



Underwriters Laboratories Inc.

[www.ul.com/emc](http://www.ul.com/emc)  
[www.ul.co.kr](http://www.ul.co.kr)

Project No.: 12CA66728  
File No.: MC16901  
Report No.: 12CA66728-4-FCC  
Date: February 14, 2013  
Model No.: 1417WGA  
FCC ID.: QIIRY1417WGA  
IC: 10742A-1417WGA

## FCC Maximum Permissible Exposure Report

in accordance with  
**FCC Part 1 Subpart I §1.1307(b) & §1.1310, RSS-102**

for

### Medical Image Processing Unit (Telemetry System Transmitter)

**Rayence Co., Ltd  
1F, 2F, 3F, #402, 14, Samsung 1ro 1-gil, Hwaseong-si, Gyeonggi-do, Korea**

**Copyright © 2005 Underwriters Laboratories Inc.**

Underwriters Laboratories Inc. authorizes the above-named company to reproduce this Report provided it is reproduced in its entirety.

Only those products bearing the UL Mark should be considered as being covered by UL.

---

UL Korea, Ltd  
33<sup>rd</sup> FL, Gangnam Finance Center, 737  
Yeoksam-dong, Gangnam-gu, Seoul  
135-984 Korea  
Tel: +82.2.2009.9000, Fax: +82.2.2009.9405

An organization dedicated  
to public safety and committed to  
quality service for over 100 years

### **Summary of Test Results:**

The following tests were performed on a sample submitted for evaluation of compliance with FCC Part 1  
Subpart I Section 1.1307(b) & 1.1310

| No | Reference Clause No.   | Conformance Requirements  | Result | Verdict  | Remark |
|----|------------------------|---|--------|----------|--------|
| 1  | 1.1307(b)(1)<br>1.1310 | Maximum Permissible Exposure<br>(Exposure of Humans to RF Fields) |        | Complied |        |

### **Conclusion:**

The tests listed in the Summary of Testing section of this report have been performed and the results recorded by UL Korea Ltd. in accordance with the procedures stated in each test requirement and specification. The test list was determined by the Applicant as being applicable to the Equipment Under Test. As a result, the subject product has been verified to comply or not comply as noted in the Summary of Testing with each test specification. The test results relate only to the items tested.



Witnessed By:  
Sung Hoon Baek, Senior Project Engineer  
UL Verification Services- 3014ASEO  
UL Korea Ltd.  
February 14, 2013



Reviewed by  
Jeawoon Choi, WiSE Engineering Leader  
UL Verification Services – 3014ASEO  
UL Korea Ltd.  
February 14, 2013

## **Test Report Details**

Witnessed By: UL Korea Ltd.  
33<sup>rd</sup> FL. GFC Center, 737 Yeoksam-dong, Gangnam-gu, Seoul, 135-984, Korea

Test Site: CTK Co., Ltd.  
386-1, Ho-Dong, Cheoin-Gu, Yongin-Si, Kyunggi-Do, Korea  
The test facility was deemed to have the environment and capabilities necessary to perform the tests included in the test package.

Applicant: Rayence Co., Ltd  
1F, 2F, 3F, #402, 14, Samsung 1ro 1-gil, Hwaseong-si, Gyeonggi-do, Korea

Manufacturer: Rayence Co., Ltd  
1F, 2F, 3F, #402, 14, Samsung 1ro 1-gil, Hwaseong-si, Gyeonggi-do, Korea

Applicant Contact: Keedock, Kim  
Title: Quality Manager  
Phone: 82.31.80156459  
E-mail: Kevin.kim@rayence.com  
Product Type: Medical Image Processing Unit (Telemetry System Transmitter)  
Model Number: 1417WGA  
Multiple Model Name N/A  
Trademark 

Test standards: FCC Part 1 I Section 1.1307(b) & 1.1310  
Maximum Permissible Exposure

Sample Serial Number: N/A  
Sample Receive Date: November 28, 2012  
Testing Start Date: December 4, 2012  
Date Testing Complete: January 25, 2013

**Overall Results:** **Pass**

UL Korea Ltd. reports apply only to the specific test samples and test results submitted for UL's review. All samples tested were in good operating condition throughout the entire test program. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. UL Korea Ltd. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from UL Korea Ltd. issued reports. This report shall not be used to claim, constitute or imply product certification, approval, or any agency of the National Authorities. This report may contain test results that are not covered by the NVLAP or KOLAS accreditation.

