

**FCC 47 CFR PART 22H and 24E****Test Report**

Product Type : Rugged Handheld Computer  
Applicant : Unitech Electronics Co., Ltd.  
Address : 5F., No.136, Lane 235, Pao-Chiao Rd., Hsin-Tien Dist., New Taipei City, Taiwan 231, R.O.C.  
Trade Name : unitech  
Model Number : PA820  
Test Specification : FCC 47 CFR PART 22H  
FCC 47 CFR PART 24E  
ANSI/TIA-603-D 2010  
Application Purpose : Original  
Receive Date : Mar. 19, 2015  
Test Period : Jul. 07 ~ Sep. 30, 2015  
Issue Date : Oct. 27, 2015

**Issue by**

A Test Lab Techno Corp.  
No. 140-1, Changan Street, Bade City,  
Taoyuan County 334, Taiwan R.O.C.  
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Taiwan Accreditation Foundation accreditation number: 1330

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**Revision History**

| Rev. | Issue Date    | Revisions     | Revised By |
|------|---------------|---------------|------------|
| 00   | Oct. 27, 2015 | Initial Issue |            |
|      |               |               |            |
|      |               |               |            |
|      |               |               |            |

## Verification of Compliance

Issued Date: 10/27/2015

Product Type : Rugged Handheld Computer  
Applicant : Unitech Electronics Co., Ltd.  
Address : 5F., No.136, Lane 235, Pao-Chiao Rd., Hsin-Tien Dist., New Taipei City, Taiwan 231, R.O.C.  
Trade Name : unitech  
Model Number : PA820  
FCC ID : HLEPA820BTNP  
EUT Rated Voltage : DC 5V, 1A  
Test Voltage : 120 Vac / 60 Hz ; DC 3.50V / 3.70V / 4.25V  
Applicable Standard : FCC 47 CFR PART 22H  
FCC 47 CFR PART 24E  
ANSI/TIA-603-D 2010  
Application Purpose : Original  
Test Result : Complied  
Performing Lab. : A Test Lab Techno Corp.

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<http://www.atl-lab.com.tw/e-index.htm>



A Test Lab Techno Corp. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by A Test Lab Techno Corp. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Approved By :



(Manager)

(Fly Lu)

Reviewed By :



(Testing Engineer)

(Eric Ou Yang)

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# 1 General Information

## 1.1. EUT Description

|                      |                                |                                                                                                                                                                                                                                                   |                    |                    |            |
|----------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|------------|
| Applicant            |                                | Unitech Electronics Co., Ltd.                                                                                                                                                                                                                     |                    |                    |            |
| Applicant Address    |                                | 5F., No.136, Lane 235, Pao-Chiao Rd., Hsin-Tien Dist., New Taipei City, Taiwan 231,                                                                                                                                                               |                    |                    |            |
| Manufacturer         |                                | Unitech Electronics Co., Ltd.                                                                                                                                                                                                                     |                    |                    |            |
| Manufacturer Address |                                | 5F., No.136, Lane 235, Pao-Chiao Rd., Hsin-Tien Dist., New Taipei City, Taiwan 231,                                                                                                                                                               |                    |                    |            |
| Product Type         |                                | Rugged Handheld Computer                                                                                                                                                                                                                          |                    |                    |            |
| Trade Name           |                                | unitech                                                                                                                                                                                                                                           |                    |                    |            |
| Model Number         |                                | PA820                                                                                                                                                                                                                                             |                    |                    |            |
| FCC ID               |                                | HLEPA820BTNP                                                                                                                                                                                                                                      |                    |                    |            |
| IMEI No.             |                                | 359998040102016                                                                                                                                                                                                                                   |                    |                    |            |
| Mode                 | GPRS/EGPRS                     | Band                                                                                                                                                                                                                                              | UL Frequency (MHz) | DL Frequency (MHz) | Modulation |
|                      |                                | 850                                                                                                                                                                                                                                               | 824.2 ~ 848.8      | 869.2 ~ 893.8      | GMSK/8PSK  |
|                      |                                | 1900                                                                                                                                                                                                                                              | 1850.2 ~ 1909.8    | 1930.2 ~ 1989.8    | GMSK/8PSK  |
|                      | WCDMA (RMC12.2K)/ HSDPA/ HSUPA | Band                                                                                                                                                                                                                                              | UL Frequency (MHz) | DL Frequency (MHz) | Modulation |
|                      |                                | II                                                                                                                                                                                                                                                | 1852.4 ~ 1907.6    | 1932.4 ~ 1987.6    | QPSK       |
|                      |                                | V                                                                                                                                                                                                                                                 | 826.4 ~ 846.6      | 871.4 ~ 891.6      | QPSK       |
| Channel Control      |                                | Auto                                                                                                                                                                                                                                              |                    |                    |            |
| Type of Antenna      |                                | FPCB Antenna                                                                                                                                                                                                                                      |                    |                    |            |
| Antenna Gain (dBi)   |                                | GPRS/EGPRS 850 : 1.0 dBi<br>GPRS/EGPRS 1900 : 3.7 dBi<br>WCDMA/ HSDPA/ HSUPA Band II : 3.7 dBi<br>WCDMA/ HSDPA/ HSUPA Band V : 1.0 dBi                                                                                                            |                    |                    |            |
| Max. RF Output power |                                | GPRS 850 : 31.99 dBm / 1.581 W<br>EGPRS 850 : 29.68 dBm / 0.929 W<br>GPRS 1900 : 29.20 dBm / 0.832 W<br>EGPRS 1900 : 28.70 dBm / 0.741 W<br>WCDMA/ HSDPA/ HSUPA Band II : 25.28 dBm / 0.337 W<br>WCDMA/ HSDPA/ HSUPA Band V : 25.45 dBm / 0.351 W |                    |                    |            |
| Max. ERP/EIRP        |                                | GPRS 850 : 31.62 dBm / 1.452 W<br>EGPRS 850 : 27.47 dBm / 0.558 W<br>GPRS 1900 : 27.87 dBm / 0.612 W<br>EGPRS 1900 : 24.30 dBm / 0.269 W<br>WCDMA/ HSDPA/ HSUPA Band II : 21.89 dBm / 0.155 W<br>WCDMA/ HSDPA/ HSUPA Band V : 22.33 dBm / 0.171 W |                    |                    |            |

## 1.2. Mode of Operation

ATL has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

| Test Mode                       |
|---------------------------------|
| Mode 1: GPRS 850 Link Mode      |
| Mode 2: GPRS 1900 Link Mode     |
| Mode 3: EGPRS 850 Link Mode     |
| Mode 4: EGPRS 1900 Link Mode    |
| Mode 5: WCDMA Band II Link Mode |
| Mode 6: WCDMA Band V Link Mode  |

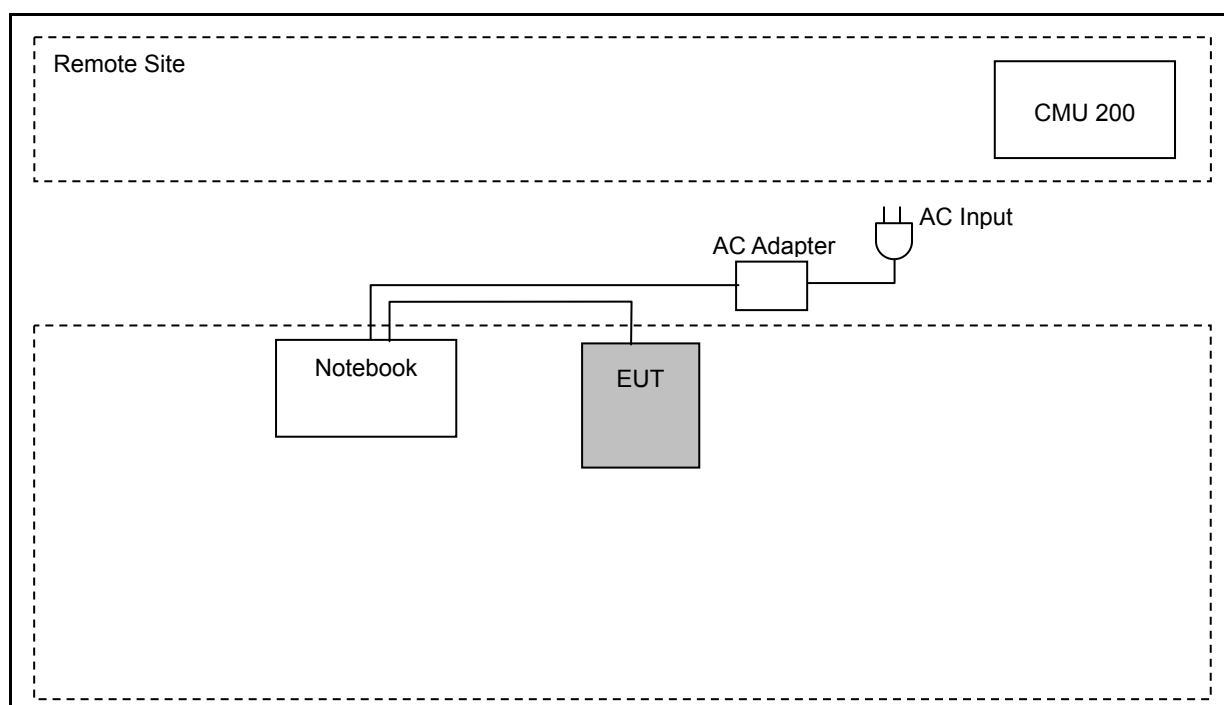
Note: Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that "X axis" position was the worst, then the final test was executed the worst condition and test data were recorded in this report.

## 1.3. EUT Exercise Software

|   |                                                          |
|---|----------------------------------------------------------|
| 1 | Setup the EUT and Base Station (CMU200) as shown on 1.4. |
| 2 | Turn on the power of all equipment.                      |

#### 1.4. Configuration of Test System Details



#### 1.5. Test Site Environment

| Items                      | Required (IEC 60068-1) | Actual |
|----------------------------|------------------------|--------|
| Temperature (°C)           | 15-35                  | 26     |
| Humidity (%RH)             | 25-75                  | 60     |
| Barometric pressure (mbar) | 860-1060               | 950    |



## 1.6. Summary of Test Result

| Description                                   | FCC Rule                            | Limit                               | Result |
|-----------------------------------------------|-------------------------------------|-------------------------------------|--------|
| Conducted Output Power                        | §2.1046                             | N/A                                 | Pass   |
| Effective Radiated Power                      | §22.913(a)(2)                       | < 7 Watts                           | Pass   |
| Equivalent Isotropic Radiated Power           | §24.232(c)                          | ≤ 2 Watts                           | Pass   |
| Peak to average ratio                         | §24.232(d)                          | < 13 dB                             | Pass   |
| Emission Bandwidth & Occupied Bandwidth       | §2.1049<br>§22.917(a)<br>§24.238(a) | N/A                                 | Pass   |
| Band Edge Measurement                         | §2.1051<br>§22.917(a)<br>§24.238(a) | < 43+10log <sub>10</sub> (P[Watts]) | Pass   |
| Conducted Spurious Emission                   | §2.1051<br>§22.917(a)<br>§24.238(a) | < 43+10log <sub>10</sub> (P[Watts]) | Pass   |
| Field Strength of Spurious Radiation          | §2.1053<br>§22.917(a)<br>§24.238(a) | < 43+10log <sub>10</sub> (P[Watts]) | Pass   |
| Frequency Stability for Temperature & Voltage | §2.1055<br>§22.355<br>§24.235       | < 2.5 ppm                           | Pass   |

## 2 RF Output Power Test

### 2.1. Limit

N/A

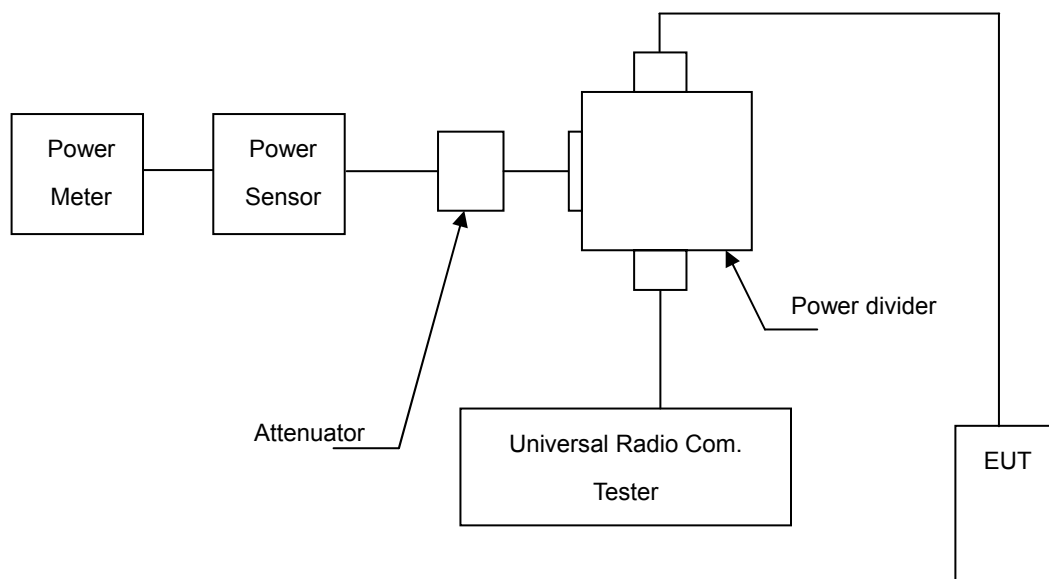
### 2.2. Test Instruments

| Equipment                            | Manufacturer | Model Number | Serial Number | Cal. Date  | Remark |
|--------------------------------------|--------------|--------------|---------------|------------|--------|
| Universal Radio Communication Tester | R & S        | CMU200       | 109369        | 10/21/2014 | (2)    |
| Single Channel PK Power Sensor       | Agilent      | N1911A       | MY45101619    | 12/15/2014 | (1)    |
| Wideband Power Meter                 | Agilent      | N1921A       | MY45241957    | 12/15/2014 | (1)    |
| Test Site                            | ATL          | TE05         | TE05          | N.C.R.     | -----  |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

### 2.3. Test Setup



### 2.4. Test Procedure

The measurement is made according to as follows:

1. The transmitter output was connected to power meter and base station through Power Divider.
2. Set base station for EUT at GSM 850: PCL=5 and PCS 1900: PCL=0.
3. Set base station for EUT at WCDMA Band V and WCDMA Band II, power level was set to maximum.
4. Select lowest, middle, and highest channels for each band.

### 2.5. Uncertainty

The measurement uncertainty is defined as for RF output power measurement is 1.2 dB.

## 2.6. Test Result

| Model Number                                                 | PA820           |                               |                 |                     |       |              |              |
|--------------------------------------------------------------|-----------------|-------------------------------|-----------------|---------------------|-------|--------------|--------------|
| Test Item                                                    | RF Output Power |                               |                 |                     |       |              |              |
| Date of Test                                                 | 07/07/2015      |                               |                 | Test Site           |       | TE05         |              |
| Bands                                                        | Modulation Type | Data Rate                     | Frequency (MHz) | Burst Average Power |       | Peak Power   |              |
|                                                              |                 |                               |                 | (dBm)               | (W)   | (dBm)        | (W)          |
| GRRS 850<br>Multi Class :12<br>Max Up:4<br>Max Down:4 Sum:5  | GMSK            | 4Down1Up<br>(Duty Factor 1/8) | 824.2           | 31.83               | 1.524 | <b>31.99</b> | <b>1.581</b> |
|                                                              |                 |                               | 836.6           | 31.82               | 1.521 | 31.98        | 1.578        |
|                                                              |                 |                               | 848.8           | 31.80               | 1.514 | 31.96        | 1.570        |
|                                                              |                 | 3Down2Up<br>(Duty Factor 2/8) | 824.2           | 30.27               | 1.064 | 30.45        | 1.109        |
|                                                              |                 |                               | 836.6           | 30.26               | 1.062 | 30.44        | 1.107        |
|                                                              |                 |                               | 848.8           | 30.24               | 1.057 | 30.42        | 1.102        |
|                                                              |                 | 2Down3Up<br>(Duty Factor 3/8) | 824.2           | 28.41               | 0.693 | 28.58        | 0.721        |
|                                                              |                 |                               | 836.6           | 28.40               | 0.692 | 28.57        | 0.719        |
|                                                              |                 |                               | 848.8           | 28.38               | 0.689 | 28.55        | 0.716        |
|                                                              |                 | 1Down4Up<br>(Duty Factor 4/8) | 824.2           | 26.64               | 0.461 | 26.77        | 0.475        |
|                                                              |                 |                               | 836.6           | 26.63               | 0.460 | 26.76        | 0.474        |
|                                                              |                 |                               | 848.8           | 26.61               | 0.458 | 26.74        | 0.472        |
| EGPRS 850<br>Multi Class :12<br>Max Up:4<br>Max Down:4 Sum:5 | 8PSK            | 4Down1Up<br>(Duty Factor 1/8) | 824.2           | 26.59               | 0.456 | <b>29.68</b> | <b>0.929</b> |
|                                                              |                 |                               | 836.6           | 26.54               | 0.451 | 29.63        | 0.918        |
|                                                              |                 |                               | 848.8           | 26.47               | 0.444 | 29.56        | 0.904        |
|                                                              |                 | 3Down2Up<br>(Duty Factor 2/8) | 824.2           | 24.67               | 0.293 | 27.80        | 0.603        |
|                                                              |                 |                               | 836.6           | 24.62               | 0.290 | 27.75        | 0.596        |
|                                                              |                 |                               | 848.8           | 24.55               | 0.285 | 27.68        | 0.586        |
|                                                              |                 | 2Down3Up<br>(Duty Factor 3/8) | 824.2           | 22.69               | 0.186 | 25.80        | 0.380        |
|                                                              |                 |                               | 836.6           | 22.64               | 0.184 | 25.75        | 0.376        |
|                                                              |                 |                               | 848.8           | 22.57               | 0.181 | 25.68        | 0.370        |
|                                                              |                 | 1Down4Up<br>(Duty Factor 4/8) | 824.2           | 21.13               | 0.130 | 24.25        | 0.266        |
|                                                              |                 |                               | 836.6           | 21.08               | 0.128 | 24.17        | 0.261        |
|                                                              |                 |                               | 848.8           | 21.01               | 0.126 | 24.10        | 0.257        |

Note: The peak power testing result was used peak detector.

| Model Number                                                  | PA820           |                               |                 |                     |       |              |              |
|---------------------------------------------------------------|-----------------|-------------------------------|-----------------|---------------------|-------|--------------|--------------|
| Test Item                                                     | RF Output Power |                               |                 |                     |       |              |              |
| Date of Test                                                  | 07/07/2015      |                               |                 | Test Site           |       | TE05         |              |
| Bands                                                         | Modulation Type | Data Rate                     | Frequency (MHz) | Burst Average Power |       | Peak Power   |              |
|                                                               |                 |                               |                 | (dBm)               | (W)   | (dBm)        | (W)          |
| GRRS 1900<br>Multi Class :12<br>Max Up:4<br>Max Down:4 Sum:5  | GMSK            | 4Down1Up<br>(Duty Factor 1/8) | 1850.20         | 28.99               | 0.793 | <b>29.20</b> | <b>0.832</b> |
|                                                               |                 |                               | 1880.00         | 28.91               | 0.778 | 29.12        | 0.817        |
|                                                               |                 |                               | 1909.80         | 28.88               | 0.773 | 29.09        | 0.811        |
|                                                               |                 | 3Down2Up<br>(Duty Factor 2/8) | 1850.20         | 27.40               | 0.550 | 27.59        | 0.574        |
|                                                               |                 |                               | 1880.00         | 27.32               | 0.540 | 27.51        | 0.564        |
|                                                               |                 |                               | 1909.80         | 27.29               | 0.536 | 27.48        | 0.560        |
|                                                               |                 | 2Down3Up<br>(Duty Factor 3/8) | 1850.20         | 25.57               | 0.361 | 25.73        | 0.374        |
|                                                               |                 |                               | 1880.00         | 25.49               | 0.354 | 25.65        | 0.367        |
|                                                               |                 |                               | 1909.80         | 25.46               | 0.352 | 25.62        | 0.365        |
|                                                               |                 | 1Down4Up<br>(Duty Factor 4/8) | 1850.20         | 23.78               | 0.239 | 23.95        | 0.248        |
|                                                               |                 |                               | 1880.00         | 23.70               | 0.234 | 23.87        | 0.244        |
|                                                               |                 |                               | 1909.80         | 23.67               | 0.233 | 23.84        | 0.242        |
| EGPRS 1900<br>Multi Class :12<br>Max Up:4<br>Max Down:4 Sum:5 | 8PSK            | 4Down1Up<br>(Duty Factor 1/8) | 1850.20         | 25.54               | 0.358 | <b>28.70</b> | <b>0.741</b> |
|                                                               |                 |                               | 1880.00         | 25.46               | 0.352 | 28.62        | 0.728        |
|                                                               |                 |                               | 1909.80         | 25.43               | 0.349 | 28.59        | 0.723        |
|                                                               |                 | 3Down2Up<br>(Duty Factor 2/8) | 1850.20         | 23.95               | 0.248 | 27.09        | 0.512        |
|                                                               |                 |                               | 1880.00         | 23.87               | 0.244 | 27.01        | 0.502        |
|                                                               |                 |                               | 1909.80         | 23.84               | 0.242 | 26.98        | 0.499        |
|                                                               |                 | 2Down3Up<br>(Duty Factor 3/8) | 1850.20         | 22.12               | 0.163 | 25.27        | 0.337        |
|                                                               |                 |                               | 1880.00         | 22.04               | 0.160 | 25.19        | 0.330        |
|                                                               |                 |                               | 1909.80         | 22.01               | 0.159 | 25.16        | 0.328        |
|                                                               |                 | 1Down4Up<br>(Duty Factor 4/8) | 1850.20         | 20.33               | 0.108 | 23.50        | 0.224        |
|                                                               |                 |                               | 1880.00         | 20.25               | 0.106 | 23.42        | 0.220        |
|                                                               |                 |                               | 1909.80         | 20.22               | 0.105 | 23.39        | 0.218        |

Note: The peak power testing result was used peak detector.

| Model Number  | PA820           |          |                 |                     |       |              |              |
|---------------|-----------------|----------|-----------------|---------------------|-------|--------------|--------------|
| Test Item     | RF Output Power |          |                 |                     |       |              |              |
| Date of Test  | 07/07/2015      |          |                 | Test Site           |       | TE05         |              |
| Bands         | Modulation Type | Sub-Test | Frequency (MHz) | Burst Average Power |       | Peak Power   |              |
|               |                 |          |                 | (dBm)               | (W)   | (dBm)        | (W)          |
| WCDMA Band II | QPSK            | -----    | 1852.4          | 21.95               | 0.157 | 25.22        | 0.333        |
|               |                 |          | 1880.0          | 22.01               | 0.159 | 25.25        | 0.335        |
|               |                 |          | 1907.6          | 22.04               | 0.160 | <b>25.28</b> | <b>0.337</b> |
| HSDPA Band II | QPSK            | 1        | 1852.4          | 21.33               | 0.136 | 24.58        | 0.287        |
|               |                 |          | 1880.0          | 21.40               | 0.138 | 24.62        | 0.290        |
|               |                 |          | 1907.6          | 21.45               | 0.140 | 24.67        | 0.293        |
|               |                 | 2        | 1852.4          | 21.24               | 0.133 | 24.49        | 0.281        |
|               |                 |          | 1880.0          | 21.32               | 0.136 | 24.54        | 0.284        |
|               |                 |          | 1907.6          | 21.39               | 0.138 | 24.61        | 0.289        |
|               |                 | 3        | 1852.4          | 20.76               | 0.119 | 24.01        | 0.252        |
|               |                 |          | 1880.0          | 20.84               | 0.121 | 24.06        | 0.255        |
|               |                 |          | 1907.6          | 20.92               | 0.124 | 24.14        | 0.259        |
|               |                 | 4        | 1852.4          | 20.70               | 0.117 | 23.95        | 0.248        |
|               |                 |          | 1880.0          | 20.79               | 0.120 | 24.01        | 0.252        |
|               |                 |          | 1907.6          | 20.87               | 0.122 | 24.09        | 0.256        |
| HSUPA Band II | QPSK            | 1        | 1852.4          | 20.85               | 0.122 | 24.12        | 0.258        |
|               |                 |          | 1880.0          | 20.95               | 0.124 | 24.19        | 0.262        |
|               |                 |          | 1907.6          | 21.02               | 0.126 | 24.26        | 0.267        |
|               |                 | 2        | 1852.4          | 18.79               | 0.076 | 22.06        | 0.161        |
|               |                 |          | 1880.0          | 18.90               | 0.078 | 22.14        | 0.164        |
|               |                 |          | 1907.6          | 19.00               | 0.079 | 22.24        | 0.167        |
|               |                 | 3        | 1852.4          | 19.76               | 0.095 | 23.03        | 0.201        |
|               |                 |          | 1880.0          | 19.89               | 0.097 | 23.13        | 0.206        |
|               |                 |          | 1907.6          | 19.99               | 0.100 | 23.23        | 0.210        |
|               |                 | 4        | 1852.4          | 18.73               | 0.075 | 22.00        | 0.158        |
|               |                 |          | 1880.0          | 18.86               | 0.077 | 22.10        | 0.162        |
|               |                 |          | 1907.6          | 18.95               | 0.079 | 22.19        | 0.166        |
|               |                 | 5        | 1852.4          | 20.73               | 0.118 | 24.00        | 0.251        |
|               |                 |          | 1880.0          | 20.86               | 0.122 | 24.10        | 0.257        |
|               |                 |          | 1907.6          | 20.96               | 0.125 | 24.20        | 0.263        |

Note: The peak power testing result was used peak detector.

| Model Number | PA820           |          |                 |                     |       |              |              |
|--------------|-----------------|----------|-----------------|---------------------|-------|--------------|--------------|
| Test Item    | RF Output Power |          |                 |                     |       |              |              |
| Date of Test | 07/07/2015      |          |                 | Test Site           |       | TE05         |              |
| Bands        | Modulation Type | Sub-Test | Frequency (MHz) | Burst Average Power |       | Peak Power   |              |
|              |                 |          |                 | (dBm)               | (W)   | (dBm)        | (W)          |
| WCDMA Band V | QPSK            | -----    | 826.4           | 21.72               | 0.149 | 24.99        | 0.316        |
|              |                 |          | 836.6           | 22.15               | 0.164 | 25.42        | 0.348        |
|              |                 |          | 846.6           | 22.18               | 0.165 | <b>25.45</b> | <b>0.351</b> |
| HSDPA Band V | QPSK            | 1        | 826.4           | 21.13               | 0.130 | 24.42        | 0.277        |
|              |                 |          | 836.6           | 21.59               | 0.144 | 24.88        | 0.308        |
|              |                 |          | 846.6           | 21.65               | 0.146 | 24.94        | 0.312        |
|              |                 | 2        | 826.4           | 21.04               | 0.127 | 24.33        | 0.271        |
|              |                 |          | 836.6           | 21.51               | 0.142 | 24.80        | 0.302        |
|              |                 |          | 846.6           | 21.60               | 0.145 | 24.89        | 0.308        |
|              |                 | 3        | 826.4           | 20.56               | 0.114 | 23.85        | 0.243        |
|              |                 |          | 836.6           | 21.03               | 0.127 | 24.32        | 0.270        |
|              |                 |          | 846.6           | 21.12               | 0.129 | 24.41        | 0.276        |
|              |                 | 4        | 826.4           | 20.48               | 0.112 | 23.77        | 0.238        |
|              |                 |          | 836.6           | 20.96               | 0.125 | 24.25        | 0.266        |
|              |                 |          | 846.6           | 21.07               | 0.128 | 24.36        | 0.273        |
| HSUPA Band V | QPSK            | 1        | 826.4           | 20.63               | 0.116 | 23.91        | 0.246        |
|              |                 |          | 836.6           | 21.11               | 0.129 | 24.39        | 0.275        |
|              |                 |          | 846.6           | 21.22               | 0.132 | 24.50        | 0.282        |
|              |                 | 2        | 826.4           | 18.54               | 0.071 | 21.82        | 0.152        |
|              |                 |          | 836.6           | 19.03               | 0.080 | 22.31        | 0.170        |
|              |                 |          | 846.6           | 19.19               | 0.083 | 22.47        | 0.177        |
|              |                 | 3        | 826.4           | 19.49               | 0.089 | 22.77        | 0.189        |
|              |                 |          | 836.6           | 20.00               | 0.100 | 23.28        | 0.213        |
|              |                 |          | 846.6           | 20.15               | 0.104 | 23.43        | 0.220        |
|              |                 | 4        | 826.4           | 18.47               | 0.070 | 21.75        | 0.150        |
|              |                 |          | 836.6           | 18.97               | 0.079 | 22.25        | 0.168        |
|              |                 |          | 846.6           | 19.13               | 0.082 | 22.41        | 0.174        |
|              |                 | 5        | 826.4           | 20.47               | 0.111 | 23.75        | 0.237        |
|              |                 |          | 836.6           | 20.99               | 0.126 | 24.27        | 0.267        |
|              |                 |          | 846.6           | 21.15               | 0.130 | 24.43        | 0.277        |

Note: The peak power testing result was used peak detector.

### 3 Effective Radiated Power / Equivalent Isotropic Radiated Power Test

#### 3.1. Limit

For FCC Part 22.913(a)(2): The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

For FCC Part 24.232(c): The EIRP of mobile transmitters and auxiliary test transmitters must not exceed 2 Watts.

#### 3.2. Test Instruments

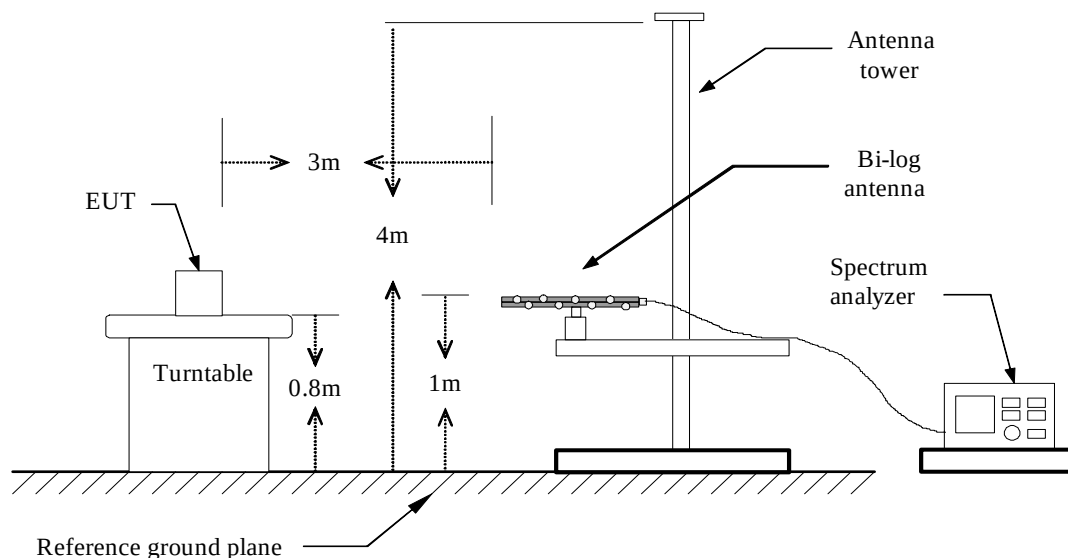
| 3 Meter Chamber                   |                                |              |               |            |        |
|-----------------------------------|--------------------------------|--------------|---------------|------------|--------|
| Equipment                         | Manufacturer                   | Model Number | Serial Number | Cal. Date  | Remark |
| RF Pre-selector                   | Agilent                        | N9039A       | MY46520256    | 01/06/2015 | (1)    |
| Spectrum Analyzer                 | Agilent                        | E4446A       | MY46180578    | 01/06/2015 | (1)    |
| Pre Amplifier                     | Agilent                        | 8449B        | 3008A02237    | 02/24/2015 | (1)    |
| Pre Amplifier                     | Agilent                        | 8447D        | 2944A10961    | 02/24/2015 | (1)    |
| Broadband Antenna<br>(30MHz~1GHz) | SCHWARZBECK<br>MESS-ELEKTRONIK | VULB9163     | 9163-270      | 08/11/2015 | (1)    |
| Horn Antenna<br>(1~18GHz)         | SCHWARZBECK<br>MESS-ELEKTRONIK | BBHA9120D    | 9120D-550     | 06/12/2015 | (1)    |
| Horn Antenna<br>(18~40GHz)        | SCHWARZBECK<br>MESS-ELEKTRONIK | BBHA9170     | 9170-320      | 07/06/2015 | (1)    |
| Test Site                         | ATL                            | TE01         | 888001        | 08/27/2015 | (1)    |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

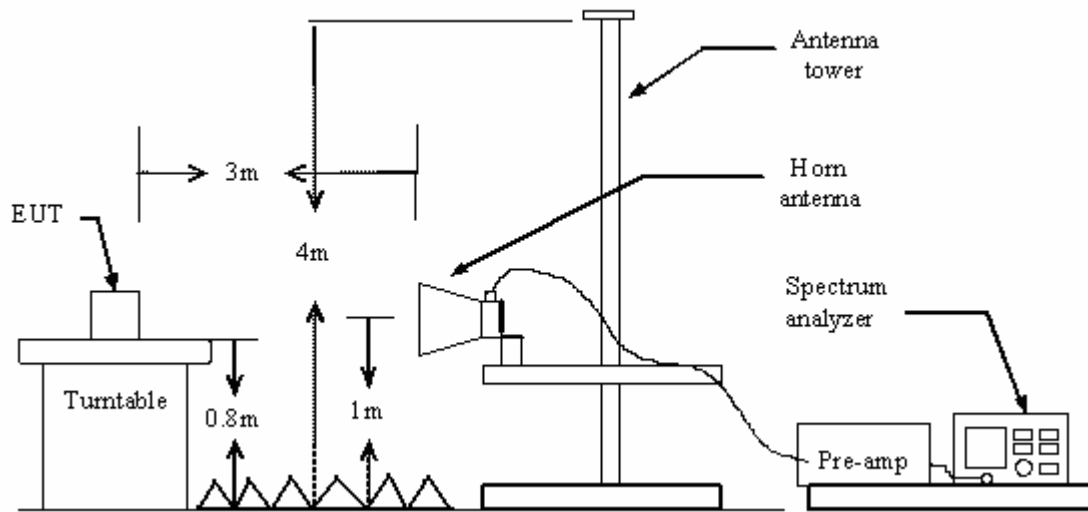
Note: N.C.R. = No Calibration Request.

#### 3.3. Setup

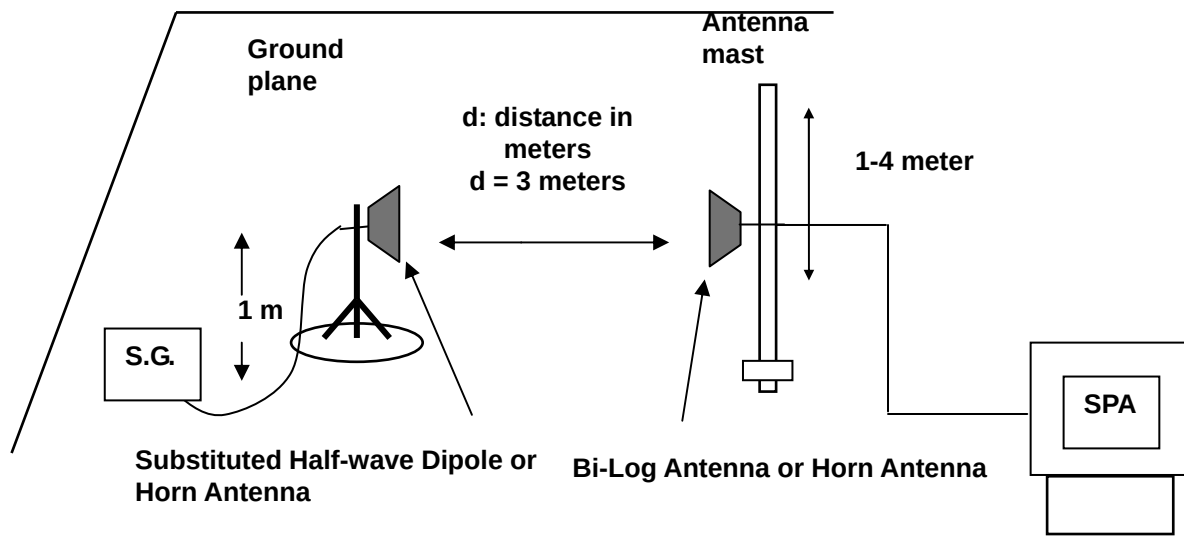
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP





### 3.4. Test Procedure

- a. The EUT was set up for the maximum power with LTE link data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high operational frequency range).
- b. Radiation Emission measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G.
- d.  $E.I.R.P. = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$
- e.  $E.R.P. = E.I.R.P. - 2.15 \text{ dB}$

Note: 1. For WCDMA and CDMA signals, a peak detector is used with  $RBW = VBW = 5\text{MHz}$ .

2. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with  $RBW = VBW = 1 \text{ MHz}$ .

### 3.5. Uncertainty

The measurement uncertainty is defined as for Field Strength of Spurious Radiation measurement is  $\pm 3.072 \text{ dB}$ .

### 3.6. Test Result

| Model Number | PA820           |                 |             |                  |                         |              |              |       |
|--------------|-----------------|-----------------|-------------|------------------|-------------------------|--------------|--------------|-------|
| Test Item    | ERP/EIRP        |                 |             |                  |                         |              |              |       |
| Date of Test | 09/11/2015      |                 |             |                  |                         | Test Site    | TE01         |       |
| Bands        | Modulation Type | Frequency (MHz) | Ant. Polar. | Read Level (dBm) | Correction Factor (dBm) | ERP          |              | Limit |
|              |                 |                 |             |                  |                         | (dBm)        | (W)          |       |
| GPRS 850     | GMSK            | 824.2           | H           | 18.50            | 10.81                   | 29.31        | 0.853        | < 7W  |
|              |                 |                 | V           | 20.81            | 10.81                   | <b>31.62</b> | <b>1.452</b> | < 7W  |
|              |                 | 836.6           | H           | 18.01            | 10.82                   | 28.83        | 0.764        | < 7W  |
|              |                 |                 | V           | 20.40            | 10.82                   | 31.22        | 1.324        | < 7W  |
|              |                 | 848.8           | H           | 18.02            | 10.90                   | 28.92        | 0.780        | < 7W  |
|              |                 |                 | V           | 20.31            | 10.90                   | 31.21        | 1.321        | < 7W  |
| EGPRS 850    | 8PSK            | 824.2           | H           | 14.52            | 10.81                   | 25.33        | 0.341        | < 7W  |
|              |                 |                 | V           | 16.65            | 10.82                   | <b>27.47</b> | <b>0.558</b> | < 7W  |
|              |                 | 836.6           | H           | 13.52            | 10.82                   | 24.34        | 0.272        | < 7W  |
|              |                 |                 | V           | 15.47            | 10.82                   | 26.29        | 0.426        | < 7W  |
|              |                 | 848.8           | H           | 12.88            | 10.90                   | 23.78        | 0.239        | < 7W  |
|              |                 |                 | V           | 15.27            | 10.90                   | 26.17        | 0.414        | < 7W  |

| Model Number | PA820           |                 |             |                  |                         |              |              |       |
|--------------|-----------------|-----------------|-------------|------------------|-------------------------|--------------|--------------|-------|
| Test Item    | ERP/EIRP        |                 |             |                  |                         |              |              |       |
| Date of Test | 09/11/2015      |                 |             |                  |                         | Test Site    | TE01         |       |
| Bands        | Modulation Type | Frequency (MHz) | Ant. Polar. | Read Level (dBm) | Correction Factor (dBm) | EIRP         |              | Limit |
|              |                 |                 |             |                  |                         | (dBm)        | (W)          |       |
| GPRS 1900    | GMSK            | 1850.20         | H           | 16.88            | 6.33                    | 23.21        | 0.209        | < 2W  |
|              |                 |                 | V           | 21.33            | 6.33                    | 27.66        | 0.583        | < 2W  |
|              |                 | 1880.00         | H           | 16.69            | 6.55                    | 23.24        | 0.211        | < 2W  |
|              |                 |                 | V           | 21.32            | 6.55                    | <b>27.87</b> | <b>0.612</b> | < 2W  |
|              |                 | 1909.80         | H           | 16.85            | 6.79                    | 23.64        | 0.231        | < 2W  |
|              |                 |                 | V           | 20.96            | 6.79                    | 27.75        | 0.596        | < 2W  |
| EGPRS 1900   | 8PSK            | 1850.20         | H           | 16.06            | 6.33                    | 22.39        | 0.173        | < 2W  |
|              |                 |                 | V           | 17.78            | 6.33                    | 24.11        | 0.258        | < 2W  |
|              |                 | 1880.00         | H           | 15.67            | 6.55                    | 22.22        | 0.167        | < 2W  |
|              |                 |                 | V           | 17.75            | 6.55                    | <b>24.30</b> | <b>0.269</b> | < 2W  |
|              |                 | 1909.80         | H           | 15.47            | 6.79                    | 22.26        | 0.168        | < 2W  |
|              |                 |                 | V           | 17.26            | 6.79                    | 24.05        | 0.254        | < 2W  |

Note: 1. ERP/EIRP = Read Level + Correction factor.

2. For WCDMA and CDMA signals, a peak detector is used with RBW = VBW = 5MHz.

3. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW= 1 MHz.

| Model Number  | PA820           |                 |             |                  |                         |              |              |       |
|---------------|-----------------|-----------------|-------------|------------------|-------------------------|--------------|--------------|-------|
| Test Item     | ERP/EIRP        |                 |             |                  |                         |              |              |       |
| Date of Test  | 09/11/2015      |                 |             |                  |                         | Test Site    | TE01         |       |
| Bands         | Modulation Type | Frequency (MHz) | Ant. Polar. | Read Level (dBm) | Correction Factor (dBm) | EIRP         |              | Limit |
|               |                 |                 |             |                  |                         | (dBm)        | (W)          |       |
| WCDMA Band II | QPSK            | 1852.4          | H           | 12.41            | 6.34                    | 18.75        | 0.075        | < 2W  |
|               |                 |                 | V           | 15.55            | 6.34                    | <b>21.89</b> | <b>0.155</b> | < 2W  |
|               |                 | 1880.0          | H           | 12.47            | 6.55                    | 19.02        | 0.080        | < 2W  |
|               |                 |                 | V           | 14.77            | 6.56                    | 21.33        | 0.136        | < 2W  |
|               |                 | 1907.6          | H           | 12.48            | 6.78                    | 19.26        | 0.084        | < 2W  |
|               |                 |                 | V           | 14.86            | 6.78                    | 21.64        | 0.146        | < 2W  |

| Model Number | PA820           |                 |             |                  |                         |              |              |       |
|--------------|-----------------|-----------------|-------------|------------------|-------------------------|--------------|--------------|-------|
| Test Item    | ERP/EIRP        |                 |             |                  |                         |              |              |       |
| Date of Test | 09/11/2015      |                 |             |                  |                         | Test Site    | TE01         |       |
| Bands        | Modulation Type | Frequency (MHz) | Ant. Polar. | Read Level (dBm) | Correction Factor (dBm) | ERP          |              | Limit |
|              |                 |                 |             |                  |                         | (dBm)        | (W)          |       |
| WCDMA Band V | QPSK            | 826.4           | H           | 10.04            | 10.81                   | 20.85        | 0.122        | < 7W  |
|              |                 |                 | V           | 10.86            | 11.47                   | <b>22.33</b> | <b>0.171</b> | < 7W  |
|              |                 | 836.6           | H           | 9.62             | 10.82                   | 20.44        | 0.111        | < 7W  |
|              |                 |                 | V           | 9.75             | 11.54                   | 21.29        | 0.135        | < 7W  |
|              |                 | 846.6           | H           | 9.94             | 10.87                   | 20.81        | 0.121        | < 7W  |
|              |                 |                 | H           | 10.42            | 11.81                   | 22.23        | 0.167        | < 7W  |

Note: 1. ERP/EIRP = Read Level + Correction factor.

2. For WCDMA and CDMA signals, a peak detector is used with RBW = VBW = 5MHz.

3. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW= 1 MHz.

## 4 Peak to Average Ratio Test

### 4.1. Limit

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

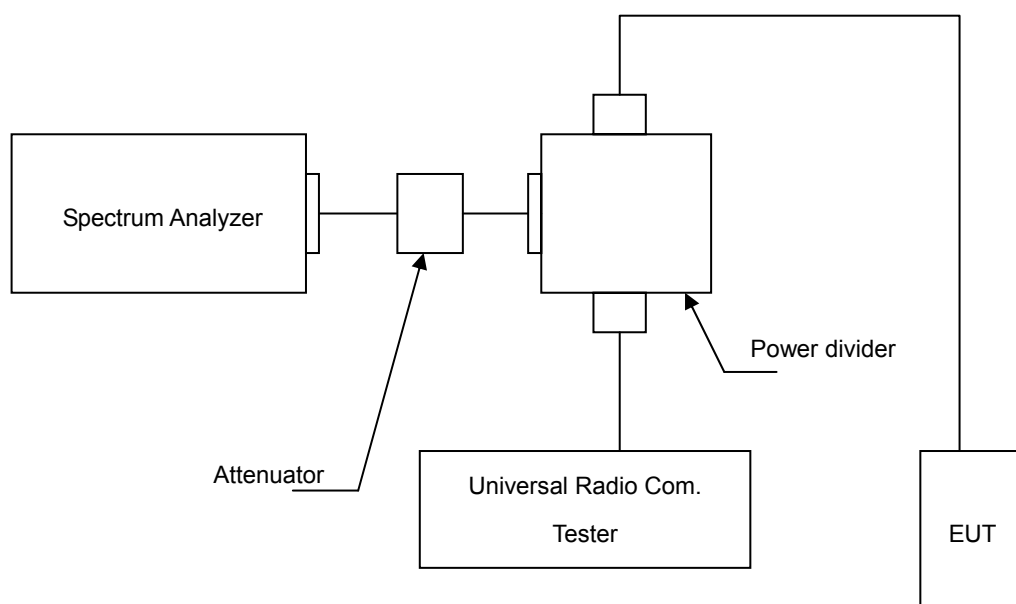
### 4.2. Test Instruments

| Equipment                         | Manufacturer | Model No. | Serial No. | Cal. Date  | Remark |
|-----------------------------------|--------------|-----------|------------|------------|--------|
| Spectrum Analyzer                 | Agilent      | E4445A    | MY46181986 | 05/14/2015 | (1)    |
| Wideband Radio Communication Test | R & S        | CMW500    | 103168     | 11/05/2014 | (1)    |
| Attenuator                        | RADIALL      | R41572000 | 0603033073 | N.C.R.     | -----  |
| Power divider                     | Agilent      | 87302C    | 3239A00760 | N.C.R.     | -----  |
| Test Site                         | ATL          | TE05      | TE05       | N.C.R.     | -----  |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

### 4.3. Setup



#### 4.4. Test Procedure

The measurement is made according to FCC rules part 24:

- Set resolution/measurement bandwidth signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1%.

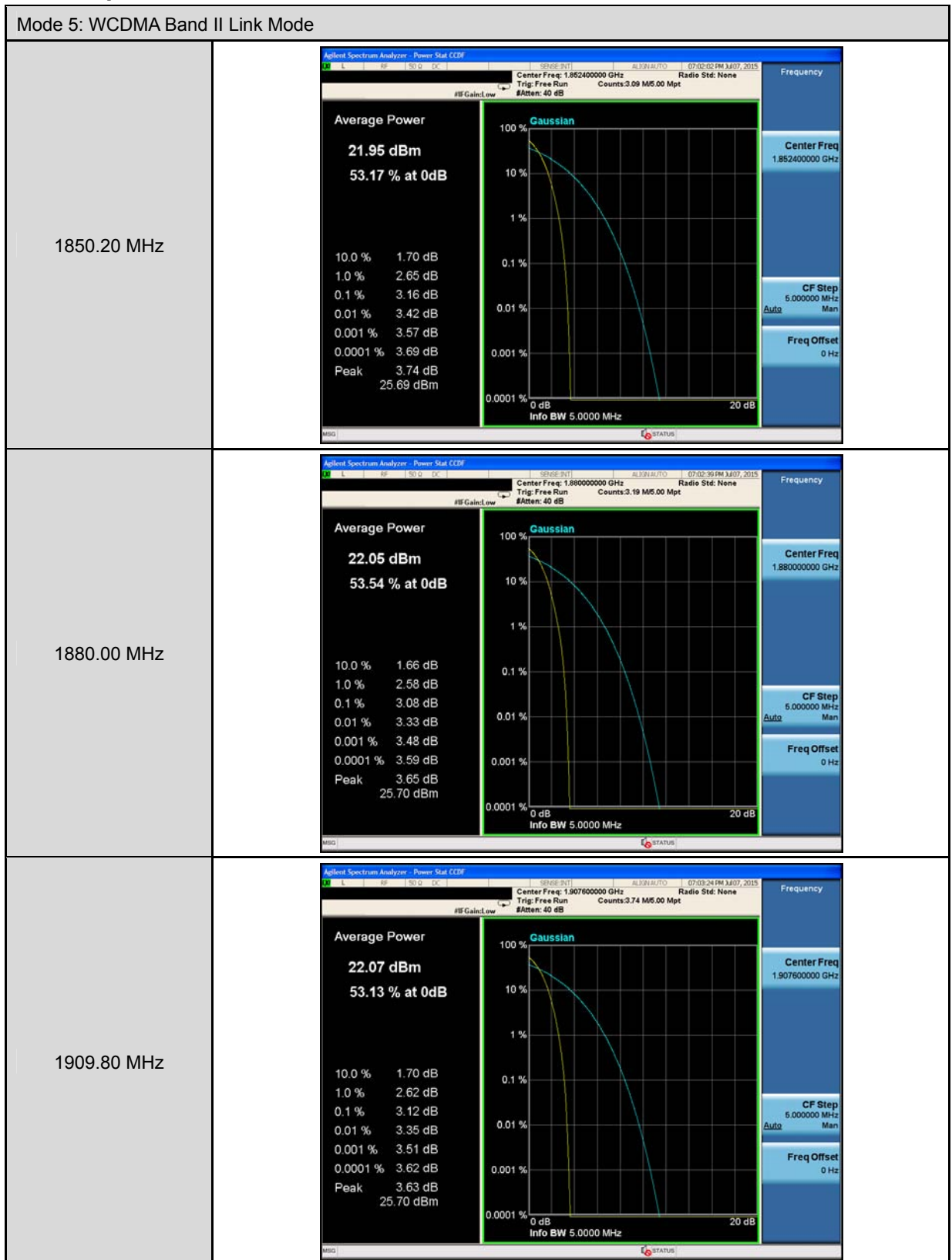
#### 4.5. Uncertainty

The measurement uncertainty is defined as for Conducted Power measurement is 1.2 dB.

#### 4.6. Test Result

| Model Number  | PA820                 |                 |                            |                |
|---------------|-----------------------|-----------------|----------------------------|----------------|
| Test Item     | Peak to Average Ratio |                 |                            |                |
| Date of Test  | 07/07/2015            |                 |                            | Test Site TE05 |
| Bands         | Channel               | Frequency (MHz) | Peak to Average Ratio (dB) | Limit (dB)     |
| WCDMA Band II | 9262                  | 1852.4          | 3.16                       | < 13           |
|               | 9400                  | 1880.0          | 3.08                       | < 13           |
|               | 9538                  | 1907.6          | 3.12                       | < 13           |

#### 4.7. Test Graphs



## 5 Emission Bandwidth & Occupied Bandwidth Test

### 5.1. Limit

The Occupied Bandwidth Limit:

N/A.

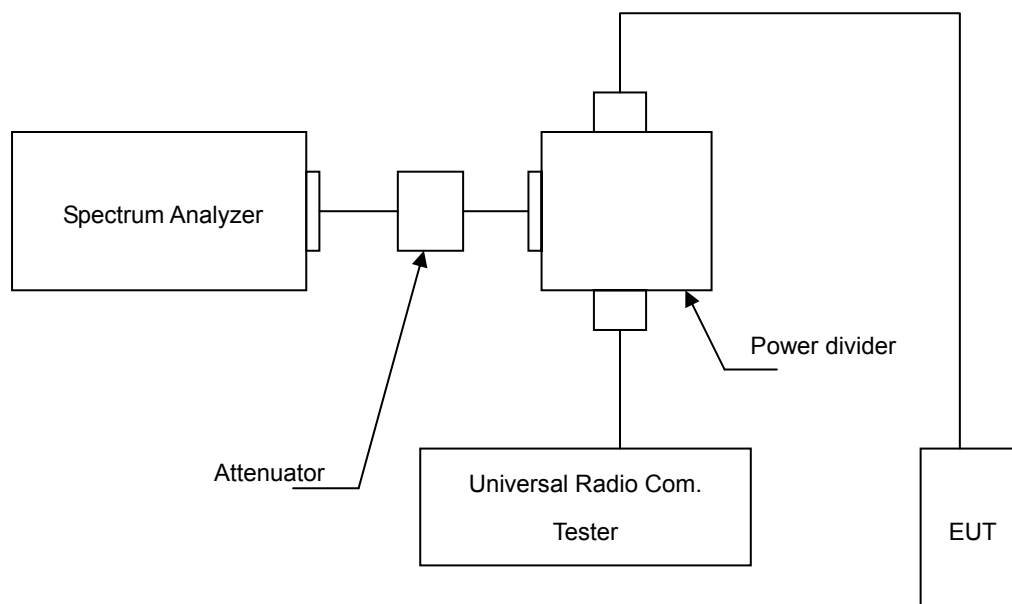
### 5.2. Test Instruments

| Equipment                            | Manufacturer | Model Number | Serial Number | Cal. Date  | Remark |
|--------------------------------------|--------------|--------------|---------------|------------|--------|
| Universal Radio Communication Tester | R & S        | CMU200       | 109369        | 10/21/2014 | (2)    |
| Spectrum Analyzer                    | Agilent      | E4445A       | MY46181986    | 05/14/2015 | (1)    |
| Attenuator                           | RADIALL      | R41572000    | 0603033073    | N.C.R.     | -----  |
| Power Divider                        | Agilent      | 87302C       | 3239A00760    | N.C.R.     | -----  |
| Test Site                            | ATL          | TE05         | TE05          | N.C.R.     | -----  |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

### 5.3. Setup



#### 5.4. Test Procedure

The measurement is made according to FCC rules part 22 and 24:

1. The EUT was connected to Spectrum Analyzer and Base Station via Power Divider.
2. The occupied bandwidth of middle channel for the highest and lowest RF powers was measured.

#### 5.5. Uncertainty

The measurement uncertainty is defined as  $\pm 10\text{Hz}$

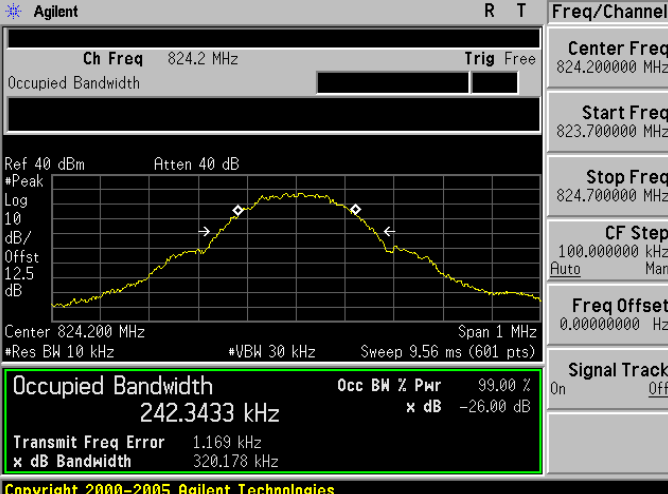
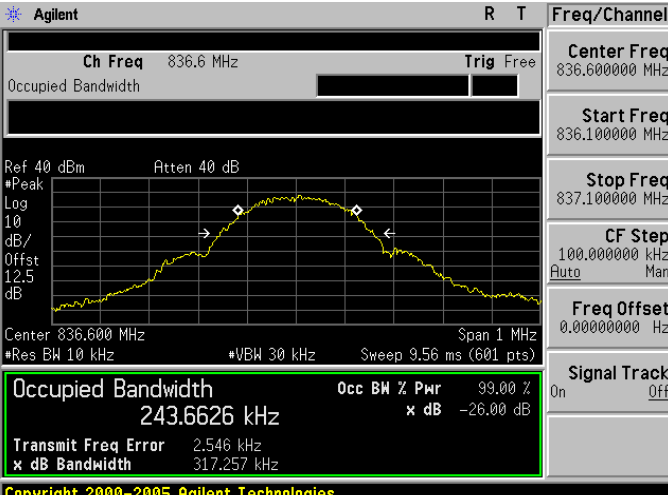
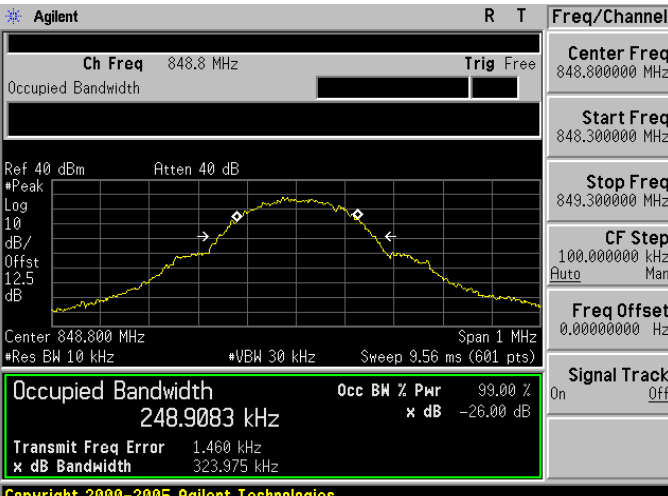
#### 5.6. Test Result

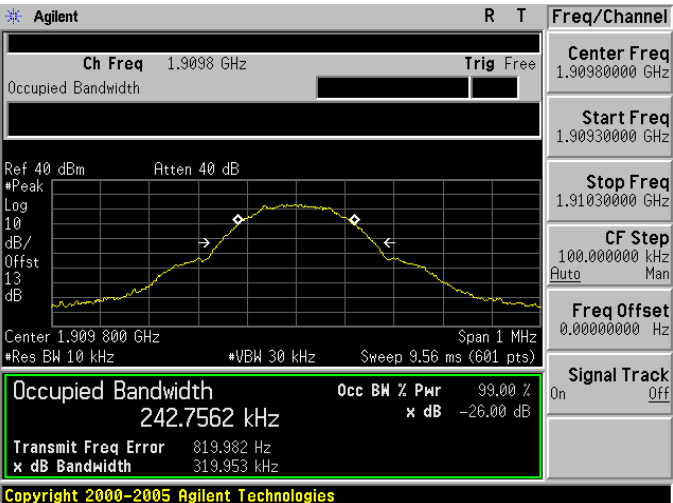
| Model Number | PA820                                   |                 |                       |                     |                       |
|--------------|-----------------------------------------|-----------------|-----------------------|---------------------|-----------------------|
| Test Item    | Emission Bandwidth & Occupied Bandwidth |                 |                       |                     |                       |
| Date of Test | 07072015                                |                 |                       |                     | Test Site             |
|              |                                         |                 |                       |                     | TE05                  |
| Bands        | Channel                                 | Frequency (MHz) | -26dB Bandwidth (kHz) | 99% Bandwidth (kHz) | Note                  |
| GPRS 850     | 128                                     | 824.2           | 320.178               | 242.3433            | RBW:10KHz , VBW:30KHz |
|              | 190                                     | 836.6           | 327.257               | 243.6626            | RBW:10KHz , VBW:30KHz |
|              | 251                                     | 848.8           | 323.975               | 248.9083            | RBW:10KHz , VBW:30KHz |
| GPRS 1900    | 512                                     | 1850.20         | 315.048               | 244.2577            | RBW:10KHz , VBW:30KHz |
|              | 661                                     | 1880.00         | 319.925               | 240.3304            | RBW:10KHz , VBW:30KHz |
|              | 810                                     | 1909.80         | 319.953               | 242.7562            | RBW:10KHz , VBW:30KHz |
| EGPRS 850    | 128                                     | 824.2           | 312.906               | 241.2969            | RBW:10KHz , VBW:30KHz |
|              | 190                                     | 836.6           | 316.515               | 247.5595            | RBW:10KHz , VBW:30KHz |
|              | 251                                     | 848.8           | 314.149               | 241.8445            | RBW:10KHz , VBW:30KHz |
| EGPRS 1900   | 512                                     | 1850.20         | 313.849               | 244.3944            | RBW:10KHz , VBW:30KHz |
|              | 661                                     | 1880.00         | 317.996               | 245.5147            | RBW:10KHz , VBW:30KHz |
|              | 810                                     | 1909.80         | 319.789               | 245.8704            | RBW:10KHz , VBW:30KHz |

| Model Number  | PA820                                   |                 |                       |                     |                         |
|---------------|-----------------------------------------|-----------------|-----------------------|---------------------|-------------------------|
| Test Item     | Emission Bandwidth & Occupied Bandwidth |                 |                       |                     |                         |
| Date of Test  | 07072015                                |                 |                       |                     | Test Site               |
|               |                                         |                 |                       |                     | TE05                    |
| Bands         | Channel                                 | Frequency (MHz) | -26dB Bandwidth (MHz) | 99% Bandwidth (MHz) | Note                    |
| WCDMA Band II | 9262                                    | 1852.4          | 4.695                 | 4.1641              | RBW:100KHz , VBW:300KHz |
|               | 9400                                    | 1880.0          | 4.665                 | 4.1978              | RBW:100KHz , VBW:300KHz |
|               | 9538                                    | 1907.6          | 4.684                 | 4.1695              | RBW:100KHz , VBW:300KHz |
| WCDMA Band V  | 4132                                    | 826.4           | 4.681                 | 4.1377              | RBW:100KHz , VBW:300KHz |
|               | 4183                                    | 836.6           | 4.677                 | 4.1449              | RBW:100KHz , VBW:300KHz |
|               | 4233                                    | 846.6           | 4.666                 | 4.1105              | RBW:100KHz , VBW:300KHz |

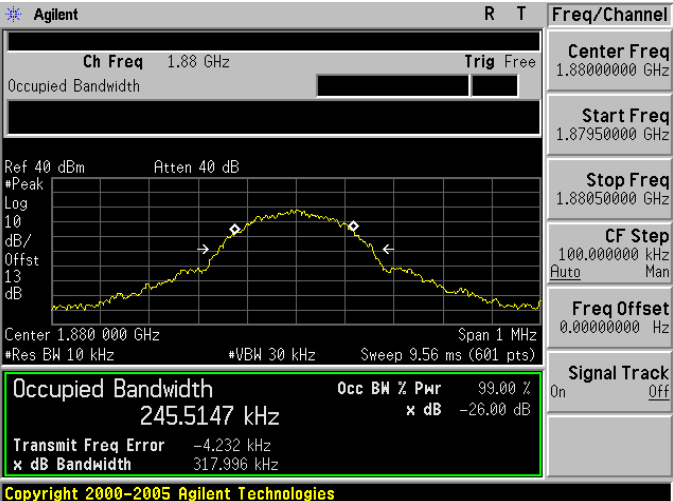


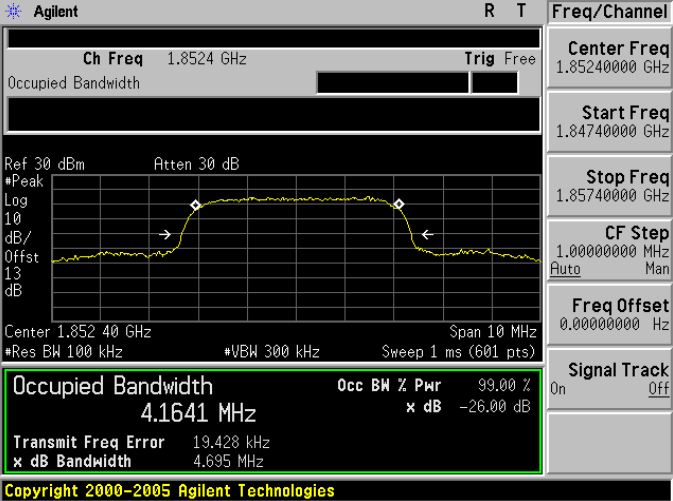
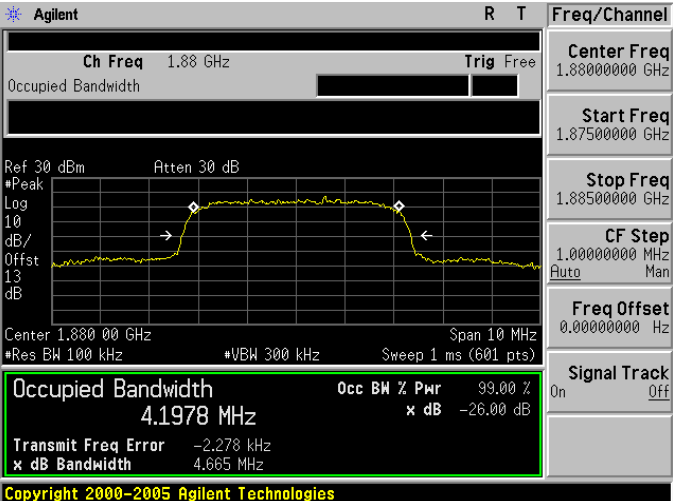
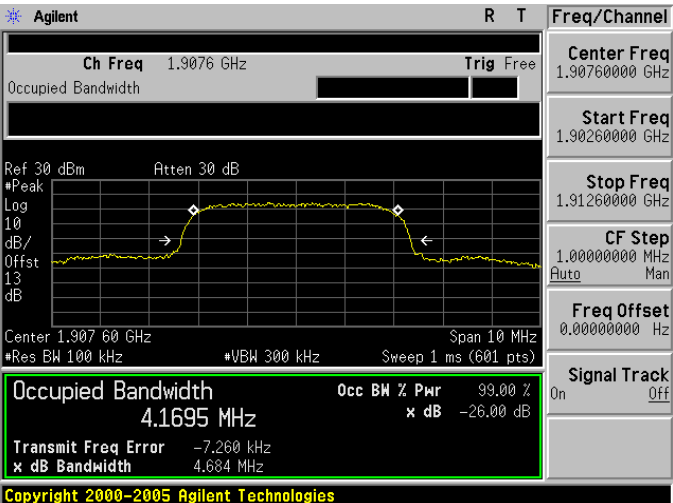
## 5.7. Test Graphs

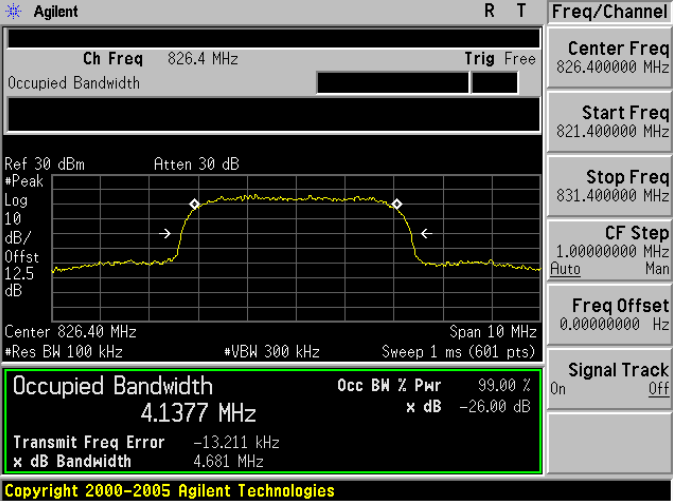
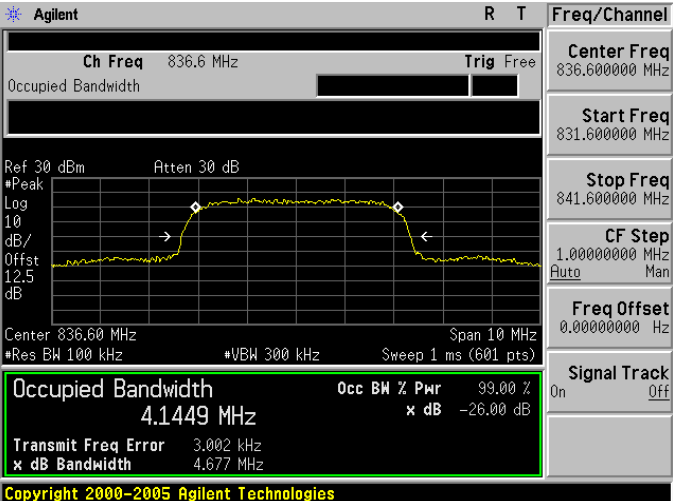
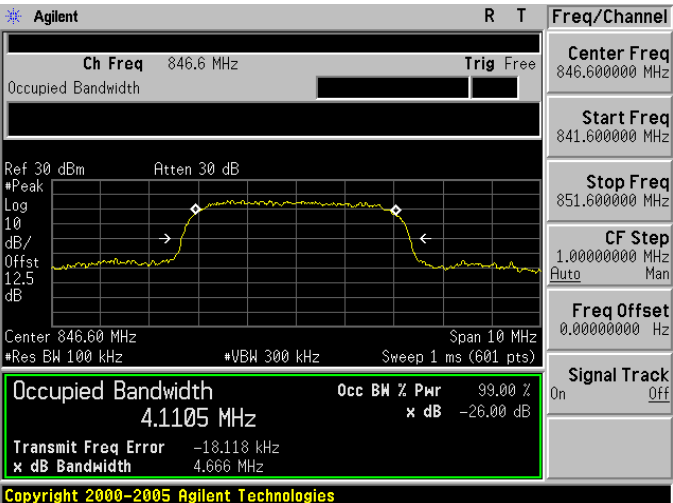
| Mode 1: GPRS 850 Link Mode |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 824.2 MHz                  |  <p>Agilent R T Freq/Channel</p> <p>Ch Freq 824.2 MHz Trig Free</p> <p>Center Freq 824.200000 MHz</p> <p>Start Freq 823.700000 MHz</p> <p>Stop Freq 824.700000 MHz</p> <p>CF Step 100.000000 kHz</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 40 dBm Atten 40 dB</p> <p>Peak Log 10 dB/Offst 12.5 dB</p> <p>Center 824.200 MHz Span 1 MHz</p> <p>Res BW 10 kHz VBW 30 kHz Sweep 9.56 ms (601 pts)</p> <p>Occupied Bandwidth 242.3433 kHz</p> <p>Occ BW % Pwr 99.00 %</p> <p>x dB -26.00 dB</p> <p>Transmit Freq Error 1.169 kHz</p> <p>x dB Bandwidth 320.178 kHz</p> <p>Copyright 2000-2005 Agilent Technologies</p>   |
| 836.6 MHz                  |  <p>Agilent R T Freq/Channel</p> <p>Ch Freq 836.6 MHz Trig Free</p> <p>Center Freq 836.600000 MHz</p> <p>Start Freq 836.100000 MHz</p> <p>Stop Freq 837.100000 MHz</p> <p>CF Step 100.000000 kHz</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 40 dBm Atten 40 dB</p> <p>Peak Log 10 dB/Offst 12.5 dB</p> <p>Center 836.600 MHz Span 1 MHz</p> <p>Res BW 10 kHz VBW 30 kHz Sweep 9.56 ms (601 pts)</p> <p>Occupied Bandwidth 243.6626 kHz</p> <p>Occ BW % Pwr 99.00 %</p> <p>x dB -26.00 dB</p> <p>Transmit Freq Error 2.546 kHz</p> <p>x dB Bandwidth 317.257 kHz</p> <p>Copyright 2000-2005 Agilent Technologies</p>  |
| 848.8 MHz                  |  <p>Agilent R T Freq/Channel</p> <p>Ch Freq 848.8 MHz Trig Free</p> <p>Center Freq 848.800000 MHz</p> <p>Start Freq 848.300000 MHz</p> <p>Stop Freq 849.300000 MHz</p> <p>CF Step 100.000000 kHz</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 40 dBm Atten 40 dB</p> <p>Peak Log 10 dB/Offst 12.5 dB</p> <p>Center 848.800 MHz Span 1 MHz</p> <p>Res BW 10 kHz VBW 30 kHz Sweep 9.56 ms (601 pts)</p> <p>Occupied Bandwidth 248.9083 kHz</p> <p>Occ BW % Pwr 99.00 %</p> <p>x dB -26.00 dB</p> <p>Transmit Freq Error 1.460 kHz</p> <p>x dB Bandwidth 323.975 kHz</p> <p>Copyright 2000-2005 Agilent Technologies</p> |

