FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E

TEST REPORT

For

WHITE DRIVE BOX

Model: TB4001

Trade Name: N/A

Issued to

Hon Hai Precision Ind. Co., Ltd. 5F-1, 5, Hsin-An Road Hsinchu Science-Based Industrial Park,Hsinchu,Taiwan

Issued by

Compliance Certification Services Inc. No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.) http://www.ccsrf.com service@ccsrf.com Issued Date: October 17, 2016



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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	October 17, 2016	Initial Issue	ALL	Doris Chu

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APPENDIX 1 - PHOTOGRAPHS OF EUT

1. TEST RESULT CERTIFICATION

Applicant:Hon Hai Precision Ind. Co., Ltd.5F-1, 5, Hsin-An RoadHsinchu Science-Based IPark,Hsinchu,Taiwan						
Equipment Under Test:	WHITE DRIVE BOX					
Trade Name:	N/A					
Model Number:	TB4001					
Date of Test:	September 2 ~ October 13, 2016					
APPLICABLE STANDARDS						

APPLICABLE STANDARDS						
STANDARD	TEST RESULT					
FCC 47 CFR Part 22 Subpart H & Part 24 Subpart E	Pass					

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA/EIA-603-D: 2010 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rule FCC PART 22 Subpart H and PART 24 Subpart E.

The test results of this report relate only to the tested sample identified in this report.

Approved by:

Som Chuang

Sam Chuang Manager Compliance Certification Services Inc.

Tested by:

an Tu

Ian Tu Engineer Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	WHITE DRIVE BOX
Trade Name	N/A
Model Number	TB4001
Received Date	August 1, 2016
Power Supply	DC 5V
Frequency Range	GSM / GPRS / EGPRS: 850: 824.2 ~ 848.8 MHz GSM / GPRS / EGPRS: 1900: 1850.2 ~ 1909.8 MHz
Transmit Power (ERP & EIRP Power)	GSM 850: 36.94 dBm GPRS 850: 36.04 dBm EGPRS 850: 30.40 dBm GSM 1900: 29.75 dBm GPRS 1900: 29.74 dBm EGPRS 1900: 25.87 dBm
Type of Emission	GSM 850: 244KGXW GPRS 850: 244KGXW EGPRS 850: 244KG7W GSM 1900: 244KGXW GPRS 1900: 243KGXW EGPRS 1900: 246KG7W
Antenna Gain	1. P/N :WAG-F-LTE5-00-009 / PCB Antenna Gain: GSM / GPRS / EGPRS: 850: -0.98 dBi Gain: GSM / GPRS / EGPRS: 1900: 1.82 dBi 2. P/N :WAG-F-LTE5-00-010 / PCB Antenna Gain: GSM / GPRS / EGPRS: 850: 0.47 dBi Gain: GSM / GPRS / EGPRS: 1900: 1.25dBi

Remark:

1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.

3. TEST METHODOLOGY

Both conducted and radiated testing were performed according to the procedures document on chapter 13 of ANSI C63.10: 2013, TIA/EIA-603-D: 2010 and FCC CFR 47, Part 2, PART 22 SUBPART H AND PART 24 SUBPART E

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

According to the requirements in ANSI C63.10: 2013.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in TIA-603-D: 2010 and ANSI 63.4: 2014.

3.4 DESCRIPTION OF TEST MODES

The EUT (model: TB4001) had been tested under operating condition.

EUT staying in continuous transmitting mode was programmed.

GSM / GPRS / EGPRS 850:

Channel Low (CH128), Channel Mid (CH190) and Channel High (CH251) were chosen for full testing.

GSM / GPRS / EGPRS 1900:

Channel Low (CH512), Channel Mid (CH661) and Channel High (CH810) were chosen for full testing.

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (Y axis) and the worst case was recorded.

Worst Case mode

The worst mode be defined of maximum power among different multi-slots.

Test	Mode	Worst mode	Test Mode		Worst mode
GSN	850	v	PCS 1900		v
	4Down1Up	v		4Down1Up	v
GPRS 850	3Down2Up		GPRS 1900	3Down2Up	
GPR3 030	2Down3Up		GPK5 1900	2Down3Up	
	1Down4Up			1Down4Up	
	4Down1Up	V		4Down1Up	v
EGPRS 850	3Down2Up		EGPRS 1900	3Down2Up	
EGEKS 000	2Down3Up		EGFK3 1900	2Down3Up	
	1Down4Up			1Down4Up	

Remark : Multislot class 33

4. INSTRUMENT CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

Conducted Emissions Test Site								
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due			
Spectrum Analyzer	R&S	FSV 40	101073	2016/8/1	2017/7/31			
Communication Test Set	Agilent	8960	MY48363204	2016/7/26	2017/7/25			

Wugu 966 Chamber A								
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due			
Signal Analyzer	Agilent	E4407B	MY44212686	2016/4/9	2017/4/8			
Pre-Amplifier	MITEQ	AFS44-00102 650-42-10P-4 4		2017/7/6	2017/7/5			
Bilog Antenna	Sunol Sciences	JB1	A052609	2016/3/20	2017/3/21			
Horn Antenna	SCHWARZBE CK	BBHA 9120D	779	2016/3/9	2017/3/8			
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R			
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R			
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R			
Software	EZ-EMC (CCS-3A1RE)							

4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
3M Semi Anechoic Chamber / 30M~200M	+/- 4.0138
3M Semi Anechoic Chamber / 200M~1000M	+/- 3.9483
3M Semi Anechoic Chamber / 1G~8G	+/- 2.5975
3M Semi Anechoic Chamber / 8G~18G	+/- 2.6112
3M Semi Anechoic Chamber / 18G~26G	+/- 2.7389
3M Semi Anechoic Chamber / 26G~40G	+/- 2.9683

Remark: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

5. FACILITIES AND ACCREDITATIONS 5.1 FACILITIES

No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.
 Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.)
 Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

No.81-1, Lane 210, Bade 2nd Rd., Lujhu Township, Taoyuan County 33841, TAIWAN, R.O.C.

Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

5.3 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	FCC MRA: TW1039	
Taiwan	TAF	LP0002, RTTE01, FCC Method-47 CFR Part 15 Subpart C, D, E, RSS-210, RSS-310 IDA TS SRD, AS/NZS 4268, AS/NZS 4771, TS 12.1 & 12,2, ETSI EN 300 440-1, ETSI EN 300 440-2, ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 301 893, ETSI EN 301 489-1/3/7/17 FCC OET Bulletin 65 + Supplement C, EN 50360, EN 50361, EN 50371, RSS 102, EN 50383, EN 50385, EN 50392, IEC 62209, CNS 14958-1, CNS 14959 FCC Method –47 CFR Part 15 Subpart B IEC / EN 61000-3-2, IEC / EN 61000-3-3, IEC / EN 61000-4-2/3/4/5/6/8/11	Testing Laboratory 1309
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	Canada IC 2324G-1 IC 2324G-2

* No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.

6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix I for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	FCC ID	Series No.	Data Cable	Power Cord
1	Notebook PC	ASUS	M5200AE	5BN0AG019631	PD9WM3B2100	N/A	AC I/P: Unshielded, 1.8m with a core DC O/P: Unshielded, 1.8m

Remark:

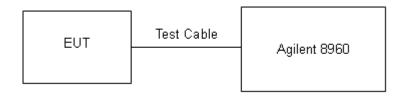
- 1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

7. FCC PART 22 & 24 REQUIREMENTS7.1 AVERAGE POWER

<u>LIMIT</u>

For reporting purposes only.

Test Configuration



Remark: Measurement setup for testing on Antenna connector

TEST PROCEDURE

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

TEST RESULTS

Pass.

Test Data

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
GSM 850		128	824.2	22.6	31.62
		190	836.6	22.5	31.55
		251	848.8	22.5	31.50

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
GPRS850 4Down1Up	128	824.2	22.5	31.58	
	190	836.6	22.6	31.64	
		251	848.8	22.5	31.52

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
GPRS850 3Down2Up		128	824.2	24.8	30.85
	190	836.6	24.8	30.81	
		251	848.8	24.7	30.71

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
		128	824.2	26.2	30.41
GPRS850	GPRS850 2Down3Up	190	836.6	26.1	30.32
		251	848.8	26.0	30.23

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
	128	824.2	25.8	28.83	
GPRS850	GPRS850 1Down4Up	190	836.6	25.8	28.85
		251	848.8	26.0	29.03

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
EGPRS850 4Down1Up		128	824.2	18.4	27.46
	4Down1Up	190	836.6	18.5	27.57
		251	848.8	18.5	27.51

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
EGPRS850 3Down2Up	128	824.2	21.3	27.32	
	190	836.6	21.4	27.46	
		251	848.8	21.4	27.44

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
EGPRS850 2Down3Up		128	824.2	22.8	27.07
	190	836.6	22.8	27.01	
		251	848.8	23.0	27.21

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
EGPRS850 1Down4L		128	824.2	23.7	26.67
	1Down4Up	190	836.6	23.9	26.92
		251	848.8	23.5	26.51

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
GSM1900		512	1850.2	21.8	30.85
		661	1880.0	21.9	30.89
		810	1909.8	21.7	30.71

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
GPRS1900 4Down1Up		512	1850.2	21.8	30.86
	661	1909.8	21.9	30.90	
		810	1909.8	21.7	30.70

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
GPRS1900 3Down2Up		512	1850.2	22.2	28.20
	661	1909.8	22.3	28.32	
	-	810	1909.8	22.3	28.33

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
		512	1850.2	22.8	27.08
GPRS1900	2Down3Up	661	1909.8	23.1	27.31
		810	1909.8	22.9	27.13

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
GPRS1900	1Down4Up	512	1850.2	22.9	25.94
		661	1909.8	23.1	26.12
		810	1909.8	22.8	25.83

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
		512	1850.2	18.0	27.01
EGPRS1900 4Down1Up	661	1880.0	17.9	26.96	
		810	1909.8	18.0	27.04

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
		512	1850.2	20.8	26.84
EGPRS1900 3Down2Up	661	1909.8	20.9	26.92	
		810	1909.8	20.9	26.95

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
		512	1850.2	22.6	26.90
EGPRS1900 2Down3	2Down3Up	661	1909.8	23.0	27.23
		810	1909.8	22.3	26.55

EUT Mode	Test Mode	СН	Frequency (MHz)	Frame Avg Pwr (dBm)	Avg. burst power (dBm)
EGPRS1900 1D		512	1850.2	23.8	26.84
	1Down4Up	661	1909.8	23.9	26.89
	-	810	1909.8	23.6	26.66

7.2 ERP & EIRP MEASUREMENT

LIMIT

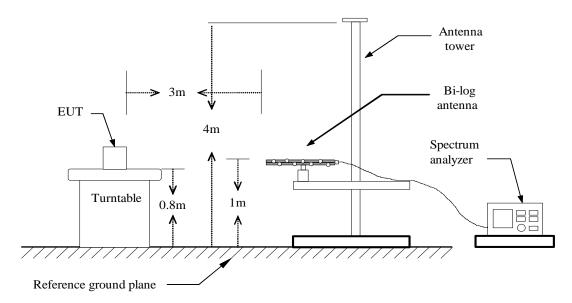
According to FCC §2.1046

FCC 22.913(a): The Effective Radiated Power (ERP) of mobile transmitters must not exceed 7 Watts.

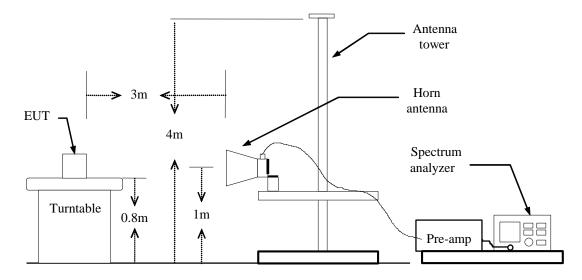
FCC 24.232(b): The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

Test Configuration

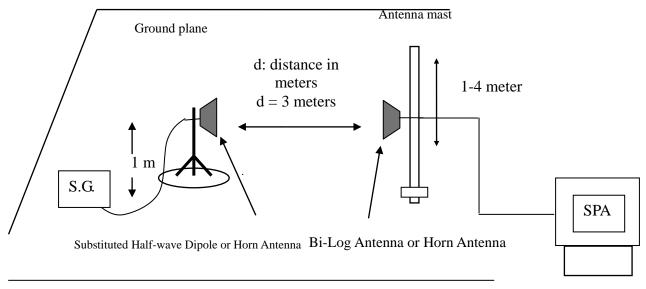
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



TEST PROCEDURE

The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.

During the measurement of the EUT, the resolution bandwidth was set to 5MHz and the average bandwidth was set to 50MHz. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824-849MHz, and EIRP in frequency band 1851.25 –1910MHz were measured using a substitution method. The EUT was replaced by half-wave dipole (824-849MHz) or horn antenna (1851.25-1910MHz) connected to a signal generator. The spectrum analyzer reading was recorded and ERP/EIRP was calculated as follows:

ERP = S.G. output (dBm) + Antenna Gain (dBi) – Cable (dB)-2.15 EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable (dB)

TEST RESULTS

Pass.

