FCC RADIO TEST REPORT

FCC ID	**:**	**A4RG9FPL**
Equipment	**:**	**Phone**
Model Name	**:**	**G9FPL, G0B96**
Applicant	**:**	**Google LLC 1600 Amphitheatre Parkway, Mountain View, California, 94043 USA**
Standard	**:**	**FCC 47 CFR Part 2, 22(H), 24(E)**

The product was received on Nov. 23, 2022 and testing was performed from Dec. 05, 2022 to Jan. 09, 2023. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Table of Contents

History of this test report

Report No.	Version	Description	Issue Date
FG262403-04A	01	Initial issue of report	Feb. 07, 2023
FG262403-04A	02	Revise Summary Remark 2, antenna type and Appendix A, B	Mar. 07, 2023

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Pass	-
	§22.913 (a)(5)	Effective Radiated Power (GSM850)		
	§24.232 (c)	Equivalent Isotropic Radiated Power (GSM1900)		
3.3	§24.232 (d)	Peak-to-Average Ratio	Pass	
3.4	§2.1049 §22.917 (b) §24.238 (b)	Occupied Bandwidth (GSM850) (GSM1900)	Pass	-
3.5	§2.1051 §22.917 (a) §24.238 (a)	Band Edge Measurement (GSM850) (GSM1900)	Pass	-
3.6	§2.1051 §22.917 (a) §24.238 (a)	Conducted Emission (GSM850) (GSM1900)	Pass	-
3.7	§2.1055 §22.355 §24.235	Frequency Stability Temperature & Voltage	Pass	-
4.4	§2.1053 §22.917 (a) §24.238 (a)	Field Strength of Spurious Radiation (GSM850) (GSM1900)	Pass	18.95 dB under the limit at 2509.000 MHz for Primary Antenna 29.97 dB under the limit at 7400.000 MHz for ASDIV Antenna

Declaration of Conformity:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
   It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results.
2. The measurement uncertainty please refer to report "Uncertainty of Evaluation".

Comments and Explanations:

1. The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity.
2. The G9FPL and G0B96 are 100% identical in Hardware / Software to each other, and only have different model names for separate marketing purposes. The test samples are all model G9FPL.

Reviewed by: William Chen

Report Producer: Cindy Liu

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Phone
Model Name	G9FPL, G0B96
FCC ID	A4RG9FPL
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE/5G NR/NFC/GNSS/ UWB/WPT Client WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80/VHT160 WLAN 11ax HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE

Remark: The above EUT's information was declared by manufacturer.

EUT Information List	
S/N	**Performed Test Item**
2A311FDHS00006	Conducted Measurement ERP/EIRP
2B021FDHS0001N	Radiated Spurious Emission

1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard	
Tx Frequency	**GSM/GPRS/EDGE:** 850: 824.2 MHz ~ 848.8 MHz 1900: 1850.2 MHz ~ 1909.8 MHz
Rx Frequency	**GSM/GPRS/EDGE:** 850: 869.2 MHz ~ 893.8 MHz 1900: 1930.2 MHz ~ 1989.8 MHz
Maximum Output Power to Antenna	**<Primary Antenna>** **GSM/GPRS/EDGE:** **<Ant. 0>** 850: 32.60 dBm **<Ant. 2>** 1900: 30.22 dBm **<ASDIV Antenna>** **GSM/GPRS/EDGE:** **<Ant. 1>** 850: 32.83 dBm **<Ant. 0>** 1900: 30.26 dBm

Product Specification is subject to this standard	
Antenna Type	**<Primary Antenna>:** **<Ant. 0>:** ILA Antenna **<Ant. 2>:** ILA Antenna **<ASDIV Antenna>:** **<Ant. 0>:** ILA Antenna **<Ant. 1>:** ILA Antenna
Type of Modulation	GSM / GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK

<Open Mode>

<Primary Antenna>

Radio Tech	Band Number	Antenna name	Gain
GSM	850	Ant 0	-1.9
GSM	1900	Ant 2	-2.16

<ASDIV Antenna>

Radio Tech	Band Number	Antenna name	Gain
GSM	850	Ant 1	-5.4
GSM	1900	Ant 0	-2.16

<Close Mode>

<Primary Antenna>

Radio Tech	Band Number	Antenna name	Gain
GSM	850	Ant 0	-5.08
GSM	1900	Ant 2	-0.25

<ASDIV Antenna>

Radio Tech	Band Number	Antenna name	Gain
GSM	850	Ant 1	-9.33
GSM	1900	Ant 0	-1.93

Remark: The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

1.3 Modification of EUT

No modifications made to the EUT during the testing.

1.4 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	**Sporton Site No.**
	TH03-HY
Test Engineer	Ryan Lee and Hank Chen
Temperature (℃)	21~25
Relative Humidity (%)	50~56

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH12-HY (TAF Code: 3786)
Test Engineer	Jesse Fan, Tim Lee and Wilson Wu
Temperature (℃)	20~25
Relative Humidity (%)	50~60
Remark	The Radiated Emission test item subcontracted to Sporton International Inc. Wensan Laboratory.

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190 and TW3786

1.5 Applicable Standards

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- ANSI C63.26-2015
- ANSI / TIA-603-E
- FCC 47 CFR Part 2, 22(H), 24(E)
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- FCC KDB 414788 D01 Radiated Test Site v01r01

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.
3. The TAF code is not including all the FCC KDB listed without accreditation.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT (open and close) and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and accessory (Adapter or Earphone) and adjusting the measurement antenna orientation, following C63.26 exploratory test procedures and only the worst case emissions were reported in this report.

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 9000 MHz for GSM850
1. 30 MHz to 19100 MHz for GSM1900

All modes, data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

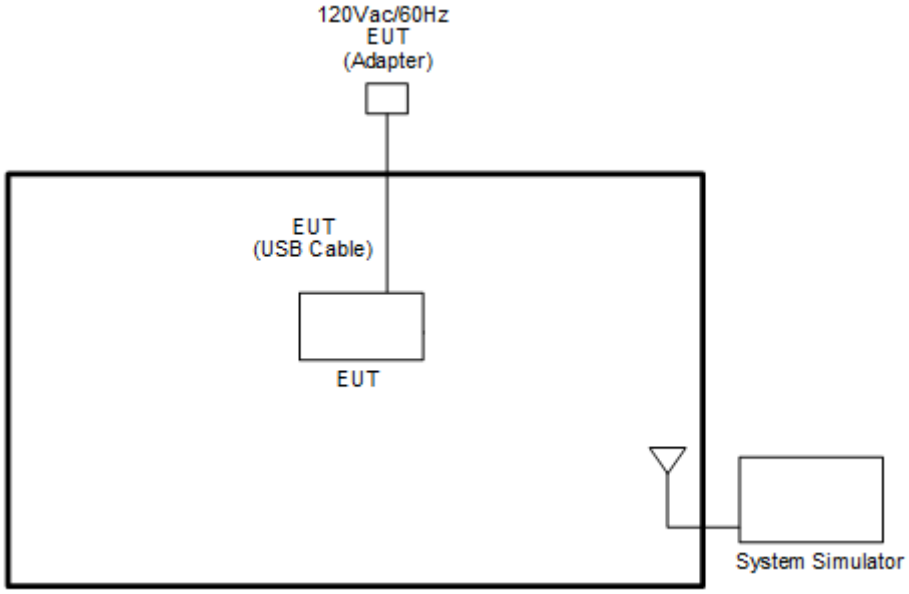
Test Modes		
Band	**Radiated TCs**	**Conducted TCs**
GSM850	■ GPRS Class 8 Link ■ EDGE Class 8 Link	■ GPRS Class 8 Link ■ EDGE Class 8 Link
GSM1900	■ GSM Link ■ EDGE Class 8 Link	■ GSM Link ■ EDGE Class 8 Link

Remark:

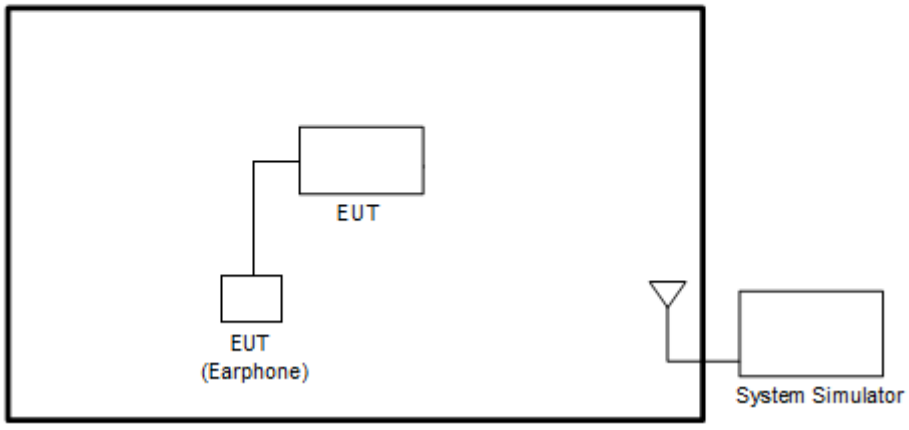
1. During the preliminary test, both charging modes (Adapter mode and WPT client mode) were verified. It is determined that the adaptor mode is the worst case for official test.
2. All the radiated test cases were performed with AC Adapter 2 and USB Cable 2.

2.2 Connection Diagram of Test System

<EUT with Adapter>



<EUT with Earphone>



2.3 Support Unit used in test configuration

Item	Equipment	Brand Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

The following shows an offset computation example with RF cable loss 4.2 dB and a 10 dB attenuator.

