FCC PART 15C TEST REPORT FOR CERTIFICATION
On Behalf of

Philips lighting (China) Investment Co., Ltd.

Segment Control Unit

Model No.: LCN7700

FCC ID: 2AGBW-LCN7700

Prepared for : Philips lighting (China) Investment Co., Ltd.
Building 9 #, Lane 888, Tianlin Road, Minhang District, Shanghai.

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Kefeng Road, Science & Technology Park,
Nanshan District , Shenzhen, Guangdong, China

Tel: (0755) 26639496

Report Number	:	ACS-F16080
Date of Test	:	Mar.21~Apr.06, 2016
Date of Report	:	Nov.18, 2016

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TEST REPORT CERTIFICATION

Applicant	:	Philips lighting (China) Investment Co., Ltd.
Product	:	Segment Control Unit
FCC ID	:	2AGBW-LCN7700

(A) Model No. : LCN7700
(B) Serial No. : N/A
(C) Power Supply : DC 12V
(D) Test Voltage : DC 12V

Tested for comply with:
FCC part 2, 22H & 24E
Test Method:
KDB971168 D01 v02r02

The device described above is tested by AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. to confirm comply with all the FCC part 2, 22H & 24E requirements.

The test results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these tests. This report contains data that are not covered by the NVLAP accreditation. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC and IC requirements.

This Report is made under FCC part 2, 22H & 24E. No modifications were required during testing to bring this product into compliance.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : Mar.21~Apr.06, 2016 Report of date: Nov.18, 2016

Prepared by : Monica Liu (for) Reviewed by :
Cindy Zhu / Assistant Sunny Lu / Deputy Manager

AUDIX® 信華科技（深圳）有限公司
Audix Technology (Shenzhen) Co., Ltd.
EMC 部門報告專用章
Stamp only for EMC Dept. Report
Signature: David Jin

Approved & Authorized Signer :
David Jin / Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1.Description of Standards and Results

The EUT has been tested according to the applicable standards as referenced below.

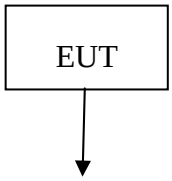
EMISSION		
Description of Test Item	**Standard**	**Results**
Effective Isotropic Radiated Power	2.1046(a) 22.913(a) 24.232(b)	PASS
Out of Band Emissions at antenna Terminals and Band Edge	2.1051 22.917(a) 24.238(a)	PASS
99% & 26dB Occupied Bandwidth	2.1049(h)	PASS
RF Output Power	2.1046(a) 22.913(a) 24.232(b)	PASS
Field Strength of Spurious Emissions	2.1053 22.917(a) 24.238(a)	PASS
Frequency Stability vs. Temperature and Voltage	22.355 24.235	PASS
Modulation characteristics	2.1047	PASS

2. GENERAL INFORMATION

2.1.Description of Device (EUT)

Product	:	Segment Control Unit
Model No.	:	LCN7700
FCC ID	:	2AGBW-LCN7700
Operating Frequency	:	WCDMA/ HSPA Band 2: Uplink:1850-1910MHz Downlink:1930-1990MHz Band 5: Uplink:824-849MHz Downlink:869-894MHz
Antenna Type and Gain	:	Smart Disc Antenna, 3.15dBi
Applicant	:	Philips lighting (China) Investment Co., Ltd. Room 212, Block 2, Nanhai Ecool No.6 Xing Hua Road, She Kou, Shenzhen, China
Manufacturer	:	Philips lighting (China) Investment Co., Ltd. Room 212, Block 2, Nanhai Ecool No.6 Xing Hua Road, She Kou, Shenzhen, China
Date of Test	:	Mar.21~Apr.06, 2016
Date of Receipt	:	Mar.19, 2016
Sample Type	:	Prototype production

2.2.Block diagram of connection between the EUT and simulators



(EUT: Segment Control Unit)

2.3.Test Information

Test Mode	Frequency (MHz)	CH
WCDMA Band 2	1852.4	9262
	1880	9400
	1907.6	9538
WCDMA Band 5	826.4	4132
	836.6	4183
	846.6	4233
HSPA Band 2	1852.4	9262
	1880	9400
	1907.6	9538
HSPA Band 5	826.4	4132
	836.6	4183
	846.6	4233

2.4.Test Facility

Site Description

Name of Firm	:	Audix Technology (Shenzhen) Co., Ltd. No. 6, Kefeng Road, Science & Technology Park, Nanshan District , Shenzhen, Guangdong, China
3m Anechoic Chamber	:	Certificated by FCC, USA Registration Number: 90454 Valid Date: Jul.12, 2017
3m & 10m Anechoic Chamber	:	Certificated by FCC, USA Registration Number: 794232 Valid Date: Jul.12, 2017
RF Anechoic Chamber	:	Dimensions are: [L]10m ╳ [W]5.5m ╳ [H]5m
EMC Lab.	:	Certificated by DAkkS, Germany Registration No: D-PL-12151-01-00 Valid Date: Dec.15, 2016 Accredited by NVLAP, USA NVLAP Code: 200372-0 Valid Date: Mar.31, 2017

2.5.Measurement Uncertainty (95% confidence levels, k=2)

Test Item	Uncertainty
Uncertainty for Radiated Spurious Emission test in RF chamber	3.6dB
Uncertainty for Conduction Spurious emission test	2.0dB
Uncertainty for Output power test	0.8dB
Uncertainty for Power density test	2.0dB
Uncertainty for Frequency range test	$7x10^{-8}$
Uncertainty for Bandwidth test	83 kHz
Uncertainty for DC power test	0.1 %
Uncertainty for test site temperature and humidity	0.6℃
	3%

3. EFFECTIVE ISOTROPIC RADIATED POWER

3.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	Apr.28,15	1 Year
2.	Preamplifier	Agilent	8449B	3008A02495	Apr.28,15	1 Year
3.	Preamplifier	Agilent	8447D	2944A11159	Apr.28,15	1Year
4.	Horn Antenna	ETS	3115	9510-4877	Oct.15,15	1 Year
5.	Bi-log Antenna	TESEQ	CBL6112D	25237	Jun.30,15	1 Year
6.	Antenna and turn table controller	CT	SC100	CT-0091	N/A	N/A
7.	RF Cable	Hubersuhner	SUCOFLEX104/102	274094/4+28610/2	Apr.28,15	1 Year
8.	Test Software	AUDIX	e3	6.2009-5-21a(n)	N/A	N/A
Note: N/A means Not applicable.						

3.1.Limit

22.913(a) Mobile station are limited to 7W ERP.
Part 24.232(b) Mobile station are Limited to 2W EIRP.

3.2.Test Procedure:

The EUT was placed on a non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength(E in dBuV/m) was calculated.

ERP in frequency band 824.2-848.8MHz were measured using substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follow:

EIRP in frequency band 1850.2-1909.8MHz were measured using a substitution method. The EUT was replaced by a horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:

ERP=S.G. output (dBm) + Antenna Gain (dBd) - Cable Loss(dB)

EIRP= S.G. output (dBm) + Antenna Gain (dBi) - Cable Loss(dB)

dBd=dBi-2.15dB

3.3.Test Results

EUT: Segment Control Unit		
M/N: LCN7700		
Test date: 2016-04-08	Pressure: 101.8±1.0 kpa	Humidity: 53.5±3.0%
Tested by: Alice_Yang	Test site: RF site	Temperature:23.4±0.6 ℃

WCDMA Band 2
Test Result：
The RBW,VBW of SPA for frequency
Below 1GHz was RBW=300KHz,VBW=1MHz;
Above 1GHz was RBW=1MHz,VBW=3MHz;

Test Mode	Frequency (MHz)	CH	Antenna Pol.	SPA Reading (dBuv)	Receive Antenna Factor (dB/m)	Receive Cable Loss (dB)	Field Strength (dBuv/m)
WCDMA Band 2	1852.4	9262	V	105.47	27.24	5.90	138.61
			H	103.91	27.24	5.90	137.05
	1880	9400	V	104.53	27.34	5.93	137.80
			H	101.62	27.34	5.93	134.89
	1907.6	9538	V	104.21	27.45	6.00	137.66
			H	105.78	27.45	6.00	139.23

S.G.output (dBm)	Antenna Gain (dBi)	Tx Cable loss (dB)	Result ERP/EIRP (dBm)	Limit ERP/EIRP(dBm)
25.83	3.15	6.11	22.87	33
24.90	3.15	6.11	21.94	33
26.19	3.15	6.19	23.15	33
25.92	3.15	6.19	22.88	33
24.86	3.15	6.23	21.75	33
24.67	3.15	6.23	21.56	33

WCDMA Band 5
Test Result：
The RBW,VBW of SPA for frequency
Below 1GHz was RBW=300KHz,VBW=1MHz;
Above 1GHz was RBW=1MHz,VBW=3MHz;

Test Mode	Frequency (MHz)	CH	Antenna Pol.	SPA Reading (dBuv)	Receive Antenna Factor (dB/m)	Receive Cable Loss (dB)	Field Strength (dBuv/m)
WCDMA Band 5	826.4	4132	V	111.39	21.16	3.88	136.43
			H	109.90	21.16	3.88	134.94
	836.6	4183	V	114.27	21.27	3.88	139.42
			H	112.15	21.27	3.88	137.30
	846.6	4233	V	114.25	21.33	3.92	139.50
			H	112.60	21.33	3.92	137.85

S.G.output (dBm)	Antenna Gain (dBd)	Tx Cable loss (dB)	Result ERP/EIRP (dBm)	Limit ERP/EIRP(dBm)
32.28	1	3.68	29.60	38.45
32.14	1	3.68	29.46	38.45
32.62	1	3.74	29.88	38.45
32.54	1	3.74	29.80	38.45
32.73	1	3.74	29.99	38.45
32.22	1	3.74	29.48	38.45
Conclusion: PASS				

EUT: Segment Control Unit		
M/N: LCN7700		
Test date: 2016-04-08	Pressure: 101.8±1.0 kpa	Humidity: 53.5±3.0%
Tested by: Alice_Yang	Test site: RF site	Temperature:23.4±0.6 ℃

HSPA Band 2
Test Result：
The RBW,VBW of SPA for frequency
Below 1GHz was RBW=300KHz,VBW=1MHz;
Above 1GHz was RBW=1MHz,VBW=3MHz;

Test Mode	Frequency (MHz)	CH	Antenna Pol.	SPA Reading (dBuv)	Receive Antenna Factor (dB/m)	Receive Cable Loss (dB)	Field Strength (dBuv/m)
HSPA Band 2	1852.4	9262	V	105.51	27.24	5.90	136.65
			H	100.72	27.24	5.90	134.80
	1880	9400	V	104.96	27.34	5.93	136.23
			H	101.12	27.34	5.93	133.32
	1907.6	9538	V	105.40	27.45	6.00	135.20
			H	104.88	27.45	6.00	134.39

S.G.output (dBm)	Antenna Gain (dBi)	Tx Cable loss (dB)	Result ERP/EIRP (dBm)	Limit ERP/EIRP(dBm)
25.64	3.15	6.11	22.68	33
24.55	3.15	6.11	21.59	33
26.14	3.15	6.19	23.10	33
25.50	3.15	6.19	22.46	33
24.83	3.15	6.23	21.72	33
24.26	3.15	6.23	21.15	33

HSPA Band 5
Test Result：
The RBW,VBW of SPA for frequency
Below 1GHz was RBW=300KHz,VBW=1MHz;
Above 1GHz was RBW=1MHz,VBW=3MHz;

Test Mode	Frequency (MHz)	CH	Antenna Pol.	SPA Reading (dBuv)	Receive Antenna Factor (dB/m)	Receive Cable Loss (dB)	Field Strength (dBuv/m)
HSPA Band 5	826.4	4132	V	112.26	21.16	3.88	137.30
			H	109.77	21.16	3.88	134.81
	836.6	4183	V	112.82	21.27	3.88	137.97
			H	110.58	21.27	3.88	135.73
	846.6	4233	V	112.42	21.33	3.92	137.67
			H	111.08	21.33	3.92	136.33

S.G.output (dBm)	Antenna Gain (dBd)	Tx Cable loss (dB)	Result ERP/EIRP (dBm)	Limit ERP/EIRP(dBm)
32.21	1	3.68	29.53	38.45
31.09	1	3.68	28.41	38.45
32.36	1	3.74	29.62	38.45
31.75	1	3.74	29.01	38.45
32.39	1	3.74	29.65	38.45
31	1	3.74	28.26	38.45
Conclusion: PASS				

4. OUT OF BAND EMISSIONS AT ANTENNA TERMINALS AND BAND EDGE

4.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	N9030A	MY51380221	Oct.17,15	1Year
2.	Spectrum	Agilent	E4446A	US44300459	Apr.28,15	1 Year
3.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr.28,15	1 Year
4.	RF Cable	Marvelous Microwave Inc	SFL402105FLEX	NO.1	Oct.17,15	1 Year
5.	HF Cable	Hubersuhner	Sucoflex104	274094/4	Apr.28,15	1 Year

4.2.Limit

FCC part 22.917(a), 24.238(a) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specification in the instruction manual and/or alignment procedure, shall not be less than 43+10log(Mean power in watts) dBc below the mean power output outside a license's frequency block(-13dBm).

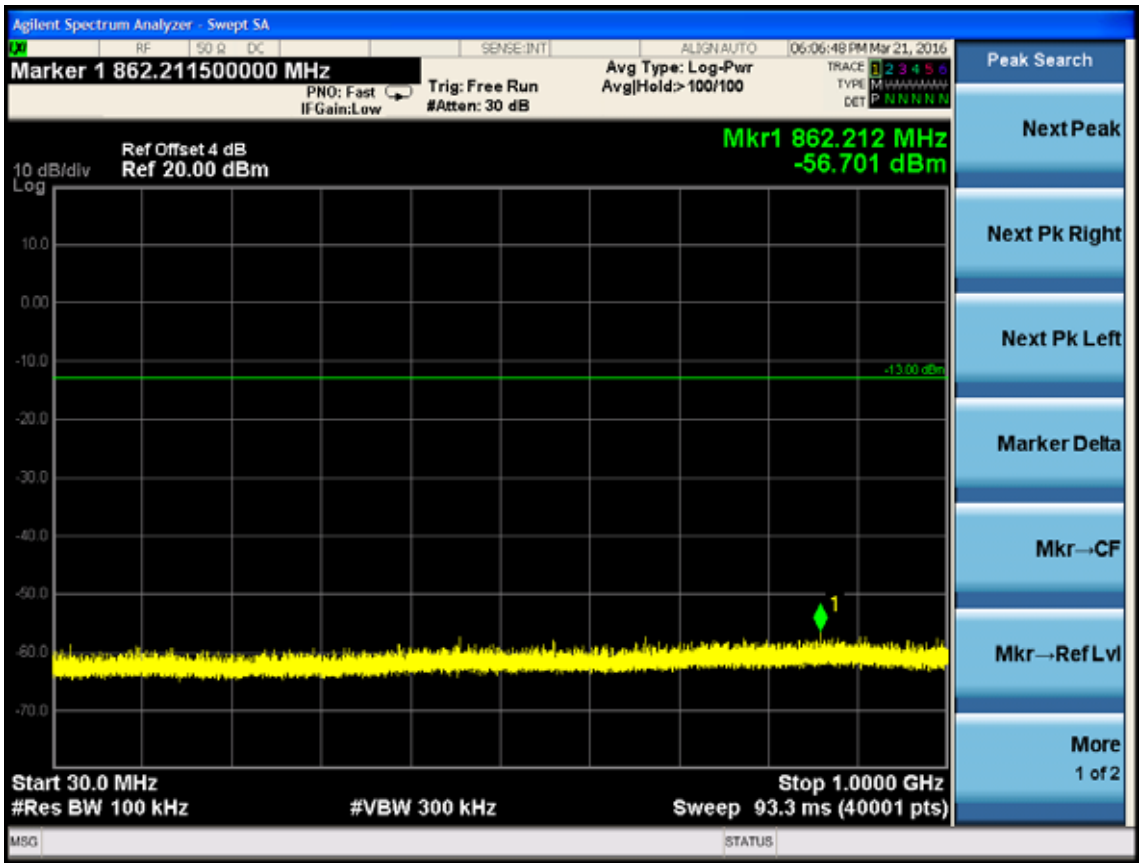
4.3.Test Procedure

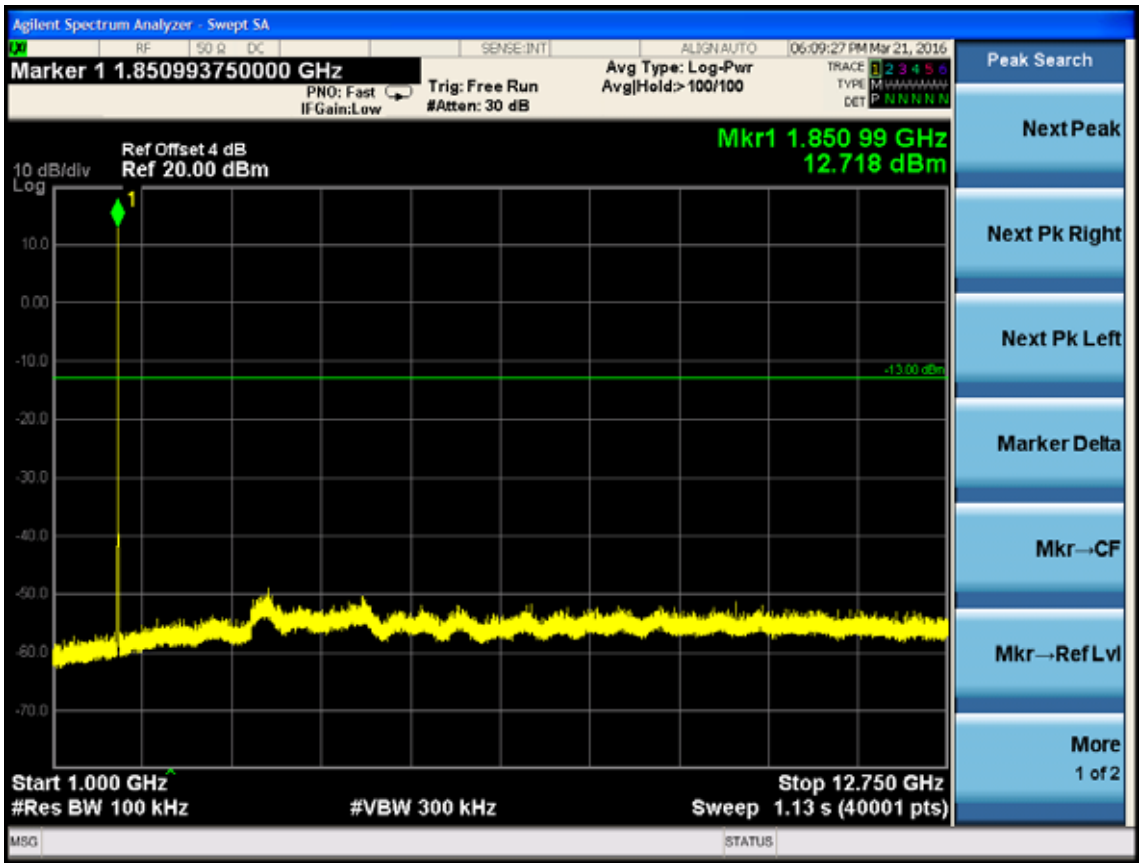
The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emission is any up to 10th harmonic. For the out of band: set RBW, VBW=1MHz, stat=30MHz, stop= 10 th harmonic. Limit= -13dBm Band Edge requirements: In 1Mhz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 % of bandwidth of fundamental emission of the transmitter any be employed to measure the out of band emission. Limit=-13dBm.

4.4.Test result

PASS (The testing data was attached in the next pages.)

WCDMA
Band 2
CH 9262



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Marker 1 18.377581712452 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
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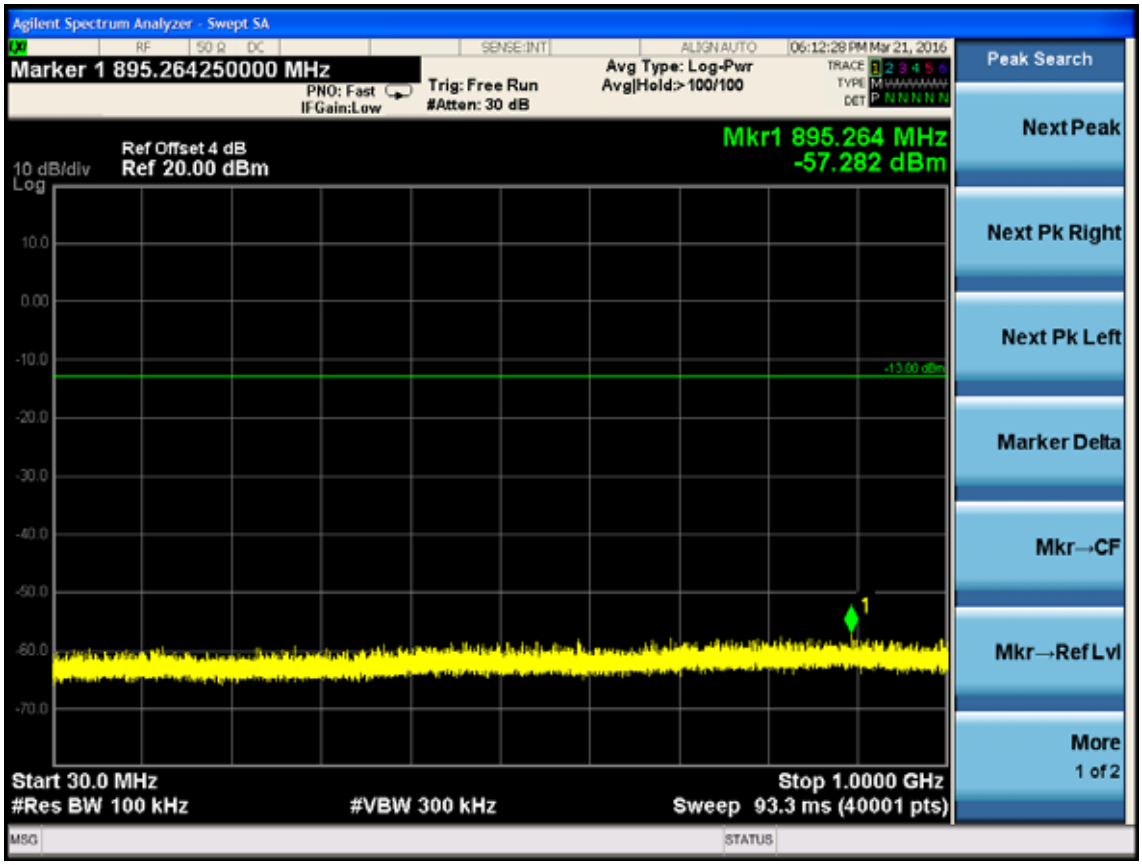
Ref Offset 14 dB
10 dB/div
Log
Ref 14.00 dBm
Mkr1 18.377 6 GHz
-49.083 dBm
Start 12.750 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 20.000 GHz
Sweep 23.94 ms (9975 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

