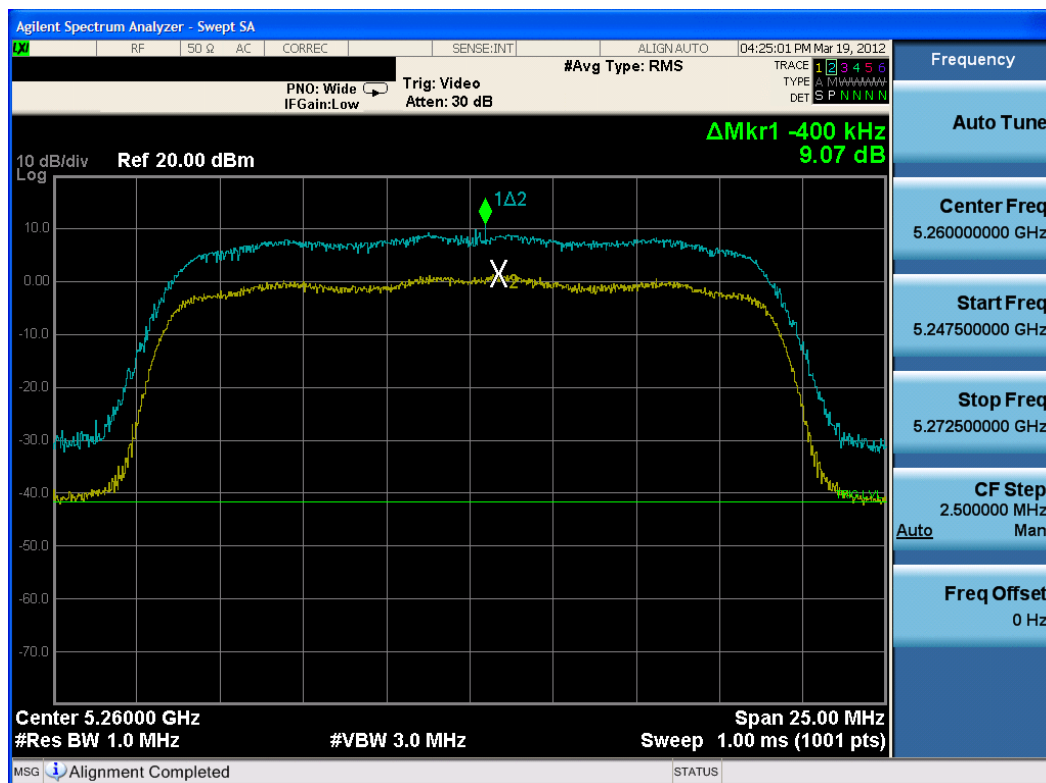


**Plot 6-44. Peak Excursion Ratio Plot (802.11a (UNII Band 2) – Ch. 56)**

|                                      |                                                                                                                                                                                                                                                       |                               |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  <b>FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                                                                                                                                                                                      | EUT Type:<br>Portable Handset | Page 37 of 72                   |

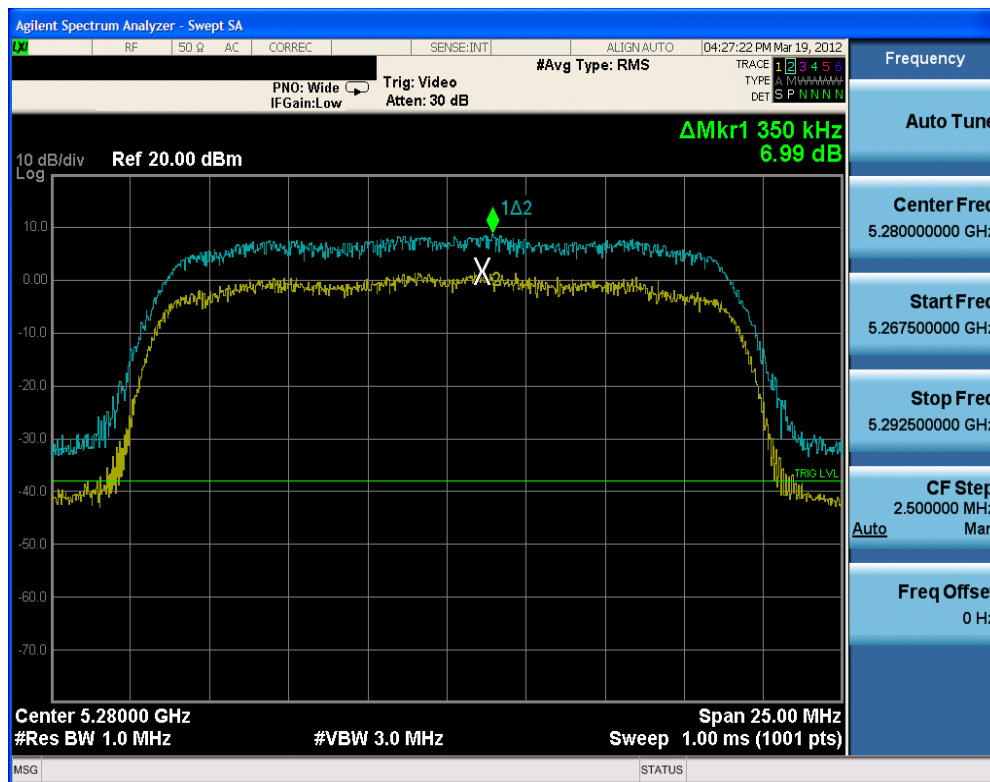


**Plot 6-45. Peak Excursion Ratio Plot (802.11a (UNII Band 2) – Ch. 64)**

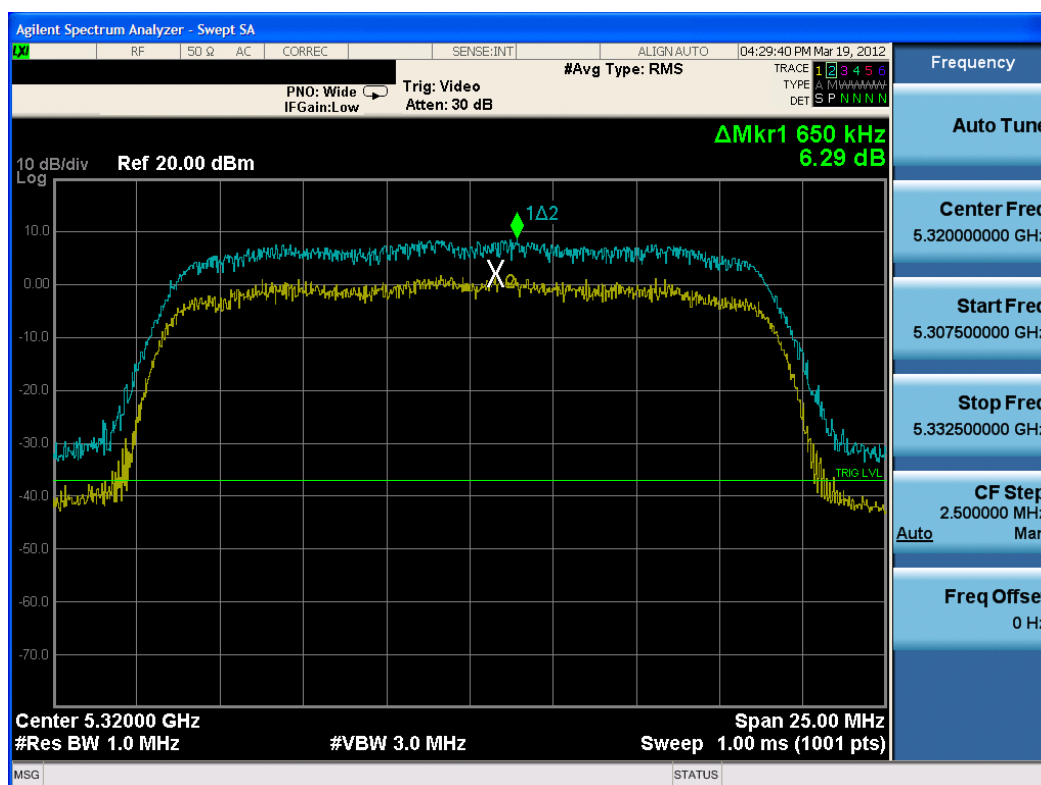


Plot 6-46. Peak Excursion Ratio Plot (802.11n (UNII Band 2) – Ch. 52)

|                                      |                                                                                                                                                                                                                                                       |                               |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  <b>FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                                                                                                                                                                                      | EUT Type:<br>Portable Handset | Page 38 of 72                   |

