# TEST REPORT

## FCC ID: SY4-A01010

For

Shanghai Huace Navigation Technology LTD.

GNSS Receiver

| | | |
|---|---|---|
| Model No. | : | i70, iG8 |
| Trade name | : | |
| Prepared for | : | Shanghai Huace Navigation Technology LTD. |
| Address | : | Building C,599 Gaojing Road,Qingpu District,Shanghai,China |
| Prepared by | : | Shenzhen Alpha Product Testing Co., Ltd. |
| Address | : | Building B, East Area of Nanchang Second, Industrial Zone, Gushu 2nd Road, Bao'an, Shenzhen, China |
| Report No. | : | T1871060 03 |
| Date of Receipt | : | June 22, 2017 |
| Date of Test | : | June 22, 2017- July 11, 2017 |
| Date of Report | : | July 11, 2017 |

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# DECLARATION

| | | |
|---|---|---|
| Applicant | : | Shanghai Huace Navigation Technology LTD. |
| Manufacturer | : | Shanghai Huace Navigation Technology LTD. |
| EUT Description | : | GNSS Receiver |
| | (A) Model No. | : i70, iG8 |
| | (B) Trademark | : CHC |
| | (C) Ratings Supply | : DC 15V from adapter input 120V/60Hz |

Measurement Standard Used:

**FCC Part 22H, Part 24E, Part 27, part 90, ANSI/TIA-603-E: 2016**

The device described above is tested by Shenzhen Alpha Product Testing Co., Ltd. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The test results are contained in this test report and Shenzhen Alpha Product Testing Co., Ltd. is assumed full responsibility for the accuracy and completeness of test. Also, this report shows that the EUT is technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Alpha Product Testing Co., Ltd.

Tested by (name + signature).....: Reak Yang
Project Engineer

Approved by (name + signature).....: Simple Guan
Project Manager

SHENZHEN ALPHA PRODUCT TESTING CO.,LTD.

Date of issue..... .....: July 11, 2017

# 1. SUMMARY OF STANDARDS AND RESULTS

## 1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

| FCC Part2, 22E, 24H EMISSION | | |
|---|---|---|
| Test Description | Standard Paragraph | Test Result |
| Conducted Output Power | §2.1049 | Compliance* |
| Peak-to-Average Ratio | §2.0146, §24.232 | Compliance* |
| Effective Radiated Power/Equivalent Isotropic Radiated Power | §2.1046, §22.913, §24.232 | Compliance |
| Occupied Bandwidth | §2.1049, §22.917, §24.238 | Compliance* |
| Frequency Stability | §2.1055, §22.355, §24.235 | Compliance* |
| Spurious Emission at Antenna Terminals | §2.1051, §22.917, §24.238 | Compliance* |
| Field Strength of Spurious Radiation | §2.1053, §22.917,§24.238 | Compliance |
| Band Edge | §2.1051, §22.917, §24.238 | Compliance* |

| FCC Part2, 22E, 24H, 27 EMISSION | | |
|---|---|---|
| Description of Test Item | Standard Paragraph | Results |
| Maximum permissible exposure(MPE) | §1.1307, §2.1091 | Compliance |
| ERP&EIRP | §2.1046, §22.913(a) §24.232(c), §27.50(d) | Compliance |
| Modulation Characteristics | §2.1047 | Compliance* |
| Occupied Bandwidth | §2.1049, §22.905, §22.917, §24.238, §27.53(c) | Compliance* |
| Spurious Emissions at Antenna Terminal | §2.1051, §22.917(a), §24.238(a), §27.53(c)(h) | Compliance* |
| Spurious Radiated Emissions | §2.1053, §22.917(a), §24.238(a), §27.53(c)(h) | Compliance |
| Band Edge | §22.917(a), §24.238(a) §27.53(c)(h) | Compliance* |
| Frequency Stability | §2.1055, §22.355, §24.235, §27.54 | Compliance* |

Compliance*: The EUT has the 2G/3G module. The module had been certified which the model number is HE910, FCC ID: RI7HE910.The EUT use the module series model: HE910-D.The difference between the module which is used in the EUT and the original 2G/3G module is changed the antenna, so we added the test for ERP&EIRP, Spurious Radiated Emissions and the assessment for MPE, we pre-scan the output power, the output power is similar as the power in the original report. Radiated emission has been re-tested and the result for conducted test was cited from the certified module directly. The other data are refer to the report 1112FR12-02 which the model: HE910 (FCC ID: RI7HE910).

| FCC Part2, part90 EMISSION | | |
|---|---|---|
| Description of Test Item | Standard Paragraph | Results |
| RF output power | § 2.1046;§90.205 | Compliance* |
| Ocupied bandwidth &emission mask | § 2.1049; §90.209; §90.210 | Compliance* |
| Spurious emissions at antenna terminals | § 2.1051; §90.210 | Compliance* |
| Radiated spurious emissions | § 2.1053; §90.210 | Compliance |
| Frequency stability | §2.1055; §90.213 | Compliance* |
| Compliance*: The EUT has the Radio module. The module had been certified which the model number is SATEL-TA23, FCC ID: MRBSATEL-TA23. The difference between the module which is used in the EUT changed the antenna, so we added the test for ERP&EIRP, Spurious Radiated Emissions and the assessment for MPE, we pre-scan the output power, the output power is similar as the power in the original report. Radiated emission has been re-tested and the result for conducted test was cited from the certified module directly. The other data are refer to the report 281080-1 which the model: SATEL-T23 (FCC ID: MRBSATEL-TA23). | | |