## Report Directory

|  |           |
|--|-----------|
| <b>1. GENERAL PRODUCT INFORMATION .....</b>  | <b>5</b>  |
| 1.1. EQUIPMENT DESCRIPTION: .....  | 5         |
| 1.2. DETAILS OF TEST EQUIPMENT (EUT):.....   | 5         |
| 1.3. EQUIPMENT CONFIGURATION:.....   | 5         |
| 1.4. TECHNICAL DATA: .....   | 5         |
| 1.5. ANTENNA INFORMATION:.....   | 6         |
| 1.6. EQUIPMENT TYPE: .....   | 6         |
| 1.7. TECHNICAL DESCRIPTION AND DOCUMENTS: .....                                    | 6         |
| 1.8. EQUIPMENT MARKING PLATE.....  | 7         |
| 1.9. DESCRIPTION OF ADDITIONAL MODEL NAME .....                                    | 7         |
| <b>2. TEST SPECIFICATION.....</b>  | <b>8</b>  |
| <b>3. TEST CONDITIONS .....</b>  | <b>9</b>  |
| 3.1. EQUIPMENT USED DURING TEST .....  | 9         |
| 3.2. INPUT/OUTPUT PORTS .....  | 9         |
| 3.3. POWER INTERFACE .....   | 9         |
| 3.4. OPERATING FREQUENCIES .....   | 10        |
| 3.5. OPERATION MODES .....   | 11        |
| 3.6. ENVIRONMENT CONDITIONS.....   | 11        |
| 3.7. TEST CONFIGURATIONS.....  | 11        |
| 3.8. LIST OF TEST EQUIPMENT.....   | 11        |
| <b>4. TEST RESULTS OF RF EXPOSURE EVALUATION .....</b>                             | <b>12</b> |
| 4.1. OUTPUT POWER INTO ANTENNA & RF EXPOSURE EVALUATION DISTANCE FOR FCC .....     | 14        |
| 4.2. OUTPUT POWER INTO ANTENNA & RF EXPOSURE EVALUATION DISTANCE FOR RSS-102 ..... | 15        |

## 1. General Product Information

### 1.1. Equipment Description:

1417WGA is the module that integrates Wireless LAN (WLAN). This embedded module is optimized for WLAN enabled handheld mobile device.

### 1.2. Details of Test Equipment (EUT):

- Equipment Type : Medical Image Processing Unit
- Model No. : 1417WGA
- Trade name : N/A
- Type of test Equipment : Portable type
- Manufacturer : Rayence Co., Ltd  
1F, 2F, 3F, #402, 14, Samsung 1ro 1-gil, Hwaseong-si, Gyeonggi-do, 445-170, Korea

### 1.3. Equipment Configuration:

The EUT is consisted of the following component provided by the manufacturer.

| Use* | Product Type   | Manufacturer     | Model   | Comments |
|------|--|------------------|---------|----------|
| EUT  | Medical Image Processing Unit (Telemetry System Transmitter) | Rayence Co., Ltd | 1417WGA | -        |
| EUT  | Battery Pack   | NPTECH CO.,LTD   | RB37WH  |          |

**Note:** Use = EUT - Equipment Under Test, AE - Auxiliary/Associated Equipment. SIM - Simulator (Not Subjected to Test)

### 1.4. Technical Data:

| Item          | Contents   |
|---------------|--|
| Chipset       | AR5BHB116 / Manufacturer : ATERO                                     |
| Module        | WPEA-121N/W (FCC ID : PPD-AR5BHB116)<br>Manufacturer: ANATEL         |
| IEEE Standard | 802.11a<br>802.11g<br>802.11n<br>(2TX/2RX Bandwidth in 2.4GHz, 5GHz) |
| Security      | WPA Personal   |

\*Note: All the technical data described above were provided by the manufacturer.

