

## TEST REPORT

Report No.: HK09071519-3

**Sam Ash Music Corporation**

Application  
For  
Certification  
(Original Grant)  
**(FCC ID: CCRAX300)**

Wireless Microphone

Prepared and Checked by:



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Approved by:



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Senior Supervisor  
Date: September 11, 2009

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### GENERAL INFORMATION

**Sam Ash Music Corporation**  
**BRAND NAME: Samson, MODEL: AX300**

**FCC ID: CCRAX300**

|                           |                                                 |
|---------------------------|-------------------------------------------------|
| Grantee:                  | Sam Ash Music Corporation                       |
| Grantee Address:          | 262 Duffy Avenue, Hicksville, NY 11801, USA.    |
| Contact Person:           | Mr. Don Albanese                                |
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| e-mail:                   | dalbanese@samsontech.com                        |
| Manufacturer:             | N/A                                             |
| Manufacturer Address:     | N/A                                             |
| Brand Name:               | Samson                                          |
| Model:                    | AX300                                           |
| Type of EUT:              | Transmitter                                     |
| Description of EUT:       | Wireless Microphone System                      |
| Serial Number:            | N/A                                             |
| FCC ID:                   | CCRAX300                                        |
| Date of Sample Submitted: | July 30, 2009                                   |
| Date of Test:             | August 10, 2009                                 |
| Report No.:               | HK09071519-3                                    |
| Report Date:              | September 11, 2009                              |
| Environmental Conidtions: | Temperature: +10 to 40°C<br>Humidity: 10 to 90% |

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### SUMMARY OF TEST RESULT

**Sam Ash Music Corporation**  
**BRAND NAME: Samson, MODEL: AX300**

**FCC ID: CCRAX300**

| TEST SPECIFICATION                     | REFERENCE                                      | RESULTS |
|----------------------------------------|------------------------------------------------|---------|
| Power Output Measurement               | 74.861(e)(1)                                   | Pass    |
| Occupied Bandwidth                     | 74.861(e)(3), 74.861(e)(5)<br>and 74.861(e)(6) | Pass    |
| Spurious Radiation Measurement         | 74.861(e)(6)                                   | Pass    |
| Frequency Tolerance                    | 74.861(e)(4)                                   | Pass    |
| Modulation Characteristics Measurement | 2.1047(a) and 2.1047(b)                        | Pass    |

Note: 1. The EUT uses a permanently attached antenna.

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### 1.0 General Description

#### 1.1 Product Description

The Equipment Under Test (EUT) is a wireless beltpack transmitter for its corresponding receiver. The main function of the EUT is used to transmit the audio signal via the AUX input to the corresponding receiver. And it can transmit signal in 320 difference channels, from 639.025MHz to 647.000MHz with 0.025MHz channel spacing. It's powered by a 1.5VDC "AA" size battery, a battery low indicator and a power switch at the bottom of the EUT's body are used to show the lower battery status and on/off the unit.

Antenna Type : Internal, Integral

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

#### 1.2 Related Submittal(s) Grants

The Certification procedure of receiver for this transmitter (with FCC ID: CCRAX300) is being processed at the same time of this application.

#### 1.3 Test Methodology

Radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003) and ANSI/TIA/EIA-603-A-2004. Radiated measurements were performed in an Open Area Test Site. Preliminary scans were performed in the Open Area Test Site only to determine worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

#### 1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. This test facility and site measurement data have been placed on file with the FCC.

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### 2.0 **System Test Configuration**

#### 2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.4 (2003).

The device was powered from a 1.5VDC "AA" size battery.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The unit was operated standalone and placed in the center of the turntable.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was mounted to a plastic stand if necessary and placed on the wooden turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

#### 2.2 EUT Exercising Software

There was no special software to exercise the device. Once the unit is powered up, it transmits the RF signal continuously.

#### 2.3 Special Accessories

There are no special accessories necessary for compliance of this product.

#### 2.4 Equipment Modification

Any modifications installed previous to testing by Sam Ash Music Corporation will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services Hong Kong Ltd.

