



# PCTEST ENGINEERING LABORATORY, INC.

7185 Oakland Mills Road, Columbia, MD 21046 USA

Tel. 410.290.6652 / Fax 410.290.6654

http://www.pctestlab.com



## MEASUREMENT REPORT

FCC Part 22, 24, & 27 / IC RSS-132/RSS-133/RSS-139

**Applicant Name:**

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

**Date of Testing:**

06/11/2012

**Test Site/Location:**

PCTEST Lab., Columbia, MD, USA

**Test Report Serial No.:**

0Y1205300756.A3L

**FCC ID :** A3LSCHR820

**APPLICANT:** SAMSUNG ELECTRONICS CO., LTD.

**Application Type:**

Class II Permissive Change

**Model(s):**

SCH-R820

**EUT Type:**

Portable Handset

**FCC Classification:**

PCS Licensed Transmitter Held to Ear (PCE)

**FCC Rule Part(s):**

§2; §22(H), §24(E), §27(C)

**Test Procedure(s):**

ANSI/TIA-603-C-2004, KDB 971168

**Test Device Serial No.:**

identical prototype [S/N: N/A]

**Class II Permissive Change:**

Please see FCC change documents.

**Original Grant Date:**

04/03/2012

| Mode     | Tx Frequency (MHz) | Emission Designator | ERP/EIRP       |                  |
|----------|--------------------|---------------------|----------------|------------------|
|          |                    |                     | Max. Power (W) | Max. Power (dBm) |
| CDMA850  | 824.70 - 848.31    | 1M28F9W             | 0.129          | 21.11            |
| CDMA1700 | 1711.25 - 1753.75  | 1M28F9W             | 0.168          | 22.25            |
| CDMA1900 | 1851.25 - 1908.75  | 1M27F9W             | 0.272          | 24.34            |

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

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

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

  
Randy Ortanez  
President

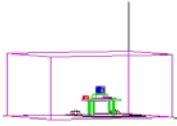


|                                      |                                                                                     |                                                                                 |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHR820                   |  | FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1205300756.A3L | Test Dates:<br>06/11/2012                                                           | EUT Type:<br>Portable Handset                                                   |                                                                                       | Page 1 of 23                    |

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## MEASUREMENT REPORT

### FCC Part 22, 24, & 27



#### §2.1033 General Information

**APPLICANT:** Samsung Electronics Co., Ltd.  
**APPLICANT ADDRESS:** 416 Maetan 3-Dong, Yeongtong-gu  
 Suwon-si, Gyeonggi-do  
**TEST SITE:** PCTEST ENGINEERING LABORATORY, INC.  
**TEST SITE ADDRESS:** 7185 Oakland Mills Road, Columbia, MD 21046 USA  
**FCC RULE PART(S):** §2; §22(H), §24(E), §27(C)(L)  
**IC SPECIFICATION(S):** RSS-132 Issue 2; RSS-133 Issue 5; RSS-139 Issue 2  
**BASE MODEL:** SCH-R820  
**FCC ID:** A3LSCHR820  
**FCC CLASSIFICATION:** PCS Licensed Transmitter Held to Ear (PCE)  
**MODE:** CDMA / EvDO  
**FREQUENCY TOLERANCE:**  $\pm 0.00025\%$  (2.5 ppm)  
**Test Device Serial No.:** N/A ☐ Production ☒ Pre-Production ☐ Engineering  
**DATE(S) OF TEST:** 06/11/2012  
**TEST REPORT S/N:** 0Y1205300756.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.
- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing Aid Compatibility (HAC) testing, CTIA Test Plans, and wireless testing for FCC.
- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and Industry Canada Standards (RSS).
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS, CDMA, and EvDO wireless devices and for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO, and CDMA 1xRTT.

|                                      |                                                                                     |                                                                                 |                                                                                       |                                 |
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## 1.0 INTRODUCTION