# 2. GENERAL INFORMATION

## 2.1 Description of Device (EUT)

| | | |
|---|---|---|
| Trademark | : |  |
| Description | : | GNSS Receiver |
| Model Number | : | i70, iG8 |
| Diff | : | All the models are the same, except the model name, this report performs the model i70. |
| TX frequency | : | GPRS/EDGE:850: 824.2 MHz ~ 848.8 MHz<br>1900: 1850.2 MHz ~ 1909.8 MHz<br>WCDMA: Band V: 826.4 MHz ~ 846.6 MHz<br>Band II: 1852.4 MHz ~ 1907.6 MHz<br>Band IV: 1712.4~1752.6MHz<br>UHF: 406.1-430.0 MHz and 450.0-470.0 MHz |
| RX frequency | : | GPRS/EDGE: 850: 869.2 MHz ~ 893.8 MHz<br>1900: 1930.2 MHz ~ 1989.8 MHz<br>WCDMA: Band V: 871.4 MHz ~ 891.6 MHz<br>Band II: 1932.4 MHz ~ 1987.6 MHz<br>Band IV: 2112.4MHz ~ 2152.6MHz |
| Modulation type | : | GPRS for GMSK<br>EGPRS for 8PSK<br>WCDMA: QPSK&16QAM<br>UHF: 4FSK, 8FSK,16FSK |
| Antenna Type | : | 2G/3G: PIFA antenna UHF: Rod antenna |
| Antenna Peak Gain | : | GSM 850: 2dBi GSM1900: 1.5dBi<br>WCDMA Band V: 0.5dBi Band II: 0dBi Band IV: 0dBi<br>UHF: 1.5dBi |
| GPRS Class | : | 12 |
| Software version | : | V1.3 |
| Hardware version | : | V1.0 |
| Applicant | : | Shanghai Huace Navigation Technology LTD. |
| Address | : | Building C, 599 Gaojing Road, Qingpu District, Shanghai, China |
| Manufacturer | : | Shanghai Huace Navigation Technology LTD. |
| Address | : | Building C, 599 Gaojing Road, Qingpu District, Shanghai, China |
| Sample Type | : | Prototype production |

## 2.2 Accessories of Device (EUT)

Power Source : Input: AC 100-240V
Output: DC 12-36V/2A
LI-ION battery: 3400mAh/7.4V*2

USB Cable : USB port to PC
1.5m

Data Cable : IO port to PC with RS-232/external power
1.8m

## 2.3 Tested Supporting System Details

| No. | Description | Manufacturer | Model | Serial Number | Certification or DOC |
|---|---|---|---|---|---|
| 1 | Notebook | ACER | ZQT | N/A | DOC |

## 2.4 Test Mode Description

ALPHA has verified the construction and function in typical operation. EUT is inlink mode with base station emulator at maximum power level. All the test modes were carried out with the EUT in normal operation, which was shown in this test report is the worst test mode and defined as:

| | TEST MODES | |
|---|---|---|
| BAND | RADIATED TCS | CONDUCTED TCS |
| GSM 850 | GPRS/EDGE CLASS 12 LINK | GPRS/EDGE CLASS 12 LINK |
| GSM 1900 | GPRS/EDGE CLASS 12 LINK | GPRS/EDGE CLASS 12 LINK |
| WCDMA BAND V | RMC 12.2KBPS LINK | RMC 12.2KBPS LINK |
| WCDMA BAND II | RMC 12.2KBPS LINK | RMC 12.2KBPS LINK |
| WCDMA BAND IV | RMC 12.2KBPS LINK | RMC 12.2KBPS LINK |
| UHF | 428.0MHz | 428.0MHz |

Note:
1. Regards to the frequency band operation: the lowest、middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. The maximum power levels are GPRS multi-slot class 12 for GMSK link, EGPRS multi-slot class 12 mode for 8PSK link, RMC 12.2Kbps mode for WCDMA band V, II and IV, when power supply was 12V, only these modes were used for all tests.
3. For the ERP/EIRP and radiated emission test, every axis (X, Y, Z) was verified, and show the worst (Z axis) result on this report.

## 2.5 Test Conditions

| Items | Required | Actual |
|---|---|---|
| Temperature range: | 15-35℃ | 27℃ |
| Humidity range: | 25-75% | 56% |
| Pressure range: | 86-106kPa | 980kPa |

## 2.6 Test Facility

Shenzhen Alpha Product Testing Co., Ltd.
Building B, East Area of Nanchang Second, Industrial Zone, Gushu 2nd Road,
Bao'an, Shenzhen, China

March 25, 2015 File on Federal Communication Commission
Registration Number: 203110

July 18, 2014 Certificated by IC
Registration Number: 12135A

## 2.7 Measurement Uncertainty

(95% confidence levels, k=2)

| Test Item | Uncertainty |
|---|---|
| Uncertainty for Conduction emission test | 2.71dB |
| Uncertainty for Radiation Emission test (<1G) | 3.90 dB (Distance: 3m Polarize: V) |
| | 3.92 dB (Distance: 3m Polarize: H) |
| Uncertainty for Radiation Emission test (>1G) | 4.26 dB (Distance: 3m Polarize: V) |
| | 4.28 dB (Distance: 3m Polarize: H) |
| Uncertainty for conducted RF Power | 0.16dB |