| Mode 2: GPRS 1900 Link Mode |                                                                                                                                      |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| 1850.20 MHz                 |  <p>Copyright 2000-2005 Agilent Technologies</p>   |
| 1880.00 MHz                 |  <p>Copyright 2000-2005 Agilent Technologies</p>  |
| 1909.80 MHz                 |  <p>Copyright 2000-2005 Agilent Technologies</p> |

| Mode 3: EGPRS 850 Link Mode |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 824.2 MHz                   |  <p>Agilent R T Freq/Channel</p> <p>Ch Freq 824.2 MHz Trig Free</p> <p>Center Freq 824.200000 MHz</p> <p>Start Freq 823.700000 MHz</p> <p>Stop Freq 824.700000 MHz</p> <p>CF Step 100.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 40 dBm Atten 40 dB</p> <p>Peak Log 10 dB/Offst 12.5 dB</p> <p>Center 824.200 MHz Span 1 MHz</p> <p>Res BW 10 kHz VBW 30 kHz Sweep 9.56 ms (601 pts)</p> <p>Occupied Bandwidth 241.2969 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 575.506 Hz</p> <p>x dB Bandwidth 312.906 kHz</p> <p>Copyright 2000-2005 Agilent Technologies</p>  |
| 836.6 MHz                   |  <p>Agilent R T Freq/Channel</p> <p>Ch Freq 836.6 MHz Trig Free</p> <p>Center Freq 836.600000 MHz</p> <p>Start Freq 836.100000 MHz</p> <p>Stop Freq 837.100000 MHz</p> <p>CF Step 100.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 40 dBm Atten 40 dB</p> <p>Peak Log 10 dB/Offst 12.5 dB</p> <p>Center 836.600 MHz Span 1 MHz</p> <p>Res BW 10 kHz VBW 30 kHz Sweep 9.56 ms (601 pts)</p> <p>Occupied Bandwidth 247.5595 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 1.540 kHz</p> <p>x dB Bandwidth 316.515 kHz</p> <p>Copyright 2000-2005 Agilent Technologies</p>  |
| 848.8 MHz                   |  <p>Agilent R T Freq/Channel</p> <p>Ch Freq 848.8 MHz Trig Free</p> <p>Center Freq 848.800000 MHz</p> <p>Start Freq 848.300000 MHz</p> <p>Stop Freq 849.300000 MHz</p> <p>CF Step 100.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 40 dBm Atten 40 dB</p> <p>Peak Log 10 dB/Offst 12.5 dB</p> <p>Center 848.800 MHz Span 1 MHz</p> <p>Res BW 10 kHz VBW 30 kHz Sweep 9.56 ms (601 pts)</p> <p>Occupied Bandwidth 241.8445 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 1.008 kHz</p> <p>x dB Bandwidth 314.149 kHz</p> <p>Copyright 2000-2005 Agilent Technologies</p> |

| Mode 4: EGPRS 1900 Link Mode |                                                                                                                                      |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| 1850.20 MHz                  |  <p>Copyright 2000-2005 Agilent Technologies</p>   |
| 1880.00 MHz                  |  <p>Copyright 2000-2005 Agilent Technologies</p>  |
| 1909.80 MHz                  |  <p>Copyright 2000-2005 Agilent Technologies</p> |

| Mode 5: WCDMA Band II Link Mode |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1850.20 MHz                     |  <p>Agilent R T Freq/Channel</p> <p>Ch Freq 1.8524 GHz Trig Free</p> <p>Center Freq 1.85240000 GHz</p> <p>Start Freq 1.84740000 GHz</p> <p>Stop Freq 1.85740000 GHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 30 dBm Atten 30 dB</p> <p>Peak Log 10 dB/Offst 13 dB</p> <p>Center 1.852 40 GHz Span 10 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 1 ms (601 pts)</p> <p>Occupied Bandwidth 4.1641 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 19.428 kHz x dB Bandwidth 4.695 MHz</p> <p>Copyright 2000-2005 Agilent Technologies</p>   |
| 1880.00 MHz                     |  <p>Agilent R T Freq/Channel</p> <p>Ch Freq 1.88 GHz Trig Free</p> <p>Center Freq 1.88000000 GHz</p> <p>Start Freq 1.87500000 GHz</p> <p>Stop Freq 1.88500000 GHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 30 dBm Atten 30 dB</p> <p>Peak Log 10 dB/Offst 13 dB</p> <p>Center 1.880 00 GHz Span 10 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 1 ms (601 pts)</p> <p>Occupied Bandwidth 4.1978 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -2.278 kHz x dB Bandwidth 4.665 MHz</p> <p>Copyright 2000-2005 Agilent Technologies</p>    |
| 1909.80 MHz                     |  <p>Agilent R T Freq/Channel</p> <p>Ch Freq 1.9076 GHz Trig Free</p> <p>Center Freq 1.90760000 GHz</p> <p>Start Freq 1.90260000 GHz</p> <p>Stop Freq 1.91260000 GHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 30 dBm Atten 30 dB</p> <p>Peak Log 10 dB/Offst 13 dB</p> <p>Center 1.907 60 GHz Span 10 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 1 ms (601 pts)</p> <p>Occupied Bandwidth 4.1695 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -7.260 kHz x dB Bandwidth 4.684 MHz</p> <p>Copyright 2000-2005 Agilent Technologies</p> |

| Mode 6: WCDMA Band V Link Mode |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 826.4 MHz                      |  <p>Agilent R T Freq/Channel</p> <p>Ch Freq 826.4 MHz Trig Free</p> <p>Center Freq 826.400000 MHz</p> <p>Start Freq 821.400000 MHz</p> <p>Stop Freq 831.400000 MHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 30 dBm Atten 30 dB</p> <p>Peak Log 10 dB/Offst 12.5 dB</p> <p>Center 826.40 MHz Span 10 MHz</p> <p>Res BW 100 kHz VBW 300 kHz Sweep 1 ms (601 pts)</p> <p>Occupied Bandwidth 4.1377 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -13.211 kHz x dB Bandwidth 4.681 MHz</p> <p>Copyright 2000-2005 Agilent Technologies</p>   |
| 836.6 MHz                      |  <p>Agilent R T Freq/Channel</p> <p>Ch Freq 836.6 MHz Trig Free</p> <p>Center Freq 836.600000 MHz</p> <p>Start Freq 831.600000 MHz</p> <p>Stop Freq 841.600000 MHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 30 dBm Atten 30 dB</p> <p>Peak Log 10 dB/Offst 12.5 dB</p> <p>Center 836.60 MHz Span 10 MHz</p> <p>Res BW 100 kHz VBW 300 kHz Sweep 1 ms (601 pts)</p> <p>Occupied Bandwidth 4.1449 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 3.002 kHz x dB Bandwidth 4.677 MHz</p> <p>Copyright 2000-2005 Agilent Technologies</p>    |
| 846.6 MHz                      |  <p>Agilent R T Freq/Channel</p> <p>Ch Freq 846.6 MHz Trig Free</p> <p>Center Freq 846.600000 MHz</p> <p>Start Freq 841.600000 MHz</p> <p>Stop Freq 851.600000 MHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Ref 30 dBm Atten 30 dB</p> <p>Peak Log 10 dB/Offst 12.5 dB</p> <p>Center 846.60 MHz Span 10 MHz</p> <p>Res BW 100 kHz VBW 300 kHz Sweep 1 ms (601 pts)</p> <p>Occupied Bandwidth 4.1105 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -18.118 kHz x dB Bandwidth 4.666 MHz</p> <p>Copyright 2000-2005 Agilent Technologies</p> |

## 6 Band Edge Test

### 6.1. Limit

The Band Edge Limit:

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10\log(P)$  dB.

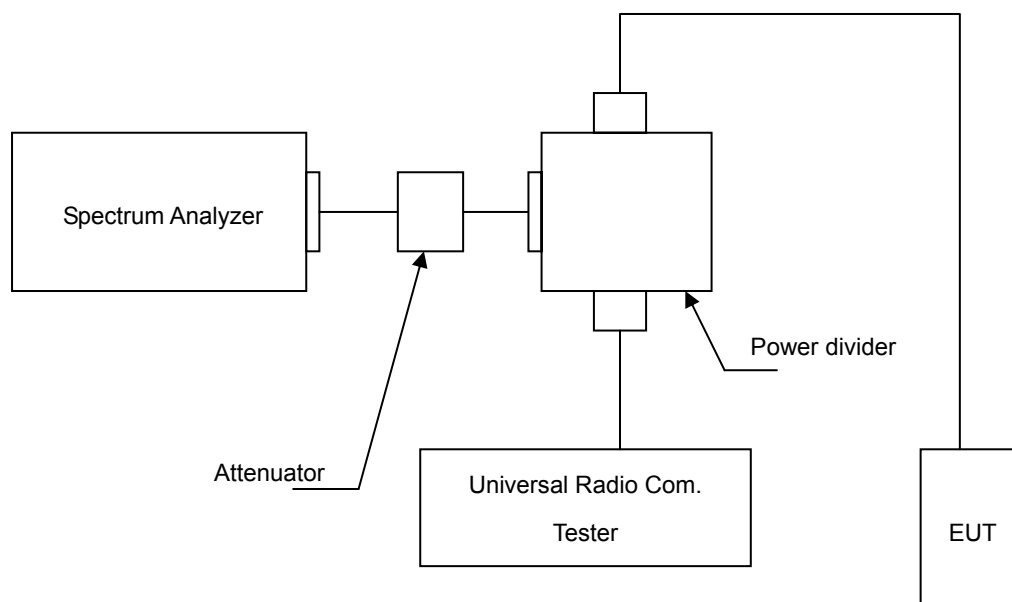
### 6.2. Test Instruments

| Equipment                            | Manufacturer | Model Number | Serial Number | Cal. Date  | Remark |
|--------------------------------------|--------------|--------------|---------------|------------|--------|
| Universal Radio Communication Tester | R & S        | CMU200       | 109369        | 10/21/2014 | (2)    |
| Spectrum Analyzer                    | Agilent      | E4445A       | MY46181986    | 05/14/2015 | (1)    |
| Attenuator                           | RADIALL      | R41572000    | 0603033073    | N.C.R.     | -----  |
| Power Divider                        | Agilent      | 87302C       | 3239A00760    | N.C.R.     | -----  |
| Test Site                            | ATL          | TE05         | TE05          | N.C.R.     | -----  |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

### 6.3. Setup



#### 6.4. Test Procedure

The measurement is made according to FCC rules part 22 and 24:

1. The EUT was connected to Spectrum Analyzer and Base Station via Power Divider.
2. The band edge of low and high channels for the highest RF powers within the transmitting frequency band were measured. Setting RBW as roughly BW/100.
3. The band edge setting:
  - a. RB=10 kHz; VB=30 kHz for GSM 850 and PCS 1900.
  - b. RB=51 kHz; VB=160 kHz for WCDMA Band V and WCDMA Band II.

#### 6.5. Uncertainty

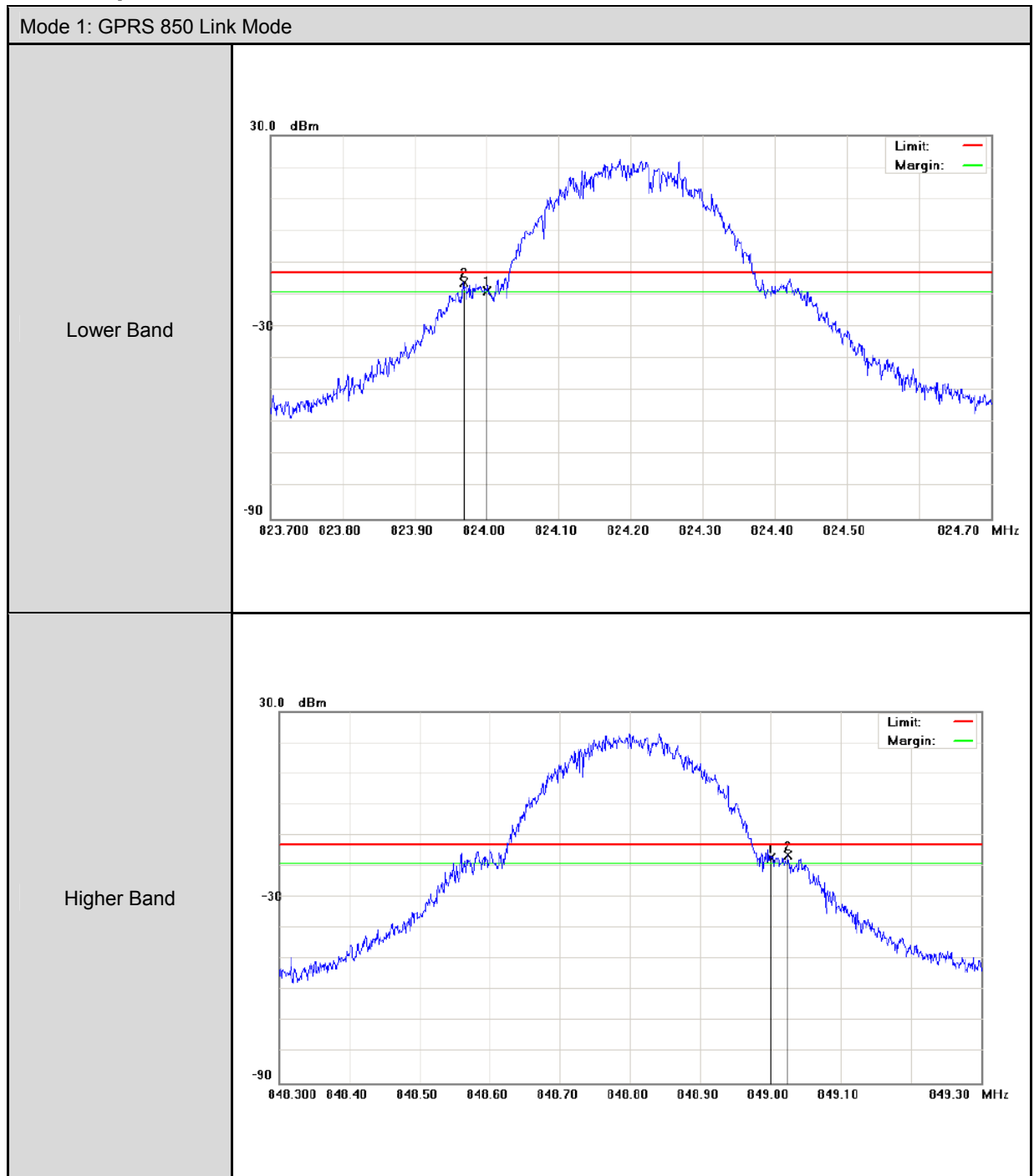
The measurement uncertainty is defined as  $\pm 10\text{Hz}$

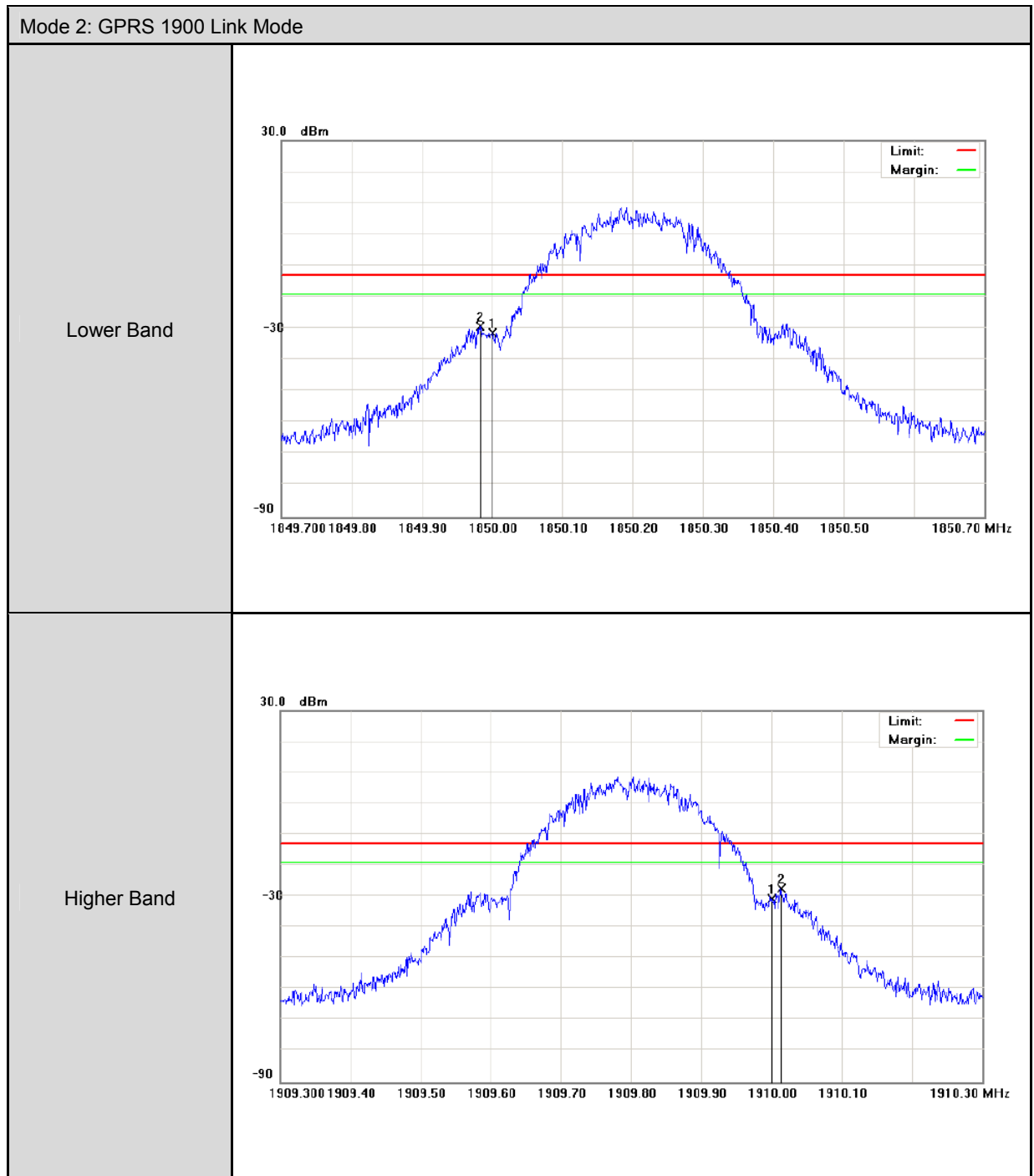
#### 6.6. Test Result

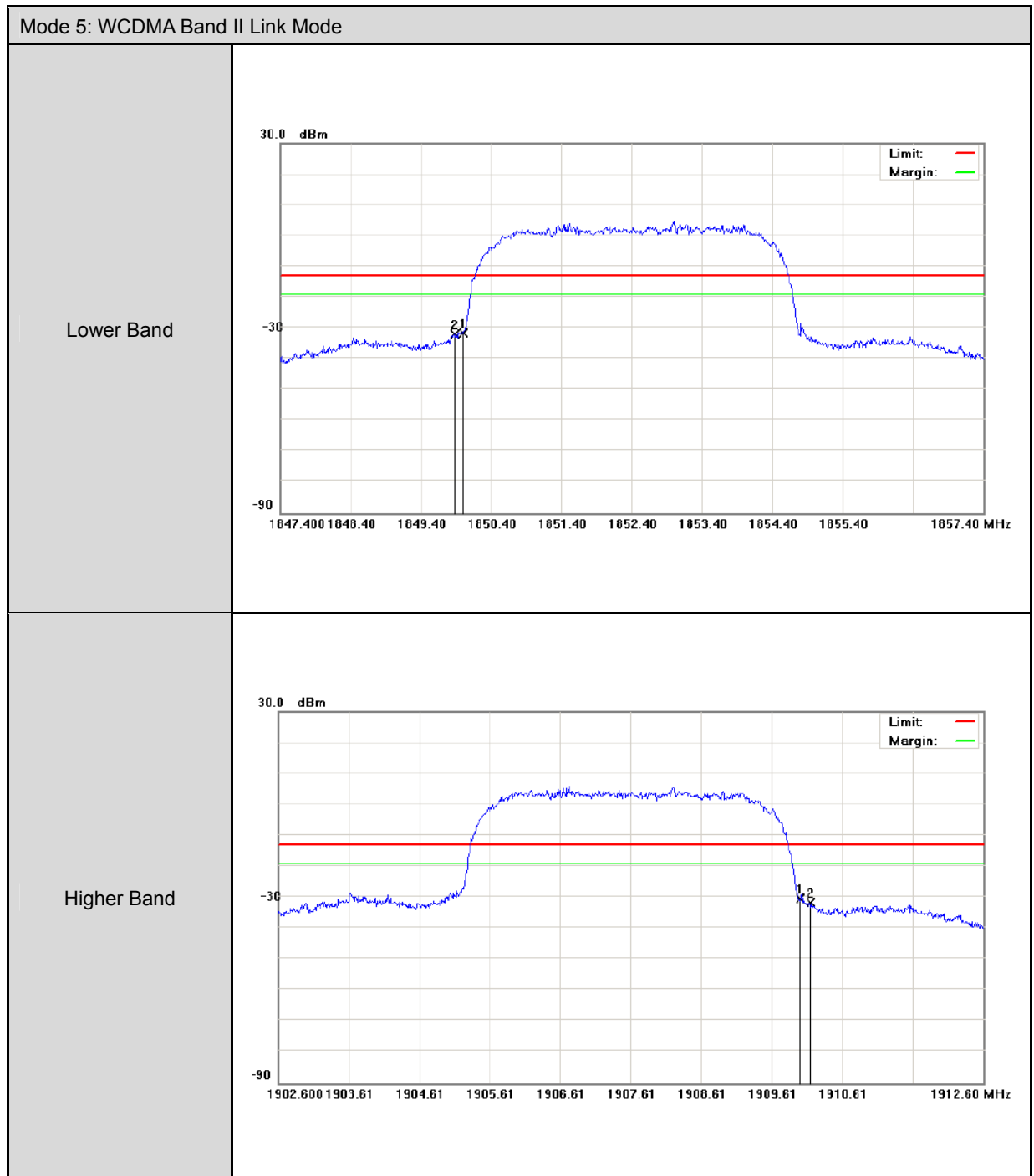
| Model Number  |        | PA820     |                 |                 |             |        |
|---------------|--------|-----------|-----------------|-----------------|-------------|--------|
| Test Item     |        | Band Edge |                 |                 |             |        |
| Date of Test  |        | 07072015  |                 |                 | Test Site   | TE05   |
| Bands         |        | Channel   | Frequency (MHz) | Bandwidth (dBm) | Limit (dBm) | Result |
| GPRS 850      | Lower  | 128       | 824.0000        | -16.17          | -13         | Pass   |
|               | Higher | 251       | 849.0000        | -16.46          | -13         | Pass   |
| GPRS 1900     | Lower  | 512       | 1850.000        | -29.12          | -13         | Pass   |
|               | Higher | 810       | 1910.000        | -27.39          | -13         | Pass   |
| WCDMA Band II | Lower  | 9262      | 1850.000        | -31.72          | -13         | Pass   |
|               | Higher | 9538      | 1910.000        | -30.31          | -13         | Pass   |
| WCDMA Band V  | Lower  | 4132      | 824.0000        | -26.41          | -13         | Pass   |
|               | Higher | 4233      | 849.0000        | -24.53          | -13         | Pass   |

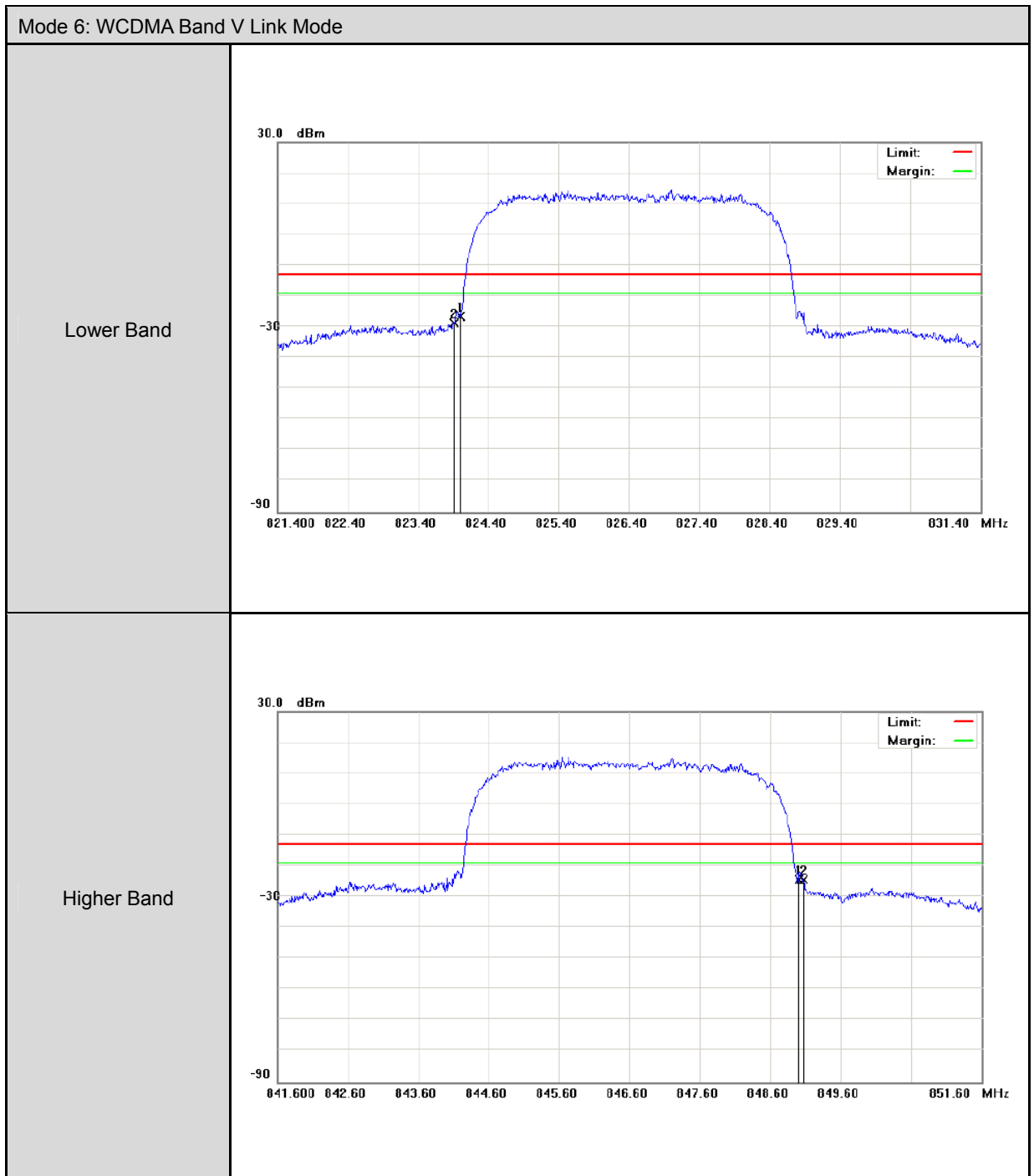


## 6.7. Test Graphs









## 7 Conducted Spurious Emission Test

### 7.1. Limit

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10\log(P)$  dB.

### 7.2. Test Instruments

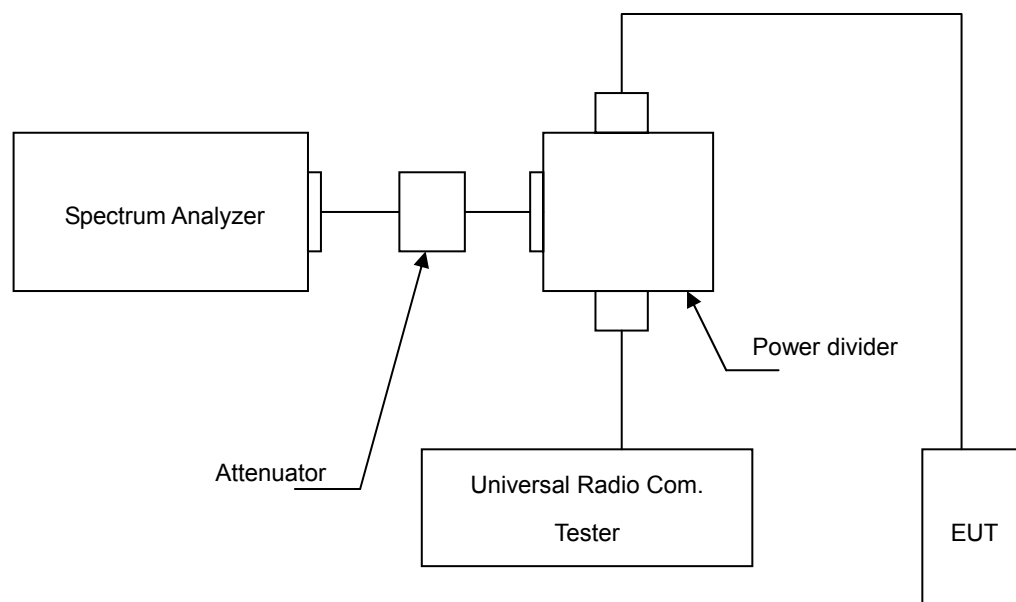
| Equipment                            | Manufacturer | Model Number | Serial Number | Cal. Date  | Remark |
|--------------------------------------|--------------|--------------|---------------|------------|--------|
| Universal Radio Communication Tester | R & S        | CMU200       | 109369        | 10/21/2014 | (2)    |
| Spectrum Analyzer                    | Agilent      | E4445A       | MY46181986    | 05/14/2015 | (1)    |
| Attenuator                           | RADIALL      | R41572000    | 0603033073    | N.C.R.     | -----  |
| Power Divider                        | Agilent      | 87302C       | 3239A00760    | N.C.R.     | -----  |
| Test Site                            | ATL          | TE05         | TE05          | N.C.R.     | -----  |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

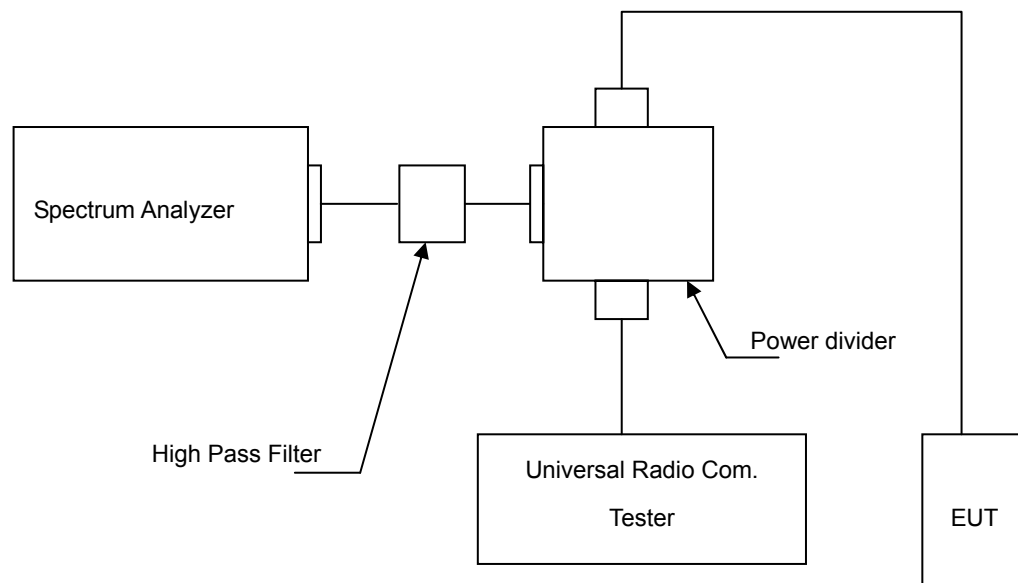
Note: N.C.R. = No Calibration Request.

### 7.3. Setup

Below 2.8GHz



Above 2.8GHz



#### 7.4. Test Procedure

1. The EUT was connected to Spectrum Analyzer and Base Station via Power Divider.
2. The middle channel for the highest RF power within the transmitting frequency was measured.
3. The conducted spurious emission for the whole frequency range was taken.

#### 7.5. Uncertainty

The measurement uncertainty is evaluated as  $\pm 2.24$  dB.

