**MEASUREMENT REPORT**
GSM / GPRS / EDGE / CDMA / WCDMA**Applicant Name:**LG Electronics MobileComm U.S.A
1000 Sylvan Avenue
Englewood Cliffs, NJ 07632
United States**Date of Testing:**

4/6 - 4/20/2018

Test Site/Location:

PCTEST Lab. Columbia, MD, USA

Test Report Serial No.:

1M1804030062-02.ZNF

FCC ID:**ZNFG710VM****APPLICANT:****LG Electronics MobileComm U.S.A****Application Type:**

Class II Permissive Change

Model:

LM-G710VM

Additional Model(s):

LMG710VM, G710VM, LG-G710PM, LGG710PM, G710PM, LG-G710ULM, LGG710ULM, G710ULM, LM-G710VMP, LMG710VMP, G710VMP

EUT Type:

Portable Handset

Classification:

PCS Licensed Transmitter Held to Ear (PCE)

FCC Rule Part(s):

22, 24, & 27

Test Procedure(s):

ANSI C63.26-2015, ANSI/TIA-603-E-2016, KDB 971168 D01 v03, KDB 648474 D03 v01r04

Class II Permissive Change:

Please see change document

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

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

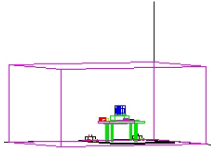

Randy Ortanez
President

FCC ID: ZNFG710VM	 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset	Page 1 of 34

TABLE OF CONTENTS

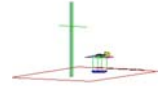
1.0	INTRODUCTION	4
1.1	Scope	4
1.2	PCTEST Test Location.....	4
1.3	Test Facility / Accreditations.....	4
2.0	PRODUCT INFORMATION.....	5
2.1	Equipment Description	5
2.2	Device Capabilities.....	5
2.3	Test Configuration	5
2.4	EMI Suppression Device(s)/Modifications	5
3.0	DESCRIPTION OF TESTS	6
3.1	Evaluation Procedure	6
3.2	Cellular - Base Frequency Blocks	6
3.3	Cellular - Mobile Frequency Blocks	6
3.4	PCS - Base Frequency Blocks	6
3.5	PCS - Mobile Frequency Blocks.....	7
3.6	AWS - Base Frequency Blocks	7
3.7	AWS - Mobile Frequency Blocks	7
3.8	Radiated Measurements	8
4.0	MEASUREMENT UNCERTAINTY	9
5.0	TEST EQUIPMENT CALIBRATION DATA	10
6.0	SAMPLE CALCULATIONS	11
7.0	TEST RESULTS	12
7.1	Summary.....	12
7.2	Radiated Power (ERP/EIRP).....	13
7.3	Radiated Spurious Emissions Measurements	18
8.0	CONCLUSION	34

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 2 of 34



MEASUREMENT REPORT

GSM / GPRS / EDGE / CDMA / WCDMA



Mode	FCC Rule Part	Tx Frequency (MHz)	ERP		EIRP		Emission Designator
			Max. Power (W)	Max. Power (dBm)	Max. Power (W)	Max. Power (dBm)	
GPRS850	22H	824.2 - 848.8	0.251	24.00	0.412	26.15	244KGXW
EDGE850	22H	824.2 - 848.8	0.065	18.11	0.106	20.26	253KG7W
CDMA850	22H	824.70 - 848.31	0.045	16.51	0.073	18.66	1M28F9W
WCDMA850	22H	826.4 - 846.6	0.074	18.68	0.121	20.83	4M15F9W
WCDMA1700	27	1712.4 - 1752.6			0.108	20.33	4M14F9W
GPRS1900	24E	1850.2 - 1909.8			0.551	27.41	244KGXW
EDGE1900	24E	1850.2 - 1909.8			0.128	21.07	240KG7W
CDMA1900	24E	1851.25 - 1908.75			0.157	21.95	1M28F9W
WCDMA1900	24E	1852.4 - 1907.6			0.130	21.13	4M14F9W

EUT Overview

Note:

The Class II Permissive Change test results reported herein are within the expected measurement tolerances of the original certification test results. It has been determined that the radiated powers did not change.

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 3 of 34

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 Innovation, Science and Economic Development Canada.

1.2 PCTEST Test Location

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

1.3 Test Facility / Accreditations

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

- PCTEST is an ISO 17025-2005 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for and Innovation, Science, and Economic Development Canada rules.
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of Rules and ISSED Standards (RSS).
- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISSED.

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 4 of 34

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Portable Handset ID: ZNFG710VM**. The test data contained in this report pertains only to the emissions due to the EUT's 2G/3G licensed transmitters.

Test Device Serial No.: 12314, 12322

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA/EvDO Rev0/A, 1x Advanced (BC0, BC1, BC10), 850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, 802.11b/g/n WLAN, 802.11a/n/ac UNII, Bluetooth (1x, EDR, LE), NFC

2.3 Test Configuration

The EUT was tested per the guidance of ANSI/TIA-603-E-2016 and KDB 971168 D01 v03. See Section 7.0 of this test report for a description of the radiated tests.

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated spurious emission measurements were performed with the EUT lying flat on an authorized wireless charging pad (WCP) Model: EP-NG930 while operating under normal conditions in a simulated call or data transmission configuration. The worst case radiated emissions data is shown in this report.

2.4 EMI Suppression Device(s)/Modifications

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

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 5 of 34

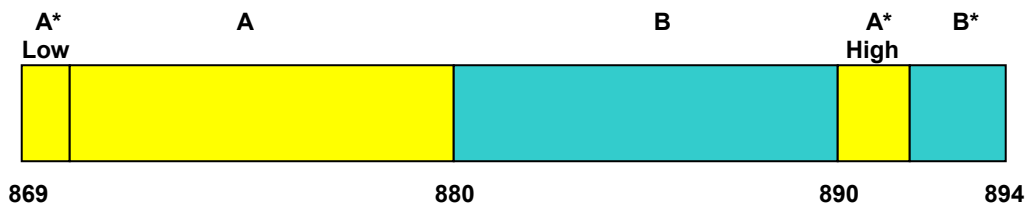
3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the “Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards” (ANSI/TIA-603-E-2016) and “Measurement Guidance for Certification of Licensed Digital Transmitters” (KDB 971168 D01 v03) were used in the measurement of the EUT.

