中国认可
国际互认
检测
TESTING
CNAS L2264

RF TEST REPORT

Applicant	MobiWire SAS
FCC ID	QPN-HALONA
Product	3G SmartPhone
Brand	Mobiwire
Model	Mobiwire Halona
Report No.	RXA1608-0171RF04
Issue Date	September 6, 2016

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2/ FCC CFR 47 Part 24H**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Xianqing Li

Performed by: Xianqing Li

Kai Xu

Approved by: Kai Xu

TA Technology (Shanghai) Co., Ltd.

No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000

TABLE OF CONTENT

1. Test Laboratory 4
1.1. Notes of the test report 4
1.2. Test facility 4
1.3. Testing Location 5
2. General Description of Equipment under Test 6
3. Applied Standards 7
4. Test Configuration 8
Test Case Results 9
4.1. RF Power Output 9
4.2. Effective Isotropic Radiated Power 11
4.3. Occupied Bandwidth 14
4.4. Band Edge Compliance 17
4.5. Peak-to-Average Power Ratio (PAPR) 20
4.6. Frequency Stability 22
4.7. Spurious Emissions at Antenna Terminals 24
4.8. Radiates Spurious Emission 27
5. Main Test Instruments 31
ANNEX A: EUT Appearance and Test Setup 32
A.1 EUT Appearance 32
A.2 Test Setup 34

Summary of measurement results

No.	Test Case	Clause in FCC rules	Verdict
1	RF power output	2.1046	PASS
2	Effective Isotropic Radiated power	24.232	PASS
3	Occupied Bandwidth	2.1049	PASS
4	Band Edge Compliance	24.238	PASS
5	Peak-to-Average Power Ratio	24.232/KDB 971168 D01(5.7)	PASS
6	Frequency Stability	2.1055 / 24.235	PASS
7	Spurious Emissions at Antenna Terminals	2.1051 / 24.238	PASS
8	Radiates Spurious Emission	2.1053 / 24.238	PASS
Date of Testing: August 9,2016~ September 6, 2016			

1. Test Laboratory

1.1. Notes of the test report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd).**The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above. This report must not be used by the client to claim product certification, approval, or endorsement by CNAS or any government agencies.

1.2. Test facility

CNAS (accreditation number:L2264)

TA Technology (Shanghai) Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS).

FCC (recognition number is 428261)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

IC (recognition number is 8510A)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Canada to perform electromagnetic emission measurement.

VCCI (recognition number is C-4595, T-2154, R-4113, G-766)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Japan to perform electromagnetic emission measurement.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

1.3. Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City:	Shanghai
Post code:	201201
Country:	P. R. China
Contact:	Xu Kai
Telephone:	+86-021-50791141/2/3
Fax:	+86-021-50791141/2/3-8000
Website:	http://www.ta-shanghai.com
E-mail:	xukai@ta-shanghai.com

2. General Description of Equipment under Test

Client Information

Applicant	MobiWire SAS
Applicant address	79 AVENUE FRANCOIS ARAGO 92017 NANTERRE CEDEX France
Manufacturer	MOBIWIRE MOBILES (NINGBO) CO.,LTD
Manufacturer address	No.999,Dacheng East Road,Fenghua City,Zhejiang

General information

Model:	Mobiwire Halona		
Product IMEI:	359805070934731		
Hardware Version:	V01A		
Software Version:	V01_20160513_Halona_MobiWire_MP		
Power Supply:	Battery/AC adapter		
Antenna Type:	Internal Antenna		
Test Mode(s):	GSM1900		
Test Modulation:	(GSM)GMSK		
GPRS/EGPRS Multislot Class:	12 (EGPRS only approve downlink)		
Maximum E.I.R.P.	GSM 1900: 28.19dBm		
Rated Power Supply Voltage:	3.7V		
Extreme Voltage:	Minimum: 3.6V Maximum: 4.20V		
Extreme Temperature:	Lowest: -10°C Highest: +50°C		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM1900	1850 ~ 1910	1930 ~ 1990
EUT Accessory			
Battery	Manufacturer: Ningbo Veken battery Co.,LTD. Model: H353F Power Rating: DC 3.7V, Li-ion		
Headset	Manufacturer: Shenzhen Juwei Electronics Co.,Ltd Model: 3.5mm 4-pole plug stereo headset		
Charger	Manufacturer: Shenzhen Aohai Technology Co.,Ltd Model: A31-500550		
Note: The information of the EUT is declared by the manufacturer. Please refer to the specifications or user manual for details.			

3. Applied Standards

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

FCC CFR47 Part 2 (2015)

FCC CFR 47 Part 24H (2015)

ANSI/TIA-603-D (2010)

KDB 971168 D01 Power Meas License Digital Systems v02r02

4. Test Configuration

There is more than one SIM card slot, each one should be applied throughout the compliance test re spectively, and however, only the worst case (SIM 1) will be recorded in this report.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (Z axis, vertical polarization) and the worst case was recorded.
All mode and data rates and positions and RB size and modulations were investigated.
Subsequently, only the worst case emissions are reported.
The following testing in GSM is set based on the maximum RF Output Power.

Test modes are chosen to be reported as the worst case configuration below for GSM 1900.

