Product Name: Smart Phone	**Report No: FCC022023-00500RF5**
Product Model: N50	**Security Classification: Open**
Version: V1.0	**Total Page: 107**

TIRT Testing Report

Prepared By:	Checked By:	Approved By:	
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RF TEST REPORT

FCC ID: 2AX4YN50

According to

FCC CFR Title 47 Part 2
FCC CFR Title 47 Part 22 Subpart H
FCC CFR Title 47 Part 24 Subpart E
FCC CFR Title 47 Part 27

Equipment	:	Smart Phone
Model No.	:	N50
Trademark	:	DOOGEE
Applicant	:	Shenzhen DOOGEE Hengtong Technology CO.,LTD B, 2/F, Building A4, Silicon Valley Power Digital Industrial Park, No. 22, Longhua New District, Shenzhen, China

- The test result referred exclusively to the presented test model /sample.
- Without written approval of TIRT Inc. the test report shall not reproduced except in full.
- Test date: 2023/02/20~2023/03/11

Lab: Beijing TIRT Technology Service Co.,Ltd Shenzhen

Add: 101, 3 # Factory Building, Gongjin Electronics Shatin Community, Kengzi Street, Pingshan District, Shenzhen, China

TEL: +86-0755-27087573

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History of this test report

Original Report Issue Date: 2023.03.13

● No additional attachment

○ Additional attachments were issued following record

Attachment No.	Issue Date	Description

1 Test Summary

Test Item	Section in CFR 47	Result
RF Exposure (SAR)	Part 1.1307 Part 2.1093	Pass* (Please refer to SAR Report)
RF Output Power	Part 2.1046 Part 22.913 (a)(2) Part 24.232 (c) Part 27.50(d)	Pass
Peak-to-Average Ratio	Part 2.1046 Part 24.232 (d) Part 27.50(d)	Pass
Modulation Characteristics	Part 2.1047	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 22.917 Part 24.238	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 22.917 (a) Part 24.238 (a) Part 27.53(g)	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917 (a) Part 24.238 (a) Part 27.53(g)	Pass
Out of band emission, Band Edge	Part 22.917 (a) Part 24.238 (a) Part 27.53(g)	Pass
Frequency stability vs. temperature	Part 2.1055(a)(1)(b) Part 27.54	Pass
Frequency stability vs. voltage	Part 2.1055(d)(1)(2) Part 27.54	Pass

Note: 1. Pass: The EUT complies with the essential requirements in the standard.

2. The conclusion of this test report is judged by actual test data without considering measurement uncertainty.

2 General Information

2.1 General Description of EUT

EUT Name	:	Smart Phone
Model No.	:	N50
DIFF.	:	N/A
Power supply	:	DC 9V from adapter, DC 3.7V from battery
Support Networks	:	GSM, GPRS, EGPRS, WCDMA
Support Bands	:	GSM850, PCS1900, WCDMA Band V, WCDMA Band IV, WCDMA Band II
TX Frequency	:	GSM850: 824.20MHz-848.80MHz PCS1900: 1850.20MHz-1909.80MHz WCDMA Band V: 826.40MHz -846.60MHz WCDMA Band II: 1852.40MHz -1907.60MHz WCDMA Band IV: 1712.4 MHz -1752.6MHz
GPRS Class	:	12
EGPRS Class	:	12
Modulation type	:	GSM/GPRS: GMSK EGPRS: GMSK/8PSK WCDMA Band II/IV/V: QPSK
Antenna type	:	Internal antenna
Antenna gain	:	Maximum Gain is 0.23dBi for GSM 850 Maximum Gain is 0.58dBi for PCS1900 Maximum Gain is 0.23dBi for WCDMA Band V Maximum Gain is 0.51dBi for WCDMA Band IV Maximum Gain is 0.58dBi for WCDMA Band II Antenna information is provided by applicant. There is WWAN diversity antenna inside the product, which is only for receiving function.
Software version	:	DOOGEE-N50-EEA-Android13.0-20230216
Hardware version	:	SC6007_MB_V1.1.0

Remark: 1.The worst-case simultaneous transmission configuration was evaluated with no non-compliance found. Results in this report are only for 2G and 3G function, and there is no other transmitter involved.
2. The product contains two SIM card slots, both of which have been tested and only reflect the data of SIM card slot 1.

Operation Frequency List:

GSM 850		PCS1900		WCDMA Band V		WCDMA Band II	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
128	824.20	512	1850.20	4132	826.40	9262	1852.40
129	824.40	513	1850.40	4133	826.60	9263	1852.60
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
189	836.40	660	1879.80	4181	836.20	9399	1879.80
190	836.60	661	1880.00	4182	836.40	9400	1880.00
191	836.80	662	1880.20	4183	836.60	9401	1880.20
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
250	848.60	809	1909.60	4232	846.40	9537	1907.40
251	848.80	810	1909.80	4233	846.60	9538	1907.60

Regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Final test channel:

GSM 850		PCS1900		WCDMA Band V		WCDMA Band II	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
128	824.20	512	1850.20	4132	826.40	9262	1852.40
190	836.60	661	1880.00	4183	836.60	9400	1880.00
251	848.80	810	1909.80	4233	846.60	9538	1907.60

WCDMA Band IV	
Channel	Frequency (MHz)
1312	1712.4
1450	1740.0
1513	1752.6

2.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is filing to comply with Section Part 22 subpart H and Part 24 subpart E of the FCC CFR 47 Rules.

2.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures document on TIA/EIA 603 and FCC CFR 47.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057

2.4 Test Facility

Company:	Beijing TIRT Technology Service Co.,Ltd Shenzhen
Address:	101, 3 # Factory Building, Gongjin Electronics Shatin Community, Kengzi Street, Pingshan District, Shenzhen, China
CNAS Registration Number:	CNAS L14158
A2LA Registration Number:	6049.01
FCC Designation Number:	CN1309
Test Firm Registration Number:	825524
Telephone:	+86-0755-27087573

2.5 Measurement Uncertainty

Uncertainty	
Parameter	Uncertainty
Occupied Channel Bandwidth	±142.12 KHz
RF power conducted	±0.74 dB
RF power radiated	±3.25dB
Spurious emissions, conducted	±1.78dB
Spurious emissions, radiated (9KHz~30MHz)	±2.56dB
Spurious emissions, radiated (30MHz～1GHz)	±4.6dB
Spurious emissions, radiated (Above 1GHz)	±4.9dB
Conduction Emissions(150kHz~30MHz)	±3.1 dB
Humidity	±4.6%
Temperature	±0.7°C
Time	±1.25%

3 Test Instruments list

No.	Equipment	Manufacturer	Type No.	Serial No.	Cal. date (yyyy/mm/dd)	Cal. Due date (yyyy/mm/dd)
1	EMI Receiver	Rohde&Schwarz	ESCI	100718	2022/11/09	2023/11/10
2	AMN	Rohde&Schwarz	ENV216	100075	2022/11/09	2023/11/10
3	AMN	Schwarzbeck	NSLK8127	#829	2022/11/09	2023/11/10
4	ECSI RF IN RF Cable	Rohde&Schwarz	RP-X1	\	2022/11/17	2023/11/16
5	ECSI RF IN RF Cable	Rohde&Schwarz	Sapre sm	\	2022/11/09	2023/11/10
6	EMI Receiver	Rohde&Schwarz	ESR7	102013	2022/11/09	2023/11/10
7	Spectrum analyzer	Rohde&Schwarz	FSV30	103741	2022/11/09	2023/11/10
8	Spectrum analyzer	KEYSIGHT	N9010A	MY51440158	2022/11/09	2023/11/10
9	Integral Antenna	Schwarzbeck	VULB 9163	9163-868	2022/12/25	2023/12/24
10	Integral Antenna	Schwarzbeck	BBHA 9120D	BBHA 9120D 1201	2022/11/09	2023/11/10
11	Integral Antenna	Schwarzbeck	BBHA 9170	9170#685	2022/11/06	2023/11/10
12	Preamplifier	CD Systems Inc	PAP-03036-30	85060000	2022/11/09	2023/11/10
13	Preamplifier	Schwarzbeck	BBV9721	9721-019	2022/11/09	2023/11/10
14	Preamplifier	emci	EMC012645 SE	980417	2022/11/09	2023/11/10
15	ECSI RF IN RF Cable	Rohde&Schwarz	AP-X1	\	2022/11/09	2023/11/10
16	Spectrum Analyzer	Agilent	N9010A	MY52221119	2022/11/09	2023/11/10
17	Power Collection Unit	Tonscend	JS0806-2	188060134	2022/09/12	2023/09/11
18	Tonscend Test System	Tonscend	2.6.77.0518	NA	NA	NA
19	Power Sensor	Agilent	U2021XA	MY55410011	2022/09/12	2023/09/11
20	Power Sensor	Agilent	U2021XA	MY55410012	2022/09/12	2023/09/11
21	Power Sensor	Agilent	U2021XA	MY55410018	2022/09/12	2023/09/11
22	Power Sensor	Agilent	U2021XA	MY55410019	2022/09/12	2023/09/11
23	Temp&Humidity Recorder	Anymetre	JR900	NA	2022/11/03	2023/11/02
24	Temp&Humidity Chamber	ETOMA	NTH1100-30A	16080628	2022/09/01	2023/08/30

4 System test configuration

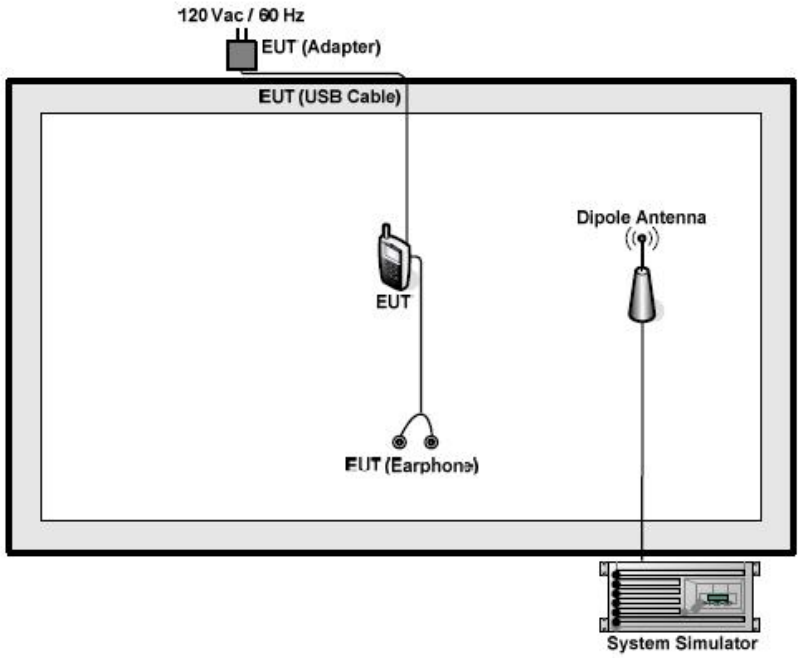
4.1 Test mode

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

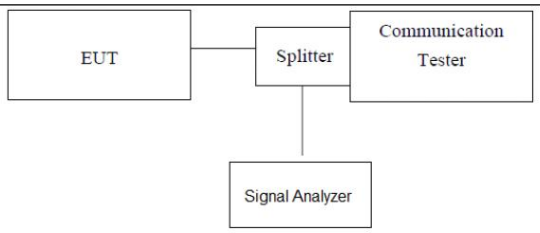
Test modes		
Band	Radiated	Conducted
GSM 850	■ GSM link ■ GPRS 1 link ■ EPRS 1 link	■ GSM link ■ GPRS 1 link ■ EGPRS 1 link
PCS 1900	■ GSM link ■ GPRS 1 link ■ EGPRS 1 link	■ GSM link ■ GPRS 1 link ■ EGPRS 1 link
WCDMA II	■ RMC 12.2Kbps link	■ RMC 12.2Kbps link
WCDMA Band IV	■ RMC 12.2Kbps link	■ RMC 12.2Kbps link
WCDMA Band V	■ RMC 12.2Kbps link	■ RMC 12.2Kbps link

Note: The maximum power levels are GSM mode for GMSK link, GPRS multi-slot class 8 mode for GMSK link, EGPRS multi-slot class 8 mode for 8PSK link, RMC12.2Kbps mode for WCDMA Band V/II. Only these modes were used for all tests.

4.2 Configuration of Tested System



4.3 Conducted AV Output Power

Test Requirement:	FCC part 22.913(a) and FCC part 24.232(b), FCC part 27.50 (d)(4)
Test Method:	FCC part 2.1046
Limit:	GSM850, WCDMA Band V: 7W(38.45dbm) PCS1900, WCDMA Band II: 2W(33.01dbm) WCDMA Band IV: 1W(30.00dbm)
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Procedure:	1. The transmitter output port was connected to base station. 2. The RF output of EUT was connected to the Signal Analyzer by RF cable and attenuator, the path loss was compensated to the results for each measurement. 3. Set EUT at maximum power through base station. 4. Select lowest, middle, and highest channels for each band and different modulation. 5. Measure the maximum burst average power.
Test Instruments:	Refer to section 5.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

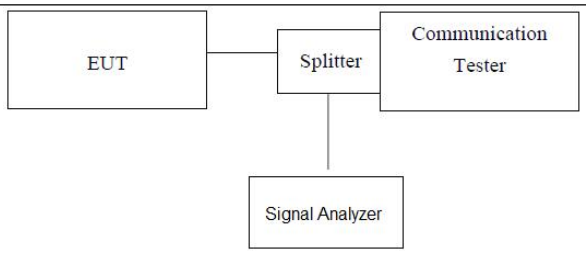
Measurement Data

Conducted Burst Power (dBm)						
Band	GSM850			PCS1900		
Channel	128	190	251	512	661	810
Frequency	824.20	836.60	848.80	1850.20	1880.00	1909.80
GSM (GMSK, 1 TX slot)	33.40	**33.86**	33.27	29.34	**29.57**	29.48
GPRS (GMSK, 1 TX slot)	32.00	32.44	32.54	28.32	28.57	28.42
GPRS (GMSK, 2 TX slot)	30.63	31.58	31.43	28.05	28.52	27.65
GPRS (GMSK, 3 TX slot)	31.08	31.69	31.57	28.14	28.28	28.05
GPRS (GMSK, 4 TX slot)	32.50	**33.85**	33.67	29.14	**29.21**	28.84
EGPRS (8PSK, 1 TX slot)	31.50	31.03	31.54	27.73	27.51	27.09
EGPRS (8PSK, 2 TX slot)	30.92	31.42	31.90	27.92	28.16	27.01
EGPRS (8PSK, 3 TX slot)	31.41	31.77	31.29	27.75	28.30	28.46
EGPRS (8PSK, 4 TX slot)	31.49	31.78	**31.94**	27.37	**28.77**	27.84

Burst Average Power (dBm)						
Band	WCDMA Band II			WCDMA Band V		
Channel	9262	9400	9538	4132	4183	4233
Frequency	1852.4	1880.0	1907.6	826.4	836.6	846.6
RMC 12.2Kbps	23.08	**23.92**	23.67	23.84	23.90	23.56
HSDPA Subtest-1	23.39	23.77	22.45	23.42	23.39	23.00
HSDPA Subtest-2	23.15	22.67	22.18	23.23	23.18	22.99
HSDPA Subtest-3	22.42	22.67	22.22	23.53	23.26	22.78
HSDPA Subtest-4	23.00	23.35	**23.72**	23.66	**23.68**	23.54
HSUPA Subtest-1	22.67	22.71	23.20	23.07	23.11	23.15
HSUPA Subtest-2	23.18	23.59	22.31	23.82	23.81	23.00
HSUPA Subtest-3	22.75	23.05	22.53	22.74	22.84	23.50
HSUPA Subtest-4	23.12	22.83	22.27	23.80	23.69	23.29
HSUPA Subtest-5	22.37	**23.75**	22.54	23.55	**23.86**	23.40

Burst Average Power (dBm)			
Band	WCDMA Band IV		
Channel	1312	1450	1513
Frequency	1712.4	1740.0	1752.6
RMC 12.2Kbps	24.82	**24.92**	24.82
HSDPA Subtest-1	24.36	24.51	23.94
HSDPA Subtest-2	23.65	24.48	24.07
HSDPA Subtest-3	23.80	24.50	24.12
HSDPA Subtest-4	24.27	**24.80**	24.27
HSUPA Subtest-1	24.80	24.45	24.26
HSUPA Subtest-2	24.57	24.54	24.15
HSUPA Subtest-3	23.80	24.46	24.41
HSUPA Subtest-4	23.92	24.36	24.10
HSUPA Subtest-5	**24.89**	24.44	24.25

4.4 Peak-to-Average Ratio

Test Requirement:	FCC part24.232(d)
Test Method:	FCC part2.1046
Limit:	13db
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Procedure:	1. The transmitter output port was connected to base station. 2. The RF output of EUT was connected to the Signal Analyzer by RF cable and attenuator, the path loss was compensated to the results for each measurement. 3. Set EUT at maximum power through base station. 4. Select lowest, middle, and highest channels for each band and different modulation. 5. Measure the maximum burst average power. 6. Record the maximum peak-to-average ratio value.
Test Instruments:	Refer to section 5.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

Measurement data

Band	Channel	Result(dB)	Limit(dB)	Verdict
GSM850	128	9.52	13	PASS
GSM850	190	9.55	13	PASS
GSM850	251	9.55	13	PASS
GPRS850	128	9.74	13	PASS
GPRS850	190	9.74	13	PASS
GPRS850	251	9.74	13	PASS
EGPRS850	128	12.72	13	PASS
EGPRS850	190	12.72	13	PASS
EGPRS850	251	12.79	13	PASS
GSM1900	512	9.58	13	PASS
GSM1900	661	9.58	13	PASS
GSM1900	810	9.62	13	PASS
GPRS1900	512	9.81	13	PASS
GPRS1900	661	9.81	13	PASS
GPRS1900	810	9.78	13	PASS
EGPRS1900	512	12.6	13	PASS
EGPRS1900	661	12.53	13	PASS
EGPRS1900	810	12.5	13	PASS

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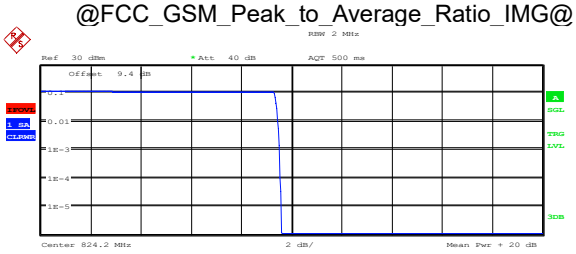
@FCC_GSM_Peak_to_Average_Ratio_IMG@



Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	22.45 dBm
Peak	32.04 dBm
Crest	9.58 dB
10 %	9.29 dB
1 %	9.46 dB
.1 %	9.52 dB
.01 %	9.55 dB

Date: 24.FEB.2023 09:16:59

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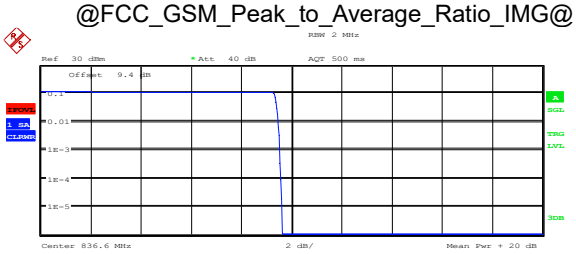
@FCC_GSM_Peak_to_Average_Ratio_IMG@



Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	22.64 dBm
Peak	32.25 dBm
Crest	9.61 dB
10 %	9.29 dB
1 %	9.49 dB
.1 %	9.55 dB
.01 %	9.58 dB

Date: 24.FEB.2023 09:17:10

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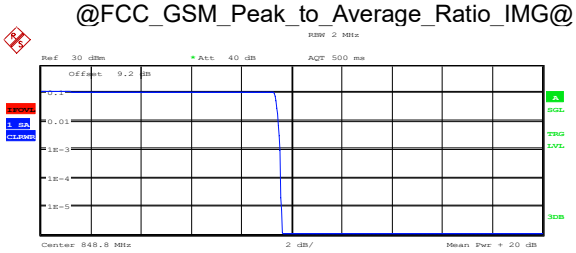

Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	22.56 dBm
Peak	32.18 dBm
Crest	9.62 dB
10 %	9.29 dB
1 %	9.49 dB
.1 %	9.55 dB
.01 %	9.58 dB

Date: 24.FEB.2023 09:17:19

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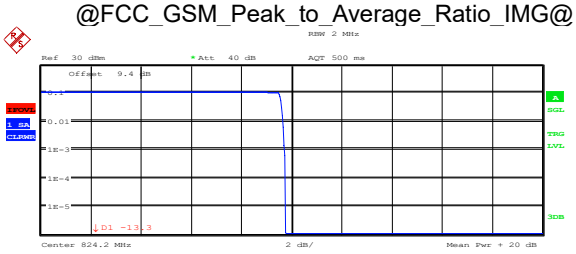
@FCC_GSM_Peak_to_Average_Ratio_IMG@



Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	22.14 dBm
Peak	31.90 dBm
Crest	9.75 dB
10 %	9.49 dB
1 %	9.68 dB
.1 %	9.74 dB
.01 %	9.78 dB

Date: 24.FEB.2023 09:33:06

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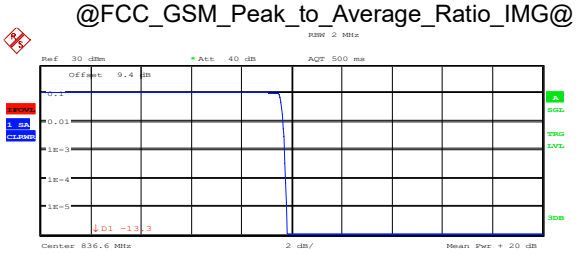


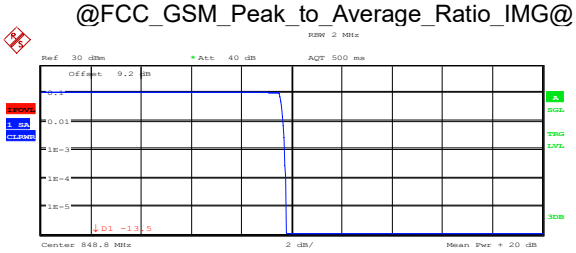
Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	22.38 dBm
Peak	32.18 dBm
Crest	9.80 dB
10 %	9.49 dB
1 %	9.68 dB
.1 %	9.74 dB
.01 %	9.78 dB

Date: 24.FEB.2023 09:33:26

@FCC_GSM_Peak_to_Average_Ratio_IMG@GPRS850-251

@FCC_GSM_Peak_to_Average_Ratio_IMG@



Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	22.32 dBm
Peak	32.11 dBm
Crest	9.78 dB
10 %	9.49 dB
1 %	9.68 dB
.1 %	9.74 dB
.01 %	9.78 dB

Date: 24.FEB.2023 09:33:46

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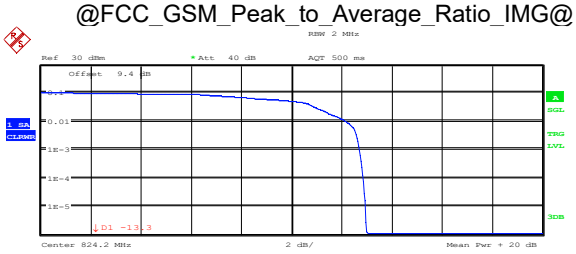


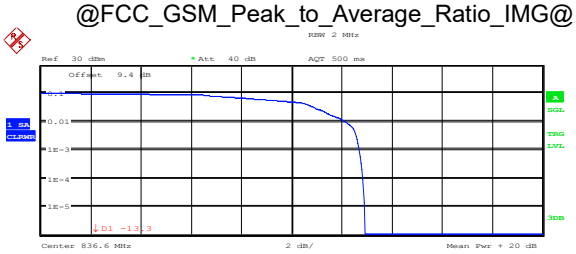
Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	16.68 dBm
Peak	29.71 dBm
Crest	13.03 dB
10 %	2.47 dB
1 %	12.15 dB
.1 %	12.72 dB
.01 %	12.85 dB

Date: 24.FEB.2023 09:50:18

@FCC_GSM_Peak_to_Average_Ratio_IMG@EGPRS850-190

@FCC_GSM_Peak_to_Average_Ratio_IMG@



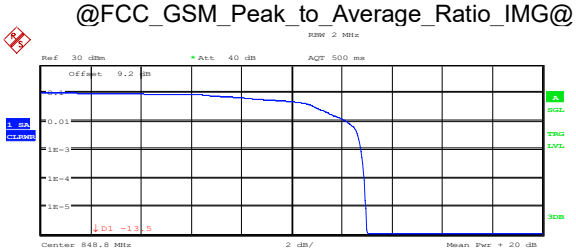
Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	16.30 dBm
Peak	29.29 dBm
Crest	12.98 dB
10 %	2.72 dB
1 %	12.15 dB
.1 %	12.72 dB
.01 %	12.85 dB

Date: 24.FEB.2023 09:50:39

@FCC_GSM_Peak_to_Average_Ratio_IMG@EGPRS850-251

@FCC_GSM_Peak_to_Average_Ratio_IMG@



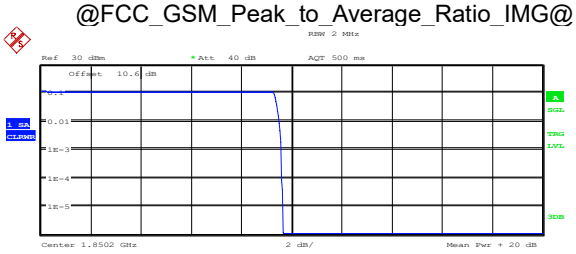
Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	15.79 dBm
Peak	28.79 dBm
Crest	13.00 dB
10 %	2.60 dB
1 %	12.18 dB
.1 %	12.79 dB
.01 %	12.92 dB

Date: 24.FEB.2023 09:50:59

@FCC_GSM_Peak_to_Average_Ratio_IMG@GSM1900-512

@FCC_GSM_Peak_to_Average_Ratio_IMG@



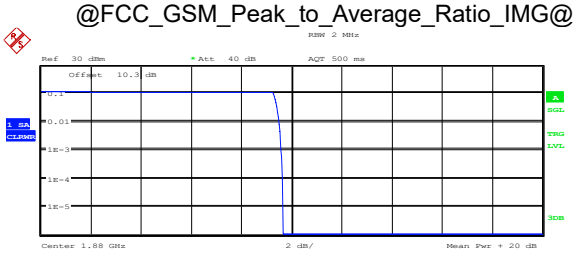
Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	18.80 dBm
Peak	28.46 dBm
Crest	9.66 dB
10 %	9.29 dB
1 %	9.52 dB
.1 %	9.58 dB
.01 %	9.62 dB

Date: 24.FEB.2023 10:03:22

@FCC_GSM_Peak_to_Average_Ratio_IMG@GSM1900-661

@FCC_GSM_Peak_to_Average_Ratio_IMG@



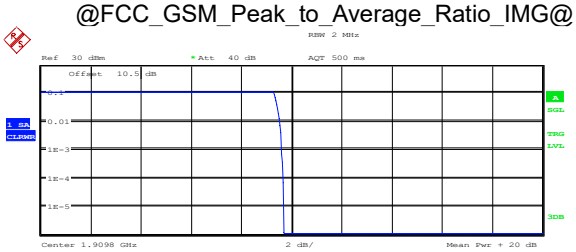
Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	18.12 dBm
Peak	27.76 dBm
Crest	9.64 dB
10 %	9.29 dB
1 %	9.52 dB
.1 %	9.58 dB
.01 %	9.65 dB

