FCC RF TEST REPORT

Report Number	:	RP20170313032_01	Date of Issue:	12 Mar 2017

FCC ID	:	Q78-R8872AS1900
Model / Serial No.	:	ZXSDR R8872A S1900
Product Type	:	Macro Remote Radio Unit
Applicant	:	ZTE Corporation
Address	:	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District,Shenzhen,Guangdong,P.R.China
Production Facility	:	ZTE Corporation
Address	:	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District,Shenzhen,Guangdong,P.R.China
Test Result	:	■ Positive ☐ Negative
Total pages including Appendices	:	78

Table of Content

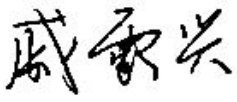
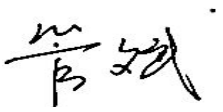
1 General Information

1.1 Notes

It is the test results from all the tests which are performed in the RF Laboratory of Shenzhen Zoom Rel Testing Technology Co., Ltd. The RF Lab was certificated by CNAS and the registration number was L0611.

Test site has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on May 10, 2016.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 373926. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Prepared By RF Test Engineer	**2017-03-12** **Date**	**Qi Luxing** **Name**	 **Signature**
Reviewed By Laboratory Manager	**2017-03-12** **Date**	**Wu Shuzhong** **Name**	 **Signature**
Approved by EMC/RF Project Manager	**2017-03-12** **Date**	**Guan Bin** **Name**	 **Signature**

1.2 Testing Laboratory

Shenzhen Zoom Rel Testing Technology Co., Ltd.

Address: 1/F, B2 Wing, ZTE plaza, Keji Road South, Hi-Tech industrial park, Shenzhen, Guangdong, 518057

Country: China
Phone: +86 755 26770349
FAX: +86 755 26770347

1.3 Details of Manufacture

Manufacture : ZTE Corporation

ADDRESS: ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District,Shenzhen,Guangdong,P.R.China

PRODUCT DESCRIPTION: GSM Remote Radio Unit

MANUFACTURERS MODEL/SERIAL NUMBER: ZXSDR R8862A S8500 (GSM)

FCC ID : Q78-R8872AS1900

SAMPLE NUMBER: S20170313032

1.4 Application Details

Date of receipt of order: 2017-01-04
Date of receipt of test item: 2017-01-04
Date of test: 2017-01-04~2017-03-05

1.5 Test Item

Refer to Chapter 2.

1.6 Applied Standard

APPLIED PRODUCT STANDARD	TIA/EIA 603-C:2004
TEST METHODS	FCC 47 CFR Part1 FCC 47 CFR Part2 FCC 47 CFR Part15 FCC 47 CFR Part24

2 Summary of Results

FCC RULES	DESCRIPTION OF TEST	RESULT
§2.1046 §24.232	Transmitter output Power	Compliant
§2.1091 §1.1037	RF Exposure	Compliant
§2.1053	Spurious Radiated Emissions	Compliant
§2.1051, §22.917	Spurious Emissions AT Antenna Terminals	Compliant
§2.1049 §22.917	Occupied Bandwidth	Compliant
§2.1051	Band Edge	Compliant
§ 2.1055	Frequency stability	Compliant

3 Equipment Specification

3.1 Technical specification

Size: 415 mm x 352 mm x 137 mm (HxWxD)
Input voltage: --37V~-60V
Frequency range: UL:1850MHz~1910MHz; DL: 1930MHz~1990 MHz
Max RF output power: GMSK 49dBm,8PSK 47dBm
Gain of the antenna: 15dBi
Modulation type of emission: GSM
Appearance of EUT:

fig 1. FIGURE 1 APPEARANCE OF ZXSDR R8872A S1900

4 Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47 Part 2. as well as the following parts:
Part 24 Wireless Communication Services
Applicable Standards: TIA EIA 137-A, TIA EIA 97-D, TIA/EIA 603-C, Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.
All radiated and conducted measurement was performed at ZTE Corporation Reliability Testing Center. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

5 Test configuration

The EUT was configured for testing according to TIA/EIA-603C.
The final qualification test was performed with EUT operating at normal mode.
Equipment Modifications
ZTE Corporation has not done any modification on the EUT.

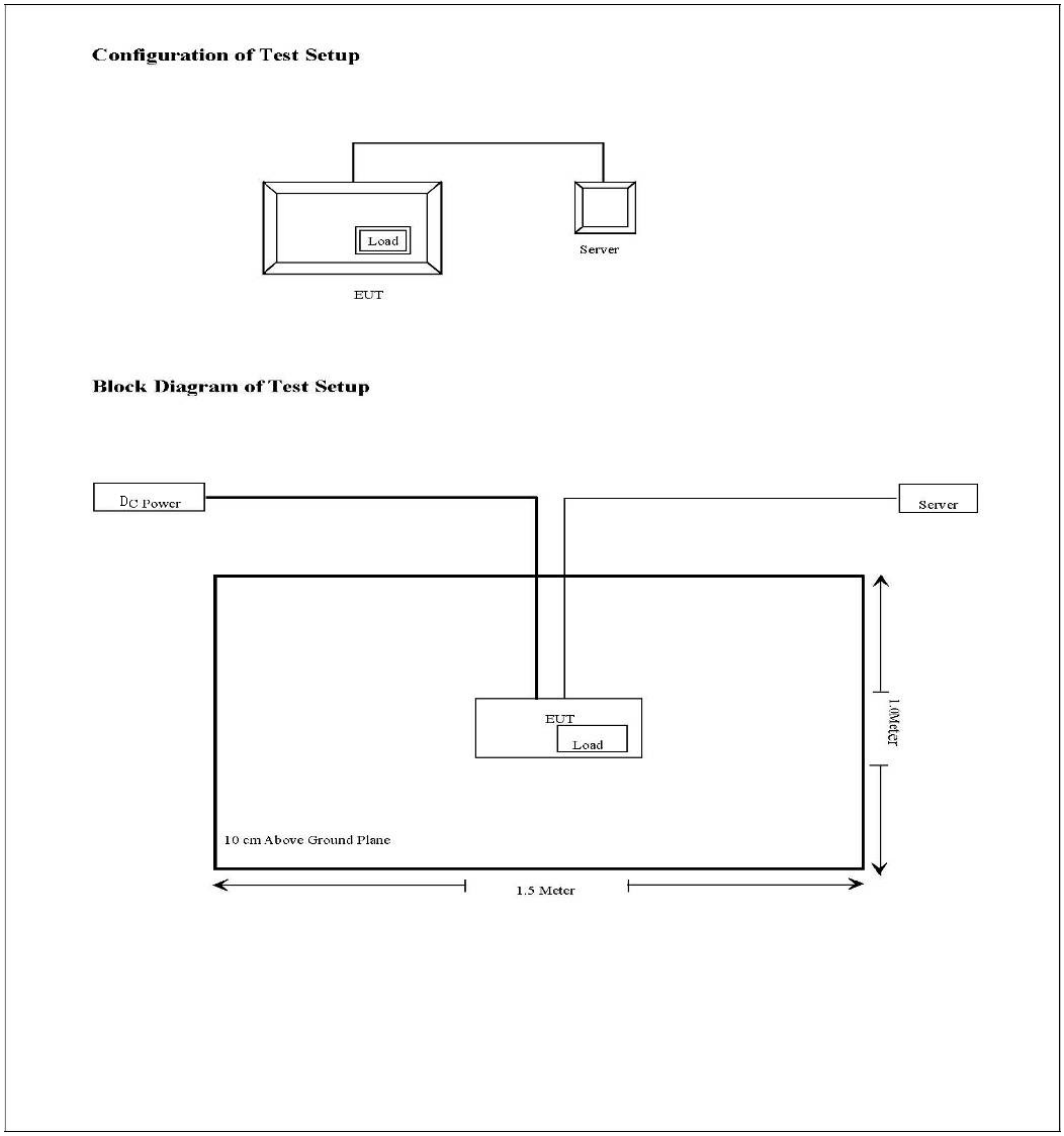


fig 2. Test configuration

6 TRANSMITTER OUTPUT POWER

6.1 Applicable Standard：FCC §2.1046 §24.232

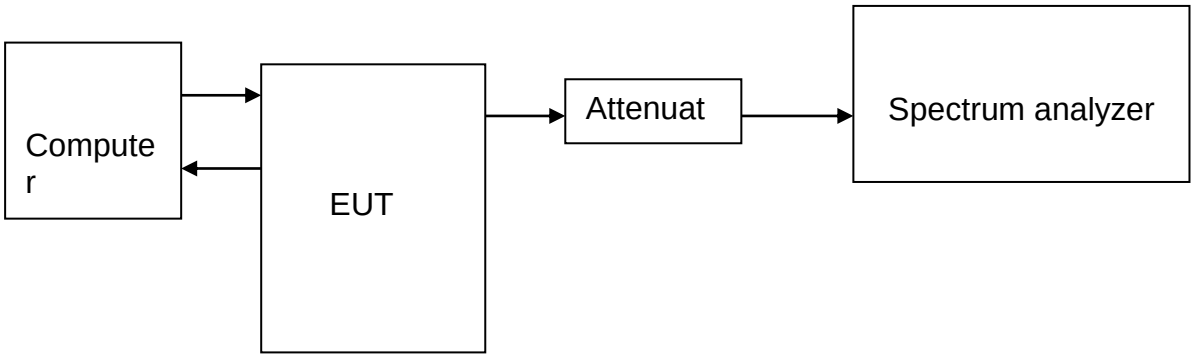
According to FCC §2.1046 &24.232, the EIRP(equivalent isotropically radiated power) must not exceed 1640 Watts.

6.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY52090182	2016-6-27	2017-6-27
DTS	DTS100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

***statement of traceability:** ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements, traceable to NIST.

6.3 Test Procedure



The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation. External attenuation Loss is 40dB, Cable Loss is about 3dB

6.4 Environmental Conditions

Temperature:	20 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

6.5 Test Result: Pass

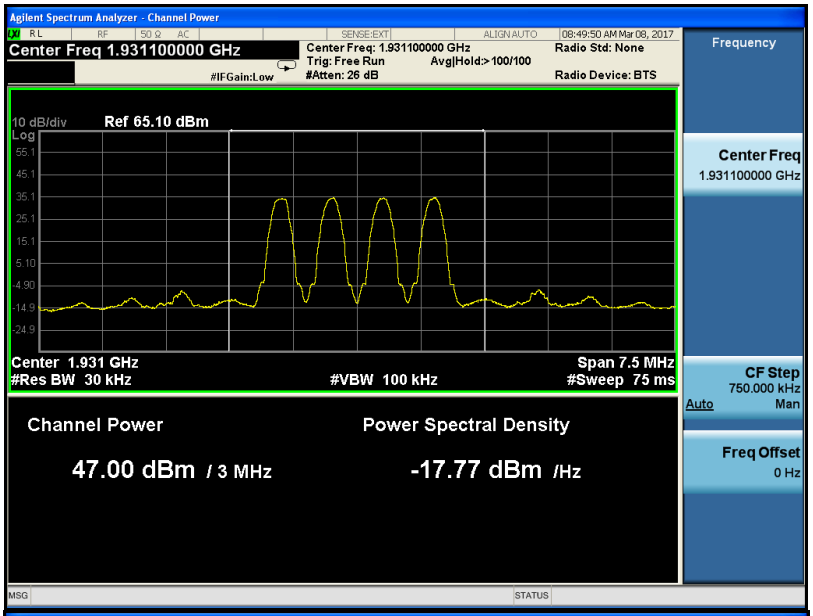
6.6 Test Mode: Transmitting GSM

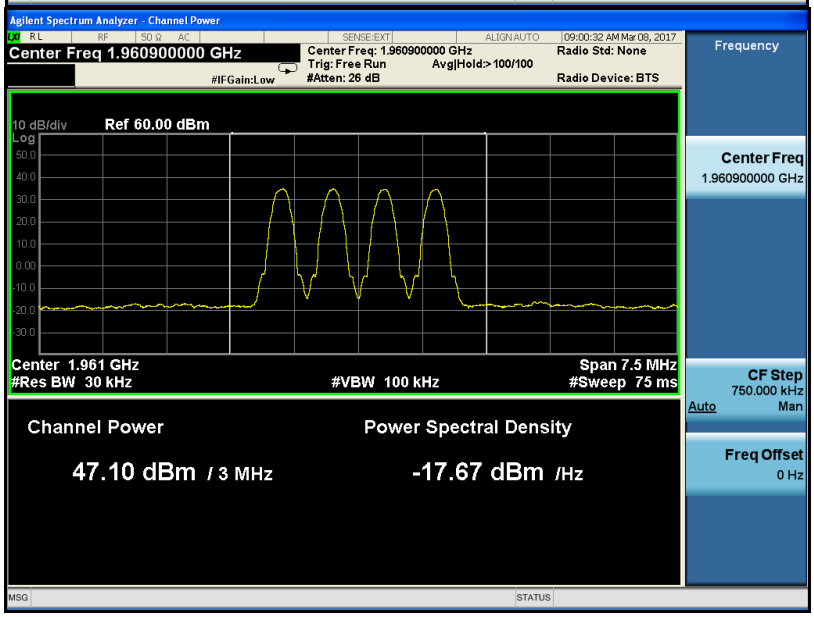
6.7 Test Data:

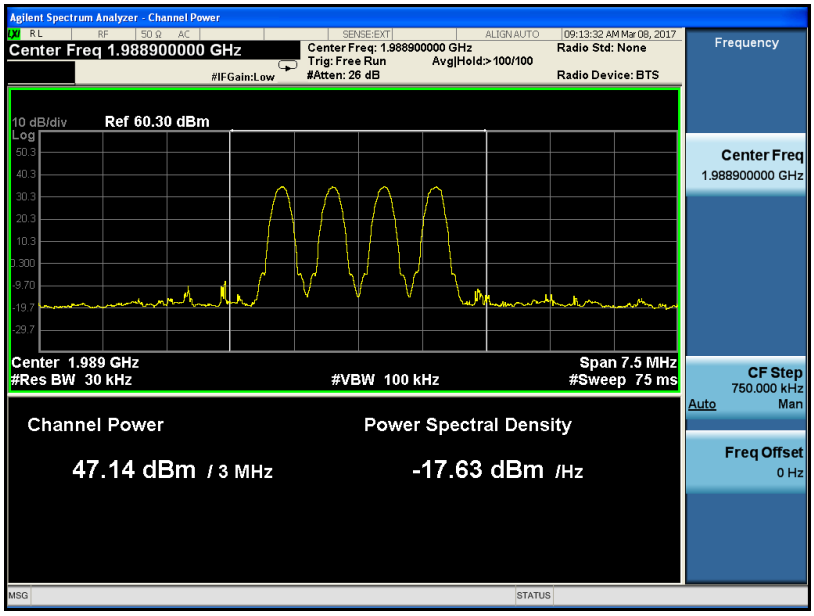
Four carriers

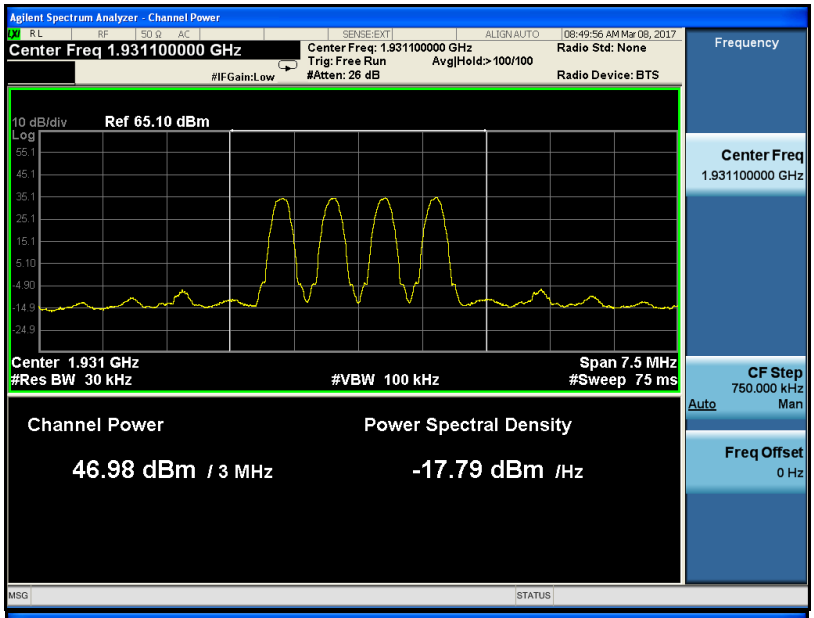
Port	modulatio	Center	Frequency (MHz)	Max output

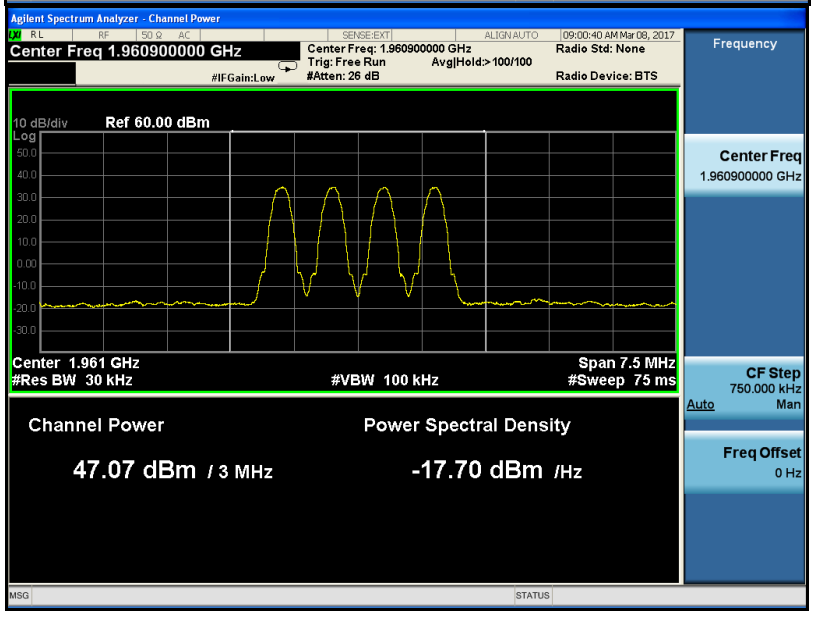
	n	Freq. (MHz)		Power in dBm
1	8PSK	1931.1	1930.2/1930.8/1931.4/1932	47.00
		1960.9	1960/1960.6/1961.2/1961.8	47.10
		1988.9	1988/1988.6/1989.2/1989.8	47.14
4	8PSK	1931.1	1930.2/1930.8/1931.4/1932	46.98
		1960.9	1960/1960.6/1961.2/1961.8	47.07
		1988.9	1988/1988.6/1989.2/1989.8	47.10

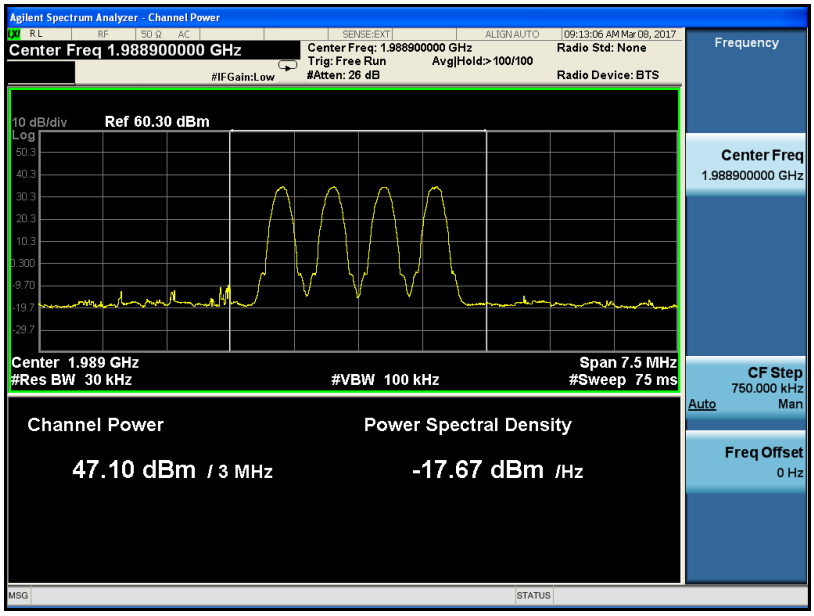




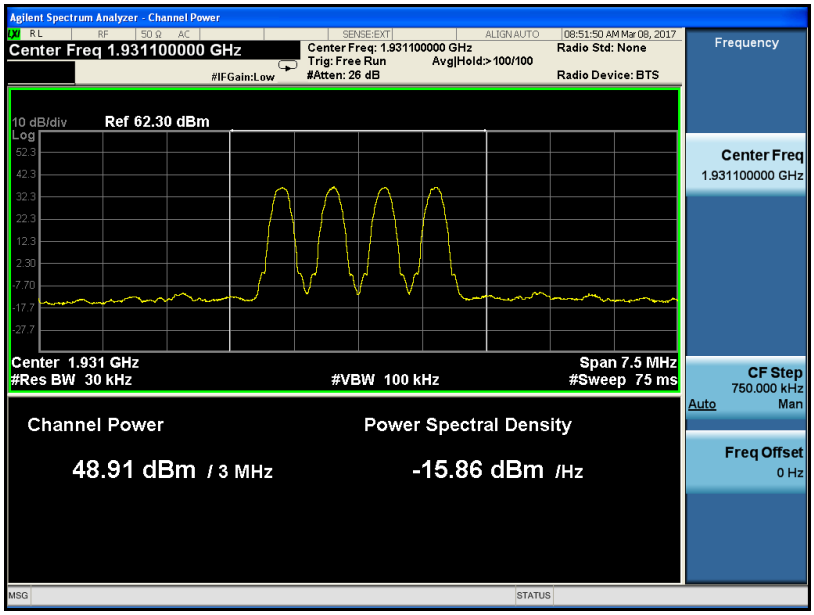

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.988900000 GHz
Center Freq: 1.988900000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
09:13:32 AM Mar 08, 2017
Frequency
10 dB/div
Log
Ref 60.30 dBm
50.3
40.3
30.3
20.3
10.3
0.300
-9.70
-19.7
-29.7
Center 1.989 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 7.5 MHz
#Sweep 75 ms
Channel Power
47.14 dBm / 3 MHz
Power Spectral Density
-17.63 dBm /Hz
Center Freq
1.988900000 GHz
CF Step
750.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

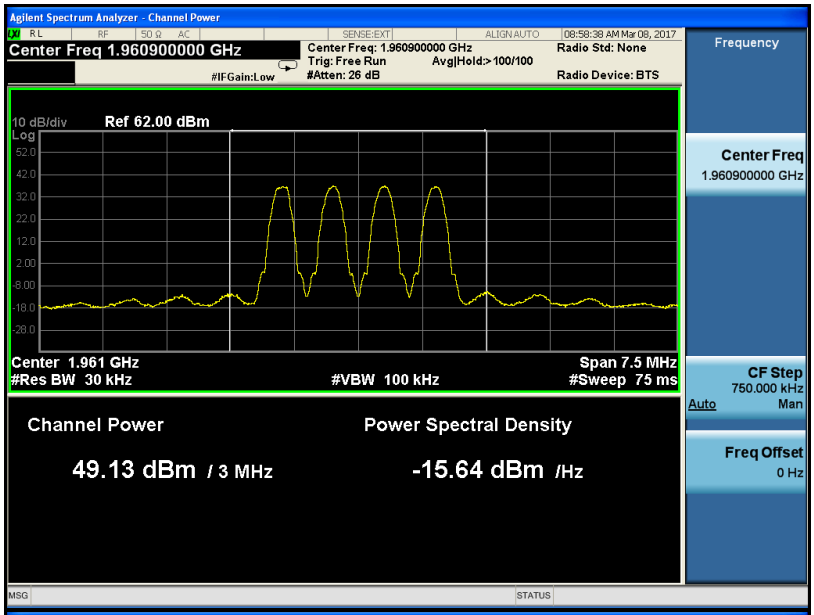

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.931100000 GHz
Center Freq: 1.931100000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
08:49:56 AM Mar 08, 2017
Frequency
10 dB/div
Log
Ref 65.10 dBm
55.1
45.1
35.1
25.1
15.1
5.10
-4.90
-14.9
-24.9
Center 1.931 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 7.5 MHz
#Sweep 75 ms
Channel Power
46.98 dBm / 3 MHz
Power Spectral Density
-17.79 dBm /Hz
Center Freq
1.931100000 GHz
CF Step
750.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

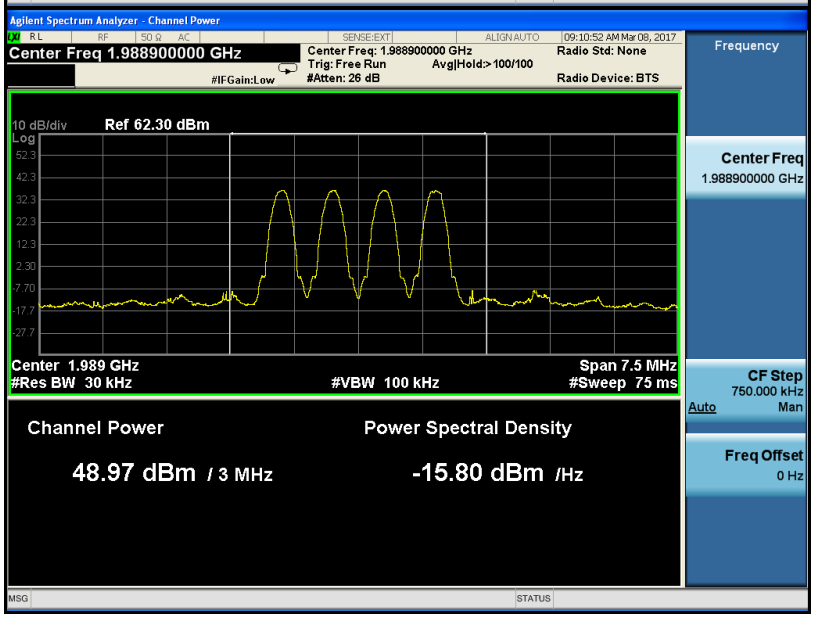

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.960900000 GHz
Center Freq: 1.960900000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
09:00:40 AM Mar 08, 2017
Frequency
10 dB/div
Log
Ref 60.00 dBm
50.0
40.0
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
Center 1.961 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 7.5 MHz
#Sweep 75 ms
Channel Power
47.07 dBm / 3 MHz
Power Spectral Density
-17.70 dBm /Hz
Center Freq
1.960900000 GHz
CF Step
750.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

