



FCC Report

Application Purpose : Original grant
Applicant Name: : TECNO MOBILE LIMITED
Equipment Type : Mobile Phone
Model Name : A7
Report Number : FCC15016718-5
Standard(S) : FCC Part 15 Subpart B
Date Of Receipt : January 16, 2015
Date Of Issue : January 26, 2015

Test By : 
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REPORT REVISE RECORD

| Report Version | Revise Time | Issued Date | Valid Version | Notes |
|----------------|-------------|------------------|---------------|-----------------|
| V1.0 | / | January 26, 2015 | Valid | Original Report |

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1. GENERAL INFORMATION

| | |
|--------------------------|---|
| Test Model | A7 |
| Applicant | TECNO MOBILE LIMITED |
| Address | RMS 05-15, 13A/F., SOUTH TOWER, WORLD FINANCE CTR, HARBOUR CITY, KLN, HK. |
| Manufacturer | SHENZHEN SMARTTEL CO., LTD. |
| Address | 6th Floor, Block 15, shatoujiao Free TRADE Zone, Shenyang Road, Yantian District, Shenzhen, Guangdong, P.R.China |
| Equipment Type | Mobile Phone |
| Brand Name |  |
| Hardware version: | G906_MAIN_PCB_V1.0 |
| Software version: | V1.0 |
| Battery information: | Model: BL-30BT Voltage: 3.8V Capacity: 2980mAh |
| Adapter Information: | Model: A88-502000 Input: AC 100-240 V, 50/60 Hz, 0.35A Output: DC 5V 2.0A |
| Data of receipt | January 16, 2015 |
| Date of test | January 16, 2015 to January 26, 2015 |
| Deviation | None |
| Condition of Test Sample | Normal |

We hereby certify that:

All measurement facilities used to collect the measurement data are located at
1F, No.9 Building, TGK Science & Technology Park Yangtian Rd., NO.72 Bao'an Dist.,
GuangDong, China

The data evaluation, test procedures, and equipment configurations shown in this report were
made in accordance with the procedures given in ANSI C 63.4:2009. The sample tested as
described in this report is in compliance with the FCC Rules Part15 Subpart B.

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

2. TEST DESCRIPTION

2.1 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately **95 %**.

| No. | Item | Uncertainty |
|-----|-------------------------------|---------------------------|
| 1 | Conducted Emission Test | $\pm 3.2\text{dB}$ |
| 2 | RF power, conducted | $\pm 0.16\text{dB}$ |
| 3 | Spurious emissions, conducted | $\pm 0.21\text{dB}$ |
| 4 | All emissions, radiated(<1G) | $\pm 4.7\text{dB}$ |
| 5 | All emissions, radiated(>1G) | $\pm 4.7\text{dB}$ |
| 6 | Temperature | $\pm 0.5^{\circ}\text{C}$ |
| 7 | Humidity | $\pm 2\%$ |

2.2 DESCRIPTION OF TEST MODES

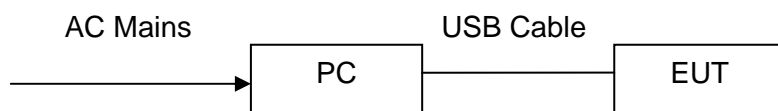
To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Pretest Mode | Description |
|--------------|---------------|
| Mode 1 | Exchange data |

| For Conducted Emission | |
|------------------------|---------------|
| Final Test Mode | Description |
| Mode 1 | Exchange data |

| For Radiated Emission | |
|-----------------------|---------------|
| Final Test Mode | Description |
| Mode 1 | Exchange data |

2.3 CONFIGURATION OF SYSTEM UNDER TEST



(EUT: Mobile Phone)

| I/O Port of EUT | | | |
|-----------------|------|--------------------------|-------------|
| I/O Port Type | Q'TY | Cable | Tested with |
| USB port | 1 | 1m USB cable, unshielded | 1 |
| Earphone | 1 | 1m | N/A |

2.4 DESCRIPTION OF SUPPORT UNITS (CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment | Mfr/Brand | Model/Type No. | Series No. | Note |
|------|-----------|-----------|----------------|------------|-----------------|
| 1 | Computer | HP | Compaq | CNX74417JC | / |
| 2 | Monitor | HP | / | CND7160R3Z | / |
| 3 | Mouse | DELL | / | / | 1.5m unshielded |
| 4 | Keyboard | SHENGLI | / | / | 1.5m unshielded |

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

3. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

| FCC Part15 , Subpart B | | | |
|------------------------|--------------------|----------|--------|
| Standard Section | Test Item | Judgment | Remark |
| 15.107 | CONDUCTED EMISSION | PASS | |
| 15.109 | RADIATED EMISSION | PASS | |

NOTE:

(1) "N/A" denotes test is not applicable in this test report.