#### 2.5 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

### 3.0 RF Power Output

#### Testing Procedures

1. The EUT shall be placed at 0.8m heights on a turntable vertically.
2. The test antenna shall be oriented initially for vertical polarization location 3m from the EUT to correspond to the frequency of the transmitter.
3. The output of the test antenna shall be connected to measuring receiver and the quasi-peak detector is used for the measurement.
4. The transmitter shall be switch on, if possible, without modulation and the measuring receiver shall be turned to the frequency of the transmitter under test.
5. The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
6. The transmitter shall then the rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
7. The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
8. The maximum signal level detected by the measuring receiver shall be noted.
9. The transmitter shall be replaced by a tuned dipole (substitution antenna).
10. The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
11. The substitution antenna shall be connected to a calibrated signal generator.
12. If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
13. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
14. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring received, that is equal to the level note input attenuator setting of the measuring receiver.
15. The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
16. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
17. The measure of the effective radiated power is the larger of the two levels recorded, at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.
18. Repeat above test procedures with the EUT placed horizontally.

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**Table 1**

**Transmission Power  
Pursuant to FCC Part 74.861(e)(1)**

| Measured Frequency<br>(MHz) | Measured Power<br>(mW) | Limit<br>(mW) | Margin<br>(mW) |
|-----------------------------|------------------------|---------------|----------------|
| 639.025                     | 3.18                   | 250           | -246.82        |
| 643.000                     | 2.64                   | 250           | -247.36        |
| 647.000                     | 2.71                   | 250           | -247.29        |

Note: Negative sign in the margin column shows the value below limits.

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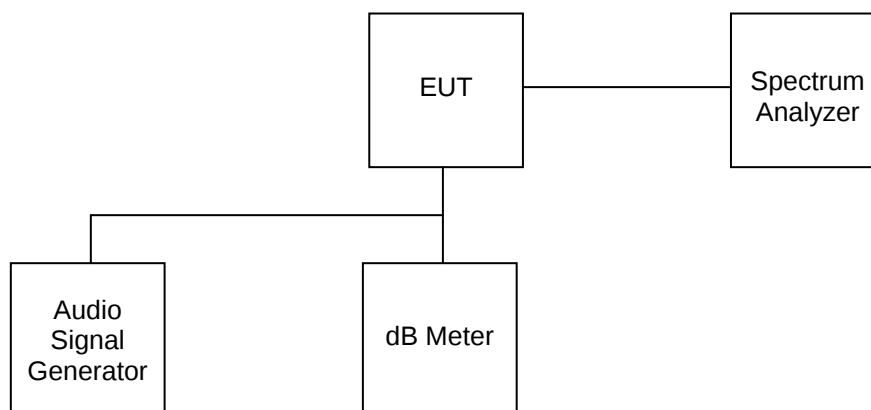
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### 4.0 Occupied Bandwidth

#### Testing Procedures

1. Set-up the test equipment in the following configuration:



2. Other than single side band or independent sideband transmitters when modulated by a 2500Hz one at an input level 16dB greater than that necessary to produce 50 percent modulation. The input level shall be established at the frequency of maximum response of the audio modulation circuit.
3. The occupied bandwidth is measured with the spectrum analyzer set at 50kHz/div scan and 10dB/div.
4. The emission bandwidth shall not exceed the limit 200kHz.
5. The measured occupied bandwidth is 109kHz and 99kHz for carrier frequency of 639.025MHz and 647.000MHz respectively.

For electronic filing, the bandwidth plot is saved with filename: bw.pdf

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**Table 2 and Table 3**

**Occupied Bandwidth**  
**Pursuant to FCC Section 74.861(e)(3), 74.861(e)(5) and 74.861(e)(6)**

1. Assigned Carrier Frequency: 639.025MHz
2. Measured Occupied Bandwidth in 26dB down: 109kHz

| Mask Region        | Attenuation from Unmodulated Carrier Emissions |                       |        |
|--------------------|------------------------------------------------|-----------------------|--------|
|                    | Measured Result (dB)                           | Calculated Limit (dB) | Result |
| Carrier + 50.0kHz  | -14.11                                         | 0                     | Pass   |
| Carrier – 50.0kHz  | -16.13                                         | 0                     | Pass   |
| Carrier + 100.0kHz | -59.31                                         | -25                   | Pass   |
| Carrier – 100.0kHz | -57.89                                         | -25                   | Pass   |
| Carrier + 200.0kHz | -61.17                                         | -35                   | Pass   |
| Carrier – 200.0kHz | -62.59                                         | -35                   | Pass   |

