

# RF TEST REPORT

Test item : Cellular/PCS GSM/GPRS/EDGE Rx only/WCDMA/HSDPA/  
HSUPA Phone with Bluetooth and WLAN  
Model No. : LG-D120g, LG-D120G, D120g, D120G, LGD120g, LGD120G,  
LG-D125g, LG-D125G, D125g, D125G, LGD125g, LGD125G,  
LG-D120AR, D120AR, LGD120AR  
Order No. : DEMC1404-01247  
Date of receipt : 2014-04-07  
Test duration : 2014-04-07 ~ 2014-04-25  
Date of issue : 2014-05-08  
Use of report : FCCOriginal Grant

Applicant : LG Electronics MobileComm U.S.A., Inc.  
1000 Sylvan Avenue, Englewood Cliffs NJ 07632

Test laboratory : Digital EMC Co., Ltd.  
42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 449-935

Test specification : §22(H), §24(E)  
Test environment : See appended test report  
Test result :  Pass  Fail

The test results presented in this test report are limited only to the sample supplied by applicant and the use of this test report is inhibited other than its purpose. This test report shall not be reproduced except in full, without the written approval of DIGITAL EMC CO., LTD.

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General Manager  
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## Test Report Version

Test Report No.	Date	Description
DRTFCC1405-0584	May. 08, 2014	Initial issue

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# 1. GENERAL INFORMATION

**Applicant Name:** LG Electronics MobileComm U.S.A., Inc.

**Address:** 1000 Sylvan Avenue, Englewood Cliffs NJ 07632

- FCC ID** : ZNFD120G
- FCC Classification** : Licensed Portable Transmitter Held to Ear (PCE)
- EUT** : Cellular/PCS GSM/GPRS/EDGE Rx only/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN
- Model Name** : LG-D120g
- Add Model Name** : LG-D120G, D120g, D120G, LGD120g, LGD120G, LG-D125g, LG-D125G, D125g, D125G, LGD125g, LGD125G, LG-D120AR, D120AR, LGD120AR  
 ※15 models are same mechanical, electrical and functional except for number of USIM socket (120 series: One USIM socket, 125 series: Two USIM sockets)
- Supplying power** : Standard Battery  
 - Type: Li-ion Battery  
 - M/N: BL-44JN  
 - Rating: DC 3.7 V & 1540 mAh / 5.7Wh
- Antenna Information** : Internal Antenna  
 - Type: Built-In type
- Tx Frequency** : GSM850: 824.2 ~ 848.8 MHz  
 GSM1900: 1850.2 ~ 1909.8 MHz  
 WCDMA850: 826.4 ~ 846.6 MHz  
 WCDMA1900: 1852.4 ~ 1907.6 MHz  
 HSUPA850: 826.4 ~ 846.6 MHz  
 HSUPA1900: 1852.4 ~ 1907.6 MHz
- Rx Frequency** : GSM850: 869.2 ~ 893.8 MHz  
 GSM1900: 1930.2 ~ 1989.8 MHz  
 WCDMA850: 871.4 ~ 891.6 MHz  
 WCDMA1900: 1932.4 ~ 1987.6 MHz  
 HSUPA850: 871.4 ~ 891.6 MHz  
 HSUPA1900: 1932.4 ~ 1987.6 MHz
- Max. RF Output Power** : GSM850: 0.982W ERP(29.92dBm)  
 GSM1900: 0.817W EIRP(29.12dBm)  
 WCDMA850: 0.163W ERP(22.12dBm)  
 WCDMA1900: 0.186W EIRP(22.69dBm)  
 HSUPA850: 0.100W ERP(19.98dBm)  
 HSUPA1900: 0.114W EIRP(20.55dBm)
- Emission Designator(s)** : GSM850: 245KGXW  
 GSM1900: 247KGXW  
 WCDMA850: 4M18F9W  
 WCDMA1900: 4M18F9W  
 HSUPA850: 4M19F9W  
 HSUPA1900: 4M19F9W

## **2. INTRODUCTION**

### **2.1. EUT DESCRIPTION**

The Equipment Under Test (EUT) supports a dual band (Cellular/PCS) with GSM/GPRS/EDGE Rx only, WCDMA/HSPA, Bluetooth and WLAN.

### **2.2. MEASURING INSTRUMENT CALIBRATION**

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

### **2.3. TEST FACILITY**

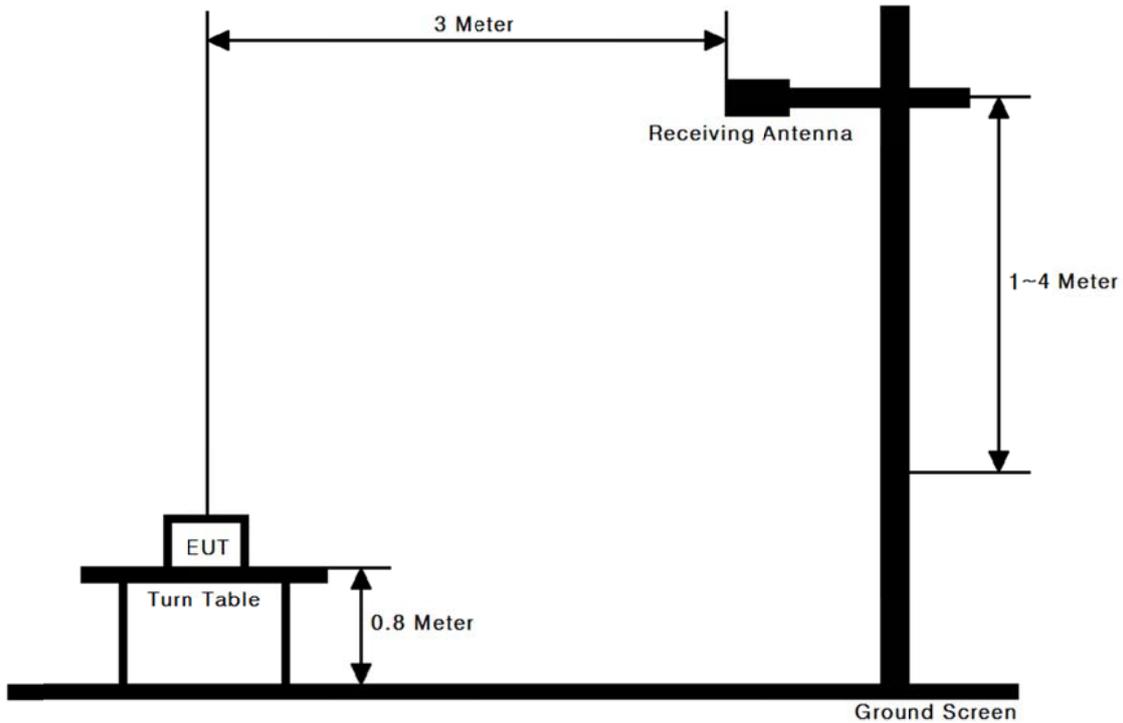
The 3&10m test site and conducted measurement facility used to collect the radiated data are located at the 38, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 449-935. The site is constructed in conformance with the requirements.

- 3&10m test site registration Number: 678747

### 3. DESCRIPTION OF TESTS

#### 3.1 ERP&EIRP (Effective Radiated Power & Equivalent Isotropic Radiated Power)

*Test Set-up*



These measurements were performed at 3&10m test site. The equipment under test is placed on a non-conductive turntable 0.8-meters above the ground plane and 3-meters from the receive antenna.

The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer.

A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading.

For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration.

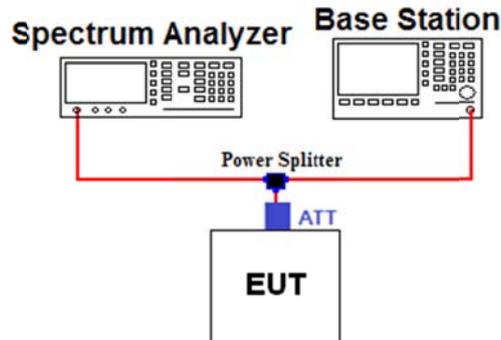
**Test Procedure**

- **ANSI/TIA-603-C-2004 - Section 2.2.17**
- **KDB971168 v02r01- Section 5.2.1**

1. Set span to at least 1.5 times the OBW.
2. Set RBW = 1-5% of the OBW, not to exceed 1 MHz.
3. Set VBW  $\geq 3 \times$  RBW.
4. Set number of points in sweep  $\geq 2 \times$  span / RBW.
5. Sweep time = auto-couple.
6. Detector = RMS (power averaging).
7. If the EUT can be configured to transmit continuously (i.e., burst duty cycle  $\geq 98\%$ ), then set the trigger to free run.
8. If the EUT cannot be configured to transmit continuously (i.e., burst duty cycle  $< 98\%$ ), then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Ensure that the sweep time is less than or equal to the transmission burst duration.
9. Trace average at least 100 traces in power averaging (i.e., RMS) mode.
10. Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function, with the band limits set equal to the OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

## 3.2 PEAK TO AVERAGE RATIO

### Test set-up



### Test Procedure

A peak to average ratio measurement is performed using the following procedure.

#### ■ CCDF Procedure

##### - KDB971168 v02r01-Section 5.7.1

1. Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth
2. Set the number of counts to a value that stabilizes the measured CCDF curve
3. Set the measurement interval as follows:
  - 1) For continuous transmissions, set to 1 ms
  - 2) For burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
4. Record the maximum PAPR level associated with a probability of 0.1%

**■ Alternate Procedure****- KDB971168 v02r01-Section 5.7.2**

Use one of the measurement procedures of the peak power and record as  $P_{PK}$ .

Use one of the measurement procedures of the average power and record as  $P_{Avg}$ .

Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

$$\text{PAPR (dB)} = P_{PK} \text{ (dBm)} - P_{Avg} \text{ (dBm)}.$$

**- Peak Power Measurement**

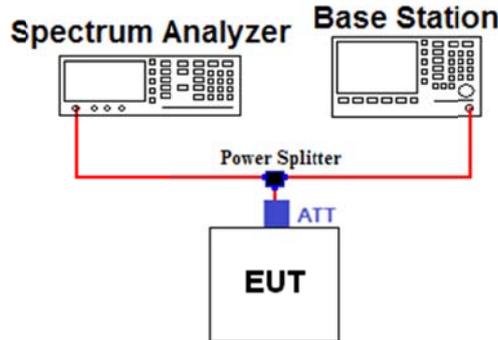
1. Set the RBW  $\geq$  OBW
2. Set VBW  $\geq 3 \times$  RBW
3. Set span  $\geq 2 \times$  RBW
4. Sweep time = auto couple
5. Detector = peak
6. Ensure that the number of measurement points  $\geq$  span/RBW.
7. Trace mode = max hold
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the peak amplitude level.

**- Average Power Measurement**

1. Set span to at least 1.5 times the OBW.
2. Set RBW = 1-5% of the OBW, not to exceed 1 MHz.
3. Set VBW  $\geq 3 \times$  RBW.
4. Set number of points in sweep  $\geq 2 \times$  span / RBW.
5. Sweep time = auto-couple.
6. Detector = RMS (power averaging).
7. If the EUT can be configured to transmit continuously (i.e., burst duty cycle  $\geq 98\%$ ), then set the trigger to free run.
8. If the EUT cannot be configured to transmit continuously (i.e., burst duty cycle  $< 98\%$ ), then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Ensure that the sweep time is less than or equal to the transmission burst duration.
9. Trace average at least 100 traces in power averaging (i.e., RMS) mode.
10. Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function, with the band limits set equal to the OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

### 3.3 OCCUPIED BANDWIDTH.

#### Test set-up



#### Offset value information

Frequency (MHz)	Offset Value (dB)	Frequency (MHz)	Offset Value (dB)
824.2	19.12	1850.2	19.57
826.4	19.11	1852.4	19.57
836.6	19.16	1880.0	19.64
846.6	19.18	1907.6	19.66
848.8	19.20	1909.8	19.66
-	-	-	-

Note. 1: The offset values from EUT to Spectrum analyzer were measured and used for test.  
 Offset value = Cable A + Splitter + ATT + Cable B

#### Test Procedure

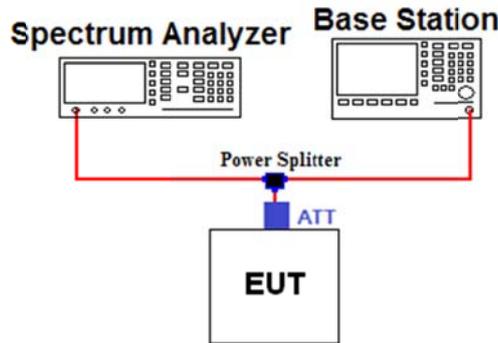
##### - KDB971168 v02r01-Section 4.2

The occupied bandwidth, that 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 of a given emission.

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 ~ 5% of the expected OBW
3. VBW ≥ 3 X RBW
4. Detector = Peak
5. Trance mode = Max hold
6. Sweep = Auto couple
7. The trace was allowed to stabilize
8. If necessary, step 2 ~ 7 were repeated after changing the RBW such that it would be within 1 ~ 5% of the 99% occupied bandwidth observed in step 7.

### 3.4 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL.

#### Test set-up



#### Offset value information

Frequency (MHz)	Offset Value (dB)	Frequency (MHz)	Offset Value (dB)	Frequency (MHz)	Offset Value (dB)
823.0	19.11	1849.0	19.56	5000.0	20.84
824.0	19.12	1850.0	19.57	10000.0	21.49
849.0	19.21	1910.0	19.67	15000.0	21.90
850.0	19.21	1911.0	19.67	20000.0	22.88

Note. 1: The offset value from EUT to Spectrum analyzer was measured and used for test.  
 Offset value = Cable A + Splitter + ATT + Cable B

#### Test Procedure

##### - KDB971168 v02r01 - Section 6.0

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer.

The EUT was setup to maximum output power at its lowest channel. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic.

1. RBW = 1MHz & VBW ≥ 3MHz
2. Detector = Positive peak
3. Trace mode = Max hold
4. Sweep time = Auto
5. The trace was allowed to stabilize

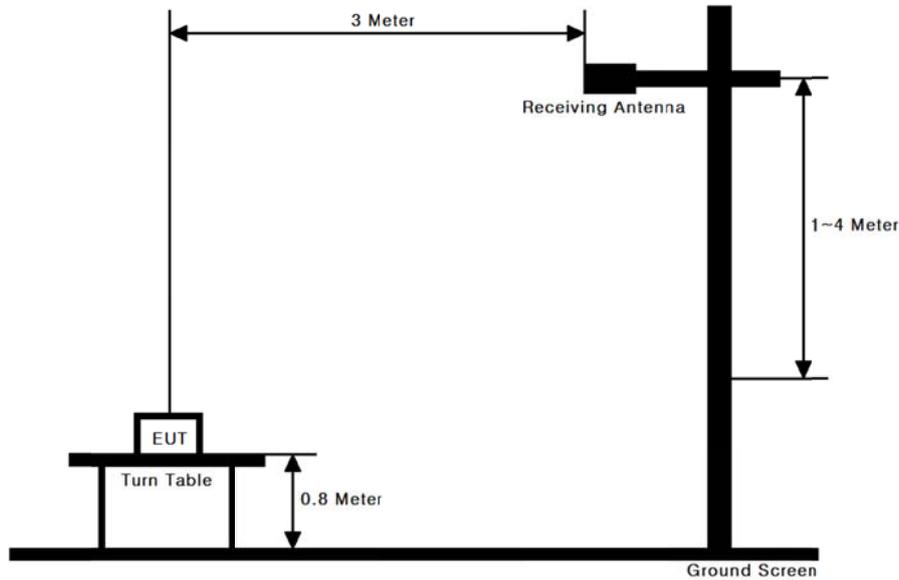
The highest, lowest and a middle channel were tested for out of band measurements. The minimum permissible attenuation level of any spurious emission is  $43 + \log_{10}(P[\text{Watts}])$ , where P is the transmitter power in Watts.

Note 1: In the 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter was employed to measure the out of band Emissions.

Note 2: Compliance with the applicable limits is based on the use of measurement instrumentation employing a RBW of 100 KHz or greater for Part 22 and 1 MHz or greater for Part24.

### 3.5 RADIATED SPURIOUS EMISSIONS

#### Test Set-up



#### Test Procedure

- ANSI/TIA-603-C-2004 - Section 2.2.12
- KDB971168 v02r01 - Section 5.8

This measurement was performed at 3-meter test range. The equipment under test is placed on a non-conductive turntable 0.8-meters above the ground plane and 3-meters from the receive antenna.

The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer.

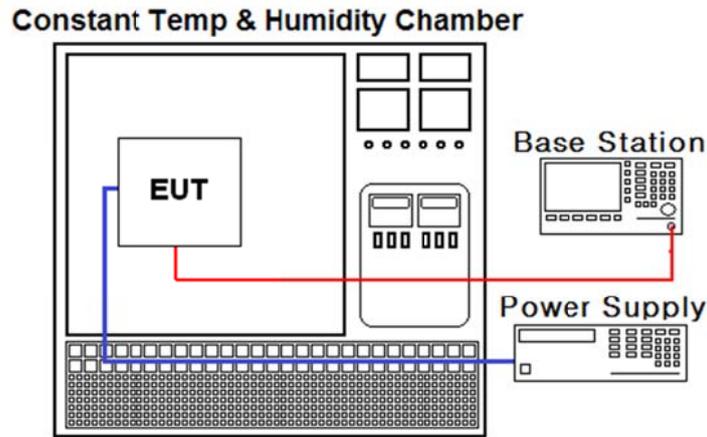
For radiated power measurements below 1GHz, a half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading.

For radiated power measurements above 1GHz, a Horn antenna was substituted in place of the EUT. This Horn antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. The difference between the gain of the horn and an isotropic antenna are taken into consideration.

This measurement was performed with the EUT oriented in 3 orthogonal axis.

### 3.6 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

#### Test Set-up



#### Test Procedure

##### - ANSI/TIA-603-C-2004

The frequency stability of the transmitter is measured by:

- Temperature:** The temperature is varied from - 30 °C to + 50 °C using an environmental chamber.
- Primary Supply Voltage:** The primary supply voltage is varied from battery end point to 115 % of the voltage normally at the input to the device or at the power supply terminals if cables are not normally supplied.

Specification - the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5$  ppm) of the center frequency.

#### Time Period and Procedure:

- The carrier frequency of the transmitter is measured at room temperature. (25°C to provide a reference).
- The equipment is turned on in a "standby" condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
- Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

**NOTE: The EUT is tested down to the battery endpoint.**

**4. LIST OF TEST EQUIPMENT**

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal. Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent	N9030A	13/10/29	14/10/29	MY53310140
Spectrum Analyzer	Agilent	N9020A	13/09/24	14/09/24	MY50200867
Multimeter	H.P	34401A	14/02/27	15/02/27	3146A13475
DC Power Supply	H.P	66332A	13/09/24	14/09/24	US37473627
Temp &Humi Test Chamber	SJ Science	SJ-TH-S50	13/10/21	14/10/21	SJ-TH-S50-131011
Power Splitter	Anritsu	K241B	13/10/22	14/10/22	1701099
Attenuator(3dB)	SMAJK	SMAJK-2-3	13/10/22	14/10/22	3
Attenuator(10dB)	SMAJK	SMAJK-50-10	13/10/23	14/10/23	2-50-10
Thermo hygrometer	BODYCOM	BJ5478	14/03/03	15/03/03	1209
Dipole Antenna	Schwarzbeck	VHA9103	13/10/24	15/10/24	2116
Dipole Antenna	Schwarzbeck	VHA9103	14/04/01	16/04/01	2117
Dipole Antenna	Schwarzbeck	UHA9105	13/10/24	15/10/24	2261
Dipole Antenna	Schwarzbeck	UHA9105	14/04/01	16/04/01	2262
Bilog Antenna	SCHAFFNER	CBL6112B	12/11/06	14/11/06	2737
HORN ANT	ETS	3115	14/02/26	16/02/26	6419
HORN ANT	ETS	3115	13/02/28	15/02/28	00021097
HORN ANT	A.H.Systems	SAS-574	13/03/20	15/03/20	154
HORN ANT	A.H.Systems	SAS-574	13/05/27	15/05/27	155
Amplifier (22dB)	H.P	8447E	14/01/07	15/01/07	2945A02865
Amplifier (30dB)	Agilent	8449B	14/02/27	15/02/27	3008A00370
High-pass filter	Wainwright	WHKX1.0	13/09/12	14/09/12	9
High-Pass Filter	Wainwright	WHNX2.1	13/09/12	14/09/12	1
8960 Series 10 Wireless Comms Test Set	Agilent	E5515C	14/02/28	15/02/28	GB43461134
Universal Radio Communication Tester	Rohde Schwarz	CMU200	14/02/28	15/02/28	106760
Vector Signal Generator	Rohde Schwarz	SMBV100A	14/01/08	15/01/08	255571
Signal Generator	Rohde Schwarz	SMF100A	13/07/22	14/07/22	102341
Amplifier	EMPOWER	BBS3Q7ELU	13/09/12	14/09/12	1020

### 5. SUMMARY OF TEST RESULTS

FCC Part Section(s)	RSS Section(s)	Parameter	Status Note 1
2.1046	RSS-132 (4.4) RSS-133 (4.1)	Conducted Output Power	<b>C</b>
22.913(a) 24.232(c)	RSS-132 (4.4) [SRSP-503(5.1.3)] RSS-133 (6.4) [SRSP-510(5.1.2)]	Effective Radiated Power Equivalent Isotropic Radiated Power	<b>C</b>
22.917(a) 24.238(a) 2.1049	RSS-Gen (4.6.1) RSS-133 (2.3)	Occupied Bandwidth	<b>C</b>
22.917(a) 24.238(a) 2.1051	RSS-132 (4.5.1) RSS-133 (6.5.1)	Band Edge Spurious and Harmonic Emissions at Antenna Terminal	<b>C</b>
24.232(d)	RSS-133 (6.4)	Peak to Average Ratio	<b>C</b>
22.917(a) 24.238(a) 2.1053	RSS-132 (4.5.1) RSS-133 (6.5.1)	Radiated Spurious and Harmonic Emissions	<b>C</b>
22.355 24.235 2.1055	RSS-132 (4.3) RSS-133 (6.3)	Frequency Stability	<b>C</b>

Note 1: **C**=Comply    **NC**=Not Comply    **NT**=Not Tested    **NA**=Not Applicable

The sample was tested according to the following specification:  
**ANSI/TIA/EIA-603-C-2004 and KDB 971168 D01 v02r01**

## 6. SAMPLE CALCULATION

### A. Emission Designator

#### GSM850 Emission Designator

Emission Designator = **245KGXW**  
GSM OBW = 245.18kHz  
(Measured at the 99.75% power bandwidth)  
G = Phase Modulation  
X = Cases not otherwise covered  
W = Combination (Audio/Data)

#### WCDMA850 Emission Designator

Emission Designator = **4M18F9W**  
WCDMA OBW = 4.1832 MHz  
(Measured at the 99.75% power bandwidth)  
F = Frequency Modulation  
9 = Composite Digital Information  
W = Combination (Audio/Data)

#### WCDMA1900 Emission Designator

Emission Designator = **4M18F9W**  
WCDMA OBW = 4.1778 MHz  
(Measured at the 99.75% power bandwidth)  
F = Frequency Modulation  
9 = Composite Digital Information  
W = Combination (Audio/Data)

#### GSM1900 Emission Designator

Emission Designator = **247KGXW**  
GSM OBW = 247.33kHz  
(Measured at the 99.75% power bandwidth)  
G = Phase Modulation  
X = Cases not otherwise covered  
W = Combination (Audio/Data)

#### HSUPA850 Emission Designator

Emission Designator = **4M19F9W**  
HSUPA OBW = 4.1861 MHz  
(Measured at the 99.75% power bandwidth)  
F = Frequency Modulation  
9 = Composite Digital Information  
W = Combination (Audio/Data)

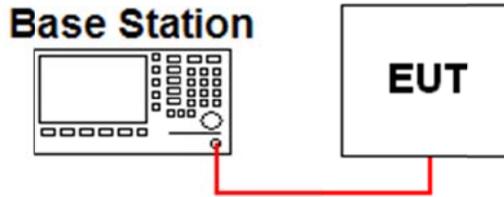
#### HSUPA1900 Emission Designator

Emission Designator = **4M19F9W**  
HSUPA OBW = 4.1937 MHz  
(Measured at the 99.75% power bandwidth)  
F = Frequency Modulation  
9 = Composite Digital Information  
W = Combination (Audio/Data)

## 7. TEST DATA

### 7.1 CONDUCTED OUTPUT POWER

A base station simulator was used to establish communication with the EUT. The base station simulator parameters were set to produce the maximum power from the EUT. This device was tested under all configurations and the highest power is reported. Conducted Output Powers of EUT are reported below.