GSM 850 TEST DATA

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
100	824.20	V	38.12	3.03	-1.37	33.72	38.45	-4.73
128	824.20	Н	28.68	3.03	-1.35	24.30	38.45	-14.15
100	836.60	V	40.09	3.06	-1.18	35.85	38.45	-2.60
190	836.60	Н	25.95	3.06	-1.18	21.71	38.45	-16.74
251	848.80	V	41.03	3.08	-1.01	*36.94	38.45	-1.51
251	848.80	Н	25.80	3.08	-1.01	21.71	38.45	-16.74

GPRS 850(4Down1Up) TEST DATA

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
100	824.20	V	38.37	3.03	-1.37	33.97	38.45	-4.48
128	824.20	Н	28.68	3.03	-1.35	24.30	38.45	-14.15
100	836.60	V	40.28	3.06	-1.18	*36.04	38.45	-2.41
190	836.60	Н	25.95	3.06	-1.18	21.71	38.45	-16.74
251	848.80	V	41.22	3.08	-1.01	37.13	38.45	-1.32
251	848.80	Н	25.80	3.08	-1.01	21.71	38.45	-16.74

EGPRS 850(4Down1Up) TEST DATA

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
100	824.20	V	34.61	3.03	-1.37	30.21	38.45	-8.24
128	824.20	Н	28.68	3.03	-1.35	24.30	38.45	-14.15
100	836.60	V	34.54	3.06	-1.18	30.30	38.45	-8.15
190	836.60	Н	25.95	3.06	-1.18	21.71	38.45	-16.74
051	848.80	V	34.49	3.08	-1.01	*30.40	38.45	-8.05
251	848.80	Н	25.80	3.08	-1.01	21.71	38.45	-16.74

REMARK: " * " MEANS WORST VALUES.

GSM 1900 TEST DATA

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
510	1850.20	V	24.70	4.76	9.31	29.25	33.00	-3.75
512	1850.20	Н	17.39	4.76	9.31	21.94	33.00	-11.06
661	1880.00	V	24.97	4.80	9.31	29.48	33.00	-3.52
661	1880.00	Н	17.52	4.80	9.31	22.03	33.00	-10.97
910	1909.80	V	25.25	4.84	9.34	*29.75	33.00	-3.25
810	1909.80	Н	17.28	4.84	9.34	21.78	33.00	-11.22

GPRS 1900(4Down1Up) TEST DATA

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
510	1850.20	V	24.72	4.76	9.31	29.27	33.00	-3.73
512	1850.20	Н	17.39	4.76	9.31	21.94	33.00	-11.06
661	1880.00	V	25.01	4.80	9.31	29.52	33.00	-3.48
661	1880.00	Н	17.52	4.80	9.31	22.03	33.00	-10.97
010	1909.80	V	25.24	4.84	9.34	*29.74	33.00	-3.26
810	1909.80	Н	17.28	4.84	9.34	21.78	33.00	-11.22

EGPRS 1900(4Down1Up) TEST DATA

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
510	1850.20	V	20.90	4.76	9.31	25.45	33.00	-7.55
512	1850.20	Н	17.39	4.76	9.31	21.94	33.00	-11.06
661	1880.00	V	21.20	4.80	9.31	25.71	33.00	-7.29
661	1880.00	Н	17.52	4.80	9.31	22.03	33.00	-10.97
010	1909.80	V	21.37	4.84	9.34	*25.87	33.00	-7.13
810	1909.80	Н	17.28	4.84	9.34	21.78	33.00	-11.22

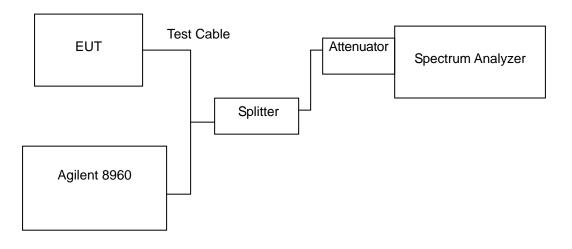
REMARK: " * " MEANS WORST VALUES.

7.3 OCCUPIED BANDWIDTH MEASUREMENT

<u>LIMIT</u>

According to §FCC 2.1049.

Test Configuration



Remark: Measurement setup for testing on Antenna connector

TEST PROCEDURE

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW is set to 3 times the RBW, -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

TEST RESULTS

Pass.

Test Data

Test Mode	СН	Frequency (MHz)	99% Bandwidth (kHz)
	128	824.20	*244.5730
GSM 850	190	836.60	240.2315
	251	848.80	243.1259
	128	824.20	*244.5730
GPRS 850 (4Down1Up)	190	836.60	240.2315
(1201110)	251	848.80	243.1259
	128	824.20	*244.5730
EGPRS 850 (4Down1Up)	190	836.60	241.6787
(12011110))	251	848.80	243.1259

Test Mode	СН	Frequency (MHz)	99% Bandwidth (kHz)
GSM 1900	512	1850.20	243.1259
	661	1880.00	243.1259
	810	1909.80	*244.5730
GPRS 1900 (4Down1Up)	512	1850.20	*243.1259
	661	1880.00	243.1259
	810	1909.80	243.1259
EGPRS 1900 (4Down1Up)	512	1850.20	*246.0202
	661	1880.00	244.5730
	810	1909.80	243.1259

REMARK: " * " MEANS WORST VALUES.



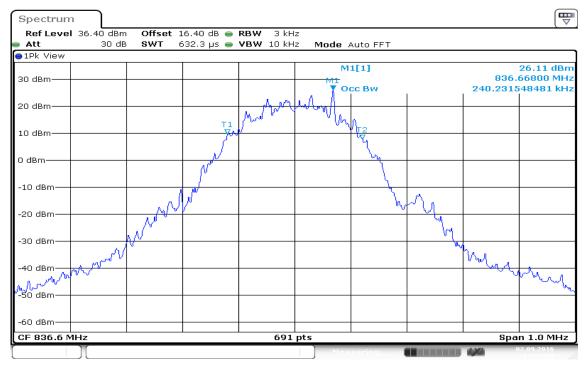
Test Plot

GSM 850 (CH Low)



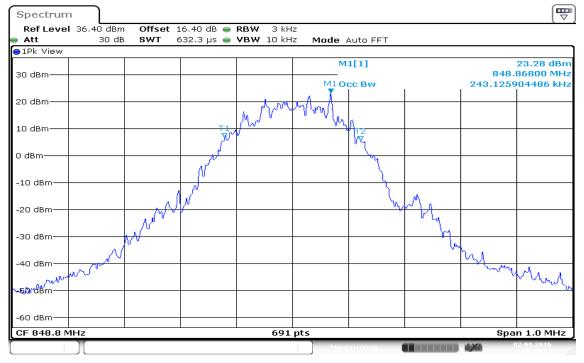
Date:2.SEP.2016 14:34:41

GSM 850 (CH Mid)



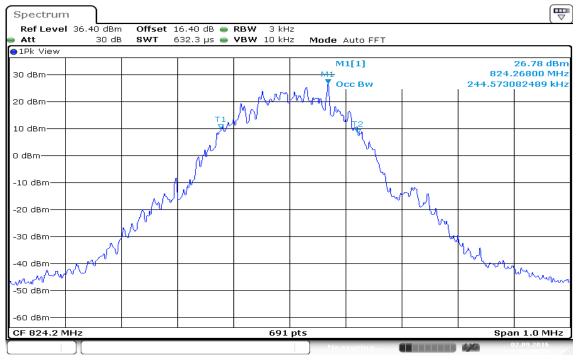
Date:2.SEP.2016 14:37:09

GSM 850 (CH High)



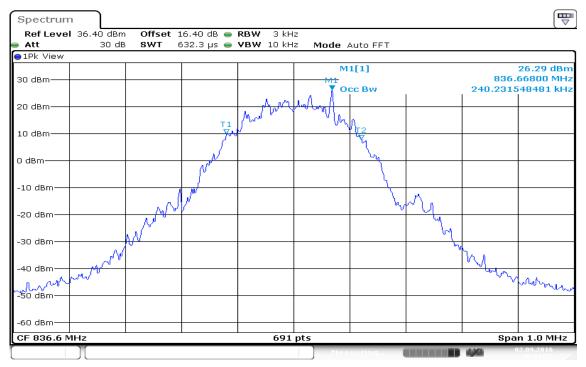
Date:2.SEP.2016 14:44:31

GPRS 850 (CH Low)



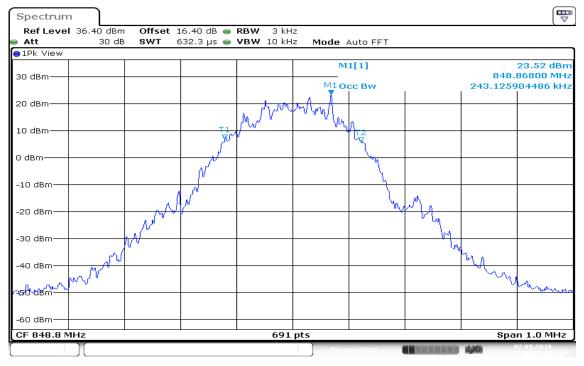
Date: 2.SEP.2016 16:30:36

GPRS 850 (CH Mid)



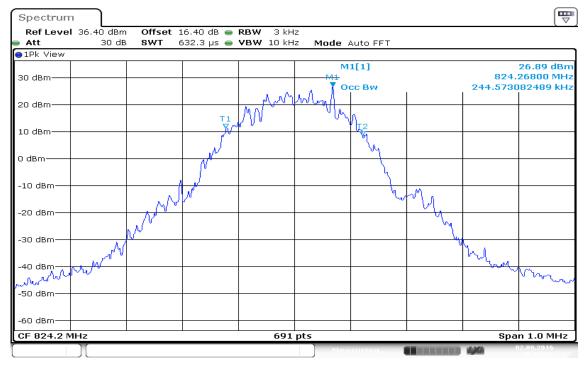
Date:2.SEP.2016 16:31:56

GPRS 850(CH High)



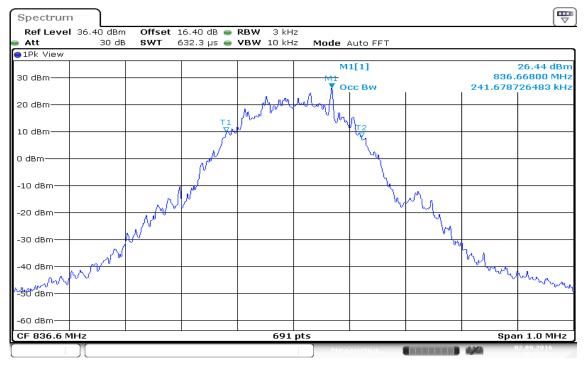
Date:2.SEP.2016 16:32:53

EGPRS 850 (CH Low)



Date:2.SEP.2016 16:56:57

EGPRS 850 (CH Mid)



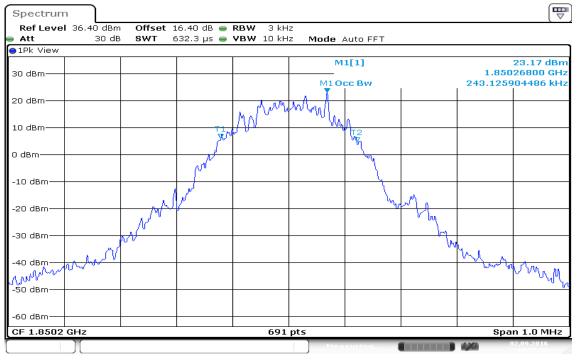
Date:2.SEP.2016 16:58:26

EGPRS 850 (CH High)



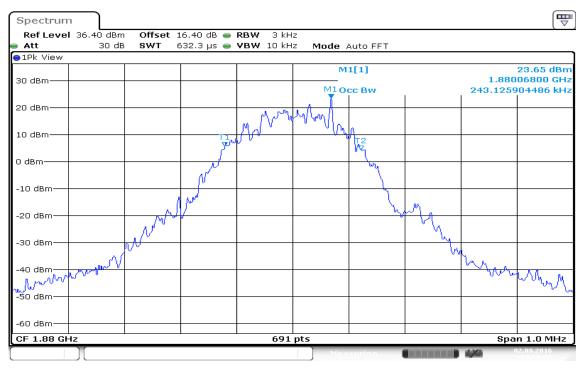
Date:2.SEP.2016 16:59:26

GSM 1900 (CH Low)



Date: 2.SEP.2016 14:57:13

GSM 1900 (CH Mid)



Date: 2.SEP.2016 14:58:27

GSM 1900 (CH High)



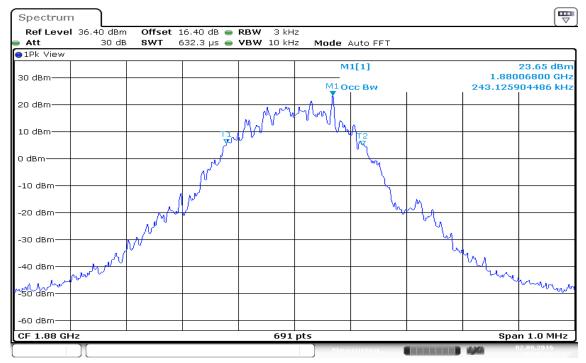
Date:2.SEP.2016 15:16:47

GPRS 1900 (CH Low)



