HCT CO.,LTD
74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea
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REPORT

FCC Certification

Applicant Name:
Franklin Technology Inc.

Address:
906 JEI Platz, 459-11 Gasan-dong, Gumcheon-gu, Seoul, Korea 153-792

Date of Issue:
November 21, 2014

Location:
HCT CO., LTD., 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea

Test Report No.: HCT-R-1411-F022

HCT FRN: 0005866421

FCC ID:	**XHG-C774**
APPLICANT:	**Franklin Technology Inc.**

FCC Model(s):	C774	
EUT Type:	CPE Router	
FCC Classification:	PCS Licensed Transmitter (PCB)	
FCC Rule Part(s):	§2 , §24	
Tx Frequency:	1 850.7 MHz – 1 914.3 MHz (LTE – Band25 (1.4 MHz))	
	1 851.5 MHz – 1 913.5 MHz (LTE – Band25 (3 MHz))	
	1 852.5 MHz – 1 912.5 MHz (LTE – Band25 (5 MHz))	
	1 855.0 MHz – 1 910.0 MHz (LTE – Band25 (10 MHz))	
	1 857.5 MHz – 1 907.5 MHz (LTE – Band25 (15 MHz))	
	1 860.0 MHz – 1 905.0 MHz (LTE – Band25 (20 MHz))	
Max. RF Output Power:	Band 25 (1.4 MHz):	1.633 W (QPSK) (32.13 dBm)
		1.611 W (16-QAM) (32.07 dBm)
	Band 25 (3 MHz):	1.578 W (QPSK) (31.98 dBm)
		1.574 W (16-QAM) (31.97 dBm)
	Band 25 (5 MHz):	1.589 W (QPSK) (32.01 dBm)
		1.592 W (16-QAM) (32.02 dBm)
	Band 25 (10 MHz):	1.549 W (QPSK) (31.90 dBm)
		1.570 W (16-QAM) (31.96 dBm)
	Band 25 (15 MHz):	1.799 W (QPSK) (32.55 dBm)
		1.762 W (16-QAM) (32.46 dBm)
	Band 25 (20 MHz):	1.828 W (QPSK) (32.62 dBm)
		1.824 W (16-QAM) (32.61 dBm)
Emission Designator(s):	Band 25 (1.4 MHz):	1M09G7D (QPSK) / 1M09W7D (16-QAM)
	Band 25 (3 MHz):	2M69G7D (QPSK) / 2M69W7D (16-QAM)
	Band 25 (5 MHz):	4M49G7D (QPSK) / 4M50W7D (16-QAM)
	Band 25 (10 MHz):	8M96G7D (QPSK) / 8M94W7D (16-QAM)
	Band 25 (15 MHz):	13M4G7D (QPSK) / 13M4W7D (16-QAM)
	Band 25 (20 MHz):	17M9G7D (QPSK) / 18M0W7D (16-QAM)

The measurements shown in this report were made in accordance with the procedures specified in §2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

Report prepared by
: Kyung Houn Seo
Test engineer of RF Team

Approved by
: Chang Seok Choi
Manager of RF Team

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-R-1411-F022	November 21, 2014	- First Approval Report

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MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	Franklin Technology Inc.
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Date(s) of Tests:	November 10, 2014 ~ November 19, 2014
Antenna Specification	Manufacturer: INNO-LINK Antenna type: Whip Antenna Peak Gain: Band 25: 2.24 dBi

2. INTRODUCTION

2.1. EUT DESCRIPTION

The Franklin Technology Inc. C774 CPE Router of LTE25.

2.2. MEASURING INSTRUMENT CALIBRATION

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

2.3. TEST FACILITY

The Fully-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.

3. DESCRIPTION OF TESTS

3.1 CONDUCTED OUTPUT POWER

Test Procedure

Conducted Output Power is tested in accordance with KDB971168 D01 Power Meas License Digital Systems v02r02, October 17, 2014, Section 5.2.

5.2.1 Procedure for use with a spectrum/signal analyzer when EUT can be configured to transmit continuously or when sweep triggering/signal gating can be properly implemented

The EUT is considered to transmit continuously if it can be configured to transmit at a burst duty cycle of greater than or equal to 98% throughout the duration of the measurement. If this condition can be achieved, then the following procedure can be used to measure the average output power of the EUT.

This procedure can also be used when the EUT cannot be configured to transmit continuously, provided that the measurement instrument can be configured to trigger a sweep at the beginning of each full-power transmission burst, and the sweep time is less than or equal to the minimum transmission time during each burst (*i.e.*, no burst off-time is to be included in the measurement).

a) Set span to at least 1.5 times the OBW.

b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz.

c) Set VBW ≥ 3 x RBW.

d) Set number of points in sweep ≥ 2 × span / RBW.

e) Sweep time = auto-couple.

f) Detector = RMS (power averaging).

g) If the EUT can be configured to transmit continuously (*i.e.*, burst duty cycle ≥ 98%), then set the trigger to free run.

h) If the EUT cannot be configured to transmit continuously (*i.e.*, burst duty cycle < 98 %), then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Ensure that the sweep time is less than or equal to the transmission burst duration.

i) Trace average at least 100 traces in power averaging (*i.e.*, RMS) mode.

j) Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function, with the band limits set equal to the OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

3.2 EIRP RADIATED POWER AND RADIATED SPURIOUS EMISSIONS

Note: EIRP(Effective Isotropic Radiated Power)

Test Procedure

Radiated emission measurements are performed in the Fully-anechoic chamber. The equipment under test is placed on a non-conductive table 3-meters away from the receive antenna in accordance with ANSI/TIA-603-C-2004 Clause 2.2.17. The turntable is rotated through 360 degrees, and the receiving antenna scans in order to determine the level of the maximized emission. The level and position of the maximized emission is recorded with the spectrum analyzer using a positive peak detector.
A half wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.
The power is calculated by the following formula;

$$P_{d(dBm)} = Pg_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dB)}$$

Where: P_d is the dipole equivalent power and P_g is the generator output power into the substitution antenna.

The maximum EIRP is calculated by adding the forward power to the calibrated source plus its appropriate gain value. These steps are repeated with the receiving antenna in both vertical and horizontal polarization. the difference between the gain of the horn and an isotropic antenna are taken into consideration

Radiated spurious emissions

: Frequency Range : 30 MHz ~ 10^{th} Harmonics of highest channel fundamental frequency.

3.3 PEAK-AVERAGE RATIO.

Test Procedure

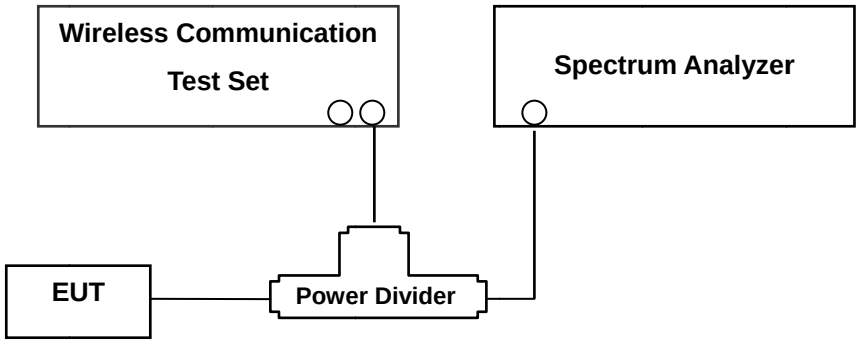
Peak to Average Power Ratio is tested in accordance with KDB971168 D01 Power Meas License Digital Systems v02r02, October 17, 2014, Section 5.7.

- Section 5.7.1 CCDF Procedure

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

3.4 OCCUPIED BANDWIDTH.

Test set-up



(Configuration of conducted Emission measurement)

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

Test Procedure

OBW is tested in accordance with KDB971168 D01 Power Meas License Digital Systems v02r02, October 17, 2014, Section 4.2..

The EUT makes a call to the communication simulator. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels(low, middle and high operational range.)

The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth

3.5 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL.

Test Procedure

Spurious and harmonic emissions at antenna terminal is tested in accordance with KDB971168 D01 Power Meas License Digital Systems v02r02, October 17, 2014, Section 6.0.

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

The EUT was setup to maximum output power at its lowest channel. The Resolution BW of the analyzer is set to 1 % of the emission bandwidth to show compliance with the -13 dBm limit, in the 1 MHz bands immediately outside and adjacent to the edge of the frequency block. The 1 MHz RBW was used to scan from 30 MHz to 26.5 GHz. A display line was placed at -13 dBm to show compliance. The high, lowest and a middle channel were tested for out of band measurements.

- Band Edge Requirement : In the 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. Limit, -13dBm.

NOTES: The analyzer plot offsets were determined by below conditions.

- For LTE Band 25, total offset 27.3 dBm = 20 dBm attenuator + 6 dBm Divider + 1.3 dBm RF cables.

3.6 FREQUENCY RANGE (1850 MHz ~ 1915 MHz)

Subpart E—Broadband PCS

§ 24.229

(a) The following frequency blocks are available for assignment on an MTA basis:

Block A: 1850–1865 MHz paired with 1930–1945 MHz;

Block B: 1870–1885 MHz paired with 1950–1965 MHz.

(b) The following frequency blocks are available for assignment on a BTA basis:

Block C: 1895–1910 MHz paired with 1975–1990 MHz;

Block D: 1865–1870 MHz paired with 1945–1950 MHz;

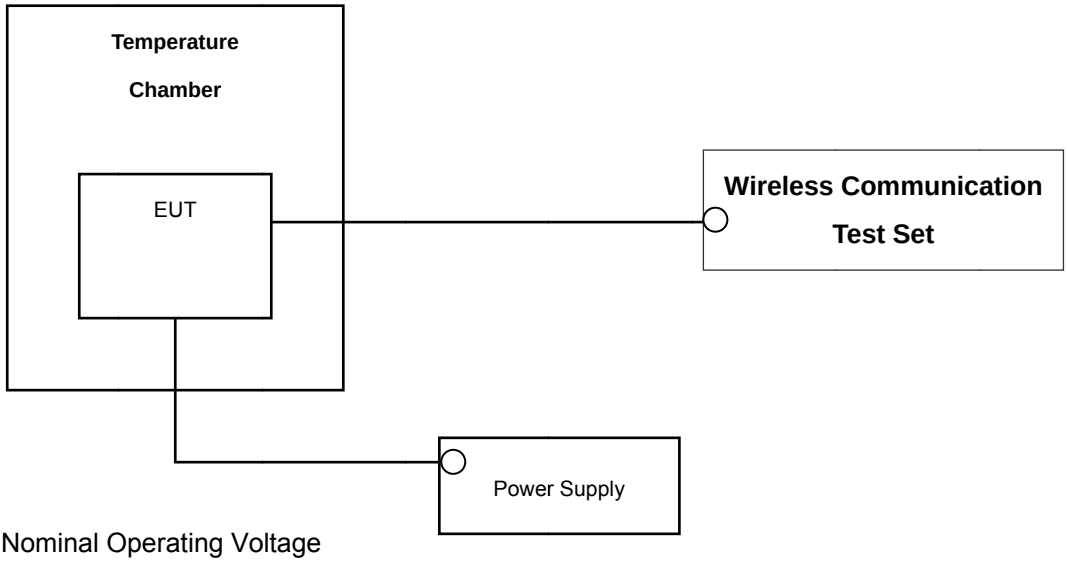
Block E: 1885–1890 MHz paired with 1965–1970 MHz;

Block F: 1890–1895 MHz paired with 1970–1975 MHz;

(c) 1910-1915 MHz paired with 1990-1995 MHz

3.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

Test Set-up



* Nominal Operating Voltage

Test Procedure

Frequency stability is tested in accordance with ANSI/TIA-603-C-2004 section 2.2.2

The frequency stability of the transmitter is measured by:
a.) **Temperature:** The temperature is varied from - 30 °C to + 50 °C using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from the end point to 115 % of the voltage normally at the input to the device or at the power supply terminals if cables are not normally supplied.

Specification — the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block(LTE Band25).

Time Period and Procedure:

The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
1. The equipment is turned on in a “standby” condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.

2. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

4. LIST OF TEST EQUIPMENT

Manufacture	Model/ Equipment	Serial Number	Calibration Interval	Calibration Due
Agilent	N1921A/ Power Sensor	MY45241059	Annual	07/09/2015
Agilent	N1911A/ Power Meter	MY45100523	Annual	01/24/2015
MITEQ	AMF-6D-001180-35-20P/AMP	1081666	Annual	09/04/2015
Wainwright	WHK1.2/15G-10EF/H.P.F	4	Annual	06/17/2015
Wainwright	WRCJV2400/2483.5-2370/2520-60/12SS / B.R.F.	1	Annual	06/17/2015
Wainwright	WHK3.3/18G-10EF/H.P.F	2	Annual	06/17/2015
Hewlett Packard	11667B / Power Splitter	10545	Annual	02/22/2015
Hewlett Packard	11667B / Power Splitter	11275	Annual	05/19/2015
Digital	EP-3010/ Power Supply	3110117	Annual	10/29/2015
Schwarzbeck	UHAP/ Dipole Antenna	557	Biennial	03/05/2015
Schwarzbeck	UHAP/ Dipole Antenna	558	Biennial	05/03/2015
Korea Engineering	KR-1005L / Chamber	KRAC05063-3CH	Annual	10/29/2015
Schwarzbeck	BBHA 9120D/ Horn Antenna	147	Biennial	09/01/2016
Schwarzbeck	BBHA 9120D/ Horn Antenna	1151	Biennial	10/05/2015
Schwarzbeck	BBHA 9170/ Horn Antenna(15~40GHz)	BBHA9170541	Biennial	07/05/2015
Agilent	E4440A/Spectrum Analyzer	US45303008	Annual	04/09/2015
WEINSCHEL	ATTENUATOR	BR0592	Annual	10/22/2015
REOHDE&SCHWARZ	FSV40/Spectrum Analyzer	1307.9002K40-100931-NK	Annual	06/09/2015
Agilent	8960 (E5515C)/ Base Station	MY48360222	Annual	08/26/2015
Anritsu Corp.	MT8820C/Wideband Radio Communication Tester	6200863156	Annual	04/01/2015

5. SUMMARY OF TEST RESULTS

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result
2.1049, 24.238(a)	Occupied Bandwidth	N/A	CONDUCTED	PASS
2.1051, 24.238(a)	Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions		PASS
2.1046	Conducted Output Power	N/A		PASS
24.232(d)	Peak- to- Average Ratio	< 13 dB		
2.1055, 24.235	Frequency stability / variation of ambient temperature	< 2.5 ppm		PASS
24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP	RADIATED	PASS
2.1053, 24.238(a)	Radiated Spurious and Harmonic Emissions	< 43 + 10log10 (P[Watts]) for all out-of band emissions		PASS

6. SAMPLE CALCULATION

A. EIRP Sample Calculation

Mode	Ch./ Freq.		Measured Level(dBm)	Substitude LEVEL(dBm)	Ant. Gain (dBi)	C.L	Pol.	EIRP	
	channel	Freq.(MHz)						W	dBm
LTE	26065	1852.5	-16.48	17.23	10.40	2.83	H	0.301	24.79

EIRP = SubstitudeLEVEL(dBm) + Ant. Gain – CL(Cable Loss)

1) The EUT mounted on a wooden tripod is 0.8 meter above test site ground level.
2) During the test , the turn table is rotated and the antenna height is also varied from 1 to 4 meters until the maximum signal is found.
3) Record the field strength meter's level.
4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
5) Increase the signal generator output till the field strength meter's level is equal to the item (3).
6) The signal generator output level with Ant. Gain and cable loss are the rating of effective radiated power (**EIRP**).

B. Emission Designator

QPSK Modulation

Emission Designator = 8M95G7D

LTE BW = 8.95 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Amplitude/Angle Modulated

16QAM Modulation

Emission Designator = 8M94W7D

LTE BW = 8.94 MHz

D = Amplitude/Angle Modulated

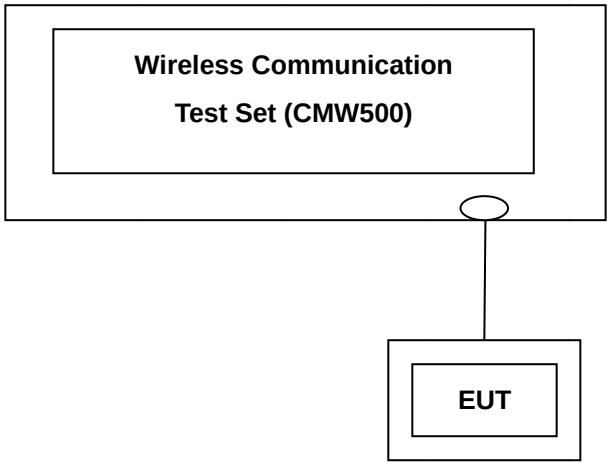
7 = Quantized/Digital Info

W = Combination (Audio/Data)

7. TEST DATA

7.1 CONDUCTED OUTPUT POWER

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



Test Result

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)			Target MPR (dB)
				26047ch 1850.7 MHz	26365ch 1882.5 MHz	26683ch 1914.3 MHz	
1.4MHz	QPSK	1	0	22.95	23.36	23.32	0
		1	3	22.91	23.27	23.30	0
		1	5	23.01	23.27	23.11	0
		3	0	22.88	23.22	23.26	0
		3	1	22.96	23.30	23.17	0
		3	3	22.87	23.31	23.01	0
		6	0	21.84	22.27	22.17	1
	16QAM	1	0	21.89	22.25	22.39	1
		1	3	21.91	22.29	22.33	1
		1	5	21.87	22.25	22.27	1
		3	0	21.86	22.28	22.43	1
		3	1	21.80	22.27	22.42	1
		3	3	22.26	22.27	22.38	1
		6	0	21.33	21.38	21.41	2

LTE Conducted Average Output Powers (1.4 MHz Band 25 LTE)

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)			Target MPR (dB)
				26055ch 1851.5 MHz	26365ch 1882.5 MHz	26675ch 1913.5 MHz	
3MHz	QPSK	1	0	23.22	23.32	23.18	0
		1	7	23.15	23.25	23.07	0
		1	14	22.64	23.17	22.56	0
		8	0	22.19	22.14	21.98	1
		8	3	22.07	22.09	22.04	1
		8	7	21.88	22.10	21.82	1
		15	0	20.61	21.99	21.89	1
	16QAM	1	0	22.15	22.17	22.23	1
		1	7	22.08	22.22	22.21	1
		1	14	21.94	22.14	21.88	1
		8	0	21.22	21.07	21.02	2
		8	3	21.05	21.02	21.05	2
		8	7	21.24	21.04	20.83	2
		15	0	21.17	20.99	20.98	2

LTE Conducted Average Output Powers (3 MHz Band 25 LTE)

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)			Target MPR (dB)
				26065ch 1852.5 MHz	26365ch 1882.5 MHz	26665ch 1912.5 MHz	
5MHz	QPSK	1	0	23.15	23.11	22.88	0
		1	12	23.16	23.05	22.95	0
		1	24	23.07	22.98	22.32	0
		12	0	21.87	22.05	21.86	1
		12	6	21.92	21.88	21.93	1
		12	11	21.88	21.79	21.88	1
		25	0	21.78	21.64	21.60	1
	16QAM	1	0	22.09	22.06	21.74	1
		1	12	22.06	21.94	21.90	1
		1	24	21.98	21.98	21.37	1
		12	0	21.13	21.06	20.95	2
		12	6	21.11	20.98	20.88	2
		12	11	21.09	20.82	20.86	2
		25	0	20.80	20.75	20.64	2

LTE Conducted Average Output Powers (5 MHz Band 25 LTE)

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)			Target MPR (dB)
				26090ch 1855 MHz	26365ch 1882.5 MHz	26640ch 1910 MHz	
10MHz	QPSK	1	0	23.02	23.06	22.81	0
		1	24	22.92	22.95	22.75	0
		1	49	22.99	22.81	21.77	0
		25	0	21.71	21.69	21.43	1
		25	12	21.64	21.57	21.56	1
		25	24	21.54	21.47	21.63	1
		50	0	21.55	21.54	21.48	1
	16QAM	1	0	22.02	21.92	21.75	1
		1	24	21.92	21.80	21.76	1
		1	49	21.94	21.76	21.11	1
		25	0	20.73	20.71	20.50	2
		25	12	20.66	20.60	20.60	2
		25	24	20.67	20.51	20.69	2
		50	0	20.56	20.47	20.46	2

LTE Conducted Average Output Powers (10 MHz Band 25 LTE)

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)			Target MPR (dB)
				26115ch 1857.5 MHz	26365ch 1882.5 MHz	26615ch 1907.5 MHz	
15MHz	QPSK	1	0	23.04	23.12	23.10	0
		1	36	23.17	23.09	22.81	0
		1	74	23.32	22.68	22.53	0
		36	0	21.61	21.53	21.76	1
		36	18	21.68	21.45	21.66	1
		36	36	21.29	21.31	21.64	1
		75	0	21.45	21.46	21.66	1
	16QAM	1	0	21.88	22.09	22.13	1
		1	36	21.81	21.87	21.89	1
		1	74	21.67	21.72	22.00	1
		36	0	20.72	20.64	20.82	2
		36	18	20.51	20.53	20.62	2
		36	36	20.65	20.55	20.53	2
		75	0	20.44	20.53	20.60	2

LTE Conducted Average Output Powers (15 MHz Band 25 LTE)

Bandwidth	Modulation	RB Size	RB Offset	Max.Average Power (dBm)			Target MPR (dB)
				26140ch 1860 MHz	26365ch 1882.5 MHz	26590ch 1905 MHz	
20MHz	QPSK	1	0	23.13	23.07	23.00	0
		1	49	23.07	22.94	22.83	0
		1	99	23.17	22.87	21.63	0
		50	0	21.56	21.59	21.62	1
		50	25	21.57	21.45	21.37	1
		50	49	21.64	21.36	21.39	1
		100	0	21.70	21.52	21.58	1
	16QAM	1	0	21.95	22.09	21.85	1
		1	49	21.95	21.87	21.90	1
		1	99	22.03	21.72	20.91	1
		50	0	20.50	20.67	20.59	2
		50	25	20.62	20.52	20.41	2
		50	49	20.64	20.41	20.39	2
		100	0	20.67	20.50	20.58	2

LTE Conducted Average Output Powers (20 MHz Band 25 LTE)

Note : Detecting mode is average.

7.2 EQUIVALENT ISOTROPIC RADIATED POWER OUTPUT

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitude Level (dBm)	Ant. Gain(dBi)	C.L	Pol	EIRP	
								W	dBm
1,850.7	1.4 MHz	QPSK	-10.80	23.85	10.04	1.83	V	1.607	32.06
		16-QAM	-10.95	23.86	10.04	1.83	V	1.611	32.07
1,882.5		QPSK	-11.03	23.94	10.04	1.85	V	1.633	32.13
		16-QAM	-11.15	23.82	10.04	1.85	V	1.589	32.01
1,914.3		QPSK	-13.96	21.06	10.06	1.89	V	0.838	29.23
		16-QAM	-14.10	20.92	10.06	1.89	V	0.811	29.09

Equivalent Isotropic Radiated Power Output Data (Band 25_1.4 MHz)

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitude Level (dBm)	Ant. Gain(dBi)	C.L	Pol	EIRP	
								W	dBm
1,851.5	3 MHz	QPSK	-10.88	23.77	10.04	1.83	V	1.578	31.98
		16-QAM	-11.07	23.58	10.04	1.83	V	1.510	31.79
1,882.5		QPSK	-11.18	23.79	10.04	1.85	V	1.578	31.98
		16-QAM	-11.19	23.78	10.04	1.85	V	1.574	31.97
1,913.5		QPSK	-13.83	21.19	10.06	1.89	V	0.863	29.36
		16-QAM	-14.08	20.94	10.06	1.89	V	0.815	29.11

Equivalent Isotropic Radiated Power Output Data (Band 25_3 MHz)

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitude Level (dBm)	Ant. Gain(dBi)	C.L	Pol	EIRP	
								W	dBm
1,852.5	5 MHz	QPSK	-11.10	23.55	10.04	1.83	V	1.500	31.76
		16-QAM	-11.08	23.57	10.04	1.83	V	1.507	31.78
1,882.5		QPSK	-11.15	23.82	10.04	1.85	V	1.589	32.01
		16-QAM	-11.14	23.83	10.04	1.85	V	1.592	32.02
1,912.5		QPSK	-14.62	20.41	10.05	1.89	V	0.719	28.57
		16-QAM	-14.64	20.39	10.05	1.89	V	0.716	28.55

Equivalent Isotropic Radiated Power Output Data (Band 25_5 MHz)

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitude Level (dBm)	Ant. Gain(dBi)	C.L	Pol	EIRP	
								W	dBm
1,855.0	10 MHz	QPSK	-11.04	23.69	10.04	1.83	V	1.549	31.90
		16-QAM	-10.98	23.75	10.04	1.83	V	1.570	31.96
1,882.5		QPSK	-11.39	23.58	10.04	1.85	V	1.503	31.77
		16-QAM	-11.40	23.57	10.04	1.85	V	1.500	31.76
1,910.0		QPSK	-13.31	21.72	10.05	1.89	V	0.973	29.88
		16-QAM	-13.22	21.81	10.05	1.89	V	0.993	29.97

Equivalent Isotropic Radiated Power Output Data (Band 25_10 MHz)

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitude Level (dBm)	Ant. Gain(dBi)	C.L	Pol	EIRP	
								W	dBm
1,857.5	15 MHz	QPSK	-11.01	24.34	10.04	1.83	V	1.799	32.55
		16-QAM	-11.10	24.25	10.04	1.83	V	1.762	32.46
1,882.5		QPSK	-11.44	23.78	10.04	1.85	V	1.574	31.97
		16-QAM	-11.48	23.74	10.04	1.85	V	1.560	31.93
1,907.5		QPSK	-12.50	22.66	10.05	1.89	V	1.208	30.82
		16-QAM	-12.29	22.87	10.05	1.89	V	1.268	31.03

Equivalent Isotropic Radiated Power Output Data (Band 25_15 MHz)

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitude Level (dBm)	Ant. Gain(dBi)	C.L	Pol	EIRP	
								W	dBm
1,860.0	20 MHz	QPSK	-10.94	24.41	10.04	1.83	V	1.828	32.62
		16-QAM	-10.95	24.40	10.04	1.83	V	1.824	32.61
1,882.5		QPSK	-12.29	22.93	10.04	1.85	V	1.294	31.12
		16-QAM	-12.18	23.04	10.04	1.85	V	1.327	31.23
1,905.0		QPSK	-13.92	21.21	10.05	1.88	V	0.867	29.38
		16-QAM	-13.91	21.22	10.05	1.88	V	0.869	29.39

Equivalent Isotropic Radiated Power Output Data (Band 25_20 MHz)

NOTES:

Effective Radiated Power Output Measurements by Substitution Method
according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a non-conductive styrofoam resin table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For 1 MHz BW signals, a peak detector is used, with RBW = VBW = 1 MHz. For 10 MHz BW signals, a peak detector is used, with RBW = VBW = 10 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the Horn antenna is measured. The difference between the gain of the horn and an isotropic antenna is taken into consideration and the EIRP is recorded.

Also, we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna. The worst case of the EUT is y plane in LTE 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz and 20 MHz mode. Also worst case of detecting Antenna is vertical polarization and in LTE 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz and 20 MHz mode.

Worst case is 1 resource block.

7.3 RADIATED SPURIOUS EMISSIONS (LTE Band 25)

7.3.1 RADIATED SPURIOUS EMISSIONS

▣ MEASURED OUTPUT POWER: 32.13 dBm = 1.633 W

▣ MODULATION SIGNAL: 1.4 MHz QPSK

▣ DISTANCE: 3 meters

▣ LIMIT: - (43 + 10 log10 (W)) = 45.13 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitude Level (dBm)	C.L	Pol	EIRP (dBm)	dBc
26047 (1850.7)	3,525.00	-53.91	12.14	-55.94	2.60	H	-46.40	78.53
	3,701.40	-39.99	12.32	-41.77	2.64	H	-32.09	64.22
	5,471.00	-52.00	12.97	-48.71	3.38	H	-39.12	71.25
	5,552.10	-43.08	13.02	-39.54	3.39	H	-29.91	62.04
26365 (1885.5)	3,525.00	-54.75	12.14	-56.78	2.60	V	-47.24	79.37
	3,765.00	-44.21	12.29	-45.90	2.68	H	-36.29	68.42
	4,302.00	-54.13	12.48	-54.29	2.92	H	-44.73	76.86
	5,472.00	-52.03	12.97	-48.74	3.38	H	-39.15	71.28
	5,647.50	-44.91	13.13	-41.48	3.51	H	-31.86	63.99
26683 (1914.3)	3,524.00	-54.56	12.14	-56.59	2.60	H	-47.05	79.18
	3,828.60	-41.90	12.27	-43.26	2.64	H	-33.63	65.76
	5,472.00	-51.78	12.97	-48.49	3.38	V	-38.90	71.03
	5,742.90	-42.93	13.03	-39.28	3.52	H	-29.77	61.90

NOTES: 1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5th Harmonic for all channel.

3. we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

4. Worst case is 1 resource block.

▣ MEASURED OUTPUT POWER: 31.98 dBm = 1.578 W

▣ MODULATION SIGNAL: 3 MHz QPSK

▣ DISTANCE: 3 meters

▣ LIMIT: - (43 + 10 log10 (W)) = 44.98 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitude Level (dBm)	C.L	Pol	EIRP (dBm)	dBc
26055 (1851.5)	3,527.00	-53.25	12.14	-55.28	2.60	H	-45.74	77.72
	3,703.00	-46.44	12.32	-48.22	2.64	H	-38.54	70.52
	4,303.00	-54.13	12.48	-54.29	2.92	H	-44.73	76.71
	5,554.50	-44.01	13.03	-40.47	3.40	H	-30.84	62.82
26365 (1882.5)	3,527.00	-54.16	12.14	-56.19	2.60	H	-46.65	78.63
	3,765.00	-50.54	12.29	-52.15	2.68	H	-42.54	74.52
	4,304.00	-54.26	12.48	-54.42	2.92	H	-44.86	76.84
	5,647.50	-44.02	13.13	-40.60	3.51	H	-30.98	62.96
26675 (1913.5)	3,527.00	-54.70	12.14	-56.73	2.60	H	-47.19	79.17
	3,827.00	-42.30	12.27	-43.66	2.64	H	-34.03	66.01
	4,304.00	-54.05	12.48	-54.21	2.92	H	-44.65	76.63
	5,740.50	-43.11	13.03	-39.46	3.52	H	-29.95	61.93

NOTES: 1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5th Harmonic for all channel.

3. we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

4. Worst case is 1 resource block.

▣ MEASURED OUTPUT POWER: 32.02 dBm = 1.592 W

▣ MODULATION SIGNAL: 5 MHz 16-QAM

▣ DISTANCE: 3 meters

▣ LIMIT: - (43 + 10 log10 (W)) = 45.02 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitude Level (dBm)	C.L	Pol	EIRP (dBm)	dBc
26065 (1852.5)	3,527.00	-54.46	12.14	-56.44	2.60	H	-46.90	78.92
	3,705.00	-45.82	12.32	-47.58	2.67	H	-37.93	69.95
	4,303.00	-54.53	12.48	-54.49	2.90	H	-44.91	76.93
	5,557.50	-42.85	13.02	-39.39	3.40	H	-29.77	61.79
26365 (1882.5)	3,531.00	-54.33	12.14	-56.30	2.61	H	-46.77	78.79
	3,765.00	-48.43	12.29	-49.94	2.69	H	-40.34	72.36
	4,308.00	-54.25	12.48	-54.21	2.90	H	-44.63	76.65
	5,647.50	-45.13	13.13	-41.70	3.52	H	-32.09	64.11
26665 (1912.5)	3,531.00	-53.76	12.14	-55.73	2.61	H	-46.20	78.22
	3,825.00	-45.07	12.28	-46.29	2.68	H	-36.69	68.71
	4,308.00	-54.31	12.48	-54.27	2.90	H	-44.69	76.71
	5,737.50	-43.66	13.04	-40.03	3.53	H	-30.52	62.54

NOTES:

1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:
2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5th Harmonic for all channel.
3. we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. Worst case is 1 resource block.

▣ MEASURED OUTPUT POWER: 31.96 dBm = 1.570 W

▣ MODULATION SIGNAL: 10 MHz 16-QAM

▣ DISTANCE: 3 meters

▣ LIMIT: - (43 + 10 log10 (W)) = 44.96 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitude Level (dBm)	C.L	Pol	EIRP (dBm)	dBc
26090 (1855.0)	3,556.00	-54.23	12.15	-56.34	2.60	H	-46.79	78.75
	3,710.00	-46.46	12.31	-48.19	2.70	H	-38.58	70.54
	4,336.00	-52.66	12.49	-52.23	2.92	H	-42.66	74.62
	5,472.00	-53.43	12.97	-50.14	3.38	H	-40.55	72.51
	5,565.00	-47.09	13.05	-43.73	3.42	H	-34.10	66.06
26365 (1882.5)	3,532.00	-54.67	12.14	-56.64	2.61	H	-47.11	79.07
	3,765.00	-49.87	12.29	-51.38	2.69	H	-41.78	73.74
	4,309.00	-53.49	12.48	-53.46	2.89	H	-43.87	75.83
	5,472.00	-51.98	12.97	-48.69	3.38	H	-39.10	71.06
	5,647.50	-44.91	13.13	-41.48	3.52	H	-31.87	63.83
26640 (1910.0)	3,531.00	-54.76	12.14	-56.73	2.61	H	-47.20	79.16
	3,820.00	-52.53	12.28	-53.60	2.72	H	-44.04	76.00
	4,307.00	-52.80	12.48	-52.77	2.89	H	-43.18	75.14
	5,472.00	-52.37	12.97	-49.08	3.38	H	-39.49	71.45
	5,730.00	-44.76	13.06	-41.15	3.56	H	-31.65	63.61

NOTES: 1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5th Harmonic for all channel.

