Certificate Number: 5055.02

TEST REPORT FOR GSM TESTING

Report No.: SRTC2020-9004(F)-20101401(A)

Product Name: LTE Ufi

Product Model: MF971R

Applicant: ZTE Corporation

Manufacturer: ZTE Corporation

Specification: FCC Part 24E, Part 22H, Part 2 (2019)

FCC ID: SRQ-MF971R

The State Radio_monitoring_center Testing Center (SRTC)

15th Building, No.30 Shixing Street, Shijingshan District,

Beijing, P.R.China

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1. GENERAL INFORMATION

1.1 Notes of the test report

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1.2 Information about the testing laboratory

Company:	The State Radio_monitoring_center Testing Center (SRTC)
Address:	15th Building, No.30 Shixing Street, Shijingshan District, P.R.China
City:	Beijing
Country or Region:	P.R.China
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1.3 Applicant's details

Company:	ZTE Corporation
Address:	ZTE Plaza, Keji Road South,Hi-Tech, Industrial Park, Nanshan District,Shenzhen, P.R.China，
City:	Shenzhen
Country or Region:	P.R.China
Contacted person:	Gong Yu
Tel:	86-21-68895397
Email:	gongyu@zte.com.cn

1.4 Manufacturer's details

Company:	ZTE Corporation
Address:	ZTE Plaza, Keji Road South,Hi-Tech, Industrial Park, Nanshan District,Shenzhen, P.R.China，
City:	Shenzhen
Country or Region:	P.R.China
Contacted person:	Gong Yu
Tel:	86-21-68895397
Email:	gongyu@zte.com.cn

1.5 Test Environment

Date of Receipt of test sample at SRTC:	2020-10-14
Testing Start Date:	2020-10-16
Testing End Date:	2020-12-16

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	20	47
Maximum Extreme	35	---
Minimum Extreme	-10	---

Normal Supply Voltage (V d.c.):	3.80
Maximum Extreme Supply Voltage (V d.c.):	4.35
Minimum Extreme Supply Voltage (V d.c.):	3.60

2 DESCRIPTION OF THE DEVICE UNDER TEST

2.1Final Equipment Build Status

Frequency Range	GSM850: Tx:824~849MHz Rx:869~894MHz PCS1900: Tx:1850~1910MHz Rx:1930~1990MHz
Mode	GPRS:GMSK EDGE: GMSK/8PSK
Antenna Type	Fixed Internal Antenna
Antenna Gain	Frequency below 1GHz: 0.5dBi Frequency between 1GHz~2GHz: 1.7dBi
Power Supply	Battery/Charger
Hardware Version	dwbC
Software Version	BD_ZTE_MF971RV1.0.0B01
IMEI	860832040014370/860832040014693

2.2 Support Equipment

The following support equipment was used to exercise the DUT during testing:

Equipment	Battery
Manufacturer	ZHONGSHAN TIANMAO BATTERY CO.,LTD.
Model Number	Li3820T43P3h715345
Equipment	Usb cable
Manufacturer	Dongguan Guojun Plastic Electronic Co.,Ltd
Model Number	USB-MU5-B-70-M-L

2.3 Summary table.

FCC Rule Part	Mode	Frequency Range (MHz)	ERP/ EIRP (W)	Frequency Tolerance (ppm)	Emission Designator
22H	GSM850	824.2-848.8	1.030	-0.095	252KGXW
22H	EDGE850	824.2-848.8	0.382	-0.106	246KG7W
24E	GSM1900	1850.2-1909.8	1.081	-0.083	254KGXW
24E	EDGE1900	1850.2-1909.8	0.565	-0.107	246KG7W

3 REFERENCE SPECIFICATION

Specification	Version	Title
FCC Part2	2019	Frequency allocations and radio treaty matters; general rules and regulations
FCC Part22	2019	Public mobile services
FCC Part24	2019	Personal communications services
ANSI C63.26	2015	American national standard for compliance testing of transmitters used in licensed radio services
KDB 971168 D01	April 9, 2018	Measurement guidance for certification of licensed digital transmitters
TIA-603-E-2016	March 2016	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards

4 KEY TO NOTES AND RESULT CODES

The following are the definition of the test result.

Code	Meaning
PASS	Test result shows that the requirements of the relevant specification have been met.
FAIL	Test result shows that the requirements of the relevant specification have not been met.
NT	Normal Temperature
NV	Nominal voltage
HV	High voltage
LV	Low voltage

5 RESULT SUMMARY

No.	Test case	FCC reference	Verdict
1	RF Power Output	2.1046	Pass
2	Effective Radiated Power and Effective Isotropic Radiated Power	22.913(a)(5)/24.232(c)	Pass
3	Occupied Bandwidth	2.1049	Pass
4	Emission Bandwidth	2.1049	Pass
5	Spurious Emissions at antenna terminals	2.1051/22.917(a)/24.238(a)	Pass
6	Band Edges Compliance	2.1051/22.917(a)/24.238(a)	Pass
7	Frequency Stability	2.1055/22.355/24.235	Pass
8	Radiated Spurious Emissions	2.1053/22.917(a)/24.238(a)	Pass
9	Peak-Average Ratio	24.232(d)	Pass

This Test Report Is approved by: Mr. PENG Zhen	Checked by: Mr. LI Bin
Tested and issued by: Mr. CHANG Tianyu	Approved date: 20201216

6 TEST RESULT

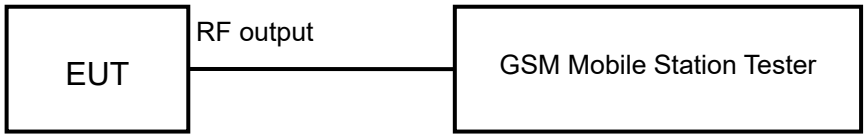
6.1 RF Power Output

Rule Part(s)
FCC Part 2.1046

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test Setup:



Test procedure:
After a radio link has been established between EUT and Tester, the output power of the cell signal of the testing equipment will be decreased until the output power of the EUT reach a maximum value. Then the test data can be read at the tester screen. The loss between RF output port of the EUT and the input port of the tester will be taken into consideration.
The measurement will be conducted at three channels (Low, Middle and High channels)

Limits: No specific conduct power requirements in part 2.1046.

Test result:
The test results are shown in Appendix A.

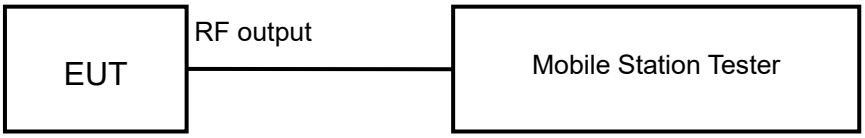
6.2 Effective Radiated Power

Rule Part(s)
FCC Part 22.913(a)(5)/Part 24.232(c)

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test setup:



Test procedure:
KDB 971168 D01 v03r01 – Section 5.6
Test Settings
Subclause 5.2.5.5 of ANSI C63.26-2015 is applicable, along with the following provisions. For personal/portable radios utilizing an integral antenna, the factor LC is typically negligible. However, in a fixed station transmit system that utilizes a long cable run between the transmitter and the transmitting antenna, this factor can be significant. The minimum cable loss should be used in this equation.
The relevant equation for determining the ERP or EIRP from the conducted RF output power measured is:
ERP/EIRP = PMeas – LC + GT
Where:
ERP/EIRP = effective or equivalen radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm)
PMeas = measured transmitter output power or PSD, in dBW or dBm
LC = signal attenuation in the connecting cable between the transmitter and antenna in dB
GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)
ERP/EIRP LIMIT
This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP – 2.15 (dB).
22.913(a) (5)
The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.
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.
27.50(b) (10)
Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.
27.50(c) (10)
Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.
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.

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. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.
27.50(a) (3)
Mobile and portable stations (i) For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth.

Test result:
The test results are shown in Appendix B.

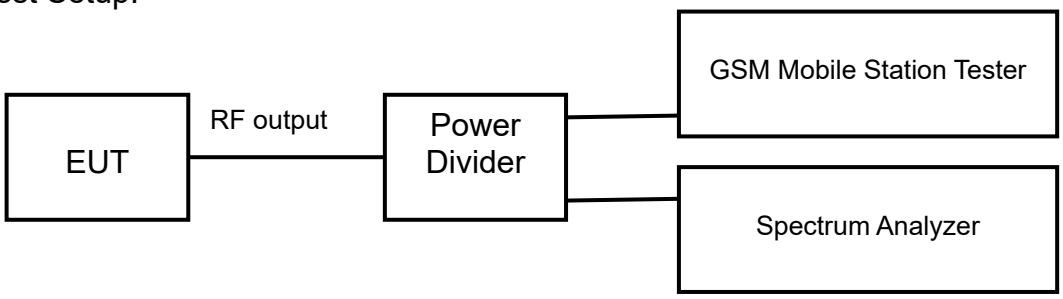
6.3 Occupied Bandwidth

Rule Part(s)
Part 2.1049

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test Setup:



Test procedure:
KDB 971168 D01 v03r01 – Section 4.2

Test Settings
1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW ≥ 3 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5% of the 99% occupied bandwidth observed in Step 7

Limits: No specific occupied bandwidth requirements in part 2.1049

Test result:
The test results are shown in Appendix A.

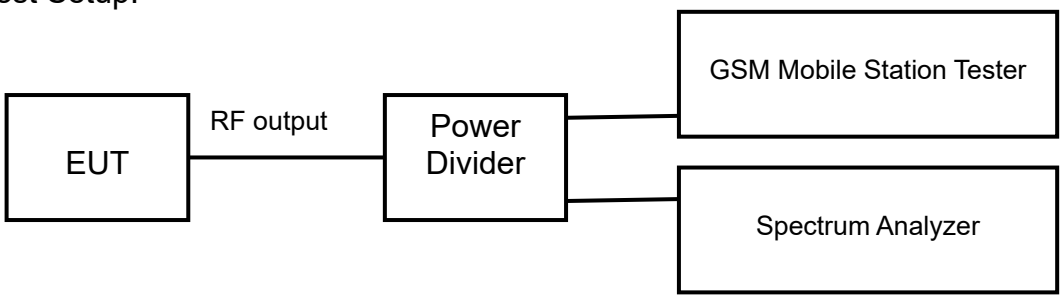
6.4 Emission Bandwidth-

Rule Part(s)
Part 2.1049

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test Setup:



Test procedure:
KDB 971168 D01 v03r01 – Section 4.2

Test Settings
1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 26dB occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW ≥ 3 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5% of the emission bandwidth observed in Step 7

Limits: No specific occupied bandwidth requirements in part 2.1049

Test result:
The test results are shown in Appendix A.