Deviation from Measurement Procedure.....None

3.2 Cellular - Base Frequency Blocks



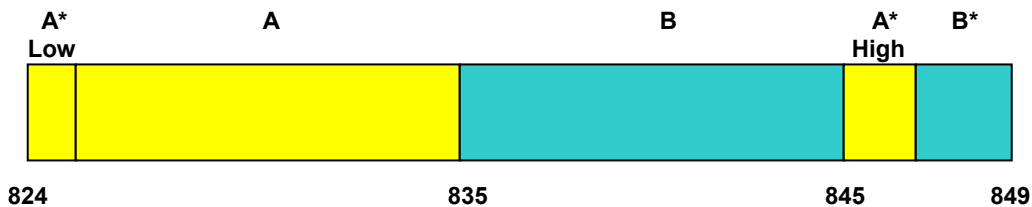
BLOCK 1: 869 – 880 MHz (A* Low + A)

BLOCK 3: 890 – 891.5 MHz (A* High)

BLOCK 2: 880 – 890 MHz (B)

BLOCK 4: 891.5 – 894 MHz (B*)

3.3 Cellular - Mobile Frequency Blocks



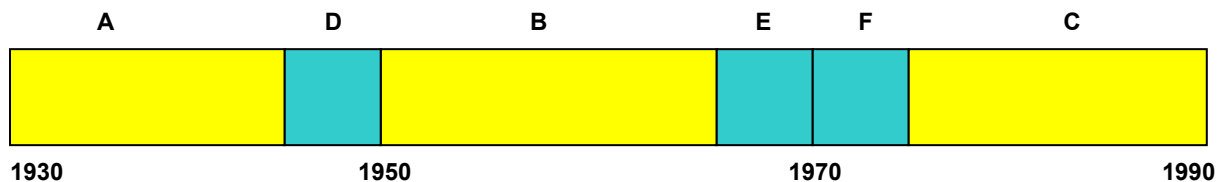
BLOCK 1: 824 – 835 MHz (A* Low + A)

BLOCK 3: 845 – 846.5 MHz (A* High)

BLOCK 2: 835 – 845 MHz (B)

BLOCK 4: 846.5 – 849 MHz (B*)

3.4 PCS - Base Frequency Blocks



BLOCK 1: 1930 – 1945 MHz (A)

BLOCK 4: 1965 – 1970 MHz (E)

BLOCK 2: 1945 – 1950 MHz (D)

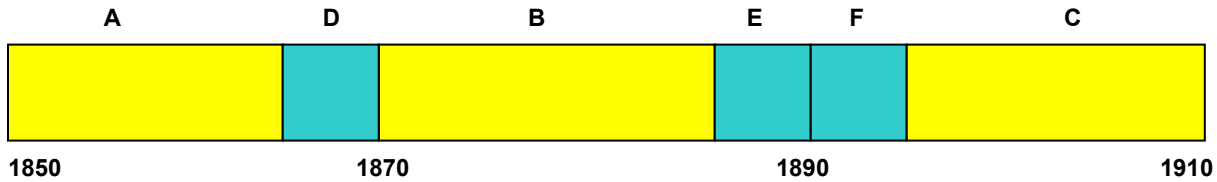
BLOCK 5: 1970 – 1975 MHz (F)

BLOCK 3: 1950 – 1965 MHz (B)

BLOCK 6: 1975 – 1990 MHz (C)

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 6 of 34

3.5 PCS - Mobile Frequency Blocks



BLOCK 1: 1850 – 1865 MHz (A)

BLOCK 4: 1885 – 1890 MHz (E)

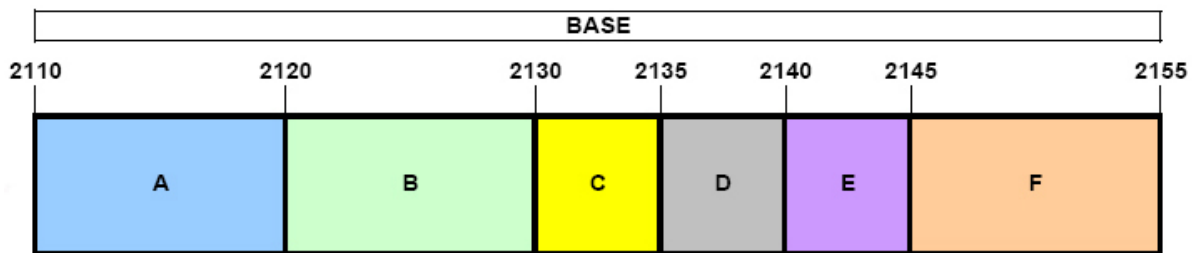
BLOCK 2: 1865 – 1870 MHz (D)

BLOCK 5: 1890 – 1895 MHz (F)

BLOCK 3: 1870 – 1885 MHz (B)

BLOCK 6: 1895 – 1910 MHz (C)

3.6 AWS - Base Frequency Blocks



BLOCK 1: 2110 – 2120 MHz (A)

BLOCK 4: 2135 – 2140 MHz (D)

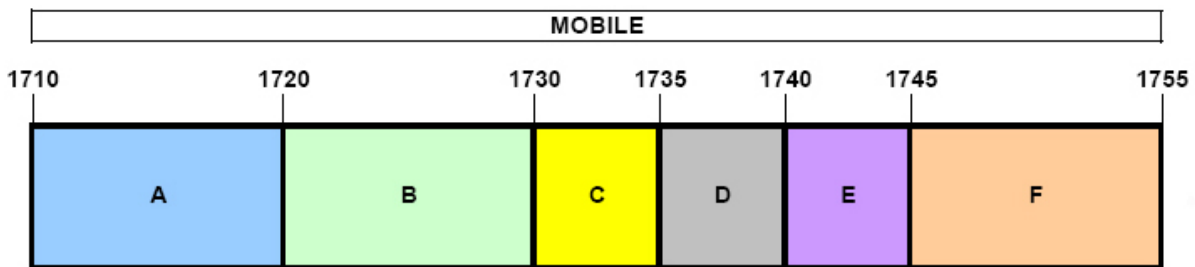
BLOCK 2: 2120 – 2130 MHz (B)

BLOCK 5: 2140 – 2145 MHz (E)

BLOCK 3: 2130 – 2135 MHz (C)

BLOCK 6: 2145 – 2155 MHz (F)

3.7 AWS - Mobile Frequency Blocks



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)

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 7 of 34

3.8 Radiated Measurements

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 Figure 5.7 of Clause 5 in ANSI C63.4-2014. 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 above 1GHz. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table 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. An 80cm tall test table made of Styrodur is placed on top of the turn table. A Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable 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.

Per the guidance of ANSI/TIA-603-E-2016, 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 $P_g \text{ [dBm]} - \text{cable loss [dB]}$.

Radiated power and radiated spurious emission levels are investigated with the receive antenna horizontally and vertically polarized per ANSI/TIA-603-E-2016.

