
TEST REPORT FOR GSM TESTING

Report No.: SRTC2020-9004(F)-20102101(A)

Product Name: Smartphone

Product Model: CP3320AS2

Applicant: Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd

Manufacturer: Yulong Computer Telecommunication Scientific (Shenzhen) Co.,
Ltd

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

FCC ID: R38YLCP3320AS2

The State Radio_monitoring_center Testing Center (SRTC)

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

Beijing, P.R.China

Tel: 86-10-57996183 Fax: 86-10-57996388

CONTENTS

1. GENERAL INFORMATION	2
1.1 Notes of the test report	2
1.2 Information about the testing laboratory	2
1.3 Applicant’s details.....	2
1.4 Manufacturer’s details.....	2
1.5 Test Environment	3
2 DESCRIPTION OF THE DEVICE UNDER TEST	4
2.1 Final Equipment Build Status.....	4
2.2 Support Equipment	5
2.3 Summary table.....	5
3 REFERENCE SPECIFICATION	6
4 KEY TO NOTES AND RESULT CODES	6
5 RESULT SUMMARY	7
6 TEST RESULT.....	8
6.1 RF Power Output.....	8
6.2 Effective Radiated Power and Effective Isotropic Radiated Power	9
6.3 Occupied Bandwidth	10
6.4 Emission Bandwidth-	11
6.5 Spurious Emissions at antenna terminal.....	12
6.6 Band Edges Compliance.....	13
6.7 Frequency Stability	14
6.8 Radiated Spurious Emissions.....	15
6.9 Peak-Average Ratio	17
7 MEASUREMENT UNCERTAINTIES	18
8 TEST EQUIPMENTS	19
APPENDIX A – TEST DATA OF CONDUCTED EMISSION	20
APPENDIX B – TEST DATA OF RADIATED EMISSION	74

1. GENERAL INFORMATION

1.1 Notes of the test report

The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written permission of The State Radio_monitoring_center Testing Center (SRTC). The test results relate only to individual items of the samples which have been tested. The certification and accreditation identifiers used in this report shall not be applicable to the tested or calibrated samples thereof. The manufacturer shall not mark the tested samples or items (or a separate part of the item) with the identifiers of certification and accreditation to mislead relevant parties about the tested samples or items.

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
Contacted person:	Liu Jia
Tel:	+86 10 57996183
Fax:	+86 10 57996388
Email:	liujiat@srtc.org.cn

1.3 Applicant's details

Company:	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd
Address:	Floor 21, Block A, Coolpad Building, Intersection of Keyuan Avenue and Baoshen Road, North High-Tech Industrial Park, Nanshan District, Shenzhen
City:	Shenzhen
Country or Region:	China
Contacted person:	Yentl Chen
Tel:	15927320221
Fax:	---
Email:	chenyanting@yulong.com

1.4 Manufacturer's details

Company:	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd
Address:	Floor 21, Block A, Coolpad Building, Intersection of Keyuan Avenue and Baoshen Road, North High-Tech Industrial Park, Nanshan District, Shenzhen
City:	Shenzhen
Country or Region:	China
Contacted person:	Yentl Chen
Tel:	15927320221
Fax:	---
Email:	chenyanting@yulong.com

1.5 Test Environment

Date of Receipt of test sample at SRTC:	2020-12-11
Testing Start Date:	2020-12-11
Testing End Date:	2021-01-20

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	25	40
Maximum Extreme	60	---
Minimum Extreme	-20	---

Normal Supply Voltage (V d.c.):	3.85
Maximum Extreme Supply Voltage (V d.c.):	4.40
Minimum Extreme Supply Voltage (V d.c.):	3.60

2 DESCRIPTION OF THE DEVICE UNDER TEST

2.1 Final Equipment Build Status

Frequency Range	GSM850: Tx:824~849MHz Rx:869~894MHz PCS1900: Tx:1850~1910MHz Rx:1930~1990MHz
Modulation Type	GPRS:GMSK EDGE: GMSK/8PSK
Emission Designator	300KGXW/300KG7W
Duplex Mode	FDD
Duplex Spacing	GSM850:45MHz PCS1900:80MHz
Antenna Type	Fixed Internal Antenna
Antenna Gain	GSM850: -3.71dBi/PCS1900: -0.56dBi
Power Supply	Battery/Charger
Hardware Version	P2
Software Version	CP3320AS2.201211.0S
IMEI	862230050003870

Note: The difference between main supply and secondary supply is that the Battery, USB Cable, Charger and do not affect the RF parameters, so the secondary supply evaluates the worst case of radiation.

2.2 Support Equipment

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

Equipment	Battery 1
Manufacturer	TianMao
Model Number	CPLD-441
Equipment	Battery 2
Manufacturer	Lishen
Model Number	CPLD-441
Equipment	Charger 1
Manufacturer	Ruide
Model Number	RD0501000-USBA-18MG
Equipment	Charger 2
Manufacturer	Kosun
Model Number	618045
Equipment	USB Cable 1
Manufacturer	Kosun
Model Number	A20016
Equipment	USB Cable 2
Manufacturer	Baorunlian
Model Number	8.2.63

2.3 Summary table.

FCC Rule Part	Mode	Frequency Range (MHz)	ERP/ EIRP (dBm)	ERP/ EIRP (W)	Frequency Tolerance (ppm)	Emission Designator
22H	GSM850	824.2-848.8	28.07	0.641	0.021	245KGXW
22H	EDGE850	824.2-848.8	24.65	0.292	0.006	255KG7W
24E	GSM1900	1850.2-1909.8	29.36	0.863	0.007	250KGXW
24E	EDGE1900	1850.2-1909.8	26.63	0.460	-0.004	243KG7W

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


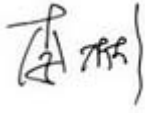

4 KEY TO NOTES AND RESULT CODES

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 Issued by: Mr. Peng Zhen 	Checked by: Mr. Li Bin 
Tested by: Mr. Tong Daocheng 	Issued date: 20210120

6 TEST RESULT

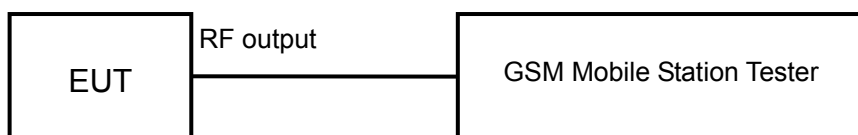
6.1 RF Power Output

Rule Part(s)
 FCC Part 2.1046

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	40%	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.

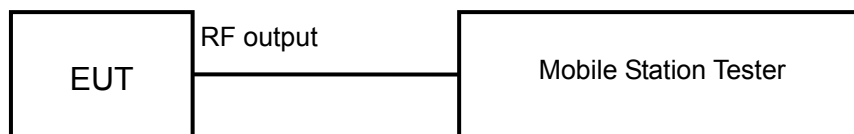
6.2 Effective Radiated Power and Effective Isotropic Radiated Power

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

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	40%	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:

$$ERP/EIRP = P_{Meas} - LC + GT$$

Where:

ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as P_{Meas}, typically dBW or dBm)

P_{Meas} = 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)

Limits for GSM850:

Operation Mode	Power Step	E.R.P. (dBm)
GSM	5	≤38.45
GPRS	3	≤38.45
EDGE	6	≤38.45

Limits for PCS1900:

Operation Mode	Power Step	E.I.R.P. (dBm)
GSM	0	≤33
GPRS	3	≤33
EDGE	5	≤33

Test result:

The test results are shown in Appendix A.

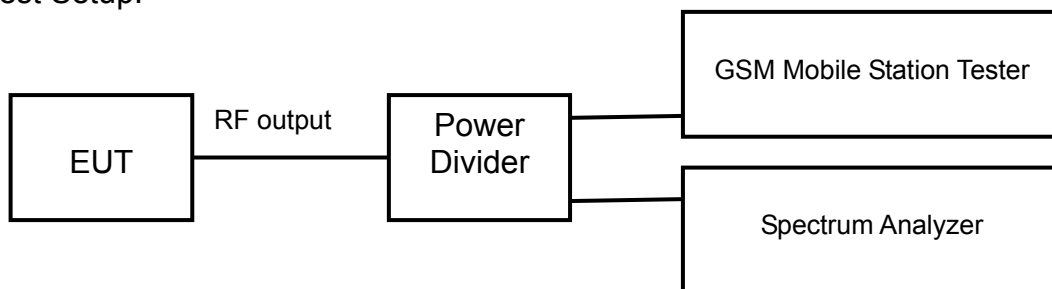
6.3 Occupied Bandwidth

Rule Part(s)
Part 2.1049

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	40%	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 \geq 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.

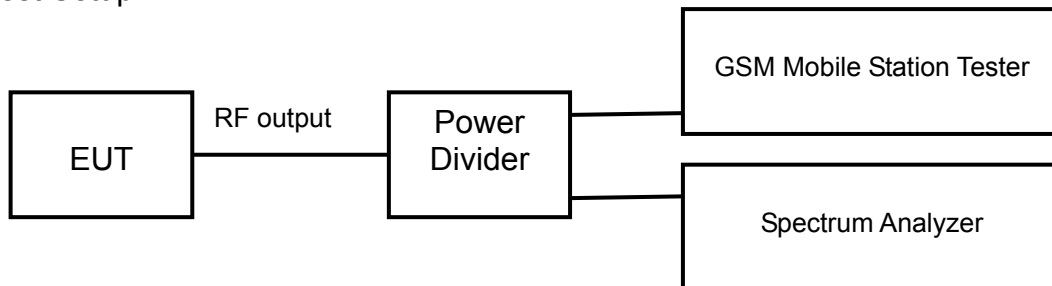
6.4 Emission Bandwidth-

Rule Part(s)
Part 2.1049

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	40%	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 \geq 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.

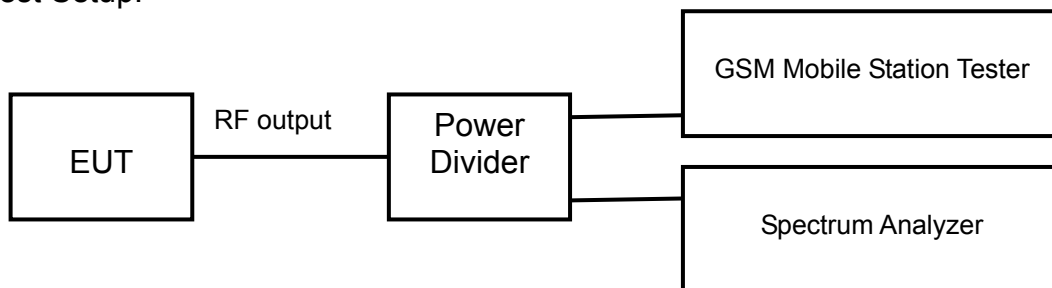
6.5 Spurious Emissions at antenna terminal

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

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	40%	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 $43 + \log_{10}(P_{\text{[Watts]}})$, where P is the transmitter power in Watts.

Test result:

The test results are shown in Appendix A.

6.6 Band Edges Compliance

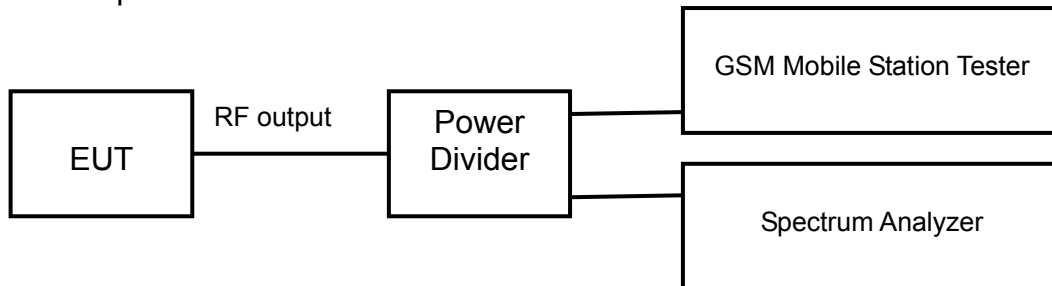
Rule Part (s)

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

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	40%	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 $\geq 2 \times \text{Span}/\text{RBW}$
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

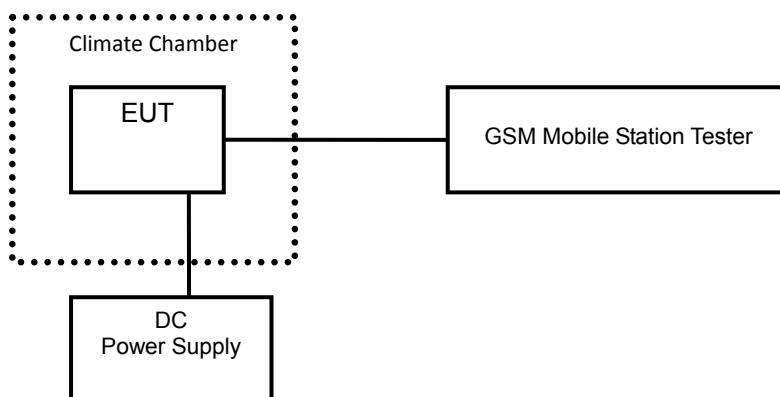
Rule Part(s)

FCC Part 2.1055/22.355 /Part 24.235

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	40%	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 $\pm 0.00025\%$ (± 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.

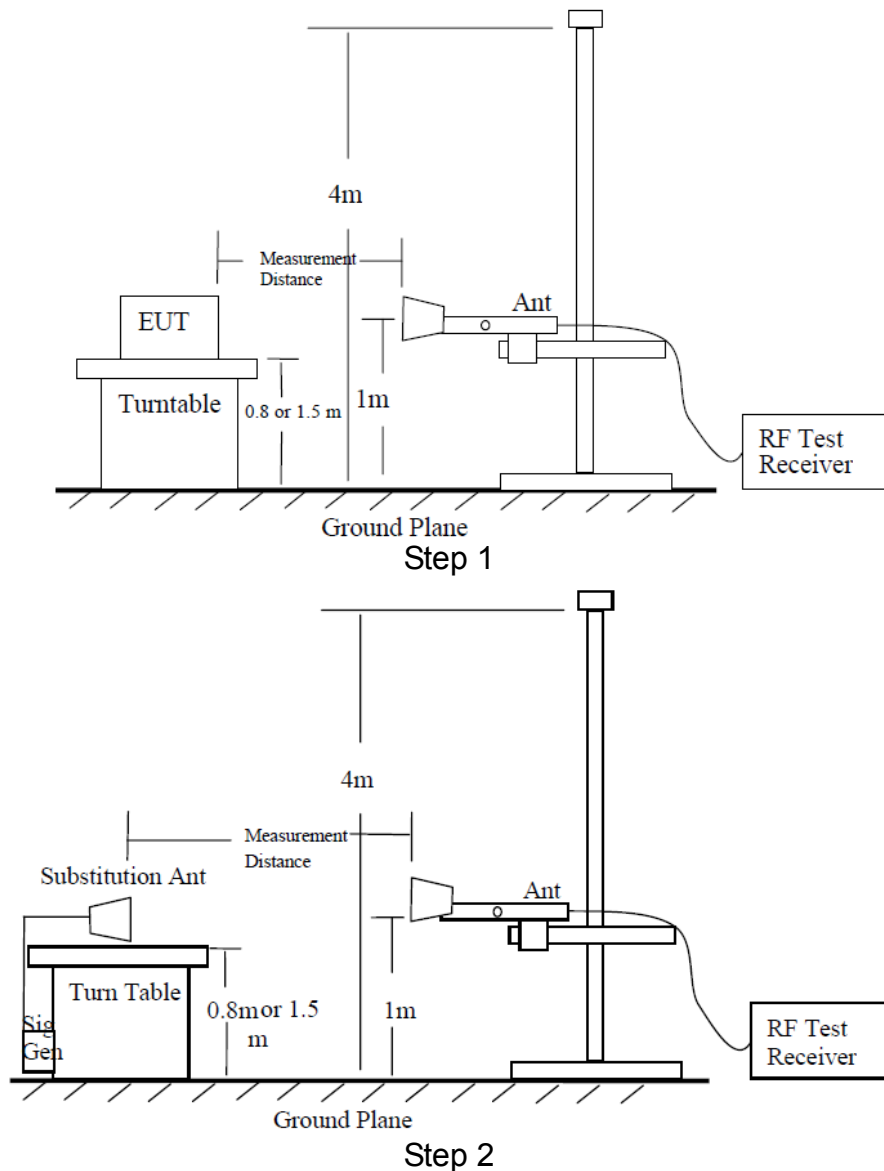
6.8 Radiated Spurious Emissions

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

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	40%	101.9kPa

Test Setup:



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 ($f < 1\text{GHz}$)/1.5m ($f > 1\text{GHz}$) 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 ($f < 1\text{GHz}$)/1MHz ($f > 1\text{GHz}$). 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 (P_{mea}) 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 (P_r). The power of signal source (P_{mea}) 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 (P_{ca}) and the Substitution Antenna Gain (G_a).