4. MEASUREMENT INSTRUMENTS

| Kind of Equipment | Manufacturer | Type No. | Serial No. | Last Calibrated | Calibrated until |
|--------------------|--------------|-------------|-------------|-----------------|------------------|
| ESPI Test Receiver | R&S | ESPI | 100379 | 08/19/2014 | 08/18/2015 |
| ESCI Test Receiver | R&S | ESCI | 100005 | 08/19/2014 | 08/18/2015 |
| LISN | AFJ | LS16 | 16010222119 | 08/19/2014 | 08/18/2015 |
| LISN(EUT) | Mestec | AN3016 | 04/10040 | 08/19/2014 | 08/18/2015 |
| pre-amplifier | CDSI | PAP-1G18-38 | -- | 08/19/2014 | 08/18/2015 |
| System Controller | CT | SC100 | - | 08/19/2014 | 08/18/2015 |
| Bi-log Antenna | Chase | CBL6111C | 2576 | 08/19/2014 | 08/18/2015 |
| Spectrum analyzer | R&S | FSU26 | 200409 | 08/19/2014 | 08/18/2015 |
| Horn Antenna | SCHWARZBECK | 9120D | 1141 | 08/19/2014 | 08/18/2015 |
| Bi-log Antenna | Schwarebeck | VULB9163 | 9163/340 | 08/19/2014 | 08/18/2015 |
| Pre Amplifier | H.P. | HP8447E | 2945A02715 | 10/13/2014 | 10/12/2015 |
| 9*6*6 Anechoic | -- | -- | -- | 08/21/2014 | 08/20/2015 |

5. EMC EMISSION TEST

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

| FREQUENCY (MHz) | Class A (dBuV) | | Class B (dBuV) | | Standard |
|-----------------|----------------|---------|----------------|-----------|----------|
| | Quasi-peak | Average | Quasi-peak | Average | |
| 0.15 -0.5 | 79.00 | 66.00 | 66 - 56 * | 56 - 46 * | FCC |
| 0.50 -5.0 | 73.00 | 60.00 | 56.00 | 46.00 | FCC |
| 5.0 -30.0 | 73.00 | 60.00 | 60.00 | 50.00 | FCC |

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

| Receiver Parameters | Setting |
|---------------------|----------|
| Attenuation | 10 dB |
| Start Frequency | 0.15 MHz |
| Stop Frequency | 30 MHz |
| IF Bandwidth | 9 kHz |

