HCT CO., LTD.

CERTIFICATION DIVISION
105-1, JANGAM-RI, MAJANG-MYEON, ICHEON-SI, GYEONGGI-DO, KOREA
TEL : +82 31 645 6300 FAX : +82 31 645 6401 www.hct.co.kr

CERTIFICATE OF COMPLIANCE

FCC PART 24 Certification

Applicant Name: SAMSUNG Electronics Co., Ltd. 416, Maetan-3dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Korea	**Date of Issue:** May 29, 2013 **Test Site/Location:** HCT CO., LTD., 105-1, Jangam-ri, Majang-Myeon, Icheon-si, Gyeonggi-Do, Korea **Test Report No.:** HCTR1305FR21

FCC ID	:	**A3LSMM-BMR004**
APPLICANT	:	**SAMSUNG Electronics Co., Ltd.**

EUT Type	: Remote Radio Head
Manufacturer	: SAMSUNG Electronics Co., Ltd
Model name	: SMM-BMR004
Frequency of Operation	: 1 930 MHz ~ 1 995 MHz
TX Output Power	: 80W (40 W * 2)
FCC Rule Part(s)	: FCC Part 24 Subpart E
Emission Designator	: 4M52G7W(QPSK), 4M51D7W(16QAM/64QAM)
Test Procedure(s)	: ANSI/TIA-603C-2004
Application Type	: Class II Permissive Change
Data of issue	: May 29, 2013

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 FCC Part 24 of the FCC Rules under normal use and maintenance.

Report prepared by
: Yong Hyun Lee
Test engineer of RF Team

Approved by
: Chang Seok Choi
Manager of RF Team

Revision

TEST REPORT NO.	DATE	DESCRIPTION
HCTR1305FR21	May 29, 2013	First Approval Report

C O N T E N T S

1. GENERAL INFORMATION

1.1. CLIENT INFORMATION

Company	**Samsung Electronics Co., Ltd.**
Contact Point	**416, Maetan-3dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Korea**
Contact person	**Name: Hwan-Chul Ryu / Principal Research Engineer** **E-mail : ryu0022@samsung.com** **Tel: +82-31-279-1023** **Fax: +82-31-279-7676**

1.2. PRODUCT INFORMATION

EUT TYPE	Remote Radio Head
EMISSION DESIGNATOR	4M52G7W(QPSK), 4M51D7W(16QAM/64QAM)
OPERATING FREQUENCY	1 930 MHz ~ 1 995 MHz
TX OUTPUT POWER	80W (40 W * 2 Ports)
CHANNEL BANDWIDTH	CDMA : 1.25 MHz LTE : 10 MHz
MODULATION TYPE	CDMA : BPSK, QPSK, 16QAM LTE : QPSK, 16QAM, 64QAM
MAXIMUM NUMBER OF CARRIERS/SECTORS	CDMA 1X / EVDO : Max 8Carrier LTE (FDD) : Max 4Carrier @ 5 MHz
SYSTEM INPUT VOLTAGE	DC - 48 V

1.3. INTRODUCTION OF EUT

Smart MBS is the Basestation of Samsung Multi-Modal System. It is managed by packet core (either BSC or EPC), and makes call to terminal to create CDMA/LTE links.

Smart MBS interfaces with UE via either CDMA(3GPP2 CDMA2000 1X Advanced and 1xEV-DO Rev.0/Rev.A),or LTE(3GPP LTE Rel.8/9). It provides broadband high speed data service and multimedia services.

In order to implement this, Smart MBS can perform Modulation/Demodulation (for voice or packet traffic), assign Scheduling and Wireless Bandwidth (for efficient use of RF resources and to guarantee QoS), handle ARQ(Automatic Repeat request), perform ranging feature, provide connection control feature (for sending Smart MBS information and enable/maintain/disable the call), Synchronize BSC/ EPC, provides Power Control, and executes system operation management.

By Fast Ethernet/Gigabit Ethernet backhaul, Smart MBS synchronize the control station to transceive reliable control signal and traffic signal.

Smart MBS is separated into UADU(Universal Platform Digital Unit, an indoor DU) and the RRH(Remote Radio Head, a combined RF unit). UADU is mounted in the outdoor DU cabinet(along with the rectifier) to support outdoor environment.

UADU is a digital component for 19” shelf. It can be mounted onto either indoor or outdoor 19 inch commercial rack, and one UADU can provide the following maximum capacity. Based on operator’s setup, it can be operated as omni type or sector type.

- CDMA 1X / EVDO : Max 8Carrier
  LTE (FDD) : Max 4Carrier @ 5 MHz

RRH is RF component that is built into a single module. It can be mounted onto Walls, Poles, or Stands in outdoor environments.

Depending on Frequency bandwidth and duplexing type, RRH can be classified into following types.

- RRH-P4 : 1.9GHz PCS band, 4Tx/4Rx RF path

Smart MBS has other features provided as below.

Common Platform DU/RRH

Digital boards of each wireless technology, to be mounted in Smart MBS, share the common DU platform. Therefore, different boards(for multiple technology) may be mounted in a single DU, and operator can mount up to 4 DU in outdoor DU cabinet to implement various configuration.

RRH of Smart MBS can simultaneously support multiple technologies in the same duplexing type with the same bandwidth.

RRH(Remote Radio Head) separated from DU(Digital Unit)

In order to provide ease of installation and various network structure, Smart MBS has separated RRH from DU.

Between RRH and DU, a fiber optic ‘Baseband I/Q and C&M’ interface, based on CPRI(Common Public Radio Interface), is

used to send/receive “data traffic signal” and “OAM data”. DU and RRH gets -48VDC from rectifier inside the outdoor DU cabinet.

Provide Easy Installation

RRH integrates optic-sync component and RF signal processor, and is a small & light weight single module. RRH can be mounted onto Walls, Poles, or Stands. In addition, distance between RRH and Antenna is minimized that RF signal loss(caused by Feeder Line) is decreased. Therefore, it can provide improved RF performance when compared to Basestation that has Digital Unit and RF Unit altogether.

Natural Cooling Mechanism

RRH(Remote Radio Head) may be installed in outdoor environment, and its thermal-dynamic design efficiently dissipates heat without requirement of additional cooling mechanism. Also, no maintenance cost is required for RRH cooling.

Feature for Loop-Back Test of the line between DU and RRH

In order to check functionality of the “Base-band I/Q and OAM interface” between DU and RRH, Smart MBS provides Loop-back Test.

Provides Remote Firmware Downloading

RRH may be replaced with firmware to enhance service and upgrade new features. At this time, Site visit is not required as firmware can be downloaded from basestation operation server (such as BSM/WSM/LSM-R). Therefore, operator can minimize the site visit, reduce the maintenance cost, and easily operate the system.

Provides Monitoring Port.

Through debug port of RRH, operator can monitor the information about the unit.

Support for Smooth Migration

Smart MBS can provide migration from CDMA to 4G(LTE)wireless telecommunication by either adding “traffic processor card and channel card” or “software upgrade”.

In case of RRH, in the same frequency band, simple Software upgrade would allow conversion into 4G wireless telecommunication. Also, simultaneous operation of 3G and 4G is possible.

2. TEST SUMMARY

2.1. STANDARDS

The following tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 24 Subpart E

SECTION	TEST ITEMS	RESULTS
2.1046, 24.232	Conducted Output Power	Compliant
2.1049	Occupied Bandwidth	Compliant
2.1051, 2.1057, 24.238	Spurious Emissions at Antenna Terminals	Compliant
2.1055, 24.235	Frequency Stability over Temperature variation	Compliant
2.1055, 24.235	Frequency stability over Voltage variation	Compliant

2.2. MODE OF OPERATION DURING THE TEST

The EUT was operated in a manner representative of the typical usage of the equipment.

During all testing, system components were manipulated within the confines of typical usage to maximize each emission. All Modulation (BPSK, QPSK, 16QAM and 64QAM) modes were tested.

The device does not supply antenna(s) with the system, so the dummy loads were connected to the RF output ports for radiated spurious emission testing.

3. STANDARDS ENVIRONMENTAL TEST CONDITIONS

Temperature :	**+ 15 ℃ to + 35 ℃**
Relative humidity:	**30 % to 60 %**
Air pressure	**860 mbar to 1060 mbar**

4. TEST EQUIPMENT

Manufacturer	Model / Equipment	Serial No.	Calibration Due
Schwarzbeck	BBHA 9120D / Double Ridged Horn Antenna	937	10/17/2013
Schwarzbeck	BBHA 9120D / Double Ridged Horn Antenna	147	05/15/2014
Schwarzbeck	VULB 9160 / TRILOG Antenna	3150	12/17/2014
HD	MA240 / Antenna Position Tower	556	N/A
EMCO	1050 / Turn Table	114	N/A
HD GmbH	HD 100 / Controller	13	N/A
HD GmbH	KMS 560 / SlideBar	12	N/A
MITEQ	AMF-6B-180265-35-10P / POWER AMP	667624	04/16/2014
EMCO	6502/Loop Antenna	9009-2536	01/11/2014
Agilent	N9020A /Signal Analyzer	US46220219	04/25/2014
Agilent	6674A / DC Power Supply	3501A00901	04/16/2014
WEINSCHEL	67-30-33 / Attenuator	BU5347	11/07/2013
WEINSCHEL	67-30-33 / Attenuator	BR0530	11/07/2013
WEINSCHEL	AF9003-69-31 / Attenuator	11787	11/07/2013
WEINSCHEL	AF9003-69-31 / Attenuator	5701	11/07/2013

5. CONDUCTED OUTPUT POWER

5.1. Applicable Standard

According to FCC §2.1046 & 24.232

(2) Base stations with an emission bandwidth greater than 1 MHz are limited to 1640 watts/MHz equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT, except as described in paragraph (b) below.

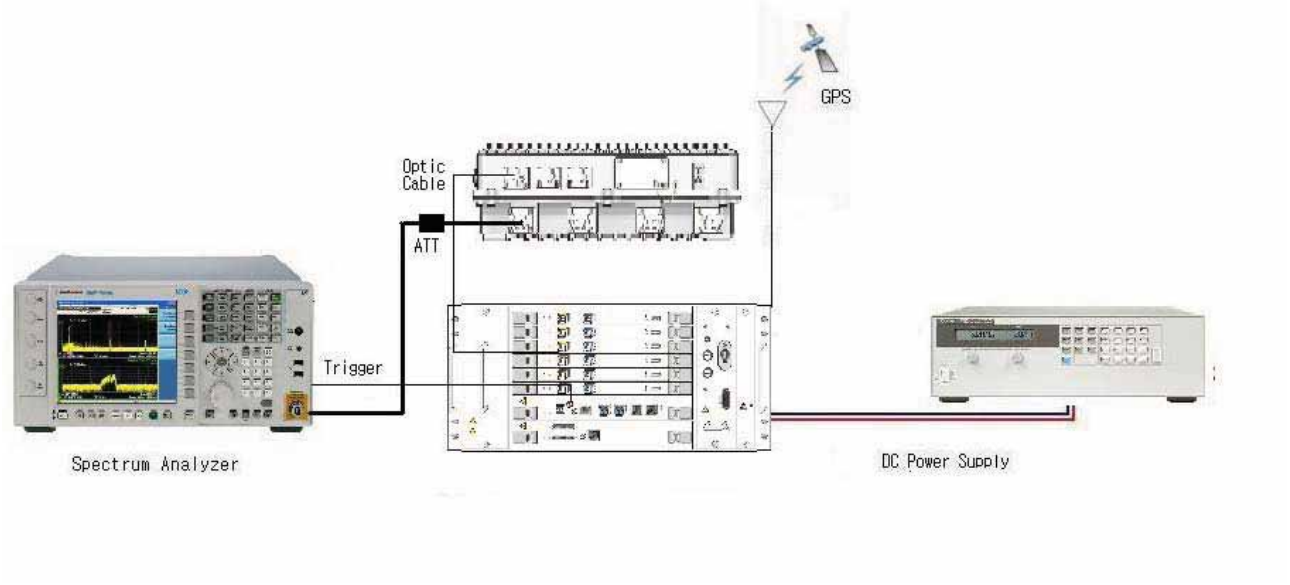
5.2. Test Equipment List and Details

Manufacturer	Model / Equipment	Serial No.	Calibration Due
Agilent	N9020A /Signal Analyzer	US46220219	04/25/2014
Agilent	6674A / DC Power Supply	3501A00901	04/16/2014
WEINSCHEL	67-30-33 / Attenuator	BU5347	11/07/2013
WEINSCHEL	67-30-33 / Attenuator	BR0530	11/07/2013
WEINSCHEL	AF9003-69-31 / Attenuator	11787	11/07/2013
WEINSCHEL	AF9003-69-31 / Attenuator	5701	11/07/2013

5.3. Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation. According to FCC §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). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

1) The radio frequency load attached to the EUT antenna terminal was 50 Ohm. The lost of the cables the test system is calibrated to correct the reading.
2) The spectrum analyzer was set to RMS Detector function and Average mode.
3) The resolution banswidth of the spectrum analyzer was comparable to the emission bandwidth.
4) The conducted emission level is meaured at each antenna port and then summed mathmatically to determine the total emission level from the device. (80 W = 40 W * 2 Ports)



5.4. Test Result

: PASS

[LTE 5 MHz : 1 Carrier / 1 Port]

. Test Data at Output Port 0

Modulation	Channel	Frequency	Measured Output Power	
			dBm	W
QPSK	Low	1932.5	43.05	20.198
	Middle	1962.5	43.20	20.912
	High	1992.5	43.36	21.657
16QAM	Low	1932.5	43.02	20.040
	Middle	1962.5	43.20	20.883
	High	1992.5	43.34	21.592
64QAM	Low	1932.5	43.06	20.207
	Middle	1962.5	43.23	21.028
	High	1992.5	43.37	21.727

. Test Data at Output Port 1

Modulation	Channel	Frequency	Measured Output Power	
			dBm	W
QPSK	Low	1932.5	42.89	19.463
	Middle	1962.5	42.84	19.249
	High	1992.5	42.71	18.664
16QAM	Low	1932.5	42.81	19.112
	Middle	1962.5	42.84	19.231
	High	1992.5	42.78	18.980
64QAM	Low	1932.5	42.82	19.156
	Middle	1962.5	42.82	19.156
	High	1992.5	42.74	18.785

[LTE 5 MHz : 2 Carriers / 1 Port]

. Test Data at Output Port 0

Modulation	Channel	Frequency	Measured Output Power	
			dBm	W
QPSK	Low	1935.0	46.04	40.207
	Middle	1962.5	46.09	40.644
	High	1990.0	46.17	41.400
16QAM	Low	1935.0	45.96	39.437
	Middle	1962.5	46.07	40.439
	High	1990.0	46.20	41.668
64QAM	Low	1935.0	45.98	39.628
	Middle	1962.5	46.09	40.635
	High	1990.0	46.22	41.870

. Test Data at Output Port 1

Modulation	Channel	Frequency	Measured Output Power	
			dBm	W
QPSK	Low	1935.0	45.63	36.517
	Middle	1962.5	45.81	38.089
	High	1990.0	45.60	36.299
16QAM	Low	1935.0	45.66	36.821
	Middle	1962.5	45.75	37.584
	High	1990.0	45.57	36.058
64QAM	Low	1935.0	45.70	37.162
	Middle	1962.5	45.79	37.966
	High	1990.0	45.60	36.291

[LTE + CDMA]

. Test Data at Output Port 0

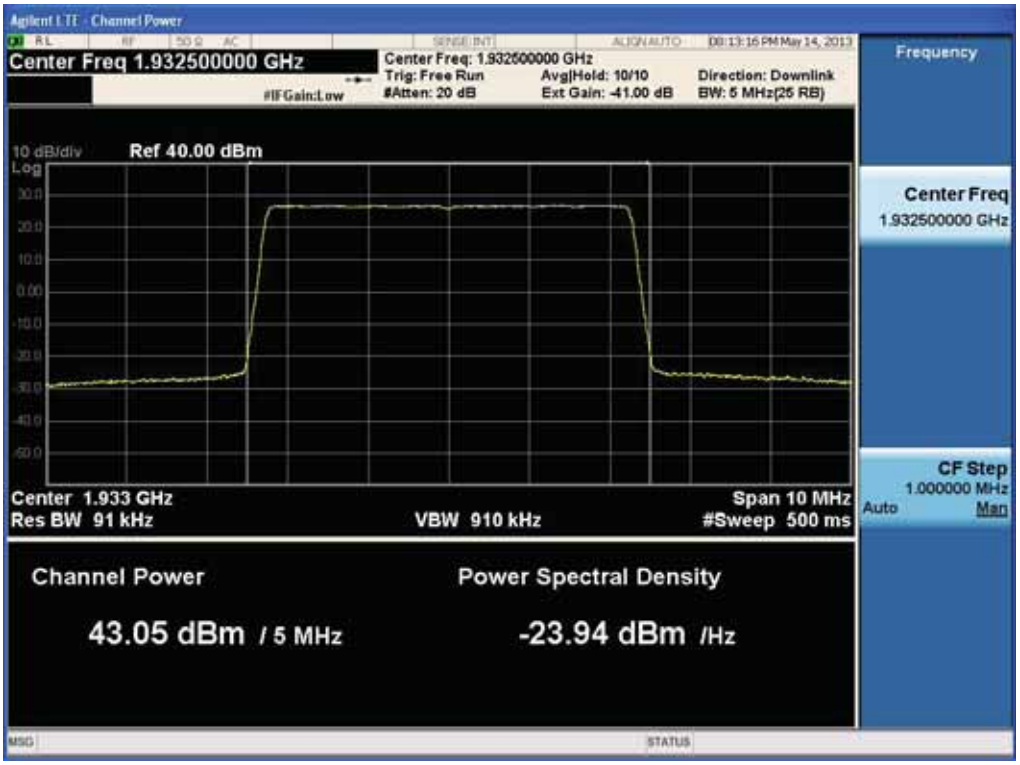
Modulation	Channel	Frequency	Measured Output Power	
			dBm	W
QPSK	Low	1933.4	45.89	38.833
	Middle	1960.9	45.92	39.111
	High	1991.6	45.98	39.628
16QAM	Low	1933.4	45.88	38.753
	Middle	1960.9	45.92	39.075
	High	1991.6	45.99	39.701
64QAM	Low	1933.4	45.90	38.860
	Middle	1960.9	45.90	38.878
	High	1991.6	45.97	39.528

. Test Data at Output Port 1

Modulation	Channel	Frequency	Measured Output Power	
			dBm	W
QPSK	Low	1933.4	45.50	35.506
	Middle	1960.9	45.63	36.593
	High	1991.6	45.53	35.711
16QAM	Low	1933.4	45.50	35.441
	Middle	1960.9	45.63	36.559
	High	1991.6	45.51	35.571
64QAM	Low	1933.4	45.49	35.375
	Middle	1960.9	45.64	36.644
	High	1991.6	45.48	35.294

. Plot Data for LTE 5 MHz : 1 Carrier , Output Port 0

(QPSK Low Channel)



(QPSK Middle Channel)

(QPSK High Channel)

(16QAM Low Channel)

(16QAM Middle Channel)

(16QAM High Channel)

(64QAM Low Channel)

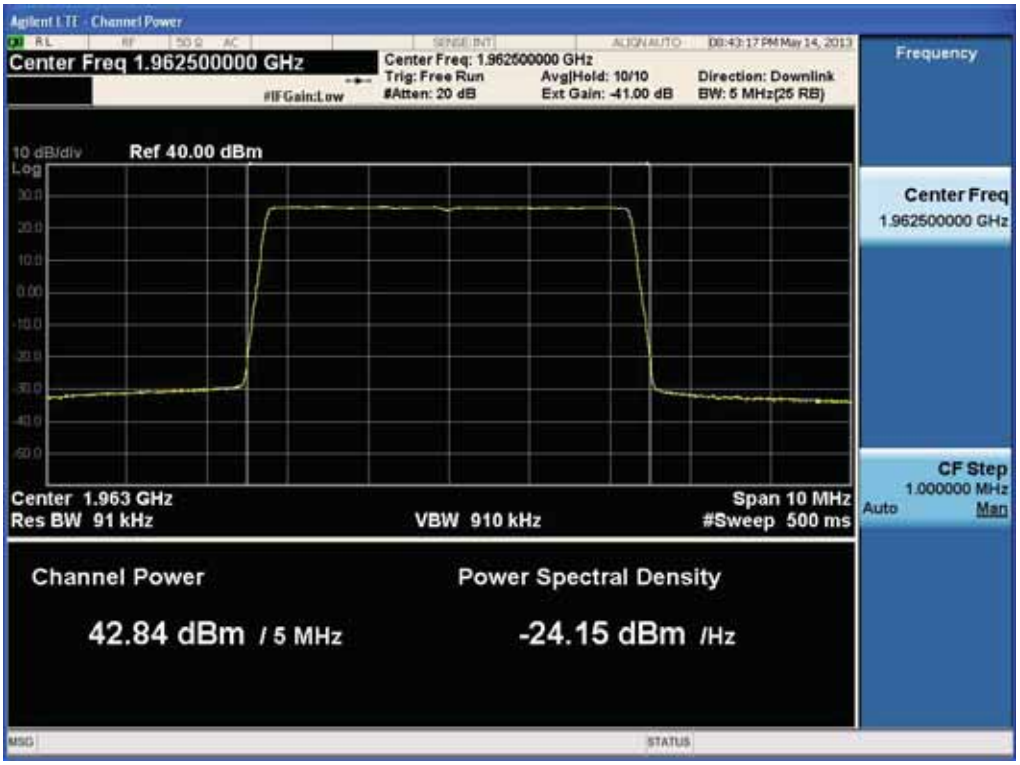
(64QAM Middle Channel)