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 8 of 34

4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty ($\pm$ dB)
Conducted Bench Top Measurements	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 9 of 34

5.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	RE1	Radiated Emissions Cable Set (UHF/EHF)	6/21/2017	Annual	6/21/2018	RE1
Agilent	E5515C	Wireless Communications Test Set	N/A			GB46310798
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	10/10/2017	Biennial	10/10/2019	121034
Com-Power	PAM-103	Pre-Amplifier (1-1000MHz)	6/21/2017	Annual	6/21/2018	441112
EMCO	3160-09	Small Horn (18 - 26.5GHz)	8/23/2016	Biennial	8/23/2018	135427
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	3/28/2018	Biennial	3/28/2020	128337
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	12/5/2016	Biennial	12/5/2018	128338
Mini Circuits	TVA-11-422	RF Power Amp	N/A			QA1317001
Mini Circuits	PWR-SEN-4GHS	USB Power Sensor	3/30/2018	Annual	3/30/2019	11401010036
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11403100002
Rohde & Schwarz	CMU200	Base Station Simulator	N/A			107826
Rohde & Schwarz	TS-PR26	18-26.5 GHz Pre-Amplifier	5/11/2017	Annual	5/11/2018	100040
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	7/31/2017	Annual	7/31/2018	100348
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	8/11/2017	Annual	8/11/2018	103200
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/3/2017	Annual	7/3/2018	102134
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/3/2017	Annual	7/3/2018	102133
Sunol	DRH-118	Horn Antenna (1-18 GHz)	8/11/2017	Biennial	8/11/2019	A042511

Table 5-1. Test Equipment

Notes:

- For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.
- Equipment with a calibration date of "N/A" shown in this list was not used to make direct calibrated measurements.

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset	Page 10 of 34	

6.0 SAMPLE CALCULATIONS

Spurious Radiated Emission

Example: Spurious emission at 3700.40 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 3700.40 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: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 11 of 34

7.0 TEST RESULTS

7.1 Summary

Company Name: LG Electronics MobileComm U.S.A
 FCC ID: ZNFG710VM
 Classification: PCS Licensed Transmitter Held to Ear (PCE)
 Mode(s): GSM / GPRS / EDGE / CDMA / WCDMA

Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
22.913(a)(5)	RSS-132(5.4)	Effective Radiated Power	< 7 Watts max. ERP	RADIATED	PASS	Section 7.2
24.232(c)	RSS-133(6.4)	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP		PASS	Section 7.2
27.50(d)(4)	RSS-139(6.5)	Equivalent Isotropic Radiated Power	< 1 Watts max. EIRP		PASS	Section 7.2
2.1053 22.917(a) 24.238(a) 27.53(h)	RSS-132(5.5) RSS-133(6.5) RSS-139(6.6)	Radiated Spurious Emissions	> 43 + log ₁₀ (P[Watts]) for all out-of-band emissions		PASS	Section 7.3

Table 7-1. Summary of Test Results

Note:

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

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 12 of 34

7.2 Radiated Power (ERP/EIRP)

Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW $\geq 3 \times$ RBW
4. Span = 1.5 times the OBW
5. No. of sweep points $\geq 2 \times$ span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto". Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 13 of 34