### 1.1 Scope

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

### 1.2 Testing Facility

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

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

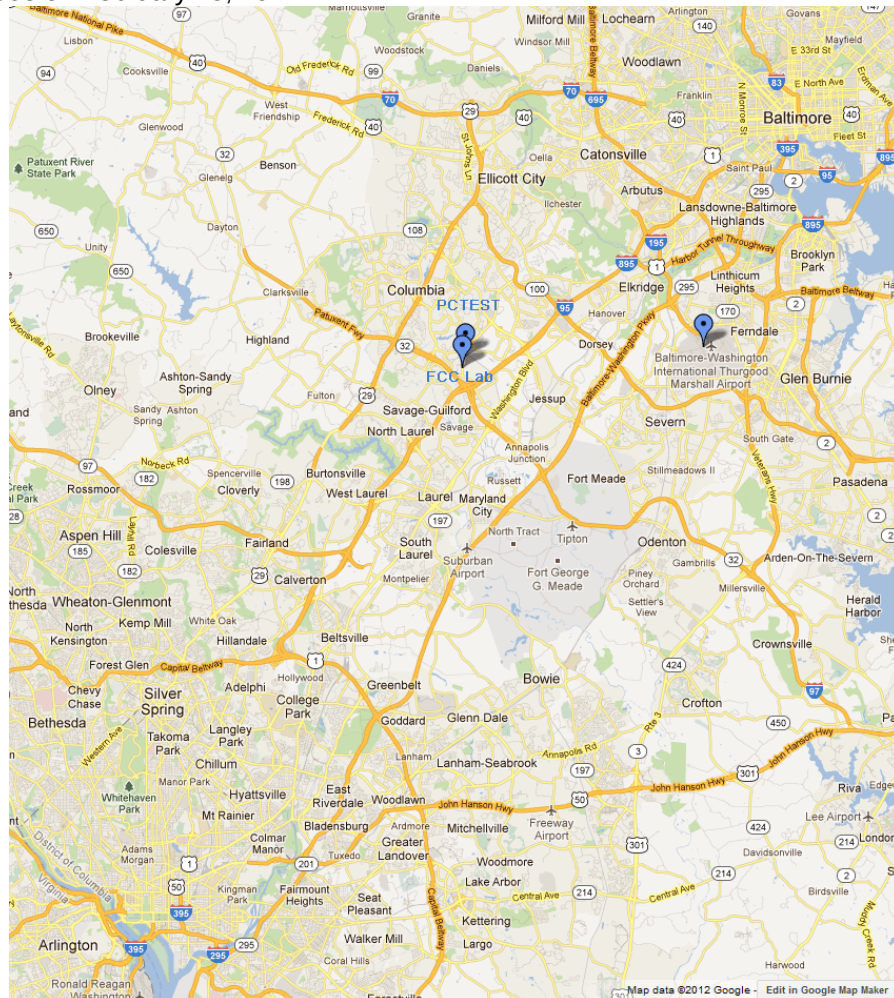


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

|                                      |                                               |                                                                                 |                |                                 |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHR820                   | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 22/24/27 CDMA / E/DO MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
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## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSCHR820**. The test data contained in this report pertains only to the emissions due to the EUT's licensed transmitter.

### 2.2 Device Capabilities

This device contains the following capabilities:

850/1700/1900 CDMA/EvDO (BC0, BC15, BC1), Band 2, 4 LTE (1.4, 3, 5 MHz)

### 2.3 Test Configuration

The Samsung Portable Handset FCC ID: A3LSCHR820 was tested per the guidance of ANSI/TIA-603-C-2004 and KDB 971168. See Section 3.0 of this test report for a description of the radiated emissions tests.

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

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

### 2.5 Labeling Requirements

Per 2.925

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

Per 15.19; Docket 95-19

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

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

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

Please see attachment for FCC ID label and label location.

|                                      |                           |                                                                                                                                                                     |  |                                                                                                                       |
|--------------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------|
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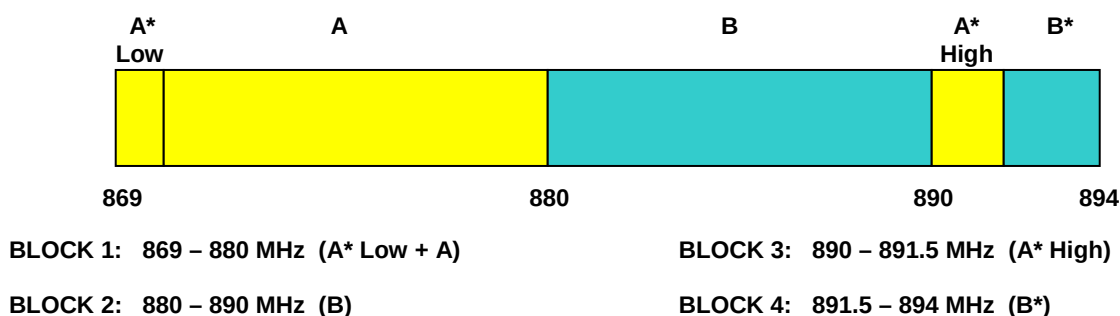
## 3.0 DESCRIPTION OF TESTS