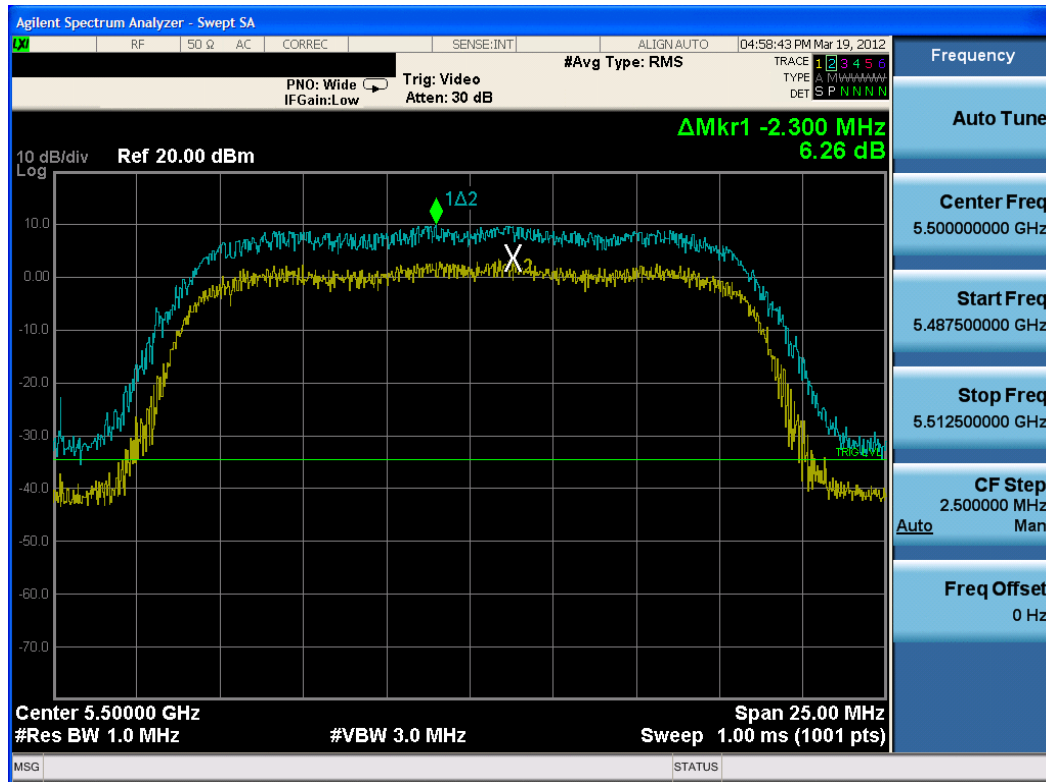


**Plot 6-47. Peak Excursion Ratio Plot (802.11n (UNII Band 2) – Ch. 56)**

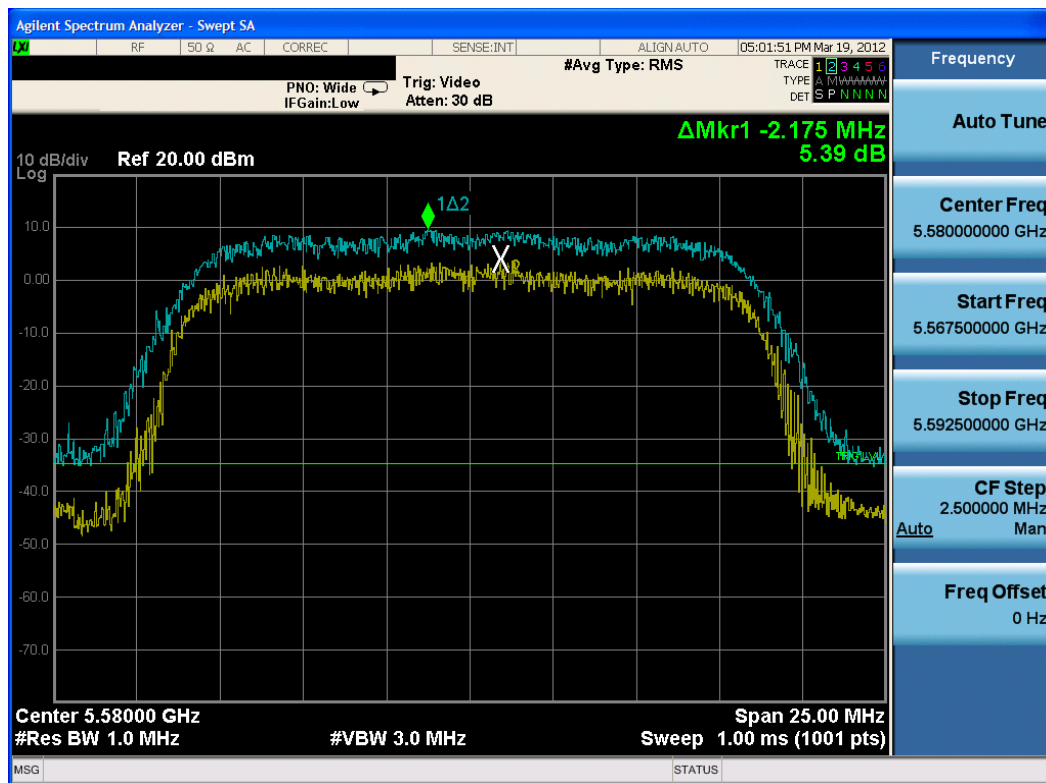


**Plot 6-48. Peak Excursion Ratio Plot (802.11n (UNII Band 2) – Ch. 64)**

|                                      |                                                                                                                                                                                                                                                       |                               |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  <b>FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                                                                                                                                                                                      | EUT Type:<br>Portable Handset | Page 39 of 72                   |

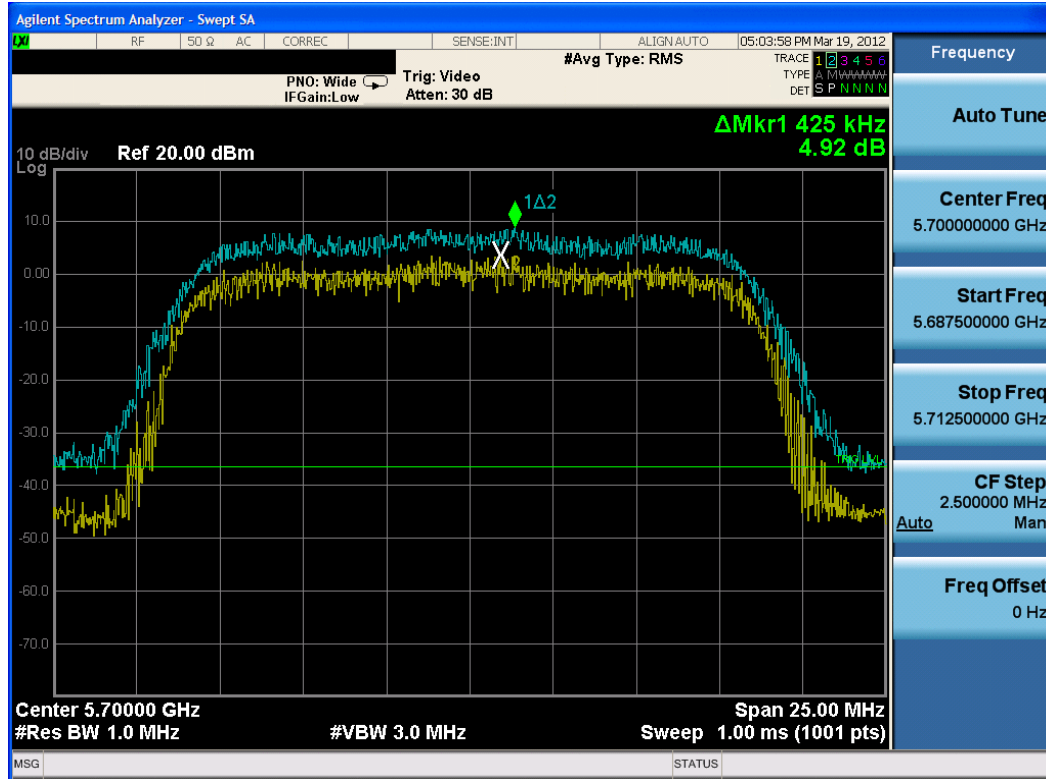


Plot 6-49. Peak Excursion Ratio Plot (802.11a (UNII Band 3) – Ch. 100)

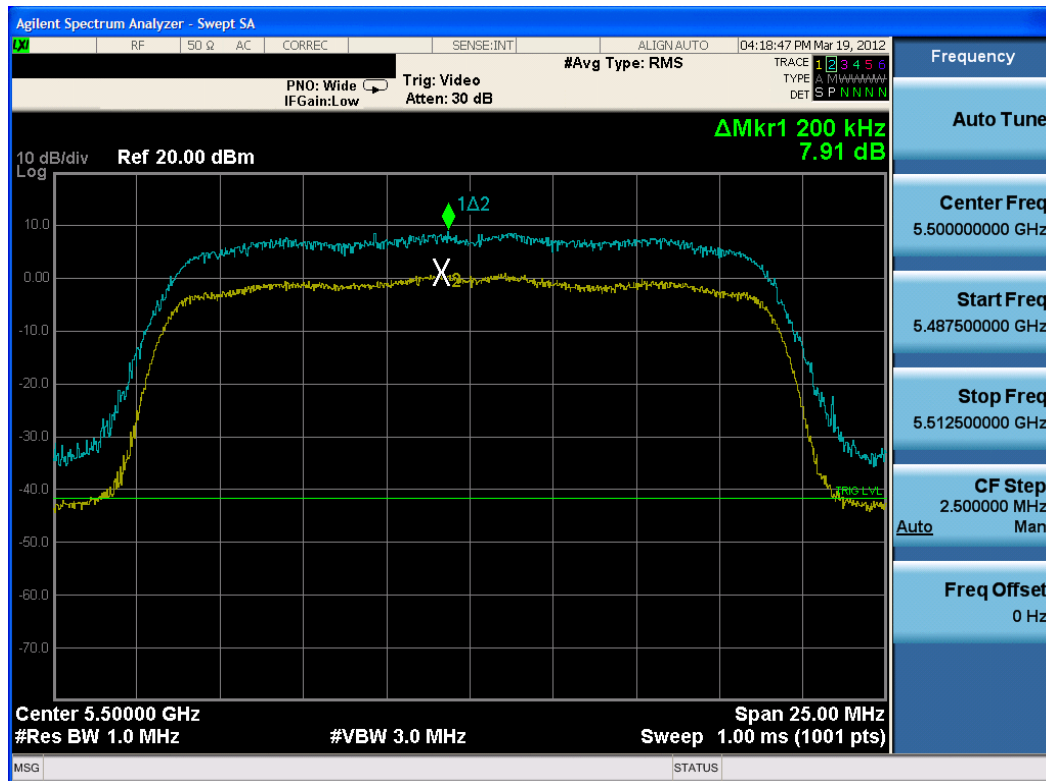


Plot 6-50. Peak Excursion Ratio Plot (802.11a (UNII Band 3) – Ch. 116)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 40 of 72                   |

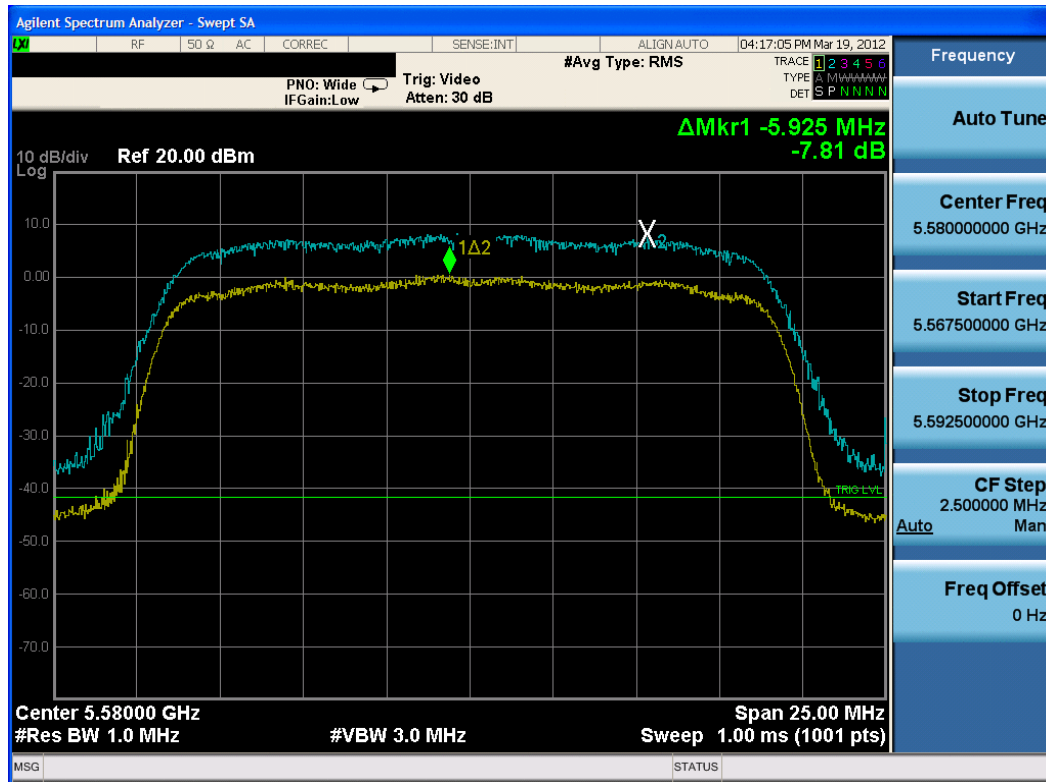


Plot 6-51. Peak Excursion Ratio Plot (802.11a (UNII Band 3) – Ch. 140)