	Test items	**Modes/Modulation**
		GSM 1900
Conducted Test cases	RF power output	GSM/ GPRS
	Occupied Bandwidth	GSM/ GPRS
	Band Edge Compliance	GSM/ GPRS
	Peak-to-Average Power Ratio	GSM/ GPRS
	Frequency Stability	GSM/ GPRS
	Spurious Emissions at Antenna Terminals	GSM
Radiated Test cases	Effective Isotropic Radiated power	GSM/ GPRS
	Radiates Spurious Emission	GSM

Test Case Results

4.1. RF Power Output

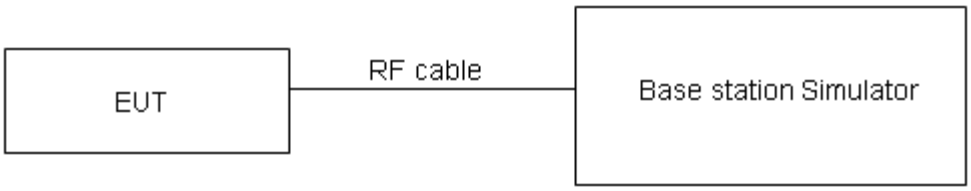
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

During the process of the testing, The EUT is controlled by the Base Station Simulator to ensure max power transmission and proper modulation.

Test Setup



The loss between RF output port of the EUT and the input port of the tester has been taken into consideration.

Limits

No specific RF power output requirements in part 2.1046.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.4 dB.

Test Results

GSM 1900		Conducted Power(dBm)		
		Channel 512	Channel 661	Channel 810
		1850.2(MHz)	1880(MHz)	1909.8(MHz)
GSM	Results	**30.33**	29.96	29.54
GPRS (GMSK)	1TXslot	30.25	29.94	29.50
	2TXslots	29.31	28.98	28.58
	3TXslots	27.53	27.21	26.82
	4TXslots	26.73	26.40	26.02

Note: 1) The maximum RF Output Power numbers are marks in bold.

2) The following testing in GPRS is set to 1TXslot based on the maximum RF Output Power.

4.2. Effective Isotropic Radiated Power

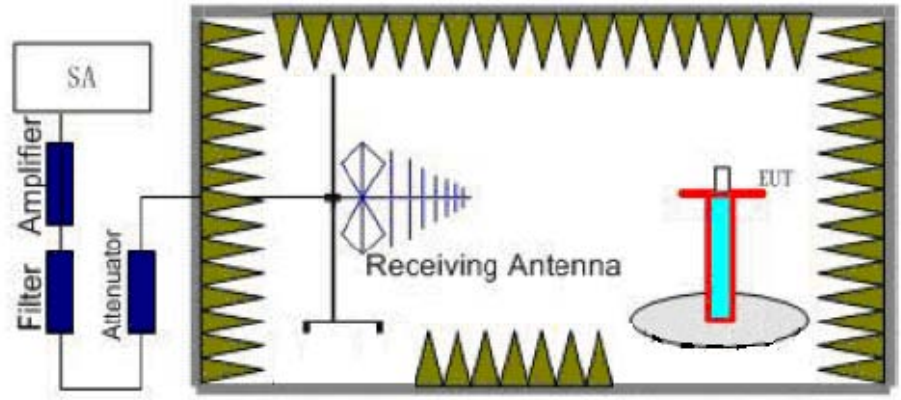
Ambient condition

Temperature	Relative humidity
21°C ~25°C	40%~60%

Methods of Measurement

The measurement procedures in TIA- 603-D are used.
1. The EUT was placed on a turntable with 1.5 meter height in a fully anechoic chamber.
2. The EUT was set at 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. GSM operating modes: Set RBW= 1MHz, VBW= 3MHz, RMS detector over burst;
UMTS operating modes: Set RBW= 100 KHz, VBW= 300 KHz, RMS detector over frame, and use channel power option with bandwidth=5MHz, per section 4.0 of KDB 971168 D01.
4. The table was rotated 360 degrees to determine the position of the highest radiated power.
5. The height of the receiving antenna is adjusted to look for the maximum ERP/EIRP.
6. Taking the record of maximum ERP/EIRP.
7. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
8. The conducted power at the terminal of the dipole antenna is measured.
9. Repeat step 3 to step 5 to get the maximum ERP/EIRP of the substitution antenna.
10. ERP/EIRP = Ps + Et – Es + Gs = Ps + Rt – Rs + Gs
Ps (dBm)：Input power to substitution antenna.
Gs (dBi or dBd)：Substitution antenna Gain.
Et = Rt + AF
Es = Rs + AF
AF (dB/m)：Receive antenna factor
Rt：The highest received signal in spectrum analyzer for EUT.
Rs：The highest received signal in spectrum analyzer for substitution antenna.

Test Setup



Limits

Rule Part 24.232(b) specifies that "Mobile/portable stations are limited to 2 watts EIRP. Peak power" and Rule Part 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage".

Limit (EIRP)	⩽ 2 W (33 dBm)

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 1.19 dB

Test Results:

Mode	Polarization	Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	Limit (dBm)	Conclusion
GSM 1900	H	1850.2	-31.24	-55.14	0.00	1.92	25.82	33	Pass
	H	1880	-32.14	-55.42	0.00	1.94	25.22	33	Pass
	H	1909.8	-32.35	-55.67	0.00	1.90	25.22	33	Pass
	V	1850.2	-30.26	-55.70	0.00	1.92	27.36	33	Pass
	V	1880	-31.15	-55.91	0.00	1.94	26.70	33	Pass
	V	1909.8	-31.42	-55.85	0.00	1.90	26.33	33	Pass
GPRS 1900	H	1850.2	-30.33	-55.14	0.00	1.92	26.73	33	Pass
	H	1880	-31.29	-55.42	0.00	1.94	26.07	33	Pass
	H	1909.8	-31.54	-55.67	0.00	1.90	26.03	33	Pass
	V	1850.2	-29.43	-55.70	0.00	1.92	28.19	33	Pass
	V	1880	-30.23	-55.91	0.00	1.94	27.62	33	Pass
	V	1909.8	-30.66	-55.85	0.00	1.90	27.09	33	Pass