1. Assigned Carrier Frequency: 647.000MHz
2. Measured Occupied Bandwidth in 26dB down: 99kHz

| Mask Region        | Attenuation from Unmodulated Carrier Emissions |                       |        |
|--------------------|------------------------------------------------|-----------------------|--------|
|                    | Measured Result (dB)                           | Calculated Limit (dB) | Result |
| Carrier + 50.0kHz  | -28.60                                         | 0                     | Pass   |
| Carrier – 50.0kHz  | -30.64                                         | 0                     | Pass   |
| Carrier + 100.0kHz | -60.10                                         | -25                   | Pass   |
| Carrier – 100.0kHz | -59.28                                         | -25                   | Pass   |
| Carrier + 200.0kHz | -62.11                                         | -35                   | Pass   |
| Carrier – 200.0kHz | -60.22                                         | -35                   | Pass   |

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### 5.0 Field Strength of Spurious Radiation

#### Testing Procedures

Radiated emission measurements was performed according to the procedures in Wireless Microphone System. All measurements were performed in Open Area Test Sites located at Roof Top of Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.

For electronic filing, the radiated emission configurations photograph is saved with filename: radiated photos.pdf

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Table 4 and Table 5

**Field Strength of Spurious Radiated  
Pursuant to FCC Section 74.861(e)(6)**

Assigned Frequency: 639.025MHz

| Polarization | Frequency (MHz) | Net at 3m (dB $\mu$ V/m) | Attenuated below the Carrier Power (dB) | Minimum Attenuated below the Carrier Power Limit (dB) | Margin (dB) |
|--------------|-----------------|--------------------------|-----------------------------------------|-------------------------------------------------------|-------------|
| V            | 1278.050        | 67.80                    | -34.60                                  | -18.00                                                | -16.60      |
| V            | 1917.075        | 65.30                    | -37.10                                  | -18.00                                                | -19.10      |
| V            | 2556.100        | 60.20                    | -42.20                                  | -18.00                                                | -24.20      |

Assigned Frequency: 643.000MHz

| Polarization | Frequency (MHz) | Net at 3m (dB $\mu$ V/m) | Attenuated below the Carrier Power (dB) | Minimum Attenuated below the Carrier Power Limit (dB) | Margin (dB) |
|--------------|-----------------|--------------------------|-----------------------------------------|-------------------------------------------------------|-------------|
| V            | 1286.000        | 67.90                    | -33.70                                  | -17.20                                                | -16.50      |
| V            | 1929.000        | 64.60                    | -37.00                                  | -17.20                                                | -19.80      |
| V            | 2572.000        | 59.90                    | -41.70                                  | -17.20                                                | -24.50      |

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**Table 6**

**Field Strength of Spurious Radiated  
Pursuant to FCC Section 74.861(e)(6)**

Assigned Frequency: 647.000MHz

| Polarization | Frequency (MHz) | Net at 3m (dBμV/m) | Attenuated below the Carrier Power (dB) | Minimum Attenuated below the Carrier Power Limited (dB) | Margin (dB) |
|--------------|-----------------|--------------------|-----------------------------------------|---------------------------------------------------------|-------------|
| V            | 1294.000        | 67.60              | -34.10                                  | -17.30                                                  | -16.80      |
| V            | 1941.000        | 64.20              | -37.50                                  | -17.30                                                  | -20.20      |
| V            | 2588.000        | 59.30              | -42.40                                  | -17.30                                                  | -25.10      |

Notes: 1. Quasi-peak data for emission below 1000MHz.

2. Negative sign in margin column shows the value below the limit.

3. Any emissions and any other harmonics which are attenuated more than 20dB below the permissible value need not be recorded.

