



**Microtest**  
微 测 检 测

# Test Report

**Report No.:** MTi220902005-19E3  
**Date of issue:** 2022-09-21  
**Applicant:** Anker Innovations Limited  
**Product:** Soundcore Life Q30, Soundcore Life Tune  
**Model(s):** A3028, A3029  
**FCC ID:** 2AOKB-A3028

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

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## Instructions

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5. Any objection to this test report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

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| <b>Test Result Certification</b> |  |
|----------------------------------|--|
| <b>Applicant:</b>                | Anker Innovations Limited  |
| Address:                         | Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hongkong     |
| <b>Manufacturer:</b>             | Anker Innovations Limited  |
| Address:                         | Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hongkong     |
| <b>Factory:</b>                  | Senmai Electronic Limited  |
| Address:                         | No. 5 Shuiling Road, Zhouwu Industrial Zone, Dongcheng District, Dongguan City |
| <b>Product description</b>       |  |
| Product name:                    | Soundcore Life Q30, Soundcore Life Tune  |
| Trademark:                       | Soundcore  |
| Model name:                      | A3028  |
| Serial Model:                    | A3029  |
| Standards:                       | FCC Part 15.225  |
| <b>Date of Test</b>              |  |
| Date of test:                    | 2022-09-14 ~2022-09-21   |
| Test result:                     | Pass   |

Note: This report updates the NFC module. Based on the original test report MTi20062814-10E3. After evaluation, all items are retested.

**Test Engineer :**

*David. Lee*

(David Lee)

**Reviewed By: :**

*Leon Chen*

(Leon Chen)

**Approved By: :**

*Tom Xue*

(Tom Xue)

## 1 General description

### 1.1 Feature of equipment under test (EUT)

|                             |  |
|-----------------------------|--|
| Product name:               | Soundcore Life Q30, Soundcore Life Tune  |
| Model name:                 | A3028  |
| Series model:               | A3029  |
| Difference of series model: | All the model are the same circuit and RF module, except the Logo, silk screen and model No..(Soundcore Life Q30 is the product name of A3028, Soundcore Life Tune is the product name of A3029) |
| Operating frequency:        | 13.56MHz   |
| Modulation type:            | ASK  |
| Antenna Tpye:               | FPC antenna  |
| Maximum Field Strength:     | 52.67dB $\mu$ V/m at 3 meter   |
| Hardware Version:           | E Ver  |
| Software Version:           | V1.2   |
| Power Supply:               | DC 5V from adapter AC 120V/60Hz or DC 3.7V from battery  |
| Battery:                    | DC 3.7V 720mAh   |
| Accessories:                | Cable 1: USB-A to USB-C cable*1<br>Cable 2: AUX IN cable*1   |



**1.2 Operation channel list**

| Channel | Frequency (MHz) |
|---------|-----------------|
| 01      | 13.56           |

**1.3 Test channel list**

| Channel | Frequency (MHz) |
|---------|-----------------|
| 01      | 13.56           |

**1.4 Ancillary equipment list**

| Equipment | Model        | S/N | Manufacturer                      | Certificate type |
|-----------|--------------|-----|-----------------------------------|------------------|
| Adapter   | HW-090200CH0 | /   | Huizhou BYD Electronics Co., Ltd. | /                |

**1.5 Description of support units**

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 | Brand | Model/Type No. | Series No. | Note |
|------|-----------|-------|----------------|------------|------|
| /    | /         | /     | /              | /          | /    |
| /    | /         | /     | /              | /          | /    |

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.

**1.6 EUT operation mode**

During testing, the EUT is operated in a keeping TX mode.

## 2 SUMMARY OF TEST RESULT

Test procedures according to the technical standards:

| No. | Standard Section       | Test Item                               | Result | Remark |
|-----|------------------------|---|--------|--------|
| 1   | 15.203                 | Antenna Requirement                     | Pass   |        |
| 2   | 15.207                 | Conducted Emission                      | Pass   |        |
| 3   | 15.225(d)/15.209       | Radiated Emissions                      | Pass   |        |
| 4   | 15.227(a)(b)(c)/15.205 | Field Strength of Fundamental Emissions | Pass   |        |
| 5   | 15.215                 | 20dB Bandwidth                          | Pass   |        |
| 6   | 15.225(e)              | Frequency Tolerance                     | Pass   |        |

### 3 Test Facilities and Accreditations

#### 3.1 Test laboratory

|                       |   |
|-----------------------|---|
| Test Laboratory       | Shenzhen Microtest Co., Ltd   |
| Location              | 101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao' an District, Shenzhen, Guangdong, China. |
| FCC Registration No.: | FCC Registration No.: 448573  |

#### 3.2 Environmental conditions

|                      |              |
|----------------------|--------------|
| Temperature:         | 15°C~35°C    |
| Humidity             | 20%~75%      |
| Atmospheric pressure | 98kPa~101kPa |

#### 3.3 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       | $\pm 1.38\text{dB}$     |
| 2   | RF power, conducted           | $\pm 0.16\text{dB}$     |
| 3   | Spurious emissions, conducted | $\pm 0.21\text{dB}$     |
| 4   | All emissions, radiated(<1G)  | $\pm 4.68\text{dB}$     |
| 5   | All emissions, radiated(>1G)  | $\pm 4.89\text{dB}$     |
| 6   | Temperature                   | $\pm 0.5^\circ\text{C}$ |
| 7   | Humidity                      | $\pm 2\%$               |

#### 3.4 Test software

| Software Name  | Manufacturer                  | Model    | Version     |
|----------------|-------------------------------|----------|-------------|
| RF Test System | Shenzhen JS tonscond co., ltd | JS1120-3 | 2.5.77.0418 |