Example:

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

2.5 Frequency List of Low/Middle/High Channels

Frequency List				
Band	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
GSM850	Channel	128	189	251
	Frequency	824.2	836.4	848.8
GSM1900	Channel	512	661	810
	Frequency	1850.2	1880.0	1909.8

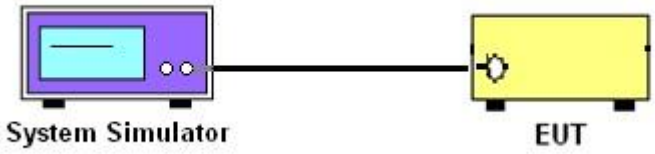
3 Conducted Test Result

3.1 Measuring Instruments

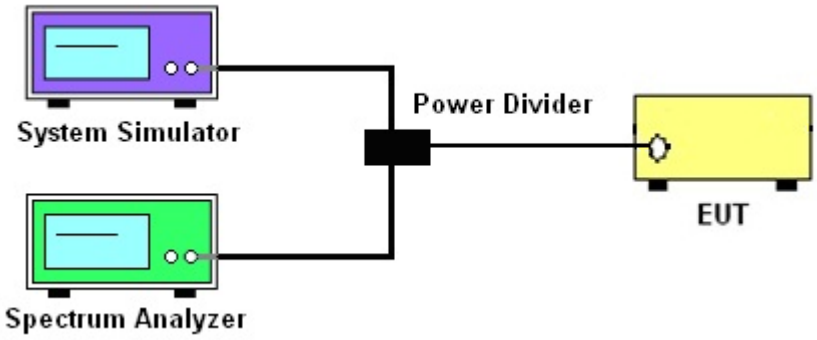
Please refer to the measuring equipment list in this test report.

3.1.1 Test Setup

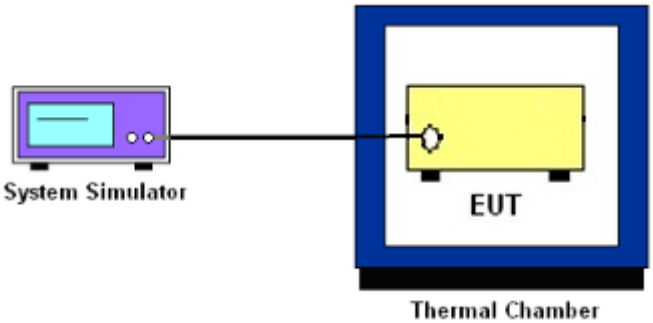
3.1.2 Conducted Output Power



3.1.3 Peak-to-Average Ratio, Occupied Bandwidth, Conducted Band-Edge and Conducted Spurious Emission



3.1.4 Frequency Stability



3.1.5 Test Result of Conducted Test

Please refer to Appendix A.

3.2 Conducted Output Power and ERP/EIRP

3.2.1 Description of the Conducted Output Power and ERP/EIRP

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 7 Watts for GSM850

The EIRP of mobile transmitters must not exceed 2 Watts for GSM1900

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T – L_C$, $ERP = EIRP - 2.15$, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.2.2 Test Procedures

1. The transmitter output port is connected to the system simulator.
2. Set EUT at maximum power through system simulator.
3. Select the lowest, middle, and the highest channels for each band and different modulation.
4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.

3.3 Peak-to-Average Ratio

3.3.1 Description of the PAR Measurement

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

3.3.2 Test Procedures

The testing follows ANSI C63.26-2015 Section 5.2.6

1. The EUT is connected to spectrum analyzer and system simulator via a power divider.
2. Set EUT to transmit at maximum output power.
3. When the duty cycle is less than 98%, then signal gating will be implemented on the spectrum analyzer by triggering from the system simulator.
4. Set the CCDF (Complementary Cumulative Distribution Function) option of the spectrum analyzer.
5. Record the maximum PAPR level associated with a probability of 0.1%.

3.4 99% Occupied Bandwidth and 26dB Bandwidth Measurement

3.4.1 Description of 99% Occupied Bandwidth and 26dB Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.4.2 Test Procedures

The testing follows ANSI C63.26-2015 Section 5.4.3 (26dB) and Section 5.4.4 (99OB)

1. The EUT is connected to spectrum analyzer and system simulator via a power divider.
2. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
3. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
4. Set the detection mode to peak, and the trace mode to max hold.
5. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace. (This is the reference value)
6. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
7. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “–X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
8. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.5 Conducted Band Edge

3.5.1 Description of Conducted Band Edge Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

3.5.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

1. The EUT is connected to the spectrum analyzer and system simulator via a power divider.
2. The RF output of EUT is connected to the spectrum analyzer by an RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. The band edges of low and high channels for the highest RF powers are measured.
4. The RF fundamental frequency shall be excluded against the limit line in the operating frequency band.
5. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)

3.6 Conducted Spurious Emission

3.6.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10^{th} harmonic.

3.6.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

1. The EUT is connected to the spectrum analyzer and system simulator via a power divider.
2. The RF output of EUT is connected to the spectrum analyzer by an RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. The middle channel for the highest RF power within the transmitting frequency is measured.
4. The conducted spurious emission for the whole frequency range is taken.
5. The RF fundamental frequency shall be excluded against the limit line in the operating frequency band.
6. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)

3.7 Frequency Stability

3.7.1 Description of Frequency Stability Measurement

22.355

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

24.235

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

3.7.2 Test Procedures for Temperature Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

1. The EUT is set up in the thermal chamber and connected with the system simulator.
2. With power OFF, the temperature is decreased to -30°C and the EUT is stabilized before testing. Power is applied and the maximum change in frequency is recorded within one minute.
3. With power OFF, the temperature is raised in 10°C steps up to 50°C. The EUT is stabilized at each step for at least half an hour. Power is applied and the maximum frequency change is recorded within one minute.

3.7.3 Test Procedures for Voltage Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

1. The EUT is placed in a temperature chamber at 20±5° C and connected with the system simulator.
2. The power supply voltage to the EUT is varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency is measured for the worst case.

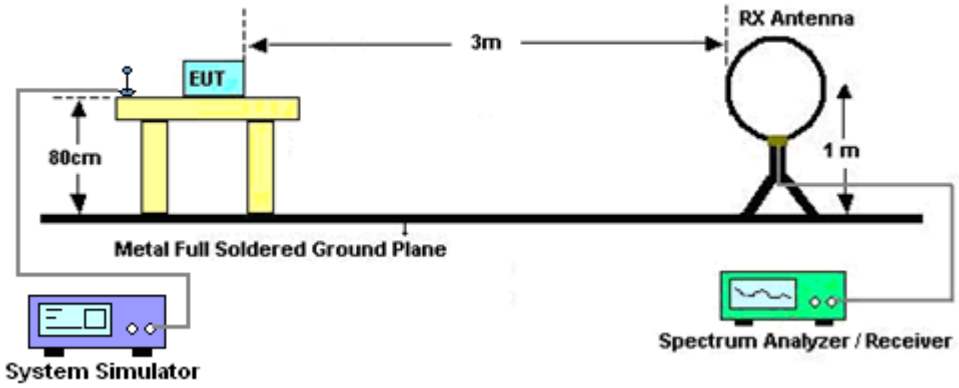
4 Radiated Test Items

4.1 Measuring Instruments

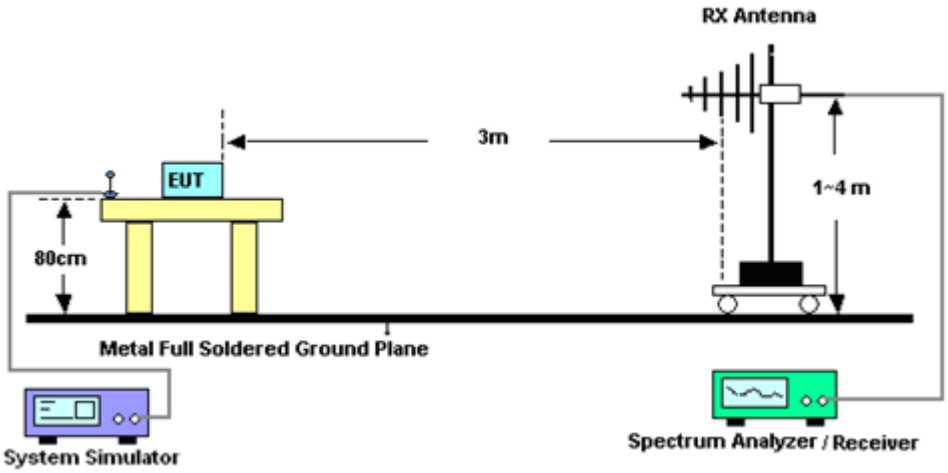
Please refer to the measuring equipment list in this test report.

4.2 Test Setup

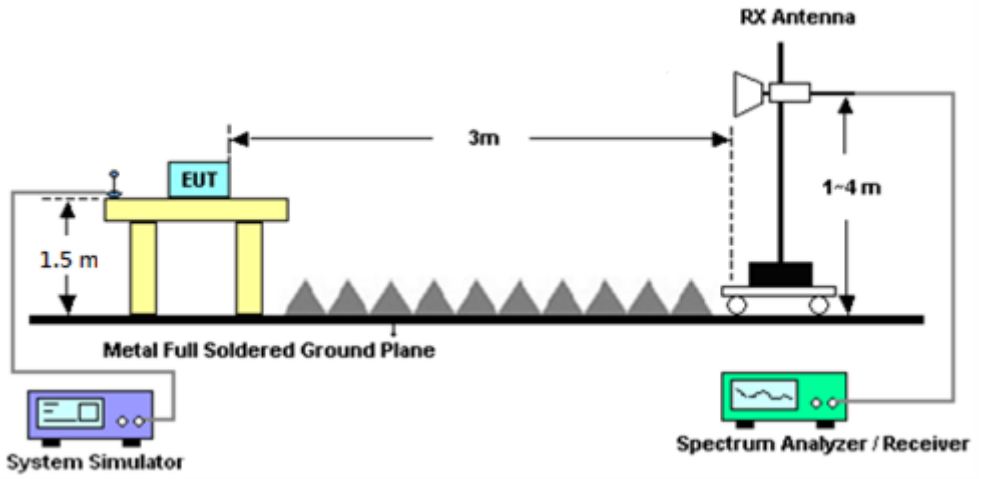
For radiated test below 30MHz



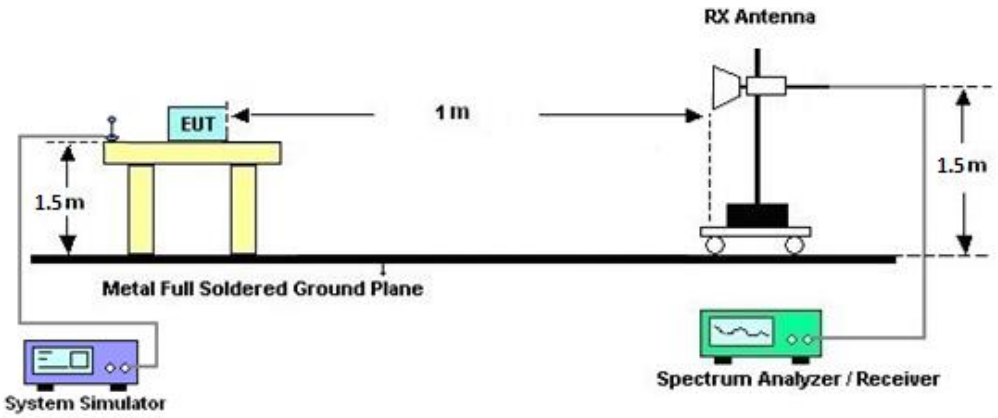
For radiated test from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.