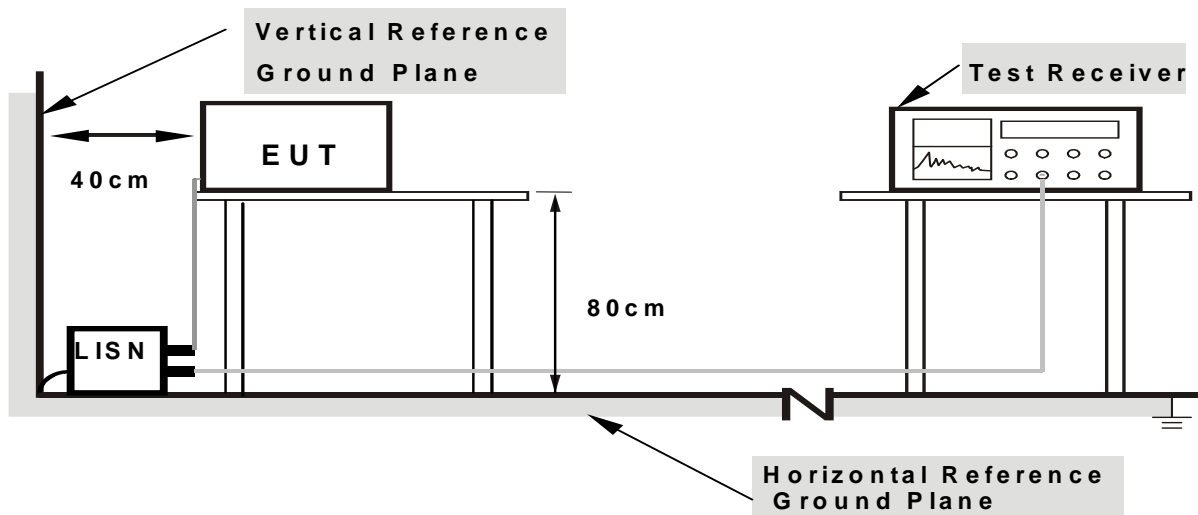
5.1.2 TEST PROCEDURE

- The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

5.1.3 DEVIATION FROM TEST STANDARD

No deviation

5.1.4 TEST SETUP



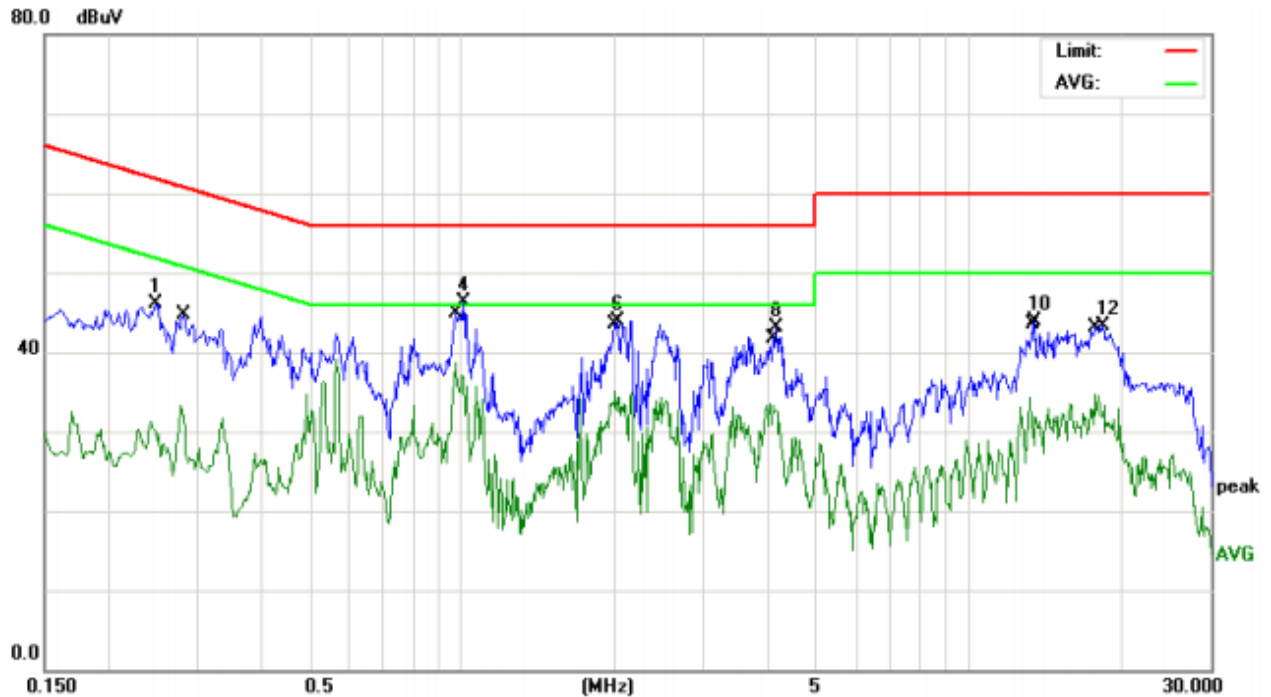
Note: 1.Support units were connected to second LISN.
 2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

5.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

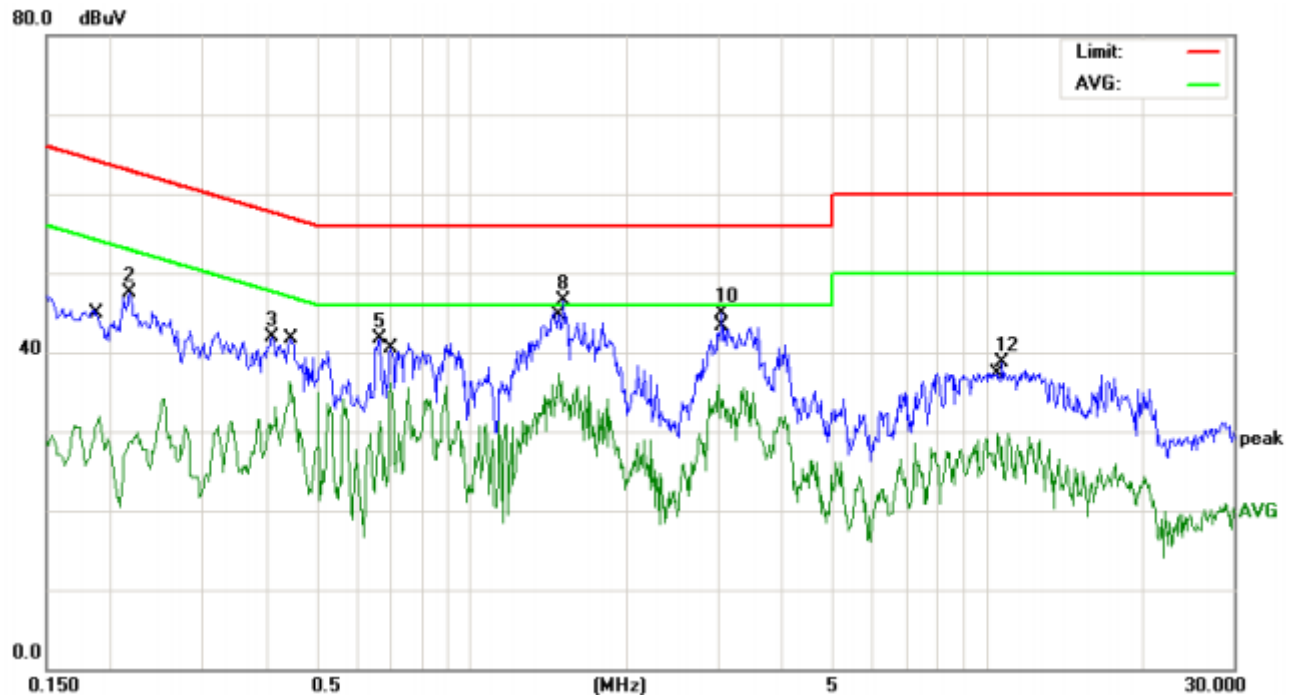
5.1.6 TEST RESULTS

| | | | |
|-------------|------------------|-------------------|--------|
| EUT | Mobile Phone | Model Name | A7 |
| Temperature | 26 °C | Relative Humidity | 54% |
| Pressure | 1010hPa | Phase | L |
| Test Date | January 21, 2015 | Test Mode | Mode 1 |
| Voltage | 120V/60Hz | | |



| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV | Limit dBuV | Over dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|
| 1 | | 0.2479 | 35.68 | 10.47 | 46.15 | 61.82 | -15.67 | peak |
| 2 | | 0.2787 | 22.66 | 10.58 | 33.24 | 50.85 | -17.61 | AVG |
| 3 | * | 0.9700 | 27.95 | 10.68 | 38.63 | 46.00 | -7.37 | AVG |
| 4 | | 1.0060 | 35.70 | 10.57 | 46.27 | 56.00 | -9.73 | peak |
| 5 | | 2.0020 | 24.57 | 10.60 | 35.17 | 46.00 | -10.83 | AVG |
| 6 | | 2.0260 | 33.30 | 10.60 | 43.90 | 56.00 | -12.10 | peak |
| 7 | | 4.0619 | 22.76 | 10.66 | 33.42 | 46.00 | -12.58 | AVG |
| 8 | | 4.1779 | 32.38 | 10.67 | 43.05 | 56.00 | -12.95 | peak |
| 9 | | 13.2099 | 23.93 | 10.39 | 34.32 | 50.00 | -15.68 | AVG |
| 10 | | 13.4819 | 33.59 | 10.39 | 43.98 | 60.00 | -16.02 | peak |
| 11 | | 17.9899 | 24.04 | 10.38 | 34.42 | 50.00 | -15.58 | AVG |
| 12 | | 18.3658 | 33.01 | 10.38 | 43.39 | 60.00 | -16.61 | peak |

| | | | |
|-------------|------------------|-------------------|--------|
| EUT | Mobile Phone | Model Name | A7 |
| Temperature | 26 °C | Relative Humidity | 54% |
| Pressure | 1010hPa | Phase | N |
| Test Date | January 21, 2015 | Test Mode | Mode 1 |
| Voltage | 120V/60Hz | | |



| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV | Limit dBuV | Over dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|
| 1 | | 0.1900 | 21.64 | 10.33 | 31.97 | 54.03 | -22.06 | AVG |
| 2 | | 0.2179 | 37.20 | 10.36 | 47.56 | 62.89 | -15.33 | peak |
| 3 | | 0.4104 | 31.50 | 10.49 | 41.99 | 57.64 | -15.65 | peak |
| 4 | | 0.4460 | 25.94 | 10.45 | 36.39 | 46.95 | -10.56 | AVG |
| 5 | | 0.6620 | 30.81 | 10.82 | 41.63 | 56.00 | -14.37 | peak |
| 6 | | 0.6980 | 25.14 | 10.90 | 36.04 | 46.00 | -9.96 | AVG |
| 7 | * | 1.4778 | 26.63 | 10.58 | 37.21 | 46.00 | -8.79 | AVG |
| 8 | | 1.5100 | 35.96 | 10.59 | 46.55 | 56.00 | -9.45 | peak |
| 9 | | 3.0220 | 25.19 | 10.63 | 35.82 | 46.00 | -10.18 | AVG |
| 10 | | 3.0579 | 34.28 | 10.63 | 44.91 | 56.00 | -11.09 | peak |
| 11 | | 10.5059 | 19.32 | 10.40 | 29.72 | 50.00 | -20.28 | AVG |
| 12 | | 10.6779 | 28.21 | 10.40 | 38.61 | 60.00 | -21.39 | peak |

5.2 RADIATED EMISSION MEASUREMENT

5.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

| Frequencies (MHz) | Field Strength (micorvolts/meter) | Measurement Distance (meters) |
|-------------------|-----------------------------------|-------------------------------|
| 0.009~0.490 | 2400/F(KHz) | 300 |
| 0.490~1.705 | 24000/F(KHz) | 30 |
| 1.705~30.0 | 30 | 30 |
| 30~88 | 100 | 3 |
| 88~216 | 150 | 3 |
| 216~960 | 200 | 3 |
| Above 960 | 500 | 3 |

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

| FREQUENCY (MHz) | Limit (dBuV/m) (at 3M) | |
|-----------------|------------------------|---------|
| | PEAK | AVERAGE |
| Above 1000 | 74 | 54 |

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

| Spectrum Parameter | Setting |
|---------------------------------------|--|
| Attenuation | Auto |
| Start Frequency | 1000 MHz |
| Stop Frequency | 10th carrier harmonic |
| RB / VB (emission in restricted band) | 1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average |

| Receiver Parameter | Setting |
|------------------------|----------------------------------|
| Attenuation | Auto |
| Start ~ Stop Frequency | 9kHz~150kHz / RB 200Hz for QP |
| Start ~ Stop Frequency | 150kHz~30MHz / RB 9kHz for QP |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB 120kHz for QP |

5.2.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

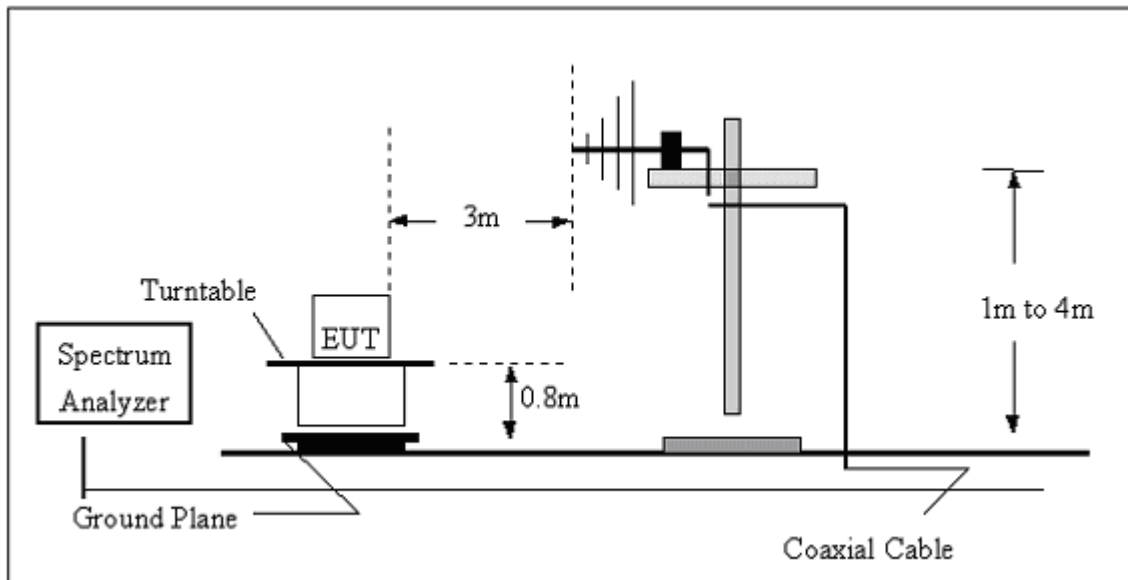
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

