



**FCC CFR47 PART 95 REQUIREMENT  
CLASS II PERMISSIVE CHANGE  
CERTIFICATION REPORT**

**FOR**

**WMTS TRANSMITTER**

**MODEL: ZM-920PA**

**FCC ID: B6BZM-920PA**

**REPORT NUMBER: 07J11227-1**

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*Prepared for*  
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*Prepared by*  
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Revision History

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| --          | 8/20/07               | Initial Issue    | T. Chan           |

**TABLE OF CONTENTS**

**1. ATTESTATION OF TEST RESULTS ..... 4**

**2. TEST METHODOLOGY ..... 5**

**3. FACILITIES AND ACCREDITATION ..... 5**

**4. CALIBRATION AND UNCERTAINTY ..... 5**

    4.1 MEASURING INSTRUMENT CALIBRATION ..... 5

    4.2 MEASUREMENT UNCERTAINTY ..... 5

**5. EQUIPMENT UNDER TEST ..... 6**

    5.1 DESCRIPTION OF EUT ..... 6

    5.2 CLASS II PERMISSIVE CHANGE DESCRIPTION ..... 6

    5.3 MAXIMUM OUTPUT POWER ..... 6

    5.4 SOFTWARE AND FIRMWARE ..... 6

    5.5 WORST-CASE CONFIGURATION AND MODE ..... 6

**6. TEST AND MEASUREMENT EQUIPMENT ..... 7**

**7. SETUP OF EQUIPMENT UNDER TEST ..... 8**

**8. EMISSION BANDWIDTH ..... 9**

**9. SETUP PHOTOS ..... 13**

### 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** NIHON KOHDEN CORPORATION  
1-31-4, NISHIOCHIAI SHINJUKU-KU  
TOKYO 161-8560, JAPAN

**EUT DESCRIPTION:** WMTS TRANSMITTER

**MODEL:** ZM-920PA

**SERIAL NUMBER:** 96001

**DATE TESTED:** AUGUST 8, 2007

| APPLICABLE STANDARDS  |                         |
|-----------------------|-------------------------|
| STANDARD              | TEST RESULTS            |
| FCC PART 95 SUBPART H | NO NON-COMPLIANCE NOTED |

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

Tested By:



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## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA/EIA 603C (2004), ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 15 and FCC CFR 47 Part 95.

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

## 4. CALIBRATION AND UNCERTAINTY

### 4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 4.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| PARAMETER                           | UNCERTAINTY    |
|-------------------------------------|----------------|
| Radiated Emission, 30 to 200 MHz    | +/- 3.3 dB     |
| Radiated Emission, 200 to 1000 MHz  | +4.5 / -2.9 dB |
| Radiated Emission, 1000 to 2000 MHz | +4.5 / -2.9 dB |
| Power Line Conducted Emission       | +/- 2.9 dB     |

Uncertainty figures are valid to a confidence level of 95%.

## 5. EQUIPMENT UNDER TEST

### 5.1 DESCRIPTION OF EUT

- |                                |  |
|--------------------------------|--|
| a). Type of EUT:               | WMTS TRANSMITTER   |
| b). Brand Name:                | NIHON KOHDEN   |
| c). Model No:                  | ZM-920PA   |
| d). FCC ID:                    | B6BZM-920PA  |
| e). Power Supply:              | 3 VDC (2xAA)   |
| f). Number of Channels:        | 477 Channels   |
| g). Frequency Range:           | 608.0250 ~ 613.9750 MHz.   |
| h). RF Conducted Output Power: | Same as previous original grant                                  |
| i). Channel Spacing:           | 50kHz or 37.5kHz (12.5kHz when interleave)                       |
| j). Type of Modulation:        | FSK  |
| k). Antenna Type:              | The shielded part of an Electro lead BR-906PA is used as antenna |

### 5.2 CLASS II PERMISSIVE CHANGE DESCRIPTION

The number of channels has been increased from 239 to 477 channels.

### 5.3 MAXIMUM OUTPUT POWER

The transmitter has same maximum peak conducted output power as previous grant on November 06, 2002.

### 5.4 SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was Channel Writer Application rev. 1.0.1.0.

The EUT driver software installed in the host support equipment during testing was QI-901PK, rev. 02\_01.

The test utility software used during testing was Channel.exe.

### 5.5 WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined at low channel with the highest output power.

This test is only performed on the Emissions Bandwidth and Output Power of RF conducted measurement.