Test Setup

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

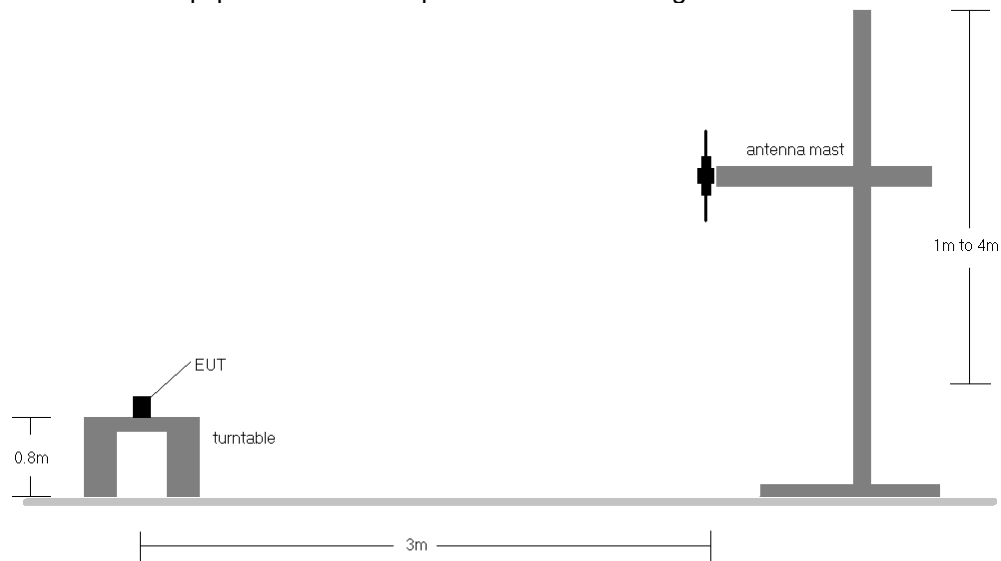


Figure 7-1. Radiated Test Setup <1GHz

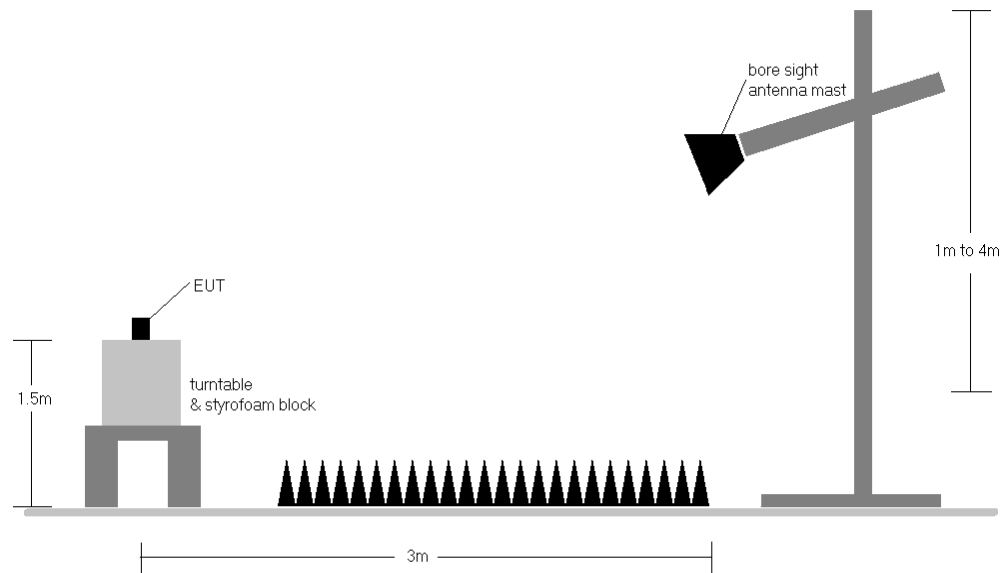


Figure 7-2. Radiated Test Setup >1GHz

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 14 of 34

Test Notes

- 1) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest power is reported in GPRS mode while transmitting with one slot active.
- 2) This device employs UMTS technology with WCDMA (AMR/RMC), HSDPA, and HSUPA capabilities. For WCDMA and HSUPA transmission, all configurations were investigated and the worst case UMTS emissions were found in RMC WCDMA mode at 12.2kbps with HSDPA inactive and TPC bits all set to "1."
- 3) This device was tested under all RC and SO combinations and the worst case is reported with RC3/SO55 with "All Up" power control bits.
- 4) This unit was tested with its standard battery.
- 5) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
824.20	GPRS850	H	150	303	24.65	1.50	24.00	38.45	-14.45	26.15	40.61	-14.46
836.60	GPRS850	H	150	278	24.63	1.50	23.98	38.45	-14.47	26.13	40.61	-14.48
848.80	GPRS850	H	150	294	23.39	1.50	22.74	38.45	-15.71	24.89	40.61	-15.72
824.20	GPRS850	V	150	29	20.17	1.50	19.52	38.45	-18.93	21.67	40.61	-18.94
824.20	EDGE850	H	150	303	18.76	1.50	18.11	38.45	-20.34	20.26	40.61	-20.35
824.20	GPRS850 (WCP)	H	150	201	23.88	1.50	23.23	38.45	-15.22	25.38	40.61	-15.23

Table 7-2. ERP/EIRP (Cellular GPRS)

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 15 of 34

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
824.70	CDMA850	H	150	285	17.16	1.50	16.51	38.45	-21.94	18.66	40.61	-21.95
836.52	CDMA850	H	150	285	16.95	1.50	16.30	38.45	-22.15	18.45	40.61	-22.16
848.31	CDMA850	H	150	285	16.65	1.50	16.00	38.45	-22.45	18.15	40.61	-22.46
824.70	CDMA850	V	150	254	16.20	1.50	15.55	38.45	-22.90	17.70	40.61	-22.91
824.70	CDMA850 (WCP)	H	150	125	17.03	1.50	16.38	38.45	-22.07	18.53	40.61	-22.08

Table 7-3. ERP/EIRP (Cellular CDMA)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
826.40	WCDMA850	H	150	305	19.09	1.50	18.44	38.45	-20.01	20.59	40.61	-20.02
836.60	WCDMA850	H	150	298	19.33	1.50	18.68	38.45	-19.77	20.83	40.61	-19.78
846.60	WCDMA850	H	150	299	19.13	1.50	18.48	38.45	-19.97	20.63	40.61	-19.98
836.60	WCDMA850	V	150	87	14.88	1.50	14.23	38.45	-24.22	16.38	40.61	-24.23
836.60	WCDMA850 (WCP)	H	150	356	16.90	1.50	16.25	38.45	-22.20	18.40	40.61	-22.21

Table 7-4. ERP/EIRP (Cellular WCDMA)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
1712.40	WCDMA1700	H	150	182	14.45	5.55	20.00	30.00	-10.00
1732.60	WCDMA1700	H	150	174	14.90	5.41	20.31	30.00	-9.69
1752.60	WCDMA1700	H	150	174	15.06	5.27	20.33	30.00	-9.67
1752.60	WCDMA1700	V	150	96	13.48	5.27	18.75	30.00	-11.25
1752.60	WCDMA1700 (WCP)	H	150	350	13.23	5.27	18.50	30.00	-11.50

Table 7-5. EIRP (AWS WCDMA)

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 16 of 34

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
1850.20	GPRS1900	H	150	359	22.59	4.82	27.41	33.01	-5.60
1880.00	GPRS1900	H	150	5	22.32	4.74	27.06	33.01	-5.95
1909.80	GPRS1900	H	150	12	20.91	4.68	25.59	33.01	-7.42
1850.20	GPRS1900	V	150	107	20.64	4.82	25.46	33.01	-7.55
1850.20	EDGE1900	H	150	359	16.25	4.82	21.07	33.01	-11.94
1850.20	GPRS1900 (WCP)	H	150	228	21.75	4.82	26.57	33.01	-6.44

Table 7-6. EIRP (PCS GPRS)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
1851.25	CDMA1900	H	150	3	17.13	4.82	21.95	33.01	-11.06
1880.00	CDMA1900	H	150	3	17.06	4.74	21.80	33.01	-11.21
1908.75	CDMA1900	H	150	3	16.37	4.68	21.05	33.01	-11.96
1851.25	CDMA1900	V	150	3	16.29	4.74	21.03	33.01	-11.98
1851.25	CDMA1900 (WCP)	H	150	321	17.00	4.74	21.74	33.01	-11.27

Table 7-7. EIRP (PCS CDMA)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
1852.40	WCDMA1900	H	150	6	16.32	4.81	21.13	33.01	-11.88
1880.00	WCDMA1900	H	150	359	16.26	4.74	21.00	33.01	-12.01
1907.60	WCDMA1900	H	150	7	16.11	4.68	20.79	33.01	-12.22
1852.40	WCDMA1900	V	150	29	14.86	4.81	19.67	33.01	-13.34
1852.40	WCDMA1900 (WCP)	H	150	123	16.06	4.81	20.87	33.01	-12.14

Table 7-8. EIRP (PCS WCDMA)

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)					Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset				Page 17 of 34	

7.3 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using horizontally and vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as peak measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW $\geq 3 \times$ RBW
3. Span = 1.5 times the OBW
4. No. of sweep points $\geq 2 \times$ span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 18 of 34