Note:

The low frequency, which starts from 9 kHz to 30 MHz, is pre-scanned and the result which is 20 dB lower than the limit line is not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

4.4 Field Strength of Spurious Radiation Measurement

4.4.1 Description of Field Strength of Spurious Radiated Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.4.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 and ANSI / TIA-603-E Section 2.2.12.

1. The EUT is placed on a rotatable wooden table 0.8 meters for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz above the ground.
2. The EUT is set 3 meters away from the receiving antenna, which is mounted on the antenna tower.
3. The table is rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1 MHz, VBW = 3 MHz, taking record of maximum spurious emission.
6. A horn antenna is substituted in place of the EUT and is driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Take the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
11. ERP (dBm) = EIRP - 2.15
12. The RF fundamental frequency shall be excluded against the limit line in the operating frequency band.
13. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)

5 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 20, 2022	Dec. 05, 2022~ Jan. 09, 2023	Sep. 19, 2023	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-02114	1GHz~18GHz	Aug. 09, 2022	Dec. 05, 2022~ Jan. 09, 2023	Aug. 08, 2023	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	40103 & 07	30MHz~1GHz	Apr. 24, 2022	Dec. 05, 2022~ Jan. 09, 2023	Apr. 23, 2023	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 08, 2022	Dec. 05, 2022~ Jan. 09, 2023	Oct. 07, 2023	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1212	1GHz~18GHz	Mar. 10, 2022	Dec. 05, 2022~ Jan. 09, 2023	Mar. 09, 2023	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	18GHz~40GHz	Nov. 24, 2022	Dec. 05, 2022~ Jan. 09, 2023	Nov. 23, 2023	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170576	18GHz~40GHz	May 14, 2022	Dec. 05, 2022~ Jan. 09, 2023	May 13, 2023	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 23, 2022	Dec. 05, 2022~ Jan. 09, 2023	Mar. 22, 2023	Radiation (03CH12-HY)
Preamplifier	Aglient	8449B	3008A02375	1GHz~26.5GHz	May 24, 2022	Dec. 05, 2022~ Jan. 09, 2023	May 23, 2023	Radiation (03CH12-HY)
Preamplifier	E-INSTRUMENT TECH LTD.	ERA-100M-18G-56-01-A70	EC1900249	1GHz-18GHz	Dec. 22, 2021	Dec. 05, 2022~ Dec. 20, 2022	Dec. 21, 2022	Radiation (03CH12-HY)
Preamplifier	E-INSTRUMENT TECH LTD.	ERA-100M-18G-56-01-A70	EC1900249	1GHz-18GHz	Dec. 21, 2022	Dec. 21, 2022~ Jan. 09, 2023	Dec. 20, 2023	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 07, 2022	Dec. 07, 2022~ Jan. 09, 2023	Dec. 06, 2023	Radiation (03CH12-HY)
Spectrum Analyzer	Keysight	N9010A	MY53470118	10Hz~44GHz	Jan. 12, 2022	Dec. 05, 2022~ Jan. 09, 2023	Jan. 11, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 10, 2022	Dec. 05, 2022~ Jan. 09, 2023	Mar. 09, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY15539/4	30MHz~18GHz	Mar. 15, 2022	Dec. 05, 2022~ Dec. 19, 2022	Mar. 14, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY15539/4	30MHz~18GHz	Dec. 20, 2022	Dec. 20, 2022~ Jan. 09, 2023	Dec. 19, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	30MHz~18GHz	Mar. 10, 2022	Dec. 05, 2022~ Dec. 19, 202	Mar. 09, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 20, 2022	Dec. 20, 2022~ Jan. 09, 2023	Dec. 19, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Feb. 21, 2022	Dec. 05, 2022~ Dec. 19, 2022	Feb. 20, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Dec. 20, 2022	Dec. 20, 2022~ Jan. 09, 2023	Dec. 19, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803953/2	30MHz~40GHz	Mar. 08, 2022	Dec. 05, 2022~ Dec. 19, 2023	Mar. 07, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803953/2	30MHz~40GHz	Dec. 20, 2022	Dec. 20, 2022~ Jan. 09, 2023	Dec. 19, 2023	Radiation (03CH12-HY)
Filter	Wainwright	WHKX8-5872.5-6750-18000-40ST	SN2	6.75GHz High Pass Filter	Mar. 15, 2022	Dec. 05, 2022~ Jan. 09, 2023	Mar. 14, 2023	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-2700-3000-18000-60ST	SN2	3GHz High Pass Filter	Jul. 11, 2022	Dec. 05, 2022~ Jan. 09, 2023	Jul. 10, 2023	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-1080-1200-15000-60SS	SN1	1.2GHz High Pass Filter	Mar. 15, 2022	Dec. 05, 2022~ Jan. 09, 2023	Mar. 14, 2023	Radiation (03CH12-HY)

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECPEL	DTM-303B	TP140325	N/A	Nov. 07, 2022	Dec. 05, 2022~ Jan. 09, 2023	Nov. 06, 2023	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Dec. 05, 2022~ Jan. 09, 2023	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Dec. 05, 2022~ Jan. 09, 2023	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Dec. 05, 2022~ Jan. 09, 2023	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Dec. 05, 2022~ Jan. 09, 2023	N/A	Radiation (03CH12-HY)
Hygrometer	Testo	608-H1	34893241	N/A	Mar. 18, 2022	Dec. 15, 2022~ Dec. 19, 2022	Mar. 17, 2023	Conducted (TH03-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101329	9kHz~30GHz	Sep. 27, 2022	Dec. 15, 2022~ Dec. 19, 2022	Sep. 26, 2023	Conducted (TH03-HY)
Temperature & Humidity Cabinet Chamber	ESPEC	SH-641	92013720	-40℃ ~90℃	Sep. 07, 2022	Dec. 15, 2022~ Dec. 19, 2022	Sep. 06, 2023	Conducted (TH03-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890001	1V~20V 0.5A~4A	Sep. 29, 2022	Dec. 15, 2022~ Dec. 19, 2022	Sep. 28, 2023	Conducted (TH03-HY)
Base Station (Measure)	Rohde & Schwarz	CMU200	117995	GSM / GPRS / WCDMA / CDMA	Aug. 02, 2022	Dec. 15, 2022~ Dec. 19, 2022	Aug. 01, 2023	Conducted (TH03-HY)

6 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.31 dB**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.25 dB**

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.81 dB**

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power) & ERP / EIRP

<Primary Antenna>

GSM850 Maximum Average Power [dBm] (GT - LC = -1.9 dB)					
Channel	128	189	251	ERP (dBm)	ERP (W)
Frequency	824.2	836.4	848.8		
GSM	32.60	32.56	32.56	28.55	0.7161
GPRS class 8	32.60	32.56	32.54		
GPRS class 10	31.50	31.54	31.46		
GPRS class 11	30.47	30.53	30.46		
GPRS class 12	29.29	29.14	29.24		
EGPRS class 8	26.82	27.08	27.00	23.03	0.2009
EGPRS class 10	26.47	26.50	26.32		
EGPRS class 11	26.32	26.24	26.39		
EGPRS class 12	24.17	24.19	24.24		
Limit	ERP < 7W			Result	Pass

GSM1900 Maximum Average Power [dBm] (GT - LC = -0.25 dB)					
Channel	512	661	810	EIRP (dBm)	EIRP (W)
Frequency	1850.2	1880	1909.8		
GSM	30.03	29.87	30.22	29.97	0.9931
GPRS class 8	29.81	29.65	30.03		
GPRS class 10	28.48	28.01	27.80		
GPRS class 11	27.88	27.56	27.52		
GPRS class 12	27.08	26.85	26.46		
EGPRS class 8	25.01	24.98	25.14	24.89	0.3083
EGPRS class 10	23.67	23.78	23.93		
EGPRS class 11	23.61	23.84	23.93		
EGPRS class 12	22.83	22.64	22.76		
Limit	EIRP < 2W			Result	Pass

<ASDIV Antenna>

GSM850 Maximum Average Power [dBm] (GT - LC = -5.4 dB)					
Channel	128	189	251	ERP (dBm)	ERP (W)
Frequency	824.2	836.4	848.8		
GSM	32.77	32.82	32.81	25.28	0.3373
GPRS class 8	32.77	32.83	32.82		
GPRS class 10	31.17	32.15	31.19		
GPRS class 11	29.90	29.97	29.94		
GPRS class 12	28.62	28.74	28.58		
EGPRS class 8	26.36	26.48	26.38	18.93	0.0782
EGPRS class 10	25.78	25.76	25.93		
EGPRS class 11	25.60	25.62	25.81		
EGPRS class 12	23.62	23.72	23.55		
Limit	ERP < 7W			Result	Pass

