




RF TEST REPORT



Report No.: 14050064-FCC-R1

Supersede Report No.: N/A

Applicant	Micron Electronics LLC.	
Product Name	CDMA/GPS Tracker	
Model No.	ATC	
Serial No.	N/A	
Test Standard	FCC Part 22(H). FCC Part 24(E): 2014; ANSI/TIA C63-D: 2010	
Test Date	December 26, 2014 to January 22, 2015	
Issue Date	January 22, 2015	
Test Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	
Equipment complied with the specification	<input checked="" type="checkbox"/>	
Equipment did not comply with the specification	<input type="checkbox"/>	
		
Winnie Zhang Test Engineer	Alex Liu Checked By	
<p>This test report may be reproduced in full only Test result presented in this test report is applicable to the tested sample only</p>		

Issued by:

SIEMIC (SHENZHEN-CHINA) LABORATORIES

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Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

Test Report	14050064-FCC-R1
Page	3 of 40

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CONTENTS

1. REPORT REVISION HISTORY	5
2. CUSTOMER INFORMATION	5
3. TEST SITE INFORMATION.....	5
4. EQUIPMENT UNDER TEST (EUT) INFORMATION	6
5. TEST SUMMARY	7
6. MEASUREMENTS, EXAMINATION AND DERIVED RESULTS	8
6.1 RF EXPOSURE (SAR).....	8
6.2 RF OUTPUT POWER	9
6.3 PEAK-AVERAGE RATIO.....	12
6.4 MODULATION CHARACTERISTIC.....	14
6.5 OCCUPIED BANDWIDTH.....	15
6.6 SPURIOUS EMISSIONS AT ANTENNA TERMINALS	18
6.7 SPURIOUS RADIATED EMISSIONS	21
6.8 BAND EDGE.....	24
6.9 FREQUENCY STABILITY	27
ANNEX A. TEST INSTRUMENT.....	30
ANNEX B. EUT AND TEST SETUP PHOTOGRAPHS.....	31
ANNEX C. TEST SETUP AND SUPPORTING EQUIPMENT.....	36
ANNEX C.II. EUT OPERATING CONKITIONS	38
ANNEX D. USER MANUAL / BLOCK DIAGRAM / SCHEMATICS / PARTLIST	39
ANNEX E. DECLARATION OF SIMILARITY.....	40

1. Report Revision History

Report No.	Report Version	Description	Issue Date
14050064-FCC-R1	NONE	Original	January 22, 2015

2. Customer information

Applicant Name	Micron Electronics LLC.
Applicant Add	1001 Yamato Road, Suite 400, Boca Raton, FL 33431, USA
Manufacturer	Micron Electronics LLC.
Manufacturer Add	1001 Yamato Road, Suite 400, Boca Raton, FL 33431, USA

3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES
Lab Address	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108
FCC Test Site No.	718246
IC Test Site No.	4842E-1
Test Software	LabView of SIEMIC version 2.0

4. Equipment under Test (EUT) Information

Description of EUT:	CDMA/GPS Tracker
Main Model:	ATC
Serial Model:	N/A
Date EUT received:	December 18, 2014
Test Date(s):	December 26, 2014 to January 22, 2015
Equipment Category :	PCE
Antenna Gain:	Cellular CDMA: -5.0 dBi PCS CDMA: -4.0 dBi
Type of Modulation:	QPSK
RF Operating Frequency (ies):	Cellular CDMA TX: 824.7 ~ 848.37 MHz; RX: 869.7 ~ 893.37 MHz PCS CDMA TX: 1851.25 ~ 1908.75 MHz; RX: 1931.25 ~ 1988.75 MHz
Maximum Conducted AV Power to Antenna:	Cellular CDMA: 25.24 dBm PCS1900: 23.69 dBm
ERP/EIRP:	Cellular CDMA: 17.79 dBm / ERP PCS CDMA: 17.07 dBm / EIRP
Port:	USB Port
Input Power:	Adapter : Model : K05100-3 Input : 100~240V 50/60Hz 0.3A Output : 5V 1000mA Battery: Model : P21-2000 Spec: 3.7V 2000mAh
Trade Name :	Prime
FCC ID:	2KQ-ATC

5. Test Summary

The product was tested in accordance with the following specifications.

All testing has been performed according to below product classification:

FCC Rules	Description of Test	Result
§ 1.1307; § 2.1093	RF Exposure (SAR)	Compliance
§2.1046; § 22.913(a); § 24.232(c);	RF Output Power	Compliance
§ 24.232 (d);	Peak-Average Ratio	Compliance
§ 2.1047	Modulation Characteristics	Compliance
§ 2.1049; § 22.905; § 22.917; § 24.238;	99% & -26 dB Occupied Bandwidth	Compliance
§ 2.1051; § 22.917(a); § 24.238(a);	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; § 22.917(a); § 24.238(a);	Field Strength of Spurious Radiation	Compliance
§ 22.917(a); § 24.238(a);	Out of band emission, Band Edge	Compliance
§ 2.1055; § 22.355; § 24.235;	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance

Note: Testing was performed by configuring EUT to maximum output power status, the declared output power class for different

Measurement Uncertainty

Emissions		
Test Item	Description	Uncertainty
Band Edge and Radiated Spurious Emissions	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	+5.6dB/-4.5dB
-	-	-

6. MEASUREMENTS, EXAMINATION AND DERIVED RESULTS

6.1 RF Exposure (SAR)

Test Result: Pass

The EUT is a portable device, thus requires SAR evaluation;

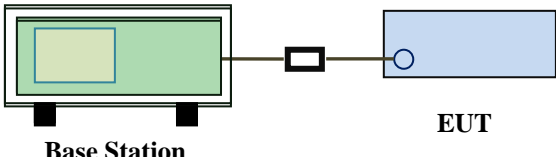
Please refer to RF Exposure Evaluation Report: 14050064-FCC-H.

6.2 RF Output Power

Temperature	22°C
Relative Humidity	61%
Atmospheric Pressure	1008mbar
Test date :	January 05, 2015
Tested By :	Winnie Zhang

Requirement(s):

Spec	Item	Requirement	Applicable
§22.913 (a)	a)	ERP:38.45dBm	<input checked="" type="checkbox"/>
§24.232 (c)	b)	EIRP:33dBm	<input checked="" type="checkbox"/>

Test Setup	 <p style="text-align: center;">Base Station EUT</p>
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Test Procedure	<p>For Conducted Power:</p> <ul style="list-style-type: none"> - The transmitter output port was connected to base station. - Set EUT at maximum power through base station. - Select lowest, middle, and highest channels for each band and different test mode. <p>For ERP/EIRP:</p> <ul style="list-style-type: none"> - The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable. - The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis. - The frequency range up to tenth harmonic of the fundamental frequency was investigated. - Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-
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	<p>radiating cable. The absolute levels of the spurious emissions were measured by the substitution.</p> <ul style="list-style-type: none"> - Spurious emissions in dB = 10 log (TX power in Watts/0.001) – the absolute level - Spurious attenuation limit in dB = 43 + 10 Log10 (power out in Watts).
Remark	
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

Test Data Yes N/A

Test Plot Yes (See below) N/A

Conducted Power

1x RTT Mode:

Burst Average Power (dBm);								
Band	Cellular				PCS			
Channel	1013	384	779	Tune up Power tolerant	25	600	1175	Tune up Power tolerant
Frequency (MHz)	824.7	836.5	848.37	/	1851.25	1880	1908.75	/
1x RTT	25.24	25.22	25.11	24.5±1	23.16	23.36	23.69	23.5±1

ERP & EIRP

ERP for Cellular Band (Part 22H)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
824.7	11.05	V	6.8	0.53	17.32	38.45
824.7	11.52	H	6.8	0.53	17.79	38.45
836.5	10.99	V	6.8	0.53	17.26	38.45
836.5	11.21	H	6.8	0.53	17.48	38.45
848.37	11.14	V	6.9	0.53	17.51	38.45
848.37	11.19	H	6.9	0.53	17.56	38.45