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:

$$\text{Power (EIRP)} = P_{mea} + P_{ca} + G_a$$

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, $\text{ERP} = \text{EIRP} - 2.15 \text{ (dB)}$.

Assumed the power of signal source record is -20dBm. A cable loss of -30dB, and an antenna gain of 11dB are added.

$$P = P_{mea} + P_{ca} + G_a = (-20\text{dBm}) + (-30\text{dB}) + (11\text{dB}) = -39\text{dBm}$$

Note: We tested both horizontal and vertical polarization, but only the largest numerical polarity of the two polarities was recorded in the final report.

Test result:

The test results are shown in Appendix B.

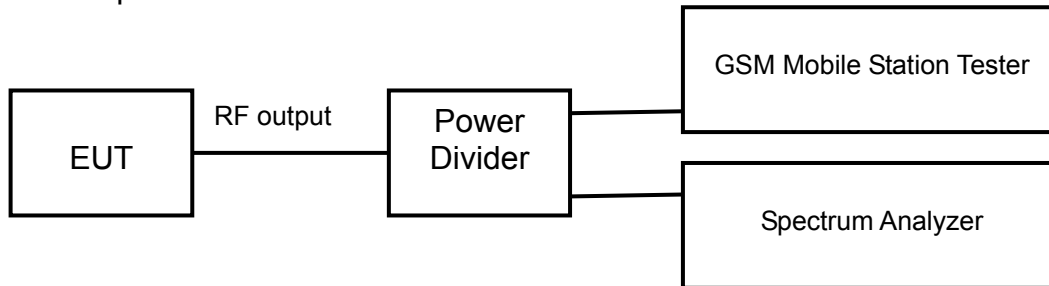
6.9 Peak-Average Ratio

Rule Part(s)
FCC Part 24.232(d)

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	40%	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	MT8820C Mobile Station Tester	Anritsu	6201300660	2020.08.20	2021.08.19
2	CMW500 Radio Communication Station	R&S	161702	2020.08.20	2021.08.19
2	FSV40 Spectrum Analyzer	R&S	101065	2020.08.20	2021.08.19
3	N9020A Spectrum Analyzer	Agilent	MY48010771	2020.08.20	2021.08.19
4	6007 Power Divider	Weinschel	6007-GJ-1	2020.08.20	2021.08.19
5	DC Power Supply E3645A	Agilent	MY40000741	2020.03.01	2021.02.28
6	Temperature chamber SH241	ESPEC	92013758	2020.08.20	2021.08.19
7	12.65m×8.03m×7.50m Fully-Anechoic Chamber	FRANKONIA	----	----	----
8	23.18m×16.88m×9.60m Semi-Anechoic Chamber	FRANKONIA	---	----	----
9	Turn table Diameter:1m	FRANKONIA	----	----	----
10	Turn table Diameter:5m	FRANKONIA	----	----	----
11	Antenna master FAC(MA4.0)	MATURO	----	----	----
12	Antenna master SAC(MA4.0)	MATURO	----	----	----
13	9.080m×5.255m×3.525m Shielding room	FRANKONIA	----	----	----
14	HF 907 Double-Ridged Waveguide Horn Antenna	R&S	100512	2020.08.20	2021.08.19
15	HF 907 Double-Ridged Waveguide Horn Antenna	R&S	100513	2020.08.20	2021.08.19
16	HL562 Ultra log antenna	R&S	100016	2020.08.20	2021.08.19
17	3160-09 Receive antenna	SCHWARZ-BECK	002058-002	2020.08.20	2021.08.19
18	ESI 40 EMI test receiver	R&S	100015	2020.08.20	2021.08.19
19	ESCS30 EMI test receiver	R&S	100029	2020.08.20	2021.08.19
20	HL562 Receive antenna	R&S	100167	2020.08.20	2021.08.19
21	ENV216 AMN	R&S	3560.6550.12	2020.08.20	2021.08.19

APPENDIX A – TEST DATA OF CONDUCTED EMISSION

RF Power Output

GSM850

GSM Measured Power:

Carrier frequency (MHz)	Channel No.	RF Power Output (dBm)
824.2	128	33.93
836.4	189	33.85
848.8	251	33.76

GPRS Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	RF Power Output (dBm)
824.2	128	4Downlink1uplink	33.92
836.4	189		33.85
848.8	251		33.76
824.2	128	3Downlink2uplink	31.36
836.4	189		31.36
848.8	251		31.27
824.2	128	2Downlink3uplink	29.29
836.4	189		29.30
848.8	251		29.33
824.2	128	1Downlink4uplink	29.08
836.4	189		29.11
848.8	251		29.16

EGPRS (8PSK) Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	RF Power Output (dBm)
824.2	128	8PSK 4Downlink1uplink	29.04
836.4	189		30.51
848.8	251		28.94
824.2	128	8PSK 3Downlink2uplink	27.27
836.4	189		27.23
848.8	251		27.19
824.2	128	8PSK 2Downlink3uplink	23.69
836.4	189		23.70
848.8	251		23.61
824.2	128	8PSK 1Downlink4uplink	23.70
836.4	189		23.59
848.8	251		23.54

PCS1900

GSM Measured Power:

Carrier frequency (MHz)	Channel No.	RF Power Output (dBm)
824.2	512	29.92
836.4	661	29.60
848.8	810	29.63

GPRS Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	RF Power Output (dBm)
824.2	512	4Downlink1uplink	29.90
836.4	661		29.60
848.8	810		29.72
824.2	512	3Downlink2uplink	28.89
836.4	661		28.71
848.8	810		28.83
824.2	512	2Downlink3uplink	27.67
836.4	661		27.41
848.8	810		27.53
824.2	512	1Downlink4uplink	26.72
836.4	661		26.35
848.8	810		26.60

EGPRS (8PSK) Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	RF Power Output (dBm)
824.2	512	8PSK 4Downlink1uplink	27.19
836.4	661		26.92
848.8	810		26.96
824.2	512	8PSK 3Downlink2uplink	25.77
836.4	661		25.32
848.8	810		25.54
824.2	512	8PSK 2Downlink3uplink	22.47
836.4	661		23.09
848.8	810		22.19
824.2	512	8PSK 1Downlink4uplink	22.22
836.4	661		22.63
848.8	810		21.94

Occupied Bandwidth

GSM850

GSM MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
824.2	128	244.57
836.4	189	240.23
848.8	251	243.13

GPRS MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
824.2	128	238.78
836.4	189	237.34
848.8	251	243.13

EDGE (8PSK) MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
824.2	128	250.36
836.4	189	228.65
848.8	251	254.70

PCS1900

GSM MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
824.2	512	244.57
836.4	661	250.36
848.8	810	243.13

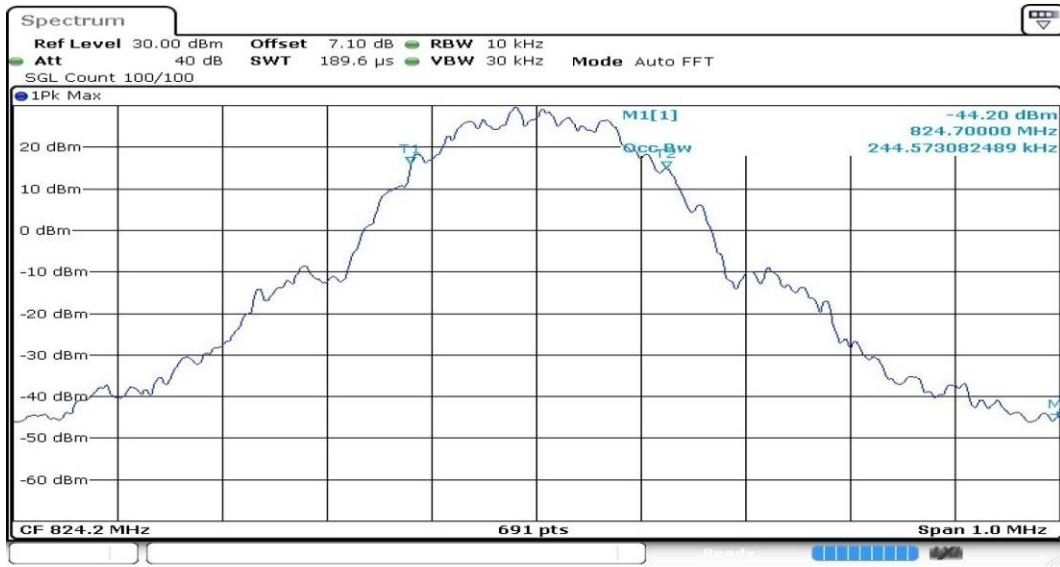
GPRS MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
824.2	512	246.02
836.4	661	246.02
848.8	810	238.78

EDGE (8PSK) MODE:

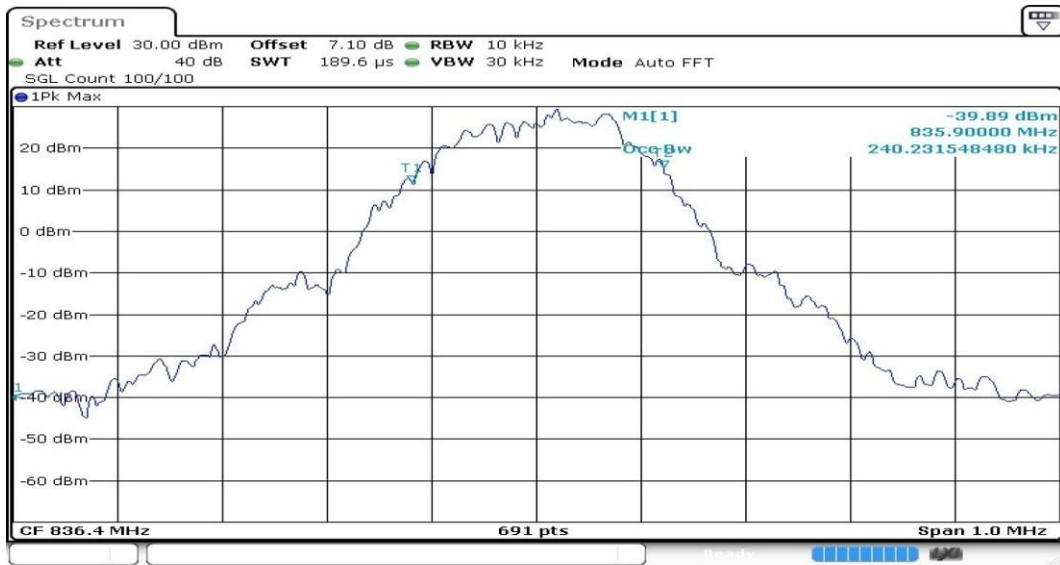
Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
824.2	512	241.68
836.4	661	237.34
848.8	810	243.13

GSM850
GSM MODE:



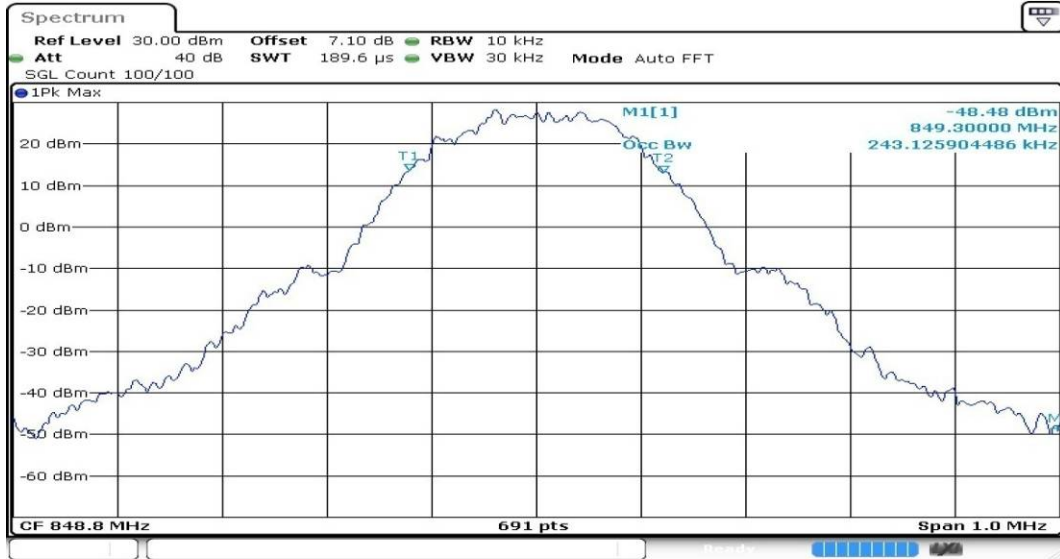
Date: 24.DEC.2020 15:29:56

Channel 128



Date: 24.DEC.2020 15:31:00

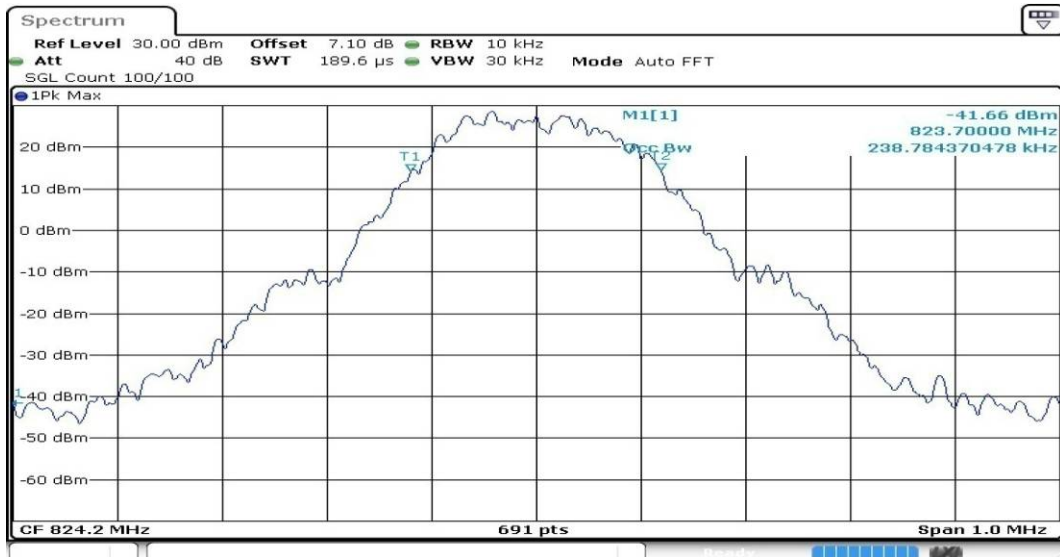
Channel 189



Date: 24.DEC.2020 15:31:43

Channel 251

GPRS MODE:



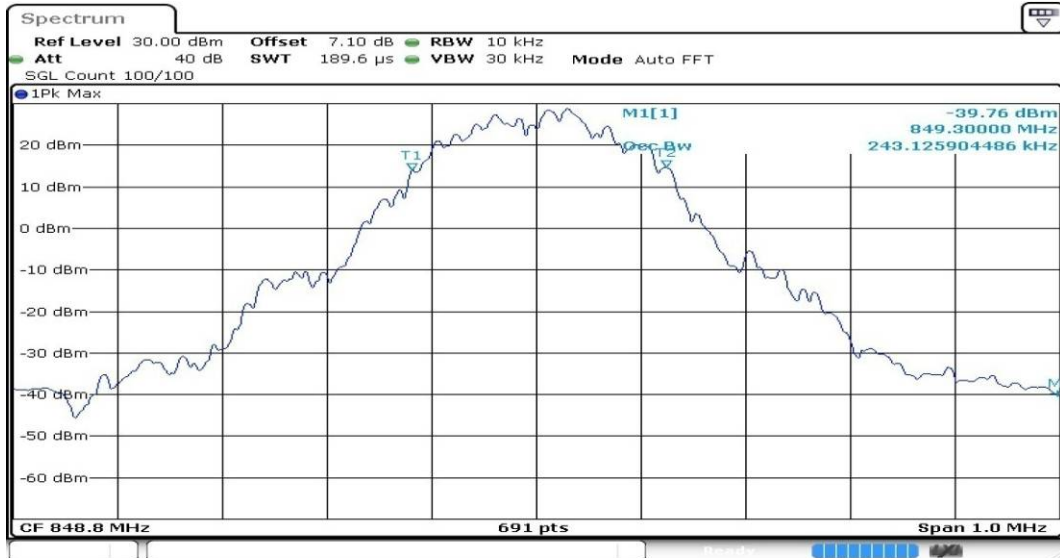
Date: 24.DEC.2020 15:43:50

Channel 128



Date: 24.DEC.2020 15:45:03

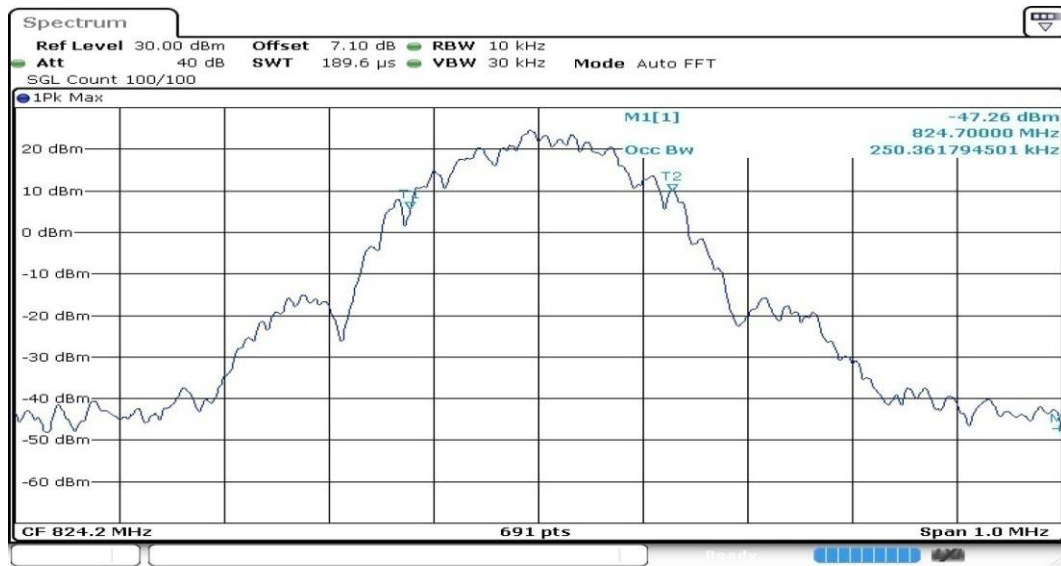
Channel 189



Date: 24.DEC.2020 15:45:58

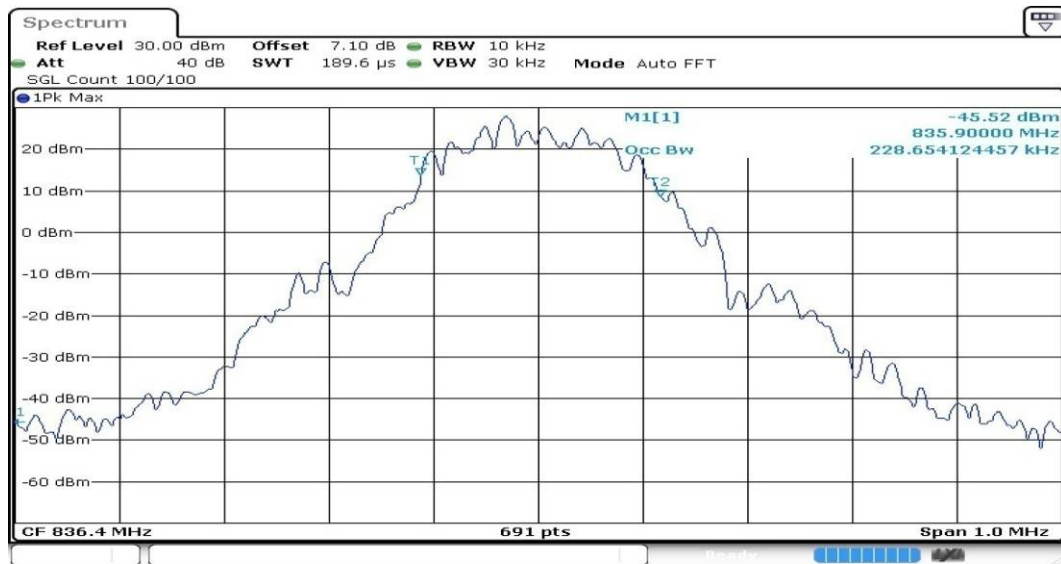
Channel 251

EDGE (8PSK) MODE:



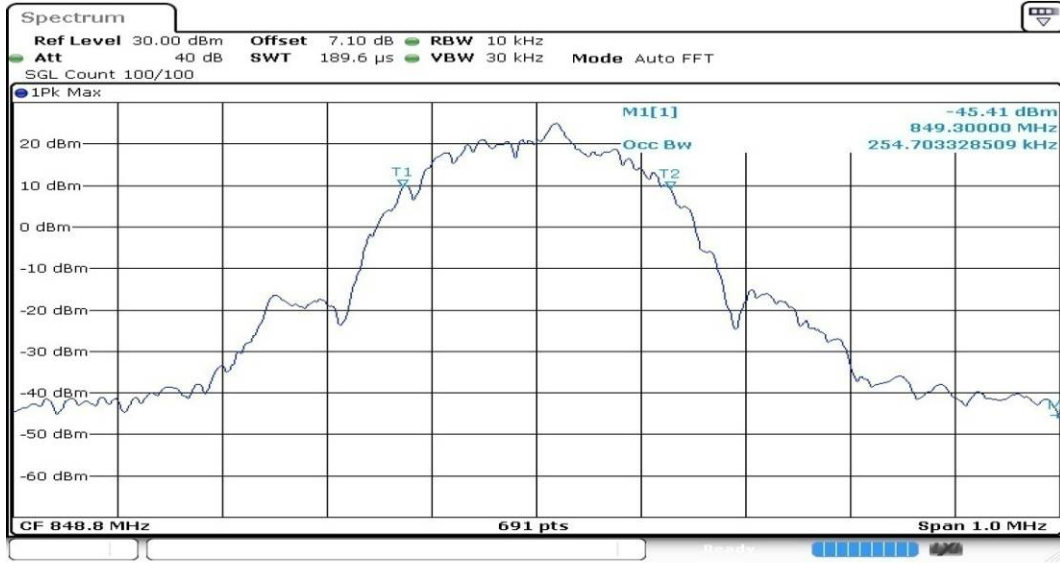
Date: 24.DEC.2020 15:55:43

Channel 128



Date: 24.DEC.2020 15:56:57

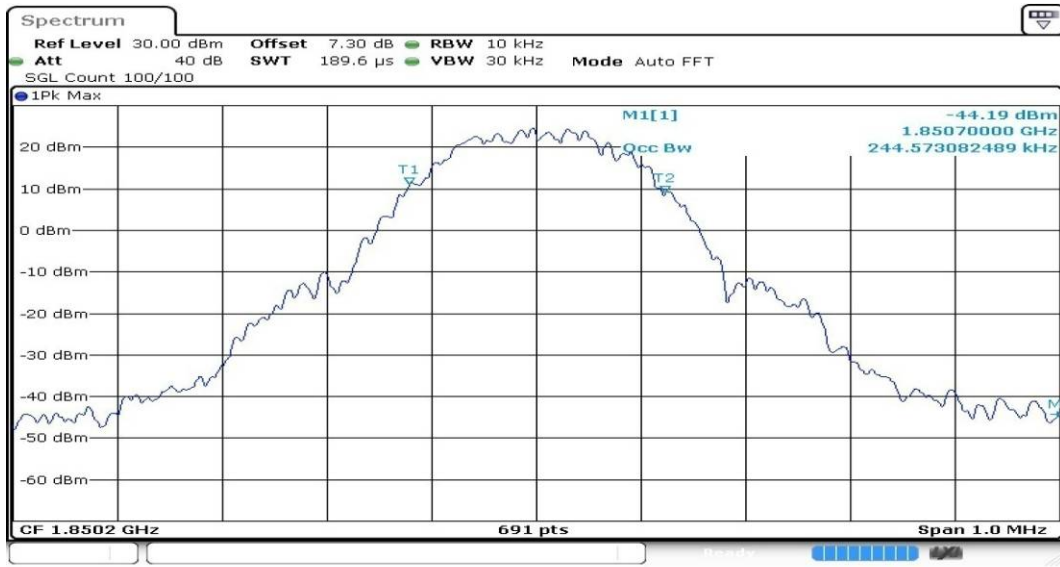
Channel 189



Date: 24.DEC.2020 15:57:52

Channel 251

PCS1900
GSM MODE:



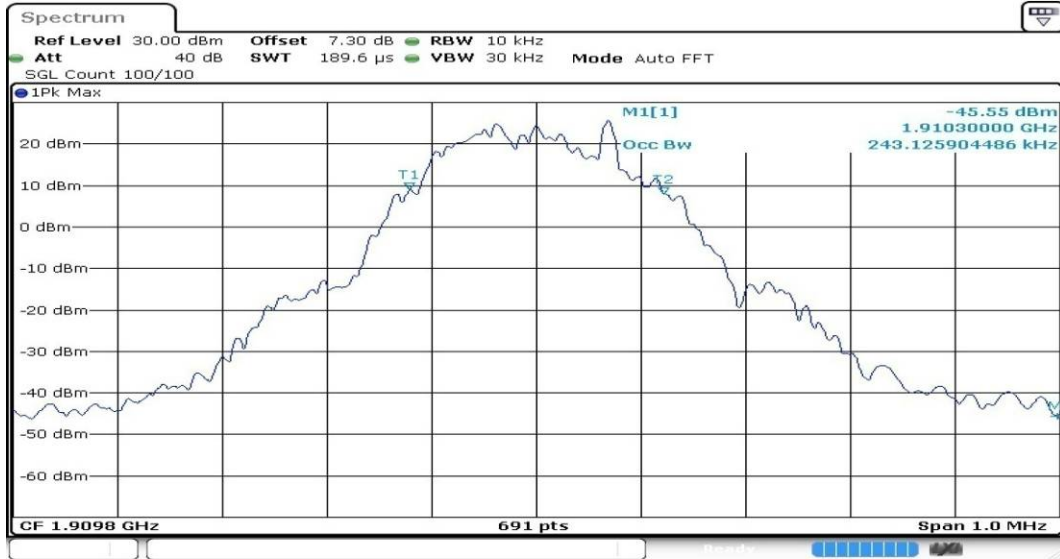
Date: 24.DEC.2020 16:31:20

Channel 512



Date: 24.DEC.2020 16:32:25

Channel 661



Date: 24.DEC.2020 16:33:10

Channel 810

GPRS MODE:



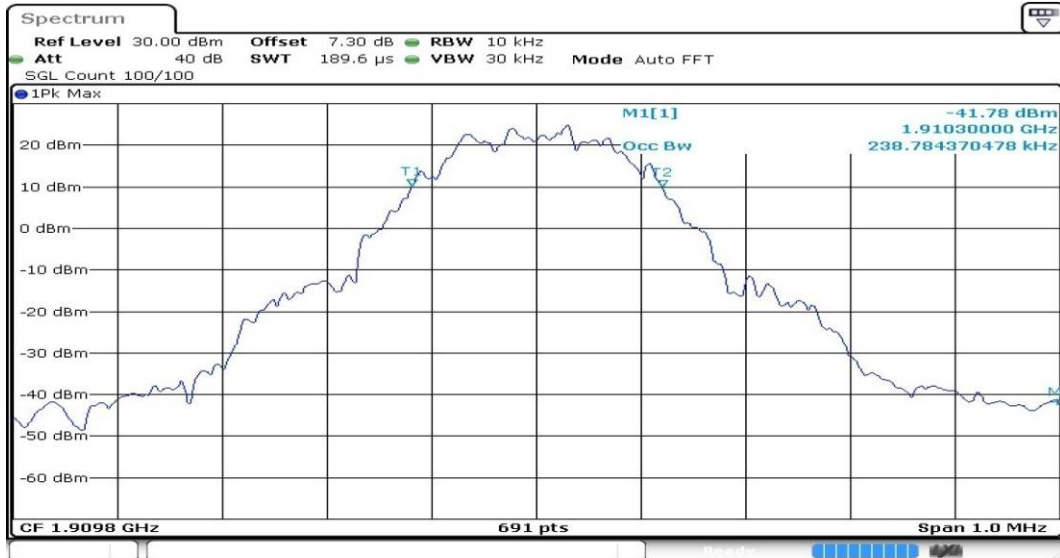
Date: 24.DEC.2020 16:36:56

Channel 512



Date: 24.DEC.2020 16:38:11

Channel 661



Date: 24.DEC.2020 16:39:07

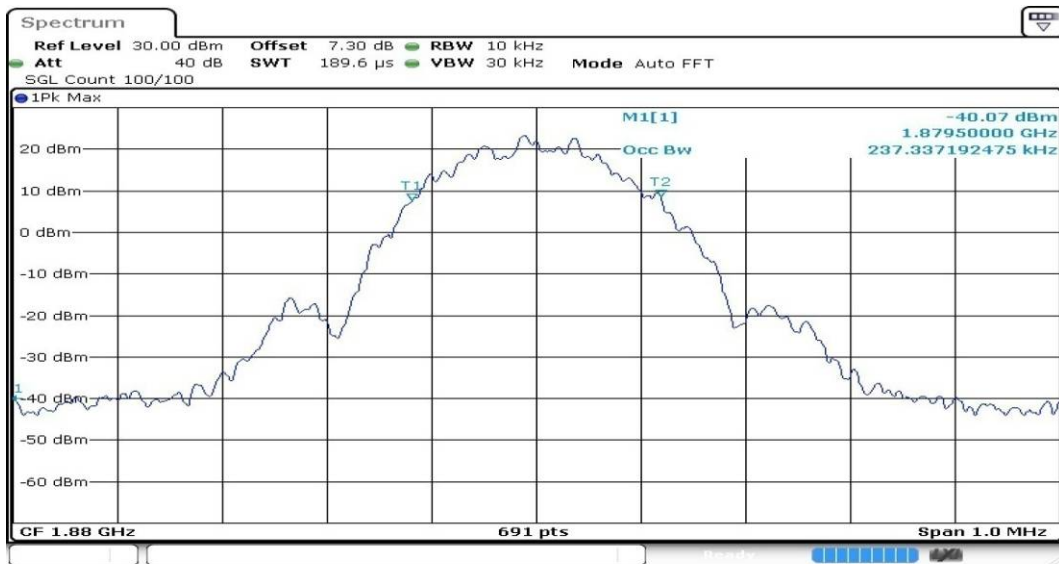
Channel 810

EDGE (8PSK) MODE:



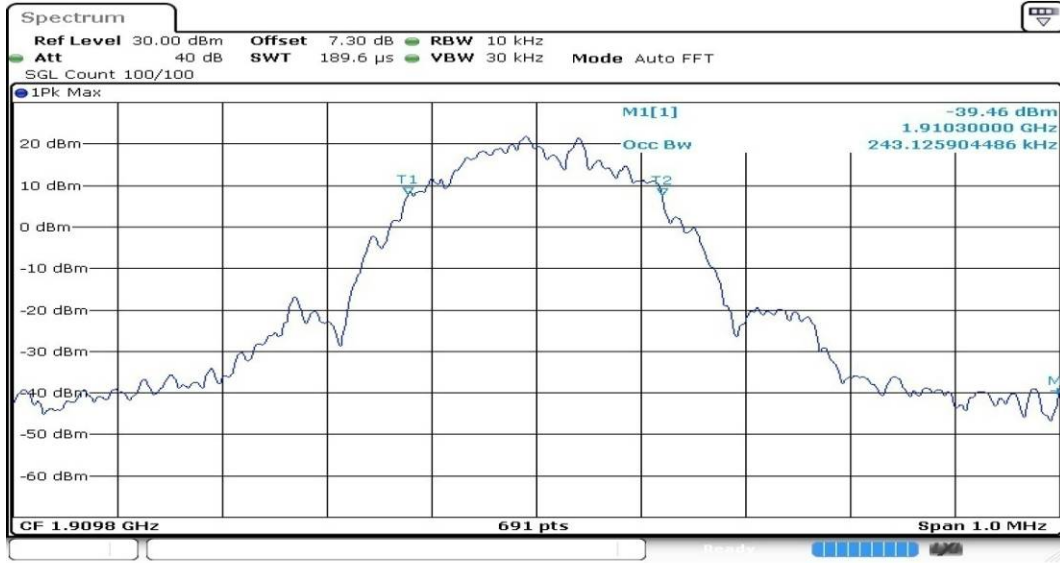
Date: 24. DEC. 2020 16:50:28

Channel 512



Date: 24. DEC. 2020 16:51:44

Channel 661



Date: 24.DEC.2020 16:52:41

Channel 810

Emission Bandwidth

GSM850

GSM MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of -26dB transmitter power(kHz)
824.2	128	311.10
836.4	189	311.10
848.8	251	315.50

GPRS MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
824.2	128	306.80
836.4	189	312.60
848.8	251	309.70

EDGE (8PSK) MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of -26dB transmitter power(kHz)
824.2	128	318.40
836.4	189	292.30
848.8	251	303.90

PCS1900

GSM MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of -26dB transmitter power(kHz)
824.2	512	308.20
836.4	661	305.40
848.8	810	308.20

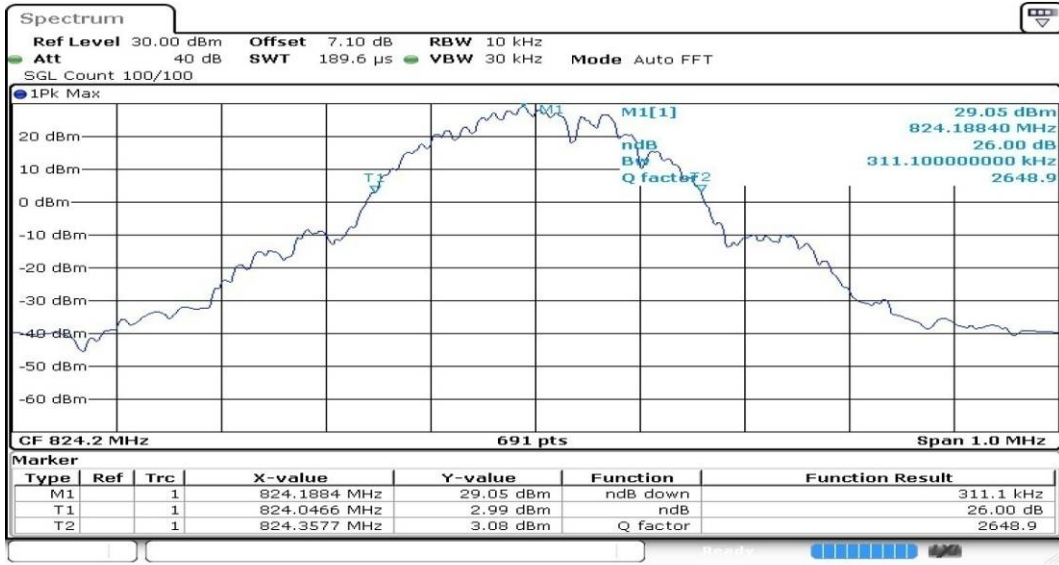
GPRS MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
824.2	512	322.70
836.4	661	309.70
848.8	810	318.40

EDGE (8PSK) MODE:

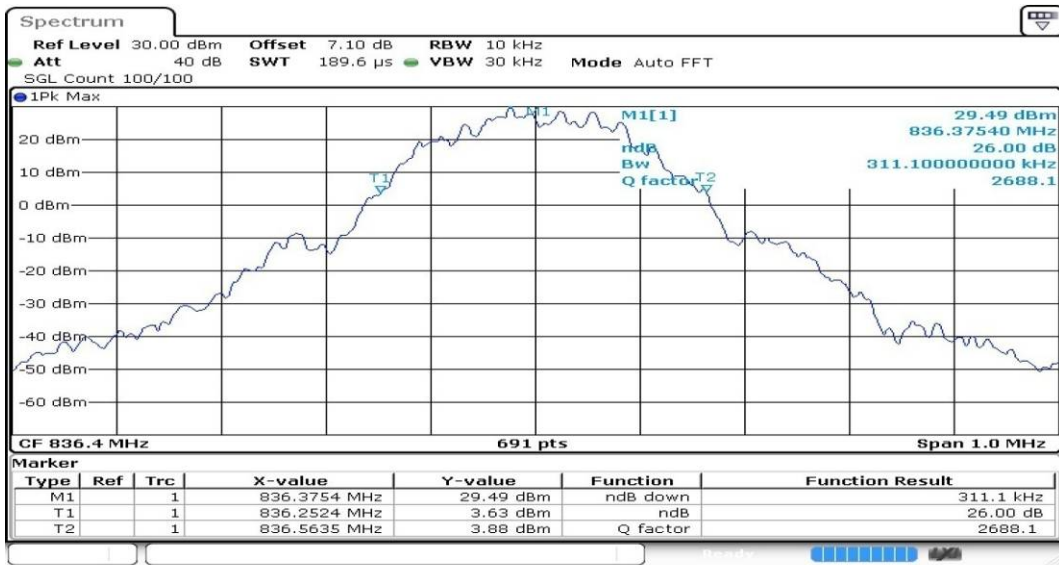
Carrier frequency (MHz)	Channel No.	Bandwidth of -26dB transmitter power(kHz)
824.2	512	311.10
836.4	661	311.10
848.8	810	321.30

GSM850
GSM MODE:



Date: 24.DEC.2020 15:30:03

Channel 128



Date: 24.DEC.2020 15:31:06

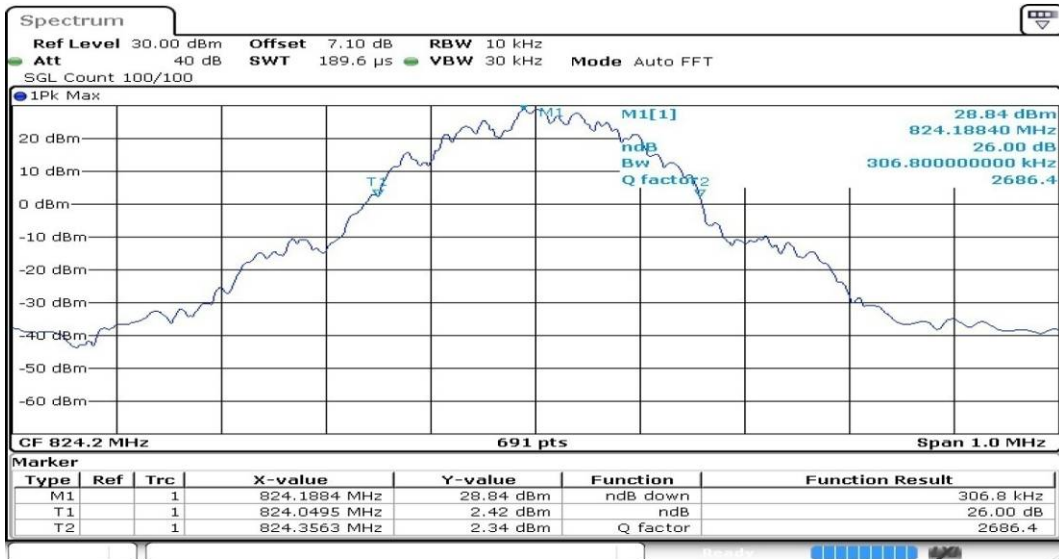
Channel 189



Date: 24.DEC.2020 15:31:49

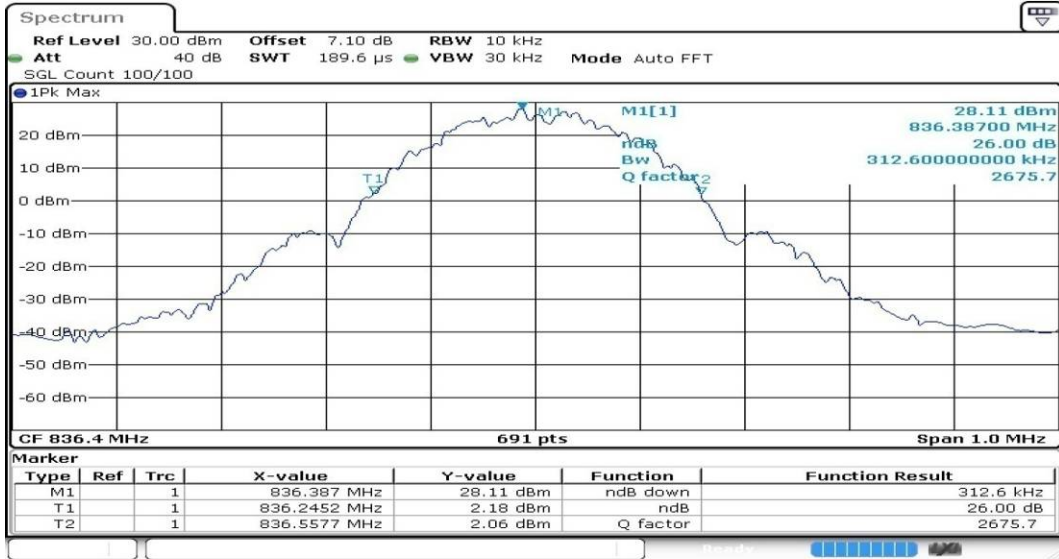
Channel 251

GPRS MODE:



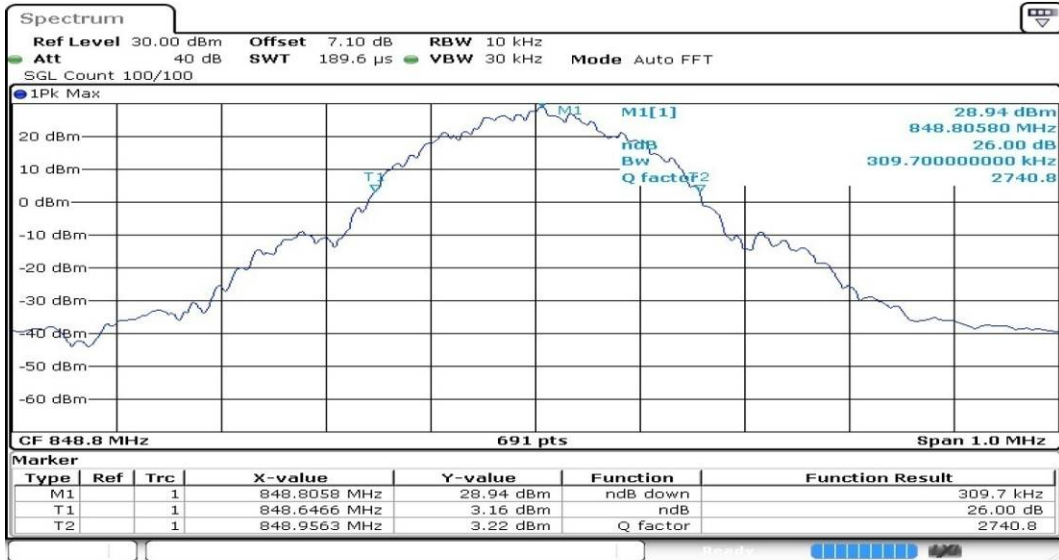
Date: 24.DEC.2020 15:43:56

Channel 128



Date: 24.DEC.2020 15:45:10

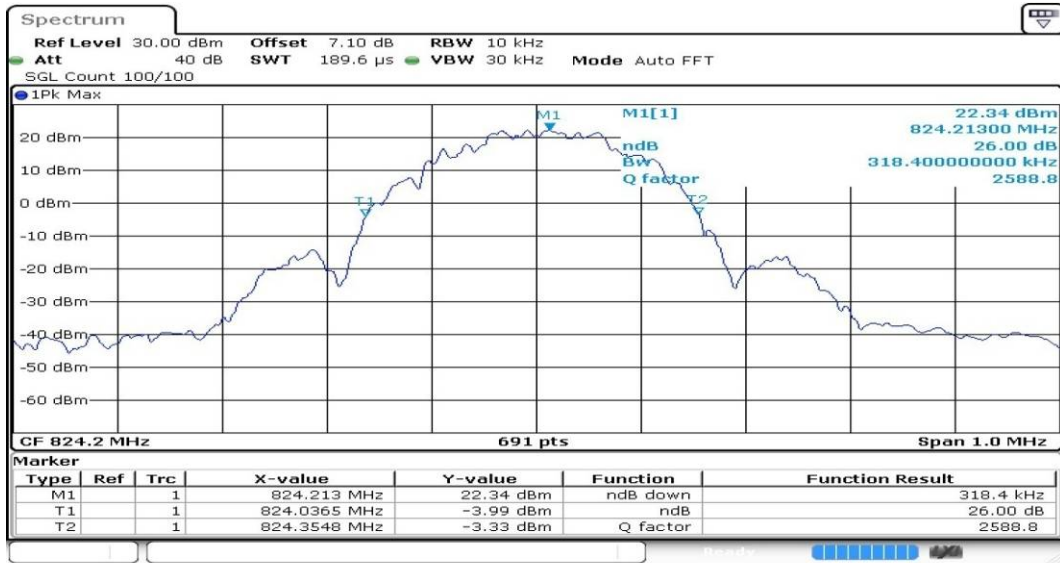
Channel 189



Date: 24.DEC.2020 15:46:04

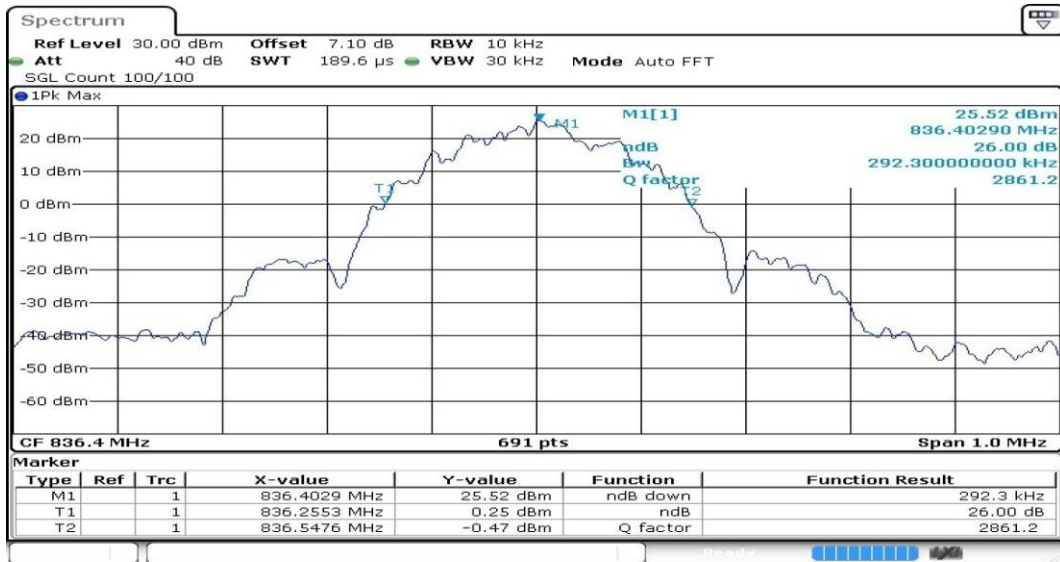
Channel 251

EDGE (8PSK) MODE:



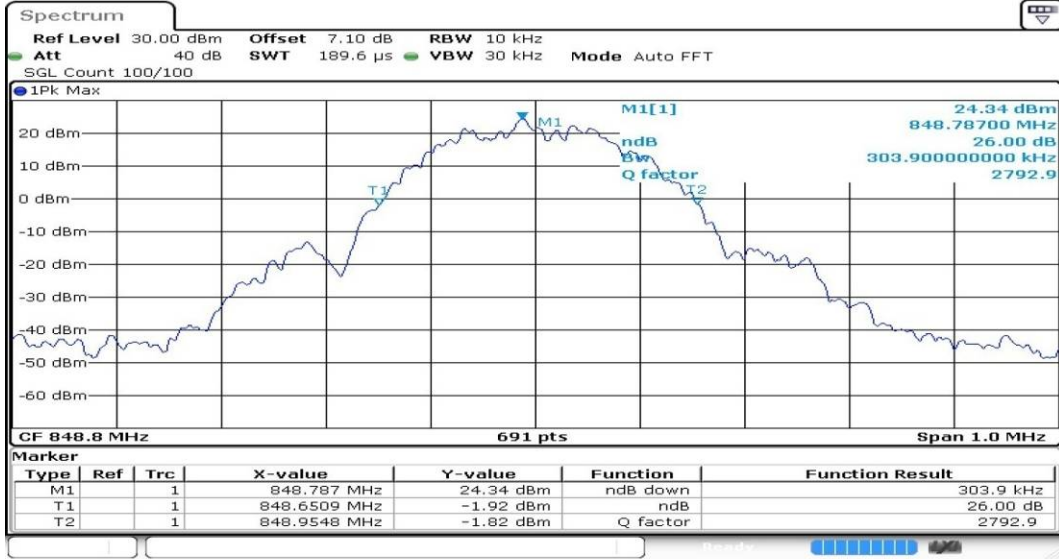
Date: 24.DEC.2020 15:55:49

Channel 128



Date: 24.DEC.2020 15:57:03

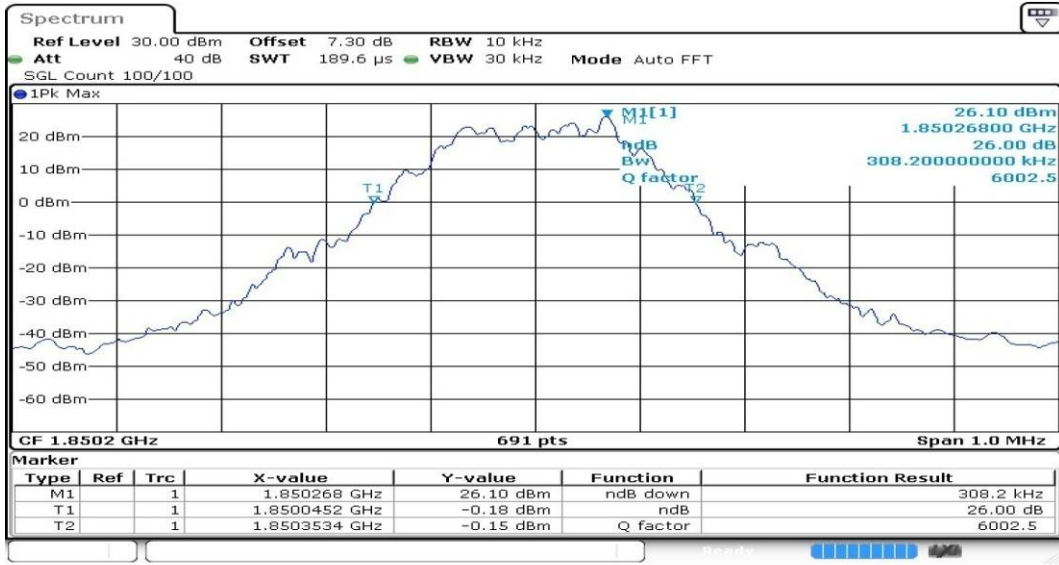
Channel 189



Date: 24.DEC.2020 15:57:58

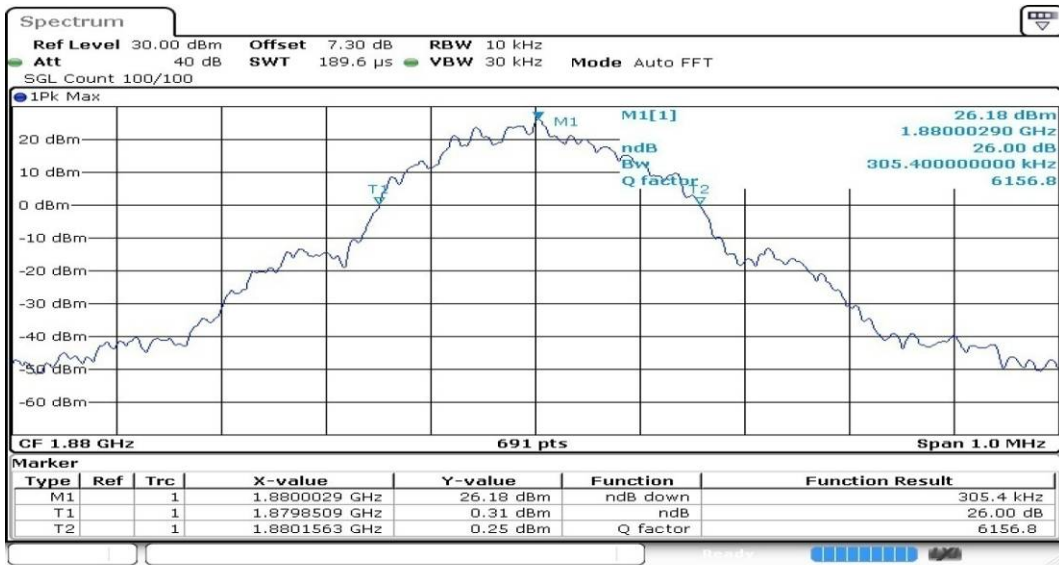
Channel 251

PCS1900
GSM MODE:



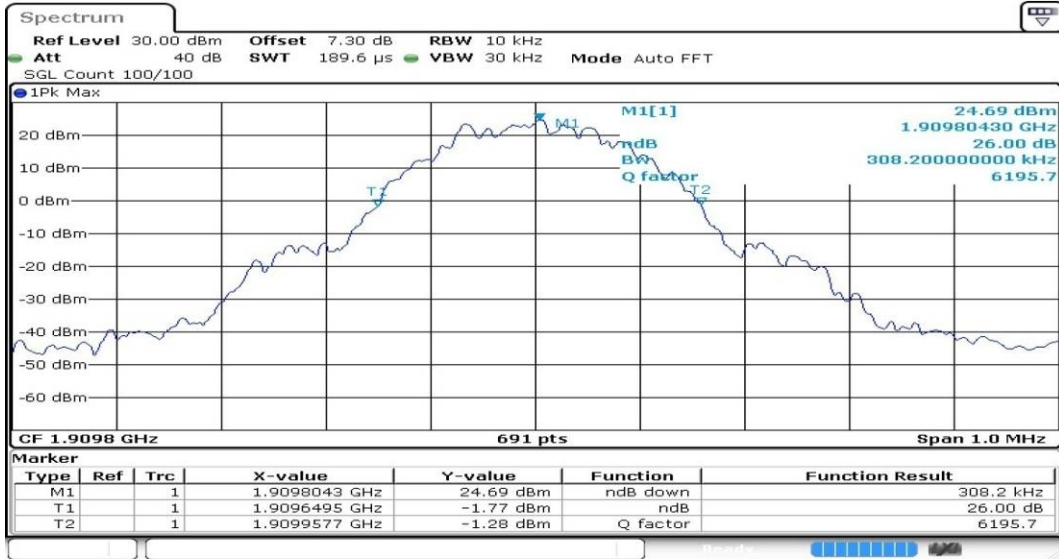
Date: 24.DEC.2020 16:31:26

Channel 512



Date: 24.DEC.2020 16:32:31

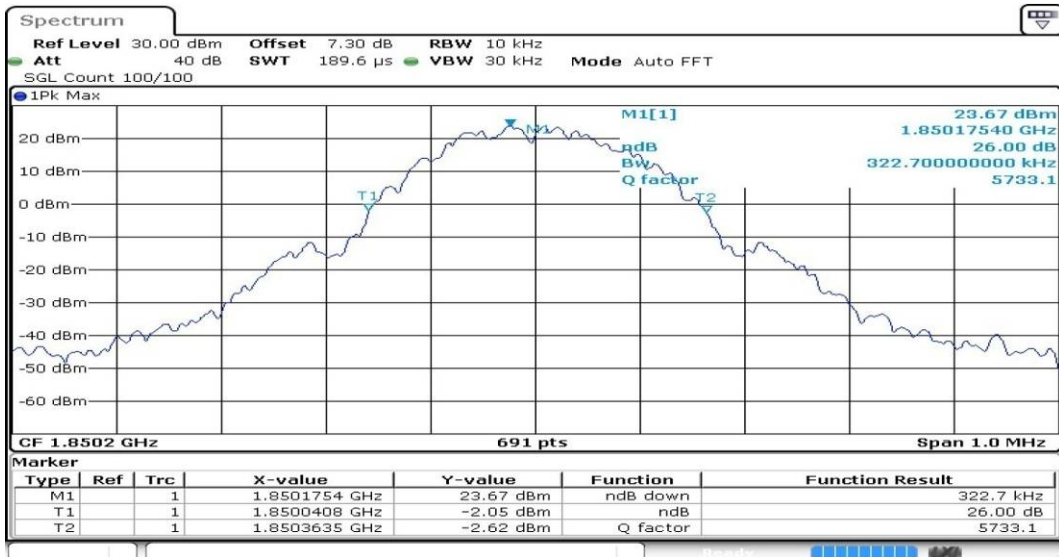
Channel 661



Date: 24.DEC.2020 16:33:17

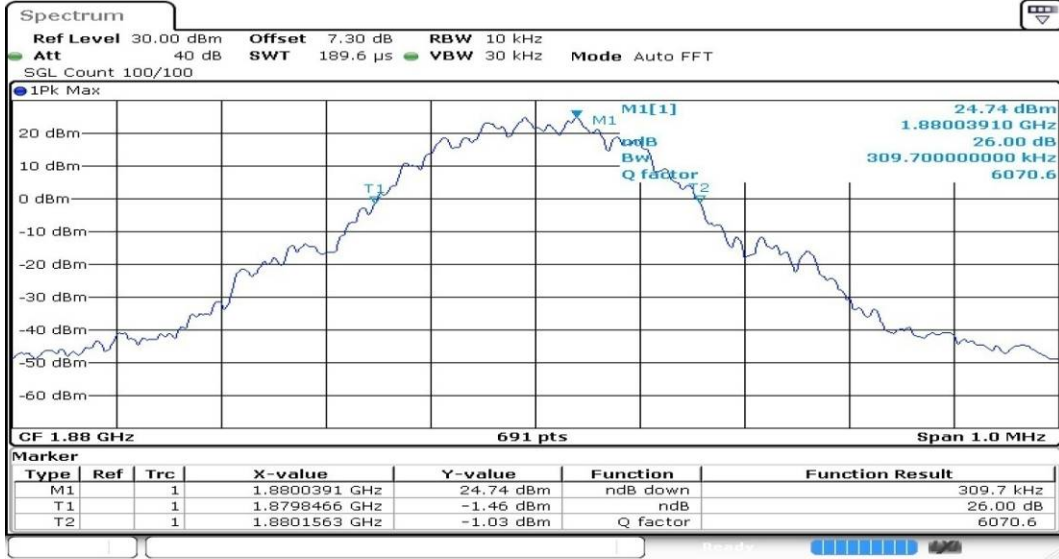
Channel 810

GPRS MODE:



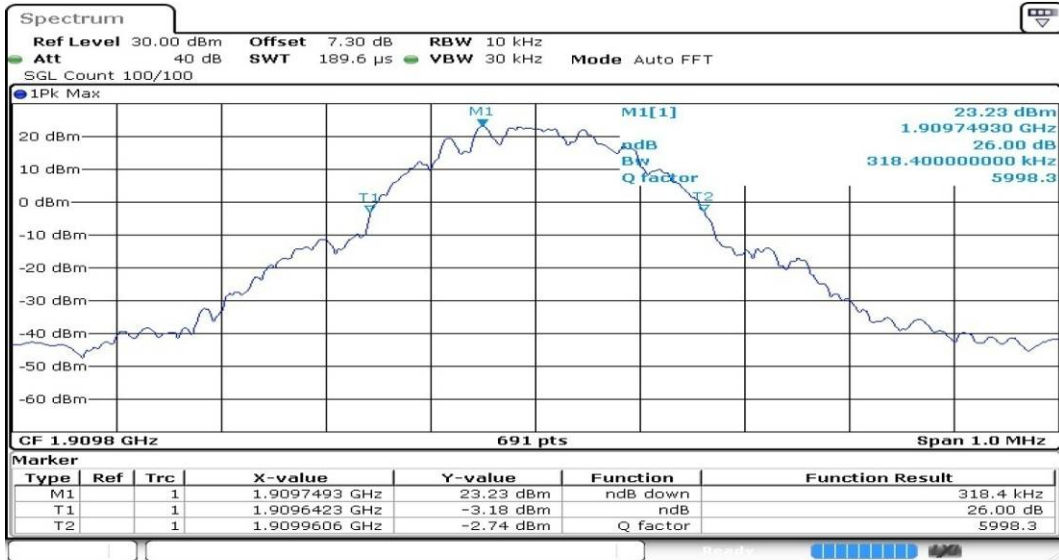
Date: 24.DEC.2020 16:37:02

Channel 512



Date: 24.DEC.2020 16:38:17

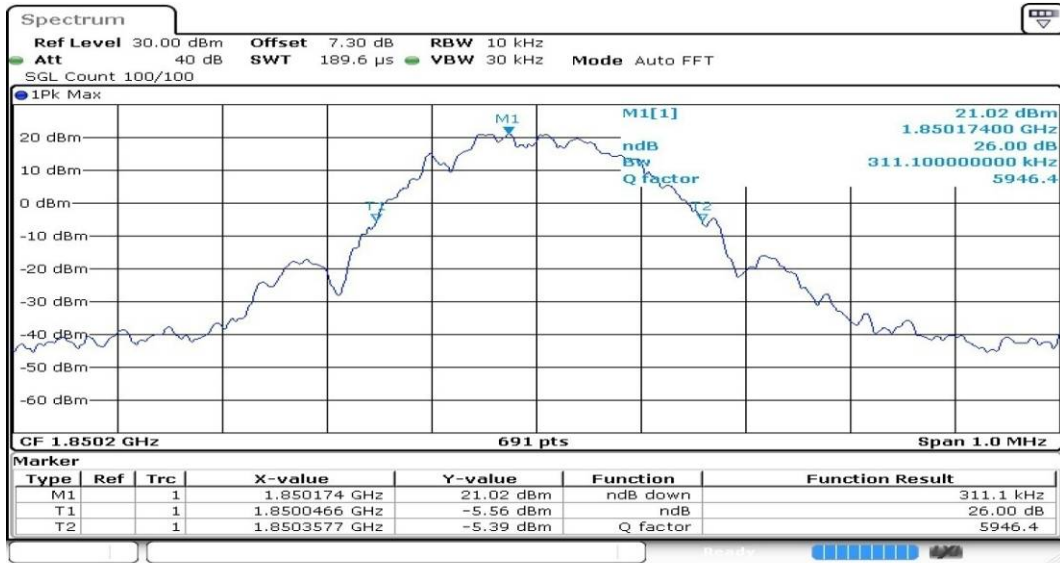
Channel 661



Date: 24.DEC.2020 16:39:13

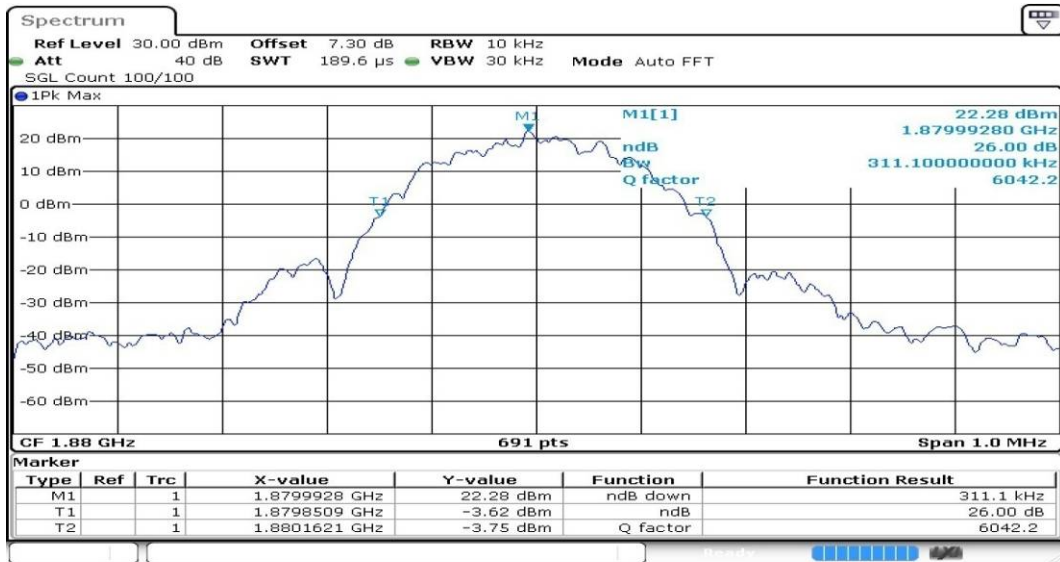
Channel 810

EDGE (8PSK) MODE:



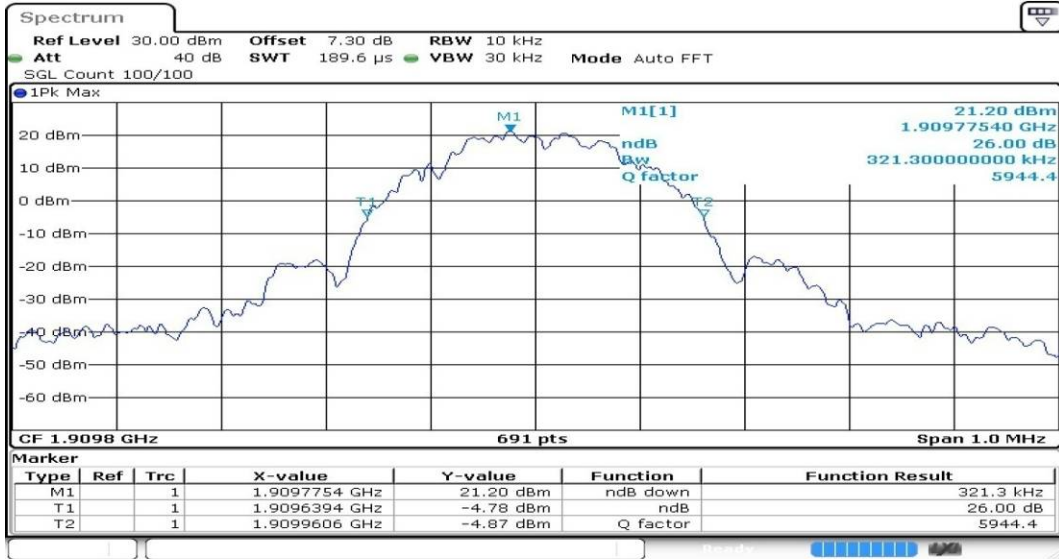
Date: 24.DEC.2020 16:50:35

Channel 512



Date: 24.DEC.2020 16:51:51

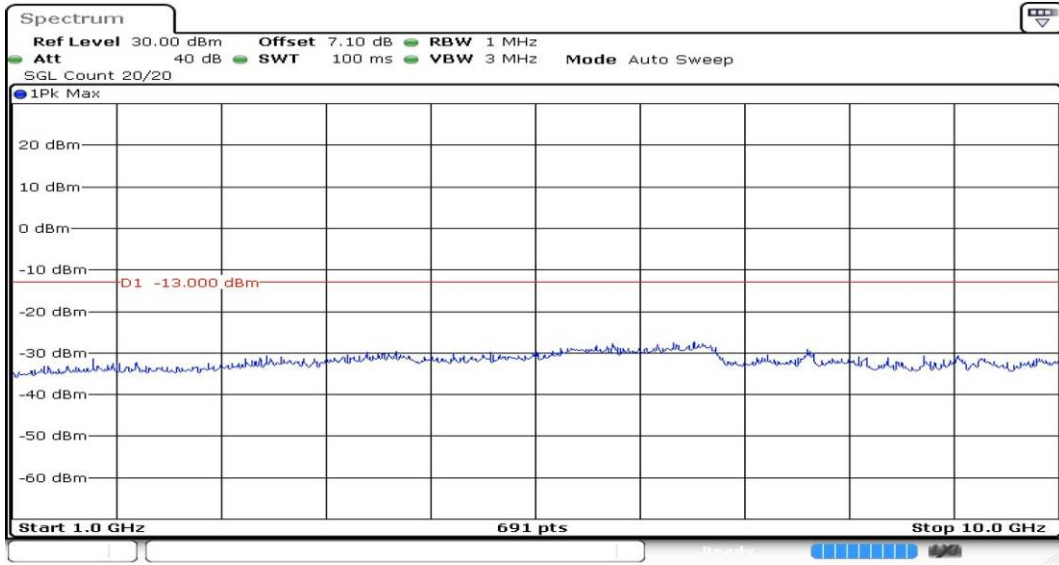
Channel 661



Date: 24.DEC.2020 16:52:48

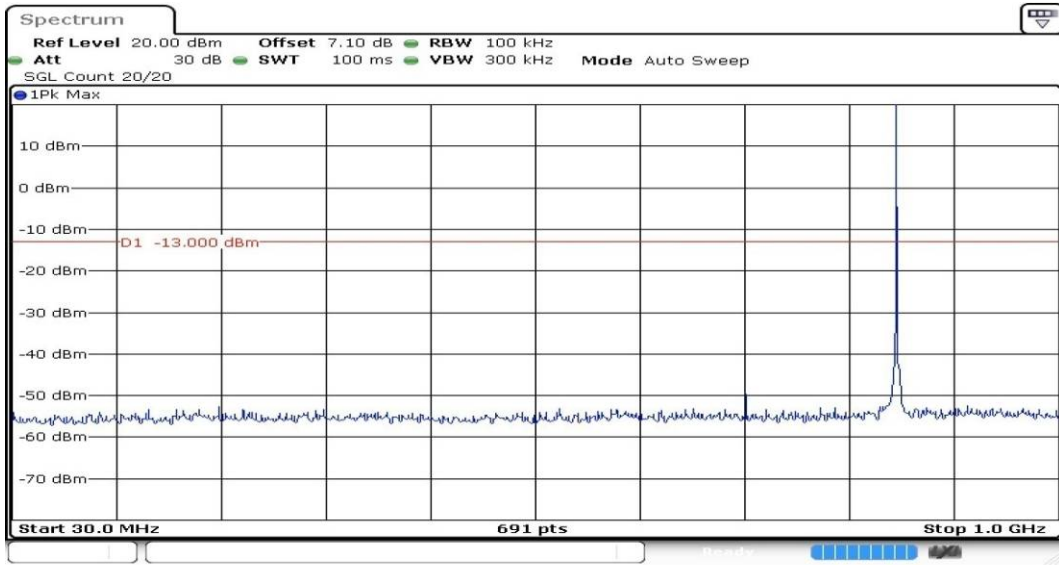
Channel 810

Spurious Emissions at antenna terminal
GSM850
GSM MODE:



Date: 24.DEC.2020 15:32:14

Channel 189 1GHz~10GHz

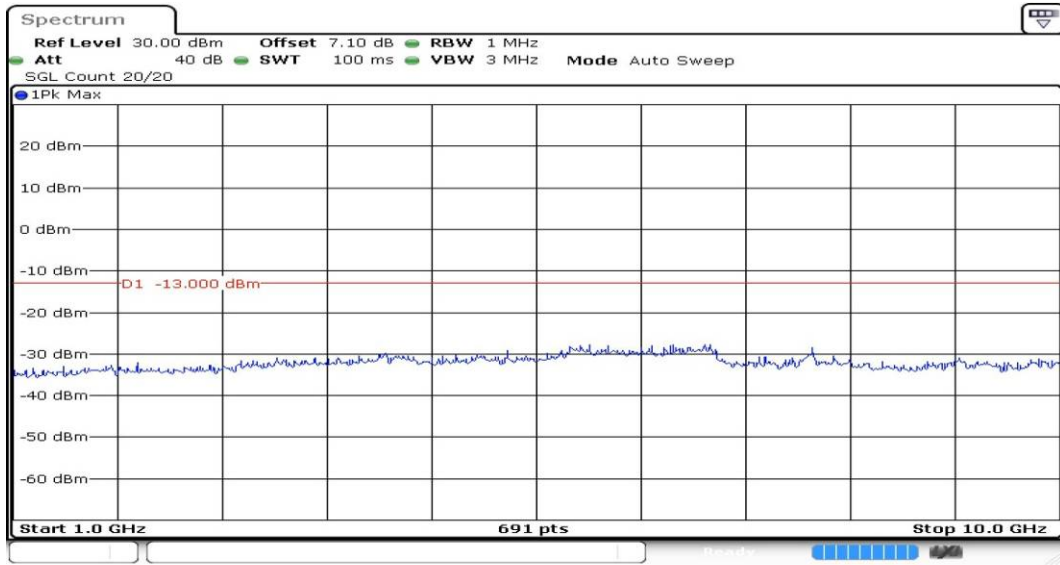


Date: 24.DEC.2020 15:32:06

Channel 189 30MHz~1GHz

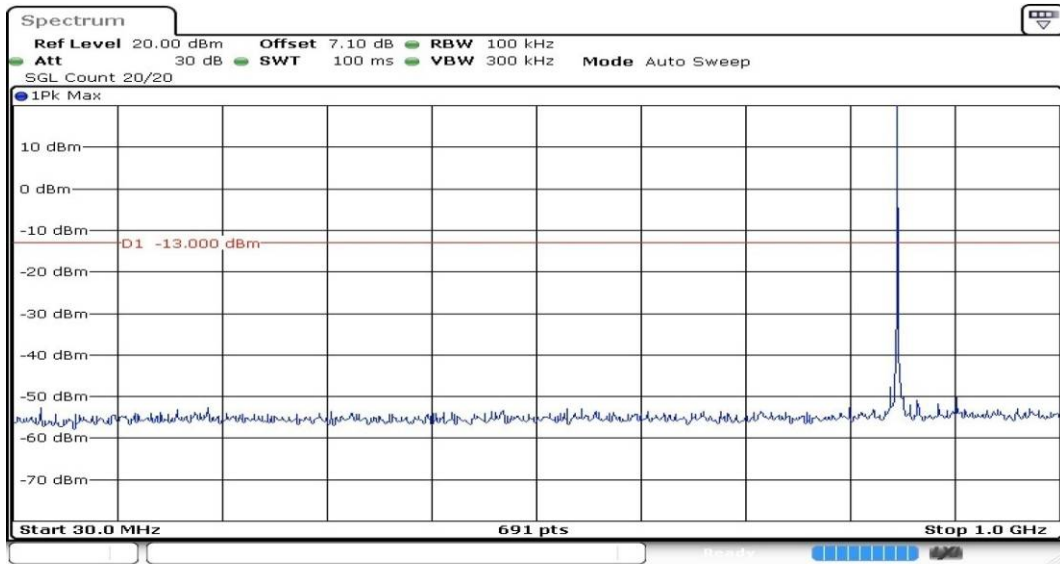
Note: The signal beyond the limit is the signal transmitted by EUT.

