FCC RF Test Report

FCC ID	:	**2AD9M-003A**
EQUIPMENT	:	**Smartphone**
BRAND NAME	:	**LEOMO**
MODEL NAME	:	**LEM-TS1**
MARKETING NAME	:	**LEOMO TYPE-S**
APPLICANT	:	**LEOMO, Inc. 7-22-17 Nishi Gotanda TOC Bldg. 7F Shinagawa-ku,Tokyo, 1410031, Japan**
MANUFACTURER	:	**LEOMO, Inc. 2000 Central Avenue, Suite 150, Boulder CO 80301, USA**
STANDARD	:	**47 CFR Part 2, 22(H), 24(E)**
CLASSIFICATION	:	**PCS Licensed Transmitter Held to Ear (PCE)**

The product was received on Apr. 24, 2019 and completely tested on Jun. 25, 2019. We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26-2015 and shown compliance with the applicable technical standards.

This report contains data that were produced under subcontract by Laboratory SPORTON INTERNATIONAL INC.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (Kunshan) Inc., the test report shall not be reproduced except in full.

Jason Jia

Reviewed by: Jason Jia / Supervisor

James Huang

Approved by: James Huang / Manager

ACCREDITED
Cert #5145.02

Sporton International (Kunshan) Inc.

No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300

People's Republic of China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG942441A	Rev. 01	Initial issue of report	Jun. 21, 2019
FG942441A	Rev. 02	Update the address of Appilicant.	Jul. 15, 2019

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§22.913(a)(5)	Effective Radiated Power	< 7 Watts	PASS	-
	§24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
3.5	§24.232(d)	Peak-to-Average Ratio	< 13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §22.917(a) §24.238(a)	Band Edge Measurement	< 43+10log10(P[Watts])	PASS	-
3.8	§2.1051 §22.917(a) §24.238(a)	Conducted Emission	< 43+10log10(P[Watts])	PASS	-
3.9	§2.1055 §22.355	Frequency Stability for Temperature & Voltage	< 2.5 ppm for Part 22H	PASS	-
	§2.1055 §24.235		Within Authorized Band		
4.4	§2.1053 §22.917(a) §24.238(a)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 21.95 dB at 2472.000 MHz

1 General Description

1.1 Applicant

LEOMO, Inc.
7-22-17 Nishi Gotanda TOC Bldg. 7F Shinagawa-ku,Tokyo, 1410031, Japan

1.2 Manufacturer

LEOMO, Inc.
2000 Central Avenue, Suite 150, Boulder CO 80301, USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Smartphone
Brand Name	LEOMO
Model Name	LEM-TS1
FCC ID	2AD9M-003A
EUT supports Radios application	GSM/WCDMA/LTE WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 Bluetooth BR/EDR/LE/ANT+ NFC and GNSS
HW Version	DVT
SW Version	000T_1_020
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 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 ~ 1909.8MHz **WCDMA:** Band V: 826.4 MHz ~ 846.6 MHz Band II: 1852.4 MHz ~ 1907.6 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
Maximum Output Power to Antenna	**GSM/GPRS/EDGE:** 850: 33.50 dBm 1900: 30.50 dBm **WCDMA:** Band V: 23.12 dBm Band II: 23.32 dBm
Antenna Type	PIFA Antenna
Antenna Gain	Cellular Band: -2.03 dBi PCS Band: -5.11 dBi
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA : BPSK (Uplink) HSDPA : QPSK (Uplink) HSUPA : QPSK (Uplink) HSPA+ : 16QAM (16QAM uplink is not supported)

1.5 Modification of EUT

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

1.6 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator

FCC Rule	System	Type of Modulation	Maximum ERP/EIRP (W)	Frequency Tolerance (ppm)	Emission Designator
Part 22H	GSM850 GPRS class 8	GMSK	0.4207	0.0108 ppm	245KGXW
Part 22H	GSM850 EDGE class 8	8PSK	0.0871	0.0072 ppm	251KG7W
Part 22H	WCDMA Band V RMC 12.2Kbps	BPSK	0.0385	0.0215 ppm	4M13F9W
Part 24E	GSM1900 GPRS class 8	GMSK	0.7031	0.0282 ppm	245KGXW
Part 24E	GSM1900 EDGE class 8	8PSK	0.2075	0.0207 ppm	248KG7W
Part 24E	WCDMA Band II RMC 12.2Kbps	BPSK	0.1346	0.0191 ppm	4M14F9W

1.7 Testing Location

SPORTON INTERNATIONAL INC. is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and under the FCC-recognized accredited testing laboratories by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist. Taoyuan City Taiwan Tel: 886-3-327-3456 FAX: +886-3-327-0978		
Test Site No.	**Sporton Site No.**	**FCC designation No.**	**FCC Test Firm Registration No.**
	TH03-HY	TW1190	553509

Note: Test data subcontracted: conducted test result in section 3 of this report.

Sporton International (Kunshan) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International (Kunshan) Inc.		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	TH01-KS 03CH04-KS	CN1257	314309

1.8 Applicable Standards

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

- 47 CFR Part 2, 22(H), 24(E)
- ANSI C63.26-2015
- 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.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated as following frequency range:

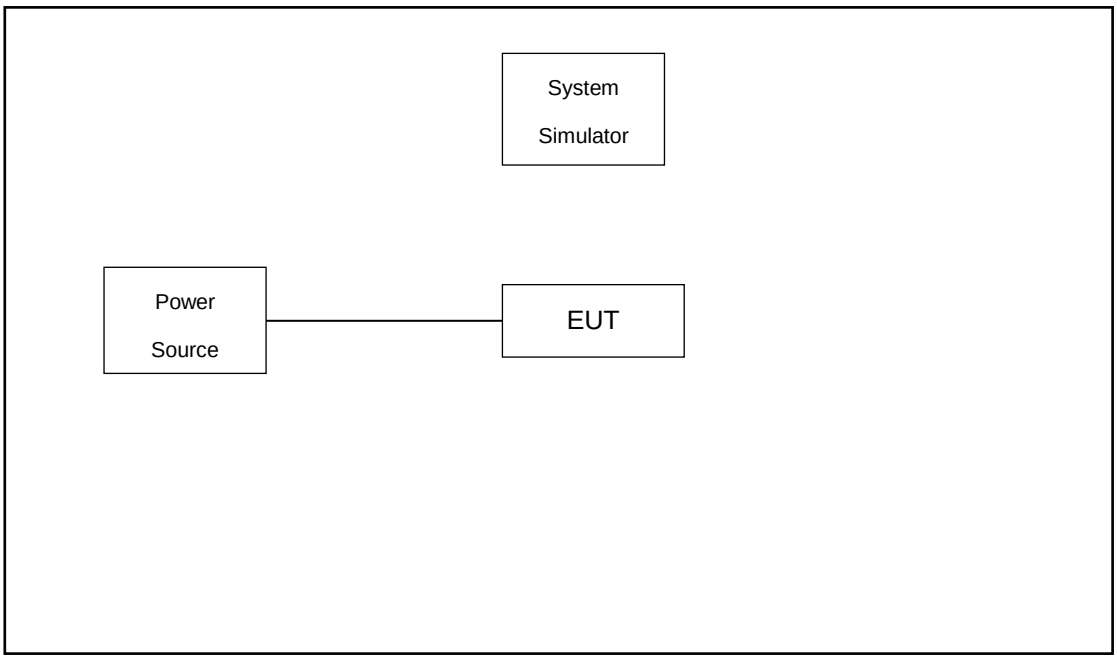
1. 30 MHz to 10th harmonic for GSM850 and WCDMA Band V.
2. 30 MHz to 10th harmonic for GSM1900 and WCDMA Band II.

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

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GW INSTEK	GPS-3030D	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 5.6 dB and a 10dB attenuator.

Example :

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

= 5.6 + 10 = 15.6 (dB)

2.5 Frequency List of Low/Middle/High Channels

Frequency List				
Band	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
GSM850	Channel	128	189	251
	Frequency	824.2	836.4	848.8
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

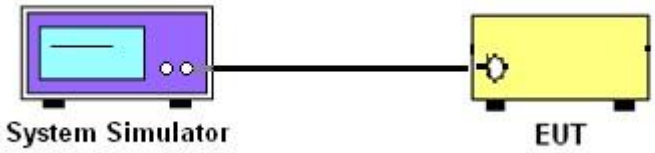
3 Conducted Test Result

3.1 Measuring Instruments

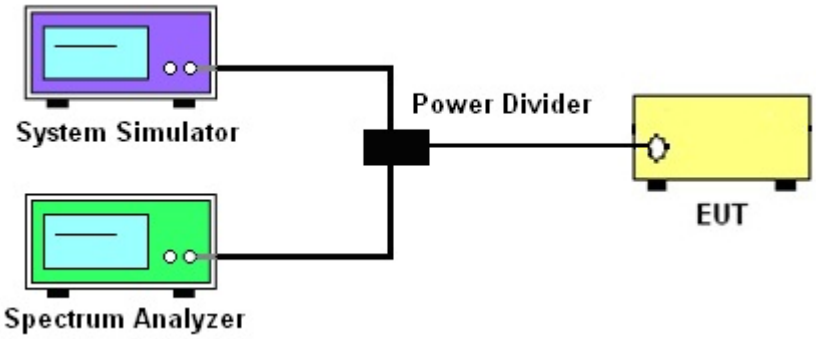
See list of measuring instruments of this test report.

3.2 Test Setup

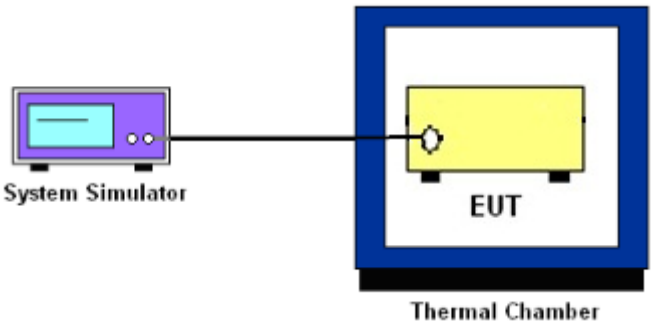
3.2.1 Conducted Output Power



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



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power and ERP/EIRP

3.4.1 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.

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

3.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter output port was connected to the system simulator.
3. Set EUT at maximum power through the system simulator.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure and record the power level from the system simulator.

3.5 Peak-to-Average Ratio

3.5.1 Description of the PAR Measurement

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

3.5.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2.3.4 (CCDF).
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
5. Record the deviation as Peak to Average Ratio.

3.6 99% Occupied Bandwidth and 26dB Bandwidth Measurement

3.6.1 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.

3.6.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.4
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. 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.
4. 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.
5. Set the detection mode to peak, and the trace mode to max hold.
6. 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)
7. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
8. 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.
9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.7 Conducted Band Edge

3.7.1 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.

3.7.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. 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.
4. The band edges of low and high channels for the highest RF powers were measured.
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 + 10log(P) dB below the transmitter power P(Watts)

3.8 Conducted Spurious Emission

3.8.1 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.

3.8.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. 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.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)

3.9 Frequency Stability

3.9.1 Description of Frequency Stability Measurement

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

3.9.2 Test Procedures for Temperature Variation

1. The testing follows ANSI C63.26 section 5.6.4
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. 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.
4. With power OFF, the temperature was raised in 10°C step 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.

3.9.3 Test Procedures for Voltage Variation

1. The testing follows ANSI C63.26 section 5.6.5
2. The EUT was placed in a temperature chamber at 20±5°C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value for other than hand carried battery equipment.
4. For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.
5. The variation in frequency was measured for the worst case.