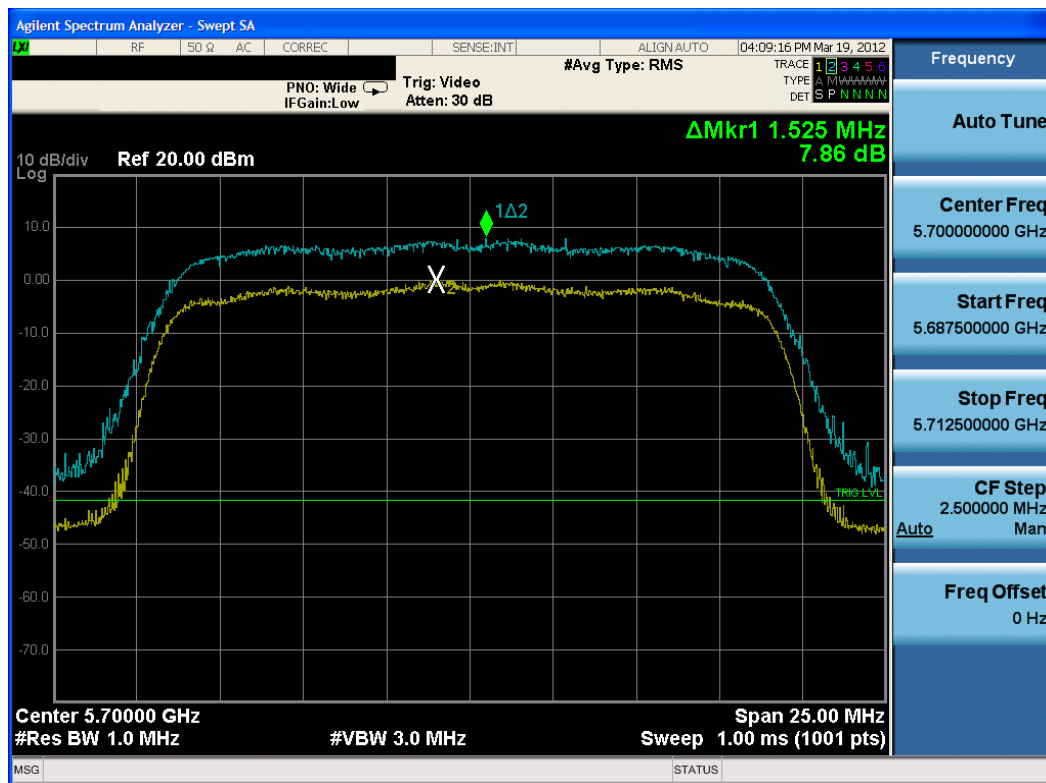


Plot 6-52. Peak Excursion Ratio Plot (802.11n (UNII Band 3) – Ch. 100)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 41 of 72                   |



Plot 6-53. Peak Excursion Ratio Plot (802.11n (UNII Band 3) – Ch. 116)



Plot 6-54. Peak Excursion Ratio Plot (802.11n (UNII Band 3) – Ch. 140)

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 42 of 72                   |

## 6.6 Frequency Stability

### §15.407(g)

The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between -30°C and +50°C. The temperature was incremented by 10° intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

OPERATING FREQUENCY: 5,180,000,000 Hz

CHANNEL: 36

REFERENCE VOLTAGE: 3.7 VDC

| VOLTAGE (%)    | POWER (VDC) | TEMP (°C)  | FREQUENCY (Hz) | Freq. Dev. (Hz) | Deviation (%) |
|----------------|-------------|------------|----------------|-----------------|---------------|
| 100 %          | 3.70        | + 20 (Ref) | 5,180,000,005  | 5               | 0.0000001     |
| 100 %          |             | - 30       | 5,180,000,008  | 8               | 0.0000002     |
| 100 %          |             | - 20       | 5,180,000,005  | 5               | 0.0000001     |
| 100 %          |             | - 10       | 5,180,000,002  | 2               | 0.0000000     |
| 100 %          |             | 0          | 5,180,000,005  | 5               | 0.0000001     |
| 100 %          |             | + 10       | 5,180,000,009  | 9               | 0.0000002     |
| 100 %          |             | + 20       | 5,180,000,008  | 8               | 0.0000002     |
| 100 %          |             | + 30       | 5,180,000,007  | 7               | 0.0000001     |
| 100 %          |             | + 40       | 5,180,000,001  | 1               | 0.0000000     |
| 100 %          |             | + 50       | 5,180,000,002  | 2               | 0.0000000     |
| 115 %          | 4.26        | + 20       | 5,180,000,008  | 8               | 0.0000002     |
| BATT. ENDPOINT | 3.40        | + 20       | 5,180,000,002  | 2               | 0.0000000     |

**Table 6-7. Frequency Stability Measurements for UNII Band 1 (Ch. 36)**

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                    | Page 43 of 72                                                                         |                                 |

## Frequency Stability (Cont'd)

### §15.407(g)

The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between -30°C and +50°C. The temperature was incremented by 10° intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

OPERATING FREQUENCY: 5,260,000,000 Hz

CHANNEL: 52

REFERENCE VOLTAGE: 3.7 VDC

| VOLTAGE (%)    | POWER (VDC) | TEMP (°C)  | FREQUENCY (Hz) | Freq. Dev. (Hz) | Deviation (%) |
|----------------|-------------|------------|----------------|-----------------|---------------|
| 100 %          | 3.70        | + 20 (Ref) | 5,260,000,007  | 7               | 0.0000001     |
| 100 %          |             | - 30       | 5,260,000,005  | 5               | 0.0000001     |
| 100 %          |             | - 20       | 5,260,000,002  | 2               | 0.0000000     |
| 100 %          |             | - 10       | 5,260,000,012  | 12              | 0.0000002     |
| 100 %          |             | 0          | 5,260,000,002  | 2               | 0.0000000     |
| 100 %          |             | + 10       | 5,260,000,002  | 2               | 0.0000000     |
| 100 %          |             | + 20       | 5,260,000,009  | 9               | 0.0000002     |
| 100 %          |             | + 30       | 5,260,000,006  | 6               | 0.0000001     |
| 100 %          |             | + 40       | 5,260,000,001  | 1               | 0.0000000     |
| 100 %          |             | + 50       | 5,260,000,012  | 12              | 0.0000002     |
| 115 %          | 4.26        | + 20       | 5,260,000,000  | 0               | 0.0000000     |
| BATT. ENDPOINT | 3.40        | + 20       | 5,260,000,011  | 11              | 0.0000002     |

Table 6-8. Frequency Stability Measurements for UNII Band 2 (Ch. 52)

## Frequency Stability (Cont'd)

### §15.407(g)

The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between -30°C and +50°C. The temperature was incremented by 10° intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

OPERATING FREQUENCY: 5,500,000,000 Hz

CHANNEL: 100

REFERENCE VOLTAGE: 3.7 VDC

| VOLTAGE (%)    | POWER (VDC) | TEMP (°C)  | FREQUENCY (Hz) | Freq. Dev. (Hz) | Deviation (%) |
|----------------|-------------|------------|----------------|-----------------|---------------|
| 100 %          | 3.70        | + 20 (Ref) | 5,500,000,008  | 8               | 0.0000001     |
| 100 %          |             | - 30       | 5,500,000,008  | 8               | 0.0000001     |
| 100 %          |             | - 20       | 5,500,000,006  | 6               | 0.0000001     |
| 100 %          |             | - 10       | 5,500,000,008  | 8               | 0.0000001     |
| 100 %          |             | 0          | 5,500,000,004  | 4               | 0.0000001     |
| 100 %          |             | + 10       | 5,500,000,007  | 7               | 0.0000001     |
| 100 %          |             | + 20       | 5,500,000,002  | 2               | 0.0000000     |
| 100 %          |             | + 30       | 5,500,000,007  | 7               | 0.0000001     |
| 100 %          |             | + 40       | 5,500,000,005  | 5               | 0.0000001     |
| 100 %          |             | + 50       | 5,500,000,003  | 3               | 0.0000000     |
| 115 %          | 4.26        | + 20       | 5,500,000,004  | 4               | 0.0000001     |
| BATT. ENDPOINT | 3.40        | + 20       | 5,500,000,006  | 6               | 0.0000001     |

**Table 6-9. Frequency Stability Measurements for UNII Band 3 (Ch. 100)**

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                    |                                                                                       | Page 45 of 72                   |

## 6.7 Radiated Spurious Emission Measurements

§15.407(b)(1), (6), §15.205, §15.209; RSS-210 [A9.2]

The EUT was tested from 9kHz and up to the 10<sup>th</sup> harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average measurements were taken using RBW = 1MHz and VBW = 10Hz. Peak measurements were taken using RBW = 1MHz, VBW = 3MHz and linearly polarized horn antennas. All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table 6-10 per Section 15.209.