Test Setup

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

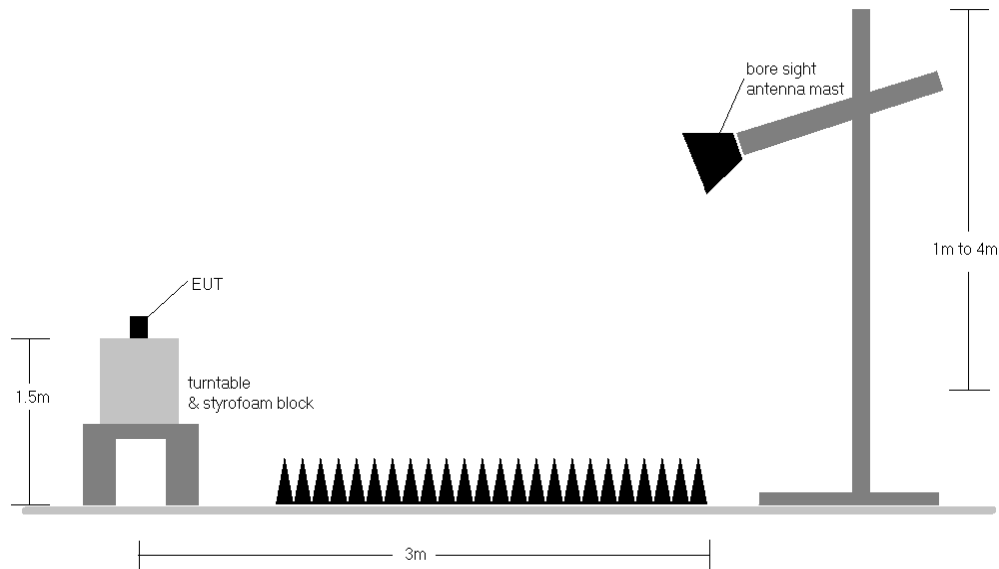


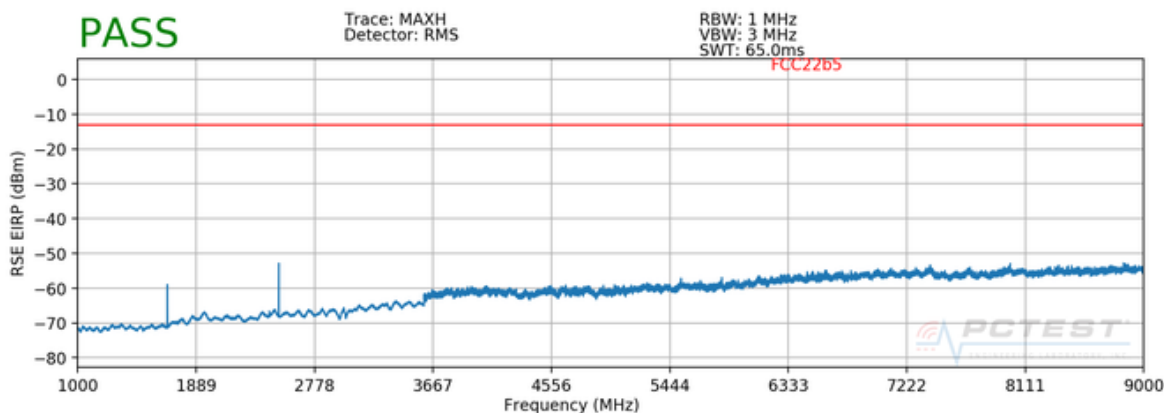
Figure 7-3. Test Instrument & Measurement Setup

Test Notes

- 1) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest power is reported in GPRS mode while transmitting with one slot active.
- 2) This device employs UMTS technology with WCDMA (AMR/RMC), HSDPA, and HSUPA capabilities. For WCDMA and HSUPA transmission, all configurations were investigated and the worst case UMTS emissions were found in RMC WCDMA mode at 12.2kbps with HSDPA inactive and TPC bits all set to "1."
- 3) This device was tested under all RC and SO combinations and the worst case is reported with RC3/SO55 with "All Up" power control bits.
- 4) This unit was tested with its standard battery.
- 5) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.
- 6) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are 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 "-" shown in the following RSE tables are used to denote a noise floor measurement.

FCC ID: ZNFG710VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 19 of 34

Cellular GPRS Mode



Plot 7-1. Radiated Spurious Plot above 1GHz (Cellular GPRS Mode)

OPERATING FREQUENCY: 824.20 MHz
 CHANNEL: 128
 MODULATION SIGNAL: GPRS (GMSK)
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1648.40	H	221	137	-66.00	5.81	-60.18	-47.2
2472.60	H	120	229	-48.87	5.72	-43.15	-30.1
3296.80	H	100	75	-58.45	7.80	-50.65	-37.7
4121.00	H	-	-	-69.01	9.11	-59.90	-46.9

Table 7-9. Radiated Spurious Data (Cellular GPRS Mode – Ch. 128)

OPERATING FREQUENCY: 836.60 MHz
 CHANNEL: 190
 MODULATION SIGNAL: GPRS (GMSK)
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.20	H	255	141	-64.76	5.73	-59.03	-46.0
2509.80	H	160	242	-52.72	5.77	-46.96	-34.0
3346.40	H	110	85	-60.95	7.91	-53.04	-40.0
4183.00	H	-	-	-70.55	9.30	-61.25	-48.3

Table 7-10. Radiated Spurious Data (Cellular GPRS Mode – Ch. 190)

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 20 of 34

OPERATING FREQUENCY: 848.80 MHz
CHANNEL: 251
MODULATION SIGNAL: GPRS (GMSK)
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1697.60	H	274	159	-62.70	5.64	-57.06	-44.1
2546.40	H	188	237	-53.46	5.90	-47.55	-34.6
3395.20	H	108	81	-61.82	7.97	-53.86	-40.9
4244.00	H	-	-	-71.23	9.39	-61.84	-48.8

Table 7-11. Radiated Spurious Data (Cellular GPRS Mode – Ch. 251)

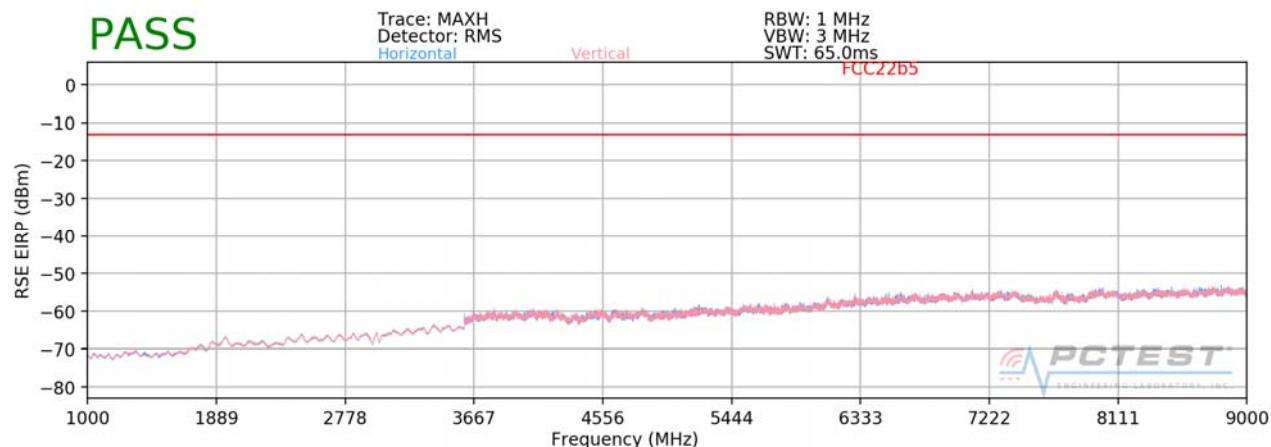
OPERATING FREQUENCY: 824.20 MHz
CHANNEL: 128
MODULATION SIGNAL: GPRS (GMSK)
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1648.40	H	252	168	-68.09	5.81	-62.27	-49.3
2472.60	H	200	327	-57.33	5.72	-51.61	-38.6
3296.80	H	141	22	-65.12	7.80	-57.32	-44.3
4121.00	H	-	-	-71.49	9.11	-62.38	-49.4

