

**MEASUREMENT REPORT**  
**FCC Part 15.407 UNII 802.11a/n****Applicant Name:**LG Electronics MobileComm U.S.A  
1000 Sylvan Avenue  
Englewood Cliffs, NJ 07632  
United States**Date of Testing:**

6/9-6/20/2014

**Test Site/Location:**

PCTEST Lab, Columbia, MD, USA

**Test Report Serial No.:**

0Y1406091177.ZNF

**FCC ID:****ZNFLS885****APPLICANT:****LG Electronics MobileComm U.S.A****Application Type:**

Class II Permissive Change

**Model(s):**

LS885, LG-LS885, LS885

**EUT Type:**

Portable Handset

**FCC Classification:**

Unlicensed National Information Infrastructure (UNII)

**FCC Rule Part(s):**

Part 15.407

**Test Procedure(s):**

KDB 789033 v01r03, KDB 644545 v01r02

**Class II Permissive Change:**

Please see FCC change document

**Original Grant Date:**

6/9/2014

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 KDB 789033 v01r03 and KDB 644545 v01r02. Test results reported herein relate only to the item(s) tested.

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

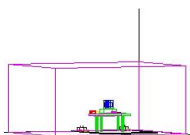
  
Randy Ortanez  
President

|                                             |                                                                                     |                                                                                         |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| <b>FCC ID:</b> ZNFLS885                     |  | <b>FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT</b><br>(CLASS II PERMISSIVE CHANGE) |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Report S/N:</b><br>0Y1406091177.ZNF | <b>Test Dates:</b><br>6/9-6/20/2014                                                 | <b>EUT Type:</b><br>Portable Handset                                                    |                                                                                       | Page 1 of 33                           |

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# MEASUREMENT REPORT

## FCC Part 15.407



### § 2.1033 General Information

**APPLICANT:** LG Electronics MobileComm U.S.A

**APPLICANT ADDRESS:** 1000 Sylvan Avenue  
Englewood Cliffs, NJ 07632, United States

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

**TEST SITE ADDRESS:** 7185 Oakland Mills Road, Columbia, MD 21046 USA

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

**BASE MODEL:** LS885

**FCC ID:** ZNFLS885

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

**Test Device Serial No.:** 6JUNE-2 ☐ Production ☒ Pre-Production ☐ Engineering

**DATE(S) OF TEST:** 6/9-6/20/2014

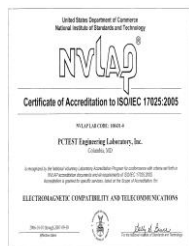
**TEST REPORT S/N:** 0Y1406091177.ZNF

### 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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| <b>Test Report S/N:</b><br>0Y1406091177.ZNF | <b>Test Dates:</b><br>6/9-6/20/2014                                                 | <b>EUT Type:</b><br>Portable Handset                                                    |                                                                                       | Page 3 of 33                           |

## 1.0 INTRODUCTION

### 1.1 Scope

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

### 1.2 PCTEST Test Location

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

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility 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.

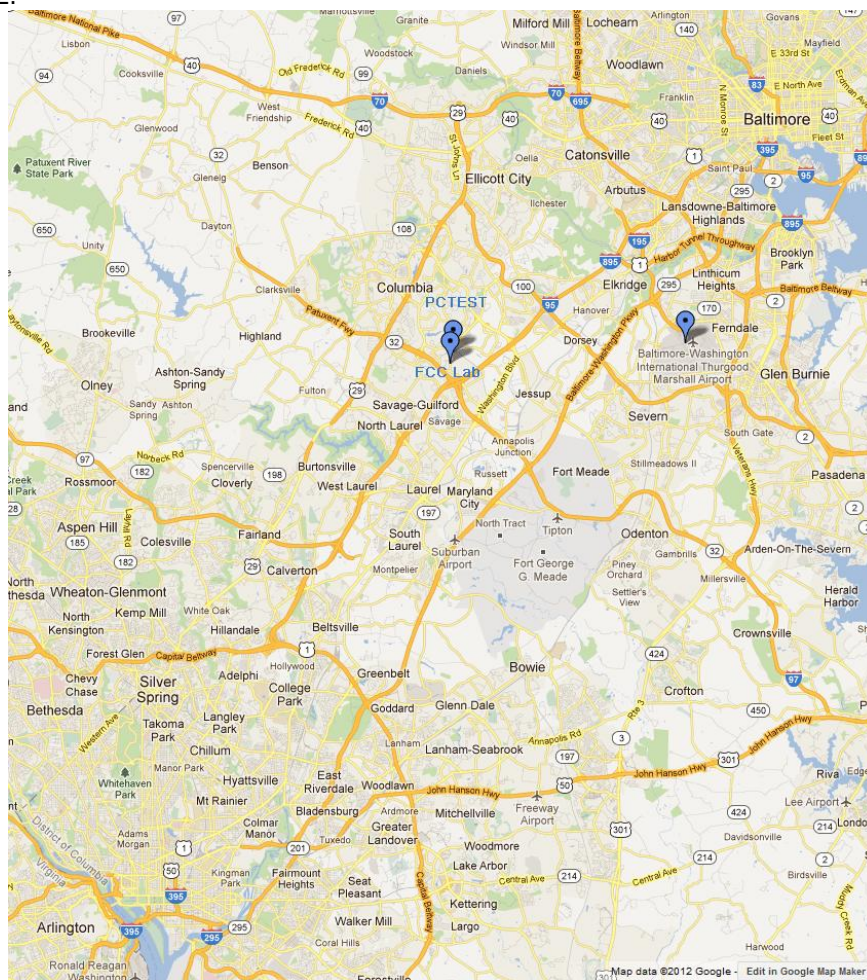


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

|                                      |                                               |                                                                                  |           |                                 |
|--------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|-----------|---------------------------------|
| FCC ID: ZNFLS885                     | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | <b>LG</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 **LG Portable Handset FCC ID: ZNFLS885**. The test data contained in this report pertains only to the emissions due to the EUT's UNII transmitter.

### 2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA (BC0, BC1, BC10), Multi-band LTE, 802.11a/b/g/n WLAN, 802.11a/n UNII, Bluetooth (1x, EDR, LE)

**Note:** 5GHz WLAN (DTS/NII) operation is possible in 20MHz, and 40MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = peak per the guidance of Section B)2)b) of KDB 789033. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

- 802.11a/n 20MHz Bandwidth – 99.1 %
- 802.11n 40MHz Bandwidth – 97.2 %

### 2.3 Test Configuration

The LG Portable Handset FCC ID: ZNFLS885 was tested per the guidance of KDB 789033 v01r03. ANSI C63.10-2009 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing. See Sections 3.2 and 6.1 of this test report for a description of the 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 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the trade name and FCC ID must be displayed on the device per Section 15.19(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) and the guidance provided in KDB 789033 v01r03 were used in the measurement of **LG Portable Handset FCC ID: ZNFLS885**.

**Deviation from measurement procedure.....None**

### 3.2 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. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Clause 5, Figure 5.7 of ANSI C63.4-2009. 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 changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. For the EUT positioning, "H" is defined with the EUT lying flat on the test surface, "H2" is defined with the EUT standing up on its side, and "V" is defined with the EUT standing upright.

|                                             |                                                                                     |                                                                                         |                                                                                       |                                        |
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## 4.0 ANTENNA REQUIREMENTS

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

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

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

### Conclusion:

The **LG Portable Handset FCC ID: ZNFLS885** unit complies with the requirement of §15.203.

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

Table 4-1. 802.11a / 802.11n (20MHz) Frequency / Channel Operations

| Band 1 |                 | Band 2A |                 | Band 2C |                 |
|--------|-----------------|---------|-----------------|---------|-----------------|
| Ch.    | Frequency (MHz) | Ch.     | Frequency (MHz) | Ch.     | Frequency (MHz) |
| 38     | 5190            | 54      | 5270            | 102     | 5510            |
| :      | :               | :       | :               | :       | :               |
| 46     | 5230            | 62      | 5310            | 110     | 5550            |
|        |                 |         |                 | :       | :               |
|        |                 |         |                 | 134     | 5670            |

