FCC Part 24E & 27
Measurement and Test Report

For

NEWSAN S.A.

Roque Perez 3650, Saavedra, Cdad. Autonoma de Buenos Aires, Argentina

FCC ID: 2AQAI-N601

FCC Rules:	FCC Part 24E, FCC Part 27
Product Description:	FCC CERTIFICATION FOR MOBILE PHONE
Tested Model:	N601
Report No.:	STR18068385I-2
Sample Receipt Date:	2018-06-28
Tested Date:	2018-06-29 to 2018-10-17
Issued Date:	2018-10-19
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen SEM Test Technology Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	NEWSAN S.A.
Address of applicant:	Roque Perez 3650, Saavedra, Cdad. Autonoma de Buenos Aires, Argentina
Manufacturer:	NEWSAN S.A.
Address of manufacturer:	Roque Perez 3650, Saavedra, Cdad. Autonoma de Buenos Aires, Argentina

General Description of EUT:	
Product Name:	FCC CERTIFICATION FOR MOBILE PHONE
Brand Name:	/
Model No.:	N601
Hardware version:	V1.0
Software version:	Android 8.0.0
IMEI:	/
Rated Voltage:	DC 3.85V
Battery:	3000mAh
Device Category:	Portable Device
The EUT Main board support GSM850/PCS1900, WCDMA Band 2/5, FDD LTE Band 2/4/7 function. It is intended for speech, Multimedia Message Service (MMS) transmission. It is equipped with GPRS/EDGE class 12 for GSM850/PCS1900, GPS, FM, NFC, Bluetooth and Wi-Fi functions. For more information see the following datasheet.	
Note: The test data is gathered from a production sample provided by the manufacturer.	

Technical Characteristics of EUT: Main board	
4G	
Support Networks:	FDD-LTE
Support Band:	FDD-LTE Band 2, 4, 7
Uplink Frequency:	FDD-LTE Band 2: Tx: 1850-1910MHz, FDD-LTE Band 4: Tx: 1710-1755MHz, FDD-LTE Band 7: Tx: 2500-2570MHz,
Downlink Frequency:	FDD-LTE Band 2: Rx: 1930-1990MHz, FDD-LTE Band 4: Rx: 2110-2155MHz, FDD-LTE Band 7: Rx: 2620-2690MHz,
RF Output Power:	FDD-LTE Band 2: 22.86dBm, FDD-LTE Band 4: 23.91dBm, FDD-LTE Band 7: 21.89dBm,
Type of Emission:	FDD-LTE Band 2: 17M9G7D, 17M9W7D FDD-LTE Band 4: 17M9G7D, 17M9W7D FDD-LTE Band 7: 17M9G7D, 17M9W7D
Type of Modulation:	QPSK, 16QAM
Antenna Type:	Integral Antenna
Antenna Gain:	FDD-LTE Band 2: -1dBi FDD-LTE Band 4: -3dBi FDD-LTE Band 7: -3dBi

1.2 Test Standards

The following report is prepared on behalf of the NEWSAN S.A. in accordance with FCC Part 24 subpart E and FCC Part 27 of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 24 subpart E and FCC Part 27 of the Federal Communication Commissions rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with A TIA-603-E: 2016 and A ANSI C63.26-2015, American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services. The measurement guide KDB 971168 D01 Power Meas License Digital Systems v03r01 shall be performed also.

1.4 Test Facility

FCC – Registration No.: 125990

Shenzhen SEM Test Technology Co., Ltd. Laboratory has been recognized to perform compliance testing on equipment subject to the Commissions Declaration Of Conformity (DOC). The Designation Number is CN5010, and Test Firm Registration Number is 125990.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Shenzhen SEM.Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

1.5 EUT Setup and Test Mode

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, and to measure its highest possible emissions level, more detailed description as follows:

Test Mode List		
Test Mode	Description	Remark
TM1	FDD-LTE Band 2	Low, Middle, High Channels
TM2	FDD-LTE Band 4	Low, Middle, High Channels
TM3	FDD-LTE Band 7	Low, Middle, High Channels

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB-C Cable	1.0	Shielded	Without Core
Earphone	1.2	Unshielded	Without Core

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
/	/	/	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
/	/	/	/

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
RF Output Power	Conducted	±0.42dB
Occupied Bandwidth	Conducted	±1.5%
Frequency Stability	Conducted	2.3%
Transmitter Spurious Emissions	Conducted	±0.42dB
Transmitter Spurious Emissions	Radiated	30-200MHz ±4.52dB
		0.2-1GHz ±5.56dB
		1-6GHz ±3.84dB
		6-18GHz ±3.92dB

1.7 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due. Date
SEMT-1075	Communication Tester	Rohde & Schwarz	CMW500	148650	2018-05-22	2019-05-21
SEMT-1063	GSM Tester	Rohde & Schwarz	CMU200	114403	2018-05-22	2019-05-21
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2018-05-22	2019-05-21
SEMT-1079	Spectrum Analyzer	Agilent	N9020A	US47140102	2018-05-22	2019-05-21
SEMT-1080	Signal Generator	Agilent	83752A	3610A01453	2018-05-22	2019-05-21
SEMT-1081	Vector Signal Generator	Agilent	N5182A	MY47070202	2018-05-22	2019-05-21
SEMT-1028	Power Divider	Weinschel	1506A	PM204	2018-05-22	2019-05-21
SEMT-1082	Power Divider	RF-Lambda	RFLT4W5M18G	14110400027	2018-05-22	2019-05-21
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2018-05-22	2019-05-21
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2018-05-22	2019-05-21
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2018-05-22	2019-05-21
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2018-05-22	2019-05-21
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2017-06-08	2020-06-07
SEMT-1068	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2017-06-08	2020-06-07
SEMT-1042	Horn Antenna	ETS	3117	00086197	2017-06-08	2020-06-07
SEMT-1121	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170582	2017-06-08	2020-06-07
SEMT-1168	Pre-amplifier	Direction Systems Inc.	PAP-0126	14141-12838	2018-05-22	2019-05-21
SEMT-1169	Pre-amplifier	Direction Systems Inc.	PAP-2640	14145-14153	2018-05-22	2019-05-21
SEMT-1163	Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2018-05-22	2019-05-21
SEMT-1170	DRG Horn Antenna	A.H. SYSTEMS	SAS-574	571	2018-03-19	2021-03-18

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 1.1307, § 2.1093	RF Exposure	Compliant
§ 24.232 (c), §27.50	RF Output Power	Compliant
§ 24.232 (d), § 27.50	Peak-to-average Ratio (PAR) of Transmitter	Compliant
§ 24.238 (b), § 27.53	Emission Bandwidth	Compliant
§ 24.238 (a), § 27.53	Spurious Emissions at Antenna Terminal	Compliant
§ 24.238 (a) , § 27.53	Spurious Radiation Emissions	Compliant
§ 24.238 (a) , § 27.53	Out of Band Emissions	Compliant
§ 24.235, § 27.54	Frequency Stability	Compliant
§ 2.1047	Modulation characteristics	Compliant

3. RF Exposure

3.1 Standard Applicable

According to § 1.1307 and § 2.1093, the portable transmitter must comply the RF exposure requirements.

3.2 Test Result

This product complied with the requirement of the RF exposure, please see the SAR report.

4. RF Output Power

4.1 Standard Applicable

According to §24.232 (c), Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to §27.50(d)(4), Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

According to §27.50(h)(2), Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

4.2 Test Procedure

Conducted output power test method:
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Universal Radio Communication Tester. Read the value and record. The setup of EUT is according with per ANSI C63.25-2015 measurement procedure.

Radiated power test method:

1.The setup of EUT is according with per TIA-603-E: 2016 and ANSI C63.26-2015 measurement procedure.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. The frequency range up to tenth harmonic of the fundamental frequency was investigated.

4. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

4.3 Environmental Conditions

Temperature:	24 °C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

4.4 Summary of Test Results/Plots

Max. Radiated Power:

FDD-LTE Band 2

Channel Bandwidth: 1.4 MHz			
Modulation	Channel	E.i.r.p [dBm]	Verdict
QPSK	LCH	22.11	PASS
	MCH	22.32	PASS
	HCH	22.32	PASS
16QAM	LCH	21.02	PASS
	MCH	21.35	PASS
	HCH	21.41	PASS
Channel Bandwidth: 3 MHz			
Modulation	Channel	E.i.r.p [dBm]	Verdict
QPSK	LCH	22.32	PASS
	MCH	22.45	PASS
	HCH	22.49	PASS
16QAM	LCH	21.36	PASS
	MCH	21.44	PASS
	HCH	21.36	PASS
Channel Bandwidth: 5 MHz			
Modulation	Channel	E.i.r.p [dBm]	Verdict
QPSK	LCH	21.36	PASS
	MCH	21.28	PASS
	HCH	21.17	PASS
16QAM	LCH	22.02	PASS
	MCH	22.11	PASS
	HCH	22.09	PASS
Channel Bandwidth: 10 MHz			
Modulation	Channel	E.i.r.p [dBm]	Verdict
QPSK	LCH	22.65	PASS
	MCH	22.31	PASS
	HCH	22.11	PASS
16QAM	LCH	22.39	PASS
	MCH	22.77	PASS
	HCH	22.31	PASS

Channel Bandwidth: 15 MHz			
Modulation	Channel	E.i.r.p [dBm]	Verdict
QPSK	LCH	21.78	PASS
	MCH	21.36	PASS
	HCH	21.75	PASS
16QAM	LCH	21.35	PASS
	MCH	21.71	PASS
	HCH	21.62	PASS
Channel Bandwidth: 20 MHz			
Modulation	Channel	E.i.r.p [dBm]	Verdict
QPSK	LCH	22.22	PASS
	MCH	22.31	PASS
	HCH	22.28	PASS
16QAM	LCH	22.64	PASS
	MCH	22.29	PASS
	HCH	22.48	PASS

FDD-LTE Band 4

Channel Bandwidth: 1.4 MHz			
Modulation	Channel	E.i.r.p [dBm]	Verdict
QPSK	LCH	22.19	PASS
	MCH	22.12	PASS
	HCH	22.26	PASS
16QAM	LCH	22.28	PASS
	MCH	22.17	PASS
	HCH	22.36	PASS
Channel Bandwidth: 3 MHz			
Modulation	Channel	E.i.r.p [dBm]	Verdict
QPSK	LCH	22.17	PASS
	MCH	22.36	PASS
	HCH	22.19	PASS
16QAM	LCH	22.61	PASS
	MCH	22.17	PASS
	HCH	22.74	PASS

Channel Bandwidth: 5 MHz			
Modulation	Channel	E.i.r.p [dBm]	Verdict
QPSK	LCH	22.17	PASS
	MCH	22.32	PASS
	HCH	22.24	PASS
16QAM	LCH	22.36	PASS
	MCH	22.42	PASS
	HCH	22.10	PASS
Channel Bandwidth: 10 MHz			
Modulation	Channel	E.i.r.p [dBm]	Verdict
QPSK	LCH	21.65	PASS
	MCH	21.24	PASS
	HCH	21.41	PASS
16QAM	LCH	22.14	PASS
	MCH	22.47	PASS
	HCH	22.33	PASS
Channel Bandwidth: 15 MHz			
Modulation	Channel	E.i.r.p [dBm]	Verdict
QPSK	LCH	21.32	PASS
	MCH	21.47	PASS
	HCH	21.46	PASS
16QAM	LCH	21.74	PASS
	MCH	21.63	PASS
	HCH	21.42	PASS
Channel Bandwidth: 20 MHz			
Modulation	Channel	E.i.r.p [dBm]	Verdict
QPSK	LCH	22.05	PASS
	MCH	22.09	PASS
	HCH	22.11	PASS
16QAM	LCH	22.23	PASS
	MCH	21.36	PASS
	HCH	21.69	PASS

FDD-LTE Band 7

Channel Bandwidth: 5 MHz			
Modulation	Channel	E.i.r.p [dBm]	Verdict
QPSK	LCH	21.62	PASS
	MCH	21.32	PASS
	HCH	21.41	PASS
16QAM	LCH	21.48	PASS
	MCH	21.65	PASS
	HCH	21.69	PASS
Channel Bandwidth: 10 MHz			
Modulation	Channel	E.i.r.p [dBm]	Verdict
QPSK	LCH	22.01	PASS
	MCH	21.95	PASS
	HCH	21.78	PASS
16QAM	LCH	21.69	PASS
	MCH	21.88	PASS
	HCH	22.05	PASS
Channel Bandwidth: 15 MHz			
Modulation	Channel	E.i.r.p [dBm]	Verdict
QPSK	LCH	21.69	PASS
	MCH	21.41	PASS
	HCH	21.74	PASS
16QAM	LCH	22.61	PASS
	MCH	22.51	PASS
	HCH	22.43	PASS
Channel Bandwidth: 20 MHz			
Modulation	Channel	E.i.r.p [dBm]	Verdict
QPSK	LCH	21.61	PASS
	MCH	21.74	PASS
	HCH	21.28	PASS
16QAM	LCH	22.02	PASS
	MCH	22.11	PASS
	HCH	22.39	PASS

Max. Conducted Output Power

Please refer to Appendix A: Average Power Output Data

Test result: Pass

5. Peak-to-average Ratio (PAR) of Transmitter

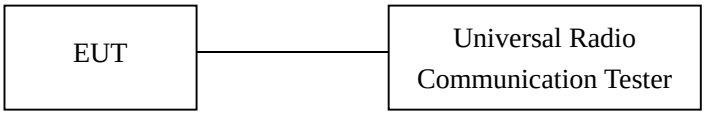
5.1 Standard Applicable

According to §24.232(d), Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

According to §27.50(B), the peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission.

5.2 Test Procedure

The RF output terminal of the transmitter was connected to the input of the Universal Radio Communication Tester via a suitable attenuation. Record the maximum PAPR level associated with a probability of 0.1%.



