Cellphone-Mate, Inc.

ADDENDUM TO TEST REPORT 95353-7

Mobile Wideband Consumer Signal Booster
Model: TriFlex-2Go-T

Tested To The Following Standards:

FCC Part 27L

Report No.: 95353-7A

Date of issue: April 29, 2014

ACCREDITED
Testing Certificates:
803.01, 803.02, 803.05, 803.06

This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of EMC testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

Testing the Future
CKC LABORATORIES, INC.

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

Cellphone-Mate, Inc.
48346 Milmont Drive
Fremont, CA 94538

Representative: Hongtao Zhan
Customer Reference Number: CKC20140129

REPORT PREPARED BY:

Dianne Dudley
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 95353

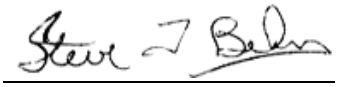
DATE OF EQUIPMENT RECEIPT: February 10, 2014
DATE(S) OF TESTING: February 10-14, 2014
April 24, 2014

Revision History

Original: Testing of the Mobile Wideband Consumer Signal Booster, TriFlex-2Go-T to FCC Part 27L.
Addendum A: To insert corrected test data and setup photo in Section 2.1051 / 27.53(c) / 27.53(f) / 27.53(g), Conducted Spurious Emissions at Antenna Terminals.

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.



Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information

Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
110 Olinda Place
Brea, CA 92823

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.00.14

Site Registration & Accreditation Information

Location	CB #	TAIWAN	CANADA	FCC	JAPAN
Brea D	US0060	SL2-IN-E-1146R	3082D-2	100638	A-0147

SUMMARY OF RESULTS

Standard / Specification: FCC Part(s) 2 / 27L

Test Procedure/Method	Description	Results
2.1046	RF Power Output	NA[1]
2.1049 (I)	Occupied Bandwidth	Pass
2.1051 / 27.53(c) / 27.53(f) / 27.53(g)	Spurious Emissions at Antenna Terminals	Pass
2.1053 / 27.53(c) / 27.53(f) / 27.53(g)	Field Strength of Spurious Radiation	Pass
2.1055(a)(d)	Frequency Stability	NA[2]

NA[1] = A different standard applies; see applicable test report.
NA[2] = Not applicable. See the section in the report for the reason.

Conditions During Testing

This list is a summary of the conditions noted for or modifications made to the equipment during testing.

Summary of Conditions
None

EQUIPMENT UNDER TEST (EUT)

EQUIPMENT UNDER TEST

Mobile Wideband Consumer Signal Booster
Manuf: Cellphone-Mate, Inc.
Model: TriFlex-2Go-T
Serial: NA

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

Signal Generator
Manuf: Agilent
Model: E4433B
Serial: US40052164

Power Divider
Manuf: Anaren
Model: 44000
Serial: 0583

Signal Generator
Manuf: Agilent
Model: E4438C
Serial: MY42081492

Power Supply
Manuf: SureCall
Model: GFP451DA-0945-1
Serial: 1308-0000300

Signal Generator
Manuf: Agilent
Model: E4433B
Serial: US40053279

50 ohm Load
Manuf: Generic
Model: Generic
Serial: NA

Programmer
Manuf: Cellphone-Mate, Inc.
Model: SureCall
Serial: NA

FCC PART(S) 2 / 27L

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) requirements for licensed devices.

47 CFR Part 27: Miscellaneous Wireless Communication Services

2.1049(I) Occupied Bandwidth

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea CA 92823 • 714 993-6112

Customer:	**Cellphone-Mate, Inc.**		
Specification:	**2.1049(I) Occupied Bandwidth**		
Work Order #:	**95353**	Date:	2/14/2014
Test Type:	**Conducted Emissions**	Time:	08:53:16
Equipment:	**Mobile Wideband Consumer Signal Booster**	Sequence#:	10
Manufacturer:	Cellphone-Mate, Inc.	Tested By:	Don Nguyen
Model:	TriFlex-2Go-T		120V 60Hz
S/N:	NA		

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02945	Cable	32022-2-2909K-36TC	10/30/2013	10/30/2015
T2	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T3	AN03431	Attenuator	89-20-21	9/5/2013	9/5/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Mobile Wideband Consumer Signal Booster*	Cellphone-Mate, Inc.	TriFlex-2Go-T	NA

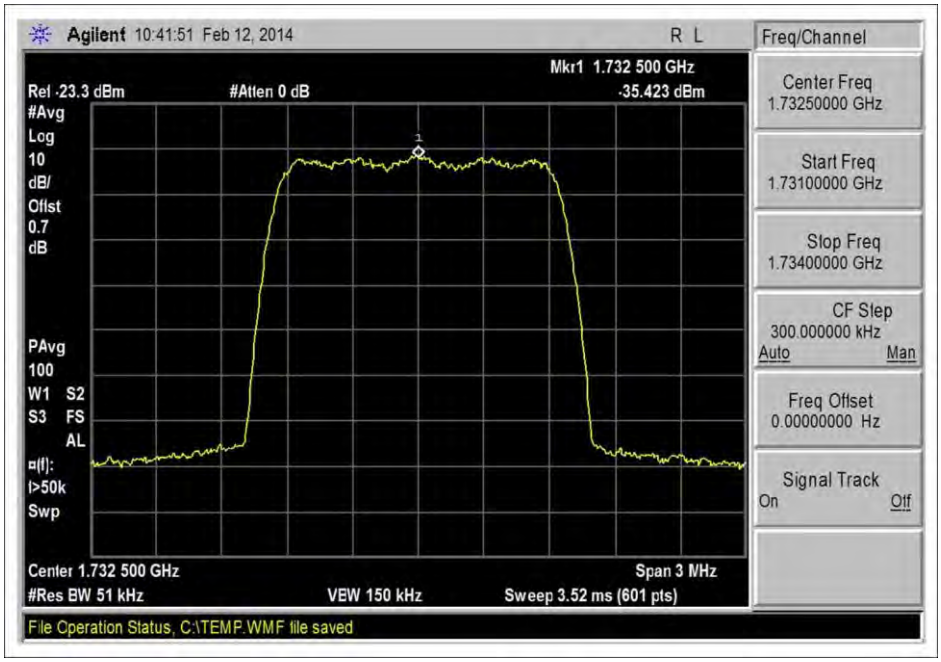
Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	Agilent	E4433B	US40052164
Power Supply	SureCall	GFP451DA-0945-1	1308-0000325