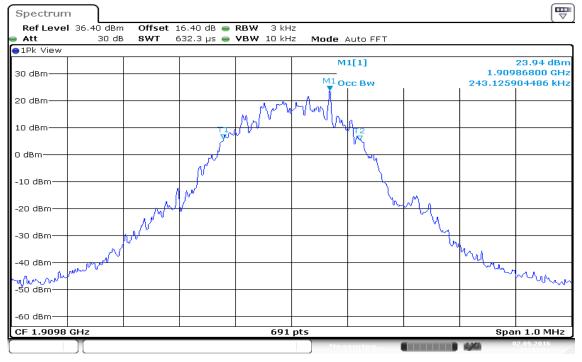
Date: 2.SEP.2016 16:40:07

GPRS 1900 (CH Mid)



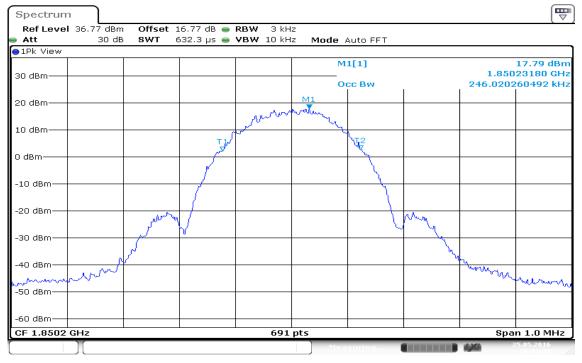
Date: 2.SEP.2016 16:42:38

GPRS 1900 (CH High)



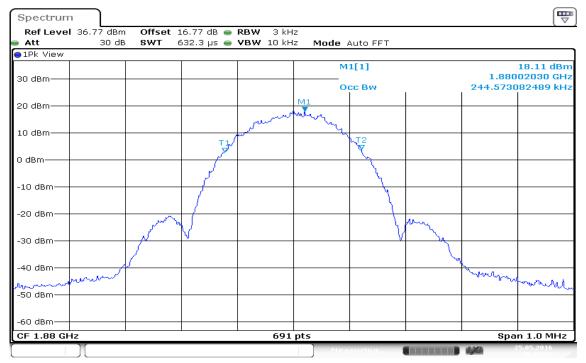
Date:2.SEP.2016 16:43:39

EGPRS 1900 (CH Low)



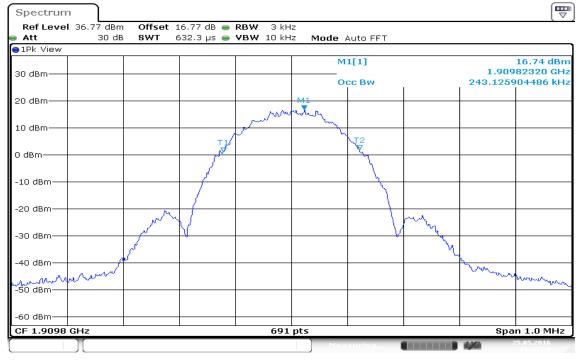
Date: 25 MAY 2016 16:31:50

EGPRS 1900 (CH Mid)



Date: 25 MAY 2016 16:41:46

EGPRS 1900 (CH High)



Date:25MAY.2016 16:42:58

7.4 OUT OF BAND EMISSION AT ANTENNA TERMINALS

<u>LIMIT</u>

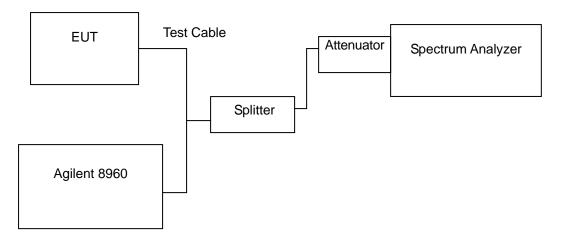
According to FCC §2.1051, FCC §22.917, FCC §24.238(a)

<u>Out of Band Emissions</u>: The mean power of emission must be attenuated below the mean power of the non-modulated carrier (P) on any frequency twice or more than twice the fundamental frequency by at lease 43 + 10 log P dB.

Mobile Emissions in Base Frequency Range: The mean power of any emissions appearing in the base station frequency range from cellular mobile transmitters operated must be attenuated to a level not exceed –80 dBm at the transmit antenna connector. Band Edge Requirements: In the 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at lease 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the Out of band Emission

Test Configuration

Out of band emission at antenna terminals:



TEST PROCEDURE

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

For the out of band: Set the RBW=1MHz, VBW=3MHz, Start=30MHz, Stop= 10 th harmonic. Limit = -13dBm

Band Edge Requirements (824 MHz and 849 MHz /1850MHz and 1910MHz): In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. Limit, -13dBm.

TEST RESULTS

Pass.

Test Data

Mode	СН	Location	Description
GSM 850	128	Figure 7-1	Conducted spurious emissions, 30MHz - 20GHz
	190	Figure 7-2	Conducted spurious emissions, 30MHz - 20GHz
	251	Figure 7-3	Conducted spurious emissions, 30MHz - 20GHz
GPRS 850 (4Down1Up)	128	Figure 8-1	Conducted spurious emissions, 30MHz - 20GHz
	190	Figure 8-2	Conducted spurious emissions, 30MHz - 20GHz
	251	Figure 8-3	Conducted spurious emissions, 30MHz - 20GHz
EGPRS 850 (4Down1Up)	128	Figure 9-1	Conducted spurious emissions, 30MHz - 20GHz
	190	Figure 9-2	Conducted spurious emissions, 30MHz - 20GHz
	251	Figure 9-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	СН	Location	Description
GSM 1900	512	Figure 10-1	Conducted spurious emissions, 30MHz - 20GHz
	661	Figure 10-2	Conducted spurious emissions, 30MHz - 20GHz
	810	Figure 10-3	Conducted spurious emissions, 30MHz - 20GHz
GPRS 1900 (4Down1Up)	512	Figure 11-1	Conducted spurious emissions, 30MHz - 20GHz
	661	Figure 11-2	Conducted spurious emissions, 30MHz - 20GHz
	810	Figure 11-3	Conducted spurious emissions, 30MHz - 20GHz
EGPRS 1900 (4Down1Up)	512	Figure 12-1	Conducted spurious emissions, 30MHz - 20GHz
	661	Figure 12-2	Conducted spurious emissions, 30MHz - 20GHz
	810	Figure 12-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	СН	Location	Description
C SM 950	128	Figure 13-1	Band Edge emissions
GSM 850	251	Figure 13-2	Band Edge emissions
GPRS 850	128	Figure 14-1	Band Edge emissions
(4Down1Up)	251	Figure 14-2	Band Edge emissions
EGPRS 850	128	Figure 15-1	Band Edge emissions
(4Down1Up)	251	Figure 15-2	Band Edge emissions

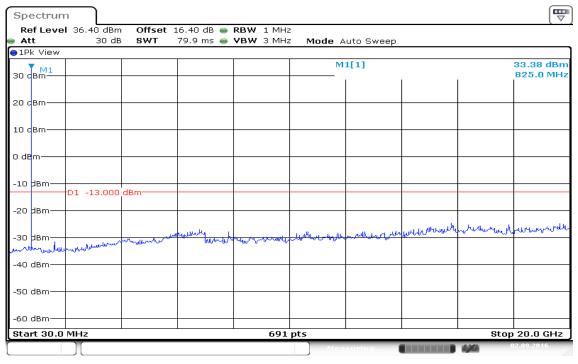
Mode	СН	Location	Description
GSM 1900	512	Figure 16-1	Band Edge emissions
G2IM 1900	810	Figure 16-2	Band Edge emissions
GPRS 1900	512	Figure 17-1	Band Edge emissions
(4Down1Up)	810	Figure 17-2	Band Edge emissions
EGPRS 1900	512 Figure 18-1		Band Edge emissions
(4Down1Up)	810	Figure 18-2	Band Edge emissions



Test Plot

<u>GSM 850</u>

Figure 7-1: Out of Band emission at antenna terminals - GSM CH Low



Date: 2.SEP.2016 14:48:53

Figure 7-2: Out of Band emission at antenna terminals - GSM CH Mid

Spectrum									
Ref Level				RBW 1 MHz					
Att 1Pk View	30 dB	SWT	79.9 ms 👄	VBW 3 MHz	Mode A	uto Sweep			
					M	1[1]	1	1	31.90 dBm 825.0 MHz
20 cBm									
10 cBm									
0 dBm									
-10 dBm	01 -13.000	dBm							
-20 dBm						a carren be har	بالبع بعال	ا ، او او ا	
-30 JBm-	general	ach laboratoritoria	newary ward	Marin and Courts	Lodd Charles and an and a second	a and the set of the s	William War	an and and and and and and and and and a	,
-40 dBm									
-50 dBm									
-60 dBm	MHz			691	nts			Ston	20.0 GHz
][]				Mea	suring		4/4	2.09.2016

Date:2.SEP.2016 14:49:52

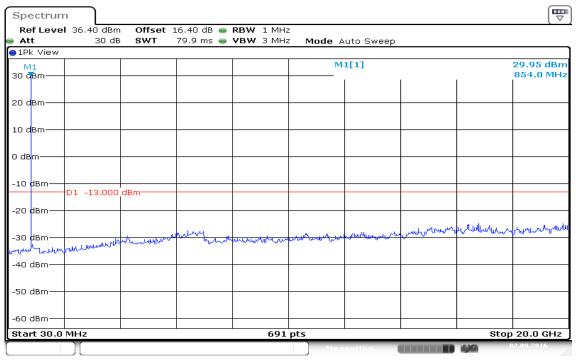
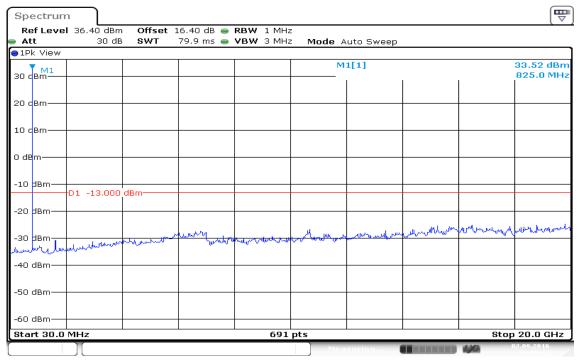


Figure 7-3: Out of Band emission at antenna terminals – GSM CH High

Date: 2.SEP.2016 14:50:33

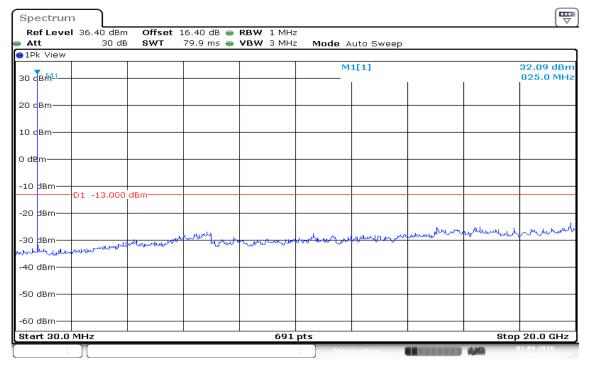
GPRS 850

Figure 8-1: Out of Band emission at antenna terminals – GPRS CH Low



Date: 2.SEP.2016 16:36:43

Figure 8-2: Out of Band emission at antenna terminals - GPRS CH Mid



Date: 2.SEP.2016 16:37:22

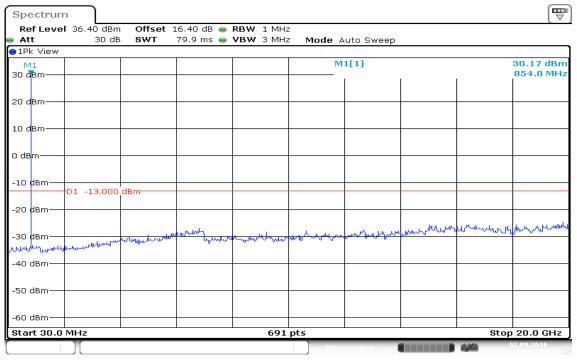


Figure 8-3: Out of Band emission at antenna terminals –GPRS CH High

Date: 2.SEP.2016 16:37:58

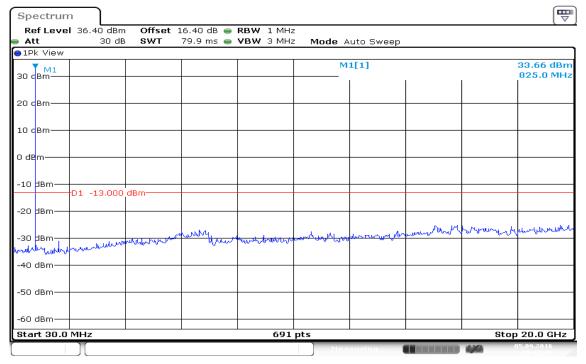
EGPRS 850

Figure 9-1: Out of Band emission at antenna terminals -EGPRS CH Low

Spectrum	ı)								
	36.40 dBm		16.40 dB 👄						
Att 1Pk View	30 dB	SWT	79.9 ms 👄	VBW 3 MHz	Mode	Auto Sweep			
30 dBm					r	M1[1]	1	1	33.80 dBm 825.0 MHz
20 cBm									
10 cBm									
0 dBm									
-10 dBm	D1 -13.000	dBm							
-20 dBm							b a	bar a second	
-30 HBm	un alf when the with	withit	down ward	and the set of the second	sindheasetty	ad to public a feat of the	han an a	w www.c	purroup Or.
-40 dBm									
-50 dBm									
-60 dBm									
Start 30.0	MHz		1	691	pts	1		Stop	20.0 GHz
	Π				Me	easuring		4/4	5.09.2016