3. we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

4. Worst case is 1 resource block.

▣ MEASURED OUTPUT POWER: 32.55 dBm = 1.799 W

▣ MODULATION SIGNAL: 15 MHz QPSK

▣ DISTANCE: 3 meters

▣ LIMIT: - (43 + 10 log10 (W)) = 45.55 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitude Level (dBm)	C.L	Pol	EIRP (dBm)	dBc
26115 (1857.5)	3,527.00	-53.31	12.14	-55.29	2.60	H	-45.75	78.30
	3,715.00	-46.41	12.31	-48.16	2.68	H	-38.53	71.08
	4,304.00	-53.47	12.48	-53.43	2.90	H	-43.85	76.40
	5,472.00	-52.53	12.97	-49.24	3.38	H	-39.65	72.20
	5,572.50	-46.74	-13.37	-16.95	3.43	H	-33.75	66.30
26365 (1882.5)	3,526.00	-54.65	12.14	-56.63	2.60	H	-47.09	79.64
	3,765.00	-51.39	12.29	-52.92	2.68	H	-43.31	75.86
	4,304.00	-54.10	12.48	-54.06	2.90	H	-44.48	77.03
	5,627.00	-46.58	13.12	-43.52	3.46	H	-33.86	66.41
	5,647.50	-46.58	13.13	-43.14	3.52	H	-33.53	66.08
26615 (1907.5)	3,526.00	-54.40	12.14	-56.38	2.60	H	-46.84	79.39
	3,815.00	-54.11	12.29	-55.49	2.70	H	-45.90	78.45
	4,303.00	-53.31	12.48	-53.27	2.90	H	-43.69	76.24
	5,472.00	-52.99	12.97	-49.70	3.38	H	-40.11	72.66
	5,722.50	-46.41	13.08	-43.03	3.59	H	-33.54	66.09

NOTES: 1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5th Harmonic for all channel.

3. we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

4. Worst case is 1 resource block.

▣ MEASURED OUTPUT POWER: 32.62 dBm = 1.828 W

▣ MODULATION SIGNAL: 20 MHz QPSK

▣ DISTANCE: 3 meters

▣ LIMIT: - (43 + 10 log10 (W)) = 45.62 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitude Level (dBm)	C.L	Pol	EIRP (dBm)	dBc
26140 (1860.0)	3,537.00	-54.39	12.14	-56.26	2.63	H	-46.75	79.37
	3,720.00	-48.71	12.31	-50.47	2.67	H	-40.83	73.45
	4,313.00	-52.64	12.48	-52.61	2.89	H	-43.02	75.64
	5,472.00	-52.53	12.97	-49.24	3.38	H	-39.65	72.27
	5,580.00	-46.88	13.07	-43.65	3.44	H	-34.02	66.64
26365 (1882.5)	3,534.00	-55.08	12.14	-57.05	2.61	H	-47.52	80.14
	3,765.00	-52.60	12.29	-54.13	2.68	H	-44.52	77.14
	4,313.00	-53.90	12.48	-53.87	2.89	H	-44.28	76.90
	5,472.00	-52.40	12.97	-49.11	3.38	H	-39.52	72.14
	5,647.50	-45.25	13.13	-41.81	3.52	H	-32.20	64.82
26590 (1905.0)	3,533.00	-54.46	12.14	-56.43	2.61	H	-46.90	79.52
	3,810.00	-53.70	12.29	-54.82	2.68	H	-45.21	77.83
	4,310.00	-53.48	12.48	-53.45	2.89	H	-43.86	76.48
	5,472.00	-52.28	12.97	-48.99	3.38	H	-39.40	72.02
	5,715.00	-46.59	13.09	-43.24	3.56	H	-33.71	66.33

NOTES: 1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5th Harmonic for all channel.

3. we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

4. Worst case is 1 resource block.

7.3 PEAK-TO-AVERAGE RATIO

Band	Channel	Frequency(MHz)	Bandwidth	Modulation	P A R
LTE BAND 25	26365	1882.5	1.4 MHz	QPSK	5.41
				16-QAM	6.14
			3 MHz	QPSK	5.61
				16-QAM	6.45
			5 MHz	QPSK	5.57
				16-QAM	6.36
			10 MHz	QPSK	5.61
				16-QAM	6.37
			15 MHz	QPSK	5.55
				16-QAM	6.30
			20 MHz	QPSK	5.43
				16-QAM	6.29

- Plots of the EUT's Peak- to- Average Ratio are shown Page 43 ~ 48.

7.4 OCCUPIED BANDWIDTH

Band	Channel	Frequency(MHz)	Bandwidth	Modulation	Data (LTE : MHz)
LTE BAND 25	26365	1882.5	1.4 MHz	QPSK	1.0943
				16-QAM	1.0899
			3 MHz	QPSK	2.6901
				16-QAM	2.6922
			5 MHz	QPSK	4.4939
				16-QAM	4.4973
			10 MHz	QPSK	8.9647
				16-QAM	8.9381
			15 MHz	QPSK	13.4300
				16-QAM	13.4230
			20 MHz	QPSK	17.9210
				16-QAM	17.9500

- Plots of the EUT's Occupied Bandwidth are shown Page 37 ~ 42.

7.5 CONDUCTED SPURIOUS EMISSIONS

Band	Channel	Frequency of Maximum Harmonic (GHz)	Maximum Data (dBm)
LTE BAND 25 1.4 MHz	26047	6.915030	-26.70
	26365	6.985320	-26.09
	26683	6.985320	-25.44
LTE BAND 25 3 MHz	26055	6.959900	-25.81
	26365	6.547140	-26.07
	26675	6.972360	-26.05
LTE BAND 25 5 MHz	26065	6.980830	-25.88
	26365	6.343250	-26.58
	26665	6.975350	-26.66
LTE BAND 25 10 MHz	26090	6.980830	-26.28
	26365	6.961390	-26.42
	26640	6.610950	-26.30
LTE BAND 25 15 MHz	26615	6.989310	-25.94
	26365	6.592500	-26.54
	26615	6.931480	-26.64
LTE BAND 25 20 MHz	26140	6.956910	-26.87
	26365	5.407570	-27.13
	26590	6.983830	-26.53

- Plots of the EUT's Conducted Spurious Emissions are shown Page 67 ~ 84.

7.5.1 BAND EDGE

- Plots of the EUT's Band Edge are shown Page 49 ~ 66.

7.6 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

7.6.1 FREQUENCY STABILITY (LTE Band 25)

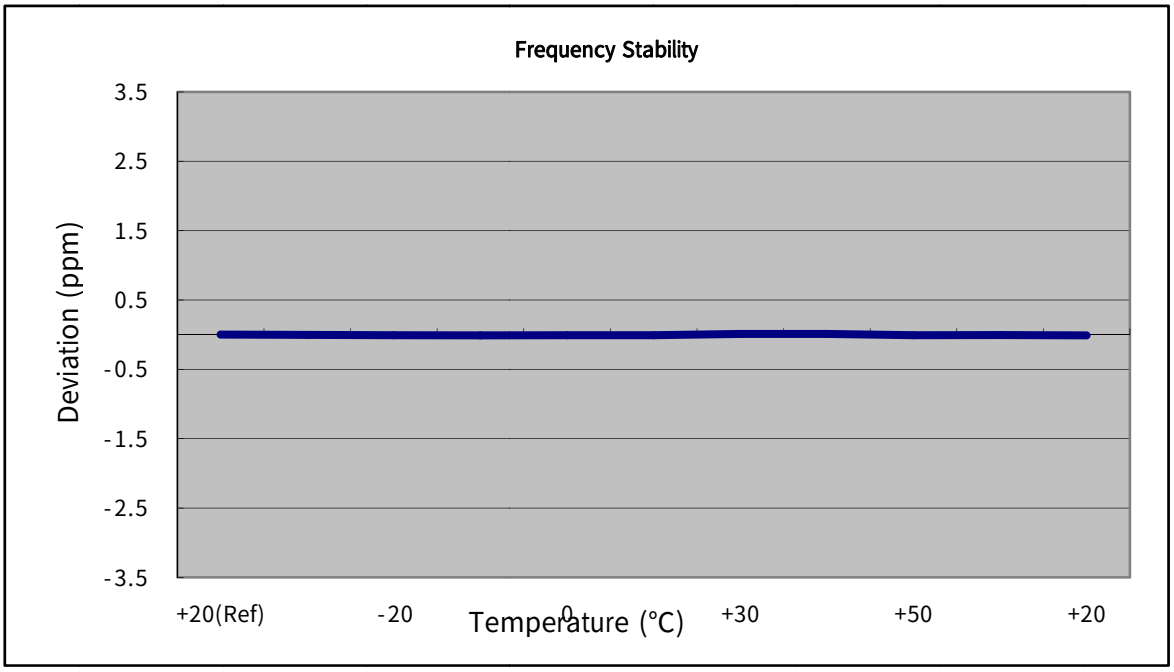
▣ OPERATING FREQUENCY: 1882,500,000 Hz

▣ CHANNEL: 26365(1.4 MHz)

▣ REFERENCE VOLTAGE: 12.0 VDC

▣ DEVIATION LIMIT: -

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	12.0	+20(Ref)	1 882 499 983	0	0.000 000	0.000
100%		-30	1 882 499 977	-6.8	0.000 000	-0.004
100%		-20	1 882 499 966	-17.0	-0.000 001	-0.009
100%		-10	1 882 499 965	-18.3	-0.000 001	-0.010
100%		0	1 882 499 968	-15.8	-0.000 001	-0.008
100%		+10	1 882 499 970	-13.6	-0.000 001	-0.007
100%		+30	1 882 500 002	18.2	0.000 001	0.010
100%		+40	1 882 500 001	17.5	0.000 001	0.009
100%		+50	1 882 499 969	-14.9	-0.000 001	-0.008
115%	13.8	+20	1 882 499 970	-13.0	-0.000 001	-0.007
Batt. Endpoint	10.2	+20	1 882 499 964	-19.2	-0.000 001	-0.010



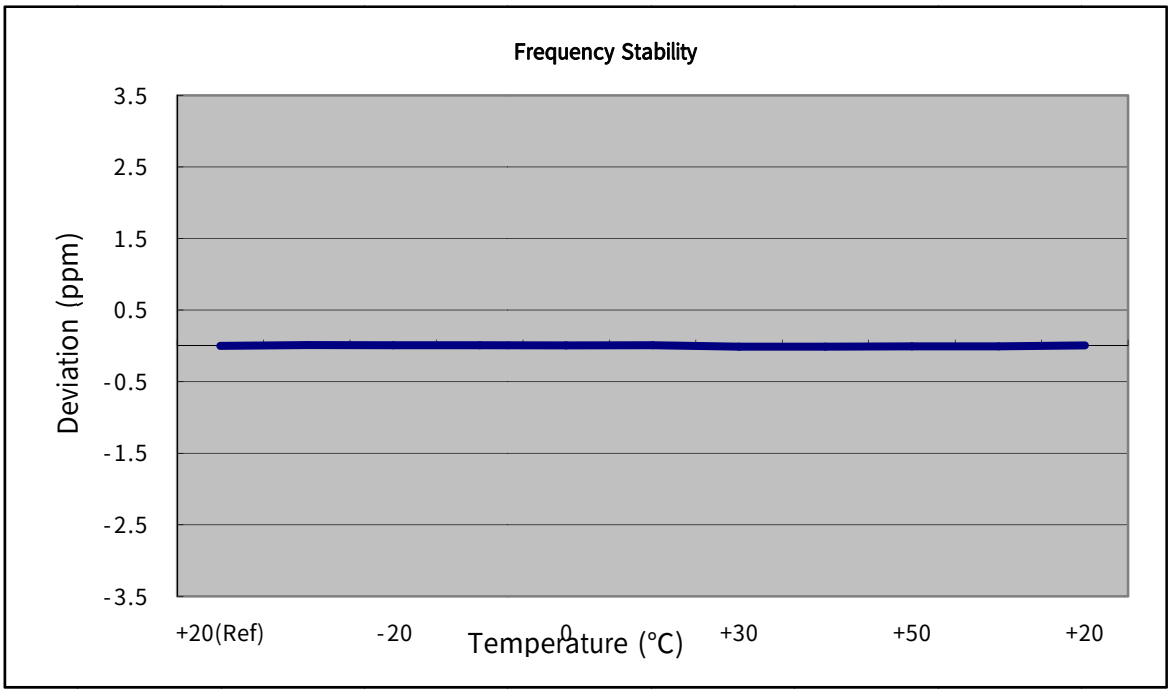
▣ OPERATING FREQUENCY: 1882,500,000 Hz

▣ CHANNEL: 26365(3 MHz)

▣ REFERENCE VOLTAGE: 12.0 VDC

▣ DEVIATION LIMIT: -

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	12.0	+20(Ref)	1 882 500 018	0	0.000 000	0.000
100%		-30	1 882 500 038	19.7	0.000 001	0.010
100%		-20	1 882 500 037	18.4	0.000 001	0.010
100%		-10	1 882 500 034	15.7	0.000 001	0.008
100%		0	1 882 500 032	13.6	0.000 001	0.007
100%		+10	1 882 500 036	17.9	0.000 001	0.010
100%		+30	1 882 500 000	-18.7	-0.000 001	-0.010
100%		+40	1 882 499 998	-20.0	-0.000 001	-0.011
100%		+50	1 882 500 008	-10.2	-0.000 001	-0.005
115%	13.8	+20	1 882 500 007	-10.9	-0.000 001	-0.006
Batt. Endpoint	10.2	+20	1 882 500 030	12.0	0.000 001	0.006



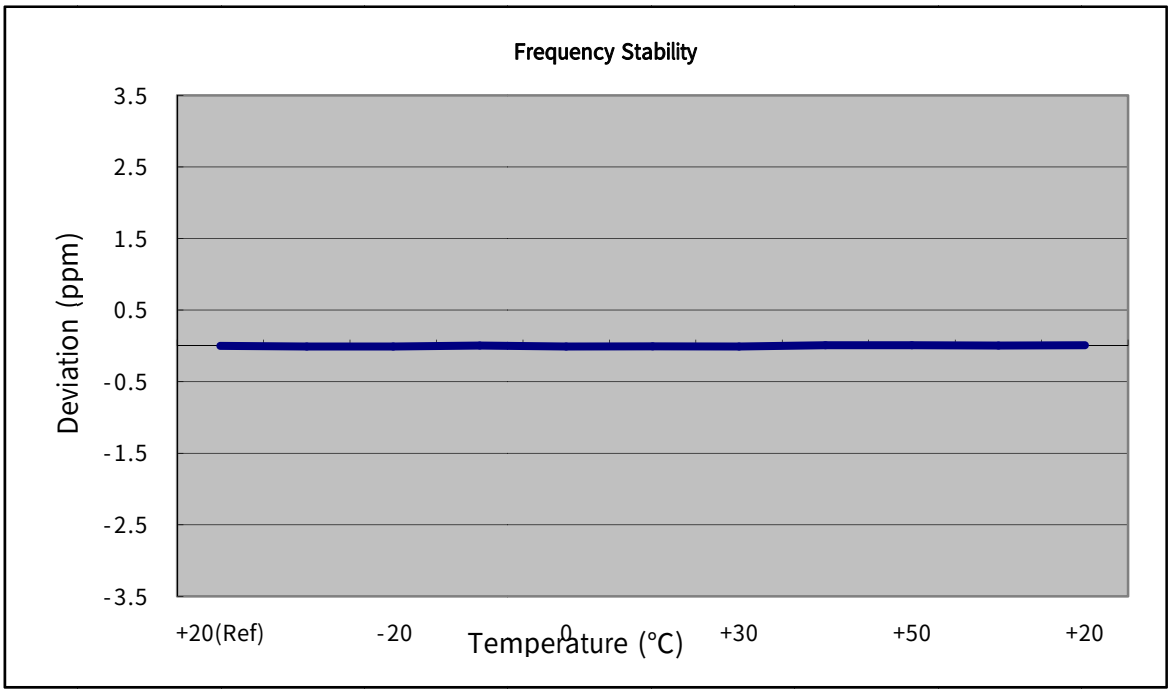
▣ OPERATING FREQUENCY: 1882,500,000 Hz

▣ CHANNEL: 26365(5 MHz)

▣ REFERENCE VOLTAGE: 12.0 VDC

▣ DEVIATION LIMIT: -

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	12.0	+20(Ref)	1 882 499 991	0	0.000 000	0.000
100%		-30	1 882 499 974	-17.0	-0.000 001	-0.009
100%		-20	1 882 499 974	-16.5	-0.000 001	-0.009
100%		-10	1 882 499 999	8.6	0.000 000	0.005
100%		0	1 882 499 976	-14.2	-0.000 001	-0.008
100%		+10	1 882 499 979	-12.1	-0.000 001	-0.006
100%		+30	1 882 499 974	-16.9	-0.000 001	-0.009
100%		+40	1 882 500 008	17.8	0.000 001	0.009
100%		+50	1 882 500 010	19.3	0.000 001	0.010
115%	13.8	+20	1 882 500 000	9.2	0.000 000	0.005
Batt. Endpoint	10.2	+20	1 882 500 007	16.5	0.000 001	0.009



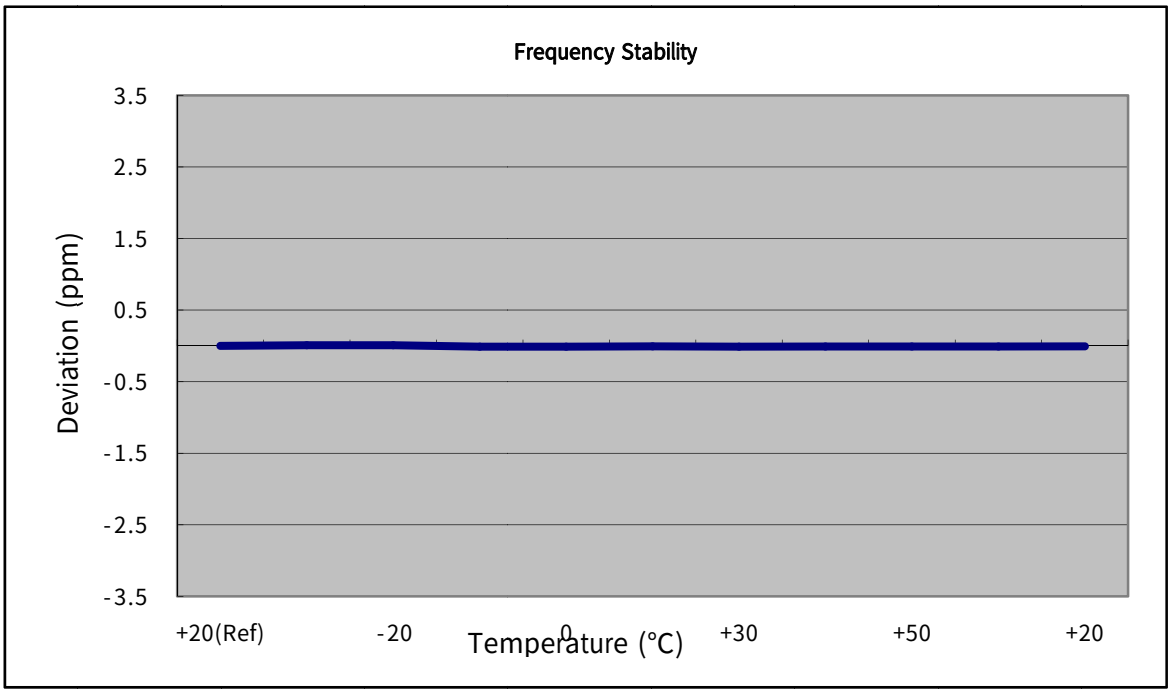
▣ OPERATING FREQUENCY: 1882,500,000 Hz

▣ CHANNEL: 26365(10 MHz)

▣ REFERENCE VOLTAGE: 12.0 VDC

▣ DEVIATION LIMIT: -

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	12.0	+20(Ref)	1 882 499 981	0	0.000 000	0.000
100%		-30	1 882 499 997	16.2	0.000 001	0.009
100%		-20	1 882 499 999	18.1	0.000 001	0.010
100%		-10	1 882 499 963	-18.4	-0.000 001	-0.010
100%		0	1 882 499 960	-20.5	-0.000 001	-0.011
100%		+10	1 882 499 967	-13.5	-0.000 001	-0.007
100%		+30	1 882 499 961	-19.6	-0.000 001	-0.010
100%		+40	1 882 499 964	-16.5	-0.000 001	-0.009
100%		+50	1 882 499 964	-16.9	-0.000 001	-0.009
115%	13.8	+20	1 882 499 966	-14.8	-0.000 001	-0.008
Batt. Endpoint	10.2	+20	1 882 499 969	-12.0	-0.000 001	-0.006



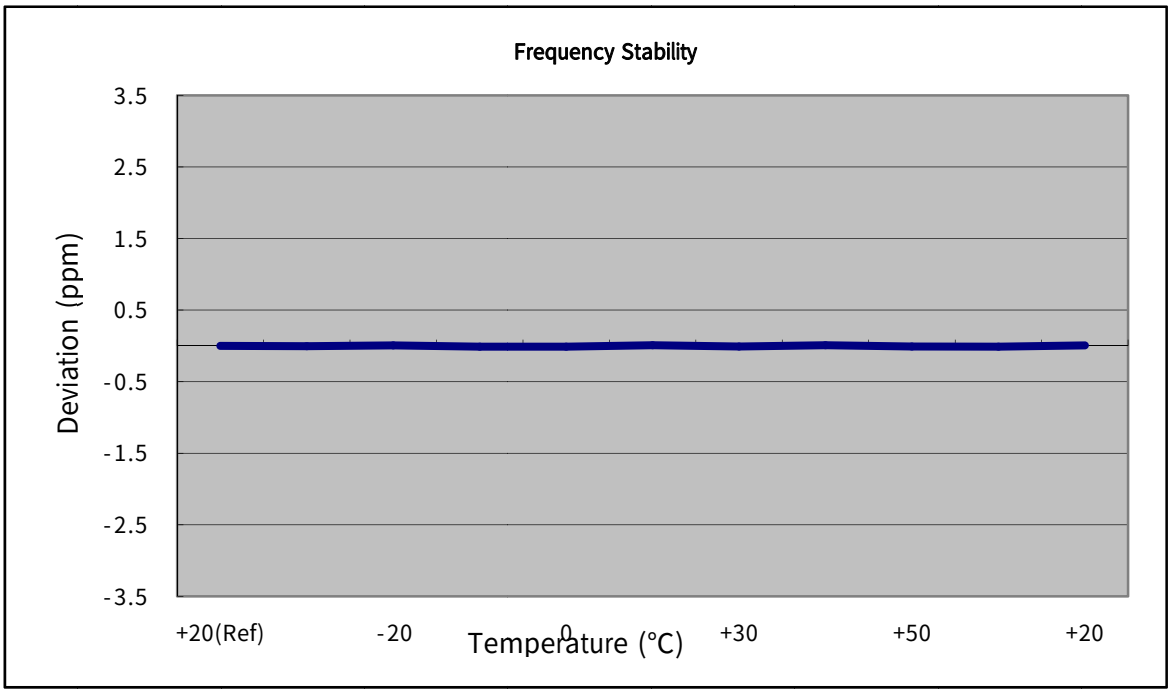
▣ OPERATING FREQUENCY: 1882,500,000 Hz

▣ CHANNEL: 26365(15 MHz)

▣ REFERENCE VOLTAGE: 12.0 VDC

▣ DEVIATION LIMIT: -

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	12.0	+20(Ref)	1 882 500 013	0	0.000 000	0.000
100%		-30	1 882 500 005	-7.9	0.000 000	-0.004
100%		-20	1 882 500 028	14.2	0.000 001	0.008
100%		-10	1 882 499 995	-18.8	-0.000 001	-0.010
100%		0	1 882 499 993	-20.2	-0.000 001	-0.011
100%		+10	1 882 500 030	16.4	0.000 001	0.009
100%		+30	1 882 499 997	-15.9	-0.000 001	-0.008
100%		+40	1 882 500 031	18.1	0.000 001	0.010
100%		+50	1 882 499 997	-16.4	-0.000 001	-0.009
115%	13.8	+20	1 882 499 994	-19.8	-0.000 001	-0.011
Batt. Endpoint	10.2	+20	1 882 500 028	14.6	0.000 001	0.008



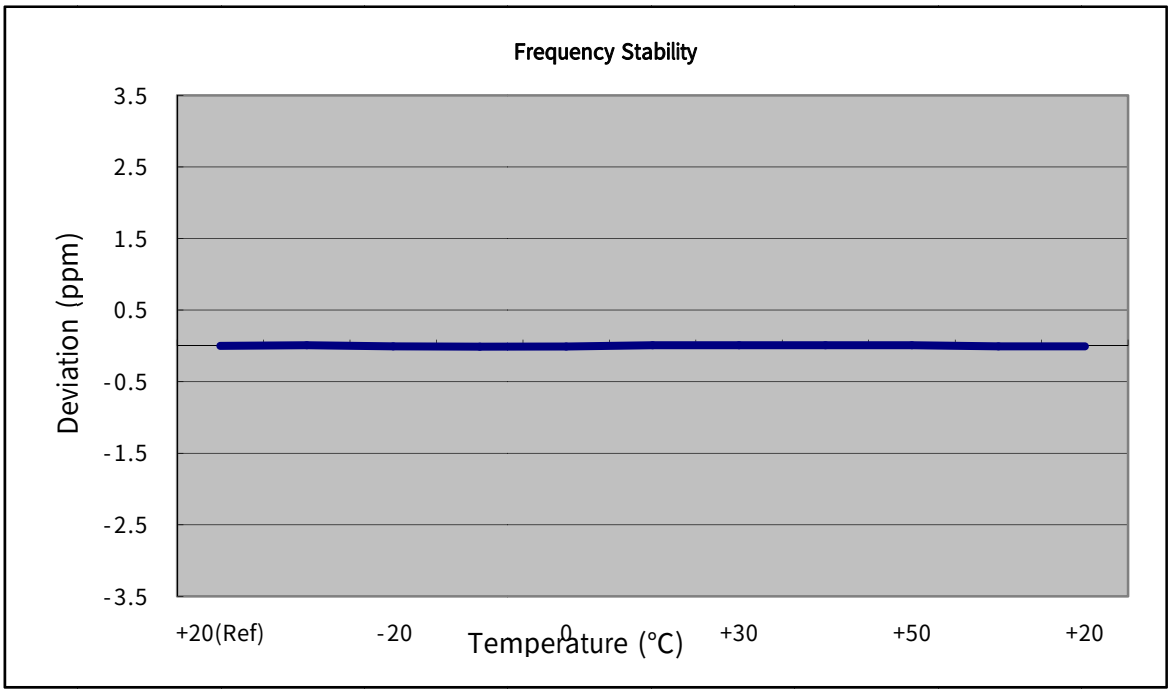
▣ OPERATING FREQUENCY: 1882,500,000 Hz

▣ CHANNEL: 26365(20 MHz)

▣ REFERENCE VOLTAGE: 12.0 VDC

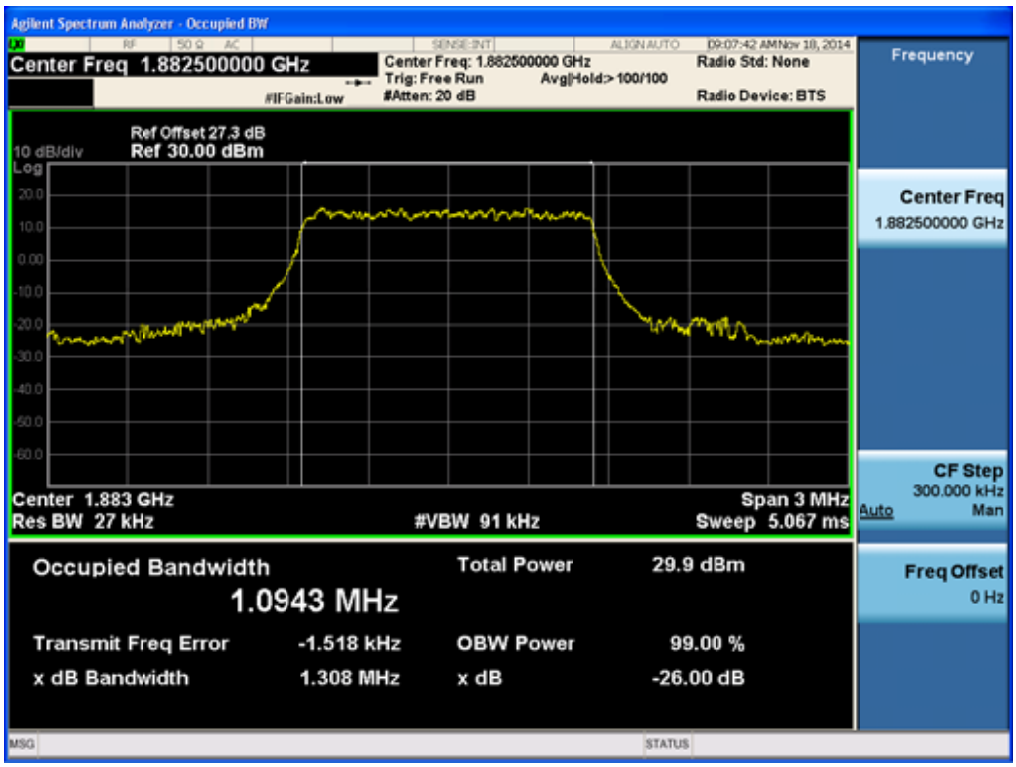
▣ DEVIATION LIMIT: -

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	12.0	+20(Ref)	1 882 499 989	0	0.000 000	0.000
100%		-30	1 882 500 006	17.1	0.000 001	0.009
100%		-20	1 882 499 977	-11.2	-0.000 001	-0.006
100%		-10	1 882 499 967	-21.6	-0.000 001	-0.011
100%		0	1 882 499 971	-17.5	-0.000 001	-0.009
100%		+10	1 882 500 007	18.4	0.000 001	0.010
100%		+30	1 882 500 005	16.2	0.000 001	0.009
100%		+40	1 882 500 007	18.7	0.000 001	0.010
100%		+50	1 882 500 005	16.8	0.000 001	0.009
115%	13.8	+20	1 882 499 976	-13.0	-0.000 001	-0.007
Batt. Endpoint	10.2	+20	1 882 499 975	-14.1	-0.000 001	-0.007