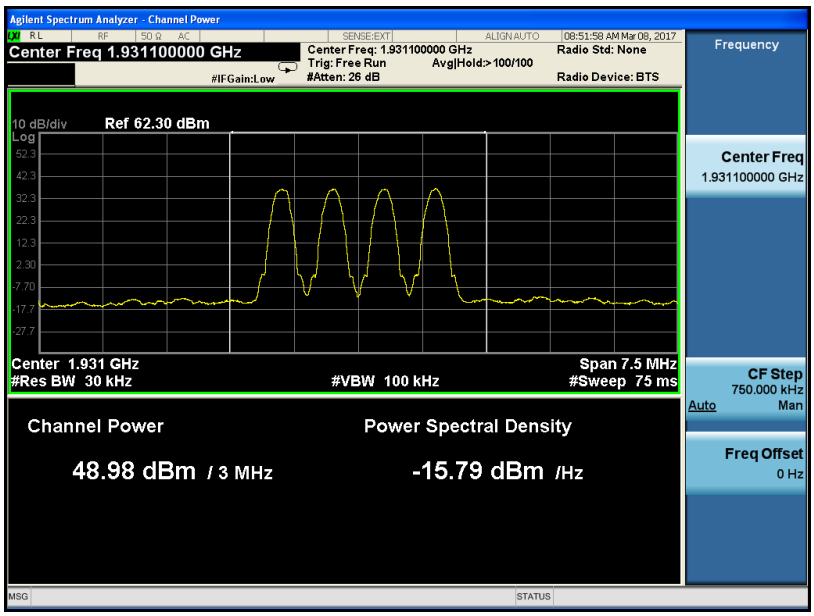


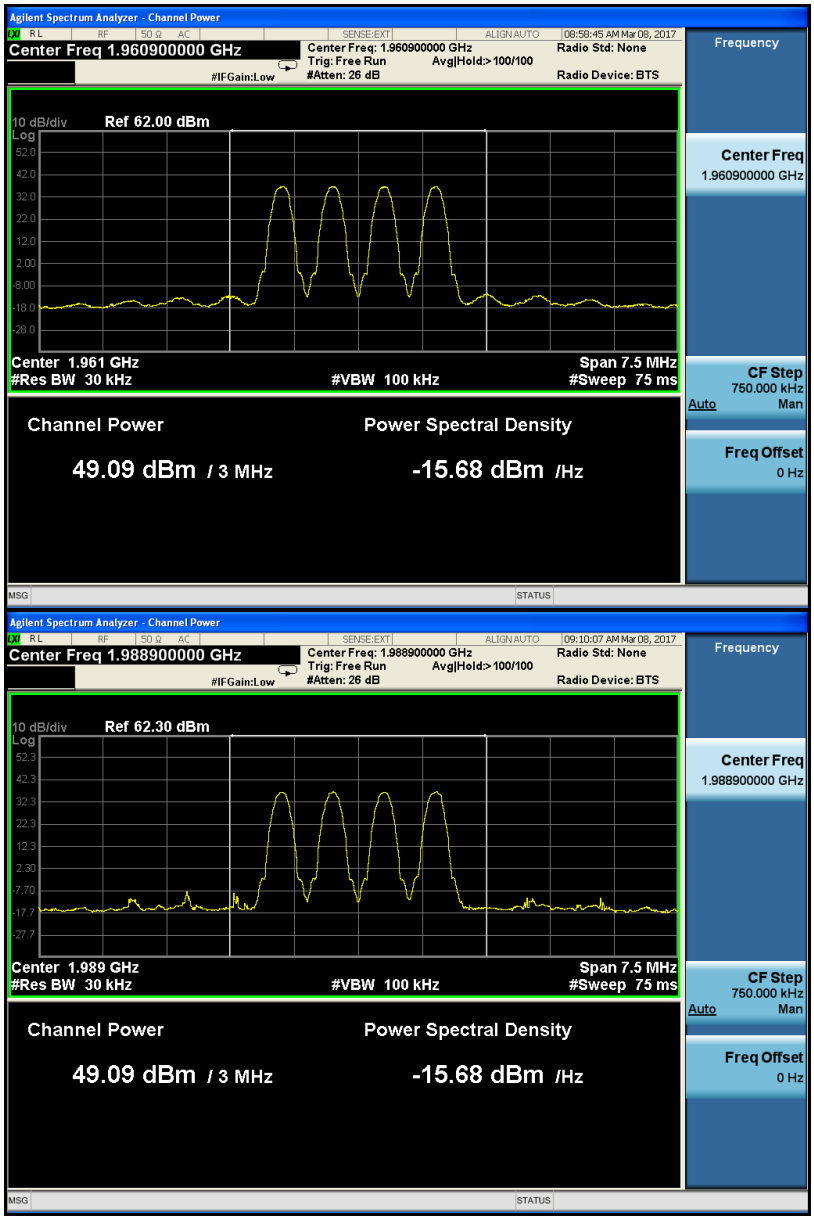
Port	modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
1	GMSK	1931.1	1930.2/1930.8/1931.4/1932	48.91
		1960.9	1960/1960.6/1961.2/1961.8	49.13
		1988.9	1988/1988.6/1989.2/1989.8	48.97
4	GMSK	1931.1	1930.2/1930.8/1931.4/1932	48.98
		1960.9	1960/1960.6/1961.2/1961.8	49.09
		1988.9	1988/1988.6/1989.2/1989.8	49.09




Agilent Spectrum Analyzer - Channel Power
Center Freq 1.960900000 GHz
Center Freq: 1.960900000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
08:58:38 AM Mar 08, 2017
Frequency
10 dB/div
Log
Ref 62.00 dBm
52.0
42.0
32.0
22.0
12.0
2.00
-8.00
-18.0
-28.0
Center 1.961 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 7.5 MHz
#Sweep 75 ms
Channel Power
49.13 dBm / 3 MHz
Power Spectral Density
-15.64 dBm /Hz
Center Freq
1.960900000 GHz
CF Step
750.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

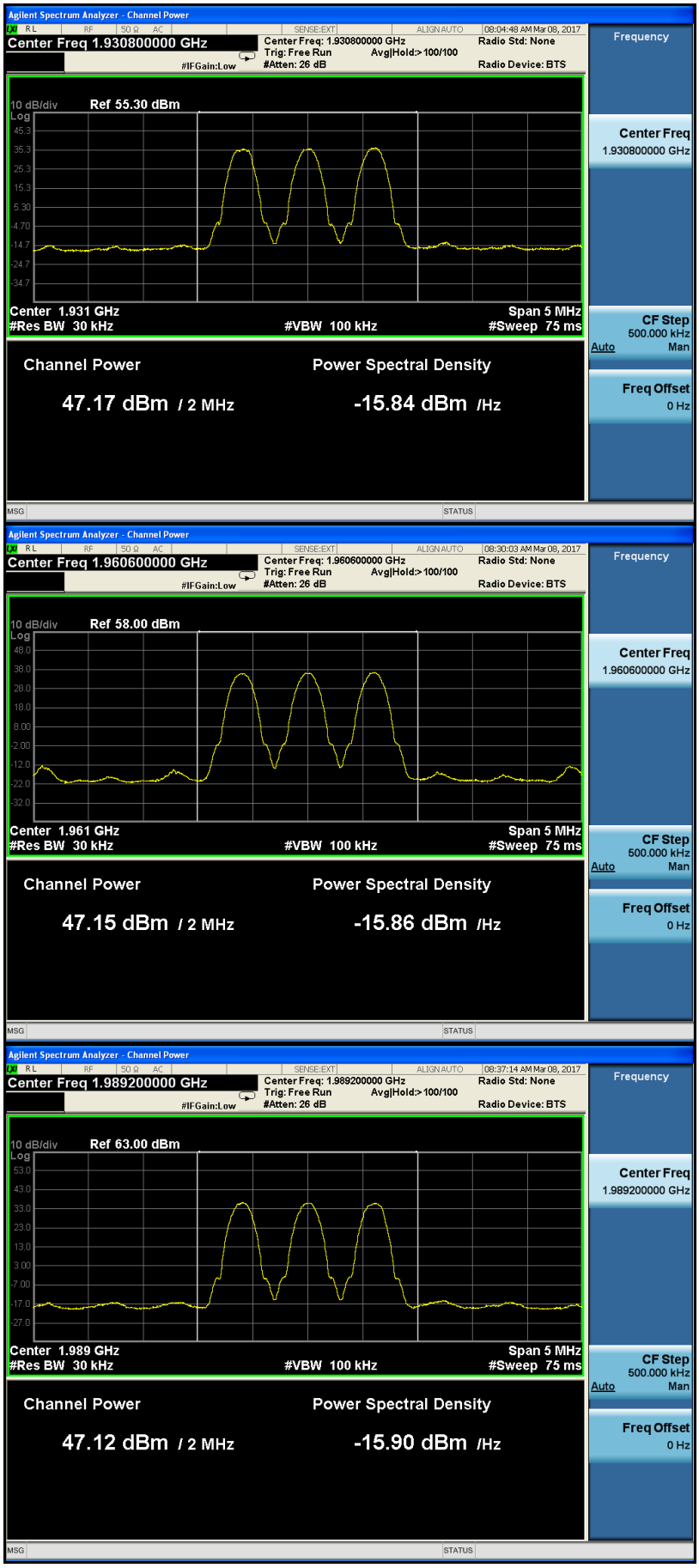

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.988900000 GHz
Center Freq: 1.988900000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
09:10:52 AM Mar 08, 2017
Frequency
10 dB/div
Log
Ref 62.30 dBm
52.3
42.3
32.3
22.3
12.3
2.30
-7.70
-17.7
-27.7
Center 1.989 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 7.5 MHz
#Sweep 75 ms
Channel Power
48.97 dBm / 3 MHz
Power Spectral Density
-15.80 dBm /Hz
Center Freq
1.988900000 GHz
CF Step
750.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

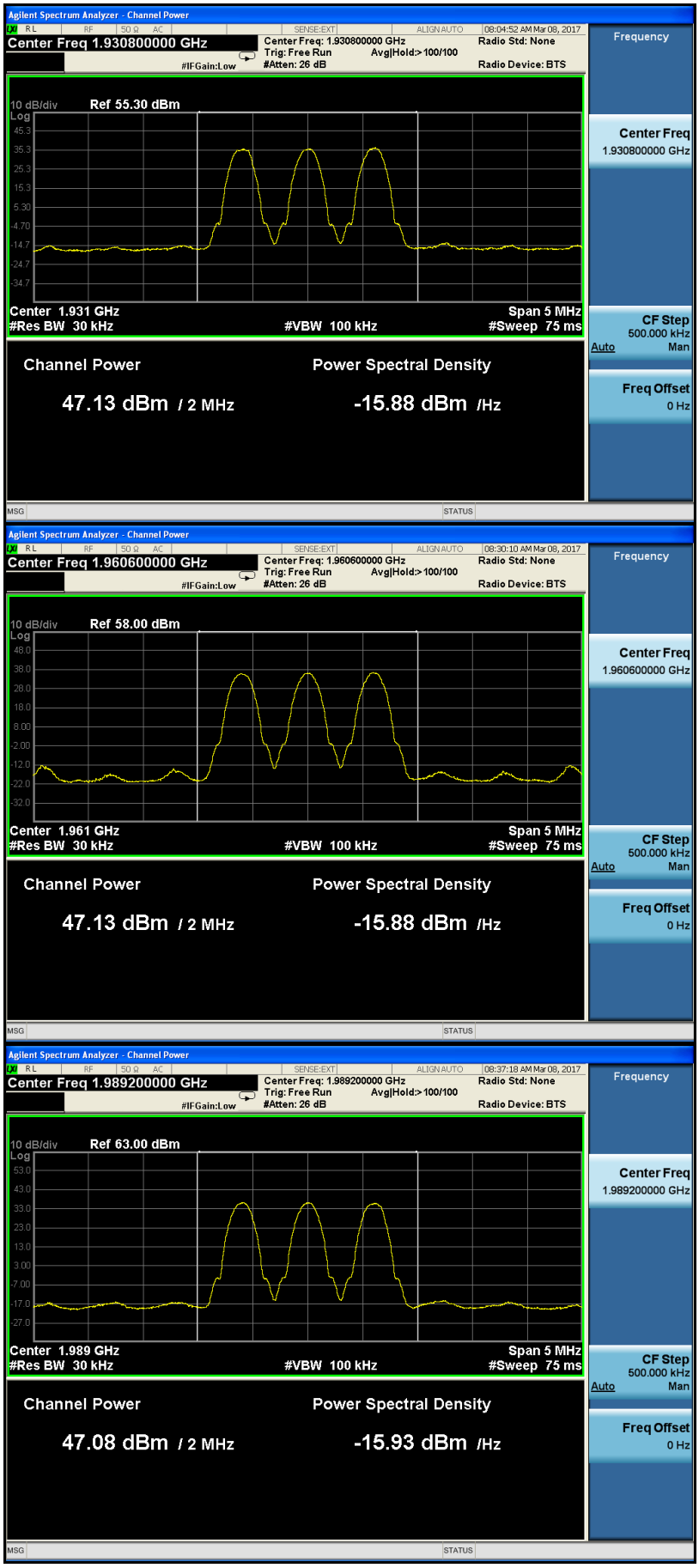

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.931100000 GHz
Center Freq: 1.931100000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
08:51:58 AM Mar 08, 2017
Frequency
10 dB/div
Log
Ref 62.30 dBm
52.3
42.3
32.3
22.3
12.3
2.30
-7.70
-17.7
-27.7
Center 1.931 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 7.5 MHz
#Sweep 75 ms
Channel Power
48.98 dBm / 3 MHz
Power Spectral Density
-15.79 dBm /Hz
Center Freq
1.931100000 GHz
CF Step
750.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS



Three carriers

Port	modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
1	8PSK	1930.8	1930.2/1930.8/1931.4	47.17
		1960.6	1960/1960.6/1961.2	47.15
		1989.2	1988.6/1989.2/1989.8	47.12
4	8PSK	1930.8	1930.2/1930.8/1931.4	47.13
		1960.6	1960/1960.6/1961.2	47.13
		1989.2	1988.6/1989.2/1989.8	47.08


Agilent Spectrum Analyzer - Channel Power
Center Freq 1.930800000 GHz
Center Freq: 1.930800000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
10 dB/div
Ref 55.30 dBm
Center 1.931 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
47.17 dBm / 2 MHz
Power Spectral Density
-15.84 dBm /Hz
Frequency
Center Freq
1.930800000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Agilent Spectrum Analyzer - Channel Power
Center Freq 1.960600000 GHz
Center Freq: 1.960600000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
10 dB/div
Ref 58.00 dBm
Center 1.961 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
47.15 dBm / 2 MHz
Power Spectral Density
-15.86 dBm /Hz
Frequency
Center Freq
1.960600000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Agilent Spectrum Analyzer - Channel Power
Center Freq 1.989200000 GHz
Center Freq: 1.989200000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
10 dB/div
Ref 63.00 dBm
Center 1.989 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
47.12 dBm / 2 MHz
Power Spectral Density
-15.90 dBm /Hz
Frequency
Center Freq
1.989200000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz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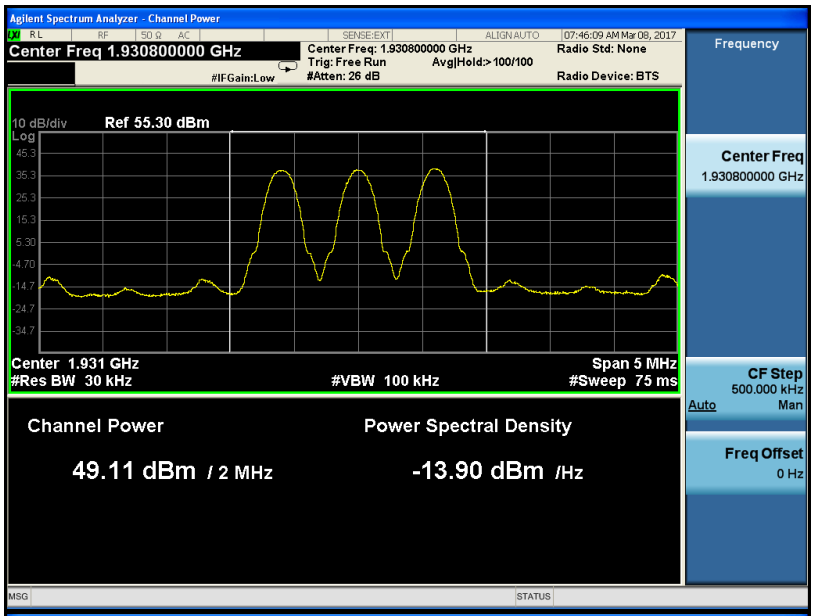
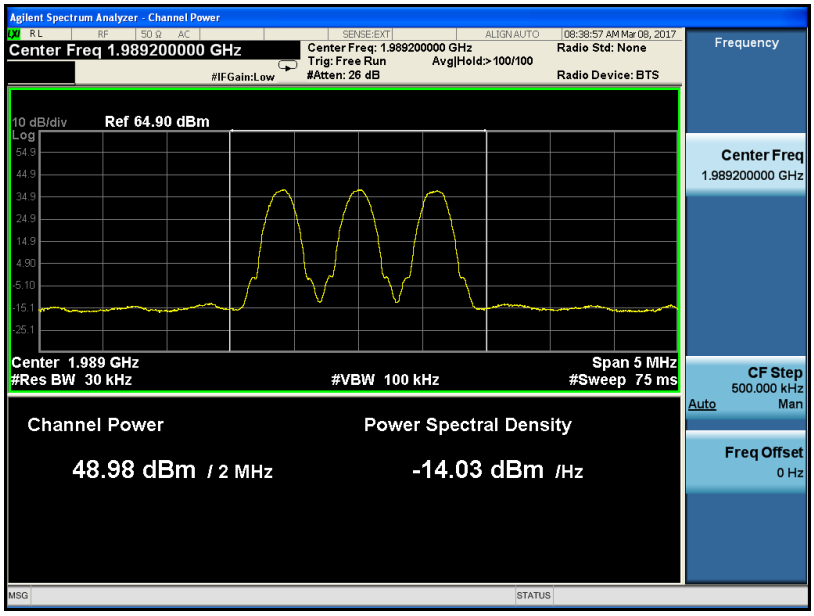
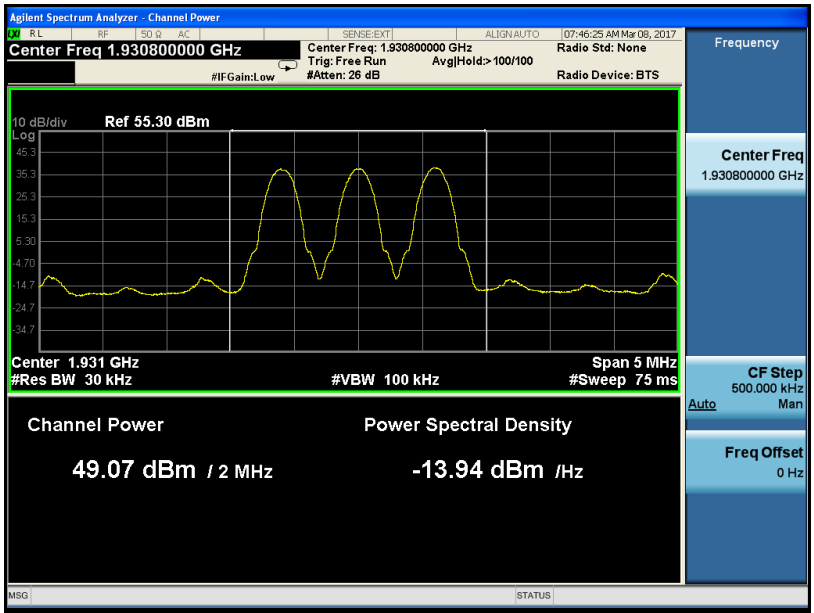
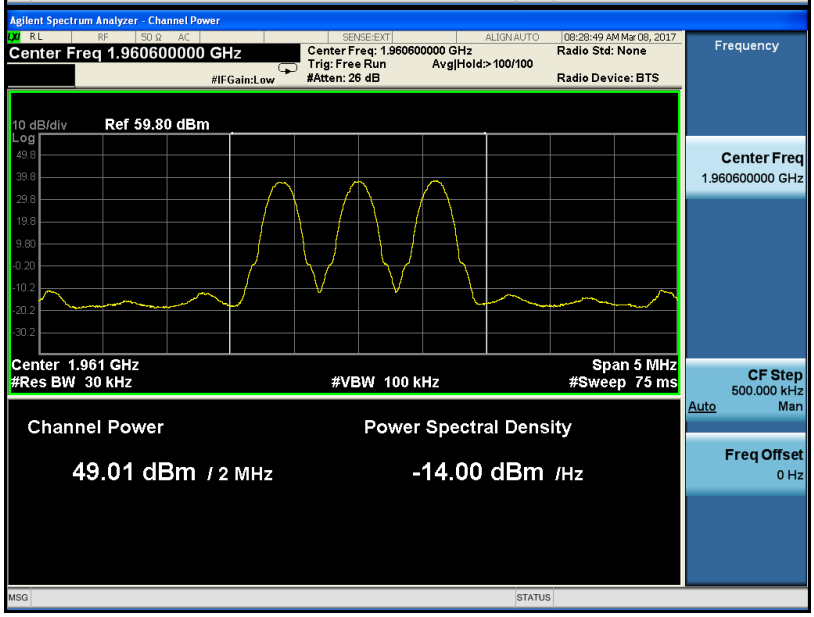
Center Freq 1.930800000 GHz
Center Freq: 1.930800000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
10 dB/div
Ref 55.30 dBm
Center 1.931 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
47.13 dBm / 2 MHz
Power Spectral Density
-15.88 dBm /Hz
Frequency
Center Freq
1.930800000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Agilent Spectrum Analyzer - Channel Power
Center Freq 1.960600000 GHz
Center Freq: 1.960600000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
10 dB/div
Ref 58.00 dBm
Center 1.961 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
47.13 dBm / 2 MHz
Power Spectral Density
-15.88 dBm /Hz
Frequency
Center Freq
1.960600000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Agilent Spectrum Analyzer - Channel Power
Center Freq 1.989200000 GHz
Center Freq: 1.989200000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
10 dB/div
Ref 63.00 dBm
Center 1.989 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
47.08 dBm / 2 MHz
Power Spectral Density
-15.93 dBm /Hz
Frequency
Center Freq
1.989200000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz

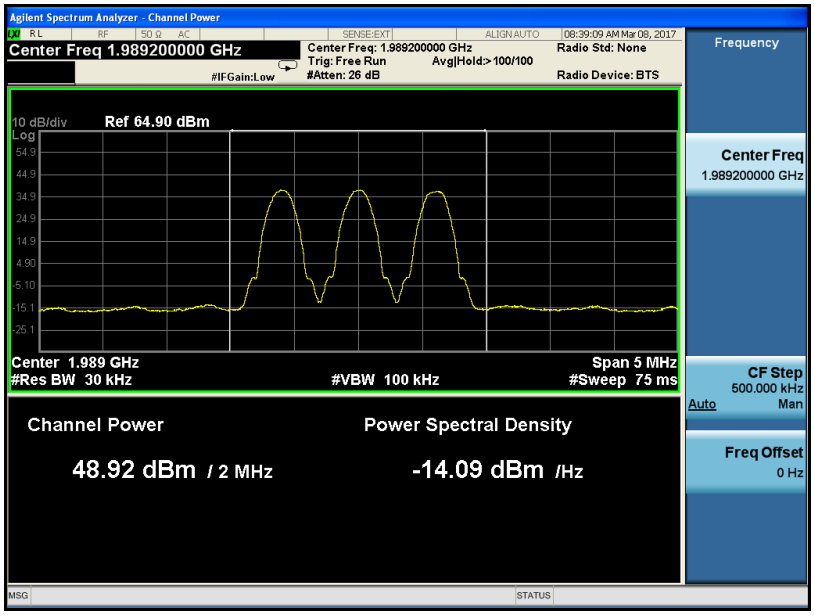
Port	modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
1	GMSK	1930.8	1930.2/1930.8/1931.4	49.11
		1960.6	1960/1960.6/1961.2	48.96
		1989.2	1988.6/1989.2/1989.8	48.98
4	GMSK	1930.8	1930.2/1930.8/1931.4	49.07
		1960.6	1960/1960.6/1961.2	49.01
		1989.2	1988.6/1989.2/1989.8	48.92




Agilent Spectrum Analyzer - Channel Power
Center Freq 1.989200000 GHz
Center Freq: 1.989200000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
08:38:57 AM Mar 08, 2017
10 dB/div
Log
Ref 64.90 dBm
Center 1.989 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
48.98 dBm / 2 MHz
Power Spectral Density
-14.03 dBm /Hz
Frequency
Center Freq
1.989200000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

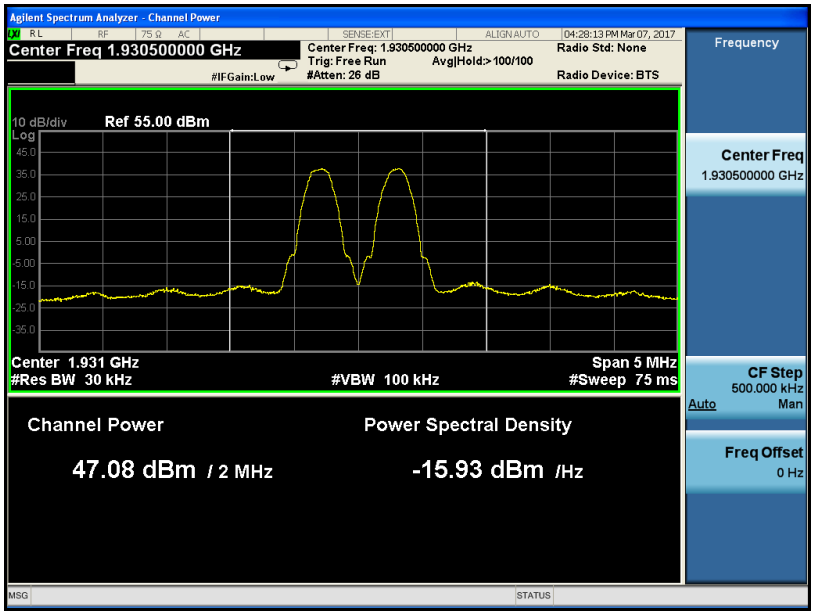

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.930800000 GHz
Center Freq: 1.930800000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
07:46:25 AM Mar 08, 2017
10 dB/div
Log
Ref 55.30 dBm
Center 1.931 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
49.07 dBm / 2 MHz
Power Spectral Density
-13.94 dBm /Hz
Frequency
Center Freq
1.930800000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

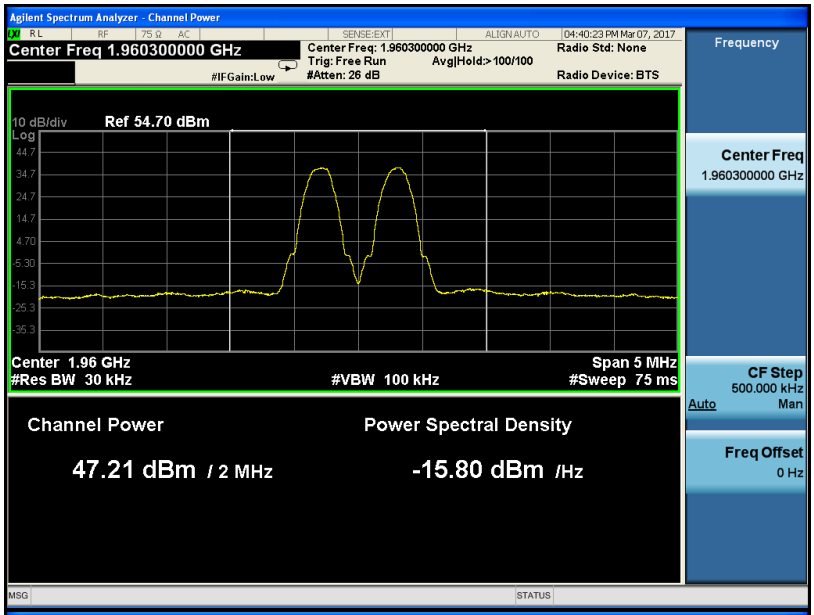

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.960600000 GHz
Center Freq: 1.960600000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
08:28:49 AM Mar 08, 2017
10 dB/div
Log
Ref 59.80 dBm
Center 1.961 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
49.01 dBm / 2 MHz
Power Spectral Density
-14.00 dBm /Hz
Frequency
Center Freq
1.960600000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