## 2.8 Test Equipment List

| Equipment | Manufacturer | Model No. | Serial No. | Cal. Date | Cal. Due day |
|---|---|---|---|---|---|
| Bilog Antenna | SCHWARZBECK | VULB 9168 | 9168-438 | 2016.09.30 | 2017.09.29 |
| Test Receiver | R&S | ESCI | 101165 | 2016.09.29 | 2017.09.28 |
| Spectrum analyzer | Agilent | E4407B | MY49510055 | 2016.09.29 | 2017.09.28 |
| Horn Antenna | SCHWARZBECK | BBHA 9120 D | BBHA 9120 D(1201) | 2016.09.30 | 2017.09.29 |
| Filter | KANGMAI | ZLPF-LDC-1000-1959 | 1209002075 | 2016.09.29 | 2017.09.28 |
| Filter | WAINWRIGHT | WHKX2.80/18G-12SS | SN1 | 2016.09.29 | 2017.09.28 |
| RF Cable | Resenberger | Cable 4 | N/A | 2016.09.29 | 2017.09.28 |
| CMU200 | R&S | CMU200 | 116785 | 2016.09.29 | 2017.09.28 |
| Signal Analyzer | Agilent | N9020A | MY499100060 | 2016.09.29 | 2017.09.28 |
| vector Signal Generator | Agilent | N5182A | MY49060042 | 2016.09.29 | 2017.09.28 |
| vector Signal Generator | Agilent | E4438C | US44271917 | 2016.09.29 | 2017.09.28 |
| Amplifier | HP | HP8347A | 2834A00455 | 2016.09.29 | 2017.09.28 |
| Amplifier | Teseq | LNA6901 | 72718 | 2016.09.29 | 2017.09.28 |
| Amplifier | Agilent | 8449B | 3008A02664 | 2016.09.29 | 2017.09.28 |
| Filter | WAINWRIGHT | WHKX1.0G/15G-10SS | SN40 | 2016.09.29 | 2017.09.28 |
| Test Receiver | R&S | ESR | 1316.3003K03-102082-Wa | 2016.09.29 | 2017.09.28 |
| Bilog Antenna | SCHWARZBECK | VULB 9168 | 9168-438 | 2016.09.29 | 2017.09.28 |
| 9*6*6 anechoic chamber | CHENYU | 9*6*6 | N/A | 2016.7.21 | 2017.7.20 |
| RF Cable | Resenberger | Cable 1 | N/A | 2016.09.29 | 2017.09.28 |
| RF Cable | Resenberger | Cable 2 | N/A | 2016.09.29 | 2017.09.28 |
| RF Cable | Resenberger | Cable 3 | N/A | 2016.09.29 | 2017.09.28 |
| Power Sensor | Power Radio | RPR3006W | 15100041SNO91 | 2016.09.29 | 2017.09.28 |
| Power Sensor | Power Radio | RPR3006W | 15100041SNO92 | 2016.09.29 | 2017.09.28 |
| CMW500 | R&S | CMW500 | 1201.0002K50-117239-sM | 2016.09.29 | 2017.09.28 |
| Loop Antenna | SCHWARZBECK | FMZB 1519B | 00005 | 2016.09.29 | 2017.09.28 |
| POWER DIVIDER | Mini-circuits | PD-2SF-0010 | N/A | 2016.09.29 | 2017.09.28 |
| POWER DIVIDER | Mini-circuits | PD-2SF-0010 | N/A | 2016.09.29 | 2017.09.28 |

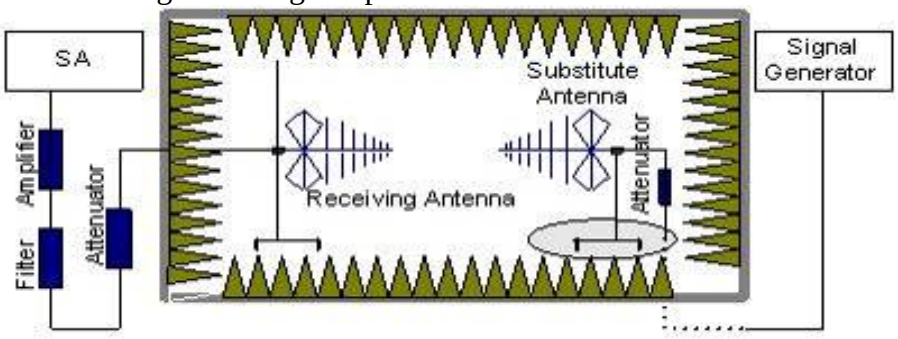
# 3. RADIATED POWER AND EFFECTIVE ISOTROPIC RADIATED POWER

## 3.1 Measurement Method

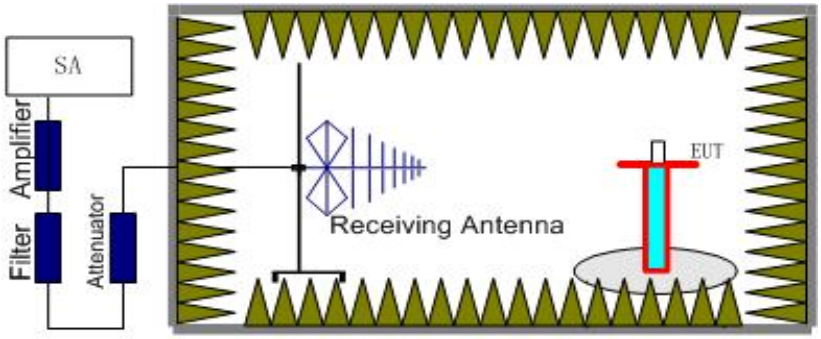
Effective radiated power output measurements by substitution method according to ANSI / TIA /EIA-603-E, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems. Mobile and portable (hand-held) stations operating are limited to average ERP,Equivalent isotropic radiated power output measurements by substitution method according to ANSI /TIA / EIA-603-E, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas ,Mobile and portable (hand-held) stations operating are limited to average EIRP.

## 3.2 Test Setup

The procedure of radiated spurious emissions is as follows:
a) Pre-calibration With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as, RSE=Rx（dBuV）+CL（dB）+SA（dB）+Gain（dBi）-107（dBuV to dBm）
The SA is calibrated using following setup.




b) EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the test item for emission measurements. The height of receiving antenna is 0.8m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector and 1MHz bandwidth.




Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the

significant spurs occur well outside the band and no radiation was seen from a carrier in one block of any band into any of the other blocks.
The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the ARpl is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below:
Power=PMea+ARpl

## 3.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.6. and ANSI / TIA-603-E-2010 Section 2.2.17.
2. The EUT was placed on a non-conductive rotating platform 1.5 meters high in a semi-anechoic
chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with Peak detector.
3. During the measurement, the system simulator parameters were set to force the EUTtransmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
4. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according toTIA/EIA-603-E. The EUT was replaced by dipole antenna (substitution antenna) at same location,and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain -Analyzer reading. Then the EUT’s EIRP was calculated with the correction factor, EIRP= LVL +Correction factor and ERP = EIRP – 2.15.

5.RB Set greater than bandwidth,Vb Set spectrum analyzer Maximum support.