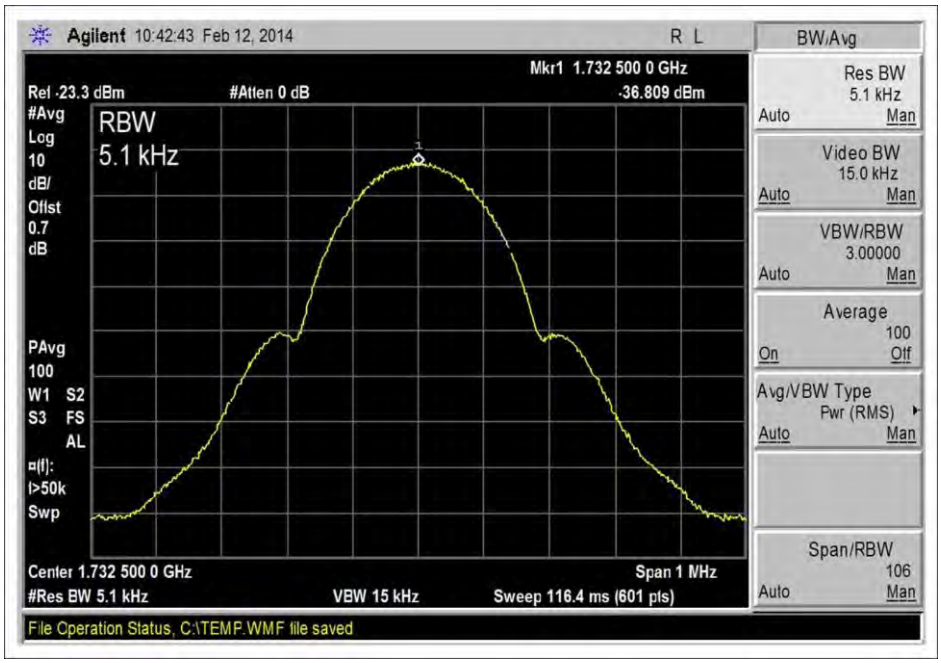
Test Conditions / Notes:

The equipment under test (EUT) is placed on the table top. EUT set at maximum gain. Signal generator is connected to input port of EUT. Output port of EUT is connected to spectrum analyzer via 20db attenuator and RF cable. Evaluation performed at the Outside (Donor) and Inside (Server) antenna port.
EUT is powered by 9V power supply.
UL 1710-1755
DL 2110-2155
Test procedure: The test was performed In accordance with section 7.10 of the FCC Publication: 935210 D03 Signal Booster Measurements v01r01: January 22, 2014
Temperature: 19°C, Humidity: 36%, Pressure: 100.1kPa
Site D