## 1.5. Antenna Information:

|                    |  |
|--------------------|--|
| Antenna Model Name | AEi-2450/5500DP-C1.13 [Rayence]              |
| Antenna Type       | PCB ANTENNA                                  |
| (MHz)              | 2.4~2.5GHz / 5.2~5.8GHz                      |
| V.S.W.R            | LESS THAN 1 : 5.0                            |
| GAIN(dBi) - 2.4GHz | 2.8dBi (MIMO Total Antenna Gain= 2.27 dBi)   |
| GAIN(dBi) - 5.8GHz | 3.66dBi (MIMO Total Antenna Gain = 3.17 dBi) |
| Radiation Pattern  | OMNI-DIRECTIONAL                             |

## 1.6. Equipment Type:

- Radio and ancillary equipment for fixed or semi-fixed use
- Radio and ancillary equipment for vehicular mounted use
- Radio and ancillary equipment for portable or handheld use

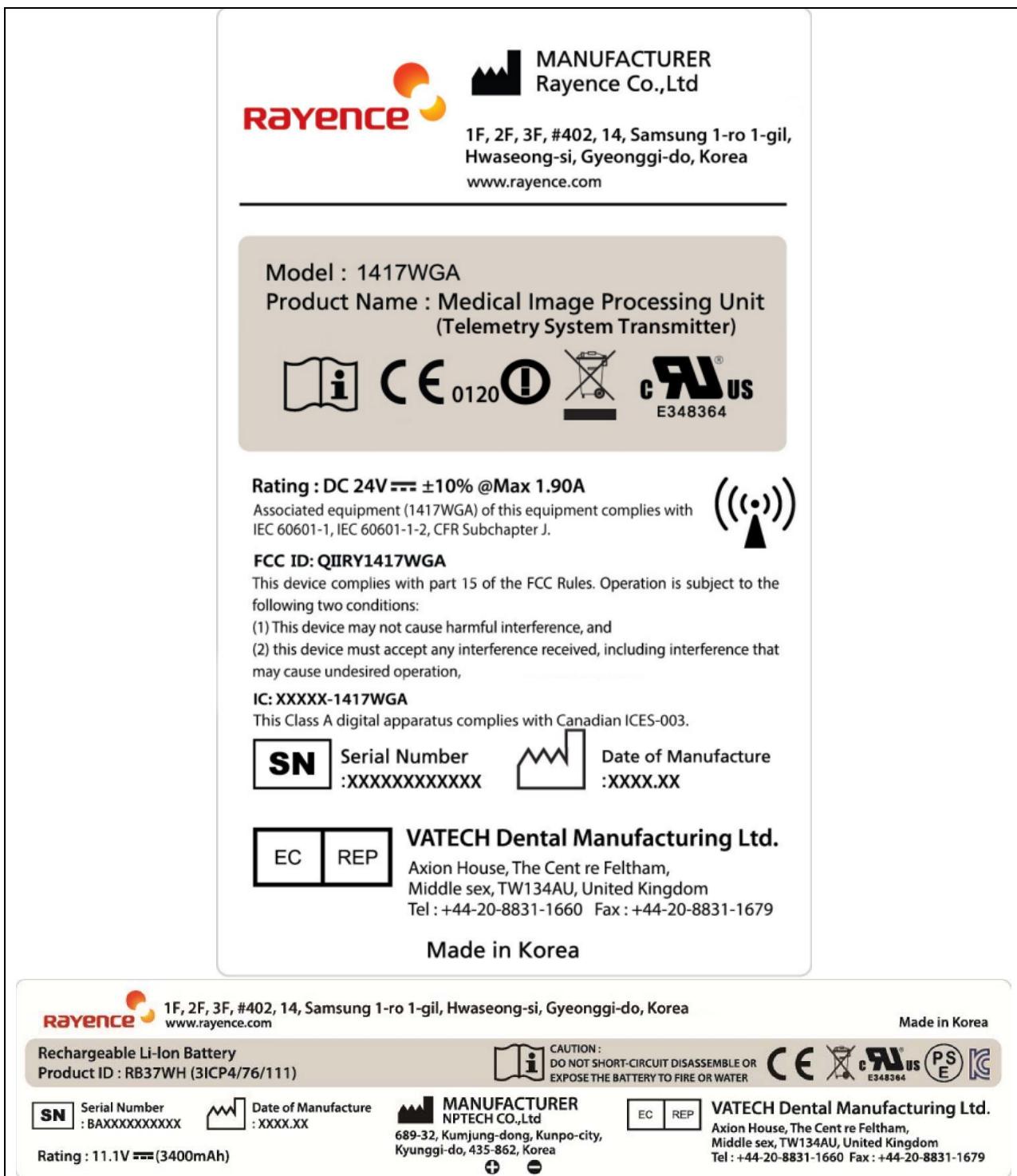
Stand alone    Host connected

Self contained single unit       Module with associated connection or interface

## 1.7. Technical description and documents:

| No. | Document Title and Description                                  |
|-----|---|
| 1   | User Manual   |
| 2   | Product Specification for Antenna / RODEM MICROSYSTEM CO., LTD. |

## 1.8. Equipment Marking Plate



## 1.9. Description of additional model name

| Model name | Model name Designation | Description of design |
|------------|------------------------|-----------------------|
| N/A        | N/A                    | N/A                   |

## 2. Test Specification

The following test specifications and standards have been applied and used for testing.

