

TEST REPORT

APPLICANT : Sony Corporation

ADDRESS : 1-7-1 Konan, Minato-ku, Tokyo 108-0075, Japan

PRODUCTS : DIGITAL WIRELESS TRANSMITTER

MODEL No. : DWT-P01

SERIAL No. : --

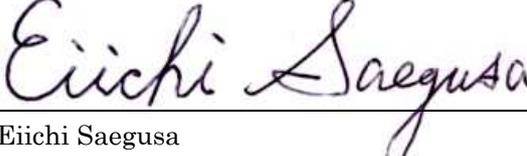
FCC ID : AK8DWTP01

TEST STANDARD : CFR 47 FCC Rules and Regulations Part 74

TESTING LOCATION : Japan Quality Assurance Organization
SAFETY & EMC CENTER
EMC Engineering Department Testing Division
1-21-25, Kinuta, Setagaya-ku, Tokyo 157-8573, Japan

TEST RESULTS : **Passed**

DATE OF TEST : January 13, 2009 – January 23, 2009



Eiichi Saegusa

Manager

Japan Quality Assurance Organization

SAFETY & EMC CENTER

EMC Engineering Dept. Testing Division

1-21-25, Kinuta, Setagaya-ku, Tokyo 157-8573, Japan

-
- The measurement values stated in Test Report was made with traceable to National Institute of Advanced Industrial Science and Technology (AIST) of Japan and National Institute of Information and Communications Technology (NICT) of Japan.
 - The applicable standard, testing condition and testing method which were used for the tests are based on the request of the applicant.
 - The test results presented in this report relate only to the offered test sample.
 - The contents of this test report cannot be used for the purposes, such as advertisement for consumers.
 - This test report shall not be reproduced except in full without the written approval of JQA.

Table of Contents

| Documentation | Page |
|--|--------------|
| 1 Test Regulation | 3 |
| 2 Test Location | 3 |
| 3 Recognition of Test Laboratory | 3 |
| 4 Description of the Equipment Under Test | 4 |
| 5 Test Condition | 5-7 |
| 6 Preliminary Test and Test Setup | 8-13 |
| 7 Equipment Under Test Modification | 14 |
| 8 Responsible Party | 14 |
| 9 Deviation from Standard | 14 |
| 10 Test Results | 15-16 |
| 11 Summary | 17 |
| 12 Operating Condition | 18 |
| 13 Test Configuration | 19 |
| 14 Equipment Under Test Arrangement (Drawings) | 20 |
| Appendix A : Test Data | 21-39 |
| A.1 RF Power Output | |
| A.2 Modulation Characteristics | |
| A.3 Radiated Emissions | |
| A.4 Occupied Bandwidth | |
| A.5 Frequency Stability | |
| Appendix B : Test Arrangement (Photographs) | 40-41 |
| Appendix C : Test Instruments | 42-44 |

Definitions for Abbreviation and Symbols Used In This Test Report

“EUT” means Equipment Under the Test.

“AE” means Associated Equipment.

“N/A” means that Not Applicable.

“N/T” means that Not Tested.

-indicates that the listed condition, standard or equipment is applicable for this report.

-indicates that the listed condition, standard or equipment is not applicable for this report.

Documentation**1 Test Regulation**

Applied Standard : CFR 47 FCC Rules and Regulations Part 74 Subpart H Low Power Auxiliary Stations

Test Procedure : RF power output, modulation characteristics, occupied bandwidth, field strength of spurious radiation and frequency stability tests were performed according to the procedures in FCC Rules and Regulations Part 2.

2 Test Location

Japan Quality Assurance Organization
SAFETY & EMC CENTER
EMC Engineering Department Testing Division
1-21-25, Kinuta, Setagaya-ku, Tokyo 157-8573, Japan

3 Recognition of Test Laboratory

Japan Quality Assurance Organization
SAFETY & EMC CENTER
EMC Engineering Department Testing Division
is accredited under ISO/IEC 17025 by following accreditation bodies and the test facility of Testing Division is registered by the following bodies .

VLAC Code : VLAC-001-1 (Effective through : April 3, 2010)
NVLAP Lab Code : 200189-0 (Effective through : June 30, 2009)
VCCI Registration Number : R-002, R-003, C-002, C-966 (Effective through : April 3, 2010)
FCC Registration Number : 349652 (Date of Listing : April 1, 2010)
IC Registration Number : 2079A-1, 2079A-2 (Effective through : October 22, 2010)
Accredited as conformity assessment body for Japan electrical appliances and material law by METI. (Effective through : February 22, 2010)

4 Description of the Equipment Under Test

| | | |
|----|---|--|
| 1 | Manufacturer | : Sony EMCS Corporation Kosai Tec. 554 Sakaijuku Kosai-shi, Shizuoka-ken, 431-0496, Japan |
| 2 | Products | : DIGITAL WIRELESS TRANSMITTER |
| 3 | Trade Name | : SONY |
| 4 | Model No. | : DWT-P01 |
| 5 | Serial No. (Sample No.) | : --, -- (U3040 1001, U4250 1001) |
| 6 | FCC ID | : AK8DWTP01 |
| 7 | Product Type | : Prototype |
| 8 | Date of Manufacture | : -- |
| 9 | Power Rating | : 3.0 VDC (Battery) |
| 10 | EUT Grounding | : None |
| 11 | Category | : Broadcast Transmitter Held to Face |
| 12 | Received Date of EUT | : January 9, 2008 |
| 13 | EUT Authorization | : Certification |
| 14 | Operating Frequency Range | : 566.125 MHz – 607.875 MHz, 614.125 MHz – 637.875 MHz and 638.125 MHz – 697.875 MHz |
| 15 | EUT Highest Frequency Used/Generated | : 697.875 MHz |
| 16 | Necessary Bandwidth | : 192 kHz (Manufacturer defined, Digital Modulation) |
| 17 | Emission Designator | : 192KG1E, 192KG1D |
| 18 | RF Output Power | : 50 mW / 10 mW / 1 mW (Selectable, Manufacturer defined) |
| 19 | Antenna Type | : Integral Internal antenna (not accessible to the user) |
| 20 | Antenna Gain | : 4.8 dBi |

5 Test Condition

5.1 RF Output Power

The requirements are -Applicable -Tested -Not tested by applicant request.]
-Not Applicable

Test site & instruments :

| Type | Number of test site & instruments (Refer to Appendix C) | |
|---------------------------|---|-----|
| Test Site | 1 | |
| Test Receiver | 11 | |
| Spectrum Analyzer | -- | |
| Antenna | 167 | 168 |
| Cable | 38 | |
| Antenna(for Substitution) | 22 | 24 |
| Cable(for Substitution) | 49 | |
| Signal Generator | 171 | |
| Power Meter | 210 | |
| Power Sensor | 211 | |
| Thermo-Hygrometer | 204 | |

5.2 Modulation Characteristics

The requirements are -Applicable -Tested -Not tested by applicant request.]
-Not Applicable

Test site & instruments :

| Type | Number of test site & instruments (Refer to Appendix C) | |
|--------------------|---|--|
| Test Site | -- | |
| Test Receiver | -- | |
| Spectrum Analyzer | -- | |
| Antenna | -- | |
| Cable | -- | |
| Attenuator | -- | |
| Function Generator | -- | |
| FM Linear Detector | -- | |
| Level Meter | -- | |
| Thermo-Hygrometer | -- | |

5.3 Radiated Emissions

The requirements are -Applicable -Tested -Not tested by applicant request.]
-Not Applicable

Test site & instruments : (for 30 MHz – 1000 MHz)

| Type | Number of test site & instruments (Refer to Appendix C) | |
|---------------------------|---|-----|
| Test Site | 1 | |
| Test Receiver | 13 | |
| Spectrum Analyzer | -- | |
| Antenna | 167 | 168 |
| Cable | 38 | |
| Antenna(for Substitution) | 22 | 24 |
| Cable(for Substitution) | 49 | |
| Signal Generator | 171 | |
| Power Meter | 210 | |
| Power Sensor | 211 | |
| Thermo-Hygrometer | 204 | |

Test site & instruments : (for above 1 GHz)

| Type | Number of test site & instruments (Refer to Appendix C) | |
|---------------------------|---|-----|
| Test Site | 1 | |
| Test Receiver | 13 | |
| Spectrum Analyzer | -- | |
| Antenna | 31 | |
| Cable | 48 | 195 |
| Antenna(for Substitution) | 198 | |
| Cable(for Substitution) | 50 | |
| RF Amplifier | 57 | |
| Band Reject Filter | -- | |
| High Pass Filter | 208 | |
| Power Meter | 210 | |
| Power Sensor | 211 | |
| Thermo-Hygrometer | 204 | |

5.4 Occupied Bandwidth

The requirements are -Applicable -Tested -Not tested by applicant request.]
-Not Applicable

Test site & instruments :

| Type | Number of test site & instruments (Refer to Appendix C) |
|--------------------|---|
| Test Site | 3 |
| Test Receiver | 13 |
| Spectrum Analyzer | -- |
| Antenna | -- |
| Cable | 45 |
| Attenuator | 82 |
| Function Generator | 58 |
| FM Linear Detector | -- |
| Level Meter | -- |
| Thermo-Hygrometer | 202 |

5.5 Frequency Stability

The requirements are -Applicable -Tested -Not tested by applicant request.]
-Not Applicable

Test site & instruments :

| Type | Number of test site & instruments (Refer to Appendix C) |
|-------------------|---|
| Test Site | -- |
| Test Receiver | -- |
| Spectrum Analyzer | -- |
| Antenna | -- |
| Cable | 45 |
| Attenuator | 82 |
| Frequency Counter | 75 |
| DC Power Supply | 77 |
| Oven | 76 |
| Multimeter | 165 |
| Thermo-Hygrometer | 202 |

6 Preliminary Test and Test Setup

6.1 RF Power Output and Radiated Emissions

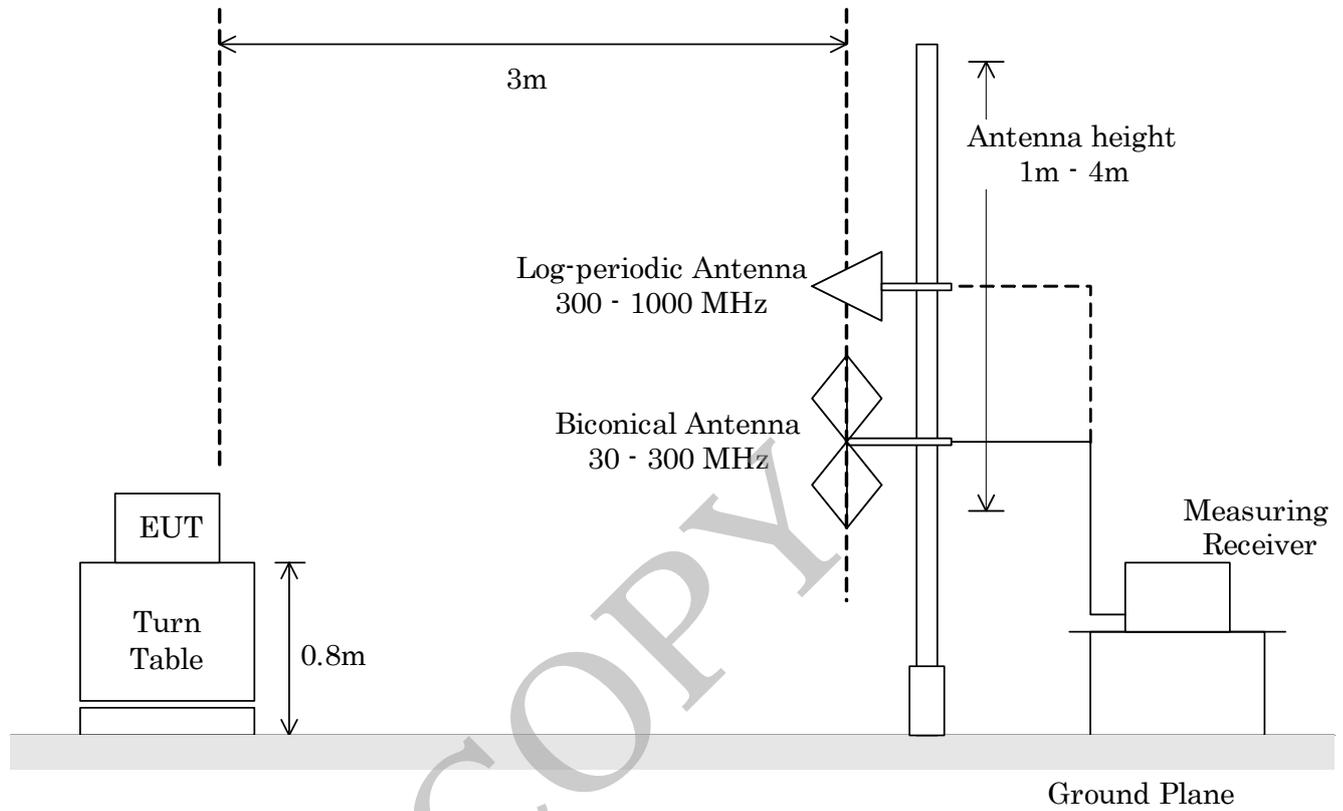
6.1.1 30MHz – 1000MHz

The radiated power output and the field strength of the transmitter harmonic and spurious radiation were measured at the distance at 3 meters away from the transmitter under test which was placed on a non-conducting turntable 0.8 meter in height. The receiving antenna was oriented for vertical polarization and raised or lowered through 1 to 4 meters until the maximum signal level was detected on the measuring instrument. The transmitter under test was rotated through 360° until the maximum signal was received. The measurement was repeated with the receiving antenna in the horizontal polarization.