#### 7.6. Test Result

|              |                                   |           |      |
|--------------|-----------------------------------|-----------|------|
| Model Number | PA820                             |           |      |
| Test Item    | Conducted Spurious Emission       |           |      |
| Test Mode    | Mode 1 / Mode 2 / Mode 5 / Mode 6 |           |      |
| Date of Test | 07072015                          | Test Site | TE05 |

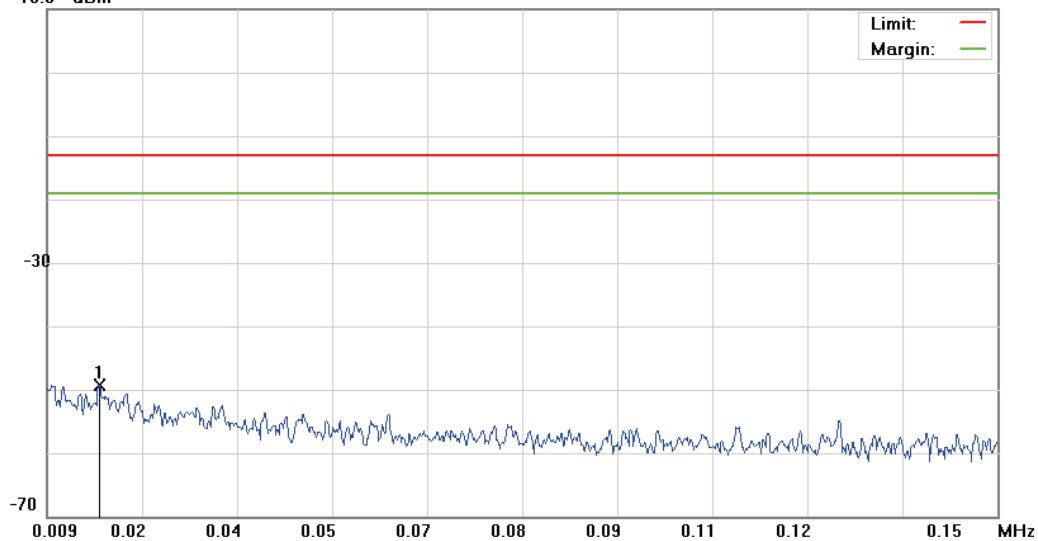
File :PA820(CH128)

Data :#1

Date: 2015/7/7

Time: 下午 03:18:37

10.0 dBm



Site: site #1

Limit: FCC Part 22 conducted(9k-12.75G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: GPRS 850

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

Humidity: 55 %

RBW: 1 KHz VBW: 3 KHz

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 0.0168 | -79.90        | 30.55          | -49.35      | -13.00 | -36.35 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin

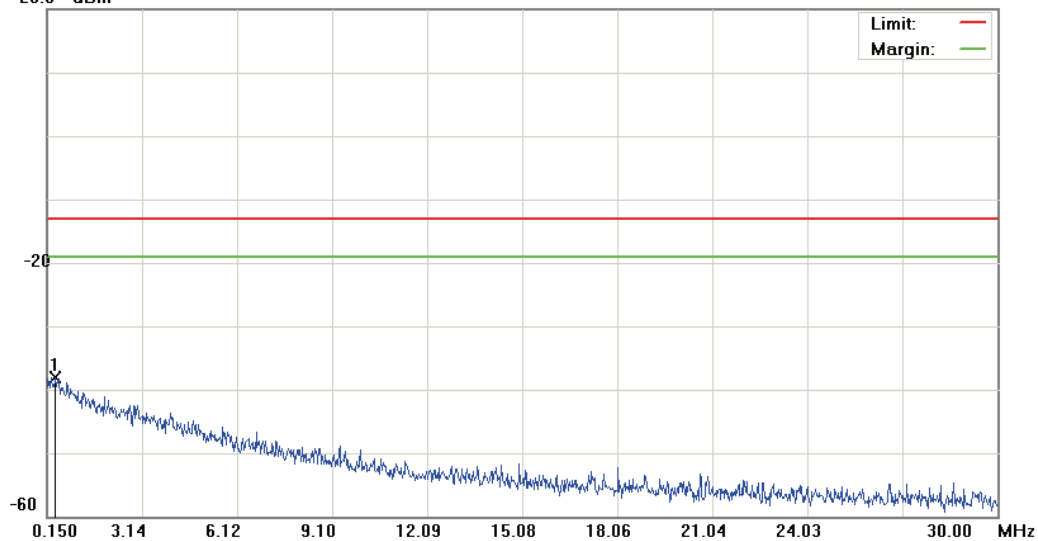
File :PA820(CH128)

Data :#2

Date: 2015/7/7

Time: 下午 03:19:01

20.0 dBm



Site: site #1

Limit: FCC Part 22 conducted(9k-12.75G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: GPRS 850

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

Humidity: 55 %

RBW: 10 KHz VBW: 30 KHz

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree  |
| 1   | *   | 0.4187 | -69.94        | 31.93          | -38.01      | -13.00 | -25.01 | peak           |              | Comment |

\*:Maximum data x:Over limit !:over margin





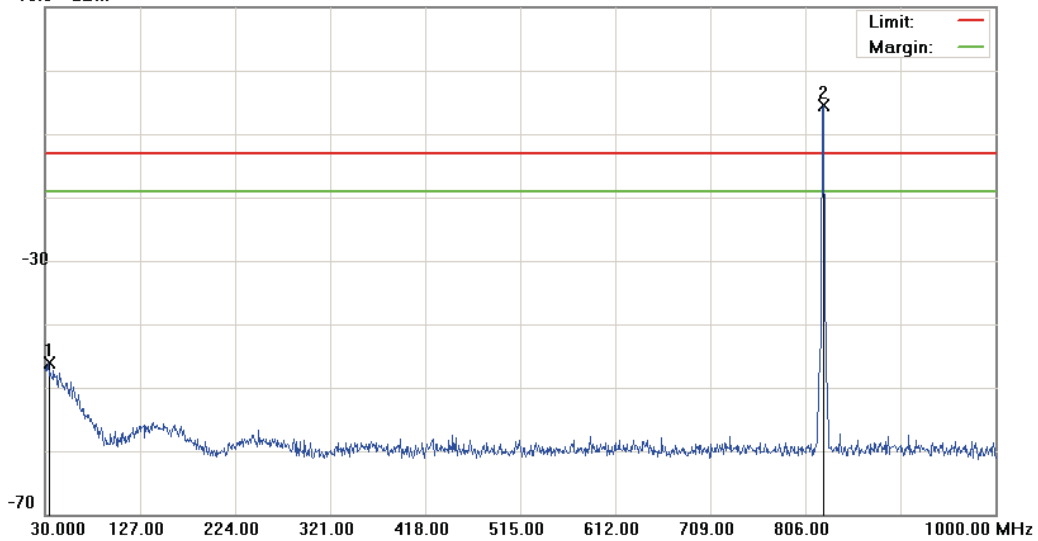
File :PA820(CH128)

Data :#3

Date: 2015/7/7

Time: 下午 03:19:25

10.0 dBm



Site: site #1

Limit: FCC Part 22 conducted(9k-12.75G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: GPRS 850

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

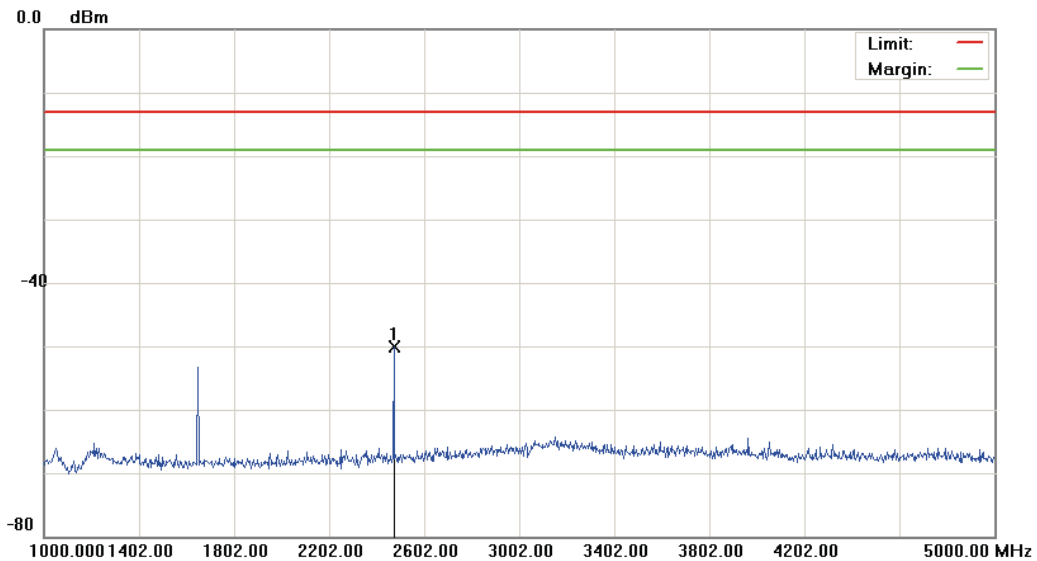
Humidity: 55 %

RBW: 100 KHz VBW: 300 KHz

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       | Comment |
| 1   |     | 33.3950  | -63.00        | 16.83          | -46.17      | -13.00 | -33.17 | peak           |              |         |
| 2   | *   | 824.4300 | -9.37         | 3.84           | -5.53       | -13.00 | 7.47   | peak           |              | Tx      |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH128) Data :#4 Date: 2015/7/7 Time: 下午 03:32:51



|                                         |                               |                             |
|-----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                           | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 22 conducted(9k-12.75G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer           | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                              |                               |                             |
| Mode: GPRS 850                          |                               |                             |
| Note:                                   |                               |                             |

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       | Comment |
| 1   | *   | 2472.000 | -54.62        | 4.45           | -50.17      | -13.00 | -37.17 | peak           |              |         |

\*:Maximum data x:Over limit !:over margin

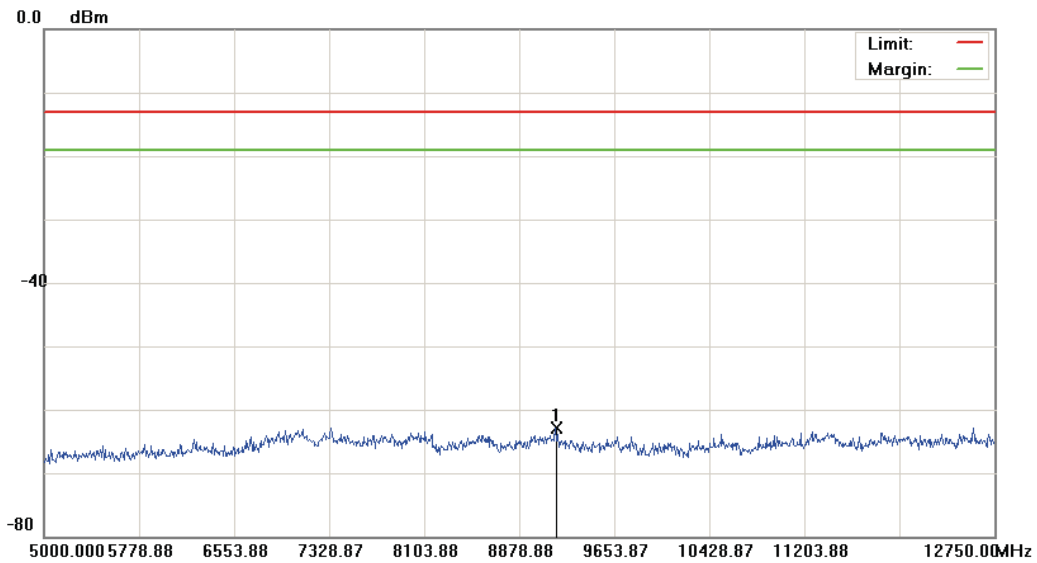


File :PA820(CH128)

Data :#5

Date: 2015/7/7

Time: 下午 03:33:14



Site: site #1

Limit: FCC Part 22 conducted(9k-12.75G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: GPRS 850

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

Humidity: 55 %

RBW: 1000 KHz VBW: 3000 KHz

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       |
| 1   | *   | 9173.375 | -68.69        | 5.81           | -62.88      | -13.00 | -49.88 | peak           |              |

\*:Maximum data x:Over limit !:over margin



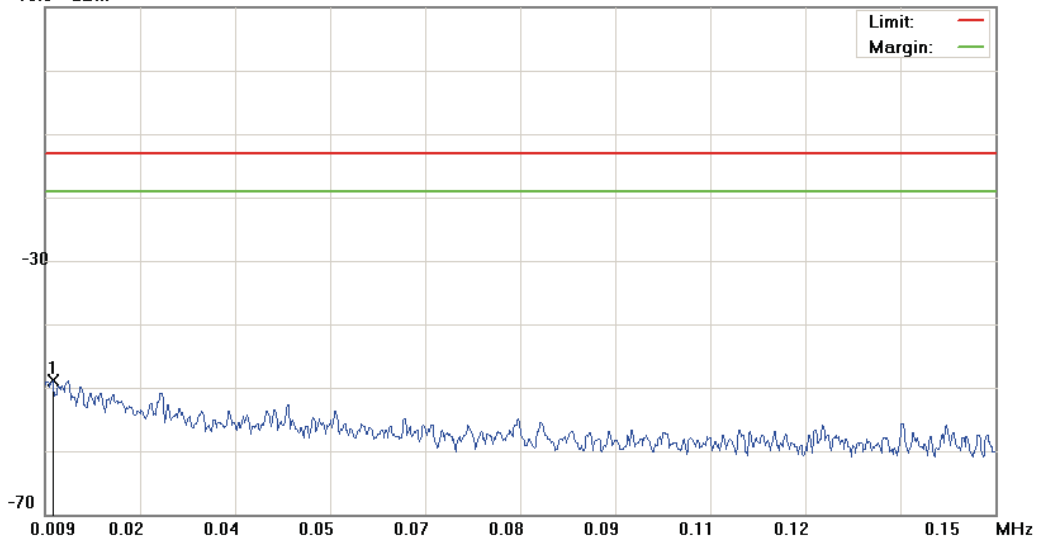
File :PA820(CH190)

Data :#1

Date: 2015/7/7

Time: 下午 03:21:06

10.0 dBm



Site: site #1

Limit: FCC Part 22 conducted(9k-12.75G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: GPRS 850

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

Humidity: 55 %

RBW: 1 KHz VBW: 3 KHz

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           |
| 1   | *   | 0.0101 | -79.46        | 30.57          | -48.89      | -13.00 | -35.89 | peak           | degree       |

\*:Maximum data x:Over limit !:over margin



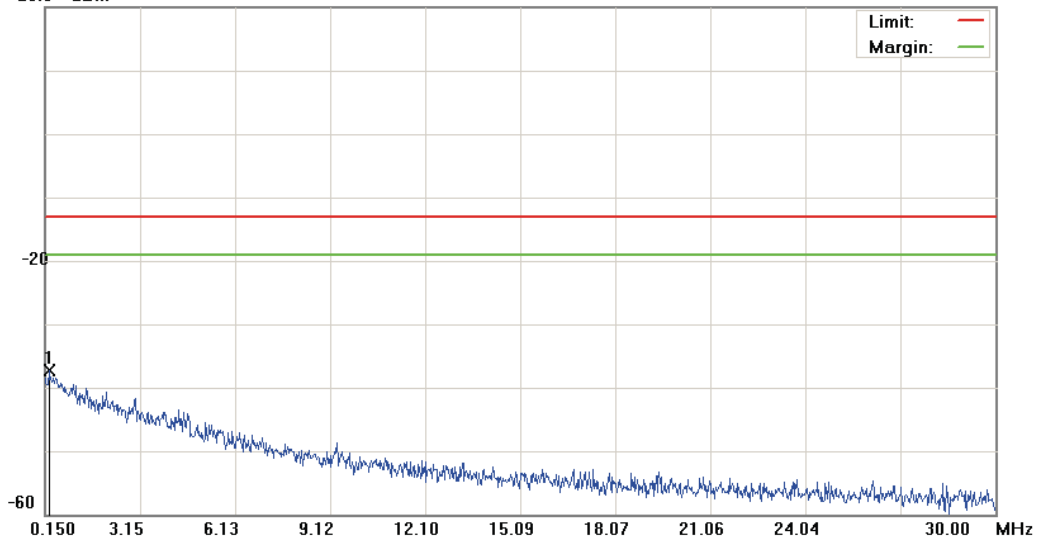
File :PA820(CH190)

Data :#2

Date: 2015/7/7

Time: 下午 03:21:30

20.0 dBm



Site: site #1

Limit: FCC Part 22 conducted(9k-12.75G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: GPRS 850

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

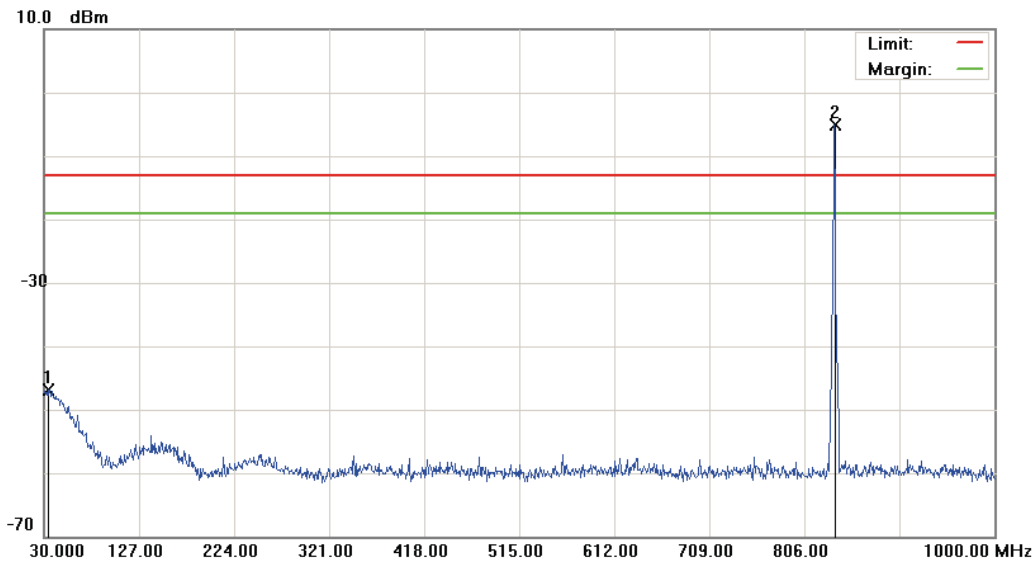
Humidity: 55 %

RBW: 10 KHz VBW: 30 KHz

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree  |
| 1   | *   | 0.2694 | -68.82        | 31.49          | -37.33      | -13.00 | -24.33 | peak           |              | Comment |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH190) Data :#3 Date: 2015/7/7 Time: 下午 03:21:55



|                                         |                               |                           |
|-----------------------------------------|-------------------------------|---------------------------|
| Site: site #1                           | Polarization: Conducted Power | Temperature: 26 °C        |
| Limit: FCC Part 22 conducted(9k-12.75G) | Power: DC 3.7V                | Humidity: 55 %            |
| EUT: Rugged Handheld Computer           | Distance:                     | RBW: 100 KHz VBW: 300 KHz |
| M/N: PA820                              |                               |                           |
| Mode: GPRS 850                          |                               |                           |
| Note:                                   |                               |                           |

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       | Comment |
| 1   |     | 34.3650  | -63.65        | 16.72          | -46.93      | -13.00 | -33.93 | peak           |              |         |
| 2   | *   | 836.5550 | -8.96         | 3.96           | -5.00       | -13.00 | 8.00   | peak           |              | Tx      |

\*:Maximum data x:Over limit !:over margin

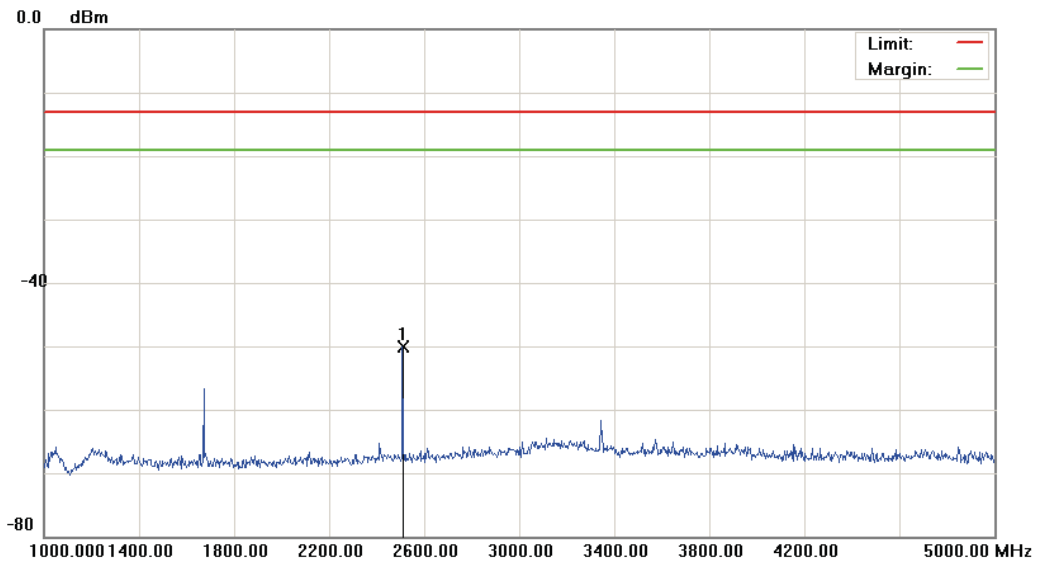


File :PA820(CH190)

Data :#4

Date: 2015/7/7

Time: 下午 03:33:57



Site: site #1

Limit: FCC Part 22 conducted(9k-12.75G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: GPRS 850

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

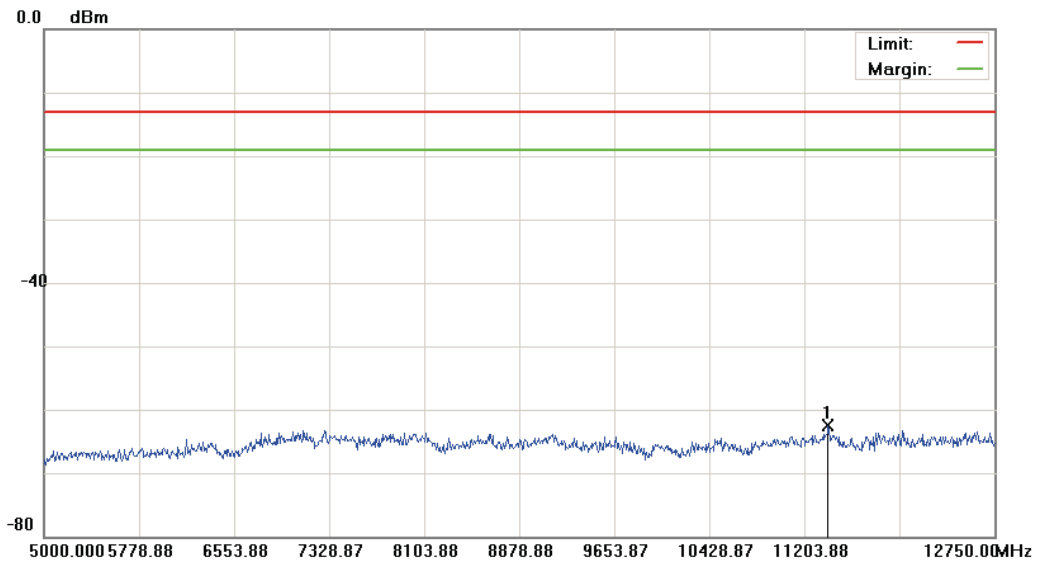
Humidity: 55 %

RBW: 1000 KHz VBW: 3000 KHz

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree  |
| 1   | *   | 2510.000 | -54.54        | 4.36           | -50.18      | -13.00 | -37.18 | peak           |              | Comment |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH190) Data :#5 Date: 2015/7/7 Time: 下午 03:34:20



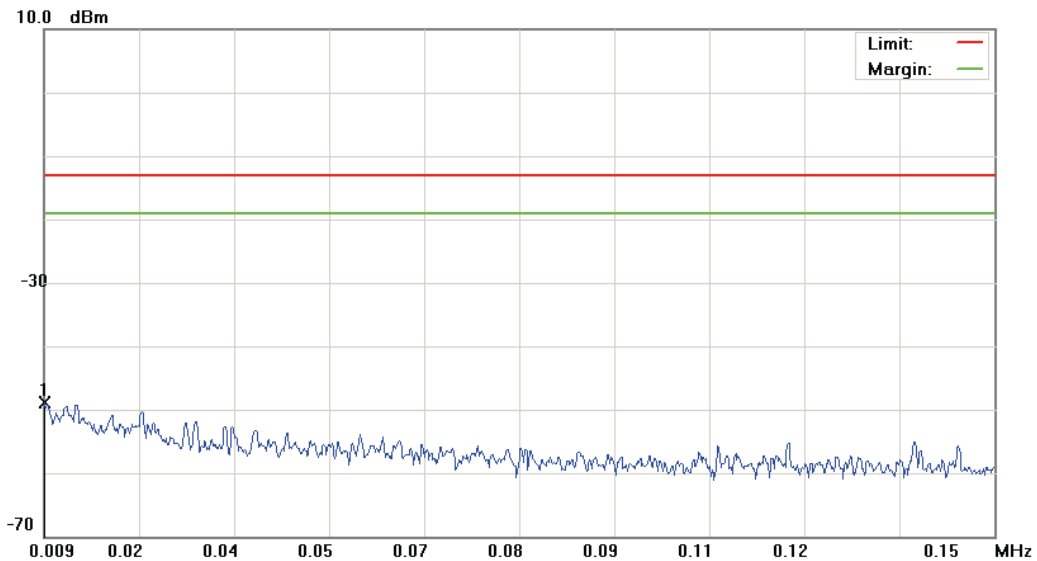
Site: site #1 Polarization: Conducted Power Temperature: 26 °C  
Limit: FCC Part 22 conducted(9k-12.75G) Power: DC 3.7V Humidity: 55 %  
EUT: Rugged Handheld Computer Distance: RBW: 1000 KHz VBW: 3000 KHz  
M/N: PA820  
Mode: GPRS 850  
Note:

| No. | Mk. | Freq.     | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|-----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz       | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree  |
| 1   | *   | 11393.750 | -68.06        | 5.53           | -62.53      | -13.00 | -49.53 | peak           |              | Comment |

\*:Maximum data x:Over limit !:over margin



File :PA820(CH251) Data :#1 Date: 2015/7/7 Time: 下午 03:24:14



|                                         |                               |                       |
|-----------------------------------------|-------------------------------|-----------------------|
| Site: site #1                           | Polarization: Conducted Power | Temperature: 26 °C    |
| Limit: FCC Part 22 conducted(9k-12.75G) | Power: DC 3.7V                | Humidity: 55 %        |
| EUT: Rugged Handheld Computer           | Distance:                     | RBW: 1 KHz VBW: 3 KHz |
| M/N: PA820                              |                               |                       |
| Mode: GPRS 850                          |                               |                       |
| Note:                                   |                               |                       |

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 0.0090 | -79.41        | 30.58          | -48.83      | -13.00 | -35.83 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin

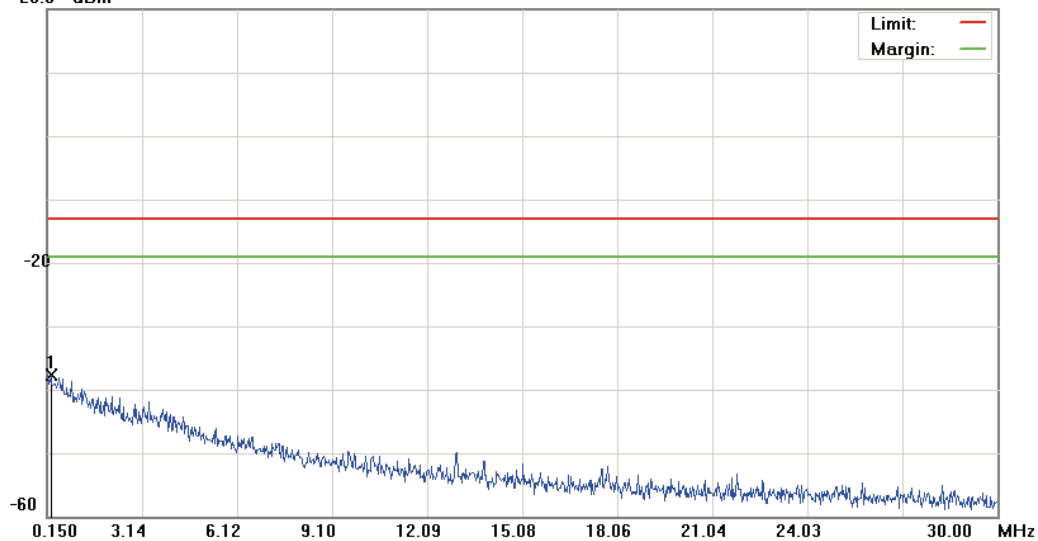
File :PA820(CH251)

Data :#2

Date: 2015/7/7

Time: 下午 03:24:38

20.0 dBm



Site: site #1

Limit: FCC Part 22 conducted(9k-12.75G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: GPRS 850

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

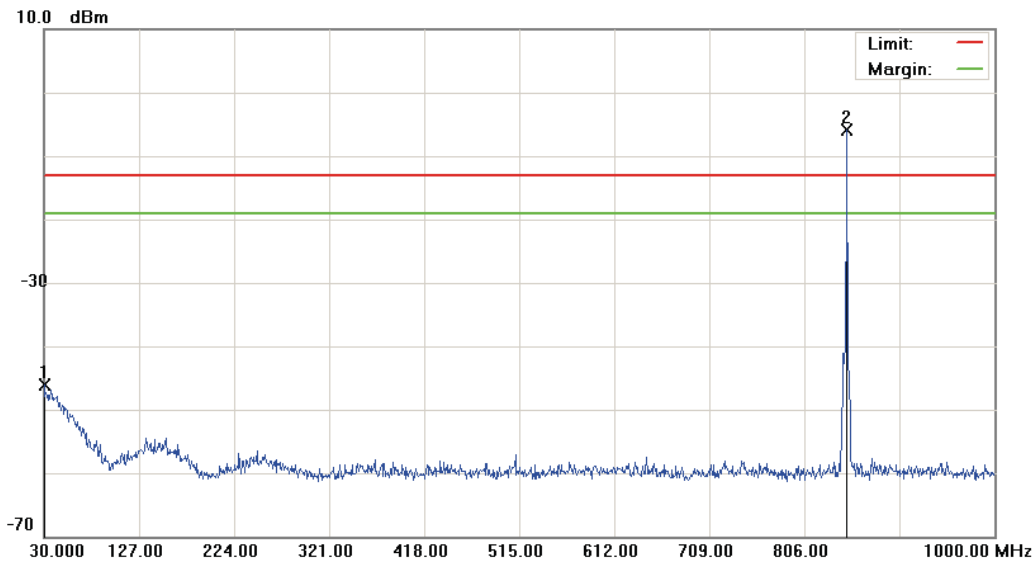
Humidity: 55 %

RBW: 10 KHz VBW: 30 KHz

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree  |
| 1   | *   | 0.2843 | -69.23        | 31.61          | -37.62      | -13.00 | -24.62 | peak           |              | Comment |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH251) Data :#3 Date: 2015/7/7 Time: 下午 03:25:02

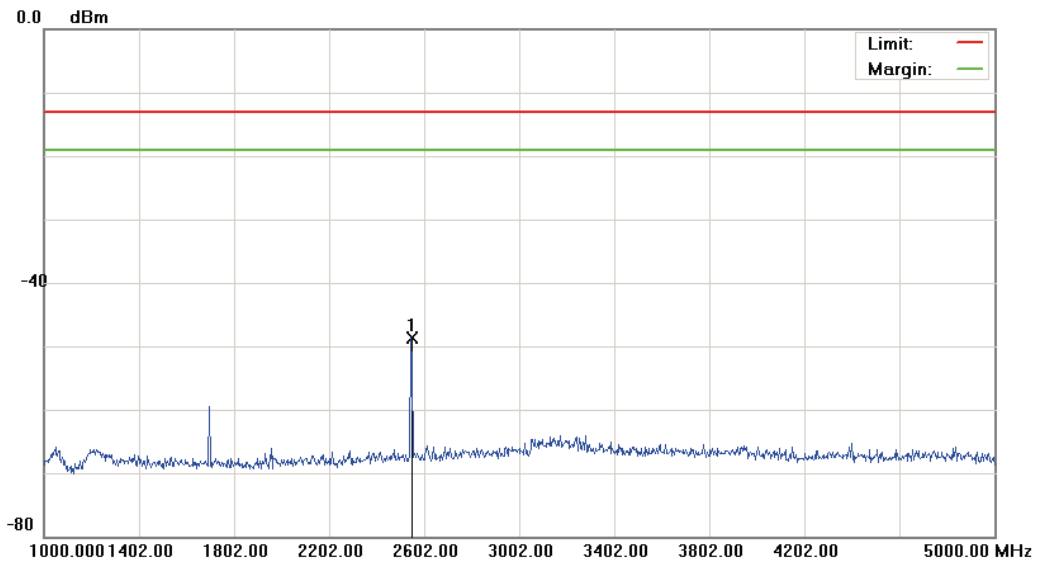


|                                         |                               |                           |
|-----------------------------------------|-------------------------------|---------------------------|
| Site: site #1                           | Polarization: Conducted Power | Temperature: 26 °C        |
| Limit: FCC Part 22 conducted(9k-12.75G) | Power: DC 3.7V                | Humidity: 55 %            |
| EUT: Rugged Handheld Computer           | Distance:                     | RBW: 100 KHz VBW: 300 KHz |
| M/N: PA820                              |                               |                           |
| Mode: GPRS 850                          |                               |                           |
| Note:                                   |                               |                           |

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       | Comment |
| 1   |     | 30.0000  | -63.26        | 17.21          | -46.05      | -13.00 | -33.05 | peak           |              |         |
| 2   | *   | 849.6500 | -9.92         | 3.98           | -5.94       | -13.00 | 7.06   | peak           |              | Tx      |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH251) Data :#4 Date: 2015/7/7 Time: 下午 03:35:00

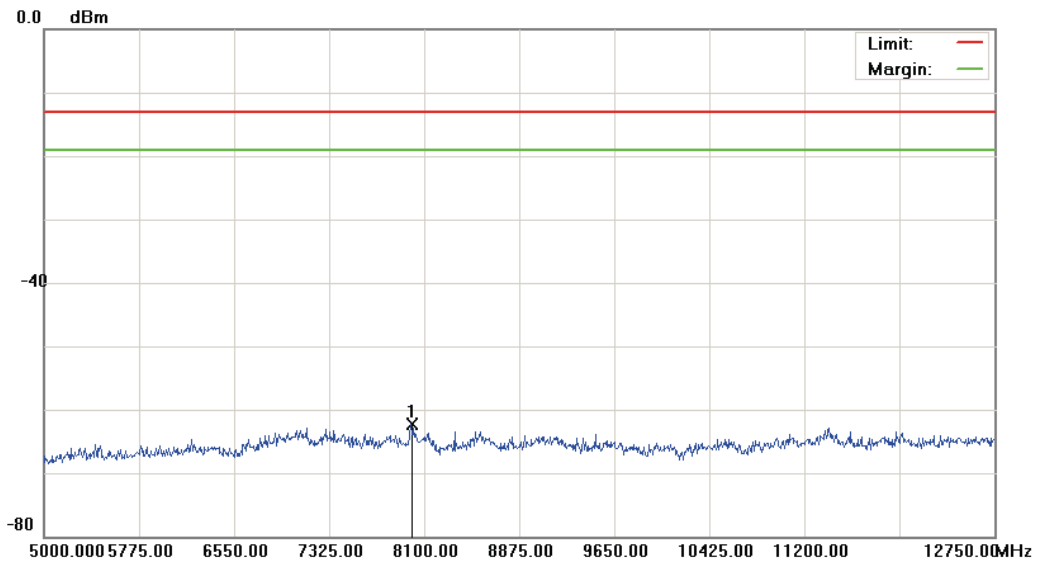


|                                         |                               |                             |
|-----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                           | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 22 conducted(9k-12.75G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer           | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                              |                               |                             |
| Mode: GPRS 850                          |                               |                             |
| Note:                                   |                               |                             |

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       |
| 1   | *   | 2546.000 | -53.24        | 4.45           | -48.79      | -13.00 | -35.79 | peak           |              |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH251) Data :#5 Date: 2015/7/7 Time: 下午 03:35:23



Site: site #1 Polarization: Conducted Power Temperature: 26 °C  
Limit: FCC Part 22 conducted(9k-12.75G) Power: DC 3.7V Humidity: 55 %  
EUT: Rugged Handheld Computer Distance: RBW: 1000 KHz VBW: 3000 KHz  
M/N: PA820  
Mode: GPRS 850  
Note:

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree  |
| 1   | *   | 7995.375 | -67.77        | 5.53           | -62.24      | -13.00 | -49.24 | peak           |              | Comment |

\*:Maximum data x:Over limit !:over margin

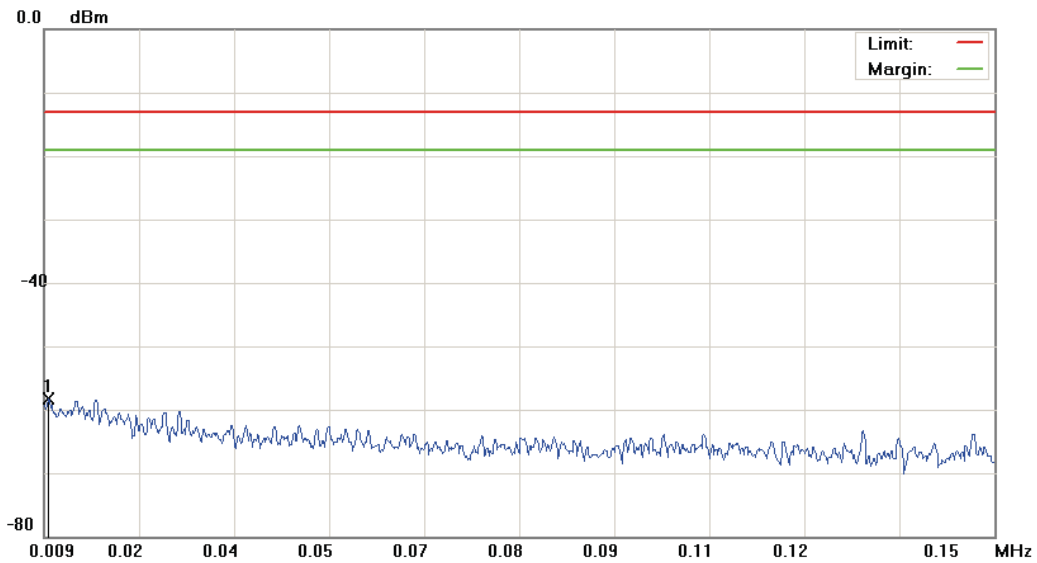


File :PA820(CH512)

Data :#1

Date: 2015/7/7

Time: 下午 02:28:05



Site: site #1  
Limit: FCC Part 24 conducted(9k-26.5G)  
EUT: Rugged Handheld Computer  
M/N: PA820  
Mode: GPRS 1900  
Note:

Polarization: Conducted Power  
Power: DC 3.7V  
Distance:

Temperature: 26 °C  
Humidity: 55 %  
RBW: 1 KHz VBW: 3 KHz

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 0.0097 | -69.61        | 11.33          | -58.28      | -13.00 | -45.28 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin

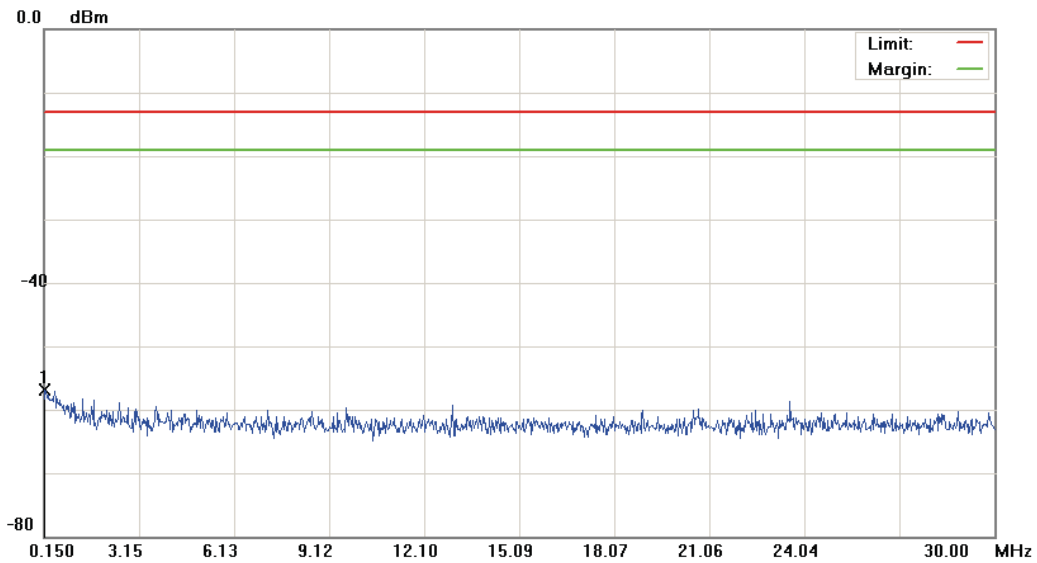


File :PA820(CH512)

Data :#2

Date: 2015/7/7

Time: 下午 02:28:29



Site: site #1  
Limit: FCC Part 24 conducted(9k-26.5G)  
EUT: Rugged Handheld Computer  
M/N: PA820  
Mode: GPRS 1900  
Note:

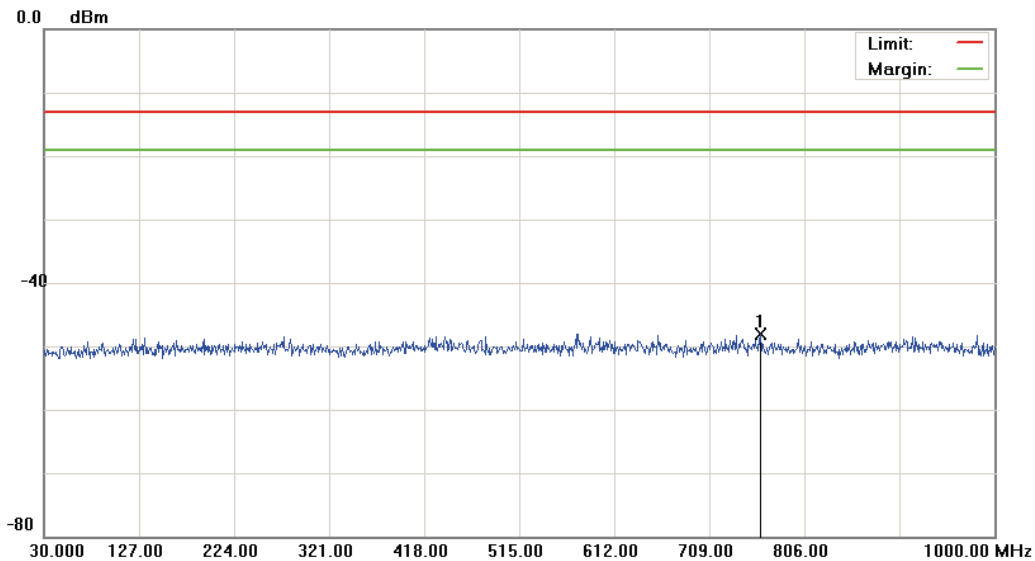
Polarization: Conducted Power  
Power: DC 3.7V  
Distance:

Temperature: 26 °C  
Humidity: 55 %  
RBW: 10 KHz VBW: 30 KHz

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       | Comment |
| 1   | *   | 0.1798 | -69.39        | 12.45          | -56.94      | -13.00 | -43.94 | peak           |              |         |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH512) Data :#3 Date: 2015/7/7 Time: 下午 02:28:53



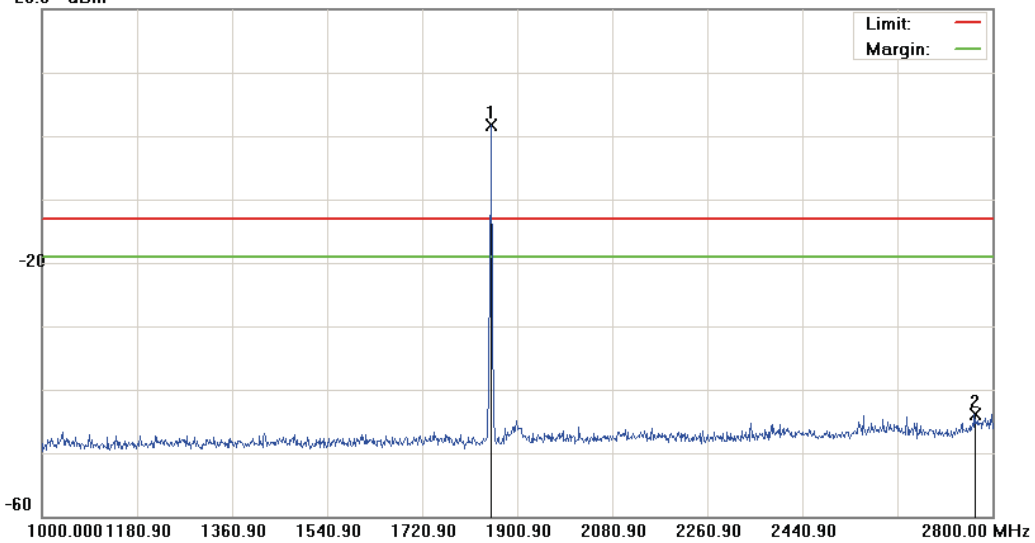
|                                        |                               |                           |
|----------------------------------------|-------------------------------|---------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C        |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %            |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 100 KHz VBW: 300 KHz |
| M/N: PA820                             |                               |                           |
| Mode: GPRS 1900                        |                               |                           |
| Note:                                  |                               |                           |

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 761.3800 | -61.21        | 13.15          | -48.06      | -13.00 | -35.06 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin



File :PA820(CH512) Data :#4 Date: 2015/7/7 Time: 下午 02:34:56  
20.0 dBm



|                                        |                               |                             |
|----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                             |                               |                             |
| Mode: GPRS 1900                        |                               |                             |
| Note:                                  |                               |                             |

| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBm | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBm | Limit<br>dBm | Over<br>dB | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|-----|--------------|-------------------------|-------------------------|-------------------------|--------------|------------|-------------------------|---------------------------|---------|
| 1   | *   | 1851.400     | -2.50                   | 4.26                    | 1.76                    | -13.00       | 14.76      | peak                    |                           | Tx      |
| 2   |     | 2766.700     | -49.55                  | 5.69                    | -43.86                  | -13.00       | -30.86     | peak                    |                           |         |

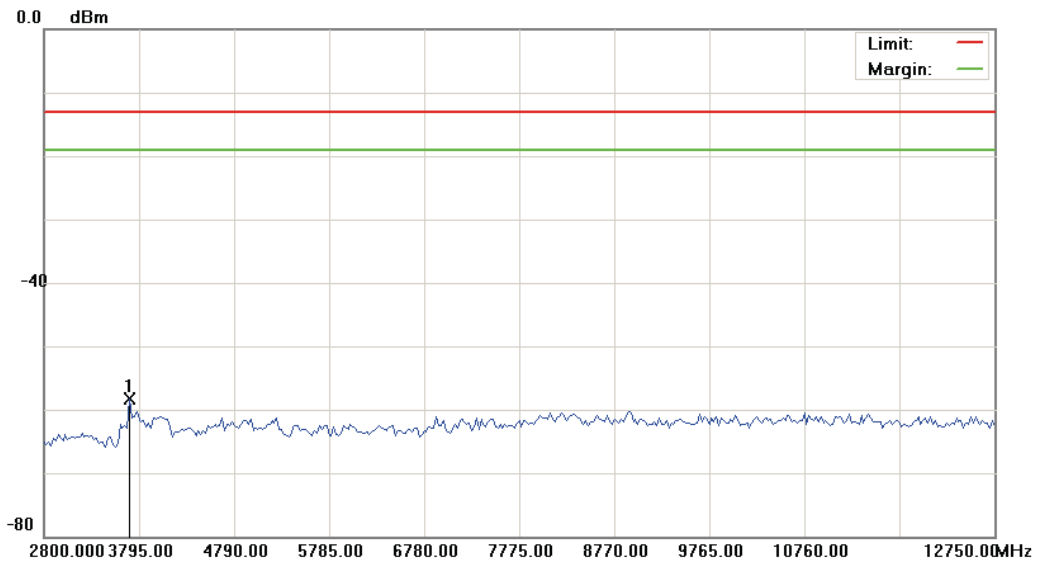
\*:Maximum data x:Over limit !:over margin

File :PA820(CH512)

Data :#5

Date: 2015/7/7

Time: 下午 03:49:01



Site: site #1

Limit: FCC Part 24 conducted(9k-26.5G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: GPRS 1900

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

Humidity: 55 %

RBW: 1000 KHz VBW: 3000 KHz

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 3695.500 | -63.20        | 4.87           | -58.33      | -13.00 | -45.33 | peak           |              |                |

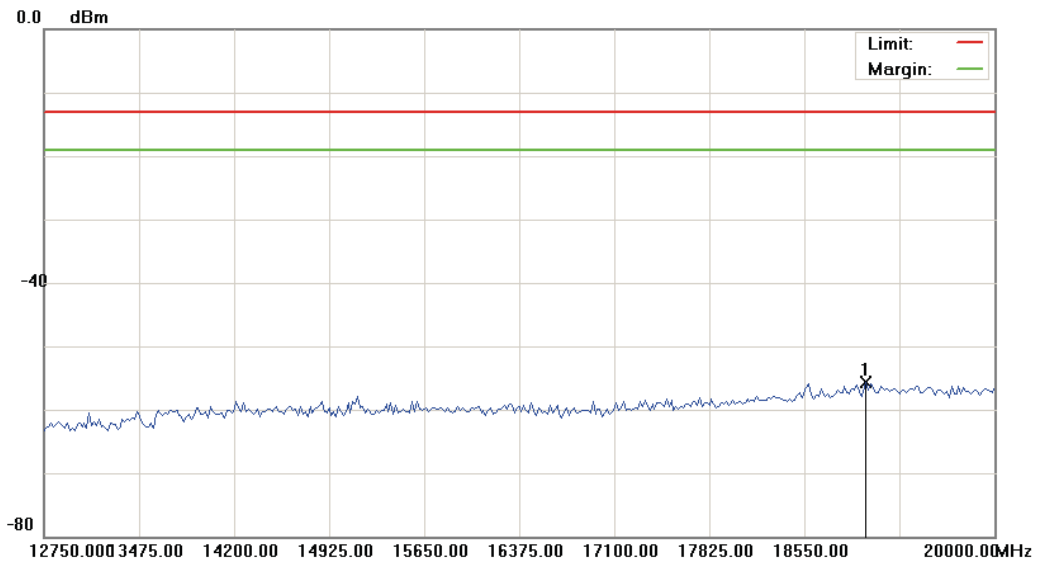
\*:Maximum data x:Over limit !:over margin

File :PA820(CH512)

Data :#6

Date: 2015/7/7

Time: 下午 03:49:20

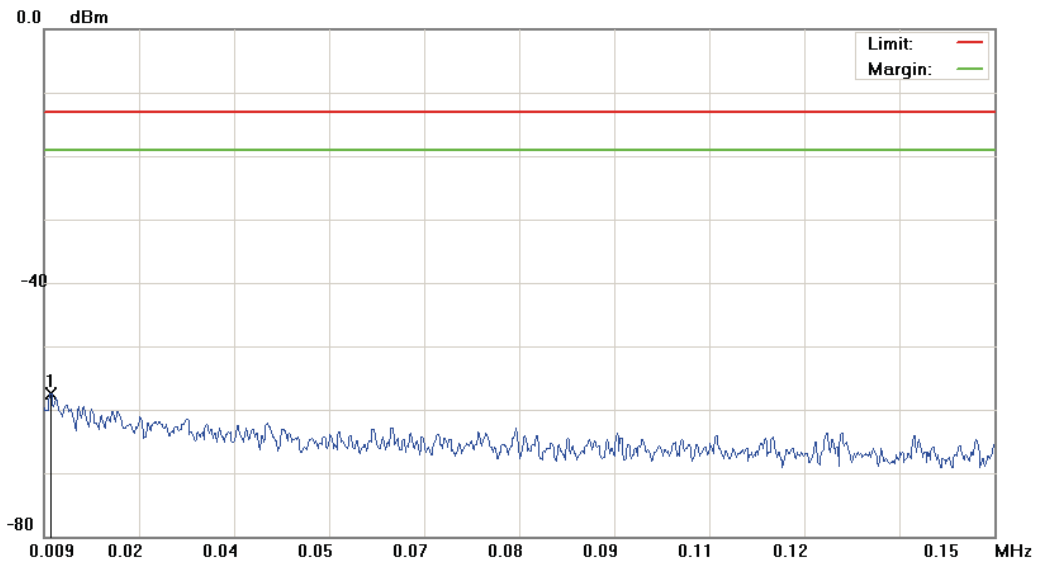


|                                        |                               |                             |
|----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                             |                               |                             |
| Mode: GPRS 1900                        |                               |                             |
| Note:                                  |                               |                             |

| No. | Mk. | Freq.     | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|-----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz       | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       | Comment |
| 1   | *   | 19021.250 | -62.91        | 7.16           | -55.75      | -13.00 | -42.75 | peak           |              |         |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH661) Data :#1 Date: 2015/7/7 Time: 下午 02:29:37

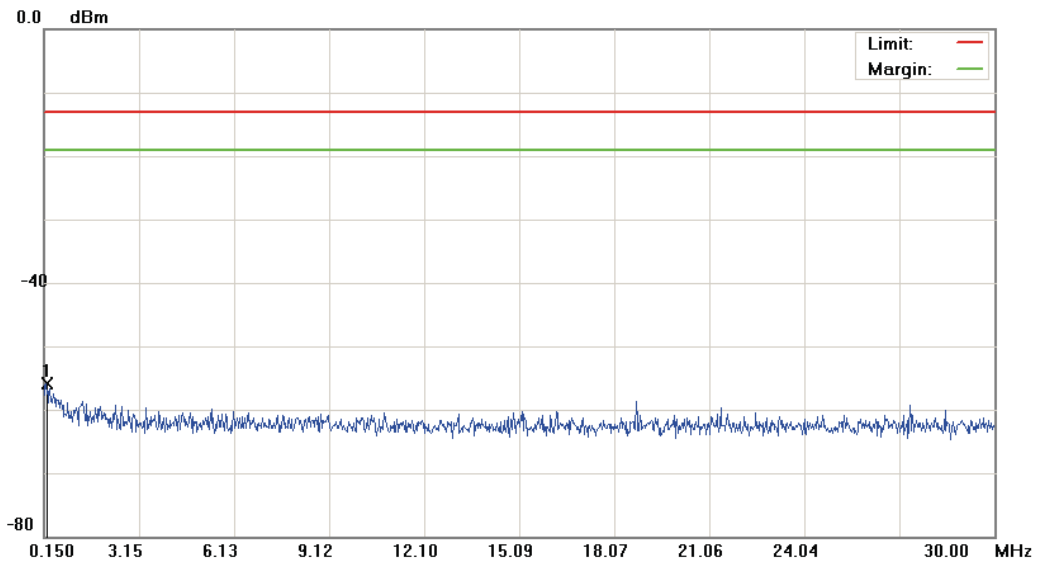


|                                        |                               |                       |
|----------------------------------------|-------------------------------|-----------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C    |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %        |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 1 KHz VBW: 3 KHz |
| M/N: PA820                             |                               |                       |
| Mode: GPRS 1900                        |                               |                       |
| Note:                                  |                               |                       |

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 0.0100 | -68.80        | 11.33          | -57.47      | -13.00 | -44.47 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH661) Data :#2 Date: 2015/7/7 Time: 下午 02:30:01



Site: site #1 Polarization: Conducted Power Temperature: 26 °C  
Limit: FCC Part 24 conducted(9k-26.5G) Power: DC 3.7V Humidity: 55 %  
EUT: Rugged Handheld Computer Distance: RBW: 10 KHz VBW: 30 KHz  
M/N: PA820  
Mode: GPRS 1900  
Note:

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 0.2246 | -68.44        | 12.47          | -55.97      | -13.00 | -42.97 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin

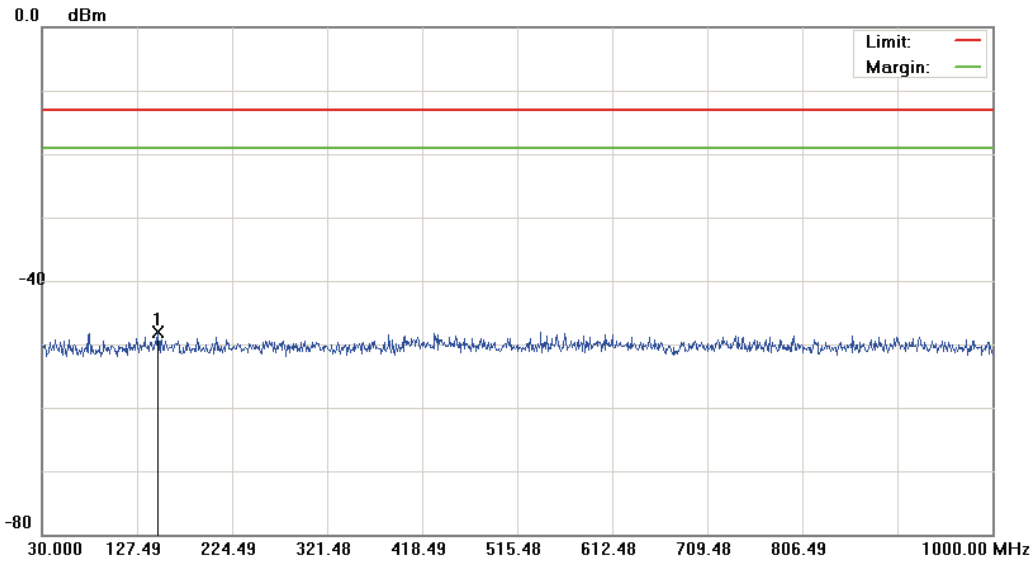


File :PA820(CH661)

Data :#3

Date: 2015/7/7

Time: 下午 02:30:25



Site: site #1

Limit: FCC Part 24 conducted(9k-26.5G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: GPRS 1900

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

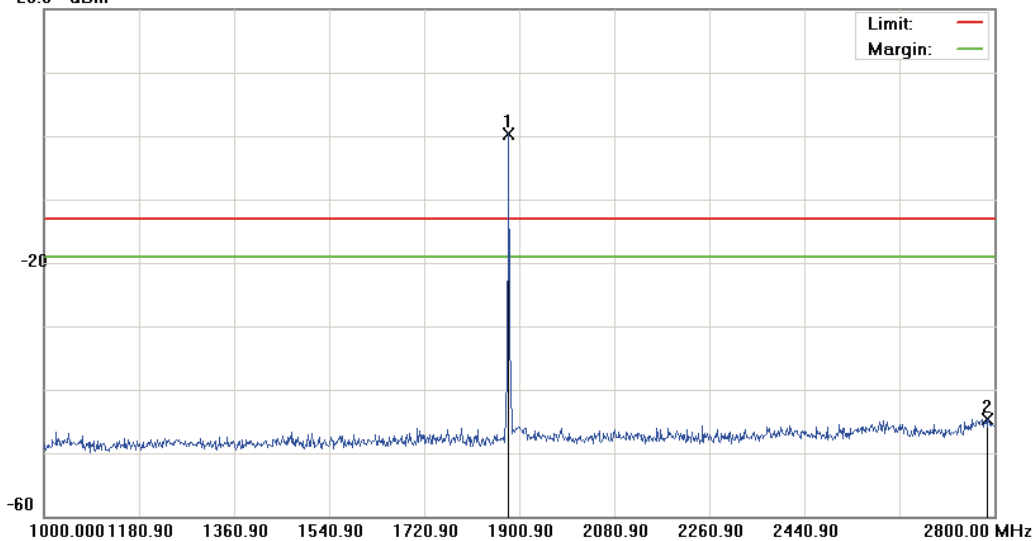
Humidity: 55 %

RBW: 100 KHz VBW: 300 KHz

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree  |
| 1   | *   | 148.3400 | -61.40        | 13.34          | -48.06      | -13.00 | -35.06 | peak           |              | Comment |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH661) Data :#4 Date: 2015/7/7 Time: 下午 02:38:50  
20.0 dBm



|                                        |                               |                             |
|----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                             |                               |                             |
| Mode: GPRS 1900                        |                               |                             |
| Note:                                  |                               |                             |

| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBm | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBm | Limit<br>dBm | Over<br>dB | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|-----|--------------|-------------------------|-------------------------|-------------------------|--------------|------------|-------------------------|---------------------------|---------|
| 1   | *   | 1880.200     | -4.28                   | 4.65                    | 0.37                    | -13.00       | 13.37      | peak                    |                           | Tx      |
| 2   |     | 2785.600     | -50.53                  | 5.89                    | -44.64                  | -13.00       | -31.64     | peak                    |                           |         |

\*:Maximum data x:Over limit !:over margin

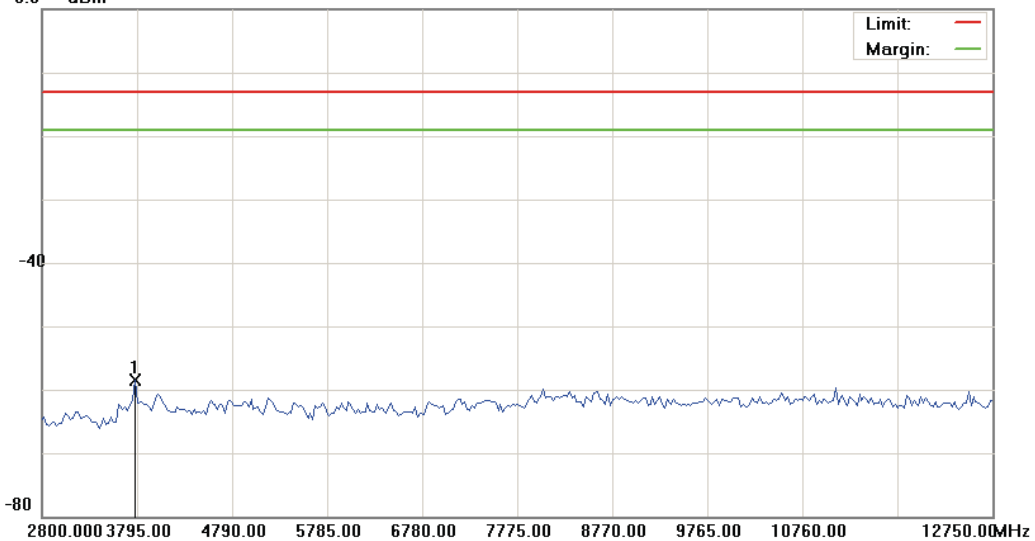
File :PA820(CH661)

Data :#5

Date: 2015/7/7

Time: 下午 03:49:52

0.0 dBm



|                                        |                               |                             |
|----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                             |                               |                             |
| Mode: GPRS 1900                        |                               |                             |
| Note:                                  |                               |                             |

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       | Comment |
| 1   | *   | 3770.125 | -63.38        | 4.93           | -58.45      | -13.00 | -45.45 | peak           |              |         |

\*:Maximum data x:Over limit !:over margin



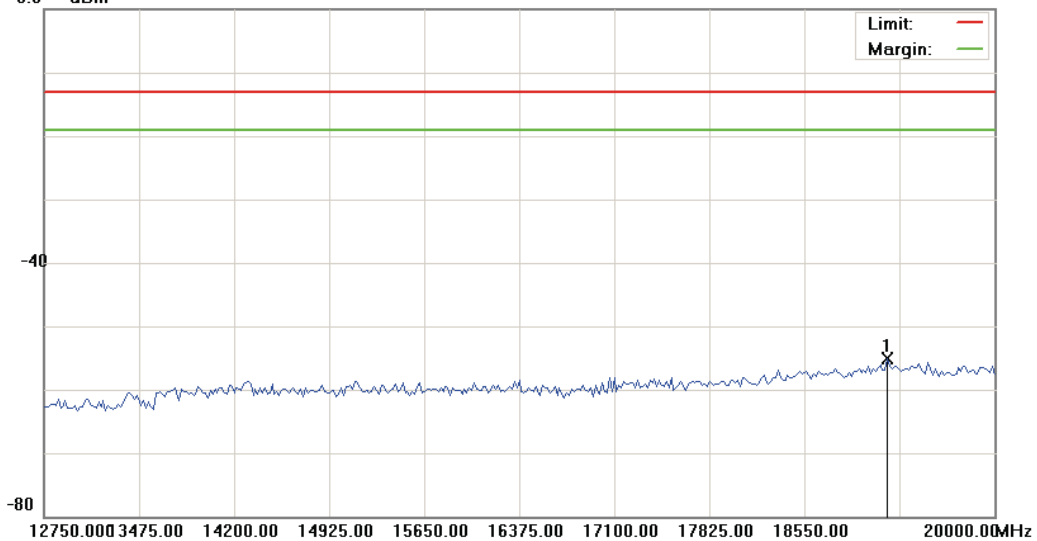
File :PA820(CH661)

Data :#6

Date: 2015/7/7

Time: 下午 03:50:11

0.0 dBm

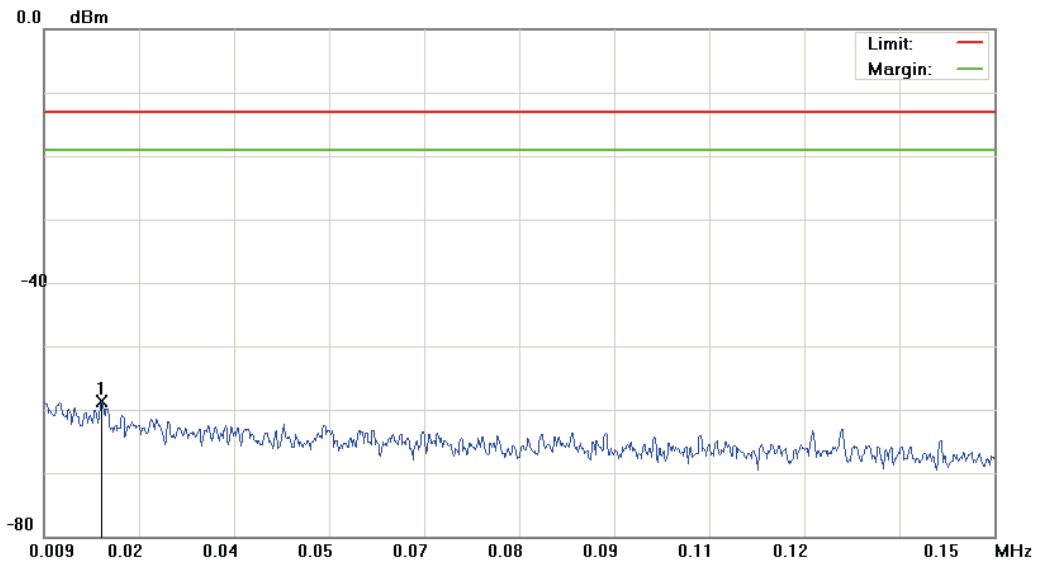


|                                        |                               |                             |
|----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                             |                               |                             |
| Mode: GPRS 1900                        |                               |                             |
| Note:                                  |                               |                             |

| No. | Mk. | Freq.     | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|-----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz       | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree  |
| 1   | *   | 19184.375 | -62.31        | 7.21           | -55.10      | -13.00 | -42.10 | peak           |              | Comment |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH810) Data :#1 Date: 2015/7/7 Time: 下午 02:31:42



Site: site #1 Polarization: Conducted Power Temperature: 26 °C  
 Limit: FCC Part 24 conducted(9k-26.5G) Power: DC 3.7V Humidity: 55 %  
 EUT: Rugged Handheld Computer Distance: RBW: 1 KHz VBW: 3 KHz  
 M/N: PA820  
 Mode: GPRS 1900  
 Note:

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       | Comment |
| 1   | *   | 0.0176 | -70.14        | 11.42          | -58.72      | -13.00 | -45.72 | peak           |              |         |

\*:Maximum data x:Over limit !:over margin

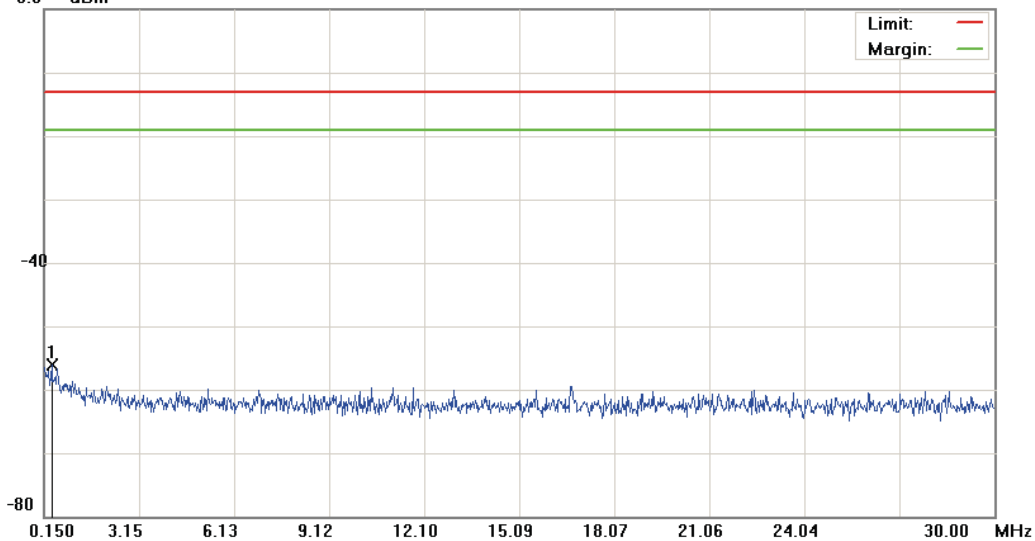
File :PA820(CH810)

Data :#2

Date: 2015/7/7

Time: 下午 02:32:06

0.0 dBm



Site: site #1

Polarization: Conducted Power

Temperature: 26 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.7V

Humidity: 55 %

EUT: Rugged Handheld Computer

Distance:

RBW: 10 KHz VBW: 30 KHz

M/N: PA820

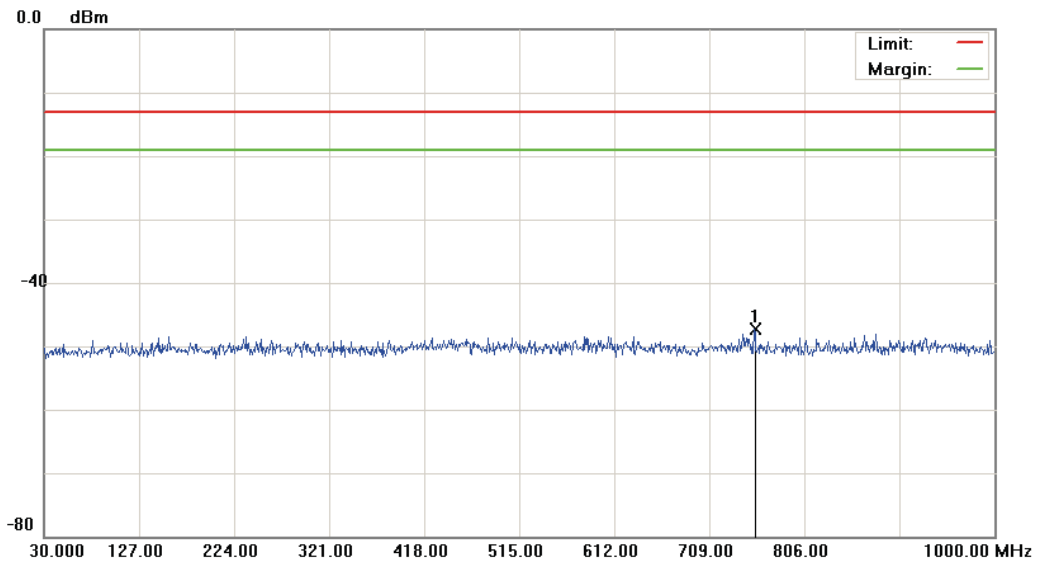
Mode: GPRS 1900

Note:

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree  |
| 1   | *   | 0.3888 | -68.97        | 12.79          | -56.18      | -13.00 | -43.18 | peak           |              | Comment |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH810) Data :#3 Date: 2015/7/7 Time: 下午 02:32:30



|                                        |                                                                 |                         |
|----------------------------------------|-----------------------------------------------------------------|-------------------------|
| Site: site #1                          | Polarization: <span style="color: blue;">Conducted Power</span> | Temperature: 26 °C      |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                                                  | Humidity: 55 %          |
| EUT: Rugged Handheld Computer          | Distance:                                                       | RBW: 100 KHz VBW: 300 v |
| M/N: PA820                             |                                                                 |                         |
| Mode: GPRS 1900                        |                                                                 |                         |
| Note:                                  |                                                                 |                         |

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 755.0750 | -60.52        | 13.16          | -47.36      | -13.00 | -34.36 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin



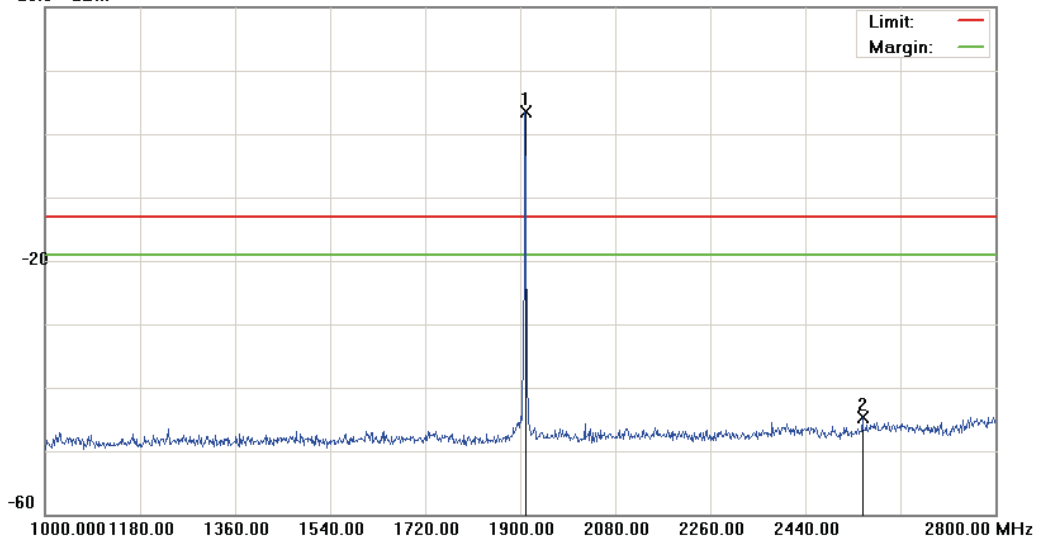
File :PA820(CH810)

Data :#4

Date: 2015/7/7

Time: 下午 02:40:30

20.0 dBm



Site: site #1

Limit: FCC Part 24 conducted(9k-26.5G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: GPRS 1900

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

Humidity: 55 %

RBW: 1000 KHz VBW: 3000 KHz

| No. | Mk. | Freq.    | Reading | Correct | Measure- | Limit  | Over   | Antenna  | Table  |        |
|-----|-----|----------|---------|---------|----------|--------|--------|----------|--------|--------|
|     |     | MHz      | Level   | Factor  | ment     |        |        | Height   | Degree |        |
|     |     |          | dBm     | dB      | dBm      | dBm    | dB     | Detector | cm     | degree |
| 1   | *   | 1909.900 | -2.24   | 5.71    | 3.47     | -13.00 | 16.47  | peak     |        |        |
| 2   |     | 2548.000 | -49.85  | 5.14    | -44.71   | -13.00 | -31.71 | peak     |        |        |

