HCT CO., LTD.
CERTIFICATION DIVISION
74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea
TEL : +82 31 645 6300 FAX : +82 31 645 6401

CERTIFICATE OF COMPLIANCE (ERM EVALUATION)

Manufacture;

10, 9th Floor, SOLiD Space, Pangyoyeok-ro 220, Bundang-gu, Seongnam-si, Gyeonggi-do, 463-400

SOLiD, Inc

Date of Issue : September 25, 2014

Test Report No.: HCT-R-1407-F034-3

Test Site: HCT CO., LTD.

IC Recognition No.: 5944A-3

FCC ID:	**W6U1900PAWS1**
IC:	**9354A-19PAWS1MIMO**
APPLICANT:	**SOLiD, Inc**

FCC/ IC Model Name:	**RDU 1900P/AWS-1 (MIMO)**	
EUT Type:	**RDU Module (1900P/AWS-1 (MIMO))**	
Frequency Ranges:	**PCS IF Input Band:**	**2456.5 MHz ~ 2521.5 MHz**
	PCS Output:	**1930 MHz ~ 1995 MHz**
	AWS IF Input Band:	**2366.5 MHz ~ 2411.5 MHz**
	AWS Output:	**2110 MHz ~ 2155 MHz**
Conducted Output Power:	**PCS :**	**1 W (30 dBm)**
	AWS:	**1 W (30 dBm)**
Date of Test :	**July 07, 2014 ~ July 16, 2014**	
FCC Rules Part(s):	**CFR 47, Part 24, 27**	
IC Rules :	**RSS-Gen (Issue 3, December 2010) , RSS-131 (Issue 2, July 2003)**	

Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of Part 24, 27 of the FCC Rules under normal use and maintenance.

Report prepared by : Yong Hyun Lee
Engineer of RF Team

Report approved by : Chang Seok Choi
Manager of RF Team

Report Revision

TEST REPORT NO.	DATE	DESCRIPTION
HCT-R-1407-F034	July 18, 2014	- First Approval Report
HCT-R-1407-F034-1	July 25, 2014	- Revised the KDB 935210 version - Added the types of band Within page 46 and 56
HCT-R-1407-F034-2	July 31, 2014	- Revised the KDB 935210 D version
HCT-R-1407-F034-3	September 25, 2014	- Added the MIMO operations test results RF Output Power, Spurious Emissions at Antenna Terminals

Table of Contents

1. CLIENT INFORMATION

The EUT has been tested by request of

Company	SOLiD, Inc 10, 9th Floor, SOLiD Space, Pangyoyeok-ro 220, Bundang-gu, Seongnam-si, Gyeonggi-do, 463-400

- **FCC ID:** **W6U1900PAWS1**
- **IC:** **9354A-19PAWS1MIMO**
- **APPLICANT:** **SOLiD, Inc**
- **EUT Type:** **RDU Module (1900P/AWS-1 (MIMO))**
- **Model:** **RDU 1900P/AWS-1 (MIMO)**
- **Frequency Ranges:**
  PCS IF Input Band: 2456.5 MHz ~ 2521.5 MHz
  PCS Output: 1930 MHz ~ 1995 MHz
  AWS IF Input Band: 2366.5 MHz ~ 2411.5 MHz
  AWS Output: 2110 MHz ~ 2155 MHz
- **Conducted Output Power:**
  PCS : 1 W (30 dBm)
  AWS: 1 W (30 dBm)
- **Antenna Gain(s) :** **Manufacturer does not provide an antenna.**
- **FCC Rules Part(s):** **CFR Title 47 Part 24, 27**
- **IC Rules Part(s):** **RSS-Gen (Issue3, December 2010), RSS-131(Issue 2, July 2003)**
- **Measurement standard(s):** **ANSI/TIA-603-C-2004, KDB 971168 D01 v02, KDB 662911 D01 v02r01 RSS-131(Issue 2, July 2003)**
- **Place of Tests:** **74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea. (IC Recognition No. : 5944A-3)**

2. FACILITIES AND ACCREDITATIONS

2.1. FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2003) and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated June 21, 2011 (Registration Number: 90661).

2.2. EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

3. TEST SUMMARY

3.1. STANDARDS

The following tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 24, 27, RSS-GEN, RSS-131.

Description	Reference (FCC)	Reference (IC)	Results
RF Output Power	§2.1046, §24.232, §27.50	RSS-131, Section 4.3 RSS-131, Section 6.2	Compliant
Occupied Bandwidth	§2.1049	RSS-GEN, Section 4.6.1	Compliant
Passband Gain and Bandwidth & Out of Band Rejection	KDB 935210 D03 v02r01	RSS-131, Section 4.2 RSS-131, Section 6.1	Compliant
Spurious Emissions at Antenna Terminals	§2.1051, §24.238, §27.53	RSS-131, Section 4.4 RSS-131, Section 6.3 RSS-131, Section 6.4	Compliant
Radiated Spurious Emissions	§2.1053, §24.238, §27.53	-	Compliant
Frequency Stability	§2.1055, §22.235, §27.54	RSS-131, Section 4.5 RSS-131, Section 6.5	Compliant

Note: ROU supports SISO and MIMO system.

MIMO operation are used with RDU Module(RDU 1900P+AWS-1_R) that has been already get the certification.(FCC ID:W6U1900PAWS1R, June 11 2012)

In order to meet MIMO requirement, the test results are listed in the test report by calculating test data of both RDU Module ‘RDU 1900P+AWS-1_R’ and ‘RDU 1900P/AWS-1(MIMO)’.

RDU 1900P+AWS-1_R data, reference to the Test Report No. : E126R-006.

Calculation methods.

RF Output Power : KDB 662911 D01, section E)1)

Out-of-Band and Spurious Emission : KDB 662911 D01, section E)3)a)(ii)

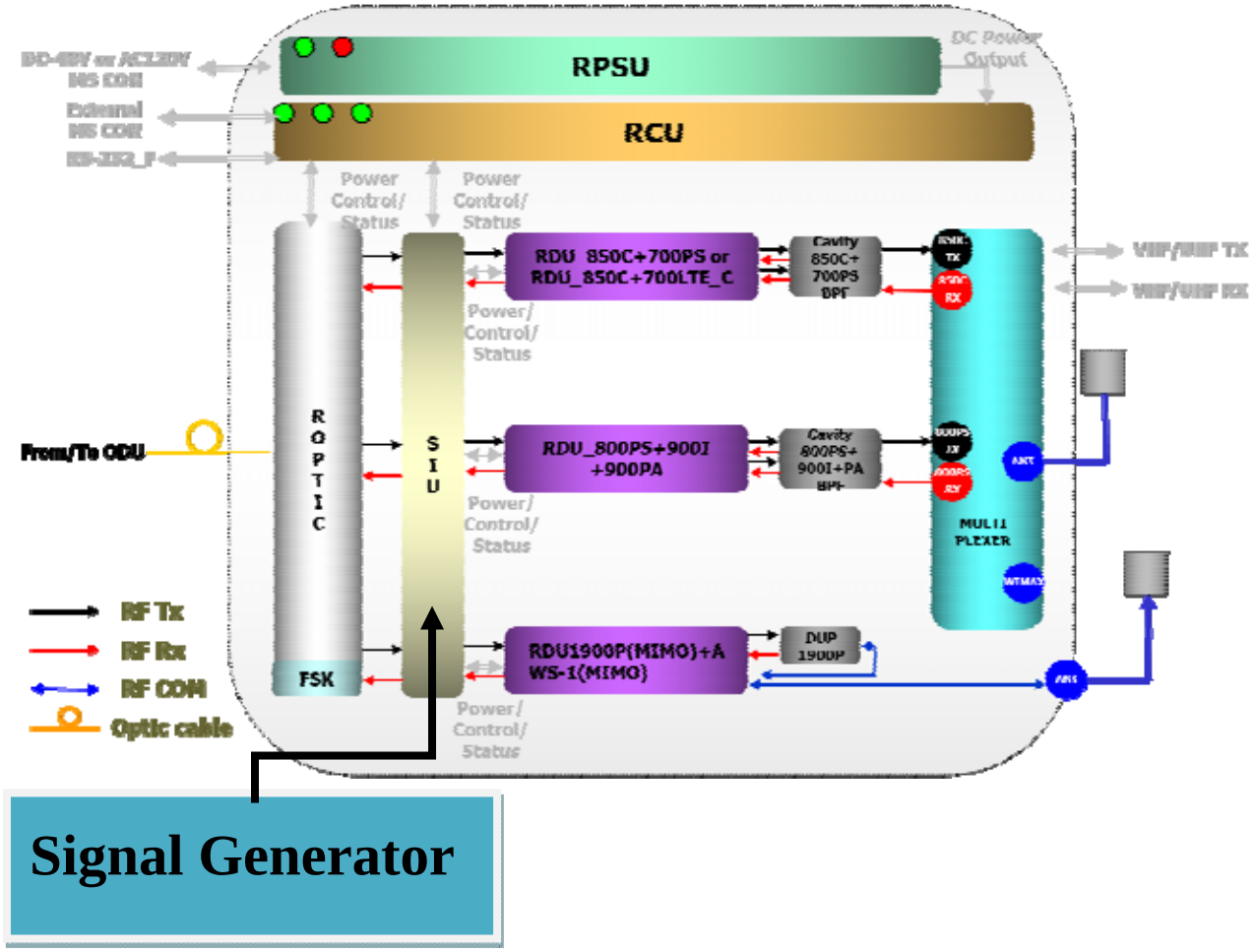
3.2. MODE OF OPERATION DURING THE TEST

The SOLiD Technologies, Inc., Model RDU 1900P/AWS-1 MIMO (referred to as the EUT in this report) is a RDU MODULE(1900P/AWS-1 MIMO) that shall be plugged in ROU (Remote Optic Unit).

ROU receives TX optical signals from ODU or OEU and converts them into RF signals. The converted RF signals are amplified through High Power Amp in a corresponding RDU, combined with Multiplexer module and then radiated to the antenna port.

The EUT has been tested under specific configuration for testing directly connecting to System Interface Unit(SIU) into RF signals from the signal generator without the R Optic of ROU(Remote Optic Unit) and ODU(Optic Distrubution Unit).
Refer to below the block diagram.

ROU block diagram



Normal configuration

Test configuration

4. STANDARDS ENVIRONMENTAL TEST CONDITIONS

Temperature :	**+ 15 ℃ to + 35 ℃**
Relative humidity:	**30 % to 60 %**
Air pressure	**860 mbar to 1 060 mbar**

5. TEST EQUIPMENT

Manufacturer	Model / Equipment	Cal Interval	Calibration Due	Serial No.
Agilent	E4438C /Signal Generator	Annual	09/05/2014	MY42082646
Agilent	N5182A /Signal Generator	Annual	09/30/2014	MY50141649
Agilent	E4416A /Power Meter	Annual	10/16/2014	GB41291412
Agilent	E9327A/ Power Sensor	Annual	03/31/2015	MY4442009
NANGYEUL CO., LTD.	NY-THR18750/ Temperature and Humidity Chamber	Annual	10/30/2014	NY-2009012201A
Agilent	N9020A /Signal Analyzer	Annual	04/16/2015	US46220219
WEINSCHEL	67-30-33 / Fixed Attenuator	Annual	11/05/2014	BU5347
MCE / Weinschel	2-10 / Fixed Attenuator	Annual	10/28/2014	BR0554
HD	MA240/ Antenna Position Tower	N/A	N/A	556
EMCO	1050/ Turn Table	N/A	N/A	114
HD GmbH	HD 100/ Controller	N/A	N/A	13
HD GmbH	KMS 560/ SlideBar	N/A	N/A	12
MITEQ	AMF-6D-001180-35-20P/AMP	Annual	09/12/2014	1081666
Schwarzbeck	BBHA 9120D/ Horn Antenna	Biennial	07/05/2015	1151
Schwarzbeck	BBHA 9120D/ Horn Antenna	Biennial	07/05/2015	1151
Schwarzbeck	VULB 9160/TRILOG Antenna	Biennial	12/17/2014	3150

6. RF OUTPUT POWER

FCC Rules

Test Requirements:

§ 2.1046 Measurements required: RF power output:

§ 2.1046 (a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in § 2.1033(c)(8).The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

§ 2.1046 (b) For single sideband, independent sideband, and single channel, controlled carrier radiotelephone transmitters, the procedure specified in paragraph (a) of this section shall be employed and, in addition, the transmitter shall be modulated during the test as specified and as applicable in § 2.1046 (b) (1-5). In all tests, the input level of the modulating signal shall be such as to develop rated peak envelope power or carrier power, as appropriate, for the transmitter.

§ 2.1046 (c) For measurements conducted pursuant to paragraphs (a) and (b) of this section, all calculations and methods used by the applicant for determining carrier power or peak envelope power, as appropriate, on the basis of measured power in the radio frequency load attached to the transmitter output terminals shall be shown. Under the test conditions specified, no components of the emission spectrum shall exceed the limits specified in the applicable rule parts as necessary for meeting occupied bandwidth or emission limitations.

§ 24.232 Power and antenna height limits. (a) Base stations are limited to 1640 watts peak equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT, except as described in paragraph (b) below. See §24.53 for HAAT calculation method. Base station antenna heights may exceed 300 meters with a corresponding reduction in power; see Table 1 of this section.

The service area boundary limit and microwave protection criteria specified in §24.236 and §24.237 apply.

§ 27.50 Power and antenna height limits.

(d) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands:

(1) The power of each fixed or base station transmitting in the 2110–2155 MHz band and located in any county with population density of 100 or fewer persons per square mile, based upon the most recently available population statistics from the Bureau of the Census

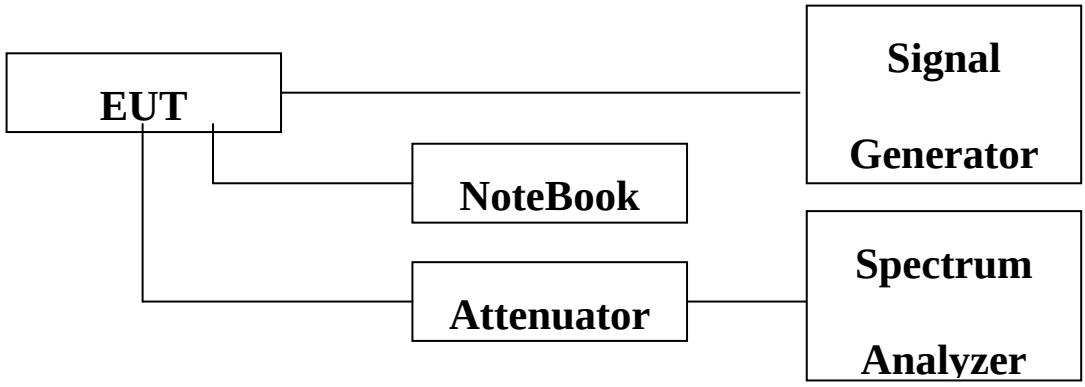
(2) The power of each fixed or base station transmitting in the 2110–2155 MHz band and situated in any geographic location other than that described in paragraph (d)(1) is limited to: (A) an equivalent isotropically radiated power (EIRP) of 1640 watts when transmitting with an emission bandwidth of 1 MHz or less;

(B) an EIRP of 1640 watts/MHz when transmitting with an emission bandwidth greater than 1 MHz.

(4) Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP. Fixed stations operating in this band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in this band must employ a means for limiting power to the minimum necessary for successful communications.

Test Procedures:

As required by 47 CFR 2.1046, RF power output measurements were made at the RF output terminals using an attenuator and spectrum analyzer or power meter. This test was performed in all applicable modulations.



Block Diagram 1. RF Power Output Test Setup

Test Results:

Input Signal	Input Level (dBm)	Maximum Amp Gain
LTE	DL : -14 dBm	DL : 44 dB

IC Rules

Test Requirements: RSS-131 6.2

The manufacturer's output power rating Prated MUST NOT be greater than Pmean for all types of enhancers.

Additional Power Back-off Condition for Multiple Carrier Operations:

An example of a single carrier operation is a band translator that incorporates an (IF) filter of a passband equal to one channel bandwidth. Another example of a single carrier operation is the use of an enhancer, before the connection to the antenna, to boost a low power transmitter (single carrier) to a higher power.

An example of a multiple carrier operation is the use of an enhancer to amplify off-air signals that contain the wanted carrier and two (or more) adjacent band carriers. If the enhancer passband is wide enough to pass more than the wanted channel bandwidth, the enhancer output stage will be loaded by the multiple carriers.

Examination: with 3 carrier signals (of assumed equal level), the peak voltage will be 3 times the single carrier voltage. The corresponding Peak Envelope Power (PEP) will be 3^2 times greater than a single carrier or 9/4 = 2.25 times greater than 2 tones PEP. Therefore the permissible wanted signal operating point has to be backed off by 3.5 dB (i.e. **Ppermissible = Prated - 3.5 dB**).

Note 1: All enhancers will be classified in the Radio Equipment List (REL) for a single carrier operation.

Note 2: For a multiple carrier operation, the rating must be reduced by 3.5 dB or more.

Note 3: If there are more than 3 carriers present at the amplifier input point, greater power back-off may be required. This can be examined on a case-by-case basis.

Test Procedures: RSS-131 4.3

4.3.1 Multi-channel Enhancer

The following subscript "o" denotes a parameter at the enhancer output point.

Connect two signal generators to the input of the Device Under Test (DUT), via a proper impedance matching network (and preferably via a variable attenuator) so that the two input signals are equal sinusoids (and can be raised equally).

Connect a dummy load of suitable load rating to the enhancer output point. Connect also a spectrum analyser to this output point via a coupling network and attenuator, so that only a portion of the output signal is coupled to the spectrum analyser. The coupling attenuation shall be stated in the test report.

Set the two generator frequencies f1 and f2 such that they and their third-order intermodulation product frequencies, f3= 2f1-f2 and f4 = 2f2 - f1, are all within the passband of the DUT.

Raise the input level to the DUT while observing the output tone levels, Po1 and Po2, and the intermodulation product levels, Po3 and Po4.