The transmitter was removed and replaced with a half-wave dipole antenna. The center of the half-wave dipole antenna was placed approximately at the same location as the center of the transmitter. (In the case of the lower frequencies, where the half-wave dipole antenna is very long, this will be impossible to achieve when the antenna is polarized vertically. In such a case the lower end of the antenna was adjusted to 0.3m above the ground). The half-wave dipole antenna was fed with a signal generator, and the output level of the signal generator was adjusted to obtain the previously recorded maximum reading at the particular harmonics and spurious frequency and recorded. This procedure was repeated with the receiving antenna and the half-wave dipole antenna in the orthogonal polarization.

The input power into the half-wave dipole antenna was calculated from the impedance and signal generator voltage obtained in these reading. The level of the harmonics and spurious emissions in dB were calculated from the following formula:

$$\text{Attenuation(dB)} = 10 \log_{10} \frac{\text{Transmitter Power(ERP)}}{\text{Calculated Spurious Power}}$$

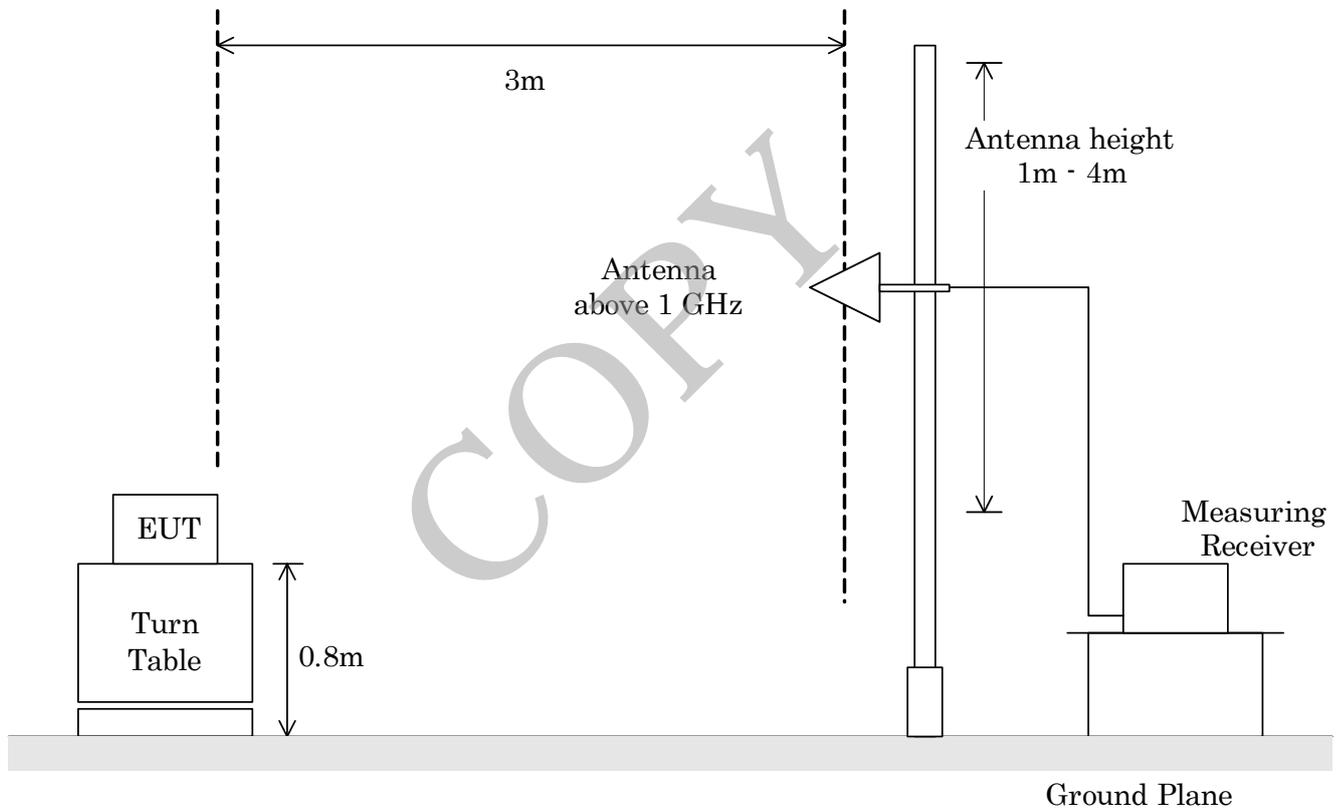
- Side View -

6.1.2 above 1000MHz

The preliminary radiated emissions measurements were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.

The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements.

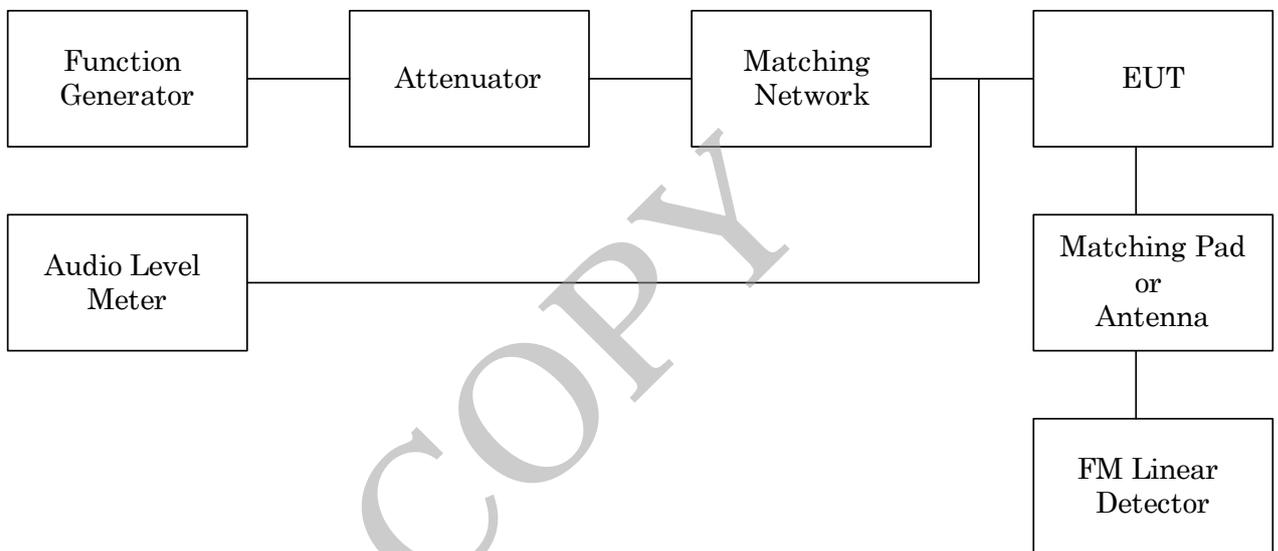
- Side View -



6.2 Modulation Characteristics

The audio signal generator was connected to the input circuit of the unit under test through a matching network. The audio signal input was adjusted to obtain 50% modulation at the maximum audio frequency response of the transmitter, and this point was taken as the 0 dB reference level. The frequency of the input signal was changed from 100 Hz to 20 kHz and the input level to obtain 50% modulation was plotted.

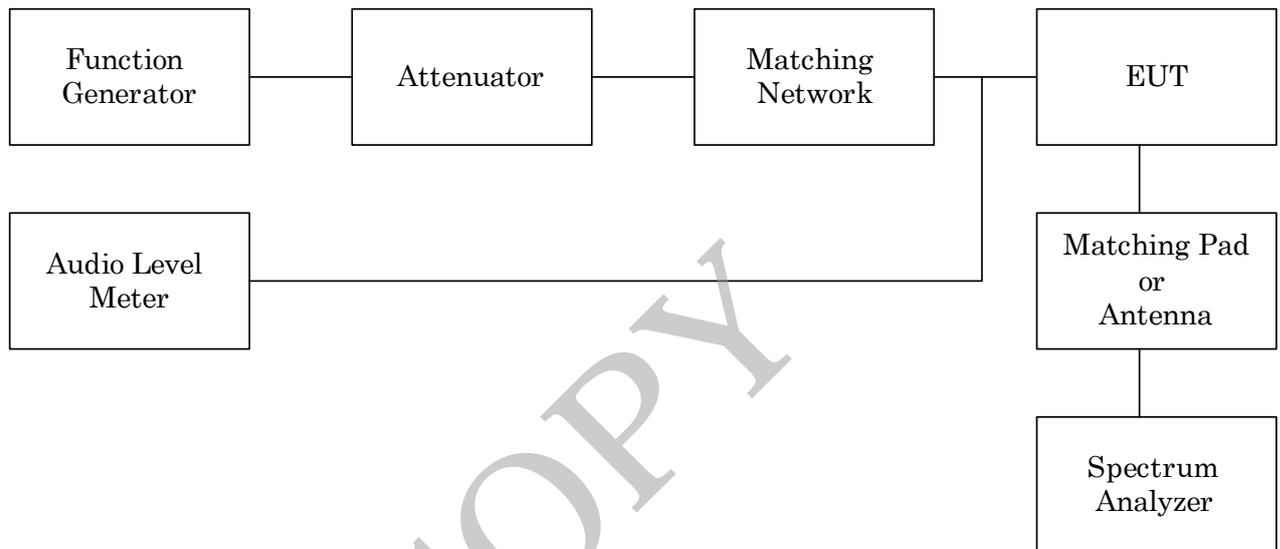
The modulation response was measured up to maximum modulation for each of three tones: 100 Hz, 2500 Hz and 15 kHz. The audio input level was changed from 10% modulation up to maximum rated modulation.



6.3 Occupied Bandwidth

According to description of FCC Rules §2.1049, the occupied bandwidth measurements were carried out. By using a spectrum analyzer the measurements of the emission were made under the transmitting modes of the EUT.

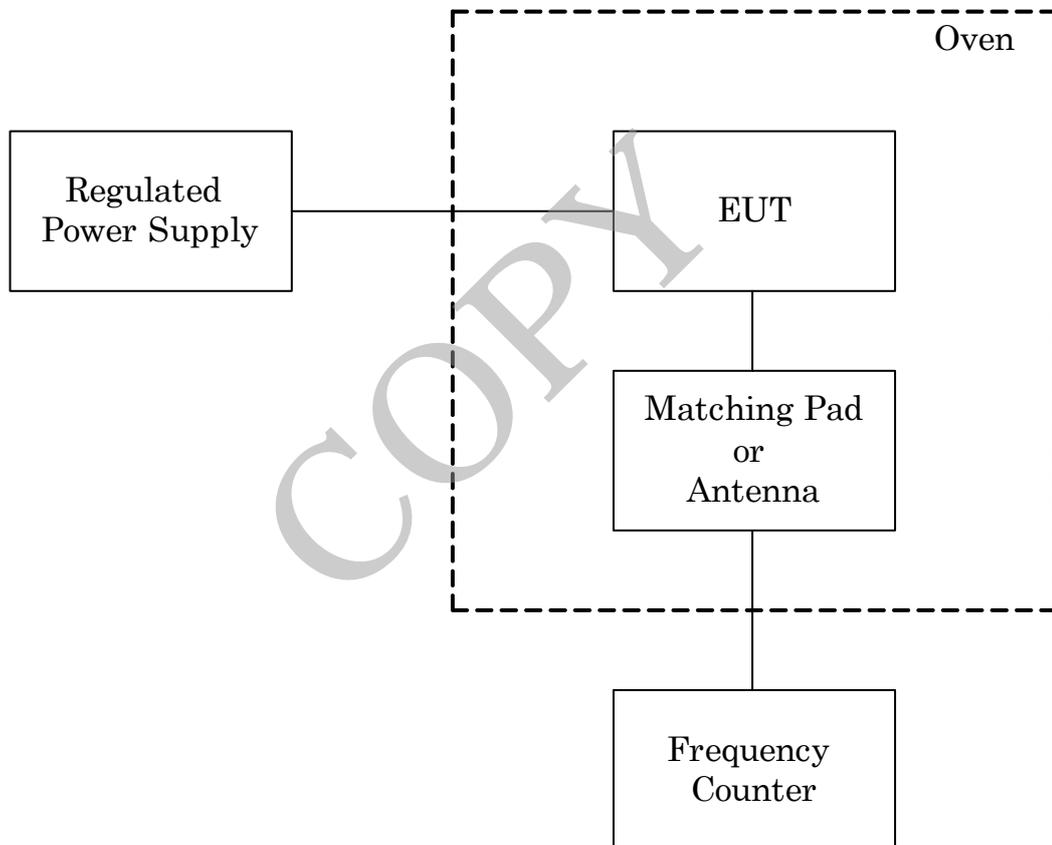
The transmitter was modulated at the input level producing 85% modulation at the maximum response frequency, and with the frequency 2500 Hz.



6.4 Frequency Stability

The transmitter was placed in the temperature cycle chamber and was kept at a temperature of $-30^{\circ}\text{C} \pm 1^{\circ}\text{C}$ for approximately one hour. The rated test voltage was applied to the transmitter and the unit was turned on for ten minutes. The transmit frequency was measured during this period and recorded. A similar measurement was performed with the temperatures changed from -20°C to 50°C at interval of 10°C . In the latter case, the unit was kept for approximately one hour at the prescribed temperature after completion of the test preceding with it.

The frequency stability tests were performed at the normal supply voltage and if required, with variation of primary supply voltage. (Refer to FCC Rules §2.1055)



7 Equipment Under Test Modification

- No modifications were conducted by JQA to achieve compliance to the limitations.
 To achieve compliance to the limitations, the following changes were made by JQA during the compliance test.

The modifications will be implemented in all production models of this equipment.

