FCC TEST REPORT

Issued to

Life Alert Emergency Response, Inc.

For

Cellular Base Station

Model Name:	Life Alert HELP PERS (914)
Trade Name:	Life Alert HELP PERS (914)
Brand Name:	Life Alert HELP PERS
FCC ID :	2ABZ7-914
Standard:	47 CFR Part 22 Subpart H
	47 CFR Part 24 Subpart E
Test date:	2014-4-10 to 2014-4-24
Issue date:	2014-4-28

By

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Date 2014.4.28	**Date** 2014.4.28	**Date** 2014.4.28

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Change History		
Issue	Date	Reason for change
1.0	Apr 28, 2014	First edition

1. GENERAL INFORMATION

1.1 EUT Description

EUT Type ..... :	Cellular Base Station
Serial No..... :	(n.a, marked #1 by test site)
Hardware Version ..... :	V. 914
Software Version..... :	914: V1.00
Applicant..... :	Life Alert Emergency Response, Inc. 16027 Ventura Blvd. Suite 400, Encino, CA 91436 USA
Manufacturer..... :	Life Alert Emergency Response, Inc. 16027 Ventura Blvd. Suite 400 Encino, CA 91436 USA
Frequency Range ..... :	GSM 850MHz: Tx: 824.20 - 848.80MHz (at intervals of 200kHz); Rx: 869.20 - 893.80MHz (at intervals of 200kHz) GSM 1900MHz: Tx: 1850.20 - 1909.80MHz (at intervals of 200kHz); Rx: 1930.20 - 1989.80MHz (at intervals of 200kHz) WCDMA 850MHz Tx: 826.4 - 846.6MHz (at intervals of 200kHz); Rx: 871.4 - 891.6MHz (at intervals of 200kHz) WCDMA 1900MHz Tx: 1852.4 - 1907.6MHz (at intervals of 200kHz); Rx: 1932.4 - 1987.6MHz (at intervals of 200kHz)
Modulation Type..... :	GSM Mode with GMSK Modulation
Antenna Type..... :	PIFA Antenna
Emission Designators..... :	GSM 850:247KGXW,GSM 1900:250KGXW WCDMA 850:4M18F9W ,WCDMA1900:4M18F9W

Note 1: The transmitter (Tx) frequency arrangement of the Cellular 850MHz band used by the EUT can be represented with the formula F(n)=824.2+0.2*(n-128), 128<=n<=251; the lowest, middle, highest channel numbers (ARFCHs) used and tested in this report are separately 128 (824.2MHz), 190 (836.6MHz) and 251 (848.8MHz).

Note 2: The transmitter (Tx) frequency arrangement of the PCS 1900MHz band used by the EUT can be represented with the formula F(n)=1850.2+0.2*(n-512), 512<=n<=810; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 512 (1850.2MHz), 661 (1880.0MHz) and 810 (1909.8MHz).

Note 3: The transmitter (Tx) frequency arrangement of the WCDMA 850MHz band used by the EUT can be represented with the formula F(n)=826.4+0.2*(n-4132), 4132<=n<=4233; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 4132 (826.4MHz), 4175(835MHz) and 4233 (846.6MHz).

Note 4: The transmitter (Tx) frequency arrangement of the WCDMA 1900MHz band used by the EUT can

be represented with the formula F(n)=1852.4+0.2*(n-9262), 9262<=n<=9538; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 9262 (1852.4MHz), 9400 (1880MHz) and 9538 (1907.6MHz).

Note 5: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

1.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 2, Part 22 and Part 24 for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 2 (10-1-13 Edition)	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 22 (10-1-13 Edition)	Public Mobile Services
3	47 CFR Part 24 (10-1-13 Edition)	Personal Communications Services

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Result
1	2.1046	Conducted RF Output Power	PASS
2.	24.232(d)	Peak to average radio	PASS
2	2.1049,22.917 24.238	99% Occupied Bandwidth	PASS
3	2.1055,22.355 24.235	Frequency Stability	PASS
4	2.1051,2.1057 22.917,24.238,	Conducted Out of Band Emissions	PASS
5	2.1051,2.1057 22.917,24.238	Band Edge	PASS
6	22.913,24.232	Transmitter Radiated Power (EIPR/ERP)	PASS
7	2.1053,2.1057 22.917,24.238	Radiated Out of Band Emissions	PASS

NOTE：Measurement method according to TIA/EIA 603.D-2010

1.3 Facilities and Accreditations

1.3.1 Facilities

All measurement facilities used to collect the measurement data are located at FL.1, Building A, FeiYang Science Park, No.8 LongChang Road,Block 67, BaoAn District, ShenZhen, GuangDong Province,P. R. China 518101. The test site is constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22; the FCC registration number is 695796.

1.3.2 Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15 - 35
Relative Humidity (%):	30 -60
Atmospheric Pressure (kPa):	86-106

2. 47 CFR PART 2, PART 22H & 24E REQUIREMENTS

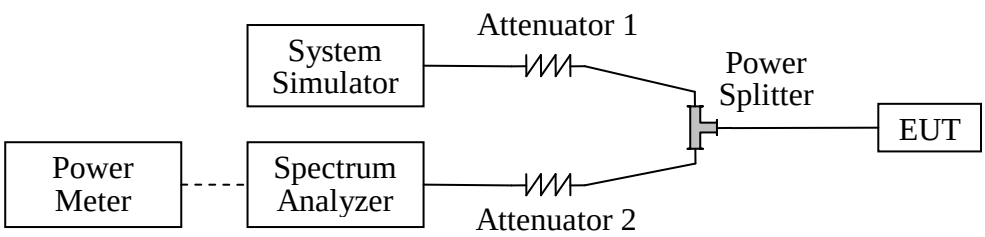
2.1 Conducted RF Output Power

2.1.1 Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in FCC section 2.1033(c)(8).

2.1.2 Test Description

1. Test Setup:



The EUT, which is powered by the Battery, is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.

The Power Meter was just used for the Conducted RF Output Power test of WCDMA Model.

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Agilent	E5515C	GB43130131	2014.02.26	2015.02.25
Spectrum Analyzer	Agilent	E7405A	US44210471	2014.02.26	2015.02.25
Power Meter	Agilent	E4418B	GB43318055	2014.02.26	2015.02.25
Power Sensor	Agilent	8482A	MY41091706	2014.02.26	2015.02.25
Power Splitter	Weinschel	1506A	NW521	2014.02.26	2015.02.25
Attenuator 1	Resnet	20dB	(n.a.)	2014.02.26	2015.02.25
Attenuator 2	Resnet	3dB	(n.a.)	2014.02.26	2015.02.25

2.1.3 Test Results

Here the lowest, middle and highest channels are selected to perform testing to verify the conducted RF output power of the EUT.