Date: 24.FEB.2023 10:03:32

@FCC_GSM_Peak_to_Average_Ratio_IMG@GSM1900-810

@FCC_GSM_Peak_to_Average_Ratio_IMG@



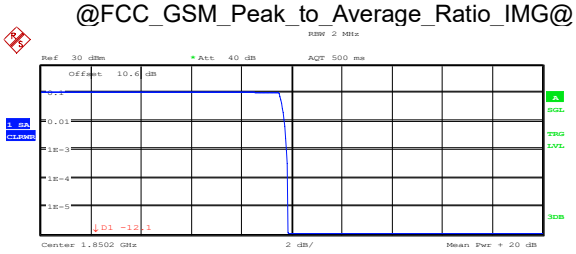
Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	19.07 dBm
Peak	28.74 dBm
Crest	9.67 dB
10 %	9.29 dB
1 %	9.52 dB
.1 %	9.62 dB
.01 %	9.68 dB

Date: 24.FEB.2023 10:03:42

@FCC_GSM_Peak_to_Average_Ratio_IMG@GPRS1900-512

@FCC_GSM_Peak_to_Average_Ratio_IMG@



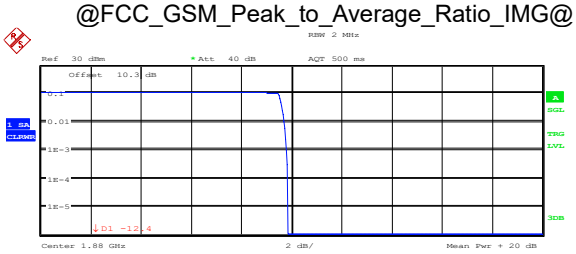
Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	18.55 dBm
Peak	28.39 dBm
Crest	9.84 dB
10 %	9.49 dB
1 %	9.71 dB
.1 %	9.81 dB
.01 %	9.87 dB

Date: 24.FEB.2023 10:19:29

@FCC_GSM_Peak_to_Average_Ratio_IMG@GPRS1900-661

@FCC_GSM_Peak_to_Average_Ratio_IMG@



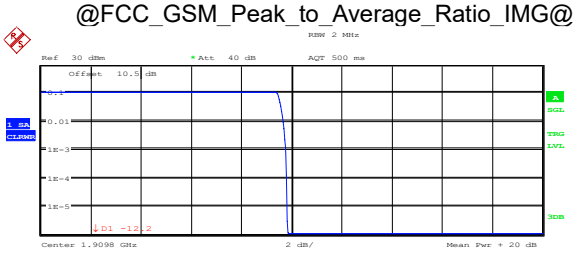
Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	17.92 dBm
Peak	27.76 dBm
Crest	9.84 dB
10 %	9.49 dB
1 %	9.71 dB
.1 %	9.81 dB
.01 %	9.87 dB

Date: 24.FEB.2023 10:19:50

@FCC_GSM_Peak_to_Average_Ratio_IMG@GPRS1900-810

@FCC_GSM_Peak_to_Average_Ratio_IMG@



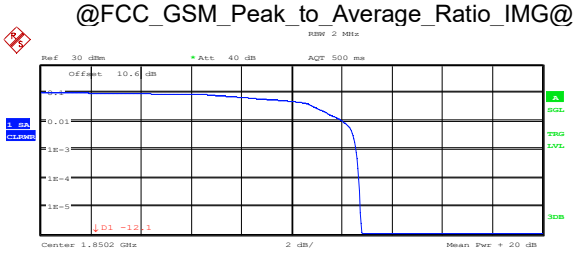
Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	18.95 dBm
Peak	28.81 dBm
Crest	9.87 dB
10 %	9.42 dB
1 %	9.68 dB
.1 %	9.78 dB
.01 %	9.81 dB

Date: 24.FEB.2023 10:20:10

@FCC_GSM_Peak_to_Average_Ratio_IMG@EGPRS1900-512

@FCC_GSM_Peak_to_Average_Ratio_IMG@



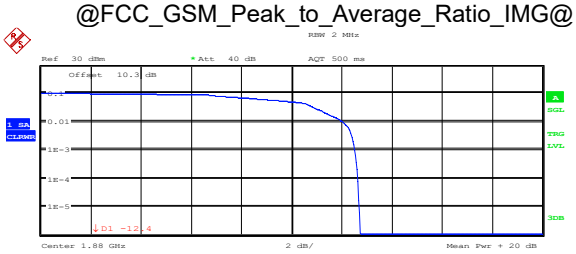
Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	16.59 dBm
Peak	29.38 dBm
Crest	12.79 dB
10 %	2.98 dB
1 %	12.05 dB
.1 %	12.60 dB
.01 %	12.69 dB

Date: 24.FEB.2023 10:36:45

@FCC_GSM_Peak_to_Average_Ratio_IMG@EGPRS1900-661

@FCC_GSM_Peak_to_Average_Ratio_IMG@



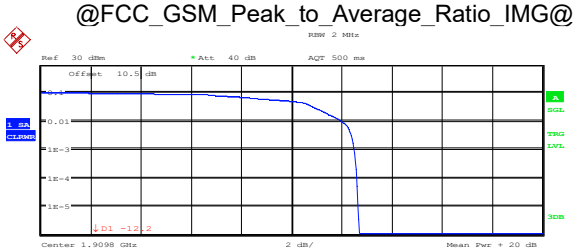
Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	15.74 dBm
Peak	28.46 dBm
Crest	12.72 dB
10 %	3.08 dB
1 %	12.02 dB
.1 %	12.53 dB
.01 %	12.66 dB

Date: 24.FEB.2023 10:37:05

@FCC_GSM_Peak_to_Average_Ratio_IMG@EGPRS1900-810

@FCC_GSM_Peak_to_Average_Ratio_IMG@



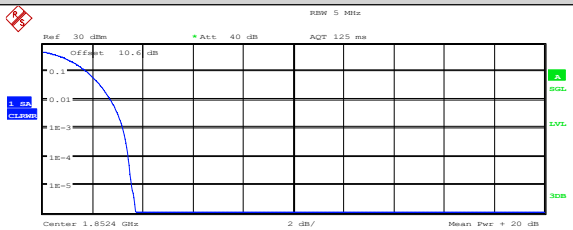
Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	16.27 dBm
Peak	28.96 dBm
Crest	12.69 dB
10 %	3.01 dB
1 %	12.02 dB
.1 %	12.50 dB
.01 %	12.63 dB

Date: 24.FEB.2023 10:37:25

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band2	9262	3.21	13	PASS
Band2	9400	3.21	13	PASS
Band2	9538	3.21	13	PASS

Band2-9262

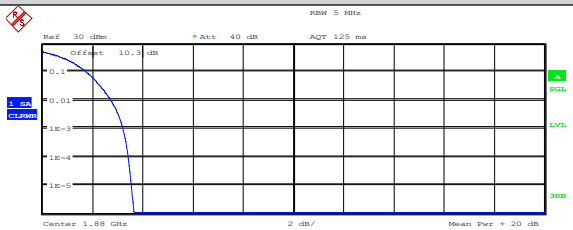


Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	21.16 dBm
Peak	24.93 dBm
Crest	3.77 dB
10 %	1.76 dB
1 %	2.69 dB
.1 %	3.21 dB
.01 %	3.43 dB

Date: 24.FEB.2023 10:49:57

Band2-9400

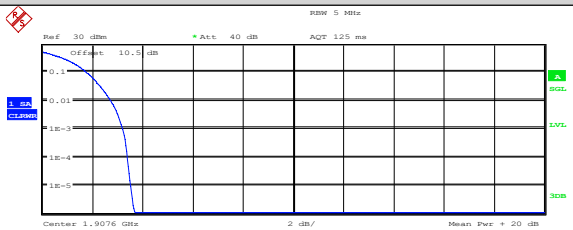


Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	20.16 dBm
Peak	23.88 dBm
Crest	3.72 dB
10 %	1.73 dB
1 %	2.72 dB
.1 %	3.21 dB
.01 %	3.43 dB

Date: 24.FEB.2023 10:50:10

Band2-9538



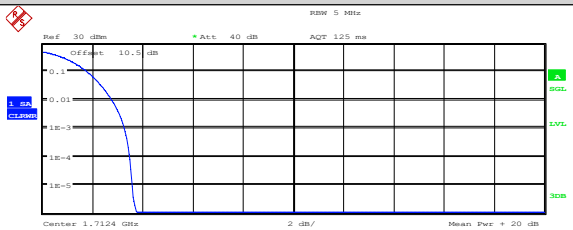
Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	20.90 dBm
Peak	24.65 dBm
Crest	3.75 dB
10 %	1.73 dB
1 %	2.69 dB
.1 %	3.21 dB
.01 %	3.40 dB

Date: 24.FEB.2023 10:50:22

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band4	1312	3.27	13	PASS
Band4	1413	3.21	13	PASS
Band4	1513	3.24	13	PASS

Band4-1312

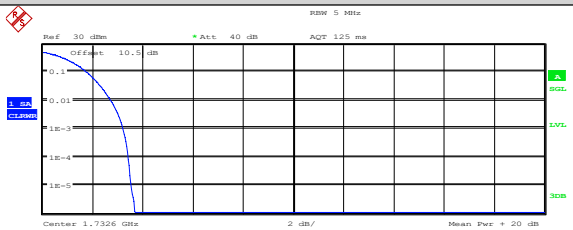


Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	20.70 dBm
Peak	24.51 dBm
Crest	3.81 dB
10 %	1.76 dB
1 %	2.76 dB
.1 %	3.27 dB
.01 %	3.46 dB

Date: 24.FEB.2023 15:19:36

Band4-1413

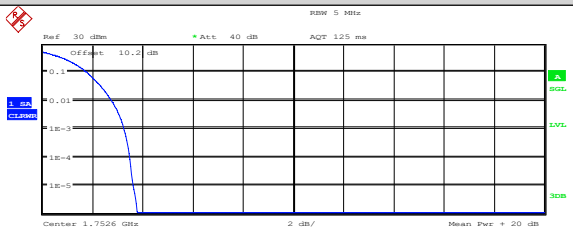


Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	20.80 dBm
Peak	24.51 dBm
Crest	3.71 dB
10 %	1.73 dB
1 %	2.72 dB
.1 %	3.21 dB
.01 %	3.43 dB

Date: 24.FEB.2023 15:19:48

Band4-1513



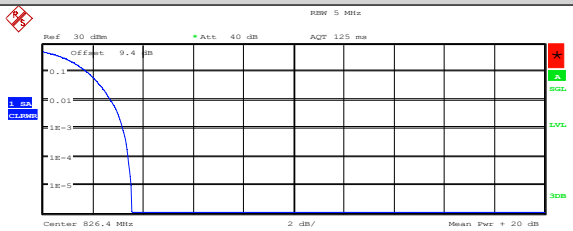
Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	20.13 dBm
Peak	23.95 dBm
Crest	3.82 dB
10 %	1.76 dB
1 %	2.72 dB
.1 %	3.24 dB
.01 %	3.49 dB

Date: 24.FEB.2023 15:20:00

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band5	4132	3.17	13	PASS
Band5	4182	3.24	13	PASS
Band5	4233	3.33	13	PASS

Band5-4132

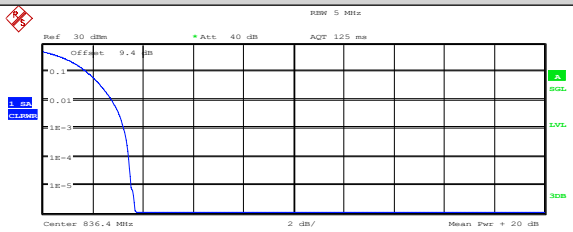


Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	23.12 dBm
Peak	26.67 dBm
Crest	3.55 dB
10 %	1.73 dB
1 %	2.69 dB
.1 %	3.17 dB
.01 %	3.40 dB

Date: 27.FEB.2023 11:09:39

Band5-4182

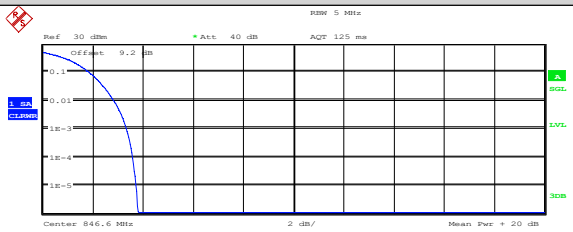


Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	22.95 dBm
Peak	26.67 dBm
Crest	3.72 dB
10 %	1.73 dB
1 %	2.72 dB
.1 %	3.24 dB
.01 %	3.43 dB

Date: 27.FEB.2023 11:09:52

Band5-4233

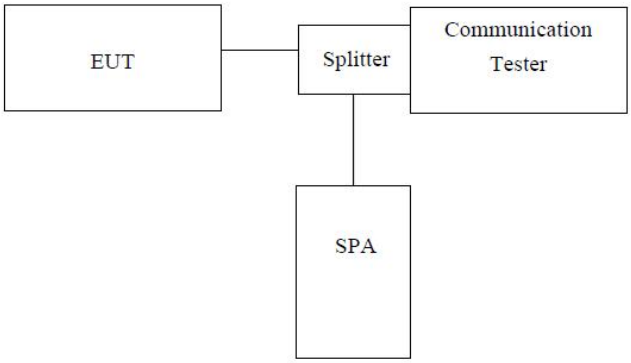


Complementary Cumulative Distribution Function (1000000 samples)

	Trace 1
Mean	22.54 dBm
Peak	26.39 dBm
Crest	3.85 dB
10 %	1.83 dB
1 %	2.82 dB
.1 %	3.33 dB
.01 %	3.59 dB

Date: 27.FEB.2023 11:10:05

4.5 Occupy Bandwidth

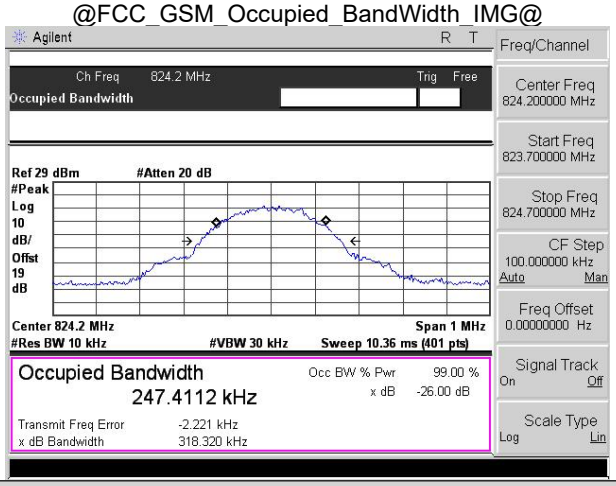
Test Requirement:	FCC part22.913(a) and FCC part24.232(b)
Test Method:	FCC part2.1049
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Procedure:	1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer 2. RBW was set to about 1% of emission BW, VBW= 3 times RBW. 3. -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.
Test Instruments:	Refer to section 5.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

Measurement Data

Band	Channel	PCL	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
GSM850	128	5	0.247	0.32	---	PASS
GSM850	190	5	0.245	0.31	---	PASS
GSM850	251	5	0.243	0.31	---	PASS
GPRS850	128	5	0.245	0.32	---	PASS
GPRS850	190	5	0.243	0.32	---	PASS
GPRS850	251	5	0.245	0.31	---	PASS
EGPRS850	128	8	0.247	0.32	---	PASS
EGPRS850	190	8	0.241	0.30	---	PASS
EGPRS850	251	8	0.238	0.30	---	PASS
GSM1900	512	0	0.249	0.33	---	PASS
GSM1900	661	0	0.245	0.31	---	PASS
GSM1900	810	0	0.245	0.31	---	PASS
GPRS1900	512	0	0.250	0.32	---	PASS
GPRS1900	661	0	0.246	0.32	---	PASS
GPRS1900	810	0	0.244	0.31	---	PASS
EGPRS1900	512	2	0.249	0.33	---	PASS
EGPRS1900	661	2	0.244	0.31	---	PASS
EGPRS1900	810	2	0.245	0.31	---	PASS

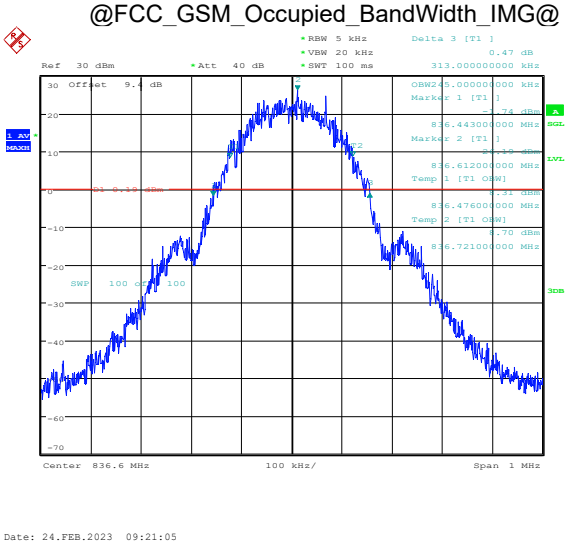
@FCC_GSM_Occupied_BandWidth_IMG@GSM850-128

@FCC_GSM_Occupied_BandWidth_IMG@



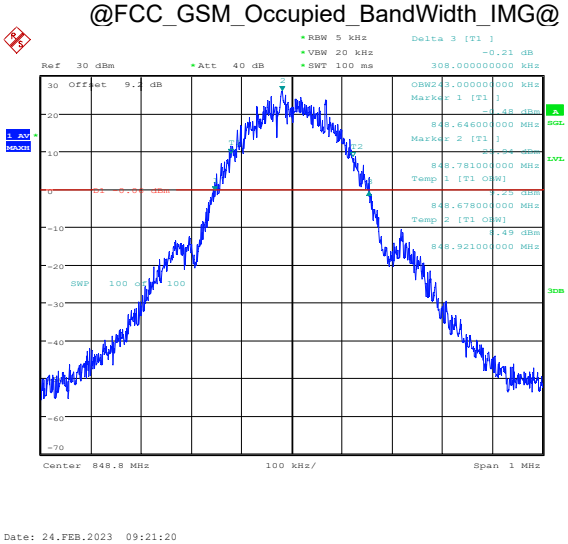
@FCC_GSM_Occupied_BandWidth_IMG@GSM850-190

@FCC_GSM_Occupied_BandWidth_IMG@



@FCC_GSM_Occupied_BandWidth_IMG@GSM850-251

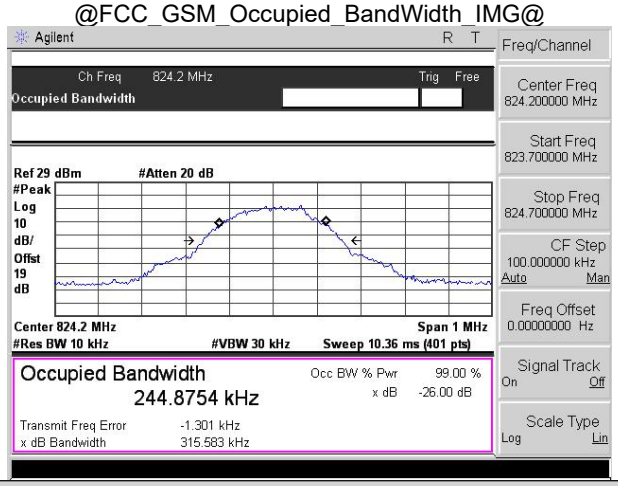
@FCC_GSM_Occupied_BandWidth_IMG@



Date: 24.FEB.2023 09:21:20

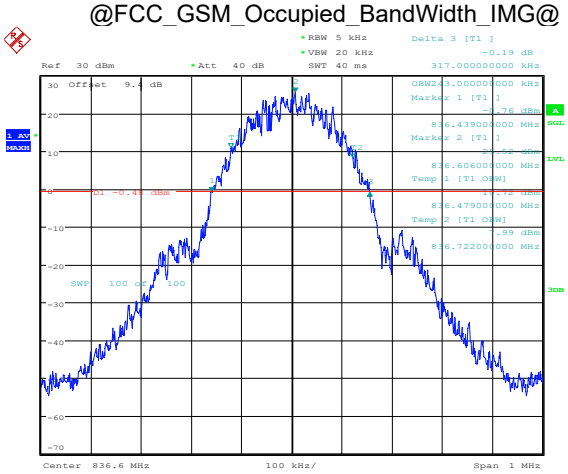
@FCC_GSM_Occupied_BandWidth_IMG@GPRS850-128

@FCC_GSM_Occupied_BandWidth_IMG@



@FCC_GSM_Occupied_BandWidth_IMG@GPRS850-190

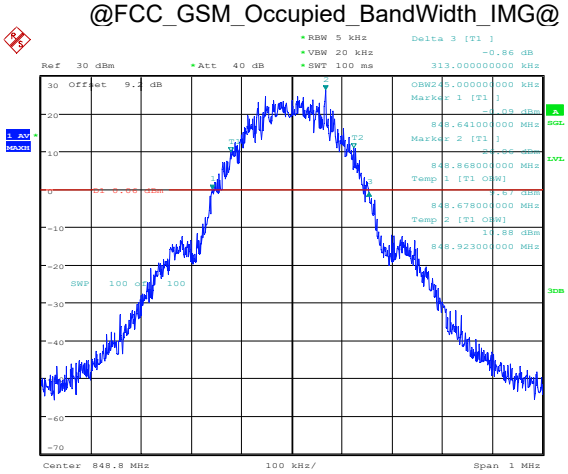
@FCC_GSM_Occupied_BandWidth_IMG@



Date: 24.FEB.2023 09:37:34

@FCC_GSM_Occupied_BandWidth_IMG@GPRS850-251

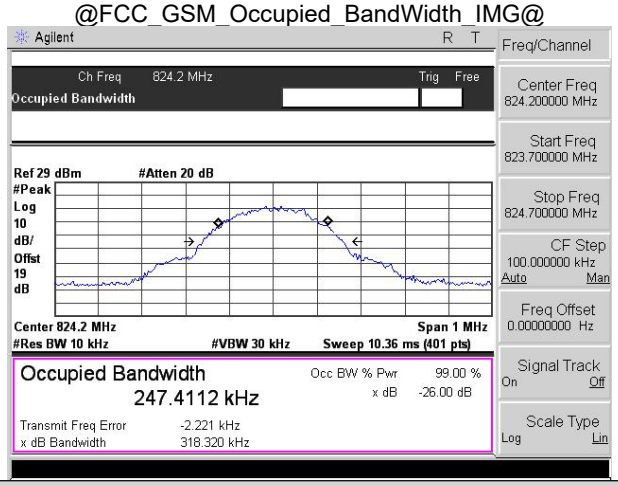
@FCC_GSM_Occupied_BandWidth_IMG@



Date: 24.FEB.2023 09:38:00

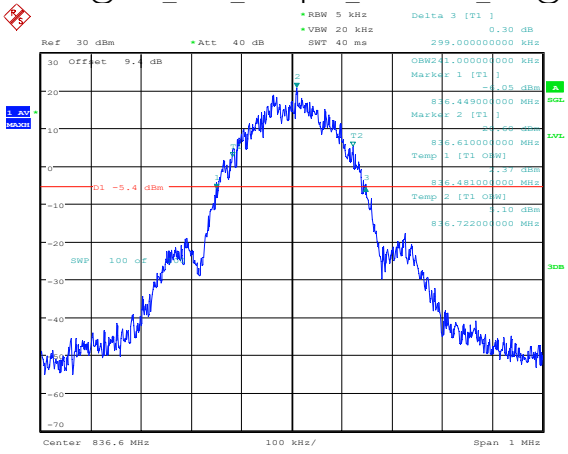
@FCC_GSM_Occupied_BandWidth_IMG@EGPRS850-128

@FCC_GSM_Occupied_BandWidth_IMG@



@FCC_GSM_Occupied_BandWidth_IMG@EGPRS850-190

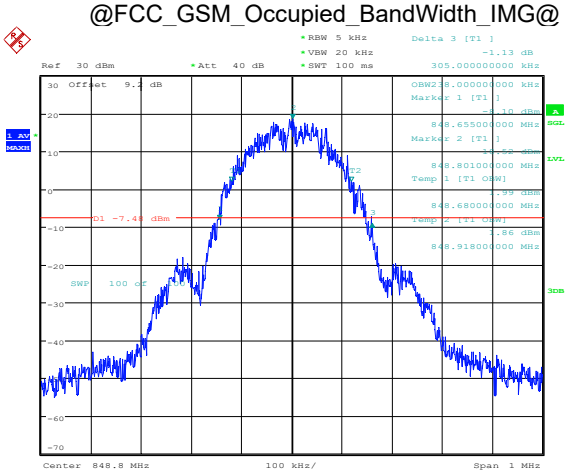
@FCC_GSM_Occupied_BandWidth_IMG@



Date: 24.FEB.2023 09:54:47

@FCC_GSM_Occupied_BandWidth_IMG@EGPRS850-251

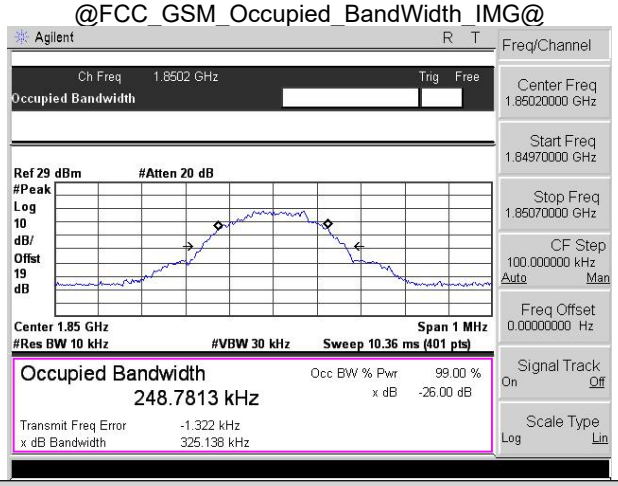
@FCC_GSM_Occupied_BandWidth_IMG@



Date: 24.FEB.2023 09:55:13

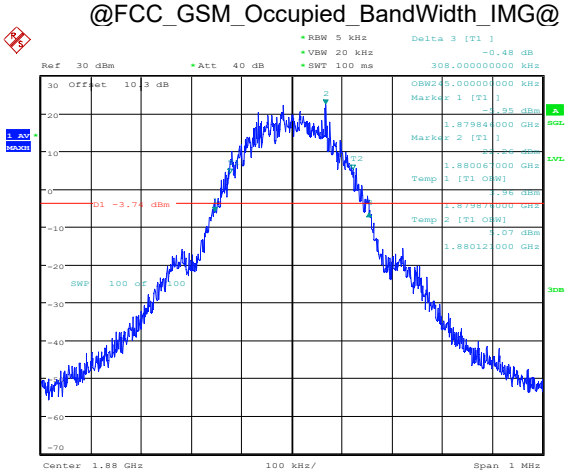
@FCC_GSM_Occupied_BandWidth_IMG@GSM1900-512