Table 4-2. 802.11n (40MHz BW) 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) | 5/29/2014  | Annual       | 5/29/2015  | N/A           |
| -               | WL25-1             | Conducted Cable Set (25GHz)            | 1/29/2014  | Annual       | 1/29/2015  | N/A           |
| -               | WL25-2             | Conducted Cable Set (25GHz)            | 11/6/2013  | Annual       | 11/6/2014  | N/A           |
| -               | WL40-1             | Conducted Cable Set (40GHz)            | 1/29/2014  | Annual       | 1/29/2015  | N/A           |
| Agilent         | 8447D              | Broadband Amplifier                    | 5/30/2014  | Annual       | 5/30/2015  | 2443A01900    |
| Agilent         | 87405C             | Pre-amplifier (0.1 - 18 GHz)           | 3/19/2014  | Annual       | 3/19/2015  | MY53010007    |
| Agilent         | N9020A             | MXA Signal Analyzer                    | 10/29/2013 | Annual       | 10/29/2014 | US46470561    |
| Agilent         | N9030A             | PXA Signal Analyzer (26.5GHz)          | 5/8/2014   | Annual       | 5/8/2015   | MY49432391    |
| Emco            | 3115               | Horn Antenna (1-18GHz)                 | 1/30/2014  | Biennial     | 1/30/2016  | 9704-5182     |
| Emco            | 3116               | Horn Antenna (18 - 40GHz)              | 1/20/2012  | Triennial    | 1/20/2015  | 9203-2178     |
| ETS Lindgren    | 3117               | 1-18 GHz DRG Horn (Medium)             | 4/8/2014   | Biennial     | 4/8/2016   | 125518        |
| Huber+Suhner    | Sucoflex 102A      | 40GHz Radiated Cable                   | 1/30/2014  | Annual       | 1/30/2015  | 251425001     |
| K & L           | 11SH10-3075/U18000 | High Pass Filter                       | 5/2/2014   | Annual       | 5/2/2015   | 2             |
| K & L           | 11SH10-3075/U18000 | High Pass Filter                       | 5/2/2014   | Annual       | 5/2/2015   | 4             |
| K & L           | 11SH10-6000/T18000 | High Pass Filter                       | 2/7/2014   | Annual       | 2/7/2015   | 1             |
| Rhode & Schwarz | TS-PR18            | Pre-Amplifier                          | 6/12/2014  | Annual       | 6/12/2015  | 101622        |
| Rohde & Schwarz | ESU26              | EMI Test Receiver (26.5GHz)            | 1/27/2014  | Annual       | 1/27/2015  | 100342        |
| Rohde & Schwarz | ESU40              | EMI Test Receiver (40GHz)              | 5/21/2014  | Annual       | 5/21/2015  | 100348        |
| Rohde & Schwarz | TS-PR18            | 1-18 GHz Pre-Amplifier                 | 3/5/2014   | Annual       | 3/5/2015   | 100071        |
| Rohde & Schwarz | TS-PR26            | 18-26.5 GHz Pre-Amplifier              | 3/12/2014  | Annual       | 3/12/2015  | 100040        |
| Sunol           | JB5                | Bi-Log Antenna (30M - 5GHz)            | 1/28/2014  | Biennial     | 1/28/2016  | A051107       |
| VWR             | 62344-734          | Thermometer with Clock                 | 2/20/2014  | Biennial     | 2/20/2016  | 140140336     |

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

|                                      |                                                                                     |                                                                                  |                                                                                       |                                 |
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## 6.0 TEST RESULTS

### 6.1 Summary

Company Name: LG Electronics MobileComm U.S.A  
 FCC ID: ZNFLS885  
 Method/System: Unlicensed National Information Infrastructure (UNII)  
 Data Rate(s) Tested: 6, 9, 12, 18, 24, 36, 48, 54Mbps (802.11a)  
6.5/7.2, 13/14.4, 19.5/21.7, 26/28.9, 39/43.3, 52/57.8, 58.5/65, 65/72.2 (n – 20MHz)  
13.5/15, 27/30, 40.5/45, 54/60, 81/90, 108/120, 121.5/135, 135/150 (n – 40MHz BW)

| FCC Part Section(s)              | Test Description                                                              | Test Limit                                                                                              | Test Condition | Test Result | Reference        |
|----------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|----------------|-------------|------------------|
| <b>TRANSMITTER MODE (TX)</b>     |                                                                               |                                                                                                         |                |             |                  |
| 15.407(b.1), (2),(3)             | Undesirable Emissions                                                         | < -27 dBm/MHz EIRP<br>(5150-5350MHz, 5470-5725MHz)                                                      | RADIATED       | PASS        | Section 6.2      |
| 15.205,<br>15.407(b.1), (5), (6) | General Field Strength Limits (Restricted Bands and Radiated Emission Limits) | Emissions in restricted bands must meet the radiated limits detailed in 15.209 (RSS-210 table 3 limits) |                | PASS        | Section 6.3, 6.4 |

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

**Notes:**

- 1) All channels, modes, and modulations/data rates were investigated among all UNII bands. The test results shown in the following sections represent the worst case emissions.

|                                      |                                                                                     |                                                                                  |                                                                                       |                                 |
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## 6.2 Radiated Spurious Emission Measurements

§15.407(b.1)(b.6) §15.205 §15.209

### Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum power control level, as defined in KDB 789033 v01r03, and at the appropriate frequencies. All channels, modes (e.g. 802.11a, 802.11n (20MHz BW) and 802.11n (40MHz BW)), and modulations/data rates were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section. An offset was added for average emissions transmitting below 98% duty cycle.

***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 6-2 per Section 15.209.***

| Frequency         | Field Strength<br>[ $\mu\text{V/m}$ ] | 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 6-2. Radiated Limits**

### Test Procedures Used

KDB 789033 v01r03 – Section H

### Test Settings

#### Average Measurements above 1GHz (Method AD)

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (RMS)
5. Number of measurement points = 1001 (Number of points must be  $\geq 2 \times \text{span/RBW}$ )
6. Averaging type = power (RMS)
7. Sweep time = auto couple
8. Trace was averaged over 100 sweeps

|                                      |                                                                                     |                                                                                  |                                                                                       |                                 |
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### Peak Measurements above 1GHz

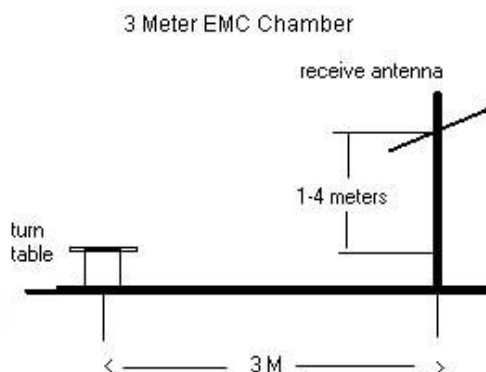
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

### Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = 120kHz
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



**Figure 6-1. Test Instrument & Measurement Setup**

|                                      |                                               |                                                                                  |    |                                 |
|--------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|----|---------------------------------|
| FCC ID: ZNFLS885                     | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | LG | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                  | EUT Type:<br>Portable Handset                                                    |    | Page 11 of 33                   |

## Test Notes

1. All radiated spurious emissions levels were measured in a radiated test setup per the guidance of KDB 789033 v01r03 Section H.
2. All emissions that lie in the restricted bands (denoted by a \* next to the frequency) specified in §15.205 are below the limit shown in Table 6-2.
3. All spurious emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 6-11. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dBμV/m.
4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
5. This unit was tested with its standard battery.
6. The spectrum is measured from 9kHz to the 10th 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. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
7. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
8. The emissions from the original EUT and the current EUT were compared side-by-side, and the emissions were not found to be significantly different. The difference in radiated levels is caused by a difference in equipment used for each set of tests.

|                                      |                                                                                     |                                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: ZNFLS885                     |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                                                        | EUT Type:<br>Portable Handset                                                    |                                                                                       | Page 12 of 33                   |

## Sample Calculations

### Determining Spurious Emissions Levels

- Field Strength Level  $_{[dB\mu V/m]} = \text{Analyzer Level }_{[dBm]} + 107 + \text{AFCL }_{[dB/m]}$
- $\text{AFCL }_{[dB/m]} = \text{Antenna Factor }_{[dB/m]} + \text{Cable Loss }_{[dB]}$
- $\text{Margin }_{[dB]} = \text{Field Strength Level }_{[dB\mu V/m]} - \text{Limit }_{[dB\mu V/m]}$

### Radiated Band Edge Measurement Offset

- The amplitude offset shown in the radiated restricted band edge plots in Section 6.8 was calculated using the formula:

$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + 10 \text{ dB Attenuator}) - \text{Preamplifier Gain}$$

### Duty Cycle Correction Factor

- The duty cycle correction offset was calculated using the formula:  $DCCF(dB) = 10\log\left(\frac{1}{DC}\right)$
- Ex.:  $DCCF(dB) = 10\log\left(\frac{1}{0.961}\right) = 10\log(1.041) = 0.172dB$

|                                      |                                                                                     |                                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: ZNFLS885                     |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                                                        | EUT Type:<br>Portable Handset                                                    |                                                                                       | Page 13 of 33                   |

Worst Case Mode: 802.11a  
Worst Case Transfer Rate: 6 Mbps  
Distance of Measurements: 1 & 3 Meters  
Operating Frequency: 5180MHz  
Channel: 36

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Ant. Pol. [H/V] | EUT Pol. [H/H2/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|-----------------|-------------------|-------------|---------------------------------|-------------------------|----------------|-------------|
| 10360.00        | -93.10               | Peak     | H               | H2                | 45.64       | 0.00                            | 59.54                   | 68.20          | -8.66       |
| * 15540.00      | -109.09              | Average  | H               | H2                | 50.41       | 0.00                            | 48.32                   | 53.98          | -5.66       |
| * 15540.00      | -93.88               | Peak     | H               | H2                | 50.41       | 0.00                            | 63.53                   | 73.98          | -10.45      |
| * 20720.00      | -106.80              | Average  | H               | H2                | 48.58       | -9.54                           | 39.24                   | 53.98          | -14.74      |
| * 20720.00      | -96.66               | Peak     | H               | H2                | 48.58       | -9.54                           | 49.38                   | 73.98          | -24.60      |
| 25900.00        | -96.61               | Peak     | H               | H2                | 50.95       | -9.54                           | 51.80                   | 68.20          | -16.40      |

Table 6-3. Radiated Measurements

Worst Case Mode: 802.11a  
Worst Case Transfer Rate: 6 Mbps  
Distance of Measurements: 1 & 3 Meters  
Operating Frequency: 5200MHz  
Channel: 40