For enhancers rated 500 watts or less: Raise the input level to the DUT until the greater level of the intermodulation products at the enhancer output terminals, Po3 or Po4, equals -43 dBW.

For enhancers rated over 500 watts: Raise the input level to the DUT until the greater level of the intermodulation products at the enhancer output terminals, Po3 or Po4, is 67 dB below the level of either output tone level, Po1 or Po2.

Record all signal levels and their frequencies. Calculate the mean output power (Pmean) under this testing condition using Pmean = Po1 + 3 dB.

4.3.2 Single Channel Enhancer

A suitably modulated signal, representative of the technology for which certification is sought, is applied to the input of the amplifier. The input power level is increased until the manufacturer's rated input power level is achieved or until a 2 dB increase in input level results in a 1 dB increase in output level (i.e. compression begins). Record the output power in the 99% emission bandwidth using any suitable means.

Single channel Enhancer

* Due to EUT's ALC function (Auto Level Control), even if input signal is increased,

The same output power is transmit.

[RDU 1900P/AWS-1 (MIMO)]

	Channel	Frequency (MHz)	Output Power	
			(dBm)	(W)
LTE 5 MHz	Low	1932.5	30.06	1.015
	Middle	1962.5	30.16	1.037
	High	1992.5	29.98	0.995
LTE 10 MHz	Low	1935.0	30.05	1.011
	Middle	1962.5	30.23	1.054
	High	1990.0	30.03	1.007

	Channel	Frequency (MHz)	Output Power	
			(dBm)	(W)
LTE 5 MHz	Low	2112.5	30.15	1.036
	Middle	2132.5	29.22	0.836
	High	2152.5	30.09	1.021
LTE 10 MHz	Low	2115.0	30.12	1.028
	Middle	2132.5	29.96	0.991
	High	2150.0	30.11	1.025

[RDU 1900P+AWS-1_R]

	Channel	Frequency (MHz)	Output Power	
			(dBm)	(W)
LTE 5 MHz	Low	1932.5	30.00	1.000
	Middle	1962.5	30.00	1.000
	High	1992.5	30.00	1.000
LTE 10 MHz	Low	2115.0	30.00	1.000
	Middle	2132.5	30.00	1.000
	High	2150.0	30.00	1.000

[Sum data]

	Channel	Frequency (MHz)	Output Power
			(W)
LTE 5 MHz	Low	1932.5	2.015
	Middle	1962.5	2.037
	High	1992.5	1.995
LTE 10 MHz	Low	2115.0	2.028
	Middle	2132.5	1.991
	High	2150.0	2.025

Note : RDU 1900P+AWS-1_R data, reference to the Test Report No. : E126R-006.

Multi-channel Enhancer for IC

* Due to EUT's ALC function (Auto Level Control), even if input signal is increased,

The same output power is transmit.

[Downlink]

	Channel	Frequency (MHz)	Output Power	
			Po1(dBm)	Pmean(dBm)
PCS	Low	1935.0	27.35	30.35
	Middle	1962.5	27.19	30.19
	High	1990.0	27.34	30.34
AWS	Low	2115.0	27.24	30.24
	Middle	2132.5	27.18	30.18
	High	2150.0	27.29	30.29

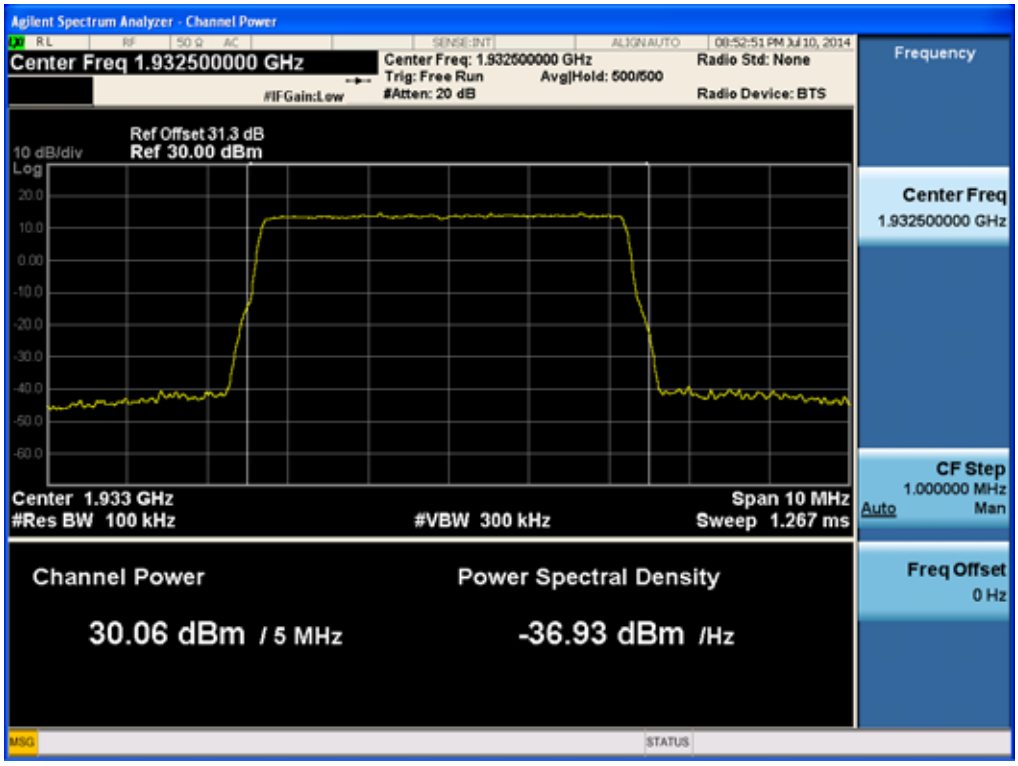
Additional Power Back-off Condition for Multiple Carrier Operations for IC

[Downlink]

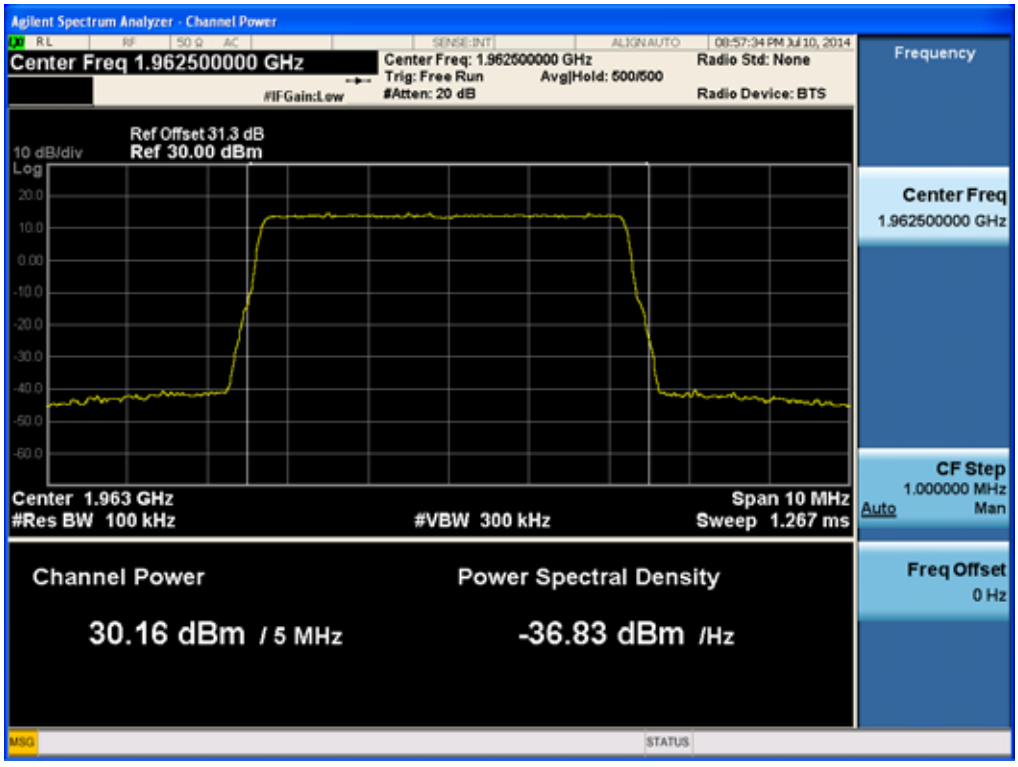
	1 Carrier (dBm)	3 Carrier (dBm)	Power Back-off (dB)
PCS	30.16	25.53	4.63
AWS	29.22	25.28	3.94

Plots of RF Output Power

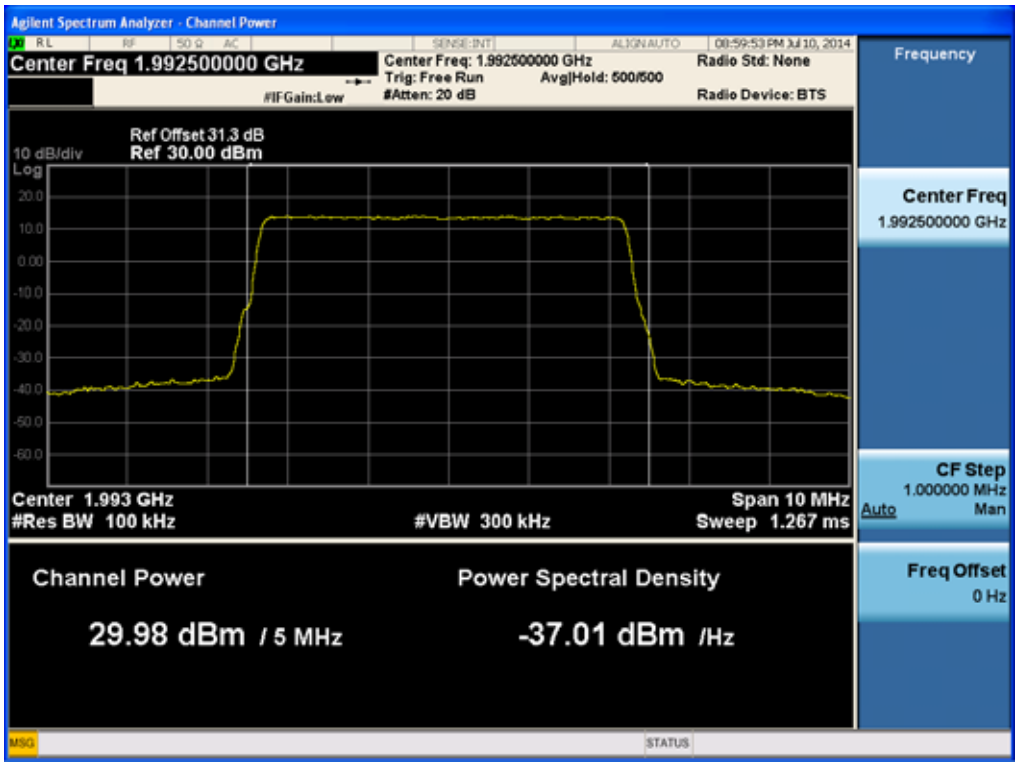
[LTE Downlink 5 MHz Low]



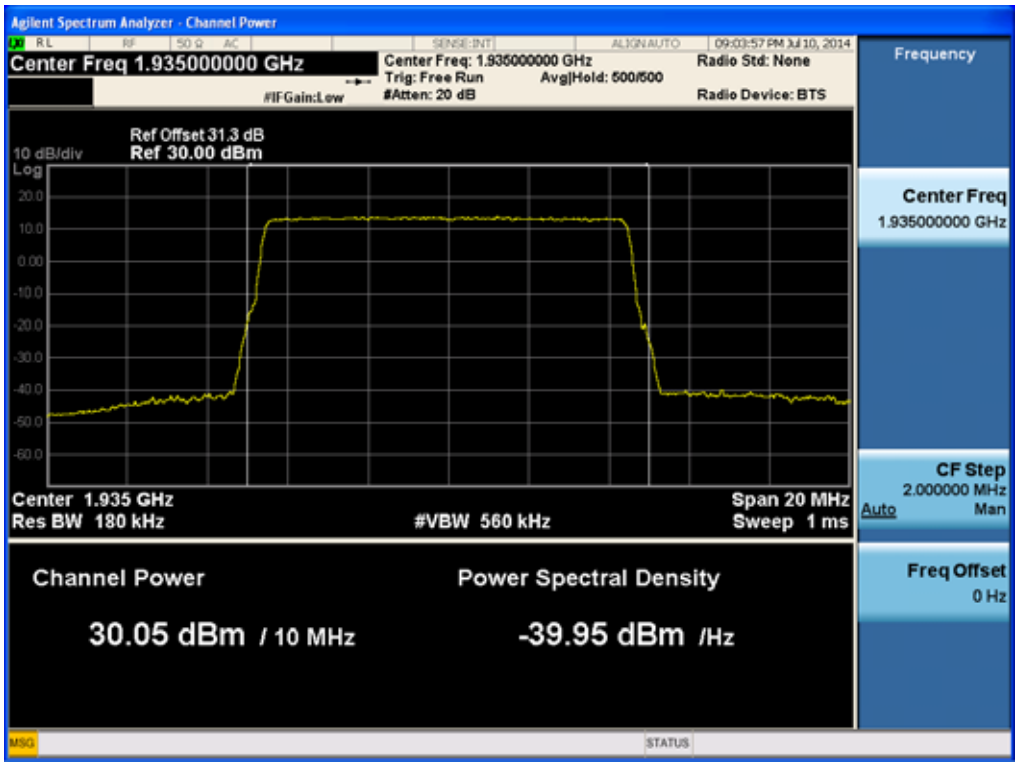
[LTE Downlink 5 MHz Middle]



[LTE Downlink 5 MHz High]



[LTE Downlink 10 MHz Low]



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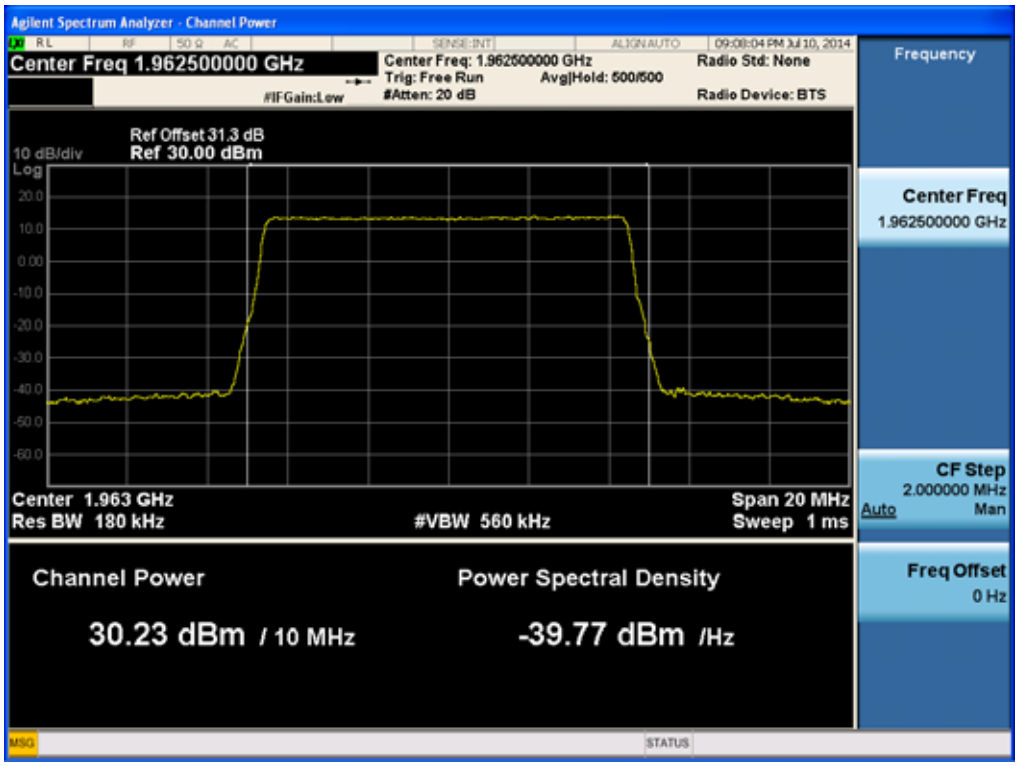
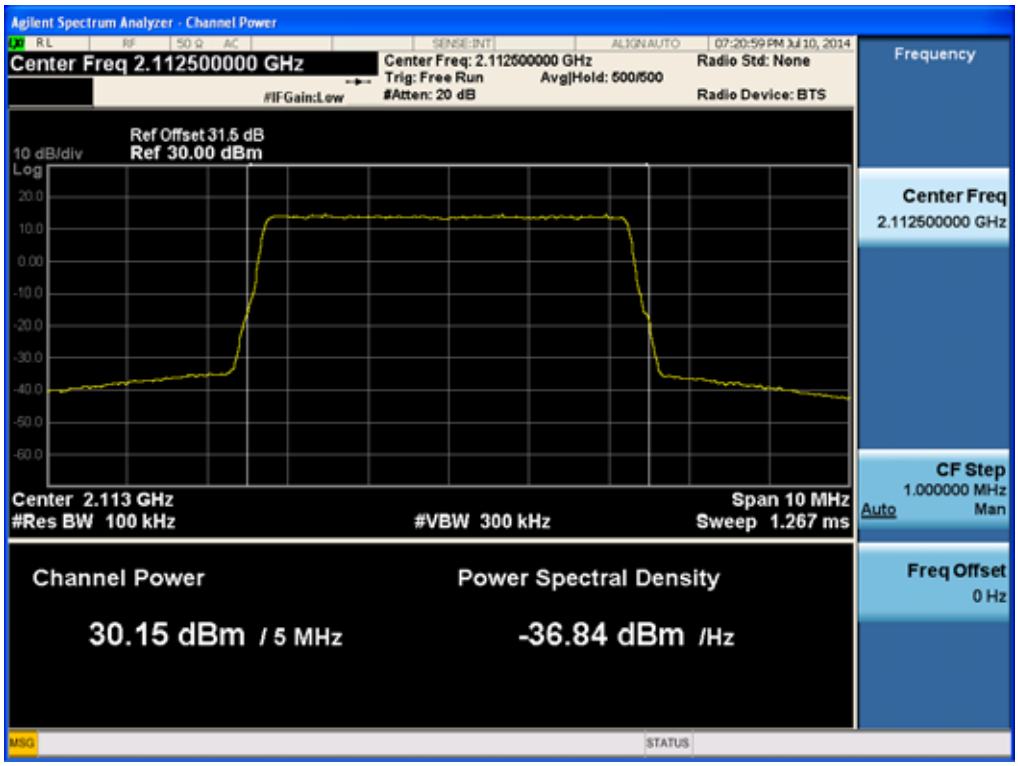