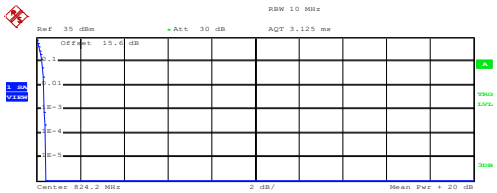
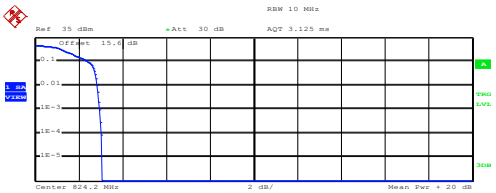
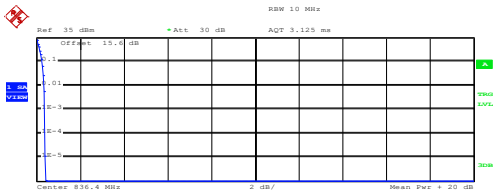
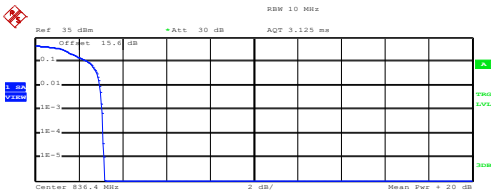
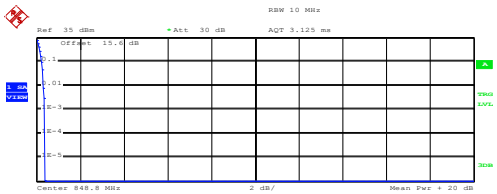
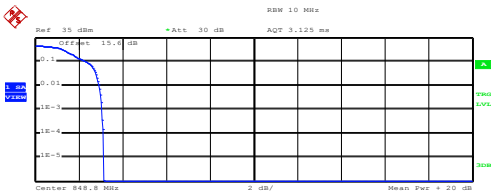
GSM1900 Maximum Average Power [dBm] (GT - LC = -1.93 dB)					
Channel	512	661	810	EIRP (dBm)	EIRP (W)
Frequency	1850.2	1880	1909.8		
GSM	30.15	29.88	30.26	28.33	0.6808
GPRS class 8	29.94	29.78	30.15		
GPRS class 10	28.12	27.97	27.80		
GPRS class 11	27.68	27.50	27.49		
GPRS class 12	26.73	26.59	26.43		
EGPRS class 8	24.73	24.84	24.95	23.02	0.2004
EGPRS class 10	23.58	23.62	23.86		
EGPRS class 11	23.38	23.63	23.78		
EGPRS class 12	22.33	22.44	22.38		
Limit	EIRP < 2W			Result	Pass

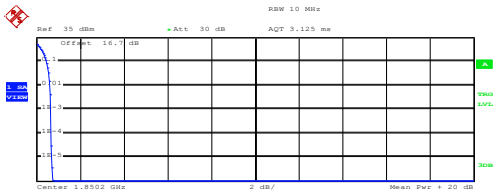
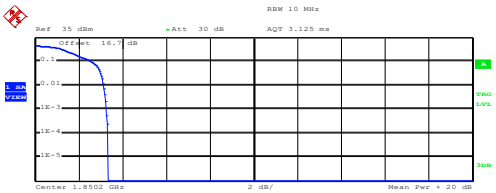
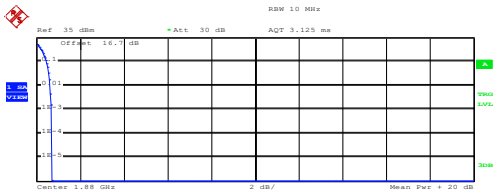
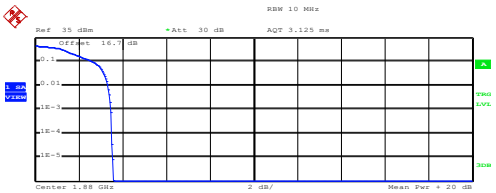
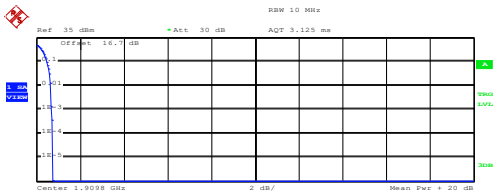
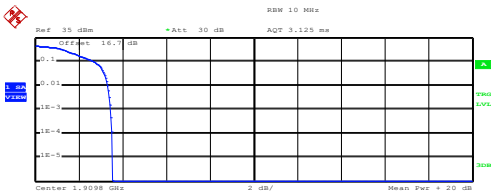
A2. GSM

Peak-to-Average Ratio

Mode	GSM850		Limit: 13dB
Mod.	GSM	EDGE class 8	Result
Lowest CH	0.36	2.96	PASS
Middle CH	0.40	3.08	
Highest CH	0.40	3.08	

Mode	GSM1900		Limit: 13dB
Mod.	GSM	EDGE class 8	Result
Lowest CH	0.68	3.28	PASS
Middle CH	0.68	3.48	
Highest CH	0.68	3.48	

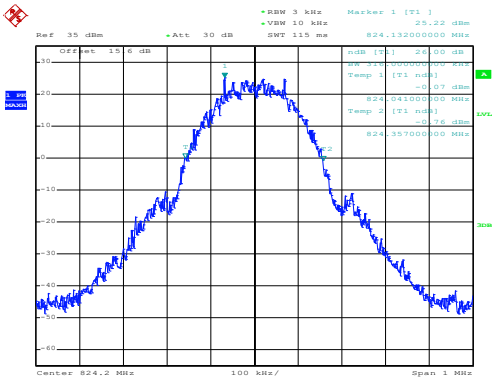
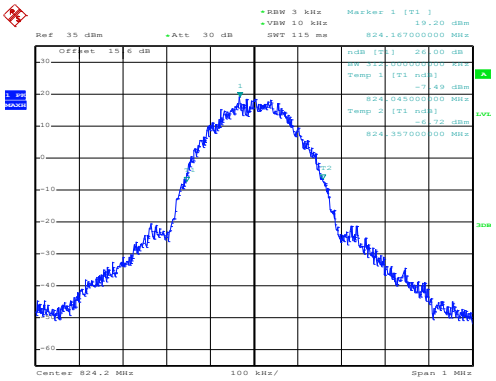
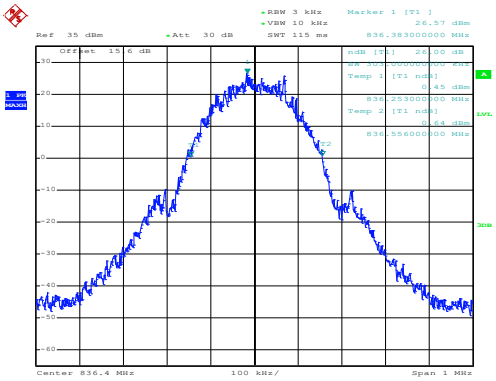
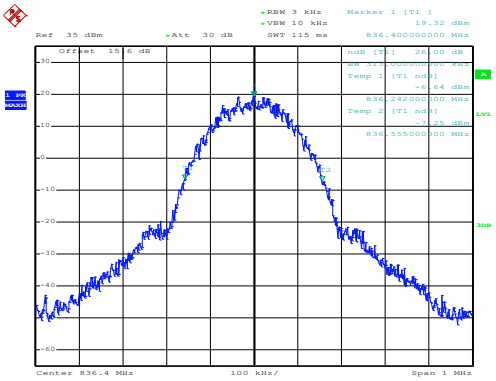
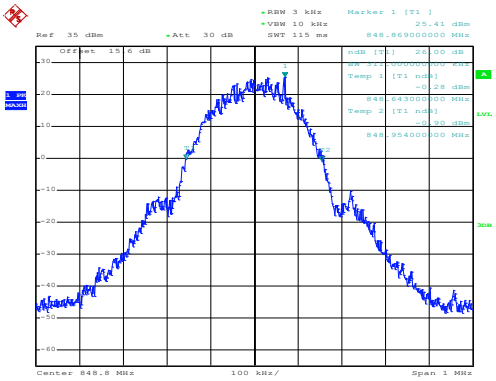
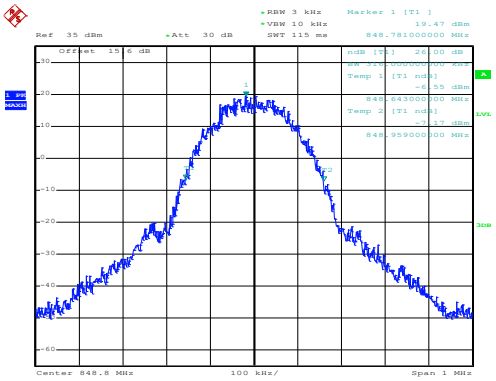
GSM850 (GSM)	GSM850 (EDGE class 8)
Lowest Channel	**Lowest Channel**
	
Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 32.72 dBm Peak 33.14 dBm Crest 0.42 dB 10 % 0.24 dB 1 % 0.36 dB .1 % 0.36 dB .01 % 0.44 dB	Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 27.12 dBm Peak 30.17 dBm Crest 3.05 dB 10 % 2.40 dB 1 % 2.84 dB .1 % 2.96 dB .01 % 3.04 dB
Date: 18.DEC.2022 11:05:42	Date: 18.DEC.2022 11:32:25
Middle Channel	**Middle Channel**
	
Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 32.62 dBm Peak 33.06 dBm Crest 0.44 dB 10 % 0.24 dB 1 % 0.36 dB .1 % 0.40 dB .01 % 0.40 dB	Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 27.07 dBm Peak 30.24 dBm Crest 3.17 dB 10 % 2.40 dB 1 % 2.96 dB .1 % 3.08 dB .01 % 3.12 dB
Date: 18.DEC.2022 11:06:08	Date: 18.DEC.2022 11:32:49
Highest Channel	**Highest Channel**
	
Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 32.61 dBm Peak 32.99 dBm Crest 0.38 dB 10 % 0.24 dB 1 % 0.32 dB .1 % 0.40 dB .01 % 0.40 dB	Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 27.17 dBm Peak 30.31 dBm Crest 3.14 dB 10 % 2.36 dB 1 % 2.92 dB .1 % 3.08 dB .01 % 3.12 dB
Date: 18.DEC.2022 11:06:28	Date: 18.DEC.2022 11:33:11