GPRS MODE:



Date: 24. DEC. 2020 15:46:28

Channel 189 1GHz~10GHz

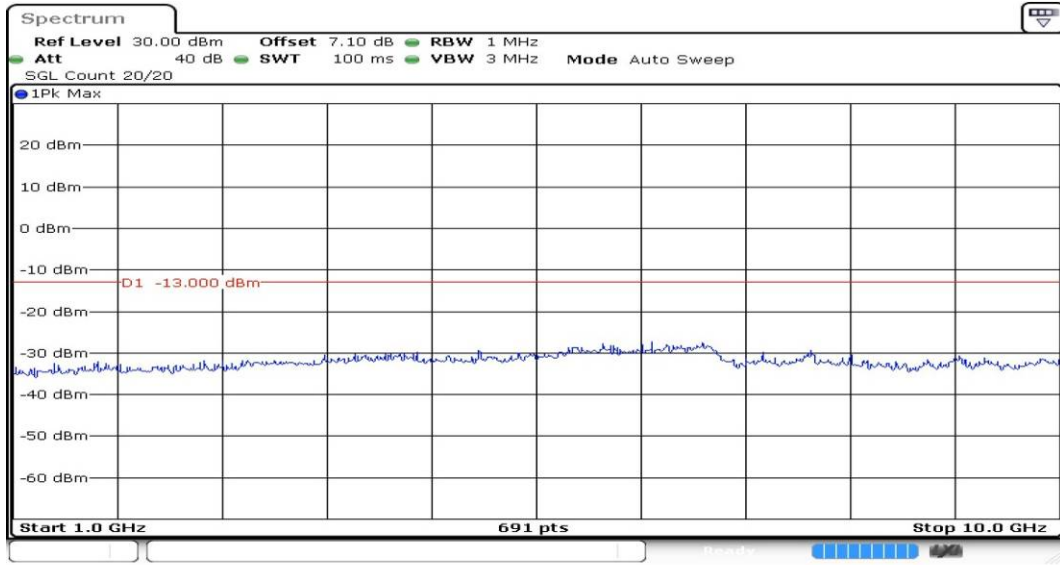


Date: 24. DEC. 2020 15:46:20

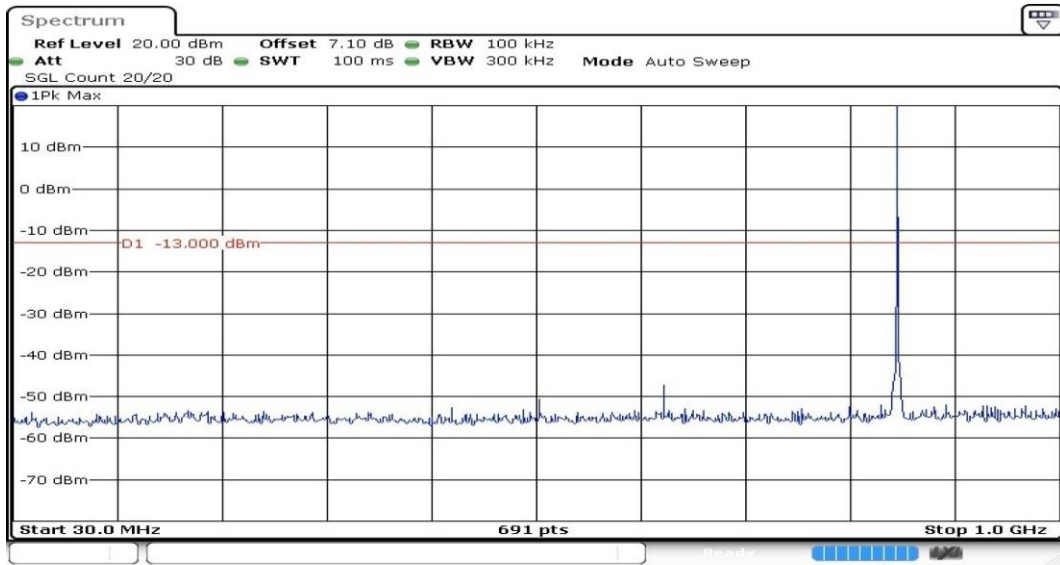
Channel 189 30MHz~1GHz

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

EDGE (8PSK) MODE:



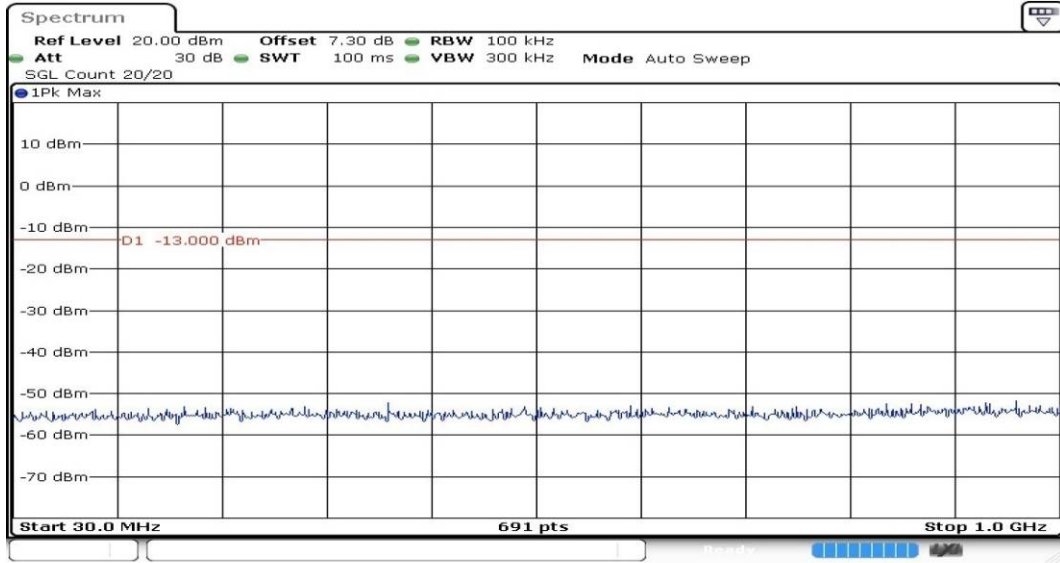
Channel 189 1GHz~10GHz



Channel 189 30MHz~1GHz

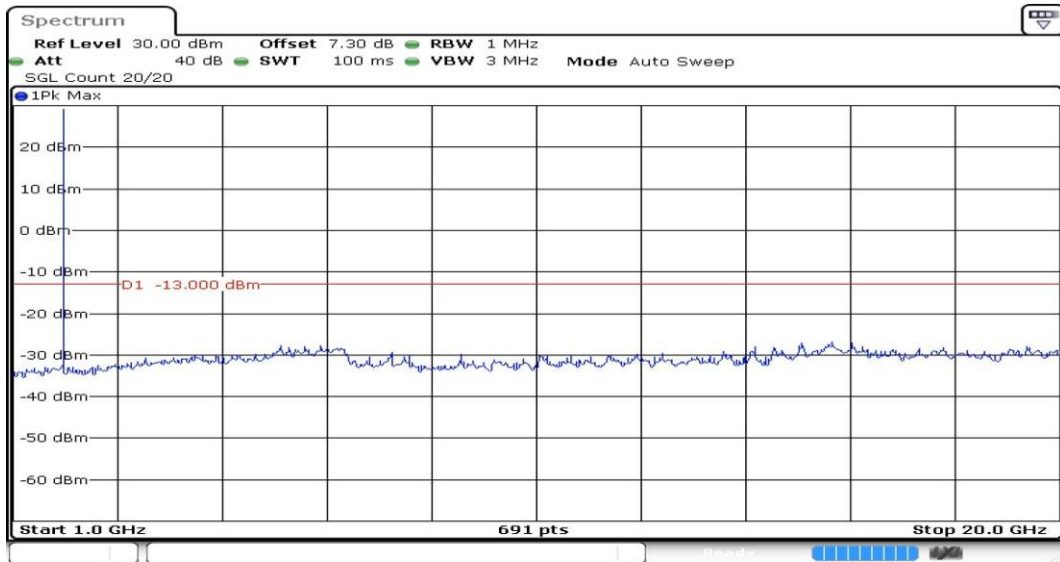
Note: The signal beyond the limit is the signal transmitted by EUT.

PCS1900
GSM MODE:



Date: 24.DEC.2020 16:33:33

Channel 661 30MHz~1GHz

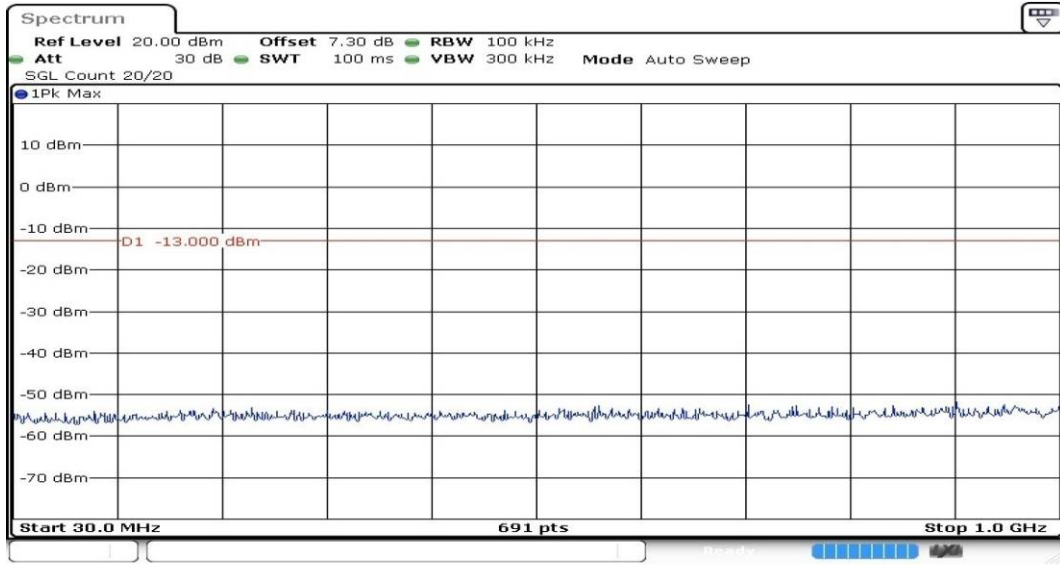


Date: 24.DEC.2020 16:33:42

Channel 661 1GHz~20GHz

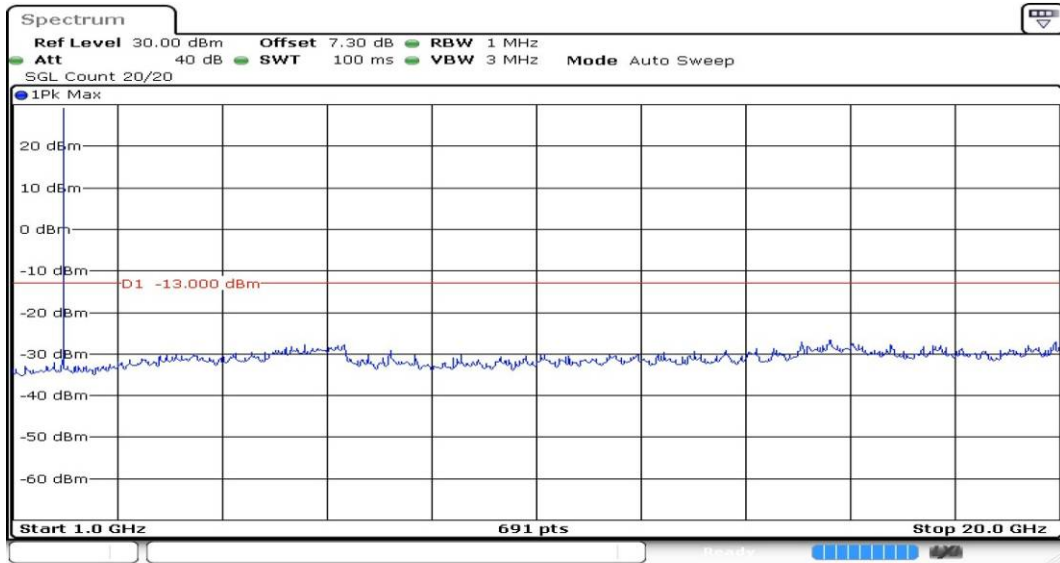
Note: The signal beyond the limit is the signal transmitted by EUT.

GPRS MODE:



Date: 24.DEC.2020 16:39:29

Channel 661 30MHz~1GHz

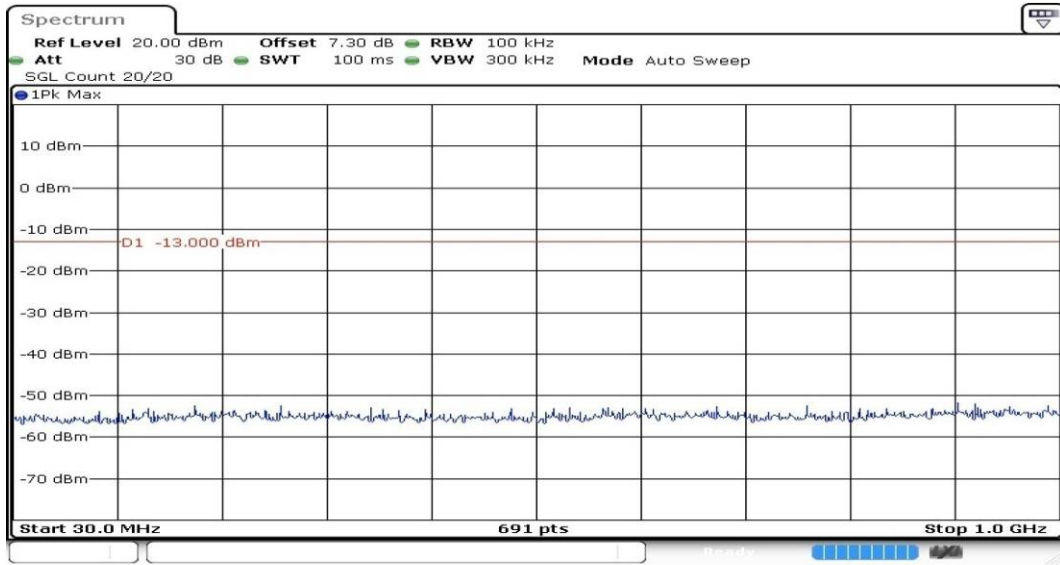


Date: 24.DEC.2020 16:39:38

Channel 661 1GHz~20GHz

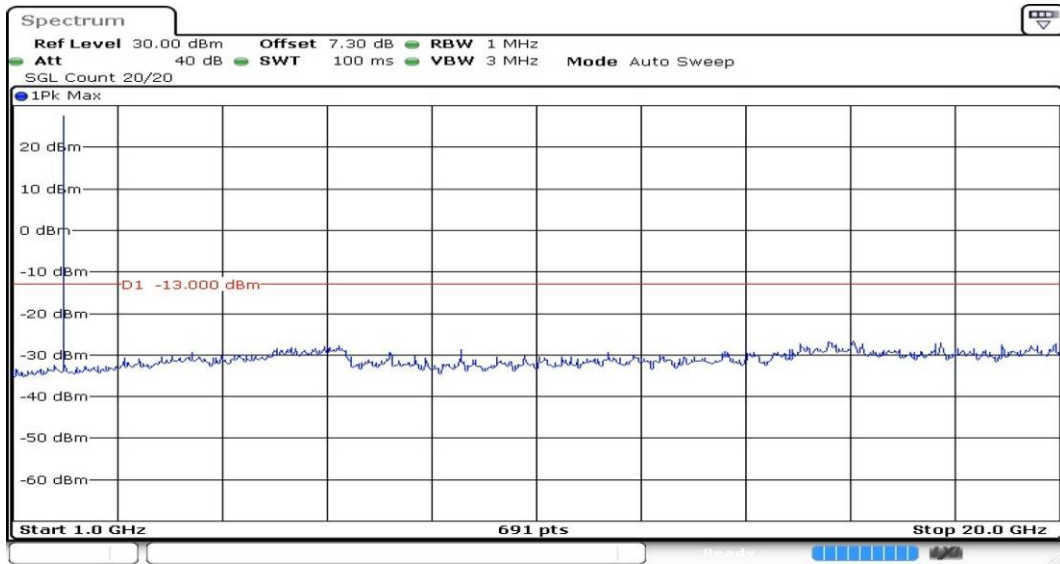
Note: The signal beyond the limit is the signal transmitted by EUT.