CH 9400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Trig: Free Run
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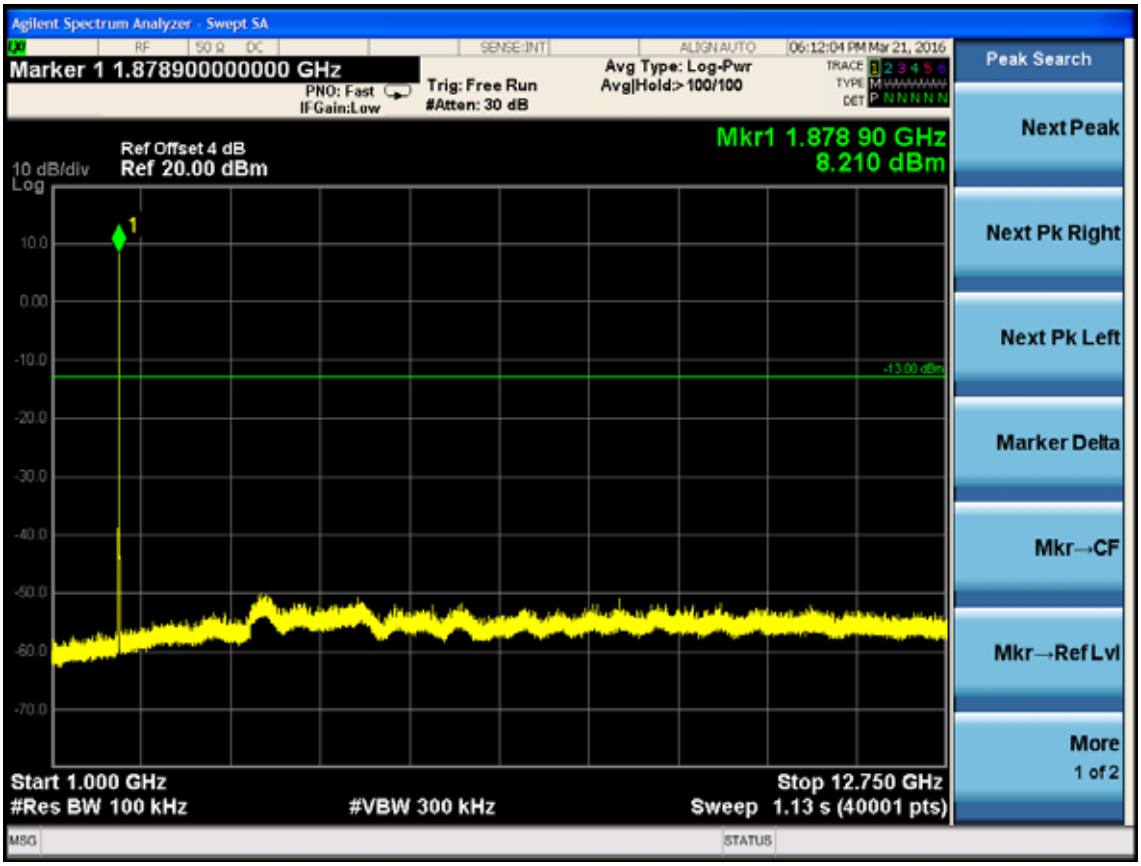
Ref Offset 4 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 895.264 MHz
-57.282 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2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10 dB/div
Log
Ref 20.00 dBm
Mkr1 1.878 90 GHz
8.210 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.13 s (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 18.245287748145 GHz
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IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
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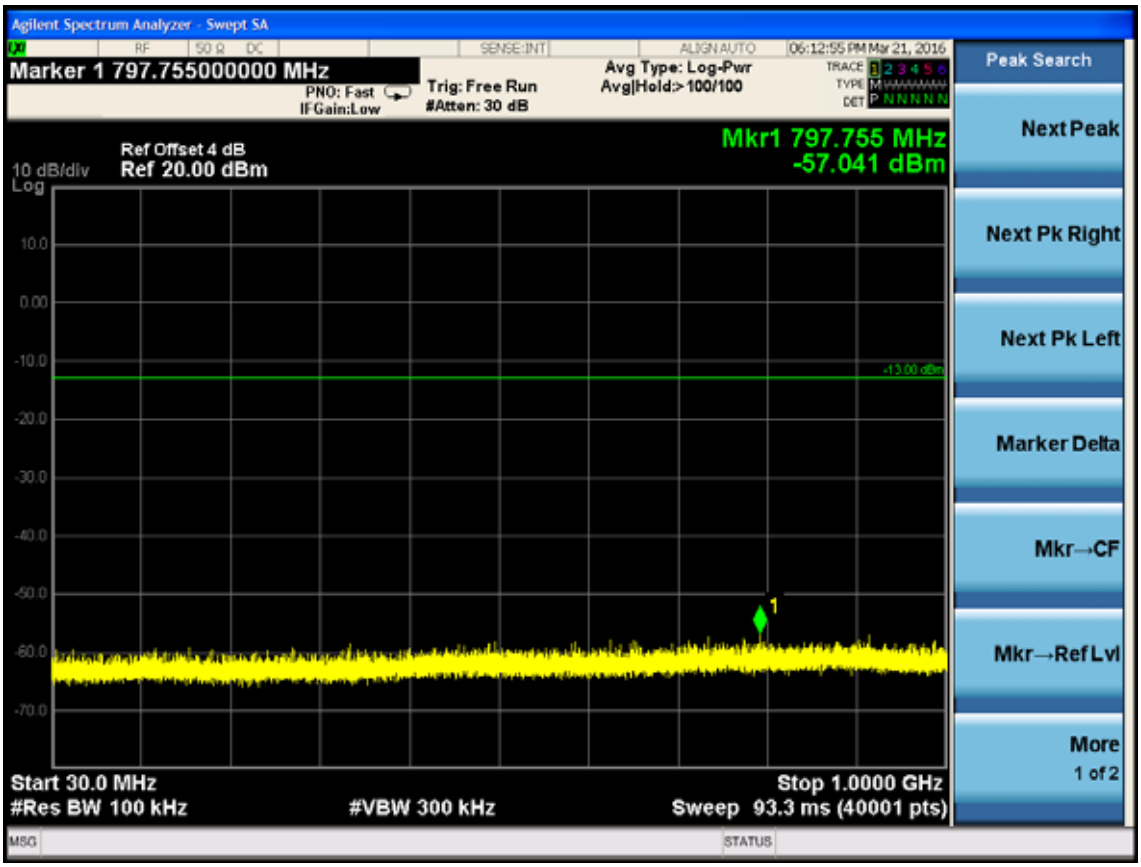
Ref Offset 14 dB
10 dB/div
Log
Ref 14.00 dBm
Mkr1 18.245 3 GHz
-49.016 dBm
Start 12.750 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 20.000 GHz
Sweep 23.94 ms (9975 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

CH 9538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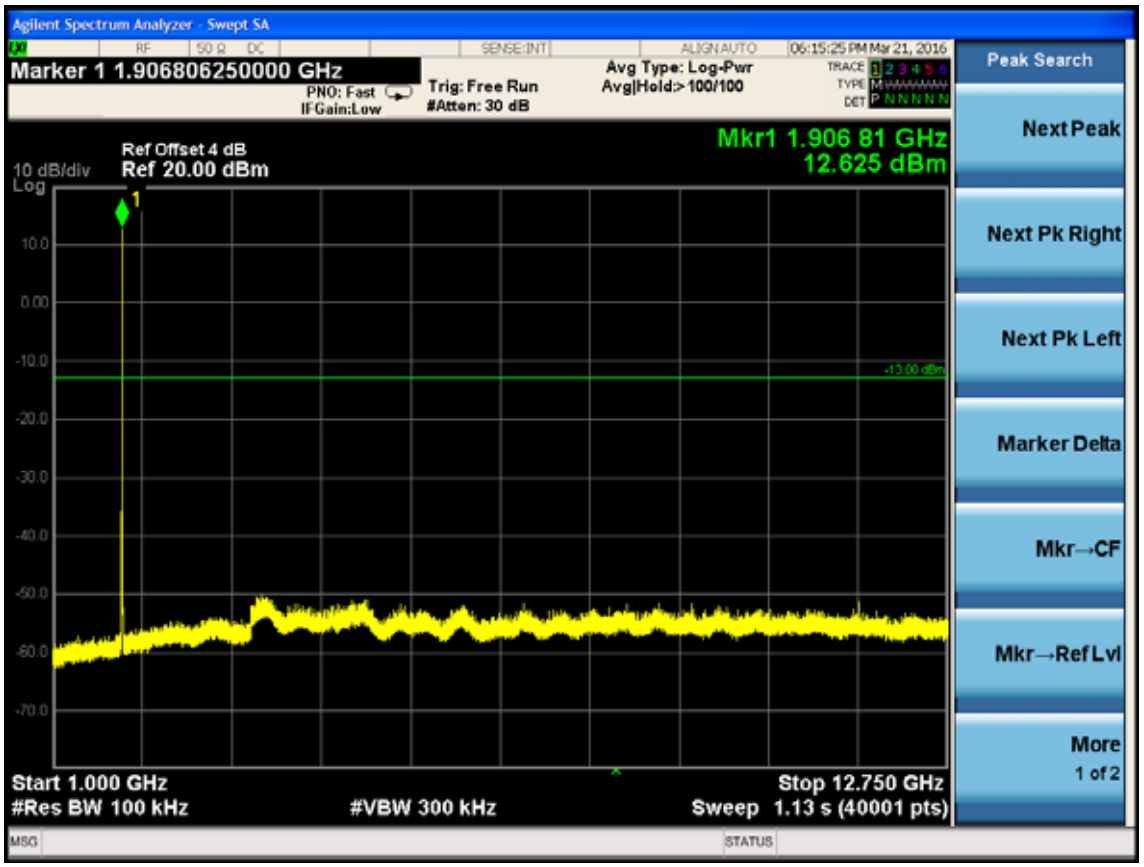
Ref Offset 4 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 797.755 MHz
-57.041 dBm
-13.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS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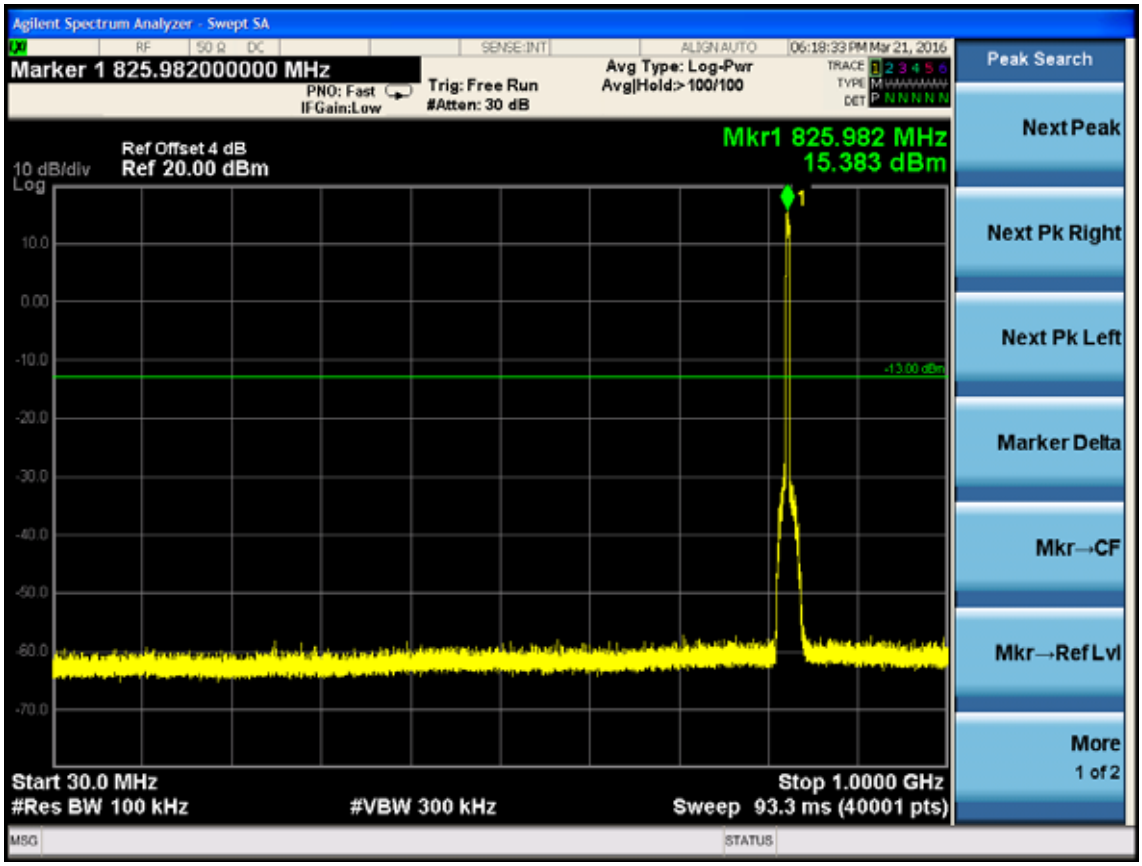
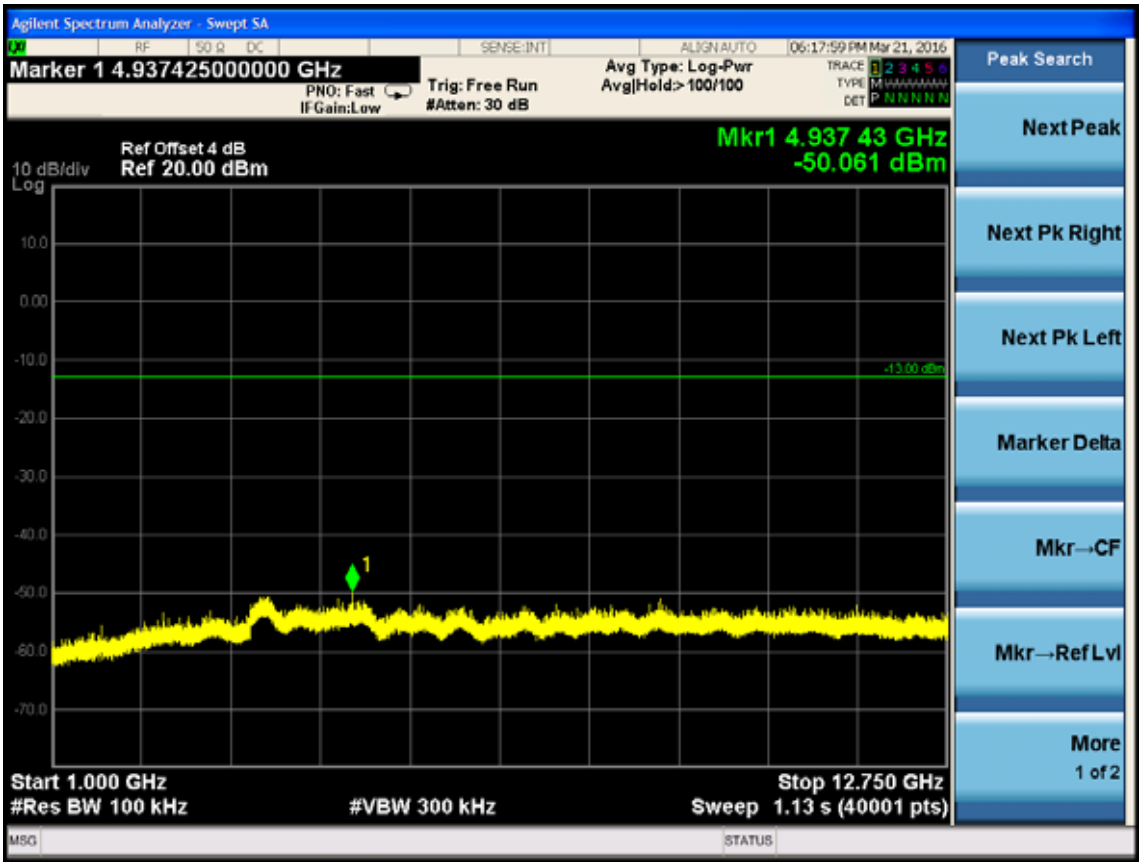
10 dB/div
Log
Ref 20.00 dBm
Mkr1 1.906 81 GHz
12.625 dBm
-13.00 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.13 s (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

Band 5
CH 4132

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Trig: Free Run
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10 dB/div
Log
Ref 20.00 dBm
Mkr1 4.937 43 GHz
-50.061 dBm
-13.00 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.13 s (40001 pts)
Peak Search
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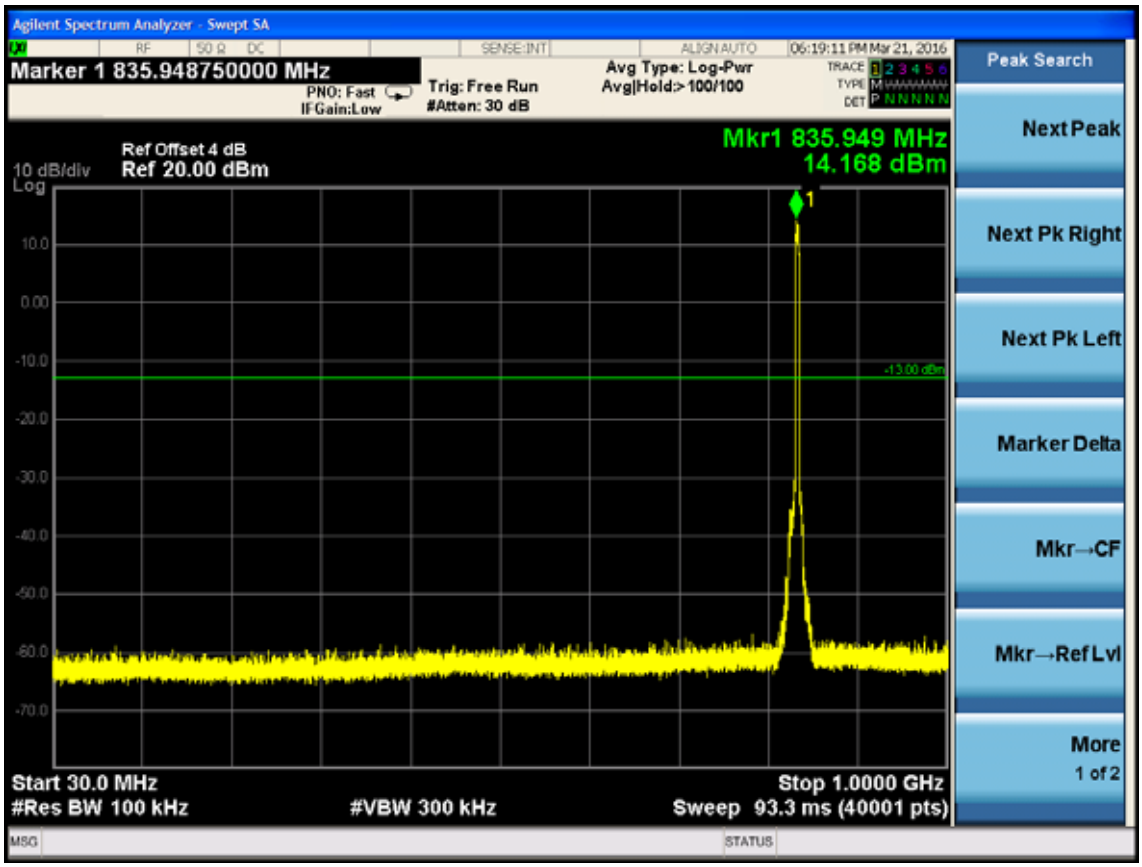
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