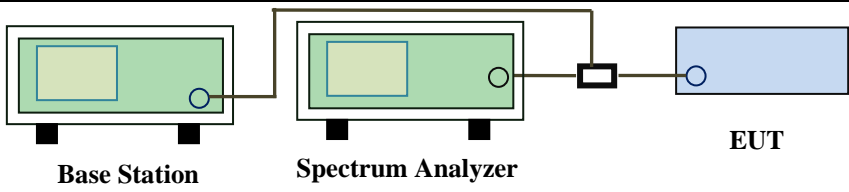
EIRP for PCS Band (Part 24E)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1851.25	10.04	V	7.88	0.85	17.07	33
1851.25	9.95	H	7.88	0.85	16.98	33
1880	10.02	V	7.88	0.85	17.05	33
1880	9.89	H	7.88	0.85	16.92	33
1908.75	9.91	V	7.86	0.85	16.92	33
1908.75	9.74	H	7.86	0.85	16.75	33

6.3 Peak-Average Ratio

Temperature	22°C
Relative Humidity	61%
Atmospheric Pressure	1008mbar
Test date :	January 05, 2015
Tested By :	Winnie Zhang

Requirement(s):

Spec	Item	Requirement	Applicable
§24.232(d)	a)	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.	<input checked="" type="checkbox"/>
Test Setup	 <p>The diagram shows a Base Station (green box) connected to a Spectrum Analyzer (green box) via a cable. The Spectrum Analyzer is then connected to the EUT (blue box) via another cable. Labels 'Base Station', 'Spectrum Analyzer', and 'EUT' are placed below their respective boxes.</p>		
Test Procedure	<p>According with KDB 971168</p> <ol style="list-style-type: none"> 1. The signal analyzer' s CCDF measurement profile is enabled 2. Frequency = carrier center frequency 3. Measurement BW > Emission bandwidth of signal 4. The signal analyzer was set to collect one million samples to generate the CCDF curve 5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal “ RF Burst” trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the “ on time” of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power 		
Remark			
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		

Test Data Yes N/A
 Test Plot Yes (See below) N/A

1x RTT Mode:

PCS Band

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1851.25	24.53	23.16	1.37
1880	26.06	23.36	2.7
1908.75	25.47	23.69	1.78

Test Report	14050064-FCC-R1
Page	14 of 40

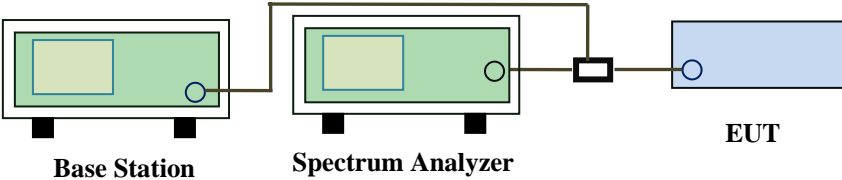
6.4 Modulation Characteristic

According to FCC § 2.1047(d), Part 22H, 24E there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

6.5 Occupied Bandwidth

Temperature	21°C
Relative Humidity	60%
Atmospheric Pressure	1010mbar
Test date :	December 29, 2014 to January 22, 2015
Tested By :	Winnie Zhang

Requirement(s):

Spec	Item	Requirement	Applicable
§2.1049, §22.917, §22.905 §24.238	a)	99% Occupied Bandwidth(kHz)	<input checked="" type="checkbox"/>
	b)	26 dB Bandwidth(kHz)	<input checked="" type="checkbox"/>
Test Setup	 <p style="text-align: center;">Base Station Spectrum Analyzer EUT</p>		
Test Procedure	<ul style="list-style-type: none"> - The EUT was connected to Spectrum Analyzer and Base Station via power divider. - The 99% and 26 dB occupied bandwidth (BW) of the middle channel for the highest RF powers. 		
Remark			
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		

Test Data Yes N/A

Test Plot Yes (See below) N/A

1x RTT Mode:

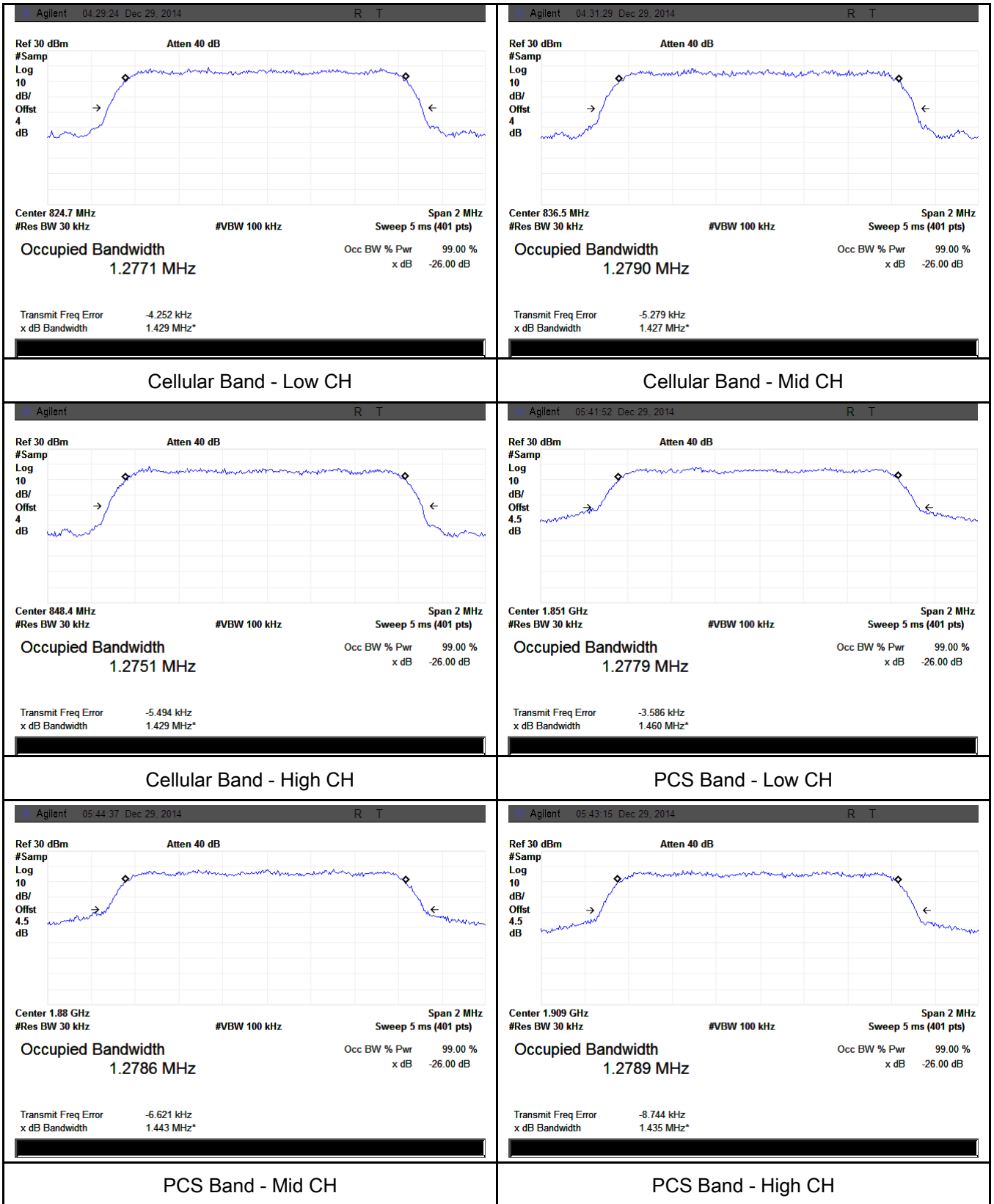
Cellular Band (Part 22H) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1013	824.7	1.2771	1.429
384	836.5	1.2790	1.472
779	848.37	1.2751	1.429