#### 4 List of test equipment

| Equipment No. | Equipment Name                       | Manufacturer    | Model       | Serial No.     | Calibration date | Due date   |
|---------------|--------------------------------------|-----------------|-------------|----------------|------------------|------------|
| MTI-E043      | EMI Test Receiver                    | Rohde&schwarz   | ESCI7       | 101166         | 2022/05/05       | 2023/05/04 |
| MTI-E044      | TRILOG Broadband Antenna             | schwarzbeck     | VULB 9163   | 9163-1338      | 2021/05/30       | 2023/05/29 |
| MTI-E047      | Amplifier                            | Hewlett-Packard | 8447F       | 3113A06150     | 2022/05/05       | 2023/05/04 |
| MTI-E089      | ESG Vector Signal Generator          | Agilent         | N5182A      | MY49060455     | 2022/05/05       | 2023/05/04 |
| MTI-E058      | ESG Series Analog Signal Generator   | Agilent         | E4421B      | GB40051240     | 2022/05/05       | 2023/05/04 |
| MTI-E062      | PXA Signal Analyzer                  | Agilent         | N9030A      | MY51350296     | 2022/05/05       | 2023/05/04 |
| MTI-E078      | Synthesized Sweeper                  | Agilent         | 83752A      | 3610A01957     | 2022/05/05       | 2023/05/04 |
| MTI-E079      | DC Power Supply                      | Agilent         | E3632A      | MY40027695     | 2022/05/05       | 2023/05/04 |
| MTI-E045      | Double Ridged Broadband Horn Antenna | schwarzbeck     | BBHA 9120D  | 9120D-2278     | 2021/05/30       | 2023/05/29 |
| MTI-E021      | EMI Test Receiver                    | Rohde&schwarz   | ESCS30      | 100210         | 2022/05/05       | 2023/05/04 |
| MTI-E022      | Pulse Limiter                        | Schwarzbeck     | VSTD 9561-F | 00679          | 2022/05/05       | 2023/05/04 |
| MTI-E023      | Artificial mains network             | Schwarzbeck     | NSLK 8127   | NSLK 8127 #841 | 2022/05/05       | 2023/05/04 |
| MTI-E046      | Active Loop Antenna                  | Schwarzbeck     | FMZB 1519B  | 00044          | 2021/05/30       | 2023/05/29 |
| MTI-E048      | Amplifier                            | Agilent         | 8449B       | 3008A02400     | 2022/05/05       | 2023/05/04 |
| MTI-E072      | Thermometer Clock Humidity Monitor   | -               | HTC-1       | /              | 2022/05/05       | 2023/05/04 |

Note: the calibration interval of the above test instruments is 12 or 24 months and the calibrations are traceable to international system unit (SI).



## 5 Test Result

### 5.1 Antenna requirement

#### 5.1.1 Standard requirement

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device

#### 5.1.2 EUT Antenna

The antenna is FPC antenna, which was permanently affixed to the device and un-replaced, complies with 15.203.



**5.2 Conducted emission**

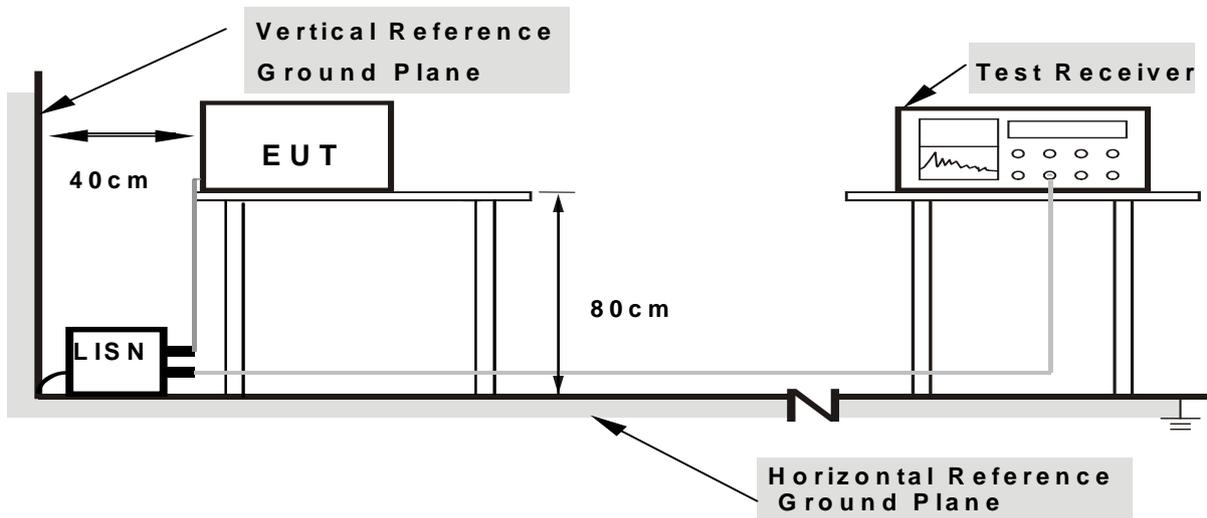
**5.2.1 Limits**

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

**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.

**5.2.2 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 from other units and other metal planes



### 5.2.3 Test procedure

#### a. 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.

#### b. 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    |

- c. The EUT was placed 0.8 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.
- d. 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.
- e. 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.
- f. LISN at least 80 cm from nearest part of EUT chassis.