▪ GSM / GPRS / EDGE

Band	Channel	Test Result(dBm)								
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Cellular	128	34.00	34.00	31.50	30.50	29.70	-	-	-	-
	190	34.00	34.00	31.50	30.50	29.70	-	-	-	-
	251	34.00	34.00	31.60	30.60	29.70	-	-	-	-
PCS	512	30.00	30.00	27.40	26.30	25.40	-	-	-	-
	661	30.00	30.00	27.40	26.30	25.40	-	-	-	-
	810	29.90	29.90	27.30	26.20	25.30	-	-	-	-

▪ WCDMA / HSDPA / HSUPA

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band (dBm)			PCS Band (dBm)			3GPP MPR (dB)
			4132	4183	4233	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	23.92	23.93	23.97	22.87	22.96	23.00	-
99		12.2 kbps AMR	23.92	23.94	23.97	22.84	22.95	22.99	-
5	HSDPA	Subtest 1	22.92	22.96	22.93	21.85	21.97	22.01	0
5		Subtest 2	22.92	22.95	22.92	21.84	21.95	22.00	0
5		Subtest 3	22.45	22.49	22.46	21.38	21.49	21.53	0.5
5		Subtest 4	22.43	22.46	22.43	21.35	21.47	21.53	0.5
6	HSUPA	Subtest 1	20.97	21.01	20.98	19.87	20.00	20.07	0
6		Subtest 2	20.96	21.00	20.97	19.86	19.99	20.07	2
6		Subtest 3	21.95	21.97	21.95	20.87	20.99	21.05	1
6		Subtest 4	20.41	20.46	20.45	19.34	19.46	19.52	2
6		Subtest 5	20.97	21.01	20.97	19.89	20.00	20.07	0

### 7.2 PEAKTOAVERAGERATIO

- Plots of the EUT's Peak- to- Average Ratio are shown in Clause 8.1

### 7.3 OCCUPIED BANDWIDTH

Band	Channel	Frequency	Test Result (kHz)
GSM850	<b>128</b>	<b>824.2</b>	<b>245.18</b>
	190	836.6	244.06
	251	848.8	244.39
GSM1900	512	1850.2	244.76
	661	1880.0	246.25
	<b>810</b>	<b>1909.8</b>	<b>247.33</b>
WCDMA850	<b>4132</b>	<b>826.4</b>	<b>4183.20</b>
	4183	836.6	4181.40
	4233	846.6	4146.30
WCDMA1900	<b>9262</b>	<b>1852.4</b>	<b>4177.80</b>
	9400	1880.0	4162.90
	9538	1907.6	4172.50
HSUPA850	<b>4132</b>	<b>826.4</b>	<b>4186.10</b>
	4183	836.6	4164.00
	4233	846.6	4158.10
HSUPA1900	9262	1852.4	4170.30
	9400	1880.0	4169.40
	<b>9538</b>	<b>1907.6</b>	<b>4193.70</b>

- Plots of the EUT's Occupied Bandwidth are shown in Clause 8.2

### 7.4 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL

- Plots of the EUT's Conducted Spurious Emissions are shown in Clause 8.3

### 7.5BAND EDGE

- Plots of the EUT's Band Edge are shown in Clause 8.4

**7.6 EFFECTIVE RADIATED POWER**

**- GSM850 data**

CH.	EUT Position (Axis)	Test Conditions(Power Step: 5)						
		Pol. (H/V)	LEVEL@ TX ANTENNA TERMINAL (dBm)	Antenna Gain (dBd)	ERP (dBm)	ERP (W)	Rated Voltage	Note.
<b>824.2 128</b>	<b>X</b>	<b>H</b>	<b>28.73</b>	<b>1.19</b>	<b>29.92</b>	<b>0.982</b>	<b>DC 3.7V</b>	<b>GSM</b>
836.6 190	X	H	28.51	1.19	29.70	0.933	DC 3.7V	GSM
848.8 251	X	H	28.55	1.19	29.74	0.942	DC 3.7V	GSM

**- WCDMA850 data**

CH.	EUT Position (Axis)	Test Conditions(TPC bits all set to "1")						
		Pol. (H/V)	LEVEL@ TX ANTENNA TERMINAL (dBm)	Antenna Gain (dBd)	ERP (dBm)	ERP (W)	Rated Voltage	Note.
826.4 4132	X	H	19.71	1.19	20.90	0.123	DC 3.7V	-
<b>836.6 4183</b>	<b>X</b>	<b>H</b>	<b>20.93</b>	<b>1.19</b>	<b>22.12</b>	<b>0.163</b>	<b>DC 3.7V</b>	<b>-</b>
846.6 4233	X	H	18.89	1.19	20.08	0.102	DC 3.7V	-

**- HSUPA850 data**

CH.	EUT Position (Axis)	Test Conditions(TPC bits all set to "1")						
		Pol. (H/V)	LEVEL@ TX ANTENNA TERMINAL (dBm)	Antenna Gain (dBd)	ERP (dBm)	ERP (W)	Rated Voltage	Note.
826.4 4132	X	H	17.83	1.19	19.02	0.080	DC 3.7V	-
<b>836.6 4183</b>	<b>X</b>	<b>H</b>	<b>18.79</b>	<b>1.19</b>	<b>19.98</b>	<b>0.100</b>	<b>DC 3.7V</b>	<b>-</b>
846.6 4233	X	H	17.78	1.19	18.97	0.079	DC 3.7V	-

**NOTES:**

This EUT was tested under all configurations and the highest power is reported in GSM mode and WCDMA mode with HSDPA inactive at 12.2 kbps RMC and TPC bits set to "1" and in GSM mode using a Power Control Level of "0" in PCS Band and "5" in the Cellular Band. This EUT was tested with the fully charged battery. Also, we have done x, y, z planes in EUT and horizontal and vertical polarization of detecting antenna. The worst case data is reported.

### 7.7 EQUIVALENT ISOTROPIC RADIATED POWER

**- GSM1900 data**

CH.	EUT Position (Axis)	TEST CONDITIONS(Power Step: 0)						
		Pol. (H/V)	LEVEL@ TX ANTENNA TERMINAL (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Rated Voltage	Note.
826.4 4132	X	H	20.18	8.89	29.07	0.807	DC 3.7V	-
<b>836.6 4183</b>	<b>X</b>	<b>H</b>	<b>20.20</b>	<b>8.92</b>	<b>29.12</b>	<b>0.817</b>	<b>DC 3.7V</b>	-
846.6 4233	X	H	18.69	8.96	27.65	0.582	DC 3.7V	-

**- WCDMA1900 data**

CH.	EUT Position (Axis)	Test Conditions(TPC bits all set to "1")						
		Pol. (H/V)	LEVEL@ TX ANTENNA TERMINAL (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Rated Voltage	Note.
1852.4 9262	X	H	11.71	8.89	20.60	0.115	DC 3.7V	-
<b>1880.0 9400</b>	<b>X</b>	<b>H</b>	<b>13.77</b>	<b>8.92</b>	<b>22.69</b>	<b>0.186</b>	<b>DC 3.7V</b>	-
1907.6 9538	X	H	12.83	8.95	21.78	0.151	DC 3.7V	-

**- HSUPA1900 data**

CH.	EUT Position (Axis)	Test Conditions(TPC bits all set to "1")						
		Pol. (H/V)	LEVEL@ TX ANTENNA TERMINAL (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Rated Voltage	Note.
1852.4 9262	X	H	10.22	8.89	19.11	0.081	DC 3.7V	-
<b>1880.0 9400</b>	<b>X</b>	<b>H</b>	<b>11.63</b>	<b>8.92</b>	<b>20.55</b>	<b>0.114</b>	<b>DC 3.7V</b>	-
1907.6 9538	X	H	10.46	8.95	19.41	0.087	DC 3.7V	-

**NOTES:**

This EUT was tested under all configurations and the highest power is reported in GSM mode and WCDMA mode with HSDPA inactive at 12.2 kbps RMC and TPC bits set to "1" and in GSM mode using a Power Control Level of "0" in PCS Band and "5" in the Cellular Band. This EUT was tested with the fully charged battery. Also, we have done x, y, z planes in EUT and horizontal and vertical polarization of detecting antenna.

The worst case data is reported.

## 7.8 RADIATED SPURIOUS EMISSIONS

### 7.8.1 RADIATED SPURIOUS EMISSIONS (GSM850)

Channel (ERP)	Freq. (MHz)	EUT Position (Axis)	POL (H/V)	LEVEL@ ANTENNA TERMINAL (dBm)	Substitute Antenna Gain (dBd)	Correct Generator Level (dBm)	Result (dBc)	Limit (dBc)
128 (0.982 W)	1648.37	X	H	-52.19	6.50	-45.69	75.61	42.92
	2472.56	X	H	-52.75	7.53	-45.22	75.14	
	3296.75	X	H	-56.68	7.79	-48.89	78.81	
190 (0.933 W)	1673.36	X	H	-55.33	6.53	-48.80	78.50	42.70
	2509.98	X	H	-51.57	7.57	-44.00	73.70	
	3346.52	X	H	-55.49	7.80	-47.69	77.39	
251 (0.942 W)	1697.59	X	H	-55.35	6.56	-48.79	78.53	42.74
	2546.42	X	H	-53.09	7.59	-45.50	75.24	
	3395.05	X	H	-59.82	7.81	-52.01	81.75	

- Limit Calculation= 43 + 10 log<sub>10</sub>( ERP [W] ) [dBc]

- No other spurious and harmonic emissions were reported greater than listed emissions above table.

#### NOTES:

This EUT was tested under all configurations and the highest power is reported in GSM mode and WCDMA mode with HSDPA inactive at 12.2 kbps RMC and TPC bits set to "1" and in GSM mode using a Power Control Level of "0" in PCS Band and "5" in the Cellular Band. This EUT was tested with the fully charged battery. Also, we have done x, y, z planes in EUT and horizontal and vertical polarization of detecting antenna.

The worst case data is reported.

**7.8.2 RADIATED SPURIOUS EMISSIONS (WCDMA850)**

Channel (ERP)	Freq. (MHz)	EUT Position (Axis)	POL (H/V)	LEVEL@ ANTENNA TERMINAL (dBm)	Substitute Antenna Gain (dBd)	Correct Generator Level (dBm)	Result (dBc)	Limit (dBc)
4132 (0.123 W)	1651.25	X	H	-51.42	6.51	-44.91	65.81	33.90
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
4183 (0.163 W)	1675.52	X	H	-52.91	6.53	-46.38	68.50	35.12
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
4233 (0.102 W)	1690.73	X	H	-50.34	6.55	-43.79	63.88	33.08
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	

- Limit Calculation= 43 + 10 log<sub>10</sub>( ERP [W] ) [dBc]

- No other spurious and harmonic emissions were reported greater than listed emissions above table.

**NOTES:**

This EUT was tested under all configurations and the highest power is reported in GSM mode and WCDMA mode with HSDPA inactive at 12.2 kbps RMC and TPC bits set to “1” and in GSM mode using a Power Control Level of “0” in PCS Band and “5” in the Cellular Band. This EUT was tested with the fully charged battery. Also, we have done x, y, z planes in EUT and horizontal and vertical polarization of detecting antenna.

The worst case data is reported.

**7.8.3 RADIATED SPURIOUS EMISSIONS (HSUPA850)**

Channel (ERP)	Freq. (MHz)	EUT Position (Axis)	POL (H/V)	LEVEL@ ANTENNA TERMINAL (dBm)	Substitute Antenna Gain (dBd)	Correct Generator Level (dBm)	Result (dBc)	Limit (dBc)
4132 (0.080 W)	1654.68	X	H	-55.13	6.51	-48.62	67.64	32.02
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
4183 (0.100 W)	1675.58	X	H	-55.23	6.53	-48.70	68.68	32.98
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
4233 (0.079 W)	1690.70	X	H	-53.83	6.55	-47.28	66.25	31.97
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	

- Limit Calculation= 43 + 10 log<sub>10</sub>( ERP [W] ) [dBc]

- No other spurious and harmonic emissions were reported greater than listed emissions above table.

**NOTES:**

This EUT was tested under all configurations and the highest power is reported in GSM mode and WCDMA mode with HSDPA inactive at 12.2 kbps RMC and TPC bits set to “1” and in GSM mode using a Power Control Level of “0” in PCS Band and “5” in the Cellular Band. This EUT was tested with the fully charged battery. Also, we have done x, y, z planes in EUT and horizontal and vertical polarization of detecting antenna.

The worst case data is reported.

**7.8.4 RADIATED SPURIOUS EMISSIONS (GSM1900)**

Channel (EIRP)	Freq. (MHz)	EUT Position (Axis)	POL (H/V)	LEVEL@ ANTENNA TERMINAL (dBm)	Substitute Antenna Gain (dBi)	Correct Generator Level (dBm)	Result (dBc)	Limit (dBc)
512 (0.807 W)	3700.33	Z	V	-43.85	9.78	-34.07	63.14	42.07
	5550.66	Z	V	-44.57	11.04	-33.53	62.60	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
661 (0.817 W)	3759.91	Z	V	-43.83	9.72	-34.11	63.23	42.12
	5640.02	Z	H	-47.87	11.14	-36.73	65.85	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
810 (0.582 W)	3819.67	Z	V	-47.10	9.66	-37.44	65.09	40.65
	5729.21	Z	V	-47.90	11.23	-36.67	64.32	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	

- Limit Calculation =  $43 + 10 \log_{10}( \text{EIRP [W]} )$  [dBc]

- No other spurious and harmonic emissions were reported greater than listed emissions above table.

**NOTES:**

This EUT was tested under all configurations and the highest power is reported in GSM mode and WCDMA mode with HSDPA inactive at 12.2 kbps RMC and TPC bits set to "1" and in GSM mode using a Power Control Level of "0" in PCS Band and "5" in the Cellular Band. This EUT was tested with the fully charged battery. Also, we have done x, y, z planes in EUT and horizontal and vertical polarization of detecting antenna.

The worst case data is reported.

**7.8.5 RADIATED SPURIOUS EMISSIONS (WCDMA1900)**

Channel (EIRP)	Freq. (MHz)	EUT Position (Axis)	POL (H/V)	LEVEL@ ANTENNA TERMINAL (dBm)	Substitute Antenna Gain (dBi)	Correct Generator Level (dBm)	Result (dBc)	Limit (dBc)
9262 (0.115 W)	3707.01	Z	H	-51.64	9.77	-41.87	62.47	33.60
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
9400 (0.186 W)	3761.43	Z	H	-51.53	9.72	-41.81	64.50	35.69
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
9538 (0.151 W)	3817.60	X	H	-47.37	9.66	-37.71	59.49	34.78
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	

- Limit Calculation =  $43 + 10 \log_{10}( \text{EIRP [W]} )$  [dBc]

- No other spurious and harmonic emissions were reported greater than listed emissions above table.

**NOTES:**

This EUT was tested under all configurations and the highest power is reported in GSM mode and WCDMA mode with HSDPA inactive at 12.2 kbps RMC and TPC bits set to "1" and in GSM mode using a Power Control Level of "0" in PCS Band and "5" in the Cellular Band. This EUT was tested with the fully charged battery. Also, we have done x, y, z planes in EUT and horizontal and vertical polarization of detecting antenna.

The worst case data is reported.

**7.8.6 RADIATED SPURIOUS EMISSIONS (HSUPA1900)**

Channel (EIRP)	Freq. (MHz)	EUT Position (Axis)	POL (H/V)	LEVEL@ ANTENNA TERMINAL (dBm)	Substitute Antenna Gain (dBi)	Correct Generator Level (dBm)	Result (dBc)	Limit (dBc)
9262 (0.081 W)	3707.39	Y	V	-55.24	9.77	-45.47	64.58	32.11
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
9400 (0.114 W)	3758.08	Y	V	-52.43	9.72	-42.71	63.26	33.55
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
9538 (0.087 W)	3817.80	Y	V	-51.29	9.66	-41.63	61.04	32.41
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	

- Limit Calculation =  $43 + 10 \log_{10}( \text{EIRP [W]} )$  [dBc]
- No other spurious and harmonic emissions were reported greater than listed emissions above table.

**NOTES:**

This EUT was tested under all configurations and the highest power is reported in GSM mode and WCDMA mode with HSDPA inactive at 12.2 kbps RMC and TPC bits set to “1” and in GSM mode using a Power Control Level of “0” in PCS Band and “5” in the Cellular Band. This EUT was tested with the fully charged battery. Also, we have done x, y, z planes in EUT and horizontal and vertical polarization of detecting antenna.

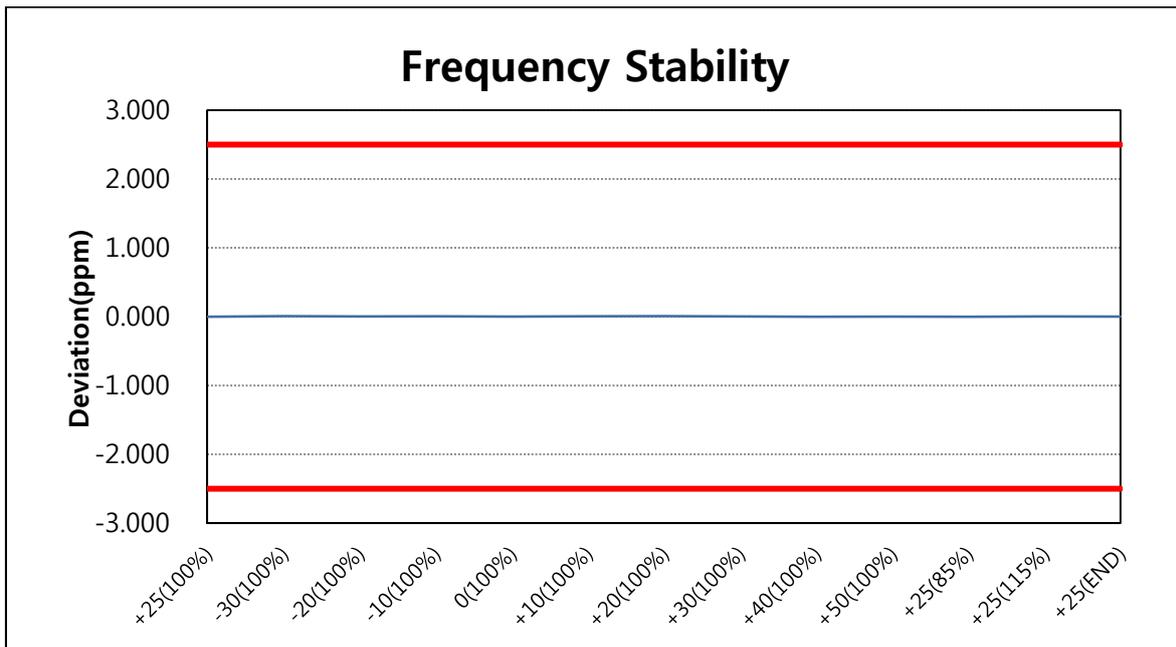
The worst case data is reported.

## 7.9 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

### 7.9.1 FREQUENCY STABILITY (GSM850)

OPERATING FREQUENCY : 836,600,009Hz  
 CHANNEL : 190(Mid)  
 REFERENCE VOLTAGE : 3.700V DC  
 DEVIATION LIMIT :  $\pm 0.00025\%$  or 2.5 ppm

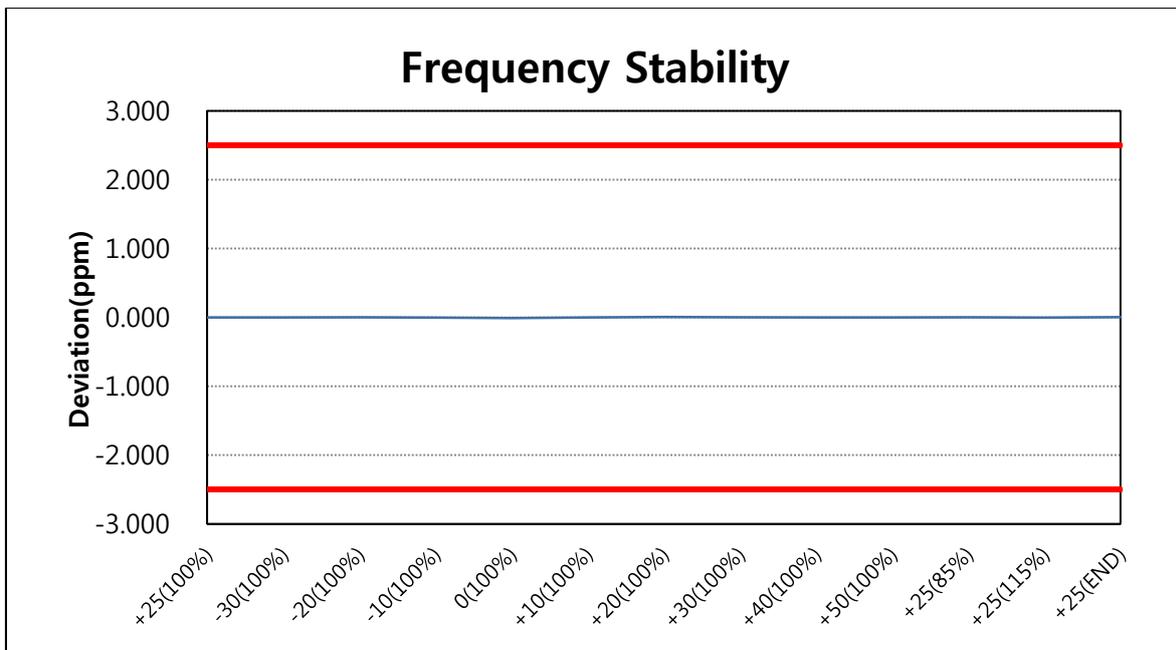
VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQ (Hz)	Deviation	
				(ppm)	(%)
100%	3.700	+25(Ref)	836,600,009	0.000	0.00000000
100%		-30	836,600,017	0.010	0.00000096
100%		-20	836,600,013	0.005	0.00000048
100%		-10	836,600,014	0.006	0.00000060
100%		0	836,600,011	0.002	0.00000024
100%		+10	836,600,015	0.007	0.00000072
100%		+20	836,600,017	0.010	0.00000096
100%		+30	836,600,013	0.005	0.00000048
100%		+40	836,600,008	-0.001	-0.00000012
100%		+50	836,600,011	0.002	0.00000024
85 %		3.145	+25	836,600,009	0.000
115%	4.255	+25	836,600,012	0.004	0.00000036
BATT.ENDPOINT	2.950	+25	836,600,010	0.001	0.00000012



**7.9.2 FREQUENCY STABILITY (WCDMA850)**

OPERATING FREQUENCY : 836.600,006Hz  
 CHANNEL : 4183(Mid)  
 REFERENCE VOLTAGE : 3.700 V DC  
 DEVIATION LIMIT :  $\pm 0.00025$  % or 2.5 ppm

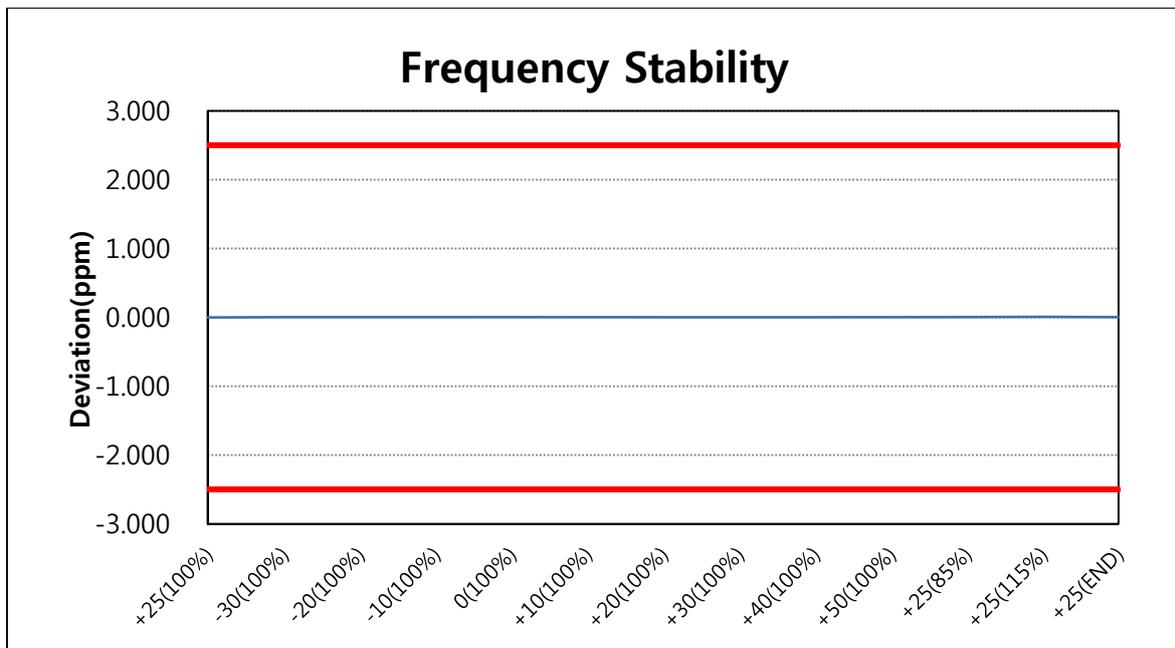
VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQ (Hz)	Deviation	
				(ppm)	(%)
100%	3.700	+25(Ref)	836,600,006	0.000	0.00000000
100%		-30	836,600,006	0.000	0.00000000
100%		-20	836,600,007	0.001	0.00000012
100%		-10	836,600,004	-0.002	-0.00000024
100%		0	836,599,997	-0.011	-0.00000108
100%		+10	836,600,006	0.000	0.00000000
100%		+20	836,600,011	0.006	0.00000060
100%		+30	836,600,007	0.001	0.00000012
100%		+40	836,600,006	0.000	0.00000000
100%		+50	836,600,005	-0.001	-0.00000012
85%		3.145	+25	836,600,008	0.002
115%	4.255	+25	836,600,004	-0.002	-0.00000024
BATT.ENDPOINT	2.950	+25	836,600,009	0.004	0.00000036



