



FCC RADIO TEST REPORT

FCC ID : A4RG020PQ
Equipment : Phone
Model Name : G020P, G020Q
Applicant : Google LLC
1600 Amphitheatre Parkway,
Mountain View, California, 94043 USA
Standard : 47 CFR Part 2, 22(H), 24(E), 27(L)

The product was received on Nov. 07, 2018 and testing was started from Apr. 27, 2019 and completed on Jun. 14, 2019. 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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.

Approved by: Jones Tsai

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
FG8N0620-06A	01	Initial issue of report	Jul. 05, 2019

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		
	§24.232 (c)	Equivalent Isotropic Radiated Power		
	§27.50 (d)(4)	Equivalent Isotropic Radiated Power		
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	Pass	-
3.5	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g)	Band Edge Measurement	Pass	-
3.6	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g)	Conducted Emission	Pass	-
3.7	§2.1055 §22.355	Frequency Stability Temperature & Voltage	Pass	-
	§2.1055 §24.235 §27.54			-
4.4	§2.1053 §22.917 (a) §24.238 (a) §27.53 (h)	Field Strength of Spurious Radiation	Pass	Under limit 19.01 dB at 2544.000 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: Aileen Huang

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Phone
Model Name	G020P, G020Q
FCC ID	A4RG020PQ
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE/NFC/GNSS/WPC WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE 60 GHz Low Power Transmitter
EUT Stage	Identical Prototype

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

EUT Information List	
No.	S/N
#1	931BA06963
#2	958BA00AM9

1.2 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	GSM/GPRS/EDGE: 850: 824.2 MHz ~ 848.8 MHz 1900: 1850.2 MHz ~ 1909.8 MHz WCDMA: Band V: 826.4 MHz ~ 846.6 MHz Band II: 1852.4 MHz ~ 1907.6 MHz Band IV: 1712.4 MHz ~ 1752.6 MHz
Rx Frequency	GSM/GPRS/EDGE: 850: 869.2 MHz ~ 893.8 MHz 1900: 1930.2 MHz ~ 1989.8 MHz WCDMA: Band V: 871.4 MHz ~ 891.6 MHz Band II: 1932.4 MHz ~ 1987.6 MHz Band IV: 2112.4 MHz ~ 2152.6 MHz
Maximum Output Power to Antenna	GSM/GPRS/EDGE: 850: 32.74 dBm 1900: 29.61 dBm WCDMA: Band V: 24.05 dBm Band II: 24.38 dBm Band IV: 24.35 dBm

Standards-related Product Specification	
Antenna Type / Gain	<Ant. 0_B> PCS Band : ILA Antenna type with gain 0.7 dBi AWS Band : ILA Antenna type with gain 0.5 dBi <Ant. 0_C> Cellular Band : IFA Antenna type with gain 1.4 dBi AWS Band : IFA Antenna type with gain 0.7 dBi <Ant. 1> Cellular Band : IFA Antenna type with gain -3.1 dBi PCS Band : IFA Antenna type with gain 1.2 dBi AWS Band : IFA Antenna type with gain 0.2 dBi
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: BPSK (Uplink) HSDPA: 64QAM (Downlink) HSUPA: QPSK (Uplink)

1.3 Modification of EUT

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

1.4 Testing Location

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory	
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	Sporton Site No.	
	TH03-HY	03CH07-HY
Test Engineer	George Chen	Jesse Wang, Stand Hsieh, Troye Hsieh and Ken Wu
Temperature	21~24°C	21~24°C
Relative Humidity	51~55%	52~55%

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

FCC Designation No.: TW1190



1.5 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
- ♦ 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

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.

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.

or radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z with Accessory (Earphone or Adapter). The worst cases of panels were recorded in this report:

<Adapter Mode>

Cellular Band	PCS Band	AWS Band
-	Y plane for Ant. 0_B	X plane for Ant. 0_B
X plane for Ant. 0_C	-	Z plane for Ant. 0_C
X plane for Ant. 1	X plane for Ant. 1	X plane for Ant. 1
Z plane with WPC Charging Mode for Ant. 1		

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.

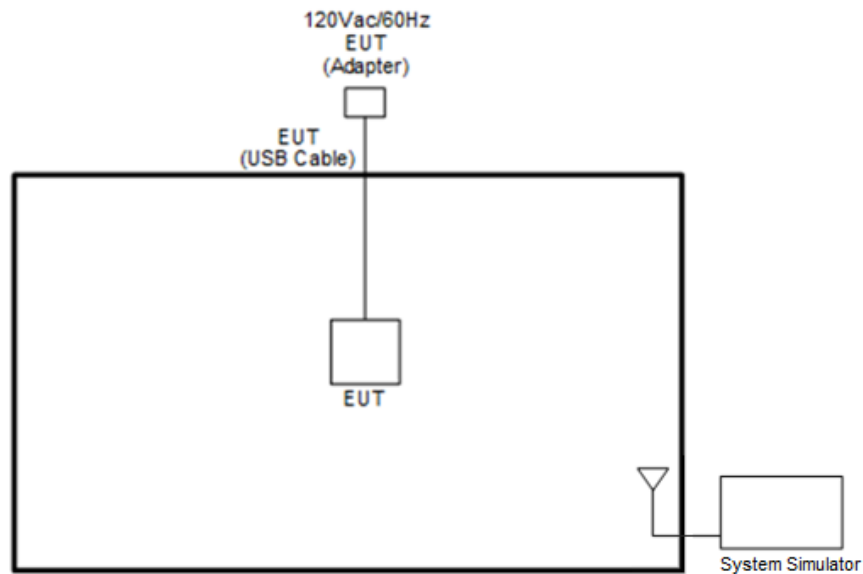
Test modes are chosen to be reported as the worst case configuration below:

Test Modes		
Band	Radiated TCs	Conducted TCs
GSM 850	■ GPRS Class 8 Link ■ EDGE Class 8 Link	■ GPRS Class 8 Link ■ EDGE Class 8 Link
GSM 1900	■ GPRS Class 8 Link ■ EDGE Class 8 Link	■ GPRS 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

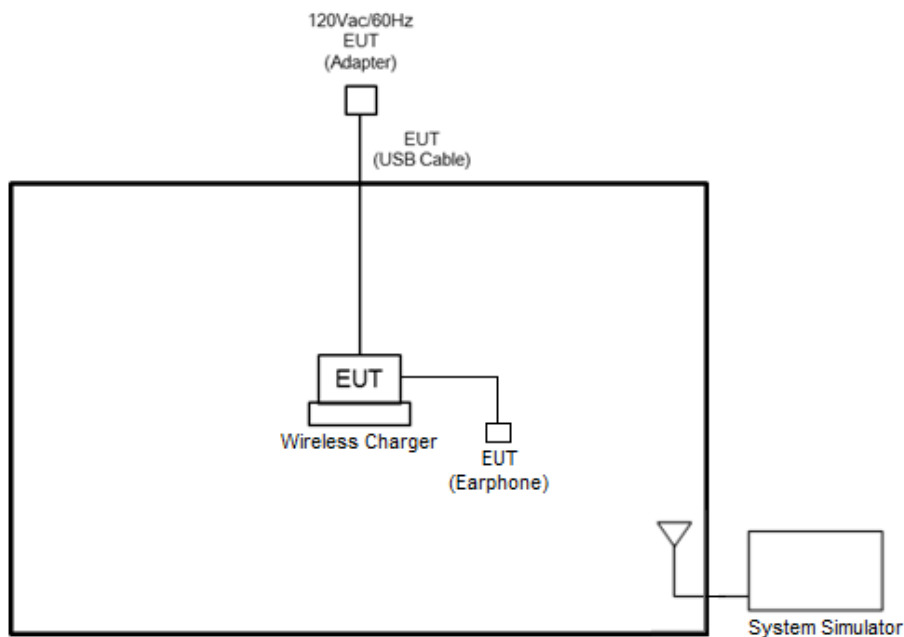
Remark: All the radiated test cases were performed with Adapter 1.

2.2 Connection Diagram of Test System

<For Adapter Mode>



<For WPC Charging Mode>





2.3 Support Unit used in test configuration

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m

2.4 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

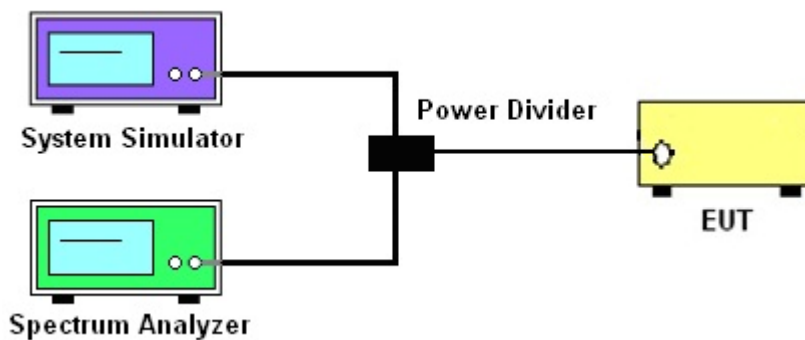
See list of measuring instruments of this test report.

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.

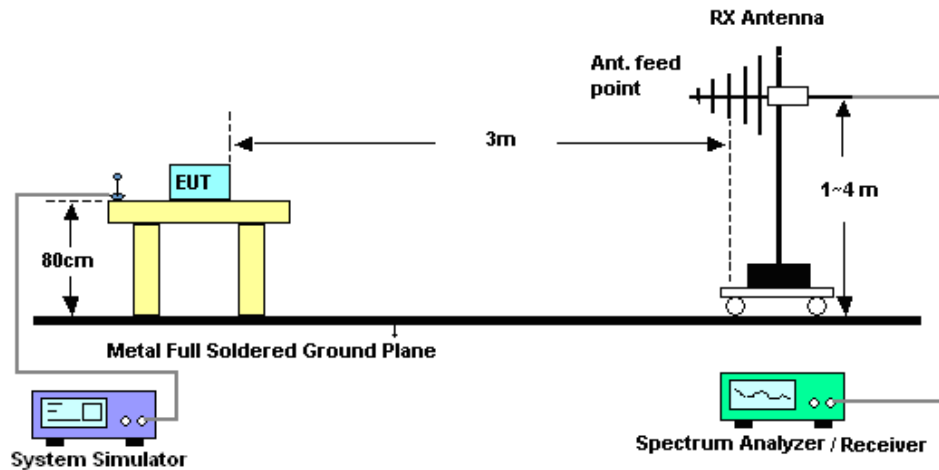
4 Radiated Test Items

4.1 Measuring Instruments

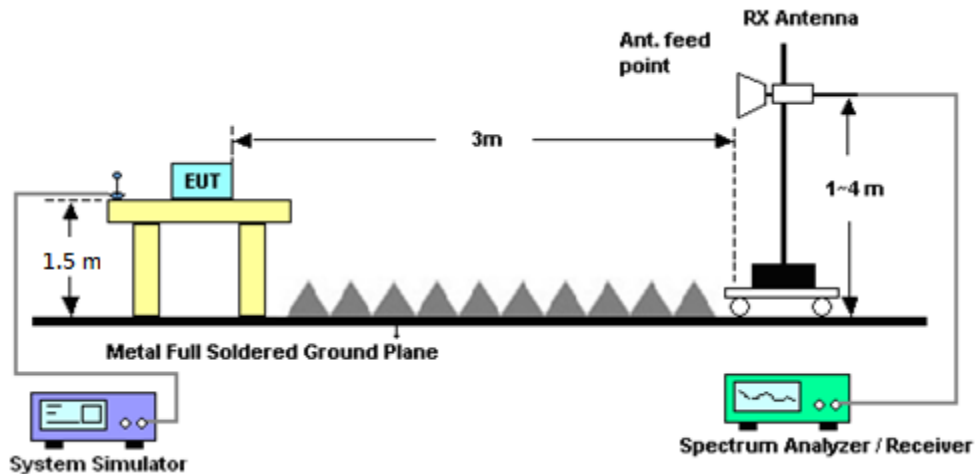
See list of measuring instruments of this test report.

4.2 Test Setup

For radiated test from 30MHz to 1GHz



For radiated test above 1GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.



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	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Bilog Antenna	Schaffner	CBL6111C&N-6-06	2725&AT-N0601	30MHz~1GHz	Jan. 10, 2019	May 28, 2019~Jun. 14 2019	Jan. 09, 2020	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Dec. 02, 2018	May 28, 2019~Jun. 14 2019	Dec. 03, 2019	Radiation (03CH07-HY)
EMI Test Receiver	Agilent	N9038A (MXE)	MY53290053	20Hz to 26.5GHz	Jan. 23, 2019	May 28, 2019~Jun. 14 2019	Jan. 22, 2020	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10MHz~1GHz	May 20, 2019	May 28, 2019~Jun. 14 2019	May 19, 2020	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Nov. 02, 2018	May 28, 2019~Jun. 14 2019	Nov. 01, 2019	Radiation (03CH07-HY)
Filter	Microwave	H1G013G1	SN477215	1.0G High Pass	Nov. 02, 2018	May 28, 2019~Jun. 14 2019	Nov. 01, 2019	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY28655/4,MY24971/4,MY15682/4	30MHz~1GHz	Feb. 26, 2019	May 28, 2019~Jun. 14 2019	Feb. 25, 2020	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY28655/4,MY24971/4,MY15682/4	1GHz~18GHz	Feb. 26, 2019	May 28, 2019~Jun. 14 2019	Feb. 25, 2020	Radiation (03CH07-HY)
Antenna Mast	Max-Full	MFA520BS	N/A	1m~4m	N/A	May 28, 2019~Jun. 14 2019	N/A	Radiation (03CH07-HY)
Turn Table	ChainTek	Chaintek 3000	N/A	0~360 Degree	N/A	May 28, 2019~Jun. 14 2019	N/A	Radiation (03CH07-HY)
Horn Antenna	ESCO	3117	00143261	1GHz~18GHz	Jan. 07, 2019	May 28, 2019~Jun. 14 2019	Jan. 06, 2020	Radiation (03CH07-HY)
Software	Audix	E3 6.2009-8-24	80504004656H	N/A	N/A	May 28, 2019~Jun. 14 2019	N/A	Radiation (03CH07-HY)
Signal Generator	Anritsu	MG3694C	163401	0.1Hz~40GHz	Jan. 21, 2019	May 28, 2019~Jun. 14 2019	Jan. 20, 2020	Radiation (03CH07-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101329	9kHz~30GHz	Jun. 29, 2018	Apr. 27, 2019~May 04, 2019	Jun. 28, 2019	Conducted (TH03-HY)
Temperature Chamber	ESPEC	SU-641	92013721	-30℃ ~70℃	Nov. 28, 2018	Apr. 27, 2019~May 04, 2019	Nov. 27, 2019	Conducted (TH03-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL883644	Voltage:0~20V; Current:0~5A	Oct. 16, 2018	Apr. 27, 2019~May 04, 2019	Oct. 15, 2019	Conducted (TH03-HY)
Base Station (Measure)	Rohde & Schwarz	CMU200	117995	GSM / GPRS / WCDMA / CDMA	Aug. 10, 2018	Apr. 27, 2019~May 04, 2019	Aug. 09, 2019	Conducted (TH03-HY)



6 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.05
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.44
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.95
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Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