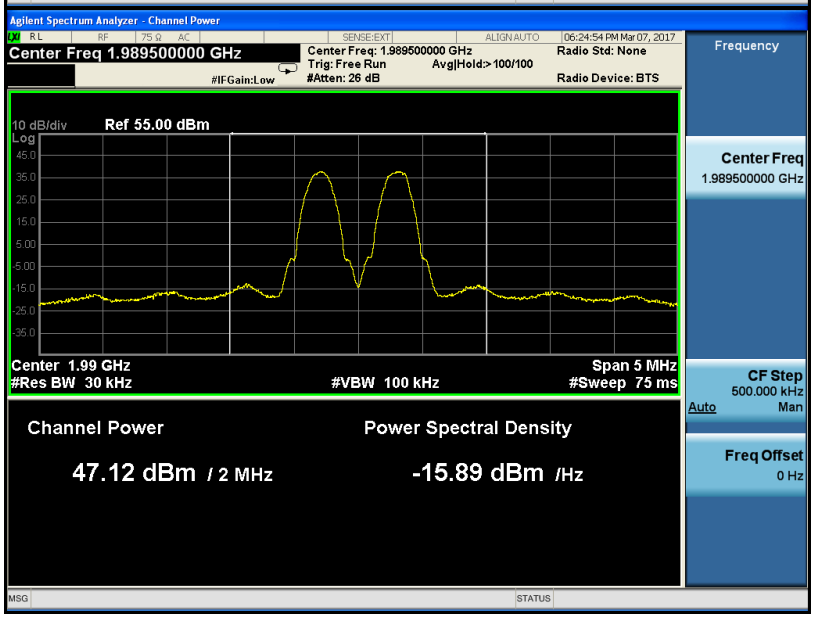


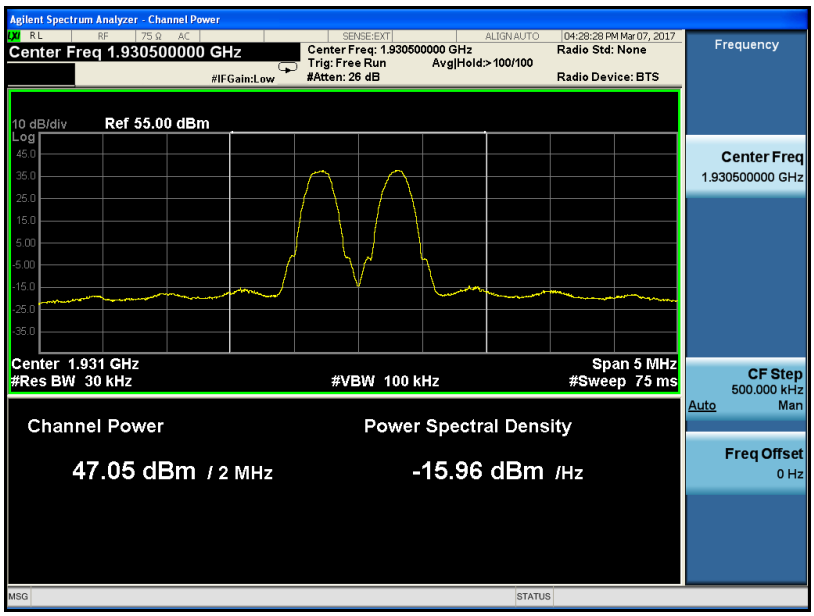
Two carriers

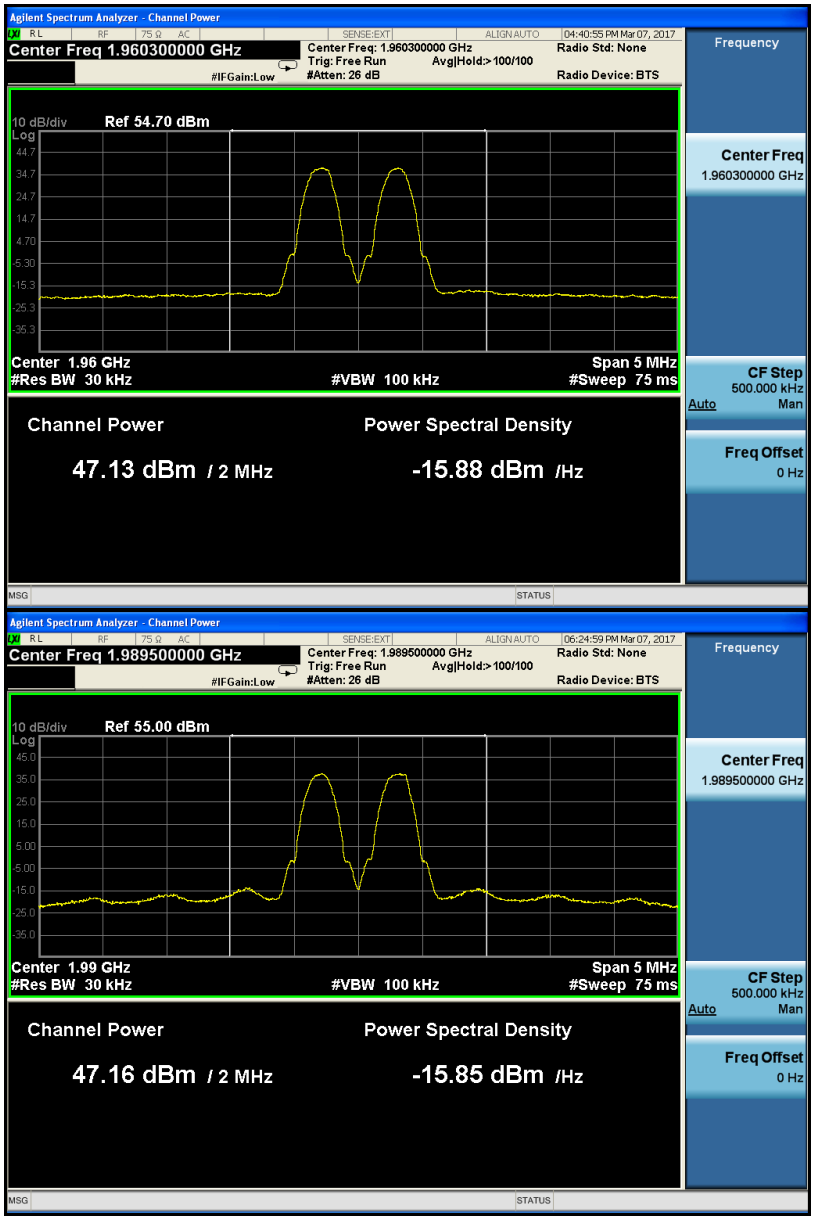
Port	modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
1	8PSK	1930.5	1930.2/1930.8	47.08
		1960.3	1960/1960.6	47.21
		1989.5	1989.2/1989.8	47.12
4	8PSK	1930.5	1930.2/1930.8	47.05
		1960.3	1960/1960.6	47.13
		1989.5	1989.2/1989.8	47.16



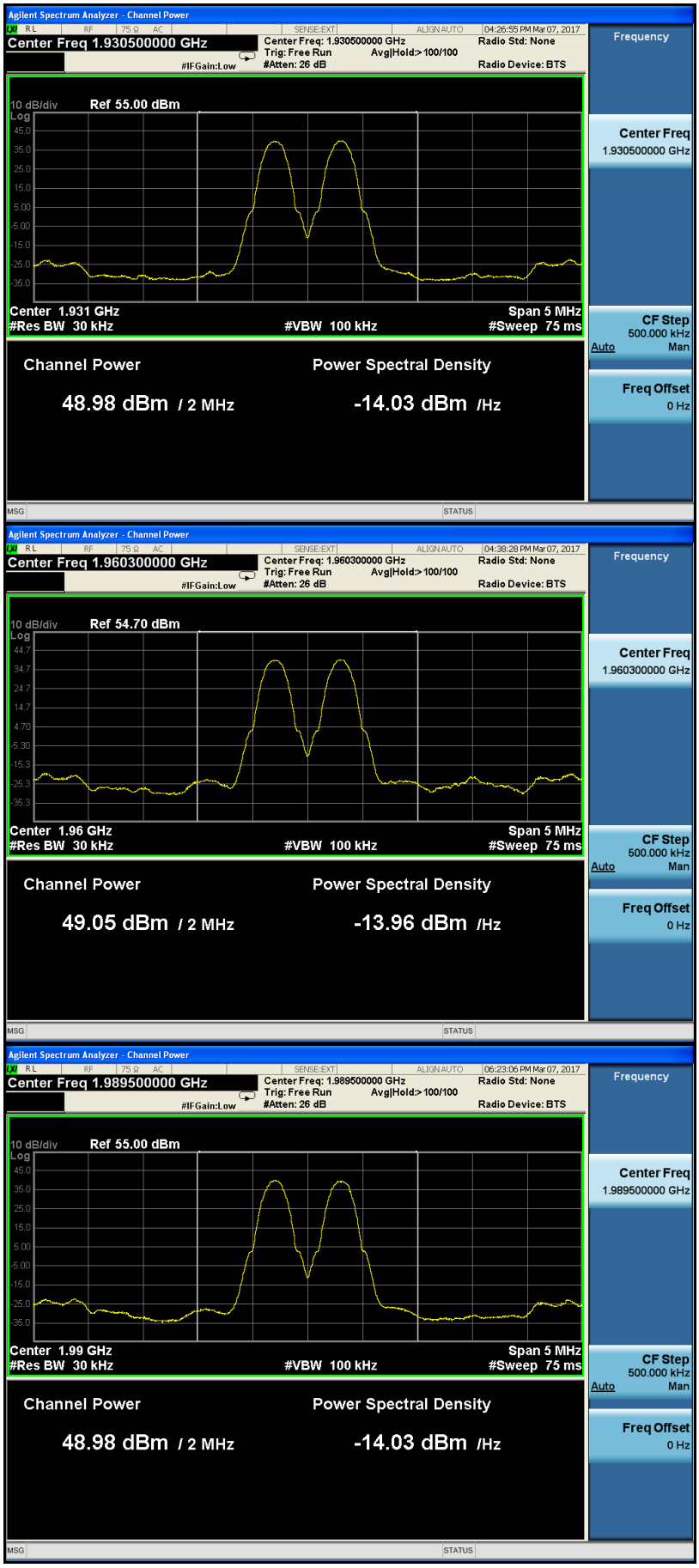

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.960300000 GHz
Center Freq: 1.960300000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
04:40:23 PM Mar 07, 2017
10 dB/div
Log
Ref 54.70 dBm
Center 1.96 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
47.21 dBm / 2 MHz
Power Spectral Density
-15.80 dBm /Hz
Frequency
Center Freq
1.960300000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

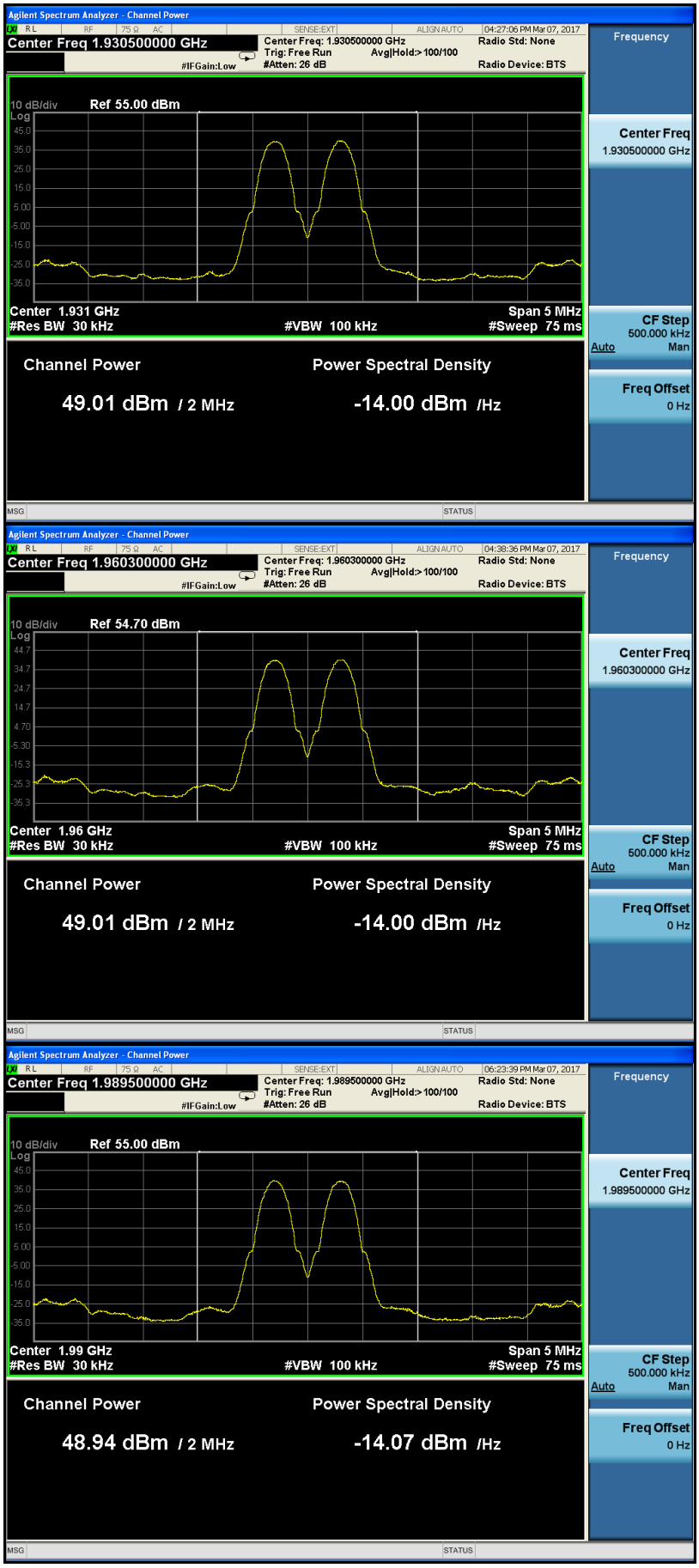

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.989500000 GHz
Center Freq: 1.989500000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
06:24:54 PM Mar 07, 2017
10 dB/div
Log
Ref 55.00 dBm
Center 1.99 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
47.12 dBm / 2 MHz
Power Spectral Density
-15.89 dBm /Hz
Frequency
Center Freq
1.989500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS


Agilent Spectrum Analyzer - Channel Power
Center Freq 1.930500000 GHz
Center Freq: 1.930500000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
04:28:28 PM Mar 07, 2017
10 dB/div
Log
Ref 55.00 dBm
Center 1.931 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
47.05 dBm / 2 MHz
Power Spectral Density
-15.96 dBm /Hz
Frequency
Center Freq
1.930500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS



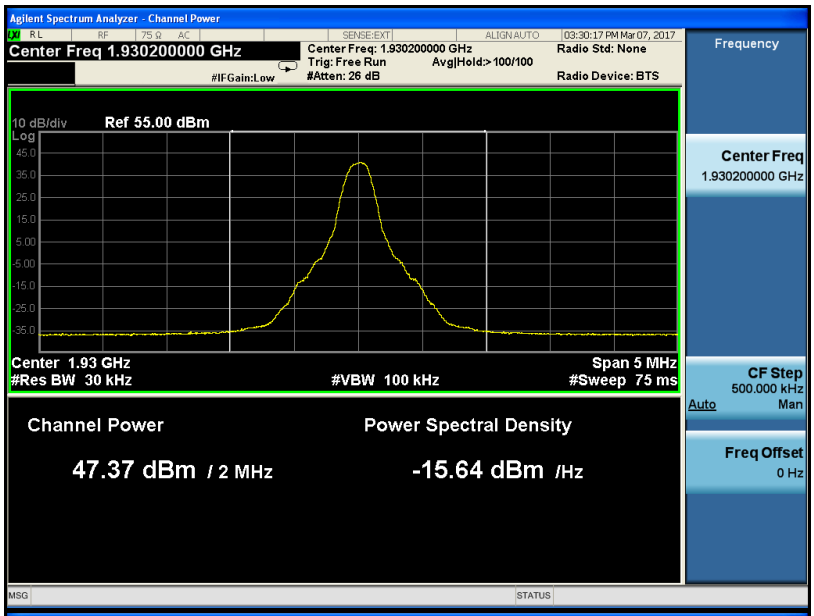
Port	modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
1	GMSK	1930.5	1930.2/1930.8	48.98
		1960.3	1960/1960.6	49.05
		1989.5	1989.2/1989.8	48.98
4	GMSK	1930.5	1930.2/1930.8	49.01
		1960.3	1960/1960.6	49.01
		1989.5	1989.2/1989.8	48.94

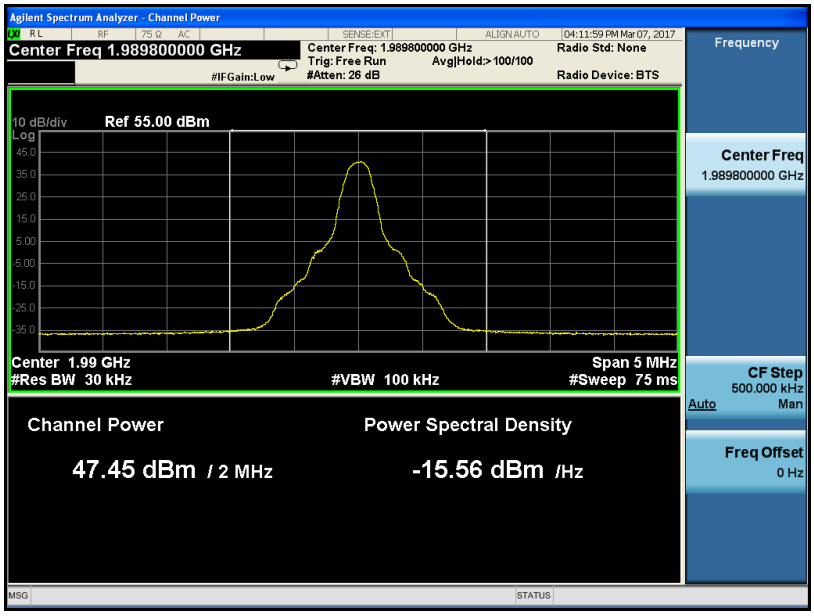

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.930500000 GHz
Center Freq: 1.930500000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
10 dB/div
Ref 55.00 dBm
Log
Center 1.931 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
48.98 dBm / 2 MHz
Power Spectral Density
-14.03 dBm /Hz
Frequency
Center Freq
1.930500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Agilent Spectrum Analyzer - Channel Power
Center Freq 1.960300000 GHz
Center Freq: 1.960300000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
10 dB/div
Ref 54.70 dBm
Log
Center 1.96 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
49.05 dBm / 2 MHz
Power Spectral Density
-13.96 dBm /Hz
Frequency
Center Freq
1.960300000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Agilent Spectrum Analyzer - Channel Power
Center Freq 1.989500000 GHz
Center Freq: 1.989500000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
10 dB/div
Ref 55.00 dBm
Log
Center 1.99 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
48.98 dBm / 2 MHz
Power Spectral Density
-14.03 dBm /Hz
Frequency
Center Freq
1.989500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz

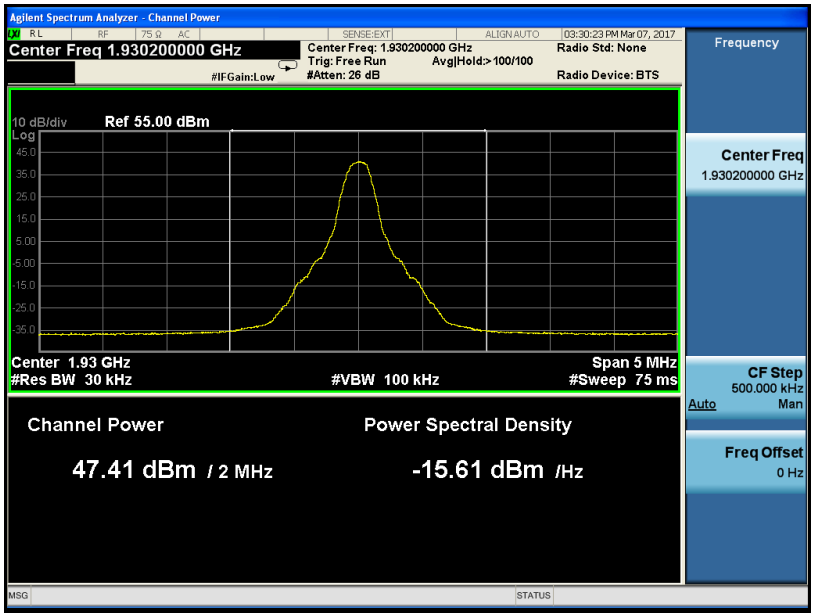

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.930500000 GHz
Center Freq: 1.930500000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
10 dB/div
Ref 55.00 dBm
Log
Center 1.931 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
49.01 dBm / 2 MHz
Power Spectral Density
-14.00 dBm /Hz
Frequency
Center Freq
1.930500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Agilent Spectrum Analyzer - Channel Power
Center Freq 1.960300000 GHz
Center Freq: 1.960300000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
10 dB/div
Ref 54.70 dBm
Log
Center 1.96 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
49.01 dBm / 2 MHz
Power Spectral Density
-14.00 dBm /Hz
Frequency
Center Freq
1.960300000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Agilent Spectrum Analyzer - Channel Power
Center Freq 1.989500000 GHz
Center Freq: 1.989500000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
10 dB/div
Ref 55.00 dBm
Log
Center 1.99 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
48.94 dBm / 2 MHz
Power Spectral Density
-14.07 dBm /Hz
Frequency
Center Freq
1.989500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz

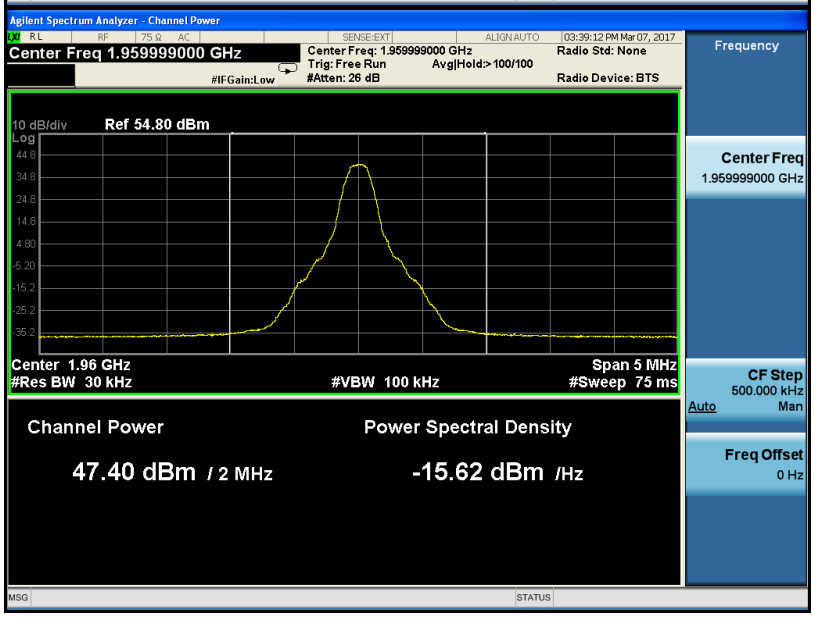
One carrier

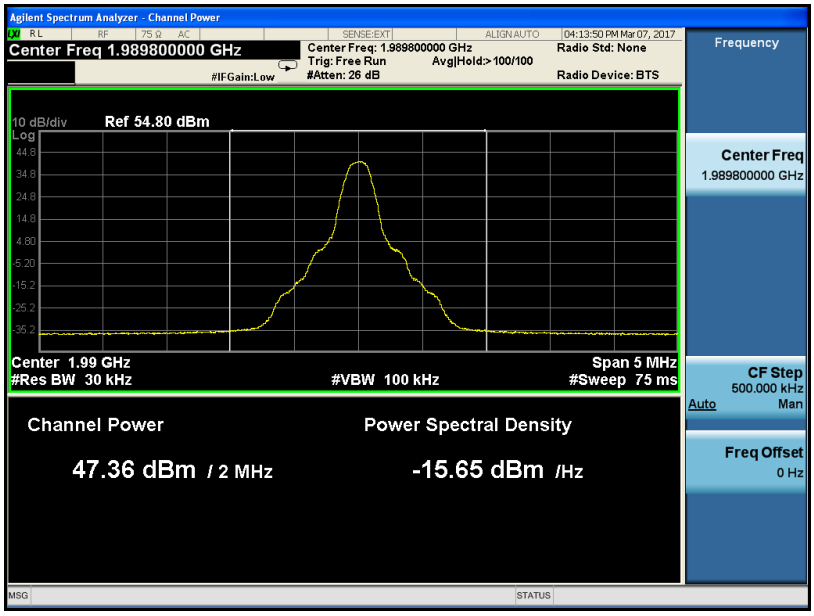
Port	modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
1	8PSK	1930.2	1930.2	47.37
		1960	1960	47.46
		1989.8	1989.8	47.45
4	8PSK	1930.2	1930.2	47.41
		1960	1960	47.40
		1989.8	1989.8	47.36



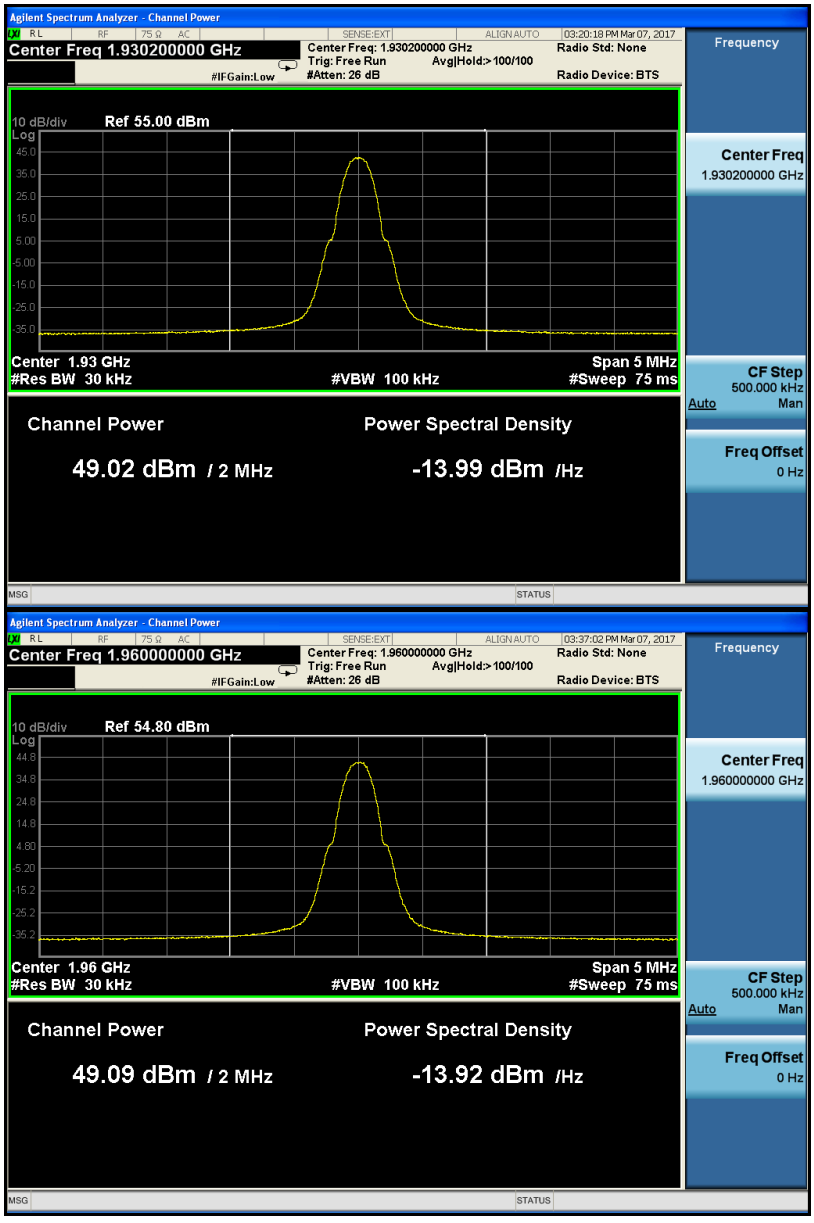

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.989800000 GHz
Center Freq: 1.989800000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
04:11:59 PM Mar 07, 2017
Frequency
10 dB/div
Ref 55.00 dBm
Log
45.0
35.0
25.0
15.0
5.00
-5.00
-15.0
-25.0
-35.0
Center 1.99 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
47.45 dBm / 2 MHz
Power Spectral Density
-15.56 dBm /Hz
Center Freq
1.989800000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

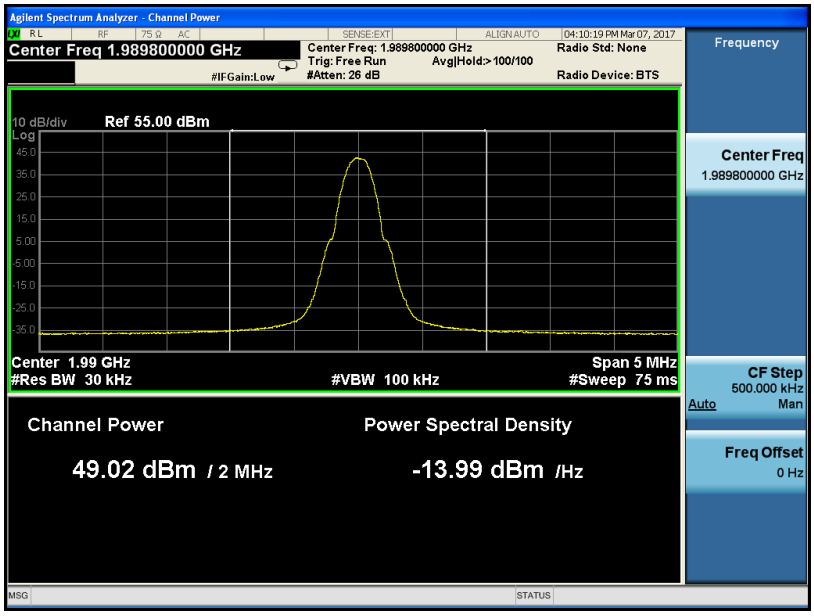

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.930200000 GHz
Center Freq: 1.930200000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
03:30:23 PM Mar 07, 2017
Frequency
10 dB/div
Ref 55.00 dBm
Log
45.0
35.0
25.0
15.0
5.00
-5.00
-15.0
-25.0
-35.0
Center 1.93 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
47.41 dBm / 2 MHz
Power Spectral Density
-15.61 dBm /Hz
Center Freq
1.930200000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