**7.9.3 FREQUENCY STABILITY (HSUPA850)**

OPERATING FREQUENCY : 836.600,005Hz  
 CHANNEL : 4183(Mid)  
 REFERENCE VOLTAGE : 3.700 V DC  
 DEVIATION LIMIT :  $\pm 0.00025$  % or 2.5 ppm

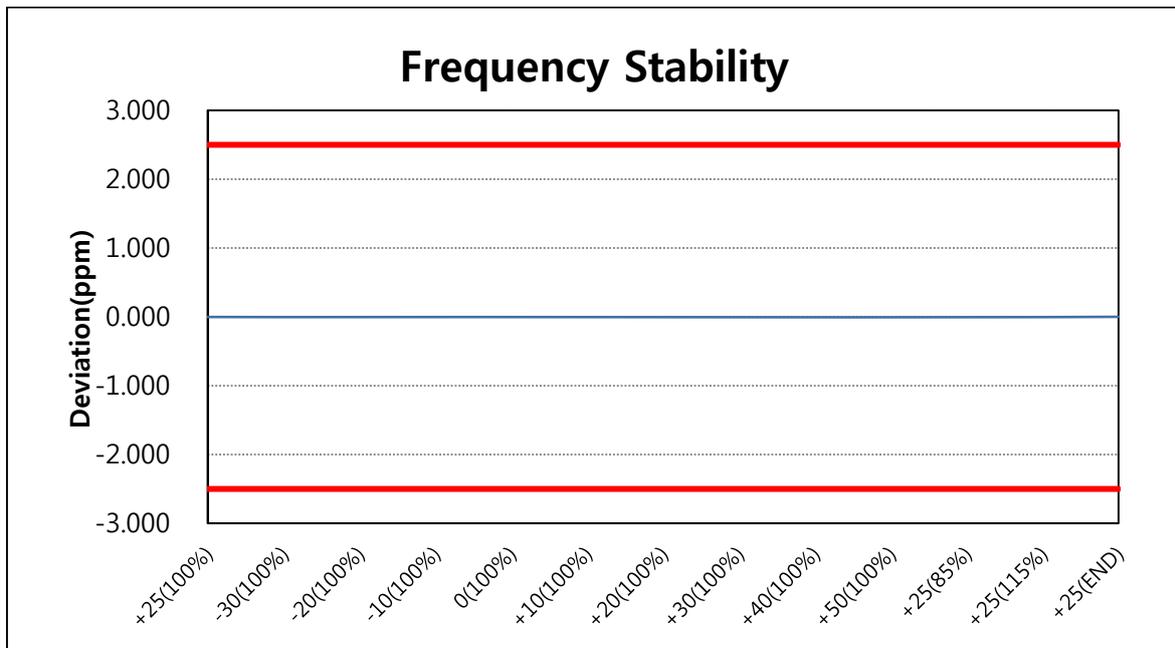
VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQ (Hz)	Deviation	
				(ppm)	(%)
100%	3.700	+25(Ref)	836,600,005	0.000	0.00000000
100%		-30	836,600,008	0.004	0.00000036
100%		-20	836,600,010	0.006	0.00000060
100%		-10	836,600,006	0.001	0.00000012
100%		0	836,600,009	0.005	0.00000048
100%		+10	836,600,007	0.002	0.00000024
100%		+20	836,600,010	0.006	0.00000060
100%		+30	836,600,005	0.000	0.00000000
100%		+40	836,600,008	0.004	0.00000036
100%		+50	836,600,008	0.004	0.00000036
85%		3.145	+25	836,600,007	0.002
115%	4.255	+25	836,600,012	0.008	0.00000084
BATT.ENDPOINT	2.950	+25	836,600,009	0.005	0.00000048



**7.9.4 FREQUENCY STABILITY (GSM1900)**

OPERATING FREQUENCY : 1,880,000,036Hz  
 CHANNEL : 661(Mid)  
 REFERENCE VOLTAGE : 3.700 V DC  
 DEVIATION LIMIT : ± 0.00025 % or 2.5 ppm

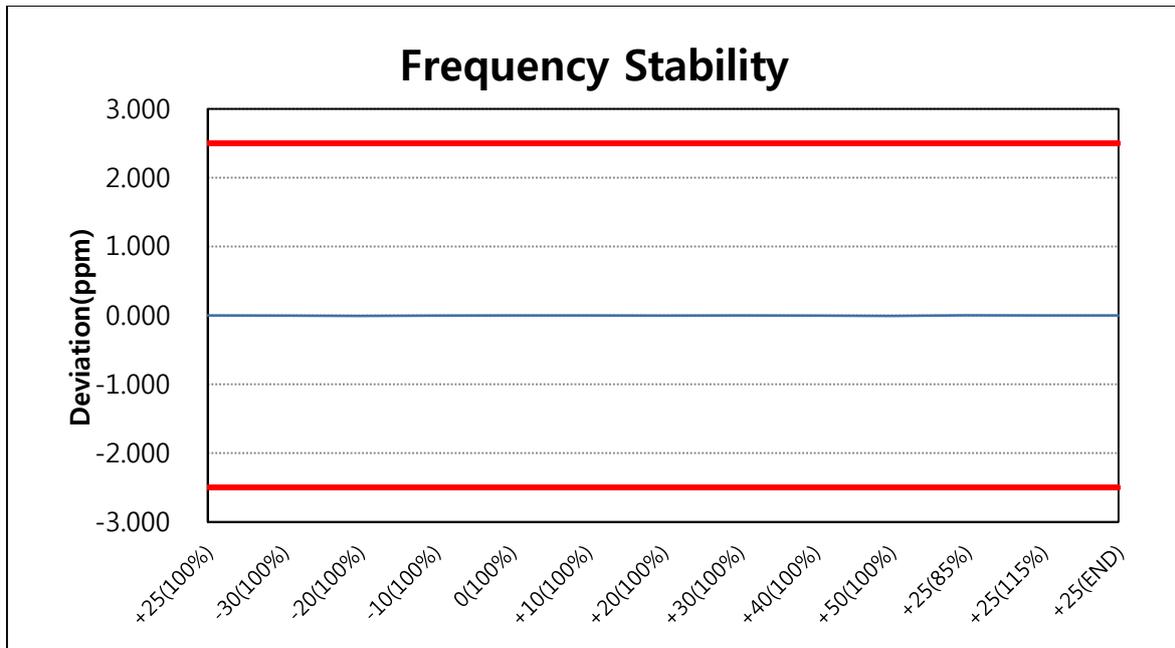
VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQ (Hz)	Deviation	
				(ppm)	(%)
100%	3.700	+25(Ref)	1,880,000,036	0.000	0.00000000
100%		- 30	1,880,000,031	-0.003	-0.00000027
100%		-20	1,880,000,029	-0.004	-0.00000037
100%		-10	1,880,000,031	-0.003	-0.00000027
100%		0	1,880,000,033	-0.002	-0.00000016
100%		+10	1,880,000,028	-0.004	-0.00000043
100%		+20	1,880,000,025	-0.006	-0.00000059
100%		+30	1,880,000,028	-0.004	-0.00000043
100%		+40	1,880,000,032	-0.002	-0.00000021
100%		+50	1,880,000,026	-0.005	-0.00000053
85 %	3.145	+25	1,880,000,022	-0.007	-0.00000074
115%	4.255	+25	1,880,000,030	-0.003	-0.00000032
BATT.ENDPOINT	2.950	+25	1,880,000,039	0.002	0.00000016



**7.9.5 FREQUENCY STABILITY (WCDMA1900)**

OPERATING FREQUENCY : 1,880,000,009Hz  
 CHANNEL : 9400(Mid)  
 REFERENCE VOLTAGE : 3.700 V DC  
 DEVIATION LIMIT : ± 0.00025 % or 2.5 ppm

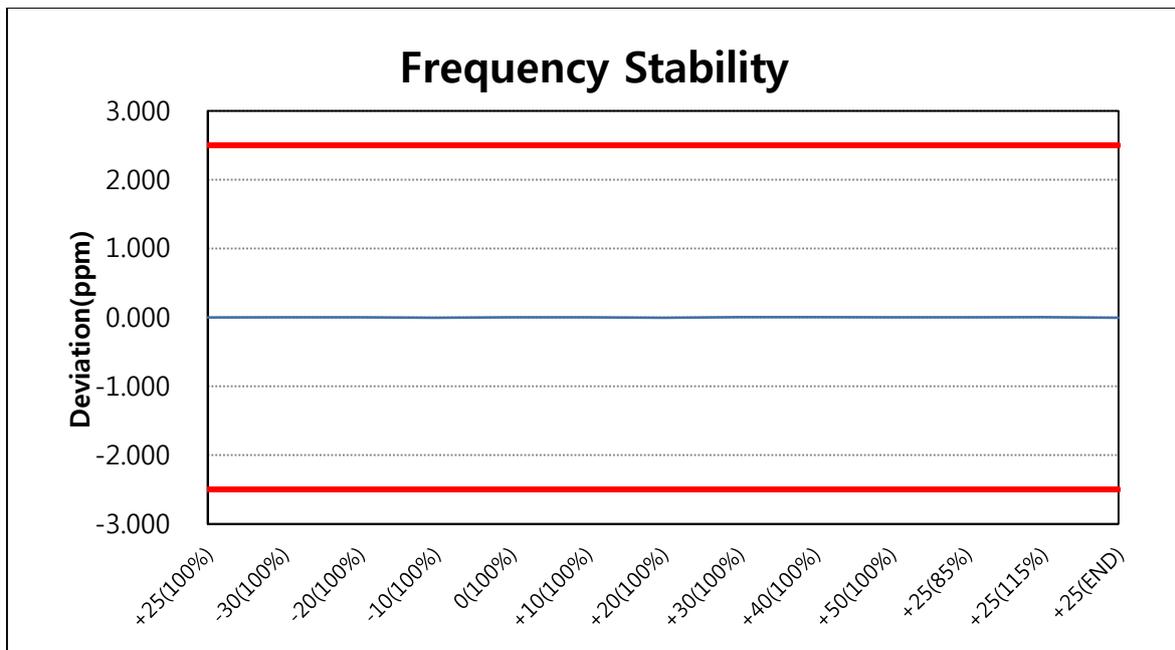
VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQ (Hz)	Deviation	
				(ppm)	(%)
100%	3.700	+25(Ref)	1,880,000,009	0.000	0.00000000
100%		- 30	1,880,000,003	-0.003	-0.00000032
100%		-20	1,879,999,995	-0.007	-0.00000074
100%		-10	1,880,000,004	-0.003	-0.00000027
100%		0	1,880,000,008	-0.001	-0.00000005
100%		+10	1,880,000,006	-0.002	-0.00000016
100%		+20	1,880,000,005	-0.002	-0.00000021
100%		+30	1,880,000,007	-0.001	-0.00000011
100%		+40	1,880,000,005	-0.002	-0.00000021
100%		+50	1,879,999,996	-0.007	-0.00000069
85%	3.145	+25	1,880,000,011	0.001	0.00000011
115%	4.255	+25	1,880,000,007	-0.001	-0.00000011
BATT.ENDPOINT	2.950	+25	1,880,000,008	-0.001	-0.00000005



**7.9.4 FREQUENCY STABILITY (HSUPA1900)**

OPERATING FREQUENCY : 1,880,000,005Hz  
 CHANNEL : 9400(Mid)  
 REFERENCE VOLTAGE : 3.700 V DC  
 DEVIATION LIMIT :  $\pm 0.00025\%$  or 2.5 ppm

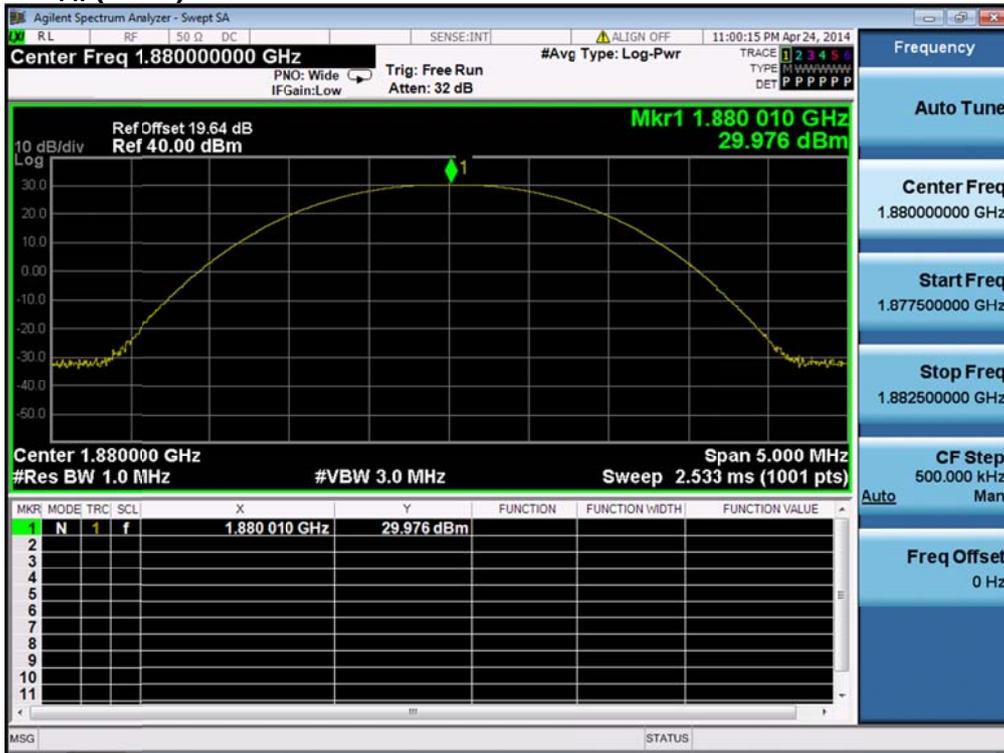
VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQ (Hz)	Deviation	
				(ppm)	(%)
100%	3.700	+25(Ref)	1,880,000,005	0.000	0.00000000
100%		-30	1,880,000,009	0.002	0.00000021
100%		-20	1,880,000,006	0.001	0.00000005
100%		-10	1,879,999,996	-0.005	-0.00000048
100%		0	1,880,000,008	0.002	0.00000016
100%		+10	1,880,000,008	0.002	0.00000016
100%		+20	1,879,999,995	-0.005	-0.00000053
100%		+30	1,880,000,010	0.003	0.00000027
100%		+40	1,880,000,012	0.004	0.00000037
100%		+50	1,880,000,008	0.002	0.00000016
85%	3.145	+25	1,880,000,007	0.001	0.00000011
115%	4.255	+25	1,880,000,010	0.003	0.00000027
BATT.ENDPOINT	2.950	+25	1,879,999,996	-0.005	-0.00000048



## 8. TEST PLOTS

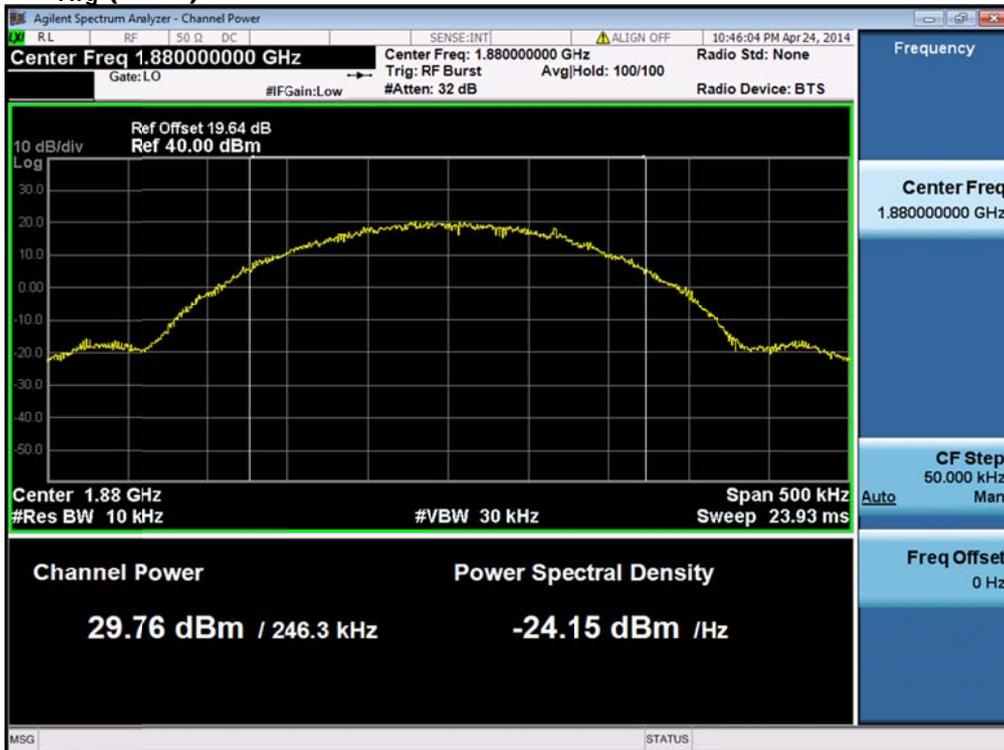
### 8.1 Peak to Average Ratio -P<sub>PK</sub> (dBm)

GSM1900& Channel: 661



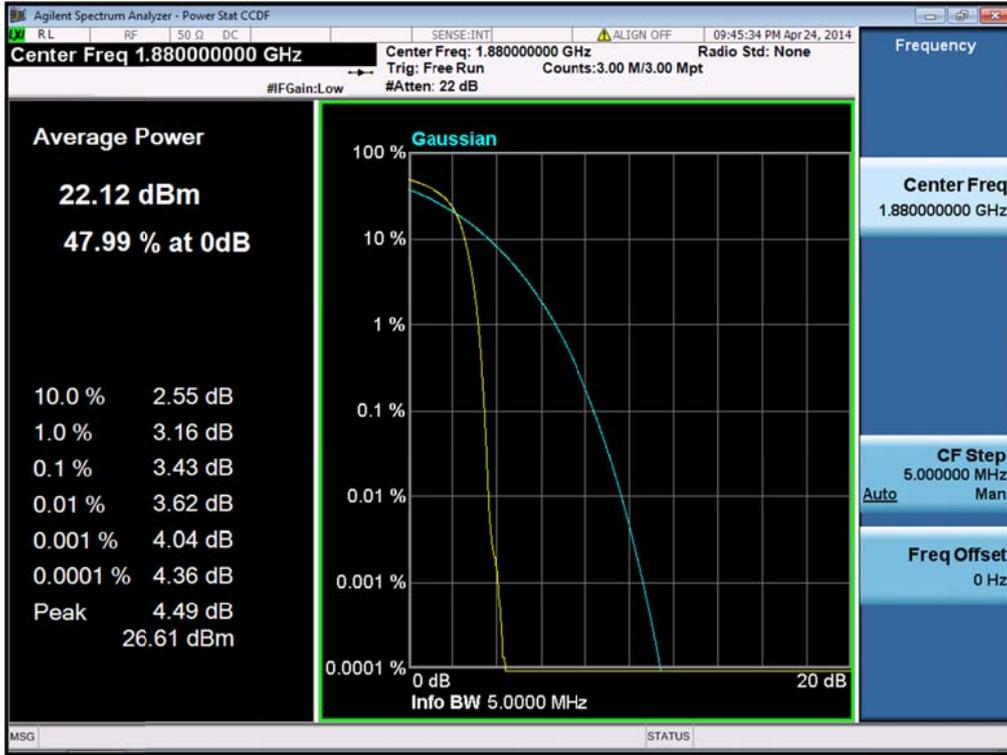
### -P<sub>Avg</sub> (dBm)

GSM1900& Channel: 661

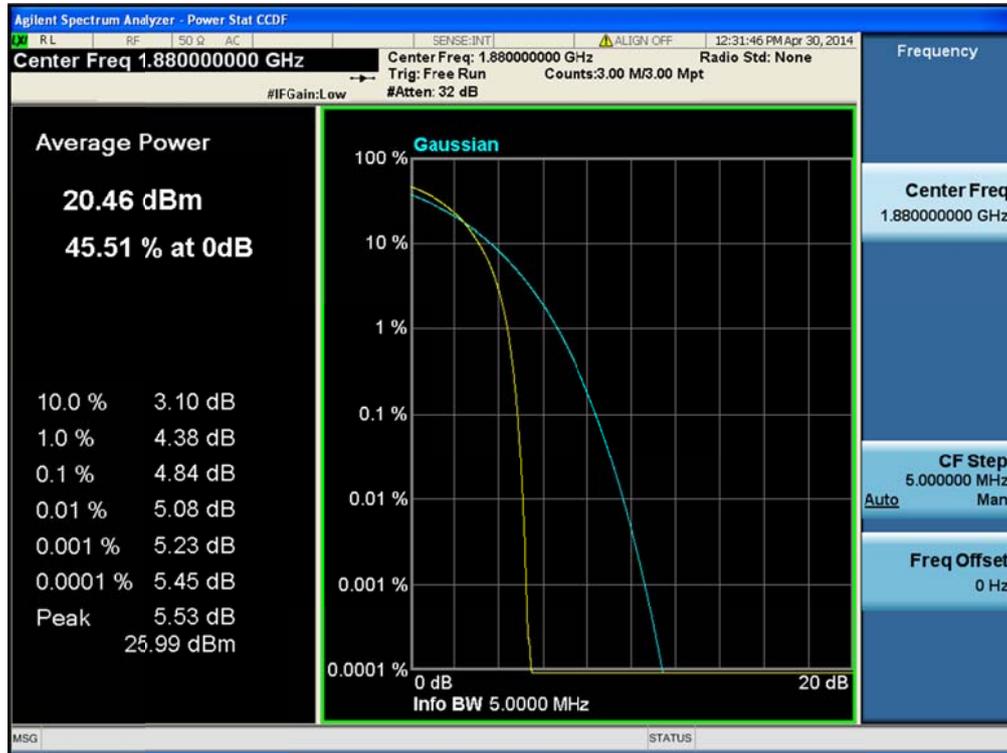


$$\text{PAPR (dB)} = P_{\text{PK}} \text{ (dBm)} - P_{\text{Avg}} \text{ (dBm)} = 29.976\text{dBm} - 29.760\text{dBm} = 0.216 \text{ dB}$$