KDB 447498 D01 : Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies

### 3. Test Conditions

#### 3.1. Equipment Used During Test

| Use*  | Product Type   | Manufacturer     | Model   | Comments |
|---|--|------------------|---------|----------|
| EUT   | Medical Image Processing Unit (Telemetry System Transmitter) | Rayence Co., Ltd | 1417WGA | -        |
| EUT   | Battery Pack   | NPTECH CO.,LTD   | RB37WH  | -        |
| <b>Note:</b> Use = EUT - Equipment Under Test, AE - Auxiliary/Associated Equipment. SIM - Simulator (Not Subjected to Test) |  |                  |         |          |

#### 3.2. Input/Output Ports

| No   | Port Name     | Type* | Cable Max. >3m (Y/N) | Cable Shielded (Y/N) | Comments                     |
|--|---------------|-------|----------------------|----------------------|------------------------------|
| 1  | Power Input   | DC    | N                    | N                    | Connected to DC Power supply |
| 2  | Radio Antenna | I/O   | N                    | Y                    | -                            |
| <b>Note:</b>   |               |       |                      |                      |                              |
| *AC = AC Power Port      DC = DC Power Port      N/E = Non-Electrical<br>I/O = Signal Input or Output Port (Not Involved in Process Control)<br>TP = Telecommunication Ports |               |       |                      |                      |                              |

#### 3.3. Power Interface

| Mode # | Voltage (V) | Current (A) | Power (W) | Frequency (DC/AC-Hz) | Phases (#) | Comments |
|--------|-------------|-------------|-----------|----------------------|------------|----------|
| Rated  | 11.1V       | 720mA       | -         | DC                   | -          | -        |

### 3.4. Operating Frequencies

| Mode # | Frequency tested   |
|--------|--|
| 1      | Operating frequency range: 2 412 MHz ~ 2 462 MHz (11g & n-HT20)<br>3 channels in the Transmitter modes of 11b/g/n-HT20 are tested.<br>- Low : 2412 MHz<br>- Mid : 2437 MHz<br>- Top : 2462 MHz                                   |
| 2      | Operating frequency range: 2 422 MHz ~ 2 452 MHz (11n-HT40)<br>3 channels in the Transmitter modes of 11n-HT40 are tested.<br>- Low : 2422 MHz<br>- Mid : 2437 MHz<br>- Top : 2452 MHz   |
| 3      | Operating frequency range : 5 180 MHz ~ 5 240 MHz (11a & 11n-HT20)<br>3 channels in the Transmitter modes of 11b/g/n-HT20 are tested.<br>- Low Channel (5 180 MHz)<br>- Middle Channel (5 220 MHz)<br>- High Channel (5 240 MHz) |
| 4      | Operating frequency range : 5 190 MHz ~ 5 230 MHz (11n-HT40)<br>2 channels in the Transmitter modes of 11n-HT40 are tested.<br>- Low Channel (5190 MHz)<br>- High Channel (5230 MHz)   |

### 3.5. Operation Modes

| Mode # | Description  |
|--------|--|
| 1      | Carrier on mode: Signal from the Medical Image Processing Unit (Telemetry System Transmitter) was generated continuously for the representative channels (Low, Mid, High) by the test program incorporated |

**Note:**

1. The worst-case condition is determined by the baseline measurement of RF output power of the modular transmitter test report. The worst-case channel was determined as the channel with highest output power.  
     - 802.11g mode, 20MHz Channel Bandwidth, 9 Mb/s, OFDM Modulation  
     - 802.11n HT20 mode, 20 MHz Channel Bandwidth, MCS0,6.5 Mb/s, OFDM Modulation  
     - 802.11n HT40 mode, 40 MHz Channel Bandwidth, MCS0,13.5 Mb/s, OFDM Modulation
2. Output power from the device during the radiated spurious measurements are within expected tolerance of the module test results to justify using the original conducted antenna port measurements for the module(average power).