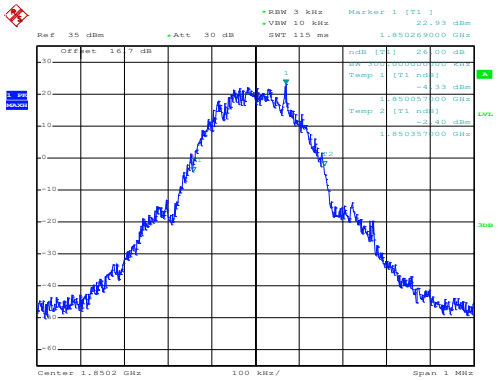
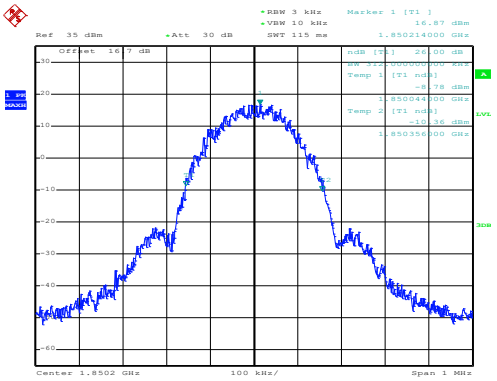
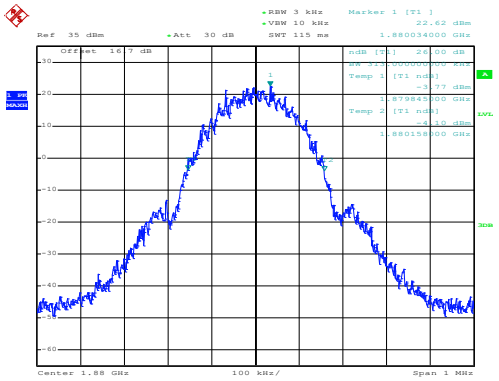
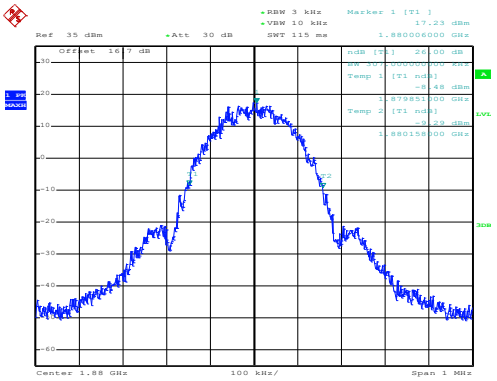
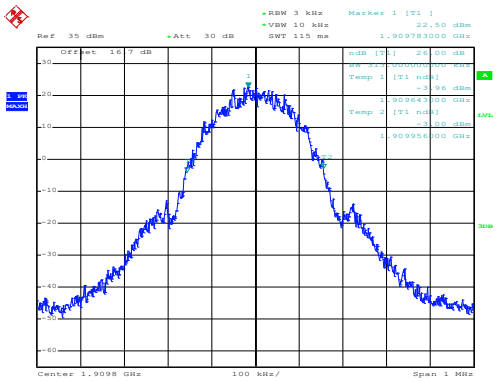
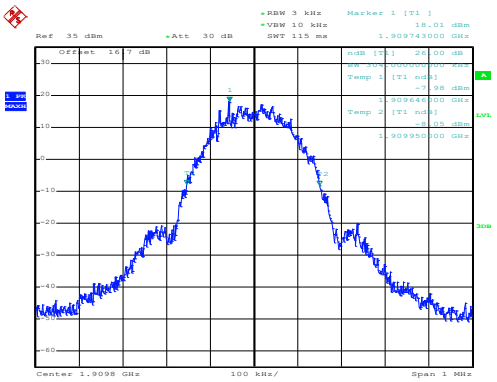
GSM1900 (GSM)	GSM1900 (EDGE class 8)
Lowest Channel	**Lowest Channel**
	
Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 29.87 dBm Peak 30.60 dBm Crest 0.72 dB 10 % 0.48 dB 1 % 0.60 dB .1 % 0.68 dB .01 % 0.68 dB	Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 25.06 dBm Peak 28.41 dBm Crest 3.34 dB 10 % 2.60 dB 1 % 3.16 dB .1 % 3.28 dB .01 % 3.36 dB
Date: 15.DEC.2022 11:48:26	Date: 15.DEC.2022 14:00:36
Middle Channel	**Middle Channel**
	
Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 29.68 dBm Peak 30.38 dBm Crest 0.70 dB 10 % 0.48 dB 1 % 0.64 dB .1 % 0.68 dB .01 % 0.72 dB	Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 25.05 dBm Peak 28.62 dBm Crest 3.57 dB 10 % 2.64 dB 1 % 3.32 dB .1 % 3.48 dB .01 % 3.52 dB
Date: 15.DEC.2022 11:48:50	Date: 15.DEC.2022 14:01:12
Highest Channel	**Highest Channel**
	
Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 29.86 dBm Peak 30.60 dBm Crest 0.73 dB 10 % 0.48 dB 1 % 0.64 dB .1 % 0.68 dB .01 % 0.76 dB	Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 25.09 dBm Peak 28.62 dBm Crest 3.53 dB 10 % 2.72 dB 1 % 3.32 dB .1 % 3.48 dB .01 % 3.52 dB
Date: 15.DEC.2022 11:49:15	Date: 15.DEC.2022 14:01:48

26dB Bandwidth

Mode	GSM850 : 26dB BW(MHz)	
Mod.	GSM	EDGE class 8
Lowest CH	0.316	0.312
Middle CH	0.303	0.313
Highest CH	0.311	0.316

Mode	GSM1900 : 26dB BW(MHz)	
Mod.	GSM	EDGE class 8
Lowest CH	0.300	0.312
Middle CH	0.313	0.307
Highest CH	0.313	0.304

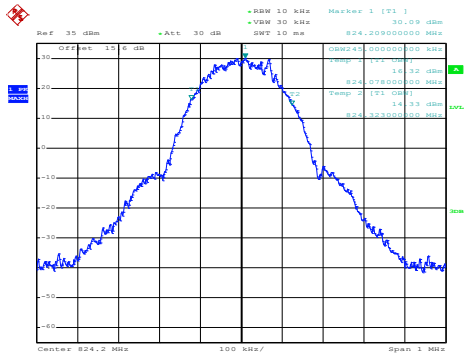
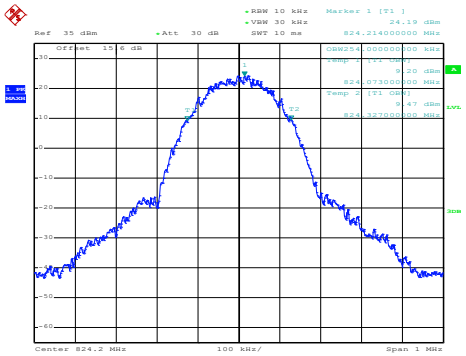
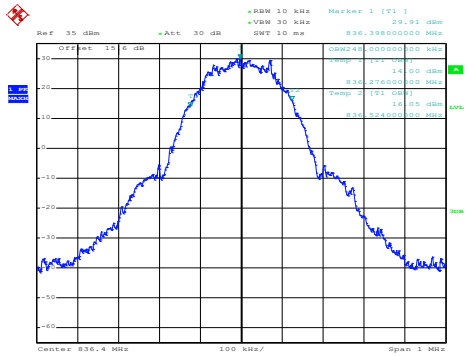
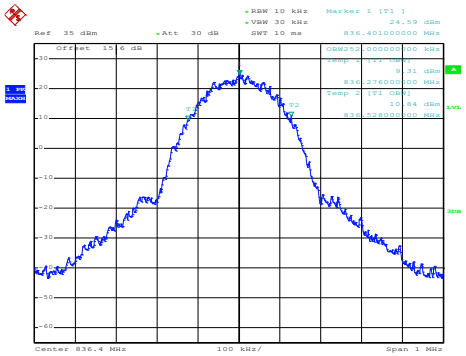
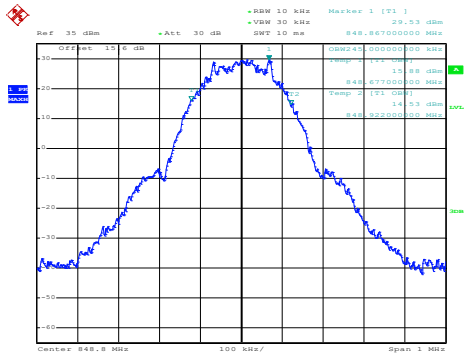
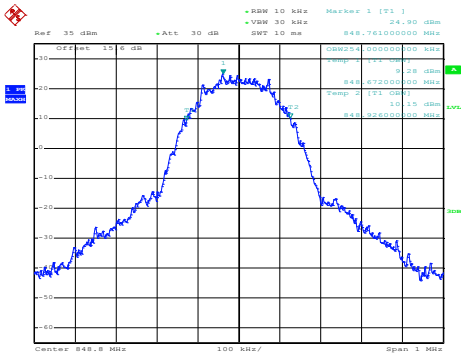
GSM850 (GSM)	GSM850 (EDGE class 8)
Lowest Channel	**Lowest Channel**
	
Date: 18.DEC.2022 10:41:36	Date: 18.DEC.2022 11:08:38
Middle Channel	**Middle Channel**
	
Date: 18.DEC.2022 10:42:12	Date: 18.DEC.2022 11:09:25
Highest Channel	**Highest Channel**
	