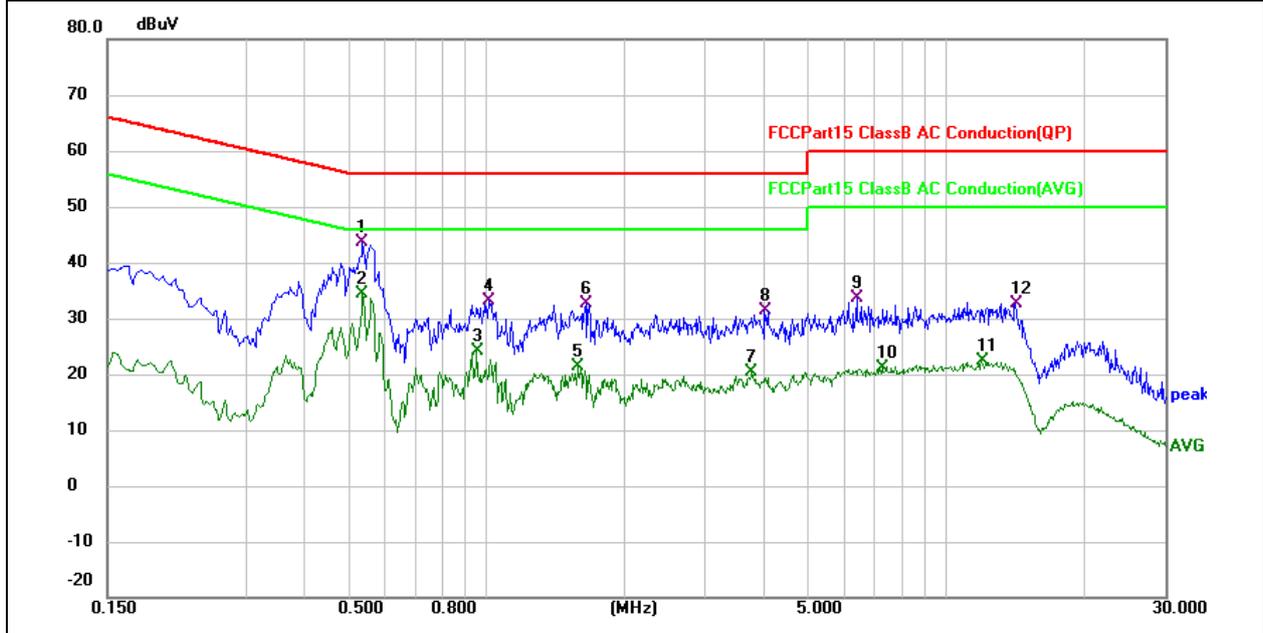
For the actual test configuration, please refer to the related Item –EUT Test Photos.



5.2.4 Test results

Note1: Emission Level = Reading Level + Factor, Margin= Emission Level- Limit, Factor = LISN modulus + Cable Loss

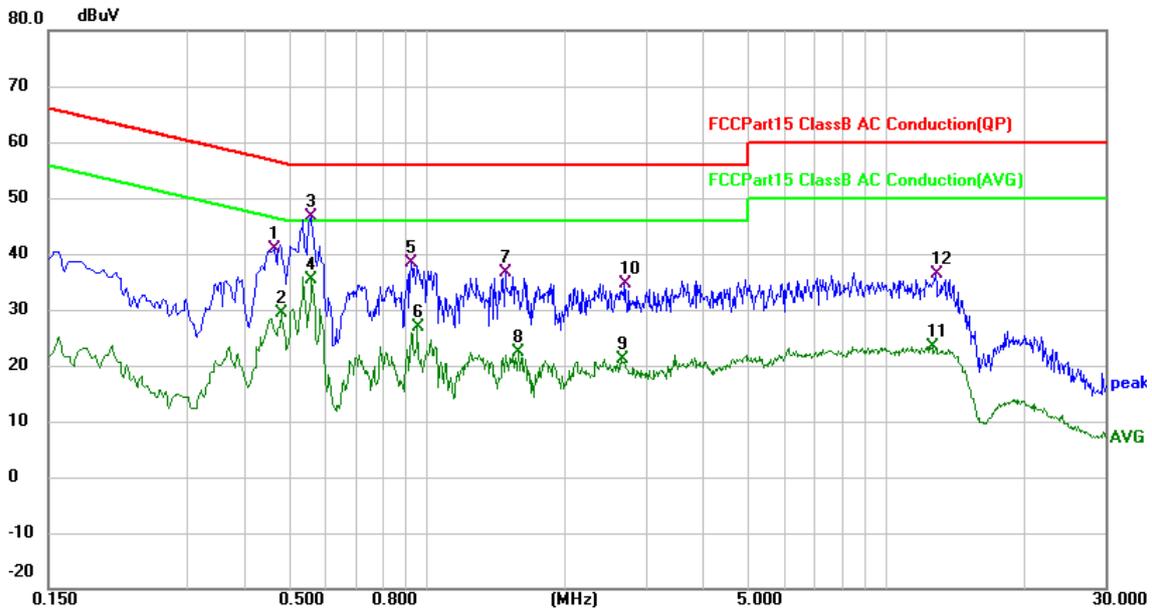
|               |   |              |       |
|---------------|---|--------------|-------|
| EUT :         | Soundcore Life Q30, Soundcore Life Tune | Model Name : | A3028 |
| Pressure:     | 101kPa                                  | Phase:       | L     |
| Test voltage: | DC 5V from adapter AC 120V/60Hz         | Test mode:   | NFC   |