## 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

| <b>TEST EQUIPMENT LIST</b>      |                     |              |                      |                |
|---------------------------------|---------------------|--------------|----------------------|----------------|
| <b>Description</b>              | <b>Manufacturer</b> | <b>Model</b> | <b>Serial Number</b> | <b>Cal Due</b> |
| Spectrum Analyzer 3 Hz ~ 44 GHz | Agilent / HP        | E4446A       | US42070220           | 11/26/07       |
| Peak Power Meter                | Agilent / HP        | E4416A       | GB41291160           | 12/02/07       |

**7. SETUP OF EQUIPMENT UNDER TEST**

SUPPORT EQUIPMENT

| TEST PERIPHERALS |              |              |               |        |
|------------------|--------------|--------------|---------------|--------|
| Device Type      | Manufacturer | Model Number | Serial Number | FCC ID |
| Channel Writer   | Nihon Kohden | QI-901PK     | 1444          | N/A    |
| Laptop           | HP           | ZE 4205      | N/A           | DoC    |

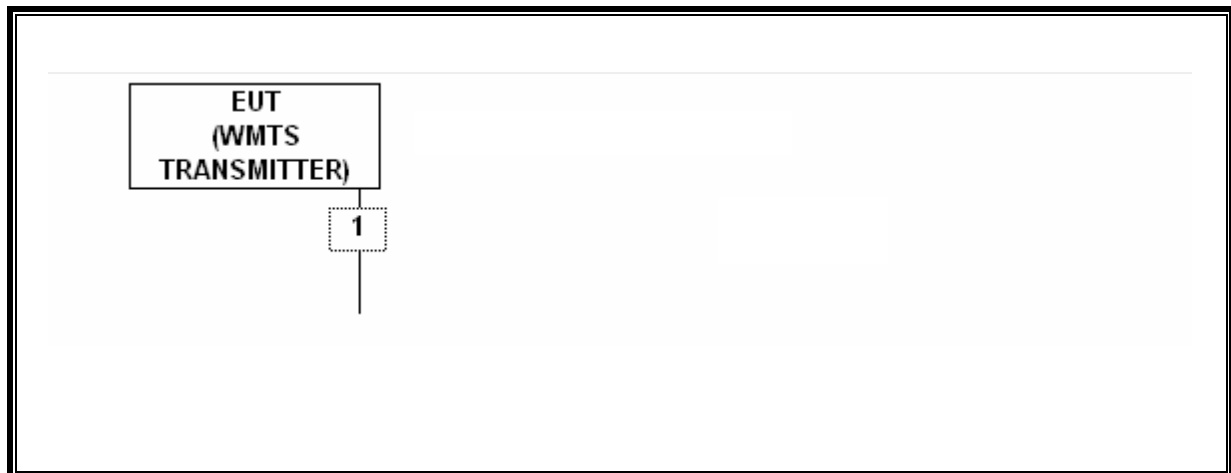
I/O CABLES

| TEST I / O CABLES |          |               |                |               |              |              |         |              |
|-------------------|----------|---------------|----------------|---------------|--------------|--------------|---------|--------------|
| Cable No          | I/O Port | # of I/O Port | Connector Type | Type of Cable | Cable Length | Data Traffic | Bundled | Remark       |
| 1                 | ECG      | 1             | ECG            | Un-shielded   | .8m          | Yes          | No      | Unterminated |

TEST SETUP

During the testing process the EUT was installed with two 1.5VDC batteries (periodically changed to ensure 3.0 VDC output).

SETUP DIAGRAM FOR TEST





## 8. EMISSION BANDWIDTH

### PROVISIONS APPLICABLE

According to CFR 47 section 2.1049

### LIMIT

The 26 dB bandwidth shall be less than 20 kHz (F1D).