(64QAM High Channel)

. Plot Data for LTE 5 MHz : 1 Carrier , Output Port 1

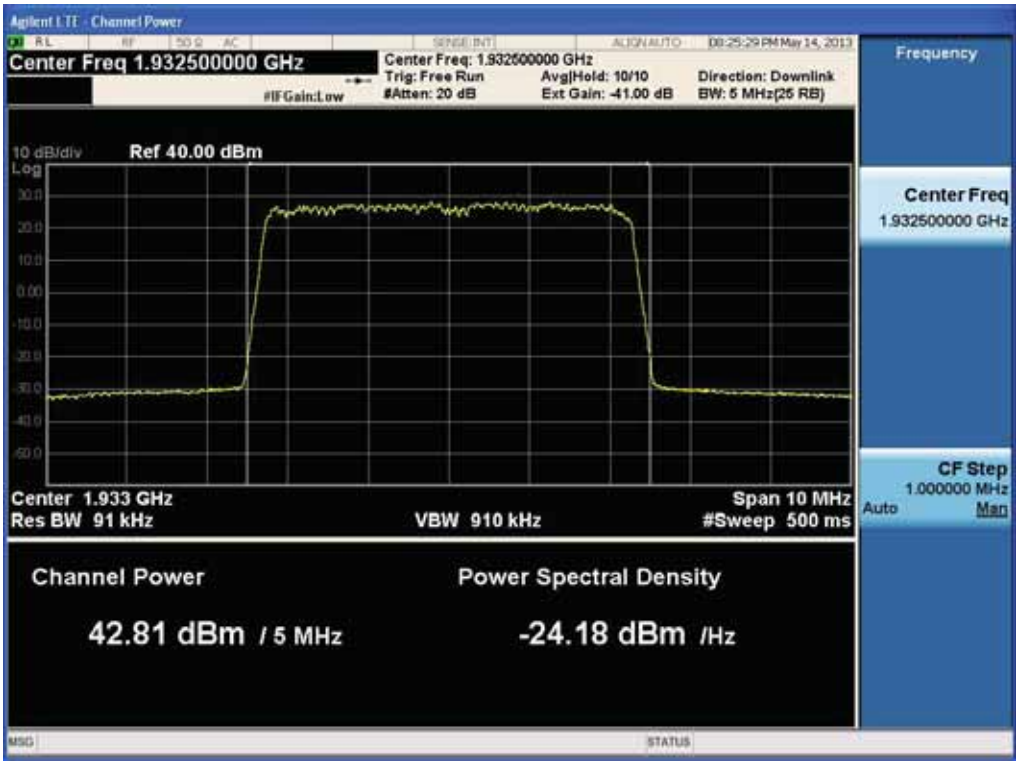
(QPSK Low Channel)

(QPSK Middle Channel)

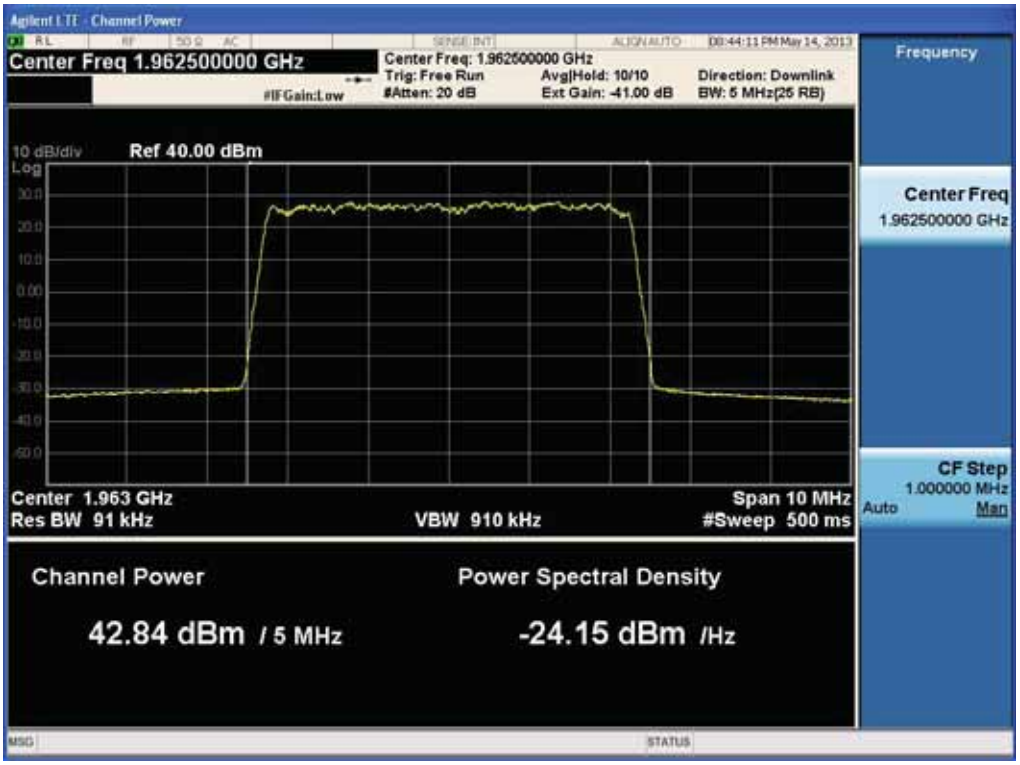


(QPSK High Channel)

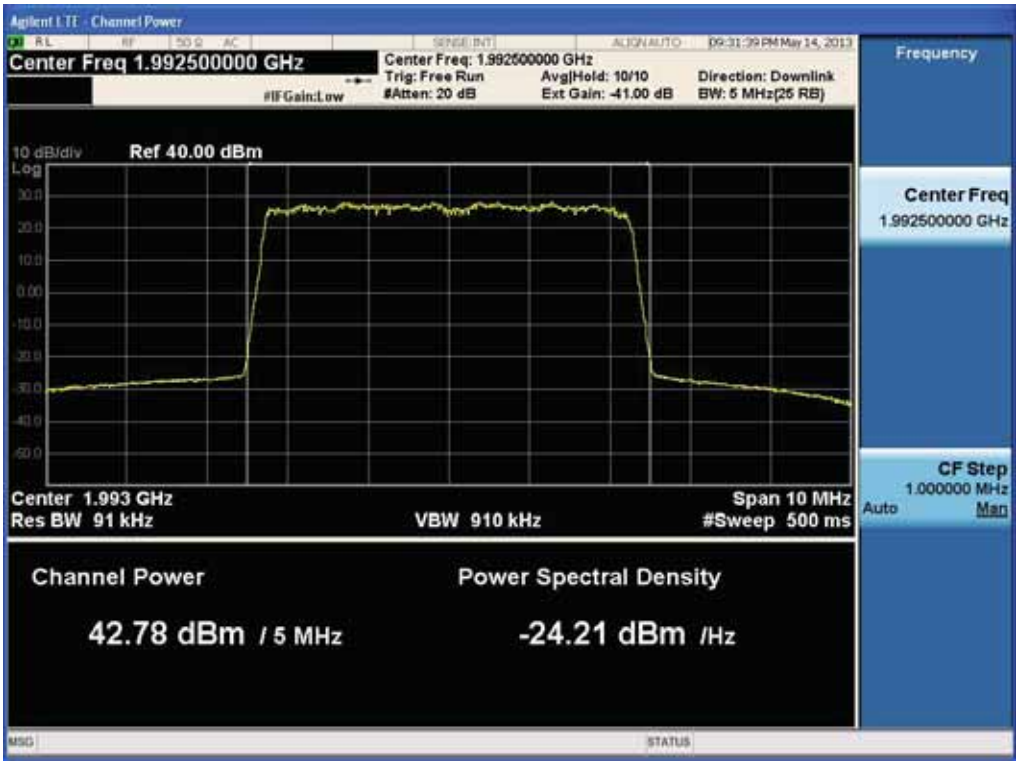
(16QAM Low Channel)



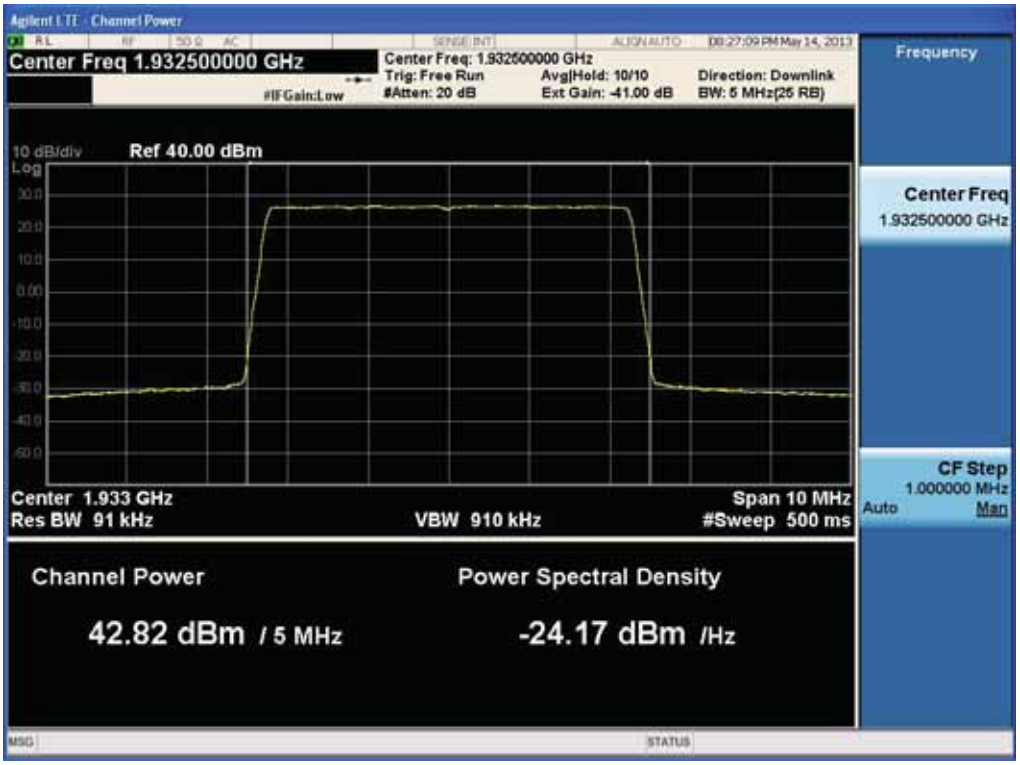
(16QAM Middle Channel)



(16QAM High Channel)



(64QAM Low Channel)

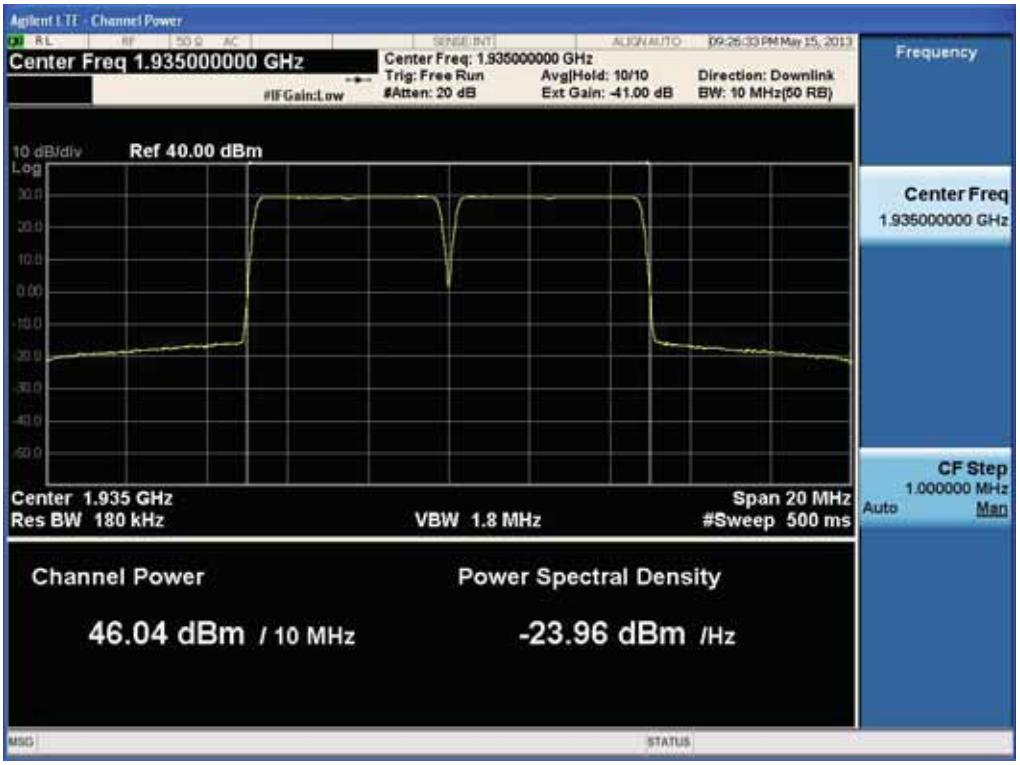


(64QAM Middle Channel)

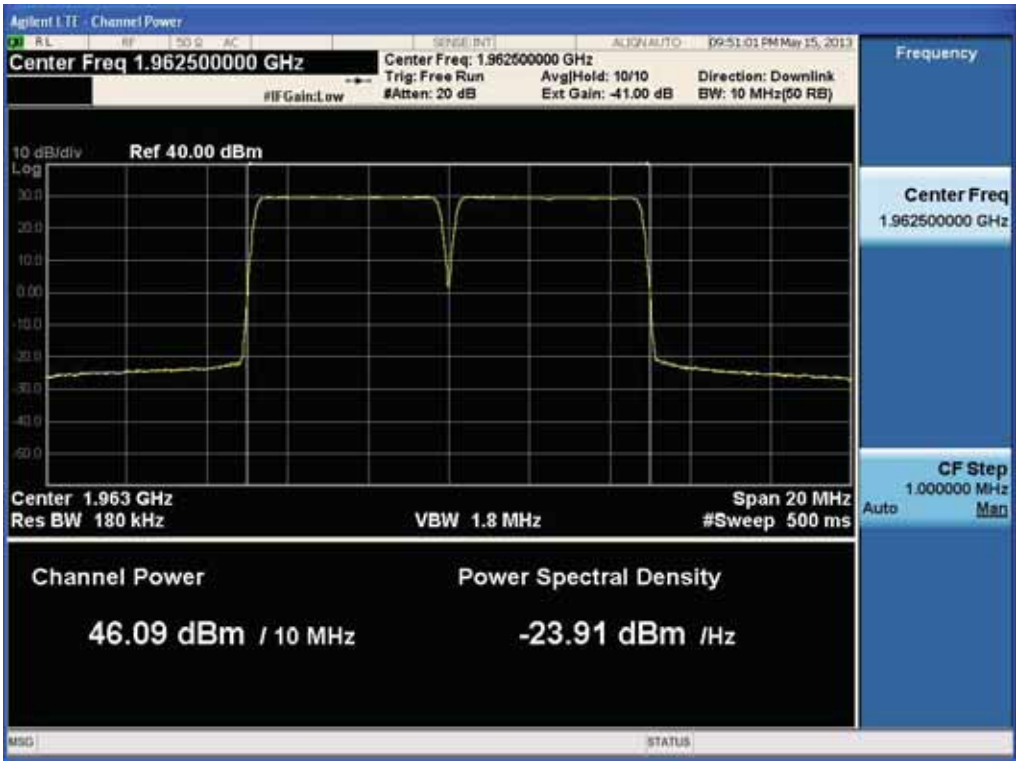
(64QAM High Channel)

. Plot Data for LTE 5 MHz : 2 Carrier , Output Port 0

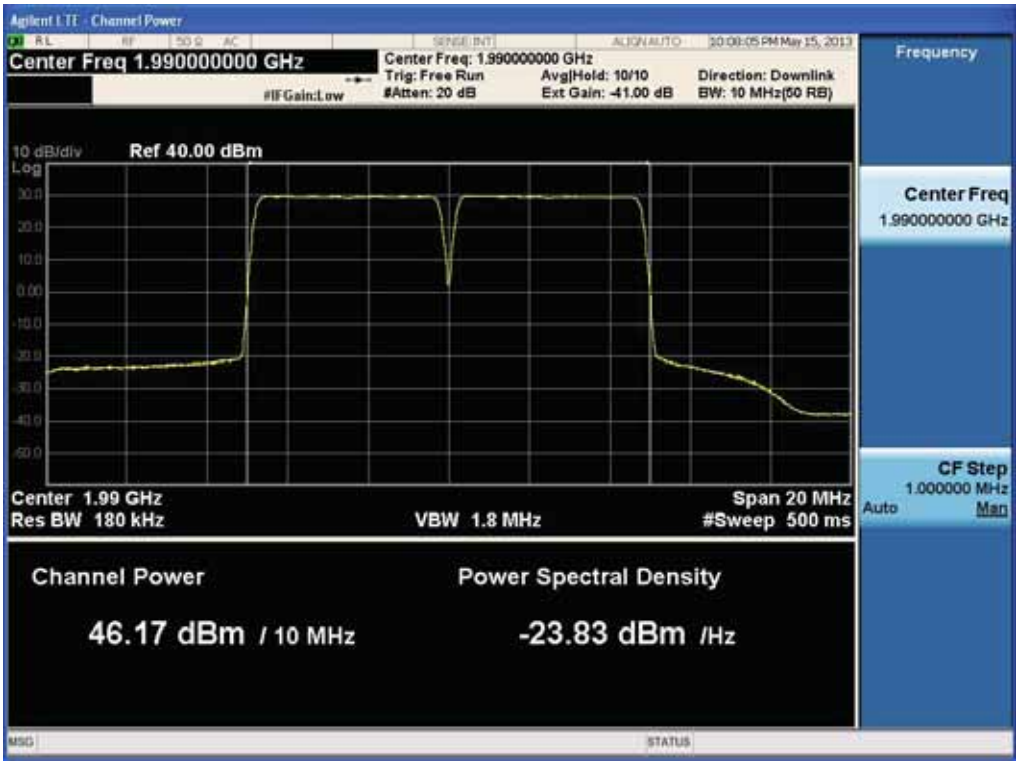
(QPSK Low Channel)



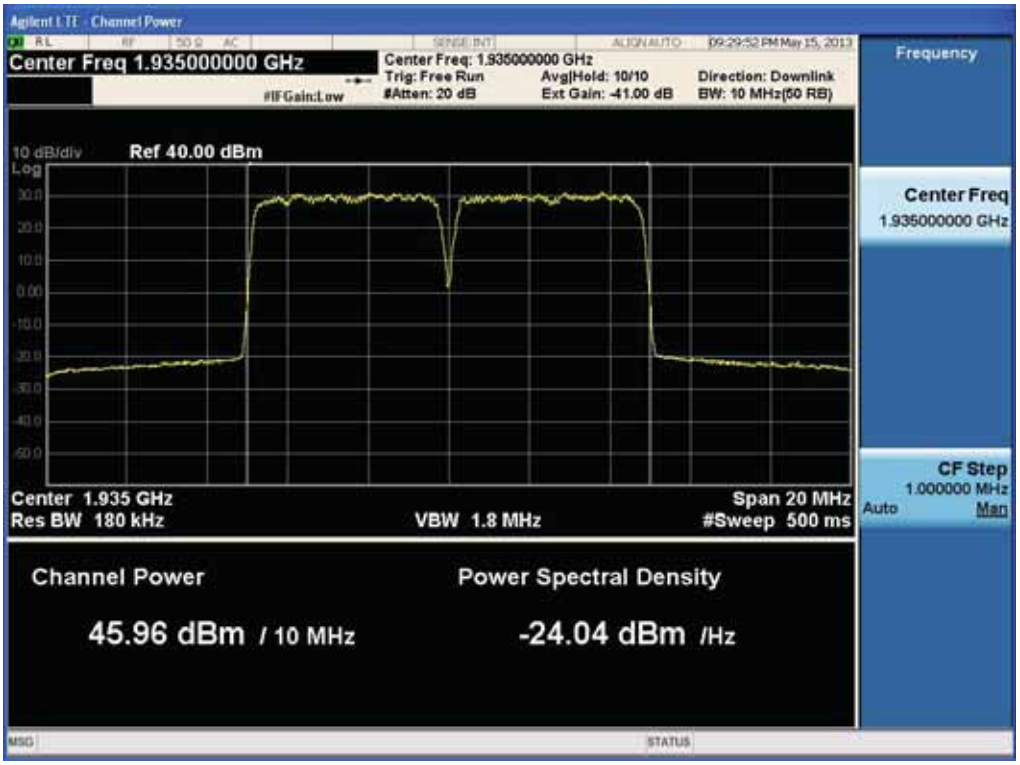
(QPSK Middle Channel)



