



FCC RADIO TEST REPORT

FCC ID : A4RGTF7P
Equipment : Phone
Model Name : GTF7P, G3Y12
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 May 23, 2024 and testing was performed from Jun. 21, 2024 to Aug. 19, 2024. 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 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

Sporton International Inc. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)



Table of Contents

History of this test report.....	3
Summary of Test Result.....	4
1 General Description	6
1.1 Product Feature of Equipment Under Test	6
1.2 Modification of EUT	6
1.3 Testing Location	7
1.4 Applicable Standards	7
2 Test Configuration of Equipment Under Test	8
2.1 Test Mode.....	8
2.2 Connection Diagram of Test System	9
2.3 Support Unit used in test configuration	9
2.4 Measurement Results Explanation Example	9
2.5 Frequency List of Low/Middle/High Channels	10
3 Conducted Test Result	11
3.1 Measuring Instruments.....	11
3.2 Conducted Output Power and ERP/EIRP	12
3.3 Peak-to-Average Ratio	13
3.4 99% Occupied Bandwidth and 26dB Bandwidth Measurement.....	14
3.5 Conducted Band Edge	15
3.6 Conducted Spurious Emission	16
3.7 Frequency Stability	17
4 Radiated Test Items	18
4.1 Measuring Instruments.....	18
4.2 Test Setup	18
4.3 Test Result of Radiated Test.....	19
4.4 Field Strength of Spurious Radiation Measurement	20
5 List of Measuring Equipment.....	21
6 Measurement Uncertainty	22
Appendix A. Test Results of Conducted Test	
Appendix B. Test Results of Radiated Test	
Appendix C. Spot Check Evaluation on GTF7P, G3Y12	
Appendix D. Test Setup Photographs	



History of this test report

Report No.	Version	Description	Issue Date
FG451607E	01	Initial issue of report	Oct. 30, 2024
FG451607E	02	Revise appendix C This report is an updated version, replacing the report issued on Oct. 30, 2024.	Nov. 01, 2024
FG451607E	03	1. Revise appendix C 2. Remove data for WCDMA Band II and Band IV This report is an updated version, replacing the report issued on Nov. 01, 2024.	Nov. 11, 2024

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) (WCDMA Band V)		
	§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) (WCDMA Band V) (GSM1900)	Pass	-
3.5	§2.1051 §22.917 (a) §24.238 (a)	Band Edge Measurement (GSM850) (WCDMA Band V) (GSM1900)	Pass	-
3.6	§2.1051 §22.917 (a) §24.238 (a)	Conducted Emission (GSM850) (WCDMA Band V) (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) (WCDMA Band V) (GSM1900)	Pass	18.90 dB under the limit at 2509.00 MHz for Tx0 Antenna 19.85 dB under the limit at 2509.00 MHz for Tx1 Antenna

**Conformity Assessment Condition:**

1. ECR inquiry for data referencing from A4RGXQ96 has been approved by FCC. The ECR inquiry and the associated document are submitted in the confidential exhibit.
2. A4RGTF7P is different from FCC ID: A4RGXQ96 (Reference model), in the following:
 - The only difference between A4RGXQ96 and A4RGTF7P are the WWAN support bands, which is controlled by software.
3. All the test results are referenced from A4RGXQ96 (Sporton Test Report FG451606A), and spot check results to justify data referencing is presented in the Appendix C.
4. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
5. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

Disclaimer:

1. The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.
2. The GTF7P and G3Y12 are 100% identical in Hardware / Software to each other, and only have different model names for marketing segmentation.

Reviewed by: William Chen**Report Producer: Lucy Wu**



1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature
General Specs GSM/WCDMA/LTE/5G NR, Bluetooth, BLE, BLE channel sounding, Wi-Fi 802.11ax, NFC, WPC Rx and GNSS.
Antenna Type WWAN: <Ant. 0>: ILA Antenna <Ant. 1>: ILA Antenna <Ant. 2>: IFA Antenna

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

Antenna information					
Band	Ant0	Ant1	Ant2	Main Ant. #	Sub Ant. #
GSM 850	-2.8	-5.3	-	0	1
GSM 1900	-3.0	-	-1.1	2	0
WCDMA B5	-2.8	-5.3	-	0	1

Remark:

1. For Test Items, Main Ant. means Tx0 and Sub Ant. means Tx1.
2. After preliminary scan, the main antenna Ant 0 for Low band and main antenna Ant 2 for Mid/high band are selected as the worst mode to be reported for conducted test.

EUT Information List	
S/N	Performed Test Item
44291JEBF05074	Conducted Measurement ERP/EIRP
44291JEBF05108	Radiated Spurious Emission

1.2 Modification of EUT

No modifications made to the EUT during the testing.



1.3 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	Eric Wu
Temperature (°C)	23.1~25.1
Relative Humidity (%)	37.7~39.7

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. 03CH23-HY (TAF Code: 3786)
Test Engineer	Leo Li and Lucifer Jiang
Temperature (°C)	19.4~21.1
Relative Humidity (%)	44.7~65.1
Remark	The Field Strength of Spurious Radiation 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

1.4 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
- ♦ 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. 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 and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.26 exploratory test procedures and find Z Plane with Adapter as worst plane.

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 9000 MHz for GSM850 and WCDMA Band V
2. 30 MHz to 19100 MHz for GSM1900

All modes, data rates and positions were investigated.

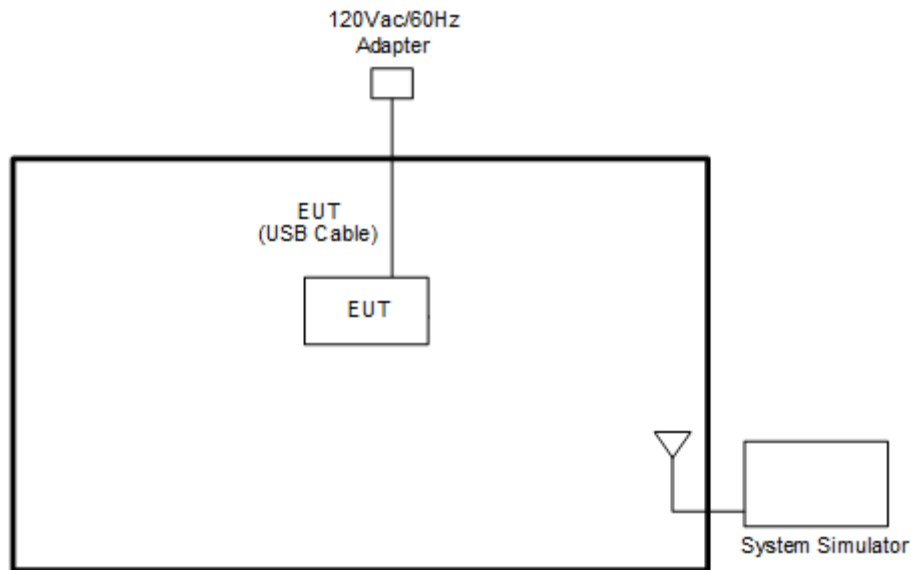
Test modes are chosen to be reported as the worst case configuration below:

Test Modes		
Band	Radiated TCs	Conducted TCs
GSM850	■ GPRS Class 8 Link	■ GPRS Class 8 Link
	■ EDGE Class 8 Link	■ EDGE Class 8 Link
GSM1900	■ GPRS Class 8 Link	■ GPRS Class 8 Link
	■ EDGE Class 8 Link	■ EDGE Class 8 Link
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

Remark: All the radiated test cases were performed with USB Cable 2.

2.2 Connection Diagram of Test System

<EUT with Adapter>



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.	AC Adapter	N/A	GW8L7	N/A	N/A	N/A

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:

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 4.2 + 10 = 14.2 \text{ (dB)} \end{aligned}$$



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
WCDMA Band V	Channel	4132	4182	4233
	Frequency	826.4	836.4	846.6
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

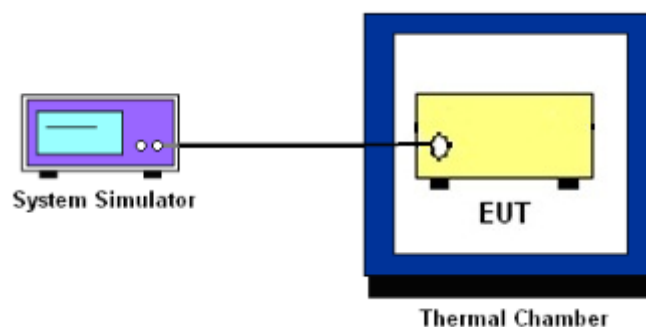
3.1.2 Conducted Output Power



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 and WCDMA Band V

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 $43 + 10\log(P)$ 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 10th 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 $43 + 10\log(P)$ 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 $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) 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 $20\pm 5^{\circ}\text{C}$ 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.

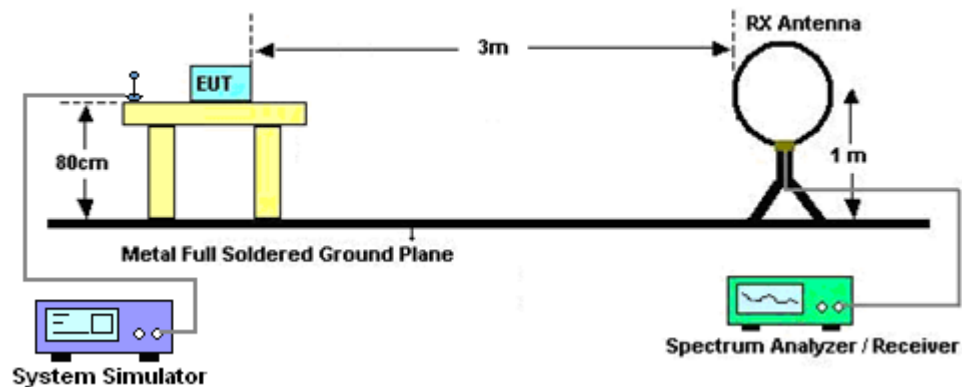
4 Radiated Test Items

4.1 Measuring Instruments

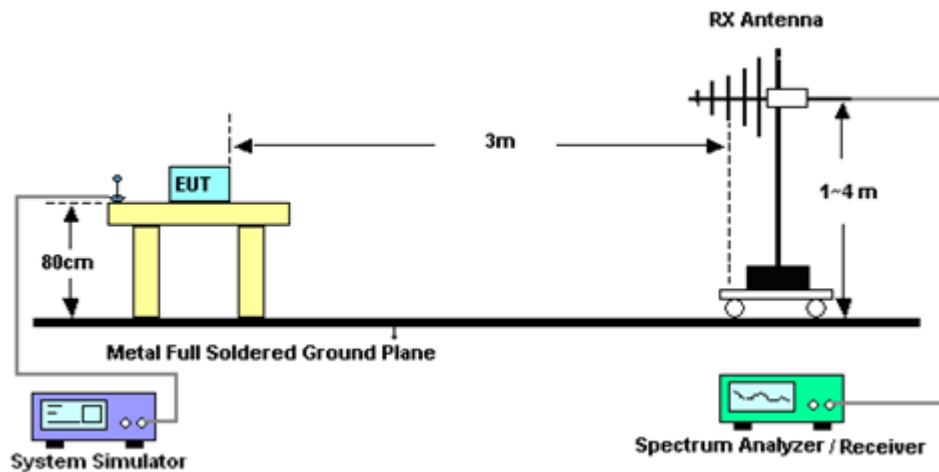
Please refer to the measuring equipment list in this test report.

4.2 Test Setup

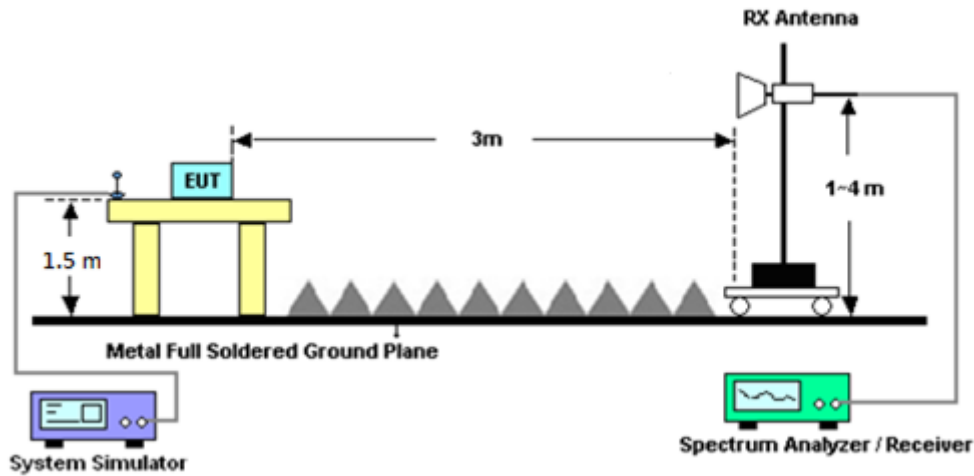
For radiated test below 30MHz



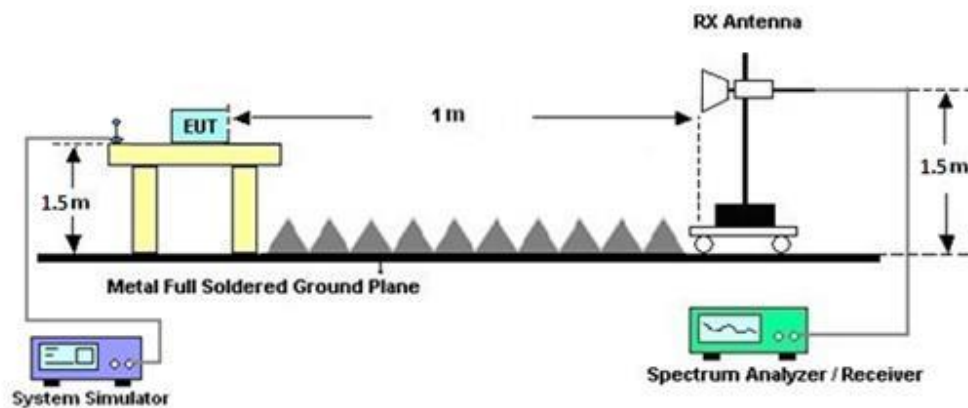
For radiated test from 30MHz to 1GHz



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 C63.26-2015 section 5.5.4 Radiated measurement using the field strength method.

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. To convert spectrum reading E(dBuV/m) to EIRP(dBm)
$$\text{EIRP(dBm)} = \text{Level (dBuV/m)} + 20\log(d) - 104.77,$$
where d is the distance at which field strength limit is specified in the rules
7. Field Strength Level (dBm) = Spectrum Reading (dBm) + Antenna Factor + Cable Loss + Read Level - Preamp Factor.
8. ERP (dBm) = EIRP (dBm) - 2.15
9. The RF fundamental frequency shall be excluded against the limit line in the operating frequency band.



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. 12, 2023	Jun. 21, 2024~ Aug. 10, 2024	Sep. 11, 2024	Radiation (03CH23-HY)
Bilog Antenna with 6dB pad	TESEQ & WOKEN	CBL 6111D & 00802N1D-06	62028 & 003	N/A	Oct. 15, 2023	Jun. 21, 2024~ Aug. 10, 2024	Oct. 14, 2024	Radiation (03CH23-HY)
Amplifier	SONOMA	310N	421582	N/A	Jul. 15, 2023	Jun. 21, 2024~ Jul. 13, 2024	Jul. 14, 2024	Radiation (03CH23-HY)
Amplifier	SONOMA	310N	421582	N/A	Jul. 14, 2024	Jul. 14, 2024~ Aug. 10, 2024	Jul. 13, 2025	Radiation (03CH23-HY)
Double Ridged Guide Horn Antenna	RFSPIN	DRH18-E	LE2C05A18E N	1GHz~18GHz	Jun. 20, 2024	Jun. 21, 2024~ Aug. 10, 2024	Jun. 19, 2025	Radiation (03CH23-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA9170	00993	18GHz~40GHz	Nov. 24, 2023	Jun. 21, 2024~ Jun. 23, 2024	Nov. 23, 2024	Radiation (03CH23-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA9170	1223	18GHz~40GHz	Jun. 24, 2024	Jun. 24, 2024~ Aug. 10, 2024	Jun. 23, 2025	Radiation (03CH23-HY)
Amplifier	EMEC	EM01G18GA	060878	N/A	Sep. 28, 2023	Jun. 21, 2024~ Aug. 10, 2024	Sep. 27, 2024	Radiation (03CH23-HY)
Preamplifier	EMEC	EM18G40G	060871	18-40GHz	Sep. 06, 2023	Jun. 21, 2024~ Aug. 10, 2024	Sep. 05, 2024	Radiation (03CH23-HY)
Signal Analyzer	Keysight	N9010B	MY62170337	N/A	Aug. 17, 2023	Jun. 21, 2024~ Aug. 10, 2024	Aug. 16, 2024	Radiation (03CH23-HY)
Hygrometer	TECPEL	DTM-303B	TP211542	N/A	Oct. 30, 2023	Jun. 21, 2024~ Aug. 10, 2024	Oct. 29, 2024	Radiation (03CH23-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Jun. 21, 2024~ Aug. 10, 2024	N/A	Radiation (03CH23-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Jun. 21, 2024~ Aug. 10, 2024	N/A	Radiation (03CH23-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Jun. 21, 2024~ Aug. 10, 2024	N/A	Radiation (03CH23-HY)
Software	Audix	E3 6.09824_20191 22	RK-002348	N/A	N/A	Jun. 21, 2024~ Aug. 10, 2024	N/A	Radiation (03CH23-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9kHz~30MHz	Mar. 06, 2024	Jun. 21, 2024~ Aug. 10, 2024	Mar. 05, 2025	Radiation (03CH23-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804395/2	N/A	Nov. 27, 2023	Jun. 21, 2024~ Aug. 10, 2024	Nov. 26, 2024	Radiation (03CH23-HY)
RF Cable	EMC	EMC101Y	231115/2311 19/231122	N/A	Nov. 27, 2023	Jun. 21, 2024~ Aug. 10, 2024	Nov. 26, 2024	Radiation (03CH23-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101329	9kHz~30GHz	Sep. 20, 2023	Jun. 25, 2024~ Jul. 09, 2024	Sep. 19, 2024	Conducted (TH03-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890001	1V~20V 0.5A~4A	Sep. 12, 2023	Jun. 25, 2024~ Jul. 09, 2024	Sep. 11, 2024	Conducted (TH03-HY)
Base Station (Measure)	Rohde & Schwarz	CMU200	117995	GSM / GPRS / WCDMA / CDMA	Aug. 06, 2023	Jun. 25, 2024~ Jul. 09, 2024	Aug. 05, 2024	Conducted (TH03-HY)
Temperature & Humidity Cabinet Chamber	ESPEC	LHU-113	1012005860	-20℃~85℃	Dec. 13, 2023	Jun. 25, 2024~ Jul. 09, 2024	Dec. 12, 2024	Conducted (TH03-HY)
Hygrometer	TECPEL	DTM-303B	TP200886	N/A	Mar. 14, 2024	Jun. 25, 2024~ Jul. 09, 2024	Mar. 13, 2025	Conducted (TH03-HY)
Power divider	Anritsu	K241C	2143398	9KHz~40GHz	Jun. 13, 2024	Jun. 25, 2024~ Jul. 09, 2024	Jun. 12, 2025	Conducted (TH03-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	801606/3	N/A	May 15, 2024	Jun. 25, 2024~ Jul. 09, 2024	May 14, 2024	Conducted (TH03-HY)



6 Measurement Uncertainty

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.43 dB
--	---------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.56 dB
--	---------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.19 dB
--	---------



Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power) & ERP / EIRP

<Tx0>

GSM850 Maximum Average Power [dBm] (GT - LC = -2.8 dB)					
Channel	128	189	251	ERP (dBm)	ERP (W)
Frequency	824.2	836.4	848.8		
GSM	32.55	32.50	32.56	27.65	0.5821
GPRS class 8	32.60	32.51	32.59		
GPRS class 10	31.49	31.40	31.27		
GPRS class 11	30.36	30.20	30.30		
GPRS class 12	29.25	29.03	29.10		
EGPRS class 8	27.16	27.21	27.06	22.26	0.1683
EGPRS class 10	26.15	26.44	26.19		
EGPRS class 11	26.30	26.33	26.35		
EGPRS class 12	24.72	24.62	24.37		
Limit	ERP < 7W			Result	Pass

GSM1900 Maximum Average Power [dBm] (GT - LC = -1.1 dB)					
Channel	512	661	810	EIRP (dBm)	EIRP (W)
Frequency	1850.2	1880	1909.8		
GSM	29.27	29.15	29.17	28.18	0.6577
GPRS class 8	29.28	29.17	29.19		
GPRS class 10	28.19	28.02	28.09		
GPRS class 11	27.55	27.97	27.76		
GPRS class 12	26.61	26.59	26.27		
EGPRS class 8	24.44	24.33	24.47	23.37	0.2173
EGPRS class 10	23.16	23.08	23.40		
EGPRS class 11	23.26	23.25	23.31		
EGPRS class 12	22.40	22.43	22.27		
Limit	EIRP < 2W			Result	Pass



