Certificate Number: 5055.02

TEST REPORT FOR GSM TESTING

Report No.: SRTC2022-9004(F)-22070702(A)

Product Name : LTE/WCDMA/GSM(GPRS) Multi-Mode Digital Mobile Phone

Applicant: ZTE Corporation

Manufacturer: ZTE Corporation

Specification: FCC Part 24E, Part 22H, Part 2 (2021)

FCC ID: SRQ-ZTEA52LITE2

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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Designation Number:	CN1267
Registration number:	239125

1.3 Applicant's details

Company:	ZTE Corporation
Address:	ZTE Plaza, #55 Keji Road South, Hi-Tech, Industrial Park, Nanshan District,Shenzhen, Guangdong, 518057, P.R.China

1.4 Manufacturer's details

Company:	ZTE Corporation
Address:	ZTE Plaza, #55 Keji Road South, Hi-Tech, Industrial Park, Nanshan District,Shenzhen, Guangdong, 518057, P.R.China

1.5 Test Environment

Date of Receipt of test sample at SRTC:	2022-03-14
Testing Start Date:	2022-03-16
Testing End Date:	2022-03-18

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	25	40
Maximum Extreme	55	---
Minimum Extreme	-10	---

Normal Supply Voltage (V d.c.):	3.85
Maximum Extreme Supply Voltage (V d.c.):	4.20
Minimum Extreme Supply Voltage (V d.c.):	3.50

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:	FPC Antenna
Antenna Gain:	GSM850: -2.55dBi/PCS1900: 0.54dBi ERP = EIRP(Power +Gain) – 2.15 (dB)
Power Supply:	DC supply
Software Revision:	W1.0.0_A52_Lite_TEL (SW_M19966HA1_V005_M10_NF_ZTE_A52_LITE_USR_TEST)
Hardware Revision:	19966_1_10
IMEI:	863225060006250

2.2 Support Equipment

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

3 REFERENCE SPECIFICATION

Specification	Version	Title
FCC Part2	2021	Frequency allocations and radio treaty matters; general rules and regulations
FCC Part22	2021	Public mobile services
FCC Part24	2021	Personal communications services
ANSI C63.26	2021	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

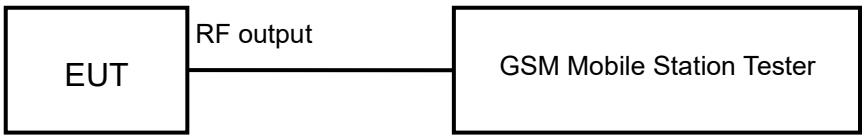
This Test Report Is Issued by: Mr. Peng Zhen	Checked by: Mr. Li Bin
Tested by: Mr. Liu Ce	Issued date: 20220714

6 TEST RESULT

6.1 RF Power Output

Rule Part(s)
FCC Part 2.1046

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)

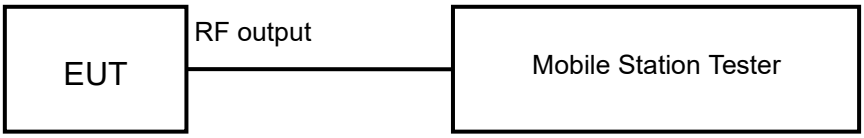
Limits: No specific conduct power requirements in part 2.1046.

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)

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)
Limits for GSM850:

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

Limits for PCS1900:

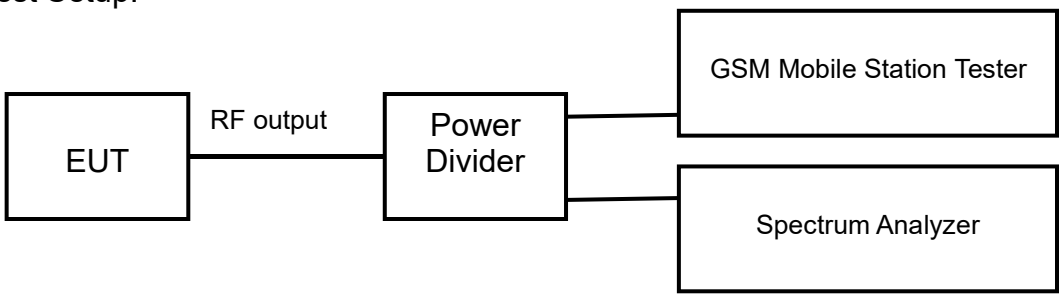
Operation Mode	Power Step	E.I.R.P. (dBm)
GSM	0	≤33
GPRS	3	≤33

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

6.3 Occupied Bandwidth

Rule Part(s)
Part 2.1049

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

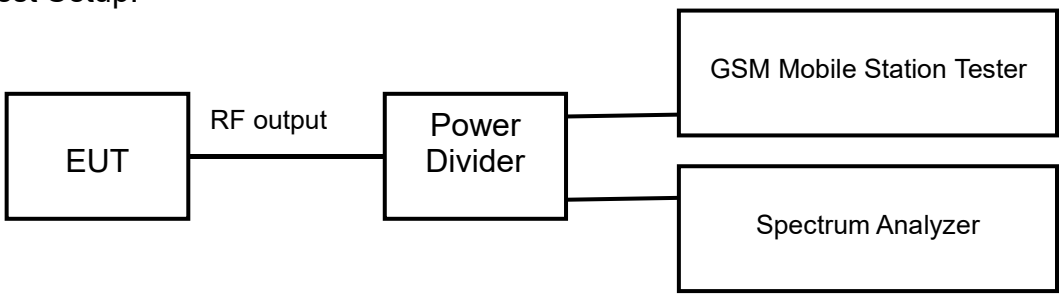
Limits: No specific occupied bandwidth requirements in part 2.1049

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

6.4 Emission Bandwidth-

Rule Part(s)
Part 2.1049

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

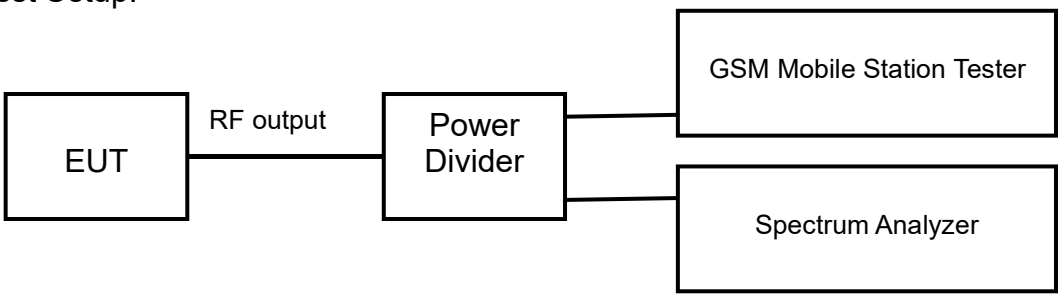
Limits: No specific occupied bandwidth requirements in part 2.1049

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)

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

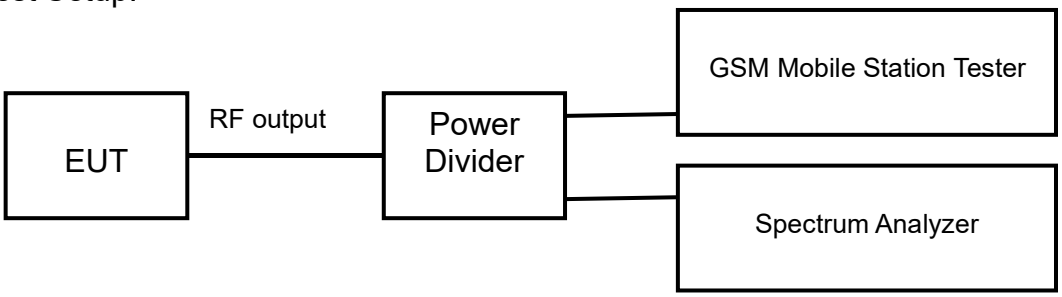
Limits:
The minimum permissible attenuation level of any spurious emission is $43+\log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

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)

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

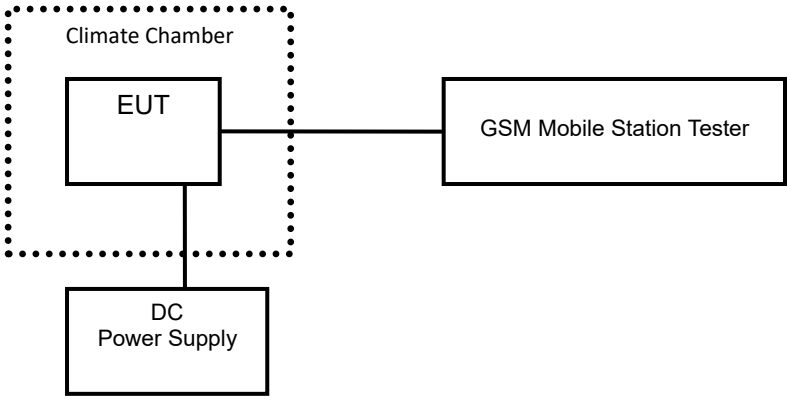
Limit: The minimum permissible attenuation level of any spurious emission is $43+\log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

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

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.

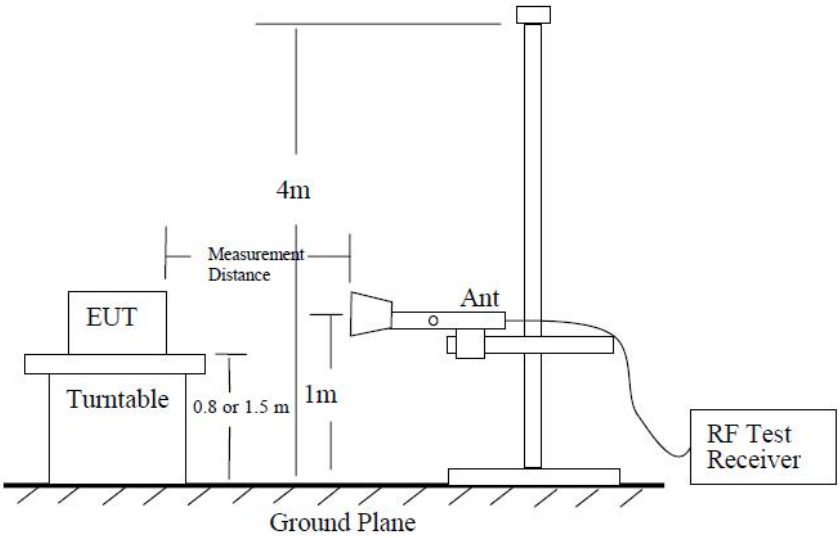
Limits: For Part 22, the frequency stability of the transmitter shall be maintained within±0.00025% (±2.5 ppm) of the center frequency. For Part 24, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

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

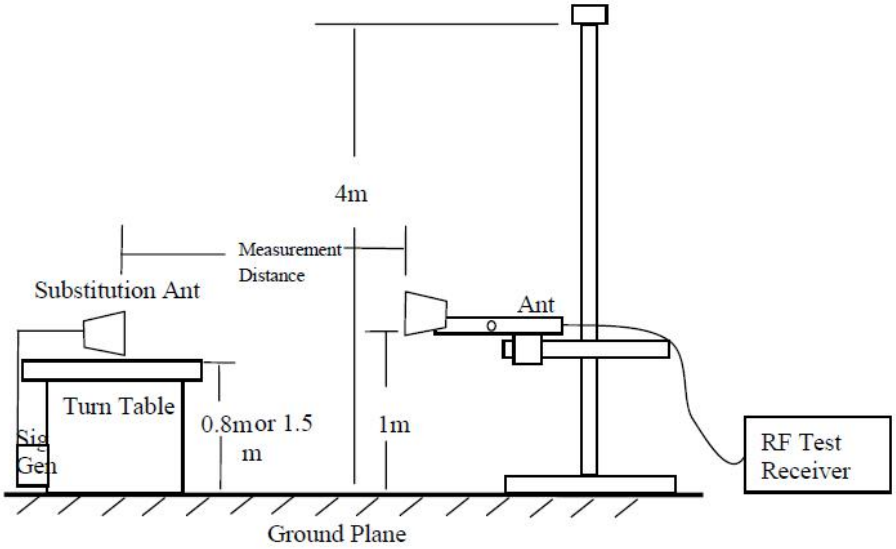
6.8 Radiated Spurious Emissions

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

Test Setup:



Step 1



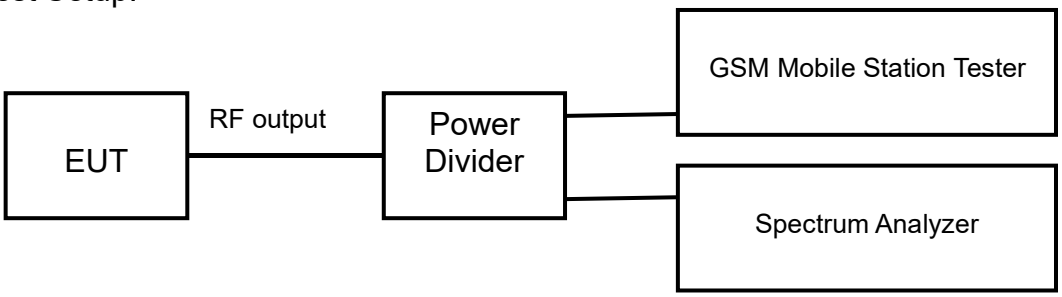
Step 2

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
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)

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	
RF Power Output	0.6 dB	
Effective Radiated Power and Effective Isotropic Radiated Power	0.6 dB	
Occupied Bandwidth	3kHz	
Emission Bandwidth	3kHz	
Peak-Average Ratio	0.8dB	
Frequency Stability	48Hz	
Band Edges Compliance	1.2dB	
Spurious Emissions at antenna terminal	9kHz~2GHz	1.2dB
	2G~3.6GHz	1.4dB
	3.6G~8GHz	2.2dB
	8G~12.75GHz	2.7dB
Radiated Emission Measurement	30MHz～200MHz	4.88dB
	200MHz～1GHz	4.87dB
	1GHz～18GHz	4.58dB
	18GHz~40GHz	4.35dB