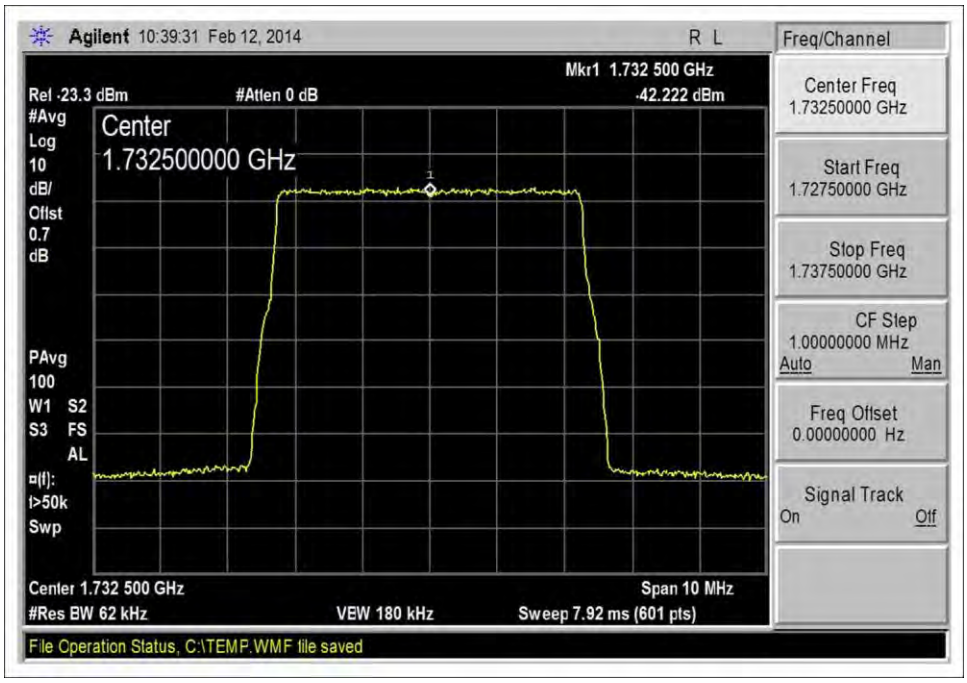
Test Data



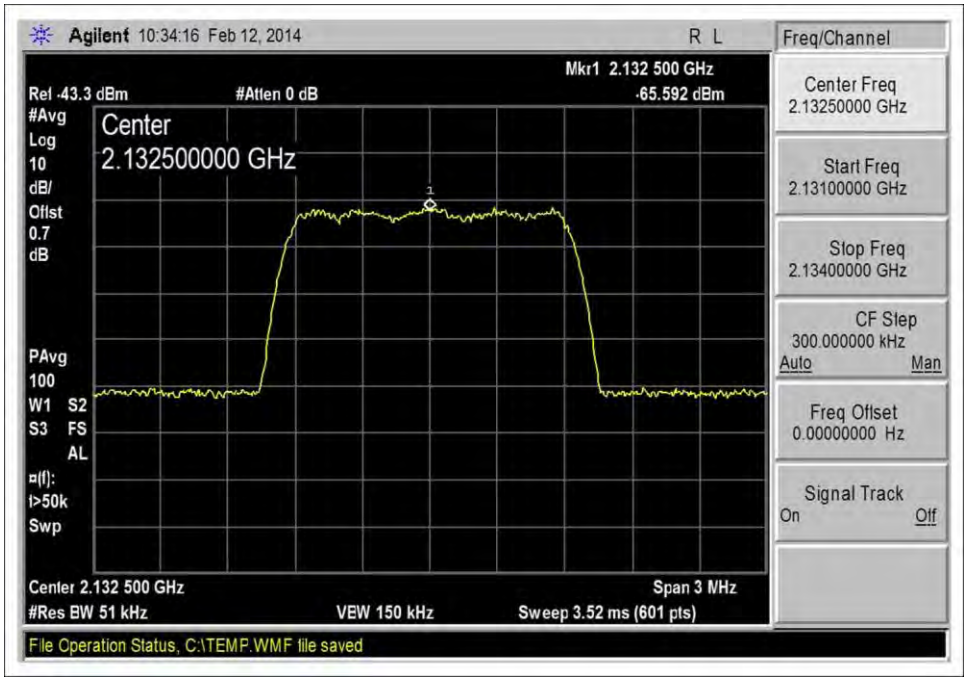
UL - 1710-1755, CDMA Input



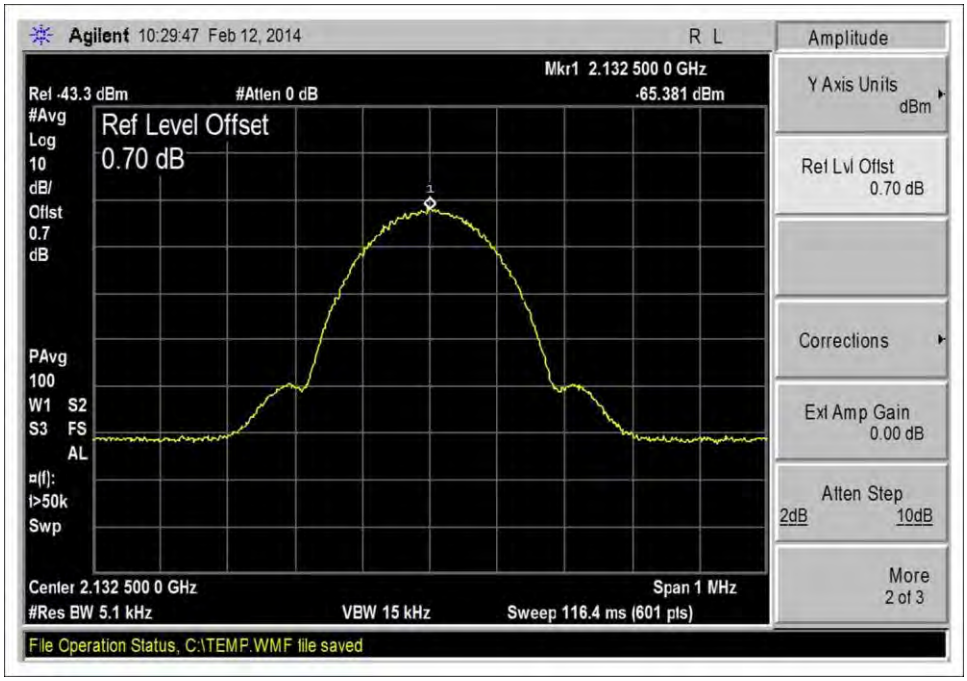
UL - 1710-1755, GSM Input



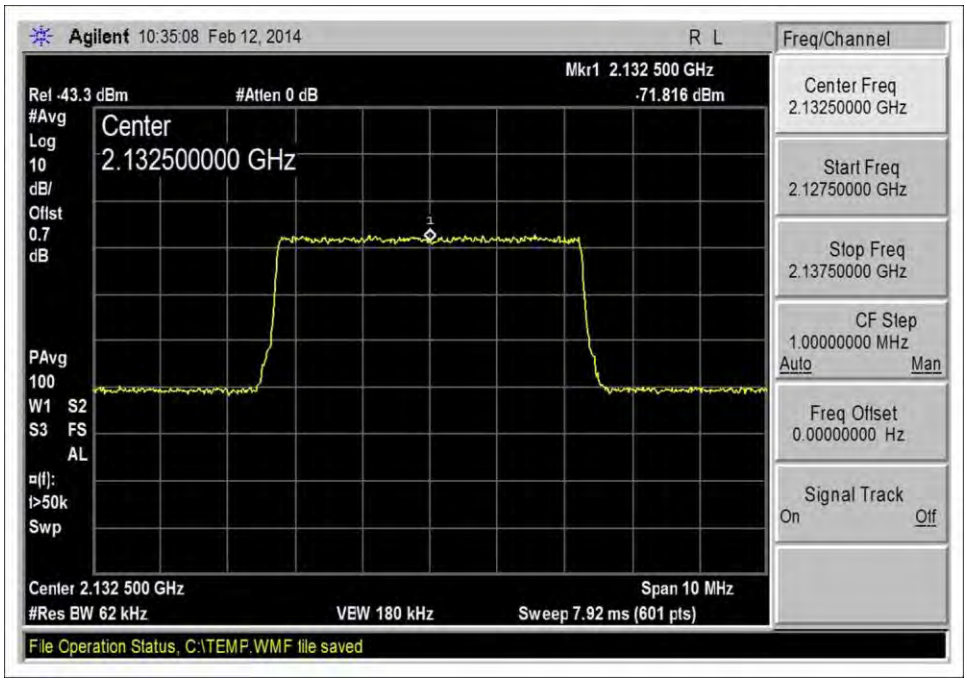
UL-1710-1755, LTE Input



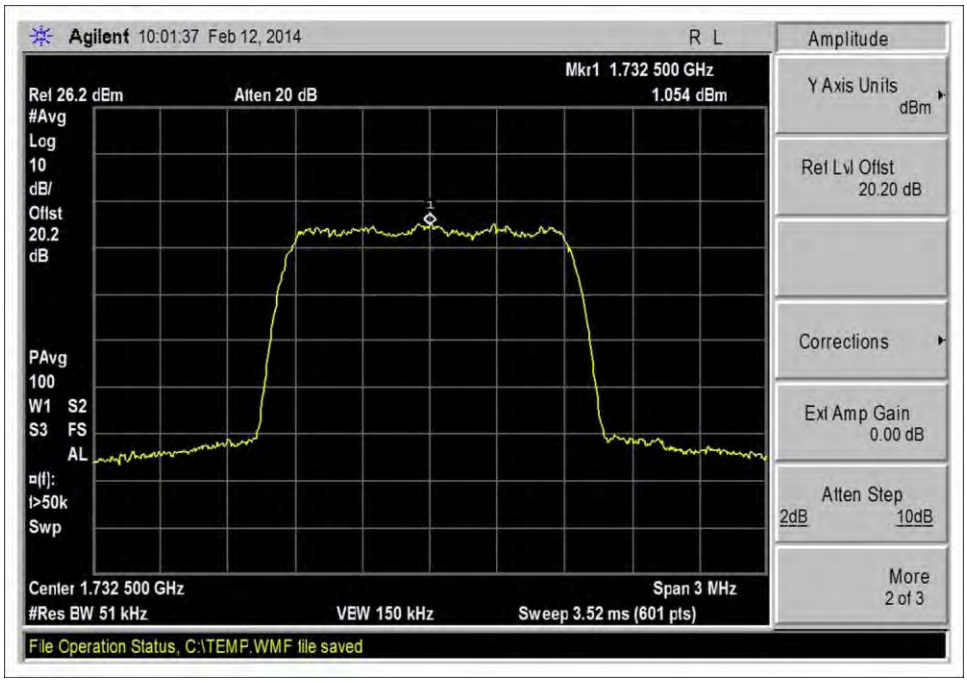
DL - 2110-2155, CDMA Input



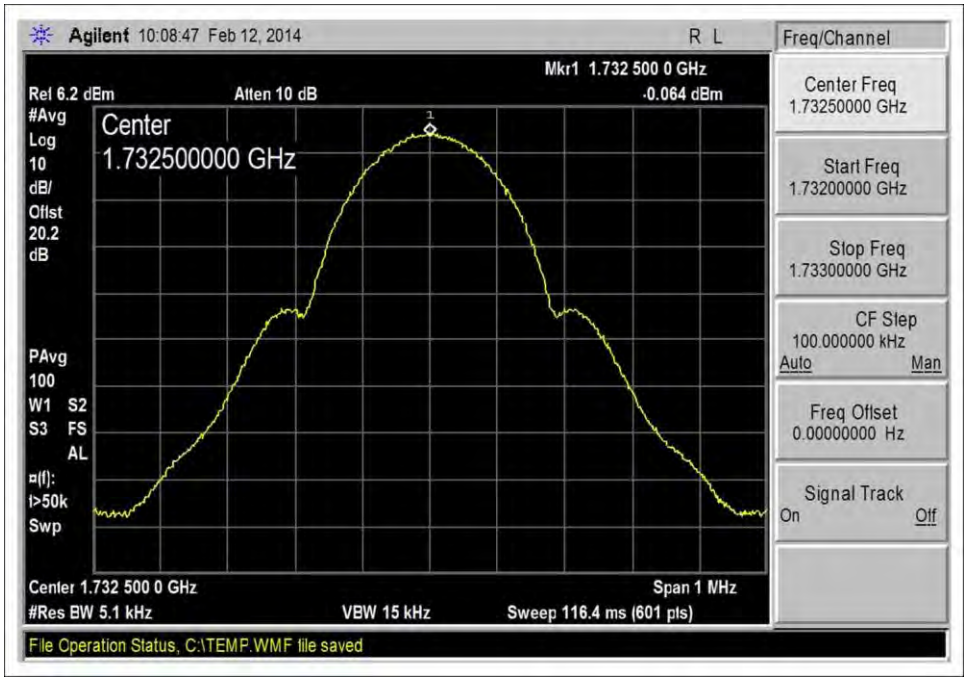
DL - 2110-2155, GSM Input



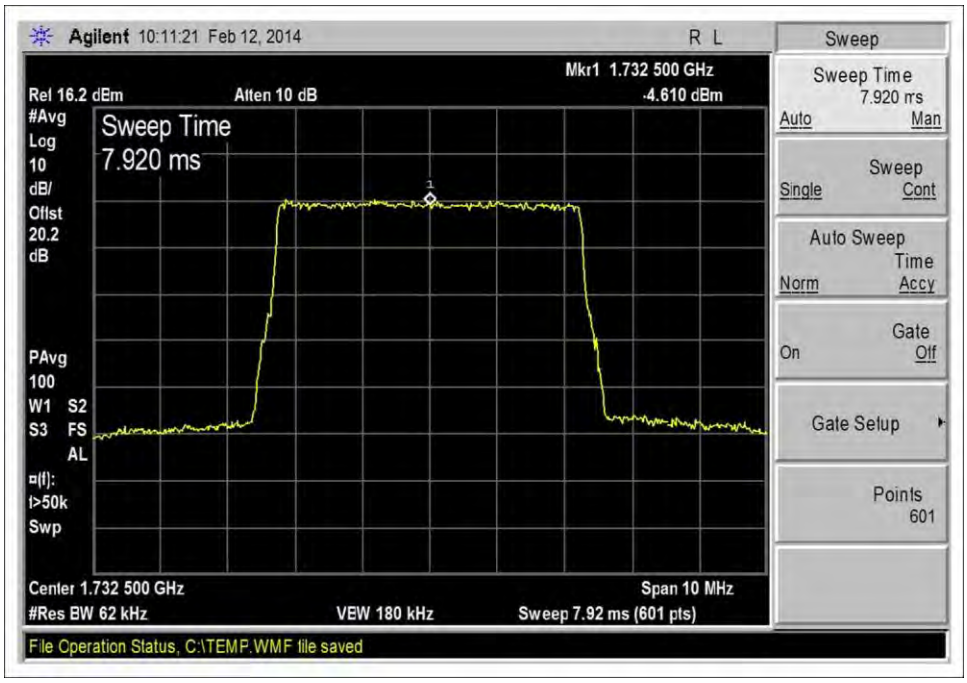
DL - 2110-2155, LTE Input



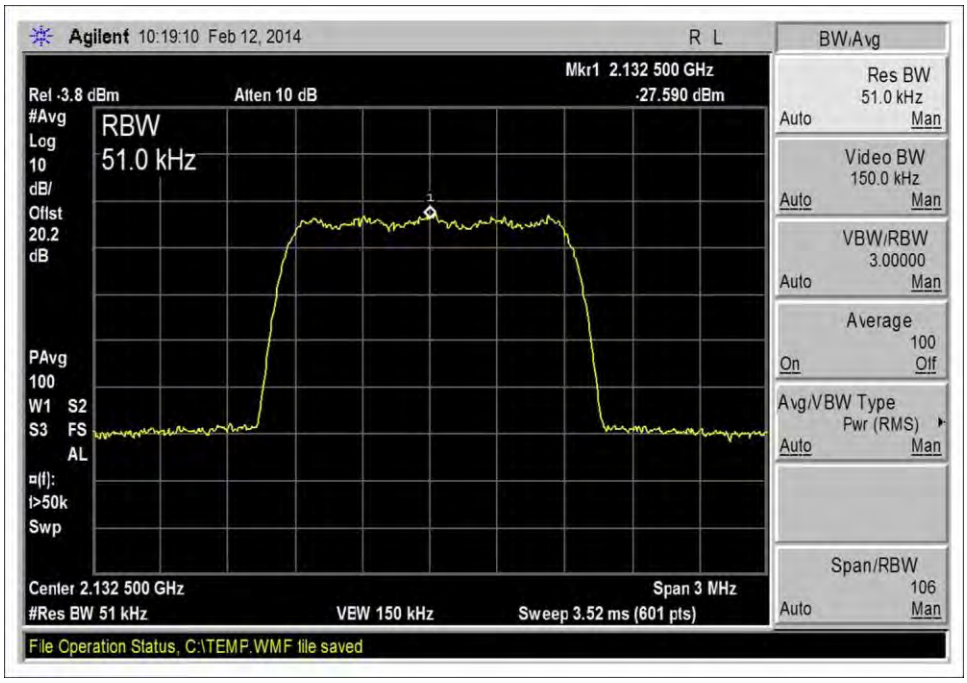
UL - 1710-1755, CDMA Output



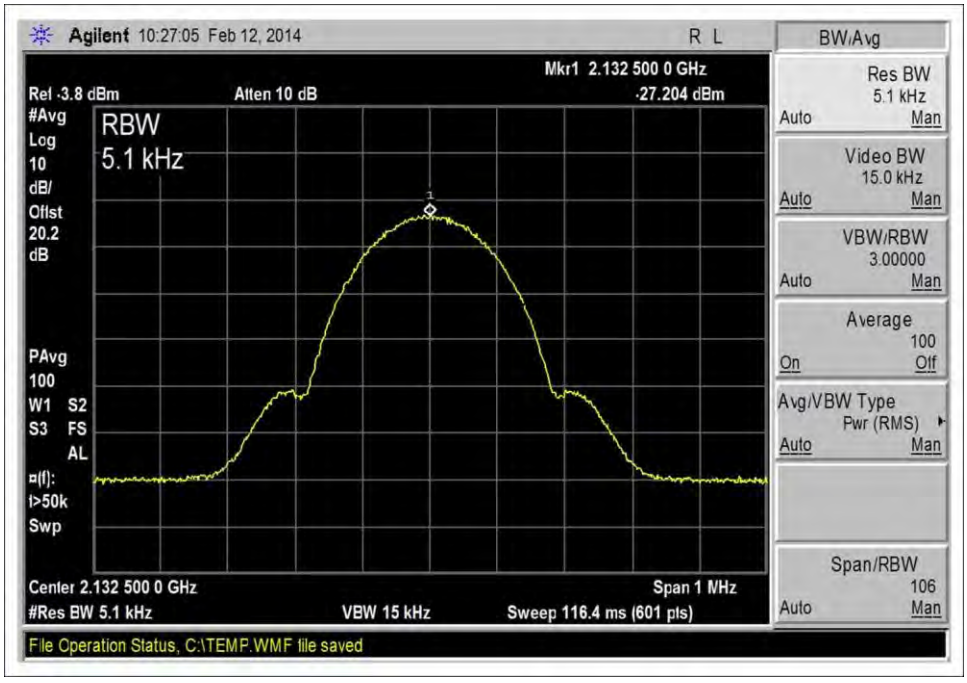
UL - 1710-1755, GSM Output