5.2.3 DEVIATION FROM TEST STANDARD

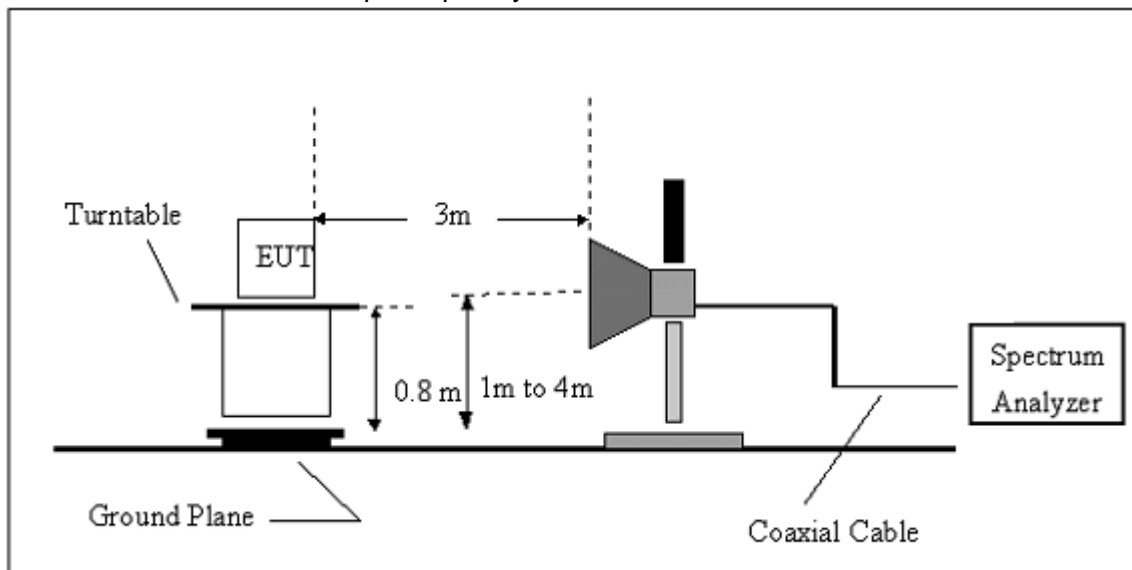
No deviation

5.2.4 TEST SETUP

(A) Radiated Emission Test-Up Frequency 30MHz~1GHz



(B) Radiated Emission Test-Up Frequency Above 1GHz

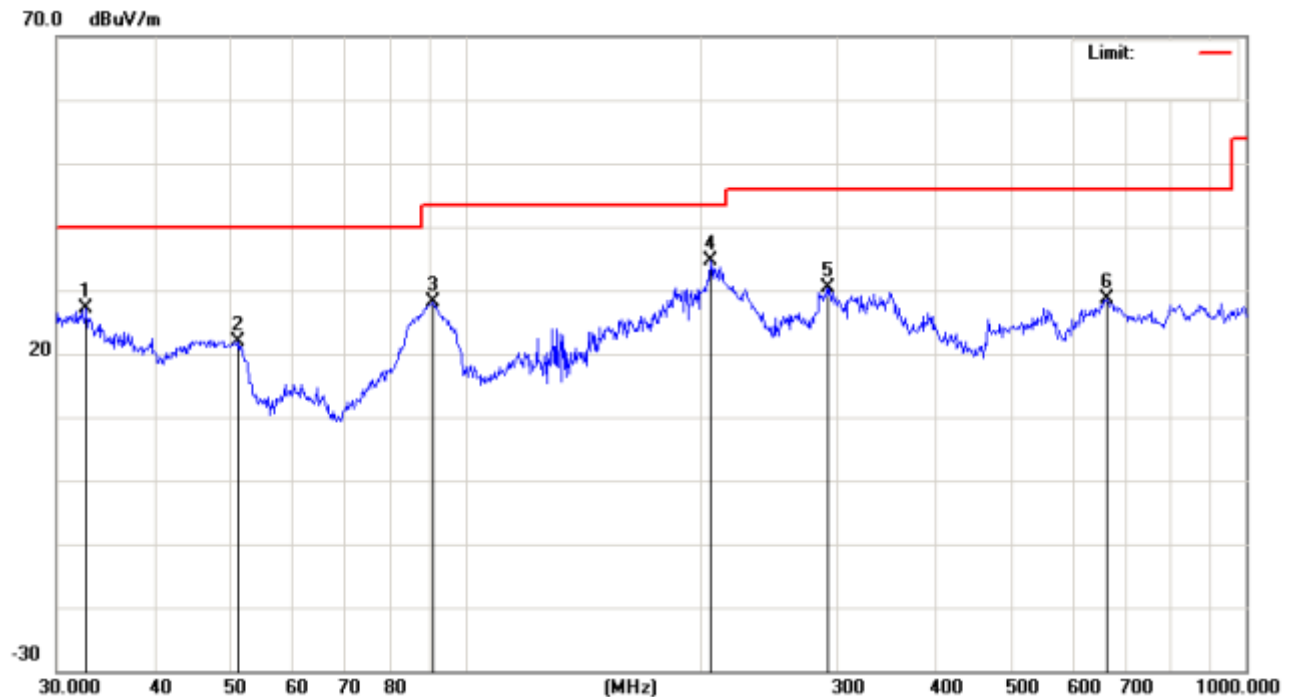


5.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.2.5.1 TEST RESULTS (BETWEEN 30M – 1000 MHZ)

| | | | |
|-------------|--------------|-------------------|------------------|
| EUT | Mobile Phone | Model Name | A7 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Polarization : | Horizontal |
| Test Mode | Mode 1 | Test Date | January 23, 2015 |



| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1 | | 32.7486 | 25.41 | 1.72 | 27.13 | 40.00 | -12.87 | peak |
| 2 | | 51.3004 | 31.09 | -9.32 | 21.77 | 40.00 | -18.23 | peak |
| 3 | | 91.1744 | 38.36 | -10.27 | 28.09 | 43.50 | -15.41 | peak |
| 4 | * | 206.3976 | 41.38 | -6.80 | 34.58 | 43.50 | -8.92 | peak |
| 5 | | 291.0360 | 33.30 | -2.95 | 30.35 | 46.00 | -15.65 | peak |
| 6 | | 663.4728 | 23.10 | 5.47 | 28.57 | 46.00 | -17.43 | peak |

| | | | |
|-------------|--------------|-------------------|------------------|
| EUT | Mobile Phone | Model Name | A7 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Polarization : | Vertical |
| Test Mode | Mode 1 | Test Date | January 23, 2015 |



| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1 | | 46.9947 | 47.20 | -16.97 | 30.23 | 40.00 | -9.77 | peak |
| 2 | | 88.0327 | 43.55 | -13.48 | 30.07 | 43.50 | -13.43 | peak |
| 3 | | 137.9028 | 38.62 | -9.61 | 29.01 | 43.50 | -14.49 | peak |
| 4 | * | 182.5592 | 40.73 | -5.95 | 34.78 | 43.50 | -8.72 | peak |
| 5 | | 291.0360 | 36.39 | -4.57 | 31.82 | 46.00 | -14.18 | peak |
| 6 | | 881.4067 | 24.58 | 6.68 | 31.26 | 46.00 | -14.74 | peak |

5.2.5.2 TEST RESULTS(1GHZ TO 6GHZ)

| | | | |
|-------------|------------------|-------------------|--------|
| EUT | Mobile Phone | Model Name | A7 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Test Mode | Mode 1 |
| Test Date | January 23, 2015 | | |

| Freq. (MHz) | Ant. Pol. | Emission Level(dBuV) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|--------------|-------------------------|-------|---------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 1670.98 | V | 60.92 | 41.25 | 74 | 54 | -13.08 | -12.75 |
| 2874.20 | V | 60.27 | 39.82 | 74 | 54 | -13.73 | -14.18 |
| 1679.41 | H | 59.43 | 42.55 | 74 | 54 | -14.57 | -11.45 |
| 2887.45 | H | 59.92 | 40.41 | 74 | 54 | -14.08 | -13.59 |

Remark:

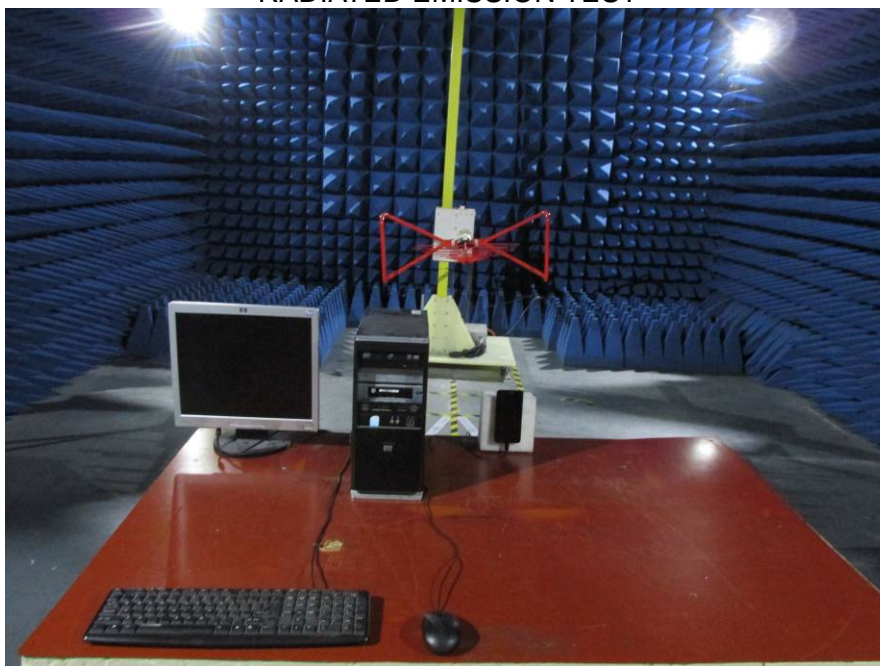
All emissions not reported were more than 20dB below the specified limit or in the noise floor.
All the x/y/z orientation has been investigated, and only worst case is presented in this report.