8 TEST EQUIPMENTS

No.	Name/Model	Manufacturer	S/N	Calibration Date	Calibration Due Date
1	Mobile Station Tester / MT8820C	Anritsu	6201300660	2022.06.21	2023.06.20
2	Radio Communication Station / CMW500	R&S	161702	2022.06.21	2023.06.20
3	Spectrum Analyzer / FSV40	R&S	101065	2022.06.21	2023.06.20
4	Spectrum Analyzer / N9020A	Agilent	MY48010771	2022.05.18	2023.05.17
5	Power Divider / 11667A	HP	19632	2022.06.21	2023.06.20
6	DC Power Supply / E3645A	Agilent	MY40000741	2022.04.22	2023.04.21
7	Temperature chamber / SH241	ESPEC	92013758	2022.06.21	2023.06.20
8	Fully-Anechoic Chamber / 12.65m×8.03m×7.50m	FRANKONIA	-----	-----	-----
9	Semi-Anechoic/Chamber / 23.18m×16.88m×9.60m	FRANKONIA	---	-----	-----
10	Turn table Diameter:1m	FRANKONIA	-----	-----	-----
11	Turn table Diameter:5m	FRANKONIA	-----	-----	-----
12	Antenna master FAC(MA4.0)	MATURO	-----	-----	-----
13	Antenna master SAC(MA4.0)	MATURO	-----	-----	-----
14	Shielding room / 9.080m×5.255m×3.525m	FRANKONIA	-----	-----	-----
15	Double-Ridged Waveguide Horn Antenna / HF 907	R&S	100512	2022.06.21	2023.06.20
16	Double-Ridged Waveguide Horn Antenna / HF 907	R&S	100513	2022.06.21	2023.06.20
17	Ultra log antenna / HL562	R&S	100016	2022.06.21	2023.06.20
18	Receive antenna /3160-09	SCHWARZ-BECK	002058-002	2022.06.21	2023.06.20
19	EMI test receiver / ESI 40	R&S	100015	2022.06.21	2023.06.20
20	EMI test receiver / ESCS30	R&S	100029	2022.06.21	2023.06.20
21	Receive antenna / HL562	R&S	100167	2022.06.21	2023.06.20
22	AMN / ENV216	R&S	3560.6550.12	2022.06.21	2023.06.20

APPENDIX A – TEST DATA OF CONDUCTED EMISSION

1. RF Power Output

GSM850

GSM Measured Power:

Carrier frequency (MHz)	Channel No.	RF Power Output (dBm)
824.2	128	29.30
836.4	189	29.21
848.8	251	29.13

GPRS Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	RF Power Output (dBm)
824.2	128	4Down1Up	29.29
836.4	189		29.21
848.8	251		29.14
824.2	128	3Down2Up	27.15
836.4	189		27.09
848.8	251		27.02
824.2	128	2Down3Up	25.01
836.4	189		24.95
848.8	251		24.89
824.2	128	1Down4Up	22.89
836.4	189		22.85
848.8	251		22.81

EGPRS (8PSK) Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	RF Power Output (dBm)
824.2	128	4Down1Up	22.08
836.4	189		22.29
848.8	251		21.88
824.2	128	3Down2Up	20.63
836.4	189		22.78
848.8	251		22.99
824.2	128	2Down3Up	19.33
836.4	189		20.78
848.8	251		19.22
824.2	128	1Down4Up	19.80
836.4	189		17.69
848.8	251		18.63

2. Occupied Bandwidth

GSM850

GSM MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
824.2	128	247.47
836.4	189	250.36
848.8	251	250.36

GPRS MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
824.2	128	253.26
836.4	189	248.91
848.8	251	240.23

EGPRS (8PSK) MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
824.2	128	243.13
836.4	189	251.81
848.8	251	234.44

GSM850

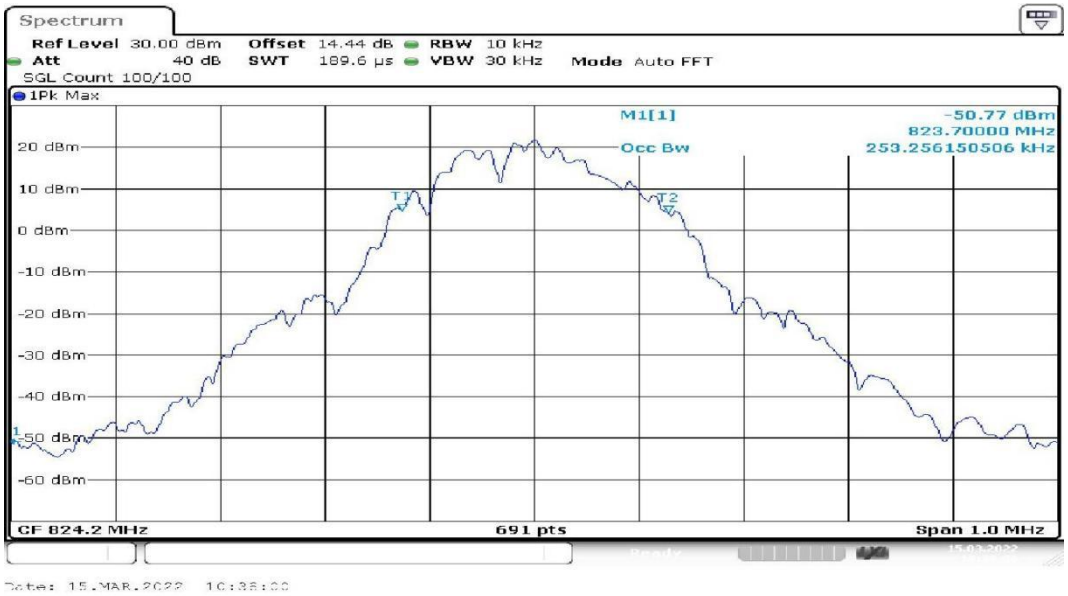
GSM MODE:

Channel 128

Channel 189

Channel 251

GPRS MODE:



Channel 128

Channel 189

Channel 251

EGPRS (8PSK) MODE:

Channel 128

Channel 189

Channel 251

3. Emission Bandwidth

GSM850

GSM MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of -26dB transmitter power(kHz)
824.2	128	312.60
836.4	189	306.80
848.8	251	319.80

GPRS MODE:

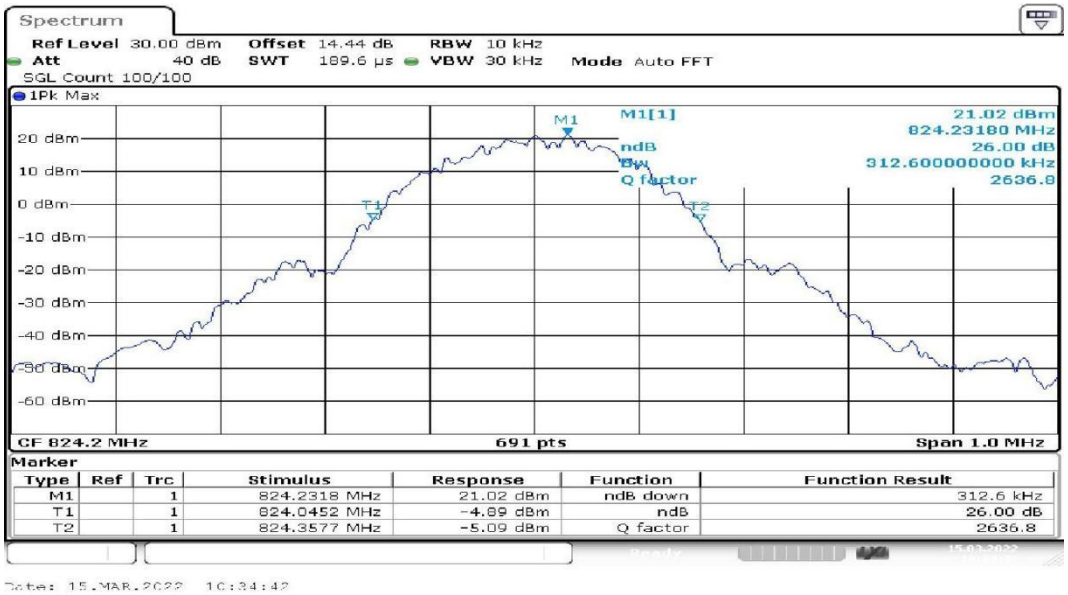
Carrier frequency (MHz)	Channel No.	Bandwidth of -26dB (kHz)
824.2	128	315.50
836.4	189	315.50
848.8	251	314.00

EGPRS (8PSK) MODE:

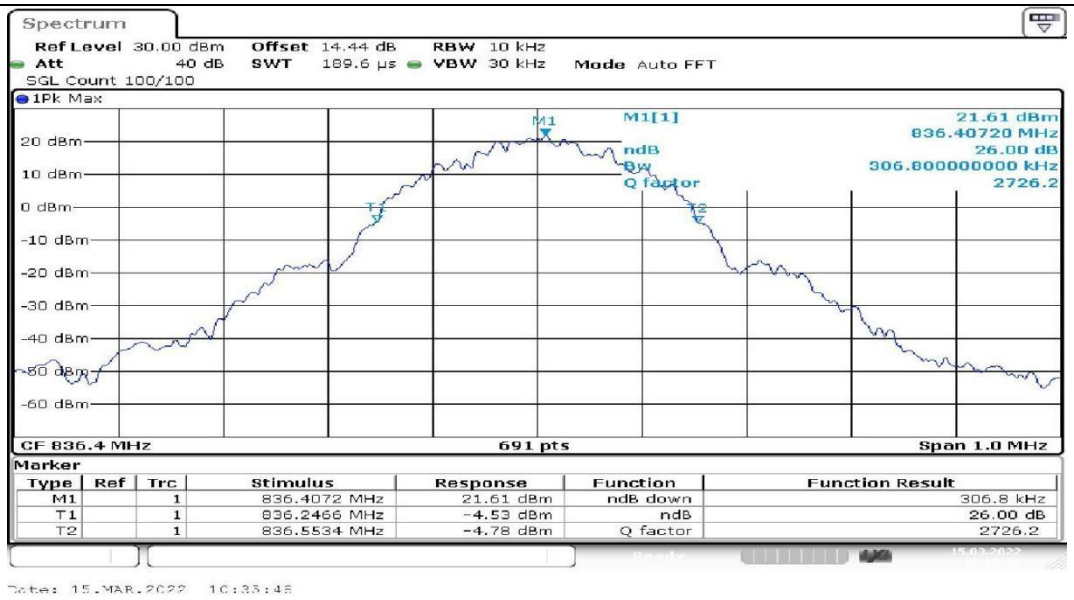
Carrier frequency (MHz)	Channel No.	Bandwidth of -26dB transmitter power(kHz)
824.2	128	305.40
836.4	189	322.70
848.8	251	312.60

GSM850

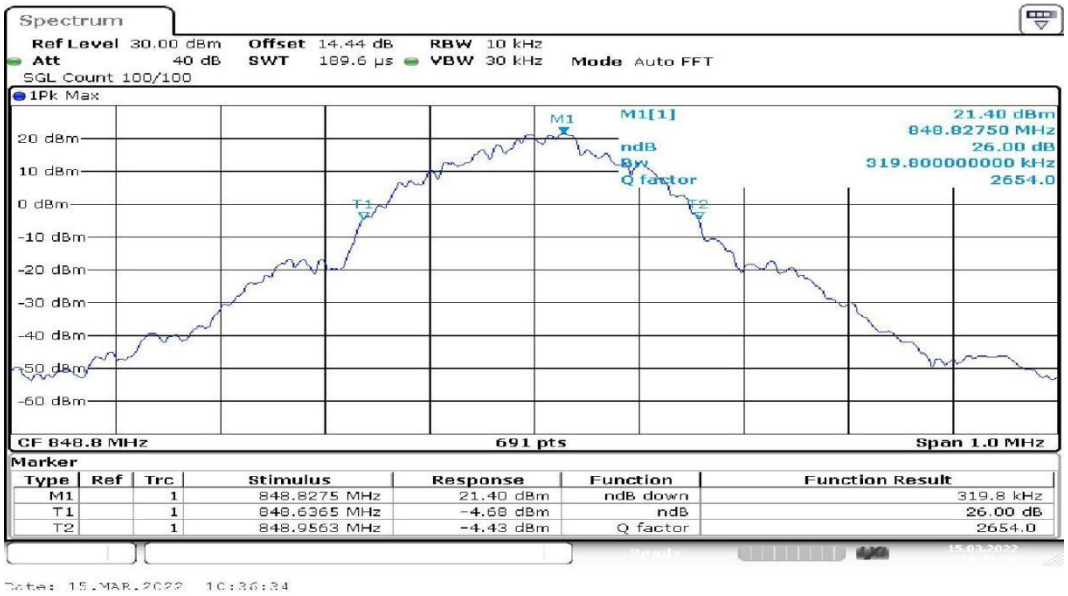
GSM MODE:



Channel 128

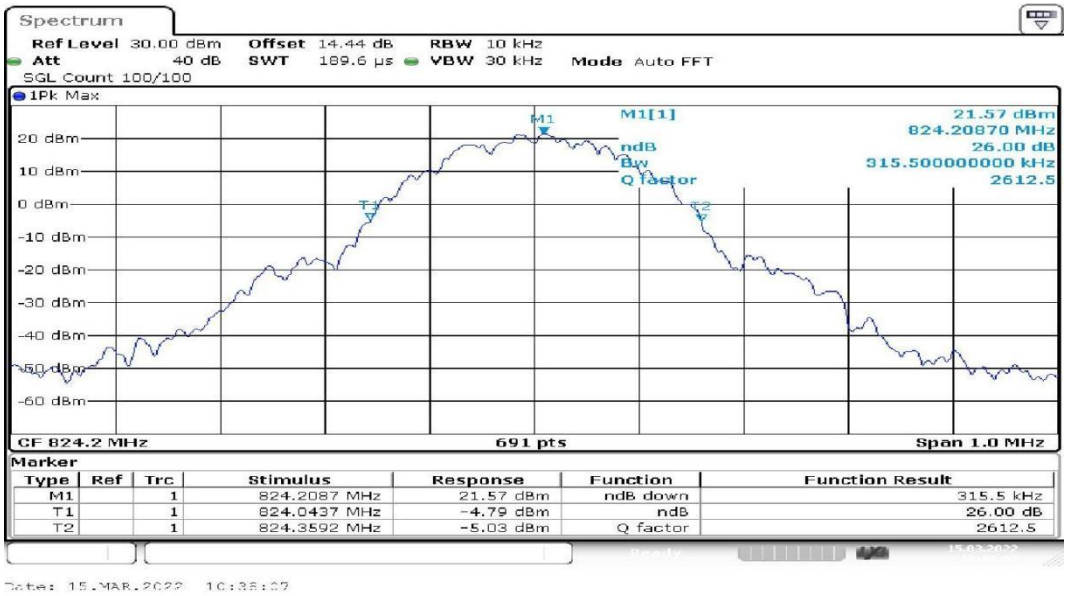


Channel 189

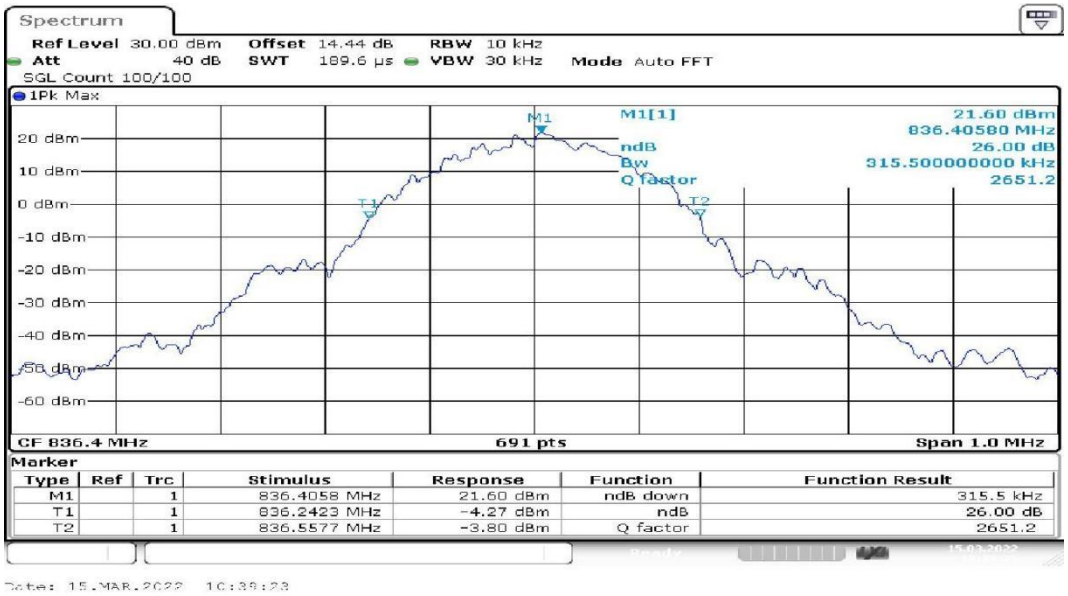


Channel 251

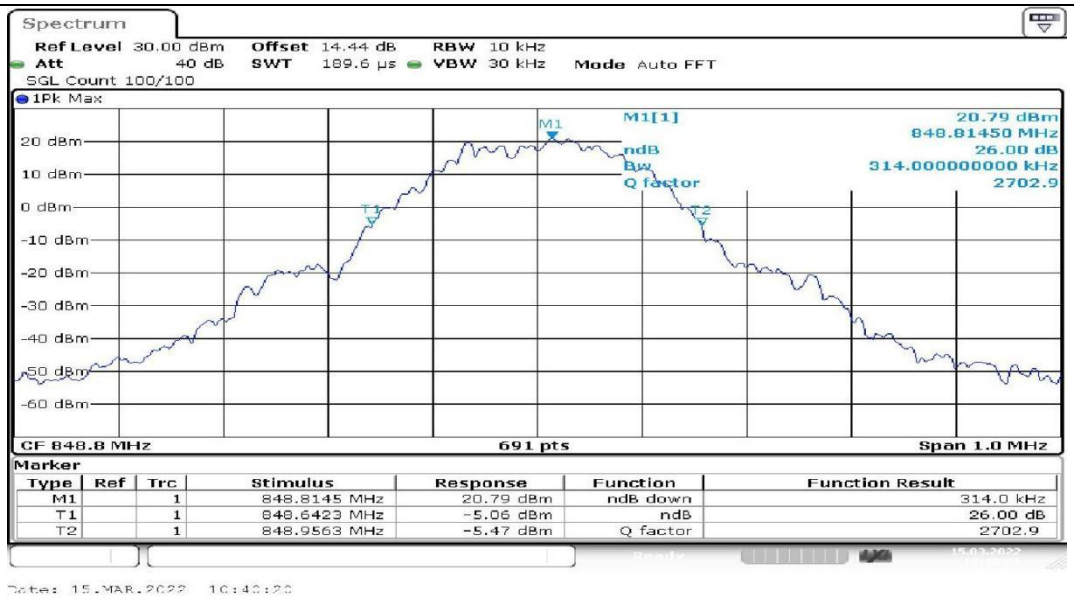
GPRS MODE:



Channel 128

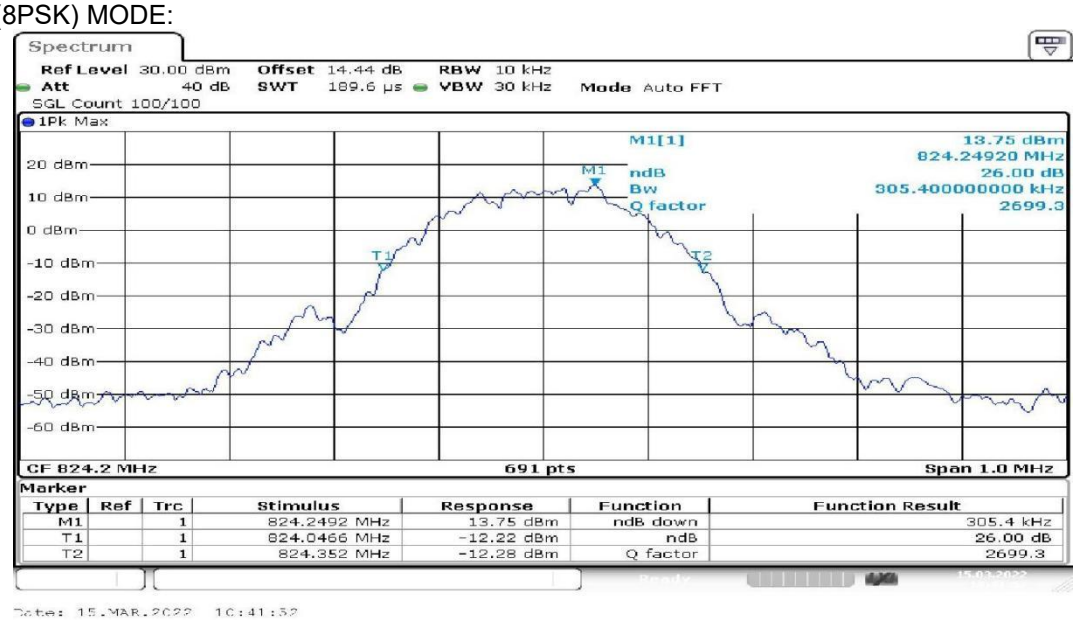


Channel 189

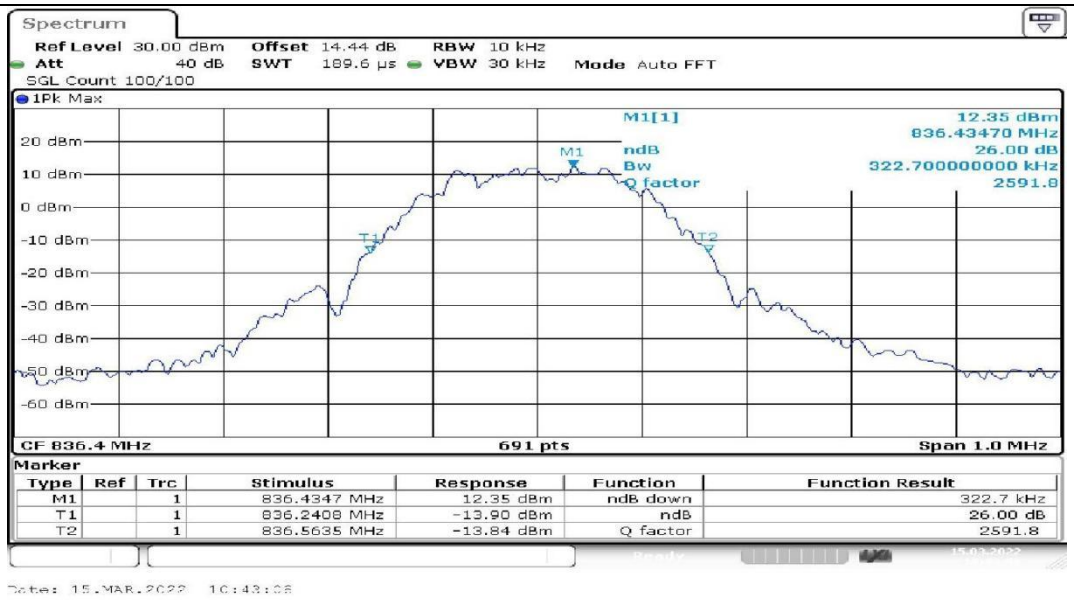


Channel 251

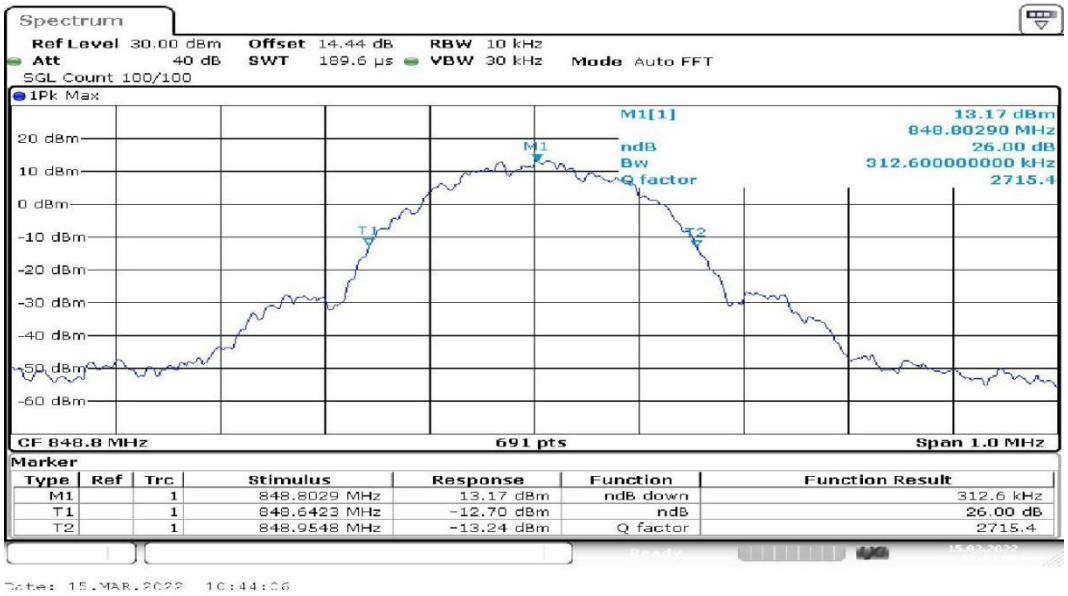
EGPRS (8PSK) MODE:



Channel 128



Channel 189

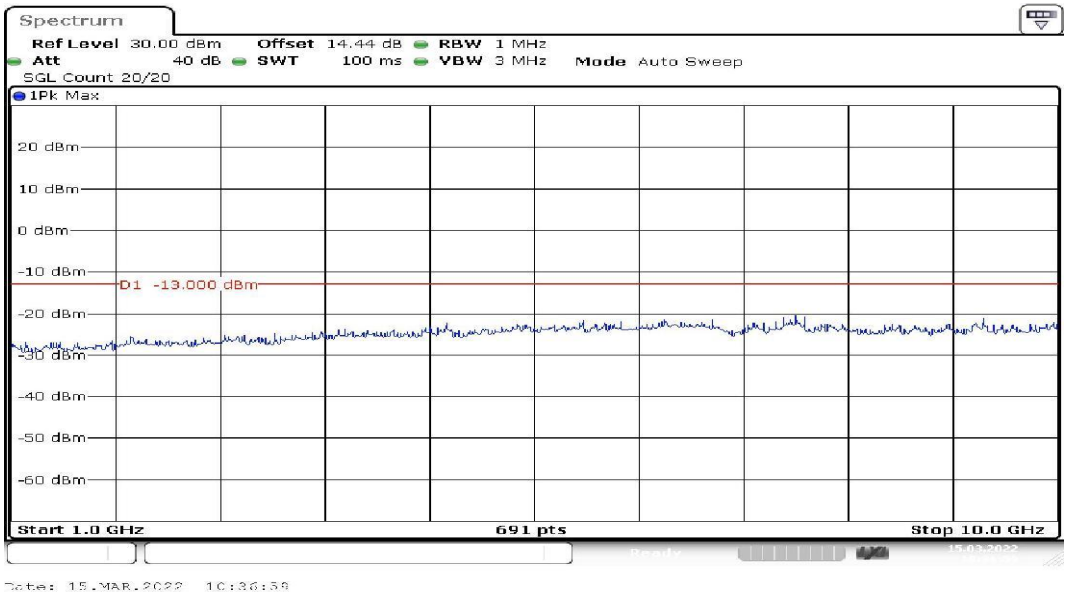


Channel 251

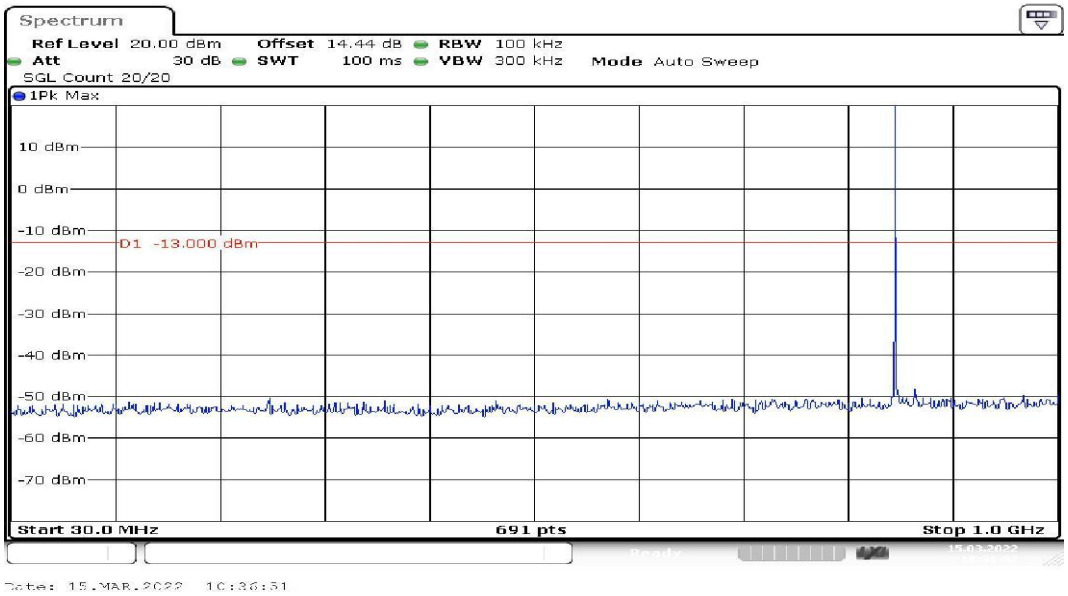
4. Spurious Emissions at antenna terminal