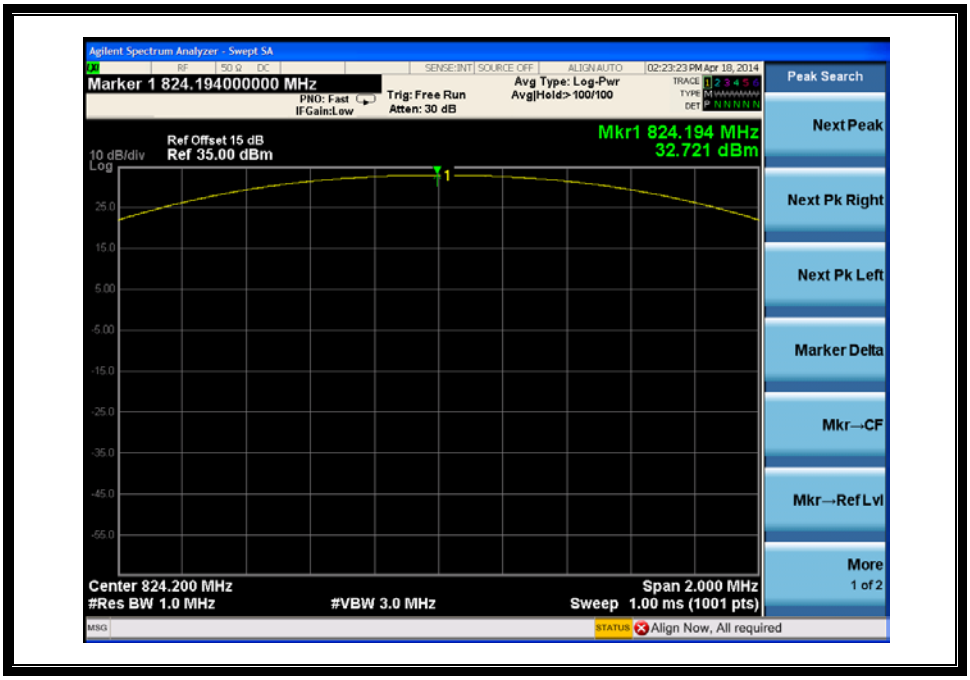
1. GSM Model Test Verdict:

Band	Channel	Frequency (MHz)	Measured Output Power		Limit	Verdict
			dBm	Refer to Plot	dBm	
GSM 850MHz	128	824.2	32.72	Plot A1 to A3	35	PASS
	190	836.6	33.16			PASS
	251	848.8	33.54			PASS
GSM 1900MHz	512	1850.2	30.55	Plot B1 to B3	32	PASS
	661	1880.0	29.96			PASS
	810	1909.8	29.02			PASS

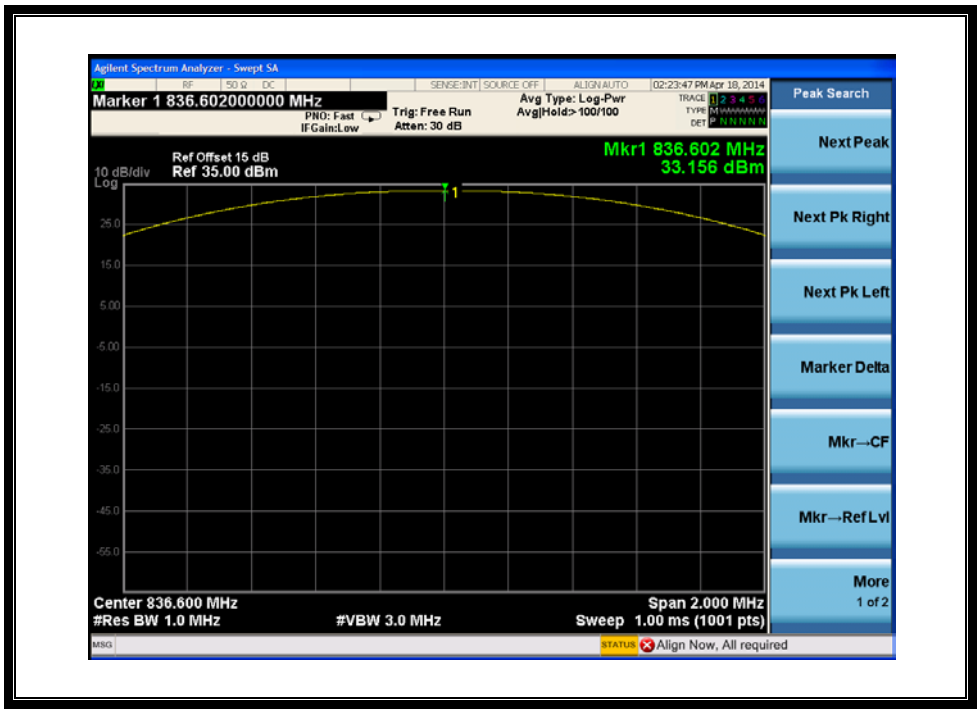
2. WCDMA Model Test Verdict:

Item	band	WCDMA 850			WCDMA 1900		
	ARFCN	4132	4175	4233	9262	9400	9538
	subtest	dBm			dBm		
5.2(WCDMA)	non	26.54	26.52	26.93	25.43	25.69	25.17
Note:	The Conducted RF Output Power test of WCDMA was tested by power meter.						

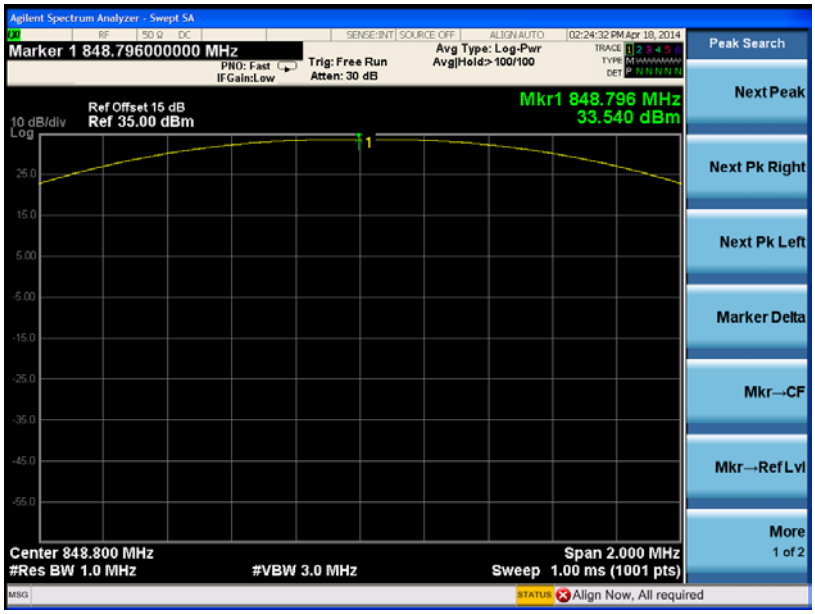
3. GSM Model Test Plots:



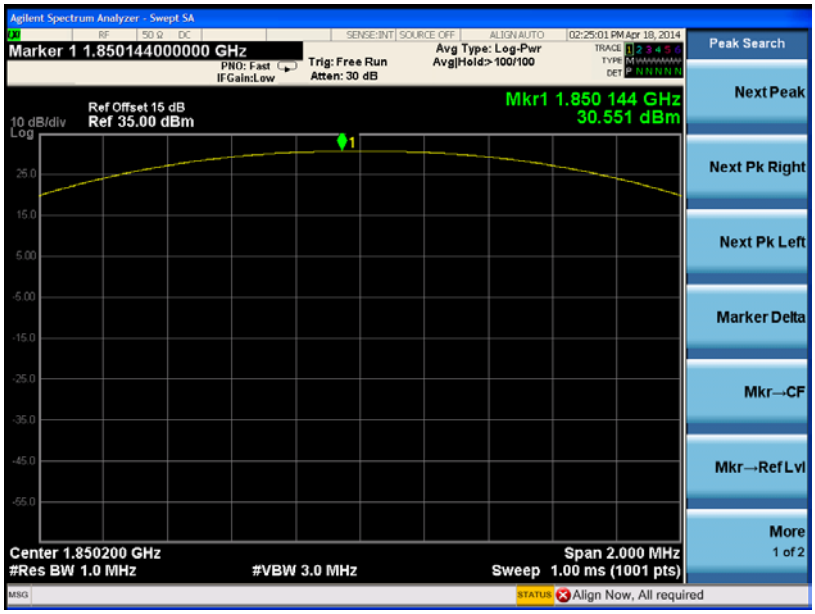
(Plot A1:GSM 850MHz Channel = 128)



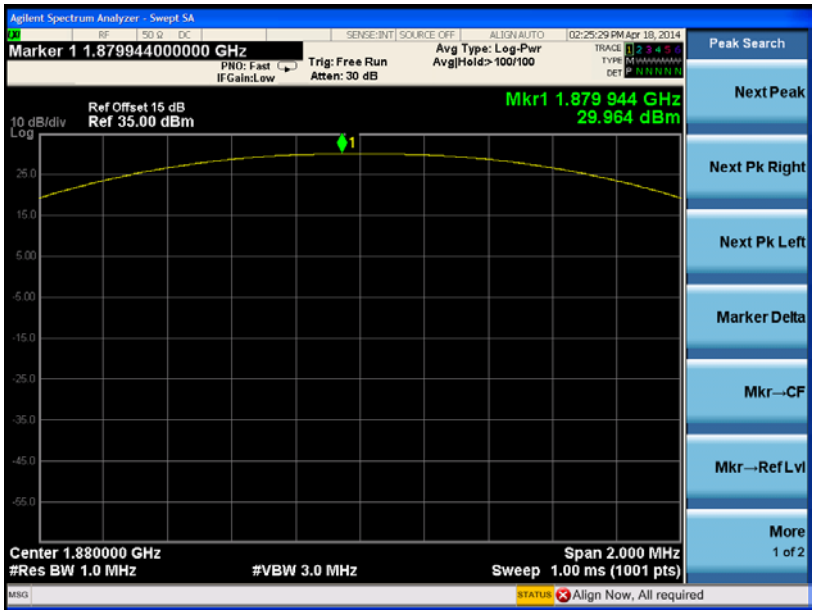
(Plot A2:GSM 850MHz Channel = 190)



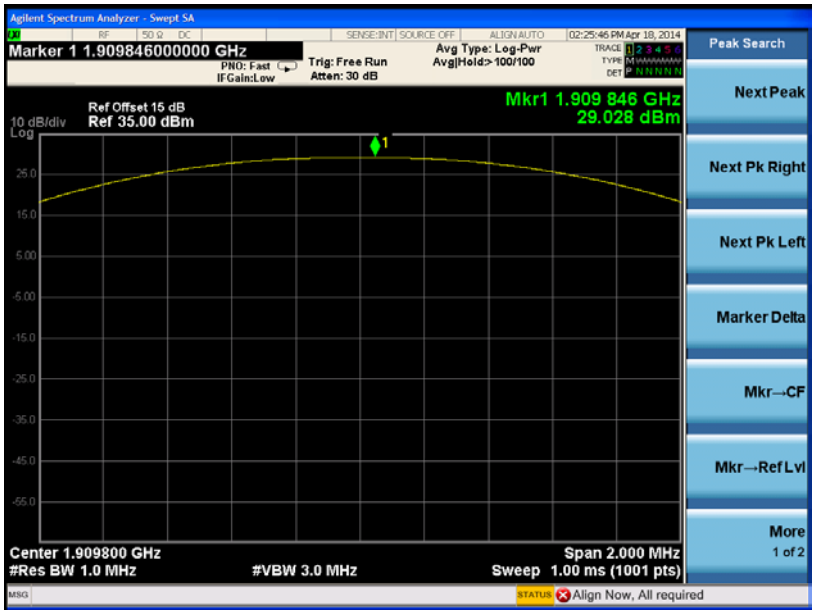
(Plot A3:GSM 850MHz Channel = 251)



(Plot B1: GSM 1900MHz Channel = 512)



(Plot B2: GSM 1900MHz Channel = 661)



(Plot B3: GSM 1900Hz Channel = 810)

2.2 Peak to Average Radio

2.2.1 Definition

According to FCC section 2.1049 and FCC 24.232(d) the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

2.2.2 Test Description

See section 2.1.2 of this report.

2.2.3 Test Verdict

Here the lowest, middle and highest channels are selected to perform testing to verify the peak-to-average ratio.

Test procedures:

A .For GSM/EGPRS operating mode:

a. Set RBW=1MHz, VBW=1MHz, peak detector in spectrum analyzer.

b. Set EUT in maximum output power, and triggered the bust signal.

c. Measured respectively the peak level and mean level, and the deviation was recorded as Peak to Average radio.

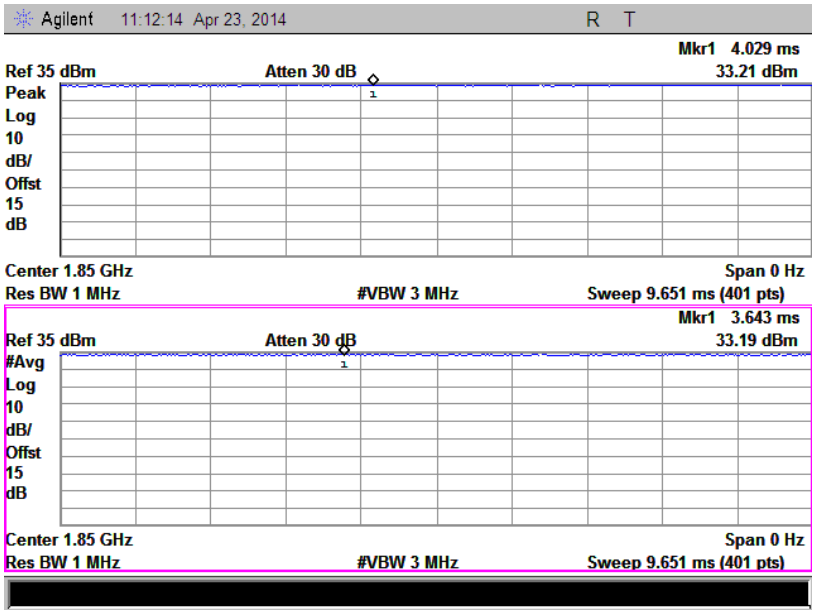
B. For UMTS operating mode:

a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.