All data rates and modes were investigated for radiated spurious emissions. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

| Frequency         | Field Strength<br>[μV/m] | Measured Distance<br>[Meters] |
|-------------------|--------------------------|-------------------------------|
| 0.009 – 0.490 MHz | 2400/F (kHz)             | 300                           |
| 0.490 – 1.705 MHz | 24000/F (kHz)            | 30                            |
| 1.705 – 30.00 MHz | 30                       | 30                            |
| 30.00 – 88.00 MHz | 100                      | 3                             |
| 88.00 – 216.0 MHz | 150                      | 3                             |
| 216.0 – 960.0 MHz | 200                      | 3                             |
| Above 960.0 MHz   | 500                      | 3                             |

**Table 6-10. Radiated Limits**

### Sample Calculation

- Field Strength Level  $_{[dB\mu V/m]} = \text{Analyzer Level}_{[dBm]} + 107 + AFCL_{[dB]}$

### Notes:

- $AFCL = \text{Antenna Factor}_{[dB]} + \text{Cable Loss}_{[dB]}$

|                                      |                                                                                     |                                                                     |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
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| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                       |                                                                                       | Page 46 of 72                   |

## Radiated Spurious Emission Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 1 Meter

Operating Frequency: 5180MHz

Channel: 36

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol. [H/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|------------|-------------|---------------------------------|-------------------------|----------------|-------------|
| 10360.00        | -98.38               | Peak     | H          | 41.24       | -9.54                           | 40.31                   | 68.20          | -27.89      |
| * 15540.00      | -135.00              | Average  | H          | 50.28       | 0.00                            | 22.28                   | 53.98          | -31.70      |
| * 15540.00      | -125.00              | Peak     | H          | 50.28       | 0.00                            | 32.28                   | 73.98          | -41.70      |
| * 20720.00      | -135.00              | Average  | H          | 42.21       | 0.00                            | 14.21                   | 53.98          | -39.77      |
| * 20720.00      | -125.00              | Peak     | H          | 42.21       | 0.00                            | 24.21                   | 73.98          | -49.77      |
| 25900.00        | -125.00              | Peak     | H          | 42.77       | 0.00                            | 24.77                   | 68.20          | -43.43      |

**Table 6-11. Radiated Measurements @ 1 meter**

### NOTES:

- All harmonics that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz (68.2dBμV/m).
- All emissions that lie in the restricted bands (denoted by a \* next to the frequency) specified in §15.205 are below the limit shown in Table 6-10.
- Average measurements > 1GHz using RBW = 1MHz and VBW = 10Hz. Peak measurements > 1GHz using RBW = 1MHz and VBW = 3MHz.
- The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
- The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
- Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
- Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
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| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                    |                                                                                       | Page 47 of 72                   |

## Radiated Spurious Emission Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 1 Meter

Operating Frequency: 5200MHz

Channel: 40

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol. [H/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dB $\mu$ V/m] | Limit [dB $\mu$ V/m] | Margin [dB] |
|-----------------|----------------------|----------|------------|-------------|---------------------------------|-------------------------------|----------------------|-------------|
| 10400.00        | -98.07               | Peak     | H          | 41.25       | -9.54                           | 40.64                         | 68.20                | -27.56      |
| * 15600.00      | -135.00              | Average  | H          | 50.44       | 0.00                            | 22.44                         | 53.98                | -31.54      |
| * 15600.00      | -125.00              | Peak     | H          | 50.44       | 0.00                            | 32.44                         | 73.98                | -41.54      |
| * 20800.00      | -135.00              | Average  | H          | 42.12       | 0.00                            | 14.12                         | 53.98                | -39.85      |
| * 20800.00      | -125.00              | Peak     | H          | 42.12       | 0.00                            | 24.12                         | 73.98                | -49.85      |
| 26000.00        | -125.00              | Peak     | H          | 42.81       | 0.00                            | 24.81                         | 68.20                | -43.39      |

**Table 6-12. Radiated Measurements @ 1 meter**

### NOTES:

- All harmonics that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz (68.2dB $\mu$ V/m).
- All emissions that lie in the restricted bands (denoted by a \* next to the frequency) specified in §15.205 are below the limit shown in Table 6-10.
- Average measurements > 1GHz using RBW = 1MHz and VBW = 10Hz. Peak measurements > 1GHz using RBW = 1MHz, and VBW = 3MHz.
- The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
- The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
- Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
- Above 960MHz the limit is 500  $\mu$ V/m (54dB $\mu$ /m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                    |                                                                                       | Page 48 of 72                   |

## Radiated Spurious Emission Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 1 Meter

Operating Frequency: 5240MHz

Channel: 48

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol. [H/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dB $\mu$ V/m] | Limit [dB $\mu$ V/m] | Margin [dB] |
|-----------------|----------------------|----------|------------|-------------|---------------------------------|-------------------------------|----------------------|-------------|
| 10480.00        | -97.57               | Peak     | H          | 41.28       | -9.54                           | 41.17                         | 68.20                | -27.03      |
| * 15720.00      | -135.00              | Average  | H          | 50.77       | 0.00                            | 22.77                         | 53.98                | -31.21      |
| * 15720.00      | -125.00              | Peak     | H          | 50.77       | 0.00                            | 32.77                         | 73.98                | -41.21      |
| * 20960.00      | -135.00              | Average  | H          | 41.95       | 0.00                            | 13.95                         | 53.98                | -40.03      |
| * 20960.00      | -125.00              | Peak     | H          | 41.95       | 0.00                            | 23.95                         | 73.98                | -50.03      |
| 26200.00        | -125.00              | Peak     | H          | 42.70       | 0.00                            | 24.70                         | 68.20                | -43.50      |

**Table 6-13. Radiated Measurements @ 1 meter**

### NOTES:

- All harmonics that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz (68.2dB $\mu$ V/m).
- All emissions that lie in the restricted bands (denoted by a \* next to the frequency) specified in §15.205 are below the limit shown in Table 6-10.
- Average measurements > 1GHz using RBW = 1MHz and VBW = 10Hz. Peak measurements > 1GHz using RBW = 1MHz, and VBW = 3MHz.
- The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
- The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
- Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
- Above 960MHz the limit is 500  $\mu$ V/m (54dB $\mu$ /m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
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| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                    |                                                                                       | Page 49 of 72                   |

## Radiated Spurious Emission Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 1 Meter

Operating Frequency: 5260MHz

Channel: 52

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol. [H/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|------------|-------------|---------------------------------|-------------------------|----------------|-------------|
| 10520.00        | -96.24               | Peak     | H          | 41.30       | -9.54                           | 42.52                   | 68.20          | -25.68      |
| * 15780.00      | -135.00              | Average  | H          | 50.97       | 0.00                            | 22.97                   | 53.98          | -31.01      |
| * 15780.00      | -125.00              | Peak     | H          | 50.97       | 0.00                            | 32.97                   | 73.98          | -41.01      |
| * 21040.00      | -135.00              | Average  | H          | 42.01       | 0.00                            | 14.01                   | 53.98          | -39.97      |
| * 21040.00      | -125.00              | Peak     | H          | 42.01       | 0.00                            | 24.01                   | 73.98          | -49.97      |
| 26300.00        | -125.00              | Peak     | H          | 42.74       | 0.00                            | 24.74                   | 68.20          | -43.46      |

**Table 6-14. Radiated Measurements @ 1 meter**

### NOTES:

- All harmonics that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz (68.2dBμV/m).
- All emissions that lie in the restricted bands (denoted by a \* next to the frequency) specified in §15.205 are below the limit shown in Table 6-10.
- Average measurements > 1GHz using RBW = 1MHz and VBW = 10Hz. Peak measurements > 1GHz using RBW = 1MHz, and VBW = 3MHz.
- The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
- The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
- Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
- Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
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| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                    |                                                                                       | Page 50 of 72                   |

## Radiated Spurious Emission Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 1 Meter

Operating Frequency: 5280MHz

Channel: 56

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol. [H/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dB $\mu$ V/m] | Limit [dB $\mu$ V/m] | Margin [dB] |
|-----------------|----------------------|----------|------------|-------------|---------------------------------|-------------------------------|----------------------|-------------|
| 10560.00        | -96.35               | Peak     | H          | 41.33       | -9.54                           | 42.44                         | 68.20                | -25.76      |
| * 15840.00      | -135.00              | Average  | H          | 51.21       | 0.00                            | 23.21                         | 53.98                | -30.77      |
| * 15840.00      | -125.00              | Peak     | H          | 51.21       | 0.00                            | 33.21                         | 73.98                | -40.77      |
| * 21120.00      | -135.00              | Average  | H          | 42.01       | 0.00                            | 14.01                         | 53.98                | -39.97      |
| * 21120.00      | -125.00              | Peak     | H          | 42.01       | 0.00                            | 24.01                         | 73.98                | -49.97      |
| 26400.00        | -125.00              | Peak     | H          | 42.69       | 0.00                            | 24.69                         | 68.20                | -43.51      |

**Table 6-15. Radiated Measurements @ 1 meter**

### NOTES:

- All harmonics that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz (68.2dB $\mu$ V/m).
- All emissions that lie in the restricted bands (denoted by a \* next to the frequency) specified in §15.205 are below the limit shown in Table 6-10.
- Average measurements > 1GHz using RBW = 1MHz and VBW = 10Hz. Peak measurements > 1GHz using RBW = 1MHz, and VBW = 3MHz.
- The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
- The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
- Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
- Above 960MHz the limit is 500  $\mu$ V/m (54dB $\mu$ V/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
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## Radiated Spurious Emission Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 1 Meter

Operating Frequency: 5320MHz

Channel: 64

|   | Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol. [H/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|---|-----------------|----------------------|----------|------------|-------------|---------------------------------|-------------------------|----------------|-------------|
| * | 10640.00        | -110.58              | Average  | H          | 41.39       | -9.54                           | 28.27                   | 53.98          | -25.71      |
| * | 10640.00        | -94.78               | Peak     | H          | 41.39       | -9.54                           | 44.07                   | 73.98          | -29.91      |
| * | 15960.00        | -135.00              | Average  | H          | 51.67       | 0.00                            | 23.67                   | 53.98          | -30.30      |
| * | 15960.00        | -125.00              | Peak     | H          | 51.67       | 0.00                            | 33.67                   | 73.98          | -40.30      |
| * | 21280.00        | -135.00              | Average  | H          | 42.03       | 0.00                            | 14.03                   | 53.98          | -39.95      |
| * | 21280.00        | -125.00              | Peak     | H          | 42.03       | 0.00                            | 24.03                   | 73.98          | -49.95      |
|   | 26600.00        | -125.00              | Peak     | H          | 42.63       | 0.00                            | 24.63                   | 68.20          | -43.57      |

**Table 6-16. Radiated Measurements @ 1 meter**

### NOTES:

- All harmonics that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz (68.2dBμV/m).
- All emissions that lie in the restricted bands (denoted by a \* next to the frequency) specified in §15.205 are below the limit shown in Table 6-10.
- Average measurements > 1GHz using RBW = 1MHz and VBW = 10Hz. Peak measurements > 1GHz using RBW = 1MHz, and VBW = 3MHz.
- The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
- The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
- Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
- Above 960MHz the limit is 500 μV/m (54dBμV/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
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## Radiated Spurious Emission Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 1 Meter

Operating Frequency: 5500MHz

Channel: 100

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol. [H/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|------------|-------------|---------------------------------|-------------------------|----------------|-------------|
| * 11000.00      | -104.99              | Average  | H          | 41.27       | -9.54                           | 33.74                   | 53.98          | -20.24      |
| * 11000.00      | -90.49               | Peak     | H          | 41.27       | -9.54                           | 48.24                   | 73.98          | -25.74      |
| 16500.00        | -125.00              | Peak     | H          | 51.13       | 0.00                            | 33.13                   | 68.20          | -35.07      |
| 22000.00        | -125.00              | Peak     | H          | 42.32       | 0.00                            | 24.32                   | 68.20          | -43.88      |
| 27500.00        | -125.00              | Peak     | H          | 42.66       | 0.00                            | 24.66                   | 68.20          | -43.54      |