GSM850

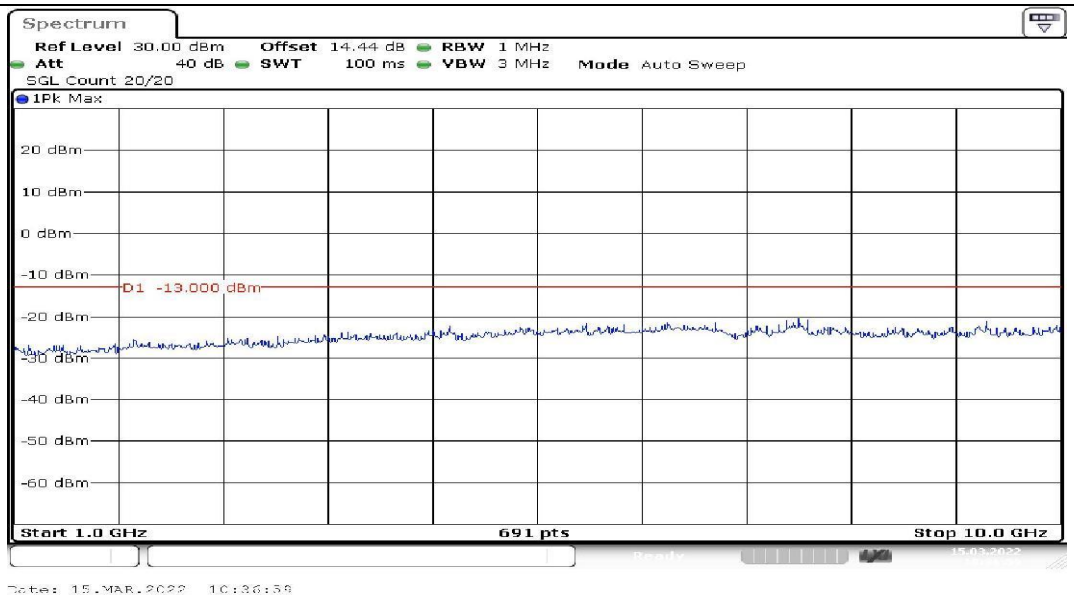
GSM MODE:



Channel 128

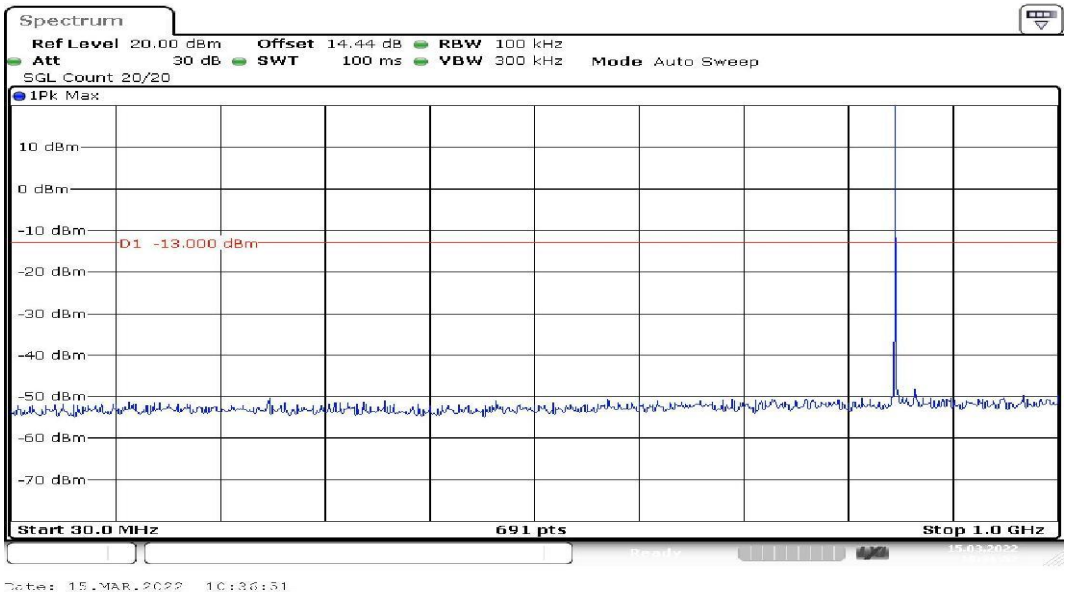


Channel 128



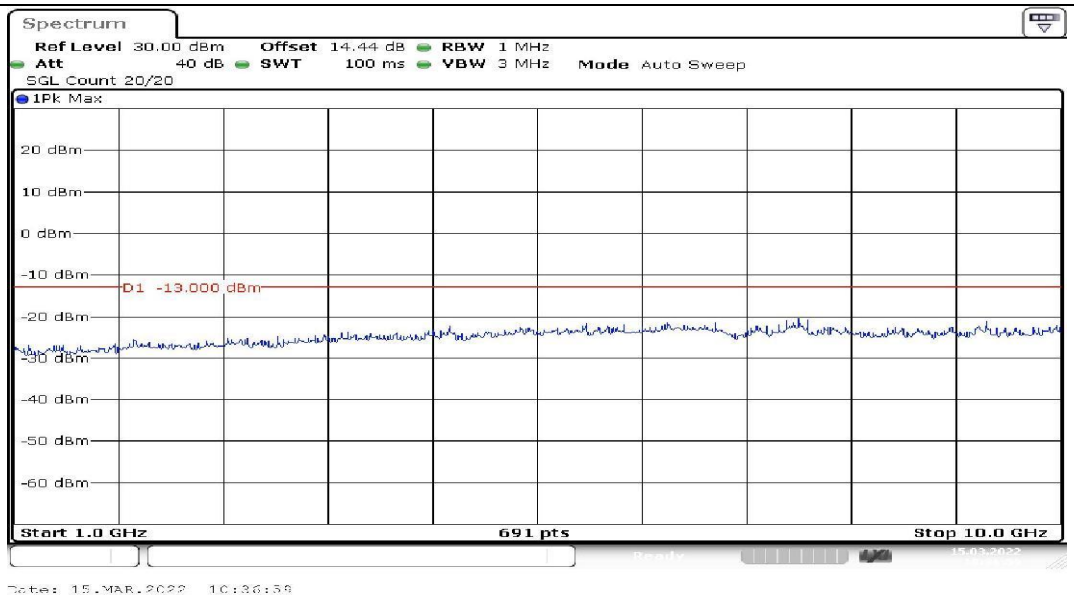
Date: 15.MAR.2022 10:36:59

Channel 189

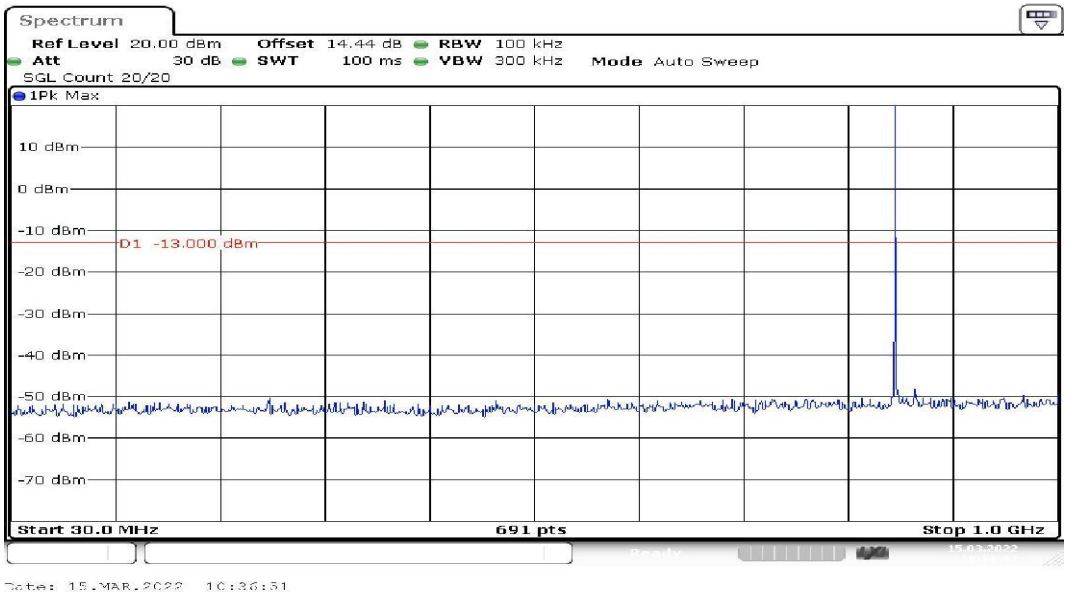


Date: 15.MAR.2022 10:36:51

Channel 189

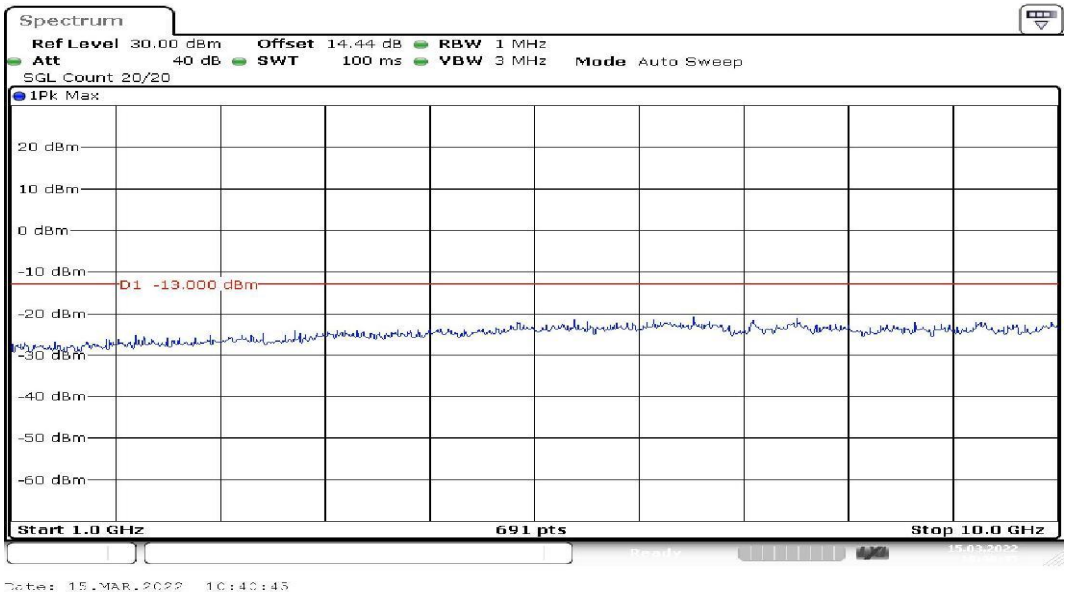


Channel 251



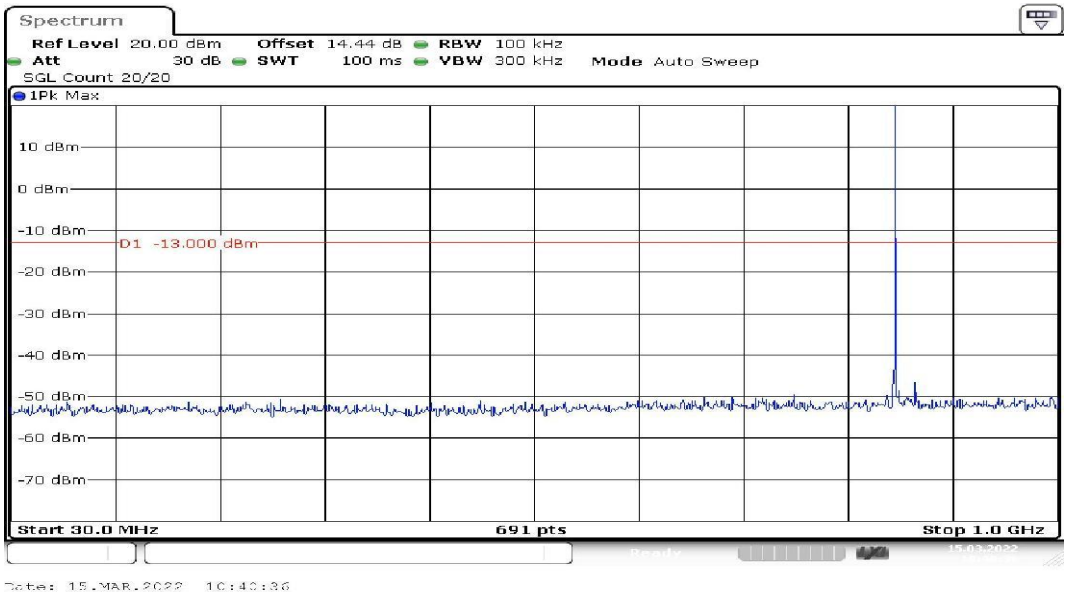
Channel 251

GPRS MODE:



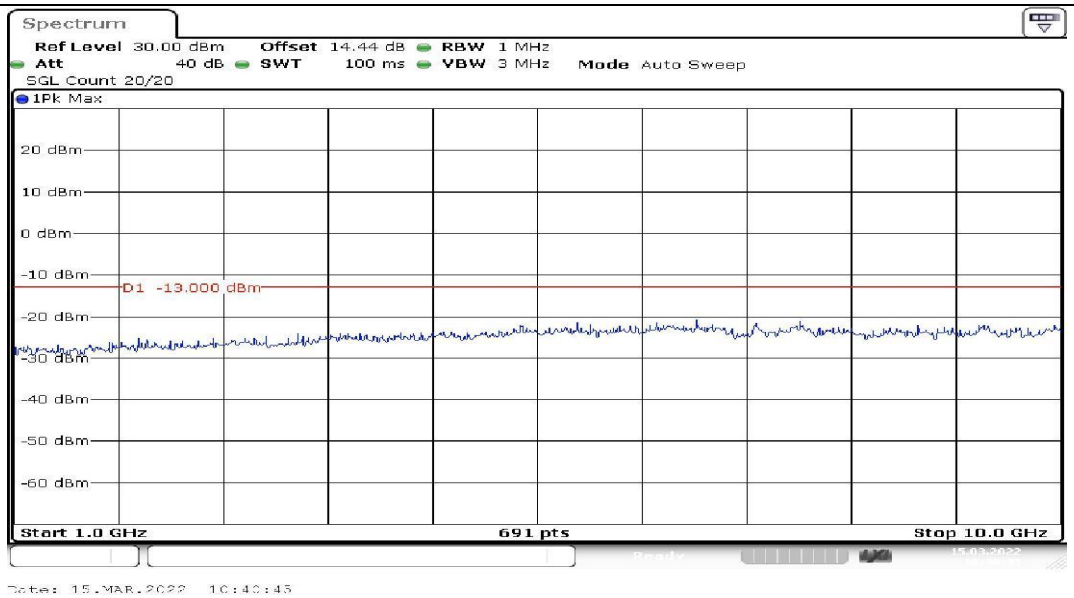
Date: 15.MAR.2022 10:40:45

Channel 128



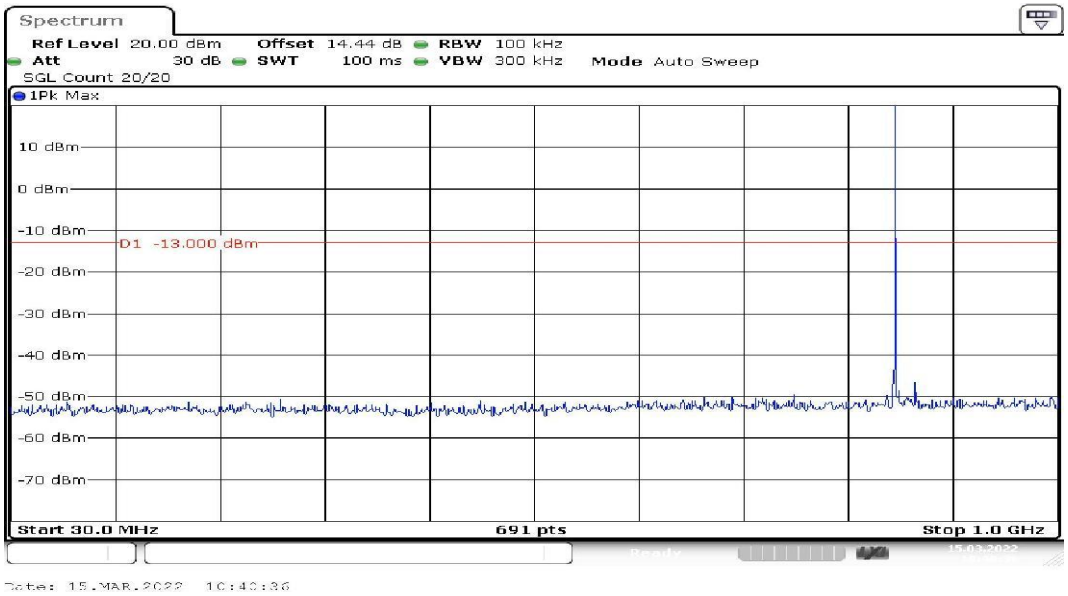
Date: 15.MAR.2022 10:40:36

Channel 128



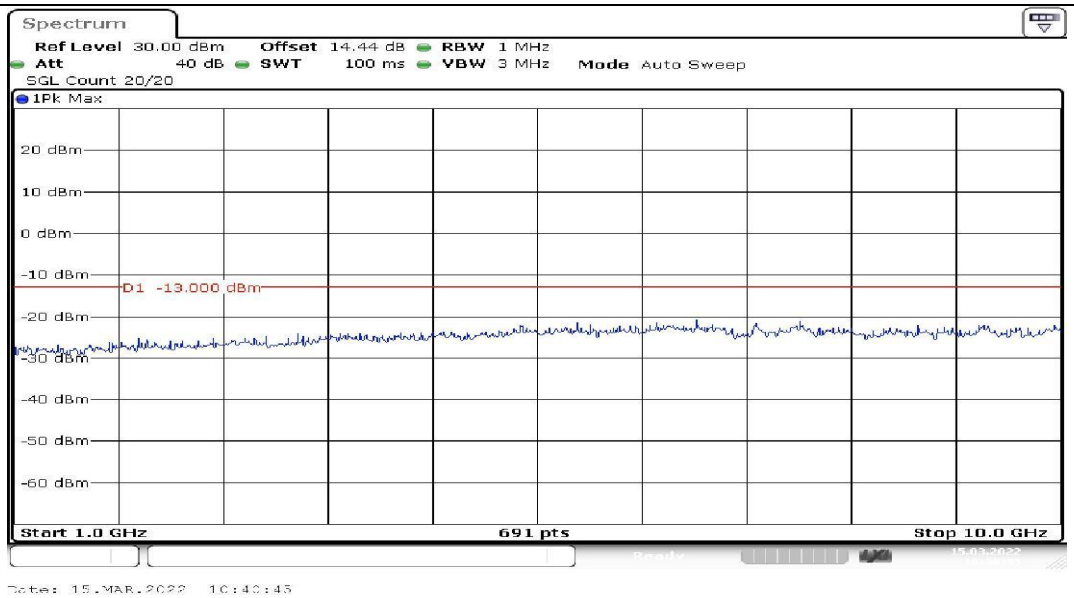
Date: 15.MAR.2022 10:40:45

Channel 189



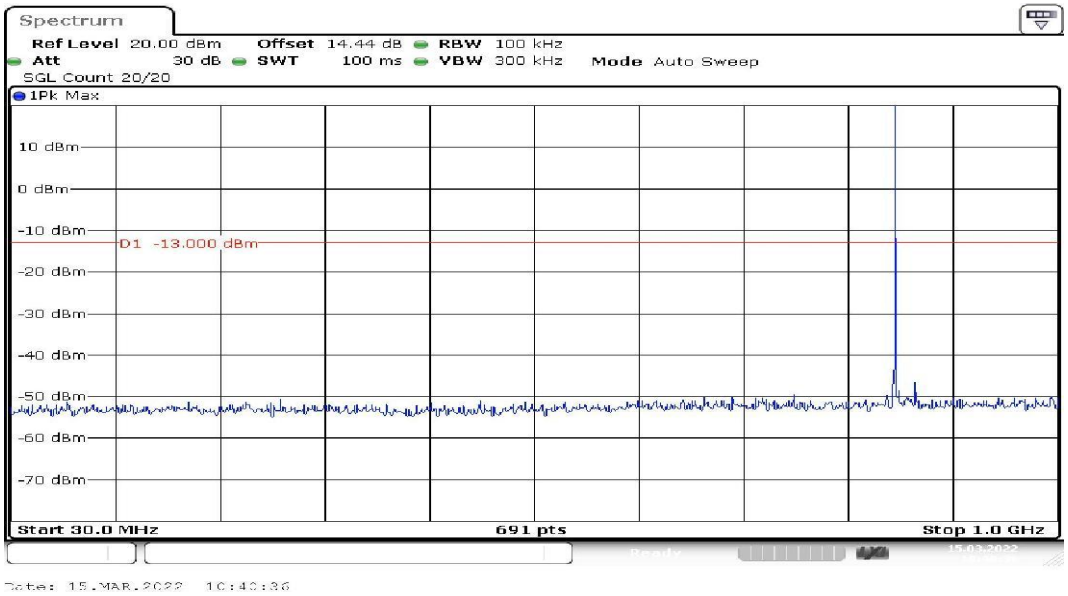
Date: 15.MAR.2022 10:40:36

Channel 189



Date: 15.MAR.2022 10:40:45

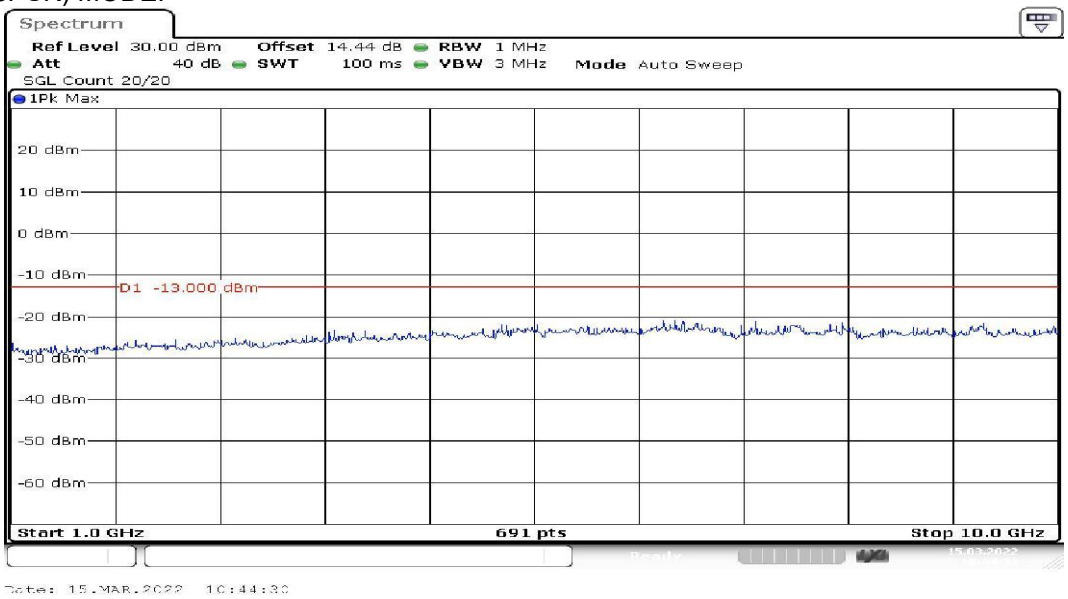
Channel 251



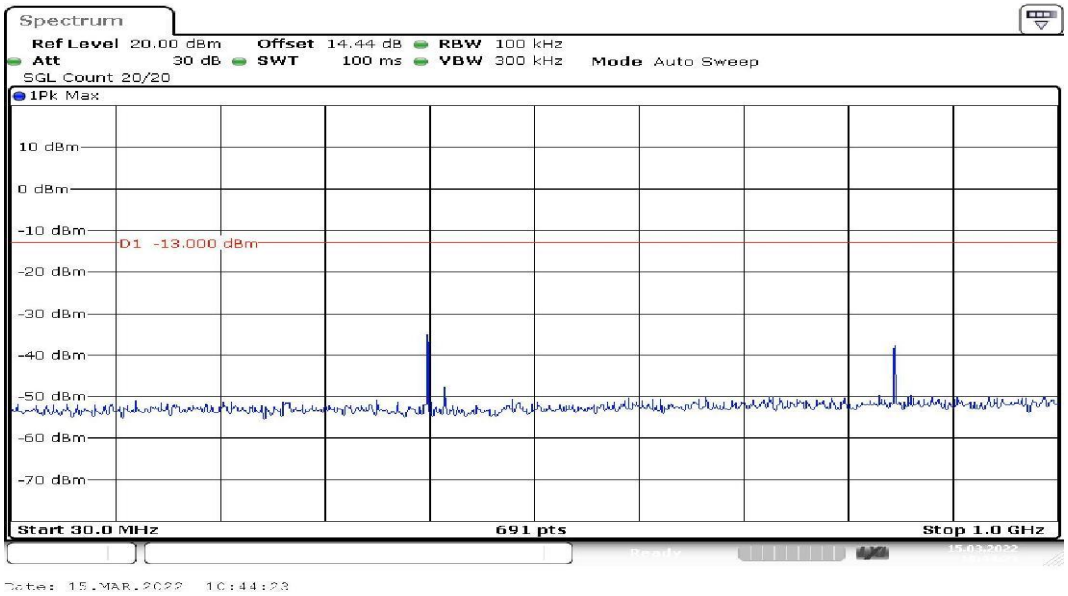
Date: 15.MAR.2022 10:40:36

Channel 251

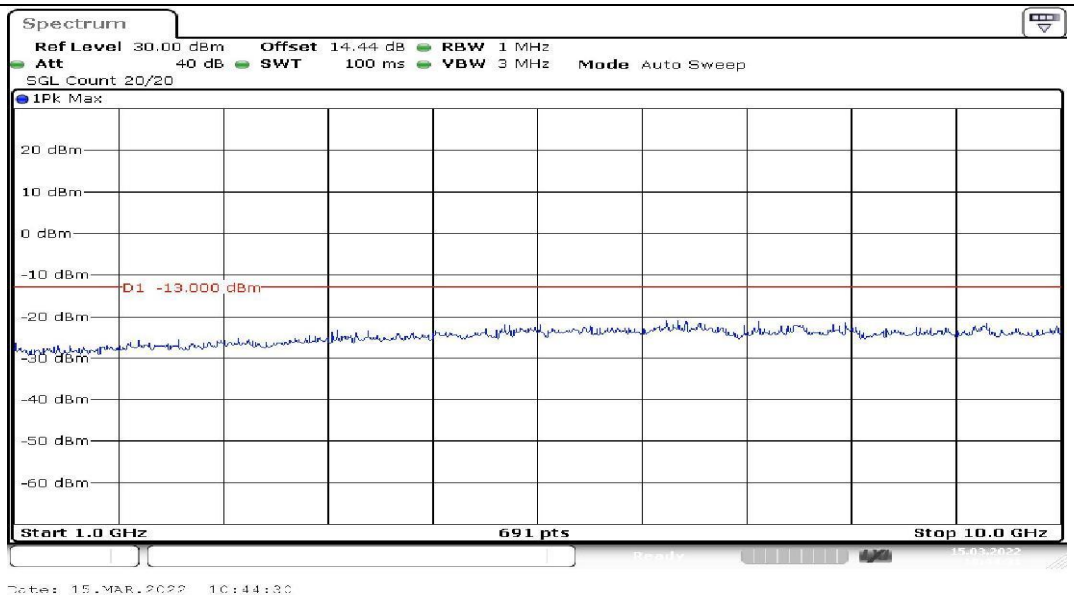
EGPRS (8PSK) MODE:



Channel 128

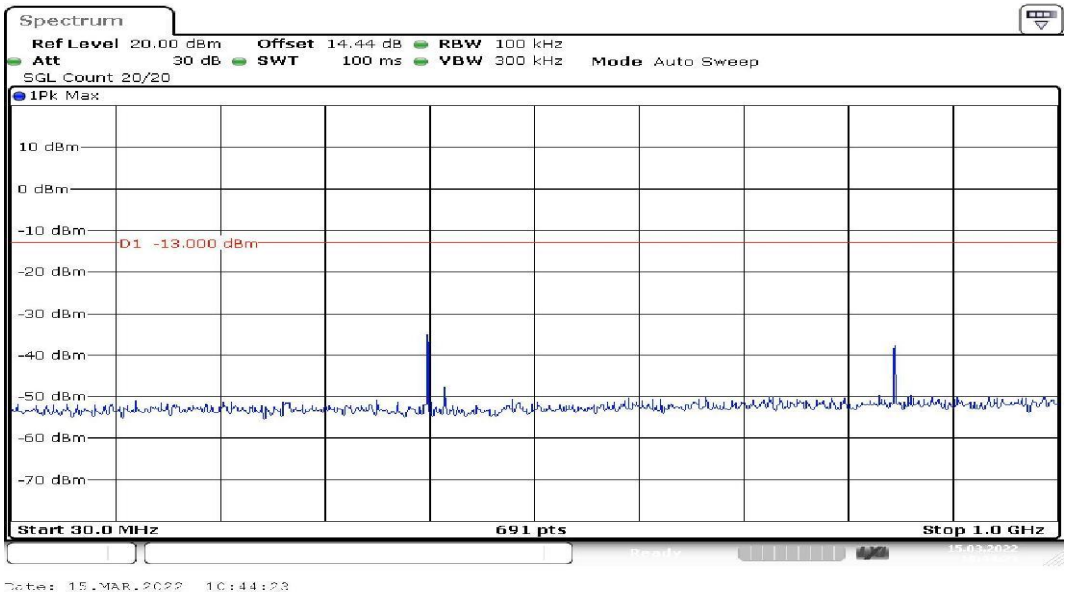


Channel 128



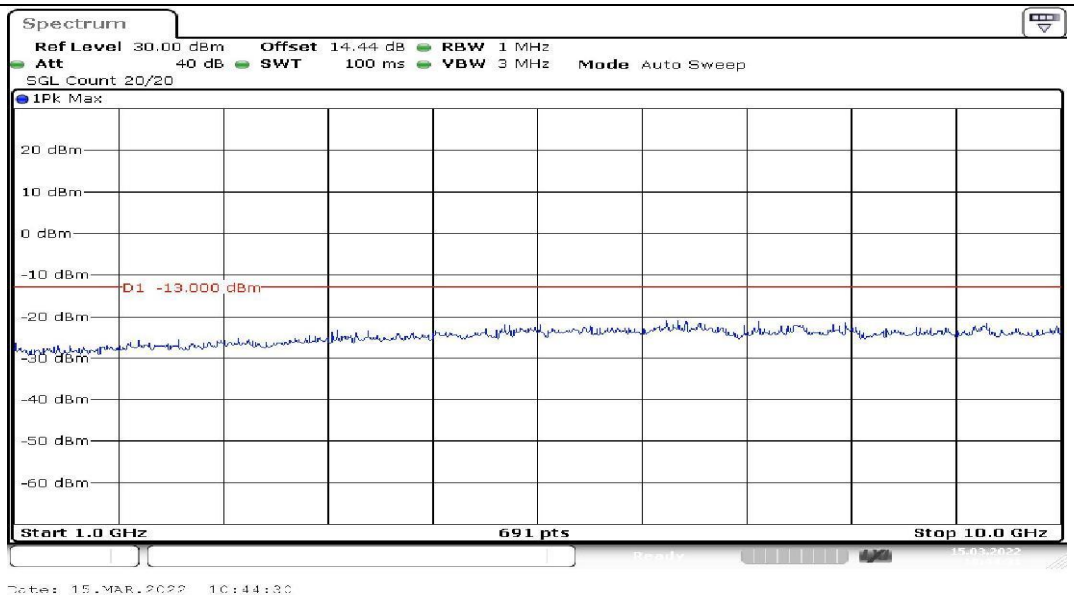
Date: 15.MAR.2022 10:44:30

Channel 189



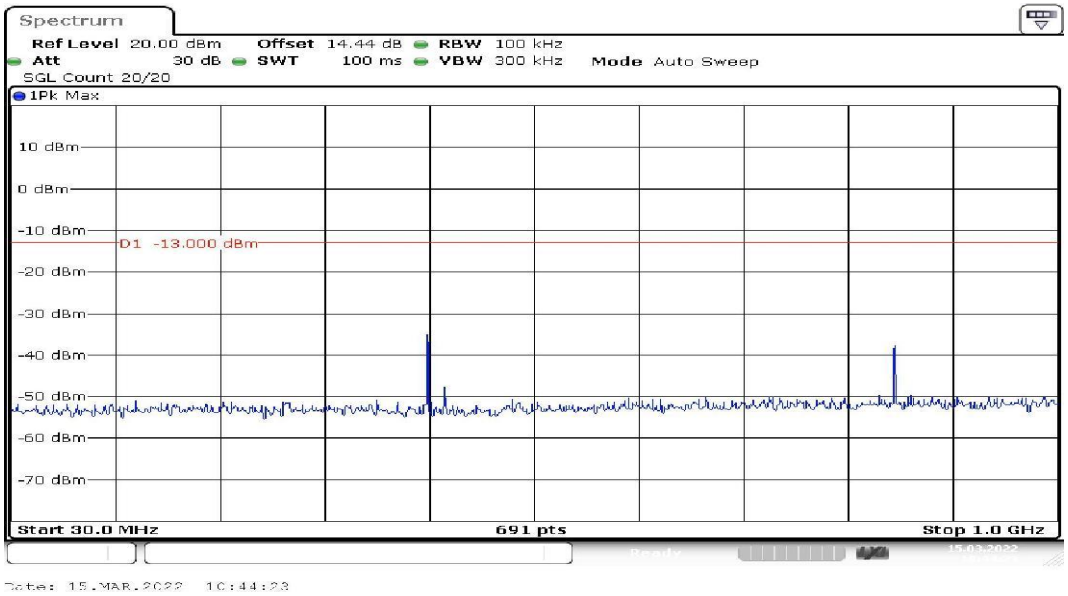
Date: 15.MAR.2022 10:44:23

Channel 189



Date: 15.MAR.2022 10:44:30

Channel 251



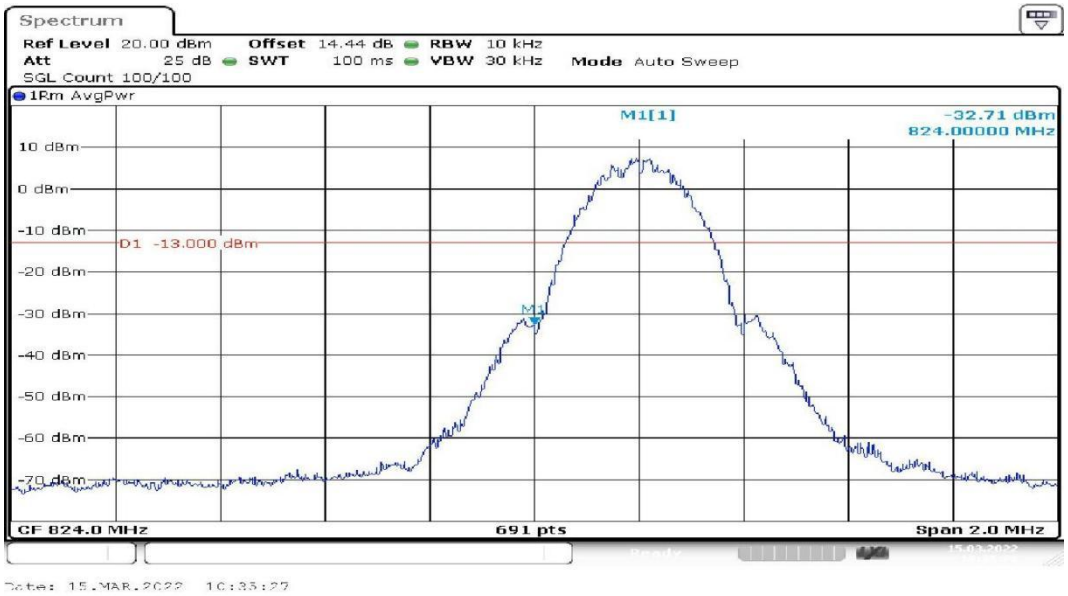
Date: 15.MAR.2022 10:44:23

Channel 251

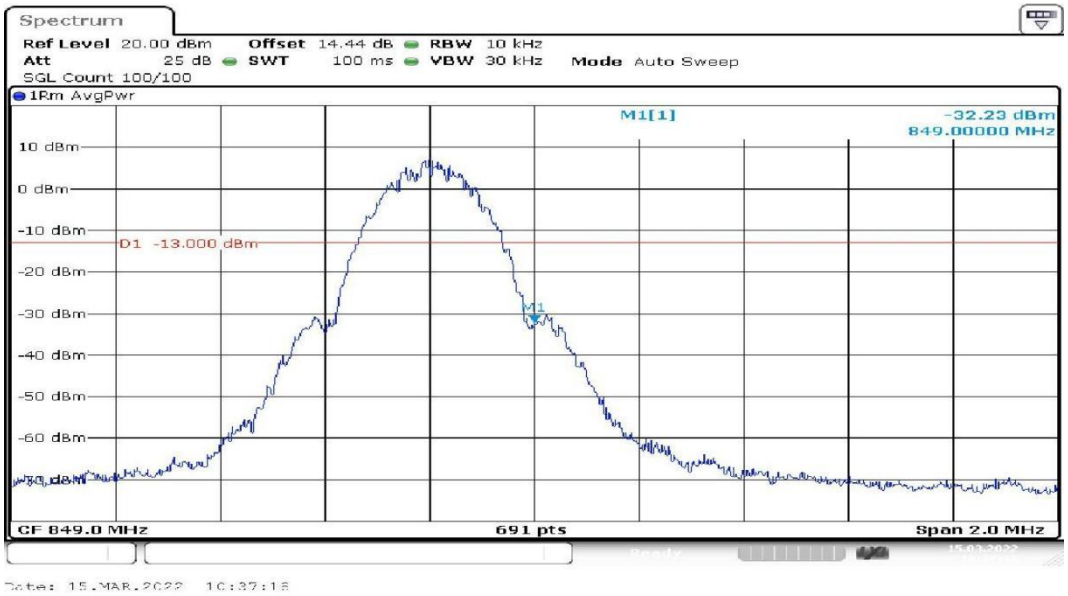
5. Band Edges Compliance

GSM850

GSM MODE:

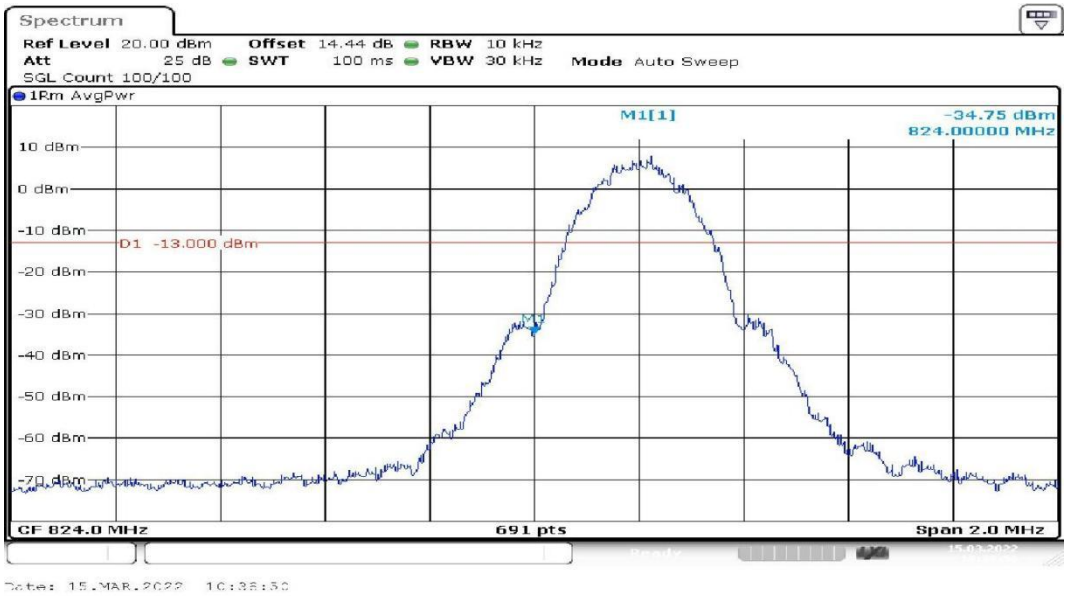


Channel 128



Channel 251

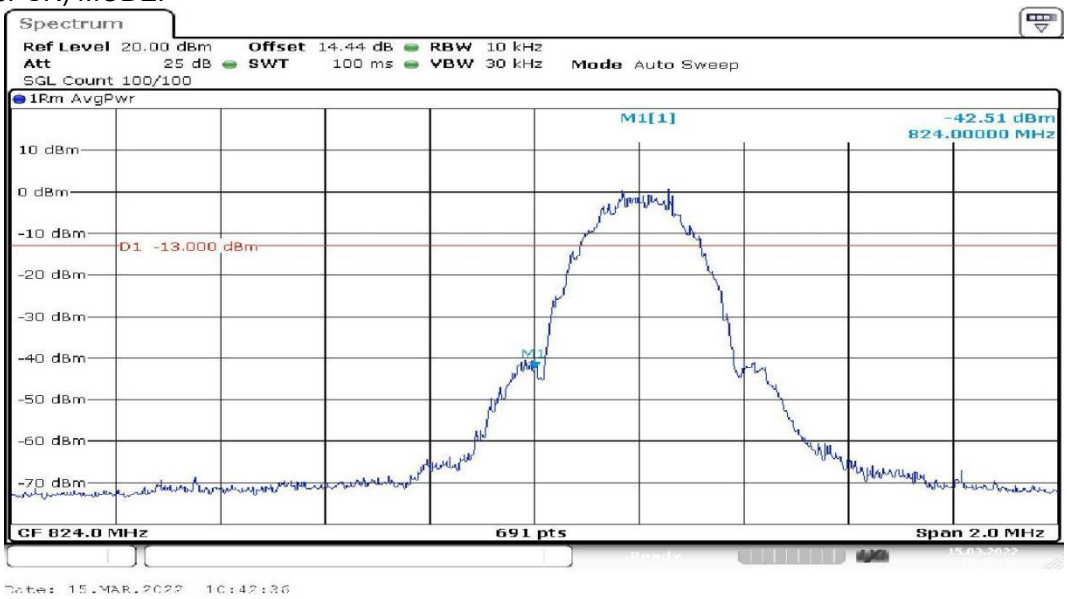
GPRS MODE:



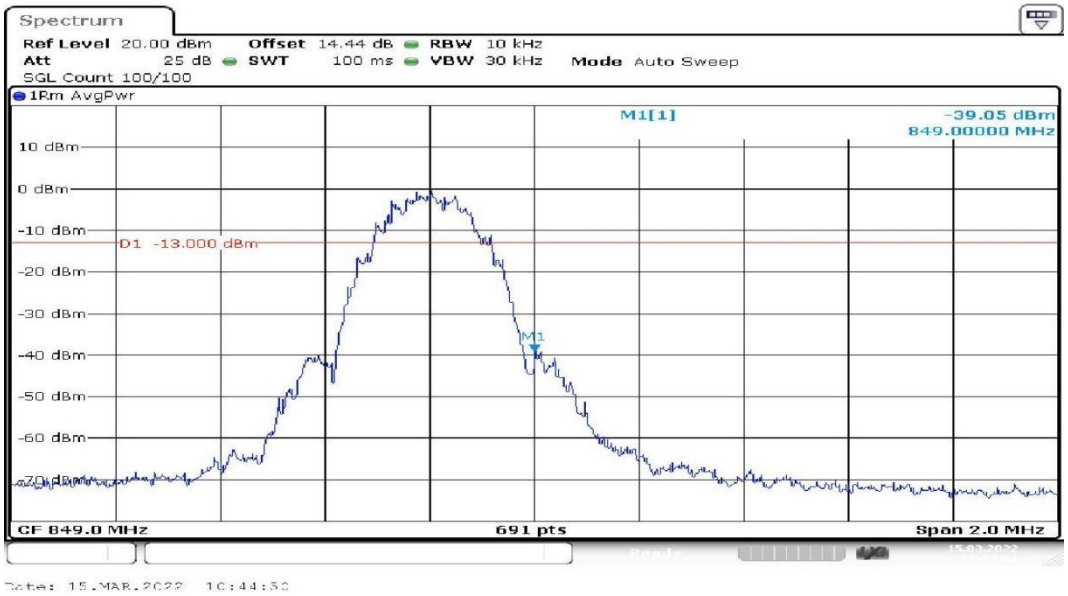
Channel 128

Channel 251

EGPRS (8PSK) MODE:



Channel 128



Channel 251

6. Frequency Stability

GSM850

GSM MODE:

Temperature(°C)	Test Result (ppm)@NV		
	Channel 128	Channel 190	Channel 251
-10	0.009	0.006	0.002
-0	0.005	0.005	0.006
+10	0.005	0.013	0.013
+30	0.004	0.000	0.008
+40	0.002	-0.001	0.003
+50	0.004	0.003	0.013
Voltage	Test Result (ppm)@NT		
	Channel 128	Channel 190	Channel 251
LV	0.008	0.009	0.000
HV	0.006	0.007	0.005

GPRS MODE:

Temperature(°C)	Test Result (ppm)@NV		
	Channel 128	Channel 190	Channel 251
-10	0.004	0.003	-0.005
-0	0.004	0.007	-0.006
+10	0.008	0.008	0.002
+30	0.001	0.003	-0.003
+40	-0.006	0.003	-0.014
+50	-0.007	-0.006	-0.006
Voltage	Test Result (ppm)@NT		
	Channel 128	Channel 190	Channel 251
LV	0.001	0.010	-0.006
HV	-0.003	-0.008	-0.010

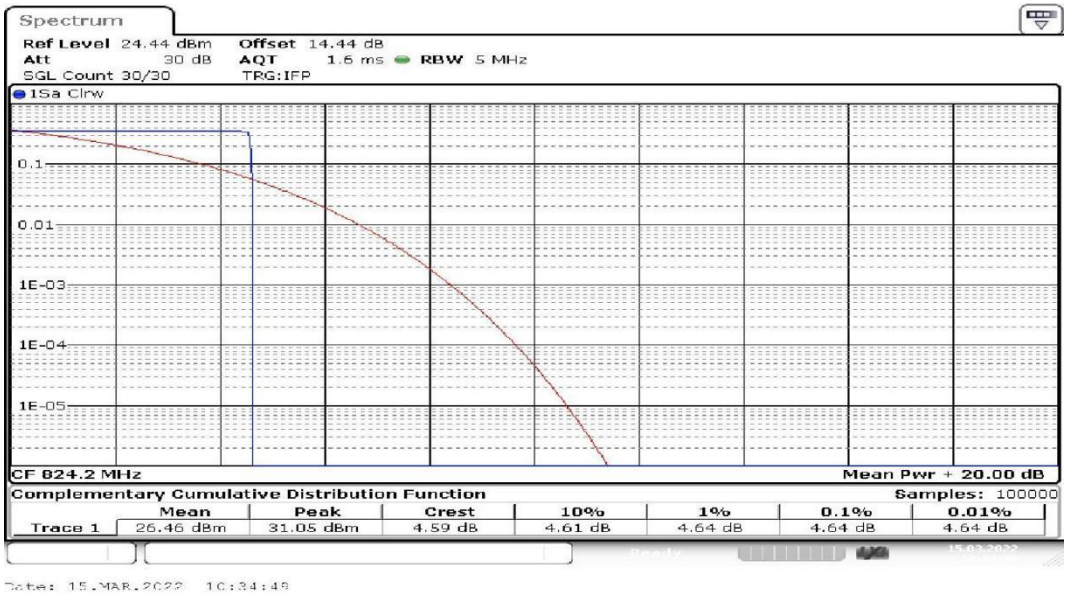
EGPRS (8PSK) MODE:

Temperature(°C)	Test Result (ppm)@NV		
	Channel 128	Channel 190	Channel 251
-10	0.016	0.009	-0.001
-0	0.010	0.002	-0.009
+10	0.013	0.013	0.003
+30	0.009	0.002	-0.008
+40	0.007	-0.002	-0.007
+50	0.008	0.000	-0.002
Voltage	Test Result (ppm)@NT		
	Channel 128	Channel 190	Channel 251
LV	0.014	0.011	0.005
HV	0.021	0.002	-0.006

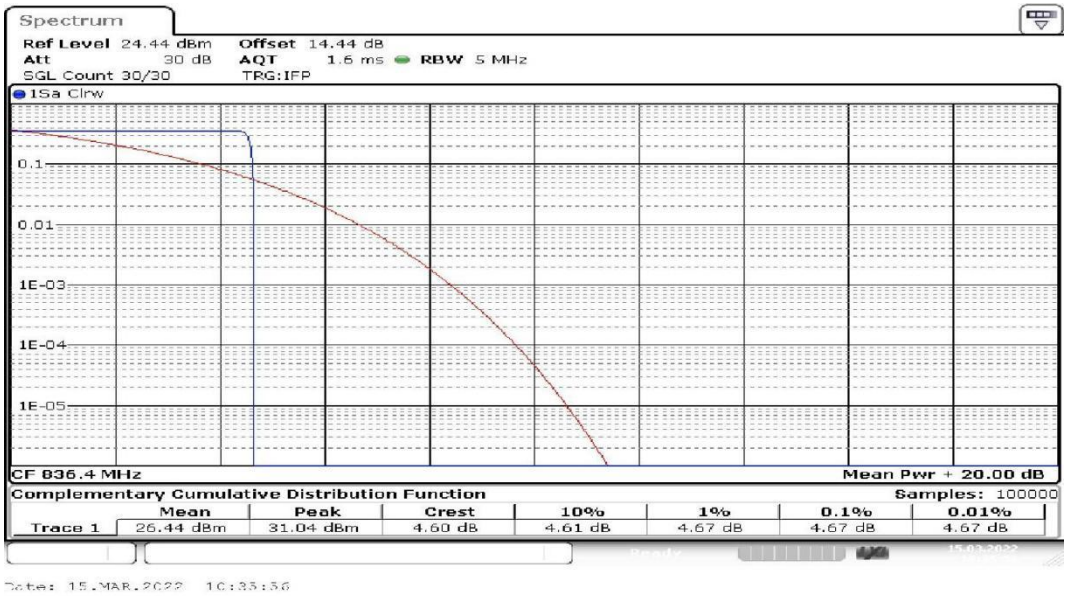
7. Peak-Average Ratio

GSM850

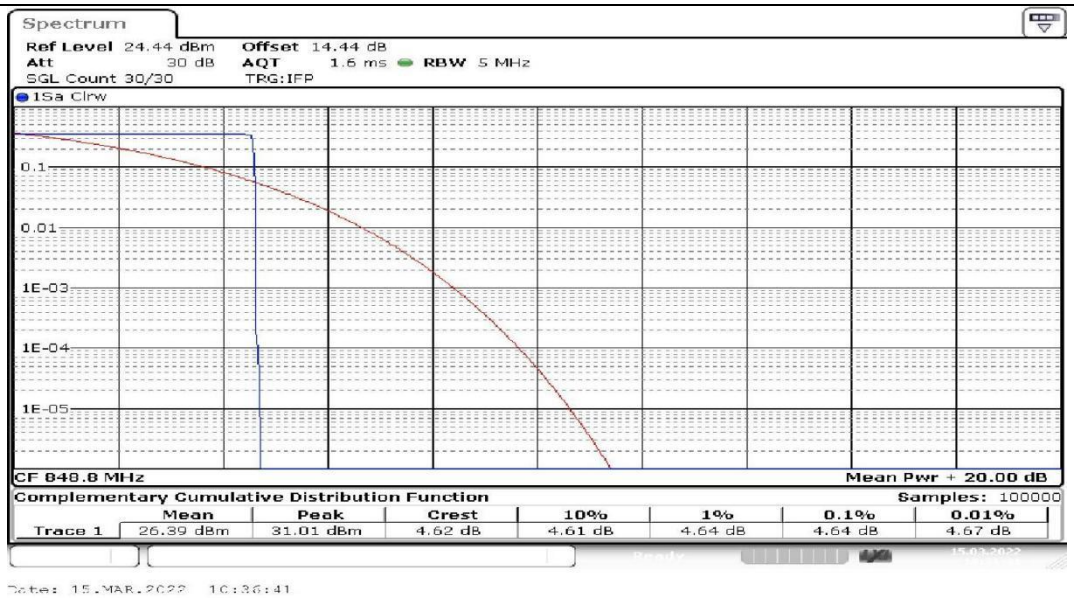
GSM MODE:



Channel 128

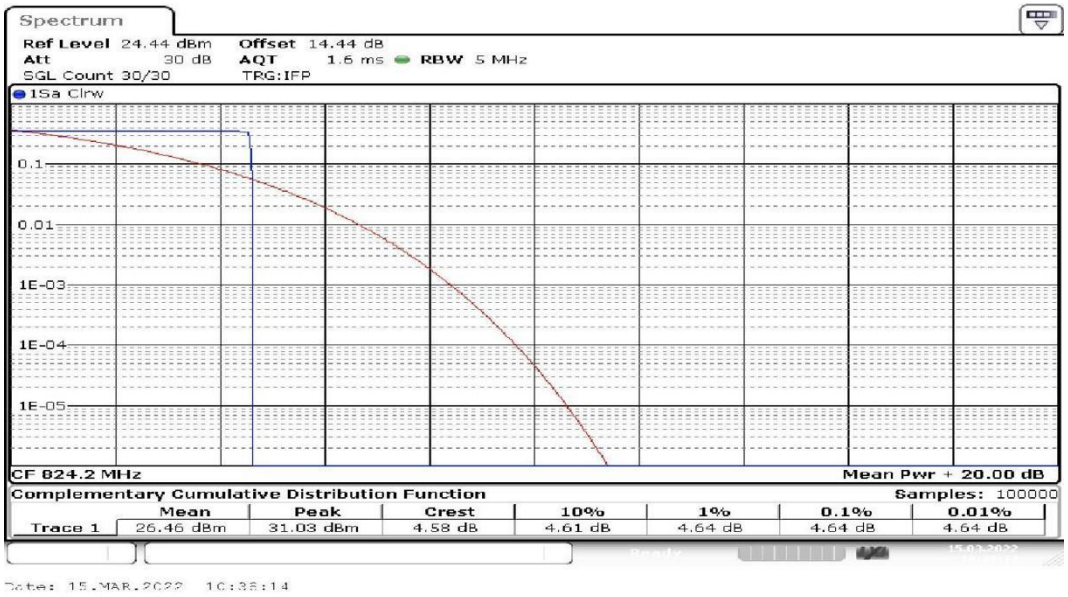


Channel 189

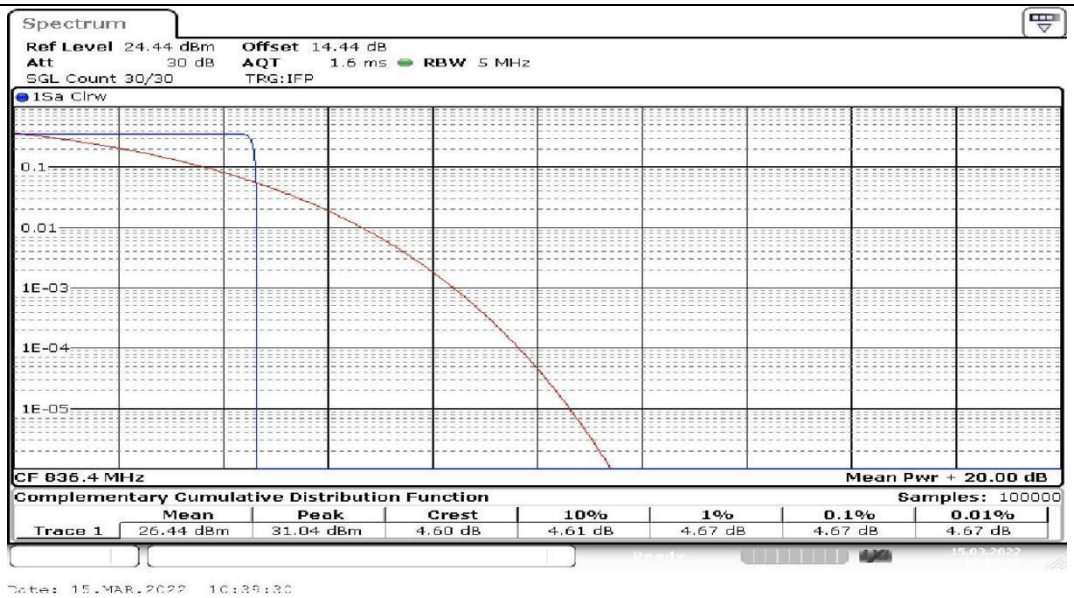


Channel 251

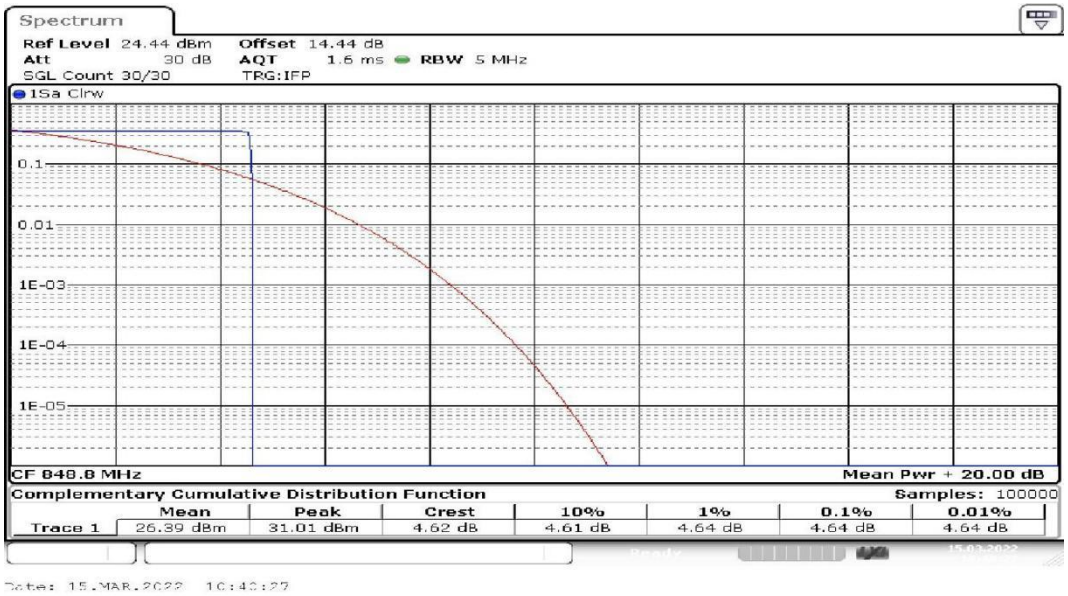
GPRS MODE:



Channel 128

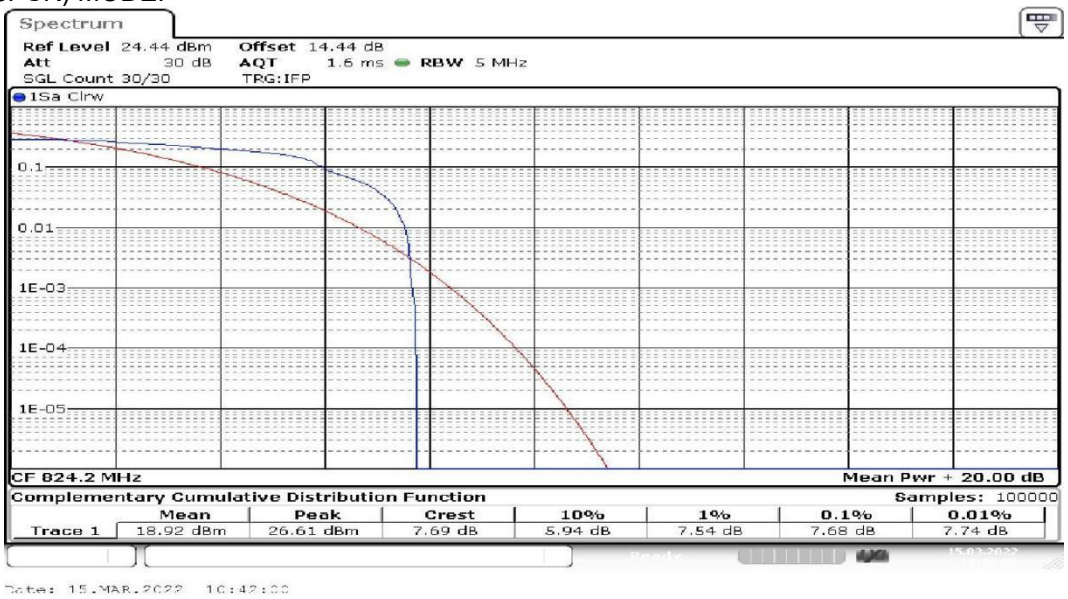


Channel 189

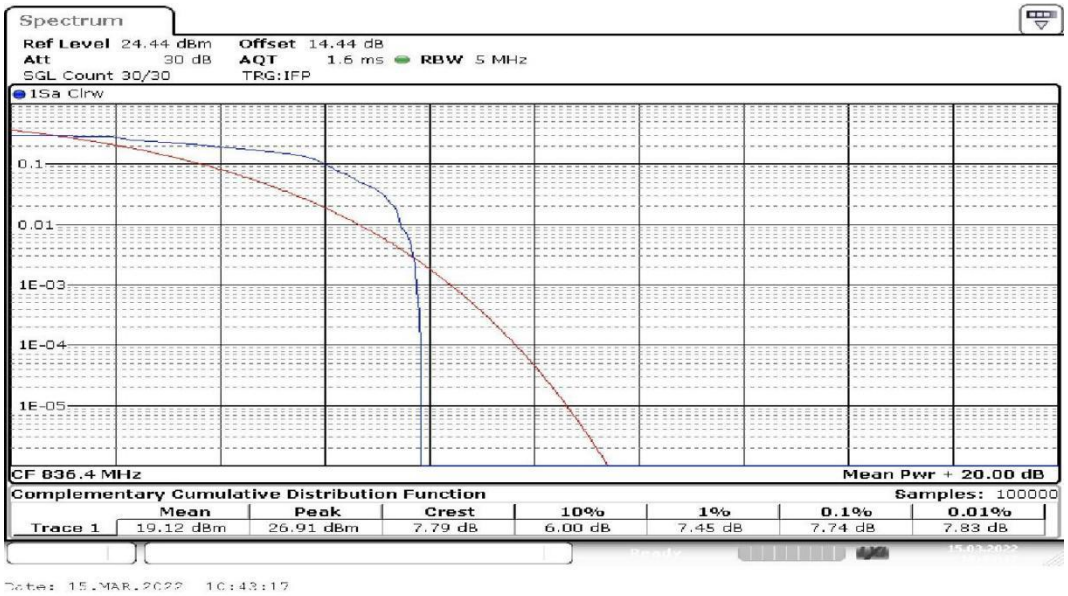


Channel 251

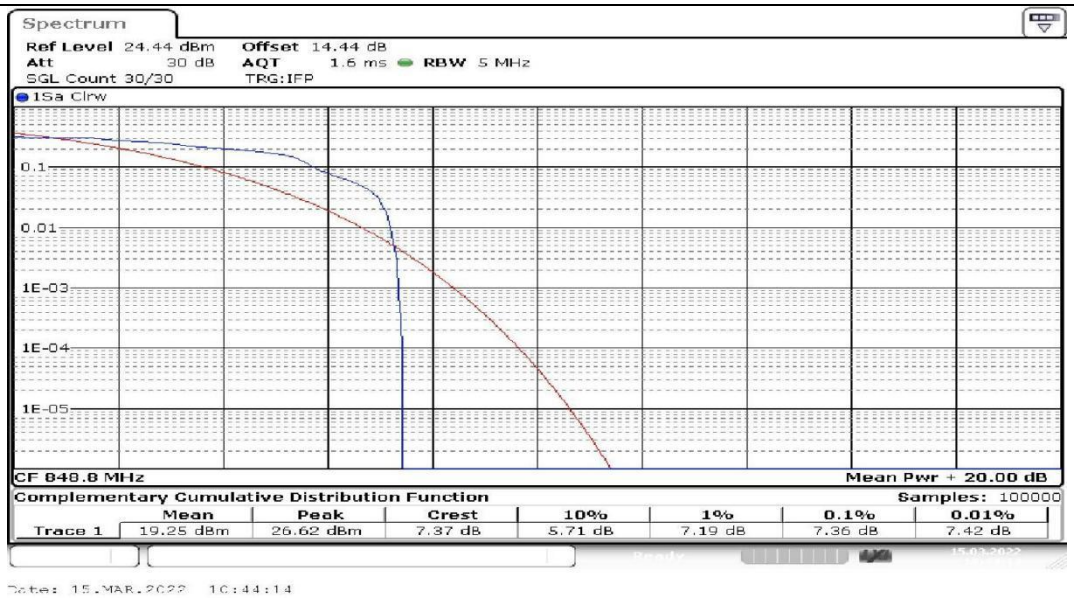
EGPRS (8PSK) MODE:



Channel 128



Channel 189


Spectrum
Ref Level 24.44 dBm Offset 14.44 dB
Att 30 dB AQT 1.6 ms RBW 5 MHz
SGL Count 30/30 TRG:IFP
1Sa Clrw
0.1
0.01
1E-03
1E-04
1E-05
CF 848.8 MHz
Mean Pwr + 20.00 dB
Complementary Cumulative Distribution Function
Samples: 100000
Mean Peak Crest 10% 1% 0.1% 0.01%
Trace 1 19.25 dBm 26.62 dBm 7.37 dB 5.71 dB 7.19 dB 7.36 dB 7.42 dB
Date: 15.MAR.2022 10:44:14

Channel 251

8. Effective Radiated Power and Effective Isotropic Radiated Power

GSM850

GSM Measured Power:

Carrier frequency (MHz)	Channel No.	Conducted Power (dBm)	ERP/EIRP (dBm)	ERP/EIRP (W)
824.2	128	29.30	24.60	0.288
836.4	189	29.21	24.51	0.282
848.8	251	29.13	24.43	0.277

GPRS Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	Conducted Power (dBm)	ERP/EIRP (dBm)	ERP/EIRP (W)
824.2	128	4Down1Up	29.29	24.59	0.288
836.4	189		29.21	24.51	0.282
848.8	251		29.14	24.44	0.278
824.2	128	3Down2Up	27.15	22.45	0.176
836.4	189		27.09	22.39	0.173
848.8	251		27.02	22.32	0.171
824.2	128	2Down3Up	25.01	20.31	0.107
836.4	189		24.95	20.25	0.106
848.8	251		24.89	20.19	0.104
824.2	128	1Down4Up	22.89	18.19	0.066
836.4	189		22.85	18.15	0.065
848.8	251		22.81	18.11	0.065

EGPRS (8PSK) Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	Conducted Power (dBm)	ERP/EIRP (dBm)	ERP/EIRP (W)
824.2	128	4Down1Up	22.08	17.38	0.055
836.4	189		22.29	17.59	0.057
848.8	251		21.88	17.18	0.052
824.2	128	3Down2Up	20.63	15.93	0.039
836.4	189		22.78	18.08	0.064
848.8	251		22.99	18.29	0.067
824.2	128	2Down3Up	19.33	14.63	0.029
836.4	189		20.78	16.08	0.041
848.8	251		19.22	14.52	0.028
824.2	128	1Down4Up	19.80	15.10	0.032
836.4	189		17.69	12.99	0.020
848.8	251		18.63	13.93	0.025

GSM1900

1. RF Power Output

PCS1900

GSM Measured Power:

Carrier frequency (MHz)	Channel No.	RF Power Output (dBm)
1850.2	512	26.00
1880	661	25.92
1909.8	810	25.99

GPRS Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	RF Power Output (dBm)
1850.2	512	4Down1Up	25.98
1880	661		25.91
1909.8	810		25.99
1850.2	512	3Down2Up	23.21
1880	661		22.91
1909.8	810		22.76
1850.2	512	2Down3Up	21.79
1880	661		21.50
1909.8	810		21.33
1850.2	512	1Down4Up	19.67
1880	661		19.40
1909.8	810		19.28

EGPRS (8PSK) Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	RF Power Output (dBm)
1850.2	512	4Down1Up	21.60
1880	661		22.74
1909.8	810		21.13
1850.2	512	3Down2Up	20.64
1880	661		19.27
1909.8	810		19.01
1850.2	512	2Down3Up	16.69
1880	661		16.70
1909.8	810		17.08
1850.2	512	1Down4Up	16.64
1880	661		16.37
1909.8	810		15.71

2. Occupied Bandwidth

PCS1900

GSM MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
1850.2	512	246.02
1880	661	240.23
1909.8	810	248.91

GPRS MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
1850.2	512	247.47
1880	661	233.00
1909.8	810	244.57

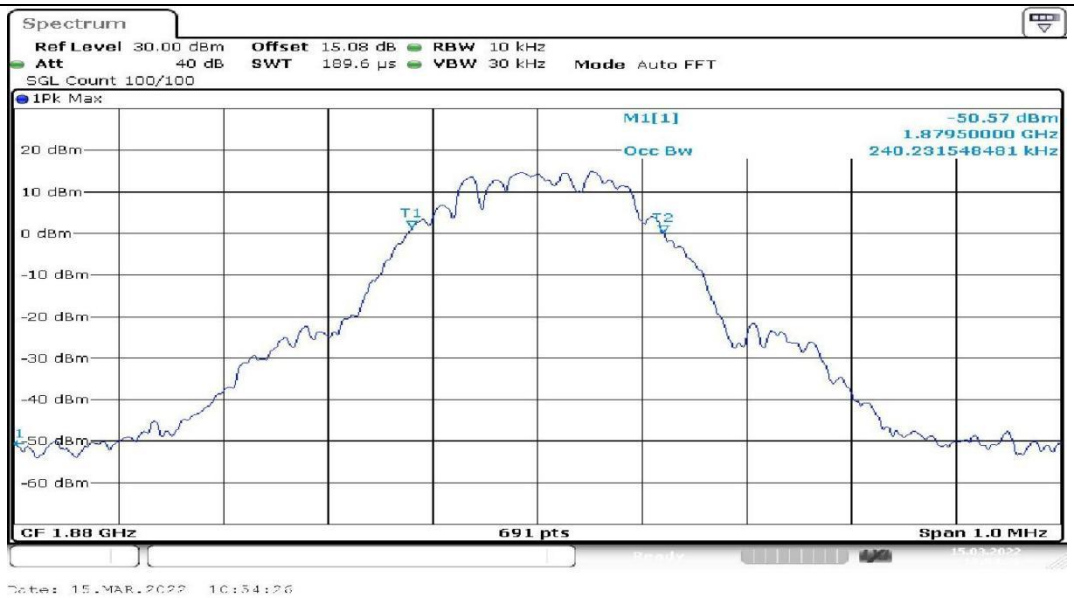
EGPRS (8PSK) MODE:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (kHz)
1850.2	512	244.57
1880	661	254.70
1909.8	810	248.91

PCS1900

GSM MODE:

Channel 512



Channel 661

Channel 810

GPRS MODE:

Channel 512

Channel 661

Channel 810

EGPRS (8PSK) MODE:

Channel 512