\*:Maximum data x:Over limit !:over margin



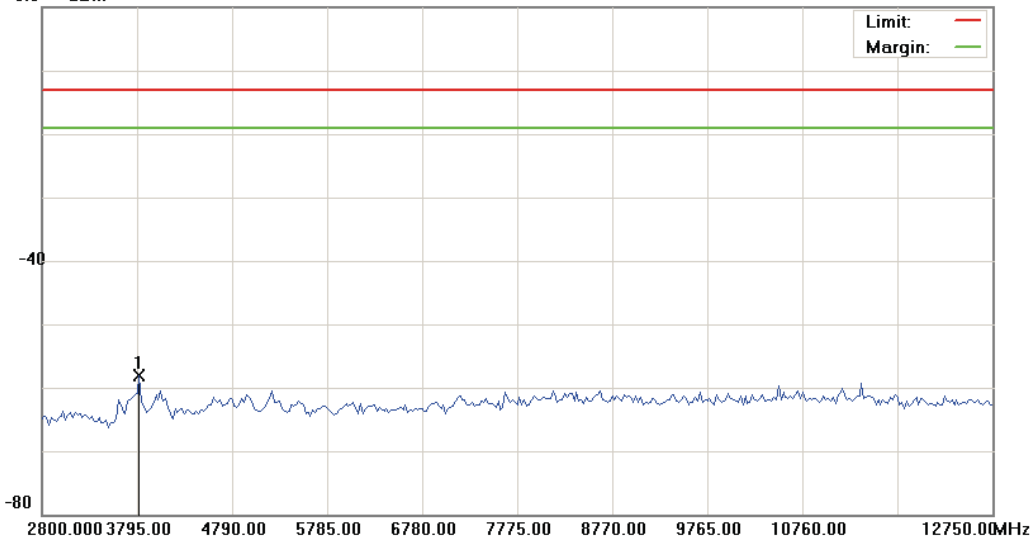
File :PA820(CH810)

Data :#5

Date: 2015/7/7

Time: 下午 03:50:44

0.0 dBm



Site: site #1

Limit: FCC Part 24 conducted(9k-26.5G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: GPRS 1900

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

Humidity: 55 %

RBW: 1000 KHz VBW: 3000 KHz

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       |
| 1   | *   | 3819.875 | -63.05        | 4.91           | -58.14      | -13.00 | -45.14 | peak           |              |

\*:Maximum data x:Over limit !:over margin

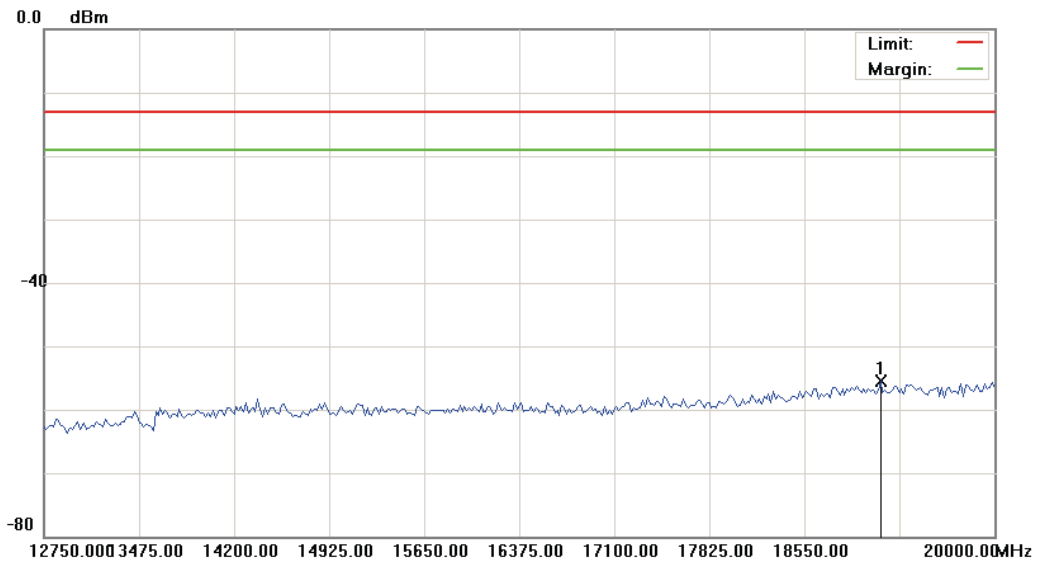


File :PA820(CH810)

Data :#6

Date: 2015/7/7

Time: 下午 03:51:03

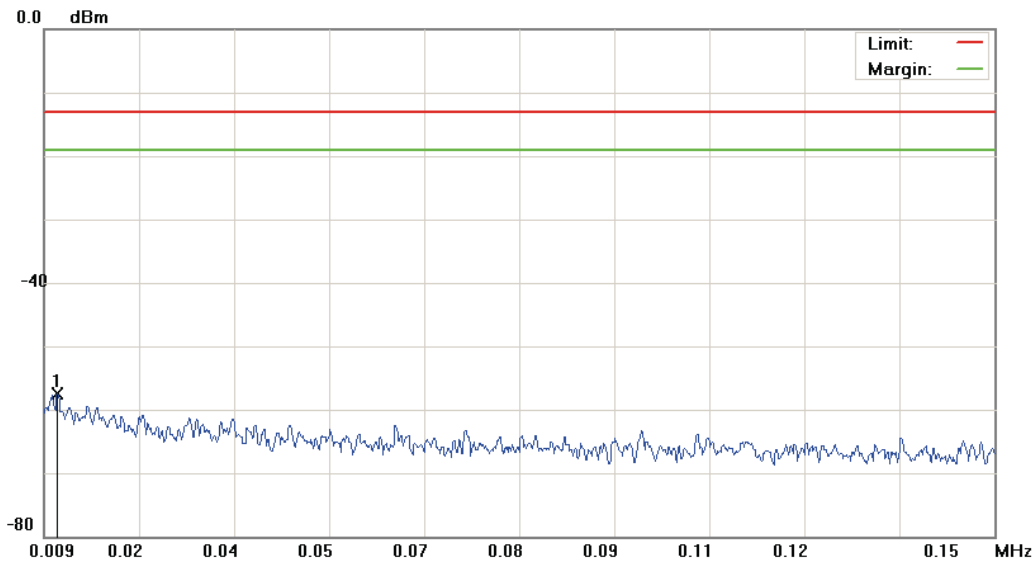


|                                        |                               |                             |
|----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                             |                               |                             |
| Mode: GPRS 1900                        |                               |                             |
| Note:                                  |                               |                             |

| No. | Mk. | Freq.     | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|-----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz       | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       | Comment |
| 1   | *   | 19130.000 | -62.69        | 7.19           | -55.50      | -13.00 | -42.50 | peak           |              |         |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH9262) Data :#1 Date: 2015/7/7 Time: 下午 02:50:20



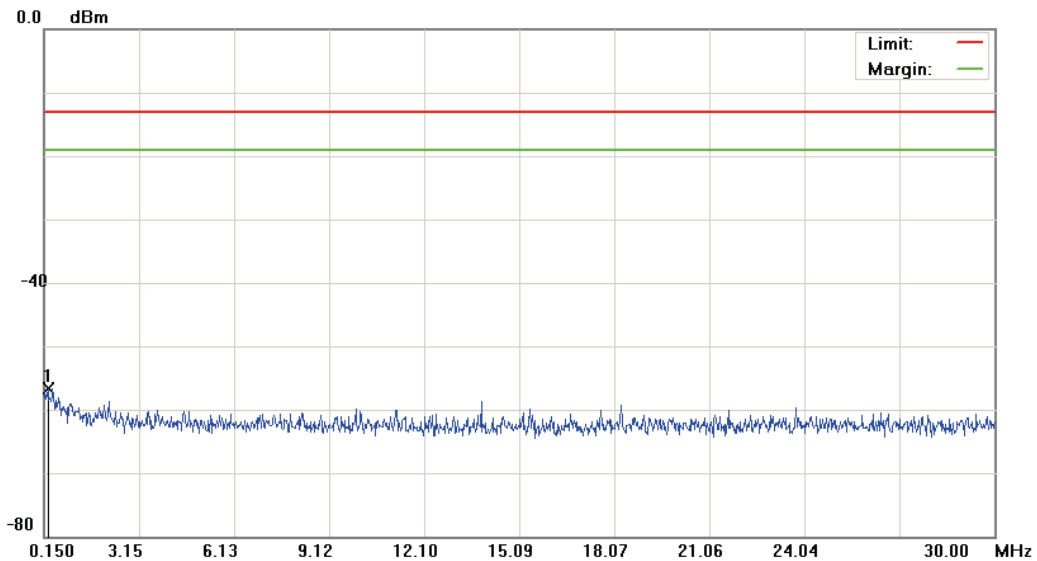
|                                        |                               |                       |
|----------------------------------------|-------------------------------|-----------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C    |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %        |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 1 KHz VBW: 3 KHz |
| M/N: PA820                             |                               |                       |
| Mode: WCDMA Band II                    |                               |                       |
| Note:                                  |                               |                       |

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 0.0110 | -68.82        | 11.35          | -57.47      | -13.00 | -44.47 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin



File :PA820(CH9262) Data :#2 Date: 2015/7/7 Time: 下午 02:50:44

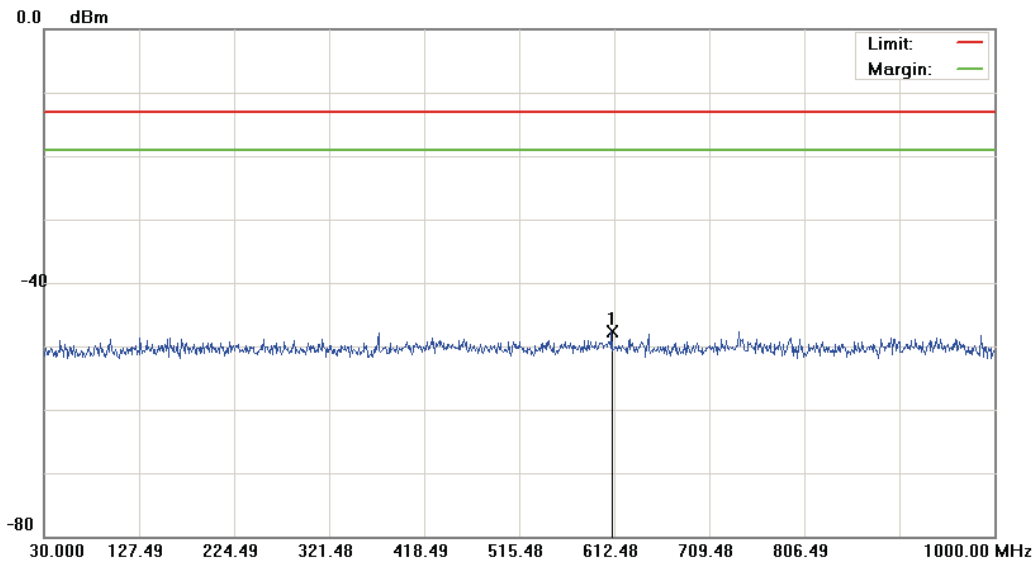


|                                        |                               |                         |
|----------------------------------------|-------------------------------|-------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C      |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %          |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 10 KHz VBW: 30 KHz |
| M/N: PA820                             |                               |                         |
| Mode: WCDMA Band II                    |                               |                         |
| Note:                                  |                               |                         |

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 0.2843 | -69.36        | 12.59          | -56.77      | -13.00 | -43.77 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH9262) Data :#3 Date: 2015/7/7 Time: 下午 02:51:08



|                                        |                               |                           |
|----------------------------------------|-------------------------------|---------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C        |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %            |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 100 KHz VBW: 300 KHz |
| M/N: PA820                             |                               |                           |
| Mode: WCDMA Band II                    |                               |                           |
| Note:                                  |                               |                           |

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 609.5750 | -60.88        | 13.17          | -47.71      | -13.00 | -34.71 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin

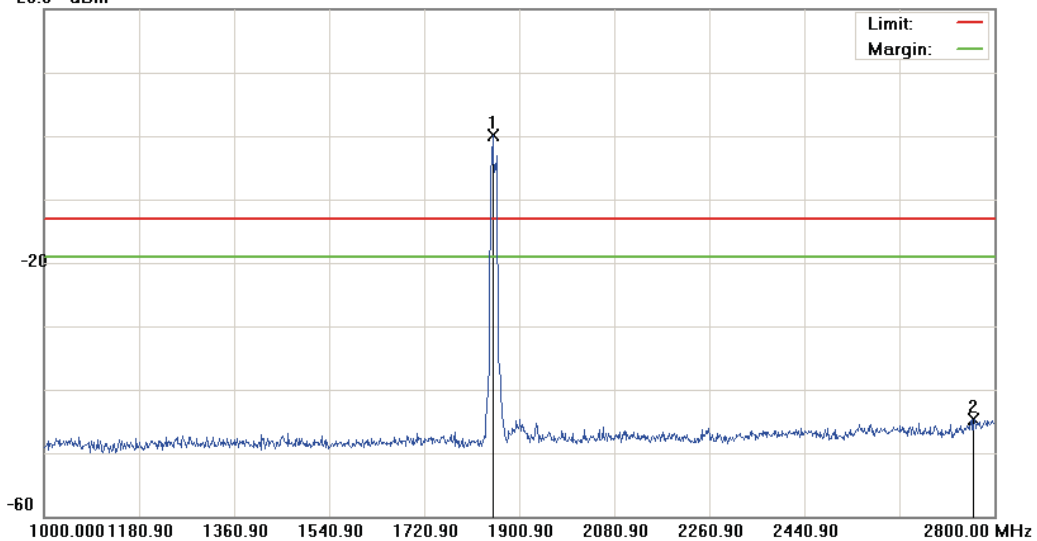
File :PA820(CH9262)

Data :#4

Date: 2015/7/7

Time: 下午 02:55:45

20.0 dBm



Site: site #1

Limit: FCC Part 24 conducted(9k-26.5G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: WCDMA Band II

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

Humidity: 55 %

RBW: 1000 KHz VBW: 3000 KHz

| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBm | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBm | Limit<br>dBm | Over<br>dB | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|-----|--------------|-------------------------|-------------------------|-------------------------|--------------|------------|-------------------------|---------------------------|---------|
| 1   | *   | 1850.500     | -4.09                   | 4.26                    | 0.17                    | -13.00       | 13.17      | peak                    |                           | Tx      |
| 2   |     | 2759.500     | -50.27                  | 5.59                    | -44.68                  | -13.00       | -31.68     | peak                    |                           |         |

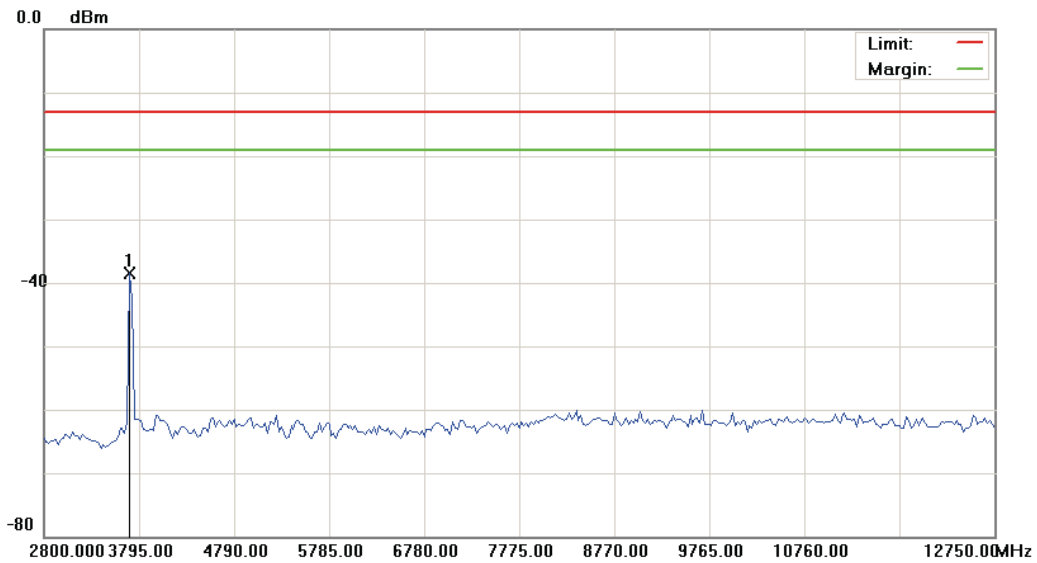
\*:Maximum data x:Over limit !:over margin

File :PA820(CH9262)

Data :#5

Date: 2015/7/7

Time: 下午 03:44:12



Site: site #1

Limit: FCC Part 24 conducted(9k-26.5G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: WCDMA Band II

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

Humidity: 55 %

RBW: 1000 KHz VBW: 3000 KHz

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       |
| 1   | *   | 3695.500 | -43.45        | 4.87           | -38.58      | -13.00 | -25.58 | peak           | degree       |

\*:Maximum data x:Over limit !:over margin



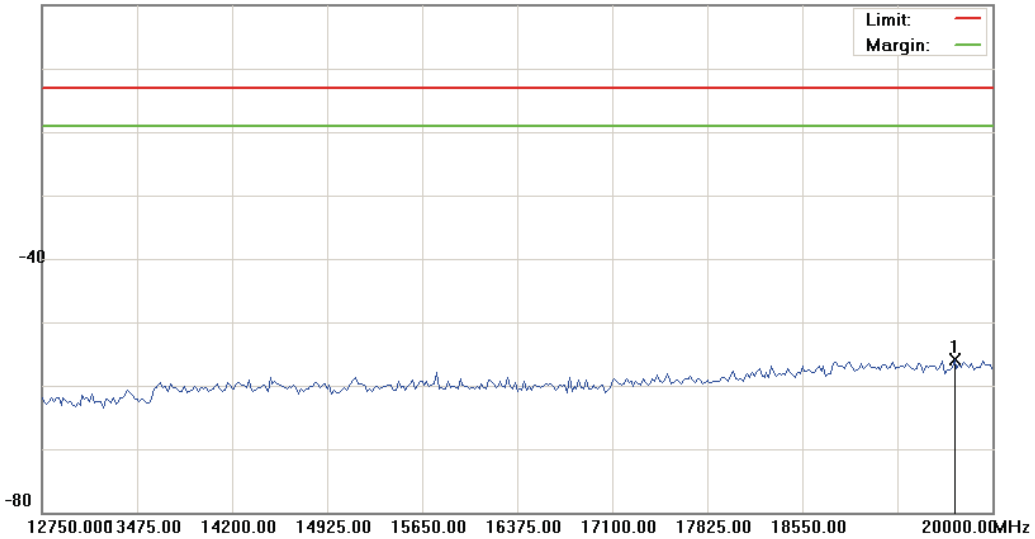
File :PA820(CH9262)

Data :#6

Date: 2015/7/7

Time: 下午 03:44:31

0.0 dBm

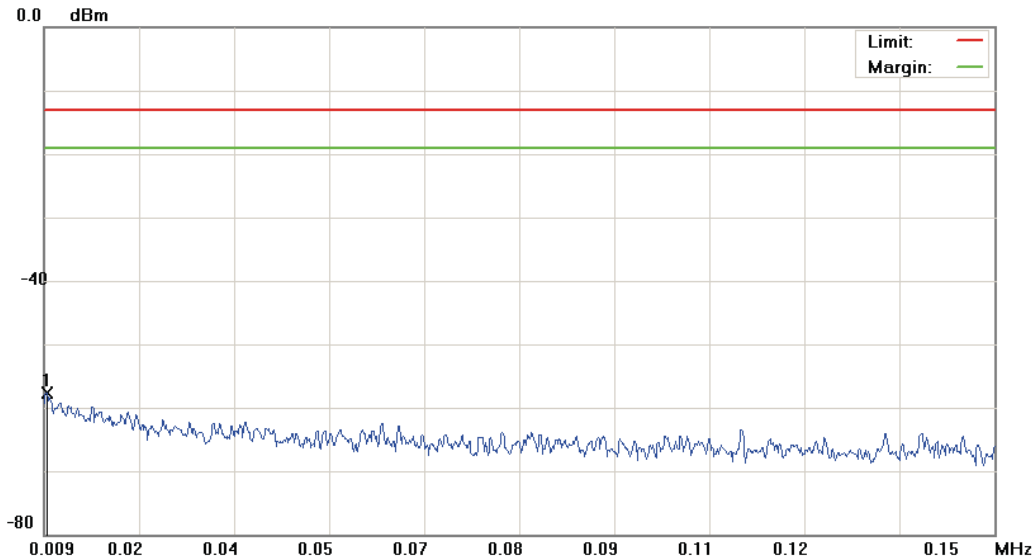


|                                        |                               |                             |
|----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                             |                               |                             |
| Mode: WCDMA Band II                    |                               |                             |
| Note:                                  |                               |                             |

| No. | Mk. | Freq.     | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|-----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz       | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree  |
| 1   | *   | 19710.000 | -63.22        | 7.36           | -55.86      | -13.00 | -42.86 | peak           |              | Comment |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH9400) Data :#1 Date: 2015/7/7 Time: 下午 02:52:01

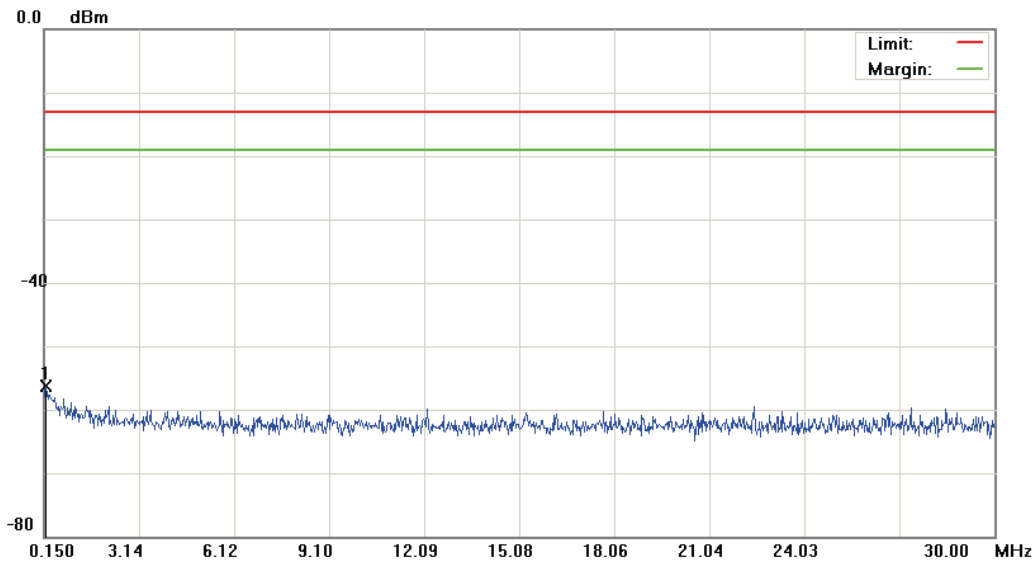


Site: site #1 Polarization: Conducted Power Temperature: 26 °C  
Limit: FCC Part 24 conducted(9k-26.5G) Power: DC 3.7V Humidity: 55 %  
EUT: Rugged Handheld Computer Distance: RBW: 1 KHz VBW: 3 KHz  
M/N: PA820  
Mode: WCDMA Band II  
Note:

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 0.0094 | -69.09        | 11.33          | -57.76      | -13.00 | -44.76 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH9400) Data :#2 Date: 2015/7/7 Time: 下午 02:52:25

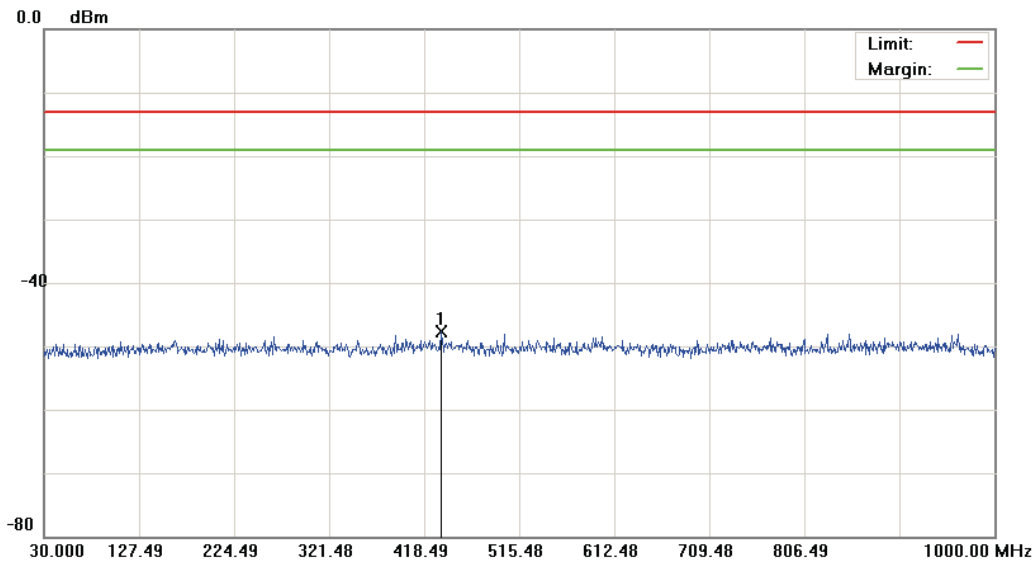


|                                        |                               |                         |
|----------------------------------------|-------------------------------|-------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C      |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %          |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 10 KHz VBW: 30 KHz |
| M/N: PA820                             |                               |                         |
| Mode: WCDMA Band II                    |                               |                         |
| Note:                                  |                               |                         |

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 0.2097 | -68.83        | 12.44          | -56.39      | -13.00 | -43.39 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH9400) Data :#3 Date: 2015/7/7 Time: 下午 02:52:49



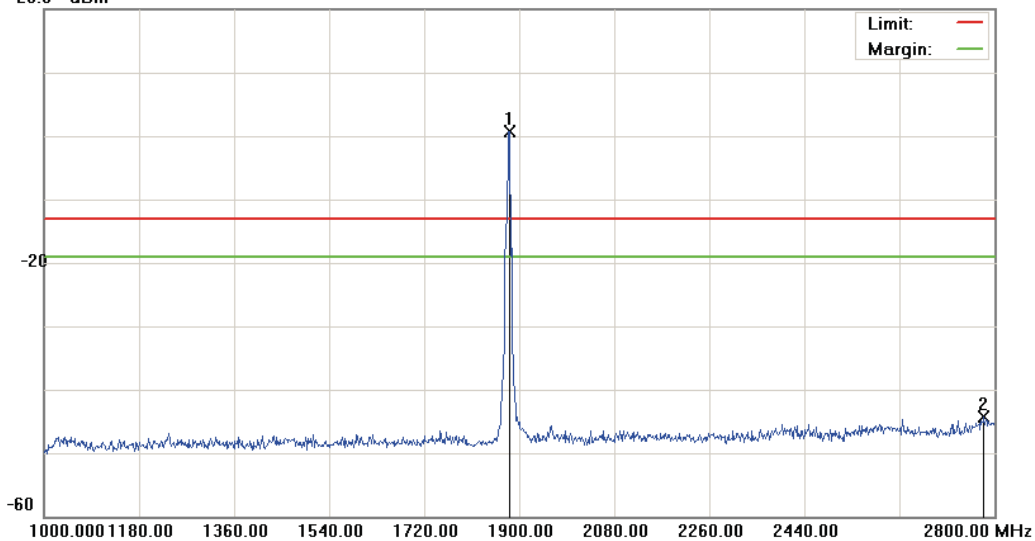
|                                        |                               |                           |
|----------------------------------------|-------------------------------|---------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C        |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %            |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 100 KHz VBW: 300 KHz |
| M/N: PA820                             |                               |                           |
| Mode: WCDMA Band II                    |                               |                           |
| Note:                                  |                               |                           |

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 435.4600 | -61.02        | 13.25          | -47.77      | -13.00 | -34.77 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin



File :PA820(CH9400) Data :#4 Date: 2015/7/7 Time: 下午 03:06:09  
20.0 dBm

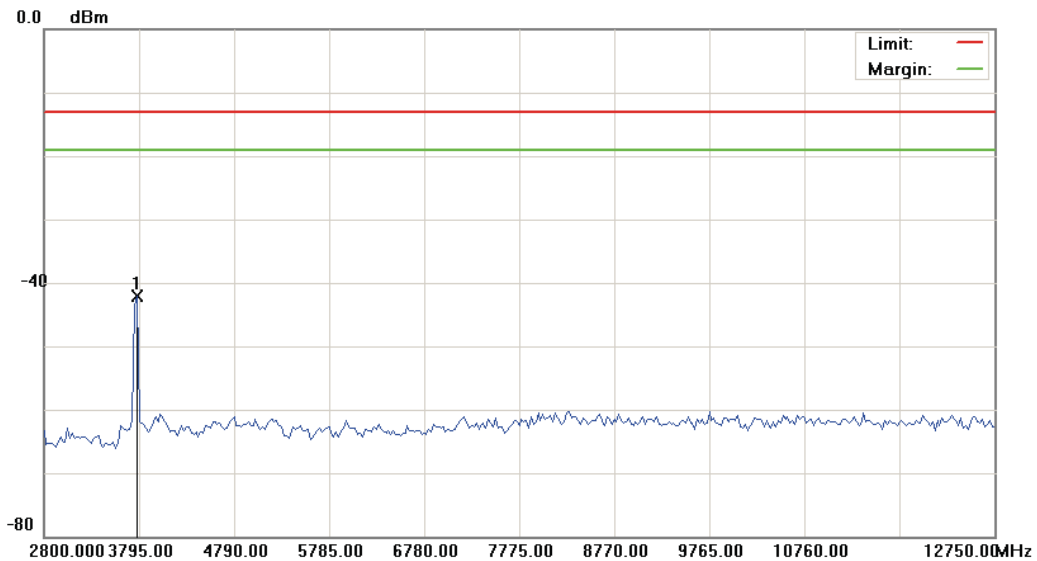


|                                        |                               |                             |
|----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                             |                               |                             |
| Mode: WCDMA Band II                    |                               |                             |
| Note:                                  |                               |                             |

| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBm | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBm | Limit<br>dBm | Over<br>dB | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|-----|--------------|-------------------------|-------------------------|-------------------------|--------------|------------|-------------------------|---------------------------|---------|
| 1   | *   | 1882.000     | -4.11                   | 4.83                    | 0.72                    | -13.00       | 13.72      | peak                    |                           | Tx      |
| 2   |     | 2780.200     | -50.22                  | 5.88                    | -44.34                  | -13.00       | -31.34     | peak                    |                           |         |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH9400) Data :#5 Date: 2015/7/7 Time: 下午 03:45:05

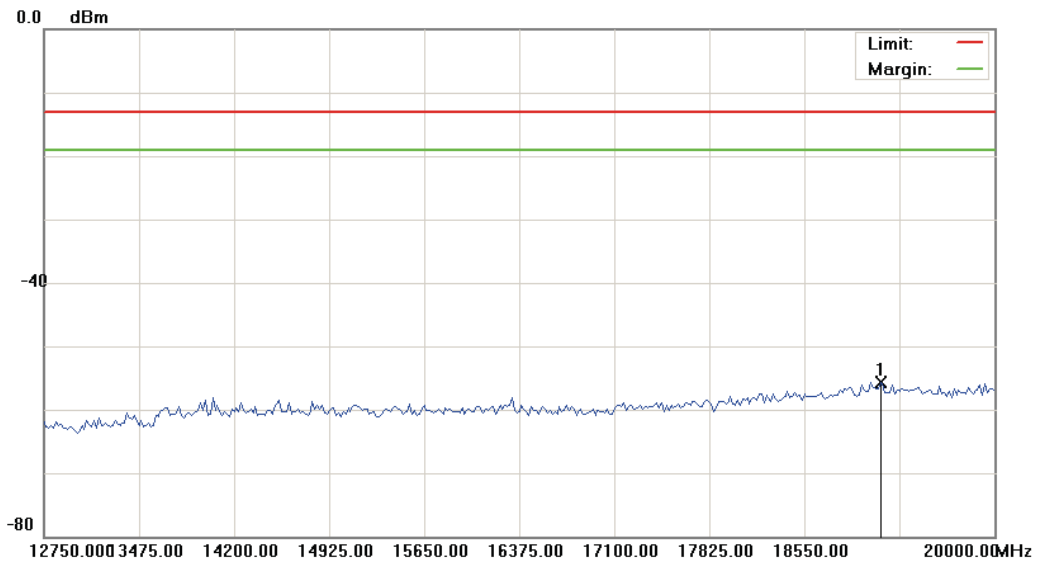


|                                        |                               |                             |
|----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                             |                               |                             |
| Mode: WCDMA Band II                    |                               |                             |
| Note:                                  |                               |                             |

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       |
| 1   | *   | 3770.125 | -47.03        | 4.93           | -42.10      | -13.00 | -29.10 | peak           |              |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH9400) Data :#6 Date: 2015/7/7 Time: 下午 03:45:24

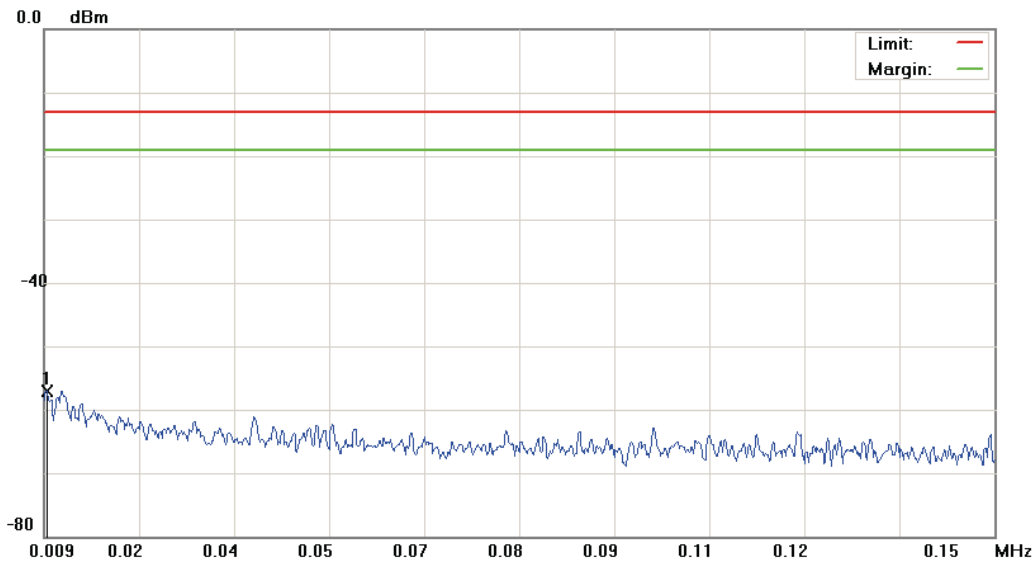


|                                        |                               |                             |
|----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                             |                               |                             |
| Mode: WCDMA Band II                    |                               |                             |
| Note:                                  |                               |                             |

| No. | Mk. | Freq.     | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|-----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz       | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree  |
| 1   | *   | 19130.000 | -62.85        | 7.19           | -55.66      | -13.00 | -42.66 | peak           |              | Comment |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH9538) Data :#1 Date: 2015/7/7 Time: 下午 02:53:30

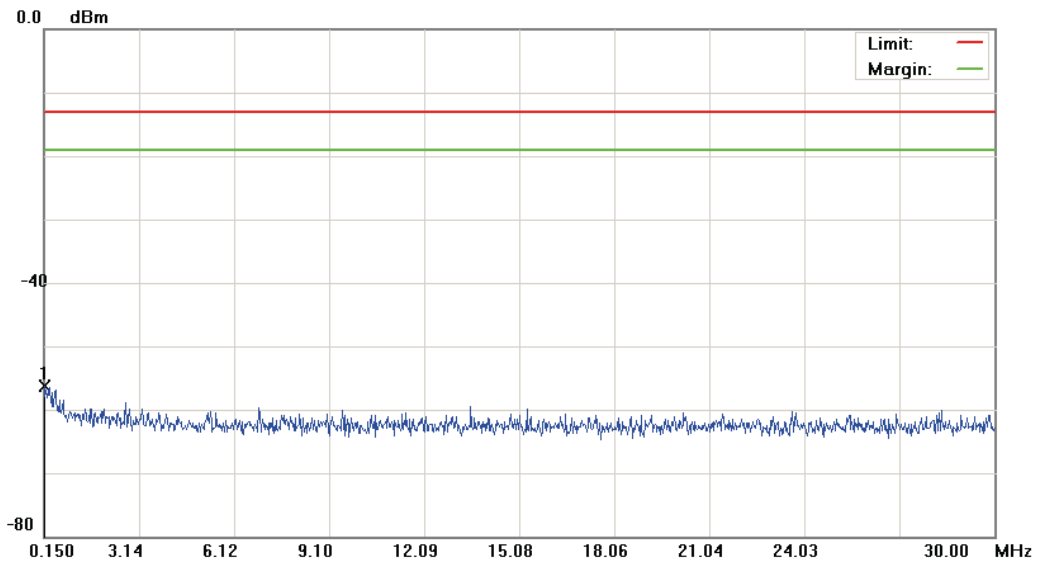


|                                        |                               |                       |
|----------------------------------------|-------------------------------|-----------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C    |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %        |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 1 KHz VBW: 3 KHz |
| M/N: PA820                             |                               |                       |
| Mode: WCDMA Band II                    |                               |                       |
| Note:                                  |                               |                       |