PCS Band (Part 24E) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
25	1851.25	1.2779	1.460
600	1880.0	1.2786	1.443
1175	1908.75	1.2789	1.435

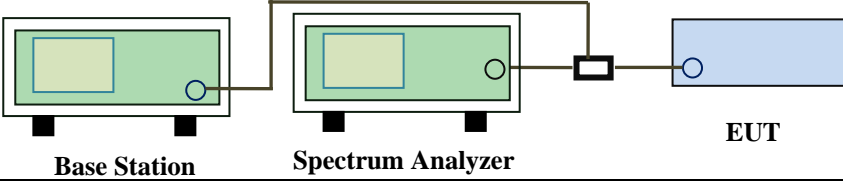
Test Plots



6.6 Spurious Emissions at Antenna Terminals

Temperature	21°C
Relative Humidity	59%
Atmospheric Pressure	1009mbar
Test date :	December 26, 2014
Tested By :	Winnie Zhang

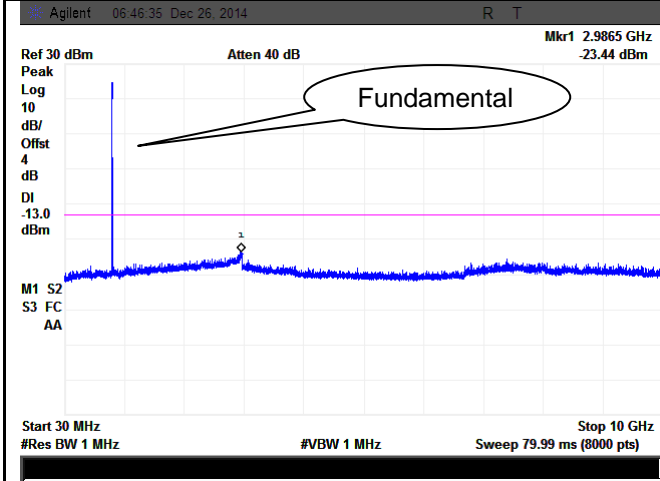
Requirement(s):

Spec	Item	Requirement	Applicable
§2.1051, §22.917(a)& §24.238(a)	a)	The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB	<input checked="" type="checkbox"/>
Test Setup	 <p>The diagram illustrates the test setup. On the left is a green box labeled 'Base Station'. In the middle is another green box labeled 'Spectrum Analyzer'. On the right is a blue box labeled 'EUT'. A power divider is connected between the Spectrum Analyzer and the EUT. The Base Station is connected to the Spectrum Analyzer.</p>		
Test Procedure	<ul style="list-style-type: none"> - The EUT was connected to Spectrum Analyzer and Base Station via power divider. - The Band Edges of low and high channels for the highest RF powers were measured. - Setting RBW as roughly BW/100. 		
Remark			
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		

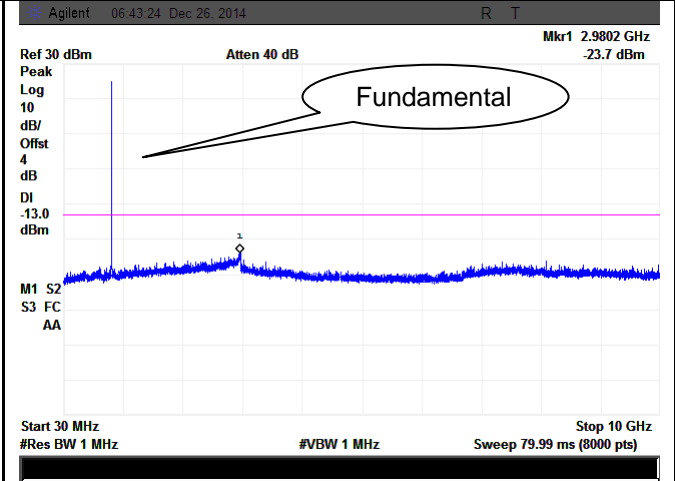
Test Data Yes N/A
 Test Plot Yes (See below) N/A

