



# FCC RADIO TEST REPORT

FCC ID : A4RG1MNW  
Equipment : Phone  
Model Name : G1MNW  
Applicant : Google LLC  
1600 Amphitheatre Parkway,  
Mountain View, California, 94043 USA  
Standard : FCC 47 CFR Part 2, 22(H), 24(E), 27(L)

The product was received on Apr. 10, 2023 and testing was performed from Apr. 13, 2023 to May 18, 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

**Sporton International Inc. EMC & Wireless Communications Laboratory**

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



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### 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) (WCDMA Band II)		
	§27.50 (d)(4)	Equivalent Isotropic Radiated Power (WCDMA Band IV)		
3.3	§24.232 (d)	Peak-to-Average Ratio	Pass	-
3.4	§2.1049 §22.917 (b) §24.238 (b) §27.53 (g)	Occupied Bandwidth (GSM850) (WCDMA Band V) (GSM1900) (WCDMA Band II) (WCDMA Band IV)	Pass	-
3.5	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g)	Band Edge Measurement (GSM850) (WCDMA Band V) (GSM1900) (WCDMA Band II) (WCDMA Band IV)	Pass	-
3.6	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g)	Conducted Emission (GSM850) (WCDMA Band V) (GSM1900) (WCDMA Band II) (WCDMA Band IV)	Pass	-
3.7	§2.1055 §22.355 §24.235 §27.54	Frequency Stability Temperature & Voltage	Pass	-
4.4	§2.1053 §22.917 (a) §24.238 (a) §27.53 (h)	Field Strength of Spurious Radiation (GSM850) (WCDMA Band V) (GSM1900) (WCDMA Band II) (WCDMA Band IV)	Pass	28.99 dB under the limit at 2546.000 MHz for Primary Antenna  34.35 dB under the limit at 7520.000 MHz for ASDIV Antenna



<b>Conformity Assessment Condition:</b>
1. 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/manufacturee who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".
<b>Disclaimer:</b>
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.

**Reviewed by: William Chen**  
**Report Producer: Doris Chen**



# 1 General Description

## 1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Phone
FCC ID	A4RG1MNW
Model Name	G1MNW
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE/5G NR/NFC/GNSS/ UWB/WPT WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80/VHT160 WLAN 11ax HE20/HE40/HE80/HE160 WLAN 11be EHT20/EHT40/EHT80/EHT160 Bluetooth BR/EDR/LE/HR

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

EUT Information List	
S/N	Performed Test Item
33141FDJG000Z0	Conducted Measurement ERP/EIRP
33161FDJG000AY	Radiated Spurious Emission



## 1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard	
<b>Tx Frequency</b>	<b>GSM/GPRS/EDGE:</b> 850: 824.2 MHz ~ 848.8 MHz 1900: 1850.2 MHz ~ 1909.8 MHz <b>WCDMA:</b> Band V: 826.4 MHz ~ 846.6 MHz Band II: 1852.4 MHz ~ 1907.6 MHz Band IV: 1712.4 MHz ~ 1752.6 MHz
<b>Rx Frequency</b>	<b>GSM/GPRS/EDGE:</b> 850: 869.2 MHz ~ 893.8 MHz 1900: 1930.2 MHz ~ 1989.8 MHz <b>WCDMA:</b> Band V: 871.4 MHz ~ 891.6 MHz Band II: 1932.4 MHz ~ 1987.6 MHz Band IV: 2112.4 MHz ~ 2152.6 MHz
<b>Maximum Output Power to Antenna</b>	<b>&lt;Primary Antenna&gt;</b> <b>GSM/GPRS/EDGE:</b> <b>&lt;Ant. 0&gt;</b> 850: 32.51 dBm <b>&lt;Ant.2&gt;</b> 1900: 29.78 dBm <b>WCDMA:</b> <b>&lt;Ant. 0&gt;</b> Band V: 25.02 dBm <b>&lt;Ant. 2&gt;</b> Band II: 24.91 dBm Band IV: 24.97 dBm <b>&lt;ASDIV Antenna&gt;</b> <b>GSM/GPRS/EDGE:</b> <b>&lt;Ant. 1&gt;</b> 850: 32.01 dBm <b>&lt;Ant. 0&gt;</b> 1900: 29.45 dBm <b>WCDMA:</b> <b>&lt;Ant. 0&gt;</b> Band II: 24.64 dBm Band IV: 24.75 dBm <b>&lt;Ant. 1&gt;</b> Band V: 24.69 dBm

Product Specification is subject to this standard	
<b>Antenna Type</b>	<b>&lt;Primary Antenna&gt;</b> <b>&lt;Ant. 0&gt;</b> : PIFA Antenna <b>&lt;Ant. 2&gt;</b> : IFA Antenna <b>&lt;ASDIV Antenna&gt;</b> <b>&lt;Ant. 0&gt;</b> : PIFA Antenna <b>&lt;Ant. 1&gt;</b> : PIFA Antenna
<b>Type of Modulation</b>	GSM / GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA: QPSK (Uplink) HSDPA: 64QAM (Downlink) HSUPA: QPSK (Uplink)

**<Primary Antenna>**

Radio Tech	Band Number	Antenna name	Gain
GSM	850	Ant 0	-3.5
GSM	1900	Ant 2	1.8
WCDMA	B2	Ant 2	1.8
WCDMA	B4	Ant 2	0.5
WCDMA	B5	Ant 0	-3.5

**<ASDIV Antenna>**

Radio Tech	Band Number	Antenna name	Gain
GSM	850	Ant 1	-5.2
GSM	1900	Ant 0	-0.6
WCDMA	B2	Ant 0	-0.6
WCDMA	B4	Ant 0	0.4
WCDMA	B5	Ant 1	-5.2

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

### 1.3 Modification of EUT

No modifications made to the EUT during the testing.





### 1.4 Testing Location

<b>Test Site</b>	Sporton International Inc. EMC & Wireless Communications Laboratory
<b>Test Site Location</b>	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
<b>Test Site No.</b>	<b>Sporton Site No.</b>
	TH03-HY
<b>Test Engineer</b>	Eric Wu
<b>Temperature (°C)</b>	22.3~24.3
<b>Relative Humidity (%)</b>	40.2~42.2

<b>Test Site</b>	Sporton International Inc. Wensan Laboratory
<b>Test Site Location</b>	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
<b>Test Site No.</b>	<b>Sporton Site No.</b>
	03CH11-HY (TAF Code: 3786)
<b>Test Engineer</b>	Yuan Lee, Fu Chen and Troye Hsieh
<b>Temperature (°C)</b>	19.1~25.5
<b>Relative Humidity (%)</b>	51.2~58.1
<b>Remark</b>	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), 27(L)
- ♦ 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 listed below are 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 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 and WCDMA Band V
2. 30 MHz to 18000 MHz for WCDMA Band IV
3. 30 MHz to 19100 MHz for GSM1900 and WCDMA Band II

All modes, data rates and positions were investigated.

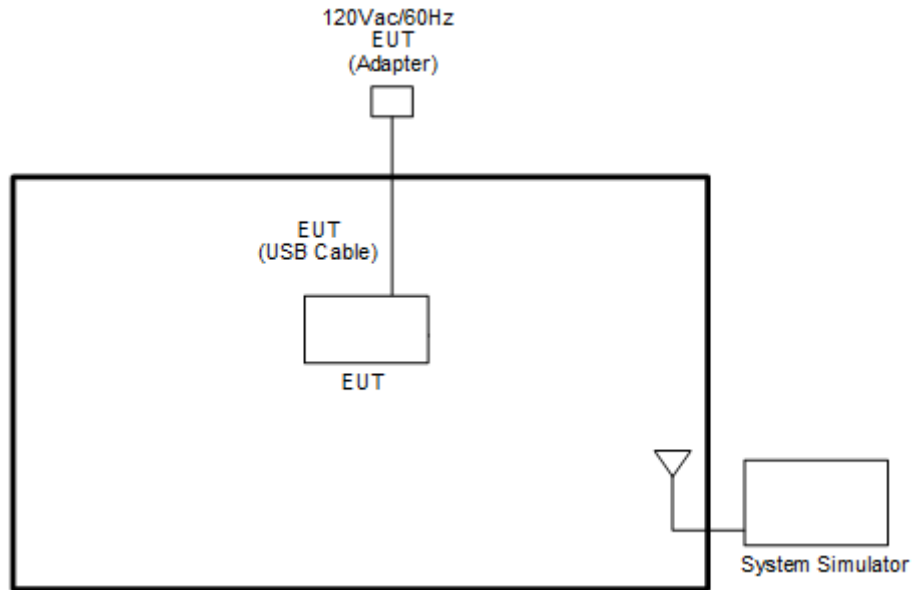
Test modes are chosen to be reported as the worst case configuration below:

Test Modes		
Band	Radiated TCs	Conducted TCs
<b>GSM850</b>	<ul style="list-style-type: none"> <li>■ GPRS Class 8 Link</li> <li>■ EDGE Class 8 Link</li> </ul>	<ul style="list-style-type: none"> <li>■ GPRS Class 8 Link</li> <li>■ EDGE Class 8 Link</li> </ul>
<b>GSM1900</b>	<ul style="list-style-type: none"> <li>■ GPRS Class 8 Link</li> <li>■ EDGE Class 8 Link</li> </ul>	<ul style="list-style-type: none"> <li>■ GPRS Class 8 Link</li> <li>■ EDGE Class 8 Link</li> </ul>
<b>WCDMA Band V</b>	<ul style="list-style-type: none"> <li>■ RMC 12.2Kbps Link</li> </ul>	<ul style="list-style-type: none"> <li>■ RMC 12.2Kbps Link</li> </ul>
<b>WCDMA Band II</b>	<ul style="list-style-type: none"> <li>■ RMC 12.2Kbps Link</li> </ul>	<ul style="list-style-type: none"> <li>■ RMC 12.2Kbps Link</li> </ul>
<b>WCDMA Band IV</b>	<ul style="list-style-type: none"> <li>■ RMC 12.2Kbps Link</li> </ul>	<ul style="list-style-type: none"> <li>■ RMC 12.2Kbps Link</li> </ul>

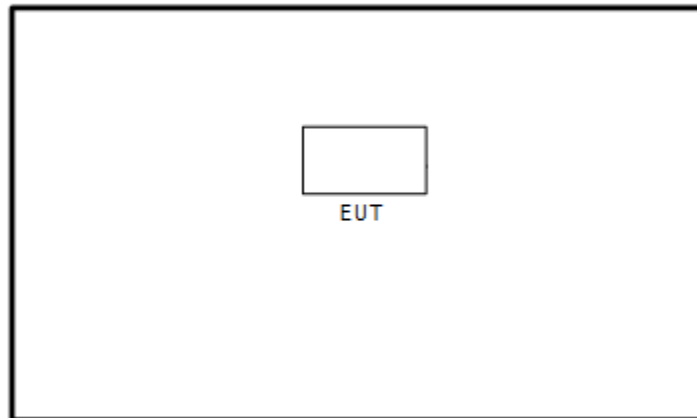
**Remark:** All the radiated test cases were performed with Adapter 2 and USB Cable 1.

## 2.2 Connection Diagram of Test System

<EUT with Adapter>



<EUT with Standalone>





### 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:

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



## 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
WCDMA Band II	Channel	9262	9400	9538
	Frequency	1852.4	1880.0	1907.6
WCDMA Band IV	Channel	1312	1413	1513
	Frequency	1712.4	1732.6	1752.6

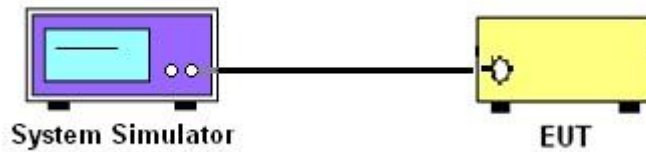
### 3 Conducted Test Result

#### 3.1 Measuring Instruments

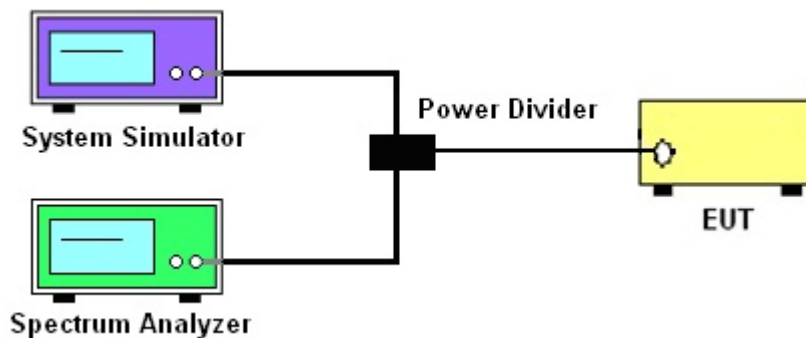
Please refer to the measuring equipment list in this test report.