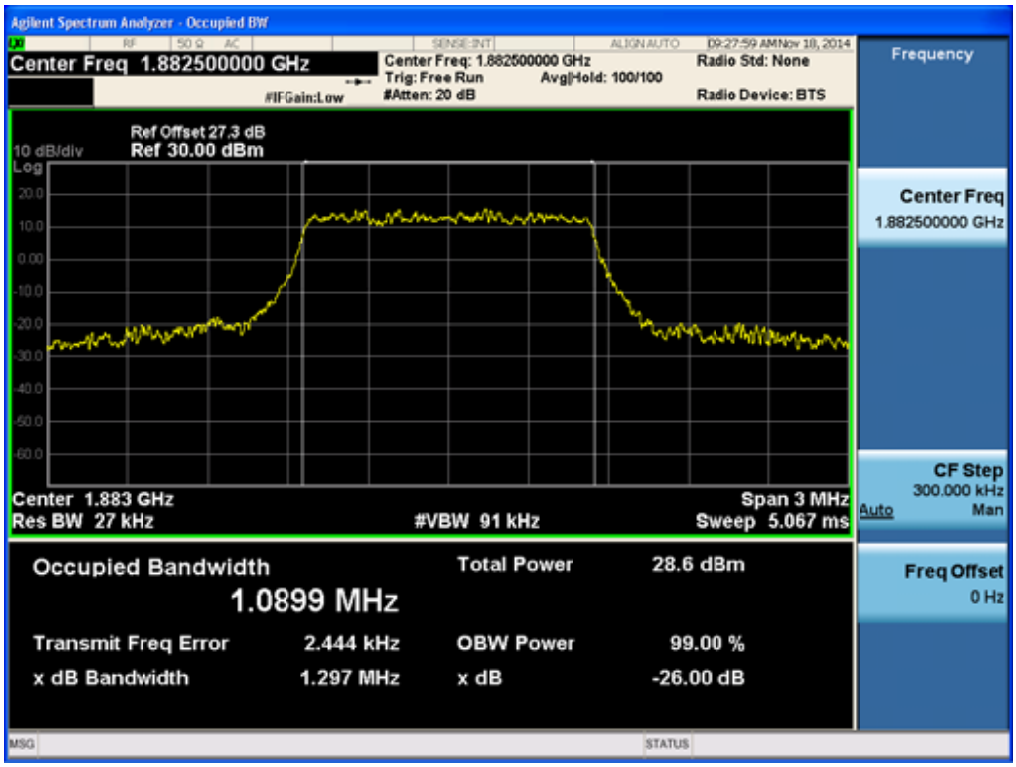


8. TEST PLOTS

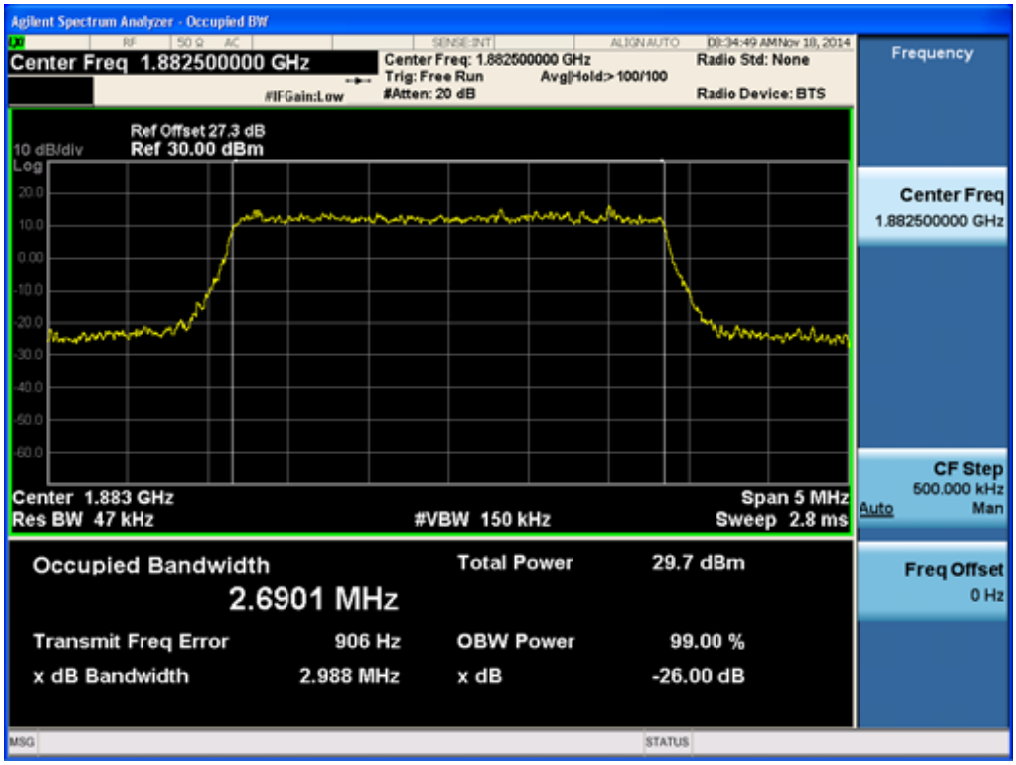
BAND 25. Occupied Bandwidth Plot (1.4M BW Ch.26365 QPSK RB 6)



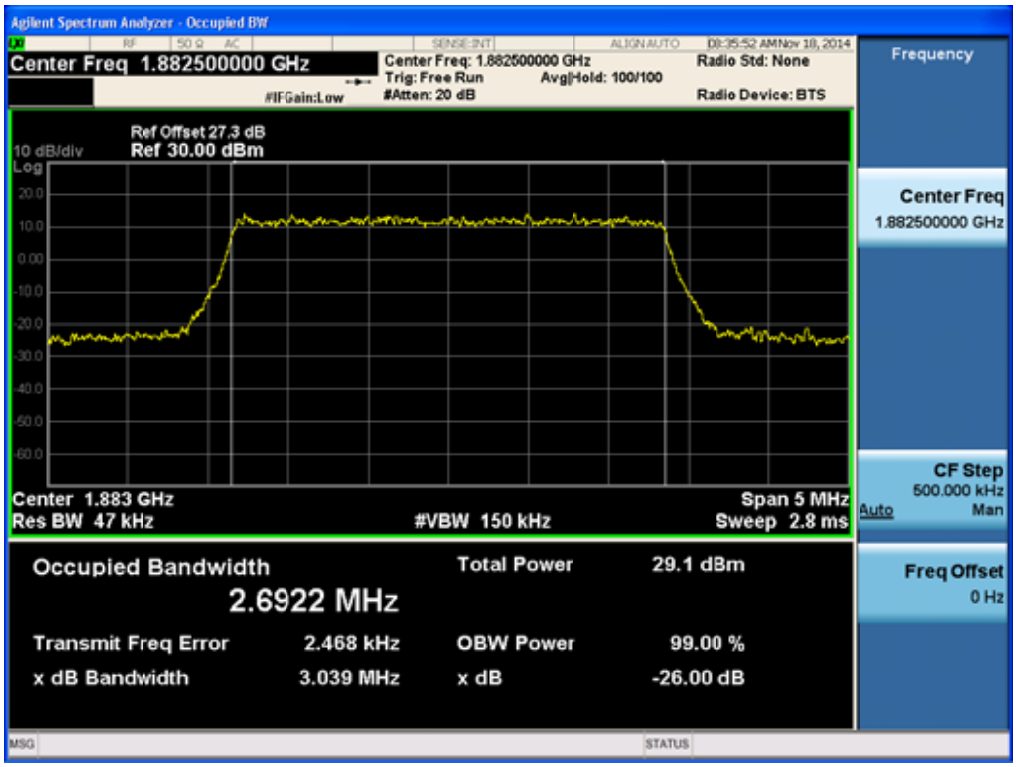
BAND 25. Occupied Bandwidth Plot (1.4M BW Ch.26365 16QAM RB 6)



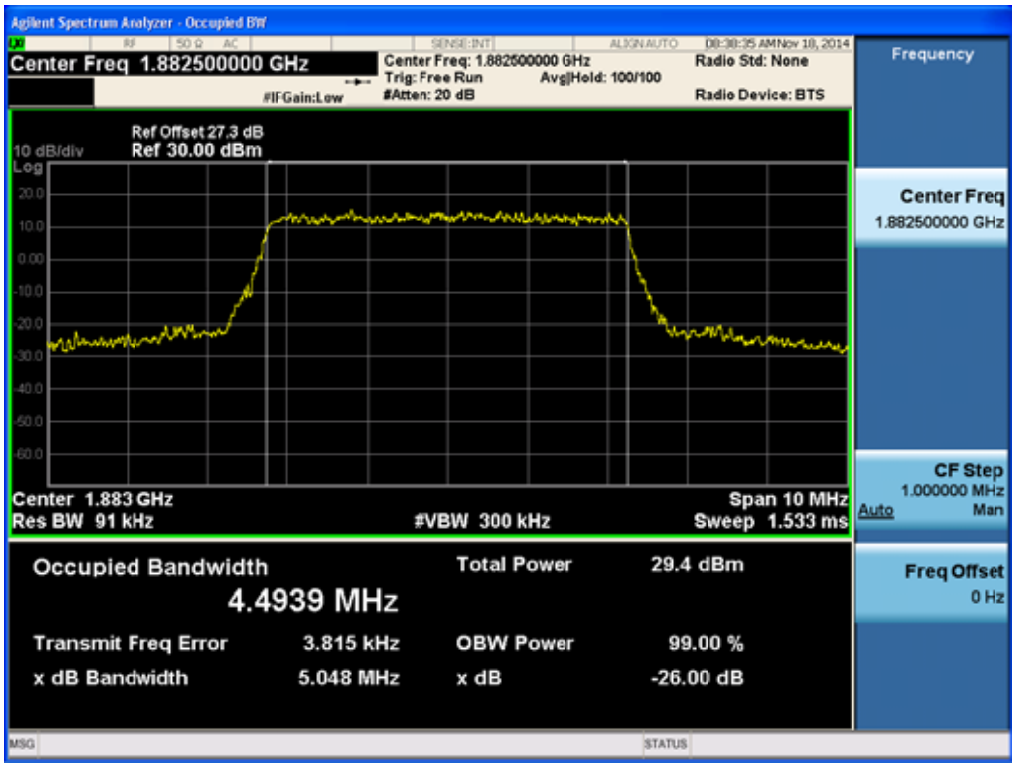
BAND 25. Occupied Bandwidth Plot (3M BW Ch.26365 QPSK RB 15)



BAND 25. Occupied Bandwidth Plot (3M BW Ch.26365 16QAM RB 15)



BAND 25. Occupied Bandwidth Plot (5M BW Ch.26365 QPSK RB 25)



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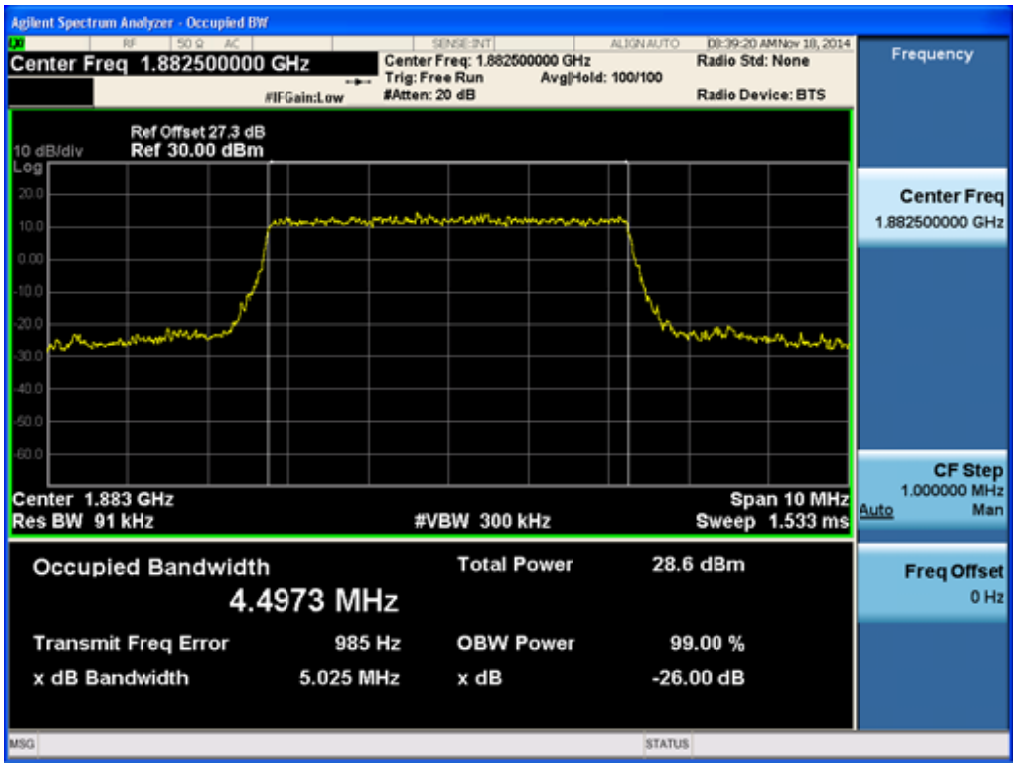
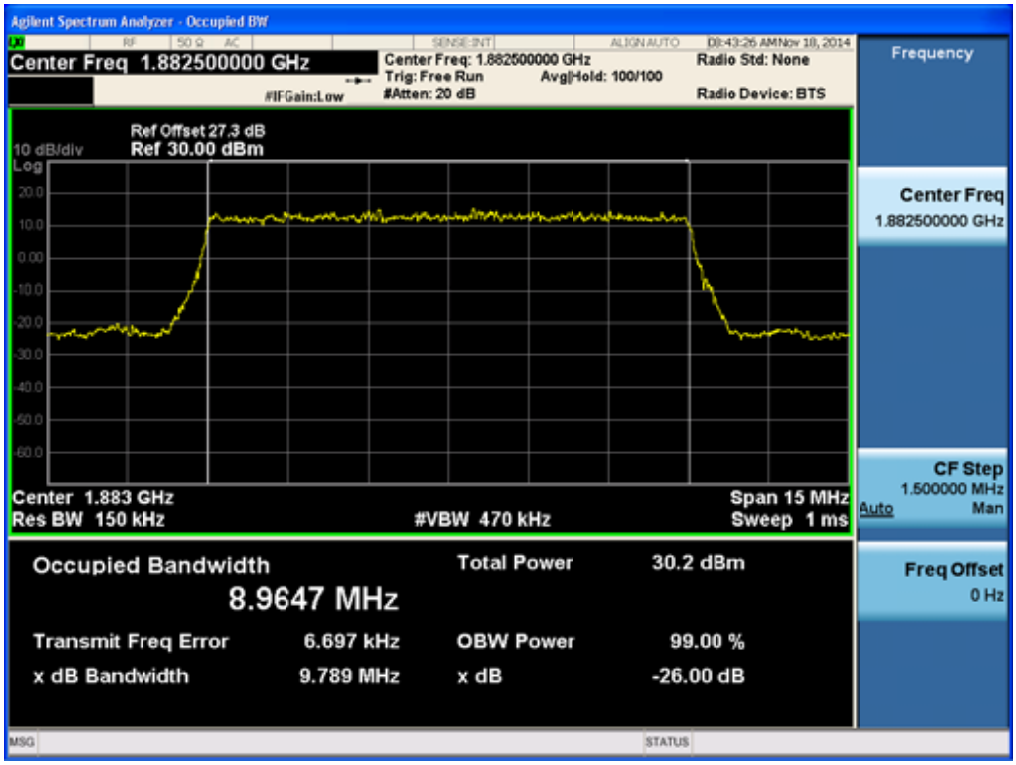
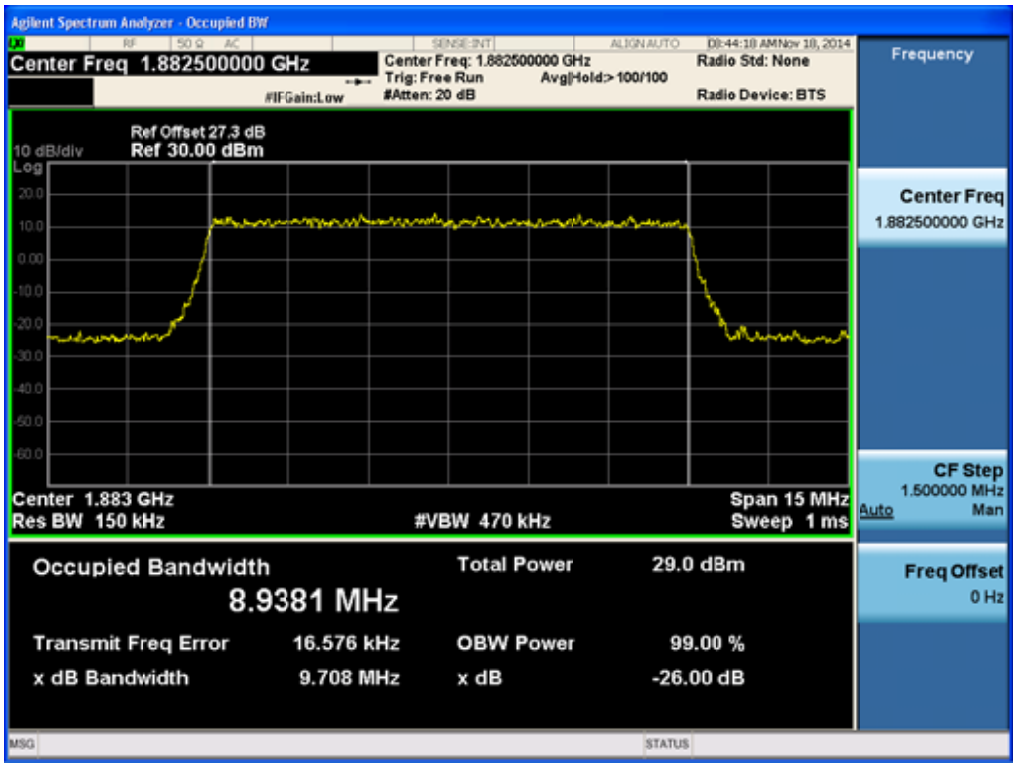
BAND 25. Occupied Bandwidth Plot (5M BW Ch.26365 16QAM RB 25)



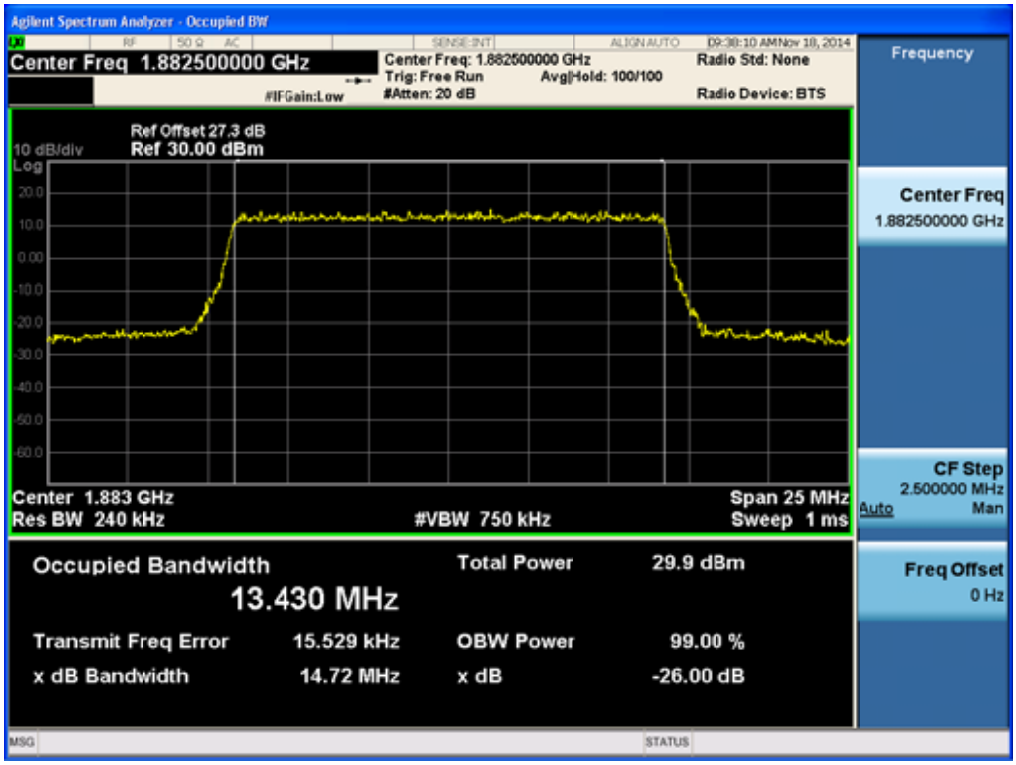
BAND 25. Occupied Bandwidth Plot (10M BW Ch.26365 QPSK RB 50)



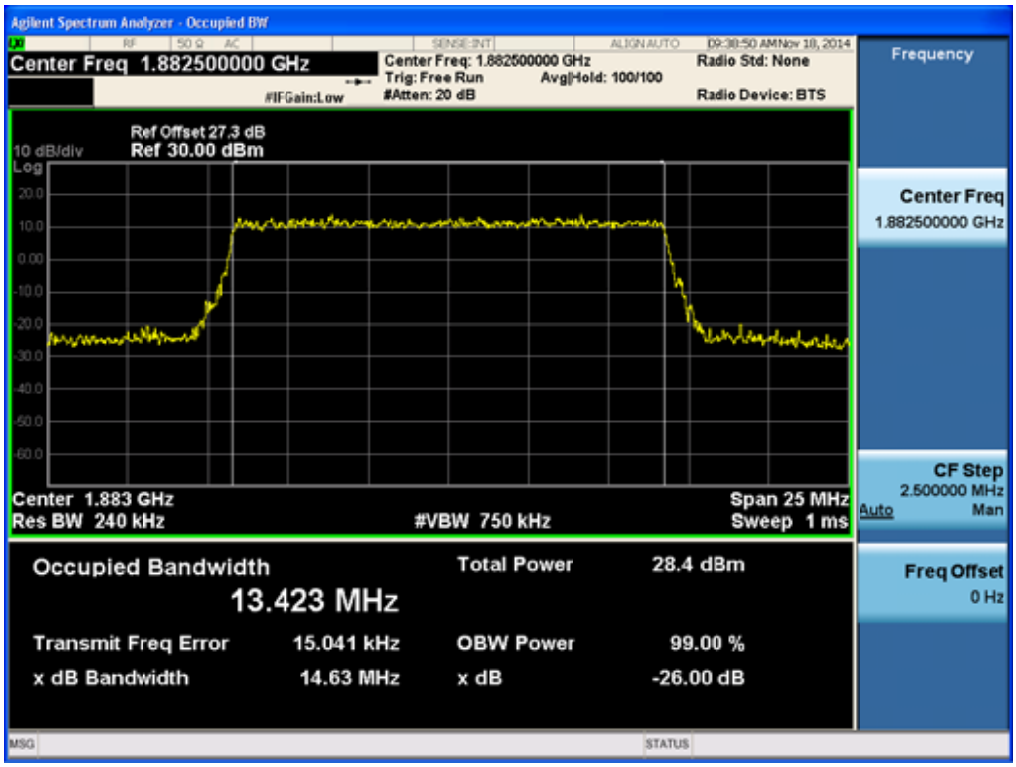
BAND 25. Occupied Bandwidth Plot (10M BW Ch.26365 16QAM RB 50)



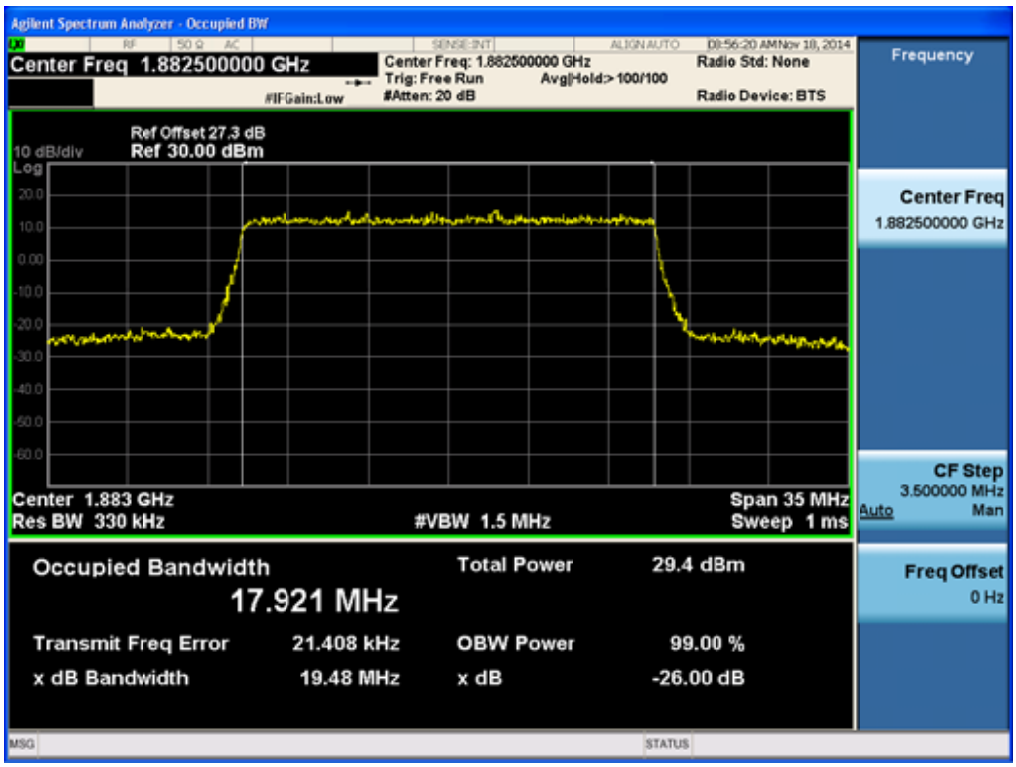
BAND 25. Occupied Bandwidth Plot (15M BW Ch.26365 QPSK RB 75)



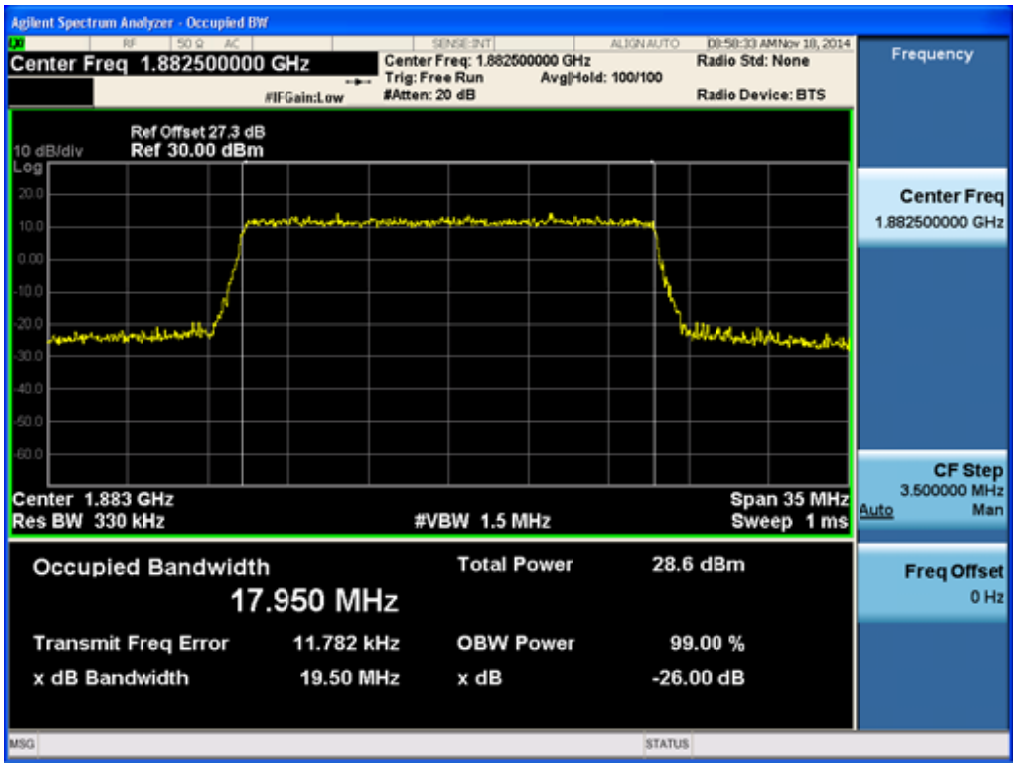
BAND 25. Occupied Bandwidth Plot (15M BW Ch.26365 16QAM RB 75)



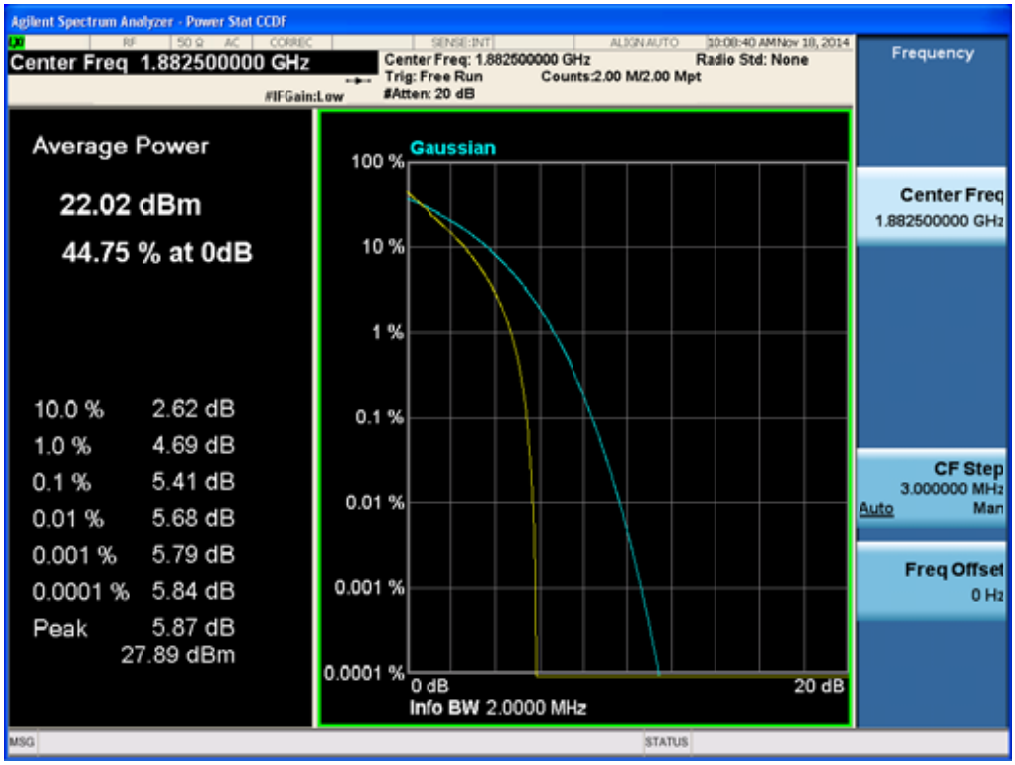
BAND 25. Occupied Bandwidth Plot (20M BW Ch.26365 QPSK RB 100)



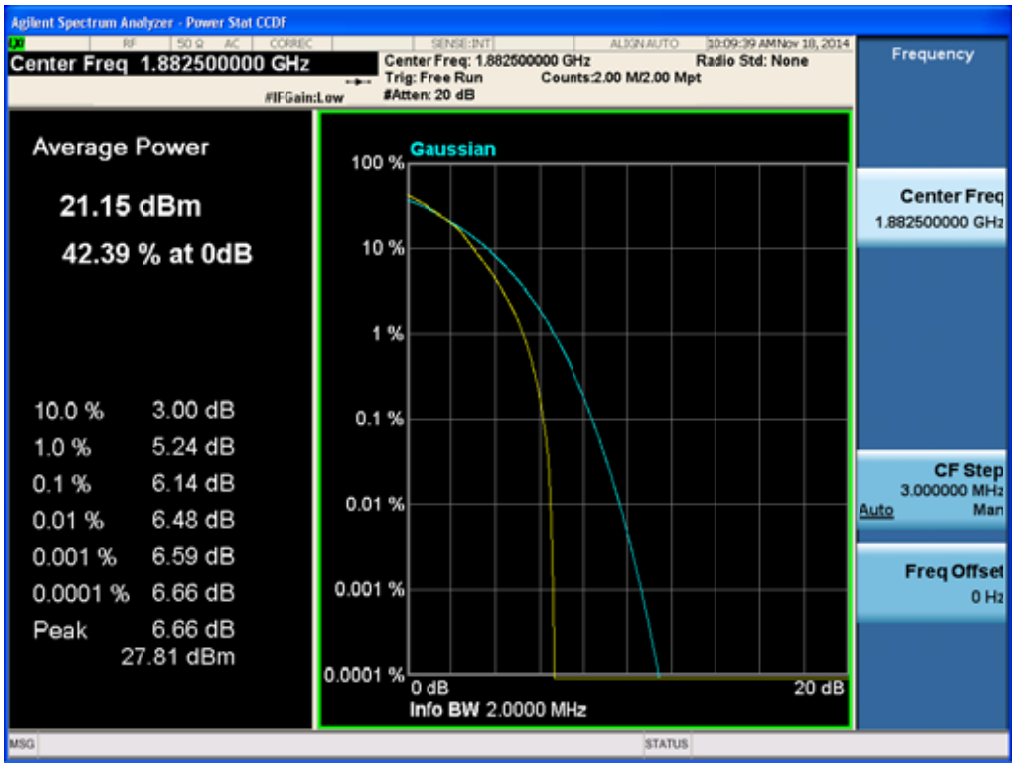
BAND 25. Occupied Bandwidth Plot (20M BW Ch.26365 16QAM RB 100)



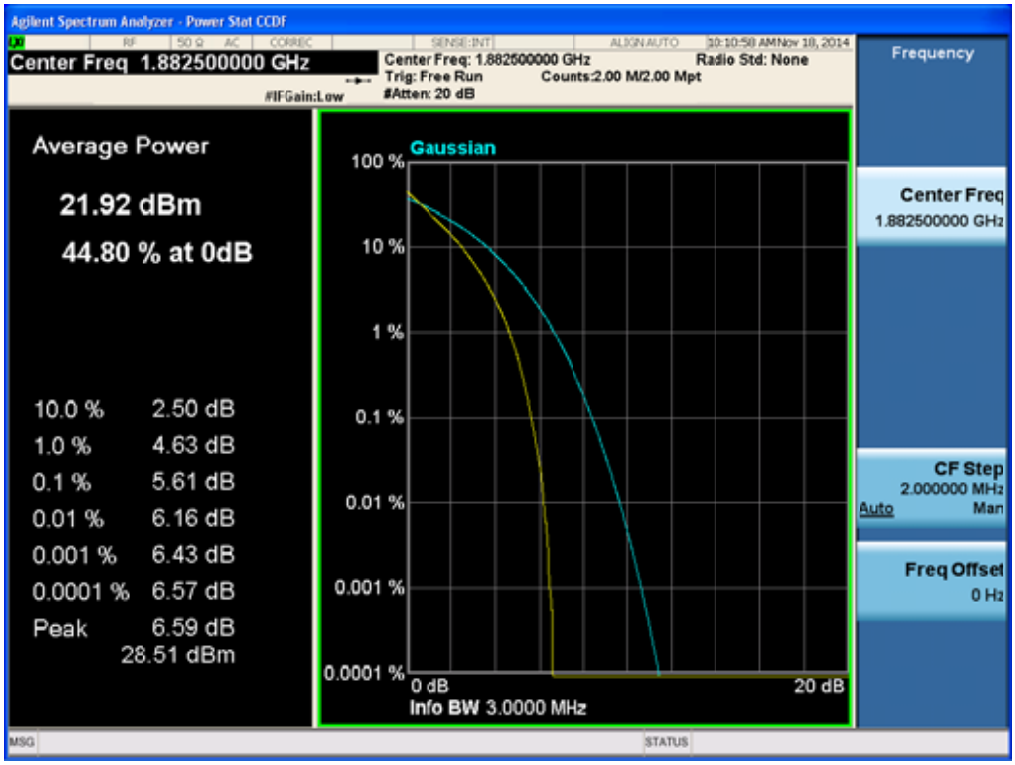
BAND 25. PAR Plot (1.4M BW Ch.26365 QPSK RB 6)