[LTE Downlink 10 MHz High]

[LTE Downlink 5 MHz Low]



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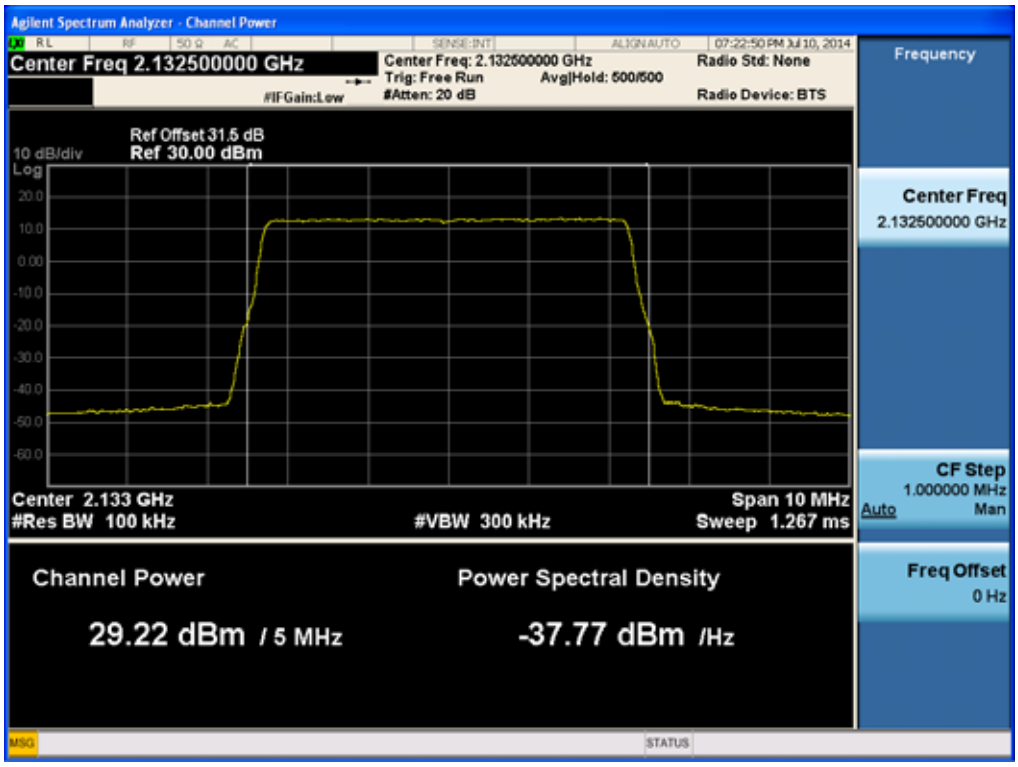

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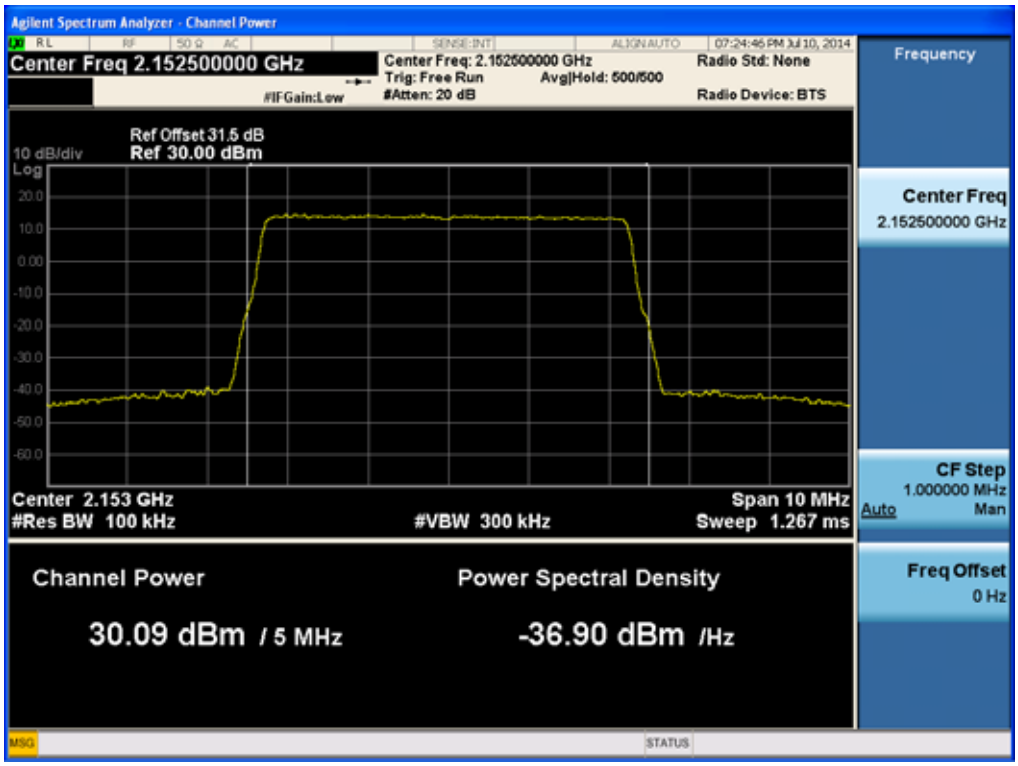

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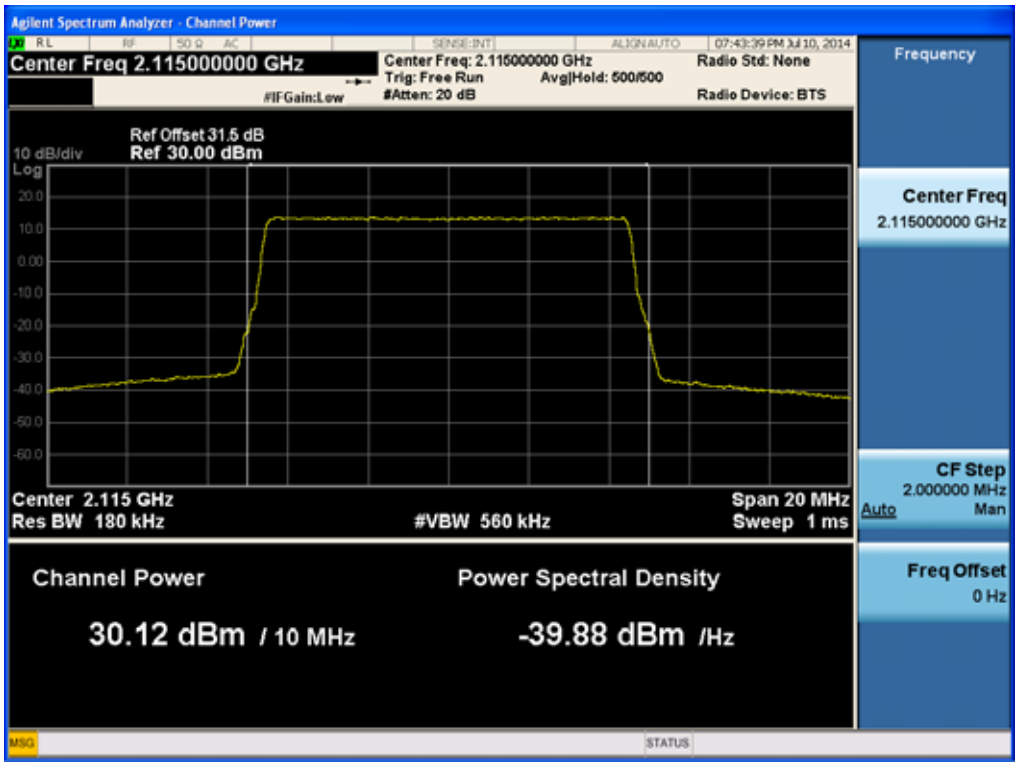

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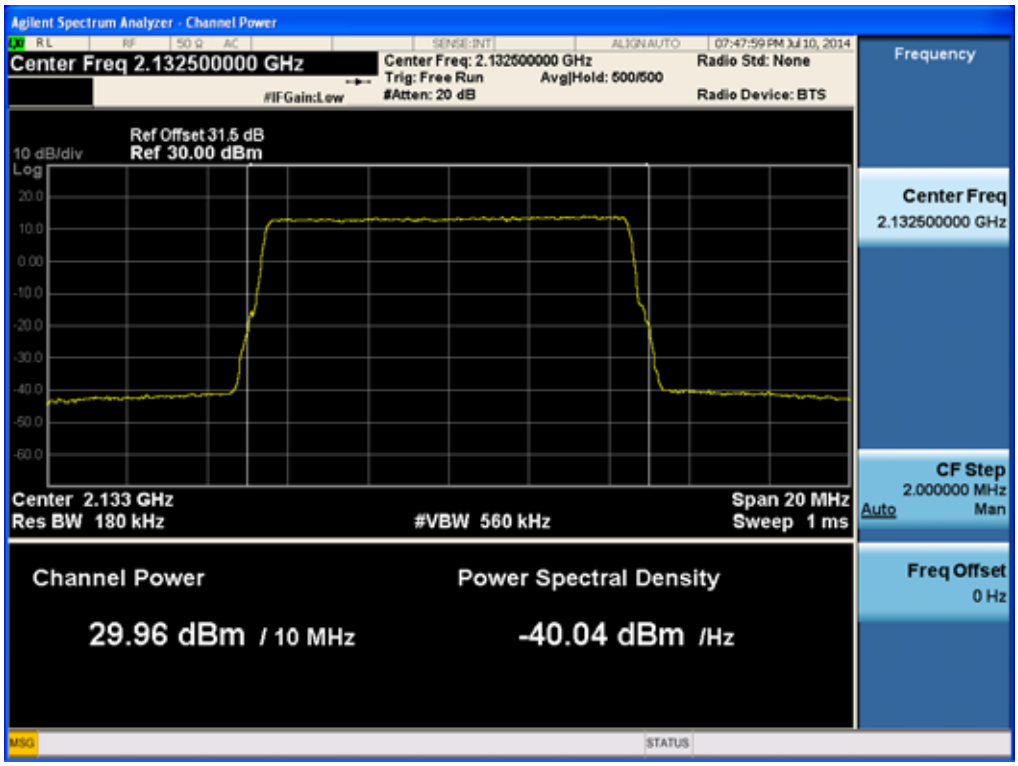

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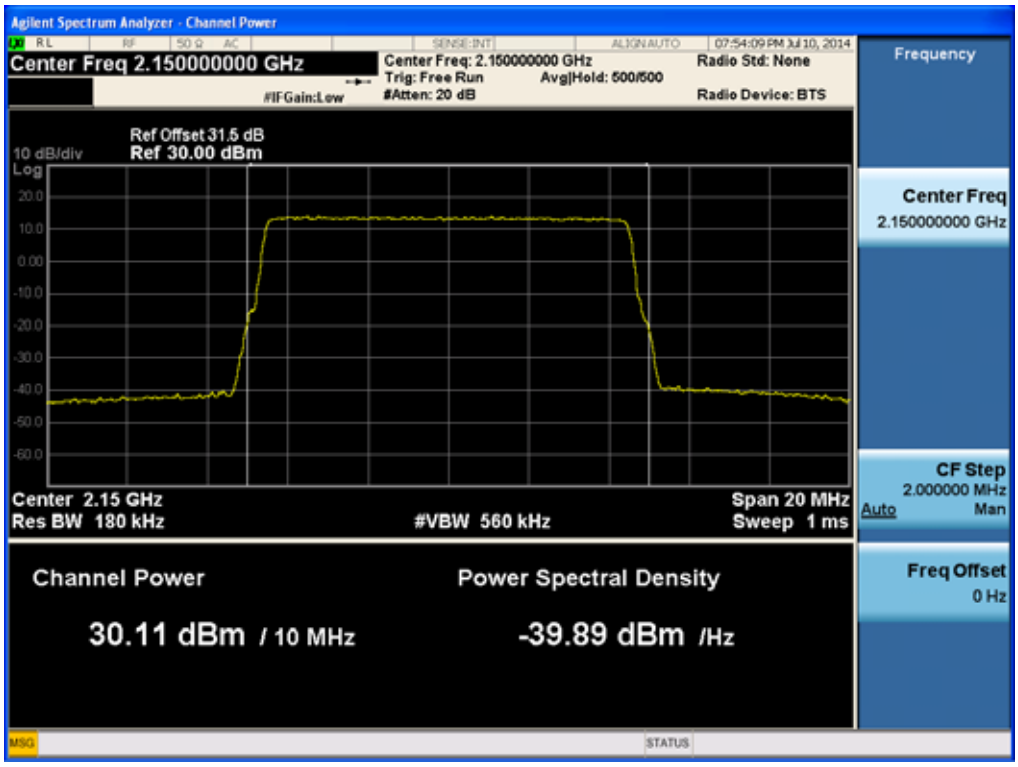
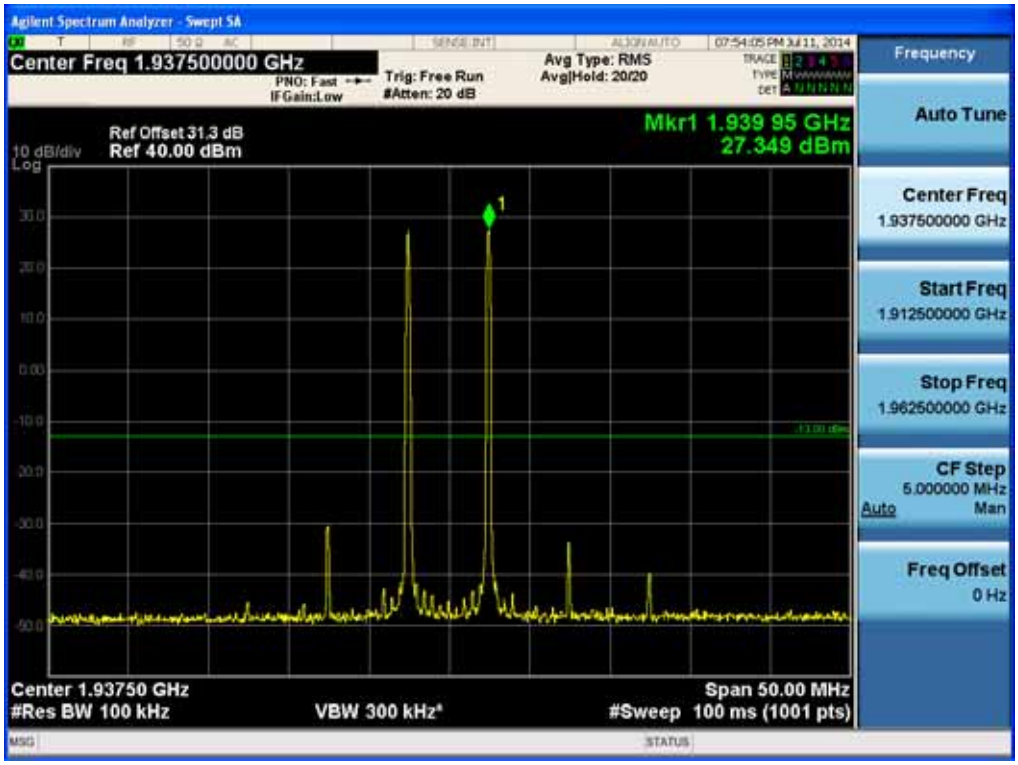


Multi-channel Enhancer for IC

[LTE Downlink Low]



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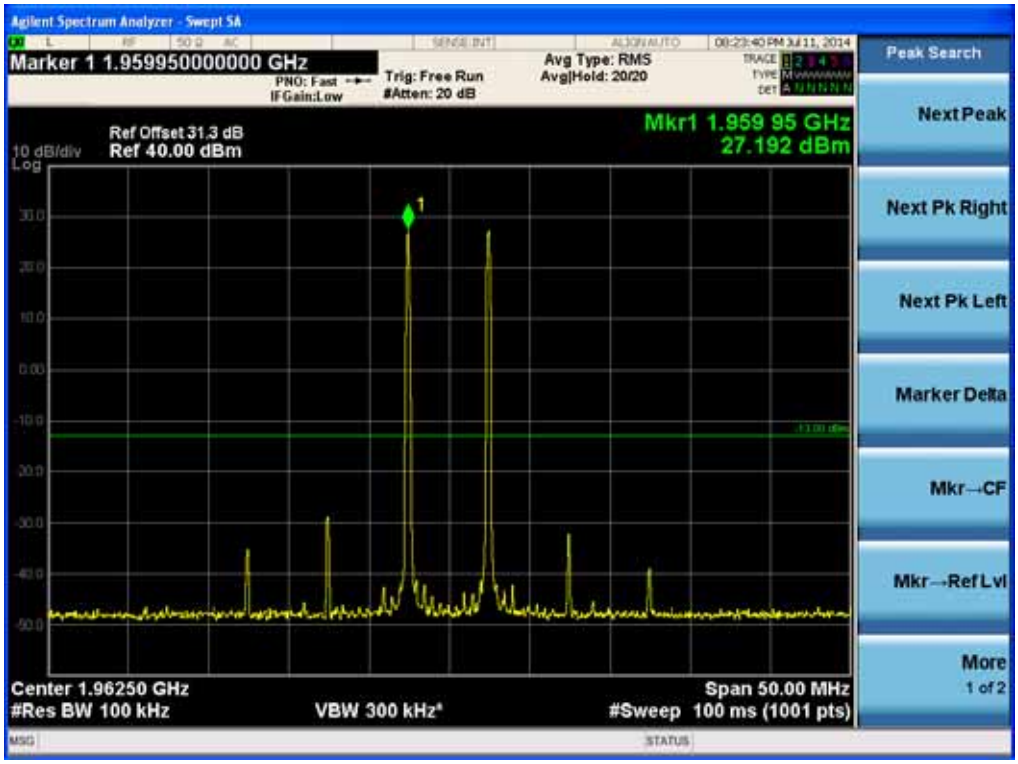