4.3. Occupied Bandwidth

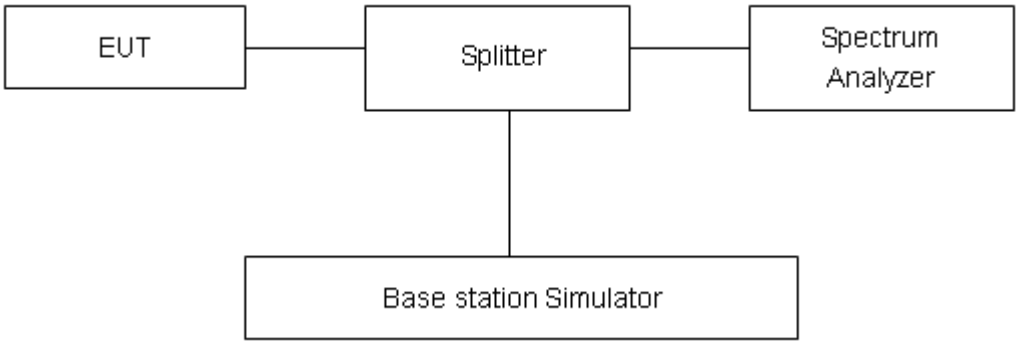
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.
RBW is set to 3kHz, VBW is set to 10kHz for GSM 1900.
99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.

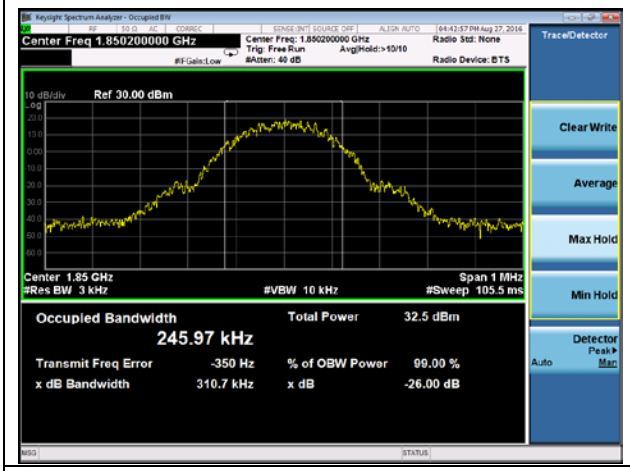
Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 624Hz.

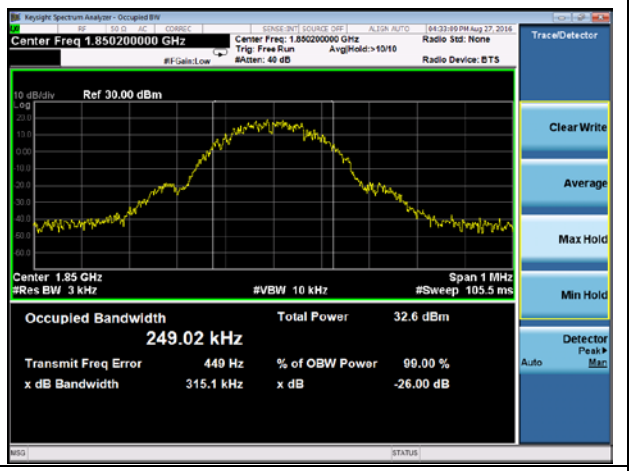
Test Result

Mode	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth(MHz)
GSM 1900 (GSM)	512	1850.2	0.246	0.311
	661	1880.0	0.251	0.310
	810	1909.8	0.244	0.309
GPRS 1900 (GMSK)	512	1850.2	0.249	0.315
	661	1880.0	0.244	0.308
	810	1909.8	0.247	0.312