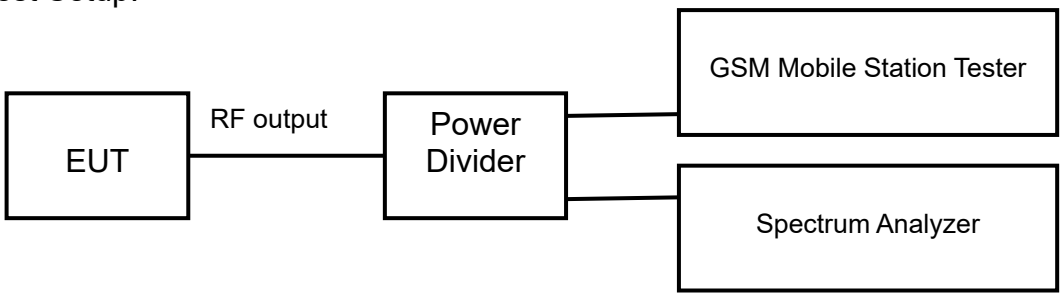
6.5 Spurious Emissions at antenna terminal

Rule Part(s)
FCC Part 2.1053/22.917 (a)/ 24.238(a)

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test Setup:



Test procedure:
KDB 971168 D01 v03r01 – Section 6.0

Test Settings
1. Start frequency was set to 30MHz and stop frequency was set to 10GHz for Cell, 20GHz for PCS
2. RBW=100 kHz (For below 1GHz), 1MHz (For above 1GHz)
3. VBW ≥ 3 x RBW
4. Detector = RMS
5. Trace mode = trace average for continuous emissions, max hold for pulse emissions
6. Sweep time = auto couple
7. The trace was allowed to stabilize

Limits:
The minimum permissible attenuation level of any spurious emission is $43+\log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

Test result:
The test results are shown in Appendix A.

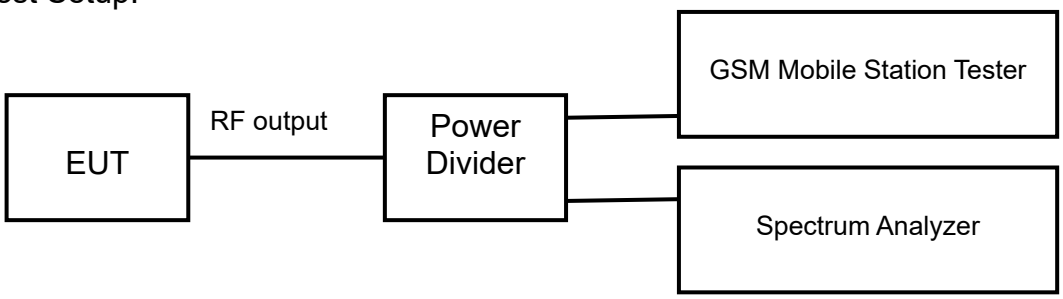
6.6 Band Edges Compliance

Rule Part (s)
FCC Part 2.1051/ 22.917(a) /Part 24.238(a)

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test Setup:



Test procedure:
KDB 971168 D01 v03r01 – Section 6.0

Test Settings
1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span=2MHz
3. RBW > 1% of the emission bandwidth
4. VBW > 3 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Limit: The minimum permissible attenuation level of any spurious emission is $43+\log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

Test result:
The test results are shown in Appendix A.

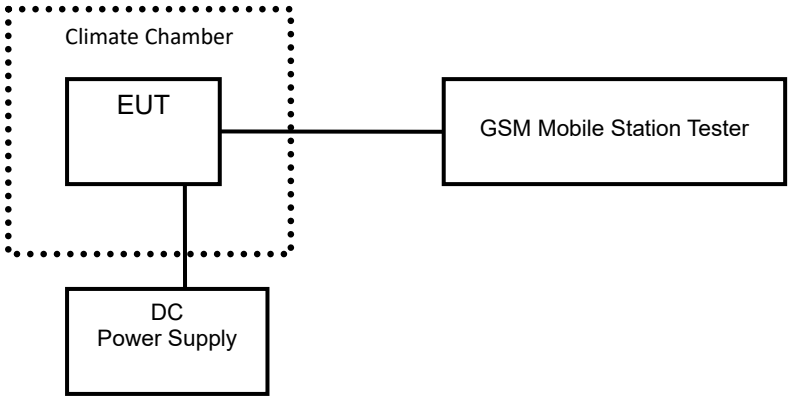
6.7 Frequency Stability

Rule Part(s)
FCC Part 2.1055/22.355 /Part 24.235

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test setup:



Test Procedure:
ANSI/TIA-603-E-2016

Test Settings
1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C (The temperature range can be declared by the manufacturer). A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Limits: For Part 22, the frequency stability of the transmitter shall be maintained within±0.00025% (±2.5 ppm) of the center frequency. For Part 24, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test result:
The test results are shown in Appendix A.

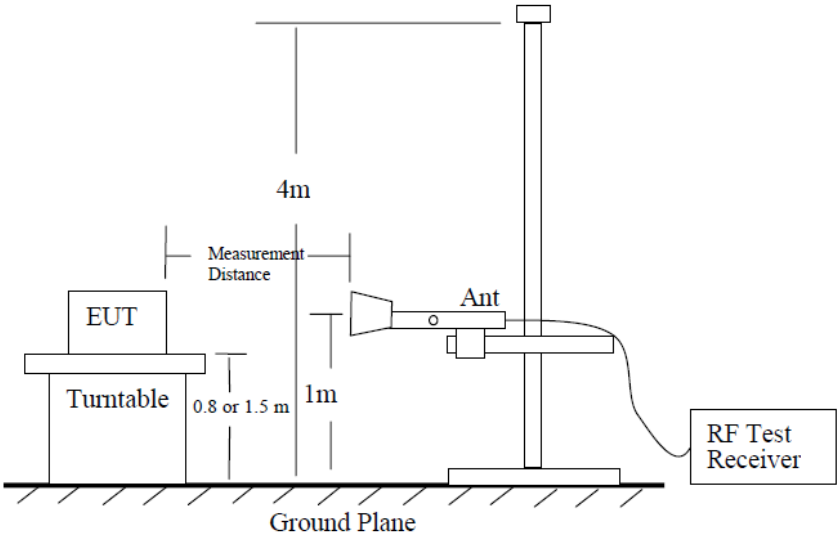
6.8 Radiated Spurious Emissions

Rule Part(s)
FCC Part2.1053/ 22.917(a)/Part 24.238(a)

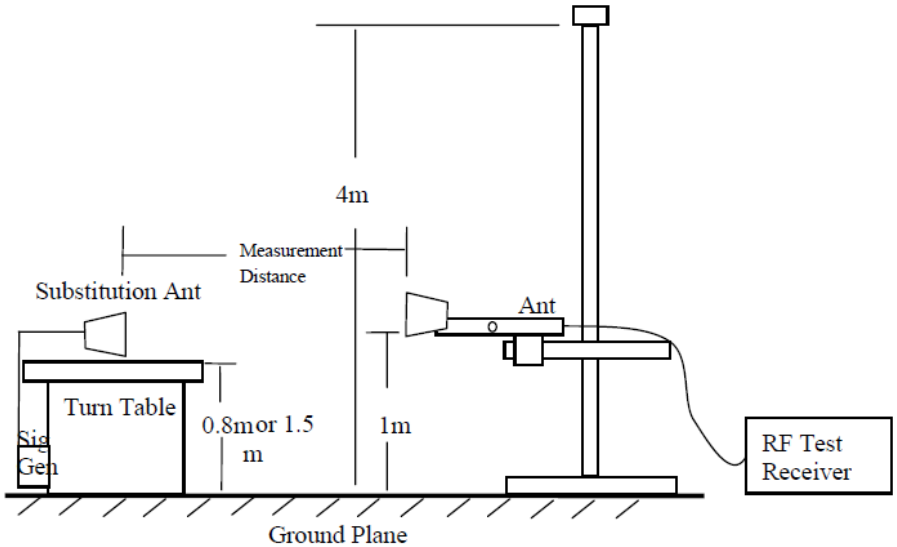
Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test Setup:



Step 1



Step 2

Test procedure:
The measurements procedures in TIA-603-E-2016 are used.
The spectrum was scanned from 30MHz to the 10th harmonic of the highest frequency generated within the equipment.
Step 1:
The measurement is carried out in the chamber. EUT was placed on a 0.8m (f<1GHz)/ 1.5m (f>1GHz) high non-conductive table at a 3 meters test distance from the test receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT. The height of receiving antenna from 1m to 4m and varies in certain range to find the maximum power value. A radio link shall be established between EUT and Tester. The output power of the cell signal of the tester will be decreased until the output power of the EUT reach a maximum value. A peak detector is used and RBW is set to 100 kHz (f<1GHz)/1MHz (f>1GHz). The antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum power value on spectrum analyzer or receiver. The spectrum analyzer scans from 30MHz to 10th harmonic of the carrier. A notch filter is necessary in the band near to the carrier frequency. A high pass filter is needed to avoid the distortion of the testing equipment in the band above the carrier frequency.
Step 2:
A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
A power (Pmea) is applied to the input of the substitution antenna, and adjusts the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (Pmea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
A “reference path loss” should be calculated after test. The attenuation of “reference path loss” is the cable loss between the Signal Source with the Substitution Antenna (Pca) and the Substitution Antenna Gain (Ga).
Calculation procedure:
The data of cable loss and antenna gain has been calibrated in full testing frequency range before the testing.
The power of the Radiated Spurious Emissions is calculated by adding the cable loss and antenna gain. The basic equation with a sample calculation is as followed:
Power (EIRP) = Pmea+ Pca + Ga
This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP – 2.15 (dB).
Assumed the power of signal source record is -20dBm. A cable loss of -30dB, and an antenna gain of 11dB are added.
P=Pmea+Pca+Ga=(-20dBm)+(-30dB)+(11dB)= -39dBm

Test result:
The test results are shown in Appendix B.

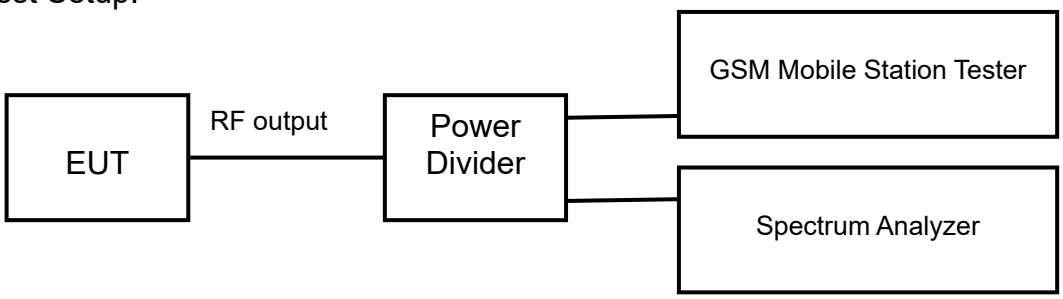
6.9 Peak-Average Ratio

Rule Part(s)
FCC Part 24.232(d)

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test Setup:



Test procedure:
KDB 971168 D01 v03r01 – Section 5.7.1

Test settings:
1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW > Emission bandwidth of signal
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

Limits: the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

Test result:
The test results are shown in Appendix A

7 MEASUREMENT UNCERTAINTIES

Items	Uncertainty	
Occupied Bandwidth	3kHz	
Peak power output	0.67dB	
Band edge compliance	1.20dB	
Spurious emissions	30MHz～1GHz	2.83dB
	1GHz～12.75GHz	2.50dB
	12.75GHz～25GHz	2.75dB