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|
| 1   |     | 0.5380       | 32.20                    | 11.41                   | 43.61                    | 56.00         | -12.39     | QP       |
| 2   | *   | 0.5380       | 23.03                    | 11.41                   | 34.44                    | 46.00         | -11.56     | AVG      |
| 3   |     | 0.9540       | 11.86                    | 12.31                   | 24.17                    | 46.00         | -21.83     | AVG      |
| 4   |     | 1.0140       | 20.60                    | 12.42                   | 33.02                    | 56.00         | -22.98     | QP       |
| 5   |     | 1.5859       | 8.05                     | 13.35                   | 21.40                    | 46.00         | -24.60     | AVG      |
| 6   |     | 1.6460       | 19.27                    | 13.44                   | 32.71                    | 56.00         | -23.29     | QP       |
| 7   |     | 3.7900       | 10.00                    | 10.27                   | 20.27                    | 46.00         | -25.73     | AVG      |
| 8   |     | 4.0420       | 21.15                    | 10.27                   | 31.42                    | 56.00         | -24.58     | QP       |
| 9   |     | 6.4100       | 23.34                    | 10.28                   | 33.62                    | 60.00         | -26.38     | QP       |
| 10  |     | 7.2900       | 10.90                    | 10.29                   | 21.19                    | 50.00         | -28.81     | AVG      |
| 11  |     | 11.9940      | 11.94                    | 10.45                   | 22.39                    | 50.00         | -27.61     | AVG      |
| 12  |     | 14.1620      | 22.12                    | 10.49                   | 32.61                    | 60.00         | -27.39     | QP       |



|               |   |              |       |
|---------------|---|--------------|-------|
| EUT :         | Soundcore Life Q30, Soundcore Life Tune | Model Name : | A3028 |
| Pressure:     | 101kPa                                  | Phase:       | N     |
| Test voltage: | DC 5V from adapter AC 120V/60Hz         | Test mode:   | NFC   |



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|
| 1   |     | 0.4660       | 29.56                    | 11.24                   | 40.80                    | 56.58         | -15.78     | QP       |
| 2   |     | 0.4820       | 18.10                    | 11.27                   | 29.37                    | 46.30         | -16.93     | AVG      |
| 3   | *   | 0.5580       | 35.28                    | 11.45                   | 46.73                    | 56.00         | -9.27      | QP       |
| 4   |     | 0.5620       | 23.96                    | 11.46                   | 35.42                    | 46.00         | -10.58     | AVG      |
| 5   |     | 0.9260       | 26.20                    | 12.20                   | 38.40                    | 56.00         | -17.60     | QP       |
| 6   |     | 0.9540       | 14.55                    | 12.24                   | 26.79                    | 46.00         | -19.21     | AVG      |
| 7   |     | 1.4860       | 23.29                    | 13.38                   | 36.67                    | 56.00         | -19.33     | QP       |
| 8   |     | 1.5859       | 8.69                     | 13.60                   | 22.29                    | 46.00         | -23.71     | AVG      |
| 9   |     | 2.6540       | 10.72                    | 10.36                   | 21.08                    | 46.00         | -24.92     | AVG      |
| 10  |     | 2.7060       | 24.37                    | 10.35                   | 34.72                    | 56.00         | -21.28     | QP       |
| 11  |     | 12.5900      | 12.94                    | 10.41                   | 23.35                    | 50.00         | -26.65     | AVG      |
| 12  |     | 12.8220      | 26.07                    | 10.41                   | 36.48                    | 60.00         | -23.52     | QP       |

### 5.3 Radiated Emissions

#### 5.3.1 Limit

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency (MHz) | Field Strength ( $\mu\text{V}/\text{m}$ ) |
|-----------------|---|
| 0.009 - 0.490   | 2400/F(kHz)                               |
| 0.490 - 1.705   | 24000/F(kHz)                              |
| 1.705 - 30.0    | 30  |
| 30 - 88         | 100                                       |
| 88 - 216        | 150                                       |
| 216 - 960       | 200                                       |
| Above 960       | 500                                       |

Note1: For Above 1000 MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

Note2: For above 1000 MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (Peak).

#### 5.3.2 Test Procedure

The measurement frequency range is from 9 kHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented. The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for  $f \geq 1$  GHz, 100 kHz for  $f < 1$  GHz