6. EUT TEST PHOTO

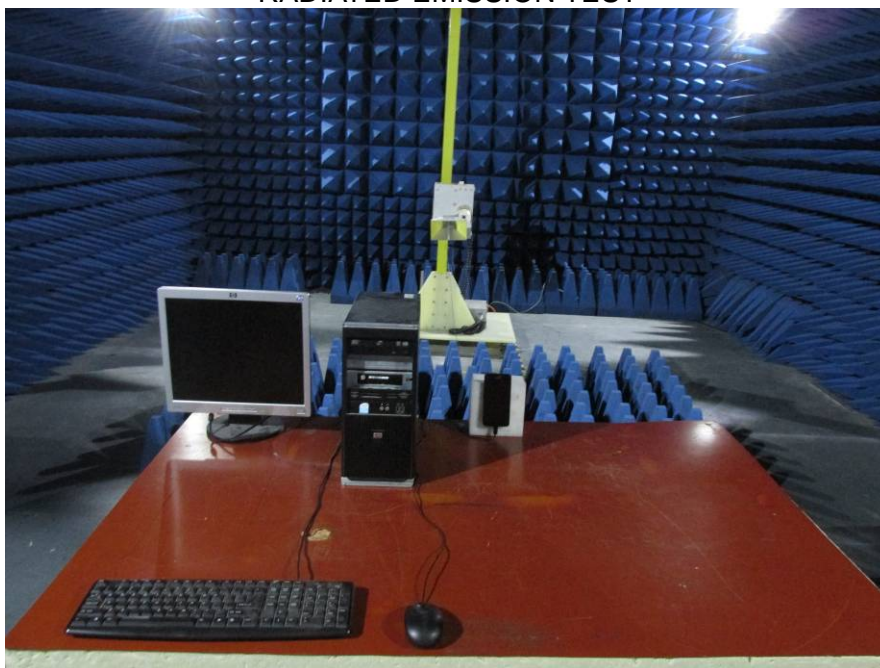
CONDUCTED EMISSION TEST



RADIATED EMISSION TEST



RADIATED EMISSION TEST



7. PHOTOGRAPHS OF EUT

Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Internal photograph of EUT



Internal photograph of EUT



Internal photograph of EUT



Internal photograph of EUT



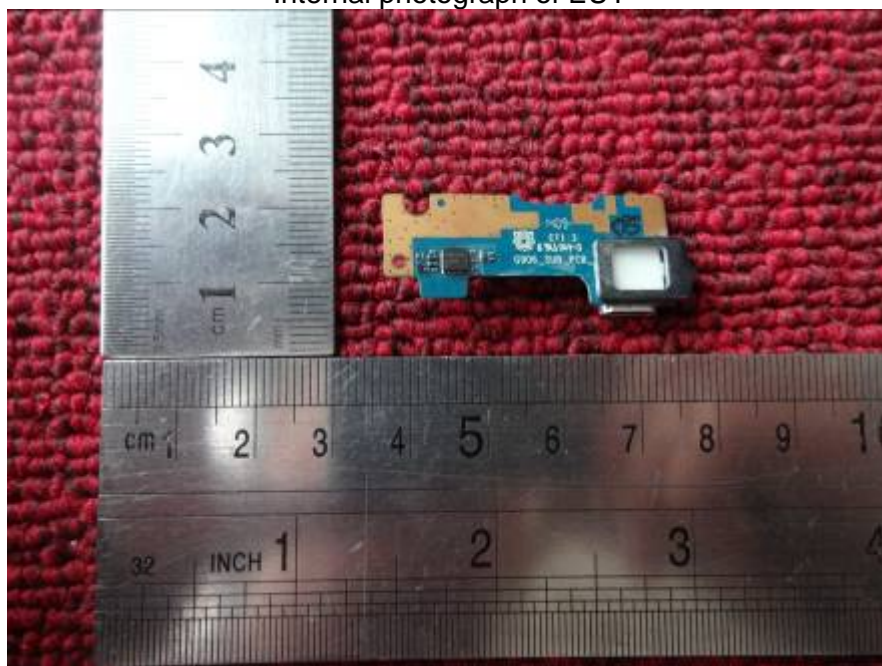