WCDMA1900 & Channel: 9400

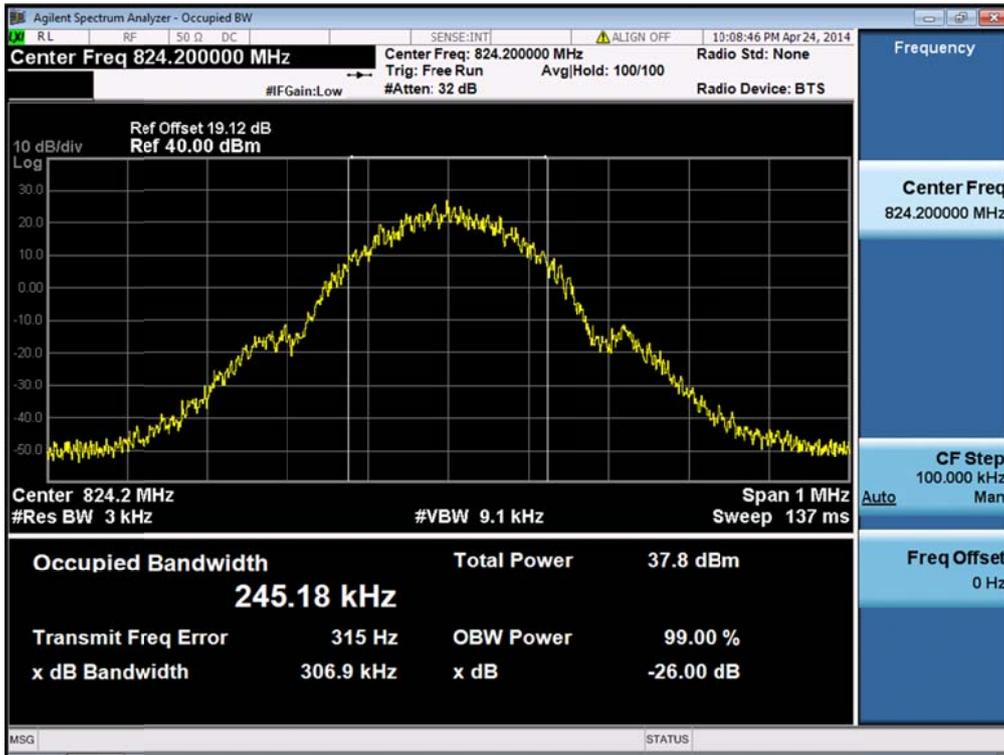


HSUPA1900 & Channel: 9400

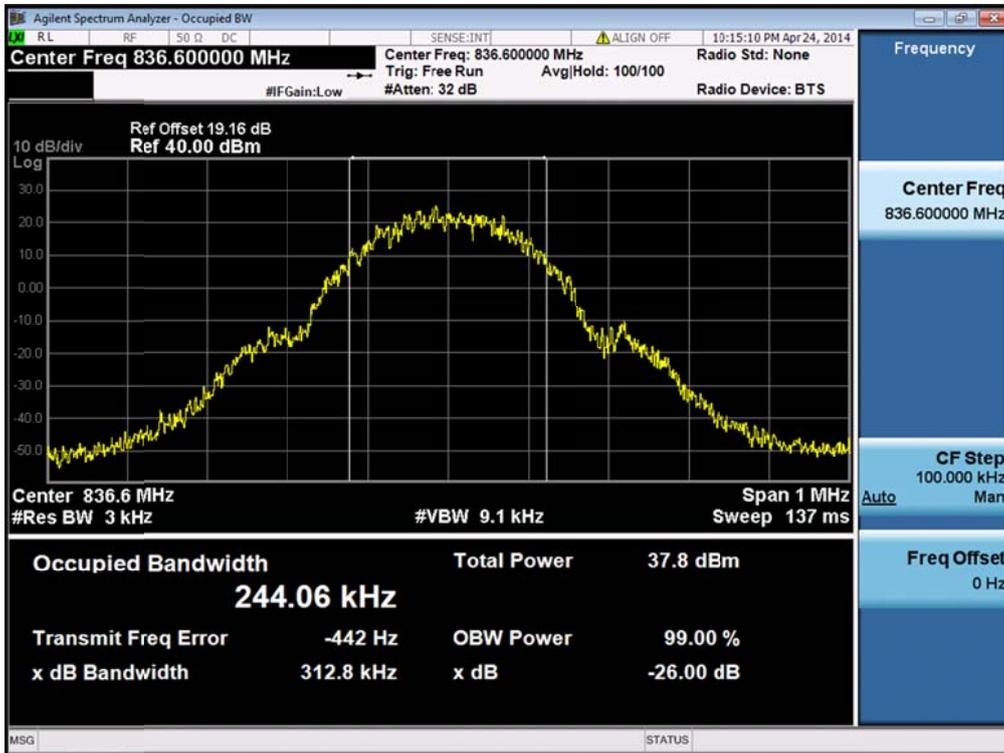


### 8.2 Occupied Bandwidth(99 % Bandwidth)

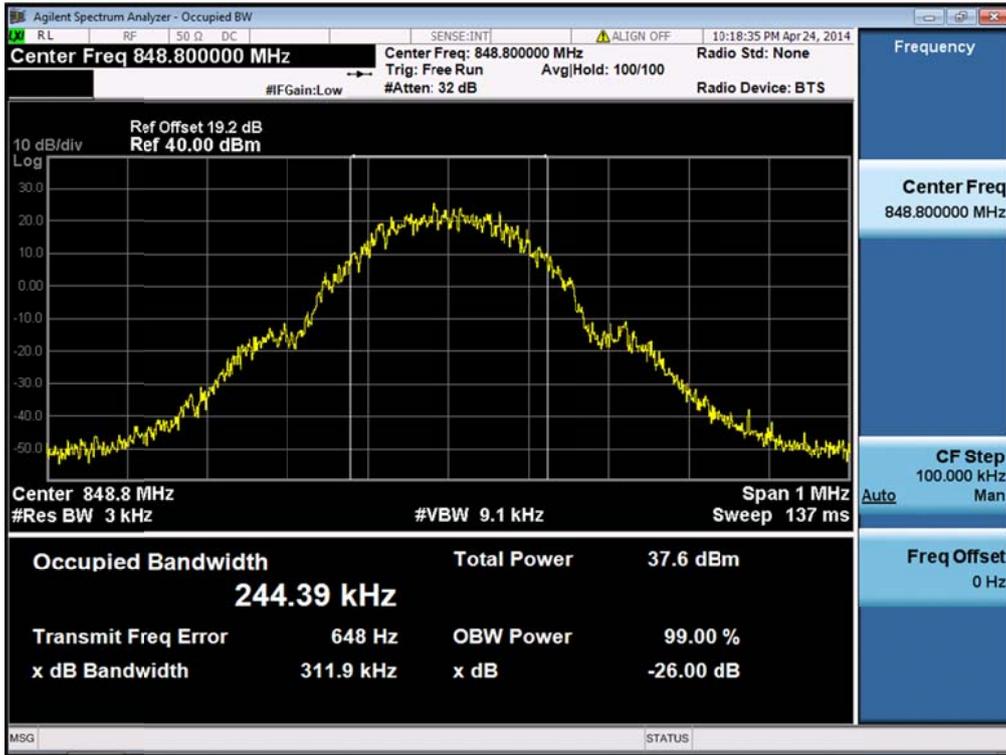
GSM850 & Channel: 128



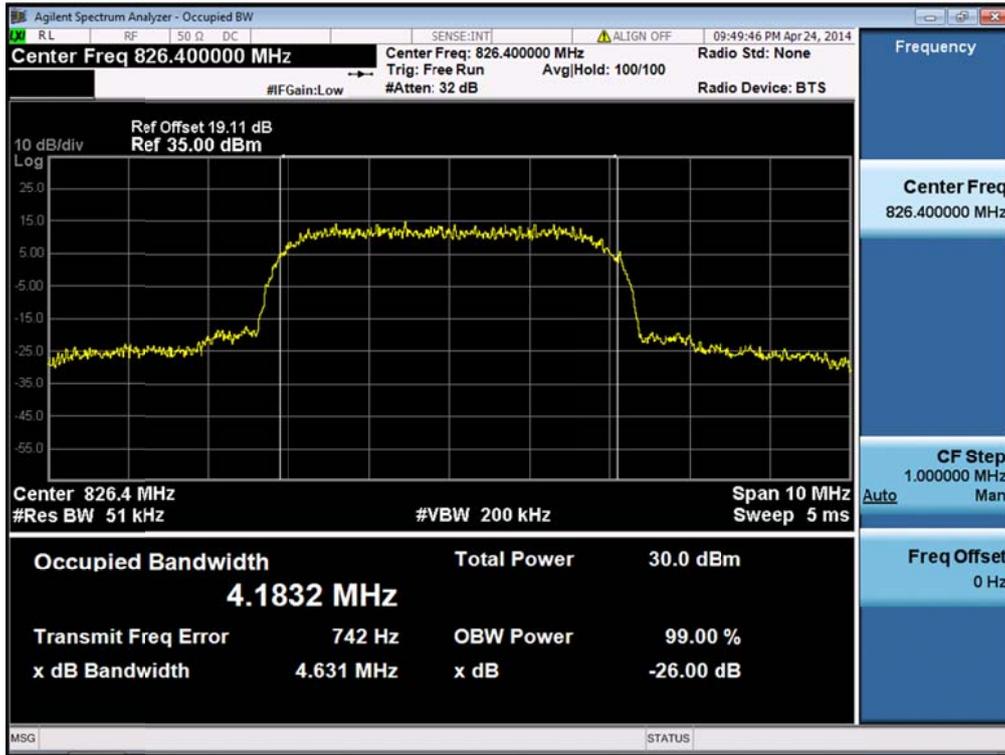
GSM850 & Channel: 190



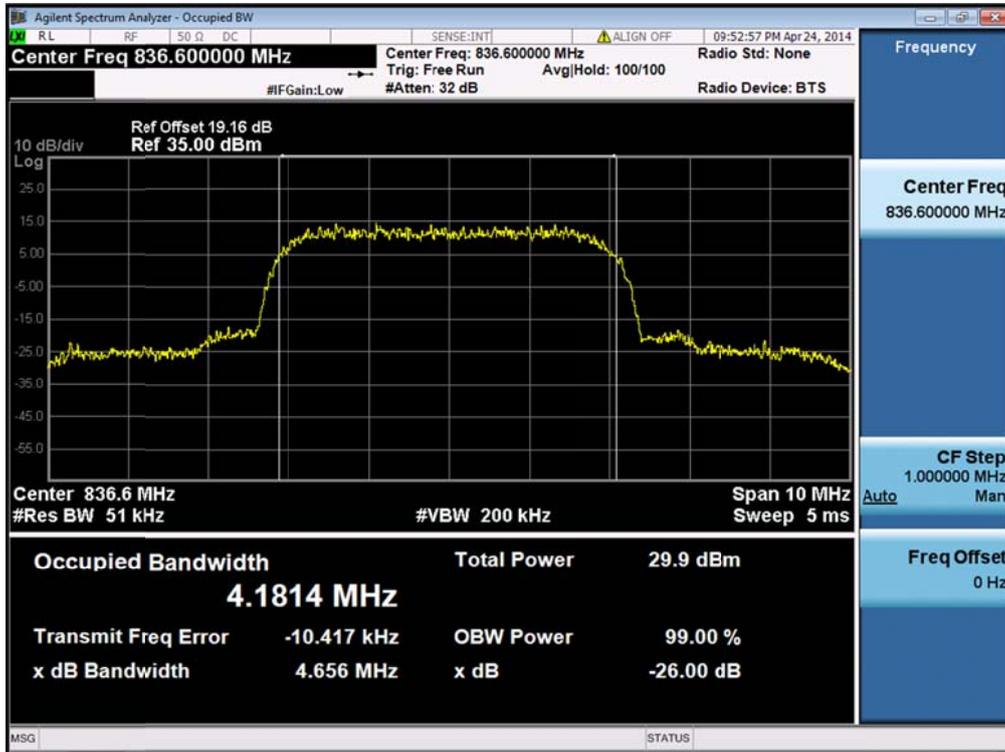
### GSM850 & Channel: 251



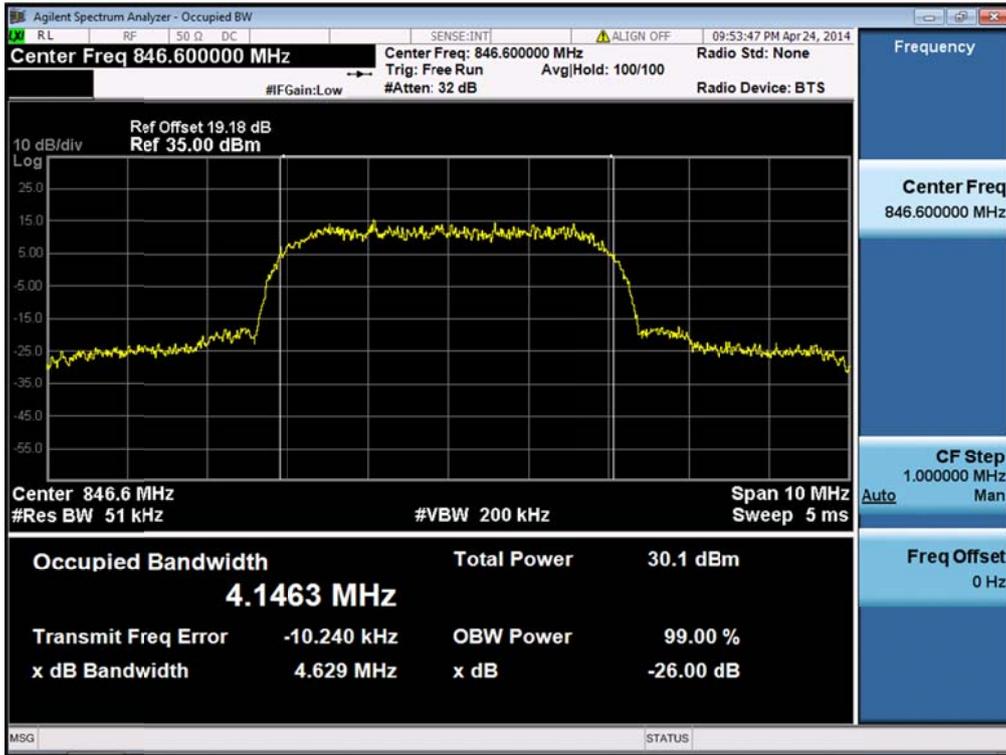
WCDMA850& Channel: 4132



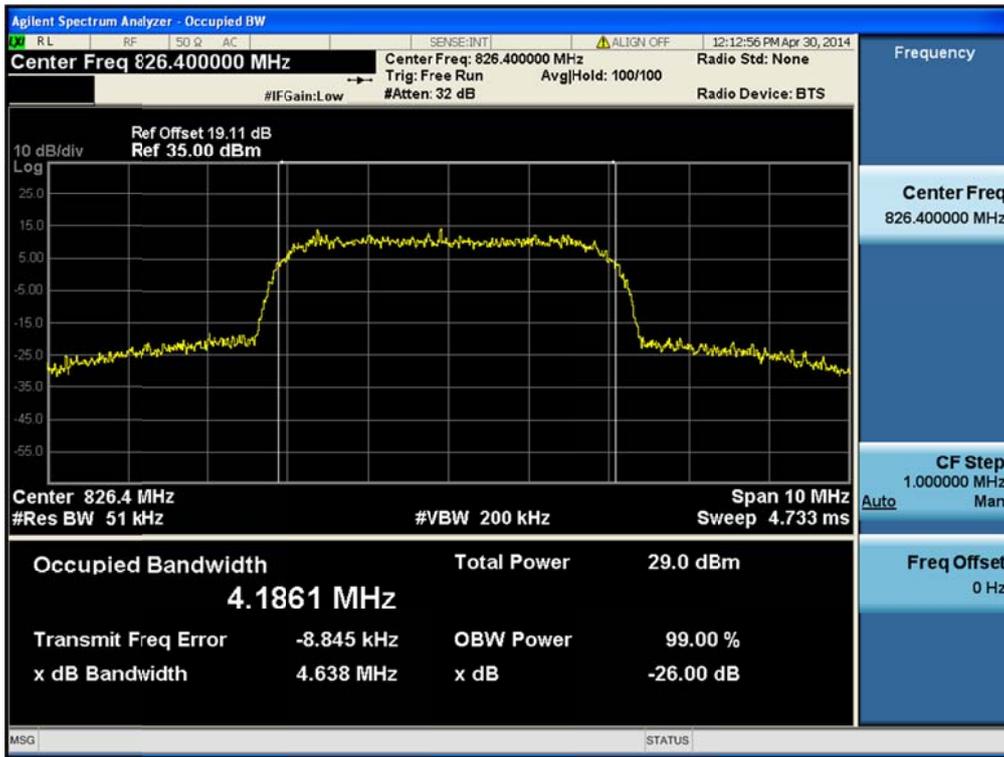
WCDMA850& Channel: 4183



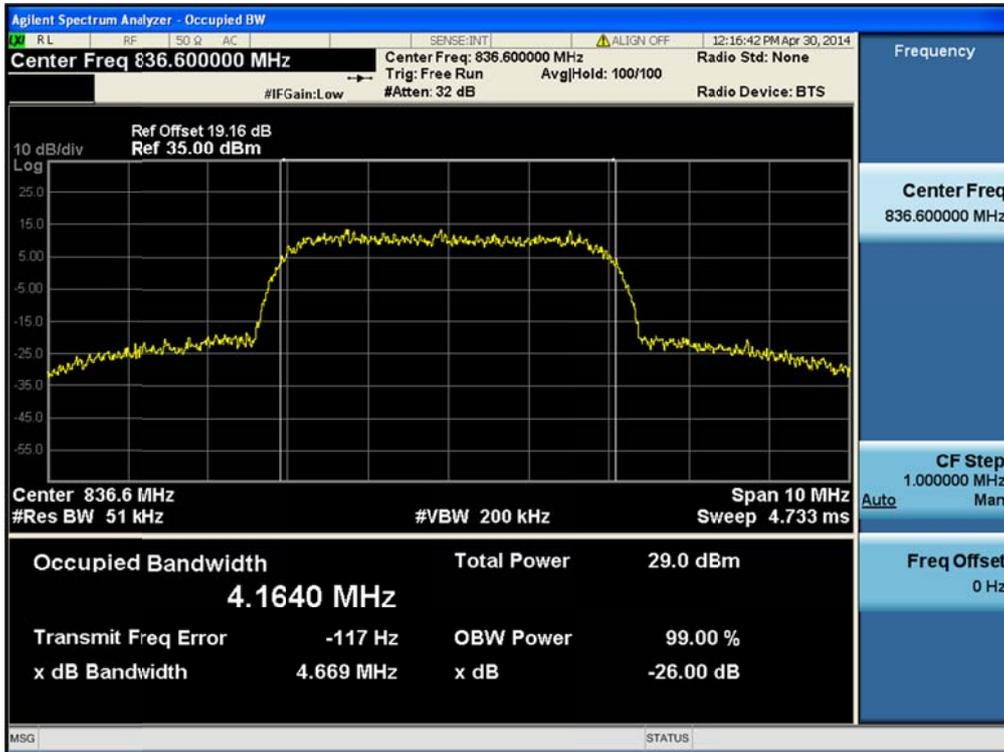
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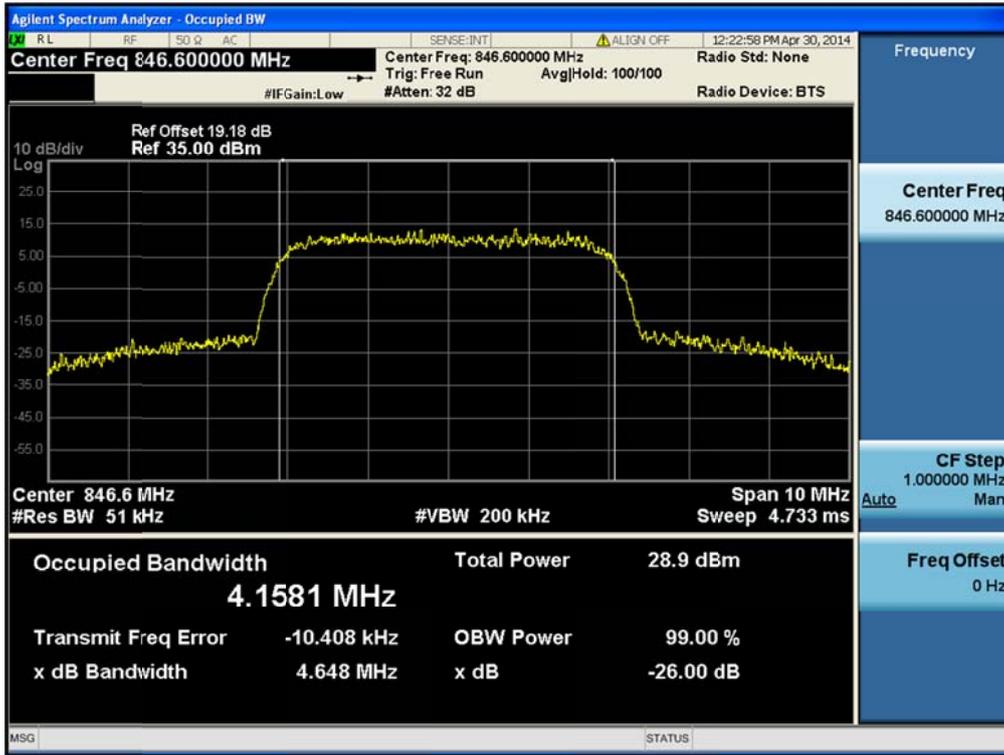
HSUPA850& Channel: 4132



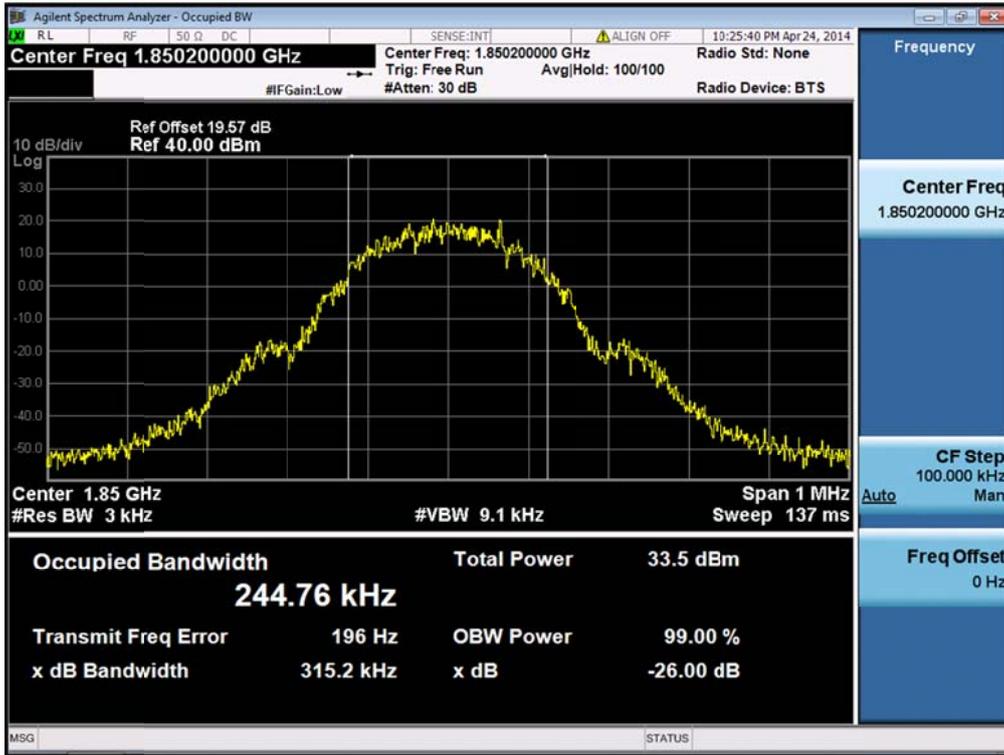
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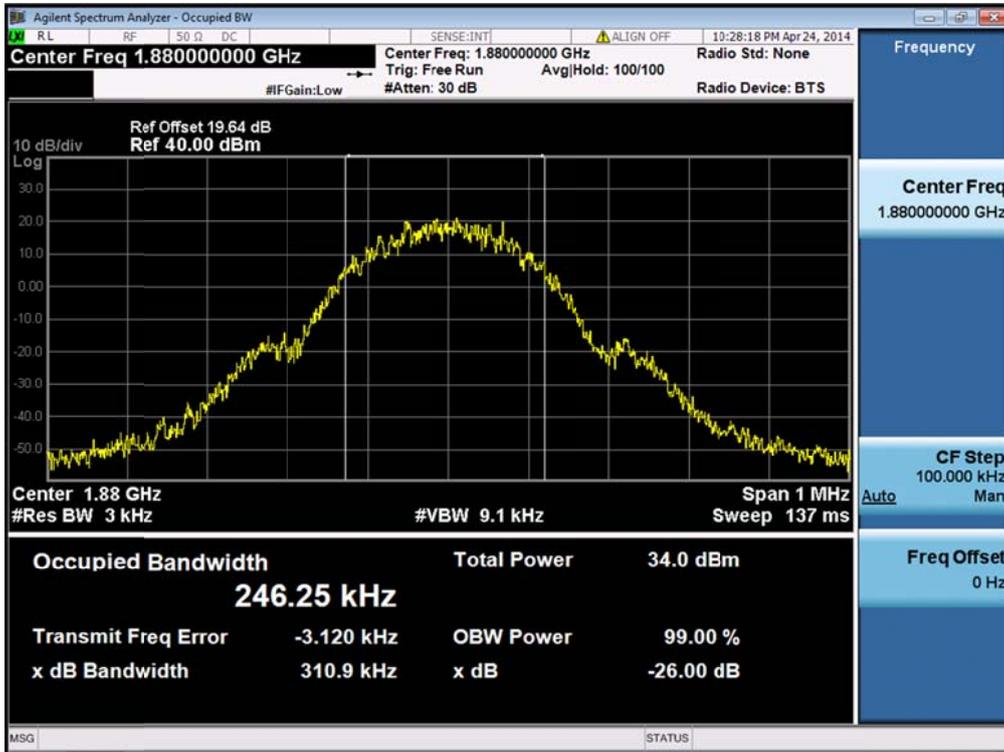
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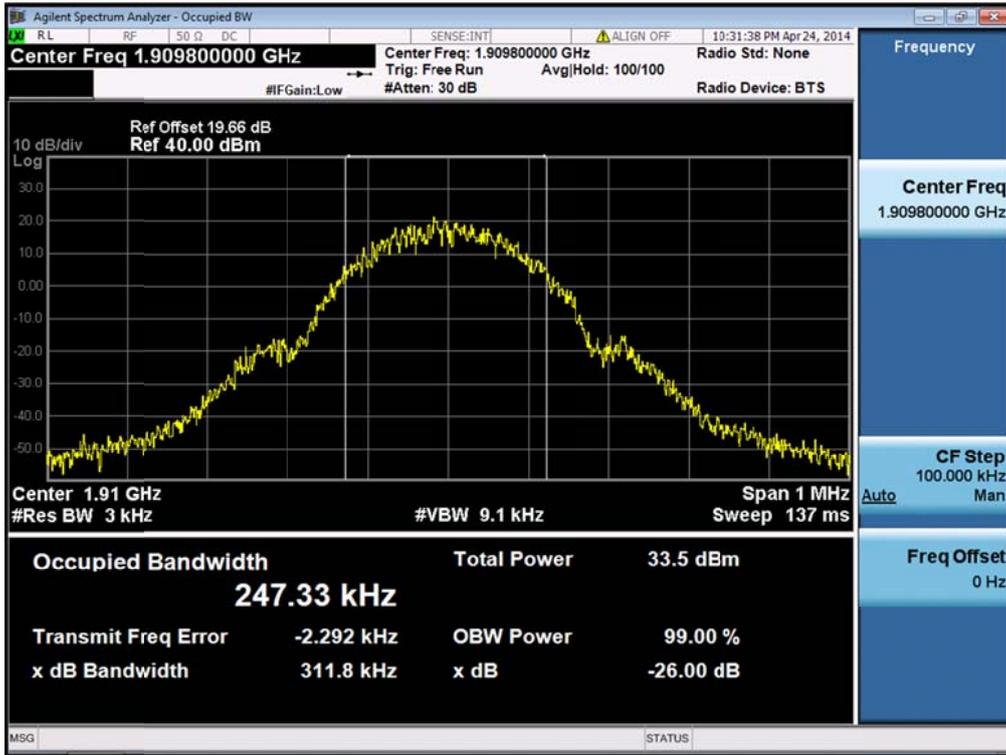
GSM 1900& Channel: 512