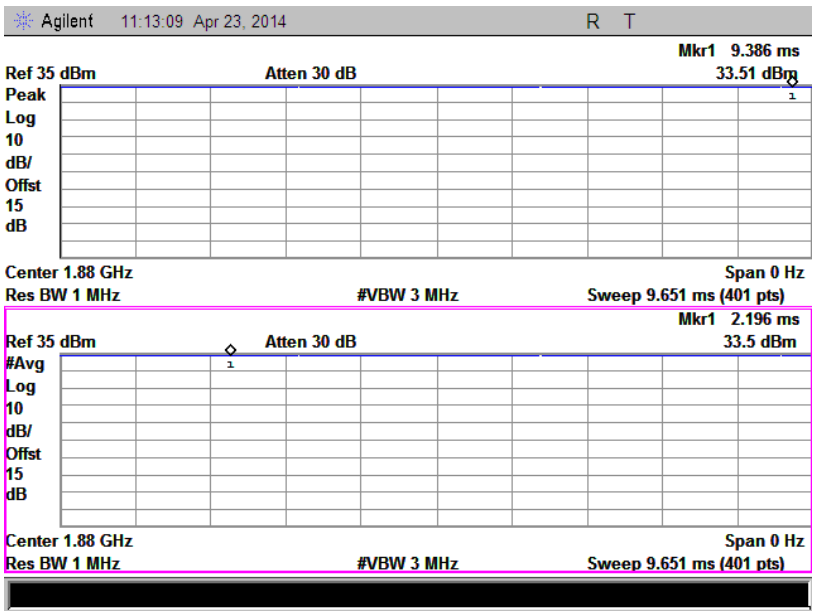
b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1%.

1. Test Verdict:

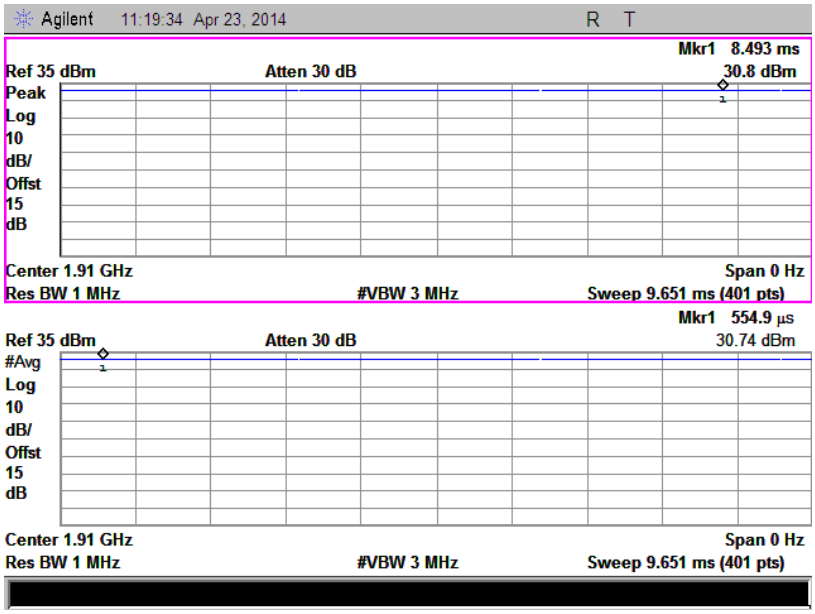
Band	Channel	Frequency (MHz)	Peak to Average radio		Limit	Verdict
			dBm	Refer to Plot	dBm	
GSM 1900MHz	512	1850.2	0.02	Plot A1 to A3	13	PASS
	661	1880.0	0.01			PASS
	810	1909.8	0.06			PASS
WCDMA 1900MHz	9262	1852.4	2.85	Plot B1 to B3	13	PASS
	9400	1880	3.06			PASS
	9538	1907.6	2.99			PASS



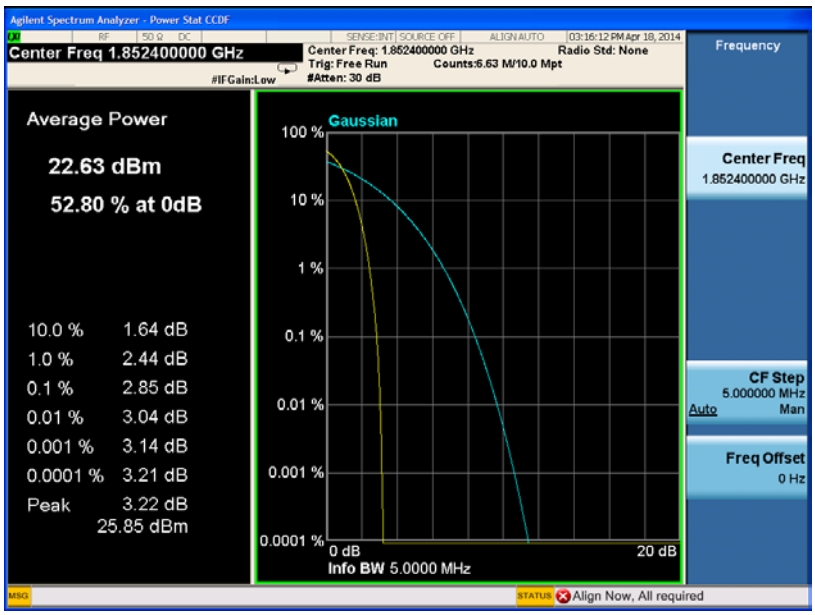
(Plot A1:GSM 1900 MHz Channel = 512)



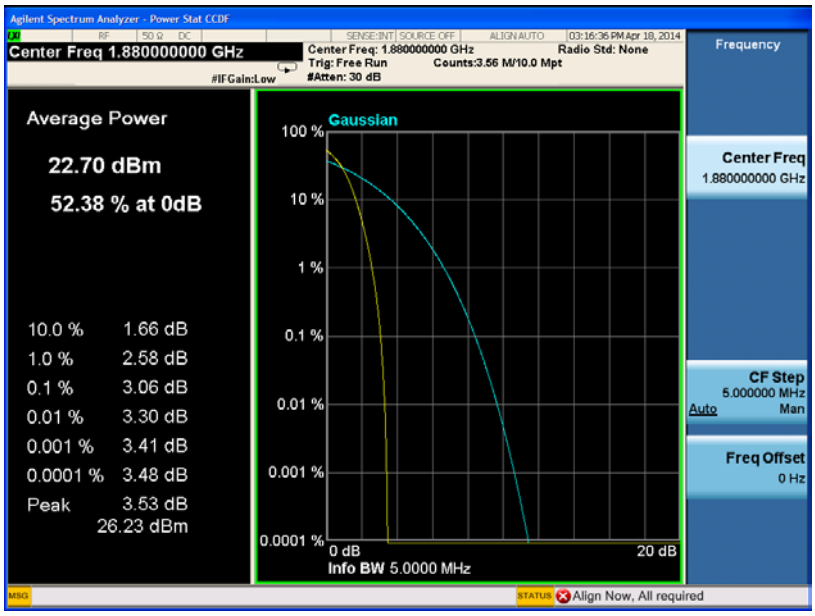
(Plot A2:GSM 1900 MHz Channel = 661)