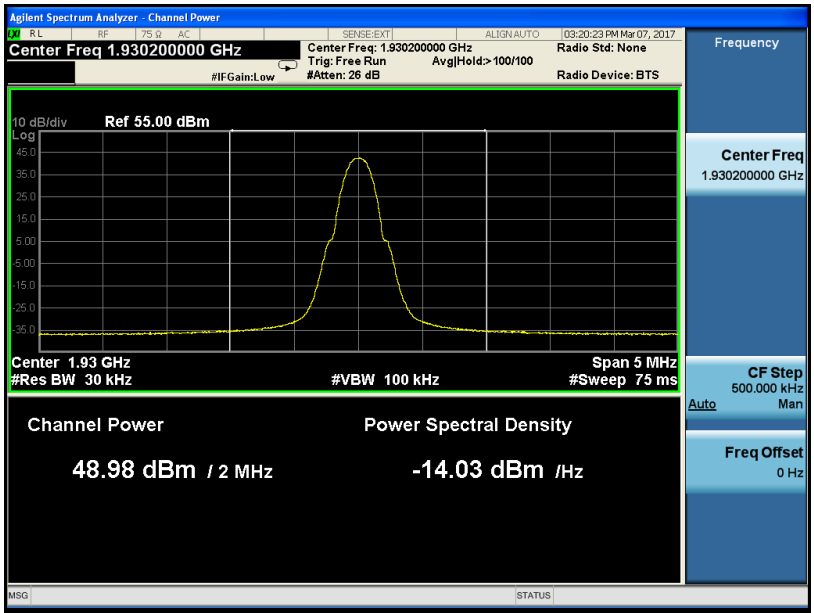

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.959999000 GHz
Center Freq: 1.959999000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
03:39:12 PM Mar 07, 2017
Frequency
10 dB/div
Ref 54.80 dBm
Log
44.8
34.8
24.8
14.8
4.80
-5.20
-15.2
-25.2
-35.2
Center 1.96 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
47.40 dBm / 2 MHz
Power Spectral Density
-15.62 dBm /Hz
Center Freq
1.959999000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

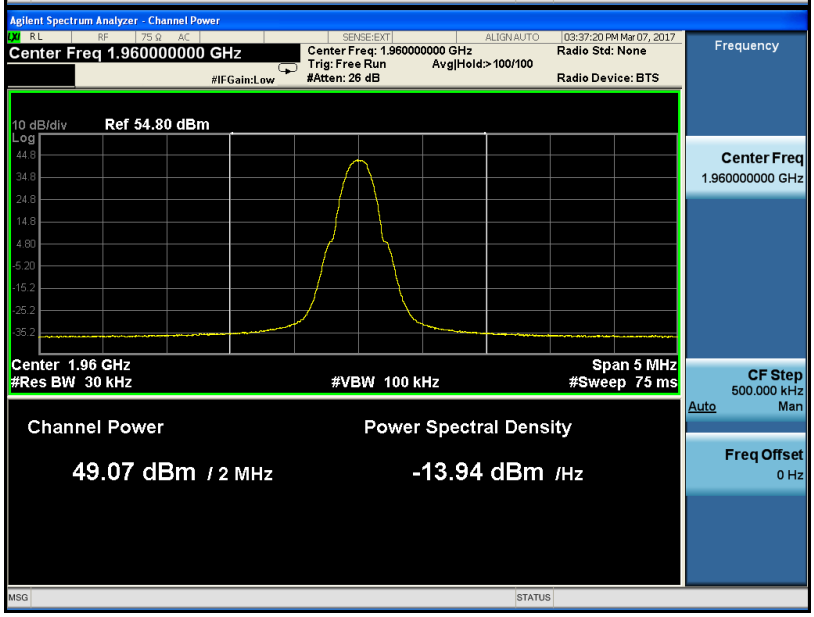

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.989800000 GHz
#IFGain:Low
Center Freq: 1.989800000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
04:13:50 PM Mar 07, 2017
Frequency
10 dB/div
Log
Ref 54.80 dBm
44.8
34.8
24.8
14.8
4.80
-5.20
-15.2
-25.2
-35.2
Center 1.99 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
47.36 dBm / 2 MHz
Power Spectral Density
-15.65 dBm /Hz
Center Freq
1.989800000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

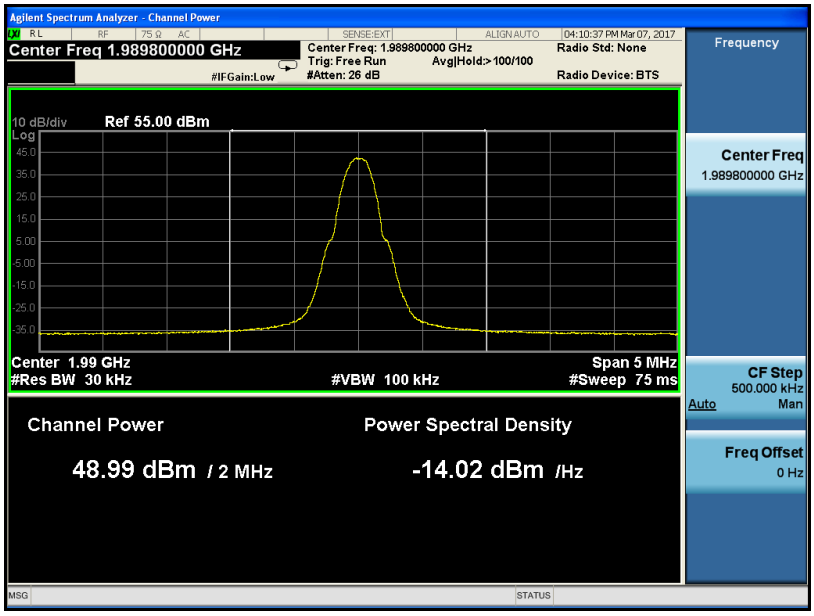
Port	modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
1	GMSK	1930.2	1930.2	49.02
		1960	1960	49.09
		1989.8	1989.8	49.02
4	GMSK	1930.2	1930.2	48.98
		1960	1960	49.07
		1989.8	1989.8	48.99




Agilent Spectrum Analyzer - Channel Power
Center Freq 1.989800000 GHz
Center Freq: 1.989800000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
04:10:19 PM Mar 07, 2017
Frequency
10 dB/div
Log
Ref 55.00 dBm
45.0
35.0
25.0
15.0
5.00
-5.00
-15.0
-25.0
-35.0
Center 1.99 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
49.02 dBm / 2 MHz
Power Spectral Density
-13.99 dBm /Hz
Center Freq
1.989800000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS


Agilent Spectrum Analyzer - Channel Power
Center Freq 1.930200000 GHz
Center Freq: 1.930200000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
03:20:23 PM Mar 07, 2017
Frequency
10 dB/div
Log
Ref 55.00 dBm
45.0
35.0
25.0
15.0
5.00
-5.00
-15.0
-25.0
-35.0
Center 1.93 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
48.98 dBm / 2 MHz
Power Spectral Density
-14.03 dBm /Hz
Center Freq
1.930200000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS


Agilent Spectrum Analyzer - Channel Power
Center Freq 1.960000000 GHz
Center Freq: 1.960000000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
03:37:20 PM Mar 07, 2017
Frequency
10 dB/div
Log
Ref 54.80 dBm
44.8
34.8
24.8
14.8
4.80
-5.20
-15.2
-25.2
-35.2
Center 1.96 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
49.07 dBm / 2 MHz
Power Spectral Density
-13.94 dBm /Hz
Center Freq
1.960000000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS


Agilent Spectrum Analyzer - Channel Power
Center Freq 1.989800000 GHz
#IFGain:Low
Center Freq: 1.989800000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
04:10:37 PM Mar 07, 2017
Frequency
10 dB/div
Log
Ref 55.00 dBm
45.0
35.0
25.0
15.0
5.00
-5.00
-15.0
-25.0
-35.0
Center 1.99 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
48.99 dBm / 2 MHz
Power Spectral Density
-14.02 dBm /Hz
Center Freq
1.989800000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

7 RF EXPLOSURE

7.1 Applicable standard: FCC §2.1091 and §1.1037

7.2 Limit

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated. Limits for Maximum Permissible Exposure (MPE)

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

7.3 Test Data

Predication of MPE limit at a given distance
Equation from page 18 of OET Bulletin 65, Edition 97-01
$S = EIRP/ 4\pi R^2$
Where: S = power density
R = distance to the center of radiation of the antenna= $[EIRP /4\pi S]^{1/2}$

According to §24.232, the equivalent isotropically radiated power (EIRP) of base transmitters and cellular repeaters must not exceed 1640 Watts.
Frequency 1990MHz is between 1500MHz and 100,000MHz, and the Maximum S=1mW/cm2

⇨ R=3.61m.

This equipment should be installed and operated with minimum distance 3.61m between the radiator& your body.

7.4 Test Result: pass

8 MODULATION CHARACTERISTIC

8.1 Applicable Standard: FCC §2.1047

8.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY52090182	2016-6-27	2017-6-27
DTS	DTS100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

*__statement of traceability:__ ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

8.3 Test Procedure

GSM digital mode is used by EUT.

8.4 Test Data Environmental Conditions

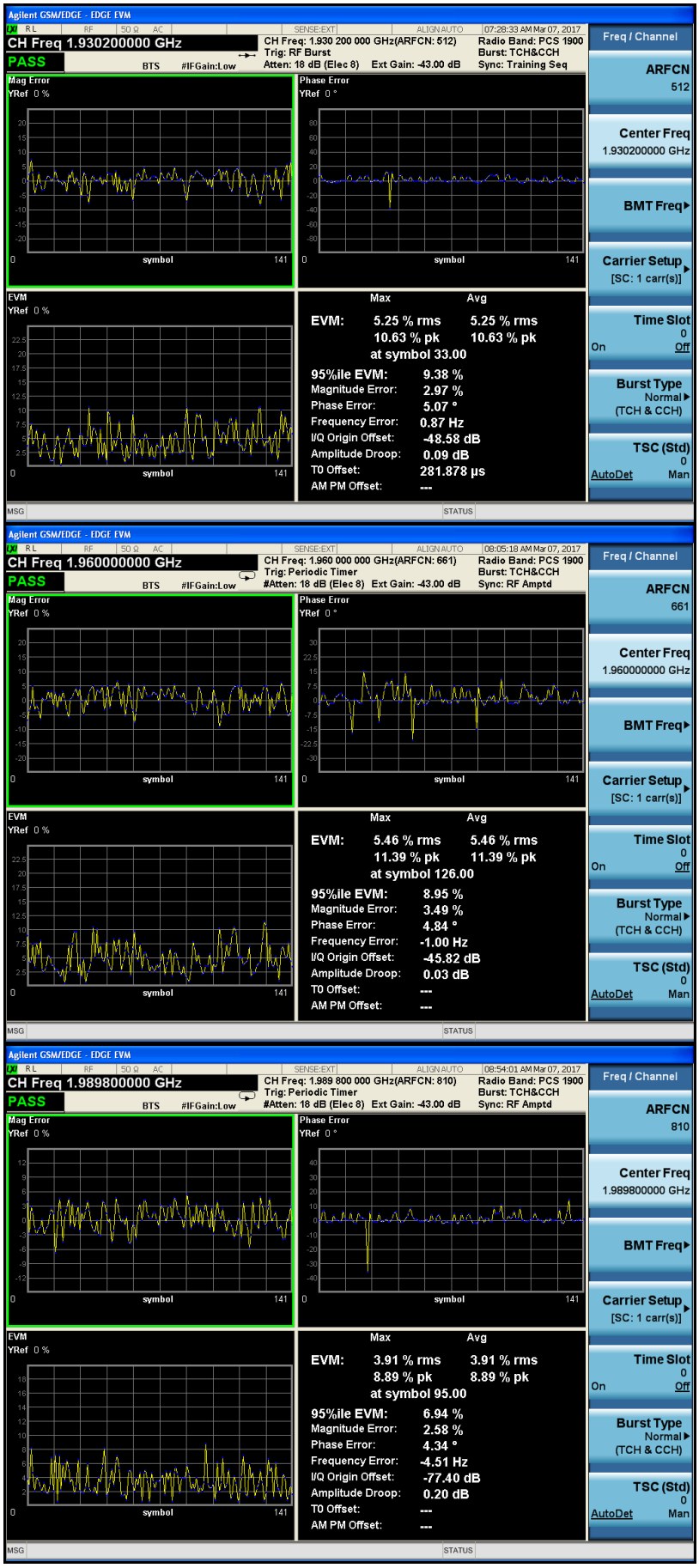
Temperature:	20 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

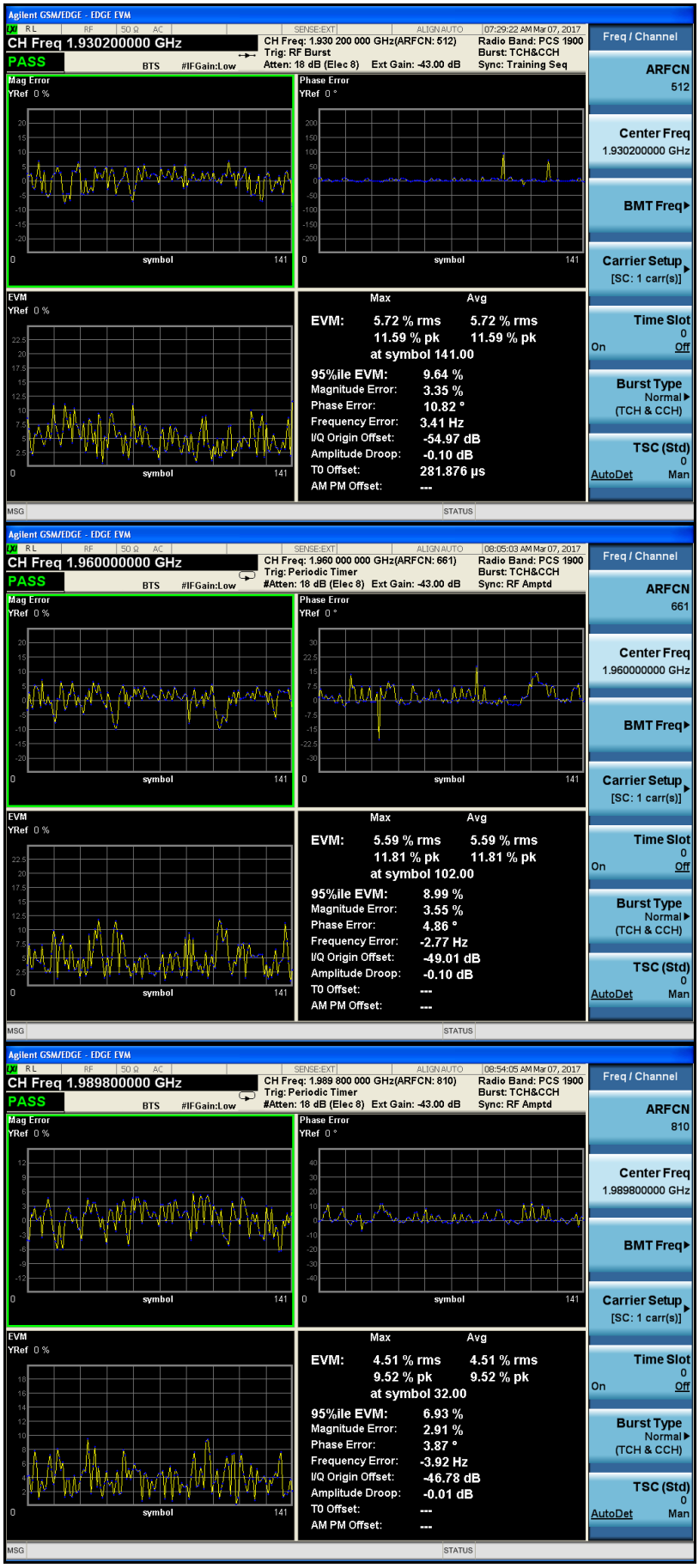
8.5 Test Result: Pass

8.6 Test Mode: Transmitting GSM

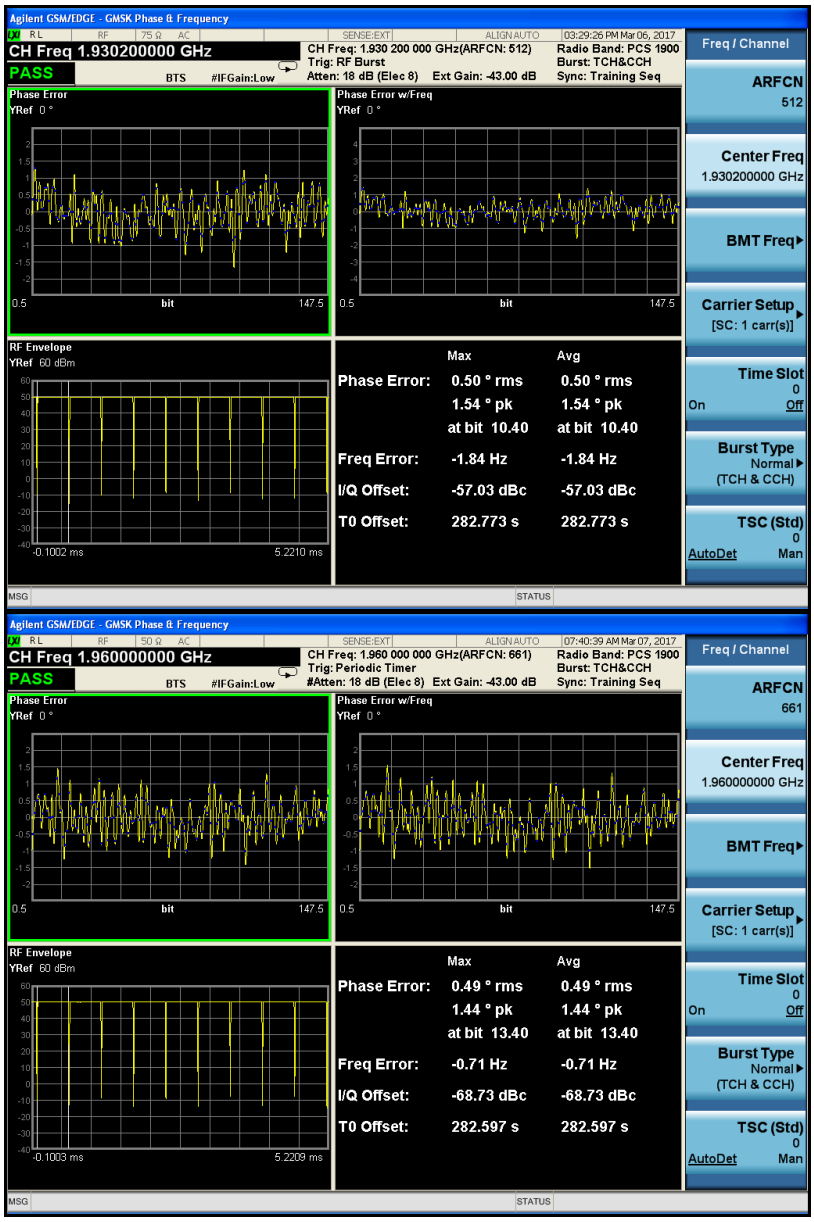
8.7 Test Data:

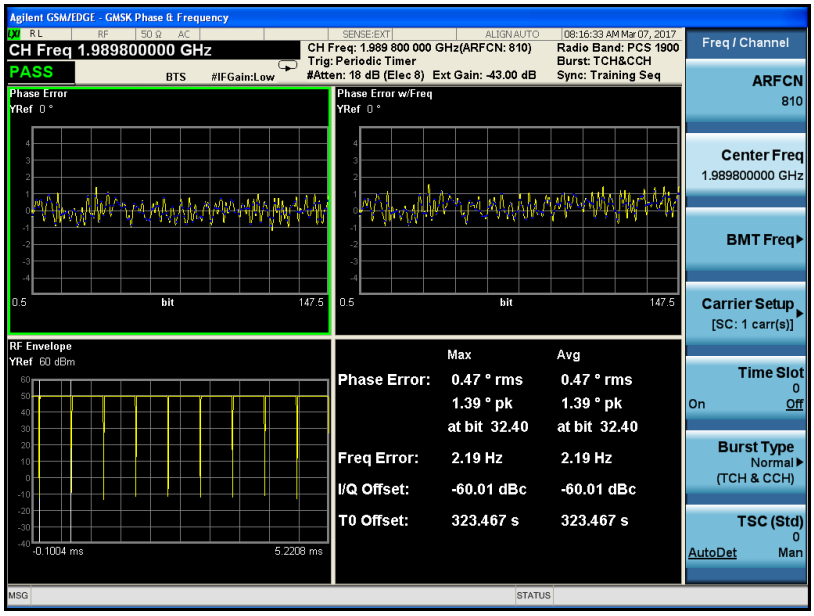
Port	Modulation	Frequency (MHz)	EVM
1	8PSK	1930.2	5.25%
		1960	5.46%
		1989.8	3.91%
4	8PSK	1930.2	5.72%
		1960	5.59%
		1989.8	4.51%

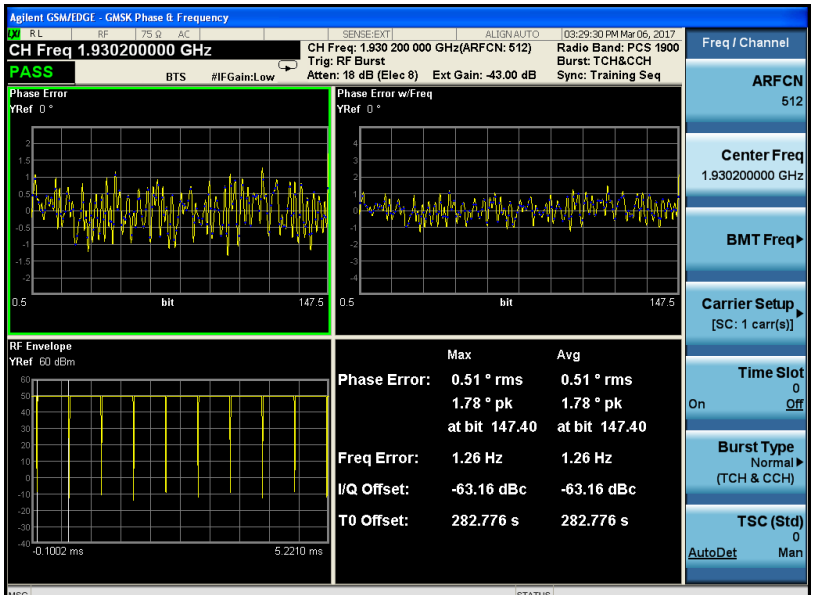

Agilent GSM/EDGE - EDGE EVM
CH Freq 1.930200000 GHz
PASS
CH Freq: 1.930 200 000 GHz(ARFCN: 512)
Trig: RF Burst
Atten: 18 dB (Elec 8) Ext Gain: -43.00 dB
Radio Band: PCS 1900
Burst: TCH&CCH
Sync: Training Seq
Mag Error
Phase Error
EVM
Max Avg
EVM: 5.25 % rms 5.25 % rms
10.63 % pk 10.63 % pk
at symbol 33.00
95%ile EVM: 9.38 %
Magnitude Error: 2.97 %
Phase Error: 5.07 °
Frequency Error: 0.87 Hz
I/Q Origin Offset: -48.58 dB
Amplitude Droop: 0.09 dB
T0 Offset: 281.878 µs
AM PM Offset: ---
Freq / Channel
ARFCN 512
Center Freq 1.930200000 GHz
BMT Freq
Carrier Setup [SC: 1 carr(s)]
Time Slot 0
Burst Type Normal (TCH & CCH)
TSC (Std) 0
AutoDet Man
Agilent GSM/EDGE - EDGE EVM
CH Freq 1.960000000 GHz
PASS
CH Freq: 1.960 000 000 GHz(ARFCN: 661)
Trig: Periodic Timer
#Atten: 18 dB (Elec 8) Ext Gain: -43.00 dB
Radio Band: PCS 1900
Burst: TCH&CCH
Sync: RF Amptd
EVM: 5.46 % rms 5.46 % rms
11.39 % pk 11.39 % pk
at symbol 126.00
95%ile EVM: 8.95 %
Magnitude Error: 3.49 %
Phase Error: 4.84 °
Frequency Error: -1.00 Hz
I/Q Origin Offset: -45.82 dB
Amplitude Droop: 0.03 dB
T0 Offset: ---
AM PM Offset: ---
ARFCN 661
Center Freq 1.960000000 GHz
Agilent GSM/EDGE - EDGE EVM
CH Freq 1.989800000 GHz
PASS
CH Freq: 1.989 800 000 GHz(ARFCN: 810)
Trig: Periodic Timer
#Atten: 18 dB (Elec 8) Ext Gain: -43.00 dB
Radio Band: PCS 1900
Burst: TCH&CCH
Sync: RF Amptd
EVM: 3.91 % rms 3.91 % rms
8.89 % pk 8.89 % pk
at symbol 95.00
95%ile EVM: 6.94 %
Magnitude Error: 2.58 %
Phase Error: 4.34 °
Frequency Error: -4.51 Hz
I/Q Origin Offset: -77.40 dB
Amplitude Droop: 0.20 dB
T0 Offset: ---
AM PM Offset: ---
ARFCN 810
Center Freq 1.989800000 GHz
symbol
MSG
STATUS

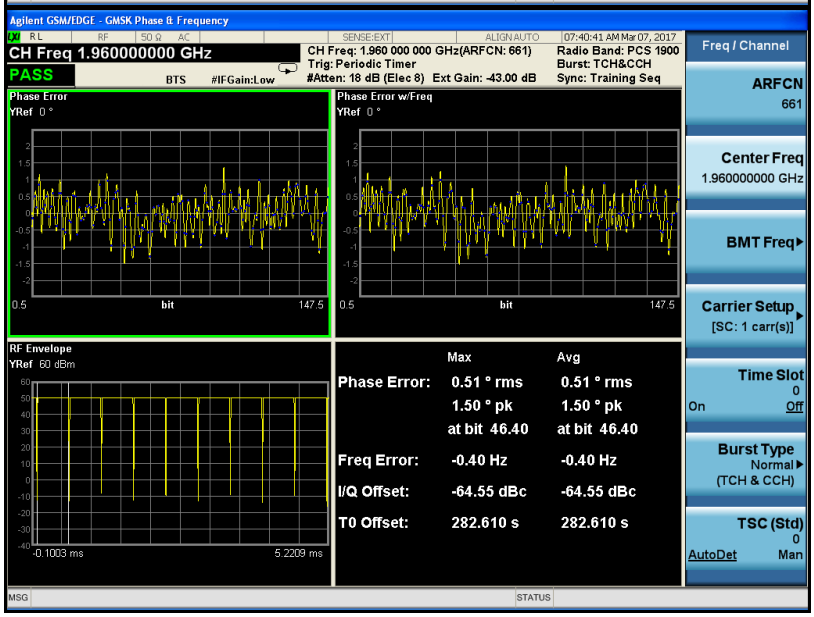

Agilent GSM/EDGE - EDGE EVM
CH Freq 1.930200000 GHz
PASS
CH Freq: 1.930 200 000 GHz(ARFCN: 512)
Trig: RF Burst
Atten: 18 dB (Elec 8) Ext Gain: -43.00 dB
Radio Band: PCS 1900
Burst: TCH&CCH
Sync: Training Seq
Mag Error
Phase Error
EVM
Max Avg
EVM: 5.72 % rms 5.72 % rms
11.59 % pk 11.59 % pk
at symbol 141.00
95%ile EVM: 9.64 %
Magnitude Error: 3.35 %
Phase Error: 10.82 °
Frequency Error: 3.41 Hz
I/Q Origin Offset: -54.97 dB
Amplitude Droop: -0.10 dB
T0 Offset: 281.876 µs
AM PM Offset: ---
Freq / Channel
ARFCN 512
Center Freq 1.930200000 GHz
BMT Freq
Carrier Setup [SC: 1 carr(s)]
Time Slot 0
Burst Type Normal (TCH & CCH)
TSC (Std) 0
AutoDet Man
Agilent GSM/EDGE - EDGE EVM
CH Freq 1.960000000 GHz
PASS
CH Freq: 1.960 000 000 GHz(ARFCN: 661)
Trig: Periodic Timer
#Atten: 18 dB (Elec 8) Ext Gain: -43.00 dB
Radio Band: PCS 1900
Burst: TCH&CCH
Sync: RF Amptd
EVM: 5.59 % rms 5.59 % rms
11.81 % pk 11.81 % pk
at symbol 102.00
95%ile EVM: 8.99 %
Magnitude Error: 3.55 %
Phase Error: 4.86 °
Frequency Error: -2.77 Hz
I/Q Origin Offset: -49.01 dB
Amplitude Droop: -0.10 dB
T0 Offset: ---
AM PM Offset: ---
ARFCN 661
Center Freq 1.960000000 GHz
Agilent GSM/EDGE - EDGE EVM
CH Freq 1.989800000 GHz
PASS
CH Freq: 1.989 800 000 GHz(ARFCN: 810)
Trig: Periodic Timer
#Atten: 18 dB (Elec 8) Ext Gain: -43.00 dB
Radio Band: PCS 1900
Burst: TCH&CCH
Sync: RF Amptd
EVM: 4.51 % rms 4.51 % rms
9.52 % pk 9.52 % pk
at symbol 32.00
95%ile EVM: 6.93 %
Magnitude Error: 2.91 %
Phase Error: 3.87 °
Frequency Error: -3.92 Hz
I/Q Origin Offset: -46.78 dB
Amplitude Droop: -0.01 dB
T0 Offset: ---
AM PM Offset: ---
ARFCN 810
Center Freq 1.989800000 GHz
MSG
STATUS