5.3 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

5.4 Summary of Test Results

Please refer to Appendix B: Peak-to-Average Ratio

Test result: Pass

6. Emission Bandwidth

6.1 Standard Applicable

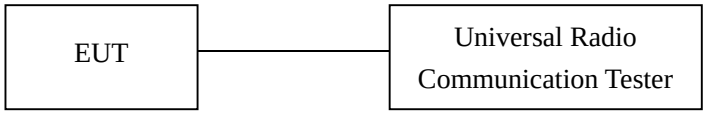
According to §24.238(b), The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

According to §27.53, The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

6.2 Test Procedure

The RF output terminal of the transmitter was connected to the input of the Universal Radio Communication Tester via a suitable attenuation. The RBW of the spectrum analyzer was set to 1-5% of the OBW, and the 26dB bandwidth and 99% bandwidth was recorded.

Test Configuration for the emission bandwidth testing:



6.3 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

6.4 Summary of Test Results/Plots

Please refer to Appendix C: 26dB Bandwidth and Occupied Bandwidth

Test result: Pass

7. Out of Band Emissions at Antenna Terminal

7.1 Standard Applicable

According to §24.238(a), The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

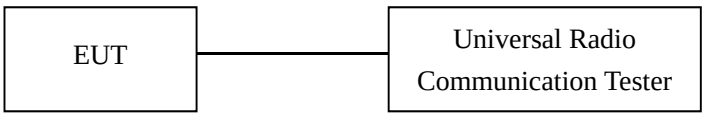
According to §27.53 (h), the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB.

According to §27.53 (m)(4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz.

7.2 Test Procedure

The RF output terminal of the transmitter was connected to the input of the Universal Radio Communication Tester via a suitable attenuation. The RBW of the spectrum analyzer was set to 100kHz and 1MHz for the scan frequency from 30MHz to 1GHz and the scan frequency from 1GHz to up to 10th harmonic.

Test Configuration for the out of band emissions testing:



7.3 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

7.4 Summary of Test Results/Plots

Please refer to Appendix D & E: Band Edge & Conducted Spurious Emission

Test result: Pass

8. Spurious Radiated Emissions

8.1 Standard Applicable

According to §24.238(a), The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to §27.53 (h), the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB.

According to §27.53 (m)(4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz.

8.2 Test Procedure

1. The setup of EUT is according with per TIA-603-E-2016 and ANSI C63.26-2015 measurement procedure.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. The frequency range up to tenth harmonic of the fundamental frequency was investigated.
4. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious attenuation limit in dB =43+10 Log_{10} (power out in Watts)

8.3 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

8.4 Summary of Test Results/Plots

According to the data below, the FCC Part 22.917 and 24.238 standards, and had the worst margin of:

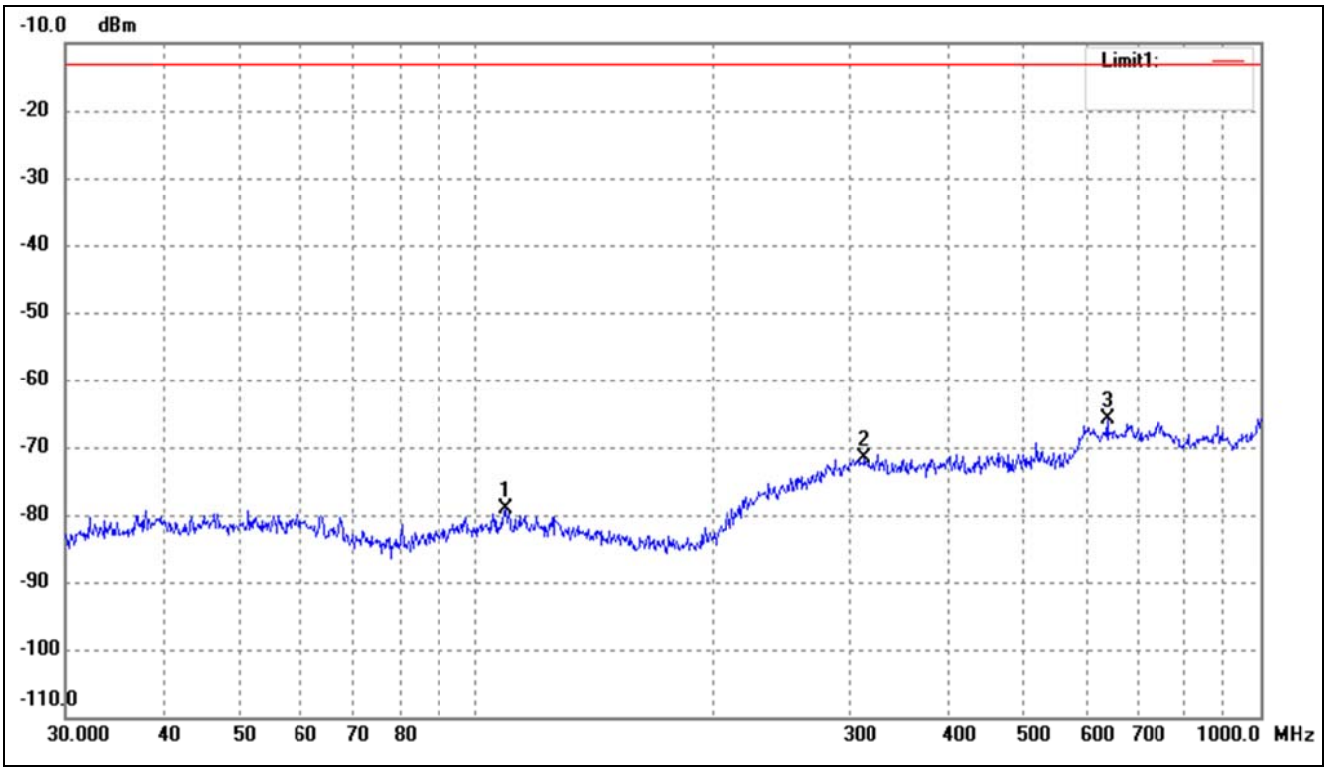
Note: 1. this EUT was tested in 3 orthogonal positions and the worst case position data was reported.

2. All test modes (different bandwidth and different modulation) are performed, but only the worst case is recorded in this report.

Spurious Emission From 30MHz to 1GHz

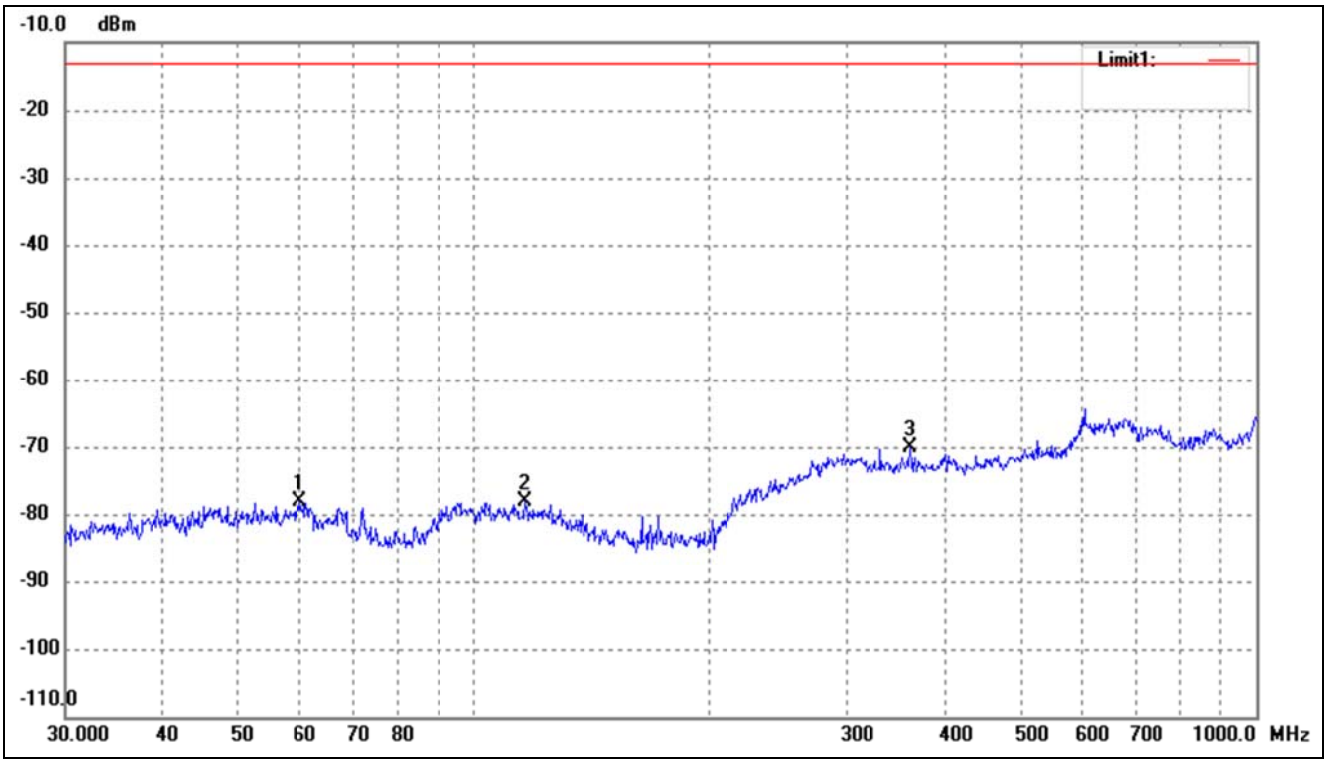
For FDD_LTE Band 2 Mode

Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	109.4116	-72.83	-6.18	-79.01	-13.00	-66.01	ERP
2	313.2760	-75.39	3.88	-71.51	-13.00	-58.51	ERP
3	638.3686	-74.29	8.49	-65.80	-13.00	-52.80	ERP

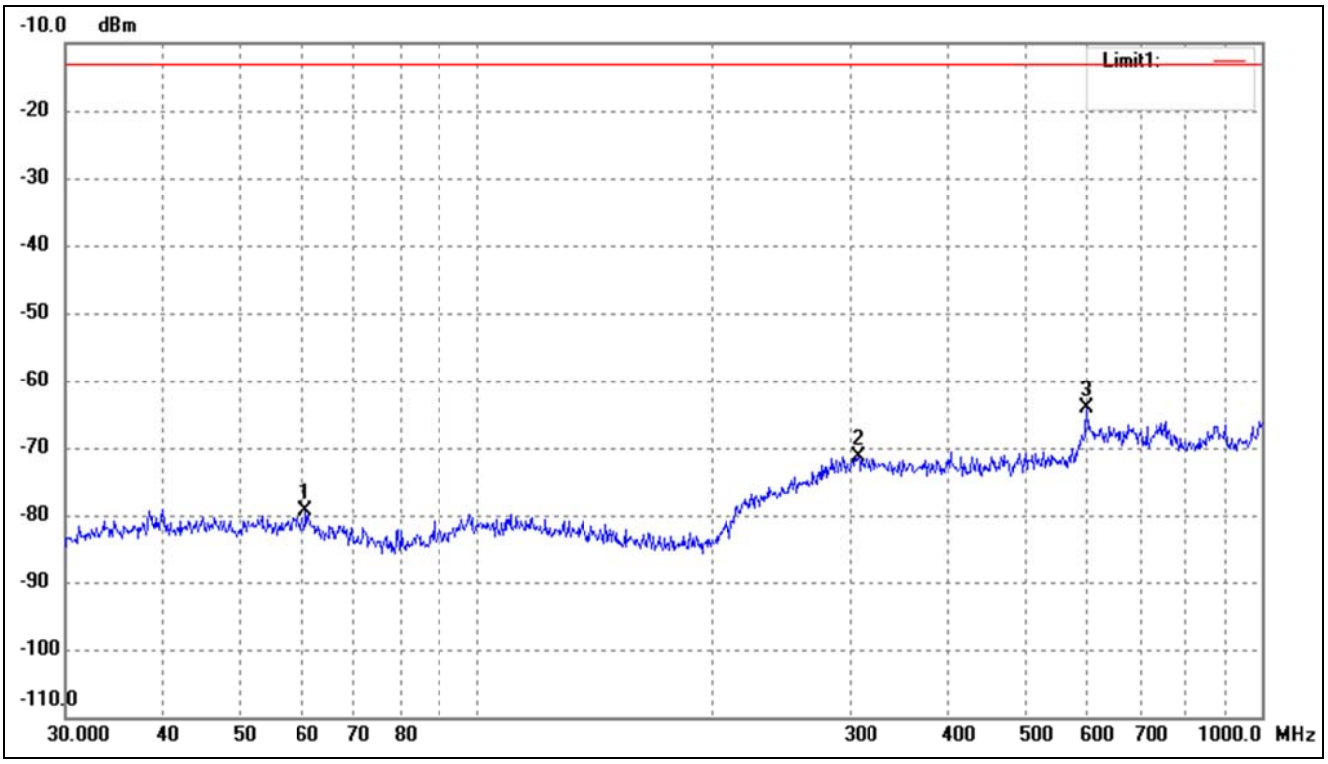
Vertical:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	59.8588	-71.83	-6.41	-78.24	-13.00	-65.24	ERP
2	116.1321	-71.93	-6.11	-78.04	-13.00	-65.04	ERP
3	361.7139	-73.75	3.53	-70.22	-13.00	-57.22	ERP