VBW  $\geq$  RBW

Sweep = auto

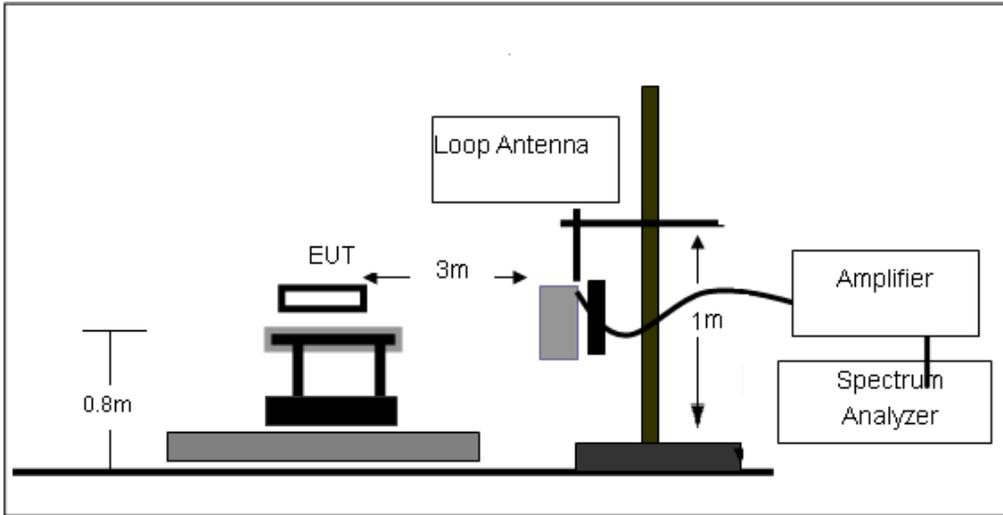
Detector function = peak

Trace = max hold

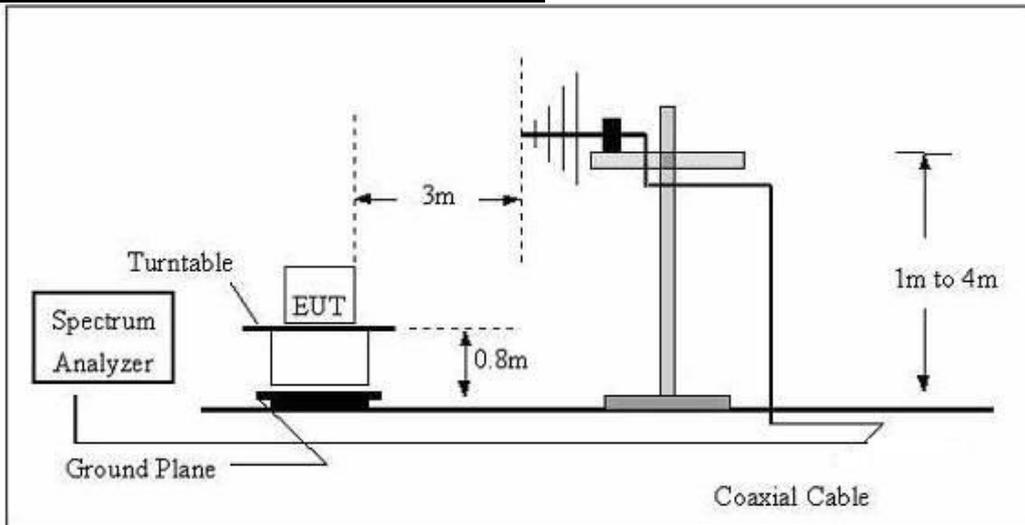


### 5.3.3 Test Setup

#### Radiated emission test-up frequency below 30MHz



#### Radiated emission test-up frequency 30MHz~1GHz





### 5.3.4 Test Result

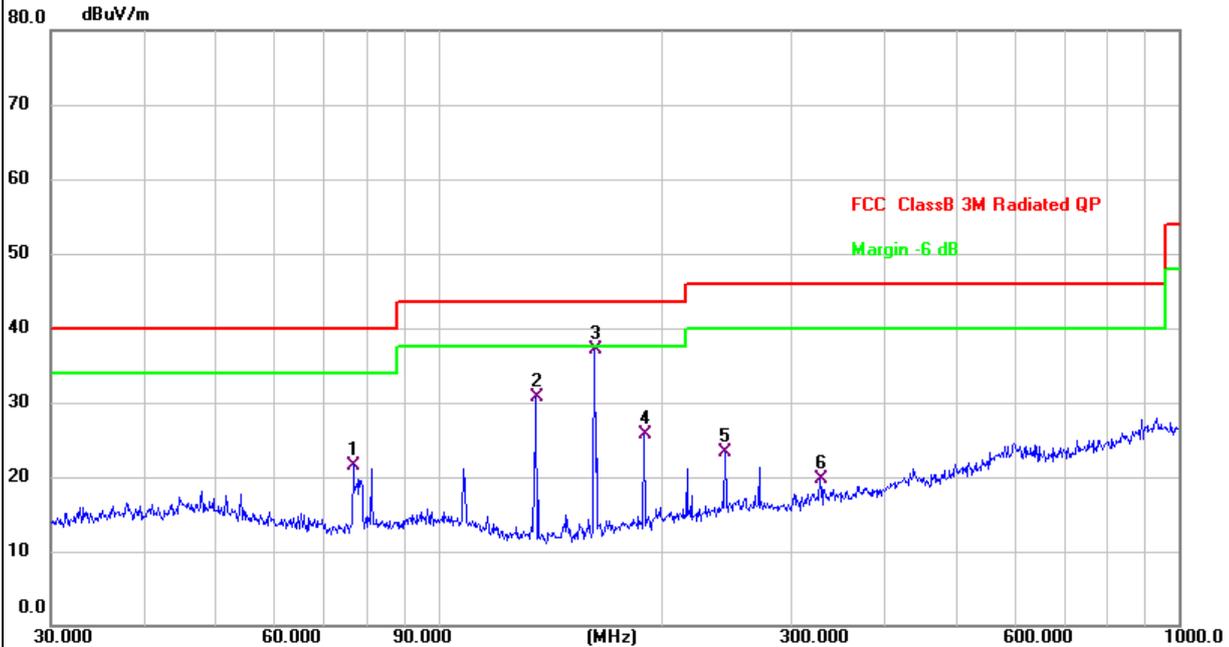
#### 9 kHz-30MHz

| No. | Freq.  | Level | Factor | Measurement | Limit  | Margin |
|-----|--------|-------|--------|-------------|--------|--------|
|     | MHz    | dBuV  | dBuV/m | dBuV/m      | dBuV/m | dB     |
| 1   | 0.0311 | 23.64 | 20.89  | 44.53       | 117.62 | -73.09 |
| 2   | 0.0677 | 20.59 | 21.17  | 41.76       | 110.9  | -69.14 |
| 3   | 0.11   | 27.32 | 21.15  | 48.46       | 106.7  | -58.24 |
| 4   | 1.2034 | 18.83 | 21.69  | 40.52       | 66.02  | -25.50 |
| 5   | 1.464  | 14.78 | 20.86  | 35.64       | 64.32  | -28.68 |
| 6   | 1.7437 | 11.76 | 21.35  | 33.11       | 69.5   | -36.39 |