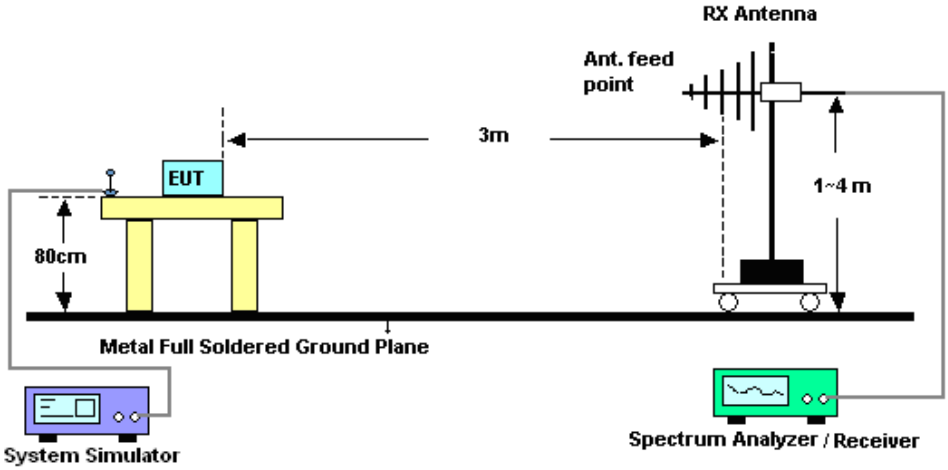
4 Radiated Test Items

4.1 Measuring Instruments

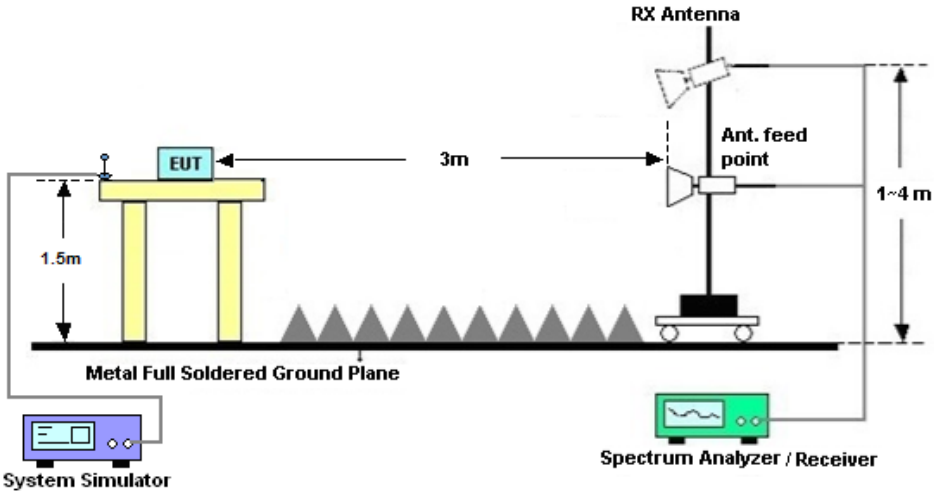
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test from 30MHz to 1GHz



4.2.2 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

1. The testing follows ANSI C63.26 Section 5.5
2. 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.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. 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.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
12. ERP (dBm) = EIRP - 2.15
13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
14. The limit line is derived from 43 + 10log(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
Hygrometer	Testo	608-H1	34893241	N/A	Mar. 06, 2019	May 22, 2019	Mar. 05, 2020	Conducted (TH03-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101329	9kHz~30GHz	Jun. 29, 2018	May 22, 2019	Jun. 28, 2019	Conducted (TH03-HY)
Temperature Chamber	ESPEC	SU-641	92013721	-30℃ ~70℃	Dec. 06, 2018	May 22, 2019	Dec. 05, 2019	Conducted (TH03-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL883644	Voltage:0~20V;Current:0~5A	Dec. 06, 2018	May 22, 2019	Dec. 05, 2019	Conducted (TH03-HY)
Base Station(Measure)	Rohde & Schwarz	CMU200	117995	GSM / GPRS / WCDMA / CDMA	Aug. 10, 2018	May 22, 2019	Aug. 09, 2019	Conducted (TH03-HY)
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Aug. 07, 2018	Jun. 24, 2019~ Jun. 25, 2019	Aug. 06, 2019	Conducted (TH01-KS)
Thermal Chamber	Hongzhan	LP-150U	H2014011440	-40~+150°C 20%~95%RH	Jun. 27, 2018	Jun. 24, 2019~ Jun. 25, 2019	Jun. 26, 2019	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44G,MAX 30dB	Apr. 16, 2019	May 30, 2019~ Jun. 01, 2019	Apr. 15, 2020	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	44483	30MHz-1GHz	Dec. 28, 2018	May 30, 2019~ Jun. 01, 2019	Dec. 27, 2019	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1648	1GHz~18GHz	Jan. 27, 2019	May 30, 2019~ Jun. 01, 2019	Jan. 26, 2020	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2019	May 30, 2019~ Jun. 01, 2019	Jan. 04, 2020	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Aug. 06, 2018	May 30, 2019~ Jun. 01, 2019	Aug. 05, 2019	Radiation (03CH04-KS)
high gain Amplifier	MITEQ	AMF-7D-00101800-30-10P	2025788	1Ghz-18Ghz	Aug. 16, 2018	May 30, 2019~ Jun. 01, 2019	Aug. 15, 2019	Radiation (03CH04-KS)
Amplifier	Keysight	83017A	MY53270319	500MHz~26.5GHz	Oct. 12, 2018	May 30, 2019~ Jun. 01, 2019	Oct. 11, 2019	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	May 30, 2019~ Jun. 01, 2019	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	May 30, 2019~ Jun. 01, 2019	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	May 30, 2019~ Jun. 01, 2019	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required

6 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.3 dB**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.8 dB**

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	1880.0	1909.8
GSM	33.50	33.42	33.48	30.48	30.47	30.46
GPRS class 8	33.50	33.41	33.49	30.50	30.49	30.47
GPRS class 10	30.41	30.03	30.08	26.76	26.67	26.55
GPRS class 11	28.25	28.34	28.42	25.44	25.33	25.20
GPRS class 12	27.04	26.80	26.86	23.74	23.68	23.56
EGPRS class 8	26.61	26.64	26.66	25.20	25.08	24.95
EGPRS class 10	25.57	25.59	25.63	23.61	23.44	23.33
EGPRS class 11	23.88	23.93	23.92	21.82	21.63	21.51
EGPRS class 12	22.24	22.27	22.21	20.40	20.24	20.11

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
AMR 12.2K	22.91	22.97	23.07	23.21	23.09	23.29
RMC 12.2K	22.93	23.00	23.12	23.23	23.12	23.32
HSDPA Subtest-1	22.12	22.25	22.37	22.06	22.23	22.37
HSDPA Subtest-2	22.11	22.22	22.31	22.11	22.22	22.39
HSDPA Subtest-3	21.69	21.74	21.81	21.63	21.82	21.98
HSDPA Subtest-4	21.70	21.74	21.81	21.61	21.81	21.97
HSUPA Subtest-1	21.36	21.72	22.10	21.89	21.61	21.64
HSUPA Subtest-2	20.64	21.08	21.19	20.60	21.16	21.18
HSUPA Subtest-3	20.78	20.69	21.21	20.68	20.78	20.94
HSUPA Subtest-4	21.05	21.28	21.78	21.22	21.35	21.35
HSUPA Subtest-5	22.00	22.10	22.10	22.10	22.20	22.30

ERP/EIRP

GSM850 (G_T - L_C= -5.11 dB)			
Channel	128	189	251
	(Low)	(Mid)	(High)
Frequency (MHz)	824.2	836.4	848.8
Conducted Power (dBm)	33.50	33.41	33.49
Conducted Power (Watts)	2.2387	2.1928	2.2336
ERP(dBm)	26.24	26.15	26.23
ERP(Watts)	0.4207	0.4121	0.4198

EDGE850 (G_T - L_C= -5.11 dB)			
Channel	128	189	251
	(Low)	(Mid)	(High)
Frequency (MHz)	824.2	836.4	848.8
Conducted Power (dBm)	26.61	26.64	26.66
Conducted Power (Watts)	0.4581	0.4613	0.4634
ERP(dBm)	19.35	19.38	19.40
ERP(Watts)	0.0861	0.0867	0.0871

GSM1900 (G_T - L_C= -2.03 dB)			
Channel	512	661	810
	(Low)	(Mid)	(High)
Frequency (MHz)	1850.2	1880	1909.8
Conducted Power (dBm)	30.50	30.49	30.47
Conducted Power (Watts)	1.1220	1.1194	1.1143
EIRP(dBm)	28.47	28.46	28.44
EIRP(Watts)	0.7031	0.7015	0.6982

EDGE1900 (G_T - L_C= -2.03 dB)			
Channel	512	661	810
	(Low)	(Mid)	(High)
Frequency (MHz)	1850.2	1880	1909.8
Conducted Power (dBm)	25.20	25.08	24.95
Conducted Power (Watts)	0.3311	0.3221	0.3126
EIRP(dBm)	23.17	23.05	22.92
EIRP(Watts)	0.2075	0.2018	0.1959

WCDMA Band V (G_T - L_C = -5.11 dB)			
Channel	4132	4182	4233
	(Low)	(Mid)	(High)
Frequency (MHz)	826.4	836.4	846.6
Conducted Power (dBm)	22.93	23.00	23.12
Conducted Power (Watts)	0.1963	0.1995	0.2051
ERP(dBm)	15.67	15.74	15.86
ERP(Watts)	0.0369	0.0375	0.0385

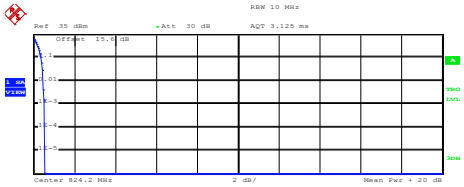
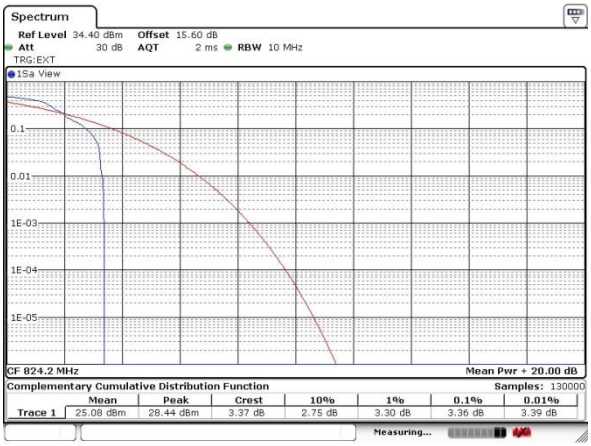
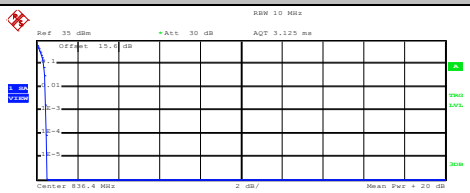
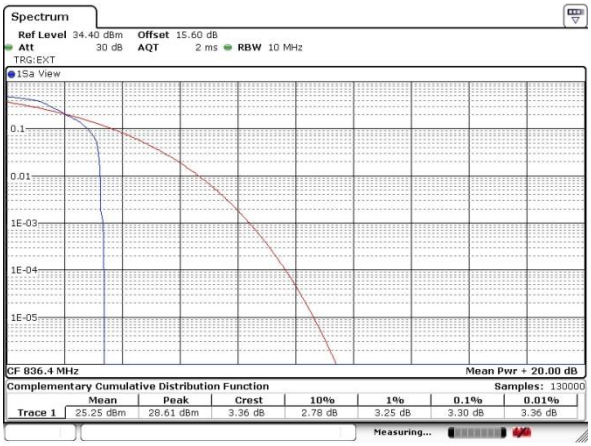
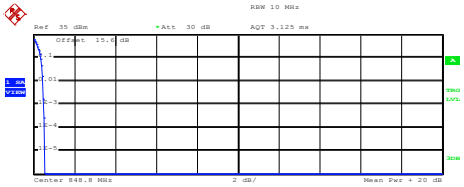
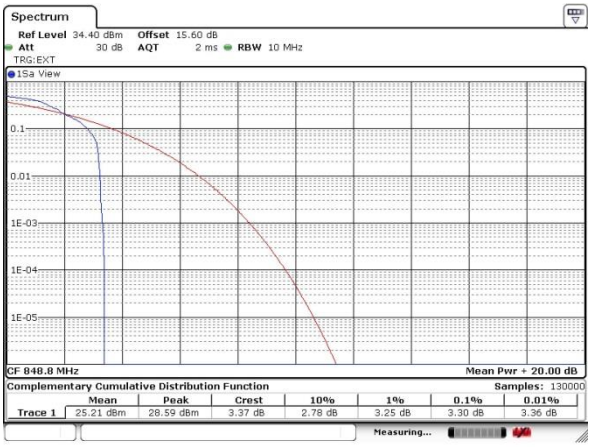
WCDMA Band II (G_T - L_C = -2.03 dB)			
Channel	9262	9400	9538
	(Low)	(Mid)	(High)
Frequency (MHz)	1852.4	1880	1907.6
Conducted Power (dBm)	23.23	23.12	23.32
Conducted Power (Watts)	0.2104	0.2051	0.2148
EIRP(dBm)	21.20	21.09	21.29
EIRP(Watts)	0.1318	0.1285	0.1346