Applicant : Not Applicable

Date : Not Applicable

Typed Name : Not Applicable

Position : Not Applicable

Signatory : Not Applicable

8 Responsible PartyResponsible Party of Test Item (Product)

| | |
|---------------------|-----------|
| Responsible Party : | |
| Contact Person : | _____ |
| | Signatory |

9 Deviation from Standard

- No deviations from the standard described in clause 1.
 The following deviations were employed from the standard described in clause 1.

10 Test Results**10.1 Output Power [§74.861(e)(1)(ii)]**

The requirements are -Applicable -Tested -Not tested by applicant request.]
-Not Applicable

-Passed -Failed -Not judged

Uncertainty of measurement results

± 1.2 dB(2σ)

Remarks : _____

10.2 Modulation Characteristics [§74.861(e)(6)]

The requirements are -Applicable -Tested -Not tested by applicant request.]
-Not Applicable

-Passed -Failed -Not judged

Uncertainty of measurement results

± 1.2 dB(2σ)

Remarks : Because the EUT has digital modulation.

10.3 Radiated Emissions [§74.861(e)(6)]

The requirements are -Applicable -Tested -Not tested by applicant request.]
-Not Applicable

-Passed -Failed - Not judged

Uncertainty of measurement results

| | | | |
|----------|-----|--------------|--------|
| 30-300 | MHz | <u>± 4.6</u> | dB(2σ) |
| 300-1000 | MHz | <u>± 4.5</u> | dB(2σ) |
| 1-18 | GHz | <u>± 5.0</u> | dB(2σ) |
| 18-40 | GHz | <u>± 5.3</u> | dB(2σ) |

Remarks : _____

10.4 Occupied Bandwidth [§74.861(e)(6)]

The requirements are -Applicable -Tested -Not tested by applicant request.]
-Not Applicable

-Passed -Failed -Not judged

Uncertainty of measurement results

± 0.6 %(2σ)

Remarks : _____

10.5 Frequency Stability [§74.861(e)(4)]

The requirements are -Applicable -Tested -Not tested by applicant request.]
-Not Applicable

-Passed -Failed -Not judged

Uncertainty of measurement results

± 0.05 ppm(2σ)

Remarks : _____

11 Summary**General Remarks**

The EUT was tested according to the requirements of CFR 47 FCC Rules and Regulations Part 74 Subpart H under the test configuration, as shown in clause 12 to 14.

The conclusion for the test items of which are required by the applied regulation is indicated under the test result.

Test Result :

The "as received" sample;

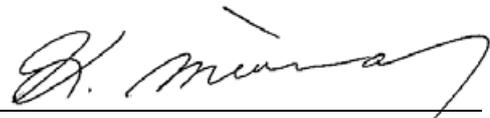
- fulfill the test requirements of the regulation mentioned on clause 1.
-doesn't fulfill the test requirements of the regulation mentioned on clause 1.

Reviewed by:



Shigeru Osawa
Deputy Manager
SAFETY & EMC CENTER
EMC Engineering Dept. Testing Division

Tested by:



Katsunori Miura
Assistant Manager
SAFETY & EMC CENTER
EMC Engineering Dept. Testing Division

12 Operating Condition

Power Supply Voltage : 3.0 VDC (fresh Alkaline Battery used or DC Power Supply)

Operation Mode

The EUT is set with the test mode, the specification of the test mode is as following.

- (1) TX Mode (566.125MHz)
- (2) TX Mode (632.125MHz)
- (3) TX Mode (697.875MHz)

Used application to controlled : The test mode is instructed by the applicant.

Fundamental Frequency : 100 kHz, 1.3 MHz, 1.536 MHz, 8 MHz, 16 MHz, 19.2 MHz
Generated/used in the EUT and 98.034 MHz

Highest Frequencies : 98.304 MHz (the part of Unintentional Radiators)
697.875 MHz (the part of Intentional Radiators)

13 Test Configuration

The equipment under test consists of :

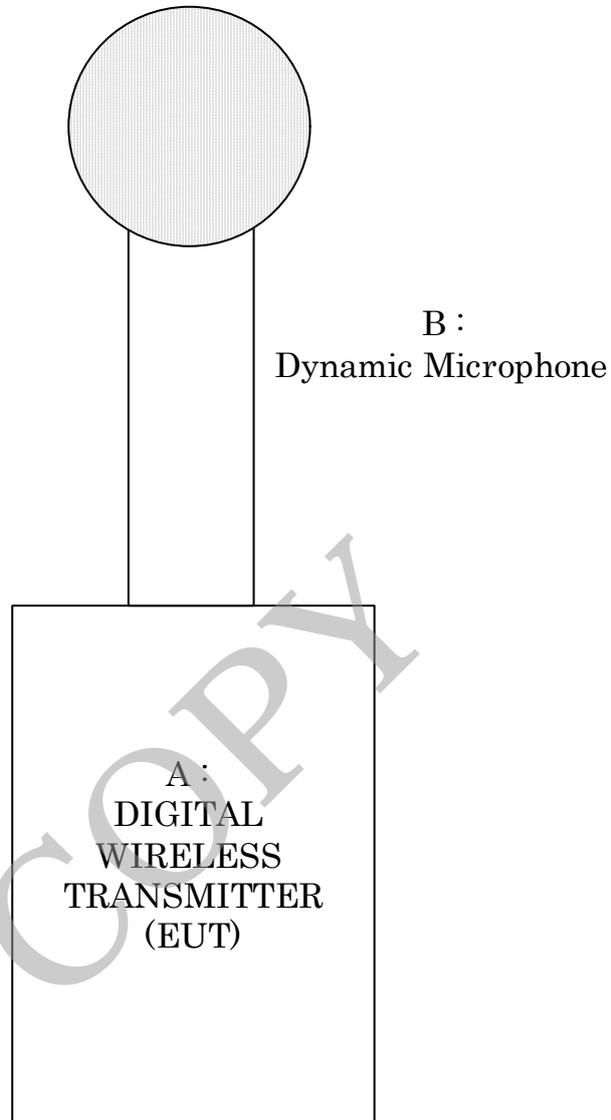
| Sign | Item | Manufacturer | Model No. | Serial No. (Sample No.) | FCC ID |
|------|---------------------------------|-------------------------------------|-----------|-----------------------------------|-----------|
| A | DIGITAL WIRELESS TRANSMITTER | Sony EMCS Corporation Kosai TEC. | DWT-P01 | -- (U3040 1001, U4250 1001) | AK8DWTP01 |

The auxiliary equipment used for testing :

| Sign | Item | Manufacturer | Model No. | Serial No. | FCC ID |
|------|--------------------|-------------------------------------|-----------|------------|--------|
| B | Dynamic Microphone | Sony EMCS Corporation Kosai TEC. | F-112 | 10033 | N/A |

Type of Cable:

| No. | Description | Identification (Manu. Etc.) | Connector Shielded | Cable Shielded | Ferrite Core | Length (m) |
|-----|-------------|--------------------------------|-----------------------|-------------------|-----------------|---------------|
| - | -- | -- | -- | -- | -- | -- |

14 Equipment Under Test Arrangement (Drawings)

Appendix A : Test Data

A.1 Output Power

Date : January 13, 2009
 Temp. : 20 °C Humi. : 30 %

Frequency Range: 566.125 MHz – 697.875 MHz

(1) Output Level Setting: 50 mW

| Frequency (MHz) | Meter Reading for EUT (dBμV) | Antenna Input Level for Substitution (dBm) | Antenna Gain (dBi) | Output Power ERP(mW) |
|-----------------|------------------------------|--|--------------------|----------------------|
| 566.125 | 93.1 | 18.4 | 2.15 | 69.18 |
| 632.125 | 91.1 | 17.5 | 2.15 | 56.23 |
| 697.875 | 90.7 | 16.9 | 2.15 | 48.98 |

(2) Output Level Setting: 10 mW

| Frequency (MHz) | Meter Reading for EUT (dBμ) | Antenna Input Level for Substitution (dBm) | Antenna Gain (dBi) | Output Power ERP(mW) |
|-----------------|-----------------------------|--|--------------------|----------------------|
| 566.125 | 85.6 | 10.9 | 2.15 | 12.30 |
| 632.125 | 84.7 | 11.1 | 2.15 | 12.88 |
| 697.875 | 83.8 | 10.0 | 2.15 | 10.00 |

(3) Output Level Setting: 1 mW

| Frequency (MHz) | Meter Reading for EUT (dBμ) | Antenna Input Level for Substitution (dBm) | Antenna Gain (dBi) | Output Power ERP(mW) |
|-----------------|-----------------------------|--|--------------------|----------------------|
| 566.125 | 76.3 | 1.64 | 2.15 | 1.46 |
| 632.125 | 75.3 | 1.69 | 2.15 | 1.48 |
| 697.875 | 74.4 | 0.57 | 2.15 | 1.14 |

Note : 1. Specified limit (§74.861(e)(1)(ii)); 250 mW

2. A sample calculation:

$$ERP = 10^{(AIL / 10)} = 10^{(18.4 / 10)} = 69.18 \text{ (mW)}$$

ERP : Output Power

AIL : Antenna Input Level for Substitution

3. Measurement has been performed as Substitution Method as described on TIA-603-B.

A.2 Modulation CharacteristicsDate : January 20, 2009Temp. : 25 °C Humi. : 38 %

Maximum Deviation: It does not define, because the EUT has digital modulation.

Specified Limits: Max deviation ± 75 kHz (§74.861(e)(3))

This test item is not tested, because the EUT has digital modulation.

COPY

A.3 Radiated Emissions

Date : January 14, 2009
 Temp. : 20 °C Humi. : 30 %

A.3.1 Output Power Setting of the EUT : 50mW

Mode of EUT : TX Mode
 Test Port : Enclosure

Operating Frequency : 566.125 MHz
 Reference Carrier Power (ERP) : 69.8 mW
 Distance of Measurement : 3.0 m

| Frequency (MHz) | Substituted Power ERP(dBm) | | Limits (dB) | Attenuation Ratio (dB) | |
|-----------------|----------------------------|---------|-------------|------------------------|--------|
| | Horiz. | Vert. | | Horiz. | Vert. |
| 558.005 | -58.8 | -63.4 | 31.4 | 77.3 | 81.8 |
| 574.275 | -58.3 | -61.3 | 31.4 | 76.8 | 79.7 |
| 1132.250 | < -58.3 | < -58.3 | 31.4 | > 76.7 | > 76.7 |
| 1698.375 | -51.7 | -52.3 | 31.4 | 70.1 | 70.7 |
| 2264.500 | -48.0 | -51.2 | 31.4 | 66.4 | 69.6 |
| 2830.625 | < -52.5 | < -52.5 | 31.4 | > 70.9 | > 70.9 |
| 3396.750 | < -51.1 | < -51.1 | 31.4 | > 69.5 | > 69.5 |
| 3962.875 | < -49.9 | < -49.9 | 31.4 | > 68.3 | > 68.3 |
| 4529.000 | < -48.7 | < -48.7 | 31.4 | > 67.1 | > 67.1 |
| 5095.125 | < -47.7 | < -47.7 | 31.4 | > 47.7 | > 47.7 |
| 5661.250 | < -46.8 | < -46.8 | 31.4 | > 46.8 | > 46.8 |

Operating Frequency : 632.125 MHz
 Reference Carrier Power (ERP) : 56.1 mW
 Distance of Measurement : 3.0 m

| Frequency (MHz) | Substituted Power ERP(dBm) | | Limits (dB) | Attenuation Ratio (dB) | |
|-----------------|----------------------------|---------|-------------|------------------------|--------|
| | Horiz. | Vert. | | Horiz. | Vert. |
| 583.500 | -60.7 | -63.8 | 30.5 | 78.1 | 81.3 |
| 640.402 | -58.2 | -65.7 | 30.5 | 75.7 | 83.2 |
| 1264.250 | < -57.9 | < -57.9 | 30.5 | > 75.4 | > 75.4 |
| 1896.375 | -51.3 | -52.5 | 30.5 | 68.8 | 70.0 |
| 2528.500 | -47.5 | -49.9 | 30.5 | 65.0 | 67.4 |
| 3160.625 | < -51.7 | < -51.7 | 30.5 | > 69.2 | > 69.2 |
| 3792.750 | -43.1 | -43.9 | 30.5 | 60.6 | 61.4 |
| 4424.875 | < -48.9 | < -48.9 | 30.5 | > 66.4 | > 66.4 |
| 5057.000 | < -47.8 | < -47.8 | 30.5 | > 65.3 | > 65.3 |
| 5689.125 | < -46.7 | < -46.7 | 30.5 | > 46.7 | > 46.7 |
| 6321.250 | < -45.8 | < -45.8 | 30.5 | > 45.8 | > 45.8 |

Operating Frequency : 698.875 MHz
 Reference Carrier Power (ERP) : 48.6 mW
 Distance of Measurement : 3.0 m

| Frequency (MHz) | Substituted Power ERP(dBm) | | Limits (dB) | Attenuation Ratio (dB) | |
|--------------------|-------------------------------|---------|----------------|---------------------------|--------|
| | Horiz. | Vert. | | Horiz. | Vert. |
| 652.000 | -58.7 | -63.2 | 29.9 | 75.6 | 80.1 |
| 732.000 | -60.3 | -75.2 | 29.9 | 77.1 | 92.1 |
| 1395.750 | -57.3 | < -57.5 | 29.9 | 74.2 | > 74.4 |
| 2093.625 | -41.9 | -43.5 | 29.9 | 58.8 | 60.4 |
| 2791.500 | -45.8 | -46.3 | 29.9 | 62.7 | 63.2 |
| 3489.375 | < -50.9 | < -50.9 | 29.9 | > 67.8 | > 67.8 |
| 4187.250 | -46.1 | < -49.4 | 29.9 | 63.0 | > 66.3 |
| 4885.125 | < -48.1 | < -48.1 | 29.9 | > 65.0 | > 65.0 |
| 5583.000 | < -46.9 | < -46.9 | 29.9 | > 63.8 | > 63.8 |
| 6280.875 | < -45.8 | < -45.8 | 29.9 | > 45.8 | > 45.8 |
| 6978.750 | < -44.8 | < -44.8 | 29.9 | > 44.8 | > 44.8 |