**Table 6-17. Radiated Measurements @ 1 meter**

### NOTES:

1. All harmonics that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz (68.2dBμV/m).
2. All emissions that lie in the restricted bands (denoted by a \* next to the frequency) specified in §15.205 are below the limit shown in Table 6-10.
3. Average measurements > 1GHz using RBW = 1MHz and VBW = 10Hz. Peak measurements > 1GHz using RBW = 1MHz, and VBW = 3MHz.
4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
5. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
6. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
7. Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
8. Above 960MHz the limit is 500 μV/m (54dBμV/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
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## Radiated Spurious Emission Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 1 Meter

Operating Frequency: 5580MHz

Channel: 116

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol. [H/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dB $\mu$ V/m] | Limit [dB $\mu$ V/m] | Margin [dB] |
|-----------------|----------------------|----------|------------|-------------|---------------------------------|-------------------------------|----------------------|-------------|
| * 11160.00      | -102.68              | Average  | H          | 41.46       | -9.54                           | 36.24                         | 53.98                | -17.74      |
| * 11160.00      | -86.88               | Peak     | H          | 41.46       | -9.54                           | 52.04                         | 73.98                | -21.94      |
| 16740.00        | -95.49               | Peak     | H          | 50.62       | -9.54                           | 52.59                         | 68.20                | -15.61      |
| * 22320.00      | -135.00              | Average  | H          | 42.43       | 0.00                            | 14.43                         | 53.98                | -39.55      |
| * 22320.00      | -125.00              | Peak     | H          | 42.43       | 0.00                            | 24.43                         | 73.98                | -49.55      |
| 27900.00        | -125.00              | Peak     | H          | 42.70       | 0.00                            | 24.70                         | 68.20                | -43.50      |

**Table 6-18. Radiated Measurements @ 1 meter**

### NOTES:

- All harmonics that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz (68.2dB $\mu$ V/m).
- All emissions that lie in the restricted bands (denoted by a \* next to the frequency) specified in §15.205 are below the limit shown in Table 6-10.
- Average measurements > 1GHz using RBW = 1MHz and VBW = 10Hz. Peak measurements > 1GHz using RBW = 1MHz, and VBW = 3MHz.
- The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
- The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
- Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
- Above 960MHz the limit is 500  $\mu$ V/m (54dB $\mu$ V/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
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## Radiated Spurious Emission Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 1 Meter

Operating Frequency: 5700MHz

Channel: 140

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol. [H/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dB $\mu$ V/m] | Limit [dB $\mu$ V/m] | Margin [dB] |
|-----------------|----------------------|----------|------------|-------------|---------------------------------|-------------------------------|----------------------|-------------|
| * 11400.00      | -99.01               | Average  | H          | 41.81       | -9.54                           | 40.26                         | 53.98                | -13.72      |
| * 11400.00      | -83.01               | Peak     | H          | 41.81       | -9.54                           | 56.26                         | 73.98                | -17.72      |
| 17100.00        | -92.84               | Peak     | H          | 49.31       | -9.54                           | 53.94                         | 68.20                | -14.26      |
| * 22800.00      | -135.00              | Average  | H          | 42.60       | 0.00                            | 14.60                         | 53.98                | -39.38      |
| * 22800.00      | -125.00              | Peak     | H          | 42.60       | 0.00                            | 24.60                         | 73.98                | -49.38      |
| 28500.00        | -125.00              | Peak     | H          | 42.68       | 0.00                            | 24.68                         | 68.20                | -43.52      |

**Table 6-19. Radiated Measurements @ 1 meter**

### NOTES:

- All harmonics that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz (68.2dB $\mu$ V/m).
- All emissions that lie in the restricted bands (denoted by a \* next to the frequency) specified in §15.205 are below the limit shown in Table 6-10.
- Average measurements > 1GHz using RBW = 1MHz and VBW = 10Hz. Peak measurements > 1GHz using RBW = 1MHz, and VBW = 3MHz.
- The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
- The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
- Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
- Above 960MHz the limit is 500  $\mu$ V/m (54dB $\mu$ V/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
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## 6.8 Radiated Band Edge Measurements

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 1 Meter

Operating Frequency: 5180MHz

Channel: 36

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol. [H/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|------------|-------------|---------------------------------|-------------------------|----------------|-------------|
| 4956.10         | -97.81               | Average  | H          | 36.48       | -9.54                           | 36.12                   | 53.98          | -17.86      |
| 4956.10         | -84.81               | Peak     | H          | 36.48       | -9.54                           | 49.12                   | 73.98          | -24.86      |
| 5020.00         | -87.97               | Average  | H          | 36.51       | -9.54                           | 46.00                   | 53.98          | -7.98       |
| 5020.00         | -75.40               | Peak     | H          | 36.51       | -9.54                           | 58.57                   | 73.98          | -15.41      |
| 5147.00         | -96.71               | Average  | H          | 36.64       | -9.54                           | 37.39                   | 53.98          | -16.59      |
| 5147.00         | -77.41               | Peak     | H          | 36.64       | -9.54                           | 56.69                   | 73.98          | -17.29      |

**Table 6-20. Radiated Restricted Band Measurements at 1-meter (4.5 – 5.15GHz)**

### NOTES:

1. Average measurements > 1GHz using RBW = 1MHz and VBW = 10Hz. Peak measurements > 1GHz using RBW = 1MHz, and VBW = 3MHz.
2. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
3. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
4. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
5. Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
6. Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
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## Radiated Band Edge Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 1 Meter

Operating Frequency: 5320MHz

Channel: 64

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol. [H/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|------------|-------------|---------------------------------|-------------------------|----------------|-------------|
| 5351.80         | -94.07               | Average  | H          | 36.85       | -9.54                           | 40.24                   | 53.98          | -13.74      |
| 5351.80         | -80.07               | Peak     | H          | 36.85       | -9.54                           | 54.24                   | 73.98          | -19.74      |
| 5370.80         | -94.81               | Average  | H          | 36.87       | -9.54                           | 39.52                   | 53.98          | -14.46      |
| 5370.80         | -80.76               | Peak     | H          | 36.87       | -9.54                           | 53.57                   | 73.98          | -20.41      |
| 5389.60         | -95.64               | Average  | H          | 36.89       | -9.54                           | 38.72                   | 53.98          | -15.26      |
| 5389.60         | -81.94               | Peak     | H          | 36.89       | -9.54                           | 52.42                   | 73.98          | -21.56      |

**Table 6-21. Radiated Restricted Band Measurements at 1-meter (5.35 – 5.46GHz, 5.46 – 5.47GHz)**

### NOTES:

1. Emissions within 5.35 – 5.46GHz lie in a restricted band and are subject to the radiated emissions limits specified in §15.209. Emission within 5.46 – 5.47GHz are at the lower band edge of UNII Band 3 transmission and are subject to the -27dBm/MHz (68.2dBμV/m) EIRP limit specified in §15.407.
2. Average measurements > 1GHz using RBW = 1MHz and VBW = 10Hz. Peak measurements > 1GHz using RBW = 1MHz, and VBW = 3MHz.
3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
4. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
5. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
6. Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
7. Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated for emissions that lie in restricteds band specified in §15.205.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
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## Radiated Band Edge Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 1 Meter

Operating Frequency: 5500MHz

Channel: 100

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol. [H/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|------------|-------------|---------------------------------|-------------------------|----------------|-------------|
| 5444.60         | -96.72               | Average  | H          | 36.95       | -9.54                           | 37.69                   | 53.98          | -16.29      |
| 5444.60         | -83.22               | Peak     | H          | 36.95       | -9.54                           | 51.19                   | 73.98          | -22.79      |
| 5457.20         | -96.41               | Average  | H          | 36.96       | -9.54                           | 38.01                   | 53.98          | -15.97      |
| 5457.20         | -83.31               | Peak     | H          | 36.96       | -9.54                           | 51.11                   | 73.98          | -22.87      |
| 5465.60         | -83.50               | Peak     | H          | 36.97       | -9.54                           | 50.93                   | 68.20          | -17.27      |

**Table 6-22. Radiated Restricted Band Measurements at 1-meter (5.35 – 5.46GHz, 5.46 – 5.47GHz)**

### NOTES:

1. Emissions within 5.35 – 5.46GHz lie in a restricted band and are subject to the radiated emissions limits specified in §15.209. Emission within 5.46 – 5.47GHz are at the lower band edge of UNII Band 3 transmission and are subject to the -27dBm/MHz (68.2dBμV/m) EIRP limit specified in §15.407.
2. Average measurements > 1GHz using RBW = 1MHz and VBW = 10Hz. Peak measurements > 1GHz using RBW = 1MHz, and VBW = 3MHz.
3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
4. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
5. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
6. Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
7. Above 960MHz the limit is 500 μV/m (54dBμV/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                    |                                                                                       | Page 58 of 72                   |

## Radiated Band Edge Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 1 Meter

Operating Frequency: 5700MHz

Channel: 140

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol. [H/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|------------|-------------|---------------------------------|-------------------------|----------------|-------------|
| 5725.00         | -77.86               | Peak     | H          | 37.23       | -9.54                           | 56.84                   | 68.20          | -11.36      |
| 5729.20         | -77.06               | Peak     | H          | 37.24       | -9.54                           | 57.64                   | 68.20          | -10.56      |
| 5732.50         | -81.86               | Peak     | H          | 37.24       | -9.54                           | 52.84                   | 68.20          | -15.36      |