4. Horn antenna and average detector is used for emission over 1000MHz.

\* Calculated limit =  $43 + 10 \log_{10}$  (Mean Output Power in Watts) dB

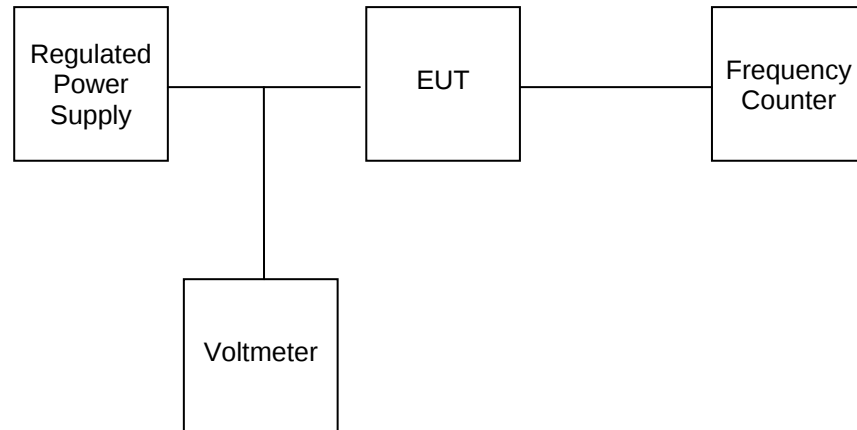
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### 6.0 Frequency Stability - Voltage

#### Testing Procedures

1. Set-up the test equipment in the following configuration:



2. For battery powered equipment, reduce primary supply voltage to the battery operating end point voltage which is specified by the manufacturer.

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**Table 7**

**Power Supply Voltage Stability  
Pursuant to FCC Section 2.1055**

Supply Voltage: 3.0VDC

The manufacturer specified battery end point: 1.1VDC

Limit: 0.005% or 50ppm

| End Point Voltage<br>(V) | Assigned<br>Frequency<br>(MHz) | Measured<br>Frequency<br>(MHz) | Deviation<br>(kHz) | Deviation<br>(ppm) |
|--------------------------|--------------------------------|--------------------------------|--------------------|--------------------|
| 1.1                      | 639.025                        | 639.0230                       | -2.0               | -3.13              |
| 1.1                      | 647.000                        | 647.0020                       | +2.0               | +3.09              |

Note: Measurement were made from the battery operating voltage down to the battery's operating end point.

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### 7.0 Frequency Stability - Temperature

#### Testing Procedures

1. Set-up the test equipment in the following configuration:

Temperature Chamber



2. Set the Temperature Chamber to  $-30^{\circ}\text{C}$  and stabilize the EUT temperature for one hour. Turn the transmitter ON for two minutes.
3. Turn the EUT OFF.
4. Repeat the above procedure with  $10^{\circ}\text{C}$  intervals from  $-30^{\circ}\text{C}$  to  $50^{\circ}\text{C}$ .