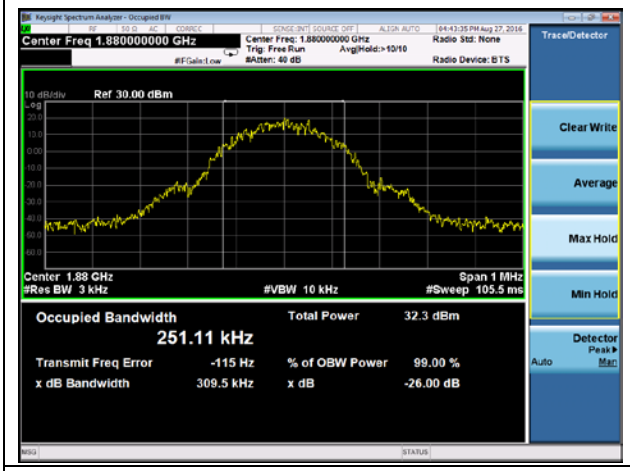
GSM1900 GSM CH-Low



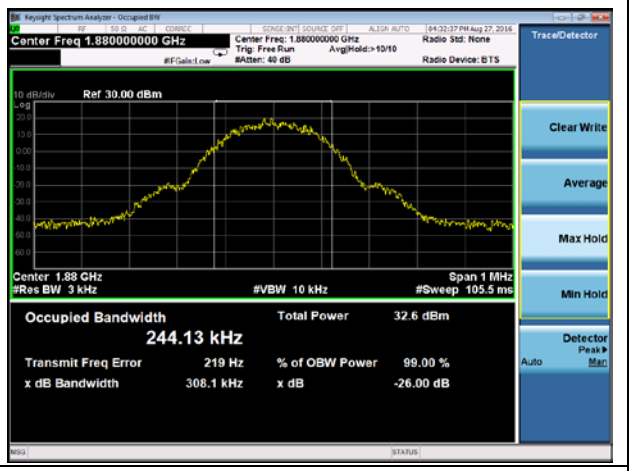
GSM1900 GPRS CH-Low



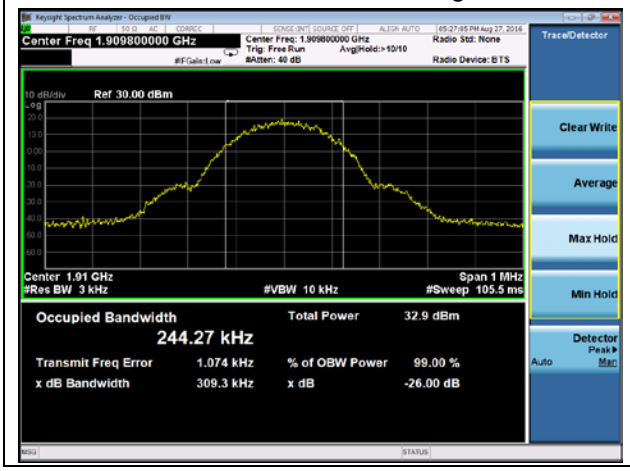
GSM 1900 GSM CH-Middle



GSM 1900 GPRS CH-Middle



GSM 1900 GSM CH-High



GSM 1900 GPRS CH-High

4.4. Band Edge Compliance

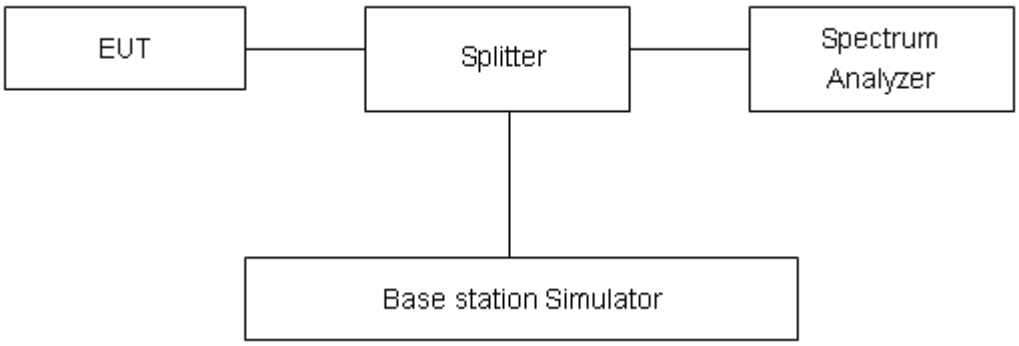
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured. The Average detector is used and RBW is set to 3kHz, VBW is set to 10kHz for GSM 1900.
Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log10 (P) dB.”

Limit	-13 dBm

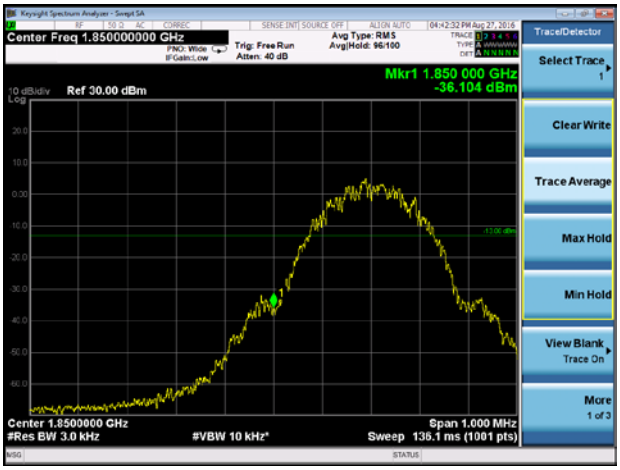
Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96, U=0.684dB.

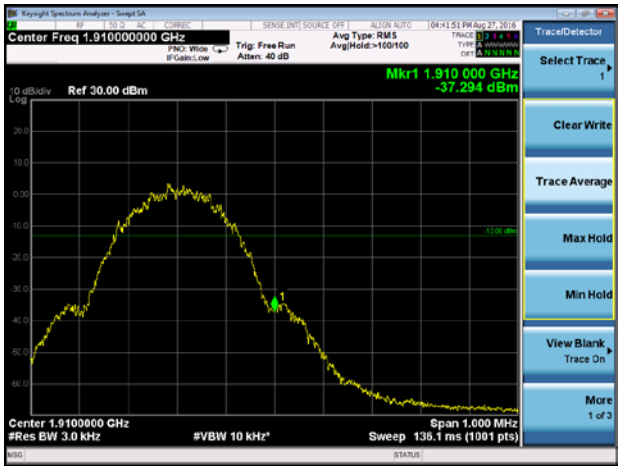
Test Result:

Mode	Carrier frequency (MHz)	Reference value (dBm)	Limit (dBm)	Conclusion
GSM 1900 (GSM)	1850.0	-36.104	-13	PASS
	1910.0	-37.294	-13	PASS
GPRS 1900 (GMSK)	1850.0	-36.498	-13	PASS
	1910.0	-36.547	-13	PASS