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 0.0094 | -68.36        | 11.33          | -57.03      | -13.00 | -44.03 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH9538) Data :#2 Date: 2015/7/7 Time: 下午 02:53:54

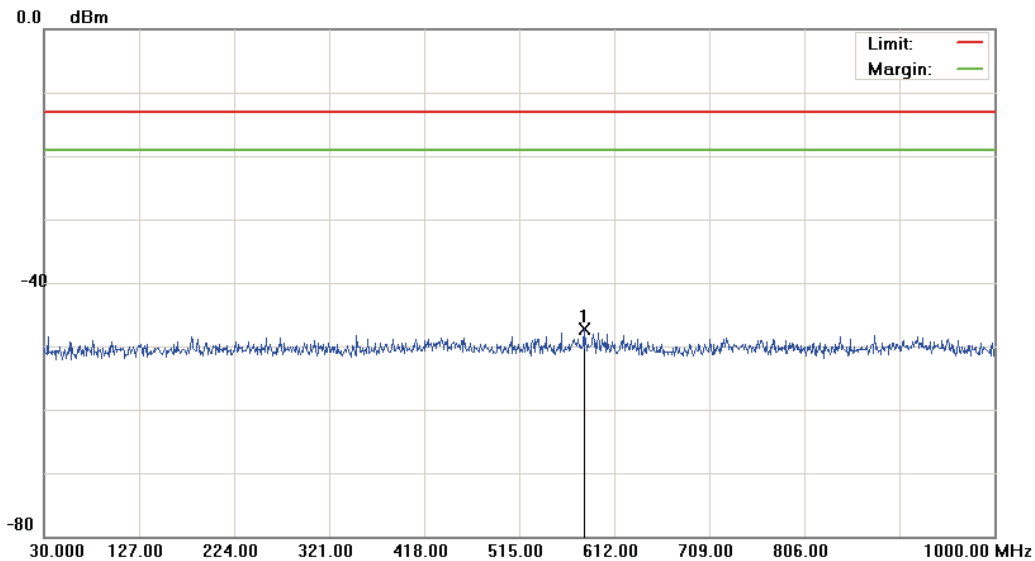


|                                        |                               |                         |
|----------------------------------------|-------------------------------|-------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C      |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %          |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 10 KHz VBW: 30 KHz |
| M/N: PA820                             |                               |                         |
| Mode: WCDMA Band II                    |                               |                         |
| Note:                                  |                               |                         |

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 0.1500 | -68.85        | 12.47          | -56.38      | -13.00 | -43.38 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH9538) Data :#3 Date: 2015/7/7 Time: 下午 02:54:18



|                                        |                               |                           |
|----------------------------------------|-------------------------------|---------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C        |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %            |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 100 KHz VBW: 300 KHz |
| M/N: PA820                             |                               |                           |
| Mode: WCDMA Band II                    |                               |                           |
| Note:                                  |                               |                           |

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       |
| 1   | *   | 581.4450 | -60.44        | 13.17          | -47.27      | -13.00 | -34.27 | peak           |              |

\*:Maximum data x:Over limit !:over margin

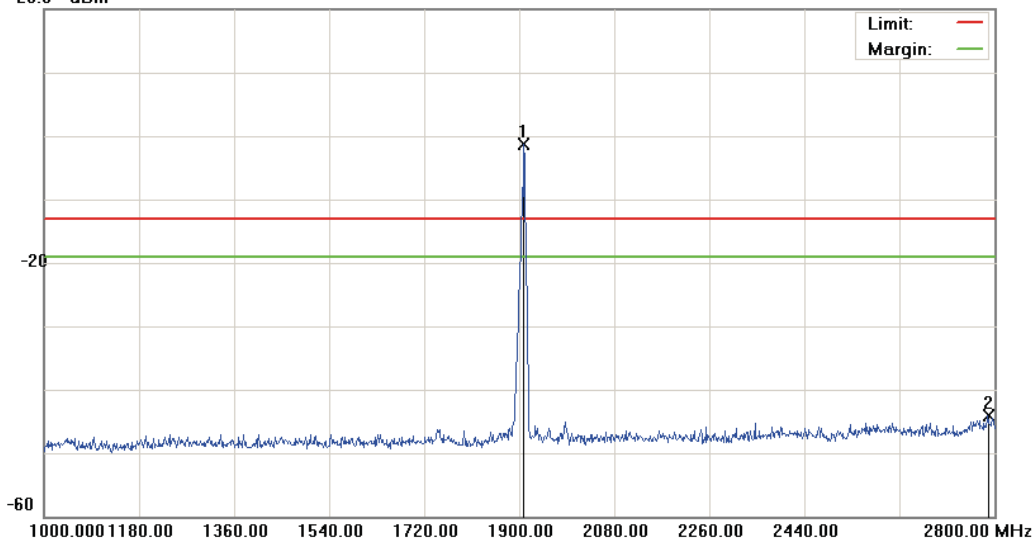
File :PA820(CH9538)

Data :#4

Date: 2015/7/7

Time: 下午 03:07:14

20.0 dBm



Site: site #1

Limit: FCC Part 24 conducted(9k-26.5G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: WCDMA Band II

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

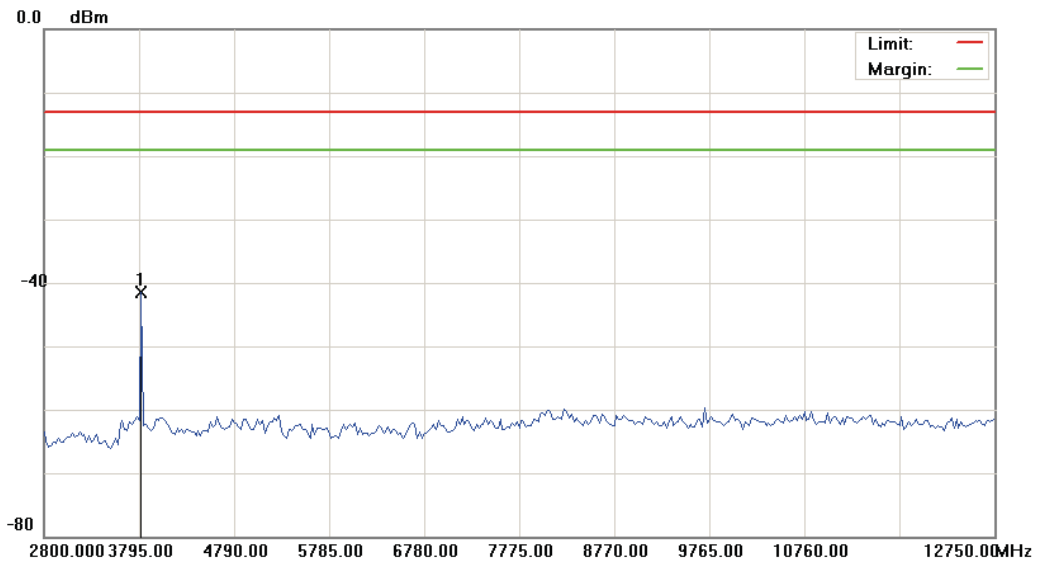
Humidity: 55 %

RBW: 1000 KHz VBW: 3000 KHz

| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBm | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBm | Limit<br>dBm | Over<br>dB | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|-----|--------------|-------------------------|-------------------------|-------------------------|--------------|------------|-------------------------|---------------------------|---------|
| 1   | *   | 1909.000     | -7.07                   | 5.80                    | -1.27                   | -13.00       | 11.73      | peak                    |                           | Tx      |
| 2   |     | 2788.300     | -50.01                  | 5.89                    | -44.12                  | -13.00       | -31.12     | peak                    |                           |         |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH9538) Data :#5 Date: 2015/7/7 Time: 下午 03:45:56



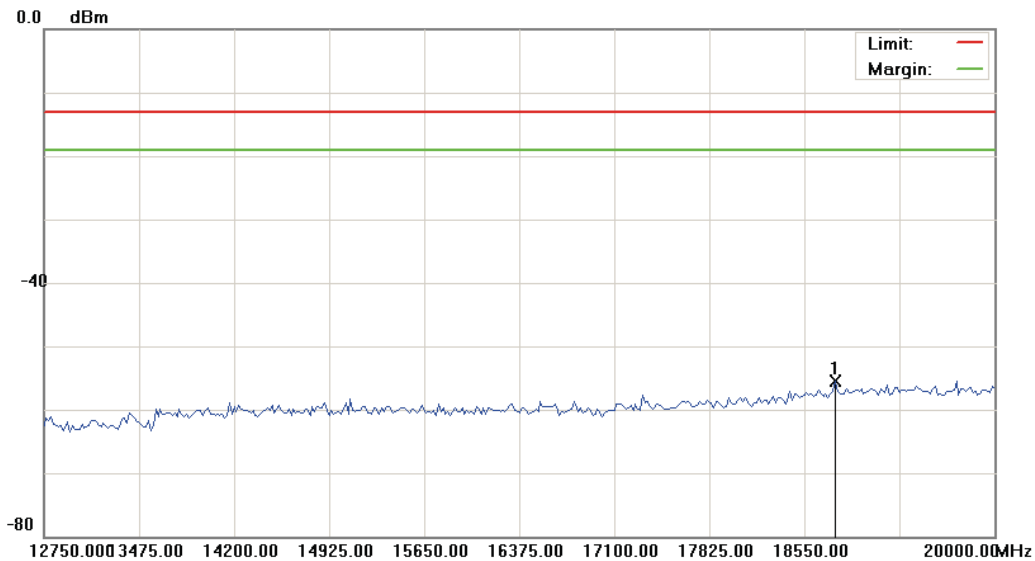
|                                        |                               |                             |
|----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                             |                               |                             |
| Mode: WCDMA Band II                    |                               |                             |
| Note:                                  |                               |                             |

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 3819.875 | -46.36        | 4.91           | -41.45      | -13.00 | -28.45 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin



File :PA820(CH9538) Data :#6 Date: 2015/7/7 Time: 下午 03:46:15



|                                        |                               |                             |
|----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                          | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 24 conducted(9k-26.5G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer          | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                             |                               |                             |
| Mode: WCDMA Band II                    |                               |                             |
| Note:                                  |                               |                             |

| No. | Mk. | Freq.     | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |
|-----|-----|-----------|---------------|----------------|-------------|--------|--------|----------------|--------------|
|     |     | MHz       | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       |
| 1   | *   | 18785.625 | -62.50        | 7.09           | -55.41      | -13.00 | -42.41 | peak           |              |

\*:Maximum data x:Over limit !:over margin

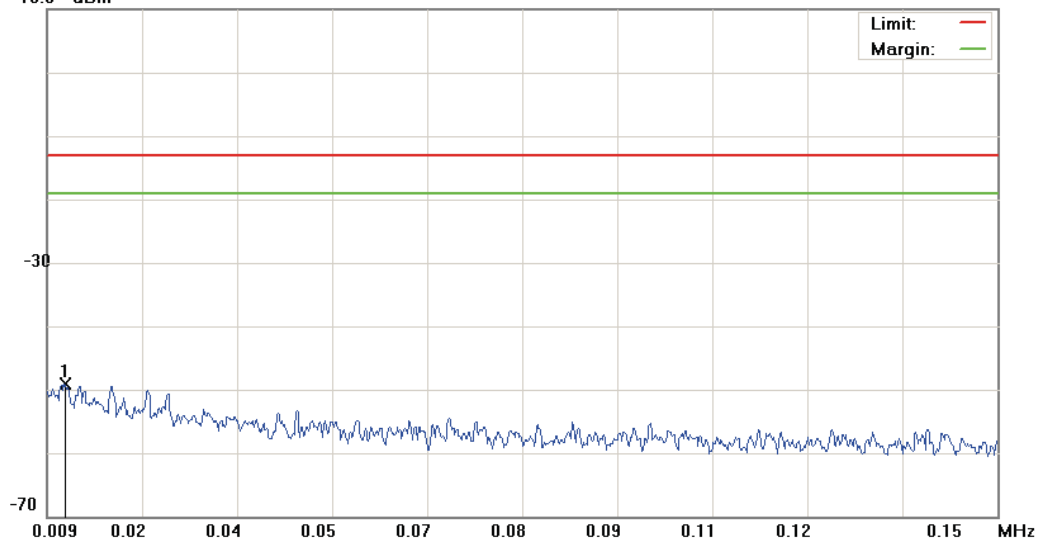
File :PA820(CH4132)

Data :#1

Date: 2015/7/7

Time: 下午 03:10:13

10.0 dBm



Site: site #1

Limit: FCC Part 22 conducted(9k-12.75G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: WCDMA Band V

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

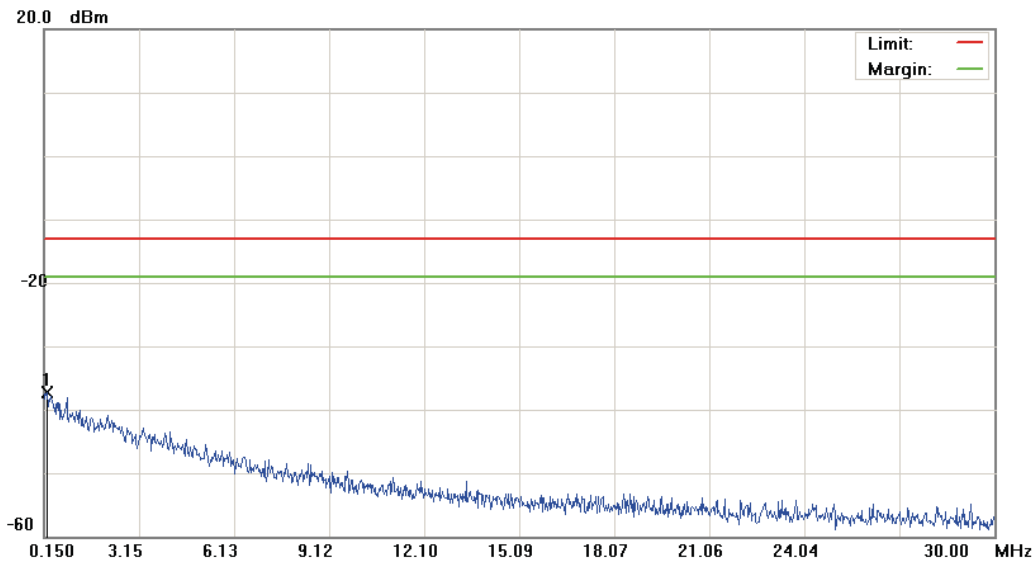
Humidity: 55 %

RBW: 1 KHz VBW: 3 KHz

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 0.0116 | -79.64        | 30.57          | -49.07      | -13.00 | -36.07 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH4132) Data :#2 Date: 2015/7/7 Time: 下午 03:10:37

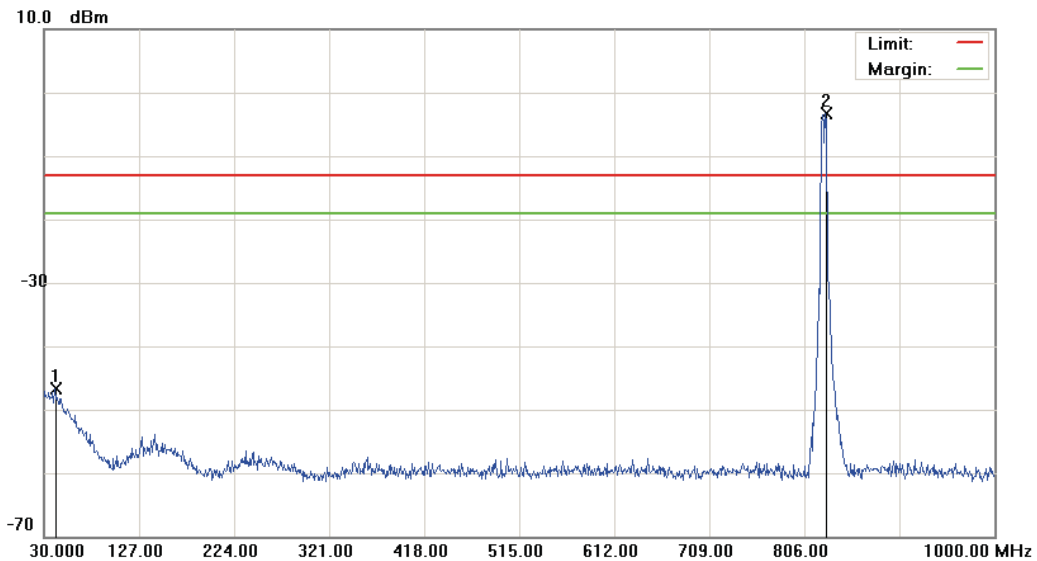


Site: site #1 Polarization: Conducted Power Temperature: 26 °C  
Limit: FCC Part 22 conducted(9k-12.75G) Power: DC 3.7V Humidity: 55 %  
EUT: Rugged Handheld Computer Distance: RBW: 10 KHz VBW: 30 KHz  
M/N: PA820  
Mode: WCDMA Band V  
Note:

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       |
| 1   | *   | 0.2395 | -68.60        | 31.24          | -37.36      | -13.00 | -24.36 | peak           | degree       |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH4132) Data :#3 Date: 2015/7/7 Time: 下午 03:11:01



|                                         |                               |                           |
|-----------------------------------------|-------------------------------|---------------------------|
| Site: site #1                           | Polarization: Conducted Power | Temperature: 26 °C        |
| Limit: FCC Part 22 conducted(9k-12.75G) | Power: DC 3.7V                | Humidity: 55 %            |
| EUT: Rugged Handheld Computer           | Distance:                     | RBW: 100 KHz VBW: 300 KHz |
| M/N: PA820                              |                               |                           |
| Mode: WCDMA Band V                      |                               |                           |
| Note:                                   |                               |                           |

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       | Comment |
| 1   |     | 41.1550  | -62.72        | 15.95          | -46.77      | -13.00 | -33.77 | peak           |              |         |
| 2   | *   | 827.8250 | -7.10         | 3.87           | -3.23       | -13.00 | 9.77   | peak           |              | Tx      |

\*:Maximum data x:Over limit !:over margin



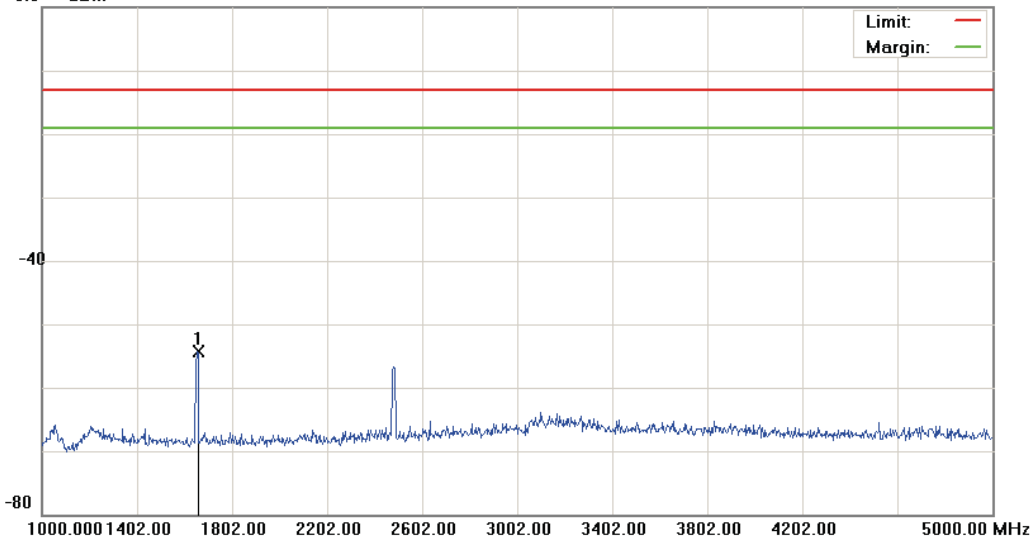
File :PA820(CH4132)

Data :#4

Date: 2015/7/7

Time: 下午 03:37:58

0.0 dBm



Site: site #1

Limit: FCC Part 22 conducted(9k-12.75G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: WCDMA Band V

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

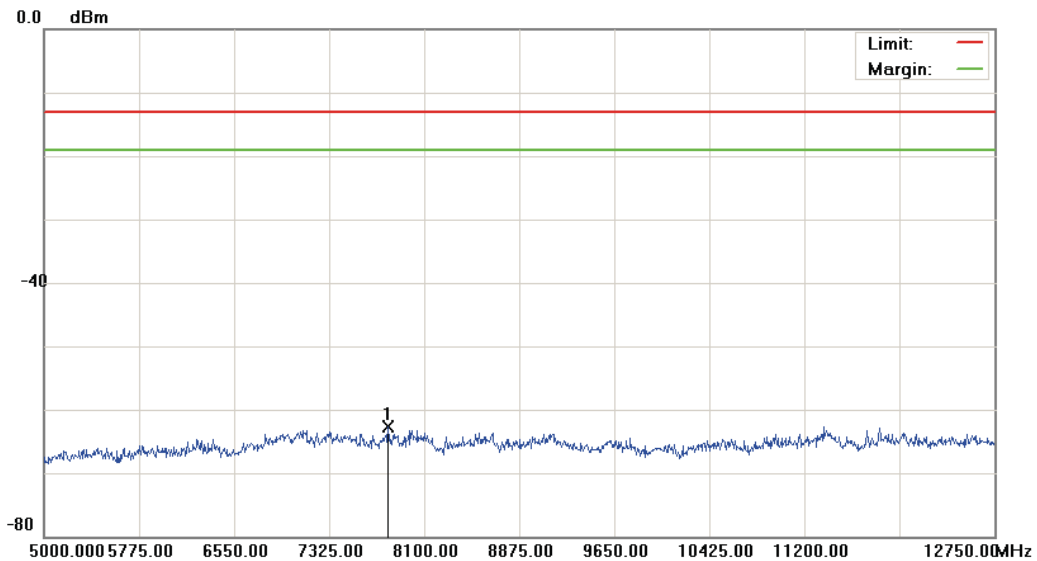
Humidity: 55 %

RBW: 1000 KHz VBW: 3000 KHz

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       |
| 1   | *   | 1654.000 | -58.70        | 4.45           | -54.25      | -13.00 | -41.25 | peak           |              |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH4132) Data :#5 Date: 2015/7/7 Time: 下午 03:38:21

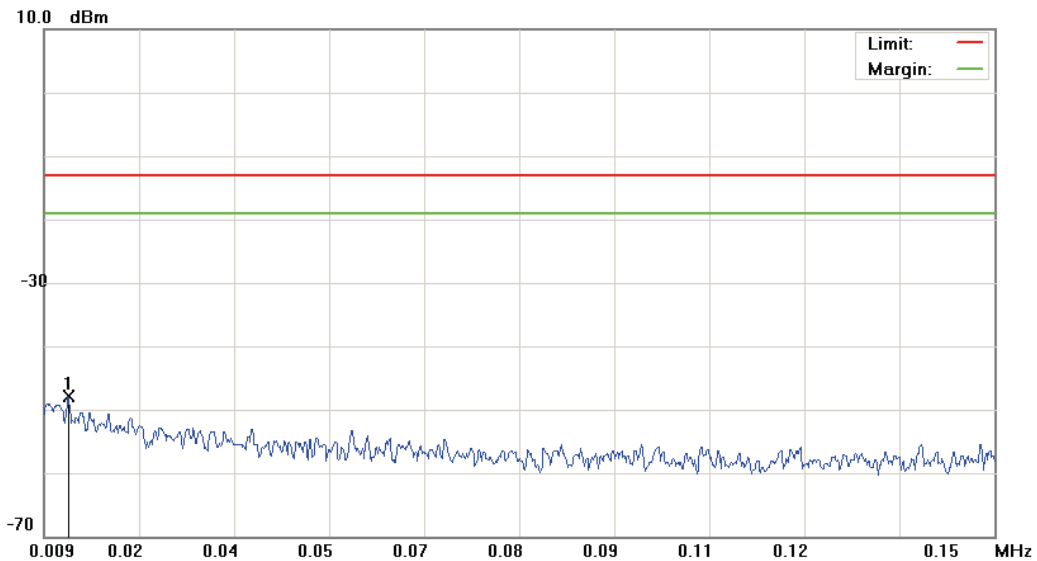


Site: site #1 Polarization: Conducted Power Temperature: 26 °C  
Limit: FCC Part 22 conducted(9k-12.75G) Power: DC 3.7V Humidity: 55 %  
EUT: Rugged Handheld Computer Distance: RBW: 1000 KHz VBW: 3000 KHz  
M/N: PA820  
Mode: WCDMA Band V  
Note:

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree  |
| 1   | *   | 7805.500 | -67.93        | 5.29           | -62.64      | -13.00 | -49.64 | peak           |              | Comment |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH4183) Data :#1 Date: 2015/7/7 Time: 下午 03:12:36



Site: site #1 Polarization: Conducted Power Temperature: 26 °C  
Limit: FCC Part 22 conducted(9k-12.75G) Power: DC 3.7V Humidity: 55 %  
EUT: Rugged Handheld Computer Distance: RBW: 1 KHz VBW: 3 KHz  
M/N: PA820  
Mode: WCDMA Band V  
Note:

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 0.0126 | -78.55        | 30.56          | -47.99      | -13.00 | -34.99 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin



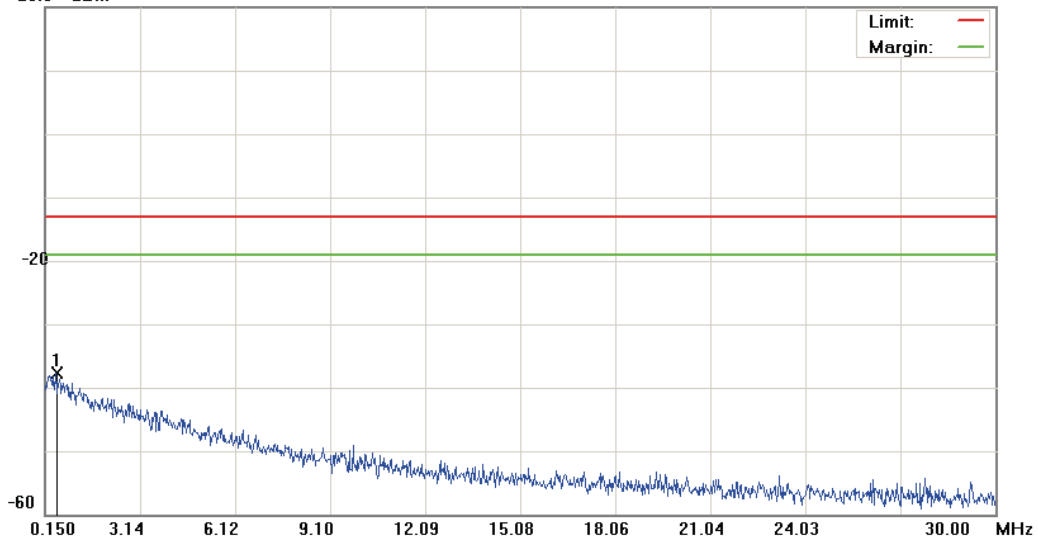
File :PA820(CH4183)

Data :#2

Date: 2015/7/7

Time: 下午 03:13:00

20.0 dBm



Site: site #1

Limit: FCC Part 22 conducted(9k-12.75G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: WCDMA Band V

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

Humidity: 55 %

RBW: 10 KHz VBW: 30 KHz

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       | Comment |
| 1   | *   | 0.4933 | -69.69        | 32.00          | -37.69      | -13.00 | -24.69 | peak           |              |         |

\*:Maximum data x:Over limit !:over margin





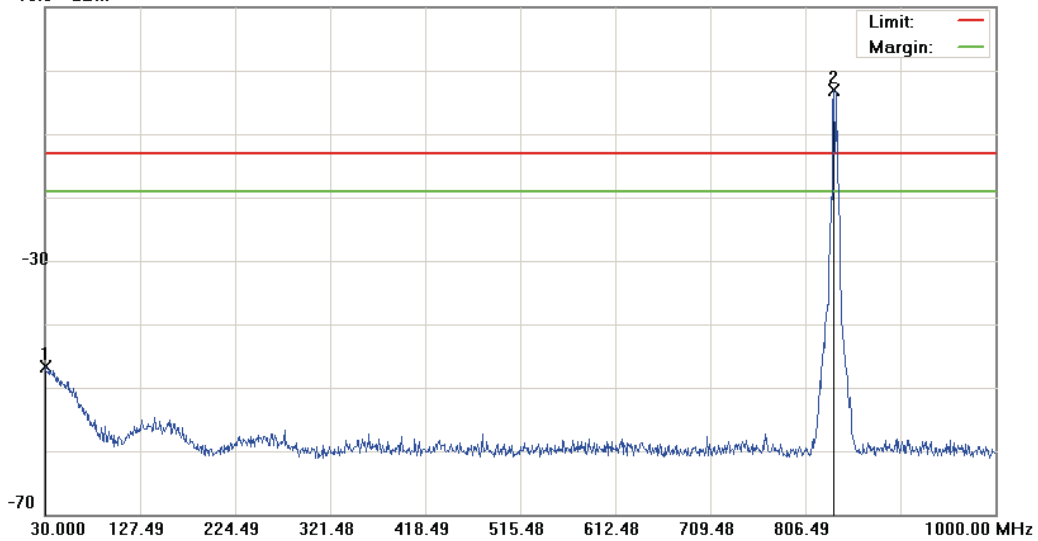
File :PA820(CH4183)

Data :#3

Date: 2015/7/7

Time: 下午 03:13:24

10.0 dBm



Site: site #1

Limit: FCC Part 22 conducted(9k-12.75G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: WCDMA Band V

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

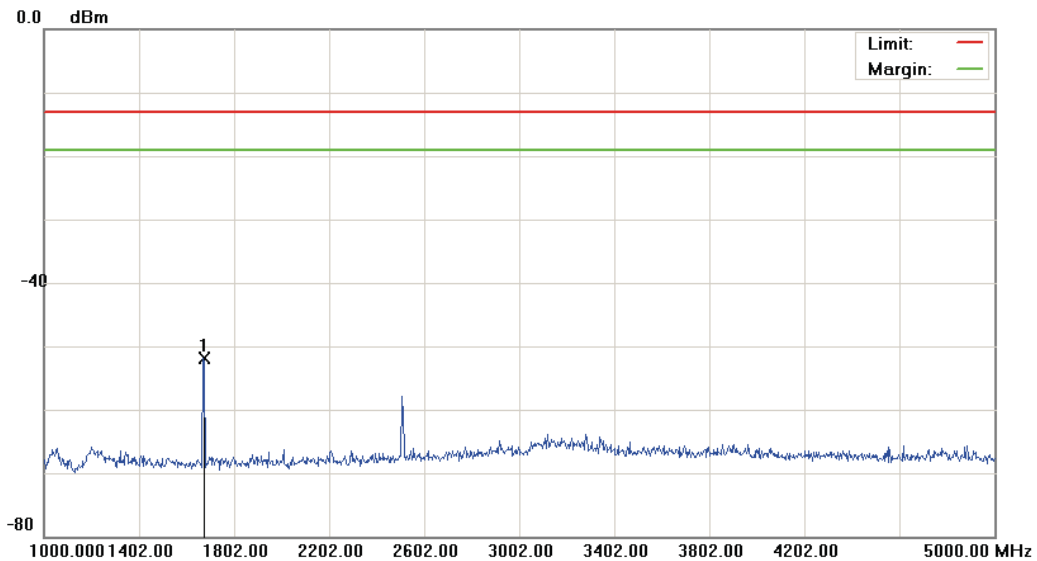
Humidity: 55 %

RBW: 100 KHz VBW: 300 KHz

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       | Comment |
| 1   |     | 30.4850  | -63.81        | 17.16          | -46.65      | -13.00 | -33.65 | peak           |              |         |
| 2   | *   | 835.1000 | -7.13         | 3.95           | -3.18       | -13.00 | 9.82   | peak           |              | Tx      |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH4183) Data :#4 Date: 2015/7/7 Time: 下午 03:38:59



|                                         |                               |                             |
|-----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                           | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 22 conducted(9k-12.75G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer           | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                              |                               |                             |
| Mode: WCDMA Band V                      |                               |                             |
| Note:                                   |                               |                             |

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 1670.000 | -56.42        | 4.46           | -51.96      | -13.00 | -38.96 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin



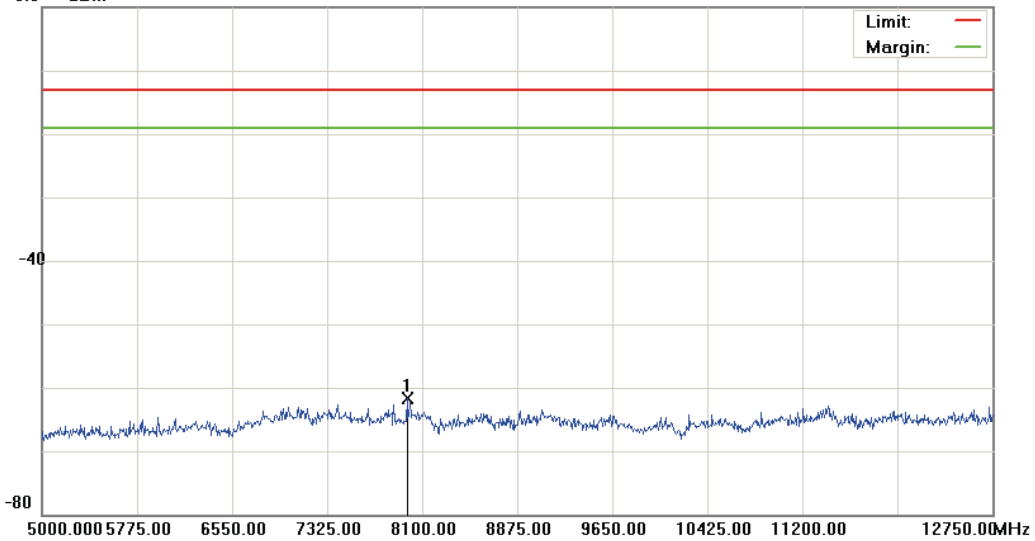
File :PA820(CH4183)

Data :#5

Date: 2015/7/7

Time: 下午 03:39:22

0.0 dBm



|                                         |                               |                             |
|-----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                           | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 22 conducted(9k-12.75G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer           | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                              |                               |                             |
| Mode: WCDMA Band V                      |                               |                             |
| Note:                                   |                               |                             |

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       | Comment |
| 1   | *   | 7976.000 | -67.09        | 5.30           | -61.79      | -13.00 | -48.79 | peak           |              |         |

\*:Maximum data x:Over limit !:over margin

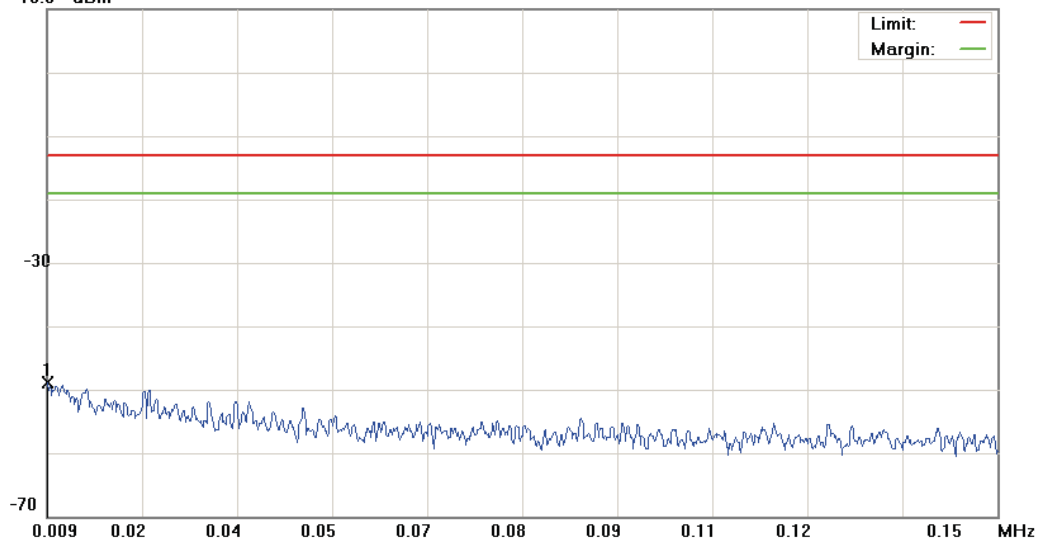
File :PA820(CH4233)