Peak-to-Average Ratio

Mode	GSM850(dB)		Limit: 13dB
Mod.	GPRS class 8	EDGE class 8	Result
Lowest CH	0.52	3.36	PASS
Middle CH	0.44	3.30	
Highest CH	0.52	3.30	

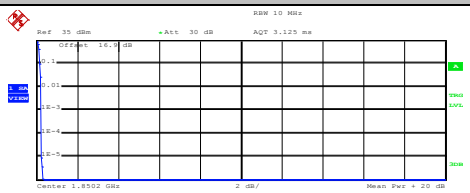
Mode	GSM1900(dB)		Limit: 13dB
Mod.	GPRS class 8	EDGE class 8	Result
Lowest CH	0.24	3.28	PASS
Middle CH	0.20	3.32	
Highest CH	0.24	3.24	

Mode	WCDMA Band V(dB)	WCDMA Band II(dB)	Limit: 13dB
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	Result
Lowest CH	2.40	2.80	PASS
Middle CH	2.76	2.92	
Highest CH	2.28	2.56	

GSM850 (GPRS class 8)	GSM850 (EDGE class 8)
Lowest Channel	**Lowest Channel**
 Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 31.18 dBm Peak 31.72 dBm Crest 0.54 dB 10 % 0.36 dB 1 % 0.48 dB .1 % 0.52 dB .01 % 0.56 dB Date: 22.MAY.2019 15:15:36	 Date: 24.JUN.2019 22:27:20
Middle Channel	**Middle Channel**
 Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 31.28 dBm Peak 31.79 dBm Crest 0.51 dB 10 % 0.36 dB 1 % 0.44 dB .1 % 0.44 dB .01 % 0.48 dB Date: 22.MAY.2019 15:15:55	 Date: 24.JUN.2019 22:27:28
Highest Channel	**Highest Channel**
 Complementary Cumulative Distribution Function (100000 samples) Trace 1 Mean 31.20 dBm Peak 31.72 dBm Crest 0.53 dB 10 % 0.36 dB 1 % 0.44 dB .1 % 0.52 dB .01 % 0.56 dB Date: 22.MAY.2019 15:16:11	 Date: 24.JUN.2019 22:27:34

GSM1900 (GPRS class 8)

Lowest Channel

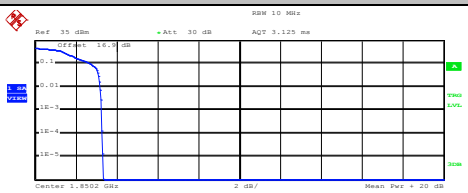


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	24.22 dBm
Peak	24.53 dBm
Crest	0.31 dB
10 %	0.16 dB
1 %	0.24 dB
.1 %	0.24 dB
.01 %	0.24 dB

Date: 22.MAY.2019 17:58:00

Lowest Channel

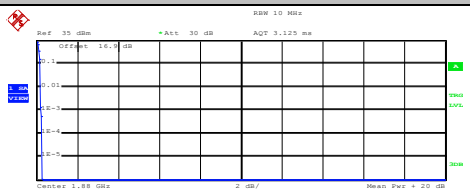


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.93 dBm
Peak	27.28 dBm
Crest	3.35 dB
10 %	2.72 dB
1 %	3.20 dB
.1 %	3.28 dB
.01 %	3.28 dB

Date: 22.MAY.2019 17:41:47

Middle Channel

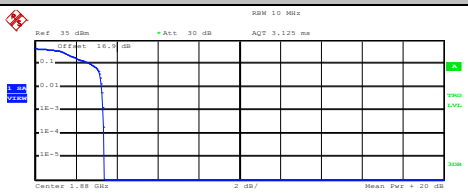


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	24.26 dBm
Peak	24.53 dBm
Crest	0.27 dB
10 %	0.16 dB
1 %	0.20 dB
.1 %	0.20 dB
.01 %	0.28 dB

Date: 22.MAY.2019 17:58:15

Middle Channel

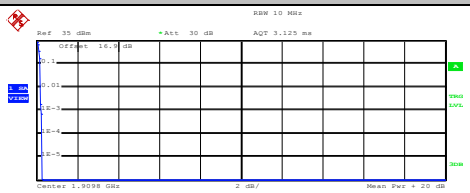


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.89 dBm
Peak	27.28 dBm
Crest	3.39 dB
10 %	2.72 dB
1 %	3.28 dB
.1 %	3.32 dB
.01 %	3.36 dB

Date: 22.MAY.2019 17:42:10

Highest Channel

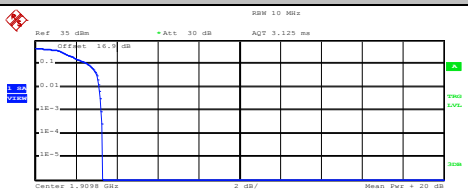


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	24.26 dBm
Peak	24.53 dBm
Crest	0.26 dB
10 %	0.16 dB
1 %	0.20 dB
.1 %	0.24 dB
.01 %	0.28 dB

Date: 22.MAY.2019 17:58:35

Highest Channel



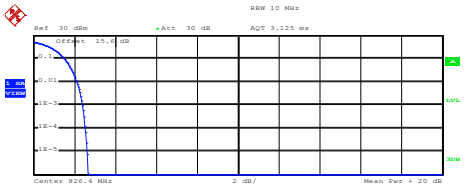
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.83 dBm
Peak	27.14 dBm
Crest	3.31 dB
10 %	2.56 dB
1 %	3.16 dB
.1 %	3.24 dB
.01 %	3.32 dB

Date: 22.MAY.2019 17:42:43

WCDMA Band V (RMC 12.2Kbps)

Lowest Channel

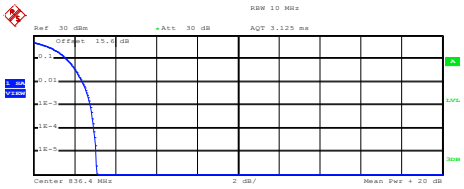


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	22.87 dBm
Peak	25.52 dBm
Crest	2.65 dB
10 %	1.52 dB
1 %	2.12 dB
.1 %	2.40 dB
.01 %	2.52 dB

Date: 22.MAY.2019 18:24:57

Middle Channel

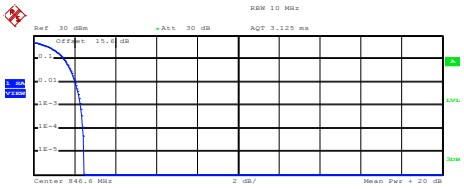


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.01 dBm
Peak	26.09 dBm
Crest	3.08 dB
10 %	1.60 dB
1 %	2.40 dB
.1 %	2.76 dB
.01 %	2.96 dB

Date: 22.MAY.2019 18:25:12

Highest Channel



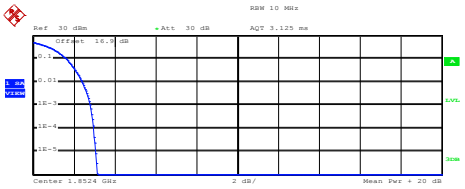
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	22.85 dBm
Peak	25.31 dBm
Crest	2.47 dB
10 %	1.48 dB
1 %	2.04 dB
.1 %	2.28 dB
.01 %	2.40 dB

Date: 22.MAY.2019 18:25:38

WCDMA Band II (RMC 12.2Kbps)

Lowest Channel

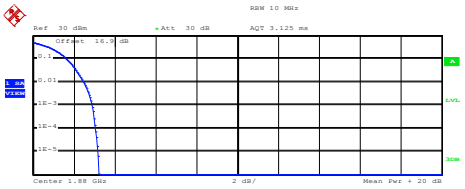


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.96 dBm
Peak	25.10 dBm
Crest	3.14 dB
10 %	1.64 dB
1 %	2.40 dB
.1 %	2.80 dB
.01 %	2.96 dB

Date: 22.MAY.2019 18:51:05

Middle Channel

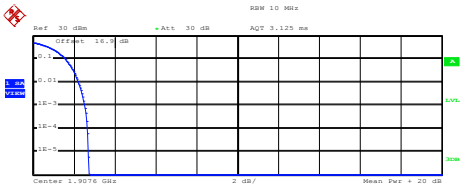


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	22.03 dBm
Peak	25.24 dBm
Crest	3.22 dB
10 %	1.64 dB
1 %	2.48 dB
.1 %	2.92 dB
.01 %	3.08 dB

Date: 22.MAY.2019 18:51:19

Highest Channel



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	22.34 dBm
Peak	25.10 dBm
Crest	2.76 dB
10 %	1.60 dB
1 %	2.24 dB
.1 %	2.56 dB
.01 %	2.68 dB

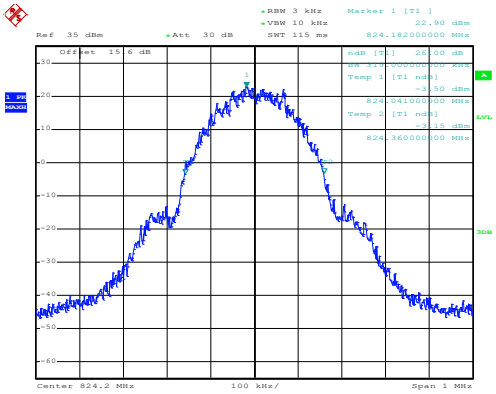
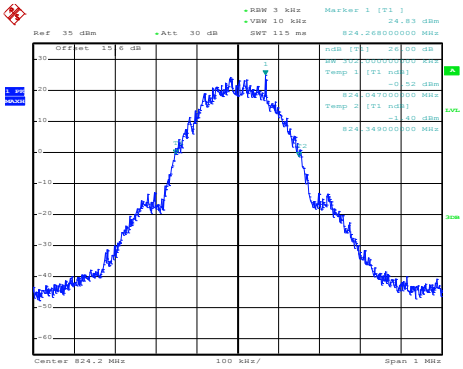
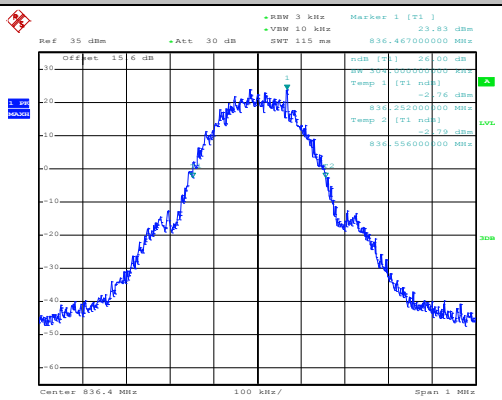
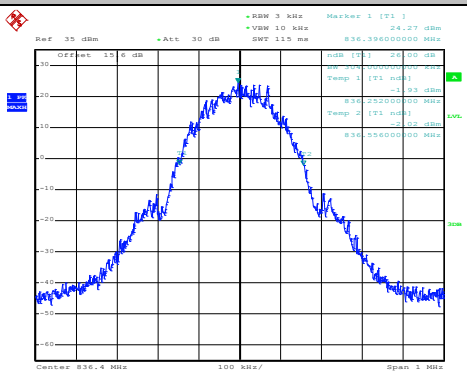
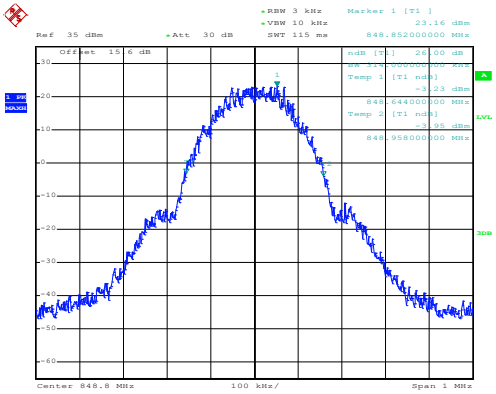
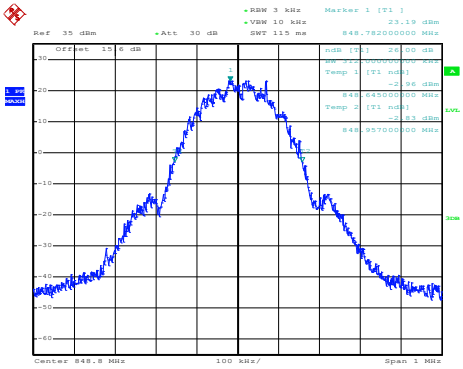
Date: 22.MAY.2019 18:51:47

