



# PCTEST ENGINEERING LABORATORY, INC.

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<http://www.pctestlab.com>



## MEASUREMENT REPORT

### FCC PART 15.247 / IC RSS-210 Bluetooth (Low Energy)

**Applicant Name:**

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

**Date of Testing:**

10/08/12 - 10/11/12

**Test Site/Location:**

PCTEST Lab, Columbia, MD, USA

**Test Report Serial No.:**

0Y1210081475.A3L

**FCC ID:**

A3LSCHN719

**APPLICANT:**

Samsung Electronics Co., Ltd.

**Application Type:**

Certification

**Model:**

SCH-N719

**EUT Type:**

Portable Handset

**Max. RF Output Power:**

5.248 mW (7.2 dBm) Peak Conducted

**Frequency Range:**

2402 - 2480 MHz

**FCC Classification:**

Digital Transmission System (DTS)

**FCC Rule Part(s):**

Part 15.247

**IC Specification(s):**

RSS-210 Issue 8

**Test Procedure(s):**

ANSI C63.10-2009

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 C63.10-2009. 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

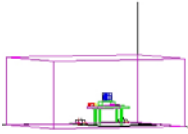


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|--------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHN719                   |  | FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT<br>(CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1210081475.A3L | Test Dates:<br>10/08/12 - 10/11/12                                                  | EUT Type:<br>Portable Handset                                |                                                                                       | Page 1 of 30                    |

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## MEASUREMENT REPORT

### FCC Part 15.247

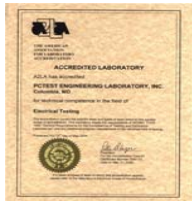


#### § 2.1033 General Information

**APPLICANT:** Samsung Electronics Co., Ltd.  
**APPLICANT ADDRESS:** 416 Maetan 3-Dong, Yeongtong-gu  
 Suwon-si, Gyeonggi-do, 443-742, Republic of Korea  
**TEST SITE:** PCTEST ENGINEERING LABORATORY, INC.  
**TEST SITE ADDRESS:** 7185 Oakland Mills Road, Columbia, MD 21046 USA  
**FCC RULE PART(S):** Part 15.247  
**IC SPECIFICATION(S):** RSS-210 Issue 8  
**FCC ID:** A3LSCHN719  
**Test Device Serial No.:** FJ-261-D ☐ Production ☒ Pre-Production ☐ Engineering  
 FJ-261-C  
**FCC CLASSIFICATION:** Digital Transmission System (DTS)  
**DATE(S) OF TEST:** 10/08/12 - 10/11/12  
**TEST REPORT S/N:** 0Y1210081475.A3L

#### Test Facility / Accreditations

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



- PCTEST facility is an FCC registered (PCTEST Reg. No. 159966) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (2451B-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 (2451B-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

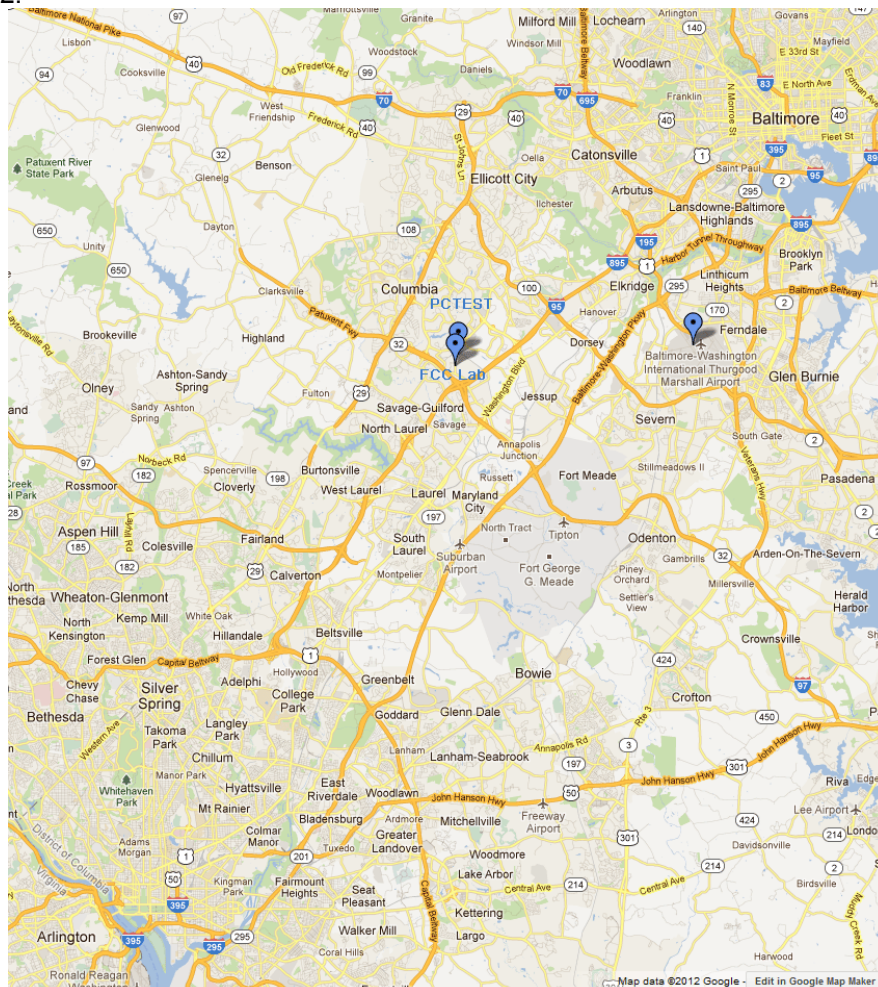
### 1.1 Scope

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

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The site coordinates are 39° 10'23" N latitude and 76° 49'50" W longitude. The facility is 0.4 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on February 15, 2012.



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

|                                      |                                                                                     |                                                              |                                                                                       |                                 |
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## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSCHN719**. The data found in this test report was taken with the EUT operating in Bluetooth low energy mode. While in low energy mode, the Bluetooth transmitter hops pseudo-randomly between 40 channels, three of which are “advertising channels”. When the transmitter is hopping only between the three advertising channels, the EUT does not fall under the category of a “hopper” as defined in 15.247(a)(iii) which states that a “frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels.” As operation on only the advertising channels does not qualify the EUT as a hopper, the EUT is certified as a DTS device in this mode. The data found in this report is representative of the device when it transmits on its advertising channels. Typical Bluetooth operation is covered under the DSS report found with this application.

### 2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA/EvDO Rev0/A (BC0, BC1), 1900 GSM/GPRS/EDGE, 802.11a/b/g/n WLAN (DTS/NII), Bluetooth (1x,EDR, LE), NFC

### 2.3 Test Configuration

The Samsung Portable Handset FCC ID: A3LSCHN719 was tested per the guidance of ANSI C63.10-2009. See Sections 3.2, 3.3, and 6.1 of this test report for a description of the AC line conducted emissions, radiated emissions, and antenna port conducted emissions test setups, respectively.

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

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

### 2.5 Labeling Requirements

Per 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(a)(5).

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 Testing Unlicensed Wireless Devices (ANSI C63.10-2009) was used in the measurement of the **Samsung Portable Handset FCC ID: A3LSCHN719**.

Deviation from measurement procedure.....None

### 3.2 Conducted Emissions

The line-conducted facility is located inside a 10'x16'x9' shielded enclosure. The shielded enclosure is manufactured by ETS Lindgren RF Enclosures. 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 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50μH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. The external power line filter is an ETS Lindgren Model LPRX-4X30 (100dB Attenuation, 14kHz-18GHz) and the two EMI/RFI filters are ETS Lindgren Model LRW-2030-S1 (100dB Minimum Insertion Loss, 14kHz – 10GHz). These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. 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 second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference groundplane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

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 and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The spectrum was scanned from 150kHz to 30MHz with a spectrum analyzer. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 10kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or resolution, clock or data exchange speed, scrolling H pattern to the EUT and/or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions is used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

Line conducted emissions test results are shown in Section 6.9. Automated test software was used to perform the AC line conducted emissions testing. Automated measurement software utilized is Rohde & Schwarz EMC32, Version 8.51.0.

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

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. An ETS Lindgren Model 2188 raised turntable is used for radiated measurement. It is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. A 78cm high PVC support structure is placed on top of the turntable. A ¾" (~1.9cm) sheet of high density polyethylene is used as the table top and is placed on top of the PVC supports to bring the total height of the table to 80cm.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. 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 test set-up was placed on top of the 0.8 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees 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 rate, scrolling H pattern to the EUT and/or support equipment, and changing the polarity of the receive antenna, whichever produced the worst-case emissions. To record the final measurements, the analyzer detector function was set to CISPR quasi-peak mode and the bandwidth of the spectrum analyzer was set to 120kHz for frequencies below 1GHz or 1MHz for frequencies above 1GHz. For average measurements above 1GHz, the analyzer was set to peak detector with a reduced VBW setting (RBW = 1MHz, VBW = 1/THz, where T = pulse width).

|                                      |                                                                                     |                                                              |                                                                                       |                                 |
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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 antenna(s) of the Portable Handset are **permanently attached**.
- There are no provisions for connection to an external antenna.