(Plot A3:GSM 1900MHz Channel = 810)



(Plot B1: WCDMA 1900MHz Channel = 9262)



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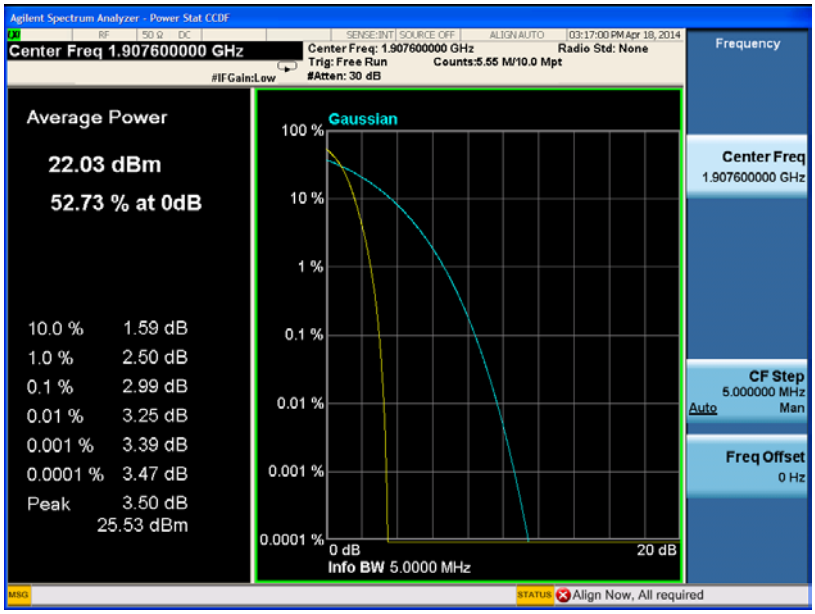
(Plot B2: WCDMA 1900MHz Channel = 9400)



(Plot B3: WCDMA 1900MHz Channel = 9538)

2.3 99% Occupied Bandwidth

2.3.1 Definition

According to FCC section 2.1049 and FCC § 22.917 &24.238 the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.

Occupied bandwidth is also known as the 99% emission bandwidth,

2.3.2 Test Description

See section 2.1.2 of this report.

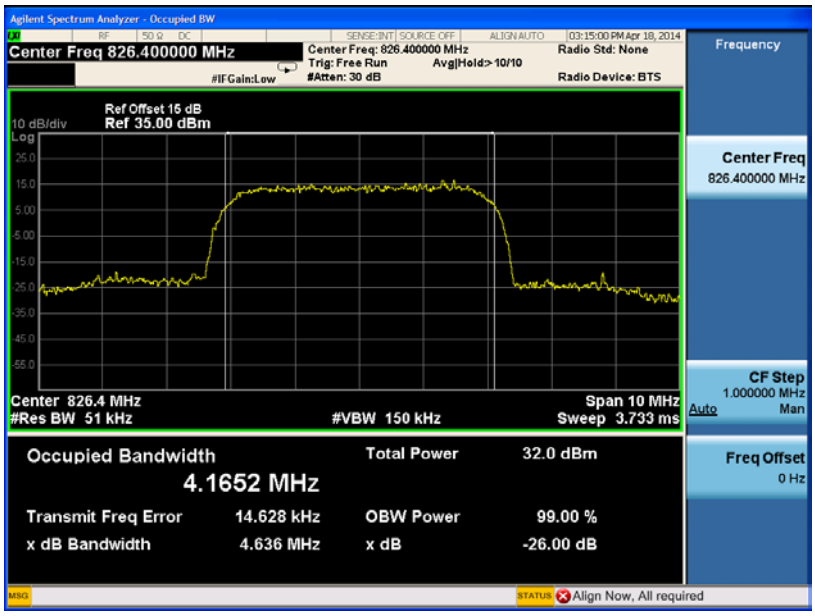
2.3.3 Test Verdict

Here the lowest, middle and highest channels are selected to perform testing to verify the 99% occupied bandwidth.

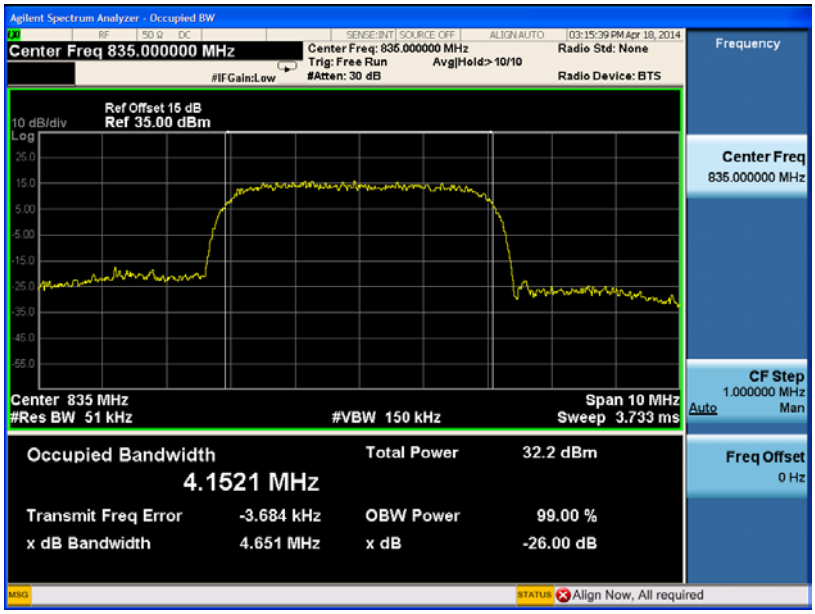
2. Test Verdict:

Band	Channel	Frequency (MHz)	26dB bandwidth	99% Occupied Bandwidth	Refer to Plot
WCDMA 850MHz	4132	826.4	4.636 MHz	4.1652 MHz	Plot A
	4175	835	4.651MHz	4.1521 MHz	Plot B
	4233	846.6	4.623 MHz	4.1545 MHz	Plot C
WCDMA 1900MHz	9262	1852.4	4.649 MHz	4.1608 MHz	Plot D
	9400	1880	4.628 MHz	4.1564 MHz	Plot E
	9538	1907.6	4.632 MHz	4.1358 MHz	Plot F
GSM 850MHz	128	824.2	316.6 KHz	253.95 KHz	Plot G
	190	836.6	313.3 KHz	247.42 KHz	Plot H
	251	848.8	308.7 KHz	244.79 KHz	Plot I
GSM 1900MHz	512	1850.2	313.8 KHz	245.56 KHz	Plot J
	661	1880.0	318.9 KHz	245.78 KHz	Plot K
	810	1909.8	308.4 KHz	247.65 KHz	Plot L