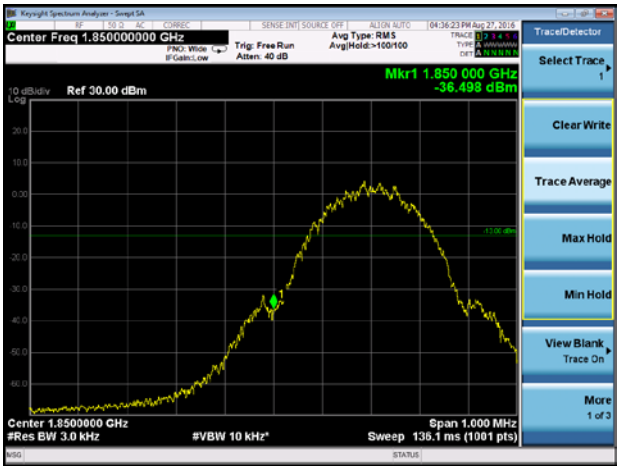
GSM1900 GSM CH-Low



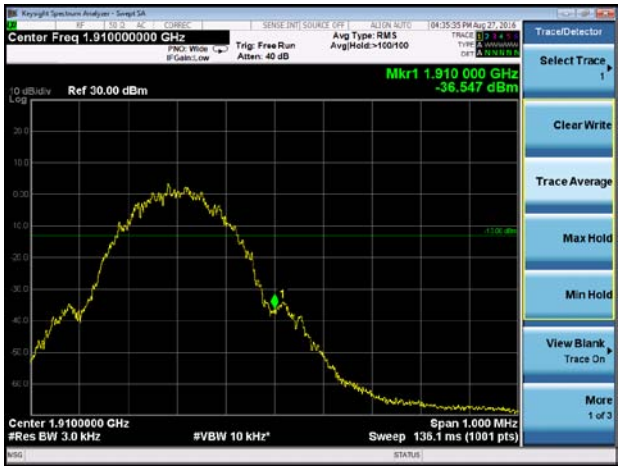
GSM 1900 GSM CH-High



GSM1900 GPRS CH-Low



GSM 1900 GPRS CH-High



4.5. Peak-to-Average Power Ratio (PAPR)

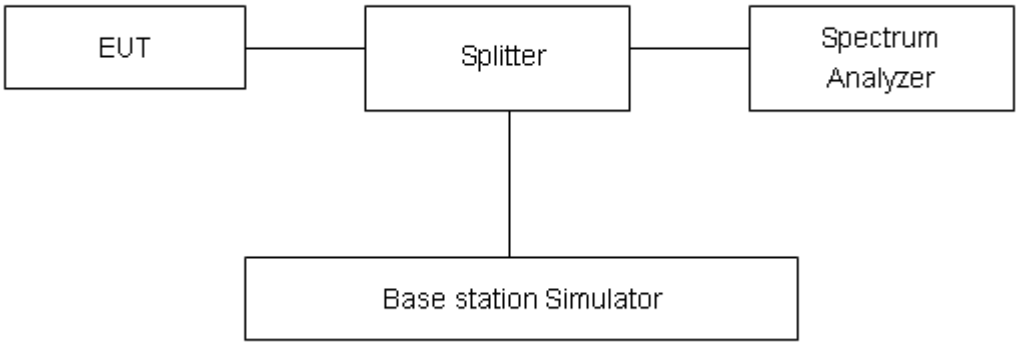
Ambient condition

Temperature	Relative humidity
21°C ~25°C	40%~60%

Methods of Measurement

Measure the total peak power and record as PPk. And measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (*e.g.*, dBm). Determine the PAPR from:
PAPR (dB) = PPk (dBm) - PAvg (dBm).

Test Setup



Limits

In measuring transmissions in this band using an average power technique, the peakto-average ratio (PAR) of the transmission may not exceed 13 dB in 24.232(d).

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the

normal distribution is with the coverage factor k = 2, U= 0.4 dB.

Test Results

Mode	Channel	Frequency (MHz)	Peak(dBm)	Avg(dBm)	PAPR(dB)	Limit(dB)	Conclusion
GSM 1900 (GSM)	512	1850.2	30.35	30.33	0.02	13	PASS
	661	1880	29.99	29.96	0.03	13	PASS
	810	1909.8	29.56	29.54	0.02	13	PASS
GPRS 1900 (GMSK)	512	1850.2	30.29	30.25	0.04	13	PASS
	661	1880	29.97	29.94	0.03	13	PASS
	810	1909.8	29.53	29.50	0.03	13	PASS

4.6. Frequency Stability

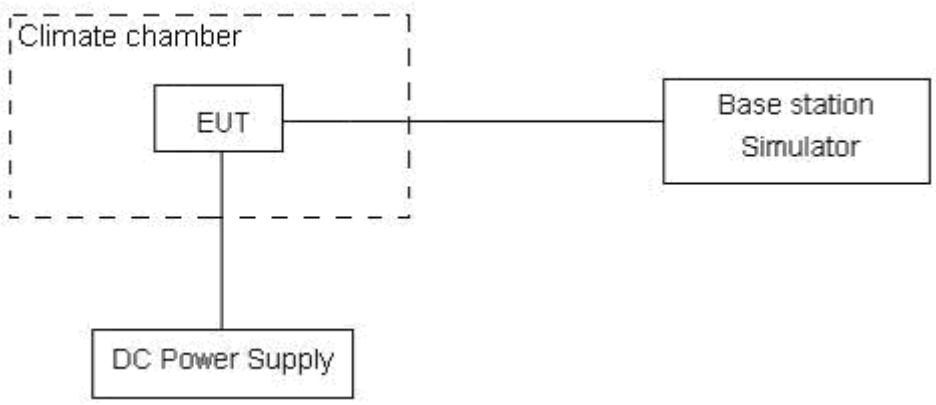
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

1. Frequency Stability (Temperature Variation)
   The temperature inside the climate chamber is varied from -30°C to +50°C in 10°C step size,
   (1) With all power removed, the temperature was decreased to -30°C and permitted to stabilize for three hours.
   (2) Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.
   (3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.
2. Frequency Stability (Voltage Variation)
   The frequency stability shall be measured with variation of primary supply voltage as follows:
   (1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.
   (2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery-operating end point which shall be specified by the manufacturer.
   This transceiver is specified to operate with an input voltage of between 3.6 V and 4.20 V, with a nominal voltage of 3.7V.