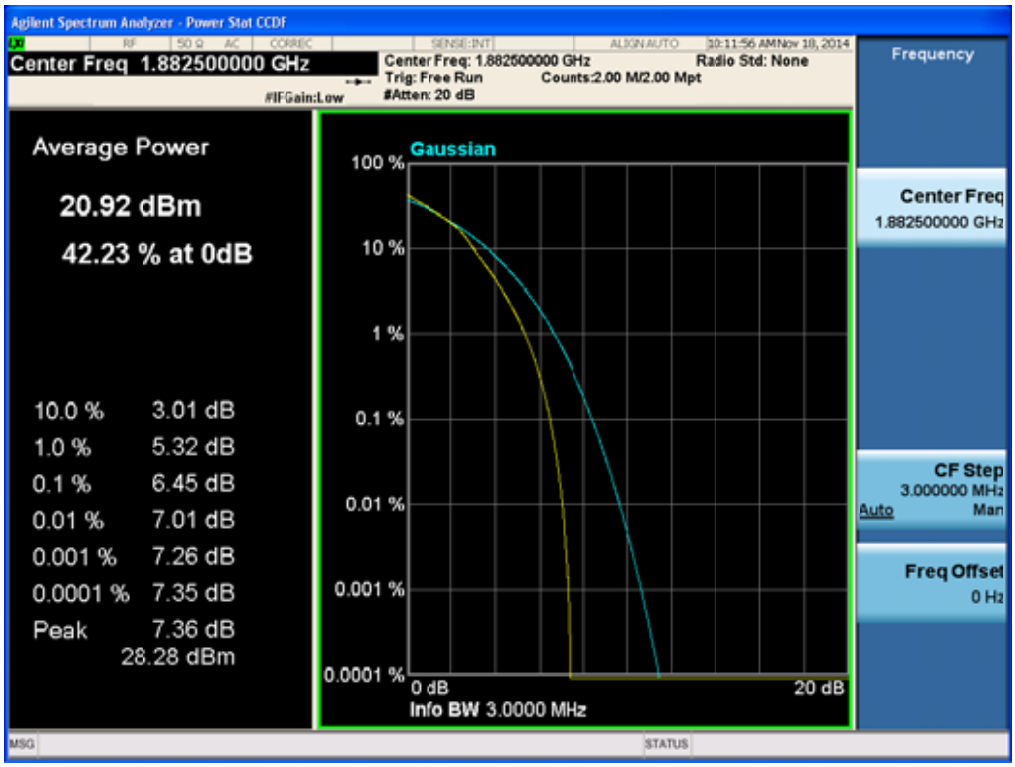
BAND 25. PAR Plot (1.4M BW Ch.26365 16QAM RB 6)



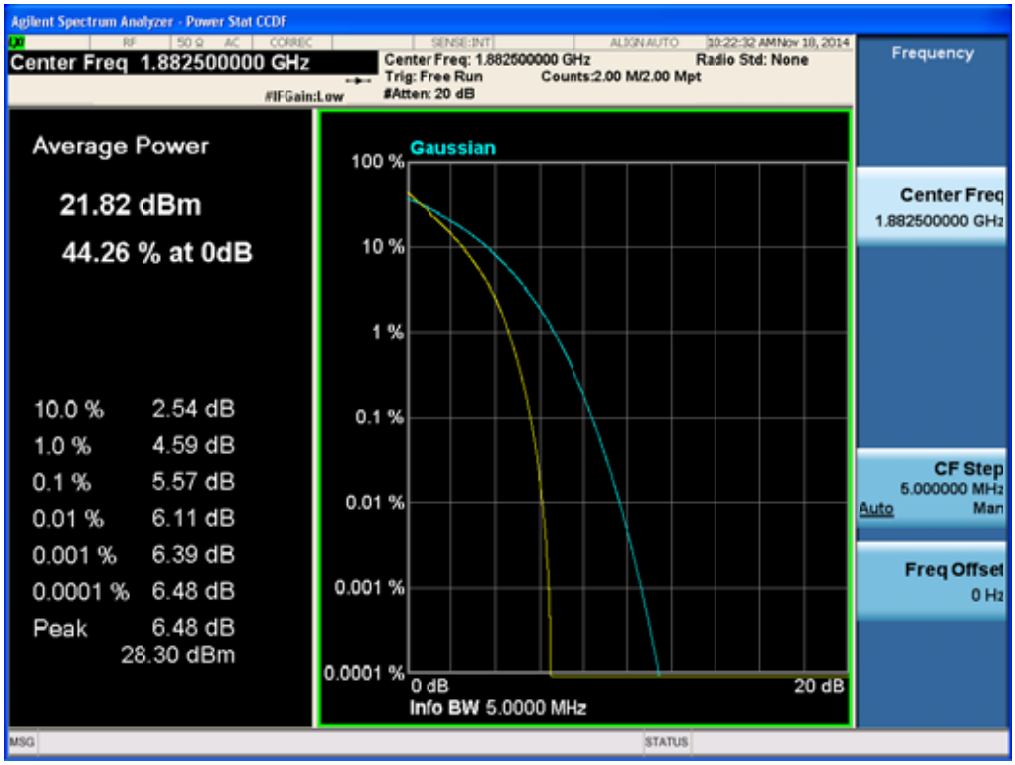
BAND 25. PAR Plot (3M BW Ch.26365 QPSK RB 15)



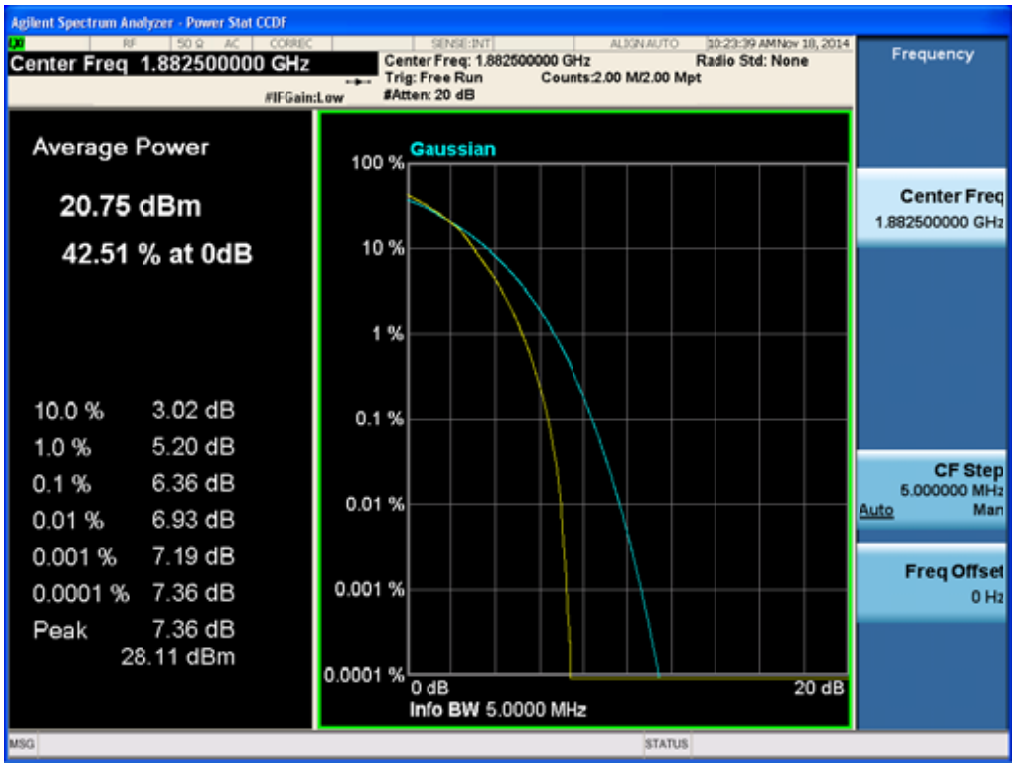
BAND 25. PAR Plot (3M BW Ch.26365 16QAM RB 15)



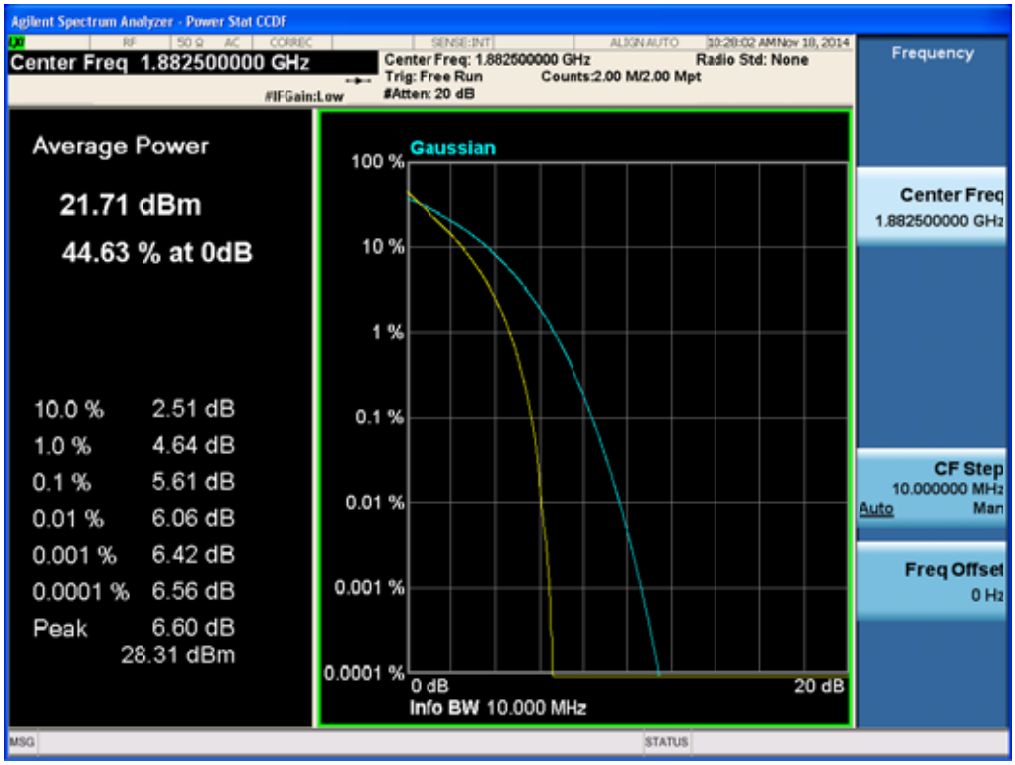
BAND 25. PAR Plot (5M BW Ch.26365 QPSK RB 25)



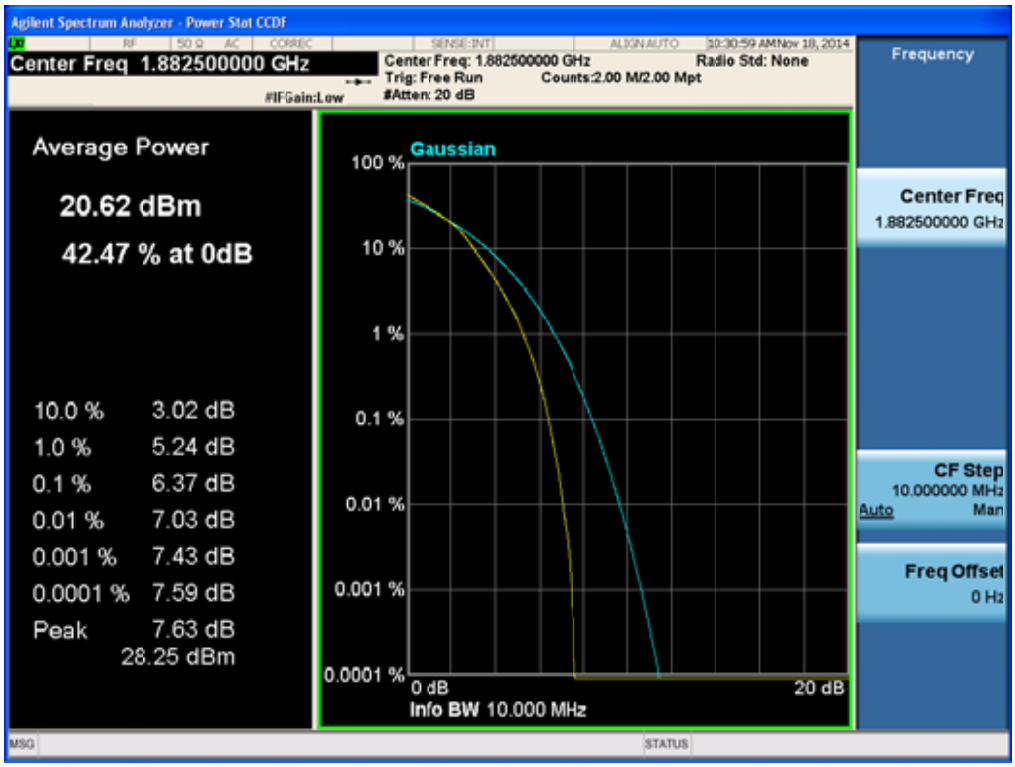
BAND 25. PAR Plot (5M BW Ch.26365 16QAM RB 25)



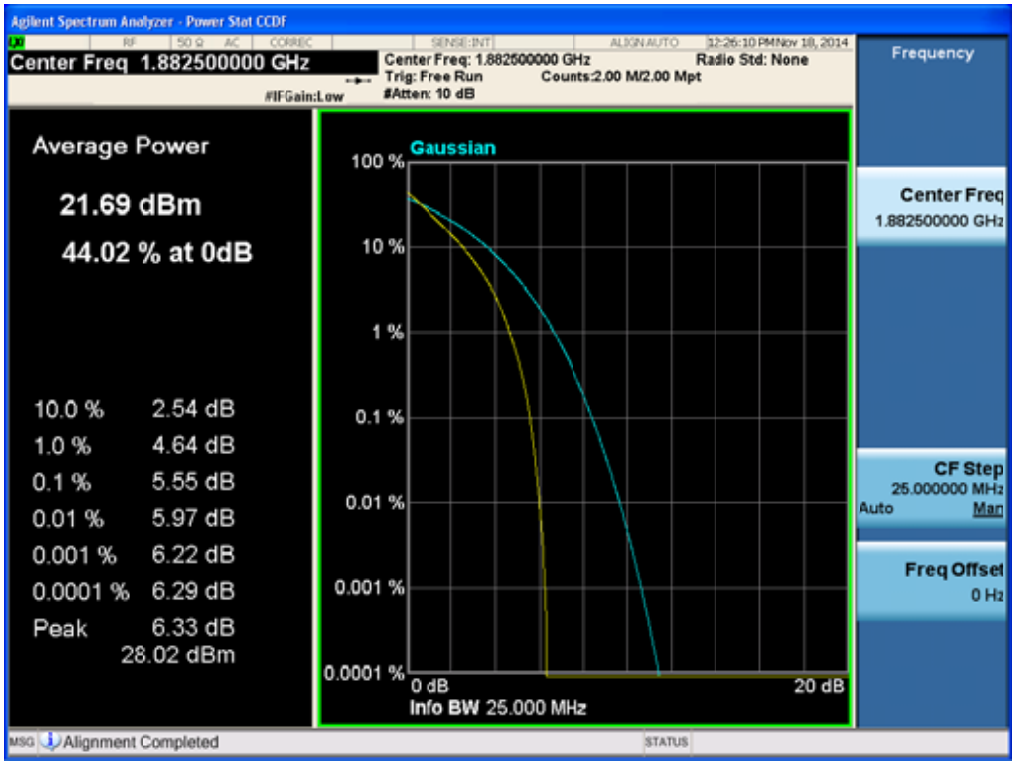
BAND 25. PAR Plot (10M BW Ch.26365 QPSK RB 50)



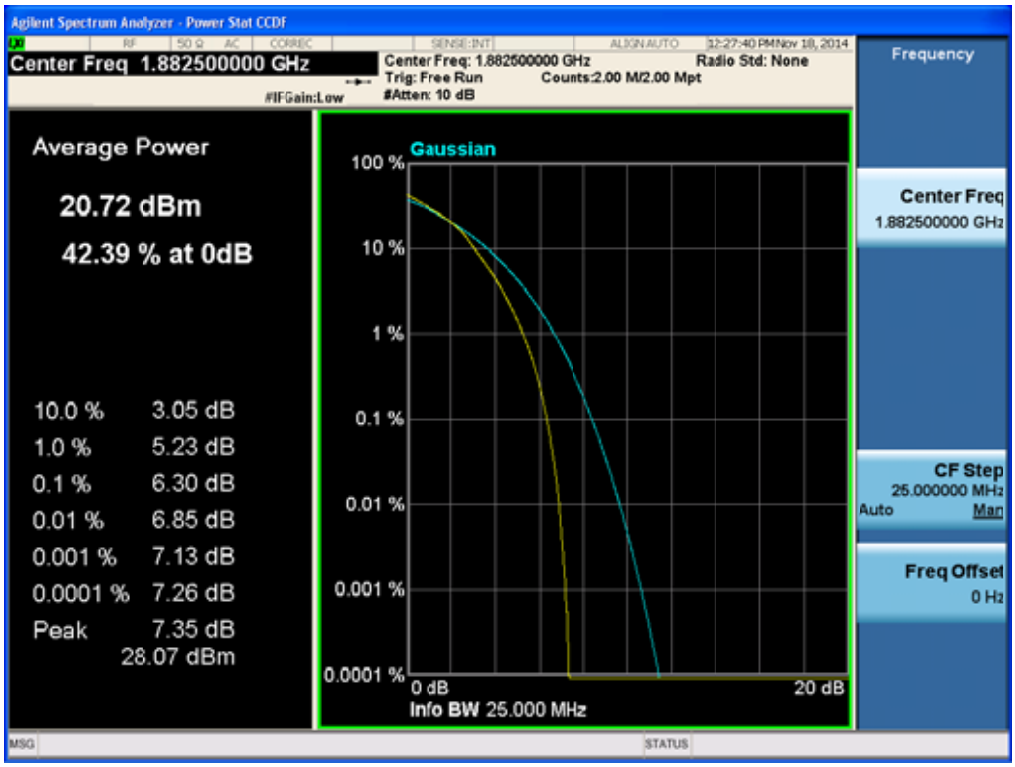
BAND 25. PAR Plot (10M BW Ch.26365 16QAM RB 50)



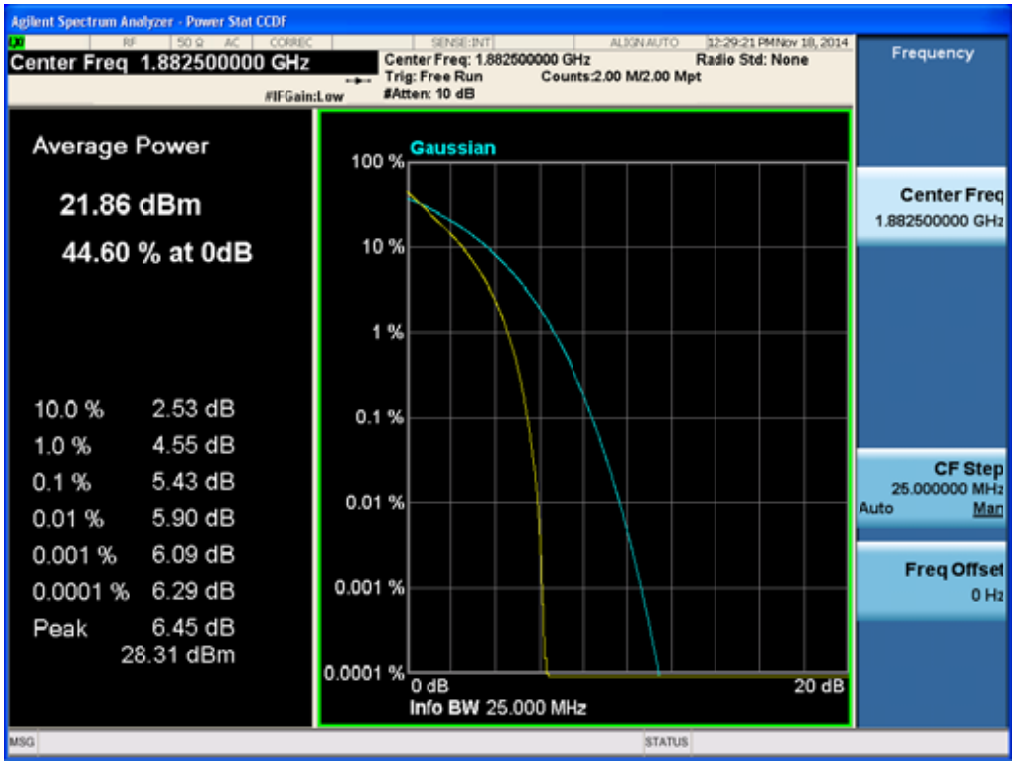
BAND 25. PAR Plot (15M BW Ch.26365 QPSK RB 75)



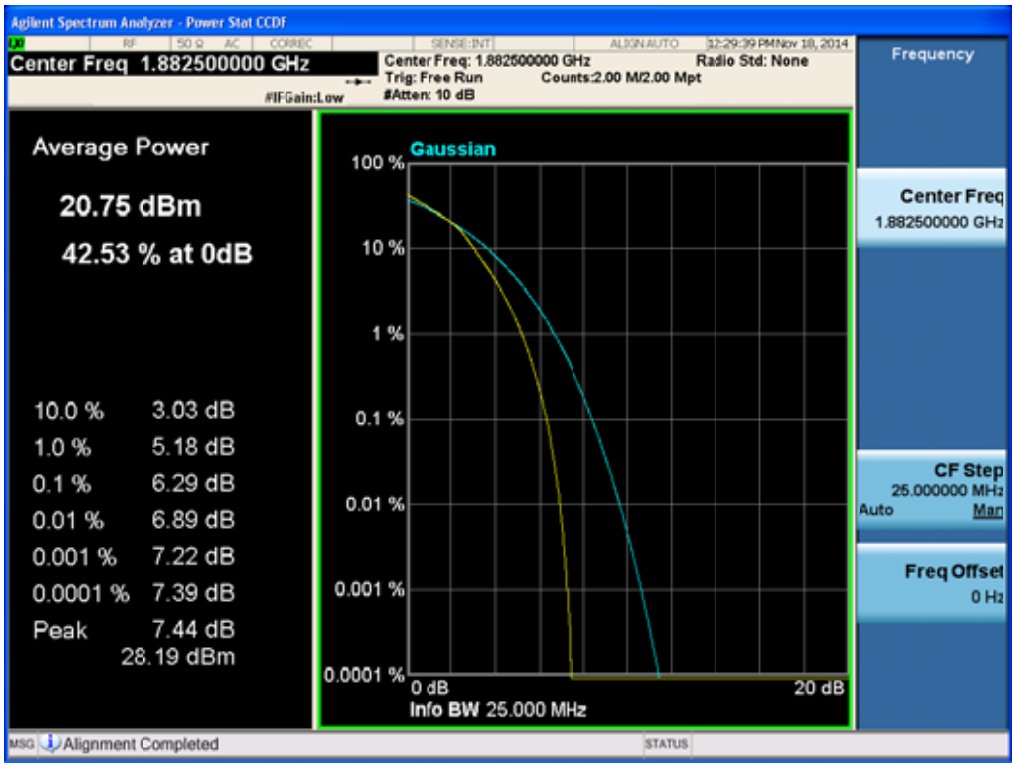
BAND 25. PAR Plot (15M BW Ch.26365 16QAM RB 75)



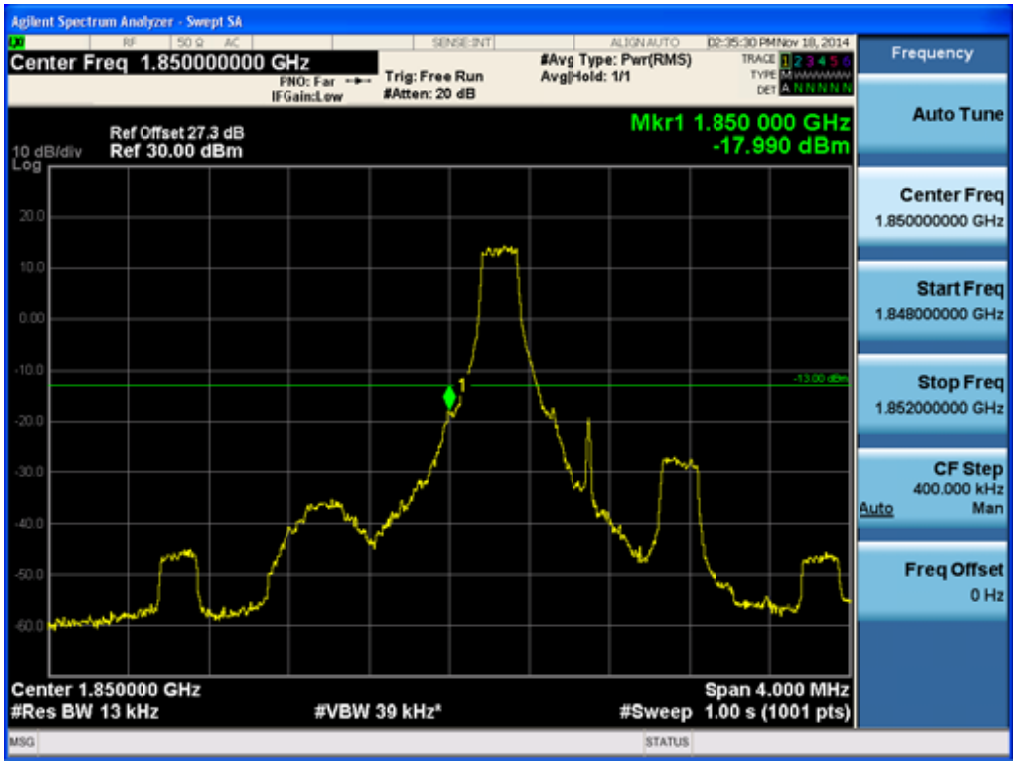
BAND 25. PAR Plot (20M BW Ch.26365 QPSK RB 100)



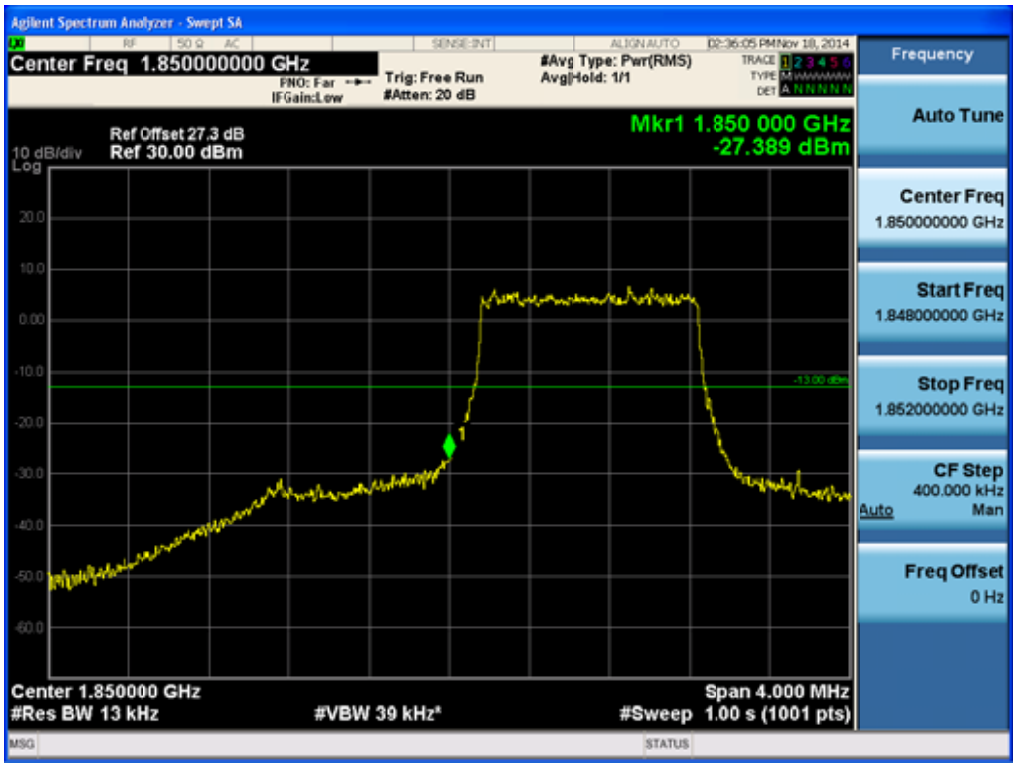
BAND 25. PAR Plot (20M BW Ch.26365 16QAM RB 100)