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	32.67	32.74	32.51	29.30	29.29	29.61
GPRS class 8	32.66	32.73	32.49	29.28	29.27	29.61
GPRS class 10	31.35	31.14	31.30	28.04	28.05	28.02
GPRS class 11	29.38	29.16	29.31	26.01	26.20	26.27
GPRS class 12	27.93	28.03	28.26	25.28	25.11	25.27
EGPRS class 8	26.69	26.86	26.78	25.27	25.24	25.28
EGPRS class 10	26.43	26.48	26.43	24.73	24.78	24.91
EGPRS class 11	24.27	24.48	24.38	24.01	23.85	23.76
EGPRS class 12	22.35	22.56	22.53	22.77	22.92	22.91

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	24.01	24.03	24.05	24.22	24.38	24.32
HSDPA Subtest-1	23.08	23.02	23.19	23.26	23.33	23.32
HSDPA Subtest-2	23.03	23.02	23.27	23.25	23.33	23.34
HSDPA Subtest-3	22.53	22.47	22.74	22.40	22.90	22.88
HSDPA Subtest-4	22.51	22.52	22.75	22.73	22.86	22.88
HSUPA Subtest-1	23.02	23.03	23.22	23.32	23.32	23.41
HSUPA Subtest-2	21.06	21.00	21.23	21.23	21.34	21.43
HSUPA Subtest-3	21.99	22.01	22.25	22.33	22.45	22.38
HSUPA Subtest-4	21.07	21.04	21.23	21.30	21.38	21.38
HSUPA Subtest-5	23.10	23.05	23.00	23.30	23.40	23.40



Conducted Power (*Unit: dBm)			
Band	WCDMA Band IV		
Channel	1312	1413	1513
Frequency	1712.4	1732.6	1752.6
RMC 12.2K	24.34	24.35	24.26
HSDPA Subtest-1	23.36	23.40	23.33
HSDPA Subtest-2	23.35	23.35	23.32
HSDPA Subtest-3	22.87	22.83	22.79
HSDPA Subtest-4	22.84	22.84	22.82
HSUPA Subtest-1	23.31	23.33	23.33
HSUPA Subtest-2	21.31	21.32	21.31
HSUPA Subtest-3	22.28	22.33	22.34
HSUPA Subtest-4	21.32	21.36	21.31
HSUPA Subtest-5	23.30	23.30	23.30



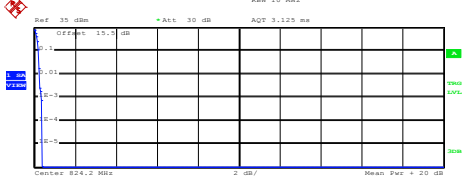
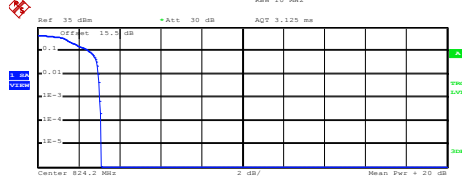
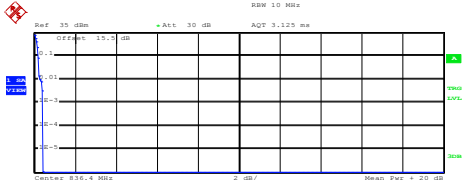
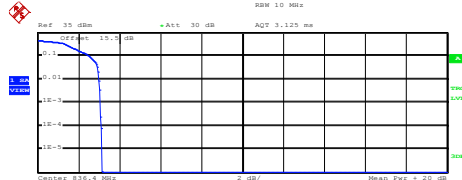
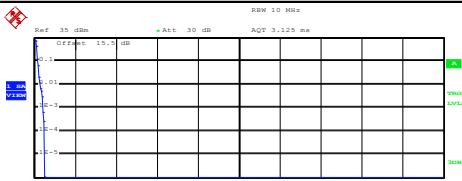
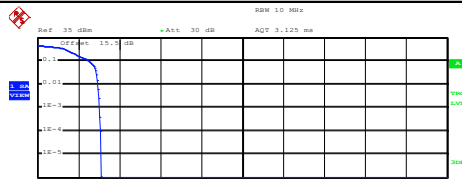
A2. GSM

Peak-to-Average Ratio

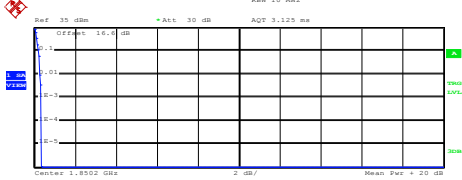
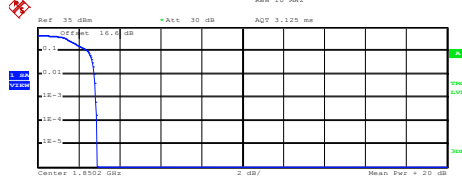
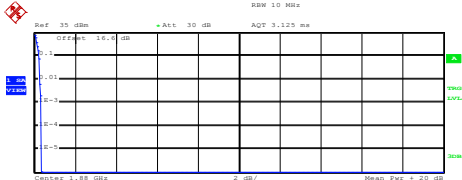
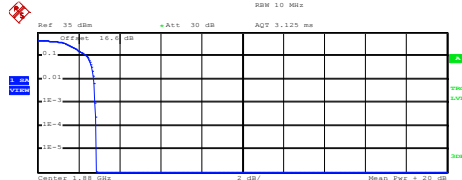
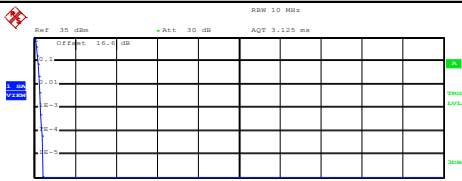
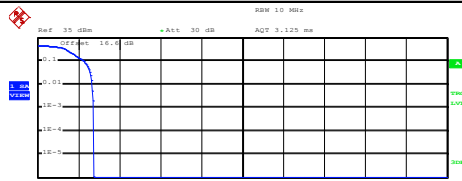
Mode	GSM850		Limit: 13dB
Mod.	GPRS class 8	EDGE class 8	Result
Lowest CH	0.36	3.04	PASS
Middle CH	0.44	3.08	
Highest CH	0.44	3.04	

Mode	GSM1900		Limit: 13dB
Mod.	GPRS class 8	EDGE class 8	Result
Lowest CH	0.36	2.84	PASS
Middle CH	0.36	2.80	
Highest CH	0.32	2.76	



GSM850 (GPRS class 8)		GSM850 (EDGE class 8)	
Lowest Channel		Lowest Channel	
 Ref: 35 dBm Att: 30 dB AGT: 3.125 ms Center: 824.2 MHz 2 dB/ Mean Pwr: +20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 30.84 dBm Peak: 31.23 dBm Crest: 0.39 dB 10 %: 0.20 dB 1 %: 0.28 dB .1 %: 0.36 dB .01 %: 0.40 dB Date: 27.APR.2019 10:39:15		 Ref: 35 dBm Att: 30 dB AGT: 3.125 ms Center: 824.2 MHz 2 dB/ Mean Pwr: +20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 25.32 dBm Peak: 28.41 dBm Crest: 3.09 dB 10 %: 2.52 dB 1 %: 2.96 dB .1 %: 3.04 dB .01 %: 3.12 dB Date: 27.APR.2019 11:36:27	
Middle Channel		Middle Channel	
 Ref: 35 dBm Att: 30 dB AGT: 3.125 ms Center: 835.4 MHz 2 dB/ Mean Pwr: +20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 31.51 dBm Peak: 31.94 dBm Crest: 0.43 dB 10 %: 0.20 dB 1 %: 0.28 dB .1 %: 0.44 dB .01 %: 0.44 dB Date: 27.APR.2019 10:41:14		 Ref: 35 dBm Att: 30 dB AGT: 3.125 ms Center: 835.4 MHz 2 dB/ Mean Pwr: +20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 25.14 dBm Peak: 28.27 dBm Crest: 3.13 dB 10 %: 2.52 dB 1 %: 3.00 dB .1 %: 3.08 dB .01 %: 3.12 dB Date: 27.APR.2019 11:36:50	
Highest Channel		Highest Channel	
 Ref: 35 dBm Att: 30 dB AGT: 3.125 ms Center: 848.8 MHz 2 dB/ Mean Pwr: +20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 31.36 dBm Peak: 31.87 dBm Crest: 0.51 dB 10 %: 0.16 dB 1 %: 0.28 dB .1 %: 0.44 dB .01 %: 0.52 dB Date: 27.APR.2019 10:41:39		 Ref: 35 dBm Att: 30 dB AGT: 3.125 ms Center: 848.8 MHz 2 dB/ Mean Pwr: +20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 25.11 dBm Peak: 28.20 dBm Crest: 3.09 dB 10 %: 2.52 dB 1 %: 2.96 dB .1 %: 3.04 dB .01 %: 3.08 dB Date: 27.APR.2019 11:37:06	



GSM1900 (GPRS class 8)		GSM1900 (EDGE class 8)	
Lowest Channel		Lowest Channel	
 Ref: 35 dBm Att: 30 dB AGT: 3.125 ms Center: 1.8502 GHz 2 dB/ Mean Per: +20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 27.92 dBm Peak: 28.27 dBm Crest: 0.35 dB 10 %: 0.20 dB 1 %: 0.28 dB .1 %: 0.36 dB .01 %: 0.36 dB Date: 27.APR.2019 12:03:15		 Ref: 35 dBm Att: 30 dB AGT: 3.125 ms Center: 1.8502 GHz 2 dB/ Mean Per: +20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 23.90 dBm Peak: 26.79 dBm Crest: 2.89 dB 10 %: 2.44 dB 1 %: 2.76 dB .1 %: 2.84 dB .01 %: 2.88 dB Date: 27.APR.2019 12:54:37	
Middle Channel		Middle Channel	
 Ref: 35 dBm Att: 30 dB AGT: 3.125 ms Center: 1.85 GHz 2 dB/ Mean Per: +20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 27.72 dBm Peak: 28.06 dBm Crest: 0.34 dB 10 %: 0.24 dB 1 %: 0.28 dB .1 %: 0.36 dB .01 %: 0.36 dB Date: 27.APR.2019 12:03:38		 Ref: 35 dBm Att: 30 dB AGT: 3.125 ms Center: 1.85 GHz 2 dB/ Mean Per: +20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 23.99 dBm Peak: 26.86 dBm Crest: 2.87 dB 10 %: 2.40 dB 1 %: 2.76 dB .1 %: 2.80 dB .01 %: 2.88 dB Date: 27.APR.2019 12:55:00	
Highest Channel		Highest Channel	
 Ref: 35 dBm Att: 30 dB AGT: 3.125 ms Center: 1.9098 GHz 2 dB/ Mean Per: +20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 27.49 dBm Peak: 27.91 dBm Crest: 0.43 dB 10 %: 0.20 dB 1 %: 0.28 dB .1 %: 0.32 dB .01 %: 0.40 dB Date: 27.APR.2019 12:04:02		 Ref: 35 dBm Att: 30 dB AGT: 3.125 ms Center: 1.9098 GHz 2 dB/ Mean Per: +20 dB Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 24.11 dBm Peak: 26.86 dBm Crest: 2.75 dB 10 %: 2.28 dB 1 %: 2.68 dB .1 %: 2.76 dB .01 %: 2.76 dB Date: 27.APR.2019 12:55:21	

**26dB Bandwidth**

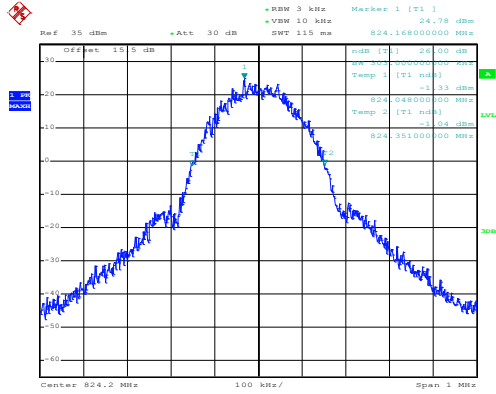
Mode	GSM850 : 26dB BW(kHz)	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.303	0.290
Middle CH	0.313	0.299
Highest CH	0.312	0.302

Mode	GSM1900 : 26dB BW(kHz)	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.289	0.310
Middle CH	0.306	0.309
Highest CH	0.302	0.301



GSM850 (GPRS class 8)

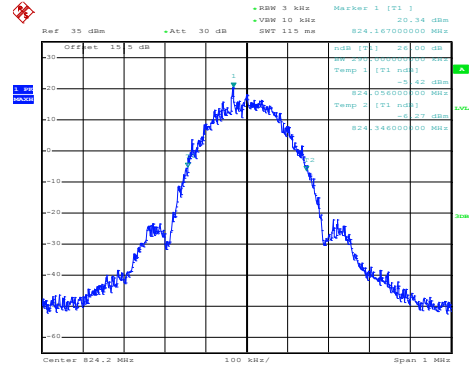
Lowest Channel



Date: 27.APR.2019 10:17:43

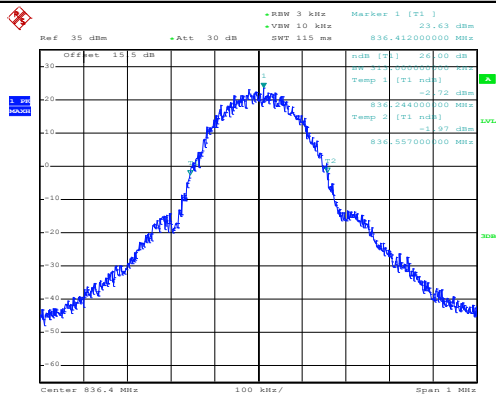
GSM850 (EDGE class 8)