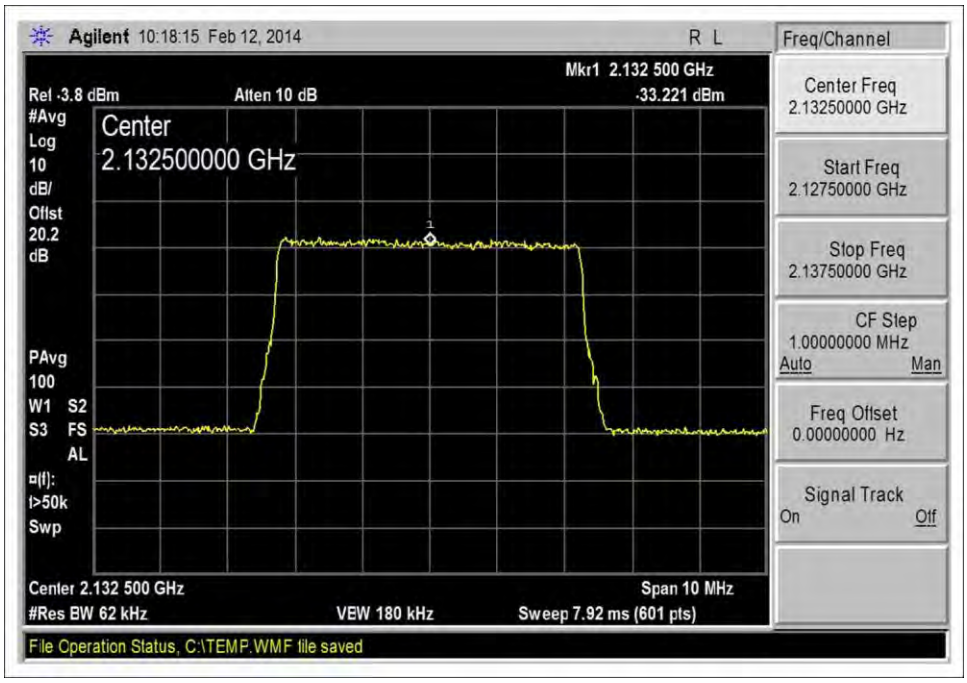
UL - 1710-1755, LTE Output



DL -2110-2155, CDMA Output



DL - 2110-2155, GSM Output



DL - 2110-2155, LTE Output

Test Setup Photo(s)

2.1051 /27.53(c) / 27.53(f) / 27.53(g) Spurious Emissions at Antenna Terminals

Test Conditions / Setup

Test Location: CKC Laboratories Inc. • 110 N Olinda Pl • Brea CA 92823 • 7149936112

Customer:	**Cellphone-Mate, Inc.**		
Specification:	**47 CFR §27.53(g) Spurious Emissions**		
Work Order #:	**95353**	Date:	4/24/2014
Test Type:	**Conducted Emissions**	Time:	09:05:16
Equipment:	**Mobile Wideband Consumer Signal Booster**	Sequence#:	11