### Conclusion:

The **Samsung Portable Handset FCC ID: A3LSCHN719** unit complies with the requirement of §15.203.

| Ch. | Frequency (MHz) |
|-----|-----------------|
| 0   | 2402            |
| :   | :               |
| 19  | 2440            |
| :   | :               |
| 39  | 2480            |

Table 4-1. 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) | 7/10/2012  | Annual       | 7/10/2013  | N/A           |
| -                 | WL25-1           | Conducted Cable Set (25GHz)            | 2/13/2012  | Annual       | 2/13/2013  | N/A           |
| Agilent           | 8447D            | Broadband Amplifier                    | 5/8/2012   | Annual       | 5/8/2013   | 2443A01900    |
| Agilent           | N9020A           | MXA Signal Analyzer                    | 10/9/2012  | Annual       | 10/9/2013  | US46470561    |
| Anritsu           | MA2411B          | Pulse Sensor                           | 9/19/2012  | Annual       | 9/19/2013  | 1027293       |
| Anritsu           | ML2495A          | Power Meter                            | 10/13/2011 | Annual       | 10/13/2012 | 1039008       |
| Com-Power         | AL-130           | 9kHz - 30MHz Loop Antenna              | 5/10/2012  | Annual       | 5/10/2013  | 121034        |
| ETS Lindgren      | 3117             | 1-18 GHz DRG Horn (Medium)             | 7/22/2011  | Biennial     | 7/22/2013  | 125518        |
| Mini-Circuits     | VHF-3100+        | High Pass Filter                       | 1/15/2012  | Annual       | 1/15/2013  | 30841         |
| Rohde & Schwarz   | TS-PR18          | 1-18 GHz Pre-Amplifier                 | 6/26/2012  | Annual       | 6/26/2013  | 100071        |
| Rohde & Schwarz   | ESU26            | EMI Test Receiver                      | 12/15/2011 | Annual       | 12/15/2012 | 100342        |
| Solar Electronics | 8012-50-R-24-BNC | LISN                                   | 6/23/2011  | Biennial     | 6/23/2013  | 310233        |
| Sunol             | JB5              | Bi-Log Antenna (30M - 5GHz)            | 1/26/2012  | Biennial     | 1/26/2014  | A051107       |

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

**NOTE:**

The MXA Signal Analyzer was used after the calibration date of 10/9/2012.

|                                      |                                                                                     |                                                              |                                                                                       |                                 |
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## 6.0 TEST RESULTS

### 6.1 Summary

Company Name: Samsung Electronics Co., Ltd.  
 FCC ID: A3LSCHN719  
 FCC Classification: Digital Transmission System (DTS)  
 Number of Channels: 40

| FCC Part Section(s)                           | RSS Section(s)    | Test Description                                                               | Test Limit                                                                                              | Test Condition                   | Test Result | Reference            |
|-----------------------------------------------|-------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------|-------------|----------------------|
| <b>TRANSMITTER MODE (TX)</b>                  |                   |                                                                                |                                                                                                         |                                  |             |                      |
| 15.247(a)(2)                                  | RSS-210 [A8.2]    | 6dB Bandwidth                                                                  | > 500kHz                                                                                                | CONDUCTED                        | PASS        | Section 6.2          |
| 15.247(b)(3)                                  | RSS-210 [A8.4]    | Transmitter Output Power                                                       | < 1 Watt                                                                                                |                                  | PASS        | Sections 6.3         |
| 15.247(e)                                     | RSS-210 [A8.2]    | Transmitter Power Spectral Density                                             | < 8dBm / 3kHz Band                                                                                      |                                  | PASS        | Section 6.4          |
| 15.247(d)                                     | RSS-210 [A8.5]    | Band Edge / Out-of-Band Emissions                                              | ≥ 20dBc                                                                                                 |                                  | PASS        | Sections 6.5, 6.6    |
| 15.205<br>15.209                              | RSS-210 [A8.5]    | 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) | RADIATED                         | PASS        | Sections 6.7, 6.8    |
| 15.207                                        | RSS-Gen [7.2.2]   | AC Conducted Emissions 150kHz – 30MHz                                          | < FCC 15.207 limits or < 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 < 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 < RSS-210 table 3 limits                                                         | RADIATED (30MHz-1GHz) (1-25 GHz) | PASS        | Part 15B Test Report |

**Table 6-1. Summary of Test Results**

#### Notes:

- 1) All modes of operation were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots shown in this report were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables and attenuators.

|                                      |                                                                                     |                                                           |                                                                                       |                                 |
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## 6.2 6dB Bandwidth Measurement – Bluetooth (LE)

§15.247(a)(2); RSS-210 [A8.2]

The bandwidth at 6dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the receive antenna while the EUT is operating in transmission mode at the appropriate frequencies. **The minimum permissible 6dB bandwidth is 500 kHz.**

| Frequency [MHz] | Channel No. | Bluetooth Mode | Measured Bandwidth [MHz] | Minimum Bandwidth [MHz] | Pass / Fail |
|-----------------|-------------|----------------|--------------------------|-------------------------|-------------|
| 2402            | 0           | LE             | 0.708                    | 0.500                   | Pass        |
| 2440            | 19          | LE             | 0.702                    | 0.500                   | Pass        |
| 2480            | 39          | LE             | 0.712                    | 0.500                   | Pass        |

Table 6-2. Conducted Bandwidth Measurements

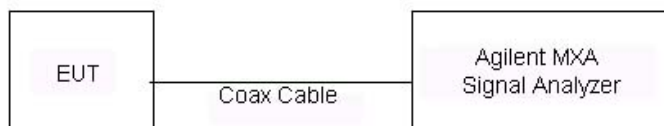
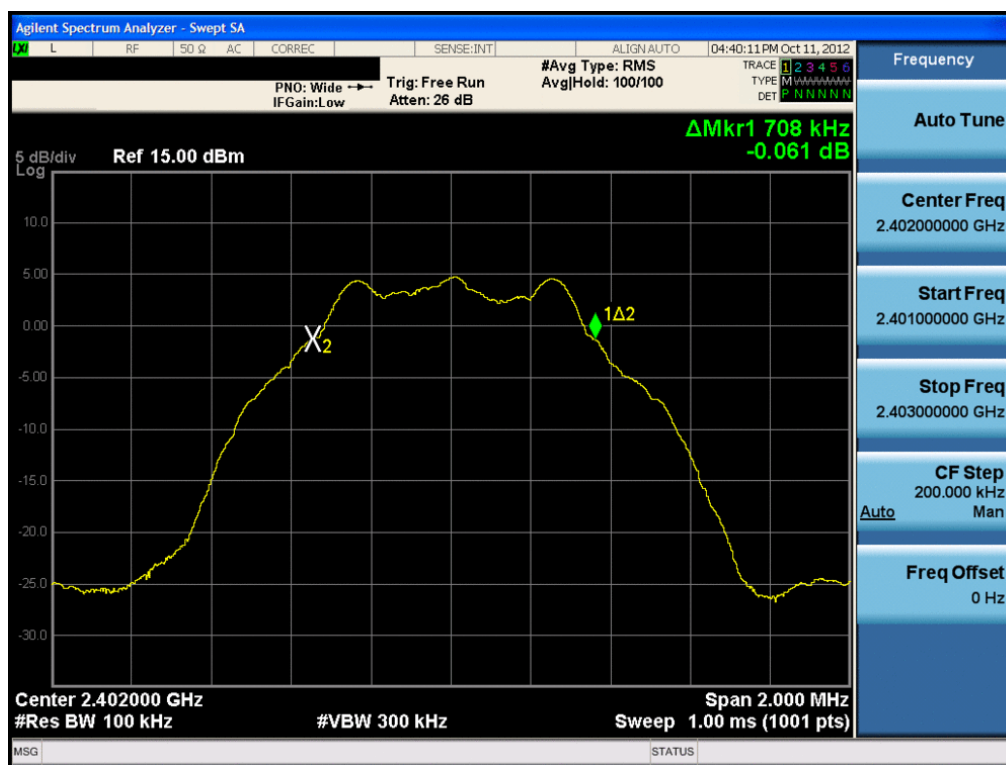
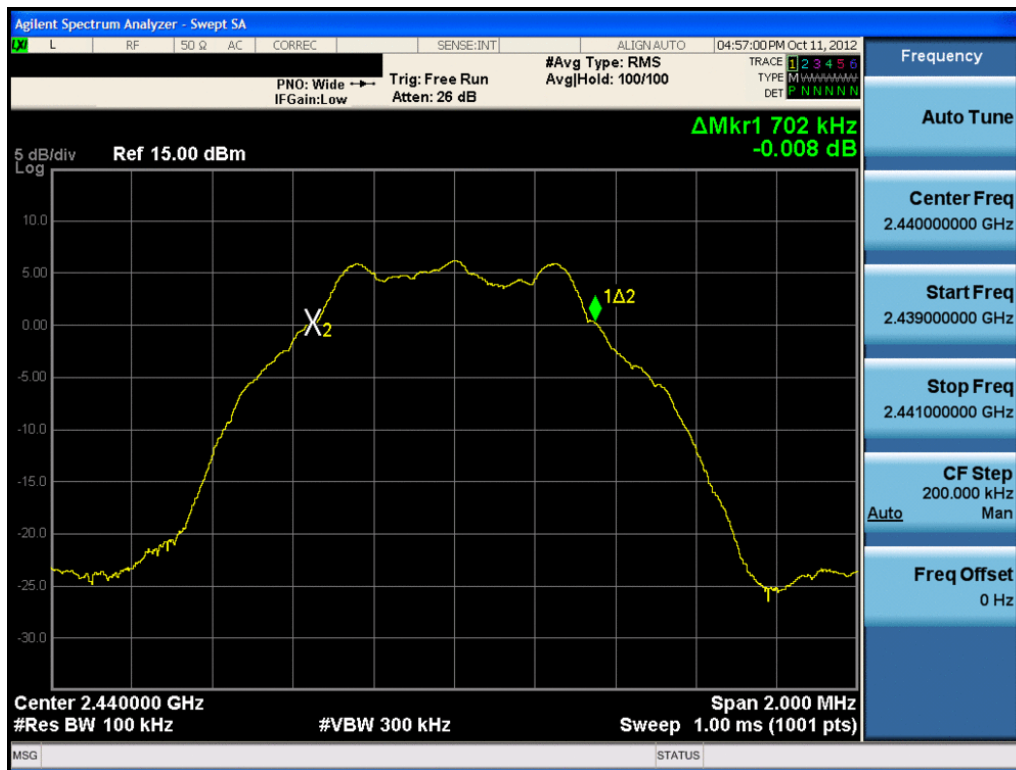