Lowest Channel



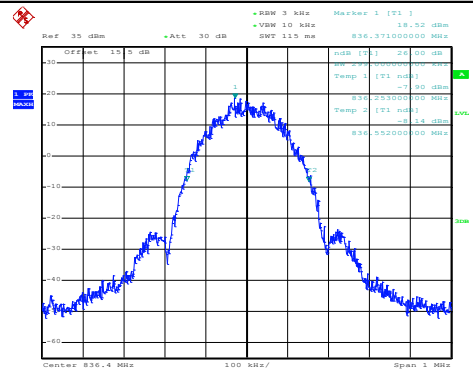
Date: 27.APR.2019 11:06:45

Middle Channel



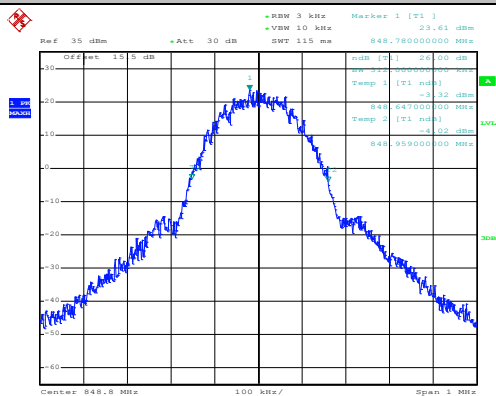
Date: 27.APR.2019 10:18:17

Middle Channel



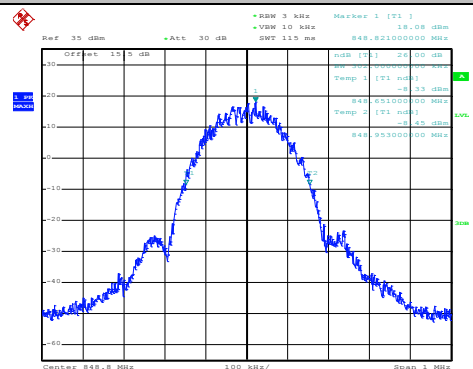
Date: 27.APR.2019 11:07:21

Highest Channel

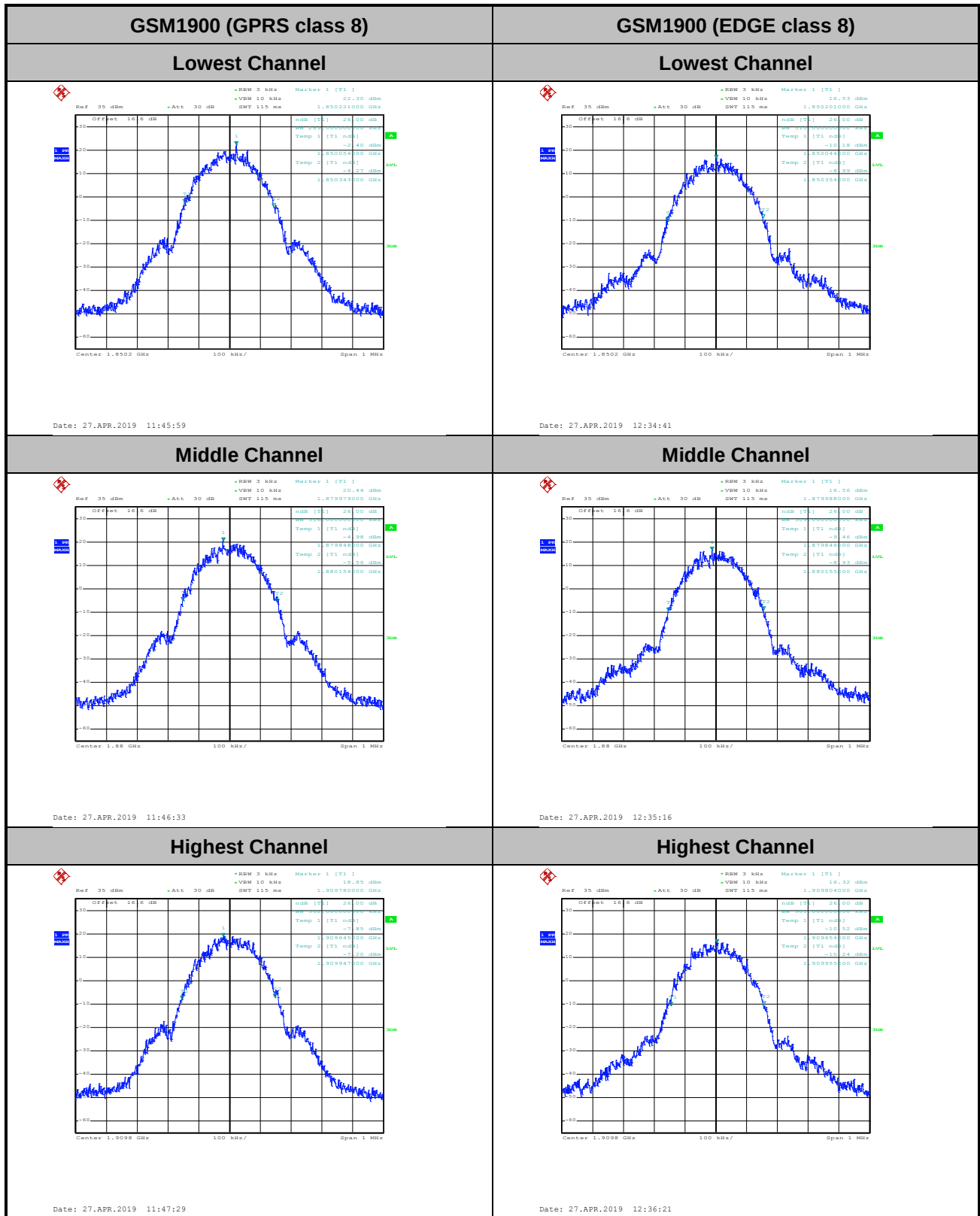


Date: 27.APR.2019 10:18:55

Highest Channel



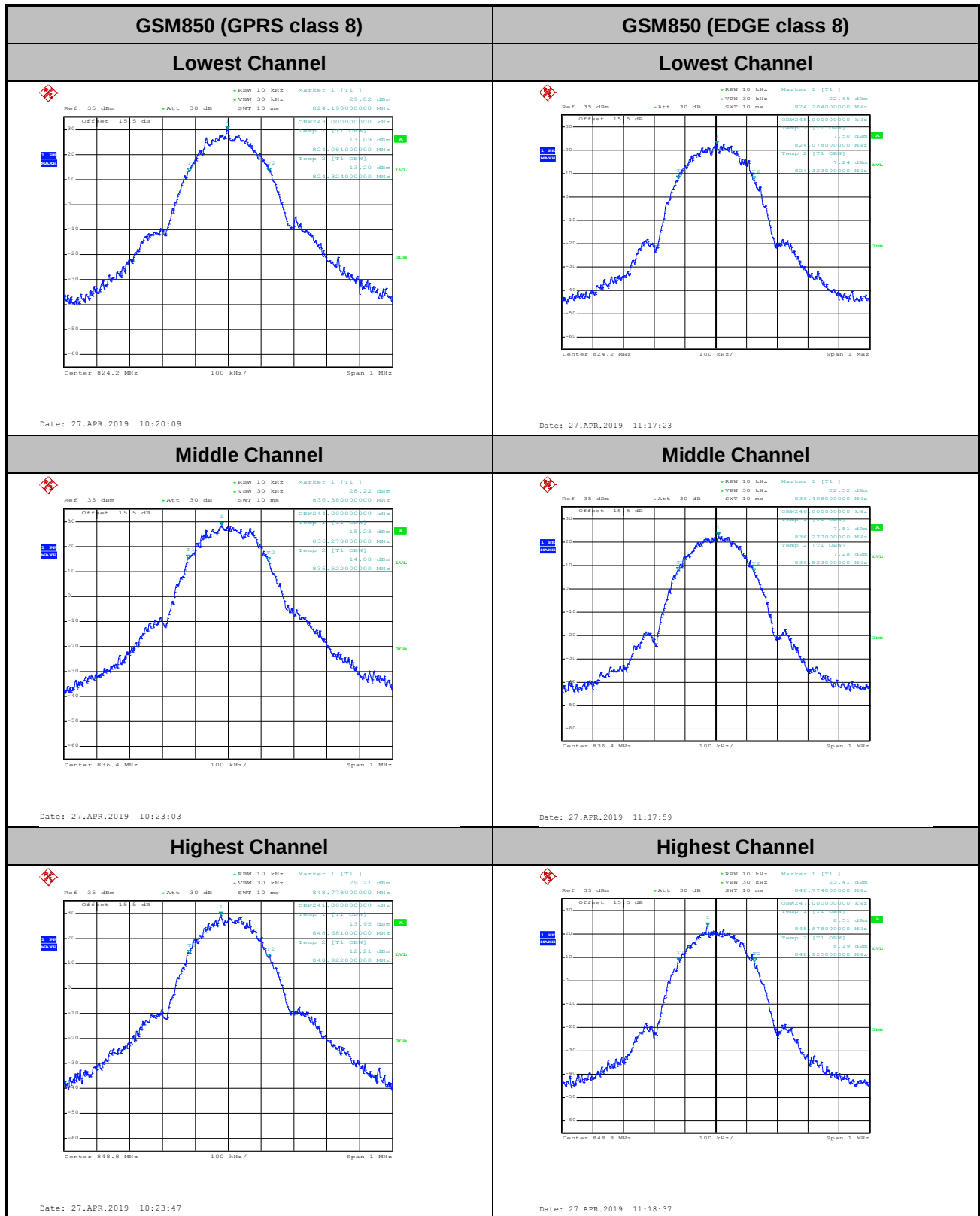
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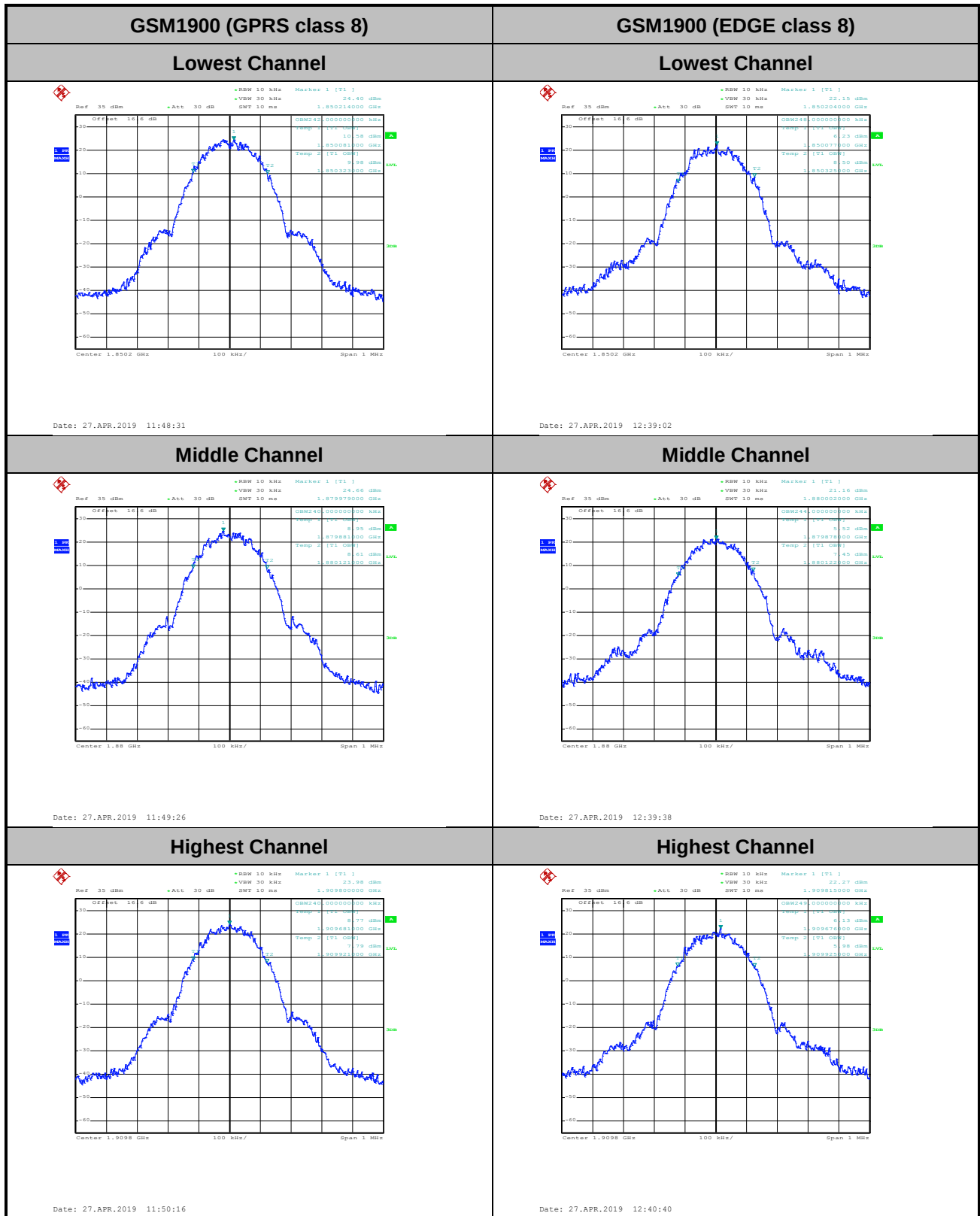


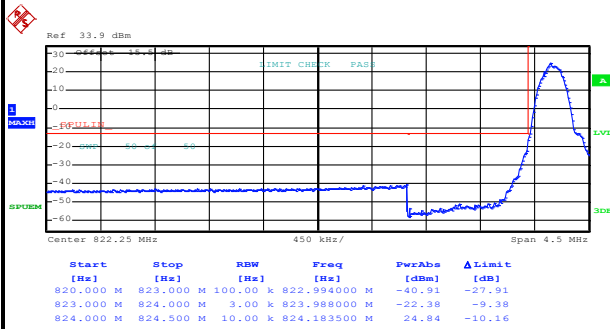
**Occupied Bandwidth**

Mode	GSM850 : 99% OBW(kHz)	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.243	0.245
Middle CH	0.244	0.246
Highest CH	0.241	0.247

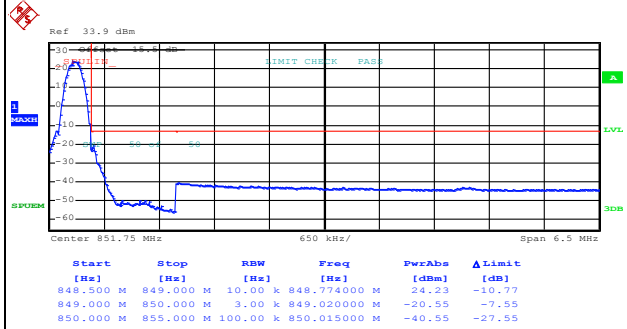
Mode	GSM1900 : 99% OBW(kHz)	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.242	0.248
Middle CH	0.240	0.244
Highest CH	0.240	0.249



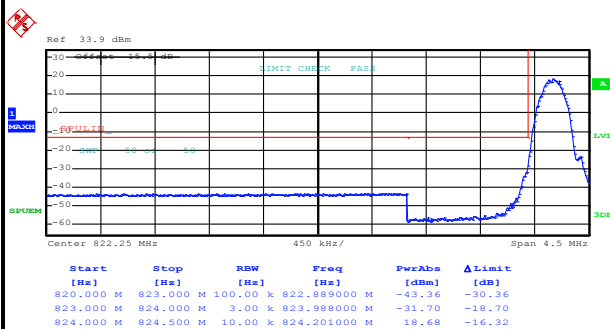


**Conducted Band Edge****GSM850 (GPRS class 8)****Lowest Band Edge**

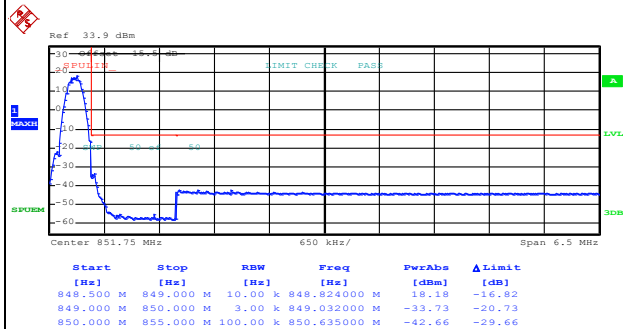
Date: 27.APR.2019 10:27:02

Highest Band Edge

Date: 27.APR.2019 10:29:58

GSM850 (EDGE class 8)**Lowest Band Edge**

Date: 27.APR.2019 11:26:03

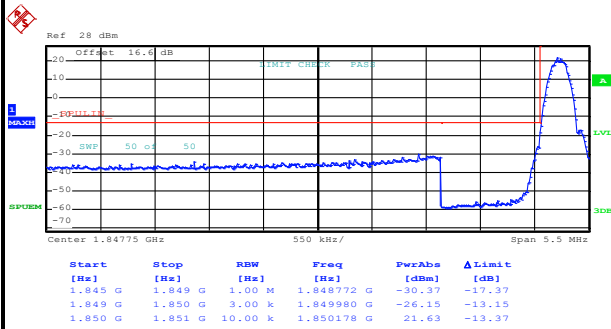
Highest Band Edge

Date: 27.APR.2019 11:30:23



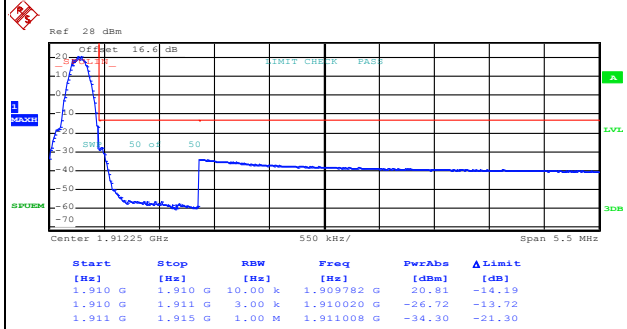
GSM1900 (GPRS class 8)