### 3.1 Evaluation Procedure

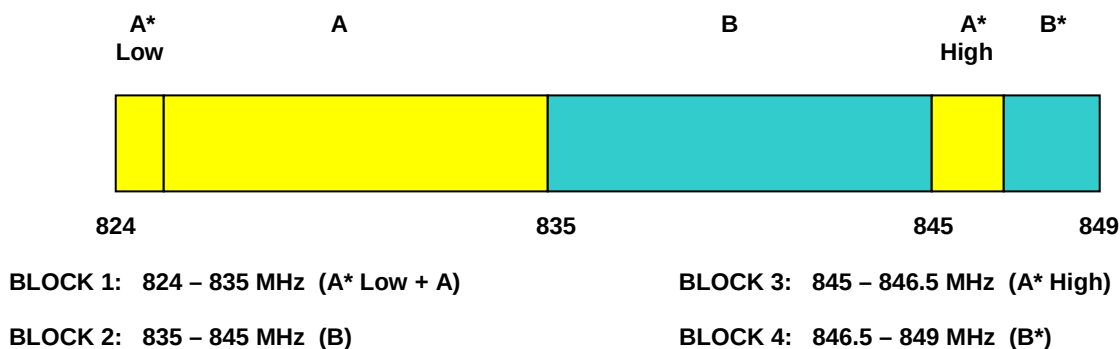
The measurement procedures described in the “Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards” (ANSI/TIA-603-C-2004) and “Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems” were used in the measurement of the measurement of the **Samsung Portable Handset FCC ID: A3LSCHR820**.

Deviation from Measurement Procedure.....None

### 3.2 Cellular - Base Frequency Blocks



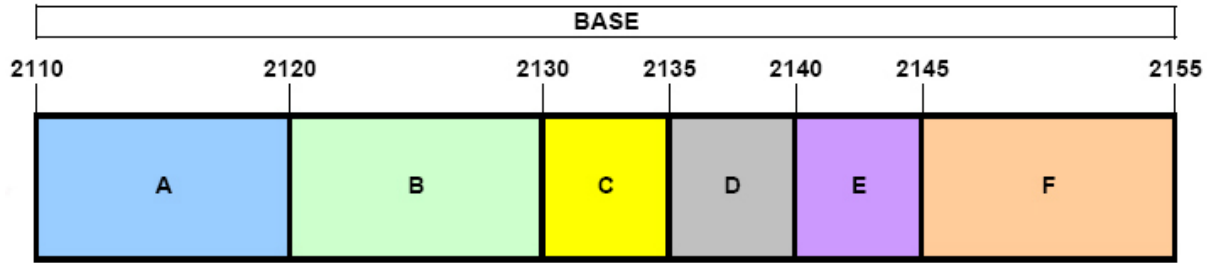
### 3.3 Cellular - Mobile Frequency Blocks



|                                      |                                               |                                                                                 |                |                                 |
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### 3.4 AWS - Base Frequency Blocks

§27.5(h)



BLOCK 1: 2110 – 2120 MHz (A)

BLOCK 4: 2135 – 2140 MHz (D)

BLOCK 2: 2120 – 2130 MHz (B)

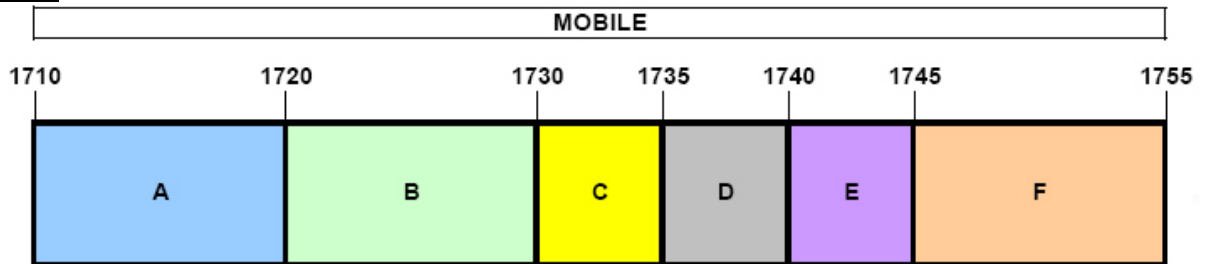
BLOCK 5: 2140 – 2145 MHz (E)

BLOCK 3: 2130 – 2135 MHz (C)

BLOCK 6: 2145 – 2155 MHz (E)

### 3.5 AWS - Mobile Frequency Blocks

§27.5(h)



BLOCK 1: 1710 – 1720 MHz (A)

BLOCK 4: 1735 – 1740 MHz (D)

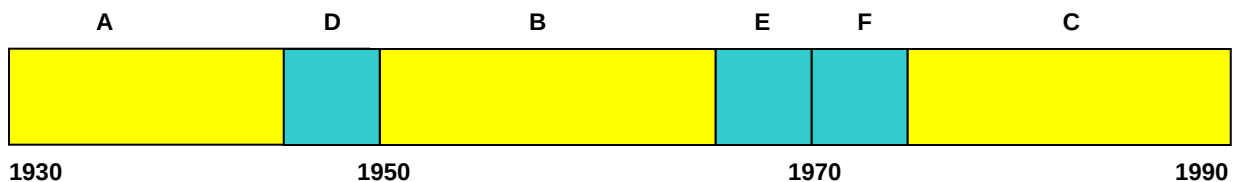
BLOCK 2: 1720 – 1730 MHz (B)