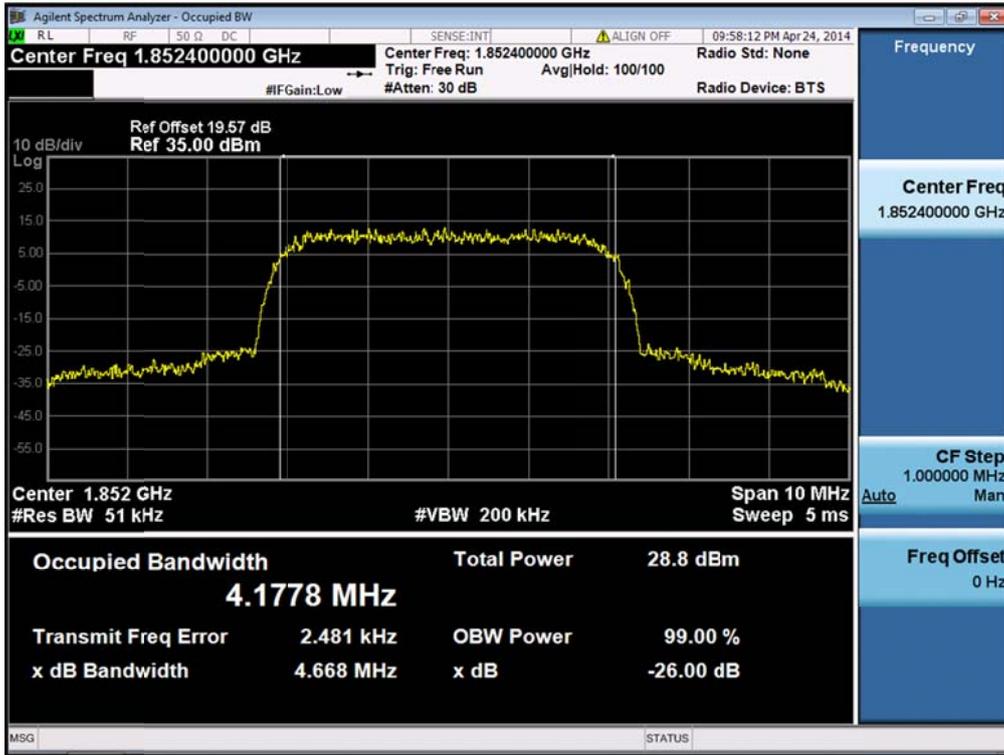
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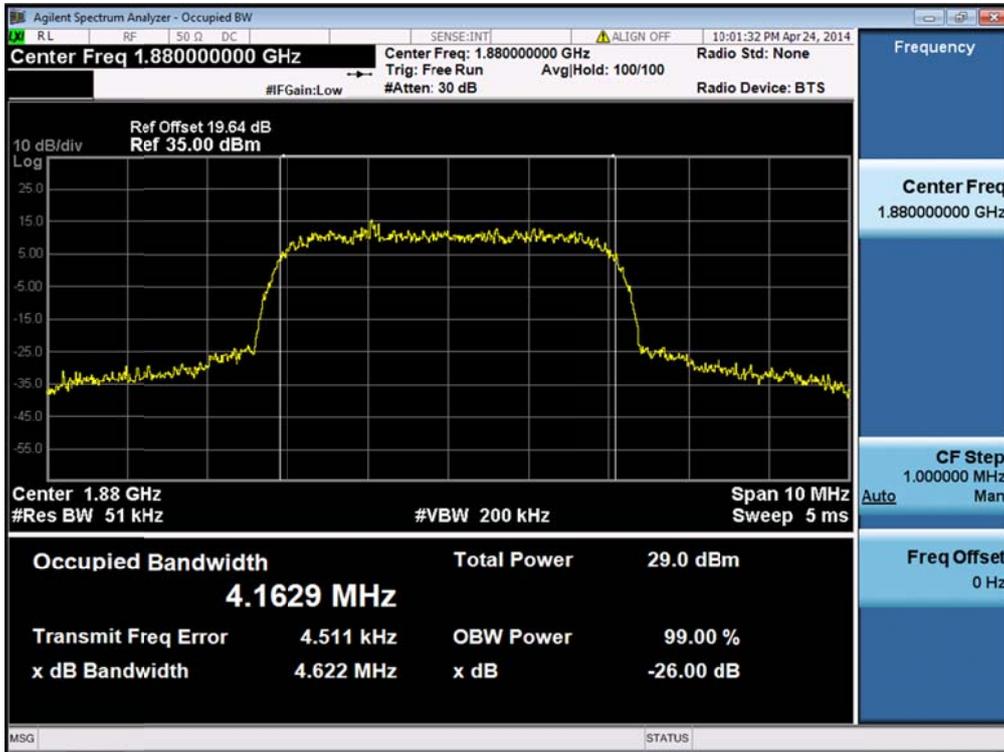
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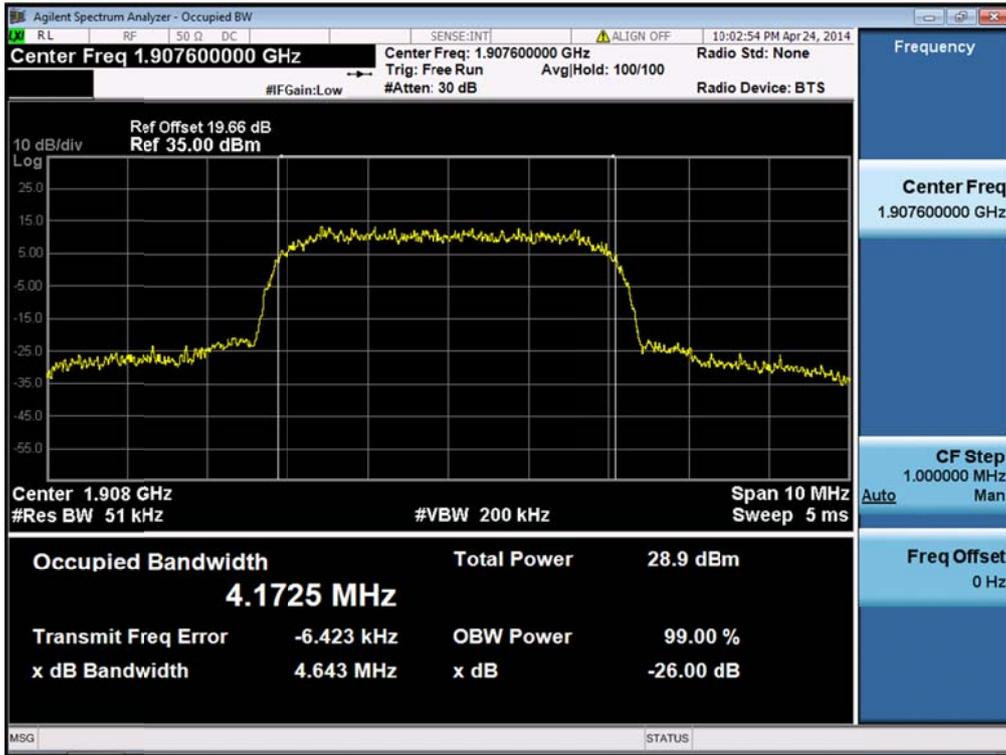
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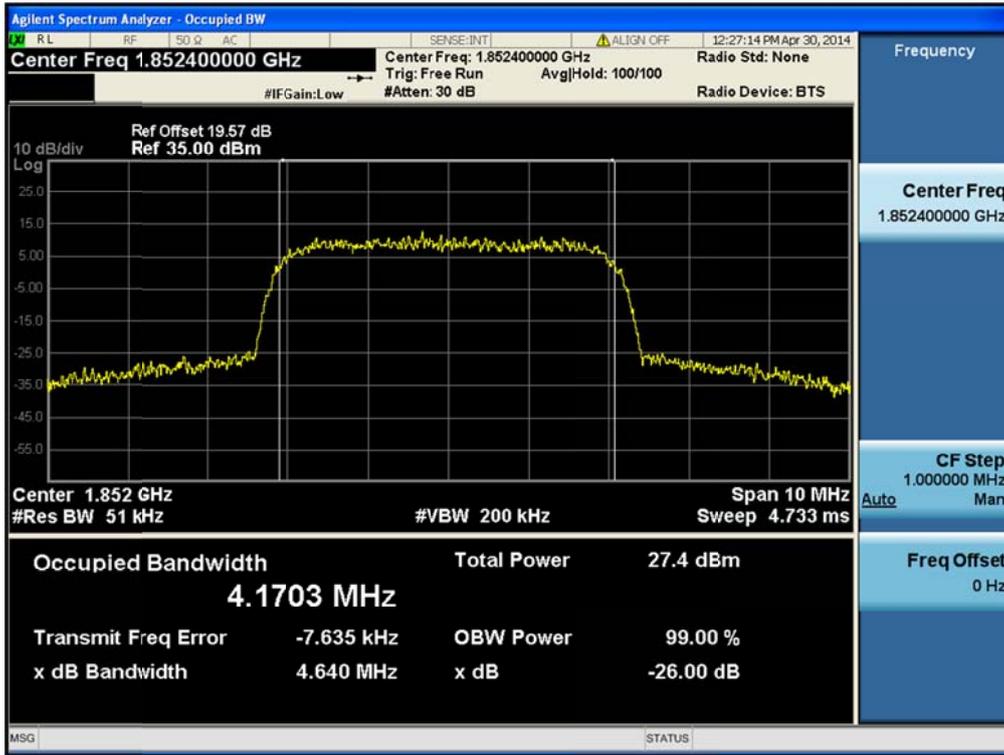
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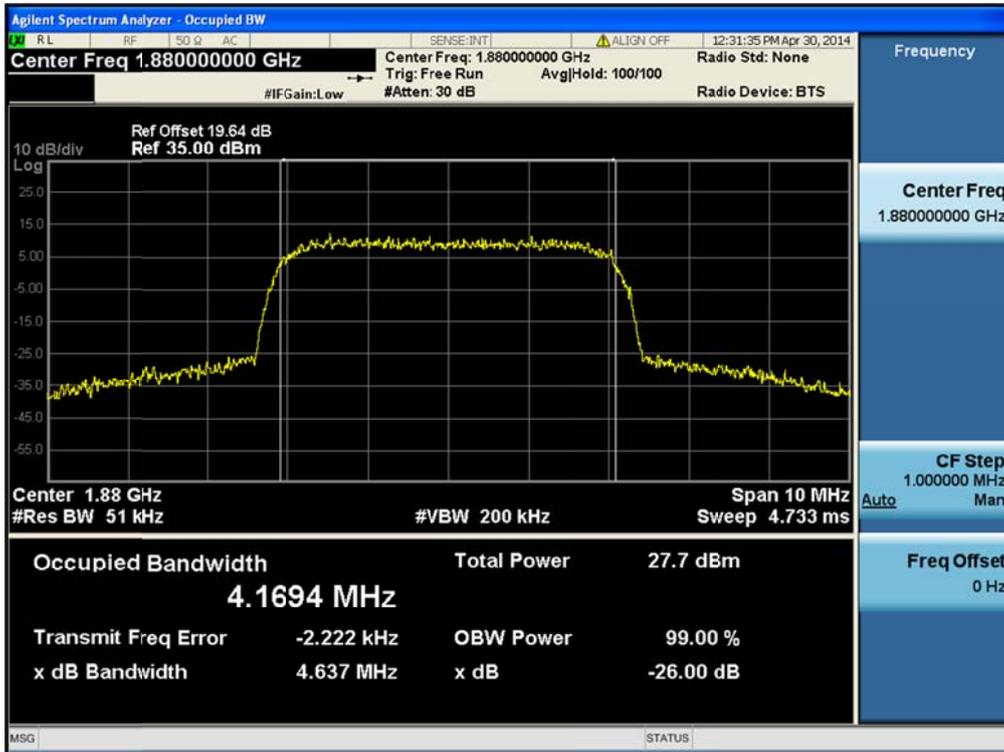
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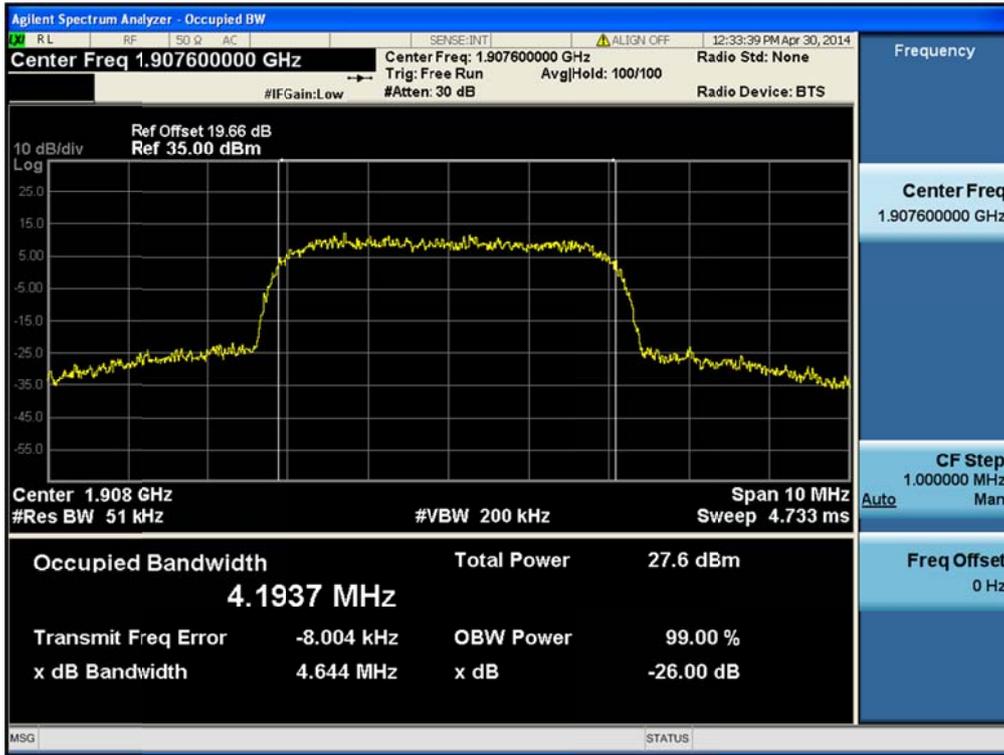
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HSUPA1900& Channel: 9400

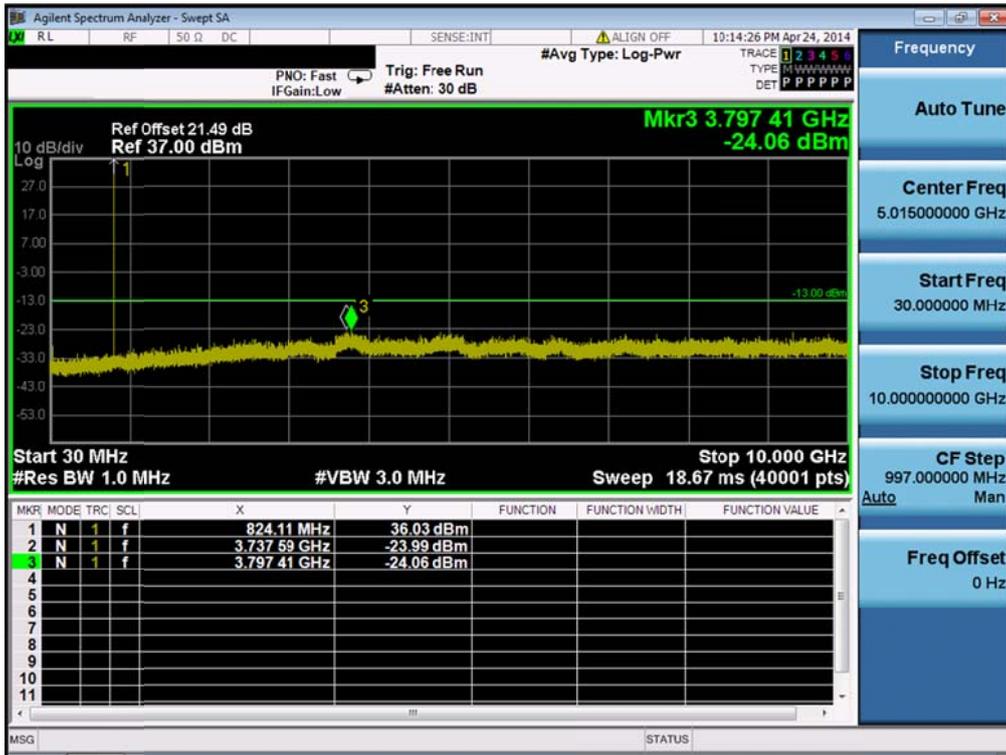


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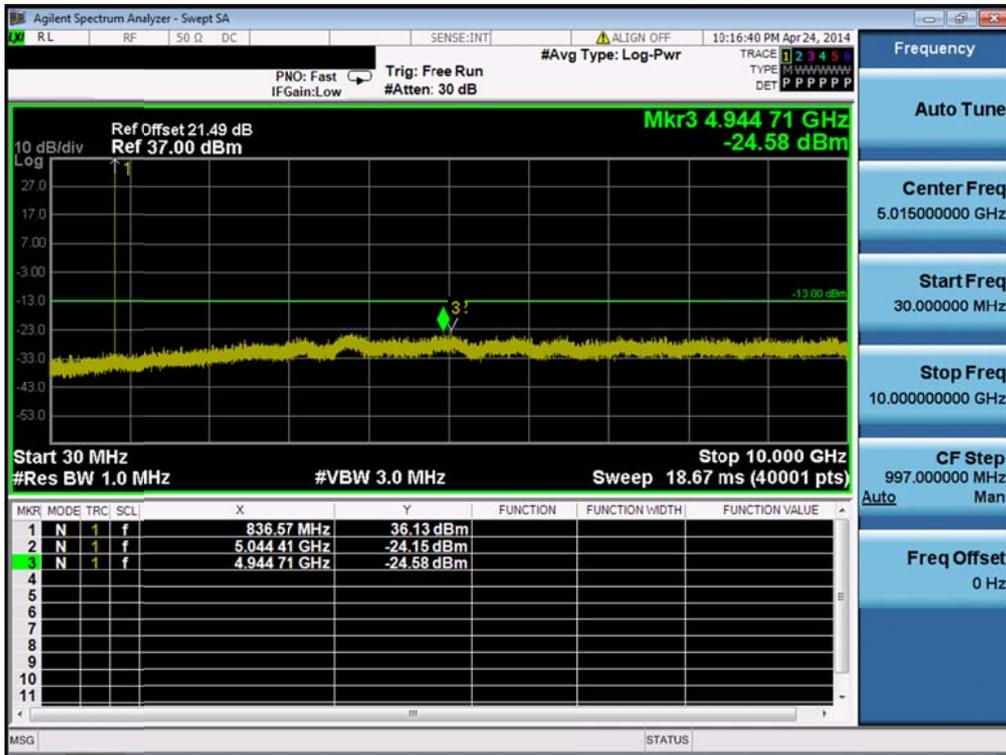


### 8.3 Spurious Emissions at Antenna Terminal

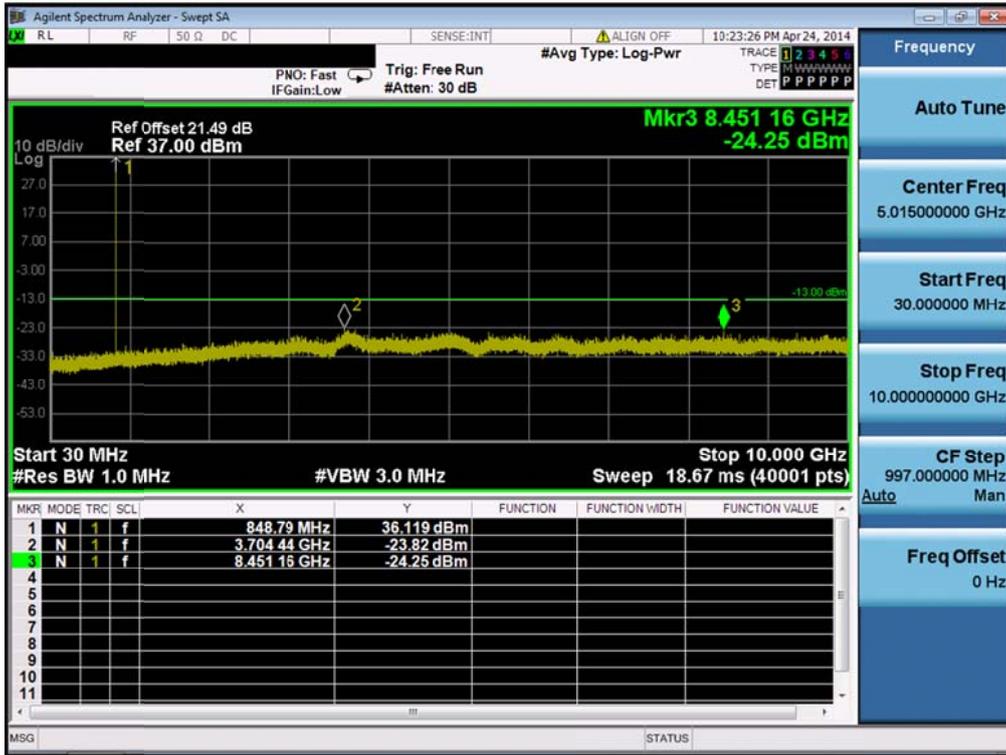
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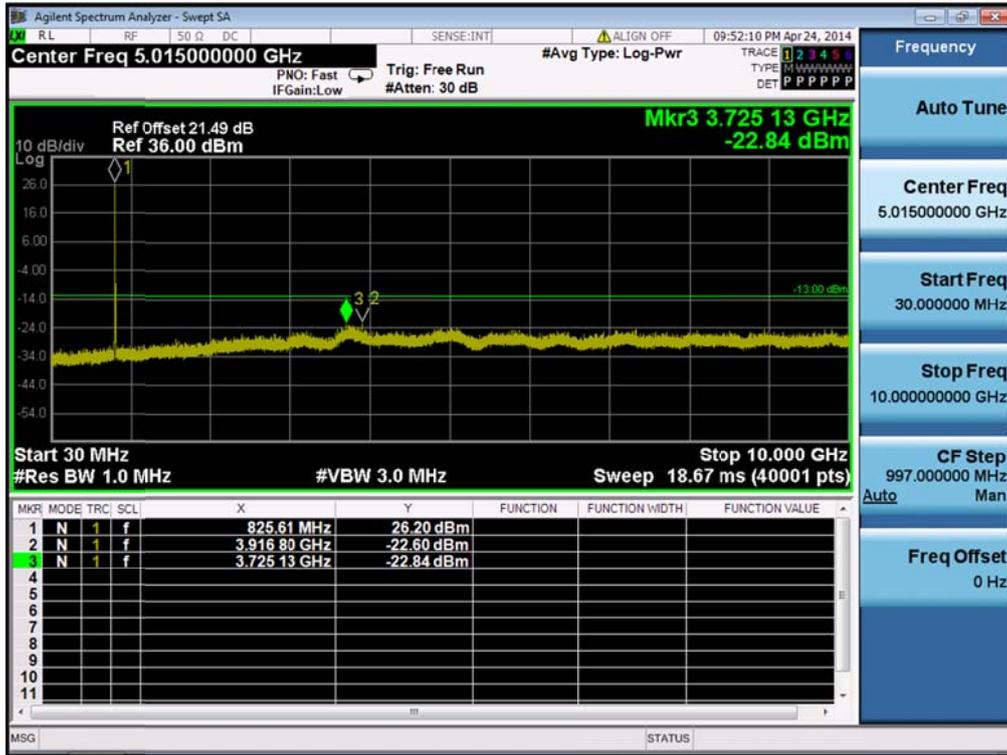
GSM850 & Channel: 190