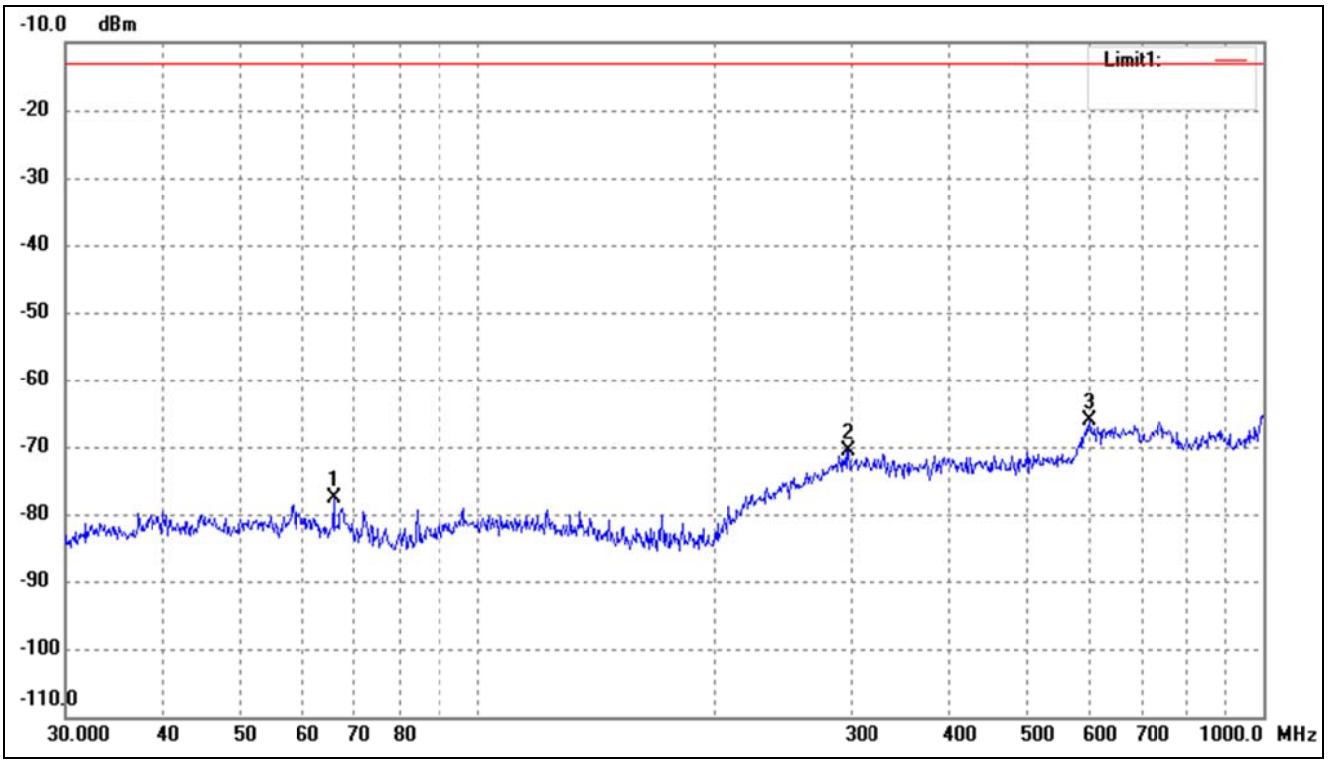
For FDD_LTE Band 4 Mode

Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	60.7044	-72.76	-6.55	-79.31	-13.00	-66.31	ERP
2	306.7537	-75.17	3.89	-71.28	-13.00	-58.28	ERP
3	599.3212	-73.35	9.12	-64.23	-13.00	-51.23	ERP

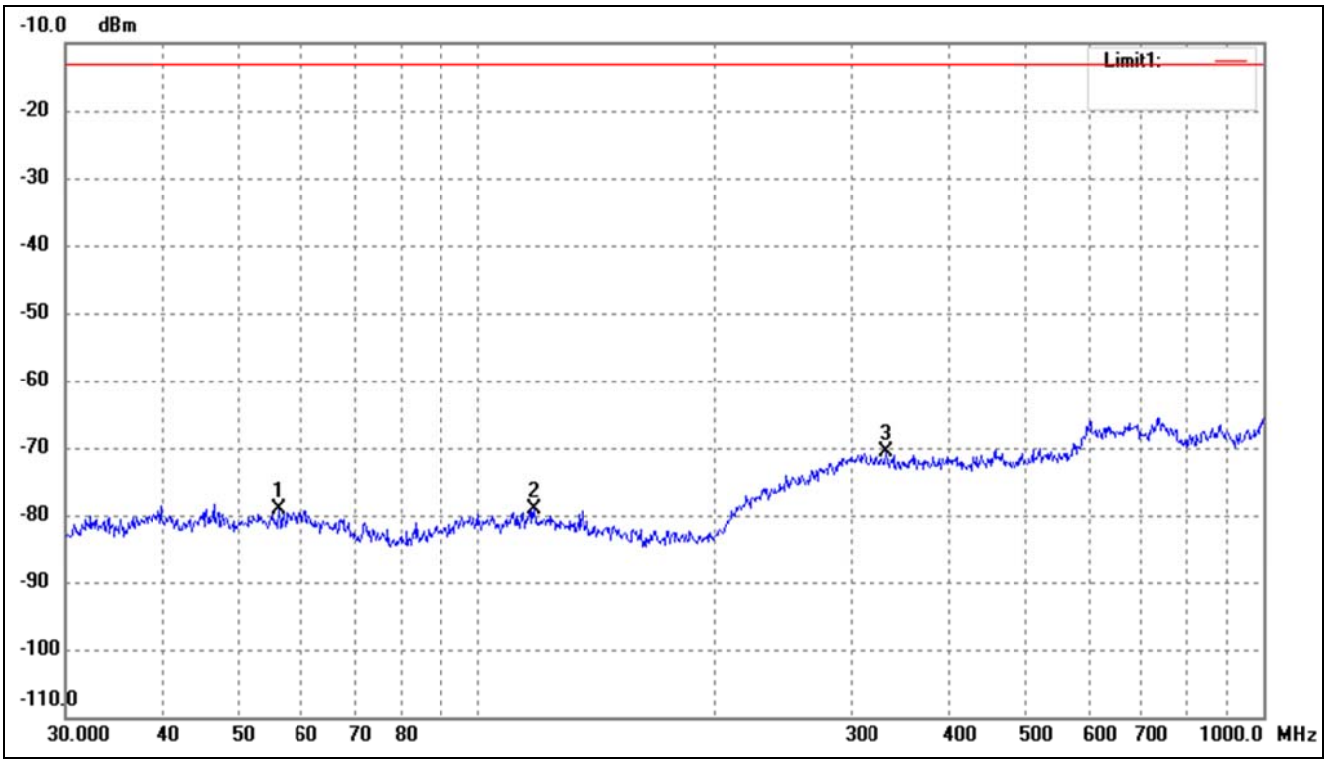
Vertical:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	65.8031	-69.92	-7.70	-77.62	-13.00	-64.62	ERP
2	297.2241	-74.35	3.73	-70.62	-13.00	-57.62	ERP
3	601.4265	-75.35	9.14	-66.21	-13.00	-53.21	ERP

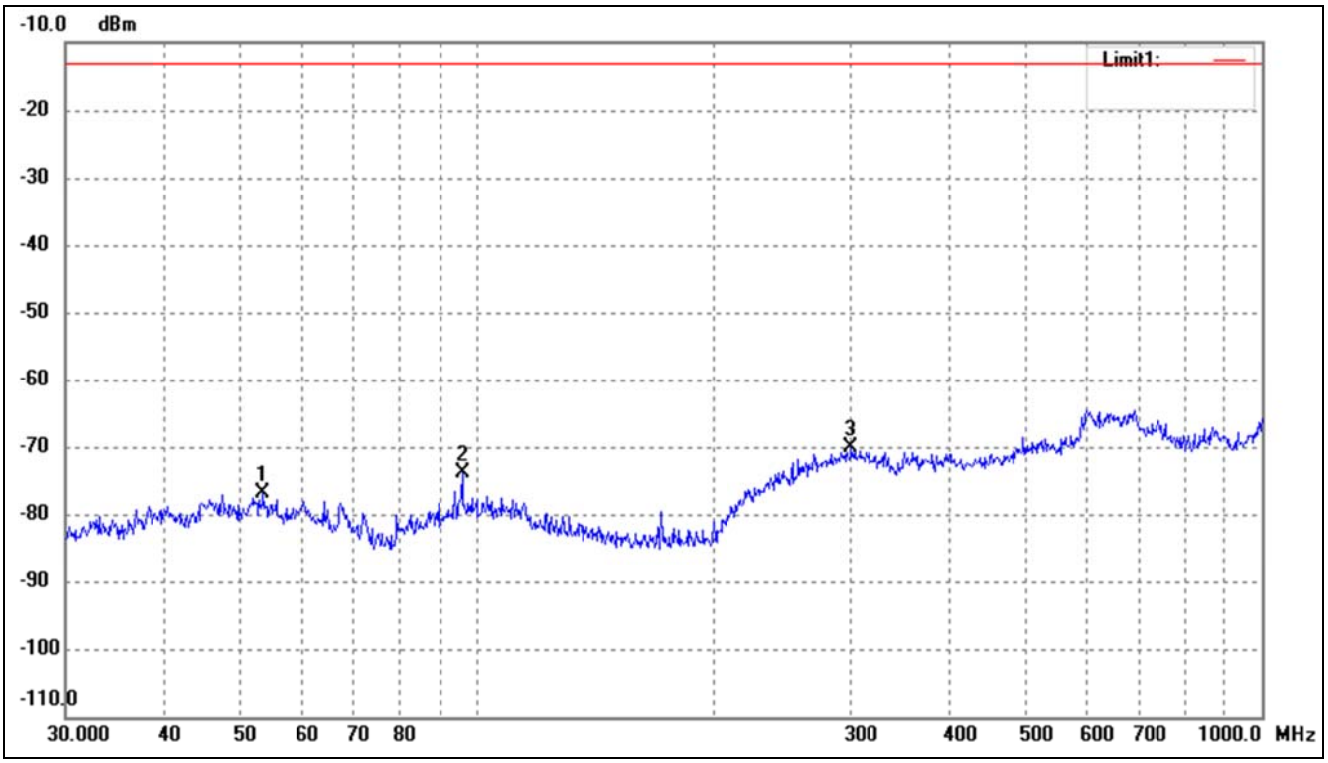
For FDD_LTE Band 7Mode

Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	56.0007	-72.63	-6.56	-79.19	-13.00	-66.19	ERP
2	118.1862	-73.07	-6.08	-79.15	-13.00	-66.15	ERP
3	332.5187	-74.07	3.43	-70.64	-13.00	-57.64	ERP

Vertical:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	53.5052	-70.31	-6.66	-76.97	-13.00	-63.97	ERP
2	96.0986	-66.92	-6.94	-73.86	-13.00	-60.86	ERP
3	300.3673	-74.08	3.89	-70.19	-13.00	-57.19	ERP

Note: Margin= (Reading+ Correct)- Limit

Spurious Emissions Above 1GHz

For FDD_LTE Band 2 Mode

Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Polar H/V
Low Channel (1852.4MHz)						
3705.00	-36.76	9.92	-26.84	-13	-13.84	H
5557.50	-43.78	13.47	-30.31	-13	-17.31	H
3705.00	-36.23	9.92	-26.31	-13	-13.31	V
5557.50	-42.25	13.47	-28.78	-13	-15.78	V
Middle Channel (1880.0MHz)						
3760.00	-35.8	10.08	-25.72	-13	-12.72	H
5640.00	-41.7	13.53	-28.17	-13	-15.17	H
3760.00	-37.16	10.08	-27.08	-13	-14.08	V
5640.00	-44.89	13.53	-31.36	-13	-18.36	V
High Channel (1907.6MHz)						
3815.00	-36.57	9.92	-26.65	-13	-13.65	H
5722.50	-42.07	13.47	-28.6	-13	-15.6	H
3815.00	-35.9	9.92	-25.98	-13	-12.98	V
5722.50	-42.6	13.47	-29.13	-13	-16.13	V

For FDD_LTE Band 4 Mode

Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Polar H/V
Low Channel (1710.0MHz)						
3425.00	-37.13	8.65	-28.48	-13	-15.48	H
5137.50	-41.75	12.03	-29.72	-13	-16.72	H
3425.00	-36.2	8.65	-27.55	-13	-14.55	V
5137.50	-42.55	12.03	-30.52	-13	-17.52	V
Middle Channel (1732.5MHz)						
3465.00	-35.37	10.08	-25.29	-13	-12.29	H
5197.50	-43.30	13.53	-29.77	-13	-16.77	H
3465.00	-34.20	10.08	-24.12	-13	-11.12	V
5197.50	-42.60	13.53	-29.07	-13	-16.07	V
High Channel (1755.0MHz)						
3505.00	-37.94	9.11	-28.83	-13	-15.83	H
5257.50	-43.51	12.56	-30.95	-13	-17.95	H
3505.00	-34.67	9.11	-25.56	-13	-12.56	V
5257.50	-43.26	12.56	-30.7	-13	-17.70	V

For FDD_LTE Band 7 Mode

Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Polar H/V
Low Channel (2502.5MHz)						
5005.00	-40.39	11.66	-28.73	-25	-3.73	H
7507.50	-49.43	15.09	-34.34	-25	-9.34	H
5005.00	-39.99	11.66	-28.33	-25	-3.33	V
7507.50	-48.70	15.09	-33.61	-25	-8.61	V
Middle Channel (2535MHz)						
5070.00	-40.25	11.78	-28.47	-25	-3.47	H
7605.00	-48.67	15.21	-33.46	-25	-8.46	H
5070.00	-40.05	11.78	-28.27	-25	-3.27	V
7605.00	-46.33	15.21	-31.12	-25	-6.12	V
High Channel (2567.5MHz)						
5135.00	-42.99	11.89	-31.10	-25	-6.10	H
7702.50	-47.77	15.32	-32.45	-25	-7.45	H
5135.00	-40.3	11.89	-28.41	-25	-3.41	V
7702.50	-46.41	15.32	-31.09	-25	-6.09	V

Note: Result=Reading+ Correct, Margin= Result- Limit

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

9. Frequency Stability

9.1 Standard Applicable

According to §24.235, The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

According to §27.54 The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

9.2 Test Procedure

According to §2.1055, the following test procedure was performed.
The Frequency Stability is measured directly with a Frequency Domain Analyzer. Frequency Deviation in ppm is calculated from the measured peak to peak value.
The Carrier Frequency Stability over Power Supply Voltage and over Temperature is measured with a Frequency Domain Analyzer in histogram mode