A.3.2 Output Power Setting of the EUT : 10mW

Mode of EUT : TX Mode
 Test Port : Enclosure

Operating Frequency : 566.125 MHz
 Reference Carrier Power (ERP) : 12.4 mW
 Distance of Measurement : 3.0 m

| Frequency (MHz) | Substituted Power ERP(dBm) | | Limits (dB) | Attenuation Ratio (dB) | |
|--------------------|-------------------------------|---------|----------------|---------------------------|--------|
| | Horiz. | Vert. | | Horiz. | Vert. |
| 558.005 | -67.1 | -72.1 | 23.9 | 78.1 | 83.1 |
| 574.275 | -66.8 | -69.3 | 23.9 | 77.8 | 80.3 |
| 1132.250 | < -58.3 | < -58.3 | 23.9 | > 69.2 | > 69.2 |
| 1698.375 | < -56.4 | < -56.4 | 23.9 | > 67.3 | > 67.3 |
| 2264.500 | < -54.3 | < -54.3 | 23.9 | > 65.2 | > 65.2 |
| 2830.625 | < -52.5 | < -52.5 | 23.9 | > 63.4 | > 63.4 |
| 3396.750 | < -51.1 | < -51.1 | 23.9 | > 62.0 | > 62.0 |
| 3962.875 | < -49.9 | < -49.9 | 23.9 | > 60.8 | > 60.8 |
| 4529.000 | < -48.7 | < -48.7 | 23.9 | > 59.6 | > 59.6 |
| 5095.125 | < -47.7 | < -47.7 | 23.9 | > 47.7 | > 47.7 |
| 5661.250 | < -46.8 | < -46.8 | 23.9 | > 46.8 | > 46.8 |

Operating Frequency : 632.125 MHz
 Reference Carrier Power (ERP) : 12.9 mW
 Distance of Measurement : 3.0 m

| Frequency (MHz) | Substituted Power ERP(dBm) | | Limits (dB) | Attenuation Ratio (dB) | |
|--------------------|-------------------------------|---------|----------------|---------------------------|--------|
| | Horiz. | Vert. | | Horiz. | Vert. |
| 583.500 | -67.9 | -71.3 | 24.1 | 79.0 | 82.4 |
| 640.402 | -64.9 | -70.8 | 24.1 | 76.0 | 81.8 |
| 1264.250 | < -57.9 | < -57.9 | 24.1 | > 69.0 | > 69.0 |
| 1896.375 | < -55.7 | < -55.7 | 24.1 | > 66.8 | > 66.8 |
| 2528.500 | < -53.4 | < -53.4 | 24.1 | > 64.5 | > 64.5 |
| 3160.625 | < -51.7 | < -51.7 | 24.1 | > 62.8 | > 62.8 |
| 3792.750 | < -50.2 | < -50.2 | 24.1 | > 61.3 | > 61.3 |
| 4424.875 | < -48.9 | < -48.9 | 24.1 | > 60.0 | > 60.0 |
| 5057.000 | < -47.8 | < -47.8 | 24.1 | > 58.9 | > 58.9 |
| 5689.125 | < -46.7 | < -46.7 | 24.1 | > 46.7 | > 46.7 |
| 6321.250 | < -45.8 | < -45.8 | 24.1 | > 45.8 | > 45.8 |

Operating Frequency : 698.875 MHz
 Reference Carrier Power (ERP) : 9.9 mW
 Distance of Measurement : 3.0 m

| Frequency (MHz) | Substituted Power ERP(dBm) | | Limits (dB) | Attenuation Ratio (dB) | |
|--------------------|-------------------------------|---------|----------------|---------------------------|--------|
| | Horiz. | Vert. | | Horiz. | Vert. |
| 652.000 | -67.2 | -72.3 | 23.0 | 77.2 | 82.3 |
| 732.000 | -68.2 | -73.6 | 23.0 | 78.2 | 83.5 |
| 1395.750 | < -57.5 | < -57.5 | 23.0 | > 67.5 | > 67.5 |
| 2093.625 | < -54.9 | < -54.9 | 23.0 | > 64.9 | > 64.9 |
| 2791.500 | < -52.6 | < -52.6 | 23.0 | > 62.6 | > 62.6 |
| 3489.375 | < -50.9 | < -50.9 | 23.0 | > 60.9 | > 60.9 |
| 4187.250 | < -49.4 | < -49.4 | 23.0 | > 59.4 | > 59.4 |
| 4885.125 | < -48.1 | < -48.1 | 23.0 | > 58.1 | > 58.1 |
| 5583.000 | < -46.9 | < -46.9 | 23.0 | > 56.9 | > 56.9 |
| 6280.875 | < -45.8 | < -45.8 | 23.0 | > 45.8 | > 45.8 |
| 6978.750 | < -44.8 | < -44.8 | 23.0 | > 44.8 | > 44.8 |

A.3.3 Output Power Setting of the EUT : 1mW

Mode of EUT : TX Mode
 Test Port : Enclosure

Operating Frequency : 566.125 MHz
 Reference Carrier Power (ERP) : 1.5 mW
 Distance of Measurement : 3.0 m

| Frequency (MHz) | Substituted Power ERP(dBm) | | Limits (dB) | Attenuation Ratio (dB) | |
|-----------------|----------------------------|---------|-------------|------------------------|--------|
| | Horiz. | Vert. | | Horiz. | Vert. |
| 558.005 | -77.6 | -81.6 | 14.6 | 79.3 | 83.3 |
| 574.275 | -76.7 | -79.0 | 14.6 | 78.4 | 80.7 |
| 1132.250 | < -58.3 | < -58.3 | 14.6 | > 59.9 | > 59.9 |
| 1698.375 | < -56.4 | < -56.4 | 14.6 | > 58.0 | > 58.0 |
| 2264.500 | < -54.3 | < -54.3 | 14.6 | > 55.9 | > 55.9 |
| 2830.625 | < -52.5 | < -52.5 | 14.6 | > 54.1 | > 54.1 |
| 3396.750 | < -51.1 | < -51.1 | 14.6 | > 52.7 | > 52.7 |
| 3962.875 | < -49.9 | < -49.9 | 14.6 | > 51.5 | > 51.5 |
| 4529.000 | < -48.7 | < -48.7 | 14.6 | > 50.3 | > 50.3 |
| 5095.125 | < -47.7 | < -47.7 | 14.6 | > 47.7 | > 47.7 |
| 5661.250 | < -46.8 | < -46.8 | 14.6 | > 46.8 | > 46.8 |

Operating Frequency : 632.125 MHz
 Reference Carrier Power (ERP) : 1.5 mW
 Distance of Measurement : 3.0 m

| Frequency (MHz) | Substituted Power ERP(dBm) | | Limits (dB) | Attenuation Ratio (dB) | |
|-----------------|----------------------------|---------|-------------|------------------------|--------|
| | Horiz. | Vert. | | Horiz. | Vert. |
| 583.500 | -76.2 | -79.3 | 14.7 | 77.9 | 81.0 |
| 640.402 | -74.9 | -81.0 | 14.7 | 76.6 | 82.7 |
| 1264.250 | < -57.9 | < -57.9 | 14.7 | > 59.6 | > 59.6 |
| 1896.375 | < -55.7 | < -55.7 | 14.7 | > 57.4 | > 57.4 |
| 2528.500 | < -53.4 | < -53.4 | 14.7 | > 55.1 | > 55.1 |
| 3160.625 | < -51.7 | < -51.7 | 14.7 | > 53.4 | > 53.4 |
| 3792.750 | < -50.2 | < -50.2 | 14.7 | > 51.9 | > 51.9 |
| 4424.875 | < -48.9 | < -48.9 | 14.7 | > 50.6 | > 50.6 |
| 5057.000 | < -47.8 | < -47.8 | 14.7 | > 49.5 | > 49.5 |
| 5689.125 | < -46.7 | < -46.7 | 14.7 | > 46.7 | > 46.7 |
| 6321.250 | < -45.8 | < -45.8 | 14.7 | > 45.8 | > 45.8 |

Operating Frequency : 698.875 MHz
 Reference Carrier Power (ERP) : 9.9 mW
 Distance of Measurement : 3.0 m

| Frequency (MHz) | Substituted Power ERP(dBm) | | Limits (dB) | Attenuation Ratio (dB) | |
|--------------------|-------------------------------|---------|----------------|---------------------------|--------|
| | Horiz. | Vert. | | Horiz. | Vert. |
| 652.000 | -75.9 | -81.0 | 13.6 | 76.5 | 81.6 |
| 732.000 | -77.5 | -81.0 | 13.6 | 78.1 | 81.5 |
| 1395.750 | < -57.5 | < -57.5 | 13.6 | > 58.1 | > 58.1 |
| 2093.625 | < -54.9 | < -54.9 | 13.6 | > 55.5 | > 55.5 |
| 2791.500 | < -52.6 | < -52.6 | 13.6 | > 53.2 | > 53.2 |
| 3489.375 | < -50.9 | < -50.9 | 13.6 | > 51.5 | > 51.5 |
| 4187.250 | < -49.4 | < -49.4 | 13.6 | > 50.0 | > 50.0 |
| 4885.125 | < -48.1 | < -48.1 | 13.6 | > 48.7 | > 48.7 |
| 5583.000 | < -46.9 | < -46.9 | 13.6 | > 47.5 | > 47.5 |
| 6280.875 | < -45.8 | < -45.8 | 13.6 | > 45.8 | > 45.8 |
| 6978.750 | < -44.8 | < -44.8 | 13.6 | > 44.8 | > 44.8 |

- Note : 1. The spectrum was checked from 30 MHz to 10th harmonics.
 All emissions not listed were found to be more than 20 dB below the limits.
2. The symbol of "<" means "or less."
 The symbol of ">" means "or greater."
3. Specified Limits: (§74.861(e)(6)(iii))
 $Attenuation\ Ratio = 43 + 10\log_{10}(\text{mean output power in watt})$
 This Limit is equivalent to -13 dBm(absolute value).
4. Measuring Instrument Setting:
 Less than 1000 MHz
 Detector function : Peak
 IF Bandwidth : 120 kHz
 Above 1000 MHz
 Resolution Bandwidth : 1 MHz

A.4 Occupied BandwidthDate : January 20, 2009Temp. : 25 °C Humi. : 38 %

Necessary Bandwidth: 192 kHz (Manufacturer specified)

Maximum Deviation: It does not define, because the EUT has digital modulation.

Input Level: -24.2 dBV(Manufacturer specified)

Specified Limits: §74.861(e)(6)(i)(ii)

Refer to the attached graphs.

COPY

Emission Limitation

FCC ID : AK8DWTP01

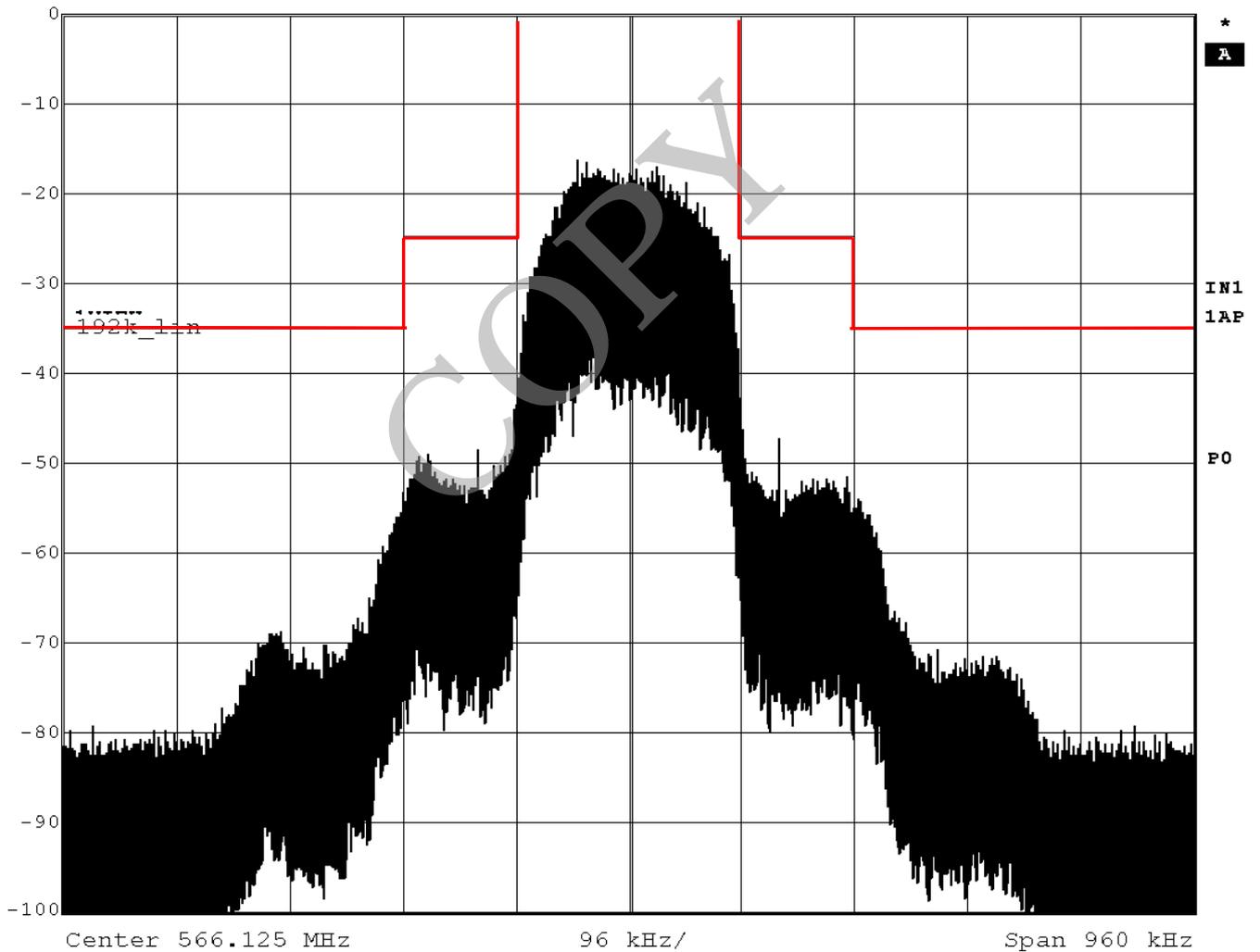
Model : DWT-P01

Model of EUT : Transmit(H:50mW Setting)

Carrier Frequency : 566.125MHz

Ref Lvl
-3.4 dBm

| | | | |
|-----|--------|--------|---------|
| RBW | 300 Hz | RF Att | 40 dB |
| VBW | 300 Hz | Mixer | -40 dBm |
| SWT | 60 s | Unit | dB |



Emission Limitation

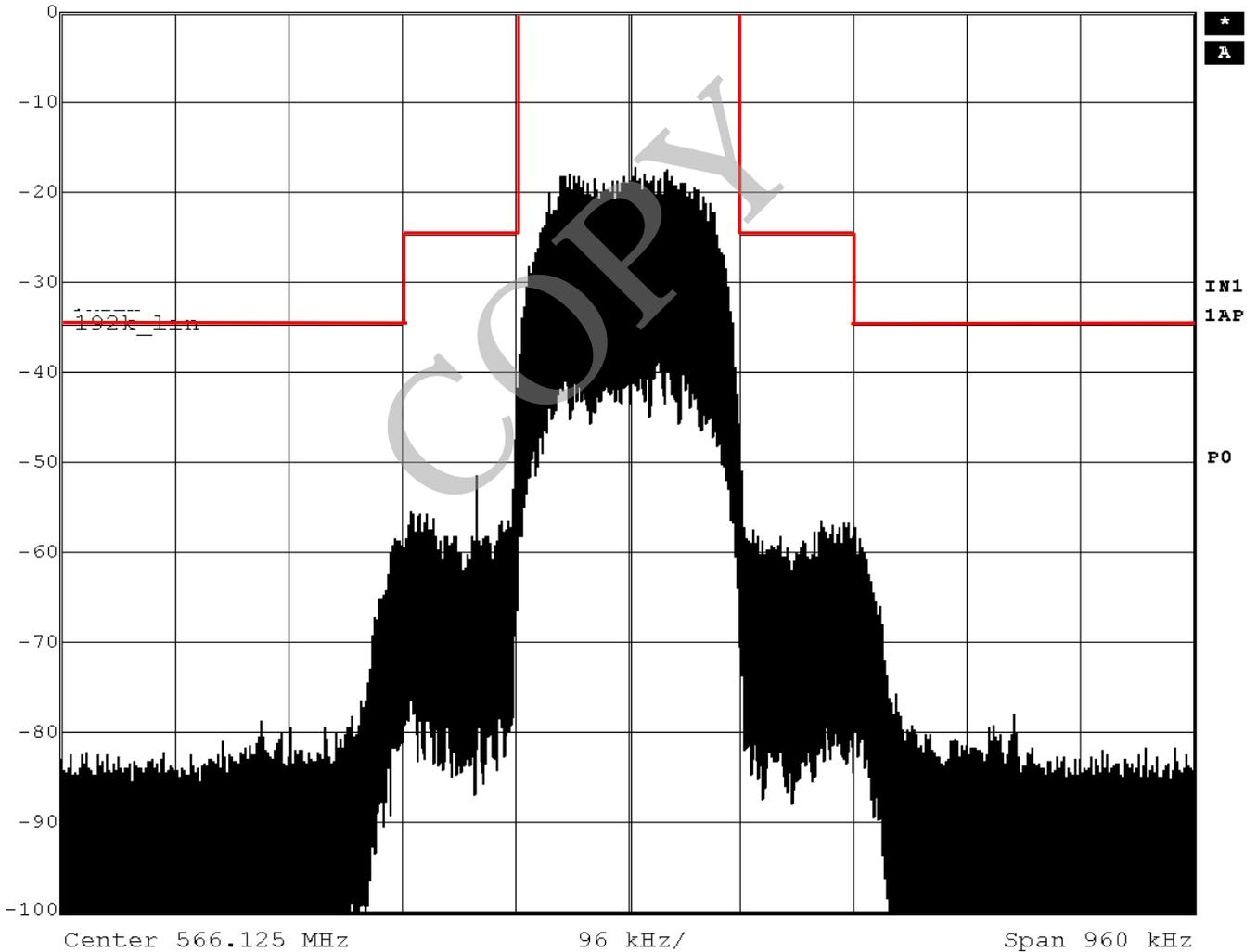
FCC ID : AK8DWTP01
 Model : DWT-P01

Model of EUT : Transmit(M:10mW Setting)
 Carrier Frequency : 566.125MHz



Ref Lvl
 -10.6 dBm

| | | | |
|-----|--------|--------|---------|
| RBW | 300 Hz | RF Att | 30 dB |
| VBW | 300 Hz | Mixer | -40 dBm |
| SWT | 60 s | Unit | dB |



Emission Limitation

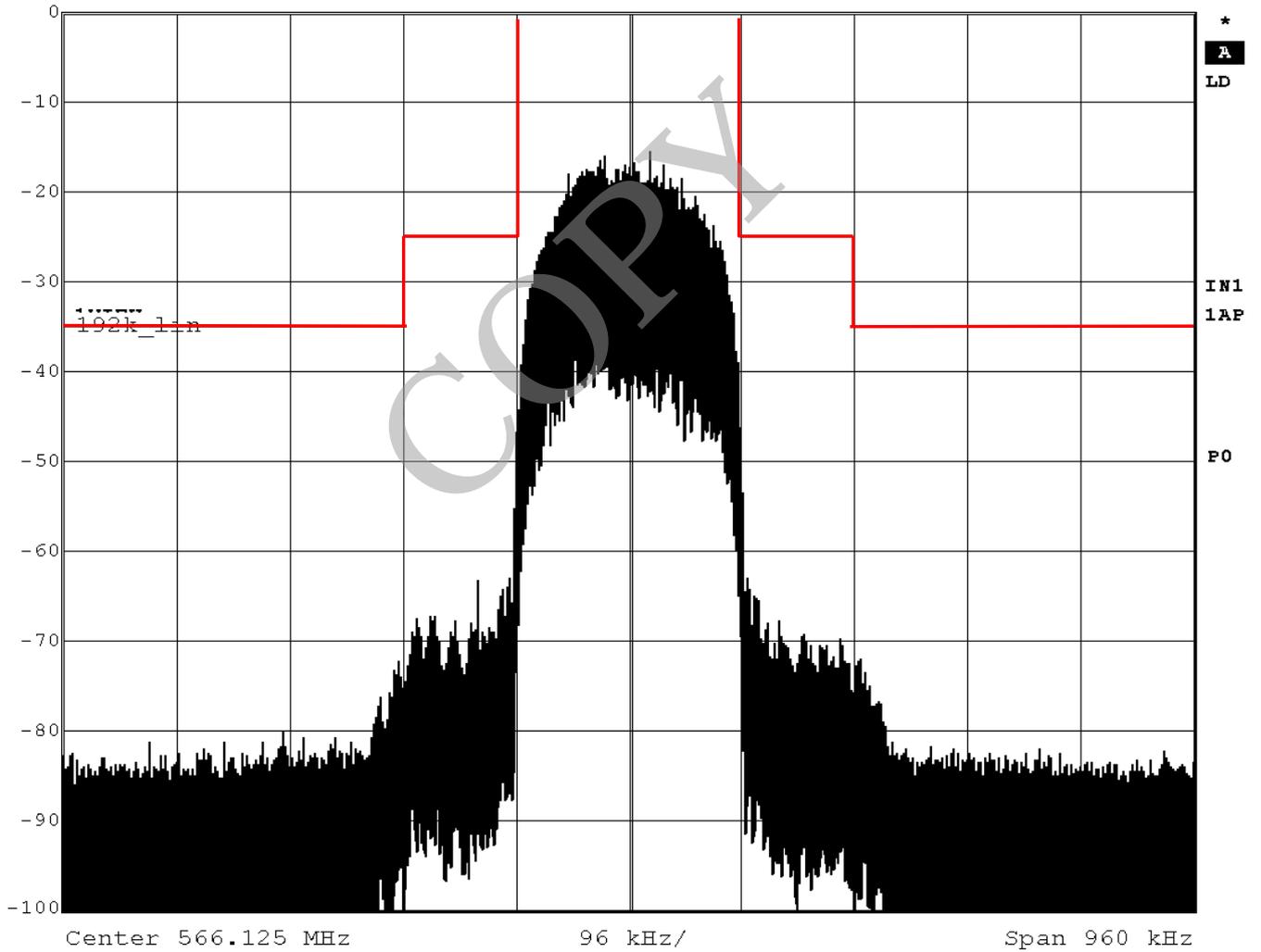
FCC ID : AK8DWTP01
 Model : DWT-P01

Model of EUT : Transmit(L:1mW Setting)
 Carrier Frequency : 566.125MHz



Ref Lvl
 -20.2 dBm

| | | | |
|-----|--------|--------|---------|
| RBW | 300 Hz | RF Att | 20 dB |
| VBW | 300 Hz | Mixer | -40 dBm |
| SWT | 60 s | Unit | dB |



Emission Limitation

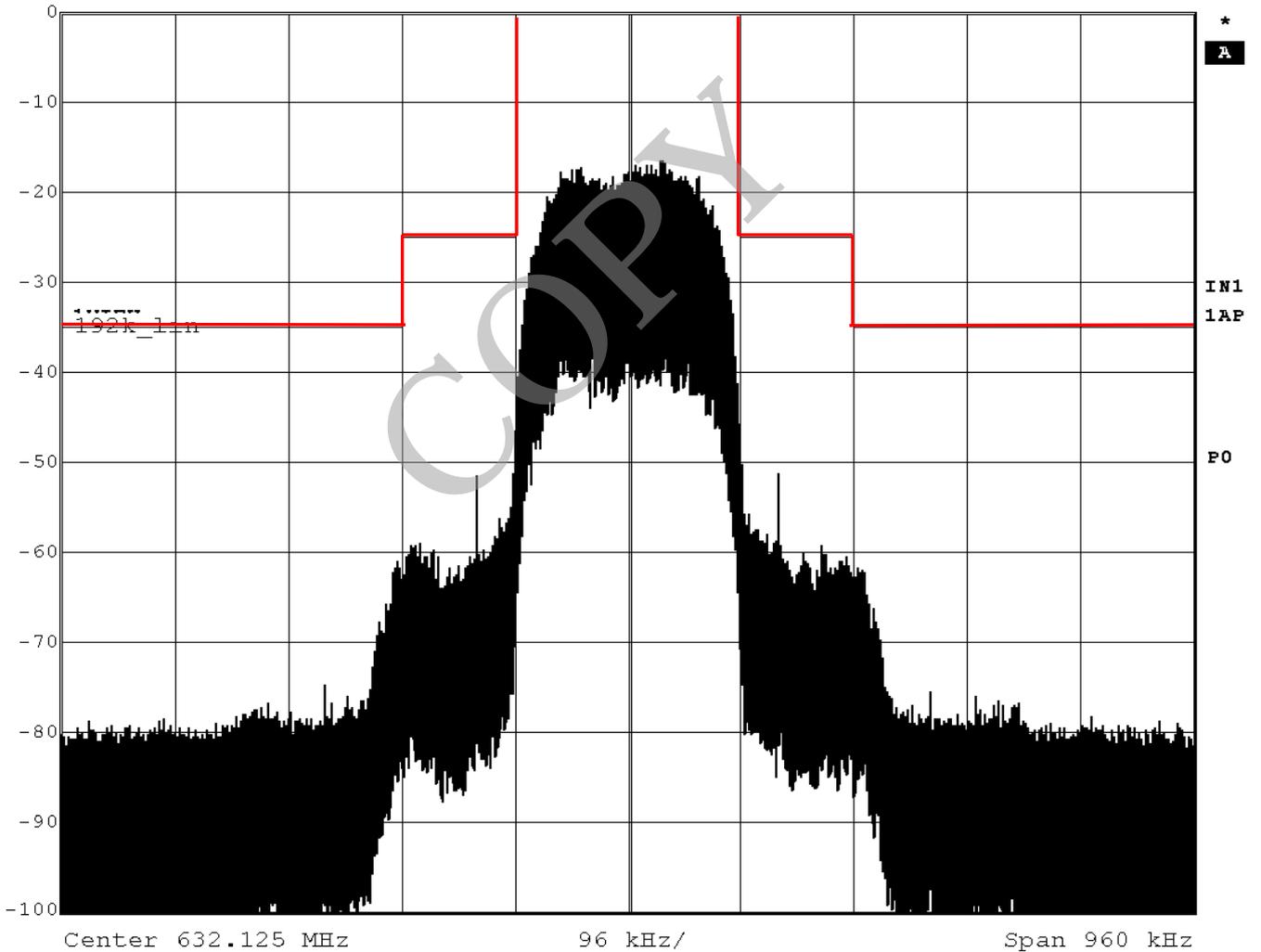
FCC ID : AK8DWTP01
 Model : DWT-P01

Model of EUT : Transmit(H:50mW Setting)
 Carrier Frequency : 632.125MHz



Ref Lvl
 -3.5 dBm

| | | | |
|-----|--------|--------|---------|
| RBW | 300 Hz | RF Att | 40 dB |
| VBW | 300 Hz | Mixer | -40 dBm |
| SWT | 60 s | Unit | dB |