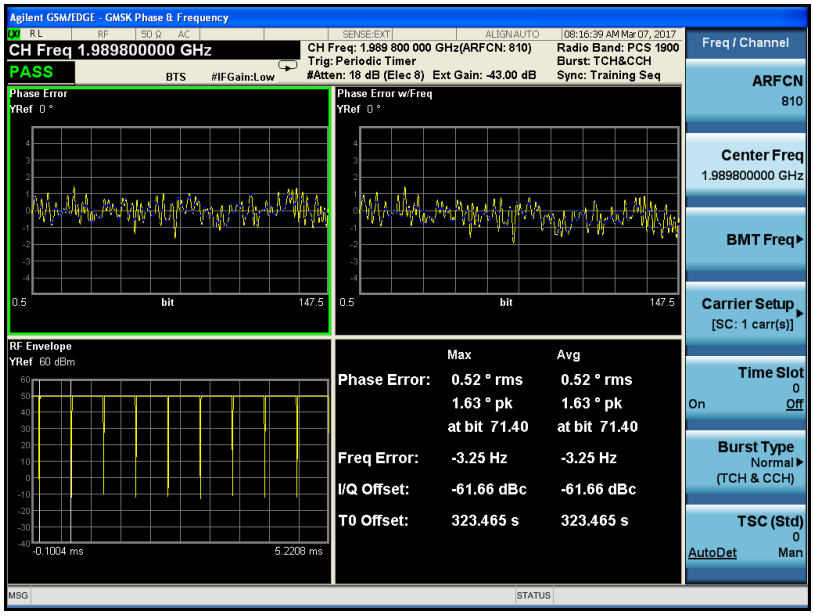
Port	Modulation	Frequency (MHz)	Phase Error(°)	Frequency Error(Hz)
1	GMSK	1930.2	0.50	-1.84
		1960	0.49	-0.71
		1989.8	0.47	2.19
4	GMSK	1930.2	0.51	1.26
		1960	0.51	-0.40
		1989.8	0.52	-3.25




Agilent GSM/EDGE - GMSK Phase & Frequency
CH Freq 1.989800000 GHz
PASS
BTS #IFGain:Low
CH Freq: 1.989 800 000 GHz(ARFCN: 810)
Trig: Periodic Timer
#Atten: 18 dB (Elec 8) Ext Gain: -43.00 dB
Radio Band: PCS 1900
Burst: TCH&CCH
Sync: Training Seq
Phase Error
YRef 0 °
Phase Error w/Freq
YRef 0 °
RF Envelope
YRef 60 dBm
-0.1004 ms
5.2208 ms
Max Avg
Phase Error: 0.47 ° rms 0.47 ° rms
1.39 ° pk 1.39 ° pk
at bit 32.40 at bit 32.40
Freq Error: 2.19 Hz 2.19 Hz
I/Q Offset: -60.01 dBc -60.01 dBc
T0 Offset: 323.467 s 323.467 s
Freq / Channel
ARFCN 810
Center Freq 1.989800000 GHz
BMT Freq
Carrier Setup [SC: 1 carr(s)]
Time Slot 0
Burst Type Normal (TCH & CCH)
TSC (Std) 0
AutoDet Man
MSG
STATUS


Agilent GSM/EDGE - GMSK Phase & Frequency
CH Freq 1.930200000 GHz
PASS
BTS #IFGain:Low
CH Freq: 1.930 200 000 GHz(ARFCN: 512)
Trig: RF Burst
Atten: 18 dB (Elec 8) Ext Gain: -43.00 dB
Radio Band: PCS 1900
Burst: TCH&CCH
Sync: Training Seq
Phase Error
YRef 0 °
Phase Error w/Freq
YRef 0 °
RF Envelope
YRef 60 dBm
-0.1002 ms
5.2210 ms
Max Avg
Phase Error: 0.51 ° rms 0.51 ° rms
1.78 ° pk 1.78 ° pk
at bit 147.40 at bit 147.40
Freq Error: 1.26 Hz 1.26 Hz
I/Q Offset: -63.16 dBc -63.16 dBc
T0 Offset: 282.776 s 282.776 s
Freq / Channel
ARFCN 512
Center Freq 1.930200000 GHz
BMT Freq
Carrier Setup [SC: 1 carr(s)]
Time Slot 0
Burst Type Normal (TCH & CCH)
TSC (Std) 0
AutoDet Man
MSG
STATUS


Agilent GSM/EDGE - GMSK Phase & Frequency
CH Freq 1.960000000 GHz
PASS
BTS #IFGain:Low
CH Freq: 1.960 000 000 GHz(ARFCN: 661)
Trig: Periodic Timer
#Atten: 18 dB (Elec 8) Ext Gain: -43.00 dB
Radio Band: PCS 1900
Burst: TCH&CCH
Sync: Training Seq
Phase Error
YRef 0 °
Phase Error w/Freq
YRef 0 °
RF Envelope
YRef 60 dBm
-0.1003 ms
5.2209 ms
Max Avg
Phase Error: 0.51 ° rms 0.51 ° rms
1.50 ° pk 1.50 ° pk
at bit 46.40 at bit 46.40
Freq Error: -0.40 Hz -0.40 Hz
I/Q Offset: -64.55 dBc -64.55 dBc
T0 Offset: 282.610 s 282.610 s
Freq / Channel
ARFCN 661
Center Freq 1.960000000 GHz
BMT Freq
Carrier Setup [SC: 1 carr(s)]
Time Slot 0
Burst Type Normal (TCH & CCH)
TSC (Std) 0
AutoDet Man
MSG
STATUS


Agilent GSM/EDGE - GMSK Phase & Frequency
CH Freq 1.989800000 GHz
PASS
BTS
#IFGain:Low
CH Freq: 1.989 800 000 GHz(ARFCN: 810)
Trig: Periodic Timer
#Atten: 18 dB (Elec 8) Ext Gain: -43.00 dB
Radio Band: PCS 1900
Burst: TCH&CCH
Sync: Training Seq
08:16:39 AM Mar 07, 2017
Phase Error
YRef 0 °
Phase Error w/Freq
YRef 0 °
RF Envelope
YRef 60 dBm
-0.1004 ms
5.2208 ms
bit
Max
Avg
Phase Error: 0.52 ° rms 0.52 ° rms
1.63 ° pk 1.63 ° pk
at bit 71.40 at bit 71.40
Freq Error: -3.25 Hz -3.25 Hz
I/Q Offset: -61.66 dBc -61.66 dBc
T0 Offset: 323.465 s 323.465 s
Freq / Channel
ARFCN 810
Center Freq 1.989800000 GHz
BMT Freq
Carrier Setup [SC: 1 carr(s)]
Time Slot 0
On Off
Burst Type Normal (TCH & CCH)
TSC (Std) 0
AutoDet Man
MSG
STATUS

9 SPURIOUS RADIATED EMISSIONS

9.1 Applicable Standard: FCC CFR 47, §2.1053

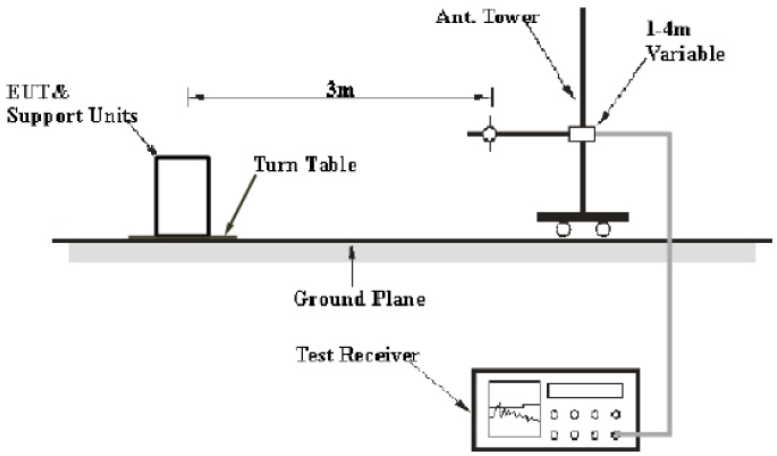
9.2 Test Equipment List and Details

Manufacturer	9.2.1.1.1 Equipment	Model	Serial Number	Last Cal.	Cal. Interval
Albatross	Anechoic Chamber	3m Site	A00017354	2016-11-18	1 year
R&S	EMI Test Receiver	ESI26	100058	2016-8-1	1 year
R&S	Log periodic Antenna	SWB-VUBA9163	9163-282	2016-12-7	1 year
R&S	Double-Ridged Waveguide Horn Antenna	HF906 TX	100032	2016-6-29	1 year

***statement of traceability:** ZTE Corporation Testing lab attest that all calibration have been performed per the NVLAP requirements, traceable to NIST.

Measurement Uncertainty
All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.
Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiated emissions measurement at the EMC lab of ZTE Corp. is 3.6dB.

EUT Setup



The radiated emission tests were performed in the 3-meter Chamber, using the setup accordance with the FCC part 15.109. The specification used were the FCC 15.109 limits.

9.3 Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable.

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.
The frequency range up to teeth harmonic of the fundamental frequency was investigated.
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 emissions in dB =10 1g (TX pwr in Watts/0.001)-the absolute level
Spurious attenuation limit in dB =43+10 Lg P (power out in Watts)
The resolution bandwidth of the spectrum analyzer was set at 100KHz for 30MHz to 1GHz scanning, set at 1MHz or 3MHz for 1GHz to 20GHz scanning.

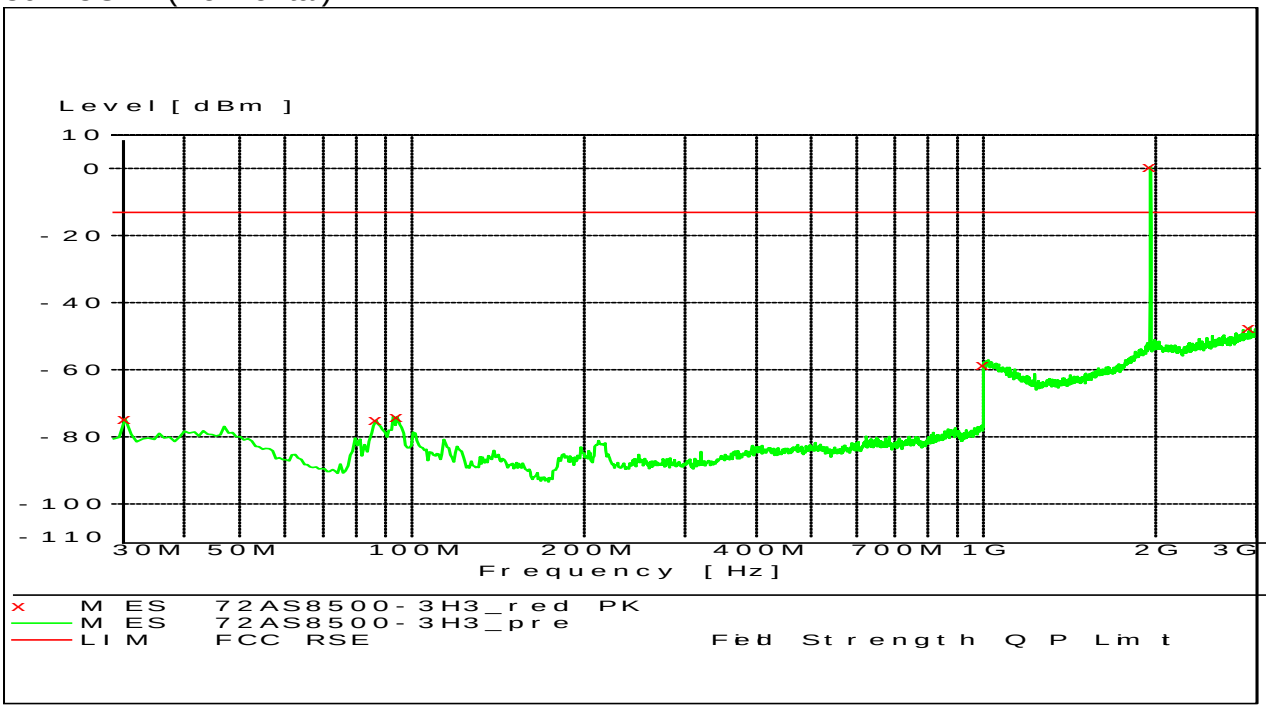
9.4 Test Results Summary: PASS

9.5 Environmental Conditions

Temperature:	26°C
Relative Humidity:	60 %
ATM Pressure:	1009 mbar

9.6 Test data

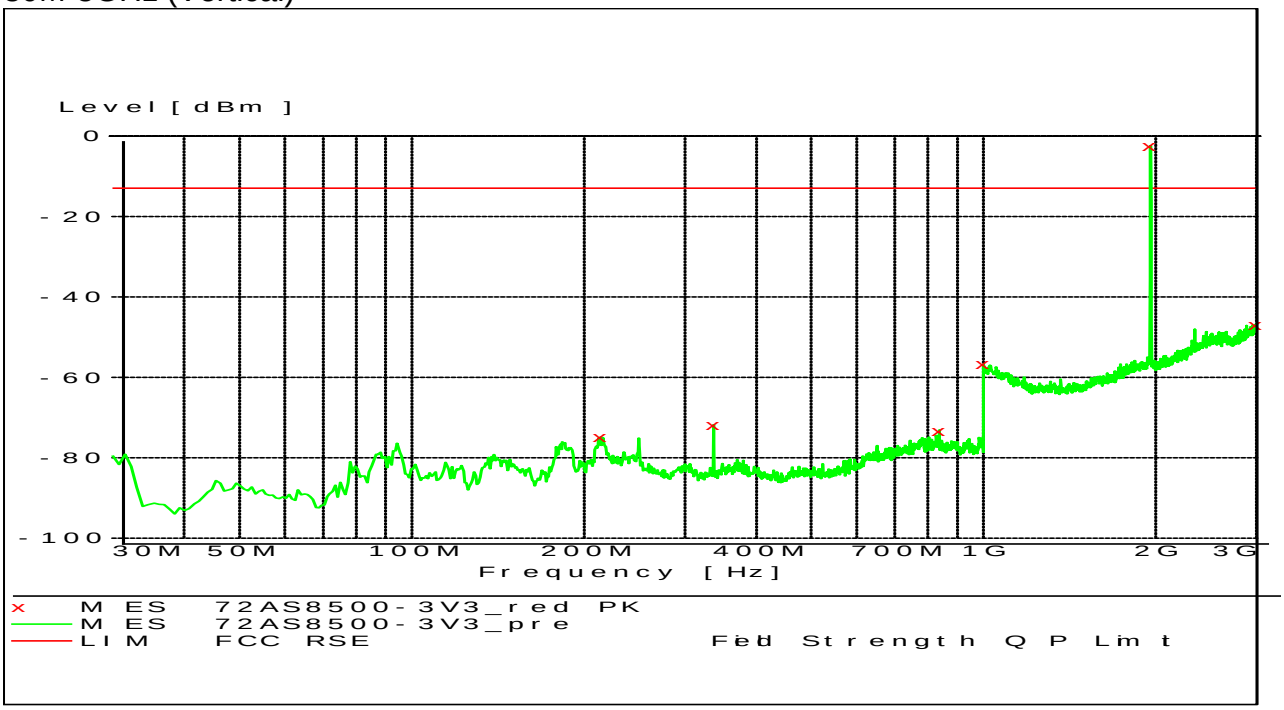
30M-3GHz (Horizontal)



Frequency (MHz)	Level (dBm)	Azimuth (deg)	Height (cm)	Polarisation	Transd (dB)	Limit (dBm)	Margin (dB)
86.64	-75.09	198.2	200	HOR	-125.3	-13	62.1
31.552	-74.62	198.2	200	HOR	-125.3	-13	61.6
94.408	-74	132.3	200	HOR	-129.1	-13	61

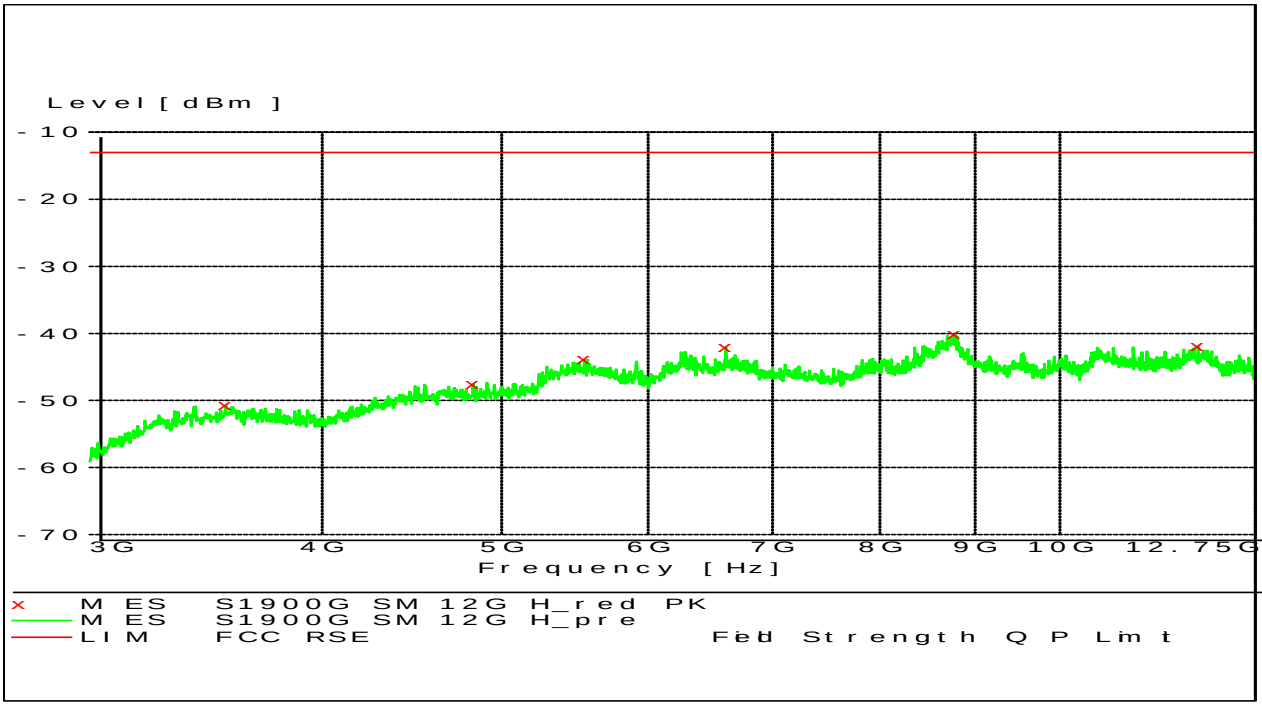
1000	-58.46	360	200	HOR	-109.1	-13	45.5
2916.8	-47.41	22.5	200	HOR	-99.1	-13	34.4

30M-3GHz (Vertical)



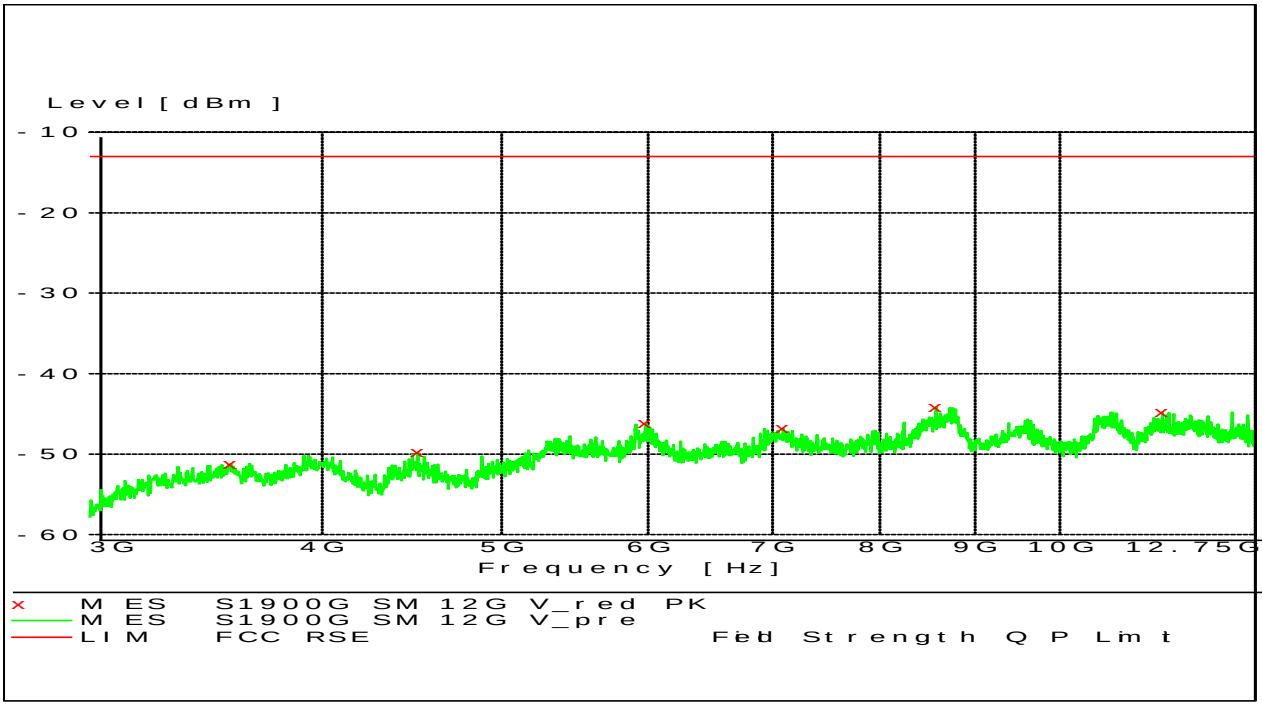
Frequency (MHz)	Level (dBm)	Azimuth (deg)	Height (cm)	Polarisation	Transd (dB)	Limit (dBm)	Margin (dB)
213.912	-74.81	349.6	100	VER	-127.5	-13	61.8
337.296	-71.74	305.4	100	VER	-127	-13	58.7
837.04	-73.22	39.4	100	VER	-119.2	-13	60.2
1000	-56.78	157.2	200	VER	-108.9	-13	43.8
2990.4	-46.89	113.6	100	VER	-97	-13	33.9

3-12.75GHz (Horizontal)



Frequency (MHz)	Level (dBm)	Azimuth (deg)	Height (cm)	Polarisation	Transd (dB)	Limit (dBm)	Margin (dB)
3550.4	-50.69	65.5	100	HOR	-89.4	-13	37.7
4827.2	-47.48	44.5	100	HOR	-84.3	-13	34.5
5544	-43.92	227.6	200	HOR	-79.4	-13	30.9
6609.6	-42.02	176.5	100	HOR	-77.8	-13	29
8780.2	-40.11	197.5	100	HOR	-72.8	-13	27.1
11876	-41.82	24	100	HOR	-72.8	-13	28.8

3-12.75GHz (Verticall)



Frequency (MHz)	Level (dBm)	Azimuth (deg)	Height (cm)	Polarisation	Transd (dB)	Limit (dBm)	Margin (dB)
3572.8	-51.19	164.8	200	VER	-89.5	-13	38.2
4507.2	-49.73	264	100	VER	-87.7	-13	36.7
5979.2	-46.19	312.4	100	VER	-81.5	-13	33.2
7096.6	-46.81	185.3	200	VER	-80.4	-13	33.8
8577.8	-44.14	296.5	200	VER	-77.1	-13	31.1
11360.8	-44.75	108.9	200	VER	-76.5	-13	31.7

10 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

10.1 Applicable Standard: FCC§2.1051, §22.917

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified .

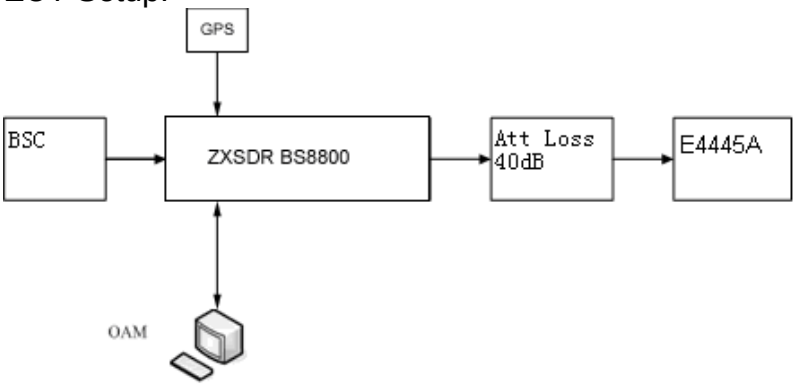
10.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY52090182	2016-6-27	2017-6-27
DST	DST100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

***statement of traceability:** ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

10.3 Test Procedure

EUT Setup:



REMARKS: Attenuator loss (dB)=40dB, Cable Loss (dB)=3dB.

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1 kHz for 9KHz to 150KHZ scaning, set at 10KHz for 150KHz to 30MHz scaning ,set at 100KHz for 30MHz to 1GHz scaning, set at 1MHz or 3MHz for 1GHz to 22GHz scaning. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.