Manufacturer:	Cellphone-Mate, Inc.	Tested By:	Don Nguyen
Model:	TriFlex-2Go-T		120V 60Hz
S/N:	NA		

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	AN03431	Attenuator	89-20-21	9/5/2013	9/5/2015
T3	ANP06544	Cable	32026-29094K-29094K-36TC	11/20/2013	11/20/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Mobile Wideband Consumer Signal Booster*	Cellphone-Mate, Inc.	TriFlex-2Go-T	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	Agilent	E4433B	US40052164
Power Supply	Guang Zhou Ji Yin Electronics Co., LTD	TH-242	2008010907286265

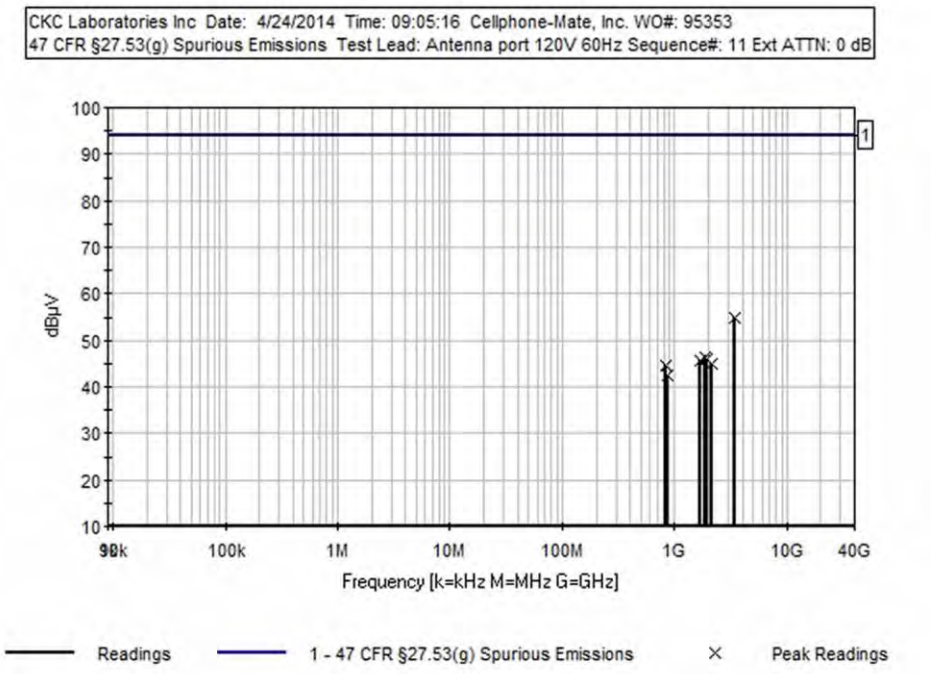
Test Conditions / Notes:

The equipment under test (EUT) is placed on the table top. EUT set at maximum gain. Signal generator is connected to input port of EUT. Output port of EUT is connected to spectrum analyzer via 20db attenuator and RF cable. Evaluation performed at the Outside (Donor) and Inside (Server) antenna port.
UL 1710-1755; DL 2110-2155
TXFreq = Center frequency of above listed bands.
Modulation: AWGN 4.1MHz, 99% occupied bandwidth
Frequency range of measurement = 9 kHz to 22 GHz.
9kHz-150kHz, RBW=200Hz, VBW=200Hz; 150kHz-30MHz, RBW=9kHz, VBW=9kHz; 30MHz-1000MHz, RBW=120kHz, VBW=120kHz; 1000MHz-22000MHz, RBW=1MHz, VBW=1MHz
Temperature: 22°C, Humidity: 41%, Pressure: 100.1kPa
Site D
No harmonic emission found when measuring downlink output port.

Test Data

Measurement Data: Reading listed by order taken. Test Lead: Antenna port

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	843.830M	43.9	+0.0	+0.0	+0.7		+0.0	44.6	94.0	-49.4	Anten
									Max noise UL 824-849, no input power		
2	1719.300M	45.2	+0.0	+0.0	+0.5		+0.0	45.7	94.0	-48.3	Anten
									Max noise UL 1710-1755, no input power		
3	1874.800M	45.8	+0.0	+0.0	+0.6		+0.0	46.4	94.0	-47.6	Anten
									Max noise UL 1850-1910, no input power		
4	869.580M	41.9	+0.0	+0.0	+0.7		+0.0	42.6	94.0	-51.4	Anten
									Max noise DL 869-894, no input power		
5	1962.000M	45.4	+0.0	+0.0	+0.6		+0.0	46.0	94.0	-48.0	Anten
									Max noise DL 1930-1990, no input power		
6	2121.850M	44.2	+0.0	+0.0	+0.6		+0.0	44.8	94.0	-49.2	Anten
									Max noise DL 2110-2155, no input power		
7	3465.140M	34.8	+0.0	+19.4	+0.8		+0.0	55.0	94.0	-39.0	Anten
									UL 1710-1755		


CKC Laboratories Inc Date: 4/24/2014 Time: 09:05:16 Cellphone-Mate, Inc. WO#: 95353
47 CFR §27.53(g) Spurious Emissions Test Lead: Antenna port 120V 60Hz Sequence#: 11 Ext ATTN: 0 dB
dBµV
100
90
80
70
60
50
40
30
20
10
1
10k
100k
1M
10M
100M
1G
10G
40G
Frequency [k=kHz M=MHz G=GHz]
Readings
1 - 47 CFR §27.53(g) Spurious Emissions
Peak Readings

LIMIT LINE FOR SPURIOUS CONDUCTED EMISSION

REQUIRED ATTENUATION = 43+10 LOG P DB

Limit line (dBuV) = V_{dBuv} - Attenuation

$$V_{dBuV} = 20 \text{ Log } \frac{V}{1 \text{ x } 10^{-6}}$$

$$= 20\left(\text{Log } V - \text{Log } 1 \text{ x } 10^{-6}\right)$$

$$= 20 \text{ Log } V - 20 \text{ Log} 1 \text{ x } 10^{-6}$$

$$= 20 \text{ Log } V - 20(-6)$$

$$= 20 \text{ Log } V + 120$$

$$\text{Attenuation} = 43 + 10 \text{ Log } P$$

$$= 43 + 10 \text{ Log } \frac{V^2}{R}$$

$$= 43 + 10\left(\text{Log } V^2 - \text{Log } R\right)$$

$$= 43 + 10\left(2 \text{ Log } V - \text{Log } R\right)$$

$$= 43 + 20 \text{ Log } V - 10 \text{ Log } R$$

Limit line = V_{dBuv} - Attenuation

= 20 Log V + 120 – (43 + 20 Log V – 10Log R)

= 20 Log V + 120 – 43 – 20 Log V + 10Log R

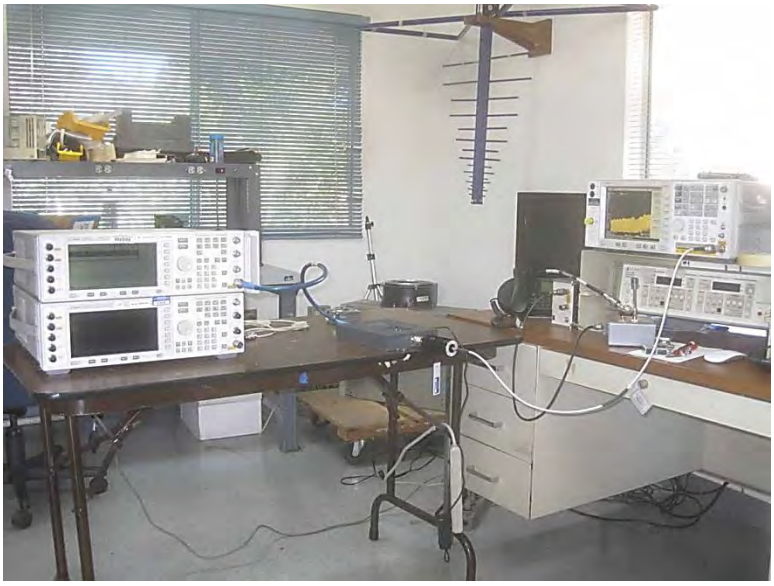
= 20 Log V + 120 – 43 – 20 Log V + 10Log R

= 120 – 43 + 10 Log 50 Note: R = 50 Ω

= 120 –43 + 16.897

= 94 dBuV at any power level

Test Setup Photo(s)