9.3 Environmental Conditions

Temperature:	20°C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

9.4 Summary of Test Results/Plots

Please refer to Appendix F: Frequency Stability
For Band 2:
Lowest frequency: 1850.7MHz, maximum deviation -2.5ppm is 1850.69537325MHz>1850MHz
Highest frequency: 1909.3MHz, maximum deviation +2.5ppm is 1909.30477325MHz<1910MHz

For Band 4:
Lowest frequency: 1710.7MHz, maximum deviation -2.5ppm is 1710.69572375MHz>1710MHz
Highest frequency: 1754.3MHz, maximum deviation +2.5ppm is 1754.30438575MHz<1755MHz

For Band 7:
Lowest frequency: 2502.5MHz, maximum deviation -2.5ppm is 2502.49374375MHz>2500MHz
Highest frequency: 2567.5MHz, maximum deviation +2.5ppm is 2567.50641875MHz<2570MHz

So the fundamental emissions stay within the authorized bands of operation.
Test result: Pass

10. Modulation characteristics

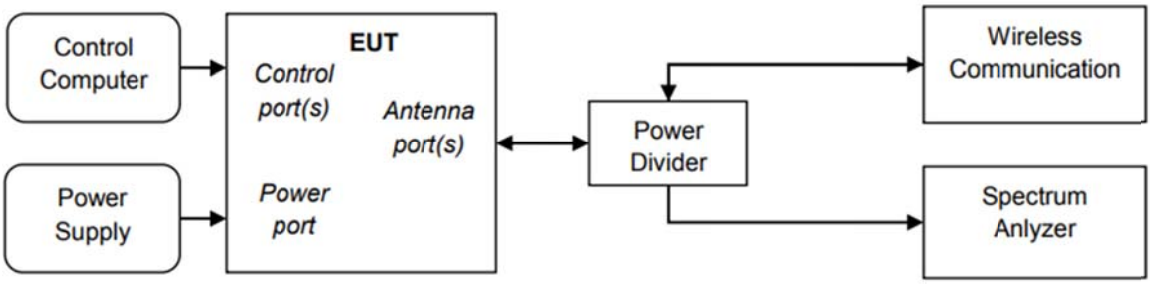
10.1 Standard Applicable

According to §2.1047, Measurements required: Modulation characteristics is given below:

(a) Voice modulated communication equipment. A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be submitted. For equipment required to have an audio low-pass filter, a curve showing the frequency response of the filter, or of all circuitry installed between the modulation limiter and the modulated stage shall be submitted.
(b) Equipment which employs modulation limiting. A curve or family of curves showing the percentage of modulation versus the modulation input voltage shall be supplied. The information submitted shall be sufficient to show modulation limiting capability throughout the range of modulating frequencies and input modulating signal levels employed.
(c) Single sideband and independent sideband radiotelephone transmitters which employ a device or circuit to limit peak envelope power. A curve showing the peak envelope power output versus the modulation input voltage shall be supplied. The modulating signals shall be the same in frequency as specified in paragraph (c) of §2.1049 for the occupied bandwidth tests.
(d) Other types of equipment. A curve or equivalent data which shows that the equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.

10.2 Test Procedure

According to ANSI C63.26-2015 section 5.3.2, the following test setup was performed.

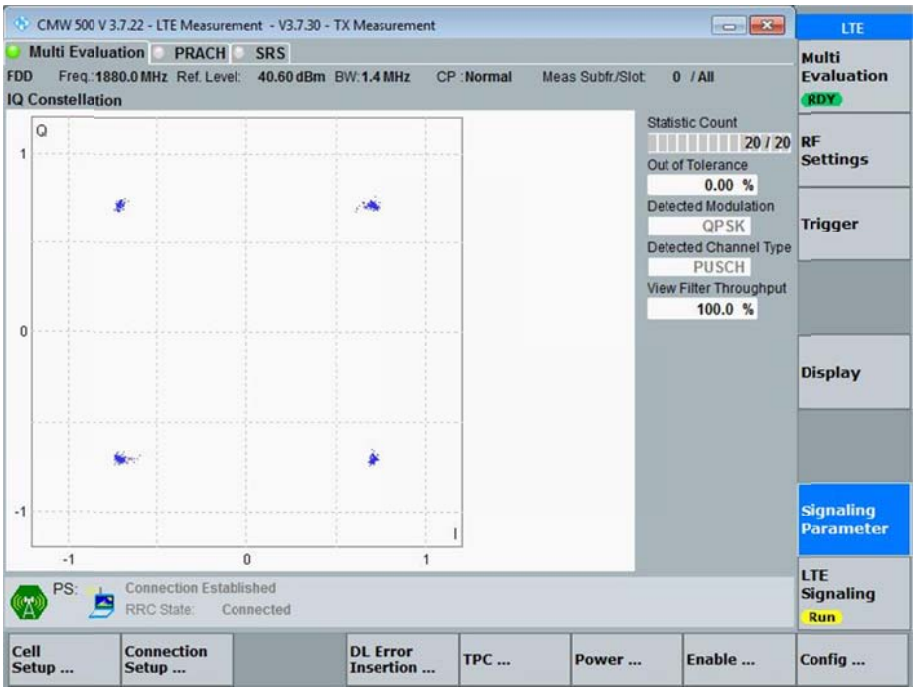


10.3 Summary of Test Results/Plots

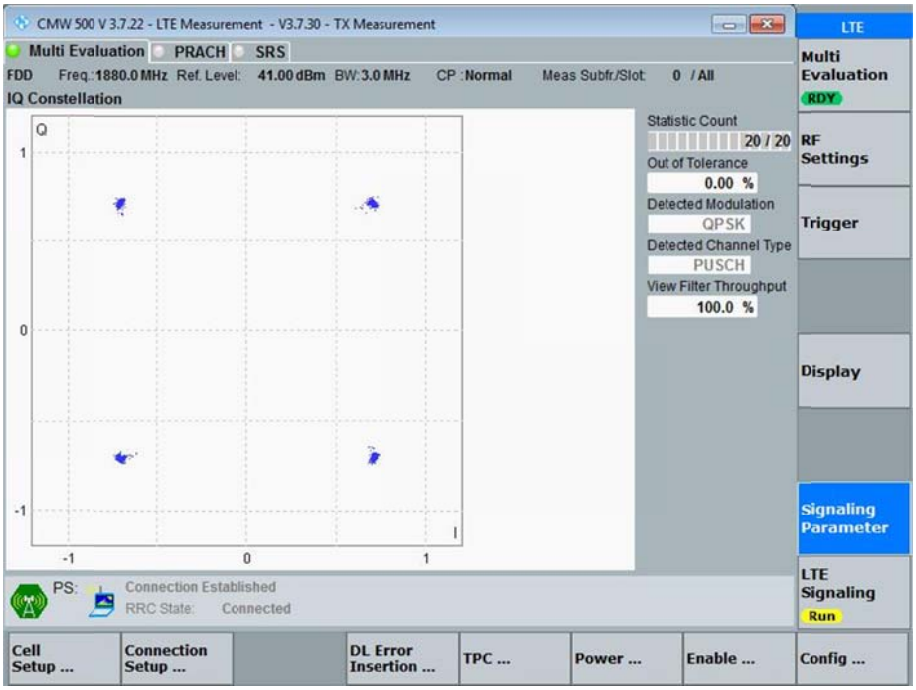
Only the worst case was selected to record

LTE Band 2

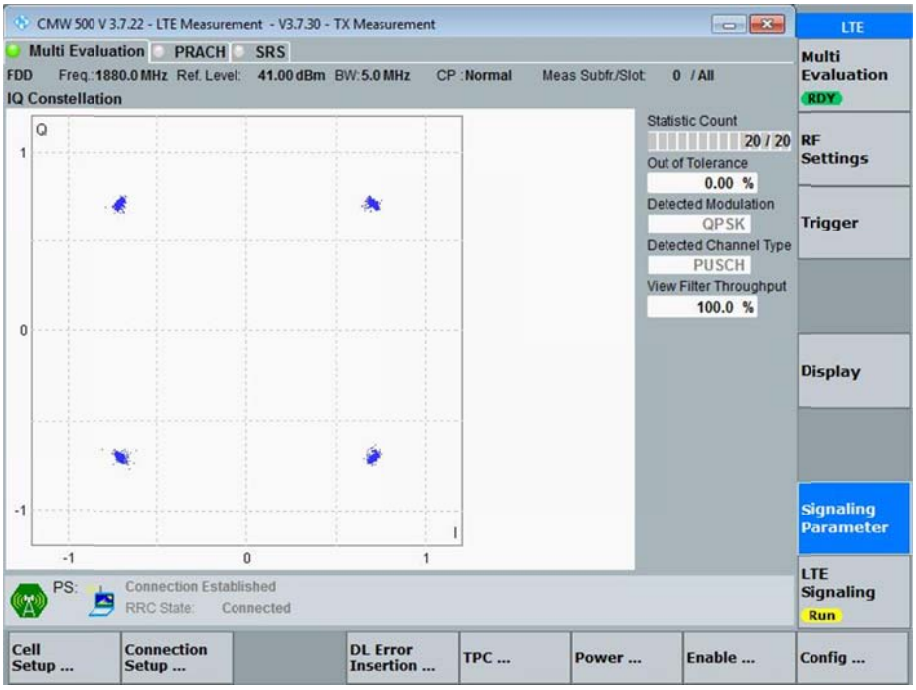
1.4MHz Bandwidth, QPSK modulation, RB6#0



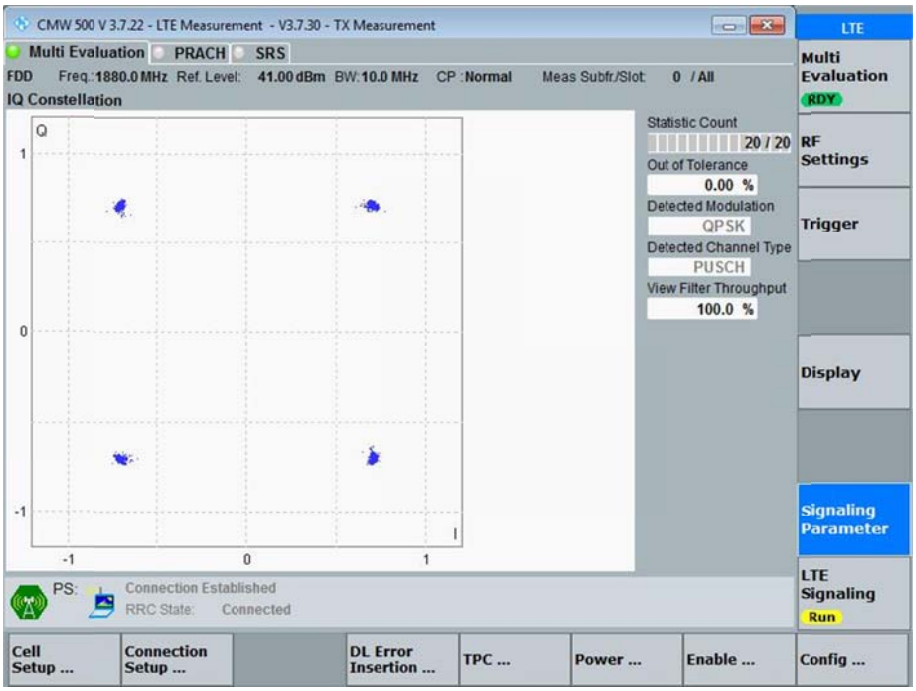
3MHz Bandwidth, QPSK modulation, RB15#0



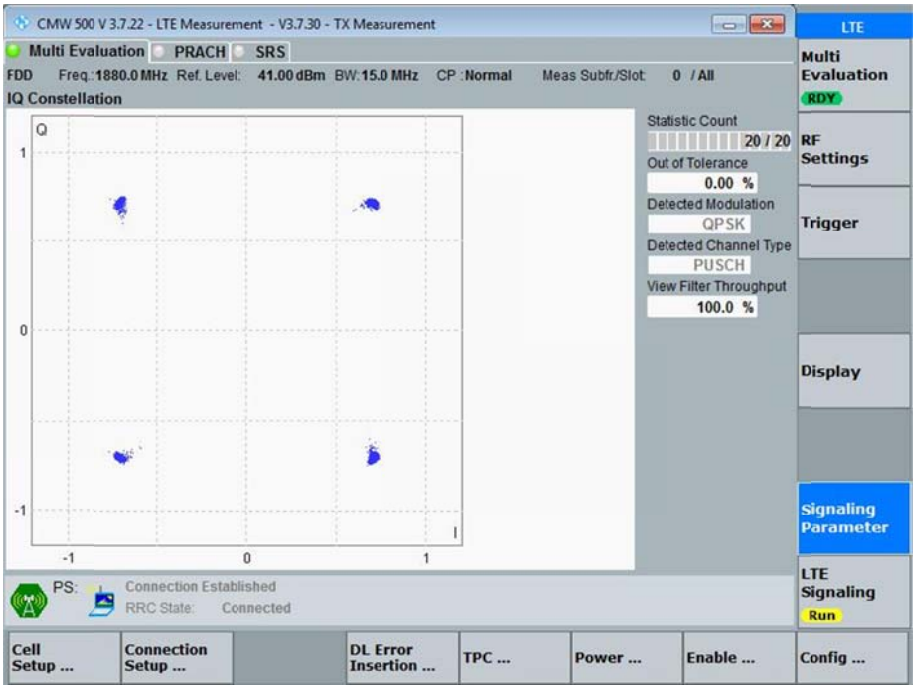
5MHz Bandwidth, QPSK modulation, RB25#0



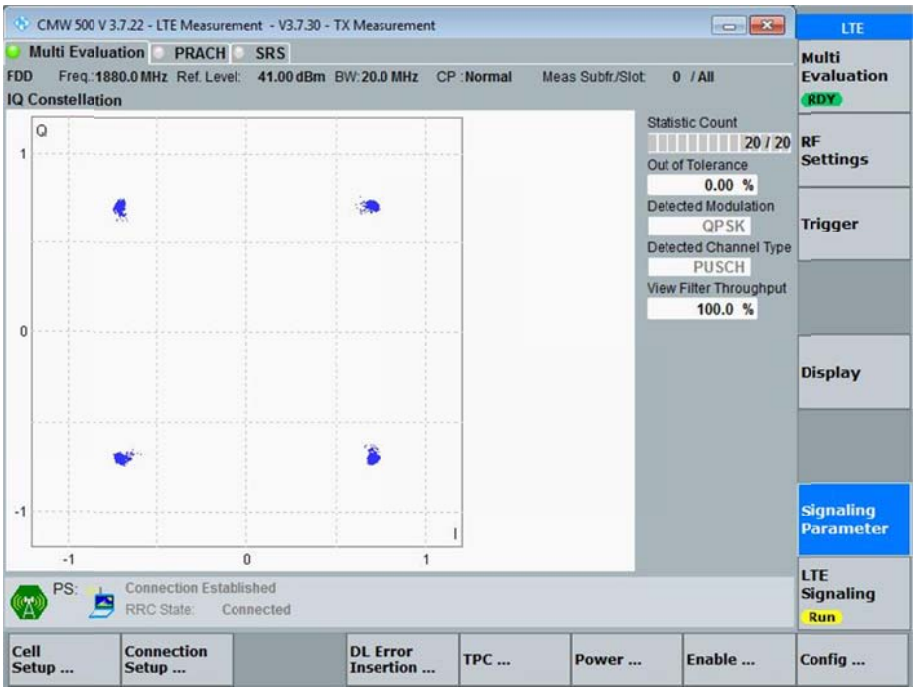
10MHz Bandwidth, QPSK modulation, RB50#0