Emission Limitation

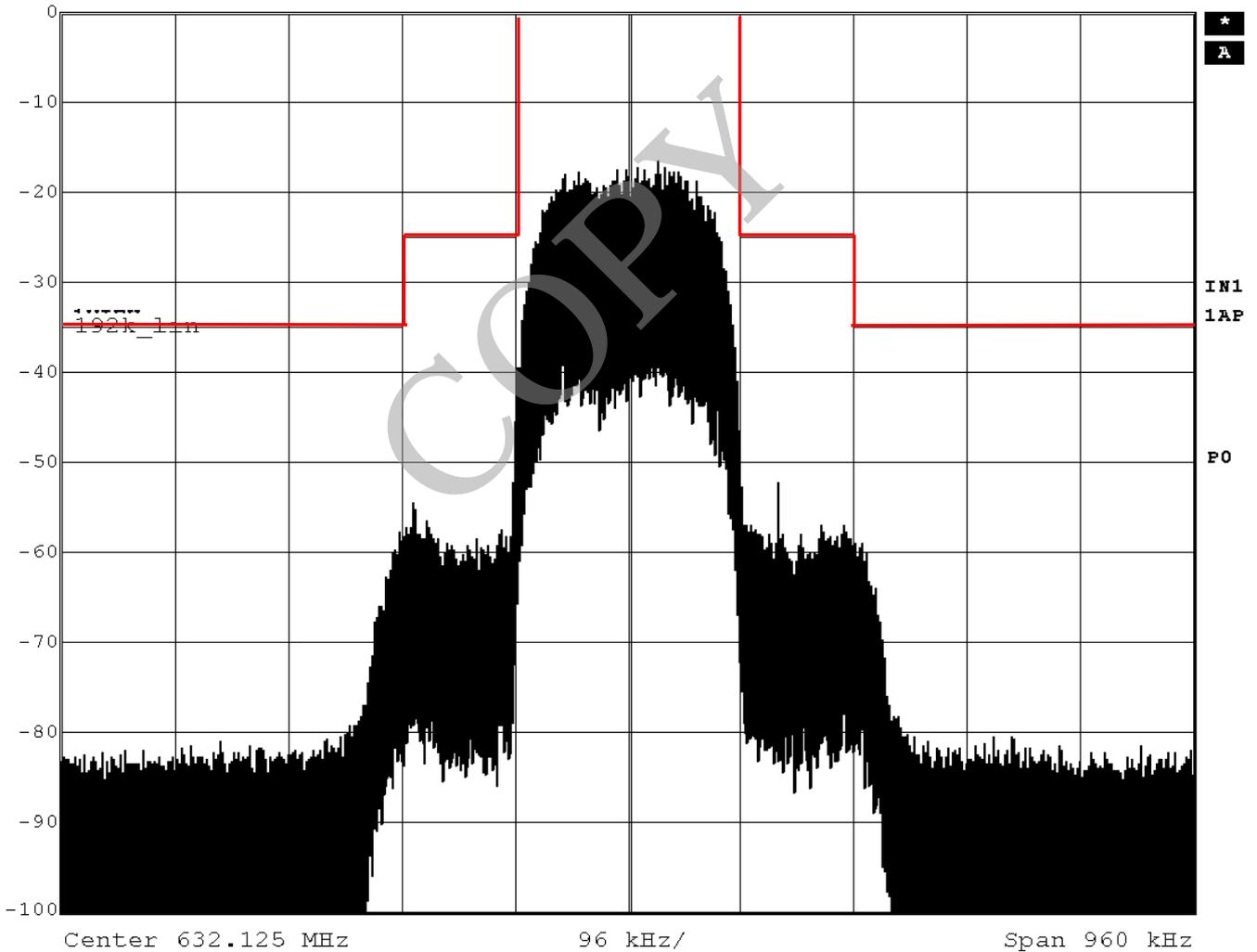
FCC ID : AK8DWTP01
Model : DWT-P01

Model of EUT : Transmit(M:10mW Setting)
Carrier Frequency : 632.125MHz



Ref Lvl
-10.4 dBm

| | | | |
|-----|--------|--------|---------|
| RBW | 300 Hz | RF Att | 30 dB |
| VBW | 300 Hz | Mixer | -40 dBm |
| SWT | 60 s | Unit | dB |



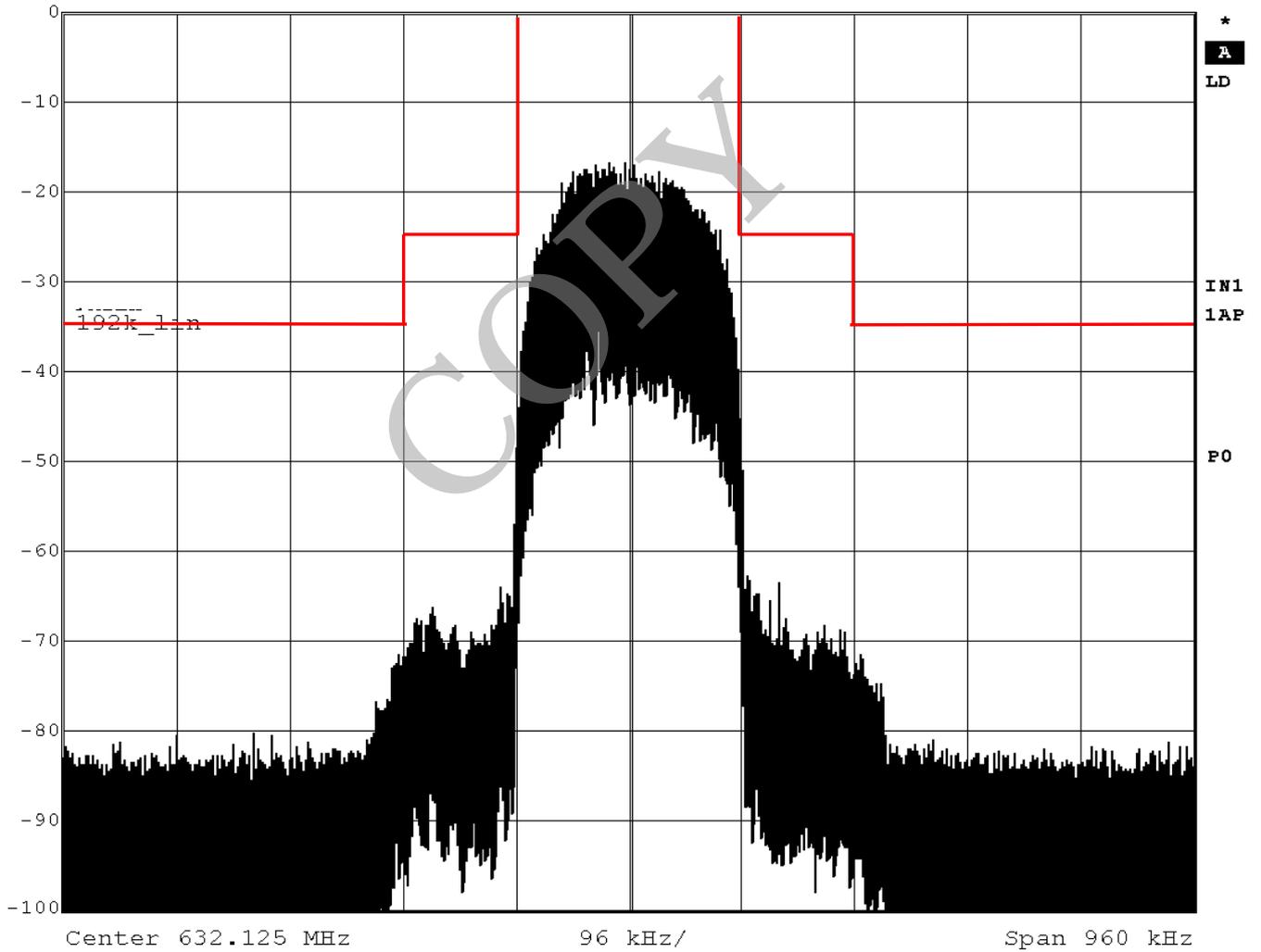
Emission Limitation

FCC ID : AK8DWTP01
 Model : DWT-P01

Model of EUT : Transmit(L:1mW Setting)
 Carrier Frequency : 632.125MHz



| | | | | |
|-----------|-----|--------|--------|---------|
| Ref Lvl | RBW | 300 Hz | RF Att | 20 dB |
| -20.1 dBm | VBW | 300 Hz | Mixer | -40 dBm |
| | SWT | 60 s | Unit | dB |



Emission Limitation

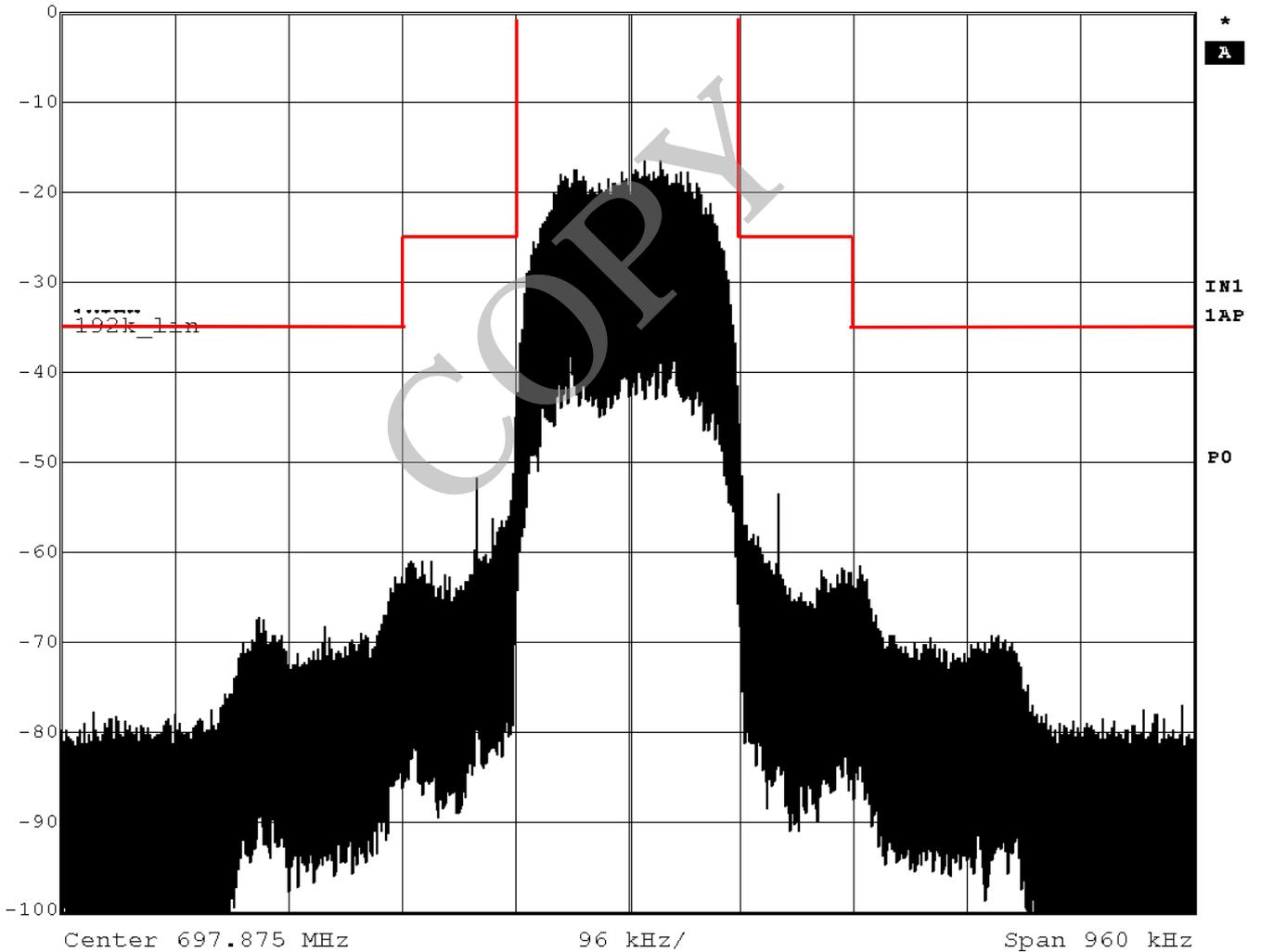
FCC ID : AK8DWTP01
 Model : DWT-P01

Model of EUT : Transmit(H:50mW Setting)
 Carrier Frequency : 697.875MHz



Ref Lvl
 -3.5 dBm

| | | | |
|-----|--------|--------|---------|
| RBW | 300 Hz | RF Att | 40 dB |
| VBW | 300 Hz | Mixer | -40 dBm |
| SWT | 60 s | Unit | dB |