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**Table 8**

**Temperature Stability  
Pursuant to FCC Section 2.1055**

| Assigned Frequency (MHz) | Temperature (°C) | Measured Frequency (MHz) | Deviation (Hz) | Deviation (ppm) |
|--------------------------|------------------|--------------------------|----------------|-----------------|
| 639.025                  | -30              | 639.024805               | -195           | -0.31           |
|                          | -20              | 639.024721               | -279           | -0.44           |
|                          | -10              | 693.024617               | -383           | -0.60           |
|                          | 0                | 639.024561               | -439           | -0.69           |
|                          | 10               | 639.024403               | -597           | -0.93           |
|                          | 20               | 639.024320               | -680           | -1.06           |
|                          | 30               | 639.024250               | -750           | -1.17           |
|                          | 40               | 639.024172               | -828           | -1.30           |
|                          | 50               | 639.024095               | -905           | -1.42           |
| 643.025                  | -30              | 643.024720               | -280           | -0.44           |
|                          | -20              | 643.024673               | -327           | -0.51           |
|                          | -10              | 643.024533               | -467           | -0.73           |
|                          | 0                | 643.024419               | -581           | -0.90           |
|                          | 10               | 643.024307               | -693           | -1.08           |
|                          | 20               | 643.024250               | -750           | -1.17           |
|                          | 30               | 643.024187               | -813           | -1.26           |
|                          | 40               | 643.024103               | -897           | -1.39           |
|                          | 50               | 643.024005               | -995           | -1.55           |
| 647.000                  | -30              | 646.999750               | -350           | -0.39           |
|                          | -20              | 646.999694               | -306           | -0.47           |
|                          | -10              | 646.999575               | -425           | -0.66           |
|                          | 0                | 646.999413               | -587           | -0.91           |
|                          | 10               | 646.999353               | -647           | -1.00           |
|                          | 20               | 646.999237               | -763           | -1.18           |
|                          | 30               | 646.999143               | -857           | -1.32           |
|                          | 40               | 646.999019               | -981           | -1.52           |
|                          | 50               | 646.998920               | -1080          | -1.67           |

Note: Measurements are made between -30°C and +50°C at intervals not greater than 10°C. Sufficient time is allowed for temperature stabilization.  
Limit: 0.005% or 50ppm.

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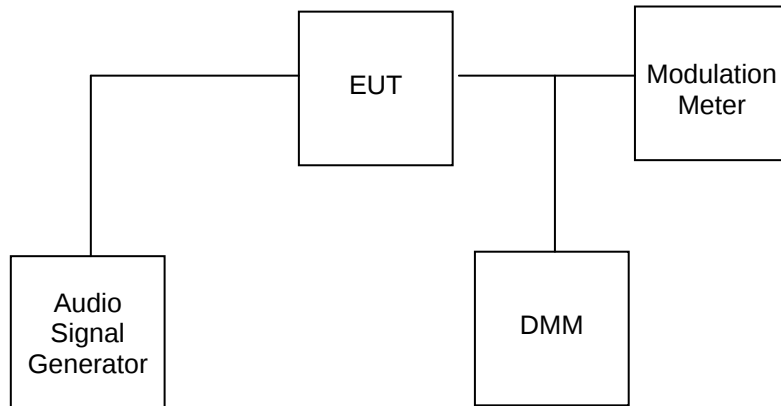
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### 8.0 Modulation Characteristics - Audio Frequency Response

#### Testing Procedures

1. Set-up the test equipment in the following configuration:



2. Apply a 1000Hz tone and adjust the audio frequency generator to produce 20% of the rated system deviation.
3. Set the meter to measure the deviation and record the deviation reading.
4. Record the DMM reading as  $V_{REF}$ .
5. Set the audio frequency generator to the desired test frequency between 100Hz to 5000Hz.
6. Vary the audio frequency generator output level until the deviation reading that was recorded in step 3 is obtained.
7. Record the DMM reading as  $V_{FREQ}$ .
8. Calculate the audio frequency response at the present frequency as:  
audio frequency response =  $20\log_{10} (V_{FREQ}/V_{REF})$
9. Repeat steps 5 through 9 for all the desired test frequencies.

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**Table 9 and Table 10**

**Audio Frequency Response  
Pursuant to FCC Section 2.1047(a)**

Assigned Frequency: 639.025MHz

| Modulation Frequency (Hz) | Input Level (mV) | Audio Frequency Response |
|---------------------------|------------------|--------------------------|
| 100                       | 400.00           | 2.22                     |
| 200                       | 264.00           | 0.41                     |
| 300                       | 230.00           | -0.18                    |
| 400                       | 204.00           | -0.71                    |
| 500                       | 180.00           | -1.25                    |
| 600                       | 172.00           | -1.45                    |
| 700                       | 163.00           | -1.68                    |
| 800                       | 150.00           | -2.04                    |
| 900                       | 121.00           | -2.97                    |
| 1000                      | 240.00           | 0.00                     |
| 1500                      | 170.00           | -1.50                    |
| 2000                      | 150.00           | -2.04                    |
| 2500                      | 113.00           | -3.27                    |
| 3000                      | 92.00            | -4.16                    |
| 3500                      | 81.00            | -4.72                    |
| 4000                      | 60.00            | -6.02                    |
| 4500                      | 55.00            | -6.40                    |
| 5000                      | 30.00            | -9.03                    |