**Table 6-23. Radiated Restricted Band Measurements at 1-meter**

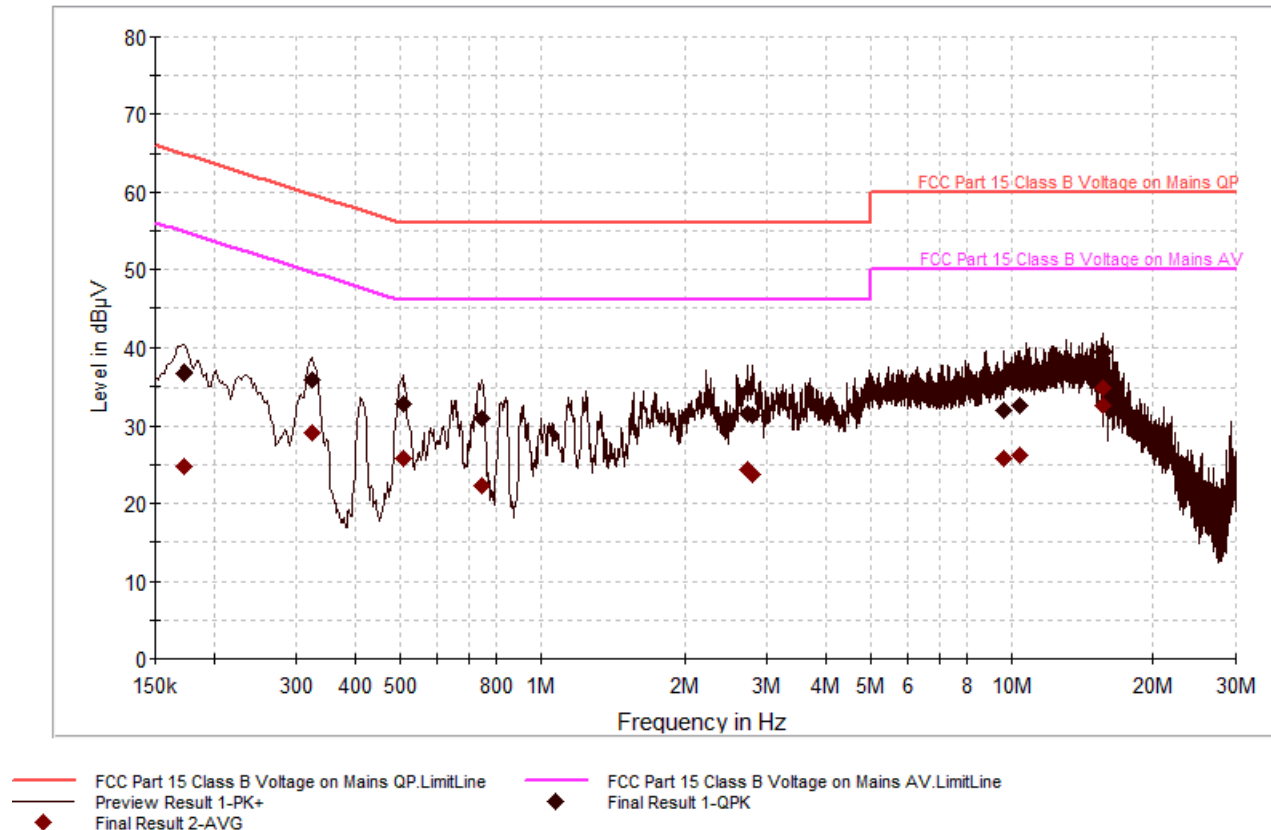
### NOTES:

1. Average measurements > 1GHz using RBW = 1MHz and VBW = 10Hz. Peak measurements > 1GHz using RBW = 1MHz, and VBW = 3MHz.
2. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
3. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
4. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
5. Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
6. Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                    |                                                                                       | Page 59 of 72                   |

## 6.9 Line-Conducted Test Data

§15.207; RSS-Gen [7.2.2]



**Plot 6-55. Line Conducted Plot with 802.11a (UNII Band 1) Line 1**

**Notes:**

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 36. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. Traces shown in plot made using a peak detector.
4. Deviations to the Specifications: None.

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 60 of 72                   |

## Line-Conducted Test Data (Cont'd)

### §15.207; RSS-Gen [7.2.2]

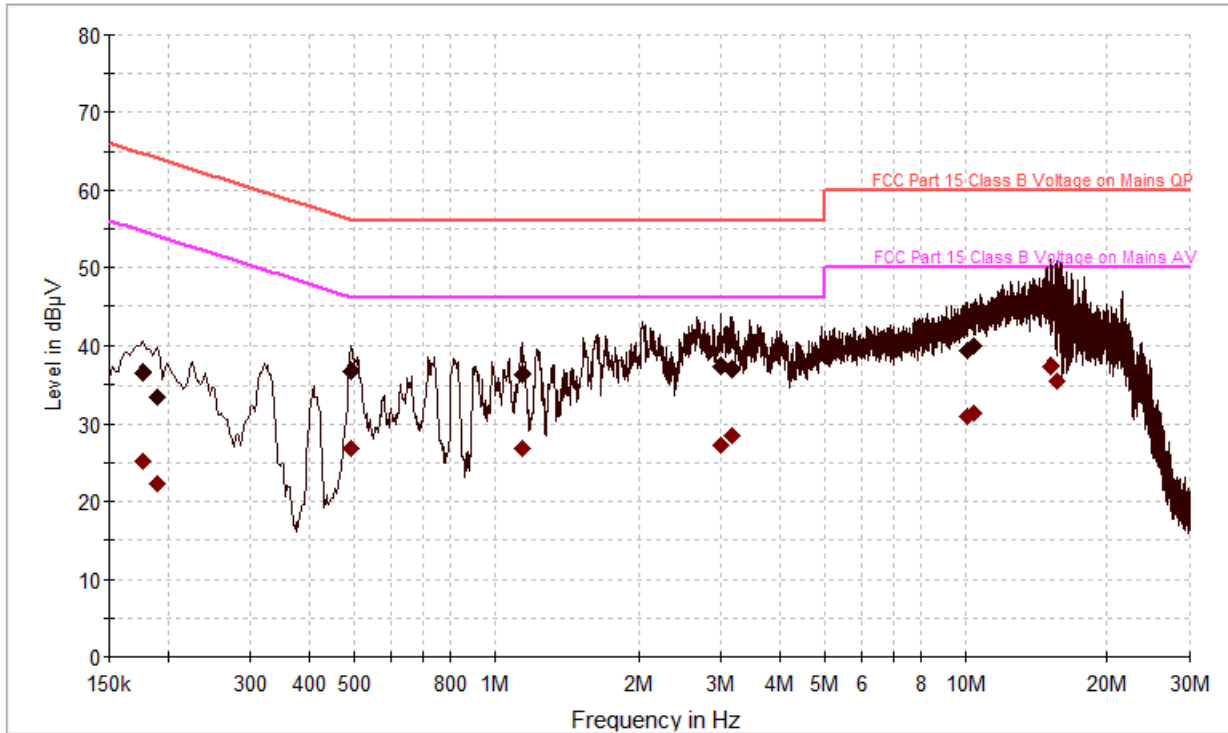
| Frequency (MHz) | Line | QuasiPeak (dBμV) | Limit (dBμV) | Margin (dB) | Average (dBμV) | Limit (dBμV) | Margin (dB) |
|-----------------|------|------------------|--------------|-------------|----------------|--------------|-------------|
| 0.172500        | L1   | 36.8             | 64.8         | 28.1        | 24.8           | 54.8         | 30.0        |
| 0.323250        | L1   | 35.9             | 59.6         | 23.7        | 29.2           | 49.6         | 20.4        |
| 0.505500        | L1   | 32.9             | 56.0         | 23.1        | 25.8           | 46.0         | 20.2        |
| 0.744000        | L1   | 31.0             | 56.0         | 25.0        | 22.3           | 46.0         | 23.7        |
| 2.730750        | L1   | 31.6             | 56.0         | 24.4        | 24.3           | 46.0         | 21.7        |
| 2.796000        | L1   | 31.4             | 56.0         | 24.6        | 23.8           | 46.0         | 22.2        |
| 9.600000        | L1   | 32.1             | 60.0         | 27.9        | 25.9           | 50.0         | 24.1        |
| 10.351500       | L1   | 32.7             | 60.0         | 27.3        | 26.2           | 50.0         | 23.8        |
| 15.585000       | L1   | 39.3             | 60.0         | 20.7        | 32.6           | 50.0         | 17.4        |
| 15.589500       | L1   | 39.4             | 60.0         | 20.6        | 34.9           | 50.0         | 15.1        |

**Table 6-24. Line Conducted Data with 802.11a (UNII Band 1) Line 1**

#### Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 36. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. Traces shown in plot made using a peak detector.
4. Deviations to the Specifications: None.

|                                      |                                                                                     |                                                                     |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                       |                                                                                       | Page 61 of 72                   |



— FCC Part 15 Class B Voltage on Mains QP.LimitLine  
— FCC Part 15 Class B Voltage on Mains AV.LimitLine  
— Preview Result 1-PK+  
◆ Final Result 2-AVG

**Plot 6-56. Line Conducted Plot with 802.11a (UNII Band 1) N**

**Notes:**

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 36. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. Traces shown in plot made using a peak detector.
4. Deviations to the Specifications: None.

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 62 of 72                   |

## Line-Conducted Test Data (Cont'd)

§15.207; RSS-Gen [7.2.2]

| Frequency (MHz) | Line | QuasiPeak (dBμV) | Limit (dBμV) | Margin (dB) | Average (dBμV) | Limit (dBμV) | Margin (dB) |
|-----------------|------|------------------|--------------|-------------|----------------|--------------|-------------|
| 0.177000        | N    | 36.5             | 64.6         | 28.1        | 25.1           | 54.6         | 29.5        |
| 0.190500        | N    | 33.6             | 64.0         | 30.4        | 22.2           | 54.0         | 31.8        |
| 0.492000        | N    | 36.9             | 56.1         | 19.2        | 27.0           | 46.1         | 19.2        |
| 1.137750        | N    | 36.4             | 56.0         | 19.6        | 27.0           | 46.0         | 19.0        |
| 2.998500        | N    | 37.5             | 56.0         | 18.5        | 27.4           | 46.0         | 18.6        |
| 3.160500        | N    | 37.0             | 56.0         | 19.0        | 28.5           | 46.0         | 17.5        |
| 10.020750       | N    | 39.4             | 60.0         | 20.6        | 31.0           | 50.0         | 19.0        |
| 10.356000       | N    | 39.9             | 60.0         | 20.1        | 31.5           | 50.0         | 18.5        |
| 15.175500       | N    | 46.0             | 60.0         | 14.0        | 37.4           | 50.0         | 12.6        |
| 15.684000       | N    | 44.7             | 60.0         | 15.3        | 35.5           | 50.0         | 14.5        |