FCC RADIO TEST REPORT

Report No. : FG451607E

WCDMA Band V Maximum Average Power [dBm] (GT - LC = -2.8 dB)					
Channel	4132	4182	4233	ERP (dBm)	ERP (W)
Frequency	826.4	836.4	846.6		
RMC 12.2K	24.72	24.77	24.53	19.82	0.0959
HSDPA Subtest-1	24.69	24.62	24.50		
HSDPA Subtest-2	24.62	24.42	24.32		
HSDPA Subtest-3	23.88	23.87	23.81		
HSDPA Subtest-4	23.42	23.43	23.31		
HSUPA Subtest-1	23.72	23.73	23.54		
HSUPA Subtest-2	21.02	20.86	20.87		
HSUPA Subtest-3	23.69	21.93	23.58		
HSUPA Subtest-4	22.65	20.97	22.66		
HSUPA Subtest-5	24.70	24.70	24.70		
Limit	ERP < 7W			Result	Pass


<Tx1>

GSM850 Maximum Average Power [dBm] (GT - LC = -5.3 dB)					
Channel	128	189	251	ERP (dBm)	ERP (W)
Frequency	824.2	836.4	848.8		
GSM	31.75	31.61	31.70	24.36	0.2729
GPRS class 8	31.81	31.69	31.78		
GPRS class 10	31.51	31.37	31.26		
GPRS class 11	28.86	28.66	28.75		
GPRS class 12	27.55	27.29	27.32		
EGPRS class 8	26.37	26.43	26.10	18.98	0.0791
EGPRS class 10	25.74	25.76	25.59		
EGPRS class 11	25.56	25.42	25.52		
EGPRS class 12	22.49	22.49	22.45		
Limit	ERP < 7W			Result	Pass

GSM1900 Maximum Average Power [dBm] (GT - LC = -3 dB)					
Channel	512	661	810	EIRP (dBm)	EIRP (W)
Frequency	1850.2	1880	1909.8		
GSM	28.91	28.96	29.05	26.13	0.4102
GPRS class 8	28.97	29.04	29.13		
GPRS class 10	28.43	28.72	28.29		
GPRS class 11	27.42	27.50	27.33		
GPRS class 12	26.73	26.78	26.88		
EGPRS class 8	24.76	24.56	24.47	21.76	0.1500
EGPRS class 10	23.40	23.29	23.16		
EGPRS class 11	23.51	23.37	23.17		
EGPRS class 12	22.41	22.51	22.35		
Limit	EIRP < 2W			Result	Pass



FCC RADIO TEST REPORT

Report No. : FG451607E

WCDMA Band V Maximum Average Power [dBm] (GT - LC = -5.3 dB)					
Channel	4132	4182	4233	ERP (dBm)	ERP (W)
Frequency	826.4	836.4	846.6		
RMC 12.2K	23.98	23.85	23.70	16.53	0.0450
HSDPA Subtest-1	23.90	23.81	23.57		
HSDPA Subtest-2	23.82	23.64	23.39		
HSDPA Subtest-3	23.33	23.15	22.90		
HSDPA Subtest-4	22.83	22.61	22.41		
HSUPA Subtest-1	22.89	22.82	22.68		
HSUPA Subtest-2	21.20	21.17	21.12		
HSUPA Subtest-3	22.29	22.26	22.11		
HSUPA Subtest-4	21.11	21.21	21.03		
HSUPA Subtest-5	23.90	23.90	23.70		
Limit	ERP < 7W			Result	Pass



A2. GSM

Peak-to-Average Ratio

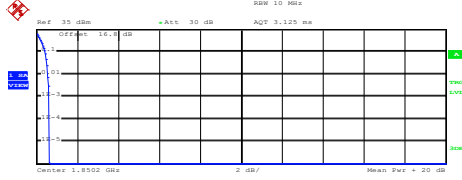
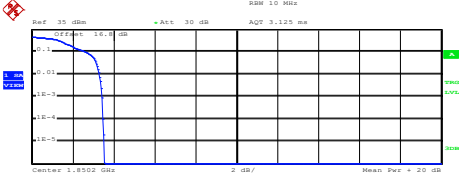
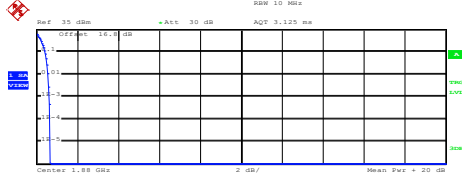
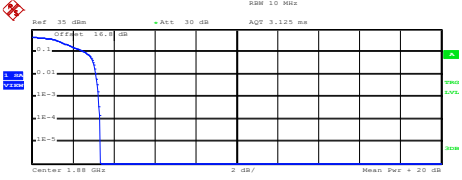
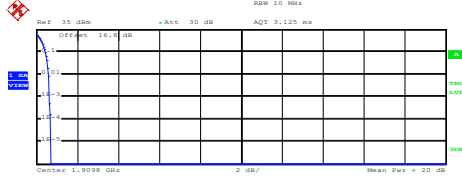
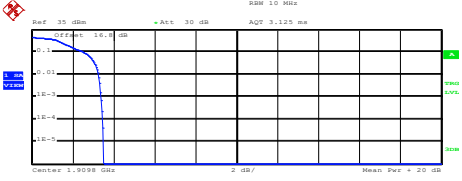
Mode	GSM850		Limit: 13dB
Mod.	GPRS class 8	EDGE class 8	Result
Lowest CH	0.72	3.16	PASS
Middle CH	0.72	3.12	
Highest CH	0.76	3.08	

Mode	GSM1900		Limit: 13dB
Mod.	GPRS class 8	EDGE class 8	Result
Lowest CH	0.64	3.44	PASS
Middle CH	0.64	3.28	
Highest CH	0.64	3.40	



GSM850 (GPRS class 8)		GSM850 (EDGE class 8)	
Lowest Channel		Lowest Channel	
<			

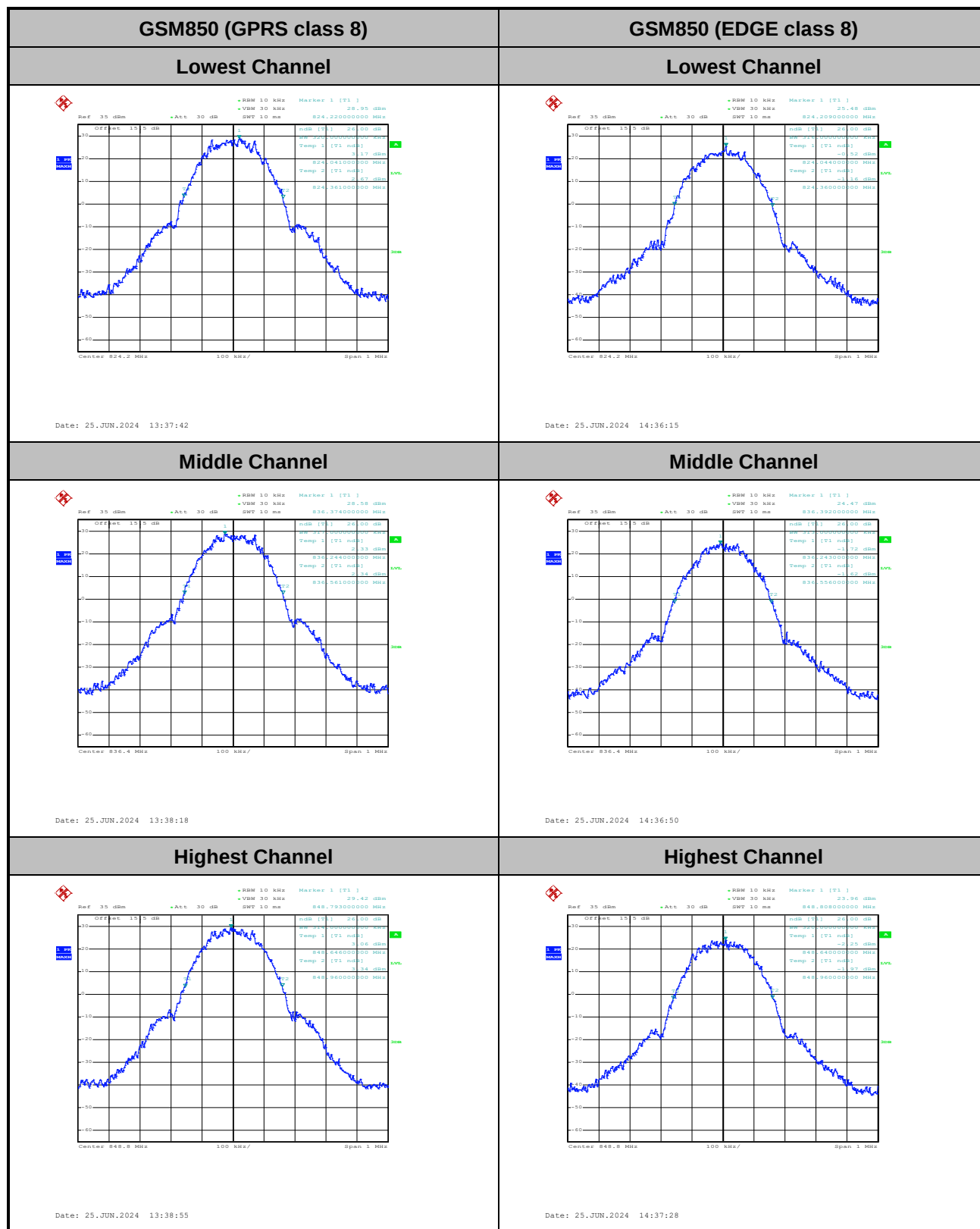


GSM1900 (GPRS class 8)		GSM1900 (EDGE class 8)	
Lowest Channel		Lowest Channel	
 Center: 1.8502 GHz 2 dB/ Mean Per + 20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 28.84 dBm Peak 29.47 dBm Crest 0.63 dB 10 % 0.44 dB 1 % 0.56 dB .1 % 0.64 dB .01 % 0.64 dB Date: 25.JUN.2024 11:00:34		 Center: 1.8502 GHz 2 dB/ Mean Per + 20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 24.18 dBm Peak 27.70 dBm Crest 3.52 dB 10 % 2.64 dB 1 % 3.32 dB .1 % 3.44 dB .01 % 3.48 dB Date: 25.JUN.2024 11:18:23	
Middle Channel		Middle Channel	
 Center: 1.85 GHz 2 dB/ Mean Per + 20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 28.61 dBm Peak 29.25 dBm Crest 0.65 dB 10 % 0.44 dB 1 % 0.56 dB .1 % 0.64 dB .01 % 0.68 dB Date: 25.JUN.2024 11:00:54		 Center: 1.85 GHz 2 dB/ Mean Per + 20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 24.07 dBm Peak 27.42 dBm Crest 3.34 dB 10 % 2.60 dB 1 % 3.12 dB .1 % 3.28 dB .01 % 3.32 dB Date: 25.JUN.2024 11:18:43	
Highest Channel		Highest Channel	
 Center: 1.9098 GHz 2 dB/ Mean Per + 20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 28.41 dBm Peak 29.11 dBm Crest 0.70 dB 10 % 0.44 dB 1 % 0.60 dB .1 % 0.64 dB .01 % 0.68 dB Date: 25.JUN.2024 11:01:15		 Center: 1.9098 GHz 2 dB/ Mean Per + 20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 24.08 dBm Peak 27.56 dBm Crest 3.48 dB 10 % 2.56 dB 1 % 3.24 dB .1 % 3.40 dB .01 % 3.48 dB Date: 25.JUN.2024 11:19:01	

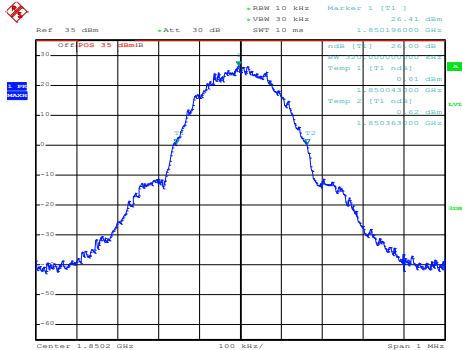
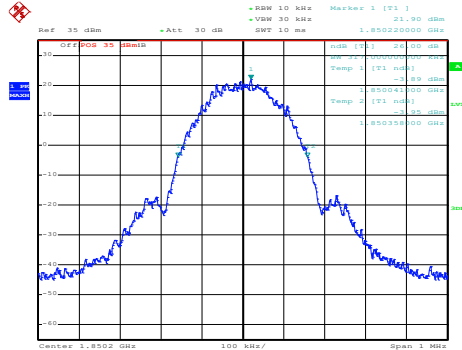
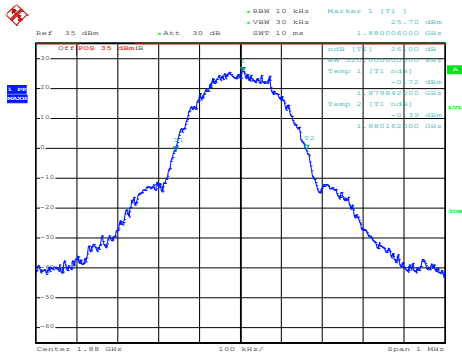
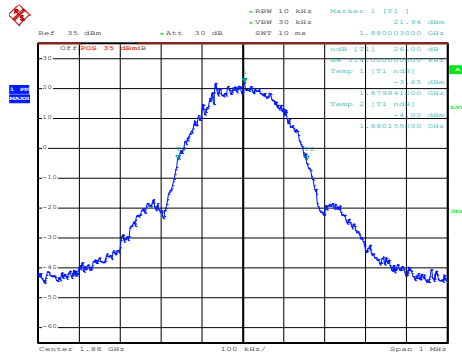
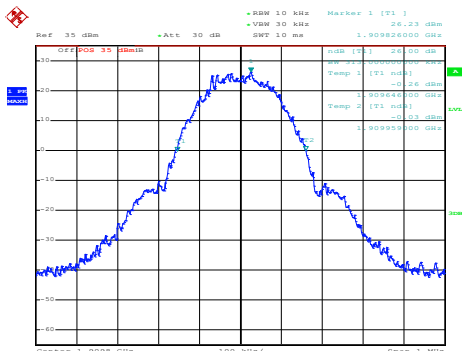
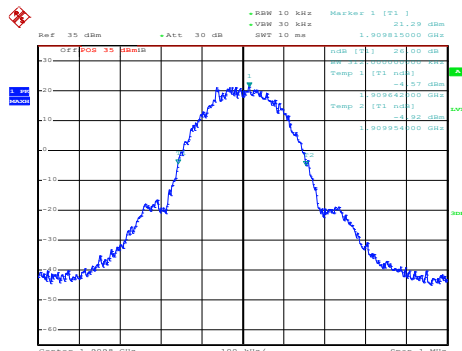
**26dB Bandwidth**

Mode	GSM850 : 26dB BW(MHz)	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.320	0.316
Middle CH	0.317	0.313
Highest CH	0.314	0.320

Mode	GSM1900 : 26dB BW(MHz)	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.320	0.317
Middle CH	0.320	0.314
Highest CH	0.313	0.312



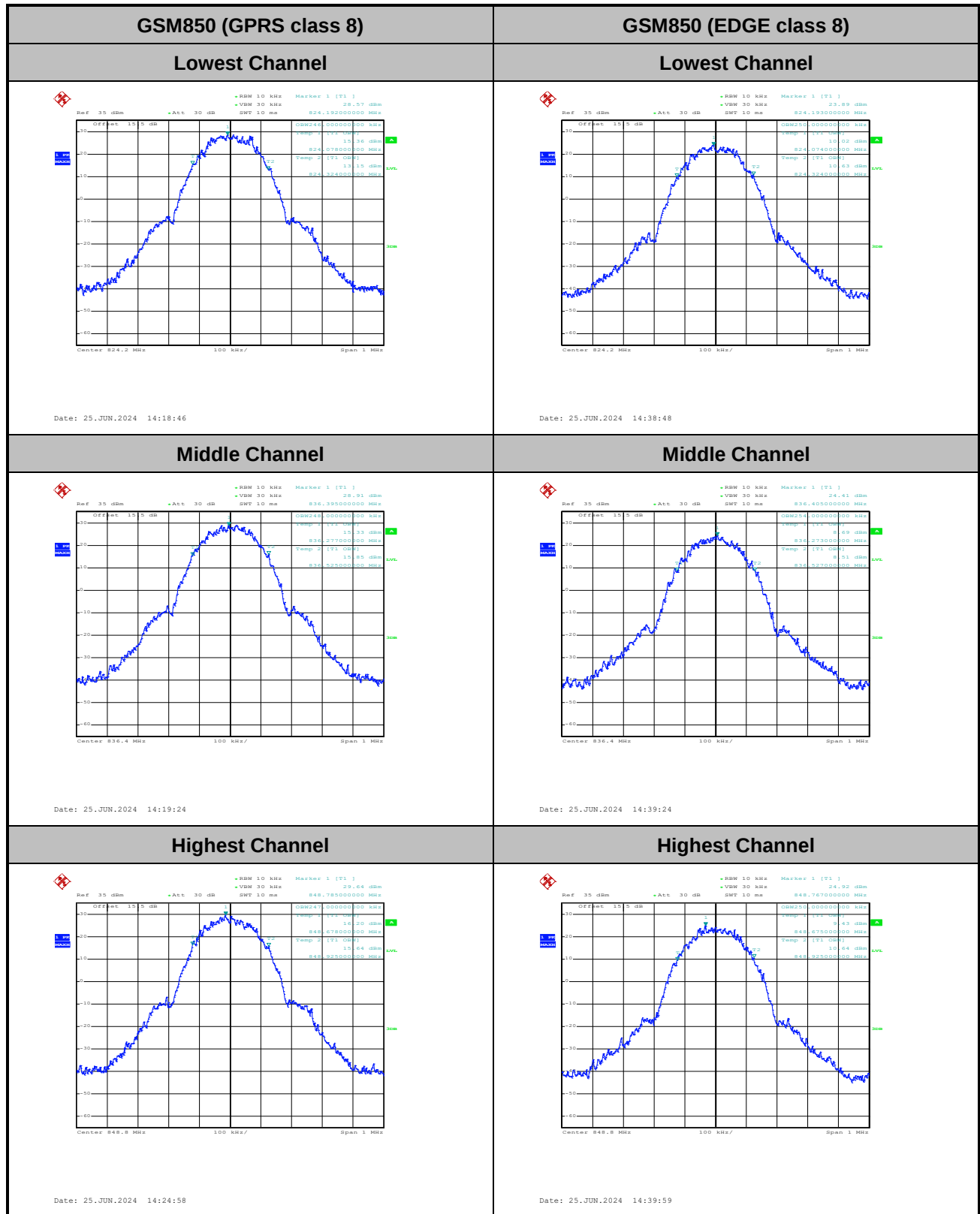


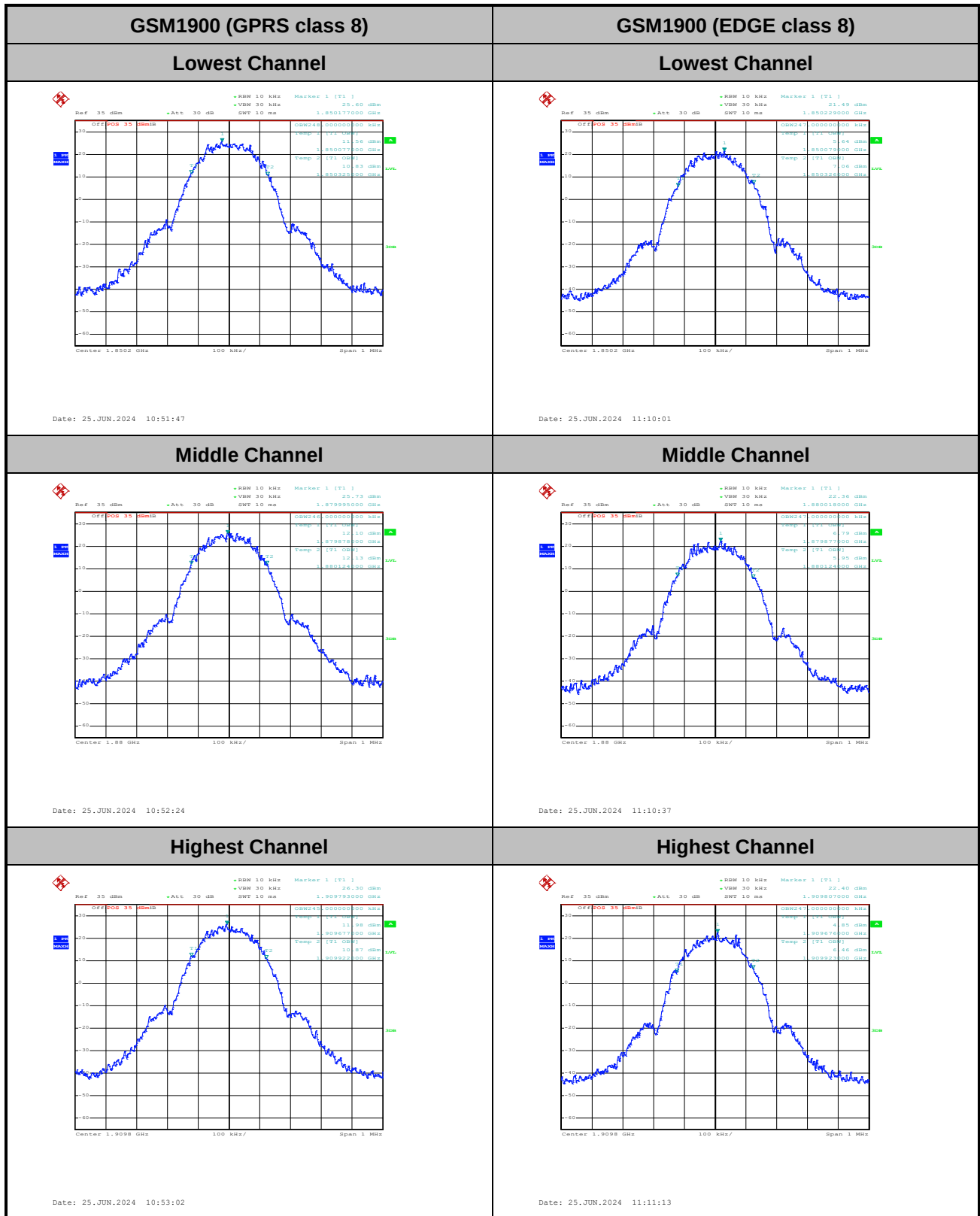
GSM1900 (GPRS class 8)		GSM1900 (EDGE class 8)	
Lowest Channel		Lowest Channel	
 Date: 25 JUN 2024 10:49:40		 Date: 25 JUN 2024 11:07:23	
Middle Channel		Middle Channel	
 Date: 25 JUN 2024 10:50:15		 Date: 25 JUN 2024 11:08:16	
Highest Channel		Highest Channel	
 Date: 25 JUN 2024 10:50:51		 Date: 25 JUN 2024 11:09:01	

