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FCC ID

: AZDCH91108 : June 29, 2007

**Issued date** Revised date

: July 3, 2007

# SAR TEST REPORT

Test Report No.: 27HE0064-HO-A-R1

**Applicant** 

: CANON INC.

**Type of Equipment** 

WLAN MODULE UNIT

Model No.

CH91108

FCC ID

**AZDCH91108** 

Test standard

FCC47CFR 2.1093

FCC OET Bulletin 65, Supplement C

**Test Result** 

Complied

Max. SAR Measured

0.191W/kg (Head, 2462MHz)

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- 2. The results in this report apply only to the sample tested.
- 3. This sampl tested is in compliance with the above regulation.
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Date of test

April 09-11, 2007

Tested by

Miyo Ikuta

Approved by

**EMC Services** 

Tetsuo Maeno Site Manager of EMC Services



NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.

\*As for the range of Accreditation in NVLAP, you may refer to the WEB address, http://ulapex.jp/emc/nvlap.htm

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# **SECTION 1:** Client information

| Company Name     | CANON INC.   |
|------------------|--|
| Brand name       | CANON  |
| Address          | 30-2, Shimomaruko 3-chome, Ohta-ku, Tokyo 146-8501,Japan |
| Telephone Number | +81-3-2757-6798  |
| Facsimile Number | +81-3-3757-8431  |
| Contact Person   | Kuniaki Tanaka   |

# **SECTION 2:** Equipment under test (E.U.T.)

# 2.1 Identification of E.U.T.

| Type of Equipment      | WLAN MODULE UNIT  |
|------------------------|---|
| Model No.              | CH91108   |
| Serial No.             | 00008593C007  |
| Rating                 | DC3.3V  |
| Country of Manufacture | Japan   |
| Condition of EUT       | Production prototype  |
|                        | (Not for Sale: This sample is equivalent to mass-produced items.) |
| Receipt Date of Sample | April 09, 2007  |
| Modification of EUT    | No modification by the test lab.                                  |
| Category Identified    | Portable device   |

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# 2.2 Product Description

Model No: CH91108 (referred to as the EUT in this report) is the Wireless LAN Module.

| Clock frequency in the system | 40MHz                                    |
|-------------------------------|--|
| Equipment Type                | Transceiver                              |
| Frequency of Operation        | 2412-2462 MHz                            |
| Bandwidth & Channel spacing   | 20MHz / 5MHz                             |
| Type of Modulation            | DSSS / OFDM                              |
| ITU code                      | G1D, D1D                                 |
| Max. power tested             | Peak power : 23.16dBm (207.11mW)         |
| Antenna type *1               | Ant.1: PCB Antenna / Ant.2: Film Antenna |
| Antenna Gain *1               | Ant.1: 2.2dBi / Ant.2: 1.7dBi            |

<sup>\*1</sup> The SAR test was performed in the Ant.1 (PCB Antenna). Refer to the Appendix1.

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### **SECTION 3:** Test standard information

# 3.1 Requirements for compliance testing defined by the FCC

The US Federal Communications Commission has released the report and order "Guidelines for Evaluating the Environmental Effects of RF Radiation", ET Docket No. 93-62 in August 1996. The order requires routine SAR evaluation prior to equipment authorization of portable transmitter devices, including portable telephones. For consumer products, the applicable limit is 1.6 mW/g for an uncontrolled environment and 8.0 mW/g for an occupational/controlled environment as recommended by the ANSI/IEEE standard C95.1-1992. According to the Supplement C of OET Bulletin 65 "Evaluating Compliance with FCC Guide-lines for Human Exposure to Radio frequency Electromagnetic Fields", released on Jun 29, 2001 by the FCC, the device should be evaluated at maximum output power (radiated from the antenna) under "worst-case" conditions for normal or intended use, incorporating normal antenna operating positions, device peak performance frequencies and positions for maximum RF energy coupling.

**1** Specific Absorption Rate (SAR) is a measure of the rate of energy absorption due to exposure to an RF transmitting source (wireless portable device).

2 IEEE/ANSI Std. C95.1-1992 limits are used to determine compliance with FCC ET Docket 93-62.

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### 3.2 Exposure limit

(A) Limits for Occupational/Controlled Exposure (W/kg)

| Spatial Average (averaged over the whole body) | Spatial Peak<br>(averaged over any 1g of tissue) | Spatial Peak (hands/wrists/feet/ankles averaged over 10g) |  |
|--|--|---|--|
| 0.4  | 8.0  | 20.0  |  |

(B) Limits for General population/Uncontrolled Exposure (W/kg)

| Spatial Average                    | Spatial Peak                          | Spatial Peak                                     |
|------------------------------------|---------------------------------------|--|
| (averaged over the whole body 0.08 | (averaged over any 1g of tissue)  1.6 | (hands/wrists/feet/ankles averaged over 10g) 4.0 |

Occupational/Controlled Environments: are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure, (i.e. as a result of employment or occupation).

**General Population/Uncontrolled Environments:** are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

NOTE:GENERAL POPULATION/UNCONTROLLED EXPOSURE SPATIAL PEAK(averaged over any 1g of tissue) LIMIT 1.6 W/kg

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# **SECTION 4:** Test result

#### 4.1 Outline of test

This EUT is built into the limited transmitter which used with the limited digital camera of similar composition (variant model).

3-host test are excluded because the EUT is used in specific hosts.

Therefore the SAR test was performed with the limited transmitter and digital camera as a host device because the power source of transmitter is supplied from the digital camera

The details of limited transmitter and digital camera were shown in the Appendix 1.

### 4.2 Result of Max. SAR value

Max. SAR Measured (IEEE 802.11b) : 0.191 W/kg (Head, 2462MHz)

#### 4.3 Test Location

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# **SECTION 5:** Operation of E.U.T. during testing

# 5.1 Confirmation before SAR testing

# Correlation of EMC power and SAR power

#### **EMC Power**

#### **Peak Power test**

As for the peak power, the data of EMC test (October 3, 2006) is shown as a reference data. The result is shown in section 7.1.

### **SAR Power**

#### **Peak Power test**

It was checked that the antenna port power is correlated within  $0\sim+5\%$  (FCC requirements) at EMC test result (April 9, 2007). The result is shown in section 7.1.

### **Average Power test**

The average power by the data rate was checked in the middle channel (2437 MHz.) The result is shown in section 7.2.

# 5.2 Confirmation after SAR testing

It was checked that the power drift is within  $\pm 5\%$  in the evaluation procedure of SAR testing. The result is shown in APPENDIX 2.

### 5.3 Operating modes for SAR testing

# 5.3.1 Setting of EUT

# 1. IEEE 802.11b mode

Tx frequency band : 2412-2462MHz

Channel : 1ch(2412MHz),6ch(2437MHz),11ch(2462MHz)

Modulation : DSSS (DBPSK,DQPSK,CCK)

Crest factor : 1

# 2. IEEE 802.11g mode

Tx frequency band : 2412-2462MHz

Channel : 1ch(2412MHz),6ch(2437MHz),11ch(2462MHz) Modulation : OFDM (BPSK, QPSK, 16QAM, 64QAM)

Crest factor : 1

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#### **5.3.2 SAR Measurement** (Radiated power is always monitored by Spectrum Analyzer.)

#### **IEEE 802.11b**

The 11b (DSSS) mode test was performed on the CCK[11Mbps] modulation, because it was the highest average power and data rate\*<sup>1</sup>.

- Step1. The searching for the worst position
- Step2. The changing to the Low and High channels

  This test was performed at the worst conditions of Step 1

# **IEEE 802.11g**

Step3. The seaching for the worst modulation.

The data rate in the higher average power\*<sup>1</sup> each modulation was decided, then the worst modulation was searched in the SAR testing.

Step4. The searching for the worst position

This test was performed at the worst modulation of Step3.

Step5. The changing to the Low and High channels

This test was performed at the worst conditions of Step 4.

#### Change distance between EUT and SAM Twin Phantom

Step6. The measurement was performed with the distance, 5mm,10mm and 15mm to check if the shortest distance may not have the worst value at the conditions of the highest SAR value. As a result, the shortest distance had the worst value.

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<sup>\*1</sup> Refer to the antenna port power data in the section 7.2.

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# 5.4 Test setup of EUT

When users operate or carry the camera with transmitter, it could be considered to touch or get close to their bodies. In order to assume this situation, we performed the test at the following positions. Please refer to "Appendix 1" for more details.

#### (1) Right Side:

The test was performed in touch with right side surface of the camera & transmitter to the flat section of SAM Twin phantom.

#### (2) Rear:

The test was performed in touch with rear surface of the camera & transmitter to the flat section of SAM Twin phantom.

#### (3) Bottom

The test was performed in touch with bottom surface of the camera & transmitter to the flat section of SAM Twin phantom.

# (4) Front

The test was performed in touch with front surface of the camera & transmitter to the flat section of SAM Twin phantom.

#### (5) Front (5mm):

The measurement separated 5mm distance between camera & transmitter and flat section of SAM Twin Phantom.

### (6) Front (10mm):

The measurement separated 10mm distance between camera & transmitter and flat section of SAM Twin Phantom.

### (7) Front (15mm):

The measurement separated 15mm distance between camera & transmitter and flat section of SAM Twin Phantom.

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# **SECTION 6:** Test surrounding

### 6.1 Measurement uncertainty

The uncertainty budget has been determined for the DASY4 measurement system according to the SPEAG

documents[6][7] and is given in the following Table.

| Error Description               | Uncertainty | Probability  | divisor    | (ci)            | Standard    | vi       |
|---------------------------------|-------------|--------------|------------|-----------------|-------------|----------|
|                                 | value ± %   | distribution |            | 1g              | Uncertainty | or       |
|                                 |             |              |            |                 | (1g)        | veff     |
| Measurement System              |             |              |            |                 |             |          |
| Probe calibration               | ±6.8        | Normal       | 1          | 1               | ±6.8        | $\infty$ |
| Axial isotropy of the probe     | ±4.7        | Rectangular  | $\sqrt{3}$ | $(1-c_p)^{1/2}$ | ±1.9        | $\infty$ |
| Spherical isotropy of the probe | ±9.6        | Rectangular  | $\sqrt{3}$ | (cp)1/2         | ±3.9        | $\infty$ |
| Boundary effects                | ±2.0        | Rectangular  | $\sqrt{3}$ | 1               | ±1.2        | $\infty$ |
| Probe linearity                 | ±4.7        | Rectangular  | $\sqrt{3}$ | 1               | ±2.7        | $\infty$ |
| Detection limit                 | ±1.0        | Rectangular  | $\sqrt{3}$ | 1               | ±0.6        | $\infty$ |
| Readout electronics             | ±0.3        | Normal       | 1          | 1               | ±0.3        | $\infty$ |
| Response time                   | ±0.8        | Rectangular  | $\sqrt{3}$ | 1               | ±0.5        | $\infty$ |
| Integration time                | ±2.6        | Rectangular  | $\sqrt{3}$ | 1               | ±1.5        | $\infty$ |
| RF ambient Noise                | ±3.0        | Rectangular  | $\sqrt{3}$ | 1               | ±1.7        | $\infty$ |
| RF ambient Reflections          | ±3.0        | Rectangular  | $\sqrt{3}$ | 1               | ±1.7        | $\infty$ |
| Probe Positioner                | ±0.8        | Rectangular  | $\sqrt{3}$ | 1               | ±0.5        | $\infty$ |
| Probe positioning               | ±9.9        | Rectangular  | $\sqrt{3}$ | 1               | ±5.7        | $\infty$ |
| Max.SAR Eval.                   | ±4.0        | Rectangular  | $\sqrt{3}$ | 1               | ±2.3        | $\infty$ |
| <b>Test Sample Related</b>      |             |              |            |                 |             |          |
| Device positioning              | ±2.9        | Normal       | 1          | 1               | ±2.9        | 29       |
| Device holder uncertainty       | ±3.6        | Normal       | 1          | 1               | ±3.6        | 3        |
| Power drift                     | ±5.0        | Rectangular  | $\sqrt{3}$ | 1               | ±2.9        | $\infty$ |
| Phantom and Setup               |             |              |            |                 |             |          |
| Phantom uncertainty             | ±4.0        | Rectangular  | $\sqrt{3}$ | 1               | ±2.3        | $\infty$ |
| Liquid conductivity (target)    | ±5.0        | Rectangular  | $\sqrt{3}$ | 0.64            | ±1.8        | $\infty$ |
| Liquid conductivity (meas.)     | ±5.0        | Rectangular  | 1          | 0.64            | ±3.2        | $\infty$ |
| Liquid permittivity (target)    | ±5.0        | Rectangular  | $\sqrt{3}$ | 0.6             | ±1.7        | $\infty$ |
| Liquid permittivity (meas.)     | ±5.0        | Rectangular  | 1          | 0.6             | ±3.0        | 8        |
| Combined Standard Uncertaint    | v           |              |            |                 | ±13.453     |          |
| Expanded Uncertainty (k=2)      | J           |              |            |                 | ±26.9       |          |

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# **SECTION 7:** Confirmation before/after testing

# 7.1 Conducted power before

### EMC power

This datas are reference data of EMC test. (Report No. 27BE0338-HO-A-2)

Date of test: October 3, 2006

FCC 15.247 Peak power [IEEE802.11b 11Mbps][Port 1]

|      |        | • •        | 1,    | ` '    |       |       |
|------|--------|------------|-------|--------|-------|-------|
| Ch   | Freq.  | P/M        | Cable | Atten. | Re    | sult  |
|      |        | PK Reading | Loss  |        |       |       |
|      | [MHz]  | [dBm]      | [dB]  | [dB]   | [dBm] | [mW]  |
| Low  | 2412.0 | 7.76       | 0.50  | 10.21  | 18.47 | 70.31 |
| Mid  | 2437.0 | 7.69       | 0.50  | 10.21  | 18.40 | 69.18 |
| High | 2462.0 | 7.85       | 0.50  | 10.21  | 18.56 | 71.78 |

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Attenuator

FCC 15.247 Peak power [IEEE802.11g 54Mbps][Port 1]

| Ch   | Freq.  | P/M        | Cable | Atten. | Re    | sult   |
|------|--------|------------|-------|--------|-------|--------|
|      |        | PK Reading | Loss  |        |       |        |
|      | [MHz]  | [dBm]      | [dB]  | [dB]   | [dBm] | [mW]   |
| Low  | 2412.0 | 12.02      | 0.50  | 10.21  | 22.73 | 187.50 |
| Mid  | 2437.0 | 12.19      | 0.50  | 10.21  | 22.90 | 194.98 |
| High | 2462.0 | 12.45      | 0.50  | 10.21  | 23.16 | 207.01 |

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Attenuator

# SAR power

Date of test: April 9, 2007

FCC 15.247 Peak power [IEEE802.11b 11Mbps][Port 1]

|      | 1 ( 1,1,1 ) |            |       |        |       |       |  |
|------|-------------|------------|-------|--------|-------|-------|--|
| Ch   | Freq.       | P/M        | Cable | Atten. | Re    | sult  |  |
|      |             | PK Reading | Loss  |        |       |       |  |
|      | [MHz]       | [dBm]      | [dB]  | [dB]   | [dBm] | [mW]  |  |
| Low  | 2412.0      | 7.62       | 0.70  | 10.21  | 18.53 | 71.29 |  |
| Mid  | 2437.0      | 7.50       | 0.70  | 10.21  | 18.41 | 69.34 |  |
| High | 2462.0      | 7.68       | 0.70  | 10.21  | 18.59 | 72.28 |  |

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Attenuator

FCC 15.247 Peak power [IEEE802.11g 54Mbps][Port 1]

| Tee 13.247 Teak power [IEEE602.11g 34Mbps][Tott 1] |        |            |       |        |       |        |  |  |  |
|--|--------|------------|-------|--------|-------|--------|--|--|--|
| Ch   | Freq.  | P/M        | Cable | Atten. | Res   | sult   |  |  |  |
|  |        | PK Reading | Loss  |        |       |        |  |  |  |
|  | [MHz]  | [dBm]      | [dB]  | [dB]   | [dBm] | [mW]   |  |  |  |
| Low  | 2412.0 | 12.01      | 0.70  | 10.21  | 22.92 | 195.88 |  |  |  |
| Mid  | 2437.0 | 12.17      | 0.70  | 10.21  | 23.08 | 203.24 |  |  |  |
| High   | 2462.0 | 12.43      | 0.70  | 10.21  | 23.34 | 215.77 |  |  |  |

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Attenuator

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# 7.2 Reference data of SAR test (Data rate determing)

Date of test: April 9, 2007

[IEEE802.11b] Rate Check [Port 1]

| Rate   | Freq.  | PM          | Cable           | Atten. | Result |       |
|--------|--------|-------------|-----------------|--------|--------|-------|
|        |        | AVG Reading | VG Reading Loss |        |        |       |
| [Mbps] | [MHz]  | [dBm]       | [dB]            | [dB]   | [dBm]  | [mW]  |
| 1.0    | 2437.0 | 4.91        | 0.70            | 10.21  | 15.82  | 38.19 |
| 2.0    | 2437.0 | 3.60        | 0.70            | 10.21  | 14.51  | 28.25 |
| 5.5    | 2437.0 | 5.10        | 0.70            | 10.21  | 16.01  | 39.90 |
| 11.0   | 2437.0 | 5.21        | 0.70            | 10.21  | 16.12  | 40.93 |

# [IEEE802.11g] Rate Check [Port 1]

| Rate   | Freq.  | PM          | Cable | Atten. | Result |       |
|--------|--------|-------------|-------|--------|--------|-------|
|        |        | AVG Reading |       |        |        |       |
| [Mbps] | [MHz]  | [dBm]       | [dB]  | [dB]   | [dBm]  | [mW]  |
| 6.0    | 2437.0 | 4.41        | 0.70  | 10.21  | 15.32  | 34.04 |
| 9.0    | 2437.0 | 4.42        | 0.70  | 10.21  | 15.33  | 34.12 |
| 12.0   | 2437.0 | 4.37        | 0.70  | 10.21  | 15.28  | 33.73 |
| 18.0   | 2437.0 | 4.00        | 0.70  | 10.21  | 14.91  | 30.97 |
| 24.0   | 2437.0 | 4.43        | 0.70  | 10.21  | 15.34  | 34.20 |
| 36.0   | 2437.0 | 4.43        | 0.70  | 10.21  | 15.34  | 34.20 |
| 48.0   | 2437.0 | 3.90        | 0.70  | 10.21  | 14.81  | 30.27 |
| 54.0   | 2437.0 | 4.44        | 0.70  | 10.21  | 15.35  | 34.28 |

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# **SECTION 8:** Measurement results

### 8.1 Body SAR 2450MHz

**April 9, 2007** Measured By Miyo Ikuta Date Liquid Depth (cm) Model CH91108 15.0 00008593C007 **Parameters**  $\epsilon_r = 50.6, \ \sigma = 2.02$ Serial No. Ambient temperature (deg.c.) Modulation DSSS(11b) 25.0

Relative Humidity (%) : 38 Crest factor : 1

Measured By Miyo Ikuta Date April 10, 2007 Liquid Depth (cm) Model CH91108 15.0 Parameters  $\varepsilon_r = 50.2, \ \sigma = 1.92$ Serial No. 00008593C007 25.0 Ambient temperature (deg.c.) Modulation OFDM(11g)

Relative Humidity (%) : 34 Crest factor : 1

|           |                          |            |               |                       | 1       |            |  |        |        | SAR(1g)                     |
|-----------|--------------------------|------------|---------------|-----------------------|---------|------------|--|--------|--------|-----------------------------|
| Frequency |                          | Modulation | Phantom       | EUT Set-up Conditions |         |            | Liquid Temp.[deg.c]                          |        | [W/kg] |                             |
| Mode      | Channel                  | [MHz]      | Nodulation    | Section               | Antenna | Position   | Separation [mm]                              | Before | After  | Maximum value of multi-peak |
| 11b       | Step1. Position search   |            |               |                       |         |            |  |        |        |                             |
|           | 6                        | 2437.0     | CCK(11Mbps)   | Flat                  | Fixed   | Right side | 0  | 23.0   | 23.0   | 0.092                       |
|           | 6                        | 2437.0     | CCK(11Mbps)   | Flat                  | Fixed   | Rear       | 0  | 23.1   | 23.1   | 0.012                       |
|           | 6                        | 2437.0     | CCK(11Mbps)   | Flat                  | Fixed   | Bottom     | 0  | 23.0   | 23.1   | 0.042                       |
|           | 6                        | 2437.0     | CCK(11Mbps)   | Flat                  | Fixed   | Front      | 0  | 23.2   | 23.2   | 0.133                       |
|           | Step2. Frequency Change  |            |               |                       |         |            |  |        |        |                             |
|           | 1                        | 2412.0     | CCK(11Mbps)   | Flat                  | Fixed   | Front      | 0  | 23.2   | 23.2   | 0.117                       |
|           | 11                       | 2462.0     | CCK(11Mbps)   | Flat                  | Fixed   | Front      | 0  | 23.2   | 23.2   | 0.156                       |
| 11g       | Step3. Moduration Change |            |               |                       |         |            |  |        |        |                             |
|           | 6                        | 2437.0     | BPSK(9Mbps)   | Flat                  | Fixed   | Front      | 0  | 24.0   | 24.0   | 0.122                       |
|           | 6                        | 2437.0     | QPSK(12Mbps)  | Flat                  | Fixed   | Front      | 0  | 24.0   | 24.0   | 0.105                       |
|           | 6                        | 2437.0     | 16QAM(24Mbps) | Flat                  | Fixed   | Front      | 0  | 24.0   | 24.0   | 0.103                       |
|           | 6                        | 2437.0     | 64QAM(54Mbps) | Flat                  | Fixed   | Front      | 0  | 24.0   | 24.0   | 0.087                       |
|           | Step 4. Position search  |            |               |                       |         |            |  |        |        |                             |
|           | 6                        | 2437.0     | BPSK(9Mbps)   | Flat                  | Fixed   | Right side | 0  | 24.0   | 24.0   | 0.077                       |
|           | 6                        | 2437.0     | BPSK(9Mbps)   | Flat                  | Fixed   | Rear       | 0  | 24.0   | 24.1   | 0.011                       |
|           | 6                        | 2437.0     | BPSK(9Mbps)   | Flat                  | Fixed   | Bottom     | 0  | 24.1   | 24.1   | 0.037                       |
|           | Step5. Frequency Change  |            |               |                       |         |            |  |        |        |                             |
|           | 1                        | 2412.0     | BPSK(9Mbps)   | Flat                  | Fixed   | Front      | 0  | 24.1   | 24.2   | 0.132                       |
|           | 11                       | 2462.0     | BPSK(9Mbps)   | Flat                  | Fixed   | Front      | 0  | 24.2   | 24.2   | 0.129                       |
|           |                          |            |               |                       |         |            | Body SAR: 1.6 W/kg<br>(averaged over 1 gram) |        |        |                             |

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# 8.2 Head SAR 2450MHz

April 10, 2007 Measured By Miyo Ikuta Date Liquid Depth (cm) 15.0 Model CH91108 Parameters Serial No. 00008593C007  $\varepsilon_r = 37.3, \ \sigma = 1.88$ Ambient temperature (deg.c.) 25.0 Modulation DSSS(11b)

Relative Humidity (%) : 34 Crest factor : 1

Date: April 11, 2007Measured By: Miyo IkutaLiquid Depth (cm): 15.0Model: CH91108Parameters:  $\epsilon_r = 37.7$ ,  $\sigma = 1.88$ Serial No.: 00008593C007Ambient temperature (deg.c.): 25.0Modulation: OFDM(11g)

Relative Humidity (%) : 31 Crest factor : 1

|           |  |                         | HEAD          | SAR ME                | CASUREN | MENT RESU  | LTS                 |  |                   |                             |  |
|-----------|--|-------------------------|---------------|-----------------------|---------|------------|---------------------|--|-------------------|-----------------------------|--|
| Frequency |  | - Modulation            | Phantom       | EUT Set-up Conditions |         |            | Liquid Temp.[deg.c] |  | SAR(1g)<br>[W/kg] |                             |  |
| Mode      | Channel  | [MHz]                   |               | Section               | Antenna | Position   | Separation [mm]     | Before                                       | After             | Maximum value of multi-peak |  |
| 11b       | Step1. F   | Step1. Position search  |               |                       |         |            |                     |  |                   |                             |  |
|           | 6  | 2437.0                  | CCK(11Mbps)   | Flat                  | Fixed   | Right side | 0                   | 23.5   | 23.6              | 0.066                       |  |
|           | 6  | 2437.0                  | CCK(11Mbps)   | Flat                  | Fixed   | Rear       | 0                   | 23.6   | 23.6              | 0.00898                     |  |
|           | 6  | 2437.0                  | CCK(11Mbps)   | Flat                  | Fixed   | Bottom     | 0                   | 23.6   | 23.7              | 0.045                       |  |
| l         | 6  | 2437.0                  | CCK(11Mbps)   | Flat                  | Fixed   | Front      | 0                   | 23.7   | 23.9              | 0.124                       |  |
|           | Step2. Frequency Change  |                         |               |                       |         |            |                     |  |                   |                             |  |
|           | 1  | 2412.0                  | CCK(11Mbps)   | Flat                  | Fixed   | Front      | 0                   | 23.9   | 23.9              | 0.134                       |  |
|           | 11   | 2462.0                  | CCK(11Mbps)   | Flat                  | Fixed   | Front      | 0                   | 23.9   | 23.9              | 0.191                       |  |
| 11g       | Step3. Moduration Change   |                         |               |                       |         |            |                     |  |                   |                             |  |
|           | 6  | 2437.0                  | BPSK(9Mbps)   | Flat                  | Fixed   | Front      | 0                   | 24.0   | 24.0              | 0.121                       |  |
|           | 6  | 2437.0                  | QPSK(12Mbps)  | Flat                  | Fixed   | Front      | 0                   | 24.0   | 24.0              | 0.130                       |  |
|           | 6  | 2437.0                  | 16QAM(24Mbps) | Flat                  | Fixed   | Front      | 0                   | 24.0   | 24.0              | 0.125                       |  |
|           | 6  | 2437.0                  | 64QAM(54Mbps) | Flat                  | Fixed   | Front      | 0                   | 24.0   | 24.2              | 0.122                       |  |
|           | Step 4.  | Step 4. Position search |               |                       |         |            |                     |  |                   |                             |  |
|           | 6  | 2437.0                  | QPSK(12Mbps)  | Flat                  | Fixed   | Right side | 0                   | 24.3   | 24.3              | 0.121                       |  |
|           | 6  | 2437.0                  | QPSK(12Mbps)  | Flat                  | Fixed   | Rear       | 0                   | 24.3   | 24.3              | 0.012                       |  |
|           | 6  | 2437.0                  | QPSK(12Mbps)  | Flat                  | Fixed   | Bottom     | 0                   | 24.3   | 24.3              | 0.052                       |  |
|           | Step5. I   | Step5. Frequency Change |               |                       |         |            |                     |  |                   |                             |  |
|           | 1  | 2412.0                  | QPSK(12Mbps)  | Flat                  | Fixed   | Front      | 0                   | 24.3   | 24.3              | 0.125                       |  |
|           | 11   | 2462.0                  | QPSK(12Mbps)  | Flat                  | Fixed   | Front      | 0                   | 24.3   | 24.3              | 0.156                       |  |
| 11b       | Step6.Separation Change  |                         |               |                       |         |            |                     |  |                   |                             |  |
|           | 11   | 2462.0                  | CCK(11Mbps)   | Flat                  | Fixed   | Front      | 5                   | 24.4   | 24.3              | 0.092                       |  |
|           | 11   | 2462.0                  | CCK(11Mbps)   | Flat                  | Fixed   | Front      | 10                  | 24.3   | 24.3              | 0.068                       |  |
|           | 11   | 2462.0                  | CCK(11Mbps)   | Flat                  | Fixed   | Front      | 15                  | 24.3   | 24.2              | 0.047                       |  |
|           | ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak Uncontrolled Exposure / General Population |                         |               |                       |         |            |                     | Body SAR: 1.6 W/kg<br>(averaged over 1 gram) |                   |                             |  |

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