Figure 6-1. Test Instrument & Measurement Setup

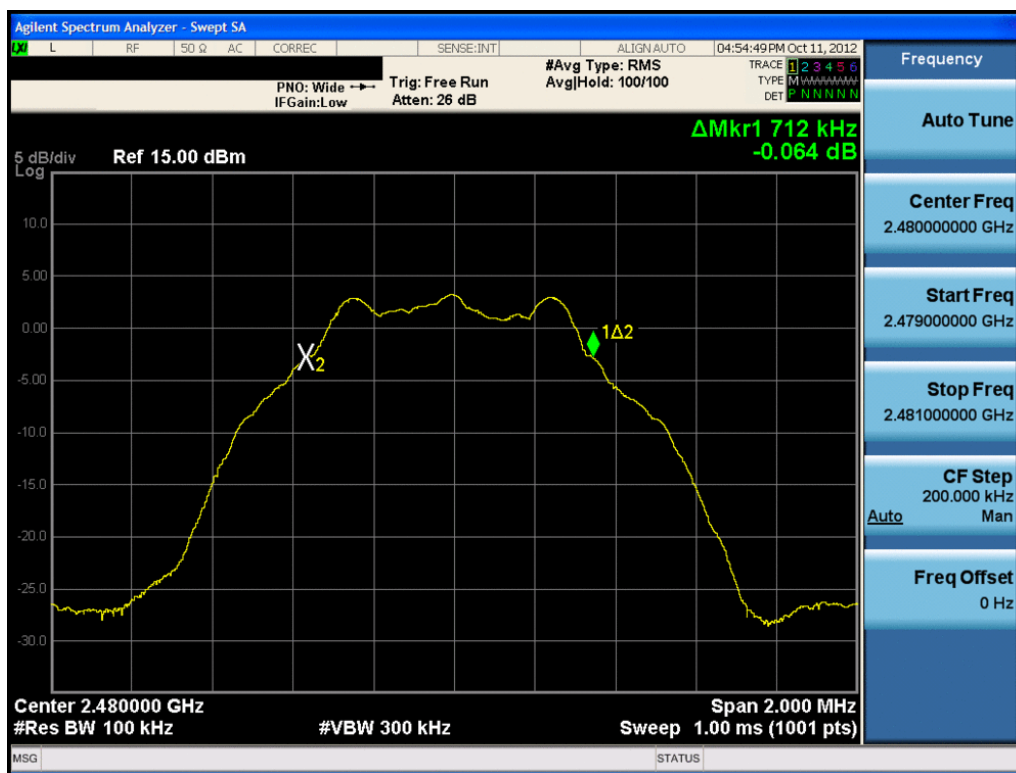


Plot 6-1. 6dB Bandwidth Plot (Bluetooth (LE) – Ch. 0)

|                                      |                                               |                                                              |                |                                 |
|--------------------------------------|-----------------------------------------------|--------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHN719                   | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1210081475.A3L | Test Dates:<br>10/08/12 - 10/11/12            | EUT Type:<br>Portable Handset                                |                | Page 11 of 30                   |



Plot 6-2. 6dB Bandwidth Plot (Bluetooth (LE) – Ch. 19)



Plot 6-3. 6dB Bandwidth Plot (Bluetooth (LE) – Ch. 39)

|                                      |                                               |                                                              |                |                                 |
|--------------------------------------|-----------------------------------------------|--------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHN719                   | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1210081475.A3L | Test Dates:<br>10/08/12 - 10/11/12            | EUT Type:<br>Portable Handset                                |                | Page 12 of 30                   |

### 6.3 Output Power Measurement – Bluetooth (LE)

§15.247(b)(3); RSS-210 [A8.4]

A transmitter antenna terminal of EUT is connected to the input of a spectrum analyzer. Measurement is made using a spectrum analyzer with the RBW = 3MHz, VBW = 50MHz, and the detector set to “peak” under “max hold” condition while the EUT is operating in transmission mode at the appropriate frequencies. **The maximum permissible conducted output power is 1 Watt.**

| Frequency<br>[MHz] | Channel<br>No. | Bluetooth<br>Mode | Peak Conducted<br>Power |       |
|--------------------|----------------|-------------------|-------------------------|-------|
|                    |                |                   | [dBm]                   | [mW]  |
| 2402               | 0              | LE                | 6.13                    | 4.102 |
| 2440               | 19             | LE                | 7.20                    | 5.248 |
| 2480               | 39             | LE                | 4.09                    | 2.564 |

Table 6-3. Conducted Output Power Measurements (Bluetooth (LE))

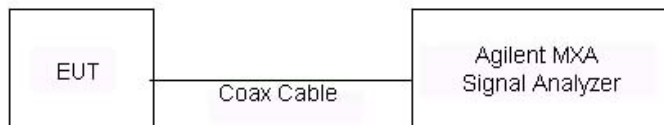


Figure 6-2. Test Instrument & Measurement Setup

|                                      |                                                                                     |                                                              |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHN719                   |  | FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT<br>(CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1210081475.A3L | Test Dates:<br>10/08/12 - 10/11/12                                                  | EUT Type:<br>Portable Handset                                |                                                                                       | Page 13 of 30                   |

## 6.4 Power Spectral Density – Bluetooth (LE)

§15.247(e); RSS-210 [A8.2]

The peak power density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies. **The maximum permissible power spectral density is 8 dBm in any 3 kHz band.**

| Frequency [MHz] | Channel No. | Bluetooth Mode | Measured Power Spectral Density [dBm] | Maximum Permissible Power Density [dBm / 3kHz] | Margin [dB] |
|-----------------|-------------|----------------|---------------------------------------|------------------------------------------------|-------------|
| 2402            | 0           | LE             | -8.87                                 | 8.0                                            | -16.87      |
| 2440            | 19          | LE             | -7.86                                 | 8.0                                            | -15.86      |
| 2480            | 39          | LE             | -10.37                                | 8.0                                            | -18.37      |

Table 6-4. Conducted Power Density Measurements

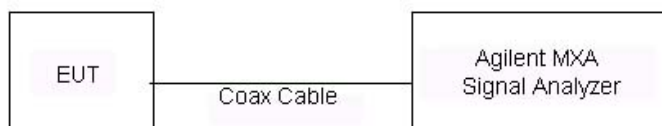
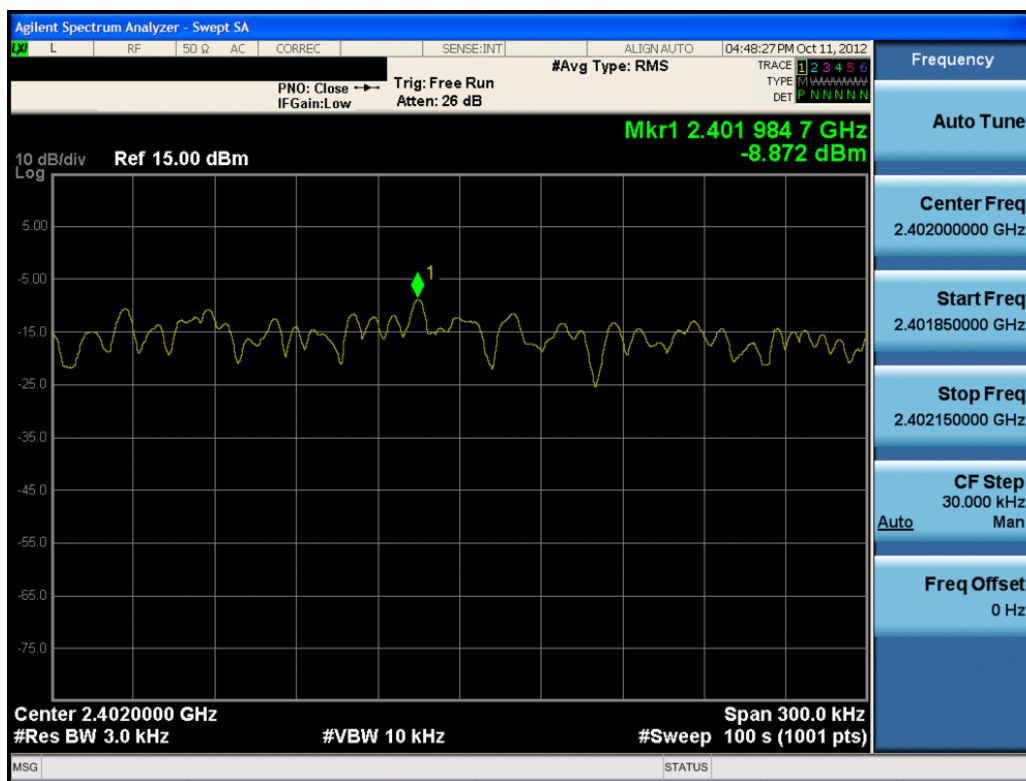
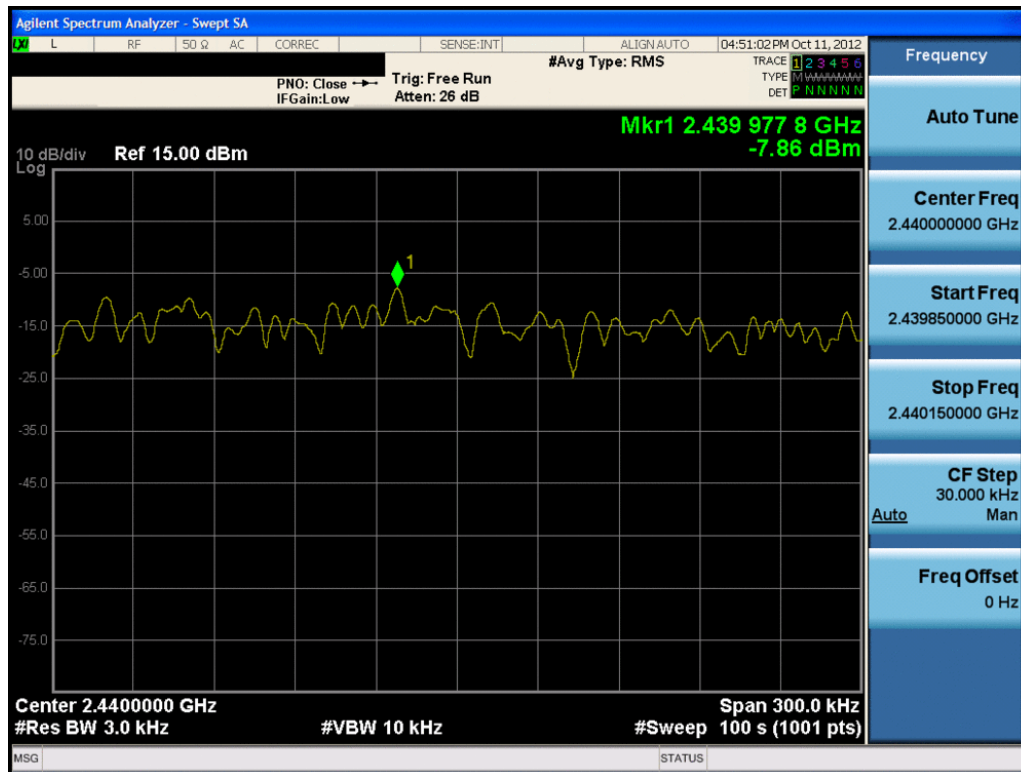