@FCC_GSM_Occupied_BandWidth_IMG@



@FCC_GSM_Occupied_BandWidth_IMG@GSM1900-661

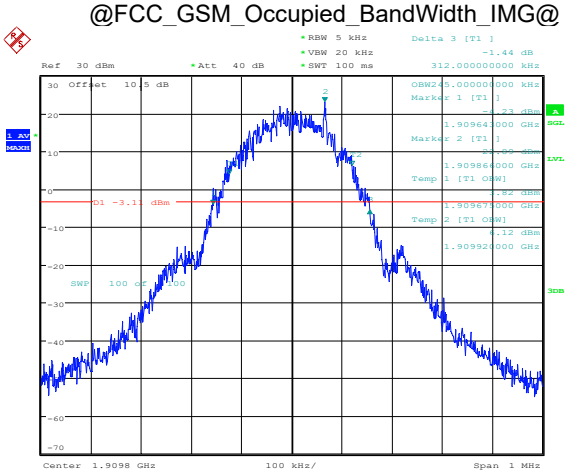
@FCC_GSM_Occupied_BandWidth_IMG@



Date: 24.FEB.2023 10:07:25

@FCC_GSM_Occupied_BandWidth_IMG@GSM1900-810

@FCC_GSM_Occupied_BandWidth_IMG@



Date: 24.FEB.2023 10:07:40

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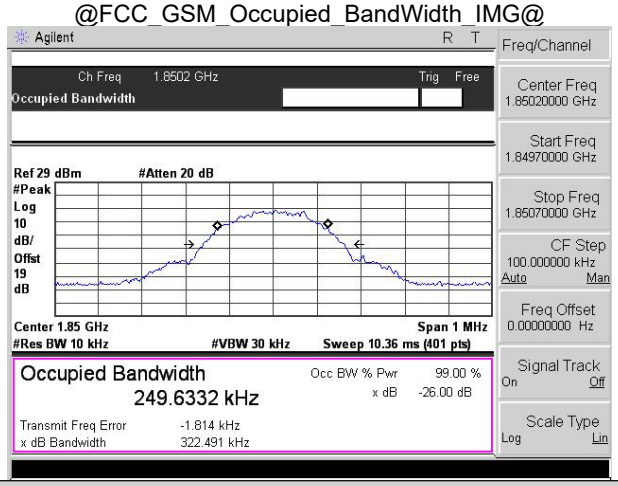
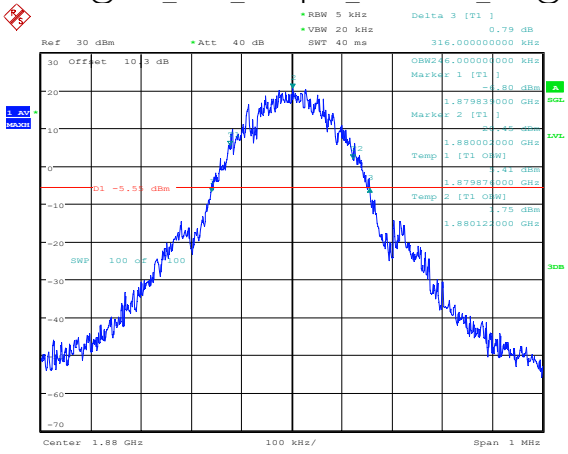
@FCC_GSM_Occupied_BandWidth_IMG@



@FCC_GSM_Occupied_BandWidth_IMG@GPRS1900-661

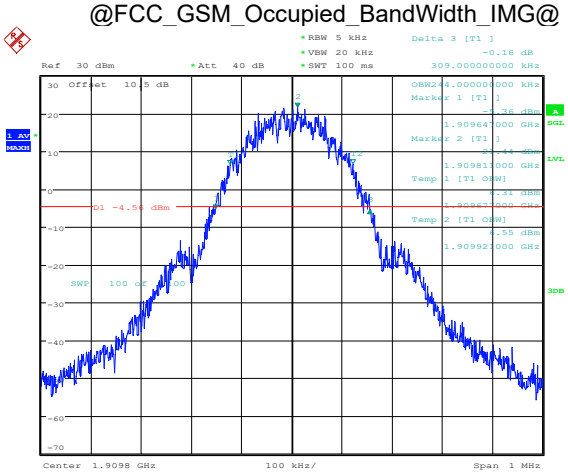
@FCC_GSM_Occupied_BandWidth_IMG@



Date: 24.FEB.2023 10:23:59

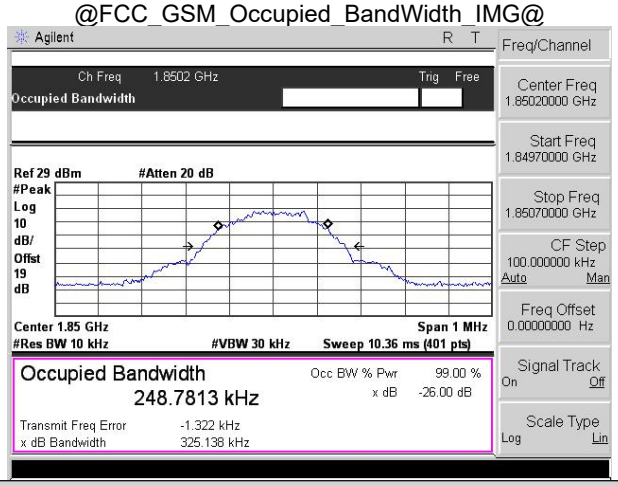
@FCC_GSM_Occupied_BandWidth_IMG@GPRS1900-810

@FCC_GSM_Occupied_BandWidth_IMG@



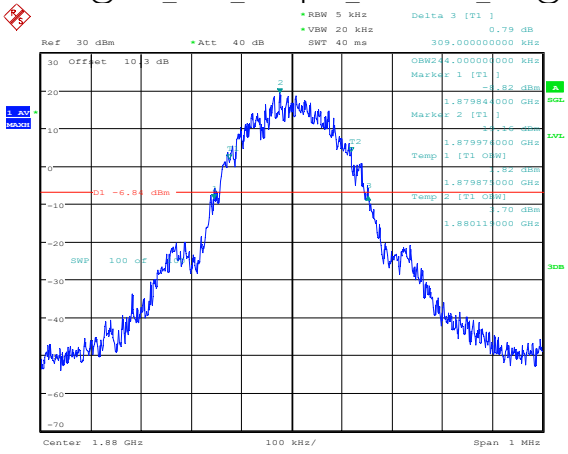
@FCC_GSM_Occupied_BandWidth_IMG@EGPRS1900-512

@FCC_GSM_Occupied_BandWidth_IMG@

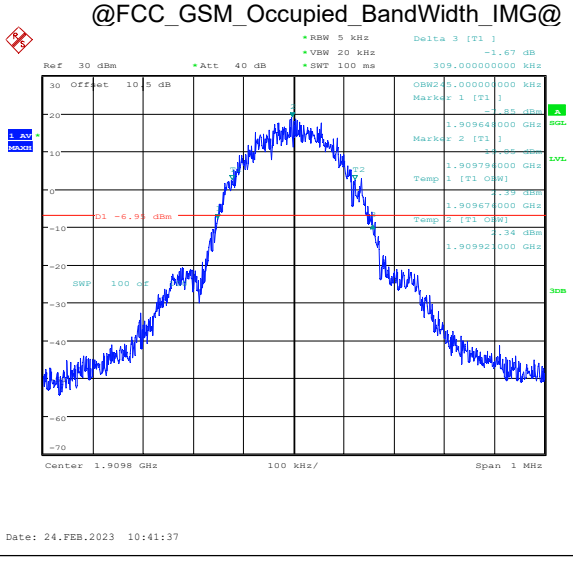


@FCC_GSM_Occupied_BandWidth_IMG@EGPRS1900-661

@FCC_GSM_Occupied_BandWidth_IMG@

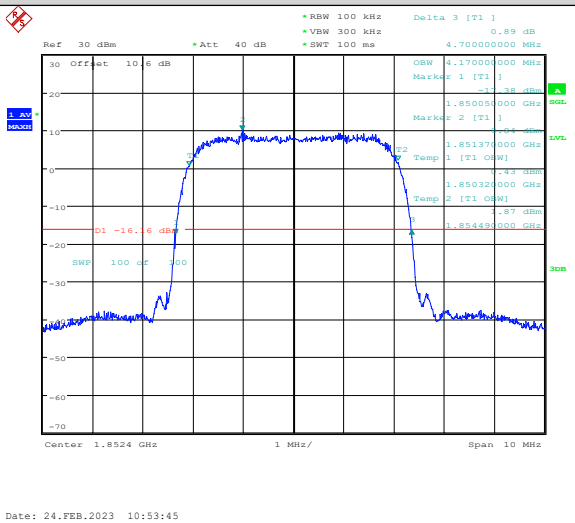


@FCC_GSM_Occupied_BandWidth_IMG@EGPRS1900-810
@FCC_GSM_Occupied_BandWidth_IMG@



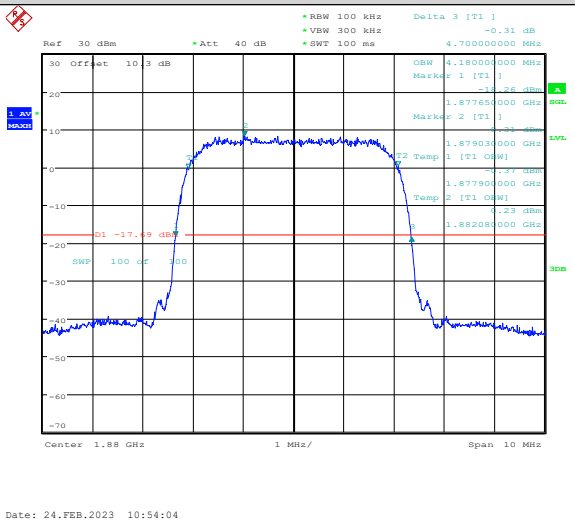
Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit(kHz)	Verdict
Band2	9262	4.17	4.70	---	PASS
Band2	9400	4.18	4.70	---	PASS
Band2	9538	4.17	4.70	---	PASS

Band2-9262



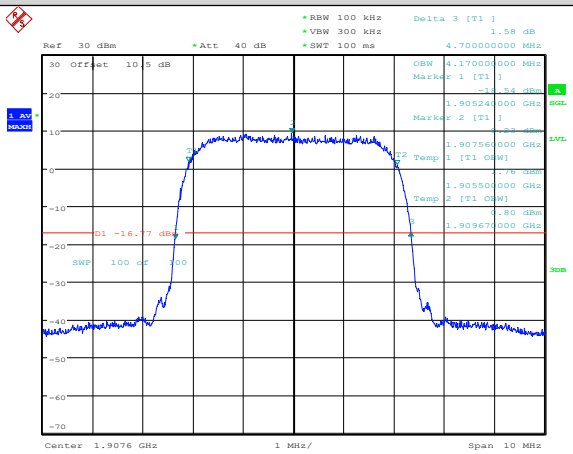
Date: 24.FEB.2023 10:53:45

Band2-9400



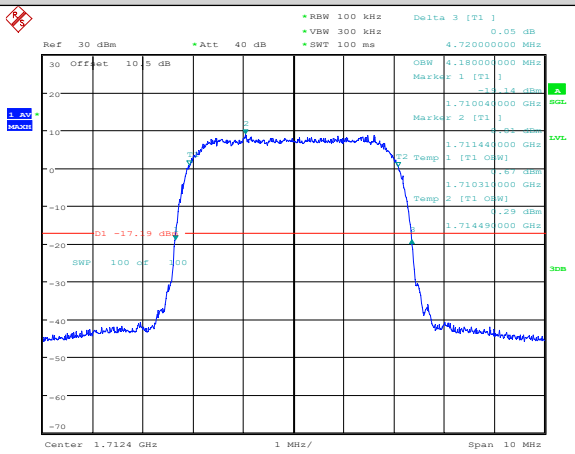
Date: 24.FEB.2023 10:54:04

Band2-9538


RBW 100 kHz
VBW 300 kHz
SWT 100 ms
Delta 3 [T1]
1.58 dB
4.700000000 MHz
Ref 30 dBm
Att 40 dB
Offset 10.5 dB
OBW 4.170000000 MHz
Marker 1 [T1]
1.90524[illegible]000 GHz
Marker 2 [T1]
1.90756[illegible]000 GHz
Temp 1 [T1 OBW]
1.905500000 GHz
Temp 2 [T1 OBW]
1.909670000 GHz
D1 -16.77 dBm
SWP 100 df 100
Center 1.9076 GHz
1 MHz/
Span 10 MHz
Date: 24.FEB.2023 10:54:25

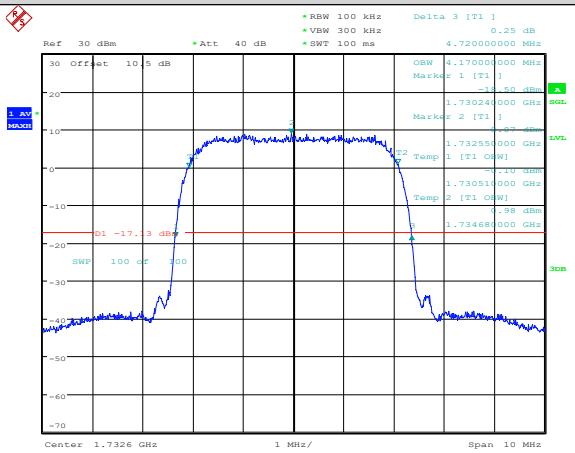
Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit(kHz)	Verdict
Band4	1312	4.18	4.72	---	PASS
Band4	1413	4.17	4.72	---	PASS
Band4	1513	4.17	4.71	---	PASS

Band4-1312



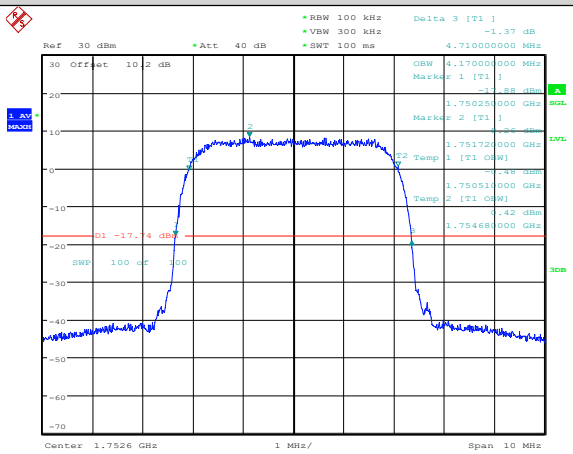
Date: 24.FEB.2023 15:23:27

Band4-1413



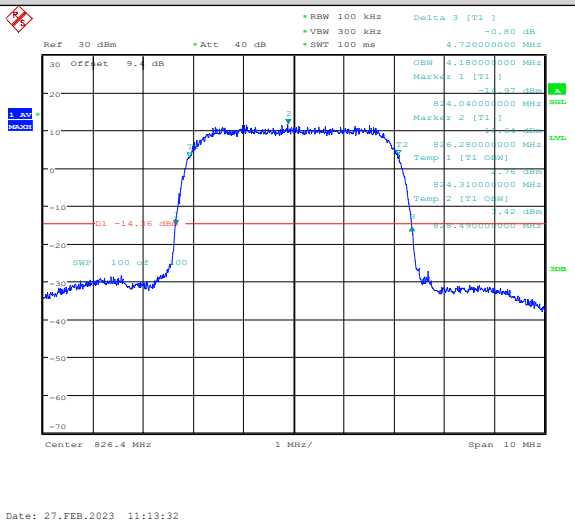
Date: 24.FEB.2023 15:23:46

Band4-1513


RBW 100 kHz
VBW 300 kHz
SWT 100 ms
Delta 3 [T1]
-1.37 dB
4.710000000 MHz
Ref 30 dBm
Att 40 dB
Offset 10.2 dB
OBW 4.170000000 MHz
Marker 1 [T1]
-17.88 dBm
1.750250000 GHz
Marker 2 [T1]
1.751720000 GHz
Temp 1 [T1 OBW]
1.750510000 GHz
Temp 2 [T1 OBW]
1.754680000 GHz
D1 -17.74 dBm
SWP 100 of 100
Center 1.7526 GHz
1 MHz/
Span 10 MHz
Date: 24.FEB.2023 15:24:06

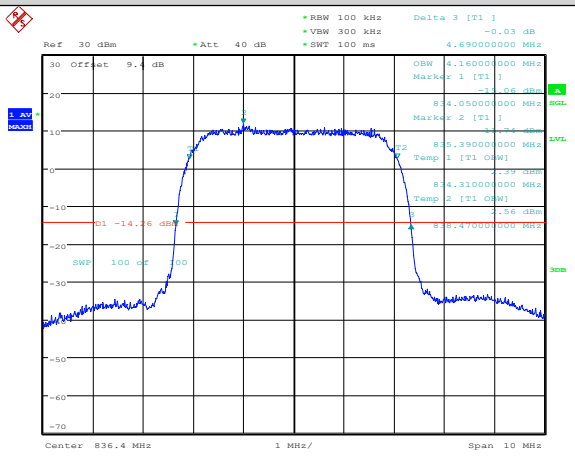
Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit(kHz)	Verdict
Band5	4132	4.18	4.72	---	PASS
Band5	4182	4.16	4.69	---	PASS
Band5	4233	4.17	4.70	---	PASS

Band5-4132



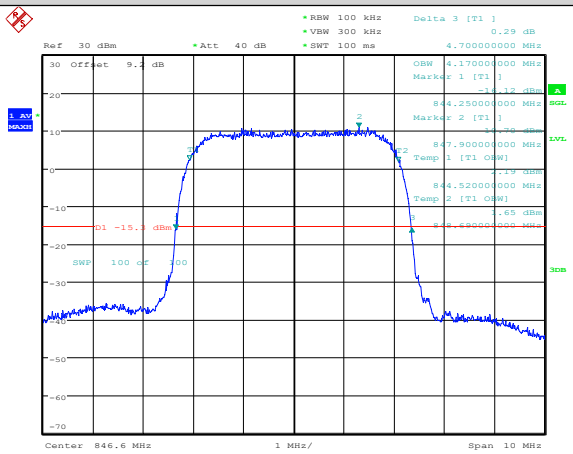
Date: 27.FEB.2023 11:13:32

Band5-4182



Date: 27.FEB.2023 11:13:57

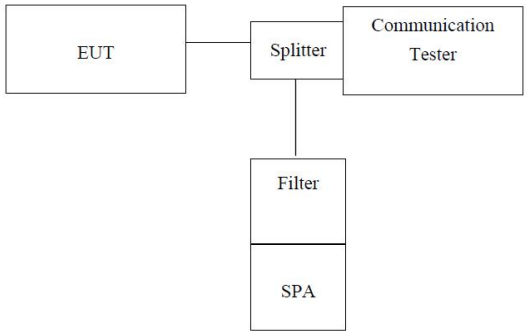
Band5-4233


RBW 100 kHz
VBW 300 kHz
SWT 100 ms
Delta 3 [T1]
0.29 dB
4.700000000 MHz
Ref 30 dBm
Att 40 dB
Offset 9.2 dB
OBW 4.170000000 MHz
Marker 1 [T1]
844.250000000 MHz
Marker 2 [T1]
847.900000000 MHz
Temp 1 [T1 OBW]
844.520000000 MHz
Temp 2 [T1 OBW]
1.65 dBm
848.690000000 MHz
SGL
LVL
3DB
SWP 100 of 100
Center 846.6 MHz
1 MHz/
Span 10 MHz
Date: 27.FEB.2023 11:14:20

4.6 MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 22H & 24E there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

4.7 Out of band emission at antenna terminals

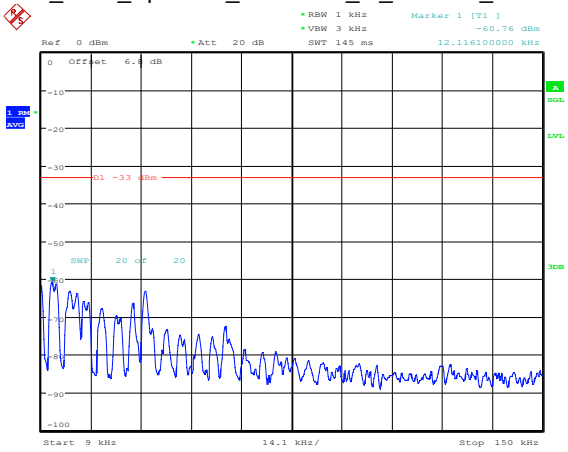
Test Requirement:	FCC part22.917(a) and FCC part24.238(a)
Test Method:	FCC part2.1051
Limit:	-13dBm
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Procedure:	1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 2 The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic. 3 For the out of band: Set the RBW, VBW = 1MHz, Start=30MHz, Stop= 10th harmonic. 4 Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.
Test Instruments:	Refer to section 5.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

Test plot as follows:

Note: During the conducted spurious emission test, a band filter was used. The information of the filter is reported at section 6.0 (refer to item 24, 25).

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM850-128-0.009~0.15MHz

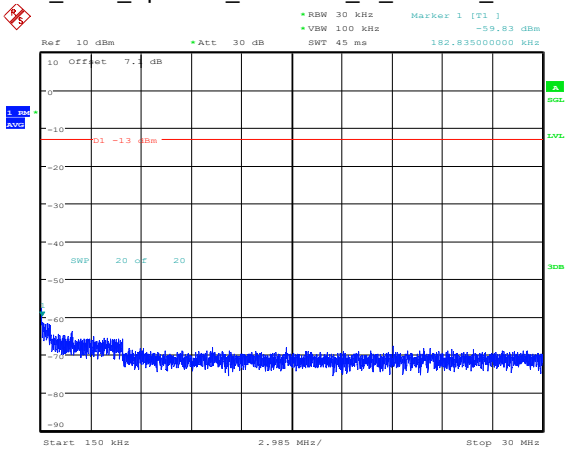
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:22:04

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM850-128-0.15~30MHz

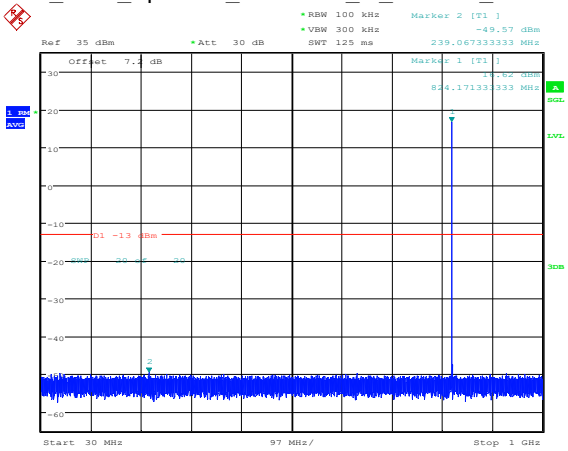
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:22:16

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM850-128-30~1000MHz

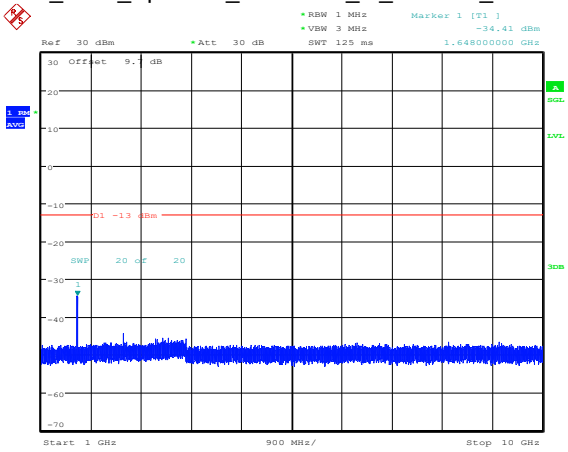
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:22:28

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM850-128-1000~10000MHz

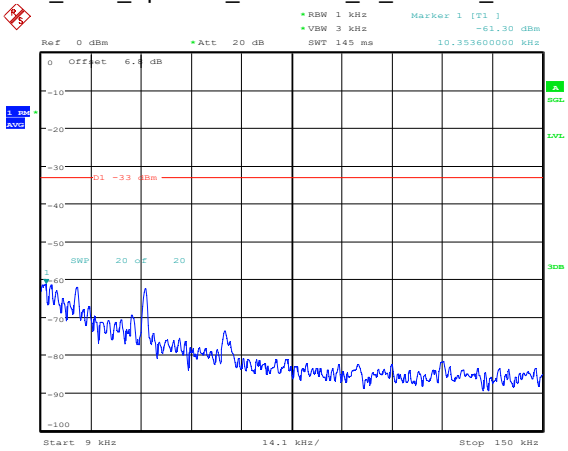
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:22:41

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM850-190-0.009~0.15MHz

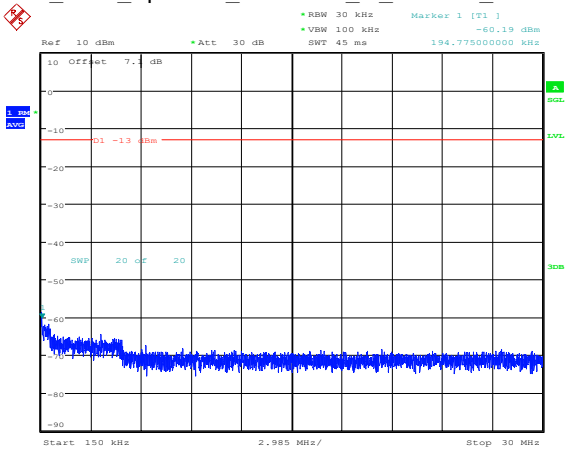
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:22:53

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM850-190-0.15~30MHz

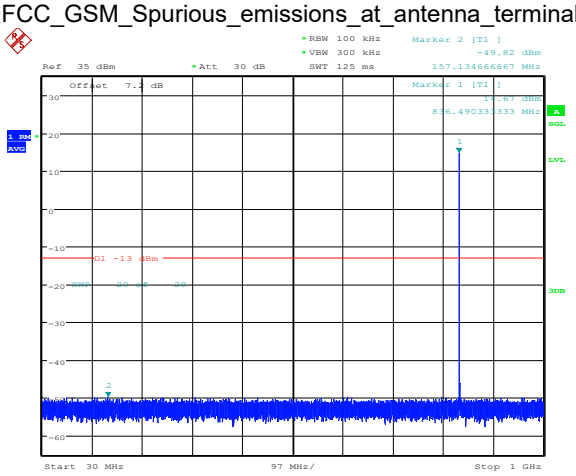
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:23:05

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM850-190-30~1000MHz

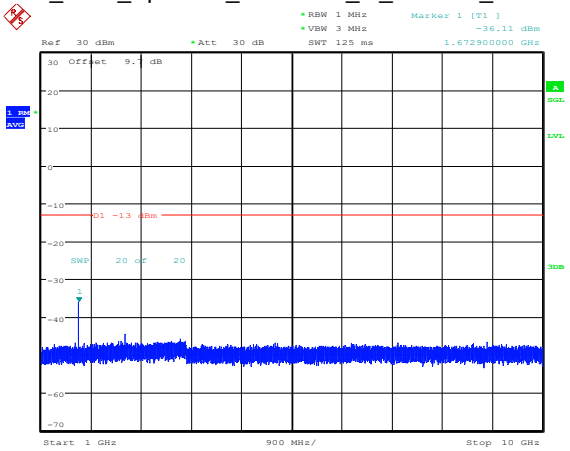
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:23:17

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM850-190-1000~10000MHz

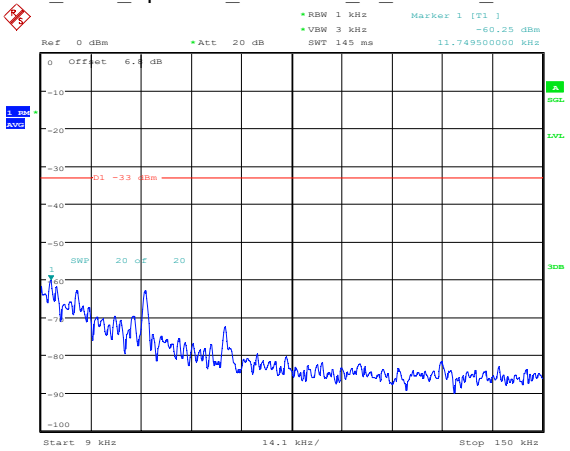
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:23:30