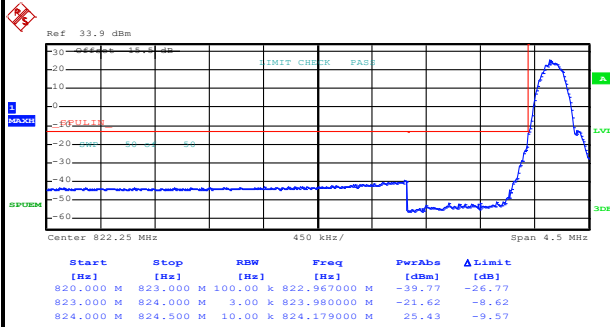
**Occupied Bandwidth**

Mode	GSM850 : 99%OBW(MHz)	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.246	0.250
Middle CH	0.248	0.254
Highest CH	0.247	0.250

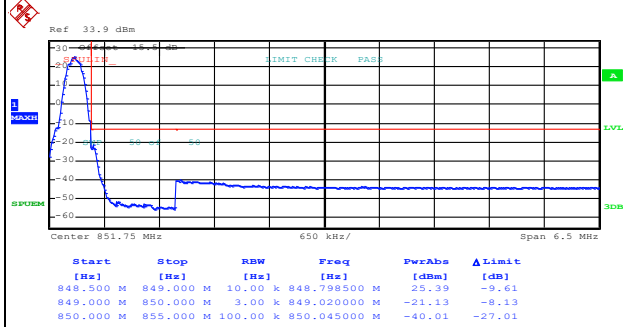
Mode	GSM1900 : 99%OBW(MHz)	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.248	0.247
Middle CH	0.246	0.247
Highest CH	0.245	0.247





**Conducted Band Edge****GSM850 (GPRS class 8)****Lowest Band Edge**

Date: 25.JUN.2024 14:26:50

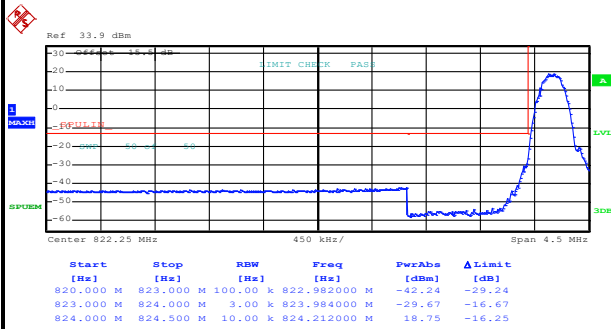
Highest Band Edge

Date: 25.JUN.2024 14:28:29



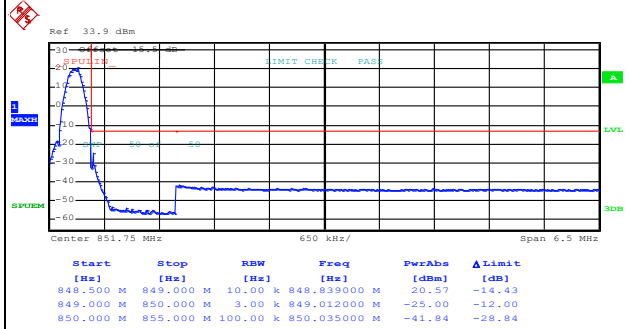
GSM850 (EDGE class 8)

Lowest Band Edge



Date: 25.JUN.2024 14:42:09

Highest Band Edge

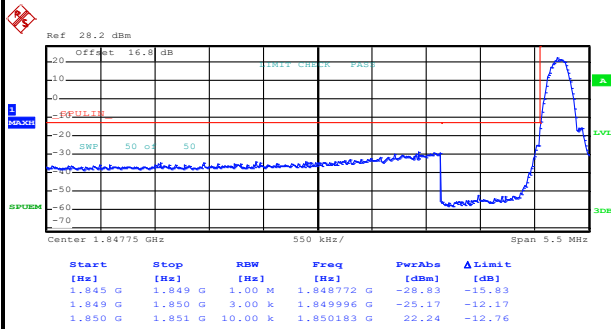


Date: 25.JUN.2024 14:43:47



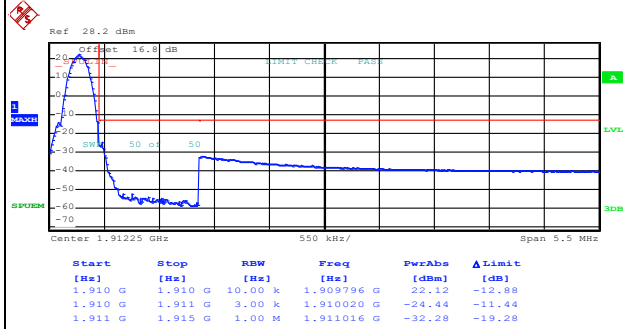
GSM1900 (GPRS class 8)

Lowest Band Edge



Date: 25.JUN.2024 10:55:03

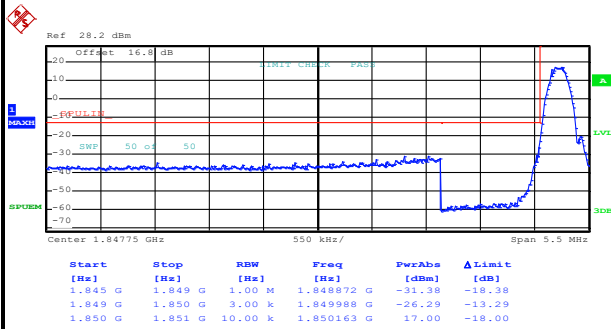
Highest Band Edge



Date: 25.JUN.2024 10:56:41

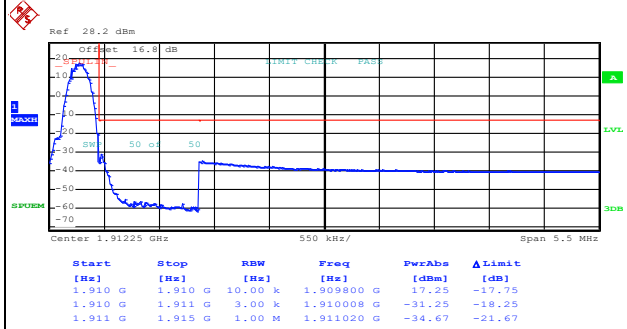
GSM1900 (EDGE class 8)

Lowest Band Edge



Date: 25.JUN.2024 11:13:12

Highest Band Edge



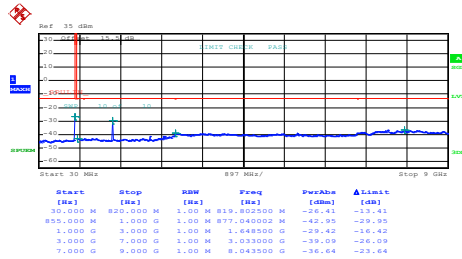
Date: 25.JUN.2024 11:14:51



Conducted Spurious Emission

GSM850 (GPRS class 8)

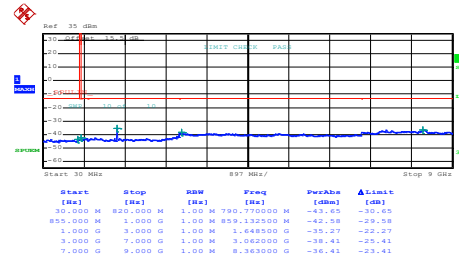
Lowest Channel



Date: 25.JUN.2024 14:30:04

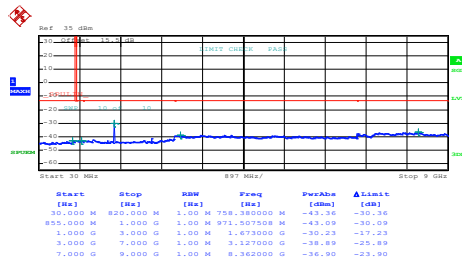
GSM850 (EDGE class 8)

Lowest Channel



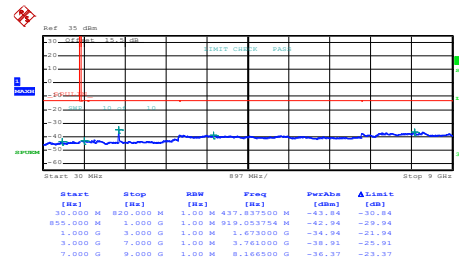
Date: 25.JUN.2024 14:45:44

Middle Channel



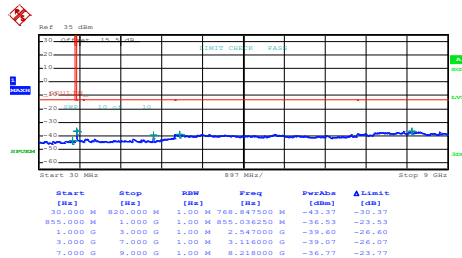
Date: 25.JUN.2024 14:30:59

Middle Channel



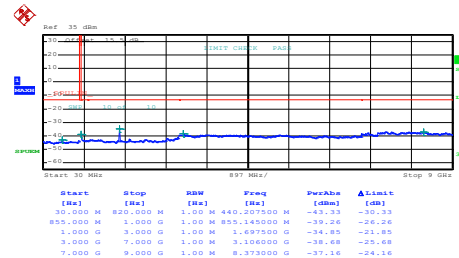
Date: 25.JUN.2024 14:46:51

Highest Channel



Date: 25.JUN.2024 14:31:53

Highest Channel



Date: 25.JUN.2024 14:47:43



GSM1900 (GPRS class 8)	GSM1900 (EDGE class 8)
Lowest Channel	Lowest Channel

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	0.0072	0.0072	PASS
40	Normal Voltage	0.0012	0.0036	
30	Normal Voltage	0.0024	0.0036	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0036	0.0048	
0	Normal Voltage	0.0060	0.0048	
-10	Normal Voltage	0.0096	0.0012	
-20	Normal Voltage	0.0024	0.0060	
-30	Normal Voltage	0.0084	0.0120	
20	Maximum Voltage	0.0179	0.0012	
20	Normal Voltage	0.0012	0.0024	
20	Battery End Point	0.0120	0.0072	

Test Conditions	Middle Channel	GSM1900 (GSM)	GSM1900 (EDGE class 8)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)		Result
50	Normal Voltage	0.0011	0.0005	PASS
40	Normal Voltage	0.0037	0.0053	
30	Normal Voltage	0.0027	0.0043	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0032	0.0011	
0	Normal Voltage	0.0133	0.0027	
-10	Normal Voltage	0.0319	0.0037	
-20	Normal Voltage	0.0303	0.0021	
-30	Normal Voltage	0.0059	0.0069	
20	Maximum Voltage	0.0282	0.0048	
20	Normal Voltage	0.0287	0.0027	
20	Battery End Point	0.0271	0.0016	

Note:

1. Normal Voltage = 3.9V. ; Battery End Point (BEP) = 3.6 V. ; Maximum Voltage =4.5 V.
2. The frequency fundamental emissions stay within the authorized frequency block.



A3. WCDMA

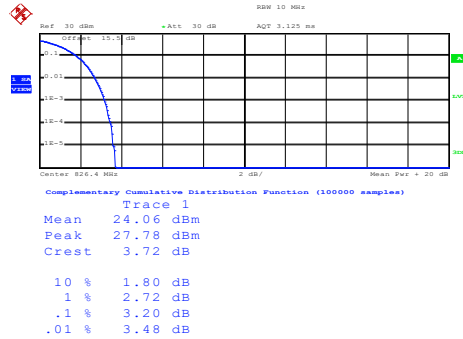
Peak-to-Average Ratio

Mode	WCDMA Band V	Limit: 13dB
Mod.	RMC 12.2Kbps	Result
Lowest CH	3.20	PASS
Middle CH	3.24	
Highest CH	3.32	



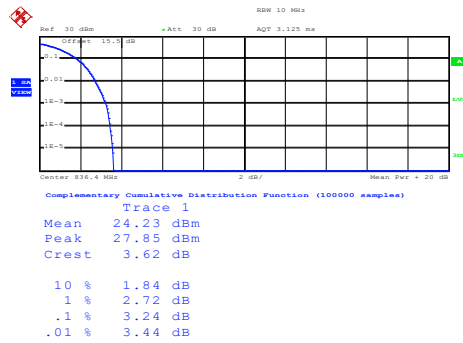
WCDMA Band V (RMC 12.2Kbps)

Lowest Channel



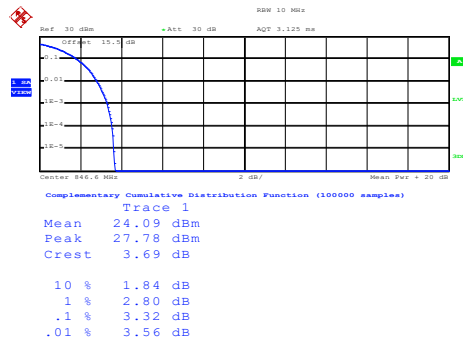
Date: 25.JUN.2024 15:22:46

Middle Channel



Date: 25.JUN.2024 15:23:07

Highest Channel



Date: 25.JUN.2024 15:23:26

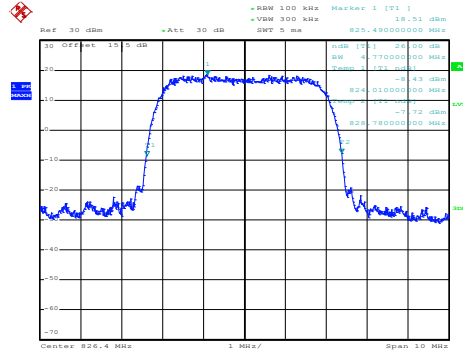


26dB Bandwidth

Mode	WCDMA Band V 26dB BW(MHz)
Mod.	RMC 12.2Kbps
Lowest CH	4.77
Middle CH	4.75
Highest CH	4.77

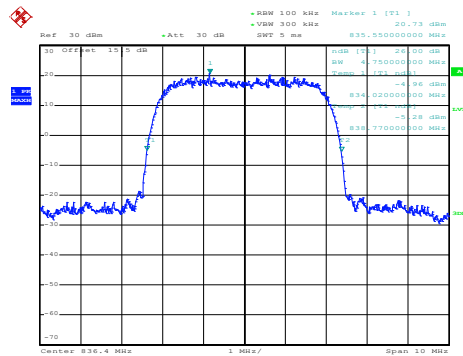
WCDMA Band V (RMC 12.2Kbps)

Lowest Channel



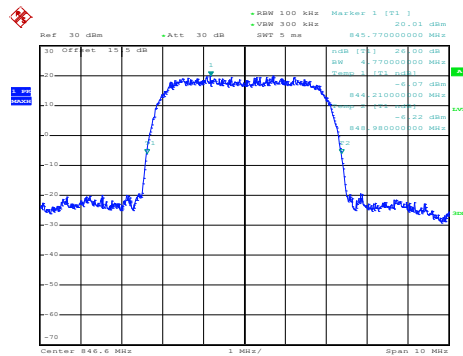
Date: 25.JUN.2024 15:06:31

Middle Channel



Date: 25.JUN.2024 15:07:11

Highest Channel



Date: 25.JUN.2024 15:07:59



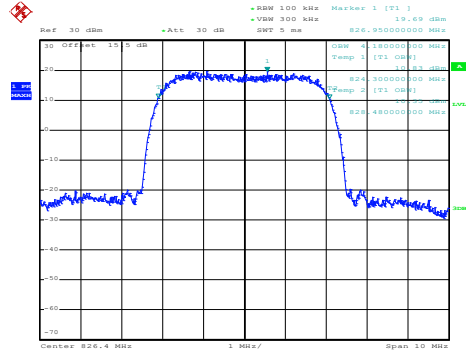
Occupied Bandwidth

Mode	WCDMA Band V 99%OBW(MHz)
Mod.	RMC 12.2Kbps
Lowest CH	4.18
Middle CH	4.20
Highest CH	4.18



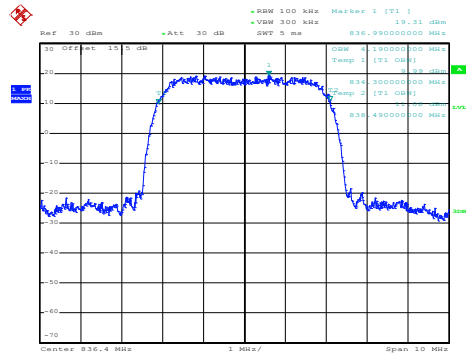
WCDMA Band V (RMC 12.2Kbps)

Lowest Channel



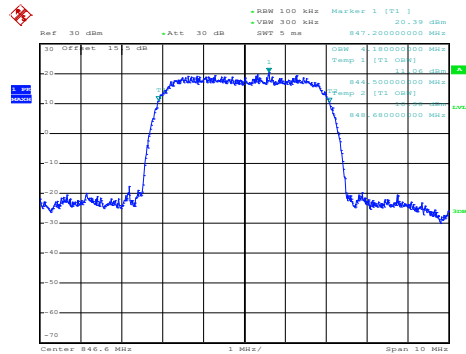
Date: 25.JUN.2024 15:09:40

Middle Channel

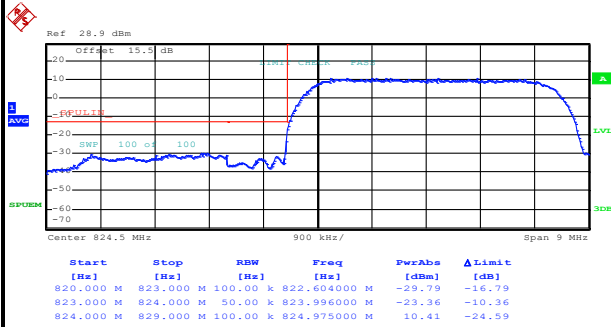


Date: 25.JUN.2024 15:10:17

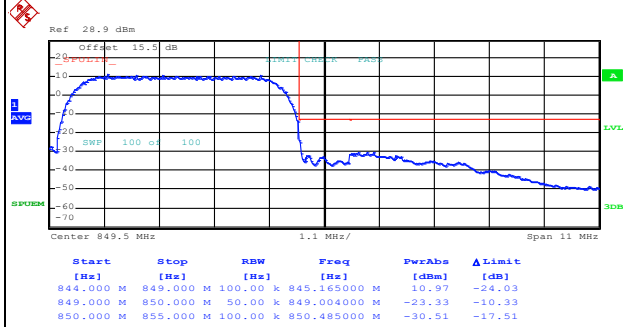
Highest Channel



Date: 25.JUN.2024 15:10:56

**Conducted Band Edge****WCDMA Band V (RMC 12.2Kbps)****Lowest Band Edge**

Date: 25.JUN.2024 15:14:54

Highest Band Edge

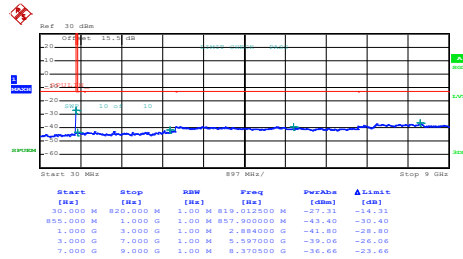
Date: 25.JUN.2024 15:17:49



Conducted Spurious Emission

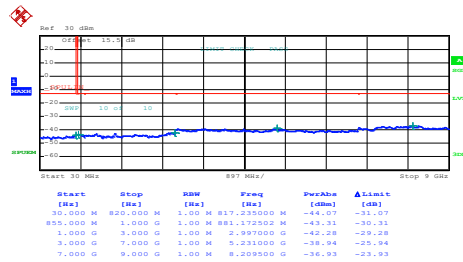
WCDMA Band V (RMC 12.2Kbps)

Lowest Channel



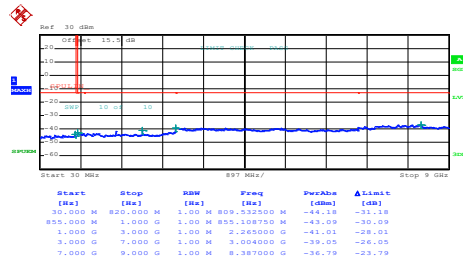
Date: 25.JUN.2024 15:19:34

Middle Channel



Date: 25.JUN.2024 15:20:29

Highest Channel



Date: 25.JUN.2024 15:21:45

Frequency Stability

Test Conditions	Middle Channel	WCDMA Band V (RMC 12.2Kbps)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0179	PASS
40	Normal Voltage	0.0108	
30	Normal Voltage	0.0155	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0024	
0	Normal Voltage	0.0012	
-10	Normal Voltage	0.0048	
-20	Normal Voltage	0.0036	
-30	Normal Voltage	0.0072	
20	Maximum Voltage	0.0012	
20	Normal Voltage	0.0036	
20	Battery End Point	0.0012	

Note: Normal Voltage = 3.9V. ; Battery End Point (BEP) = 3.6 V. ; Maximum Voltage =4.5 V.