Lowest Band Edge



Date: 27.APR.2019 11:55:06

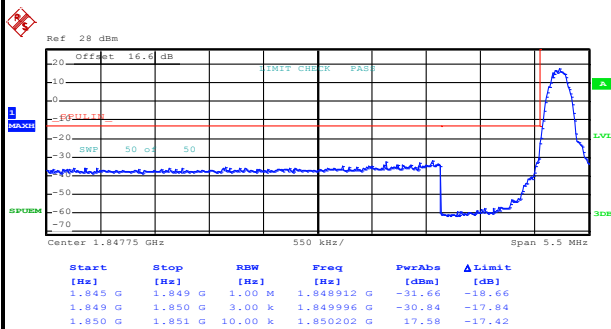
Highest Band Edge



Date: 27.APR.2019 11:56:42

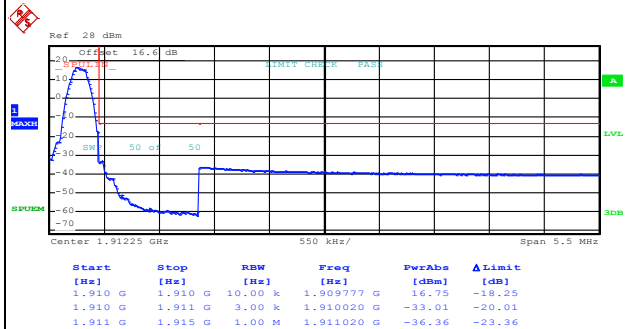
GSM1900 (EDGE class 8)

Lowest Band Edge



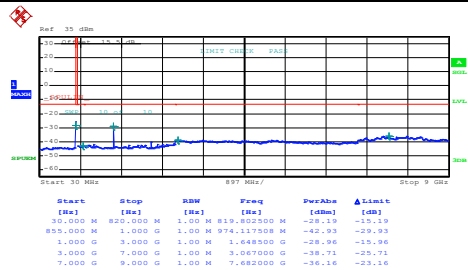
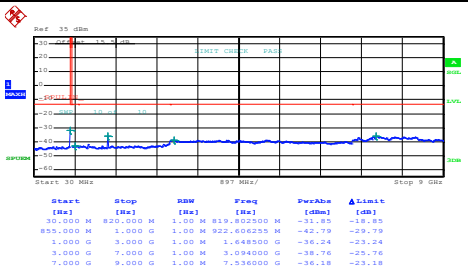
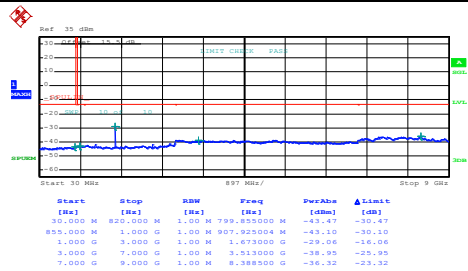
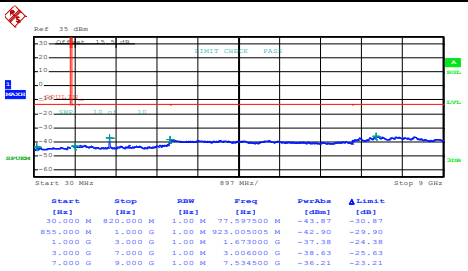
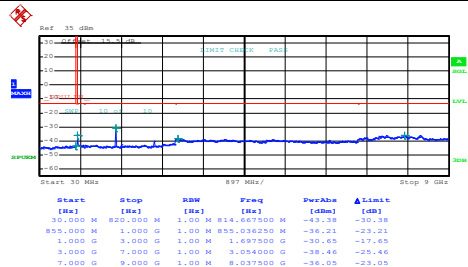
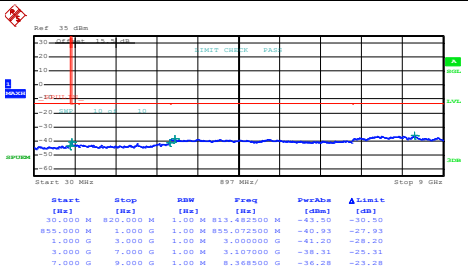
Date: 27.APR.2019 12:45:27

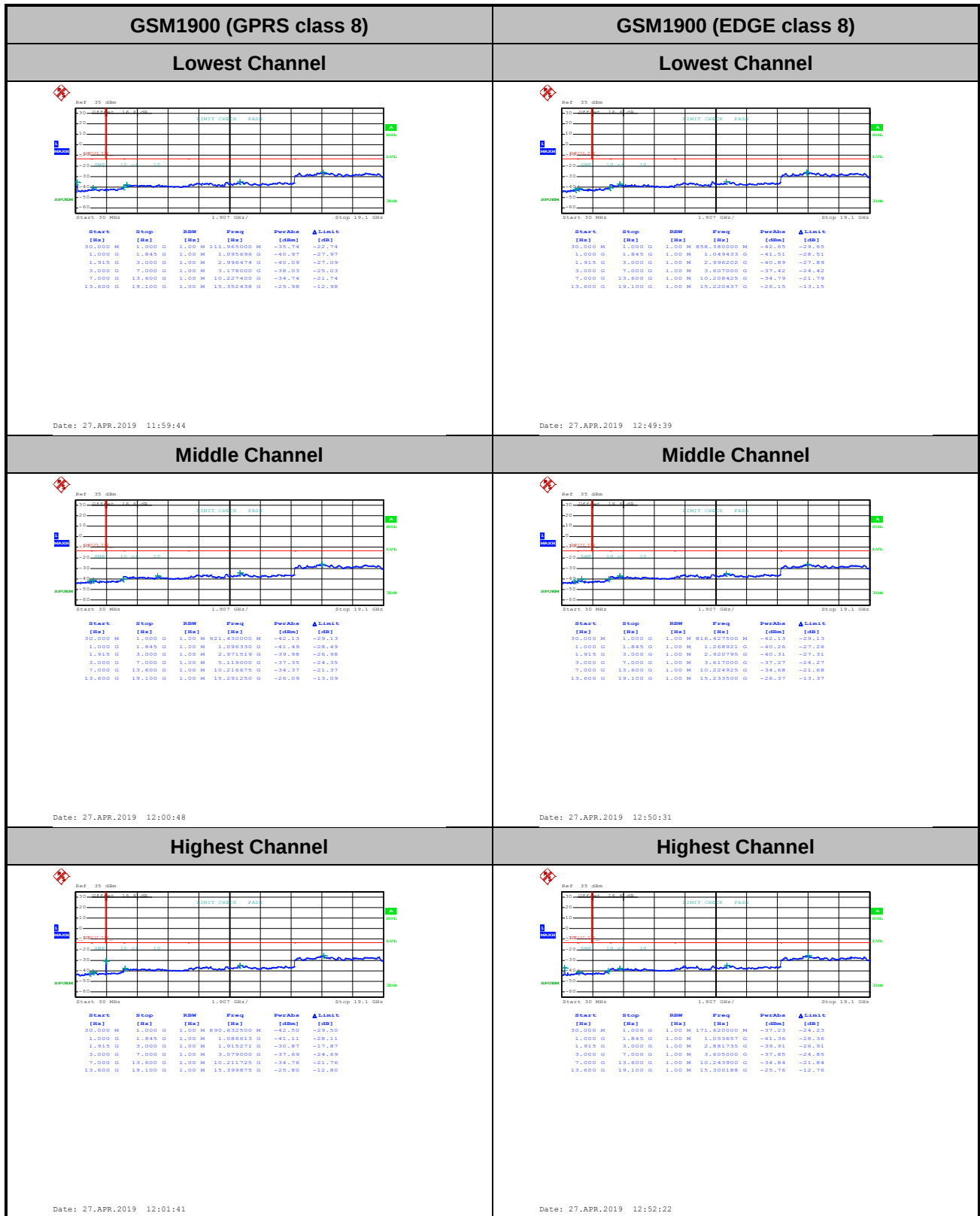
Highest Band Edge



Date: 27.APR.2019 12:47:49

**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>-28,19</td><td>-15,19</td></tr><tr><td>855,000 M</td><td>1,000 G</td><td>1,00 M</td><td>974,117508 M</td><td>-42,93</td><td>-29,93</td></tr><tr><td>1,000 G</td><td>3,000 G</td><td>1,00 M</td><td>1,648500 G</td><td>-28,96</td><td>-15,96</td></tr><tr><td>3,000 G</td><td>7,000 G</td><td>1,00 M</td><td>3,067000 G</td><td>-38,71</td><td>-25,71</td></tr><tr><td>7,000 G</td><td>9,000 G</td><td>1,00 M</td><td>7,682000 G</td><td>-36,16</td><td>-23,16</td></tr></table> Date: 27.APR.2019 10:35:27		Start	Stop	RBW	Freq	PerAbn	ΔLimit	[Hz]	[Hz]	[Hz]	[Hz]	[dBm]	[dB]	30,000 M	820,000 M	1,00 M	819,802500 M	-28,19	-15,19	855,000 M	1,000 G	1,00 M	974,117508 M	-42,93	-29,93	1,000 G	3,000 G	1,00 M	1,648500 G	-28,96	-15,96	3,000 G	7,000 G	1,00 M	3,067000 G	-38,71	-25,71	7,000 G	9,000 G	1,00 M	7,682000 G	-36,16	-23,16	<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>-31,85</td><td>-18,85</td></tr><tr><td>855,000 M</td><td>1,000 G</td><td>1,00 M</td><td>922,606255 M</td><td>-42,79</td><td>-29,79</td></tr><tr><td>1,000 G</td><td>3,000 G</td><td>1,00 M</td><td>1,648500 G</td><td>-36,24</td><td>-23,24</td></tr><tr><td>3,000 G</td><td>7,000 G</td><td>1,00 M</td><td>3,094000 G</td><td>-38,76</td><td>-25,76</td></tr><tr><td>7,000 G</td><td>9,000 G</td><td>1,00 M</td><td>7,536000 G</td><td>-36,18</td><td>-23,18</td></tr></table> Date: 27.APR.2019 11:33:29		Start	Stop	RBW	Freq	PerAbn	ΔLimit	[Hz]	[Hz]	[Hz]	[Hz]	[dBm]	[dB]	30,000 M	820,000 M	1,00 M	819,802500 M	-31,85	-18,85	855,000 M	1,000 G	1,00 M	922,606255 M	-42,79	-29,79	1,000 G	3,000 G	1,00 M	1,648500 G	-36,24	-23,24	3,000 G	7,000 G	1,00 M	3,094000 G	-38,76	-25,76	7,000 G	9,000 G	1,00 M	7,536000 G	-36,18	-23,18
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7,000 G	9,000 G	1,00 M	7,536000 G	-36,18	-23,18																																																																																		
Middle Channel		Middle 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>799,855000 M</td><td>-43,47</td><td>-30,47</td></tr><tr><td>855,000 M</td><td>1,000 G</td><td>1,00 M</td><td>907,925004 M</td><td>-43,10</td><td>-30,10</td></tr><tr><td>1,000 G</td><td>3,000 G</td><td>1,00 M</td><td>1,673000 G</td><td>-29,06</td><td>-16,06</td></tr><tr><td>3,000 G</td><td>7,000 G</td><td>1,00 M</td><td>3,513000 G</td><td>-38,95</td><td>-25,95</td></tr><tr><td>7,000 G</td><td>9,000 G</td><td>1,00 M</td><td>8,388500 G</td><td>-36,32</td><td>-23,32</td></tr></table> Date: 27.APR.2019 10:36:19		Start	Stop	RBW	Freq	PerAbn	ΔLimit	[Hz]	[Hz]	[Hz]	[Hz]	[dBm]	[dB]	30,000 M	820,000 M	1,00 M	799,855000 M	-43,47	-30,47	855,000 M	1,000 G	1,00 M	907,925004 M	-43,10	-30,10	1,000 G	3,000 G	1,00 M	1,673000 G	-29,06	-16,06	3,000 G	7,000 G	1,00 M	3,513000 G	-38,95	-25,95	7,000 G	9,000 G	1,00 M	8,388500 G	-36,32	-23,32	<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>77,597500 M</td><td>-43,87</td><td>-30,87</td></tr><tr><td>855,000 M</td><td>1,000 G</td><td>1,00 M</td><td>923,085005 M</td><td>-42,80</td><td>-29,80</td></tr><tr><td>1,000 G</td><td>3,000 G</td><td>1,00 M</td><td>1,673000 G</td><td>-37,38</td><td>-24,38</td></tr><tr><td>3,000 G</td><td>7,000 G</td><td>1,00 M</td><td>3,096000 G</td><td>-38,63</td><td>-25,63</td></tr><tr><td>7,000 G</td><td>9,000 G</td><td>1,00 M</td><td>7,534500 G</td><td>-36,21</td><td>-23,21</td></tr></table> Date: 27.APR.2019 11:34:20		Start	Stop	RBW	Freq	PerAbn	ΔLimit	[Hz]	[Hz]	[Hz]	[Hz]	[dBm]	[dB]	30,000 M	820,000 M	1,00 M	77,597500 M	-43,87	-30,87	855,000 M	1,000 G	1,00 M	923,085005 M	-42,80	-29,80	1,000 G	3,000 G	1,00 M	1,673000 G	-37,38	-24,38	3,000 G	7,000 G	1,00 M	3,096000 G	-38,63	-25,63	7,000 G	9,000 G	1,00 M	7,534500 G	-36,21	-23,21
Start	Stop	RBW	Freq	PerAbn	ΔLimit																																																																																		
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[Hz]	[Hz]	[Hz]	[Hz]	[dBm]	[dB]																																																																																		
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Highest Channel		Highest Channel																																																																																					
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Start	Stop	RBW	Freq	PerAbn	ΔLimit																																																																																		
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7,000 G	9,000 G	1,00 M	8,368500 G	-36,28	-23,28																																																																																		



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	0.0108	0.0036	PASS
40	Normal Voltage	0.0143	0.0012	
30	Normal Voltage	0.0060	0.0024	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0096	0.0036	
0	Normal Voltage	0.0048	0.0084	
-10	Normal Voltage	0.0072	0.0000	
-20	Normal Voltage	0.0120	0.0024	
-30	Normal Voltage	0.0084	0.0012	
20	Maximum Voltage	0.0024	0.0060	
20	Normal Voltage	0.0036	0.0036	
20	Battery End Point	0.0072	0.0012	

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	0.0053	0.0027	PASS
40	Normal Voltage	0.0064	0.0005	
30	Normal Voltage	0.0032	0.0043	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0011	0.0016	
0	Normal Voltage	0.0037	0.0021	
-10	Normal Voltage	0.0048	0.0011	
-20	Normal Voltage	0.0059	0.0000	
-30	Normal Voltage	0.0069	0.0016	
20	Maximum Voltage	0.0043	0.0005	
20	Normal Voltage	0.0000	0.0016	
20	Battery End Point	0.0016	0.0053	

Note:

1. Normal Voltage = 3.85V. ; Battery End Point (BEP) = 3.5 V. ; Maximum Voltage =4.4 V
2. The frequency fundamental emissions stay within the authorized frequency block.