10.4 Test Data Environmental Conditions

Temperature:	20 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

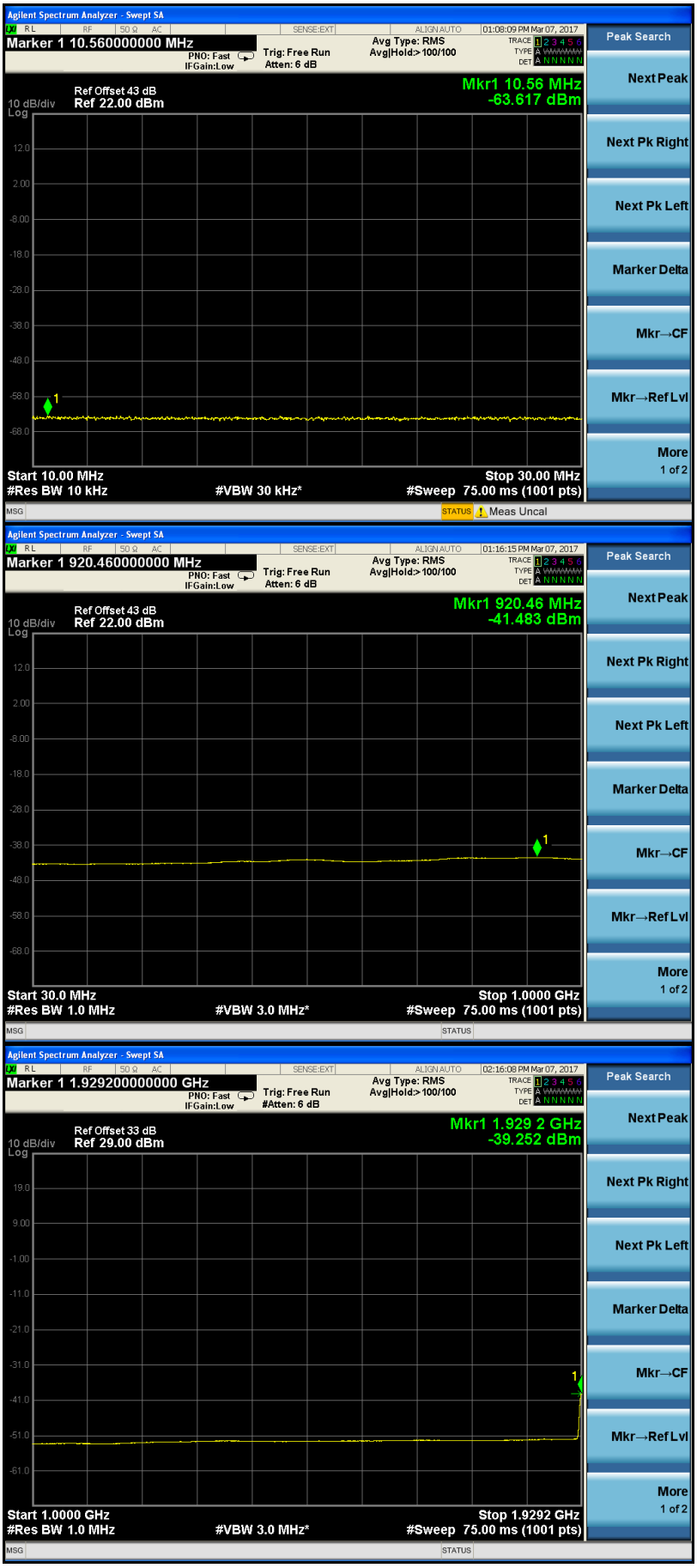
10.5 Test Result: Pass

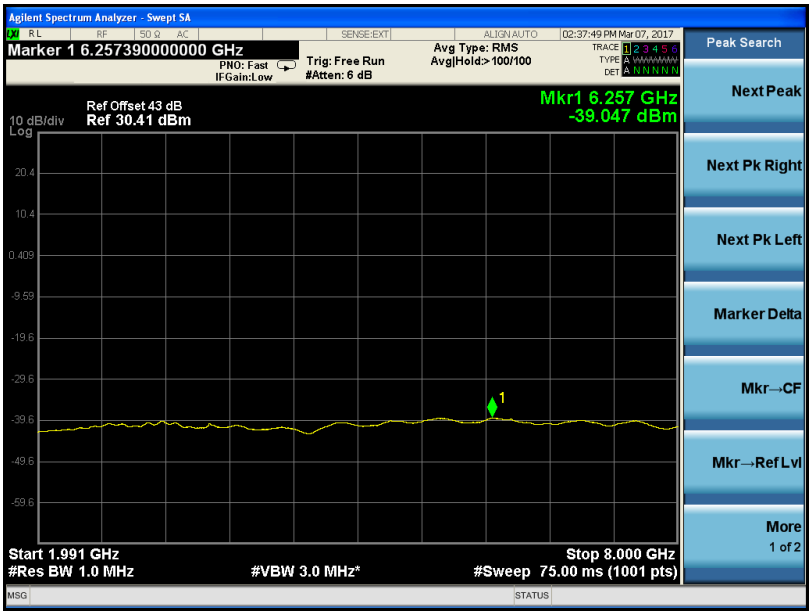
10.6 Test Mode: Transmitting GSM

10.7 Test Data:

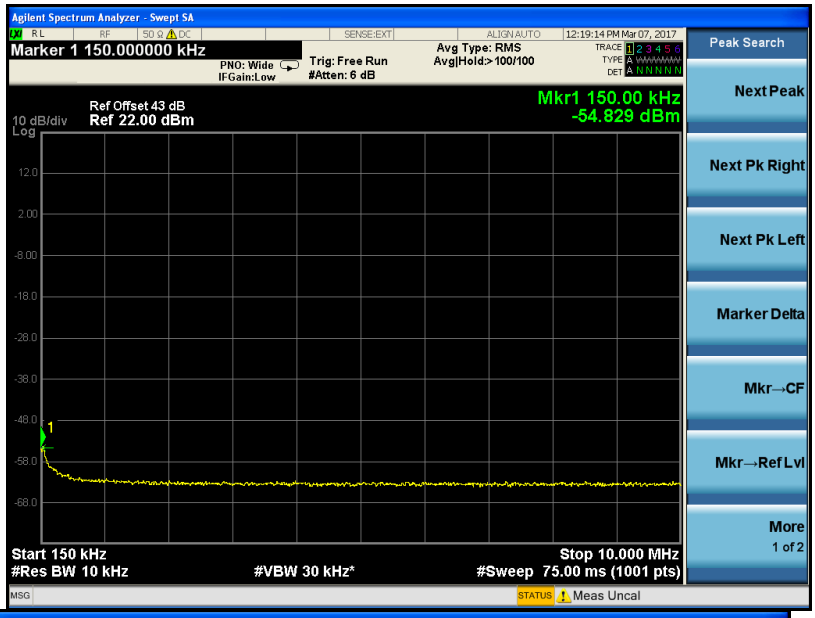
Port 1

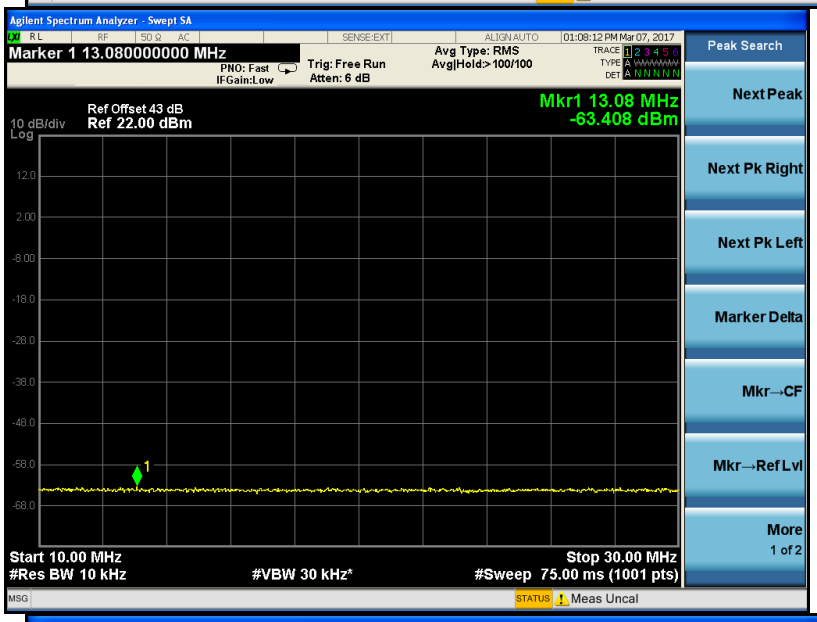
Four Carriers


Agilent Spectrum Analyzer - Swept SA
Marker 1 10.560000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
01:08:09 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Ref 22.00 dBm
Mkr1 10.56 MHz
-63.617 dBm
Start 10.00 MHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
#Sweep 75.00 ms (1001 pts)
Meas Uncal
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Agilent Spectrum Analyzer - Swept SA
Marker 1 920.460000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
01:16:15 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Ref 22.00 dBm
Mkr1 920.46 MHz
-41.483 dBm
Start 30.0 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 1.0000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Agilent Spectrum Analyzer - Swept SA
Marker 1 1.929200000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
02:16:08 PM Mar 07, 2017
Ref Offset 33 dB
10 dB/div
Ref 29.00 dBm
Mkr1 1.929 2 GHz
-39.252 dBm
Start 1.0000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 1.9292 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

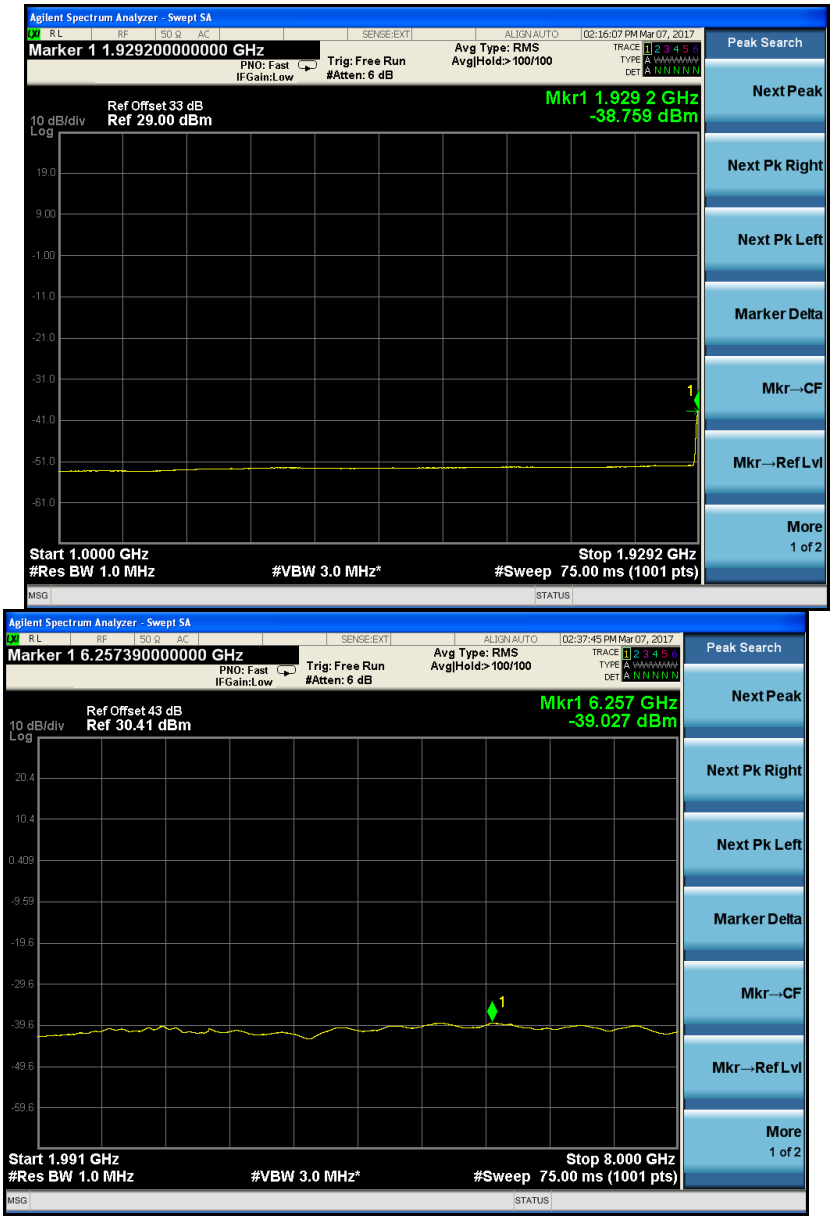


Three carriers

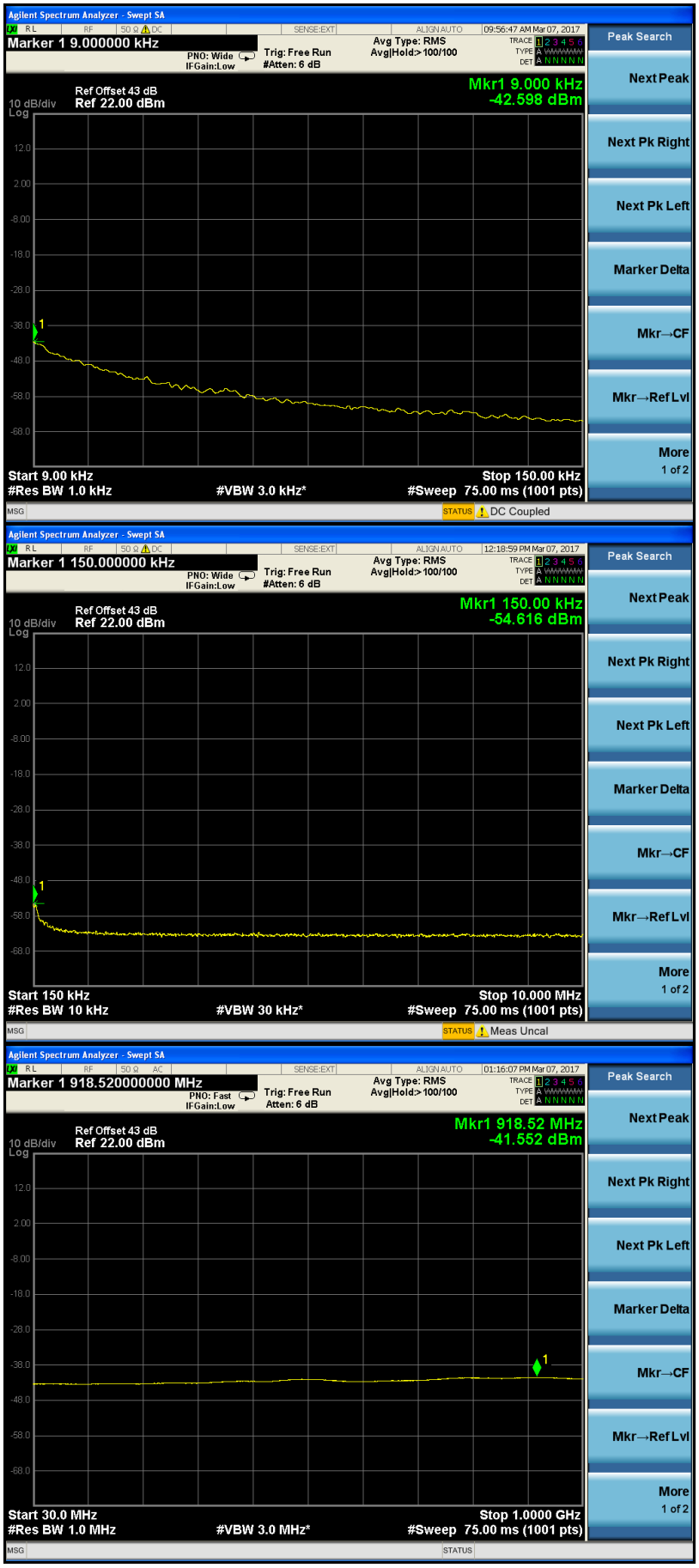

Agilent Spectrum Analyzer - Swept SA
Marker 1 150.000000 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
12:19:14 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Ref 22.00 dBm
Mkr1 150.00 kHz
-54.829 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 10.000 MHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Meas Uncal

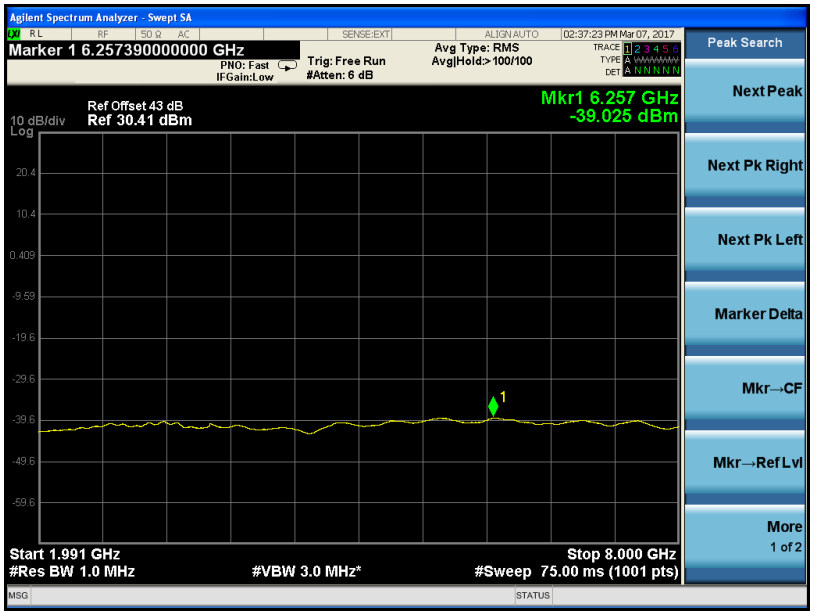

Agilent Spectrum Analyzer - Swept SA
Marker 1 13.080000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
01:08:12 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Ref 22.00 dBm
Mkr1 13.08 MHz
-63.408 dBm
Start 10.00 MHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Meas Uncal


Agilent Spectrum Analyzer - Swept SA
Marker 1 918.520000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
01:16:08 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Ref 22.00 dBm
Mkr1 918.52 MHz
-41.549 dBm
Start 30.0 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 1.0000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2



Two carriers

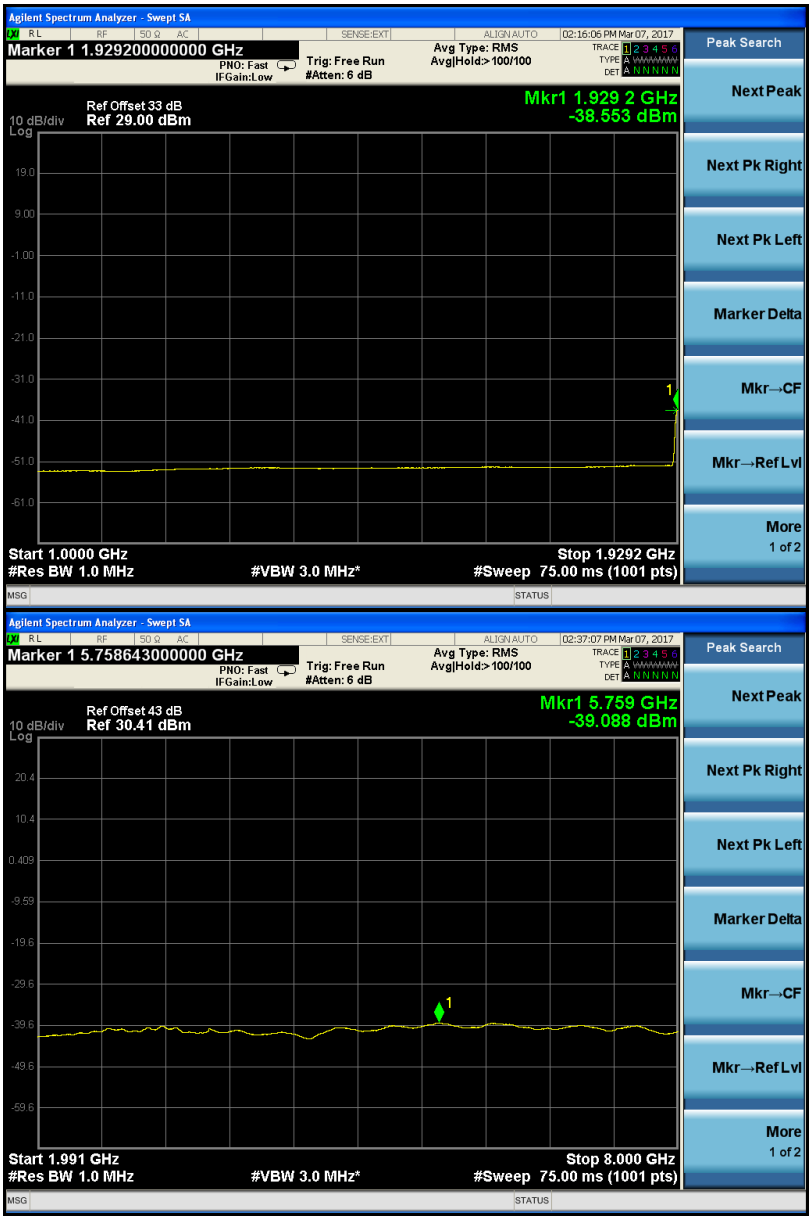

Agilent Spectrum Analyzer - Swept SA
Marker 1 9.000000 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
09:56:47 AM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 22.00 dBm
Mkr1 9.000 kHz
-42.598 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
#Sweep 75.00 ms (1001 pts)
DC Coupled
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Agilent Spectrum Analyzer - Swept SA
Marker 1 150.000000 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
12:18:59 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 22.00 dBm
Mkr1 150.00 kHz
-54.616 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 10.000 MHz
#Sweep 75.00 ms (1001 pts)
Meas Uncal
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Agilent Spectrum Analyzer - Swept SA
Marker 1 918.520000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
01:16:07 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 22.00 dBm
Mkr1 918.52 MHz
-41.552 dBm
Start 30.0 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 1.0000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 6.257390000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
Ref Offset 43 dB
10 dB/div
Log
Ref 30.41 dBm
Mkr1 6.257 GHz
-39.025 dBm
Start 1.991 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 8.000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

One carrier


Agilent Spectrum Analyzer - Swept SA
Marker 1 9.000000 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
Ref Offset 43 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 9.000 kHz
-42.848 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
#Sweep 75.00 ms (1001 pts)
DC Coupled
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

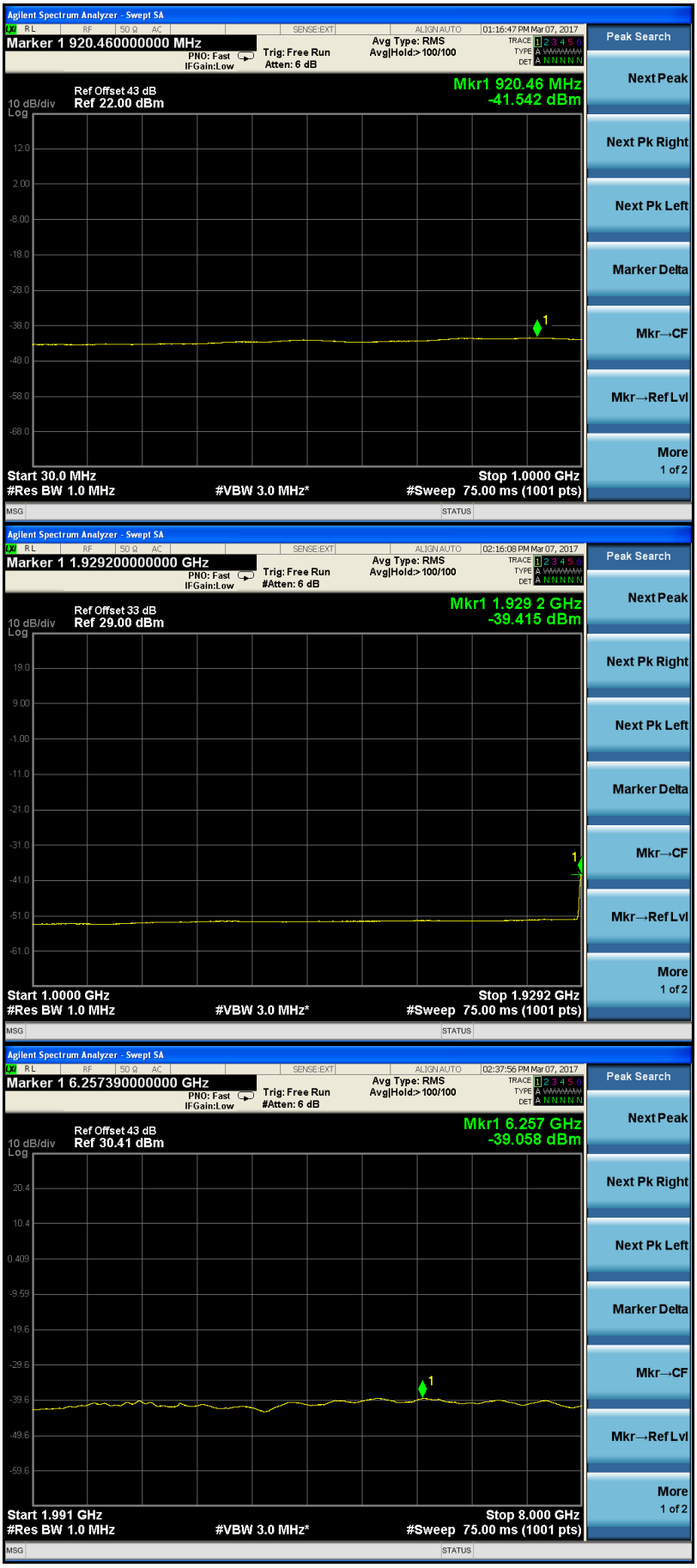

Agilent Spectrum Analyzer - Swept SA
Marker 1 199.250000 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
01:17:58 PM Mar 06, 2017
Ref Offset 43 dB
10 dB/div
Ref 24.00 dBm
Log
Mkr1 199.25 kHz
-54.464 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 10.000 MHz
#Sweep 75.00 ms (1001 pts)
DC Coupled
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Agilent Spectrum Analyzer - Swept SA
Marker 1 11.000000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
01:08:34 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Ref 22.00 dBm
Log
Mkr1 11.00 MHz
-63.874 dBm
Start 10.00 MHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
#Sweep 75.00 ms (1001 pts)
Meas Uncal
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Agilent Spectrum Analyzer - Swept SA
Marker 1 917.550000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
01:36:21 PM Mar 06, 2017
Ref Offset 43 dB
10 dB/div
Ref 30.00 dBm
Log
Mkr1 917.55 MHz
-41.525 dBm
Start 30.0 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 1.0000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2



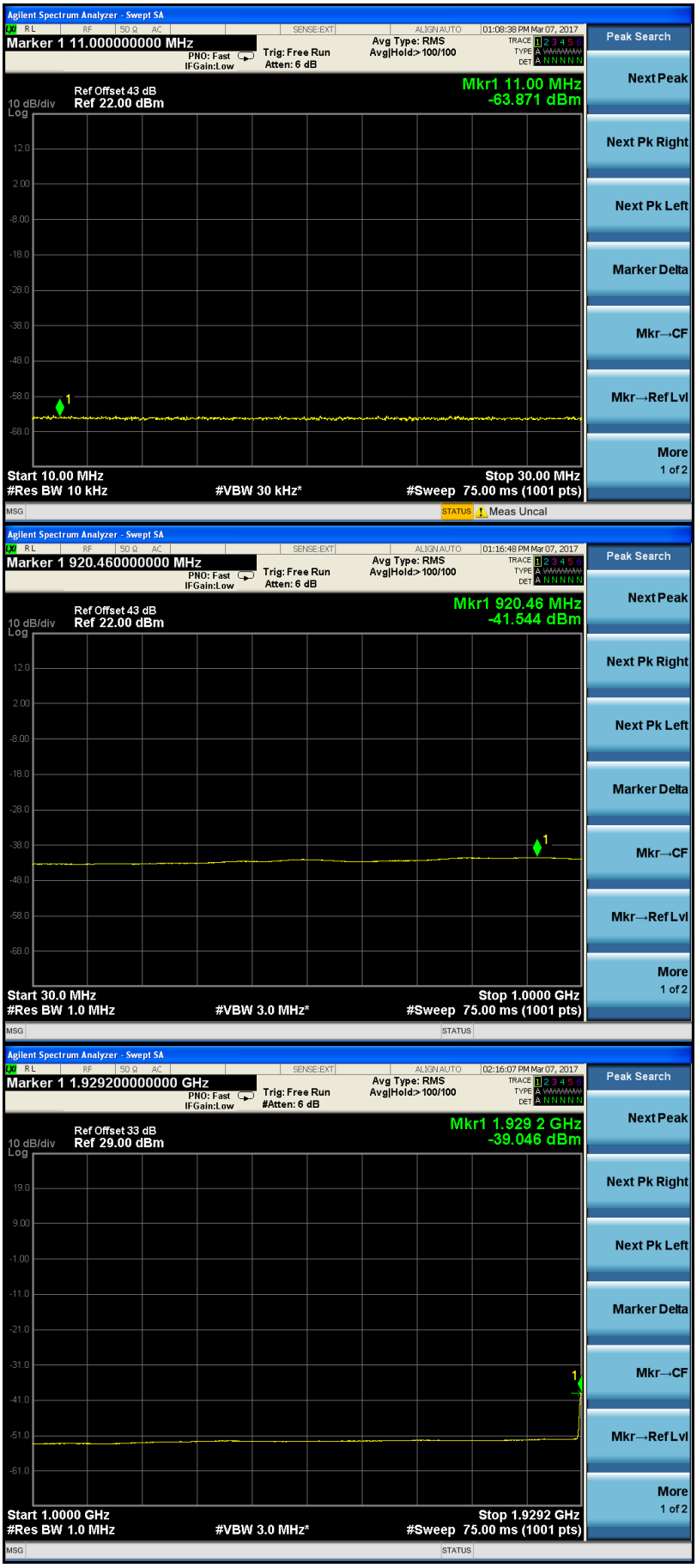
Port 4

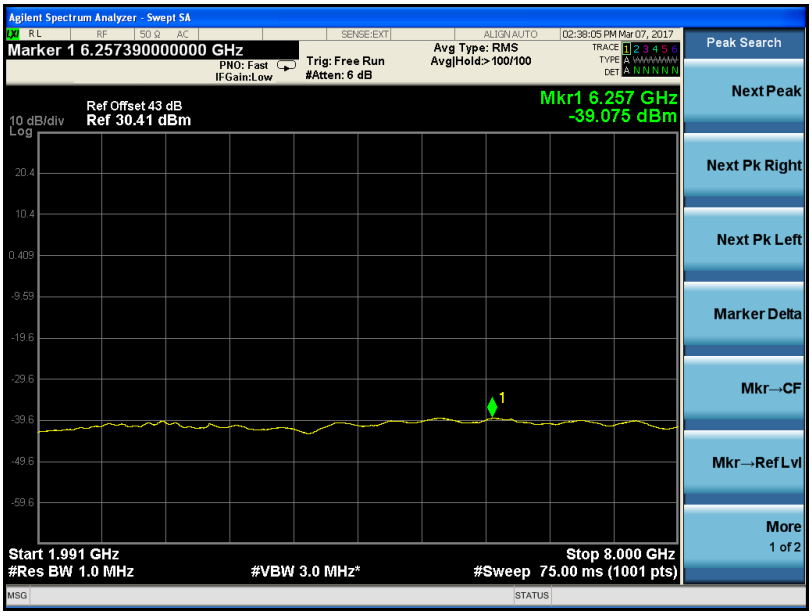
Four Carriers


Agilent Spectrum Analyzer - Swept SA
Marker 1 9.000000 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
09:56:59 AM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 22.00 dBm
Mkr1 9.000 kHz
-43.121 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
#Sweep 75.00 ms (1001 pts)
DC Coupled
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Agilent Spectrum Analyzer - Swept SA
Marker 1 150.000000 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
12:19:13 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 22.00 dBm
Mkr1 150.00 kHz
-54.900 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 10.000 MHz
#Sweep 75.00 ms (1001 pts)
Meas Uncal
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Agilent Spectrum Analyzer - Swept SA
Marker 1 11.000000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
01:08:40 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 22.00 dBm
Mkr1 11.00 MHz
-63.795 dBm
Start 10.00 MHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
#Sweep 75.00 ms (1001 pts)
Meas Uncal
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