Internal photograph of EUT



Internal photograph of EUT



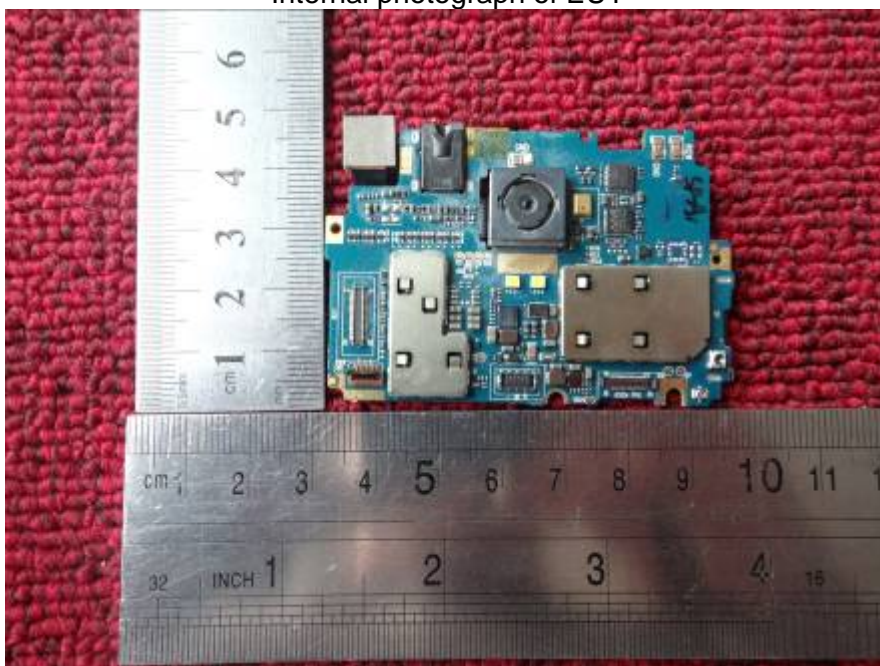
Internal photograph of EUT



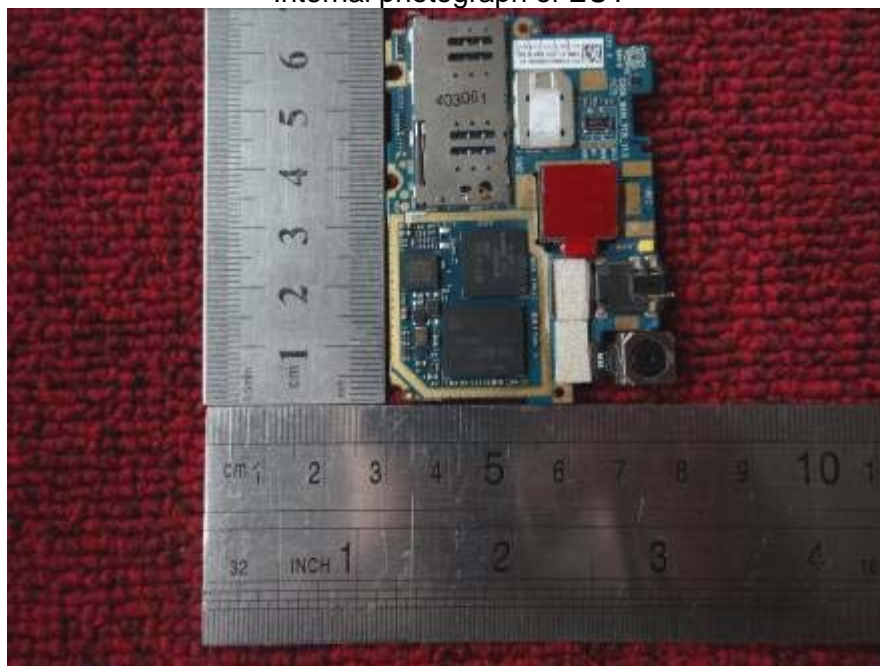
Internal photograph of EUT



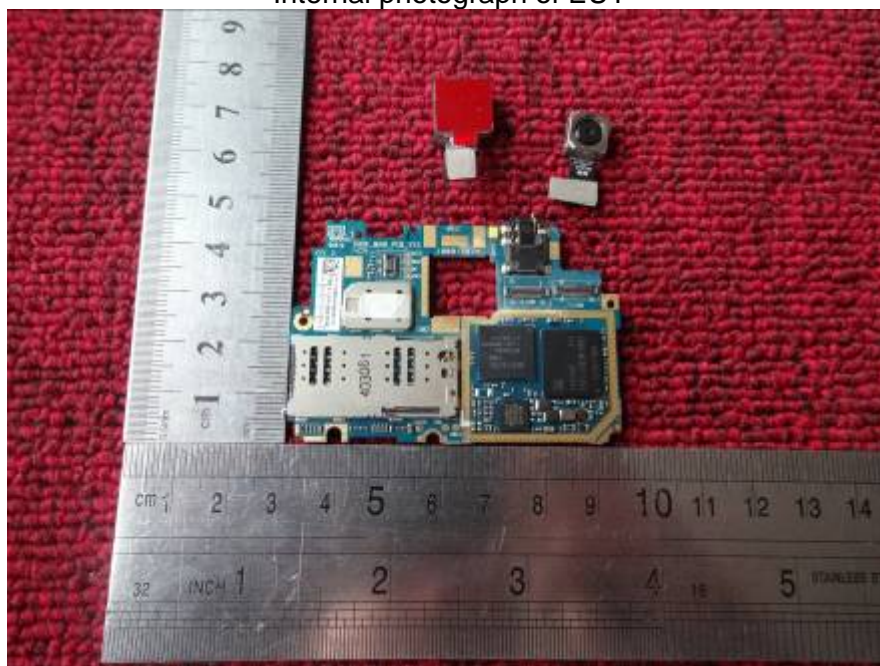
Internal photograph of EUT



Internal photograph of EUT



Internal photograph of EUT



—END OF REPORT—