### TEST PROCEDURE

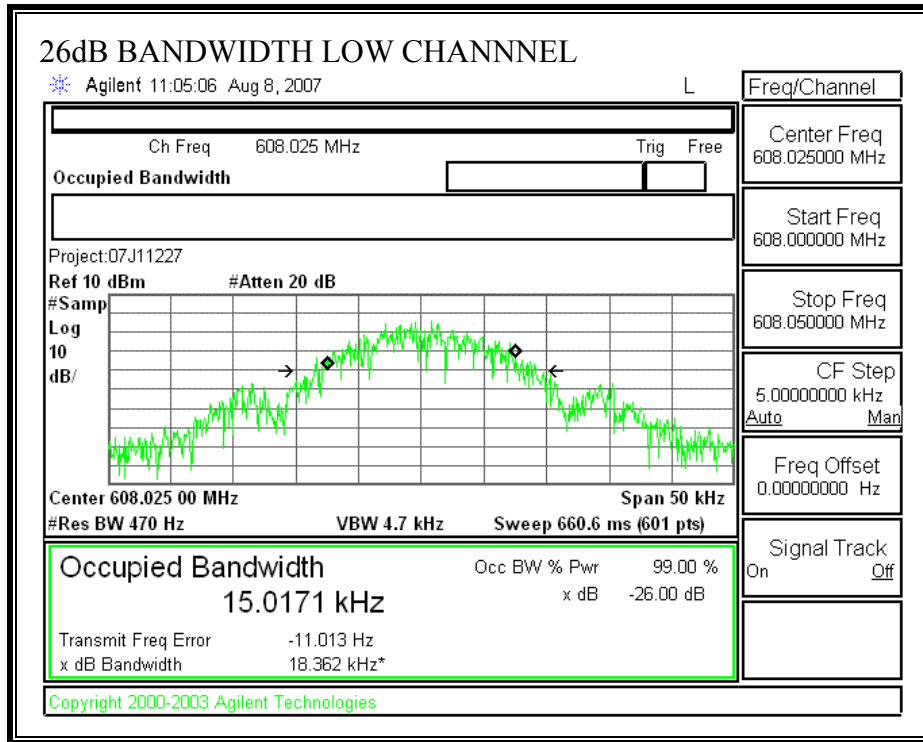
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 26dB bandwidth. The VBW is set to  $\geq$  the RBW. The sweep time is coupled. The spectrum analyzer internal 26dB bandwidth function is utilized.