CH 4183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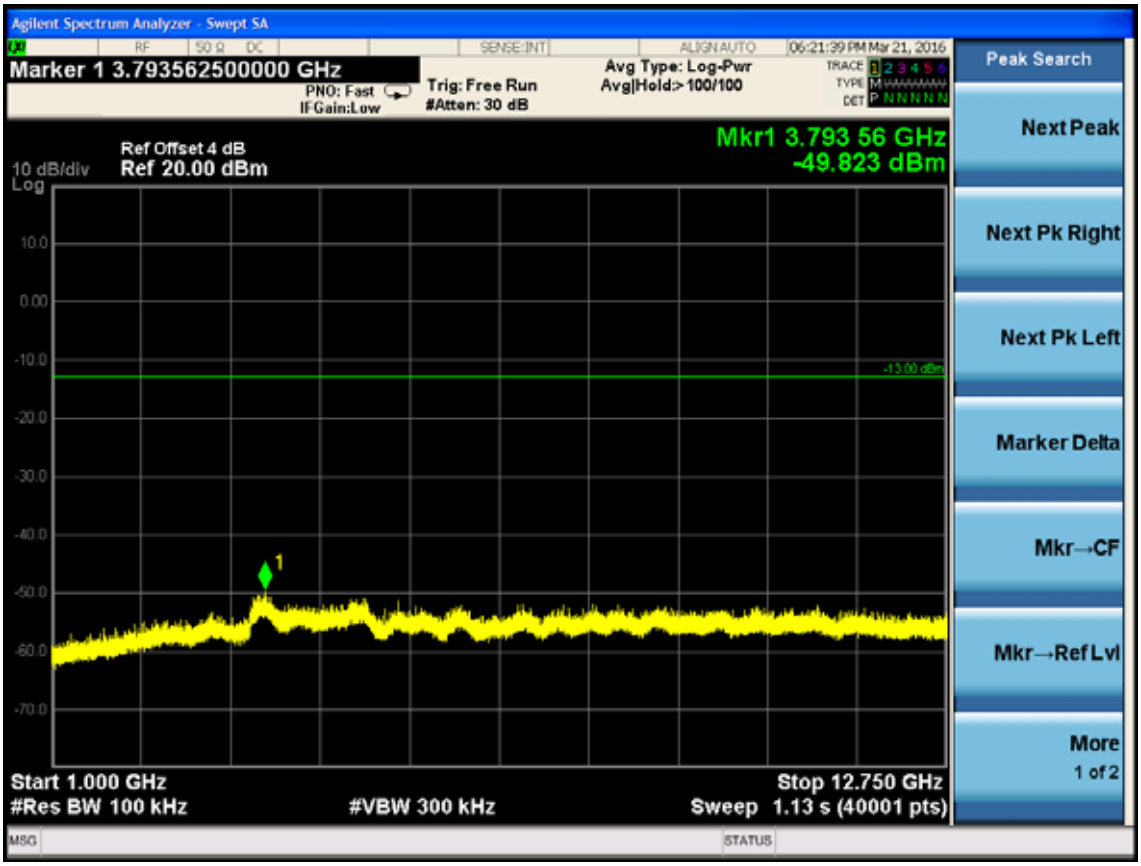
10 dB/div
Log
Ref 20.00 dBm
Mkr1 835.949 MHz
14.168 dBm
-13.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS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IFGain:Low
Trig: Free Run
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Avg Type: Log-Pwr
Avg|Hold:>100/100
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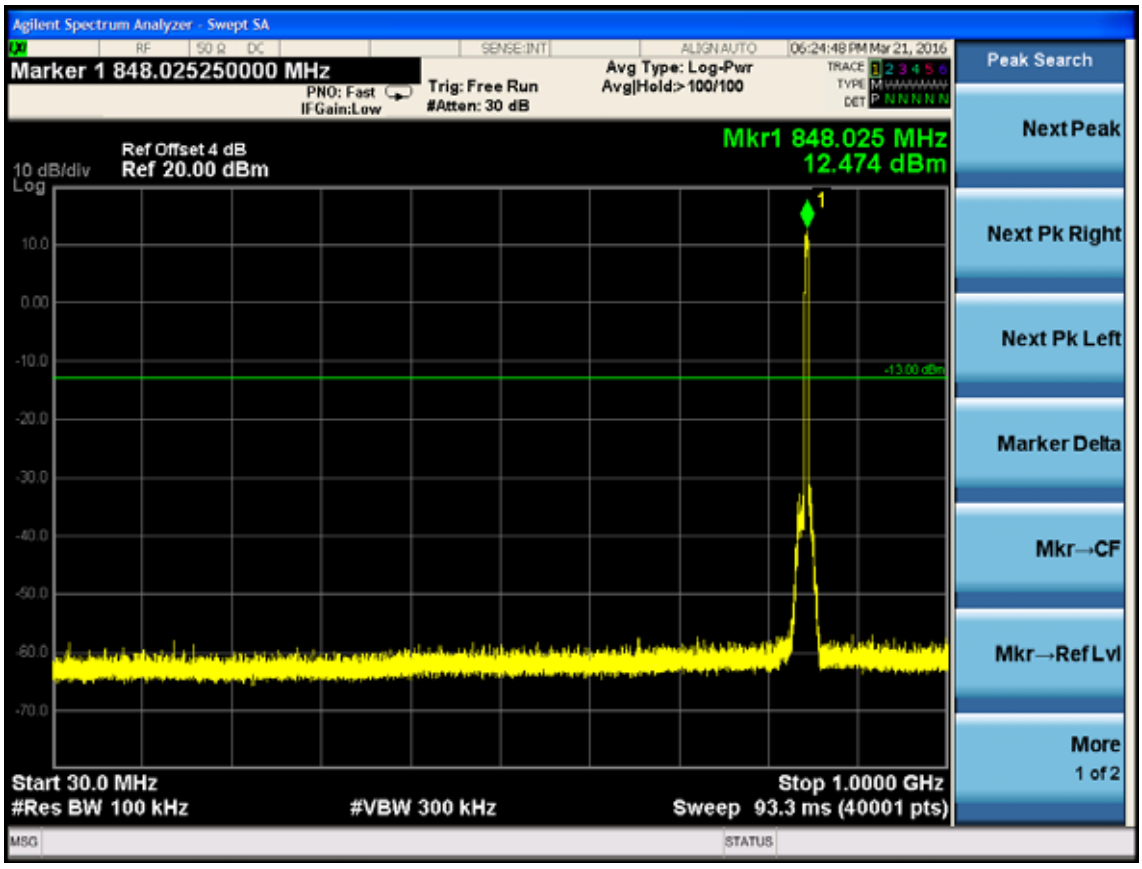
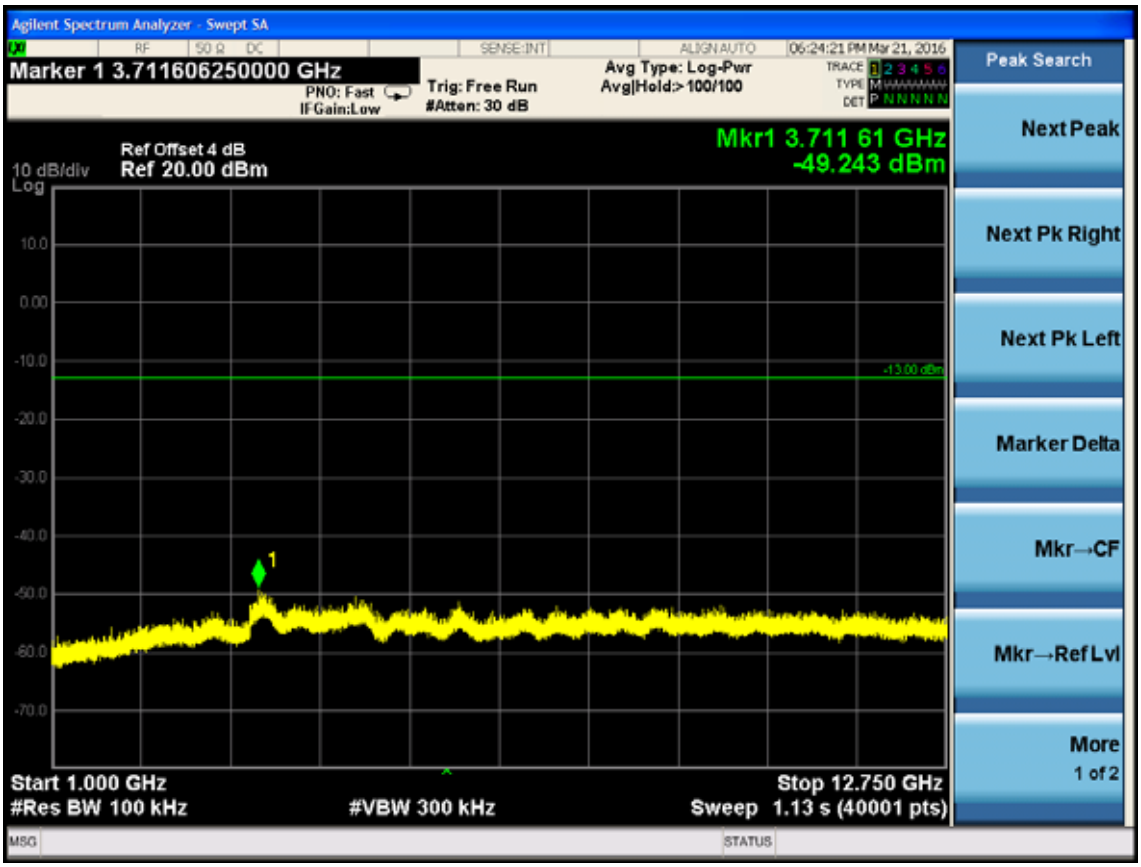
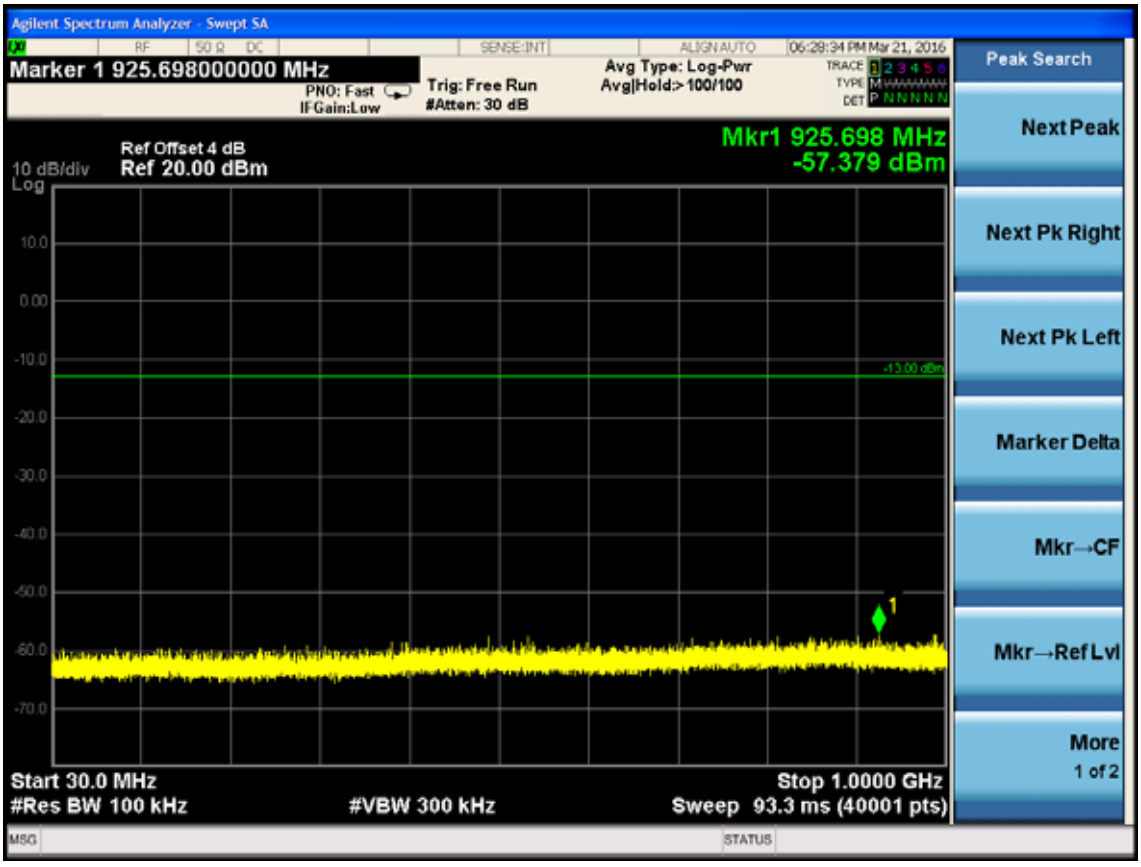
Ref Offset 4 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 3.793 56 GHz
-49.823 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.13 s (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

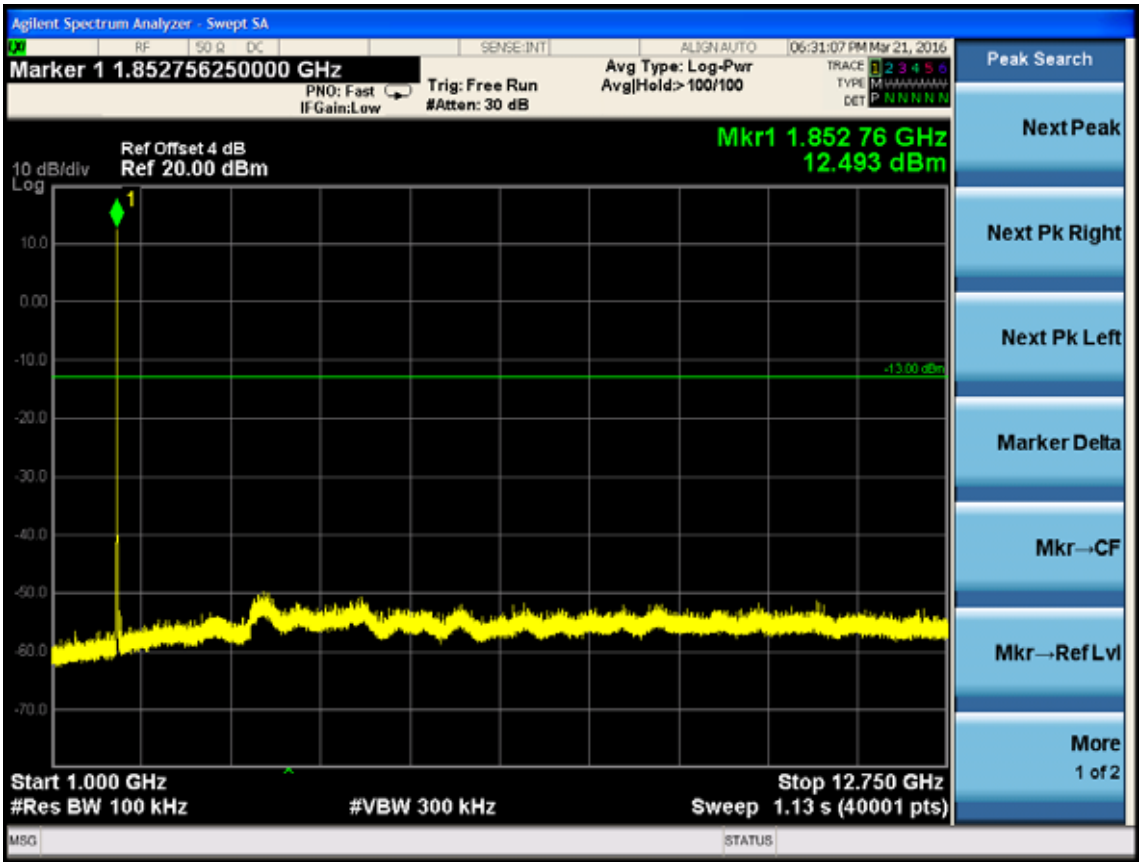
CH 4233

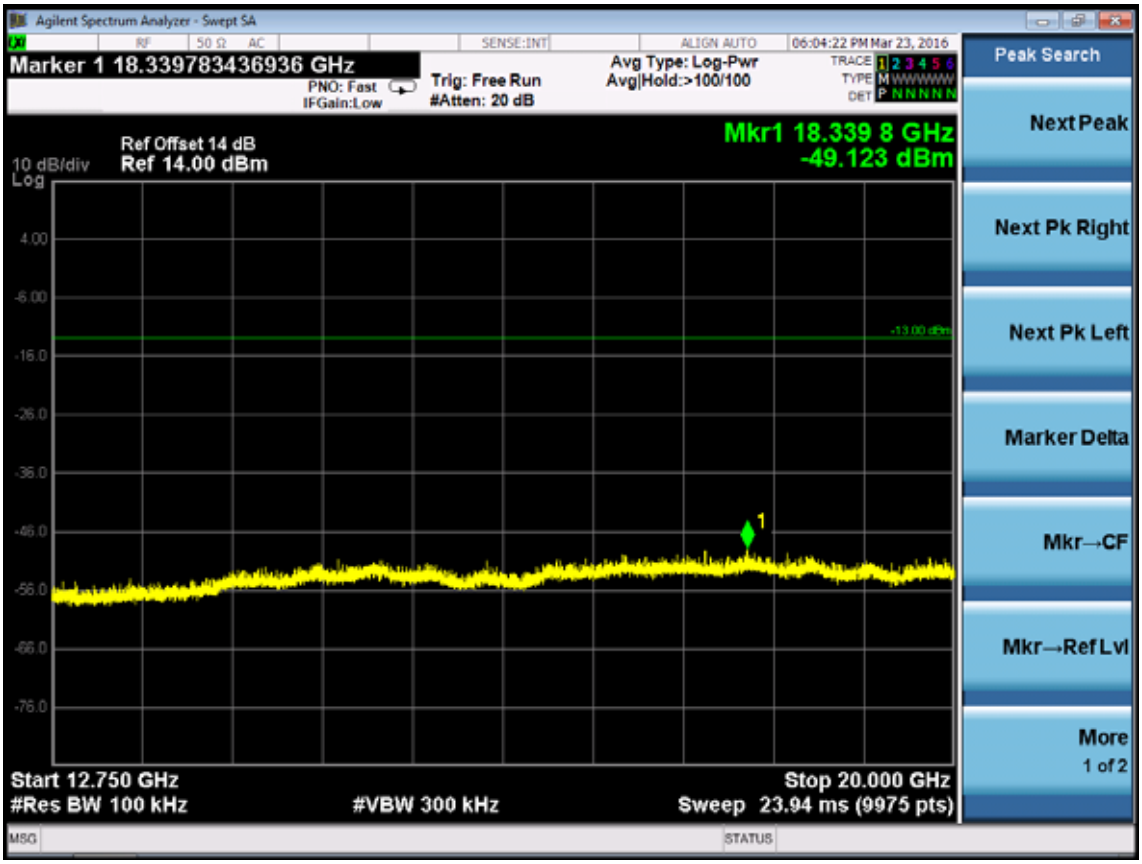

Agilent Spectrum Analyzer - Swept SA
Marker 1 848.025250000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:24:48 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 848.025 MHz
12.474 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS



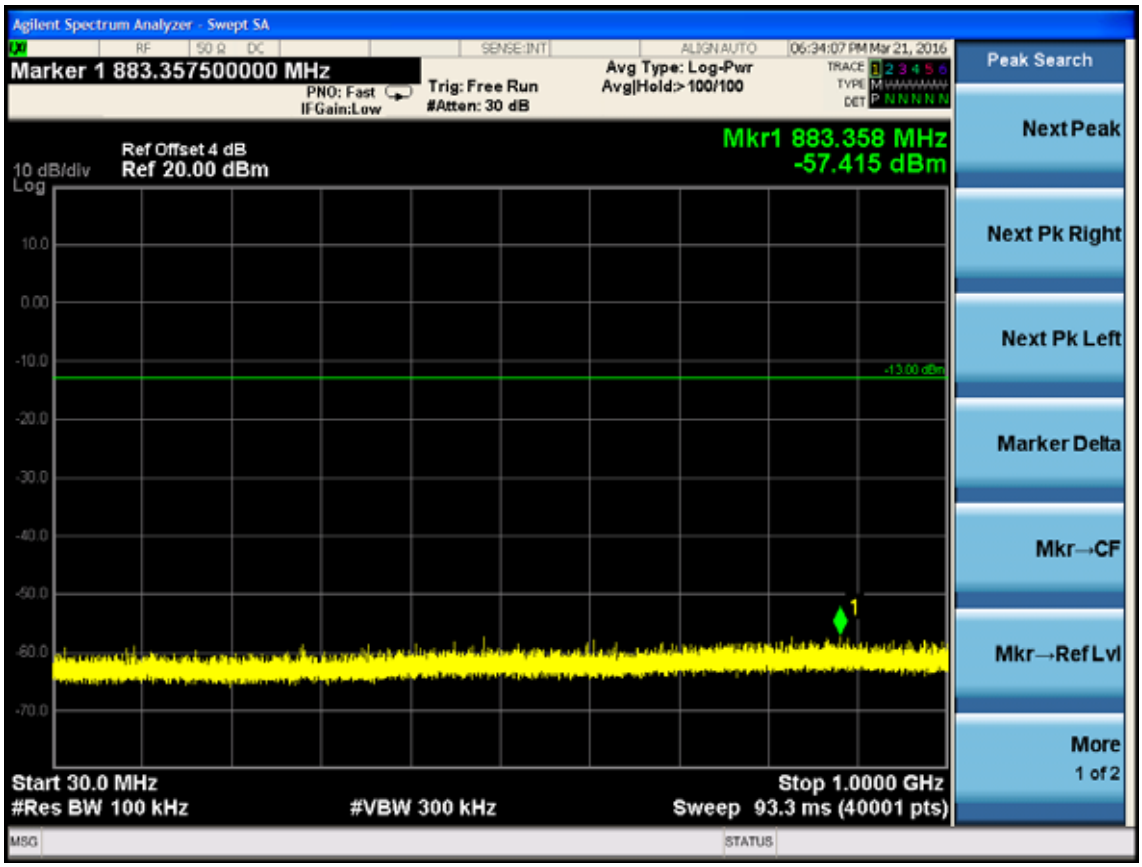
HSPA
Band 2
CH 9262

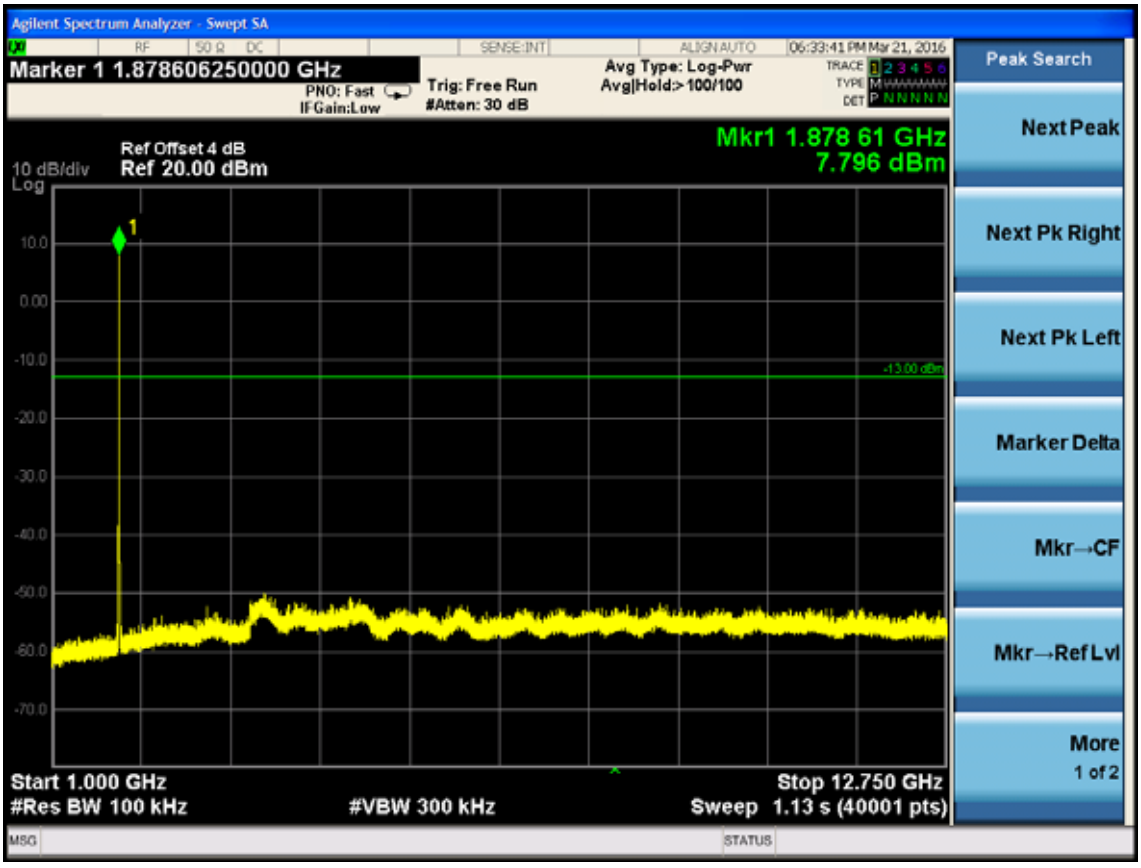



Agilent Spectrum Analyzer - Swept SA
Marker 1 1.852756250000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:31:07 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 1.852 76 GHz
12.493 dBm
-13.00 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.13 s (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Marker 1 18.339783436936 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:04:22 PM Mar 23, 2016
Ref Offset 14 dB
10 dB/div
Log
Ref 14.00 dBm
Mkr1 18.339 8 GHz
-49.123 dBm
-13.00 dBm
Start 12.750 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 20.000 GHz
Sweep 23.94 ms (9975 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