## 3.4 Test Results

| Radiated Power (ERP) for UHF | | | | | | | |
|---|---|---|---|---|---|---|---|
| Mode | Frequency (MHz) | Result | | | | | Conclusion |
| | | S G.Level (dBm) | Cable loss | Gain (dBi) | E.R.P (dBm) | Polarization | |
| UHF | 408.0 | 23.11 | 0.35 | 6.2 | 29.66 | Horizontal | Pass |
| | 408.0 | 23.32 | 0.35 | 6.2 | 29.87 | Vertical | Pass |
| | 428.0 | 23.50 | 0.36 | 6.2 | 30.06 | Horizontal | Pass |
| | 428.0 | 23.71 | 0.36 | 6.2 | 30.27 | Vertical | Pass |
| | 468.0 | 23.24 | 0.37 | 6.2 | 29.81 | Horizontal | Pass |
| | 468.0 | 23.39 | 0.37 | 6.2 | 29.96 | Vertical | Pass |

| Radiated Power (ERP) for GSM 850 MHZ | | | | | | | |
|---|---|---|---|---|---|---|---|
| Mode | Frequency (MHz) | Result | | | | | Conclusion |
| | | S G.Level (dBm) | Cable loss | Gain (dBi) | E.R.P (dBm) | Polarization | |
| GPRS850 | 824.2 | 22.81 | 0.44 | 6.5 | 28.87 | Horizontal | Pass |
| | 824.2 | 24.39 | 0.44 | 6.5 | 30.45 | Vertical | Pass |
| | 836.6 | 22.77 | 0.45 | 6.5 | 28.82 | Horizontal | Pass |
| | 836.6 | 24.74 | 0.45 | 6.5 | 30.79 | Vertical | Pass |
| | 848.8 | 22.76 | 0.46 | 6.5 | 28.80 | Horizontal | Pass |
| | 848.8 | 24.50 | 0.46 | 6.5 | 30.54 | Vertical | Pass |
| EDGE850 | 824.2 | 22.80 | 0.44 | 6.5 | 28.86 | Horizontal | Pass |
| | 824.2 | 24.51 | 0.44 | 6.5 | 30.57 | Vertical | Pass |
| | 836.6 | 22.83 | 0.45 | 6.5 | 28.88 | Horizontal | Pass |
| | 836.6 | 24.53 | 0.45 | 6.5 | 30.58 | Vertical | Pass |
| | 848.8 | 22.77 | 0.46 | 6.5 | 28.81 | Horizontal | Pass |
| | 848.8 | 24.51 | 0.46 | 6.5 | 30.55 | Vertical | Pass |

| Radiated Power (EIRP) for PCS 1900 MHZ | | | | | | | |
|---|---|---|---|---|---|---|---|
| Mode | Frequency (MHz) | Result | | | | | Conclusion |
| | | S G.Level (dBm) | Cable loss | Gain (dBi) | E.I.R.P (dBm) | Polarization | |
| GPRS1900 | 1850.2 | 17.75 | 2.41 | 10.35 | 25.69 | Horizontal | Pass |
| | 1850.2 | 19.27 | 2.41 | 10.35 | 27.21 | Vertical | Pass |
| | 1880.0 | 17.9 | 2.42 | 10.35 | 25.83 | Horizontal | Pass |
| | 1880.0 | 19.62 | 2.42 | 10.35 | 27.55 | Vertical | Pass |
| | 1909.8 | 17.76 | 2.43 | 10.35 | 25.68 | Horizontal | Pass |
| | 1909.8 | 19.24 | 2.43 | 10.35 | 27.16 | Vertical | Pass |
| EDGE1900 | 1850.2 | 17.79 | 2.41 | 10.35 | 25.73 | Horizontal | Pass |
| | 1850.2 | 19.4 | 2.41 | 10.35 | 27.34 | Vertical | Pass |
| | 1880.0 | 17.88 | 2.42 | 10.35 | 25.81 | Horizontal | Pass |
| | 1880.0 | 19.76 | 2.42 | 10.35 | 27.69 | Vertical | Pass |
| | 1909.8 | 17.67 | 2.43 | 10.35 | 25.59 | Horizontal | Pass |
| | 1909.8 | 19.2 | 2.43 | 10.35 | 27.12 | Vertical | Pass |

| Radiated Power (ERP) for WCDMA Band V | | | | | | | |
|---|---|---|---|---|---|---|---|
| Mode | Frequency (MHz) | Result | | | | | Conclusion |
| | | S G.Level (dBm) | Cable loss | Gain (dBi) | E.R.P (dBm) | Polarization | |
| Band V | 826.4 | 14.34 | 0.44 | 6.5 | 20.40 | Horizontal | Pass |
| | 826.4 | 16.33 | 0.44 | 6.5 | 22.39 | Vertical | Pass |
| | 836.6 | 14.64 | 0.45 | 6.5 | 20.69 | Horizontal | Pass |
| | 836.6 | 16.38 | 0.45 | 6.5 | 22.43 | Vertical | Pass |
| | 846.6 | 14.56 | 0.46 | 6.5 | 20.60 | Horizontal | Pass |
| | 846.6 | 16.33 | 0.46 | 6.5 | 22.37 | Vertical | Pass |

| Radiated Power (EIRP) for WCDMA Band II | | | | | | | |
|---|---|---|---|---|---|---|---|
| Mode | Frequency (MHz) | Result | | | | | Conclusion |
| | | S G.Level (dBm) | Cable loss | Gain (dBi) | E.I.R.P (dBm) | Polarization | |
| Band II | 1852.4 | 12.13 | 2.41 | 10.35 | 20.07 | Horizontal | Pass |
| | 1852.4 | 14.09 | 2.41 | 10.35 | 22.03 | Vertical | Pass |
| | 1880.0 | 12.49 | 2.42 | 10.35 | 20.42 | Horizontal | Pass |
| | 1880.0 | 14.19 | 2.42 | 10.35 | 22.12 | Vertical | Pass |
| | 1907.6 | 12.15 | 2.43 | 10.35 | 20.07 | Horizontal | Pass |
| | 1907.6 | 14.13 | 2.43 | 10.35 | 22.05 | Vertical | Pass |