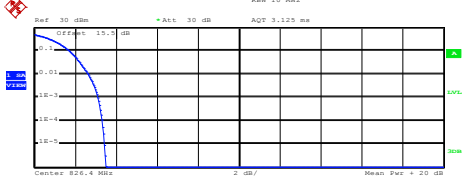
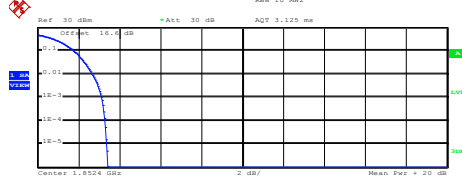
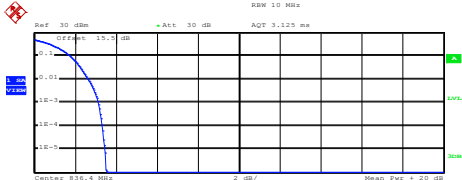
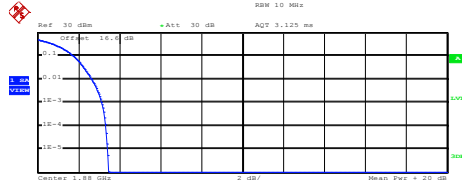
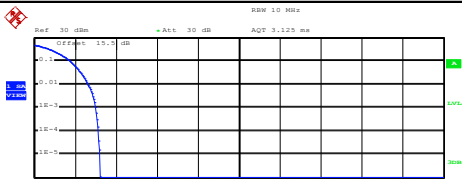
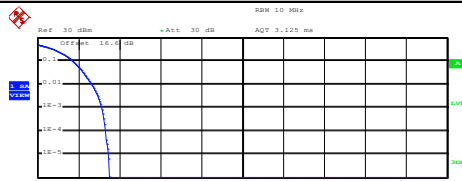


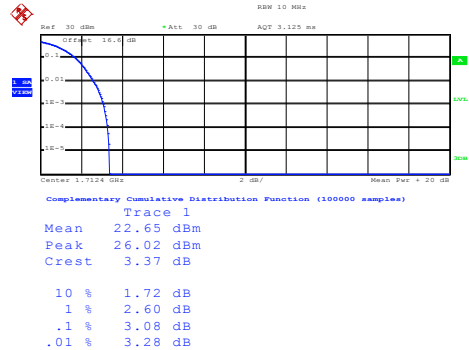
A3. WCDMA

Peak-to-Average Ratio

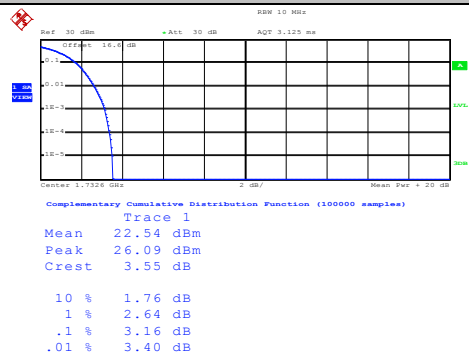
Mode	WCDMA Band V	WCDMA Band II	WCDMA Band IV	Limit: 13dB
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps	Result
Lowest CH	3.12	3.12	3.08	PASS
Middle CH	3.16	3.12	3.16	
Highest CH	3.00	3.16	3.12	



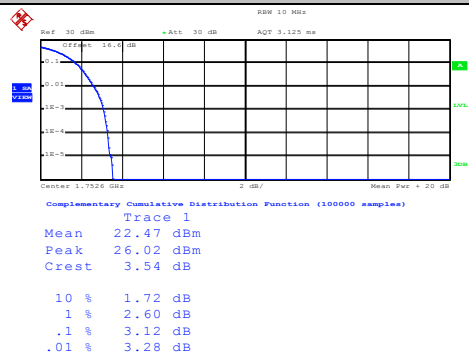
WCDMA Band V (RMC 12.2Kbps)	WCDMA Band II (RMC 12.2Kbps)
Lowest Channel	Lowest Channel
 Ref: 30 dBm Att: 30 dB RSW: 10 MHz AQT: 3.125 ms Center: 826.4 MHz Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 22.88 dBm Peak: 26.37 dBm Crest: 3.50 dB 10 %: 1.72 dB 1 %: 2.64 dB .1 %: 3.12 dB .01 %: 3.32 dB Date: 27.APR.2019 15:33:43	 Ref: 30 dBm Att: 30 dB RSW: 10 MHz AQT: 3.125 ms Center: 1.8524 GHz Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 22.73 dBm Peak: 26.16 dBm Crest: 3.43 dB 10 %: 1.76 dB 1 %: 2.68 dB .1 %: 3.12 dB .01 %: 3.28 dB Date: 27.APR.2019 13:44:14
Middle Channel	Middle Channel
 Ref: 30 dBm Att: 30 dB RSW: 10 MHz AQT: 3.125 ms Center: 830.4 MHz Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 22.78 dBm Peak: 26.30 dBm Crest: 3.52 dB 10 %: 1.76 dB 1 %: 2.64 dB .1 %: 3.16 dB .01 %: 3.32 dB Date: 27.APR.2019 15:33:59	 Ref: 30 dBm Att: 30 dB RSW: 10 MHz AQT: 3.125 ms Center: 1.85 GHz Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 22.90 dBm Peak: 26.37 dBm Crest: 3.47 dB 10 %: 1.76 dB 1 %: 2.64 dB .1 %: 3.12 dB .01 %: 3.32 dB Date: 27.APR.2019 13:44:31
Highest Channel	Highest Channel
 Ref: 30 dBm Att: 30 dB RSW: 10 MHz AQT: 3.125 ms Center: 846.6 MHz Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 22.73 dBm Peak: 25.95 dBm Crest: 3.22 dB 10 %: 1.76 dB 1 %: 2.64 dB .1 %: 3.00 dB .01 %: 3.16 dB Date: 27.APR.2019 15:34:18	 Ref: 30 dBm Att: 30 dB RSW: 10 MHz AQT: 3.125 ms Center: 1.9076 GHz Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean: 22.80 dBm Peak: 26.30 dBm Crest: 3.50 dB 10 %: 1.72 dB 1 %: 2.64 dB .1 %: 3.16 dB .01 %: 3.32 dB Date: 27.APR.2019 13:44:50

WCDMA Band IV (RMC 12.2Kbps)
Lowest Channel


Date: 27.APR.2019 14:58:37

Middle Channel


Date: 27.APR.2019 14:58:50

Highest Channel


Date: 27.APR.2019 14:59:14

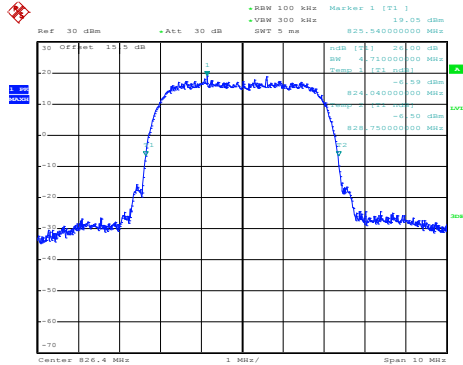
**26dB Bandwidth**

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	4.71	4.71	4.72
Middle CH	4.71	4.72	4.71
Highest CH	4.69	4.73	4.70



WCDMA Band V (RMC 12.2Kbps)

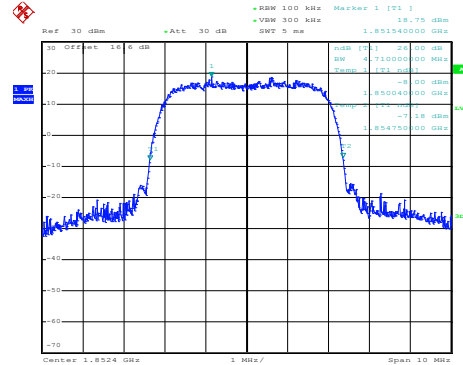
Lowest Channel



Date: 27.APR.2019 15:10:09

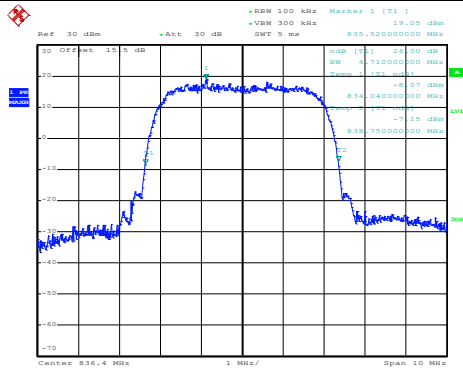
WCDMA Band II (RMC 12.2Kbps)

Lowest Channel



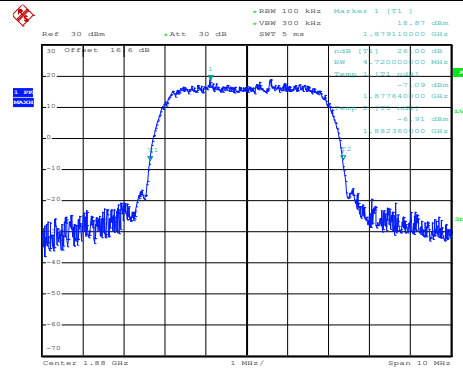
Date: 27.APR.2019 13:05:44

Middle Channel



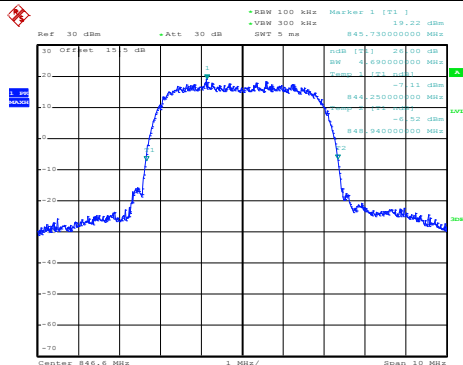
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Middle Channel



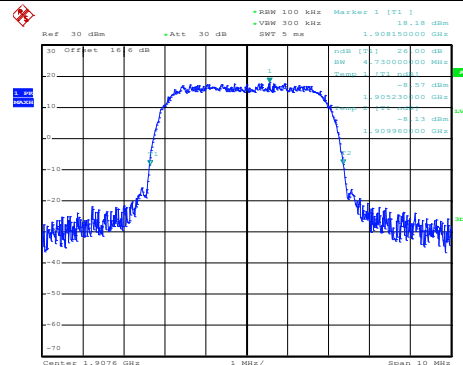
Date: 27.APR.2019 13:06:18

Highest Channel



Date: 27.APR.2019 15:11:21

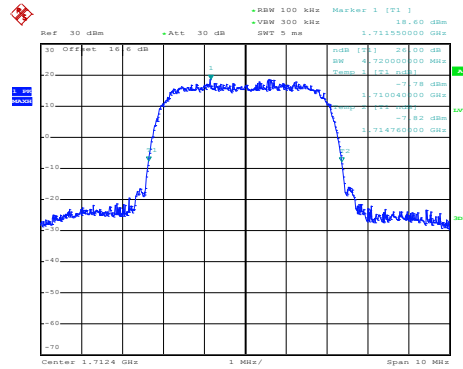
Highest Channel



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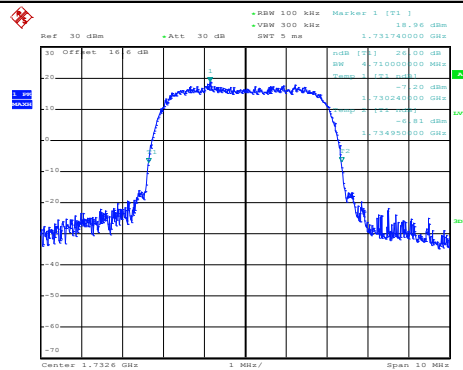
WCDMA Band IV (RMC 12.2Kbps)