Date: 5.SEP.2016 16:18:04

Figure 9-2: Out of Band emission at antenna terminals -EGPRS CH Mid



Date: 5.SEP.2016 16:18:49

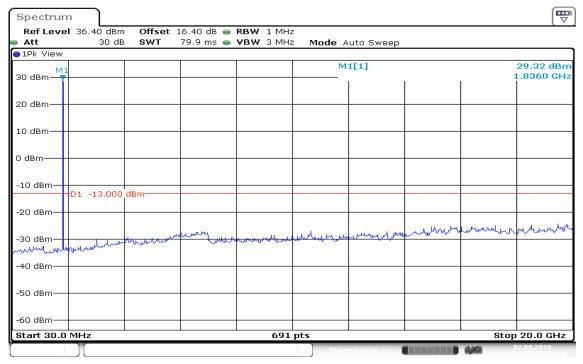
Ref Level 3 Att	6.40 dBm 30 dB	Offset SWT	16.40 dB 👄 79.9 ms 👄	RBW 1 MHz VBW 3 MHz		uto Sweep			
1Pk View									
30 dBm					M	1[1]		1	33.45 dBi 854.0 MH
20 dBm									
10 dBm									
) dBm									
10 dBm	L -13.000	dBm							
20 dBm									
-30 dBm	un un had a for the	wand and	- And Marker	awayo dha caca	and the second	p. Marchar Marchar Marchar	www.hun.Mu	nothing	randalati
50 dBm									
60 dBm									
Start 30.0 M	Hz			691	pts			Stop	20.0 GH

Figure 9-3: Out of Band emission at antenna terminals -EGPRS CH High

Date:5.SEP.2016 16:19:20

GSM 1900

Figure 10-1: Out of Band emission at antenna terminals – GSM CH Low



Date: 2.SEP.2016 15:20:36

Figure 10-2: Out of Band emission at antenna terminals - GSM CH Mid

Spectrur	n								
	1 36.40 dBn		16.40 dB 👄						
Att 1Pk View	30 di	B SWT	79.9 ms 📟	VBW 3 MHz	Mode A	uto Sweep			
30 dBm	1				M	1[1] 			28.73 dBm 1.8940 GHz
20 dBm—									
10 dBm									
0 dBm									
-10 dBm—	-D1 -13.000) dBm							
-20 dBm—							đ., 1.	1	L
-30 dBm—	the when the	when the week	have block	then	, Martana (, 14)	t when we have the	WWW. Ploton	how here	Munhow
-40 dBm—									
-50 dBm—									
-60 dBm—									
Start 30.0	MHz			691	pts			Stop	20.0 GHz
					Mea	suring		4,764	

Date:2.SEP.2016 15:21:47

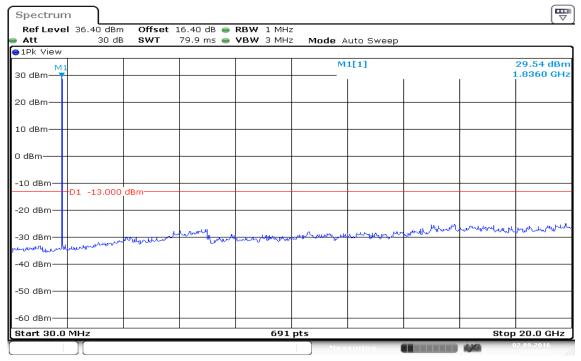
Spectrum	ı								
Ref Level Att	36.40 dBr 30 d			RBW 1 MHz					
Att 1Pk View	3U Q	B SWI	79.9 ms 🖷	VBW 3 MHz	Mode	Auto Sweep			
30 dBm 😽						M1[1]		:	29.14 dBm 1.9230 GHz
20 dBm									
10 dBm									
0 dBm									
-10 dBm	D1 -13.000)_dBm							
-20 dBm									
-30 dBm ասեսություն	multimeter	whenter	up word from	an the second		a you lle made a gent	John mon	Marine and the second	Juran Cathard
-40 dBm									
-50 dBm									
-60 dBm	541 I-								
Start 30.0				691		easuring		Stop	20.0 GHz

Figure 10-3: Out of Band emission at antenna terminals – GSM CH High

Date:2.SEP.2016 15:22:31

GPRS 1900

Figure 11-1: Out of Band emission at antenna terminals – GSM CH Low



Date: 2.SEP.2016 16:50:52

Figure 11-2: Out of Band emission at antenna terminals - GSM CH Mid

Ref Level 36.40 dBm Offset 16.40 dB RBW 1 MHz Att 30 dB SWT 79.9 ms VBW 3 MHz Mode Auto Sweep IPk View M1 M1 M11 M111 M111 20 dBm 0 <t< th=""><th>29.03 1.8940</th></t<>	29.03 1.8940
1Pk View 10 dBm 10	
30 dBm M1[1] 20 dBm	
10 dBm	
0 dBm	
-10 dBm	
-20 dBm	
-30 dBm	mandren and march
-40 dBm-	
-50 dBm	
-60 dBm	
Start 30.0 MHz 691 pts	Stop 20.0 (

Date:2.SEP.2016 16:51:38

Spectrum	ı)								
	36.40 dBm			RBW 1 MHz					
Att 1Pk View	30 dB	SWT	79.9 ms 👄	VBW 3 MHz	Mode	Auto Sweep			
30 dBm					N	11[1]		:	29.37 dBm 1.9230 GHz
20 dBm									
10 dBm									
0 dBm									
-10 dBm	D1 -13.000	dBm							
-20 dBm									
	andthe	munut "	more and	town the set	_{مىللاخ} رىمى _{لىرىم} ىر	allow Unglitzen	what would be a set of the set of	awminutured	wwwww
-40 dBm									
-60 dBm									
Start 30.0	MHz			691	pts	•		Stop	20.0 GHz
					Me	asuring		4/6	02.09.2016 16:52:32 //

Figure 11-3: Out of Band emission at antenna terminals – GSM CH High

Date: 2.SEP.2016 16:52:32

EGPRS 1900

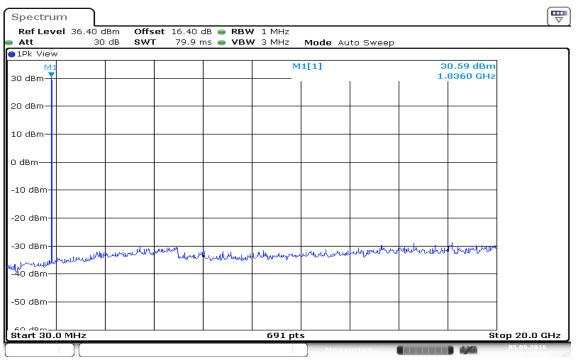
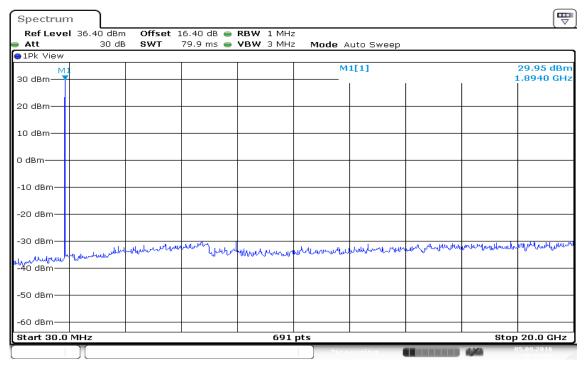


Figure 12-1: Out of Band emission at antenna terminals -EGPRS CH Low

Date: 5.SEP.2016 18:32:19

Figure 12-2: Out of Band emission at antenna terminals -EGPRS CH Mid



Date: 5.SEP.2016 18:33:27

Spectrum									
Ref Level	36.40 dBm	Offset	16.40 dB 👄	RBW 1 MHz					
🕳 Att	30 de	SWT	79.9 ms 👄	VBW 3 MHz	Mode	Auto Sweep			
⊖1Pk View									
30 dBm 7						41[1] 	I	1	29.95 dBm 1.8940 GHz
20 dBm									
10 dBm									
0 dBm									
-10 dBm—									
-20 dBm									
-30 dBm	4. Abrond mathe added	Walnut	now your	Manutruna	whene	unnun	what when the she	www.	mp. Curry
-40 dBm	<u>~</u>								
-50 dBm									
-60 dBm									
Start 30.0	VIHZ			691	pts			Stop	20.0 GHz
	Л				Me	asuring		4,90	18:33:27

Figure 12-3: Out of Band emission at antenna terminals -EGPRS CH High

Date: 5.SEP.2016 18:33:27

<u>GSM 850</u>

Figure 13-1: Band Edge emissions - GSM CH Low

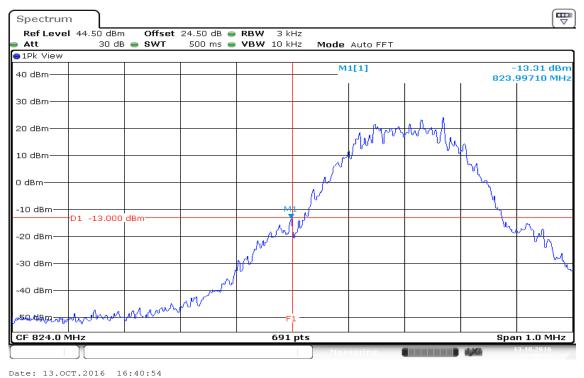
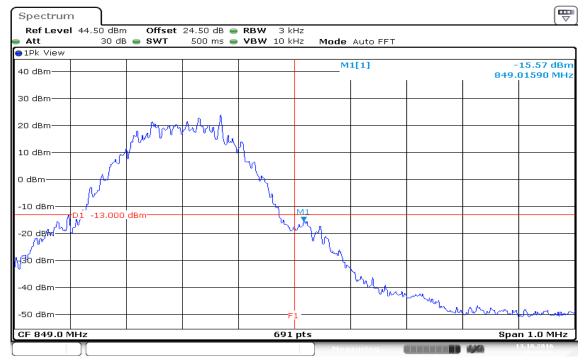


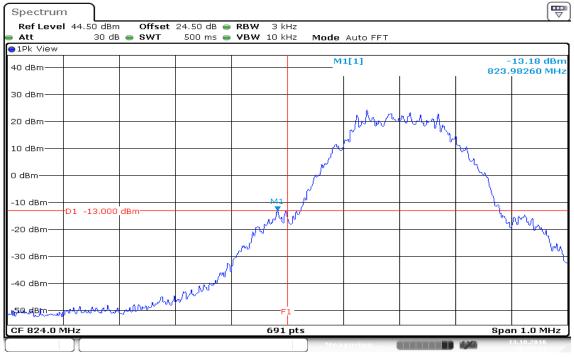
Figure 13-2: Band Edge emissions – GSM CH High



Date: 13.0CT.2016 16:44:16

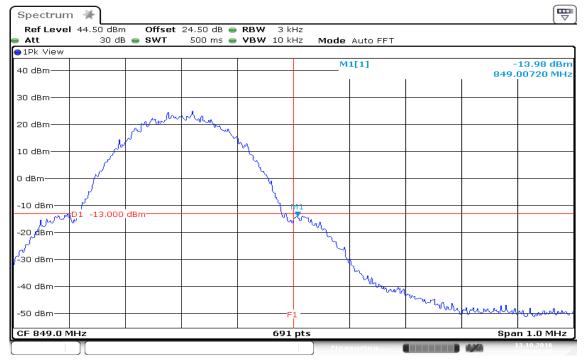
GPRS 850

Figure 14-1: Band Edge emissions - GPRS CH Low



Date: 13.0CT.2016 16:55:34

Figure 14-2: Band Edge emissions –GPRS CH High



Date: 13.0CT.2016 16:57:05

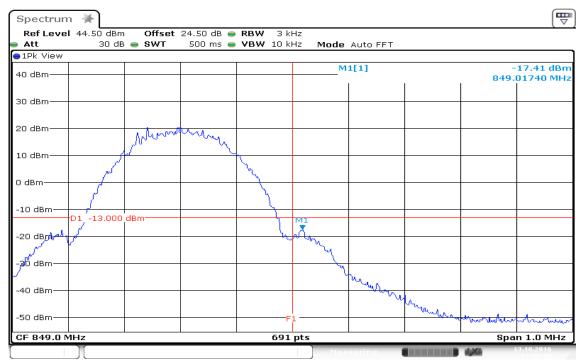
EGPRS 850

₩ Spectrum 🔆 Ref Level 44.50 dBm Offset 24.50 dB 👄 RBW 3 kHz 30 dB 😑 SWT Att 500 ms 👄 **VBW** 10 kHz Mode Auto FFT ⊖1Pk View M1[1] 18.55 dBm 40 dBm 823.98260 MHz 30 dBm 20 dBm my 10 dBm 0 dBm -10 dBm D1 -13.000 dBm-M1 -20 dBm--30 dBm· ų -40 dBm-5ademantow CF 824.0 MHz 691 pts Span 1.0 MHz •••••

Figure 15-1: Band Edge emissions -EGPRS CH Low

Date: 13.0CT.2016 17:07:14

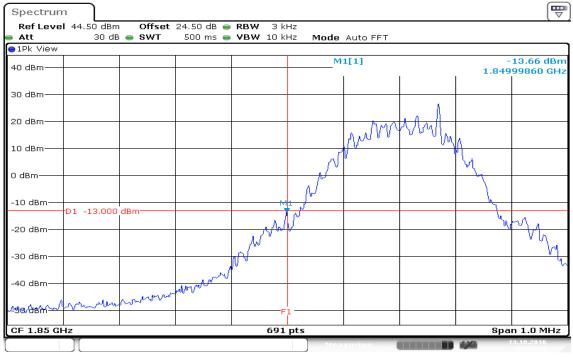
Figure 15-2: Band Edge emissions –EGPRS CH High