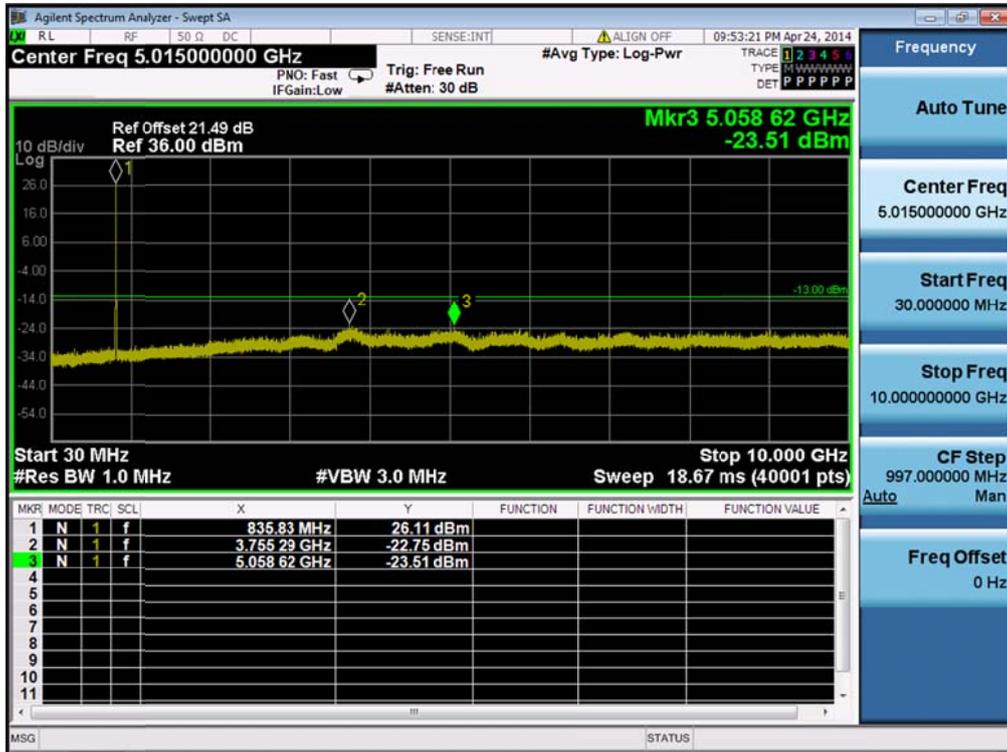
GSM850 & Channel: 251



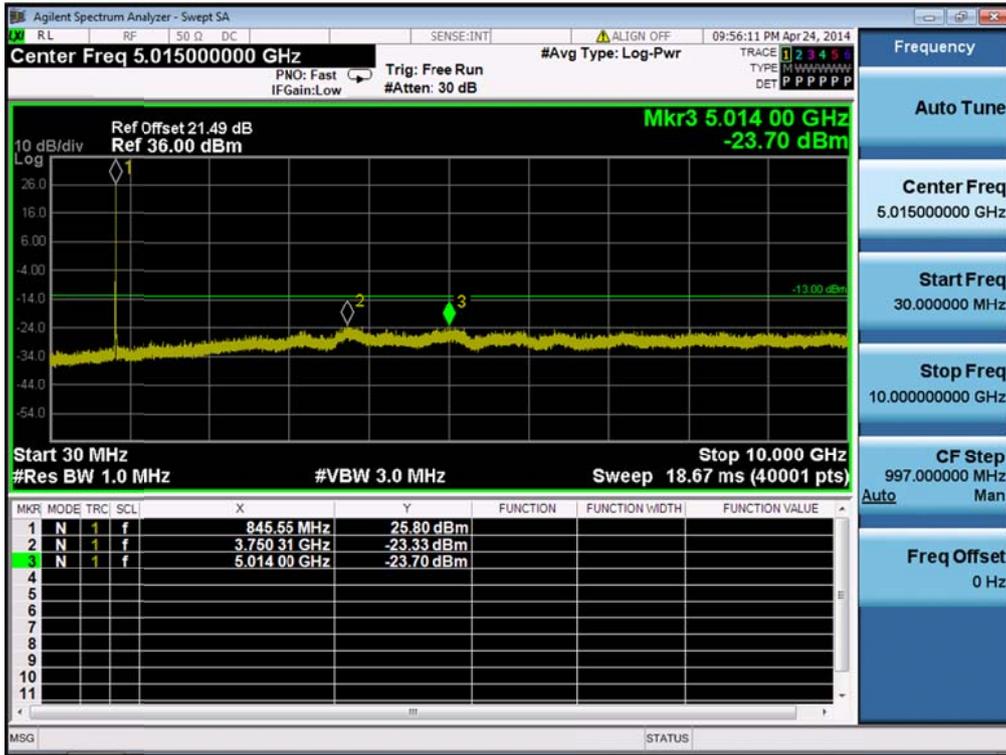
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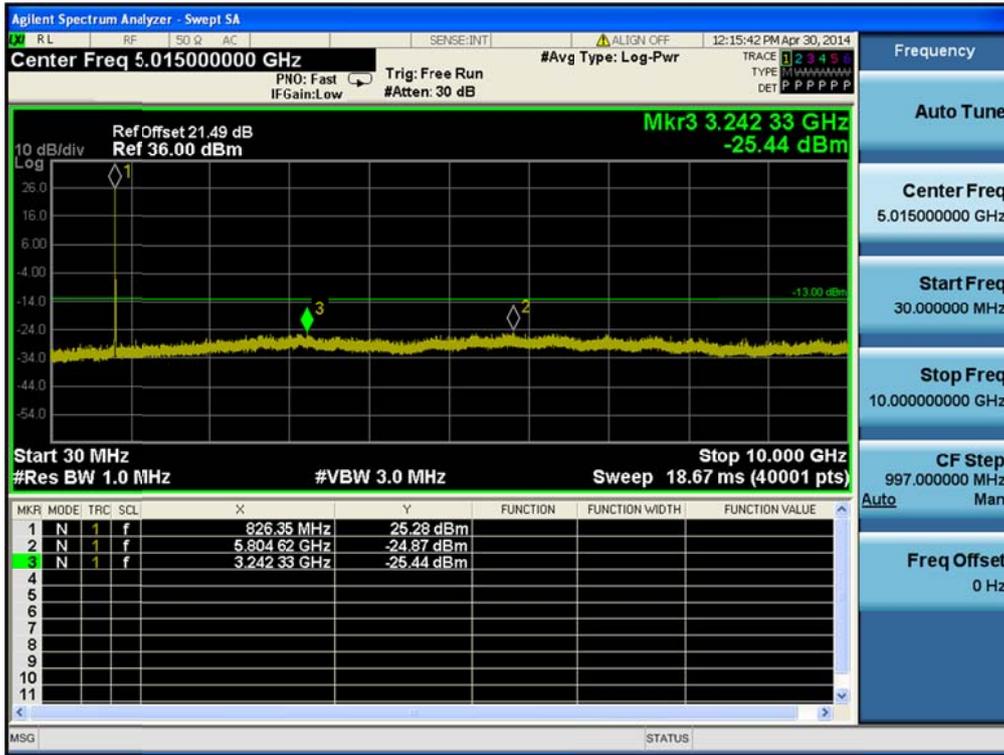
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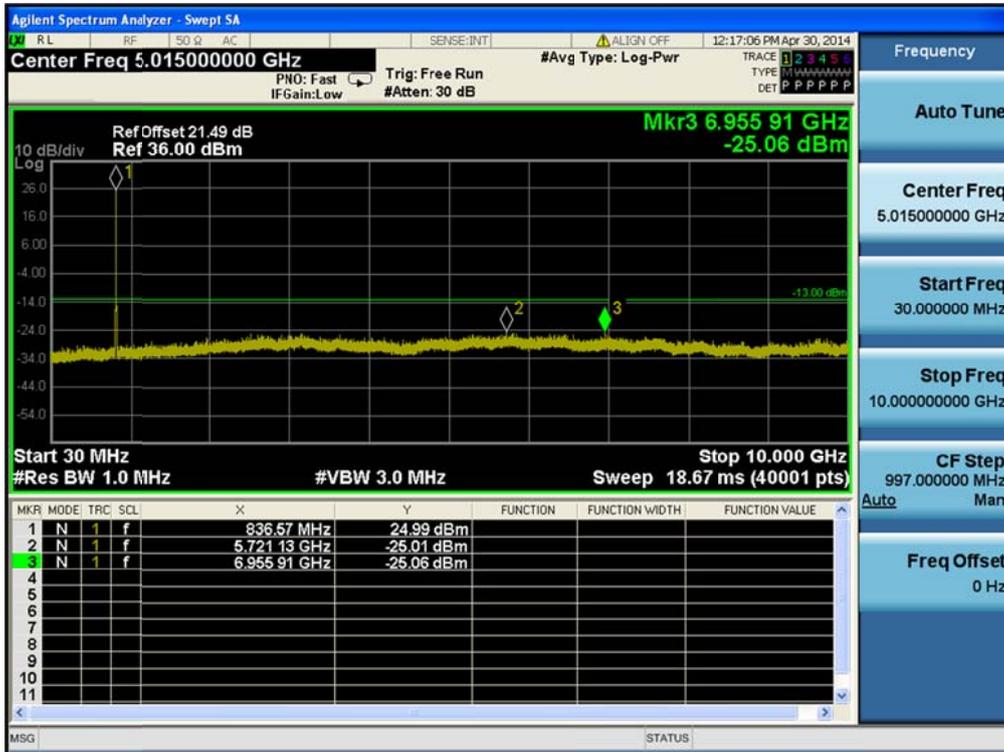
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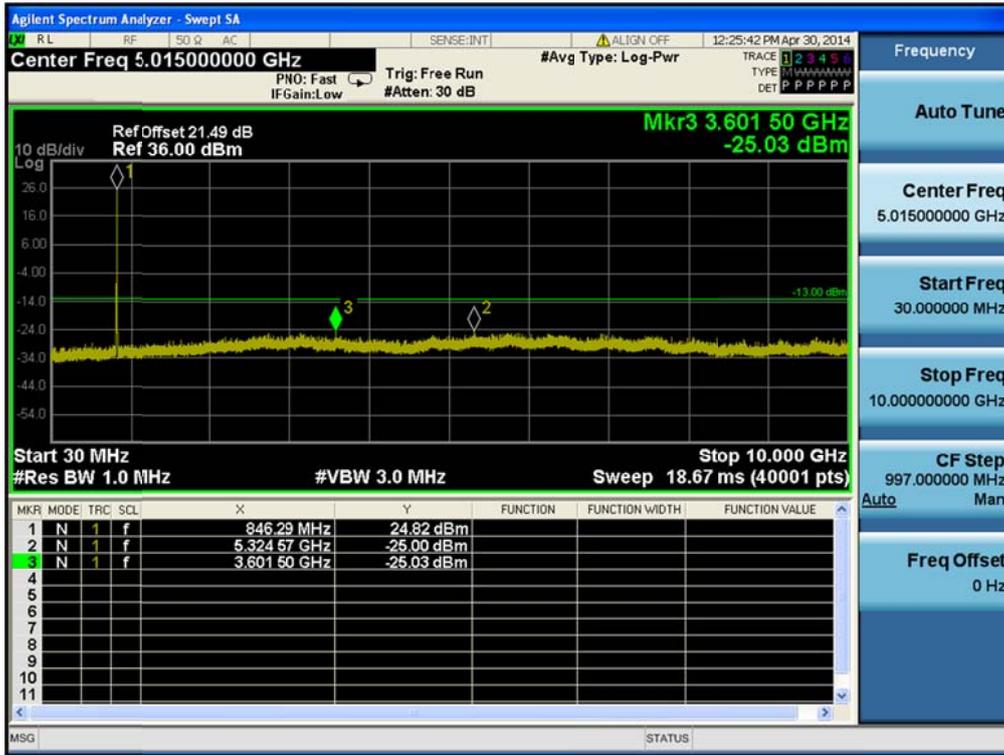
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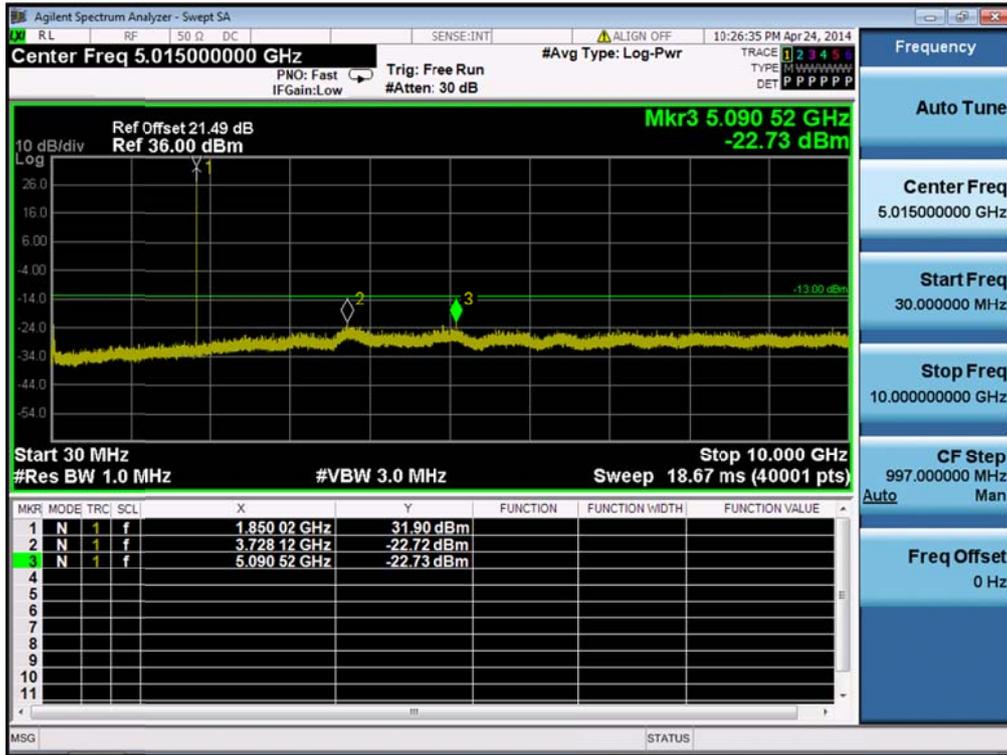
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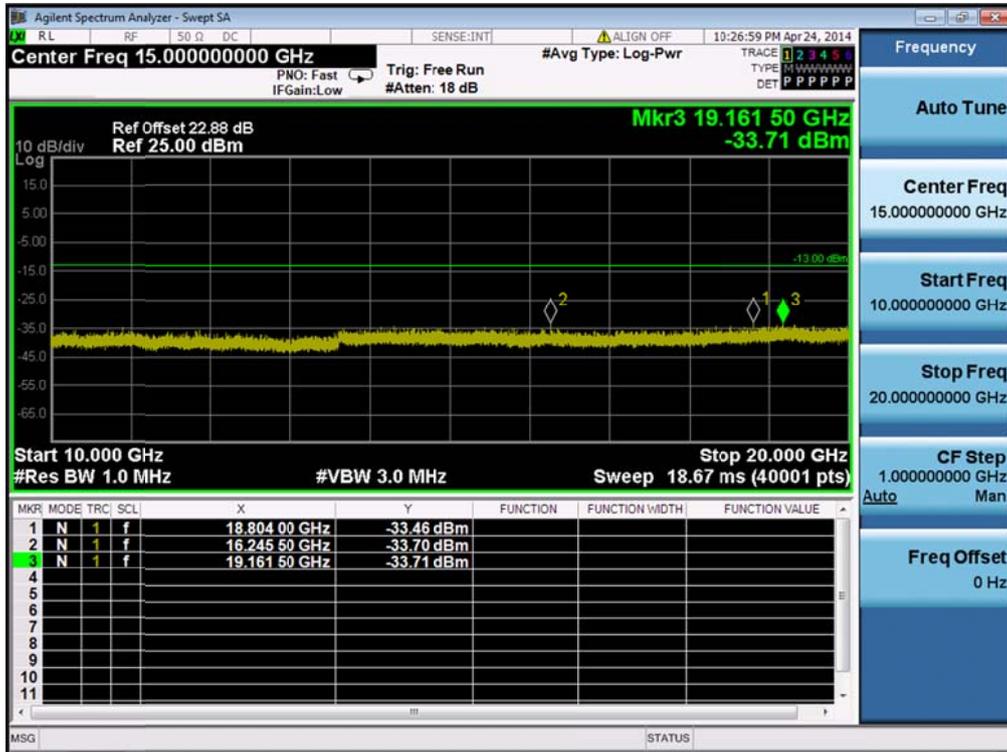
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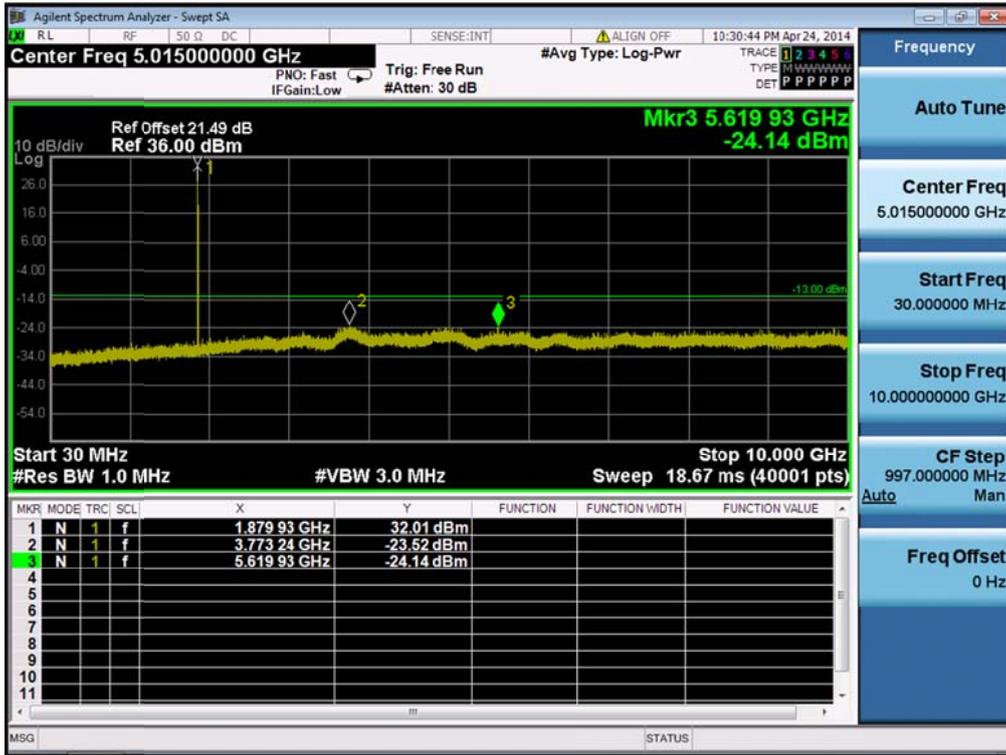
PCS1900 & Channel: 512