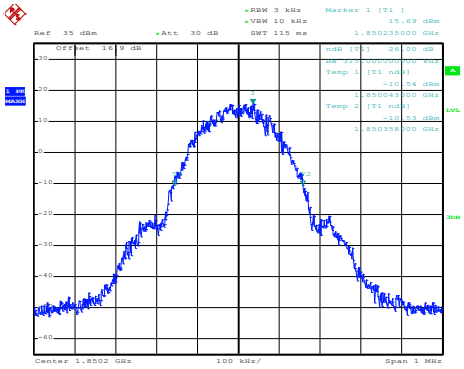
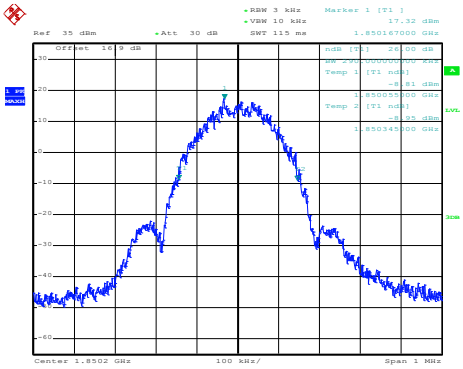
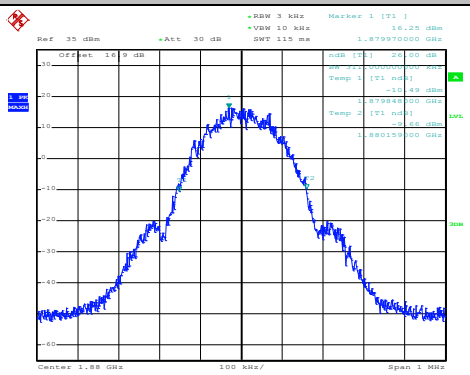
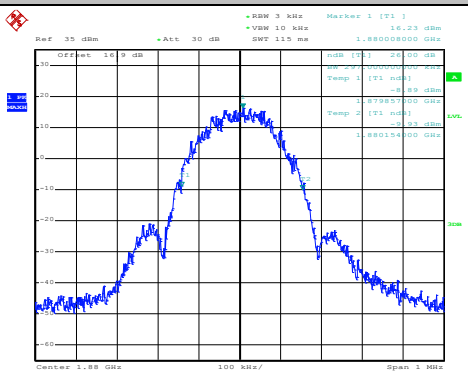
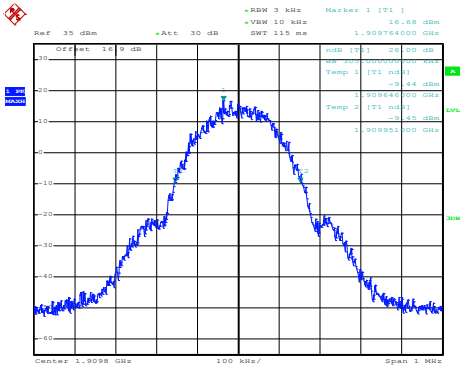
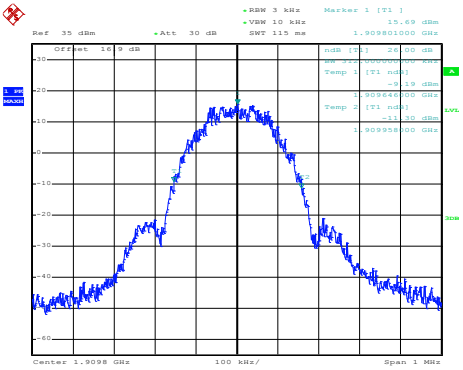
26dB Bandwidth

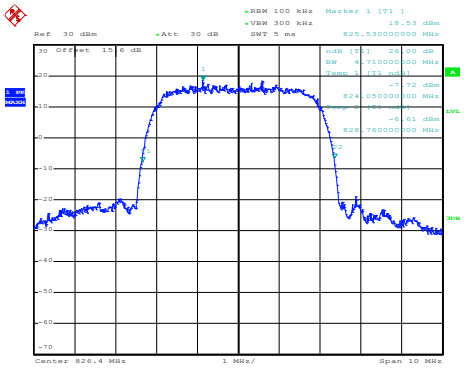
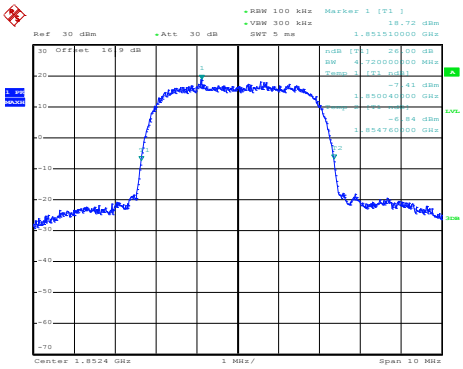
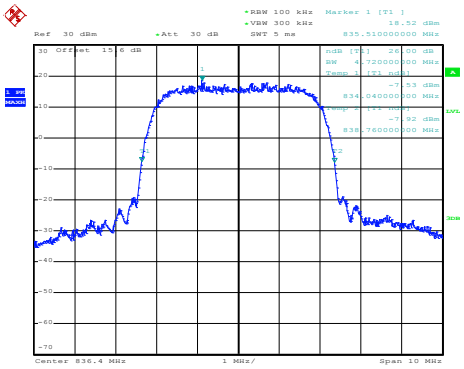
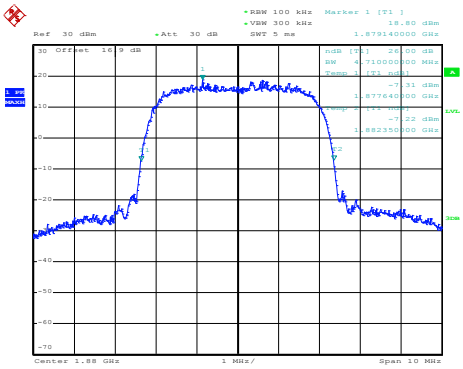
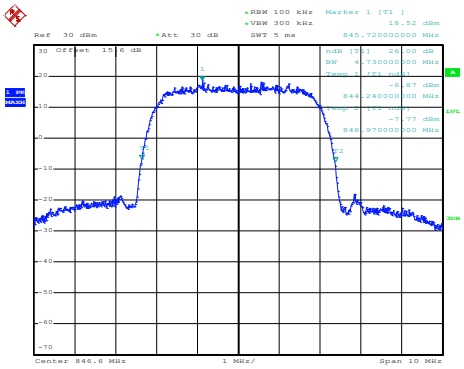
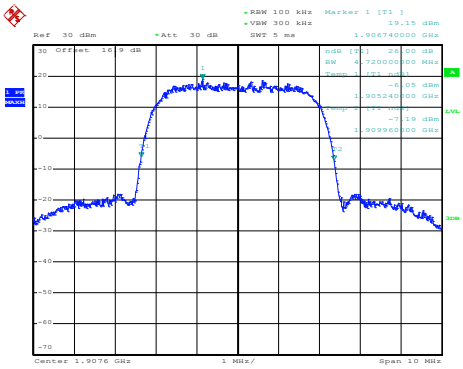
Mode	GSM850(MHz)	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.319	0.302
Middle CH	0.304	0.304
Highest CH	0.314	0.312

Mode	GSM1900(MHz)	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.315	0.290
Middle CH	0.311	0.297
Highest CH	0.305	0.312

Mode	WCDMA Band V(MHz)	WCDMA Band II(MHz)
Mod.	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.71	4.72
Middle CH	4.72	4.71
Highest CH	4.73	4.72

GSM850 (GPRS class 8)	GSM850 (EDGE class 8)
Lowest Channel	**Lowest Channel**
 Date: 22.MAY.2019 15:06:19	 Date: 22.MAY.2019 15:17:55
Middle Channel	**Middle Channel**
 Date: 22.MAY.2019 15:06:53	 Date: 22.MAY.2019 15:18:31
Highest Channel	**Highest Channel**
 Date: 22.MAY.2019 15:07:29	 Date: 22.MAY.2019 15:19:04

GSM1900 (GPRS class 8)	GSM1900 (EDGE class 8)
Lowest Channel	**Lowest Channel**
 Date: 22.MAY.2019 17:47:53	 Date: 22.MAY.2019 17:30:51
Middle Channel	**Middle Channel**
 Date: 22.MAY.2019 17:48:27	 Date: 22.MAY.2019 17:31:25
Highest Channel	**Highest Channel**
 Date: 22.MAY.2019 17:49:00	 Date: 22.MAY.2019 17:32:07

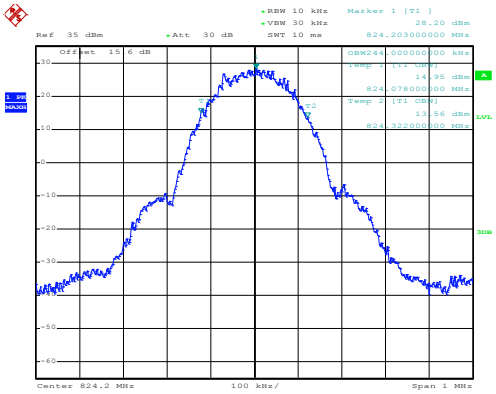
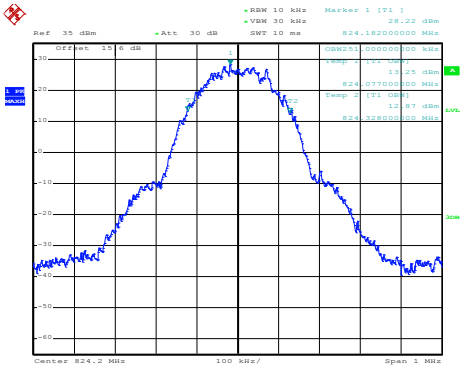
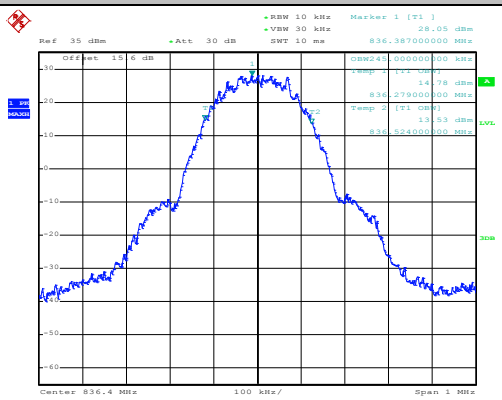
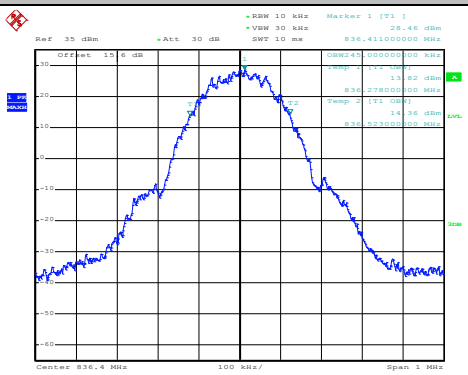
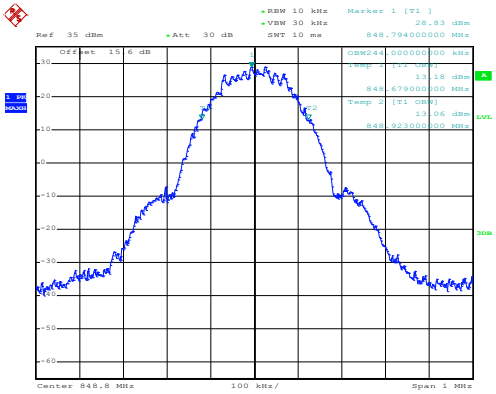
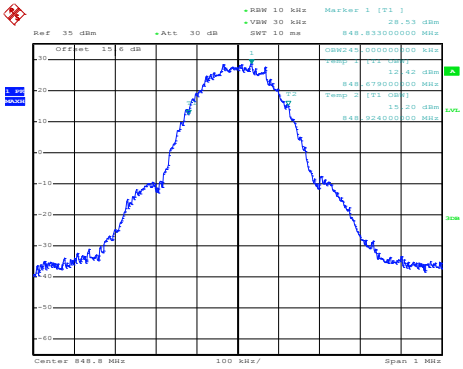
WCDMA Band V (RMC 12.2Kbps)	WCDMA Band II (RMC 12.2Kbps)
Lowest Channel	**Lowest Channel**
 Date: 22.MAY.2019 18:07:35	 Date: 22.MAY.2019 18:37:54
Middle Channel	**Middle Channel**
 Date: 22.MAY.2019 18:08:10	 Date: 22.MAY.2019 18:38:29
Highest Channel	**Highest Channel**
 Date: 22.MAY.2019 18:08:47	 Date: 22.MAY.2019 18:39:04