Date: 13.0CT.2016 17:08:12

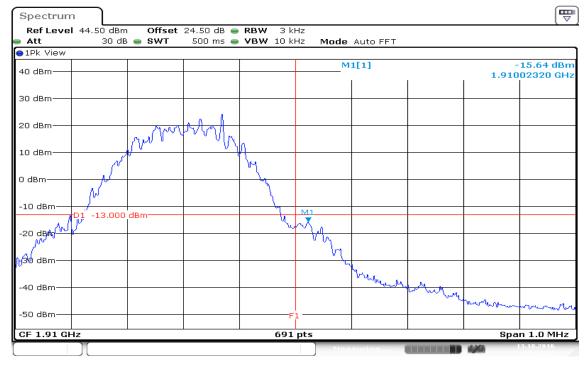
<u>GSM 1900</u>

Figure 16-1: Band Edge emissions - GSM CH Low



Date: 13.0CT.2016 17:25:37

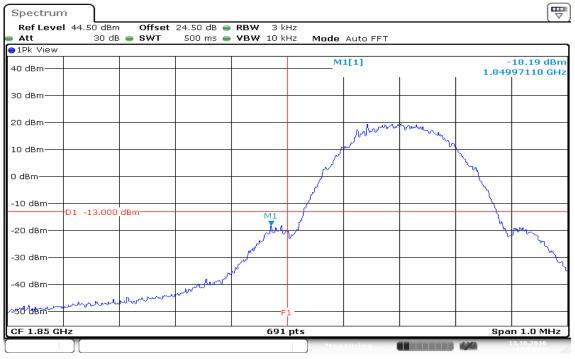
Figure 16-2: Band Edge emissions – GSM CH High



Date: 13.0CT.2016 17:27:12

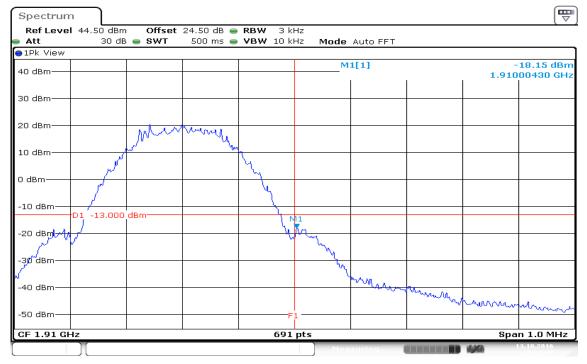
GPRS 1900

Figure 17-1: Band Edge emissions - GPRS CH Low



Date: 13.0CT.2016 17:53:09

Figure 17-2: Band Edge emissions – GPRS CH High



Date: 13.0CT.2016 17:51:48

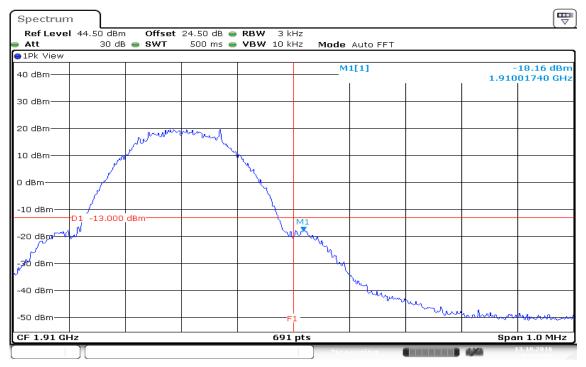
EGPRS 1900

₩ Spectrum Ref Level 44.50 dBm Offset 24.50 dB 👄 RBW 3 kHz 30 dB 👄 SWT Att 500 ms 👄 **VBW** 10 kHz Mode Auto FFT ⊖1Pk View M1[1] 18.56 dBm 40 dBm 1.84997970 GHz 30 dBm 20 dBm www ٨, 10 dBm 0 dBm -10 dBm· D1 -13.000 dBm Μ1 -20 dBm· -30 dBm· -40 dBm· .r -**50 d**8m/ 691 pts Span 1.0 MHz CF 1.85 GHz LX.

Figure 18-1: Band Edge emissions -EGPRS CH Low

Date: 13.0CT.2016 17:54:37

Figure 18-2: Band Edge emissions –EGPRS CH High



Date: 13.0CT.2016 17:56:02

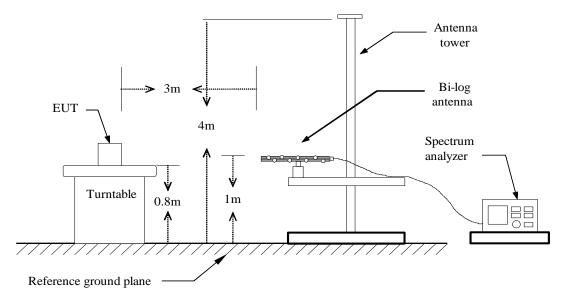
7.5 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

LIMIT

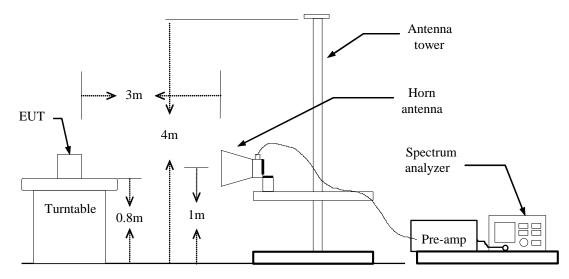
According to FCC §2.1053.

Test Configuration

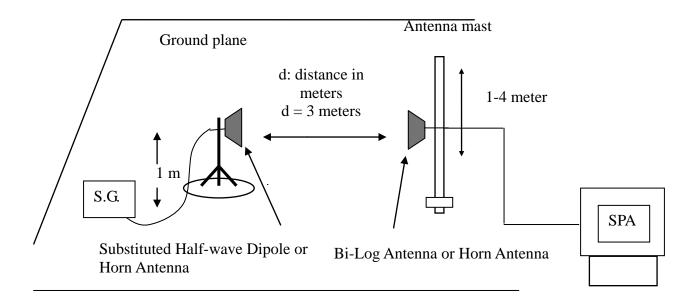
Below 1 GHz



Above 1 GHz



Substituted Method Test Set-up



TEST PROCEDURE

The EUT was placed on a non-conductive, the measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission were identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable (dB)

EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable (dB)

TEST RESULTS

Refer to the attached tabular data sheets.

Radiated Spurious Emission Measurement Result / Below 1GHz

Operat Mode: Tempe Humid	ratu		25		50 / TX H	<					Test I Teste Polar	d by		chei		, 2016 o
0.0	dBr	n												mit1: argin:	_	
-45													6X			
		1 X	2		ж		4 X		5X							
-90	0.000	127.	00 2	24.00	321.00	418	00 5	15.00	612	00	709.00	806.0		1	000.00 M	111-
Frequer (MHz)	ncy	S	8.G. Bm)	Cab	le loss dB)	An	t.Gain dBi)		ssion (dBm	level		it	Març (dB	gin	Ant Polar	enna rization //H)
96.930	00	-9	1.58	1	.06	1	4.73		-77.9	1	-13.	00	-64.9	91		V
171.62	00	-9	92.1		1.4	1	7.14		-76.3	6	-13.	00	-63.3	36		V
288.02			0.24		.79		8.92		-73.1		-13.		-60.			V
432.55			6.54		.19	-	2.02		-76.7		-13.		-63.			V
600.36			6.58		.59		4.41		-74.7		-13.		-61.			V
824.43	00	-8	2.44	3	.03	2	7.44		-58.0	3	-13.	00	-45.0	03		V

- 1. The emission behaviour belongs to narrowband spurious emission.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: Temperat Humidity	t ure: 25	SM 850 / TX °C % RH			Test Date Tested by Polarity:	•	ber 7, 2016 ng Kuo
0.0 d	Bm					Limit1: Margin:	
-45							
						<u>6</u>	
		4 *	5 X				
-90 30.000	127.00 2	24.00 321.00	418.00 5	15.00 612.00	709.00 806.	00 1	000.00 MHz
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
71.7100	-86.55	0.92	13.3	-74.17	-13.00	-61.17	Н
123.1200	-90.9	1.24	19.13	-73.01	-13.00	-60.01	Н
155.1300	-89.15	1.34	17.95	-72.54	-13.00	-59.54	н
288.0200	-93.13	1.79	18.92	-76.00	-13.00	-63.00	н
432.5500	-98.61	2.19	22.02	-78.78	-13.00	-65.78	Н
824.4300	-82.98	3.03	27.44	-58.57	-13.00	-45.57	Н

- 1. The emission behaviour belongs to narrowband spurious emission.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode:	G	PRS 850(4D	own1Up) /	' TX	Test Date: September 7, 2016			
Temperat	ure: 25	°C			Tested by	: Weiche	ng Kuo	
Humidity:	55	% RH			Polarity:	Ver.		
0.0 dB	m					Limit1: Margin:	_	
-45	2 1 1 1 27.00 2	4 3 3 24.00 321.00	418.00 5	5 15.00 612.00	709.00 806.		000.00 MHz	
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)	
105.6600	-91.25	1.13	16.8	-75.58	-13.00	-62.58	V	
131.8500	-89.25	1.25	19.07	-71.43	-13.00	-58.43	V	
265.7100	-94.6	1.73	18.37	-77.96	-13.00	-64.96	V	
295.7800	-90.34	1.82	19.02	-73.14	-13.00	-60.14	V	
600.3600	-95.47	2.59	24.41	-73.65	-13.00	-60.65	V	
837.0400	-86.25	3.06	27.57	-61.74	-13.00	-48.74	V	

- 1. The emission behaviour belongs to narrowband spurious emission.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

FCC ID: MCLTB4001

Operatio Mode: Tempera Humidity	ture:	GPRS 850(4Down1Up) / TX e: 25°C 55 % RH				Test Date: September 7, 2016 Tested by: Weicheng Kuo Polarity: Hor.			
0.0	1Bm							Limit1: Margin:	-
-45									
								6	
-90		4 X	5 X						
30.000) 127.00	224.00	321.00	418.00 5	15.00 612.00) 7	09.00 806.0)0 1	000.00 MHz
Frequency (MHz)	/ S.G. (dBm)		ole loss (dB)	Ant.Gain (dBi)	Emission le (dBm)	evel	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
71.7100	-87.16	5	0.92	13.3	-74.78		-13.00	-61.78	Н
96.9300	-92.86		1.06	14.73	-79.19		-13.00	-66.19	Н
132.8200	-95.07	,	1.25	19	-77.32		-13.00	-64.32	Н
195.8700	-95.97	,	1.49	18.06	-79.40		-13.00	-66.40	Н
288.0200	-93.4		1.79	18.92	-76.27		-13.00	-63.27	Н
837.0400	-85.59)	3.06	27.57	-61.08		-13.00	-48.08	Н

- 1. The emission behaviour belongs to narrowband spurious emission.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: Temperat Humidity:	ure: 25	GPRS 850(4 °C 9 % RH	Down1Up)		y: Weich	mber 7, 2016 eng Kuo	
0.0 dB	łm					Limit1: Margin:	_
-45							
						6 X	
	1 X	2 X 3 X 4	4 X	5			
-90	127.00 2	24.00 321.00	418.00 5	15.00 612.00	709.00 806.	00 1	000.00 MHz
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
95.9600	-90.41	1.06	14.49	-76.98	-13.00	-63.98	V
243.4000	-88.91	1.66	17.37	-73.20	-13.00	-60.20	V
288.9900	-93.52	1.8	18.91	-76.41	-13.00	-63.41	V
431.5800	-97.19	2.19	21.99	-77.39	-13.00	-64.39	V
600.3600	-96	2.59	24.41	-74.18	-13.00	-61.18	V
837.0400	-87.07	3.06	27.57	-62.56	-13.00	-49.56	V

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: Temperat Humidity	rature: 25°C Tes					y: Weich	mber 7, 2016 eng Kuo
-45	3m					6	
-90					700.00.000		
30.000 Frequency (MHz)		24.00 321.00 Cable loss (dB)	418.00 5 Ant.Gain (dBi)	15.00 612.00 Emission level (dBm)	709.00 806. Limit (dBm)	Margin (dB)	MHz Antenna Polarization (V/H)
71.7100	-87.98	0.92	13.3	-75.60	-13.00	-62.60	Н
124.0900	-90.6	1.24	19.14	-72.70	-13.00	-59.70	Н
204.6000	-95.87	1.52	17.54	-79.85	-13.00	-66.85	Н
237.5800	-95.72	1.64	17.3	-80.06	-13.00	-67.06	Н
299.6600	-96.38	1.83	19.09	-79.12	-13.00	-66.12	Н
837.0400	-86.24	3.06	27.57	-61.73	-13.00	-48.73	Н