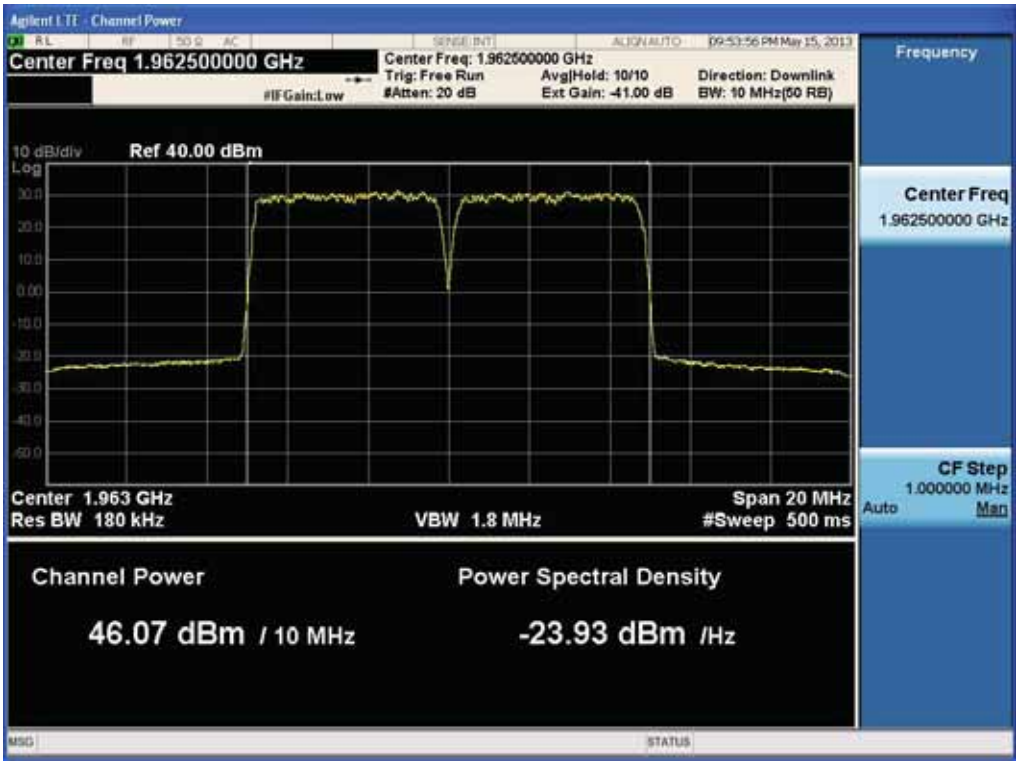
(QPSK High Channel)



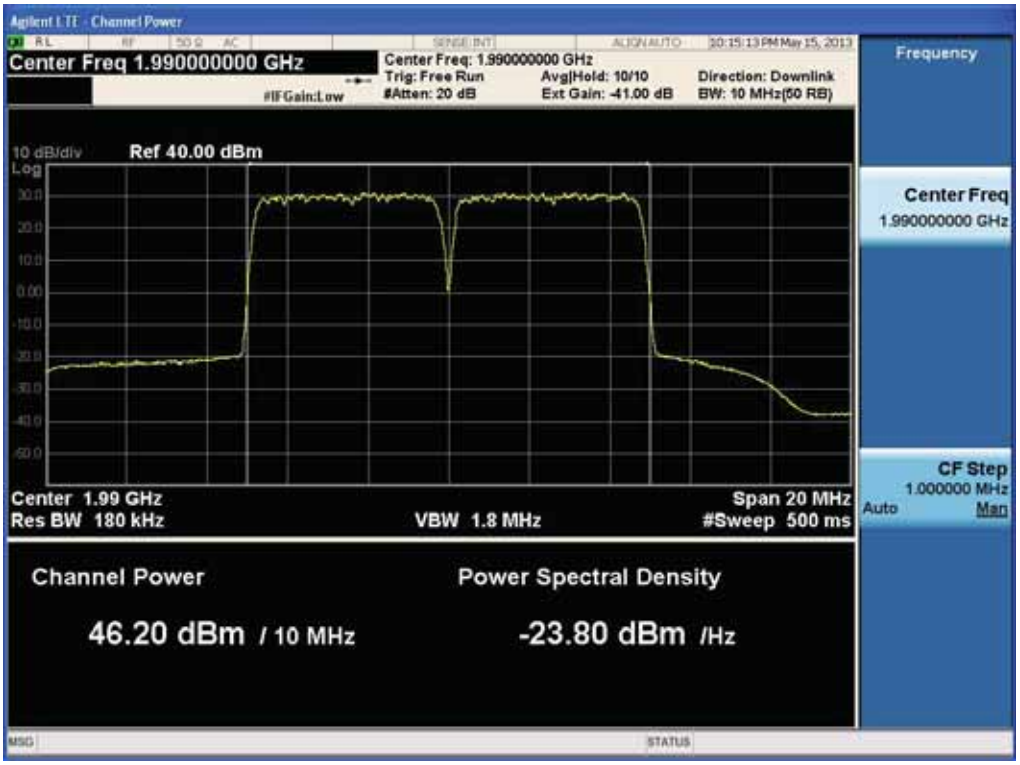
(16QAM Low Channel)



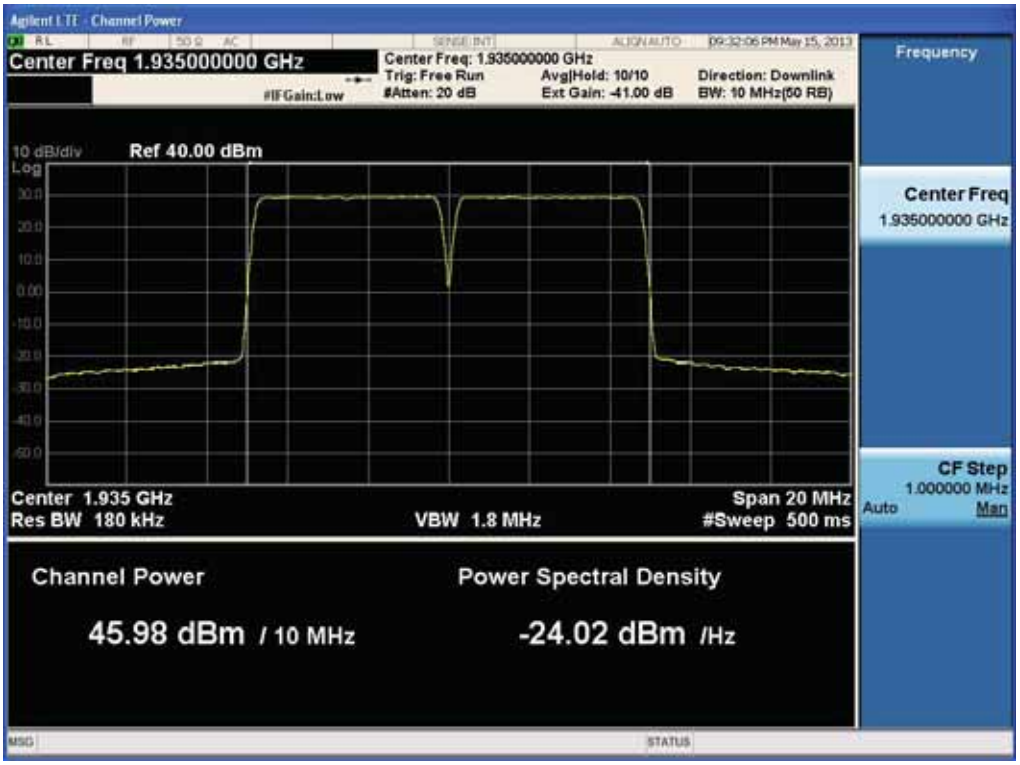
(16QAM Middle Channel)



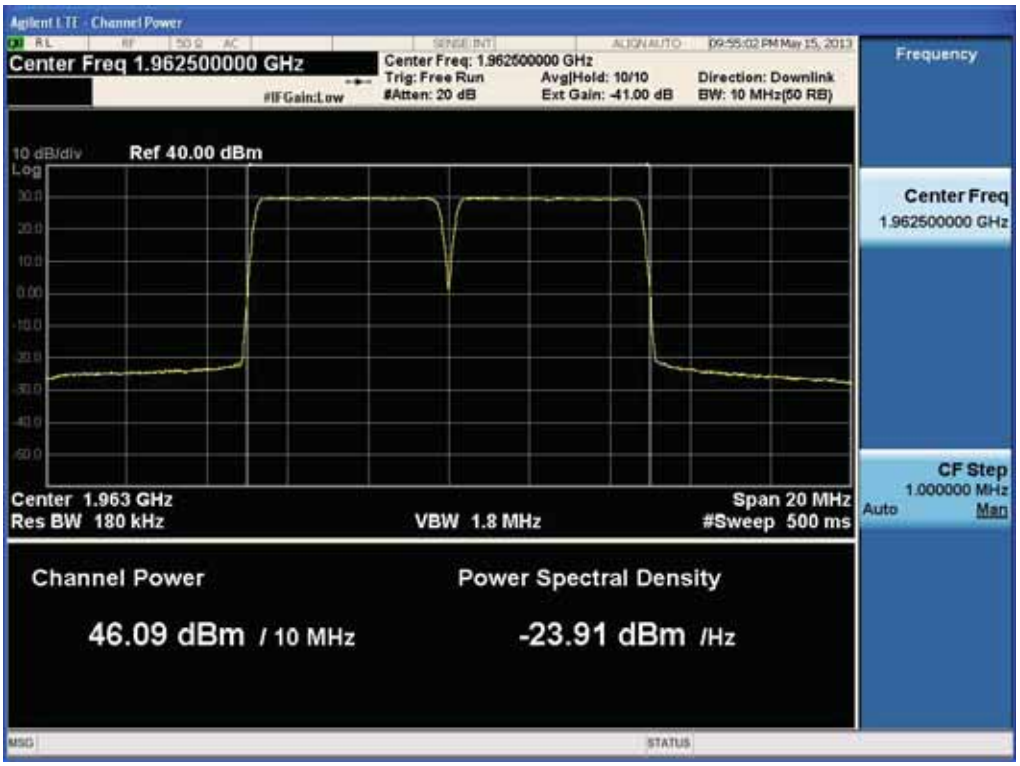
(16QAM High Channel)



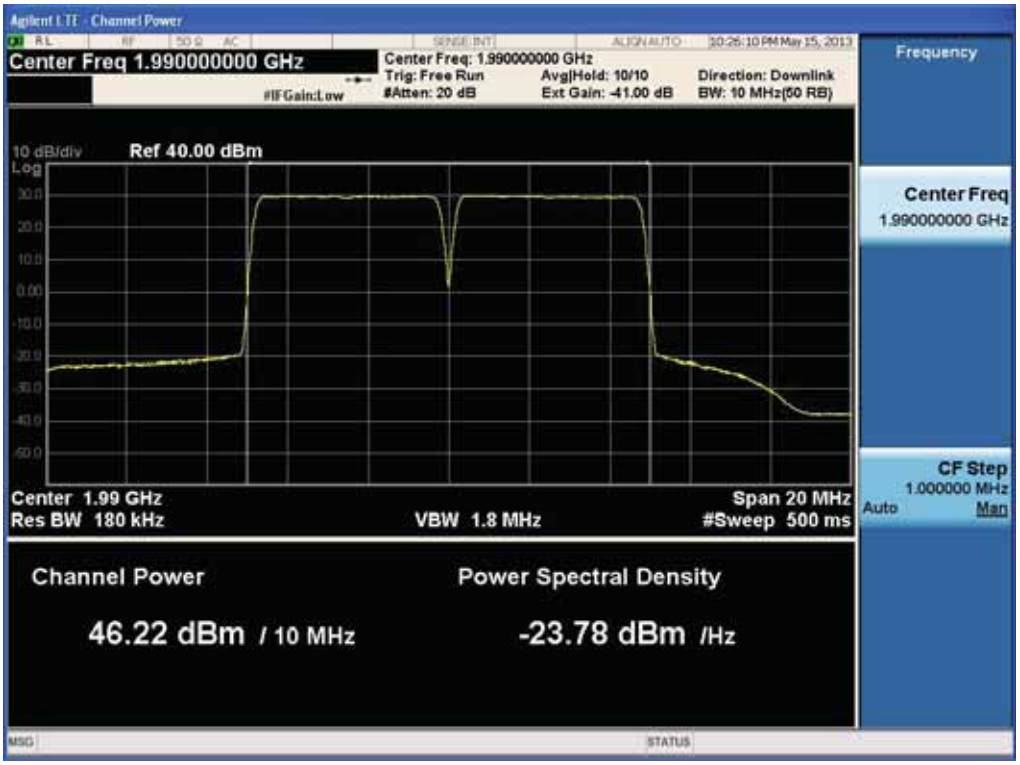
(64QAM Low Channel)



(64QAM Middle Channel)

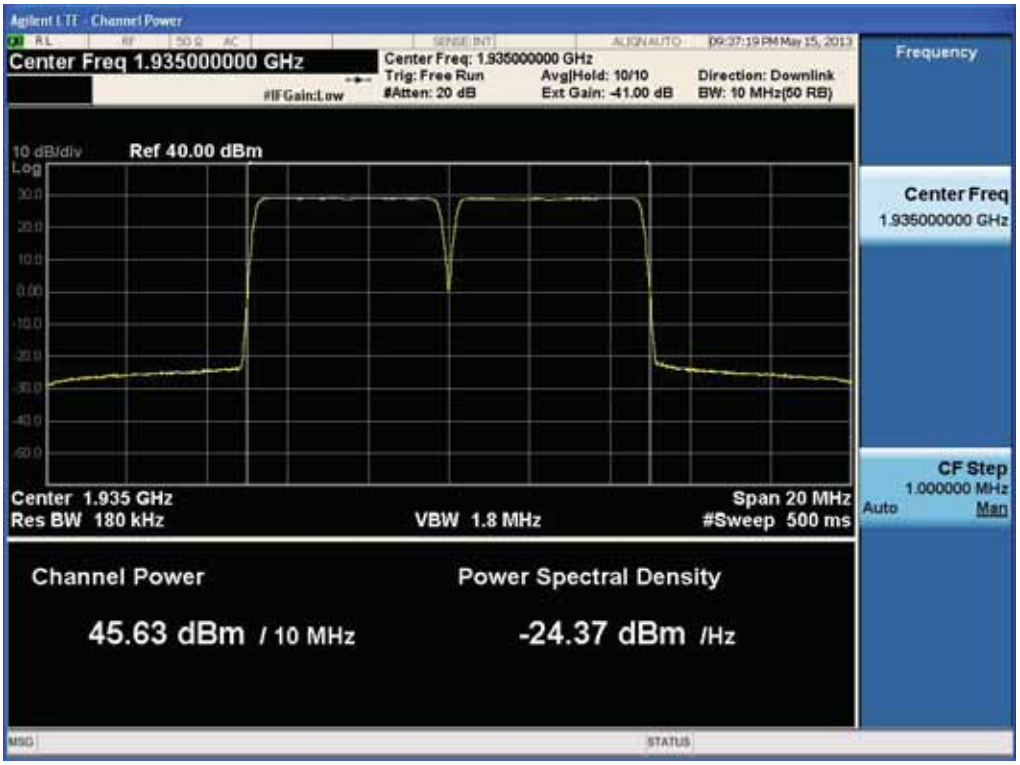


(64QAM High Channel)

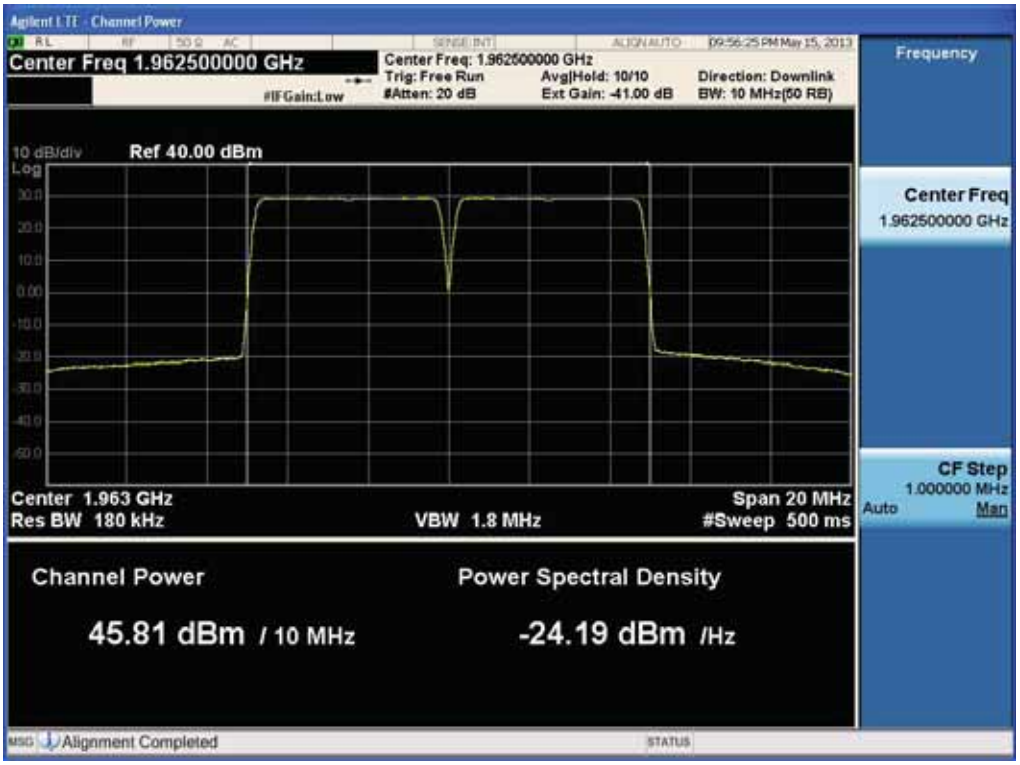


. Plot Data for LTE 5 MHz : 2 Carrier , Output Port 1

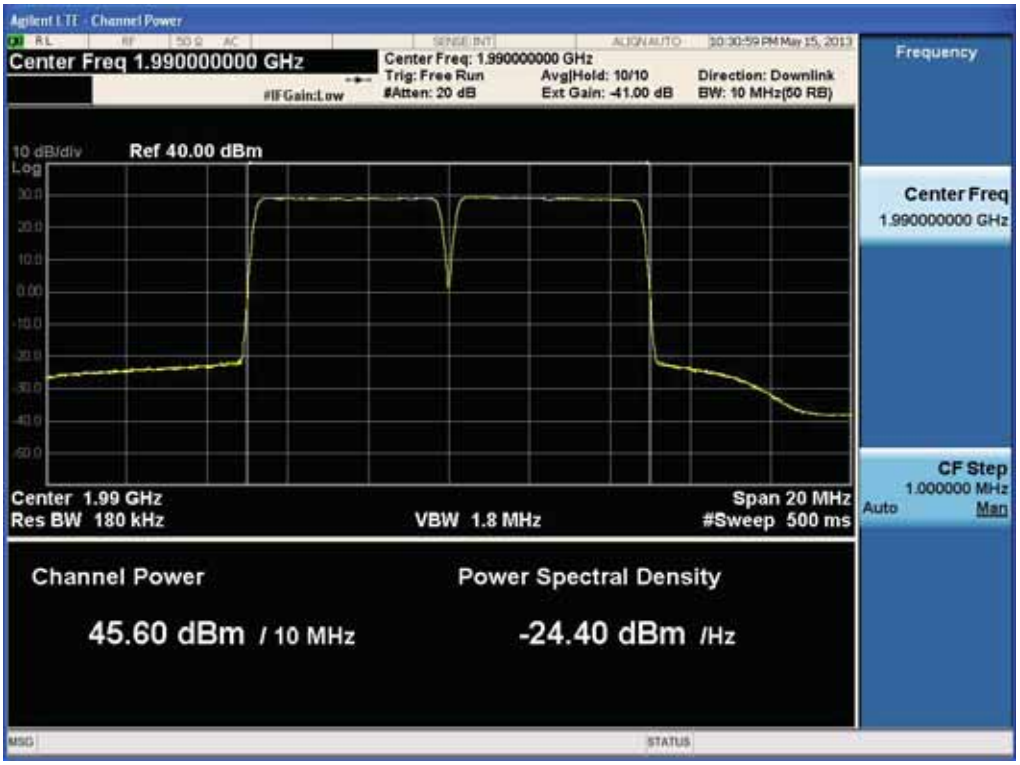
(QPSK Low Channel)