Test Plots

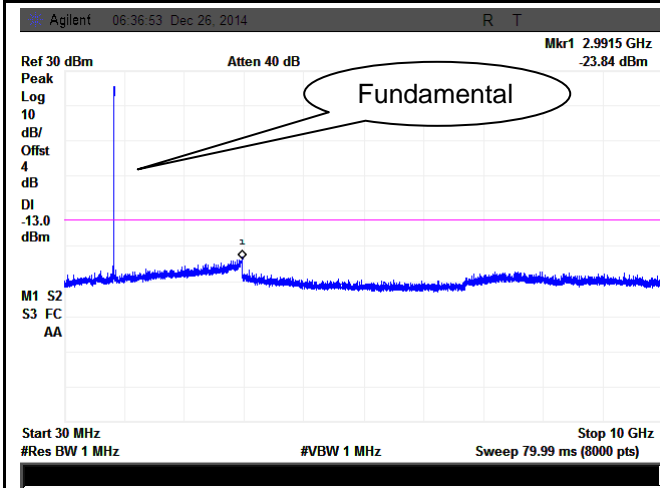
Cellular Band (Part 22H) result



Cellular Band - Low Channel



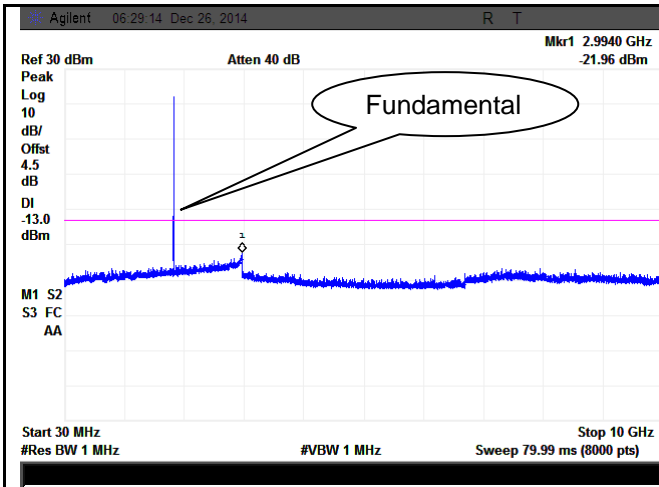
Cellular Band Middle Channel



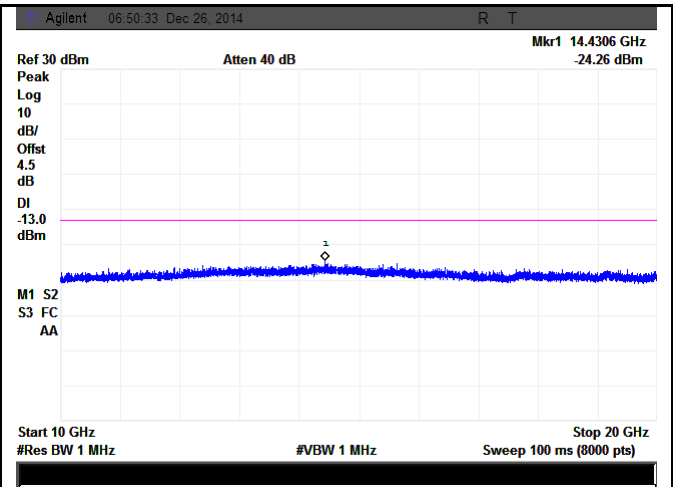
Cellular Band - High Channel



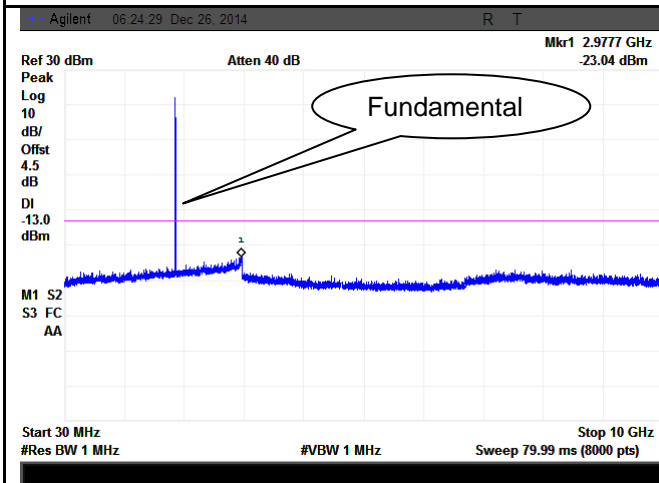
PCS Band (Part24E) result



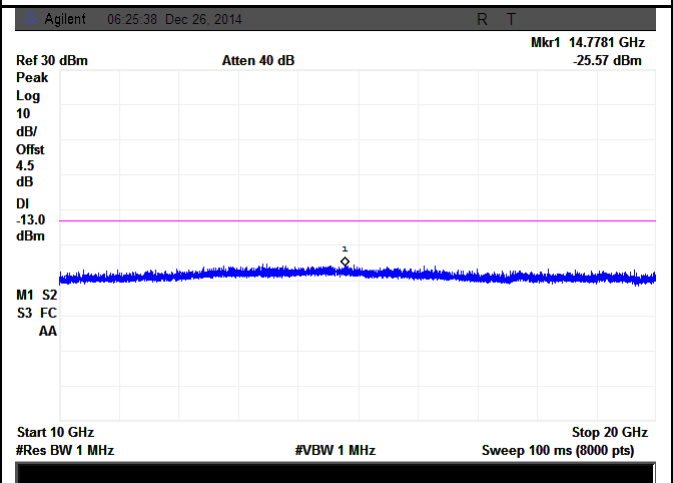
PCS Band - Low Channel-1



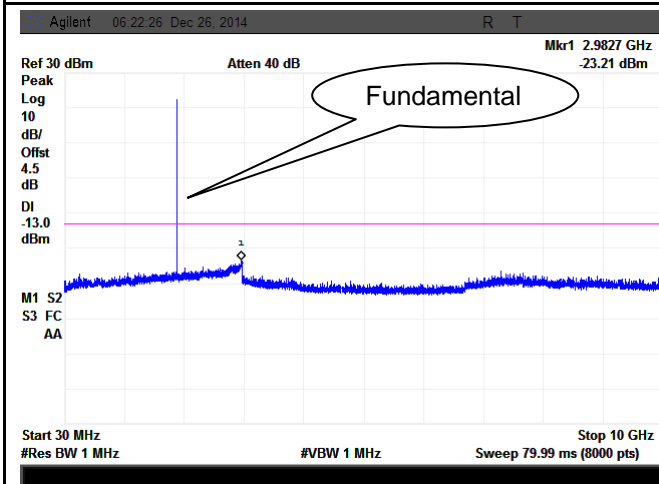
PCS Band - Low Channel-2



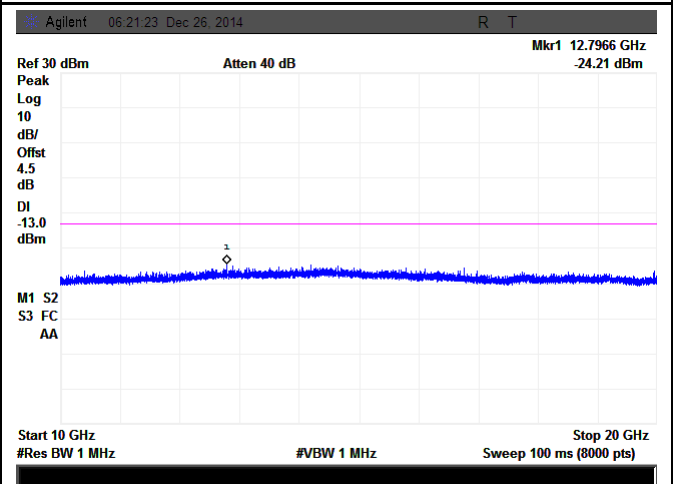
PCS Band - Middle Channel-1



PCS Band - Middle Channel-2



PCS Band - High Channel-1



PCS Band - High Channel-2

6.7 Spurious Radiated Emissions

Temperature	21°C
Relative Humidity	60%
Atmospheric Pressure	1011mbar
Test date :	January 07, 2015
Tested By :	Winnie Zhang

Requirement(s):

Spec	Item	Requirement	Applicable
§2.1053, §22.917 & §24.238	a)	The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.	<input checked="" type="checkbox"/>

Test setup	<p>The diagram illustrates the test setup. On the left, 'EUT & Support Units' are placed on a 'Turn Table' which sits on a 'Ground Plane' at a height of '80cm'. A horizontal distance of '3m' is marked between the turntable and the 'Ant. Tower'. The antenna tower is labeled '1-4m Variable'. A 'Test Receiver' is connected to the antenna tower.</p>
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Test Procedure	<ol style="list-style-type: none"> The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution. Sample Calculation: EUT Field Strength = Raw Amplitude (dBµV/m) – Amplifier Gain (dB) + Antenna Factor (dB) + Cable Loss (dB) + Filter Attenuation (dB, if used)
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Remark	
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Result	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
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Test Data Yes N/A

Test Plot Yes (See below) N/A

Cellular Band (Part 22H) result

Low channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1649.4	-44.82	V	7.95	0.78	-37.65	-13	-24.65
1649.4	-43.96	H	7.95	0.78	-36.79	-13	-23.79
330.2	-54.05	V	6.5	0.27	-47.82	-13	-34.82
591.7	-49.68	H	6.7	0.37	-43.35	-13	-30.35

Middle channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1673	-45.17	V	7.95	0.78	-38	-13	-25
1673	-44.32	H	7.95	0.78	-37.15	-13	-24.15
328.5	-53.84	V	6.5	0.27	-47.61	-13	-34.61
588.6	-48.73	H	6.7	0.37	-42.4	-13	-29.4

High channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1696.7	-45.01	V	7.95	0.78	-37.84	-13	-24.84
1696.7	-44.12	H	7.95	0.78	-36.95	-13	-23.95
329.3	-54.77	V	6.5	0.27	-48.54	-13	-35.54
592.4	-49.06	H	6.7	0.37	-42.73	-13	-29.73

PCS Band (Part24E) result

Low channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
3702.5	-49.26	V	10.25	2.73	-41.74	-13	-28.74
3702.5	-48.72	H	10.25	2.73	-41.2	-13	-28.2
331.5	-55.23	V	6.5	0.27	-49	-13	-36
590.7	-50.74	H	6.7	0.37	-44.41	-13	-31.41

Middle channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
3760	-48.75	V	10.25	2.73	-41.23	-13	-28.23
3760	-49.12	H	10.25	2.73	-41.6	-13	-28.6
331.1	-55.39	V	6.5	0.27	-49.16	-13	-36.16
592.2	-49.79	H	6.7	0.37	-43.46	-13	-30.46

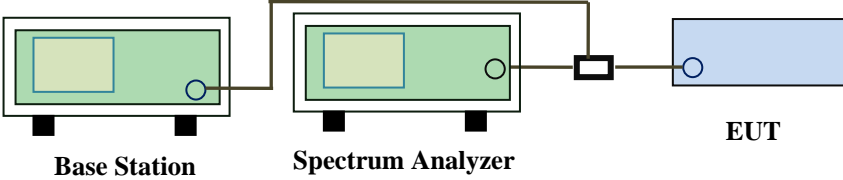
High channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
3817.5	-48.94	V	10.36	2.73	-41.31	-13	-28.31
3817.5	-48.72	H	10.36	2.73	-41.09	-13	-28.09
331.4	-54.73	V	6.5	0.27	-48.5	-13	-35.5
592.6	-49.71	H	6.7	0.37	-43.38	-13	-30.38