Figure 6-3. Test Instrument & Measurement Setup

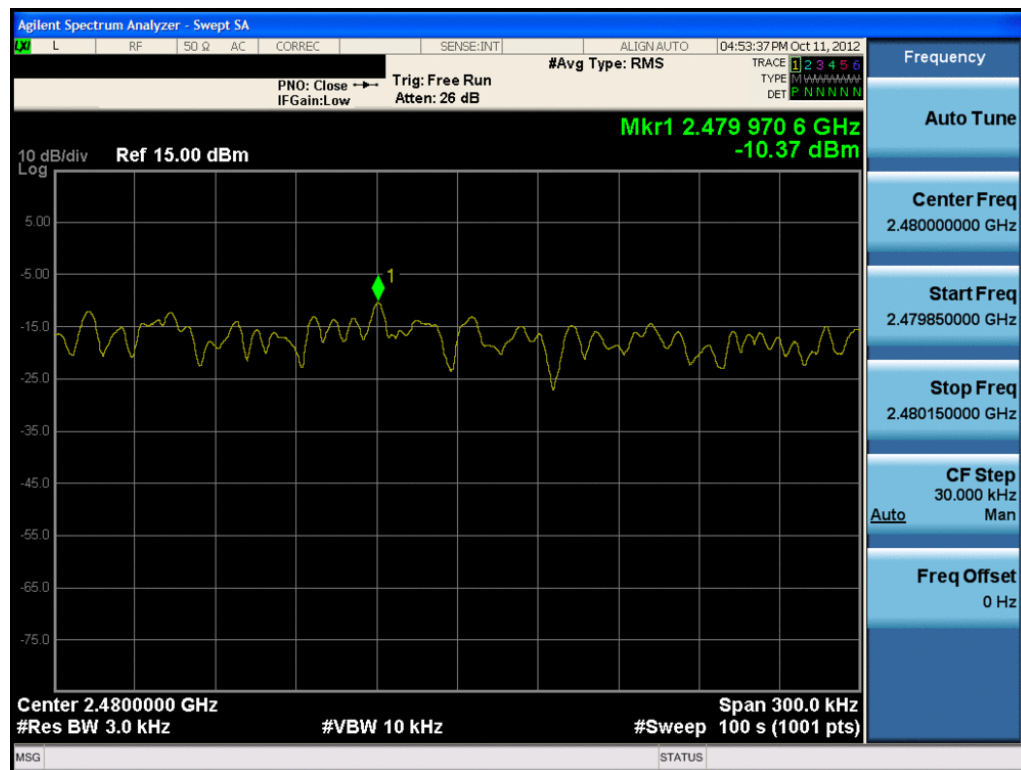


Plot 6-4. Power Spectral Density Plot (Bluetooth (LE) – Ch. 0)

|                                      |                                               |                                                              |                |                                 |
|--------------------------------------|-----------------------------------------------|--------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHN719                   | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1210081475.A3L | Test Dates:<br>10/08/12 - 10/11/12            | EUT Type:<br>Portable Handset                                |                | Page 14 of 30                   |



Plot 6-5. Power Spectral Density Plot (Bluetooth (LE) – Ch. 19)



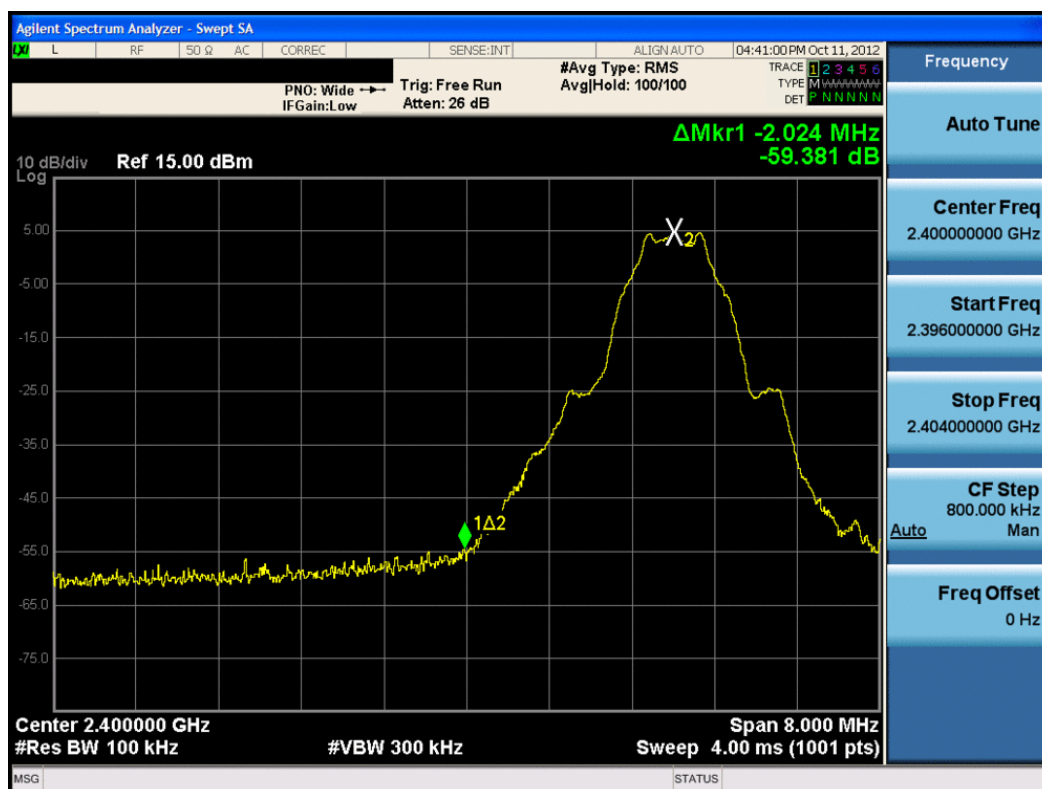
Plot 6-6. Power Spectral Density Plot (Bluetooth (LE) – Ch. 39)

|                                      |                                               |                                                              |                |                                 |
|--------------------------------------|-----------------------------------------------|--------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHN719                   | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1210081475.A3L | Test Dates:<br>10/08/12 - 10/11/12            | EUT Type:<br>Portable Handset                                |                | Page 15 of 30                   |

## 6.5 Conducted Emissions at the Band Edge

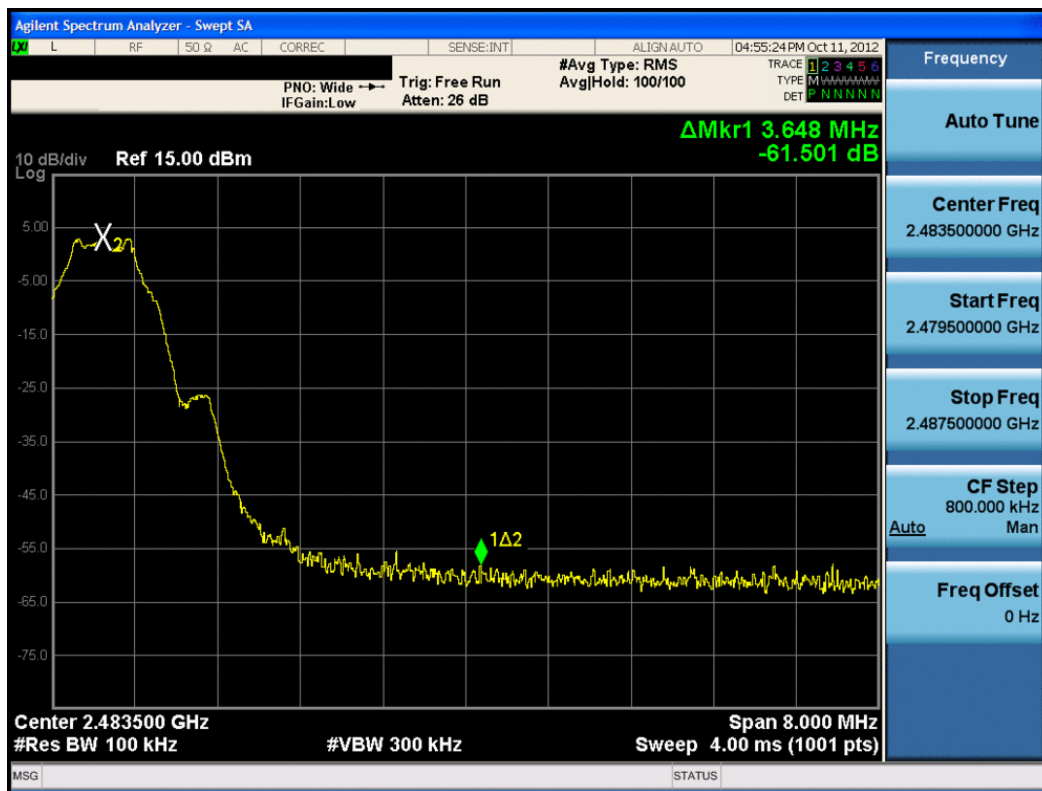
### §15.247(d); RSS-210 [A8.5]

For the following out of band conducted spurious emissions plots at the band edge, the EUT was set to transmit at maximum power with the largest packet size available. These settings produced the worst-case emissions.