8 TEST EQUIPMENTS

No.	Name/Model	Manufacturer	S/N	Calibration Date	Calibration Due Date
1	E5515C(8960) Mobile Station Tester	Agilent	MY50266302	2020.08.20	2021.08.19
2	N9020A Spectrum Analyzer	Agilent	MY48010771	2020.08.20	2021.08.19
3	6007 Power Divider	Weinschel	6007-GJ-1	2020.08.20	2021.08.19
4	DC Power Supply E3645A	Agilent	MY40000741	2020.03.01	2021.02.28
5	Temperature chamber SH241	ESPEC	92013758	2020.08.20	2021.08.19
6	12.65m×8.03m×7.50m Fully-Anechoic Chamber	FRANKONIA	-----	-----	-----
7	23.18m×16.88m×9.60m Semi-Anechoic Chamber	FRANKONIA	---	-----	-----
8	Turn table Diameter:1m	FRANKONIA	-----	-----	-----
9	Turn table Diameter:5m	FRANKONIA	-----	-----	-----
10	Antenna master FAC(MA4.0)	MATURO	-----	-----	-----
11	Antenna master SAC(MA4.0)	MATURO	-----	-----	-----
12	9.080m×5.255m×3.525m Shielding room	FRANKONIA	-----	-----	-----
13	HF 907 Double-Ridged Waveguide Horn Antenna	R&S	100512	2020.08.20	2021.08.19
14	HF 907 Double-Ridged Waveguide Horn Antenna	R&S	100513	2020.08.20	2021.08.19
15	HL562 Ultra log antenna	R&S	100016	2020.08.20	2021.08.19
16	3160-09 Receive antenna	SCHWARZ-BECK	002058-002	2020.08.20	2021.08.19
17	ESI 40 EMI test receiver	R&S	100015	2020.08.20	2021.08.19
18	ESCS30 EMI test receiver	R&S	100029	2020.08.20	2021.08.19
19	HL562 Receive antenna	R&S	100167	2020.08.20	2021.08.19
20	ENV216 AMN	R&S	3560.6550.12	2020.08.20	2021.08.19

APPENDIX A – TEST DATA OF CONDUCTED EMISSION

RF Power Output

GSM850

GPRS Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	RF Power Output (dBm)
824.2	128	4Downlink1uplink	31.68
836.4	189		31.78
848.8	251		31.55
824.2	128	3Downlink2uplink	30.77
836.4	189		30.92
848.8	251		30.68
824.2	128	2Downlink3uplink	29.78
836.4	189		29.87
848.8	251		29.63
824.2	128	1Downlink4uplink	27.87
836.4	189		27.88
848.8	251		27.75

EGPRS (8PSK) Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	RF Power Output (dBm)
824.2	128	4Downlink1uplink	27.47
836.4	189		27.24
848.8	251		27.21
824.2	128	3Downlink2uplink	25.77
836.4	189		25.76
848.8	251		25.51
824.2	128	2Downlink3uplink	23.28
836.4	189		23.30
848.8	251		23.32
824.2	128	1Downlink4uplink	21.52
836.4	189		21.56
848.8	251		21.64

PCS1900
GPRS Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	RF Power Output (dBm)
1850.2	512	4Downlink1uplink	28.64
1880	661		28.62
1909.8	810		28.72
1850.2	512	3Downlink2uplink	26.80
1880	661		26.86
1909.8	810		26.73
1850.2	512	2Downlink3uplink	25.96
1880	661		25.94
1909.8	810		25.90
1850.2	512	1Downlink4uplink	24.07
1880	661		24.10
1909.8	810		24.02

EGPRS (8PSK) Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	RF Power Output (dBm)
1850.2	512	4Downlink1uplink	25.80
1880	661		25.82
1909.8	810		25.83
1850.2	512	3Downlink2uplink	24.23
1880	661		24.35
1909.8	810		24.18
1850.2	512	2Downlink3uplink	22.18
1880	661		22.23
1909.8	810		22.14
1850.2	512	1Downlink4uplink	20.08
1880	661		20.12
1909.8	810		20.23

Occupied Bandwidth

GSM850

GSM/GPRS MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
824.2	128	248.48
836.4	189	251.57
848.8	251	250.84

EDGE (8PSK) MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
824.2	128	243.10
836.4	189	245.55
848.8	251	243.12

PCS1900

GSM/GPRS MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
1850.2	512	253.71
1880.0	661	250.46
1909.8	810	253.10

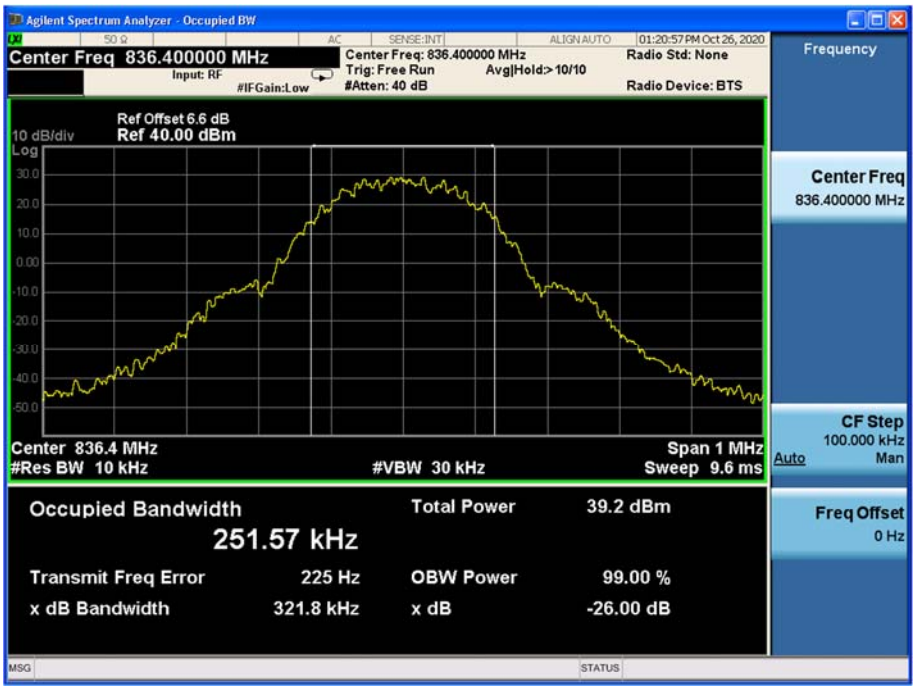
EDGE (8PSK) MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
1850.2	512	246.44
1880.0	661	241.05
1909.8	810	244.15

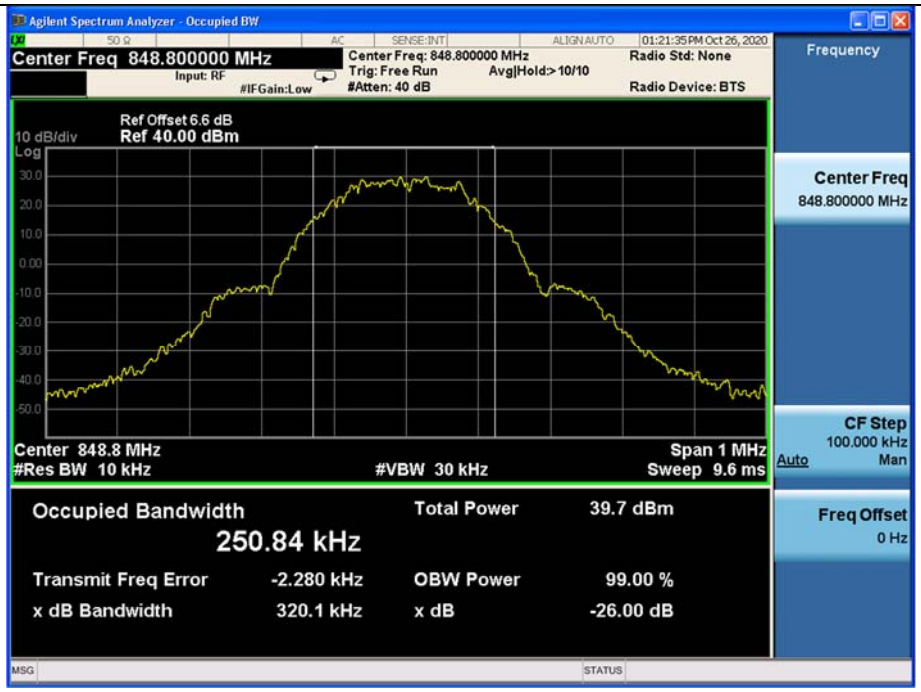
GSM850

GPRS MODE:

Channel 128

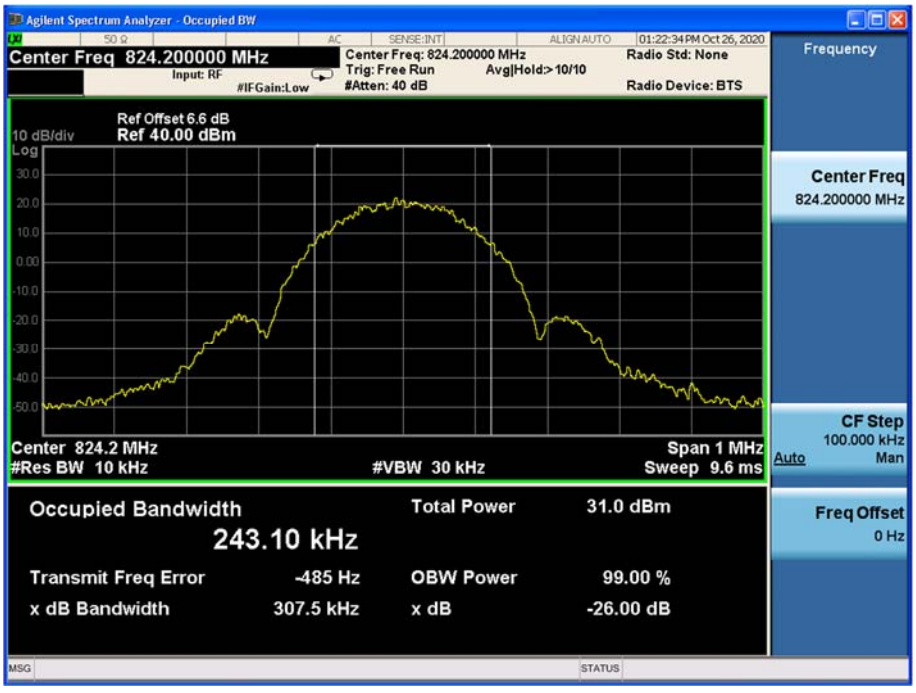


Channel 189



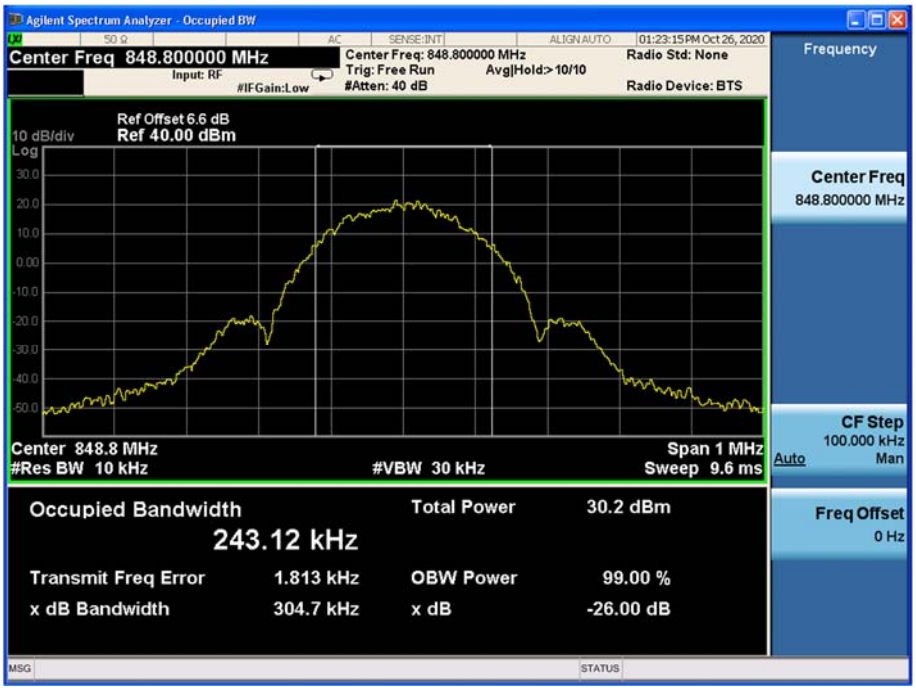
Channel 251

EDGE (8PSK) MODE:



Channel 128

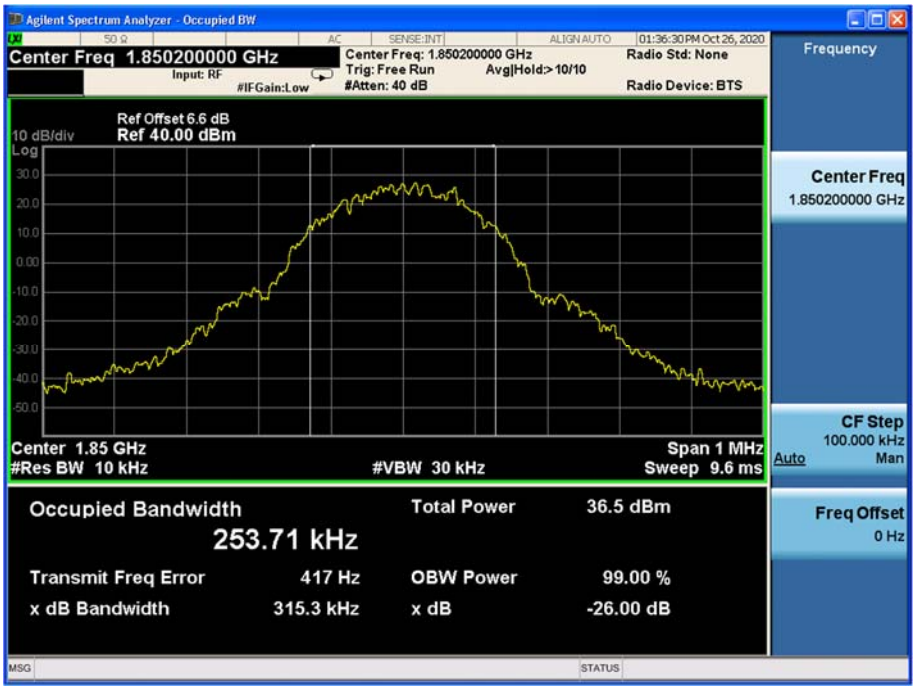
Channel 189



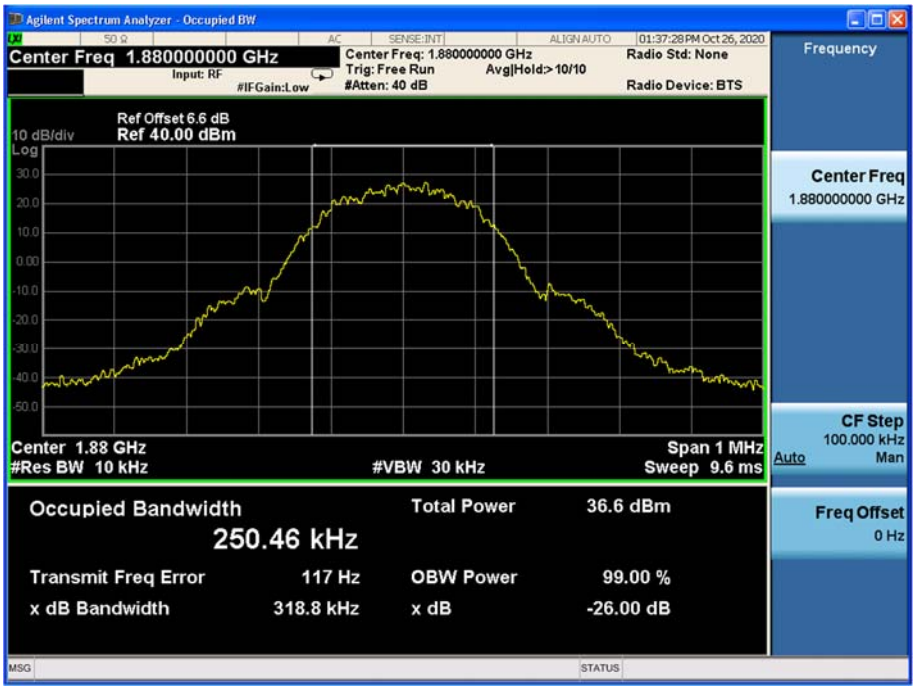
Channel 251

PCS1900

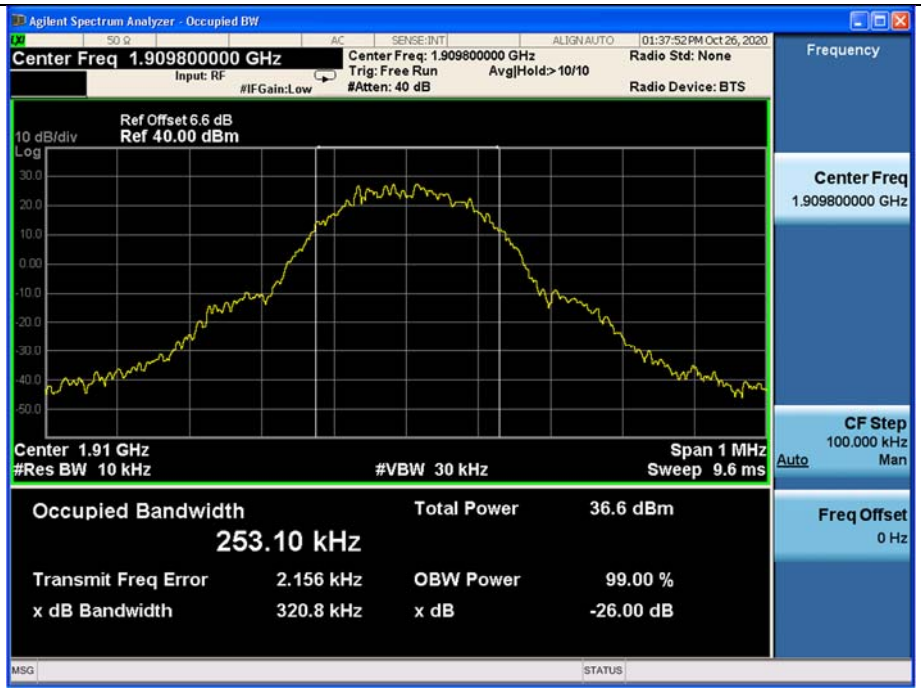
GPRS MODE:



Channel 512

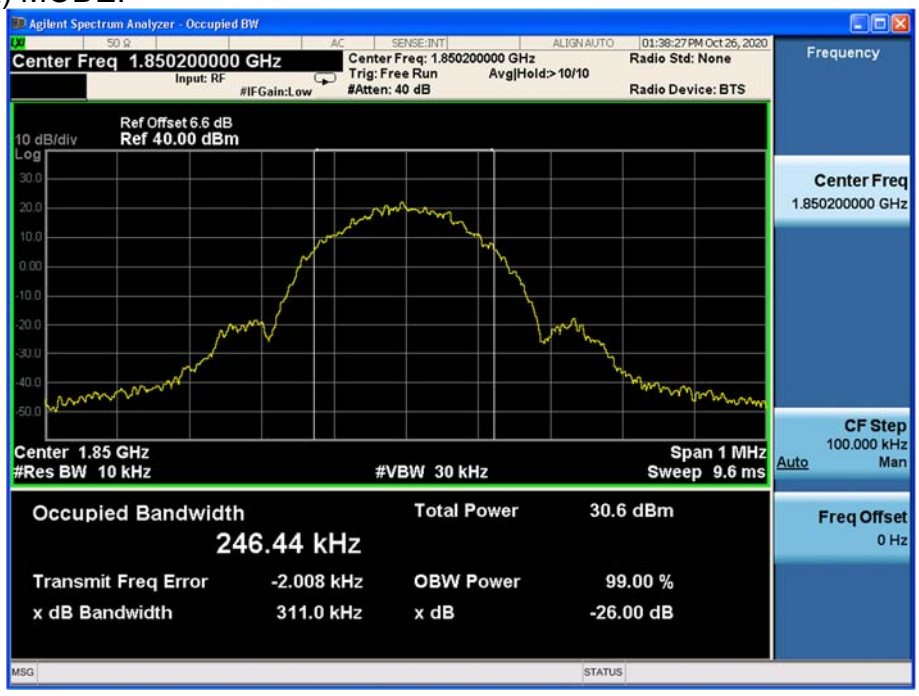


Channel 661

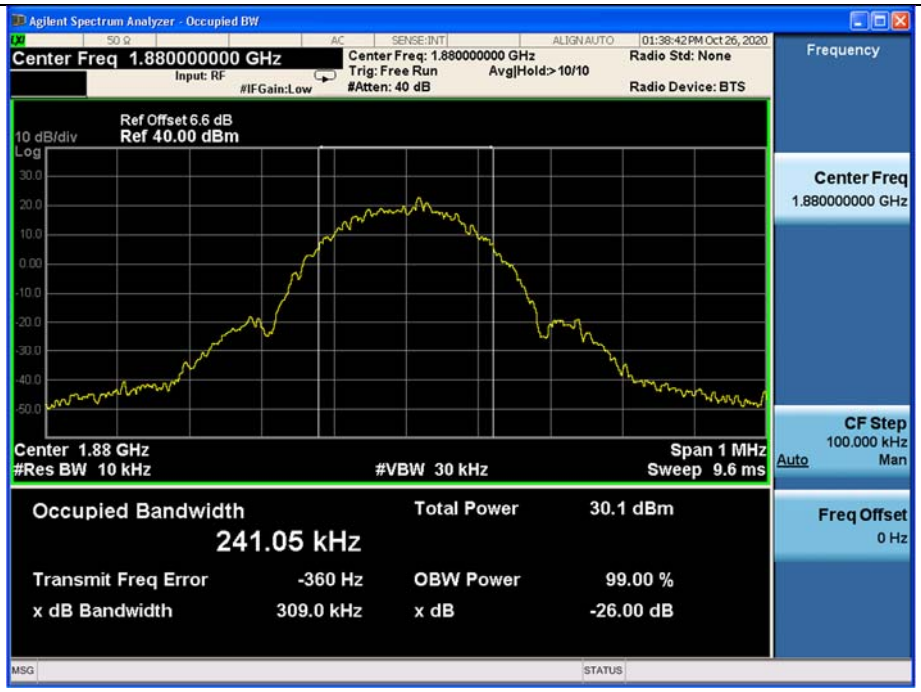


Channel 810

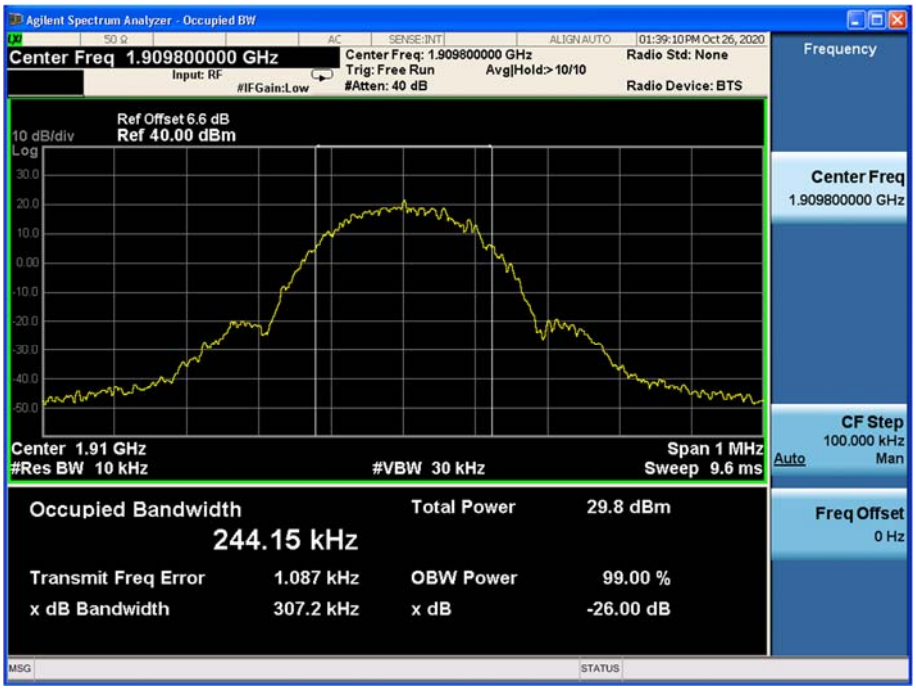
EDGE (8PSK) MODE:



Channel 512



Channel 661



Channel 810

Emission Bandwidth

GSM850
GSM/GPRS MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of -26dB transmitter power (kHz)
824.2	128	319.0
836.4	189	321.8
848.8	251	320.1

EDGE (8PSK) MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of -26dB transmitter power (kHz)
824.2	128	307.5
836.4	189	312.3
848.8	251	304.7

PCS1900
GSM/GPRS MODE:

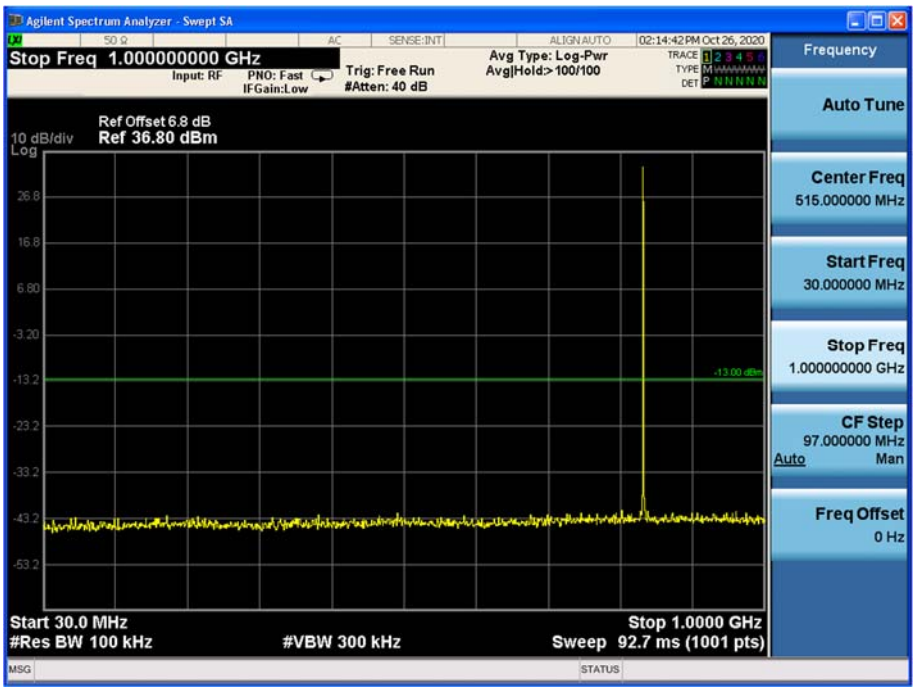
Carrier frequency (MHz)	Channel No.	Bandwidth of -26dB transmitter power (kHz)
1850.2	512	315.3
1880.0	661	318.8
1909.8	810	320.8

EDGE (8PSK) MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of -26dB transmitter power (kHz)
1850.2	512	311.0
1880.0	661	309.0
1909.8	810	307.2

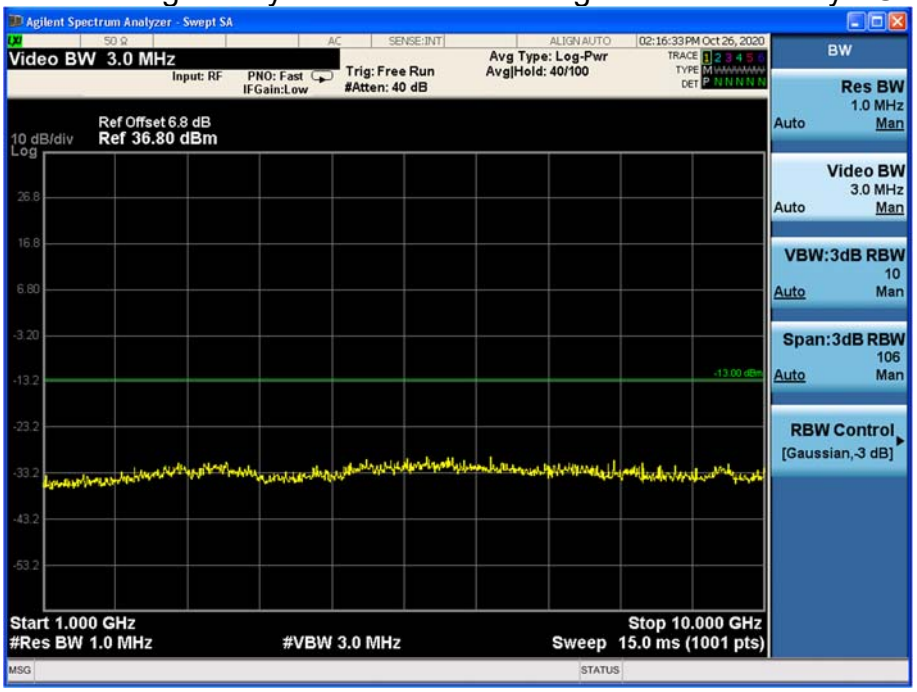
Spurious Emissions at antenna terminal
GSM850

GPRS MODE:



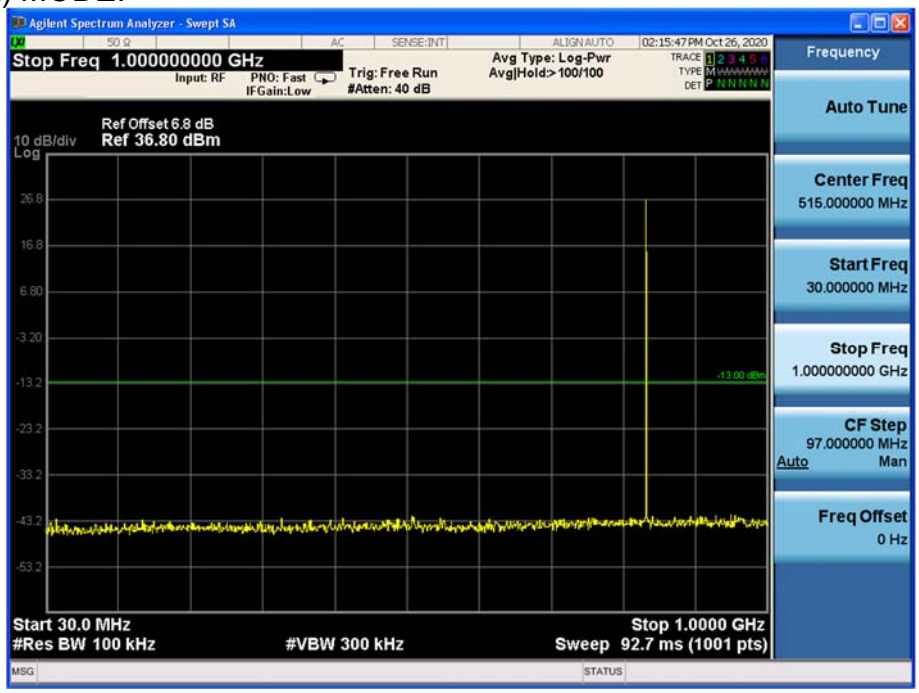
Channel 189, 30MHz~1GHz

Note: The signal beyond the limit is the signal transmitted by EUT.



Channel 189, 1GHz~10GHz

EDGE (8PSK) MODE:



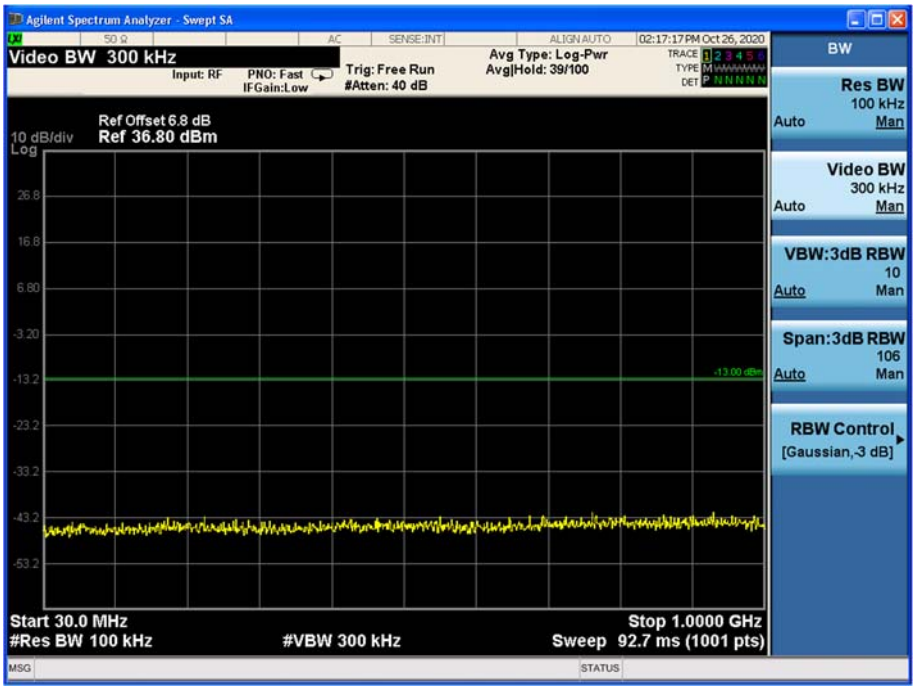
Channel 189, 30MHz~1GHz

Note: The signal beyond the limit is the signal transmitted by EUT.