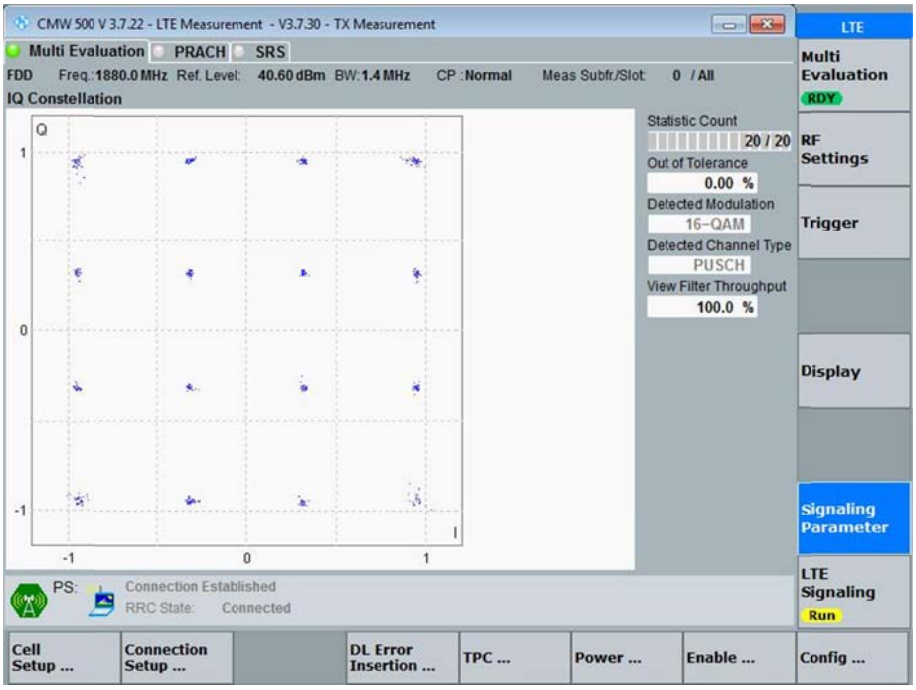
15MHz Bandwidth, QPSK modulation, RB75#0



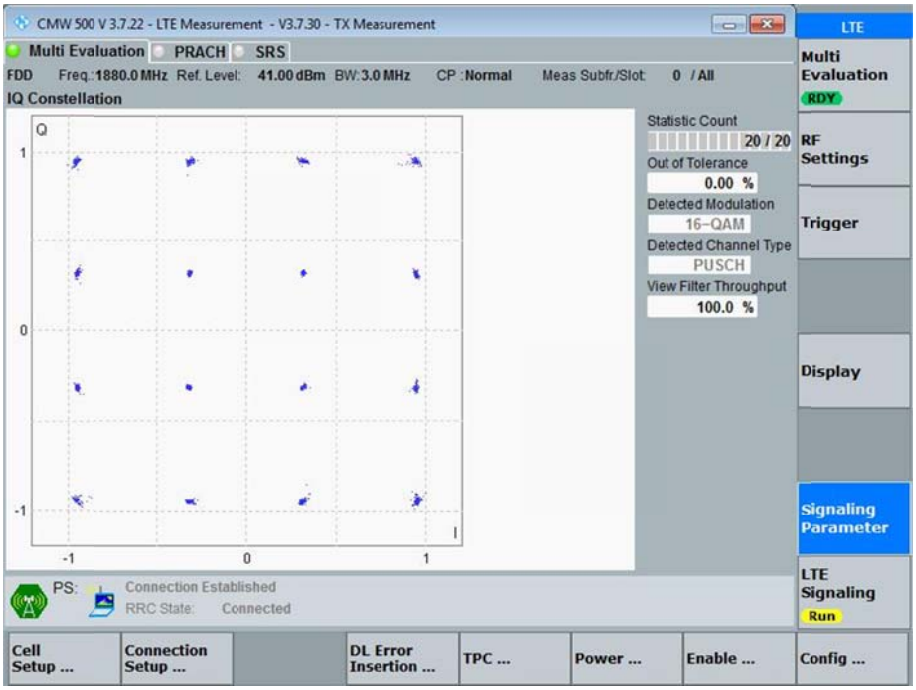
20MHz Bandwidth, QPSK modulation, RB100#0



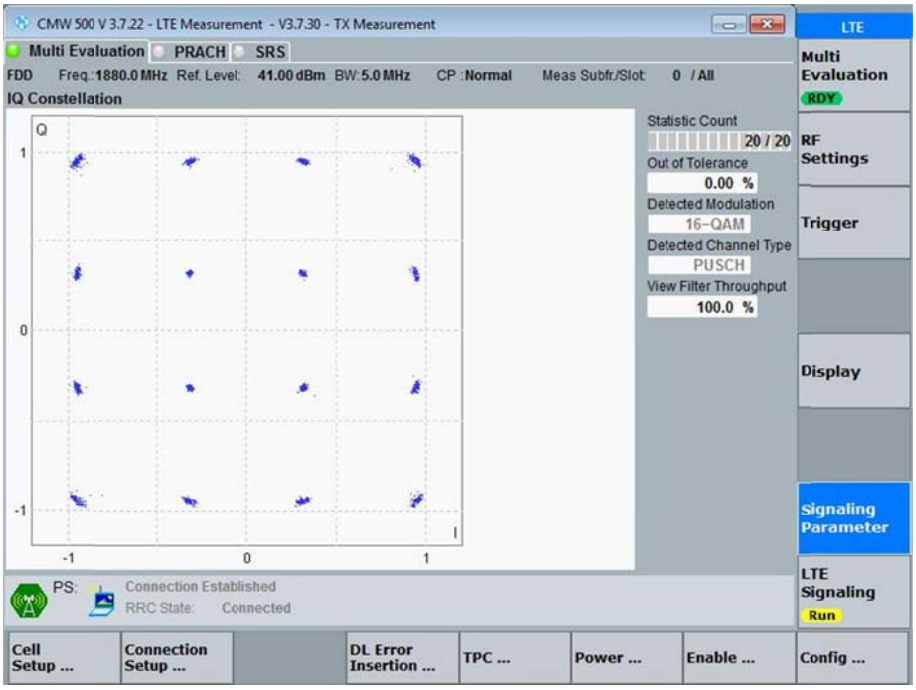
1.4MHz Bandwidth, 16QAM modulation, RB6#0



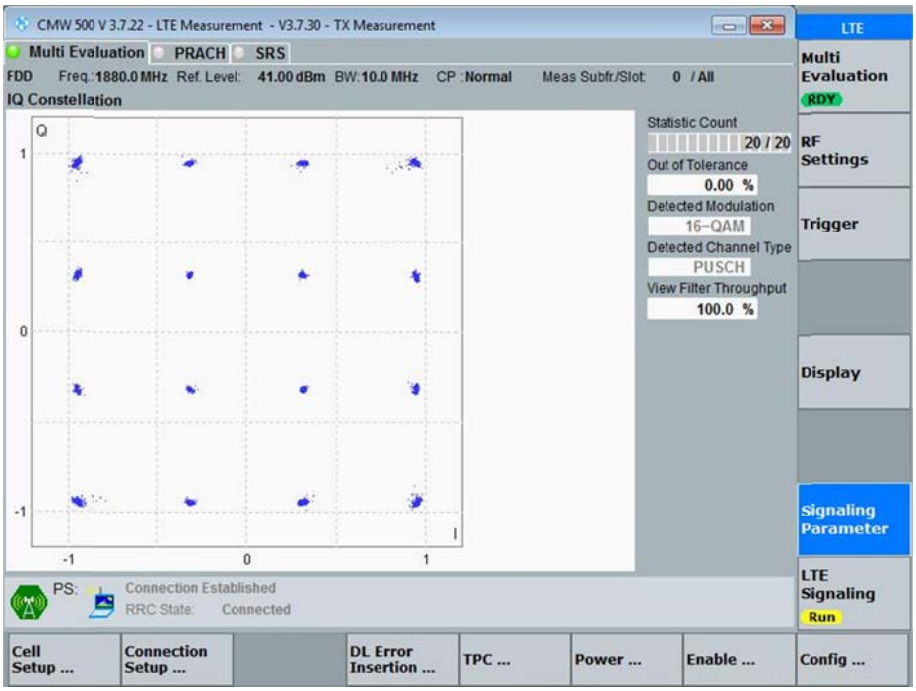
3MHz Bandwidth, 16QAM modulation, RB15#0



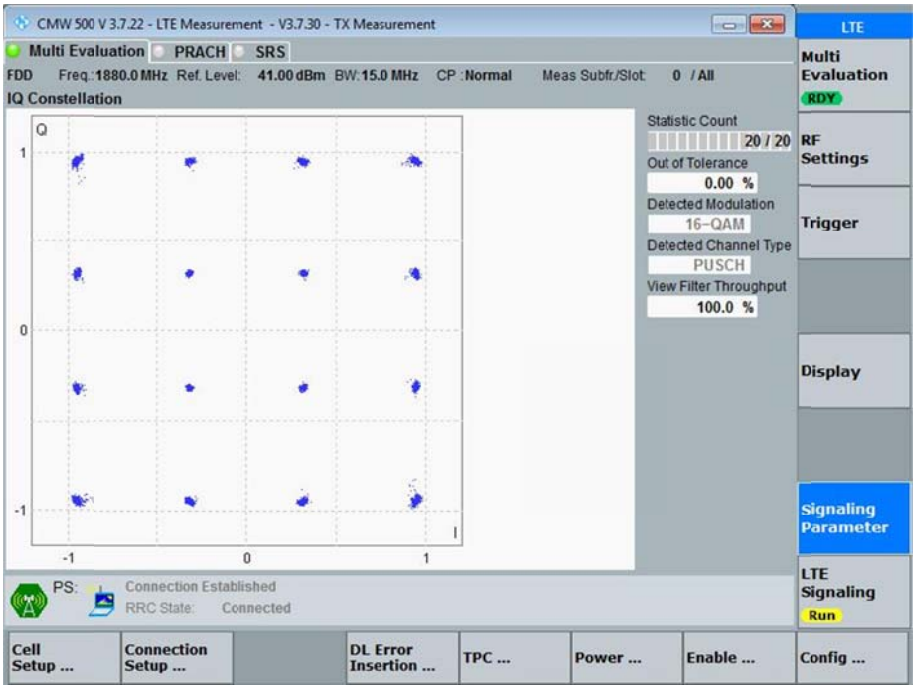
5MHz Bandwidth, 16QAM modulation, RB25#0



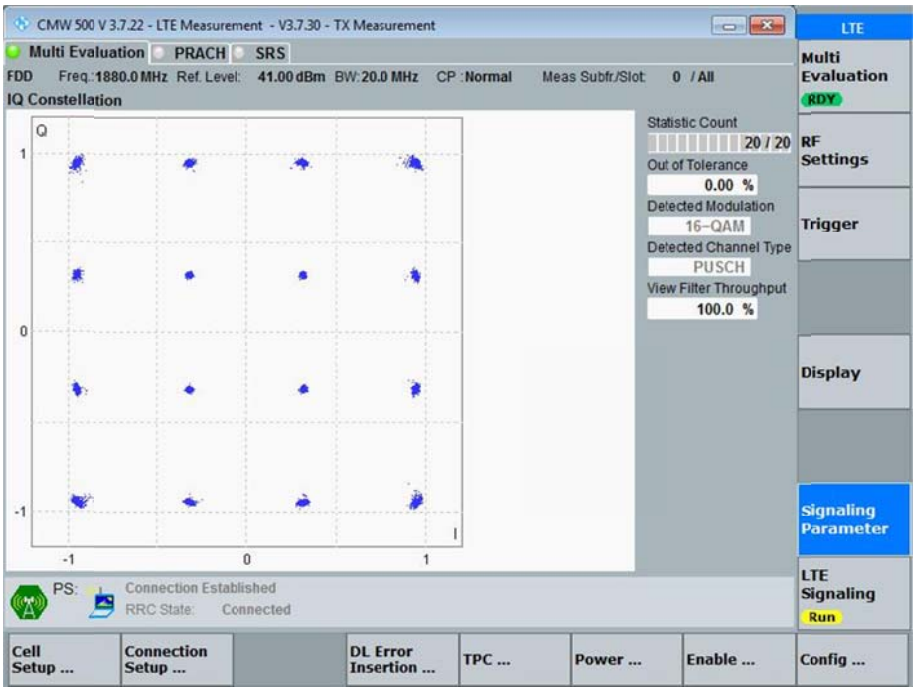
10MHz Bandwidth, 16QAM modulation, RB50#0