Lowest Channel



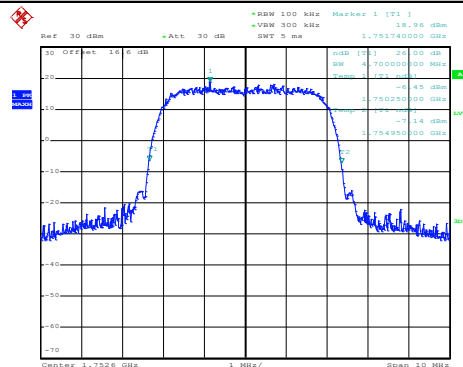
Date: 27.APR.2019 14:18:13

Middle Channel



Date: 27.APR.2019 14:24:43

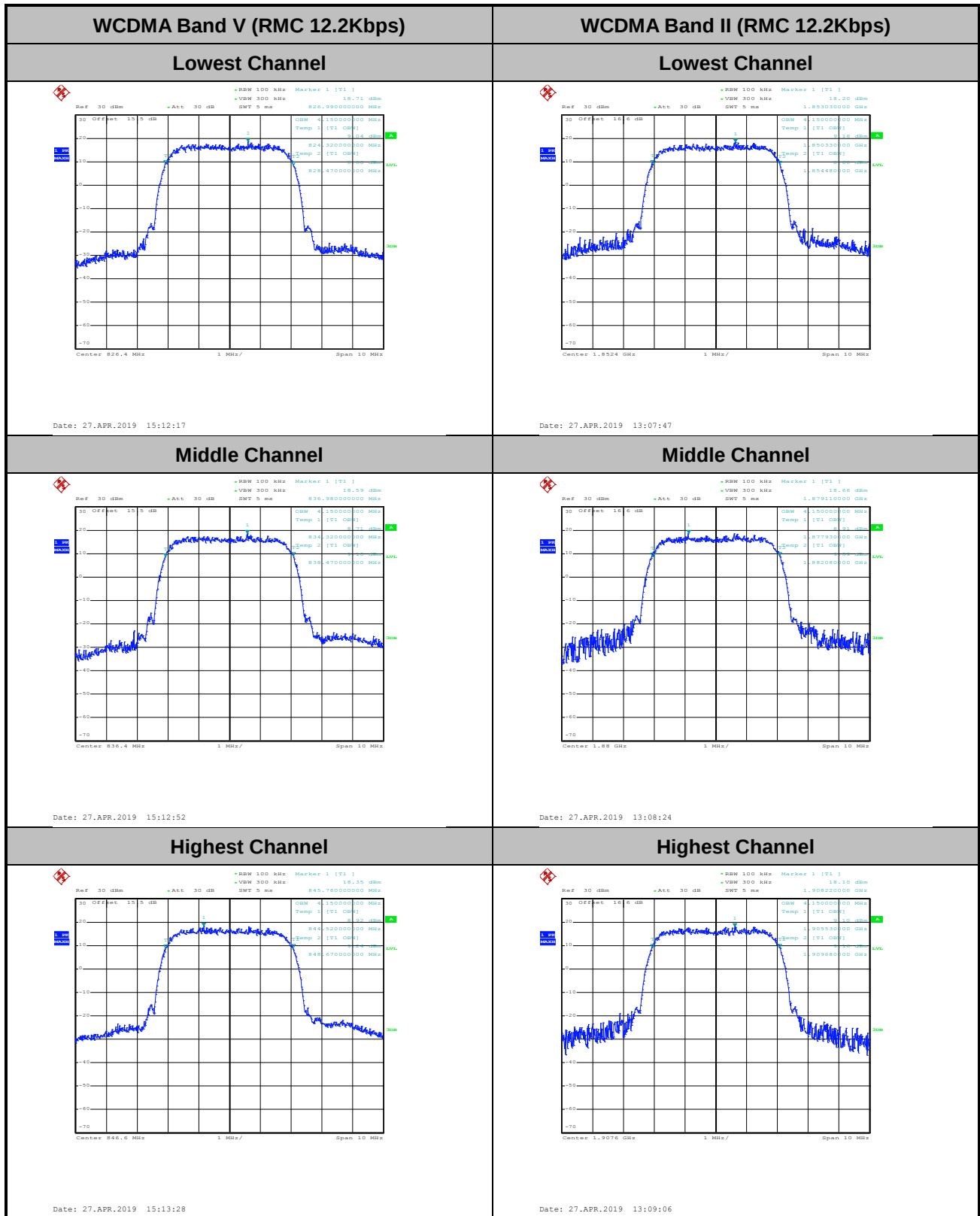
Highest Channel



Date: 27.APR.2019 14:23:14

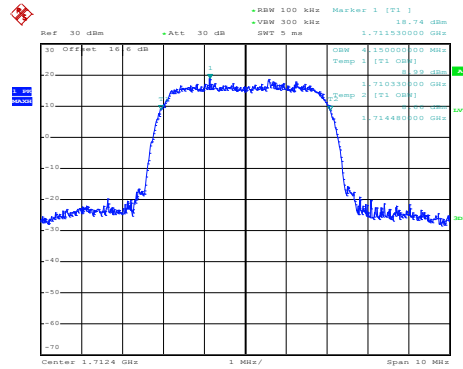
**Occupied Bandwidth**

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	4.15	4.15	4.15
Middle CH	4.15	4.15	4.15
Highest CH	4.15	4.15	4.14



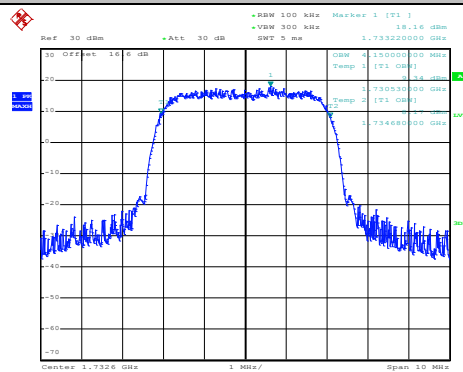
WCDMA Band IV (RMC 12.2Kbps)

Lowest Channel



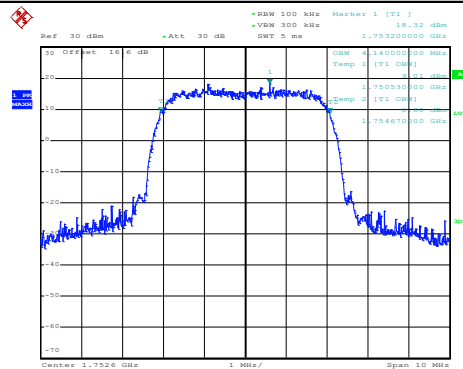
Date: 27.APR.2019 14:35:57

Middle Channel



Date: 27.APR.2019 14:36:26

Highest Channel



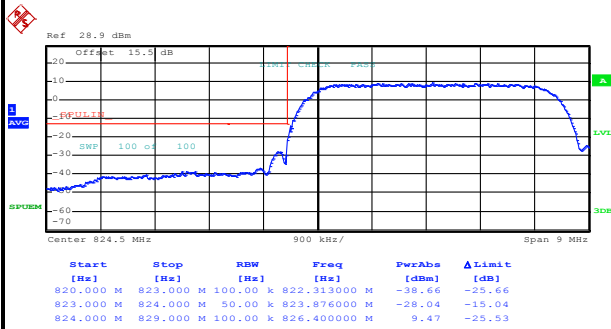
Date: 27.APR.2019 14:36:54



Conducted Band Edge

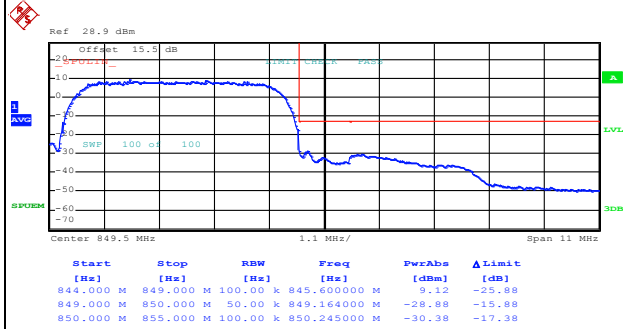
WCDMA Band V (RMC 12.2Kbps)

Lowest Band Edge



Date: 27.APR.2019 15:16:50

Highest Band Edge

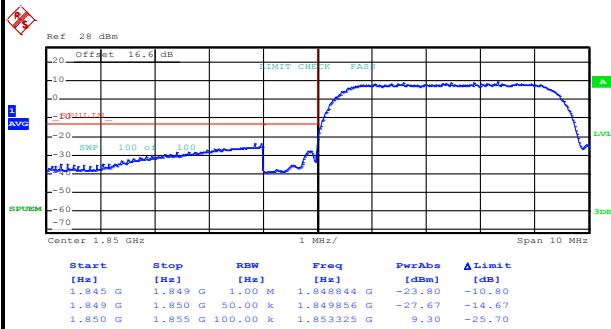


Date: 27.APR.2019 15:23:51



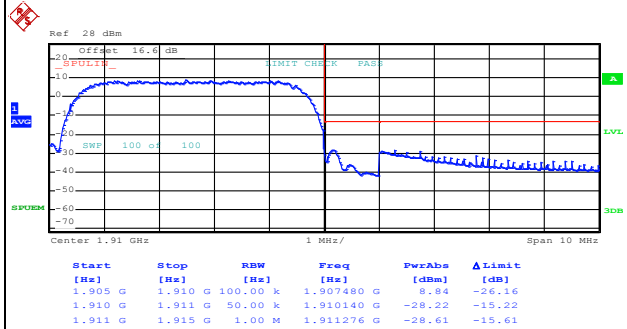
WCDMA Band II (RMC 12.2Kbps)

Lowest Band Edge



Date: 27.APR.2019 13:26:02

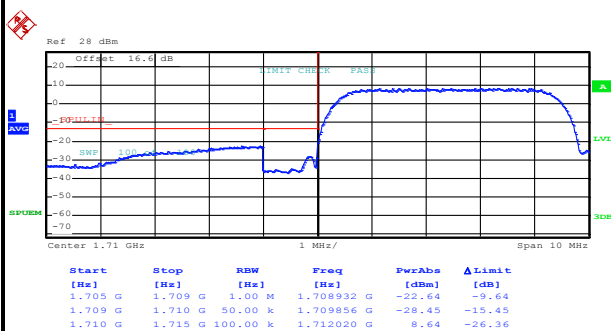
Highest Band Edge



Date: 27.APR.2019 13:28:54

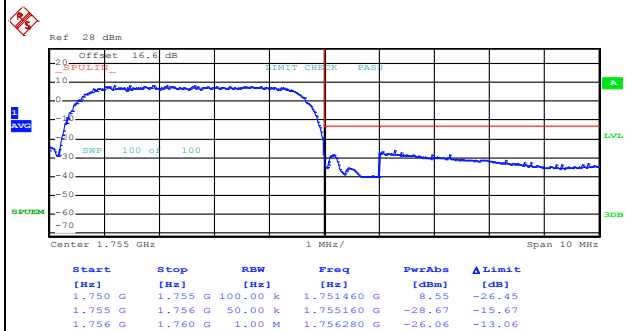
WCDMA Band IV (RMC 12.2Kbps)

Lowest Band Edge



Date: 27.APR.2019 14:40:01

Highest Band Edge



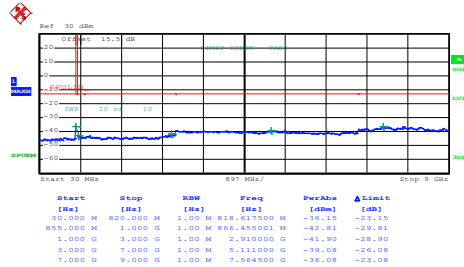
Date: 27.APR.2019 14:42:44



Conducted Spurious Emission

WCDMA Band V (RMC 12.2Kbps)

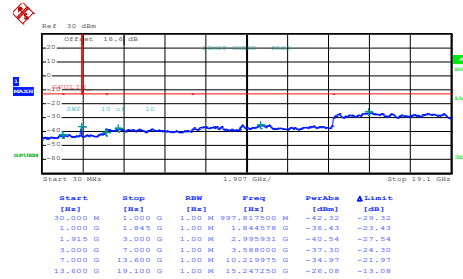
Lowest Channel



Date: 27.APR.2019 15:31:32

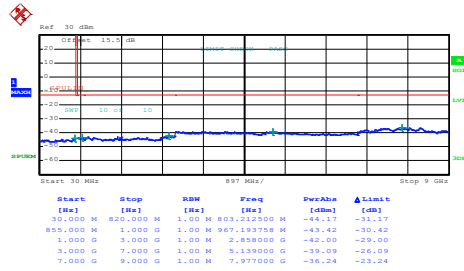
WCDMA Band II (RMC 12.2Kbps)

Lowest Channel



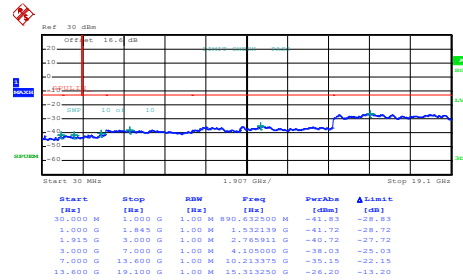
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Middle Channel



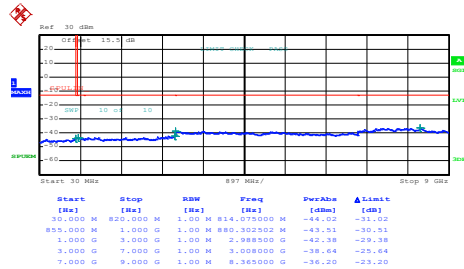
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Middle Channel



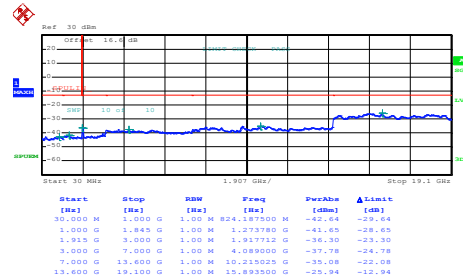
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Highest Channel



Date: 27.APR.2019 15:33:19

Highest Channel

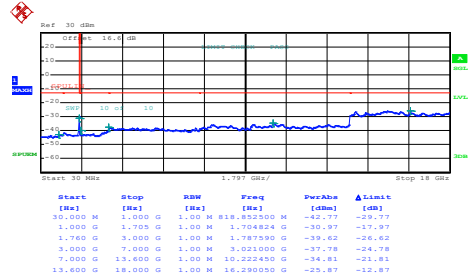


Date: 27.APR.2019 13:41:03



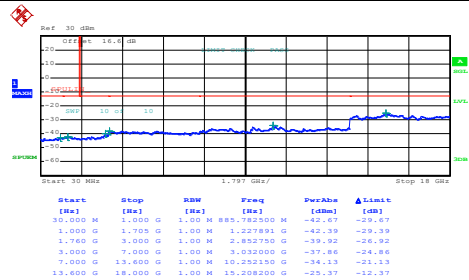
WCDMA Band IV (RMC 12.2Kbps)

Lowest Channel



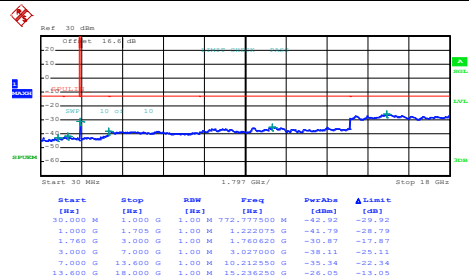
Date: 27.APR.2019 14:47:30

Middle Channel



Date: 27.APR.2019 14:48:23

Highest Channel



Date: 27.APR.2019 14:58:08

Frequency Stability

Test Conditions	Middle Channel	WCDMA Band V (RMC 12.2Kbps)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0179	PASS
40	Normal Voltage	0.0227	
30	Normal Voltage	0.0167	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0024	
0	Normal Voltage	0.0215	
-10	Normal Voltage	0.0024	
-20	Normal Voltage	0.0191	
-30	Normal Voltage	0.0036	
20	Maximum Voltage	0.0203	
20	Normal Voltage	0.0179	
20	Battery End Point	0.0191	

Test Conditions	Middle Channel	WCDMA Band II (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0037	PASS
40	Normal Voltage	0.0059	
30	Normal Voltage	0.0016	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0005	
0	Normal Voltage	0.0064	
-10	Normal Voltage	0.0027	
-20	Normal Voltage	0.0085	
-30	Normal Voltage	0.0080	
20	Maximum Voltage	0.0053	
20	Normal Voltage	0.0048	
20	Battery End Point	0.0069	

Note:

1. Normal Voltage = 3.85V. ; Battery End Point (BEP) = 3.5 V. ; Maximum Voltage =4.4 V
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	0.0012	PASS
40	Normal Voltage	0.0006	
30	Normal Voltage	0.0046	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0035	
0	Normal Voltage	0.0012	
-10	Normal Voltage	0.0029	
-20	Normal Voltage	0.0000	
-30	Normal Voltage	0.0006	
20	Maximum Voltage	0.0017	
20	Normal Voltage	0.0023	
20	Battery End Point	0.0006	

Note:

1. Normal Voltage = 3.85V. ; Battery End Point (BEP) = 3.5 V. ; Maximum Voltage =4.4 V
2. The frequency fundamental emissions stay within the authorized frequency block.