2.1053 /27.53(c) / 27.53(f) / 27.53(g) Field Strength of Spurious Radiation

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea CA 92823 • 714-993-6112

Customer: **Cellphone-Mate, Inc.**
Specification: **47 CFR § 27.53(g) Spurious Emissions**
Work Order #: **95353** Date: 2/13/2014
Test Type: **Maximized Emissions** Time: 14:24:31
Equipment: **Mobile Wideband Consumer Signal Booster** Sequence#: 9
Manufacturer: Cellphone-Mate, Inc. Tested By: Don Nguyen
Model: TriFlex-2Go-T
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00010	Preamp	8447D	3/29/2012	3/29/2014
T2	AN00851	Biconilog Antenna	CBL6111C	5/16/2012	5/16/2014
T3	ANP05555	Cable	RG223/U	6/19/2012	6/19/2014
T4	ANP06360	Cable	L1-PNMNM-48	8/29/2012	8/29/2014
T5	ANP04382	Cable	LDF-50	8/30/2012	8/30/2014
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
	AN00787	Preamp	83017A	5/31/2013	5/31/2015
	AN01646	Horn Antenna	3115	4/13/2012	4/13/2014
	AN02945	Cable	32022-2-2909K-36TC	10/30/2013	10/30/2015
	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014
	AN01413	Horn Antenna-ANSI C63.5 (dB/m)	84125-80008	11/9/2012	11/9/2014

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Mobile Wideband Consumer Signal Booster*	Cellphone-Mate, Inc.	TriFlex-2Go-T	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	Agilent	E4433B	US40052164
Signal Generator	Agilent	E4433B	US40053279
Power Divider	Anaren	44000	0583
50 ohm Load	Generic	Generic	NA
Signal Generator	Agilent	E4438C	MY42081492
Programmer	Cellphone-Mate, Inc.	SureCall	NA
Power Supply	SureCall	GFP451DA-0945-1	1308-0000300

Test Conditions / Notes:

The equipment under test (EUT) is placed on the Styrofoam table top. EUT set at maximum gain.
Three remotely located signal generators are connected to power divider. The output of power divider is connected to input of EUT. Port GUI is terminated with supported programmer.

Evaluation of DL path was performed with signal fed into the Outside (Donor) antenna port while Inside (Server) antenna port terminated with 50 Ohm load.
Evaluation of UL path was performed with signal fed into the Inside (Server) antenna port while Outside (Donor) antenna port terminated with 50 Ohm load.

UL 1710-1755
DL 2110-2155

TXFreq = Center frequency of above listed bands.
Modulation: CW
Frequency range of measurement = 9 kHz to 22 GHz.
9kHz-150kHz, RBW=200Hz, VBW=200Hz;150kHz-30MHz, RBW=9kHz, VBW=9kHz; 30MHz-1000MHz, RBW=120kHz,VBW=120kHz; 1000MHz-22000MHz, RBW=1MHz,VBW=1MHz

Temperature: 19°C, Humidity: 39%, Pressure: 100kPa

No emission above 1GHz was found.
Site D

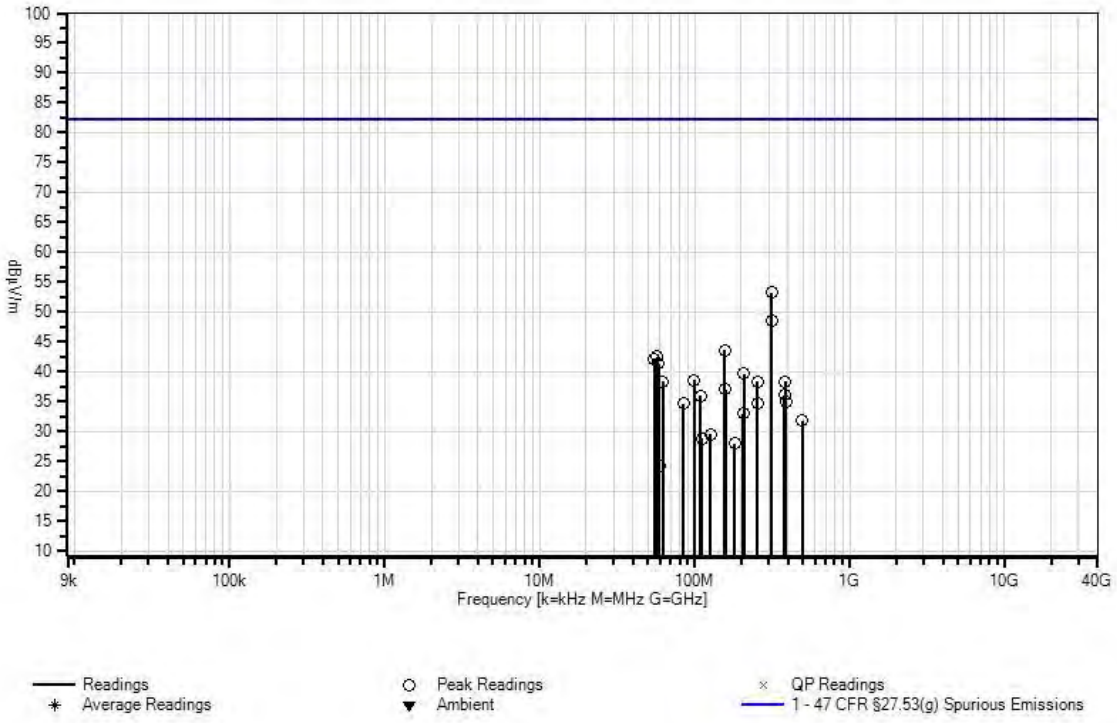
Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	313.700M	62.7	-26.5 +2.1	+13.5	+0.3	+1.1	+0.0	53.2	82.2	-29.0	Horiz
2	312.700M	58.1	-26.5 +2.1	+13.4	+0.3	+1.1	+0.0	48.5	82.2	-33.7	Vert
3	155.980M	57.2	-26.8 +1.5	+10.7	+0.2	+0.8	+0.0	43.6	82.2	-38.6	Vert
4	57.460M	61.7	-27.1 +0.9	+6.4	+0.2	+0.5	+0.0	42.6	82.2	-39.6	Vert
5	54.860M	60.5	-27.1 +0.9	+7.1	+0.2	+0.5	+0.0	42.1	82.2	-40.1	Vert
6	58.660M	60.8	-27.1 +0.9	+6.1	+0.2	+0.5	+0.0	41.4	82.2	-40.8	Vert
7	208.600M	53.9	-26.6 +1.6	+9.6	+0.3	+0.9	+0.0	39.7	82.2	-42.5	Horiz
8	99.202M	53.8	-27.0 +1.2	+9.8	+0.2	+0.6	+0.0	38.6	82.2	-43.6	Vert
9	385.600M	46.3	-27.1 +2.3	+15.2	+0.4	+1.3	+0.0	38.4	82.2	-43.8	Horiz
10	62.260M	57.9	-27.1 +0.9	+5.9	+0.2	+0.5	+0.0	38.3	82.2	-43.9	Vert
11	254.600M	49.0	-26.5 +1.8	+12.7	+0.3	+1.0	+0.0	38.3	82.2	-43.9	Vert