Table 7-12. Radiated Spurious Data with WCP (Cellular GPRS Mode – Ch. 128)

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 21 of 34

Cellular CDMA Mode



Plot 7-2. Radiated Spurious Plot above 1GHz (Cellular CDMA Mode)

OPERATING FREQUENCY: 824.70 MHz
 CHANNEL: 1013
 MODULATION SIGNAL: CDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1649.40	H	-	-	-77.10	5.81	-71.29	-58.3
2474.10	H	-	-	-72.85	5.72	-67.13	-54.1

Table 7-13. Radiated Spurious Data (Cellular CDMA Mode – Ch. 1013)

OPERATING FREQUENCY: 836.52 MHz
 CHANNEL: 384
 MODULATION SIGNAL: CDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.04	H	-	-	-77.16	5.73	-71.43	-58.4
2509.56	H	-	-	-74.46	5.77	-68.69	-55.7

Table 7-14. Radiated Spurious Data (Cellular CDMA Mode – Ch. 384)

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 22 of 34

OPERATING FREQUENCY: 848.31 MHz
 CHANNEL: 777
 MODULATION SIGNAL: CDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1696.62	H	-	-	-76.40	5.64	-70.76	-57.8
2544.93	H	-	-	-73.68	5.90	-67.78	-54.8

Table 7-15. Radiated Spurious Data (Cellular CDMA Mode – Ch. 777)

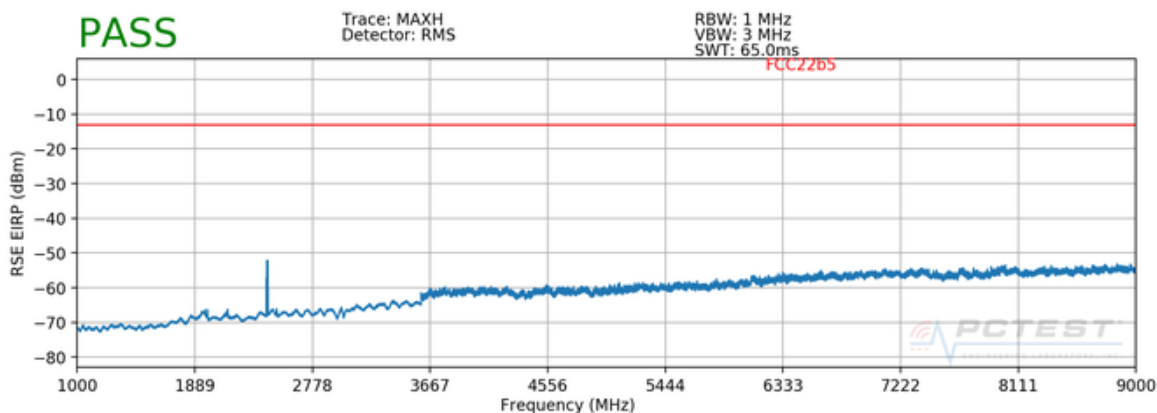
OPERATING FREQUENCY: 824.70 MHz
 CHANNEL: 1013
 MODULATION SIGNAL: CDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1649.40	H	-	-	-76.19	5.81	-70.38	-57.4
2474.10	H	-	-	-73.21	5.72	-67.49	-54.5

Table 7-16. Radiated Spurious Data with WCP (Cellular CDMA Mode – Ch. 1013)

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 23 of 34

Cellular WCDMA Mode



Plot 7-3. Radiated Spurious Plot above 1GHz (Cellular WCDMA Mode)

OPERATING FREQUENCY: 826.40 MHz
 CHANNEL: 4132
 MODULATION SIGNAL: WCDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1652.80	H	-	-	-71.99	5.80	-66.19	-53.2
2479.20	H	232	117	-62.43	5.73	-56.71	-43.7
3305.60	H	-	-	-69.42	7.86	-61.56	-48.6

Table 7-17. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4132)

OPERATING FREQUENCY: 836.60 MHz
 CHANNEL: 4183
 MODULATION SIGNAL: WCDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.20	H	-	-	-71.16	5.73	-65.43	-52.4
2509.80	H	228	104	-61.06	5.77	-55.30	-42.3
3346.40	H	-	-	-68.01	7.91	-60.10	-47.1

Table 7-18. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4183)

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 24 of 34

OPERATING FREQUENCY: 846.60 MHz
CHANNEL: 4233
MODULATION SIGNAL: WCDMA
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1693.20	H	-	-	-70.73	5.66	-65.07	-52.1
2539.80	H	249	97	-61.72	5.88	-55.84	-42.8
3386.40	H	-	-	-68.21	7.96	-60.25	-47.3

Table 7-19. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4233)

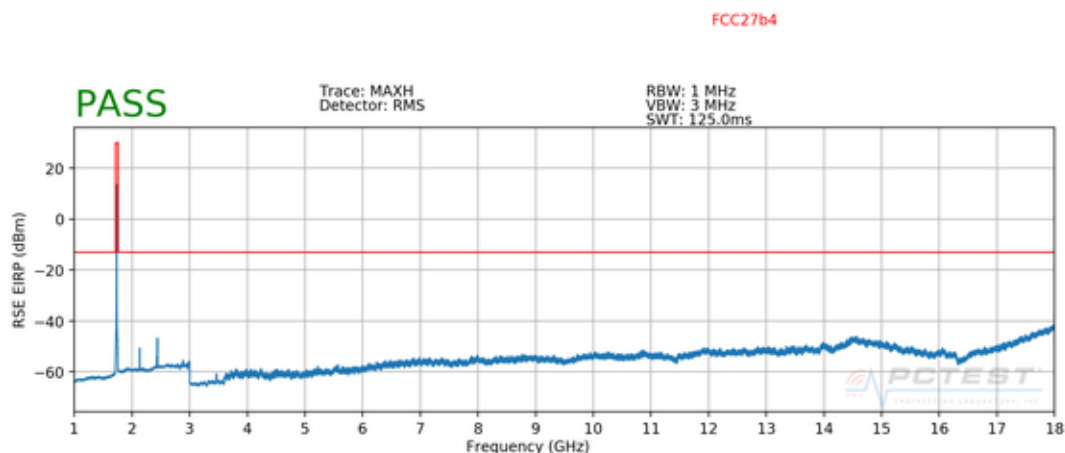
OPERATING FREQUENCY: 836.60 MHz
CHANNEL: 4183
MODULATION SIGNAL: WCDMA
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.20	H	-	-	-72.29	5.73	-66.56	-53.6
2509.80	H	249	97	-64.82	5.77	-59.06	-46.1
3346.40	H	-	-	-67.39	7.91	-59.48	-46.5