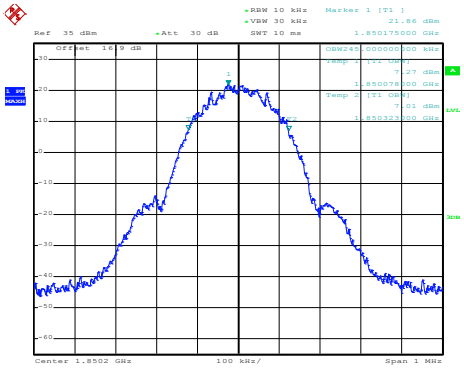
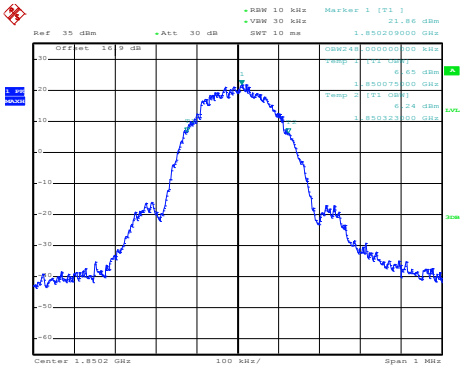
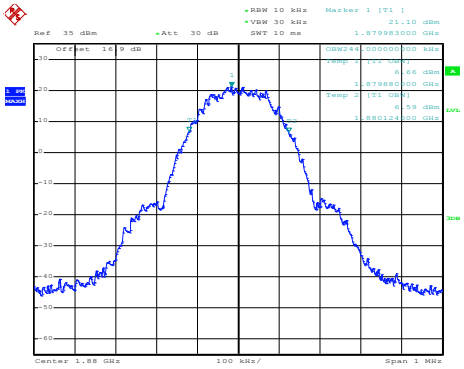
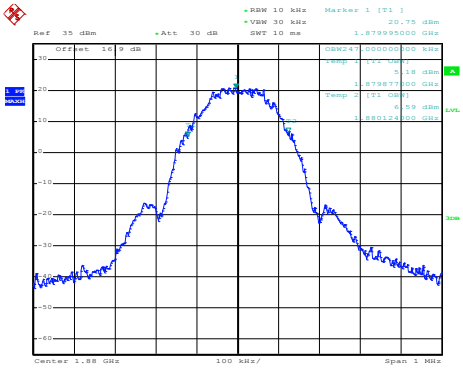
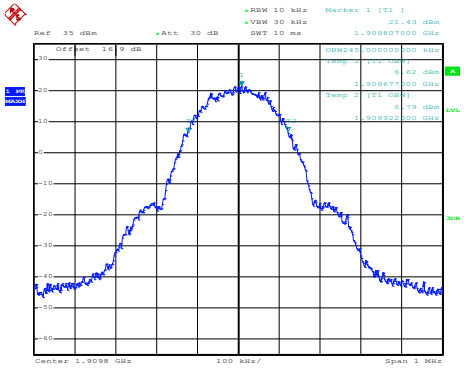
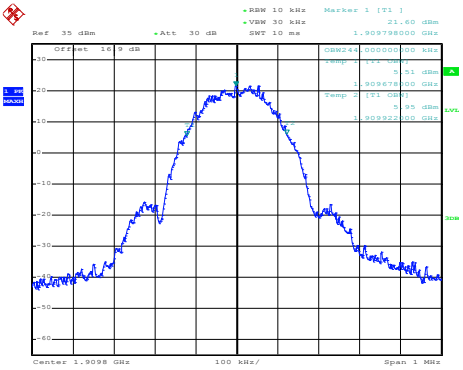
Occupied Bandwidth

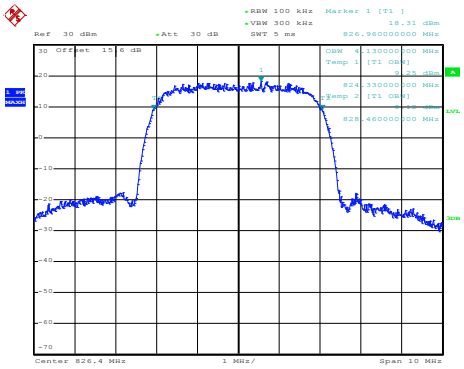
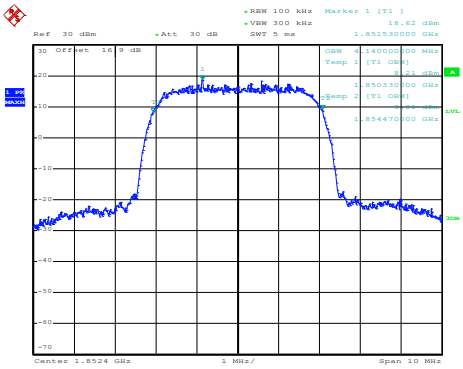
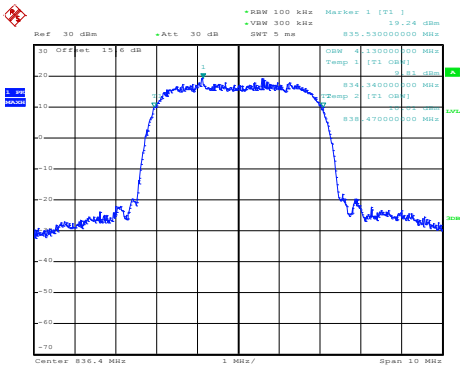
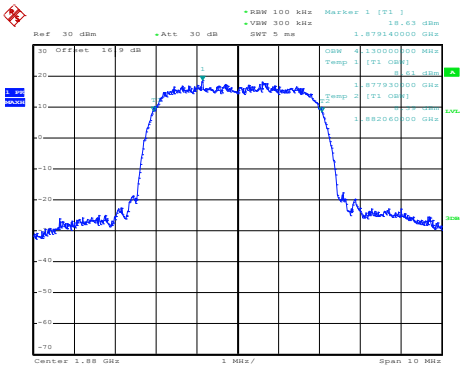
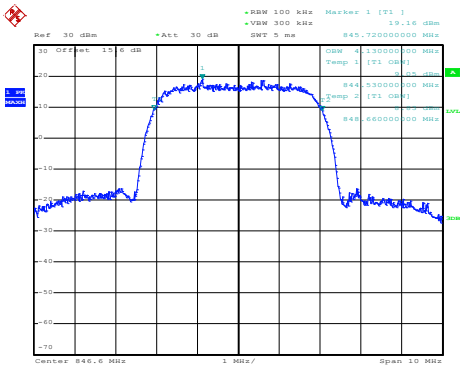
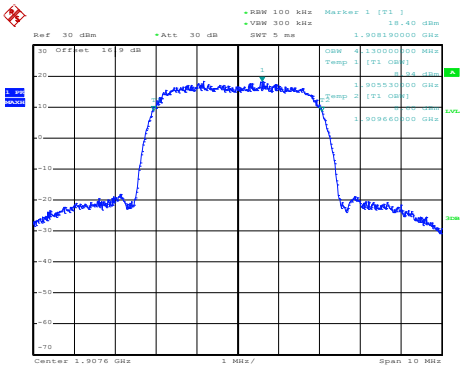
Mode	GSM850(MHz)	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.244	0.251
Middle CH	0.245	0.245
Highest CH	0.244	0.245

Mode	GSM1900(MHz)	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.245	0.248
Middle CH	0.244	0.247
Highest CH	0.245	0.244

Mode	WCDMA Band V(MHz)	WCDMA Band II(MHz)
Mod.	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.13	4.14
Middle CH	4.13	4.13
Highest CH	4.13	4.13

GSM850 (GPRS class 8)	GSM850 (EDGE class 8)
Lowest Channel	**Lowest Channel**
 Date: 22.MAY.2019 15:08:10	 Date: 22.MAY.2019 15:19:44
Middle Channel	**Middle Channel**
 Date: 22.MAY.2019 15:08:43	 Date: 22.MAY.2019 15:20:17
Highest Channel	**Highest Channel**
 Date: 22.MAY.2019 15:09:16	 Date: 22.MAY.2019 15:20:49

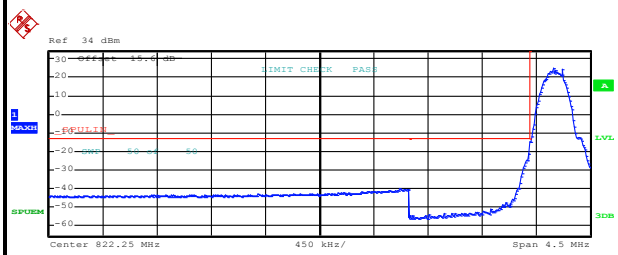
GSM1900 (GPRS class 8)	GSM1900 (EDGE class 8)
Lowest Channel	**Lowest Channel**
 Date: 22.MAY.2019 17:49:38	 Date: 22.MAY.2019 17:32:49
Middle Channel	**Middle Channel**
 Date: 22.MAY.2019 17:50:10	 Date: 22.MAY.2019 17:33:24
Highest Channel	**Highest Channel**
 Date: 22.MAY.2019 17:50:44	 Date: 22.MAY.2019 17:34:09

WCDMA Band V (RMC 12.2Kbps)	WCDMA Band II (RMC 12.2Kbps)
Lowest Channel	**Lowest Channel**
 Date: 22.MAY.2019 18:14:41	 Date: 22.MAY.2019 18:39:40
Middle Channel	**Middle Channel**
 Date: 22.MAY.2019 18:15:15	 Date: 22.MAY.2019 18:40:15
Highest Channel	**Highest Channel**
 Date: 22.MAY.2019 18:15:52	 Date: 22.MAY.2019 18:40:54

Conducted Band Edge

GSM850 (GPRS class 8)

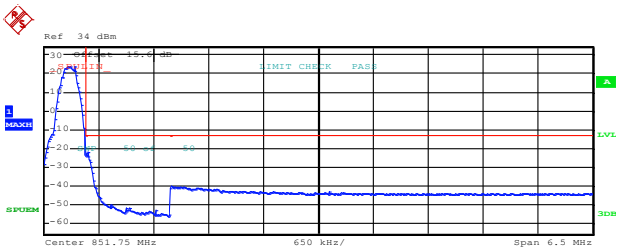
Lowest Band Edge



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
820.000 M	823.000 M	100.00 k	822.916000 M	-40.14	-27.14
823.000 M	824.000 M	3.00 k	823.980000 M	-22.45	-9.45
824.000 M	824.500 M	10.00 k	824.196000 M	24.76	-10.24

Date: 22.MAY.2019 15:10:53

Highest Band Edge

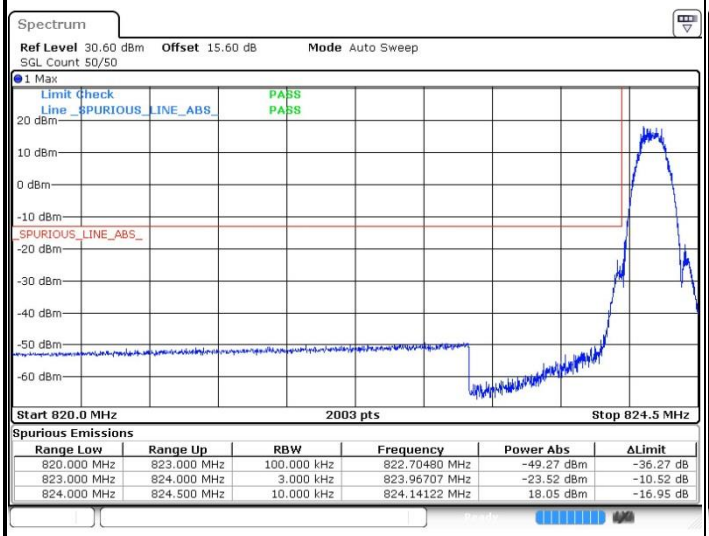


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
848.500 M	849.000 M	10.00 k	848.818000 M	23.84	-11.16
849.000 M	850.000 M	3.00 k	849.020000 M	-22.14	-9.14
850.000 M	855.000 M	100.00 k	850.005000 M	-40.14	-27.14