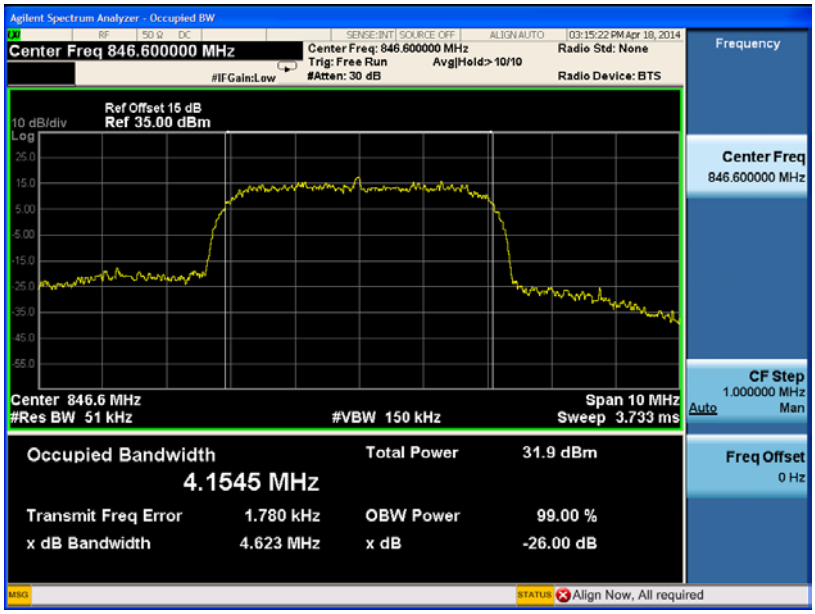
3. Test Plots:



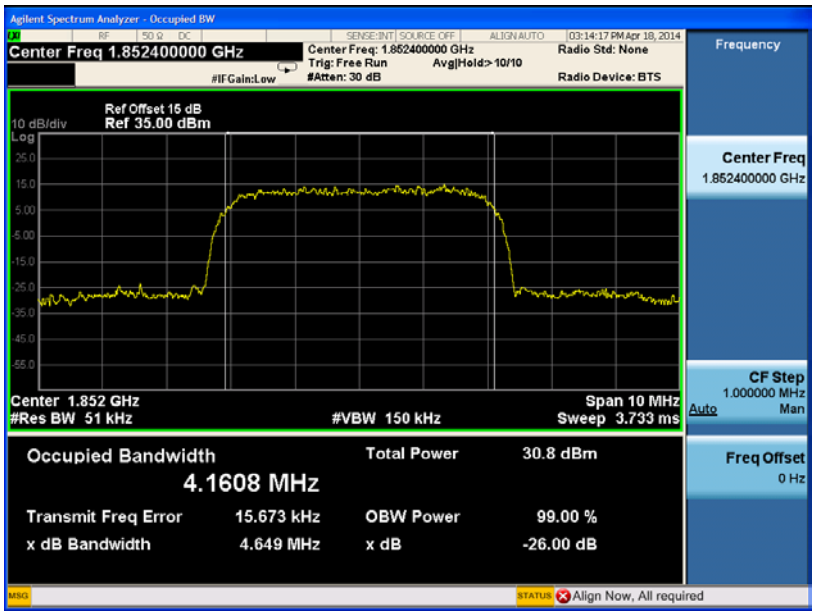
(Plot A: WCDMA 850MHz Channel = 4132)



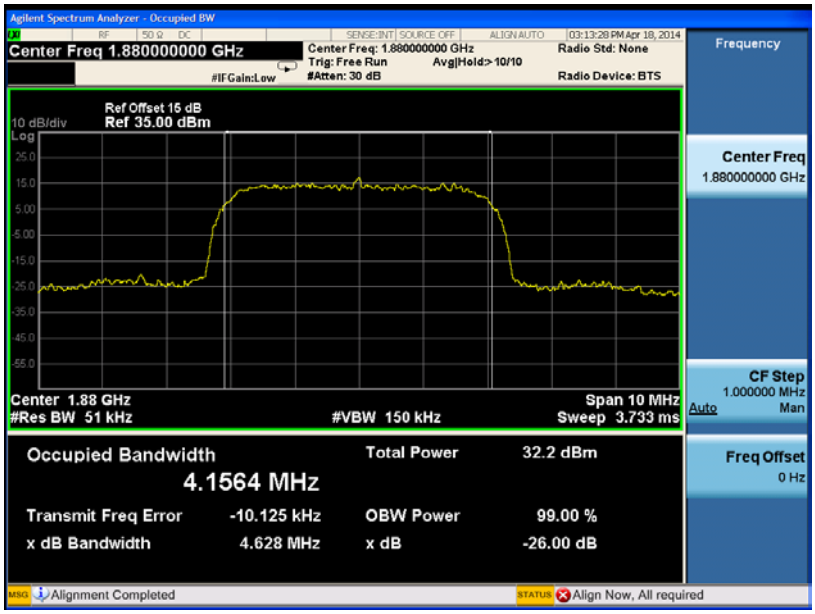
(Plot B: WCDMA 850 MHz Channel = 4175)



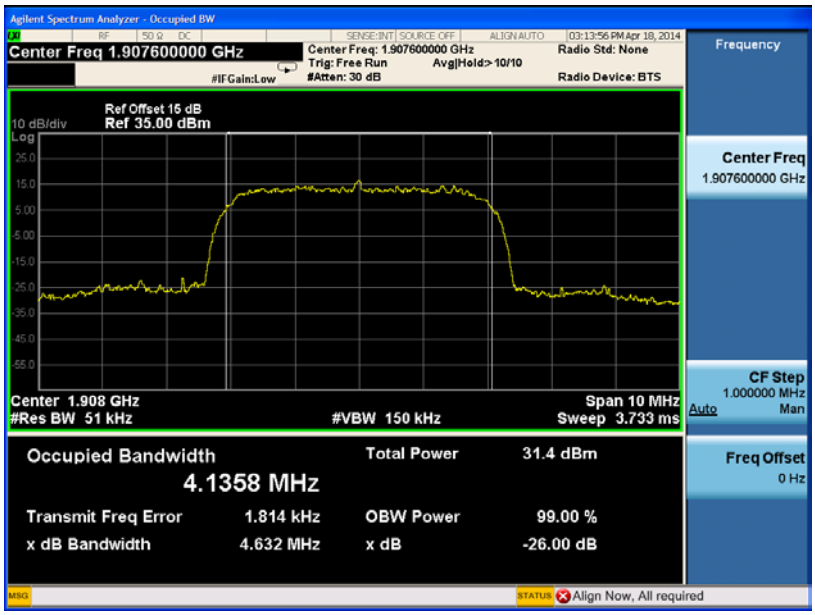
(Plot C: WCDMA 850MHz Channel = 4233)