Table 7-20. Radiated Spurious Data with WCP (Cellular WCDMA Mode – Ch. 4183)

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 25 of 34

AWS WCDMA Mode



Plot 7-4. Radiated Spurious Plot above 1GHz (AWS WCDMA Mode)

OPERATING FREQUENCY: 1712.40 MHz
 CHANNEL: 1312
 MODULATION SIGNAL: WCDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3424.80	H	112	64	-54.74	8.11	-46.63	-33.6
5137.20	H	-	-	-64.76	10.24	-54.52	-41.5

Table 7-21. Radiated Spurious Data (AWS WCDMA Mode – Ch. 1312)

OPERATING FREQUENCY: 1732.60 MHz
 CHANNEL: 1413
 MODULATION SIGNAL: WCDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3465.20	H	109	58	-54.13	8.33	-45.80	-32.8
5197.80	H	-	-	-65.93	10.27	-55.66	-42.7

Table 7-22. Radiated Spurious Data (AWS WCDMA Mode – Ch. 1413)

FCC ID: ZNFG710VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 26 of 34

OPERATING FREQUENCY: 1752.60 MHz
 CHANNEL: 1513
 MODULATION SIGNAL: WCDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3505.20	H	116	60	-58.20	8.52	-49.68	-36.7
5257.80	H	-	-	-65.02	10.29	-54.73	-41.7

Table 7-23. Radiated Spurious Data (AWS WCDMA Mode – Ch. 1513)

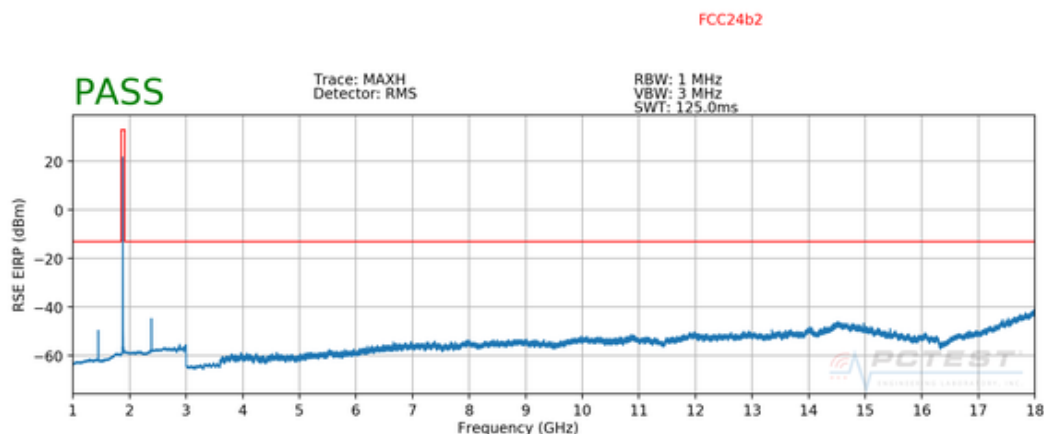
OPERATING FREQUENCY: 1752.60 MHz
 CHANNEL: 1513
 MODULATION SIGNAL: WCDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3505.20	H	170	251	-65.60	8.52	-57.08	-44.1
5257.80	H	-	-	-67.55	10.29	-57.26	-44.3

Table 7-24. Radiated Spurious Data with WCP (AWS WCDMA Mode – Ch. 1513)

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 27 of 34

PCS GPRS Mode



Plot 7-5. Radiated Spurious Plot above 1GHz (PCS GPRS Mode)

OPERATING FREQUENCY: 1850.20 MHz

CHANNEL: 512

MODULATION SIGNAL: GPRS (GMSK)

DISTANCE: 3 meters

LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3700.40	H	366	35	-67.54	8.30	-59.24	-46.2
5550.60	H	167	322	-63.33	10.52	-52.80	-39.8
7400.80	H	-	-	-67.66	11.91	-55.75	-42.8

Table 7-25. Radiated Spurious Data (PCS GPRS Mode – Ch. 512)

OPERATING FREQUENCY: 1880.00 MHz

CHANNEL: 661

MODULATION SIGNAL: GPRS (GMSK)

DISTANCE: 3 meters

LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3760.00	H	109	39	-66.71	8.46	-58.25	-45.3
5640.00	H	113	318	-62.49	10.60	-51.89	-38.9
7520.00	H	-	-	-68.68	12.11	-56.57	-43.6

Table 7-26. Radiated Spurious Data (PCS GPRS Mode – Ch. 661)

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 28 of 34

OPERATING FREQUENCY: 1909.80 MHz
 CHANNEL: 810
 MODULATION SIGNAL: GPRS (GMSK)
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3819.60	H	139	327	-65.12	8.56	-56.56	-43.6
5729.40	H	161	314	-66.41	10.64	-55.77	-42.8
7639.20	H	-	-	-68.65	12.20	-56.45	-43.4

Table 7-27. Radiated Spurious Data (PCS GPRS Mode – Ch. 810)