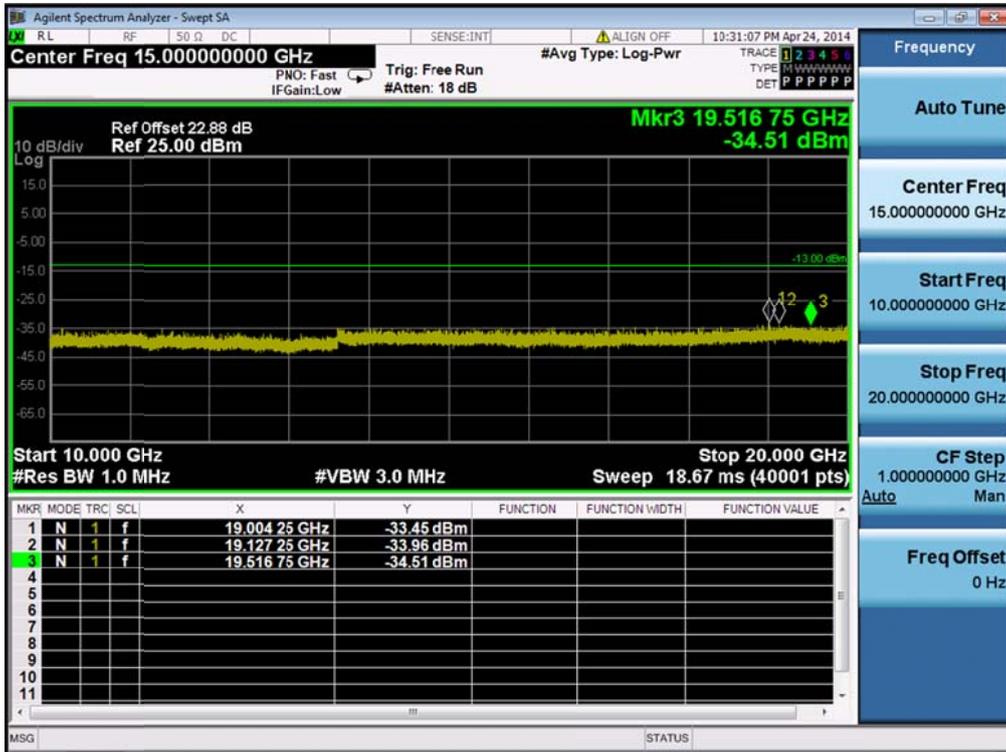
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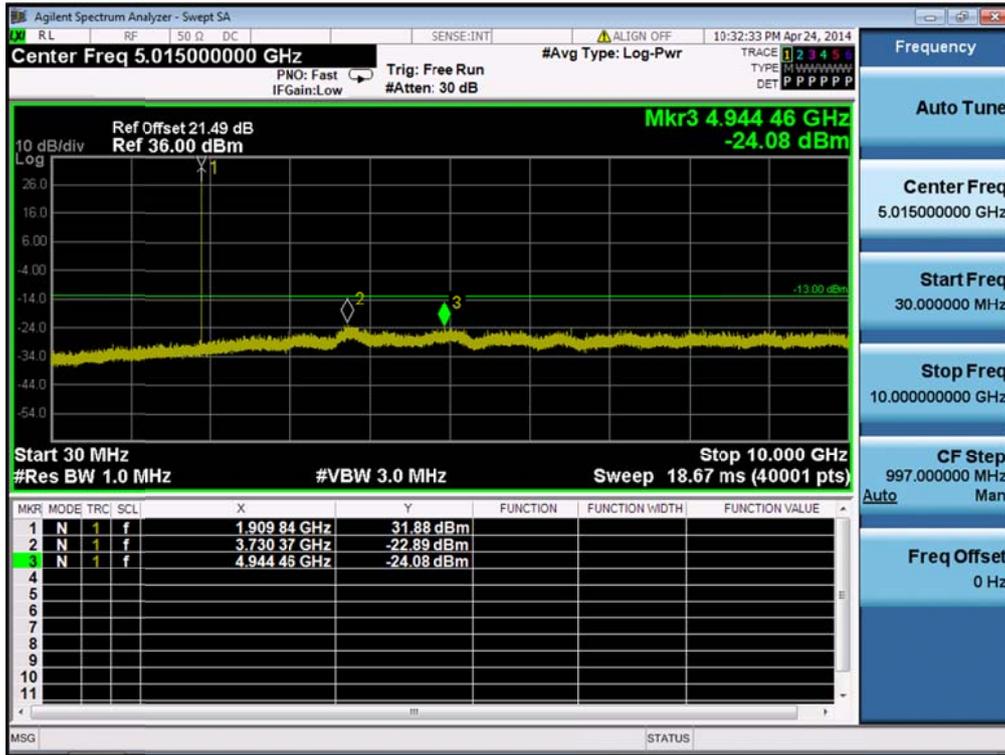
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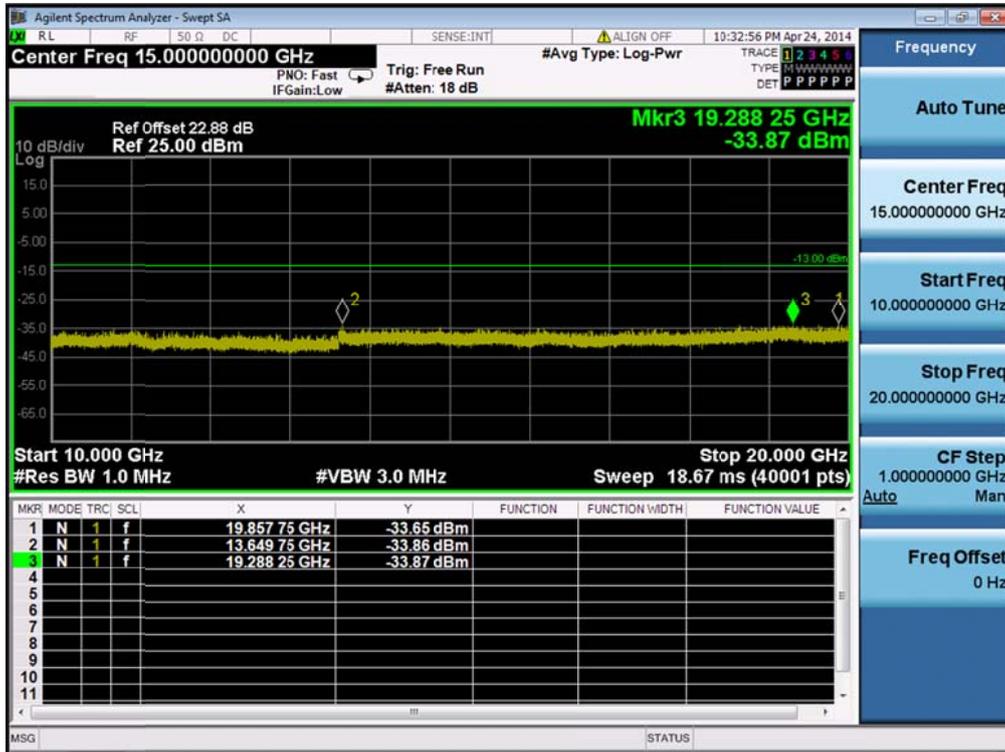
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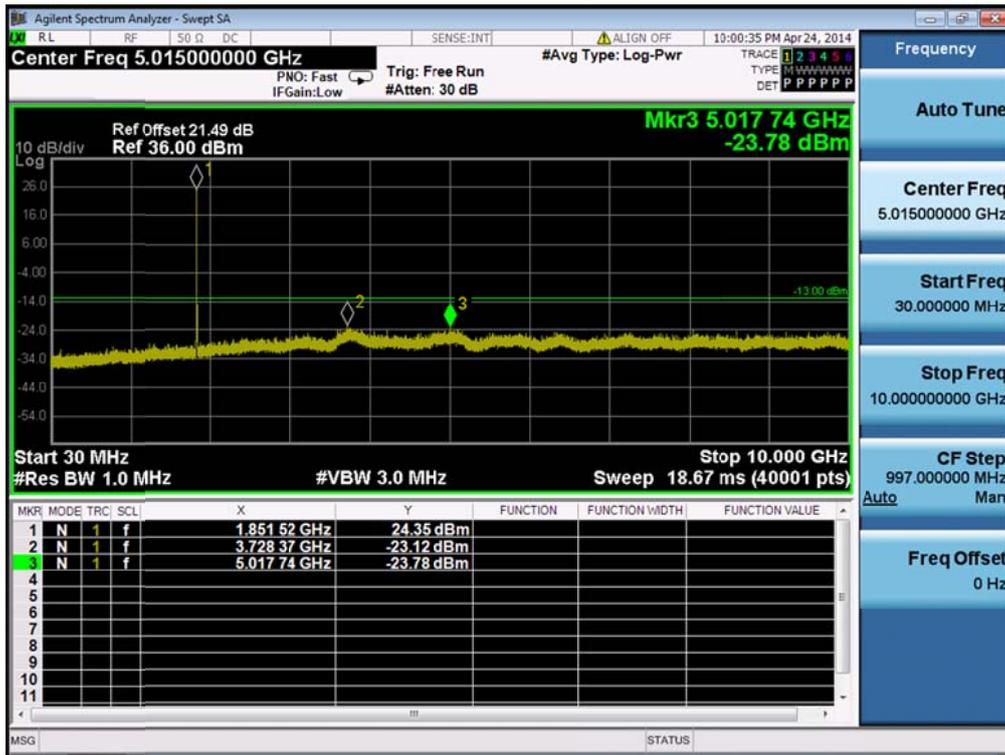
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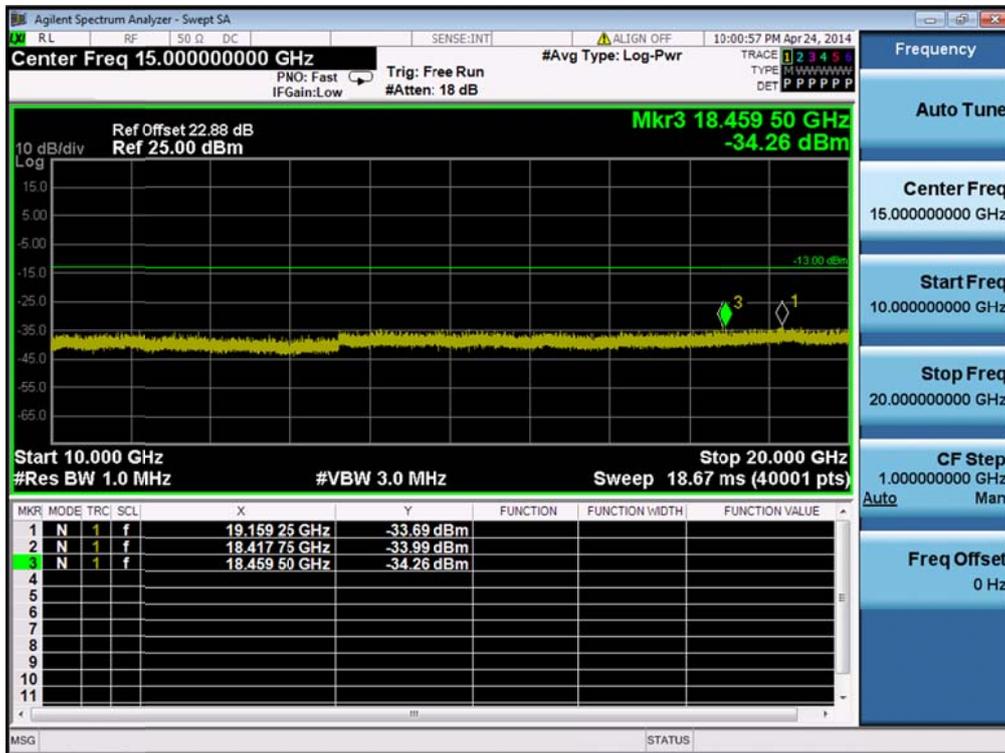
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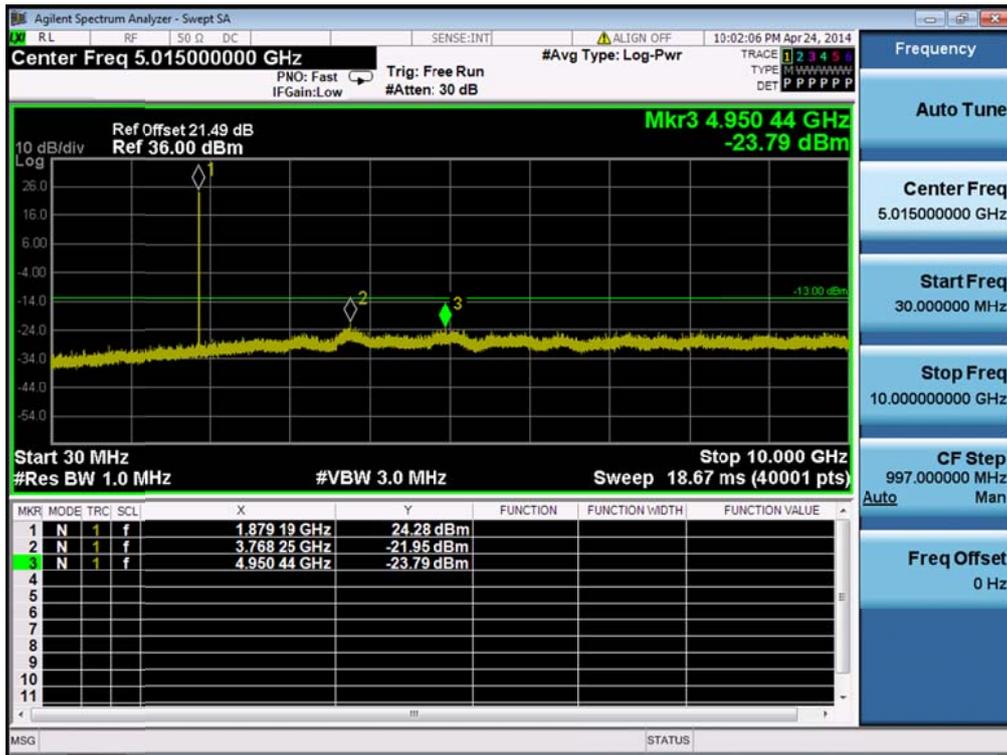
WCDMA1900& Channel: 9262



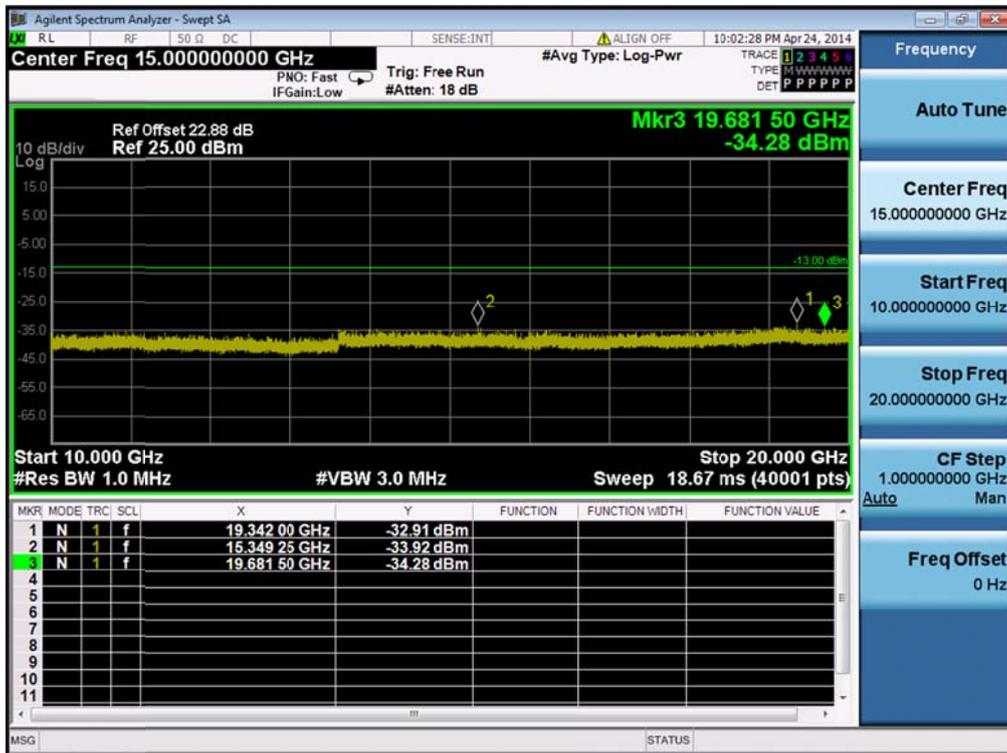
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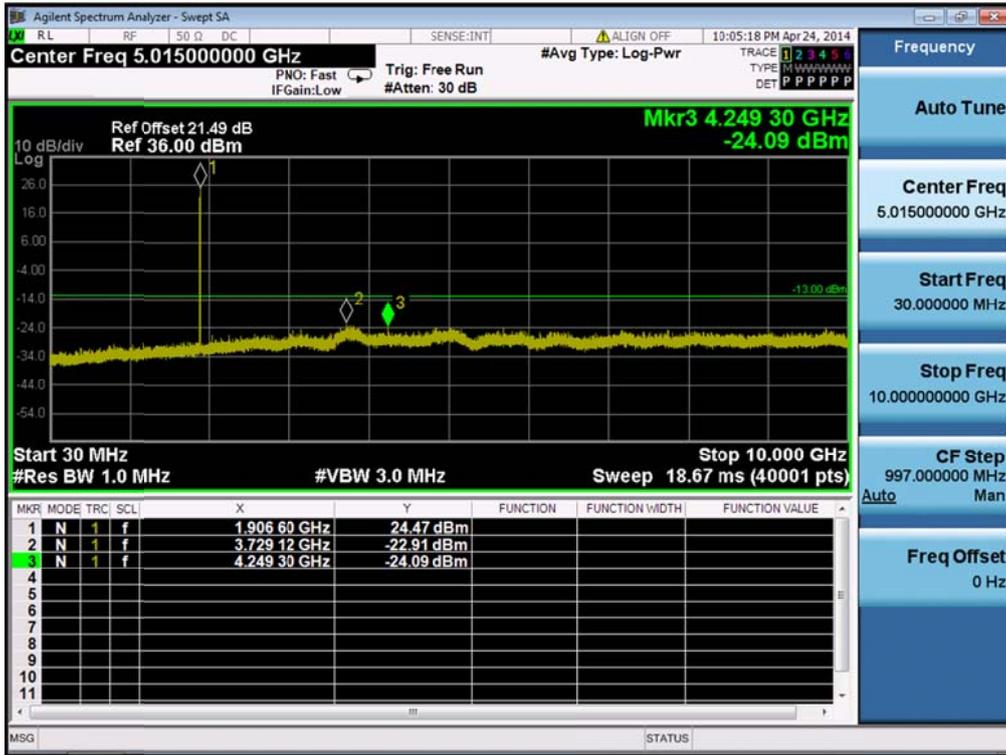
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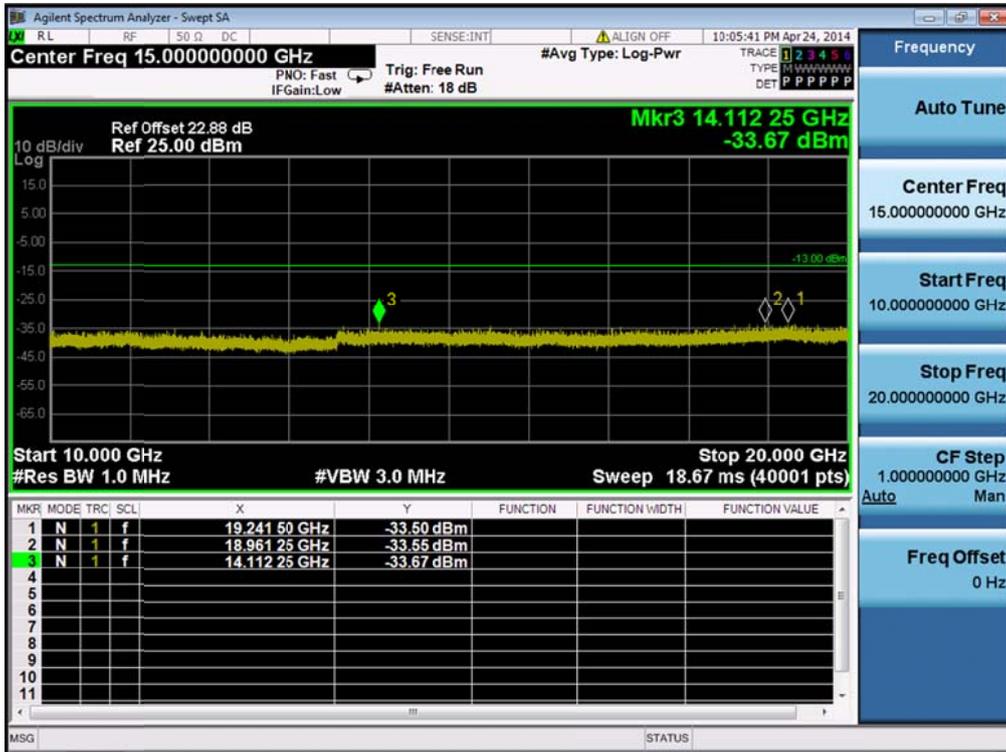
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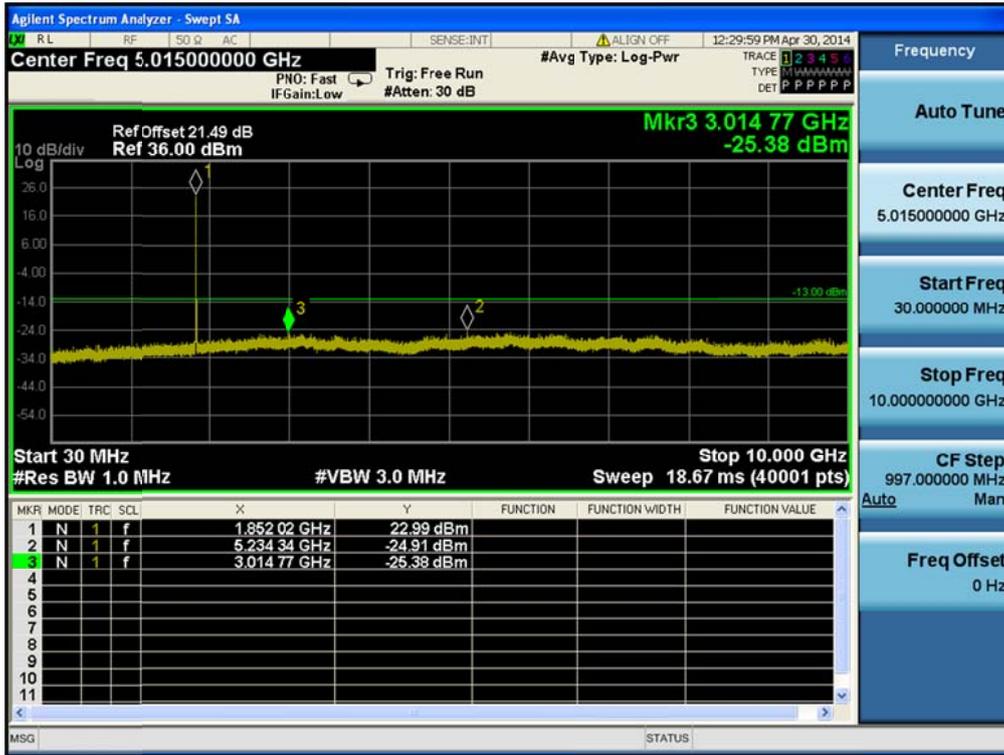
WCDMA1900& Channel: 9538



WCDMA1900& Channel: 9538



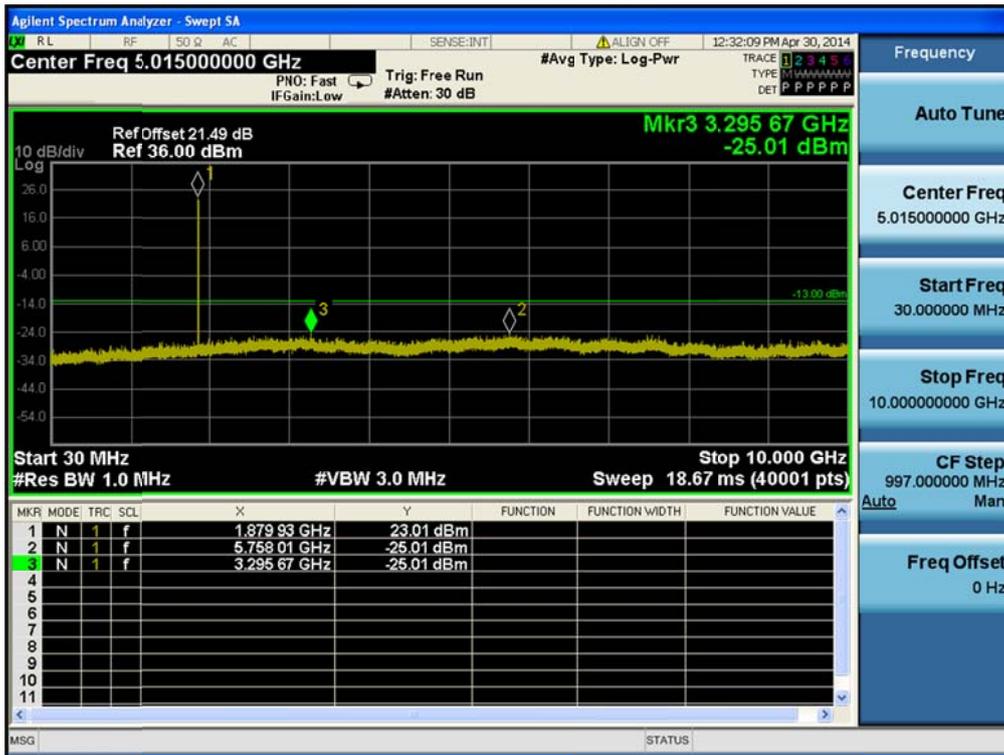
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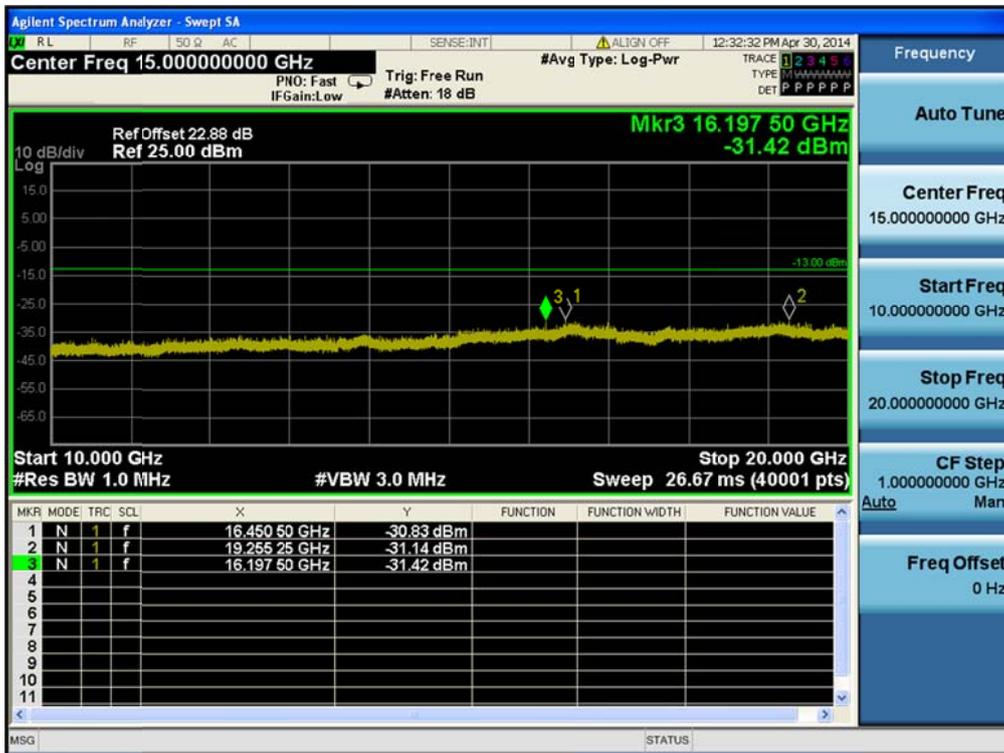
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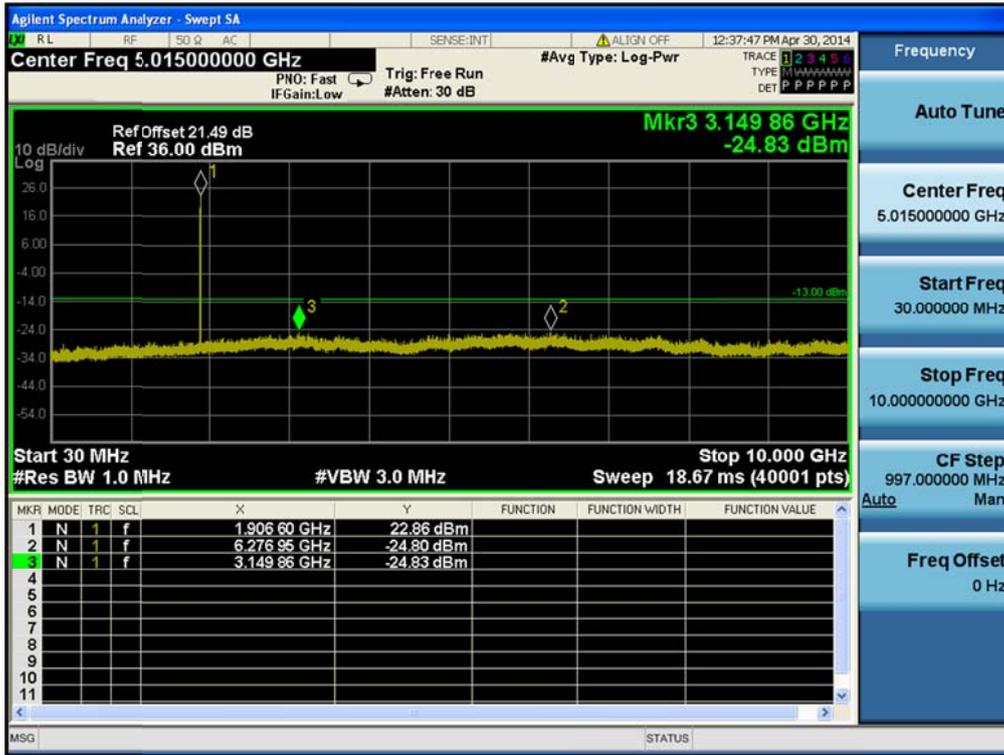
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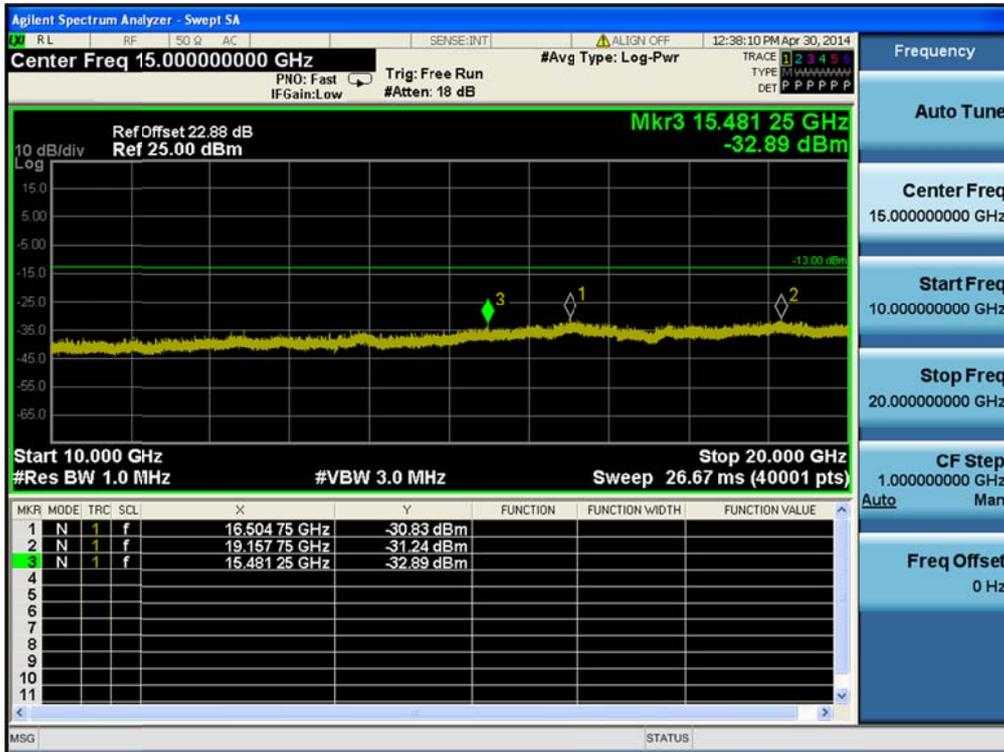
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HSUPA1900& Channel: 9538