BAND 25. Lower Band Edge Plot (1.4M BW Ch.26047 QPSK RB 1, Offset 0) -1

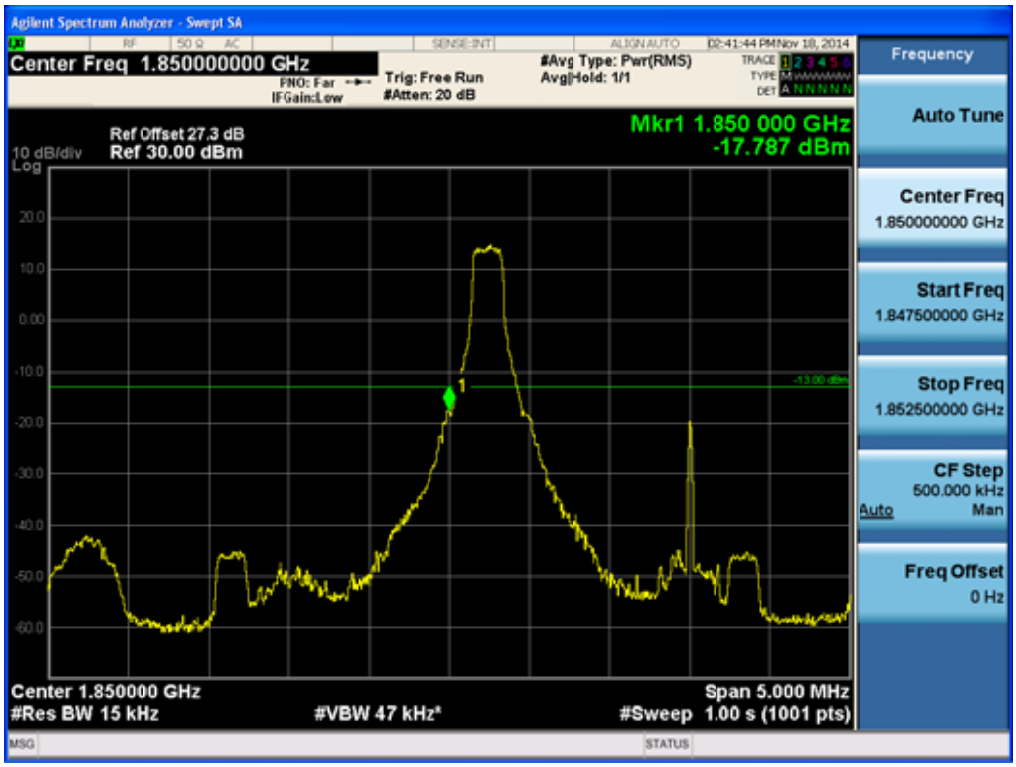


BAND 25. Lower Band Edge Plot (1.4M BW Ch. 26047 QPSK RB 6) -2

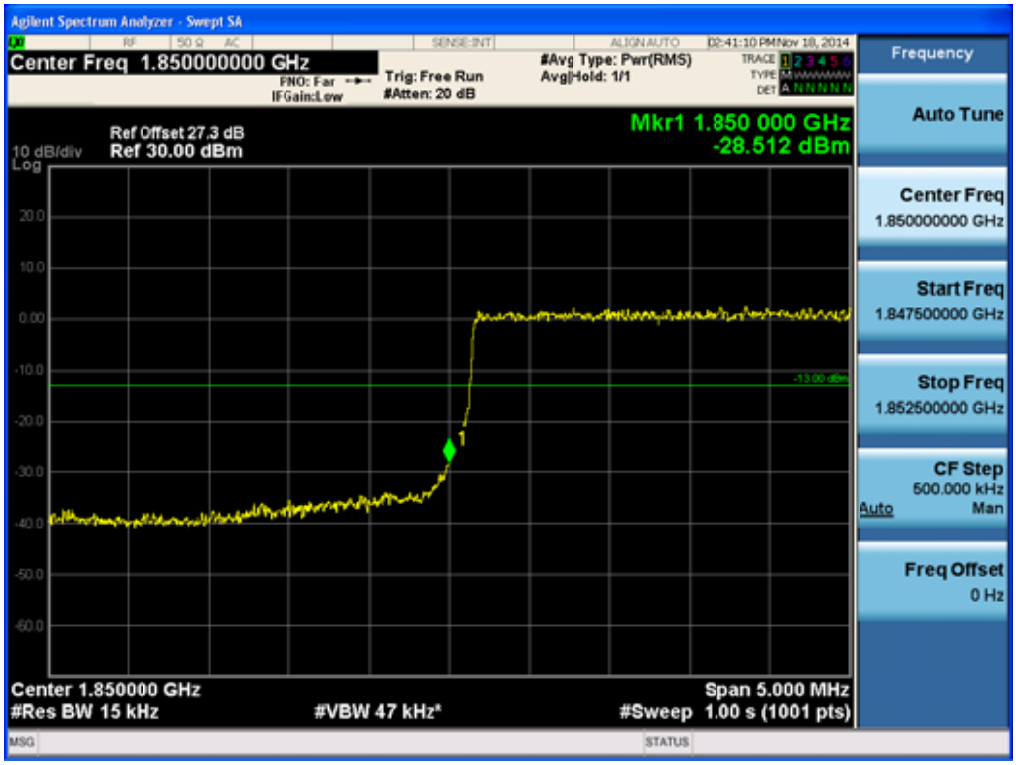


BAND 25. Lower Extended Band Edge Plot (1.4M BW Ch. 26047 QPSK RB 6) -3

BAND 25. Lower Band Edge Plot (3M BW Ch.26055 QPSK RB 1, Offset 0) -1

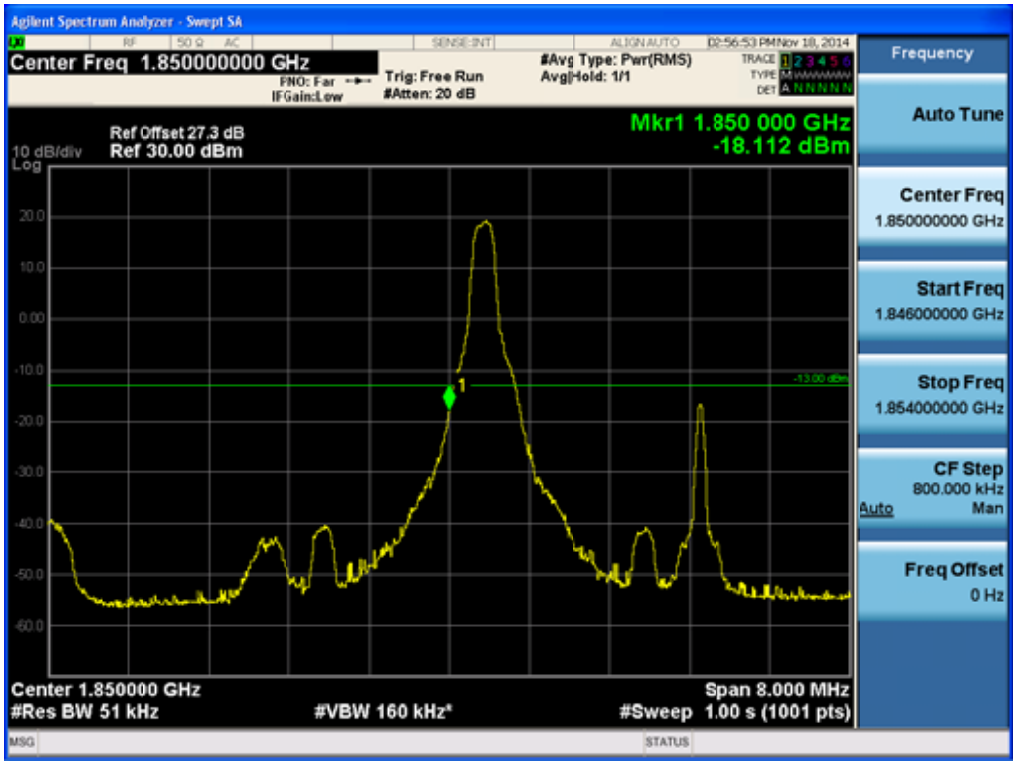


BAND 25. Lower Band Edge Plot (3M BW Ch. 26055 QPSK RB 15) -2

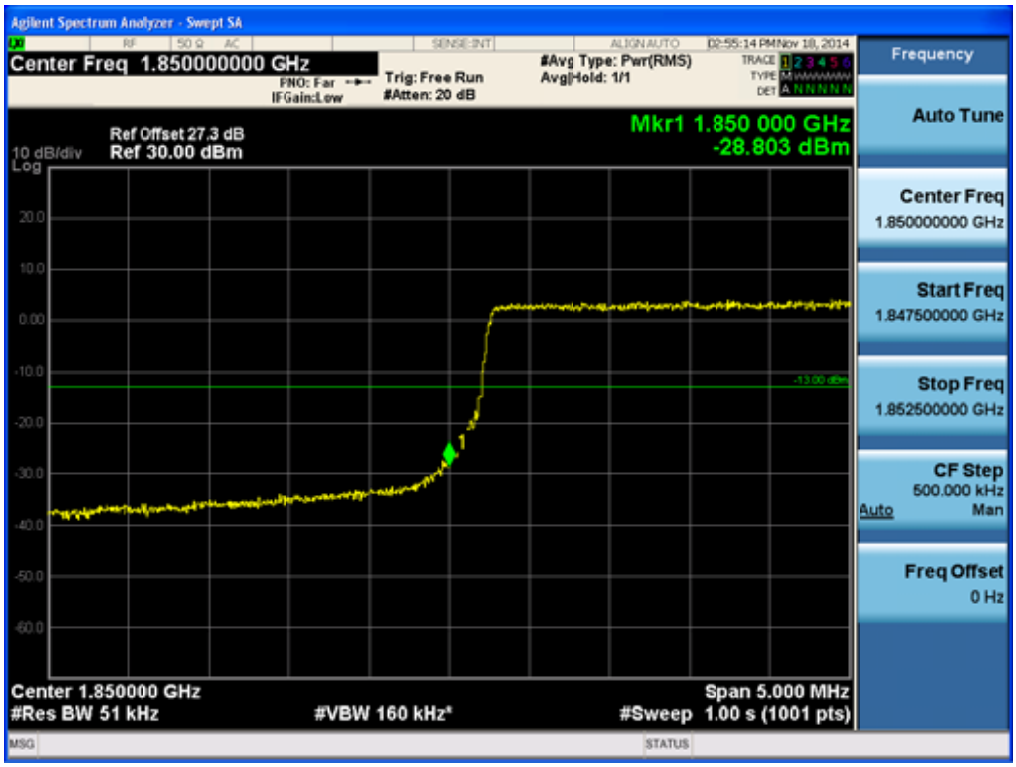


BAND 25. Lower Extended Band Edge Plot (3M BW Ch. 26055 QPSK RB 15) -3

BAND 25. Lower Band Edge Plot (5M BW Ch.26065 QPSK RB 1, Offset 0) -1

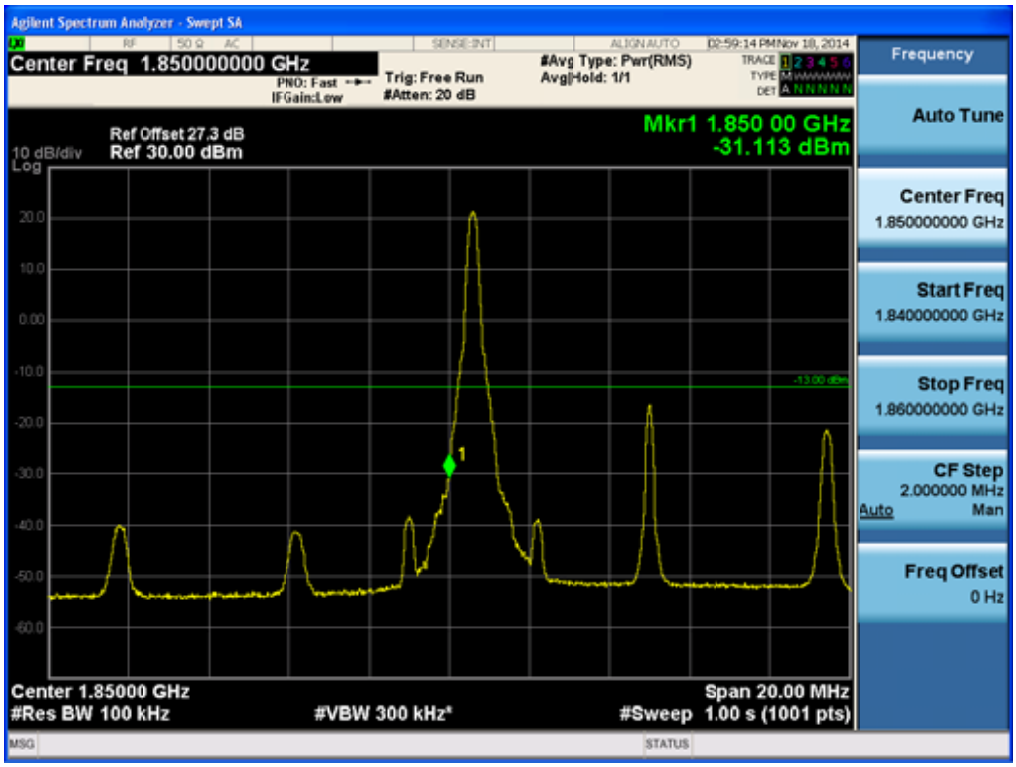


BAND 25. Lower Band Edge Plot (5M BW Ch. 26065 QPSK RB 25) -2

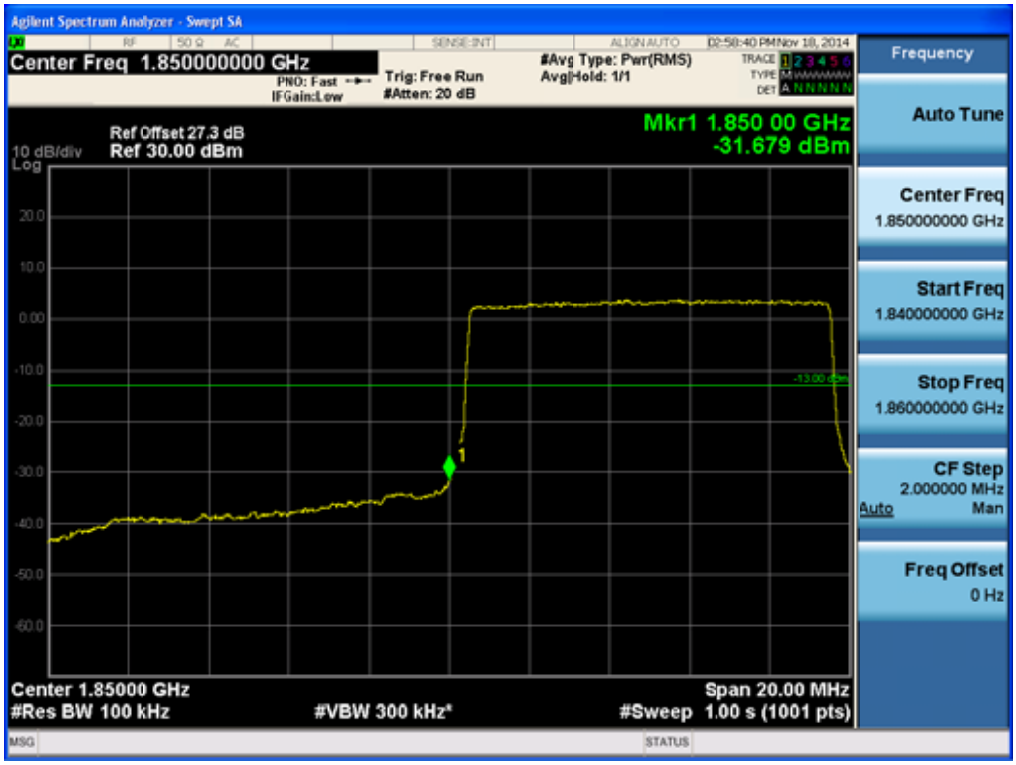


BAND 25. Lower Extended Band Edge Plot (5M BW Ch. 26065 QPSK RB 25) -3

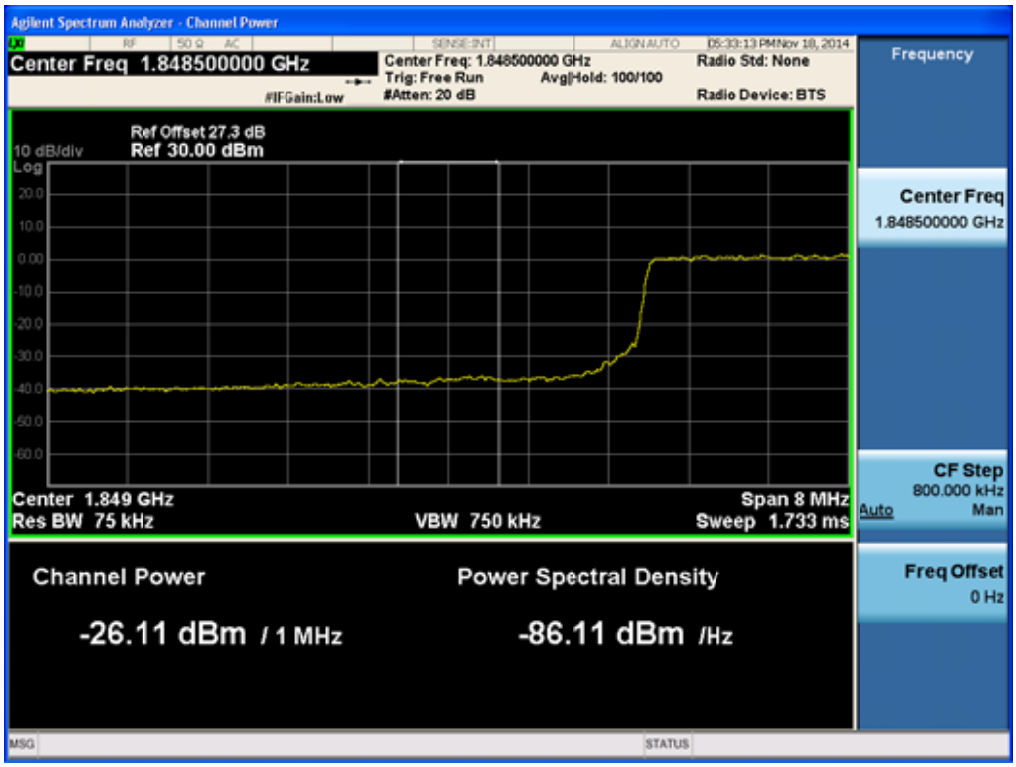
BAND 25. Lower Band Edge Plot (10M BW Ch.26090 QPSK RB 1, Offset 0) -1



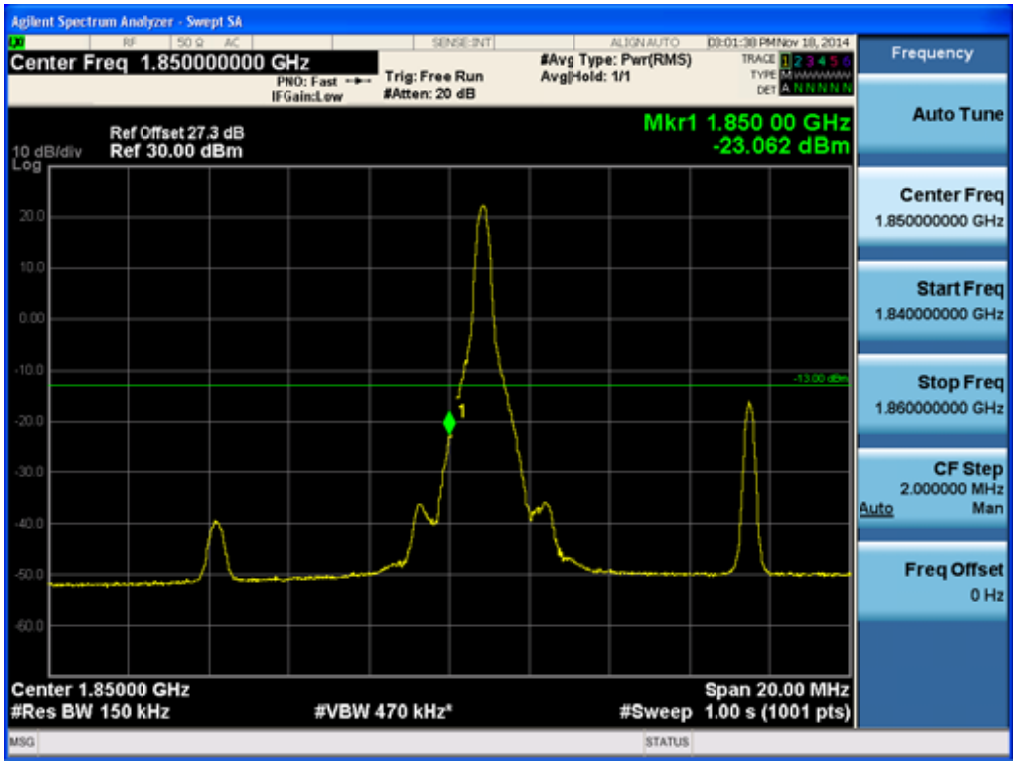
BAND 25. Lower Band Edge Plot (10M BW Ch. 26090 QPSK RB 50) -2



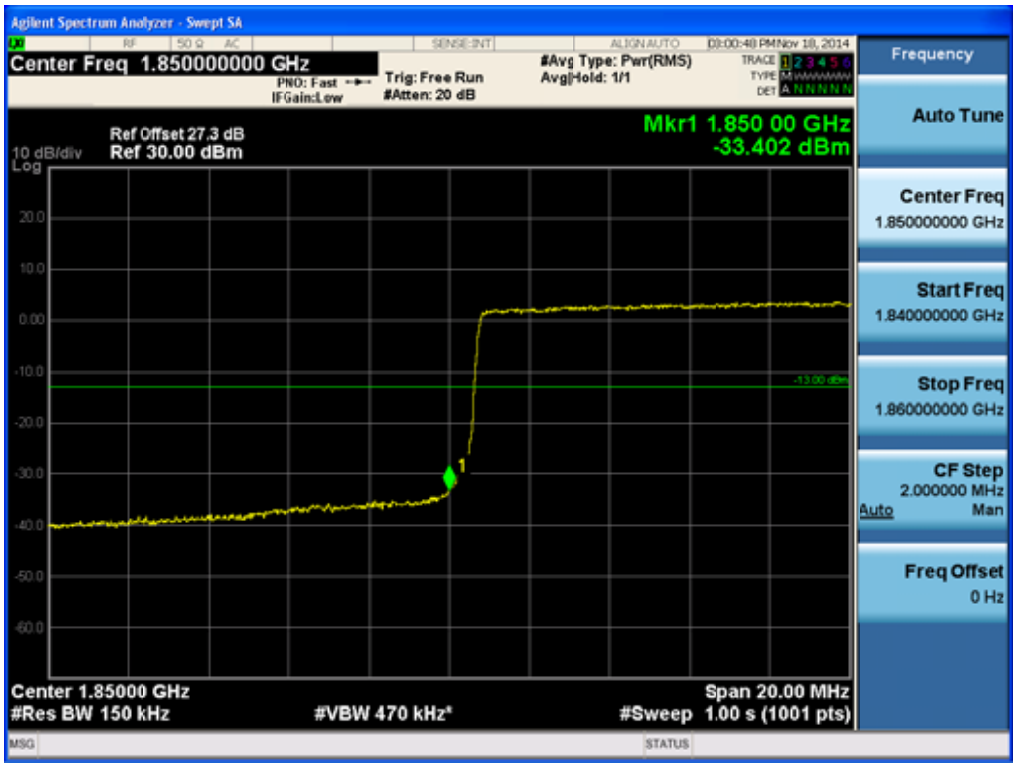
BAND 25. Lower Extended Band Edge Plot (10M BW Ch. 26090 QPSK RB 50) -3



BAND 25. Lower Band Edge Plot (15M BW Ch.26115 QPSK RB 1, Offset 0) -1

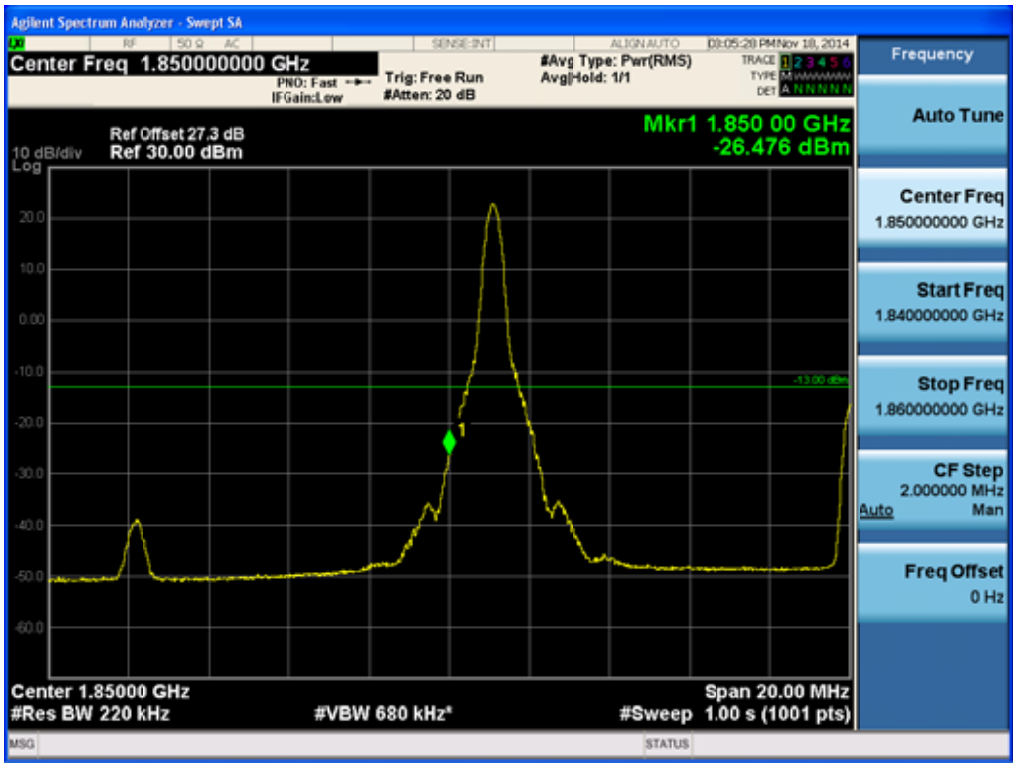


BAND 25. Lower Band Edge Plot (15M BW Ch. 26115 QPSK RB 75) -2

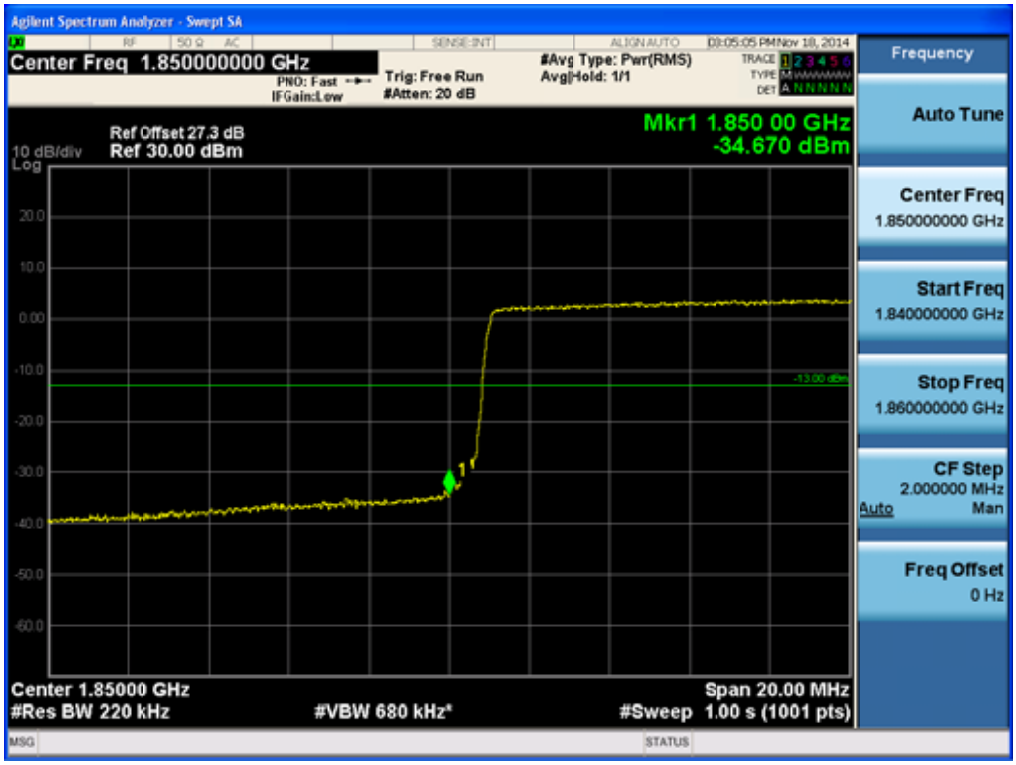


BAND 25. Lower Extended Band Edge Plot (15M BW Ch. 26115 QPSK RB 75) -3

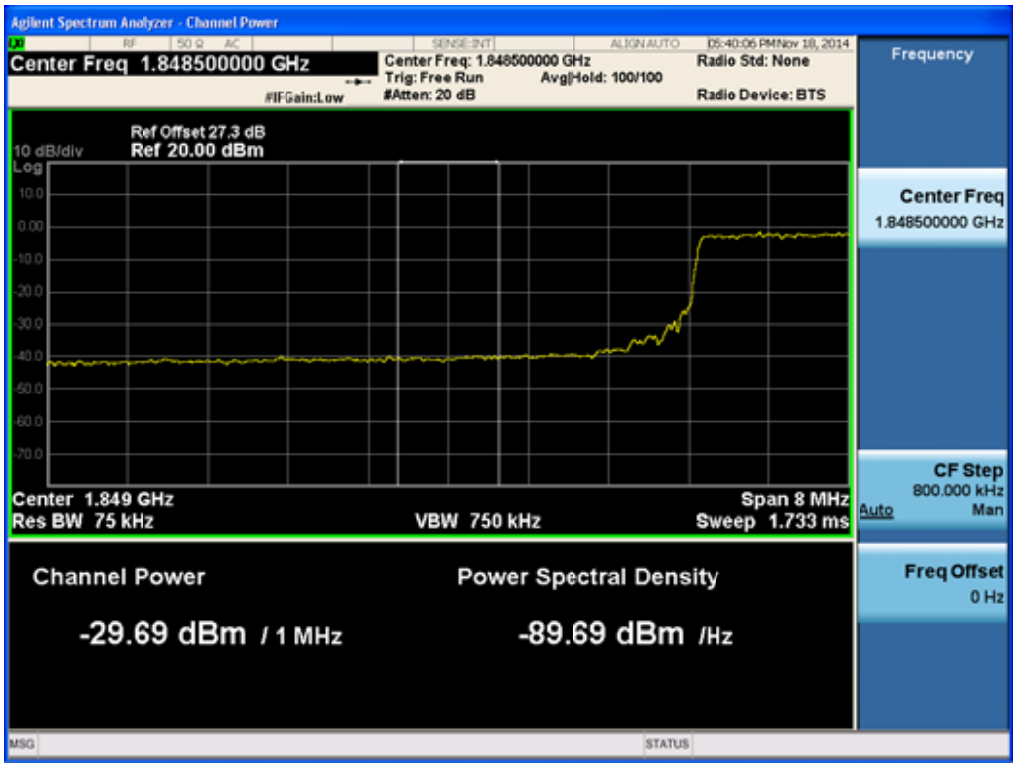
BAND 25. Lower Band Edge Plot (20M BW Ch.26140 QPSK RB 1, Offset 0) -1



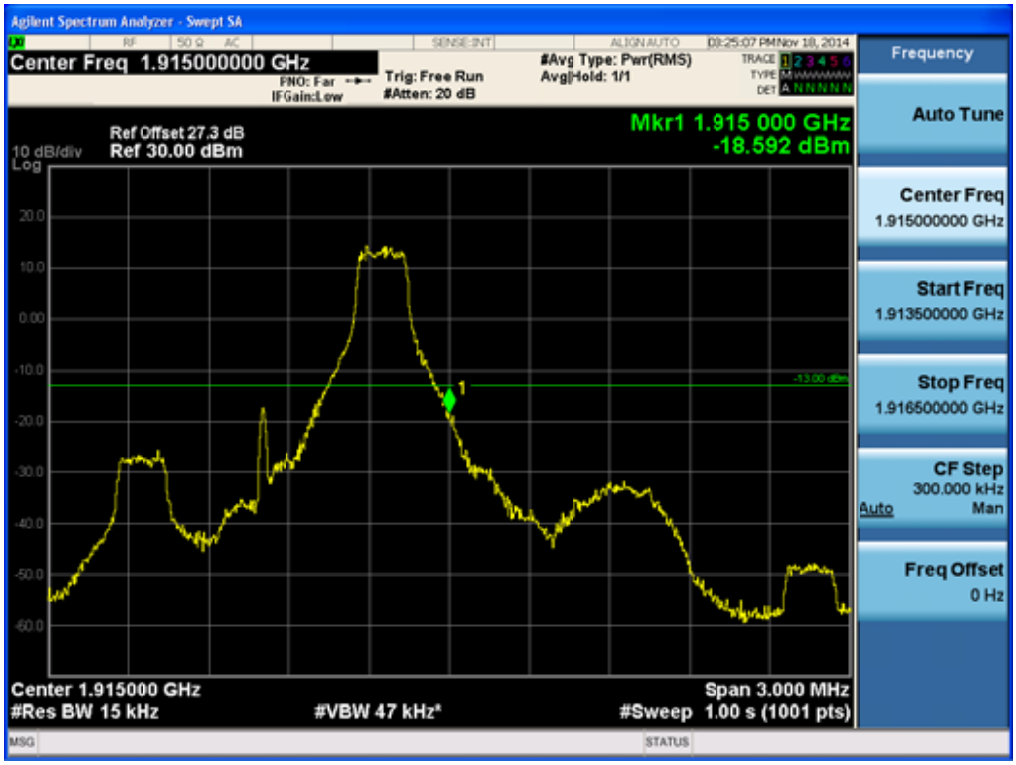
BAND 25. Lower Band Edge Plot (20M BW Ch. 26140 QPSK RB 100) -2