Appendix B. Test Results of Radiated Test

B1. Summary of each worse mode

Mode	Part	Band	Ch	Freq (MHz)	Level (dBm)	Det	Ant Factor (dB)	Amp\Cbl (dB)	Filter (dB)	EIRPCF (dB)	Reading (dBuV)	Limit (dBm)	Margin (dB)	Pol	Ant
1	Part 22H	GSM 850	M	2509	-31.90	RMS	26.90	-24.29	1.42	-95.23	59.30	-13.00	-18.90	H	TX0
2	Part 22H	GSM 850	M	2509	-32.85	RMS	26.90	-24.29	1.42	-95.23	58.35	-13.00	-19.85	H	TX1
3	Part 22H	WCDMA B5	L	2480	-54.92	RMS	26.80	-24.32	1.41	-95.23	36.42	-13.00	-41.92	H	TX0
4	Part 22H	WCDMA B5	H	2544	-58.27	RMS	27.00	-24.24	1.44	-95.23	32.76	-13.00	-45.27	V	TX1
1	Part 24E	GSM 1900	L	5550	-33.77	RMS	33.00	-22.56	2.08	-95.23	48.94	-13.00	-20.77	V	TX0
2	Part 24E	GSM 1900	H	5729	-50.70	RMS	33.86	-22.86	2.09	-95.23	31.44	-13.00	-37.70	H	TX1

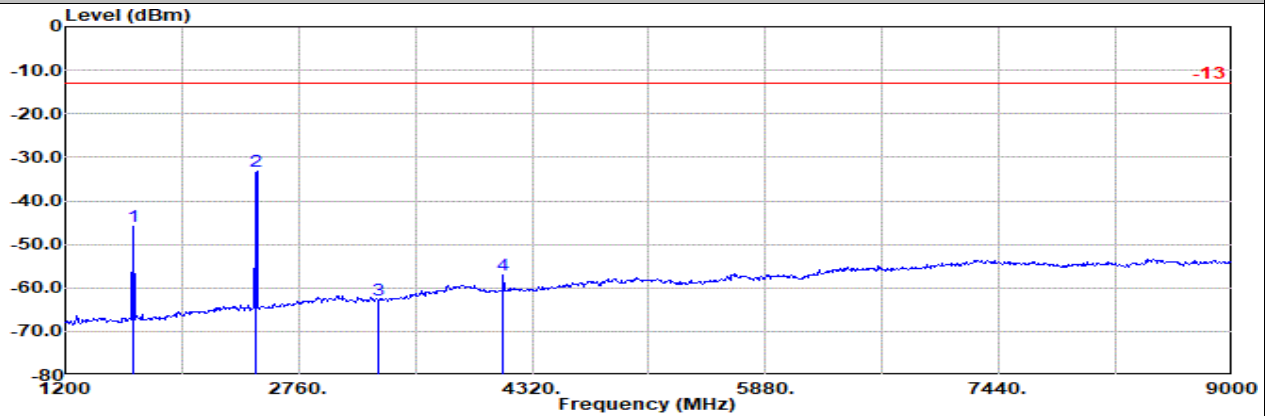


TX0

Part 22H Mode 1

GSM 850 Ch128

L

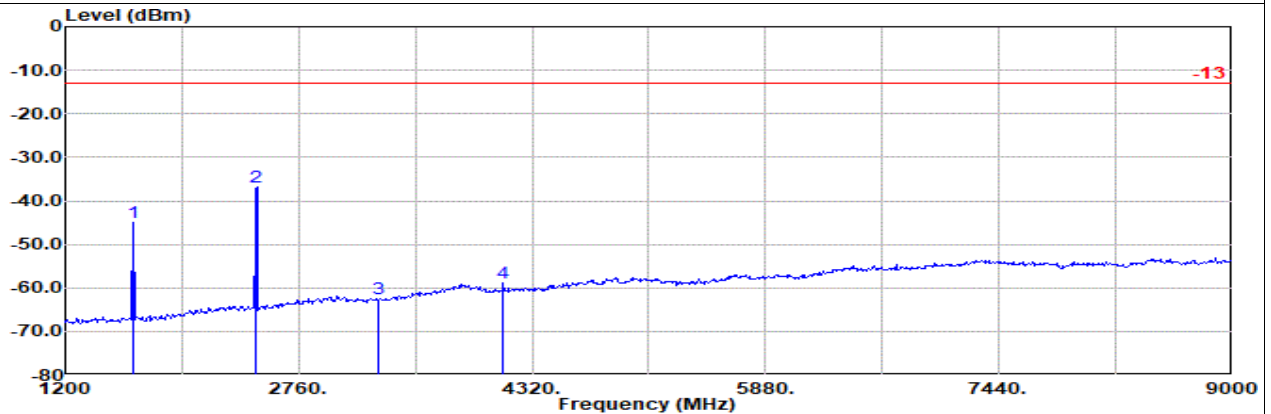


Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Horizontal

: GSM Ch128

	Freq	Level	Detector	Ant	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm		Factor	1			g			
				dB/m	dB	dB	dB	dBuV	dBm	dB	
1	1648.00	-46.03	RMS	24.82	-24.97	1.29	-95.23	48.06	-13.00	-33.03	Horizontal
2	2472.00	-33.12	RMS	26.80	-24.33	1.41	-95.23	58.23	-13.00	-20.12	Horizontal
3	3296.00	-62.71	RMS	28.18	-23.68	1.71	-95.23	26.31	-13.00	-49.71	Horizontal
4	4121.00	-56.99	RMS	30.56	-23.20	1.57	-95.23	29.31	-13.00	-43.99	Horizontal



Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Vertical

: GSM Ch128

	Freq	Level	Detector	Ant Amp\Cb		Filter	EIRPCF	Readin g	Limit	Margin	Pol
				Factor	l						
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	1648.00	-45.00	RMS	24.82	-24.97	1.29	-95.23	49.09	-13.00	-32.00	Vertical
2	2472.00	-36.93	RMS	26.80	-24.33	1.41	-95.23	54.42	-13.00	-23.93	Vertical
3	3296.00	-62.57	RMS	28.18	-23.68	1.71	-95.23	26.45	-13.00	-49.57	Vertical
4	4121.00	-58.79	RMS	30.56	-23.20	1.57	-95.23	27.51	-13.00	-45.79	Vertical

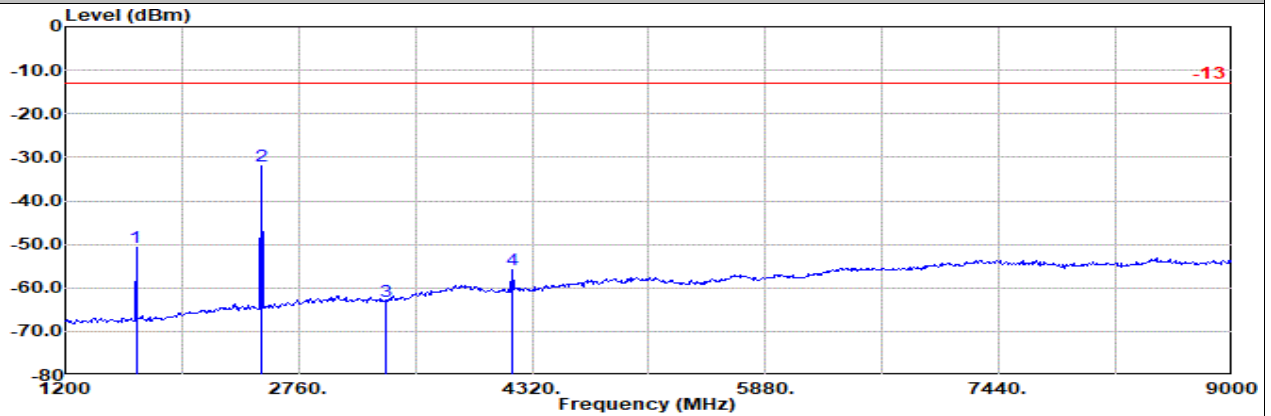


TX0

Part 22H Mode 1

GSM 850 Ch189

M

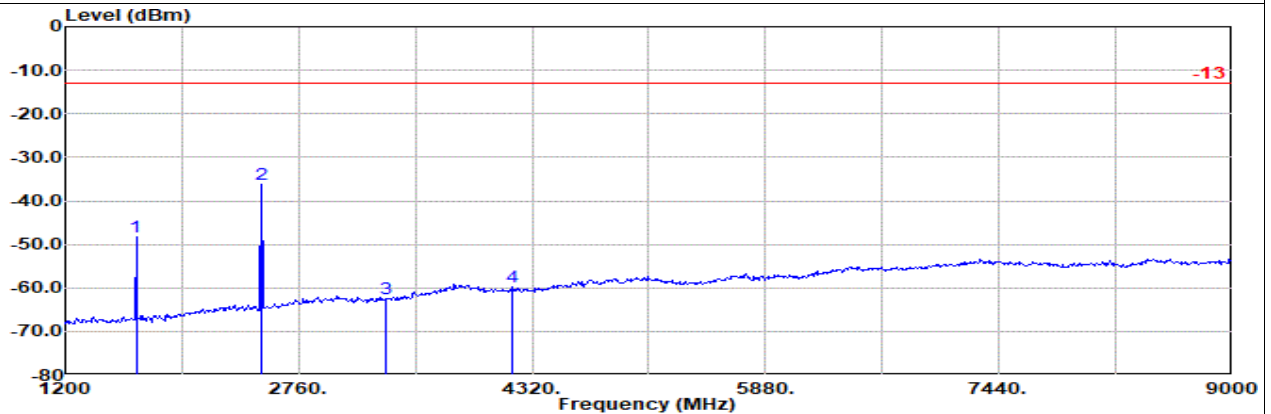


Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Horizontal

: GSM Ch189

	Freq	Level	Detector	Ant	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	Factor	1									
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	1673.00	-50.83	RMS	24.86	-24.97	1.30	-95.23	43.21	-13.00	-37.83	Horizontal
2	2509.00	-31.90	RMS	26.90	-24.29	1.42	-95.23	59.30	-13.00	-18.90	Horizontal
3	3345.00	-62.95	RMS	28.29	-23.68	1.69	-95.23	25.98	-13.00	-49.95	Horizontal
4	4182.00	-55.99	RMS	30.50	-22.98	1.55	-95.23	30.17	-13.00	-42.99	Horizontal



Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Vertical

: GSM Ch189

	Freq	Level	Detector	Ant Amp\Cb		Filter	EIRPCF	Readin g	Limit	Margin	Pol
				Factor	l						
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	1673.00	-48.32	RMS	24.86	-24.97	1.30	-95.23	45.72	-13.00	-35.32	Vertical
2	2509.00	-36.12	RMS	26.90	-24.29	1.42	-95.23	55.08	-13.00	-23.12	Vertical
3	3345.00	-62.43	RMS	28.29	-23.68	1.69	-95.23	26.50	-13.00	-49.43	Vertical
4	4182.00	-59.72	RMS	30.50	-22.98	1.55	-95.23	26.44	-13.00	-46.72	Vertical

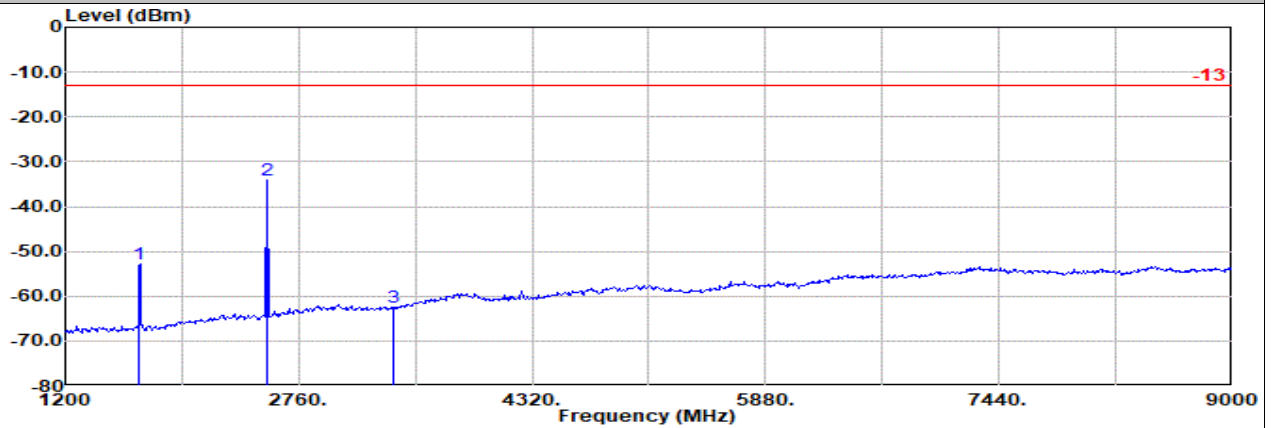


TX0

Part 22H Mode 1

GSM 850 Ch251

H

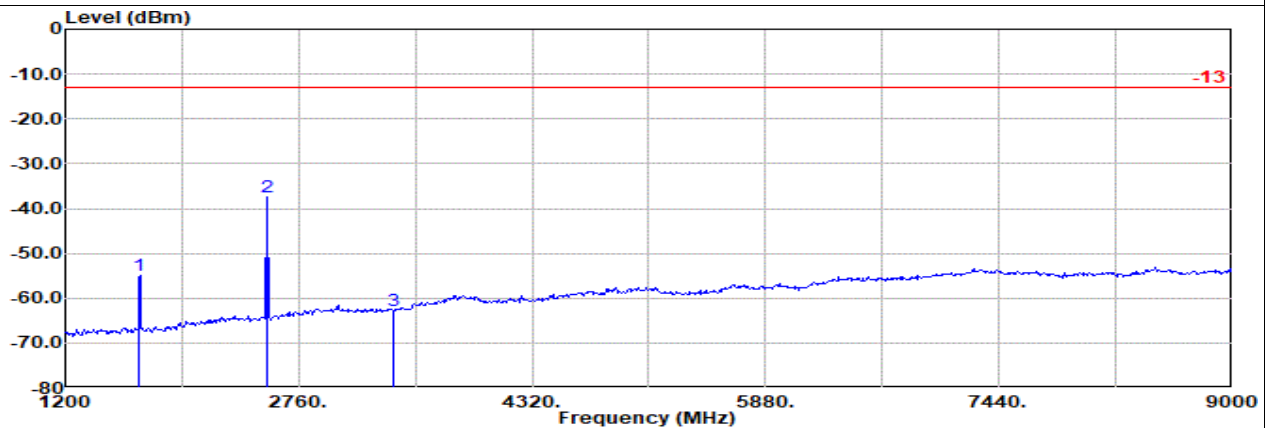


Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Horizontal

: GSM Ch251

	Freq	Level	Detector	Ant Factor	Amp\Cb 1	Filter	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	1697.00	-52.92	RMS	24.86	-24.97	1.30	-95.23	41.12	-13.00	-39.92	Horizontal
2	2546.00	-34.17	RMS	27.00	-24.24	1.44	-95.23	56.86	-13.00	-21.17	Horizontal
3	3395.00	-62.41	RMS	28.48	-23.69	1.67	-95.23	26.36	-13.00	-49.41	Horizontal



Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Vertical

: GSM Ch251

	Freq	Level	Detector	Ant Factor	Amp\Cb 1	Filter	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	1697.00	-55.01	RMS	24.86	-24.97	1.30	-95.23	39.03	-13.00	-42.01	Vertical
2	2546.00	-37.57	RMS	27.00	-24.24	1.44	-95.23	53.46	-13.00	-24.57	Vertical
3	3395.00	-62.68	RMS	28.48	-23.69	1.67	-95.23	26.09	-13.00	-49.68	Vertical

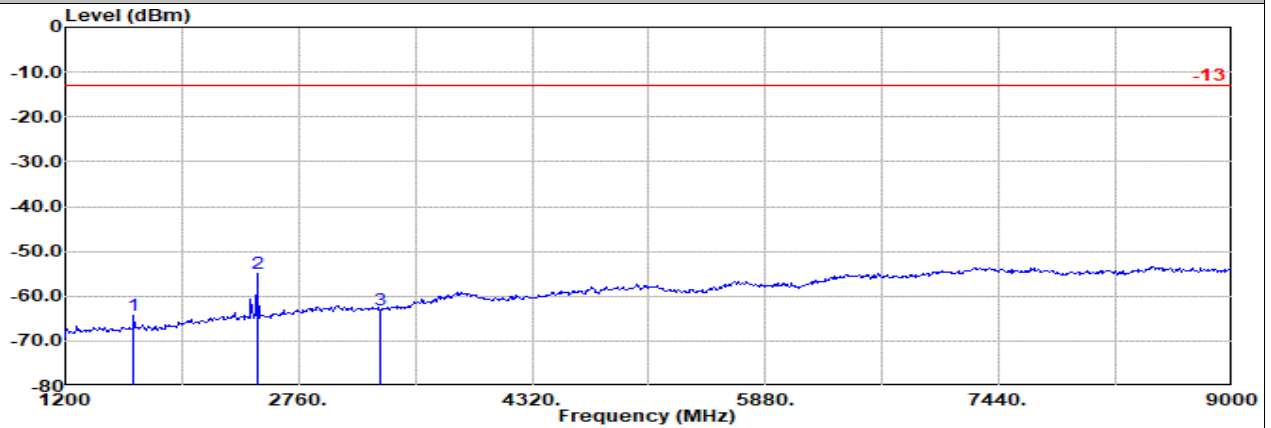


TX0

Part 22H Mode 3

WCDMA B5 Ch4132

L

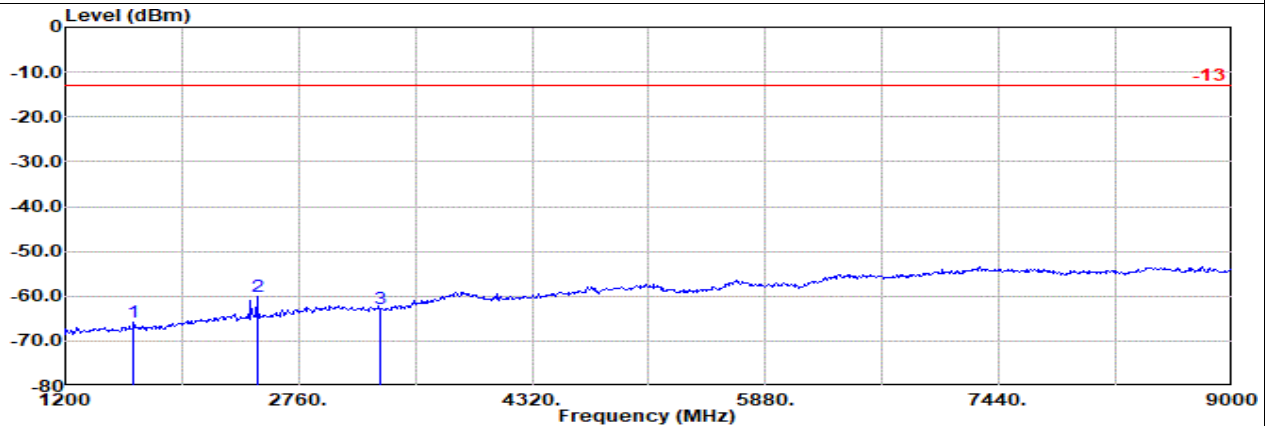


Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Horizontal

: WCDMA Ch4132

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	1656.00	-64.30	RMS	24.74	-24.97	1.30	-95.23	29.86	-13.00	-51.30	Horizontal
2	2480.00	-54.92	RMS	26.80	-24.32	1.41	-95.23	36.42	-13.00	-41.92	Horizontal
3	3304.00	-63.02	RMS	28.21	-23.68	1.71	-95.23	25.97	-13.00	-50.02	Horizontal



Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Vertical

: WCDMA Ch4132

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	1656.00	-65.77	RMS	24.74	-24.97	1.30	-95.23	28.39	-13.00	-52.77	Vertical
2	2480.00	-59.93	RMS	26.80	-24.32	1.41	-95.23	31.41	-13.00	-46.93	Vertical
3	3304.00	-62.81	RMS	28.21	-23.68	1.71	-95.23	26.18	-13.00	-49.81	Vertical

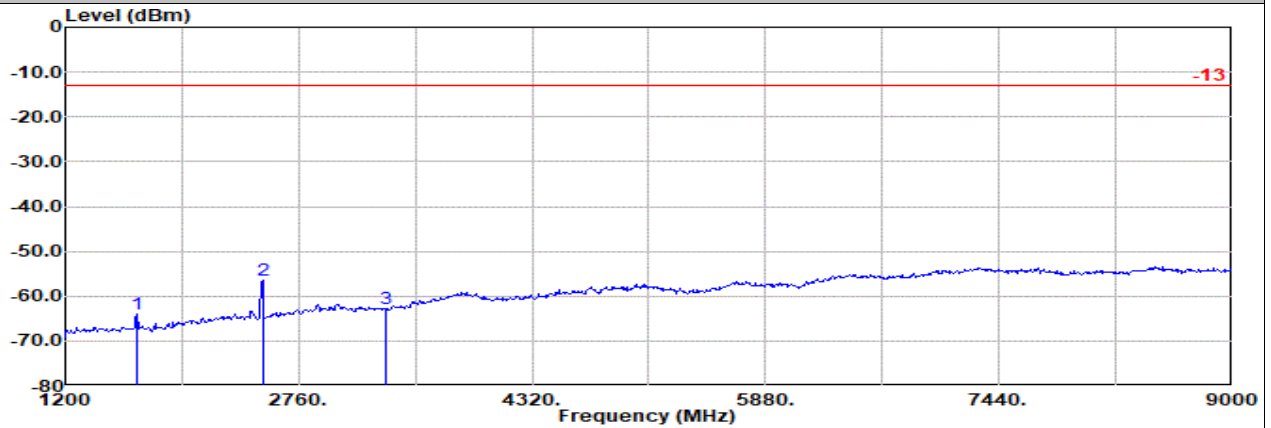


TX0

Part 22H Mode 3

WCDMA B5 Ch4182

M

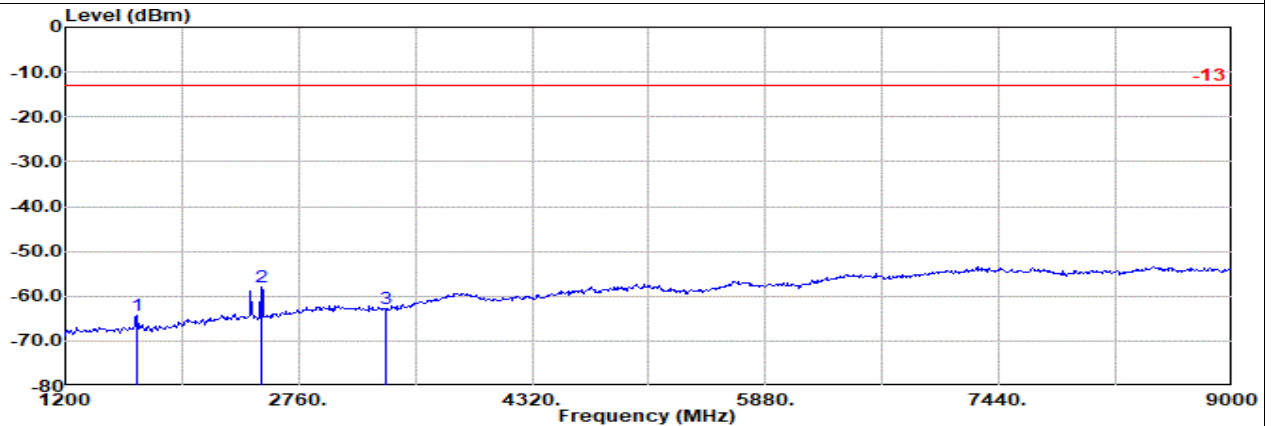


Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Horizontal

: WCDMA Ch4182

	Freq		Level	Detector	Ant Amp\Cb		Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm			Factor	dB	dB	dB	dBuV	dBm	dB	
1	1680.00	-63.90	RMS		25.00	-24.97	1.30	-95.23	30.00	-13.00	-50.90	Horizontal
2	2520.00	-56.52	RMS		26.90	-24.28	1.43	-95.23	34.66	-13.00	-43.52	Horizontal
3	3344.00	-62.87	RMS		28.29	-23.68	1.69	-95.23	26.06	-13.00	-49.87	Horizontal



Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Vertical

: WCDMA Ch4182

	Freq		Level	Detector	Ant Amp\Cb		Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm			Factor	dB	dB	dB	dBuV	dBm	dB	
1	1680.00	-64.32	RMS		25.00	-24.97	1.30	-95.23	29.58	-13.00	-51.32	Vertical
2	2520.00	-57.97	RMS		26.90	-24.29	1.43	-95.23	33.22	-13.00	-44.97	Vertical
3	3344.00	-62.87	RMS		28.29	-23.68	1.69	-95.23	26.06	-13.00	-49.87	Vertical

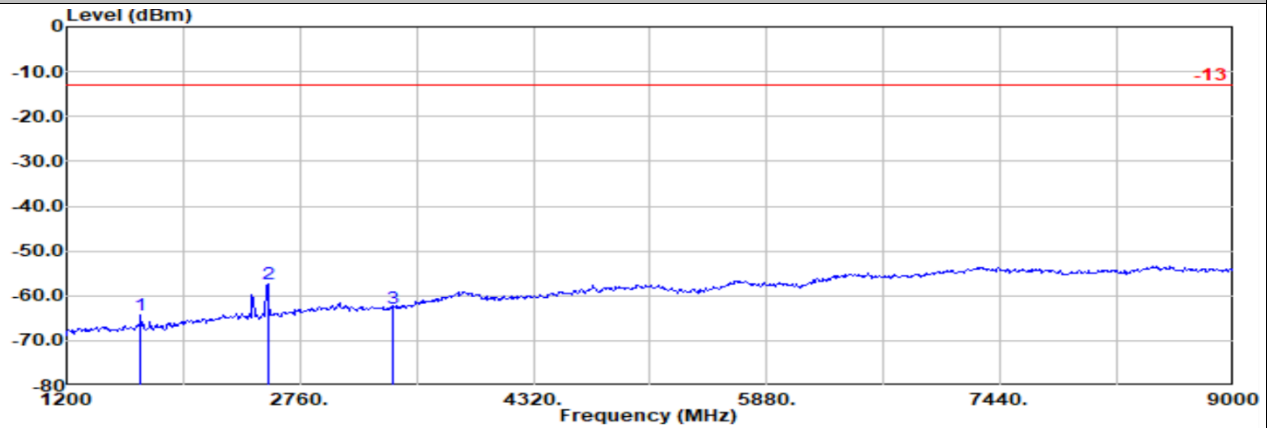


TX0

Part 22H Mode 3

WCDMA B5 Ch4233

H

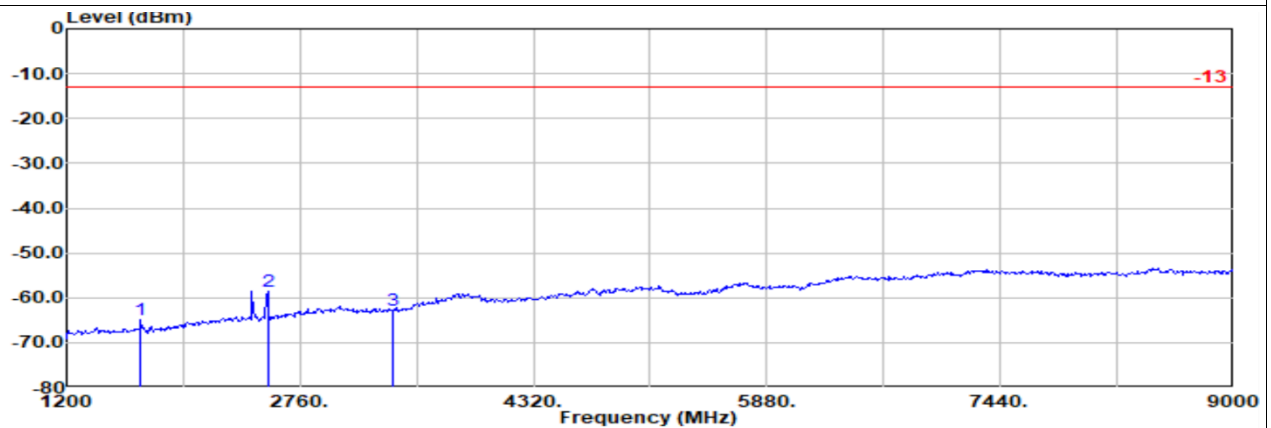


Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Horizontal

: WCDMA Ch4233

	Freq Level		Detector	Ant Amp\Cb		Filter	EIRPCF	Readin Limit		Margin	Pol
	MHz	dBm		Factor	dB	dB	dB	dBuV	dBm	dB	
1	1696.00	-64.22	RMS	24.88	-24.97	1.30	-95.23	29.80	-13.00	-51.22	Horizontal
2	2544.00	-57.35	RMS	27.00	-24.24	1.44	-95.23	33.68	-13.00	-44.35	Horizontal
3	3384.00	-62.65	RMS	28.44	-23.69	1.68	-95.23	26.15	-13.00	-49.65	Horizontal



Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Vertical

: WCDMA Ch4233

	Freq Level		Detector	Ant Amp\Cb		Filter	EIRPCF	Readin Limit		Margin	Pol
	MHz	dBm		Factor	dB	dB	dB	dBuV	dBm	dB	
1	1696.00	-64.93	RMS	24.88	-24.97	1.30	-95.23	29.09	-13.00	-51.93	Vertical
2	2544.00	-58.67	RMS	27.00	-24.24	1.44	-95.23	32.36	-13.00	-45.67	Vertical
3	3384.00	-62.74	RMS	28.44	-23.69	1.68	-95.23	26.06	-13.00	-49.74	Vertical

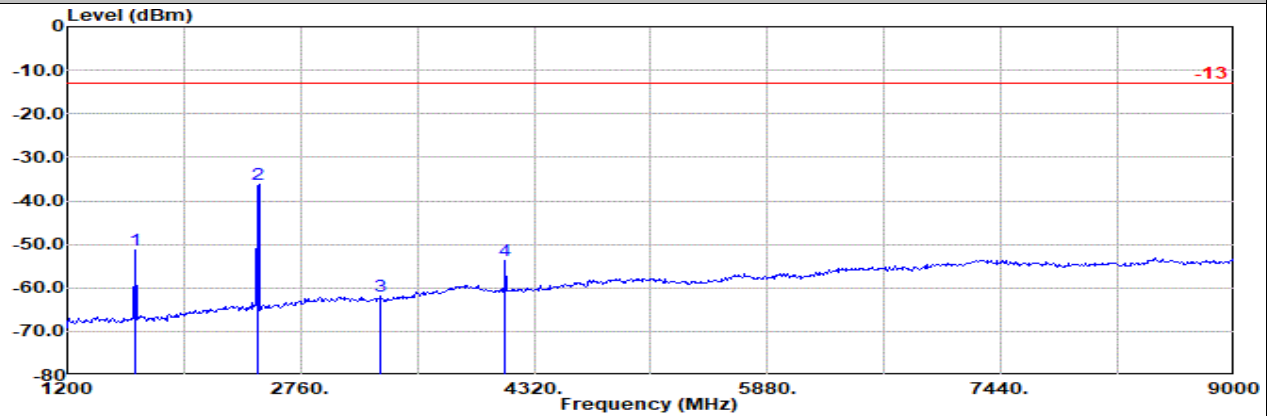


TX1

Part 22H Mode 2

GSM 850 Ch128

L

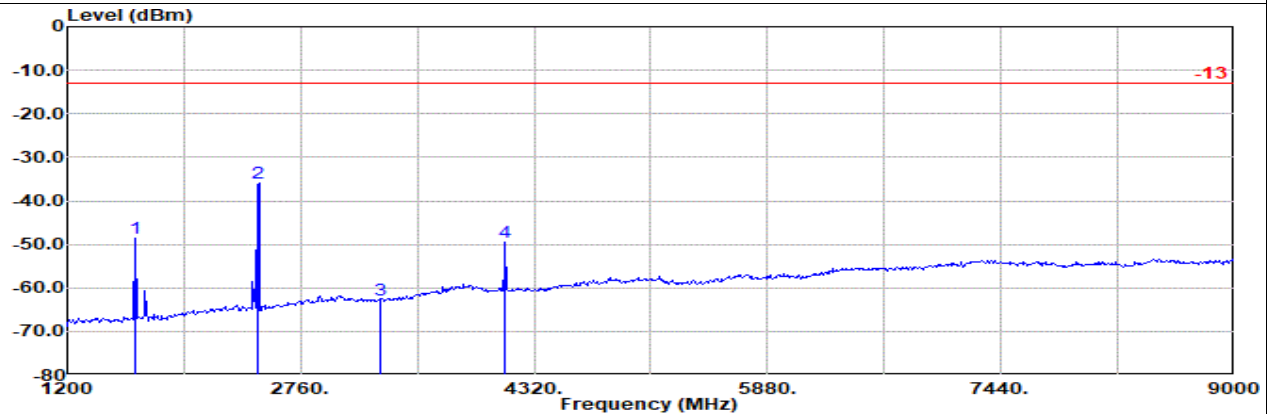


Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Horizontal

: GSM Ch128

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm									
1	1648.00	-51.32	RMS	24.82	-24.97	1.29	-95.23	42.77	-13.00	-38.32	Horizontal
2	2472.00	-36.10	RMS	26.80	-24.33	1.41	-95.23	55.25	-13.00	-23.10	Horizontal
3	3296.00	-61.90	RMS	28.18	-23.68	1.71	-95.23	27.12	-13.00	-48.90	Horizontal
4	4121.00	-53.72	RMS	30.56	-23.20	1.57	-95.23	32.58	-13.00	-40.72	Horizontal



Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Vertical

: GSM Ch128

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm									
1	1648.00	-48.54	RMS	24.82	-24.97	1.29	-95.23	45.55	-13.00	-35.54	Vertical
2	2472.00	-36.06	RMS	26.80	-24.33	1.41	-95.23	55.29	-13.00	-23.06	Vertical
3	3296.00	-62.65	RMS	28.18	-23.68	1.71	-95.23	26.37	-13.00	-49.65	Vertical
4	4121.00	-49.51	RMS	30.56	-23.20	1.57	-95.23	36.79	-13.00	-36.51	Vertical

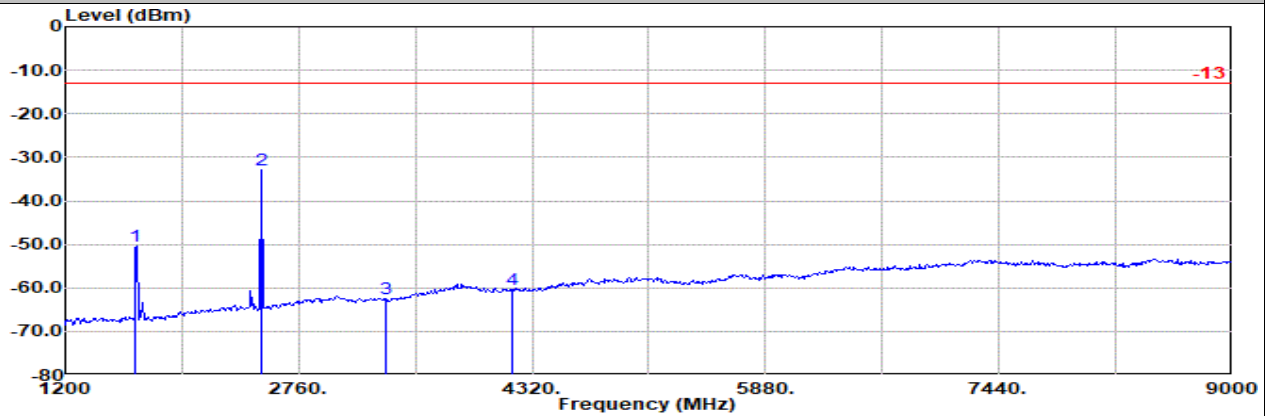


TX1

Part 22H Mode 2

GSM 850 Ch189

M

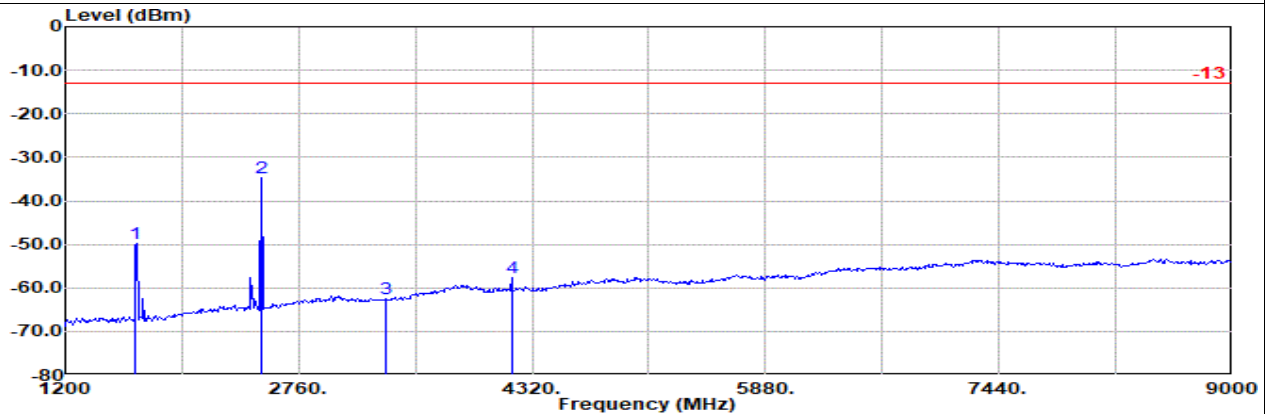


Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Horizontal

: GSM Ch189

	Freq MHz	Level dBm	Detector	Ant Factor	Amp\Cb dB	Filter dB	EIRPCF dB	Readin dBuV	Limit dBm	Margin dB	Pol
1	1672.00	-50.44	RMS	24.84	-24.97	1.30	-95.23	43.62	-13.00	-37.44	Horizontal
2	2509.00	-32.85	RMS	26.90	-24.29	1.42	-95.23	58.35	-13.00	-19.85	Horizontal
3	3345.00	-62.47	RMS	28.29	-23.68	1.69	-95.23	26.46	-13.00	-49.47	Horizontal
4	4182.00	-60.28	RMS	30.50	-22.98	1.55	-95.23	25.88	-13.00	-47.28	Horizontal



Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Vertical

: GSM Ch189

	Freq MHz	Level dBm	Detector	Ant Factor	Amp\Cb dB	Filter dB	EIRPCF dB	Readin dBuV	Limit dBm	Margin dB	Pol
1	1672.00	-49.68	RMS	24.84	-24.97	1.30	-95.23	44.38	-13.00	-36.68	Vertical
2	2509.00	-34.80	RMS	26.90	-24.29	1.42	-95.23	56.40	-13.00	-21.80	Vertical
3	3345.00	-62.64	RMS	28.29	-23.68	1.69	-95.23	26.29	-13.00	-49.64	Vertical
4	4182.00	-57.73	RMS	30.50	-22.98	1.55	-95.23	28.43	-13.00	-44.73	Vertical