15MHz Bandwidth, 16QAM modulation, RB75#0

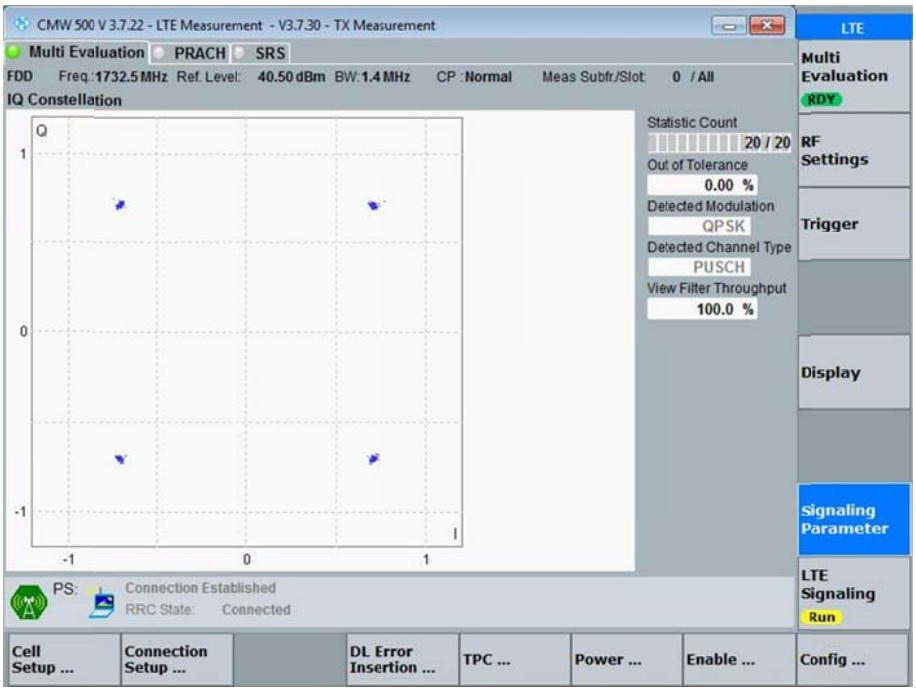


20MHz Bandwidth, 16QAM modulation, RB100#0

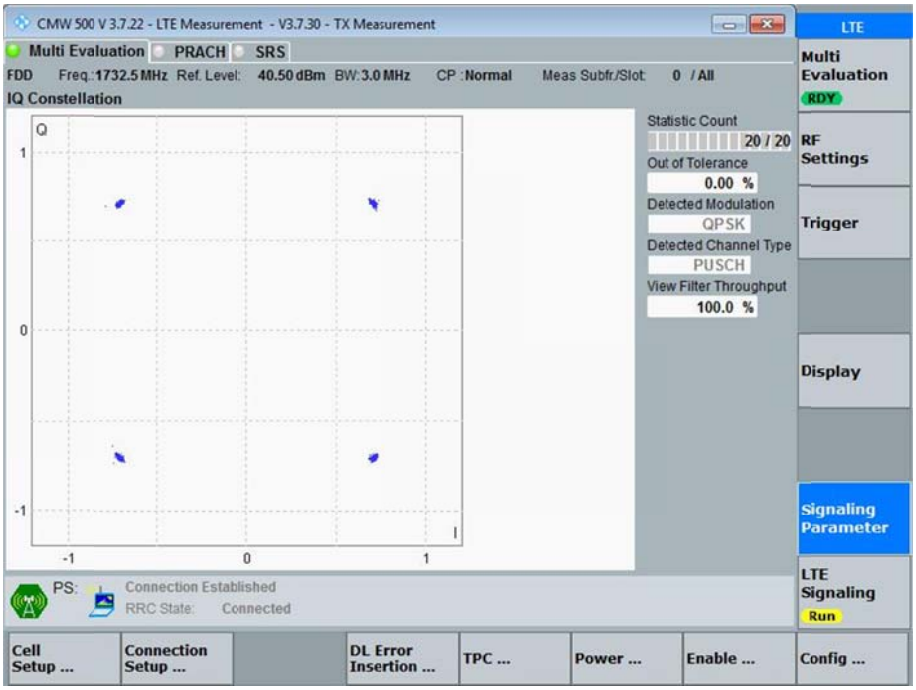


LTE Band 4

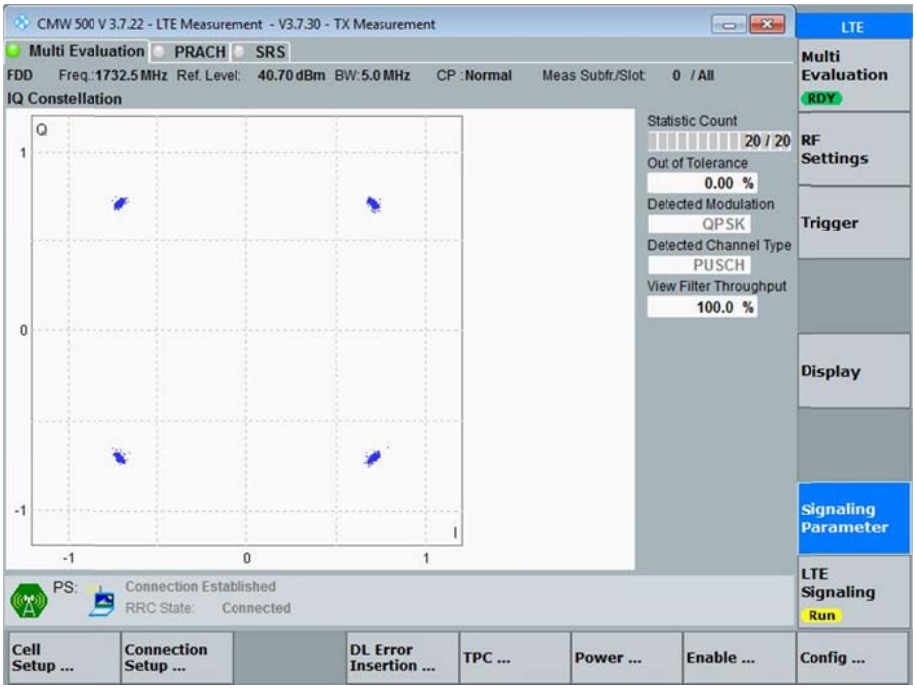
1.4MHz Bandwidth, QPSK modulation, RB6#0



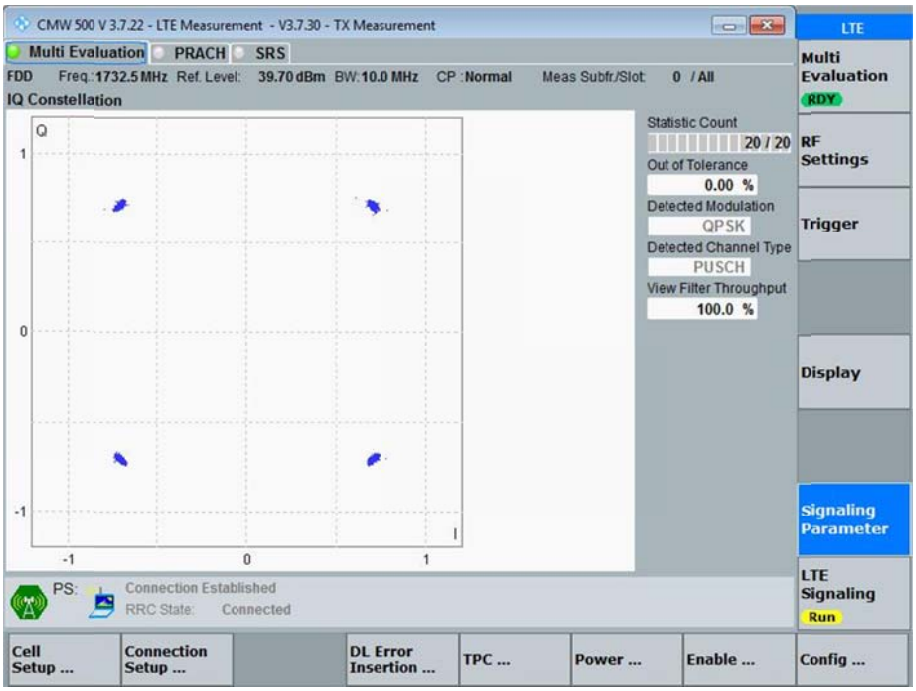
3MHz Bandwidth, QPSK modulation, RB15#0



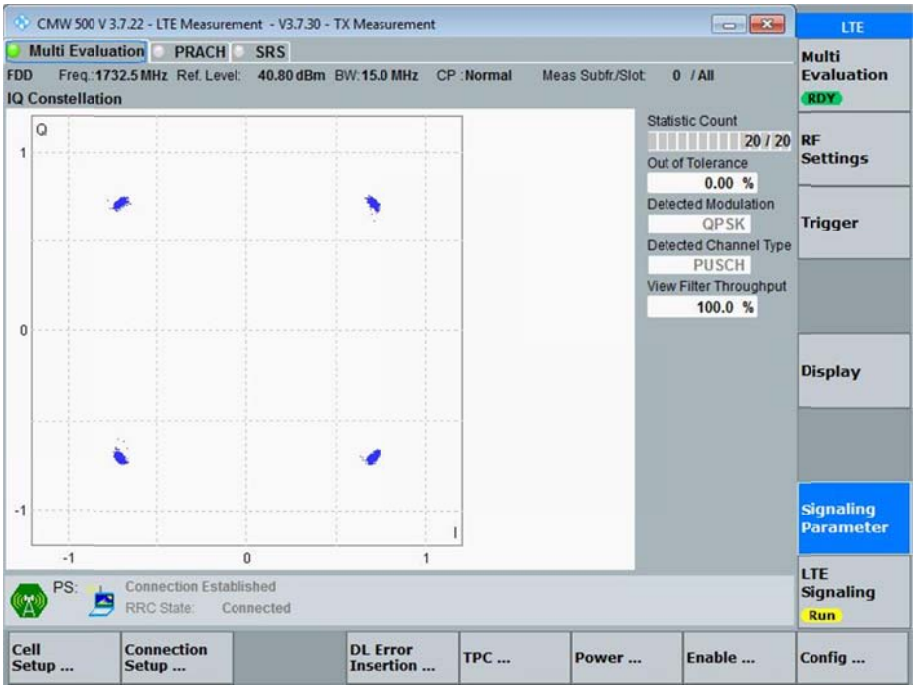
5MHz Bandwidth, QPSK modulation, RB25#0



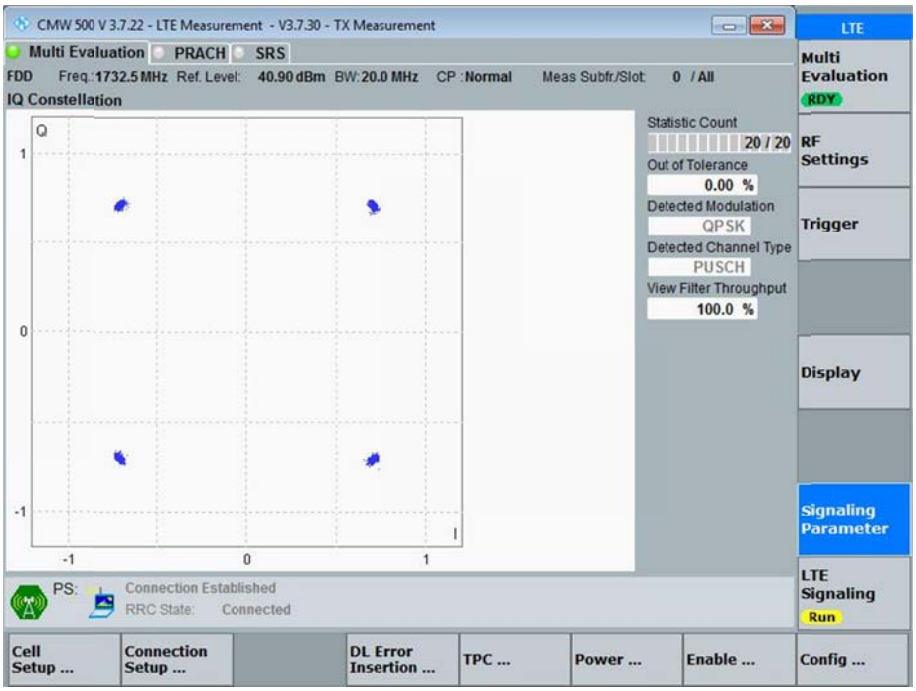
10MHz Bandwidth, QPSK modulation, RB50#0



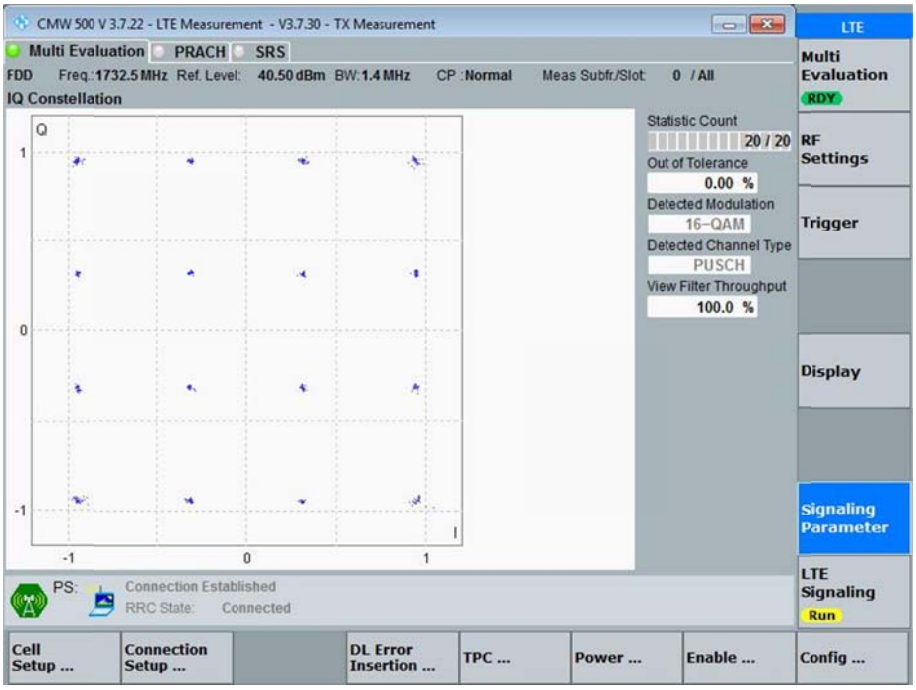
15MHz Bandwidth, QPSK modulation, RB75#0