Date: 22.MAY.2019 15:12:28

GSM850 (EDGE class 8)

Lowest Band Edge

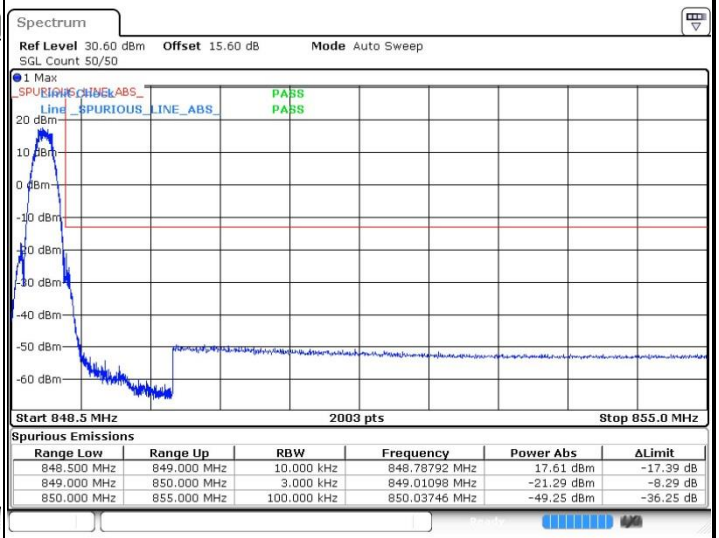


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
820.000 MHz	823.000 MHz	100.000 kHz	822.70480 MHz	-49.27 dBm	-36.27 dB
823.000 MHz	824.000 MHz	3.000 kHz	823.96707 MHz	-23.52 dBm	-10.52 dB
824.000 MHz	824.500 MHz	10.000 kHz	824.14122 MHz	18.05 dBm	-16.95 dB

Date: 25.JUN.2019 08:34:19

Highest Band Edge



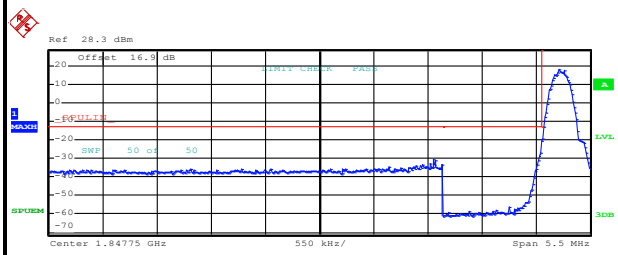
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
848.500 MHz	849.000 MHz	10.000 kHz	848.78792 MHz	17.61 dBm	-17.39 dB
849.000 MHz	850.000 MHz	3.000 kHz	849.01098 MHz	-21.29 dBm	-8.29 dB
850.000 MHz	855.000 MHz	100.000 kHz	850.03746 MHz	-49.25 dBm	-36.25 dB

Date: 25.JUN.2019 08:35:52

GSM1900 (GPRS class 8)

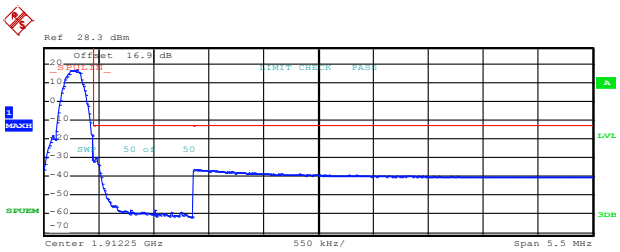
Lowest Band Edge



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.845 G	1.849 G	1.00 M	1.848904 G	-30.38	-17.38
1.849 G	1.850 G	3.00 k	1.849984 G	-28.54	-15.54
1.850 G	1.851 G	10.00 k	1.850180 G	17.90	-17.10

Date: 22.MAY.2019 17:52:18

Highest Band Edge

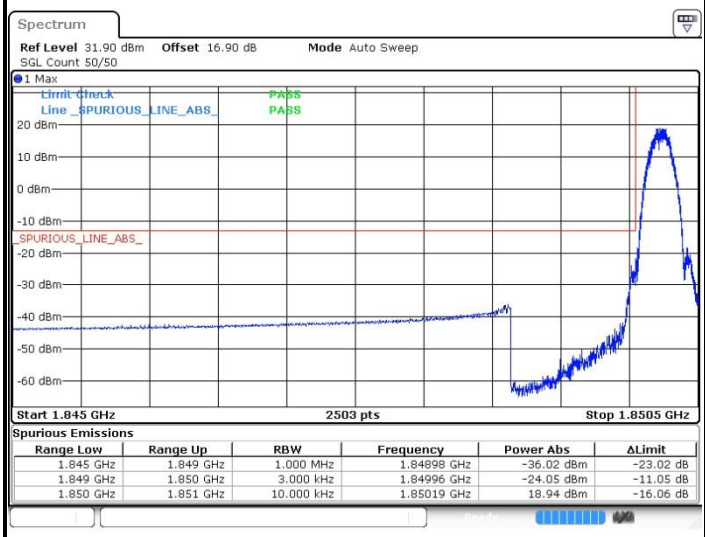


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.910 G	1.910 G	10.00 k	1.909825 G	16.71	-18.29
1.910 G	1.911 G	3.00 k	1.910028 G	-29.07	-16.07
1.911 G	1.915 G	1.00 M	1.911040 G	-36.42	-23.42

Date: 22.MAY.2019 17:54:48

GSM1900 (EDGE class 8)

Lowest Band Edge

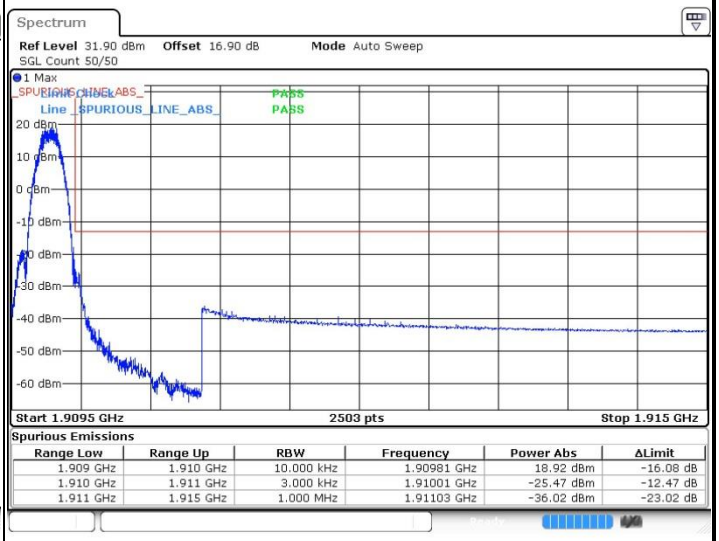


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.845 GHz	1.849 GHz	1.000 MHz	1.84898 GHz	-36.02 dBm	-23.02 dB
1.849 GHz	1.850 GHz	3.000 kHz	1.84996 GHz	-24.05 dBm	-11.05 dB
1.850 GHz	1.851 GHz	10.000 kHz	1.85019 GHz	18.94 dBm	-16.06 dB

Date: 25.JUN.2019 09:26:55

Highest Band Edge



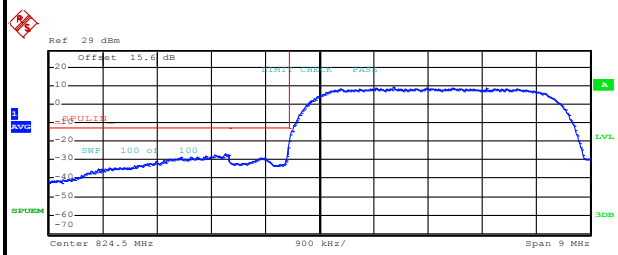
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.909 GHz	1.910 GHz	10.000 kHz	1.90981 GHz	18.92 dBm	-16.08 dB
1.910 GHz	1.911 GHz	3.000 kHz	1.91001 GHz	-25.47 dBm	-12.47 dB
1.911 GHz	1.915 GHz	1.000 MHz	1.91103 GHz	-36.02 dBm	-23.02 dB

Date: 25.JUN.2019 09:28:44

WCDMA Band V (RMC 12.2Kbps)

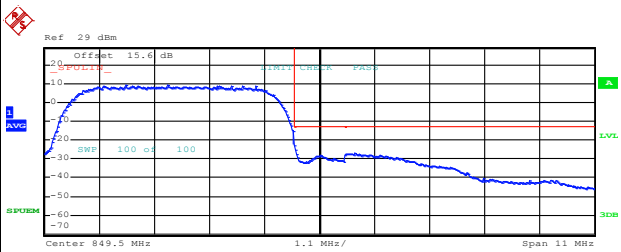
Lowest Band Edge



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
820.000 M	823.000 M	100.00 k	822.928000 M	-27.00	-14.00
823.000 M	824.000 M	50.00 k	823.996000 M	-25.10	-12.10
824.000 M	829.000 M	100.00 k	825.720000 M	9.31	-25.69

Date: 22.MAY.2019 18:18:48

Highest Band Edge

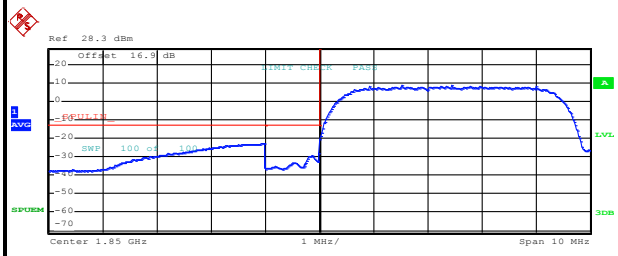


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
844.000 M	849.000 M	100.00 k	845.625000 M	9.45	-25.55
849.000 M	850.000 M	50.00 k	849.004000 M	-23.63	-10.63
850.000 M	855.000 M	100.00 k	850.210000 M	-26.68	-13.68

Date: 22.MAY.2019 18:21:39

WCDMA Band II (RMC 12.2Kbps)

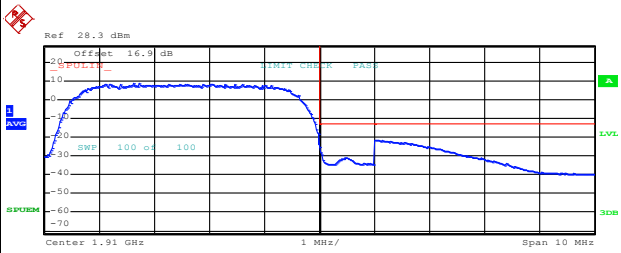
Lowest Band Edge



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.845 G	1.849 G	1.00 M	1.848984 G	-22.64	-9.64
1.849 G	1.850 G	50.00 k	1.849996 G	-28.63	-15.63
1.850 G	1.855 G	100.00 k	1.852435 G	8.62	-26.38

Date: 22.MAY.2019 18:43:46

Highest Band Edge



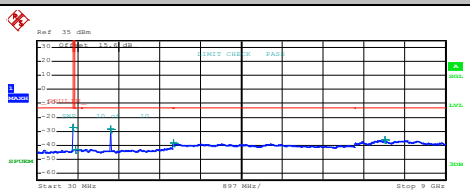
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.905 G	1.910 G	100.00 k	1.906610 G	8.87	-26.13
1.910 G	1.911 G	50.00 k	1.910004 G	-25.67	-12.67
1.911 G	1.915 G	1.00 M	1.911012 G	-21.76	-8.76

Date: 22.MAY.2019 18:46:36

Conducted Spurious Emission

GSM850 (GPRS class 8)

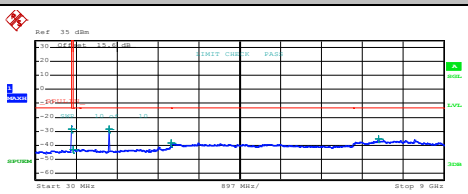
Lowest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	819.802500 M	-27.35	-14.35
855.000 M	1.000 G	1.00 M	865.838751 M	-43.05	-30.05
1.000 G	3.000 G	1.00 M	1.648500 G	-28.56	-15.56
3.000 G	7.000 G	1.00 M	3.029000 G	-38.65	-25.65
7.000 G	9.000 G	1.00 M	7.663500 G	-36.30	-23.30