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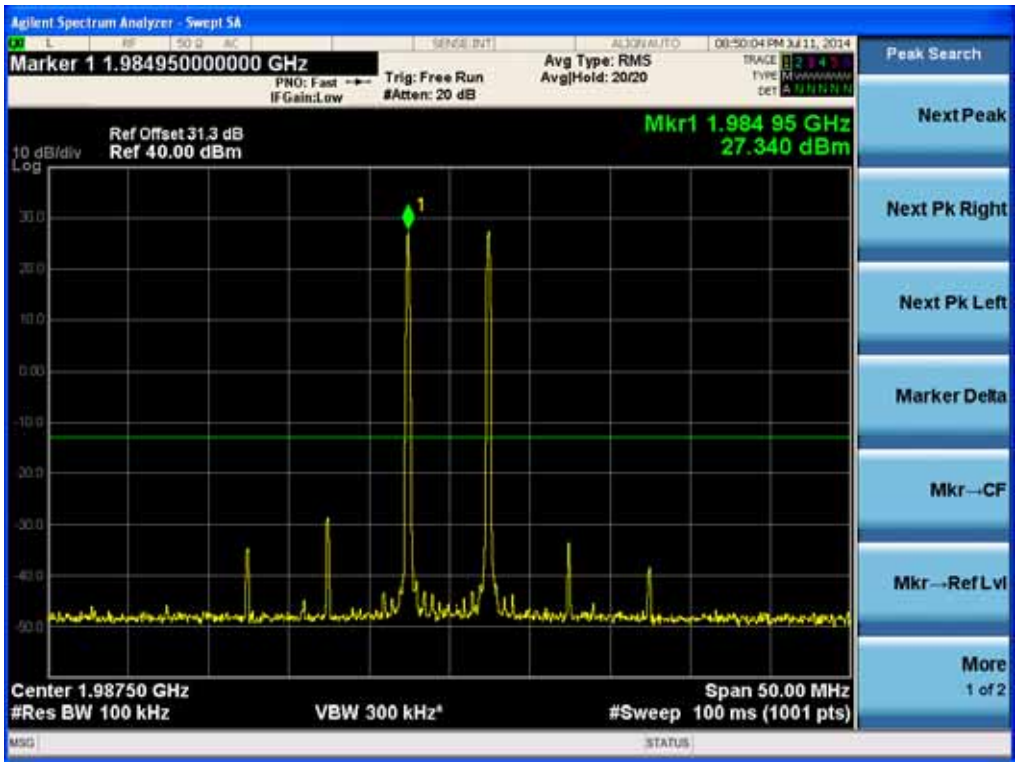

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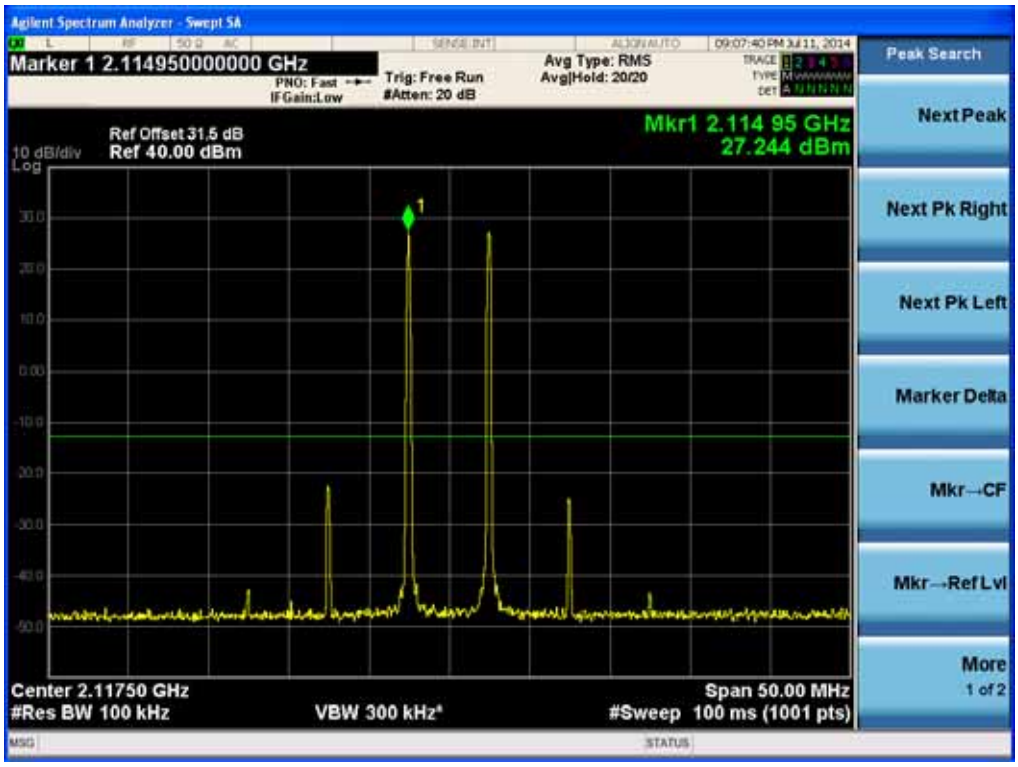

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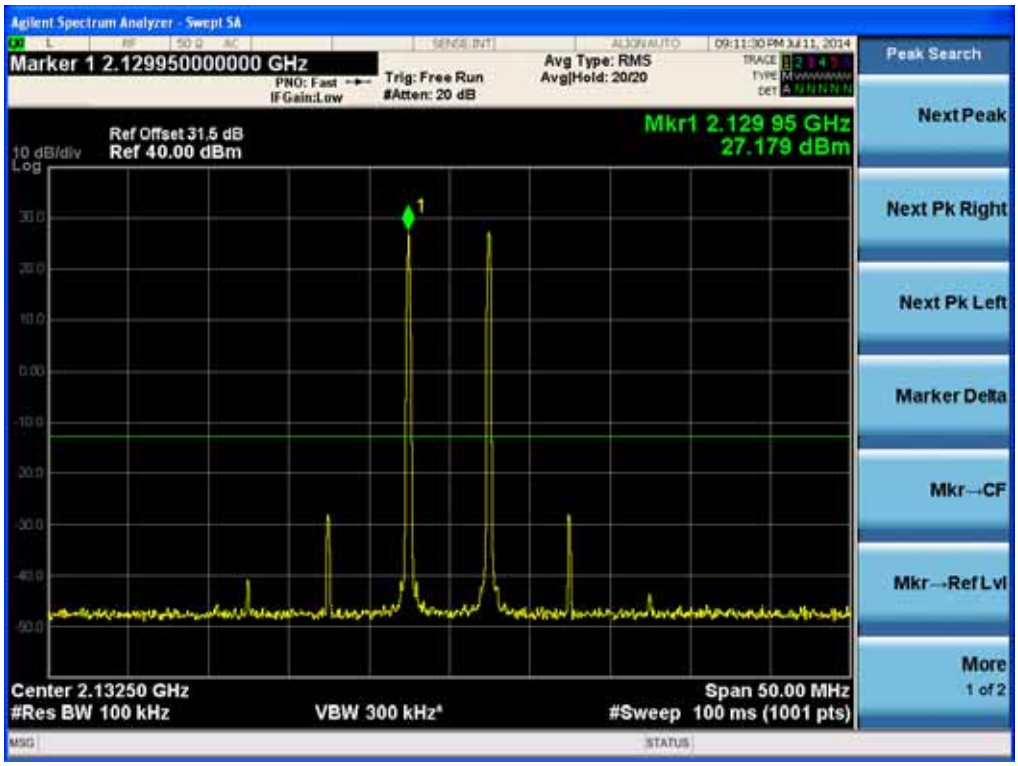
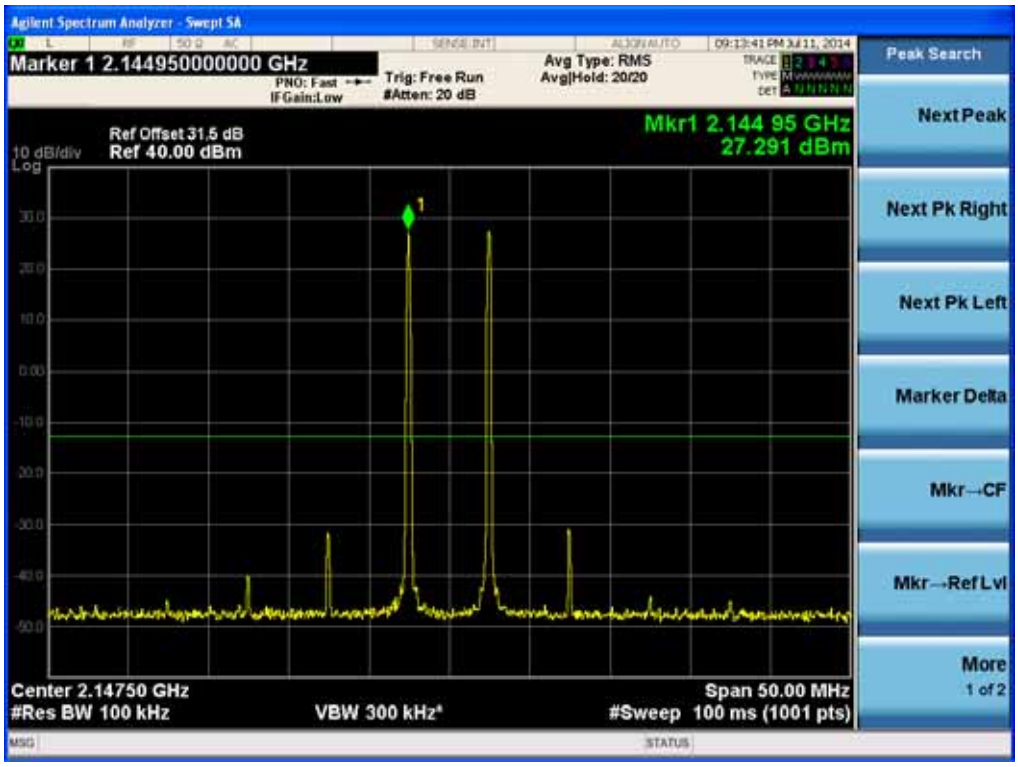
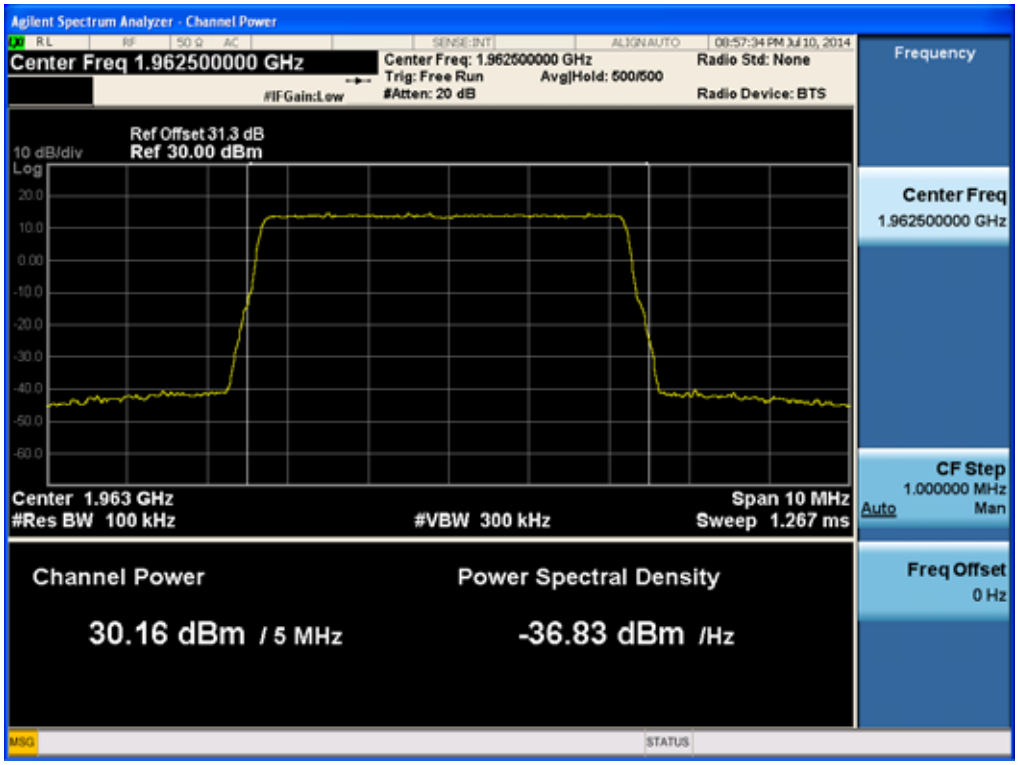


[LTE Downlink High]

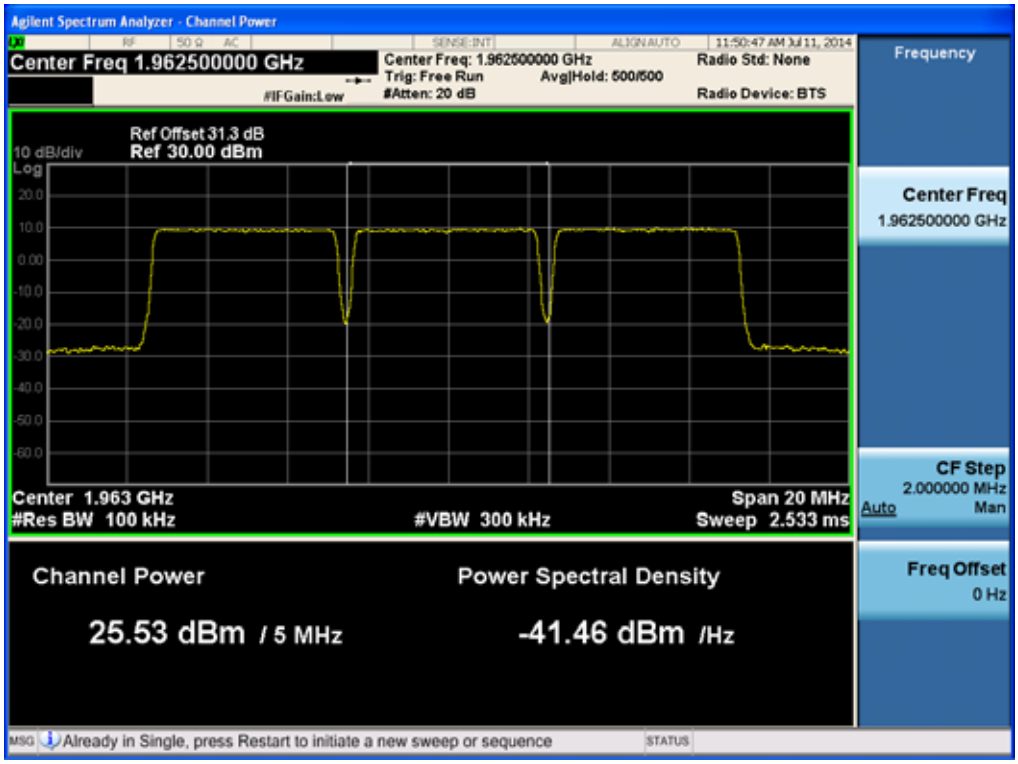


*** Power Back-off for IC**

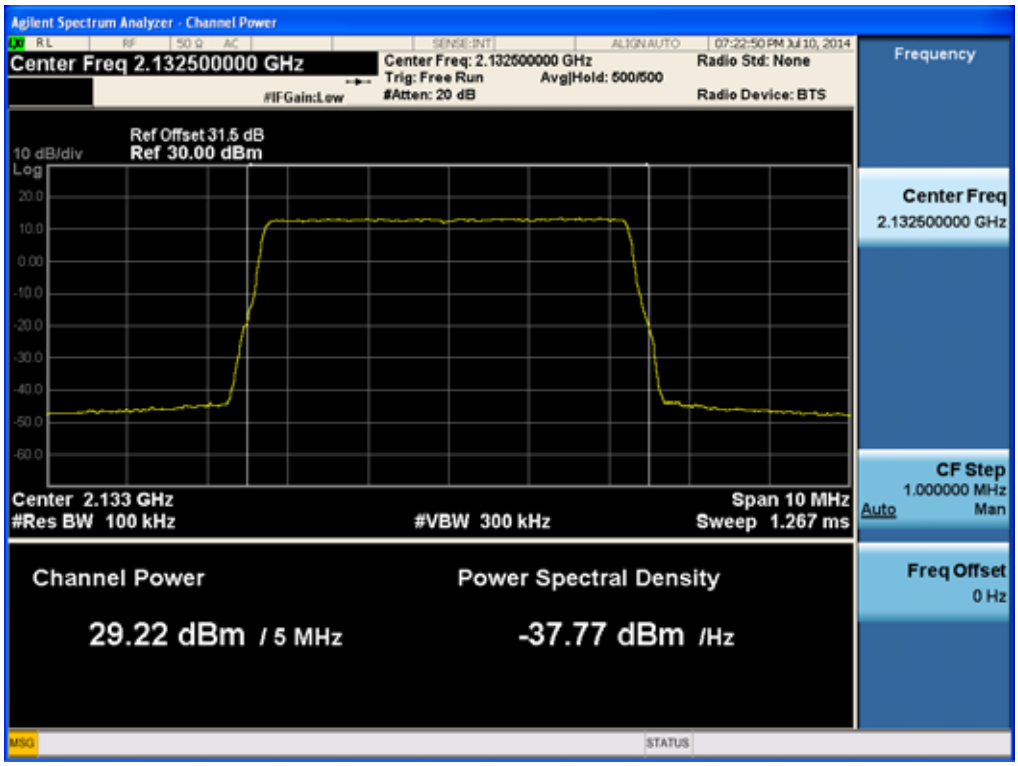
[LTE Downlink 1 Carrier]