Emission Limitation

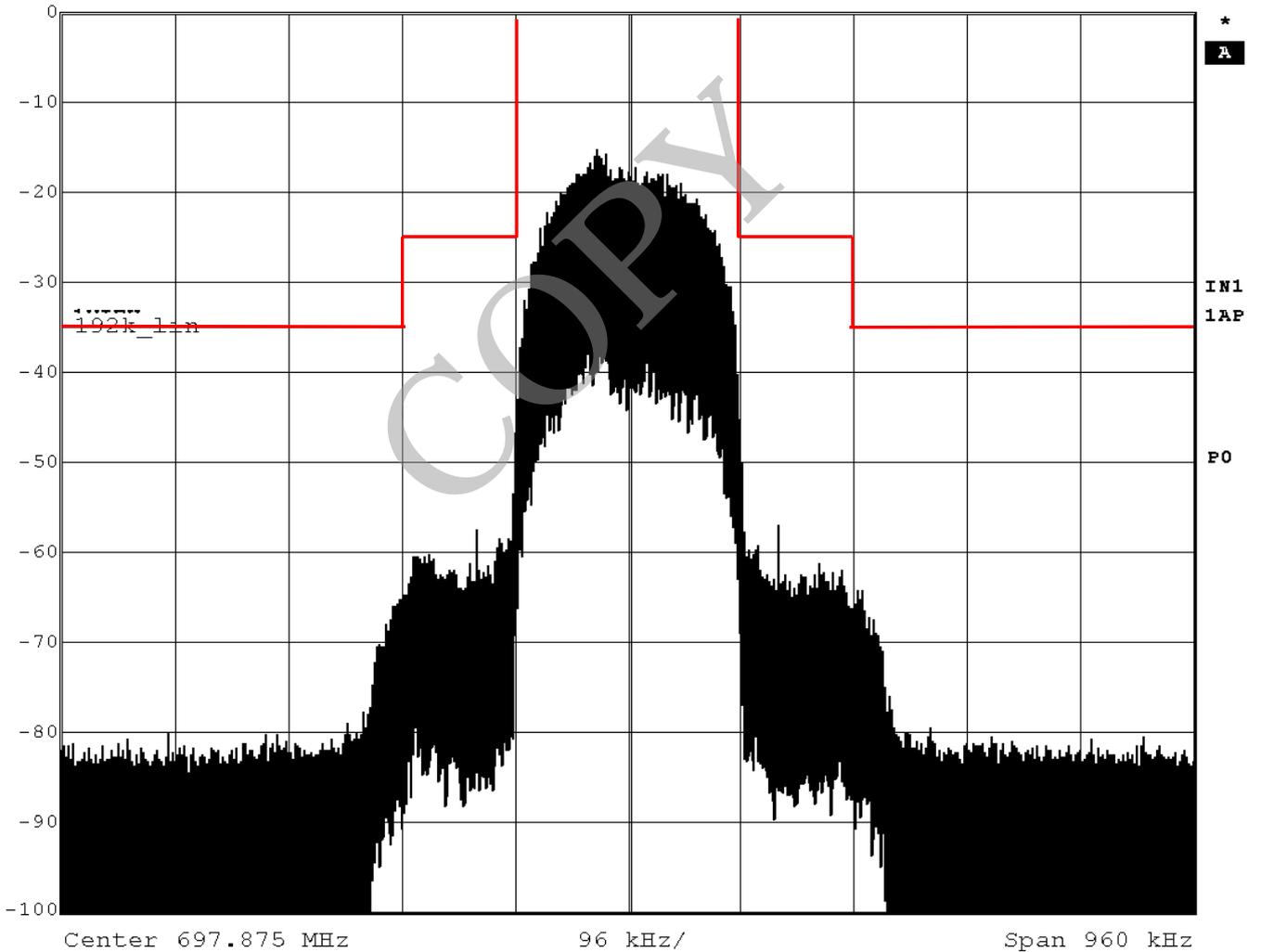
FCC ID : AK8DWTP01
 Model : DWT-P01

Model of EUT : Transmit(M:10mW Setting)
 Carrier Frequency : 697.875MHz



Ref Lvl
 -10.4 dBm

| | | | |
|-----|--------|--------|---------|
| RBW | 300 Hz | RF Att | 30 dB |
| VBW | 300 Hz | Mixer | -40 dBm |
| SWT | 60 s | Unit | dB |



Emission Limitation

FCC ID : AK8DWTP01

Model : DWT-P01

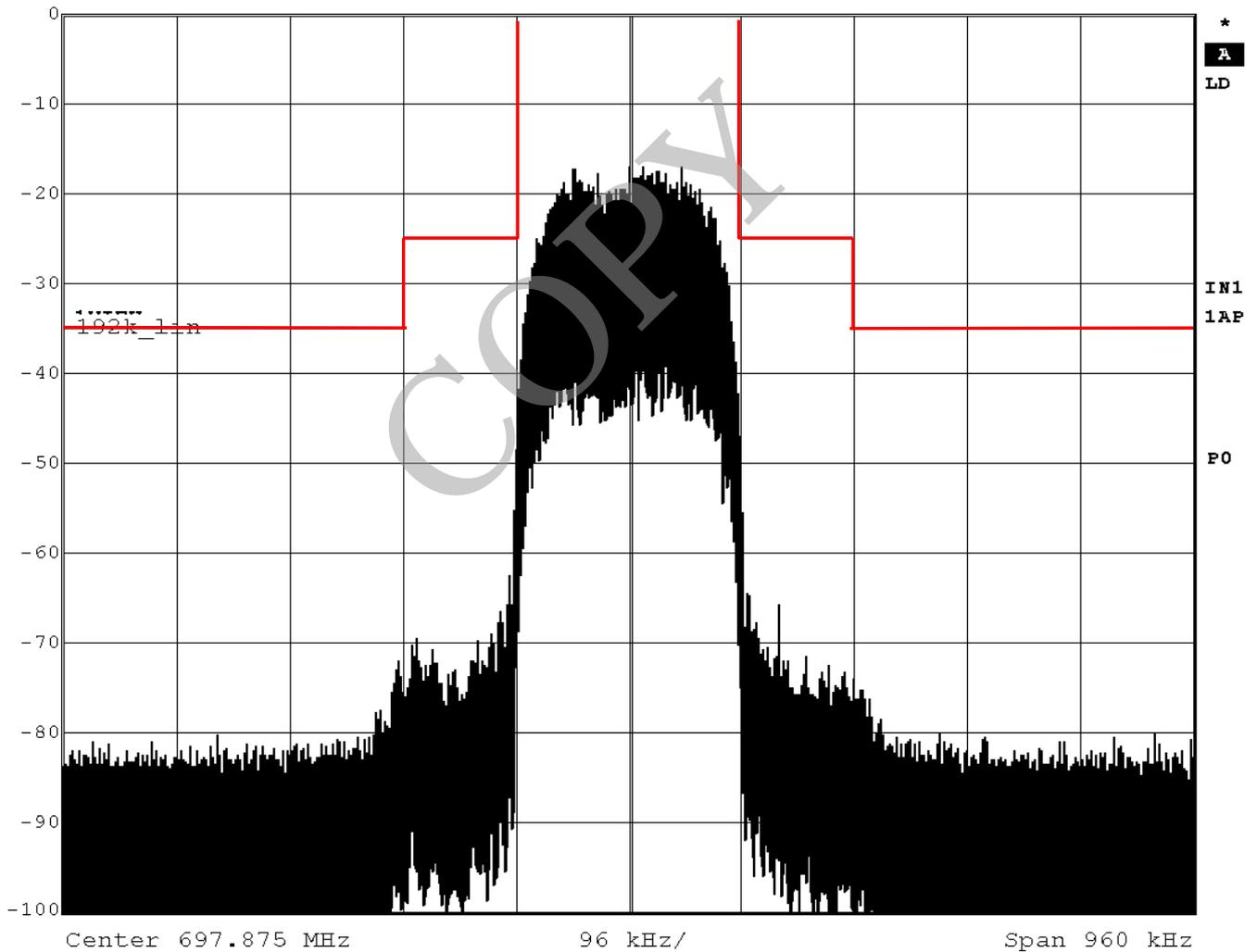
Model of EUT : Transmit(L:1mW Setting)

Carrier Frequency : 697.875MHz



Ref Lvl
 -20.4 dBm

| | | | |
|-----|--------|--------|---------|
| RBW | 300 Hz | RF Att | 20 dB |
| VBW | 300 Hz | Mixer | -40 dBm |
| SWT | 60 s | Unit | dB |



A.5 Frequency Stability

Date : January 22 and 23, 2008
 Temp. : 25 °C Humi. : 46 %

Mode of EUT : TX Mode
 Test Port : Temporary antenna connector

| Ambient Temp. (°C) | Frequency (MHz) | Transmitting Frequency (MHz) | Maximum Tolerance (%) |
|-----------------------|--------------------|------------------------------------|-----------------------------|
| -30 | 566.125 | 566.125785 | +0.000139 |
| | 632.125 | 632.125524 | +0.000083 |
| | 697.875 | 697.875527 | +0.000075 |
| -20 | 566.125 | 566.125802 | +0.000142 |
| | 632.125 | 632.125999 | +0.000158 |
| | 697.875 | 697.875345 | +0.000049 |
| -10 | 566.125 | 566.125145 | +0.000026 |
| | 632.125 | 632.125271 | +0.000043 |
| | 697.875 | 697.875595 | +0.000085 |
| 0 | 566.125 | 566.125849 | +0.000150 |
| | 632.125 | 632.125377 | +0.000060 |
| | 697.875 | 697.875561 | +0.000080 |
| +10 | 566.125 | 566.125646 | +0.000114 |
| | 632.125 | 632.125162 | +0.000026 |
| | 697.875 | 697.875512 | +0.000073 |
| +20 | 566.125 | 566.125802 | +0.000142 |
| | 632.125 | 632.125842 | +0.000133 |
| | 697.875 | 697.875768 | +0.000110 |
| +30 | 566.125 | 566.125770 | +0.000136 |
| | 632.125 | 632.125692 | +0.000109 |
| | 697.875 | 697.875520 | +0.000074 |
| +40 | 566.125 | 566.125046 | +0.000008 |
| | 632.125 | 632.125669 | +0.000106 |
| | 697.875 | 697.875751 | +0.000108 |
| +50 | 566.125 | 566.125547 | +0.000097 |
| | 632.125 | 632.125421 | +0.000067 |
| | 697.875 | 697.875728 | +0.000104 |

Supply Voltage: 3.0VDC
 Specified limit: ±0.005% (74.861(e)(4))

| Ambient Temp. (°C) | Frequency (MHz) | Transmitting Frequency (MHz) | Maximum Tolerance (%) |
|-----------------------|--------------------|------------------------------------|-----------------------------|
| -30 | 566.125 | 566.125674 | +0.000119 |
| | 632.125 | 632.125280 | +0.000044 |
| | 697.875 | 697.875938 | +0.000134 |
| -20 | 566.125 | 566.125743 | +0.000131 |
| | 632.125 | 632.125316 | +0.000050 |
| | 697.875 | 697.875700 | +0.000100 |
| -10 | 566.125 | 566.125380 | +0.000067 |
| | 632.125 | 632.125111 | +0.000018 |
| | 697.875 | 697.875149 | +0.000021 |
| 0 | 566.125 | 566.125529 | +0.000093 |
| | 632.125 | 632.125705 | +0.000112 |
| | 697.875 | 697.875385 | +0.000055 |
| +10 | 566.125 | 566.125433 | +0.000077 |
| | 632.125 | 632.125731 | +0.000116 |
| | 697.875 | 697.875354 | +0.000051 |
| +20 | 566.125 | 566.125677 | +0.000120 |
| | 632.125 | 632.125369 | +0.000058 |
| | 697.875 | 697.875221 | +0.000032 |
| +30 | 566.125 | 566.125481 | +0.000085 |
| | 632.125 | 632.125480 | +0.000076 |
| | 697.875 | 697.875630 | +0.000090 |
| +40 | 566.125 | 566.125827 | +0.000146 |
| | 632.125 | 632.125776 | +0.000123 |
| | 697.875 | 697.875626 | +0.000090 |
| +50 | 566.125 | 566.125168 | +0.000030 |
| | 632.125 | 632.125851 | +0.000135 |
| | 697.875 | 697.875092 | +0.000013 |

Supply Voltage: 2.55VDC(Battery operating end point, Manufacturer defined.)
 Specified limit: ±0.005% (§ 74.861(e)(4))

Appendix B : Test Arrangement (Photographs)**Radiated Emissions**

- X-axis View -



- Y-axis View -

Photograph present configuration with maximum emission



- Z-axis View -

Photograph present configuration with maximum emission

Appendix C : Test Instruments

04-Feb-2009

| No | Type | Model | Manufacturer | Serial | ID | Last Cal. | Interval |
|-------------------------|--------------------|-------|--------------|--------|--------------|-----------|----------|
| Test Facilities: | | | | | | | |
| 1 | Anechoic Chamber A | - | TDK | - | 800-01-502E0 | Apr 2008 | 1 Year |
| 2 | Anechoic Chamber B | - | TDK | - | 800-01-503E0 | Apr 2008 | 1 Year |
| 3 | Shield Room A | - | TDK | - | 800-01-501E0 | - | - |
| 4 | Shield Room B | - | Ray Proof | - | 800-01-010E0 | - | - |
| 5 | Shield Room C | - | TDK | - | 800-01-504E0 | - | - |
| 6 | Shield Room D | - | Emerson | - | 800-01-022E0 | - | - |
| 7 | Shield Room E | - | TDK | - | 800-01-505E0 | - | - |