Assigned Frequency: 647.000MHz

| Modulation Frequency (Hz) | Input Level (mV) | Audio Frequency Response |
|---------------------------|------------------|--------------------------|
| 100                       | 537.00           | 6.64                     |
| 200                       | 250.00           | 0.00                     |
| 300                       | 202.00           | -1.85                    |
| 400                       | 241.00           | -0.32                    |
| 500                       | 241.00           | -0.32                    |
| 600                       | 185.00           | -2.62                    |
| 700                       | 174.00           | -3.15                    |
| 800                       | 171.00           | -3.30                    |
| 900                       | 163.00           | -3.72                    |
| 1000                      | 250.00           | 0.00                     |
| 1500                      | 163.00           | -3.72                    |
| 2000                      | 135.00           | -5.35                    |
| 2500                      | 98.00            | -8.13                    |
| 3000                      | 72.00            | -10.81                   |
| 3500                      | 59.00            | -12.54                   |
| 4000                      | 60.00            | -12.40                   |
| 4500                      | 33.00            | -17.59                   |
| 5000                      | 27.00            | -19.33                   |

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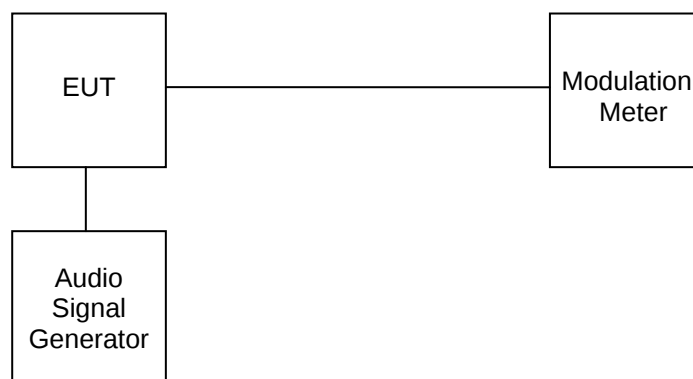
## INTERTEK TESTING SERVICES

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### 9.0 Modulation Characteristics - Modulation Limiting

#### Testing Procedures

1. Set-up the test equipment in the following configuration:



2. Adjust the transmitter per the manufacturer's procedure for full rated system deviation.
3. Apply a 1000Hz modulating signal to the transmitter from the audio signal generator, and adjust the level to obtain 60% of full rated system deviation.
4. Increase the level from the audio frequency generator from 22.0mV to 4000.0mV.
5. Recording the maximum deviation.
6. Repeat the above procedures with frequency 500Hz, 1000Hz, 2500Hz and 5000Hz.