| Radiated Power (EIRP) for WCDMA Band IV | | | | | | | |
|---|---|---|---|---|---|---|---|
| Mode | Frequency (MHz) | Result | | | | | Conclusion |
| | | S G.Level (dBm) | Cable loss | Gain (dBi) | E.I.R.P (dBm) | Polarization | |
| Band IV | 1712.4 | 12.32 | 2.40 | 10.35 | 20.27 | Horizontal | Pass |
| | 1712.4 | 13.49 | 2.40 | 10.35 | 21.44 | Vertical | Pass |
| | 1732.4 | 12.18 | 2.41 | 10.35 | 20.12 | Horizontal | Pass |
| | 1732.4 | 13.55 | 2.41 | 10.35 | 21.49 | Vertical | Pass |
| | 1752.5 | 12.17 | 2.42 | 10.35 | 20.10 | Horizontal | Pass |
| | 1752.5 | 13.83 | 2.42 | 10.35 | 21.76 | Vertical | Pass |

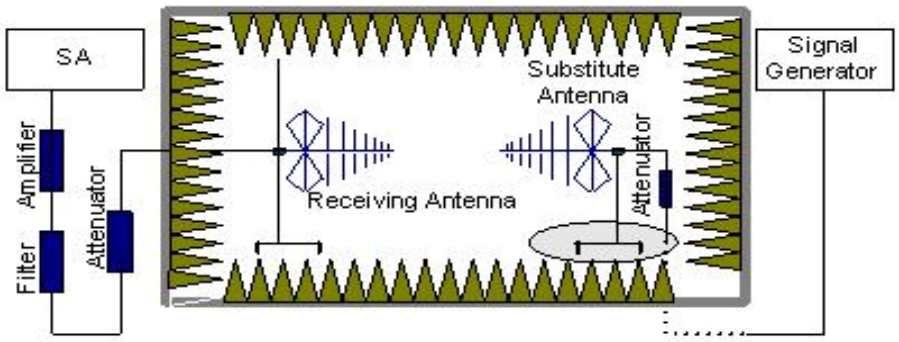
# 4. RADIATED SPURIOUS EMISSION

## 4.1 Measurement Method

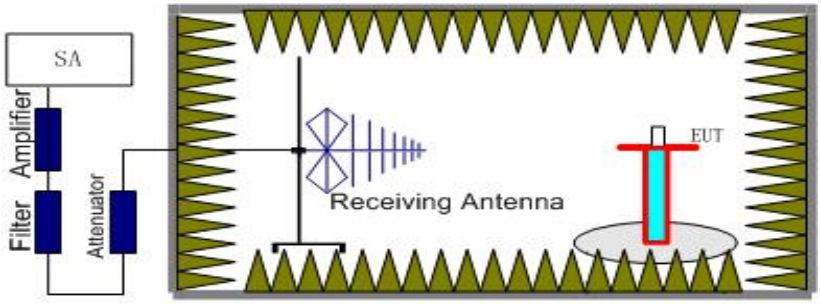
The radiated spurious emission was measured by substitution method according to ANSI / TIA /
EIA-603-E-2010. The power of any emission outside of the authorized operating frequency ranges
must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. For Band 7 The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.For Band.The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

## 4.2 Test Setup

The procedure of radiated spurious emissions is as follows:
a) Pre-calibration With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as, RSE=Rx ( dBuV ) +CL ( dB ) +SA ( dB ) +Gain ( dBi ) -107 ( dBuV to dBm )
The SA is calibrated using following setup.




b) EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the test item for emission measurements. The height of receiving antenna is 0.8m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector and 1MHz bandwidth.




Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies It was decided that measurements at these three carrier frequencies would be

sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of any band into any of the other blocks.
The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the ARpl is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below: Power=PMea+ARpl

## 4.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-E-2010 Section
2.2.12.

2. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.

3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.

4. The table was rotated 360 degrees to determine the position of the highest spurious emission.

5. The height of the receiving antenna is varied between one meter and four meters to search the
maximum spurious emission for both horizontal and vertical polarizations
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the
record of maximum spurious emission.

7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.

8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.

9. Taking the record of output power at antenna port.

10. Repeat step 7 to step 8 for another polarization.

11. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
= P(W)- [43 + 10log(P)] (dB)
= [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
= -13dBm
.
For Band 7:
The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)
= [30 + 10log(P)] (dBm) - [55 + 10log(P)] (dB)
= -25dBm
EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
ERP (dBm) = EIRP - 2.15

## 4.4 Test Results

| GPRS 850: (30-9000)MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| The Worst Test Results Channel 128/824.2 MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 1648.21 | -41.32 | 9.40 | 4.75 | -36.67 | -13.00 | -23.67 | H |
| 2472.54 | -40.35 | 10.60 | 8.39 | -38.14 | -13.00 | -25.14 | H |
| 3296.86 | -31.97 | 12.00 | 11.79 | -31.76 | -13.00 | -18.76 | H |
| 1648.09 | -43.60 | 9.40 | 4.75 | -38.95 | -13.00 | -25.95 | V |
| 2472.47 | -44.62 | 10.60 | 8.39 | -42.41 | -13.00 | -29.41 | V |
| 3296.64 | -42.73 | 12.00 | 11.79 | -42.52 | -13.00 | -29.52 | V |
| The Worst Test Results Channel 190/836.6 MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 1673.28 | -41.22 | 9.50 | 4.76 | -36.48 | -13.00 | -23.48 | H |
| 2509.71 | -40.54 | 10.70 | 8.40 | -38.24 | -13.00 | -25.24 | H |
| 3346.37 | -31.69 | 12.20 | 11.80 | -31.29 | -13.00 | -18.29 | H |
| 1672.85 | -44.38 | 9.40 | 4.75 | -39.73 | -13.00 | -26.73 | V |
| 2509.92 | -44.55 | 10.60 | 8.39 | -42.34 | -13.00 | -29.34 | V |
| 3346.23 | -42.94 | 12.20 | 11.82 | -42.56 | -13.00 | -29.56 | V |
| The Worst Test Results Channel 251/848.8 MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 1697.63 | -41.62 | 9.60 | 4.77 | -36.79 | -13.00 | -23.79 | H |
| 2546.41 | -40.50 | 10.80 | 8.50 | -38.20 | -13.00 | -25.20 | H |
| 3395.07 | -31.82 | 12.50 | 11.90 | -31.22 | -13.00 | -18.22 | H |
| 1697.60 | -44.62 | 9.60 | 4.77 | -39.79 | -13.00 | -26.79 | V |
| 2546.36 | -45.20 | 10.80 | 8.50 | -42.90 | -13.00 | -29.90 | V |
| 3394.95 | -43.87 | 12.50 | 11.90 | -43.27 | -13.00 | -30.27 | V |