6.8 Band Edge

Temperature	21°C
Relative Humidity	60%
Atmospheric Pressure	1010mbar
Test date :	December 29, 2014 to January 22, 2015
Tested By :	Winnie Zhang

Requirement(s):

Spec	Item	Requirement	Applicable
§22.917(a) §24.238(a)	a)	The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.	<input checked="" type="checkbox"/>
Test setup	 <p>The diagram shows a Base Station (green box) connected to a Spectrum Analyzer (green box) and an EUT (blue box) via a power divider. The Base Station and Spectrum Analyzer are connected to each other, and the Spectrum Analyzer is connected to the power divider, which then splits the signal to the EUT.</p>		
Procedure	<ul style="list-style-type: none"> - The EUT was connected to Spectrum Analyzer and Base Station via power divider. - The Band Edges of low and high channels for the highest RF powers were measured. Setting RBW as roughly BW/100. 		
Remark			
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		

Test Data Yes N/A

Test Plot Yes (See below) N/A

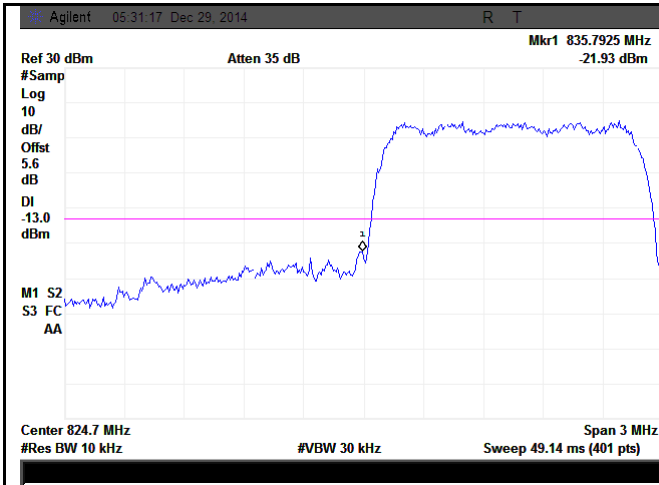
Cellular Band (Part 22H) result

Frequency (MHz)	Emission (dBm)	Limit (dBm)
824.7	-21.93	-13
848.37	-22.06	-13

PCS Band (Part 24E) result

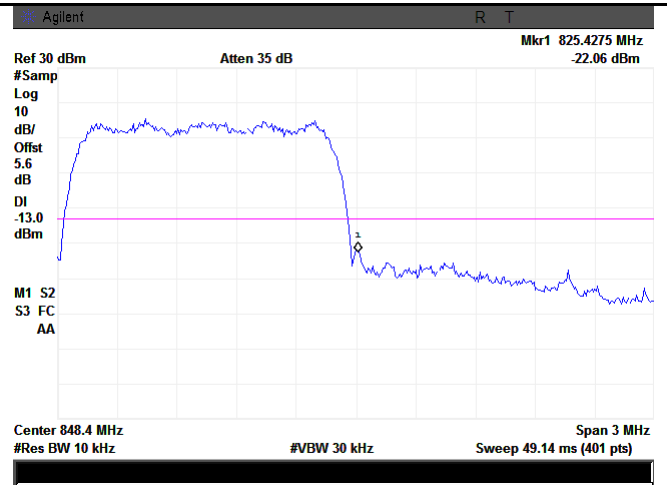
Frequency (MHz)	Emission (dBm)	Limit (dBm)
1851.25	-13.88	-13
1908.75	-15.06	-13

Test Plots



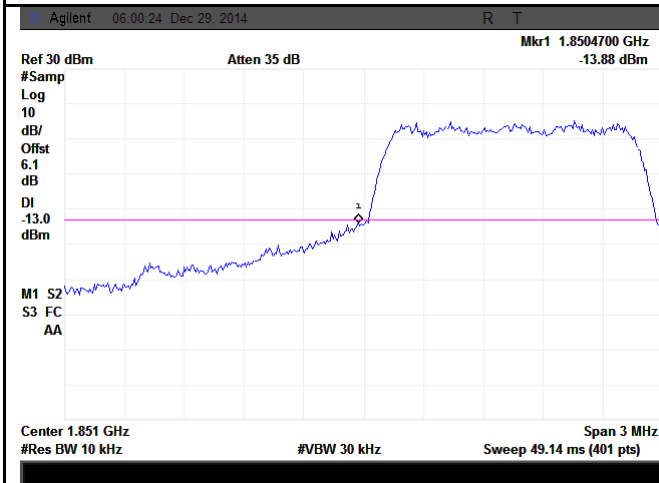
Cellular Band - Low Channel

Note: Offset=Cable loss (4.0) + 10log
(1.429)=4.0+1.6=5.6 dB



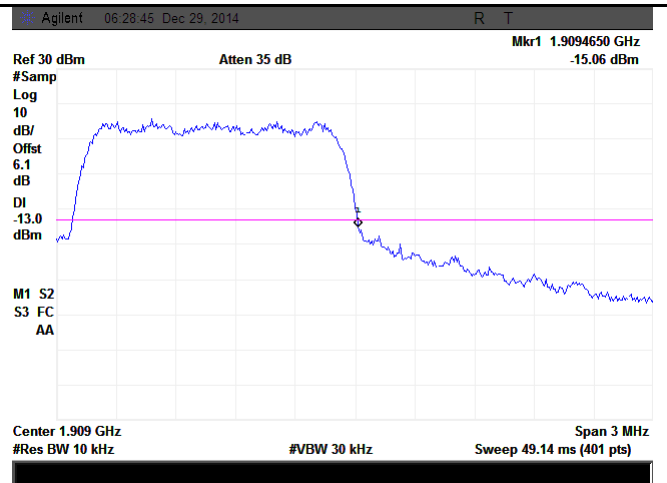
Cellular Band - High Channel

Note: Offset=Cable loss (4.0) + 10log
(1.429)=4.0+1.6=5.6 dB



PCS Band - Low Channel

Note: Offset=Cable loss (4.5) + 10log
(1.460)=4.5+1.6=6.1 dB



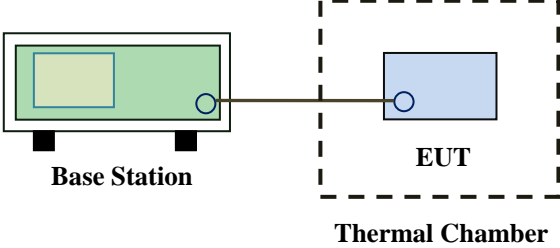
PCS Band - High Channel

Note: Offset=Cable loss (4.5) + 10log
(1.435)=4.5+1.6=6.1 dB

6.9 Frequency Stability

Temperature	21°C
Relative Humidity	59%
Atmospheric Pressure	1009mbar
Test date :	December 26, 2014
Tested By :	Winnie Zhang

Requirement(s):