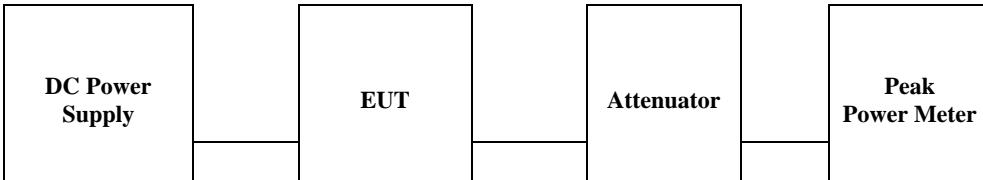
### 3.6. Environment Conditions

|                |                                  |
|----------------|----------------------------------|
| Parameters     | Normal condition                 |
| Temperature    | + 15°C ~ +35°C                   |
| Humidity       | 20% ~ 75%                        |
| Supply voltage | 11.1 Vdc (Rated nominal voltage) |

**Note :**

- The operating condition for humidity requirement has not been declared in the manufacturer's specification.
- Test has been carried out for three frequencies specified above under the normal.

### 3.7. Test Configurations

| Mode # | Description  |
|--------|--|
| 1      |  |

### 3.8. List of Test Equipment

| No | Description  | Manufacturer | Model   | Identifier | Cal. Due   |
|----|--------------|--------------|---------|------------|------------|
| 1  | Power Meter  | Anritsu      | ML2495A | 0932001    | 2010.09.16 |
| 2  | Power Sensor | HP           | MA2411B | 0846202    | 2010.09.09 |

## 4. Test Results of RF Exposure Evaluation

| TEST: RF Exposure Evaluation   |   |                   |                                    |  |                                     |                                |            |  |                   |           |  |                 |                   |  |  |              |
|--|---|-------------------|------------------------------------|--|-------------------------------------|--------------------------------|------------|--|-------------------|-----------|--|-----------------|-------------------|--|--|--------------|
| Method   | <p>RF Exposure Evaluation of the EUT were measured according to the dictates in KDB 447498</p> <p>Pd the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.</p> <p><b>Friis transmission formula: <math>P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)</math></b></p> <p>Where <math>P_d</math> = power density in mW/cm<sup>2</sup></p> <p><math>P_{out}</math> = output power to antenna in mW</p> <p><math>G</math> = gain of antenna in linear scale</p> <p><math>\pi = 3.1416</math></p> <p><math>R</math> = distance between observation point and center of the radiator in cm</p> <p><b>General SAR test exclusion guidance</b></p> <p>The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at <i>test separation distances</i> <math>\leq 50</math> mm are determined by:</p> <p><math>[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] * [\sqrt{f_{GHz}}] \leq 3.0</math> for 1-g SAR and <math>\leq 7.5</math> for 10-g extremity SAR, where</p> <p><math>f_{GHz}</math> is the RF channel transmit frequency in GHz</p> <p>Power and distance are rounded to the nearest mW and mm before calculation<sup>17</sup></p> <p>The result is rounded to one decimal place for comparison</p> <p>When the minimum <i>test separation distance</i> is <math>&lt; 5</math> mm, a distance of 5 mm is applied to determine SAR test exclusion.</p> |                   |                                    |  |                                     |                                |            |  |                   |           |  |                 |                   |  |  |              |
| <table border="1"> <tr> <td>Reference Clause</td> <td colspan="2">Part1 I Section 1.1307(b) &amp; 1.1310</td> </tr> <tr> <td>Parameters recorded during the test</td> <td>Laboratory Ambient Temperature</td> <td>19 ~ 21 °C</td> </tr> <tr> <td></td> <td>Relative Humidity</td> <td>44 ~ 46 %</td> </tr> <tr> <td></td> <td>Frequency range</td> <td>Measurement Point</td> </tr> <tr> <td>Fully configured sample scanned over the following frequency range</td> <td>2 412 MHz – 2 462 MHz<br/>5 180 MHz – 5 320 MHz<br/>5 500 MHz – 5 700 MHz<br/>5 745 MHz – 5 825 MHz</td> <td>Antenna port</td> </tr> </table> |   | Reference Clause  | Part1 I Section 1.1307(b) & 1.1310 |  | Parameters recorded during the test | Laboratory Ambient Temperature | 19 ~ 21 °C |  | Relative Humidity | 44 ~ 46 % |  | Frequency range | Measurement Point | Fully configured sample scanned over the following frequency range | 2 412 MHz – 2 462 MHz<br>5 180 MHz – 5 320 MHz<br>5 500 MHz – 5 700 MHz<br>5 745 MHz – 5 825 MHz | Antenna port |
| Reference Clause   | Part1 I Section 1.1307(b) & 1.1310  |                   |                                    |  |                                     |                                |            |  |                   |           |  |                 |                   |  |  |              |
| Parameters recorded during the test  | Laboratory Ambient Temperature  | 19 ~ 21 °C        |                                    |  |                                     |                                |            |  |                   |           |  |                 |                   |  |  |              |
|  | Relative Humidity   | 44 ~ 46 %         |                                    |  |                                     |                                |            |  |                   |           |  |                 |                   |  |  |              |
|  | Frequency range   | Measurement Point |                                    |  |                                     |                                |            |  |                   |           |  |                 |                   |  |  |              |
| Fully configured sample scanned over the following frequency range   | 2 412 MHz – 2 462 MHz<br>5 180 MHz – 5 320 MHz<br>5 500 MHz – 5 700 MHz<br>5 745 MHz – 5 825 MHz  | Antenna port      |                                    |  |                                     |                                |            |  |                   |           |  |                 |                   |  |  |              |