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Ant. Pol. [H/V] | EUT Pol. [H/H2/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|-----------------|-------------------|-------------|---------------------------------|-------------------------|----------------|-------------|
| 10400.00        | -96.31               | Peak     | H               | H2                | 45.78       | 0.00                            | 56.47                   | 68.20          | -11.73      |
| * 15600.00      | -108.75              | Average  | H               | H2                | 50.44       | 0.00                            | 48.69                   | 53.98          | -5.29       |
| * 15600.00      | -96.44               | Peak     | H               | H2                | 50.44       | 0.00                            | 61.00                   | 73.98          | -12.98      |
| * 20800.00      | -106.54              | Average  | H               | H2                | 48.66       | -9.54                           | 39.58                   | 53.98          | -14.40      |
| * 20800.00      | -98.46               | Peak     | H               | H2                | 48.66       | -9.54                           | 47.65                   | 73.98          | -26.33      |
| 26000.00        | -96.71               | Peak     | H               | H2                | 51.04       | -9.54                           | 51.79                   | 68.20          | -16.41      |

Table 6-4. Radiated Measurements

|                                      |                                                                                     |                                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: ZNFLS885                     |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                                                        | EUT Type:<br>Portable Handset                                                    |                                                                                       | Page 14 of 33                   |

Worst Case Mode: 802.11a  
 Worst Case Transfer Rate: 6 Mbps  
 Distance of Measurements: 1 & 3 Meters  
 Operating Frequency: 5240MHz  
 Channel: 48

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Ant. Pol. [H/V] | EUT Pol. [H/H2/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|-----------------|-------------------|-------------|---------------------------------|-------------------------|----------------|-------------|
| 10480.00        | -96.66               | Peak     | H               | H2                | 46.09       | 0.00                            | 56.42                   | 68.20          | -11.78      |
| * 15720.00      | -108.80              | Average  | H               | H2                | 50.54       | 0.00                            | 48.74                   | 53.98          | -5.24       |
| * 15720.00      | -95.99               | Peak     | H               | H2                | 50.54       | 0.00                            | 61.55                   | 73.98          | -12.43      |
| * 20960.00      | -106.12              | Average  | H               | H2                | 48.75       | -9.54                           | 40.09                   | 53.98          | -13.89      |
| * 20960.00      | -97.76               | Peak     | H               | H2                | 48.75       | -9.54                           | 48.45                   | 73.98          | -25.53      |
| 26200.00        | -95.21               | Peak     | H               | H2                | 51.06       | -9.54                           | 53.30                   | 68.20          | -14.90      |

Table 6-5. Radiated Measurements

Worst Case Mode: 802.11a  
 Worst Case Transfer Rate: 6 Mbps  
 Distance of Measurements: 1 & 3 Meters  
 Operating Frequency: 5260MHz  
 Channel: 52

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Ant. Pol. [H/V] | EUT Pol. [H/H2/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|-----------------|-------------------|-------------|---------------------------------|-------------------------|----------------|-------------|
| 10520.00        | -97.12               | Peak     | H               | H2                | 46.21       | 0.00                            | 56.09                   | 68.20          | -12.11      |
| * 15780.00      | -109.03              | Average  | H               | H2                | 50.62       | 0.00                            | 48.59                   | 53.98          | -5.39       |
| * 15780.00      | -96.50               | Peak     | H               | H2                | 50.62       | 0.00                            | 61.12                   | 73.98          | -12.86      |
| * 21040.00      | -106.47              | Average  | H               | H2                | 48.75       | -9.54                           | 39.74                   | 53.98          | -14.24      |
| * 21040.00      | -96.78               | Peak     | H               | H2                | 48.75       | -9.54                           | 49.43                   | 73.98          | -24.55      |
| 26300.00        | -95.79               | Peak     | H               | H2                | 51.09       | -9.54                           | 52.76                   | 68.20          | -15.44      |

Table 6-6. Radiated Measurements

Worst Case Mode: 802.11a

|                                      |                                                                                     |                                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: ZNFLS885                     |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                                                        | EUT Type:<br>Portable Handset                                                    |                                                                                       | Page 15 of 33                   |

Worst Case Transfer Rate: 6 Mbps  
 Distance of Measurements: 1 & 3 Meters  
 Operating Frequency: 5280MHz  
 Channel: 56

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Ant. Pol. [H/V] | EUT Pol. [H/H2/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|-----------------|-------------------|-------------|---------------------------------|-------------------------|----------------|-------------|
| 10560.00        | -96.21               | Peak     | H               | H2                | 46.34       | 0.00                            | 57.14                   | 68.20          | -11.06      |
| * 15840.00      | -108.94              | Average  | H               | H2                | 50.91       | 0.00                            | 48.97                   | 53.98          | -5.01       |
| * 15840.00      | -96.26               | Peak     | H               | H2                | 50.91       | 0.00                            | 61.65                   | 73.98          | -12.33      |
| * 21120.00      | -106.52              | Average  | H               | H2                | 48.69       | -9.54                           | 39.63                   | 53.98          | -14.35      |
| * 21120.00      | -96.80               | Peak     | H               | H2                | 48.69       | -9.54                           | 49.35                   | 73.98          | -24.63      |
| 26400.00        | -94.41               | Peak     | H               | H2                | 51.16       | -9.54                           | 54.20                   | 68.20          | -14.00      |

**Table 6-7. Radiated Measurements**

Worst Case Mode: 802.11a  
 Worst Case Transfer Rate: 6 Mbps  
 Distance of Measurements: 1 & 3 Meters  
 Operating Frequency: 5320MHz  
 Channel: 64

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Ant. Pol. [H/V] | EUT Pol. [H/H2/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|-----------------|-------------------|-------------|---------------------------------|-------------------------|----------------|-------------|
| * 10640.00      | -109.01              | Average  | H               | H2                | 46.69       | 0.00                            | 44.67                   | 53.98          | -9.31       |
| * 10640.00      | -96.60               | Peak     | H               | H2                | 46.69       | 0.00                            | 57.08                   | 73.98          | -16.90      |
| * 15960.00      | -108.94              | Average  | H               | H2                | 51.52       | 0.00                            | 49.58                   | 53.98          | -4.40       |
| * 15960.00      | -95.85               | Peak     | H               | H2                | 51.52       | 0.00                            | 62.67                   | 73.98          | -11.31      |
| * 21280.00      | -105.86              | Average  | H               | H2                | 48.63       | -9.54                           | 40.23                   | 53.98          | -13.75      |
| * 21280.00      | -96.78               | Peak     | H               | H2                | 48.63       | -9.54                           | 49.31                   | 73.98          | -24.67      |
| 26600.00        | -117.49              | Peak     | H               | H2                | 51.13       | -9.54                           | 31.10                   | 68.20          | -37.10      |

**Table 6-8. Radiated Measurements**

|                                      |                                                                                     |                                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: ZNFLS885                     |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                                                        | EUT Type:<br>Portable Handset                                                    |                                                                                       | Page 16 of 33                   |

Worst Case Mode: 802.11a  
Worst Case Transfer Rate: 6 Mbps  
Distance of Measurements: 1 & 3 Meters  
Operating Frequency: 5500MHz  
Channel: 100

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Ant. Pol. [H/V] | EUT Pol. [H/H2/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|-----------------|-------------------|-------------|---------------------------------|-------------------------|----------------|-------------|
| * 11000.00      | -106.48              | Average  | H               | H2                | 46.73       | 0.00                            | 47.24                   | 53.98          | -6.74       |
| * 11000.00      | -93.84               | Peak     | H               | H2                | 46.73       | 0.00                            | 59.88                   | 73.98          | -14.10      |
| 16500.00        | -96.71               | Peak     | H               | H2                | 52.08       | 0.00                            | 62.37                   | 68.20          | -5.83       |
| 22000.00        | -96.81               | Peak     | H               | H2                | 48.96       | -9.54                           | 49.61                   | 68.20          | -18.59      |
| 27500.00        | -118.35              | Peak     | H               | H2                | 51.89       | -9.54                           | 31.01                   | 68.20          | -37.19      |

**Table 6-9. Radiated Measurements**

Worst Case Mode: 802.11a  
Worst Case Transfer Rate: 6 Mbps  
Distance of Measurements: 1 & 3 Meters  
Operating Frequency: 5580MHz  
Channel: 116

| Frequency [MHz] | Analyzer Level [dBm] | Detector | Ant. Pol. [H/V] | EUT Pol. [H/H2/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------------|----------|-----------------|-------------------|-------------|---------------------------------|-------------------------|----------------|-------------|
| * 11160.00      | -106.38              | Average  | H               | H2                | 46.46       | 0.00                            | 47.08                   | 53.98          | -6.90       |
| * 11160.00      | -93.36               | Peak     | H               | H2                | 46.46       | 0.00                            | 60.10                   | 73.98          | -13.88      |
| 16740.00        | -96.01               | Peak     | H               | H2                | 51.30       | 0.00                            | 62.29                   | 68.20          | -5.91       |
| * 22320.00      | -107.11              | Average  | H               | H2                | 49.73       | -9.54                           | 40.08                   | 53.98          | -13.90      |
| * 22320.00      | -96.91               | Peak     | H               | H2                | 49.73       | -9.54                           | 50.27                   | 73.98          | -23.71      |
| 27900.00        | -119.01              | Peak     | H               | H2                | 51.43       | -9.54                           | 29.88                   | 68.20          | -38.32      |