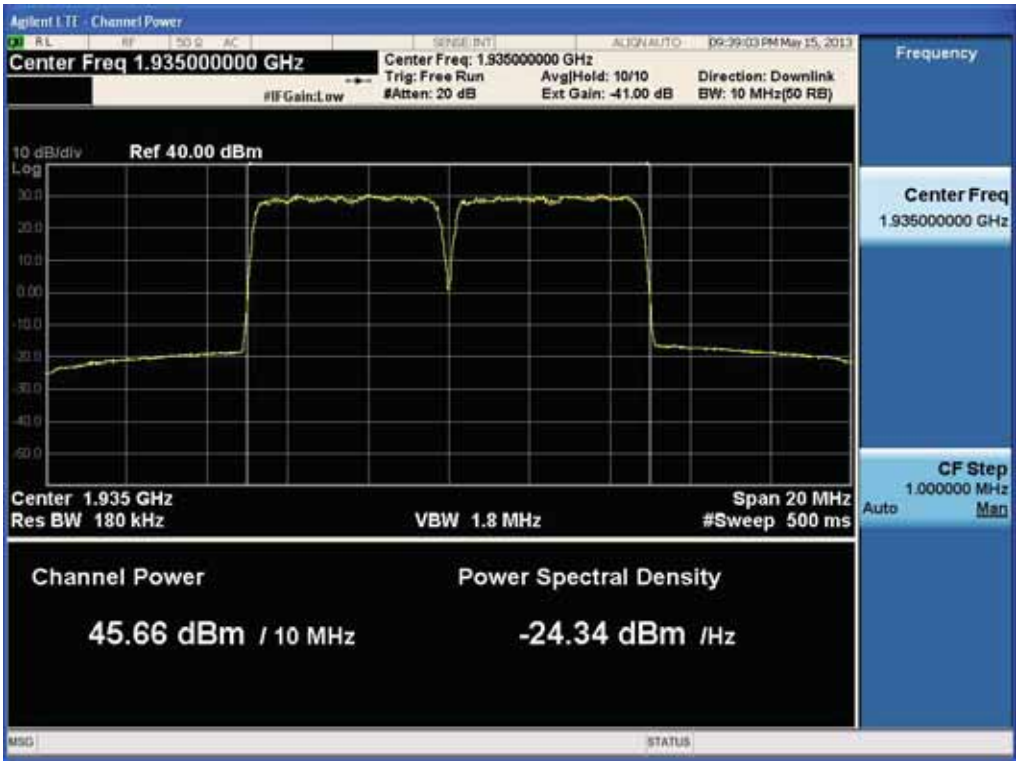
(QPSK Middle Channel)



(QPSK High Channel)

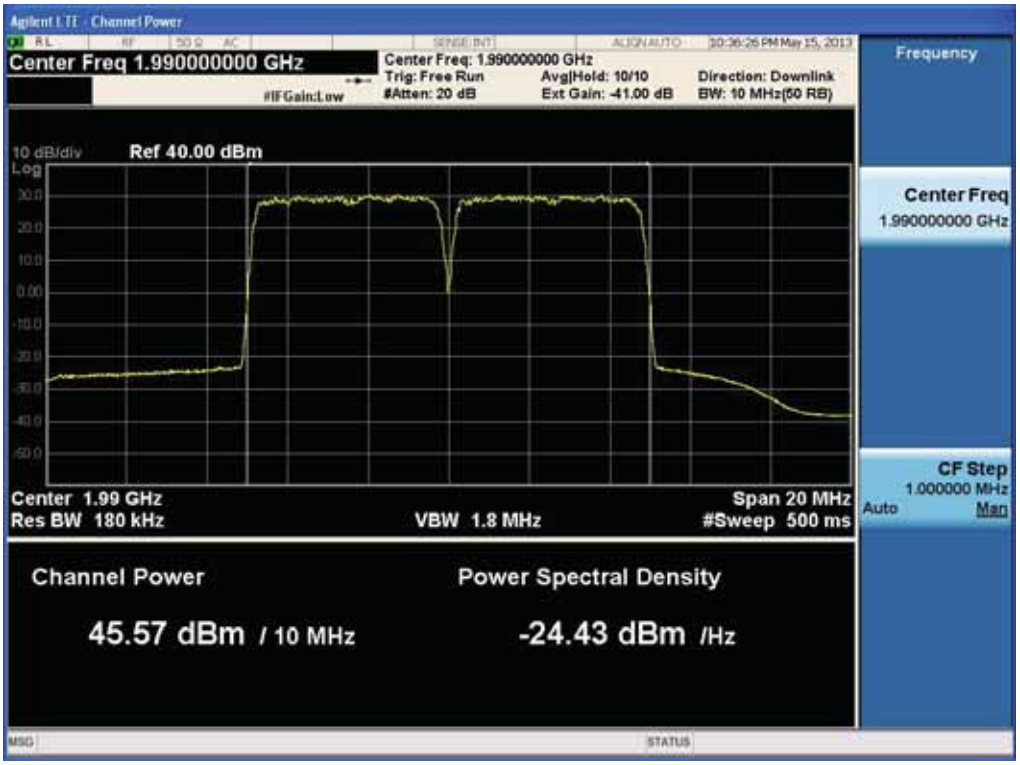


(16QAM Low Channel)

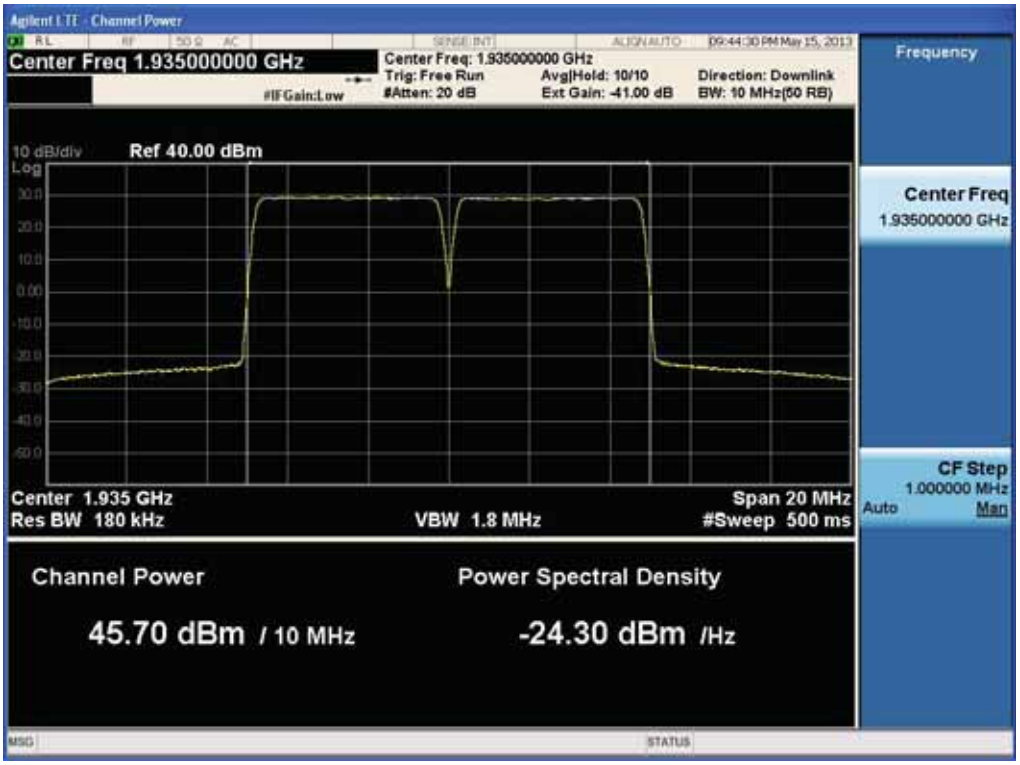


(16QAM Middle Channel)

(16QAM High Channel)

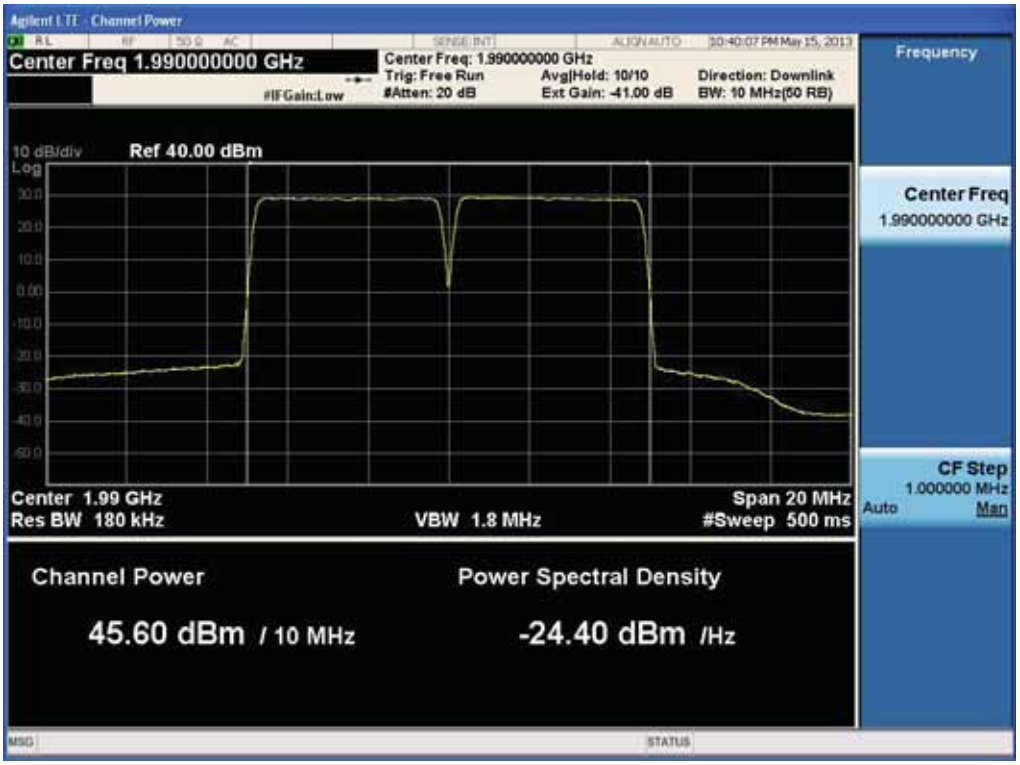


(64QAM Low Channel)



(64QAM Middle Channel)

(64QAM High Channel)



. Plot Data for LTE + CDMA, Output Port 0

(QPSK Low Channel)

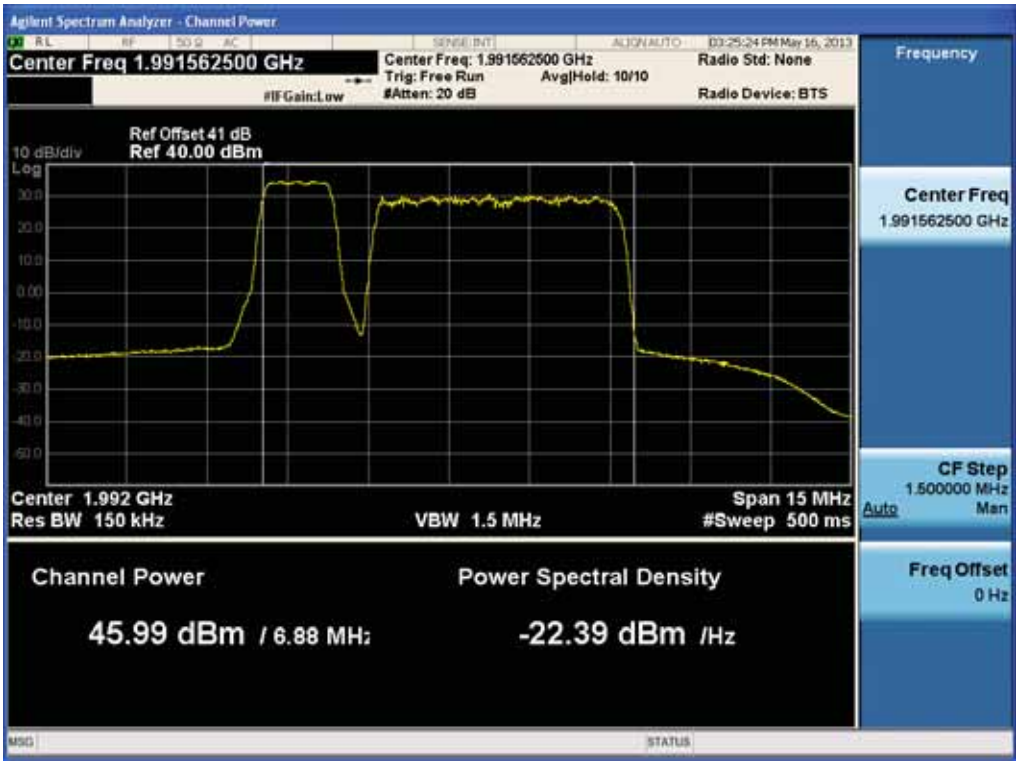
(QPSK Middle Channel)

(QPSK High Channel)

(16QAM Low Channel)

(16QAM Middle Channel)

(16QAM High Channel)



(64QAM Low Channel)

(64QAM Middle Channel)

(64QAM High Channel)

. Plot Data for LTE + CDMA, Output Port 1

(QPSK Low Channel)

(QPSK Middle Channel)

(QPSK High Channel)

(16QAM Low Channel)

(16QAM Middle Channel)

(16QAM High Channel)

(64QAM Low Channel)

(64QAM Middle Channel)

(64QAM High Channel)

6. OCCUPIED BANDWIDTH

6.1. Applicable Standard

According to FCC §2.1049

The OBW, 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 following conditions as applicable:

(g) Transmitter in which the modulating baseband comprises not more than three independent channels - when modulated by the full complement of signals for which the transmitter is rated. The level of modulation for each channel should be set to that prescribed in rule parts applicable to the services for which the transmitter is intended. If specific modulation levels are not set forth in the rules, the tests should provide the manufacturer ’s maximum rated condition

(h) Transmitters employing digital modulation techniques - when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudo-random generators or other devices required in normal service.

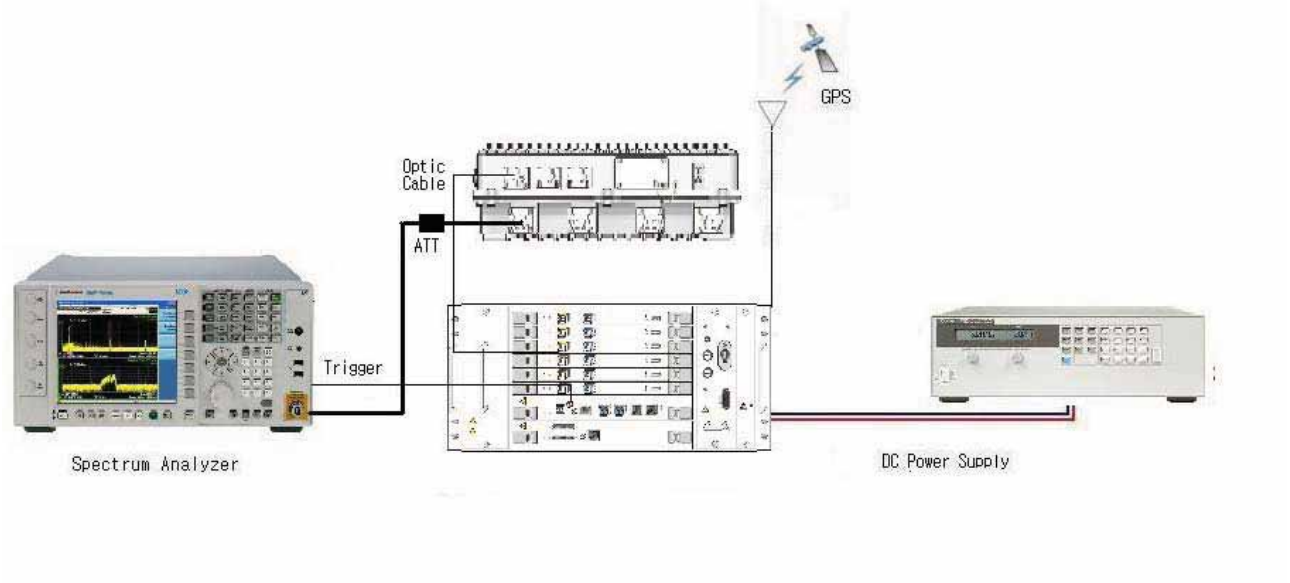
Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at discretion of the user.

6.2.Test Equipment List and Details

Manufacturer	Model / Equipment	Serial No.	Calibration Due
Agilent	N9020A /Signal Analyzer	US46220219	04/25/2014
Agilent	6674A / DC Power Supply	3501A00901	04/16/2014
WEINSCHEL	67-30-33 / Attenuator	BU5347	11/07/2013
WEINSCHEL	67-30-33 / Attenuator	BR0530	11/07/2013
WEINSCHEL	AF9003-69-31 / Attenuator	11787	11/07/2013
WEINSCHEL	AF9003-69-31 / Attenuator	5701	11/07/2013

6.3. Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation. The EUT was connected to a spectrum analyzer enabled with an occupied bandwidth function via its antenna port. Measurements were performed to determine the occupied bandwidth in accordance with FCC Part 2.1049. The occupied bandwidth was measured from the fundamental emission at the bottom, middle and top channels. The occupied bandwidth was measured using the built in occupied bandwidth function of the spectrum analyzer. It was set to measure the bandwidth where 99% of the signal power was contained. The analyzer automatically configures the measurement bandwidths to make an accurate measurement based on the channel bandwidth and channel spacing of the EUT.



6.4. Test Result

: PASS

[LTE 5 MHz : 1 Carrier / 1 Port]

. Test Data at Output Port 0

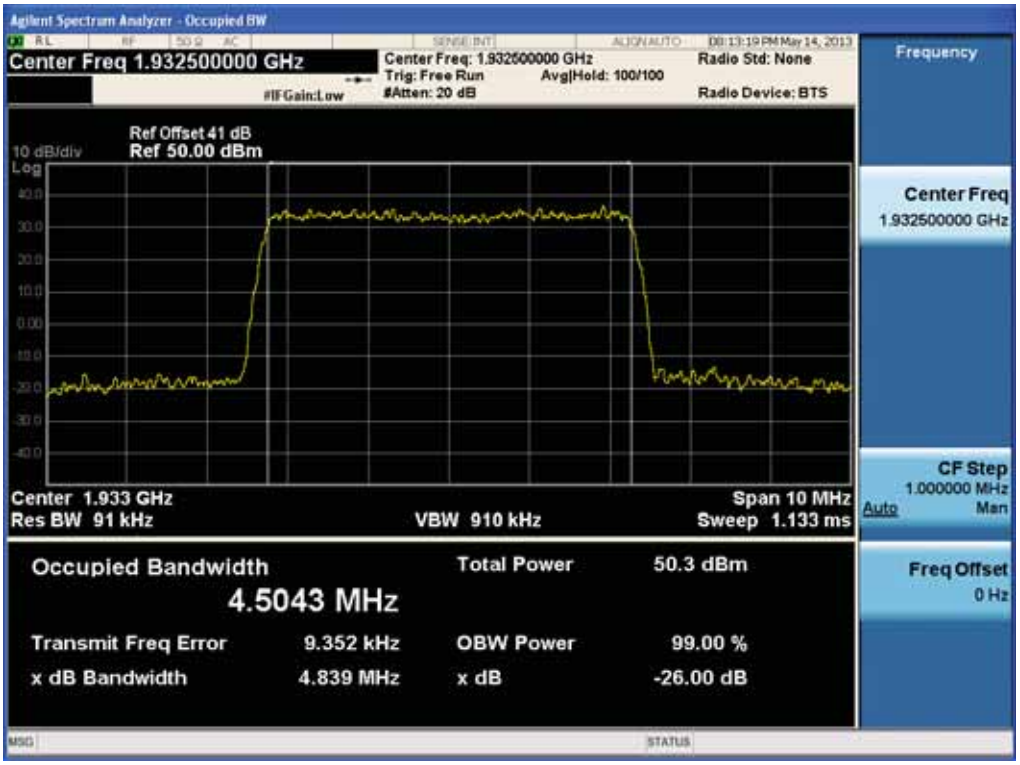
Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
QPSK	Low	1932.5	4.5043
	Middle	1962.5	4.5196
	High	1992.5	4.5068
16QAM	Low	1932.5	4.4883
	Middle	1962.5	4.4757
	High	1992.5	4.5007
64QAM	Low	1932.5	4.4937
	Middle	1962.5	4.5083
	High	1992.5	4.5021

. Test Data at Output Port 1

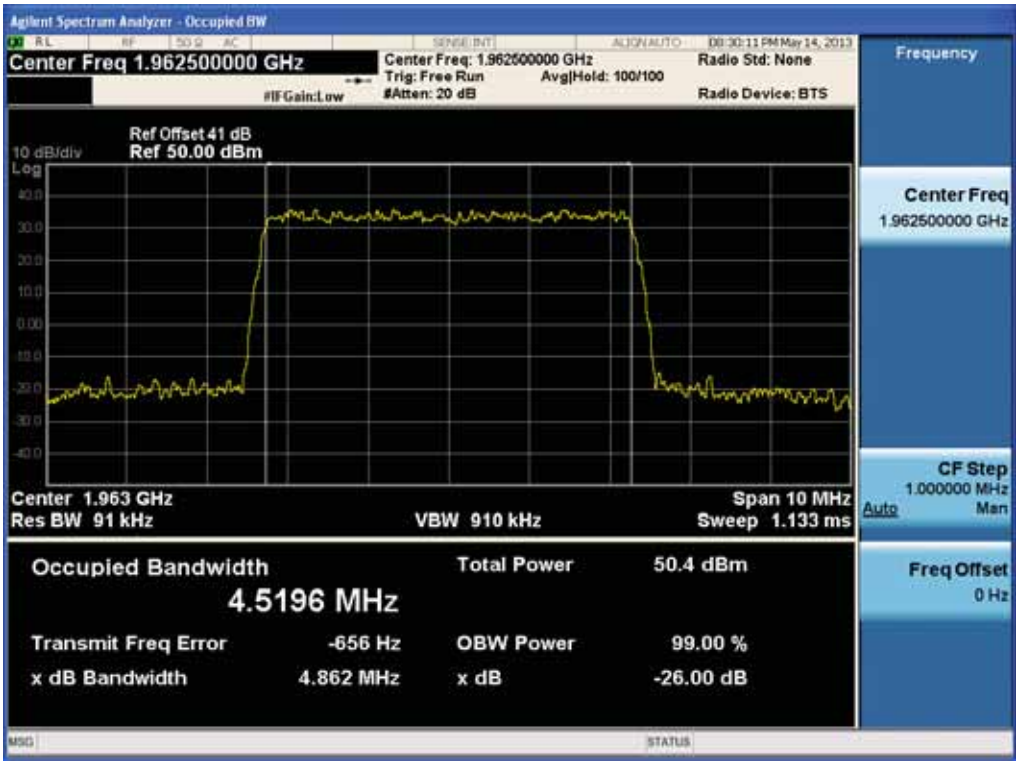
Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
QPSK	Low	1932.5	4.4906
	Middle	1962.5	4.5007
	High	1992.5	4.4989
16QAM	Low	1932.5	4.4859
	Middle	1962.5	4.4753
	High	1992.5	4.4890
64QAM	Low	1932.5	4.4977
	Middle	1962.5	4.5138
	High	1992.5	4.5005