Plot 6-7. Band Edge Plot (Bluetooth (LE) - Ch. 0)

|                                      |                                                                                     |                                                              |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHN719                   |  | FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT<br>(CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1210081475.A3L | Test Dates:<br>10/08/12 - 10/11/12                                                  | EUT Type:<br>Portable Handset                                |                                                                                       | Page 16 of 30                   |



Plot 6-8. Band Edge Plot (Bluetooth (LE) – Ch. 39)

|                                      |                                               |                                                              |                |                                 |
|--------------------------------------|-----------------------------------------------|--------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHN719                   | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1210081475.A3L | Test Dates:<br>10/08/12 - 10/11/12            | EUT Type:<br>Portable Handset                                |                | Page 17 of 30                   |

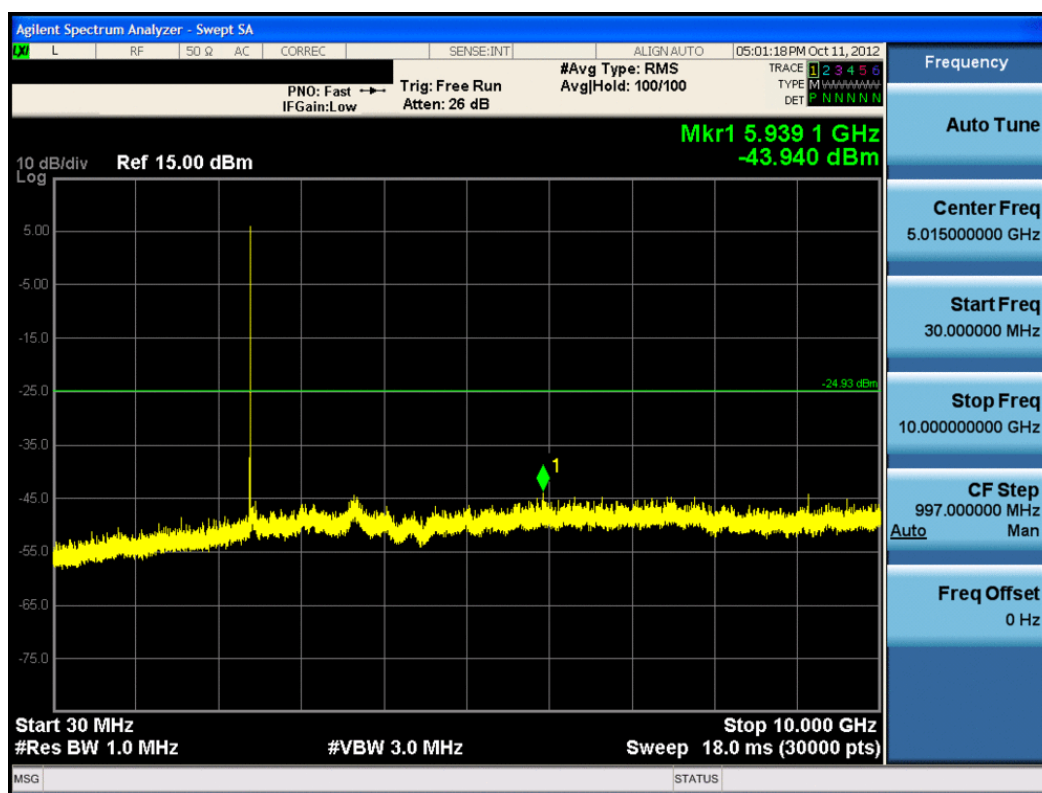
## 6.6 Conducted Spurious Emissions

### §15.247(d); RSS-210 [A8.5]

For the following out of band conducted spurious emissions plots, the EUT was set to transmit at maximum power with the largest packet size available. The worst case spurious emissions were found in this configuration.

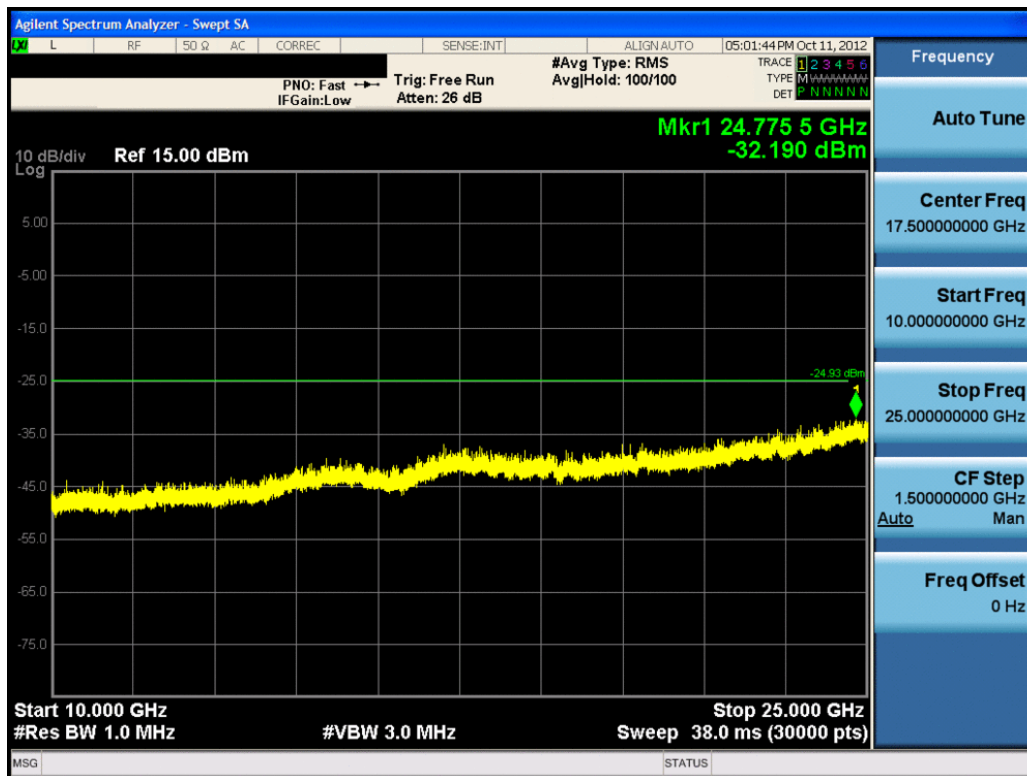
The display line shown in the following plots denotes the limit at 30dB below the fundamental emission level measured in a 100kHz bandwidth. However, since the traces in the following plots are measured with a 1MHz RBW, the display line may not necessarily appear to be 30dB below the level of the fundamental in a 1MHz bandwidth.

The correct limit for out-of-band Emissions is 20dB below the fundamental emission level measured in a 100kHz bandwidth. However, since all frequencies investigated were found to be compliant at 30dB, compliance is maintained.

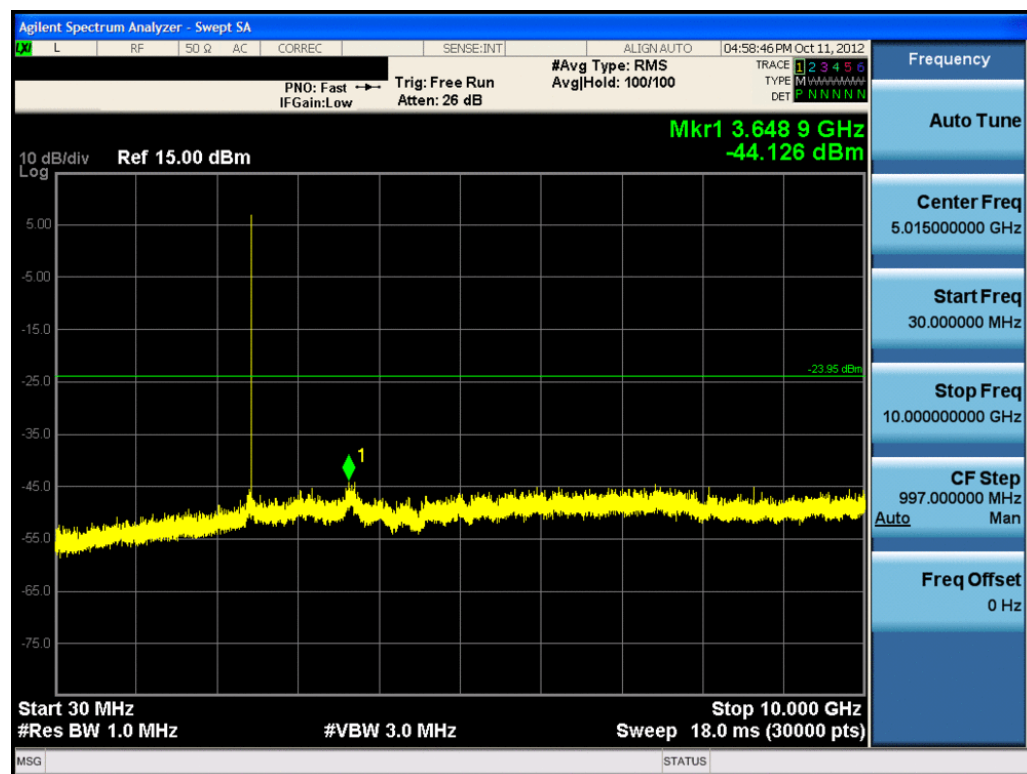


Plot 6-9. Conducted Spurious Plot (Bluetooth (LE) – Ch. 0)

|                                      |                                                                                     |                                                           |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHN719                   |  | FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT (CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1210081475.A3L | Test Dates:<br>10/08/12 - 10/11/12                                                  | EUT Type:<br>Portable Handset                             |                                                                                       | Page 18 of 30                   |