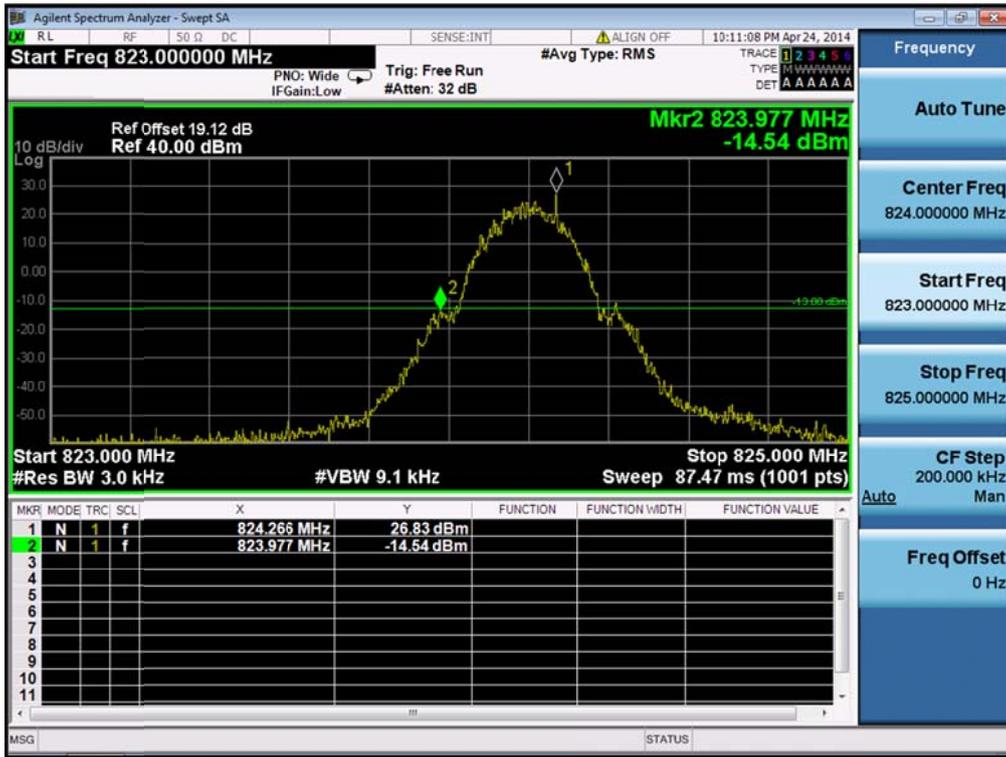


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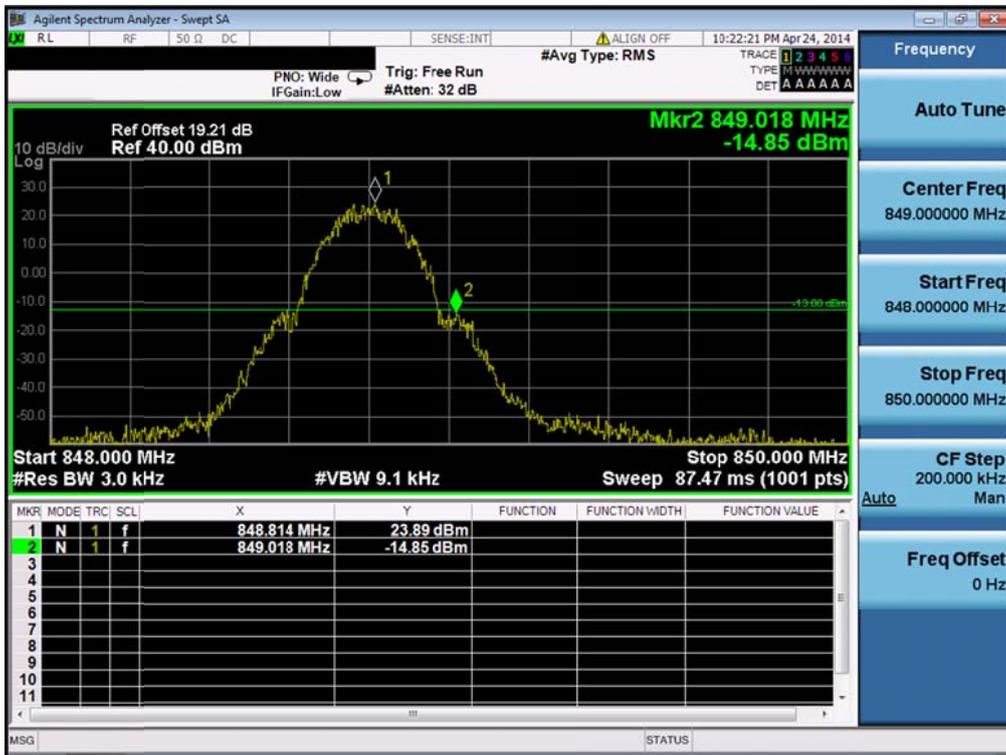


### 8.4 Band Edge

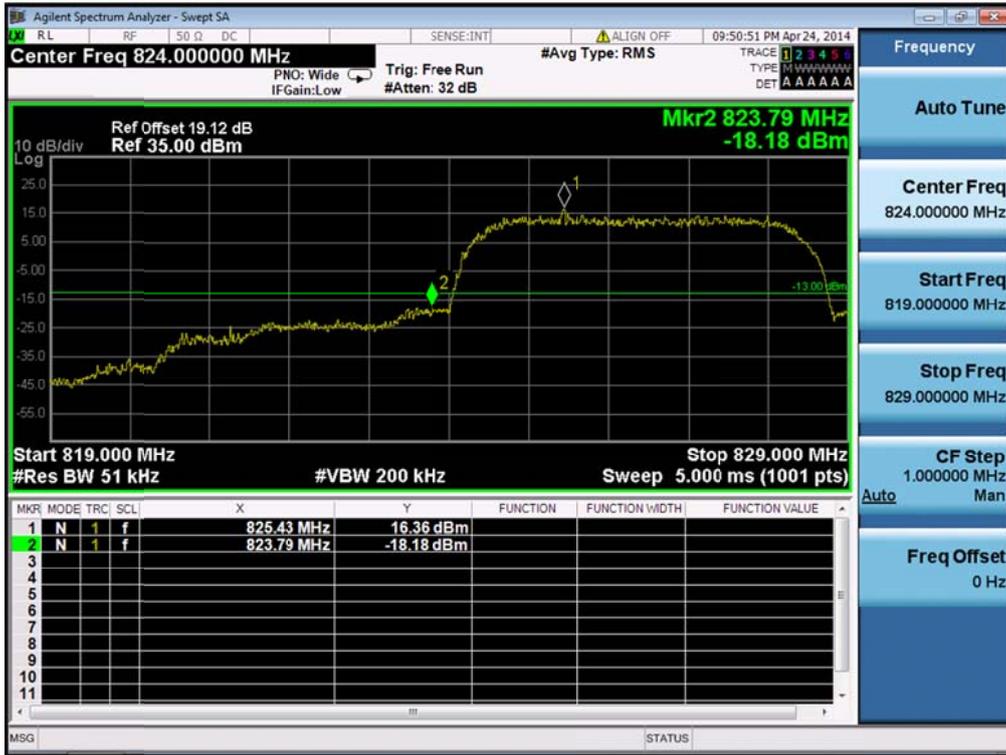
GSM850 & Channel: 128



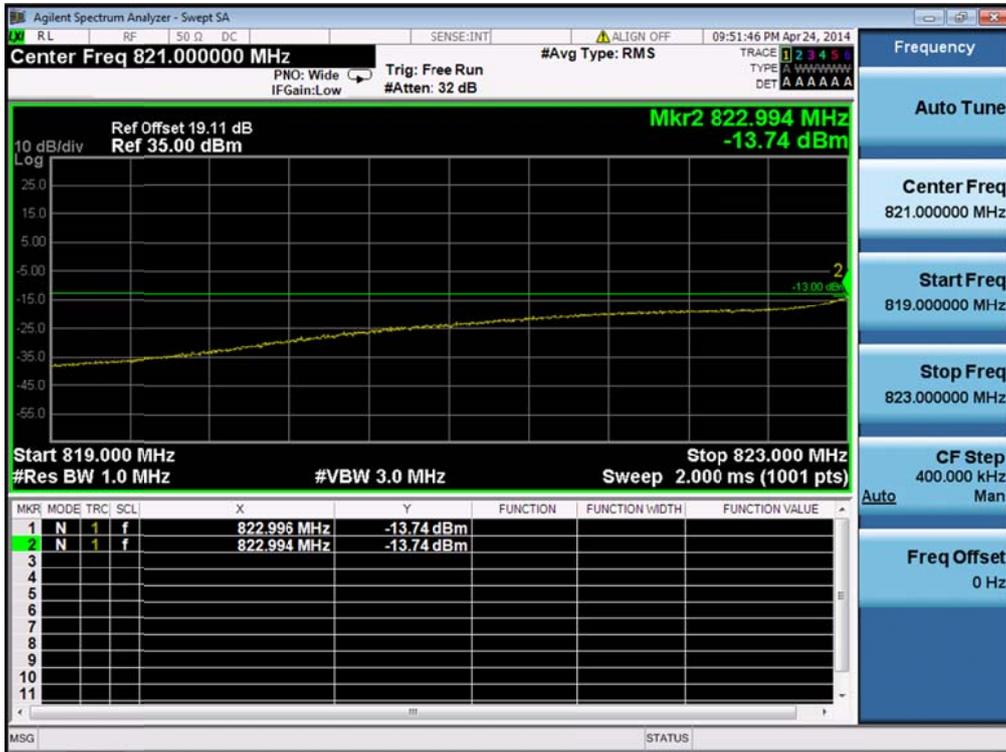
GSM850 & Channel: 251



WCDMA850& Channel: 4132



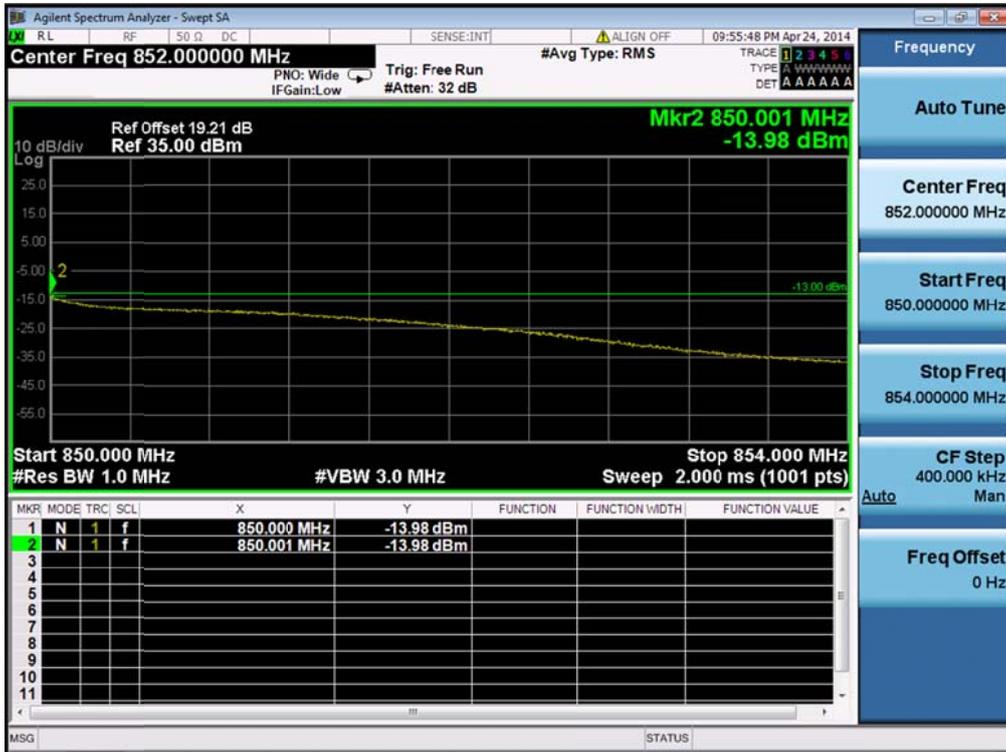
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WCDMA850& Channel: 4233



WCDMA850& Channel: 4233



HSUPA850& Channel: 4132



HSUPA850 & Channel: 4132



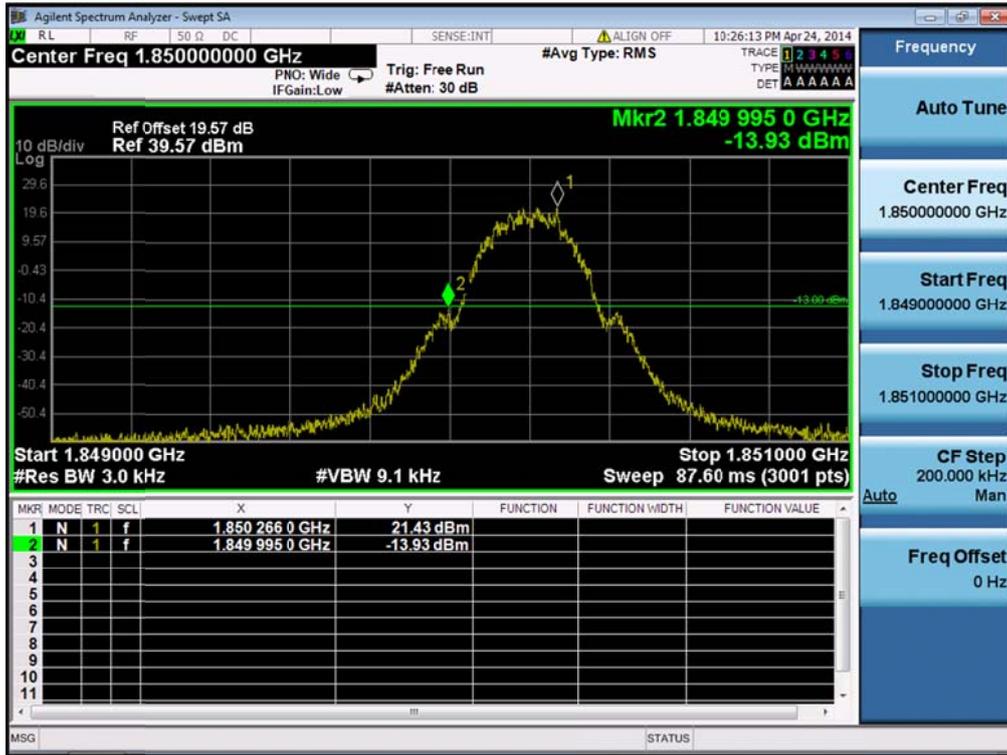
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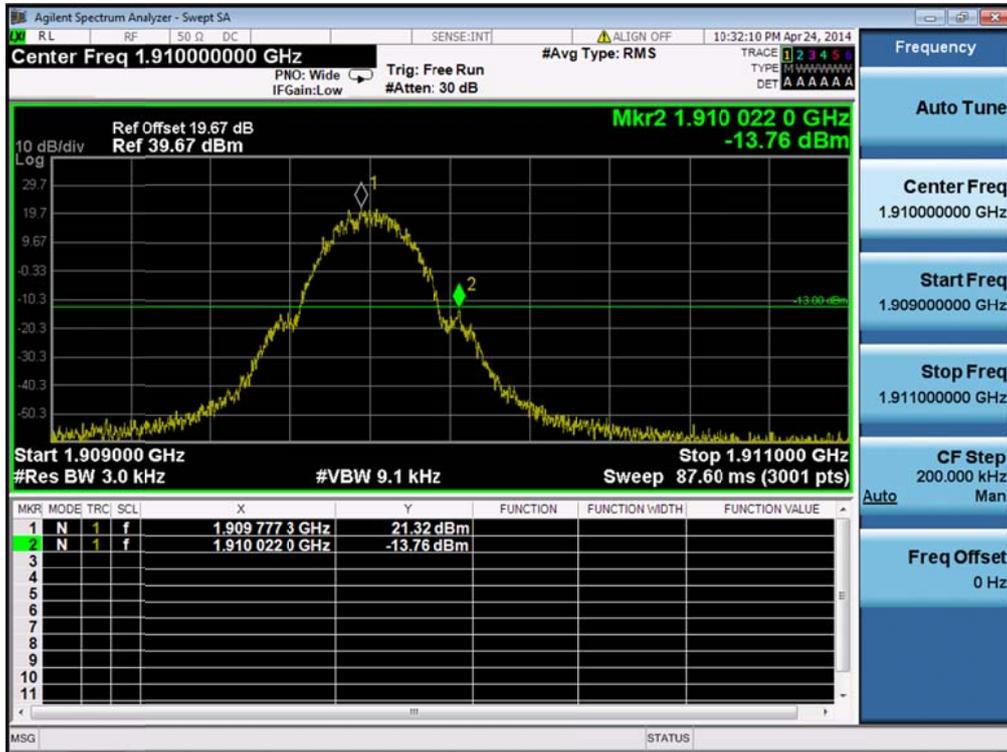
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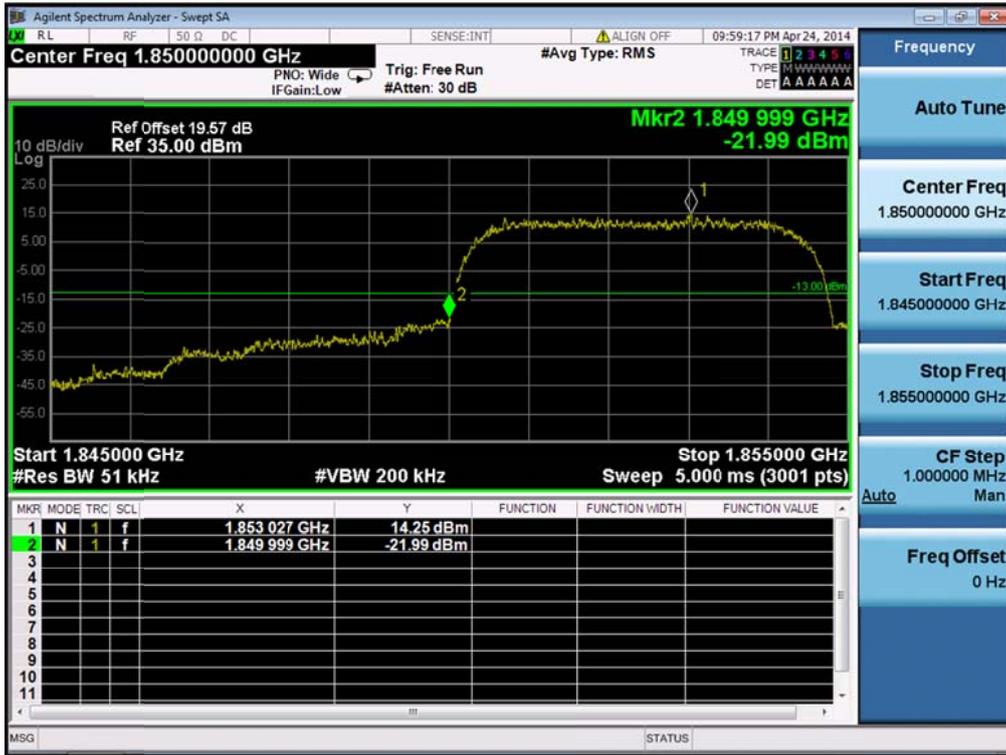
PCS1900 & Channel: 512



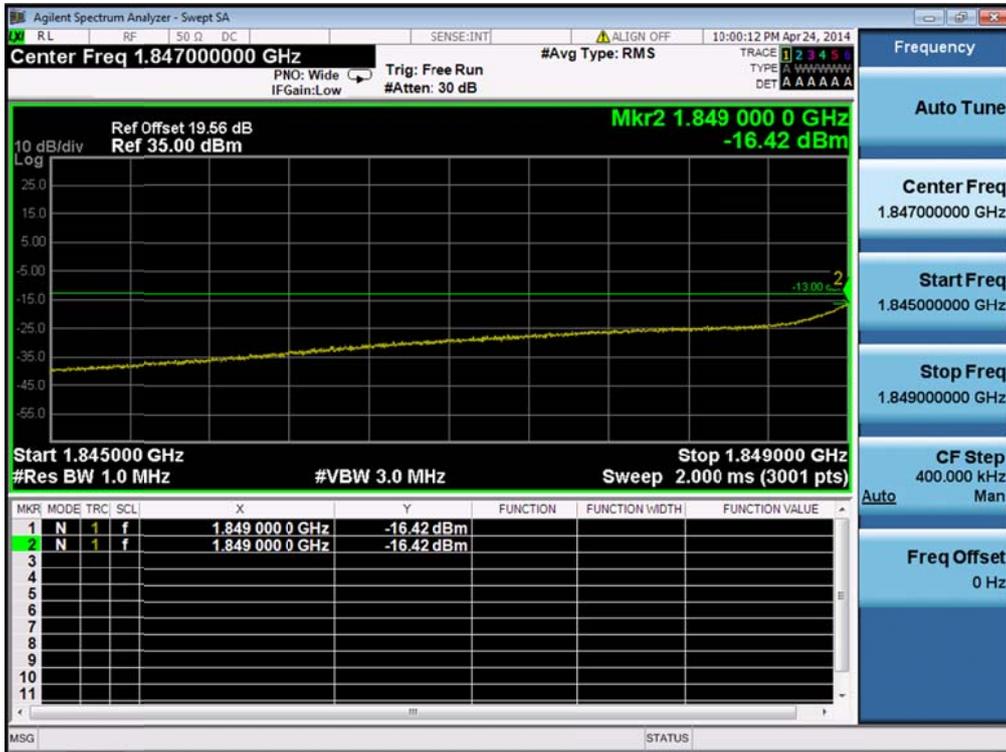
PCS1900 & Channel: 810



WCDMA1900& Channel: 9262



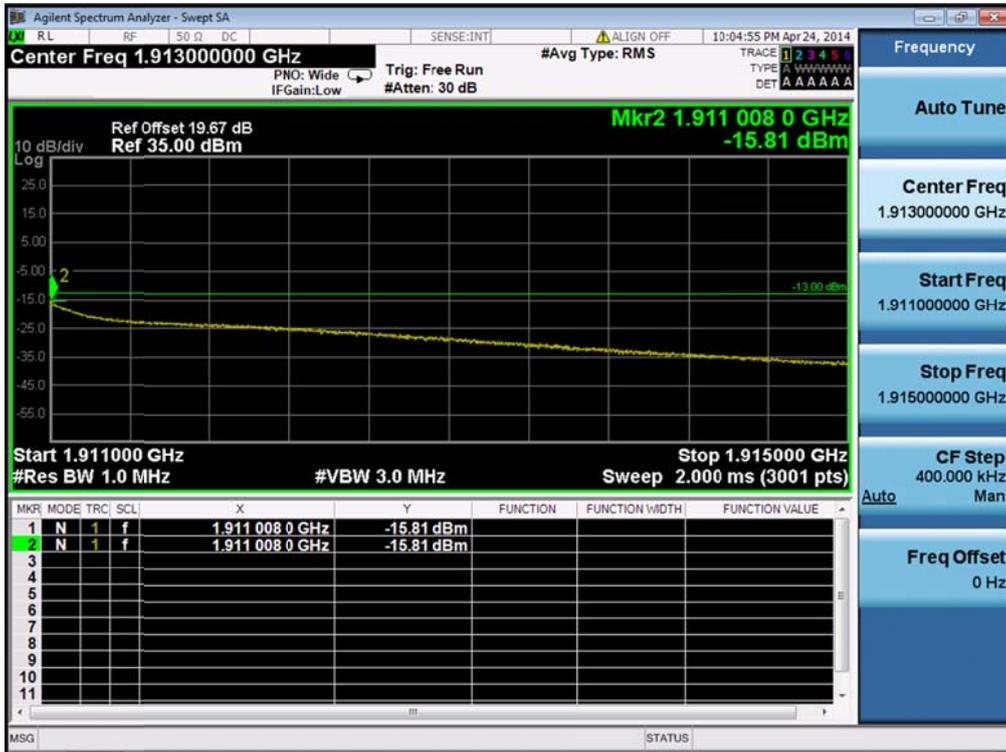
WCDMA1900& Channel: 9262



WCDMA1900& Channel: 9538



WCDMA1900& Channel: 9538



HSUPA1900& Channel: 9262



HSUPA1900& Channel: 9262



HSUPA1900& Channel: 9538



HSUPA1900& Channel: 9538