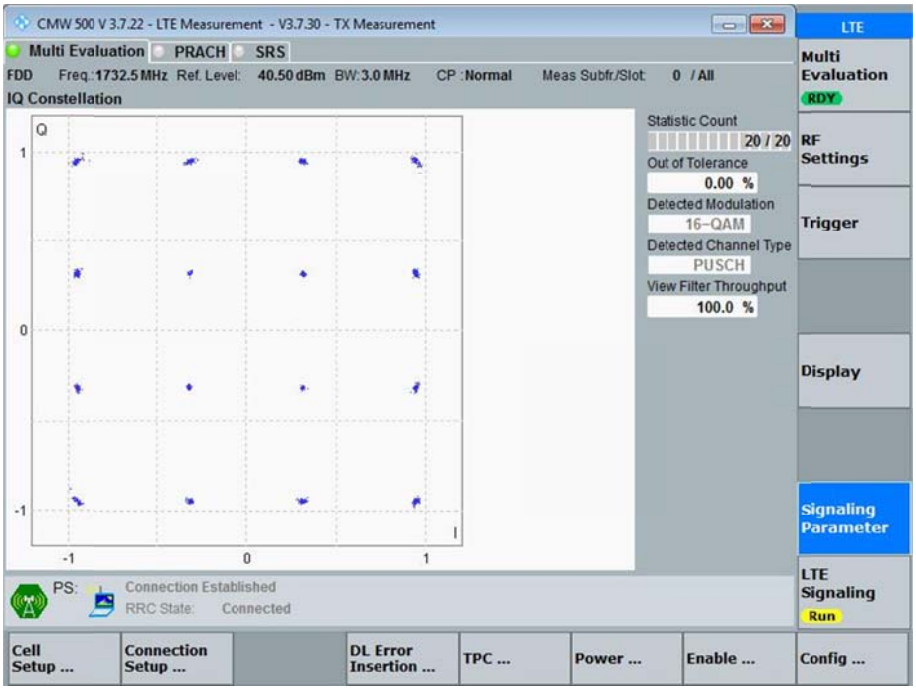
20MHz Bandwidth, QPSK modulation, RB100#0



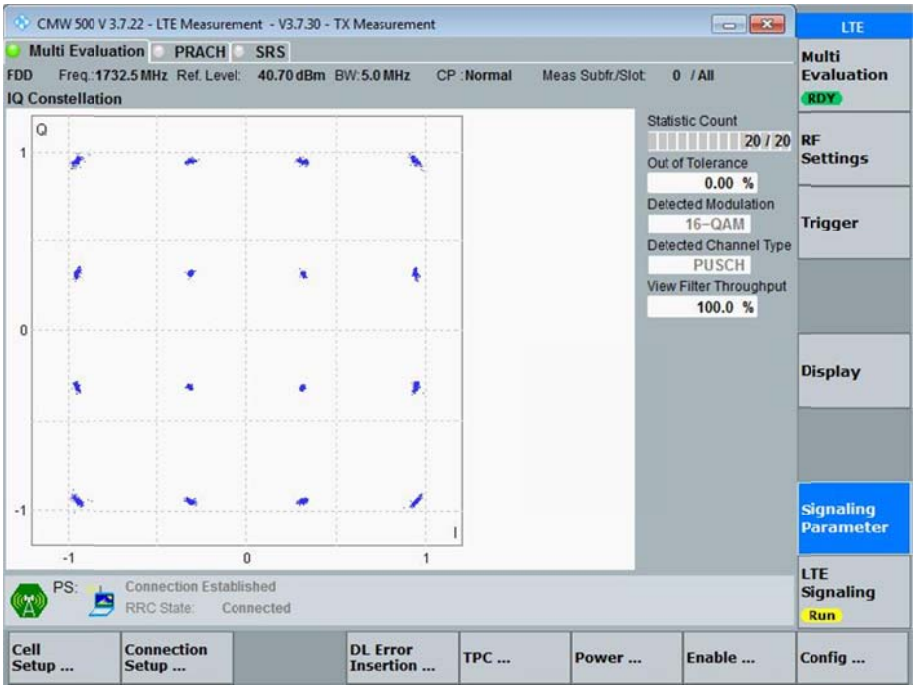
1.4MHz Bandwidth, 16QAM modulation, RB6#0



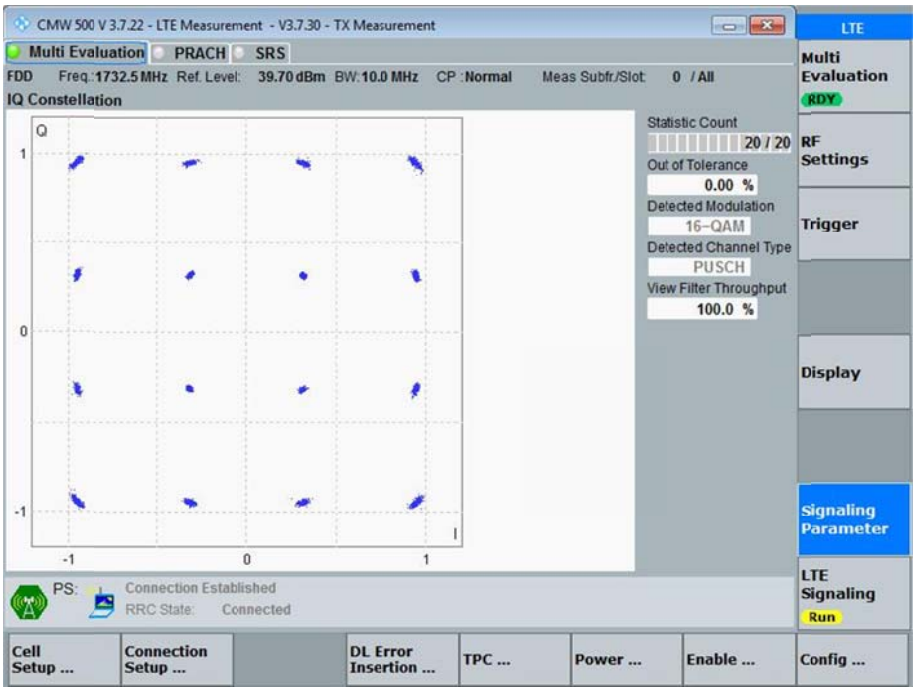
3MHz Bandwidth, 16QAM modulation, RB15#0



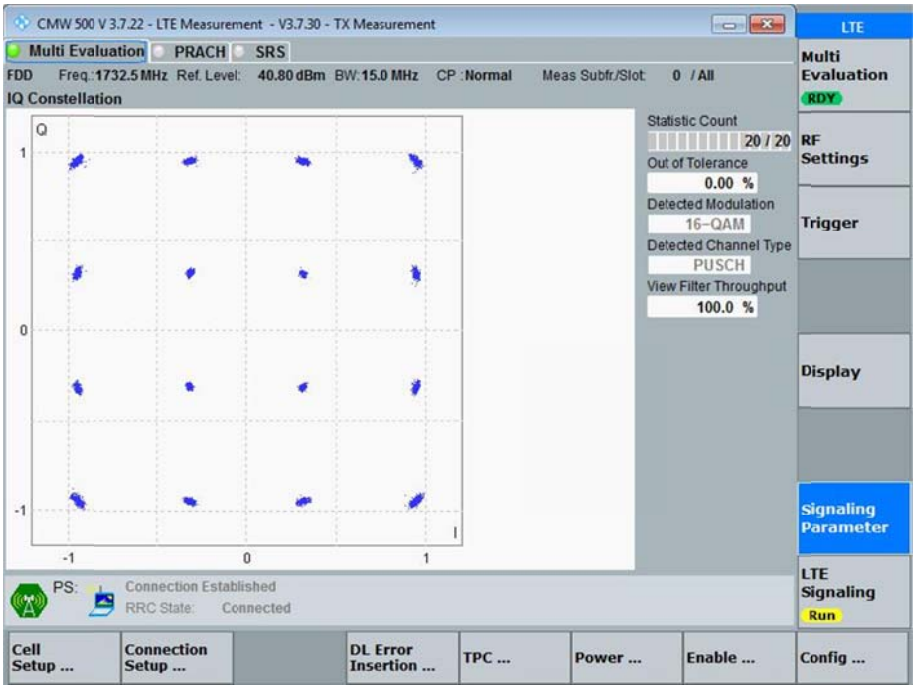
5MHz Bandwidth, 16QAM modulation, RB25#0



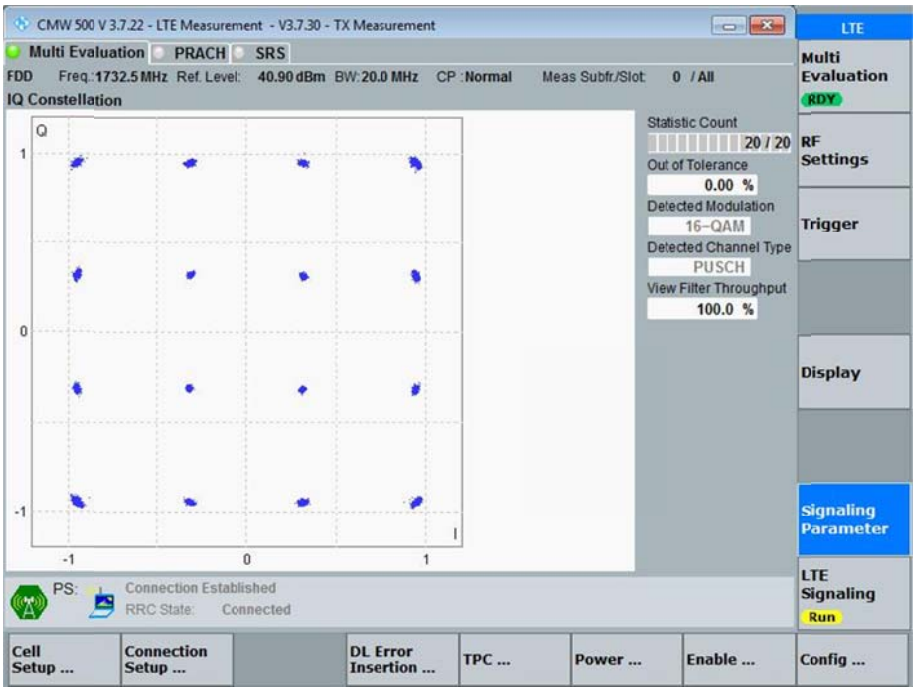
10MHz Bandwidth, 16QAM modulation, RB50#0