##### 3.1.1 Test Setup

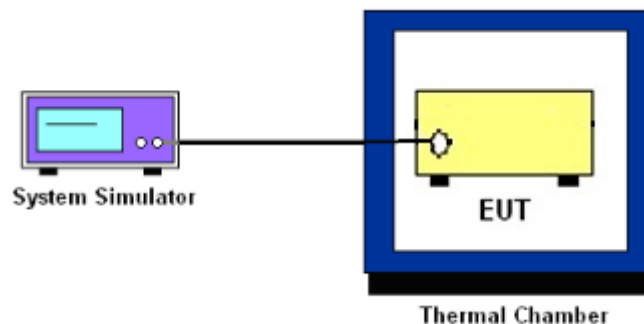
##### 3.1.2 Conducted Output Power



##### 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 and WCDMA Band II

The EIRP of mobile transmitters must not exceed 1 Watts for WCDMA Band IV

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 10<sup>th</sup> 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 & 27.54

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  $-30^{\circ}\text{C}$  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  $10^{\circ}\text{C}$  steps up to  $50^{\circ}\text{C}$ . 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

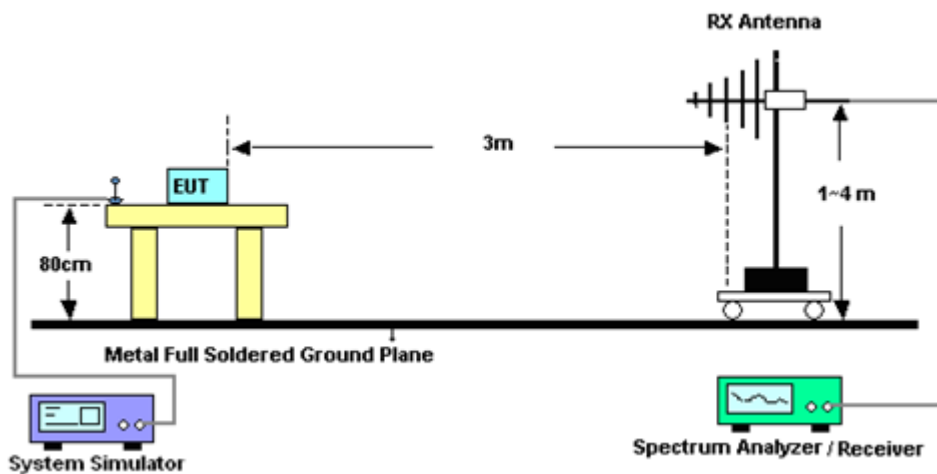
Please refer to the measuring equipment list in this test report.

### 4.2 Test Setup

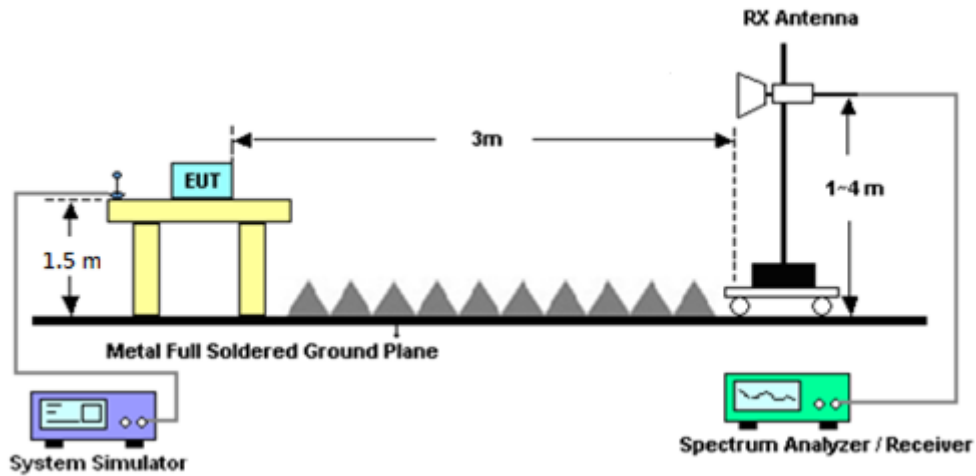
For radiated test below 30MHz



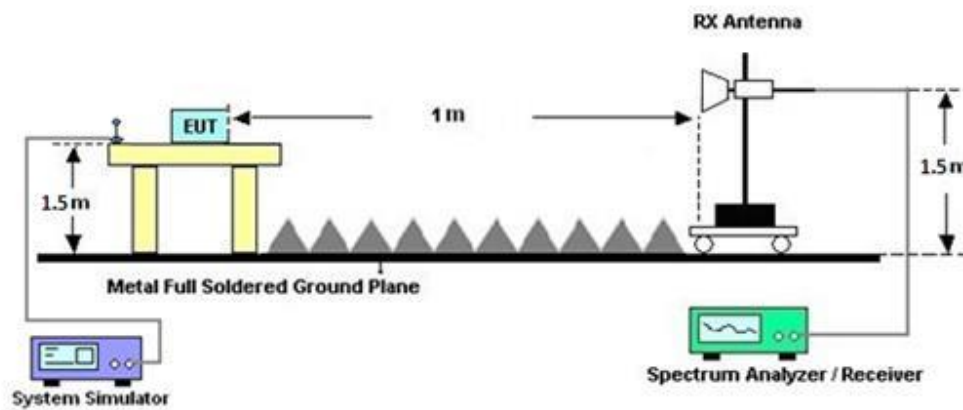
For radiated test from 30MHz to 1GHz



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 / 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  $43 + 10\log(P)$  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	Apr. 13, 2023~ Apr. 25, 2023	Sep. 19, 2023	Radiation (03CH11-HY)
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 08, 2022	Apr. 13, 2023~ Apr. 25, 2023	Oct. 07, 2023	Radiation (03CH11-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-01620	1GHz~18GHz	Aug. 24, 2022	Apr. 13, 2023~ Apr. 25, 2023	Aug. 23, 2023	Radiation (03CH11-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA9170	00991	18GHz~40GHz	May 14, 2022	Apr. 13, 2023~ Apr. 25, 2023	May 13, 2023	Radiation (03CH11-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Dec. 09, 2022	Apr. 13, 2023~ Apr. 25, 2023	Dec. 08, 2023	Radiation (03CH11-HY)
Preamplifier	Keysight	83017A	MY53270080	1GHz~26.5GHz	Nov. 09, 2022	Apr. 13, 2023~ Apr. 25, 2023	Nov. 08, 2023	Radiation (03CH11-HY)
Preamplifier	Jet-Power	JPA0118-55-3 03	1710001800 055007	1GHz~18GHz	Jun. 15, 2022	Apr. 13, 2023~ Apr. 25, 2023	Jun. 14, 2023	Radiation (03CH11-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 28, 2022	Apr. 13, 2023~ Apr. 25, 2023	Jun. 27, 2023	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz~44GHz	Oct. 07, 2022	Apr. 13, 2023~ Apr. 25, 2023	Oct. 06, 2023	Radiation (03CH11-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY54130085	20MHz~8.4GHz	Oct. 18, 2022	Apr. 13, 2023~ Apr. 25, 2023	Oct. 17, 2023	Radiation (03CH11-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Apr. 13, 2023~ Apr. 25, 2023	N/A	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Apr. 13, 2023~ Apr. 25, 2023	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Apr. 13, 2023~ Apr. 25, 2023	N/A	Radiation (03CH11-HY)
Software	Audix	E3 6.2009-8-24	RK-001053	N/A	N/A	Apr. 13, 2023~ Apr. 25, 2023	N/A	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2859/2	30MHz~40GHz	Mar. 07, 2023	Apr. 13, 2023~ Apr. 25, 2023	Mar. 06, 2024	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	801595/2	30MHz~40GHz	Mar. 07, 2023	Apr. 13, 2023~ Apr. 25, 2023	Mar. 06, 2024	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9K~30M	Mar. 07, 2023	Apr. 13, 2023~ Apr. 25, 2023	Mar. 06, 2024	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	30M~40G	Mar. 07, 2023	Apr. 13, 2023~ Apr. 25, 2023	Mar. 06, 2024	Radiation (03CH11-HY)
Filter	Wainwright	WHKX12-2700 -3000-18000-6 0SS	SN3	3GHz High Pass Filter	Sep. 12, 2022	Apr. 13, 2023~ Apr. 25, 2023	Sep. 11, 2023	Radiation (03CH11-HY)
Filter	Wainwright	WHKX12-900- 1000-15000-6 0SS	SN12	1GHz High Pass Filter	Sep. 12, 2022	Apr. 13, 2023~ Apr. 25, 2023	Sep. 11, 2023	Radiation (03CH11-HY)





Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Rohde & Schwarz	FSP30	101329	9kHz~30GHz	Sep. 27, 2022	May 09, 2023~ May 18, 2023	Sep. 26, 2023	Conducted (TH03-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890001	1V~20V 0.5A~4A	Sep. 29, 2022	May 09, 2023~ May 18, 2023	Sep 28, 2023	Conducted (TH03-HY)
Base Station (Measure)	Rohde & Schwarz	CMU200	117995	GSM / GPRS / WCDMA / CDMA	Aug. 02, 2022	May 09, 2023~ May 18, 2023	Aug. 01, 2023	Conducted (TH03-HY)
Temperature & Humidity Cabinet Chamber	ESPEC	LHU-113	10120058 60	-20°C~85°C	Dec. 05, 2022	May 09, 2023~ May 18, 2023	Dec. 04, 2023	Conducted (TH03-HY)
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 17, 2022	May 09, 2023~ May 18, 2023	Nov. 16, 2023	Conducted (TH03-HY)



## 6 Measurement Uncertainty

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	3.15 dB
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### Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	3.41 dB
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### Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.45 dB
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## Appendix A. Test Results of Conducted Test

### Conducted Output Power(Average power) & ERP / EIRP

#### <Primary Antenna>

GSM850 Maximum Average Power [dBm] (GT - LC = -3.5 dB)					
Channel	128	189	251	ERP (dBm)	ERP (W)
Frequency	824.2	836.4	848.8		
GSM	32.22	32.43	32.50	26.86	0.4853
GPRS class 8	32.25	32.46	<b>32.51</b>		
GPRS class 10	30.89	30.96	31.16		
GPRS class 11	29.91	30.14	30.16		
GPRS class 12	28.81	28.77	28.81		
EGPRS class 8	26.81	26.98	<b>27.13</b>	21.48	0.1406
EGPRS class 10	26.04	26.22	26.36		
EGPRS class 11	25.87	25.99	26.06		
EGPRS class 12	23.88	24.25	24.28		
Limit	ERP < 7W			Result	Pass

GSM1900 Maximum Average Power [dBm] (GT - LC = 1.8 dB)					
Channel	512	661	810	EIRP (dBm)	EIRP (W)
Frequency	1850.2	1880	1909.8		
GSM	29.52	29.76	29.64	31.58	1.4388
GPRS class 8	29.54	<b>29.78</b>	29.66		
GPRS class 10	28.53	28.54	28.50		
GPRS class 11	27.60	27.74	27.64		
GPRS class 12	26.74	26.65	26.51		
EGPRS class 8	24.89	25.00	<b>25.08</b>	26.88	0.4875
EGPRS class 10	23.73	23.92	23.85		
EGPRS class 11	23.42	23.64	23.46		
EGPRS class 12	22.45	22.50	22.64		
Limit	EIRP < 2W			Result	Pass



WCDMA Band V Maximum Average Power [dBm] (GT - LC = -3.5 dB)							
Channel	4132	4182	4233	ERP (dBm)	ERP (W)		
Frequency	826.4	836.4	846.6				
RMC 12.2K	24.86	<b>25.02</b>	24.88	19.37	0.0865		
HSDPA Subtest-1	24.85	25.00	24.88				
HSDPA Subtest-2	24.79	24.88	24.69				
HSDPA Subtest-3	24.30	24.16	24.14				
HSDPA Subtest-4	23.80	23.71	23.67				
HSUPA Subtest-1	23.88	23.76	23.68				
HSUPA Subtest-2	22.20	22.08	21.96				
HSUPA Subtest-3	23.28	23.14	23.07				
HSUPA Subtest-4	22.22	22.06	21.98				
HSUPA Subtest-5	24.83	24.90	24.80				
Limit	ERP < 7W					Result	Pass

WCDMA Band II Maximum Average Power [dBm] (GT - LC = 1.8 dB)							
Channel	9262	9400	9538	EIRP (dBm)	EIRP (W)		
Frequency	1852.4	1880	1907.6				
RMC 12.2K	24.75	24.84	<b>24.91</b>	26.71	0.4688		
HSDPA Subtest-1	24.73	24.81	24.88				
HSDPA Subtest-2	24.70	24.75	24.78				
HSDPA Subtest-3	24.15	24.25	24.24				
HSDPA Subtest-4	23.76	23.79	23.79				
HSUPA Subtest-1	23.78	23.77	23.90				
HSUPA Subtest-2	21.67	21.71	21.82				
HSUPA Subtest-3	22.46	22.44	22.47				
HSUPA Subtest-4	22.18	22.19	22.29				
HSUPA Subtest-5	24.07	24.04	24.19				
Limit	EIRP < 2W					Result	Pass

WCDMA Band IV Maximum Average Power [dBm] (GT - LC = 0.5 dB)							
Channel	1312	1413	1513	EIRP (dBm)	EIRP (W)		
Frequency	1712.4	1732.6	1752.6				
RMC 12.2K	<b>24.97</b>	24.88	24.88	25.47	0.3524		
HSDPA Subtest-1	24.96	24.86	24.90				
HSDPA Subtest-2	24.96	24.80	24.82				
HSDPA Subtest-3	24.33	24.23	24.33				
HSDPA Subtest-4	24.35	24.16	24.36				
HSUPA Subtest-1	23.98	23.81	23.77				
HSUPA Subtest-2	22.32	22.23	22.11				
HSUPA Subtest-3	22.45	22.41	22.45				
HSUPA Subtest-4	22.16	21.99	21.84				
HSUPA Subtest-5	24.79	24.80	24.63				
Limit	EIRP < 1W					Result	Pass



**<ASDIV Antenna>**

GSM850 Maximum Average Power [dBm] (GT - LC = -5.2 dB)					
Channel	128	189	251	ERP (dBm)	ERP (W)
Frequency	824.2	836.4	848.8		
GSM	31.99	31.84	31.77	24.66	0.2924
GPRS class 8	<b>32.01</b>	31.86	31.80		
GPRS class 10	30.83	30.79	30.60		
GPRS class 11	29.64	29.46	29.34		
GPRS class 12	28.37	28.25	28.24		
EGPRS class 8	<b>26.29</b>	26.12	25.99	18.94	0.0783
EGPRS class 10	25.23	25.41	25.27		
EGPRS class 11	25.47	25.40	25.30		
EGPRS class 12	23.46	23.38	23.15		
Limit	ERP < 7W			Result	Pass

GSM1900 Maximum Average Power [dBm] (GT - LC = -0.6 dB)					
Channel	512	661	810	EIRP (dBm)	EIRP (W)
Frequency	1850.2	1880	1909.8		
GSM	29.44	29.22	29.06	28.85	0.7674
GPRS class 8	<b>29.45</b>	29.26	29.08		
GPRS class 10	27.83	27.86	27.44		
GPRS class 11	27.40	27.25	26.98		
GPRS class 12	26.02	26.10	25.94		
EGPRS class 8	<b>24.25</b>	24.11	23.83	23.65	0.2317
EGPRS class 10	22.73	22.88	22.43		
EGPRS class 11	22.53	22.66	22.44		
EGPRS class 12	21.96	21.92	21.43		
Limit	EIRP < 2W			Result	Pass



WCDMA Band V Maximum Average Power [dBm] (GT - LC = -5.2 dB)							
Channel	4132	4182	4233	ERP (dBm)	ERP (W)		
Frequency	826.4	836.4	846.6				
<b>RMC 12.2K</b>	<b>24.69</b>	24.64	24.58	17.34	0.0542		
HSDPA Subtest-1	24.66	24.63	24.58				
HSDPA Subtest-2	24.62	24.49	24.38				
HSDPA Subtest-3	23.99	23.96	23.87				
HSDPA Subtest-4	23.59	23.57	23.42				
HSUPA Subtest-1	23.59	23.55	23.43				
HSUPA Subtest-2	21.91	21.82	21.69				
HSUPA Subtest-3	22.97	22.91	22.82				
HSUPA Subtest-4	21.94	21.86	21.71				
HSUPA Subtest-5	24.60	24.60	24.50				
Limit	ERP < 7W					Result	Pass

WCDMA Band II Maximum Average Power [dBm] (GT - LC = -0.6 dB)							
Channel	9262	9400	9538	EIRP (dBm)	EIRP (W)		
Frequency	1852.4	1880	1907.6				
<b>RMC 12.2K</b>	24.52	24.47	<b>24.64</b>	24.04	0.2535		
HSDPA Subtest-1	24.57	24.59	24.57				
HSDPA Subtest-2	24.47	24.48	24.59				
HSDPA Subtest-3	23.93	23.97	24.05				
HSDPA Subtest-4	23.55	23.54	23.50				
HSUPA Subtest-1	23.54	23.50	23.52				
HSUPA Subtest-2	23.04	22.95	22.92				
HSUPA Subtest-3	23.60	23.51	22.98				
HSUPA Subtest-4	23.03	22.84	23.08				
HSUPA Subtest-5	24.50	24.50	24.20				
Limit	EIRP < 2W					Result	Pass

WCDMA Band IV Maximum Average Power [dBm] (GT - LC = 0.4 dB)							
Channel	1312	1413	1513	EIRP (dBm)	EIRP (W)		
Frequency	1712.4	1732.6	1752.6				
<b>RMC 12.2K</b>	<b>24.75</b>	24.62	24.60	25.15	0.3273		
HSDPA Subtest-1	24.67	24.66	24.64				
HSDPA Subtest-2	24.62	24.59	24.55				
HSDPA Subtest-3	24.09	24.12	24.01				
HSDPA Subtest-4	24.06	24.09	24.05				
HSUPA Subtest-1	23.67	23.60	23.61				
HSUPA Subtest-2	21.22	21.24	22.74				
HSUPA Subtest-3	22.54	22.44	22.43				
HSUPA Subtest-4	21.63	22.66	22.42				
HSUPA Subtest-5	24.28	24.70	24.60				
Limit	EIRP < 1W					Result	Pass

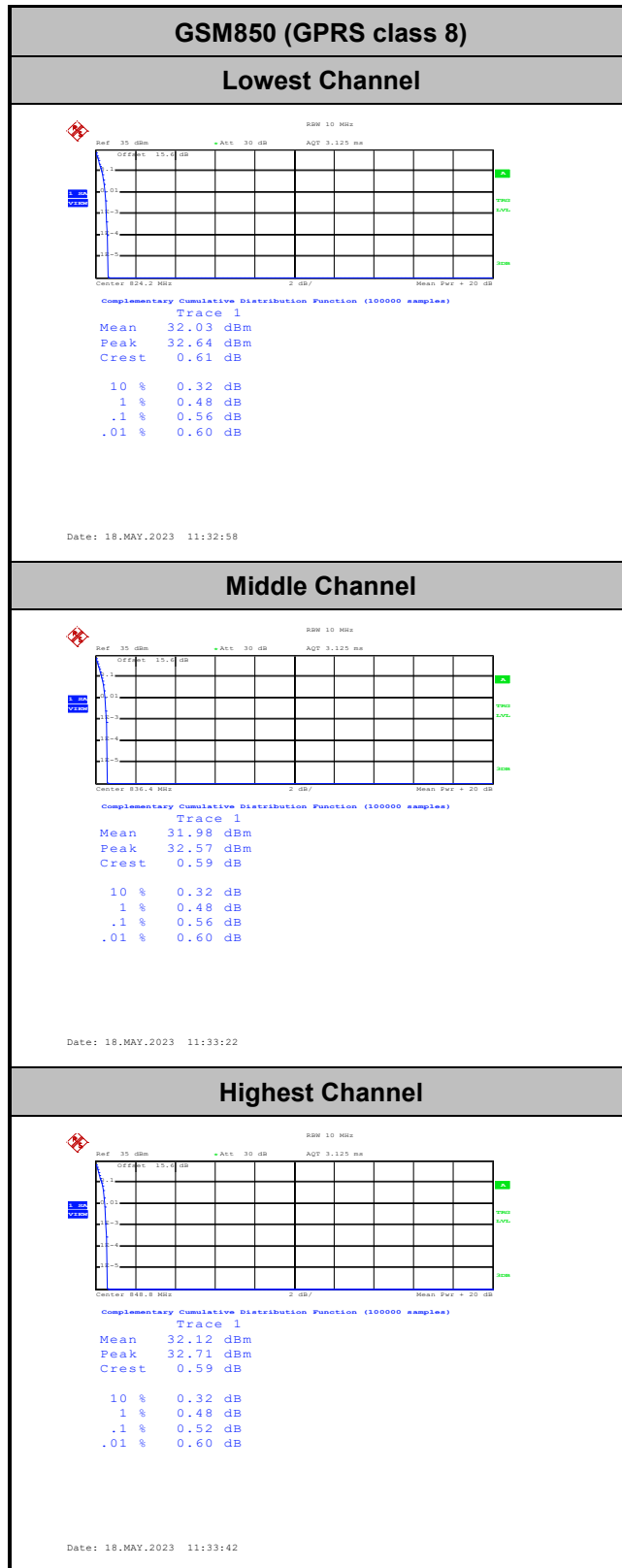


## A2. GSM

### Peak-to-Average Ratio

Mode	GSM850	Limit: 13dB
Mod.	GPRS class 8	Result
Lowest CH	0.56	PASS
Middle CH	0.56	
Highest CH	0.52	

Mode	GSM1900	Limit: 13dB
Mod.	GPRS class 8	Result
Lowest CH	0.44	PASS
Middle CH	0.44	
Highest CH	0.44	

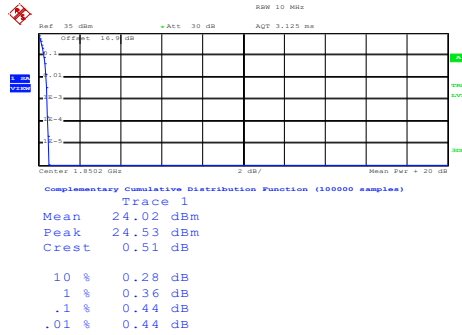






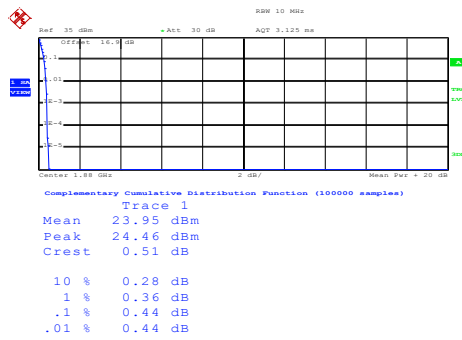
### GSM1900 (GPRS class 8)

#### Lowest Channel



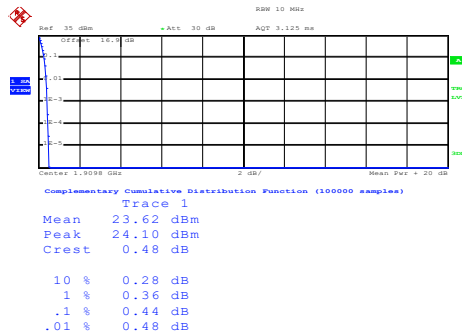
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#### Middle Channel



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#### Highest Channel



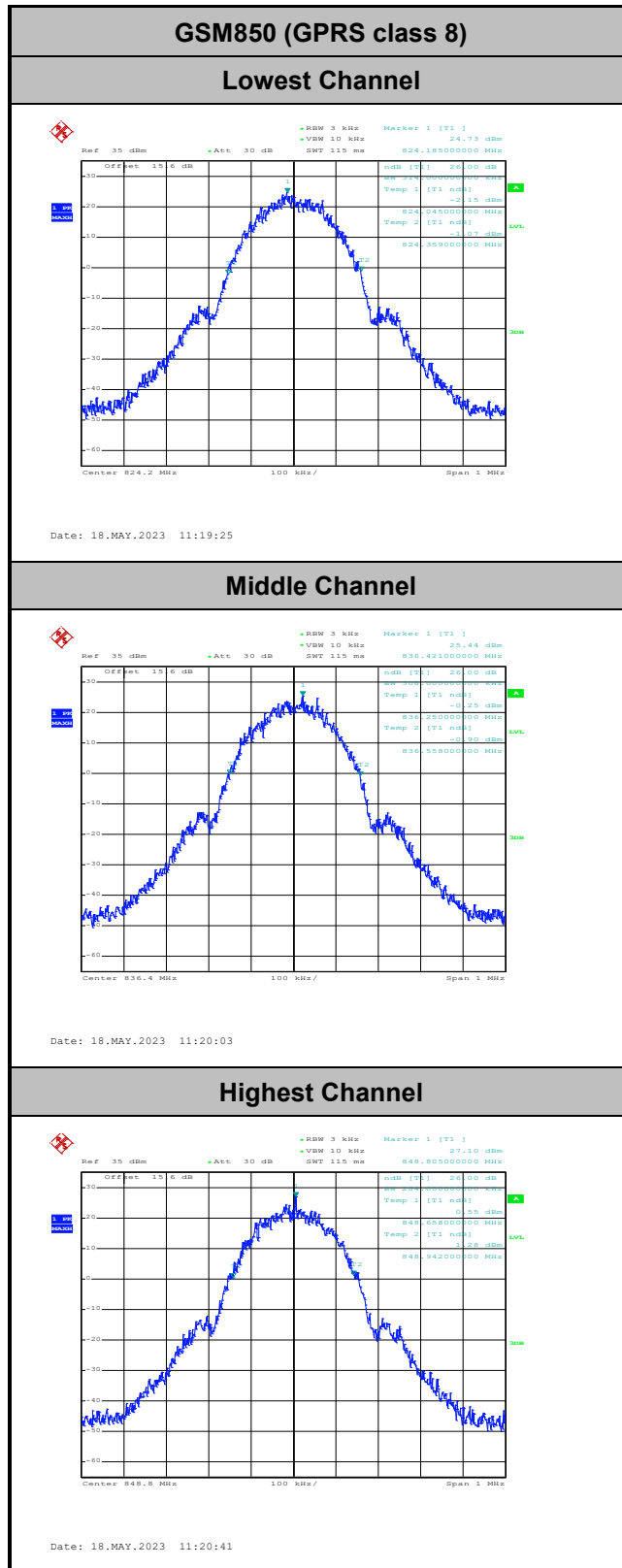
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**26dB Bandwidth**

Mode	GSM850 : 26dB BW(MHz)
Mod.	GPRS class 8
Lowest CH	0.314
Middle CH	0.308
Highest CH	0.284

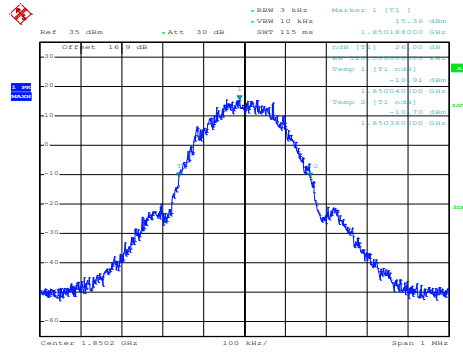
Mode	GSM1900 : 26dB BW(MHz)
Mod.	GPRS class 8
Lowest CH	0.320
Middle CH	0.314
Highest CH	0.312





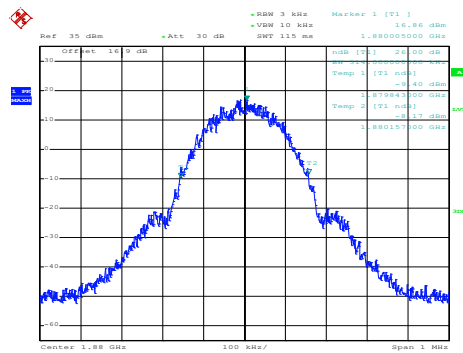
### GSM1900 (GPRS class 8)

#### Lowest Channel



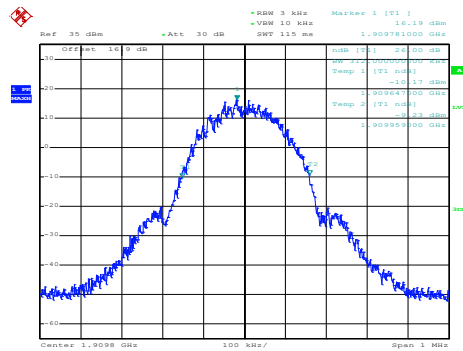
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#### Middle Channel



Date: 9.MAY.2023 15:56:10

#### Highest Channel



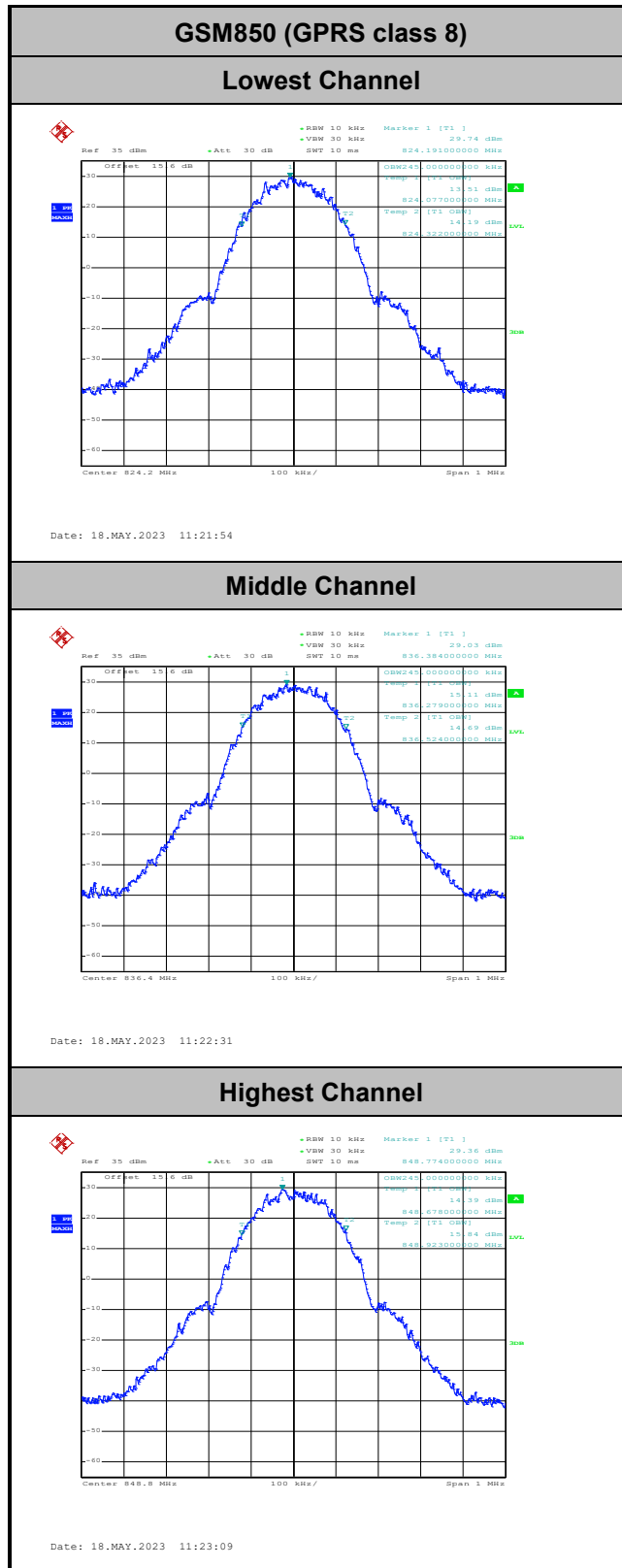
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## Occupied Bandwidth

Mode	GSM850 : 99%OBW(MHz)
Mod.	GPRS class 8
Lowest CH	0.245
Middle CH	0.245
Highest CH	0.245

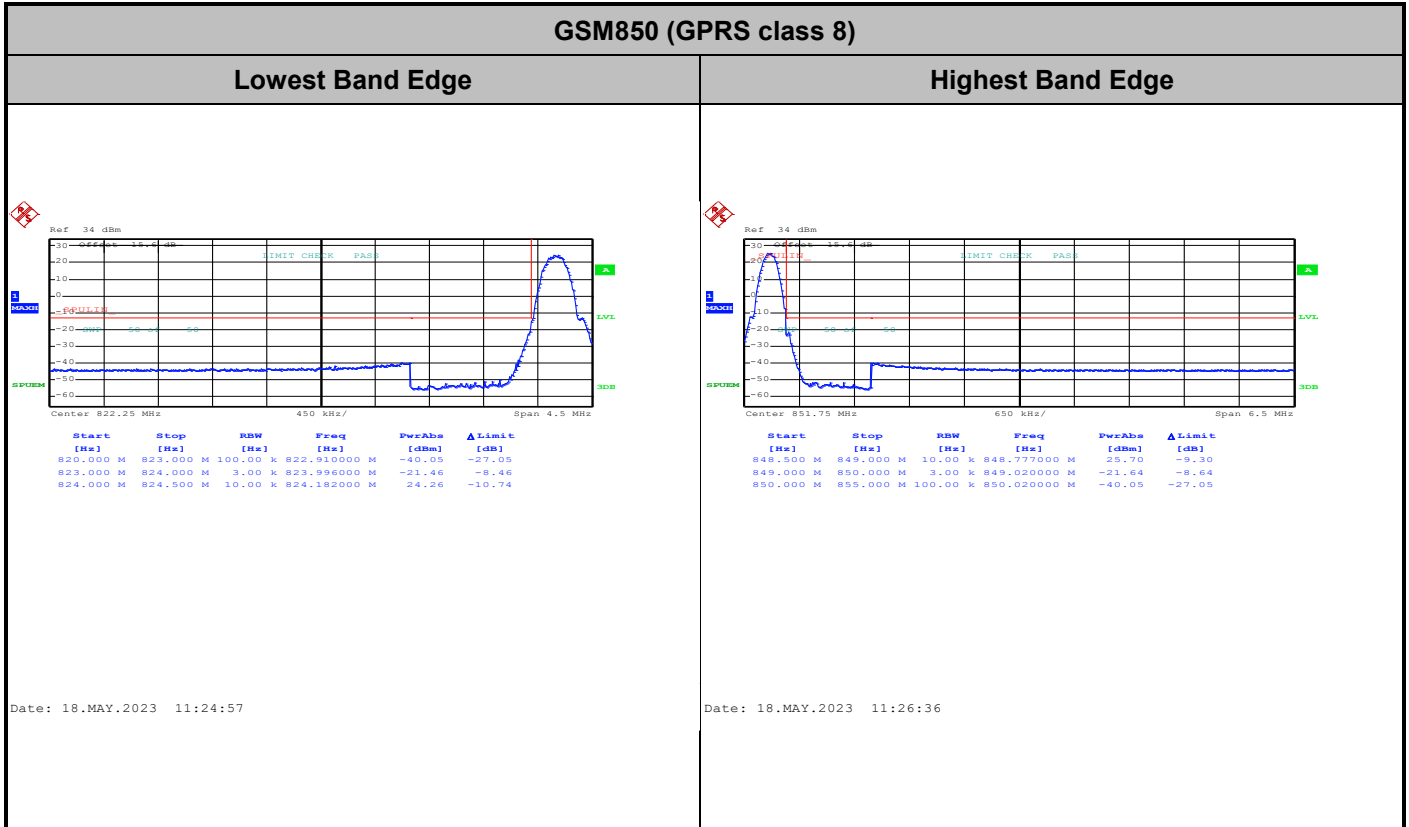
Mode	GSM1900 : 99%OBW(MHz)
Mod.	GPRS class 8
Lowest CH	0.247
Middle CH	0.245
Highest CH	0.243







# Conducted Band Edge



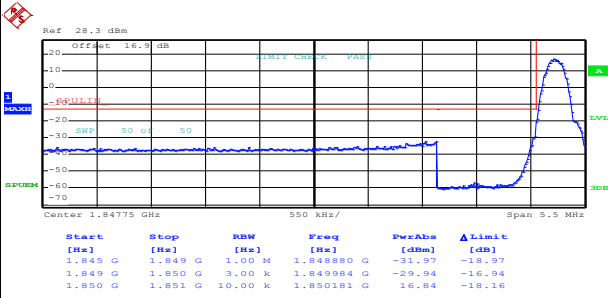




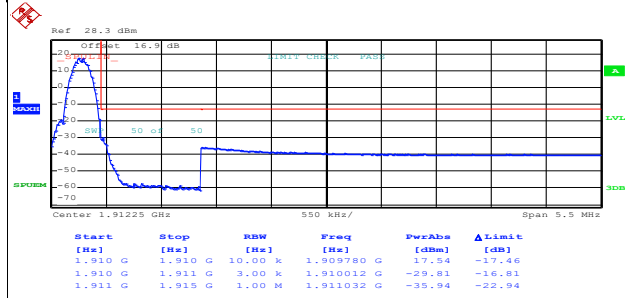
GSM1900 (GPRS class 8)

Lowest Band Edge

Highest Band Edge



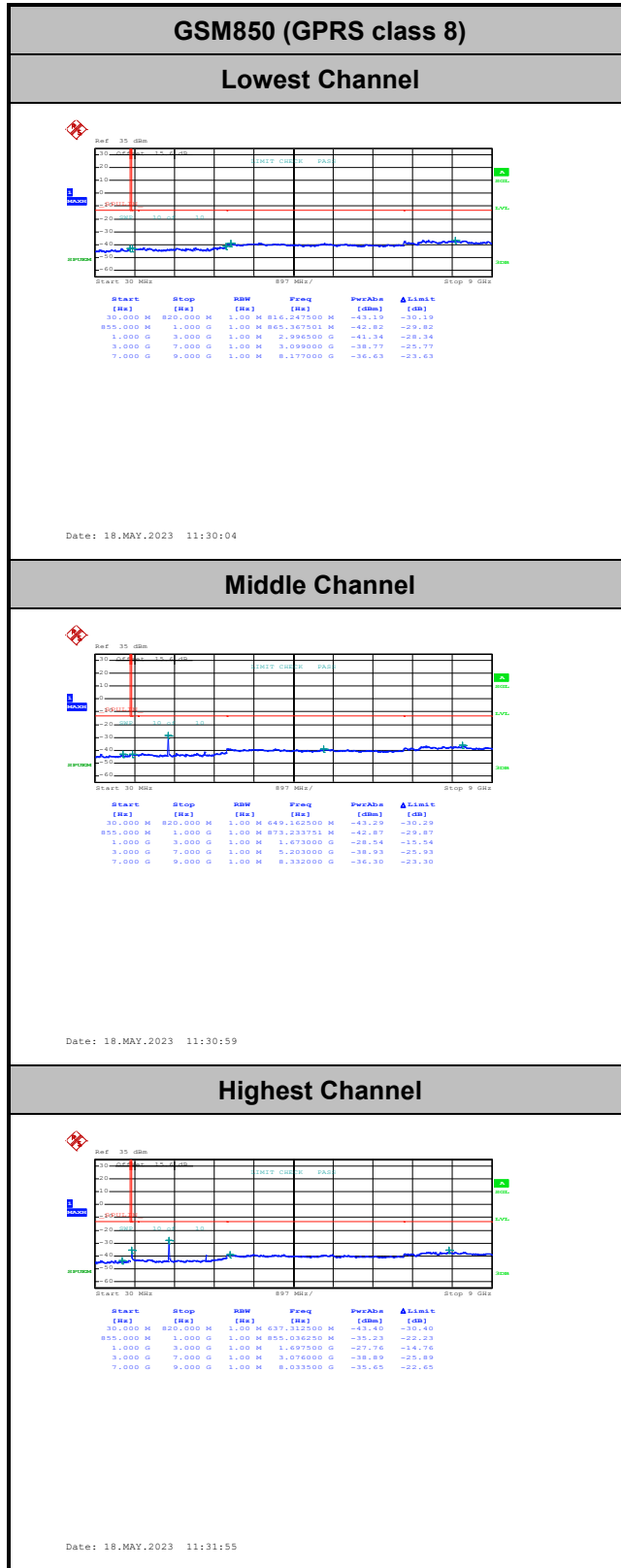
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Date: 9.MAY.2023 16:03:54



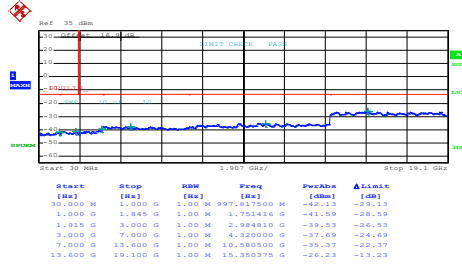
# Conducted Spurious Emission





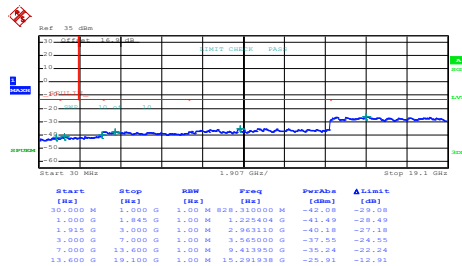
GSM1900 (GPRS class 8)

Lowest Channel



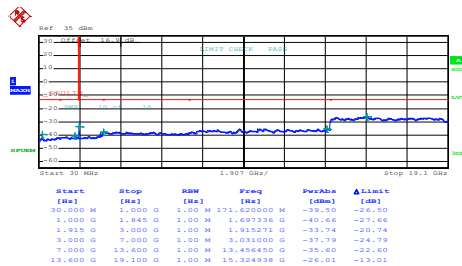
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Middle Channel



Date: 9.MAY.2023 16:06:05

Highest Channel



Date: 9.MAY.2023 16:06:58



### Frequency Stability

Test Conditions	Middle Channel	GSM850 (GPRS class 8)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0024	PASS
40	Normal Voltage	0.0036	
30	Normal Voltage	0.0048	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0263	
0	Normal Voltage	0.0227	
-10	Normal Voltage	0.0287	
-20	Normal Voltage	0.0108	
-30	Normal Voltage	0.0036	
20	Maximum Voltage	0.0012	
20	Normal Voltage	0.0060	
20	Battery End Point	0.0120	

Test Conditions	Middle Channel	GSM1900 (GPRS class 8)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0043	PASS
40	Normal Voltage	0.0027	
30	Normal Voltage	0.0048	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0213	
0	Normal Voltage	0.0277	
-10	Normal Voltage	0.0106	
-20	Normal Voltage	0.0043	
-30	Normal Voltage	0.0021	
20	Maximum Voltage	0.0021	
20	Normal Voltage	0.0011	
20	Battery End Point	0.0074	

**Note:**

- 1. Normal Voltage = 3.89V. ; Battery End Point (BEP) = 3.60 V. ; Maximum Voltage =4.40V
- 2. The frequency fundamental emissions stay within the authorized frequency block.

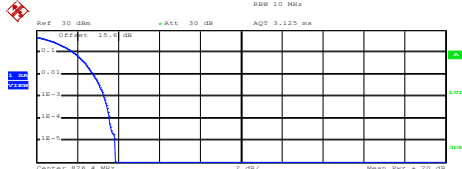
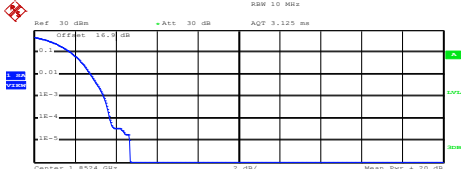
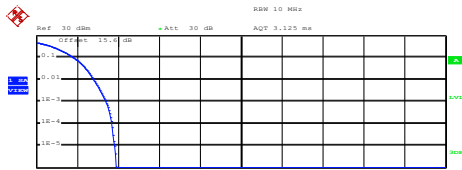
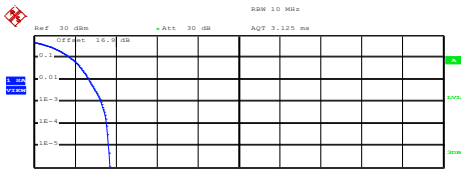
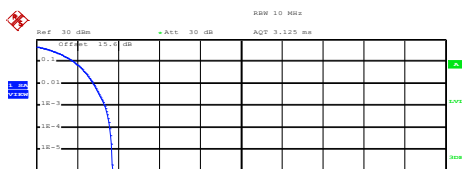
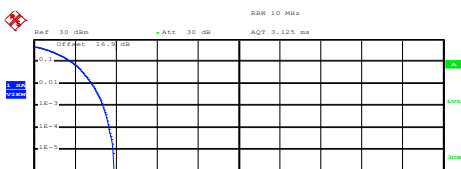


### A3. WCDMA

#### Peak-to-Average Ratio

Mode	WCDMA Band V	WCDMA Band II	WCDMA Band IV	Limit: 13dB
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps	Result
Lowest CH	3.32	3.40	3.16	PASS
Middle CH	3.40	3.28	3.44	
Highest CH	3.36	3.40	3.44	

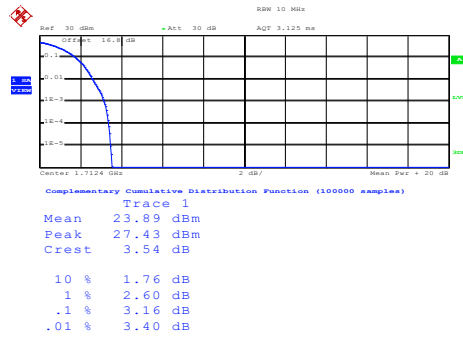


WCDMA Band V (RMC 12.2Kbps)	WCDMA Band II (RMC 12.2Kbps)																
<p align="center"><b>Lowest Channel</b></p>  <p>Center: 826.4 MHz      2 dB/      Mean Pwr: +20 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <p>Mean 23.48 dBm Peak 27.36 dBm Crest 3.88 dB</p> <table border="0"> <tr><td>10 %</td><td>1.84 dB</td></tr> <tr><td>1 %</td><td>2.80 dB</td></tr> <tr><td>.1 %</td><td>3.32 dB</td></tr> <tr><td>.01 %</td><td>3.56 dB</td></tr> </table> <p>Date: 9.MAY.2023 15:35:53</p>	10 %	1.84 dB	1 %	2.80 dB	.1 %	3.32 dB	.01 %	3.56 dB	<p align="center"><b>Lowest Channel</b></p>  <p>Center: 1.8324 GHz      2 dB/      Mean Pwr: +20 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <p>Mean 23.85 dBm Peak 28.56 dBm Crest 4.71 dB</p> <table border="0"> <tr><td>10 %</td><td>1.80 dB</td></tr> <tr><td>1 %</td><td>2.76 dB</td></tr> <tr><td>.1 %</td><td>3.40 dB</td></tr> <tr><td>.01 %</td><td>3.72 dB</td></tr> </table> <p>Date: 9.MAY.2023 14:47:22</p>	10 %	1.80 dB	1 %	2.76 dB	.1 %	3.40 dB	.01 %	3.72 dB
10 %	1.84 dB																
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.1 %	3.40 dB																
.01 %	3.72 dB																
<p align="center"><b>Middle Channel</b></p>  <p>Center: 836.4 MHz      2 dB/      Mean Pwr: +20 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <p>Mean 23.53 dBm Peak 27.43 dBm Crest 3.90 dB</p> <table border="0"> <tr><td>10 %</td><td>1.84 dB</td></tr> <tr><td>1 %</td><td>2.80 dB</td></tr> <tr><td>.1 %</td><td>3.40 dB</td></tr> <tr><td>.01 %</td><td>3.68 dB</td></tr> </table> <p>Date: 9.MAY.2023 15:36:13</p>	10 %	1.84 dB	1 %	2.80 dB	.1 %	3.40 dB	.01 %	3.68 dB	<p align="center"><b>Middle Channel</b></p>  <p>Center: 1.88 GHz      2 dB/      Mean Pwr: +20 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <p>Mean 23.72 dBm Peak 27.43 dBm Crest 3.71 dB</p> <table border="0"> <tr><td>10 %</td><td>1.76 dB</td></tr> <tr><td>1 %</td><td>2.68 dB</td></tr> <tr><td>.1 %</td><td>3.28 dB</td></tr> <tr><td>.01 %</td><td>3.56 dB</td></tr> </table> <p>Date: 9.MAY.2023 14:47:39</p>	10 %	1.76 dB	1 %	2.68 dB	.1 %	3.28 dB	.01 %	3.56 dB
10 %	1.84 dB																
1 %	2.80 dB																
.1 %	3.40 dB																
.01 %	3.68 dB																
10 %	1.76 dB																
1 %	2.68 dB																
.1 %	3.28 dB																
.01 %	3.56 dB																
<p align="center"><b>Highest Channel</b></p>  <p>Center: 846.6 MHz      2 dB/      Mean Pwr: +20 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <p>Mean 23.50 dBm Peak 27.22 dBm Crest 3.72 dB</p> <table border="0"> <tr><td>10 %</td><td>1.84 dB</td></tr> <tr><td>1 %</td><td>2.80 dB</td></tr> <tr><td>.1 %</td><td>3.36 dB</td></tr> <tr><td>.01 %</td><td>3.60 dB</td></tr> </table> <p>Date: 9.MAY.2023 15:36:32</p>	10 %	1.84 dB	1 %	2.80 dB	.1 %	3.36 dB	.01 %	3.60 dB	<p align="center"><b>Highest Channel</b></p>  <p>Center: 1.9076 GHz      2 dB/      Mean Pwr: +20 dB</p> <p>Complementary Cumulative Distribution Function (100000 samples)</p> <p>Trace 1</p> <p>Mean 23.81 dBm Peak 27.71 dBm Crest 3.90 dB</p> <table border="0"> <tr><td>10 %</td><td>1.84 dB</td></tr> <tr><td>1 %</td><td>2.80 dB</td></tr> <tr><td>.1 %</td><td>3.40 dB</td></tr> <tr><td>.01 %</td><td>3.68 dB</td></tr> </table> <p>Date: 9.MAY.2023 14:47:58</p>	10 %	1.84 dB	1 %	2.80 dB	.1 %	3.40 dB	.01 %	3.68 dB
10 %	1.84 dB																
1 %	2.80 dB																
.1 %	3.36 dB																
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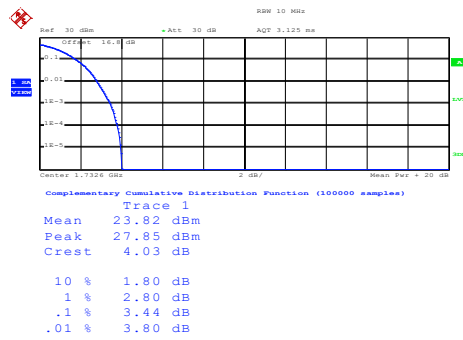
### WCDMA Band IV (RMC 12.2Kbps)

#### Lowest Channel



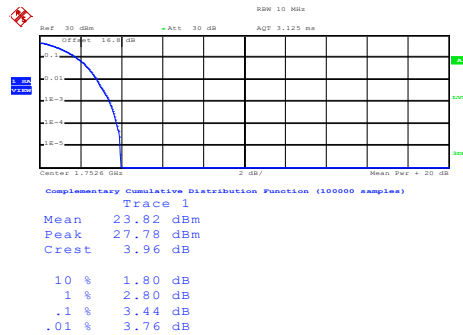
Date: 9.MAY.2023 15:07:57

#### Middle Channel



Date: 9.MAY.2023 15:08:16

#### Highest Channel



Date: 9.MAY.2023 15:08:36



**26dB Bandwidth**

Mode	WCDMA Band V 26dB BW(MHz)	WCDMA Band II 26dB BW(MHz)	WCDMA Band IV 26dB BW(MHz)
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.73	4.74	4.74
Middle CH	4.75	4.77	4.75
Highest CH	4.75	4.76	4.75



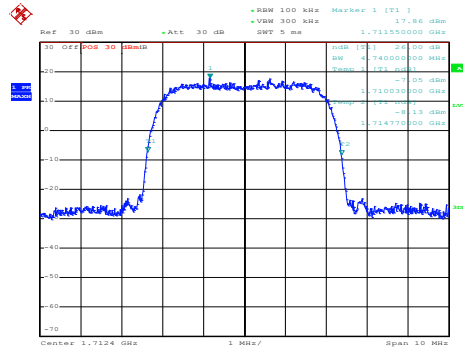


WCDMA Band V (RMC 12.2Kbps)	WCDMA Band II (RMC 12.2Kbps)
<p style="text-align: center;"><b>Lowest Channel</b></p> <p style="text-align: center;">Date: 9.MAY.2023 15:14:05</p>	<p style="text-align: center;"><b>Lowest Channel</b></p> <p style="text-align: center;">Date: 9.MAY.2023 14:31:26</p>
<p style="text-align: center;"><b>Middle Channel</b></p> <p style="text-align: center;">Date: 9.MAY.2023 15:14:50</p>	<p style="text-align: center;"><b>Middle Channel</b></p> <p style="text-align: center;">Date: 9.MAY.2023 14:32:05</p>
<p style="text-align: center;"><b>Highest Channel</b></p> <p style="text-align: center;">Date: 9.MAY.2023 15:15:35</p>	<p style="text-align: center;"><b>Highest Channel</b></p> <p style="text-align: center;">Date: 9.MAY.2023 14:32:44</p>



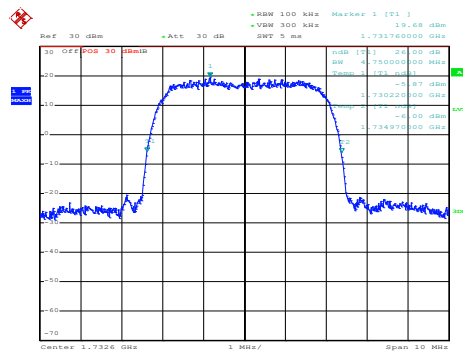
### WCDMA Band IV (RMC 12.2Kbps)

#### Lowest Channel



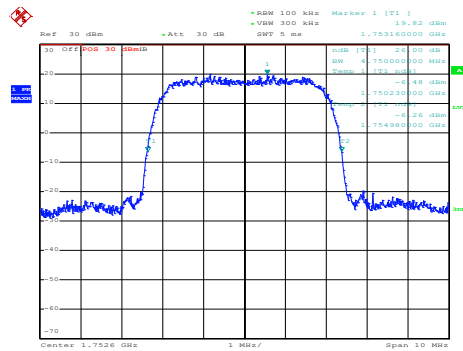
Date: 9.MAY.2023 14:54:11

#### Middle Channel



Date: 9.MAY.2023 14:54:49

#### Highest Channel



Date: 9.MAY.2023 14:55:36



### Occupied Bandwidth

Mode	WCDMA Band V 99%OBW(MHz)	WCDMA Band II 99%OBW(MHz)	WCDMA Band IV 99%OBW(MHz)
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.18	4.17	4.18
Middle CH	4.17	4.19	4.18
Highest CH	4.18	4.17	4.18

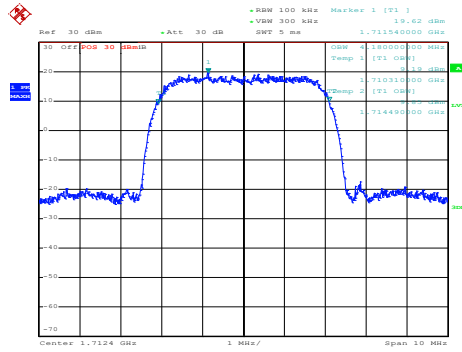


WCDMA Band V (RMC 12.2Kbps)	WCDMA Band II (RMC 12.2Kbps)
<p style="text-align: center;"><b>Lowest Channel</b></p> <p style="text-align: center;">Date: 9.MAY.2023 15:16:51</p>	<p style="text-align: center;"><b>Lowest Channel</b></p> <p style="text-align: center;">Date: 9.MAY.2023 14:33:49</p>
<p style="text-align: center;"><b>Middle Channel</b></p> <p style="text-align: center;">Date: 9.MAY.2023 15:17:49</p>	<p style="text-align: center;"><b>Middle Channel</b></p> <p style="text-align: center;">Date: 9.MAY.2023 14:34:28</p>
<p style="text-align: center;"><b>Highest Channel</b></p> <p style="text-align: center;">Date: 9.MAY.2023 15:18:28</p>	<p style="text-align: center;"><b>Highest Channel</b></p> <p style="text-align: center;">Date: 9.MAY.2023 14:36:37</p>



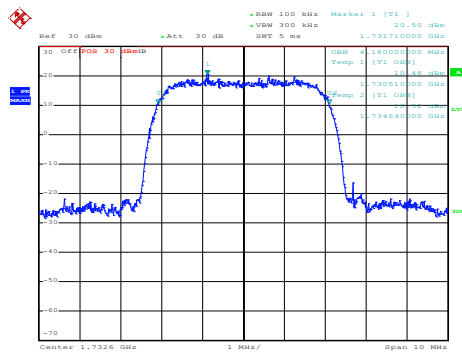
### WCDMA Band IV (RMC 12.2Kbps)

#### Lowest Channel



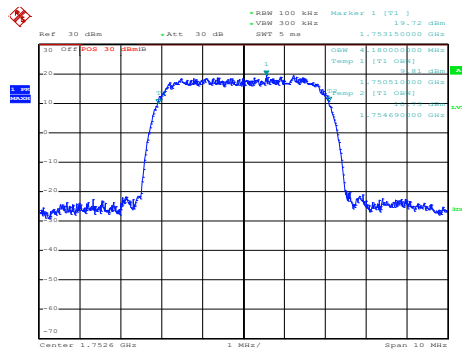
Date: 9.MAY.2023 14:56:38

#### Middle Channel



Date: 9.MAY.2023 14:57:17

#### Highest Channel



Date: 9.MAY.2023 14:57:55

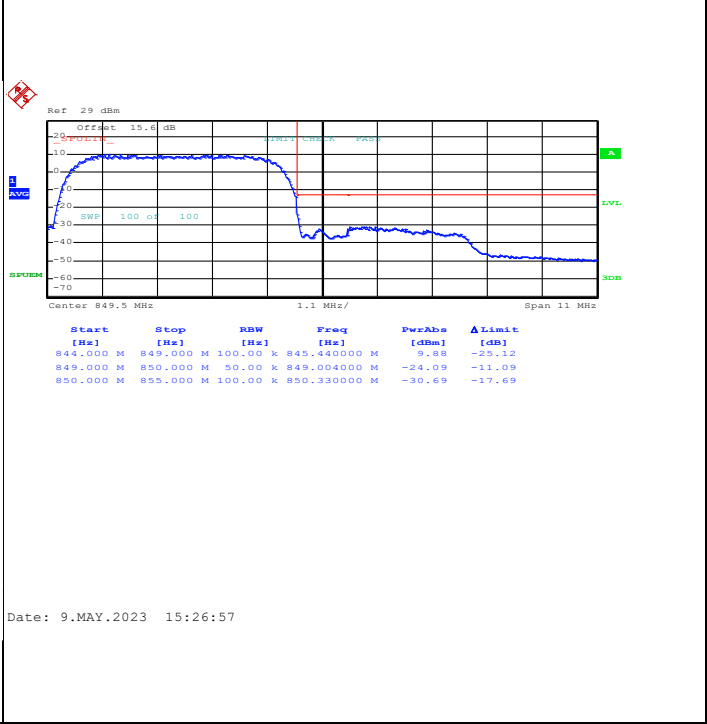
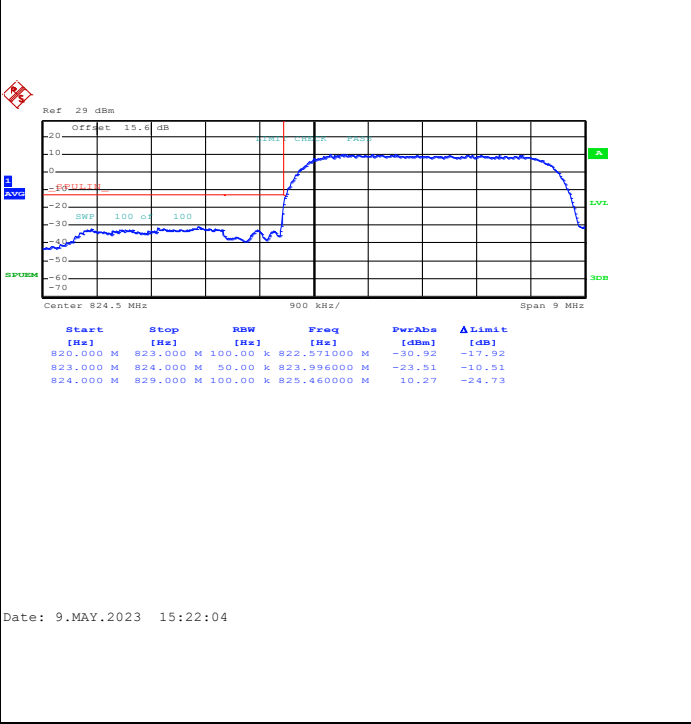


# Conducted Band Edge

## WCDMA Band V (RMC 12.2Kbps)

### Lowest Band Edge

### Highest Band Edge

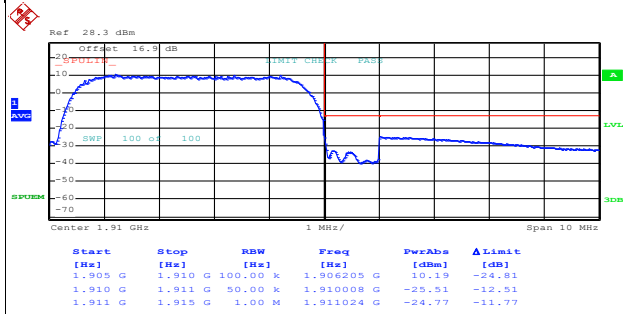
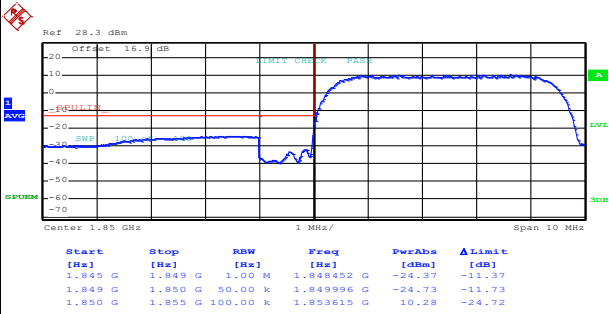




WCDMA Band II (RMC 12.2Kbps)

Lowest Band Edge

Highest Band Edge



Date: 9.MAY.2023 14:39:52

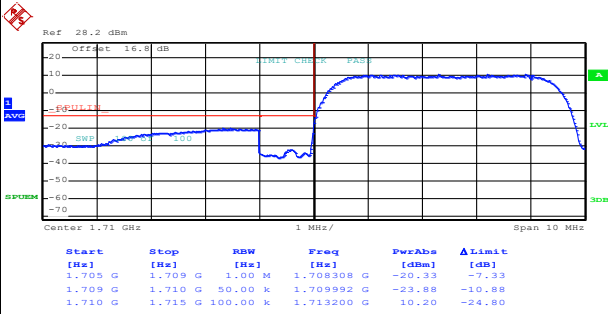
Date: 9.MAY.2023 14:43:14



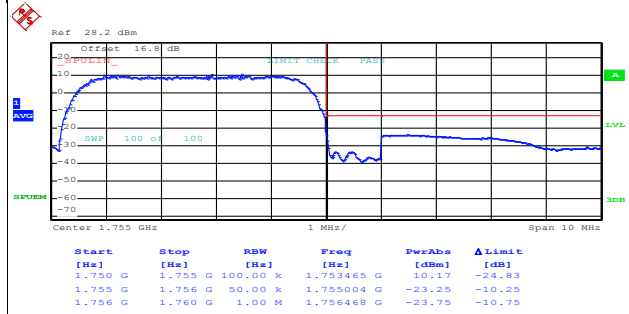
WCDMA Band IV (RMC 12.2Kbps)

Lowest Band Edge

Highest Band Edge



Date: 9.MAY.2023 15:01:04



Date: 9.MAY.2023 15:03:57





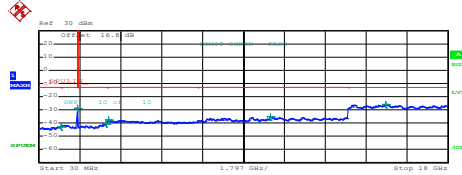
# Conducted Spurious Emission

WCDMA Band V (RMC 12.2Kbps)	WCDMA Band II (RMC 12.2Kbps)																																																																														
<p><b>Lowest Channel</b></p> <table border="1"> <thead> <tr> <th>Start [Hz]</th> <th>Stop [Hz]</th> <th>RBW [Hz]</th> <th>Freq [Hz]</th> <th>PwrAbs [dBm]</th> <th>ΔLimit [dB]</th> </tr> </thead> <tbody> <tr> <td>30,000 M</td> <td>820,000 M</td> <td>1,000 M</td> <td>819,405000 M</td> <td>-33.90</td> <td>-30.33</td> </tr> <tr> <td>855,000 M</td> <td>1,000 G</td> <td>1,000 M</td> <td>863,555001 M</td> <td>-43.33</td> <td>-30.33</td> </tr> <tr> <td>1,000 G</td> <td>3,000 G</td> <td>1,000 M</td> <td>2,988500 G</td> <td>-45.16</td> <td>-28.16</td> </tr> <tr> <td>3,000 G</td> <td>7,000 G</td> <td>1,000 M</td> <td>3,627000 G</td> <td>-38.73</td> <td>-25.73</td> </tr> <tr> <td>7,000 G</td> <td>9,000 G</td> <td>1,000 M</td> <td>8,154000 G</td> <td>-36.75</td> <td>-23.75</td> </tr> </tbody> </table> <p>Date: 9.MAY.2023 15:31:51</p>	Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]	30,000 M	820,000 M	1,000 M	819,405000 M	-33.90	-30.33	855,000 M	1,000 G	1,000 M	863,555001 M	-43.33	-30.33	1,000 G	3,000 G	1,000 M	2,988500 G	-45.16	-28.16	3,000 G	7,000 G	1,000 M	3,627000 G	-38.73	-25.73	7,000 G	9,000 G	1,000 M	8,154000 G	-36.75	-23.75	<p><b>Lowest Channel</b></p> <table border="1"> <thead> <tr> <th>Start [Hz]</th> <th>Stop [Hz]</th> <th>RBW [Hz]</th> <th>Freq [Hz]</th> <th>PwrAbs [dBm]</th> <th>ΔLimit [dB]</th> </tr> </thead> <tbody> <tr> <td>30,000 M</td> <td>1,000 G</td> <td>1,000 M</td> <td>943,072000 M</td> <td>-45.14</td> <td>-29.14</td> </tr> <tr> <td>1,000 G</td> <td>1,845 G</td> <td>1,000 M</td> <td>1,844789 G</td> <td>-28.74</td> <td>-15.74</td> </tr> <tr> <td>1,915 G</td> <td>3,000 G</td> <td>1,000 M</td> <td>2,951989 G</td> <td>-40.01</td> <td>-27.01</td> </tr> <tr> <td>3,000 G</td> <td>7,000 G</td> <td>1,000 M</td> <td>3,000000 G</td> <td>-37.00</td> <td>-24.00</td> </tr> <tr> <td>7,000 G</td> <td>13,600 G</td> <td>1,000 M</td> <td>10,604425 G</td> <td>-35.07</td> <td>-22.07</td> </tr> <tr> <td>13,600 G</td> <td>19,100 G</td> <td>1,000 M</td> <td>15,318750 G</td> <td>-25.95</td> <td>-12.95</td> </tr> </tbody> </table> <p>Date: 9.MAY.2023 14:44:42</p>	Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]	30,000 M	1,000 G	1,000 M	943,072000 M	-45.14	-29.14	1,000 G	1,845 G	1,000 M	1,844789 G	-28.74	-15.74	1,915 G	3,000 G	1,000 M	2,951989 G	-40.01	-27.01	3,000 G	7,000 G	1,000 M	3,000000 G	-37.00	-24.00	7,000 G	13,600 G	1,000 M	10,604425 G	-35.07	-22.07	13,600 G	19,100 G	1,000 M	15,318750 G	-25.95	-12.95
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Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]																																																																										
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Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]																																																																										
30,000 M	1,000 G	1,000 M	140,822500 M	-41.38	-28.38																																																																										
1,000 G	1,845 G	1,000 M	1,973384 G	-41.48	-28.48																																																																										
1,915 G	3,000 G	1,000 M	2,970976 G	-40.19	-27.19																																																																										
3,000 G	7,000 G	1,000 M	3,598000 G	-37.32	-24.32																																																																										
7,000 G	13,600 G	1,000 M	11,660425 G	-35.39	-22.39																																																																										
13,600 G	19,100 G	1,000 M	15,349688 G	-26.00	-13.00																																																																										
<p><b>Highest Channel</b></p> <table border="1"> <thead> <tr> <th>Start [Hz]</th> <th>Stop [Hz]</th> <th>RBW [Hz]</th> <th>Freq [Hz]</th> <th>PwrAbs [dBm]</th> <th>ΔLimit [dB]</th> </tr> </thead> <tbody> <tr> <td>30,000 M</td> <td>820,000 M</td> <td>1,000 M</td> <td>819,407500 M</td> <td>-43.88</td> <td>-30.88</td> </tr> <tr> <td>855,000 M</td> <td>1,000 G</td> <td>1,000 M</td> <td>892,08753 M</td> <td>-43.22</td> <td>-30.22</td> </tr> <tr> <td>1,000 G</td> <td>3,000 G</td> <td>1,000 M</td> <td>2,979500 G</td> <td>-41.55</td> <td>-28.55</td> </tr> <tr> <td>3,000 G</td> <td>7,000 G</td> <td>1,000 M</td> <td>3,600000 G</td> <td>-38.26</td> <td>-25.26</td> </tr> <tr> <td>7,000 G</td> <td>9,000 G</td> <td>1,000 M</td> <td>7,515500 G</td> <td>-36.87</td> <td>-23.87</td> </tr> </tbody> </table> <p>Date: 9.MAY.2023 15:35:17</p>	Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]	30,000 M	820,000 M	1,000 M	819,407500 M	-43.88	-30.88	855,000 M	1,000 G	1,000 M	892,08753 M	-43.22	-30.22	1,000 G	3,000 G	1,000 M	2,979500 G	-41.55	-28.55	3,000 G	7,000 G	1,000 M	3,600000 G	-38.26	-25.26	7,000 G	9,000 G	1,000 M	7,515500 G	-36.87	-23.87	<p><b>Highest Channel</b></p> <table border="1"> <thead> <tr> <th>Start [Hz]</th> <th>Stop [Hz]</th> <th>RBW [Hz]</th> <th>Freq [Hz]</th> <th>PwrAbs [dBm]</th> <th>ΔLimit [dB]</th> </tr> </thead> <tbody> <tr> <td>30,000 M</td> <td>1,000 G</td> <td>1,000 M</td> <td>170,164000 M</td> <td>-45.32</td> <td>-27.32</td> </tr> <tr> <td>1,000 G</td> <td>1,845 G</td> <td>1,000 M</td> <td>1,283498 G</td> <td>-41.12</td> <td>-28.12</td> </tr> <tr> <td>1,915 G</td> <td>3,000 G</td> <td>1,000 M</td> <td>1,955271 G</td> <td>-29.10</td> <td>-16.10</td> </tr> <tr> <td>3,000 G</td> <td>7,000 G</td> <td>1,000 M</td> <td>3,050000 G</td> <td>-37.25</td> <td>-24.25</td> </tr> <tr> <td>7,000 G</td> <td>13,600 G</td> <td>1,000 M</td> <td>9,420550 G</td> <td>-35.47</td> <td>-22.47</td> </tr> <tr> <td>13,600 G</td> <td>19,100 G</td> <td>1,000 M</td> <td>15,338888 G</td> <td>-25.90</td> <td>-12.90</td> </tr> </tbody> </table> <p>Date: 9.MAY.2023 14:46:51</p>	Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]	30,000 M	1,000 G	1,000 M	170,164000 M	-45.32	-27.32	1,000 G	1,845 G	1,000 M	1,283498 G	-41.12	-28.12	1,915 G	3,000 G	1,000 M	1,955271 G	-29.10	-16.10	3,000 G	7,000 G	1,000 M	3,050000 G	-37.25	-24.25	7,000 G	13,600 G	1,000 M	9,420550 G	-35.47	-22.47	13,600 G	19,100 G	1,000 M	15,338888 G	-25.90	-12.90
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]																																																																										
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WCDMA Band IV (RMC 12.2Kbps)

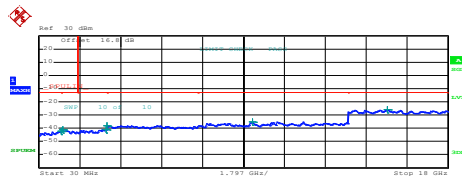
Lowest Channel



Start [MHz]	Stop [MHz]	RBW [MHz]	Freq [MHz]	PwrAba [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	999.107000 M	-82.77	-29.77
1.000 G	1.705 G	1.00 M	1.704824 G	-28.59	-15.59
1.760 G	3.000 G	1.00 M	2.991940 G	-40.40	-27.40
3.000 G	7.000 G	1.00 M	3.078000 G	-37.62	-24.62
7.000 G	13.600 G	1.00 M	10.210075 G	-35.09	-22.09
13.600 G	18.000 G	1.00 M	15.267600 G	-25.81	-12.81

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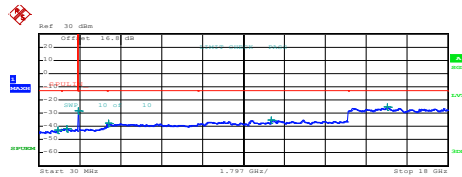
Middle Channel



Start [MHz]	Stop [MHz]	RBW [MHz]	Freq [MHz]	PwrAba [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	994.422500 M	-42.06	-29.06
1.000 G	1.705 G	1.00 M	1.1023925 G	-41.29	-28.29
1.760 G	3.000 G	1.00 M	2.086980 G	-40.77	-27.77
3.000 G	7.000 G	1.00 M	3.010000 G	-37.84	-24.84
7.000 G	13.600 G	1.00 M	9.192000 G	-35.20	-22.20
13.600 G	18.000 G	1.00 M	15.335800 G	-25.92	-12.92

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Highest Channel



Start [MHz]	Stop [MHz]	RBW [MHz]	Freq [MHz]	PwrAba [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	863.030000 M	-42.33	-29.33
1.000 G	1.705 G	1.00 M	1.258030 G	-41.53	-28.53
1.760 G	3.000 G	1.00 M	1.780620 G	-28.03	-15.03
3.000 G	7.000 G	1.00 M	3.080000 G	-37.26	-24.26
7.000 G	13.600 G	1.00 M	10.227400 G	-35.09	-22.09
13.600 G	18.000 G	1.00 M	15.351750 G	-25.47	-12.47

Date: 9.MAY.2023 15:07:11



## 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	0.0108	PASS
40	Normal Voltage	0.0096	
30	Normal Voltage	0.0120	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0012	
0	Normal Voltage	0.0024	
-10	Normal Voltage	0.0108	
-20	Normal Voltage	0.0048	
-30	Normal Voltage	0.0036	
20	Maximum Voltage	0.0120	
20	Normal Voltage	0.0012	
20	Battery End Point	0.0024	

Test Conditions	Middle Channel	WCDMA Band II (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0059	PASS
40	Normal Voltage	0.0080	
30	Normal Voltage	0.0011	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0016	
0	Normal Voltage	0.0074	
-10	Normal Voltage	0.0090	
-20	Normal Voltage	0.0053	
-30	Normal Voltage	0.0064	
20	Maximum Voltage	0.0032	
20	Normal Voltage	0.0011	
20	Battery End Point	0.0048	

**Note:**

1. Normal Voltage = 3.89V. ; Battery End Point (BEP) = 3.60 V. ; Maximum Voltage =4.40V
2. The frequency fundamental emissions stay within the authorized frequency block.



Test Conditions	Middle Channel	WCDMA Band IV (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0017	PASS
40	Normal Voltage	0.0029	
30	Normal Voltage	0.0052	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0023	
0	Normal Voltage	0.0029	
-10	Normal Voltage	0.0000	
-20	Normal Voltage	0.0040	
-30	Normal Voltage	0.0006	
20	Maximum Voltage	0.0035	
20	Normal Voltage	0.0012	
20	Battery End Point	0.0017	

**Note:**

1. Normal Voltage = 3.89V. ; Battery End Point (BEP) = 3.60 V. ; Maximum Voltage =4.40 V
2. The frequency fundamental emissions stay within the authorized frequency block.



## Appendix B. Test Results of Radiated Test

<Primary Antenna>  
<Ant. 0>

### Part 22H 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	1649	-56.71	-13	-43.71	-66.06	-60.17	3.88	9.49	H
	2474	-48.01	-13	-35.01	-61.58	-51.61	4.80	10.55	H
	3298	-58.26	-13	-45.26	-74.1	-62.74	5.55	12.19	H
									H
									H
									H
	1649	-58.35	-13	-45.35	-67.82	-61.81	3.88	9.49	V
	2474	-43.03	-13	-30.03	-56.94	-46.63	4.80	10.55	V
	3298	-58.49	-13	-45.49	-74.81	-62.97	5.55	12.19	V
									V
									V
									V
Middle	1672	-61.86	-13	-48.86	-71.32	-65.43	3.91	9.63	H
	2509	-49.44	-13	-36.44	-62.98	-53.11	4.84	10.65	H
	3345	-58.93	-13	-45.93	-74.75	-63.56	5.60	12.38	H
									H
									H
									H
	1672	-60.27	-13	-47.27	-69.85	-63.84	3.91	9.63	V
	2509	-47.49	-13	-34.49	-61.42	-51.16	4.84	10.65	V
	3345	-58.34	-13	-45.34	-74.66	-62.97	5.60	12.38	V
									V
									V
									V



Highest	1698	-62.42	-13	-49.42	-72	-66.12	3.94	9.79	H
	2546	-49.91	-13	-36.91	-63.51	-53.76	4.87	10.88	H
	3395	-58.97	-13	-45.97	-74.76	-63.67	5.64	12.49	H
									H
									H
									H
									H
	1698	-59.84	-13	-46.84	-69.53	-63.54	3.94	9.79	V
	2546	-41.99	-13	-28.99	-55.87	-45.84	4.87	10.88	V
	3395	-58.60	-13	-45.60	-74.91	-63.3	5.64	12.49	V
									V
									V
									V
									V

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



**Part 22H WCDMA 850**

WCDMA 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	1653	-63.36	-13	-50.36	-72.74	-66.84	3.89	9.52	H
	2479	-43.98	-13	-30.98	-57.52	-47.58	4.81	10.56	H
	3306	-59.02	-13	-46.02	-74.87	-63.53	5.56	12.22	H
									H
									H
									H
									H
	1653	-63.14	-13	-50.14	-72.63	-66.62	3.89	9.52	V
	2479	-45.68	-13	-32.68	-59.59	-49.28	4.81	10.56	V
	3306	-58.44	-13	-45.44	-74.77	-62.95	5.56	12.22	V
									V
									V
									V
									V
Middle	1672	-62.96	-13	-49.96	-72.42	-66.53	3.91	9.63	H
	2509	-43.46	-13	-30.46	-56.99	-47.13	4.84	10.65	H
	3345	-58.61	-13	-45.61	-74.43	-63.24	5.60	12.38	H
									H
									H
									H
									H
	1672	-62.79	-13	-49.79	-72.37	-66.36	3.91	9.63	V
	2509	-46.05	-13	-33.05	-59.99	-49.72	4.84	10.65	V
	3345	-58.46	-13	-45.46	-74.78	-63.09	5.60	12.38	V
									V
									V
									V
									V



Highest	1693	-62.85	-13	-49.85	-72.4	-66.52	3.93	9.76	H
	2540	-45.22	-13	-32.22	-58.82	-49.04	4.87	10.84	H
	3386	-58.33	-13	-45.33	-74.12	-63.02	5.64	12.47	H
									H
									H
									H
									H
	1693	-62.97	-13	-49.97	-72.64	-66.64	3.93	9.76	V
	2540	-47.52	-13	-34.52	-61.4	-51.34	4.87	10.84	V
	3386	-57.90	-13	-44.90	-74.21	-62.59	5.64	12.47	V
									V
									V
									V
									V

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





<Ant.2>

**Part 24E 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	-57.16	-13	-44.16	-74.58	-63.54	5.92	12.30	H
	5551	-54.01	-13	-41.01	-76.6	-59.57	7.74	13.30	H
	7401	-47.86	-13	-34.86	-77.1	-50.34	8.72	11.20	H
									H
									H
									H
									H
	3700	-56.87	-13	-43.87	-74.33	-63.25	5.92	12.30	V
	5551	-53.37	-13	-40.37	-76.26	-58.93	7.74	13.30	V
	7401	-47.83	-13	-34.83	-76.97	-50.31	8.72	11.20	V
									V
									V
									V
									V
Middle	3760	-56.97	-13	-43.97	-74.49	-63.29	5.98	12.30	H
	5640	-53.72	-13	-40.72	-76.21	-59.39	7.81	13.48	H
	7520	-47.52	-13	-34.52	-76.41	-50.03	8.77	11.28	H
									H
									H
									H
									H
	3760	-56.35	-13	-43.35	-73.97	-62.67	5.98	12.30	V
	5640	-53.08	-13	-40.08	-76.03	-58.75	7.81	13.48	V
	7520	-47.88	-13	-34.88	-76.86	-50.39	8.77	11.28	V
									V
									V
									V
									V
								V	



Highest	3820	-56.87	-13	-43.87	-74.58	-63.1	6.03	12.26	H
	5729	-53.57	-13	-40.57	-76.26	-59.07	7.89	13.38	H
	7639	-47.78	-13	-34.78	-76.31	-50.63	8.82	11.68	H
									H
									H
									H
									H
	3820	-56.74	-13	-43.74	-74.56	-62.97	6.03	12.26	V
	5729	-52.95	-13	-39.95	-76.07	-58.45	7.89	13.38	V
	7639	-47.73	-13	-34.73	-76.83	-50.58	8.82	11.68	V
									V
									V
									V
									V

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



**Part 24E WCDMA 1900**

WCDMA 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	3704	-57.01	-13	-44.01	-74.43	-63.38	5.93	12.30	H
	5557	-53.94	-13	-40.94	-76.51	-59.51	7.75	13.31	H
	7409	-47.59	-13	-34.59	-76.81	-50.07	8.72	11.20	H
									H
									H
									H
									H
	3704	-56.86	-13	-43.86	-74.33	-63.23	5.93	12.30	V
	5557	-53.56	-13	-40.56	-76.45	-59.13	7.75	13.31	V
	7409	-47.81	-13	-34.81	-76.93	-50.29	8.72	11.20	V
									V
									V
									V
									V
Middle	3760	-57.03	-13	-44.03	-74.55	-63.35	5.98	12.30	H
	5640	-53.74	-13	-40.74	-76.23	-59.41	7.81	13.48	H
	7520	-47.79	-13	-34.79	-76.68	-50.3	8.77	11.28	H
									H
									H
									H
									H
	3760	-56.79	-13	-43.79	-74.41	-63.11	5.98	12.30	V
	5640	-53.16	-13	-40.16	-76.11	-58.83	7.81	13.48	V
	7520	-47.58	-13	-34.58	-76.56	-50.09	8.77	11.28	V
									V
									V
									V
									V



Highest	3815	-56.96	-13	-43.96	-74.64	-63.2	6.03	12.27	H
	5723	-53.42	-13	-40.42	-76.1	-58.95	7.88	13.41	H
	7630	-48.14	-13	-35.14	-76.65	-50.98	8.82	11.66	H
									H
									H
									H
									H
	3815	-56.75	-13	-43.75	-74.55	-62.99	6.03	12.27	V
	5723	-53.56	-13	-40.56	-76.67	-59.09	7.88	13.41	V
	7630	-46.91	-13	-33.91	-76.02	-49.75	8.82	11.66	V
									V
									V
									V
									V

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



**Part 27L WCDMA 1700**

WCDMA 1700									
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	3424	-57.80	-13	-44.80	-74.41	-64.63	5.67	12.50	H
	5137	-54.23	-13	-41.23	-75.54	-59.16	7.55	12.47	H
	6849	-49.46	-13	-36.46	-76.74	-53.22	8.44	12.20	H
									H
									H
									H
									H
	3424	-57.09	-13	-44.09	-74.17	-63.92	5.67	12.50	V
	5137	-54.50	-13	-41.50	-75.81	-59.43	7.55	12.47	V
	6849	-49.40	-13	-36.40	-76.67	-53.16	8.44	12.20	V
									V
									V
									V
									V
Middle	3465	-57.44	-13	-44.44	-74.4	-64.2	5.71	12.47	H
	5197	-54.56	-13	-41.56	-76.08	-59.86	7.57	12.88	H
	6930	-49.98	-13	-36.98	-76.88	-53.42	8.50	11.94	H
									H
									H
									H
									H
	3465	-56.81	-13	-43.81	-74.16	-63.57	5.71	12.47	V
	5197	-54.64	-13	-41.64	-76.15	-59.94	7.57	12.88	V
	6930	-49.37	-13	-36.37	-76.9	-52.81	8.50	11.94	V
									V
									V
									V
									V



Highest	3505	-57.21	-13	-44.21	-74.47	-63.84	5.74	12.37	H
	5257	-55.06	-13	-42.06	-76.98	-60.69	7.60	13.23	H
	7010	-49.61	-13	-36.61	-76.26	-52.9	8.55	11.84	H
									H
									H
									H
									H
	3505	-56.77	-13	-43.77	-74.33	-63.4	5.74	12.37	V
	5257	-54.87	-13	-41.87	-76.74	-60.5	7.60	13.23	V
	7010	-48.67	-13	-35.67	-76.45	-51.96	8.55	11.84	V
									V
									V
									V
									V

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



<ASDIV Antenna>  
<Ant. 1>

**Part 22H 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	1649	-61.70	-13	-48.70	-71.05	-65.16	3.88	9.49	H
	2474	-58.71	-13	-45.71	-72.27	-62.31	4.80	10.55	H
	3298	-59.02	-13	-46.02	-74.86	-63.5	5.55	12.19	H
									H
									H
									H
	1649	-60.93	-13	-47.93	-70.41	-64.39	3.88	9.49	V
	2474	-59.48	-13	-46.48	-73.39	-63.08	4.80	10.55	V
	3298	-58.03	-13	-45.03	-74.35	-62.51	5.55	12.19	V
									V
									V
									V
Middle	1672	-59.76	-13	-46.76	-69.22	-63.33	3.91	9.63	H
	2509	-58.77	-13	-45.77	-72.3	-62.44	4.84	10.65	H
	3345	-58.94	-13	-45.94	-74.76	-63.57	5.60	12.38	H
									H
									H
									H
	1672	-56.74	-13	-43.74	-66.32	-60.31	3.91	9.63	V
	2509	-59.73	-13	-46.73	-73.67	-63.4	4.84	10.65	V
	3345	-58.47	-13	-45.47	-74.79	-63.1	5.60	12.38	V
									V
									V
									V



Highest	1693	-59.74	-13	-46.74	-69.32	-63.41	3.93	9.76	H
	2540	-60.65	-13	-47.65	-74.25	-64.47	4.87	10.84	H
	3386	-58.92	-13	-45.92	-74.71	-63.61	5.64	12.47	H
									H
									H
									H
									H
	1693	-57.68	-13	-44.68	-67.35	-61.35	3.93	9.76	V
	2540	-60.07	-13	-47.07	-73.95	-63.89	4.87	10.84	V
	3386	-58.19	-13	-45.19	-74.5	-62.88	5.64	12.47	V
									V
									V
									V
									V

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





**Part 22H WCDMA 850**

WCDMA 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	1653	-62.91	-13	-49.91	-72.29	-66.39	3.89	9.52	H
	2479	-60.08	-13	-47.08	-73.62	-63.68	4.81	10.56	H
	3306	-59.29	-13	-46.29	-75.14	-63.8	5.56	12.22	H
									H
									H
									H
									H
	1653	-63.18	-13	-50.18	-72.67	-66.66	3.89	9.52	V
	2479	-60.03	-13	-47.03	-73.94	-63.63	4.81	10.56	V
	3306	-58.52	-13	-45.52	-74.85	-63.03	5.56	12.22	V
									V
									V
									V
									V
Middle	1672	-63.07	-13	-50.07	-72.53	-66.64	3.91	9.63	H
	2509	-60.04	-13	-47.04	-73.57	-63.71	4.84	10.65	H
	3345	-58.63	-13	-45.63	-74.45	-63.26	5.60	12.38	H
									H
									H
									H
									H
	1672	-62.60	-13	-49.60	-72.18	-66.17	3.91	9.63	V
	2509	-59.70	-13	-46.70	-73.64	-63.37	4.84	10.65	V
	3345	-58.17	-13	-45.17	-74.49	-62.8	5.60	12.38	V
									V
									V
									V
									V



Highest	1693	-62.90	-13	-49.90	-72.48	-66.57	3.93	9.76	H
	2540	-60.37	-13	-47.37	-73.97	-64.19	4.87	10.84	H
	3386	-58.82	-13	-45.82	-74.61	-63.51	5.64	12.47	H
									H
									H
									H
									H
	1693	-62.45	-13	-49.45	-72.12	-66.12	3.93	9.76	V
	2540	-60.35	-13	-47.35	-74.23	-64.17	4.87	10.84	V
	3386	-58.27	-13	-45.27	-74.58	-62.96	5.64	12.47	V
									V
									V
									V
									V

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



<Ant. 0>

**Part 24E 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	-57.13	-13	-44.13	-74.55	-63.51	5.92	12.30	H
	5551	-53.79	-13	-40.79	-76.38	-59.35	7.74	13.30	H
	7401	-47.60	-13	-34.60	-76.84	-50.08	8.72	11.20	H
									H
									H
									H
	3700	-56.78	-13	-43.78	-74.24	-63.16	5.92	12.30	V
	5551	-53.46	-13	-40.46	-76.35	-59.02	7.74	13.30	V
	7401	-47.77	-13	-34.77	-76.91	-50.25	8.72	11.20	V
									V
									V
									V
Middle	3760	-56.99	-13	-43.99	-74.51	-63.31	5.98	12.30	H
	5640	-53.48	-13	-40.48	-75.97	-59.15	7.81	13.48	H
	7520	-47.95	-13	-34.95	-76.84	-50.46	8.77	11.28	H
									H
									H
									H
	3760	-56.74	-13	-43.74	-74.36	-63.06	5.98	12.30	V
	5640	-53.33	-13	-40.33	-76.28	-59	7.81	13.48	V
	7520	-47.85	-13	-34.85	-76.83	-50.36	8.77	11.28	V
									V
									V
									V



Highest	3820	-56.88	-13	-43.88	-74.59	-63.11	6.03	12.26	H
	5729	-53.73	-13	-40.73	76.42	-59.23	7.89	13.38	H
	7639	-48.14	-13	-35.14	-76.67	-50.99	8.82	11.68	H
									H
									H
									H
									H
	3820	-56.76	-13	-43.76	-74.58	-62.99	6.03	12.26	V
	5729	-53.50	-13	-40.50	-76.62	-59	7.89	13.38	V
	7639	-47.56	-13	-34.56	-76.66	-50.41	8.82	11.68	V
									V
									V
									V
									V

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



**Part 24E WCDMA 1900**

WCDMA 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	3704	-57.19	-13	-44.19	-74.61	-63.56	5.93	12.30	H
	5557	-53.81	-13	-40.81	-76.38	-59.38	7.75	13.31	H
	7409	-47.56	-13	-34.56	-76.78	-50.04	8.72	11.20	H
									H
									H
									H
									H
	3704	-56.80	-13	-43.80	-74.27	-63.17	5.93	12.30	V
	5557	-53.36	-13	-40.36	-76.25	-58.93	7.75	13.31	V
	7409	-47.79	-13	-34.79	-76.91	-50.27	8.72	11.20	V
									V
									V
									V
									V
Middle	3760	-56.52	-13	-43.52	-74.04	-62.84	5.98	12.30	H
	5640	-53.76	-13	-40.76	-76.25	-59.43	7.81	13.48	H
	7520	-47.91	-13	-34.91	-76.8	-50.42	8.77	11.28	H
									H
									H
									H
									H
	3760	-56.85	-13	-43.85	-74.47	-63.17	5.98	12.30	V
	5640	-53.35	-13	-40.35	-76.3	-59.02	7.81	13.48	V
	7520	-47.35	-13	-34.35	-76.33	-49.86	8.77	11.28	V
									V
									V
									V
									V



Highest	3815	-56.84	-13	-43.84	-74.52	-63.08	6.03	12.27	H
	5723	-53.44	-13	-40.44	-76.12	-58.97	7.88	13.41	H
	7630	-48.20	-13	-35.20	-76.71	-51.04	8.82	11.66	H
									H
									H
									H
									H
	3815	-56.75	-13	-43.75	-74.55	-62.99	6.03	12.27	V
	5723	-52.95	-13	-39.95	-76.06	-58.48	7.88	13.41	V
	7630	-47.37	-13	-34.37	-76.48	-50.21	8.82	11.66	V
									V
									V
									V
									V

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



**Part 27L WCDMA 1700**

WCDMA 1700									
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	3424	-57.79	-13	-44.79	-74.41	-64.62	5.67	12.50	H
	5137	-55.62	-13	-42.62	-76.92	-60.55	7.55	12.47	H
	6849	-50.64	-13	-37.64	-77.92	-54.4	8.44	12.20	H
									H
									H
									H
	3424	-57.70	-13	-44.70	-74.78	-64.53	5.67	12.50	V
	5137	-56.05	-13	-43.05	-77.36	-60.98	7.55	12.47	V
	6849	-51.04	-13	-38.04	-78.32	-54.8	8.44	12.20	V
									V
									V
									V
Middle	3465	-57.94	-13	-44.94	-74.92	-64.7	5.71	12.47	H
	5197	-56.34	-13	-43.34	-77.86	-61.64	7.57	12.88	H
	6930	-50.52	-13	-37.52	-77.42	-53.96	8.50	11.94	H
									H
									H
									H
	3465	-57.49	-13	-44.49	-74.83	-64.25	5.71	12.47	V
	5197	-56.28	-13	-43.28	-77.79	-61.58	7.57	12.88	V
	6930	-50.13	-13	-37.13	-77.66	-53.57	8.50	11.94	V
									V
									V
									V



Highest	3505	-57.70	-13	-44.70	-74.96	-64.33	5.74	12.37	H
	5257	-56.19	-13	-43.19	-78.1	-61.82	7.60	13.23	H
	7010	-50.24	-13	-37.24	-76.89	-53.53	8.55	11.84	H
									H
									H
									H
									H
	3505	-57.34	-13	-44.34	-74.9	-63.97	5.74	12.37	V
	5257	-56.28	-13	-43.28	-78.14	-61.91	7.60	13.23	V
	7010	-48.94	-13	-35.94	-76.71	-52.23	8.55	11.84	V
									V
									V
									V
									V

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

————THE END————