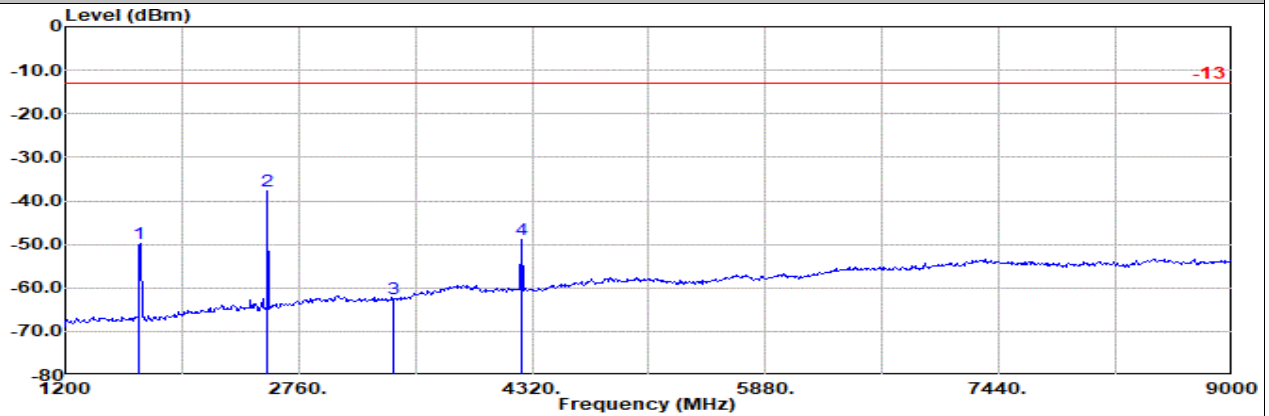


TX1

Part 22H Mode 2

GSM 850 Ch251

H

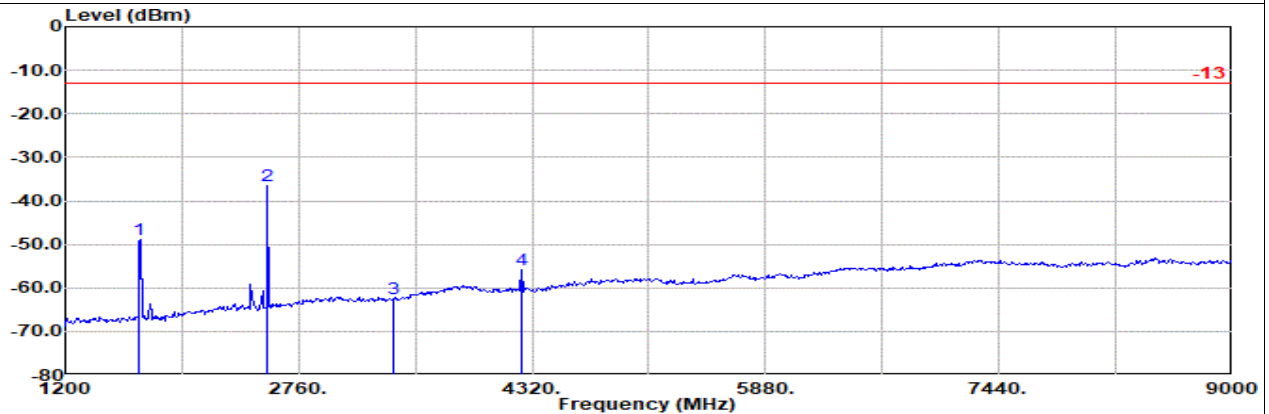


Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Horizontal

: GSM Ch251

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm				dB/m	dB	dB	dB	dB	dB
1	1697.00	-49.85	RMS	24.86	-24.97	1.30	-95.23	44.19	-13.00	-36.85	Horizontal
2	2546.00	-37.72	RMS	27.00	-24.24	1.44	-95.23	53.31	-13.00	-24.72	Horizontal
3	3395.00	-62.52	RMS	28.48	-23.69	1.67	-95.23	26.25	-13.00	-49.52	Horizontal
4	4244.00	-48.89	RMS	30.41	-23.01	1.56	-95.23	37.38	-13.00	-35.89	Horizontal



Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Vertical

: GSM Ch251

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm				dB/m	dB	dB	dB	dB	dB
1	1697.00	-48.76	RMS	24.86	-24.97	1.30	-95.23	45.28	-13.00	-35.76	Vertical
2	2546.00	-36.42	RMS	27.00	-24.24	1.44	-95.23	54.61	-13.00	-23.42	Vertical
3	3395.00	-62.45	RMS	28.48	-23.69	1.67	-95.23	26.32	-13.00	-49.45	Vertical
4	4244.00	-55.99	RMS	30.41	-23.01	1.56	-95.23	30.28	-13.00	-42.99	Vertical

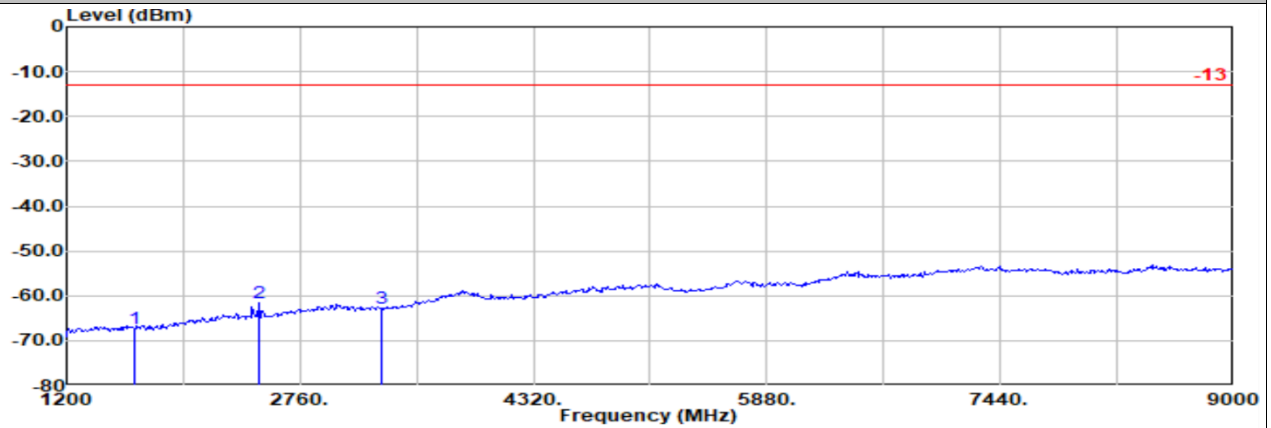


TX1

Part 22H Mode 4

WCDMA B5 Ch4132

L

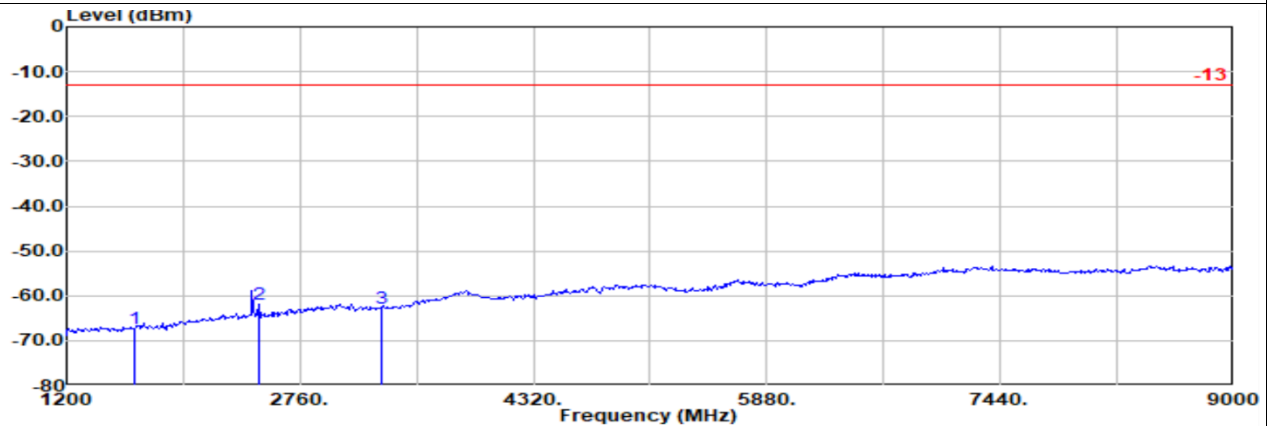


Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Horizontal

: WCDMA Ch4132

	Freq	Level	Detector	Ant Factor	Amp\Cb 1	Filter	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm		
1	1656.00	-67.35	RMS	24.74	-24.97	1.30	-95.23	0.00	-13.00	-54.35	Horizontal
2	2488.00	-61.57	RMS	26.88	-24.31	1.41	-95.23	29.68	-13.00	-48.57	Horizontal
3	3304.00	-62.66	RMS	28.21	-23.68	1.71	-95.23	26.33	-13.00	-49.66	Horizontal



Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Vertical

: WCDMA Ch4132

	Freq	Level	Detector	Ant Factor	Amp\Cb 1	Filter	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB		dBuV	dBm		
1	1656.00	-67.33	RMS	24.74	-24.97	1.30	-95.23	26.83	-13.00	-54.33	Vertical
2	2480.00	-61.74	RMS	26.80	-24.32	1.41	-95.23	29.60	-13.00	-48.74	Vertical
3	3304.00	-62.74	RMS	28.21	-23.68	1.71	-95.23	26.25	-13.00	-49.74	Vertical

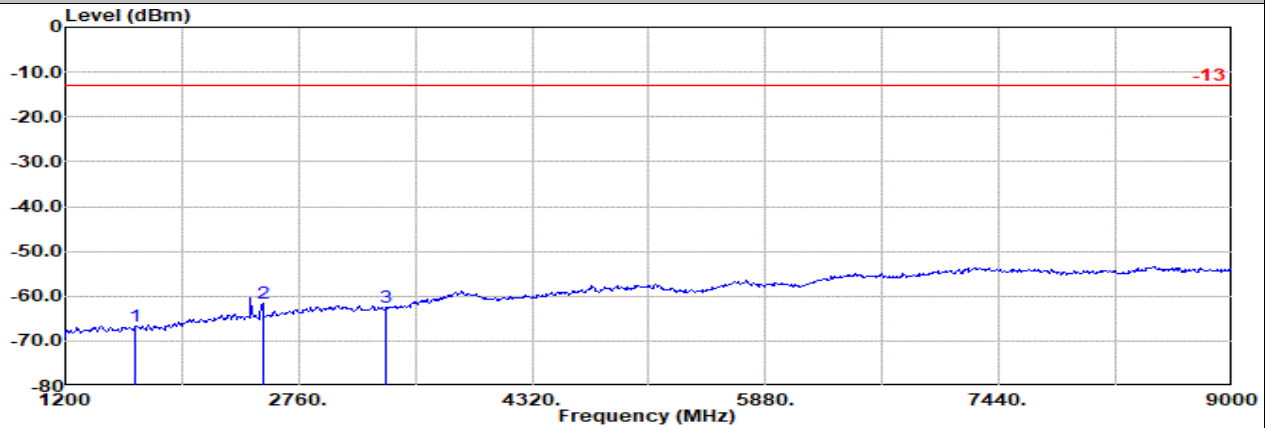


TX1

Part 22H Mode 4

WCDMA B5 Ch4182

M

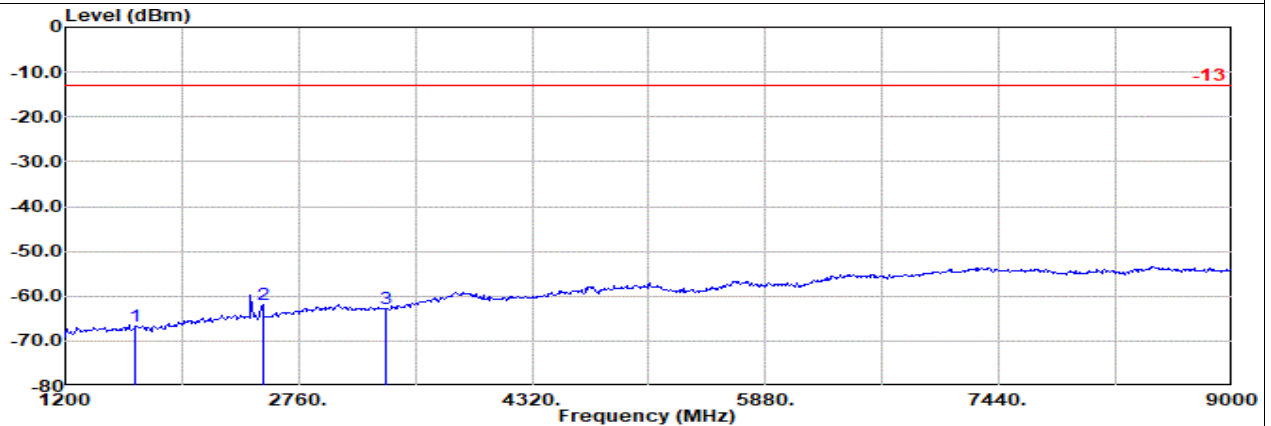


Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Horizontal

: WCDMA Ch4182

	Freq		Level	Detector	Ant Amp\Cb		Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm			Factor	dB			g	dBm	dB	
1	1672.00	-66.67	RMS		24.84	-24.97	1.30	-95.23	27.39	-13.00	-53.67	Horizontal
2	2520.00	-61.69	RMS		26.90	-24.28	1.43	-95.23	29.49	-13.00	-48.69	Horizontal
3	3344.00	-62.53	RMS		28.29	-23.68	1.69	-95.23	26.40	-13.00	-49.53	Horizontal



Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Vertical

: WCDMA Ch4182

	Freq		Level	Detector	Ant Amp\Cb		Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm			Factor	dB			g	dBm	dB	
1	1672.00	-66.63	RMS		24.84	-24.97	1.30	-95.23	27.43	-13.00	-53.63	Vertical
2	2520.00	-61.95	RMS		26.90	-24.28	1.43	-95.23	29.23	-13.00	-48.95	Vertical
3	3344.00	-62.78	RMS		28.29	-23.68	1.69	-95.23	26.15	-13.00	-49.78	Vertical

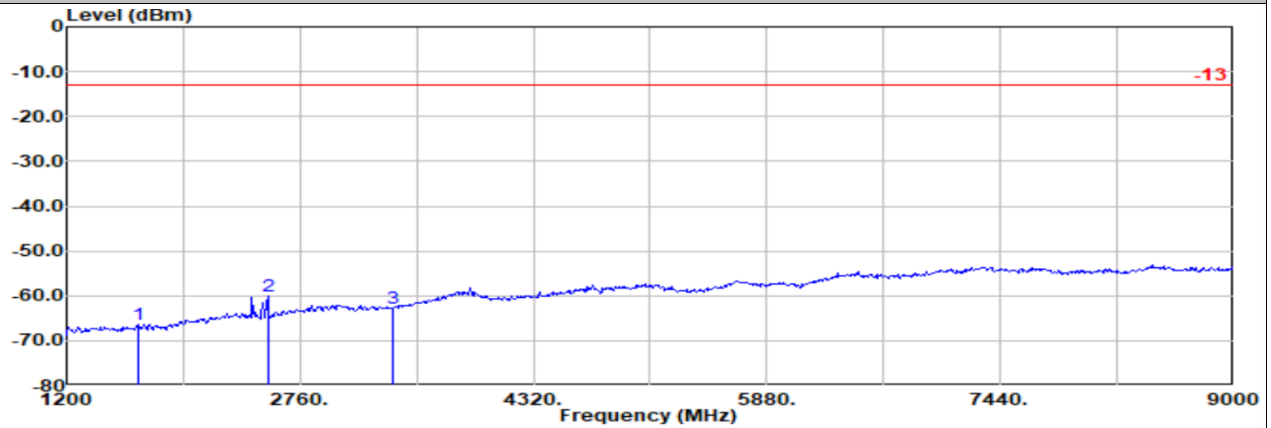


TX1

Part 22H Mode 4

WCDMA B5 Ch4233

H

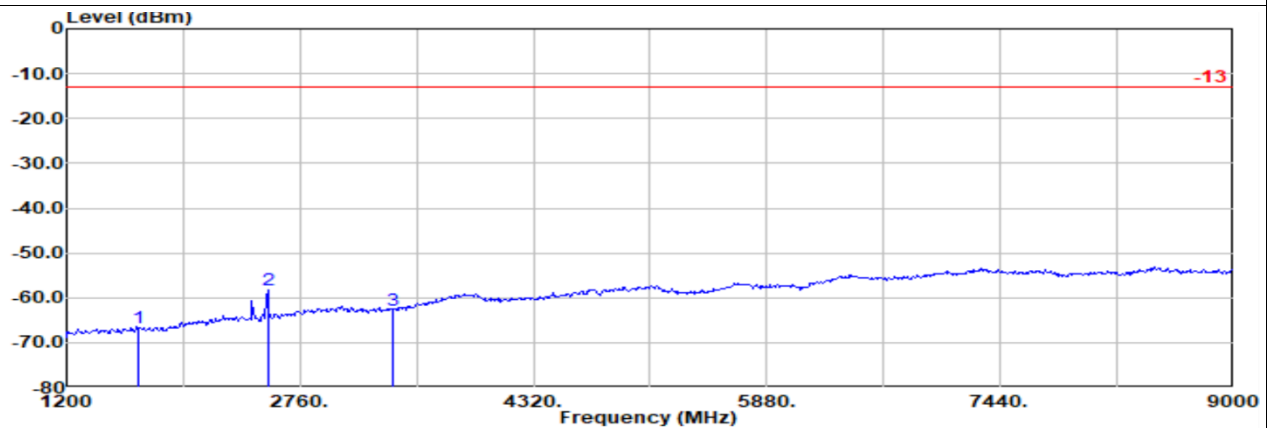


Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Horizontal

: WCDMA Ch4233

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm			dB/m	dB	dB	dBuV	dBm	dB	
1	1680.00	-66.49	RMS	25.00	-24.97	1.30	-95.23	27.41	-13.00	-53.49	Horizontal
2	2544.00	-60.07	RMS	27.00	-24.24	1.44	-95.23	30.96	-13.00	-47.07	Horizontal
3	3384.00	-62.69	RMS	28.44	-23.69	1.68	-95.23	26.11	-13.00	-49.69	Horizontal



Site : 03CH23-HY

Condition: -13 3m DRH18-E_LE2C05A18EN_240620 Vertical

: WCDMA Ch4233

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm			dB/m	dB	dB	dBuV	dBm	dB	
1	1680.00	-66.84	RMS	25.00	-24.97	1.30	-95.23	27.06	-13.00	-53.84	Vertical
2	2544.00	-58.27	RMS	27.00	-24.24	1.44	-95.23	32.76	-13.00	-45.27	Vertical
3	3384.00	-62.76	RMS	28.44	-23.69	1.68	-95.23	26.04	-13.00	-49.76	Vertical

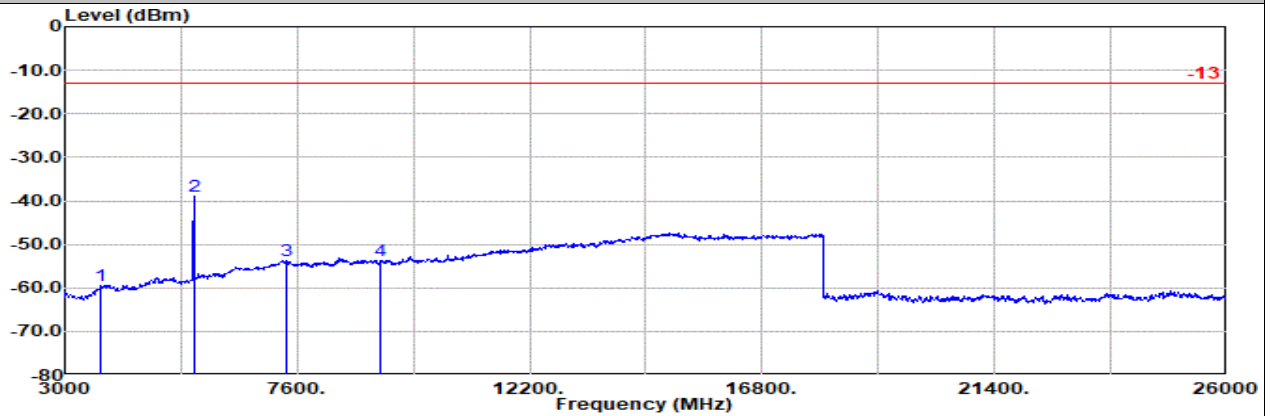


TX0

Part 24E Mode 1

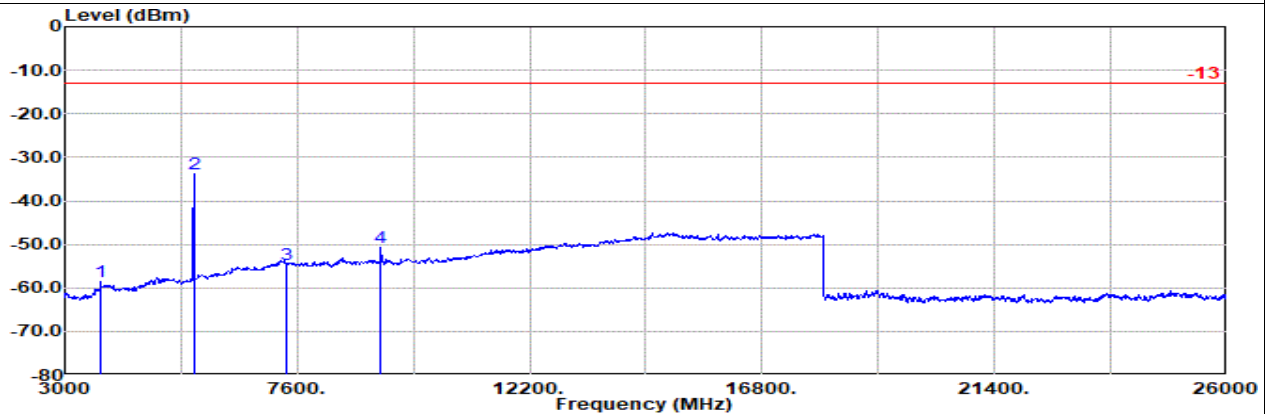
GSM 1900 Ch512

L



Site : 03CH23-HY
Condition: -13 1m SHF_1223_230710 Horizontal
: GSM Ch512

	Freq MHz	Level dBm	Detector	Ant Amp\Cb Filter		EIRPCF	Readin g	Limit dBm	Margin dB	Pol
				Factor	1					
1	3705.00	-59.50	RMS	29.95	-23.43	1.85 -95.23	27.36	-13.00	-46.50	Horizontal
2	5550.00	-39.01	RMS	33.00	-22.56	2.08 -95.23	43.70	-13.00	-26.01	Horizontal
3	7395.00	-53.73	RMS	37.21	-22.78	1.99 -95.23	25.08	-13.00	-40.73	Horizontal
4	9251.00	-53.82	RMS	37.40	-23.67	2.25 -95.23	25.43	-13.00	-40.82	Horizontal