Spec	Item	Requirement	Applicable																																
§2.1055, §22.355 & §24.235	a)	<p>According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:</p> <p>Frequency Tolerance for Transmitters in the Public Mobile Services</p> <table border="1"> <thead> <tr> <th>Frequency Range (MHz)</th> <th>Base, fixed (ppm)</th> <th>Mobile ≤ 3 watts (ppm)</th> <th>Mobile ≤ 3 watts (ppm)</th> </tr> </thead> <tbody> <tr> <td>25 to 50</td> <td>20.0</td> <td>20.0</td> <td>50.0</td> </tr> <tr> <td>50 to 450</td> <td>5.0</td> <td>5.0</td> <td>50.0</td> </tr> <tr> <td>450 to 51</td> <td>2.5</td> <td>5.</td> <td>5.0</td> </tr> <tr> <td>821 to 896</td> <td>1.5</td> <td>2.5</td> <td>2.5</td> </tr> <tr> <td>928 to 929.</td> <td>5 0</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>929 to 960.</td> <td>1.5</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>2110 to 2220</td> <td>10.0</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table> <p>According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized frequency block.</p>	Frequency Range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile ≤ 3 watts (ppm)	25 to 50	20.0	20.0	50.0	50 to 450	5.0	5.0	50.0	450 to 51	2.5	5.	5.0	821 to 896	1.5	2.5	2.5	928 to 929.	5 0	N/A	N/A	929 to 960.	1.5	N/A	N/A	2110 to 2220	10.0	N/A	N/A	<input checked="" type="checkbox"/>
		Frequency Range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile ≤ 3 watts (ppm)																														
		25 to 50	20.0	20.0	50.0																														
		50 to 450	5.0	5.0	50.0																														
		450 to 51	2.5	5.	5.0																														
		821 to 896	1.5	2.5	2.5																														
		928 to 929.	5 0	N/A	N/A																														
		929 to 960.	1.5	N/A	N/A																														
2110 to 2220	10.0	N/A	N/A																																
Test setup	 <p>The diagram illustrates the test setup. On the left, a green rectangular box labeled 'Base Station' is shown. A line connects it to a blue rectangular box labeled 'EUT' (Equipment Under Test) which is enclosed within a dashed-line box labeled 'Thermal Chamber'.</p>																																		

Test Report	14050064-FCC-R1
Page	28 of 40

Procedure	A communication link was established between EUT and base station. The frequency error was monitored and measured by base station under variation of ambient temperature and variation of primary supply voltage. Limit: The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.
Remark	
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

Test Data Yes N/A

Test Plot Yes (See below) N/A

Cellular Band (Part 22H) result

Middle Channel, $f_0 = 836.52$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	19	0.0227	2.5
0		18	0.0215	2.5
10		16	0.0191	2.5
20		9	0.0108	2.5
30		14	0.0167	2.5
40		21	0.0251	2.5
50		24	0.0287	2.5
55		31	0.0371	2.5
25	4.2	20	0.0239	2.5
	3.5	22	0.0263	2.5

PCS Band (Part 22H) result

Middle Channel, $f_0 = 1880$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	27	0.0144	2.5
0		19	0.0101	2.5
10		17	0.0090	2.5
20		11	0.0059	2.5
30		17	0.0090	2.5
40		22	0.0117	2.5
50		25	0.0133	2.5
55		27	0.0144	2.5
25	4.2	21	0.0112	2.5
	3.5	24	0.0128	2.5

Annex A. TEST INSTRUMENT

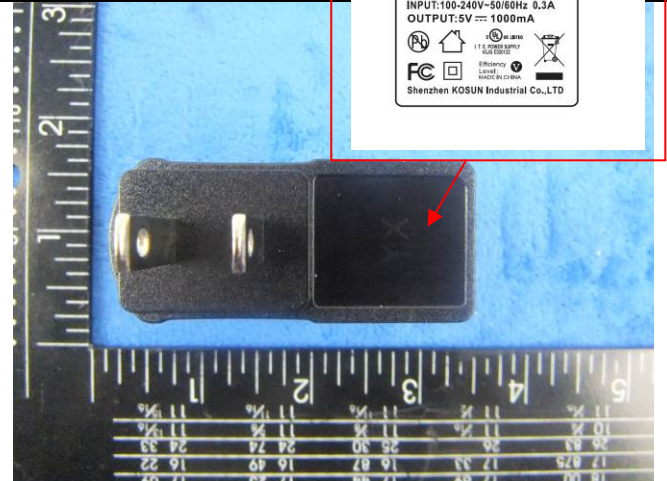
Instrument	Model	Serial #	Cal Date	Cal Due	In use
RF Conducted Test					
Agilent ESA-E SERIES SPECTRUM ANALYZER	E4407B	MY45108319	09/17/2014	09/16/2015	<input checked="" type="checkbox"/>
Power Splitter	1#	1#	09/02/2014	09/01/2015	<input checked="" type="checkbox"/>
Universal Radio Communication Tester	CMU200	121393	09/26/2014	09/25/2015	<input checked="" type="checkbox"/>
Temperature/Humidity Chamber	UHL-270	001	10/10/2014	10/09/2015	<input checked="" type="checkbox"/>
DC Power Supply	E3640A	MY40004013	09/18/2014	09/17/2015	<input checked="" type="checkbox"/>
Radiated Emissions					
EMI test receiver	ESL6	100262	09/18/2014	09/17/2015	<input checked="" type="checkbox"/>
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	09/02/2014	09/01/2015	<input checked="" type="checkbox"/>
Microwave Preamplifier (0.5 ~ 18GHz)	PAM-118	443008	09/02/2014	09/01/2015	<input checked="" type="checkbox"/>
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/22/2014	09/21/2015	<input checked="" type="checkbox"/>
Bilog Antenna (30MHz~2GHz)	JB1	A112017	09/22/2014	09/21/2015	<input checked="" type="checkbox"/>
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71259	09/25/2014	09/24/2015	<input checked="" type="checkbox"/>
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71283	09/25/2014	09/24/2015	<input checked="" type="checkbox"/>
SYNTHESIZED SIGNAL GENERATOR	8665B	3744A01293	09/18/2014	09/17/2015	<input checked="" type="checkbox"/>
Tunable Notch Filter	3NF-800/1000-S	AA4	09/02/2014	09/01/2015	<input checked="" type="checkbox"/>
Tunable Notch Filter	3NF-1000/2000-S	AM 4	09/02/2014	09/01/2015	<input checked="" type="checkbox"/>

Annex B. EUT And Test Setup Photographs

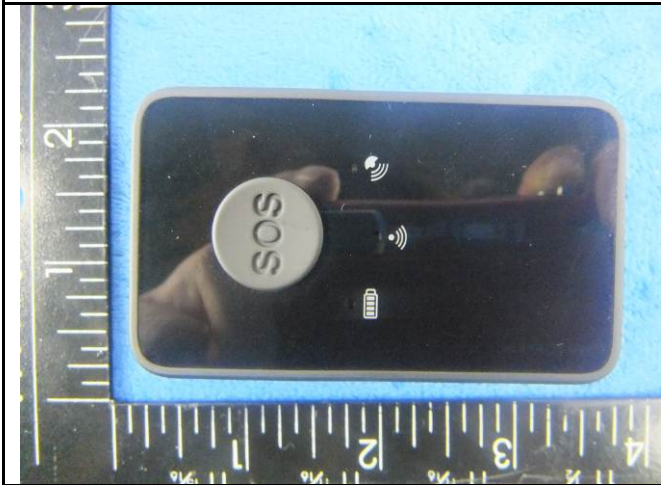
Annex B.i. Photograph: EUT External Photo