Data :#1

Date: 2015/7/7

Time: 下午 03:14:42

10.0 dBm



Site: site #1

Limit: FCC Part 22 conducted(9k-12.75G)

EUT: Rugged Handheld Computer

M/N: PA820

Mode: WCDMA Band V

Note:

Polarization: Conducted Power

Power: DC 3.7V

Distance:

Temperature: 26 °C

Humidity: 55 %

RBW: 1 KHz VBW: 3 KHz

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree  |
| 1   | *   | 0.0091 | -79.57        | 30.58          | -48.99      | -13.00 | -35.99 | peak           |              | Comment |

\*:Maximum data x:Over limit !:over margin

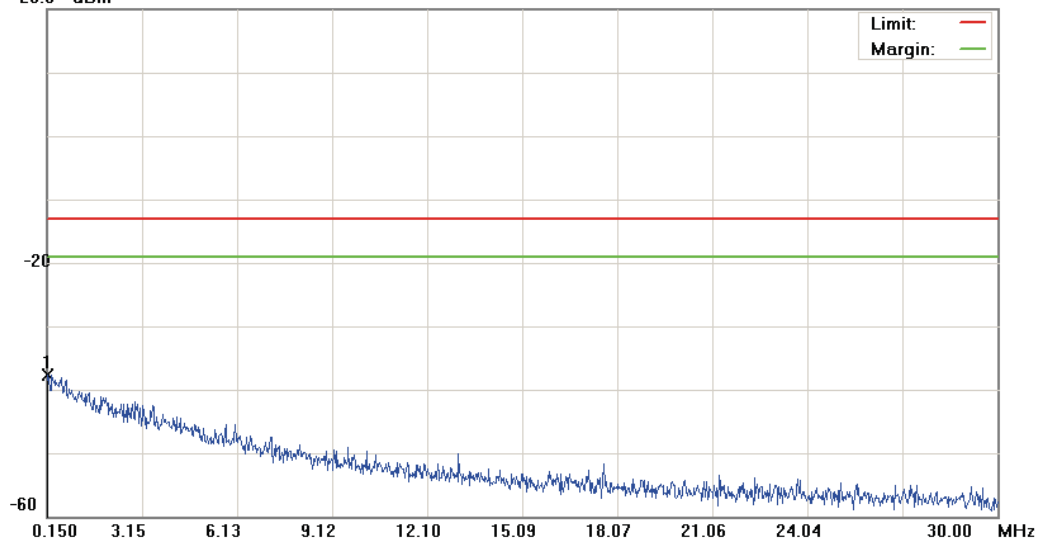
File :PA820(CH4233)

Data :#2

Date: 2015/7/7

Time: 下午 03:15:06

20.0 dBm



Site: site #1

Polarization: Conducted Power

Temperature: 26 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.7V

Humidity: 55 %

EUT: Rugged Handheld Computer

Distance:

RBW: 10 KHz VBW: 30 KHz

M/N: PA820

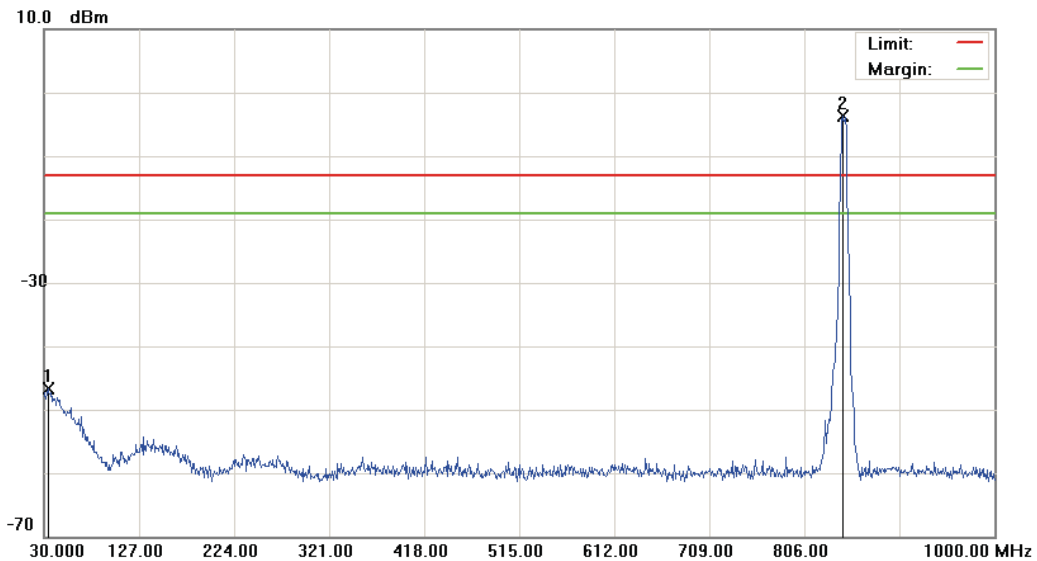
Mode: WCDMA Band V

Note:

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz    | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree  |
| 1   | *   | 0.1798 | -68.41        | 30.75          | -37.66      | -13.00 | -24.66 | peak           |              | Comment |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH4233) Data :#3 Date: 2015/7/7 Time: 下午 03:15:30

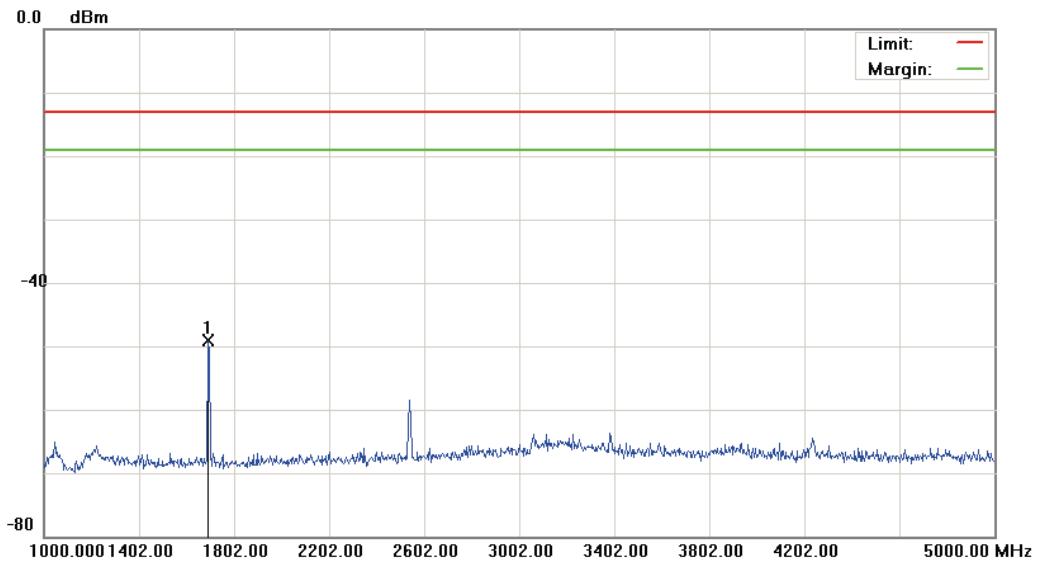


|                                         |                               |                           |
|-----------------------------------------|-------------------------------|---------------------------|
| Site: site #1                           | Polarization: Conducted Power | Temperature: 26 °C        |
| Limit: FCC Part 22 conducted(9k-12.75G) | Power: DC 3.7V                | Humidity: 55 %            |
| EUT: Rugged Handheld Computer           | Distance:                     | RBW: 100 KHz VBW: 300 KHz |
| M/N: PA820                              |                               |                           |
| Mode: WCDMA Band V                      |                               |                           |
| Note:                                   |                               |                           |

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | cm             | degree       | Comment |
| 1   |     | 34.3650  | -63.45        | 16.72          | -46.73      | -13.00 | -33.73 | peak           |              |         |
| 2   | *   | 844.8000 | -7.78         | 3.99           | -3.79       | -13.00 | 9.21   | peak           |              | Tx      |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH4233) Data :#4 Date: 2015/7/7 Time: 下午 03:40:01

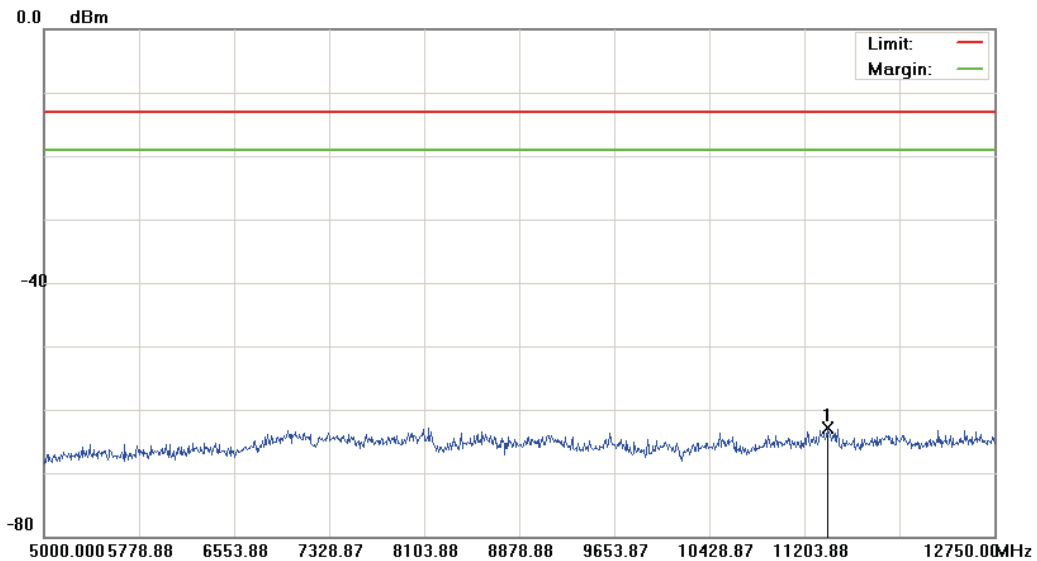


|                                         |                               |                             |
|-----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                           | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 22 conducted(9k-12.75G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer           | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                              |                               |                             |
| Mode: WCDMA Band V                      |                               |                             |
| Note:                                   |                               |                             |

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz      | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 1690.000 | -53.62        | 4.47           | -49.15      | -13.00 | -36.15 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin

File :PA820(CH4233) Data :#5 Date: 2015/7/7 Time: 下午 03:40:24



|                                         |                               |                             |
|-----------------------------------------|-------------------------------|-----------------------------|
| Site: site #1                           | Polarization: Conducted Power | Temperature: 26 °C          |
| Limit: FCC Part 22 conducted(9k-12.75G) | Power: DC 3.7V                | Humidity: 55 %              |
| EUT: Rugged Handheld Computer           | Distance:                     | RBW: 1000 KHz VBW: 3000 KHz |
| M/N: PA820                              |                               |                             |
| Mode: WCDMA Band V                      |                               |                             |
| Note:                                   |                               |                             |

| No. | Mk. | Freq.     | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |                |
|-----|-----|-----------|---------------|----------------|-------------|--------|--------|----------------|--------------|----------------|
|     |     | MHz       | dBm           | dB             | dBm         | dBm    | dB     | Detector       | cm           | degree Comment |
| 1   | *   | 11389.875 | -68.49        | 5.51           | -62.98      | -13.00 | -49.98 | peak           |              |                |

\*:Maximum data x:Over limit !:over margin



## 8 Field Strength of Spurious Radiation Test

### 8.1. Limit

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10\log(P)$  dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

### 8.2. Test Instruments

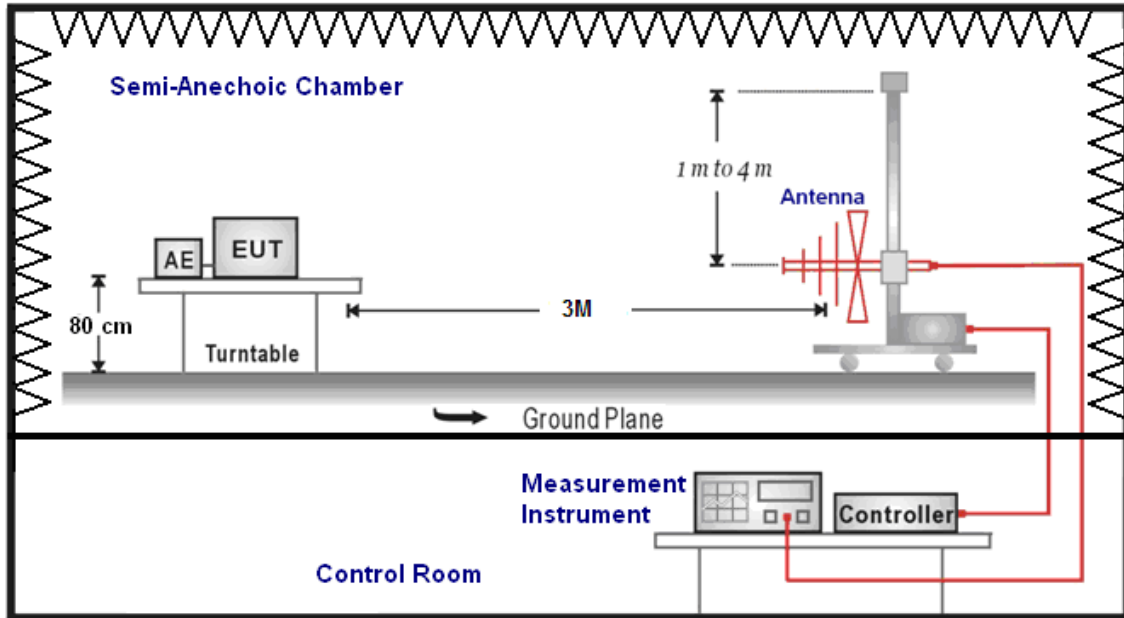
| 3 Meter Chamber                   |                                |              |               |            |        |
|-----------------------------------|--------------------------------|--------------|---------------|------------|--------|
| Equipment                         | Manufacturer                   | Model Number | Serial Number | Cal. Date  | Remark |
| RF Pre-selector                   | Agilent                        | N9039A       | MY46520256    | 01/06/2015 | (1)    |
| Spectrum Analyzer                 | Agilent                        | E4446A       | MY46180578    | 01/06/2015 | (1)    |
| Pre Amplifier                     | Agilent                        | 8449B        | 3008A02237    | 02/24/2015 | (1)    |
| Pre Amplifier                     | Agilent                        | 8447D        | 2944A10961    | 02/24/2015 | (1)    |
| Broadband Antenna<br>(30MHz~1GHz) | SCHWARZBECK<br>MESS-ELEKTRONIK | VULB9163     | 9163-270      | 0811/2015  | (1)    |
| Horn Antenna<br>(1~18GHz)         | SCHWARZBECK<br>MESS-ELEKTRONIK | BBHA9120D    | 9120D-550     | 06/12/2015 | (1)    |
| Horn Antenna<br>(18~40GHz)        | SCHWARZBECK<br>MESS-ELEKTRONIK | BBHA9170     | 9170-320      | 07/06/2015 | (1)    |
| Test Site                         | ATL                            | TE01         | 888001        | 08/27/2015 | (1)    |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

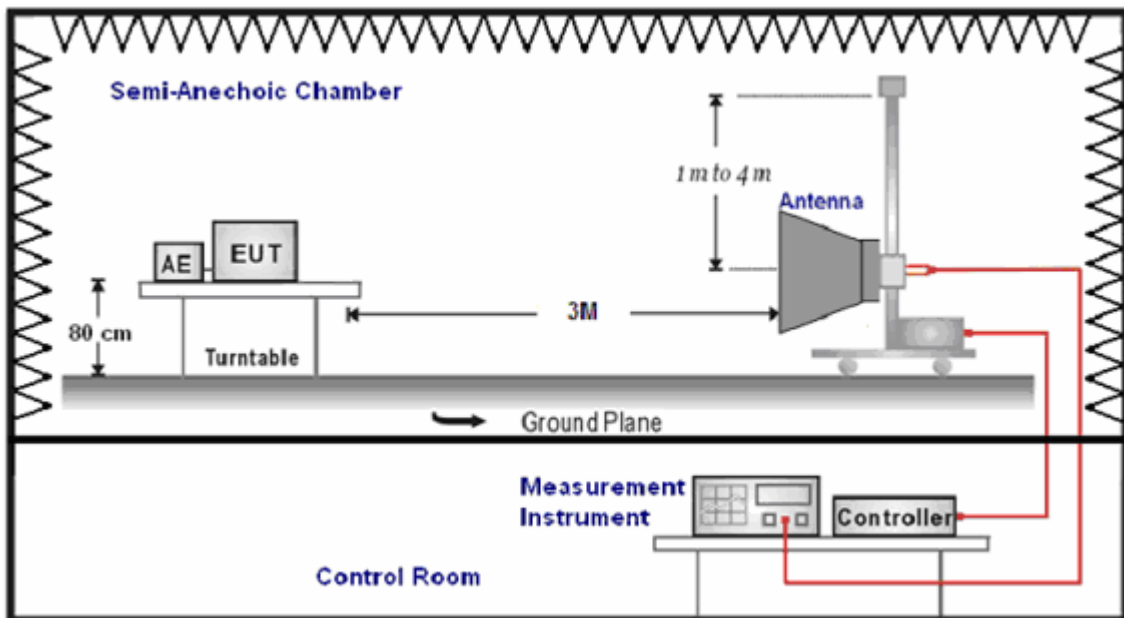
Note: N.C.R. = No Calibration Request.

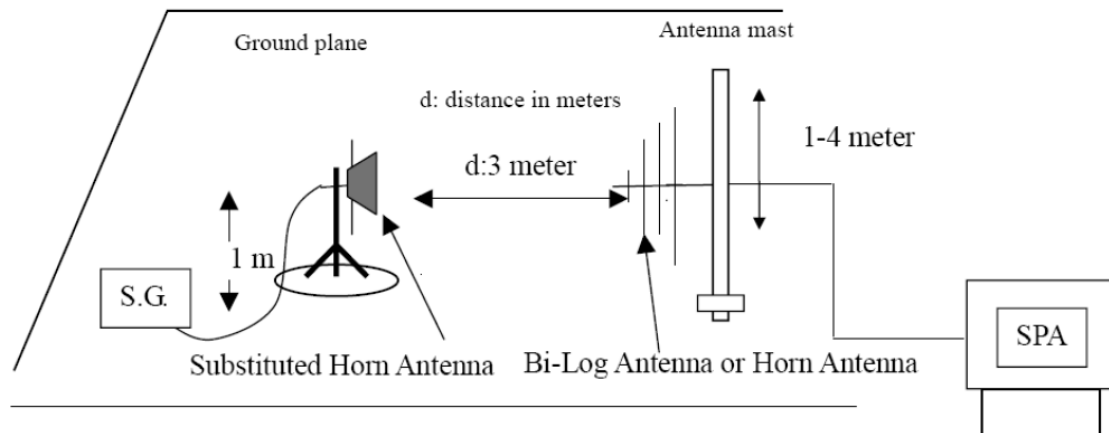
### 8.3. Setup

Below 1GHz



Above 1GHz





#### 8.4. Test Procedure

- The EUT was set up for the maximum power with LTE link data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high operational frequency range). RWB and VBW is 1MHz.
- Radiation Emission measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G.
- $E.I.R.P. = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$
- $E.R.P. = E.I.R.P. - 2.15 \text{ dB}$

#### 8.5. Uncertainty

The measurement uncertainty is defined as for Field Strength of Spurious Radiation measurement is  $\pm 3.072 \text{ dB}$ .

## 8.6. Test Result

|               |                   |                      |              |
|---------------|-------------------|----------------------|--------------|
| Standard:     | FCC Part 22       | Test Distance:       | 3m           |
| Test item:    | Radiated Emission | Power:               | AC 120V/60Hz |
| Model Number: | PA820             | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:         | 1                 | Date:                | 09/11/2015   |
| Frequency:    | 824.2 MHz         | Test By:             | Eric Ou Yang |

| Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark | Ant.Polar.<br>H / V |
|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|---------------------|
| 7444.000           | -74.13           | 26.09                  | -48.04          | -13.00         | -35.04         | peak   | H                   |
| 6208.000           | -76.09           | 22.70                  | -53.39          | -13.00         | -40.39         | peak   | V                   |

|               |                   |                      |              |
|---------------|-------------------|----------------------|--------------|
| Standard:     | FCC Part 22       | Test Distance:       | 3m           |
| Test item:    | Radiated Emission | Power:               | AC 120V/60Hz |
| Model Number: | PA820             | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:         | 1                 | Date:                | 09/11/2015   |
| Frequency:    | 836.6 MHz         | Test By:             | Eric Ou Yang |

| Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark | Ant.Polar.<br>H / V |
|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|---------------------|
| 8800.000           | -75.73           | 26.50                  | -49.23          | -13.00         | -36.23         | peak   | H                   |
| 5236.000           | -75.77           | 20.84                  | -54.93          | -13.00         | -41.93         | peak   | V                   |

|               |                   |                      |              |
|---------------|-------------------|----------------------|--------------|
| Standard:     | FCC Part 22       | Test Distance:       | 3m           |
| Test item:    | Radiated Emission | Power:               | AC 120V/60Hz |
| Model Number: | PA820             | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:         | 1                 | Date:                | 09/11/2015   |
| Frequency:    | 848.8 MHz         | Test By:             | Eric Ou Yang |

| Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark | Ant.Polar.<br>H / V |
|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|---------------------|
| 4996.000           | -74.47           | 20.48                  | -53.99          | -13.00         | -40.99         | peak   | H                   |
| 5644.000           | -75.05           | 21.47                  | -53.58          | -13.00         | -40.58         | peak   | V                   |

|               |                   |                      |              |
|---------------|-------------------|----------------------|--------------|
| Standard:     | FCC Part 24       | Test Distance:       | 3m           |
| Test item:    | Radiated Emission | Power:               | AC 120V/60Hz |
| Model Number: | PA820             | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:         | 2                 | Date:                | 09/11/2015   |
| Frequency:    | 1850.2 MHz        | Test By:             | Eric Ou Yang |

| Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark | Ant.Polar.<br>H / V |
|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|---------------------|
| 7696.000           | -74.31           | 26.43                  | -47.88          | -13.00         | -34.88         | peak   | H                   |
| 5200.000           | -74.34           | 20.79                  | -53.55          | -13.00         | -40.55         | peak   | V                   |

|               |                   |                      |              |
|---------------|-------------------|----------------------|--------------|
| Standard:     | FCC Part 24       | Test Distance:       | 3m           |
| Test item:    | Radiated Emission | Power:               | AC 120V/60Hz |
| Model Number: | PA820             | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:         | 2                 | Date:                | 09/11/2015   |
| Frequency:    | 1880.0 MHz        | Test By:             | Eric Ou Yang |

| Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark | Ant.Polar.<br>H / V |
|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|---------------------|
| 8128.000           | -74.91           | 26.50                  | -48.41          | -13.00         | -35.41         | peak   | H                   |
| 5572.000           | -76.33           | 21.35                  | -54.98          | -13.00         | -41.98         | peak   | V                   |

|               |                   |                      |              |
|---------------|-------------------|----------------------|--------------|
| Standard:     | FCC Part 24       | Test Distance:       | 3m           |
| Test item:    | Radiated Emission | Power:               | AC 120V/60Hz |
| Model Number: | PA820             | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:         | 2                 | Date:                | 09/11/2015   |
| Frequency:    | 1909.8 MHz        | Test By:             | Eric Ou Yang |

| Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark | Ant.Polar.<br>H / V |
|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|---------------------|
| 4108.000           | -74.25           | 17.52                  | -56.73          | -13.00         | -43.73         | peak   | H                   |
| 3040.000           | -70.86           | 14.31                  | -56.55          | -13.00         | -43.55         | peak   | V                   |

|               |                   |                      |              |
|---------------|-------------------|----------------------|--------------|
| Standard:     | FCC Part 24       | Test Distance:       | 3m           |
| Test item:    | Radiated Emission | Power:               | AC 120V/60Hz |
| Model Number: | PA820             | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:         | 5                 | Date:                | 09/11/2015   |
| Frequency:    | 1852.4 MHz        | Test By:             | Eric Ou Yang |

| Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark | Ant.Polar.<br>H / V |
|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|---------------------|
| 3796.000           | -74.08           | 16.91                  | -57.17          | -13.00         | -44.17         | peak   | H                   |
| 6436.000           | -76.30           | 23.37                  | -52.93          | -13.00         | -39.93         | peak   | V                   |

|               |                   |                      |              |
|---------------|-------------------|----------------------|--------------|
| Standard:     | FCC Part 24       | Test Distance:       | 3m           |
| Test item:    | Radiated Emission | Power:               | AC 120V/60Hz |
| Model Number: | PA820             | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:         | 5                 | Date:                | 09/11/2015   |
| Frequency:    | 1880.0 MHz        | Test By:             | Eric Ou Yang |

| Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark | Ant.Polar.<br>H / V |
|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|---------------------|
| 6508.000           | -75.21           | 23.60                  | -51.61          | -13.00         | -38.61         | peak   | H                   |
| 5140.000           | -75.09           | 20.70                  | -54.39          | -13.00         | -41.39         | peak   | V                   |

|               |                   |                      |              |
|---------------|-------------------|----------------------|--------------|
| Standard:     | FCC Part 24       | Test Distance:       | 3m           |
| Test item:    | Radiated Emission | Power:               | AC 120V/60Hz |
| Model Number: | PA820             | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:         | 5                 | Date:                | 09/11/2015   |
| Frequency:    | 1907.6 MHz        | Test By:             | Eric Ou Yang |

| Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark | Ant.Polar.<br>H / V |
|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|---------------------|
| 3664.000           | -73.47           | 16.77                  | -56.70          | -13.00         | -43.70         | peak   | H                   |
| 7300.000           | -75.02           | 25.75                  | -49.27          | -13.00         | -36.27         | peak   | V                   |

|               |                   |                      |              |
|---------------|-------------------|----------------------|--------------|
| Standard:     | FCC Part 22       | Test Distance:       | 3m           |
| Test item:    | Radiated Emission | Power:               | AC 120V/60Hz |
| Model Number: | PA820             | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:         | 6                 | Date:                | 09/11/2015   |
| Frequency:    | 826.4 MHz         | Test By:             | Eric Ou Yang |

| Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark | Ant.Polar.<br>H / V |
|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|---------------------|
| 4972.000           | -74.97           | 20.41                  | -54.56          | -13.00         | -41.56         | peak   | H                   |
| 3868.000           | -72.62           | 16.98                  | -55.64          | -13.00         | -42.64         | peak   | V                   |

|               |                   |                      |              |
|---------------|-------------------|----------------------|--------------|
| Standard:     | FCC Part 22       | Test Distance:       | 3m           |
| Test item:    | Radiated Emission | Power:               | AC 120V/60Hz |
| Model Number: | PA820             | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:         | 6                 | Date:                | 09/11/2015   |
| Frequency:    | 836.6 MHz         | Test By:             | Eric Ou Yang |

| Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark | Ant.Polar.<br>H / V |
|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|---------------------|
| 6676.000           | -73.78           | 24.09                  | -49.69          | -13.00         | -36.69         | peak   | H                   |
| 6172.000           | -75.86           | 22.59                  | -53.27          | -13.00         | -40.27         | peak   | V                   |

|               |                   |                      |              |
|---------------|-------------------|----------------------|--------------|
| Standard:     | FCC Part 22       | Test Distance:       | 3m           |
| Test item:    | Radiated Emission | Power:               | AC 120V/60Hz |
| Model Number: | PA820             | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:         | 6                 | Date:                | 09/11/2015   |
| Frequency:    | 846.6 MHz         | Test By:             | Eric Ou Yang |

| Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark | Ant.Polar.<br>H / V |
|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|---------------------|
| 7684.000           | -75.09           | 26.40                  | -48.69          | -13.00         | -35.69         | peak   | H                   |
| 6316.000           | -75.98           | 23.02                  | -52.96          | -13.00         | -39.96         | peak   | V                   |

## 9 Frequency Stability (Temperature & Voltage Variation) Test

### 9.1. Limit

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

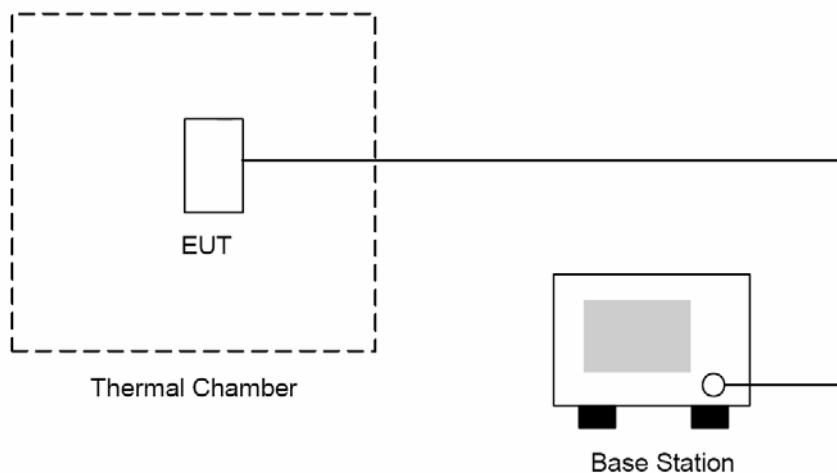
### 9.2. Test Instruments

| Equipment                            | Manufacturer | Model Number | Serial Number | Cal. Date  | Remark |
|--------------------------------------|--------------|--------------|---------------|------------|--------|
| Universal Radio Communication Tester | R & S        | CMU200       | 109369        | 10/21/2015 | (2)    |
| Temperature & Humidity Chamber       | TAICHY       | MHU-225LA    | 980729        | 04/27/2015 | (1)    |
| Test Site                            | ATL          | TE05         | TE05          | N.C.R.     | -----  |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

### 9.3. Setup





#### **9.4. Test Procedure**

The measurement is made according to FCC rules part 22 and 24:

1. The EUT and test equipment were set up as shown on the following section.
2. With all power removed, the temperature was decreased to  $-30^{\circ}\text{C}$  and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was note within one minute.
3. With power OFF, the temperature was raised in  $10^{\circ}\text{C}$  steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency change was noted within one minute.
4. The EUT was placed in a temperature chamber at  $25 \pm 5^{\circ}\text{C}$  and connected as the following section.
5. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
6. The temperature tests were performed for the worst case.
7. Test data was recorded.

#### **9.5. Uncertainty**

The measurement uncertainty is defined as for Frequency Stability (Temperature Variation) measurement is  $\pm 10\text{Hz}$ .

## 9.6. Test Result

| Model Number          | PA820                                                 |                  |                |                 |             |        |
|-----------------------|-------------------------------------------------------|------------------|----------------|-----------------|-------------|--------|
| Test Item             | Frequency Stability (Temperature & Voltage Variation) |                  |                |                 |             |        |
| Test Mode             | Mode 1                                                |                  |                |                 |             |        |
| Date of Test          | 09/30/2015                                            |                  |                |                 | Test Site   | TE05   |
| Level                 | Voltage [Vdc]                                         | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Result |
| Normal                | 3.70                                                  | -20              | 12.86          | 0.015           | ±2.5        | Pass   |
| Normal                | 3.70                                                  | -10              | -13.18         | -0.016          | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 0                | 6.34           | 0.008           | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 10               | 10.32          | 0.012           | ±2.5        | Pass   |
| Battery full point    | 4.25                                                  | 20               | 4.71           | 0.006           | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 20               | 4.10           | 0.005           | ±2.5        | Pass   |
| Battery cut-off point | 3.50                                                  | 20               | -24.75         | -0.030          | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 30               | 6.04           | 0.007           | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 40               | -25.07         | -0.030          | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 50               | 6.98           | 0.008           | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 60               | 11.08          | 0.013           | ±2.5        | Pass   |

| Model Number          | PA820                                                 |                  |                |                 |             |        |
|-----------------------|-------------------------------------------------------|------------------|----------------|-----------------|-------------|--------|
| Test Item             | Frequency Stability (Temperature & Voltage Variation) |                  |                |                 |             |        |
| Test Mode             | Mode 2                                                |                  |                |                 |             |        |
| Date of Test          | 09/30/2015                                            |                  |                |                 | Test Site   | TE05   |
| Level                 | Voltage [Vdc]                                         | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Result |
| Normal                | 3.70                                                  | -20              | 17.50          | 0.009           | ±2.5        | Pass   |
| Normal                | 3.70                                                  | -10              | -27.79         | -0.015          | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 0                | 3.09           | 0.002           | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 10               | 10.63          | 0.006           | ±2.5        | Pass   |
| Battery full point    | 4.25                                                  | 20               | 2.21           | 0.001           | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 20               | 2.59           | 0.001           | ±2.5        | Pass   |
| Battery cut-off point | 3.50                                                  | 20               | -25.63         | -0.014          | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 30               | 14.72          | 0.008           | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 40               | -25.75         | -0.014          | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 50               | -15.33         | -0.008          | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 60               | 20.93          | 0.011           | ±2.5        | Pass   |

The EUT operating temperature is -20°C ~ 60°C.

| Model Number          | PA820                                                 |                  |                |                 |             |        |
|-----------------------|-------------------------------------------------------|------------------|----------------|-----------------|-------------|--------|
| Test Item             | Frequency Stability (Temperature & Voltage Variation) |                  |                |                 |             |        |
| Test Mode             | Mode 5                                                |                  |                |                 |             |        |
| Date of Test          | 09/30/2015                                            |                  |                |                 | Test Site   | TE05   |
| Level                 | Voltage [Vdc]                                         | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Result |
| Normal                | 3.70                                                  | -20              | 11.85          | 0.006           | ±2.5        | Pass   |
| Normal                | 3.70                                                  | -10              | -8.75          | -0.005          | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 0                | -2.54          | -0.001          | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 10               | 15.08          | 0.008           | ±2.5        | Pass   |
| Battery full point    | 4.25                                                  | 20               | 6.62           | 0.004           | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 20               | 4.84           | 0.003           | ±2.5        | Pass   |
| Battery cut-off point | 3.50                                                  | 20               | -27.08         | -0.014          | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 30               | 7.83           | 0.004           | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 40               | -3.06          | -0.002          | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 50               | 5.23           | 0.003           | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 60               | 1.77           | 0.001           | ±2.5        | Pass   |

| Model Number          | PA820                                                 |                  |                |                 |             |        |
|-----------------------|-------------------------------------------------------|------------------|----------------|-----------------|-------------|--------|
| Test Item             | Frequency Stability (Temperature & Voltage Variation) |                  |                |                 |             |        |
| Test Mode             | Mode 6                                                |                  |                |                 |             |        |
| Date of Test          | 09/30/2015                                            |                  |                |                 | Test Site   | TE05   |
| Level                 | Voltage [Vdc]                                         | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Result |
| Normal                | 3.70                                                  | -20              | 16.77          | 0.020           | ±2.5        | Pass   |
| Normal                | 3.70                                                  | -10              | -3.29          | -0.004          | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 0                | 4.76           | 0.006           | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 10               | 13.26          | 0.016           | ±2.5        | Pass   |
| Battery full point    | 4.25                                                  | 20               | 7.03           | 0.008           | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 20               | 13.99          | 0.017           | ±2.5        | Pass   |
| Battery cut-off point | 3.50                                                  | 20               | -20.26         | -0.024          | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 30               | 14.20          | 0.017           | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 40               | -1.46          | -0.002          | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 50               | -3.85          | -0.005          | ±2.5        | Pass   |
| Normal                | 3.70                                                  | 60               | 13.87          | 0.017           | ±2.5        | Pass   |

The EUT operating temperature is -20°C ~ 60°C.