Channel 189, 1GHz~10GHz

PCS1900

GPRS MODE:

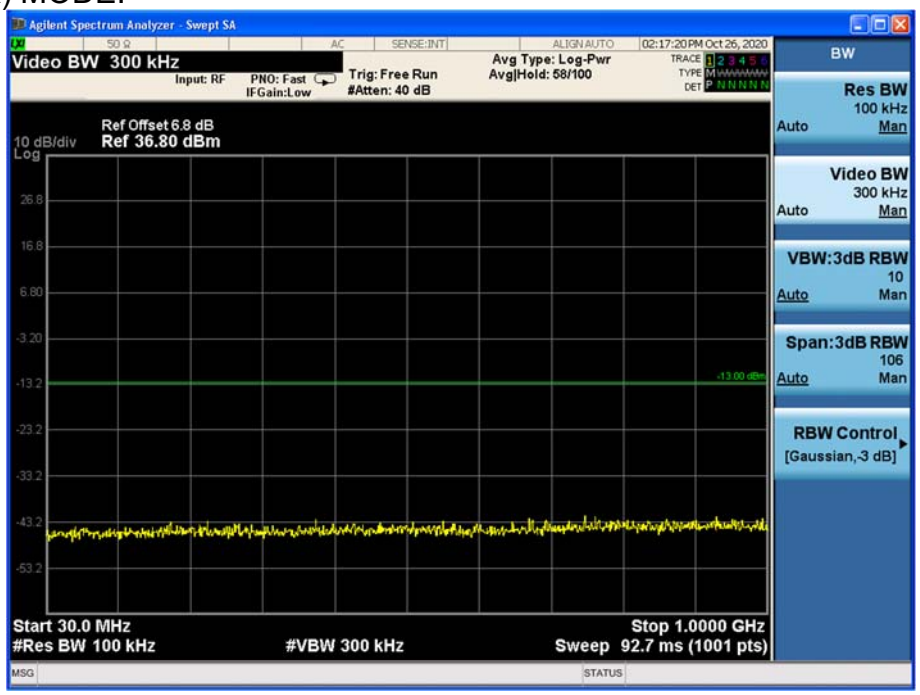


Channel 661, 30MHz~1GHz

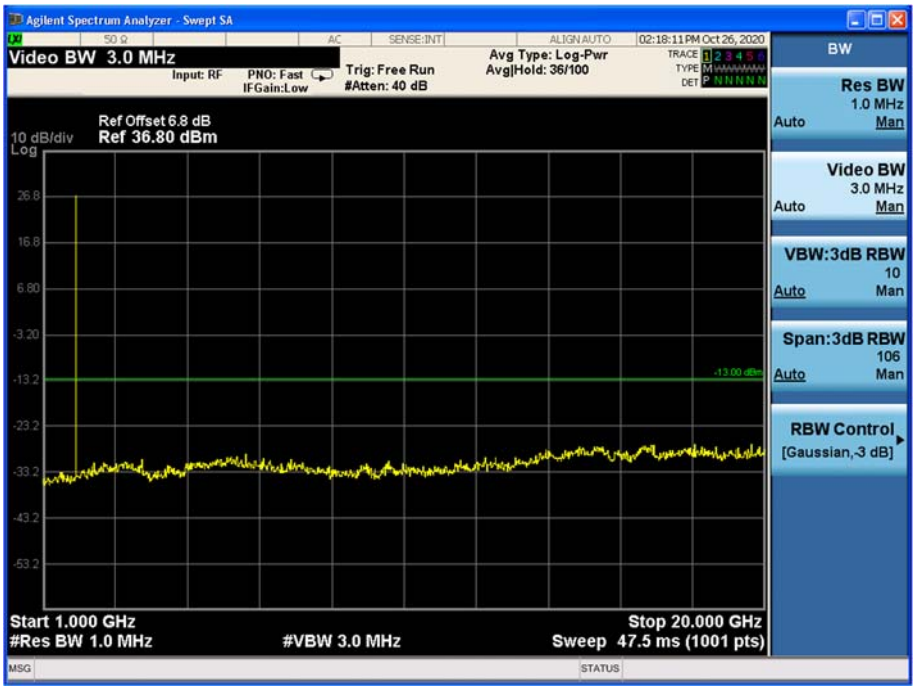
Channel 661, 1GHz~20GHz

Note: The signal beyond the limit is the signal transmitted by EUT.

EDGE (8PSK) MODE:



Channel 661, 30MHz~1GHz



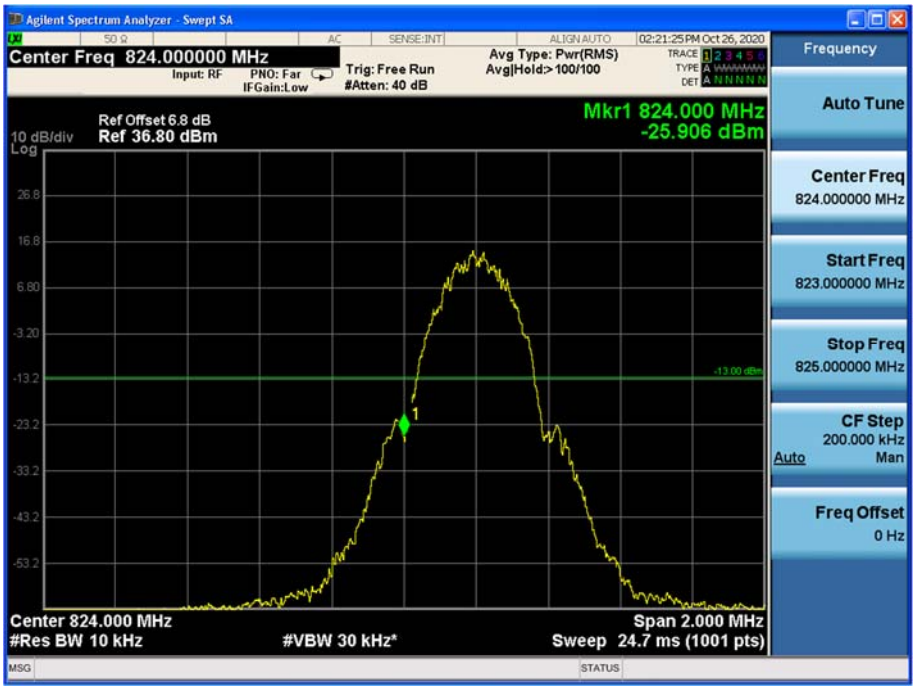
Channel 661, 1GHz~20GHz

Note: The signal beyond the limit is the signal transmitted by EUT.

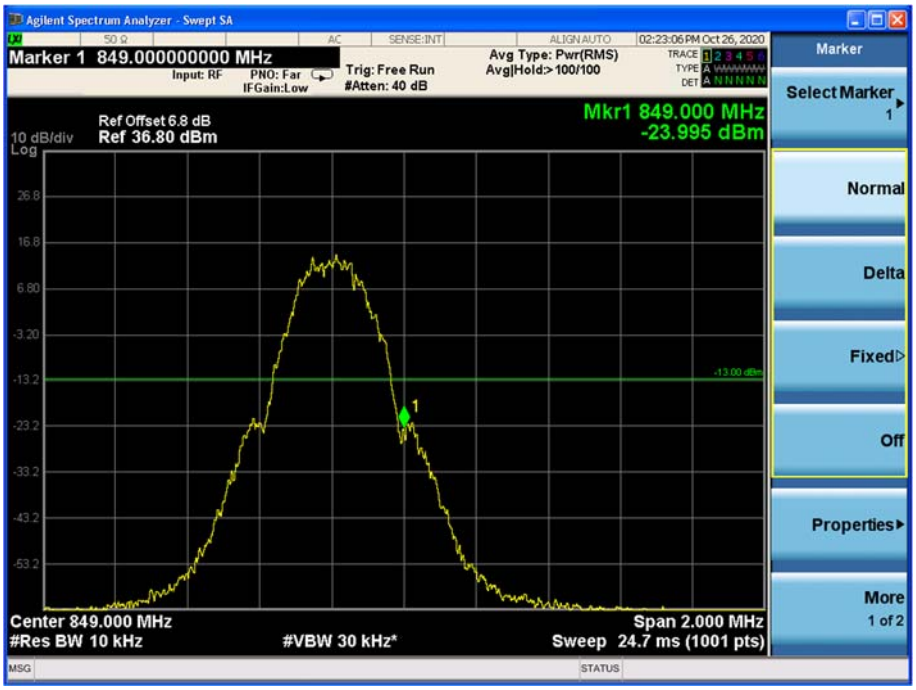
Band Edges Compliance

GSM850

GPRS MODE:

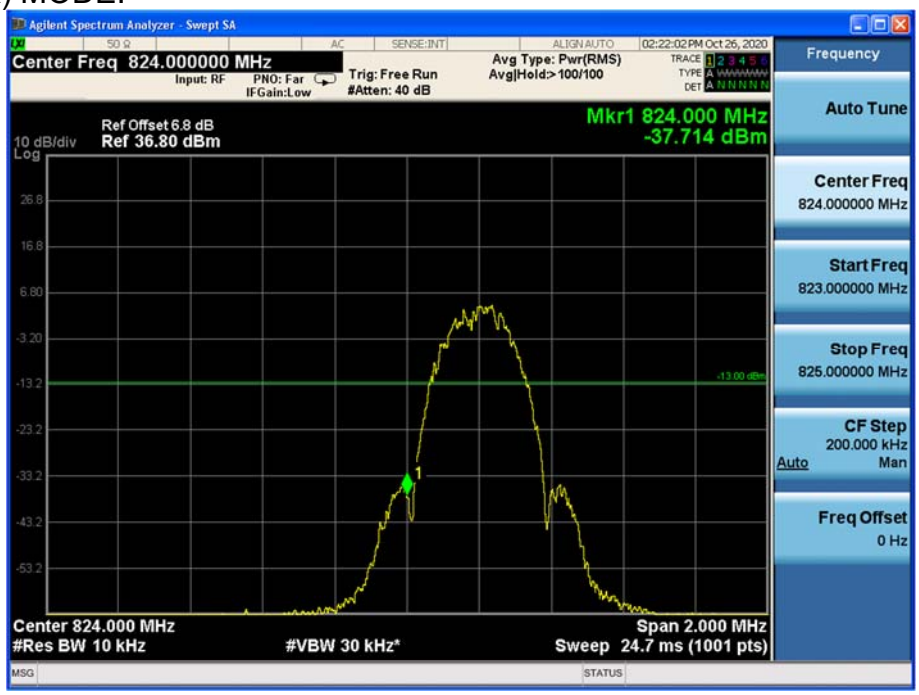


Channel 128

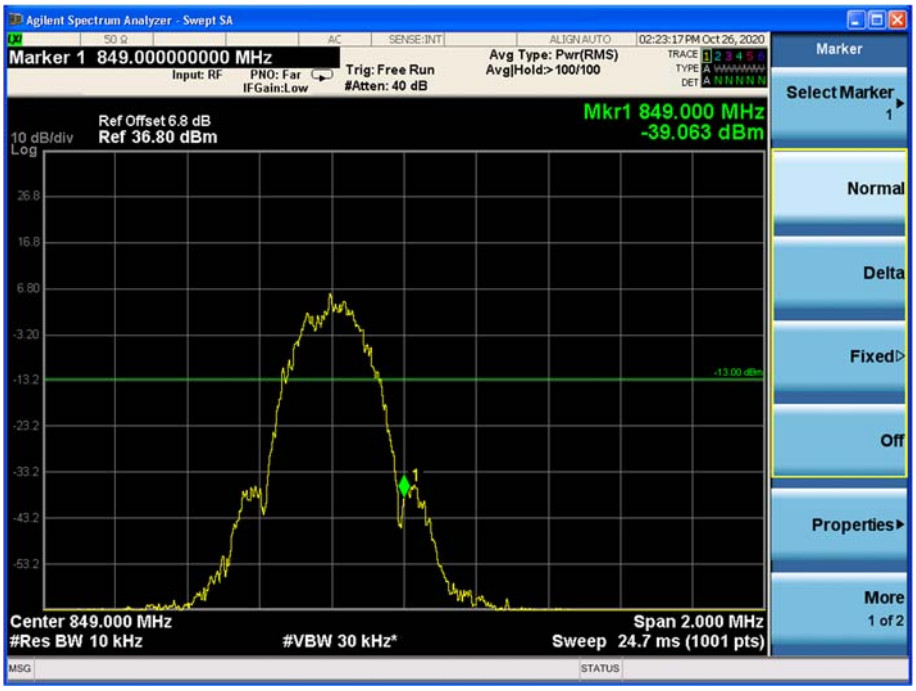


Channel 251

EDGE (8PSK) MODE:



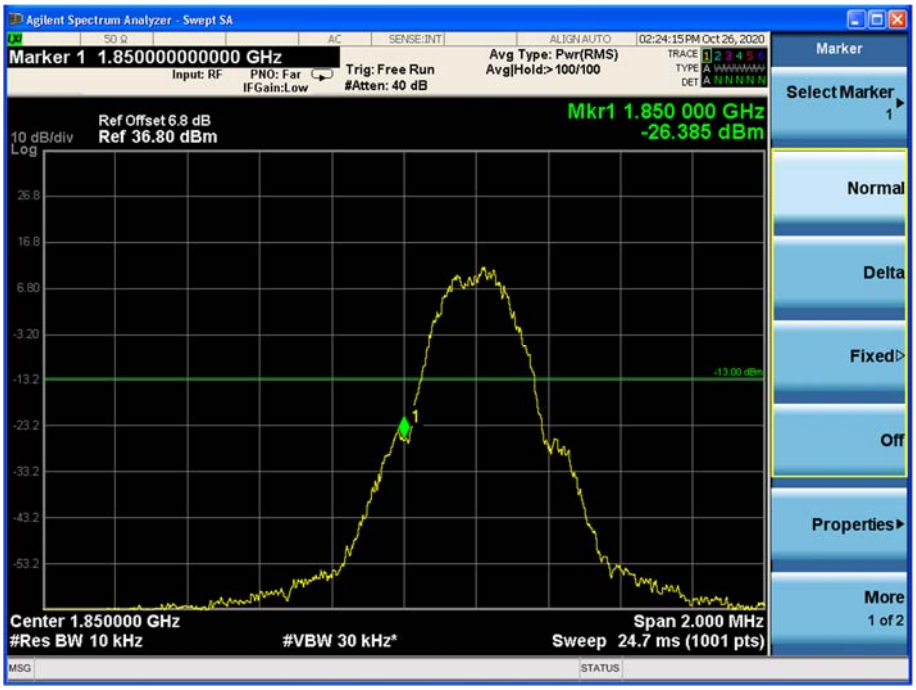
Channel 128



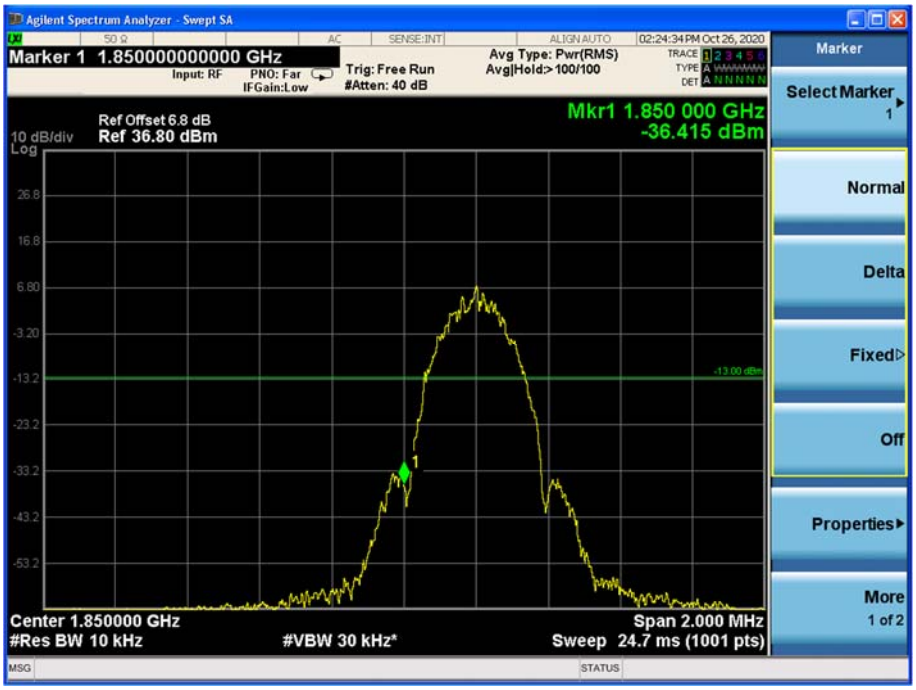
Channel 251

PCS1900

GPRS MODE:

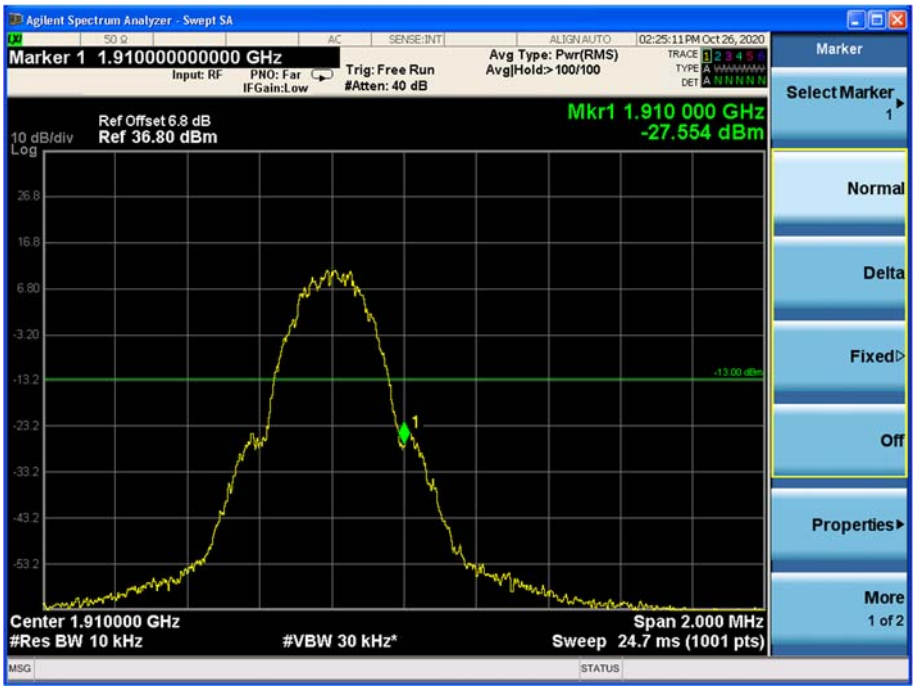


Channel 512

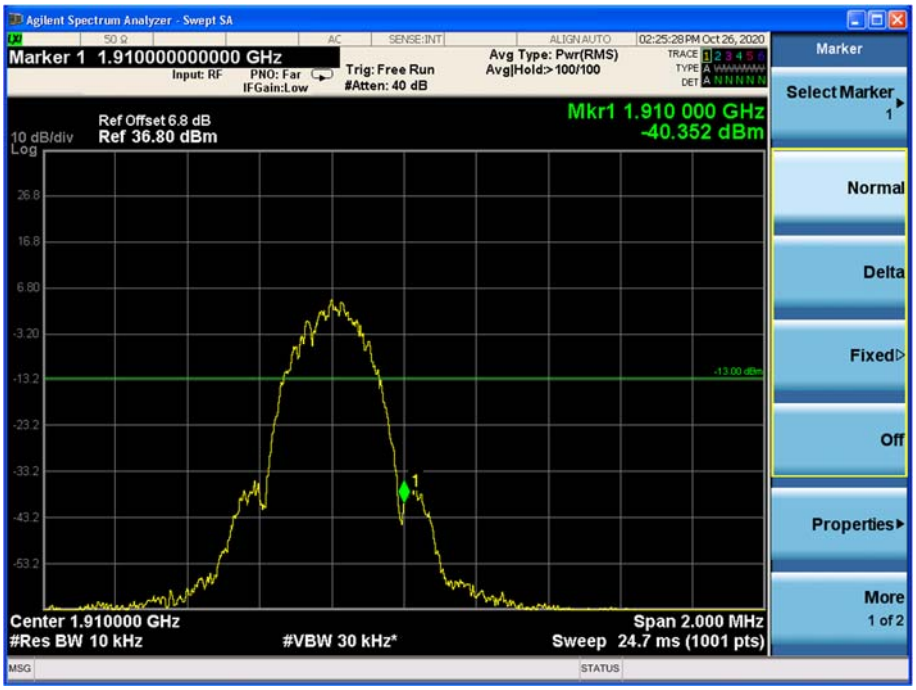


Channel 810

EDGE (8PSK) MODE:



Channel 512



Channel 810

Frequency Stability

GSM850

GPRS MODE:

Temperature(°C)	Test Result (ppm)@NV		
	Channel 128	Channel 189	Channel 251
-10	-0.093	-0.002	-0.095
0	0.086	0.032	-0.034
+10	-0.028	-0.016	-0.003
+20	0.000	0.000	0.000
+35	-0.043	-0.103	0.052
Voltage	Test Result (ppm)@NT		
	Channel 128	Channel 189	Channel 251
LV	-0.030	-0.008	0.065
HV	0.044	0.067	-0.043

EDGE (8PSK) MODE:

Temperature(°C)	Test Result (ppm)@NV		
	Channel 128	Channel 189	Channel 251
-10	0.087	0.042	-0.006
0	0.076	-0.106	-0.026
+10	0.060	-0.004	0.006
+20	0.000	0.000	0.000
+35	0.016	-0.047	-0.075
Voltage	Test Result (ppm)@NT		
	Channel 128	Channel 189	Channel 251
LV	0.027	0.074	-0.018
HV	-0.003	-0.062	0.004

PCS1900
GPRS MODE:

Temperature(°C)	Test Result (ppm)@NV		
	Channel 512	Channel 661	Channel 810
-10	-0.039	0.019	0.013
0	0.072	-0.016	-0.025
+10	0.063	0.001	0.045
+20	0.000	0.000	0.000
+35	-0.041	-0.070	-0.043
Voltage	Test Result (ppm)@NT		
	Channel 512	Channel 661	Channel 810
LV	0.080	0.063	-0.083
HV	-0.058	-0.054	-0.002

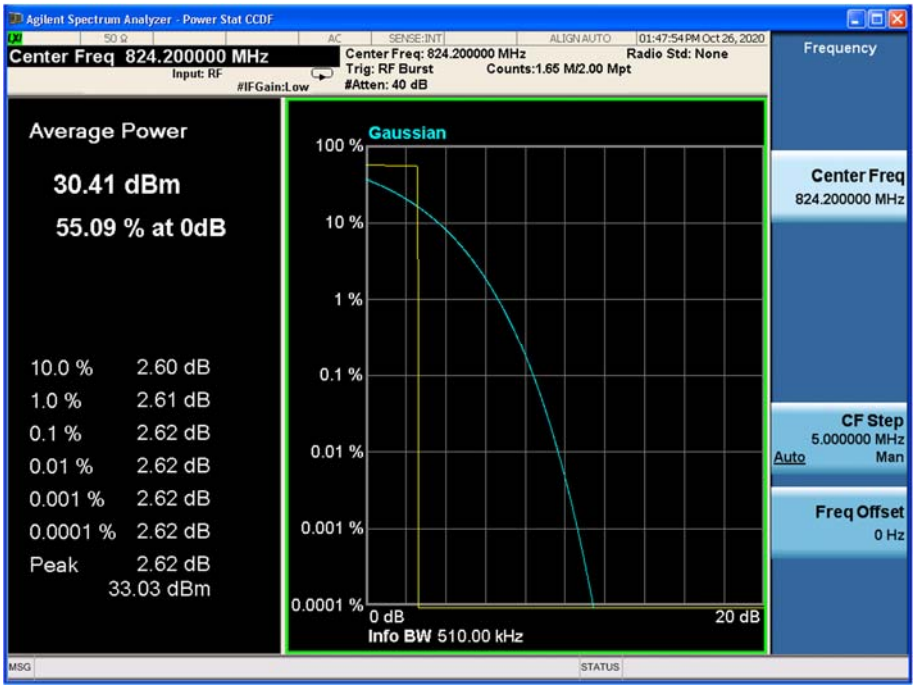
EDGE (8PSK) MODE:

Temperature(°C)	Test Result (ppm)@NV		
	Channel 512	Channel 661	Channel 810
-10	-0.087	0.011	-0.035
0	-0.075	0.005	0.029
+10	-0.051	0.018	0.071
+20	0.000	0.000	0.000
+35	0.043	-0.059	-0.107
Voltage	Test Result (ppm)@NT		
	Channel 512	Channel 661	Channel 810
LV	-0.032	0.091	-0.075
HV	0.046	-0.081	-0.017

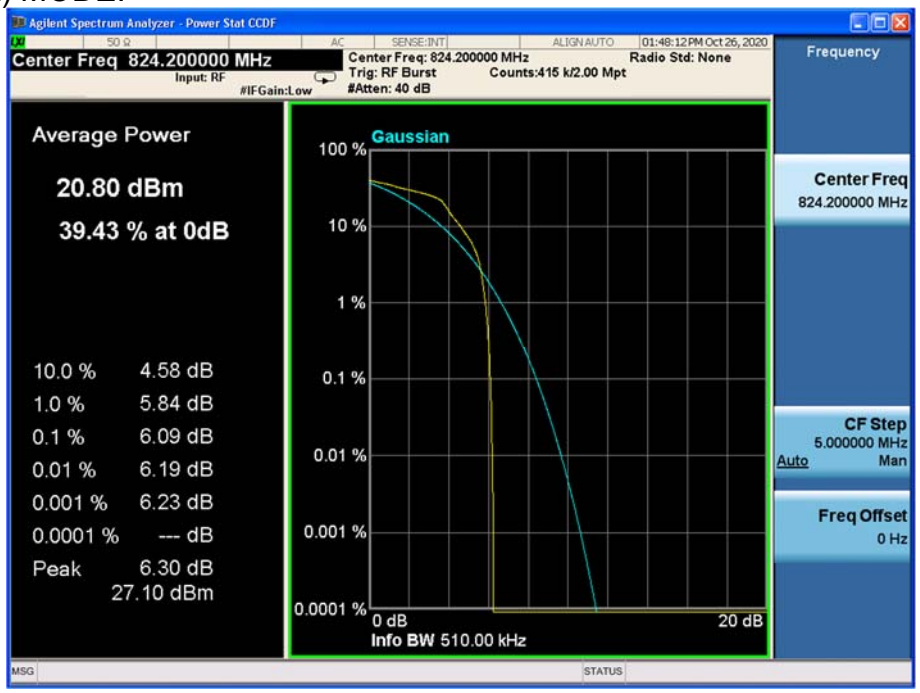
Peak-Average Ratio

GSM850

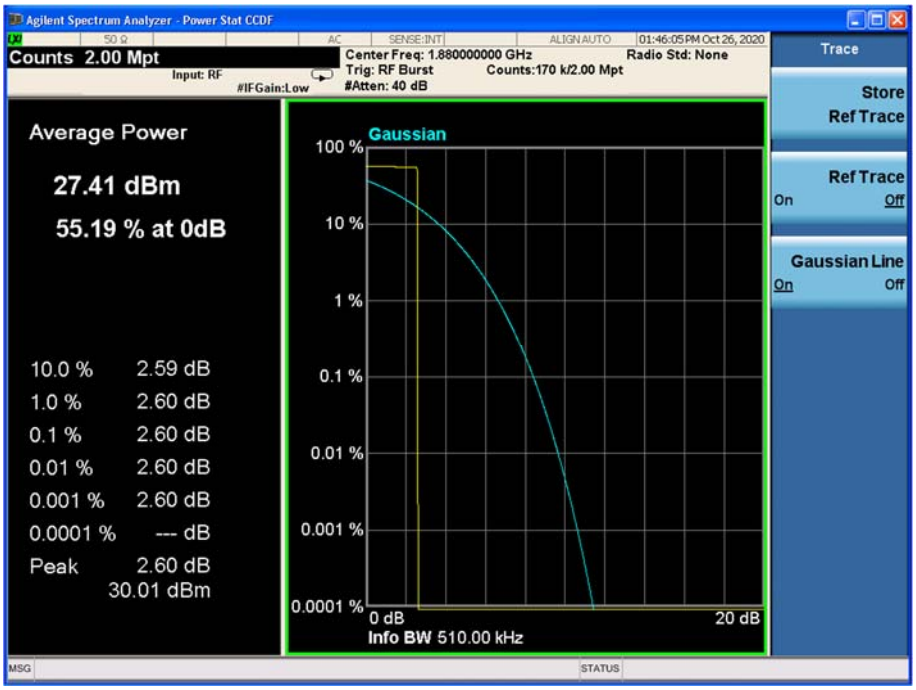
GPRS MODE:



EDGE (8PSK) MODE:



PCS1900
GPRS MODE:



EDGE (8PSK) MODE:

Effective Radiated Power and Effective Isotropic Radiated Power

GSM850

GPRS Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	ERP/EIRP(W)
824.2	128	4Downlink1uplink	1.007
836.4	189		1.030
848.8	251		0.977
824.2	128	3Downlink2uplink	0.817
836.4	189		0.845
848.8	251		0.800
824.2	128	2Downlink3uplink	0.650
836.4	189		0.664
848.8	251		0.628
824.2	128	1Downlink4uplink	0.419
836.4	189		0.420
848.8	251		0.407

EGPRS (8PSK) Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	ERP/EIRP(W)
824.2	128	4Downlink1uplink	0.382
836.4	189		0.362
848.8	251		0.360
824.2	128	3Downlink2uplink	0.258
836.4	189		0.258
848.8	251		0.243
824.2	128	2Downlink3uplink	0.146
836.4	189		0.146
848.8	251		0.147
824.2	128	1Downlink4uplink	0.097
836.4	189		0.098
848.8	251		0.100

PCS1900
GPRS Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	ERP/EIRP(W)
1850.2	512	4Downlink1uplink	1.081
1880	661		1.076
1909.8	810		1.102
1850.2	512	3Downlink2uplink	0.708
1880	661		0.718
1909.8	810		0.697
1850.2	512	2Downlink3uplink	0.583
1880	661		0.581
1909.8	810		0.575
1850.2	512	1Downlink4uplink	0.378
1880	661		0.380
1909.8	810		0.373

EGPRS (8PSK) Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	ERP/EIRP(W)
1850.2	512	4Downlink1uplink	0.562
1880	661		0.565
1909.8	810		0.566
1850.2	512	3Downlink2uplink	0.392
1880	661		0.403
1909.8	810		0.387
1850.2	512	2Downlink3uplink	0.244
1880	661		0.247
1909.8	810		0.242
1850.2	512	1Downlink4uplink	0.151
1880	661		0.152
1909.8	810		0.156

APPENDIX B – TEST DATA OF RADIATED EMISSION

850 Test result:

Test result:
GSM/GPRS MODE Channel 128:

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1646.35	-52.37	-13	Vertical
1666.16	-51.74	-13	Vertical
2532.35	-43.40	-13	Vertical
2576.57	-42.75	-13	Horizontal
8961.99	-39.57	-13	Vertical
9969.56	-34.74	-13	Vertical

EDGE (8PSK) MODE Channel 128:

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1646.78	-52.46	-13	Vertical
1664.42	-51.47	-13	Vertical
2535.66	-43.05	-13	Vertical
2574.18	-43.42	-13	Horizontal
8960.94	-39.74	-13	Vertical
9967.80	-36.16	-13	Vertical

GSM/GPRS MODE Channel 189:

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1646.53	-51.77	-13	Vertical
1665.42	-51.81	-13	Vertical
2534.58	-43.01	-13	Vertical
2575.97	-43.33	-13	Vertical
8961.77	-39.50	-13	Horizontal
9971.79	-34.87	-13	Vertical

EDGE (8PSK) MODE Channel 189:

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1647.04	-52.53	-13	Vertical
1667.52	-51.52	-13	Horizontal
2531.15	-43.59	-13	Vertical
2575.92	-42.82	-13	Vertical
8964.96	-39.80	-13	Vertical
9967.03	-35.84	-13	Vertical

GSM/GPRS MODE Channel 251:

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1649.35	-51.77	-13	Vertical
1667.35	-51.25	-13	Vertical
2534.44	-43.77	-13	Vertical
2577.06	-42.79	-13	Vertical
8963.93	-39.12	-13	Vertical
9969.59	-35.55	-13	Horizontal

EDGE (8PSK) MODE Channel 251:

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1648.70	-51.94	-13	Vertical
1669.19	-51.38	-13	Vertical
2536.91	-43.94	-13	Vertical
2575.71	-42.68	-13	Vertical
8963.56	-39.93	-13	Horizontal
9971.12	-36.01	-13	Vertical

1900 Test result:

Test result:
GSM/GPRS MODE Channel 512

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2455.41	-53.48	-13	Vertical
2781.97	-50.82	-13	Vertical
3726.23	-43.56	-13	Vertical
6678.25	-43.11	-13	Horizontal
9964.78	-40.27	-13	Horizontal
17821.64	-35.16	-13	Vertical

EDGE (8PSK) MODE Channel 512:

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2454.17	-52.54	-13	Vertical
2778.31	-51.67	-13	Vertical
3728.93	-44.08	-13	Vertical
6681.22	-43.88	-13	Vertical
9962.70	-40.10	-13	Vertical
17822.44	-36.32	-13	Vertical

GSM/GPRS MODE Channel 661:

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2453.26	-53.46	-13	Vertical
2783.35	-51.19	-13	Horizontal
3730.75	-43.43	-13	Vertical
6676.01	-42.94	-13	Vertical
9959.83	-39.80	-13	Horizontal
17820.52	-35.22	-13	Vertical

EDGE (8PSK) MODE Channel 661:

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2452.50	-53.00	-13	Vertical
2782.43	-51.65	-13	Vertical
3726.77	-44.02	-13	Vertical
6677.79	-43.16	-13	Vertical
9963.05	-39.70	-13	Vertical
17824.29	-35.44	-13	Vertical

GSM/GPRS MODE Channel 810:

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2455.64	-52.42	-13	Vertical
2780.10	-51.31	-13	Vertical
3729.93	-43.45	-13	Horizontal
6676.86	-43.48	-13	Vertical
9964.27	-40.55	-13	Vertical
17823.18	-36.04	-13	Vertical

EDGE (8PSK) MODE Channel 810:

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2456.82	-52.24	-13	Vertical
2783.32	-51.61	-13	Vertical
3727.08	-44.00	-13	Horizontal
6678.70	-43.09	-13	Vertical
9966.45	-39.87	-13	Vertical
17819.91	-35.97	-13	Vertical

---End of Test Report---