. Plot Data for LTE 5 MHz : 1 Carrier , Output Port 0

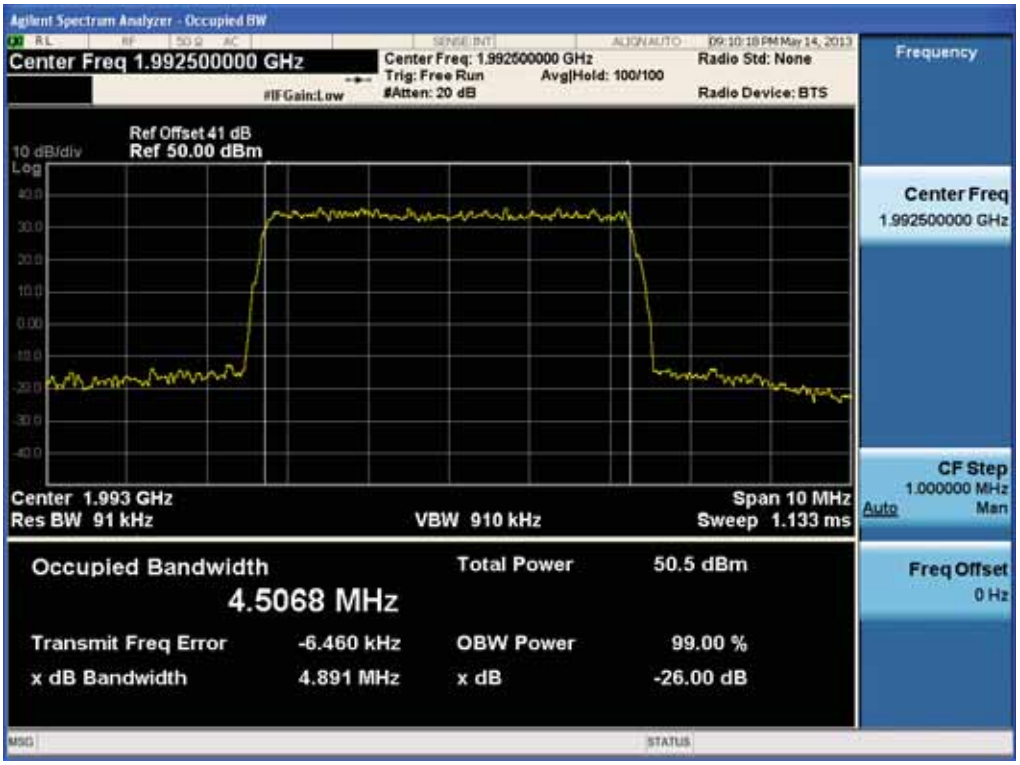
(QPSK Low Channel)



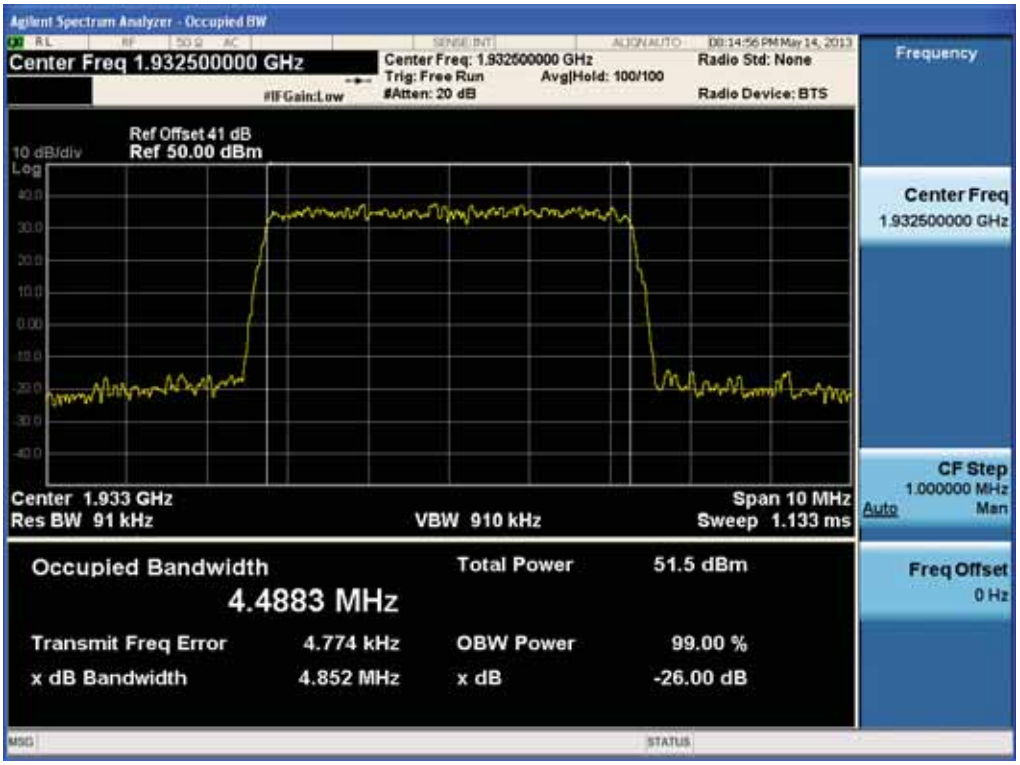
(QPSK Middle Channel)



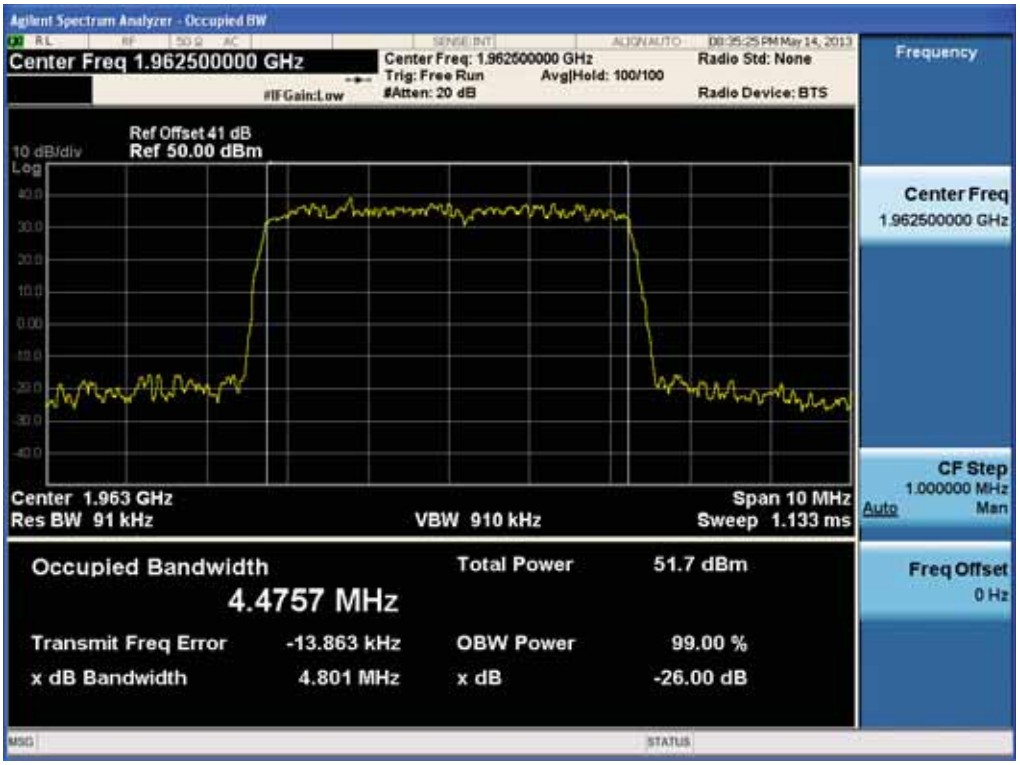
(QPSK High Channel)



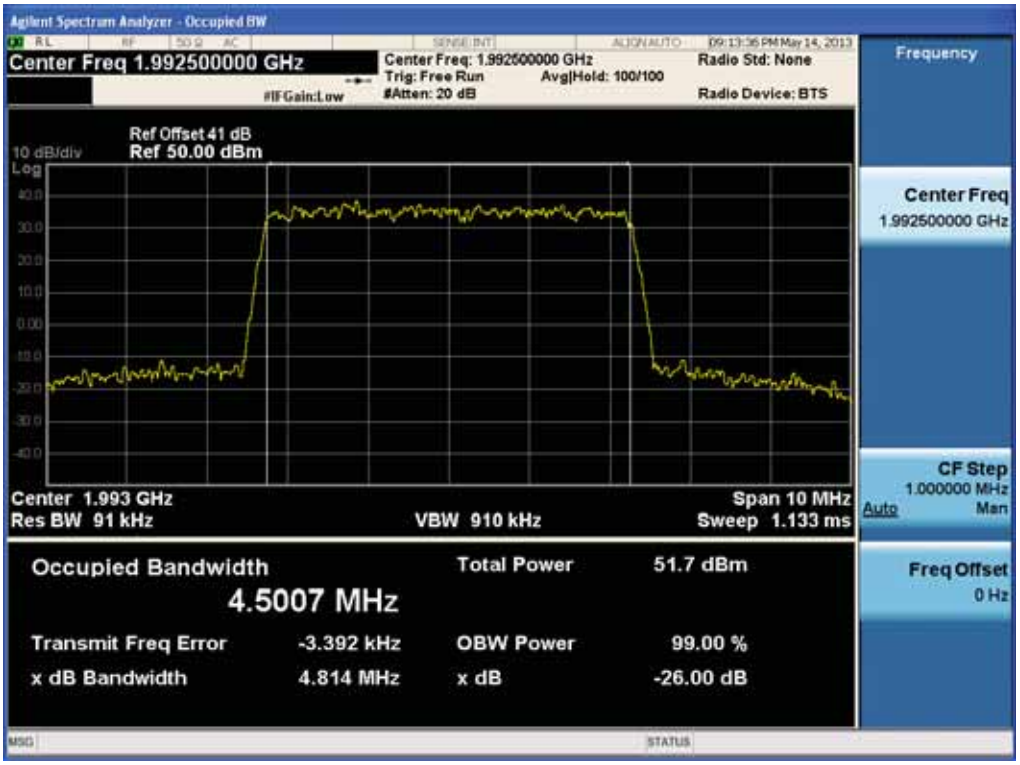
(16QAM Low Channel)



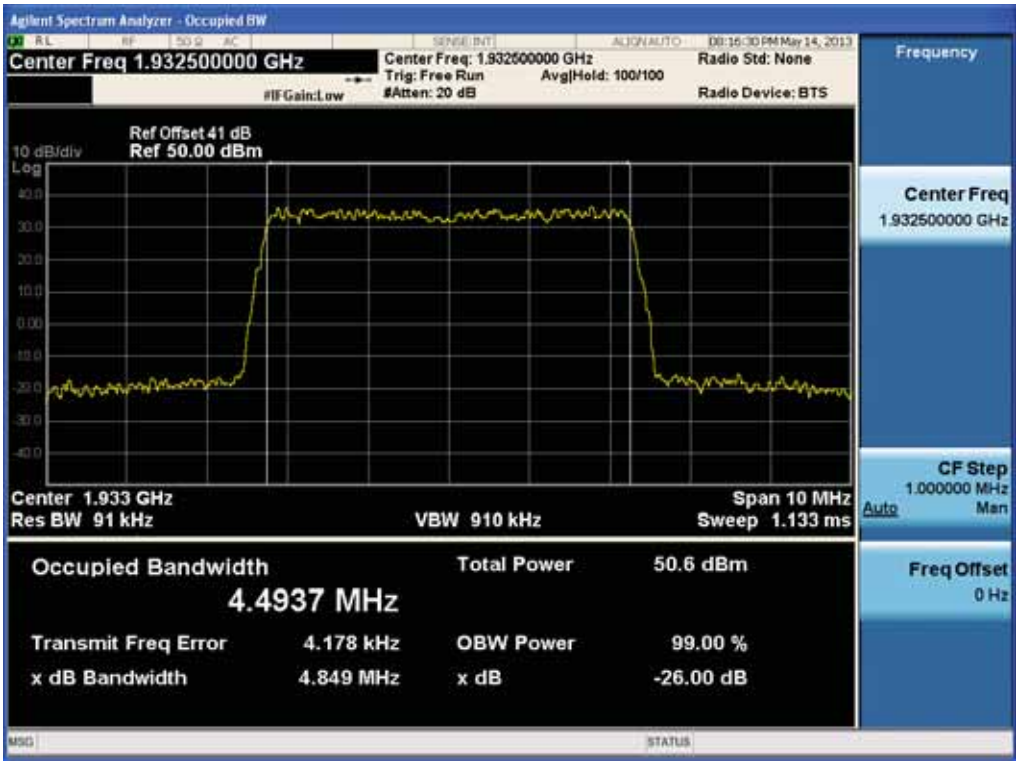
(16QAM Middle Channel)



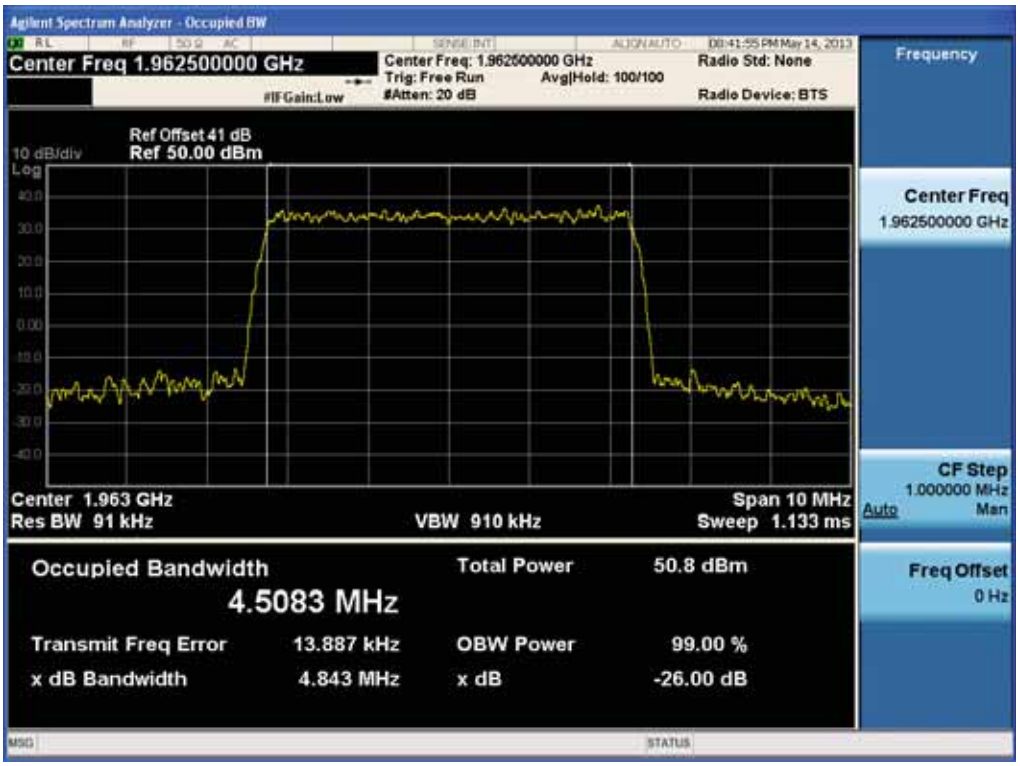
(16QAM High Channel)



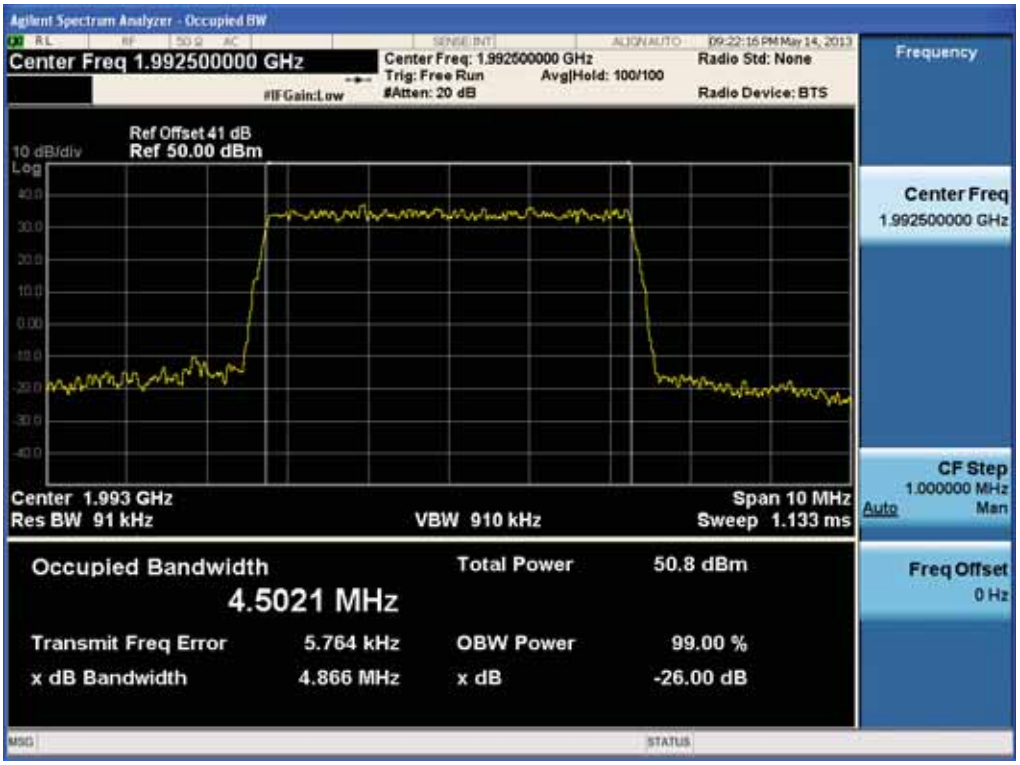
(64QAM Low Channel)



(64QAM Middle Channel)

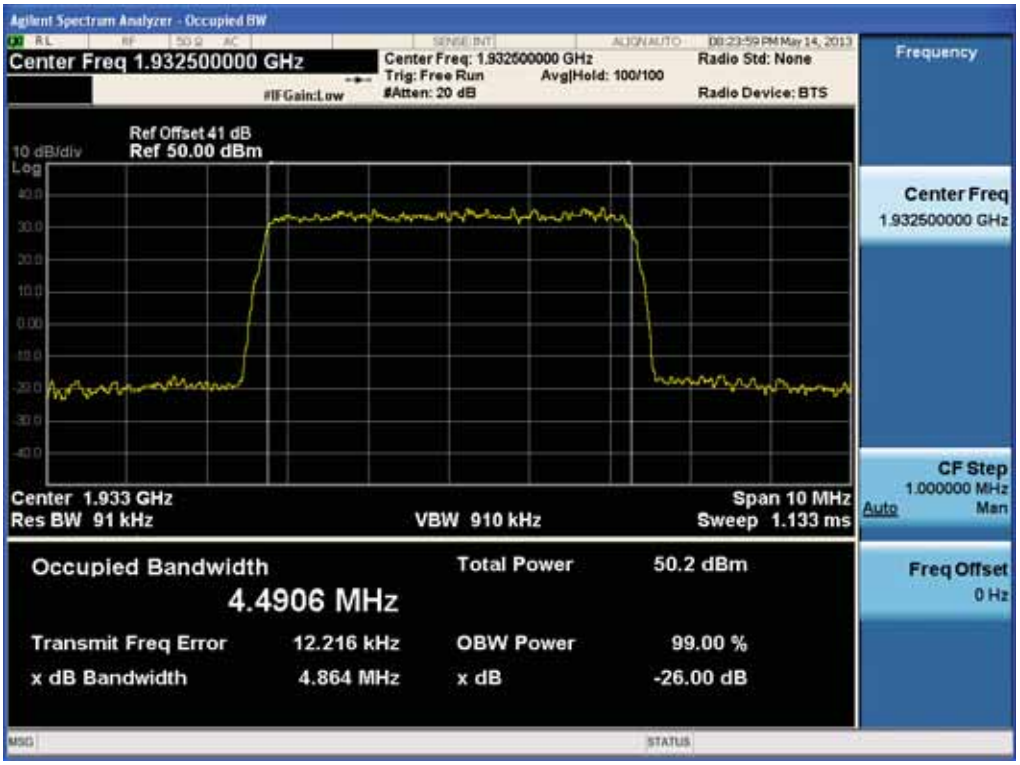


(64QAM High Channel)