Test setup



Limits

No specific frequency stability requirements in part 24.235

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor *k* = 3, U= 0.01ppm.

Test Result

Mode	Test status	Test Results (ppm)		Conclusion
		GSM(GMSK)	GPRS(GMSK)	
GSM 1900 Channel 661	-30°C/3.7 V	0.0316	0.0255	PASS
	-20°C/3.7 V	0.0250	0.0299	PASS
	-10°C/3.7 V	0.0321	0.0332	PASS
	0°C/3.7 V	0.0296	0.0288	PASS
	10°C/3.7V	0.0287	0.0300	PASS
	20°C/3.7 V	0.0288	0.0237	PASS
	30°C/3.7 V	0.0269	0.0310	PASS
	40°C/3.7 V	0.0253	0.0369	PASS
	50°C/3.7 V	0.0262	0.0299	PASS
	20°C/3.6 V	0.0344	0.0337	PASS
	20°C/4.20 V	0.0356	0.0304	PASS

4.7. Spurious Emissions at Antenna Terminals

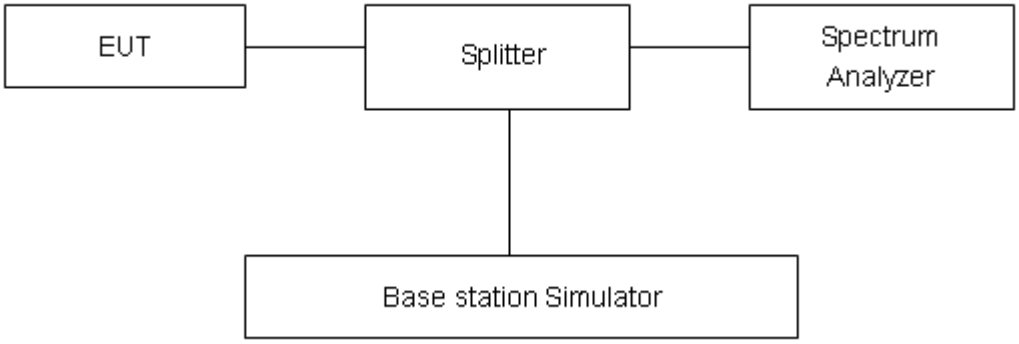
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used.RBW and VBW are set to 100 kHz for the carrier frequency, or RBW and VBW are set to 1MHz (other frequency), Sweep is set to ATUO.

Test setup



Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log10 (P) dB.”

Limit	-13 dBm

Measurement Uncertainty

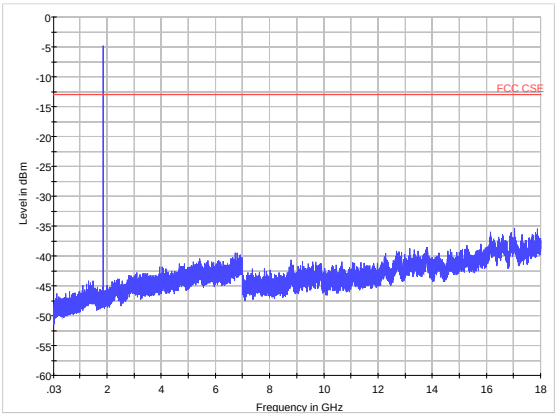
The assessed measurement uncertainty to ensure 99.75％ confidence level for the normal distribution is with the coverage factor *k* = 1.96.

Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-18GHz	1.407 dB

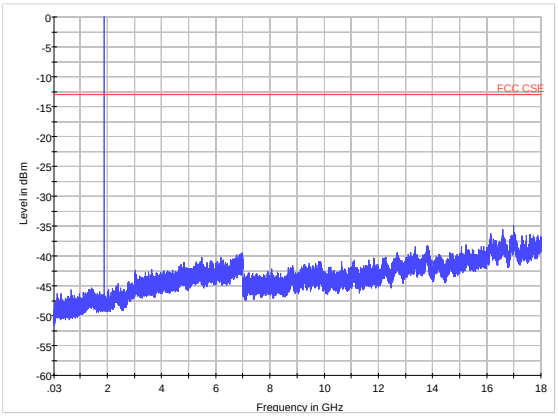
Test Result

If disturbances were found more than 20dB below limit line, the mark is not required for the EUT. The signal beyond the limit is carrier.