Date: 22.MAY.2019 15:13:33

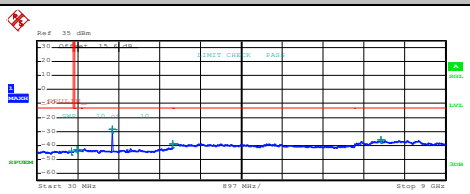
Lowest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	819.802500 M	-29.47	-15.47
855.000 M	1.000 G	1.00 M	859.821250 M	-43.14	-30.14
1.000 G	3.000 G	1.00 M	1.648500 G	-28.32	-15.32
3.000 G	7.000 G	1.00 M	3.003000 G	-38.45	-25.45
7.000 G	9.000 G	1.00 M	7.558500 G	-35.69	-22.69

Date: 22.MAY.2019 15:26:02

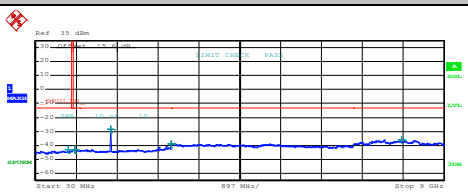
Middle Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	786.622500 M	-44.07	-31.07
855.000 M	1.000 G	1.00 M	908.867504 M	-42.82	-29.82
1.000 G	3.000 G	1.00 M	1.673000 G	-28.70	-15.70
3.000 G	7.000 G	1.00 M	3.000000 G	-38.76	-25.76
7.000 G	9.000 G	1.00 M	7.584500 G	-36.22	-23.22

Date: 22.MAY.2019 15:14:24

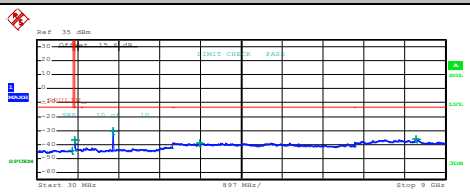
Middle Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	742.382500 M	-43.03	-30.03
855.000 M	1.000 G	1.00 M	887.480002 M	-43.03	-30.03
1.000 G	3.000 G	1.00 M	1.673000 G	-28.43	-15.43
3.000 G	7.000 G	1.00 M	3.010000 G	-38.87	-25.87
7.000 G	9.000 G	1.00 M	8.060000 G	-36.16	-23.16

Date: 22.MAY.2019 15:26:52

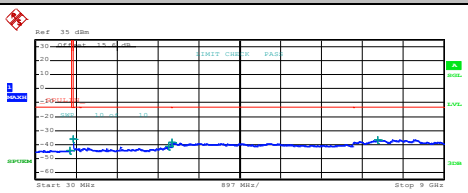
Highest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	804.792500 M	-43.98	-30.98
855.000 M	1.000 G	1.00 M	855.072500 M	-36.86	-23.86
1.000 G	3.000 G	1.00 M	1.697500 G	-30.13	-17.13
3.000 G	7.000 G	1.00 M	3.601000 G	-38.79	-25.79
7.000 G	9.000 G	1.00 M	8.356000 G	-36.27	-23.27

Date: 22.MAY.2019 15:15:16

Highest Channel

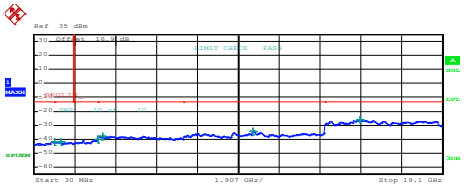


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	787.412500 M	-44.19	-31.19
855.000 M	1.000 G	1.00 M	855.072500 M	-36.26	-23.26
1.000 G	3.000 G	1.00 M	2.957000 G	-41.41	-28.41
3.000 G	7.000 G	1.00 M	3.034000 G	-38.68	-25.68
7.000 G	9.000 G	1.00 M	7.554000 G	-36.41	-23.41

Date: 22.MAY.2019 15:28:10

GSM1900 (GPRS class 8)

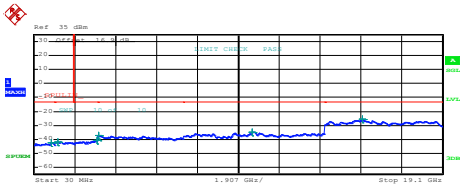
Lowest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	995.392500 M	-41.79	-28.79
1.000 G	1.845 G	1.00 M	1.288779 G	-41.68	-28.68
1.915 G	3.000 G	1.00 M	2.997830 G	-40.31	-27.31
3.000 G	7.000 G	1.00 M	3.220000 G	-37.70	-24.70
7.000 G	13.600 G	1.00 M	10.234825 G	-34.42	-21.42
13.600 G	19.100 G	1.00 M	15.230063 G	-26.18	-13.18

Date: 22.MAY.2019 17:55:57

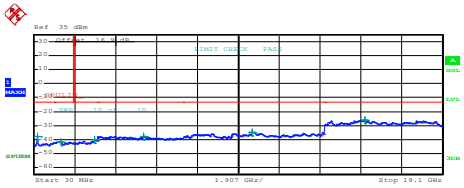
Middle Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	837.282500 M	-42.46	-29.46
1.000 G	1.845 G	1.00 M	1.120201 G	-41.72	-28.72
1.915 G	3.000 G	1.00 M	2.968264 G	-40.61	-27.61
3.000 G	7.000 G	1.00 M	3.042000 G	-37.37	-24.37
7.000 G	13.600 G	1.00 M	10.210900 G	-34.87	-21.87
13.600 G	19.100 G	1.00 M	15.367563 G	-25.60	-12.60

Date: 22.MAY.2019 17:56:48

Highest Channel

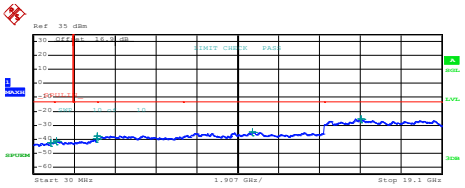


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	171.620000 M	-37.94	-24.94
1.000 G	1.845 G	1.00 M	1.276526 G	-41.63	-28.63
1.915 G	3.000 G	1.00 M	2.833995 G	-40.37	-27.37
3.000 G	7.000 G	1.00 M	5.138000 G	-37.70	-24.70
7.000 G	13.600 G	1.00 M	10.214200 G	-34.91	-21.91
13.600 G	19.100 G	1.00 M	15.490625 G	-25.84	-12.84

Date: 22.MAY.2019 17:57:38

GSM1900 (EDGE class 8)

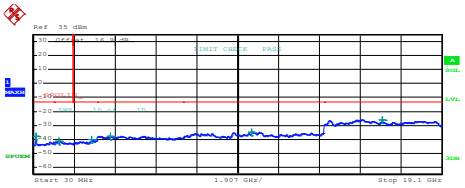
Lowest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	847.952500 M	-42.43	-29.43
1.000 G	1.845 G	1.00 M	1.080275 G	-41.45	-28.45
1.915 G	3.000 G	1.00 M	2.971519 G	-39.73	-26.73
3.000 G	7.000 G	1.00 M	3.004000 G	-37.54	-24.54
7.000 G	13.600 G	1.00 M	10.257100 G	-34.81	-21.81
13.600 G	19.100 G	1.00 M	15.307750 G	-25.59	-12.59

Date: 22.MAY.2019 17:39:08

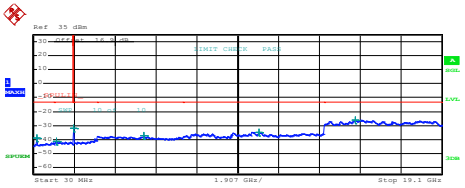
Middle Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	141.792500 M	-37.57	-24.57
1.000 G	1.845 G	1.00 M	1.205969 G	-41.42	-28.42
1.915 G	3.000 G	1.00 M	2.724139 G	-40.05	-27.05
3.000 G	7.000 G	1.00 M	3.601000 G	-37.78	-24.78
7.000 G	13.600 G	1.00 M	10.228225 G	-34.73	-21.73
13.600 G	19.100 G	1.00 M	16.301188 G	-25.91	-12.91

Date: 22.MAY.2019 17:40:02

Highest Channel

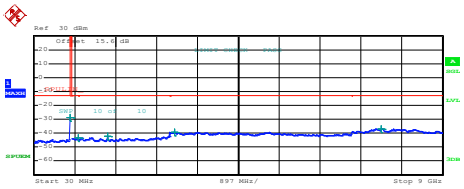


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	171.620000 M	-38.99	-25.99
1.000 G	1.845 G	1.00 M	1.086824 G	-41.21	-28.21
1.915 G	3.000 G	1.00 M	1.915271 G	-31.86	-18.86
3.000 G	7.000 G	1.00 M	5.163000 G	-37.51	-24.51
7.000 G	13.600 G	1.00 M	10.562350 G	-34.84	-21.84
13.600 G	19.100 G	1.00 M	15.056812 G	-25.90	-12.90

Date: 22.MAY.2019 17:40:57

WCDMA Band V (RMC 12.2Kbps)

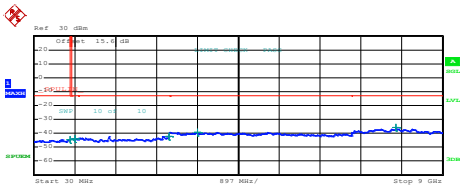
Lowest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	819.210000 M	-28.77	-15.77
855.000 M	1.000 G	1.00 M	999.347510 M	-43.53	-30.53
1.000 G	3.000 G	1.00 M	1.651500 G	-42.07	-29.07
3.000 G	7.000 G	1.00 M	3.108000 G	-39.22	-26.22
7.000 G	9.000 G	1.00 M	7.653500 G	-37.04	-24.04

Date: 22.MAY.2019 18:22:34

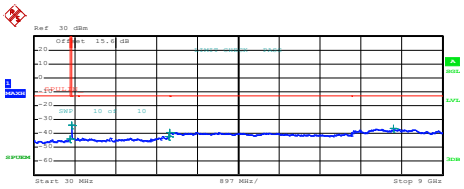
Middle Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	819.407500 M	-44.39	-31.39
855.000 M	1.000 G	1.00 M	929.240005 M	-43.77	-30.77
1.000 G	3.000 G	1.00 M	2.991000 G	-42.03	-29.03
3.000 G	7.000 G	1.00 M	3.615000 G	-39.08	-26.08
7.000 G	9.000 G	1.00 M	7.974500 G	-36.00	-23.00

Date: 22.MAY.2019 18:23:26

Highest Channel

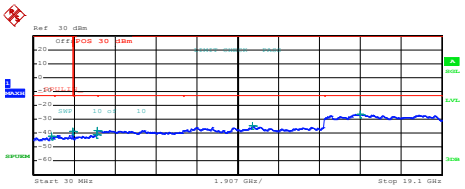


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	813.285000 M	-44.24	-31.24
855.000 M	1.000 G	1.00 M	855.036250 M	-33.96	-20.96
1.000 G	3.000 G	1.00 M	2.999000 G	-42.14	-29.14
3.000 G	7.000 G	1.00 M	3.003000 G	-39.12	-26.12
7.000 G	9.000 G	1.00 M	7.918000 G	-36.41	-23.41

Date: 22.MAY.2019 18:24:16

WCDMA Band II (RMC 12.2Kbps)

Lowest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	864.927500 M	-42.02	-29.02
1.000 G	1.845 G	1.00 M	1.844789 G	-38.72	-25.72
1.915 G	3.000 G	1.00 M	2.975859 G	-41.11	-28.11
3.000 G	7.000 G	1.00 M	3.000000 G	-38.16	-25.16
7.000 G	13.600 G	1.00 M	10.248025 G	-34.71	-21.71
13.600 G	19.100 G	1.00 M	15.294688 G	-26.39	-13.39