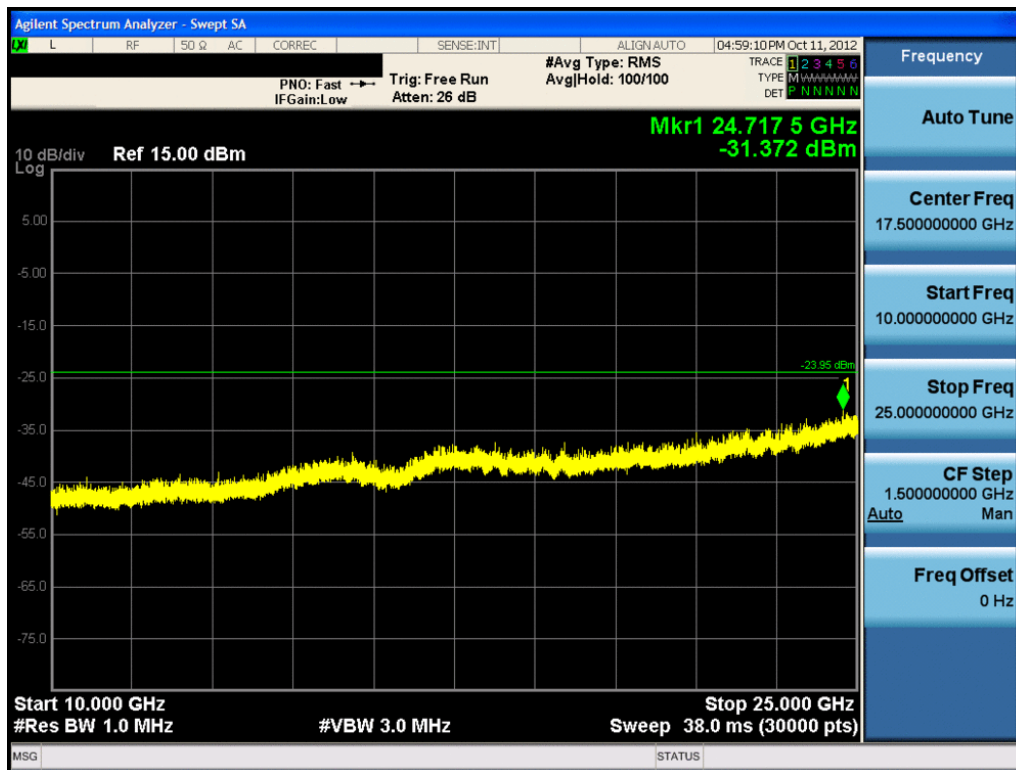


Plot 6-10. Conducted Spurious Plot (Bluetooth (LE) – Ch. 0)

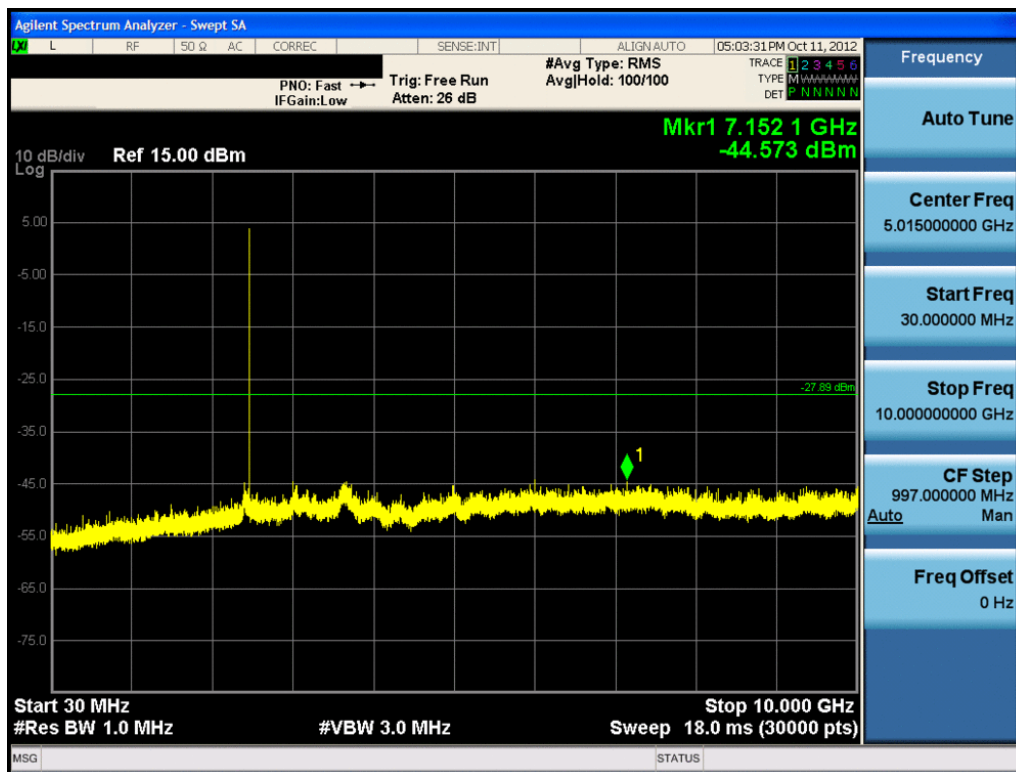


Plot 6-11. Conducted Spurious Plot (Bluetooth (LE) – Ch. 19)

|                                      |                                               |                                                              |                |                                 |
|--------------------------------------|-----------------------------------------------|--------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHN719                   | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1210081475.A3L | Test Dates:<br>10/08/12 - 10/11/12            | EUT Type:<br>Portable Handset                                |                | Page 19 of 30                   |

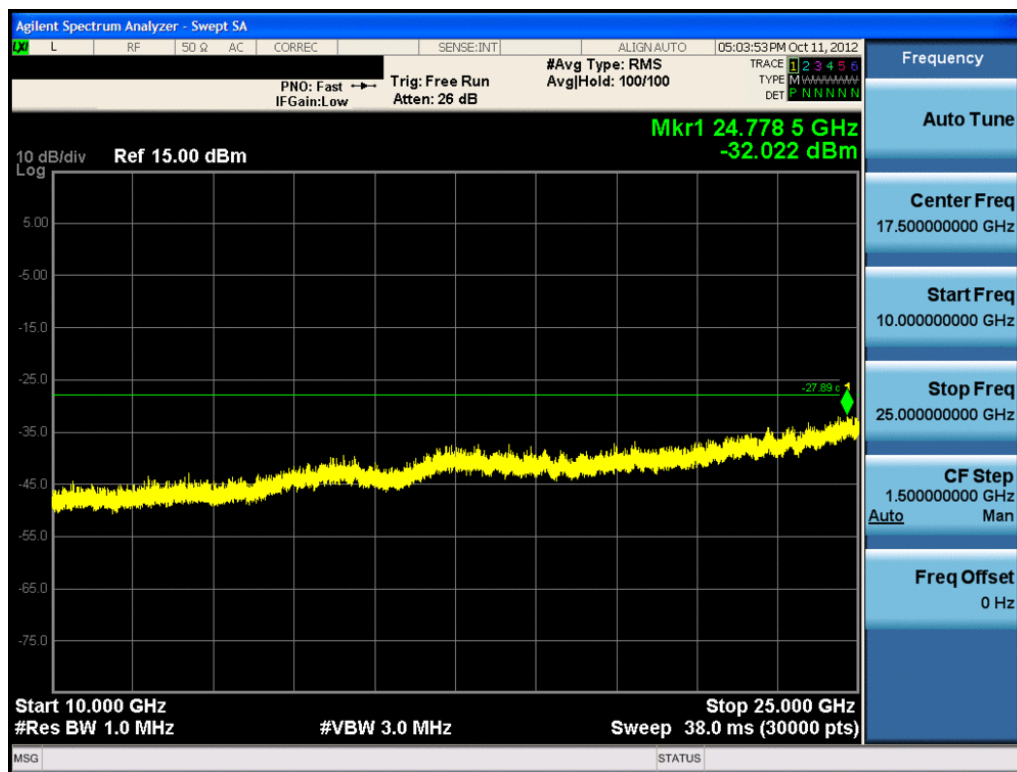


Plot 6-12. Conducted Spurious Plot (Bluetooth (LE) – Ch. 19)



Plot 6-13. Conducted Spurious Plot (Bluetooth (LE) – Ch. 39)

|                                      |                                               |                                                              |                |                                 |
|--------------------------------------|-----------------------------------------------|--------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHN719                   | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1210081475.A3L | Test Dates:<br>10/08/12 - 10/11/12            | EUT Type:<br>Portable Handset                                |                | Page 20 of 30                   |



Plot 6-14. Conducted Spurious Plot (Bluetooth (LE) - Ch. 39)

|                                      |                                               |                                                              |                |                                 |
|--------------------------------------|-----------------------------------------------|--------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHN719                   | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1210081475.A3L | Test Dates:<br>10/08/12 - 10/11/12            | EUT Type:<br>Portable Handset                                |                | Page 21 of 30                   |

## 6.7 Radiated Spurious Emission Measurements

§15.205, §15.209, §15.247(d); RSS-210 [A8.5]

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 and peak measurements were taken using 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 6-5 per Section 15.209.