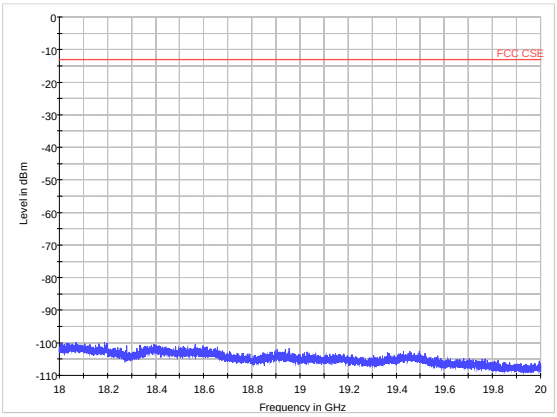
GSM 1900 CH-Low 30MHz~18GHz



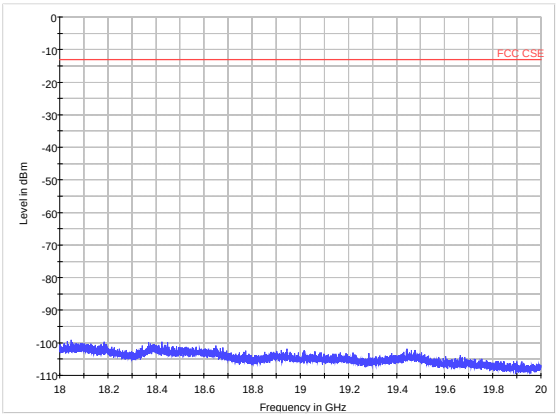
GSM 1900 CH-Middle 30MHz~18GHz



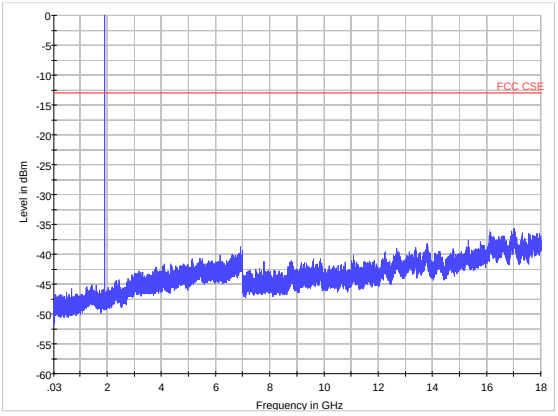
GSM 1900 CH-Low 18GHz~20GHz



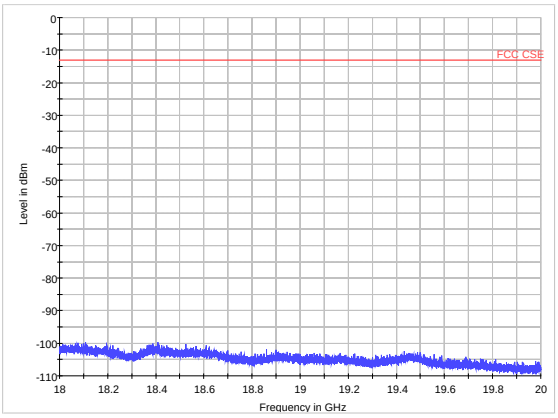
GSM 1900 CH-Middle 18GHz~20GHz



GSM 1900 CH-High 30MHz~18GHz



GSM 1900 CH-High 18GHz~20GHz



4.8. Radiates Spurious Emission

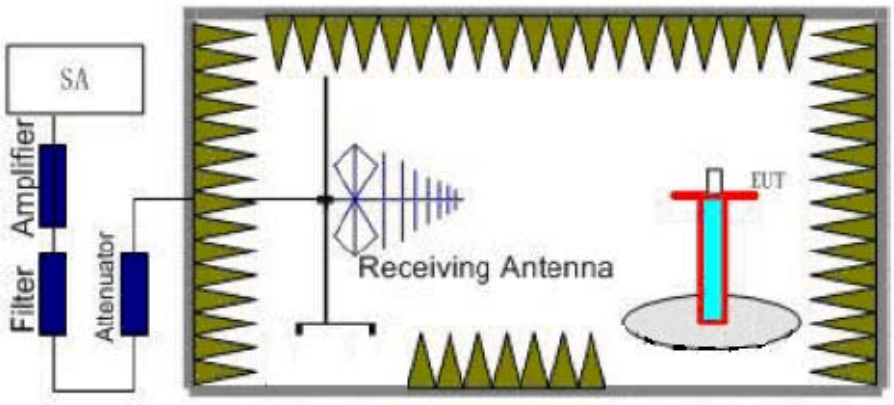
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

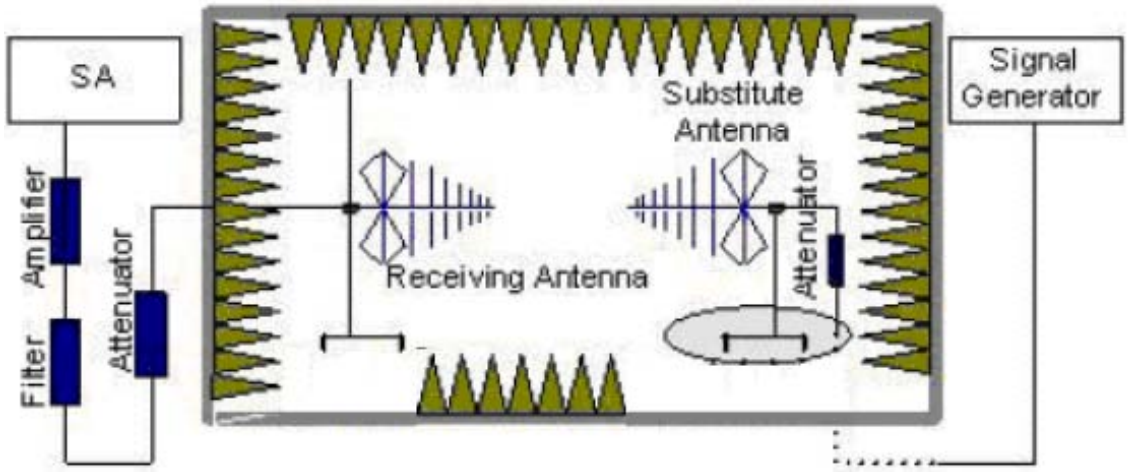
Method of Measurement

The measurements procedures in TIA -603-D are used.
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment.
The emissions less than 20 dB below the permissible value are reported.

