



FCC RADIO TEST REPORT

FCC ID : ZL5S62PRO
Equipment : Rugged Smart Phone
Brand Name : CAT
Model Name : S62 Pro
Applicant : Bullitt Group
One Valpy, Valpy Street, Reading,
Berkshire, England RG1 1AR
Standard : FCC 47 CFR Part 2, 22(H), 24(E), 27(L)

The product was received on Dec. 07, 2020 and testing was started from Dec. 15, 2020 and completed on Dec. 24, 2020. 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 of 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, Taiwan (R.O.C.)



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History of this test report

Report No.	Version	Description	Issued Date
FG042406-07A	01	Initial issue of report	Jan. 06, 2021

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)(2)	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	Under limit 15.95 dB at 1672.000 MHz

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Wii Chang

Report Producer: Cindy Liu

1 General Description

1.1 Product Feature of Equipment Under Test

GSM/WCDMA/LTE, Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n, Wi-Fi 5GHz 802.11a/n/ac, NFC and GNSS.

Product Specification subjective to this standard	
Sample 1	Dual SIM
Sample 2	Single SIM
Antenna Type	WWAN <Main 1>: PIFA Antenna <Main 2>: PIFA Antenna <Diversity 1>: PIFA Antenna <Diversity 2>: Loop Antenna WLAN 2.4GHz: PIFA Antenna WLAN 5GHz: Mono Pole Antenna Bluetooth: PIFA Antenna GPS/Glonass/BDS/Galileo/SBAS: PIFA Antenna NFC: Loop Antenna
Antenna Gain	<Main> GSM850: -0.8 dBi GSM1900: 2.9 dBi WCDMA Band II: 2.9 dBi WCDMA Band IV: 2.9 dBi WCDMA Band V: -0.8 dBi <Diversity> WCDMA Band IV: -1.7 dBi

Remark:

1. The samples have same layout, circuit and components but different SIM tray. The phone software will identify the loaded sim card combinations whether with single sim card or dual sim cards.
2. The tests were performed with Sample 1.
3. The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

1.2 Modification of EUT

No modifications are made to the EUT during all test items.



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, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sporton Site No. TH03-HY
Test Engineer	Oscar Chi
Temperature	21~24°C
Relative Humidity	51~55%

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	Sporton Site No. 03CH12-HY
Test Engineer	Jack Cheng, Lance Chiang and Chuan Chu
Temperature	22.3~26.4
Relative Humidity	58~66%

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

FCC Designation No.: TW1190 and TW0007

1.4 Applicable Standards

According to the specifications of 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 test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.
3. The TAF code is not including all the FCC KDB listed without accreditation.



2 Test Configuration of Equipment Under Test

2.1 Test Mode

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

For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Main Antenna: Z Plane with Earphone for Cellular Band and AWS Band; X Plane with Earphone for PCS Band; Diversity Antenna: Y Plane with Earphone for AWS Band) were recorded in this report.

Radiated emissions were investigated as following frequency range:

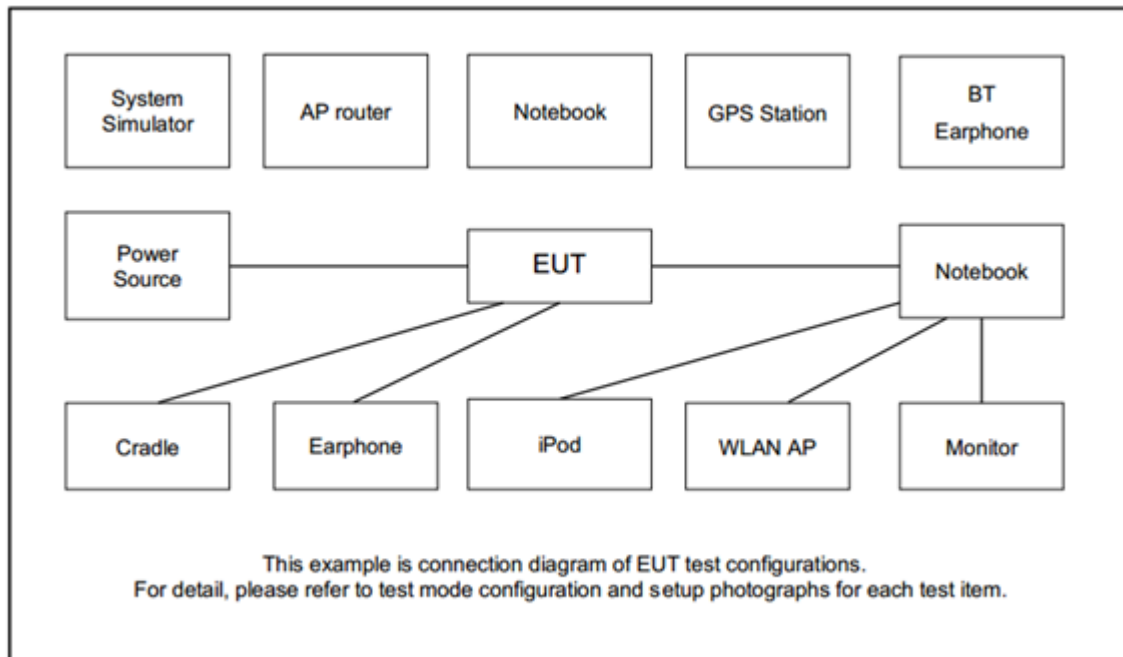
1. 30 MHz to 9000 MHz for GSM850 and WCDMA Band V
2. 30 MHz to 18000 MHz for WCDMA Band IV
3. 30 MHz to 19100 MHz for GSM1900 and WCDMA Band II

All modes and 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
WCDMA Band II	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band IV	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration

Item	Equipment	Brand Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	Audio converter	ZHAOYANG	ZY-TA11R	N/A	N/A	N/A
3.	Earphone	GANET GLOBAL LIMILTD	HF-AC04D-03 HF	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 10dB 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

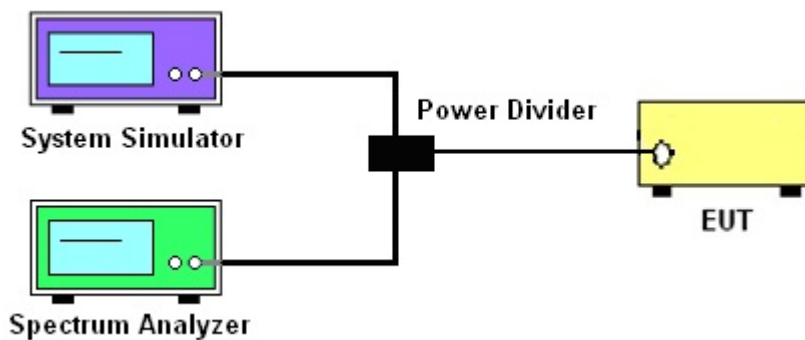
See list of measuring instruments of this test report.

3.1.1 Test Setup

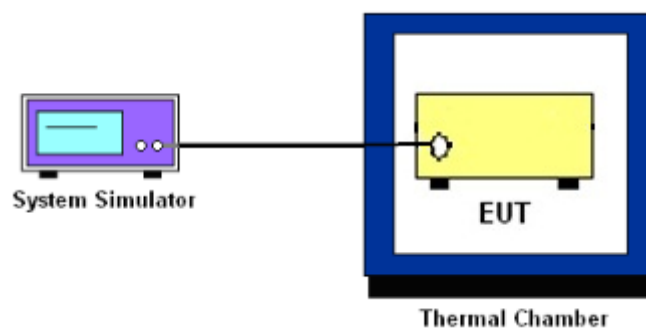
3.1.2 Conducted Output Power



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 was connected to the system simulator.
2. Set EUT at maximum power through system simulator.
3. Select lowest, middle, and 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 was 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 was 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 was connected to the spectrum analyzer and system simulator via a power divider.
2. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator.
The path loss was compensated to the results for each measurement.
3. The band edges of low and high channels for the highest RF powers were measured.
4. The RF fundamental frequency should 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 was connected to the spectrum analyzer and system simulator via a power divider.
2. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator.
The path loss was compensated to the results for each measurement.
3. The middle channel for the highest RF power within the transmitting frequency was measured.
4. The conducted spurious emission for the whole frequency range was taken.
5. The RF fundamental frequency should 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 was set up in the thermal chamber and connected with the system simulator.
2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C steps up to 50°C . The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was 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 was 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 was varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

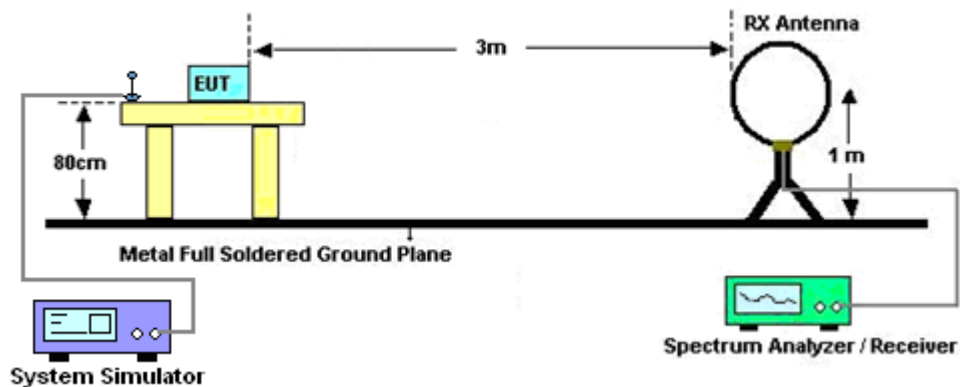
4 Radiated Test Items

4.1 Measuring Instruments

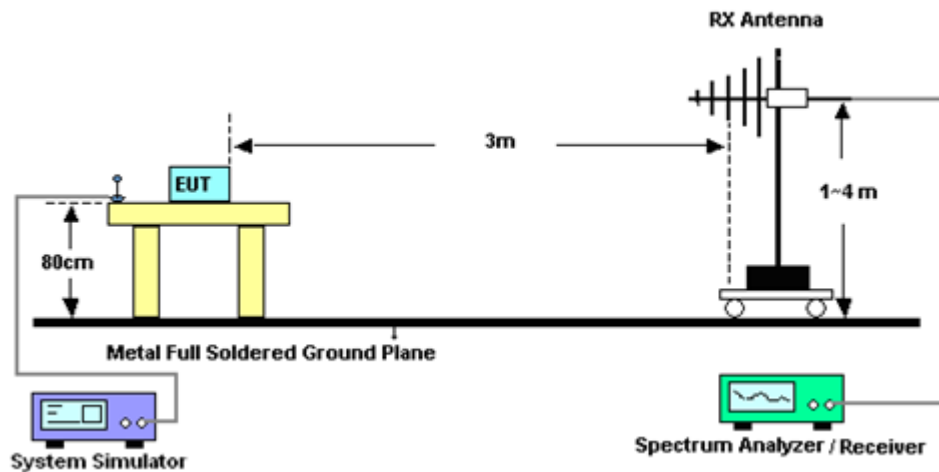
See list of measuring instruments of this test report.

4.2 Test Setup

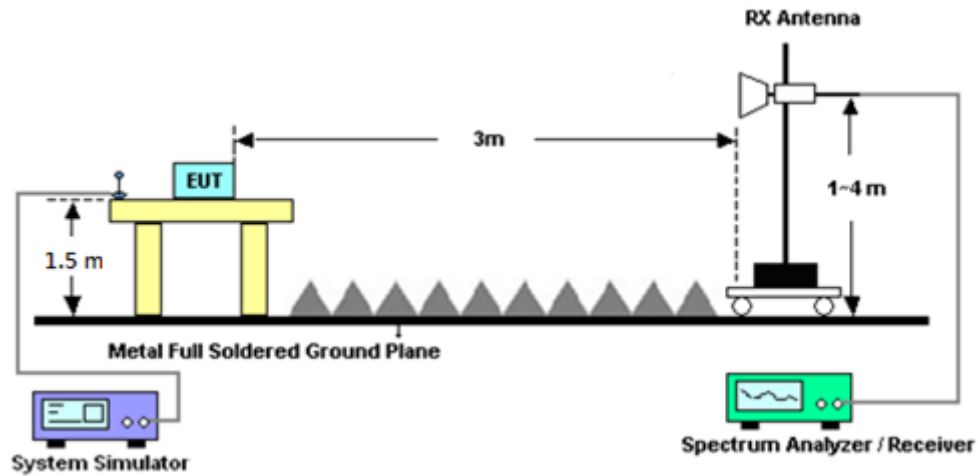
For radiated test below 30MHz



For radiated test from 30MHz to 1GHz



For radiated test above 1GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.

Note:

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

There is a comparison data 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 was placed on a rotatable wooden table 0.8 meters for frequency below 1GHz and 1.5 meter for frequency above 1GHz above the ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was 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 = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
11. $ERP \text{ (dBm)} = EIRP - 2.15$
12. The RF fundamental frequency should 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
Hygrometer	Testo	608-H1	34893241	N/A	Mar. 02, 2020	Dec. 17, 2020	Mar. 01, 2021	Conducted (TH03-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101329	9kHz~30GHz	Sep. 03, 2020	Dec. 17, 2020	Sep. 02, 2021	Conducted (TH03-HY)
Temperature Chamber	ESPEC	SH-641	92013720	-40℃ ~90℃	Sep. 14, 2020	Dec. 17, 2020	Sep. 13, 2021	Conducted (TH03-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890001	1V~20V 0.5A~4A	Oct. 05, 2020	Dec. 17, 2020	Oct. 04, 2021	Conducted (TH03-HY)
Base Station(Measure)	Rohde & Schwarz	CMU200	117995	GSM / GPRS / WCDMA / CDMA	Sep. 07, 2020	Dec. 17, 2020	Sep. 06, 2021	Conducted (TH03-HY)
Power Divider	Warison	WCOU-0.4-26. 5S-20	#A	N/A	Nov. 03, 2020	Dec. 17, 2020	Nov. 02, 2021	Conducted (TH03-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Dec. 26, 2019	Dec. 15, 2020~ Dec. 24, 2020	Dec. 25, 2020	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N- 06	40103 & 07	30MHz~1GHz	Apr. 29, 2020	Dec. 15, 2020~ Dec. 24, 2020	Apr. 28, 2021	Radiation (03CH12-HY)
Horn Antenna	SCHWARZB ECK	BBHA 9120 D	9120D-1212	1GHz~18GHz	May 20, 2020	Dec. 15, 2020~ Dec. 24, 2020	May 19, 2021	Radiation (03CH12-HY)
Horn Antenna	SCHWARZB ECK	BBHA 9120D	9120D-1241	1GHz ~ 18GHz	Jul. 15, 2020	Dec. 15, 2020~ Dec. 24, 2020	Jul. 14, 2021	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZB ECK	BBHA 9170	BBHA917025 1	18GHz~40GHz	Dec. 02, 2020	Dec. 15, 2020~ Dec. 24, 2020	Dec. 01, 2021	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZB ECK	BBHA 9170	BBHA917098 0	18GHz ~ 40GHz	Jan. 10, 2020	Dec. 15, 2020~ Dec. 24, 2020	Jan. 09, 2021	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 25, 2020	Dec. 15, 2020~ Dec. 24, 2020	Mar. 24, 2021	Radiation (03CH12-HY)
Preamplifier	Keysight	83017A	MY57280120	1GHz~26.5GHz	Jul. 20, 2020	Dec. 15, 2020~ Dec. 24, 2020	Jul. 19, 2021	Radiation (03CH12-HY)
Preamplifier	Jet-Power	JPA0118-55-30 3K	17100018000 54002	1GHz~18GHz	Feb. 07, 2020	Dec. 15, 2020~ Dec. 24, 2020	Feb. 06, 2021	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 15, 2020	Dec. 15, 2020~ Dec. 24, 2020	Jun. 14, 2021	Radiation (03CH12-HY)
Spectrum Analyzer	Agilent	N9010A	MY54200485	10Hz~44GHz	Feb. 10, 2020	Dec. 15, 2020~ Dec. 24, 2020	Feb. 09, 2021	Radiation (03CH12-HY)
Signal Generator	Anritsu	MG3694C	163401	0.1Hz~40GHz	Feb. 15, 2020	Dec. 15, 2020~ Dec. 24, 2020	Feb. 14, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 12, 2020	Dec. 15, 2020~ Dec. 24, 2020	Mar. 11, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 11, 2020	Dec. 15, 2020~ Dec. 24, 2020	Dec. 10, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Feb. 25, 2020	Dec. 15, 2020~ Dec. 24, 2020	Feb. 24, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz~40GHz	Feb. 25, 2020	Dec. 15, 2020~ Dec. 24, 2020	Feb. 24, 2021	Radiation (03CH12-HY)
Hygrometer	TECPEL	DTM-303B	TP140349	N/A	Oct. 02, 2020	Dec. 15, 2020~ Dec. 24, 2020	Oct. 01, 2021	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Dec. 15, 2020~ Dec. 24, 2020	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Dec. 15, 2020~ Dec. 24, 2020	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Dec. 15, 2020~ Dec. 24, 2020	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Dec. 15, 2020~ Dec. 24, 2020	N/A	Radiation (03CH12-HY)

6 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.07
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.21
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.80
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Appendix A. Test Results of Conducted Test

Conducted Output Power (Average power)

<Main Antenna>

Conducted Power (*Unit: dBm)						
Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency	824.2	836.4	848.8	1850.2	1880	1909.8
GSM	32.14	32.05	32.06	29.29	29.34	29.28
GPRS class 8	32.15	32.08	32.09	29.33	29.38	29.30
GPRS class 10	29.14	29.36	28.97	26.37	26.50	26.44
GPRS class 11	27.05	27.04	26.96	24.35	24.46	24.30
GPRS class 12	26.11	26.08	25.87	23.37	23.37	23.32
EGPRS class 8	26.18	26.21	25.97	25.24	25.40	25.24
EGPRS class 10	25.97	26.02	25.79	25.01	25.19	25.08
EGPRS class 11	26.15	26.20	26.10	25.10	25.20	25.02
EGPRS class 12	25.88	25.91	25.80	24.80	24.89	24.77

Conducted Power (*Unit: dBm)						
Band	WCDMA Band V			WCDMA Band II		
Channel	4132	4182	4233	9262	9400	9538
Frequency	826.4	836.4	846.6	1852.4	1880	1907.6
RMC 12.2K	23.54	23.44	23.39	23.54	23.43	23.41
HSDPA Subtest-1	22.50	22.45	22.36	22.55	22.44	22.46
HSDPA Subtest-2	22.41	22.43	22.43	22.56	22.48	22.49
HSDPA Subtest-3	22.02	22.00	21.96	22.08	21.96	21.62
HSDPA Subtest-4	21.99	21.96	21.94	22.11	21.96	22.00
HSUPA Subtest-1	22.48	22.35	22.33	22.50	22.44	22.43
HSUPA Subtest-2	20.51	20.49	20.42	20.54	20.47	20.46
HSUPA Subtest-3	21.53	21.45	21.44	21.54	21.46	21.47
HSUPA Subtest-4	20.46	20.35	20.32	20.50	20.48	20.47
HSUPA Subtest-5	22.48	22.33	22.32	22.50	22.40	22.40



Conducted Power (*Unit: dBm)			
Band	WCDMA Band IV		
Channel	1312	1413	1513
Frequency	1712.4	1732.6	1752.6
RMC 12.2K	23.39	23.42	23.59
HSDPA Subtest-1	22.45	22.51	22.64
HSDPA Subtest-2	22.44	22.53	22.62
HSDPA Subtest-3	21.95	22.04	22.11
HSDPA Subtest-4	21.94	22.04	22.19
HSUPA Subtest-1	22.44	22.49	22.50
HSUPA Subtest-2	20.44	20.49	20.62
HSUPA Subtest-3	21.45	21.50	21.64
HSUPA Subtest-4	20.43	20.47	20.50
HSUPA Subtest-5	22.40	22.50	22.50

**<Diversity Antenna>**

Conducted Power (*Unit: dBm)			
Band	WCDMA Band IV		
Channel	1312	1413	1513
Frequency	1712.4	1732.6	1752.6
RMC 12.2K	21.74	21.80	21.90
HSDPA Subtest-1	20.74	20.82	20.99
HSDPA Subtest-2	20.80	20.86	20.97
HSDPA Subtest-3	20.25	20.31	20.42
HSDPA Subtest-4	20.34	20.38	20.42
HSUPA Subtest-1	20.25	20.39	20.45
HSUPA Subtest-2	18.82	18.87	18.90
HSUPA Subtest-3	19.78	19.87	19.99
HSUPA Subtest-4	18.34	18.31	18.45
HSUPA Subtest-5	20.34	20.31	20.48



A2. GSM

Peak-to-Average Ratio

Mode	GSM850		Limit: 13dB
Mod.	GPRS class 8	EDGE class 8	Result
Lowest CH	0.48	3.60	PASS
Middle CH	0.48	3.68	
Highest CH	0.52	3.48	

Mode	GSM1900		Limit: 13dB
Mod.	GPRS class 8	EDGE class 8	Result
Lowest CH	0.48	3.48	PASS
Middle CH	0.52	3.28	
Highest CH	0.52	3.44	



GSM850 (GPRS class 8)		GSM850 (EDGE class 8)	
Lowest Channel		Lowest Channel	
Ref: 35 dBm, Att: 30 dB, AGT: 3.125 ms, RBW: 10 MHz, Center: 824.2 MHz, 2 dB/ Trace 1 Mean: 31.05 dBm Peak: 31.56 dBm Crest: 0.51 dB 10 %: 0.32 dB 1 %: 0.44 dB .1 %: 0.48 dB .01 %: 0.52 dB Date: 17.DEC.2020 11:22:47		Ref: 35 dBm, Att: 30 dB, AGT: 3.125 ms, RBW: 10 MHz, Center: 824.2 MHz, 2 dB/ Trace 1 Mean: 24.76 dBm Peak: 28.38 dBm Crest: 3.63 dB 10 %: 2.72 dB 1 %: 3.44 dB .1 %: 3.60 dB .01 %: 3.64 dB Date: 17.DEC.2020 10:45:40	
Middle Channel		Middle Channel	
Ref: 35 dBm, Att: 30 dB, AGT: 3.125 ms, RBW: 10 MHz, Center: 836.4 MHz, 2 dB/ Trace 1 Mean: 30.90 dBm Peak: 31.42 dBm Crest: 0.52 dB 10 %: 0.32 dB 1 %: 0.44 dB .1 %: 0.48 dB .01 %: 0.52 dB Date: 17.DEC.2020 11:23:07		Ref: 35 dBm, Att: 30 dB, AGT: 3.125 ms, RBW: 10 MHz, Center: 836.4 MHz, 2 dB/ Trace 1 Mean: 24.45 dBm Peak: 28.24 dBm Crest: 3.79 dB 10 %: 2.72 dB 1 %: 3.52 dB .1 %: 3.68 dB .01 %: 3.76 dB Date: 17.DEC.2020 10:45:59	
Highest Channel		Highest Channel	
Ref: 35 dBm, Att: 30 dB, AGT: 3.125 ms, RBW: 10 MHz, Center: 848.8 MHz, 2 dB/ Trace 1 Mean: 30.36 dBm Peak: 30.92 dBm Crest: 0.57 dB 10 %: 0.36 dB 1 %: 0.48 dB .1 %: 0.52 dB .01 %: 0.52 dB Date: 17.DEC.2020 11:23:28		Ref: 35 dBm, Att: 30 dB, AGT: 3.125 ms, RBW: 10 MHz, Center: 848.8 MHz, 2 dB/ Trace 1 Mean: 23.93 dBm Peak: 27.61 dBm Crest: 3.68 dB 10 %: 2.76 dB 1 %: 3.32 dB .1 %: 3.48 dB .01 %: 3.60 dB Date: 17.DEC.2020 10:46:17	



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

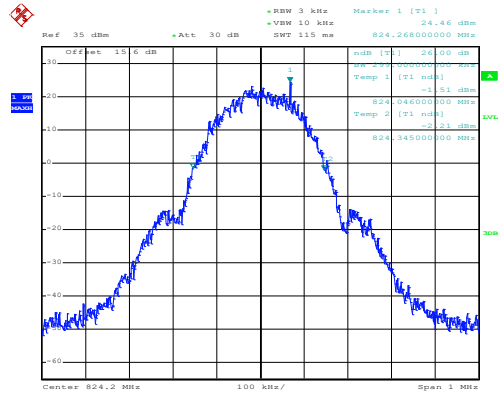
**26dB Bandwidth**

Mode	GSM850	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.299	0.298
Middle CH	0.311	0.309
Highest CH	0.306	0.301

Mode	GSM1900	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.305	0.299
Middle CH	0.308	0.298
Highest CH	0.312	0.291

GSM850 (GPRS class 8)

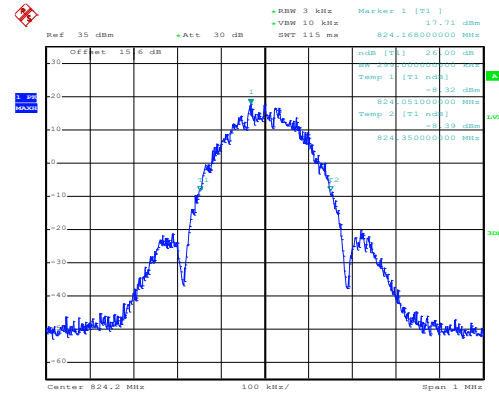
Lowest Channel



Date: 17.DEC.2020 11:12:07

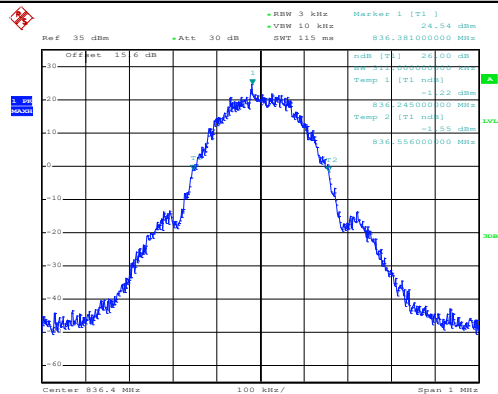
GSM850 (EDGE class 8)

Lowest Channel



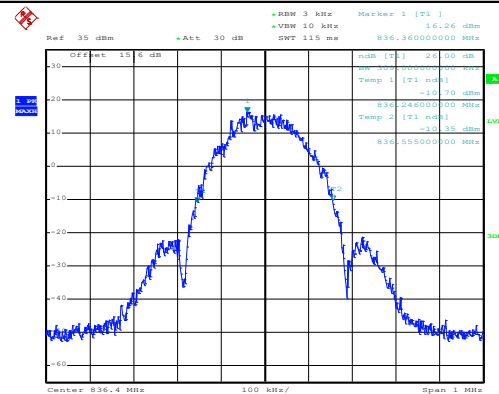
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Middle Channel



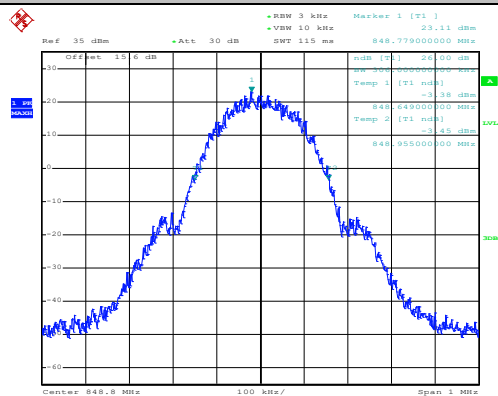
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Middle Channel



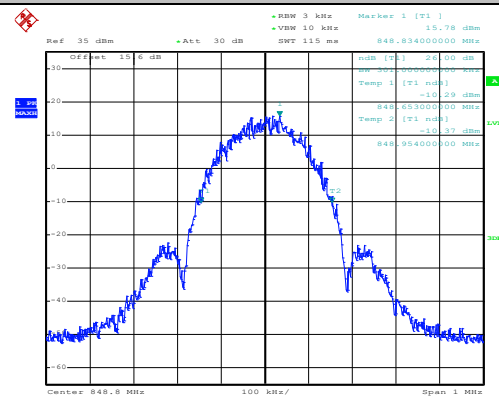
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Highest Channel

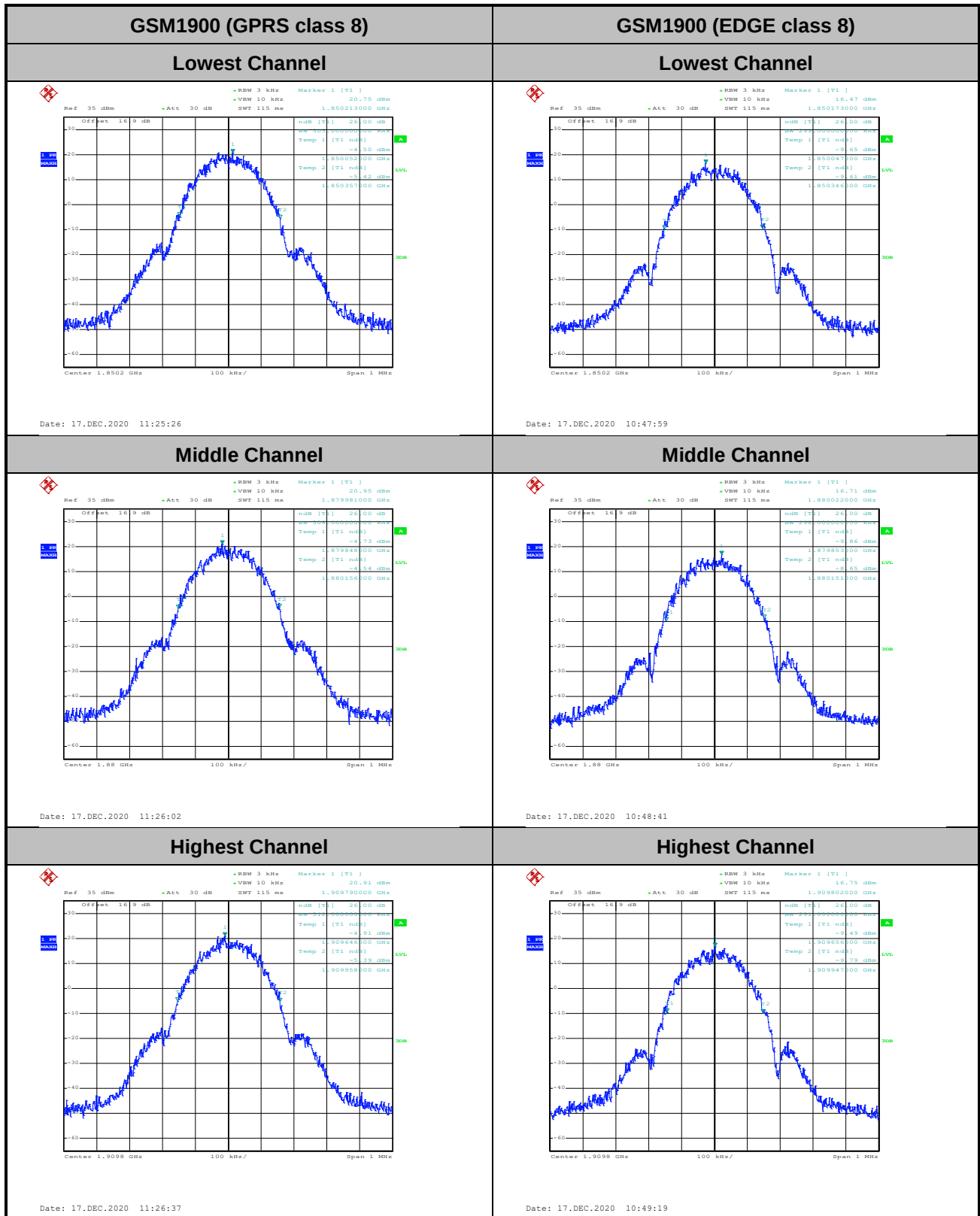


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Highest Channel



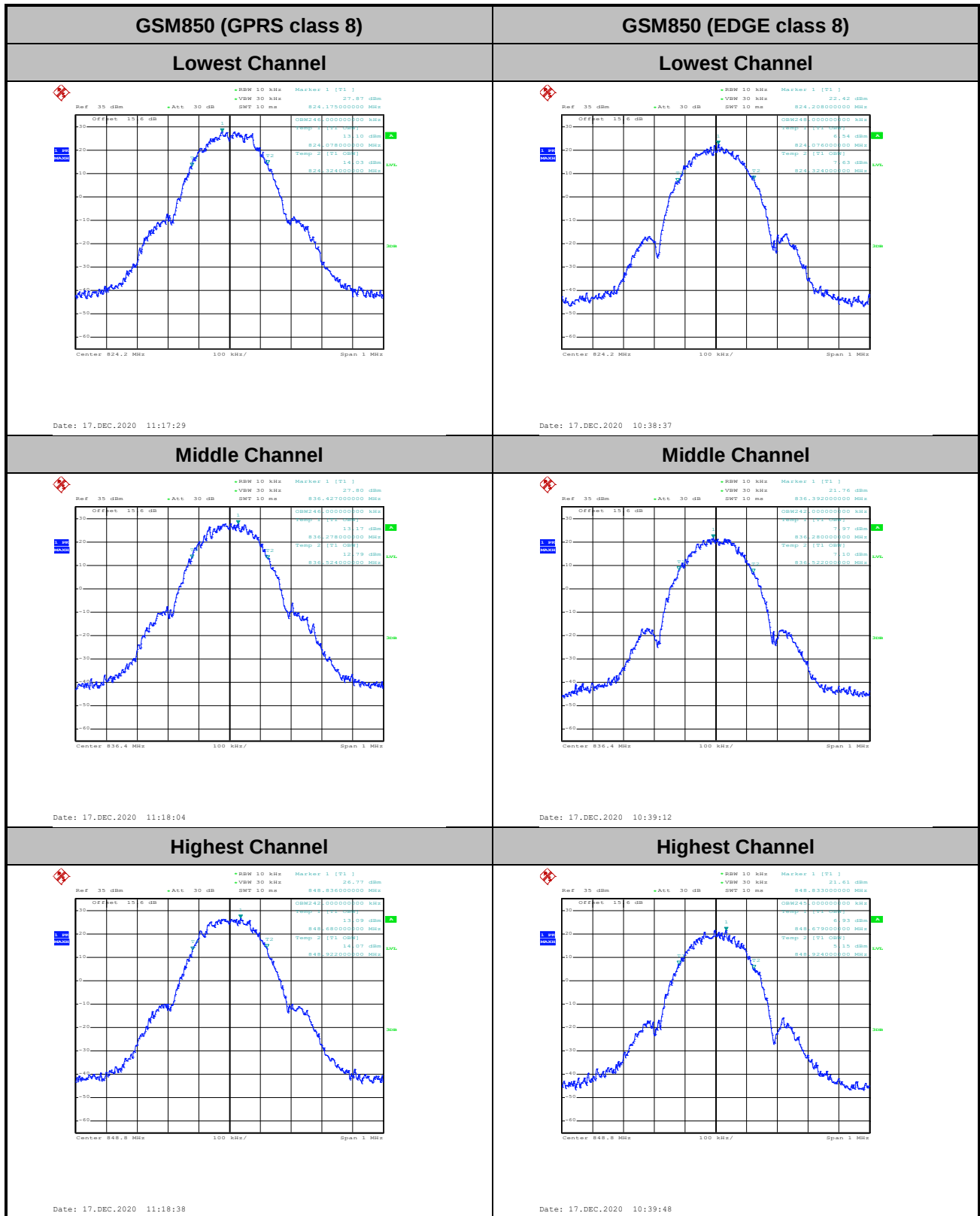
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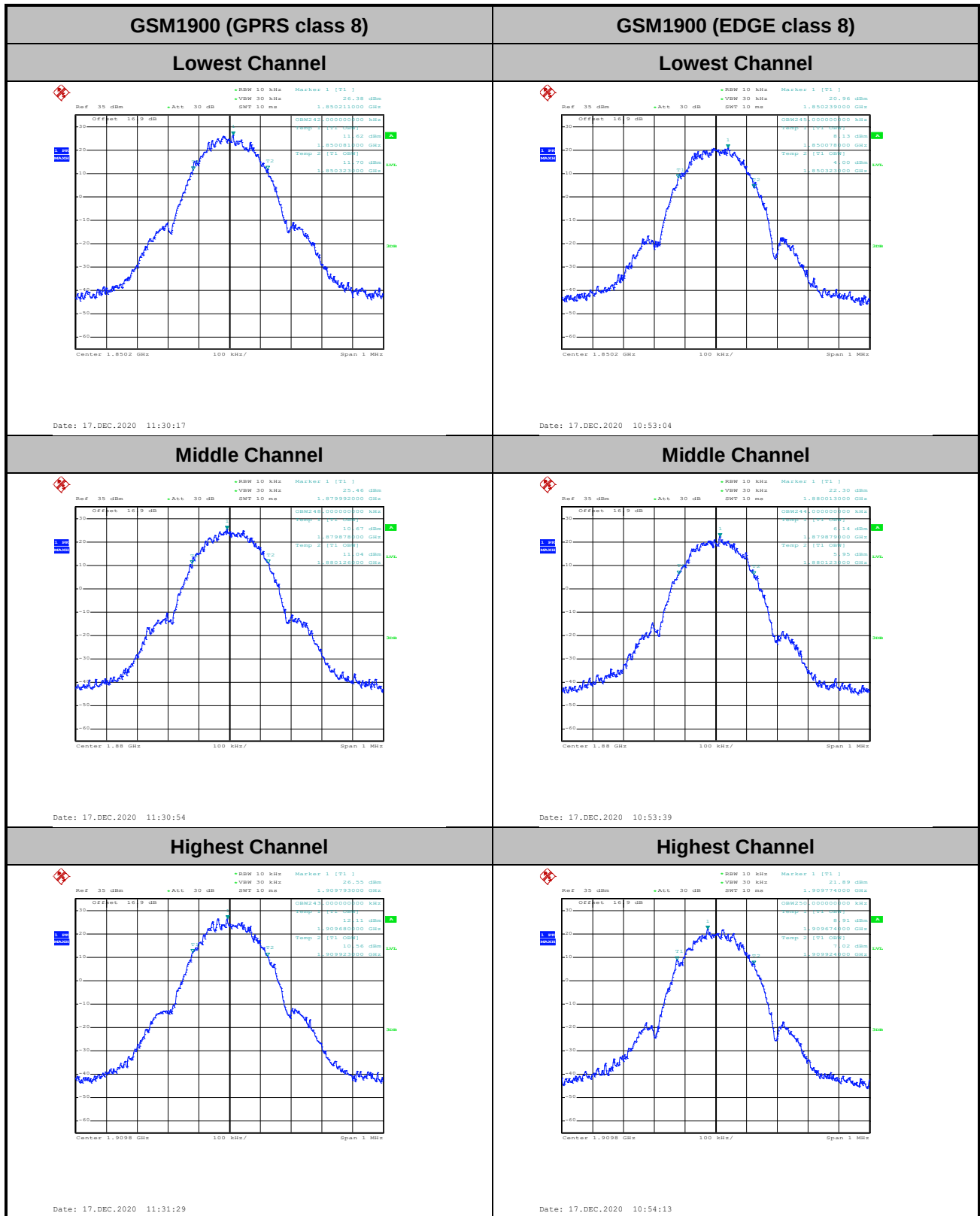


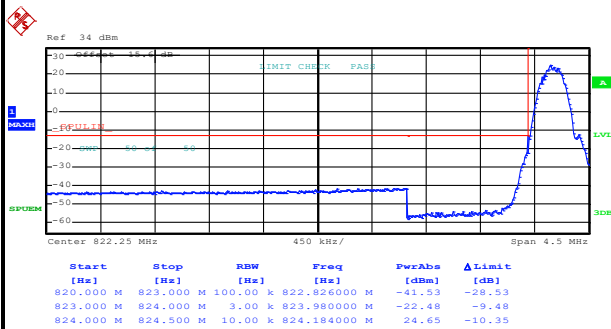
**Occupied Bandwidth**

Mode	GSM850	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.246	0.248
Middle CH	0.246	0.242
Highest CH	0.242	0.245

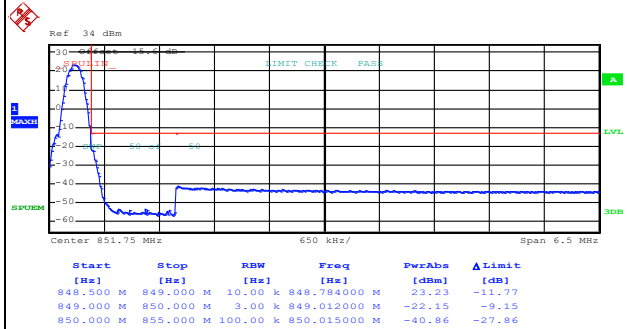
Mode	GSM1900	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.242	0.245
Middle CH	0.248	0.244
Highest CH	0.243	0.250





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

Date: 17.DEC.2020 11:20:17

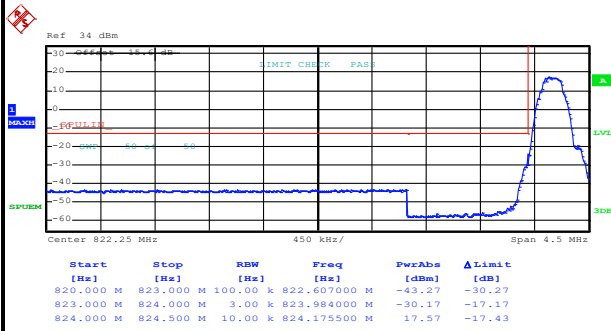
Highest Band Edge

Date: 17.DEC.2020 11:21:52



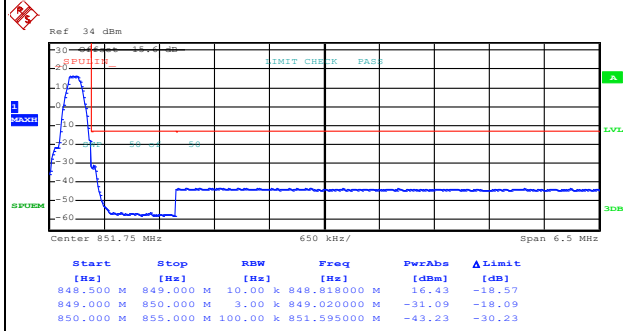
GSM850 (EDGE class 8)

Lowest Band Edge



Date: 17.DEC.2020 10:41:37

Highest Band Edge

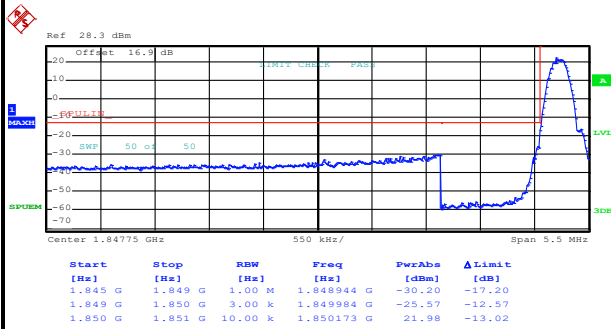


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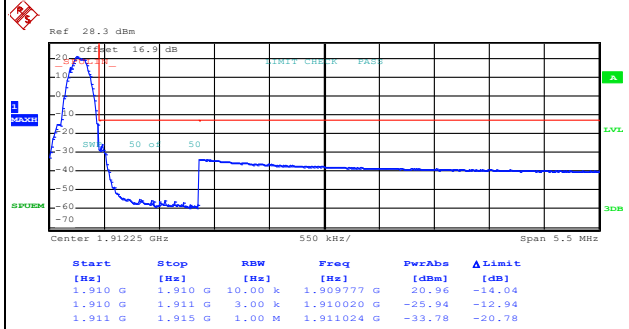
GSM1900 (GPRS class 8)

Lowest Band Edge



Date: 17.DEC.2020 11:33:05

Highest Band Edge

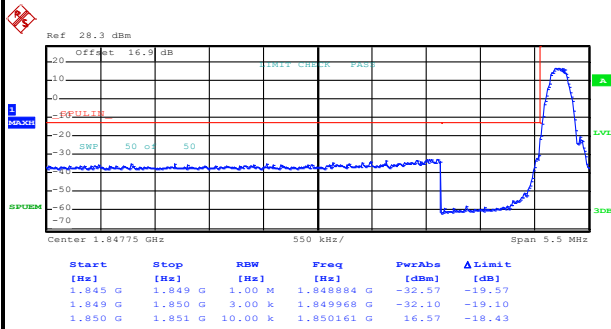


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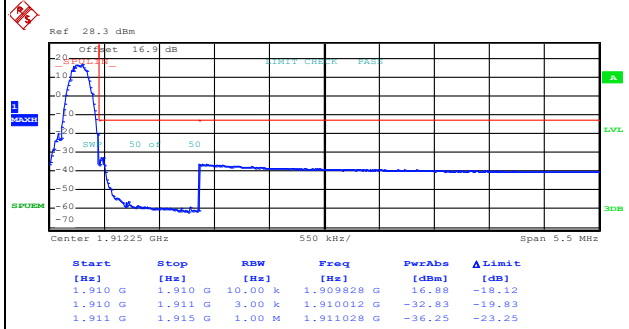
GSM1900 (EDGE class 8)

Lowest Band Edge



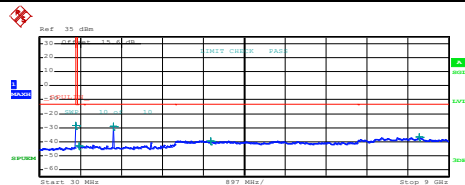
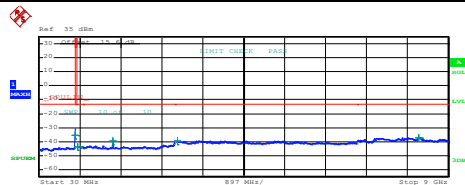
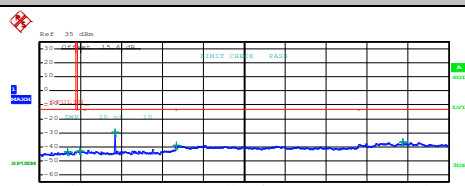
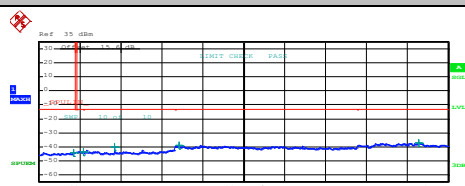
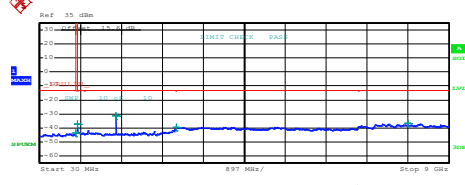
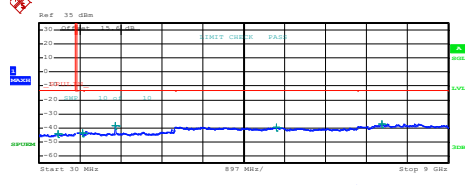
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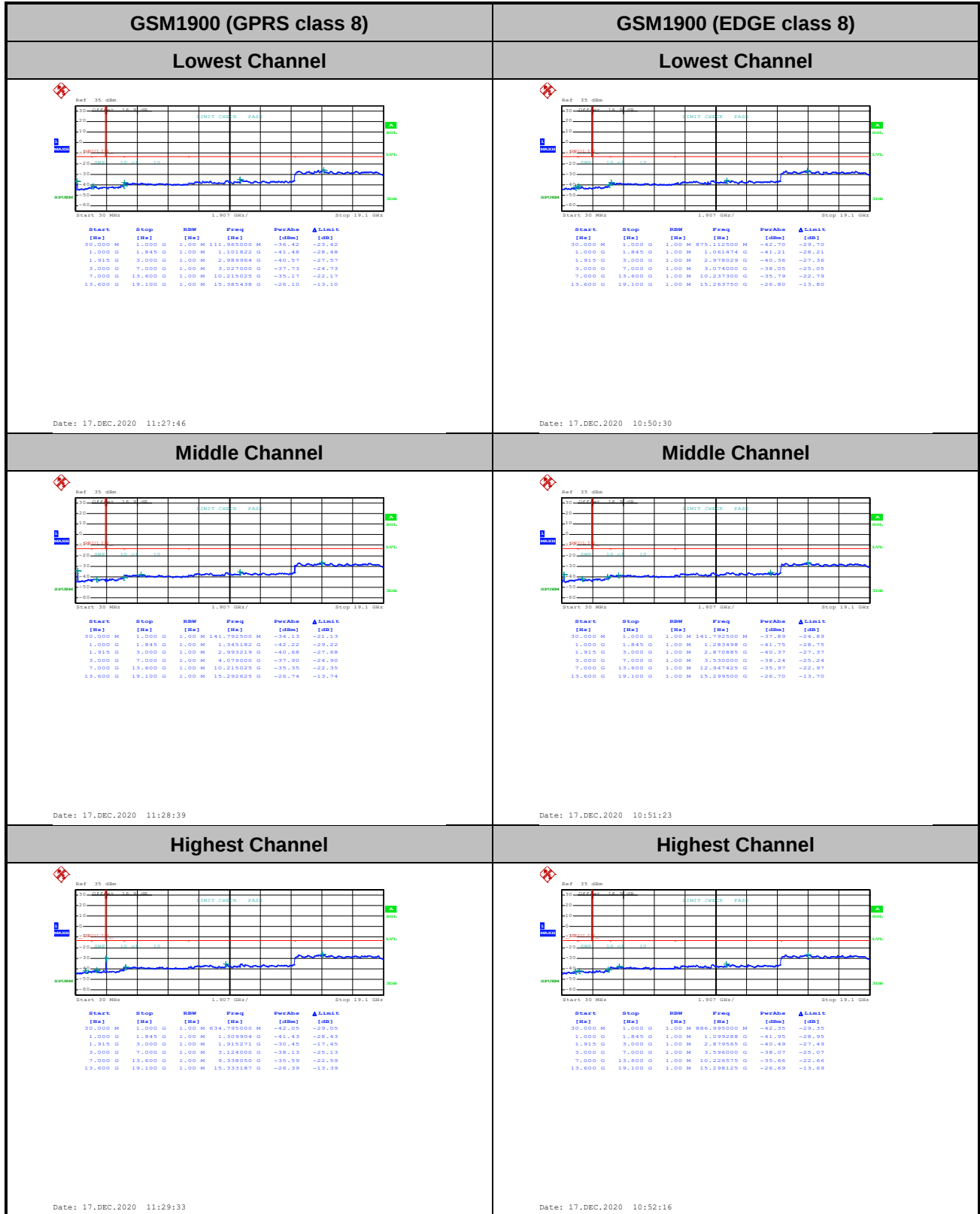
Highest Band Edge



Date: 17.DEC.2020 10:57:35

**Conducted Spurious Emission**

GSM850 (GPRS class 8)		GSM850 (EDGE class 8)																																																																																					
Lowest Channel		Lowest Channel																																																																																					
 <table><tr><th>Start</th><th>Stop</th><th>RBW</th><th>Freq</th><th>PerAbn</th><th>ΔLimit</th></tr><tr><th>[Hz]</th><th>[Hz]</th><th>[Hz]</th><th>[Hz]</th><th>[dBm]</th><th>[dB]</th></tr><tr><td>30,000 M</td><td>820,000 M</td><td>1,00 M</td><td>819,802500 M</td><td>-28.23</td><td>-15.23</td></tr><tr><td>850,000 M</td><td>1,000 G</td><td>1,00 M</td><td>894,512503 M</td><td>-42.95</td><td>-29.95</td></tr><tr><td>1,000 G</td><td>3,000 G</td><td>1,00 M</td><td>1,648000 G</td><td>-28.87</td><td>-25.87</td></tr><tr><td>3,000 G</td><td>7,000 G</td><td>1,00 M</td><td>3,787000 G</td><td>-39.40</td><td>-26.40</td></tr><tr><td>7,000 G</td><td>9,000 G</td><td>1,00 M</td><td>8,350000 G</td><td>-36.87</td><td>-23.87</td></tr></table> Date: 17.DEC.2020 11:15:03		Start	Stop	RBW	Freq	PerAbn	ΔLimit	[Hz]	[Hz]	[Hz]	[Hz]	[dBm]	[dB]	30,000 M	820,000 M	1,00 M	819,802500 M	-28.23	-15.23	850,000 M	1,000 G	1,00 M	894,512503 M	-42.95	-29.95	1,000 G	3,000 G	1,00 M	1,648000 G	-28.87	-25.87	3,000 G	7,000 G	1,00 M	3,787000 G	-39.40	-26.40	7,000 G	9,000 G	1,00 M	8,350000 G	-36.87	-23.87	 <table><tr><th>Start</th><th>Stop</th><th>RBW</th><th>Freq</th><th>PerAbn</th><th>ΔLimit</th></tr><tr><th>[Hz]</th><th>[Hz]</th><th>[Hz]</th><th>[Hz]</th><th>[dBm]</th><th>[dB]</th></tr><tr><td>30,000 M</td><td>820,000 M</td><td>1,00 M</td><td>819,802500 M</td><td>-28.23</td><td>-15.23</td></tr><tr><td>850,000 M</td><td>1,000 G</td><td>1,00 M</td><td>867,542501 M</td><td>-43.45</td><td>-30.45</td></tr><tr><td>1,000 G</td><td>3,000 G</td><td>1,00 M</td><td>1,649000 G</td><td>-39.68</td><td>-26.68</td></tr><tr><td>3,000 G</td><td>7,000 G</td><td>1,00 M</td><td>3,069000 G</td><td>-39.39</td><td>-26.39</td></tr><tr><td>7,000 G</td><td>9,000 G</td><td>1,00 M</td><td>8,357000 G</td><td>-37.20</td><td>-24.20</td></tr></table> Date: 17.DEC.2020 10:35:48		Start	Stop	RBW	Freq	PerAbn	ΔLimit	[Hz]	[Hz]	[Hz]	[Hz]	[dBm]	[dB]	30,000 M	820,000 M	1,00 M	819,802500 M	-28.23	-15.23	850,000 M	1,000 G	1,00 M	867,542501 M	-43.45	-30.45	1,000 G	3,000 G	1,00 M	1,649000 G	-39.68	-26.68	3,000 G	7,000 G	1,00 M	3,069000 G	-39.39	-26.39	7,000 G	9,000 G	1,00 M	8,357000 G	-37.20	-24.20
Start	Stop	RBW	Freq	PerAbn	ΔLimit																																																																																		
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Start	Stop	RBW	Freq	PerAbn	ΔLimit																																																																																		
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1,000 G	3,000 G	1,00 M	1,673000 G	-29.37	-16.37																																																																																		
3,000 G	7,000 G	1,00 M	3,033000 G	-38.98	-25.98																																																																																		
7,000 G	9,000 G	1,00 M	7,993000 G	-36.87	-23.87																																																																																		
Start	Stop	RBW	Freq	PerAbn	ΔLimit																																																																																		
[Hz]	[Hz]	[Hz]	[Hz]	[dBm]	[dB]																																																																																		
30,000 M	820,000 M	1,00 M	792,350000 M	-43.98	-30.98																																																																																		
850,000 M	1,000 G	1,00 M	931,336259 M	-43.51	-30.51																																																																																		
1,000 G	3,000 G	1,00 M	1,673000 G	-39.97	-26.97																																																																																		
3,000 G	7,000 G	1,00 M	3,103000 G	-38.81	-25.81																																																																																		
7,000 G	9,000 G	1,00 M	8,350000 G	-37.27	-24.27																																																																																		
Highest Channel		Highest Channel																																																																																					
 <table><tr><th>Start</th><th>Stop</th><th>RBW</th><th>Freq</th><th>PerAbn</th><th>ΔLimit</th></tr><tr><th>[Hz]</th><th>[Hz]</th><th>[Hz]</th><th>[Hz]</th><th>[dBm]</th><th>[dB]</th></tr><tr><td>30,000 M</td><td>820,000 M</td><td>1,00 M</td><td>816,442500 M</td><td>-43.86</td><td>-30.86</td></tr><tr><td>850,000 M</td><td>1,000 G</td><td>1,00 M</td><td>855,036250 M</td><td>-37.24</td><td>-24.24</td></tr><tr><td>1,000 G</td><td>3,000 G</td><td>1,00 M</td><td>1,697500 G</td><td>-31.55</td><td>-18.55</td></tr><tr><td>3,000 G</td><td>7,000 G</td><td>1,00 M</td><td>3,033000 G</td><td>-39.29</td><td>-26.29</td></tr><tr><td>7,000 G</td><td>9,000 G</td><td>1,00 M</td><td>8,107000 G</td><td>-36.84</td><td>-23.84</td></tr></table> Date: 17.DEC.2020 11:16:48		Start	Stop	RBW	Freq	PerAbn	ΔLimit	[Hz]	[Hz]	[Hz]	[Hz]	[dBm]	[dB]	30,000 M	820,000 M	1,00 M	816,442500 M	-43.86	-30.86	850,000 M	1,000 G	1,00 M	855,036250 M	-37.24	-24.24	1,000 G	3,000 G	1,00 M	1,697500 G	-31.55	-18.55	3,000 G	7,000 G	1,00 M	3,033000 G	-39.29	-26.29	7,000 G	9,000 G	1,00 M	8,107000 G	-36.84	-23.84	 <table><tr><th>Start</th><th>Stop</th><th>RBW</th><th>Freq</th><th>PerAbn</th><th>ΔLimit</th></tr><tr><th>[Hz]</th><th>[Hz]</th><th>[Hz]</th><th>[Hz]</th><th>[dBm]</th><th>[dB]</th></tr><tr><td>30,000 M</td><td>820,000 M</td><td>1,00 M</td><td>450,872500 M</td><td>-43.13</td><td>-31.13</td></tr><tr><td>850,000 M</td><td>1,000 G</td><td>1,00 M</td><td>974,770008 M</td><td>-43.53</td><td>-30.53</td></tr><tr><td>1,000 G</td><td>3,000 G</td><td>1,00 M</td><td>1,697500 G</td><td>-38.36</td><td>-25.36</td></tr><tr><td>3,000 G</td><td>7,000 G</td><td>1,00 M</td><td>5,228000 G</td><td>-39.32</td><td>-26.32</td></tr><tr><td>7,000 G</td><td>9,000 G</td><td>1,00 M</td><td>7,539000 G</td><td>-37.04</td><td>-24.04</td></tr></table> Date: 17.DEC.2020 10:37:55		Start	Stop	RBW	Freq	PerAbn	ΔLimit	[Hz]	[Hz]	[Hz]	[Hz]	[dBm]	[dB]	30,000 M	820,000 M	1,00 M	450,872500 M	-43.13	-31.13	850,000 M	1,000 G	1,00 M	974,770008 M	-43.53	-30.53	1,000 G	3,000 G	1,00 M	1,697500 G	-38.36	-25.36	3,000 G	7,000 G	1,00 M	5,228000 G	-39.32	-26.32	7,000 G	9,000 G	1,00 M	7,539000 G	-37.04	-24.04
Start	Stop	RBW	Freq	PerAbn	ΔLimit																																																																																		
[Hz]	[Hz]	[Hz]	[Hz]	[dBm]	[dB]																																																																																		
30,000 M	820,000 M	1,00 M	816,442500 M	-43.86	-30.86																																																																																		
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7,000 G	9,000 G	1,00 M	8,107000 G	-36.84	-23.84																																																																																		
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7,000 G	9,000 G	1,00 M	7,539000 G	-37.04	-24.04																																																																																		



**Frequency Stability**

Test Conditions	Middle Channel	GSM850 (GPRS class 8)	GSM850 (EDGE class 8)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)		Result
50	Normal Voltage	0.0036	0.0012	PASS
40	Normal Voltage	0.0024	0.0012	
30	Normal Voltage	0.0012	0.0012	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0000	0.0000	
0	Normal Voltage	0.0024	0.0000	
-10	Normal Voltage	0.0084	0.0024	
-20	Normal Voltage	0.0143	0.0048	
-30	Normal Voltage	0.0143	0.0048	
20	Maximum Voltage	0.0024	0.0024	
20	Normal Voltage	0.0000	0.0036	
20	Battery End Point	0.0000	0.0000	



Test Conditions	Middle Channel	GSM1900 (GPRS class 8)	GSM1900 (EDGE class 8)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)		Result
50	Normal Voltage	0.0048	0.0096	PASS
40	Normal Voltage	0.0037	0.0074	
30	Normal Voltage	0.0011	0.0032	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0005	0.0080	
0	Normal Voltage	0.0037	0.0106	
-10	Normal Voltage	0.0064	0.0144	
-20	Normal Voltage	0.0096	0.0176	
-30	Normal Voltage	0.0101	0.0186	
20	Maximum Voltage	0.0069	0.0005	
20	Normal Voltage	0.0000	0.0000	
20	Battery End Point	0.0154	0.0032	

Note:

1. Normal Voltage = 3.8V. ; Battery End Point (BEP) = 3.4 V. ; Maximum Voltage =4.35 V
2. The frequency fundamental emissions stay within the authorized frequency block..



A3. WCDMA

Peak-to-Average Ratio

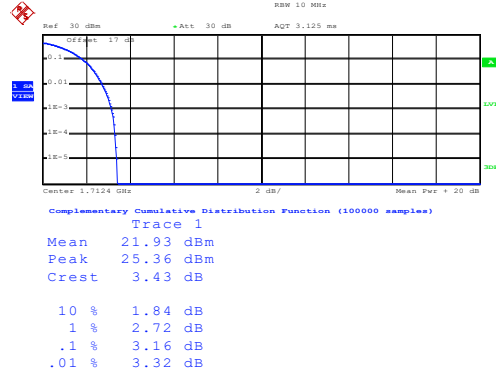
Mode	WCDMA Band V	WCDMA Band II	WCDMA Band IV	Limit: 13dB
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps	Result
Lowest CH	3.60	3.08	3.16	PASS
Middle CH	3.48	3.44	3.24	
Highest CH	3.44	2.64	3.36	



WCDMA Band V (RMC 12.2Kbps)	WCDMA Band II (RMC 12.2Kbps)
Lowest Channel	Lowest Channel
Center 826.4 MHz Trace 1 Mean 21.39 dBm Peak 25.57 dBm Crest 4.19 dB 10 % 1.92 dB 1 % 3.00 dB .1 % 3.60 dB .01 % 3.88 dB Date: 17.DEC.2020 13:32:29	Center 1.8524 GHz Trace 1 Mean 21.33 dBm Peak 24.65 dBm Crest 3.33 dB 10 % 1.84 dB 1 % 2.64 dB .1 % 3.08 dB .01 % 3.24 dB Date: 17.DEC.2020 14:17:51
Middle Channel	Middle Channel
Center 836.4 MHz Trace 1 Mean 21.04 dBm Peak 24.94 dBm Crest 3.90 dB 10 % 1.88 dB 1 % 2.92 dB .1 % 3.48 dB .01 % 3.72 dB Date: 17.DEC.2020 13:32:48	Center 1.88 GHz Trace 1 Mean 21.02 dBm Peak 24.87 dBm Crest 3.85 dB 10 % 1.96 dB 1 % 2.92 dB .1 % 3.44 dB .01 % 3.68 dB Date: 17.DEC.2020 14:18:08
Highest Channel	Highest Channel
Center 846.6 MHz Trace 1 Mean 20.38 dBm Peak 24.30 dBm Crest 3.92 dB 10 % 1.92 dB 1 % 2.92 dB .1 % 3.44 dB .01 % 3.72 dB Date: 17.DEC.2020 13:33:10	Center 1.9076 GHz Trace 1 Mean 21.38 dBm Peak 24.30 dBm Crest 2.92 dB 10 % 1.72 dB 1 % 2.36 dB .1 % 2.64 dB .01 % 2.76 dB Date: 17.DEC.2020 14:18:26

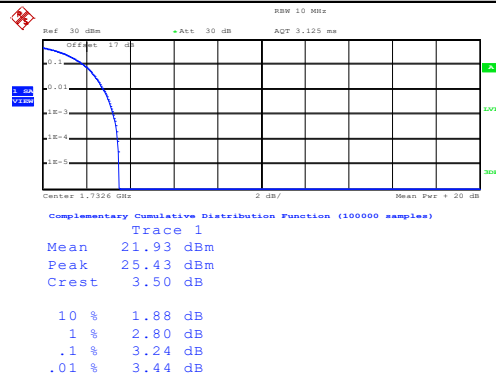
WCDMA Band IV (RMC 12.2Kbps)

Lowest Channel



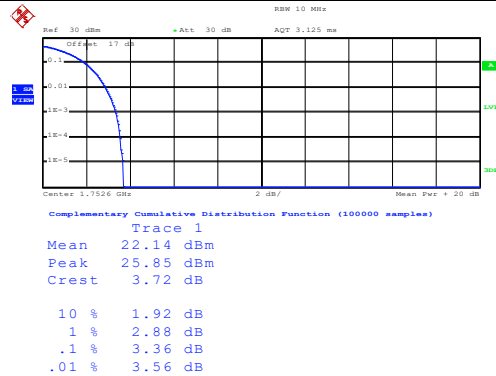
Date: 17.DEC.2020 14:01:45

Middle Channel



Date: 17.DEC.2020 14:02:03

Highest Channel



Date: 17.DEC.2020 14:02:24



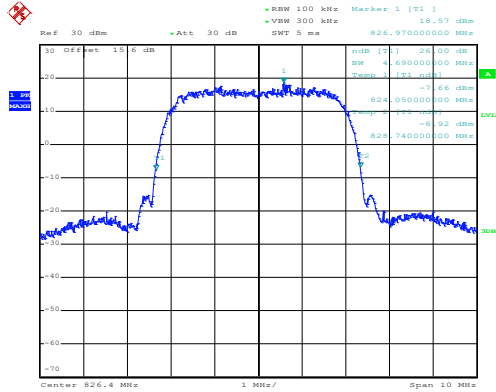
26dB Bandwidth

Mode	WCDMA Band V	WCDMA Band II	WCDMA Band IV
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.69	4.71	4.72
Middle CH	4.72	4.69	4.69
Highest CH	4.74	4.74	4.69



WCDMA Band V (RMC 12.2Kbps)

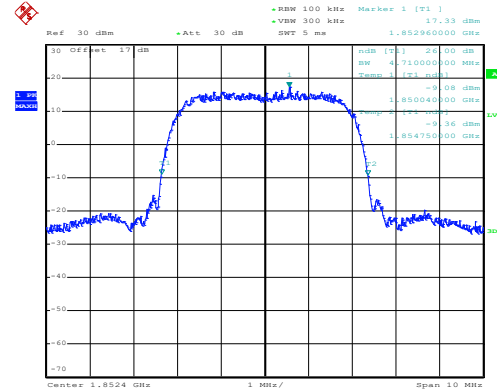
Lowest Channel



Date: 17.DEC.2020 11:51:21

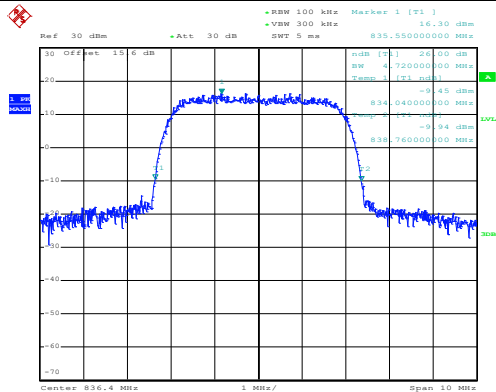
WCDMA Band II (RMC 12.2Kbps)

Lowest Channel



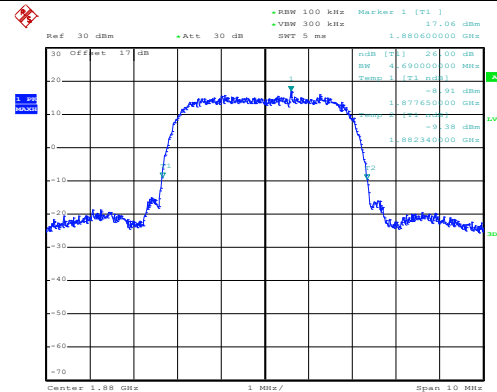
Date: 17.DEC.2020 14:03:35

Middle Channel



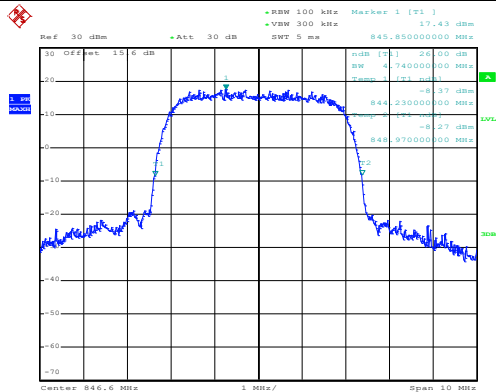
Date: 17.DEC.2020 11:51:58

Middle Channel



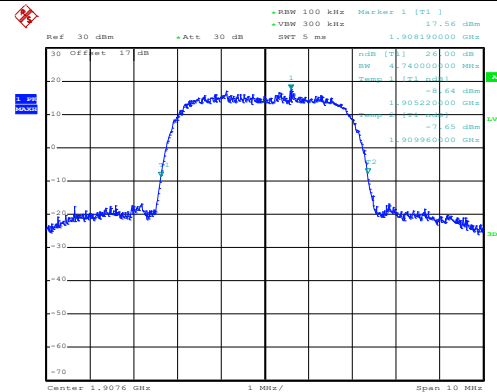
Date: 17.DEC.2020 14:04:24

Highest Channel



Date: 17.DEC.2020 11:52:44

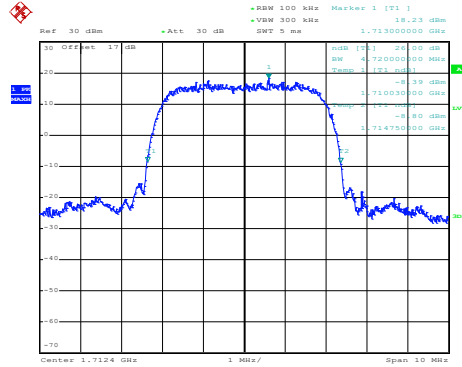
Highest Channel



Date: 17.DEC.2020 14:05:45

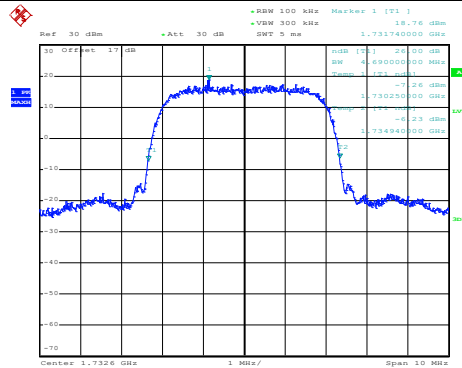
WCDMA Band IV (RMC 12.2Kbps)

Lowest Channel



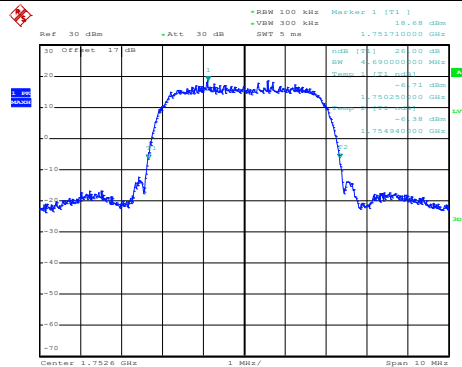
Date: 17.DEC.2020 13:51:47

Middle Channel



Date: 17.DEC.2020 13:52:24

Highest Channel



Date: 17.DEC.2020 13:53:01



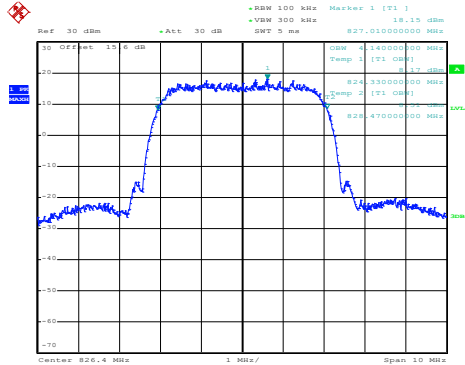
Occupied Bandwidth

Mode	WCDMA Band V	WCDMA Band II	WCDMA Band IV
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.14	4.14	4.15
Middle CH	4.15	4.14	4.14
Highest CH	4.13	4.16	4.17



WCDMA Band V (RMC 12.2Kbps)

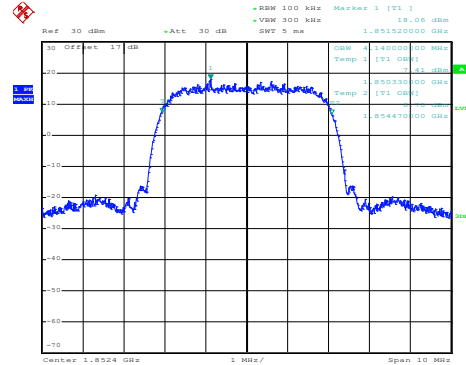
Lowest Channel



Date: 17.DEC.2020 11:56:36

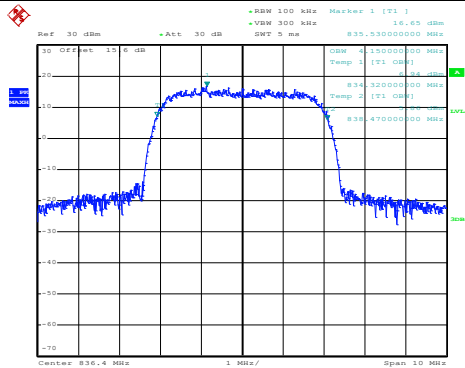
WCDMA Band II (RMC 12.2Kbps)

Lowest Channel



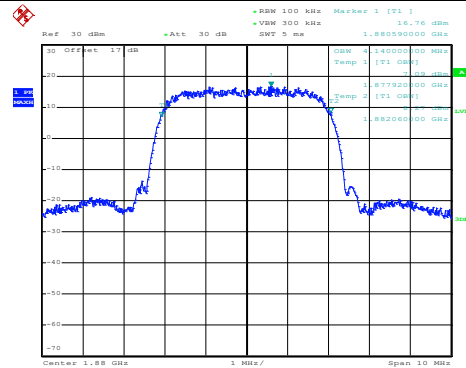
Date: 17.DEC.2020 14:10:05

Middle Channel



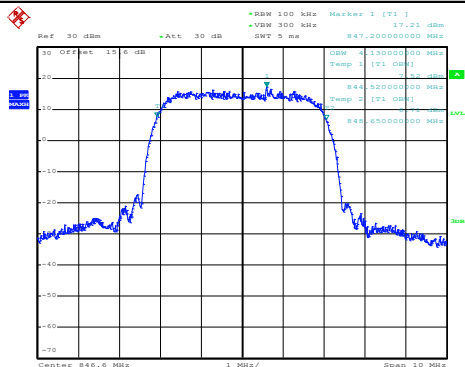
Date: 17.DEC.2020 11:57:13

Middle Channel



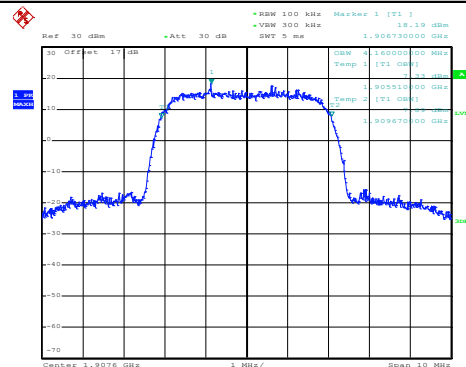
Date: 17.DEC.2020 14:10:42

Highest Channel



Date: 17.DEC.2020 11:57:50

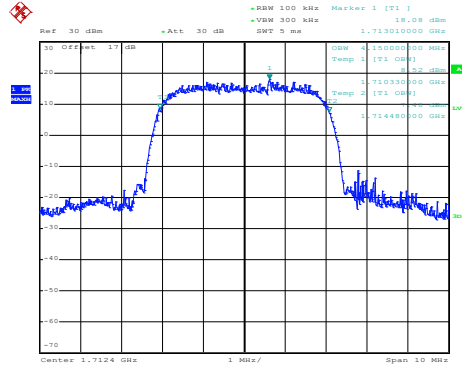
Highest Channel



Date: 17.DEC.2020 14:11:21

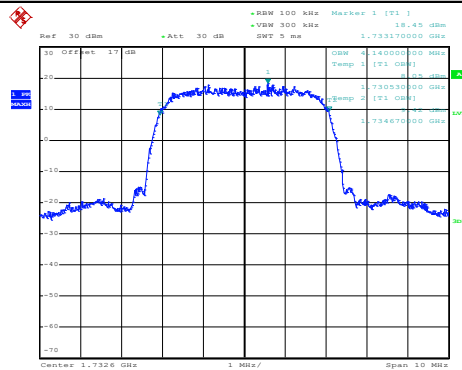
WCDMA Band IV (RMC 12.2Kbps)

Lowest Channel



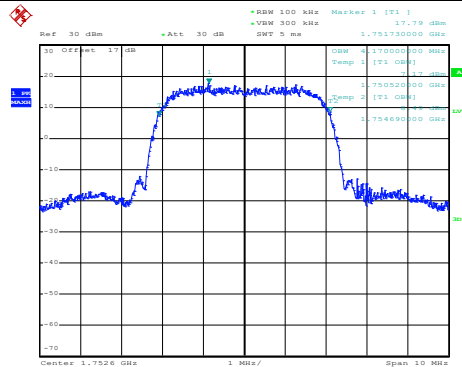
Date: 17.DEC.2020 13:53:52

Middle Channel



Date: 17.DEC.2020 13:54:29

Highest Channel

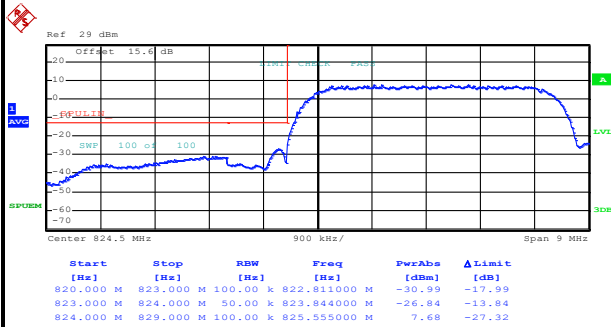


Date: 17.DEC.2020 13:55:15

Conducted Band Edge

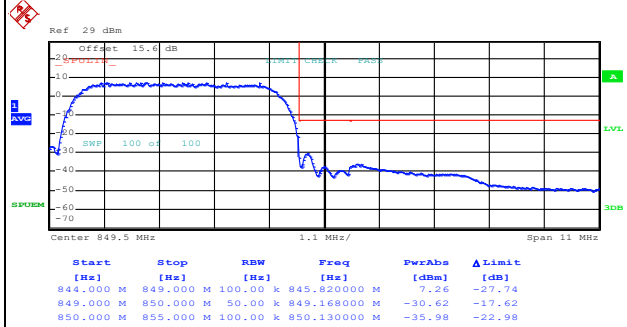
WCDMA Band V (RMC 12.2Kbps)

Lowest Band Edge



Date: 17.DEC.2020 12:13:24

Highest Band Edge

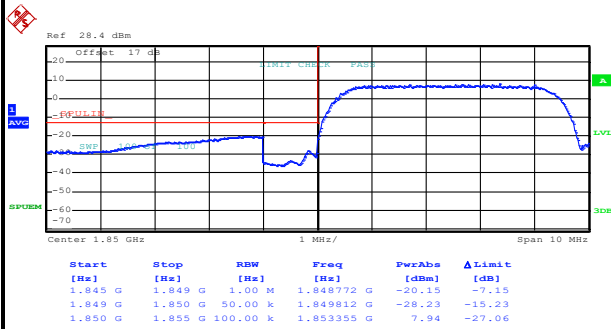


Date: 17.DEC.2020 12:16:20



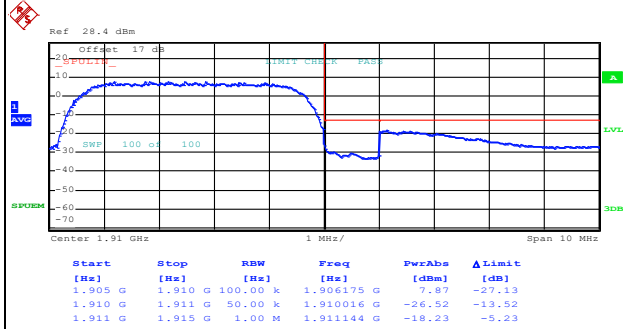
WCDMA Band II (RMC 12.2Kbps)

Lowest Band Edge



Date: 17.DEC.2020 14:14:27

Highest Band Edge

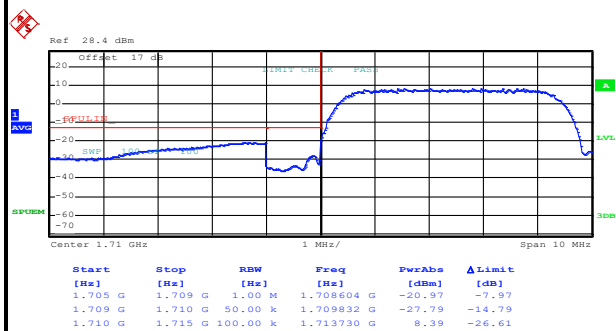


Date: 17.DEC.2020 14:17:22



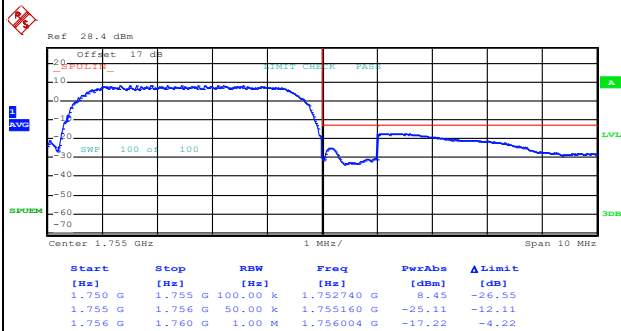
WCDMA Band IV (RMC 12.2Kbps)

Lowest Band Edge

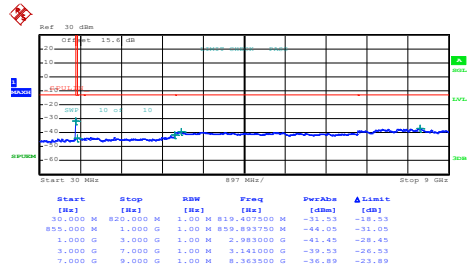


Date: 17.DEC.2020 13:58:12

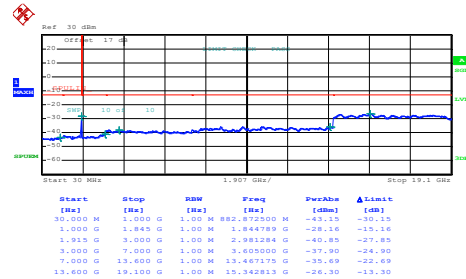
Highest Band Edge



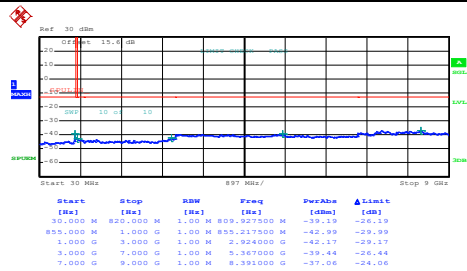
Date: 17.DEC.2020 14:01:06

**Conducted Spurious Emission****WCDMA Band V (RMC 12.2Kbps)****Lowest Channel**

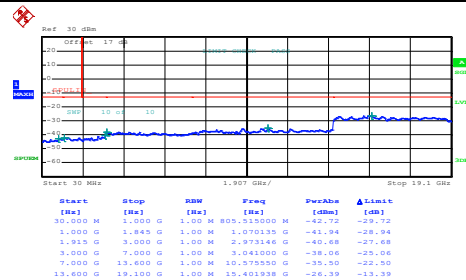
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WCDMA Band II (RMC 12.2Kbps)**Lowest Channel**

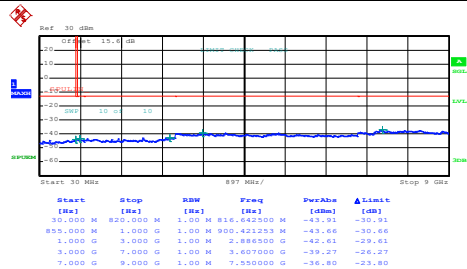
Date: 17.DEC.2020 14:07:07

Middle Channel

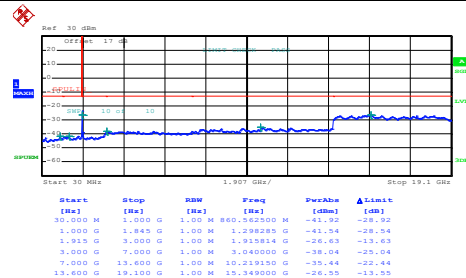
Date: 17.DEC.2020 11:54:54

Middle Channel

Date: 17.DEC.2020 14:08:09

Highest Channel

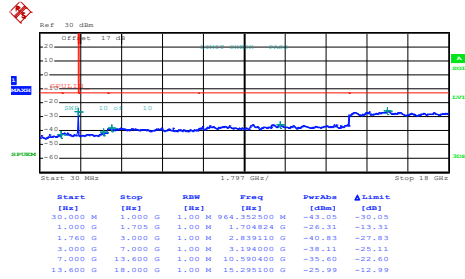
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Highest Channel

Date: 17.DEC.2020 14:09:09

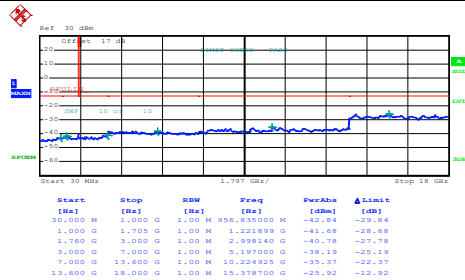
WCDMA Band IV (RMC 12.2Kbps)

Lowest Channel



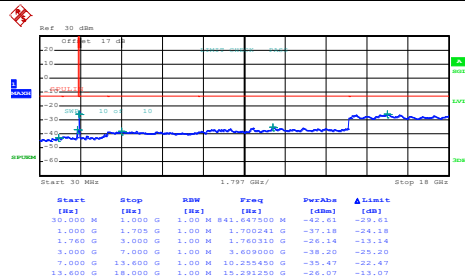
Date: 17.DEC.2020 13:39:26

Middle Channel



Date: 17.DEC.2020 13:40:21

Highest Channel



Date: 17.DEC.2020 13:41:17

**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	0.0167	PASS
40	Normal Voltage	0.0072	
30	Normal Voltage	0.0024	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0000	
0	Normal Voltage	0.0024	
-10	Normal Voltage	0.0024	
-20	Normal Voltage	0.0036	
-30	Normal Voltage	0.0036	
20	Maximum Voltage	0.0024	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0012	



Test Conditions	Middle Channel	WCDMA Band II (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0048	PASS
40	Normal Voltage	0.0032	
30	Normal Voltage	0.0027	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0000	
0	Normal Voltage	0.0016	
-10	Normal Voltage	0.0016	
-20	Normal Voltage	0.0027	
-30	Normal Voltage	0.0027	
20	Maximum Voltage	0.0021	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0011	

Note:

1. Normal Voltage = 3.8V. ; Battery End Point (BEP) = 3.4 V. ; Maximum Voltage =4.35 V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

Test Conditions	Middle Channel	WCDMA Band IV (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0358	PASS
40	Normal Voltage	0.0294	
30	Normal Voltage	0.0040	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0006	
0	Normal Voltage	0.0035	
-10	Normal Voltage	0.0040	
-20	Normal Voltage	0.0040	
-30	Normal Voltage	0.0063	
20	Maximum Voltage	0.0006	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0006	

Note:

1. Normal Voltage = 3.8V. ; Battery End Point (BEP) = 3.4 V. ; Maximum Voltage =4.35 V
2. The frequency fundamental emissions stay within the authorized frequency block.



Appendix B. Test Results of ERP/EIRP and Radiated Test

ERP/EIRP

<Main Antenna>

Channel	Mode	Conducted		ERP	
		Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	GSM850	32.15	1.6406	29.20	0.8318
Middle	GPRS class 8	32.08	1.6144	29.13	0.8185
Highest	(GT - LC = -0.8 dB)	32.09	1.6181	29.14	0.8204
Lowest	GSM850	26.18	0.4150	23.23	0.2104
Middle	EDGE class 8	26.21	0.4178	23.26	0.2118
Highest	(GT - LC = -0.8 dB)	25.97	0.3954	23.02	0.2004
Lowest	WCDMA Band V	23.54	0.2259	20.59	0.1146
Middle	RMC 12.2Kbps	23.44	0.2208	20.49	0.1119
Highest	(GT - LC = -0.8 dB)	23.39	0.2183	20.44	0.1107
Limit	ERP < 7W	Result		PASS	

Channel	Mode	Conducted		EIRP	
		Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	GSM1900	29.33	0.8570	32.23	1.6711
Middle	GPRS class 8	29.38	0.8670	32.28	1.6904
Highest	(GT - LC = 2.9 dB)	29.30	0.8511	32.20	1.6596
Lowest	GSM1900	25.24	0.3342	28.14	0.6516
Middle	EDGE class 8	25.40	0.3467	28.30	0.6761
Highest	(GT - LC = 2.9 dB)	25.24	0.3342	28.14	0.6516
Lowest	WCDMA Band II	23.54	0.2259	26.44	0.4406
Middle	RMC 12.2Kbps	23.43	0.2203	26.33	0.4295
Highest	(GT - LC = 2.9 dB)	23.41	0.2193	26.31	0.4276
Limit	EIRP < 2W	Result		PASS	

Channel	Mode	Conducted		EIRP	
		Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	WCDMA Band IV	23.39	0.2183	26.29	0.4256
Middle	RMC 12.2Kbps	23.42	0.2198	26.32	0.4285
Highest	(GT - LC = 2.9 dB)	23.59	0.2286	26.49	0.4457
Limit	EIRP < 1W	Result		PASS	

**<Diversity Antenna>**

Channel	Mode	Conducted		EIRP	
		Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	WCDMA Band IV	21.74	0.1493	20.04	0.1009
Middle	RMC 12.2Kbps	21.80	0.1514	20.10	0.1023
Highest	(GT - LC = -1.7 dB)	21.90	0.1549	20.20	0.1047
Limit	EIRP < 1W	Result		PASS	

**Radiated Spurious Emission**

<Main Antenna>

GPRS 850

GPRS 850									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1648	-41.97	-13	-28.97	-50.42	-47.56	0.92	8.66	H
	2472	-48.77	-13	-35.77	-62.28	-56.14	1.14	10.66	H
	3296	-54.07	-13	-41.07	-69.41	-62.61	1.32	12.01	H
									H
									H
									H
	1648	-45.02	-13	-32.02	-52.94	-50.61	0.92	8.66	V
	2472	-47.79	-13	-34.79	-61.45	-55.16	1.14	10.66	V
	3296	-53.71	-13	-40.71	-69.52	-62.25	1.32	12.01	V
									V
									V
									V
Middle	1672	-29.53	-13	-16.53	-38.05	-35.21	0.93	8.75	H
	2509	-39.96	-13	-26.96	-53.52	-47.37	1.15	10.71	H
	3345	-44.35	-13	-31.35	-59.54	-53.00	1.33	12.13	H
									H
									H
									H
	1672	-28.95	-13	-15.95	-36.84	-34.63	0.93	8.75	V
	2509	-37.87	-13	-24.87	-51.63	-45.28	1.15	10.71	V
	3345	-43.90	-13	-30.90	-59.55	-52.55	1.33	12.13	V
									V
									V
									V



Highest	1697	-46.36	-13	-33.36	-54.95	-52.12	0.94	8.85	H
	2546	-47.54	-13	-34.54	-61.12	-54.98	1.16	10.76	H
	3395	-53.71	-13	-40.71	-68.77	-62.47	1.34	12.25	H
									H
									H
									H
	1697	-46.69	-13	-33.69	-54.56	-52.45	0.94	8.85	V
	2546	-47.88	-13	-34.88	-61.56	-55.32	1.16	10.76	V
	3395	-53.59	-13	-40.59	-69.08	-62.35	1.34	12.25	V
									V
									V
									V

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

**EDGE 850**

EDGE 850									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1648	-49.30	-13	-36.30	-57.75	-54.89	0.92	8.66	H
	2472	-57.57	-13	-44.57	-71.08	-64.94	1.14	10.66	H
	3296	-57.85	-13	-44.85	-73.19	-66.39	1.32	12.01	H
									H
									H
									H
									H
	1648	-52.58	-13	-39.58	-60.5	-58.17	0.92	8.66	V
	2472	-57.05	-13	-44.05	-70.71	-64.42	1.14	10.66	V
	3296	-57.06	-13	-44.06	-72.87	-65.60	1.32	12.01	V
									V
									V
									V
									V
Middle	1672	-48.17	-13	-35.17	-56.69	-53.85	0.93	8.75	H
	2509	-57.17	-13	-44.17	-70.73	-64.58	1.15	10.71	H
	3345	-57.69	-13	-44.69	-72.88	-66.34	1.33	12.13	H
									H
									H
									H
									H
	1672	-50.86	-13	-37.86	-58.75	-56.54	0.93	8.75	V
	2509	-56.23	-13	-43.23	-69.99	-63.64	1.15	10.71	V
	3345	-57.31	-13	-44.31	-72.96	-65.96	1.33	12.13	V
									V
									V
									V
									V



Highest	1697	-53.67	-13	-40.67	-62.26	-59.43	0.94	8.85	H
	2546	-59.38	-13	-46.38	-72.96	-66.82	1.16	10.76	H
	3395	-57.80	-13	-44.80	-72.86	-66.56	1.34	12.25	H
									H
									H
									H
									H
	1697	-49.31	-13	-36.31	-57.18	-55.07	0.94	8.85	V
	2546	-56.43	-13	-43.43	-70.11	-63.87	1.16	10.76	V
	3395	-57.13	-13	-44.13	-72.62	-65.89	1.34	12.25	V
									V
									V
									V
									V

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

**WCDMA Band V**

WCDMA 850									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1652	-50.68	-13	-37.68	-59.14	-56.29	0.92	8.68	H
	2479	-56.87	-13	-43.87	-70.4	-64.25	1.15	10.67	H
	3305	-57.52	-13	-44.52	-72.83	-66.08	1.32	12.03	H
									H
									H
									H
									H
	1652	-52.39	-13	-39.39	-60.31	-58.00	0.92	8.68	V
	2479	-56.66	-13	-43.66	-70.36	-64.04	1.15	10.67	V
	3305	-56.84	-13	-43.84	-72.62	-65.40	1.32	12.03	V
									V
									V
									V
									V
Middle	1672	-51.03	-13	-38.03	-59.55	-56.71	0.93	8.75	H
	2509	-58.01	-13	-45.01	-71.57	-65.42	1.15	10.71	H
	3345	-57.64	-13	-44.64	-72.83	-66.29	1.33	12.13	H
									H
									H
									H
									H
	1672	-52.41	-13	-39.41	-60.3	-58.09	0.93	8.75	V
	2509	-56.81	-13	-43.81	-70.57	-64.22	1.15	10.71	V
	3345	-57.18	-13	-44.18	-72.83	-65.83	1.33	12.13	V
									V
									V
									V
									V



Highest	1693	-51.96	-13	-38.96	-60.54	-57.71	0.94	8.83	H
	2539	-58.53	-13	-45.53	-72.1	-65.97	1.16	10.75	H
	3386	-58.02	-13	-45.02	-73.1	-66.76	1.34	12.23	H
									H
									H
									H
									H
	1693	-53.94	-13	-40.94	-61.82	-59.69	0.94	8.83	V
	2539	-57.11	-13	-44.11	-70.81	-64.55	1.16	10.75	V
	3386	-57.25	-13	-44.25	-72.77	-65.99	1.34	12.23	V
									V
									V
									V
									V

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

**WCDMA Band IV**

WCDMA 1700									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3424	-57.02	-13	-44.02	-72.98	-67.99	1.35	12.32	H
	5137	-49.50	-13	-36.50	-71.45	-60.65	1.65	12.79	H
	6849	-35.09	-13	-22.09	-60.49	-45.46	1.74	12.11	H
									H
									H
									H
									H
	3424	-55.98	-13	-42.98	-72.36	-66.95	1.35	12.32	V
	5137	-51.22	-13	-38.22	-72.92	-62.37	1.65	12.79	V
	6849	-40.31	-13	-27.31	-65.31	-50.68	1.74	12.11	V
									V
									V
									V
									V
Middle	3465	-56.52	-13	-43.52	-72.88	-67.58	1.35	12.42	H
	5197	-48.46	-13	-35.46	-70.39	-59.67	1.66	12.88	H
	6930	-34.72	-13	-21.72	-60.53	-44.99	1.73	12.00	H
	8663	-45.63	-13	-32.63	-73.81	-55.70	2.07	12.13	H
									H
									H
									H
	3465	-54.94	-13	-41.94	-71.69	-66.00	1.35	12.42	V
	5197	-51.24	-13	-38.24	-73	-62.45	1.66	12.88	V
	6930	-37.39	-13	-24.39	-62.75	-47.66	1.73	12.00	V
	8663	-42.11	-13	-29.11	-71.04	-52.18	2.07	12.13	V
									V
									V



Highest	3505	-56.63	-13	-43.63	-73.36	-67.77	1.36	12.50	H
	5257	-49.28	-13	-36.28	-71.42	-60.56	1.68	12.96	H
	7010	-35.48	-13	-22.48	-61.68	-45.64	1.73	11.88	H
	8763	-44.83	-13	-31.83	-73.33	-54.85	2.07	12.09	H
									H
									H
									H
	3505	-56.31	-13	-43.31	-73.38	-67.45	1.36	12.50	V
	5257	-52.18	-13	-39.18	-74.09	-63.46	1.68	12.96	V
	7010	-37.93	-13	-24.93	-63.65	-48.09	1.73	11.88	V
	8763	-41.47	-13	-28.47	-70.66	-51.49	2.07	12.09	V
									V
									V
									V

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

**GPRS 1900**

GPRS 1900									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3700	-56.41	-13	-43.41	-74.33	-67.62	1.41	12.62	H
	5550	-51.28	-13	-38.28	-74.46	-62.84	1.74	13.30	H
	7400	-47.46	-13	-34.46	-74.29	-56.78	1.94	11.26	H
									H
									H
									H
									H
	3700	-55.97	-13	-42.97	-74.03	-67.18	1.41	12.62	V
	5550	-51.84	-13	-38.84	-74.54	-63.40	1.74	13.30	V
	7400	-47.33	-13	-34.33	-74	-56.65	1.94	11.26	V
									V
									V
									V
									V
Middle	3760	-55.76	-13	-42.76	-73.95	-66.99	1.43	12.66	H
	5640	-51.72	-13	-38.72	-74.94	-63.29	1.73	13.30	H
	7520	-47.46	-13	-34.46	-73.73	-56.57	1.99	11.10	H
									H
									H
									H
									H
	3760	-55.73	-13	-42.73	-74.14	-66.96	1.43	12.66	V
	5640	-51.86	-13	-38.86	-74.67	-63.43	1.73	13.30	V
	7520	-48.06	-13	-35.06	-74.29	-57.17	1.99	11.10	V
									V
									V
									V
									V



Highest	3819	-55.62	-13	-42.62	-74.03	-66.87	1.44	12.69	H
	5729	-51.20	-13	-38.20	-74.88	-62.77	1.73	13.30	H
	7639	-48.51	-13	-35.51	-74.37	-57.63	2.01	11.13	H
									H
									H
									H
									H
	3819	-55.06	-13	-42.06	-73.71	-66.31	1.44	12.69	V
	5729	-51.86	-13	-38.86	-74.9	-63.43	1.73	13.30	V
	7639	-48.49	-13	-35.49	-74.26	-57.61	2.01	11.13	V
									V
									V
									V
									V

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

**EDGE1900**

EDGE 1900									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3700	-53.56	-13	-40.56	-71.48	-64.77	1.41	12.62	H
	5550	-47.53	-13	-34.53	-70.71	-59.09	1.74	13.30	H
	7400	-45.91	-13	-32.91	-72.74	-55.23	1.94	11.26	H
									H
									H
									H
									H
	3700	-47.57	-13	-34.57	-65.63	-58.78	1.41	12.62	V
	5550	-40.71	-13	-27.71	-63.41	-52.27	1.74	13.30	V
	7400	-43.55	-13	-30.55	-70.22	-52.87	1.94	11.26	V
									V
									V
									V
									V
Middle	3760	-50.30	-13	-37.30	-68.49	-61.53	1.43	12.66	H
	5640	-46.29	-13	-33.29	-69.51	-57.86	1.73	13.30	H
	7520	-47.43	-13	-34.43	-73.7	-56.54	1.99	11.10	H
									H
									H
									H
									H
	3760	-47.88	-13	-34.88	-66.29	-59.11	1.43	12.66	V
	5640	-41.64	-13	-28.64	-64.45	-53.21	1.73	13.30	V
	7520	-43.03	-13	-30.03	-69.26	-52.14	1.99	11.10	V
									V
									V
									V
									V



Highest	3819	-51.34	-13	-38.34	-69.75	-62.59	1.44	12.69	H
	5729	-47.24	-13	-34.24	-70.92	-58.81	1.73	13.30	H
	7639	-47.87	-13	-34.87	-73.73	-56.99	2.01	11.13	H
									H
									H
									H
									H
	3819	-50.70	-13	-37.70	-69.35	-61.95	1.44	12.69	V
	5729	-40.96	-13	-27.96	-64	-52.53	1.73	13.30	V
	7639	-45.63	-13	-32.63	-71.4	-54.75	2.01	11.13	V
									V
									V
									V
									V

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



WCDMA Band II

WCDMA 1900									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3704	-55.44	-13	-42.44	-73.39	-66.65	1.41	12.62	H
	5557	-50.63	-13	-37.63	-73.78	-62.19	1.74	13.30	H
	7409	-46.34	-13	-33.34	-73.13	-55.64	1.94	11.25	H
	9262	-45.42	-13	-32.42	-74.43	-54.99	2.17	11.74	H
									H
									H
									H
	3704	-55.58	-13	-42.58	-73.68	-66.79	1.41	12.62	V
	5557	-47.37	-13	-34.37	-70.07	-58.93	1.74	13.30	V
	7409	-41.30	-13	-28.30	-67.94	-50.60	1.94	11.25	V
	9262	-42.30	-13	-29.30	-72.36	-51.87	2.17	11.74	V
									V
									V
									V
Middle	3760	-54.84	-13	-41.84	-73.03	-66.07	1.43	12.66	H
	5640	-48.76	-13	-35.76	-71.98	-60.33	1.73	13.30	H
	7520	-47.05	-13	-34.05	-73.32	-56.16	1.99	11.10	H
	9400	-45.14	-13	-32.14	-74.18	-54.52	2.22	11.60	H
									H
									H
									H
	3760	-54.62	-13	-41.62	-73.03	-65.85	1.43	12.66	V
	5640	-47.54	-13	-34.54	-70.35	-59.11	1.73	13.30	V
	7520	-44.01	-13	-31.01	-70.24	-53.12	1.99	11.10	V
	9400	-42.24	-13	-29.24	-72.56	-51.62	2.22	11.60	V
									V
									V
									V



Highest	3815	-54.62	-13	-41.62	-73.02	-65.87	1.44	12.69	H
	5722	-48.56	-13	-35.56	-72.2	-60.13	1.73	13.30	H
	7630	-47.65	-13	-34.65	-73.5	-56.77	2.01	11.13	H
	9535	-43.90	-13	-30.90	-73.07	-53.13	2.26	11.49	H
									H
									H
									H
	3815	-53.42	-13	-40.42	-72.06	-64.67	1.44	12.69	V
	5722	-45.78	-13	-32.78	-68.8	-57.35	1.73	13.30	V
	7630	-46.93	-13	-33.93	-72.7	-56.05	2.01	11.13	V
	9535	-41.00	-13	-28.00	-71.43	-50.23	2.26	11.49	V
									V
									V
									V

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



<Diversity Antenna>

WCDMA Band IV

WCDMA 1700									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3424	-55.96	-13	-42.96	-71.92	-66.93	1.35	12.32	H
	5137	-50.67	-13	-37.67	-72.62	-61.82	1.65	12.79	H
	6849	-40.07	-13	-27.07	-65.47	-50.44	1.74	12.11	H
									H
									H
									H
	3424	-55.44	-13	-42.44	-71.82	-66.41	1.35	12.32	V
	5137	-49.81	-13	-36.81	-71.51	-60.96	1.65	12.79	V
	6849	-35.86	-13	-22.86	-60.86	-46.23	1.74	12.11	V
									V
									V
									V
Middle	3465	-55.26	-13	-42.26	-71.62	-66.32	1.35	12.42	H
	5197	-50.36	-13	-37.36	-72.29	-61.57	1.66	12.88	H
	6930	-38.43	-13	-25.43	-64.24	-48.70	1.73	12.00	H
	8663	-44.58	-13	-31.58	-72.76	-54.65	2.07	12.13	H
									H
									H
	3465	-55.44	-13	-42.44	-72.19	-66.50	1.35	12.42	V
	5197	-48.73	-13	-35.73	-70.49	-59.94	1.66	12.88	V
	6930	-34.26	-13	-21.26	-59.62	-44.53	1.73	12.00	V
	8663	-44.53	-13	-31.53	-73.46	-54.60	2.07	12.13	V
									V
									V



Highest	3505	-55.82	-13	-42.82	-72.55	-66.96	1.36	12.50	H
	5257	-51.56	-13	-38.56	-73.7	-62.84	1.68	12.96	H
	7010	-37.88	-13	-24.88	-64.08	-48.04	1.73	11.88	H
	8763	-41.79	-13	-28.79	-70.29	-51.81	2.07	12.09	H
									H
									H
	3505	-55.46	-13	-42.46	-72.53	-66.60	1.36	12.50	V
	5257	-50.33	-13	-37.33	-72.24	-61.61	1.68	12.96	V
	7010	-35.63	-13	-22.63	-61.35	-45.79	1.73	11.88	V
	8763	-44.18	-13	-31.18	-73.37	-54.20	2.07	12.09	V
									V
									V

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