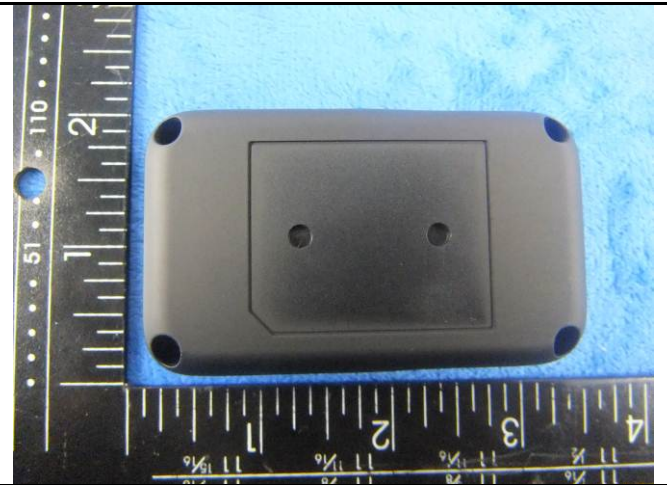
Whole Package - Front View



Adapter - Front View



EUT - Front View



EUT - Rear View



EUT - Top View



EUT - Bottom View

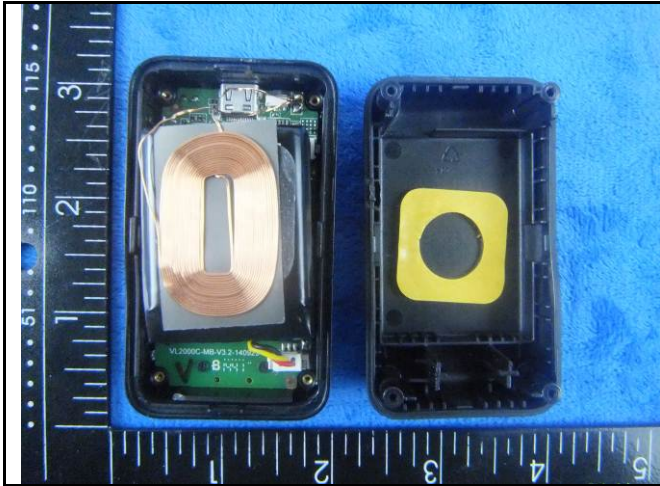


EUT - Left View

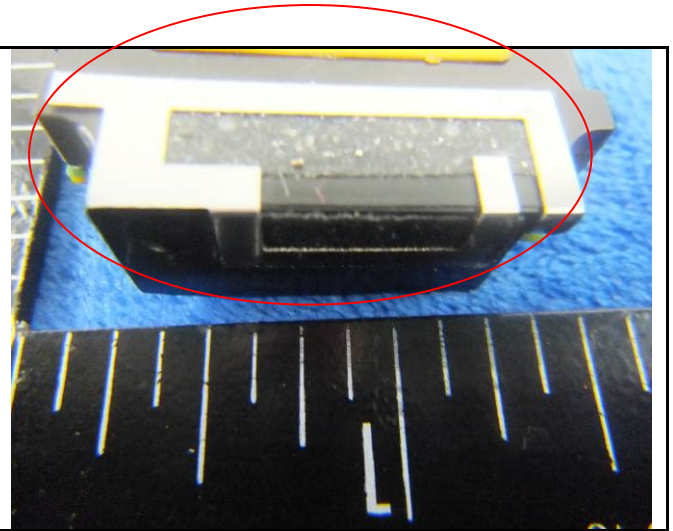


EUT - Right View

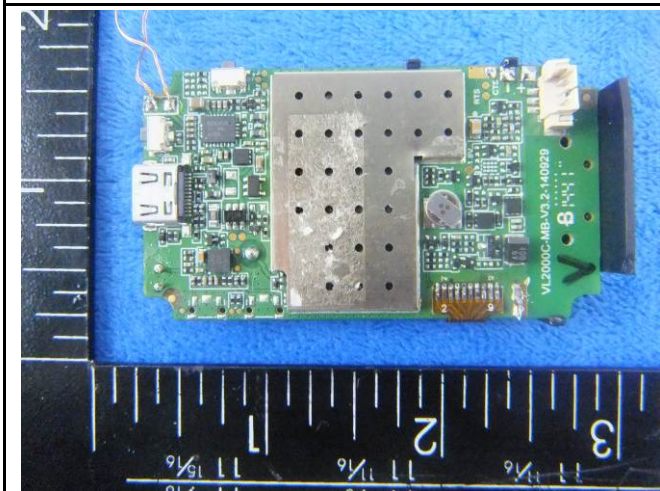
Annex B.ii. Photograph: EUT Internal Photo