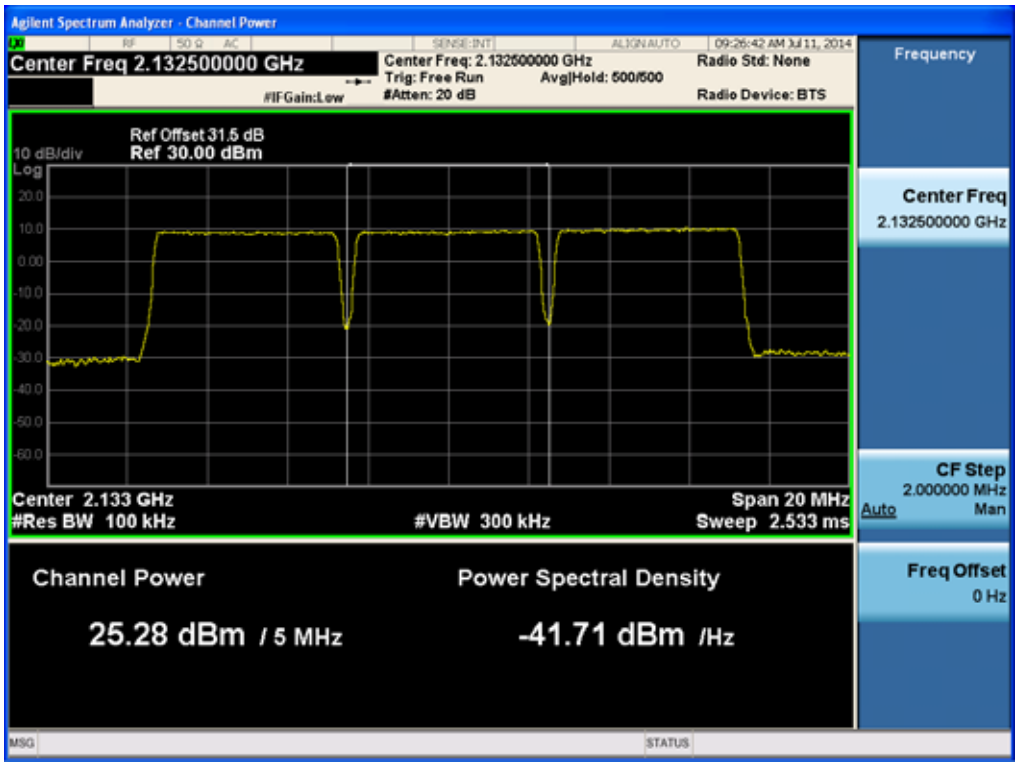
[LTE Downlink 3 Carrier]



[LTE Downlink Carrier]



[LTE Downlink 3 Carrier]



7. OCCUPIED BANDWIDTH

FCC Rules

Test Requirement(s): § 2.1049 Measurements required: Occupied bandwidth:

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 radiated by a given emission shall be measured under the specified conditions of § 2.1049 (a) through (i) as applicable.

Test Procedures: As required by 47 CFR 2.1049, *occupied bandwidth measurements* were made with a Spectrum Analyzer connected to the RF ports for both Uplink and Downlink The modulation characteristics of signal generator's carrier was measured first at a maximum RF level prescribed by the OEM. The signal generator was then connected to either the Uplink or Downlink input at the appropriate RF level. The resulting modulated signal through the EUT was measured and compared against the original signal.

Test Results: The EUT complies with the requirements of this section.

Input Signal	Input Level (dBm)	Maximum Amp Gain
LTE	DL : -14 dBm	DL : 44 dB

IC Rules

Test Requirements: RSS-GEN 4.6.1

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured.

Test Procedures: RSS-GEN 4.6.1

The transmitter shall be operated at its maximum carrier power measured under normal test conditions.

The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth.

Video averaging is not permitted. Where practical, a sampling detector shall be used given that a peak or peak hold may produce a wider bandwidth than actual.

The trace data points are recovered and directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

[Downlink Output]

	Channel	Frequency (MHz)	OBW (MHz)
LTE 5 MHz	Low	1932.5	4.511
	Middle	1962.5	4.508
	High	1992.5	4.507
LTE 10 MHz	Low	1935.0	8.994
	Middle	1962.5	8.975
	High	1990.0	8.986

[Downlink Input]

	Channel	Frequency (MHz)	OBW (MHz)
LTE 5 MHz	Low	2459.0	4.511
	Middle	2489.0	4.516
	High	2519.0	4.498
LTE 10 MHz	Low	2461.5	8.975
	Middle	2489.0	9.003
	High	2516.5	8.980

[Downlink Output]

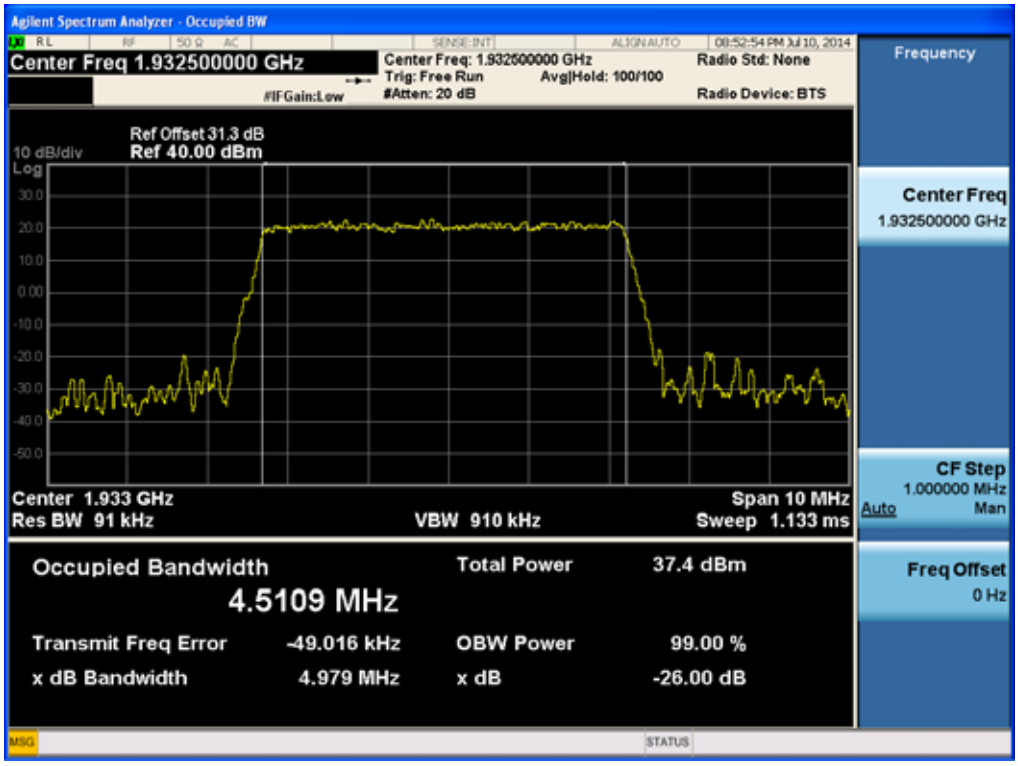
	Channel	Frequency (MHz)	OBW (MHz)
LTE 5 MHz	Low	2112.5	4.511
	Middle	2132.5	4.497
	High	2152.5	4.508
LTE 10 MHz	Low	2115.0	9.006
	Middle	2132.5	8.984
	High	2150.0	8.978

[Downlink Input]

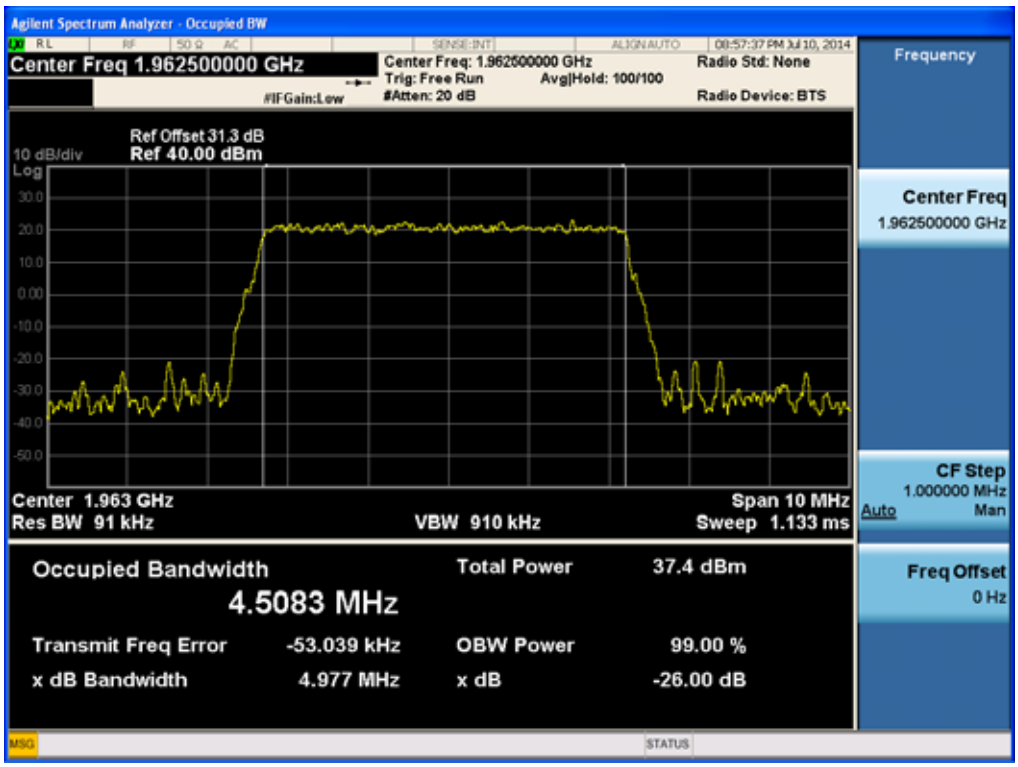
	Channel	Frequency (MHz)	OBW (MHz)
LTE 5 MHz	Low	2369.0	4.528
	Middle	2389.0	4.503
	High	2409.0	4.520
LTE 10 MHz	Low	2371.5	8.998
	Middle	2389.0	9.028
	High	2406.5	8.991

Plots of Occupied Bandwidth

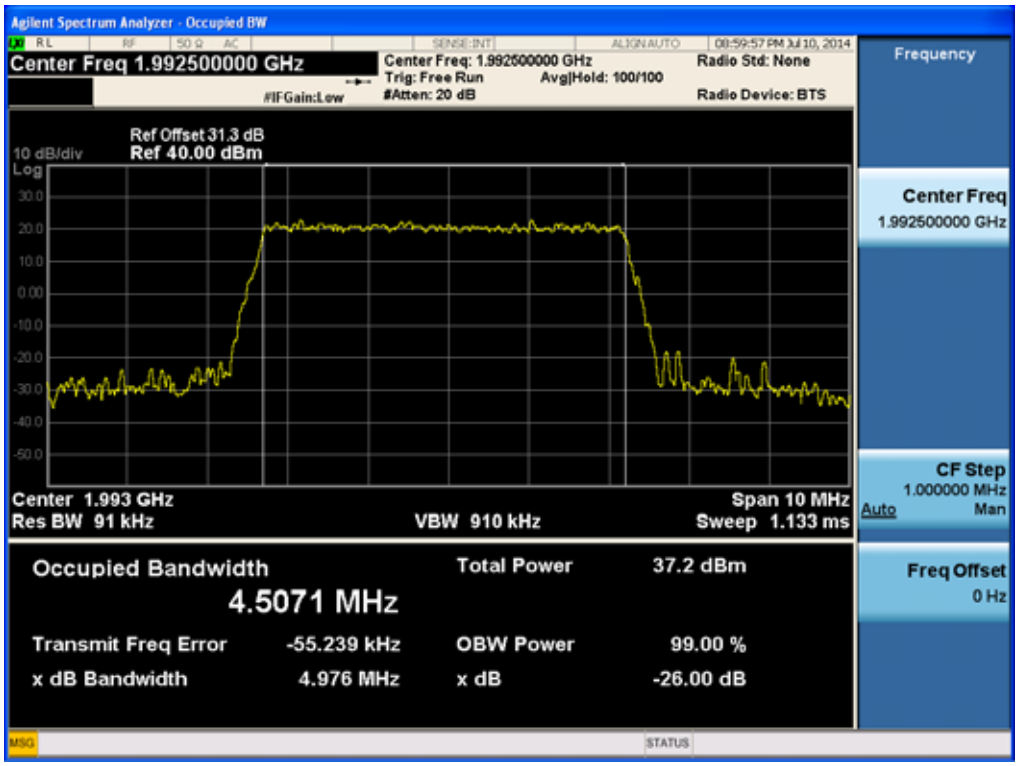
[Output LTE Downlink 5 MHz Low]



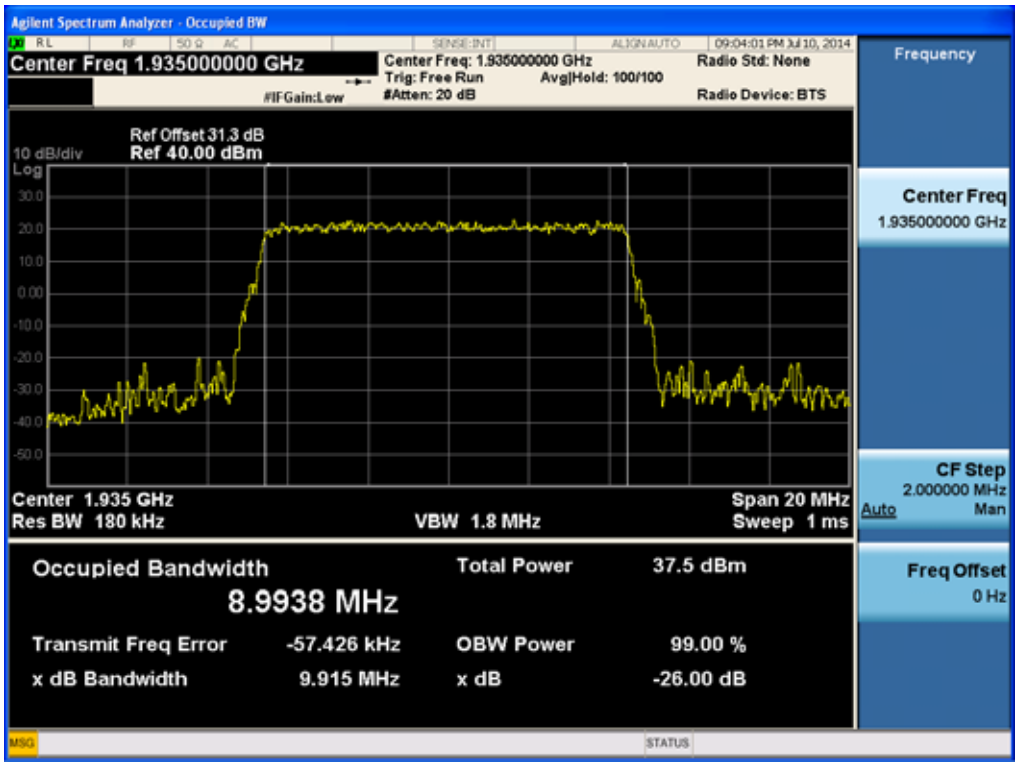
[Output LTE Downlink 5 MHz Middle]



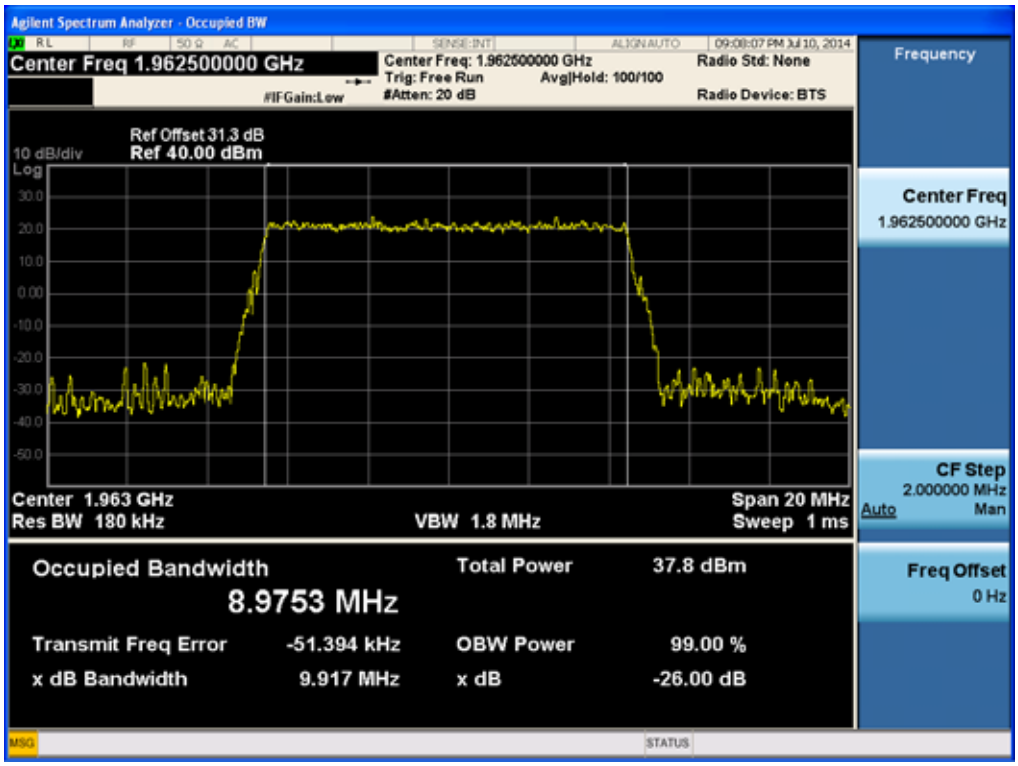
[Output LTE Downlink 5 MHz High]