Date: 18.DEC.2022 10:42:48	Date: 18.DEC.2022 11:10:03

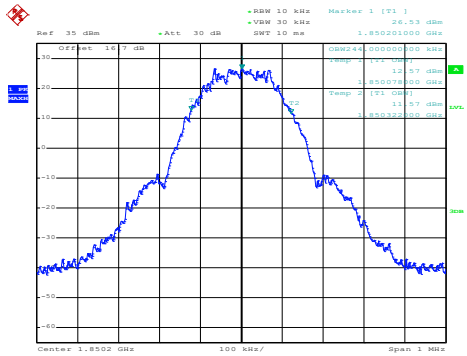
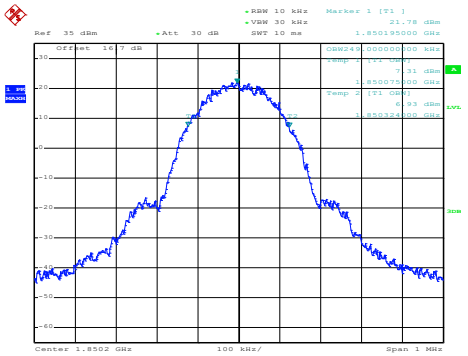
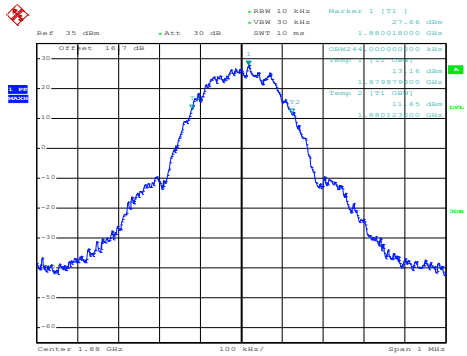
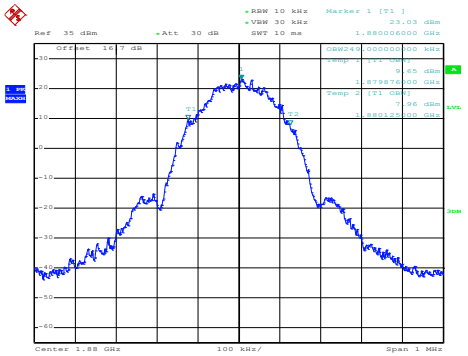
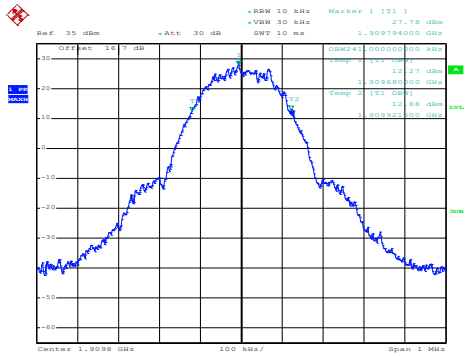
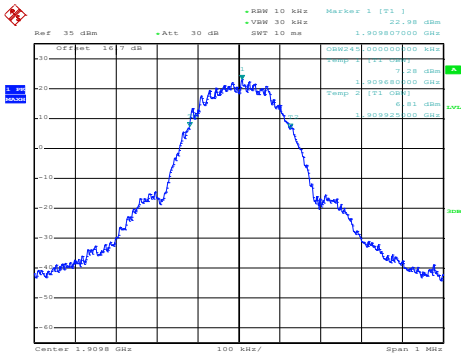
GSM1900 (GSM)	GSM1900 (EDGE class 8)
Lowest Channel	**Lowest Channel**
	
Date: 15.DEC.2022 11:35:25	Date: 15.DEC.2022 13:44:44
Middle Channel	**Middle Channel**
	
Date: 15.DEC.2022 11:36:05	Date: 15.DEC.2022 13:45:37
Highest Channel	**Highest Channel**
	
Date: 15.DEC.2022 11:36:46	Date: 15.DEC.2022 13:47:03

Occupied Bandwidth

Mode	GSM850 : 99%OBW(MHz)	
Mod.	GSM	EDGE class 8
Lowest CH	0.245	0.254
Middle CH	0.248	0.252
Highest CH	0.245	0.254

Mode	GSM1900 : 99%OBW(MHz)	
Mod.	GSM	EDGE class 8
Lowest CH	0.244	0.249
Middle CH	0.244	0.249
Highest CH	0.241	0.245

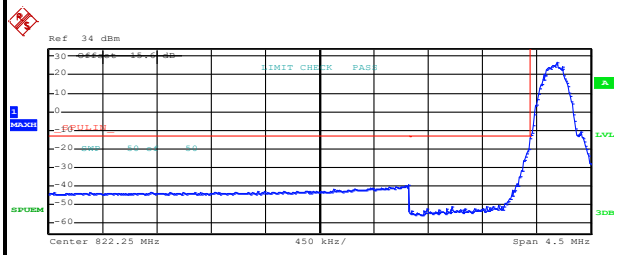
GSM850 (GSM)	GSM850 (EDGE class 8)
Lowest Channel	**Lowest Channel**
	
Date: 18.DEC.2022 10:59:02	Date: 18.DEC.2022 11:15:43
Middle Channel	**Middle Channel**
	
Date: 18.DEC.2022 10:59:59	Date: 18.DEC.2022 11:16:20
Highest Channel	**Highest Channel**
	
Date: 18.DEC.2022 11:00:34	Date: 18.DEC.2022 11:17:18

GSM1900 (GSM)	GSM1900 (EDGE class 8)
Lowest Channel	**Lowest Channel**
	
Date: 15.DEC.2022 11:40:46	Date: 15.DEC.2022 13:53:07
Middle Channel	**Middle Channel**
	
Date: 15.DEC.2022 11:42:12	Date: 15.DEC.2022 13:54:13
Highest Channel	**Highest Channel**
	
Date: 15.DEC.2022 11:42:59	Date: 15.DEC.2022 13:55:58

Conducted Band Edge

GSM850 (GSM)

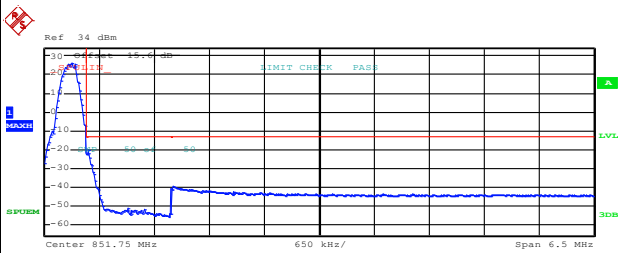
Lowest Band Edge



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
820.000 M	823.000 M	100.00 k	822.997000 M	-39.58	-26.58
823.000 M	824.000 M	3.00 k	823.996000 M	-21.07	-8.07
824.000 M	824.500 M	10.00 k	824.221500 M	26.77	-8.23

Date: 18.DEC.2022 11:03:12

Highest Band Edge

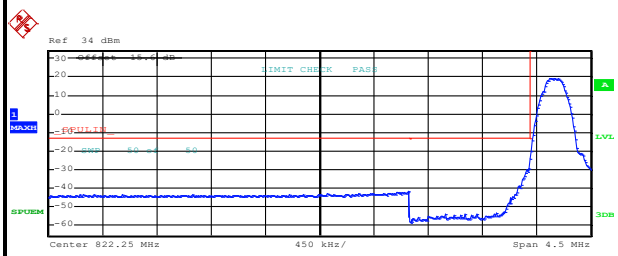


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
848.500 M	849.000 M	10.00 k	848.821500 M	26.06	-8.94
849.000 M	850.000 M	3.00 k	849.016000 M	-20.00	-7.00
850.000 M	855.000 M	100.00 k	850.020000 M	-39.58	-26.58

Date: 18.DEC.2022 11:05:01

GSM850 (EDGE class 8)

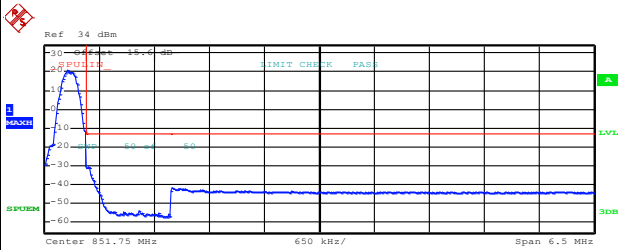
Lowest Band Edge



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
820.000 M	823.000 M	100.00 k	823.000000 M	-41.90	-28.90
823.000 M	824.000 M	3.00 k	823.968000 M	-30.20	-17.20
824.000 M	824.500 M	10.00 k	824.203500 M	19.38	-15.62

Date: 18.DEC.2022 11:30:14

Highest Band Edge

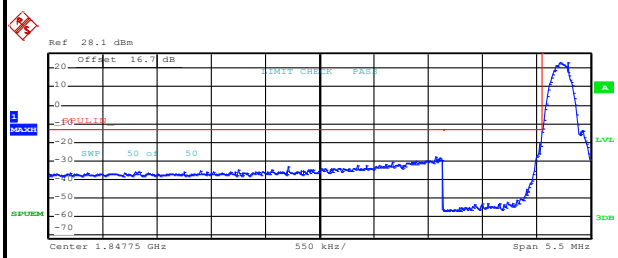


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
848.500 M	849.000 M	10.00 k	848.777000 M	20.60	-14.40
849.000 M	850.000 M	3.00 k	849.032000 M	-29.75	-16.75
850.000 M	855.000 M	100.00 k	850.005000 M	-41.84	-28.84

Date: 18.DEC.2022 11:31:50

GSM1900 (GSM)

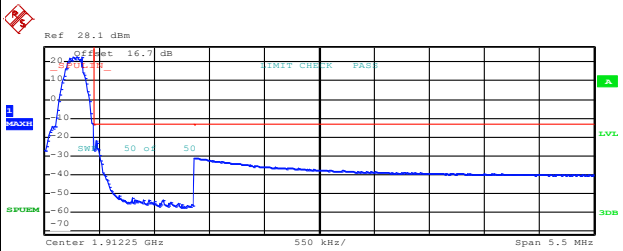
Lowest Band Edge



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.845 G	1.849 G	1.00 M	1.848924 G	-27.62	-14.62
1.849 G	1.850 G	3.00 k	1.849984 G	-20.75	-7.75
1.850 G	1.851 G	10.00 k	1.850194 G	23.24	-11.76

Date: 15.DEC.2022 11:46:03

Highest Band Edge

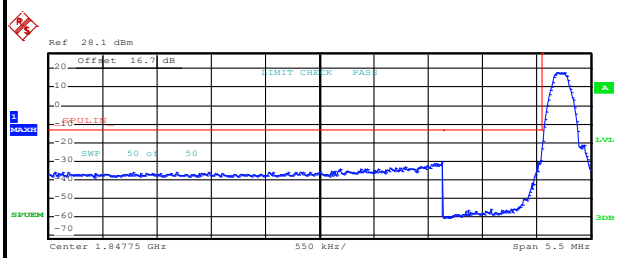


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.910 G	1.910 G	10.00 k	1.909785 G	22.76	-12.24
1.910 G	1.911 G	3.00 k	1.910016 G	-22.00	-9.00
1.911 G	1.915 G	1.00 M	1.911000 G	-31.21	-18.21

Date: 15.DEC.2022 11:47:44

GSM1900 (EDGE class 8)

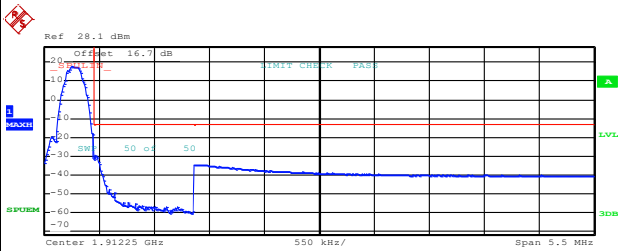
Lowest Band Edge



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.845 G	1.849 G	1.00 M	1.849000 G	-30.16	-17.16
1.849 G	1.850 G	3.00 k	1.849988 G	-29.77	-16.77
1.850 G	1.851 G	10.00 k	1.850169 G	17.86	-17.14