BAND 25. Lower Extended Band Edge Plot (20M BW Ch. 26140 QPSK RB 100) -3



BAND 25. Upper Band Edge Plot (1.4M BW Ch.26683 QPSK RB 1, Offset 5) -1

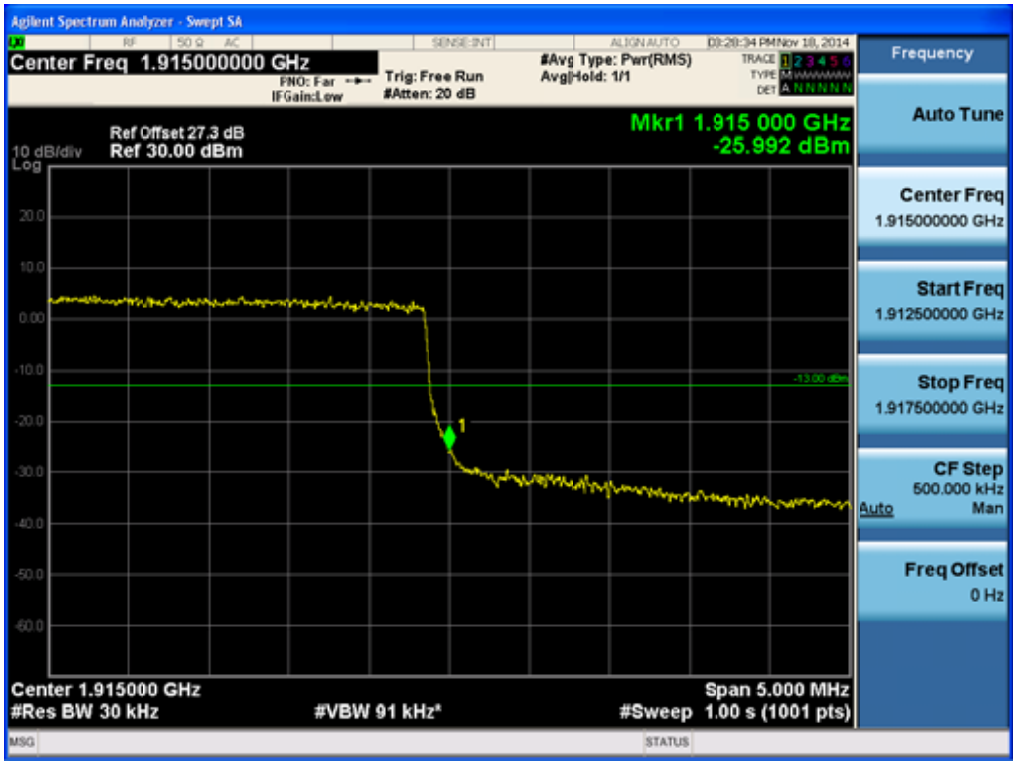


BAND 25. Upper Band Edge Plot (1.4M BW Ch.26683 QPSK RB 6) -2

BAND 25. Upper Extended Band Edge Plot (1.4M BW Ch.26683 QPSK RB 6) -3

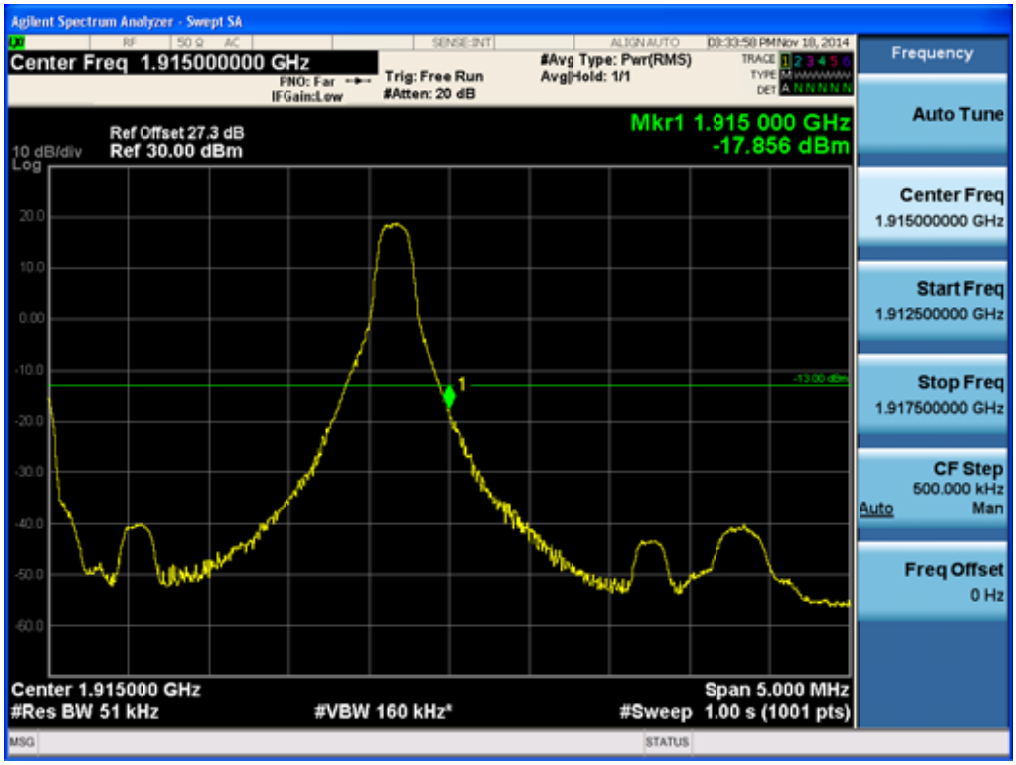
BAND 25. Upper Band Edge Plot (3M BW Ch.26675 QPSK RB 1, Offset 14) -1

BAND 25. Upper Band Edge Plot (3M BW Ch.26675 QPSK RB 15) -2

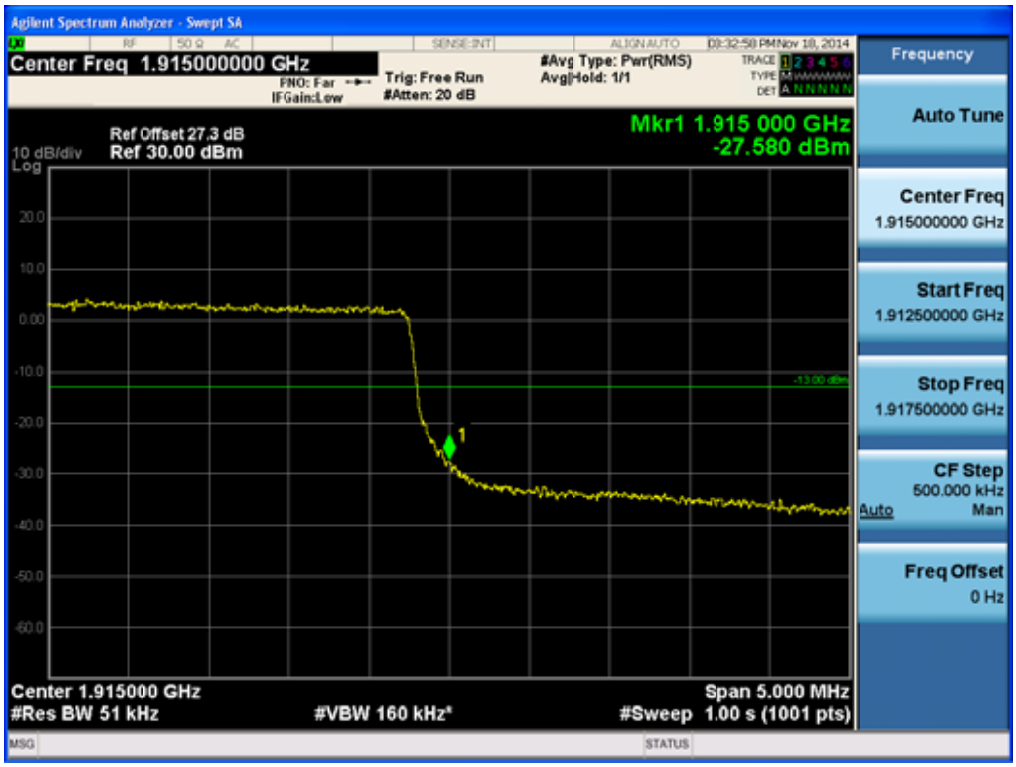


BAND 25. Upper Extended Band Edge Plot (3M BW Ch.26675 QPSK RB 15) -3

BAND 25. Upper Band Edge Plot (5M BW Ch.26665 QPSK RB 1, Offset 24) -1

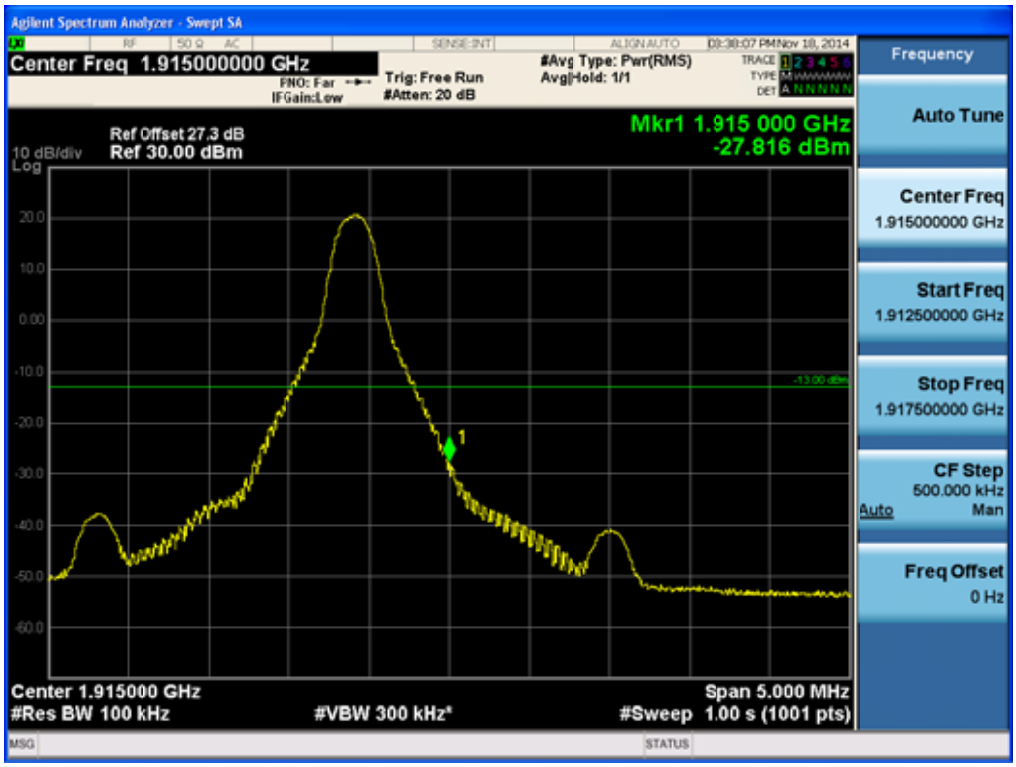


BAND 25. Upper Band Edge Plot (5M BW Ch.26665 QPSK RB 25) -2



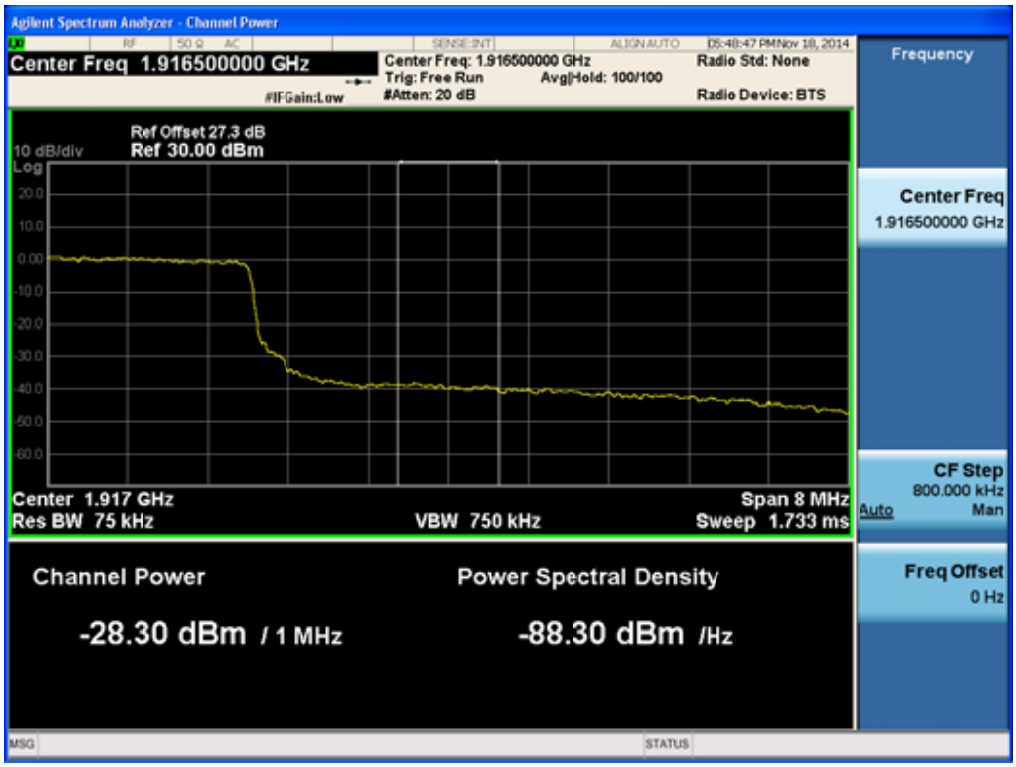
BAND 25. Upper Extended Band Edge Plot (5M BW Ch.26665 QPSK RB 25) -3

BAND 25. Upper Band Edge Plot (10M BW Ch.26640 QPSK RB 1, Offset 49) -1

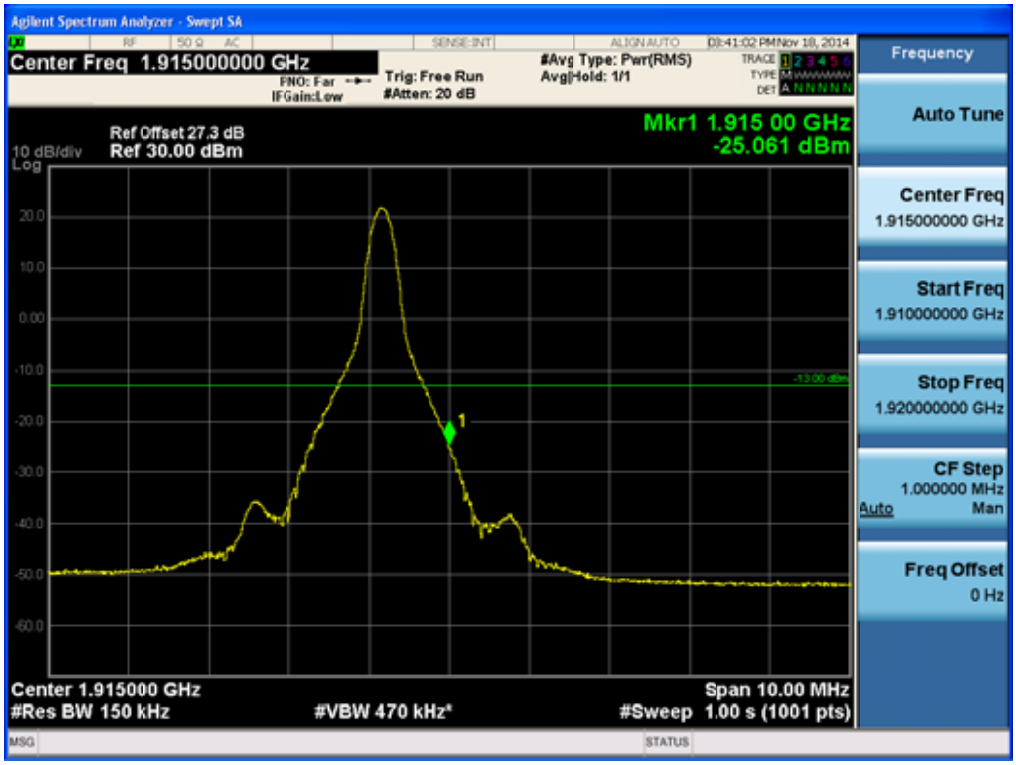


BAND 25. Upper Band Edge Plot (10M BW Ch.26640 QPSK RB 50) -2

BAND 25. Upper Extended Band Edge Plot (10M BW Ch.26640 QPSK RB 50) -3



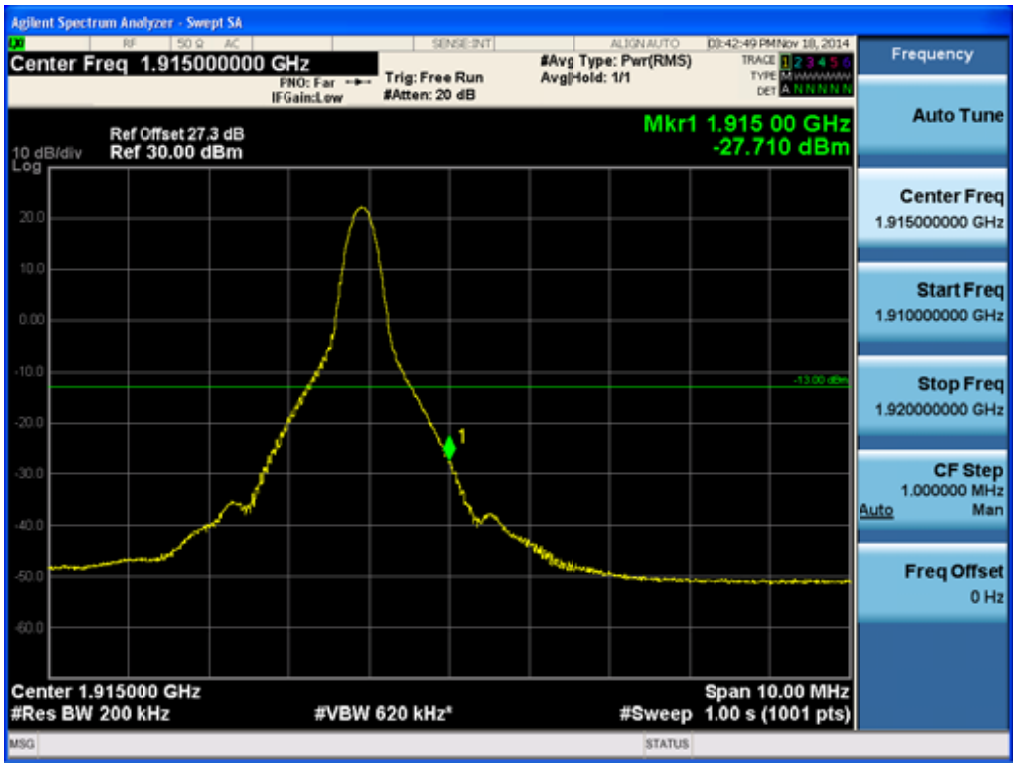
BAND 25. Upper Band Edge Plot (15M BW Ch.26615 QPSK RB 1, Offset 74) -1



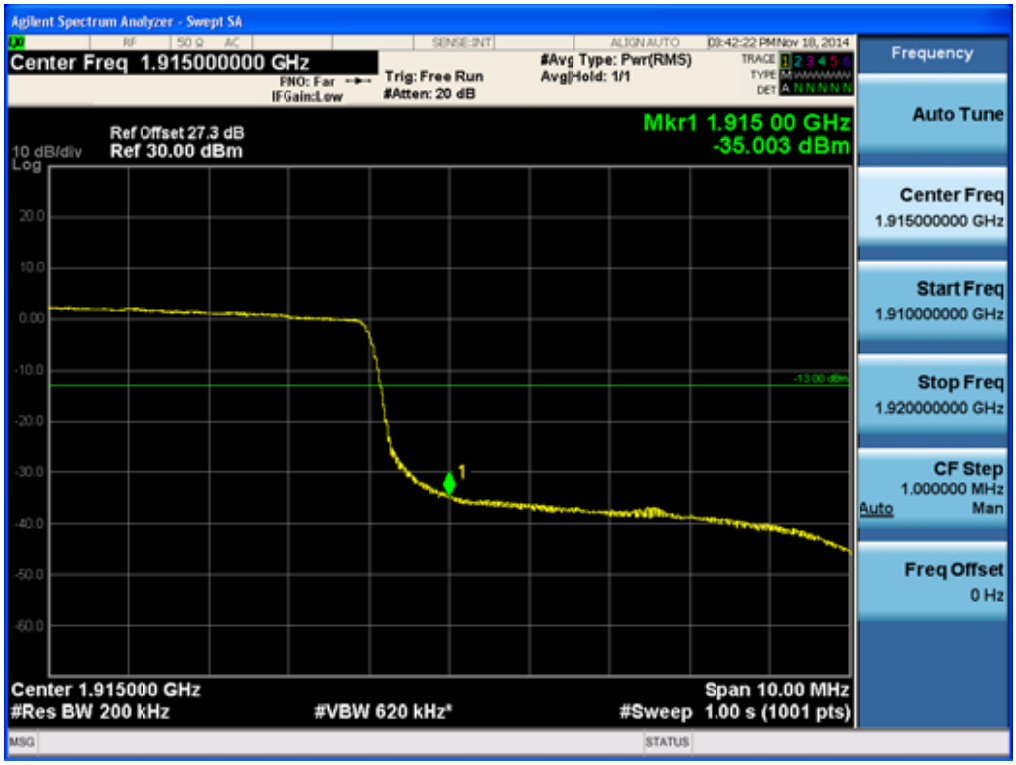
BAND 25. Upper Band Edge Plot (15M BW Ch.26615 QPSK RB 75) -2

BAND 25. Upper Extended Band Edge Plot (15M BW Ch.26615 QPSK RB 75) -3

BAND 25. Upper Band Edge Plot (20M BW Ch.26590 QPSK RB 1, Offset 99) -1

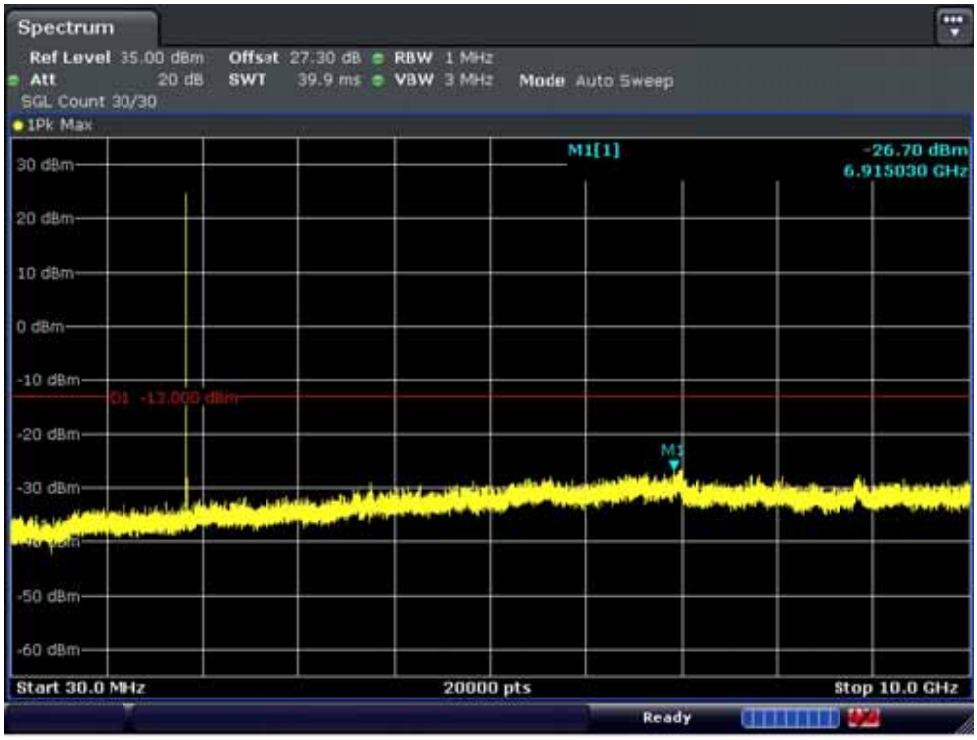


BAND 25. Upper Band Edge Plot (20M BW Ch.26590 QPSK RB 100) -2

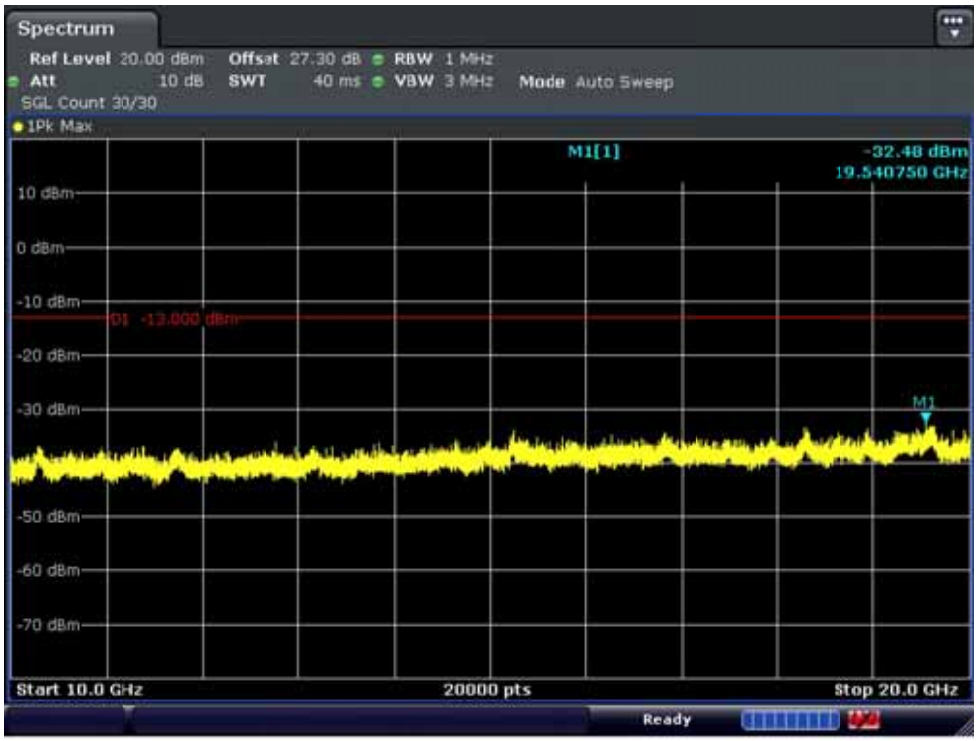


BAND 25. Upper Extended Band Edge Plot (20M BW Ch.26590 QPSK RB 100) -3

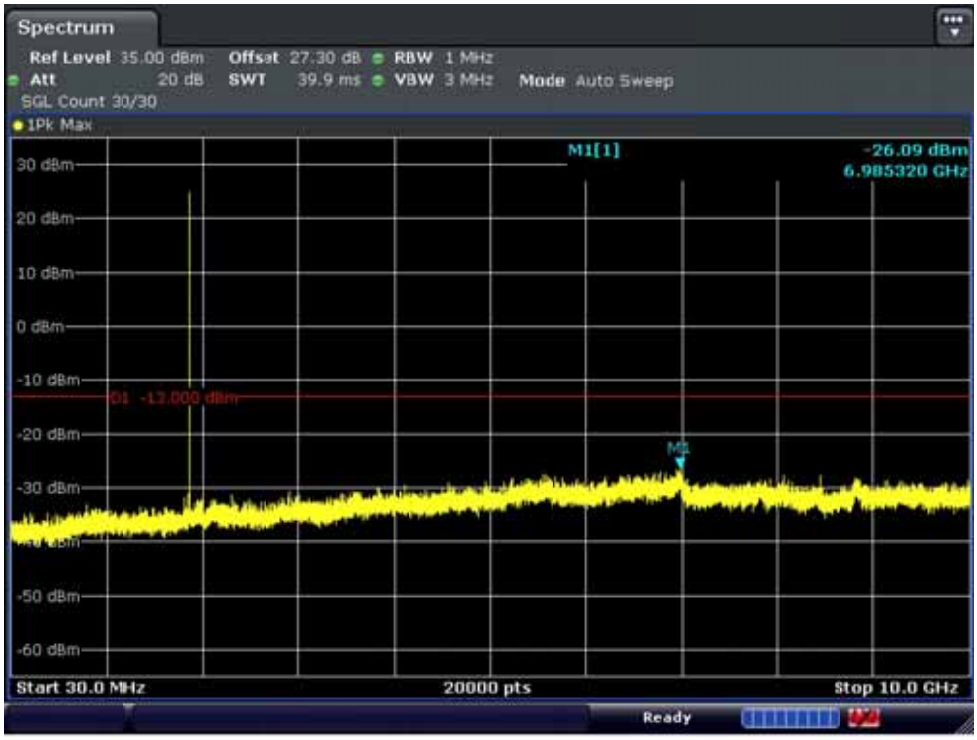
BAND 25. Conducted Spurious Plot_1 (26047ch_1.4MHz_QPSK_RB 1_0)



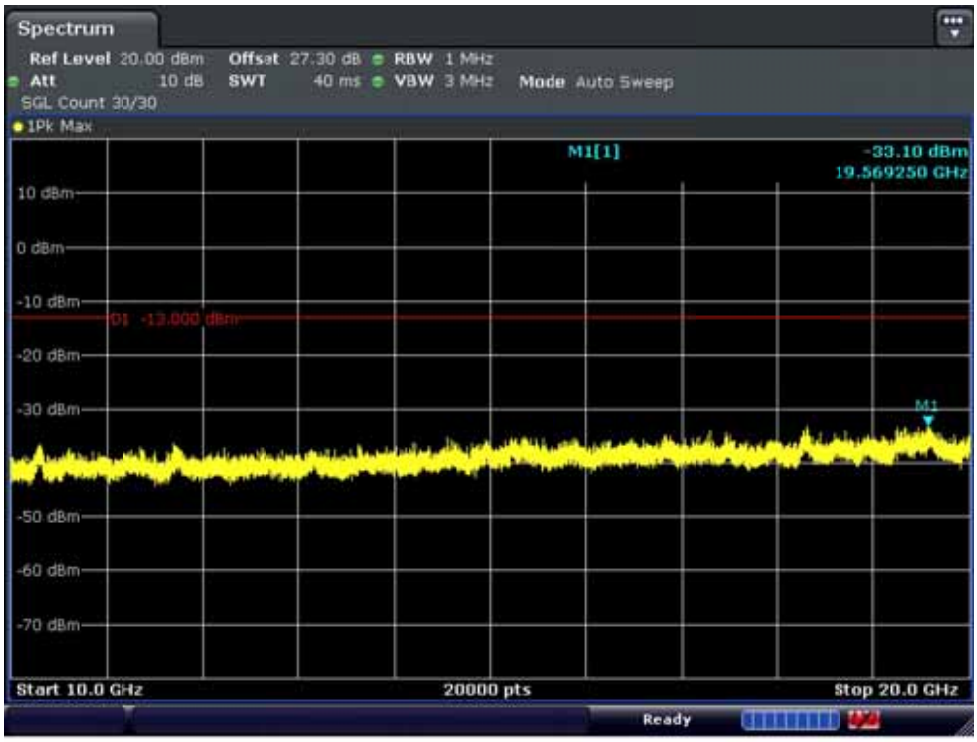
BAND 25. Conducted Spurious Plot_2 (26047ch_1.4MHz_QPSK_ RB 1_0)



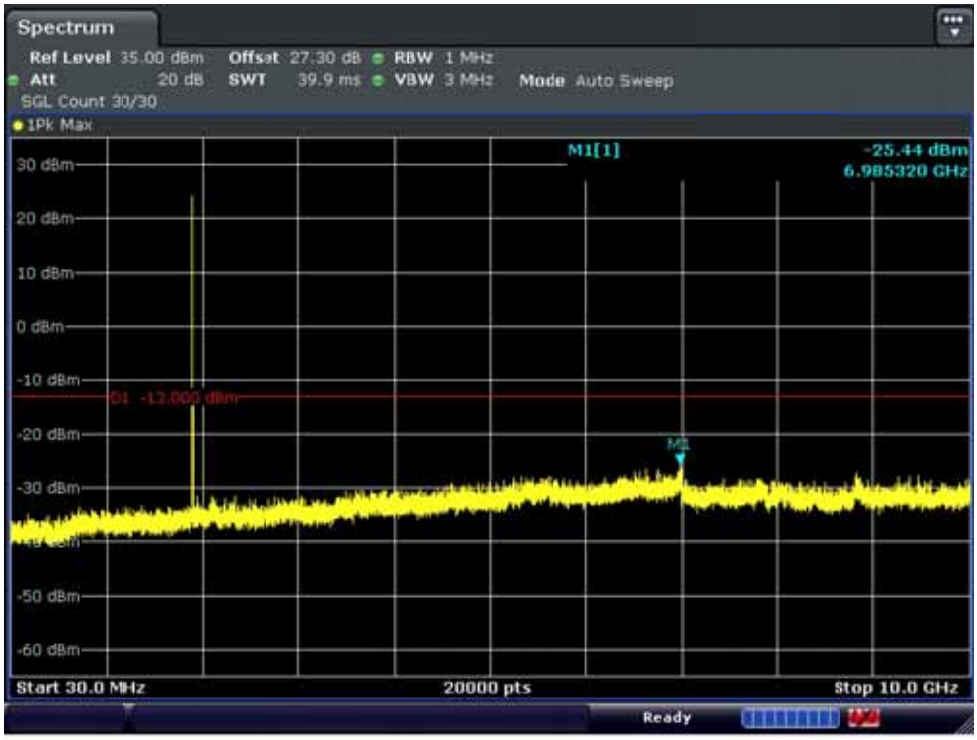
BAND 25. Conducted Spurious Plot_1 (26365ch_1.4MHz_QPSK_ RB 1_0)



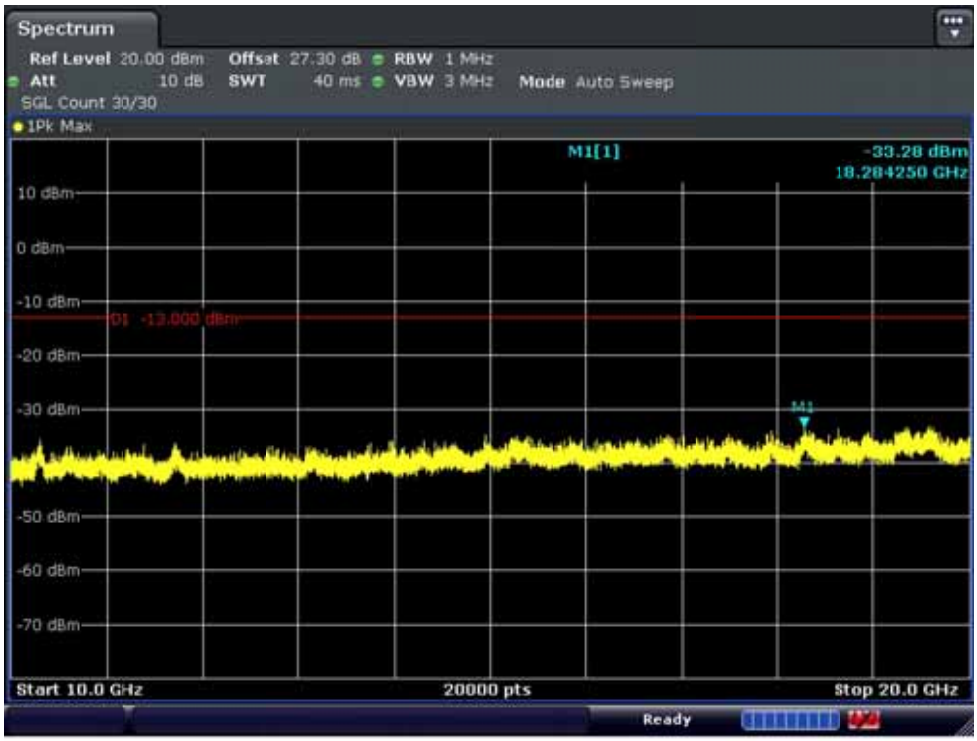
BAND 25. Conducted Spurious Plot_2 (26365ch_1.4MHz_QPSK_ RB 1_0)