All measurements shown in this section were obtained using traditional radiated test methods as defined in ANSI C63.10-2009. No significant radiated band edge emissions were found in the 2310 – 2390MHz restricted band.

| 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 6-5. Radiated Limits**

### Sample Calculation

- o Field Strength Level [dBμV/m] = Analyzer Level [dBm] + 107 + AFCL [dB/m]
- o AFCL [dB/m] = Antenna Factor [dB/m] + Cable Loss [dB]
- o Margin [dB] = Field Strength Level [dBμV/m] – Limit [dBμV/m]

|                                      |                                                                                     |                                                              |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHN719                   |  | FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT<br>(CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1210081475.A3L | Test Dates:<br>10/08/12 - 10/11/12                                                  | EUT Type:<br>Portable Handset                                |                                                                                       | Page 22 of 30                   |

## Radiated Spurious Emission Measurements (Cont'd)

§15.205, §15.209, §15.247(d); RSS-210 [A8.5]

Bluetooth Mode: LE

Distance of Measurements: 3 Meters

Operating Frequency: 2402MHz

Channel: 0

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol [H/V] | AFCL [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|-----------|-----------|-------------------------|----------------|-------------|
| 4804.00         | -109.41              | Avg      | H         | 39.45     | 37.03                   | 53.98          | -16.94      |
| 4804.00         | -99.23               | Peak     | H         | 39.45     | 47.21                   | 73.98          | -26.76      |
| 12010.00        | -135.00              | Avg      | H         | 49.63     | 21.63                   | 53.98          | -32.35      |
| 12010.00        | -125.00              | Peak     | H         | 49.63     | 31.63                   | 73.98          | -42.35      |

**Table 6-6. Radiated Measurements @ 3 meters**

### NOTES:

1. All emissions shown lie in the restricted bands specified in §15.205 and RSS-210 section 2.7, Table 1 and are below the limit shown in Table 6-5.
2. For frequencies > 1GHz, average and peak measurements are recorded. Average measurements were recorded using RBW = 1MHz and VBW  $\geq 1/T = 3\text{kHz}$  to ensure that the spurious emissions were not over-averaged and peak measurements are recorded using RBW = 1MHz and VBW = 3MHz per ANSI C63.10-2009.
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 the 10<sup>th</sup> harmonic and the worst-case emissions are reported. No significant emissions were found beyond the second harmonic for this device.
6. Levels at -135 dBm and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels signify that no emission was detected.
7. Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated.

|                                      |                                                                                     |                                                              |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHN719                   |  | FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT<br>(CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1210081475.A3L | Test Dates:<br>10/08/12 - 10/11/12                                                  | EUT Type:<br>Portable Handset                                |                                                                                       | Page 23 of 30                   |

## Radiated Spurious Emission Measurements (Cont'd)

§15.205, §15.209, §15.247(d); RSS-210 [A8.5]

Bluetooth Mode: LE

Distance of Measurements: 3 Meters

Operating Frequency: 2440MHz

Channel: 19

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol [H/V] | AFCL [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|-----------|-----------|-------------------------|----------------|-------------|
| 4882.00         | -110.15              | Avg      | H         | 39.48     | 36.33                   | 53.98          | -17.65      |
| 4882.00         | -99.30               | Peak     | H         | 39.48     | 47.18                   | 73.98          | -26.80      |
| 7323.00         | -135.00              | Avg      | H         | 42.39     | 14.39                   | 53.98          | -39.59      |
| 7323.00         | -125.00              | Peak     | H         | 42.39     | 24.39                   | 73.98          | -49.59      |
| 12205.00        | -135.00              | Avg      | H         | 50.35     | 22.35                   | 53.98          | -31.63      |
| 12205.00        | -125.00              | Peak     | H         | 50.35     | 32.35                   | 73.98          | -41.63      |

**Table 6-7. Radiated Measurements @ 3 meters**

### NOTES:

1. All emissions shown lie in the restricted bands specified in §15.205 and RSS-210 section 2.7, Table 1 and are below the limit shown in Table 6-5.
2. For frequencies > 1GHz, average and peak measurements are recorded. Average measurements were recorded using RBW = 1MHz and VBW  $\geq$  1/T = 3kHz to ensure that the spurious emissions were not over-averaged and peak measurements are recorded using RBW = 1MHz and VBW = 3MHz per ANSI C63.10-2009.
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 the 10<sup>th</sup> harmonic and the worst-case emissions are reported. No significant emissions were found beyond the second harmonic for this device.
6. Levels at -135 dBm and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels signify that no emission was detected.
7. Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated.

|                                      |                                                                                     |                                                              |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHN719                   |  | FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT<br>(CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1210081475.A3L | Test Dates:<br>10/08/12 - 10/11/12                                                  | EUT Type:<br>Portable Handset                                |                                                                                       | Page 24 of 30                   |

## Radiated Spurious Emission Measurements (Cont'd)

§15.205, §15.209, §15.247(d); RSS-210 [A8.5]

Bluetooth Mode: LE

Distance of Measurements: 3 Meters

Operating Frequency: 2480MHz

Channel: 39

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol [H/V] | AFCL [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|-----------|-----------|-------------------------|----------------|-------------|
| 4960.00         | -109.31              | Avg      | H         | 39.51     | 37.20                   | 53.98          | -16.78      |
| 4960.00         | -100.67              | Peak     | H         | 39.51     | 45.84                   | 73.98          | -28.14      |
| 7440.00         | -135.00              | Avg      | H         | 42.56     | 14.56                   | 53.98          | -39.42      |
| 7440.00         | -125.00              | Peak     | H         | 42.56     | 24.56                   | 73.98          | -49.42      |
| 12400.00        | -135.00              | Avg      | H         | 51.07     | 23.07                   | 53.98          | -30.91      |
| 12400.00        | -125.00              | Peak     | H         | 51.07     | 33.07                   | 73.98          | -40.91      |

**Table 6-8. Radiated Measurements @ 3 meters**

### NOTES:

1. All emissions shown lie in the restricted bands specified in §15.205 and RSS-210 section 2.7, Table 1 and are below the limit shown in Table 6-5.
2. For frequencies > 1GHz, average and peak measurements are recorded. Average measurements were recorded using RBW = 1MHz and VBW ≥ 1/T = 3kHz to ensure that the spurious emissions were not over-averaged and peak measurements are recorded using RBW = 1MHz and VBW = 3MHz per ANSI C63.10-2009.
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 the 10<sup>th</sup> harmonic and the worst-case emissions are reported. No significant emissions were found beyond the second harmonic for this device.
6. Levels at -135 dBm and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels signify that no emission was detected.
7. Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated.

|                                      |                                                                                     |                                                              |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHN719                   |  | FCC Pt. 15.247 BLUETOOTH (LE) TEST REPORT<br>(CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1210081475.A3L | Test Dates:<br>10/08/12 - 10/11/12                                                  | EUT Type:<br>Portable Handset                                |                                                                                       | Page 25 of 30                   |

## 6.8 Radiated Restricted Band Edge Measurements

§15.205, §15.209, §15.247(d); RSS-210 [A8.5]

Bluetooth Mode: LE

Distance of Measurements: 3 Meters

Operating Frequency: 2402MHz

Channel: 0

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol [H/V] | AFCL [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|-----------|-----------|-------------------------|----------------|-------------|
| 2385.00         | -109.01              | Avg      | H         | 35.97     | 33.95                   | 53.98          | -20.03      |
| 2385.00         | -100.06              | Peak     | H         | 35.97     | 42.90                   | 73.98          | -31.08      |
| 2388.33         | -107.43              | Avg      | H         | 36.00     | 35.57                   | 53.98          | -18.41      |
| 2388.33         | -98.82               | Peak     | H         | 36.00     | 44.18                   | 73.98          | -29.80      |
| 2390.00         | -106.91              | Avg      | H         | 36.02     | 36.11                   | 53.98          | -17.87      |
| 2390.00         | -97.75               | Peak     | H         | 36.02     | 45.27                   | 73.98          | -28.71      |

**Table 6-9. Radiated Restricted Band Edge Measurements (2310 – 2390MHz)**

### NOTES:

1. All emissions shown lie in the restricted bands specified in §15.205 and RSS-210 section 2.7, Table 1 and are below the limit shown in Table 6-5.
2. For frequencies > 1GHz, average measurements are recorded using RBW = 1MHz and VBW  $\geq$  1/T = 3kHz. Peak measurements are recorded 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. Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated.

|                                      |                                                                                     |                                                              |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
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| Test Report S/N:<br>0Y1210081475.A3L | Test Dates:<br>10/08/12 - 10/11/12                                                  | EUT Type:<br>Portable Handset                                |                                                                                       | Page 26 of 30                   |

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

§15.205, §15.209, §15.247(d); RSS-210 [A8.5]

Bluetooth Mode: LE

Distance of Measurements: 3 Meters

Operating Frequency: 2480MHz

Channel: 39

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Pol [H/V] | AFCL [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|-----------|-----------|-------------------------|----------------|-------------|
| 2483.50         | -92.80               | Avg      | H         | 36.97     | 51.17                   | 53.98          | -2.81       |
| 2483.50         | -87.69               | Peak     | H         | 36.97     | 56.28                   | 73.98          | -17.70      |
| 2484.06         | -98.98               | Avg      | H         | 36.98     | 45.00                   | 53.98          | -8.98       |
| 2484.06         | -93.20               | Peak     | H         | 36.98     | 50.78                   | 73.98          | -23.20      |
| 2484.50         | -107.91              | Avg      | H         | 36.98     | 36.07                   | 53.98          | -17.91      |
| 2484.50         | -97.27               | Peak     | H         | 36.98     | 46.71                   | 73.98          | -27.27      |