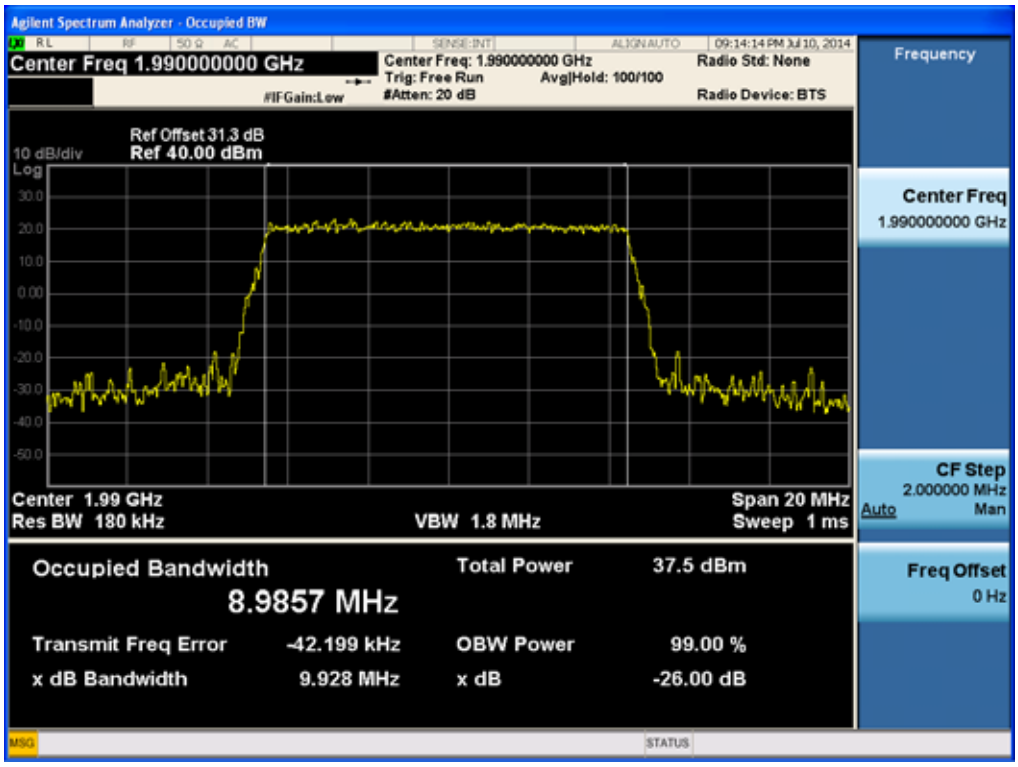
[Output LTE Downlink 10 MHz Low]



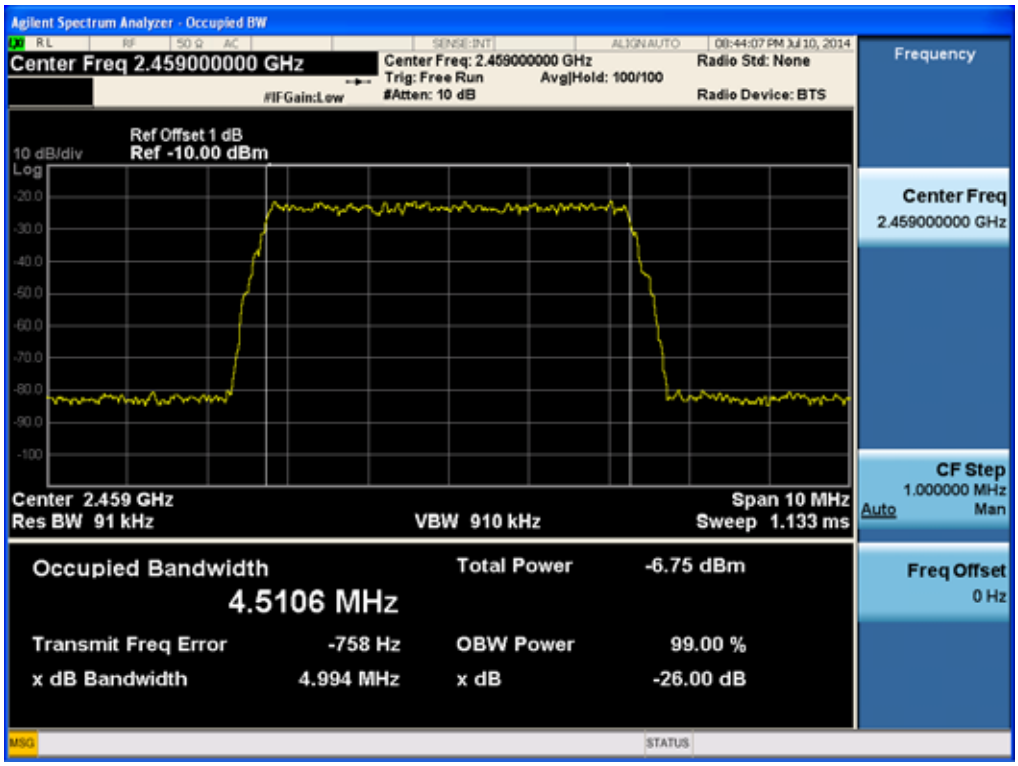
[Output LTE Downlink 10 MHz Middle]



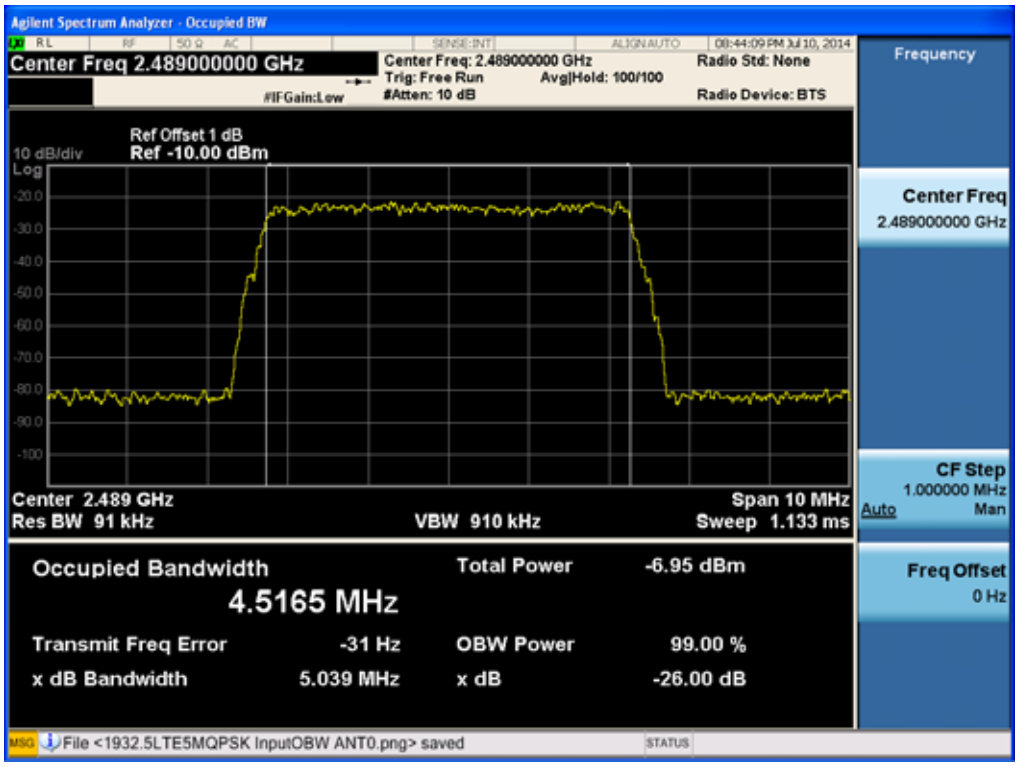
[Output LTE Downlink 10 MHz High]



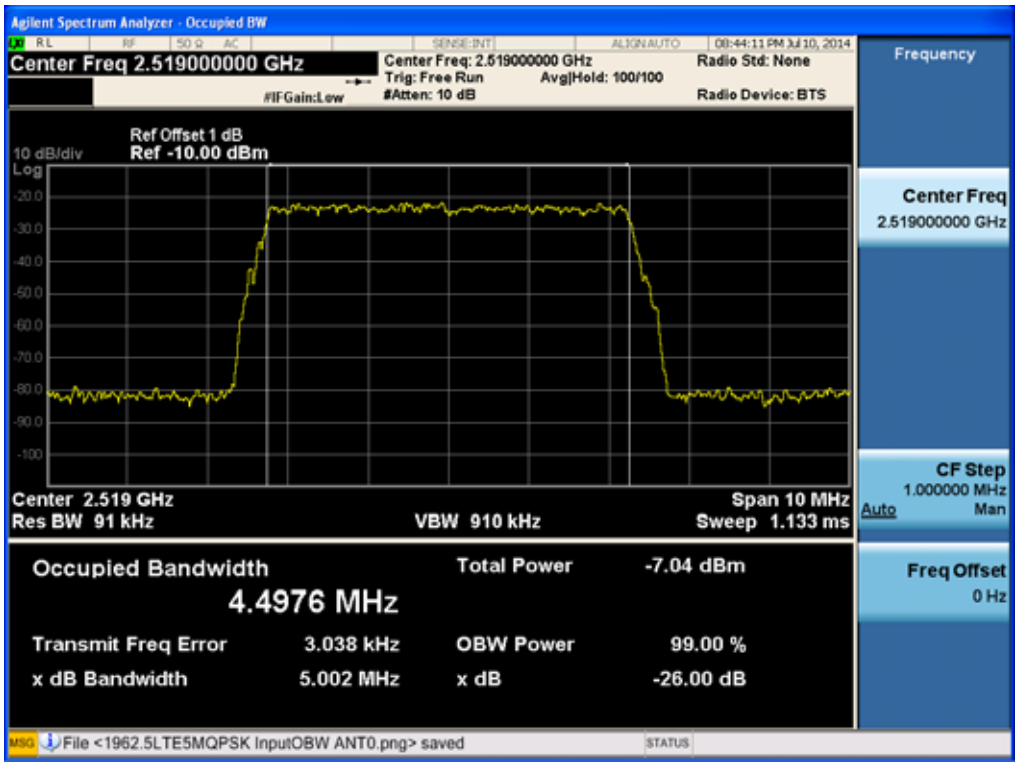
[Input LTE Downlink 5 MHz Low]



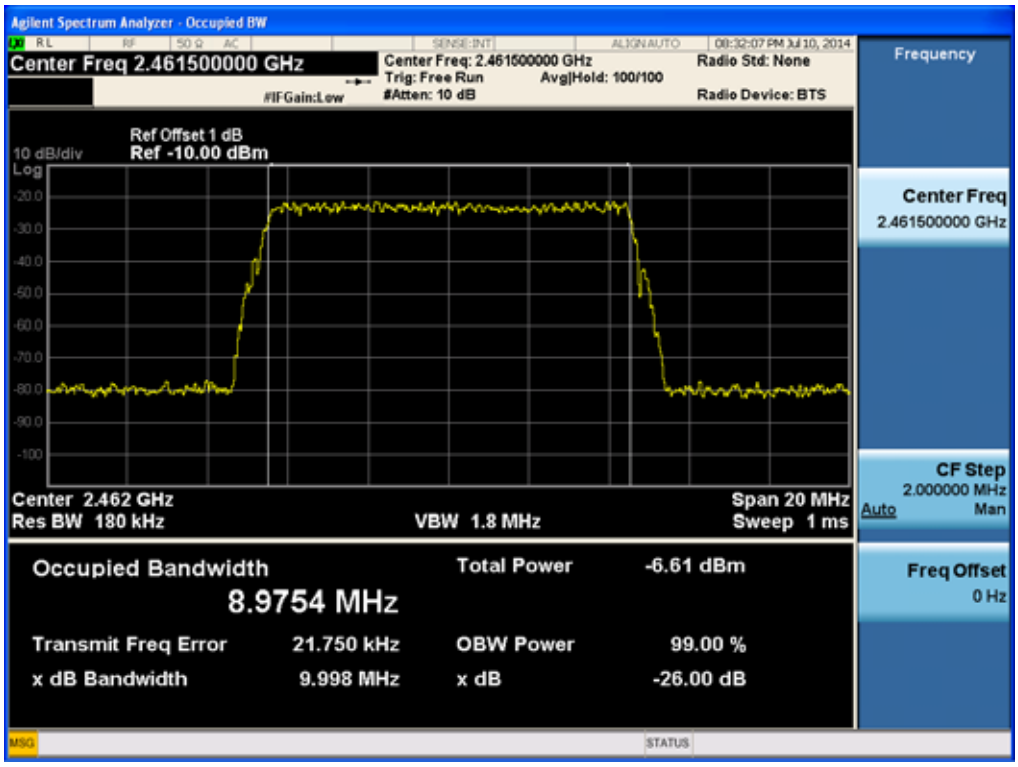
[Input LTE Downlink 5 MHz Middle]



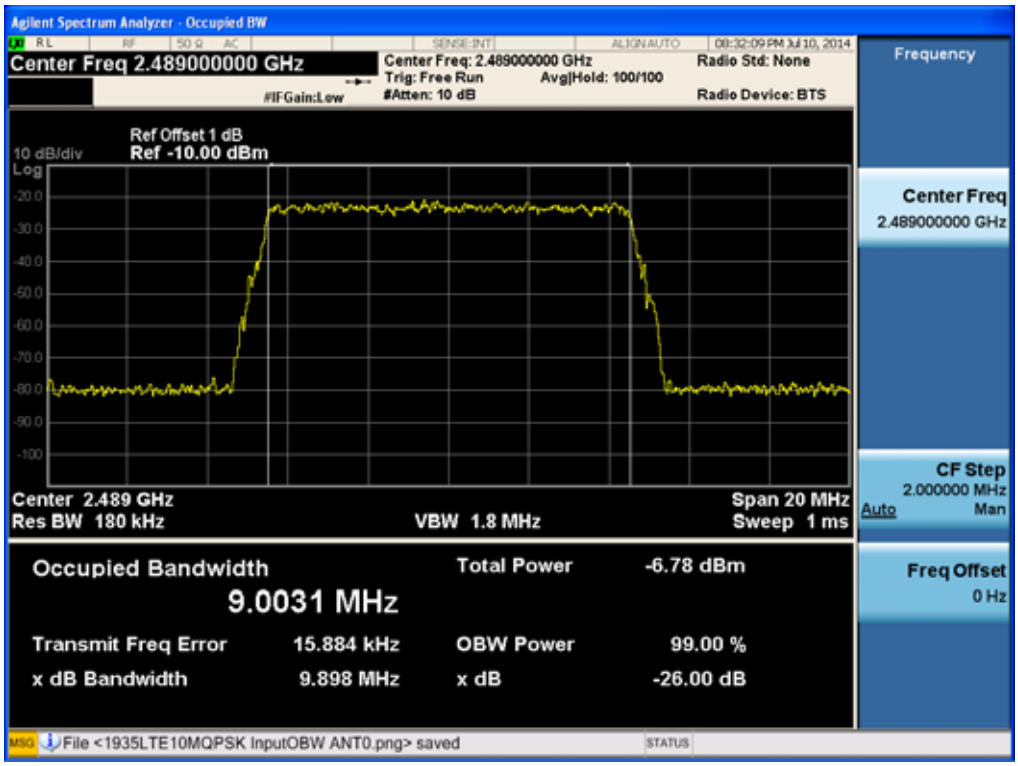
[Input LTE Downlink 5 MHz High]



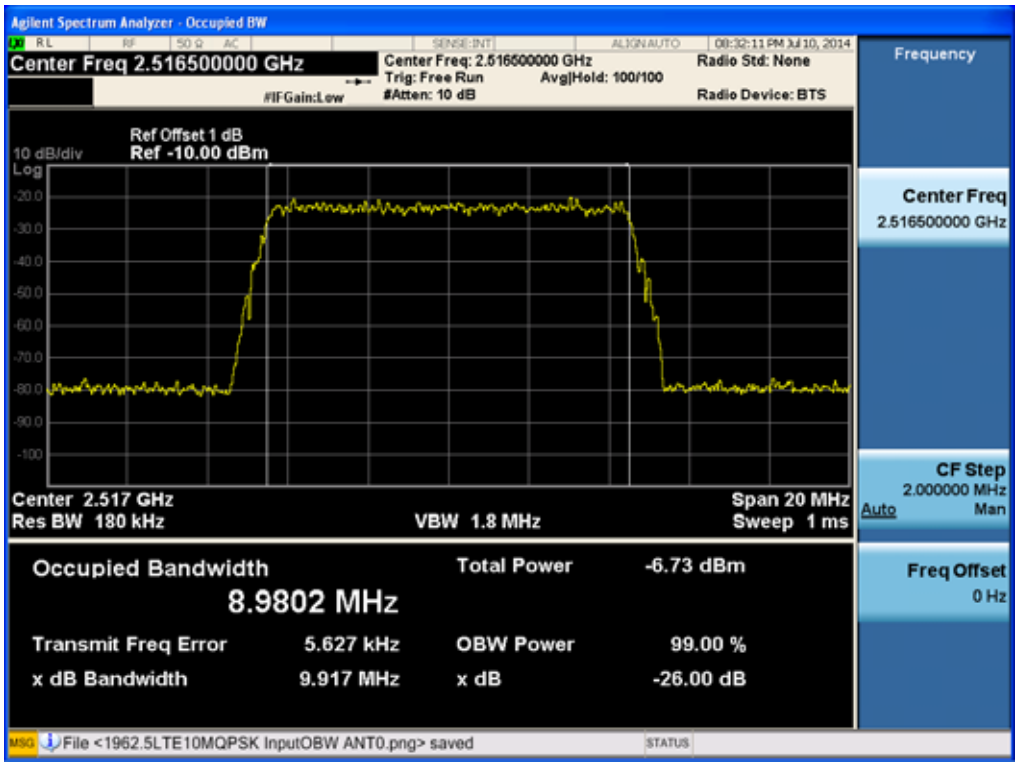
[Input LTE Downlink 10 MHz Low]