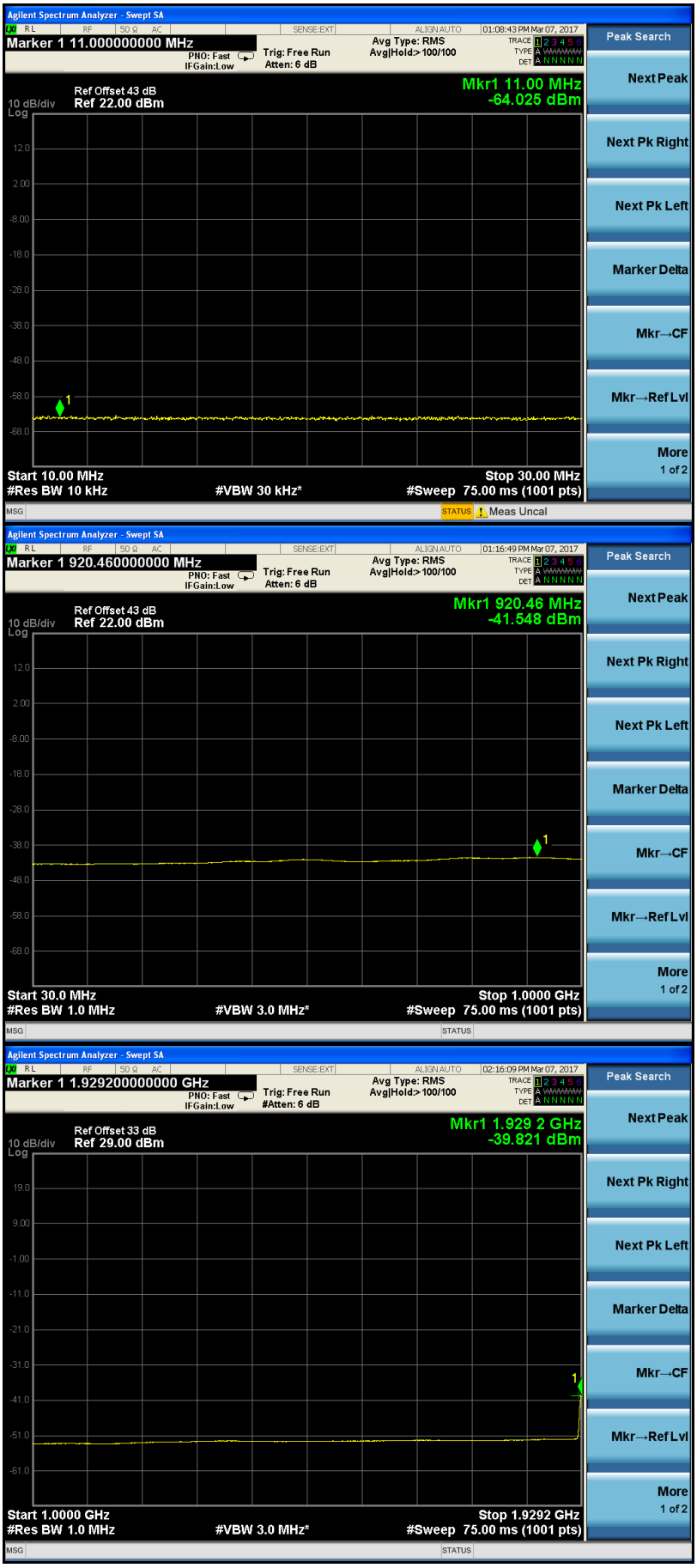

Agilent Spectrum Analyzer - Swept SA
Marker 1 920.460000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
01:16:47 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 22.00 dBm
Mkr1 920.46 MHz
-41.542 dBm
Start 30.0 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 1.0000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Agilent Spectrum Analyzer - Swept SA
Marker 1 1.929200000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
02:16:08 PM Mar 07, 2017
Ref Offset 33 dB
10 dB/div
Log
Ref 29.00 dBm
Mkr1 1.929 2 GHz
-39.415 dBm
Start 1.0000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 1.9292 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Agilent Spectrum Analyzer - Swept SA
Marker 1 6.257390000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
02:37:56 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 30.41 dBm
Mkr1 6.257 GHz
-39.058 dBm
Start 1.991 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 8.000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

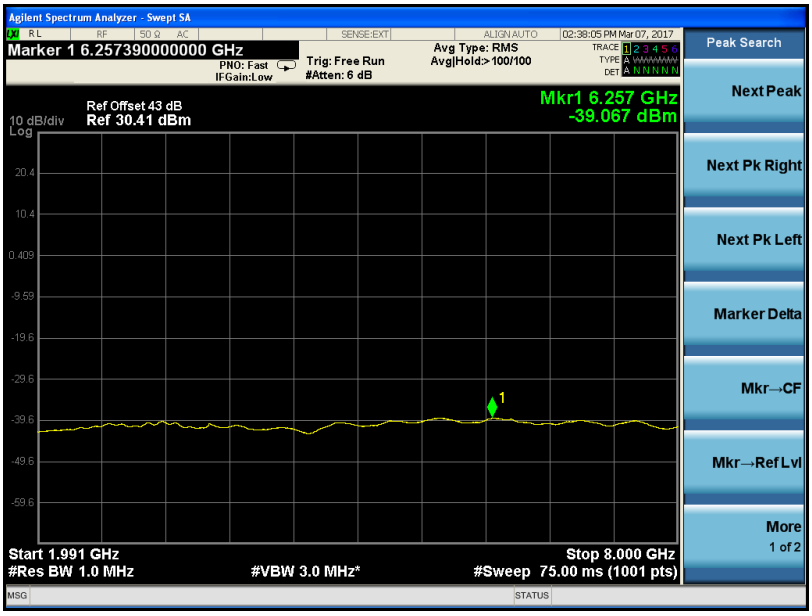
Three carriers


Agilent Spectrum Analyzer - Swept SA
Marker 1 11.000000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
01:08:38 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Ref 22.00 dBm
Mkr1 11.00 MHz
-63.871 dBm
Start 10.00 MHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Meas Uncal
Agilent Spectrum Analyzer - Swept SA
Marker 1 920.460000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
01:16:48 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Ref 22.00 dBm
Mkr1 920.46 MHz
-41.544 dBm
Start 30.0 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 1.0000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Agilent Spectrum Analyzer - Swept SA
Marker 1 1.929200000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
02:16:07 PM Mar 07, 2017
Ref Offset 33 dB
10 dB/div
Ref 29.00 dBm
Mkr1 1.929 2 GHz
-39.046 dBm
Start 1.0000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 1.9292 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2



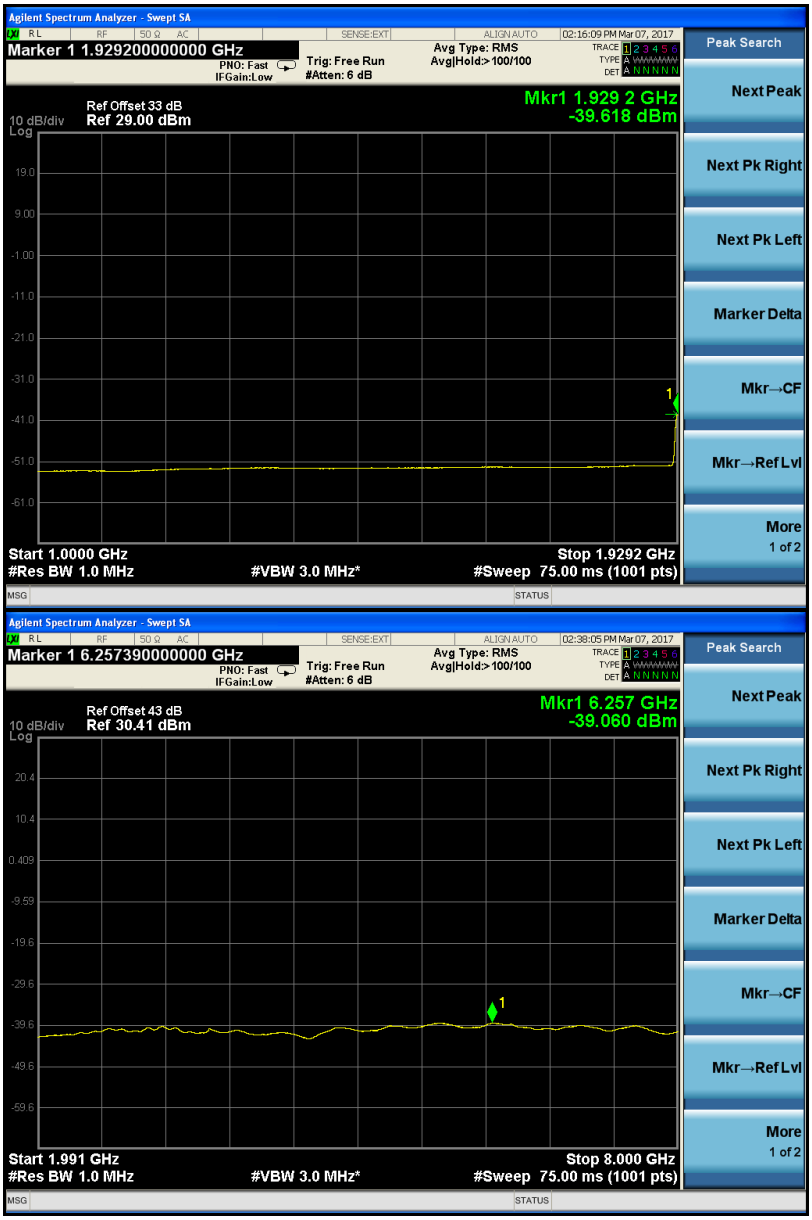
Two carriers


Agilent Spectrum Analyzer - Swept SA
Marker 1 11.000000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
01:08:43 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Ref 22.00 dBm
Mkr1 11.00 MHz
-64.025 dBm
Start 10.00 MHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
#Sweep 75.00 ms (1001 pts)
Meas Uncal
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Agilent Spectrum Analyzer - Swept SA
Marker 1 920.460000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
01:16:49 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Ref 22.00 dBm
Mkr1 920.46 MHz
-41.548 dBm
Start 30.0 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 1.0000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Agilent Spectrum Analyzer - Swept SA
Marker 1 1.929200000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
02:16:09 PM Mar 07, 2017
Ref Offset 33 dB
10 dB/div
Ref 29.00 dBm
Mkr1 1.929 2 GHz
-39.821 dBm
Start 1.0000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 1.9292 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2



One carriers


Agilent Spectrum Analyzer - Swept SA
Marker 1 199.250000 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
01:18:09 PM Mar 06, 2017
Ref Offset 43 dB
10 dB/div
Ref 24.00 dBm
Mkr1 199.25 kHz
-54.761 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 10.000 MHz
#Sweep 75.00 ms (1001 pts)
DC Coupled
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Agilent Spectrum Analyzer - Swept SA
Marker 1 11.000000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
01:08:37 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Ref 22.00 dBm
Mkr1 11.00 MHz
-63.931 dBm
Start 10.00 MHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
#Sweep 75.00 ms (1001 pts)
Meas Uncal
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Agilent Spectrum Analyzer - Swept SA
Marker 1 932.100000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
01:36:30 PM Mar 06, 2017
Ref Offset 43 dB
10 dB/div
Ref 30.00 dBm
Mkr1 932.10 MHz
-41.560 dBm
Start 30.0 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 1.0000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 1.929200000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
02:16:09 PM Mar 07, 2017
Ref Offset 33 dB
10 dB/div
Log
Ref 29.00 dBm
Mkr1 1.929 2 GHz
-39.618 dBm
Start 1.0000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 1.9292 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Agilent Spectrum Analyzer - Swept SA
Marker 1 6.257390000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 6 dB
Avg Type: RMS
Avg|Hold:>100/100
02:38:05 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 30.41 dBm
Mkr1 6.257 GHz
-39.060 dBm
Start 1.991 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 8.000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

11 OCCUPIED BANDWIDTH

11.1 Applicable Standard: FCC §2.1049 §22.917

11.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY52090182	2016-6-27	2017-6-27
DST	DST100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

*__statement of traceability:__ ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

11.3 Test Procedure

The RF out of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation. The resolution bandwidth of the spectrum analyzer was set at 1% of the span or higher and 99%Power bandwidth was recorded.

11.4 Environmental Conditions

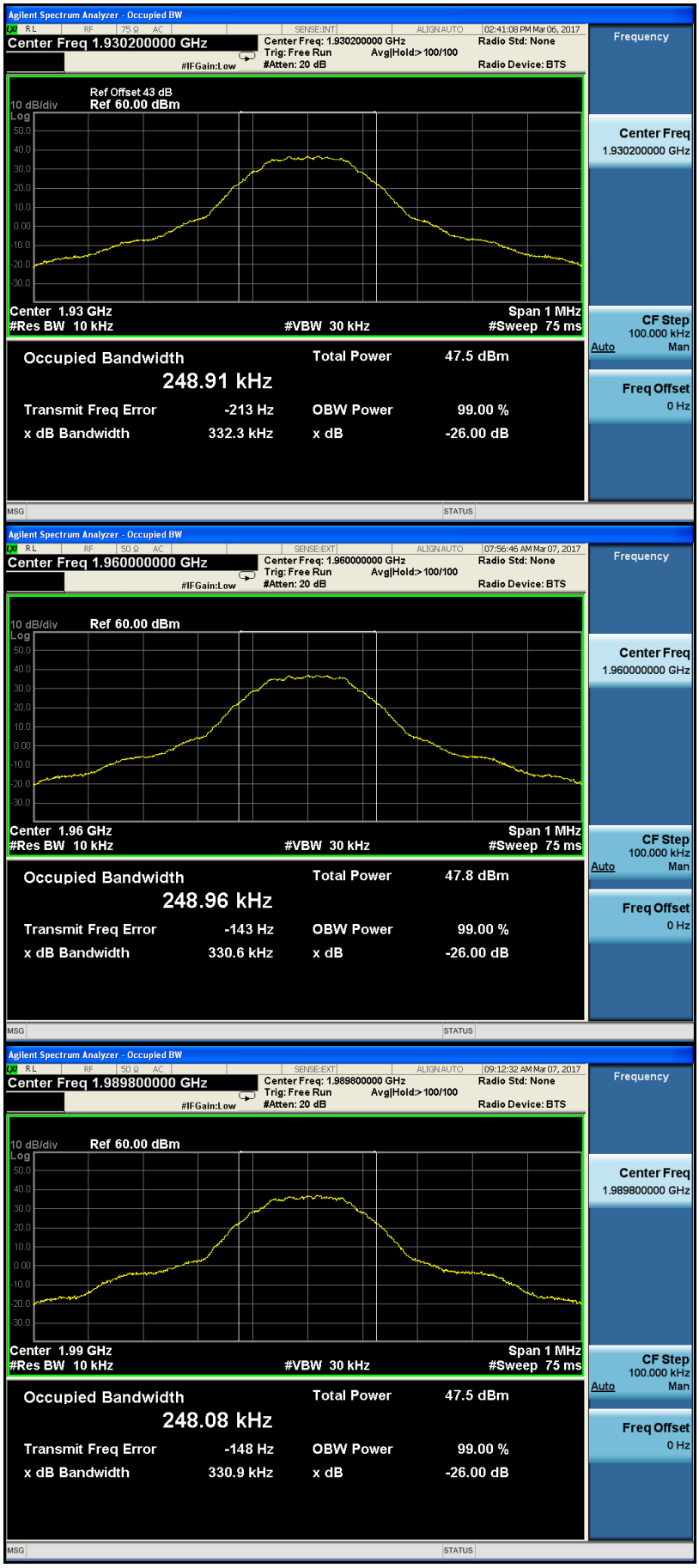
Temperature:	20 ° C
Relative Humidity:	53%
ATM Pressure:	1009mbar

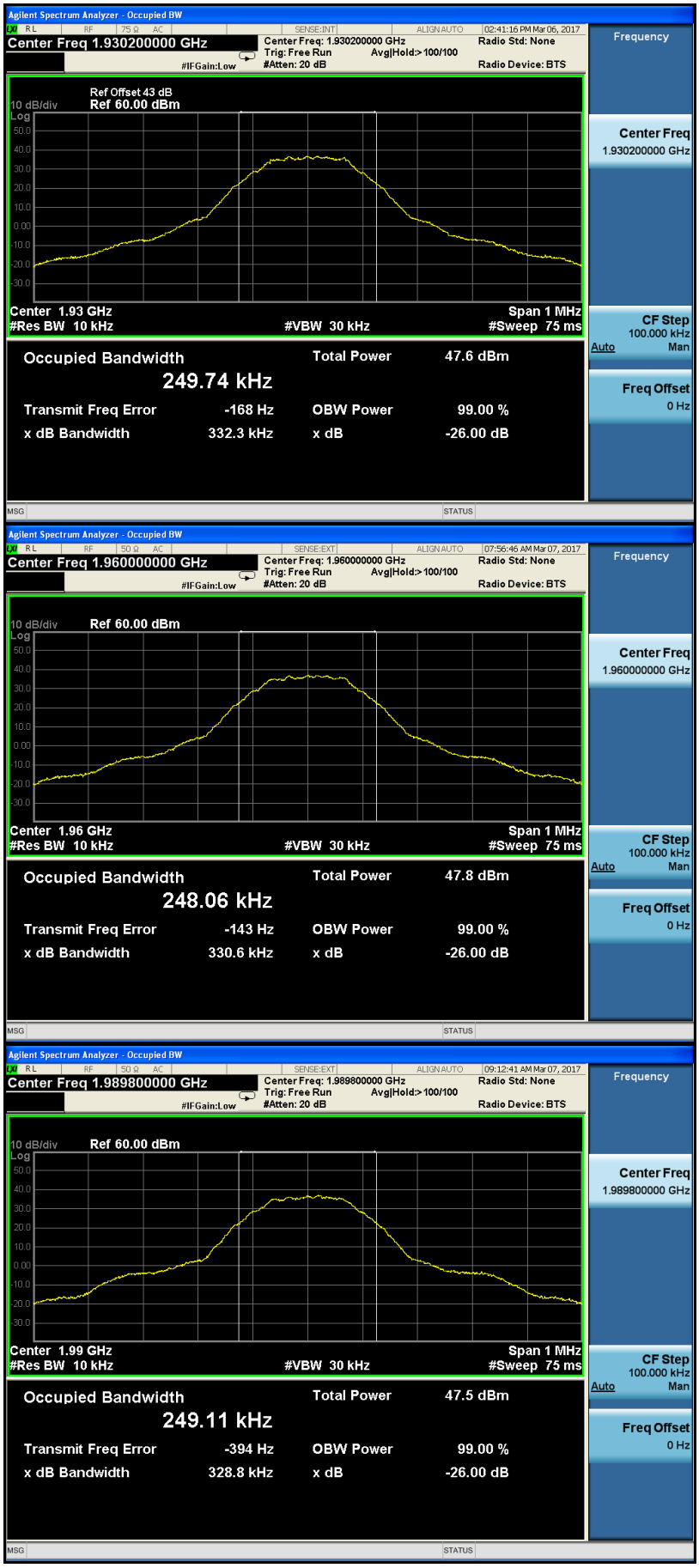
11.5 Test Result: Pass

11.6 Test Mode: Transmitting GSM

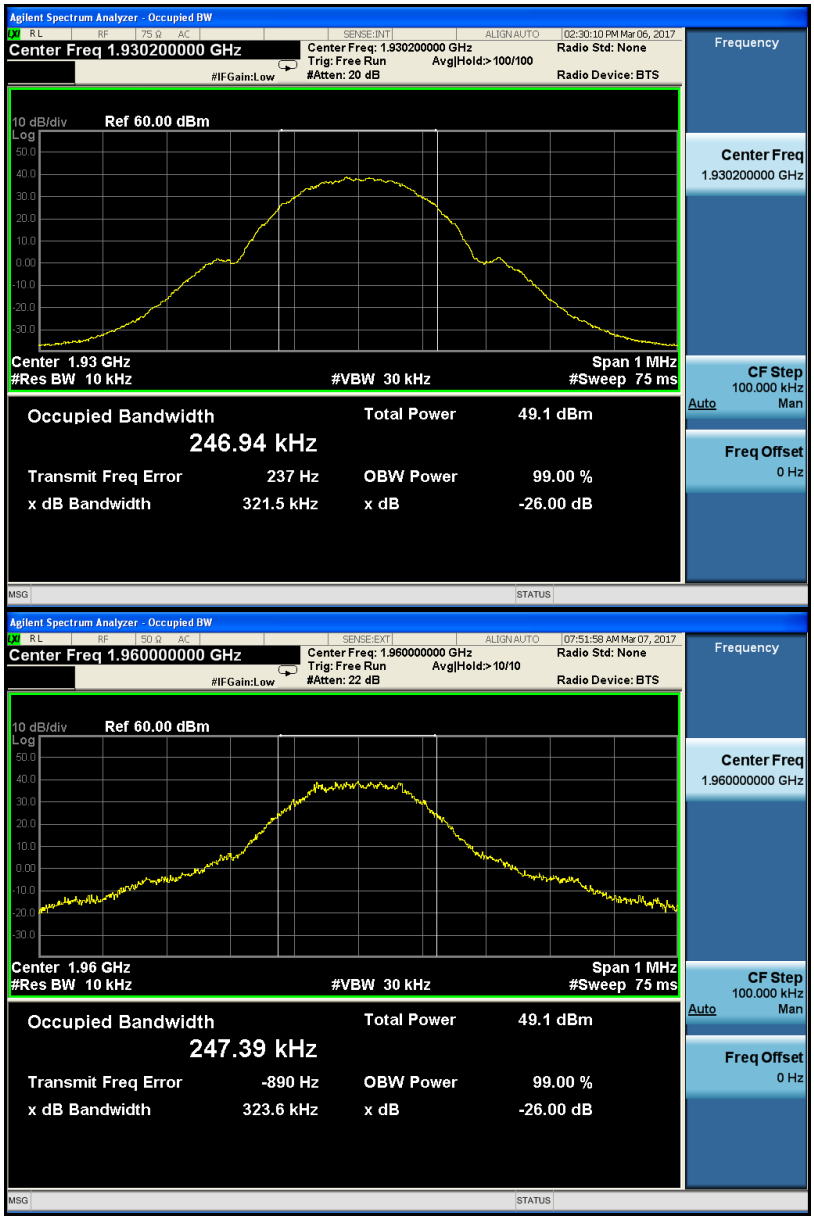
11.7 Test Data

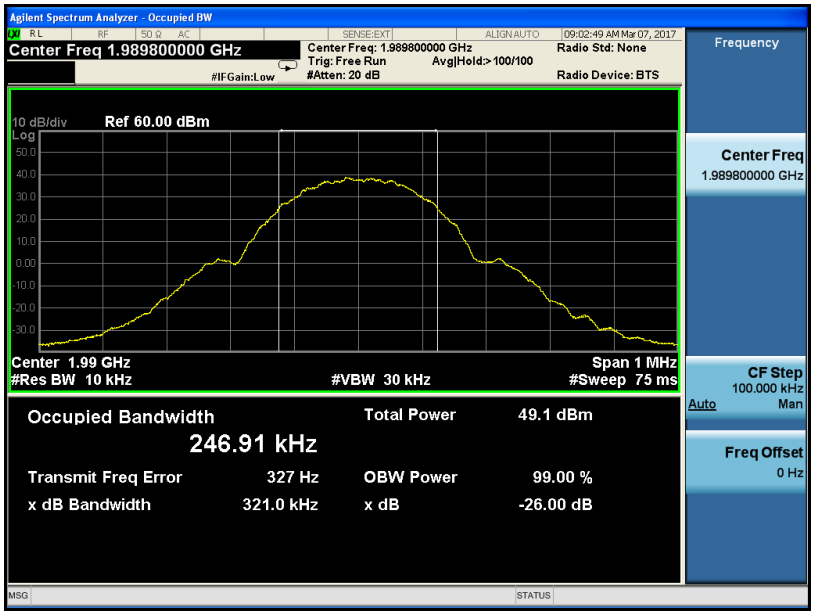
Port	Modulation	Frequency (MHz)	99% Power Bandwidth (kHz)	Limit (kHz)
1	8PSK	1930.2/1960/1989.8	248.91/248.96/248.08	250
4	8PSK	1930.2/1960/1989.8	249.74/248.06/249.11	250

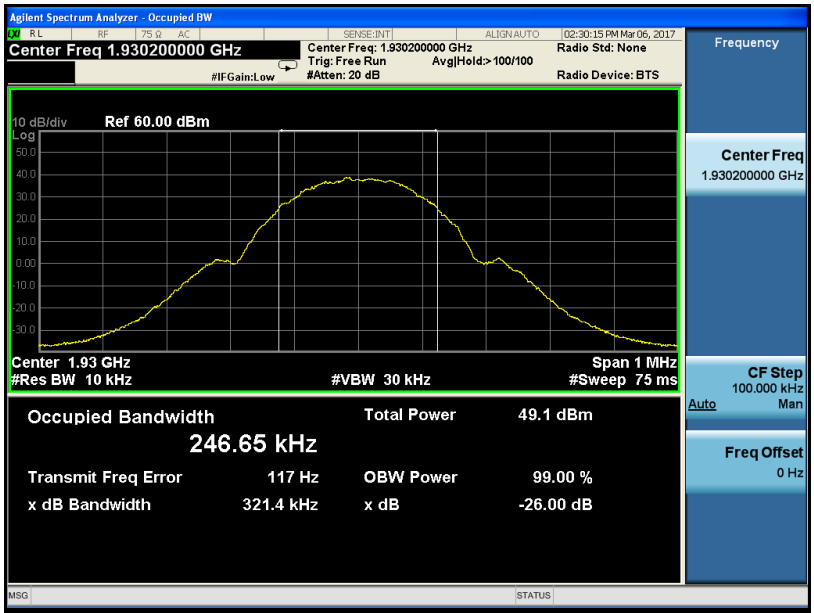

Agilent Spectrum Analyzer - Occupied BW
Center Freq 1.930200000 GHz
Center Freq: 1.930200000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 20 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
02:41:08 PM Mar 06, 2017
Ref Offset 43 dB
10 dB/div
Ref 60.00 dBm
Log
Center 1.93 GHz
#Res BW 10 kHz
#VBW 30 kHz
Span 1 MHz
#Sweep 75 ms
Occupied Bandwidth
248.91 kHz
Total Power 47.5 dBm
Transmit Freq Error -213 Hz
OBW Power 99.00 %
x dB Bandwidth 332.3 kHz
x dB -26.00 dB
Frequency
Center Freq
1.930200000 GHz
CF Step
100.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS
Agilent Spectrum Analyzer - Occupied BW
Center Freq 1.960000000 GHz
Center Freq: 1.960000000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 20 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
07:56:46 AM Mar 07, 2017
10 dB/div
Ref 60.00 dBm
Log
Center 1.96 GHz
#Res BW 10 kHz
#VBW 30 kHz
Span 1 MHz
#Sweep 75 ms
Occupied Bandwidth
248.96 kHz
Total Power 47.8 dBm
Transmit Freq Error -143 Hz
OBW Power 99.00 %
x dB Bandwidth 330.6 kHz
x dB -26.00 dB
Frequency
Center Freq
1.960000000 GHz
CF Step
100.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS
Agilent Spectrum Analyzer - Occupied BW
Center Freq 1.989800000 GHz
Center Freq: 1.989800000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 20 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
09:12:32 AM Mar 07, 2017
10 dB/div
Ref 60.00 dBm
Log
Center 1.99 GHz
#Res BW 10 kHz
#VBW 30 kHz
Span 1 MHz
#Sweep 75 ms
Occupied Bandwidth
248.08 kHz
Total Power 47.5 dBm
Transmit Freq Error -148 Hz
OBW Power 99.00 %
x dB Bandwidth 330.9 kHz
x dB -26.00 dB
Frequency
Center Freq
1.989800000 GHz
CF Step
100.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