30MHz – 1GHz

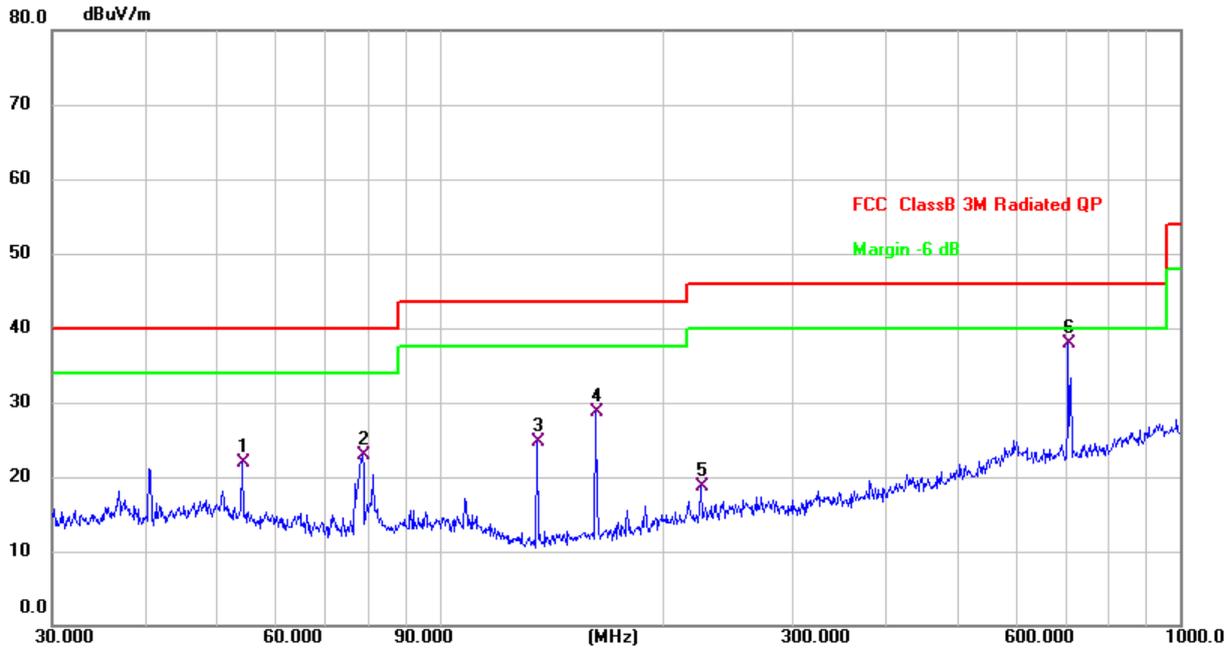
|             |   |                |                                 |
|-------------|---|----------------|---------------------------------|
| EUT :       | Soundcore Life Q30, Soundcore Life Tune | Model Name :   | A3028                           |
| Pressure:   | 1010 hPa                                | Phase:         | H                               |
| Test Mode : | NFC                                     | Test Voltage : | DC 5V from adapter AC 120V/60Hz |



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   |     | 76.7808      | 33.27                    | -11.67                  | 21.60                      | 40.00           | -18.40     | QP       |
| 2   |     | 135.5062     | 43.54                    | -12.83                  | 30.71                      | 43.50           | -12.79     | QP       |
| 3   | *   | 162.6106     | 48.88                    | -11.82                  | 37.06                      | 43.50           | -6.44      | QP       |
| 4   |     | 189.7385     | 36.30                    | -10.67                  | 25.63                      | 43.50           | -17.87     | QP       |
| 5   |     | 244.2321     | 31.54                    | -8.32                   | 23.22                      | 46.00           | -22.78     | QP       |
| 6   |     | 327.8873     | 26.66                    | -6.94                   | 19.72                      | 46.00           | -26.28     | QP       |



|             |   |                |                                 |
|-------------|---|----------------|---------------------------------|
| EUT :       | Soundcore Life Q30, Soundcore Life Tune | Model Name :   | A3028                           |
| Pressure:   | 1010 hPa                                | Phase:         | V                               |
| Test Mode : | NFC                                     | Test Voltage : | DC 5V from adapter AC 120V/60Hz |



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1   |     | 54.2610      | 32.00                    | -10.11                  | 21.89                      | 40.00           | -18.11     | QP       |
| 2   |     | 78.6888      | 34.70                    | -11.71                  | 22.99                      | 40.00           | -17.01     | QP       |
| 3   |     | 135.5062     | 37.47                    | -12.83                  | 24.64                      | 43.50           | -18.86     | QP       |
| 4   |     | 162.6106     | 40.56                    | -11.82                  | 28.74                      | 43.50           | -14.76     | QP       |
| 5   |     | 225.3080     | 27.94                    | -9.17                   | 18.77                      | 46.00           | -27.23     | QP       |
| 6   | *   | 706.6999     | 40.83                    | -2.88                   | 37.95                      | 46.00           | -8.05      | QP       |



## 5.4 Field Strength of Fundamental Emissions

### 5.4.1 Limits:

According to FCC section 15.225, for <30 MHz, Radiated emissions were measured according to ANSI C63.4. The EUT was set to transmit at the highest output power. The EUT was set 10 meter away from the measuring antenna. The loop antenna was positioned 1 meter above the ground from the center of the loop. The measuring bandwidth was set to 10 KHz. (Note: During testing the receive antenna was rotated about its axis to maximize the emission from the EUT)

There was no detected Restricted bands and Radiated suprious emission below 30MHz. The 30m limit was converted to 3m Limit using square factor(x) as it was found by measurements as follows;  
 $3\text{ m Limit(dBuV/m)} = 20\log(X)+40\log(30/3) = 20\log(15848)+40\log(30/3) = 124\text{dBuV}$

Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

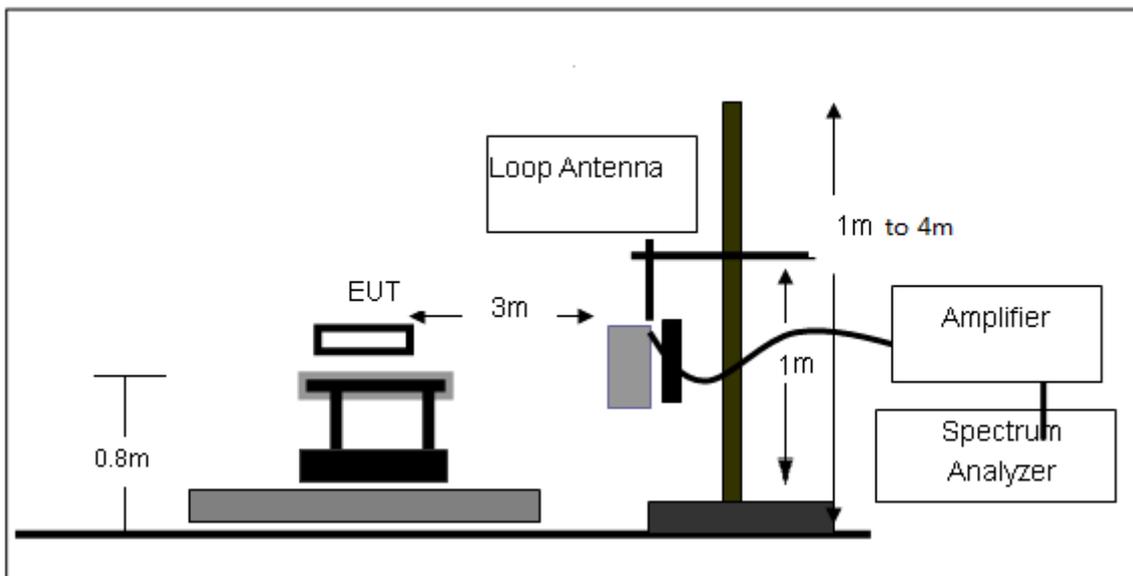
| Frequency range (MHz) | Field Strength@30m |                          | Field Strength@3m        |
|-----------------------|--------------------|--------------------------|--------------------------|
|                       | $\mu\text{V/m}$    | $\text{dB}\mu\text{V/m}$ | $\text{dB}\mu\text{V/m}$ |
| Below 13.110          | 30                 | 29.5                     | 69.5                     |
| 13.110 ~ 13.410       | 106                | 40.5                     | 80.5                     |
| 13.410 ~ 13.553       | 334                | 50.5                     | 90.5                     |
| 13.553 ~13.567        | 15.848             | 84                       | 124                      |
| 13.567 ~ 13.710       | 334                | 50.5                     | 90.5                     |
| 13.710 ~14.010        | 106                | 40.5                     | 80.5                     |
| Above 14.010          | 30                 | 29.5                     | 69.5                     |

Note:

1. Field Strength ( $\text{dB}\mu\text{V/m}$ ) =  $20 \cdot \log[\text{Field Strength } (\mu\text{V/m})]$ .
2. In the emission tables above, the tighter limit applies at the band edges.

### 5.4.2 Test Setup:

#### Radiated emission test-up frequency below 30MHz



#### 5.4.3 Test Procedures

As the radiation test, set the RBW=10kHz VBW=30kHz, observed the outside band of 13.110 MHz to 14.010 MHz, than mark the higher-level emission for comparing with the FCC rules.

#### 5.4.4 Test Result

Maximum Field Strength:

| 13.553 MHz – 13.567 MHz |            |               |                           |                  |           |
|-------------------------|------------|---------------|---------------------------|------------------|-----------|
| Frequency (MHz)         | Level dBuV | Factor dBuV/m | Result @3m (dB $\mu$ V/m) | Limit @3m dBuV/m | Margin dB |
| 13.56                   | 32.25      | 20.42         | 52.67                     | 124              | -71.33    |

| 13.410 MHz – 13.553 MHz and 13.567 MHz – 13.710 MHz |            |               |                           |                  |           |
|---|------------|---------------|---------------------------|------------------|-----------|
| Frequency (MHz)                                     | Level dBuV | Factor dBuV/m | Result @3m (dB $\mu$ V/m) | Limit @3m dBuV/m | Margin dB |
| 13.52   | 23.01      | 20.42         | 43.43                     | 90.5             | -47.07    |
| 13.63   | 24.14      | 20.42         | 44.56                     | 90.5             | -45.94    |

| 13.110 MHz – 13.410 MHz and 13.710 MHz – 14.010 MHz |            |               |                           |                  |           |
|---|------------|---------------|---------------------------|------------------|-----------|
| Frequency (MHz)                                     | Level dBuV | Factor dBuV/m | Result @3m (dB $\mu$ V/m) | Limit @3m dBuV/m | Margin dB |
| 13.36   | 21.66      | 20.42         | 42.08                     | 80.5             | -38.42    |
| 13.95   | 22.39      | 20.42         | 42.81                     | 80.5             | -37.69    |



## 5.5 20dB bandwidth

### 5.5.1 Limit

Operation within the band 13.110 MHz to 14.010 MHz

### 5.5.2 Requirement

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that 20dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equip compliance with the 20dB attenuation specification may base on measurement at the intentional radiator's antenna output terminal unless the intentional radiator uses a permanently attached antenna, in which case compliance shall be. Demonstrated by measuring the radiated emissions.

### 5.5.3 Test Procedure

The 20dB bandwidth is measured with a spectrum analyzer connected via a receiver antenna placed near the EUT while the EUT is operating in transmission mode.