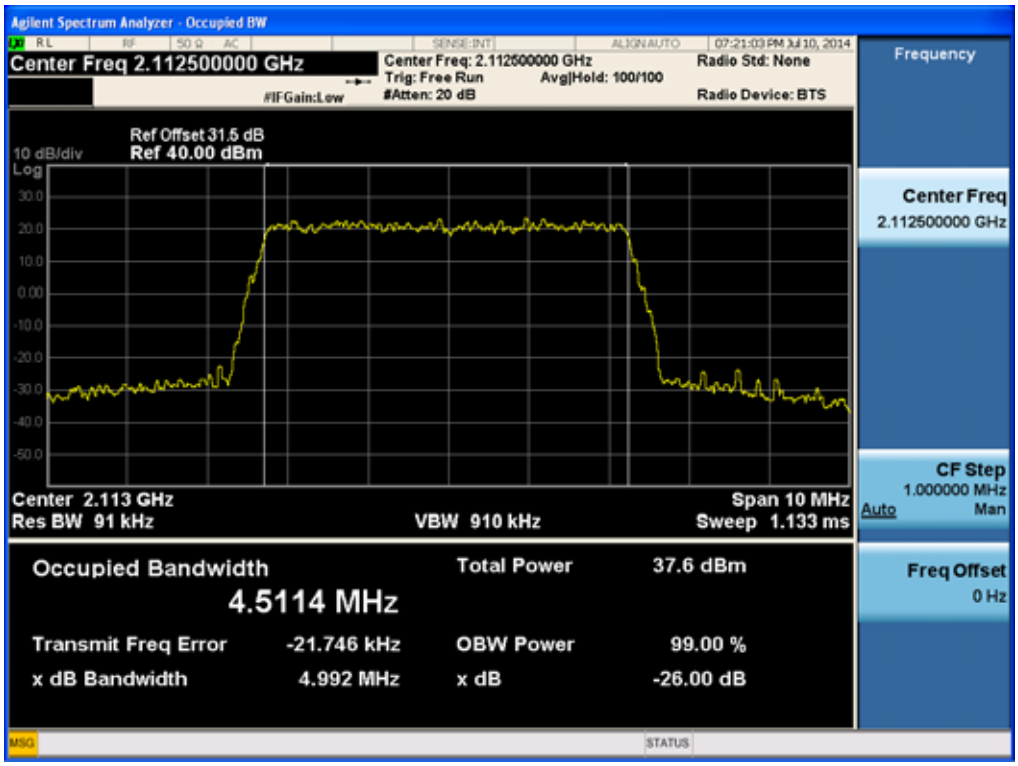
[Input LTE Downlink 10 MHz Middle]



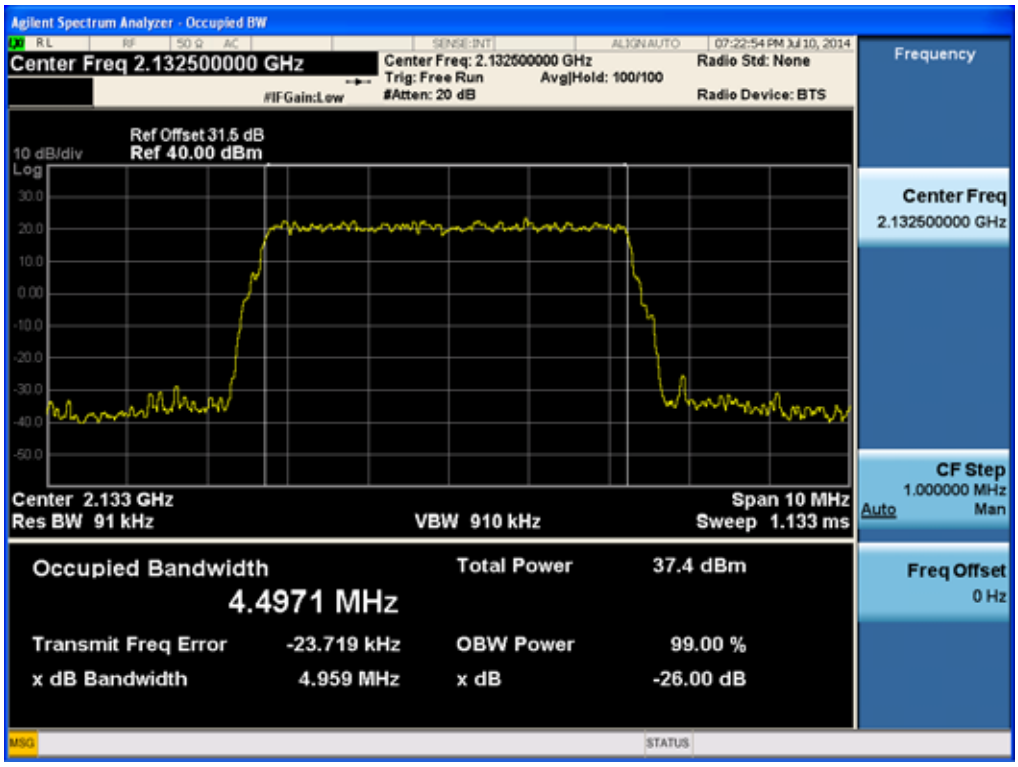
[Input LTE Downlink 10 MHz High]



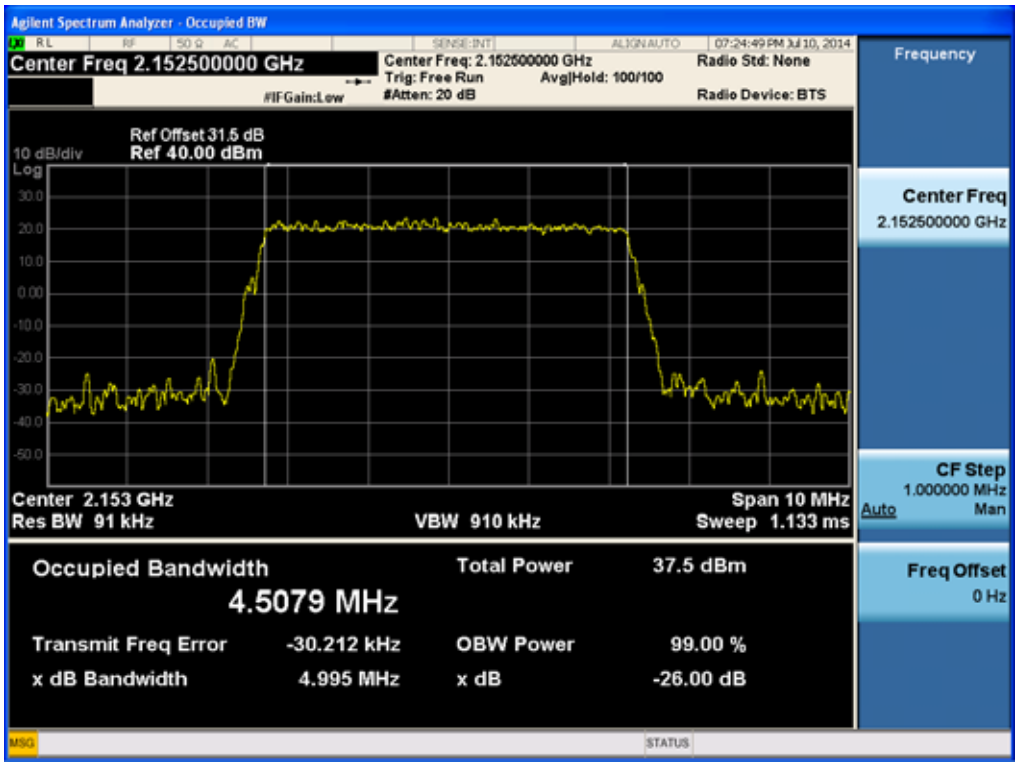
[Output LTE Downlink 5 MHz Low]



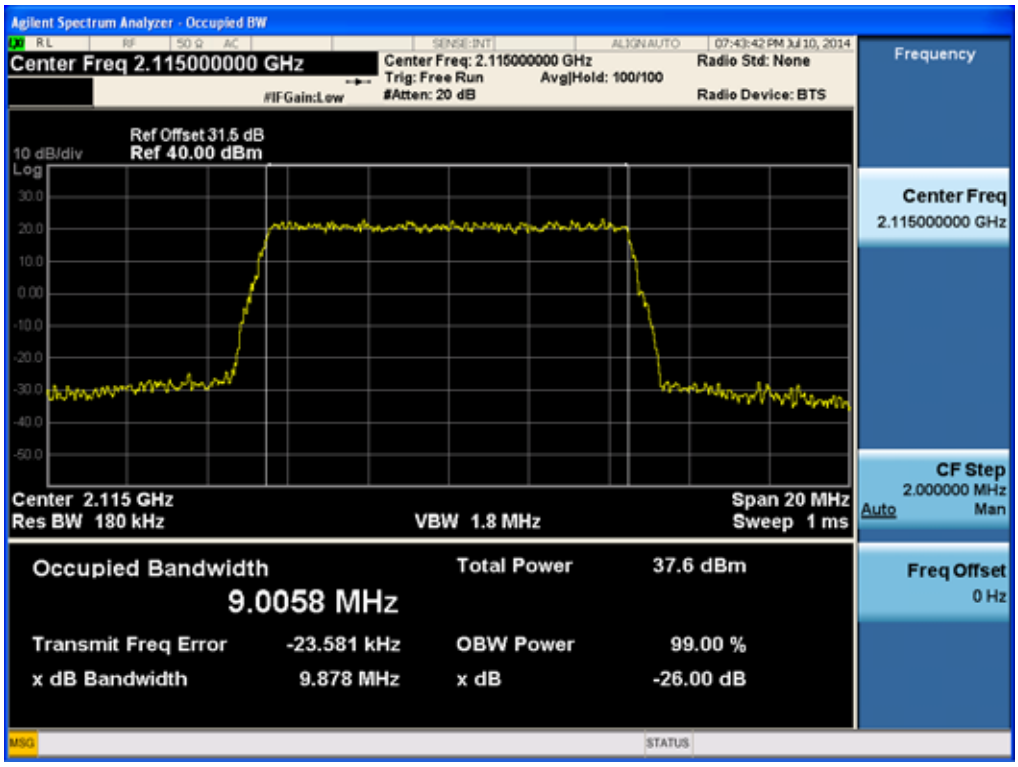
[Output LTE Downlink 5 MHz Middle]



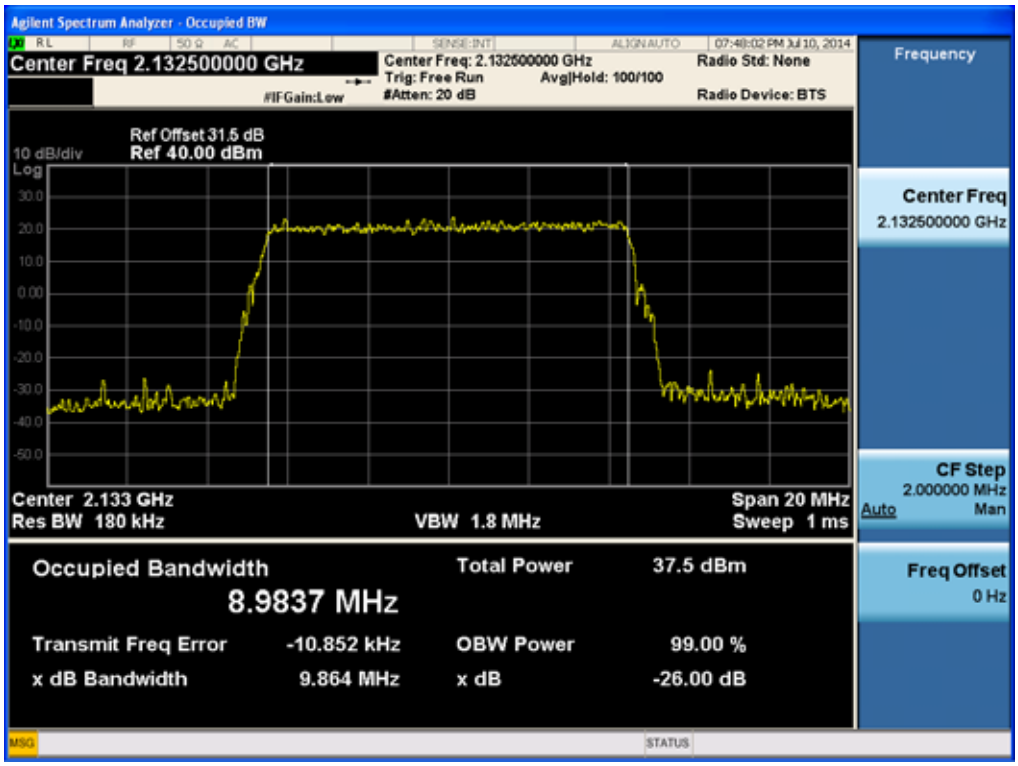
[Output LTE Downlink 5 MHz High]



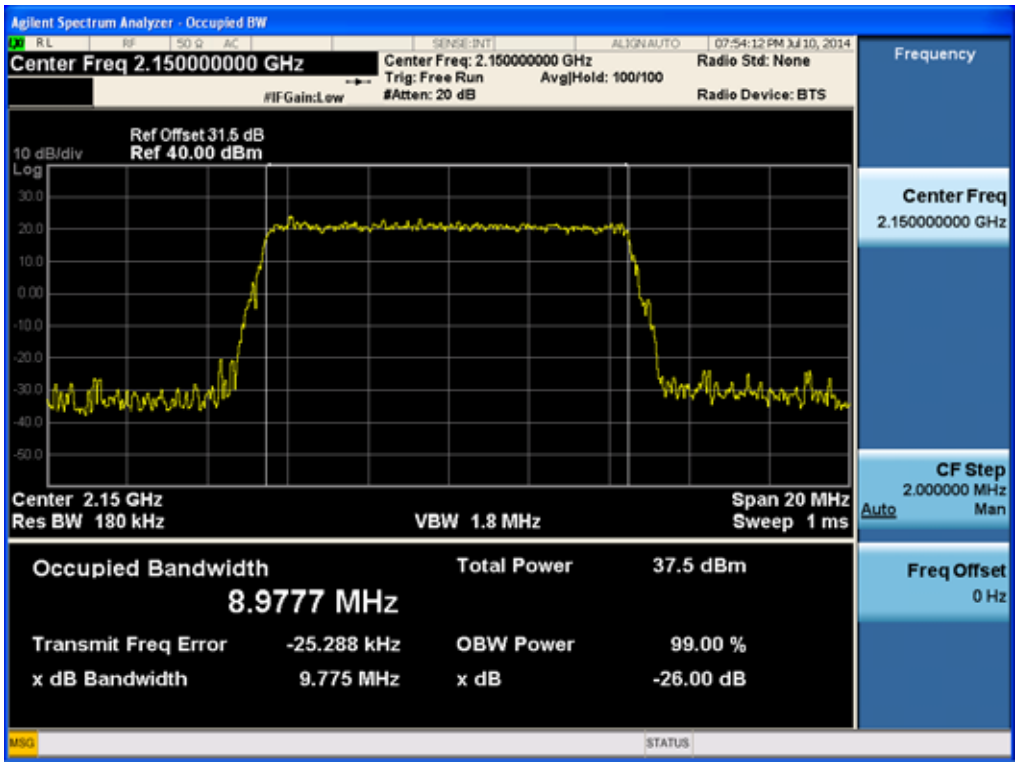
[Output LTE Downlink 10 MHz Low]



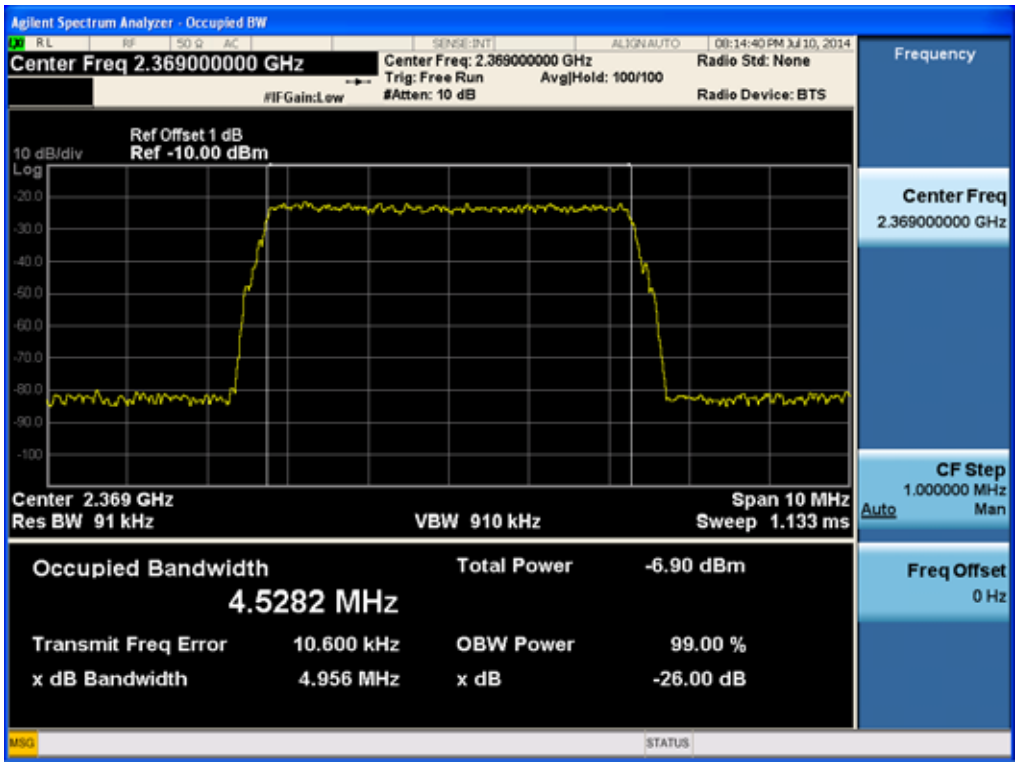
[Output LTE Downlink 10 MHz Middle]