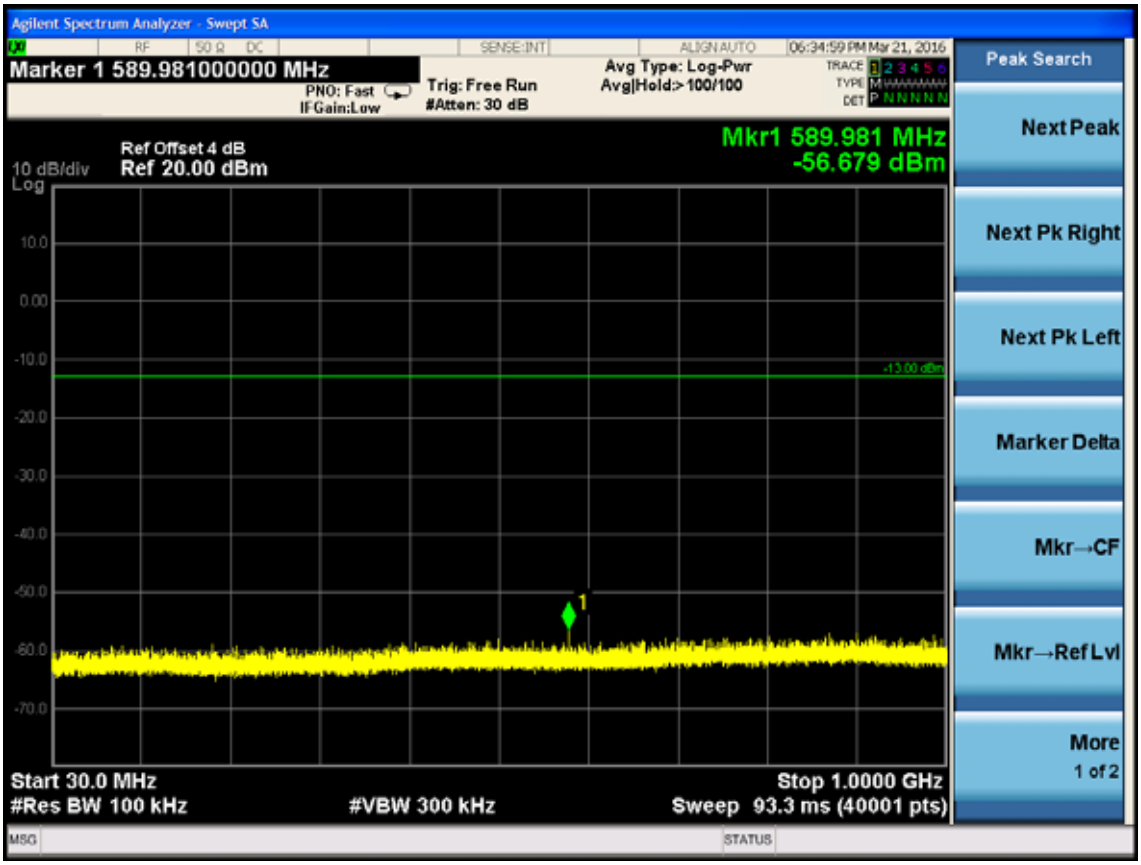
CH 9400

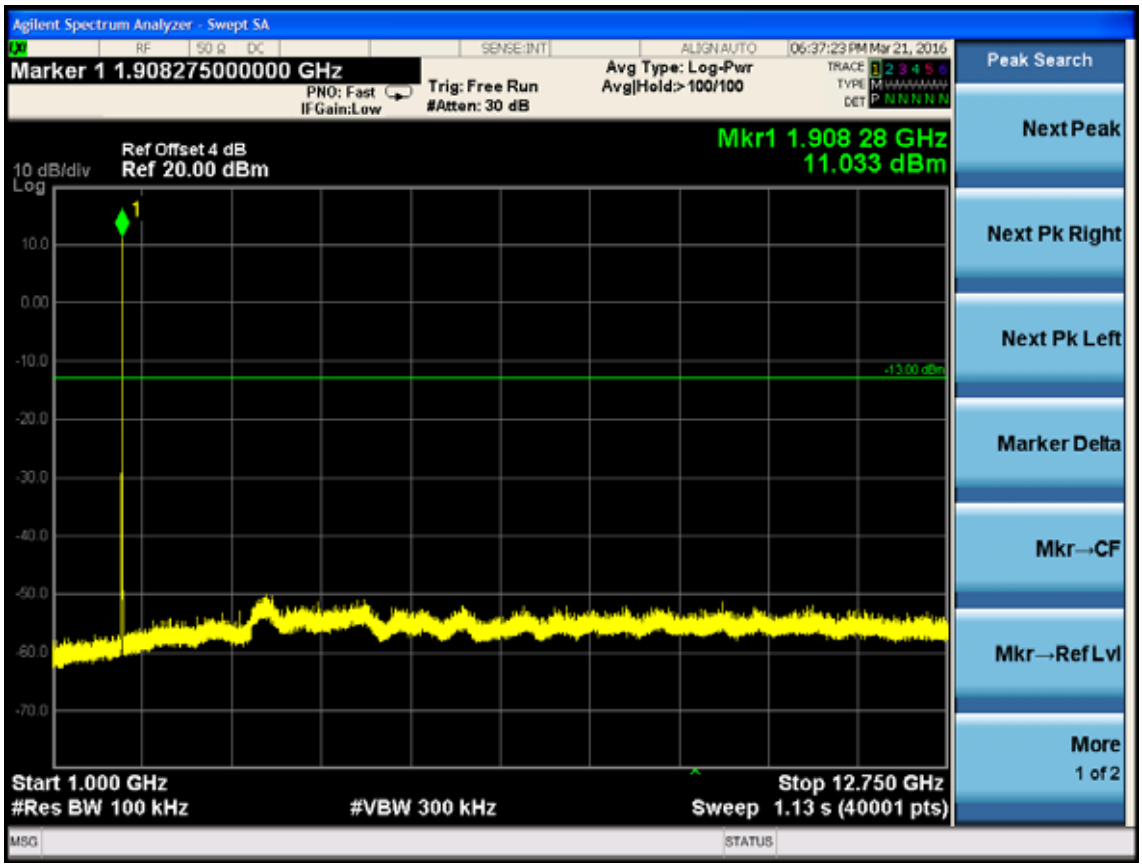

Agilent Spectrum Analyzer - Swept SA
Marker 1 883.357500000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:34:07 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 883.358 MHz
-57.415 dBm
-13.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 1.878606250000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:33:41 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 1.878 61 GHz
7.796 dBm
-13.00 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.13 s (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 18.826072789252 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:05:41 PM Mar 23, 2016
Ref Offset 14 dB
10 dB/div
Ref 14.00 dBm
Mkr1 18.826 1 GHz
-49.884 dBm
Start 12.750 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 20.000 GHz
Sweep 23.94 ms (9975 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

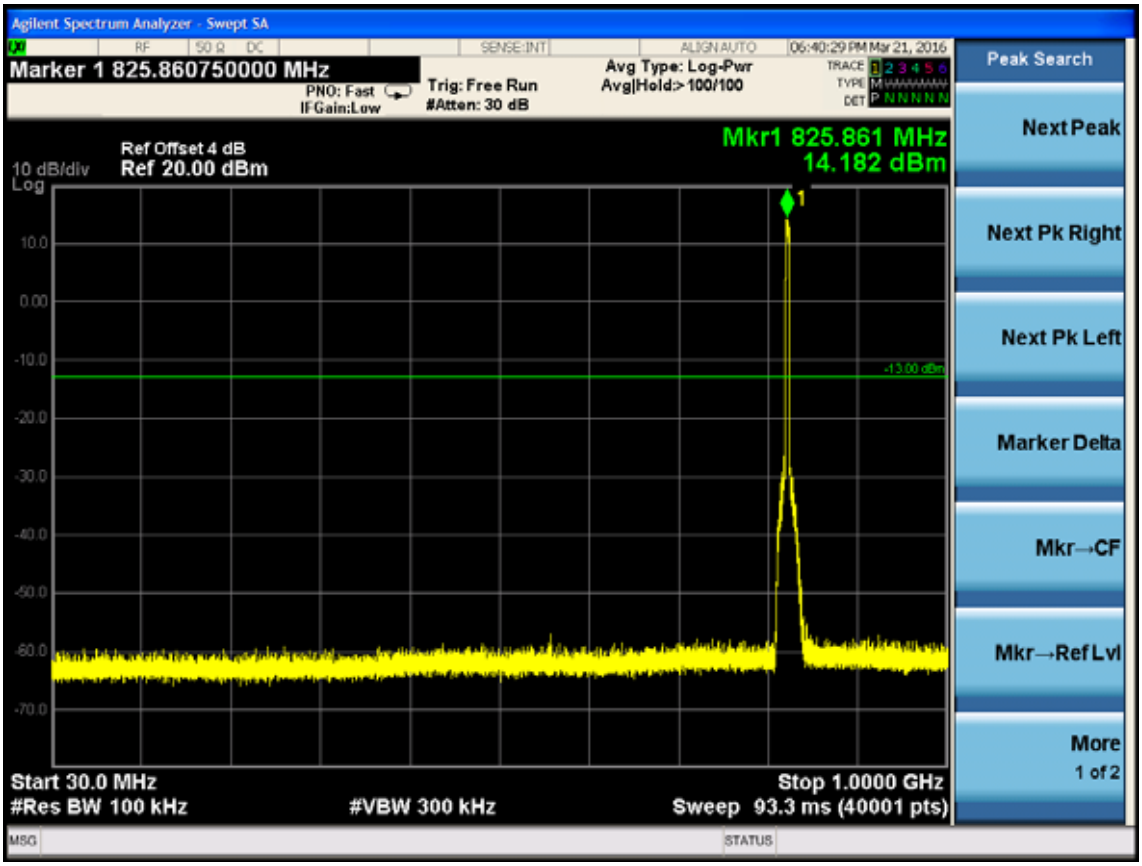
CH 9538

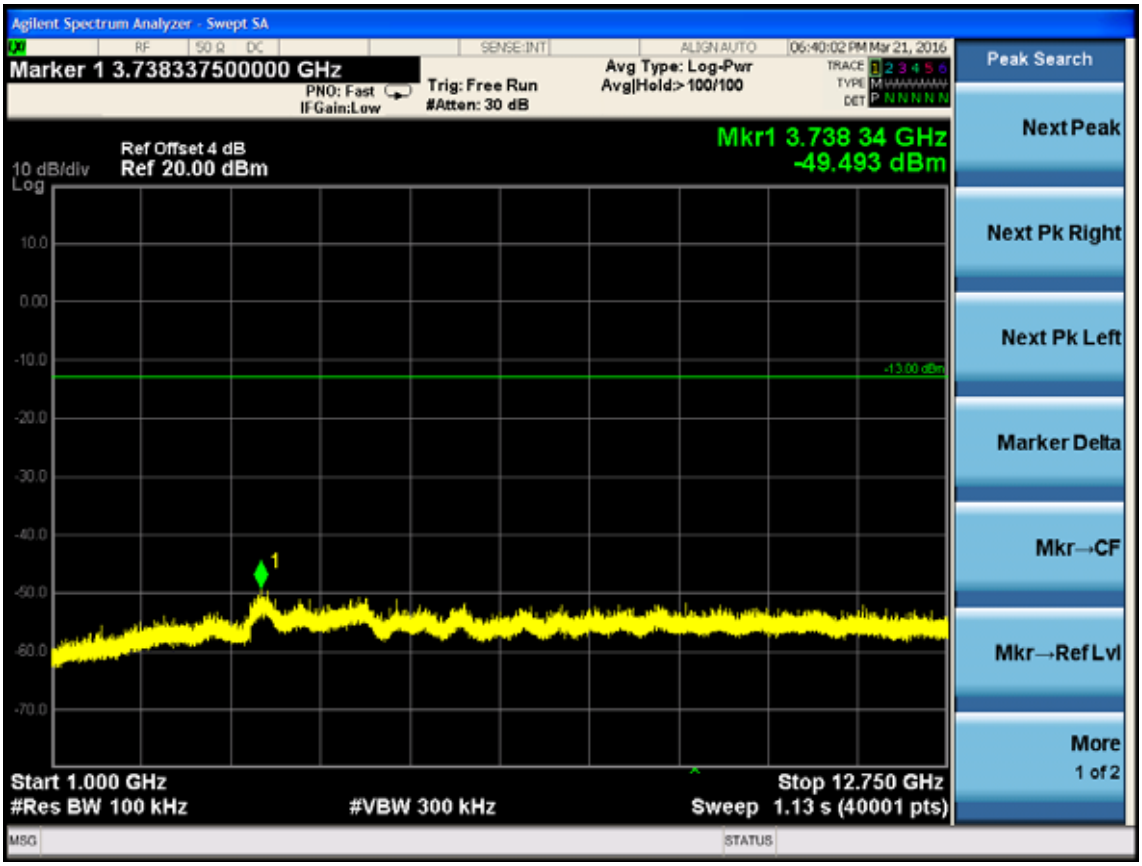

Agilent Spectrum Analyzer - Swept SA
Marker 1 589.981000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:34:59 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Ref 20.00 dBm
Mkr1 589.981 MHz
-56.679 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 1.908275000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:37:23 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 1.908 28 GHz
11.033 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.13 s (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

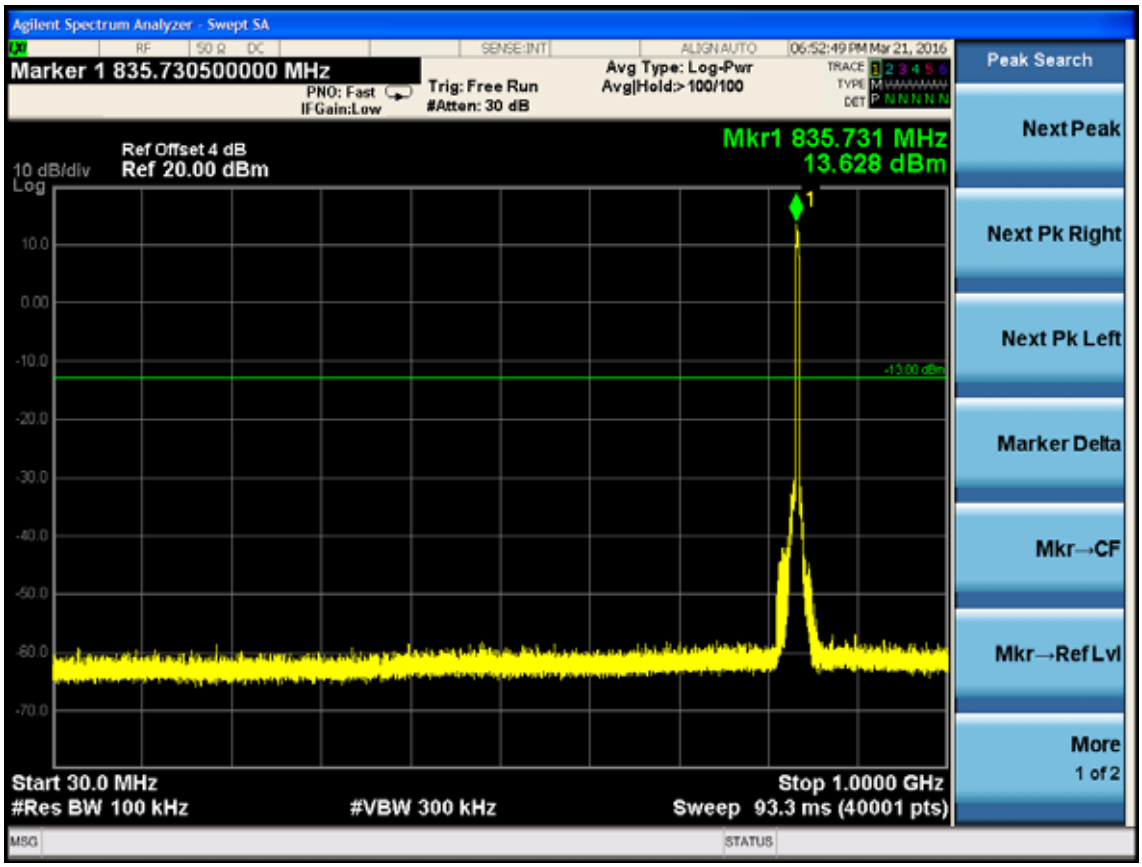

Agilent Spectrum Analyzer - Swept SA
Marker 1 18.222754160818 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:06:13 PM Mar 23, 2016
Ref Offset 14 dB
10 dB/div
Log
Ref 14.00 dBm
Mkr1 18.222 8 GHz
-50.067 dBm
Start 12.750 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 20.000 GHz
Sweep 23.94 ms (9975 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

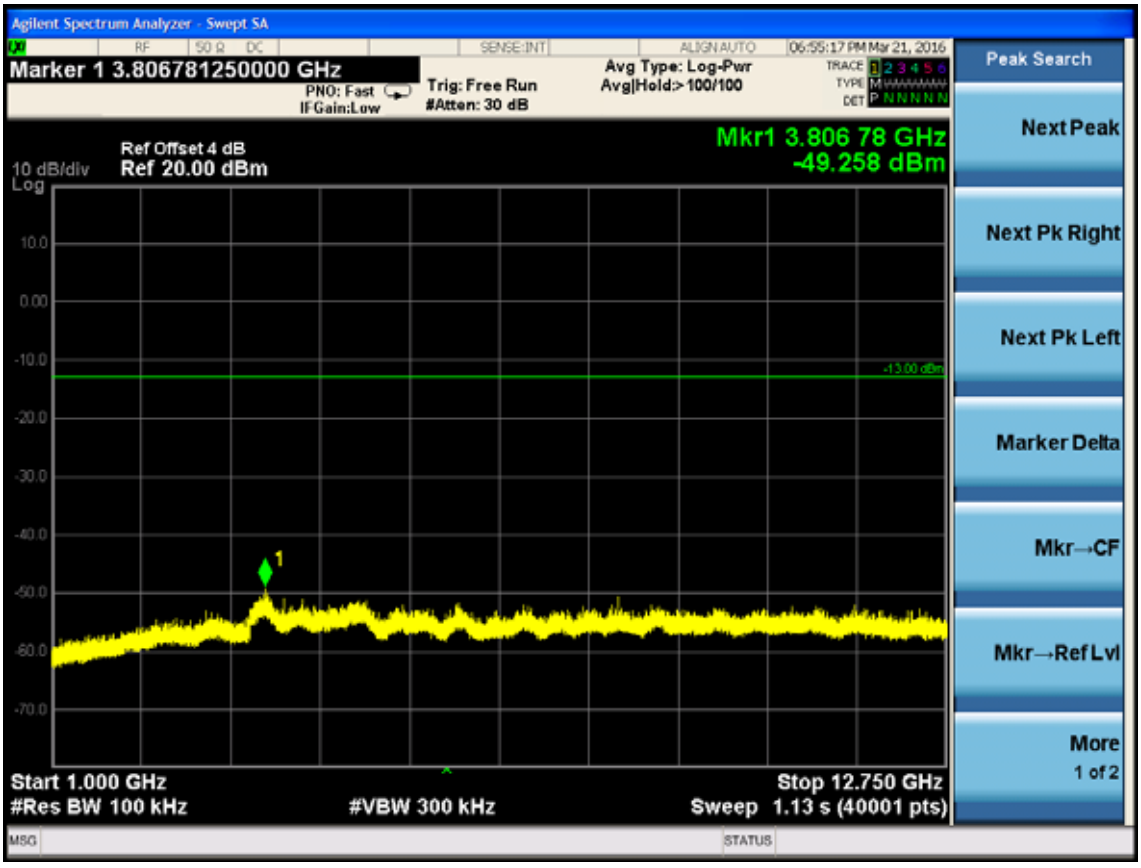
Band 5
CH 4132



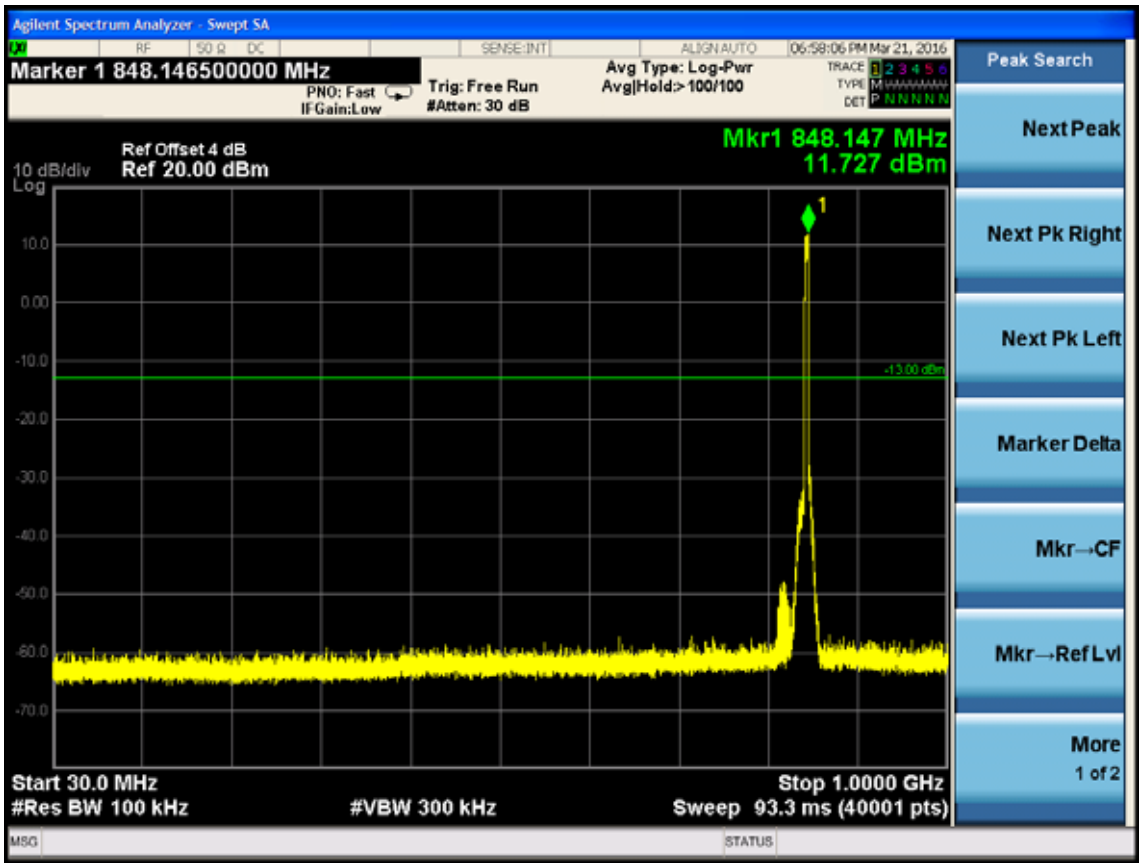


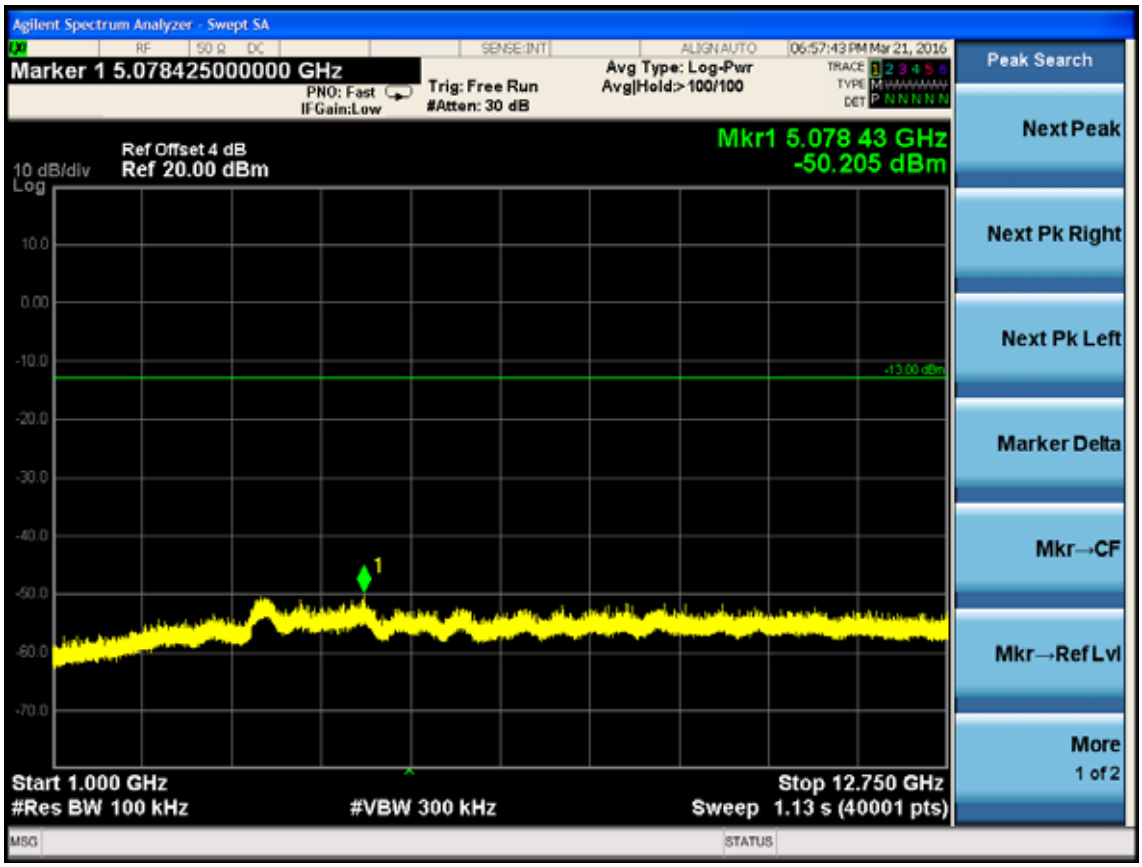
CH 4183


Agilent Spectrum Analyzer - Swept SA
Marker 1 835.730500000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:52:49 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 835.731 MHz
13.628 dBm
-13.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