BLOCK 5: 1740 – 1745 MHz (E)

BLOCK 3: 1730 – 1735 MHz (C)

BLOCK 6: 1745 – 1755 MHz (F)

### 3.6 PCS - Base Frequency Blocks



BLOCK 1: 1930 – 1945 MHz (A)

BLOCK 4: 1965 – 1970 MHz (E)

BLOCK 2: 1945 – 1950 MHz (D)

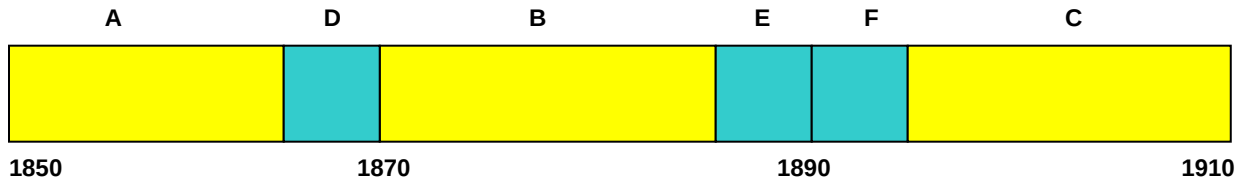
BLOCK 5: 1970 – 1975 MHz (F)

BLOCK 3: 1950 – 1965 MHz (B)

BLOCK 6: 1975 – 1990 MHz (C)

|                                      |                                               |                                                                                 |                |                                 |
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### 3.7 PCS - Mobile Frequency Blocks



BLOCK 1: 1850 – 1865 MHz (A)

BLOCK 4: 1885 – 1890 MHz (E)

BLOCK 2: 1865 – 1870 MHz (D)

BLOCK 5: 1890 – 1895 MHz (F)

BLOCK 3: 1870 – 1885 MHz (B)

BLOCK 6: 1895 – 1910 MHz (C)

### 3.8 Occupied Bandwidth Emission Limits

§2.1049, 22.917(a)(b), 24.238(a)(b), §27.53(h)

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The spectrum analyzers' "occupied bandwidth" measurement function was used to record the occupied bandwidth in accordance with KDB 971168.

### 3.9 Spurious and Harmonic Emissions at Antenna Terminal

§2.1051, 22.917(a) and (b), 24.238(a) and (b), §27.53(h)

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10<sup>th</sup> harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater for PCS and AWS band, 100kHz or greater for the cell band. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

|                                      |                                                                                     |                                                                                 |                                                                                       |                                 |
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### 3.10 Radiated Power and Radiated Spurious Emissions

§2.1053, 22.917(a), 22., 24.232(c), 24.238(a), §27.53(h)

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.

The equipment under test was transmitting while connected to its integral antenna and is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer. Radiated power levels are also investigated with the receive antenna horizontally and vertically polarized. The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration band set to the emissions' occupied bandwidth, a RMS detector, RBW = 100kHz, VBW = 300kHz, and a 1 second sweep time over a minimum of 10 sweeps, per the guidelines of KDB 971168.

Per the guidance of ANSI/TIA-603-C-2004, a half-wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

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

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

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

|                                      |                                                                                     |                                                                                 |                                                                                       |                                 |
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## 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 |
|-----------------|-----------|----------------------------------------|------------|--------------|------------|---------------|
| -               | RE2       | Radiated Emissions Cable Set (VHF/UHF) | 2/13/2012  | Annual       | 2/13/2013  | N/A           |
| Agilent         | 8447D     | Broadband Amplifier                    | 5/8/2012   | Annual       | 5/8/2013   | 1937A03348    |
| Agilent         | E4432B    | ESG-D Series Signal Generator          | 3/15/2012  | Annual       | 3/15/2013  | US40053896    |
| Anritsu         | MA2411B   | Power Sensor                           | 3/5/2012   | Annual       | 3/5/2013   | 846215        |
| Anritsu         | ML2495A   | Power Meter                            | 10/13/2011 | Annual       | 10/13/2012 | 1039008       |
| ETS Lindgren    | 3117      | 1-18 GHz DRG Horn (Medium)             | 7/22/2011  | Annual       | 7/22/2012  | 125518        |
| ETS Lindgren    | 3164-08   | Quad Ridge Horn Antenna                | 10/1/2010  | Biennial     | 10/1/2012  | 128337        |
| Mini-Circuits   | VHF-1200+ | High Pass Filter                       | 1/15/2012  | Annual       | 1/15/2013  | 30923         |
| Mini-Circuits   | VHF-3100+ | High Pass Filter                       | 1/15/2012  | Annual       | 1/15/2013  | 30841         |
| Rohde & Schwarz | CMU200    | Base Station Simulator                 | N/A        |              | N/A        | 836072/0063   |
| Rohde & Schwarz | RS-PR18   | 1-18 GHz Pre-Amplifier                 | 7/9/2011   | Annual       | 7/9/2012   | 100071        |
| Rohde & Schwarz | ESU26     | EMI Test Receiver                      | 12/15/2011 | Annual       | 12/15/2012 | 100342        |
| Schwarzbeck     | UHA 9105  | Dipole Antenna (400 - 1GHz) Rx         | 11/14/2011 | Biennial     | 11/14/2013 | 9105-2404     |
| Schwarzbeck     | UHA 9105  | Dipole Antenna (400 - 1GHz) Tx         | 11/14/2011 | Biennial     | 11/14/2013 | 9105-2403     |
| Seekonk         | NC-100    | Torque Wrench (8" lb)                  | 3/5/2012   | Triennial    | 3/5/2015   | N/A           |
| Sunol           | JB5       | Bi-Log Antenna (30M - 5GHz)            | 1/26/2012  | Biennial     | 1/26/2014  | A051107       |