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

ERP/EIRP

<Ant. 0_C>

Channel	Mode	Conducted		ERP	
		Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	GSM850 GSM (GT - LC = 1.4 dB)	32.67	1.8493	31.92	1.5560
Middle		32.74	1.8793	31.99	1.5812
Highest		32.51	1.7824	31.76	1.4997
Lowest	GSM850 EDGE class 8 (GT - LC = 1.4 dB)	26.69	0.4667	25.94	0.3926
Middle		26.86	0.4853	26.11	0.4083
Highest		26.78	0.4764	26.03	0.4009
Lowest	WCDMA Band V RMC 12.2Kbps (GT - LC = 1.4 dB)	24.01	0.2518	23.26	0.2118
Middle		24.03	0.2529	23.28	0.2128
Highest		24.05	0.2541	23.30	0.2138
Limit	ERP < 7W	Result		PASS	

<Ant. 0_B>

Channel	Mode	Conducted		EIRP	
		Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	GSM1900 GSM (GT - LC = 0.7 dB)	29.30	0.8511	30.00	1.0000
Middle		29.29	0.8492	29.99	0.9977
Highest		29.61	0.9141	30.31	1.0740
Lowest	GSM1900 EDGE class 8 (GT - LC = 0.7 dB)	25.27	0.3365	25.97	0.3954
Middle		25.24	0.3342	25.94	0.3926
Highest		25.28	0.3373	25.98	0.3963
Lowest	WCDMA Band II RMC 12.2Kbps (GT - LC = 0.7 dB)	24.22	0.2642	24.92	0.3105
Middle		24.38	0.2742	25.08	0.3221
Highest		24.32	0.2704	25.02	0.3177
Limit	EIRP < 2W	Result		PASS	

<Ant. 0_B>

Channel	Mode	Conducted		EIRP	
		Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	WCDMA Band IV RMC 12.2Kbps (GT - LC = 0.5 dB)	24.34	0.2716	24.84	0.3048
Middle		24.35	0.2723	24.85	0.3055
Highest		24.26	0.2667	24.76	0.2992
Limit	EIRP < 1W	Result		PASS	

**<Ant. 0_C>**

Channel	Mode	Conducted		EIRP	
		Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	WCDMA Band IV	24.34	0.2716	25.04	0.3192
Middle	RMC 12.2Kbps	24.35	0.2723	25.05	0.3199
Highest	(GT - LC = 0.7 dB)	24.26	0.2667	24.96	0.3133
Limit	EIRP < 1W	Result		PASS	


<Ant. 1>

Channel	Mode	Conducted		ERP	
		Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	GSM850	32.67	1.8493	27.42	0.5521
Middle	GSM	32.74	1.8793	27.49	0.5610
Highest	(GT - LC = -3.1 dB)	32.51	1.7824	27.26	0.5321
Lowest	GSM850	26.69	0.4667	21.44	0.1393
Middle	EDGE class 8	26.86	0.4853	21.61	0.1449
Highest	(GT - LC = -3.1 dB)	26.78	0.4764	21.53	0.1422
Lowest	WCDMA Band V	24.01	0.2518	18.76	0.0752
Middle	RMC 12.2Kbps	24.03	0.2529	18.78	0.0755
Highest	(GT - LC = -3.1 dB)	24.05	0.2541	18.80	0.0759
Limit	ERP < 7W	Result		PASS	

Channel	Mode	Conducted		EIRP	
		Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	GSM1900	29.30	0.8511	30.50	1.1220
Middle	GSM	29.29	0.8492	30.49	1.1194
Highest	(GT - LC = 1.2 dB)	29.61	0.9141	30.81	1.2050
Lowest	GSM1900	25.27	0.3365	26.47	0.4436
Middle	EDGE class 8	25.24	0.3342	26.44	0.4406
Highest	(GT - LC = 1.2 dB)	25.28	0.3373	26.48	0.4446
Lowest	WCDMA Band II	24.22	0.2642	25.42	0.3483
Middle	RMC 12.2Kbps	24.38	0.2742	25.58	0.3614
Highest	(GT - LC = 1.2 dB)	24.32	0.2704	25.52	0.3565
Limit	EIRP < 2W	Result		PASS	

Channel	Mode	Conducted		EIRP	
		Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	WCDMA Band IV	24.34	0.2716	24.54	0.2844
Middle	RMC 12.2Kbps	24.35	0.2723	24.55	0.2851
Highest	(GT - LC = 0.2 dB)	24.26	0.2667	24.46	0.2793
Limit	EIRP < 1W	Result		PASS	

Radiated Spurious Emission

<Ant. 0_C>

GSM850

GSM 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	-62.90	-13	-49.90	-75.15	-64.66	0.98	4.89	H
	2472	-59.24	-13	-46.24	-76.62	-61.12	1.28	5.32	H
	3296	-58.31	-13	-45.31	-77.79	-61.72	1.54	7.10	H
	1648	-62.92	-13	-49.92	-75.67	-64.68	0.98	4.89	V
	2472	-58.73	-13	-45.73	-76.61	-60.61	1.28	5.32	V
	3296	-58.03	-13	-45.03	-77.88	-61.44	1.54	7.10	V
Middle	1672	-63.14	-13	-50.14	-75.67	-64.82	0.99	4.82	H
	2512	-59.88	-13	-46.88	-77.28	-61.85	1.29	5.41	H
	3344	-58.31	-13	-45.31	-78.03	-61.92	1.56	7.31	H
	1672	-62.58	-13	-49.58	-75.55	-64.26	0.99	4.82	V
	2512	-59.31	-13	-46.31	-77.24	-61.28	1.29	5.41	V
	3344	-58.07	-13	-45.07	-78.06	-61.68	1.56	7.31	V
Highest	1696	-63.27	-13	-50.27	-75.91	-64.87	1.00	4.75	H
	2544	-59.33	-13	-46.33	-76.81	-61.31	1.30	5.44	H
	3392	-57.98	-13	-44.98	-77.97	-61.78	1.57	7.52	H
	1696	-63.18	-13	-50.18	-76.27	-64.78	1.00	4.75	V
	2544	-58.66	-13	-45.66	-76.61	-60.64	1.30	5.44	V
	3392	-57.96	-13	-44.96	-78.07	-61.76	1.57	7.52	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	-63.28	-13	-50.28	-75.5	-65.04	0.98	4.89	H
	2472	-59.03	-13	-46.03	-76.41	-60.91	1.28	5.32	H
	3296	-58.11	-13	-45.11	-77.57	-61.52	1.54	7.10	H
	1648	-62.86	-13	-49.86	-75.52	-64.62	0.98	4.89	V
	2472	-58.66	-13	-45.66	-76.5	-60.54	1.28	5.32	V
	3296	-57.86	-13	-44.86	-77.65	-61.27	1.54	7.10	V
Middle	1672	-63.48	-13	-50.48	-75.97	-65.16	0.99	4.82	H
	2512	-59.39	-13	-46.39	-76.85	-61.36	1.29	5.41	H
	3344	-58.33	-13	-45.33	-78.07	-61.94	1.56	7.31	H
	1672	-62.71	-13	-49.71	-75.66	-64.39	0.99	4.82	V
	2512	-59.32	-13	-46.32	-77.25	-61.29	1.29	5.41	V
	3344	-57.88	-13	-44.88	-77.8	-61.49	1.56	7.31	V
Highest	1696	-63.38	-13	-50.38	-76.06	-64.98	1.00	4.75	H
	2536	-58.08	-13	-45.08	-75.54	-60.06	1.30	5.43	H
	3384	-58.20	-13	-45.20	-78.13	-61.97	1.57	7.49	H
	1696	-62.56	-13	-49.56	-75.67	-64.16	1.00	4.75	V
	2536	-58.94	-13	-45.94	-76.91	-60.92	1.30	5.43	V
	3384	-57.91	-13	-44.91	-77.95	-61.68	1.57	7.49	V

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



WCDMA 850

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	1648	-63.28	-13	-50.28	-75.5	-65.04	0.98	4.89	H
	2472	-59.03	-13	-46.03	-76.41	-60.91	1.28	5.32	H
	3296	-58.11	-13	-45.11	-77.57	-61.52	1.54	7.10	H
	1648	-62.86	-13	-49.86	-75.52	-64.62	0.98	4.89	V
	2472	-58.66	-13	-45.66	-76.5	-60.54	1.28	5.32	V
	3296	-57.86	-13	-44.86	-77.65	-61.27	1.54	7.10	V
Middle	1672	-63.48	-13	-50.48	-75.97	-65.16	0.99	4.82	H
	2512	-59.39	-13	-46.39	-76.85	-61.36	1.29	5.41	H
	3344	-58.33	-13	-45.33	-78.07	-61.94	1.56	7.31	H
	1672	-62.71	-13	-49.71	-75.66	-64.39	0.99	4.82	V
	2512	-59.32	-13	-46.32	-77.25	-61.29	1.29	5.41	V
	3344	-57.88	-13	-44.88	-77.8	-61.49	1.56	7.31	V
Highest	1696	-63.46	-13	-50.46	-76.09	-65.06	1.00	4.75	H
	2536	-59.88	-13	-46.88	-77.33	-61.86	1.30	5.43	H
	3384	-57.94	-13	-44.94	-77.84	-61.71	1.57	7.49	H
	1696	-62.84	-13	-49.84	-75.92	-64.44	1.00	4.75	V
	2536	-58.98	-13	-45.98	-76.97	-60.96	1.30	5.43	V
	3384	-57.71	-13	-44.71	-77.74	-61.48	1.57	7.49	V

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



<Ant. 0_B>

WCDMA 1700

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	3426	-57.64	-13	-44.64	-78.71	-63.73	1.58	7.67	H
	5136	-54.07	-13	-41.07	-78.48	-61.35	2.42	9.70	H
	6852	-51.85	-13	-38.85	-78.91	-59.83	2.64	10.62	H
	3426	-57.44	-13	-44.44	-78.51	-63.53	1.58	7.67	V
	5136	-54.27	-13	-41.27	-78.63	-61.55	2.42	9.70	V
	6852	-52.07	-13	-39.07	-79.1	-60.05	2.64	10.62	V
Middle	3468	-57.12	-13	-44.12	-78.22	-63.38	1.59	7.86	H
	5196	-54.27	-13	-41.27	-78.52	-61.52	2.45	9.70	H
	6930	-51.91	-13	-38.91	-79.08	-60.01	2.61	10.72	H
	3468	-57.27	-13	-44.27	-78.26	-63.53	1.59	7.86	V
	5196	-54.04	-13	-41.04	-78.41	-61.29	2.45	9.70	V
	6930	-51.76	-13	-38.76	-79.03	-59.86	2.61	10.72	V
Highest	3504	-56.96	-13	-43.96	-78.25	-63.36	1.61	8.00	H
	5256	-53.65	-13	-40.65	-78.35	-60.87	2.48	9.70	H
	7008	-51.14	-13	-38.14	-78.25	-59.37	2.59	10.82	H
	3504	-57.06	-13	-44.06	-78.2	-63.46	1.61	8.00	V
	5256	-53.77	-13	-40.77	-78.27	-60.99	2.48	9.70	V
	7008	-50.89	-13	-37.89	-78.15	-59.12	2.59	10.82	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	3702	-57.56	-13	-44.56	-78.43	-64.13	1.67	8.24	H
	5550	-47.48	-13	-34.48	-72.61	-54.55	2.65	9.72	H
	7398	-51.61	-13	-38.61	-78.7	-60.74	2.46	11.60	H
	3702	-57.65	-13	-44.65	-78.5	-64.22	1.67	8.24	V
	5550	-46.97	-13	-33.97	-72.09	-54.04	2.65	9.72	V
	7398	-51.36	-13	-38.36	-78.63	-60.49	2.46	11.60	V
Middle	3762	-57.88	-13	-44.88	-78.69	-64.51	1.69	8.31	H
	5640	-49.81	-13	-36.81	-75.16	-56.86	2.71	9.76	H
	7518	-51.47	-13	-38.47	-78.64	-60.86	2.42	11.81	H
	3762	-57.94	-13	-44.94	-78.79	-64.57	1.69	8.31	V
	5640	-49.56	-13	-36.56	-74.86	-56.61	2.71	9.76	V
	7518	-50.67	-13	-37.67	-78.08	-60.06	2.42	11.81	V
Highest	3816	-58.26	-13	-45.26	-78.99	-64.94	1.70	8.38	H
	5730	-43.66	-13	-30.66	-69.17	-50.69	2.76	9.79	H
	7638	-49.67	-13	-36.67	-77.12	-59.17	2.38	11.88	H
	3816	-57.74	-13	-44.74	-78.57	-64.42	1.70	8.38	V
	5730	-45.78	-13	-32.78	-71.34	-52.81	2.76	9.79	V
	7638	-49.12	-13	-36.12	-76.89	-58.62	2.38	11.88	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	3702	-57.26	-13	-44.26	-78.44	-63.83	1.67	8.24	H
	5550	-52.61	-13	-39.61	-77.99	-59.68	2.65	9.72	H
	7398	-51.74	-13	-38.74	-79.12	-60.87	2.46	11.60	H
	3702	-57.32	-13	-44.32	-78.45	-63.89	1.67	8.24	V
	5550	-52.93	-13	-39.93	-78.31	-60	2.65	9.72	V
	7398	-51.51	-13	-38.51	-79.07	-60.64	2.46	11.60	V
Middle	3762	-57.79	-13	-44.79	-78.81	-64.42	1.69	8.31	H
	5640	-51.37	-13	-38.37	-76.93	-58.42	2.71	9.76	H
	7518	-51.28	-13	-38.28	-78.83	-60.67	2.42	11.81	H
	3762	-57.74	-13	-44.74	-78.83	-64.37	1.69	8.31	V
	5640	-52.29	-13	-39.29	-77.85	-59.34	2.71	9.76	V
	7518	-51.09	-13	-38.09	-78.78	-60.48	2.42	11.81	V
Highest	3816	-57.64	-13	-44.64	-78.62	-64.32	1.70	8.38	H
	5730	-46.97	-13	-33.97	-72.73	-54	2.76	9.79	H
	7638	-49.33	-13	-36.33	-77.08	-58.83	2.38	11.88	H
	3816	-57.93	-13	-44.93	-78.99	-64.61	1.70	8.38	V
	5730	-45.94	-13	-32.94	-71.73	-52.97	2.76	9.79	V
	7638	-48.99	-13	-35.99	-77.01	-58.49	2.38	11.88	V

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

**WCDMA 1900**

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	3702	-57.43	-13	-44.43	-78.54	-64	1.67	8.24	H
	5556	-53.14	-13	-40.14	-78.54	-60.21	2.66	9.72	H
	7410	-51.96	-13	-38.96	-79.37	-61.12	2.46	11.62	H
	3702	-57.68	-13	-44.68	-78.73	-64.25	1.67	8.24	V
	5556	-53.52	-13	-40.52	-78.97	-60.59	2.66	9.72	V
	7410	-51.88	-13	-38.88	-79.47	-61.04	2.46	11.62	V
Middle	3762	-57.74	-13	-44.74	-78.84	-64.37	1.69	8.31	H
	5640	-52.42	-13	-39.42	-77.93	-59.47	2.71	9.76	H
	7518	-51.38	-13	-38.38	-78.92	-60.77	2.42	11.81	H
	3762	-57.52	-13	-44.52	-78.63	-64.15	1.69	8.31	V
	5640	-52.73	-13	-39.73	-78.34	-59.78	2.71	9.76	V
	7518	-51.12	-13	-38.12	-78.86	-60.51	2.42	11.81	V
Highest	3816	-58.14	-13	-45.14	-79.18	-64.82	1.70	8.38	H
	5724	-52.24	-13	-39.24	-78.05	-59.28	2.75	9.79	H
	7632	-49.62	-13	-36.62	-77.42	-59.11	2.39	11.88	H
	3816	-57.65	-13	-44.65	-78.76	-64.33	1.70	8.38	V
	5724	-52.23	-13	-39.23	-78.02	-59.27	2.75	9.79	V
	7632	-49.54	-13	-36.54	-77.56	-59.03	2.39	11.88	V