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**Table 11**

**Modulation Limiting Characteristics  
Pursuant to FCC Section 2.1047(b)**

Assigned Frequency: 639.025MHz

| Modulation<br>Input<br>(mV) | Peak Frequency Deviation (kHz) |           |           |           |
|-----------------------------|--------------------------------|-----------|-----------|-----------|
|                             | at 500Hz                       | at 1000Hz | at 2500Hz | at 5000Hz |
| 22                          | 20.95                          | 25.00     | 36.42     | 31.80     |
| 44                          | 21.00                          | 35.00     | 45.65     | 31.70     |
| 66                          | 22.65                          | 38.00     | 48.79     | 35.00     |
| 88                          | 23.00                          | 40.00     | 51.23     | 36.00     |
| 110                         | 30.10                          | 37.00     | 52.07     | 36.80     |
| 150                         | 42.40                          | 40.00     | 53.34     | 41.90     |
| 200                         | 42.00                          | 44.00     | 57.47     | 42.80     |
| 210                         | 42.40                          | 55.40     | 57.00     | 43.20     |
| 220                         | 55.04                          | 55.67     | 57.00     | 41.70     |
| 250                         | 56.62                          | 56.20     | 57.10     | 41.50     |
| 300                         | 58.84                          | 56.20     | 55.00     | 41.10     |
| 350                         | 60.32                          | 59.37     | 56.00     | 43.00     |
| 400                         | 60.64                          | 61.37     | 56.20     | 41.90     |
| 410                         | 60.70                          | 61.28     | 57.00     | 42.33     |
| 415                         | 64.50                          | 61.28     | 58.70     | 40.30     |
| 420                         | 64.00                          | 61.20     | 58.00     | 38.90     |
| 450                         | 64.20                          | 61.10     | 58.00     | 38.20     |
| 500                         | 65.70                          | 62.50     | 58.00     | 38.20     |
| 550                         | 65.50                          | 62.50     | 59.00     | 38.80     |
| 600                         | 65.70                          | 62.50     | 58.00     | 39.30     |
| 650                         | 65.40                          | 62.50     | 56.40     | 39.60     |
| 700                         | 65.80                          | 62.50     | 56.80     | 41.20     |
| 750                         | 66.40                          | 62.50     | 57.00     | 38.00     |
| 800                         | 67.80                          | 62.50     | 56.00     | 38.00     |
| 900                         | 68.20                          | 62.50     | 56.00     | 38.00     |
| 1000                        | 70.61                          | 62.50     | 56.00     | 39.00     |
| 1200                        | 71.57                          | 62.50     | 56.00     | 39.20     |
| 1300                        | 71.88                          | 62.50     | 56.00     | 39.10     |
| 1400                        | 72.90                          | 62.50     | 56.00     | 38.90     |
| 1500                        | 71.80                          | 62.50     | 56.00     | 39.80     |
| 2000                        | 71.70                          | 62.50     | 56.00     | 39.56     |
| 3000                        | 71.50                          | 62.50     | 56.00     | 38.50     |
| 3500                        | 71.50                          | 62.50     | 56.00     | 38.40     |
| 4000                        | 71.50                          | 62.50     | 56.00     | 38.00     |

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## INTERTEK TESTING SERVICES

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**Table 12**

**Modulation Limiting Characteristics  
Pursuant to FCC Section 2.1047(b)**

Assigned Frequency: 647.000MHz

| Modulation<br>Input<br>(mV) | Peak Frequency Deviation (kHz) |           |           |           |
|-----------------------------|--------------------------------|-----------|-----------|-----------|
|                             | at 500Hz                       | at 1000Hz | at 2500Hz | at 5000Hz |
| 22                          | 20.95                          | 24.90     | 36.42     | 26.80     |
| 44                          | 21.00                          | 30.00     | 45.65     | 26.70     |
| 66                          | 22.65                          | 35.00     | 48.79     | 30.00     |
| 88                          | 23.00                          | 35.20     | 51.23     | 31.00     |
| 110                         | 30.10                          | 37.00     | 52.07     | 32.00     |
| 150                         | 42.40                          | 40.00     | 53.34     | 37.00     |
| 200                         | 42.00                          | 44.00     | 57.47     | 38.50     |
| 210                         | 42.40                          | 55.40     | 57.00     | 38.15     |
| 220                         | 55.04                          | 55.67     | 57.00     | 36.70     |
| 250                         | 56.62                          | 56.20     | 57.10     | 36.70     |
| 300                         | 58.84                          | 56.20     | 55.00     | 36.30     |
| 350                         | 60.32                          | 59.37     | 56.00     | 39.60     |
| 400                         | 60.64                          | 61.37     | 57.20     | 35.96     |
| 410                         | 60.75                          | 61.28     | 57.10     | 37.23     |
| 415                         | 60.64                          | 61.28     | 57.00     | 37.30     |
| 420                         | 60.64                          | 61.20     | 57.00     | 34.50     |
| 450                         | 60.75                          | 61.10     | 57.00     | 33.20     |
| 500                         | 60.75                          | 61.00     | 57.00     | 33.20     |
| 550                         | 60.60                          | 61.00     | 57.00     | 33.80     |
| 600                         | 60.75                          | 61.00     | 57.00     | 34.30     |
| 650                         | 60.55                          | 61.00     | 57.00     | 34.60     |
| 700                         | 60.20                          | 61.00     | 57.00     | 37.02     |
| 750                         | 61.00                          | 61.00     | 57.00     | 35.10     |
| 800                         | 62.20                          | 61.00     | 56.00     | 35.30     |
| 900                         | 63.00                          | 61.00     | 56.00     | 35.40     |
| 1000                        | 65.61                          | 61.00     | 56.00     | 35.61     |
| 1200                        | 66.57                          | 61.00     | 56.00     | 35.50     |
| 1300                        | 66.88                          | 61.00     | 56.00     | 35.50     |
| 1400                        | 66.99                          | 61.00     | 56.00     | 35.50     |
| 1500                        | 66.80                          | 61.00     | 56.00     | 35.40     |
| 2000                        | 66.70                          | 61.00     | 56.00     | 34.56     |
| 3000                        | 66.70                          | 61.00     | 56.00     | 33.50     |
| 3500                        | 66.70                          | 61.00     | 56.00     | 33.40     |
| 4000                        | 66.50                          | 61.00     | 56.00     | 33.00     |