Site : 03CH23-HY
Condition: -13 1m SHF_1223_230710 Vertical
: GSM Ch512

	Freq MHz	Level dBm	Detector	Ant Amp\Cb Filter		EIRPCF	Readin g	Limit dBm	Margin dB	Pol
				Factor	1					
1	3705.00	-58.63	RMS	29.95	-23.43	1.85 -95.23	28.23	-13.00	-45.63	Vertical
2	5550.00	-33.77	RMS	33.00	-22.56	2.08 -95.23	48.94	-13.00	-20.77	Vertical
3	7395.00	-54.56	RMS	37.21	-22.78	1.99 -95.23	24.25	-13.00	-41.56	Vertical
4	9251.00	-50.65	RMS	37.40	-23.67	2.25 -95.23	28.60	-13.00	-37.65	Vertical

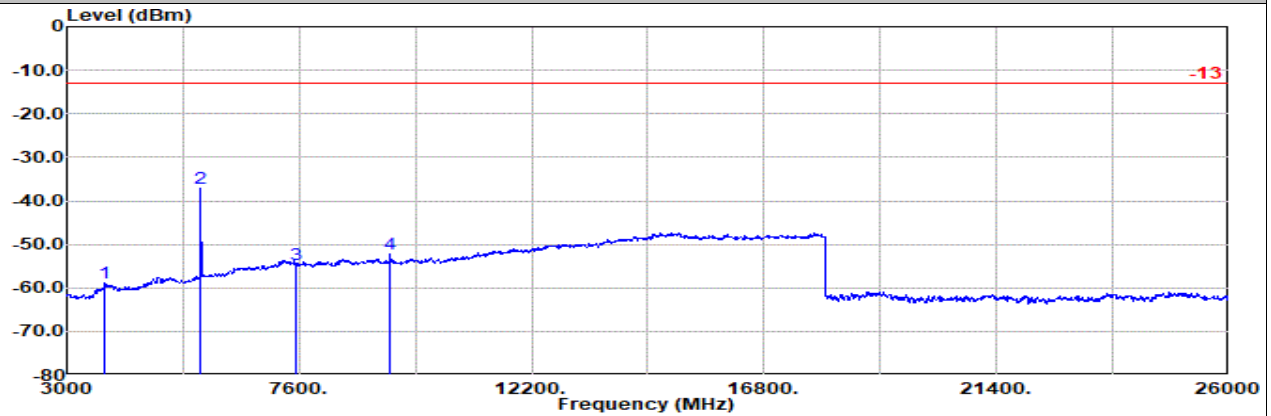


TX0

Part 24E Mode 1

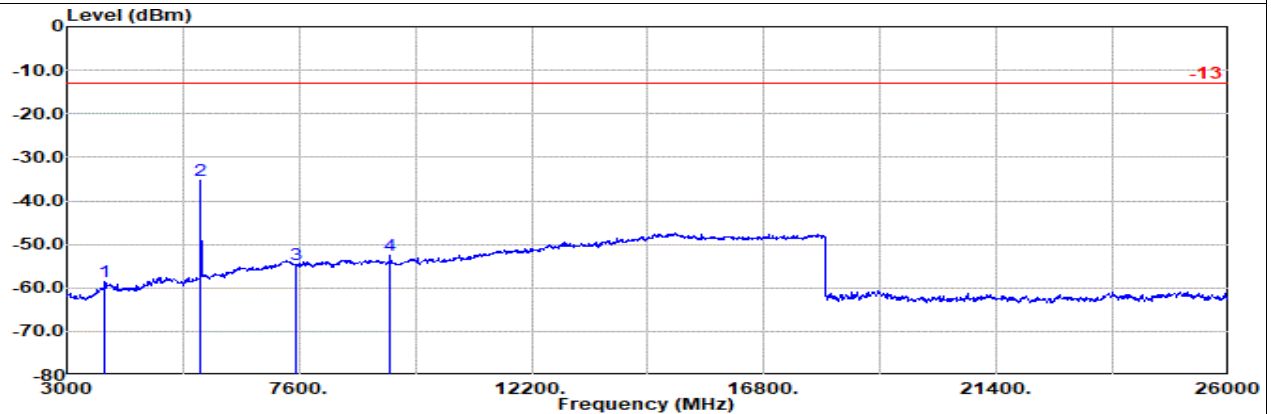
GSM 1900 Ch661

M



Site : 03CH23-HY
Condition: -13 1m SHF_1223_230710 Horizontal
: GSM Ch661

	Freq MHz	Level dBm	Detector	Ant Amp\Cb Filter		EIRPCF	Readin g	Limit	Margin	Pol
				Factor	1					
1	3760.00	-58.73	RMS	30.42	-23.50	1.81 -95.23	27.77	-13.00	-45.73	Horizontal
2	5640.00	-37.19	RMS	33.44	-22.67	2.10 -95.23	45.17	-13.00	-24.19	Horizontal
3	7520.00	-54.55	RMS	36.96	-22.96	2.00 -95.23	24.68	-13.00	-41.55	Horizontal
4	9400.00	-52.11	RMS	37.40	-23.79	2.38 -95.23	27.13	-13.00	-39.11	Horizontal



Site : 03CH23-HY
Condition: -13 1m SHF_1223_230710 Vertical
: GSM Ch661

	Freq MHz	Level dBm	Detector	Ant Amp\Cb Filter		EIRPCF	Readin g	Limit	Margin	Pol
				Factor	1					
1	3760.00	-58.52	RMS	30.42	-23.50	1.81 -95.23	27.98	-13.00	-45.52	Vertical
2	5640.00	-35.28	RMS	33.44	-22.67	2.10 -95.23	47.08	-13.00	-22.28	Vertical
3	7520.00	-54.64	RMS	36.96	-22.96	2.00 -95.23	24.59	-13.00	-41.64	Vertical
4	9400.00	-52.48	RMS	37.40	-23.79	2.38 -95.23	26.76	-13.00	-39.48	Vertical

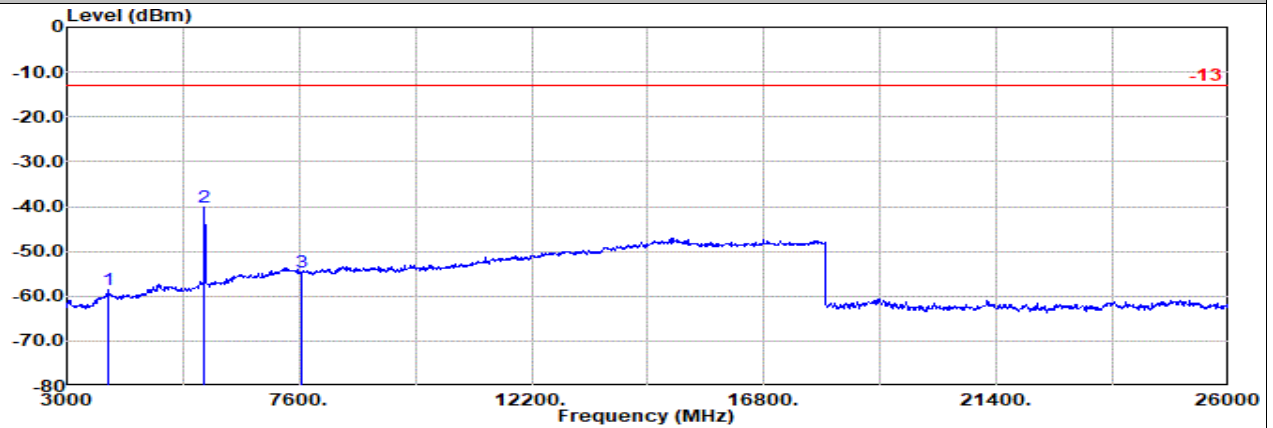


TX0

Part 24E Mode 1

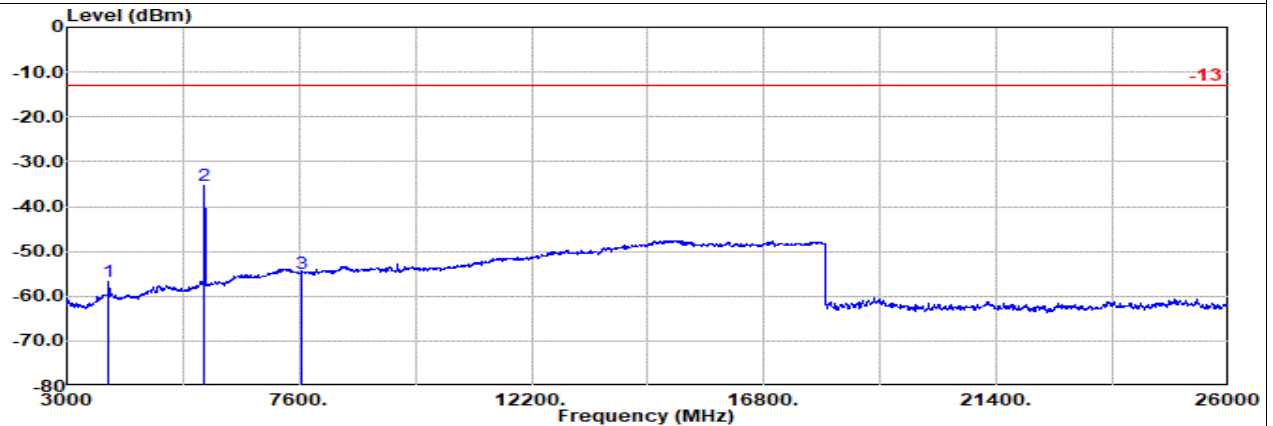
GSM 1900 Ch810

H



Site : 03CH23-HY
Condition: -13 1m SHF_1223_230710 Horizontal
: GSM Ch810

	Freq	Level	Detector	Ant Amp\Cb		Filter	EIRPCF	Readin	Limit	Margin	Pol
				Factor	1						
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	3819.00	-58.44	RMS	30.65	-23.55	1.78	-95.23	27.91	-13.00	-45.44	Horizontal
2	5729.00	-40.16	RMS	33.86	-22.86	2.09	-95.23	41.98	-13.00	-27.16	Horizontal
3	7639.00	-54.79	RMS	36.90	-23.15	2.01	-95.23	24.68	-13.00	-41.79	Horizontal



Site : 03CH23-HY
Condition: -13 1m SHF_1223_230710 Vertical
: GSM Ch810

	Freq	Level	Detector	Ant Amp\Cb		Filter	EIRPCF	Readin	Limit	Margin	Pol
				Factor	1						
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	3819.00	-56.78	RMS	30.65	-23.55	1.78	-95.23	29.57	-13.00	-43.78	Vertical
2	5729.00	-35.23	RMS	33.86	-22.86	2.09	-95.23	46.91	-13.00	-22.23	Vertical
3	7639.00	-54.97	RMS	36.90	-23.15	2.01	-95.23	24.50	-13.00	-41.97	Vertical

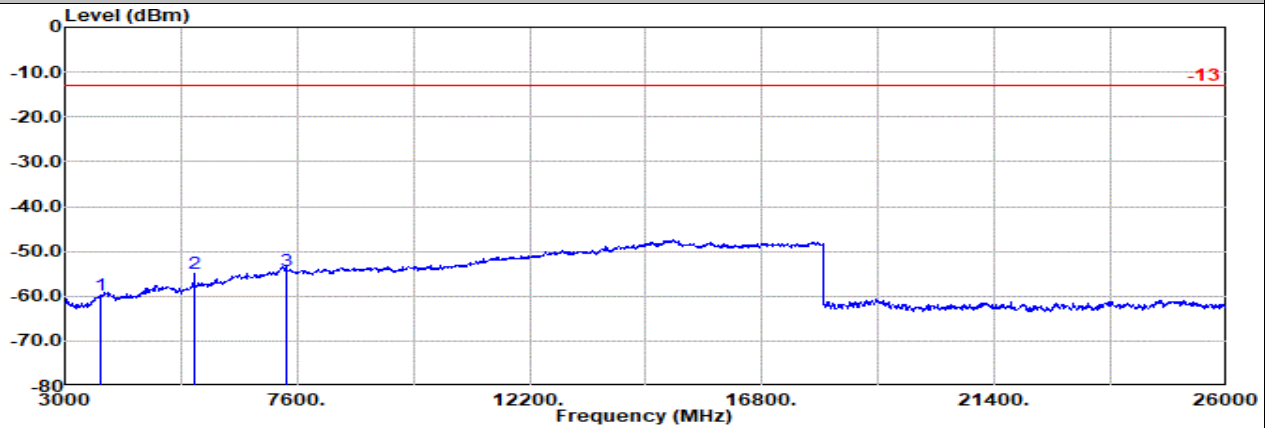


TX1

Part 24E Mode 2

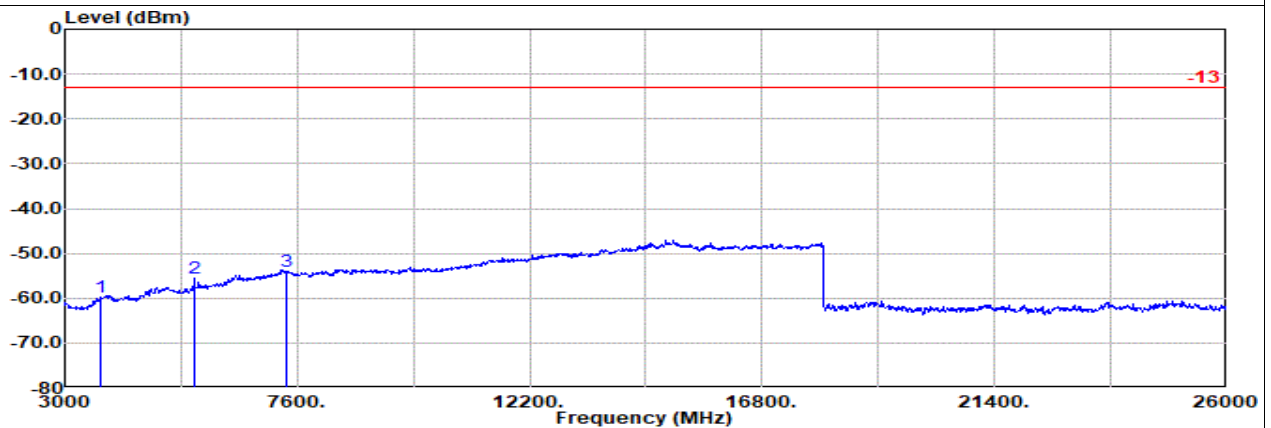
GSM 1900 Ch512

L



Site : 03CH23-HY
Condition: -13 1m SHF_1223_230710 Horizontal
: GSM Ch512

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin	Pol
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dBuV	dBm	dB	
1	3700.00	-59.87	RMS	29.90	-23.43	1.85	-95.23	27.04	-13.00	-46.87 Horizontal
2	5550.00	-54.84	RMS	33.00	-22.56	2.08	-95.23	27.87	-13.00	-41.84 Horizontal
3	7400.00	-54.19	RMS	37.20	-22.77	1.99	-95.23	24.62	-13.00	-41.19 Horizontal



Site : 03CH23-HY
Condition: -13 1m SHF_1223_230710 Vertical
: GSM Ch512

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin	Pol
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dBuV	dBm	dB	
1	3700.00	-59.80	RMS	29.90	-23.43	1.85	-95.23	27.11	-13.00	-46.80 Vertical
2	5550.00	-55.43	RMS	33.00	-22.56	2.08	-95.23	27.28	-13.00	-42.43 Vertical
3	7400.00	-54.13	RMS	37.20	-22.77	1.99	-95.23	24.68	-13.00	-41.13 Vertical

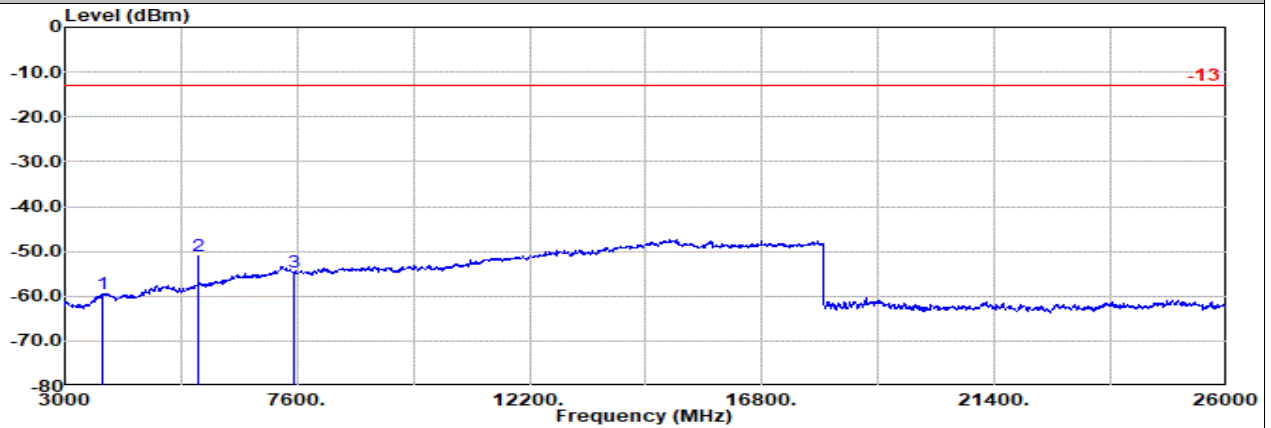


TX1

Part 24E Mode 2

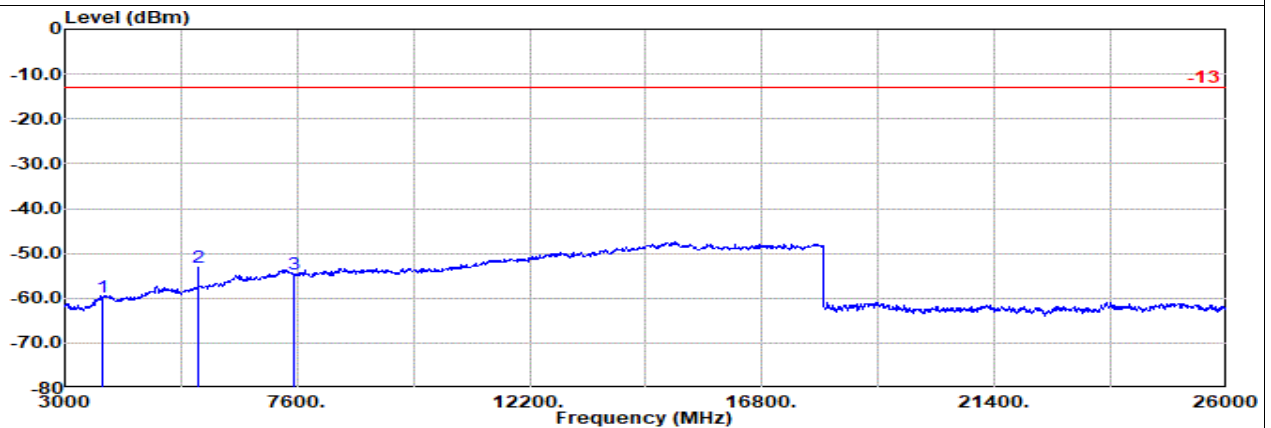
GSM 1900 Ch661

M



Site : 03CH23-HY
Condition: -13 1m SHF_1223_230710 Horizontal
: GSM Ch661

	Freq	Level	Detector	Ant Amp\Cb		Filter	EIRPCF	Readin	Limit	Margin	Pol
				Factor	1						
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	3760.00	-59.40	RMS	30.42	-23.50	1.81	-95.23	27.10	-13.00	-46.40	Horizontal
2	5640.00	-50.90	RMS	33.44	-22.67	2.10	-95.23	31.46	-13.00	-37.90	Horizontal
3	7520.00	-54.74	RMS	36.96	-22.96	2.00	-95.23	24.49	-13.00	-41.74	Horizontal