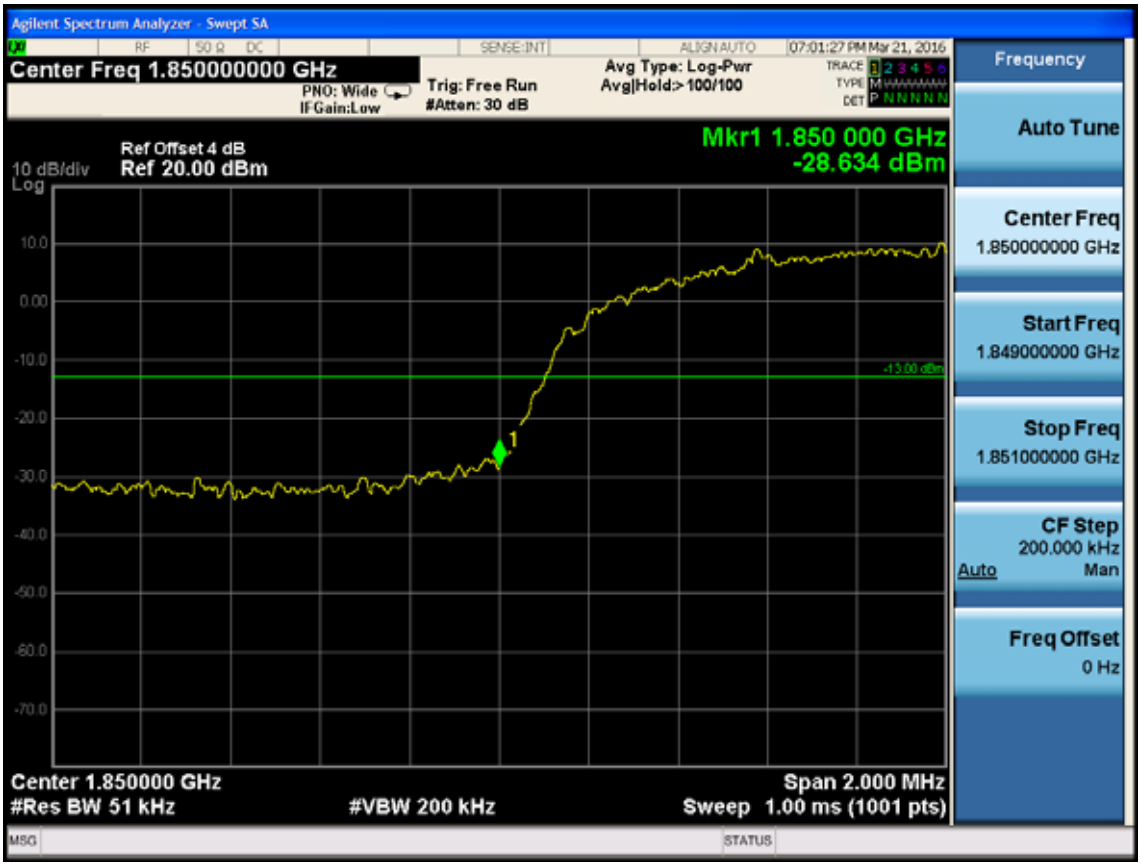

Agilent Spectrum Analyzer - Swept SA
Marker 1 3.806781250000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:55:17 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 3.806 78 GHz
-49.258 dBm
-13.00 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.13 s (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

CH 4233


Agilent Spectrum Analyzer - Swept SA
Marker 1 848.146500000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:58:06 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 848.147 MHz
11.727 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

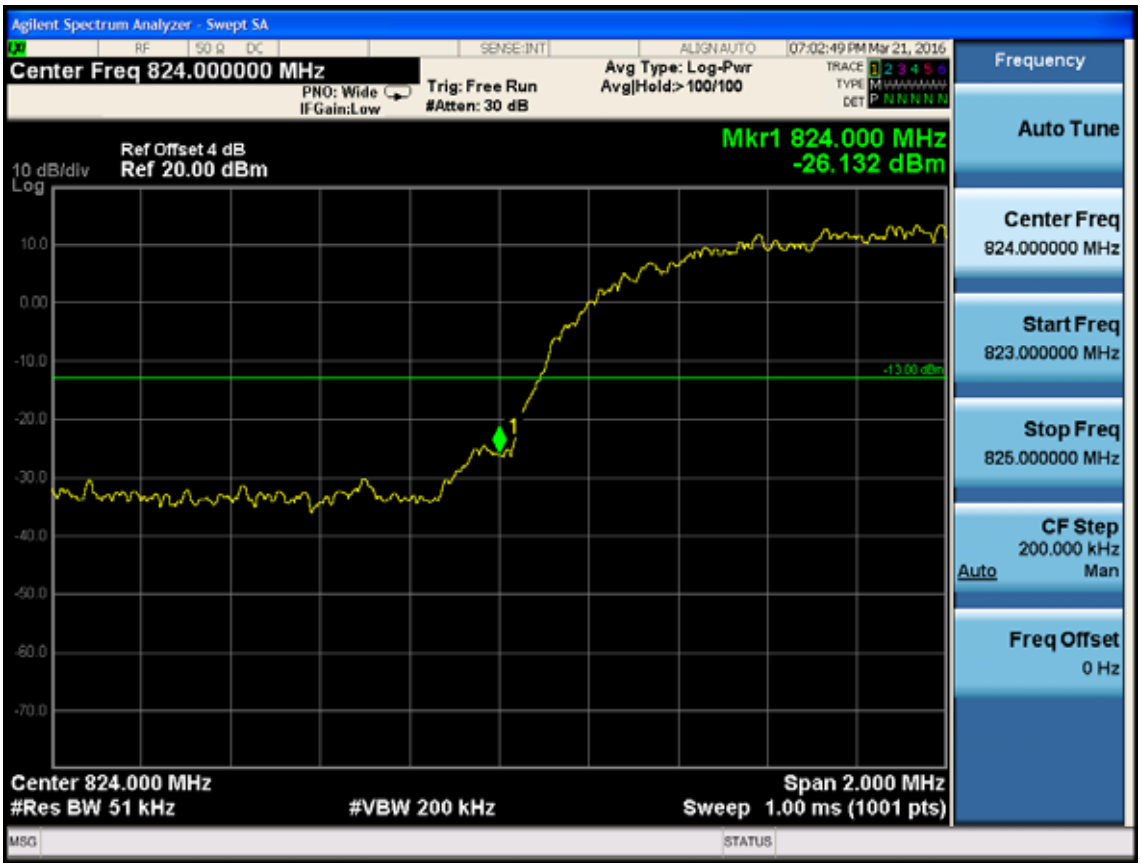

Agilent Spectrum Analyzer - Swept SA
Marker 1 5.078425000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:57:43 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 5.078 43 GHz
-50.205 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.13 s (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

WCDMA
Band 2


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.850000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
07:01:27 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 1.850 000 GHz
-28.634 dBm
-13.00 dBm
Center 1.850000 GHz
#Res BW 51 kHz
#VBW 200 kHz
Span 2.000 MHz
Sweep 1.00 ms (1001 pts)
Frequency
Auto Tune
Center Freq
1.850000000 GHz
Start Freq
1.849000000 GHz
Stop Freq
1.851000000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

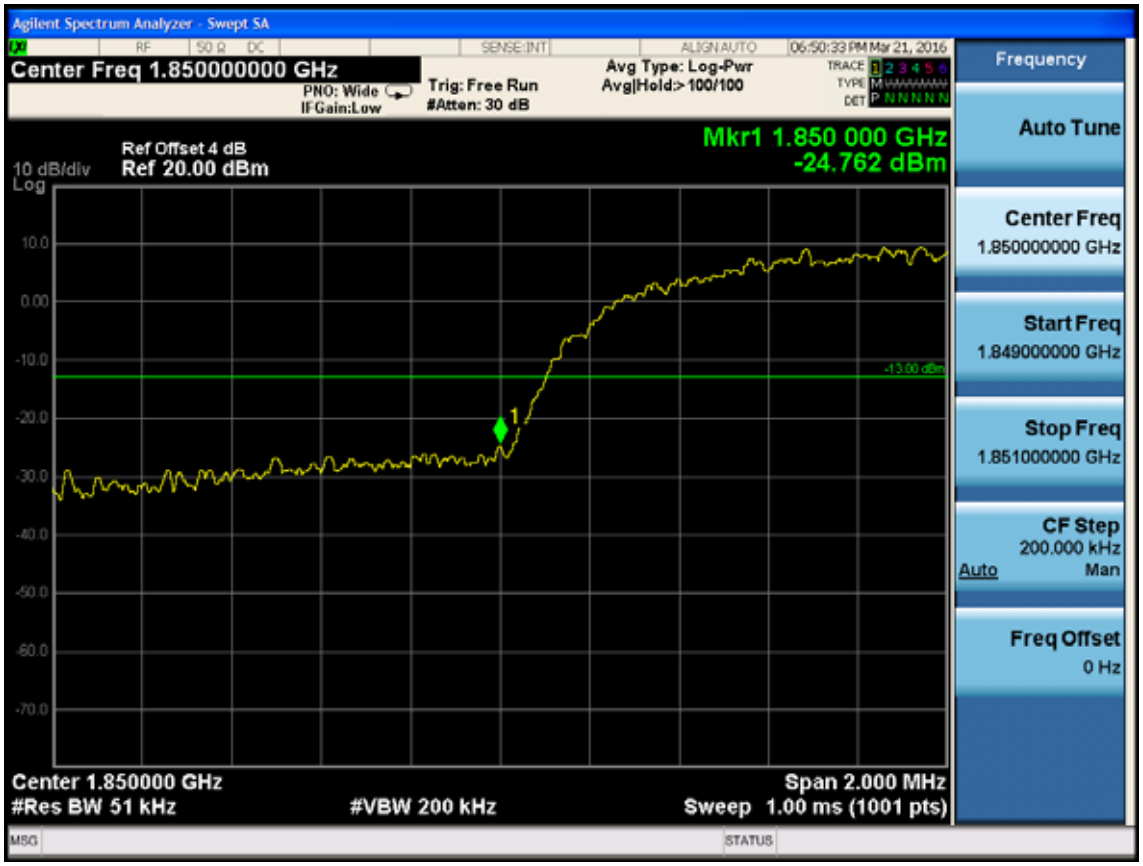

Agilent Spectrum Analyzer - Swept SA
Center Freq 1.910000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
07:02:05 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 1.910 000 GHz
-33.452 dBm
-13.00 dBm
Center 1.910000 GHz
#Res BW 51 kHz
#VBW 200 kHz
Span 2.000 MHz
Sweep 1.00 ms (1001 pts)
Frequency
Auto Tune
Center Freq
1.910000000 GHz
Start Freq
1.909000000 GHz
Stop Freq
1.911000000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

Band 5


Agilent Spectrum Analyzer - Swept SA
Center Freq 824.000000 MHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
07:02:49 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 824.000 MHz
-26.132 dBm
-13.00 dBm
Center 824.000 MHz
#Res BW 51 kHz
#VBW 200 kHz
Span 2.000 MHz
Sweep 1.00 ms (1001 pts)
Frequency
Auto Tune
Center Freq
824.000000 MHz
Start Freq
823.000000 MHz
Stop Freq
825.000000 MHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Center Freq 849.000000 MHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
07:02:28 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 849.000 MHz
-28.567 dBm
-13.00 dBm
Center 849.000 MHz
#Res BW 51 kHz
#VBW 200 kHz
Span 2.000 MHz
Sweep 1.00 ms (1001 pts)
Frequency
Auto Tune
Center Freq
849.000000 MHz
Start Freq
848.000000 MHz
Stop Freq
850.000000 MHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

HSPA
Band 2


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.850000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:50:33 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 1.850 000 GHz
-24.762 dBm
-13.00 dBm
Center 1.850000 GHz
#Res BW 51 kHz
#VBW 200 kHz
Span 2.000 MHz
Sweep 1.00 ms (1001 pts)
MSG
STATUS
Frequency
Auto Tune
Center Freq
1.850000000 GHz
Start Freq
1.849000000 GHz
Stop Freq
1.851000000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.910000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:49:54 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 1.910 000 GHz
-31.290 dBm
-13.00 dBm
Center 1.910000 GHz
#Res BW 51 kHz
#VBW 200 kHz
Span 2.000 MHz
Sweep 1.00 ms (1001 pts)
MSG
STATUS
Frequency
Auto Tune
Center Freq
1.910000000 GHz
Start Freq
1.909000000 GHz
Stop Freq
1.911000000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

Band 5


Agilent Spectrum Analyzer - Swept SA
Center Freq 824.000000 MHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:51:05 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Ref 20.00 dBm
Mkr1 824.000 MHz
-26.299 dBm
-13.00 dBm
Center 824.000 MHz
#Res BW 51 kHz
#VBW 200 kHz
Span 2.000 MHz
Sweep 1.00 ms (1001 pts)
Frequency
Auto Tune
Center Freq
824.000000 MHz
Start Freq
823.000000 MHz
Stop Freq
825.000000 MHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Center Freq 849.000000 MHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:51:32 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Ref 20.00 dBm
Mkr1 849.000 MHz
-30.472 dBm
-13.00 dBm
Center 849.000 MHz
#Res BW 51 kHz
#VBW 200 kHz
Span 2.000 MHz
Sweep 1.00 ms (1001 pts)
Frequency
Auto Tune
Center Freq
849.000000 MHz
Start Freq
848.000000 MHz
Stop Freq
850.000000 MHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

5. 99% & 26dB Occupied Bandwidth Test

5.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	E4446A	US44300459	Apr.28,15	1 Year
2.	Spectrum	Agilent	N9030A	MY51380221	Oct.18,15	1Year
3.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr.28,15	1 Year
4.	RF Cable	Marvelous Microwave Inc	SFL402105FLEX	NO.1	Oct.17.15	1 Year

5.2.Test Procedure

The EUT output RF connector was connected with a short a cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW>=3 times RBW, 99% bandwidth were measured, the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

5.3.Test Results

99% Bandwidth

EUT: Segment Control Unit		
M/N: LCN7700		
Test date: 2016-03-21	Pressure: 102.4±1.0 kpa	Humidity: 52.6±3.0%
Tested by: Alice_Yang	Test site: RF site	Temperature:22.8±0.6 ℃

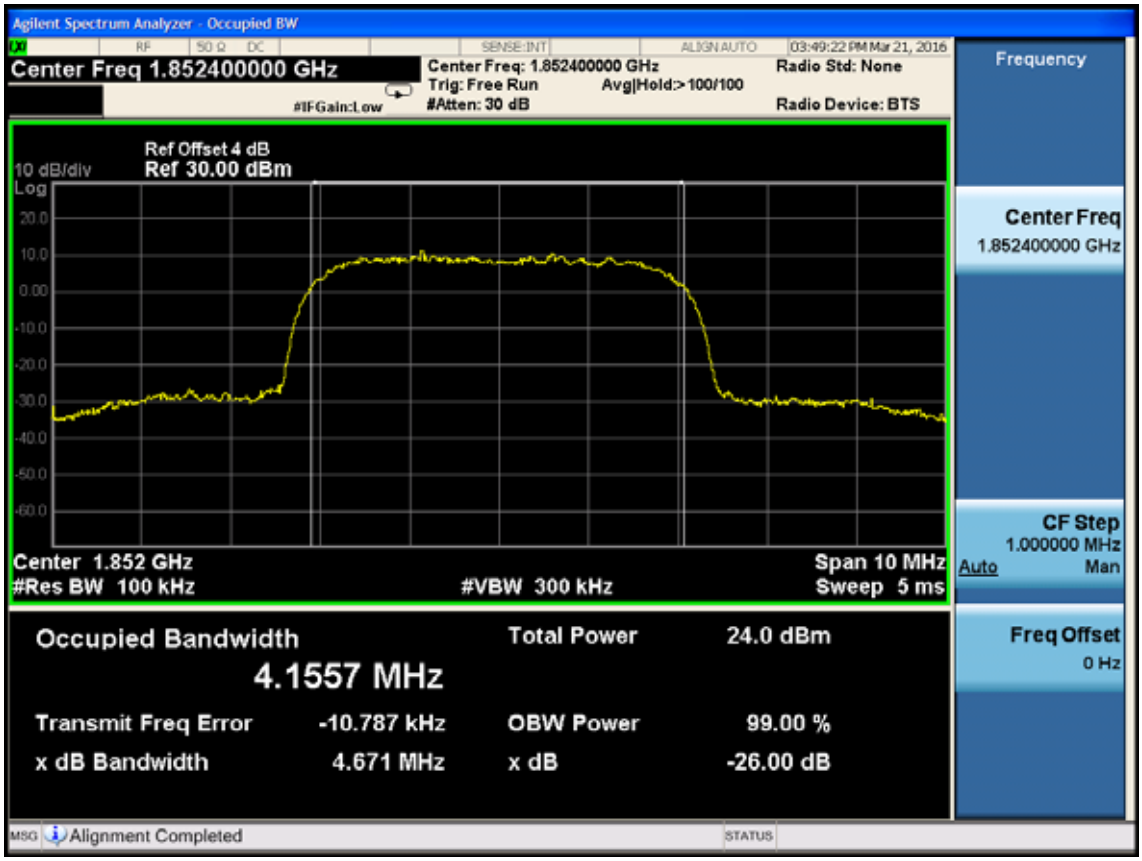
Test Mode	CH	Frequency (MHz)	99% Bandwidth (MHz)		Limit (KHz)
			WCDMA	HSPA	
Band 2	CH9262	1852.4	4.1557	4.1554	N/A
	CH9400	1880.0	4.1705	4.1771	N/A
	CH9538	1907.6	4.1459	4.1531	N/A
Band 5	CH4132	826.4	4.1661	4.1693	N/A
	CH4183	836.6	4.1451	4.1483	N/A
	CH4233	846.6	4.1562	4.1646	N/A
Conclusion：PASS					

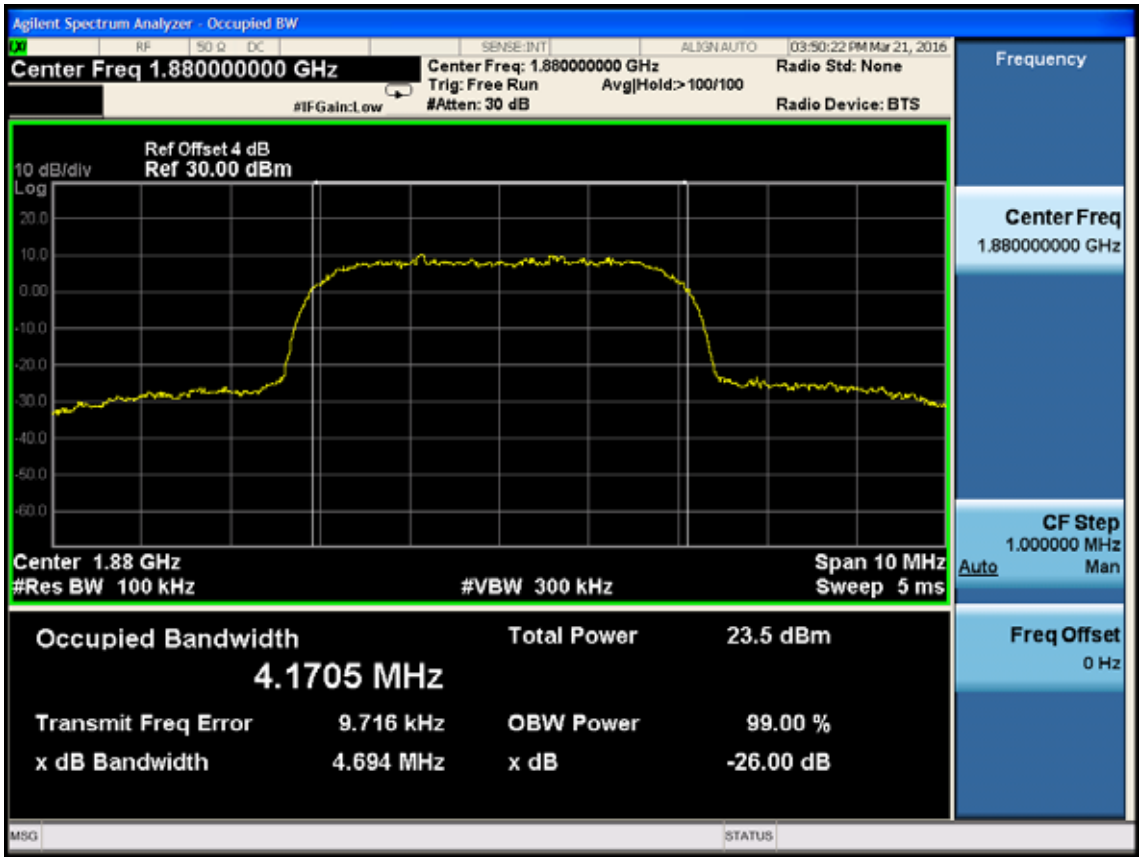
26dB bandwidth

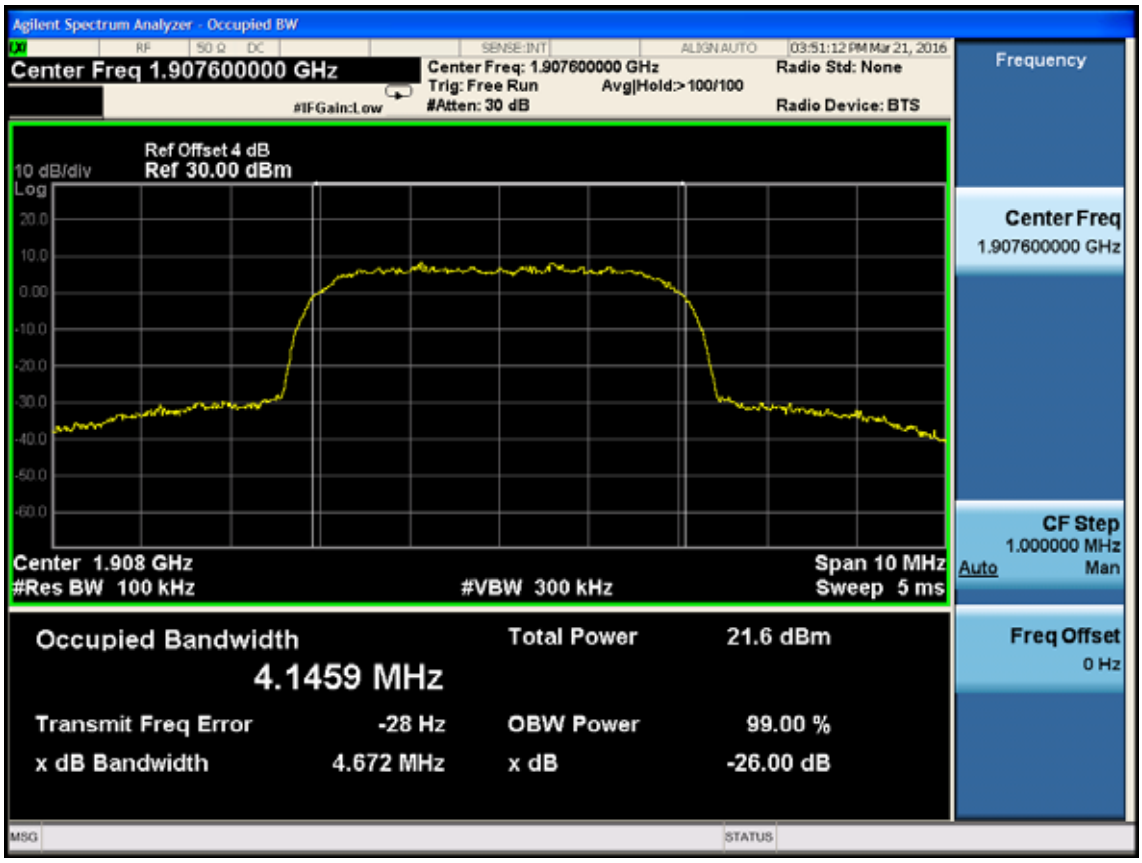
EUT: Segment Control Unit		
M/N: LCN7700		
Test date: 2016-03-21	Pressure: 102.4±1.0 kpa	Humidity: 52.6±3.0%
Tested by: Alice_Yang	Test site: RF site	Temperature:22.8±0.6 ℃