### Configuration Settings

| Power Interface Mode #<br>(See Section 3.3) | EUT Operation Mode #<br>(See Section 3.5) | Test Configurations Mode #<br>(See Section 3.7) |
|---|---|---|
| Rated                                       | 1   | 1   |
| Supplementary information: None             |   |   |

## Limits

### **Environmental evaluation and exposure limit according to FCC Part 1, Subpart I, Section 1.1307(b) & 1.1310**

According to Section 1.1310, The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in §1.1307(b)

| Frequency Range (MHz)                                 | Electric Field Strength(V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm <sup>2</sup> ) | Average Time |
|---|------------------------------|-------------------------------|-------------------------------------|--------------|
| (A) Limits for Occupational /Control Exposures        |                              |                               |                                     |              |
| 300 – 1 500   | --                           | --                            | F/300                               | 6            |
| 1 500 – 100 000                                       | --                           | --                            | 5                                   | 6            |
| (B) Limits for General Population/Uncontrol Exposures |                              |                               |                                     |              |
| 300 – 1 500   | --                           | --                            | F/1500                              | 6            |
| <b>1 500 – 100 000</b>                                | <b>--</b>                    | <b>--</b>                     | <b>1</b>                            | <b>30</b>    |

## 4.1. Output Power into Antenna & RF Exposure Evaluation Distance for FCC

### 4.1.1. Evaluation at 20 cm distance

| Operation Mode | Data Rate (Mbps) | Channel | Channel Frequency (MHz) | Output Peak Power (dBm) | Duty Cycle (%) | Antenna Gain (dBi) | Power Density at 20 cm (mW/cm <sup>2</sup> ) | LIMITS (mW/cm <sup>2</sup> ) |
|----------------|------------------|---------|-------------------------|-------------------------|----------------|--------------------|--|------------------------------|
| 802.11b        | 5.5              | Low     | 2412                    | 22.19                   | 100            | 5.01               | 0.104460                                     |                              |
|                |                  | Middle  | 2437                    | 23.18                   | 100            | 5.01               | 0.131205                                     |                              |
|                |                  | High    | 2462                    | 22.89                   | 100            | 5.01               | 0.122730                                     |                              |
| 802.11g        | 9                | Low     | 2412                    | 23.51                   | 100            | 5.01               | 0.141563                                     |                              |
|                |                  | Middle  | 2437                    | 27.19                   | 100            | 5.01               | 0.330332                                     |                              |
|                |                  | High    | 2462                    | 22.72                   | 100            | 5.01               | 0.118019                                     |                              |
| 802.11n-HT20   | 6.5              | Low     | 2412                    | 23.48                   | 100            | 5.01               | 0.140589                                     |                              |
|                |                  | Middle  | 2437                    | 26.86                   | 100            | 5.01               | 0.306161                                     |                              |
|                |                  | High    | 2462                    | 21.94                   | 100            | 5.01               | 0.098617                                     |                              |
| 802.11n-HT40   | 13.5             | Low     | 2422                    | 21.88                   | 100            | 5.01               | 0.097264                                     |                              |
|                |                  | Middle  | 2437                    | 24.70                   | 100            | 5.01               | 0.186187                                     |                              |
|                |                  | High    | 2452                    | 21.43                   | 100            | 5.01               | 0.087690                                     |                              |
| 802.11a        | 9                | Low     | 5180                    | 14.65                   | 100            | 6.67               | 0.026976                                     |                              |
|                |                  | Middle  | 5220                    | 14.39                   | 100            | 6.67               | 0.025408                                     |                              |