Site : 03CH23-HY
Condition: -13 1m SHF_1223_230710 Vertical
: GSM Ch661

	Freq	Level	Detector	Ant Amp\Cb		Filter	EIRPCF	Readin	Limit	Margin	Pol
				Factor	1						
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	3760.00	-59.79	RMS	30.42	-23.50	1.81	-95.23	26.71	-13.00	-46.79	Vertical
2	5640.00	-53.25	RMS	33.44	-22.67	2.10	-95.23	29.11	-13.00	-40.25	Vertical
3	7520.00	-54.73	RMS	36.96	-22.96	2.00	-95.23	24.50	-13.00	-41.73	Vertical

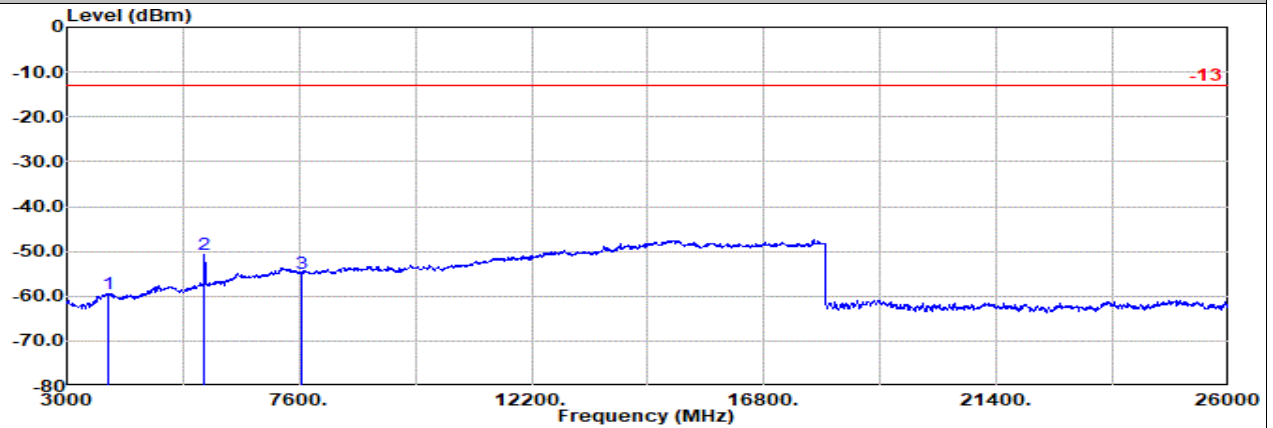


TX1

Part 24E Mode 2

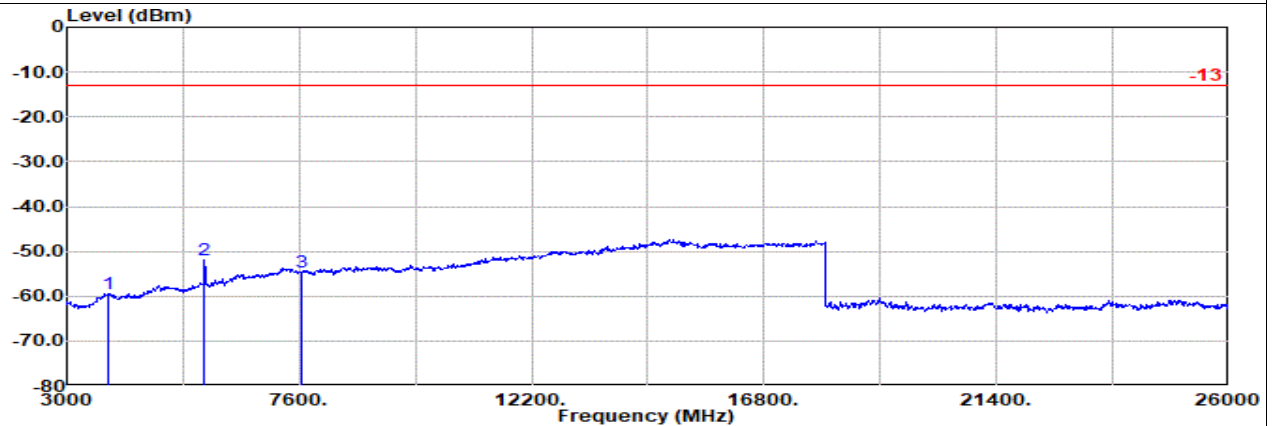
GSM 1900 Ch810

H



Site : 03CH23-HY
Condition: -13 1m SHF_1223_230710 Horizontal
: GSM Ch810

	Freq	Level	Detector	Ant Amp\Cb		Filter	EIRPCF	Readin	Limit	Margin	Pol
				Factor	1						
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	3819.00	-59.34	RMS	30.65	-23.55	1.78	-95.23	27.01	-13.00	-46.34	Horizontal
2	5729.00	-50.70	RMS	33.86	-22.86	2.09	-95.23	31.44	-13.00	-37.70	Horizontal
3	7639.00	-54.84	RMS	36.90	-23.15	2.01	-95.23	24.63	-13.00	-41.84	Horizontal



Site : 03CH23-HY
Condition: -13 1m SHF_1223_230710 Vertical
: GSM Ch810

	Freq	Level	Detector	Ant Amp\Cb		Filter	EIRPCF	Readin	Limit	Margin	Pol
				Factor	1						
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	3819.00	-59.36	RMS	30.65	-23.55	1.78	-95.23	26.99	-13.00	-46.36	Vertical
2	5729.00	-51.86	RMS	33.86	-22.86	2.09	-95.23	30.28	-13.00	-38.86	Vertical
3	7639.00	-54.64	RMS	36.90	-23.15	2.01	-95.23	24.83	-13.00	-41.64	Vertical

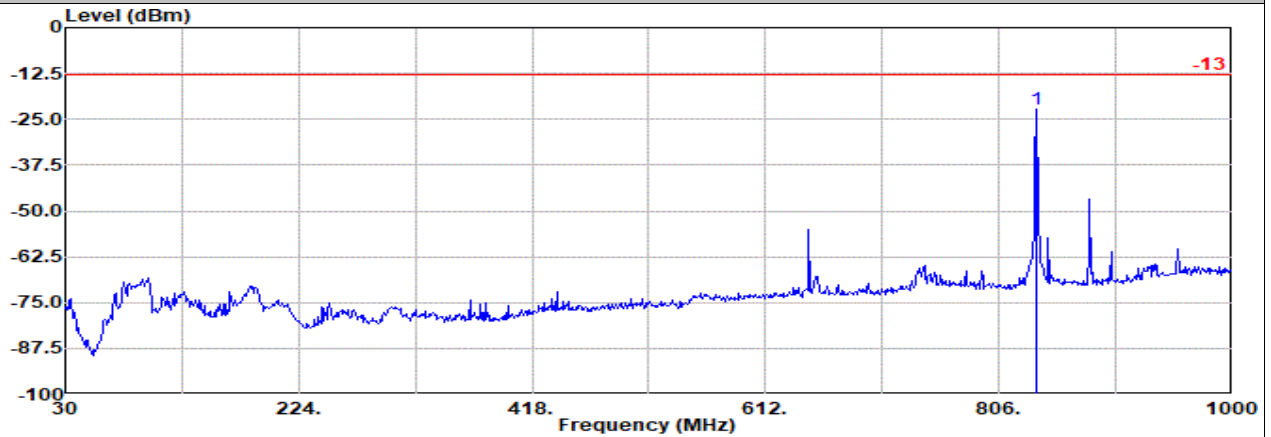


TX0

Part 22H Mode 1

GSM 850 20M Ch189

M



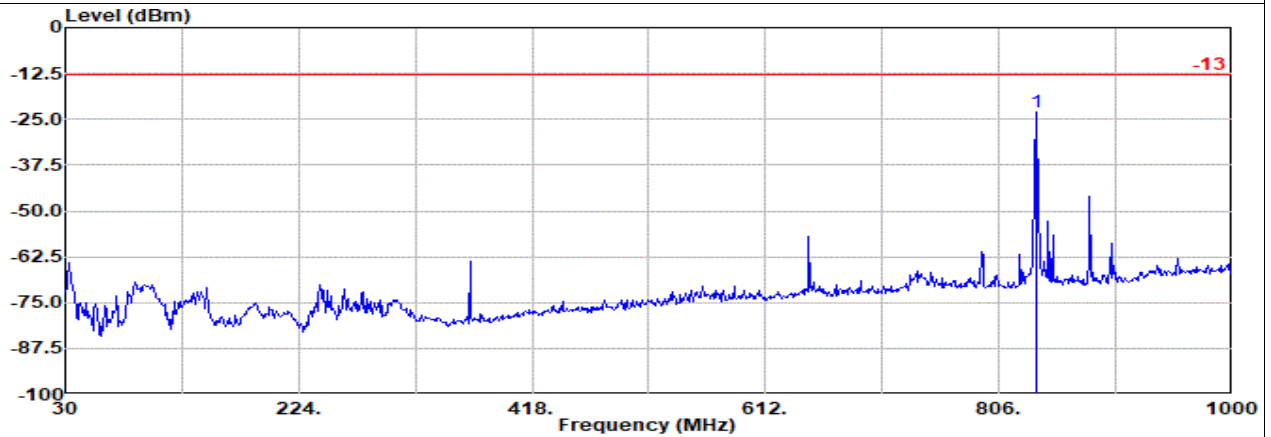
Site : 03CH23-HY

Condition: -13 3m CBL6111D_62028 & 003_231015 Horizontal

: GSM 850 Ch189

: #1 is fundamental signal which can be ignored.

1	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm									
1	837.04	-22.09	RMS	28.71	-27.25	0.18	-95.23	71.50	-13.00	-9.09	Horizontal



Site : 03CH23-HY

Condition: -13 3m CBL6111D_62028 & 003_231015 Vertical

: GSM 850 Ch189

: #1 is fundamental signal which can be ignored.

1	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm									
1	837.04	-23.17	RMS	28.71	-27.25	0.18	-95.23	70.42	-13.00	-10.17	Vertical

Remark: #1 is fundamental signal which can be ignored



Appendix C. Spot Check Evaluation on GTF7P, G3Y12

Conducted power test and radiated spurious emission test configurations were selected from the worst cases identified in the reference model and tested to demonstrate the test data from reference model remains representative for the variant model.

The deviation between the spot check and the referenced values is within 3dB, therefore data referencing is justified according to the guidance in the ECR inquiry

Test Item	Mode	A4RGXQ96 Parent Worst Result	A4RGTF7P Variant Check Result	Difference (dB)
Conducted Power (dBm)	WWAN GPRS 850 Class 8 CH128	32.60	32.32	0.28
	WWAN GPRS 1900 Class 8 CH512	29.28	29.21	0.07
	WWAN WCDMA Band V RMC 12.2K CH4182	24.77	24.62	0.15
	WWAN LTE Band 5 10MHz 1RB0 QPSK Mid	24.72	24.71	0.01
	WWAN LTE Band 7 20MHz 1RB0 QPSK Mid	24.45	24.33	0.12
	WWAN LTE Band 12 10MHz 1RB0 QPSK Mid	24.66	24.66	0.00
	WWAN LTE Band 26 (90S) 5MHz 1RB0 QPSK High	24.70	24.65	0.05
	WWAN LTE Band 41 HPUE 15MHz 1RB37 QPSK Mid	26.43	26.36	0.07
	WWAN NR n5 10MHz 1RB1 QPSK Low	25.18	25.02	0.16
	WWAN NR n7 25MHz 1RB1 QPSK High	24.83	24.58	0.25
	WWAN NR n12 15MHz 36RB18 BPSK Low	24.88	24.84	0.04
	WWAN NR n26 5MHz 1RB23 QPSK Low	25.19	24.92	0.27
	WWAN NR n41 HPUE 100MHz 1RB1 QPSK Low	27.15	26.96	0.19
	WWAN NR n77 HPUE 50MHz 1RB1 QPSK Low	27.20	26.93	0.27

Test Item	Mode	ANT	A4RGXQ96 Parent Worst Result	A4RGTF7P Variant Check Result	Difference (dB)
Conducted Power (dBm)	BT (BR 1Mbps CH39)	4	20.69	20.59	0.10
	BLE / BT EDR (BLE 2Mbps CH19)	4	20.20	20.16	0.04
	BLE CS GFSK_DTS (2Mbps CH38)	4	20.50	20.30	0.20
	BLE CS ASK_FHSS (2Mbps CH38)	4	20.29	20.12	0.17
	WiFi 2.4GHz (HE20 CH06 Full RU)	4+3	23.98	23.85	0.13
	WiFi 5GHz (11a CH169)	4+3	22.55	22.29	0.26
	WiFi 6GHz (11a CH049)	4+3	21.69	21.60	0.09

Test Item	Mode	ANT	A4RGXQ96 Parent Worst Result	A4RGTF7P Variant Check Result	Difference (dB)
Field Strength (dBuV/m)	NFC 13.56MHz	-	25.45	23.86	1.59
Radiated Spurious Emission (dBuV/m)	NFC 13.56MHz	-	-3.19	-3.27	0.08
Radiated Spurious Emission (dBm)	WWAN GSM 850 CH189	0	-18.90	-21.23	2.33
	WWAN GSM 1900 CH512	2	-20.77	-22.79	2.02
	WWAN WCDMA Band V CH4132	0	-41.92	-43.94	2.02
	WWAN LTE Band 26 10MHz 1RB0 QPSK High	0	-32.45	-32.71	0.26
	WWAN LTE Band 7 10MHz 1RB0 QPSK High	0	-21.91	-23.47	1.56
	WWAN LTE Band 12 10MHz 1RB0 QPSK Low	1	-32.20	-33.22	1.02
	WWAN LTE Band 26 (90S) 15MHz 1RB0 QPSK Mid	0	-20.42	-22.30	1.88
	WWAN LTE Band 41 HPUE 10MHz 1RB0 QPSK Low	0	-10.25	-11.23	0.98
	WWAN NR n26 20MHz 1RB1 BPSK High	1	-29.65	-31.05	1.40
	WWAN NR n7 20MHz 1RB1 BPSK Low	0	-21.64	-21.87	0.23
	WWAN NR n12 10MHz 1RB1 BPSK Low	1	-35.23	-36.03	0.80
	WWAN NR n26 (90S) 15MHz 1RB1 BPSK Mid	1	-31.65	-33.29	1.64
	WWAN NR n41 20MHz 1RB1 BPSK Mid	2	-12.22	-14.37	2.15
	WWAN NR n77 HPUE (27Q) 20MHz 1RB1 BPSK Low	6	-20.74	-22.69	1.95
		2	-37.09	-39.98	2.89

Test Item	Mode	ANT	A4RGXQ96 Parent Worst Result	A4RGTF7P Variant Check Result	Difference (dB)
Radiated Spurious Emission (dBuV/m)	BT (BR 1Mbps CH78)	4	-16.58	-19.44	2.86
	BLE / BT EDR (BLE 1Mbps CH39)	4	-4.11	-6.08	1.97
	BLE CS GFSK_DTS (2Mbps CH76)	3	-1.95	-2.16	0.21
	BLE CS ASK_FHSS (2Mbps CH76)	3	-10.53	-11.69	1.16
	WiFi 2.4GHz (HE20 CH12 Full RU)	4+3	-1.58	-2.78	1.20
	WiFi 5GHz (HE20 CH136 Full RU)	4+3	-1.52	-2.24	0.72
	WiFi 6GHz (11a CH001)	4+3	-1.89	-2.39	0.50

Note: BLE CS means BLE Channel Sounding.



Reference detail Section

Rule Part	Equipment Class	Wireless Technology	Frequency Band	Reference FCC ID (Parent)	Type Grant/ Permissive Change	Reference Exhibit	Full report referenced	FCC ID Filling (Variant)
22, 24, 27	PCE	GSM	850/1900	A4RGXQ96	Original Grant	GXQ96_FCC Part 22.24.27 GSM, WCDMA	Y	A4RGTF7P
		WCDMA	Band II/IV/V	A4RGXQ96	Original Grant	GXQ96_FCC Part 22.24.27 GSM, WCDMA	Band V only	A4RGTF7P

Note: WCDMA Band II, IV are subject to full test and documented in “FG451607A” report.



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. 12, 2023	Aug.13, 2024~ Aug. 19, 2024	Sep. 11, 2024	Radiation (03CH23-HY)
Bilog Antenna with 6dB pad	TESEQ & WOKEN	CBL 6111D & 00802N1D-06	62028 & 003	N/A	Oct. 15, 2023	Aug.13, 2024~ Aug. 19, 2024	Oct. 14, 2024	Radiation (03CH23-HY)
Amplifier	SONOMA	310N	421582	N/A	Jul. 14, 2024	Aug.13, 2024~ Aug. 19, 2024	Jul. 13, 2025	Radiation (03CH23-HY)
Double Ridged Guide Horn Antenna	RFSPIN	DRH18-E	LE2C05A18EN	1GHz~18GHz	Jun. 20, 2024	Aug.13, 2024~ Aug. 19, 2024	Jun. 19, 2025	Radiation (03CH23-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA9170	00993	18GHz-40GHz	Nov. 24, 2023	Aug.13, 2024~ Aug. 19, 2024	Nov. 23, 2024	Radiation (03CH23-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA9170	1223	18GHz-40GHz	Jun. 24, 2024	Aug.13, 2024~ Aug. 19, 2024	Jun. 23, 2025	Radiation (03CH23-HY)
Amplifier	EMEC	EM01G18GA	060878	N/A	Sep. 28, 2023	Aug.13, 2024~ Aug. 19, 2024	Sep. 27, 2024	Radiation (03CH23-HY)
Preamplifier	EMEC	EM18G40G	060871	18-40GHz	Sep. 06, 2023	Aug.13, 2024~ Aug. 19, 2024	Sep. 05, 2024	Radiation (03CH23-HY)
Signal Analyzer	Keysight	N9010A	MY54200485	N/A	May 13, 2024	Aug.13, 2024~ Aug. 19, 2024	May 12, 2025	Radiation (03CH23-HY)
Hygrometer	TECPEL	DTM-303B	TP211542	N/A	Oct. 30, 2023	Aug.13, 2024~ Aug. 19, 2024	Oct. 29, 2024	Radiation (03CH23-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Aug.13, 2024~ Aug. 19, 2024	N/A	Radiation (03CH23-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Aug.13, 2024~ Aug. 19, 2024	N/A	Radiation (03CH23-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Aug.13, 2024~ Aug. 19, 2024	N/A	Radiation (03CH23-HY)
Software	Audix	E3 6.09824_20191 22	RK-002348	N/A	N/A	Aug.13, 2024~ Aug. 19, 2024	N/A	Radiation (03CH23-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9kHz~30MHz	Mar. 06, 2024	Aug.13, 2024~ Aug. 19, 2024	Mar. 05, 2025	Radiation (03CH23-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804395/2	N/A	Nov. 27, 2023	Aug.13, 2024~ Aug. 19, 2024	Nov. 26, 2024	Radiation (03CH23-HY)
RF Cable	EMC	EMC101Y	231115/231119/ 231122	N/A	Nov. 27, 2023	Aug.13, 2024~ Aug. 19, 2024	Nov. 26, 2024	Radiation (03CH23-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101329	9kHz~30GHz	Sep. 20, 2023	Aug. 01, 2024~ Aug. 19, 2024	Sep. 19, 2024	Conducted (TH03-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890001	1V~20V 0.5A~4A	Sep. 12, 2023	Aug. 01, 2024~ Aug. 19, 2024	Sep. 11, 2024	Conducted (TH03-HY)
Base Station (Measure)	Rohde & Schwarz	CMU200	122990	GSM / GPRS / WCDMA	Dec. 06, 2023	Aug. 01, 2024~ Aug. 19, 2024	Dec. 05, 2024	Conducted (TH03-HY)
Temperature & Humidity Cabinet Chamber	ESPEC	LHU-113	1012005860	-20℃~85℃	Dec. 13, 2023	Aug. 01, 2024~ Aug. 19, 2024	Dec. 12, 2024	Conducted (TH03-HY)
Hygrometer	TECPEL	DTM-303B	TP200886	N/A	Mar. 14, 2024	Aug. 01, 2024~ Aug. 19, 2024	Mar. 13, 2025	Conducted (TH03-HY)
Power divider	Anritsu	K241C	2143398	9KHz~40GHz	Jun. 13, 2024	Aug. 01, 2024~ Aug. 19, 2024	Jun. 12, 2025	Conducted (TH03-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	801606/3	N/A	May 15, 2024	Aug. 01, 2024~ Aug. 19, 2024	May 14, 2024	Conducted (TH03-HY)

—THE END—