**Table 6-25. Line Conducted Data with 802.11a (UNII Band 1) N**

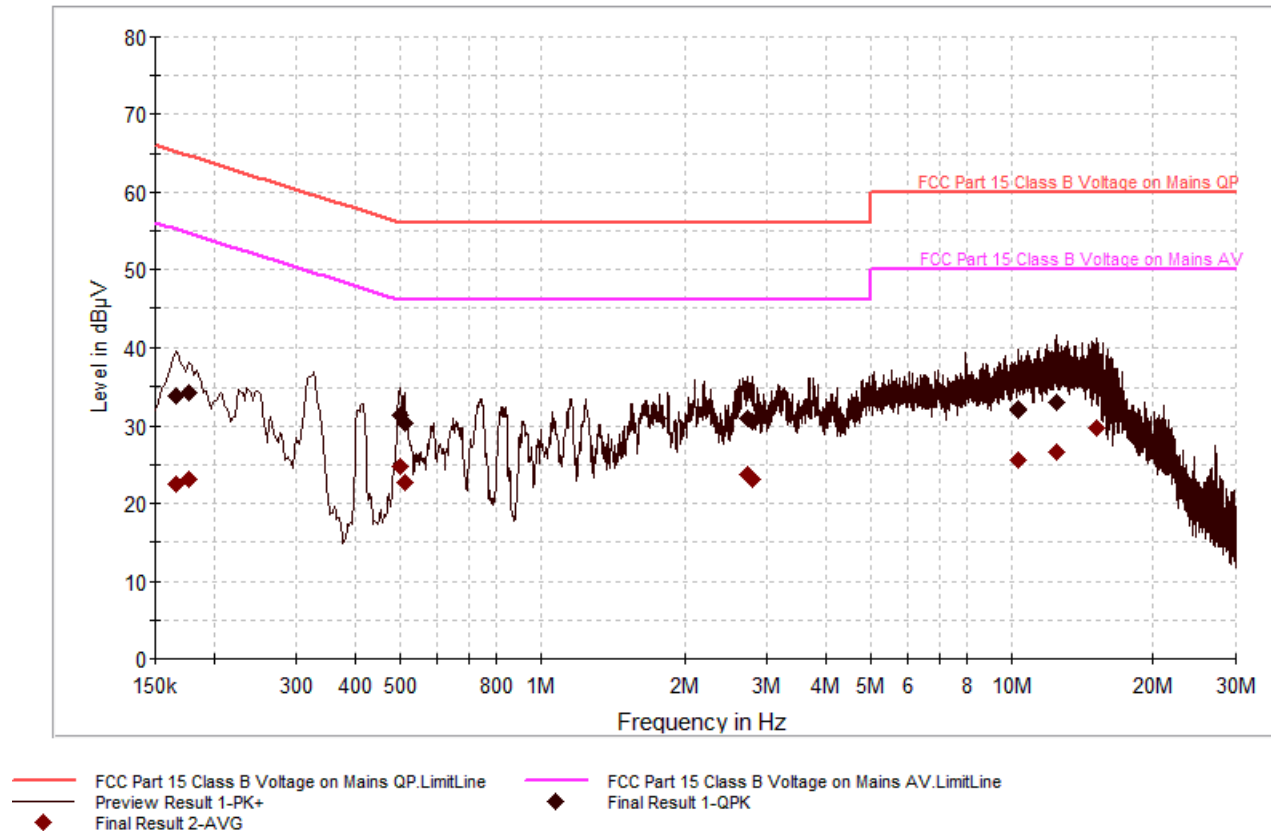
### Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 36. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. Traces shown in plot made using a peak detector.
4. Deviations to the Specifications: None.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                    |                                                                                       | Page 63 of 72                   |

## Line-Conducted Test Data (Cont'd)

§15.207; RSS-Gen [7.2.2]



**Plot 6-57. Line Conducted Plot with 802.11a (UNII Band 2) Line 1**

### Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 36. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. Traces shown in plot made using a peak detector.
4. Deviations to the Specifications: None.

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 64 of 72                   |

## Line-Conducted Test Data (Cont'd)

§15.207; RSS-Gen [7.2.2]

| Frequency (MHz) | Line | QuasiPeak (dBμV) | Limit (dBμV) | Margin (dB) | Average (dBμV) | Limit (dBμV) | Margin (dB) |
|-----------------|------|------------------|--------------|-------------|----------------|--------------|-------------|
| 0.165750        | L1   | 33.9             | 65.2         | 31.3        | 22.4           | 55.2         | 32.7        |
| 0.177000        | L1   | 34.2             | 64.6         | 30.4        | 23.2           | 54.6         | 31.4        |
| 0.498750        | L1   | 31.4             | 56.0         | 24.6        | 24.7           | 46.0         | 21.3        |
| 0.510000        | L1   | 30.5             | 56.0         | 25.5        | 22.8           | 46.0         | 23.2        |
| 2.728500        | L1   | 31.1             | 56.0         | 24.9        | 23.7           | 46.0         | 22.3        |
| 2.784750        | L1   | 30.7             | 56.0         | 25.3        | 23.2           | 46.0         | 22.8        |
| 10.279500       | L1   | 32.3             | 60.0         | 27.7        | 25.6           | 50.0         | 24.4        |
| 10.315500       | L1   | 32.1             | 60.0         | 27.9        | 25.7           | 50.0         | 24.3        |
| 12.412500       | L1   | 33.0             | 60.0         | 27.0        | 26.7           | 50.0         | 23.3        |
| 15.085500       | L1   | 35.9             | 60.0         | 24.1        | 29.7           | 50.0         | 20.3        |

Table 6-26. Line Conducted Data with 802.11a (UNII Band 2) Line1

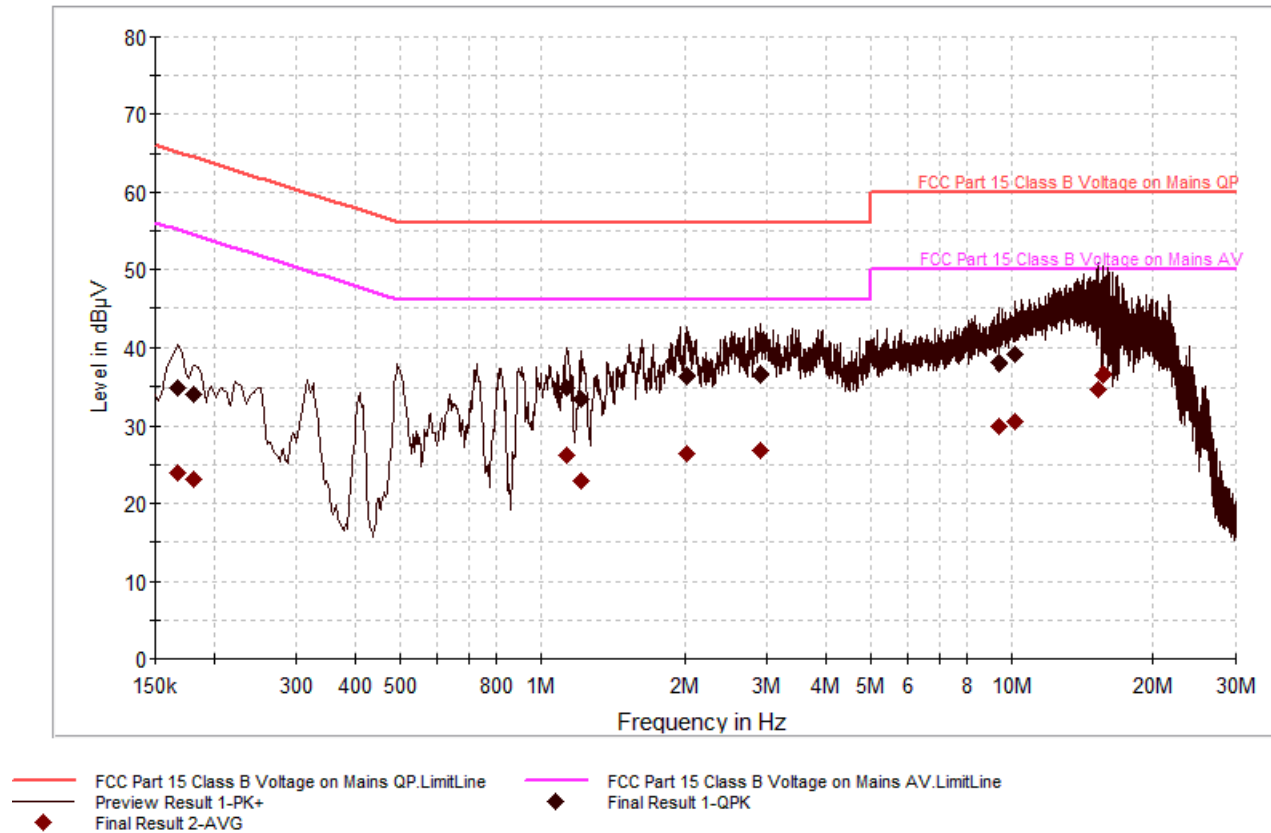
### Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 36. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. Traces shown in plot made using a peak detector.
4. Deviations to the Specifications: None.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                    |                                                                                       | Page 65 of 72                   |

## Line-Conducted Test Data (Cont'd)

§15.207; RSS-Gen [7.2.2]



**Plot 6-58. Line Conducted Plot with 802.11a (UNII Band 2) N**

### Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 36. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. Traces shown in plot made using a peak detector.
4. Deviations to the Specifications: None.

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 66 of 72                   |

## Line-Conducted Test Data (Cont'd)

§15.207; RSS-Gen [7.2.2]

| Frequency (MHz) | Line | QuasiPeak (dBμV) | Limit (dBμV) | Margin (dB) | Average (dBμV) | Limit (dBμV) | Margin (dB) |
|-----------------|------|------------------|--------------|-------------|----------------|--------------|-------------|
| 0.168000        | N    | 35.0             | 65.1         | 30.1        | 23.9           | 55.1         | 31.2        |
| 0.181500        | N    | 34.2             | 64.4         | 30.2        | 23.2           | 54.4         | 31.2        |
| 1.135500        | N    | 35.0             | 56.0         | 21.0        | 26.2           | 46.0         | 19.8        |
| 1.212000        | N    | 33.5             | 56.0         | 22.5        | 23.0           | 46.0         | 23.0        |
| 2.026500        | N    | 36.4             | 56.0         | 19.6        | 26.4           | 46.0         | 19.6        |
| 2.908500        | N    | 36.5             | 56.0         | 19.5        | 26.9           | 46.0         | 19.1        |
| 9.393000        | N    | 38.0             | 60.0         | 22.0        | 29.9           | 50.0         | 20.1        |
| 10.131000       | N    | 39.0             | 60.0         | 21.0        | 30.7           | 50.0         | 19.3        |
| 15.258750       | N    | 44.3             | 60.0         | 15.7        | 34.7           | 50.0         | 15.3        |
| 15.582750       | N    | 46.6             | 60.0         | 13.4        | 36.5           | 50.0         | 13.5        |