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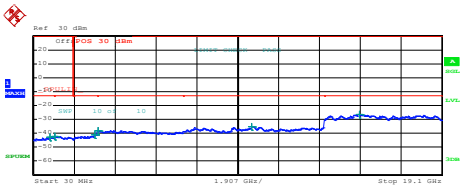
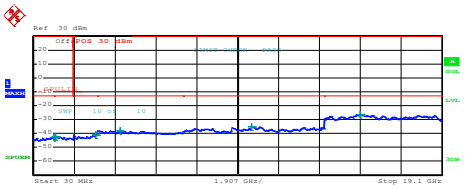
Middle Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	799.937500 M	-42.56	-29.56
1.000 G	1.845 G	1.00 M	1.029575 G	-42.06	-29.06
1.915 G	3.000 G	1.00 M	2.898553 G	-40.98	-27.98
3.000 G	7.000 G	1.00 M	3.839000 G	-38.15	-25.15
7.000 G	13.600 G	1.00 M	10.210075 G	-35.09	-22.09
13.600 G	19.100 G	1.00 M	15.233500 G	-26.19	-13.19

Date: 22.MAY.2019 18:49:01

Highest Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	985.207500 M	-42.78	-29.78
1.000 G	1.845 G	1.00 M	1.066755 G	-42.05	-29.05
1.915 G	3.000 G	1.00 M	2.929204 G	-41.02	-28.02
3.000 G	7.000 G	1.00 M	4.075000 G	-37.89	-24.89
7.000 G	13.600 G	1.00 M	10.220800 G	-35.34	-22.34
13.600 G	19.100 G	1.00 M	15.280250 G	-26.41	-13.41

Date: 22.MAY.2019 18:49:56

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

Note: Normal Voltage = 3.9V. ；Battery End Point (BEP) = 3.65 V.；Maximum Voltage =4.30 V

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	0.0043	0.0027	PASS
40	Normal Voltage	0.0213	0.0138	
30	Normal Voltage	0.0223	0.0170	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0207	0.0112	
0	Normal Voltage	0.0197	0.0122	
-10	Normal Voltage	0.0021	0.0112	
-20	Normal Voltage	0.0005	0.0202	
-30	Normal Voltage	0.0282	0.0207	
20	Maximum Voltage	0.0000	0.0165	
20	Normal Voltage	0.0000	0.0000	
20	Battery End Point	0.0032	0.0154	

Note:

1. Normal Voltage = 3.9V. ；Battery End Point (BEP) = 3.65 V.；Maximum Voltage =4.30 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 V (RMC 12.2Kbps)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0215	PASS
40	Normal Voltage	0.0179	
30	Normal Voltage	0.0203	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0167	
0	Normal Voltage	0.0155	
-10	Normal Voltage	0.0024	
-20	Normal Voltage	0.0048	
-30	Normal Voltage	0.0084	
20	Maximum Voltage	0.0000	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0143	

Note: Normal Voltage = 3.9V. ；Battery End Point (BEP) = 3.65 V.；Maximum Voltage =4.30 V

Test Conditions	Middle Channel	WCDMA Band II (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0170	PASS
40	Normal Voltage	0.0191	
30	Normal Voltage	0.0176	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0117	
0	Normal Voltage	0.0016	
-10	Normal Voltage	0.0053	
-20	Normal Voltage	0.0037	
-30	Normal Voltage	0.0021	
20	Maximum Voltage	0.0112	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0005	

Note:

1. Normal Voltage = 3.9V. ；Battery End Point (BEP) = 3.65V.；Maximum Voltage =4.30 V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

GSM850 (GPRS class 8)								
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1648	-46.12	-13	-33.12	-53.09	1.58	10.70	H
	2472	-35.53	-13	-22.53	-43.78	2.102	12.50	H
	3294	-57.16	-13	-44.16	-66.05	2.856	13.90	H
	4122	-54.94	-13	-41.94	-63.40	2.689	13.30	H
	1648	-44.92	-13	-31.92	-51.89	1.58	10.70	V
	2472	-34.95	-13	-21.95	-43.20	2.10	12.50	V
	3294	-53.31	-13	-40.31	-62.20	2.86	13.90	V
	4122	-53.00	-13	-40.00	-61.46	2.69	13.30	V
Middle	1672	-48.67	-13	-35.67	-55.64	1.58	10.70	H
	2510	-36.27	-13	-23.27	-44.52	2.102	12.50	H
	3348	-55.31	-13	-42.31	-64.20	2.856	13.90	H
	4182	-57.86	-13	-44.86	-66.32	2.689	13.30	H
	1672	-45.84	-13	-32.84	-52.81	1.58	10.70	V
	2510	-37.14	-13	-24.14	-45.39	2.10	12.50	V
	3348	-53.85	-13	-40.85	-62.74	2.86	13.90	V
	4182	-55.07	-13	-42.07	-63.53	2.69	13.30	V
Highest	1698	-49.28	-13	-36.28	-56.25	1.58	10.70	H
	2546	-37.19	-13	-24.19	-45.44	2.102	12.50	H
	3396	-57.75	-13	-44.75	-66.64	2.856	13.90	H
	4242	-60.10	-13	-47.10	-68.56	2.689	13.30	H
	1698	-48.00	-13	-35.00	-54.97	1.58	10.70	V
	2546	-40.32	-13	-27.32	-48.57	2.10	12.50	V
	3396	-53.53	-13	-40.53	-62.42	2.86	13.90	V
	4244	-60.00	-13	-47.00	-68.46	2.69	13.30	V

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

GSM850 (EDGE class 8)								
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1648	-55.00	-13	-42.00	-61.97	1.58	10.70	H
	2472	-55.16	-13	-42.16	-63.41	2.102	12.50	H
	3294	-64.29	-13	-51.29	-73.18	2.856	13.90	H
	1648	-51.06	-13	-38.06	-58.03	1.58	10.70	V
	2472	-53.69	-13	-40.69	-61.94	2.10	12.50	V
	3294	-64.09	-13	-51.09	-72.98	2.86	13.90	V
Middle	1672	-56.24	-13	-43.24	-63.21	1.58	10.70	H
	2509.2	-51.82	-13	-38.82	-60.07	2.102	12.50	H
	3348	-63.97	-13	-50.97	-72.86	2.856	13.90	H
	1672	-53.78	-13	-40.78	-60.75	1.58	10.70	V
	2510	-52.11	-13	-39.11	-60.36	2.10	12.50	V
	3348	-63.42	-13	-50.42	-72.31	2.86	13.90	V
Highest	1698	-57.61	-13	-44.61	-64.58	1.58	10.70	H
	2546	-56.72	-13	-43.72	-64.97	2.102	12.50	H
	3396	-64.63	-13	-51.63	-73.52	2.856	13.90	H
	1698	-52.21	-13	-39.21	-59.18	1.58	10.70	V
	2546	-54.84	-13	-41.84	-63.09	2.10	12.50	V
	3396	-64.33	-13	-51.33	-73.22	2.86	13.90	V

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

GSM1900 (GPRS class 8)								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3699	-44.41	-13	-31.41	-56.67	2.641	14.90	H
	5550.6	-58.10	-13	-45.10	-69.96	2.94	14.80	H
	7404	-49.40	-13	-36.40	-59.17	3.39	13.16	H
	3699	-45.84	-13	-32.84	-58.10	2.64	14.90	V
	5550	-57.82	-13	-44.82	-69.68	2.94	14.80	V
	7404	-51.12	-13	-38.12	-60.89	3.39	13.16	V
Middle	3759	-53.51	-13	-40.51	-65.77	2.641	14.90	H
	5640	-55.52	-13	-42.52	-67.38	2.94	14.80	H
	7524	-49.30	-13	-36.30	-59.07	3.39	13.16	H
	3759	-50.02	-13	-37.02	-62.28	2.64	14.90	V
	5640	-57.17	-13	-44.17	-69.03	2.94	14.80	V
	7524	-51.45	-13	-38.45	-61.22	3.39	13.16	V
Highest	3819	-50.84	-13	-37.84	-63.10	2.641	14.90	H
	5730	-55.03	-13	-42.03	-66.89	2.94	14.80	H
	7644	-48.79	-13	-35.79	-58.56	3.39	13.16	H
	3819	-50.55	-13	-37.55	-62.81	2.64	14.90	V
	5729.4	-56.16	-13	-43.16	-68.02	2.94	14.80	V
	7644	-50.56	-13	-37.56	-60.33	3.39	13.16	V

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

GSM1900 (EDGE class 8)								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3699	-49.86	-13	-36.86	-62.12	2.641	14.90	H
	5550	-57.56	-13	-44.56	-69.42	2.94	14.80	H
	7404	-49.48	-13	-36.48	-59.25	3.39	13.16	H
	3699	-46.65	-13	-33.65	-58.91	2.64	14.90	V
	5550	-57.63	-13	-44.63	-69.49	2.94	14.80	V
	7404	-48.31	-13	-35.31	-58.08	3.39	13.16	V
Middle	3759	-49.50	-13	-36.50	-61.76	2.641	14.90	H
	5640	-56.78	-13	-43.78	-68.64	2.94	14.80	H
	7524	-49.48	-13	-36.48	-59.25	3.39	13.16	H
	3759	-52.00	-13	-39.00	-64.26	2.64	14.90	V
	5640	-56.83	-13	-43.83	-68.69	2.94	14.80	V
	7524	-50.58	-13	-37.58	-60.35	3.39	13.16	V
Highest	3819	-55.67	-13	-42.67	-67.93	2.641	14.90	H
	5730	-56.87	-13	-43.87	-68.73	2.94	14.80	H
	7644	-50.10	-13	-37.10	-59.87	3.39	13.16	H
	3819	-52.71	-13	-39.71	-64.97	2.64	14.90	V
	5730	-57.20	-13	-44.20	-69.06	2.94	14.80	V
	7644	-51.24	-13	-38.24	-61.01	3.39	13.16	V

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

WCDMA Band V(RMC 12.2Kbps)								
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1652	-59.80	-13	-46.80	-66.77	1.58	10.70	H
	2479.2	-63.56	-13	-50.56	-71.81	2.102	12.50	H
	3306	-64.43	-13	-51.43	-73.32	2.856	13.90	H
	1652.8	-54.34	-13	-41.34	-61.31	1.58	10.70	V
	2480	-63.29	-13	-50.29	-71.54	2.10	12.50	V
	3306	-64.03	-13	-51.03	-72.92	2.86	13.90	V
Middle	1672	-60.25	-13	-47.25	-67.22	1.58	10.70	H
	2510	-63.59	-13	-50.59	-71.84	2.102	12.50	H
	3348	-64.64	-13	-51.64	-73.53	2.856	13.90	H
	1672	-54.92	-13	-41.92	-61.89	1.58	10.70	V
	2510	-63.42	-13	-50.42	-71.67	2.10	12.50	V
	3348	-63.94	-13	-50.94	-72.83	2.86	13.90	V
Highest	1694	-63.18	-13	-50.18	-70.15	1.58	10.70	H
	2539.8	-64.35	-13	-51.35	-72.60	2.102	12.50	H
	3384	-64.45	-13	-51.45	-73.34	2.856	13.90	H
	1694	-60.09	-13	-47.09	-67.06	1.58	10.70	V
	2540	-64.20	-13	-51.20	-72.45	2.10	12.50	V
	3384	-64.48	-13	-51.48	-73.37	2.86	13.90	V

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

WCDMA Band II(RMC 12.2Kbps)								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3705	-59.77	-13	-46.77	-72.03	2.641	14.90	H
	5556	-58.37	-13	-45.37	-70.23	2.94	14.80	H
	7404	-50.67	-13	-37.67	-60.44	3.39	13.16	H
	3704.8	-59.69	-13	-46.69	-71.95	2.64	14.90	V
	5556	-58.41	-13	-45.41	-70.27	2.94	14.80	V
	7404	-50.27	-13	-37.27	-60.04	3.39	13.16	V
Middle	3759	-52.90	-13	-39.90	-65.16	2.641	14.90	H
	5640	-57.10	-13	-44.10	-68.96	2.94	14.80	H
	7524	-51.07	-13	-38.07	-60.84	3.39	13.16	H
	3759	-52.92	-13	-39.92	-65.18	2.64	14.90	V
	5640	-56.54	-13	-43.54	-68.40	2.94	14.80	V
	7524	-51.10	-13	-38.10	-60.87	3.39	13.16	V
Highest	3816	-59.41	-13	-46.41	-71.67	2.641	14.90	H
	5722.8	-56.99	-13	-43.99	-68.85	2.94	14.80	H
	7632	-50.54	-13	-37.54	-60.31	3.39	13.16	H
	3815.2	-59.25	-13	-46.25	-71.51	2.64	14.90	V
	5724	-56.69	-13	-43.69	-68.55	2.94	14.80	V
	7632	-51.28	-13	-38.28	-61.05	3.39	13.16	V

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