|                |                  | High    | 5240                    | 14.74                   | 100            | 6.67               | 0.027540                                     |                              |
| 802.11n-HT20   | 6.5              | Low     | 5180                    | 14.43                   | 100            | 6.67               | 0.025643                                     |                              |
|                |                  | Middle  | 5220                    | 15.32                   | 100            | 6.67               | 0.031475                                     |                              |
|                |                  | High    | 5240                    | 16.41                   | 100            | 6.67               | 0.040455                                     |                              |
| 802.11n-HT40   | 13.5             | Low     | 5190                    | 13.76                   | 100            | 6.67               | 0.021977                                     |                              |
|                |                  | High    | 5230                    | 16.89                   | 100            | 6.67               | 0.045183                                     |                              |
| 802.11a        | 9                | Low     | 5500                    | 17.89                   | 100            | 6.67               | 0.056881                                     |                              |
|                |                  | Middle  | 5600                    | 16.85                   | 100            | 6.67               | 0.044768                                     |                              |
|                |                  | High    | 5700                    | 17.73                   | 100            | 6.67               | 0.054824                                     |                              |
| 802.11n-HT20   | 6.5              | Low     | 5500                    | 17.99                   | 100            | 6.67               | 0.058206                                     |                              |
|                |                  | Middle  | 5600                    | 16.93                   | 100            | 6.67               | 0.045601                                     |                              |
|                |                  | High    | 5700                    | 17.77                   | 100            | 6.67               | 0.055331                                     |                              |
| 802.11n-HT40   | 13.5             | Low     | 5510                    | 16.96                   | 100            | 6.67               | 0.045917                                     |                              |
|                |                  | Middle  | 5590                    | 17.09                   | 100            | 6.67               | 0.047312                                     |                              |
|                |                  | High    | 5670                    | 18.38                   | 100            | 6.67               | 0.063675                                     |                              |
| 802.11a        | 9                | Low     | 5745                    | 23.69                   | 100            | 5.47               | 0.164040                                     |                              |
|                |                  | Middle  | 5785                    | 23.50                   | 100            | 5.47               | 0.157018                                     |                              |
|                |                  | High    | 5825                    | 23.30                   | 100            | 5.47               | 0.149951                                     |                              |
| 802.11n-HT20   | 6.5              | Low     | 5745                    | 23.76                   | 100            | 5.47               | 0.166706                                     |                              |
|                |                  | Middle  | 5785                    | 23.41                   | 100            | 5.47               | 0.153798                                     |                              |
|                |                  | High    | 5825                    | 23.18                   | 100            | 5.47               | 0.145865                                     |                              |
| 802.11n-HT40   | 13.5             | Low     | 5755                    | 23.47                   | 100            | 5.47               | 0.155937                                     |                              |
|                |                  | High    | 5795                    | 23.25                   | 100            | 5.47               | 0.148235                                     |                              |

Note :

1. The power density at a distance of 20 cm calculated from the friis transmission formula is far below each limits.
2. WLAN function of Equipment will be disabled when it is detected the patient.