**Table 6-10. Radiated Measurements**

Worst Case Mode: 802.11a  
Worst Case Transfer Rate: 6 Mbps

|                                      |                                                                                     |                                                                                  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: ZNFLS885                     |  | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                                                        | EUT Type:<br>Portable Handset                                                    |                                                                                       | Page 17 of 33                   |

Distance of Measurements: 1 & 3 Meters  
 Operating Frequency: 5700MHz  
 Channel: 140

|   | Frequency [MHz] | Analyzer Level [dBm] | Detector | Ant. Pol. [H/V] | EUT Pol. [H/H2/V] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|---|-----------------|----------------------|----------|-----------------|-------------------|-------------|---------------------------------|-------------------------|----------------|-------------|
| * | 11400.00        | -108.27              | Average  | H               | H2                | 46.65       | 0.00                            | 45.38                   | 53.98          | -8.60       |
| * | 11400.00        | -95.84               | Peak     | H               | H2                | 46.65       | 0.00                            | 57.81                   | 73.98          | -16.17      |
|   | 17100.00        | -96.30               | Peak     | H               | H2                | 52.80       | 0.00                            | 63.50                   | 68.20          | -4.70       |
| * | 22800.00        | -108.23              | Average  | H               | H2                | 49.82       | -9.54                           | 39.04                   | 53.98          | -14.93      |
| * | 22800.00        | -98.20               | Peak     | H               | H2                | 49.82       | -9.54                           | 49.07                   | 73.98          | -24.91      |
|   | 28500.00        | -118.53              | Peak     | H               | H2                | 51.20       | -9.54                           | 30.12                   | 68.20          | -38.08      |

**Table 6-11. Radiated Measurements**

### 6.3 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

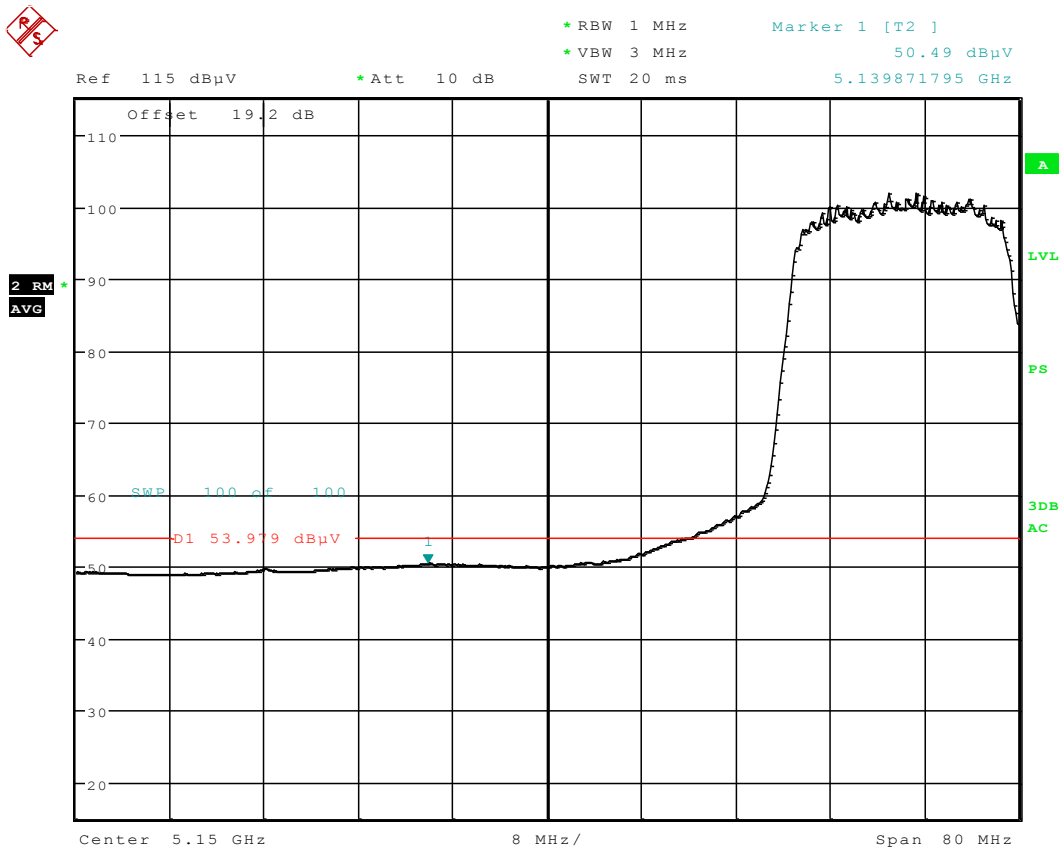
Worst Case Mode: 802.11n

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36

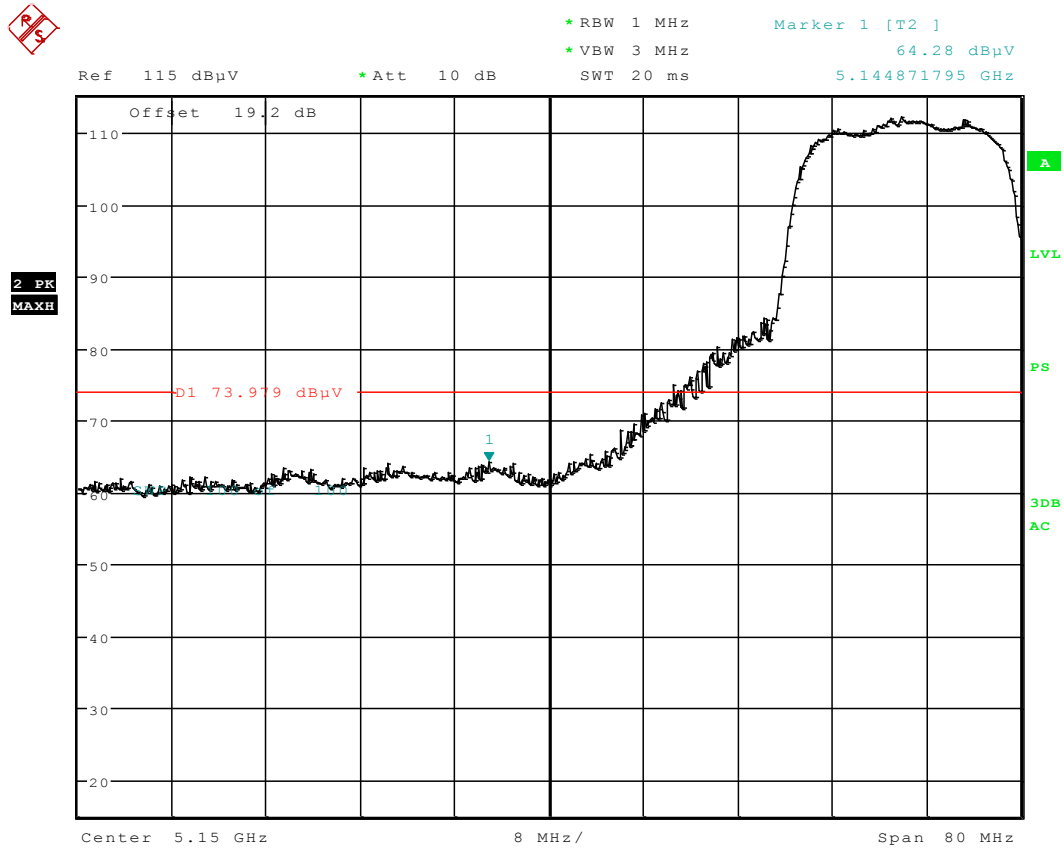


**Plot 6-1. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)**

|                                      |                                               |                                                                                  |           |                                 |
|--------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|-----------|---------------------------------|
| FCC ID: ZNFLS885                     | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | <b>LG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                  | EUT Type:<br>Portable Handset                                                    |           | Page 19 of 33                   |

## Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



**Plot 6-2. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)**

|                                      |                                               |                                                                                  |    |                                 |
|--------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|----|---------------------------------|
| FCC ID: ZNFLS885                     | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | LG | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                  | EUT Type:<br>Portable Handset                                                    |    | Page 20 of 33                   |

## Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

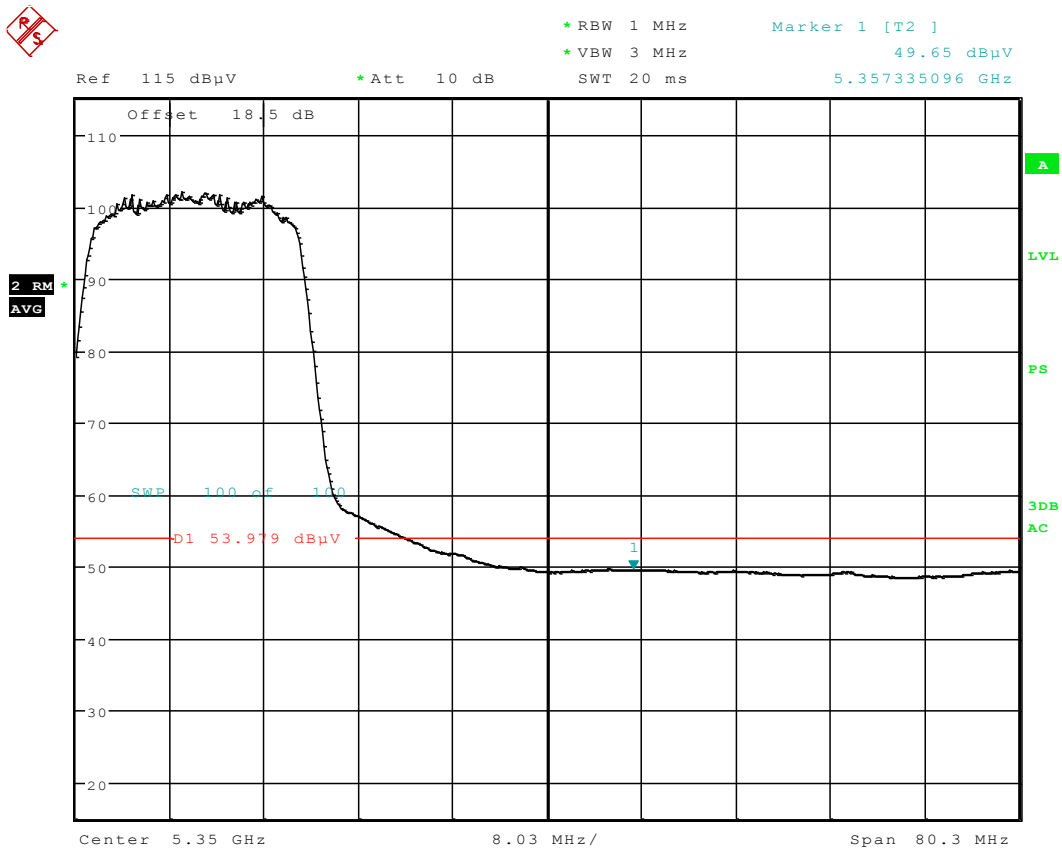
Worst Case Mode: 802.11n

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64

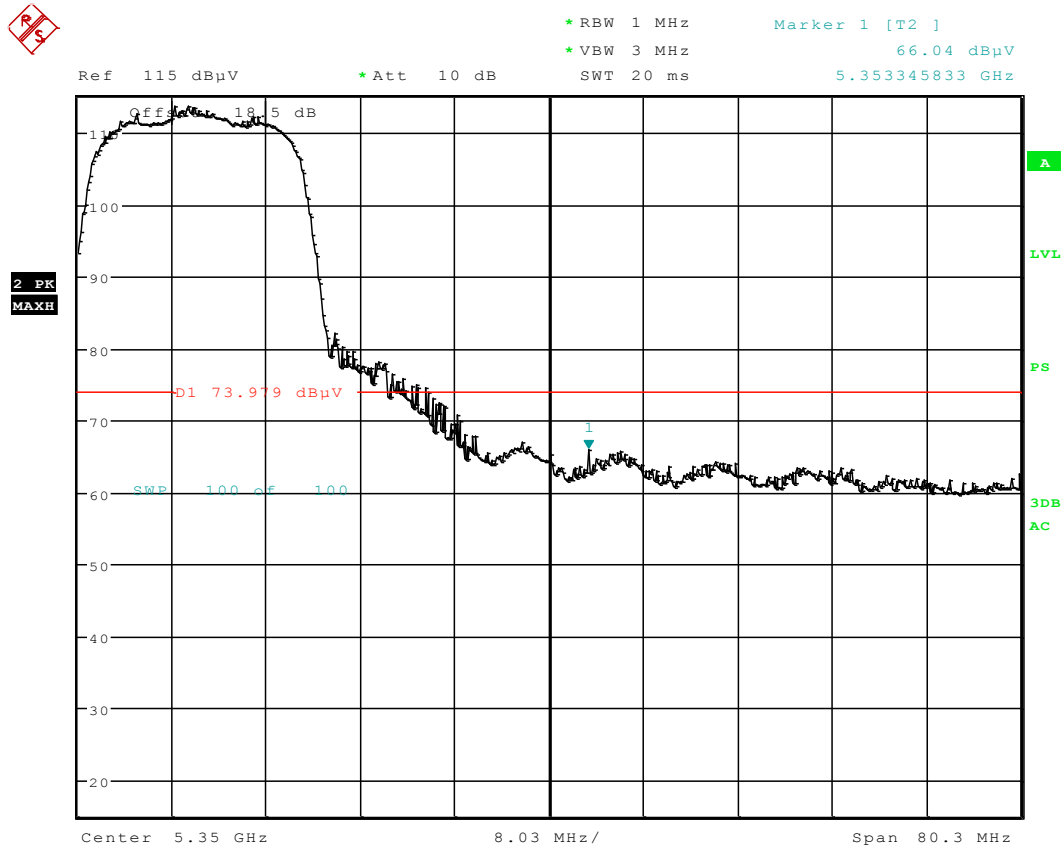


**Plot 6-3. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)**

|                                      |                                               |                                                                                  |           |                                 |
|--------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|-----------|---------------------------------|
| FCC ID: ZNFLS885                     | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | <b>LG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                  | EUT Type:<br>Portable Handset                                                    |           | Page 21 of 33                   |

## Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



**Plot 6-4. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)**

|                                      |                                               |                                                                                  |           |                                 |
|--------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|-----------|---------------------------------|
| FCC ID: ZNFLS885                     | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | <b>LG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                  | EUT Type:<br>Portable Handset                                                    |           | Page 22 of 33                   |

## Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

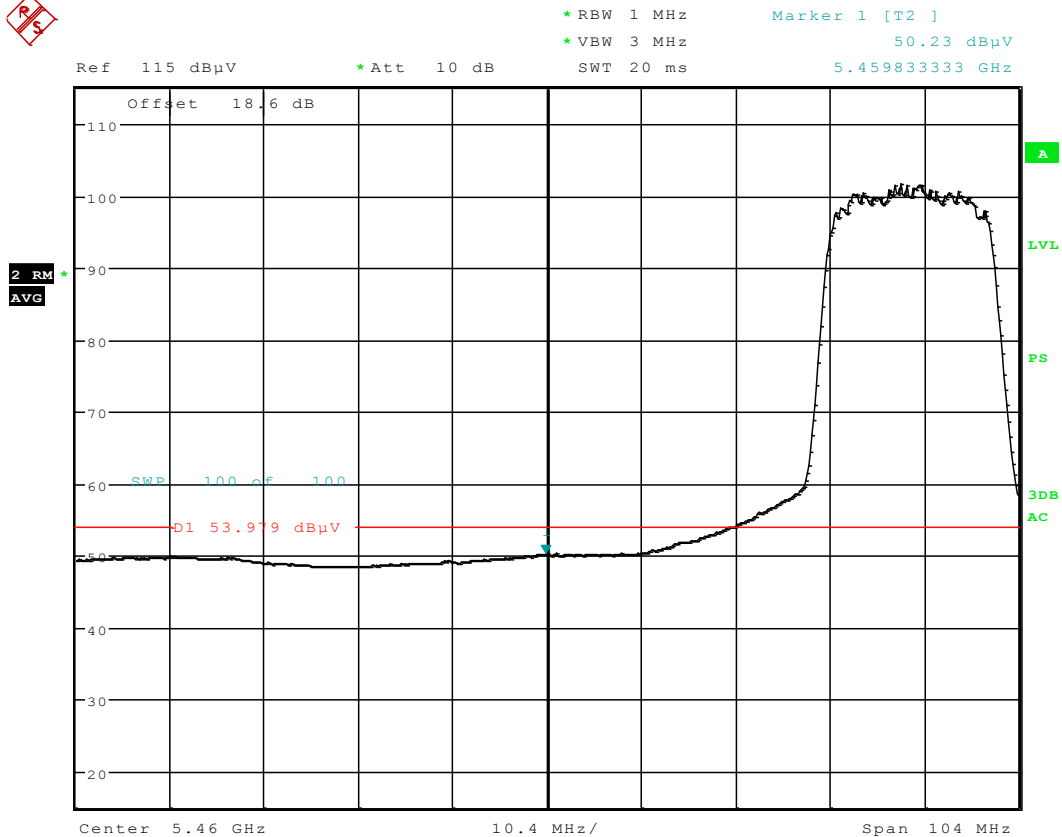
Worst Case Mode: 802.11n

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100

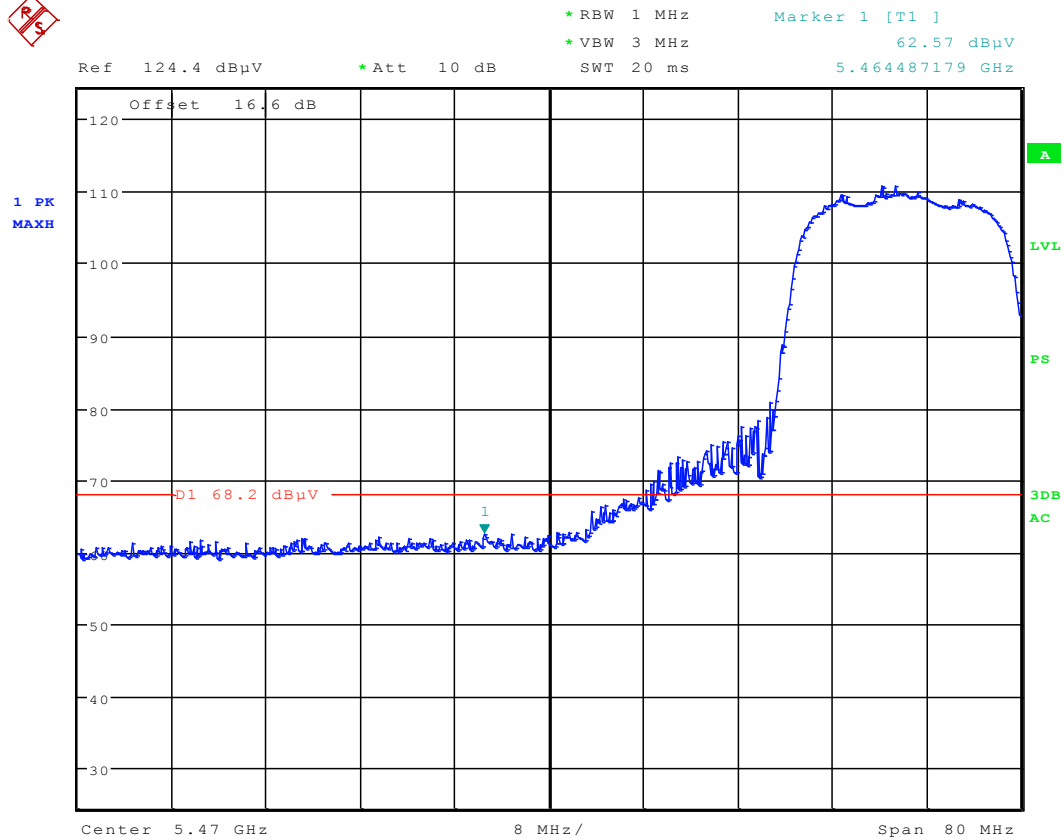


**Plot 6-5. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)**

|                                      |                                               |                                                                                  |    |                                 |
|--------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|----|---------------------------------|
| FCC ID: ZNFLS885                     | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | LG | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                  | EUT Type:<br>Portable Handset                                                    |    | Page 23 of 33                   |

## Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



**Plot 6-6. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)**

|                                      |                                               |                                                                                  |    |                                 |
|--------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|----|---------------------------------|
| FCC ID: ZNFLS885                     | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | LG | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                  | EUT Type:<br>Portable Handset                                                    |    | Page 24 of 33                   |

## Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

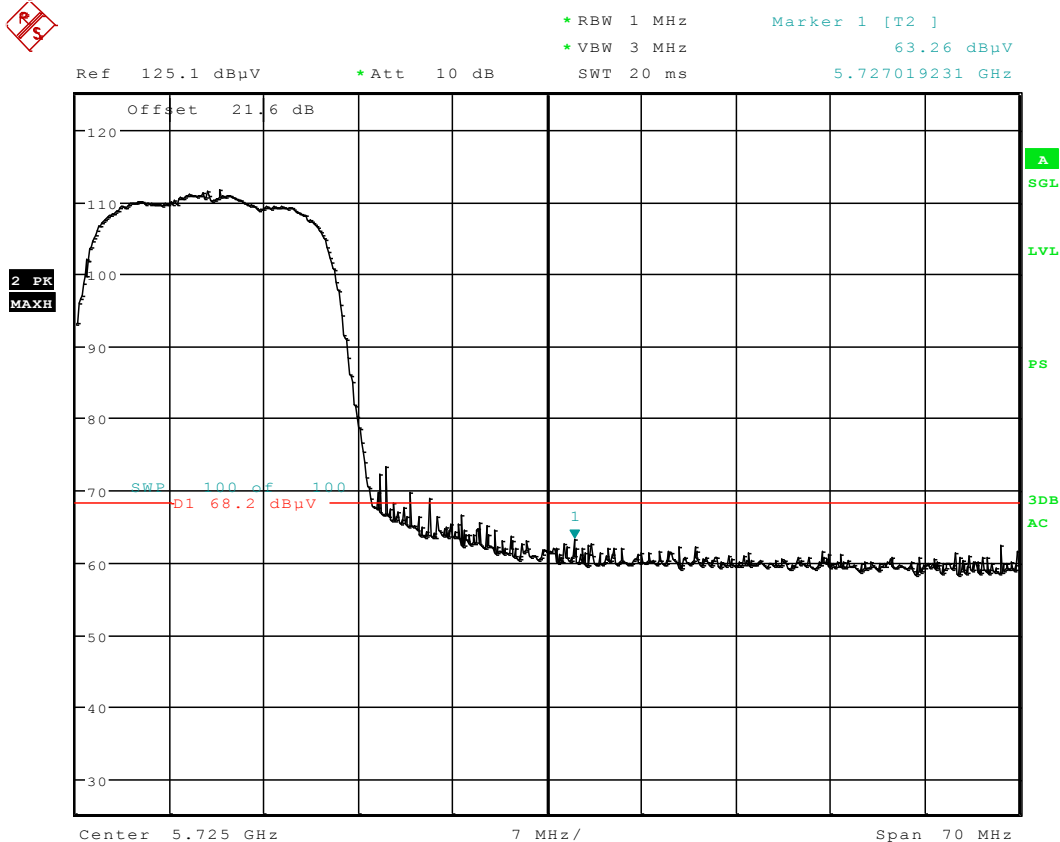
Worst Case Mode: 802.11n

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5700MHz

Channel: 140



**Plot 6-7. Radiated Upper Band Edge Plot (Peak – UNII Band 2C)**

|                                      |                                               |                                                                                  |    |                                 |
|--------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|----|---------------------------------|
| FCC ID: ZNFLS885                     | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | LG | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                  | EUT Type:<br>Portable Handset                                                    |    | Page 25 of 33                   |

## 6.4 Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

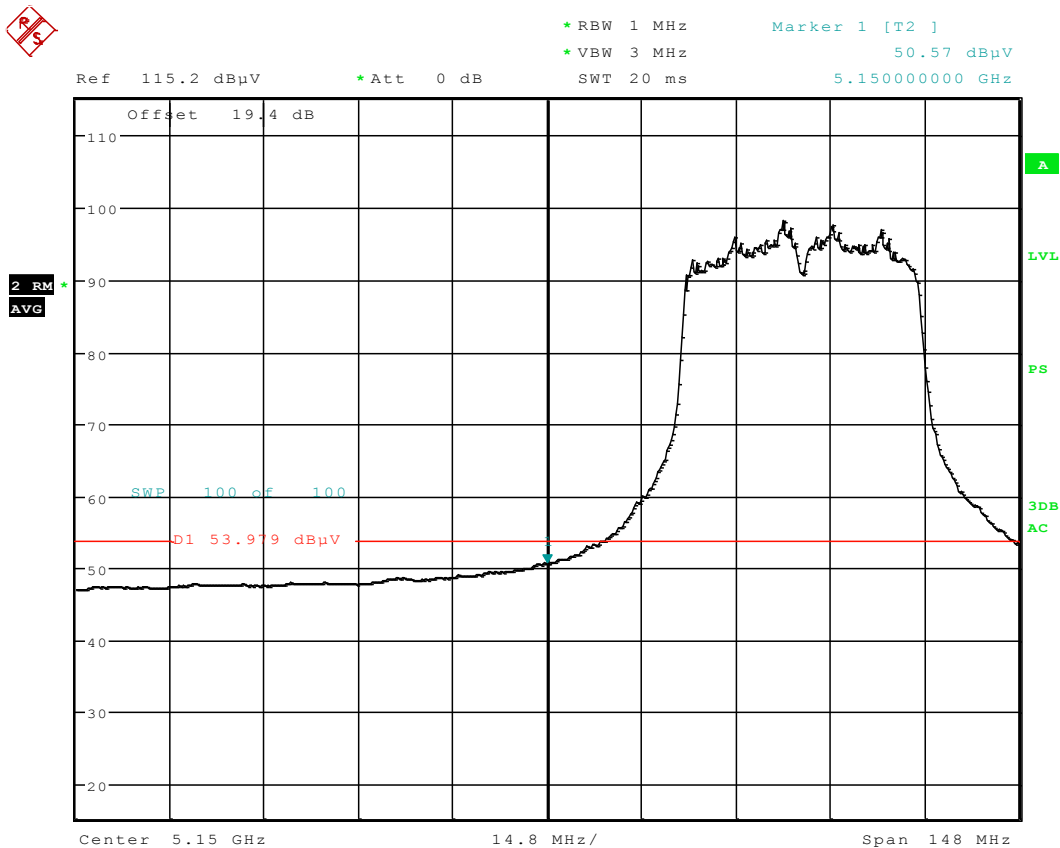
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38