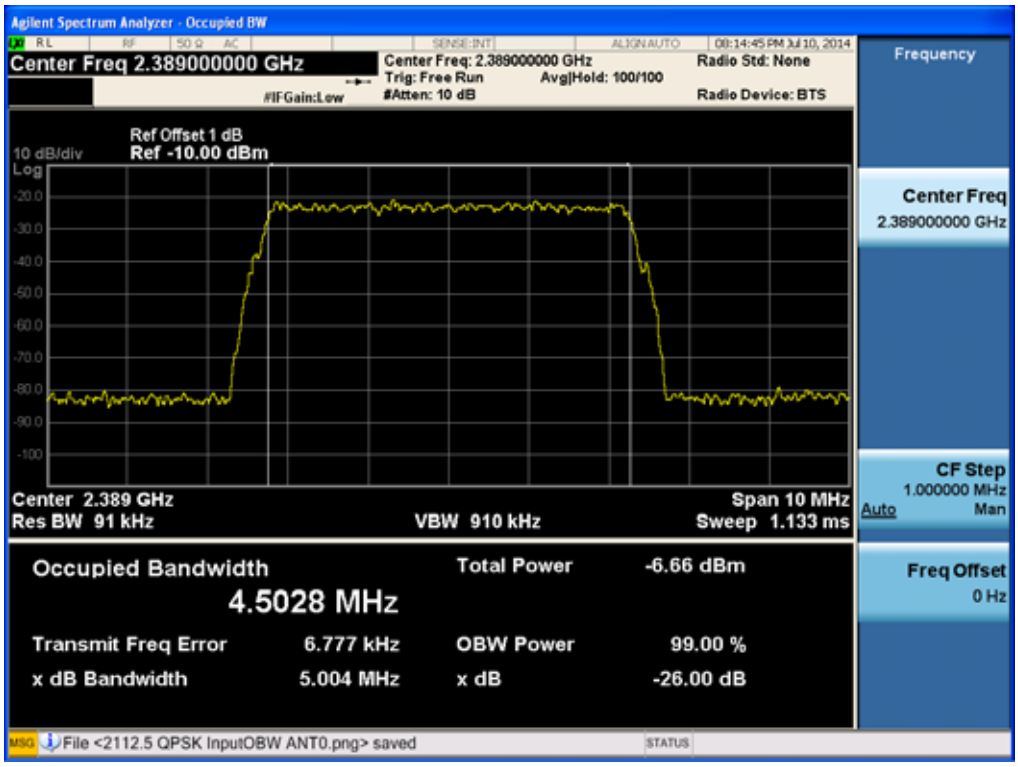
[Output LTE Downlink 10 MHz High]



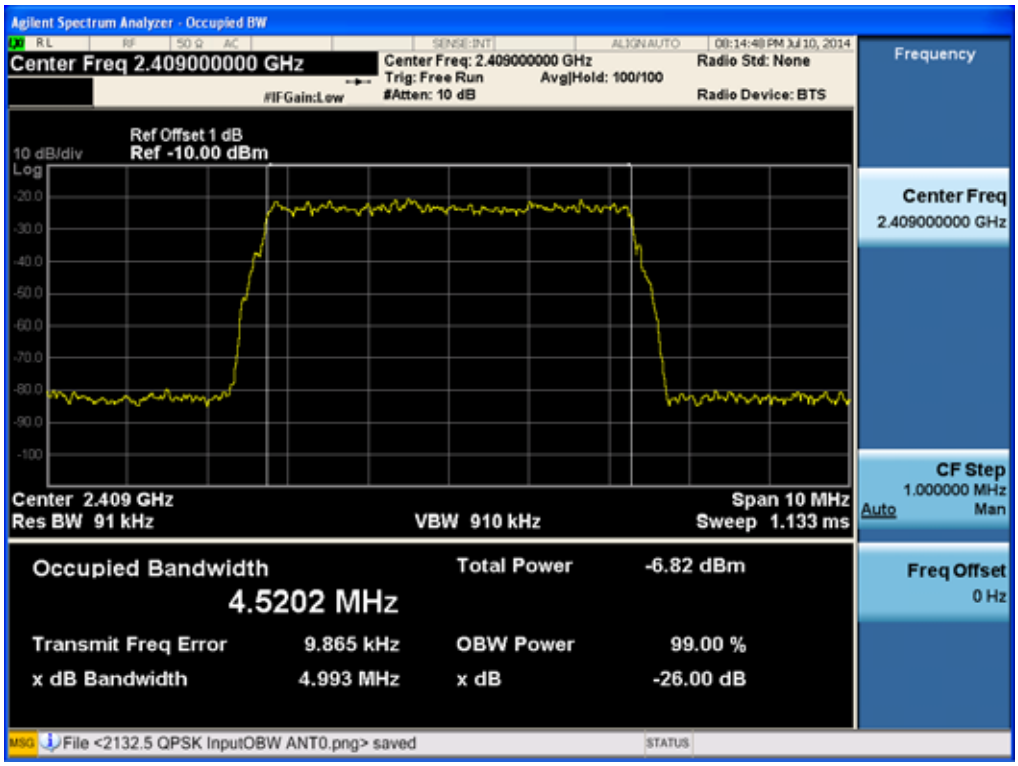
[Input LTE Downlink 5 MHz Low]



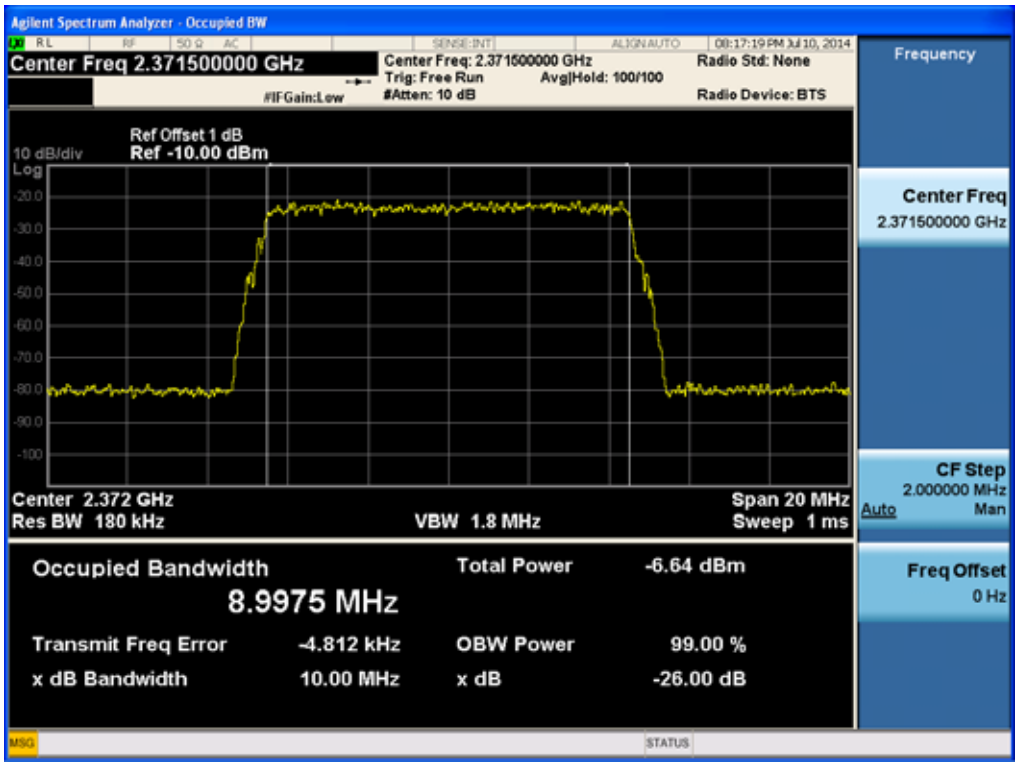
[Input LTE Downlink 5 MHz Middle]



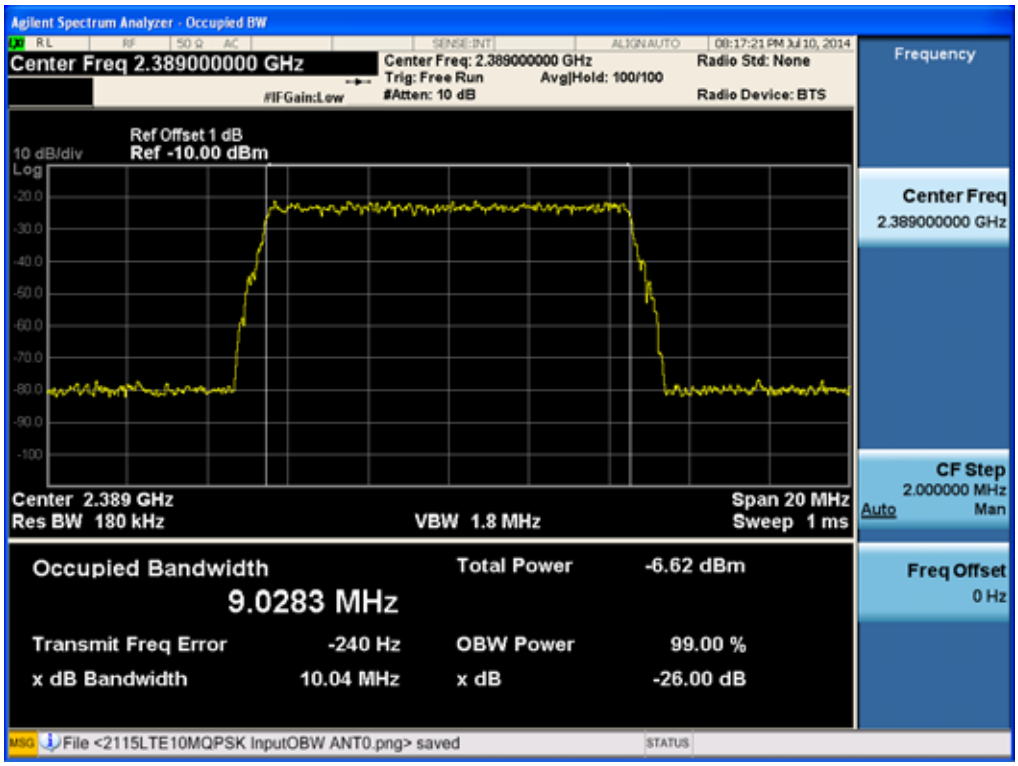
[Input LTE Downlink 5 MHz High]



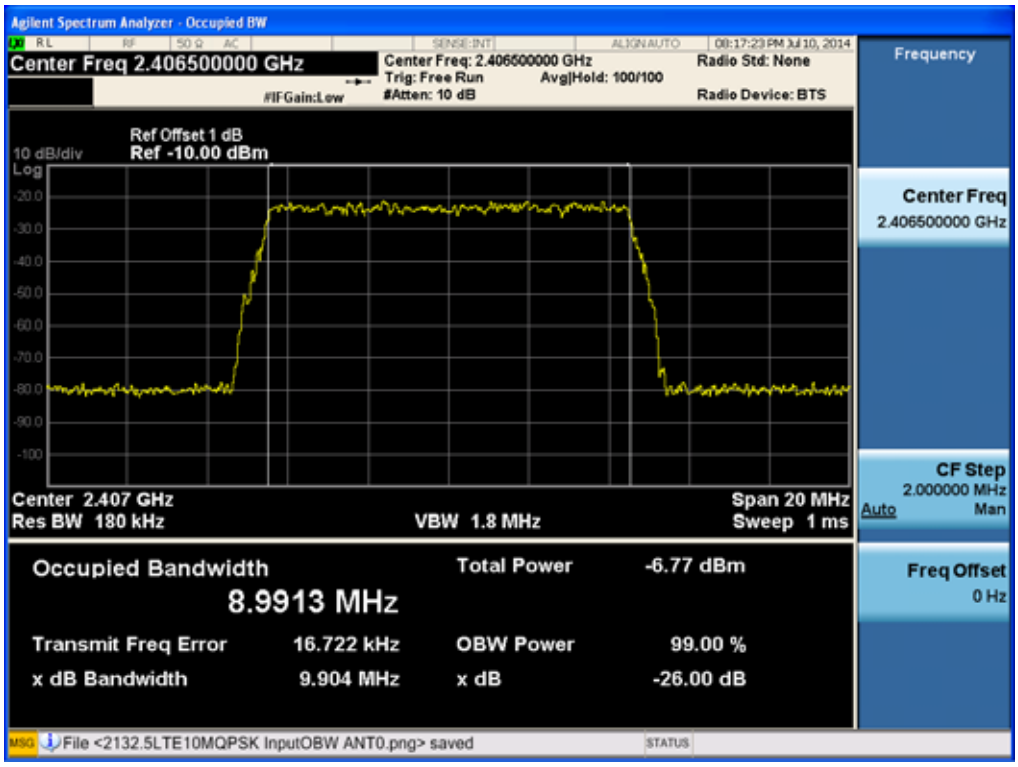
[Input LTE Downlink 10 MHz Low]



[Input LTE Downlink 10 MHz Middle]



[Input LTE Downlink 10 MHz High]



8. PASSBAND GAIN AND BANDWIDTH & Out of Band Rejection

FCC Rules

Test Requirement(s): KDB 935210 D03 v02r01

Out of Band Rejection – Test for rejection of out of band signals. Filter freq. response plots are acceptable.

Test Procedures: A modulated carrier generated by the signal generator carrier was connected to either the Uplink or Downlink RF port at a maximum level as determined by the spectrum analyzer was connected to either the Uplink or Downlink port depending on the circuitry being measured. Signal generator sweep from the frequency more lower than the operating frequency to the frequency more higher than it, find the product band filter characteristic

IC Rules

Test Requirements: RSS-131 6.1

The passband gain shall not exceed the nominal gain by more than 1.0 dB. The 20 dB bandwidth shall not exceed the nominal bandwidth that is stated by the manufacturer. Outside of the 20 dB bandwidth, the gain shall not exceed the gain at the 20 dB point.

Test Procedures: RSS-131 4.2

Adjust the internal gain control of the equipment under test to the nominal gain for which equipment certification is sought.

With the aid of a signal generator and spectrum analyzer, measure the 20 dB bandwidth of the amplifier (i.e. at the point where the gain has fallen by 20 dB). Measure the gain-versus-frequency response of the amplifier from the midband frequency f0 of the passband up to at least f0 + 250% of the 20 dB bandwidth.

Signal generator sweep from the frequency more lower than the low frequency -250% to the frequency more higher than high frequency +250%.

Test Results: The EUT complies with the requirements of this section.

Input Level (dBm) Input Signal : Sinusoidal	Maximum Amp Gain
DL : -14 dBm	DL : 44 dB

[PCS Downlink]

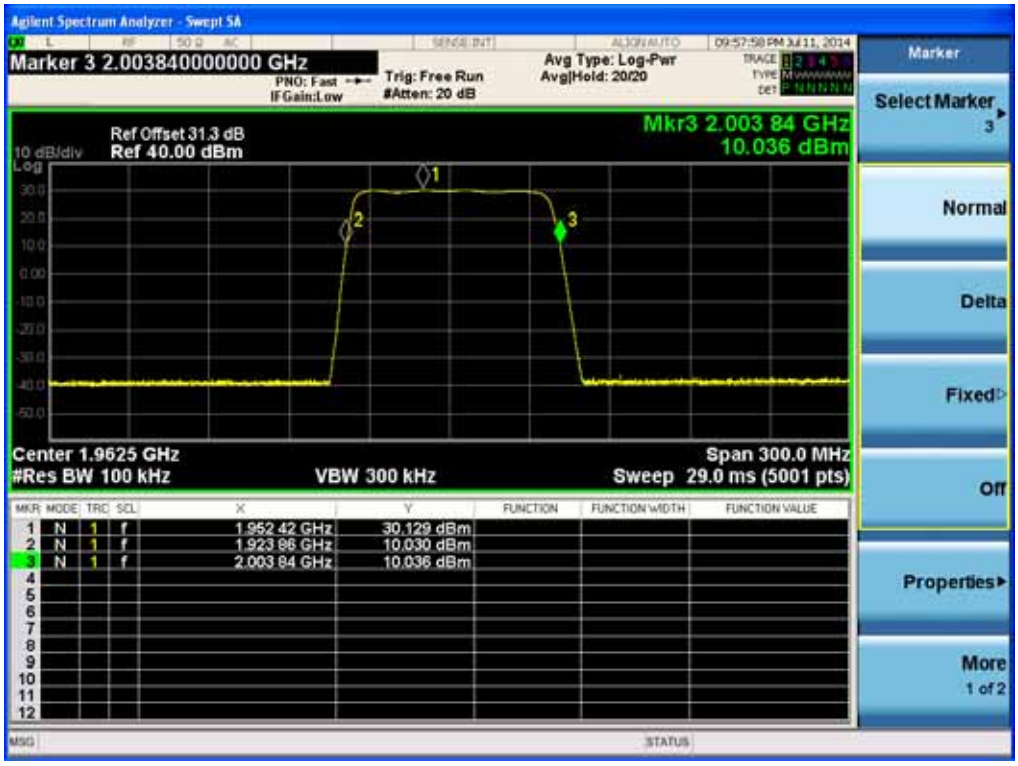
20 dB point frequency (MHz)	Output power (dBm)	Gain (dB)
1923.86 ~ 2003.84	30.13	44.13

[AWS Downlink]

20 dB point frequency (MHz)	Output power (dBm)	Gain (dB)
2098.24 ~ 2165.32	30.42	44.42

Plots of Passband Gain and Bandwidth & Out of Band Rejection

[PCS Downlink Middle]



[AWS Downlink Middle]