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM850-251-0.009~0.15MHz

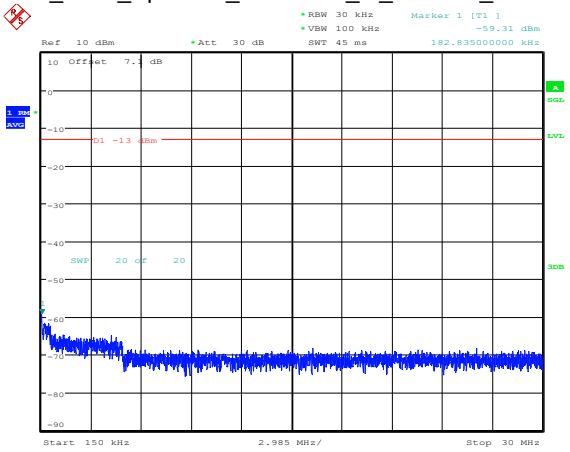
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:23:41

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM850-251-0.15~30MHz

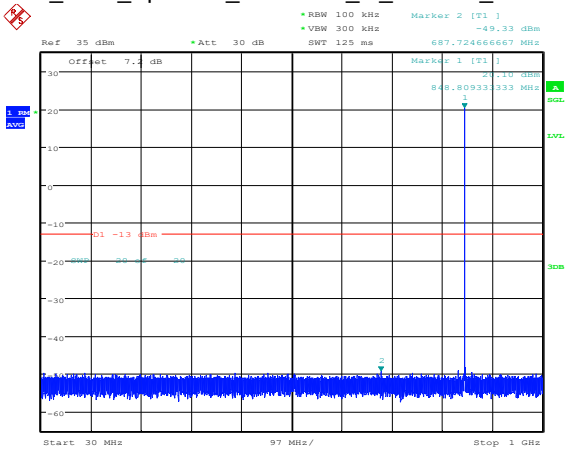
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:23:53

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM850-251-30~1000MHz

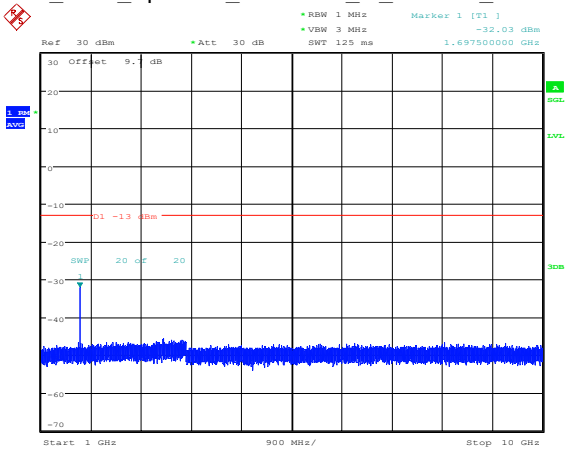
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:24:05

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM850-251-1000~10000MHz

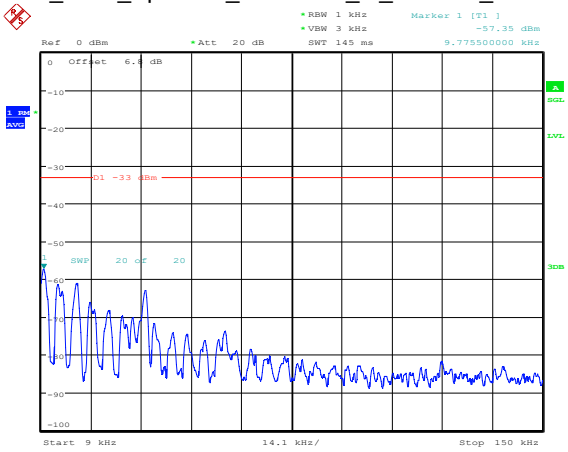
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:24:18

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS850-128-0.009~0.15MHz

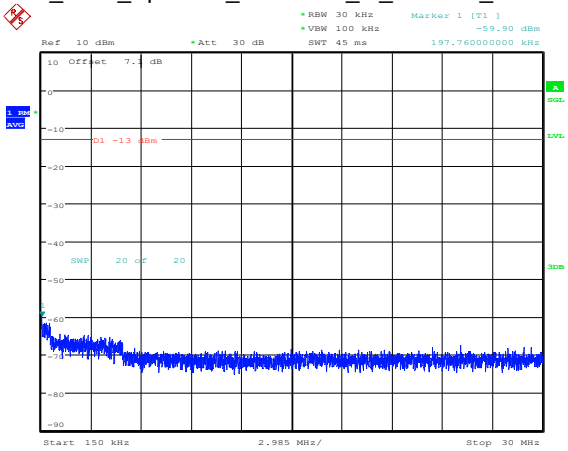
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:39:15

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS850-128-0.15~30MHz

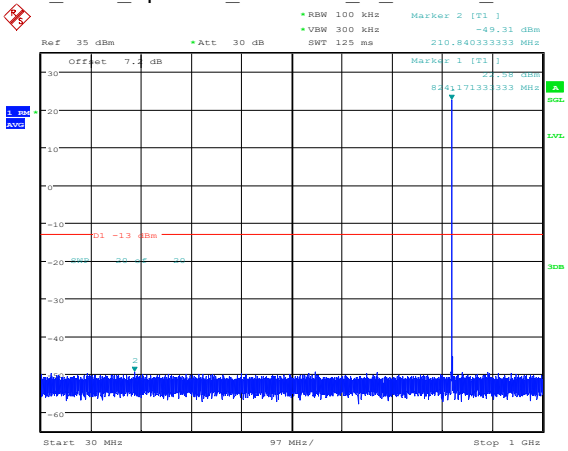
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:39:27

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS850-128-30~1000MHz

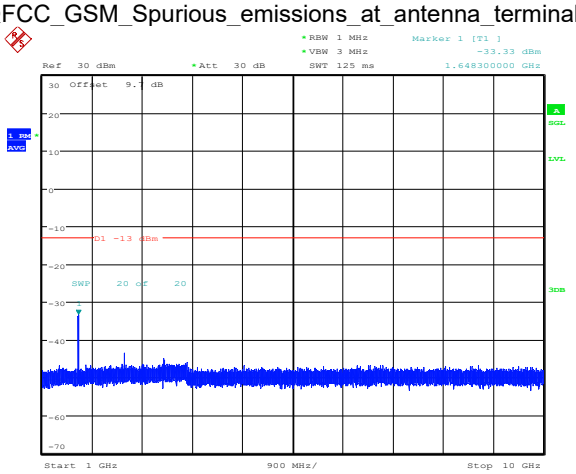
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:39:38

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS850-128-1000~10000MHz

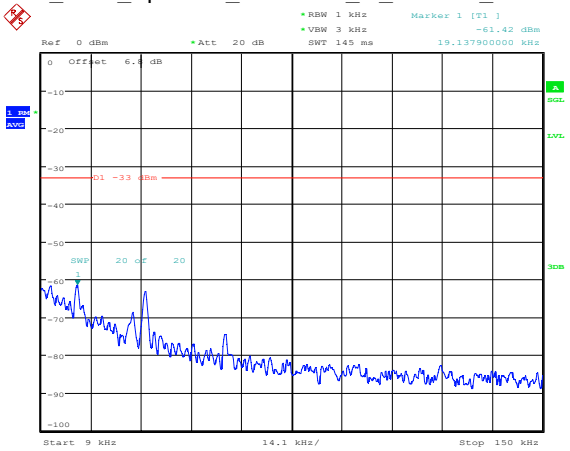
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:39:50

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS850-190-0.009~0.15MHz

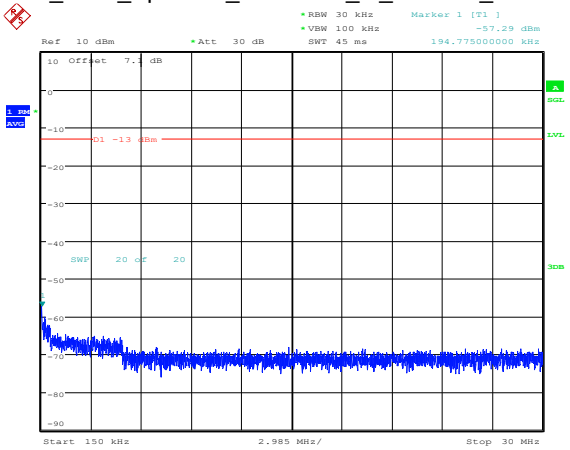
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:40:11

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS850-190-0.15~30MHz

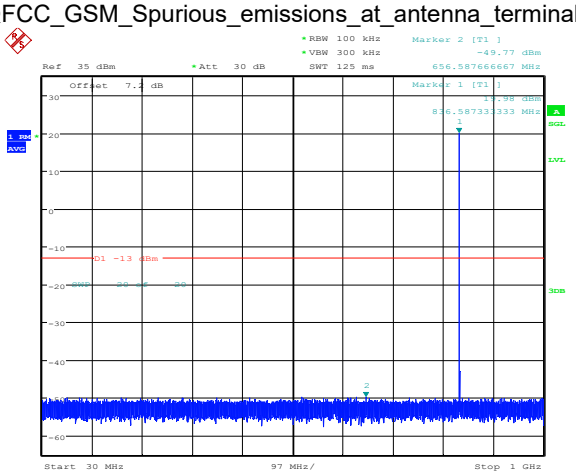
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:40:22

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS850-190-30~1000MHz

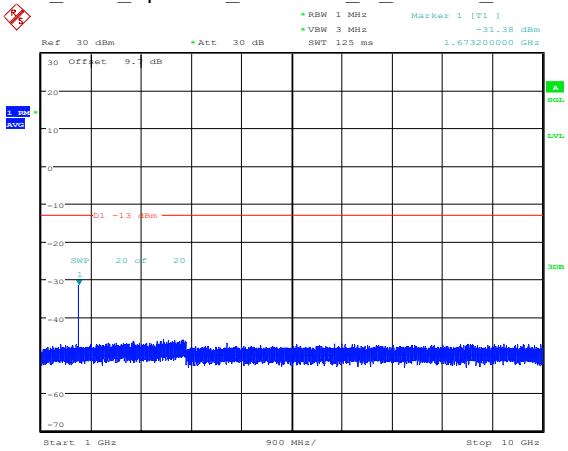
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:40:33

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS850-190-1000~10000MHz

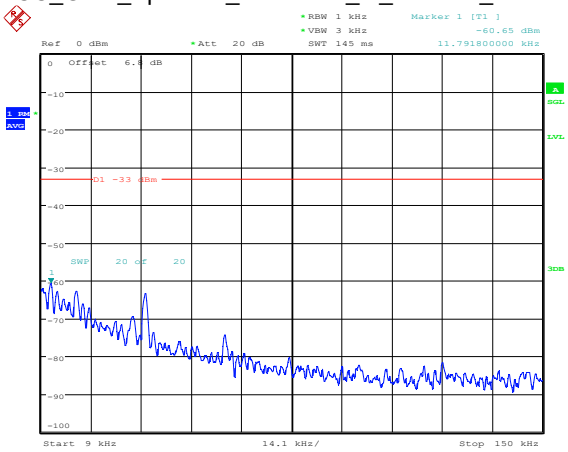
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:40:45

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS850-251-0.009~0.15MHz

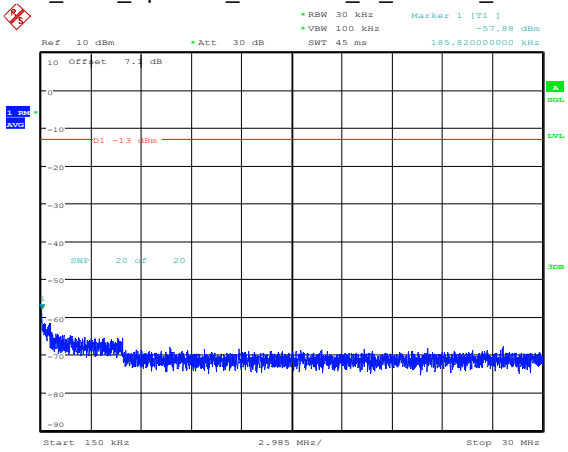
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:41:06

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS850-251-0.15~30MHz

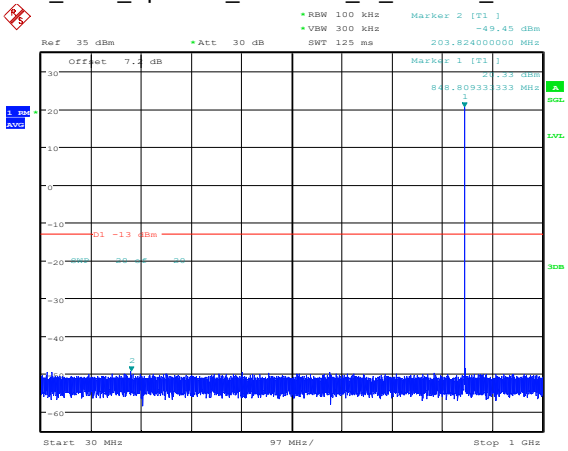
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:41:17

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS850-251-30~1000MHz

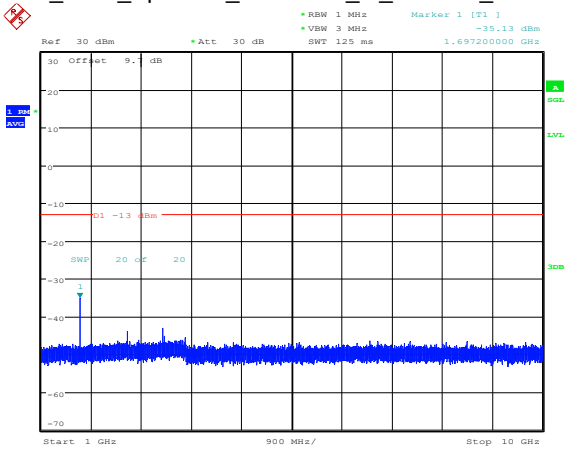
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:41:29

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS850-251-1000~10000MHz

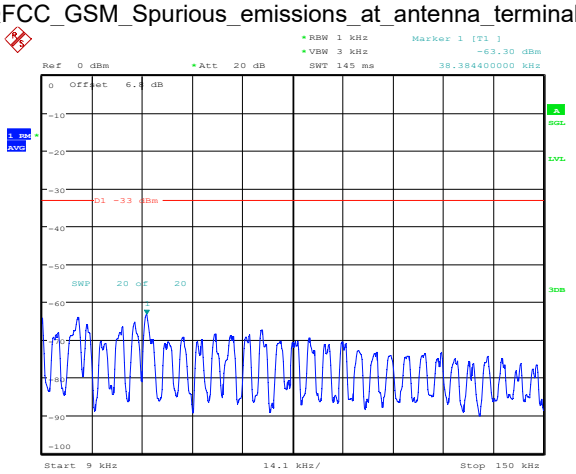
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:41:41

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS850-128-0.009~0.15MHz

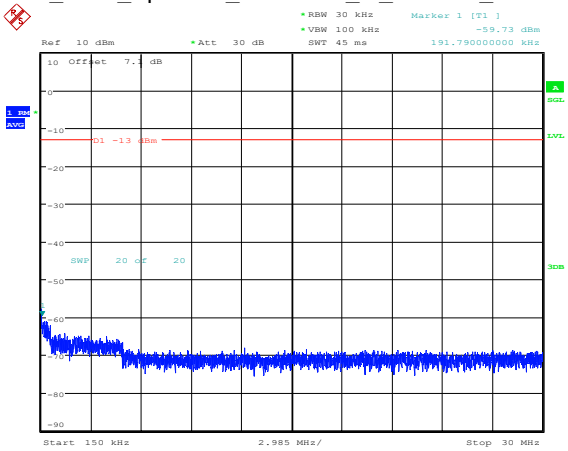
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:56:29

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS850-128-0.15~30MHz

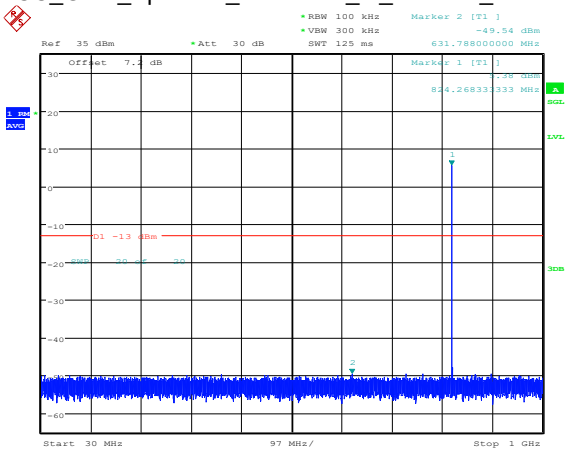
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:56:40

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS850-128-30~1000MHz

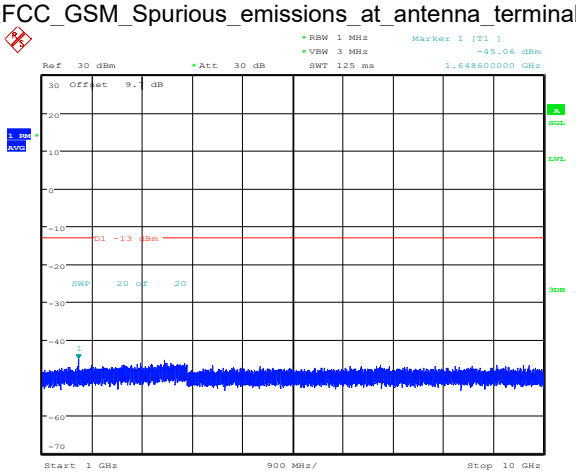
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:56:51

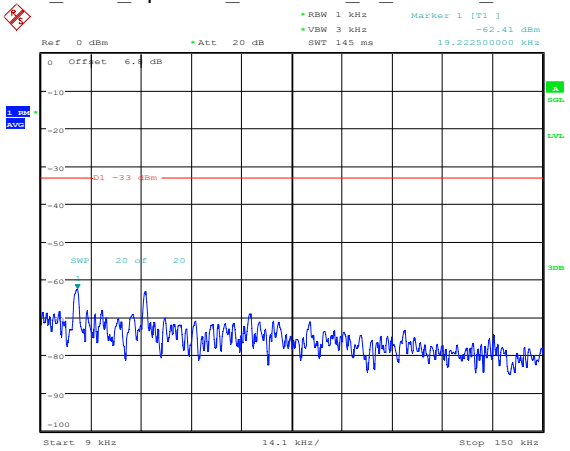
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS850-128-1000~10000MHz

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



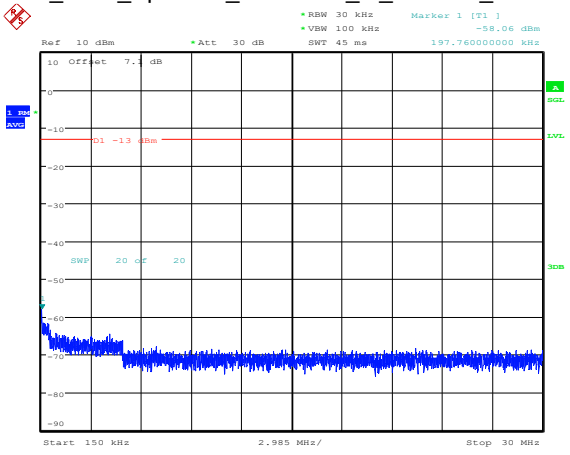
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS850-190-0.009~0.15MHz

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



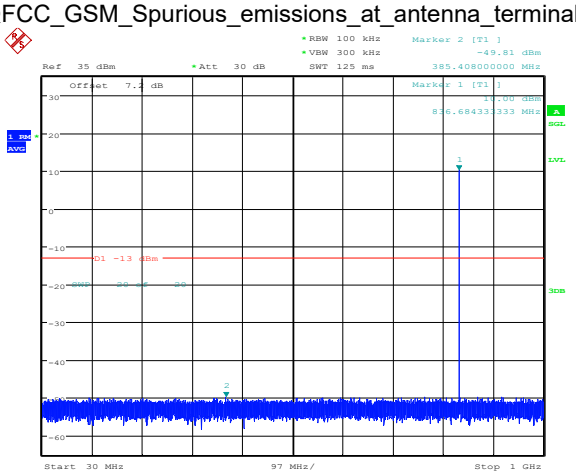
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS850-190-0.15~30MHz

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS850-190-30~1000MHz

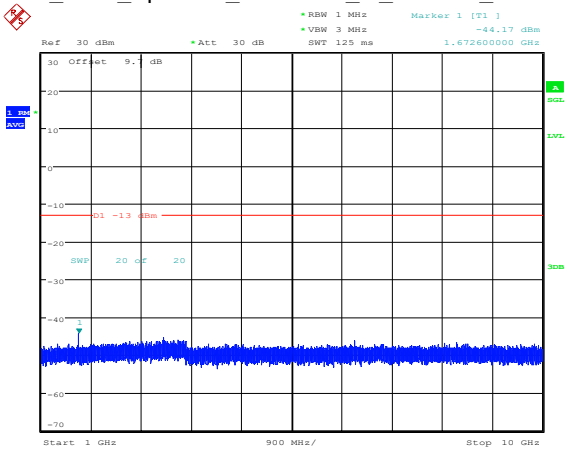
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:57:46

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS850-190-1000~10000MHz

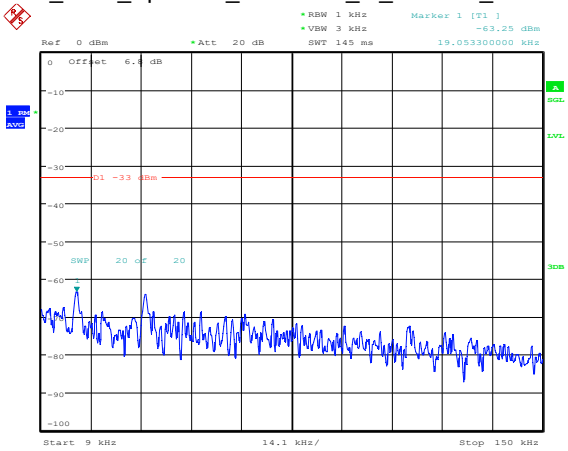
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:57:59

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS850-251-0.009~0.15MHz

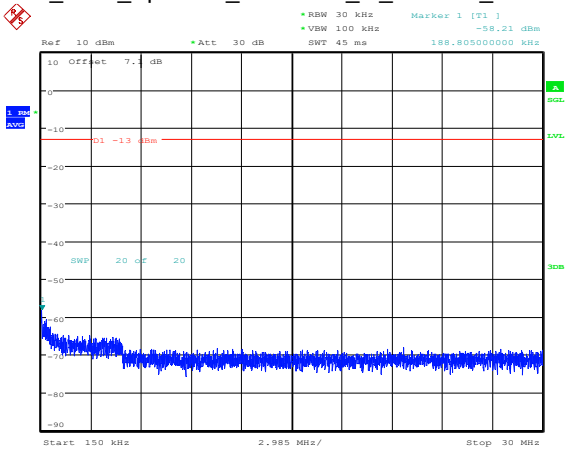
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:58:19

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS850-251-0.15~30MHz

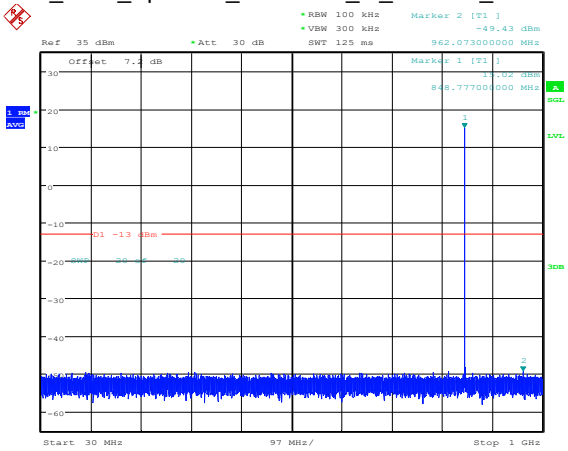
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:58:30

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS850-251-30~1000MHz

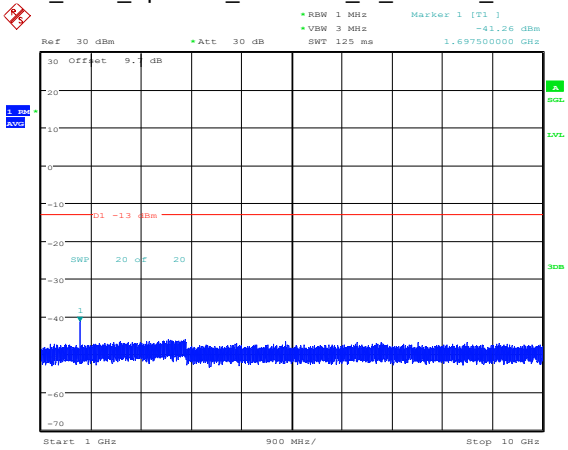
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:58:42

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS850-251-1000~10000MHz

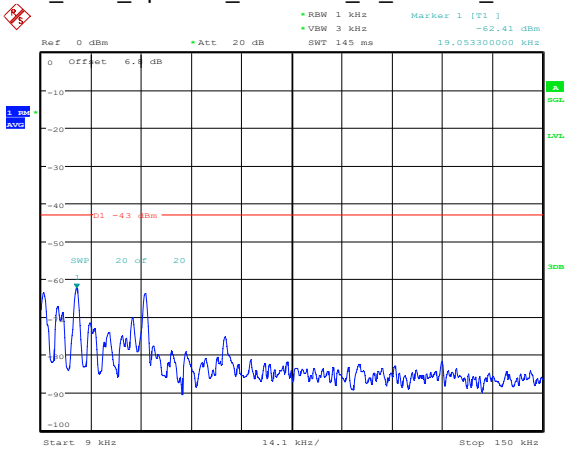
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 09:58:54

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM1900-512-0.009~0.15MHz

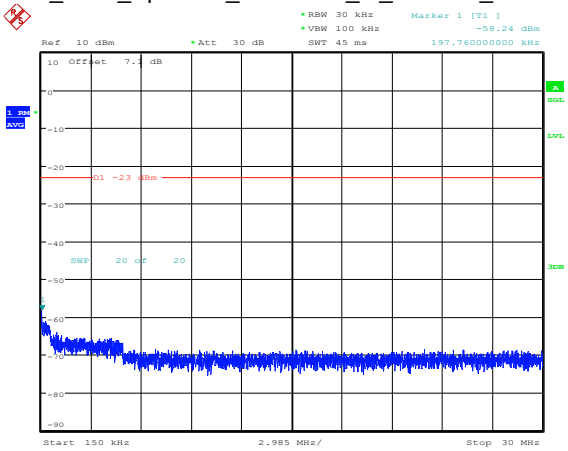
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:08:24

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM1900-512-0.15~30MHz

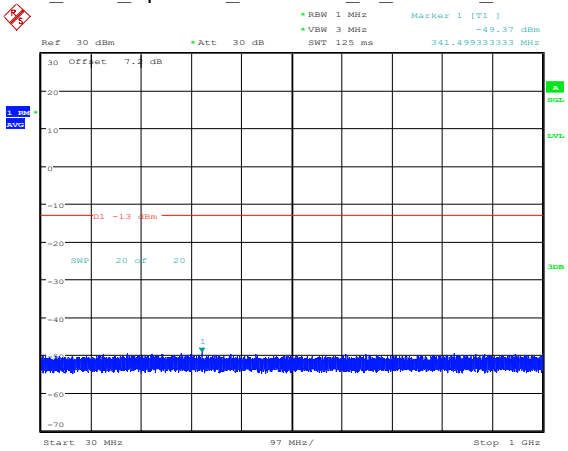
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:08:36