Date: 15.DEC.2022 13:58:16

Highest Band Edge



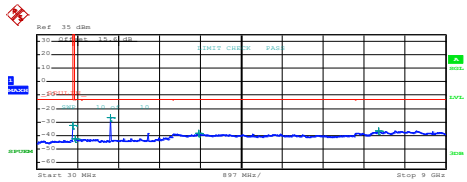
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.910 G	1.910 G	10.00 k	1.909772 G	18.12	-16.88
1.910 G	1.911 G	3.00 k	1.910004 G	-29.67	-16.67
1.911 G	1.915 G	1.00 M	1.911048 G	-34.50	-21.50

Date: 15.DEC.2022 14:00:02

Conducted Spurious Emission

GSM850 (GSM)

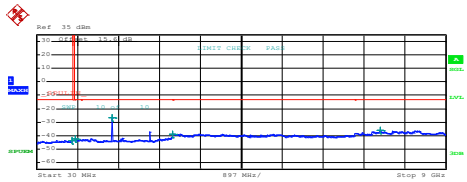
Lowest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	819.407500 M	-32.35	-19.35
855.000 M	1.000 G	1.00 M	865.585001 M	-42.52	-29.52
1.000 G	3.000 G	1.00 M	1.648500 G	-26.46	-13.46
3.000 G	7.000 G	1.00 M	3.591000 G	-38.65	-25.65
7.000 G	9.000 G	1.00 M	7.523500 G	-36.53	-23.53

Date: 18.DEC.2022 10:43:56

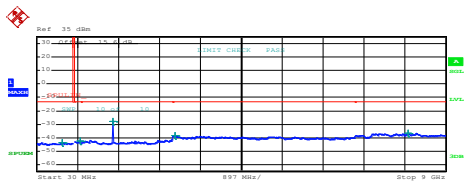
Middle Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	809.927500 M	-43.40	-30.40
855.000 M	1.000 G	1.00 M	881.027502 M	-42.70	-29.70
1.000 G	3.000 G	1.00 M	1.673000 G	-26.72	-13.72
3.000 G	7.000 G	1.00 M	3.003000 G	-38.81	-25.81
7.000 G	9.000 G	1.00 M	7.561000 G	-35.82	-22.82

Date: 18.DEC.2022 10:45:03

Highest Channel

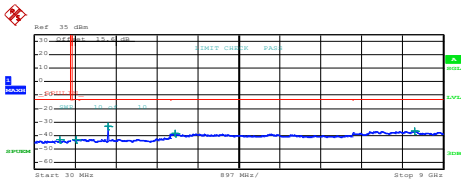


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	592.085000 M	-43.55	-30.55
855.000 M	1.000 G	1.00 M	977.198758 M	-42.44	-29.44
1.000 G	3.000 G	1.00 M	1.697500 G	-27.98	-14.98
3.000 G	7.000 G	1.00 M	3.070000 G	-38.58	-25.58
7.000 G	9.000 G	1.00 M	8.166500 G	-36.57	-23.57

Date: 18.DEC.2022 10:46:05

GSM850 (EDGE class 8)

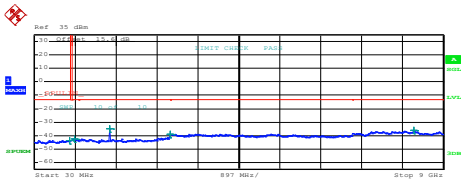
Lowest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	594.257500 M	-43.24	-30.24
855.000 M	1.000 G	1.00 M	953.020007 M	-42.81	-29.81
1.000 G	3.000 G	1.00 M	1.648500 G	-33.23	-20.23
3.000 G	7.000 G	1.00 M	3.108000 G	-38.48	-25.48
7.000 G	9.000 G	1.00 M	8.365500 G	-36.58	-23.58

Date: 18.DEC.2022 11:11:11

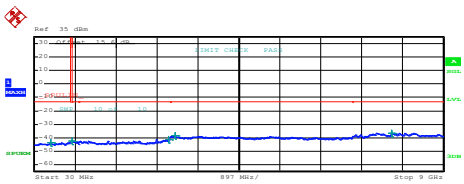
Middle Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	792.745000 M	-43.51	-30.51
855.000 M	1.000 G	1.00 M	911.803754 M	-42.43	-29.43
1.000 G	3.000 G	1.00 M	1.673500 G	-34.99	-21.99
3.000 G	7.000 G	1.00 M	3.011000 G	-38.87	-25.87
7.000 G	9.000 G	1.00 M	8.353000 G	-36.25	-23.25

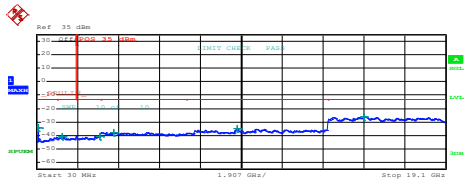
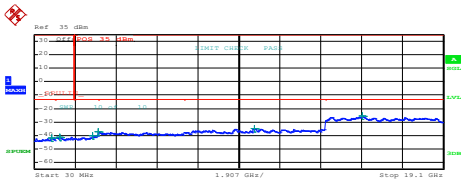
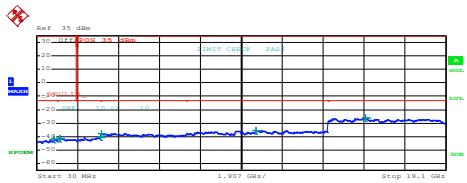
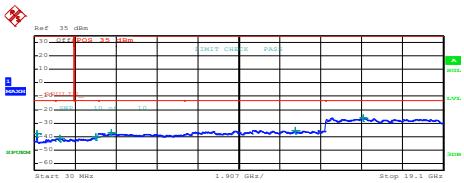
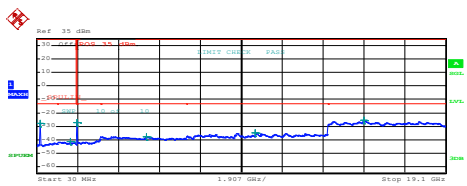
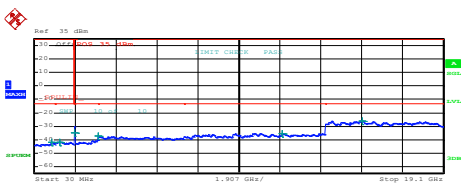
Date: 18.DEC.2022 11:12:17

Highest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	382.142500 M	-43.39	-30.39
855.000 M	1.000 G	1.00 M	859.603750 M	-42.29	-29.29
1.000 G	3.000 G	1.00 M	2.968500 G	-41.08	-28.08
3.000 G	7.000 G	1.00 M	3.109000 G	-38.62	-25.62
7.000 G	9.000 G	1.00 M	7.868000 G	-36.39	-23.39

Date: 18.DEC.2022 11:13:10

GSM1900 (GSM)	GSM1900 (EDGE class 8)
Lowest Channel	**Lowest Channel**
	
Start [Hz] / Stop [Hz] / RBW [Hz] / Freq [Hz] / PwrAbs [dBm] / ΔLimit [dB] 30.000 M / 1.000 G / 1.00 M / 111.965000 M / -34.35 / -21.35 1.000 G / 1.845 G / 1.00 M / 1.214419 G / -40.70 / -27.70 1.915 G / 3.000 G / 1.00 M / 2.948463 G / -40.48 / -27.48 3.000 G / 7.000 G / 1.00 M / 3.600000 G / -37.71 / -24.71 7.000 G / 13.600 G / 1.00 M / 9.364450 G / -35.14 / -22.14 13.600 G / 19.100 G / 1.00 M / 15.303625 G / -26.07 / -13.07	Start [Hz] / Stop [Hz] / RBW [Hz] / Freq [Hz] / PwrAbs [dBm] / ΔLimit [dB] 30.000 M / 1.000 G / 1.00 M / 836.797500 M / -41.66 / -28.66 1.000 G / 1.845 G / 1.00 M / 1.227516 G / -41.46 / -28.46 1.915 G / 3.000 G / 1.00 M / 2.720884 G / -40.03 / -27.03 3.000 G / 7.000 G / 1.00 M / 3.022000 G / -37.50 / -24.50 7.000 G / 13.600 G / 1.00 M / 10.271125 G / -35.15 / -22.15 13.600 G / 19.100 G / 1.00 M / 15.329062 G / -25.76 / -12.76
Date: 15.DEC.2022 11:37:57	Date: 15.DEC.2022 13:48:27
Middle Channel	**Middle Channel**
	
Start [Hz] / Stop [Hz] / RBW [Hz] / Freq [Hz] / PwrAbs [dBm] / ΔLimit [dB] 30.000 M / 1.000 G / 1.00 M / 829.522500 M / -41.81 / -28.81 1.000 G / 1.845 G / 1.00 M / 1.104146 G / -41.51 / -28.51 1.915 G / 3.000 G / 1.00 M / 2.997830 G / -40.37 / -27.37 3.000 G / 7.000 G / 1.00 M / 3.029000 G / -37.74 / -24.74 7.000 G / 13.600 G / 1.00 M / 10.248025 G / -35.40 / -22.40 13.600 G / 19.100 G / 1.00 M / 15.364812 G / -26.12 / -13.12	Start [Hz] / Stop [Hz] / RBW [Hz] / Freq [Hz] / PwrAbs [dBm] / ΔLimit [dB] 30.000 M / 1.000 G / 1.00 M / 141.792500 M / -37.64 / -24.64 1.000 G / 1.845 G / 1.00 M / 1.200899 G / -41.54 / -28.54 1.915 G / 3.000 G / 1.00 M / 2.875325 G / -40.09 / -27.09 3.000 G / 7.000 G / 1.00 M / 3.602000 G / -37.21 / -24.21 7.000 G / 13.600 G / 1.00 M / 12.191725 G / -35.20 / -22.20 13.600 G / 19.100 G / 1.00 M / 15.361375 G / -26.03 / -13.03
Date: 15.DEC.2022 11:39:00	Date: 15.DEC.2022 13:49:41
Highest Channel	**Highest Channel**
	