Table 6-27. Line Conducted Data with 802.11a (UNII Band 2) N

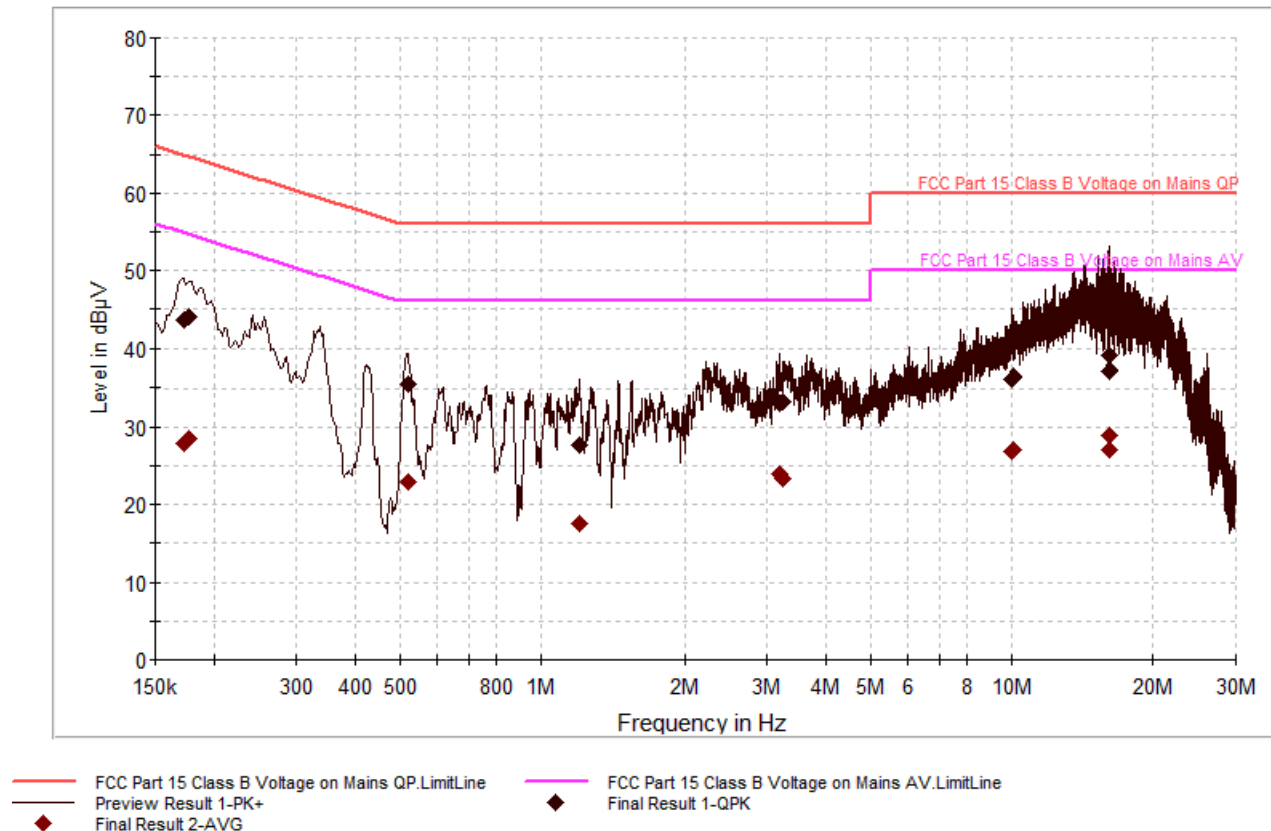
### Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 36. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. Traces shown in plot made using a peak detector.
4. Deviations to the Specifications: None.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                    |                                                                                       | Page 67 of 72                   |

## Line-Conducted Test Data (Cont'd)

§15.207; RSS-Gen [7.2.2]



**Plot 6-59. Line Conducted Plot with 802.11a (UNII Band 3) Line 1**

### Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 36. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. Traces shown in plot made using a peak detector.
4. Deviations to the Specifications: None.

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
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| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 68 of 72                   |

## Line-Conducted Test Data (Cont'd)

§15.207; RSS-Gen [7.2.2]

| Frequency (MHz) | Line | QuasiPeak (dBμV) | Limit (dBμV) | Margin (dB) | Average | Limit (dBμV) | Margin (dB) |
|-----------------|------|------------------|--------------|-------------|---------|--------------|-------------|
| 0.172500        | L1   | 43.7             | 64.8         | 21.2        | 28.0    | 54.8         | 26.8        |
| 0.177000        | L1   | 43.9             | 64.6         | 20.7        | 28.4    | 54.6         | 26.2        |
| 0.519000        | L1   | 35.6             | 56.0         | 20.4        | 23.0    | 46.0         | 23.0        |
| 1.205250        | L1   | 27.7             | 56.0         | 28.3        | 17.6    | 46.0         | 28.4        |
| 3.185250        | L1   | 33.1             | 56.0         | 22.9        | 24.0    | 46.0         | 22.0        |
| 3.243750        | L1   | 33.2             | 56.0         | 22.8        | 23.4    | 46.0         | 22.6        |
| 9.982500        | L1   | 36.2             | 60.0         | 23.8        | 26.8    | 50.0         | 23.2        |
| 10.061250       | L1   | 36.4             | 60.0         | 23.6        | 27.0    | 50.0         | 23.0        |
| 16.059750       | L1   | 37.2             | 60.0         | 22.8        | 27.1    | 50.0         | 22.9        |
| 16.156500       | L1   | 39.1             | 60.0         | 20.9        | 28.9    | 50.0         | 21.1        |

**Table 6-28. Line Conducted Data with 802.11a (UNII Band 3) Line 1**

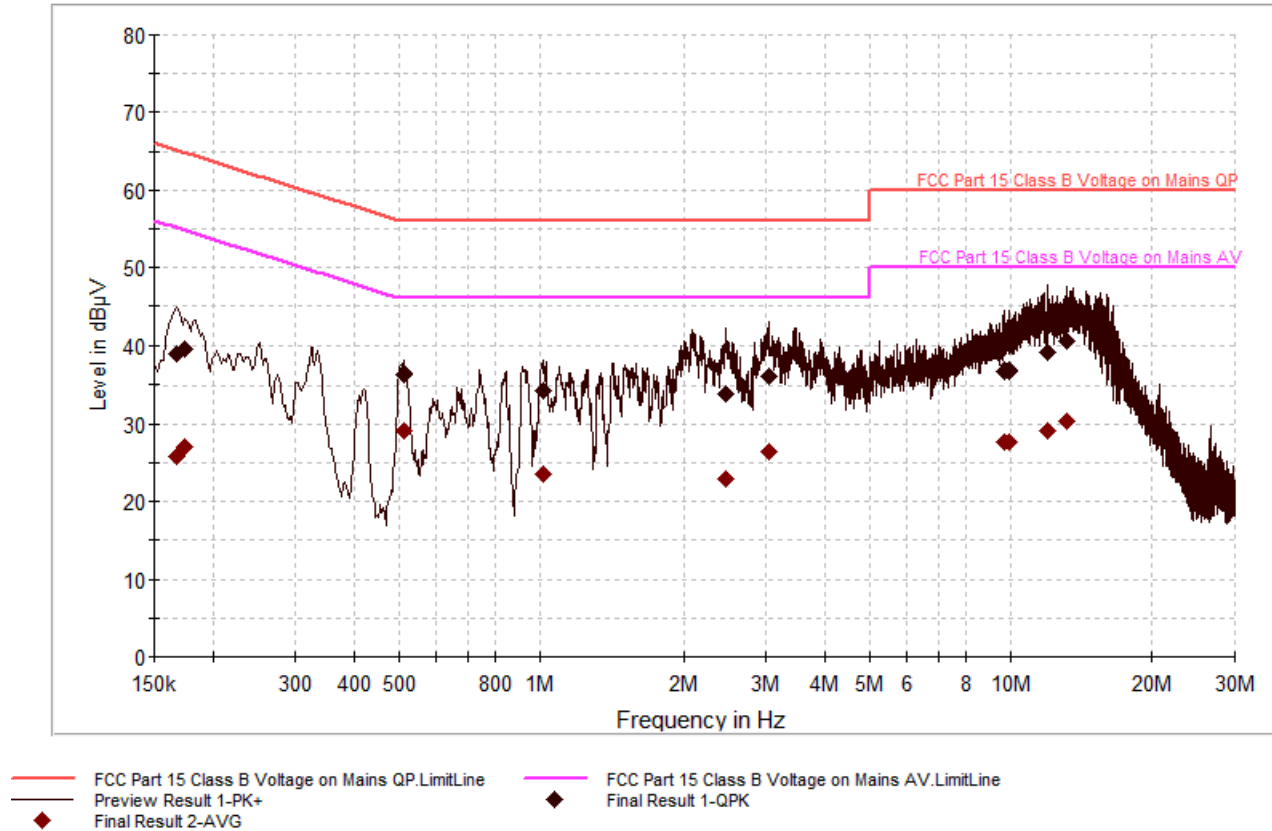
### Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 36. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. Traces shown in plot made using a peak detector.
4. Deviations to the Specifications: None.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                    |                                                                                       | Page 69 of 72                   |

## Line-Conducted Test Data (Cont'd)

§15.207; RSS-Gen [7.2.2]



**Plot 6-60. Line Conducted Plot with 802.11a (UNII Band 3) N**

### Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 36. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. Traces shown in plot made using a peak detector.
4. Deviations to the Specifications: None.

|                                      |                                               |                                                                     |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHI405U                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012              | EUT Type:<br>Portable Handset                                       |                | Page 70 of 72                   |

## Line-Conducted Test Data (Cont'd)

§15.207; RSS-Gen [7.2.2]

| Frequency (MHz) | Line | QuasiPeak (dBμV) | Limit (dBμV) | Margin (dB) | Average | Limit (dBμV) | Margin (dB) |
|-----------------|------|------------------|--------------|-------------|---------|--------------|-------------|
| 0.168000        | N    | 38.9             | 65.1         | 26.2        | 25.8    | 55.1         | 29.3        |
| 0.174750        | N    | 39.6             | 64.7         | 25.2        | 27.1    | 54.7         | 27.6        |
| 0.510000        | N    | 36.3             | 56.0         | 19.7        | 29.2    | 46.0         | 16.8        |
| 1.009500        | N    | 34.4             | 56.0         | 21.6        | 23.6    | 46.0         | 22.4        |
| 2.456250        | N    | 33.9             | 56.0         | 22.1        | 23.0    | 46.0         | 23.0        |
| 3.036750        | N    | 36.2             | 56.0         | 19.8        | 26.4    | 46.0         | 19.6        |
| 9.676500        | N    | 36.8             | 60.0         | 23.2        | 27.7    | 50.0         | 22.3        |
| 9.883500        | N    | 36.8             | 60.0         | 23.2        | 27.7    | 50.0         | 22.3        |
| 11.955750       | N    | 39.2             | 60.0         | 20.8        | 29.2    | 50.0         | 20.8        |
| 13.188750       | N    | 40.5             | 60.0         | 19.5        | 30.5    | 50.0         | 19.5        |

**Table 6-29. Line Conducted Data with 802.11a (UNII Band 3) N**

### Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 36. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. Traces shown in plot made using a peak detector.
4. Deviations to the Specifications: None.

|                                      |                                                                                     |                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI405U                  |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1203080272.A3L | Test Dates:<br>March 14-26, 2012                                                    | EUT Type:<br>Portable Handset                                    |                                                                                       | Page 71 of 72                   |

## 7.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSCHI405U** is in compliance with Part 15E of the FCC Rules and RSS-210 of the Industry Canada Rules..

|                                             |                                                                                     |                                                                             |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| <b>FCC ID:</b> A3LSCHI405U                  |  | <b>FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br/>(CERTIFICATION)</b> |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Report S/N:</b><br>0Y1203080272.A3L | <b>Test Dates:</b><br>March 14-26, 2012                                             | <b>EUT Type:</b><br>Portable Handset                                        |                                                                                       | Page 72 of 72                          |