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM1900-512-30~1000MHz

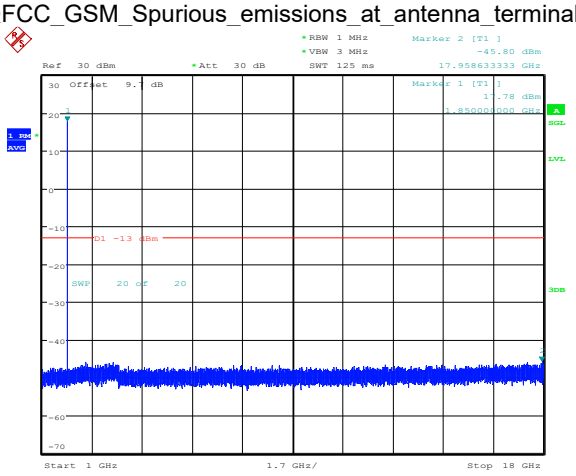
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:08:47

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM1900-512-1000~18000MHz

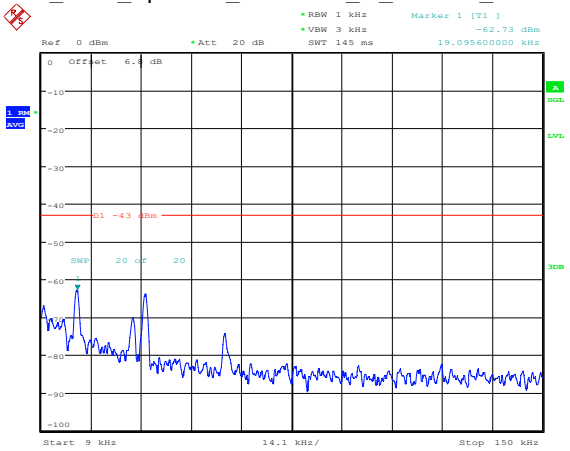
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:09:02

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM1900-661-0.009~0.15MHz

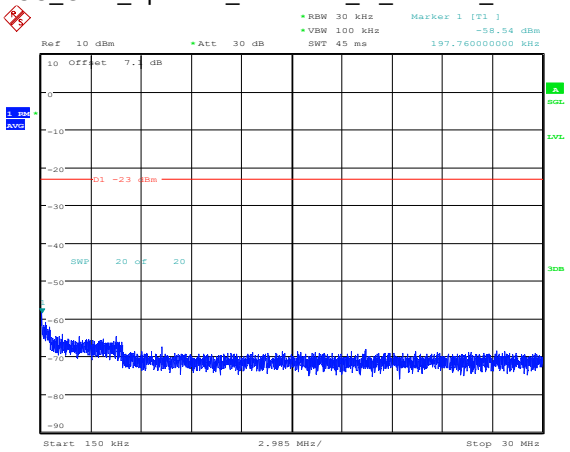
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:09:14

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM1900-661-0.15~30MHz

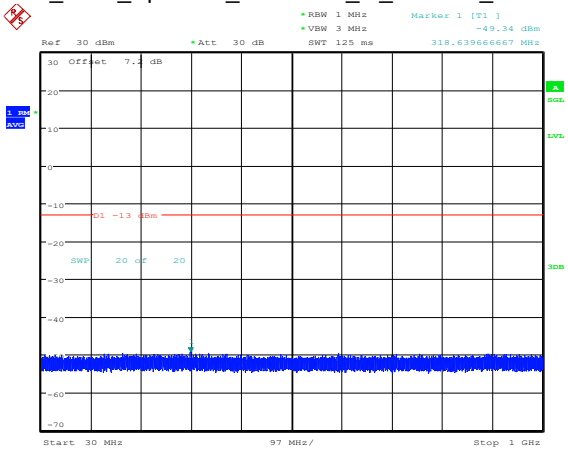
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:09:26

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM1900-661-30~1000MHz

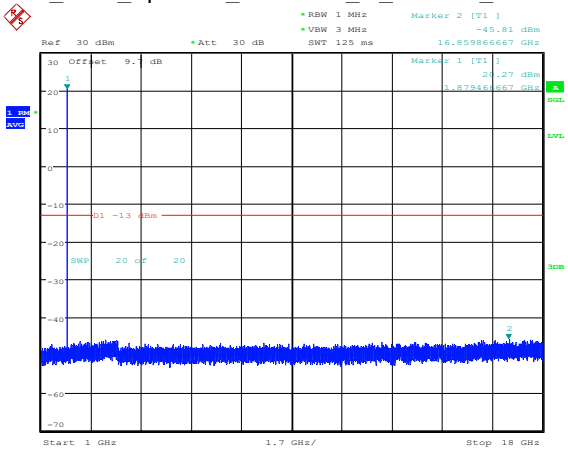
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:09:37

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM1900-661-1000~18000MHz

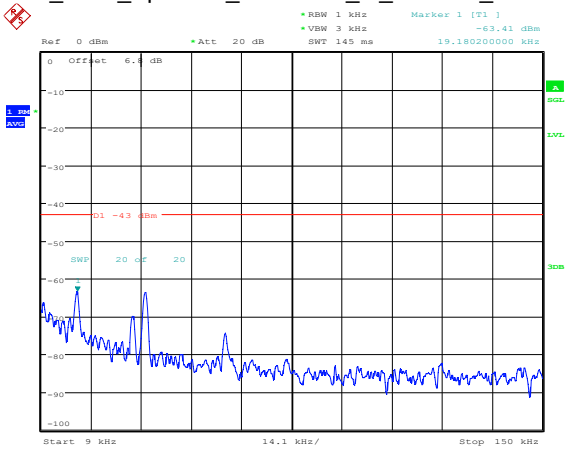
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:09:52

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM1900-810-0.009~0.15MHz

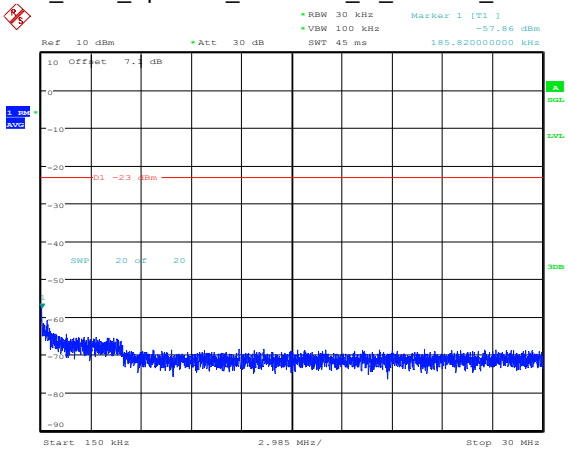
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:10:03

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM1900-810-0.15~30MHz

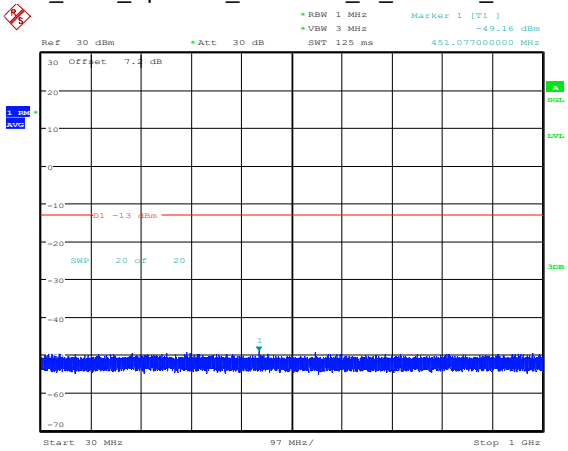
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:10:15

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM1900-810-30~1000MHz

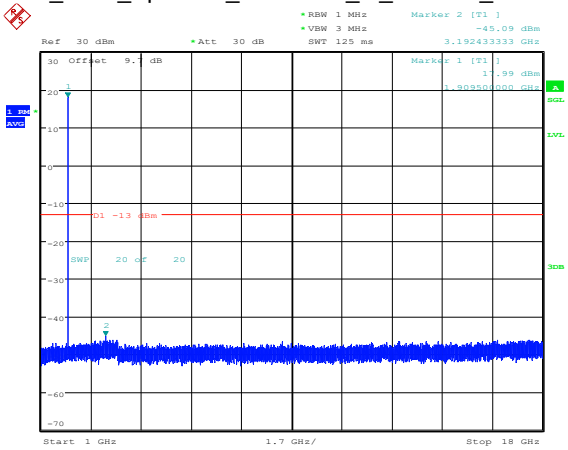
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:10:26

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GSM1900-810-1000~18000MHz

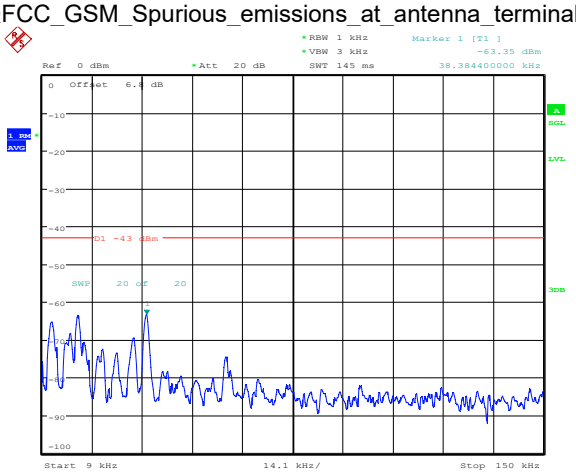
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:10:42

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS1900-512-0.009~0.15MHz

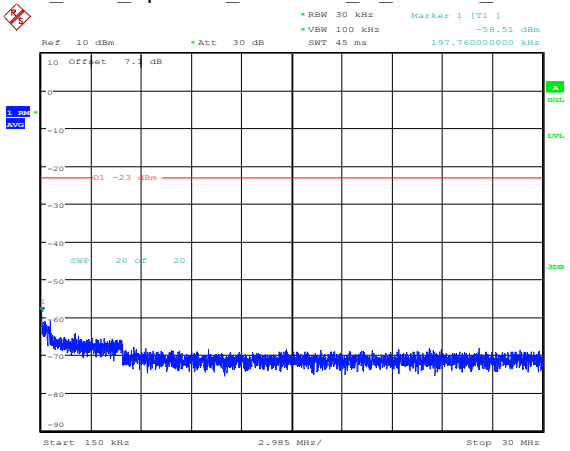
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:25:40

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS1900-512-0.15~30MHz

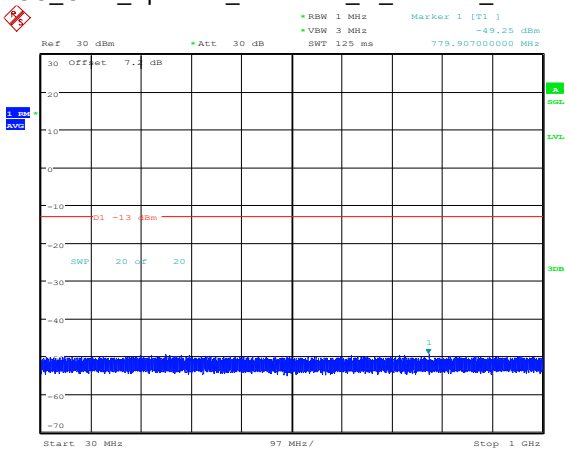
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:25:52

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS1900-512-30~1000MHz

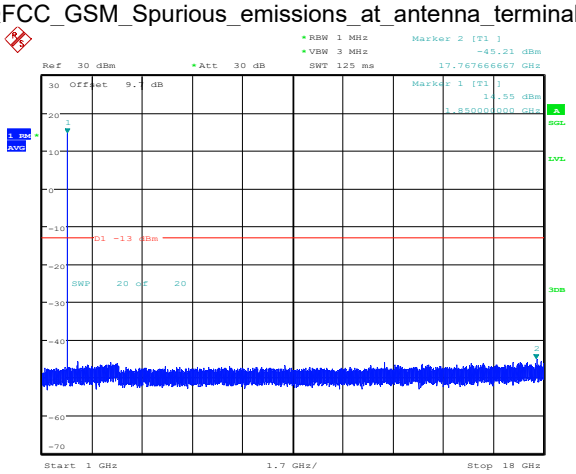
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:26:02

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS1900-512-1000~18000MHz

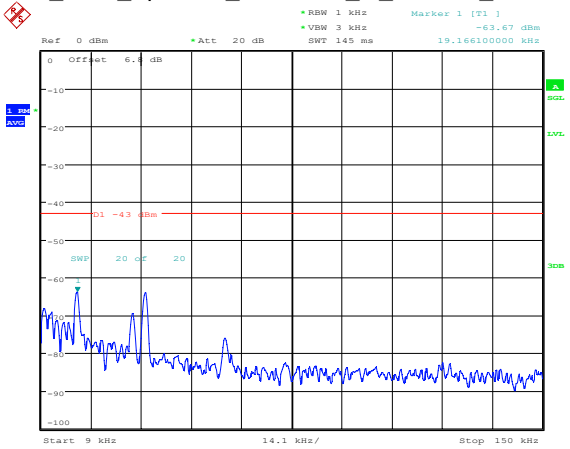
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:26:16

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS1900-661-0.009~0.15MHz

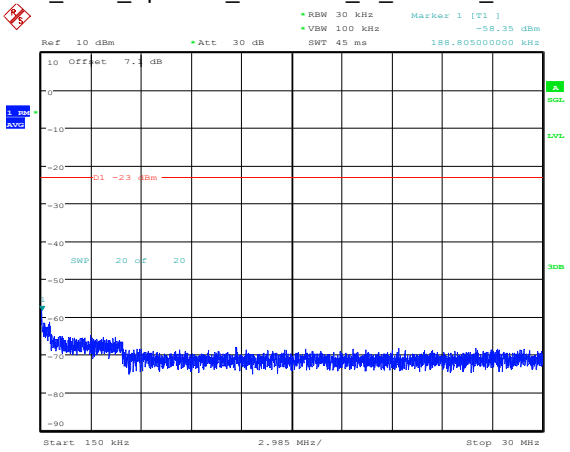
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:26:37

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS1900-661-0.15~30MHz

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:26:48

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS1900-661-30~1000MHz

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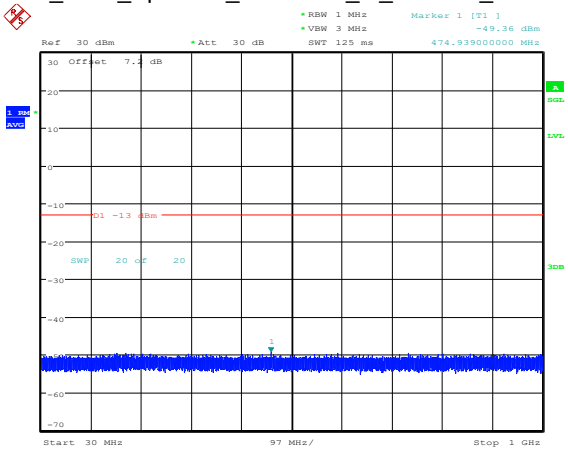
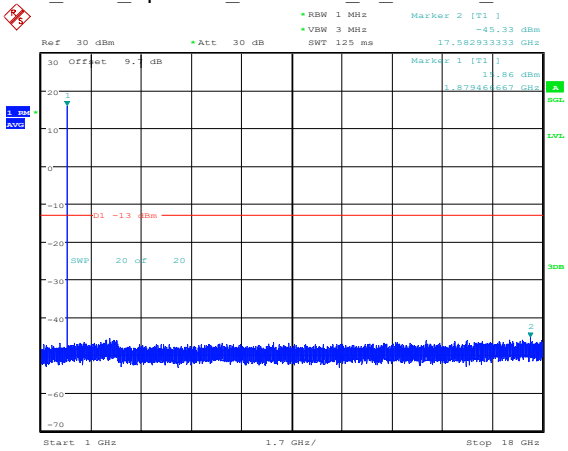


Date: 24.FEB.2023 10:26:58

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS1900-661-1000~18000MHz

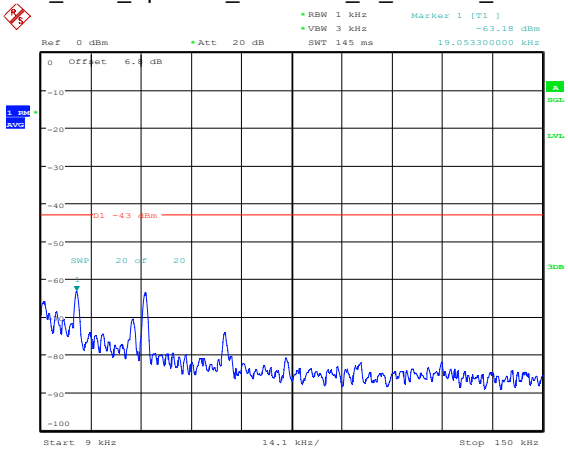
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:27:13

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS1900-810-0.009~0.15MHz

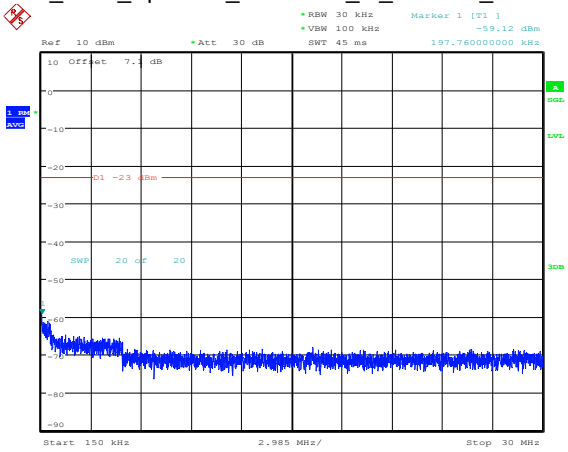
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:27:33

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS1900-810-0.15~30MHz

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:27:44

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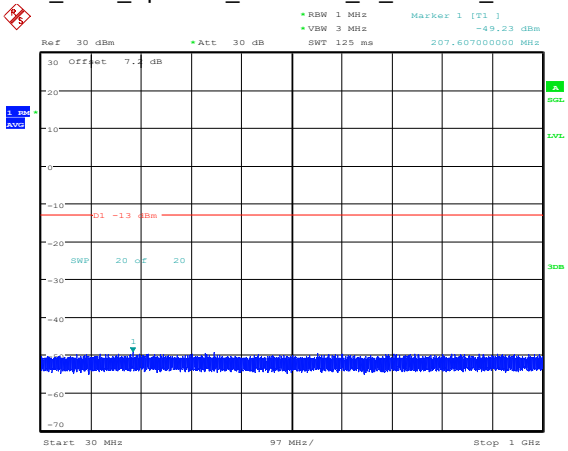
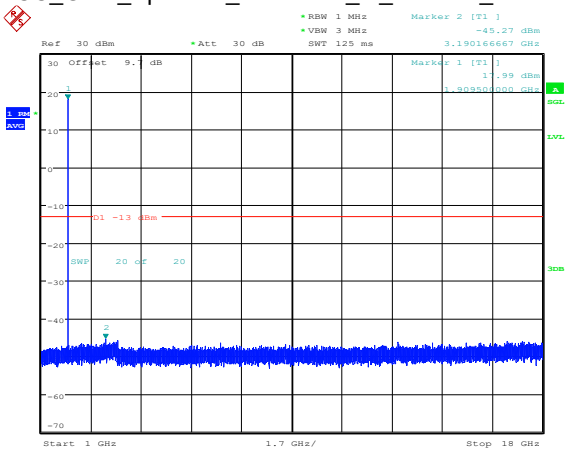
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:27:54

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@GPRS1900-810-1000~18000MHz

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



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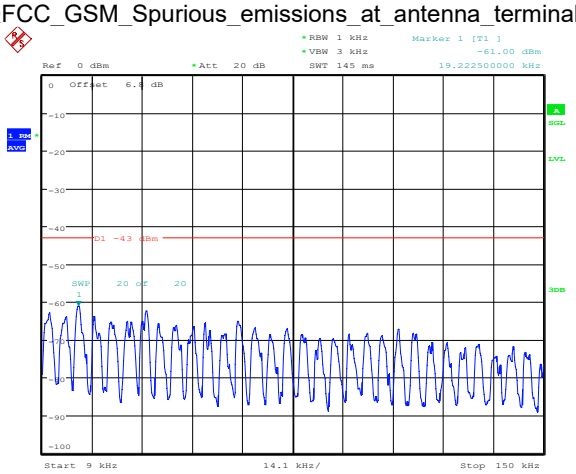
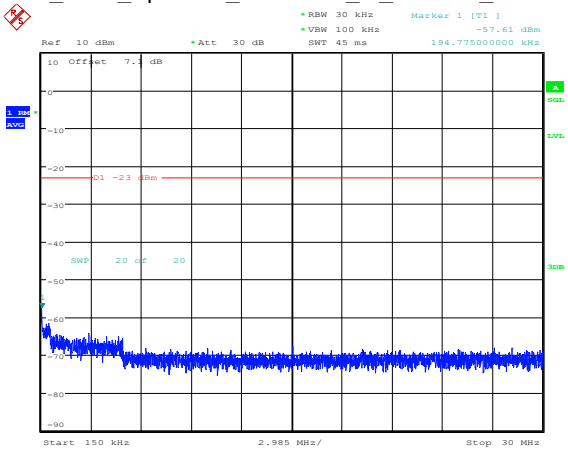
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



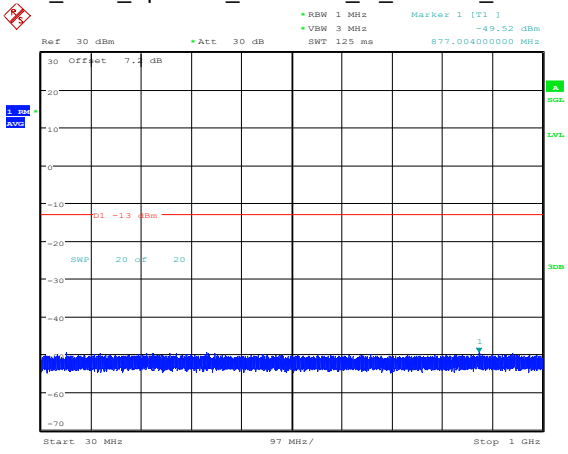
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS1900-512-0.15~30MHz

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@

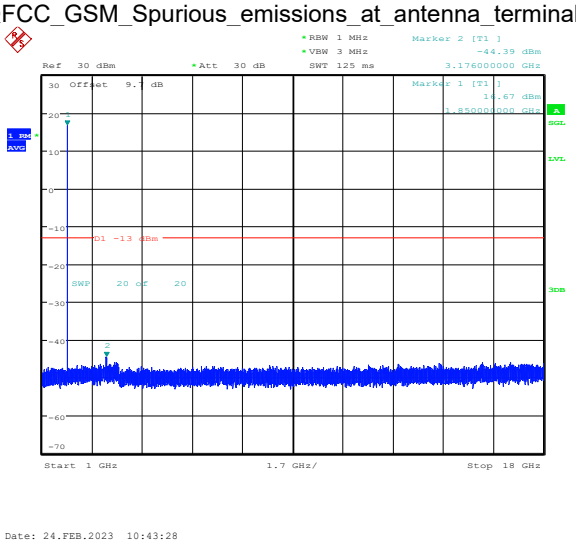


@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS1900-512-30~1000MHz

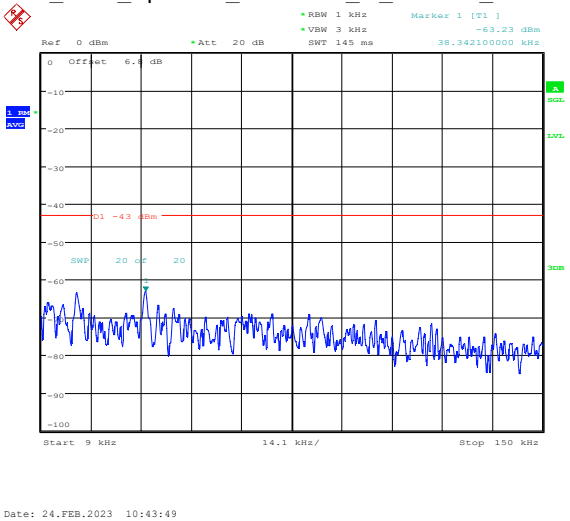
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



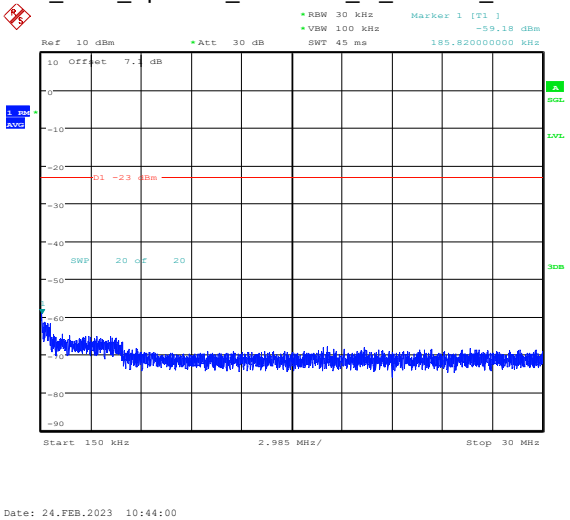
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS1900-512-1000~18000MHz
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS1900-661-0.009~0.15MHz
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@

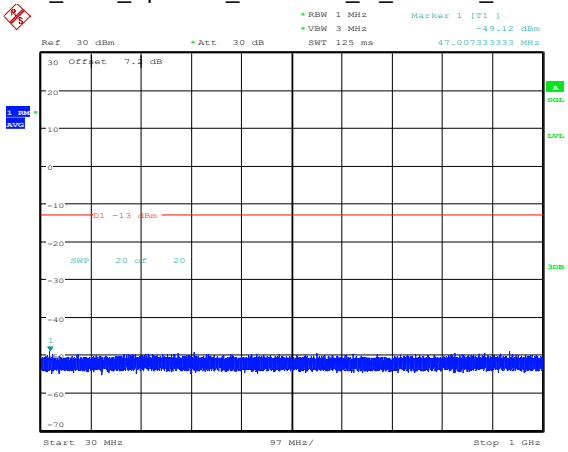


@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS1900-661-0.15~30MHz
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



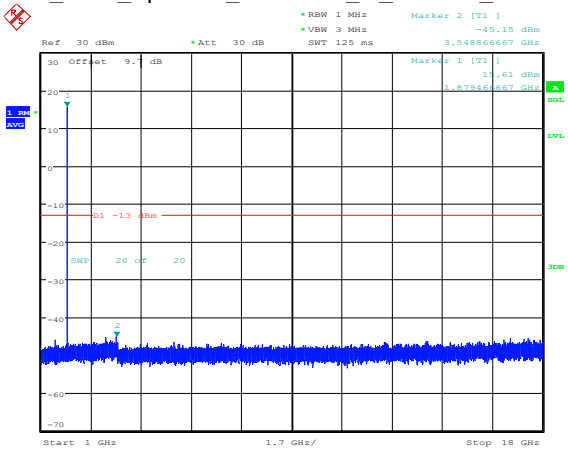
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS1900-661-30~1000MHz

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



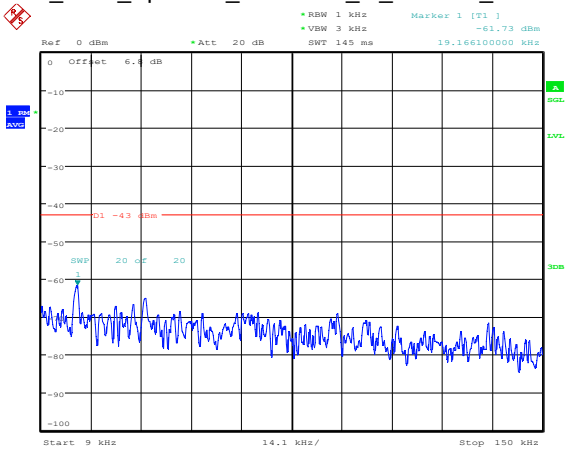
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS1900-661-1000~18000MHz