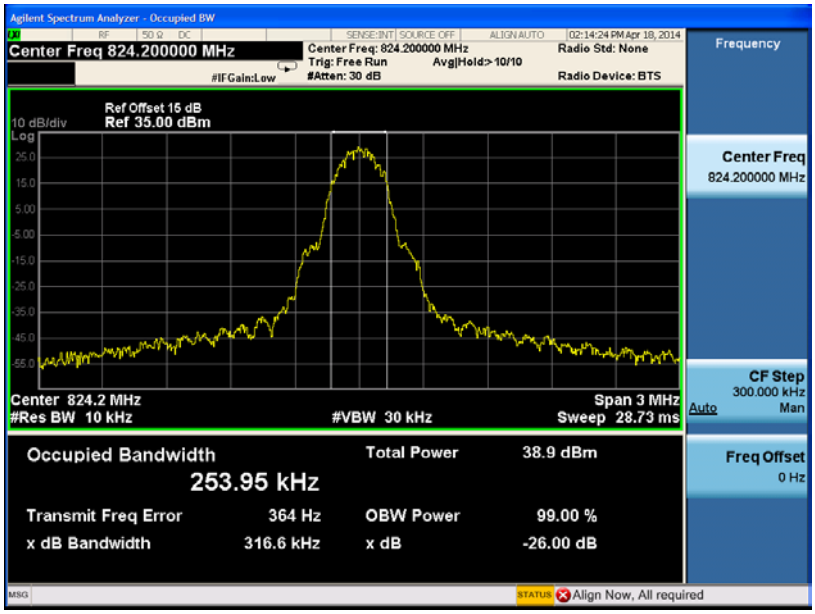
(Plot D: WCDMA 1900MHz Channel = 9262)



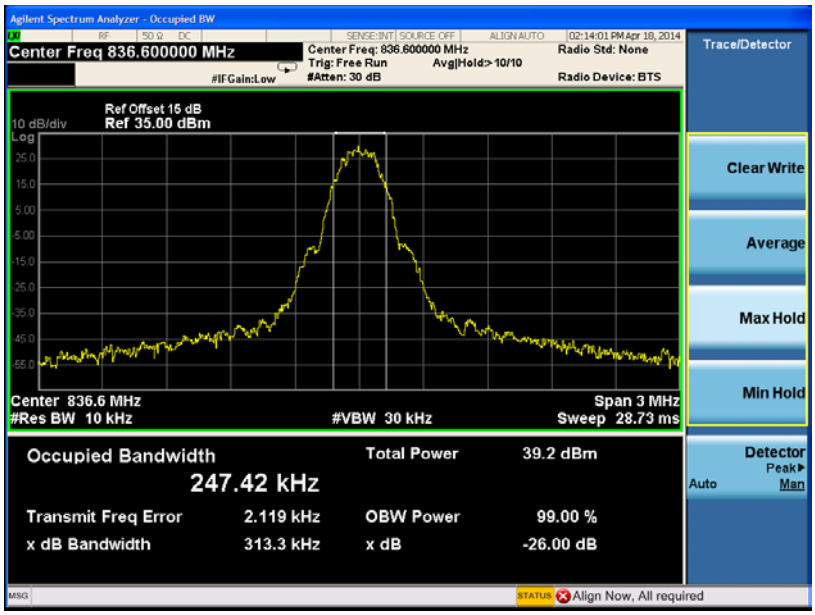
(Plot E: WCDMA 1900 MHz Channel = 9400)



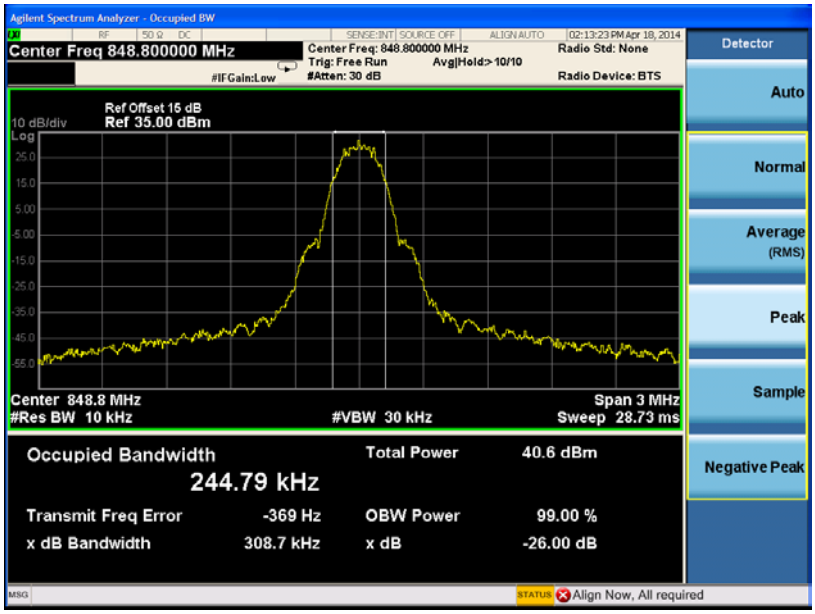
(Plot F: WCDMA1900MHz Channel = 9538)



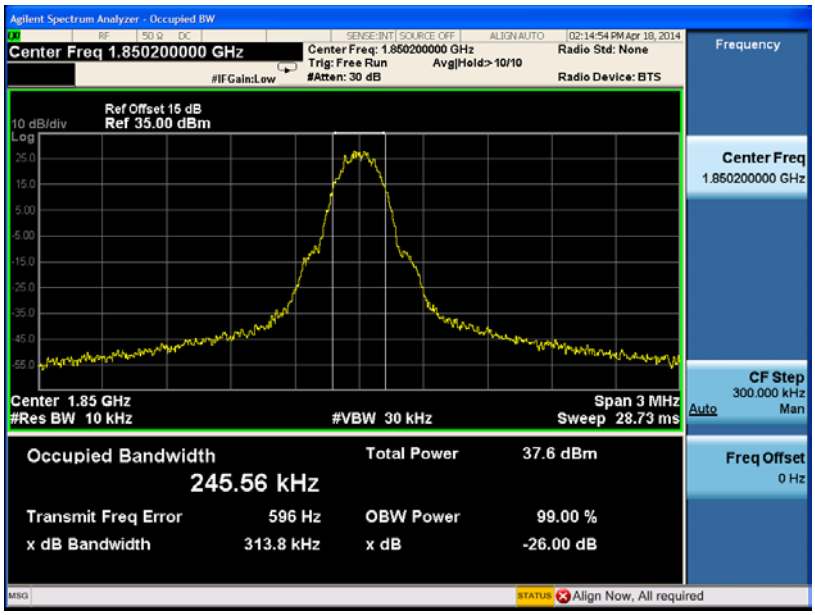
(Plot G1: GSM 850MHz Channel = 128)