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

LESRF	Compliance Certification Services Inc.
	FCC ID: MCLTB4001

Operatior Mode:	GS	M 1900 / TX	(Test Date:	: Septer	mber 7, 2016
Temperat	ure: 25°	С			Tested by	: Weich	eng Kuo
Humidity:	55	% RH			Polarity:	Ver.	
0.0 dB	!m					Limit1: Margin:	_
-45	1 1 1 1 27.00 22	2 3 2 3 2 3 2 4.00 321.00	418.00 5	5 5 15.00 612.00	6 ×		000.00 MHz
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
94.9900	-85.16	1.05	14.25	-71.96	-13.00	-58.96	V
261.8300	-91.89	1.72	17.98	-75.63	-13.00	-62.63	V
288.9900	-92.27	1.8	18.91	-75.16	-13.00	-62.16	V
431.5800	-97.69	2.19	21.99	-77.89	-13.00	-64.89	V
600.3600	-95.44	2.59	24.41	-73.62	-13.00	-60.62	V
749.7400	-95.56	2.89	26.7	-71.75	-13.00	-58.75	V

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operatio Mode: Temperat Humidity	ture: 25°	SM 1900 / TX °C % RH			Test Date Tested by Polarity:	•	mber 7, 2016 eng Kuo
0.0 d	Bm					Limit1:	—
						Margin:	
-45							
						6 X	
	2						
		4	5				
		X	5 X				
-90							
30.000		24.00 321.00			709.00 806.		000.00 MHz Antenna
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Polarization (V/H)
88.2000	-90.74	1.02	12.96	-78.80	-13.00	-65.80	Н
118.2700	-85.76	1.23	18.88	-68.11	-13.00	-55.11	Н
158.0400	-96.63	1.35	17.92	-80.06	-13.00	-67.06	н
291.9000	-93.94	1.81	18.94	-76.81	-13.00	-63.81	Н
432.5500	-97.75	2.19	22.02	-77.92	-13.00	-64.92	Н
903.0000	-81.34	3.18	28.13	-56.39	-13.00	-43.39	Н

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
 - 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operatior Mode:	GP	RS 1900(4D	/ TX	Test Date	: Septer	mber 7, 2016		
Temperat	ure : 25°	°C			Tested by	: Weich	eng Kuo	
Humidity:	55	% RH			Polarity: Ver.			
0.0 dB	m					Limit1: Margin:		
-45						6x		
-90 30.000		24.00 321.00	418.00 5		709.00 806.	00 1	000.00 MHz	
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)	
131.8500	-87.46	1.25	19.07	-69.64	-13.00	-56.64	V	
140.5800	-91.58	1.26	18.47	-74.37	-13.00	-61.37	V	
263.7700	-92.92	1.72	18.18	-76.46	-13.00	-63.46	V	
300.6300	-89.58	1.83	19.12	-72.29	-13.00	-59.29	V	
607.1500	-95.7	2.61	24.57	-73.74	-13.00	-60.74	V	
898.1500	-71.67	3.17	28.09	-46.75	-13.00	-33.75	V	

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

LESRF	Compliance Certification Services Inc.
	FCC ID: MCLTB4001

Operatior Mode:	GP	RS 1900(4E) Down1Up)	/ TX	Test Date:	Septer	mber 7, 2016
Temperat	ure : 25°	C			Tested by	: Weich	eng Kuo
Humidity:	55	% RH			Polarity:		
0.0 dB	Im					Limit1: Margin:	_
-45		5 6 5 6 24.00 321.00	418.00 5	15.00 612.00	709.00 806.0		000.00 MHz
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
115.3600	-89.37	1.2	18.5	-72.07	-13.00	-59.07	Н
126.0300	-86.31	1.25	19.16	-68.40	-13.00	-55.40	н
151.2500	-87.38	1.32	17.99	-70.71	-13.00	-57.71	н
171.6200	-90.64	1.4	17.14	-74.90	-13.00	-61.90	н
254.0700	-93.54	1.69	17.5	-77.73	-13.00	-64.73	н
290.9300	-95.5	1.8	18.92	-78.38	-13.00	-65.38	Н

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

LESRF	Compliance Certification Services Inc.
	FCC ID: MCLTB4001

Operatior Mode: Temperat Humidity:	ure: 25	GPRS 1900(°C 9 % RH	4Down1U	Test Date:September 7, 2016Tested by:Weicheng KuoPolarity:Ver.			
0.0 dE	3m					Limit1: Margin:	_
-45							
	1 *	3 4 X X	5 X				
-90 30.000	×	24.00 321.00	418.00 5	15.00 612.00	709.00 806.	00 1	000.00 MHz
Frequency (MHz)		Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)		Margin (dB)	Antenna Polarization (V/H)
88.2000	-92.13	1.02	12.96	-80.19	-13.00	-67.19	V
117.3000	-94.54	1.22	18.75	-77.01	-13.00	-64.01	V
236.6100	-90.24	1.64	17.26	-74.62	-13.00	-61.62	V
287.0500	-90.73	1.79	18.93	-73.59	-13.00	-60.59	V
431.5800	-94.56	2.19	21.99	-74.76	-13.00	-61.76	V
600.3600	-94.01	2.59	24.41	-72.19	-13.00	-59.19	V

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

LESRF	Compliance Certification Services Inc.
	FCC ID: MCLTB4001

Operation Mode:	EG	GPRS 1900(4Down1U	Test Dat	e: Septer	mber 7, 2016	
Temperat	ure: 25	°C	Tested k	y: Weich	eng Kuo		
Humidity:	r: 50 % RH Polarity: Hor.						
0.0 dB	m					Limit1: Margin:	_
-45	23 23 1 1 1 1 27.00 22	4 × 24.00 321.00	5 × 418.00 5	15.00 612.00	709.00 806.		000.00 MHz
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
113.4200	-90.41	1.19	18.24	-73.36	-13.00	-60.36	Н
140.5800	-85.92	1.26	18.47	-68.71	-13.00	-55.71	Н
149.3100	-87.14	1.31	18.03	-70.42	-13.00	-57.42	Н
288.0200	-81.18	1.79	18.92	-64.05	-13.00	-51.05	Н
432.5500	-94.35	2.19	22.02	-74.52	-13.00	-61.52	Н
903.0000	-83.15	3.18	28.13	-58.20	-13.00	-45.20	Н

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Above 1GHz

Operatio Mode: Tempera		GSM 8507 TX7 CH 128					Test Date: September 5, 2016 Tested by: Weicheng Kuo				6
Humidit	y:	55 %	6 RH					Polarity:	Ver.		
10.0	dBm										
									Limit1 Margi		
F											
-35											
	2										
_											
-80	X										
1000).000 2900	.00 480	0.00 6700.	00 860	0.00 1	0500.00 12	400.00	14300.00 162	00.00	20000.00 MHz	_
Frequence (MHz)		s.G. Bm)	Cable los (dB)		t.Gain dBi)	Emissior (dBr		Limit (dBm)	Margin (dB)	Antenna Polarizatio (V/H)	
1648.40	0 -78	8.43	4.49	9	9.32	-73.6	60	-13.00	-60.60	V	
2472.60	0 -5	5.3	5.56	1	0.68	-50.1	8	-13.00	-37.18	V	
N/A											

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: Temperate	ure: 2				Test Date: September 5, 2016 Tested by: Weicheng Kuo			
Humidity:		5 % RH			Polarity:	Hor.		
-35 -35	m					Limit1: Margin:		
-80	0 2900.00	4800.00 6700.00	8600.00 1	0500.00 12400.00	14300.00 1620	0.00 2	0000.00 MHz	
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)		Margin (dB)	Antenna Polarization (V/H)	
1648.400	-72.24	4.49	9.32	-67.41	-13.00	-54.41	Н	
2472.600	-50.61	5.56	10.68	-45.49	-13.00	-32.49	Н	
N/A								

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operatio Mode: Tempera Humidity	ture: 25	SM 850 / TX / °C ^% RH	/ CH 190	Т	ested by:	Septembe Weicheng Ver.	
0.0 c	lBm					Limit1: Margin:	
-45	2 X						
-90 1000.0 Frequency	00 2900.00	4800.00 6700.00 Cable loss	8600.00 1	0500.00 12400.00 Emission level		00.00 2 Margin	0000.00 MHz Antenna
(MHz)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	Polarization (V/H)
1648.400 2472.600	-86.56 -49.37	4.49 5.56	9.32 10.68	-81.73 -44.25	-13.00 -13.00	-68.73 -31.25	V V
N/A							

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Humidit	de: perature: 25°C							Те	est Date: ested by: olarity:				
										Limi Marg			
										indi			
_													
-35	-												
	2 X												
-80	* 												
	.000 290		DO.OO 670		8600.00					0.00		000.001	HIZ tenna
Frequenc (MHz)		S.G. IBm)	Cable lo (dB)	SS /	Ant.Gair (dBi)	ו E	Emission (dBm		Limit (dBm)	Margi (dB)		Pola	rization V/H)
1648.400) -8	80.17	4.49		9.32		-75.34	4	-13.00	-62.34	4		Н
2472.600) -4	47.5	5.56		10.68		-42.38	3	-13.00	-29.38	3		Н
N/A													
						╡							

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operati Mode: Temper Humidi	ature:	25°(И 850 / ⁻ С 6 RH	ГХ / С	CH 251		Te	ested by:		_
-45	2×									
	0.000 2900.		10.00 6700					14300.00 1620		20000.00 MHz
Frequen (MHz)		.G. Bm)	Cable lo (dB)	ss A	nt.Gain (dBi)	Emission (dBm		Limit (dBm)	Margin (dB)	Polarization (V/H)
1697.60	0 -90	0.41	4.55		9.45	-85.5	1	-13.00	-72.51	V
2546.40	0 -50	0.86	5.64		10.75	-45.7	5	-13.00	-32.75	V
N/A	_									_
										_
										+

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

-	emperature: 25°C umidity: 55 % RH 0.0 dBm							Te	est Date: ested by: olarity:	-	eng ł	
-90	1	00 480	0.00 670).00	8600	.00 10	J500.00 124	00.00	14300.00 1620	0.00	200	00.00 MHz
Frequenc (MHz)		.G. 3m)	Cable lo (dB)	SS		.Gain Bi)	Emission (dBm		Limit (dBm)	Margi (dB)	n f	Antenna Polarization (V/H)
1697.600	0 -85	5.05	4.55		9	.45	-80.1	5	-13.00	-67.1	5	Н
2546.400	0 -49	9.81	5.64		10).75	-44.7	0	-13.00	-31.70)	Н
N/A												

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: Temperate	128 Jre: 25°C									ate: d by:	-				
Humidity:		55 %	5 RH						P	olari	ty:	Ver.			
0.0 dB													Limit1: Margin:		
-45	2														
-90) 2900.00	480	D.00 670	0.00	8600).00 11)500.00	1240	0.00	14300.0	0 1620)0.00	2	0000.00	MHz
Frequency (MHz)	S.G. (dBm		Cable lo (dB)	SS		.Gain IBi)	Emissi (d	on Bm)			mit 3m)		rgin B)	Pola	itenna irization V/H)
1648.400	-89.6	8	4.49		9	.32	-84	4.85	;	-13	8.00	-71	.85		V
2470.000	-51.6	51	5.55		1(0.68	-40	5.48	;	-13	8.00	-33	8.48		V
N/A															

FCC ID: MCLTB4001

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operat Mode: Temper Humidi	ratu	re:	128 25°	3	·	4Dc	own1	IUp) /	T)	X / CH	Т		e: September 6, 2016 y: Weicheng Kuo Hor.				
0.0	dBm													Limit1: Margin:			
-																	
-45		2 X															
-	1 X																
-90	D0.000	2900).00 48	:00.00	670	D. OO	860	0.00 1	050	0.00 1240)0.00	14300.00 162	00.00	2	0000.00	MHz	
Frequen (MHz)			S.G. Bm)		ole lo (dB)	ss		t.Gain dBi)	Eı	mission (dBm		Limit (dBm)		rgin IB)	Pola	itenna irization V/H)	
1651.00	00	-7	8.08		4.49		g	9.32		-73.25	5	-13.00	-60).25		Н	
2470.00	00	-5	1.05	,	5.55		1	0.68		-45.92	2	-13.00	-32	2.92		Н	
N/A																	

FCC ID: MCLTB4001

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

190 J re: 25°) C		Tested by:	Weicheng		
n 					Limit1: Margin:	
2						
0 2900.00 48	300.00 6700.00	8600.00 1	0500.00 12400.00	14300.00 1620	00.00 2	20000.00 MHz
S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission leve (dBm)	el Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
-79.7	4.52	9.38	-74.84	-13.00	-61.84	V
-79.38	5.6	10.71	-74.27	-13.00	-61.27	V
	190 ure: 25° 55 m 255 m 200 2900.00 44 S.G. (dBm) -79.7	190 ure: 25°C 55 % RH	190 ure: 25°C 55 % RH	190 ure: 25°C 55 % RH	190 Test Date. ure: 25°C Tested by: 55 % RH Polarity: m	190 Test Date. September 25°C Tested by: Weicheng 55 % RH Polarity: Ver. m Image: Imag

FCC ID: MCLTB4001

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: Temperat Humidity	1 ure: 2	6PRS 850(4D 90 5°C 5 % RH	own1Up) /	י ד		Septembe Weicheng Hor.	
	3m					Limit1: Margin:	
-45	2						
-90	0 2900.00	4800.00 6700.00	8600.00 1	0500.00 12400.00	14300.00 162	00.00 2	0000.00 MHz
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission leve (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1672.000	-85.35	4.52	9.38	-80.49	-13.00	-67.49	Н
2509.800	-85.71	5.6	10.71	-80.60	-13.00	-67.60	Н
N/A							