**Table 6-10. Radiated Restricted Band Edge Measurements (2483.5 – 2500MHz)**

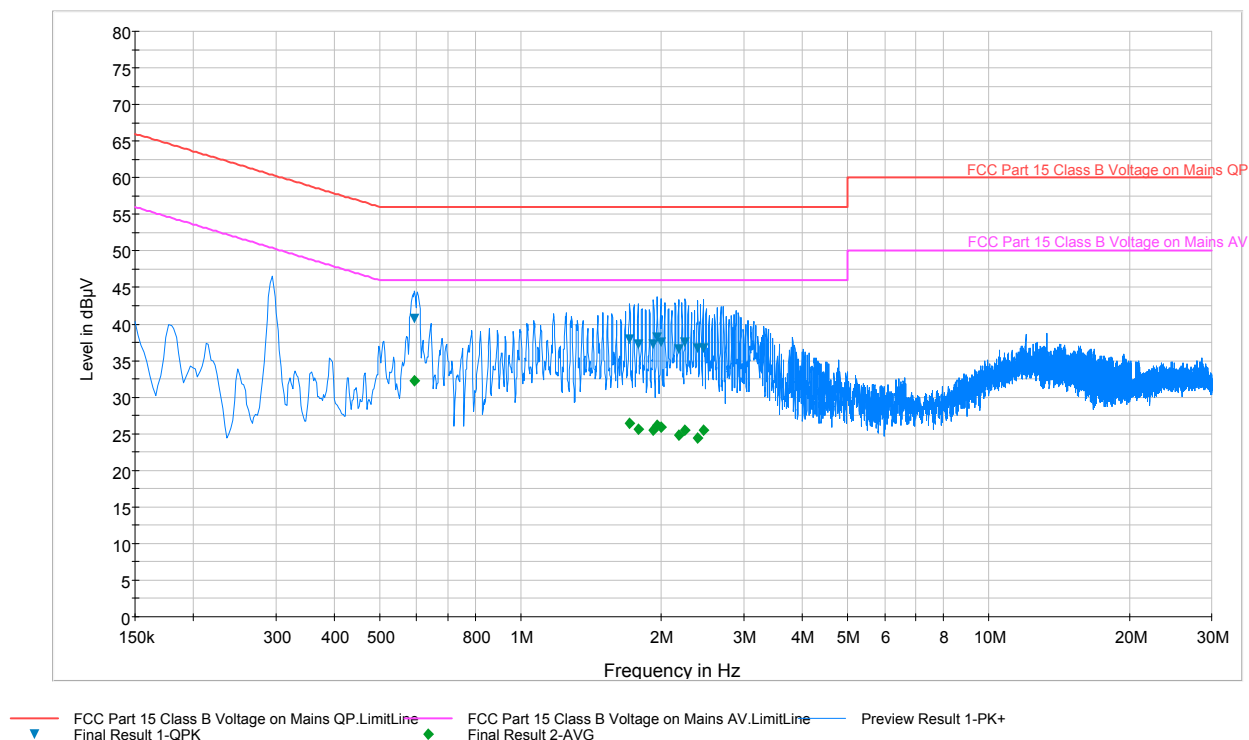
### NOTES:

1. All emissions shown lie in the restricted bands specified in §15.205 and RSS-210 section 2.7, Table 1 and are below the limit shown in Table 6-5.
2. For frequencies > 1GHz, average measurements are recorded using RBW = 1MHz and VBW  $\geq$  1/T = 3kHz. Peak measurements are recorded 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. Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated.

|                                      |                                                                                     |                                                              |                                                                                       |                                 |
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## 6.9 Line-Conducted Test Data

### §15.207; RSS-Gen [7.2.2]



**Plot 6-15. Line Conducted Plot with Bluetooth LE (L1)**

| Frequency MHz | Line | Corr. dB | QuasiPeak dBμV | Limit dBμV | Margin dB | Average dBμV | Limit dBμV | Margin dB |
|---------------|------|----------|----------------|------------|-----------|--------------|------------|-----------|
| 0.593         | L1   | 0.1      | 40.70          | 56.00      | 15.30     | 32.30        | 46.00      | 13.70     |
| 1.712         | L1   | 0.2      | 37.90          | 56.00      | 18.10     | 26.50        | 46.00      | 19.50     |
| 1.781         | L1   | 0.2      | 37.20          | 56.00      | 18.80     | 25.60        | 46.00      | 20.40     |
| 1.923         | L1   | 0.2      | 37.20          | 56.00      | 18.80     | 25.50        | 46.00      | 20.50     |
| 1.959         | L1   | 0.2      | 38.10          | 56.00      | 17.90     | 26.20        | 46.00      | 19.80     |
| 1.995         | L1   | 0.2      | 37.50          | 56.00      | 18.50     | 26.00        | 46.00      | 20.00     |
| 2.177         | L1   | 0.2      | 36.60          | 56.00      | 19.40     | 24.90        | 46.00      | 21.10     |
| 2.247         | L1   | 0.2      | 37.50          | 56.00      | 18.50     | 25.50        | 46.00      | 20.50     |
| 2.391         | L1   | 0.2      | 36.70          | 56.00      | 19.30     | 24.40        | 46.00      | 21.60     |
| 2.459         | L1   | 0.2      | 36.70          | 56.00      | 19.30     | 25.50        | 46.00      | 20.50     |

**Table 6-11. Line Conducted Data with Bluetooth LE (L1)**

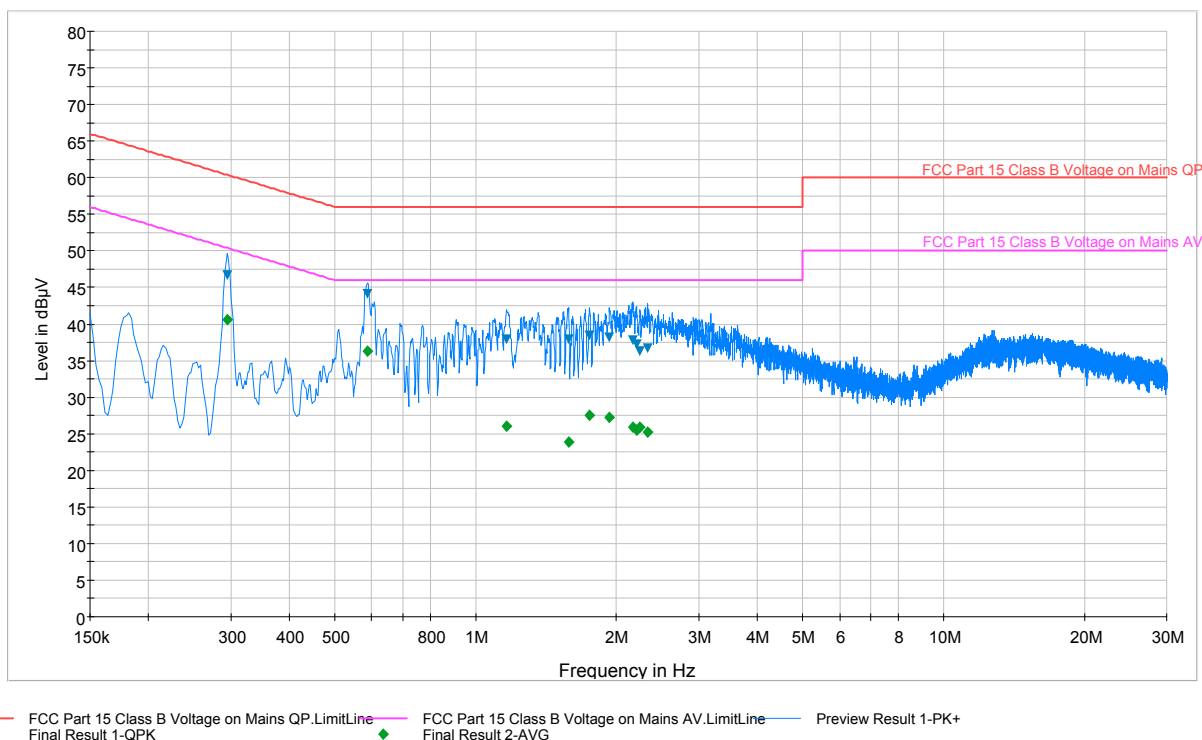
#### Notes:

- All modes of operation were investigated and the worst-case emissions are reported.
- The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
- Corr. (dB) = Cable loss (dB) + LISN insertion factor (dB)
- QP/AV Level (dBμV) = QP/AV Analyzer/Receiver Level (dBμV) + Corr. (dB)
- Margin (dB) = QP/AV Limit (dBμV) - QP/AV Level (dBμV)
- Traces shown in plot are made using a peak detector.
- Deviations to the Specifications: None.

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

§15.207; RSS-Gen [7.2.2]



Plot 6-16. Line Conducted Plot with Bluetooth LE (N)

| Frequency MHz | Line | Corr. dB | QuasiPeak dBμV | Limit dBμV | Margin dB | Average dBμV | Limit dBμV | Margin dB |
|---------------|------|----------|----------------|------------|-----------|--------------|------------|-----------|
| 0.294         | N    | 0.2      | 46.70          | 60.40      | 13.70     | 40.50        | 50.40      | 9.90      |
| 0.587         | N    | 0.1      | 44.10          | 56.00      | 11.90     | 36.20        | 46.00      | 9.80      |
| 1.167         | N    | 0.2      | 37.90          | 56.00      | 18.10     | 26.00        | 46.00      | 20.00     |
| 1.581         | N    | 0.2      | 37.80          | 56.00      | 18.20     | 23.90        | 46.00      | 22.10     |
| 1.754         | N    | 0.2      | 38.50          | 56.00      | 17.50     | 27.50        | 46.00      | 18.50     |
| 1.932         | N    | 0.2      | 38.20          | 56.00      | 17.80     | 27.30        | 46.00      | 18.70     |
| 2.164         | N    | 0.2      | 37.70          | 56.00      | 18.30     | 25.90        | 46.00      | 20.10     |
| 2.207         | N    | 0.2      | 37.30          | 56.00      | 18.70     | 25.50        | 46.00      | 20.50     |
| 2.247         | N    | 0.2      | 36.30          | 56.00      | 19.70     | 26.00        | 46.00      | 20.00     |
| 2.335         | N    | 0.2      | 36.70          | 56.00      | 19.30     | 25.30        | 46.00      | 20.70     |

Table 6-12. Line Conducted Data with Bluetooth LE (N)

### Notes:

- All Modes of operation were investigated and the worst-case emissions are reported.
- The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
- Corr. (dB) = Cable loss (dB) + LISN insertion factor (dB)
- QP/AV Level (dBμV) = QP/AV Analyzer/Receiver Level (dBμV) + Corr. (dB)
- Margin (dB) = QP/AV Limit (dBμV) - QP/AV Level (dBμV)
- Traces shown in plot are made using a peak detector.
- Deviations to the Specifications: None.

|                                      |                                                                                     |                                                           |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
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## 7.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSCHN719** is in compliance with Part 15C of the FCC Rules and RSS-210 of the Industry Canada Rules.

|                                      |                                                                                     |                                                              |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
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