## INTERTEK TESTING SERVICES

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### 10.0 Input Current and Voltage

Input Current & Voltage Pursuant to FCC Section 2.1033(c)(8)

The D.C. input current and voltage to final R.F. stage.

Assigned Frequency : 639.025MHz to 647.000MHz

Input DC Voltage : 1.2VDC

Input DC current : 120mA

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## INTERTEK TESTING SERVICES

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### 11.0 **Equipment Photographs**

For electronic filing, the photographs are saved with filename: external photos.pdf and internal photos.pdf.

### 12.0 **Product Labelling**

For electronics filing, the FCC ID label artwork and the label location are saved with filename: label.pdf.

### 13.0 **Technical Specifications**

For electronic filing, the block diagram and schematic of the tested EUT are saved with filename: block.pdf and circuit.pdf respectively.

### 14.0 **Instruction Manual**

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

### 15.0 **Tune Up Procedure**

In order to satisfy the FCC Section 2.1033(c)(9) requirement, a preliminary copy of the tune up procedure is saved with filename: tuneup.pdf.

### 16.0 **Miscellaneous Information**

The miscellaneous information includes details of the test procedure.

#### 16.1 Discussion Pulse Desensitivity

Pulse desensitivity is not applicable for this device. Since the transmitter transmits the RF signal continuously.

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## INTERTEK TESTING SERVICES

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### 16.2 Calculation of Average Factor

The average factor is not applicable for this device as the transmitted signal is a continuously signal.

### 17.0 **Equipment List**

#### 1) Radiated Emissions Test

|                      |                   |                   |                      |
|----------------------|-------------------|-------------------|----------------------|
| Equipment            | EMI Test Receiver | Biconical Antenna | Log Periodic Antenna |
| Registration No.     | EW-0014           | EW-0954           | EW-0446              |
| Manufacturer         | R&S               | EMCO              | EMCO                 |
| Model No.            | ESVS30            | 3104C             | 3146                 |
| Calibration Date     | Jun. 01, 2009     | Sep. 30, 2008     | Oct. 02, 2008        |
| Calibration Due Date | Jun. 01, 2010     | Mar. 30, 2010     | Apr. 02, 2010        |

#### 2) Stability, Bandwidth and Modulation Testing

|                      |                               |                                |                   |
|----------------------|-------------------------------|--------------------------------|-------------------|
| Equipment            | Communication Service Monitor | Temperature & Humidity Chamber | Spectrum Analyzer |
| Registration No.     | EW-1775                       | EW-2044                        | EW-2249           |
| Manufacturer         | R&S                           | YOUNGCHENN                     | R&S               |
| Model No.            | CMS54                         | LP-60H                         | FSP30             |
| Calibration Date     | Sep. 12, 2008                 | Jan. 14, 2009                  | Jun. 25, 2009     |
| Calibration Due Date | Sep. 12, 2009                 | Jan. 18, 2010                  | Jun. 25, 2010     |