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



<Ant. 0_C>

WCDMA 1700

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	3426	-58.01	-13	-45.01	-78.8	-64.1	1.58	7.67	H
	5142	-53.62	-13	-40.62	-77.55	-60.9	2.42	9.70	H
	6852	-52.22	-13	-39.22	-79.03	-60.2	2.64	10.62	H
	3426	-58.11	-13	-45.11	-78.88	-64.2	1.58	7.67	V
	5142	-54.32	-13	-41.32	-78.71	-61.6	2.42	9.70	V
	6852	-52.52	-13	-39.52	-79.4	-60.5	2.64	10.62	V
Middle	3468	-57.24	-13	-44.24	-78.34	-63.5	1.59	7.86	H
	5196	-53.85	-13	-40.85	-77.84	-61.1	2.45	9.70	H
	6930	-52.40	-13	-39.40	-79.17	-60.5	2.61	10.72	H
	3468	-57.64	-13	-44.64	-78.42	-63.9	1.59	7.86	V
	5196	-54.45	-13	-41.45	-78.37	-61.7	2.45	9.70	V
	6930	-51.90	-13	-38.90	-78.75	-60	2.61	10.72	V
Highest	3504	-57.80	-13	-44.80	-78.62	-64.2	1.61	8.00	H
	5256	-53.68	-13	-40.68	-77.95	-60.9	2.48	9.70	H
	7008	-51.87	-13	-38.87	-78.64	-60.1	2.59	10.82	H
	3504	-57.60	-13	-44.60	-78.31	-64	1.61	8.00	V
	5256	-53.88	-13	-40.88	-78.07	-61.1	2.48	9.70	V
	7008	-51.67	-13	-38.67	-78.53	-59.9	2.59	10.82	V

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



<Ant. 1>

GSM850

GSM 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	-58.34	-13	-45.34	-70.81	-60.1	0.98	4.89	H
	2472	-42.18	-13	-29.18	-59.81	-44.06	1.28	5.32	H
	3296	-58.45	-13	-45.45	-78.18	-61.86	1.54	7.10	H
	1648	-60.02	-13	-47.02	-72.96	-61.78	0.98	4.89	V
	2472	-45.61	-13	-32.61	-63.68	-47.49	1.28	5.32	V
	3296	-58.03	-13	-45.03	-78.09	-61.44	1.54	7.10	V
Middle	1672	-61.87	-13	-48.87	-74.63	-63.55	0.99	4.82	H
	2512	-47.54	-13	-34.54	-65.26	-49.51	1.29	5.41	H
	3344	-58.50	-13	-45.50	-78.5	-62.11	1.56	7.31	H
	1672	-61.11	-13	-48.11	-74.33	-62.79	0.99	4.82	V
	2512	-47.87	-13	-34.87	-66.05	-49.84	1.29	5.41	V
	3344	-58.07	-13	-45.07	-78.28	-61.68	1.56	7.31	V
Highest	1696	-57.05	-13	-44.05	-69.95	-58.65	1.00	4.75	H
	2544	-32.01	-13	-19.01	-49.75	-33.99	1.30	5.44	H
	4248	-53.20	-13	-40.20	-74.5	-57.8	1.90	8.65	H
	1696	-60.48	-13	-47.48	-73.82	-62.08	1.00	4.75	V
	2544	-38.97	-13	-25.97	-57.21	-40.95	1.30	5.44	V
	4248	-55.70	-13	-42.70	-77.13	-60.3	1.90	8.65	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	-61.25	-13	-48.25	-73.72	-63.01	0.98	4.89	H
	2472	-53.67	-13	-40.67	-71.3	-55.55	1.28	5.32	H
	3296	-58.28	-13	-45.28	-78.01	-61.69	1.54	7.10	H
	1648	-62.57	-13	-49.57	-75.51	-64.33	0.98	4.89	V
	2472	-56.94	-13	-43.94	-75.01	-58.82	1.28	5.32	V
	3296	-57.67	-13	-44.67	-77.73	-61.08	1.54	7.10	V
Middle	1672	-60.36	-13	-47.36	-73.12	-62.04	0.99	4.82	H
	2512	-56.51	-13	-43.51	-74.23	-58.48	1.29	5.41	H
	3344	-58.14	-13	-45.14	-78.14	-61.75	1.56	7.31	H
	1672	-63.07	-13	-50.07	-76.29	-64.75	0.99	4.82	V
	2512	-59.34	-13	-46.34	-77.52	-61.31	1.29	5.41	V
	3344	-58.32	-13	-45.32	-78.53	-61.93	1.56	7.31	V
Highest	1696	-60.60	-13	-47.60	-73.5	-62.2	1.00	4.75	H
	2544	-47.78	-13	-34.78	-65.52	-49.76	1.30	5.44	H
	3392	-57.88	-13	-44.88	-78.13	-61.68	1.57	7.52	H
	1696	-62.87	-13	-49.87	-76.21	-64.47	1.00	4.75	V
	2544	-51.70	-13	-38.70	-69.94	-53.68	1.30	5.44	V
	3392	-57.70	-13	-44.70	-78.04	-61.5	1.57	7.52	V

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

**WCDMA 850**

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	1656	-63.40	-13	-50.40	-76.02	-65.13	0.98	4.86	H
	2480	-59.75	-13	-46.75	-77.38	-61.66	1.28	5.34	H
	3304	-58.19	-13	-45.19	-78.02	-61.63	1.54	7.14	H
	1656	-62.82	-13	-49.82	-75.91	-64.55	0.98	4.86	V
	2480	-59.19	-13	-46.19	-77.26	-61.1	1.28	5.34	V
	3304	-57.81	-13	-44.81	-77.92	-61.25	1.54	7.14	V
Middle	1672	-63.31	-13	-50.31	-76.07	-64.99	0.99	4.82	H
	2512	-59.87	-13	-46.87	-77.59	-61.84	1.29	5.41	H
	3344	-58.17	-13	-45.17	-78.17	-61.78	1.56	7.31	H
	1672	-63.11	-13	-50.11	-76.33	-64.79	0.99	4.82	V
	2512	-59.19	-13	-46.19	-77.37	-61.16	1.29	5.41	V
	3344	-57.95	-13	-44.95	-78.16	-61.56	1.56	7.31	V
Highest	1696	-63.26	-13	-50.26	-76.16	-64.86	1.00	4.75	H
	2536	-59.68	-13	-46.68	-77.4	-61.66	1.30	5.43	H
	3384	-57.68	-13	-44.68	-77.85	-61.45	1.57	7.49	H
	1696	-63.05	-13	-50.05	-76.39	-64.65	1.00	4.75	V
	2536	-59.13	-13	-46.13	-77.34	-61.11	1.30	5.43	V
	3384	-57.52	-13	-44.52	-77.82	-61.29	1.57	7.49	V

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

**WCDMA 1700**

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	3426	-58.01	-13	-45.01	-78.83	-64.1	1.58	7.67	H
	5136	-54.22	-13	-41.22	-78.47	-61.5	2.42	9.70	H
	6852	-52.22	-13	-39.22	-79.15	-60.2	2.64	10.62	H
	3426	-58.11	-13	-45.11	-78.85	-64.2	1.58	7.67	V
	5136	-54.32	-13	-41.32	-78.46	-61.6	2.42	9.70	V
	6852	-52.32	-13	-39.32	-79.1	-60.3	2.64	10.62	V
Middle	3468	-57.64	-13	-44.64	-78.36	-63.9	1.59	7.86	H
	5196	-57.55	-13	-44.55	-78.76	-64.8	2.45	9.70	H
	6930	-52.60	-13	-39.60	-79.39	-60.7	2.61	10.72	H
	3468	-57.84	-13	-44.84	-78.56	-64.1	1.59	7.86	V
	5196	-54.65	-13	-41.65	-78.37	-61.9	2.45	9.70	V
	6930	-52.20	-13	-39.20	-78.88	-60.3	2.61	10.72	V
Highest	3504	-57.80	-13	-44.80	-78.31	-64.2	1.61	8.00	H
	5256	-53.78	-13	-40.78	-78.28	-61	2.48	9.70	H
	7008	-51.87	-13	-38.87	-78.7	-60.1	2.59	10.82	H
	3504	-57.90	-13	-44.90	-78.39	-64.3	1.61	8.00	V
	5256	-53.68	-13	-40.68	-78.2	-60.9	2.48	9.70	V
	7008	-51.77	-13	-38.77	-78.61	-60	2.59	10.82	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	3702	-52.76	-13	-39.76	-73.82	-59.33	1.67	8.24	H
	5550	-44.36	-13	-31.36	-69.71	-51.43	2.65	9.72	H
	7398	-51.87	-13	-38.87	-79.24	-61	2.46	11.60	H
	3702	-56.62	-13	-43.62	-77.65	-63.19	1.67	8.24	V
	5550	-37.02	-13	-24.02	-62.44	-44.09	2.65	9.72	V
	7398	-51.79	-13	-38.79	-79.37	-60.92	2.46	11.60	V
Middle	3762	-49.25	-13	-36.25	-70.31	-55.88	1.69	8.31	H
	5640	-47.09	-13	-34.09	-72.64	-54.14	2.71	9.76	H
	7518	-51.58	-13	-38.58	-79.06	-60.97	2.42	11.81	H
	3762	-51.19	-13	-38.19	-72.1	-57.82	1.69	8.31	V
	5640	-41.68	-13	-28.68	-67.32	-48.73	2.71	9.76	V
	7518	-51.07	-13	-38.07	-78.86	-60.46	2.42	11.81	V
Highest	3816	-58.34	-13	-45.34	-79.39	-65.02	1.70	8.38	H
	5730	-51.41	-13	-38.41	-77.25	-58.44	2.76	9.79	H
	7638	-49.61	-13	-36.61	-77.37	-59.11	2.38	11.88	H
	3816	-58.14	-13	-45.14	-79.2	-64.82	1.70	8.38	V
	5730	-45.16	-13	-32.16	-70.99	-52.19	2.76	9.79	V
	7638	-49.23	-13	-36.23	-77.25	-58.73	2.38	11.88	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	3702	-57.73	-13	-44.73	-78.69	-64.3	1.67	8.24	H
	5550	-51.03	-13	-38.03	-76.08	-58.1	2.65	9.72	H
	7398	-52.27	-13	-39.27	-79.55	-61.4	2.46	11.60	H
	3702	-57.73	-13	-44.73	-78.4	-64.3	1.67	8.24	V
	5550	-45.03	-13	-32.03	-69.8	-52.1	2.65	9.72	V
	7398	-52.37	-13	-39.37	-79.45	-61.5	2.46	11.60	V
Middle	3762	-58.47	-13	-45.47	-78.83	-65.1	1.69	8.31	H
	5640	-52.05	-13	-39.05	-77.21	-59.1	2.71	9.76	H
	7518	-51.51	-13	-38.51	-78.91	-60.9	2.42	11.81	H
	3762	-58.17	-13	-45.17	-79.06	-64.8	1.69	8.31	V
	5640	-44.65	-13	-31.65	-70	-51.7	2.71	9.76	V
	7518	-52.01	-13	-39.01	-79.3	-61.4	2.42	11.81	V
Highest	3816	-58.82	-13	-45.82	-79.6	-65.5	1.70	8.38	H
	5730	-53.17	-13	-40.17	-78.48	-60.2	2.76	9.79	H
	7638	-49.80	-13	-36.80	-77.37	-59.3	2.38	11.88	H
	3816	-58.52	-13	-45.52	-79.33	-65.2	1.70	8.38	V
	5730	-51.47	-13	-38.47	-76.91	-58.5	2.76	9.79	V
	7638	-49.75	-13	-36.75	-77.3	-59.25	2.38	11.88	V

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

**WCDMA 1900**

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	3702	-58.53	-13	-45.53	-79.12	-65.1	1.67	8.24	H
	5556	-54.43	-13	-41.43	-79.12	-61.5	2.66	9.72	H
	7410	-52.84	-13	-39.84	-79.65	-62	2.46	11.62	H
	3702	-58.23	-13	-45.23	-79.09	-64.8	1.67	8.24	V
	5556	-52.03	-13	-39.03	-76.81	-59.1	2.66	9.72	V
	7410	-52.34	-13	-39.34	-79.57	-61.5	2.46	11.62	V
Middle	3762	-58.57	-13	-45.57	-79.22	-65.2	1.69	8.31	H
	5640	-53.15	-13	-40.15	-78.5	-60.2	2.71	9.76	H
	7520	-52.01	-13	-39.01	-79.04	-61.4	2.42	11.81	H
	3762	-58.67	-13	-45.67	-79.17	-65.3	1.69	8.31	V
	5640	-53.25	-13	-40.25	-78.36	-60.3	2.71	9.76	V
	7520	-51.41	-13	-38.41	-79.11	-60.8	2.42	11.81	V
Highest	3815	-58.53	-13	-45.53	-79.23	-65.2	1.70	8.38	H
	5723	-53.06	-13	-40.06	-78.39	-60.1	2.75	9.79	H
	7630	-50.41	-13	-37.41	-77.56	-59.9	2.39	11.88	H
	3815	-58.53	-13	-45.53	-79.32	-65.2	1.70	8.38	V
	5723	-52.56	-13	-39.56	-78.01	-59.6	2.75	9.79	V
	7630	-49.81	-13	-36.81	-77.27	-59.3	2.39	11.88	V

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



<For WCP Charging Mode>

<Ant. 1>

GSM850

GSM 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	-60.44	-13	-47.44	-72.56	-62.2	0.98	4.89	H
	2472	-60.02	-13	-47.02	-77.37	-61.9	1.28	5.32	H
	3296	-59.19	-13	-46.19	-78.81	-62.6	1.54	7.10	H
	1648	-60.54	-13	-47.54	-73.3	-62.3	0.98	4.89	V
	2472	-59.52	-13	-46.52	-77.37	-61.4	1.28	5.32	V
	3296	-58.79	-13	-45.79	-78.43	-62.2	1.54	7.10	V
Middle	1672	-61.62	-13	-48.62	-74.29	-63.3	0.99	4.82	H
	2512	-58.73	-13	-45.73	-76.37	-60.7	1.29	5.41	H
	3344	-59.19	-13	-46.19	-78.94	-62.8	1.56	7.31	H
	1672	-61.12	-13	-48.12	-74.21	-62.8	0.99	4.82	V
	2512	-59.33	-13	-46.33	-77.24	-61.3	1.29	5.41	V
	3344	-58.59	-13	-45.59	-78.74	-62.2	1.56	7.31	V
Highest	1696	-62.00	-13	-49.00	-74.73	-63.6	1.00	4.75	H
	2544	-56.22	-13	-43.22	-73.85	-58.2	1.30	5.44	H
	3392	-58.60	-13	-45.60	-78.71	-62.4	1.57	7.52	H
	4248	-56.70	-13	-43.70	-77.81	-61.3	1.90	8.65	H
	1696	-61.90	-13	-48.90	-74.66	-63.5	1.00	4.75	V
	2544	-52.82	-13	-39.82	-70.75	-54.8	1.30	5.44	V
	3392	-58.30	-13	-45.30	-78.52	-62.1	1.57	7.52	V
	4248	-55.40	-13	-42.40	-76.6	-60	1.90	8.65	V

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

—————THE END—————