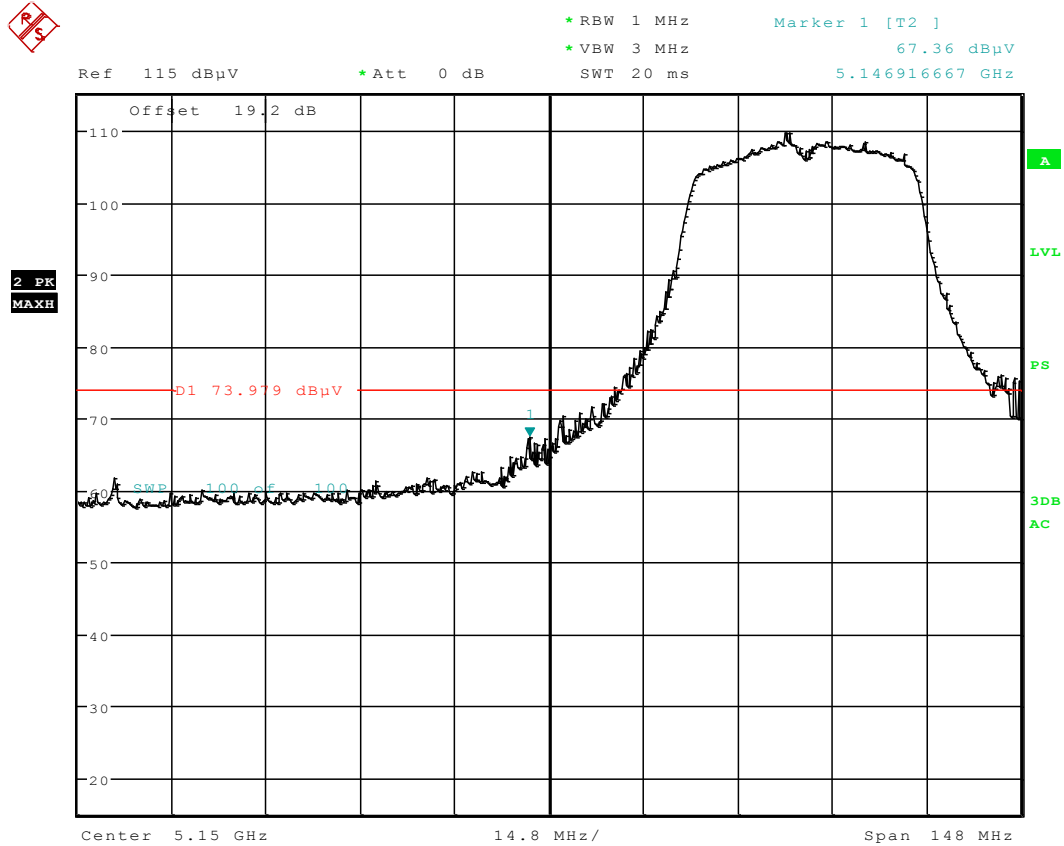


**Plot 6-8. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)**

|                                      |                                               |                                                                                  |           |                                 |
|--------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|-----------|---------------------------------|
| FCC ID: ZNFLS885                     | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | <b>LG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                  | EUT Type:<br>Portable Handset                                                    |           | Page 26 of 33                   |

## Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



**Plot 6-9. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)**

|                                      |                                               |                                                                                  |           |                                 |
|--------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|-----------|---------------------------------|
| FCC ID: ZNFLS885                     | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | <b>LG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                  | EUT Type:<br>Portable Handset                                                    |           | Page 27 of 33                   |

## Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

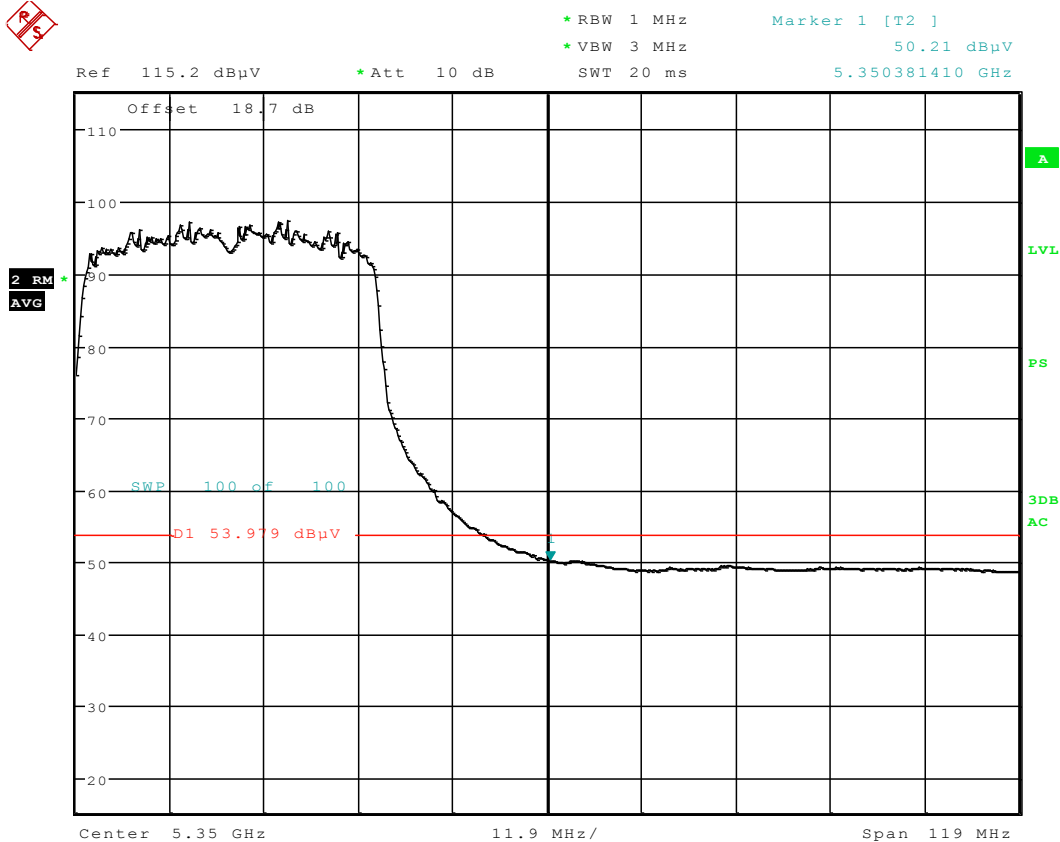
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62

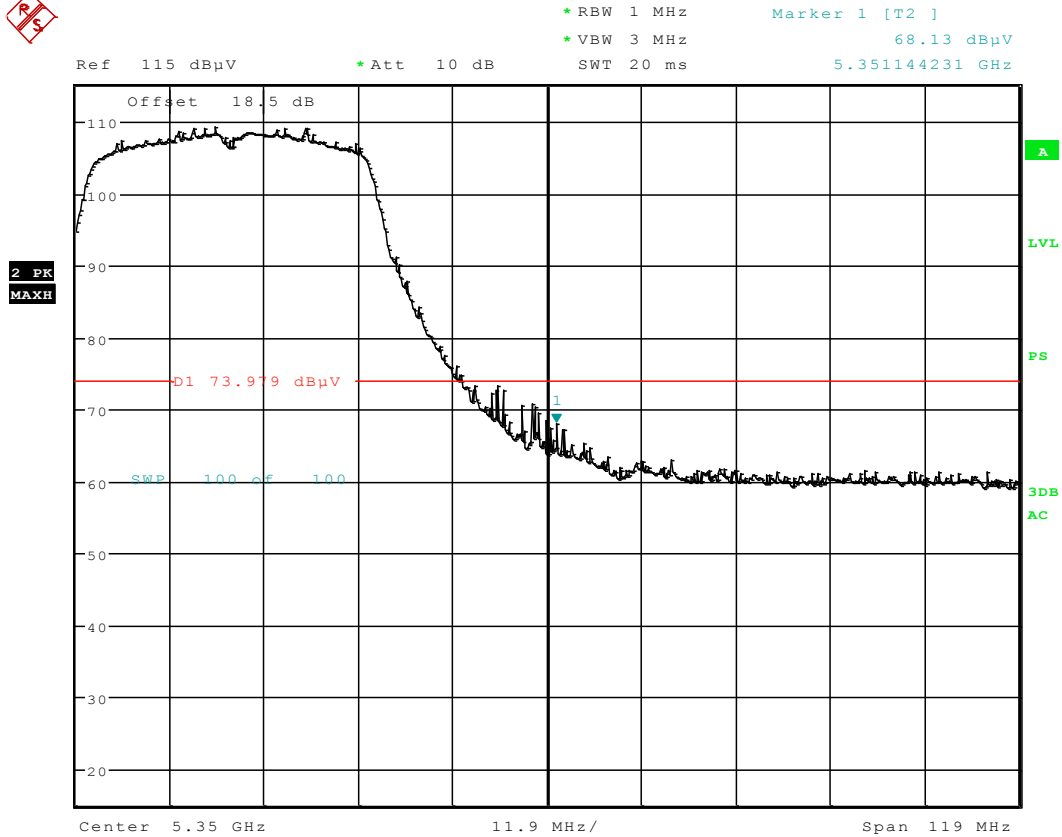


**Plot 6-10. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)**

|                                      |                                               |                                                                                  |    |                                 |
|--------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|----|---------------------------------|
| FCC ID: ZNFLS885                     | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | LG | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                  | EUT Type:<br>Portable Handset                                                    |    | Page 28 of 33                   |

## Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



**Plot 6-11. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)**

|                                      |                                               |                                                                                  |    |                                 |
|--------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|----|---------------------------------|
| FCC ID: ZNFLS885                     | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | LG | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                  | EUT Type:<br>Portable Handset                                                    |    | Page 29 of 33                   |

## Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

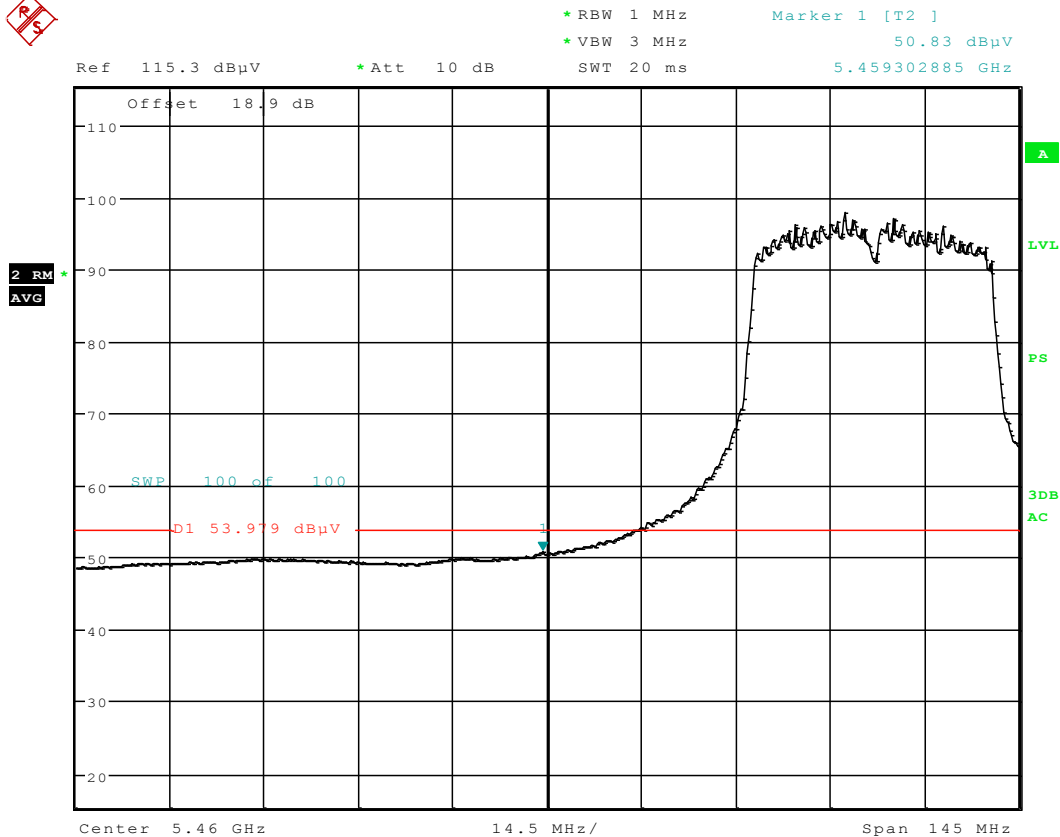
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102

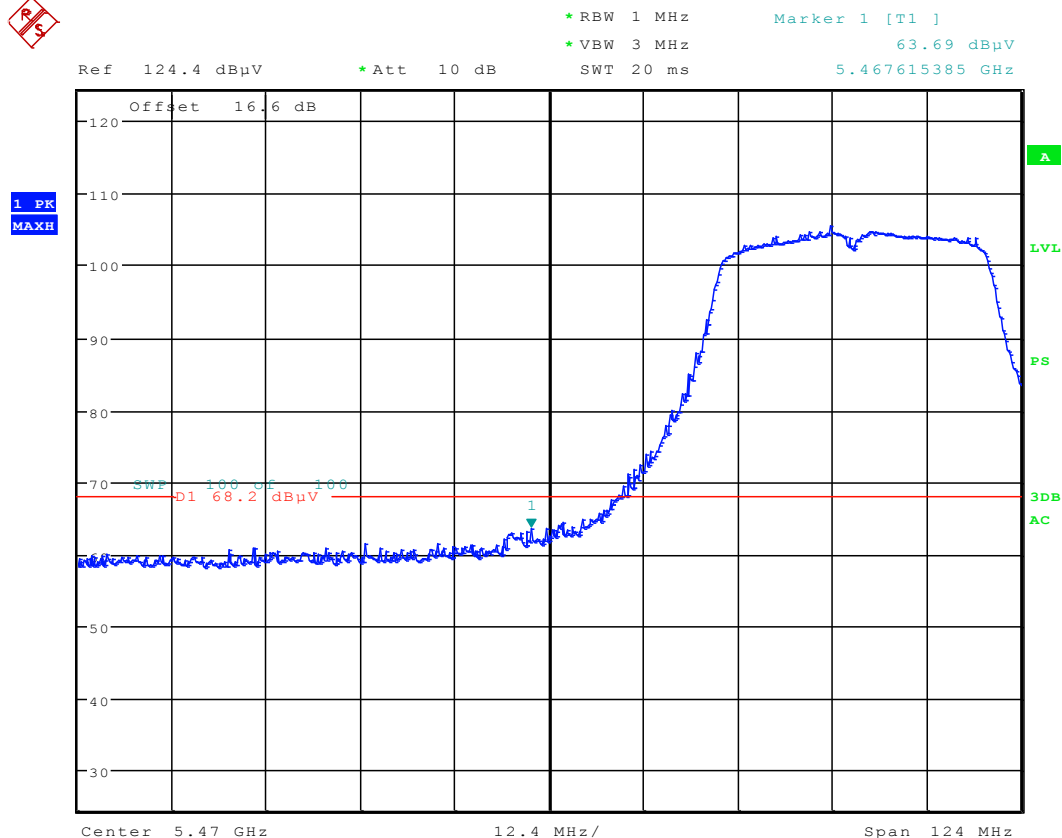


**Plot 6-12. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)**

|                                      |                                               |                                                                                  |    |                                 |
|--------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|----|---------------------------------|
| FCC ID: ZNFLS885                     | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | LG | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                  | EUT Type:<br>Portable Handset                                                    |    | Page 30 of 33                   |

## Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



**Plot 6-13. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)**

|                                      |                                               |                                                                                  |    |                                 |
|--------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|----|---------------------------------|
| FCC ID: ZNFLS885                     | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | LG | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                  | EUT Type:<br>Portable Handset                                                    |    | Page 31 of 33                   |

## Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

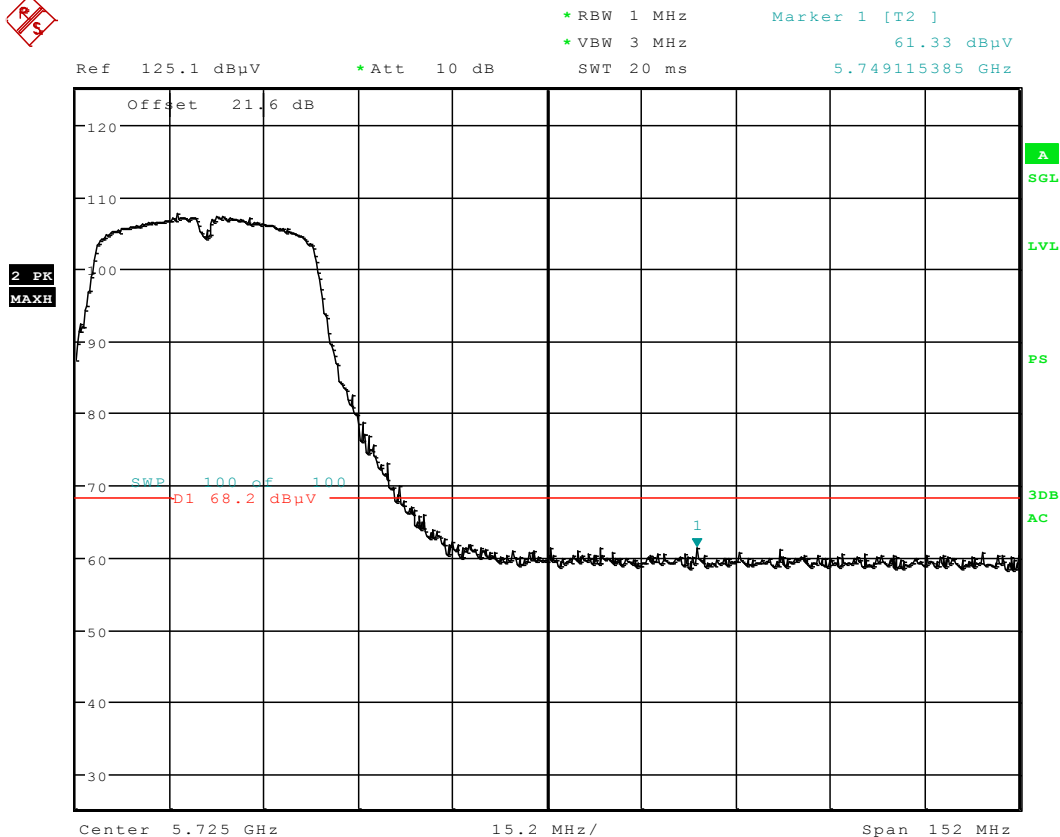
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5670MHz

Channel: 134



**Plot 6-14. Radiated Upper Band Edge Plot (Peak – UNII Band 2C)**

|                                      |                                               |                                                                                  |    |                                 |
|--------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|----|---------------------------------|
| FCC ID: ZNFLS885                     | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | LG | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1406091177.ZNF | Test Dates:<br>6/9-6/20/2014                  | EUT Type:<br>Portable Handset                                                    |    | Page 32 of 33                   |

## 7.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFLS885** is in compliance with Part 15E of the FCC Rules.

|                                             |                                                                                     |                                                                                         |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| <b>FCC ID:</b> ZNFLS885                     |  | <b>FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT</b><br>(CLASS II PERMISSIVE CHANGE) |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Report S/N:</b><br>0Y1406091177.ZNF | <b>Test Dates:</b><br>6/9-6/20/2014                                                 | <b>EUT Type:</b><br>Portable Handset                                                    |                                                                                       | Page 33 of 33                          |