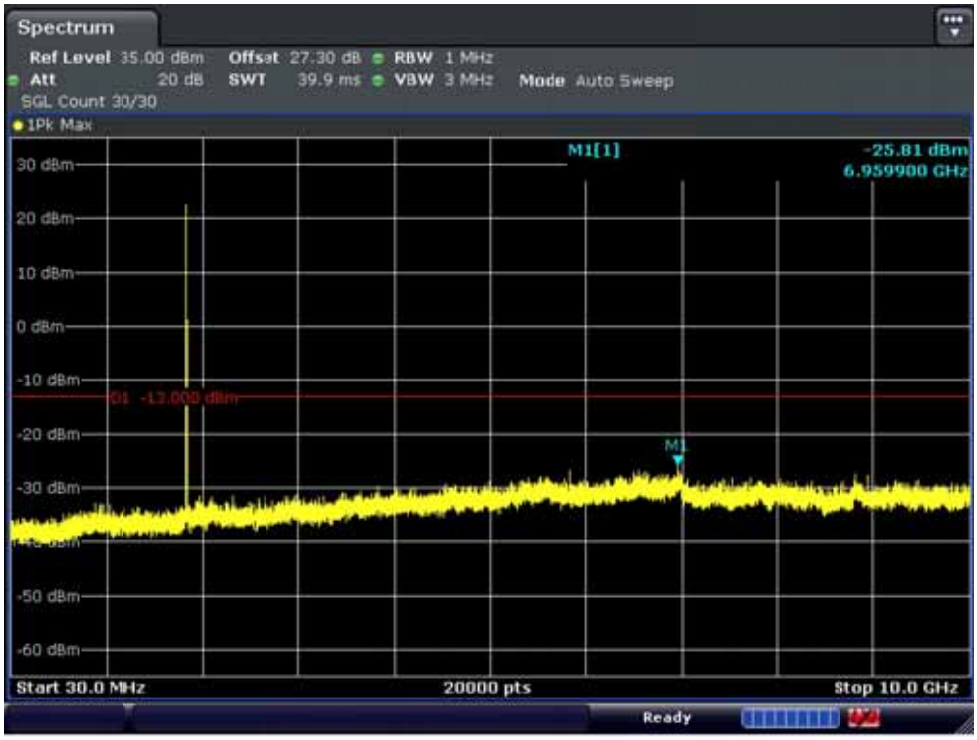
BAND 25. Conducted Spurious Plot_1 (26683ch_1.4MHz_QPSK_ RB 1_0)



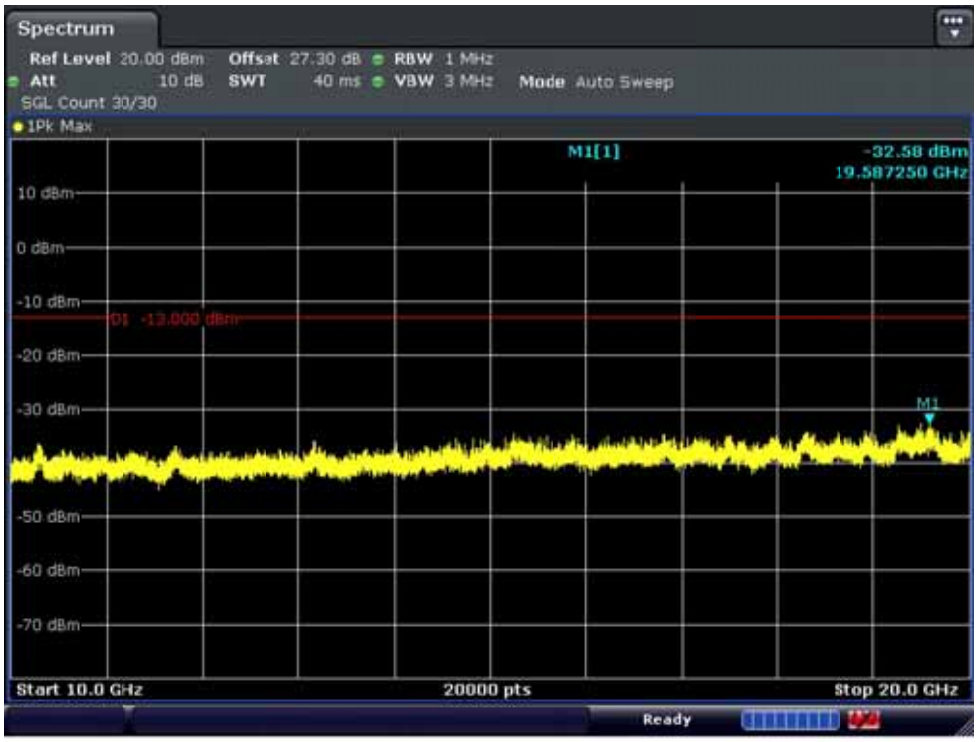
BAND 25 . Conducted Spurious Plot_2 (26683ch_1.4MHz_QPSK_ RB 1_0)



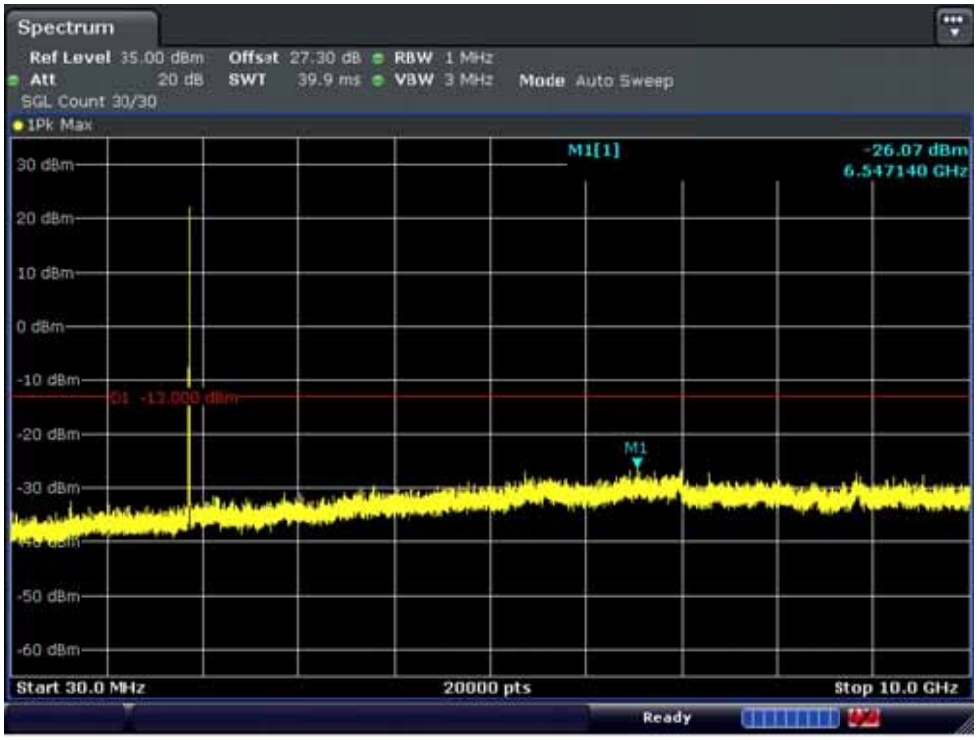
BAND 25. Conducted Spurious Plot_1 (26055ch_3MHz_QPSK_ RB 1_0)



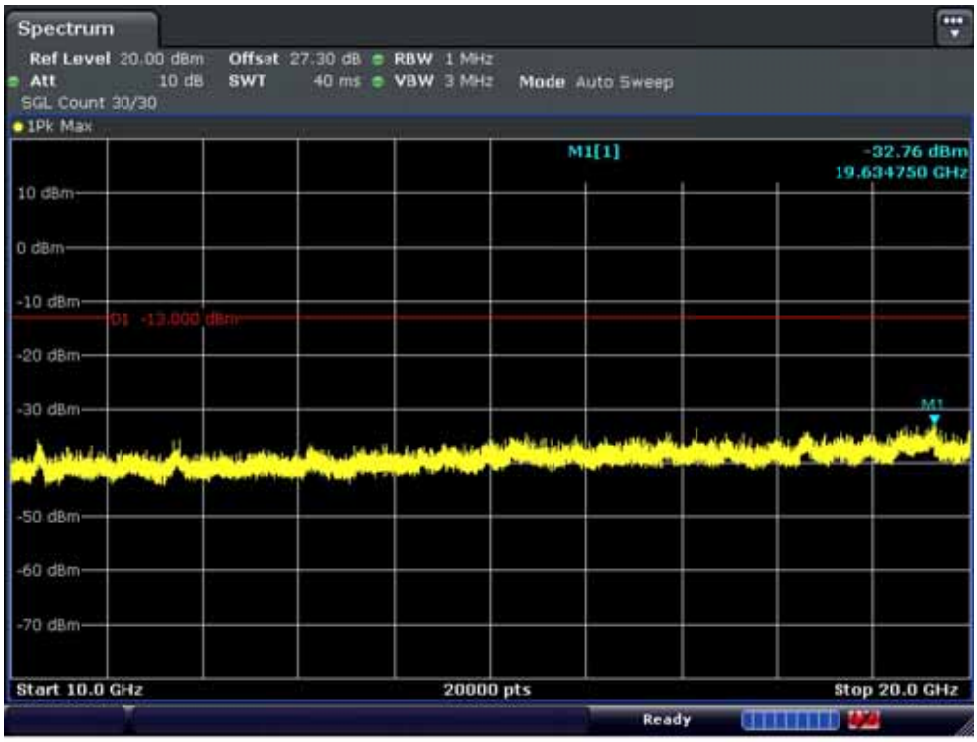
BAND 25. Conducted Spurious Plot_2 (26055ch_3MHz_QPSK_ RB 1_0)



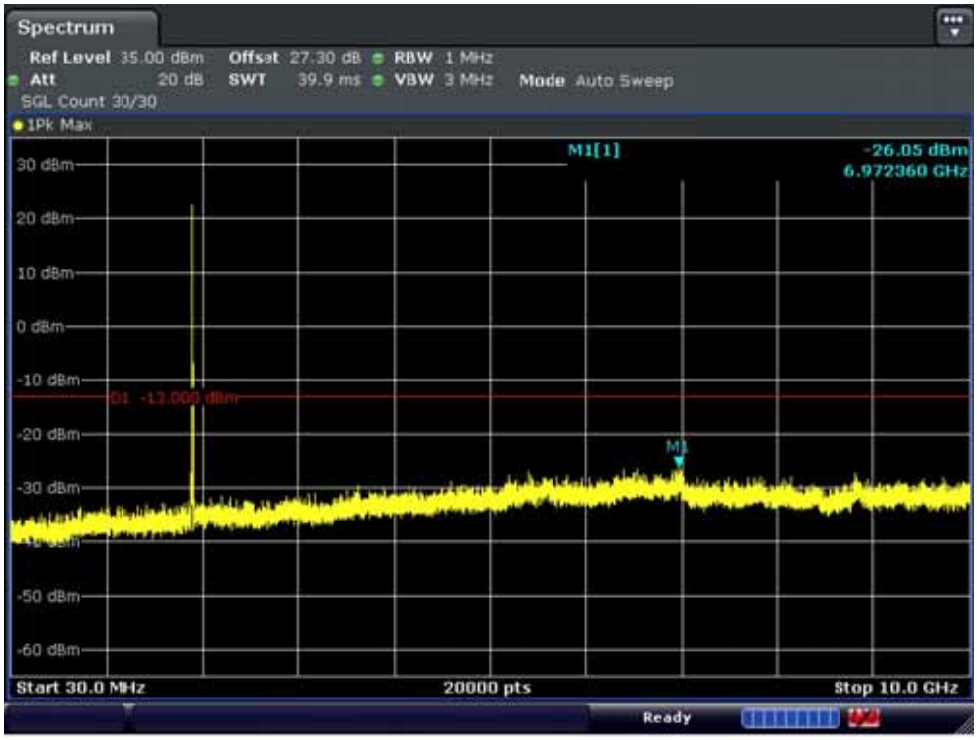
BAND 25. Conducted Spurious Plot_1 (26365ch_3MHz_QPSK_ RB 1_0)



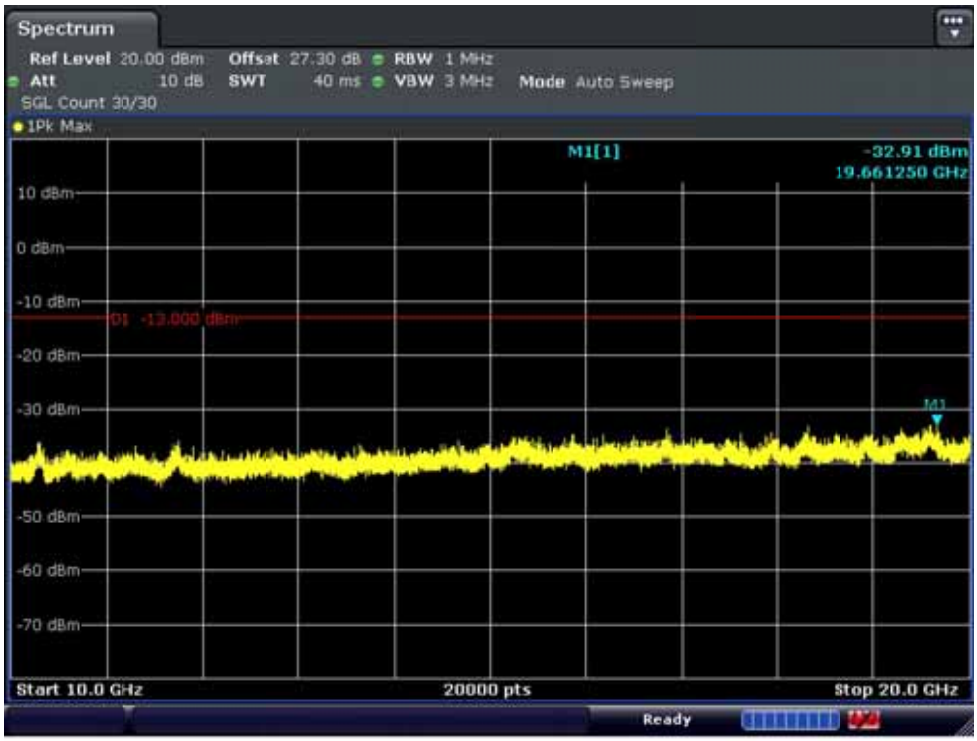
BAND 25. Conducted Spurious Plot_2 (26365ch_3MHz_QPSK_ RB 1_0)



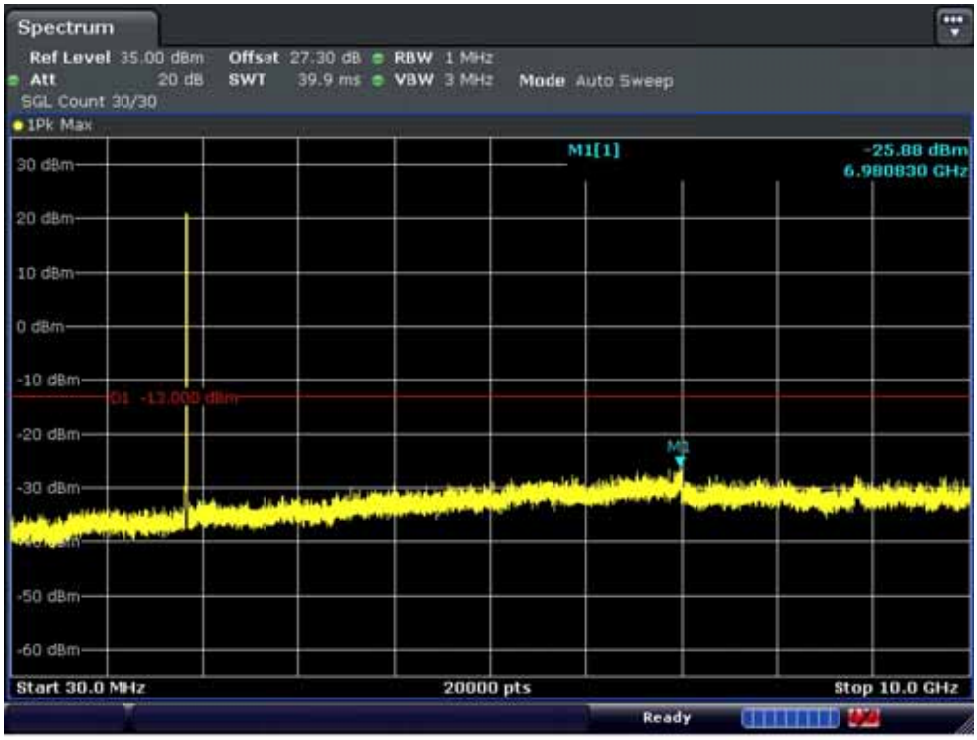
BAND 25. Conducted Spurious Plot_1 (26675ch_3MHz_QPSK_ RB 1_0)



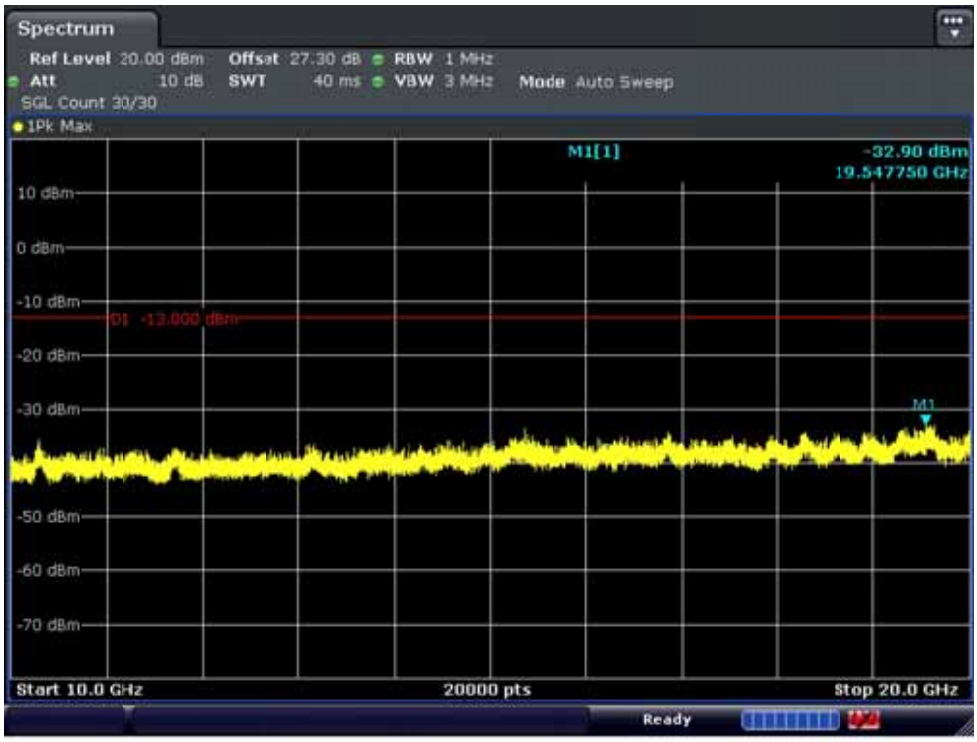
BAND 25. Conducted Spurious Plot_2 (26675ch_3MHz_QPSK_ RB 1_0)



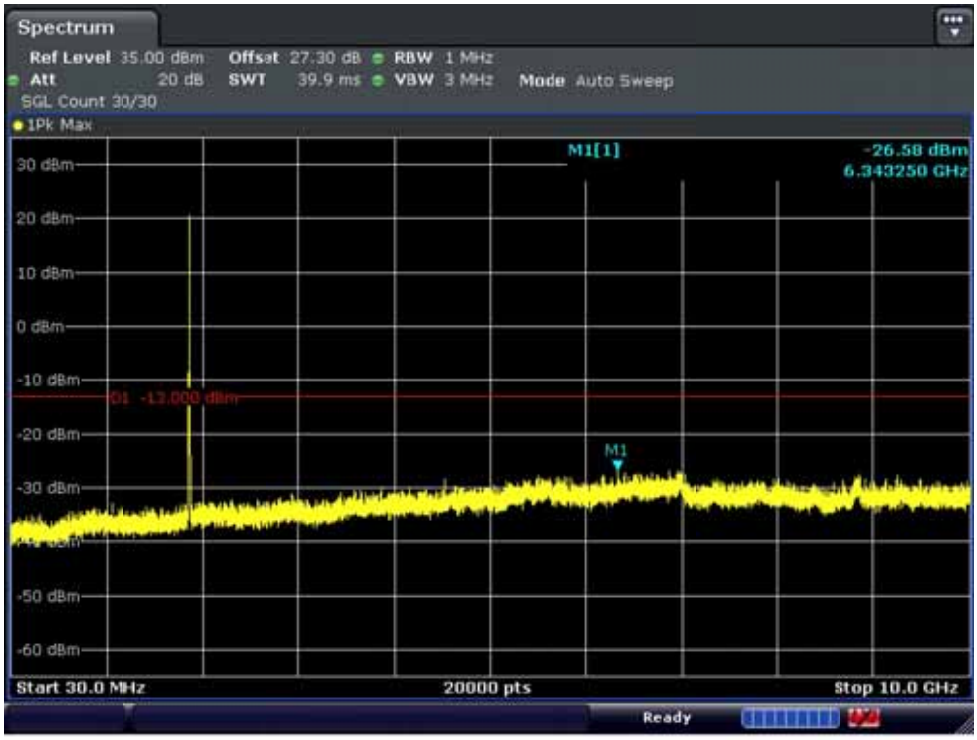
BAND 25. Conducted Spurious Plot_1 (26065ch_5MHz_QPSK_ RB 1_0)



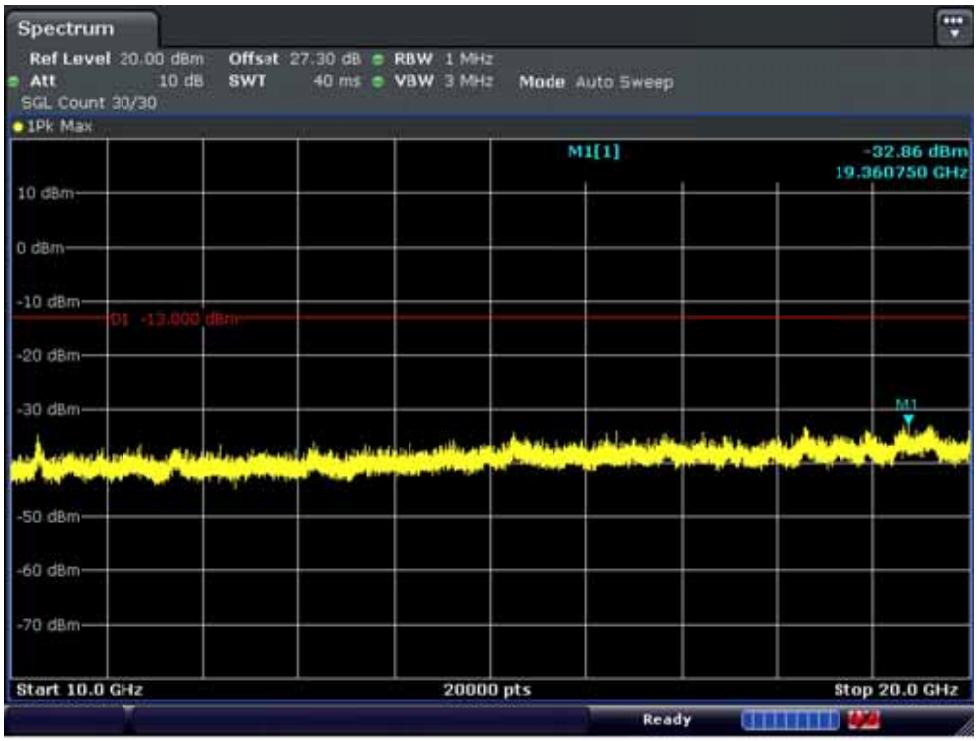
BAND 25. Conducted Spurious Plot_2 (26065ch_5MHz_QPSK_ RB 1_0)



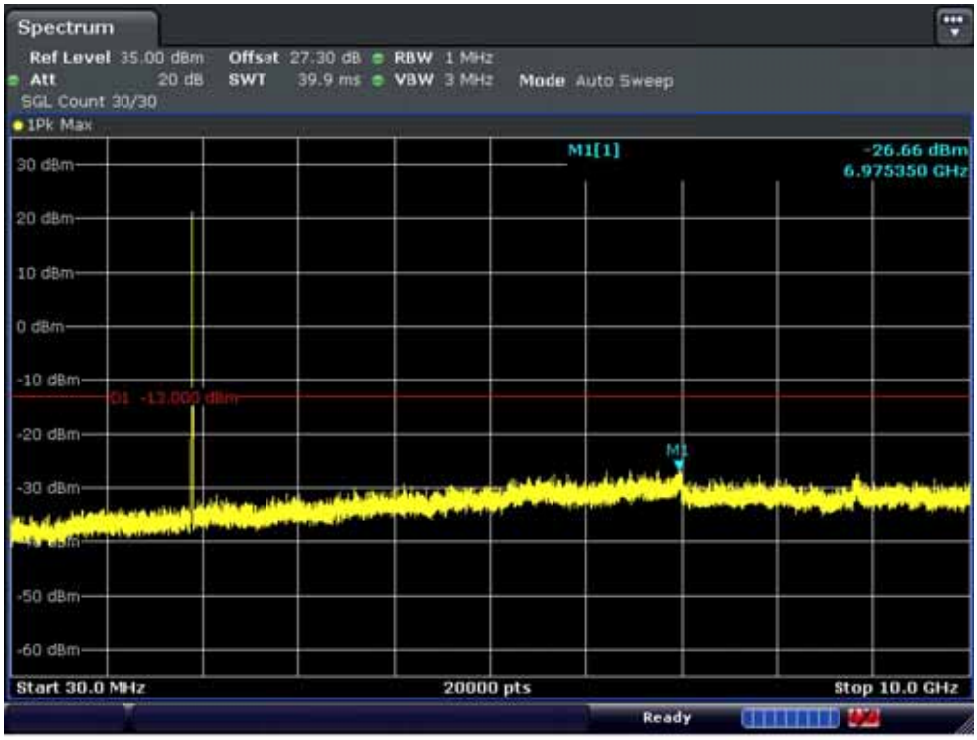
BAND 25. Conducted Spurious Plot_1 (26365ch_5MHz_QPSK_ RB 1_0)



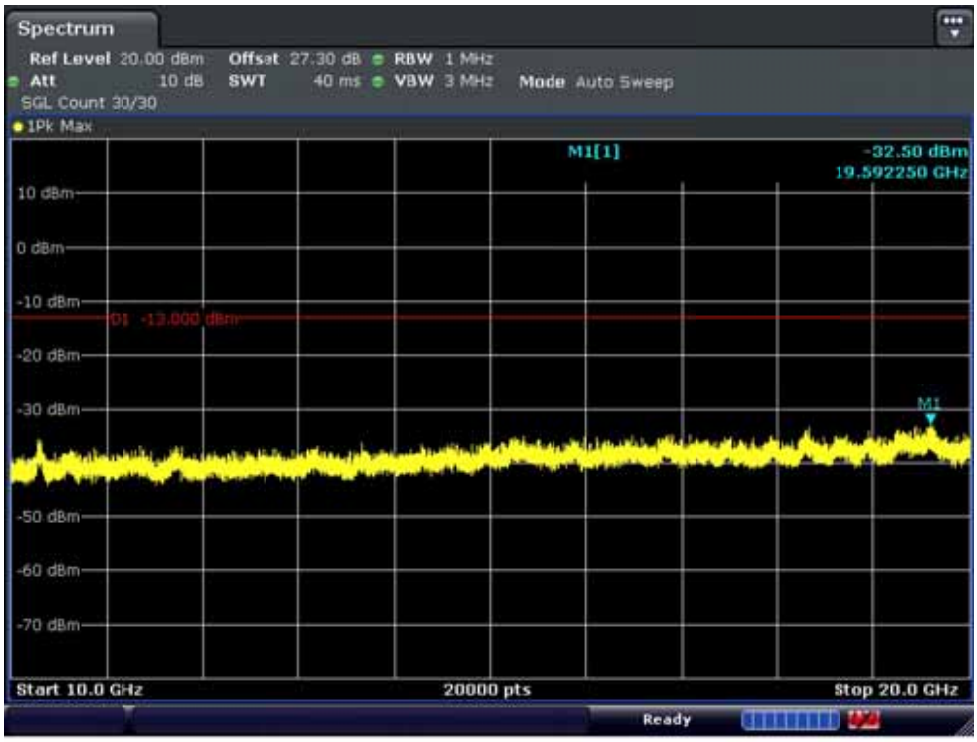
BAND 25. Conducted Spurious Plot_2 (26365ch_5MHz_QPSK_ RB 1_0)



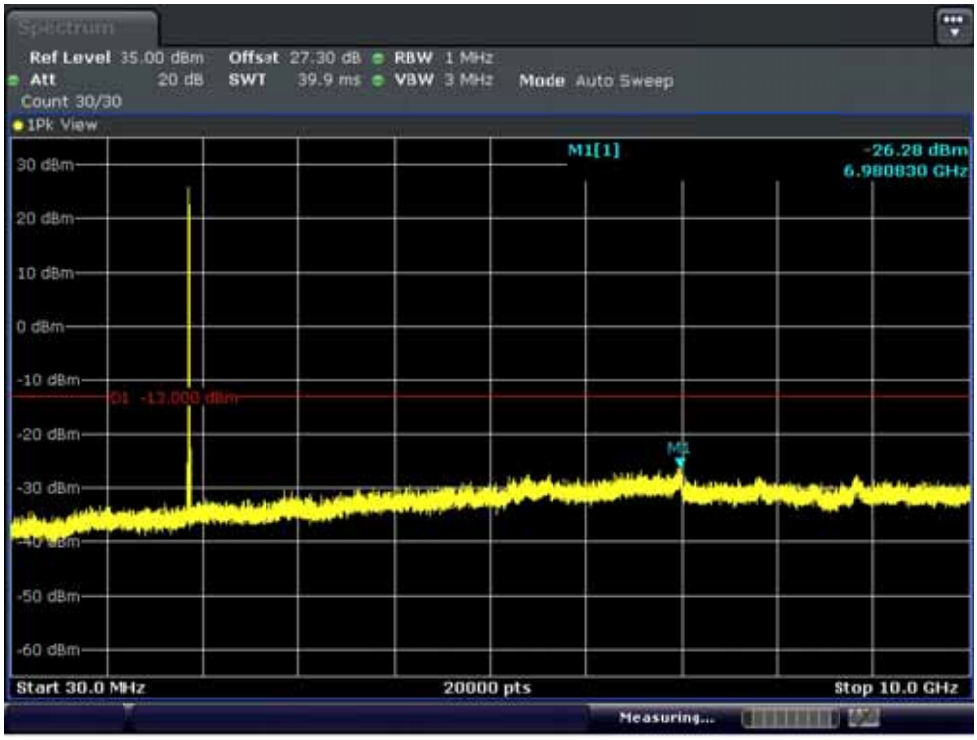
BAND 25. Conducted Spurious Plot_1 (26665ch_5MHz_QPSK_ RB 1_0)