15MHz Bandwidth, 16QAM modulation, RB75#0

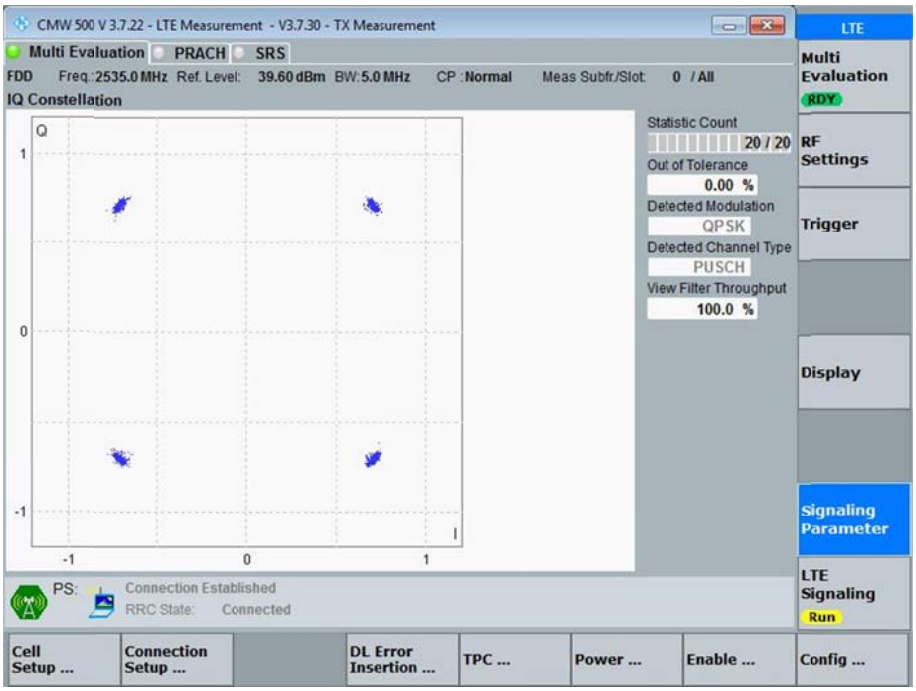


20MHz Bandwidth, 16QAM modulation, RB100#0

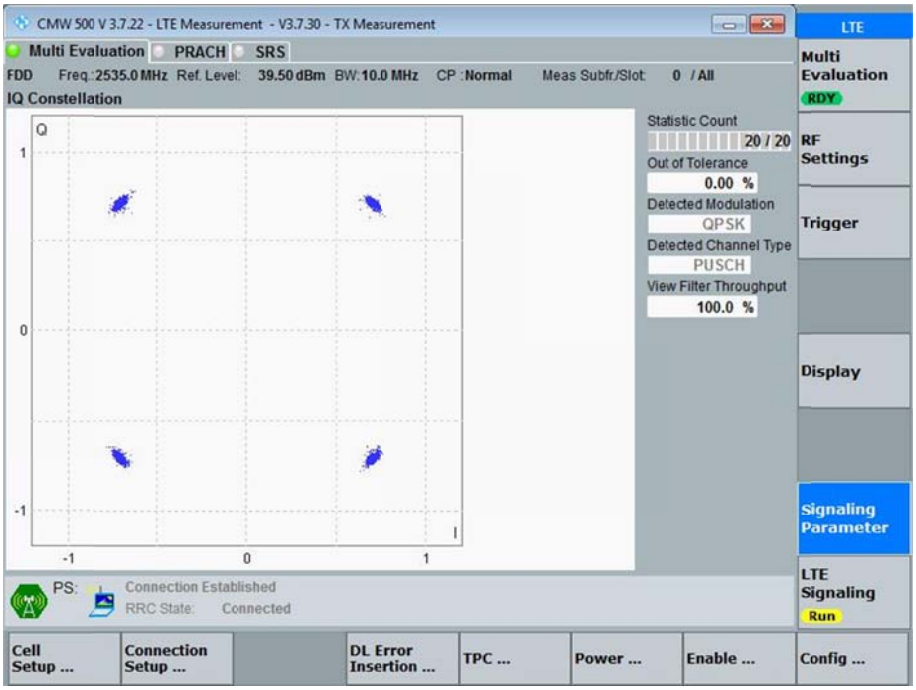


LTE Band 7

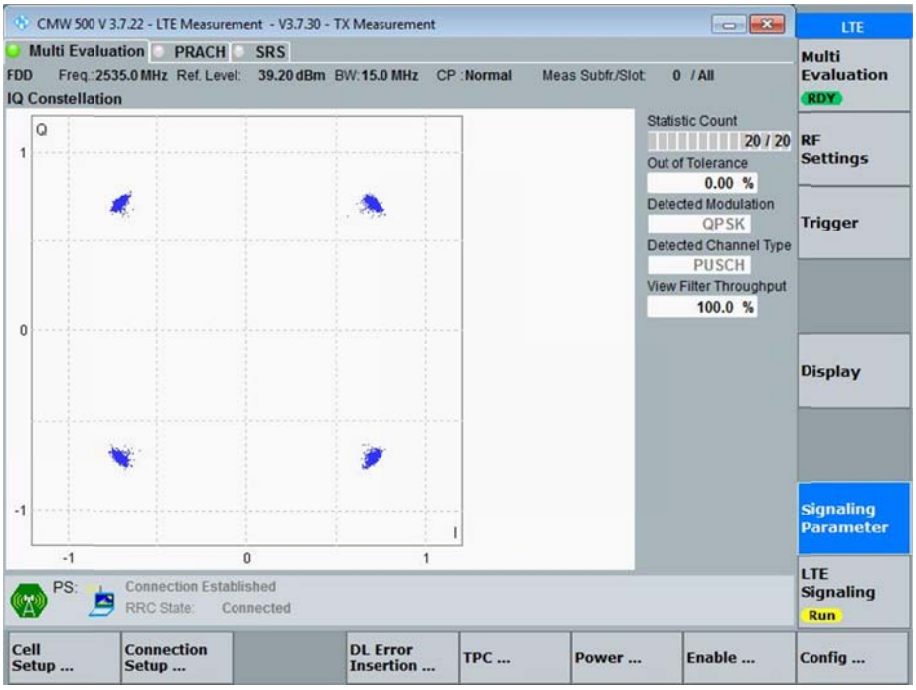
5MHz Bandwidth, QPSK modulation, RB25#0



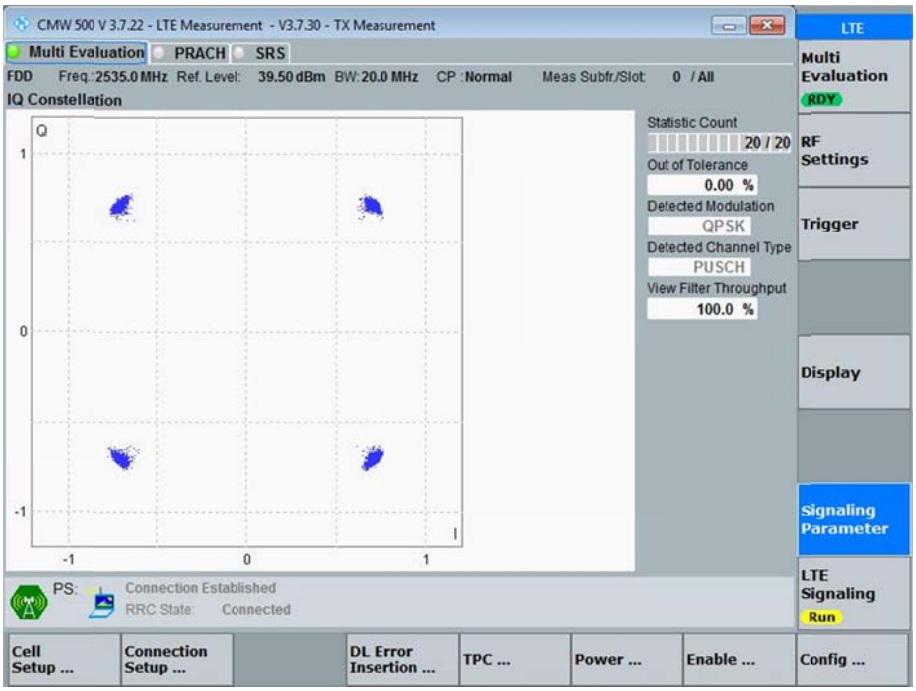
10MHz Bandwidth, QPSK modulation, RB50#0



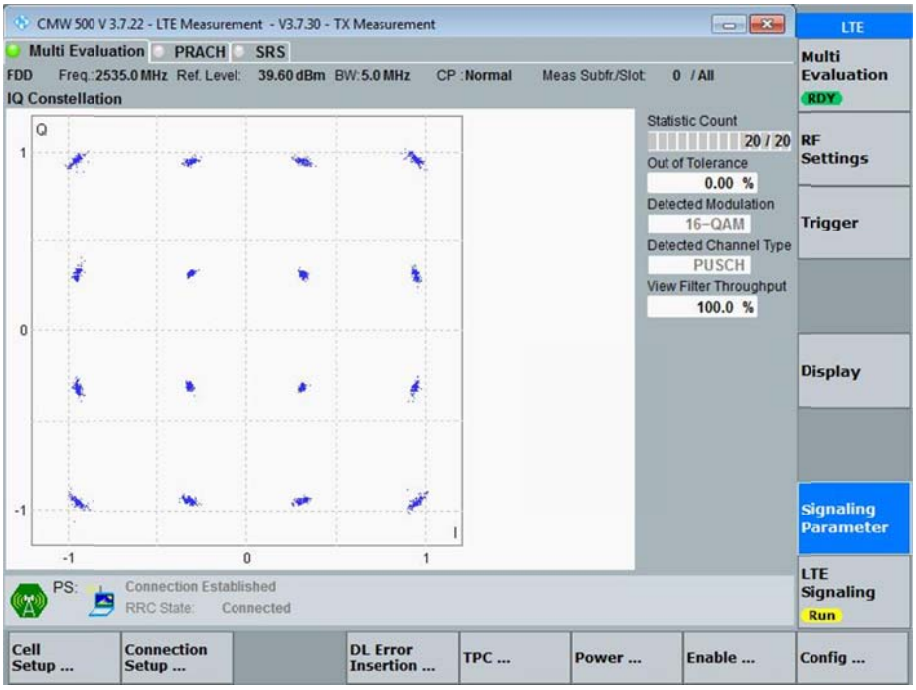
15MHz Bandwidth, QPSK modulation, RB75#0



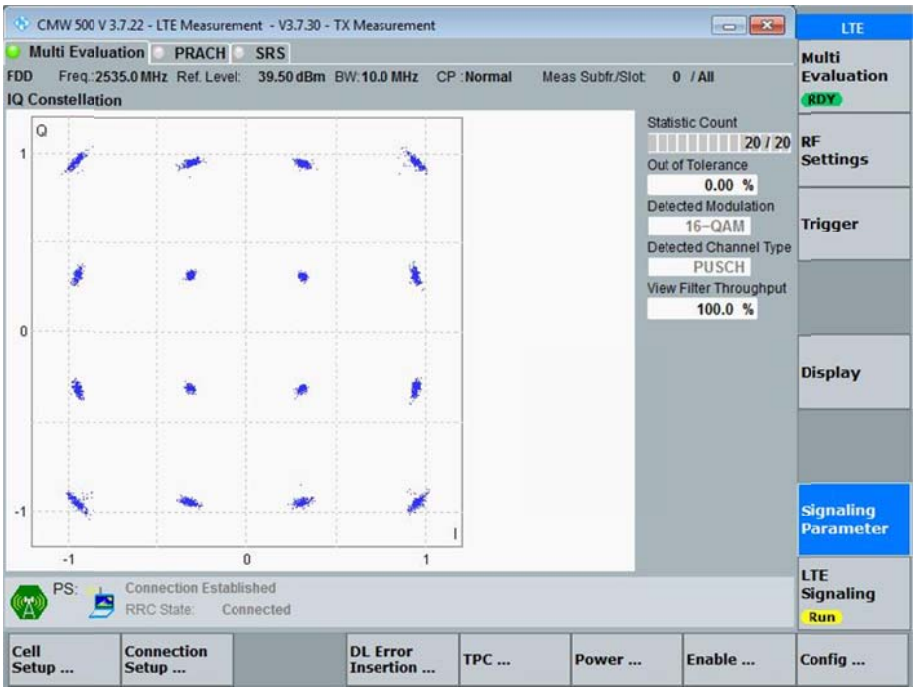
20MHz Bandwidth, QPSK modulation, RB100#0



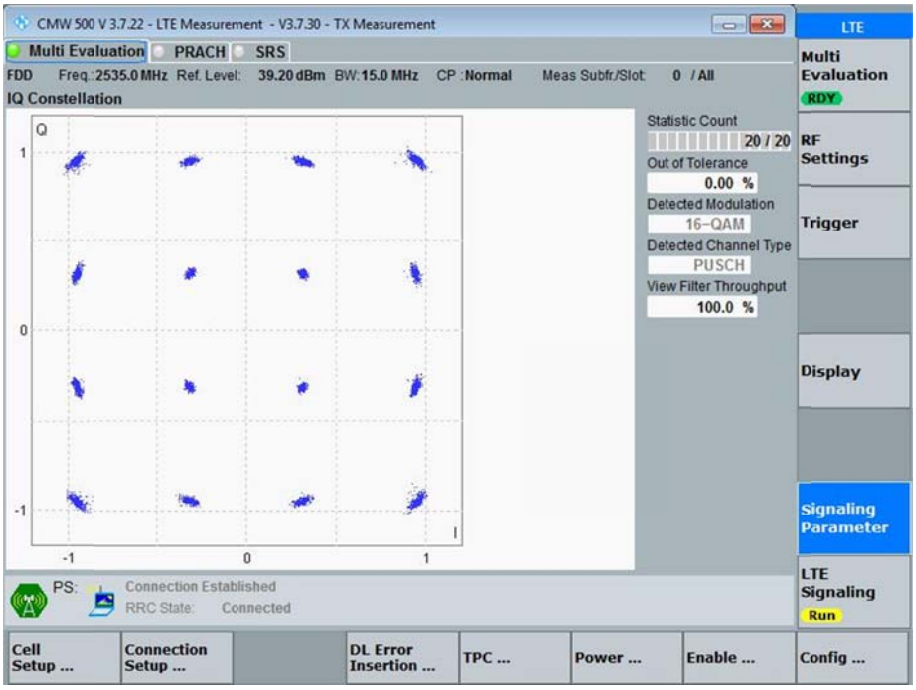
5MHz Bandwidth, 16QAM modulation, RB25#0



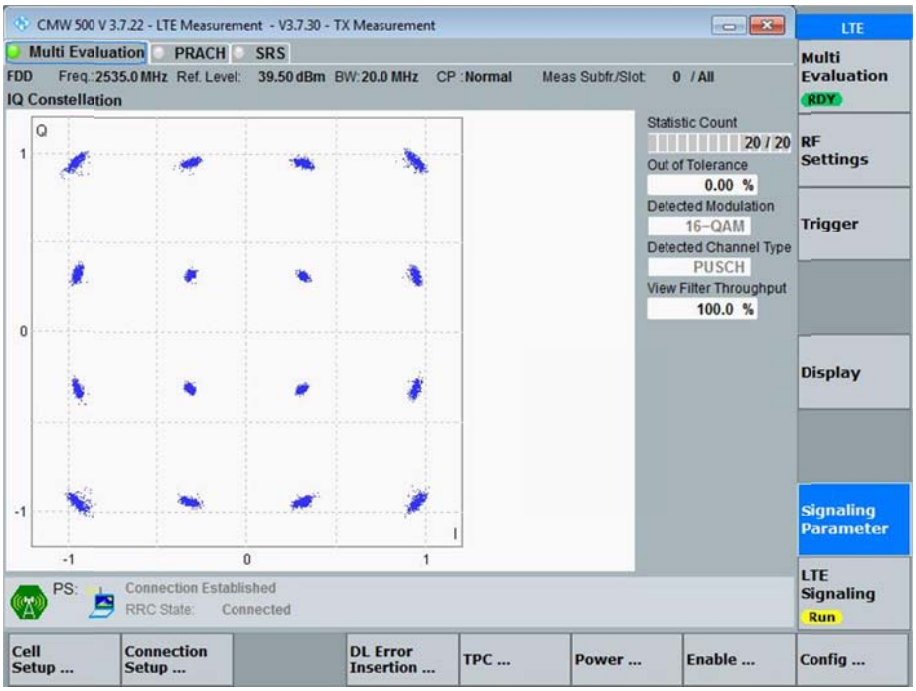
10MHz Bandwidth, 16QAM modulation, RB50#0



15MHz Bandwidth, 16QAM modulation, RB75#0



20MHz Bandwidth, 16QAM modulation, RB100#0



******* END OF REPORT *******