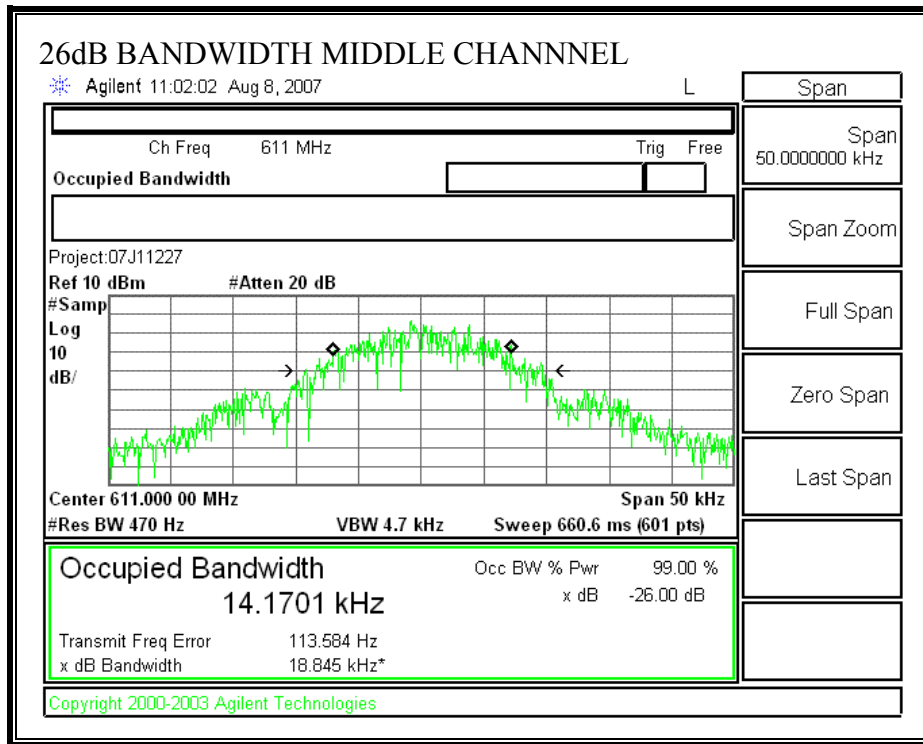


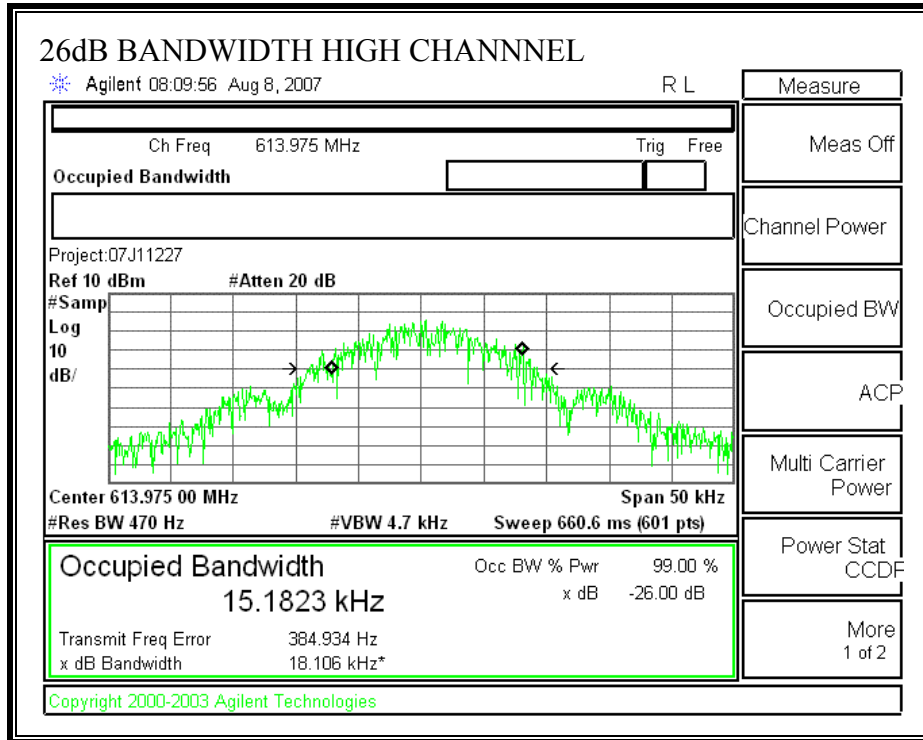
### RESULTS

No non-compliance noted:

| CHANNEL | FREQUENCY (MHz) | 26 dB BANDWIDTH (KHz) | 99% BANDWIDTH (KHz) |
|---------|-----------------|-----------------------|---------------------|
| LOW     | 608.025         | 18.362                | 15.0171             |
| MIDDLE  | 611             | 18.845                | 14.1701             |
| HIGH    | 613.975         | 18.106                | 15.1823             |

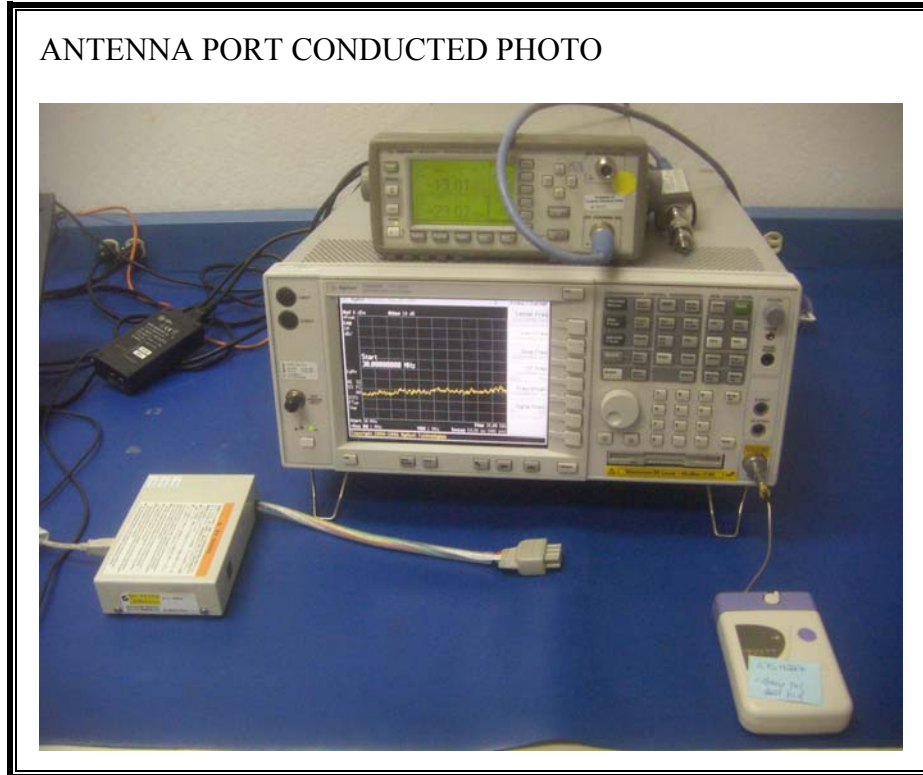






## 9. SETUP PHOTOS

### ANTENNA PORT CONDUCTED RF MEASUREMENT SETUP



**END OF REPORT**