FCC ID: MCLTB4001

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operatior Mode: Temperat Humidity:	25 ure: 25	PRS 850(4Do 51 5°C 5 % RH	י ד	Test Date: September 6, 2016 Tested by: Weicheng Kuo Polarity: Ver.				
0.0 dE	3m 					Limit1: Margin:		
-90	2 X 10 2900.00	4800.00 6700.00	8600.00 1	0500.00 12400.00	14300.00 1620	00.00 2	0000.00 MHz	
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission leve (dBm)	l Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)	
1697.600	-83.61	4.55	9.45	-78.71	-13.00	-65.71	V	
2546.400	-82.33	5.64	10.75	-77.22	-13.00	-64.22	V	
N/A								

FCC ID: MCLTB4001

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: Temperate Humidity:	25 ⁻ u re: 25 ⁻		own1Up) /	т	est Date: ested by: olarity:	-	
0.0 dB						Limit1: Margin:	
-45 -90	2						
1000.00 Frequency	0 2900.00 4 S.G.	800.00 6700.00 Cable loss		2500.00 12400.00 Emission level		00.00 2 Margin	Antenna
(MHz)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	Polarization (V/H)
1697.600	-88.14	4.55	9.45	-83.24	-13.00	-70.24	н
2546.400	-86.27	5.64	10.75	-81.16	-13.00	-68.16	Н
N/A							

FCC ID: MCLTB4001

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operatior Mode:	n EC	GPRS 850(4Down1Up) / TX / CH 128 Test Date: September 6, 2016											
Temperat	ure: 25	°C			Tested k	y: Weich	eng Kuo						
Humidity	: 50	% RH			Polarity	: Ver.							
0.0 dE	3m					Limit1: Margin:	_						
-45	2 X	800.00 6700.00	8600.00 1		14300.00 1620		0000.00 MHz						
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)						
1648.400	-78.48	4.49	9.32	-73.65	-13.00	-60.65	V						
2470.000	-83.66	5.55	10.68	-78.53	-13.00	-65.53	V						
N/A													

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode:	n EG	GPRS 850(4	Down1Up) / TX / CH 12	8 Test Dat	te: Septer	mber 6, 2016
Temperat	t ure: 25	o°C			Tested b	by: Weich	eng Kuo
Humidity	: 50) % RH			Polarity	: Hor.	
0.0 d	Bm					Limit1: Margin:	_
-45 -90 1000.0	2 × ×		8600.00 1		14300.00 1620		20000.00 MHz
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1651.000	-85.28	4.49	9.32	-80.45	-13.00	-67.45	Н
2470.000	-56.1	5.55	10.68	-50.97	-13.00	-37.97	Н
N/A							

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operat Mode: Temper Humidi	rature:	25 [°]	EGPRS 850(4Down1Up) / TX / CH 190 Test Date: September 6, 2016 25°C Tested by: Weicheng Kuo 50 % RH Polarity: Ver.											
	-		/0101											
0.0	dBm						Limit1: Margin:							
-														
-45														
-														
-90	2 1 1 00.000 290	0.00 48	00.00 6700.00	8600.00 1	0500.00 12400.00	14300.00 1620	00.00 2	20000.00 MHz						
Frequen (MHz)		S.G. IBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission leve (dBm)	l Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)						
1673.20	-9	0.88	4.52	9.38	-86.02	-13.00	-73.02	V						
2512.00	-8	5.49	5.6	10.71	-80.38	-13.00	-67.38	V						
N/A														

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operat Mode: Temper Humidi	rature:	: 25		IDown1Up) / TX / CH 19		by: Weich	mber 6, 2016 Ieng Kuo
0.0	dBm						Limit1:	—
-							Margin:	
-								
-								
-45								
-								
-								
-	2							
-90	2 1 X							
10	00.000 290	0.00 48	00.00 6700.00	8600.00 1	0500.00 12400.00	14300.00 162	00.00 2	20000.00 MHz
Frequen (MHz)		S.G. IBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission leve (dBm)	l Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1673.20	-9	91.07	4.52	9.38	-86.21	-13.00	-73.21	Н
2509.80	-8	85.83	5.6	10.71	-80.72	-13.00	-67.72	Н
N/A								

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operati Mode:			EGPRS 850(4Down1Up) / TX / CH 251 Test Date: September 6, 2016 25°C Tested by: Weicheng Kuo										
Temper		25°	С						Test	ed b	y: Wei	che	ng Kuo
Humidi	ty:	50 °	% RH						Pola	rity:	Ver.		
0.0	dBm												
											Limit Margi		_
_													
_													
-45													
_													
	2												
-90	1 X X												
100	0.000 2900.0)0 480	0.00 6700	.00	8600.00	1(0500.00 12	400.00	14300.00	16200).00	200	000.00 MHz
Frequen (MHz)			Cable lo (dB)	SS	Ant.Ga (dBi)		Emissio (dB		Lim (dBr		Margir (dB)	ו	Antenna Polarization (V/H)
1697.60	0 -90	.33	4.55		9.45		-85.	43	-13.0	00	-72.43	;	V
2546.40	0 -86	.64	5.64		10.75	5	-81.	53	-13.0	00	-68.53	5	V
N/A													

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operati Mode:			EGPRS 850(4Down1Up) / TX / CH 251 Test Date: September 6, 2016								
Temper	ature:	25°	С			Tested I	by: Weich	eng Kuo			
Humidi	ty:	50 9	% RH			Polarity	: Hor.				
0.0	dBm						Limit1: Margin:				
-45	2										
-90	1 ×										
Frequen (MHz)		G.	0.00 6700.0 Cable loss (dB)		0500.00 12400.00 Emission lev (dBm)		00.00 2 Margin (dB)	Antenna Polarization (V/H)			
1697.60	0 -92.	15	4.55	9.45	-87.25	-13.00	-74.25	Н			
2546.40	0 -88.	81	5.64	10.75	-83.70	-13.00	-70.70	Н			
N/A											

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operatio Mode:	n GS	M 1900 / TX	(/ CH 512		Test Date:	Septer	mber 6, 2016
Tempera	ture: 25 [°]	°C			Tested by:	Weich	eng Kuo
Humidity	: 55	% RH			Polarity:	Ver.	
0.0 d	Bm					Limit1: Margin:	_
-45		2×					
-90		000.00	0000.00 1		14000 00 10000		
Frequency (MHz)		6700.00 Cable loss (dB)	8600.00 1 Ant.Gain (dBi)	0500.00 12400.00 Emission level (dBm)	14300.00 16200 Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3702.000	-82.68	6.9	12.54	-77.04	-13.00	-64.04	V
5550.000	-79.8	8.62	12.88	-75.54	-13.00	-62.54	V
N/A							

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operat Mode: Temper Humidi	rature:	25°	M 1900 / C % RH	тх	/ CH 5	512			Test Date Tested by Polarity:	•	cheng	r 6, 2016 Kuo
0.0	dBm									Limit		
										Marg	in: —	
-												-
_												
-45												
-												-
_		1 X	2									_
-		X	1									-
-90					0000.00				14000 00 400			
Frequen	00.000 2900	3.00 48 S.G.	00.00 670 Cable lo	0.00	8600.00 Ant.Ga		500.00 124 Emissior			00.00 Margir	20000.0	ntenna
(MHz)		Bm)	(dB)	22	(dBi)		(dBn		(dBm)	(dB)	' Pol	arization (V/H)
3702.00	-8	0.96	6.9		12.54	1	-75.3	32	-13.00	-62.32	2	Н
5550.00	00 -7	9.11	8.62		12.88	3	-74.8	85	-13.00	-61.85	;	Н
N/A												

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode:	GS	M 1900 / TX	(/ CH 661		Test Date	: Septe	mber 6, 2016
Temperati	u re: 25°	Э			Tested by	Weich	eng Kuo
Humidity:		℃ % RH			Polarity:	Ver.	
0.0 dB		/0 111			r olanty.	VCI.	
	m					Limit1: Margin:	_
-45							
	1	2 X					
-90	0 2900.00 4	800.00 6700.00	8600.00 1	0500.00 12400.00	14300.00 1620	0.00 2	0000.00 MHz
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)		Margin (dB)	Antenna Polarization (V/H)
3758.000	-84.35	6.95	12.55	-78.75	-13.00	-65.75	V
5640.000	-80.02	8.69	12.84	-75.87	-13.00	-62.87	V
N/A							

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: Temperat Humidity:	ure: 25°	M 1900 / T> °C % RH	(/ CH 661		Test Date Tested by Polarity:	•	mber 6, 2016 neng Kuo
0.0 dB	m					Limit1:	—
						Margin:	
-45							
-43							
		2					
	1 X						
-90							
1000.00	0 2900.00 4	800.00 6700.00	8600.00 1	0500.00 12400.00	14300.00 1620	0.00 2	20000.00 MHz
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3758.000	-84.24	6.95	12.55	-78.64	-13.00	-65.64	Н
5640.000	-80.3	8.69	12.84	-76.15	-13.00	-63.15	Н
N/A							

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operati Mode: Temper Humidi	rature:	25°			(/ CH 81()		Test Date Tested by Polarity:	•	ember 6, 2016 heng Kuo
0.0	dBm								Limit1:	
									Margin	
-										
_										
-45										
_		1 X	2							
-			-	·						
-90										
100	0.000 2900).00 48	00.00	6700.00	8600.00	10500.00 124	00.00	14300.00 1620	0.00	20000.00 MHz
Frequen (MHz)		S.G. Bm)		e loss dB)	Ant.Gain (dBi)	Emissior (dBn		Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3821.00	0 -7	7.88	7	.02	12.56	-72.3	4	-13.00	-59.34	V
5729.00	0 -73	8.93	8	.76	12.81	-74.8	8	-13.00	-61.88	V
N/A										

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Mode:				Test Date:	Septer	mber 6, 2016
e: 25°	С			Tested by	: Weich	eng Kuo
55	% RH			Polarity:	Hor.	
					Limit1: Margin:	_
	00.00 0700.00	0000 00 1	2500.00 10100.00	1 1000 00 1000		
S.G. dBm)	Cable loss (dB)	Ant.Gain (dBi)			Margin (dB)	Antenna Polarization (V/H)
81.42	7.02	12.56	-75.88	-13.00	-62.88	Н
78.32	8.76	12.81	-74.27	-13.00	-61.27	Н
	: 25° 55 °	: 25°C 55 % RH	: 25°C 55 % RH	: 25°C 55 % RH	E: 25° C Tested by Polarity: 55 % RH Polarity: 1 1	Image: 25°C Tested by: Weich 55 % RH Polarity: Hor. Image: I

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode:	GPRS 1900	GPRS 1900(4Down1Up) / TX / CH 512Test Date: September 6, 2016								
Temperature:	25°C			Tested by:	Weich	eng Kuo				
Humidity:	55 % RH			Polarity:	Ver.					
0.0 dBm					Limit1: Margin:	_				
-45	1 2 4800.00 6700	0.00 8600.00 1	0500.00 12400.00	14300.00 16200.		0000.00 MHz				
Frequency S. (MHz) (dB		ss Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)				
3700.400 -86	.88 6.89	12.54	-81.23	-13.00	-68.23	V				
5550.600 -78	.87 8.62	12.88	-74.61	-13.00	-61.61	V				
N/A										

- Remark:
 - 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
 - 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

GPRS 1900(4Down1Up) / TX / CH 512 Test Date: September 6, 2016									
25°C			Tested by:	Weich	eng Kuo				
55 % RH			Polarity:	Hor.					
				Limit1: Margin:	_				
	8600.00 1	0500.00 12400.00	14300.00 16200.		0000.00 MHz				
a. Cable loss n) (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)				
6.89	12.54	-75.31	-13.00	-62.31	Н				
4 8.62	12.88	-75.14	-13.00	-62.14	Н				
	1 2 4800.00 6700.00 4800.00 6700.00 4800.00 6700.00 6 6.89	55 % RH	55 % RH	55 % RH Polarity: 4800.00 6700.00 8600.00 10500.00 12400.00 14300.00 16200.00 4800.00 6700.00 8600.00 10500.00 12400.00 14300.00 16200.00 1 2 1 1 1 1 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1 2 1	55 % RH Polarity: Hor. Image: Ima				

- Remark:
 - 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
 - 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode:	n Gł	GPRS 1900(4Down1Up) / TX / CH 661 Test Date: September 6, 2016									
Temperat	ure: 25	°C			Tested by:	Weich	eng Kuo				
Humidity:	55	% RH			Polarity:	Ver.					
0.0 dB	łm					Limit1: Margin:					
-45	1 1 2900.00	2 2 2 4800.00 6700.00	8600.00 1	0500.00 12400.00	14300.00 16200.		0000.00 MHz				
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)		Margin (dB)	Antenna Polarization				
3758.000	-83.67	6.95	12.55	-78.07	-13.00	-65.07	(V/H) ∨				
5640.000	-79.22	8.69	12.84	-75.07	-13.00	-62.07	V				
N/A											
Remark:											

- Remark:
 - 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
 - 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode:	GP	GPRS 1900(4Down1Up) / TX / CH 661 Test Date: September 6, 2016									
Temperatu	ire: 25°	С			Tested by:	Weich	eng Kuo				
Humidity:	55	% RH			Polarity:	Hor.					
0.0 dBn	n					Limit1: Margin:	_				
-45	1 2900.00 48	200.00 6700.00	8600.00 1	0500.00 12400.00	14300.00 16200.	.00 2	0000.00 MHz				
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)				
3758.000	-82.13	6.95	12.55	-76.53	-13.00	-63.53	Н				
5640.000	-78.8	8.69	12.84	-74.65	-13.00	-61.65	Н				
N/A											