Note: (1)Below 30MHz no Spurious found is the worst condition.

(2)Above 3.5GHz amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has.

| EGPRS 850: (30-9000)MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| The Worst Test Results Channel 128/824.2 MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 1648.14 | -41.56 | 9.40 | 4.75 | -36.91 | -13.00 | -23.91 | H |
| 2472.57 | -40.26 | 10.60 | 8.39 | -38.05 | -13.00 | -25.05 | H |
| 3296.64 | -32.31 | 12.00 | 11.79 | -32.10 | -13.00 | -19.10 | H |
| 1648.05 | -44.27 | 9.40 | 4.75 | -39.62 | -13.00 | -26.62 | V |
| 2472.31 | -44.44 | 10.60 | 8.39 | -42.23 | -13.00 | -29.23 | V |
| 3296.75 | -43.66 | 12.00 | 11.79 | -43.45 | -13.00 | -30.45 | V |
| The Worst Test Results Channel 190/836.6 MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 1672.87 | -41.52 | 9.50 | 4.76 | -36.78 | -13.00 | -23.78 | H |
| 2509.78 | -40.35 | 10.70 | 8.40 | -38.05 | -13.00 | -25.05 | H |
| 3346.17 | -32.26 | 12.20 | 11.80 | -31.86 | -13.00 | -18.86 | H |
| 1673.23 | -43.42 | 9.40 | 4.75 | -38.77 | -13.00 | -25.77 | V |
| 2509.88 | -44.93 | 10.60 | 8.39 | -42.72 | -13.00 | -29.72 | V |
| 3346.37 | -42.83 | 12.20 | 11.82 | -42.45 | -13.00 | -29.45 | V |
| The Worst Test Results Channel 251/848.8 MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 1697.49 | -40.63 | 9.60 | 4.77 | -35.80 | -13.00 | -22.80 | H |
| 2546.44 | -40.45 | 10.80 | 8.50 | -38.15 | -13.00 | -25.15 | H |
| 3395.15 | -30.98 | 12.50 | 11.90 | -30.38 | -13.00 | -17.38 | H |
| 1697.58 | -44.22 | 9.60 | 4.77 | -39.39 | -13.00 | -26.39 | V |
| 2546.44 | -44.09 | 10.80 | 8.50 | -41.79 | -13.00 | -28.79 | V |
| 3395.23 | -43.47 | 12.50 | 11.90 | -42.87 | -13.00 | -29.87 | V |

Note: (1)Below 30MHz no Spurious found is the worst condition.

(2)Above 3.5GHz amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has.

| GPRS1900: (30-20000)MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| The Worst Test Results for Channel 512/1850.2MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 3700.49 | -34.08 | 12.60 | 12.93 | -34.41 | -13.00 | -21.41 | H |
| 5550.36 | -35.22 | 13.10 | 17.11 | -39.23 | -13.00 | -26.23 | H |
| 7400.67 | -33.65 | 11.50 | 22.20 | -44.35 | -13.00 | -31.35 | H |
| 3700.51 | -35.58 | 12.60 | 12.93 | -35.91 | -13.00 | -22.91 | V |
| 5550.54 | -34.94 | 13.10 | 17.11 | -38.95 | -13.00 | -25.95 | V |
| 7401.00 | -31.89 | 11.50 | 22.20 | -42.59 | -13.00 | -29.59 | V |
| The Worst Test Results for Channel 661/1880.0MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 3759.80 | -34.27 | 12.60 | 12.93 | -34.60 | -13.00 | -21.60 | H |
| 5640.09 | -35.19 | 13.10 | 17.11 | -39.20 | -13.00 | -26.20 | H |
| 7520.10 | -33.25 | 11.50 | 22.20 | -43.95 | -13.00 | -30.95 | H |
| 3760.29 | -35.11 | 12.60 | 12.93 | -35.44 | -13.00 | -22.44 | V |
| 5640.22 | -34.01 | 13.10 | 17.11 | -38.02 | -13.00 | -25.02 | V |
| 7519.91 | -31.99 | 11.50 | 22.20 | -42.69 | -13.00 | -29.69 | V |
| The Worst Test Results for Channel 810/1909.8MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 3819.60 | -33.82 | 12.60 | 12.93 | -34.15 | -13.00 | -21.15 | H |
| 5729.29 | -34.15 | 13.10 | 17.11 | -38.16 | -13.00 | -25.16 | H |
| 7639.21 | -32.99 | 11.50 | 22.20 | -43.69 | -13.00 | -30.69 | H |
| 3819.38 | -35.47 | 12.60 | 12.93 | -35.80 | -13.00 | -22.80 | V |
| 5729.53 | -35.10 | 13.10 | 17.11 | -39.11 | -13.00 | -26.11 | V |
| 7639.27 | -32.46 | 11.50 | 22.20 | -43.16 | -13.00 | -30.16 | V |

Note: (1)Below 30MHz no Spurious found is the worst condition.