12	157.600M	50.7	-26.8 +1.5	+10.6	+0.2	+0.8	+0.0	37.0	82.2	-45.2	Horiz
13	381.600M	44.1	-27.1 +2.3	+15.1	+0.4	+1.3	+0.0	36.1	82.2	-46.1	Vert
14	109.060M	50.1	-26.9 +1.2	+10.8	+0.2	+0.6	+0.0	36.0	82.2	-46.2	Vert
15	387.700M	42.8	-27.1 +2.3	+15.2	+0.4	+1.3	+0.0	34.9	82.2	-47.3	Vert
16	253.600M	45.5	-26.5 +1.8	+12.6	+0.3	+1.0	+0.0	34.7	82.2	-47.5	Horiz
17	84.553M	51.7	-27.0 +1.0	+8.2	+0.2	+0.6	+0.0	34.7	82.2	-47.5	Vert
18	206.480M	47.4	-26.6 +1.6	+9.4	+0.3	+0.9	+0.0	33.0	82.2	-49.2	Vert
19	492.520M	37.7	-27.8 +2.6	+17.5	+0.4	+1.4	+0.0	31.8	82.2	-50.4	Horiz
20	126.600M	42.5	-26.8 +1.3	+11.6	+0.2	+0.7	+0.0	29.5	82.2	-52.7	Horiz
21	111.250M	42.7	-26.9 +1.2	+11.0	+0.2	+0.7	+0.0	28.9	82.2	-53.3	Horiz
22	181.520M	43.1	-26.7 +1.6	+9.0	+0.2	+0.8	+0.0	28.0	82.2	-54.2	Horiz
23	58.830M	43.7	-27.1 +0.9	+6.1	+0.2	+0.5	+0.0	24.3	82.2	-57.9	Horiz

CKC Laboratories Inc Date: 2/13/2014 Time: 14:24:31 Cellphone-Mate, Inc. WO#: 95353
47 CFR §27.53(g) Spurious Emissions Test Distance: 3 Meters Sequence#: 9 Ext ATTN: 0 dB



Test Data

LIMIT LINE FOR SPURIOUS RADIATED EMISSION

REQUIRED ATTENUATION = 43+10 LOG P (DB)

For radiated spurious emission measured at 3 meter test distance,

Required attenuation = 43+10 Log $P_{t\ at\ 3\ meter}$ dB
Limit line (dBuV) = E_{dBuv} - Attenuation

E_{dBuv} = Measured field strength at 3 meter in dBuV/m

Power Density (Isotropic)

$$P_D = \frac{P_t}{4\pi r^2}$$

P_D = Power Density in Watts /m^2
Pt = Average Transmit Power
r = Test distance

Field Intensity E (V/m)

$$E = \sqrt{P_D \times 377}$$

$$E = \frac{\sqrt{P_t \times 377}}{4\pi r^2}$$

$$E = \sqrt{\frac{P_t \times 30}{r^2}}$$

$$P_t = \left(\frac{E^2 \text{ x } r^2}{30} \right)$$

10 Log P_t = 10 Log E^2 (V/m)+ 10 Log r^2 – 10 Log 30

10 Log P_t = 20 Log E (V/m) + 20 Log r – 10 Log 30

At 3 meter, r = 3 m

10 Log P_t = 20 Log E (V/m) + 20 Log 3 – 10 Log 30

10 Log P_t = 20 Log E (V/m) + 9.54 – 14.77

10 Log P_t = 20 Log E (V/m) - 5.23

Since 20 Log E (V/m) = 20 Log E (uV/m) –120

10 Log P_t = 20 Log E (uV/m) - 120 - 5.23

10 Log P_t = 20 Log E (uV/m) –125.23

Limit line (dBuV) at 3 meter = E_{dBuv} – Attenuation

= E_{dBuv} - (43+10 Log $P_{t \text{ at 3 meter}}$)

= E_{dBuv} - 43 - 10 Log $P_{t \text{ at 3 meter}}$

= E_{dBuv} - 43 – (20 Log E (uV/m) –125.23)

= E_{dBuv} - 43 - 20 Log E (uV/m) + 125.23

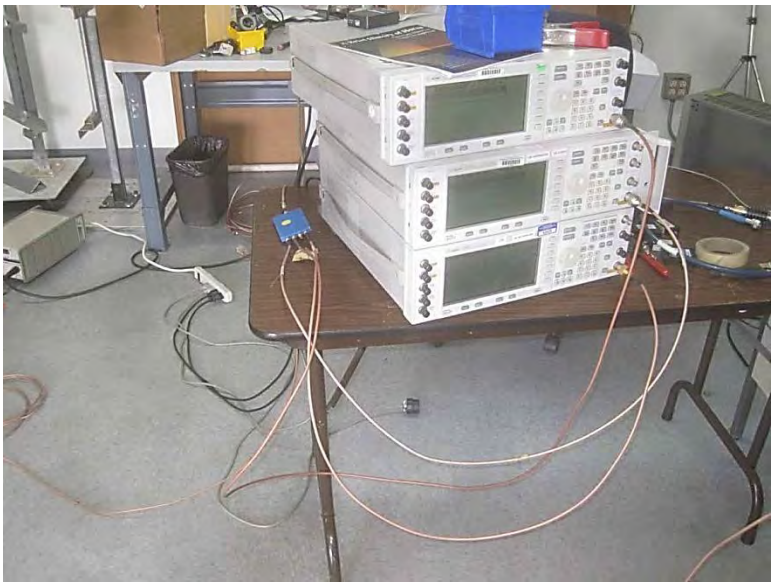
= E_{dBuv} - 20 Log E (uV/m) + 82.23

Since 20 Log E (uV/m) = E in dBuV/m

= ~~E_{dBuv}~~ - ~~E_{dBuv}~~ + 82.23

Radiated Emission limit 3 meter = 82.23 dBuV at any power level measured in dBuV

Test Setup Photo(s)



2.1055(a)(d) Frequency Stability

Test Engineer:	Don Nguyen	**Test Procedure:**	2.1055(a)(d) / 27.54
Test Level:	NA		
Declarations: Frequency stability does not apply to this type of equipment.			

SUPPLEMENTAL INFORMATION

Measurement Uncertainty

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

The reported measurement uncertainties are calculated based on the worst case of all laboratory environments from CKC Laboratories, Inc. test sites. Only those parameters which require estimation of measurement uncertainty are reported. The reported worst case measurement uncertainty is less than the maximum values derived in CISPR 16-4-2. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Compliance is deemed to occur provided measurements are below the specified limits.

Emissions Test Details

TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula. This reading was then compared to the applicable specification limit.

SAMPLE CALCULATIONS		
	Meter reading	(dBµV)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or carrot ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.