## 4.2. Output Power into Antenna & RF Exposure Evaluation Distance for RSS-102

### 4.2.1. Evaluation at 20 cm distance

| Operation Mode | Data Rate (Mbps) | Channel | Channel Frequency (MHz) | Output Peak Power (dBm) | Duty Cycle (%) | Antenna Gain (dBi) | Power Density at 20 cm (W/m <sup>2</sup> ) | LIMITS (W/m <sup>2</sup> ) |
|----------------|------------------|---------|-------------------------|-------------------------|----------------|--------------------|--|----------------------------|
| 802.11b        | 5.5              | Low     | 2412                    | 22.19                   | 100            | 5.01               | 1.04460                                    |                            |
|                |                  | Middle  | 2437                    | 23.18                   | 100            | 5.01               | 1.31205                                    |                            |
|                |                  | High    | 2462                    | 22.89                   | 100            | 5.01               | 1.22730                                    |                            |
| 802.11g        | 9                | Low     | 2412                    | 23.51                   | 100            | 5.01               | 1.41563                                    |                            |
|                |                  | Middle  | 2437                    | 27.19                   | 100            | 5.01               | 3.30332                                    |                            |
|                |                  | High    | 2462                    | 22.72                   | 100            | 5.01               | 1.18019                                    |                            |
| 802.11n-HT20   | 6.5              | Low     | 2412                    | 23.48                   | 100            | 5.01               | 1.40589                                    |                            |
|                |                  | Middle  | 2437                    | 26.86                   | 100            | 5.01               | 3.06161                                    |                            |
|                |                  | High    | 2462                    | 21.94                   | 100            | 5.01               | 0.98617                                    |                            |
| 802.11n-HT40   | 13.5             | Low     | 2422                    | 21.88                   | 100            | 5.01               | 0.97264                                    |                            |
|                |                  | Middle  | 2437                    | 24.70                   | 100            | 5.01               | 1.86187                                    |                            |
|                |                  | High    | 2452                    | 21.43                   | 100            | 5.01               | 0.87690                                    |                            |
| 802.11a        | 9                | Low     | 5180                    | 14.65                   | 100            | 6.67               | 0.26976                                    |                            |
|                |                  | Middle  | 5220                    | 14.39                   | 100            | 6.67               | 0.25408                                    |                            |
|                |                  | High    | 5240                    | 14.74                   | 100            | 6.67               | 0.27540                                    |                            |
| 802.11n-HT20   | 6.5              | Low     | 5180                    | 14.43                   | 100            | 6.67               | 0.25643                                    |                            |
|                |                  | Middle  | 5220                    | 15.32                   | 100            | 6.67               | 0.31475                                    |                            |
|                |                  | High    | 5240                    | 16.41                   | 100            | 6.67               | 0.40455                                    |                            |
| 802.11n-HT40   | 13.5             | Low     | 5190                    | 13.76                   | 100            | 6.67               | 0.21977                                    |                            |
|                |                  | High    | 5230                    | 16.89                   | 100            | 6.67               | 0.45183                                    |                            |
| 802.11a        | 9                | Low     | 5500                    | 17.89                   | 100            | 6.67               | 0.56881                                    |                            |
|                |                  | Middle  | 5600                    | 16.85                   | 100            | 6.67               | 0.44768                                    |                            |
|                |                  | High    | 5700                    | 17.73                   | 100            | 6.67               | 0.54824                                    |                            |
| 802.11n-HT20   | 6.5              | Low     | 5500                    | 17.99                   | 100            | 6.67               | 0.58206                                    |                            |
|                |                  | Middle  | 5600                    | 16.93                   | 100            | 6.67               | 0.45601                                    |                            |
|                |                  | High    | 5700                    | 17.77                   | 100            | 6.67               | 0.55331                                    |                            |
| 802.11n-HT40   | 13.5             | Low     | 5510                    | 16.96                   | 100            | 6.67               | 0.45917                                    |                            |
|                |                  | Middle  | 5590                    | 17.09                   | 100            | 6.67               | 0.47312                                    |                            |
|                |                  | High    | 5670                    | 18.38                   | 100            | 6.67               | 0.63675                                    |                            |
| 802.11a        | 9                | Low     | 5745                    | 23.69                   | 100            | 5.47               | 1.64040                                    |                            |
|                |                  | Middle  | 5785                    | 23.50                   | 100            | 5.47               | 1.57018                                    |                            |
|                |                  | High    | 5825                    | 23.30                   | 100            | 5.47               | 1.49951                                    |                            |
| 802.11n-HT20   | 6.5              | Low     | 5745                    | 23.76                   | 100            | 5.47               | 1.66706                                    |                            |
|                |                  | Middle  | 5785                    | 23.41                   | 100            | 5.47               | 1.53798                                    |                            |
|                |                  | High    | 5825                    | 23.18                   | 100            | 5.47               | 1.45865                                    |                            |
| 802.11n-HT40   | 13.5             | Low     | 5755                    | 23.47                   | 100            | 5.47               | 1.55937                                    |                            |
|                |                  | High    | 5795                    | 23.25                   | 100            | 5.47               | 1.48235                                    |                            |

10

Note :

3. The power density at a distance of 20 cm calculated from the friis transmission formula is far below each limits.
4. WLAN function of Equipment will be disabled when it is detected the patient.