Use the following spectrum analyzer settings:

Span = approximately 2 to 3 times the 20 dB bandwidth

RBW  $\geq$  1% of the 20 dB bandwidth

VBW  $\geq$  RBW

Sweep = auto

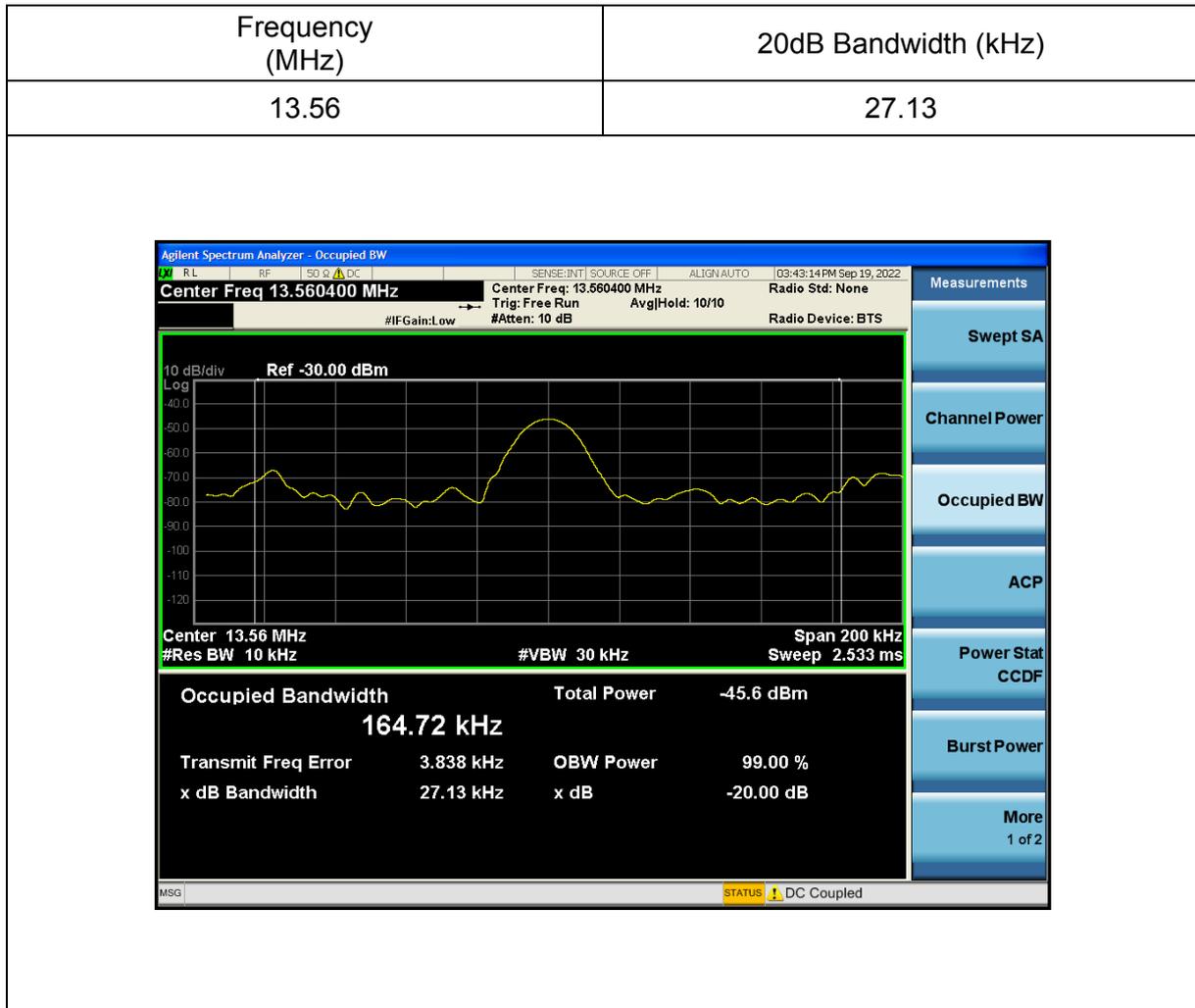
Detector function = peak

Trace = max hold

**5.5.4 Test results**

|             |   |                |                      |
|-------------|---|----------------|----------------------|
| EUT :       | Soundcore Life Q30, Soundcore Life Tune | Model Name :   | A3028                |
| Pressure :  | 1012 hPa                                | Test Voltage : | DC 3.7V from battery |
| Test Mode : | TX Mode                                 |                |                      |

The test plot as follows:





**5.6 Frequency stability**

**5.6.1 Limit**

The frequency tolerance of the carrier signal shall be maintained within  $\pm 0.01\%$  of the operating frequency over a temperature variation of  $-20$  degrees to  $+ 50$  degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

**5.6.2 Test Procedure**

1. The test is performed in a Temperature Chamber.

**5.6.3 Test result**

| Voltage (Vdc) | Temp. (°C) | Frequency (MHz) | Deviation (%) | Limit (%) |
|---------------|------------|-----------------|---------------|-----------|
| 3.70          | -20        | 13.560419       | 0.0031%       | +/-0.01%  |
| 3.70          | -10        | 13.560365       | 0.0027%       |           |
| 3.70          | 0          | 13.560422       | 0.0031%       |           |
| 3.70          | 10         | 13.560441       | 0.0033%       |           |
| 3.70          | 20         | 13.560414       | 0.0031%       |           |
| 3.70          | 30         | 13.560391       | 0.0029%       |           |
| 3.70          | 40         | 13.560429       | 0.0032%       |           |
| 3.70          | 50         | 13.560348       | 0.0026%       |           |
| 3.145         | 20         | 13.560358       | 0.0026%       |           |
| 4.255         | 20         | 13.560386       | 0.0028%       |           |



## Photographs of the EUT

See the Appendix - EUT Photos.

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