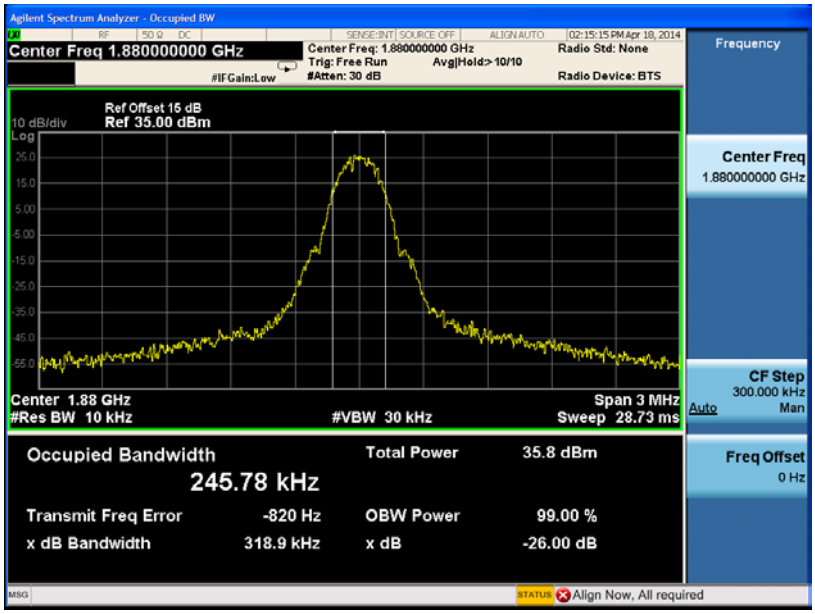
(Plot H1: GSM 850MHz Channel = 190)



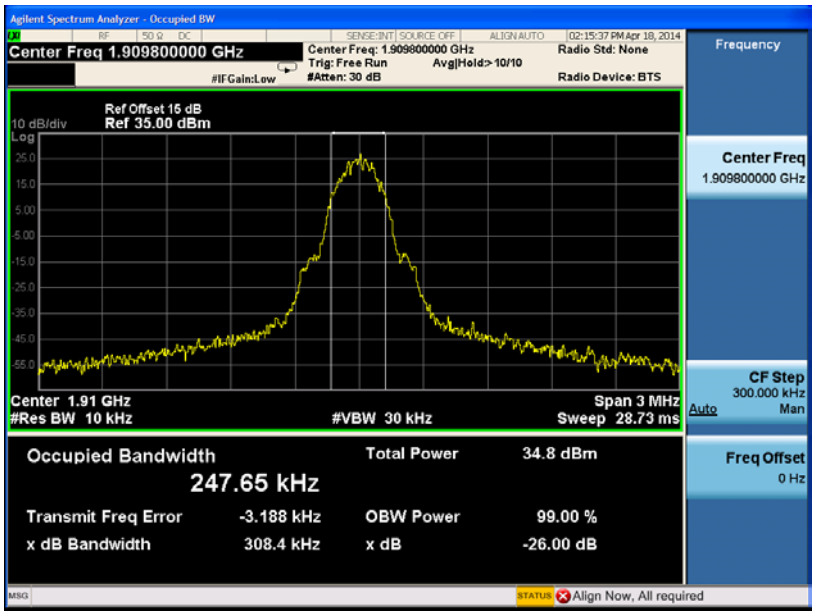
(Plot I1: GSM 850MHz Channel = 251)



(Plot J1: GSM 1900MHz Channel = 512)



(Plot K1: GSM 1900MHz Channel = 661)



(Plot L1: GSM 1900MHz Channel = 810)

2.4 Frequency Stability

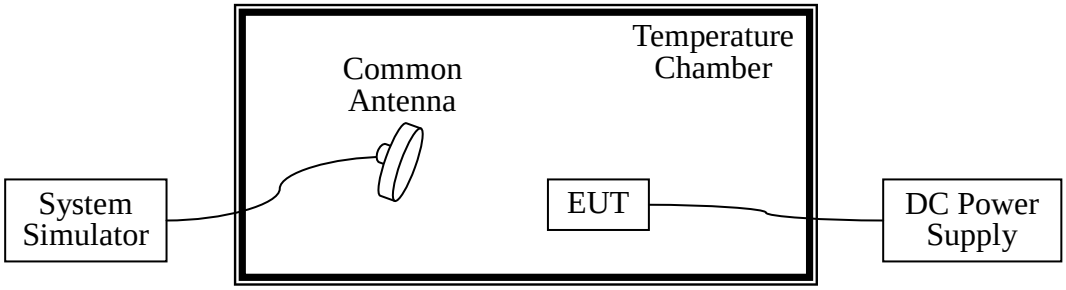
2.4.1 Requirement

According to FCC section 22.355 and FCC section 24.235, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

(a) The temperature is varied from -30°C to +50°C at intervals of not more than 10°C.
(b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

2.4.2 Test Description

1. Test Setup:



The EUT, which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS via a Common Antenna.

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Agilent	E5515C	GB43130131	2014.02.26	2015.02.25
DC Power Supply	Good Will	GPS-3030DD	EF920938	2014.02.26	2015.02.25
Temperature Chamber	YinHe Experimental Equip.	HL4003T	(n.a.)	2014.02.26	2015.02.25

2.4.3 Test Verdict

The nominal, highest and lowest extreme voltages are separately 3.8VDC, 4.2VDC and 3.6VDC, which are specified by the applicant; the normal temperature here used is 25°C. The frequency deviation limit of

850MHz band is ±2.5ppm, and 1900MHz is ±1ppm, 1700MHz ±1ppm.

1. GSM 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 128 (824.2MHz)		Channel = 190 (836.6MHz)		Channel = 251 (848.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-30	-23.45	±2060.5	21.12	±2091.5	17.87	±2122	PASS
	-20	27.31		12.43		-15.02		
	-10	-2.25		-17.46		15.16		
	0	30.26		32.14		5.05		
	+10	21.79		-24.93		3.02		
	+20	-19.56		-17.19		10.76		
	+30	34.36		19.36		-16.53		
	+40	42.63		19.64		-2.13		
	+55	35.28		23.27		-12.89		
4.2	+25	-15.73		29.05		-7.55		
3.6	+25	-17.75		37.73		7.78		

2. GSM 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 512 (1850.2MHz)		Channel = 661 (1880.0MHz)		Channel = 810 (1909.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-30	18.21	±1850.2	22.78	±1880.0	31.15	±1909.8	PASS
	-20	36.08		-21.48		-17.88		
	-10	-2.05		-13.76		-16.88		
	0	40.06		-18.38		19.32		
	+10	1.98		-21.61		25.31		
	+20	-19.76		15.52		30.26		
	+30	39.76		-0.78		-29.21		
	+40	46.66		33.37		19.33		
	+55	39.88		24.02		-19.37		
4.2	+25	37.88		23.72		27.09		
3.6	+25	-7.89		15.98		18.99		