The procedure of Radiates Spurious Emission is as follows:
Step 1:
The measurement is carried out in the semi-anechoic chamber. EUT was placed on a 1.5 meters high non-conductive table at a 3 meters test distance from the test receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT. A radio link shall be established between EUT and Tester. The output power of the cell signal of the tester will be decreased until the output power of the EUT reach a maximum value. A peak detector is used while RBW and VBW are both set to 3MHz. During the measurement, the highest emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna moved up and down over a range from 1 to 4 meters in both horizontally and vertically polarized orientations. The test setup refers to figure below.



Step 2:
A dipole antenna shall be substituted in place of the EUT. The antenna will be driven by a signal generator with a adjustable S.G. applied through a Tx cable. Adjust the level of the signal generator output until the value of the receiver reach the previously recorded analyzer power level (LVL).Then The E.R.P. /E.I.R.P. of the EUT can be calculated through the level of the signal generator, Tx cable loss and the gain of the substitution antenna. The test setup refers to figure below.



E.R.P（peak power）=S.G. - Tx Cable loss + Substitution antenna gain – 2.15.
EIRP= E.R.P+2.15

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

Of those disturbances below (limit – 20 dB), the mark is not required for the EUT.

Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log10 (P) dB.”

Limit	-13 dBm

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95％ confidence level for the normal distribution is with the coverage factor *k* = 1.96, *U*= 3.55 dB.

Test Result

GSM 1900 CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3700.4	-61.85	5.1	11.05	vertical	-55.9	-13.00	42.9	45
3	5550.6	-57.03	5.42	12.65	vertical	-49.8	-13.00	36.8	135
4	7400.8	-57.35	6.7	13.85	vertical	-50.2	-13.00	37.2	0
5	9251.0	-58.04	7.01	14.75	vertical	-50.3	-13.00	37.3	45
6	11101.2	-54.07	7.48	15.95	vertical	-45.6	-13.00	32.6	90
7	12951.4	-52.34	7.51	16.55	vertical	-43.3	-13.00	30.3	135
8	14801.6	-48.71	8.24	15.35	vertical	-41.6	-13.00	28.6	135
9	16651.8	-47.54	8.41	14.95	vertical	-41.0	-13.00	28.0	45
10	18502.0	-47.21	8.54	15.45	vertical	-40.3	-13.00	27.3	90

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2.The worst emission was found in the antenna is vertical position.

GSM 1900 CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760.0	-60.45	5.1	11.05	vertical	-54.5	-13.00	41.5	225
3	5640.0	-60.33	5.42	12.65	vertical	-53.1	-13.00	40.1	270
4	7520.0	-56.25	6.7	13.85	vertical	-49.1	-13.00	36.1	135
5	9400.0	-50.14	7.01	14.75	vertical	-42.4	-13.00	29.4	225
6	11280.0	-51.27	7.48	15.95	vertical	-42.8	-13.00	29.8	45
7	13160.0	-55.24	7.51	16.55	vertical	-46.2	-13.00	33.2	0
8	15040.0	-51.21	8.24	15.35	vertical	-44.1	-13.00	31.1	45
9	16920.0	-47.74	8.41	14.95	vertical	-41.2	-13.00	28.2	135
10	18800.0	-47.51	8.54	15.45	vertical	-40.6	-13.00	27.6	0

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.

GSM 1900 CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3819.6	-61.45	5.1	11.05	vertical	-55.5	-13.00	42.5	45
3	5729.4	-58.33	5.42	12.65	vertical	-51.1	-13.00	38.1	90
4	7639.2	-57.45	6.7	13.85	vertical	-50.3	-13.00	37.3	135
5	9549.0	-47.74	7.01	14.75	vertical	-40.0	-13.00	27.0	135
6	11458.8	-49.57	7.48	15.95	vertical	-41.1	-13.00	28.1	45
7	13368.6	-51.24	7.51	16.55	vertical	-42.2	-13.00	29.2	90
8	15278.4	-48.71	8.24	15.35	vertical	-41.6	-13.00	28.6	225
9	17188.2	-46.74	8.41	14.95	vertical	-40.2	-13.00	27.2	270
10	19098.0	-46.21	8.54	15.45	vertical	-39.3	-13.00	26.3	135

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

5. Main Test Instruments

Name	Type	Manufacturer	Serial Number	Calibration Date	Expiration Time
Base Station Simulator	CMU200	R&S	118133	2016-05-21	2017-05-20
Power Splitter	SHX-GF2 -2-13	Hua Xiang	10120101	NA	NA
Spectrum Analyzer	N9010A	Agilent	MY47191109	2016-05-21	2017-05-20
Universal Radio Communication Tester	E5515C	Agilent	MY48367192	2016-05-21	2017-05-20
Signal Analyzer	FSV30	R&S	100815	2015-12-17	2016-12-16
Signal generator	SMB 100A	R&S	102594	2016-05-22	2017-05-21
Signal generator	SMR27	R&S	100365	2016-05-22	2017-05-21
EMI Test Receiver	ESCI	R&S	100948	2016-06-01	2017-05-31
Trilog Antenna	VUBL 9163	SCHWARZBECK	9163-201	2014-12-06	2017-12-05
Trilog Antenna	VUBL 9163	SCHWARZBECK	9163-391	2014-12-06	2017-12-05
Horn Antenna	HF907	R&S	100126	2014-12-06	2017-12-05
Horn Antenna	HF907	R&S	100125	2014-12-06	2017-12-05
Climatic Chamber	PT-30B	Re Ce	20101891	2016-07-17	2017-07-16
Horn Antenna	3160-09	ETS-Lindgren	00102644	2015-01-30	2018-01-29
RF Cable	SMA 15cm	Agilent	0001	2016-09-05	2017-09-04

*******END OF REPORT *******