**Table 3-1. Test Equipment**

**Note:**

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

|                                      |                                                                                     |                                                                                 |                                                                                       |                                 |
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## 4.0 SAMPLE CALCULATIONS

### Emission Designator

**Emission Designator = 1M25F9W**

CDMA BW = 1.25 MHz

F = Frequency Modulation

9 = Composite Digital Info

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

### Spurious Radiated Emission - PCS Band

**Example: Channel 25 PCS Mode 2<sup>nd</sup> Harmonic (3702.50 MHz)**

The receive spectrum analyzer reading at 3 meters with the EUT on the turntable was -81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of -81.0 dBm on the spectrum analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3702.50 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.50 dBm so this harmonic was 25.50 dBm - (-24.80) = 50.3 dBc.

|                                      |                                                                                     |                                                                                 |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHR820                   |  | FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1205300756.A3L | Test Dates:<br>06/11/2012                                                           | EUT Type:<br>Portable Handset                                                   | Page 11 of 23                                                                         |                                 |

## 5.0 TEST RESULTS

### 5.1 Summary

Company Name: Samsung Electronics Co., Ltd.  
 FCC ID: A3LSCHR820  
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)  
 Mode(s): CDMA / EvDO

| FCC Part Section(s)                       | RSS Section(s)                                       | Test Description                    | Test Limit                                                          | Test Condition | Test Result | Reference              |
|-------------------------------------------|------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------|----------------|-------------|------------------------|
| <b>TRANSMITTER MODE (TX)</b>              |                                                      |                                     |                                                                     |                |             |                        |
| 2.1046                                    | RSS-132 (4.4)<br>RSS-133 (4.1)<br>RSS-139 (4.1)      | Transmitter Conducted Output Power  | N/A                                                                 | CONDUCTED      | PASS        | RF Exposure Report     |
| 22.913(a)(2)                              | RSS-132 (4.4)<br>[SRSP-503(5.1.3)]                   | Effective Radiated Power            | < 7 Watts max. ERP                                                  | RADIATED       | PASS        | Section 5.2            |
| 24.232(c),<br>27.50(d)(4)                 | RSS-133 (6.4)<br>[SRSP-510 (5.1.2)]<br>RSS-139 (6.4) | Equivalent Isotropic Radiated Power | < 2 Watts max. EIRP (PCS)<br>< 1 Watt max. EIRP (AWS)               |                | PASS        | Section 5.3            |
| 2.1053, 22.917(a),<br>24.238(a), 27.53(g) | RSS-132 (4.5.1)<br>RSS-133 (6.5.1)<br>RSS-139 (6.5)  | Undesirable Emissions               | < 43 + 10log <sub>10</sub> (P[Watts]) for all out-of-band emissions |                | PASS        | Sections 5.4, 5.5, 5.6 |

**Table 5-1. Summary of Test Results**

**Notes:**

1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.

|                                      |                                                                                     |                                                                                 |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
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| Test Report S/N:<br>0Y1205300756.A3L | Test Dates:<br>06/11/2012                                                           | EUT Type:<br>Portable Handset                                                   | Page 12 of 23                                                                         |                                 |

## 5.2 Effective Radiated Power Output Data

§22.913(a)(2); RSS-132 (4.4) [SRSP-503(5.1.3)]

| Frequency [MHz] | Mode    | Battery Type | Substitute Level [dBm] | Antenna Gain [dBd] | Pol [H/V] | ERP [dBm] | ERP [Watts] | ERP Limit [dBm] | Margin [dB] |
|-----------------|---------|--------------|------------------------|--------------------|-----------|-----------|-------------|-----------------|-------------|
| 824.70          | CDMA850 | Standard     | 20.39                  | 0.00               | V         | 20.39     | 0.109       | 38.45           | -18.06      |
| 836.52          | CDMA850 | Standard     | 21.11                  | 0.00               | V         | 21.11     | 0.129       | 38.45           | -17.34      |
| 848.31          | CDMA850 | Standard     | 20.73                  | 0.00               | V         | 20.73     | 0.118       | 38.45           | -17.72      |