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



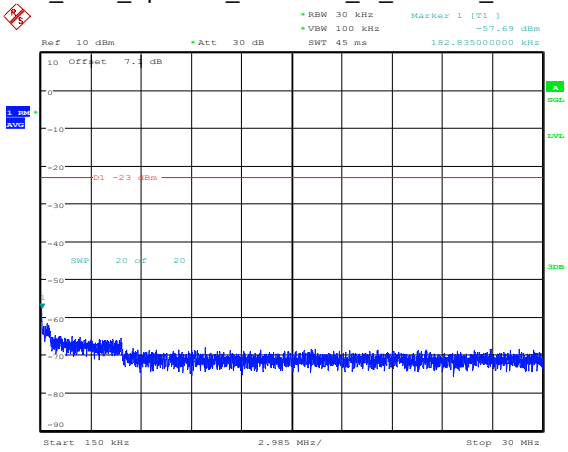
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS1900-810-0.009~0.15MHz

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS1900-810-0.15~30MHz

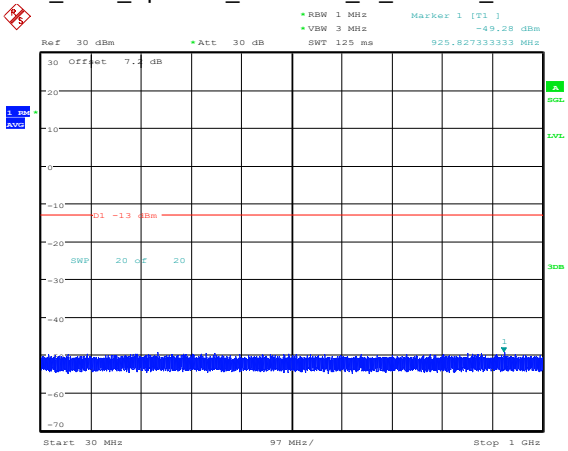
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:44:56

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS1900-810-30~1000MHz

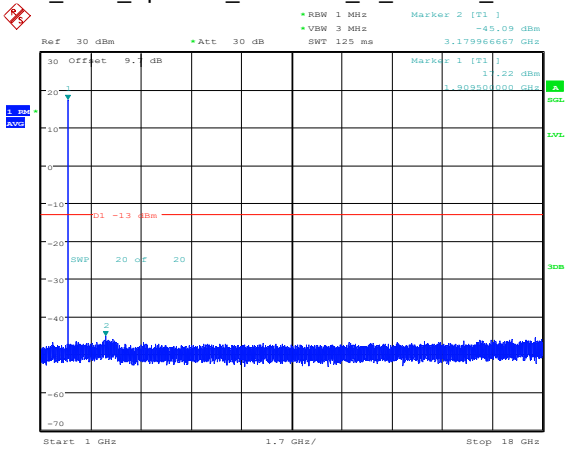
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



Date: 24.FEB.2023 10:45:07

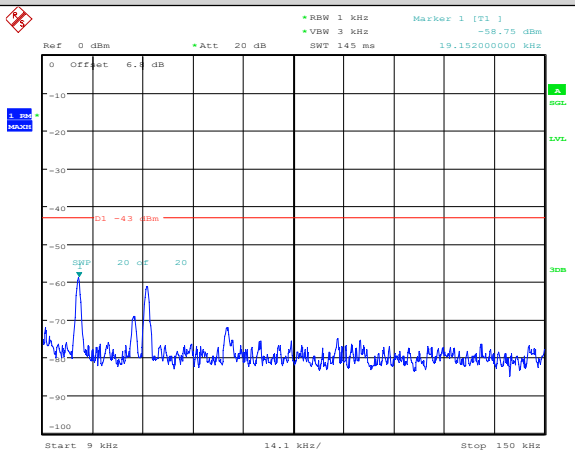
@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@EGPRS1900-810-1000~18000MHz

@FCC_GSM_Spurious_emissions_at_antenna_terminals_IMG@



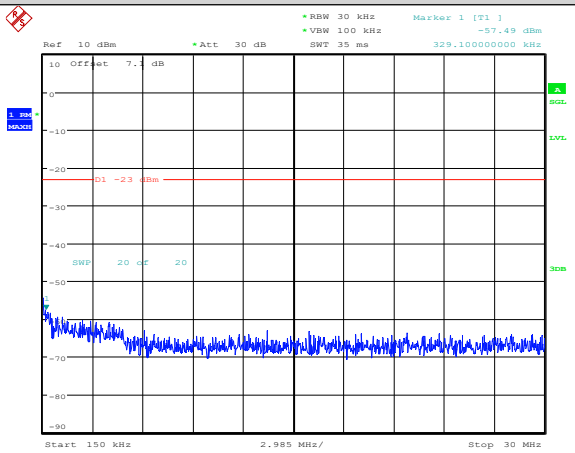
Date: 24.FEB.2023 10:45:21

Band2-9262-0.009~0.15MHz



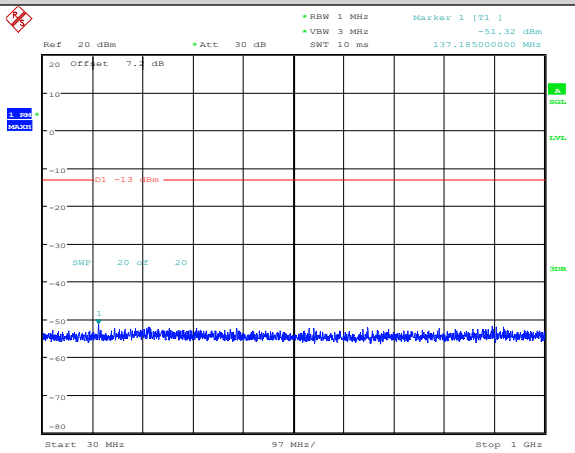
Date: 24.FEB.2023 10:55:25

Band2-9262-0.15~30MHz



Date: 24.FEB.2023 10:55:33

Band2-9262-30~1000MHz



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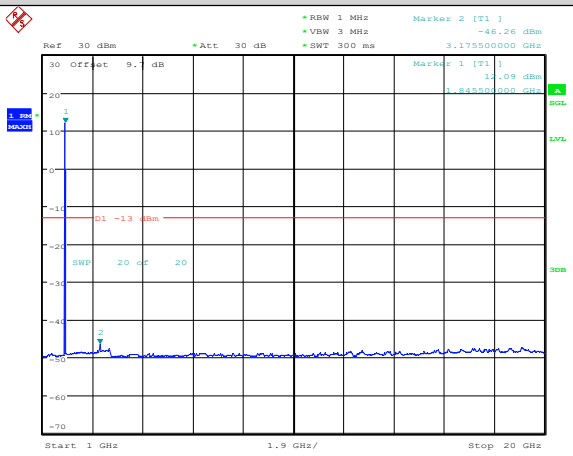
Band2-9262-1000~20000MHz



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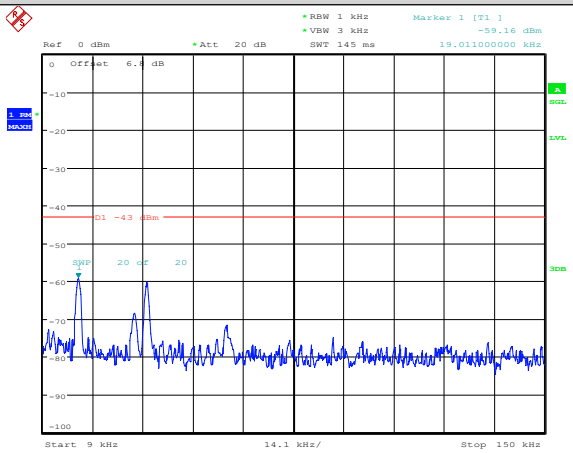
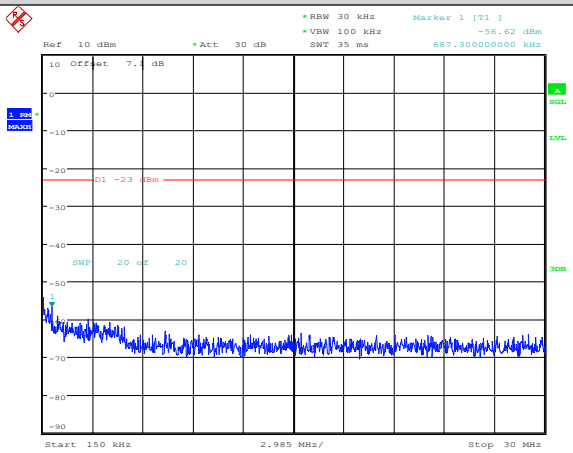
Band2-9400-0.009~0.15MHz



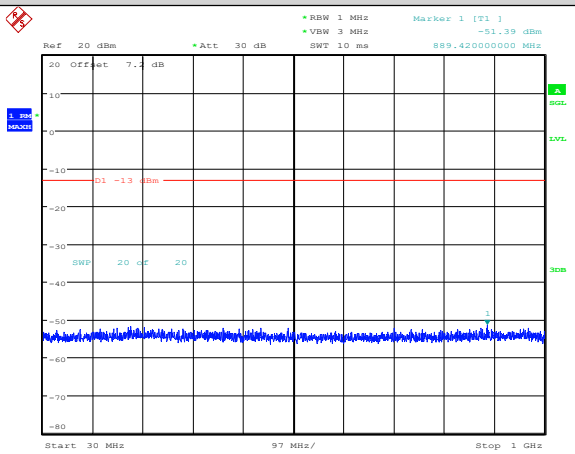
Date: 24.FEB.2023 10:56:09

Band2-9400-0.15~30MHz



Date: 24.FEB.2023 10:56:17

Band2-9400-30~1000MHz



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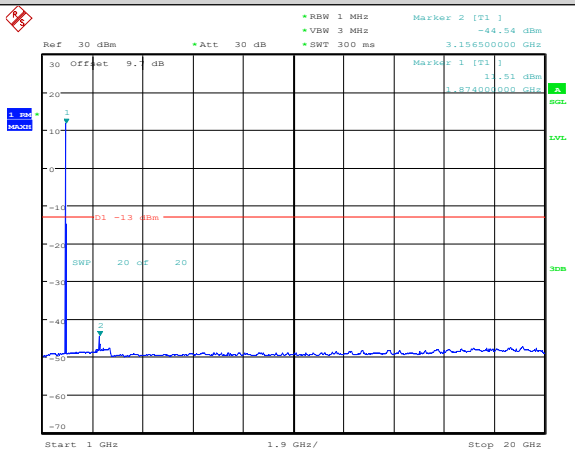
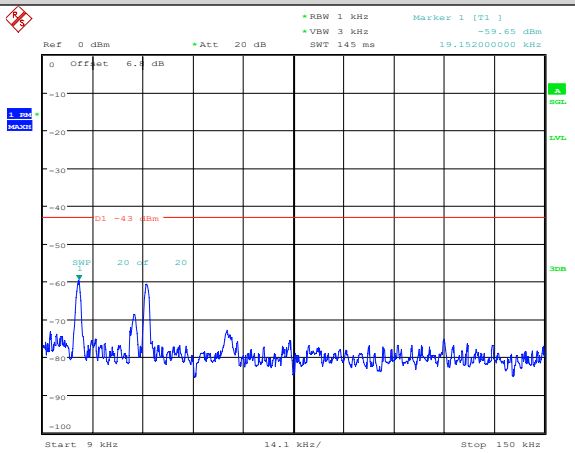
Band2-9400-1000~20000MHz



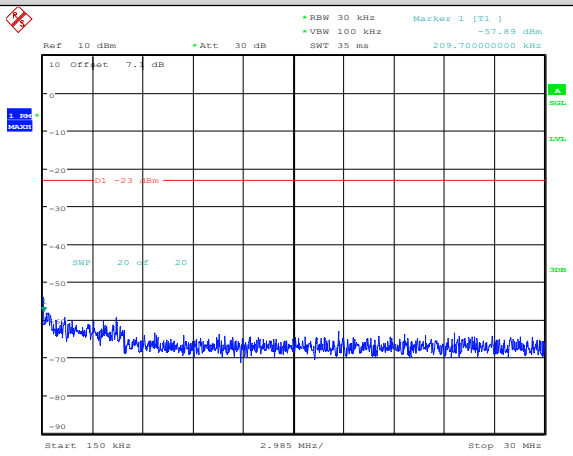
Date: 24.FEB.2023 10:56:37

Band2-9538-0.009~0.15MHz



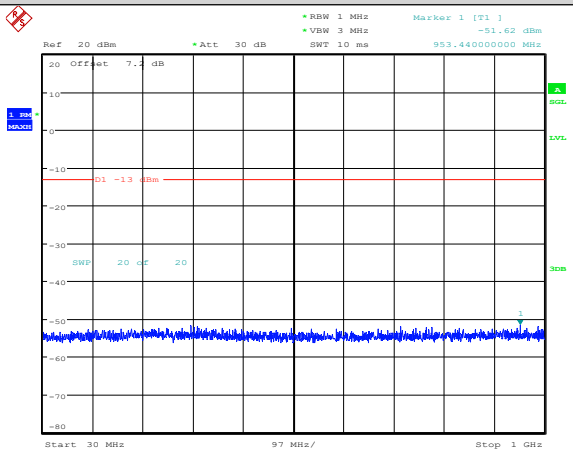
Date: 24.FEB.2023 10:56:54

Band2-9538-0.15~30MHz



Date: 24.FEB.2023 10:57:02

Band2-9538-30~1000MHz



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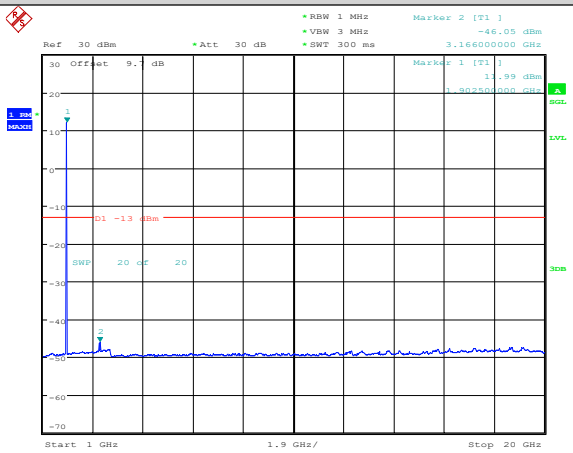
Band2-9538-1000~20000MHz



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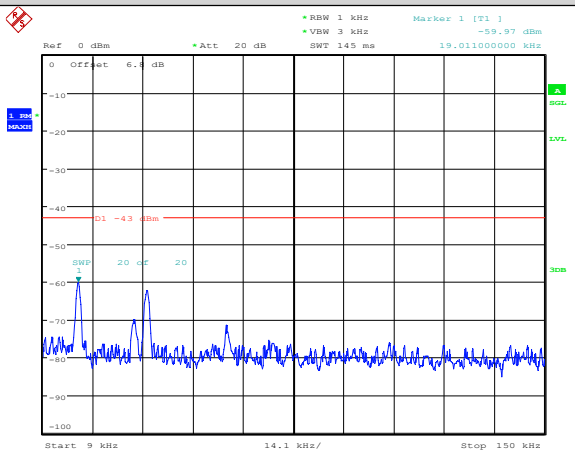
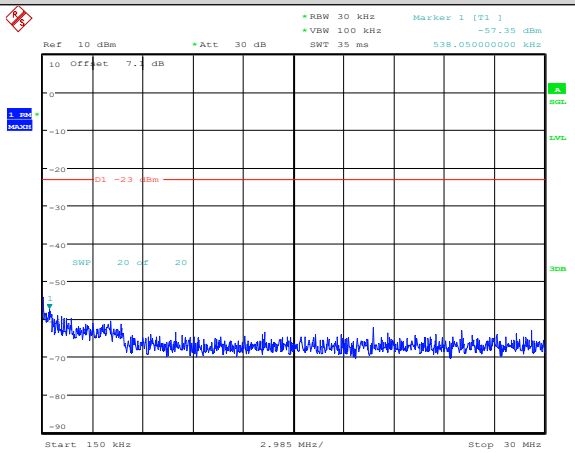
Band4-1312-0.009~0.15MHz



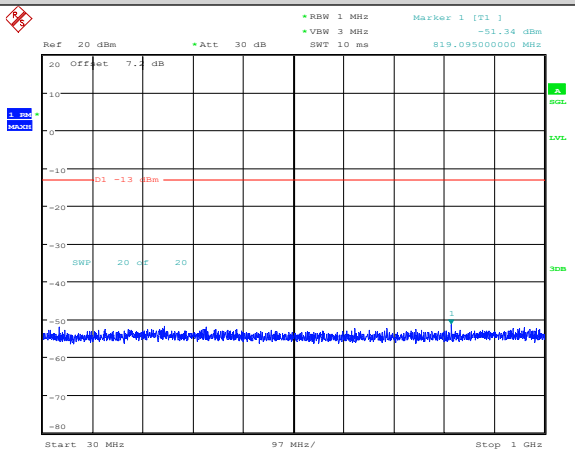
Date: 24.FEB.2023 15:25:05

Band4-1312-0.15~30MHz



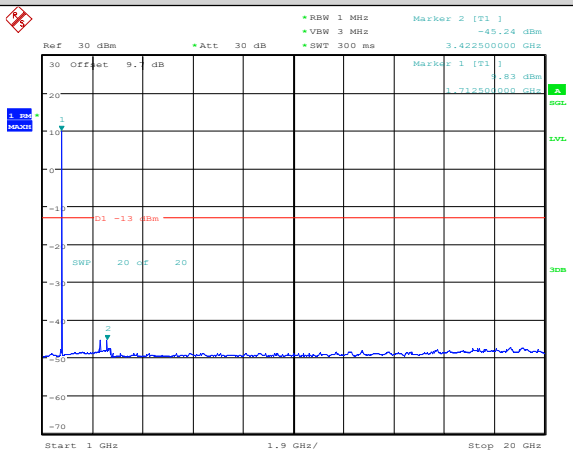
Date: 24.FEB.2023 15:25:13

Band4-1312-30~1000MHz



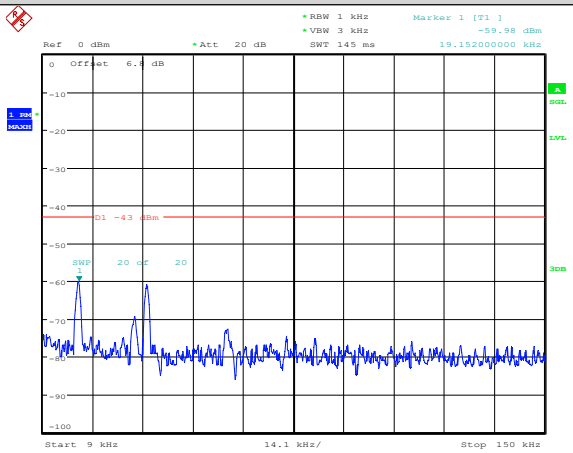
Date: 24.FEB.2023 15:25:19

Band4-1312-1000~20000MHz



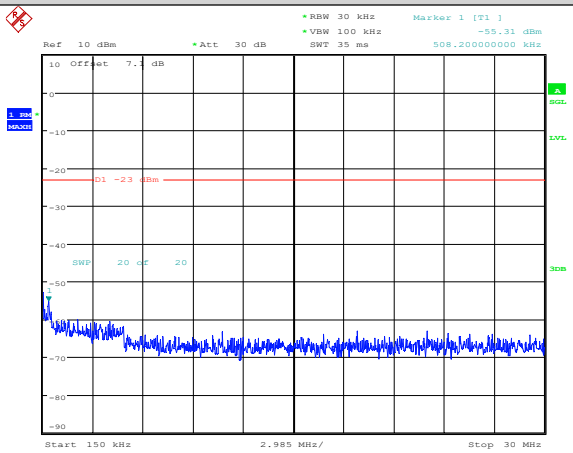
Date: 24.FEB.2023 15:25:34

Band4-1413-0.009~0.15MHz



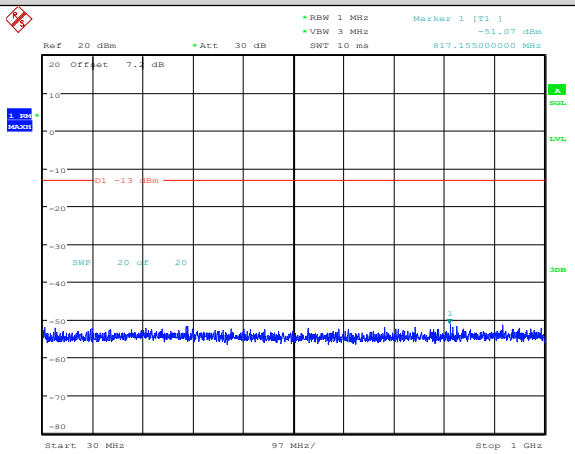
Date: 24.FEB.2023 15:25:50

Band4-1413-0.15~30MHz



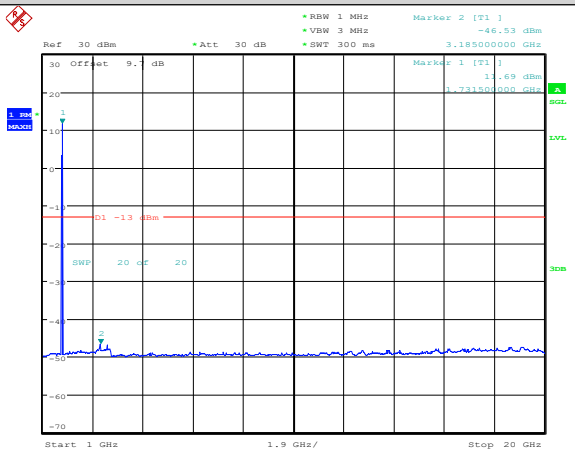
Date: 24.FEB.2023 15:25:58

Band4-1413-30~1000MHz



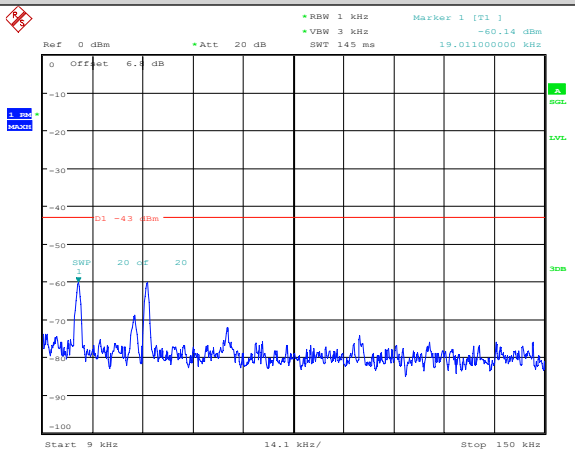
Date: 24.FEB.2023 15:26:03

Band4-1413-1000~20000MHz



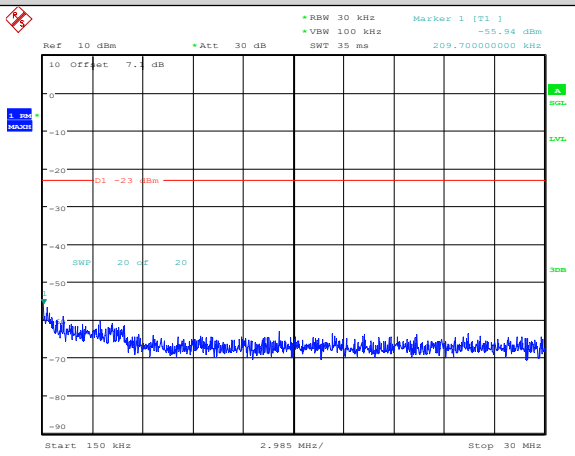
Date: 24.FEB.2023 15:26:18

Band4-1513-0.009~0.15MHz

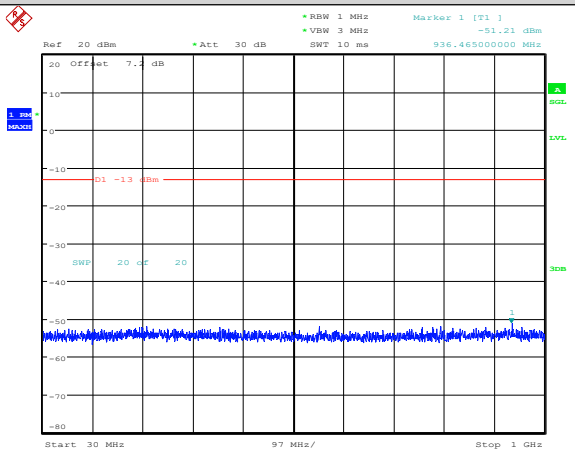


Date: 24.FEB.2023 15:26:34

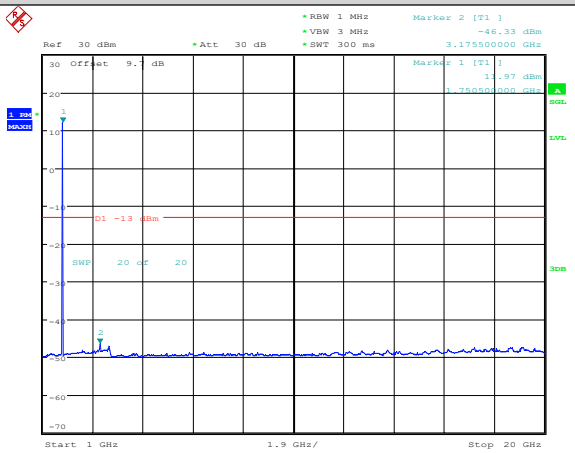
Band4-1513-0.15~30MHz



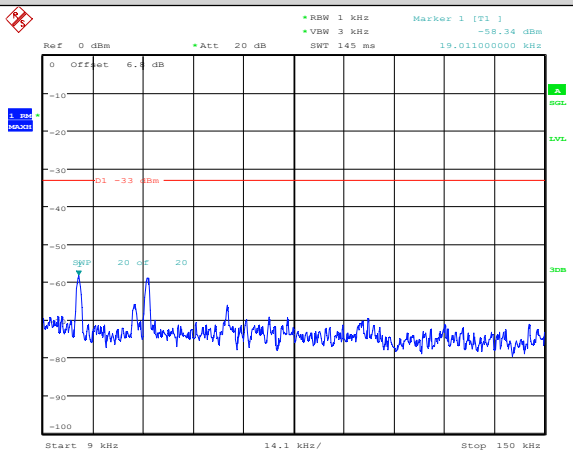
Band4-1513-30~1000MHz



Band4-1513-1000~20000MHz

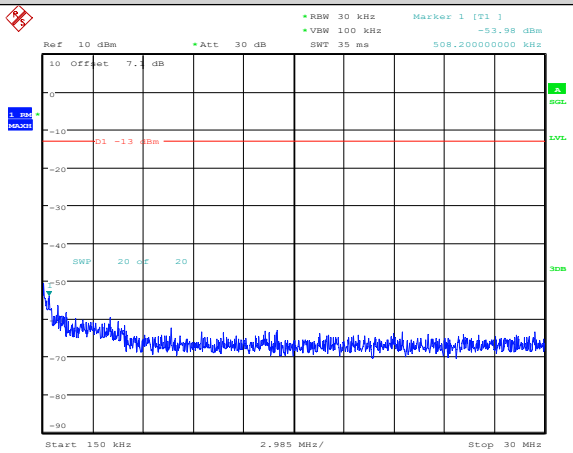


Band5-4132-0.009~0.15MHz



Date: 27.FEB.2023 11:15:23

Band5-4132-0.15~30MHz



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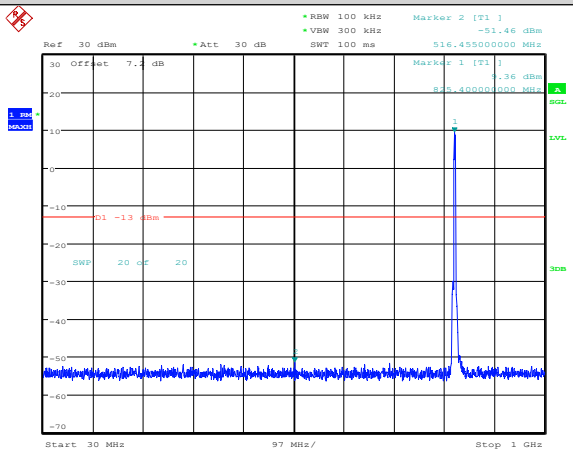
Band5-4132-30~1000MHz