EDGE (8PSK) MODE:



Date: 24.DEC.2020 16:53:04

Channel 661 30MHz~1GHz

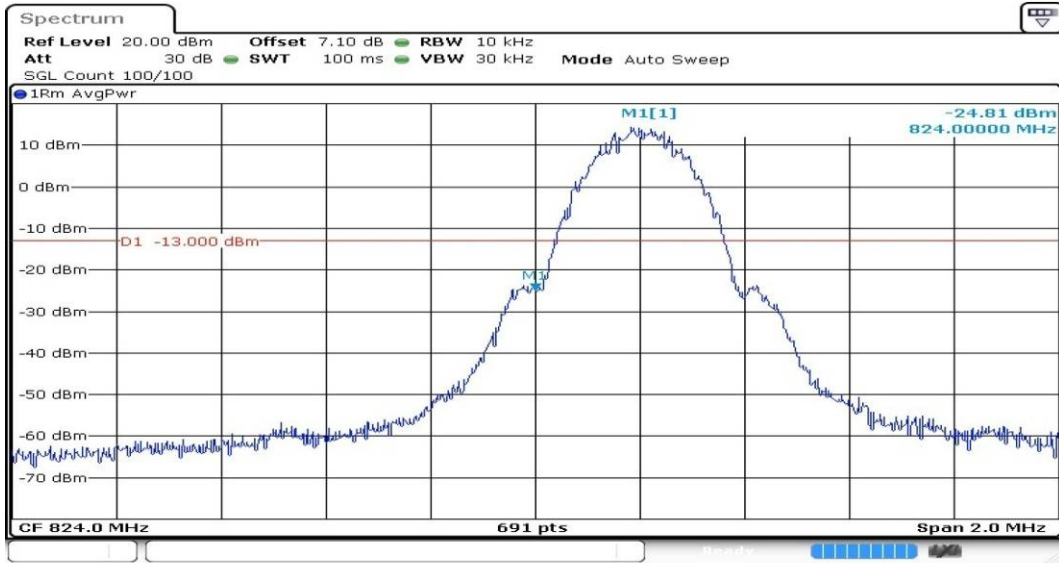


Date: 24.DEC.2020 16:53:13

Channel 661 1GHz~20GHz

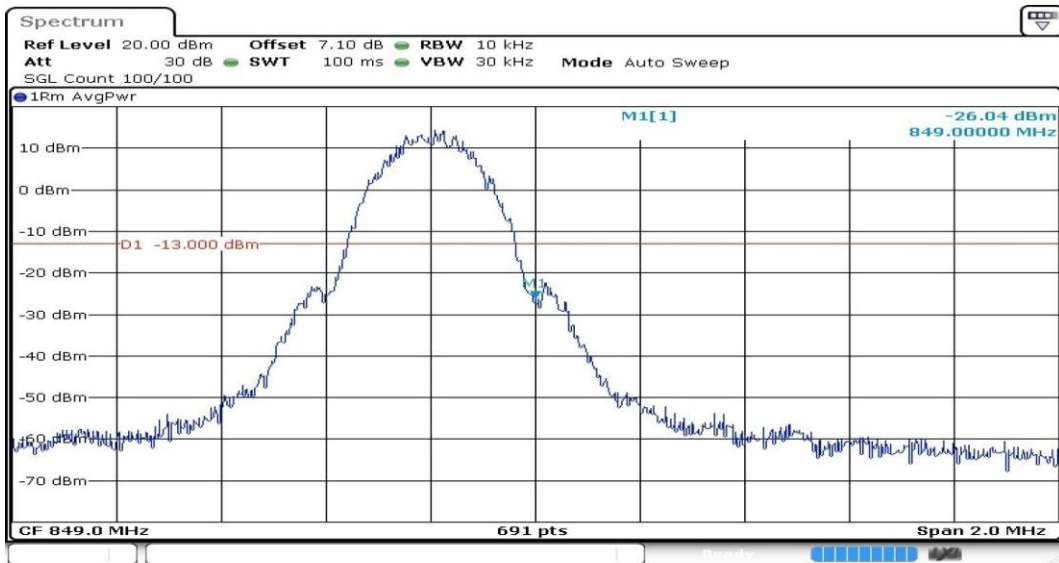
Note: The signal beyond the limit is the signal transmitted by EUT.

Band Edges Compliance
GSM850
GSM MODE:



Date: 24.DEC.2020 15:30:47

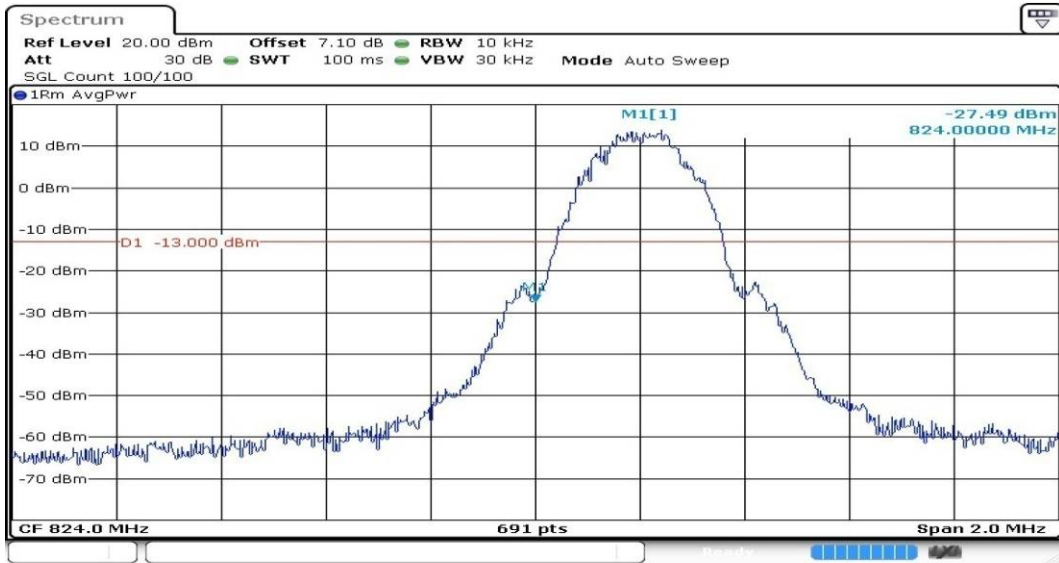
Channel 128



Date: 24.DEC.2020 15:32:33

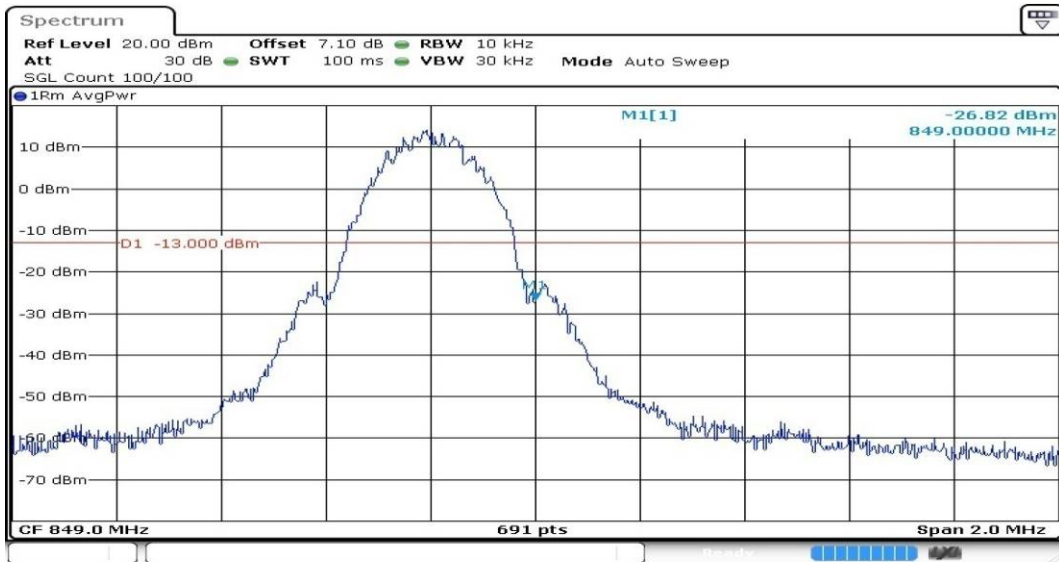
Channel 251

GPRS MODE:



Date: 24. DEC. 2020 15:44:39

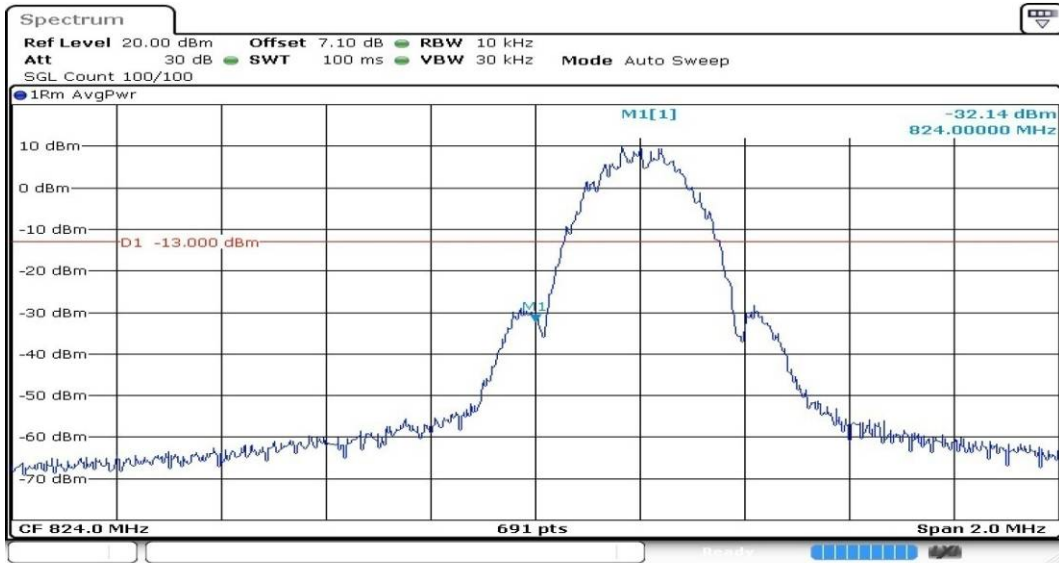
Channel 128



Date: 24. DEC. 2020 15:46:46

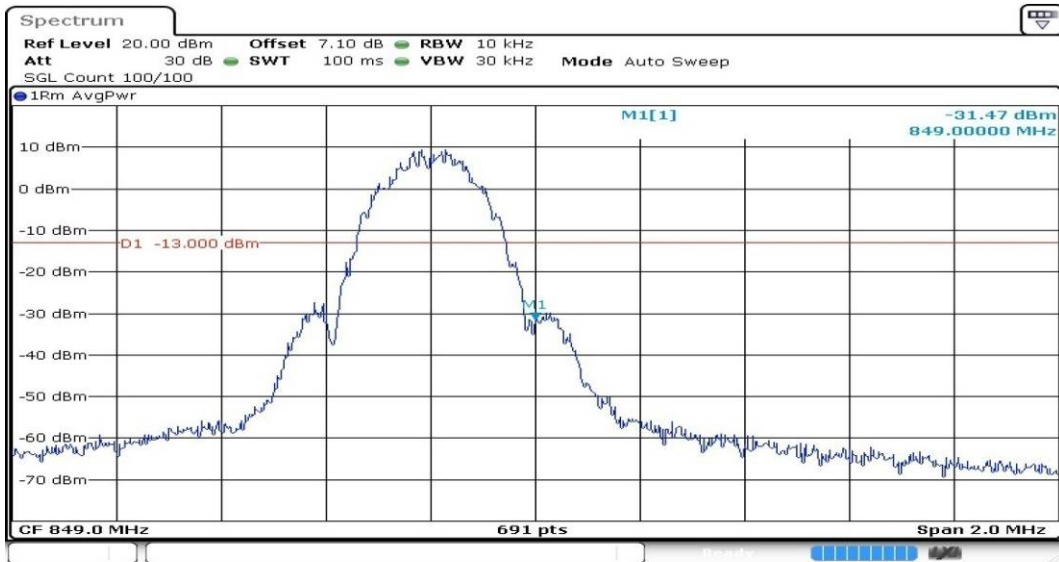
Channel 251

EDGE (8PSK) MODE:



Date: 24.DEC.2020 15:56:32

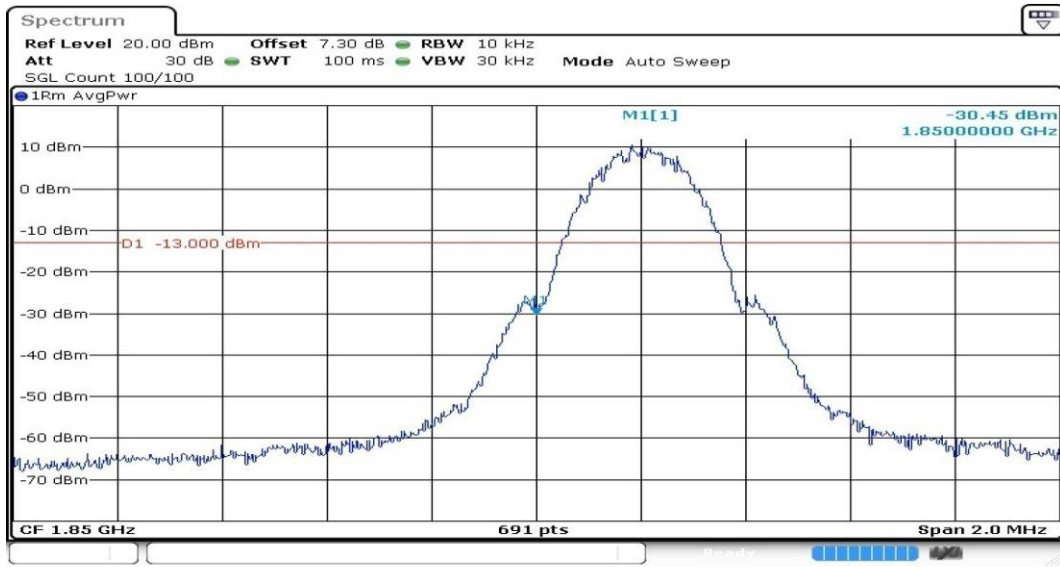
Channel 128



Date: 24.DEC.2020 15:58:41

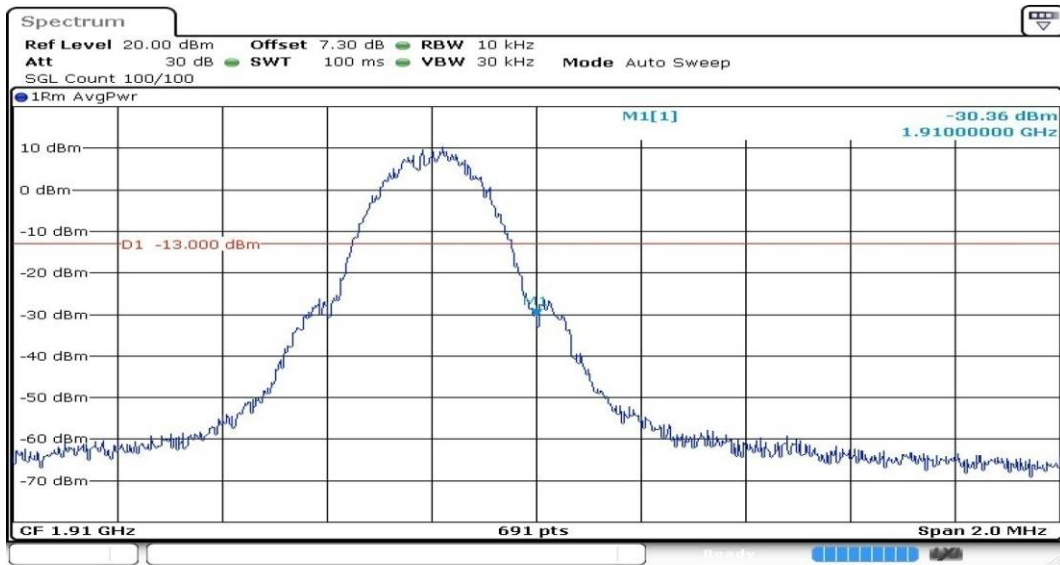
Channel 251

PCS1900
GSM MODE:



Date: 24.DEC.2020 16:32:11

Channel 512



Date: 24.DEC.2020 16:34:02

Channel 810