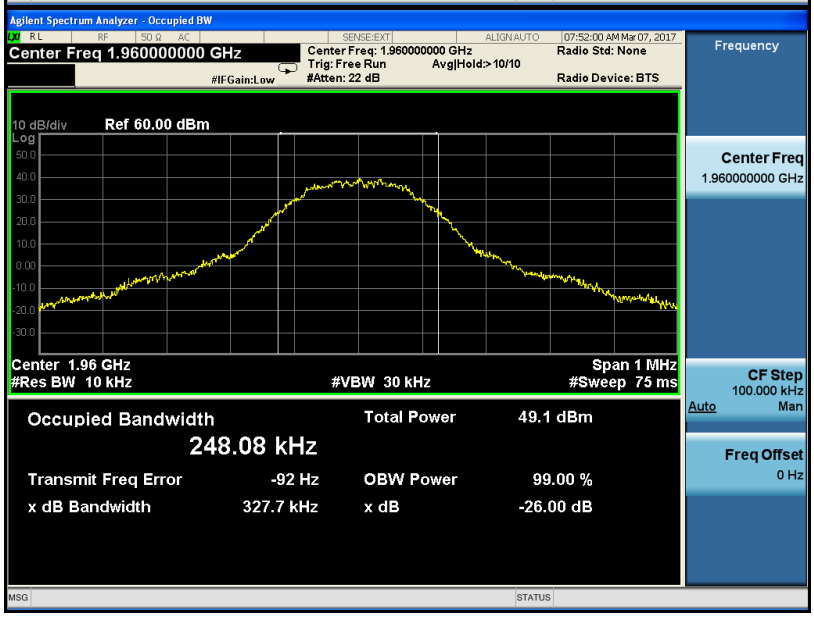

Agilent Spectrum Analyzer - Occupied BW
Center Freq 1.930200000 GHz
Center Freq: 1.930200000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 20 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
Ref Offset 43 dB
10 dB/div
Ref 60.00 dBm
Center 1.93 GHz
#Res BW 10 kHz
#VBW 30 kHz
Span 1 MHz
#Sweep 75 ms
Occupied Bandwidth
249.74 kHz
Total Power 47.6 dBm
Transmit Freq Error -168 Hz
OBW Power 99.00 %
x dB Bandwidth 332.3 kHz
x dB -26.00 dB
Frequency
Center Freq
1.930200000 GHz
CF Step
100.000 kHz
Auto
Man
Freq Offset
0 Hz
Agilent Spectrum Analyzer - Occupied BW
Center Freq 1.960000000 GHz
Center Freq: 1.960000000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 20 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
10 dB/div
Ref 60.00 dBm
Center 1.96 GHz
#Res BW 10 kHz
#VBW 30 kHz
Span 1 MHz
#Sweep 75 ms
Occupied Bandwidth
248.06 kHz
Total Power 47.8 dBm
Transmit Freq Error -143 Hz
OBW Power 99.00 %
x dB Bandwidth 330.6 kHz
x dB -26.00 dB
Frequency
Center Freq
1.960000000 GHz
CF Step
100.000 kHz
Auto
Man
Freq Offset
0 Hz
Agilent Spectrum Analyzer - Occupied BW
Center Freq 1.989800000 GHz
Center Freq: 1.989800000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 20 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
10 dB/div
Ref 60.00 dBm
Center 1.99 GHz
#Res BW 10 kHz
#VBW 30 kHz
Span 1 MHz
#Sweep 75 ms
Occupied Bandwidth
249.11 kHz
Total Power 47.5 dBm
Transmit Freq Error -394 Hz
OBW Power 99.00 %
x dB Bandwidth 328.8 kHz
x dB -26.00 dB
Frequency
Center Freq
1.989800000 GHz
CF Step
100.000 kHz
Auto
Man
Freq Offset
0 Hz

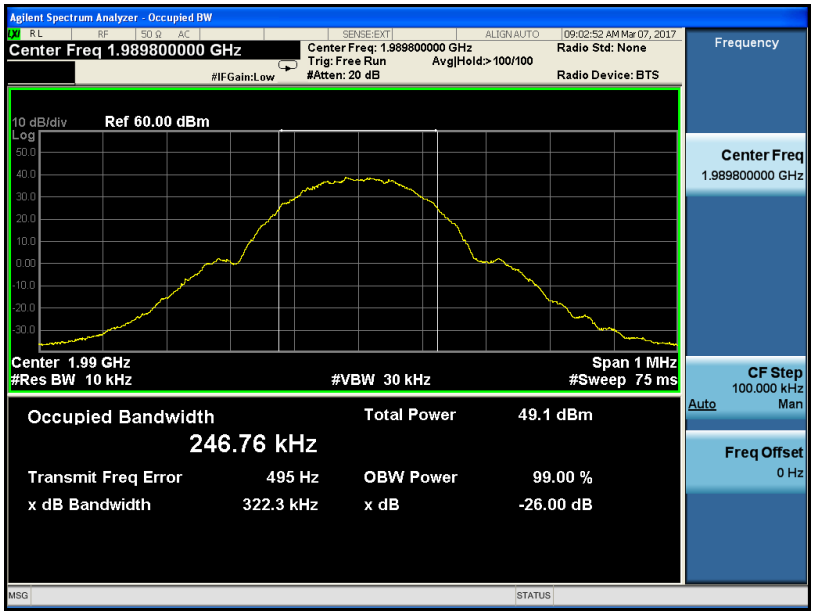
Port	Modulation	Frequency (MHz)	99% Power Bandwidth (kHz)	Limit (kHz)
1	GMSK	1930.2/1960/1989.8	246.94/247.39/246.91	250
4	GMSK	1930.2/1960/1989.8	246.65/248.08/246.76	250




Agilent Spectrum Analyzer - Occupied BW
Center Freq 1.989800000 GHz
Center Freq: 1.989800000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 20 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
09:02:49 AM Mar 07, 2017
Frequency
10 dB/div
Log
Ref 60.00 dBm
Center 1.99 GHz
#Res BW 10 kHz
#VBW 30 kHz
Span 1 MHz
#Sweep 75 ms
Occupied Bandwidth
246.91 kHz
Total Power 49.1 dBm
Transmit Freq Error 327 Hz
OBW Power 99.00 %
x dB Bandwidth 321.0 kHz
x dB -26.00 dB
Center Freq
1.989800000 GHz
CF Step
100.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS


Agilent Spectrum Analyzer - Occupied BW
Center Freq 1.930200000 GHz
Center Freq: 1.930200000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 20 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
02:30:15 PM Mar 06, 2017
Frequency
10 dB/div
Log
Ref 60.00 dBm
Center 1.93 GHz
#Res BW 10 kHz
#VBW 30 kHz
Span 1 MHz
#Sweep 75 ms
Occupied Bandwidth
246.65 kHz
Total Power 49.1 dBm
Transmit Freq Error 117 Hz
OBW Power 99.00 %
x dB Bandwidth 321.4 kHz
x dB -26.00 dB
Center Freq
1.930200000 GHz
CF Step
100.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS


Agilent Spectrum Analyzer - Occupied BW
Center Freq 1.960000000 GHz
Center Freq: 1.960000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 22 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
07:52:00 AM Mar 07, 2017
Frequency
10 dB/div
Log
Ref 60.00 dBm
Center 1.96 GHz
#Res BW 10 kHz
#VBW 30 kHz
Span 1 MHz
#Sweep 75 ms
Occupied Bandwidth
248.08 kHz
Total Power 49.1 dBm
Transmit Freq Error -92 Hz
OBW Power 99.00 %
x dB Bandwidth 327.7 kHz
x dB -26.00 dB
Center Freq
1.960000000 GHz
CF Step
100.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS


Agilent Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
SENSE:EXT
ALIGN AUTO
09:02:52 AM Mar 07, 2017
Center Freq 1.989800000 GHz
#IFGain:Low
Center Freq: 1.989800000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 20 dB
Radio Std: None
Radio Device: BTS
Frequency
10 dB/div
Log
Ref 60.00 dBm
50.0
40.0
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
Center 1.99 GHz
#Res BW 10 kHz
#VBW 30 kHz
Span 1 MHz
#Sweep 75 ms
Occupied Bandwidth
246.76 kHz
Total Power
49.1 dBm
Transmit Freq Error
495 Hz
OBW Power
99.00 %
x dB Bandwidth
322.3 kHz
x dB
-26.00 dB
Center Freq
1.989800000 GHz
CF Step
100.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

12 BAND EDGES

12.1 Applicable Standard: FCC §2.1051

According to §2.1051 and §24.238, 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. The limit (dBm) should < P –(43+10log(P)) = -13dBm.

12.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY52090182	2016-6-27	2017-6-27
DST	DST100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

*__statement of traceability:__ ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

12.3 Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.
The center of the spectrum analyzer was set to block edge frequency.

12.4 Test Data Environmental Conditions

Temperature:	20 °C
Relative Humidity:	53%
ATM Pressure:	1009mbar

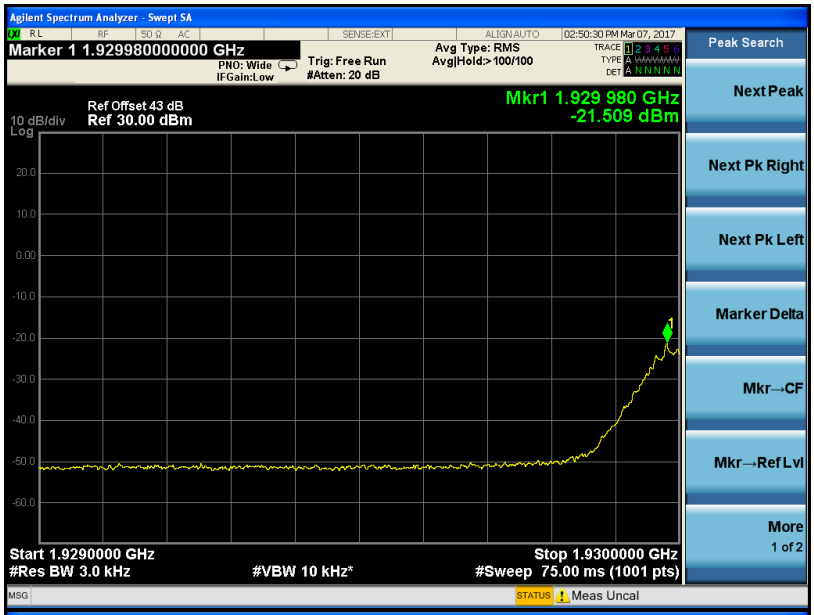
12.5 Test Result: Pass

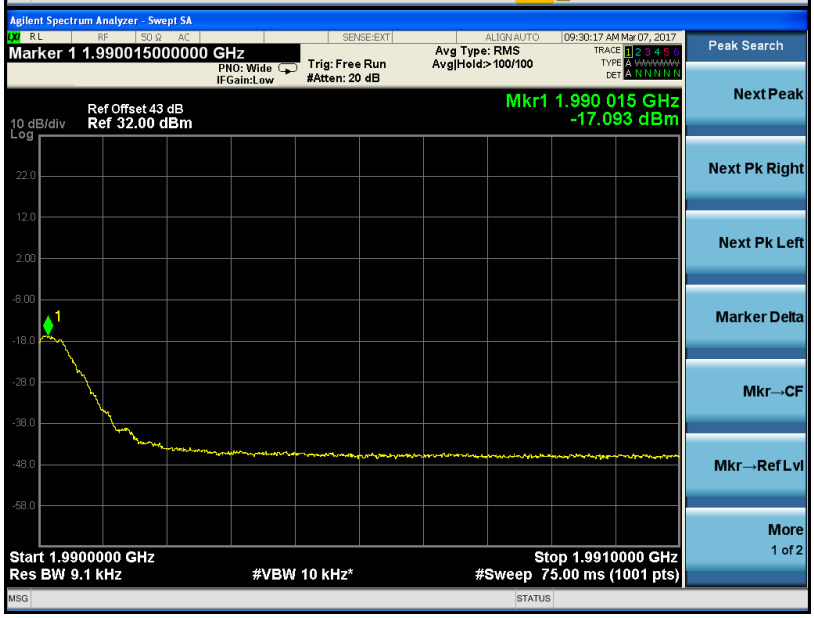
12.6 Test Mode: Transmitting GSM

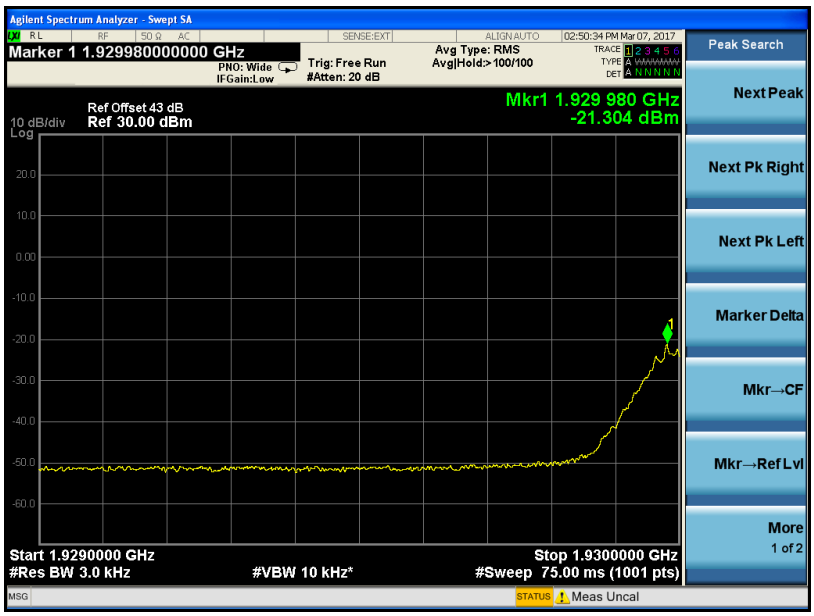
12.7 Test Data

Four carrier

Port	Frequency channel	Max bandedge Emission (dBm)	Limit (dBm)
1	1930.2/1930.8/1931.4/1932	-21.509	-13.00
	1988/1988.6/1989.2/1989.8	-17.093	-13.00
4	1930.2/1930.8/1931.4/1932	-21.304	-13.00
	1988/1988.6/1989.2/1989.8	-17.070	-13.00

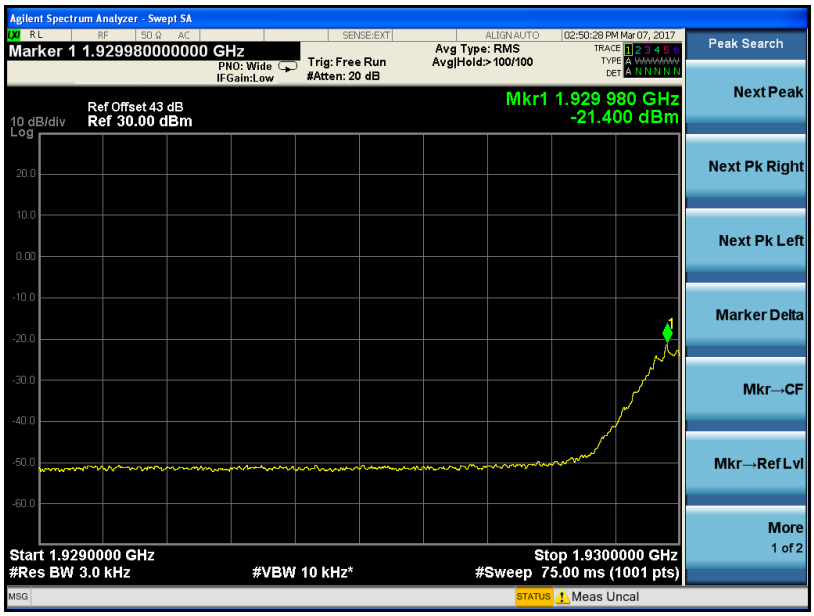

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.929980000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold:>100/100
02:50:30 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr1 1.929 980 GHz
-21.509 dBm
Start 1.9290000 GHz
#Res BW 3.0 kHz
#VBW 10 kHz*
Stop 1.9300000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Meas Uncal


Agilent Spectrum Analyzer - Swept SA
Marker 1 1.990015000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold:>100/100
09:30:17 AM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 32.00 dBm
Mkr1 1.990 015 GHz
-17.093 dBm
Start 1.9900000 GHz
Res BW 9.1 kHz
#VBW 10 kHz*
Stop 1.9910000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

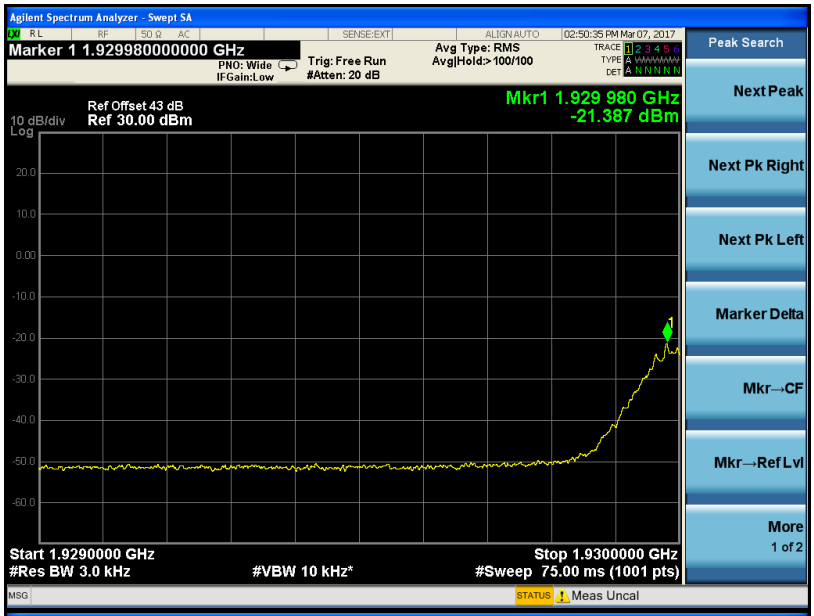

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.929980000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold:>100/100
02:50:34 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr1 1.929 980 GHz
-21.304 dBm
Start 1.9290000 GHz
#Res BW 3.0 kHz
#VBW 10 kHz*
Stop 1.9300000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Meas Uncal

Three carriers

Port	Frequency channel	Max bandedge Emission (dBm)	Limit (dBm)
1	1930.2/1930.8/1931.4	-21.400	-13.00
	1988.6/1989.2/1989.8	-16.587	-13.00
4	1930.2/1930.8/1931.4	-21.387	-13.00
	1988.6/1989.2/1989.8	-16.613	-13.00




Agilent Spectrum Analyzer - Swept SA
Marker 1 1.990015000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold:>100/100
09:29:15 AM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 32.00 dBm
Mkr1 1.990 015 GHz
-16.587 dBm
Start 1.9900000 GHz
Res BW 9.1 kHz
#VBW 10 kHz*
Stop 1.9910000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 1.929980000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold:>100/100
02:50:35 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr1 1.929 980 GHz
-21.387 dBm
Start 1.9290000 GHz
#Res BW 3.0 kHz
#VBW 10 kHz*
Stop 1.9300000 GHz
#Sweep 75.00 ms (1001 pts)
Meas Uncal
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

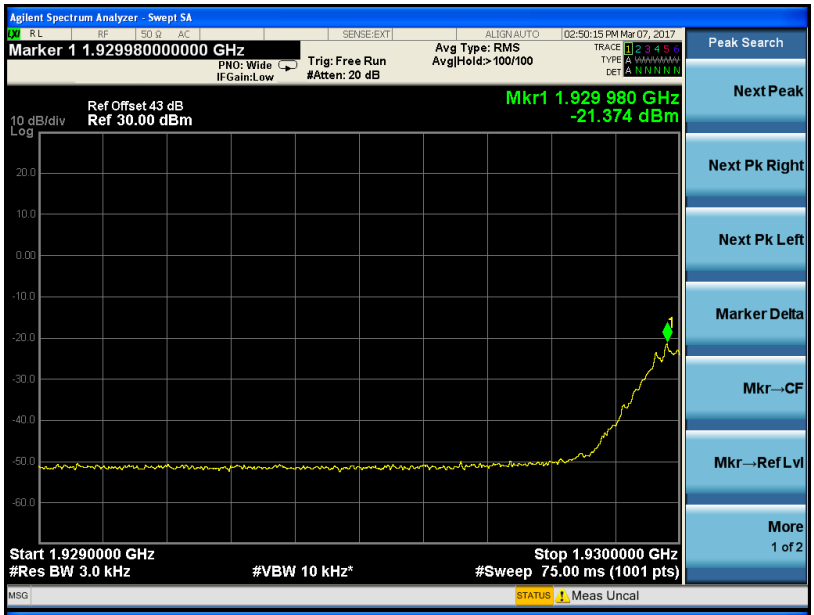

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.990015000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold:>100/100
09:29:16 AM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 32.00 dBm
Mkr1 1.990 015 GHz
-16.613 dBm
Start 1.9900000 GHz
Res BW 9.1 kHz
#VBW 10 kHz*
Stop 1.9910000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

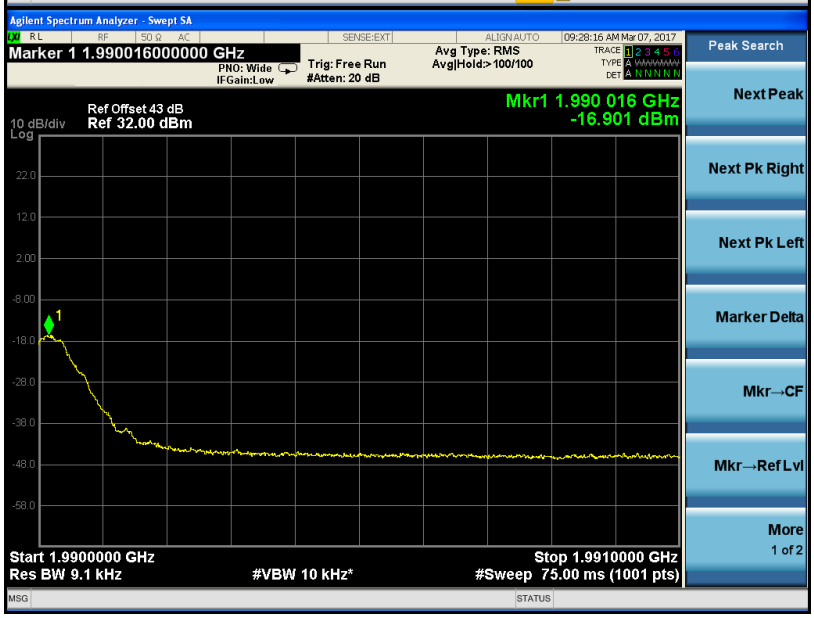
Two carriers

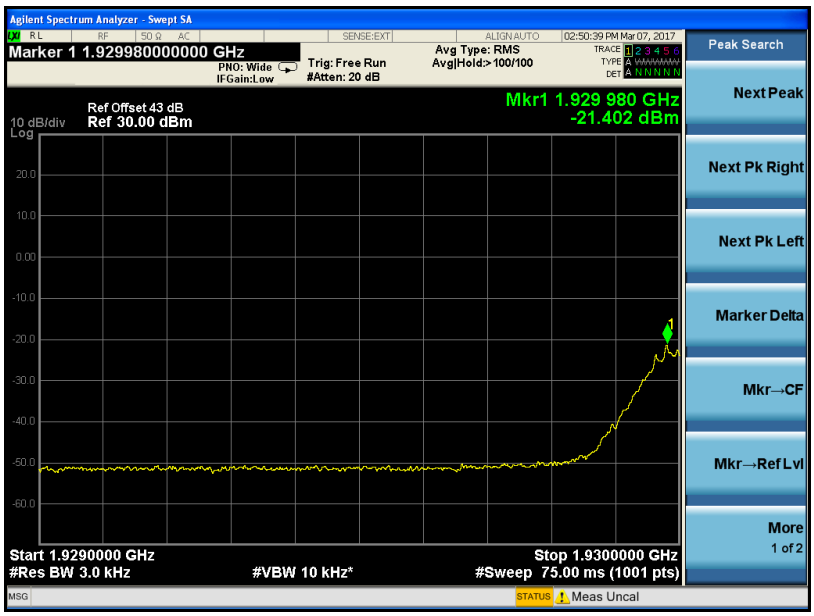
Port	Frequency channel	Max bandedge Emission (dBm)	Limit (dBm)
1	1930.2/1930.8	-21.374	-13.00
	1989.2/1989.8	-16.840	-13.00
4	1930.2/1930.8	-21.228	-13.00
	1989.2/1989.8	-16.527	-13.00

One carrier

Port	Frequency channel	Max bandedge Emission (dBm)	Limit (dBm)
1	1930.2	-21.374	-13.00
	1989.8	-16.901	-13.00
4	1930.2	-21.402	-13.00
	1989.8	-16.384	-13.00


Agilent Spectrum Analyzer - Swept SA
Marker 1 1.929980000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold:>100/100
02:50:15 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr1 1.929 980 GHz
-21.374 dBm
Start 1.9290000 GHz
#Res BW 3.0 kHz
#VBW 10 kHz*
Stop 1.9300000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Meas Uncal


Agilent Spectrum Analyzer - Swept SA
Marker 1 1.990016000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold:>100/100
09:28:16 AM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 32.00 dBm
Mkr1 1.990 016 GHz
-16.901 dBm
Start 1.9900000 GHz
Res BW 9.1 kHz
#VBW 10 kHz*
Stop 1.9910000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 1.929980000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold:>100/100
02:50:39 PM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr1 1.929 980 GHz
-21.402 dBm
Start 1.9290000 GHz
#Res BW 3.0 kHz
#VBW 10 kHz*
Stop 1.9300000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Meas Uncal


Agilent Spectrum Analyzer - Swept SA
Marker 1 1.990015000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold:>100/100
09:29:10 AM Mar 07, 2017
Ref Offset 43 dB
10 dB/div
Log
Ref 32.00 dBm
Mkr1 1.990 015 GHz
-16.384 dBm
22.0
12.0
2.00
-8.00
-18.0
-28.0
-38.0
-48.0
-58.0
Start 1.9900000 GHz
Res BW 9.1 kHz
#VBW 10 kHz*
Stop 1.9910000 GHz
#Sweep 75.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

13 FREQUENCY STABILITY

13.1 Applicable Standard: FCC § 2.1055

Requirements: FCC § 2.1055 (a)(d),
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

13.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
GZ-ESPEC	Temperature Chamber	GRW-120	00020268	2017-1-22	2018-1-22
Agilent	MXA Series Spectrum Analyzer	N9020A	MY52090182	2016-6-27	2017-6-27
DST	DST100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

*__statement of traceability:__ ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

13.3 Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to a Spectrum Analyzer via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose. After the temperature stabilized for approximately 150 minutes, the frequency output was recorded from the counter.
Frequency Stability vs. Voltage: An external variable DC power supply Source. The voltage was set to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the end point. The output frequency was recorded for each voltage.

13.4 Environmental Conditions

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

13.5 Test Result: Pass

13.6 Test Mode: Transmitting GSM

13.7 Test Data

13.7.1 Frequency Stability Versus Temperature

Frequency Stability vs. Temperature					
Temperature ℃	Power Supplied VDC	Frequency Measure Error Hz	Limit (ppm)	Limit (Hz)	Result
f=1930.2MHz					
-40	-48	-0.89	0.05	96.51	PASS
-30	-48	2.52	0.05	96.51	PASS
-20	-48	0.40	0.05	96.51	PASS
-10	-48	-0.54	0.05	96.51	PASS
0	-48	-0.60	0.05	96.51	PASS
10	-48	0.91	0.05	96.51	PASS
20	-48	0.75	0.05	96.51	PASS
30	-48	0.82	0.05	96.51	PASS
40	-48	-0.46	0.05	96.51	PASS
50	-48	-1.20	0.05	96.51	PASS
55	-48	-0.88	0.05	96.51	PASS
f=1960MHz					
-40	-48	2.78	0.05	98	PASS
-30	-48	2.92	0.05	98	PASS
-20	-48	-1.24	0.05	98	PASS
-10	-48	1.10	0.05	98	PASS
0	-48	-2.30	0.05	98	PASS
10	-48	0.83	0.05	98	PASS
20	-48	0.68	0.05	98	PASS
30	-48	1.55	0.05	98	PASS
40	-48	-1.42	0.05	98	PASS
50	-48	2.86	0.05	98	PASS
55	-48	1.03	0.05	98	PASS
f=1989.8MHz					
-40	-48	0.82	0.05	99.49	PASS
-30	-48	1.47	0.05	99.49	PASS
-20	-48	-1.42	0.05	99.49	PASS
-10	-48	-1.02	0.05	99.49	PASS
0	-48	1.18	0.05	99.49	PASS
10	-48	0.91	0.05	99.49	PASS
20	-48	-1.03	0.05	99.49	PASS
30	-48	0.71	0.05	99.49	PASS
40	-48	0.77	0.05	99.49	PASS
50	-48	-1.20	0.05	99.49	PASS
55	-48	0.62	0.05	99.49	PASS

13.7.2 Frequency Stability Versus Voltage

Frequency Stability vs. Voltage					
VoltageVDC	Temperature ℃	Frequency Measure Error Hz	Limit (ppm)	Limit (Hz)	Result
f=1930.2MHz					
37	20	2.94	0.05	96.51	PASS
41	20	1.35	0.05	96.51	PASS
45	20	0.67	0.05	96.51	PASS
47	20	-1.34	0.05	96.51	PASS
51	20	-1.89	0.05	96.51	PASS
53	20	-1.68	0.05	96.51	PASS
55	20	3.52	0.05	96.51	PASS
57	20	-2.63	0.05	96.51	PASS
61	20	-1.40	0.05	96.51	PASS
f=1960MHz					
37	20	-2.99	0.05	98	PASS
41	20	-0.67	0.05	98	PASS
45	20	-1.51	0.05	98	PASS
47	20	-1.31	0.05	98	PASS
51	20	2.23	0.05	98	PASS
53	20	0.70	0.05	98	PASS
55	20	-1.10	0.05	98	PASS
57	20	2.63	0.05	98	PASS
61	20	-1.21	0.05	98	PASS
f=1989.8MHz					
37	20	1.17	0.05	99.49	PASS
41	20	-2.30	0.05	99.49	PASS
45	20	-1.32	0.05	99.49	PASS
47	20	1.26	0.05	99.49	PASS
51	20	-0.85	0.05	99.49	PASS
53	20	1.74	0.05	99.49	PASS
55	20	2.79	0.05	99.49	PASS
57	20	-1.89	0.05	99.49	PASS
61	20	-2.04	0.05	99.49	PASS

---End of Report---