- Remark:
 - 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
 - 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode:	GP	SPRS 1900(4Down1Up) / TX / CH 810 Test Date: September 6, 2016										
Temperature	e: 25°	С			Tested by:	Weich	eng Kuo					
Humidity:	55	% RH			Polarity:	Ver.						
0.0 dBm						Limit1:	—					
-45												
-90	1 X 300.00 48	2	8600.00 1	0500.00 12400.00	14300.00 16200	00 2	0000.00 MHz					
Frequency	S.G. (dBm)	Cable loss (dB)		Emission level (dBm)		Margin (dB)	Antenna Polarization (V/H)					
3821.000 -	-79.89	7.02	12.56	-74.35	-13.00	-61.35	V					
5729.400 -	-78.97	8.76	12.81	-74.92	-13.00	-61.92	V					
N/A												

- Remark:
 - 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
 - 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode:	Gr	GPRS 1900(4Down1Up) / TX / CH 810 Test Date: September 6, 2										
Temperat	ure: 25	°C			Tested by:	Weich	eng Kuo					
Humidity:	: 55	% RH			Polarity:	Hor.						
0.0 dE	}m					Limit1: Margin:						
-45												
		800.00 6700.00			14300.00 16200.		0000.00 MHz Antenna					
Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Polarization (V/H)					
3821.000	-79.88	7.02	12.56	-74.34	-13.00	-61.34	Н					
5729.400	-78.46	8.76	12.81	-74.41	-13.00	-61.41	Н					
N/A												
Remark [.]		1	1	I								

- Remark:
 - 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
 - 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

LESRF	Compliance Certification Services Inc.
	FCC ID: MCLTB4001

Operatio Mode: Tempera Humidity	ature:	EGPF 512 25°C 50 %)0(4Do	own1U	p) / TX / (CH		y: Weich	mber 6, 2016 heng Kuo
-45		1	2							
-90	.000 2900.00	4800.0	0 6700.	00 86	00.00 1	0500.00 124	00.00	14300.00 1620	0.00	20000.00 MHz
Frequenc (MHz)		. C	able los (dB)	s Ar		Emission (dBm	level		Margin (dB)	Antenna Polarization (V/H)
3700.400	-87.1	1	6.89	1	12.54	-81.4	6	-13.00	-68.46	V
5550.600	-79.1	4	8.62	1	12.88	-74.8	8	-13.00	-61.88	V
N/A										

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

LESRF	Compliance Certification Services Inc.
	FCC ID: MCLTB4001

Operatio Mode: Tempera Humidit	ature: y:	EGPR 512 25°C 50 % F		4Down1U	p) / TX / C	н		y: Weicl	ember 6, 2016 neng Kuo
0.0	dBm							Limit1: Margin:	
-									
-45									
		1	2						
-90	.000 2900.00	X 4800.00	6700.00	8600.00 1	0500.00 1240	n 00	14300.00 1620	0.00	20000.00 MHz
Frequenc (MHz)		Ca	ble loss (dB)		Emission (dBm)	level		Margin (dB)	Antenna Polarization (V/H)
3700.400		1	6.89	12.54	-80.46	;	-13.00	-67.46	Н
5550.600) -79.5	6	8.62	12.88	-75.30		-13.00	-62.30	Н
N/A									

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

		F	CC ID: I	MCLTB	1001									Repo	rt No.:	T1608	01S01 -RP
Operat Mode: Tempe Humid	eratu	ure:	66 25	GPR8 51 5°C) % R		00(40	Dow	/n1U	p) /	TX /	СН	Te		5y: We	eich		6, 2016 (uo
0.0	dB	m															
															nit1: argin:		
-45																	
									_						_		
			Į.		2 K												
-90			Î														
10	00.000	0 2900).00 4	800.00	6700	.00	8600.0	00 1	0500.0	0 124	00.00	14300.0	0 1620	00.00	2	0000.00	Hz
Frequer (MHz			6.G. Bm)		le los dB)	ss A	Ant.((dl		Em	ission (dBn	ו level ו)		imit Bm)	Marq (dB		Pola	tenna rization V/H)
3760.0	00	-8	6.32	(6.96		12.	.55		-80.7	3	-1:	3.00	-67.	73		V
5640.0	00	-7	79.8	1	3.69		12.	.84		-75.6	5	-1:	3.00	-62.0	65		V

Remark:

N/A

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

LESRF	Compliance Certification Services Inc.
	FCC ID: MCLTB4001

Operat Mode: Tempe Humid	rature	66 25	1	00(4	Down1	Up)) / TX / (СН	Test Dat Tested k Polarity	by: Weid		
0.0	dBm									Limit1	:]
										Margi	n: —	
-45												
		1 X	2 X									
-90												
10	00.000 290	0.00 48	00.00 670	0.00	8600.00	10	500.00 124	00.00	14300.00 1620	00.00	20000.00	
Frequer (MHz)		S.G. IBm)	Cable Ic (dB)	SS	Ant.Gai (dBi)	n	Emission (dBm		Limit (dBm)	Margin (dB)	Pola	ntenna arization V/H)
3758.0	з- 00	2.92	6.95		12.55		-77.3	2	-13.00	-64.32		н
5640.0	00 -7	'9.41	8.69		12.84		-75.2	6	-13.00	-62.26		Н
N/A												

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

	-	DIIANCE MCLTB400		cation S	Services I	nc.	Report No	.: T160801S01 -RP
Operation Mode: Temperature Humidity:	81 e: 25		1900(4[)own1U	lp) / TX / C	lest	d by: Weich	mber 6, 2016 neng Kuo
0.0 dBm							Limit1: Margin:	_
-45								
	X	2 X						
-90								
	00.00 4 S.G.	4800.00 Cable	loss A		Emission	evel Limit	Margin	20000.00 MHz Antenna Polarization

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3821.000	-78.75	7.02	12.56	-73.21	-13.00	-60.21	V
5729.400	-79.22	8.76	12.81	-75.17	-13.00	-62.17	V
N/A							

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

LESRE	Compliance Certification Services Inc.
	FCC ID: MCLTB4001

Operat Mode: Temper Humidi	rature: ity:	81 25	0	00(4C	own1U	p) / TX / (СН		by: Weicl	ember 6, 20 neng Kuo	16
0.0 - 45	dBm								Limit1: Margin:		
-90	00.000 290	1 × 0.00 48	2 X 800.00 670	0.00 8	600.00 1	0500.00 124	00.00	14300.00 1620	00.00	20000.00 MHz	
Frequen (MHz)		S.G. IBm)	Cable lo (dB)	ss A	nt.Gain (dBi)	Emission (dBm		Limit (dBm)	Margin (dB)	Antenna Polarizatio (V/H)	
3821.00	- 00	82.2	7.02		12.56	-76.6	6	-13.00	-63.66	Н	
5729.40	00 -7	7.85	8.76		12.81	-73.8	0	-13.00	-60.80	Н	
N/A											

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

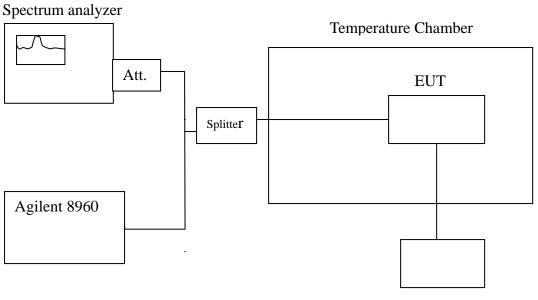
7.1 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

<u>LIMIT</u>

According to FCC §2.1055, FCC §22.355, .FCC §24.235.

Frequency Tolerance: 2.5 ppm

Test Configuration



Variable Power Supply

Remark: Measurement setup for testing on Antenna connector.

TEST PROCEDURE

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30° C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of $+50^{\circ}$ C reached.

TEST RESULTS

Pass.					
Refere	ence Frequency: GS	6M Mid Channel 8	336.6 MHz @ 20	0°C	
	Limit: ± 2.	.5 ppm = 2091.5 H	lz		
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)	
	50	-5	-0.0060		
	40	-7	-0.0084		
	30	-6	-0.0072		
	20	-5	-0.0060		
5	10	-6	-0.0072	2.5	
	0	-7	-0.0084		
	-10	-5	-0.0060		
	-20	-6	-0.0072		
	-30	-7	-0.0084		

Refere	Reference Frequency: GSM Mid Channel 1880 MHz @ 20°C					
	Limit: ± 2	2.5 ppm = 4700 Hz	2			
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)		
	50	-15	-0.0080			
	40	-17	-0.0090			
	30	-15	-0.0080			
	20	-16	-0.0085			
5	10	-17	-0.0090	2.5		
	0	-16	-0.0085			
	-10	-15	-0.0080			
	-20	-15	-0.0080			
	-30	-17	-0.0090			

Refere	Reference Frequency: GPRS Mid Channel 836.6 MHz @ 20°C						
	Limit: ± 2	.5 ppm = 2091.5 H	z				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)			
	50	-16	-0.0191				
	40	-14	-0.0167				
	30	-7	-0.0084				
	20	-3	-0.0036				
5	10	-5	-0.0060	2.5			
	0	-17	-0.0203				
	-10	-18	-0.0215				
	-20	-17	-0.0203				
	-30	-19	-0.0227				

Reference Frequency: GPRS Mid Channel 1880 MHz @ 20°C						
	Limit: ± 2	2.5 ppm = 4700 Hz	<u> </u>			
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)		
	50	-8	-0.0043			
	40	-6	-0.0032			
	30	-5	-0.0027			
	20	-7	-0.0037			
5	10	-5	-0.0027	2.5		
	0	-3	-0.0016			
	-10	-8	-0.0043			
	-20	-14	-0.0074			
	-30	-12	-0.0064			

Referer	Reference Frequency: EGPRS Mid Channel 836.6 MHz @ 20°C						
	Limit: ± 2	.5 ppm = 2091.5 H	z				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)			
	50	-7	-0.0084				
	40	-9	-0.0108				
	30	-6	-0.0072				
	20	-3	-0.0036				
5	10	-8	-0.0096	2.5			
	0	-5	-0.0060				
	-10	-13	-0.0155				
	-20	-17	-0.0203				
	-30	-15	-0.0179				

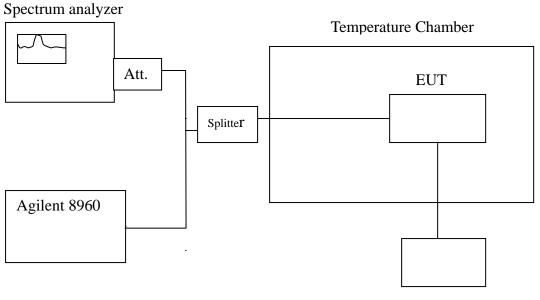
Reference Frequency: EGPRS Mid Channel 1880 MHz @ 20°C						
	Limit: ± 2	2.5 ppm = 4700 Hz	<u>:</u>			
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)		
	50	-13.00	-0.0069			
	40	-11.00	-0.0059			
	30	-9.00	-0.0048			
	20	-4.00	-0.0021			
5	10	-7.00	-0.0037	2.5		
	0	-18.00	-0.0096			
	-10	-15.00	-0.0080			
	-20	-11.00	-0.0059			
	-30	-13.00	-0.0069			

7.2 FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

<u>LIMIT</u>

According to FCC §2.1055, FCC §22.355, .FCC §24.235,

Test Configuration



Variable Power Supply

Remark: Measurement setup for testing on Antenna connector.

TEST PROCEDURE

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation (\pm 15%) and endpoint, record the maximum frequency change.

TEST RESULTS

Pass.

Reference Frequency: GSM Mid Channel 836.6 MHz @ 20°C					
Limit: ± 2.5 ppm = 2091.5Hz					
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)	
5.75		-5	-0.0060		
5	20	-5	-0.0060	2.5	
4.25		-6	-0.0072		

Reference Frequency: GSM Mid Channel 1880 MHz @ 20°C					
	Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)	
5.75		-16.00	-0.0085		
5	20	-16.00	-0.0085	2.5	
4.25		-17.00	-0.0090		

Reference Frequency: GPRS Mid Channel 836.6 MHz @ 20°C					
	Limit: ± 2.5 ppm = 2091.5Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)	
5.75		-5.00	-0.0060		
5	20	-3.00	-0.0036	2.5	
4.25		-7.00	-0.0084		

Reference Frequency: GPRS Mid Channel 1880 MHz @ 20°C						
	Limit: ± 2.5 ppm = 4700 Hz					
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)		
5.75		-7.00	-0.0037			
5	20	-7.00	-0.0037	2.5		
4.25		-8.00	-0.0043			

Reference Frequency: EGPRS Mid Channel 836.6 MHz @ 20°C						
Limit: ± 2.5 ppm = 2091.5Hz						
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)		
5.75		-4.00	-0.0048			
5	20	-3.00	-0.0036	2.5		
4.25		-5.00	-0.0060			

Reference Frequency: EGPRS Mid Channel 1880 MHz @ 20°C						
Limit: ± 2.5 ppm = 4700 Hz						
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)		
5.75		-5.00	-0.0027			
5	20	-4.00	-0.0021	2.5		
4.25		-6.00	-0.0032			