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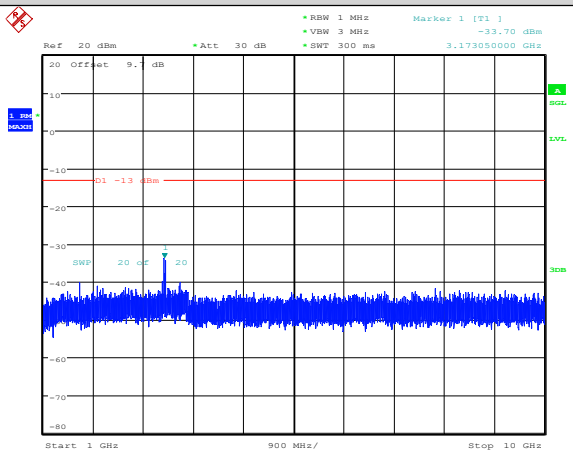
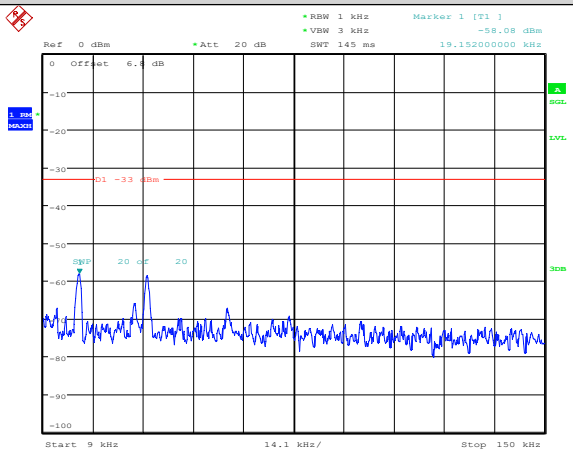
Band5-4132-1000~10000MHz



Date: 27.FEB.2023 11:15:59

Band5-4182-0.009~0.15MHz



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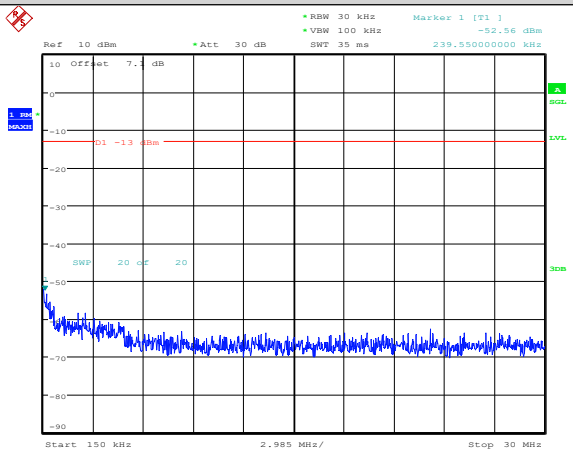
Band5-4182-0.15~30MHz



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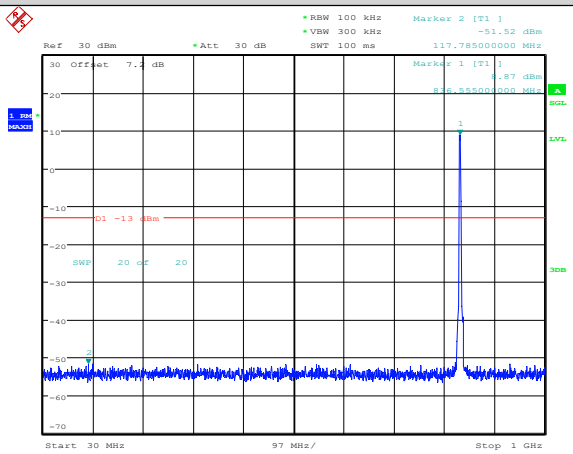
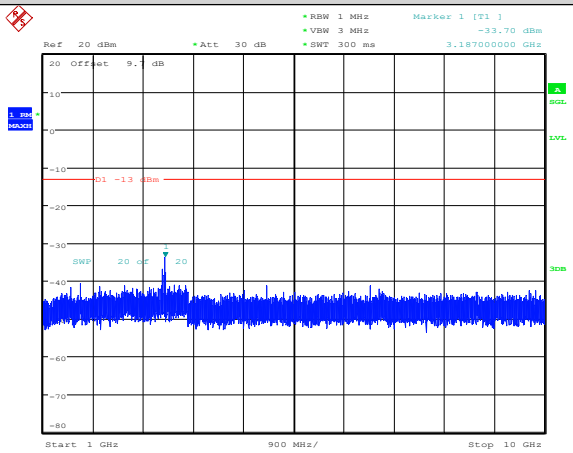
Band5-4182-30~1000MHz



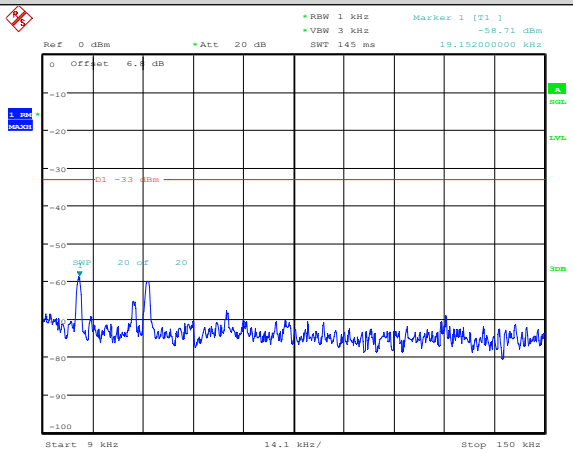
Date: 27.FEB.2023 11:16:35

Band5-4182-1000~10000MHz



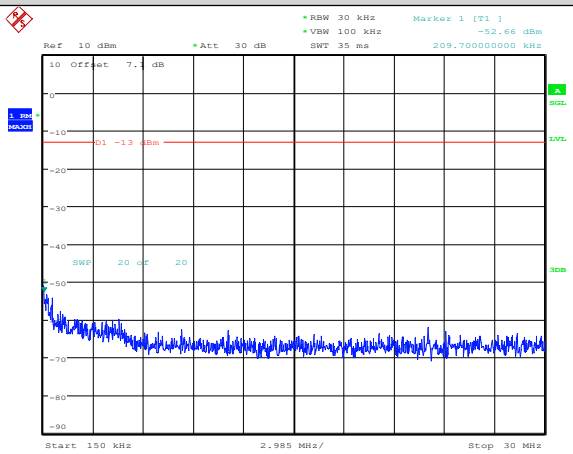
Date: 27.FEB.2023 11:16:53

Band5-4233-0.009~0.15MHz



Date: 27.FEB.2023 11:17:10

Band5-4233-0.15~30MHz



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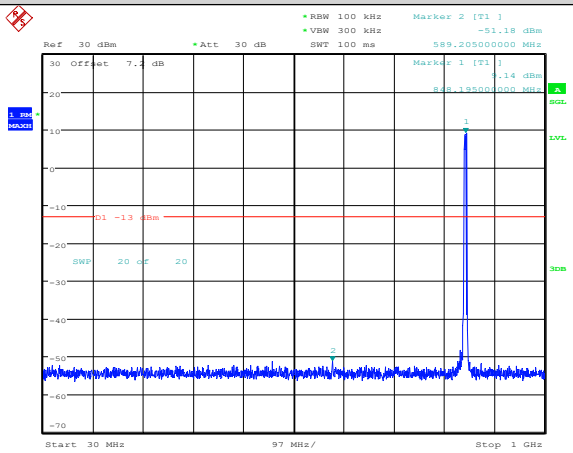
Band5-4233-30~1000MHz



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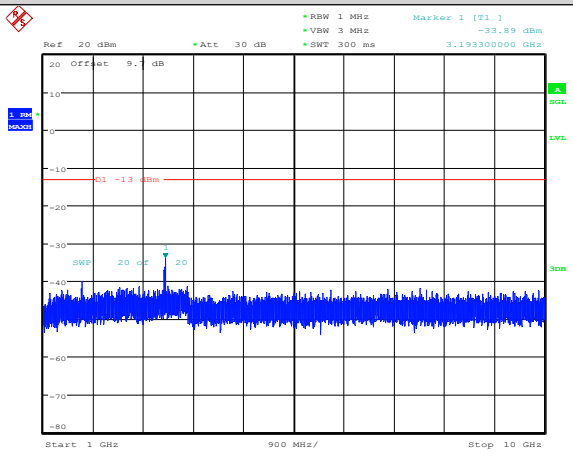
Band5-4233-1000~10000MHz



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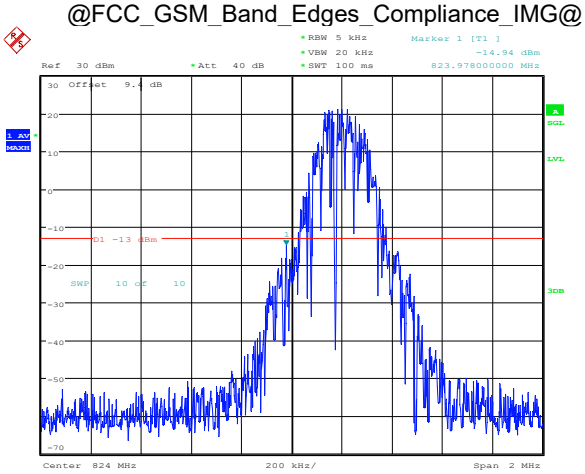
Band Edge:

@FCC_GSM_Band_Edges_Compliance_IMG@GSM850-128

@FCC_GSM_Band_Edges_Compliance_IMG@



Date: 24.FEB.2023 09:21:37

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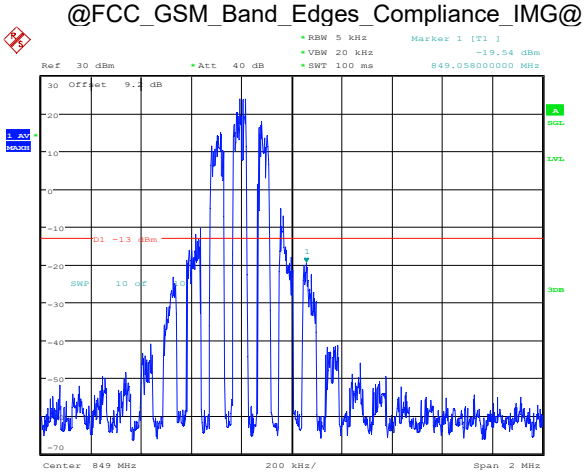

Date: 24.FEB.2023 09:21:41

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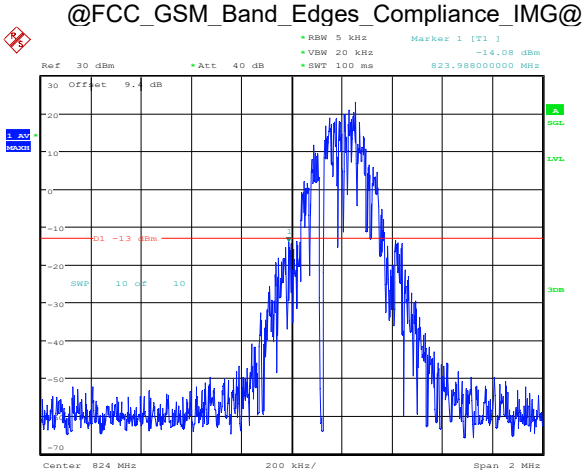

Date: 24.FEB.2023 09:38:28

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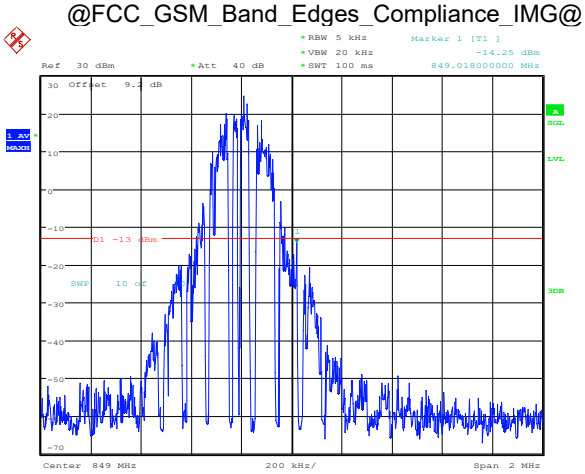

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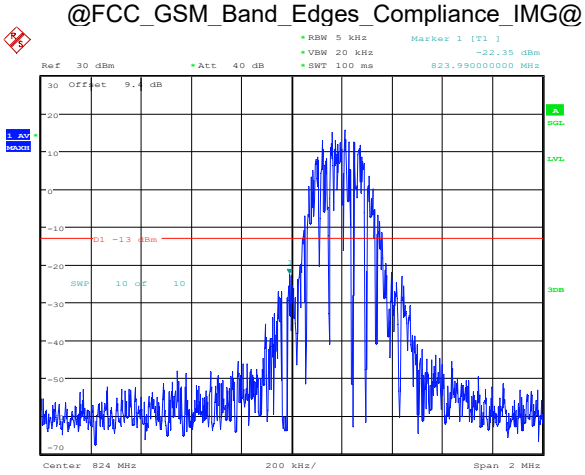

Date: 24.FEB.2023 09:55:41

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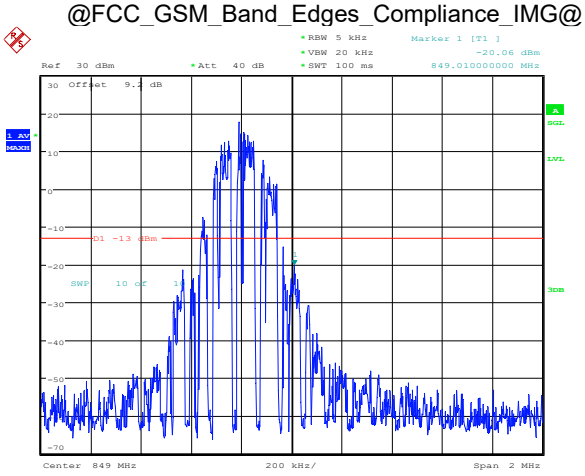
@FCC_GSM_Band_Edges_Compliance_IMG@



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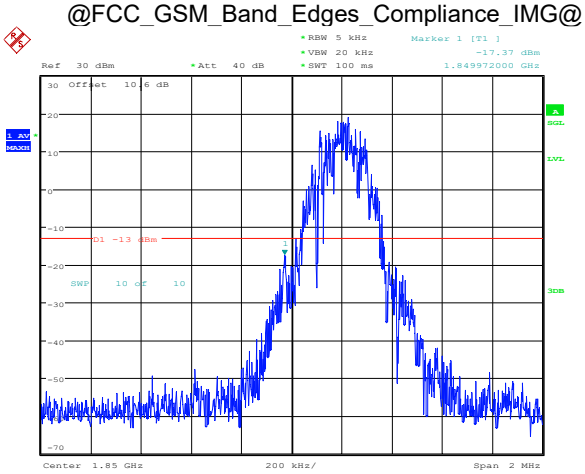

Date: 24.FEB.2023 10:07:57

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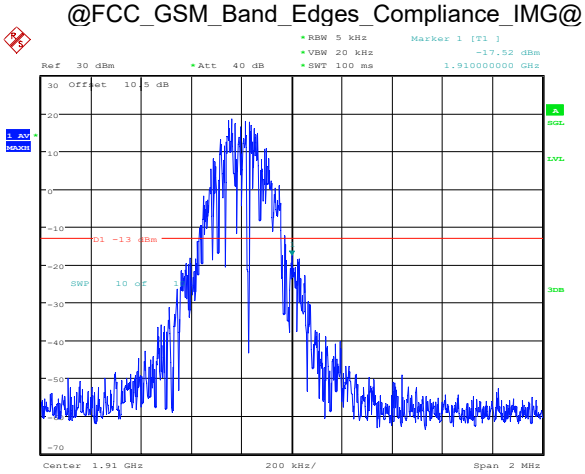

Date: 24.FEB.2023 10:08:02

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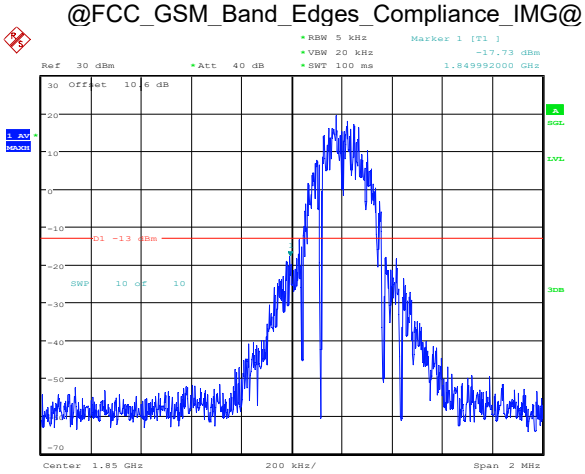
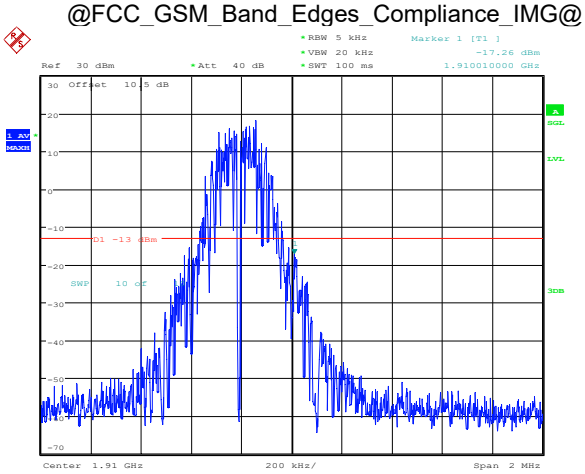


Date: 24.FEB.2023 10:24:52

@FCC_GSM_Band_Edges_Compliance_IMG@GPRS1900-810

@FCC_GSM_Band_Edges_Compliance_IMG@



Date: 24.FEB.2023 10:25:09

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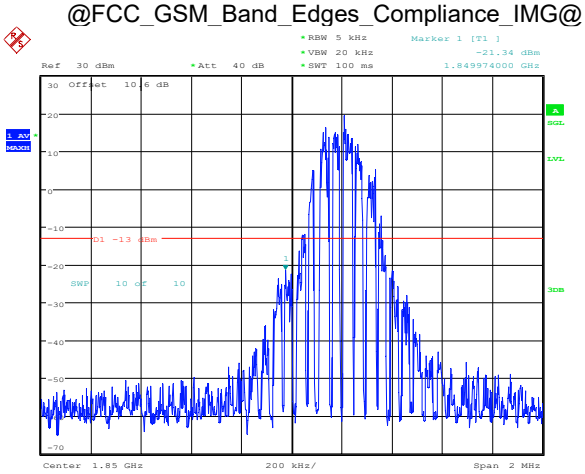
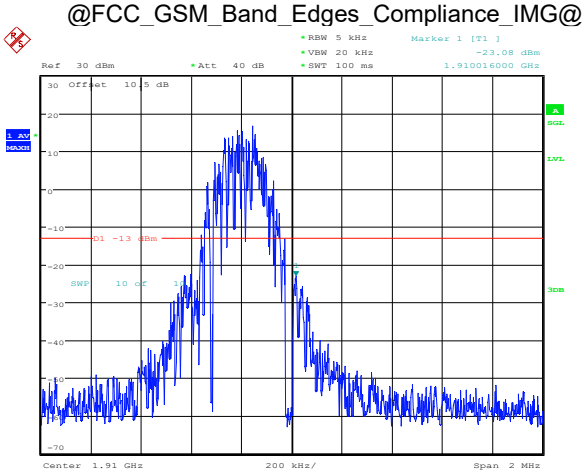
@FCC_GSM_Band_Edges_Compliance_IMG@



Date: 24.FEB.2023 10:42:05

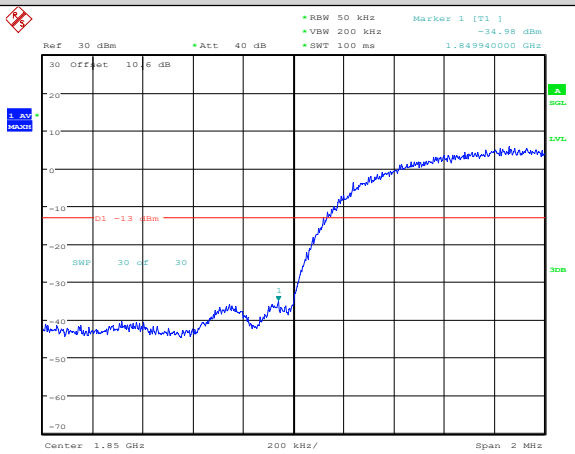
@FCC_GSM_Band_Edges_Compliance_IMG@EGPRS1900-810

@FCC_GSM_Band_Edges_Compliance_IMG@



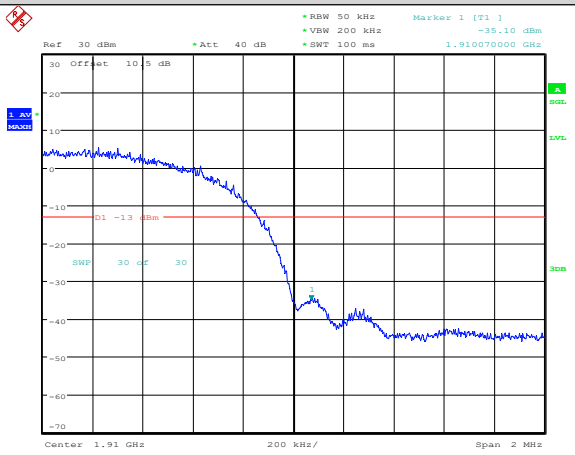
Date: 24.FEB.2023 10:42:21

Band2-9262



Date: 24.FEB.2023 10:54:45

Band2-9538



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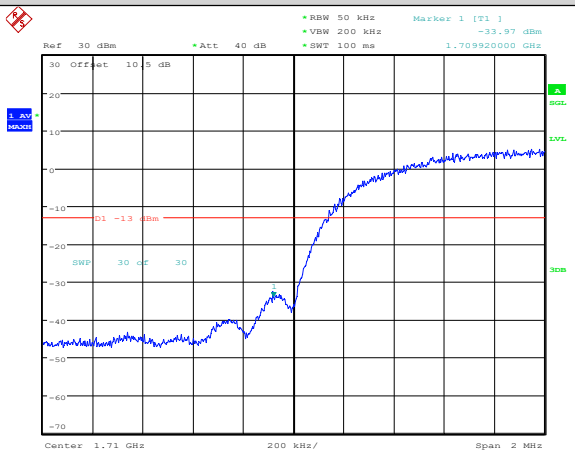
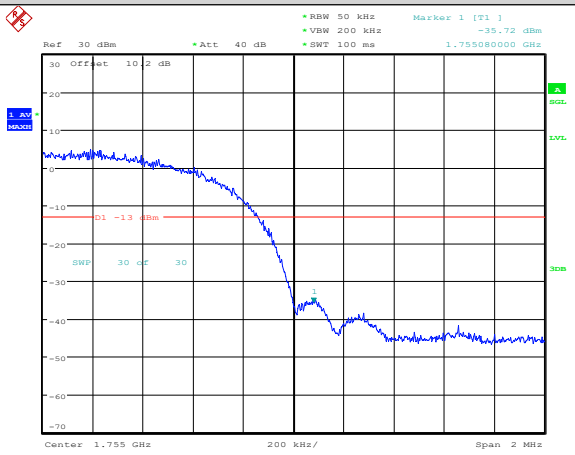
Band4-1312



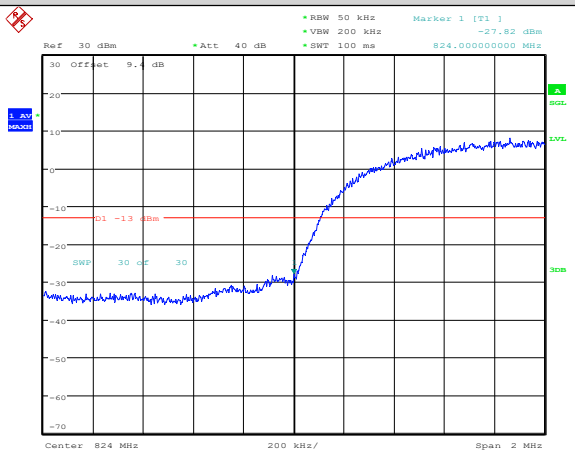
Date: 24.FEB.2023 15:24:25

Band4-1513



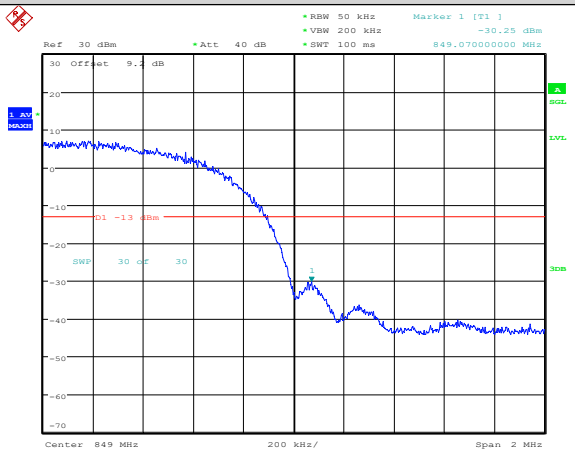
Date: 24.FEB.2023 15:24:35

Band5-4132



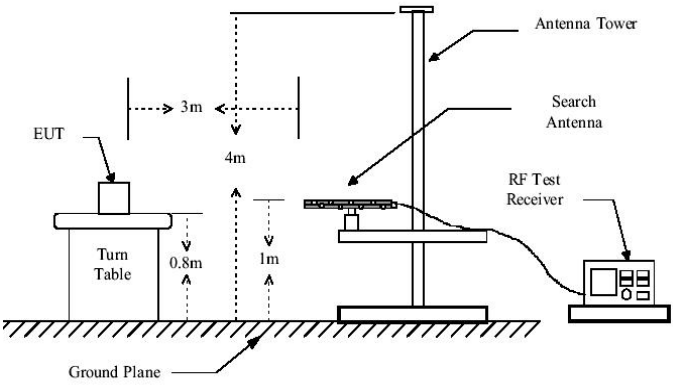
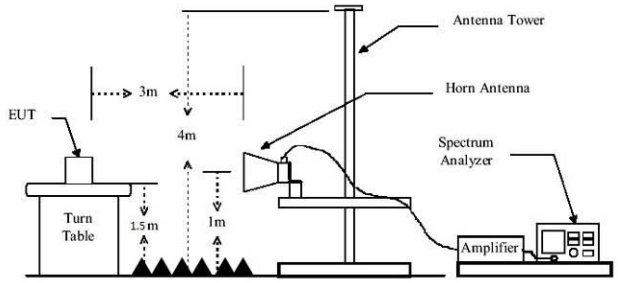
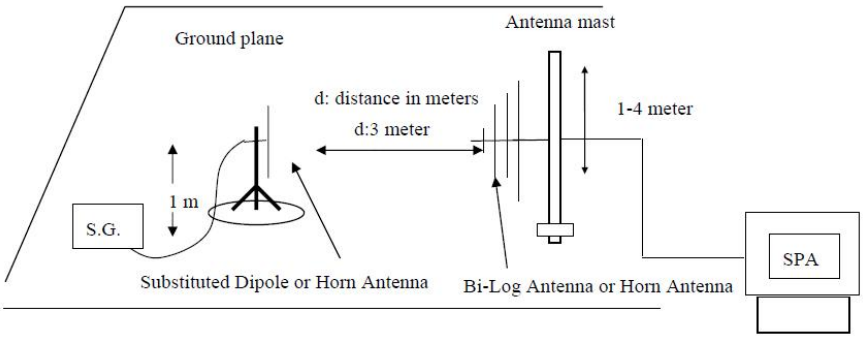
Date: 27.FEB.2023 11:14:41