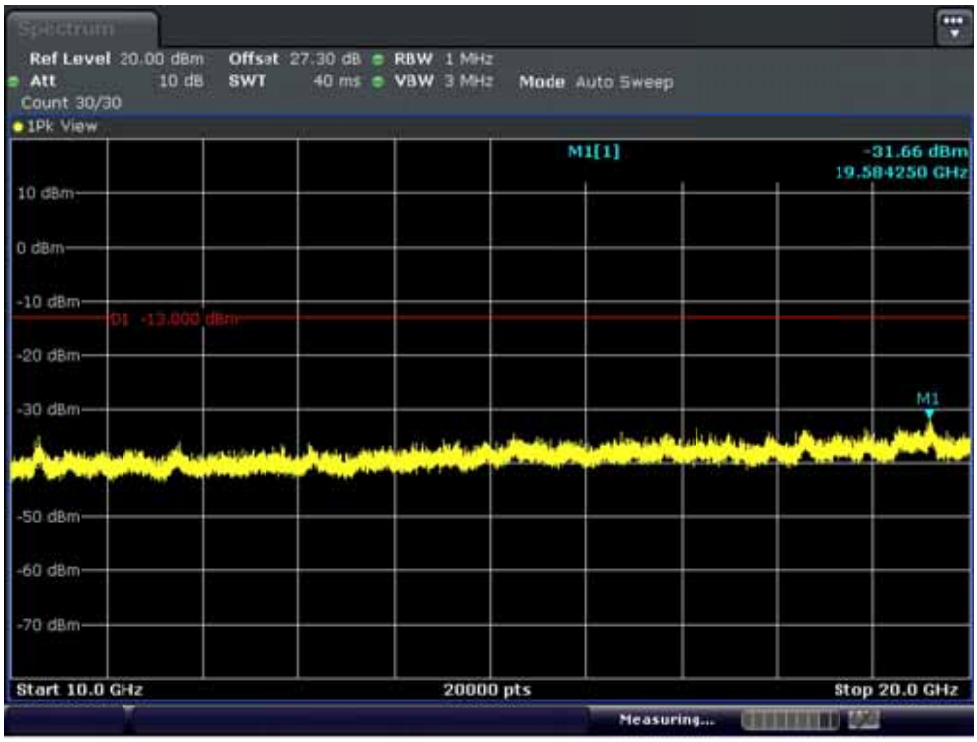
BAND 25 . Conducted Spurious Plot_2 (26665ch_5MHz_QPSK_ RB 1_0)



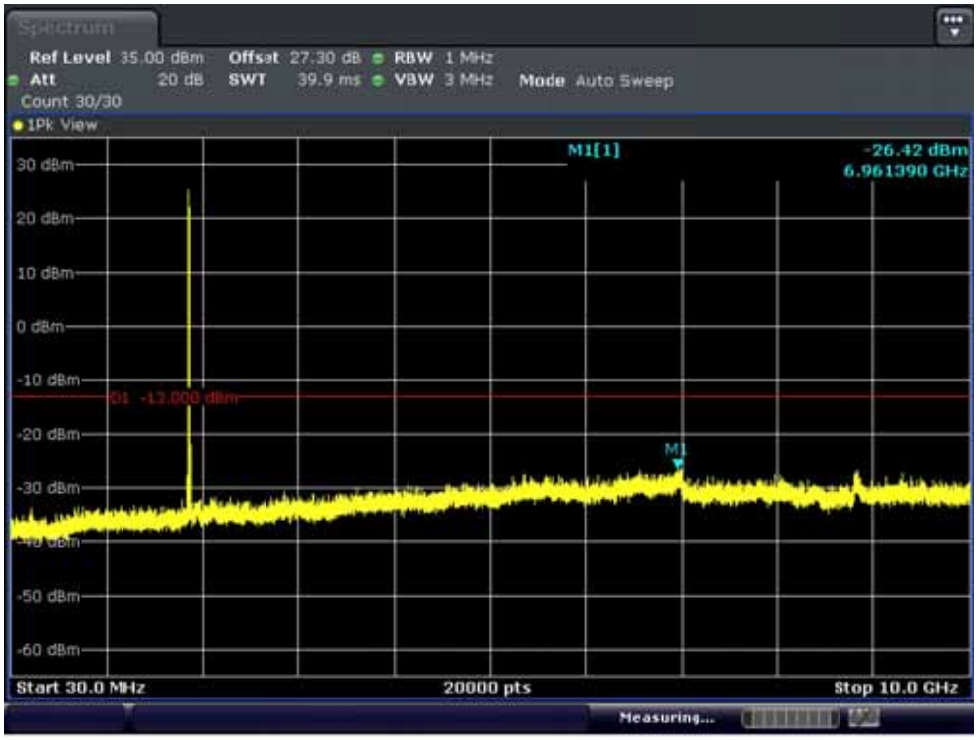
BAND 25. Conducted Spurious Plot_1 (26090ch_10MHz_QPSK_ RB 1_0)



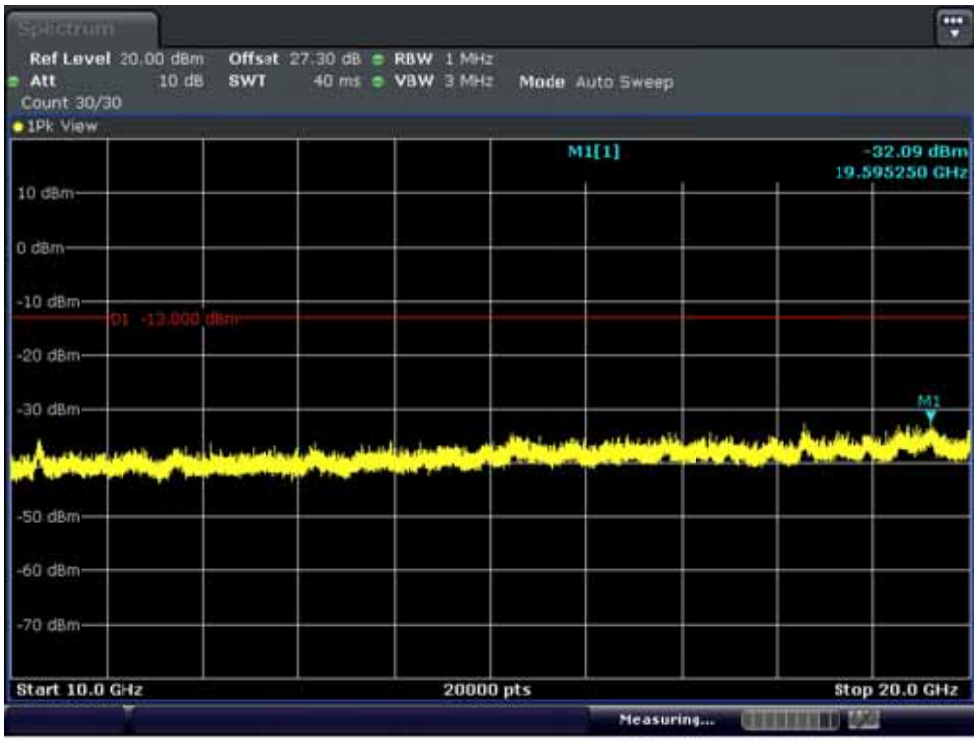
BAND 25. Conducted Spurious Plot_2 (26090ch_10MHz_QPSK_ RB 1_0)



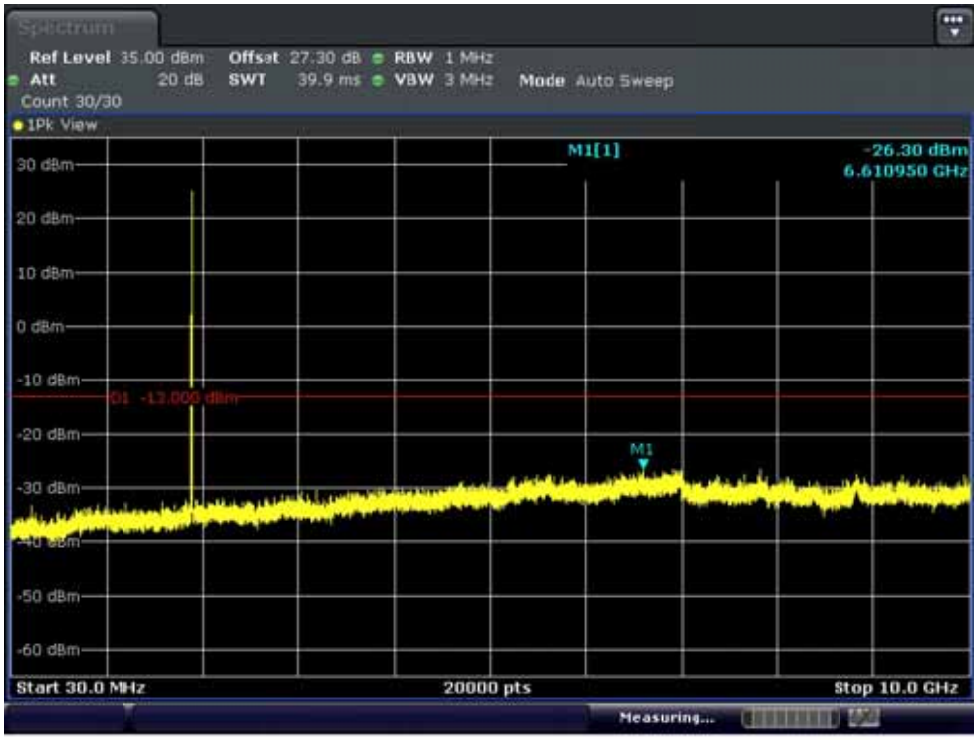
BAND 25. Conducted Spurious Plot_1 (26365ch_10MHz_QPSK_ RB 1_0)



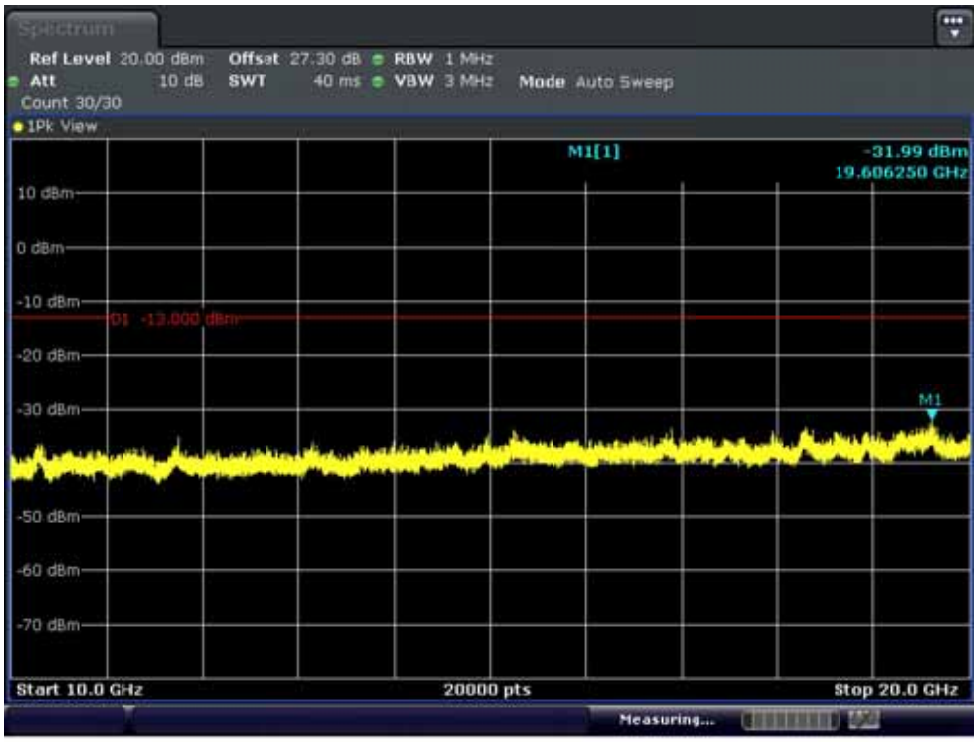
BAND 25. Conducted Spurious Plot_2 (26365ch_10MHz_QPSK_ RB 1_0)



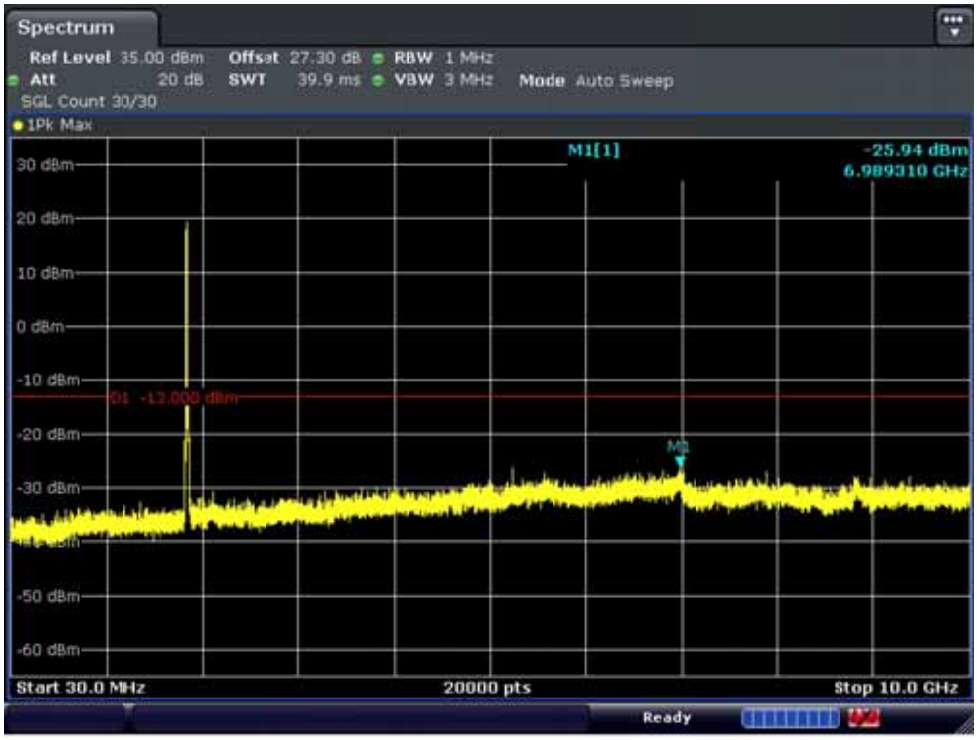
BAND 25. Conducted Spurious Plot_1 (26640ch_10MHz_QPSK_ RB 1_0)



BAND 25. Conducted Spurious Plot_2 (26640ch_10MHz_QPSK_ RB 1_0)

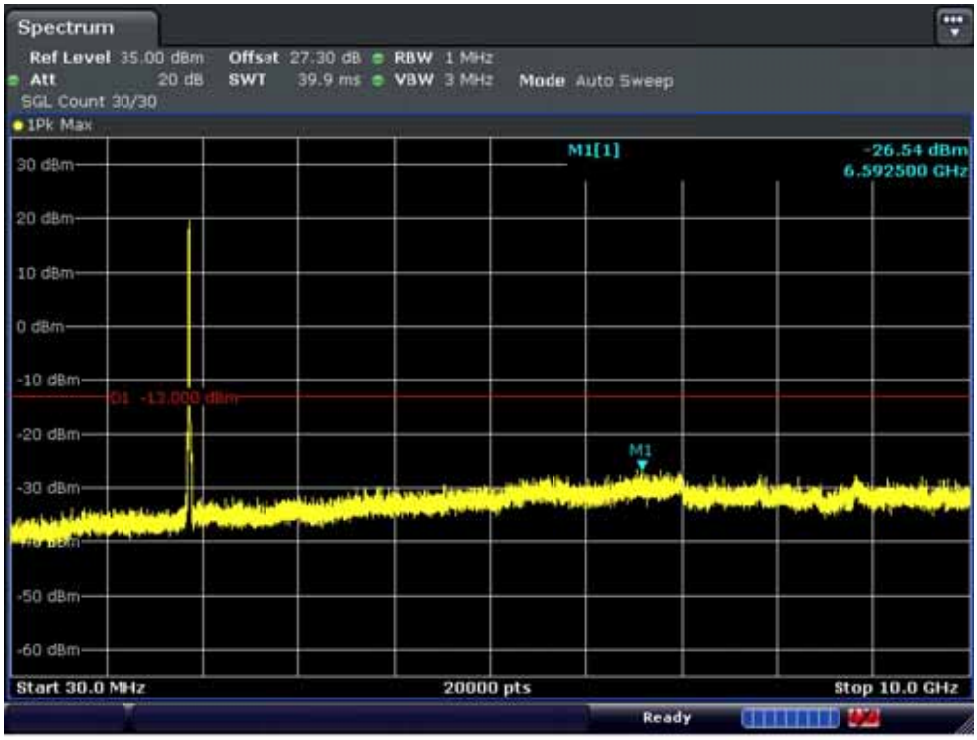


BAND 25. Conducted Spurious Plot_1 (26115ch_15MHz_QPSK_ RB 1_0)



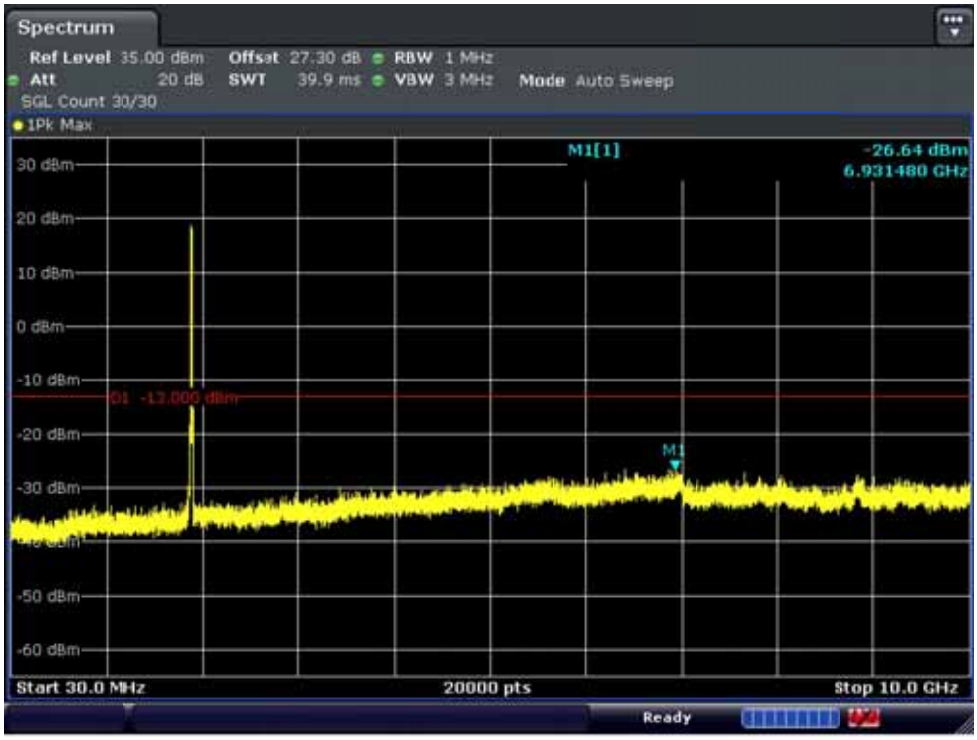
BAND 25. Conducted Spurious Plot_2 (26115ch_15MHz_QPSK_ RB 1_0)

BAND 25. Conducted Spurious Plot_1 (26365ch_15MHz_QPSK_ RB 1_0)

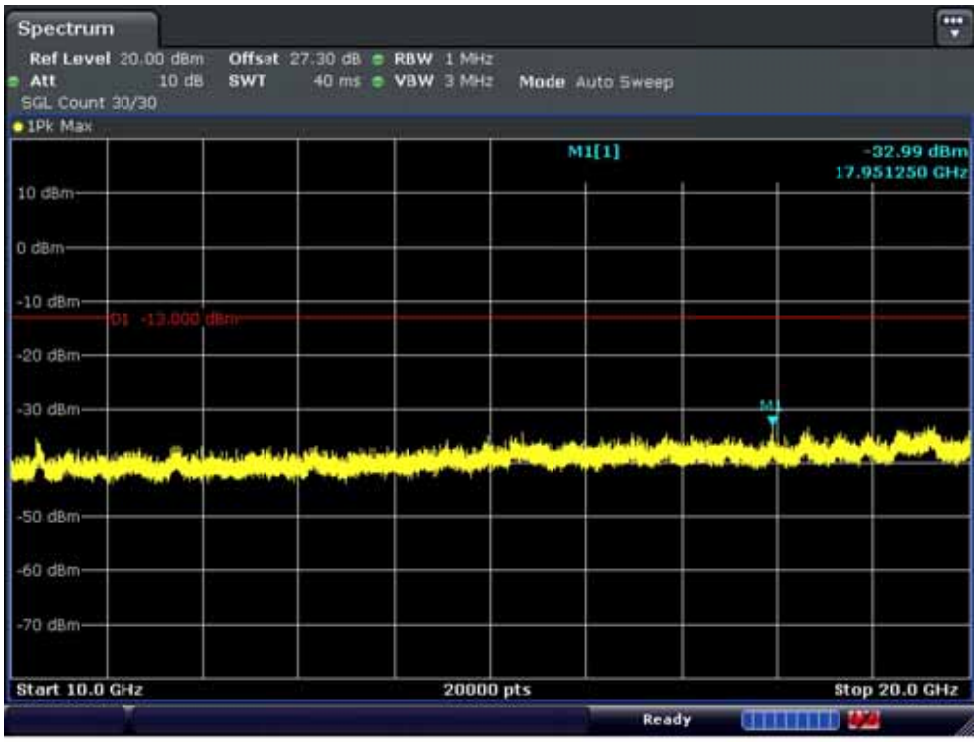


BAND 25. Conducted Spurious Plot_2 (26365ch_15MHz_QPSK_ RB 1_0)

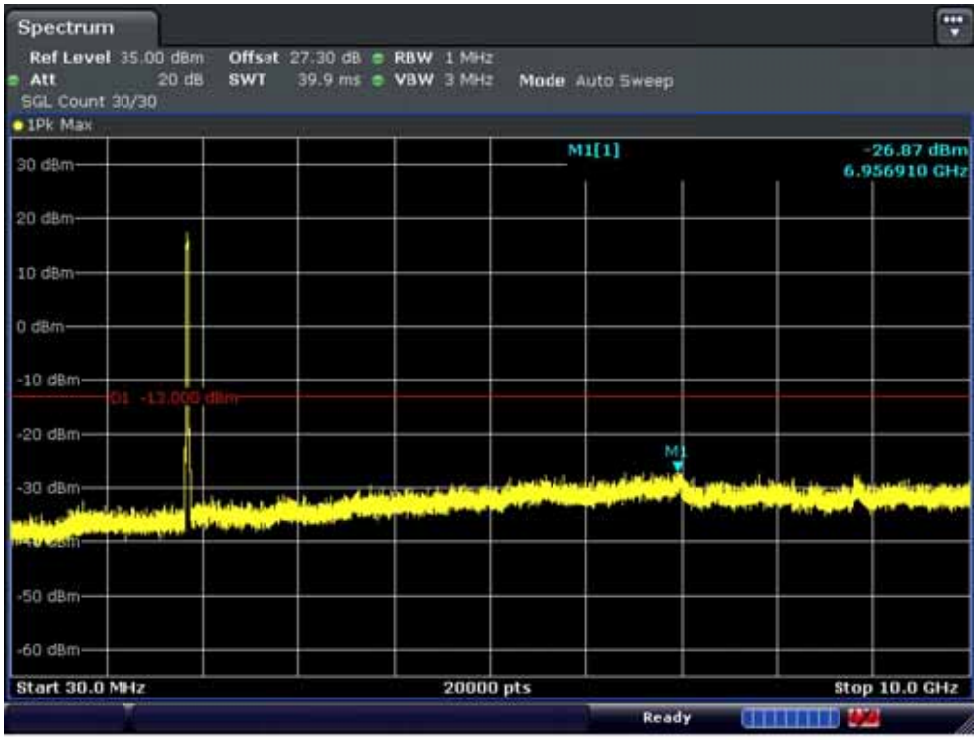
BAND 25. Conducted Spurious Plot_1 (26615ch_15MHz_QPSK_ RB 1_0)



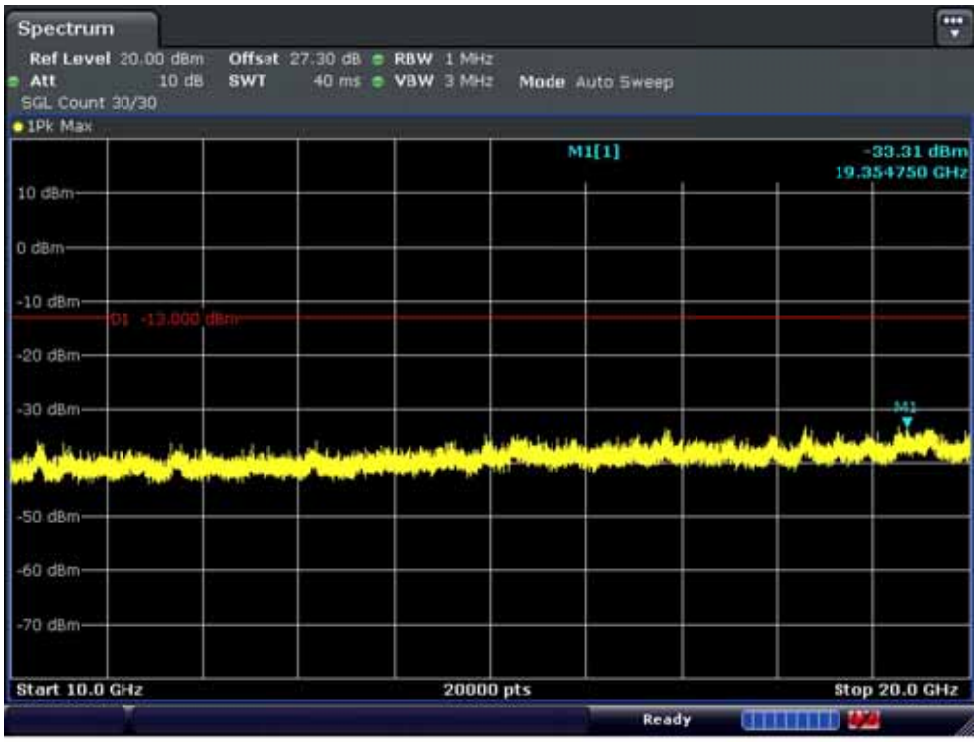
BAND 25 . Conducted Spurious Plot_2 (26615ch_15MHz_QPSK_ RB 1_0)



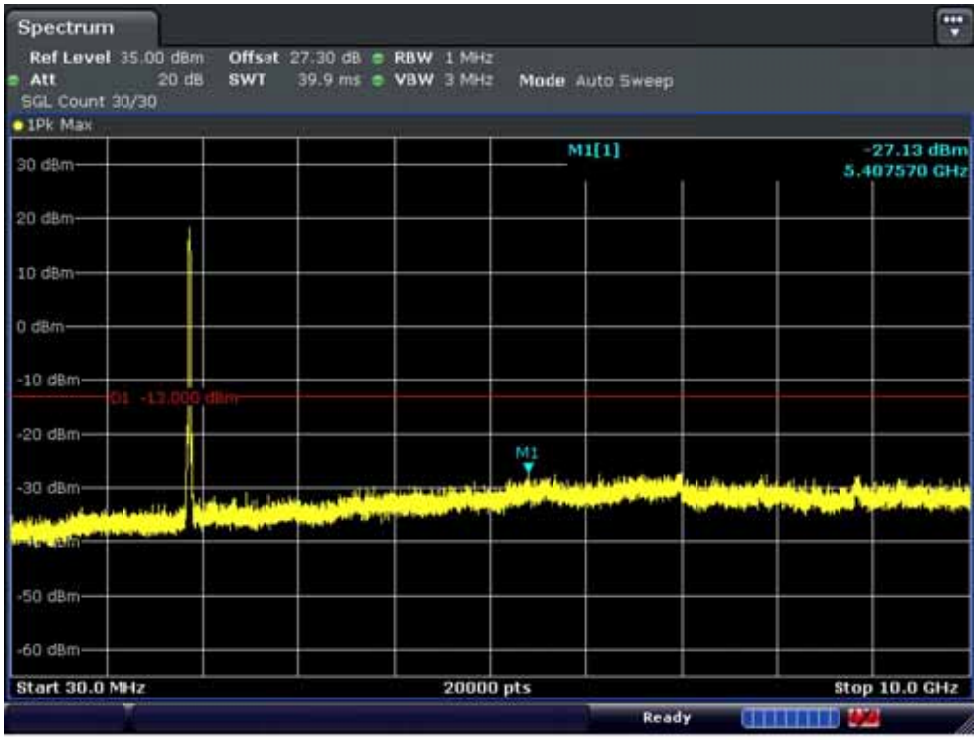
BAND 25. Conducted Spurious Plot_1 (26140ch_20MHz_QPSK_ RB 1_0)



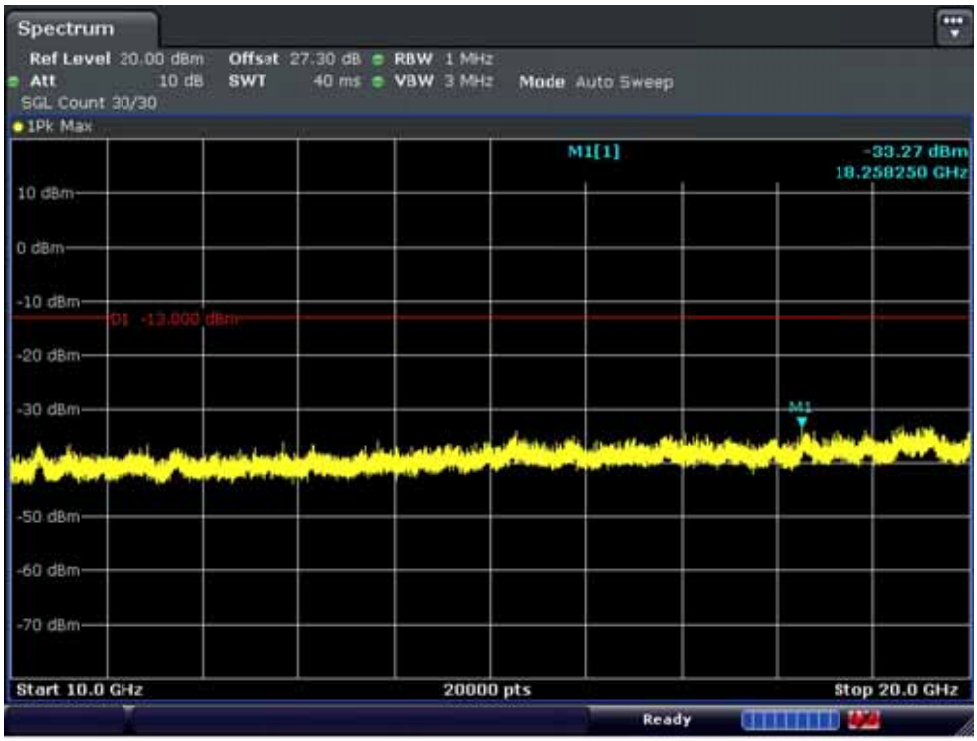
BAND 25. Conducted Spurious Plot_2 (26140ch_20MHz_QPSK_ RB 1_0)



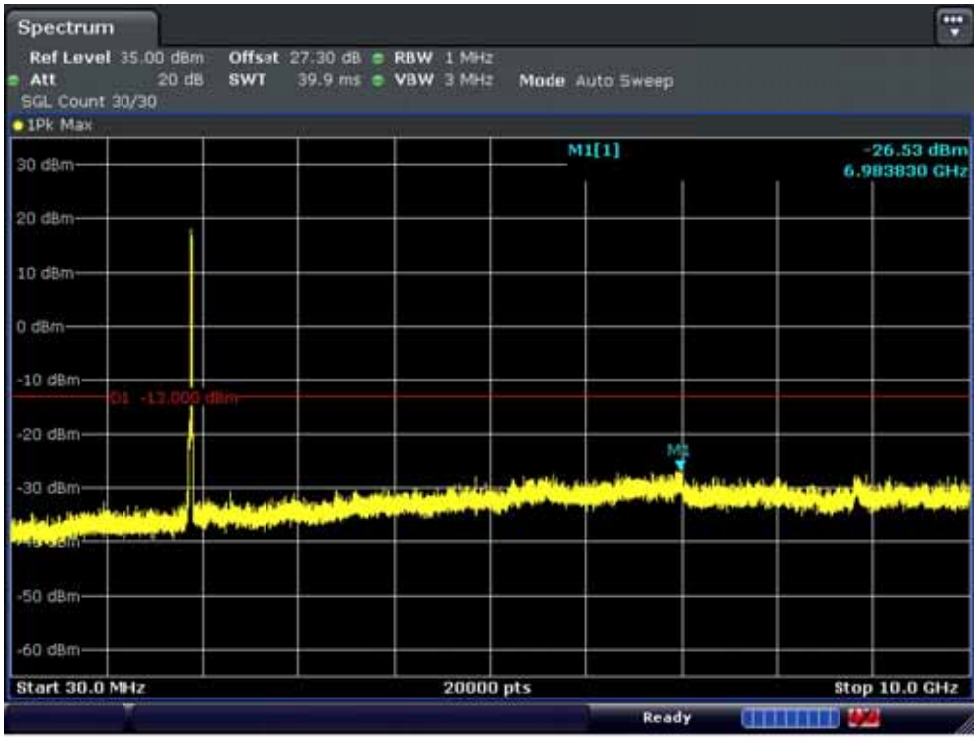
BAND 25. Conducted Spurious Plot_1 (26365ch_20MHz_QPSK_ RB 1_0)



BAND 25. Conducted Spurious Plot_2 (26365ch_20MHz_QPSK_ RB 1_0)



BAND 25. Conducted Spurious Plot_1 (26590ch_20MHz_QPSK_ RB 1_0)



BAND 25. Conducted Spurious Plot_2 (26590ch_20MHz_QPSK_ RB 1_0)