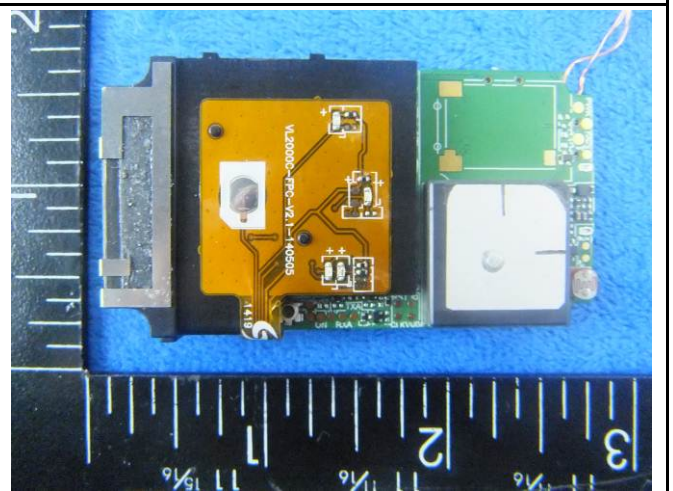
Cover Off - Top View



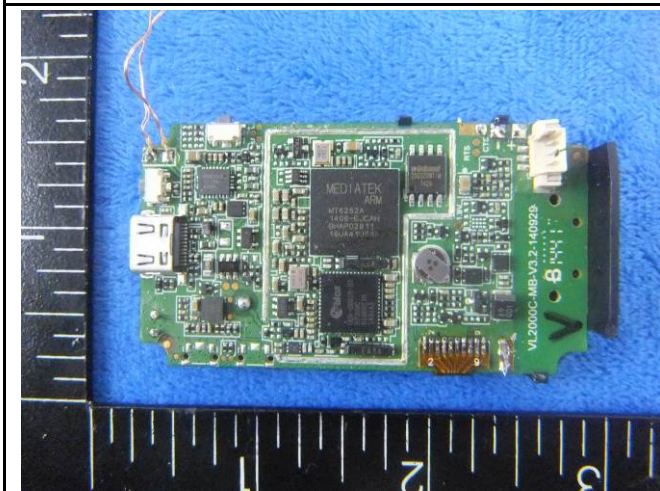
Antenna View



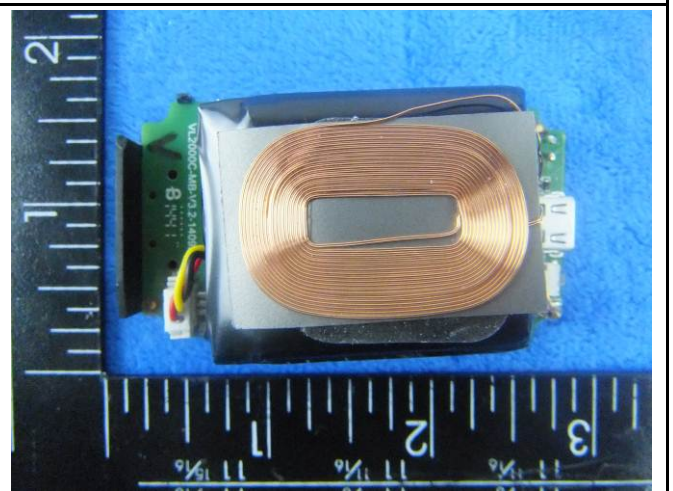
Mainboard with Shielding- Front View



Mainboard - Rear View



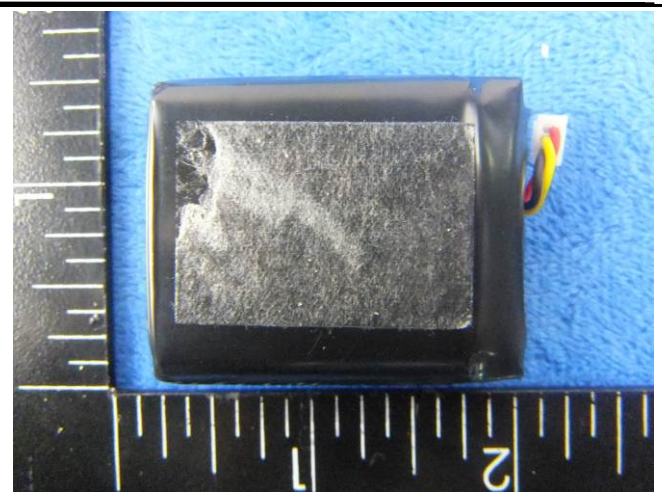
Mainboard without Shielding- Front View



Coil - Front View

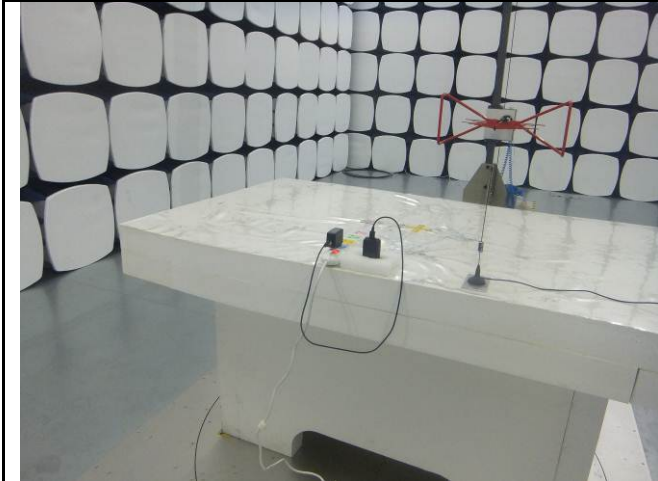


Battery - Front View

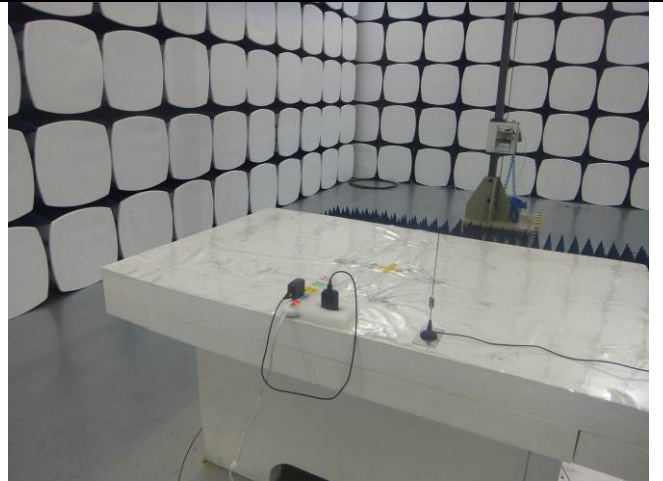


Battery - Rear View

Annex B.iii. Photograph: Test Setup Photo



Radiated Spurious Emissions Test Setup Below 1GHz

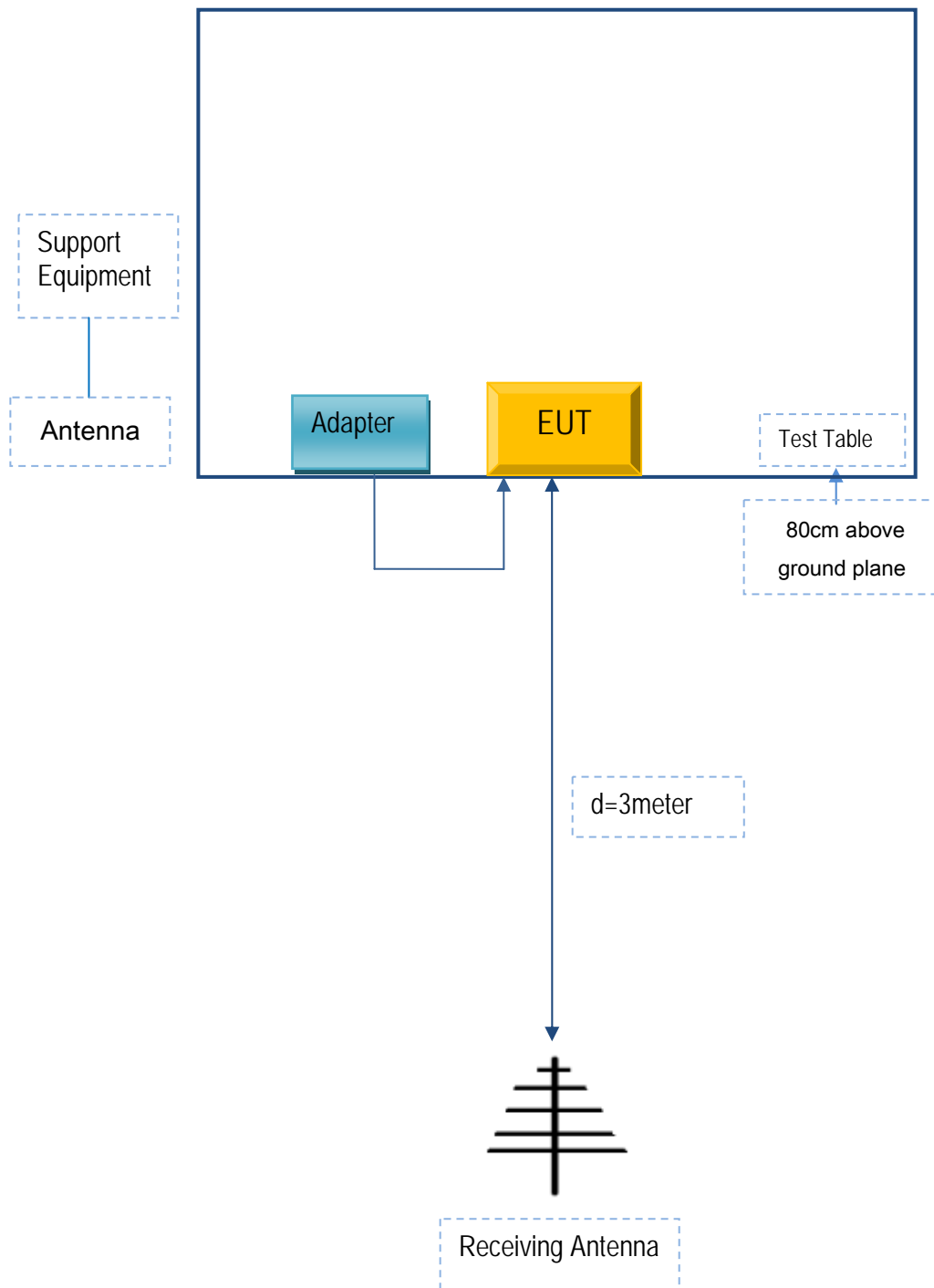


Radiated Spurious Emissions Test Setup Above
1GHz

Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

Block Configuration Diagram for Radiated Emissions



Test Report	14050064-FCC-R1
Page	37 of 40

Annex C. ii. SUPPORTING EQUIPMENT DESCRIPTION

The following is a description of supporting equipment and details of cables used with the EUT.

Manufacturer	Equipment Description	Model	Calibration Date	Calibration Due Date
N/A	N/A	N/A	N/A	N/A

Annex C.ii. EUT OPERATING CONKITIONS

The following is the description of how the EUT is exercised during testing.

Test	Description Of Operation
Emissions Testing	The EUT was communicating with base station and set to work at maximum output power.
Others Testing	The EUT was communicating with base station and set to work at maximum output power.

Test Report	14050064-FCC-R1
Page	39 of 40

Annex D. User Manual / Block Diagram / Schematics / Partlist

Please see attachment

Test Report	14050064-FCC-R1
Page	40 of 40

Annex E. DECLARATION OF SIMILARITY

N/A