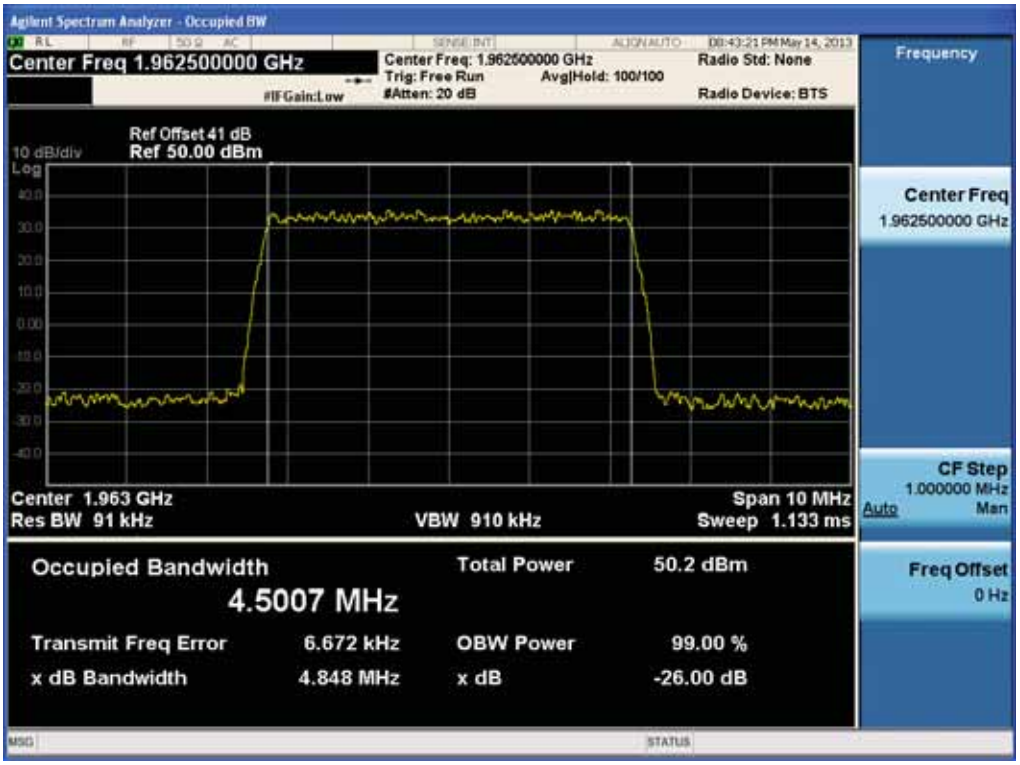


. Plot Data for LTE 5 MHz : 1 Carrier , Output Port 1

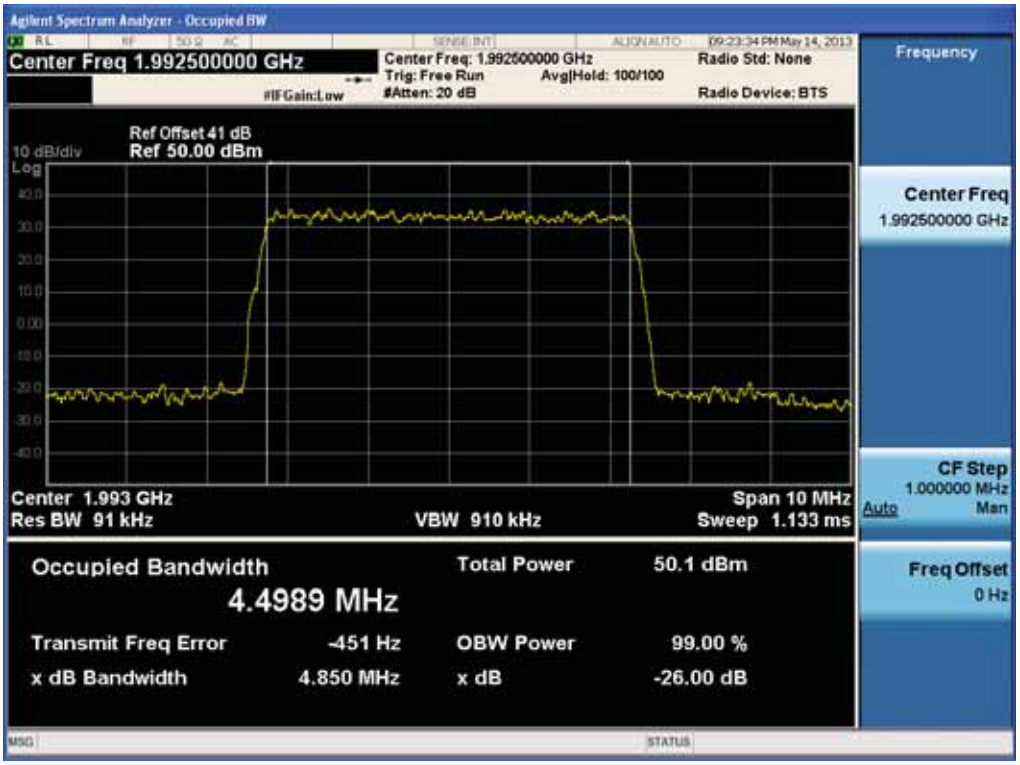
(QPSK Low Channel)



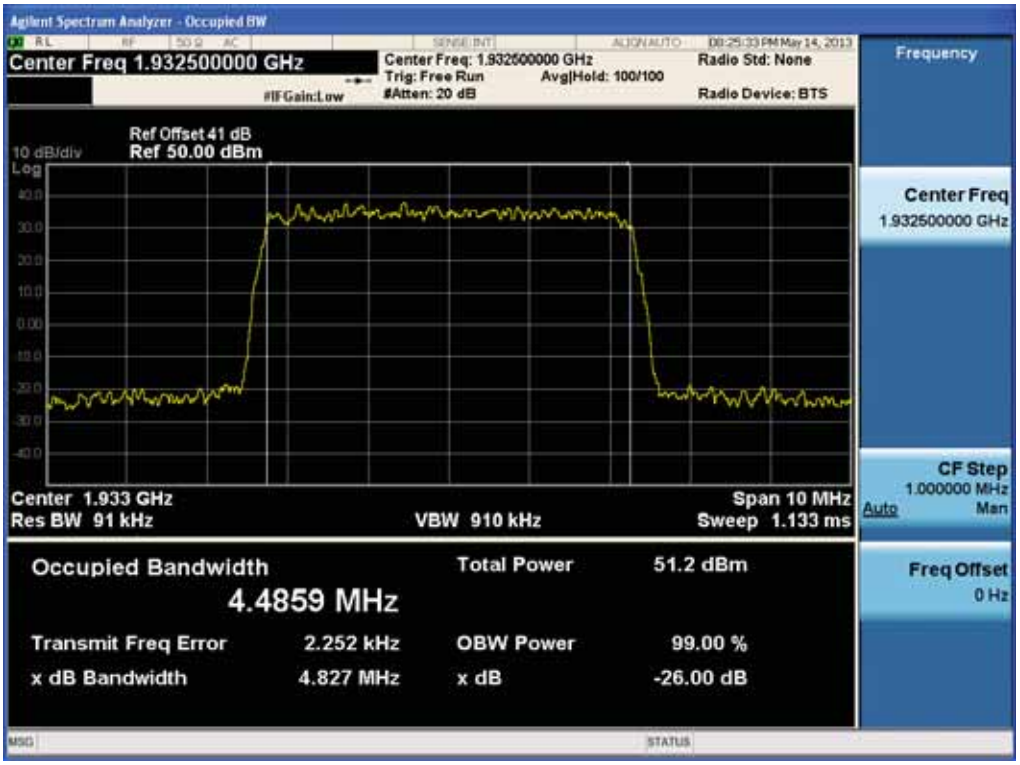
(QPSK Middle Channel)



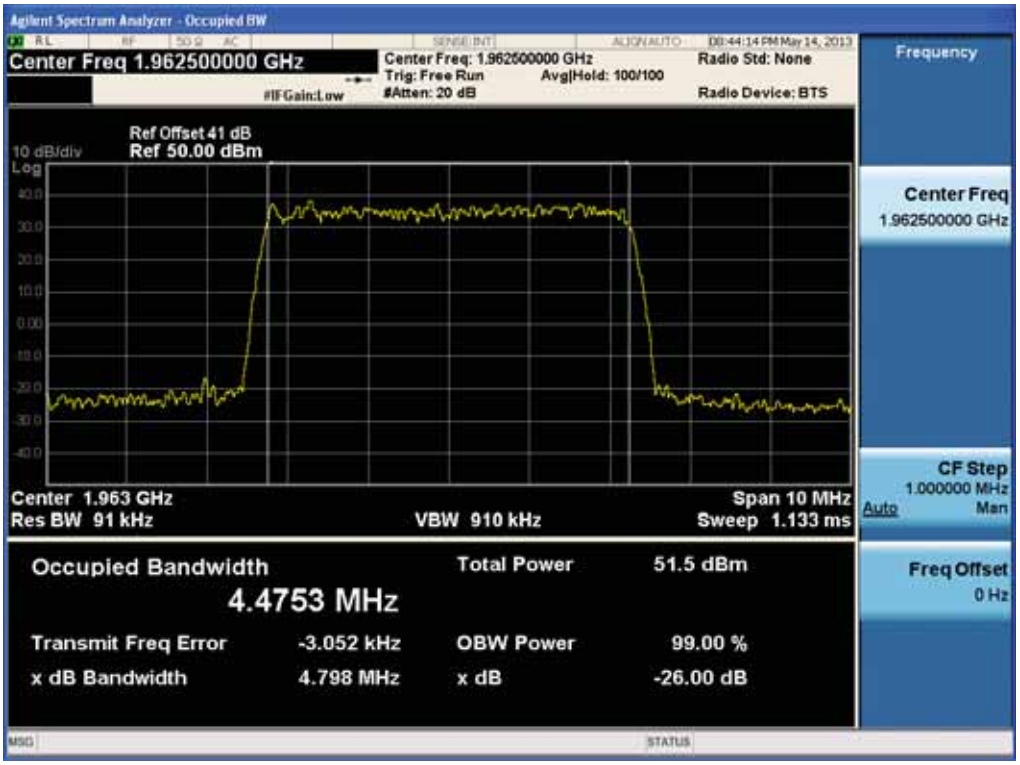
(QPSK High Channel)



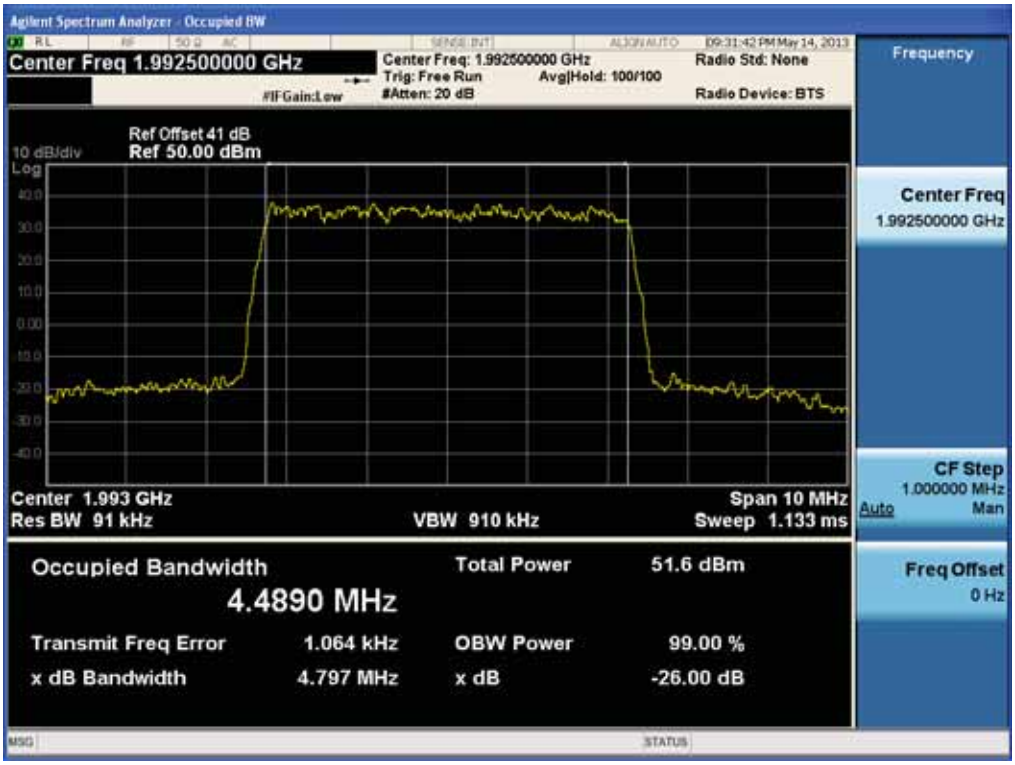
(16QAM Low Channel)



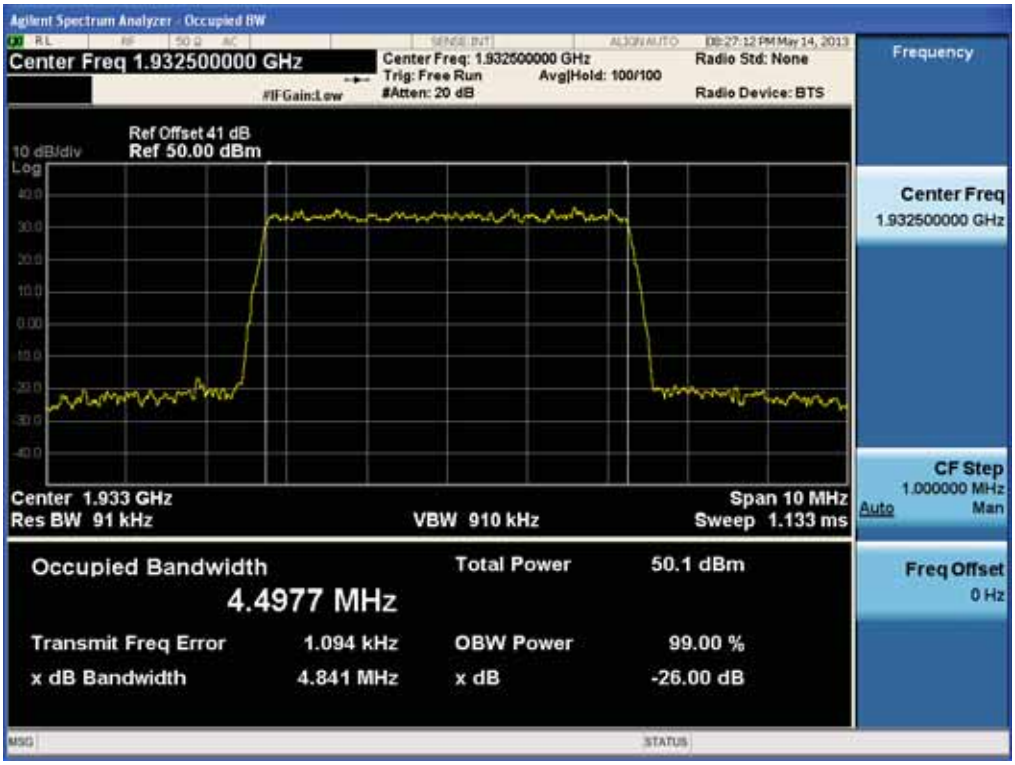
(16QAM Middle Channel)



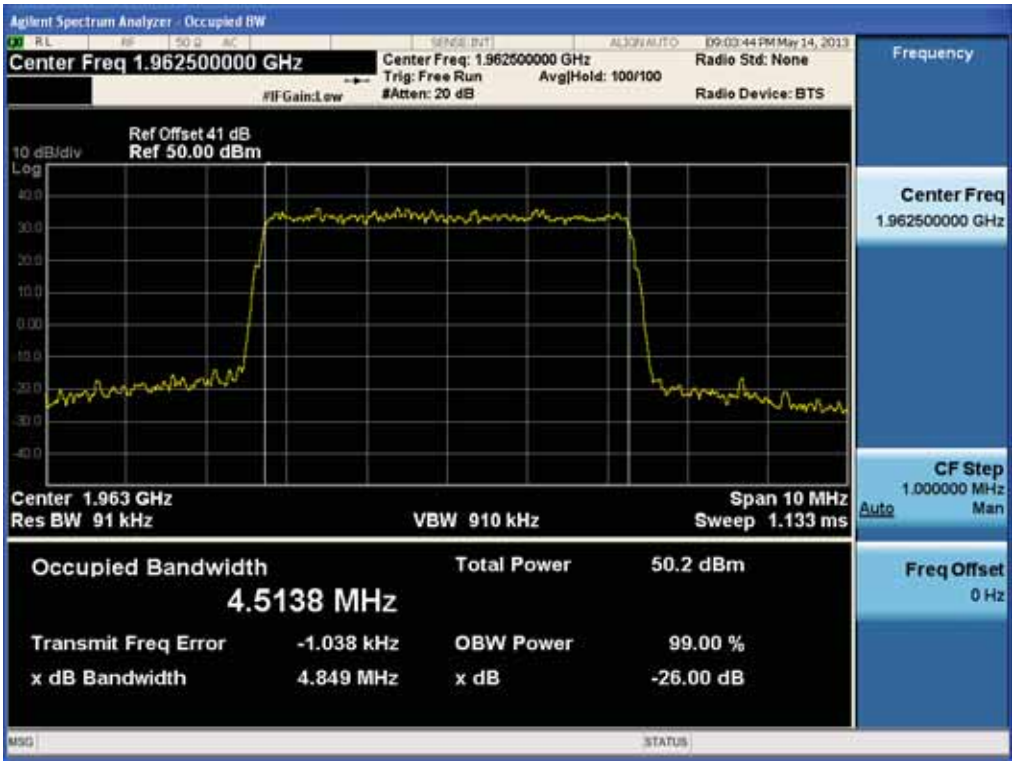
(16QAM High Channel)



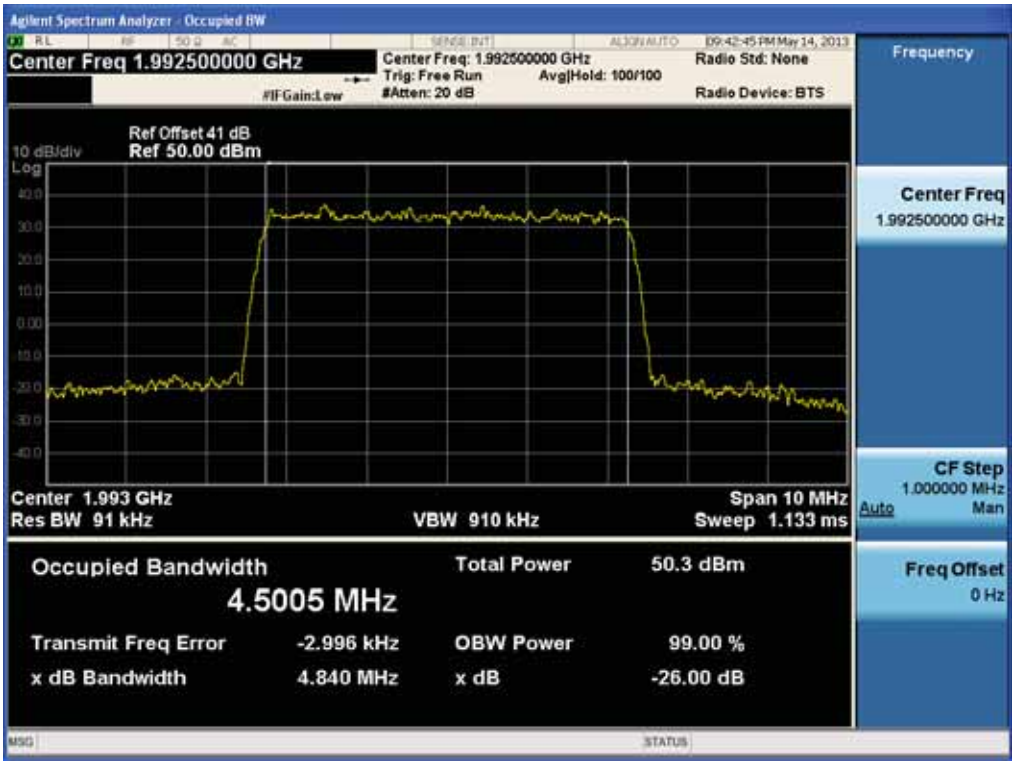
(64QAM Low Channel)



(64QAM Middle Channel)



(64QAM High Channel)



7. SPURIOUS EMISSION AT ANTENNA TERMINAL

7.1. Applicable Standard

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in §2.1051

According to FCC § 24.238, (a) On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmit power (P) by a factor of at least 43+10* logP dB.