Start [Hz] / Stop [Hz] / RBW [Hz] / Freq [Hz] / PwrAbs [dBm] / ΔLimit [dB] 30.000 M / 1.000 G / 1.00 M / 171.620000 M / -27.91 / -14.91 1.000 G / 1.845 G / 1.00 M / 1.575868 G / -41.52 / -28.52 1.915 G / 3.000 G / 1.00 M / 1.915271 G / -27.03 / -14.03 3.000 G / 7.000 G / 1.00 M / 5.154000 G / -37.65 / -24.65 7.000 G / 13.600 G / 1.00 M / 10.227400 G / -35.16 / -22.16 13.600 G / 19.100 G / 1.00 M / 15.295375 G / -25.75 / -12.75	Start [Hz] / Stop [Hz] / RBW [Hz] / Freq [Hz] / PwrAbs [dBm] / ΔLimit [dB] 30.000 M / 1.000 G / 1.00 M / 828.795000 M / -41.89 / -28.89 1.000 G / 1.845 G / 1.00 M / 1.220968 G / -41.67 / -28.67 1.915 G / 3.000 G / 1.00 M / 1.915271 G / -34.96 / -21.96 3.000 G / 7.000 G / 1.00 M / 3.019000 G / -37.41 / -24.41 7.000 G / 13.600 G / 1.00 M / 11.588650 G / -35.29 / -22.29 13.600 G / 19.100 G / 1.00 M / 15.309813 G / -25.92 / -12.92
Date: 15.DEC.2022 11:39:56	Date: 15.DEC.2022 13:50:51

Frequency Stability

Test Conditions	Middle Channel	GSM850 (GSM)	GSM850 (EDGE class 8)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)		Result
50	Normal Voltage	0.0048	0.0012	PASS
40	Normal Voltage	0.0024	0.0024	
30	Normal Voltage	0.0012	0.0012	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0036	0.0012	
0	Normal Voltage	0.0012	0.0263	
-10	Normal Voltage	0.0024	0.0024	
-20	Normal Voltage	0.0036	0.0275	
-30	Normal Voltage	0.0024	0.0012	
20	Maximum Voltage	0.0048	0.0024	
20	Normal Voltage	0.0000	0.0263	
20	Battery End Point	0.0048	0.0000	

Test Conditions	Middle Channel	GSM1900 (GSM)	GSM1900 (EDGE class 8)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)		Result
50	Normal Voltage	0.0005	0.0021	PASS
40	Normal Voltage	0.0021	0.0021	
30	Normal Voltage	0.0016	0.0027	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0037	0.0011	
0	Normal Voltage	0.0149	0.0011	
-10	Normal Voltage	0.0207	0.0016	
-20	Normal Voltage	0.0016	0.0000	
-30	Normal Voltage	0.0213	0.0005	
20	Maximum Voltage	0.0239	0.0000	
20	Normal Voltage	0.0223	0.0005	
20	Battery End Point	0.0245	0.0011	

Note:

1. Normal Voltage = 3.88V. ；Battery End Point (BEP) = 3.6 V.；Maximum Voltage =4.4 V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

Appendix B. Test Results of Radiated Test

<Primary Antenna>
<Open mode>
<Ant. 0>

GSM 850

GSM 850									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1648	-56.20	-13	-43.20	-66.91	-62.61	0.81	9.37	H
	2473	-37.44	-13	-24.44	-51.17	-44.57	1.08	10.37	H
	3298	-54.73	-13	-41.73	-71.58	-63.51	1.11	12.04	H
									H
									H
									H
									H
	1648	-56.05	-13	-43.05	-66.68	-62.46	0.81	9.37	V
	2473	-37.57	-13	-24.57	-51.35	-44.70	1.08	10.37	V
	3298	-54.62	-13	-41.62	-71.77	-63.40	1.11	12.04	V
									V
									V
									V
Middle	1673	-46.20	-13	-33.20	-56.93	-52.69	0.81	9.46	H
	2509	-31.95	-13	-18.95	-45.76	-39.24	1.11	10.55	H
	3346	-38.76	-13	-25.76	-55.67	-47.81	1.10	12.30	H
									H
									H
									H
									H
	1673	-50.42	-13	-37.42	-61.12	-56.91	0.81	9.46	V
	2509	-36.04	-13	-23.04	-49.91	-43.33	1.11	10.55	V
	3346	-41.48	-13	-28.48	-58.7	-50.53	1.10	12.30	V
									V
									V
									V

Highest	1698	-46.16	-13	-33.16	-56.93	-52.74	0.81	9.54	H
	2546	-39.00	-13	-26.00	-53.1	-46.49	1.09	10.73	H
	3395	-42.10	-13	-29.10	-59.06	-51.42	1.10	12.57	H
									H
									H
									H
									H
	1698	-51.27	-13	-38.27	-62.05	-57.85	0.81	9.54	V
	2546	-41.05	-13	-28.05	-55.23	-48.54	1.09	10.73	V
	3395	-46.84	-13	-33.84	-64.13	-56.16	1.10	12.57	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

<Ant. 2>

GSM 1900

GSM 1900									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3700	-53.14	-13	-40.14	-71.83	-64.01	1.23	12.10	H
	5550	-49.55	-13	-36.55	-72.74	-61.12	1.58	13.15	H
	7400	-43.48	-13	-30.48	-72.77	-52.94	1.94	11.40	H
									H
									H
									H
									H
	3700	-52.93	-13	-39.93	-71.88	-63.80	1.23	12.10	V
	5550	-46.36	-13	-33.36	-72.24	-57.93	1.58	13.15	V
	7400	-43.22	-13	-30.22	-72.6	-52.68	1.94	11.40	V
									V
									V
									V
									V
Middle	3760	-52.58	-13	-39.58	-71.24	-63.58	1.16	12.16	H
	5640	-49.34	-13	-36.34	-72.52	-61.10	1.48	13.24	H
	7520	-43.91	-13	-30.91	-72.91	-53.28	1.91	11.28	H
									H
									H
									H
									H
	3760	-52.81	-13	-39.81	-71.76	-63.81	1.16	12.16	V
	5640	-46.35	-13	-33.35	-72.27	-58.11	1.48	13.24	V
	7520	-43.90	-13	-30.90	-73.03	-53.27	1.91	11.28	V
									V
									V
									V
									V

Highest	3819	-53.06	-13	-40.06	-71.78	-64.14	1.16	12.24	H
	5729	-49.24	-13	-36.24	-72.52	-61.18	1.38	13.33	H
	7639	-44.09	-13	-31.09	-73.09	-53.82	1.89	11.62	H
									H
									H
									H
									H
	3819	-52.72	-13	-39.72	-71.76	-63.80	1.16	12.24	V
	5729	-47.02	-13	-34.02	-72.74	-58.96	1.38	13.33	V
	7639	-43.52	-13	-30.52	-72.72	-53.25	1.89	11.62	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

<ASDIV Antenna>
<Open mode>
<Ant. 1>

GSM 850

GSM 850									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1648	-56.15	-13	-43.15	-66.86	-62.56	0.81	9.37	H
	2473	-54.13	-13	-41.13	-67.86	-61.26	1.08	10.37	H
	3298	-54.76	-13	-41.76	-71.61	-63.54	1.11	12.04	H
									H
									H
									H
									H
	1648	-55.23	-13	-42.23	-65.86	-61.64	0.81	9.37	V
	2473	-45.32	-13	-32.32	-59.1	-52.45	1.08	10.37	V
	3298	-54.60	-13	-41.60	-71.75	-63.38	1.11	12.04	V
									V
									V
									V
Middle	1673	-57.32	-13	-44.32	-68.05	-63.81	0.81	9.46	H
	2509	-51.87	-13	-38.87	-65.68	-59.16	1.11	10.55	H
	3346	-54.43	-13	-41.43	-71.34	-63.48	1.10	12.30	H
									H
									H
									H
									H
	1673	-59.18	-13	-46.18	-69.88	-65.67	0.81	9.46	V
	2509	-44.71	-13	-31.71	-58.58	-52.00	1.11	10.55	V
	3346	-54.12	-13	-41.12	-71.34	-63.17	1.10	12.30	V
									V
									V
									V

Highest	1698	-56.45	-13	-43.45	-67.22	-63.03	0.81	9.54	H
	2546	-51.04	-13	-38.04	-65.14	-58.53	1.09	10.73	H
	3395	-53.77	-13	-40.77	-70.73	-63.09	1.10	12.57	H
									H
									H
									H
									H
	1698	-59.53	-13	-46.53	-70.31	-66.11	0.81	9.54	V
	2546	-48.47	-13	-35.47	-62.65	-55.96	1.09	10.73	V
	3395	-53.76	-13	-40.76	-71.05	-63.08	1.10	12.57	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

<Ant. 0>

GSM 1900

GSM 1900									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3700	-52.72	-13	-39.72	-71.41	-63.59	1.23	12.10	H
	5550	-49.93	-13	-36.93	-73.12	-61.50	1.58	13.15	H
	7400	-42.97	-13	-29.97	-72.26	-52.43	1.94	11.40	H
									H
									H
									H
									H
	3700	-52.78	-13	-39.78	-71.73	-63.65	1.23	12.10	V
	5550	-47.29	-13	-34.29	-73.17	-58.86	1.58	13.15	V
	7400	-43.21	-13	-30.21	-72.59	-52.67	1.94	11.40	V
									V
									V
									V
									V
Middle	3760	-53.08	-13	-40.08	-71.74	-64.08	1.16	12.16	H
	5640	-49.17	-13	-36.17	-72.35	-60.93	1.48	13.24	H
	7520	-44.05	-13	-31.05	-73.05	-53.42	1.91	11.28	H
									H
									H
									H
									H
	3760	-52.37	-13	-39.37	-71.32	-63.37	1.16	12.16	V
	5640	-46.61	-13	-33.61	-72.53	-58.37	1.48	13.24	V
	7520	-43.76	-13	-30.76	-72.89	-53.13	1.91	11.28	V
									V
									V
									V
									V

Highest	3819	-52.68	-13	-39.68	-71.41	-63.76	1.16	12.24	H
	5729	-49.21	-13	-36.21	-72.49	-61.15	1.38	13.33	H
	7639	-43.74	-13	-30.74	-72.74	-53.47	1.89	11.62	H
									H
									H
									H
									H
	3819	-52.90	-13	-39.90	-71.93	-63.98	1.16	12.24	V
	5729	-46.69	-13	-33.69	-72.41	-58.63	1.38	13.33	V
	7639	-43.82	-13	-30.82	-73.02	-53.55	1.89	11.62	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

———THE END———