Table 5-2. Effective Radiated Power Output Data (Cellular Band)

## 5.3 Equivalent Isotropic Radiated Power Output Data

§24.232(c), §27.50(d)(2); RSS-133 (6.4) [SRSP-510 (5.1.2)], RSS-139 (6.4)

| Frequency [MHz] | Mode     | Battery Type | Substitute Level [dBm] | Antenna Gain [dBi] | Pol [H/V] | EIRP [dBm] | EIRP [Watts] | EIRP Limit [dBm] | Margin [dB] |
|-----------------|----------|--------------|------------------------|--------------------|-----------|------------|--------------|------------------|-------------|
| 1711.25         | CDMA1700 | Standard     | 13.78                  | 8.47               | H         | 22.25      | 0.168        | 30.00            | -7.75       |
| 1732.50         | CDMA1700 | Standard     | 13.25                  | 8.54               | H         | 21.79      | 0.151        | 30.00            | -8.21       |
| 1753.75         | CDMA1700 | Standard     | 13.61                  | 8.60               | H         | 22.21      | 0.166        | 30.00            | -7.79       |

Table 5-3. Equivalent Isotropic Radiated Power Output Data (AWS Band)

| Frequency [MHz] | Mode     | Battery Type | Substitute Level [dBm] | Antenna Gain [dBi] | Pol [H/V] | EIRP [dBm] | EIRP [Watts] | EIRP Limit [dBm] | Margin [dB] |
|-----------------|----------|--------------|------------------------|--------------------|-----------|------------|--------------|------------------|-------------|
| 1851.25         | CDMA1900 | Standard     | 15.54                  | 8.56               | H         | 24.10      | 0.257        | 33.01            | -8.91       |
| 1880.00         | CDMA1900 | Standard     | 15.68                  | 8.55               | H         | 24.23      | 0.265        | 33.01            | -8.78       |
| 1908.75         | CDMA1900 | Standard     | 15.81                  | 8.53               | H         | 24.34      | 0.272        | 33.01            | -8.67       |

Table 5-4. Equivalent Isotropic Radiated Power Output Data (PCS Band)

### NOTES:

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the vertical setup for the cellular band and horizontal for the PCS and AWS band. The data reported in the table above was measured in this test setup.

|                                      |                                                                                     |                                                                                 |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHR820                   |  | FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1205300756.A3L | Test Dates:<br>06/11/2012                                                           | EUT Type:<br>Portable Handset                                                   |                                                                                       | Page 13 of 23                   |

## 5.4 Cellular CDMA Radiated Measurements

§2.1053, 22.917(a); RSS-132 (4.5.1)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 824.70 MHz  
 CHANNEL: 1013  
 MEASURED OUTPUT POWER: 20.39 dBm = 0.109 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  33.39 dBc

| FREQUENCY (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|-----------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 1649.40         | -35.14                          | 6.16                          | -28.98                        | V         | 49.4  |
| 2474.10         | -41.27                          | 6.34                          | -34.93                        | V         | 55.3  |
| 3298.80         | -47.37                          | 6.71                          | -40.67                        | V         | 61.1  |
| 4123.50         | -90.74                          | 7.39                          | -83.35                        | V         | 103.7 |
| 4948.20         | -90.56                          | 8.91                          | -81.65                        | V         | 102.0 |

Table 5-5. Radiated Spurious Data (Cellular CDMA Mode – Ch. 1013)

#### NOTES:

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the vertical setup for the cellular band and horizontal for the PCS and AWS band. The data reported in the table above was measured in this test setup.

|                                      |                                                                                     |                                                                                 |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHR820                   |  | FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1205300756.A3L | Test Dates:<br>06/11/2012                                                           | EUT Type:<br>Portable Handset                                                   |                                                                                       | Page 14 of 23                   |

## Cellular CDMA Radiated Measurements (Cont'd)

§2.1053, 22.917(a)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 836.52 MHz  
 CHANNEL: 384  
 MEASURED OUTPUT POWER: 21.11 dBm = 0.129 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  34.11 dBc

| FREQUENCY (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|-----------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 1673.04         | -47.88                          | 6.09                          | -41.79                        | V         | 62.9  |
| 2509.56         | -43.87                          | 6.38                          | -37.49                        | V         | 58.6  |
| 3346.08         | -48.47                          | 6.90                          | -41.57                        | V         | 62.7  |
| 4182.60         | -91.33                          | 7.79                          | -83.53                        | V         | 104.6 |
| 5019.12         | -90.17                          | 8.83                          | -81.34                        | V         | 102.4 |

Table 5-6. Radiated Spurious Data (Cellular CDMA Mode – Ch. 384)

### NOTES:

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the vertical setup for the cellular band and horizontal for the PCS and AWS band. The data reported in the table above was measured in this test setup.

|                                      |                                                                                     |                                                                                 |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHR820                   |  | FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1205300756.A3L | Test Dates:<br>06/11/2012                                                           | EUT Type:<br>Portable Handset                                                   |                                                                                       | Page 15 of 23                   |

## Cellular CDMA Radiated Measurements (Cont'd)

### §2.1053, 22.917(a)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 848.31 MHz  
 CHANNEL: 777  
 MEASURED OUTPUT POWER: 20.73 dBm = 0.118 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  33.73 dBc

| FREQUENCY (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|-----------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 1696.62         | -48.20                          | 6.01                          | -42.19                        | V         | 62.9  |
| 2544.93         | -43.28                          | 6.47                          | -36.80                        | V         | 57.5  |
| 3393.24         | -50.88                          | 7.10                          | -43.78                        | V         | 64.5  |
| 4241.55         | -91.70                          | 8.09                          | -83.61                        | V         | 104.3 |
| 5089.86         | -89.88                          | 8.86                          | -81.02                        | V         | 101.7 |

**Table 5-7. Radiated Spurious Data (Cellular CDMA Mode – Ch. 777)**

### NOTES:

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the vertical setup for the cellular band and horizontal for the PCS and AWS band. The data reported in the table above was measured in this test setup.

|                                      |                                                                                     |                                                                                 |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
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| Test Report S/N:<br>0Y1205300756.A3L | Test Dates:<br>06/11/2012                                                           | EUT Type:<br>Portable Handset                                                   |                                                                                       | Page 16 of 23                   |

## 5.5 AWS CDMA Radiated Measurements

### §2.1053, 27.53(g)

#### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1711.25 MHz  
 CHANNEL: 25  
 MEASURED OUTPUT POWER: 22.25 dBm = 0.168 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  35.25 dBc

| FREQUENCY (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|-----------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 3422.50         | -46.98                          | 8.10                          | -38.87                        | H         | 61.1  |
| 5133.75         | -93.84                          | 10.21                         | -83.63                        | H         | 105.9 |
| 6845.00         | -92.66                          | 11.32                         | -81.34                        | H         | 103.6 |
| 8556.25         | -92.52                          | 13.02                         | -79.50                        | H         | 101.7 |
| 10267.50        | -90.18                          | 13.02                         | -77.16                        | H         | 99.4  |

**Table 5-8. Radiated Spurious Data (AWS CDMA Mode – Ch. 25)**

#### NOTES:

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the vertical setup for the cellular band and horizontal for the PCS and AWS band. The data reported in the table above was measured in this test setup.

## AWS CDMA Radiated Measurements (Cont'd)

§2.1053, 27.53(g)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1732.50 MHz  
 CHANNEL: 450  
 MEASURED OUTPUT POWER: 21.79 dBm = 0.151 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) = 34.79$  dBc

| FREQUENCY (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|-----------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 3465.00         | -51.20                          | 8.26                          | -42.93                        | H         | 64.7  |
| 5197.50         | -93.76                          | 10.26                         | -83.50                        | H         | 105.3 |
| 6930.00         | -92.68                          | 11.42                         | -81.26                        | H         | 103.1 |
| 8662.50         | -92.48                          | 13.07                         | -79.42                        | H         | 101.2 |
| 10395.00        | -90.37                          | 13.12                         | -77.26                        | H         | 99.0  |

Table 5-9. Radiated Spurious Data (AWS CDMA Mode – Ch. 450)

### NOTES:

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the vertical setup for the cellular band and horizontal for the PCS and AWS band. The data reported in the table above was measured in this test setup.

|                                      |                                                                                     |                                                                                 |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
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## AWS CDMA Radiated Measurements (Cont'd)

### §2.1053, 27.53(g)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1753.75 MHz  
 CHANNEL: 875  
 MEASURED OUTPUT POWER: 22.21 dBm = 0.166 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  35.21 dBc

| FREQUENCY (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|-----------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 3507.50         | -47.91                          | 8.40                          | -39.51                        | H         | 61.7  |
| 5261.25         | -93.70                          | 10.31                         | -83.39                        | H         | 105.6 |
| 7015.00         | -92.69                          | 11.51                         | -81.18                        | H         | 103.4 |
| 8768.75         | -92.43                          | 13.11                         | -79.33                        | H         | 101.5 |
| 10522.50        | -90.43                          | 13.20                         | -77.23                        | H         | 99.4  |

**Table 5-10. Radiated Spurious Data (AWS CDMA Mode – Ch. 875)**

### NOTES:

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the vertical setup for the cellular band and horizontal for the PCS and AWS band. The data reported in the table above was measured in this test setup.

|                                      |                                                                                     |                                                                                 |                                                                                       |                                 |
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## 5.6 PCS CDMA Radiated Measurements

§2.1053, 24.238(a)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1851.25 MHz  
 CHANNEL: 25  
 MEASURED OUTPUT POWER: 24.10 dBm = 0.257 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  37.10 dBc

| FREQUENCY (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|-----------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 3702.50         | -50.18                          | 8.40                          | -41.78                        | H         | 65.9  |
| 5553.75         | -93.50                          | 10.62                         | -82.88                        | H         | 107.0 |
| 7405.00         | -92.61                          | 11.82                         | -80.78                        | H         | 104.9 |
| 9256.25         | -92.07                          | 13.30                         | -78.78                        | H         | 102.9 |
| 11107.50        | -89.92                          | 13.50                         | -76.42                        | H         | 100.5 |

**Table 5-11. Radiated Spurious Data (PCS CDMA Mode – Ch. 25)**

### NOTES:

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the vertical setup for the cellular band and horizontal for the PCS and AWS band. The data reported in the table above was measured in this test setup.

|                                      |                                                                                     |                                                                                 |                                                                                       |                                 |
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## PCS CDMA Radiated Measurements (Cont'd)

§2.1053, 24.238(a)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1880.00 MHz  
 CHANNEL: 600  
 MEASURED OUTPUT POWER: 24.23 dBm = 0.265 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  37.23 dBc

| FREQUENCY (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|-----------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 3760.00         | -52.61                          | 8.42                          | -44.19                        | H         | 68.4  |
| 5640.00         | -93.46                          | 10.66                         | -82.80                        | H         | 107.0 |
| 7520.00         | -92.59                          | 11.92                         | -80.66                        | H         | 104.9 |
| 9400.00         | -91.89                          | 13.24                         | -78.65                        | H         | 102.9 |
| 11280.00        | -89.56                          | 13.49                         | -76.07                        | H         | 100.3 |

**Table 5-12. Radiated Spurious Data (PCS CDMA Mode – Ch. 600)**

### NOTES:

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the vertical setup for the cellular band and horizontal for the PCS and AWS band. The data reported in the table above was measured in this test setup.

|                                      |                                                                                     |                                                                                 |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
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| Test Report S/N:<br>0Y1205300756.A3L | Test Dates:<br>06/11/2012                                                           | EUT Type:<br>Portable Handset                                                   |                                                                                       | Page 21 of 23                   |

## PCS CDMA Radiated Measurements (Cont'd)

§2.1053, 24.238(a)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1908.75 MHz  
 CHANNEL: 1175  
 MEASURED OUTPUT POWER: 24.34 dBm = 0.272 W  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  37.34 dBc

| FREQUENCY (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | SPURIOUS EMISSION LEVEL (dBm) | POL (H/V) | (dBc) |
|-----------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 3817.50         | -47.93                          | 8.57                          | -39.37                        | H         | 63.7  |
| 5726.25         | -93.40                          | 10.69                         | -82.71                        | H         | 107.1 |
| 7635.00         | -92.64                          | 12.06                         | -80.58                        | H         | 104.9 |
| 9543.75         | -91.62                          | 13.20                         | -78.42                        | H         | 102.8 |
| 11452.50        | -89.12                          | 13.42                         | -75.70                        | H         | 100.0 |

**Table 5-13. Radiated Spurious Data (PCS CDMA Mode – Ch. 1175)**

### NOTES:

1. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.
2. This unit was tested with its standard battery.
3. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the vertical setup for the cellular band and horizontal for the PCS and AWS band. The data reported in the table above was measured in this test setup.

|                                      |                                                                                     |                                                                                 |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHR820                   |  | FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1205300756.A3L | Test Dates:<br>06/11/2012                                                           | EUT Type:<br>Portable Handset                                                   |                                                                                       | Page 22 of 23                   |

## 6.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSCHR820** complies with all the requirements of Parts 2, 22, 24, and 27 of the FCC rules and RSS-132, RSS-133, and RSS-139 of the Industry Canada rules.

|                                             |                                                                                     |                                                                                         |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| <b>FCC ID:</b> A3LSCHR820                   |  | <b>FCC Pt. 22/24/27 CDMA / EvDO MEASUREMENT REPORT<br/>(CLASS II PERMISSIVE CHANGE)</b> |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Report S/N:</b><br>0Y1205300756.A3L | <b>Test Dates:</b><br>06/11/2012                                                    | <b>EUT Type:</b><br>Portable Handset                                                    |                                                                                       | Page 23 of 23                          |