7.2. Test Equipment List and Details

Manufacturer	Model / Equipment	Serial No.	Calibration Due
Agilent	N9020A /Signal Analyzer	US46220219	04/25/2014
Agilent	6674A / DC Power Supply	3501A00901	04/16/2014
WEINSCHEL	67-30-33 / Attenuator	BU5347	11/07/2013
WEINSCHEL	67-30-33 / Attenuator	BR0530	11/07/2013
WEINSCHEL	AF9003-69-31 / Attenuator	11787	11/07/2013
WEINSCHEL	AF9003-69-31 / Attenuator	5701	11/07/2013

7.3. Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.

The resolution bandwidth of the spectrum analyzer was set at 1MHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.

The conducted emission level is meaured at each antenna port and then summed mathmatically to determine the total emission level from the device.

7.4. Test Result

: Pass

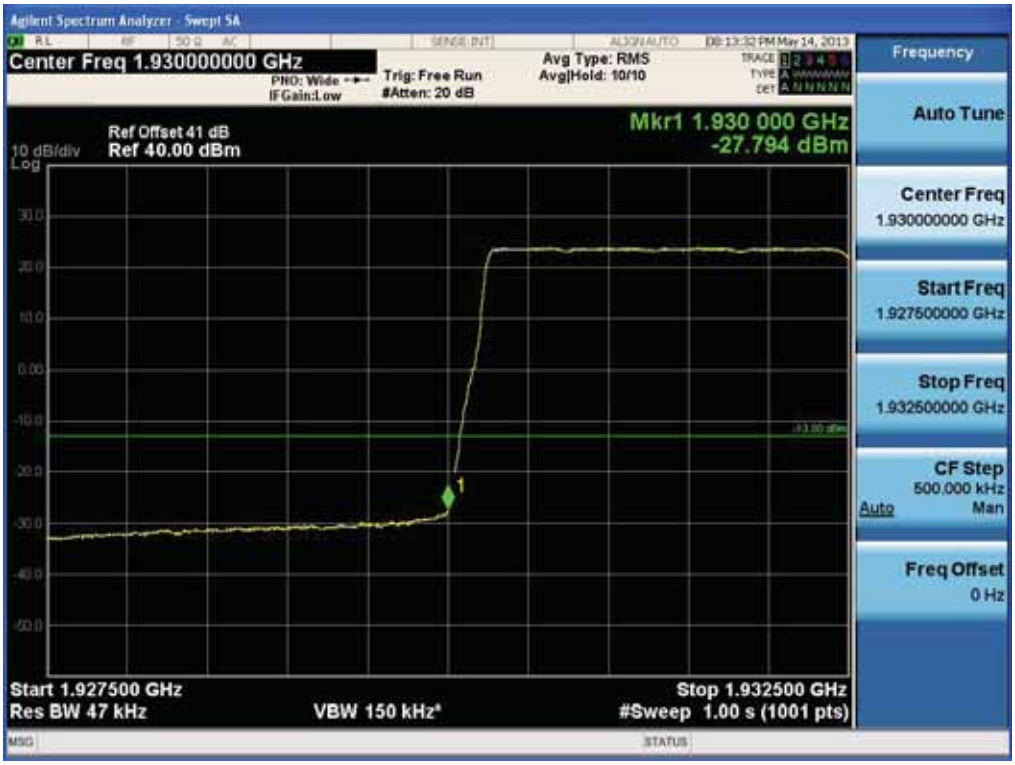
. Plot Data for LTE 5 MHz : 1 Carrier , Output Port 0

(QPSK Low Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.930000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.930 000 GHz
-27.794 dBm
Start 1.927500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.932500 GHz
#Sweep 1.00 s (1001 pts)
Frequency
Auto Tune
Center Freq
1.930000000 GHz
Start Freq
1.927500000 GHz
Stop Freq
1.932500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

(QPSK Middle Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(**QPSK High Channel)**

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.995000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
09:10:30 PM May 14, 2013
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.995 000 GHz
-25.310 dBm
Center Freq
1.995000000 GHz
Start Freq
1.992500000 GHz
Stop Freq
1.997500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.992500 GHz
Res BW 47 kHz
VBW 150 kHz*
Stop 1.997500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

(16QAM Low Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.930000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 41 dB
10 dB/div
Ref 40.00 dBm
Mkr1 1.930 000 GHz
-28.536 dBm
Start 1.927500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.932500 GHz
#Sweep 1.00 s (1001 pts)
Frequency
Auto Tune
Center Freq
1.930000000 GHz
Start Freq
1.927500000 GHz
Stop Freq
1.932500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz

(16QAM Middle Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(**16QAM High Channel)**

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)

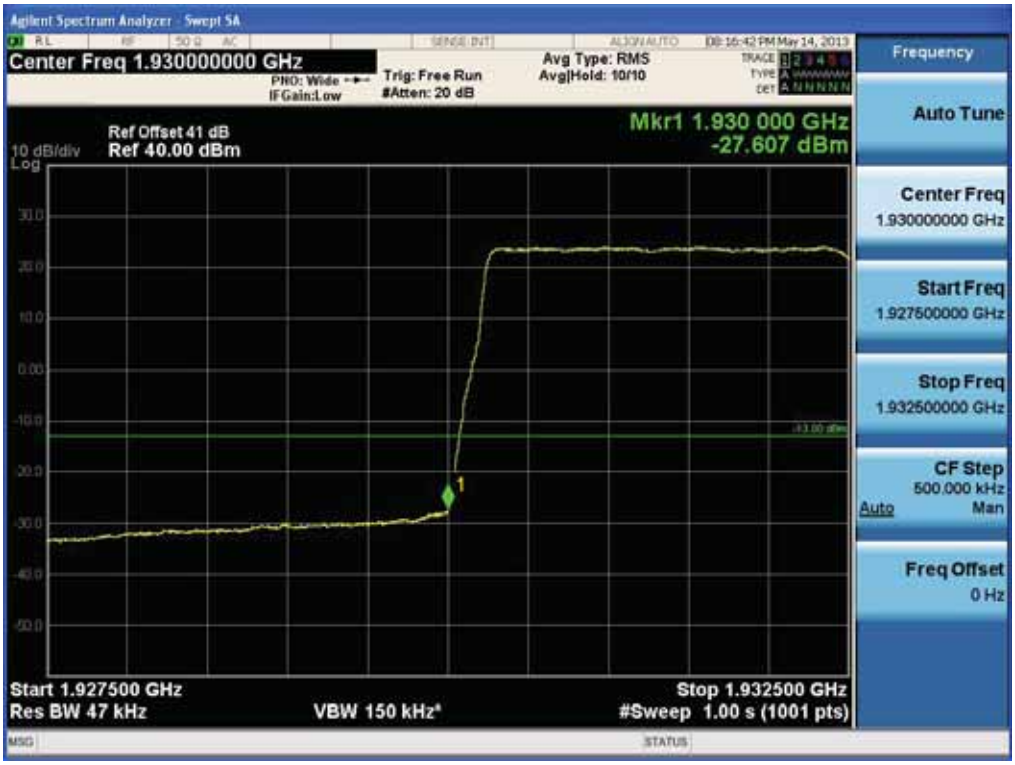

Agilent Spectrum Analyzer - Swept SA
Center Freq 1.995000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
09:13:49 PM May 14, 2013
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.995 000 GHz
-24.593 dBm
Center Freq
1.995000000 GHz
Start Freq
1.992500000 GHz
Stop Freq
1.997500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.992500 GHz
Res BW 47 kHz
VBW 150 kHz*
Stop 1.997500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

(64QAM Low Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.930000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 41 dB
10 dB/div
Ref 40.00 dBm
Mkr1 1.930 000 GHz
-27.607 dBm
Start 1.927500 GHz
Res BW 47 kHz
VBW 150 kHz*
Stop 1.932500 GHz
#Sweep 1.00 s (1001 pts)
Frequency
Auto Tune
Center Freq
1.930000000 GHz
Start Freq
1.927500000 GHz
Stop Freq
1.932500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz

(64QAM Middle Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(**64QAM High Channel)**

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.995000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
09:22:28 PM May 14, 2013
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.995 000 GHz
-26.366 dBm
Center Freq
1.995000000 GHz
Start Freq
1.992500000 GHz
Stop Freq
1.997500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.992500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.997500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

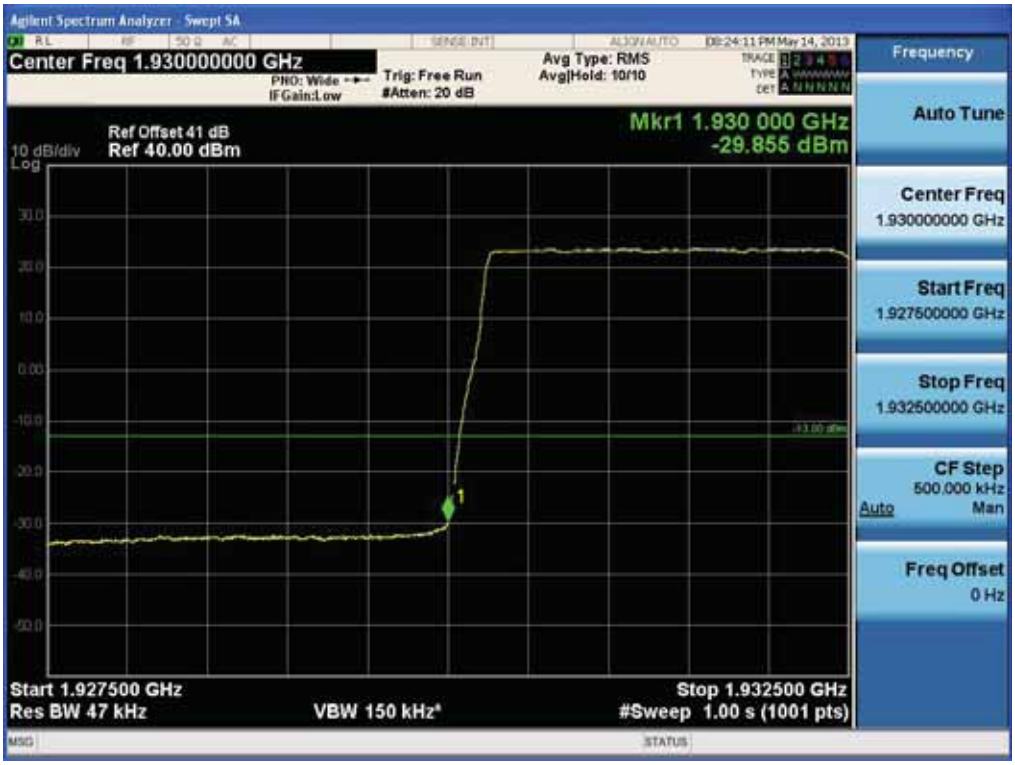
. Plot Data for LTE 5 MHz : 1 Carrier , Output Port 1

(QPSK Low Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.930000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.930 000 GHz
-29.855 dBm
Start 1.927500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.932500 GHz
#Sweep 1.00 s (1001 pts)
Frequency
Auto Tune
Center Freq
1.930000000 GHz
Start Freq
1.927500000 GHz
Stop Freq
1.932500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

(QPSK Middle Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(**QPSK High Channel)**

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.995000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
09:23:46 PM May 14, 2013
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.995 000 GHz
-30.168 dBm
Center Freq
1.995000000 GHz
Start Freq
1.992500000 GHz
Stop Freq
1.997500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.992500 GHz
Res BW 47 kHz
VBW 150 kHz*
Stop 1.997500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

(16QAM Low Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.930000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 41 dB
10 dB/div
Ref 40.00 dBm
Mkr1 1.930 000 GHz
-30.777 dBm
Start 1.927500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.932500 GHz
#Sweep 1.00 s (1001 pts)
Frequency
Auto Tune
Center Freq
1.930000000 GHz
Start Freq
1.927500000 GHz
Stop Freq
1.932500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

(16QAM Middle Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(**16QAM High Channel)**

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)

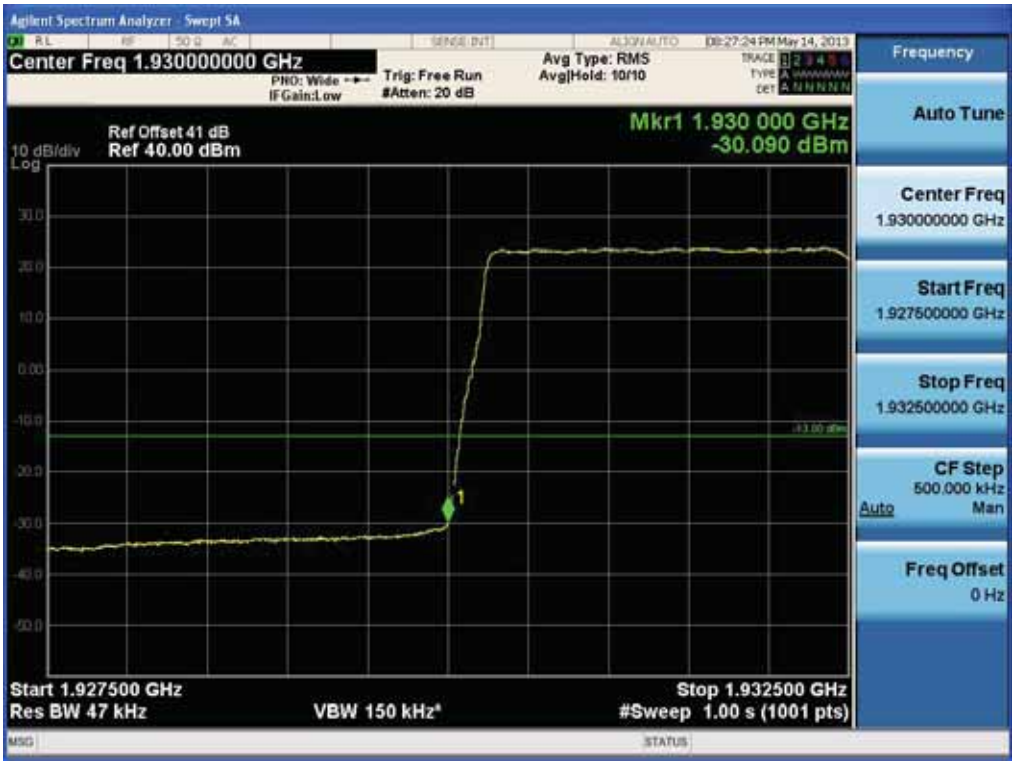

Agilent Spectrum Analyzer - Swept SA
Center Freq 1.995000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
09:31:55 PM May 14, 2013
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.995 000 GHz
-28.158 dBm
Center Freq
1.995000000 GHz
Start Freq
1.992500000 GHz
Stop Freq
1.997500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.992500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.997500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

(64QAM Low Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.930000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 41 dB
10 dB/div
Ref 40.00 dBm
Mkr1 1.930 000 GHz
-30.090 dBm
Start 1.927500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.932500 GHz
#Sweep 1.00 s (1001 pts)
Frequency
Auto Tune
Center Freq
1.930000000 GHz
Start Freq
1.927500000 GHz
Stop Freq
1.932500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

(64QAM Middle Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(**64QAM High Channel)**

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.995000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
09:42:57 PM May 14, 2013
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.995 000 GHz
-28.963 dBm
Center Freq
1.995000000 GHz
Start Freq
1.992500000 GHz
Stop Freq
1.997500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.992500 GHz
Res BW 47 kHz
VBW 150 kHz*
Stop 1.997500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

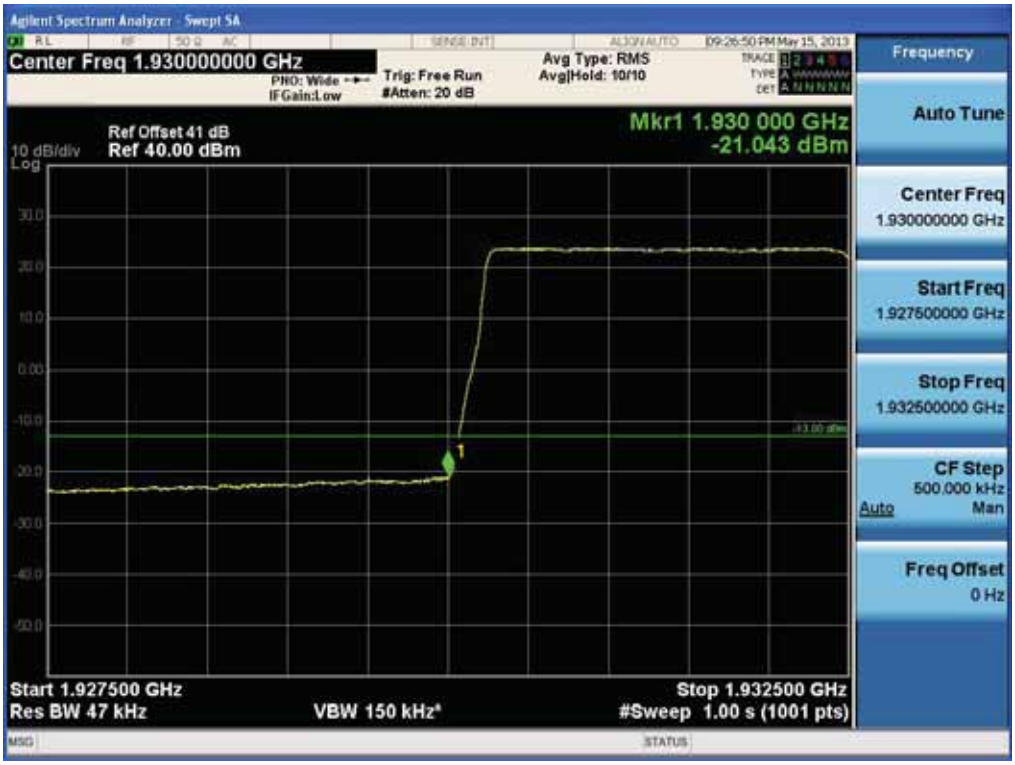
. Plot Data for LTE 5 MHz : 2 Carrier , Output Port 0

(QPSK Low Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.930000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
09:26:50 PM May 15, 2013
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.930 000 GHz
-21.043 dBm
Center Freq
1.930000000 GHz
Start Freq
1.927500000 GHz
Stop Freq
1.932500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.927500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.932500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

(QPSK Middle Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(**QPSK High Channel)**

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)

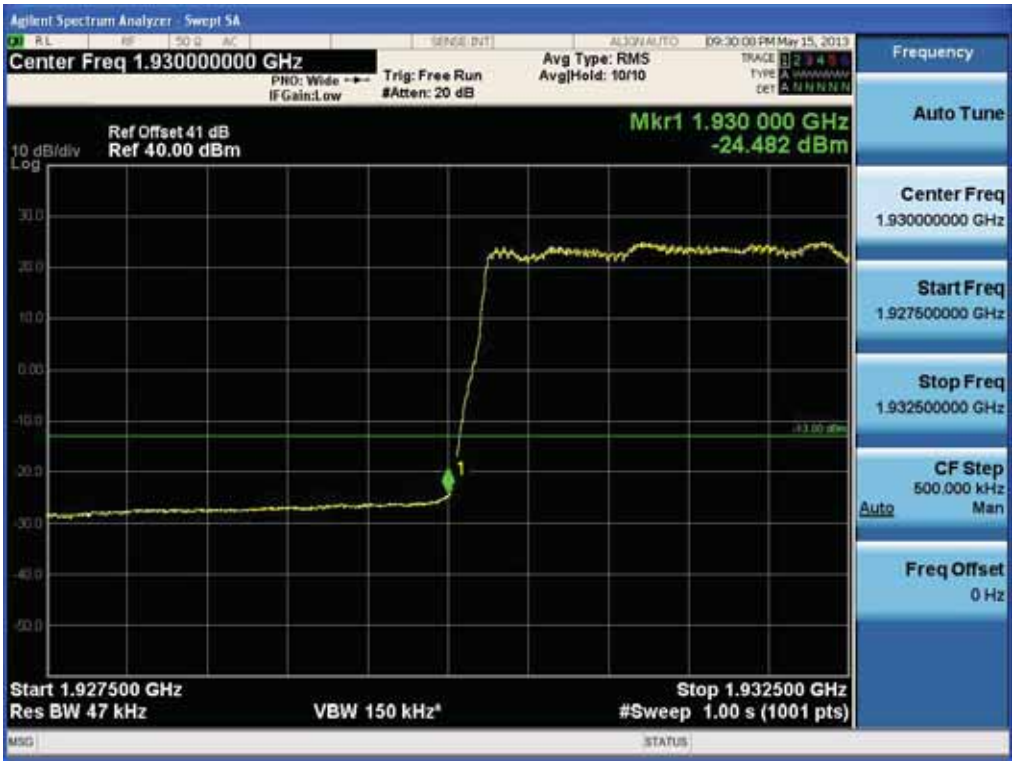

Agilent Spectrum Analyzer - Swept SA
Center Freq 1.995000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
10:00:20 PM May 15, 2013
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.995 000 GHz
-24.757 dBm
Center Freq
1.995000000 GHz
Start Freq
1.992500000 GHz
Stop Freq
1.997500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.992500 GHz
Res BW 47 kHz
VBW 150 kHz*
Stop 1.997500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