(2)Above 8GHz amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has.

| EGPRS 1900: (30-20000)MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| The Worst Test Results for Channel 512/1850.2MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 3700.19 | -33.56 | 12.60 | 12.93 | -33.89 | -13.00 | -20.89 | H |
| 5550.40 | -34.73 | 13.10 | 17.11 | -38.74 | -13.00 | -25.74 | H |
| 7400.60 | -32.31 | 11.50 | 22.20 | -43.01 | -13.00 | -30.01 | H |
| 3700.51 | -35.83 | 12.60 | 12.93 | -36.16 | -13.00 | -23.16 | V |
| 5550.28 | -34.90 | 13.10 | 17.11 | -38.91 | -13.00 | -25.91 | V |
| 7400.57 | -33.19 | 11.50 | 22.20 | -43.89 | -13.00 | -30.89 | V |
| The Worst Test Results for Channel 661/1880.0MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 3760.02 | -34.01 | 12.60 | 12.93 | -34.34 | -13.00 | -21.34 | H |
| 5640.20 | -35.38 | 13.10 | 17.11 | -39.39 | -13.00 | -26.39 | H |
| 7520.11 | -32.83 | 11.50 | 22.20 | -43.53 | -13.00 | -30.53 | H |
| 3759.89 | -35.67 | 12.60 | 12.93 | -36.00 | -13.00 | -23.00 | V |
| 5640.26 | -34.13 | 13.10 | 17.11 | -38.14 | -13.00 | -25.14 | V |
| 7520.22 | -31.99 | 11.50 | 22.20 | -42.69 | -13.00 | -29.69 | V |
| The Worst Test Results for Channel 810/1909.8MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 3819.28 | -33.80 | 12.60 | 12.93 | -34.13 | -13.00 | -21.13 | H |
| 5729.18 | -35.13 | 13.10 | 17.11 | -39.14 | -13.00 | -26.14 | H |
| 7639.20 | -32.95 | 11.50 | 22.20 | -43.65 | -13.00 | -30.65 | H |
| 3819.64 | -34.60 | 12.60 | 12.93 | -34.93 | -13.00 | -21.93 | V |
| 5729.32 | -34.52 | 13.10 | 17.11 | -38.53 | -13.00 | -25.53 | V |
| 7639.04 | -32.86 | 11.50 | 22.20 | -43.56 | -13.00 | -30.56 | V |

Note: (1)Below 30MHz no Spurious found is the worst condition.

(2)Above 8GHz amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has.

| WCDMA Band V: (30-9000)MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| The wost testresults channel 4132/826.4MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 1652.04 | -40.41 | 9.40 | 4.75 | -35.76 | -13.00 | -22.76 | H |
| 2479.42 | -39.54 | 10.60 | 8.39 | -37.33 | -13.00 | -24.33 | H |
| 3305.62 | -30.91 | 12.00 | 11.79 | -30.70 | -13.00 | -17.70 | H |
| 1652.09 | -43.83 | 9.40 | 4.75 | -39.18 | -13.00 | -26.18 | V |
| 2479.70 | -45.13 | 10.60 | 8.39 | -42.92 | -13.00 | -29.92 | V |
| 3305.47 | -42.89 | 12.00 | 11.79 | -42.68 | -13.00 | -29.68 | V |
| The Worst Test Results Channel 4183/836.6MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 1672.99 | -40.44 | 9.50 | 4.76 | -35.70 | -13.00 | -22.70 | H |
| 2509.79 | -40.16 | 10.70 | 8.40 | -37.86 | -13.00 | -24.86 | H |
| 3346.14 | -30.98 | 12.20 | 11.80 | -30.58 | -13.00 | -17.58 | H |
| 1672.80 | -44.00 | 9.40 | 4.75 | -39.35 | -13.00 | -26.35 | V |
| 2509.47 | -44.68 | 10.60 | 8.39 | -42.47 | -13.00 | -29.47 | V |
| 3346.33 | -43.34 | 12.20 | 11.82 | -42.96 | -13.00 | -29.96 | V |
| The Worst Test Results Channel 4233/846.6MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 1693.38 | -40.23 | 9.60 | 4.77 | -35.40 | -13.00 | -22.40 | H |
| 2539.25 | -39.23 | 10.80 | 8.50 | -36.93 | -13.00 | -23.93 | H |
| 3385.88 | -31.64 | 12.50 | 11.90 | -31.04 | -13.00 | -18.04 | H |
| 1693.43 | -43.15 | 9.60 | 4.77 | -38.32 | -13.00 | -25.32 | V |
| 2539.37 | -45.12 | 10.80 | 8.50 | -42.82 | -13.00 | -29.82 | V |
| 3385.85 | -43.69 | 12.50 | 11.90 | -43.09 | -13.00 | -30.09 | V |

Note: (1)Below 30MHz no Spurious found is the worst condition.

(2)Above 3.5GHz amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has.

| WCDMA Band II: (30-20000)MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| The Worst Test Results for Channel 9262/1852.4MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 3704.37 | -33.52 | 12.60 | 12.93 | -33.85 | -13.00 | -20.85 | H |
| 5557.19 | -35.36 | 13.10 | 17.11 | -39.37 | -13.00 | -26.37 | H |
| 7409.47 | -33.22 | 11.50 | 22.20 | -43.92 | -13.00 | -30.92 | H |
| 3704.18 | -35.89 | 12.60 | 12.93 | -36.22 | -13.00 | -23.22 | V |
| 5557.41 | -33.81 | 13.10 | 17.11 | -37.82 | -13.00 | -24.82 | V |
| 7409.60 | -33.16 | 11.50 | 22.20 | -43.86 | -13.00 | -30.86 | V |
| The Worst Test Results for Channel 9400/1880MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 3760.20 | -33.52 | 12.60 | 12.93 | -33.85 | -13.00 | -20.85 | H |
| 5639.87 | -35.47 | 13.10 | 17.11 | -39.48 | -13.00 | -26.48 | H |
| 7520.14 | -33.07 | 11.50 | 22.20 | -43.77 | -13.00 | -30.77 | H |
| 3760.10 | -35.98 | 12.60 | 12.93 | -36.31 | -13.00 | -23.31 | V |
| 5640.28 | -34.50 | 13.10 | 17.11 | -38.51 | -13.00 | -25.51 | V |
| 7519.95 | -32.40 | 11.50 | 22.20 | -43.10 | -13.00 | -30.10 | V |
| The Worst Test Results for Channel 9538/1907.6MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 3815.39 | -33.56 | 12.60 | 12.93 | -33.89 | -13.00 | -20.89 | H |
| 5722.37 | -34.68 | 13.10 | 17.11 | -38.69 | -13.00 | -25.69 | H |
| 7630.18 | -33.41 | 11.50 | 22.20 | -44.11 | -13.00 | -31.11 | H |
| 3815.48 | -35.90 | 12.60 | 12.93 | -36.23 | -13.00 | -23.23 | V |
| 5722.17 | -35.10 | 13.10 | 17.11 | -39.11 | -13.00 | -26.11 | V |
| 7630.16 | -33.00 | 11.50 | 22.20 | -43.70 | -13.00 | -30.70 | V |