Measuring Instruments:

| | | | | | | | |
|-----|----------------------|----------|-----------------|------------|--------------|----------|--------|
| 10 | Test Receiver | ESHS10 | Rohde & Schwarz | 835871/004 | 119-01-505E0 | Apr 2008 | 1 Year |
| 11 | Test Receiver | ESVS10 | Rohde & Schwarz | 826148/002 | 119-03-504E0 | Jun 2008 | 1 Year |
| 12 | Test Receiver | ESVS10 | Rohde & Schwarz | 832699/001 | 119-03-506E0 | Sep 2008 | 1 Year |
| 13 | Test Receiver | ESI26 | Rohde & Schwarz | 100043 | 119-04-511E0 | Sep 2008 | 1 Year |
| 14 | Spectrum Analyzer | R3182 | Advantest | 120600581 | 122-02-521E0 | Mar 2008 | 1 Year |
| 19 | Spectrum Analyzer | R3132 | Advantest | 120500072 | 122-02-520E0 | May 2008 | 1 Year |
| 20 | Spectrum Analyzer | R3132 | Advantest | 150400998 | 122-02-523E0 | Jul 2008 | 1 Year |
| 65 | Power Meter | 436A | Hewlett Packard | 1725A01930 | 100-02-501E0 | Apr 2008 | 1 Year |
| 66 | Power Sensor | 8482A | Hewlett Packard | 1551A01013 | 100-02-501E0 | Apr 2008 | 1 Year |
| 67 | Power Sensor | 8485A | Hewlett Packard | 2942A08969 | 100-04-021E0 | Apr 2008 | 1 Year |
| 68 | FM Linear Detector | MS61A | Anritsu | M77486 | 123-02-008E0 | Oct 2008 | 1 Year |
| 69 | Level Meter | ML422C | Anritsu | M87571 | 114-02-501E0 | Jun 2008 | 1 Year |
| 70 | Measuring Amplifier | 2636 | B & K | 1614851 | 082-01-502E0 | May 2008 | 1 Year |
| 75 | Frequency Counter | 53131A | Hewlett Packard | 3546A11807 | 102-02-075E0 | May 2008 | 1 Year |
| 83 | FFT Analyzer | R9211C | Advantest | 02020253 | 122-02-506E0 | Jun 2008 | 1 Year |
| 84 | Noise Meter | MN-446 | Meguro | 53030478 | 082-01-144E0 | Apr 2008 | 1 Year |
| 163 | Digital Oscilloscope | 54502A | Hewlett Packard | 2934A05573 | 121-02-502E0 | May 2008 | 1 Year |
| 165 | Multimeter | VOAC7413 | Iwatsu Electric | 0267973 | 114-02-502E0 | Apr 2008 | 1 Year |
| 172 | Test Receiver | ESCI | Rohde & Schwarz | 100408 | 119-04-512E0 | Sep 2008 | 1 Year |
| 210 | Peak Power Meter | ML2495A | Anritsu | 0836023 | 100-02-507E0 | Oct 2008 | 1 Year |
| 211 | Power Sensor | MA2491A | Anritsu | 0811206 | 100-02-507E0 | Oct 2008 | 1 Year |
| 212 | Power Sensor | MA2411B | Anritsu | 0738312 | 100-02-507E0 | Oct 2008 | 1 Year |

Antennas:

| | | | | | | | |
|-----|----------------------|------------|------------------|-------------|--------------|----------|--------|
| 21 | Loop Antenna | HFH2-Z2 | Rohde & Schwarz | 881058/62 | 119-05-033E0 | Jun 2008 | 1 Year |
| 22 | Dipole Antenna | KBA-511 | Kyoritsu | 0-170-1 | 119-05-506E0 | Oct 2007 | 2 Year |
| 23 | Dipole Antenna | KBA-511A | Kyoritsu | 0-201-13 | 119-05-504E0 | Oct 2007 | 2 Year |
| 24 | Dipole Antenna | KBA-611 | Kyoritsu | 0-147-14 | 119-05-507E0 | Oct 2007 | 2 Year |
| 25 | Dipole Antenna | KBA-611 | Kyoritsu | 0-210-5 | 119-05-505E0 | Oct 2007 | 2 Year |
| 27 | Biconical Antenna | BBA9106 | Schwarzbeck | - | 119-05-078E0 | Nov 2008 | 1 Year |
| 28 | Log-periodic Antenna | UHALP9107 | Schwarzbeck | - | 119-05-079E0 | Nov 2008 | 1 Year |
| 31 | Horn Antenna | 3115 | EMC Test Systems | 6442 | 119-05-514E0 | Jan 2008 | 2 Year |
| 32 | Horn Antenna | 3116 | EMC Test Systems | 2547 | 119-05-515E0 | May 2007 | 2 Year |
| 167 | Biconical Antenna | BBA9106 | Schwarzbeck | VHA91032325 | 119-05-520E0 | May 2008 | 1 Year |
| 168 | Log-periodic Antenna | UHALP9108A | Schwarzbeck | 0666 | 119-05-521E0 | May 2008 | 1 Year |
| 169 | Biconical Antenna | BBA9106 | Schwarzbeck | VHA91032399 | 119-05-522E0 | May 2008 | 1 Year |
| 170 | Log-periodic Antenna | UHALP9108A | Schwarzbeck | 0724 | 119-05-523E0 | May 2008 | 1 Year |
| 198 | Log-periodic Antenna | HL050 | Rohde & Schwarz | 100251 | 119-05-524E0 | Aug 2008 | 1 Year |

04-Feb-2009

| No | Type | Model | Manufacturer | Serial | ID | Last Cal. | Interval |
|---------------------------|----------------------|--------------------|--------------------------|------------|--------------|-----------|----------|
| <u>Cables:</u> | | | | | | | |
| 38 | RF Cable | 5D-2W | Fujikura | - | 155-21-001E0 | Feb 2008 | 1 Year |
| 39 | RF Cable | 5D-2W | Fujikura | - | 155-21-002E0 | Feb 2008 | 1 Year |
| 40 | RF Cable | 3D-2W | Fujikura | - | 155-21-005E0 | Apr 2008 | 1 Year |
| 41 | RF Cable | 3D-2W | Fujikura | - | 155-21-006E0 | Apr 2008 | 1 Year |
| 42 | RF Cable | 3D-2W | Fujikura | - | 155-21-007E0 | Apr 2008 | 1 Year |
| 43 | RF Cable | RG213/U | Rohde & Schwarz | - | 155-21-010E0 | Apr 2008 | 1 Year |
| 44 | RF Cable(10m) | S 04272B | Suhner | - | 155-21-011E0 | May 2008 | 1 Year |
| 45 | RF Cable(1.5m 18GHz) | S 04272B | Suhner | - | 155-21-012E0 | May 2008 | 1 Year |
| 46 | RF Cable(1m 18GHz) | SUCOFLEX | Suhner | - | 155-21-013E0 | May 2008 | 1 Year |
| 47 | RF Cable(1m N) | S 04272B | Suhner | - | 155-21-015E0 | Jun 2008 | 1 Year |
| 48 | RF Cable(1m 26GHz) | SUCOFLEX | Suhner | 14543/4E | 155-21-016E0 | Dec 2008 | 1 Year |
| | | 104E | | | | | |
| 49 | RF Cable(4m 26GHz) | SUCOFLEX | Suhner | 190630 | 155-21-017E0 | Dec 2008 | 1 Year |
| 50 | RF Cable(10m) | F130-S1S1-394 | MEGA PHASE | 10510 | 155-21-018E0 | Dec 2008 | 1 Year |
| 51 | RF Cable(5m) | 3D-2W | Fujikura | - | 155-21-009E0 | Apr 2008 | 1 Year |
| 52 | RF Cable(7m) | RG223/U | Suhner | - | 155-21-021E0 | May 2008 | 1 Year |
| 195 | RF Cable(10m) | F130-S1S1-394 | MEGA PHASE | 20051 | 155-21-020E0 | Apr 2008 | 1 Year |
| <u>Networks:</u> | | | | | | | |
| 33 | LISN | KNW-407 | Kyoritsu | 8-833-6 | 149-04-052E0 | Nov 2008 | 1 Year |
| 34 | LISN | KNW-407 | Kyoritsu | 8-855-2 | 149-04-055E0 | Apr 2008 | 1 Year |
| 35 | LISN | KNW-407 | Kyoritsu | 8-1130-6 | 149-04-062E0 | Apr 2008 | 1 Year |
| 36 | LISN | KNW-242C | Kyoritsu | 8-837-13 | 149-04-054E0 | Apr 2008 | 1 Year |
| 37 | Absorbing Clamp | MDS21 | Luthi | 03293 | 119-06-506E0 | Aug 2008 | 1 Year |
| 164 | LISN | KNW-403D | Kyoritsu | 8-1474-3 | 149-04-059E0 | Apr 2008 | 1 Year |
| 173 | Pulse Limiter | ESH3-Z2 | Rohde & Schwarz | - | 156-01-501E0 | Apr 2008 | 1 Year |
| 174 | Pulse Limiter | ESH3-Z2 | Rohde & Schwarz | - | 156-01-502E0 | Apr 2008 | 1 Year |
| 175 | Pulse Limiter | ESH3-Z2 | Rohde & Schwarz | - | 156-01-503E0 | Apr 2008 | 1 Year |
| 194 | High Impedance Probe | HP-2 | JQA | 001 | 149-06-503E0 | Oct 2008 | 1 Year |
| <u>Amplifiers:</u> | | | | | | | |
| 53 | AF Amplifier | P-500L | Accuphase | BOY806 | 127-01-501E0 | Feb 2008 | 1 Year |
| 54 | RF Amplifier | WJ-6882-814 | Watkins-Johnson | 0414 | 127-04-017E0 | Jun 2008 | 1 Year |
| 55 | RF Amplifier | WJ-5315-556 | Watkins-Johnson | 106 | 127-04-006E0 | Jun 2008 | 1 Year |
| 56 | RF Amplifier | WJ-5320-307 | Watkins-Johnson | 645 | 127-04-005E0 | Jun 2008 | 1 Year |
| 57 | RF Amplifier | JS4-00102600-28-5A | MITEQ | 669167 | 127-04-502E0 | Apr 2008 | 1 Year |
| <u>Generators:</u> | | | | | | | |
| 58 | Function Generator | 3325B | Hewlett Packard | 2847A03284 | 118-08-124E0 | Jul 2008 | 1 Year |
| 59 | Function Generator | VP-7422A | Matsushita Communication | 050351E122 | 118-08-503E0 | Jul 2008 | 1 Year |
| 60 | Signal Generator | 8664A | Hewlett Packard | 3035A00140 | 118-03-014E0 | May 2008 | 1 Year |
| 61 | Signal Generator | 8664A | Hewlett Packard | 3438A00756 | 118-04-502E0 | May 2008 | 1 Year |
| 62 | Signal Generator | 6061A | Gigatronics | 5130593 | 118-04-024E0 | Mar 2008 | 1 Year |
| 171 | Signal Generator | SML03 | Rohde & Schwarz | 102651 | 118-04-509E0 | Feb 2008 | 1 Year |
| 222 | Signal Generator | 8673D | Hewlett Packard | 2938A00988 | 118-04-015E0 | Jun 2008 | 1 Year |

04-Feb-2009

| No | Type | Model | Manufacturer | Serial | ID | Last Cal. | Interval |
|----------------|-------------------|----------------|-----------------|------------|--------------|-----------|----------|
| Others: | | | | | | | |
| 63 | Termination(50) | - | Suhner | - | 154-06-501E0 | Jan 2009 | 1 Year |
| 64 | Termination(50) | - | Suhner | - | 154-06-502E0 | Jan 2009 | 1 Year |
| 71 | Microphone | 4134 | B & K | 1253497 | 147-01-502E0 | May 2008 | 1 Year |
| 72 | Preamplifier | 2639 | B & K | 1268763 | 127-01-504E0 | - | - |
| 73 | Pistonphone | 4220 | B & K | 1165008 | 147-02-501E0 | Mar 2008 | 1 Year |
| 74 | Artificial Mouth | 4227 | B & K | 1274869 | - | - | - |
| 76 | Oven | - | Ohnishi | - | 023-02-018E0 | - | - |
| 77 | DC Power Supply | 6628A | Hewlett Packard | 3224A00284 | 072-05-503E0 | Jun 2008 | 1 Year |
| 78 | Band RejectFilter | BRM12294 | Micro-tronics | 003 | 149-01-501E0 | Jan 2009 | 1 Year |
| 79 | High Pass Filter | F-100-4000-5-R | RLC Electronics | 0149 | 149-01-502E0 | Feb 2008 | 1 Year |
| 80 | Attenuator | 43KC-10 | Anritsu | - | 148-03-506E0 | Feb 2008 | 1 Year |
| 81 | Attenuator | 43KC-20 | Anritsu | - | 148-03-507E0 | Feb 2008 | 1 Year |
| 82 | Attenuator | 355D | Hewlett Packard | 219-10782 | 148-03-065E0 | Apr 2008 | 1 Year |
| 85 | RF Detector | 75KC-50 | Anritsu | 305002 | 100-02-506E0 | Jul 2008 | 1 Year |
| 200 | Artificial Hand | AH-1 | ES Factory | 001 | 155-07-561E0 | Jul 2008 | 1 Year |
| 201 | Barometer | TYPE6 | Yanagi | 16076 | 209-02-014E0 | Feb 2008 | 2 Year |
| 202 | Thermo-Hygrometer | - | Empex | - | 141-01-504E0 | Mar 2008 | 2 Year |
| 203 | Thermo-Hygrometer | EX-2727 | Empex | - | 141-01-505E0 | Mar 2008 | 2 Year |
| 204 | Thermo-Hygrometer | EX-2727 | Empex | - | 141-01-506E0 | Mar 2008 | 2 Year |
| 205 | Thermo-Hygrometer | EX-2727 | Empex | - | 141-01-507E0 | Mar 2008 | 2 Year |
| 206 | Low Pass Filter | LPM13323 | Micro-tronics | 001 | 149-01-505E0 | Jul 2008 | 1 Year |
| 207 | High Pass Filter | HPM13321 | Micro-tronics | 001 | 149-01-506E0 | Jul 2008 | 1 Year |
| 208 | High Pass Filter | HPM13322 | Micro-tronics | 001 | 149-01-507E0 | Jul 2008 | 1 Year |