(16QAM Low Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.930000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
09:30:00 PM May 15, 2013
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.930 000 GHz
-24.482 dBm
Center Freq
1.930000000 GHz
Start Freq
1.927500000 GHz
Stop Freq
1.932500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.927500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.932500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

(16QAM Middle Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(**16QAM High Channel)**

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)

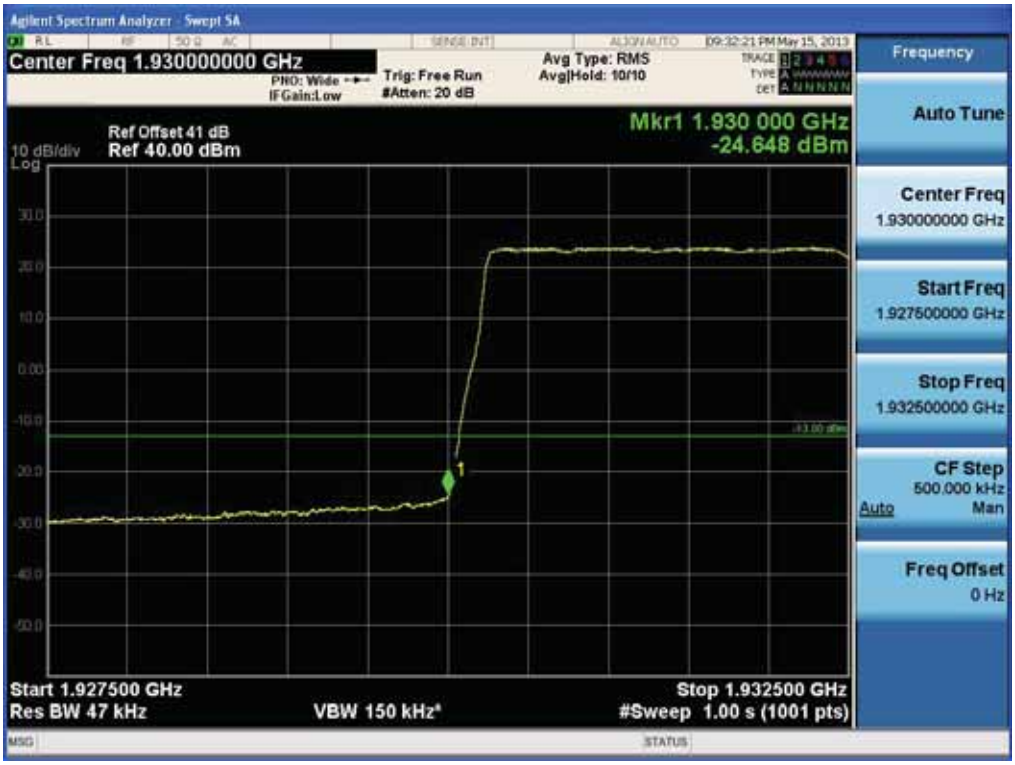

Agilent Spectrum Analyzer - Swept SA
Center Freq 1.995000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.995 000 GHz
-24.226 dBm
Start 1.992500 GHz
Res BW 47 kHz
VBW 150 kHz*
Stop 1.997500 GHz
#Sweep 1.00 s (1001 pts)
Frequency
Auto Tune
Center Freq
1.995000000 GHz
Start Freq
1.992500000 GHz
Stop Freq
1.997500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

(64QAM Low Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.930000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
09:32:21 PM May 15, 2013
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.930 000 GHz
-24.648 dBm
Center Freq
1.930000000 GHz
Start Freq
1.927500000 GHz
Stop Freq
1.932500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.927500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.932500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

(64QAM Middle Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(**64QAM High Channel)**

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.995000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
10:26:25 PM May 15, 2013
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.995 000 GHz
-24.584 dBm
Center Freq
1.995000000 GHz
Start Freq
1.992500000 GHz
Stop Freq
1.997500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.992500 GHz
Res BW 47 kHz
VBW 150 kHz*
Stop 1.997500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

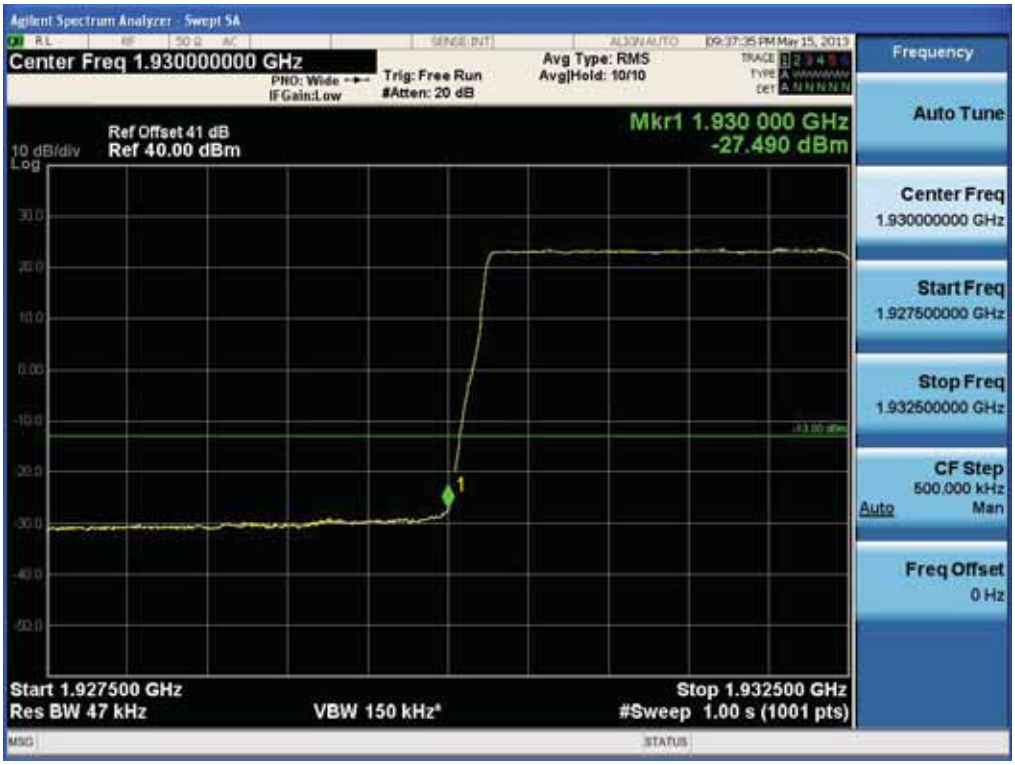
. Plot Data for LTE 5 MHz : 2 Carrier , Output Port 1

(QPSK Low Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.930000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
09:37:35 PM May 15, 2013
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.930 000 GHz
-27.490 dBm
Center Freq
1.930000000 GHz
Start Freq
1.927500000 GHz
Stop Freq
1.932500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.927500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.932500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

(QPSK Middle Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(**QPSK High Channel)**

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.995000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
10:31:15 PM May 15, 2013
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.995 000 GHz
-26.770 dBm
Center Freq
1.995000000 GHz
Start Freq
1.992500000 GHz
Stop Freq
1.997500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.992500 GHz
Res BW 47 kHz
VBW 150 kHz*
Stop 1.997500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

(16QAM Low Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.930000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 41 dB
10 dB/div
Ref 40.00 dBm
Mkr1 1.930 000 GHz
-26.319 dBm
Start 1.927500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.932500 GHz
#Sweep 1.00 s (1001 pts)
Frequency
Auto Tune
Center Freq
1.930000000 GHz
Start Freq
1.927500000 GHz
Stop Freq
1.932500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

(16QAM Middle Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(**16QAM High Channel)**

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)

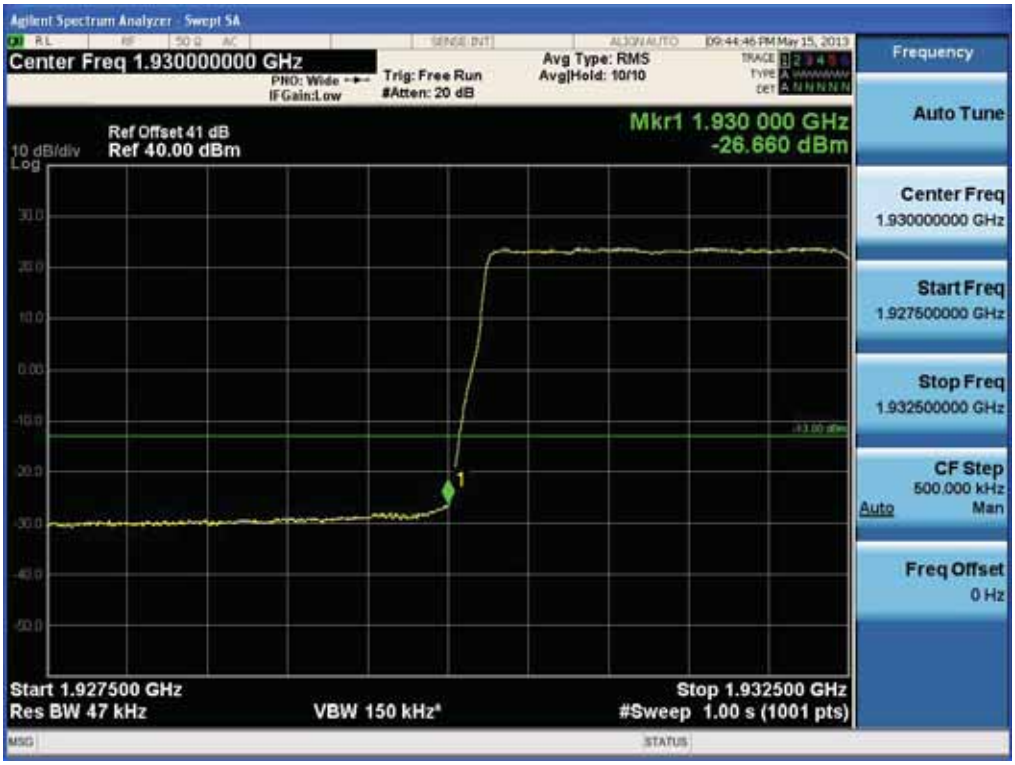

Agilent Spectrum Analyzer - Swept SA
Center Freq 1.995000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
10:36:42 PM May 15, 2013
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.995 000 GHz
-27.857 dBm
Center Freq
1.995000000 GHz
Start Freq
1.992500000 GHz
Stop Freq
1.997500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.992500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.997500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

(64QAM Low Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.930000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
09:44:46 PM May 15, 2013
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.930 000 GHz
-26.660 dBm
Center Freq
1.930000000 GHz
Start Freq
1.927500000 GHz
Stop Freq
1.932500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.927500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.932500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

(64QAM Middle Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(**64QAM High Channel)**

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.995000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
10:40:22 PM May 15, 2013
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 1.995 000 GHz
-26.437 dBm
Center Freq
1.995000000 GHz
Start Freq
1.992500000 GHz
Stop Freq
1.997500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.992500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.997500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

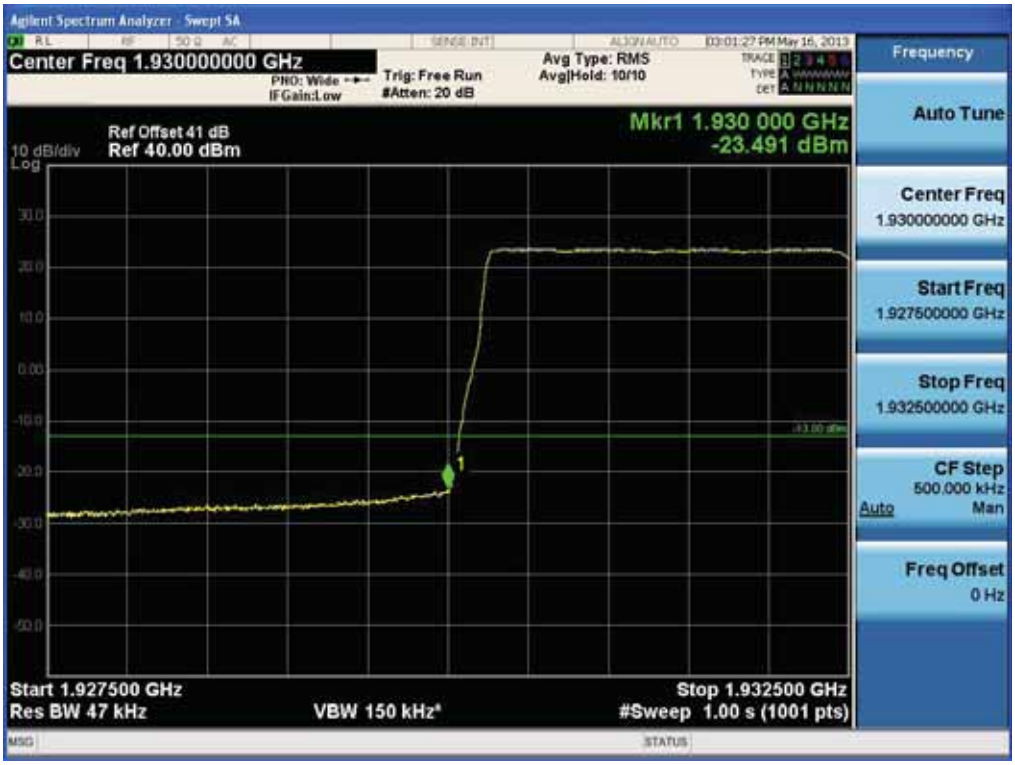
. Plot Data for LTE + CDMA, Output Port 0

(QPSK Low Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.930000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Ref 40.00 dBm
Mkr1 1.930 000 GHz
-23.491 dBm
Center Freq
1.930000000 GHz
Start Freq
1.927500000 GHz
Stop Freq
1.932500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.927500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.932500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

(QPSK Middle Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(**QPSK High Channel)**

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)

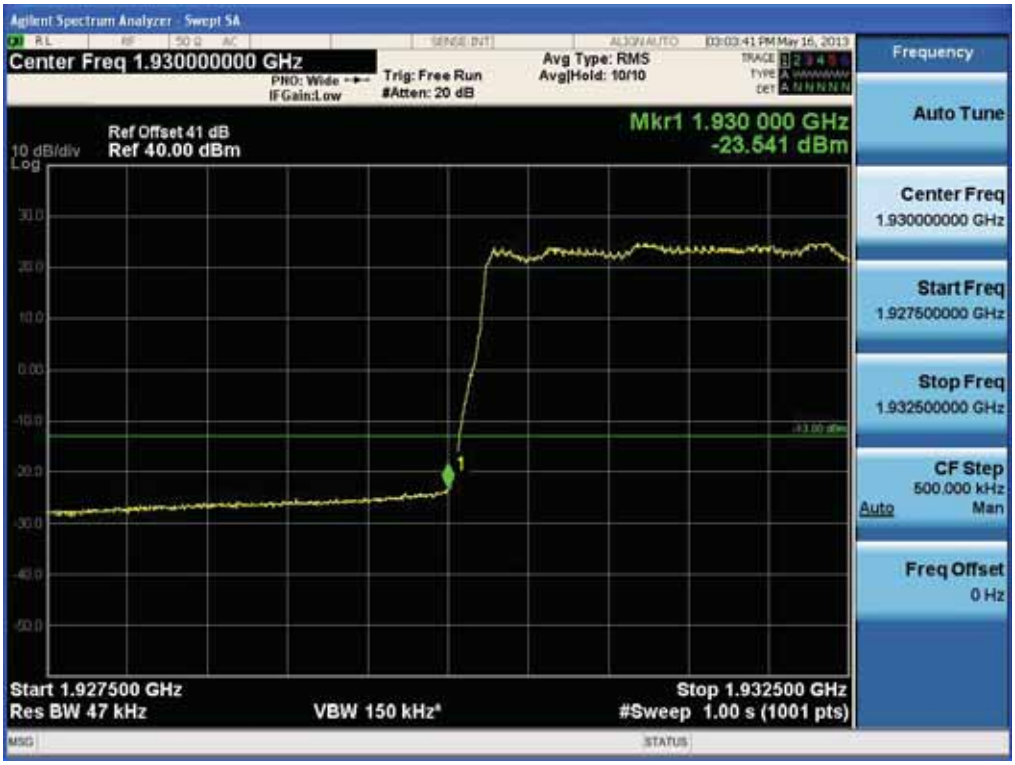

Agilent Spectrum Analyzer - Swept SA
Center Freq 1.995000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 41 dB
10 dB/div
Ref 40.00 dBm
Mkr1 1.995 000 GHz
-23.707 dBm
Start 1.992500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.997500 GHz
#Sweep 1.00 s (1001 pts)
Frequency
Auto Tune
Center Freq
1.995000000 GHz
Start Freq
1.992500000 GHz
Stop Freq
1.997500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

(16QAM Low Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.930000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 41 dB
10 dB/div
Ref 40.00 dBm
Mkr1 1.930 000 GHz
-23.541 dBm
Start 1.927500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.932500 GHz
#Sweep 1.00 s (1001 pts)
Frequency
Auto Tune
Center Freq
1.930000000 GHz
Start Freq
1.927500000 GHz
Stop Freq
1.932500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

(16QAM Middle Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(**16QAM High Channel)**

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)

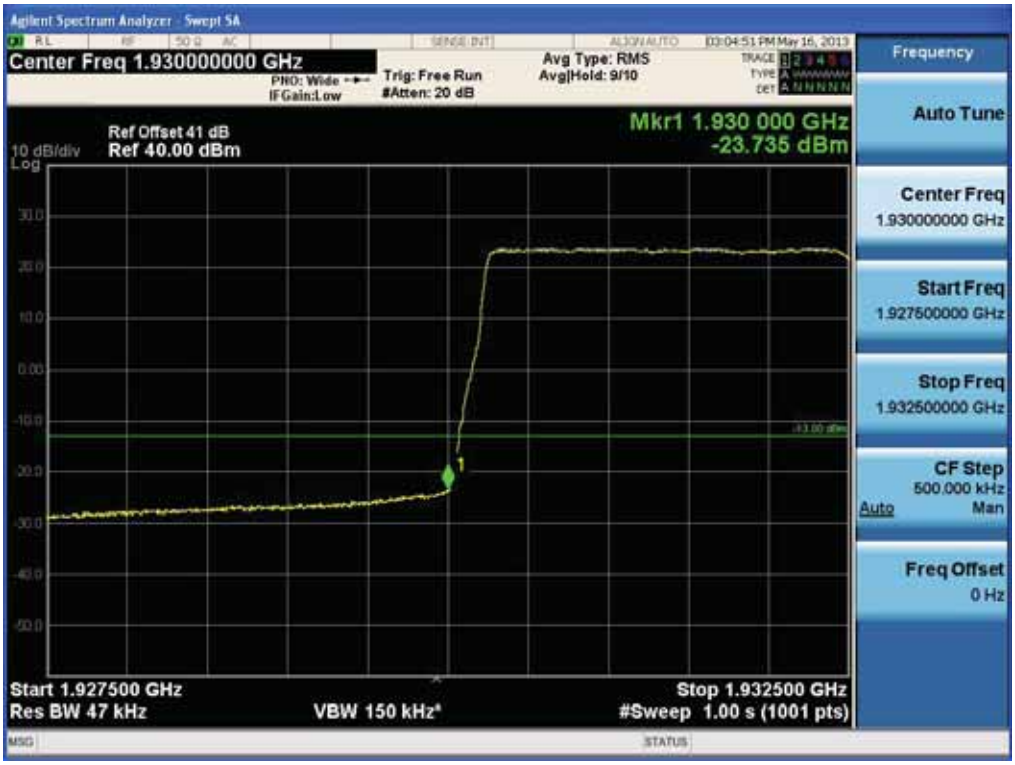

Agilent Spectrum Analyzer - Swept SA
Center Freq 1.995000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
Frequency
Auto Tune
Ref Offset 41 dB
10 dB/div
Ref 40.00 dBm
Mkr1 1.995 000 GHz
-23.159 dBm
Center Freq
1.995000000 GHz
Start Freq
1.992500000 GHz
Stop Freq
1.997500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 1.992500 GHz
Res BW 47 kHz
VBW 150 kHz
Stop 1.997500 GHz
#Sweep 1.00 s (1001 pts)
MSG
STATUS

(64QAM Low Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.930000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 9/10
Ref Offset 41 dB
10 dB/div
Ref 40.00 dBm
Mkr1 1.930 000 GHz
-23.735 dBm
Start 1.927500 GHz
Res BW 47 kHz
VBW 150 kHz*
Stop 1.932500 GHz
#Sweep 1.00 s (1001 pts)
Frequency
Auto Tune
Center Freq
1.930000000 GHz
Start Freq
1.927500000 GHz
Stop Freq
1.932500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz

(64QAM Middle Channel)

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(**64QAM High Channel)**

(30 MHz ~ 1 GHz)

(1 GHz ~ 26.5 GHz)

(Band Edge)


Agilent Spectrum Analyzer - Swept SA
Center Freq 1.995000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 41 dB
10 dB/div
Ref 40.00 dBm
Mkr1 1.995 000 GHz
-23.938 dBm
Start 1.992500 GHz
Res BW 47 kHz
VBW 150 kHz*
Stop 1.997500 GHz
#Sweep 1.00 s (1001 pts)
Frequency
Auto Tune
Center Freq
1.995000000 GHz
Start Freq
1.992500000 GHz
Stop Freq
1.997500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS