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FCC ID

: CGJ3143EB : May 23, 2007

Issued date Revised date

: July 24, 2007

# SAR TEST REPORT

Test Report No.: 27IE0187-HO-A-R1

Applicant

: Nikon Corporation

Type of Equipment

: Wireless LAN Module

Model No.

: GC-131

FCC ID

CGJ3143EB

Test standard

: FCC47CFR 2.1093

FCC OET Bulletin 65, Supplement C

**Test Result** 

: Complied

Max. SAR Measured

: 0.462W/kg (Body, 2462MHz)

- 1. This test report shall not be reproduced except full or partial, without the written approval of UL Japan, Inc.
- 2. The results in this report apply only to the sample tested.
- 3. This sample tested is in compliance with the above standard. We hereby certify that the data contain a true representation of the SAR profile.
- 4. The test results in this test report are traceable to the national or international standards.

Date of test

May 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     | Nikon Corporation   |
|------------------|---|
| Brand name       | NIKON   |
| Address          | 6-3, Nishi-ohi 1-chome, Shinagawa-ku, Tokyo 140-8601, Japan |
| Telephone Number | +81-3-3773-8395   |
| Facsimile Number | +81-3-3773-1842   |
| Contact Person   | Kenji Ishizuki  |

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

## 2.1 Identification of E.U.T.

| Type of Equipment      | Wireless LAN Module   |
|------------------------|---|
| Model No.              | GC-131  |
| Serial No.             | 1   |
| Rating                 | DC3.3V / 1.8V   |
| Country of Manufacture | Japan   |
| Condition of EUT       | Production prototype  |
|                        | (Not for Sale: This sample is equivalent to mass-produced items.) |
| Receipt Date of Sample | May 7, 2007   |
| Modification of EUT    | No modification by the test lab.                                  |
| Category Identified    | Portable device   |

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## 2.2 Product Description

Model No: GC-131 (referred to as the EUT in this report) is the Wireless LAN Module.

| Clock frequency in the system  | 38.4MHz                             |
|--------------------------------|-------------------------------------|
| 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) | FCC15.247 test: 20.96dBm (124.74mW) |
|                                | SAR test: 21.13dBm(129.72mW)        |
| Antenna type                   | C coupled Inverted F Type           |
| Antenna Gain                   | -0.4dBi                             |

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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)

| - | 1                              | 1 ( 8)                           |  |
|---|--------------------------------|----------------------------------|--|
| I | Spatial Average                | Spatial Average Spatial Peak     |  |
| ı | (averaged over the whole body) | (averaged over any 1g of tissue) | (hands/wrists/feet/ankles averaged over 10g) |
|   | 0.4                            | 8.0                              | 20.0   |

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

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

The EUT was manufactured by Nikon Corporation and will be installed into only digital camera which is manufactured by Nikon Corporation.

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

The detail of host device was shown in the Appendix 1.

#### 4.2 Result of Max. SAR value

Max. SAR Measured (IEEE 802.11b) : 0.462 W/kg (Body, 2462MHz)

#### 4.3 Test Location

UL Japan, Inc. Head Office EMC Lab.

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Telephone : +81 596 24 8116 Facsimile : +81 596 24 8124

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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

### Peak Power test

It was checked that the antenna port power was correlated within  $0\sim+5\%$  (FCC requirements) at EMC test result.(27AE0229-HO-A).

The result is shown in Clause 7.1.

## 5.2 Confirmation after SAR testing

It is checked that the power drift value at each measurement is within  $\pm 5\%$  as to the power change before and after the SAR test. When the power drift value is over  $\pm -5\%$ , the power changes against time is measured to confirm the changes are within tolerance.

Moreover, the change rate is reflected on the uncertainty.

Refer to Section 7.3.

### 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** Body 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 peak power and data rate.

- 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 antenna port power each modulation was decided\*<sup>1</sup>, 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 host device 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.

#### 5.3.3 Head SAR measurement

Head SAR measurement is only for reference.

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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 host device (Camera), 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) Front:

The test was performed in touch with Front surface of the host device to the flat section of SAM Twin phantom.

#### (2) Rear :

The test was performed in touch with Rear of the host device to the flat section of SAM Twin phantom.

#### (3) Left Side:

The test was performed in touch with Left Side surface of the host device to the flat section of SAM Twin phantom.

#### (4) Right Side:

The test was performed in touch with Right Side surface of the host device to the flat section of SAM Twin phantom.

#### (5) Top:

The test was performed in touch with Top surface of the host device to the flat section of SAM Twin phantom.

#### (6) Bottom:

The test was performed in touch with Bottom surface of the host device to the flat section of SAM Twin phantom.

#### (7) Left Side (5mm):

The measurement opened 5mm distance between host device and flat section of SAM Twin Phantom.

#### (8) Left Side (10mm)

The measurement opened 10mm distance between host device and flat section of SAM Twin Phantom.

### (9) Left Side (15mm):

The measurement opened 15mm distance between host device and flat section of SAM Twin Phantom.

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<sup>\*</sup>The test setup photograph is put on appendix 1.

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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  | √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  | √3         | 1               | ±2.3        | $\infty$ |
| Test Sample Related             |             |              |            |                 |             |          |
| Device positioning              | ±2.9        | Normal       | 1          | 1               | ±2.9        | 40       |
| Device holder uncertainty       | ±3.6        | Normal       | 1          | 1               | ±3.6        | 8        |
| Power drift                     | ±10.0       | Rectangular  | $\sqrt{3}$ | 1               | ±5.8        | $\infty$ |
| 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        | $\infty$ |
|                                 |             |              |            |                 |             |          |
| Combined Standard Uncertaint    | y           |              |            |                 | ±14.360     |          |
| Expanded Uncertainty (k=2)      |             |              |            |                 | ±28.7       |          |

The test result shows that the power drift exceeded  $\pm 5\%$ . Therefore, the uncertainty of power drift expanded to  $\pm 10\%$ . However, the extended uncertainty (k=2) of a test is less than 30%.

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

## 7.1 Conducted power before

## 7.1.1 Correlation of EMC power and SAR power

#### **EMC Power**

This data is reference data of EMC test. (Report No. 27AE0229-HO-A)

Date of test: September 6, 2006

| [IEEE802.1 | 1b]    | ,          |       |        |       |        |
|------------|--------|------------|-------|--------|-------|--------|
| Ch         | Freq.  | P/M        | Cable | Atten. | Res   | sult   |
|            |        | PK Reading | Loss  |        |       |        |
|            | [MHz]  | [dBm]      | [dB]  | [dB]   | [dBm] | [mW]   |
| Low        | 2412.0 | 3.04       | 0.30  | 10.22  | 13.56 | 22.70  |
| Mid        | 2437.0 | 3.09       | 0.30  | 10.22  | 13.61 | 22.96  |
| High       | 2462.0 | 2.98       | 0.30  | 10.22  | 13.50 | 22.39  |
|            |        |            |       |        |       |        |
| [IEEE802.1 | 1g]    |            |       |        |       |        |
| Ch         | Freq.  | P/M        | Cable | Atten. | Res   | sult   |
|            |        | PK Reading | Loss  |        |       |        |
|            | [MHz]  | [dBm]      | [dB]  | [dB]   | [dBm] | [mW]   |
|            | L      |            | [42]  | [ԱЪ]   | [45]  | []     |
| Low        | 2412.0 | 10.02      | 0.30  | 10.22  | 20.54 | 113.24 |
| Low<br>Mid |        |            |       |        |       |        |
|            | 2412.0 | 10.02      | 0.30  | 10.22  | 20.54 | 113.24 |

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

# SAR Power

The antenna port peak power was correlated within 0~+5% of EMC test result.(September 6 2006).

Date of test: May 09, 2007

### [IEEE802.11b]

| Ch   | Freq.  | P/M        | Cable | Atten. | Result |       |
|------|--------|------------|-------|--------|--------|-------|
|      |        | PK Reading | Loss  |        |        |       |
|      | [MHz]  | [dBm]      | [dB]  | [dB]   | [dBm]  | [mW]  |
| Low  | 2412.0 | 3.45       | 0.30  | 10.00  | 13.75  | 23.71 |
| Mid  | 2437.0 | 3.51       | 0.30  | 10.00  | 13.81  | 24.04 |
| High | 2462.0 | 3.39       | 0.30  | 10.00  | 13.69  | 23.39 |

#### [IEEE802.11g]

| Ch   | Freq.  | P/M        | Cable | Atten. | Result |        |
|------|--------|------------|-------|--------|--------|--------|
|      |        | PK Reading | Loss  |        |        |        |
|      | [MHz]  | [dBm]      | [dB]  | [dB]   | [dBm]  | [mW]   |
| Low  | 2412.0 | 10.41      | 0.30  | 10.00  | 20.71  | 117.76 |
| Mid  | 2437.0 | 10.83      | 0.30  | 10.00  | 21.13  | 129.72 |
| High | 2462.0 | 10.50      | 0.30  | 10.00  | 20.80  | 120.23 |

Sample Calculation:

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

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

#### [IEEE802.11b] DATA Rate Check

| Rate   | Freq.     | PM    | Cable | Atten. | Result |       |
|--------|-----------|-------|-------|--------|--------|-------|
|        | PK Readir |       | Loss  |        |        |       |
| [Mbps] | [MHz]     | [dBm] | [dB]  | [dB]   | [dBm]  | [mW]  |
| 1.0    | 2437.0    | 3.48  | 0.30  | 10.00  | 13.78  | 23.88 |
| 2.0    | 2437.0    | 3.50  | 0.30  | 10.00  | 13.80  | 23.99 |
| 5.5    | 2437.0    | 3.12  | 0.30  | 10.00  | 13.42  | 21.98 |
| 11.0   | 2437.0    | 3.51  | 0.30  | 10.00  | 13.81  | 24.04 |

#### [IEEE802.11g] DATA Rate Check

| [ILLEOV2.11g] DATA Rate Check |        |          |       |        |       |        |  |  |
|-------------------------------|--------|----------|-------|--------|-------|--------|--|--|
| Rate                          | Freq.  | PM       | Cable | Atten. | Re    | sult   |  |  |
|                               | P      | K Readir | Loss  |        |       |        |  |  |
| [Mbps]                        | [MHz]  | [dBm]    | [dB]  | [dB]   | [dBm] | [mW]   |  |  |
| 6.0                           | 2437.0 | 10.82    | 0.30  | 10.00  | 21.12 | 129.42 |  |  |
| 9.0                           | 2437.0 | 10.81    | 0.30  | 10.00  | 21.11 | 129.12 |  |  |
| 12.0                          | 2437.0 | 10.78    | 0.30  | 10.00  | 21.08 | 128.23 |  |  |
| 18.0                          | 2437.0 | 10.57    | 0.30  | 10.00  | 20.87 | 122.18 |  |  |
| 24.0                          | 2437.0 | 10.81    | 0.30  | 10.00  | 21.11 | 129.12 |  |  |
| 36.0                          | 2437.0 | 10.81    | 0.30  | 10.00  | 21.11 | 129.12 |  |  |
| 48.0                          | 2437.0 | 10.37    | 0.30  | 10.00  | 20.67 | 116.68 |  |  |
| 54.0                          | 2437.0 | 10.48    | 0.30  | 10.00  | 20.78 | 119.67 |  |  |

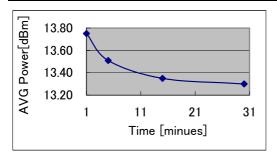
## 7.3 Conducted power after

We performed the measurement of conducted power elapse time.(After 5,15 minutes and 30minutes) The result is shown as follows. "Diviation" in the table is deviation from the first power ("Before"). As a result, the maximum deviation was –9.84%.

Date of test: May 09, 2007

### [IEEE802.11b 2462MHz 11Mbps]

| Time            | PM    | Cable | Atten. | Result    |       |       |  |
|-----------------|-------|-------|--------|-----------|-------|-------|--|
| AVG Reading     |       | Loss  |        | Diviation |       |       |  |
|                 | [dBm] | [dB]  | [dB]   | [dBm]     | [mW]  | [%]   |  |
| After 1 minue   | 3.45  | 0.30  | 10.00  | 13.75     | 23.71 | -     |  |
| After 5 minues  | 3.21  | 0.30  | 10.00  | 13.51     | 22.44 | -5.38 |  |
| After 15 minues | 3.05  | 0.30  | 10.00  | 13.35     | 21.63 | -8.80 |  |
| After 30 minues | 3.00  | 0.30  | 10.00  | 13.30     | 21.38 | -9.84 |  |



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## **SECTION 8:** Measurement results

## **8.1 Body SAR 2450MHz**

Liquid Depth (cm) : 15.0 Model : GC-131

Parameters :  $\varepsilon_r = 50.1$ ,  $\sigma = 2.01(10$  and 11-May) Serial No. : 1

Ambient temperature (deg.c.) : 24.5 (10 and 11-May) Modulation : DSSS,OFDM

Relative Humidity (%) : 41 (10 and 11-May) Crest factor : 1

Date : May 10 and 11, 2007 Measured By : Miyo Ikuta

|  |                          |        | BODY         | SAR ME                | ASUREM  | IENT RESUI                                   | LTS                 |        |                   |                                   |
|--|--------------------------|--------|--------------|-----------------------|---------|--|---------------------|--------|-------------------|-----------------------------------|
| Frequency  |                          |        | Phantom      | EUT Set-up Conditions |         |  | Liquid Temp.[deg.c] |        | SAR(1g)<br>[W/kg] |                                   |
| Mode   | Channel                  | [MHz]  | Modulation   | Section               | Antenna | Position                                     | Separation<br>[mm]  | Before | After             | Maximum<br>value<br>of multi-peak |
| 11b  | Step1. Position search   |        |              |                       |         |  |                     |        |                   |                                   |
|  | 6                        | 2437.0 | CCK(11Mbps)  | Flat                  | Fixed   | Front  | 0                   | 23.6   | 23.6              | 0.084                             |
|  | 6                        | 2437.0 | CCK(11Mbps)  | Flat                  | Fixed   | Rear   | 0                   | 23.6   | 23.6              | 0.153                             |
|  | 6                        | 2437.0 | CCK(11Mbps)  | Flat                  | Fixed   | Left side                                    | 0                   | 23.6   | 23.6              | 0.274                             |
|  | 6                        | 2437.0 | CCK(11Mbps)  | Flat                  | Fixed   | Right side                                   | 0                   | 23.6   | 23.6              | 0.029                             |
|  | 6                        | 2437.0 | CCK(11Mbps)  | Flat                  | Fixed   | Тор  | 0                   | 23.7   | 23.7              | 0.127                             |
|  | 6                        | 2437.0 | CCK(11Mbps)  | Flat                  | Fixed   | Bottom                                       | 0                   | 23.8   | 23.8              | 0.026                             |
|  | Step2. Frequency Change  |        |              |                       |         |  |                     |        |                   |                                   |
|  | 1                        | 2412.0 | CCK(11Mbps)  | Flat                  | Fixed   | Left side                                    | 0                   | 23.7   | 23.7              | 0.372                             |
|  | 11                       | 2462.0 | CCK(11Mbps)  | Flat                  | Fixed   | Left side                                    | 0                   | 23.8   | 23.8              | 0.462                             |
| 11g  | Step3. Moduration Change |        |              |                       |         |  |                     |        |                   |                                   |
|  | 6                        | 2437.0 | BPSK(6Mbps)  | Flat                  | Fixed   | Left side                                    | 0                   | 23.8   | 23.8              | 0.358                             |
|  | 6                        | 2437.0 | QPSK(12Mbps) | Flat                  | Fixed   | Left side                                    | 0                   | 23.8   | 23.8              | 0.461                             |
|  | 6                        | 2437.0 | 16QAM(24Mbps | Flat                  | Fixed   | Left side                                    | 0                   | 23.7   | 23.8              | 0.357                             |
|  | 6                        | 2437.0 |              |                       | Fixed   | Left side                                    | 0                   | 23.8   | 23.9              | 0.347                             |
|  | Step 4. Position search  |        |              |                       |         |  |                     |        |                   |                                   |
|  | 6                        | 2437.0 | QPSK(12Mbps) | Flat                  | Fixed   | Front  | 0                   | 23.7   | 23.7              | 0.122                             |
|  | 6                        | 2437.0 | QPSK(12Mbps) | Flat                  | Fixed   | Rear   | 0                   | 23.7   | 23.9              | 0.195                             |
|  | 6                        | 2437.0 | QPSK(12Mbps) | Flat                  | Fixed   | Right side                                   | 0                   | 23.9   | 23.9              | 0.00897                           |
|  | 6                        | 2437.0 | QPSK(12Mbps) | Flat                  | Fixed   | Тор  | 0                   | 23.9   | 24.0              | 0.111                             |
|  | 6                        | 2437.0 | QPSK(12Mbps) | Flat                  | Fixed   | Bottom                                       | 0                   | 24.0   | 24.0              | 0.043                             |
|  | Step5. Frequency Change  |        |              |                       |         |  |                     |        |                   |                                   |
|  | 1                        | 2412.0 | QPSK(12Mbps) | Flat                  | Fixed   | Left side                                    | 0                   | 24.0   | 24.0              | 0.364                             |
|  | 11                       | 2462.0 | QPSK(12Mbps) | Flat                  | Fixed   | Left side                                    | 0                   | 24.0   | 24.0              | 0.417                             |
| 11b  | Step6.Separation Change  |        |              |                       |         |  |                     |        |                   |                                   |
|  | 11                       | 2462.0 | CCK(11Mbps)  | Flat                  | Fixed   | Left side                                    | 5                   | 24.3   | 24.3              | 0.164                             |
|  | 11                       | 2462.0 | CCK(11Mbps)  | Flat                  | Fixed   | Left side                                    | 10                  | 24.3   | 24.3              | 0.079                             |
|  | 11                       | 2462.0 | CCK(11Mbps)  | Flat                  | Fixed   | Left side                                    | 15                  | 24.3   | 24.3              | 0.051                             |
| 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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 FCC ID
 : CGJ3143EB

 Issued date
 : May 23, 2007

 Revised date
 : July 24, 2007

## 8.2 Reference Head SAR 2450MHz

 $\mbox{Liquid Depth (cm)} \qquad : \mbox{ } 15.0 \mbox{ } \mbox{ } \mbox{Model} \mbox{ } : \mbox{ } \mbox{GC-131} \mbox{ } \$ 

Parameters :  $\varepsilon_r = 37.5$ ,  $\sigma = 1.88$  Serial No. : 1

Ambient temperature (deg.c.) : 24.5 Modulation : DSSS,OFDM

Relative Humidity (%) : 44 Crest factor :

Date : May 9,2007 Measured By : Miyo Ikuta

| Frequency |                          |        | Phantom      | EUT Set-up Conditions |         |            | Liquid Temp.[deg.c] |        | SAR(1g)<br>[W/kg] |                                   |
|-----------|--------------------------|--------|--------------|-----------------------|---------|------------|---------------------|--------|-------------------|-----------------------------------|
| /lode     | Channel                  | [MHz]  | Modulation   | Section               | Antenna | Position   | Separation<br>[mm]  | Before | After             | Maximum<br>value<br>of multi-peak |
| 1b        | Step1. Position search   |        |              |                       |         |            |                     |        |                   |                                   |
|           | 6                        | 2437.0 | CCK(11Mbps)  | Flat                  | Fixed   | Front      | 0                   | 23.5   | 23.5              | 0.117                             |
|           | 6                        | 2437.0 | CCK(11Mbps)  | Flat                  | Fixed   | Rear       | 0                   | 23.5   | 23.5              | 0.227                             |
|           | 6                        | 2437.0 | CCK(11Mbps)  | Flat                  | Fixed   | Left side  | 0                   | 23.5   | 23.6              | 0.391                             |
|           | 6                        | 2437.0 | CCK(11Mbps)  | Flat                  | Fixed   | Right side | 0                   | 23.6   | 23.6              | 0.025                             |
|           | 6                        | 2437.0 | CCK(11Mbps)  | Flat                  | Fixed   | Тор        | 0                   | 23.6   | 23.6              | 0.106                             |
|           | 6                        | 2437.0 | CCK(11Mbps)  | Flat                  | Fixed   | Bottom     | 0                   | 23.6   | 23.6              | 0.049                             |
|           | Step2. Frequency Change  |        |              |                       |         |            |                     |        |                   |                                   |
|           | 1                        | 2412.0 | CCK(11Mbps)  | Flat                  | Fixed   | Left side  | 0                   | 23.6   | 23.6              | 0.517                             |
|           | 11                       | 2462.0 | CCK(11Mbps)  | Flat                  | Fixed   | Left side  | 0                   | 23.6   | 23.6              | 0.577                             |
| 1g        | Step3. Moduration Change |        |              |                       |         |            |                     |        |                   |                                   |
|           | 6                        | 2437.0 | BPSK(6Mbps)  | Flat                  | Fixed   | Left side  | 0                   | 23.7   | 23.7              | 0.396                             |
|           | 6                        | 2437.0 | QPSK(12Mbps) | Flat                  | Fixed   | Left side  | 0                   | 23.7   | 23.7              | 0.412                             |
|           | 6                        | 2437.0 | 16QAM(24Mbps | Flat                  | Fixed   | Left side  | 0                   | 23.7   | 23.7              | 0.376                             |
|           | 6                        | 2437.0 | 64QAM(54Mbps | Flat                  | Fixed   | Left side  | 0                   | 23.7   | 23.7              | 0.324                             |
|           | Step 4. Position search  |        |              |                       |         |            |                     |        |                   |                                   |
|           | 6                        | 2437.0 |              | Flat                  | Fixed   | Front      | 0                   | 23.7   | 23.7              | 0.079                             |
|           | 6                        | 2437.0 | ( -T -)      | Flat                  | Fixed   | Rear       | 0                   | 23.7   | 23.9              | 0.131                             |
|           | 6                        | 2437.0 | ( - I - )    | Flat                  | Fixed   | Right side | 0                   | 23.9   | 23.9              | 0.008                             |
|           | 6                        | 2437.0 | QPSK(12Mbps) | Flat                  | Fixed   | Тор        | 0                   | 23.9   | 23.9              | 0.079                             |
|           | 6                        | 2437.0 | QPSK(12Mbps) | Flat                  | Fixed   | Bottom     | 0                   | 23.9   | 24.0              | 0.050                             |
|           | Step5. Frequency Change  |        |              |                       |         |            |                     |        |                   |                                   |
|           | 1                        | 2412.0 | ( 1 )        | Flat                  | Fixed   | Left side  | 0                   | 24.0   | 24.0              | 0.355                             |
|           | 11                       | 2462.0 | QPSK(12Mbps) | Flat                  | Fixed   | Left side  | 0                   | 24.0   | 24.0              | 0.537                             |

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