Test Mode	CH	Frequency (MHz)	26dB bandwidth (MHz)		Limit (KHz)
			WCDMA	HSPA	
Band 2	CH9262	1852.4	4.671	4.672	N/A
	CH9400	1880.0	4.694	4.678	N/A
	CH9538	1907.6	4.672	4.673	N/A
Band 5	CH4132	826.4	4.669	4.671	N/A
	CH4183	836.6	4.659	4.662	N/A
	CH4233	846.6	4.673	4.672	N/A
Conclusion：PASS					

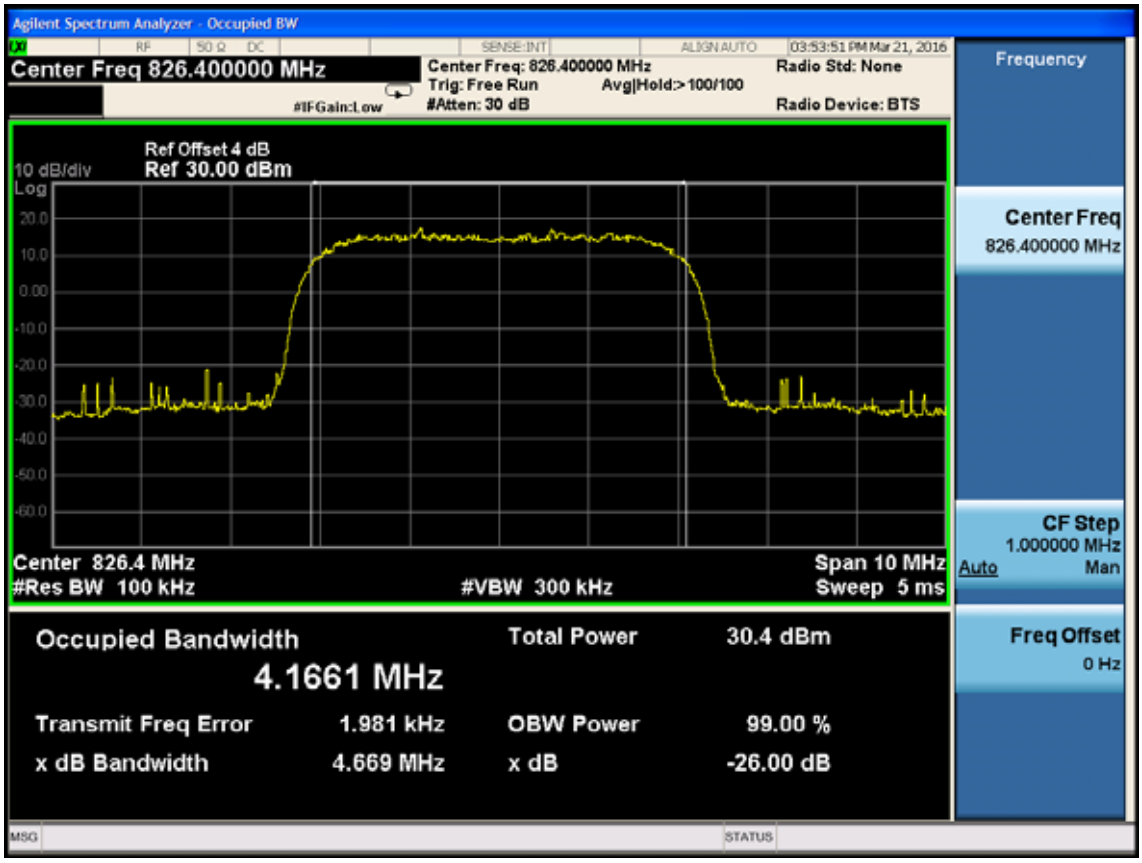
WCDMA
Band 2

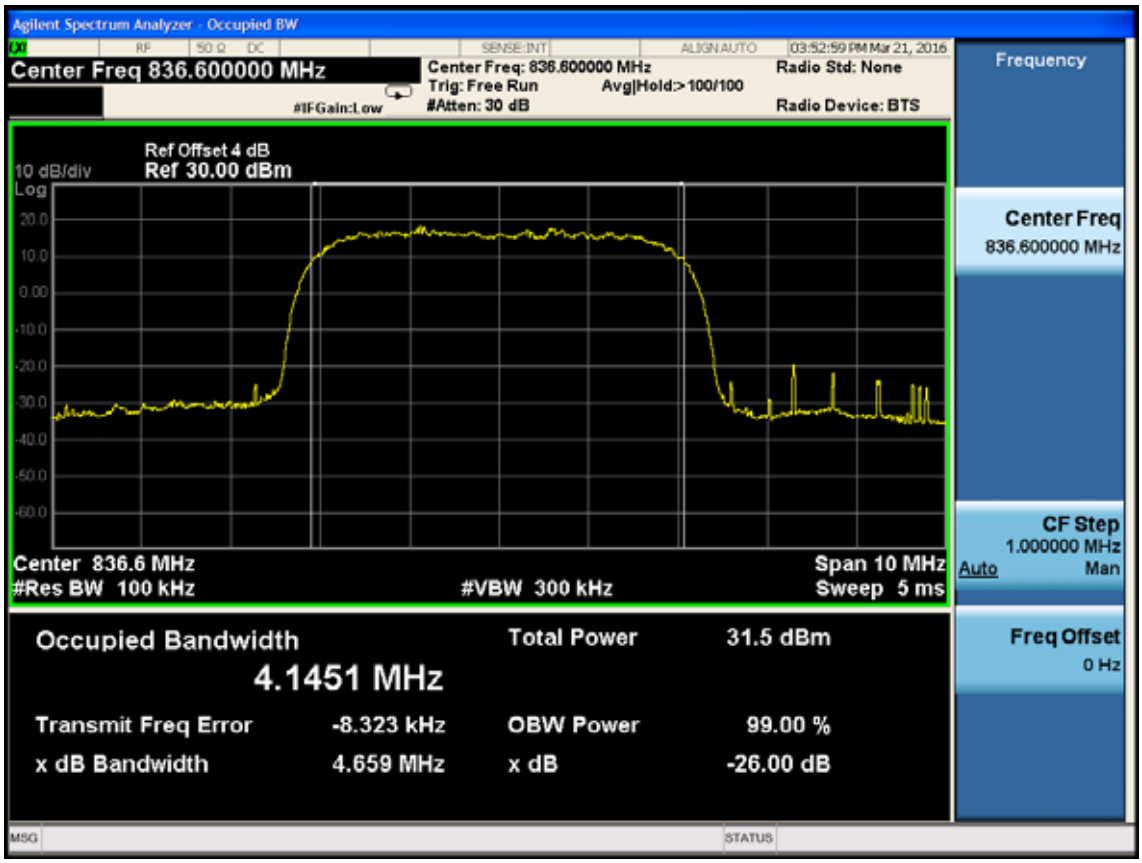

Agilent Spectrum Analyzer - Occupied BW
Center Freq 1.852400000 GHz
Center Freq: 1.852400000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
03:49:22 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Ref 30.00 dBm
Log
Center 1.852 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 5 ms
Occupied Bandwidth
4.1557 MHz
Total Power
24.0 dBm
Transmit Freq Error
-10.787 kHz
OBW Power
99.00 %
x dB Bandwidth
4.671 MHz
x dB
-26.00 dB
Alignment Completed
Frequency
Center Freq
1.852400000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz

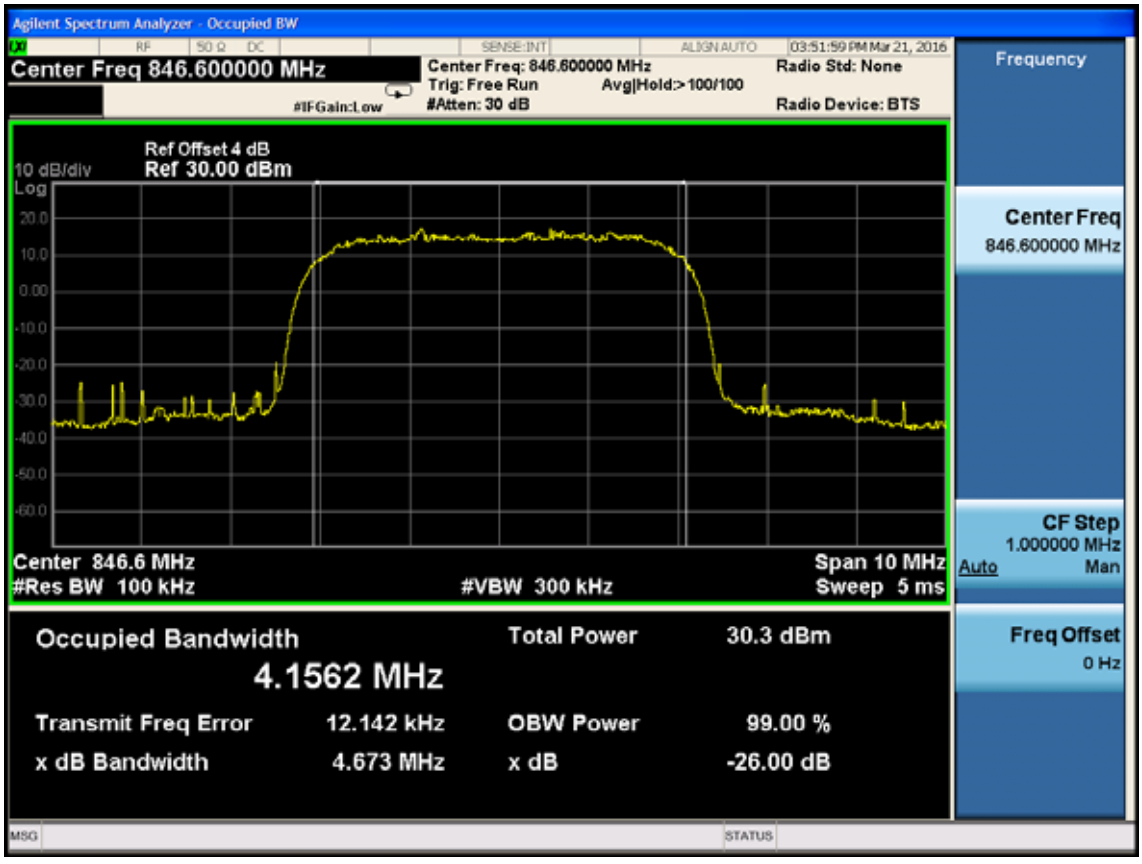

Agilent Spectrum Analyzer - Occupied BW
Center Freq 1.880000000 GHz
Center Freq: 1.880000000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
03:50:22 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Ref 30.00 dBm
Log
Center 1.88 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 5 ms
Occupied Bandwidth
4.1705 MHz
Total Power
23.5 dBm
Transmit Freq Error
9.716 kHz
OBW Power
99.00 %
x dB Bandwidth
4.694 MHz
x dB
-26.00 dB
Frequency
Center Freq
1.880000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz


Agilent Spectrum Analyzer - Occupied BW
Center Freq 1.907600000 GHz
Center Freq: 1.907600000 GHz
Trig: Free Run
Avg|Hold:>100/100
#IFGain:Low
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 4 dB
10 dB/div
Ref 30.00 dBm
Log
Center Freq
1.907600000 GHz
Center 1.908 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 5 ms
CF Step
1.000000 MHz
Auto
Man
Occupied Bandwidth
4.1459 MHz
Total Power
21.6 dBm
Transmit Freq Error
-28 Hz
OBW Power
99.00 %
x dB Bandwidth
4.672 MHz
x dB
-26.00 dB
Freq Offset
0 Hz
MSG
STATUS

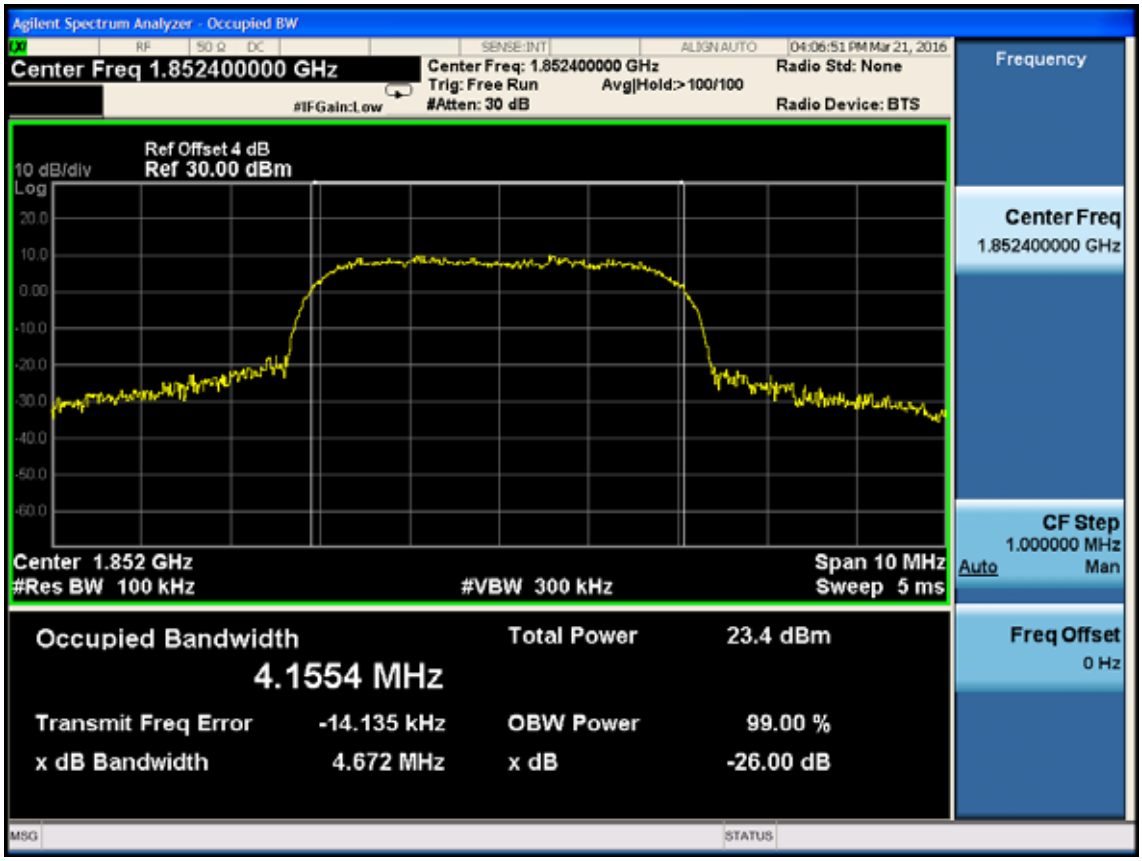
Band 5

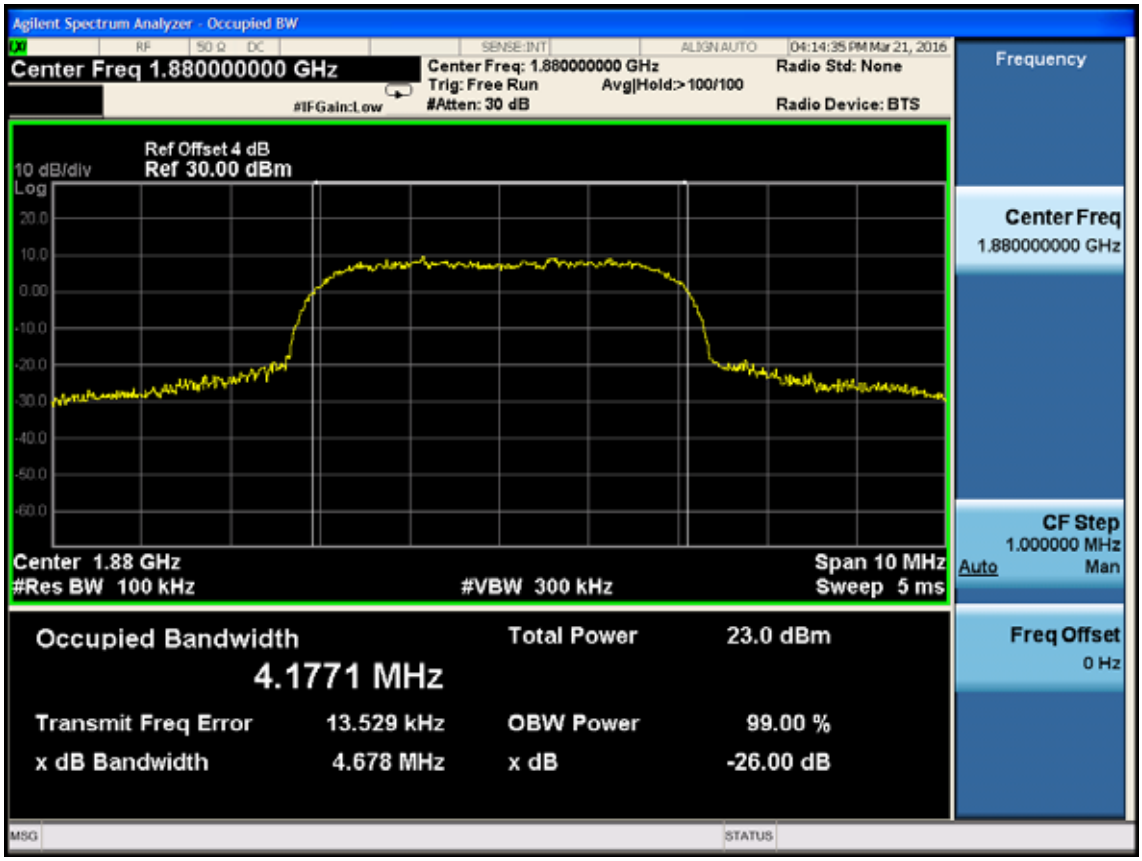

Agilent Spectrum Analyzer - Occupied BW
Center Freq 826.400000 MHz
Center Freq: 826.400000 MHz
Trig: Free Run
Avg|Hold:>100/100
#IFGain:Low
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 4 dB
10 dB/div
Ref 30.00 dBm
Log
Center Freq
826.400000 MHz
Center 826.4 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 5 ms
CF Step
1.000000 MHz
Auto
Man
Occupied Bandwidth
4.1661 MHz
Total Power
30.4 dBm
Transmit Freq Error
1.981 kHz
OBW Power
99.00 %
x dB Bandwidth
4.669 MHz
x dB
-26.00 dB
Freq Offset
0 Hz
MSG
STATUS

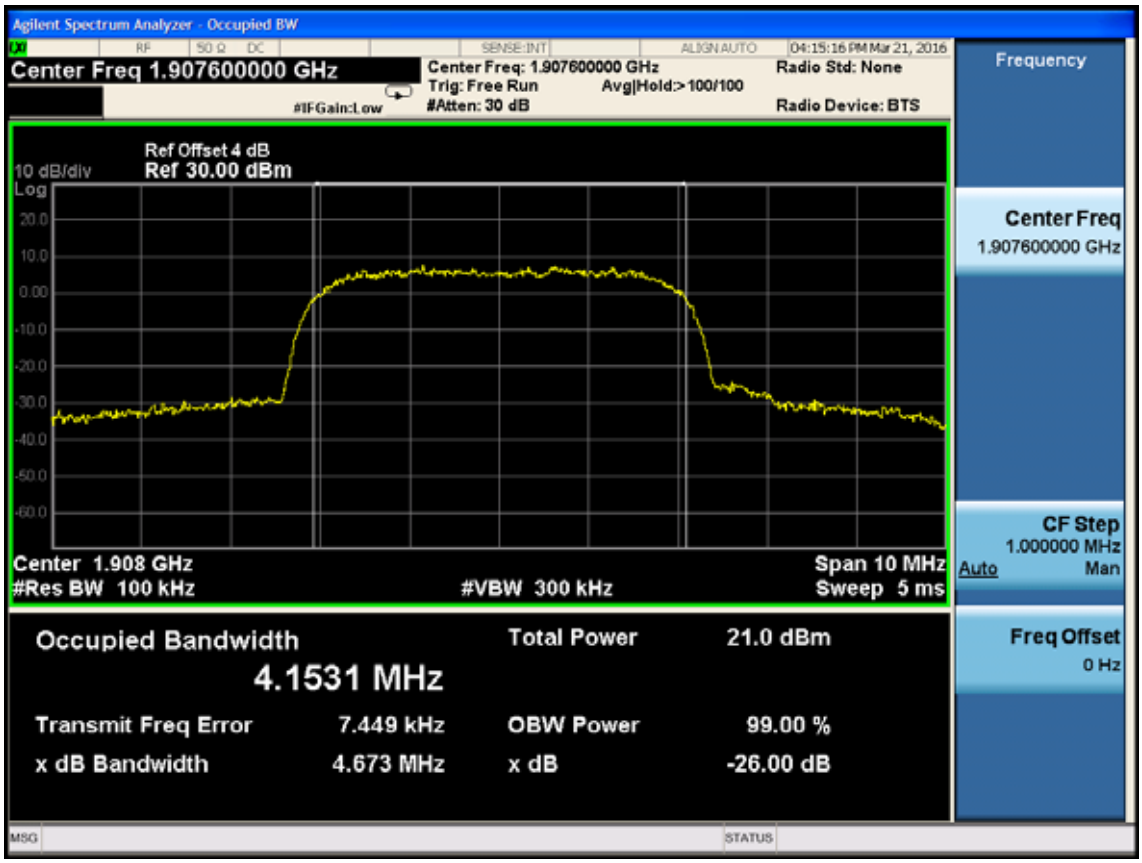

Agilent Spectrum Analyzer - Occupied BW
Center Freq 836.600000 MHz
Center Freq: 836.600000 MHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
03:52:59 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Ref 30.00 dBm
Log
Center 836.6 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 5 ms
Occupied Bandwidth
4.1451 MHz
Total Power 31.5 dBm
Transmit Freq Error -8.323 kHz
OBW Power 99.00 %
x dB Bandwidth 4.659 MHz
x dB -26.00 dB
Frequency
Center Freq
836.600000 MHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS


Agilent Spectrum Analyzer - Occupied BW
Center Freq 846.600000 MHz
Center Freq: 846.600000 MHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
03:51:59 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Ref 30.00 dBm
Log
Center 846.6 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 5 ms
Occupied Bandwidth
4.1562 MHz
Total Power 30.3 dBm
Transmit Freq Error 12.142 kHz
OBW Power 99.00 %
x dB Bandwidth 4.673 MHz
x dB -26.00 dB
Frequency
Center Freq
846.600000 MHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