Band5-4233



Date: 27.FEB.2023 11:14:51

4.8 ERP, EIRP Measurement

Test Requirement:	FCC part22.913(a) and FCC part24.232(b)
Test Method:	FCC part2.1046
Limit:	GSM850, WCDMA Band V: 7W PCS1900, WCDMA Band II: 2W WCDMA Band IV: 1W
Test setup:	Below 1GHz  Above 1GHz  Substituted method: 

Test Procedure:	1. The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. 2. During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated. 3. ERP in frequency band 824.2 –848.80.8MHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated asfollows: ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable Loss (dB) 4. EIRP in frequency band 1850.2 –1909.8MHz were measured using a substitution method. The EUT was replaced by or horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows: EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable Loss (dB)
Test Instruments:	Refer to section 5.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

Measurement Data

EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
GSM850 (GSM link)	Lowest	H	V	34.90	38.45	Pass
			H	32.11		
		E1	V	34.29		
			H	29.94		
		E2	V	33.97		
			H	30.37		
	Middle	H	V	35.14	38.45	Pass
			H	32.20		
		E1	V	34.50		
			H	30.59		
		E2	V	34.25		
			H	30.27		
	Highest	H	V	34.50	38.45	Pass
			H	32.27		
		E1	V	34.71		
			H	30.20		
		E2	V	33.99		
			H	30.07		

EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
GSM850 (GPRS 1 link)	Lowest	H	V	34.84	38.45	Pass
			H	32.21		
		E1	V	34.40		
			H	30.02		
		E2	V	33.90		
			H	30.28		
	Middle	H	V	34.95	38.45	Pass
			H	32.11		
		E1	V	34.50		
			H	30.41		
		E2	V	34.23		
			H	30.43		
	Highest	H	V	34.36	38.45	Pass
			H	32.23		
		E1	V	34.69		
			H	30.07		
		E2	V	33.81		
			H	30.01		

EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
GSM850 (EGPRS 1 link)	Lowest	H	V		38.45	Pass
			H	31.98		
		E1	V	34.40		
			H	29.89		
		E2	V	33.91		
			H	30.36		
	Middle	H	V	34.92	38.45	Pass
			H	32.16		
		E1	V	34.39		
			H	30.52		
		E2	V	34.17		
			H	30.37		
	Highest	H	V	34.44	38.45	Pass
			H	32.19		
		E1	V	34.86		
			H	30.24		
		E2	V	33.92		
			H	29.97		

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP (dBm)	Limit (dBm)	Result
PCS1900 (GSM link)	Lowest	H	V	31.45	33.01	Pass
			H	27.63		
		E1	V	30.63		
			H	28.53		
		E2	V	30.35		
			H	28.50		
	Middle	H	V	31.10	33.01	Pass
			H	27.79		
		E1	V	30.56		
			H	28.16		
		E2	V	31.82		
			H	27.84		
	Highest	H	V	30.50	33.01	Pass
			H	27.85		
		E1	V	31.71		
			H	28.29		
		E2	V	30.80		
			H	28.07		

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP (dBm)	Limit (dBm)	Result
PCS1900 (GPRS 1 link)	Lowest	H	V	31.55	33.01	Pass
			H	27.62		
		E1	V	30.55		
			H	28.39		
		E2	V	30.32		
			H	28.49		
	Middle	H	V	30.98	33.01	Pass
			H	27.74		
		E1	V	30.57		
			H	28.11		
		E2	V	31.78		
			H	27.83		
	Highest	H	V	30.73	33.01	Pass
			H	27.67		
		E1	V	31.73		
			H	28.19		
		E2	V	30.69		
			H	28.24		

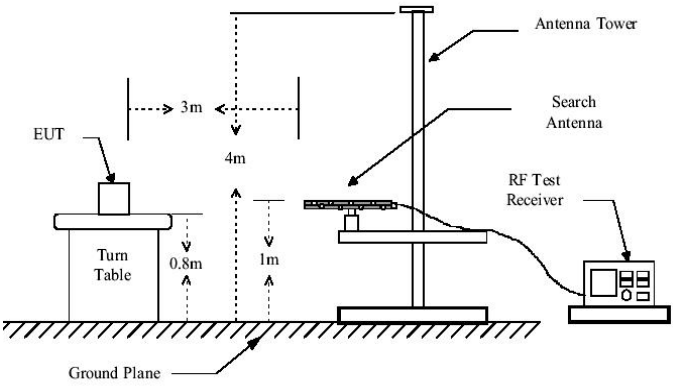
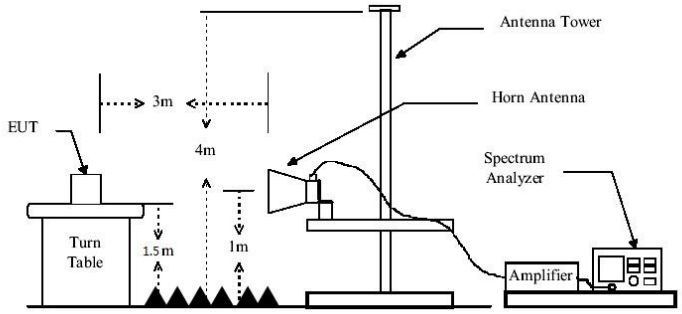
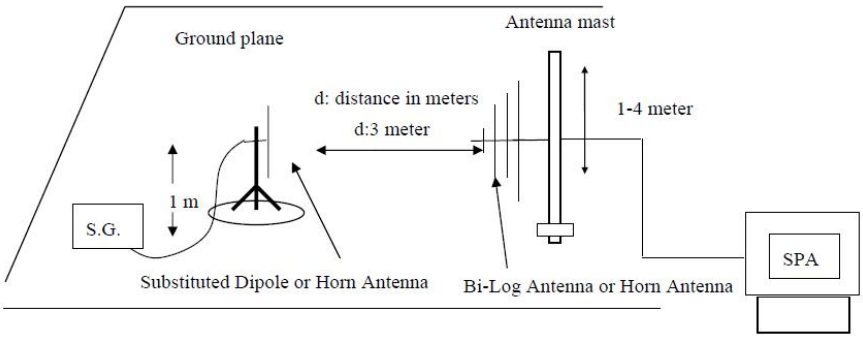
EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP (dBm)	Limit (dBm)	Result
PCS1900 (EGPRS 1 link)	Lowest	H	V	31.60	33.01	Pass
			H	27.79		
		E1	V	30.66		
			H	28.38		
		E2	V	30.37		
			H	28.38		
	Middle	H	V	31.16	33.01	Pass
			H	27.84		
		E1	V	30.63		
			H	27.96		
		E2	V	31.78		
			H	27.77		
	Highest	H	V	30.63	33.01	Pass
			H	27.69		
		E1	V	31.86		
			H	28.18		
		E2	V	30.67		
			H	28.17		

EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
WCDMA Band V	Lowest	H	V	24.19	38.45	Pass
			H	22.80		
		E1	V	24.29		
			H	23.08		
		E2	V	24.64		
			H	23.54		
	Middle	H	V	24.04	38.45	Pass
			H	23.49		
		E1	V	24.83		
			H	23.50		
		E2	V	24.40		
			H	23.39		
	Highest	H	V	24.46	38.45	Pass
			H	23.14		
		E1	V	24.60		
			H	23.12		
		E2	V	24.01		
			H	23.84		

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
WCDMA Band II	Lowest	H	V	24.13	33.01	Pass
			H	22.89		
		E1	V	24.23		
			H	22.98		
		E2	V	24.53		
			H	23.70		
	Middle	H	V	24.22	33.01	Pass
			H	23.60		
		E1	V	24.97		
			H	23.42		
		E2	V	24.52		
			H	23.48		
	Highest	H	V	24.49	33.01	Pass
			H	23.13		
		E1	V	24.56		
			H	23.15		
		E2	V	23.95		
			H	23.84		

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
WCDMA Band IV	Lowest	H	V	24.16	33.01	Pass
			H	22.81		
		E1	V	24.24		
			H	22.94		
		E2	V	24.54		
			H	23.55		
	Middle	H	V	24.09	33.01	Pass
			H	23.39		
		E1	V	24.76		
			H	23.52		
		E2	V	24.40		
			H	23.50		
	Highest	H	V	24.46	33.01	Pass
			H	23.07		
		E1	V	24.55		
			H	23.26		
		E2	V	24.03		
			H	23.80		

4.9 Field strength of spurious radiation measurement

Test Requirement:	FCC part22.917(a) and FCC part24.238(a)
Test Method:	FCC part2.1053
Limit:	-13dBm
Test setup:	Below 1GHz  Above 1GHz  Substituted method: 

Test Procedure:	1. The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. 2. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations. 3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method. 4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency. ERP / EIRP = S.G. output (dBm) + Antenna Gain(dB/dBi) – Cable Loss (dB)
Test Instruments:	Refer to section 5.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

Measurement Data

Test mode:	GSM850		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1648.40	Vertical	-36.90	-13.00	Pass
2472.60	V	-39.39		
3296.80	V	-38.21		
4121.00	V	-43.65		
4945.20	V	---		
1648.40	Horizontal	-38.85	-13.00	Pass
2472.60	H	-42.84		
3296.80	H	-45.08		
4121.00	H	-46.31		
4945.20	H	---		
Test mode:	GSM850		Test channel:	Middle
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1673.20	Vertical	-36.51	-13.00	Pass
2509.80	V	-39.38		
3346.40	V	-38.47		
4183.00	V	-43.08		
5019.60	V	---		
1673.20	Horizontal	-39.30	-13.00	Pass
2509.80	H	-42.98		
3346.40	H	-44.58		
4183.00	H	-45.53		
5019.60	H	---		
Test mode:	GSM850		Test channel:	Highest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1697.60	Vertical	-37.00	-13.00	Pass
2546.40	V	-39.06		
3395.20	V	-37.99		
4244.00	V	-43.42		
5092.80	V	---		
1697.60	Horizontal	-39.11	-13.00	Pass
2546.40	H	-42.39		
3395.20	H	-44.92		
4244.00	H	-45.64		
5092.80	H	---		

Remark：

1. The emission behaviour belongs to narrowband spurious emission.
2. Remark”---“ means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

Test mode:	PCS1900		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3700.40	Vertical	-36.70	-13.00	Pass
5550.60	V	-39.09		
7400.80	V	-37.52		
9251.00	V	-43.56		
11101.20	V	---		
3700.40	Horizontal	-39.58	-13.00	Pass
5550.60	H	-43.00		
7400.80	H	-44.62		
9251.00	H	-46.09		
11101.20	H	---		
Test mode:	PCS1900		Test channel:	Middle
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3760.00	Vertical	-37.27	-13.00	Pass
5640.00	V	-39.46		
7520.00	V	-38.32		
9400.00	V	-43.25		
11280.00	V	---		
3760.00	Horizontal	-39.19	-13.00	Pass
5640.00	H	-42.32		
7520.00	H	-44.37		
9400.00	H	-45.97		
11280.00	H	---		
Test mode:	PCS1900		Test channel:	Highest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3819.60	Vertical	-36.94	-13.00	Pass
5729.40	V	-39.90		
7639.20	V	-37.77		
9549.00	V	-43.78		
11458.80	V	---		
3819.60	Horizontal	-39.43	-13.00	Pass
5729.40	H	-42.68		
7639.20	H	-44.38		
9549.00	H	-45.67		
11458.80	H	---		

Remark：

1. The emission behaviour belongs to narrowband spurious emission.
2. Remark”---“ means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

Test mode:	WCDMA Band V		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1652.80	Vertical	-36.73	-13.00	Pass
2479.20	V	-39.94		
3305.60	V	-37.51		
4132.00	V	-42.81		
4958.40	V	---		
1652.80	Horizontal	-38.61	-13.00	Pass
2479.20	H	-42.73		
3305.60	H	-45.10		
4132.00	H	-45.67		
4958.40	H	---		
Test mode:	WCDMA Band V		Test channel:	Middle
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1672.80	Vertical	-37.08	-13.00	Pass
2509.20	V	-39.93		
3345.60	V	-37.58		
4182.00	V	-43.29		
5018.40	V	---		
1672.80	Horizontal	-39.30	-13.00	Pass
2509.20	H	-42.85		
3345.60	H	-45.12		
4182.00	H	-45.54		
5018.40	H	---		
Test mode:	WCDMA Band V		Test channel:	Highest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1693.20	Vertical	-36.91	-13.00	Pass
2539.80	V	-39.51		
3386.40	V	-38.14		
4233.00	V	-43.60		
5079.60	V	---		
1693.20	Horizontal	-38.61	-13.00	Pass
2539.80	H	-42.78		
3386.40	H	-44.62		
4233.00	H	-46.25		
5079.60	H	---		

Remark：

1. The emission behaviour belongs to narrowband spurious emission.
2. Remark”---“ means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

Test mode:	WCDMA Band II		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3704.80	Vertical	-37.19	-13.00	Pass
5557.20	V	-39.03		
7409.60	V	-37.67		
9262.00	V	-43.53		
11114.40	V	---		
3704.80	Horizontal	-38.75	-13.00	Pass
5557.20	H	-42.85		
7409.60	H	-44.84		
9262.00	H	-45.85		
11114.40	H	---		
Test mode:	WCDMA Band II		Test channel:	Middle
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3760.00	Vertical	-37.14	-13.00	Pass
5640.00	V	-39.95		
7520.00	V	-38.32		
9400.00	V	-42.83		
11280.00	V	---		
3760.00	Horizontal	-38.95	-13.00	Pass
5640.00	H	-42.67		
7520.00	H	-45.08		
9400.00	H	-45.74		
11280.00	H	---		
Test mode:	WCDMA Band II		Test channel:	Highest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3815.20	Vertical	-37.13	-13.00	Pass
5722.80	V	-39.57		
7630.40	V	-38.46		
9538.00	V	-43.47		
11445.60	V	---		
3815.20	Horizontal	-39.54	-13.00	Pass
5722.80	H	-42.28		
7630.40	H	-45.22		
9538.00	H	-45.93		
11445.60	H	---		

Remark：

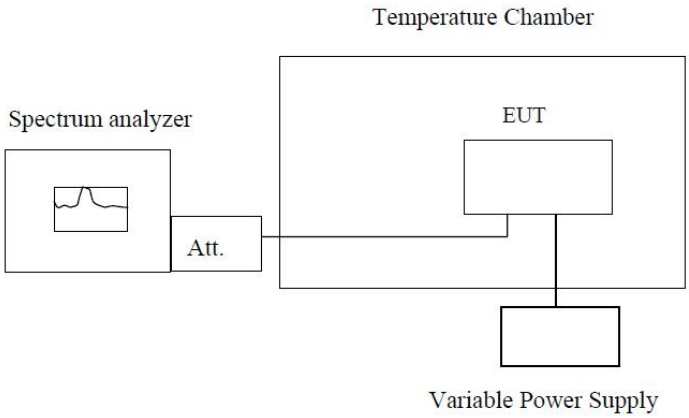
1. The emission behaviour belongs to narrowband spurious emission.
2. Remark"---" means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

Test mode:	WCDMA Band IV		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3424.8	Vertical	-36.68	-13.00	Pass
5137.2	V	-39.58		
10274.4	V	-37.70		
15411.6	V	-43.73		
30823.2	V	---		
3424.8	Horizontal	-38.88	-13.00	Pass
5137.2	H	-42.60		
10274.4	H	-44.42		
15411.6	H	-45.74		
30823.2	H	---		
Test mode:	WCDMA Band IV		Test channel:	Middle
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3480	Vertical	-36.61	-13.00	Pass
5220	V	-39.44		
10440	V	-37.64		
15660	V	-43.14		
31320	V	---		
3480	Horizontal	-39.17	-13.00	Pass
5220	H	-42.70		
10440	H	-45.09		
15660	H	-46.29		
31320	H	---		
Test mode:	WCDMA Band IV		Test channel:	Highest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3505.2	Vertical	-36.43	-13.00	Pass
5257.8	V	-39.58		
10515.6	V	-38.29		
15773.4	V	-43.55		
31546.8	V	---		
3505.2	Horizontal	-39.38	-13.00	Pass
5257.8	H	-42.20		
10515.6	H	-44.84		
15773.4	H	-46.40		
31546.8	H	---		

Remark：

1. The emission behaviour belongs to narrowband spurious emission.
2. Remark”---“ means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

4.10 Frequency stability V.S. Temperature measurement

Test Requirement:	FCC Part2.1055(a)(1)(b)
Test Method:	FCC Part2.1055(a)(1)(b)
Limit:	2.5ppm
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test procedure:	1. The equipment under test was connected to an external DC power supply and input rated voltage. 2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to –20°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.
Test Instruments:	Refer to section 5.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

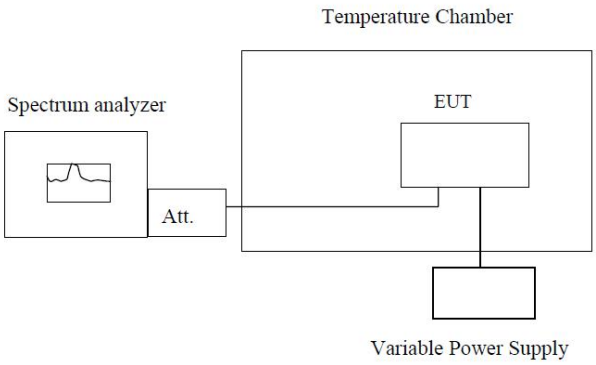
Measurement Data

Reference Frequency: GSM850 (GSM link) Middle channel=190 channel=836.6MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.7	-20℃	9	0.0109	2.5	Pass
	-10℃	13	0.0161		
	-5℃	13	0.0158		
	0℃	12	0.0139		
	+10℃	13	0.0155		
	+20℃	11	0.0131		
	+30℃	10	0.0121		
	+40℃	10	0.0118		
	+50℃	12	0.0149		
Reference Frequency: GSM850 (GPRS 1 link) Middle channel=190 channel=836.6MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.7	-20℃	9	0.0109	2.5	Pass
	-10℃	14	0.0168		
	-5℃	16	0.0193		
	0℃	10	0.0114		
	+10℃	16	0.0191		
	+20℃	12	0.0145		
	+30℃	14	0.0165		
	+40℃	11	0.0133		
	+50℃	8	0.0095		
Reference Frequency: GSM850 (EGPRS 1 link) Middle channel=190 channel=836.6MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.7	-20℃	12	0.0139	2.5	Pass
	-10℃	11	0.0127		
	-5℃	12	0.0148		
	0℃	11	0.0133		
	+10℃	15	0.0185		
	+20℃	14	0.0165		
	+30℃	11	0.0129		
	+40℃	10	0.0118		
	+50℃	11	0.0136		

Reference Frequency: PCS1900 (GSM link) Middle channel=661 channel=1880MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error			Result
		Hz	ppm		
3.7	-20℃	11	0.0059	2.5	Pass
	-10℃	10	0.0053		
	-5℃	16	0.0083		
	0℃	10	0.0053		
	+10℃	12	0.0065		
	+20℃	12	0.0066		
	+30℃	12	0.0065		
	+40℃	14	0.0072		
	+50℃	9	0.0048		
Reference Frequency: PCS1900 (GPRS 1 link) Middle channel=661 channel=1880MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error			Result
		Hz	ppm		
3.7	-20℃	13	0.0067	2.5	Pass
	-10℃	11	0.0056		
	-5℃	16	0.0083		
	0℃	12	0.0061		
	+10℃	14	0.0072		
	+20℃	11	0.0059		
	+30℃	9	0.0045		
	+40℃	15	0.0078		
	+50℃	10	0.0054		
Reference Frequency: PCS1900 (EGPRS 1 link) Middle channel=661 channel=1880MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error			Result
		Hz	ppm		
3.7	-20℃	14	0.0072	2.5	Pass
	-10℃	11	0.0057		
	-5℃	17	0.0090		
	0℃	9	0.0050		
	+10℃	11	0.0060		
	+20℃	12	0.0066		
	+30℃	8	0.0045		
	+40℃	9	0.0050		
	+50℃	7	0.0039		

Reference Frequency: WCDMA Band V Middle channel=4183 channel=836.6MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.7	-20℃	13	0.0156	2.5	Pass
	-10℃	10	0.0115		
	-5℃	18	0.0211		
	0℃	12	0.0142		
	+10℃	11	0.0133		
	+20℃	12	0.0145		
	+30℃	11	0.0126		
	+40℃	12	0.0148		
	+50℃	12	0.0139		
Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880.0MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.7	-20℃	10	0.0119	2.5	Pass
	-10℃	12	0.0142		
	-5℃	14	0.0172		
	0℃	13	0.0158		
	+10℃	14	0.0163		
	+20℃	10	0.0120		
	+30℃	12	0.0146		
	+40℃	10	0.0120		
	+50℃	12	0.0141		
Reference Frequency: WCDMA Band IV Middle channel=1450 channel=1740.0MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.7	-20℃	14	0.0080	2.5	Pass
	-10℃	14	0.0081		
	-5℃	17	0.0100		
	0℃	12	0.0071		
	+10℃	11	0.0061		
	+20℃	12	0.0068		
	+30℃	13	0.0075		
	+40℃	11	0.0065		
	+50℃	13	0.0072		

4.11 Frequency stability V.S. Voltage measurement

Test Requirement:	FCC Part2.1055(d)(1)(2)
Test Method:	FCC Part2.1055(d)(1)(2)
Limit:	2.5ppm
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test procedure:	1. Set chamber temperature to 25°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage. 2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. 3. Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.
Test Instruments:	Refer to section 5.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

Measurement Data

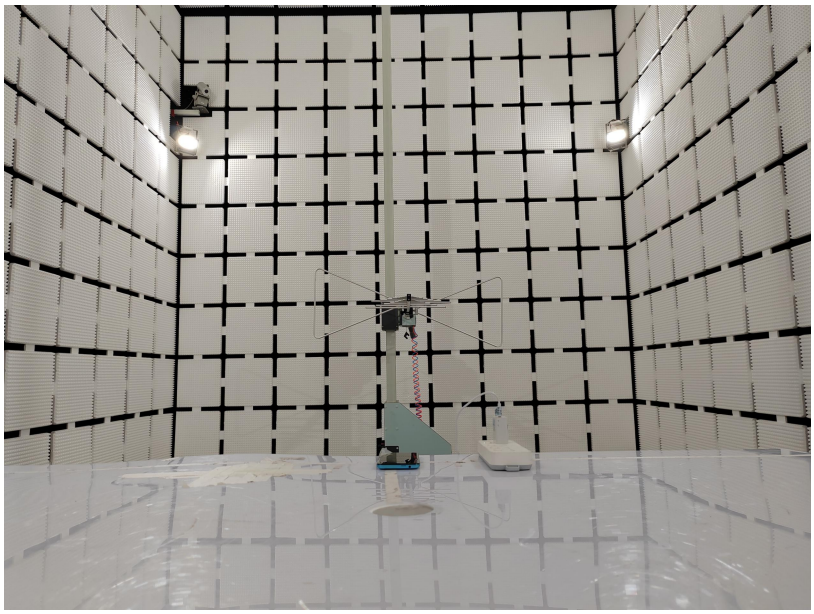
Reference Frequency: GSM850 (GSM link) Middle channel=190 channel=836.6MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.18	13	0.0150	2.5	Pass
	3.70	12	0.0139		
	3.61	15	0.0177		
Reference Frequency: GSM850 (GPRS 1 link) Middle channel=190 channel=836.6MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.18	18	0.0213	2.5	Pass
	3.70	13	0.0156		
	3.61	13	0.0152		
Reference Frequency: GSM850 (EGPRS 1 link) Middle channel=190 channel=836.6MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.18	11	0.0126	2.5	Pass
	3.70	18	0.0214		
	3.61	14	0.0171		

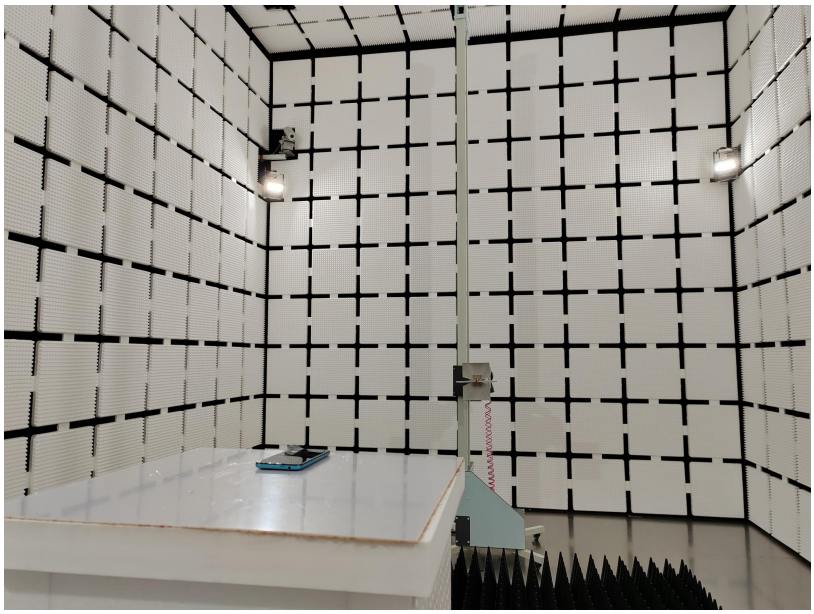
Reference Frequency: PCS1900 (GSM link) Middle channel=661 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.18	8	0.0044	2.5	Pass
	3.70	9	0.0050		
	3.61	13	0.0068		
Reference Frequency: PCS1900 (GPRS 1 link) Middle channel=661 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.18	10	0.0052	2.5	Pass
	3.70	12	0.0065		
	3.61	8	0.0043		
Reference Frequency: PCS1900 (EGPRS 1 link) Middle channel=661 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.18	12	0.0061	2.5	Pass
	3.70	15	0.0079		
	3.61	12	0.0063		

Reference Frequency: WCDMA Band V Middle channel=4183 channel=836.6MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.18	12	0.0143	2.5	Pass
	3.70	9	0.0111		
	3.61	15	0.0185		
Reference Frequency: WCDMA Band II Middle channel=940 channel=1880.0MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.18	15	0.0079	2.5	Pass
	3.70	9	0.0049		
	3.61	12	0.0064		
Reference Frequency: WCDMA Band IV Middle channel=1450 channel=1740.0MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.18	13	0.0075	2.5	Pass
	3.70	13	0.0074		
	3.61	9	0.0054		

5 Test Setup Photo

Radiated Emission





-------END OF REPORT-------