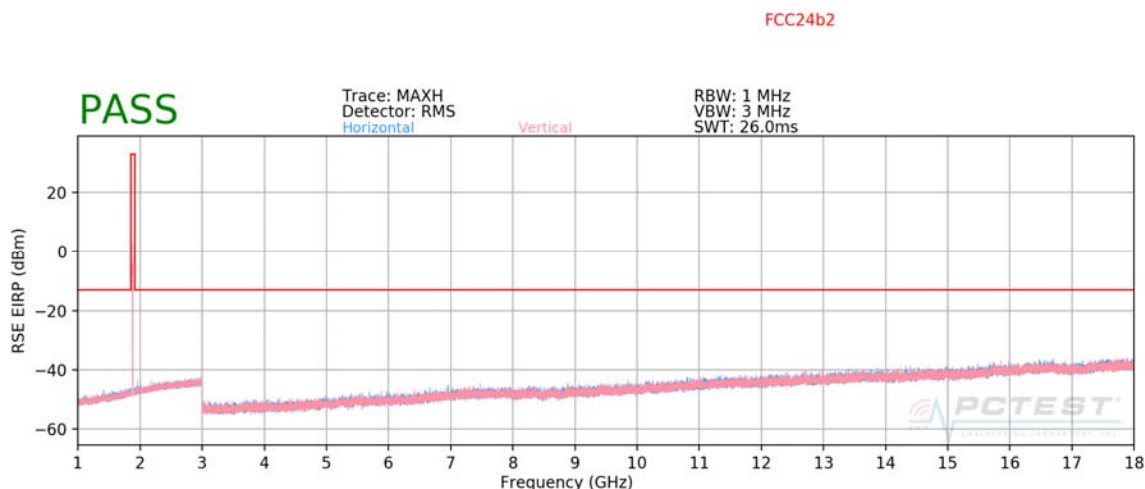
OPERATING FREQUENCY: 1850.20 MHz
 CHANNEL: 512
 MODULATION SIGNAL: GPRS (GMSK)
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3700.40	H	142	311	-64.21	8.30	-55.91	-42.9
5550.60	H	-	-	-66.68	10.52	-56.15	-43.2

Table 7-28. Radiated Spurious Data with WCP (PCS GPRS Mode – Ch. 512)

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 29 of 34

PCS CDMA Mode



Plot 7-6. Radiated Spurious Plot above 1GHz (PCS CDMA Mode)

OPERATING FREQUENCY: 1851.25 MHz
CHANNEL: 25
MODULATION SIGNAL: CDMA
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3702.50	H	-	-	-72.95	8.31	-64.64	-51.6
5553.75	H	-	-	-72.29	10.53	-61.76	-48.8

Table 7-29. Radiated Spurious Data (PCS CDMA Mode – Ch. 25)

OPERATING FREQUENCY: 1880.00 MHz
CHANNEL: 600
MODULATION SIGNAL: CDMA
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3760.00	H	-	-	-73.08	8.46	-64.62	-51.6
5640.00	H	-	-	-72.42	10.60	-61.82	-48.8

Table 7-30. Radiated Spurious Data (PCS CDMA Mode – Ch. 600)

FCC ID: ZNFG710VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 30 of 34

OPERATING FREQUENCY: 1908.75 MHz
 CHANNEL: 1175
 MODULATION SIGNAL: CDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3817.50	H	-	-	-71.28	8.56	-62.72	-49.7
5726.25	H	-	-	-72.94	10.64	-62.30	-49.3

Table 7-31. Radiated Spurious Data (PCS CDMA Mode – Ch. 1175)

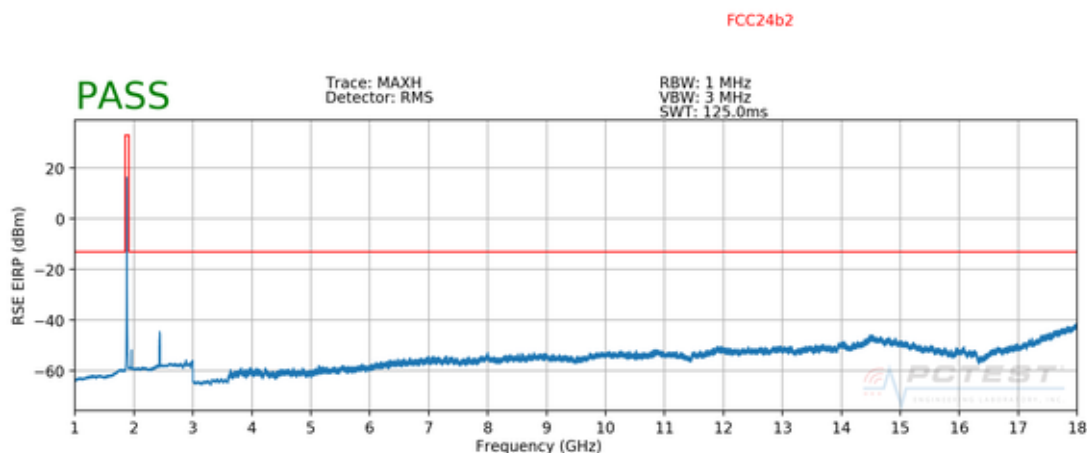
OPERATING FREQUENCY: 1851.25 MHz
 CHANNEL: 25
 MODULATION SIGNAL: CDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3702.50	H	-	-	-72.47	8.31	-64.16	-51.2
5553.75	H	-	-	-73.48	10.53	-62.95	-50.0

Table 7-32. Radiated Spurious Data with WCP (PCS CDMA Mode – Ch. 25)

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 31 of 34

PCS WCDMA Mode



Plot 7-7. Radiated Spurious Plot above 1GHz (PCS WCDMA Mode)

OPERATING FREQUENCY: 1852.40 MHz
 CHANNEL: 9262
 MODULATION SIGNAL: WCDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3704.80	H	104	328	-61.48	8.31	-53.17	-40.2
5557.20	H	-	-	-65.75	10.54	-55.22	-42.2

Table 7-33. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9262)

OPERATING FREQUENCY: 1880.00 MHz
 CHANNEL: 9400
 MODULATION SIGNAL: WCDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3760.00	H	110	336	-62.67	8.46	-54.21	-41.2
5640.00	H	-	-	-66.44	10.60	-55.84	-42.8

Table 7-34. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9400)

FCC ID: ZNFG710VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 32 of 34

OPERATING FREQUENCY: 1907.60 MHz
CHANNEL: 9538
MODULATION SIGNAL: WCDMA
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3815.20	H	123	340	-62.31	8.56	-53.75	-40.7
5722.80	H	-	-	-64.89	10.63	-54.26	-41.3

Table 7-35. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9538)

OPERATING FREQUENCY: 1852.40 MHz
CHANNEL: 9262
MODULATION SIGNAL: WCDMA
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3704.80	H	112	272	-64.80	8.31	-56.49	-43.5
5557.20	H	-	-	-65.50	10.54	-54.97	-42.0

Table 7-36. Radiated Spurious Data with WCP (PCS WCDMA Mode – Ch. 9262)

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 33 of 34

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset** **FCC ID: ZNFG710VM** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules.

FCC ID: ZNFG710VM		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 1M1804030062-02.ZNF	Test Dates: 4/6 - 4/20/2018	EUT Type: Portable Handset		Page 34 of 34