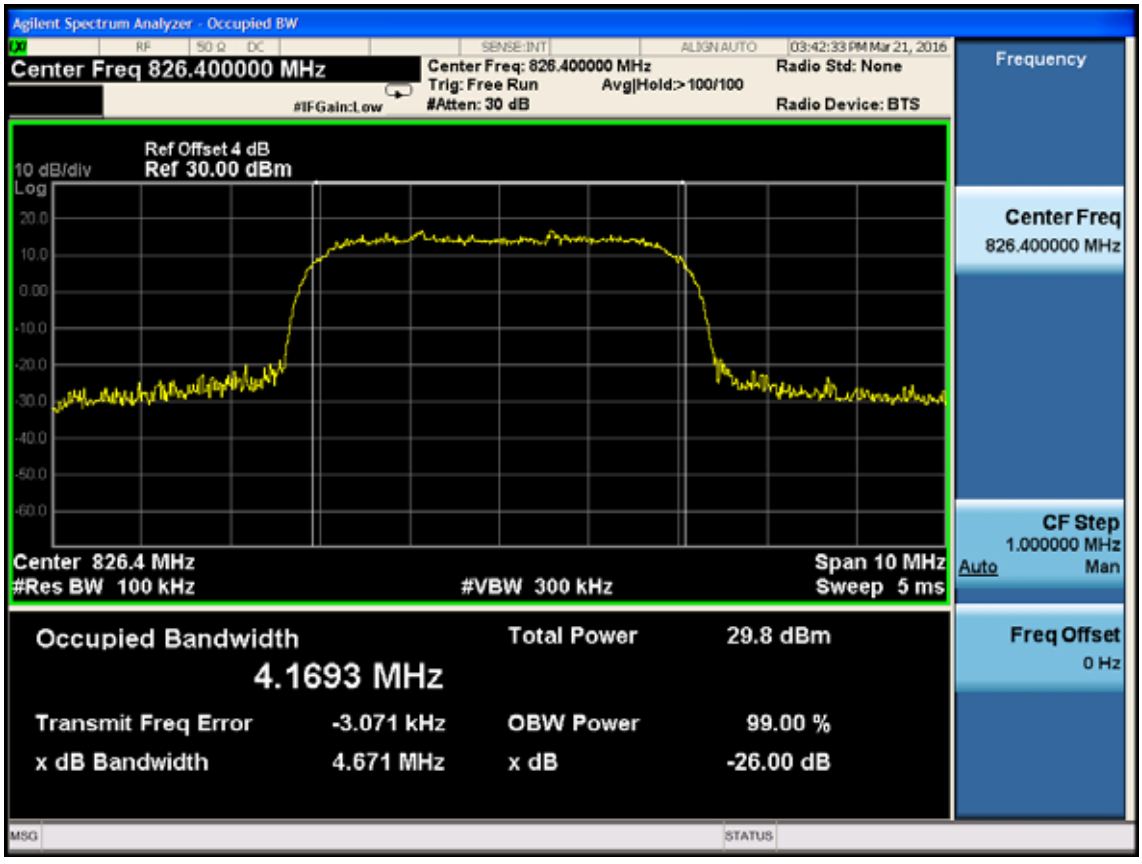
HSPA
Band 2

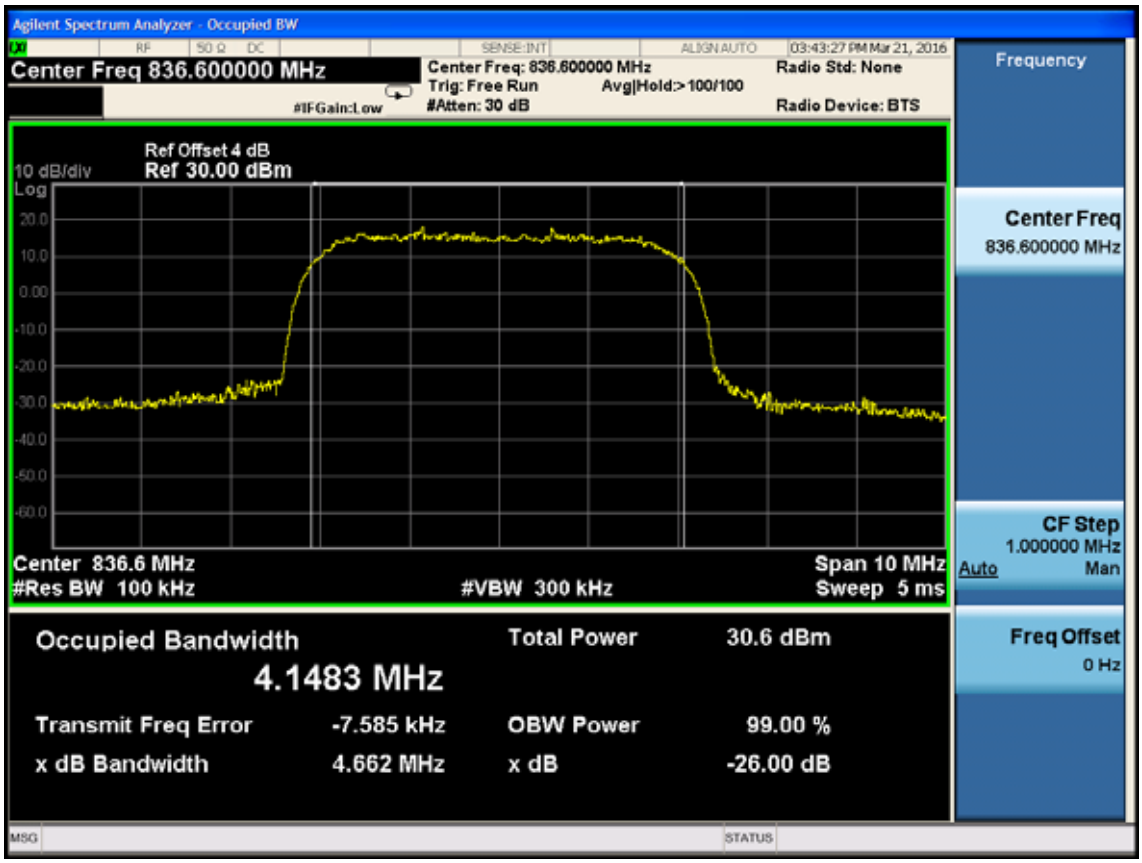

Agilent Spectrum Analyzer - Occupied BW
Center Freq 1.852400000 GHz
Center Freq: 1.852400000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
04:06:51 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Ref 30.00 dBm
Log
Center 1.852 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 5 ms
Occupied Bandwidth
4.1554 MHz
Total Power 23.4 dBm
Transmit Freq Error -14.135 kHz
OBW Power 99.00 %
x dB Bandwidth 4.672 MHz
x dB -26.00 dB
Frequency
Center Freq
1.852400000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz

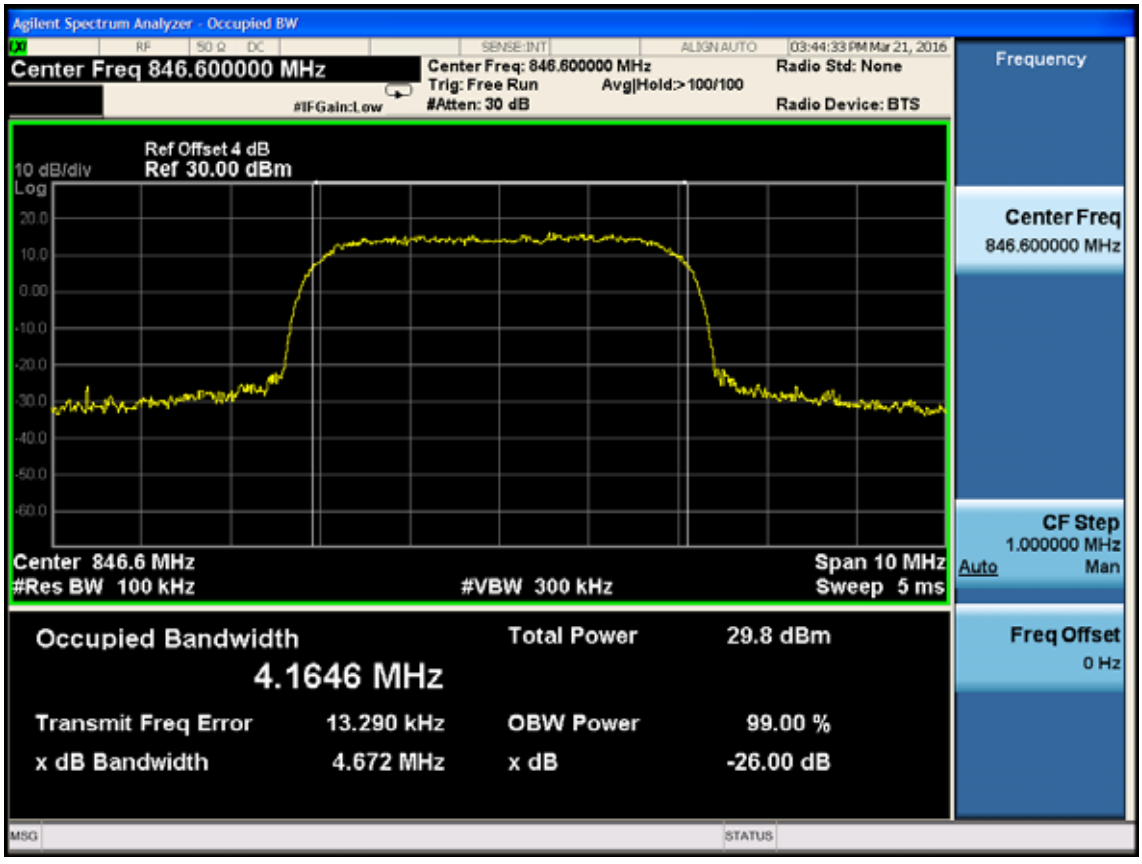

Agilent Spectrum Analyzer - Occupied BW
Center Freq 1.880000000 GHz
Center Freq: 1.880000000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
04:14:35 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Ref 30.00 dBm
Log
Center 1.88 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 5 ms
Occupied Bandwidth
4.1771 MHz
Total Power 23.0 dBm
Transmit Freq Error 13.529 kHz
OBW Power 99.00 %
x dB Bandwidth 4.678 MHz
x dB -26.00 dB
Frequency
Center Freq
1.880000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz


Agilent Spectrum Analyzer - Occupied BW
Center Freq 1.907600000 GHz
Center Freq: 1.907600000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
04:15:16 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Ref 30.00 dBm
Log
Center 1.908 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 5 ms
Occupied Bandwidth
4.1531 MHz
Total Power
21.0 dBm
Transmit Freq Error
7.449 kHz
OBW Power
99.00 %
x dB Bandwidth
4.673 MHz
x dB
-26.00 dB
Frequency
Center Freq
1.907600000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

Band 5


Agilent Spectrum Analyzer - Occupied BW
Center Freq 826.400000 MHz
Center Freq: 826.400000 MHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
03:42:33 PM Mar 21, 2016
Ref Offset 4 dB
10 dB/div
Ref 30.00 dBm
Log
Center 826.4 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 5 ms
Occupied Bandwidth
4.1693 MHz
Total Power
29.8 dBm
Transmit Freq Error
-3.071 kHz
OBW Power
99.00 %
x dB Bandwidth
4.671 MHz
x dB
-26.00 dB
Frequency
Center Freq
826.400000 MHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS


Agilent Spectrum Analyzer - Occupied BW
Center Freq 836.600000 MHz
Center Freq: 836.600000 MHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
03:43:27 PM Mar 21, 2016
#IFGain:Low
Ref Offset 4 dB
10 dB/div
Ref 30.00 dBm
Log
Center 836.6 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 5 ms
Occupied Bandwidth
4.1483 MHz
Total Power
30.6 dBm
Transmit Freq Error
-7.585 kHz
OBW Power
99.00 %
x dB Bandwidth
4.662 MHz
x dB
-26.00 dB
Frequency
Center Freq
836.600000 MHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS


Agilent Spectrum Analyzer - Occupied BW
Center Freq 846.600000 MHz
Center Freq: 846.600000 MHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
03:44:33 PM Mar 21, 2016
#IFGain:Low
Ref Offset 4 dB
10 dB/div
Ref 30.00 dBm
Log
Center 846.6 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 5 ms
Occupied Bandwidth
4.1646 MHz
Total Power
29.8 dBm
Transmit Freq Error
13.290 kHz
OBW Power
99.00 %
x dB Bandwidth
4.672 MHz
x dB
-26.00 dB
Frequency
Center Freq
846.600000 MHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

6. RF POWER OUTPUT TEST

6.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	E4446A	US44300459	Apr.28,15	1 Year
2.	Spectrum	Agilent	N9030A	MY51380221	Oct.18,15	1Year
3.	Power meter	Anritsu	ML2487A	6K00002472	Aug.21,15	1Year
4.	Power sensor	Anritsu	MA2491A	0033005	Aug.21,15	1Year
5.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr.28,15	1 Year
6.	RF Cable	Marvelous Microwave Inc	SFL402105FLEX	NO.1	Oct.17,15	1 Year

6.2.Limit

1. Part 22.913(a) Mobile station are limited to 7W and for Conducted Power we can use antenna Gain to calculate the limit, so the Conducted Power:
   $P_{cod.}$ (dBm)=EIRP(dBm)-Gain(dBi)
   =7W(38.5dBm)-(3.15dBi-2.15dBi)
   =37.5dBm
2. Part 24.232(b) Peak power measurement, Mobile station are limited to 2W and for conducted Power we can use antenna Gain to calculate the limit, so the Conducted Power:
   $P_{cod.}$ (dBm)=EIRP(dBm)-Gain(dBi)
   =2W(33dBm)-3.15(dBi)
   =29.85dBm

6.3.Test Procedure

The transmitter output was connected to calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power in dBm. The power output at the transmitter antenna port was determined by adding the value of attenuator to the power meter reading.

6.4.Test Results

EUT: Segment Control Unit		
M/N: LCN7700		
Test date: 2016-03-23	Pressure: 101.5±1.0 kpa	Humidity: 52.2±3.0%
Tested by: Alice_Yang	Test site: RF Site	Temperature: 22.5±0.6℃

Band	Channel	WCDMA	HSPA	Limit
2	9262	19.72	19.53	29.85
	9400	20	19.95	29.85
	9538	18.6	18.57	29.85
5	4132	26.45	26.38	37.5
	4183	26.73	26.47	37.5
	4233	26.84	26.5	37.5

7. FIELD STRENGTH OF RADIATED SPURIOUS EMISSIONS

7.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	Apr.28,15	1 Year
2.	Preamplifier	Agilent	8449B	3008A02495	Apr.28,15	1 Year
3.	Preamplifier	Agilent	8447D	2944A11159	Apr.28,15	1Year
4.	Horn Antenna	ETS	3115	9510-4877	Oct.15,15	1 Year
5.	Bi-log Antenna	TESEQ	CBL6112D	25237	Jun.30,15	1 Year
6.	Antenna and turn table controller	CT	SC100	CT-0091	N/A	N/A
7.	RF Cable	Hubersuhner	SUCOFLEX104/102	274094/4+28610/2	Apr.28,15	1 Year
8.	Test Software	AUDIX	e3	6.2009-5-21a(n)	N/A	N/A
Note: N/A means Not applicable.						

7.2.Limit

FCC part 22.917(a), 24.238(a) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specification in the instruction manual and/or alignment procedure, shall not be less than 43+10log(Mean power in watts) dBc below the mean power output outside a license's frequency block(-13dBm).

7.3.Test Procedure

The EUT was placed on a non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and lowering of the test antenna from 4m to 1m.

ERP in frequency band 824.2-848.8MHz were measured using substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follow: EIRP in frequency band 1850.5-1909.8MHz were measured using a substitution method. The EUT was replaced by a horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:
ERP=S.G. output (dBm) + Antenna Gain (dBd)-Cable Loss (dB)
EIRP=S.G. output (dBm) + Antenna Gain (dBi)-Cable Loss (dB)

7.4.Test Results

Spurious emissions								
EUT: Segment Control Unit								
M/N: LCN7700								
Power: DC 12V								
Test Date: 2016-05-04		Test site: RF Chamber				Tested by: Alice_yang		
Temperature: 23.4±0.6℃		Humidity: 53.2±3.0%				Pressure: 102.4±1.0kpa		
Test result								
Test Mode：WCDMA Band 2 TX CH Low Mode 1852.4MHz								
Frequency (MHz)	Antenna polarization	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Conclusion
197.81	H	-61.77	2.7	1.32	-60.39	-13	47.39	PASS
624.61	H	-60.68	5.2	3.04	-58.52	-13	45.52	PASS
875.84	H	-61.88	5.7	3.86	-60.04	-13	47.04	PASS
959.26	H	-63.74	5.9	4.16	-62.00	-13	49.00	PASS
2479	H	-51.86	9.5	7.47	-49.83	-13	36.83	PASS
3704.8	H	-44.41	9.5	8.93	-43.84	-13	30.84	PASS
5556	H	-43.03	10.5	9.81	-42.34	-13	29.34	PASS
183.26	V	-66.79	2.6	1.32	-65.51	-13	52.51	PASS
250.19	V	-70.45	3.4	1.64	-68.69	-13	55.69	PASS
875.84	V	-66.56	5.7	3.86	-64.72	-13	51.72	PASS
953.44	V	-68.92	5.9	4.10	-67.12	-13	54.12	PASS
2479	V	-52.27	9.5	7.47	-50.24	-13	37.24	PASS
3704.8	V	-44.16	9.5	8.93	-43.59	-13	30.59	PASS
5556	V	-42.79	10.5	9.81	-42.10	-13	29.10	PASS

Test Mode：WCDMA Band 2 TX CH Mid Mode 1880MHz								
197.81	H	-62.10	2.7	1.32	-60.72	-13	47.72	PASS
624.61	H	-60.4	5.2	3.04	-58.24	-13	45.24	PASS
875.84	H	-61.24	5.7	3.86	-59.40	-13	46.40	PASS
959.26	H	-63.58	5.9	4.16	-61.84	-13	48.84	PASS
2581	H	-51.18	9.6	7.70	-49.28	-13	36.28	PASS
3760	H	-44.65	9.5	8.96	-44.11	-13	31.11	PASS
5640	H	-42.72	10.6	9.85	-41.97	-13	28.97	PASS
183.26	V	-66.43	2.6	1.32	-65.15	-13	52.15	PASS
624.61	V	-65.14	5.2	3.04	-62.98	-13	49.98	PASS
875.84	V	-66.53	5.7	3.86	-64.69	-13	51.69	PASS
953.44	V	-69.50	5.9	4.10	-67.70	-13	54.70	PASS
2581	V	-47.52	9.6	7.70	-45.62	-13	32.62	PASS
3760	V	-44.58	9.5	8.96	-44.04	-13	31.04	PASS
5640	V	-42.42	10.6	9.85	-41.67	-13	28.67	PASS
Test Mode：WCDMA Band 2 TX CH High Mode 1907.6MHz								
199.75	H	-61.14	2.8	1.32	-59.66	-13	46.66	PASS
624.61	H	-60.27	5.2	3.04	-58.11	-13	45.11	PASS
875.84	H	-61.92	5.7	3.86	-60.08	-13	47.08	PASS
959.26	H	-64.03	5.9	4.16	-62.29	-13	49.29	PASS
3040	H	-48.05	9.6	8.63	-47.08	-13	34.08	PASS
3815.2	H	-44.36	9.5	8.99	-43.85	-13	30.85	PASS
5722.8	H	-42.09	10.7	9.89	-41.28	-13	28.28	PASS
185.20	V	-66.67	2.6	1.32	-65.39	-13	52.39	PASS
624.61	V	-63.80	5.2	3.04	-61.64	-13	48.64	PASS
875.84	V	-66.91	5.7	3.86	-65.07	-13	52.07	PASS
953.44	V	-69.34	5.9	4.10	-67.54	-13	54.54	PASS
3040	V	-49.38	9.6	8.63	-48.41	-13	35.41	PASS
3815.2	V	-44.59	9.5	8.99	-44.08	-13	31.08	PASS
5722.8	V	-42.38	10.7	9.89	-41.57	-13	28.57	PASS
Remark: All the emission were detected belong to narrowband spurious emission								

Spurious emissions		
EUT: Segment Control Unit		
M/N: LCN7700		
Power: DC 12V		
Test Date: 2016-05-04	Test site: RF Chamber	Tested by: Alice_yang
Temperature: 23.4±0.6℃	Humidity: 53.2±3.0%	Pressure: 102.4±1.0kpa

Test result

Test Mode：WCDMA Band 5 TX CH Low Mode 826.4MHz

Frequency (MHz)	Antenna polarization	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Conclusion
196.84	H	-62.38	2.7	1.32	-61.00	-13	48.00	PASS
624.61	H	-59.61	5.2	3.04	-57.45	-13	44.45	PASS
870.99	H	-33.93	5.7	3.86	-32.09	-13	19.09	PASS
959.26	H	-61.66	5.9	4.16	-59.92	-13	46.92	PASS
1652.8	H	-51.81	7.9	5.68	-49.59	-13	36.59	PASS
2479.2	H	-50.47	9.5	7.47	-48.44	-13	35.44	PASS
3669	H	-43.94	9.7	8.92	-43.16	-13	30.16	PASS
188.11	V	-68.39	2.6	1.32	-67.11	-13	54.11	PASS
624.61	V	-64.10	5.2	3.04	-61.94	-13	48.94	PASS
784.66	V	-60.16	5.5	3.56	-58.22	-13	45.22	PASS
870.99	V	-38.60	5.7	3.86	-36.76	-13	23.76	PASS
1652.8	V	-49.71	7.9	5.68	-47.49	-13	34.49	PASS
2479.2	V	-50.79	9.5	7.47	-48.76	-13	35.76	PASS
3669	V	-45.22	9.7	8.92	-44.44	-13	31.44	PASS
Test Mode：WCDMA Band 5 TX CH Mid Mode 836.6MHz								
199.75	H	-62.59	2.8	1.32	-61.11	-13	48.11	PASS
624.61	H	-60.14	5.2	3.04	-57.98	-13	44.98	PASS
880.69	H	-32.55	5.7	3.86	-30.71	-13	17.71	PASS
959.26	H	-62.1	5.9	4.16	-60.36	-13	47.36	PASS
1673.2	H	46.36	7.9	5.72	48.54	-13	35.54	PASS