Note: (1)Below 30MHz no Spurious found is the worst condition.

(2)Above 8GHz amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has.

| WCDMA Band IV: (30-20000)MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| The Worst Test Results for Channel 1312/1712.4MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 3424.85 | -34.93 | 12.60 | 12.93 | -35.26 | -13.00 | -22.26 | H |
| 5137.68 | -34.13 | 13.10 | 17.11 | -38.14 | -13.00 | -25.14 | H |
| 6849.22 | -32.39 | 11.50 | 22.20 | -43.09 | -13.00 | -30.09 | H |
| 3425.13 | -35.75 | 12.60 | 12.93 | -36.08 | -13.00 | -23.08 | V |
| 5137.97 | -34.65 | 13.10 | 17.11 | -38.66 | -13.00 | -25.66 | V |
| 6849.36 | -31.86 | 11.50 | 22.20 | -42.56 | -13.00 | -29.56 | V |
| The Worst Test Results for Channel 1412/1732.4MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 3464.18 | -33.65 | 12.60 | 12.93 | -33.98 | -13.00 | -20.98 | H |
| 5197.97 | -34.94 | 13.10 | 17.11 | -38.95 | -13.00 | -25.95 | H |
| 6929.13 | -33.13 | 11.50 | 22.20 | -43.83 | -13.00 | -30.83 | H |
| 3464.86 | -35.66 | 12.60 | 12.93 | -35.99 | -13.00 | -22.99 | V |
| 5197.56 | -33.77 | 13.10 | 17.11 | -37.78 | -13.00 | -24.78 | V |
| 6929.74 | -32.05 | 11.50 | 22.20 | -42.75 | -13.00 | -29.75 | V |
| The Worst Test Results for Channel 1862/1752.5MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 3505.91 | -34.35 | 12.60 | 12.93 | -34.68 | -13.00 | -21.68 | H |
| 5257.18 | -35.20 | 13.10 | 17.11 | -39.21 | -13.00 | -26.21 | H |
| 7010.62 | -32.93 | 11.50 | 22.20 | -43.63 | -13.00 | -30.63 | H |
| 3505.33 | -35.74 | 12.60 | 12.93 | -36.07 | -13.00 | -23.07 | V |
| 5257.57 | -35.16 | 13.10 | 17.11 | -39.17 | -13.00 | -26.17 | V |
| 7010.16 | -33.07 | 11.50 | 22.20 | -43.77 | -13.00 | -30.77 | V |

Note: (1)Below 30MHz no Spurious found is the worst condition.

(2)Above 8GHz amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has.

| UHF(30-4000)MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| The Worst Test Results Low Channel 408.0 MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 816.52 | -37.94 | 8.20 | 3.11 | -32.85 | -13.00 | -19.85 | H |
| 1224.81 | -36.94 | 9.10 | 4.02 | -31.86 | -13.00 | -18.86 | H |
| 1632.99 | -38.92 | 9.50 | 4.76 | -34.18 | -13.00 | -21.18 | H |
| 816.52 | -40.76 | 8.20 | 3.11 | -35.67 | -13.00 | -22.67 | V |
| 1224.81 | -40.61 | 9.10 | 4.02 | -35.53 | -13.00 | -22.53 | V |
| 1632.99 | -40.59 | 9.50 | 4.76 | -35.85 | -13.00 | -22.85 | V |
| The Worst Test Results Mid Channel 428.0 MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 856.54 | -37.62 | 8.3 | 3.21 | -32.53 | -13.00 | -19.53 | H |
| 1284.61 | -36.73 | 9.2 | 4.23 | -31.76 | -13.00 | -18.76 | H |
| 1712.63 | -39.02 | 9.7 | 4.92 | -34.24 | -13.00 | -21.24 | H |
| 856.54 | -40.18 | 8.3 | 3.21 | -35.09 | -13.00 | -22.09 | V |
| 1284.61 | -41.85 | 9.2 | 4.23 | -36.88 | -13.00 | -23.88 | V |
| 1712.63 | -39.68 | 9.7 | 4.92 | -34.90 | -13.00 | -21.90 | V |
| The Worst Test Results High Channel 468.0 MHz | | | | | | | |
| Frequency (MHz) | S G.Lev (dBm) | Ant (dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dB) | Polarity |
| 936.23 | -37.37 | 8.4 | 3.34 | -32.31 | -13.00 | -19.31 | H |
| 1404.28 | -36.47 | 9.3 | 4.38 | -31.55 | -13.00 | -18.55 | H |
| 1872.64 | -37.69 | 9.8 | 4.98 | -32.87 | -13.00 | -19.87 | H |
| 936.23 | -40.81 | 8.4 | 3.34 | -35.75 | -13.00 | -22.75 | V |
| 1404.28 | -40.16 | 9.3 | 4.38 | -35.24 | -13.00 | -22.24 | V |
| 1872.64 | -40.30 | 9.8 | 4.98 | -35.48 | -13.00 | -22.48 | V |

Note: (1)Below 30MHz no Spurious found is the worst condition.

(2)Above 2GHz amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has.

**---------THE END OF REPORT-------**