2509.8	H	46.05	9.6	7.55	48.10	-13	35.10	PASS
3351	H	-43.02	9.6	8.77	-42.19	-13	-29.19	PASS
190.05	V	-66.50	2.6	1.32	-65.22	-13	52.22	PASS
788.54	V	-55.19	5.5	3.56	-53.25	-13	40.25	PASS
880.69	V	-39.46	5.7	3.86	-37.62	-13	24.62	PASS
939.86	V	-60.45	5.8	4.10	-58.75	-13	45.75	PASS
1673.2	V	-51.2	7.9	5.72	-49.02	-13	36.02	PASS
2509.8	V	-51.19	9.6	7.55	-49.14	-13	36.14	PASS
3351	V	-44.40	9.6	8.77	-43.57	-13	30.57	PASS
Test Mode：WCDMA Band 5 TX CH High Mode 846.6MHz								
196.84	H	-61.02	2.7	1.32	-59.64	-13	46.64	PASS
624.61	H	-60.32	5.2	3.04	-58.16	-13	45.16	PASS
803.09	H	-57.02	5.5	3.62	-55.14	-13	42.14	PASS
891.36	H	-31.39	5.7	3.92	-29.61	-13	16.61	PASS
1693.2	H	-51.15	7.9	5.80	-49.05	-13	36.05	PASS
2539.8	H	-49.91	9.6	7.63	-47.94	-13	34.94	PASS
3383	H	-45.05	9.6	8.79	-44.24	-13	31.24	PASS
188.11	V	-68.14	2.6	1.32	-66.86	-13	53.86	PASS
624.61	V	-66.12	5.2	3.04	-63.96	-13	50.96	PASS
799.21	V	-57.82	5.5	3.62	-55.94	-13	42.94	PASS
891.36	V	-40.39	5.7	3.92	-38.61	-13	25.61	PASS
1693.2	V	-50.59	7.9	5.80	-48.49	-13	35.49	PASS
2539.8	V	-50.52	9.6	7.63	-48.55	-13	35.55	PASS
3383	V	-41.00	9.6	8.79	-40.19	-13	27.19	PASS
Remark: All the emission were detected belong to narrowband spurious emission								

Spurious emissions		
EUT: Segment Control Unit		
M/N: LCN7700		
Power: DC 12V		
Test Date: 2016-05-04	Test site: RF Chamber	Tested by: Alice_yang
Temperature: 23.4±0.6℃	Humidity: 53.4±3.0%	Pressure: 102.9±1.0kpa

Test result

Test Mode：HSPA Band 2 TX CH Low Mode 1852.4MHz

Frequency (MHz)	Antenna polarization	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Conclusion
194.90	H	-61.69	2.7	1.32	-60.31	-13	47.31	PASS
624.61	H	-60.84	5.2	3.04	-58.68	-13	45.68	PASS
875.84	H	-61.44	5.7	3.86	-59.60	-13	46.60	PASS
959.26	H	-64.11	5.9	4.16	-62.37	-13	49.37	PASS
2479	H	-42.52	9.5	7.47	-40.49	-13	27.49	PASS
3704.8	H	-44.50	9.5	8.93	-43.93	-13	30.93	PASS
5556	H	-43.09	10.5	9.81	-42.40	-13	29.40	PASS
187.14	V	-67.44	2.6	1.32	-66.16	-13	53.16	PASS
624.61	V	-69.22	5.2	3.04	-67.06	-13	49.58	PASS
875.84	V	-72.62	5.7	3.86	-70.78	-13	50.83	PASS
953.44	V	-76.84	5.9	4.10	-75.04	-13	55.31	PASS
2479	V	-43.40	9.5	7.47	-41.37	-13	28.37	PASS
3704.8	V	-44.98	9.5	8.93	-44.41	-13	31.41	PASS
5556	V	-43.17	10.5	9.81	-42.48	-13	29.48	PASS

Test Mode：HSPA Band 2 TX CH Mid Mode 1880MHz								
202.66	H	-63.18	2.8	1.42	-61.80	-13	48.80	PASS
624.61	H	-60.74	5.2	3.04	-58.58	-13	45.58	PASS
875.84	H	-62.03	5.7	3.86	-60.19	-13	47.19	PASS
959.26	H	-63.88	5.9	4.16	-62.14	-13	49.14	PASS
2581	H	-41.33	9.6	7.70	-39.43	-13	-26.43	PASS
3760	H	-44.67	9.5	8.96	-44.13	-13	-31.13	PASS
5641	H	-42.55	10.6	9.85	-41.80	-13	-28.80	PASS
187.14	V	-66.78	2.6	1.32	-65.50	-13	52.50	PASS
624.61	V	-65.26	5.2	3.04	-63.10	-13	50.10	PASS
875.84	V	-65.3	5.7	3.86	-63.46	-13	50.46	PASS
953.44	V	-68.74	5.9	4.10	-66.94	-13	53.94	PASS
2581	V	-42.41	9.6	7.70	-40.51	-13	27.51	PASS
3760	V	-44.23	9.5	8.96	-43.69	-13	30.69	PASS
5641	V	-43.14	10.6	9.85	-42.39	-13	29.39	PASS
Test Mode：HSPA Band 2 TX CH High Mode 1907.6MHz								
194.90	H	-59.99	2.7	1.32	-58.61	-13	45.61	PASS
624.61	H	-60.23	5.2	3.04	-58.07	-13	45.07	PASS
875.84	H	-62.01	5.7	3.86	-60.17	-13	47.17	PASS
959.26	H	-63.66	5.9	4.16	-61.92	-13	48.92	PASS
3040	H	-41.01	9.6	8.63	-40.04	-13	27.04	PASS
3815.2	H	-44.56	9.5	8.99	-44.05	-13	31.05	PASS
5720	H	-42.44	10.7	9.89	-41.63	-13	28.63	PASS
191.99	V	-66.51	2.6	1.32	-65.23	-13	52.23	PASS
624.61	V	-69.68	5.2	3.04	-67.52	-13	50.04	PASS
875.84	V	-72.14	5.7	3.86	-70.30	-13	50.35	PASS
959.26	V	-77.21	5.9	4.16	-75.47	-13	55.63	PASS
3040	V	40.21	9.6	8.63	41.18	-13	28.18	PASS
3815.2	V	-45.11	9.5	8.99	-44.60	-13	31.60	PASS
5720	V	-42.51	10.7	9.89	-41.70	-13	28.70	PASS
Remark: All the emission were detected belong to narrowband spurious emission								

Spurious emissions		
EUT: Segment Control Unit		
M/N: LCN7700		
Power: DC 12V		
Test Date: 2016-05-04	Test site: RF Chamber	Tested by: Alice_yang
Temperature: 23.4±0.6℃	Humidity: 53.4±3.0%	Pressure: 102.9±1.0kpa

Test result

Test Mode：HSPA Band 5 TX CH Low Mode 826.4MHz

Frequency (MHz)	Antenna polarization	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Conclusion
194.90	H	-61.04	2.7	1.32	-59.66	-13	46.66	PASS
624.61	H	-59.74	5.2	3.04	-57.58	-13	44.58	PASS
781.75	H	-63.15	5.5	3.56	-61.21	-13	48.21	PASS
871.96	H	-35.10	5.7	3.86	-33.26	-13	20.26	PASS
1652.8	H	-49.18	7.9	5.68	-46.96	-13	33.96	PASS
2479.2	H	-50.85	9.5	7.47	-48.82	-13	35.82	PASS
3669	H	-45.95	9.7	8.92	-45.17	-13	32.17	PASS
188.11	V	-67.02	2.6	1.32	-65.74	-13	52.74	PASS
624.61	V	-64.49	5.2	3.04	-62.33	-13	49.33	PASS
783.69	V	-57.54	5.5	3.56	-55.60	-13	42.60	PASS
870.99	V	-35.08	5.7	3.86	-33.24	-13	20.24	PASS
1652.8	V	-49.31	7.9	5.68	-47.09	-13	34.09	PASS
2479.2	V	-50.53	9.5	7.47	-48.50	-13	35.50	PASS
3669	V	-44.97	9.7	8.92	-44.19	-13	31.19	PASS

Test Mode：HSPA Band 5 TX CH Mid Mode 836.6MHz								
195.87	H	-60.72	2.7	1.32	-59.34	-13	46.34	PASS
624.61	H	-59.68	5.2	3.04	-57.52	-13	44.52	PASS
791.45	H	-60.89	5.5	3.56	-58.95	-13	45.95	PASS
881.66	H	-32.71	5.7	3.86	-30.87	-13	17.87	PASS
1673.2	H	-51.77	7.9	5.72	-49.59	-13	36.59	PASS
2509.8	H	-50.36	9.6	7.55	-48.31	-13	35.31	PASS
3351	H	-44.99	9.6	8.77	-44.16	-13	31.16	PASS
183.26	V	-66.94	2.6	1.32	-65.66	-13	52.66	PASS
791.45	V	-55.09	5.5	3.56	-53.15	-13	40.15	PASS
881.66	V	-37.59	5.7	3.86	-35.75	-13	22.75	PASS
941.80	V	-61.57	5.8	4.10	-59.87	-13	46.87	PASS
1673.2	V	-52.08	7.9	5.72	-49.90	-13	36.90	PASS
2509.8	V	-51.08	9.6	7.55	-49.03	-13	36.03	PASS
3351	V	-44.45	9.6	8.77	-43.62	-13	30.62	PASS
Test Mode：HSPA Band 5 TX CH High Mode 846.6MHz								
196.84	H	-61.36	2.7	1.32	-59.98	-13	46.98	PASS
624.61	H	-60.34	5.2	3.04	-58.18	-13	45.18	PASS
803.09	H	-60.2	5.5	3.62	-58.32	-13	45.32	PASS
891.36	H	-29.13	5.7	3.92	-27.35	-13	14.35	PASS
1693.2	H	-50.90	7.9	5.80	-48.80	-13	35.80	PASS
2539.8	H	-49.81	9.6	7.63	-47.84	-13	34.84	PASS
3383	H	-44.6	9.6	8.79	-43.79	-13	30.79	PASS
188.11	V	-67.13	2.6	1.32	-65.85	-13	52.85	PASS
741.01	V	-59.00	5.4	3.45	-57.05	-13	44.05	PASS
801.15	V	-55.84	5.5	3.62	-53.96	-13	40.96	PASS
893.30	V	-45.71	5.7	3.92	-43.93	-13	23.66	PASS
1693.2	V	-51.15	7.9	5.80	-49.05	-13	36.05	PASS
2539.8	V	-50.62	9.6	7.63	-48.65	-13	36.65	PASS
3383	V	-46.09	9.6	8.79	-45.28	-13	32.28	PASS
Remark: All the emission were detected belong to narrowband spurious emission								

8. FREQUENCY STABILITY V.S. TEMPERATURE AND VOLTAGE

8.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Oct.18,15	1 Year
2.	HF Cable	Hubersuhner	Sucoflex104	274094/4	Apr.28,15	1 Year
3.	Attenuator (10dB)	Mini-Circuits	VAT-10+	NO.1	NCR	NCR
4.	Temperature controller	Terchy	MHQ-120cluB	A60223	Apr.24,15	Apr.24,16
Note: NCR means no calibration required (calibrated with system).						

8.1.Limit

Frequency Tolerance: +/-2.5ppm for 850MHz band
+/-2.5ppm for 1900MHz band

8.2.Test procedure:

The equipment under test was connected to an external DC power supply and input rated voltage. Reference power supply voltage for these tests is DC 12V. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the Spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25 degree operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -20 degree. After the temperature stabilized for approximately 30 minutes record the frequency. Repeat step measure with 10 degree per stage until the highest temperature of 50 degree reached.

EUT: Segment Control Unit		
M/N: LCN7700		
Test date: 2016-04-01	Pressure: 102.5±1.0 kpa	Humidity: 52.4±3.0%
Tested by: Alice-Yang	Test site: RF site	Temperature:23.1±0.6 ℃

Frequency Error vs.Voltage

Test Band	Test Channel	Test Temp	Test Volt	Freq Error (Hz)	Freq .vs.rated (ppm)	Verdict
WCDMA Band 2	LCH	TN	VL	-3	-0.00162	Pass
			VN	-2	-0.00108	Pass
			VH	-1	-0.00054	Pass
	MCH	TN	VL	-8	-0.00426	Pass
			VN	-7	-0.00372	Pass
			VH	-7	-0.00372	Pass
	HCH	TN	VL	-11	-0.00577	Pass
			VN	-10	-0.00524	Pass
			VH	-8	-0.00419	Pass

Frequency Error vs ,Temperature

Test Band	Test Channel	Test Volt	Test Temp	Freq Error (Hz)	Freq .vs.rated (ppm)	Verdict
WCDMA Band 2	LCH	VN	-30	2	0.00108	Pass
			-20	-2	-0.00108	Pass
			-10	2	0.00108	Pass
			0	-1	-0.00054	Pass
			10	-2	-0.00108	Pass
			20	-2	-0.00108	Pass
			30	-3	-0.00162	Pass
			40	-2	-0.00108	Pass
			50	1	0.00054	Pass
	MCH	VN	-30	-9	-0.00479	Pass
			-20	-9	-0.00479	Pass
			-10	-8	-0.00426	Pass
			0	-8	-0.00426	Pass
			10	-7	-0.00372	Pass
			20	-7	-0.00372	Pass
			30	-8	-0.00426	Pass
			40	-8	-0.00426	Pass
			50	-7	-0.00372	Pass
	HCH	VN	-30	-12	-0.00629	Pass
			-20	-11	-0.00577	Pass
			-10	-12	-0.00629	Pass
			0	-11	-0.00577	Pass
			10	-10	-0.00524	Pass
			20	-10	-0.00524	Pass
			30	-10	-0.00524	Pass
			40	-14	-0.00734	Pass
			50	-11	-0.00577	Pass

Frequency Error vs ,Voltage

Test Band	Test Channel	Test Temp	Test Volt	Freq Error (Hz)	Freq .vs.rated (ppm)	Verdict
WCDMA Band 5	LCH	TN	VL	2	0.00242	Pass
			VN	2	0.00242	Pass
			VH	1	0.00121	Pass
	MCH	TN	VL	-2	-0.00239	Pass
			VN	-1	-0.0012	Pass
			VH	-2	-0.00239	Pass
	HCH	TN	VL	-1	-0.00118	Pass
			VN	-1	-0.00118	Pass
			VH	-2	-0.00236	Pass

Frequency Error vs ,Temperature

Test Band	Test Channel	Test Volt	Test Temp	Freq Error (Hz)	Freq .vs.rated (ppm)	Verdict
WCDMA Band 5	LCH	VN	-30	-2	-0.00242	Pass
			-20	-1	-0.00121	Pass
			-10	2	0.00242	Pass
			0	2	0.00242	Pass
			10	1	0.00121	Pass
			20	2	0.00242	Pass
			30	2	0.00242	Pass
			40	1	0.00121	Pass
			50	-1	-0.00121	Pass
	MCH	VN	-30	2	0.002391	Pass
			-20	-2	-0.00239	Pass
			-10	1	0.001195	Pass
			0	-2	-0.00239	Pass
			10	-1	-0.0012	Pass
			20	-1	-0.0012	Pass
			30	-2	-0.00239	Pass
			40	-2	-0.00239	Pass
			50	-1	-0.0012	Pass
	HCH	VN	-30	1	0.00118	Pass
			-20	-1	-0.00118	Pass
			-10	2	0.002362	Pass
			0	1	0.00118	Pass
			10	-2	-0.00236	Pass
			20	-1	-0.00118	Pass
			30	1	0.00118	Pass
			40	-2	-0.00236	Pass
			50	-1	-0.00118	Pass

9. MODULATION CHARACTERISTICS

9.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Validity Date	Cal. Interval
1.	RF Cable	Mini-Circults	CBL-1M-SMS M+	99670	Oct.17,15	Oct.16,16	1Year
2.	Universal Radio Communication Tester	R&S	CMU200	117194	Jan.12,16	Jan.12,17	1Year
3.	Temperature controller	Terchy	MHQ-120cluB	A60223	Apr.24,15	Apr.24,16	1Year

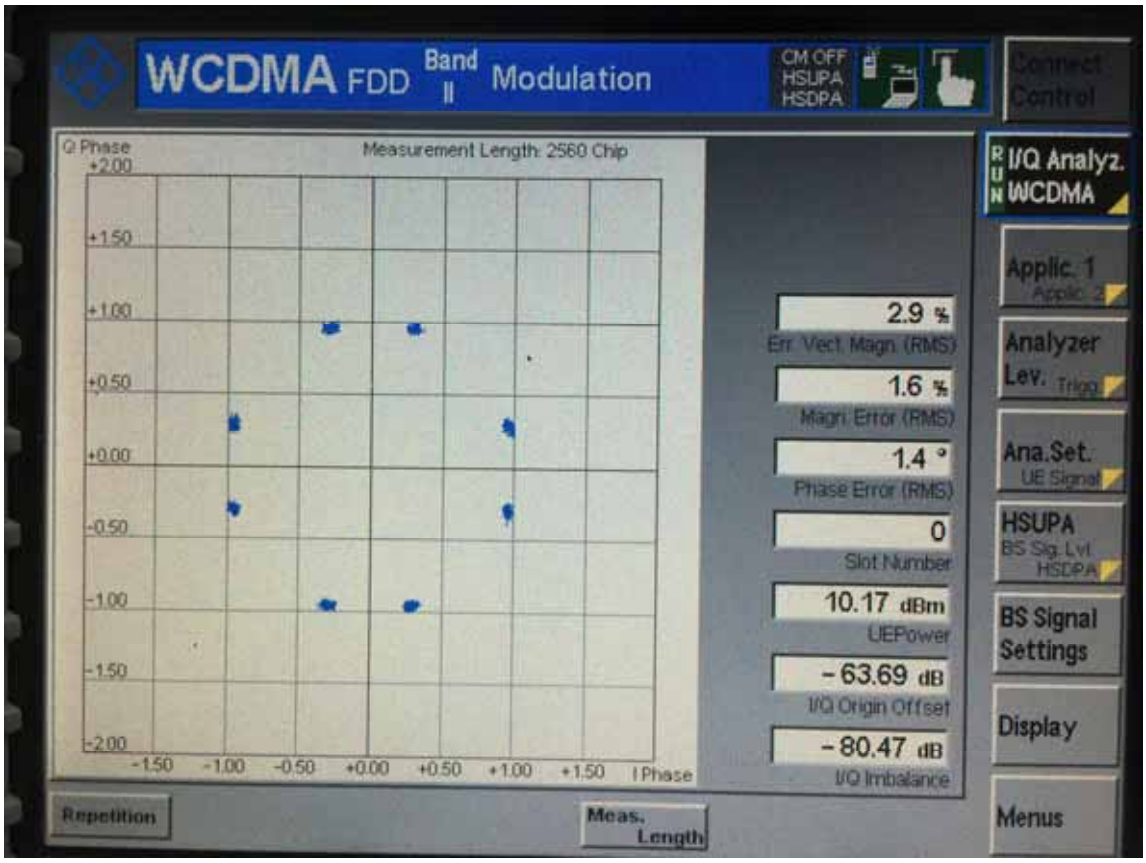
9.2.Limit

N/A

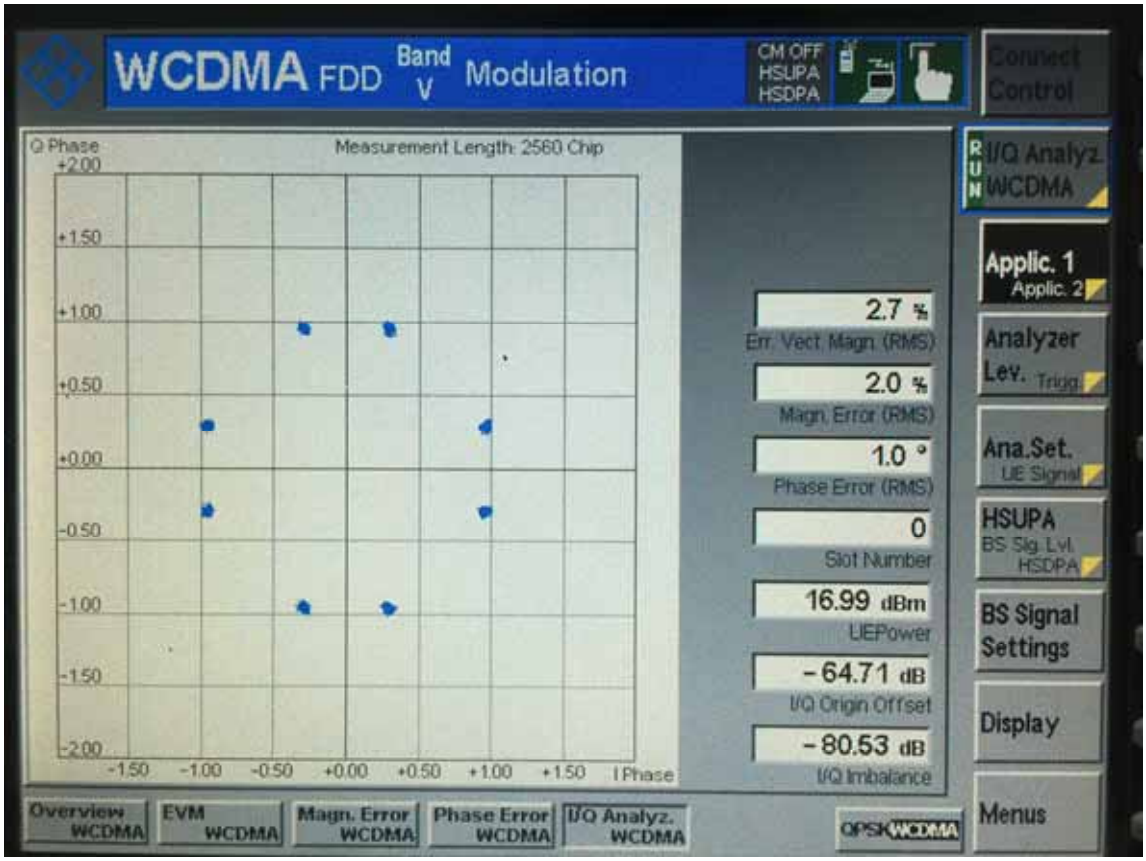
9.3.Test Procedure

1. Connect the RF output port to the wireless communication tester and establish the link
2. Use the “Modulation character” functions of the communication tester performs the test.

Band 2


WCDMA FDD Band II Modulation
CM OFF
HSUPA
HSDPA
Connect Control
Q Phase
Measurement Length: 2560 Chip
+2.00
+1.50
+1.00
+0.50
+0.00
-0.50
-1.00
-1.50
-2.00
-1.50 -1.00 -0.50 +0.00 +0.50 +1.00 +1.50 I Phase
2.9 % Err. Vect. Magn. (RMS)
1.6 % Magn. Error (RMS)
1.4 ° Phase Error (RMS)
0 Slot Number
10.17 dBm UEPower
-63.69 dB I/Q Origin Offset
-80.47 dB I/Q Imbalance
RUN I/Q Analyz. WCDMA
Applic. 1
Applic. 2
Analyzer Lev. Trigg
Ana.Set. UE Signal
HSUPA BS Sig. Lvl HSDPA
BS Signal Settings
Display
Menus
Repetition
Meas. Length

Band 5


WCDMA FDD Band V Modulation
CM OFF
HSUPA
HSDPA
Connect Control
Q Phase
Measurement Length: 2560 Chip
+2.00
+1.50
+1.00
+0.50
+0.00
-0.50
-1.00
-1.50
-2.00
-1.50 -1.00 -0.50 +0.00 +0.50 +1.00 +1.50 I Phase
2.7 % Err. Vect. Magn. (RMS)
2.0 % Magn. Error (RMS)
1.0 ° Phase Error (RMS)
0 Slot Number
16.99 dBm UEPower
-64.71 dB I/Q Origin Offset
-80.53 dB I/Q Imbalance
RUN I/Q Analyz. WCDMA
Applic. 1
Applic. 2
Analyzer Lev. Trigg
Ana.Set. UE Signal
HSUPA BS Sig. Lvl HSDPA
BS Signal Settings
Display
Menus
Overview WCDMA
EVM WCDMA
Magn. Error WCDMA
Phase Error WCDMA
I/Q Analyz. WCDMA
QPSK WCDMA

10. DEVIATION TO TEST SPECIFICATIONS

[NONE]