Testing Tomorrow's Technology

8/31/2007

Mr. Timothy R. Johnson
ATCB

RE: GE Medical Systems Information Technologies

FCC ID: **OU5SHU-WMTS**

Mr. Johnson,

Thank you for your comments in your letter of August 17, 2007. Below is my response to your comments on this application. I have included your original comments in my response. In some instances, GE Medical Systems has responded directly, and the below statements is confirmation of their response.

1) Due to various concerns recently seen about proper authority being given to others for FCC and/or IC matters, the agency letter should be signed by someone traceable to have the proper authority. For instance, the FCC site shows Jeff Wells as the correct contact of authority for FCC matters. Therefore the agency letters should be signed by this contact or alternatively a letter showing who he has "deputized" to sign on his behalf may be provided as well (i.e. Matthew Kindschi). Please correct.

Corrected - see uploaded e-mail from Jeff Wells, dated 8/21/2007, provided by GE Medical Systems Information Technologies.

2) Currently the confidentiality letter asks for: Schematics, Parts List, Block Diagrams, and Tune Up Procedures. It may be prudent to add Operational Description to this to cover various technical documentation. If necessary, please update the confidentiality Letter.

Corrected and Uploaded. See both the GE and MobileAccess confidentiality letters, and the Operational Description, supplied by GE Medical Systems Information Technologies.

3) Kindly explain what the black box device attached to the back of the board is?

Provided by MobileAccess Networks, Inc.

4) There should be technical information for licensed device to explain the following as applicable: "A description of all circuitry and devices provided for determining and stabilizing frequency, for suppression of spurious radiation, for limiting modulation, and for limiting power been provided (2.1033(c)(10) and for equipment employing digital modulation techniques, a detailed description of the modulation system to be used, including the response characteristics (frequency, phase and amplitude) of any filters provided, and a description of the modulating wavetrain, been provided for the maximum rated conditions at which the equipment will be operated? (2.1033(c)(13)." While some of this may not be directly applicable, an overall description should be provided. [This has been requested from Mobile Access]

Provided by MobileAccess Networks, Inc.

5) Please provide information regarding both DC voltages AND currents applied into the several elements of the final radio frequency amplifying device for normal operation over the power range been provided? (2.1033(c)(8)). [This has been requested from Mobile Access]

Provided by MobileAccess Networks, Inc.

6) Please provide an appropriate RF exposure exhibit as required by 95.1125.

Uploaded.

7) References in the first paragraph of 2.6 are relative to Part 15 type of devices only. While the majority of information is necessary and relevant to this application, the paragraph should be reviewed and adjusted as necessary.

Report adjusted and uploaded

8) Report and 731 form cites 15.8 mW (12.0 dBm), while description in test report cites +17 dBm output/+5 dBm input min, and test plan cites +17 dBm. FCC expects device to be tested with maximum output. However the report mentions that the power had to be reduced to pass to 12 dBm. How will the maximum setting be set and utilized in the final equipment? Where is this set or measured? Please explain.

Proposed Test plan cited 17 dBm with reduction of power by compensating for minimum cable length, until unit met fundamental radiated power and Spurious Harmonics.

EUT allowed reduction of output power by software means. Final output power was measured when fundamental and spurious emissions were met and it is this value that has replaced the conducted power plots.

Report corrected and uploaded.

Using a TDR measurement of the cable length from the SHU to the antenna, and a typical 600 MHz attenuation per 100 ft in dB, a loss for the given cable from the SHU to the antenna is calculated. SHU output power is adjusted to the quantity (12 dBm + the conductive loss between the antenna), rounded down to the nearest integer, using a spreadsheet provided to the professional installer. Output power is thereby controlled as to not exceed 12 dBm conducted into the antenna.

9) Given 8) above, why does table 3A cite 13 dBm?

13 dBm was the original output software setting when testing 1-1, 1-2, 1-3, and 1-4 configurations. However, 2-2 was found to be worst case, and required an additional -1dB correction in output power software setting. Since 13 dBm met in the 1-1through4 configuration, this data was kept.

Explanation added to report, corrected and uploaded

10) It is uncertain where the 12.0 dBm listed above has been measured. For instance some information suggests that this was measured at the end of the cable installed (at antenna connection). Please explain.

As stated above, output power is now measured at the output of the cable with the software setting at 12 dBm.

Report corrected and uploaded

11) If power was measured at the end of the cable and only a short cable was utilized, what happens if 100'+ was used. What would the output power be adjusted to? If the power is measured at the end of the cable, then this means that higher power would be coming directly from the unit. This would mean that tests of case radiation would not have been properly maximized using a short cable. Please review/explain.

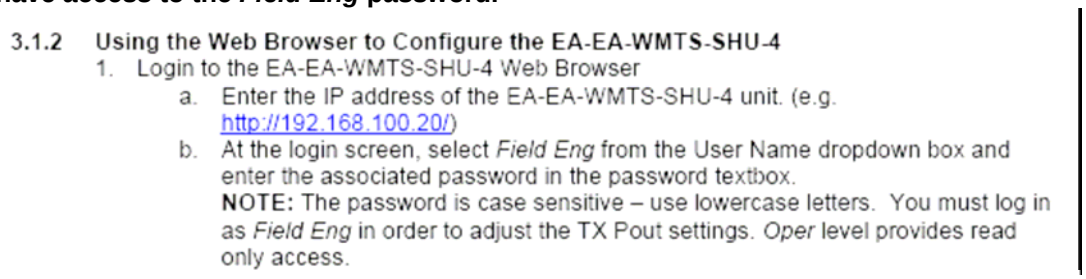
After review, case radiation was measured and found to be insignificant at 17 dBm (software output setting). This data has been added to the report and uploaded.

12) Users Manual (page 5 and several other to follow) shows users set points/adjustments/default values above 12 dBm. Please review.

User Manual provided by MobileAccess is to be removed from the submission.

13) Once installed – how is adjustment by the end-user of any parameter that can cause excess of the FCC requirements locked out? It appears there are controls in web browser, etc. that the user has controls to adjust. For example, they should not be able to set +15 dBm if maximum is 12 dBm.

Read/Write access is governed by a password controlled and distributed only to authorized installation personnel. Referenced on p3 of 2028835-160 SHU Installation Procedure. This manual is available only to professional installers and GE Service personnel. Only personnel of this level have access to the *Field Eng* password.



3.1.2 Using the Web Browser to Configure the EA-EA-WMTS-SHU-4

1. Login to the EA-EA-WMTS-SHU-4 Web Browser
   a. Enter the IP address of the EA-EA-WMTS-SHU-4 unit. (e.g. http://192.168.100.20/)
   b. At the login screen, select *Field Eng* from the User Name dropdown box and enter the associated password in the password textbox.
   NOTE: The password is case sensitive – use lowercase letters. You must log in as *Field Eng* in order to adjust the TX Pout settings. *Oper* level provides read only access.

14) Users manual doesn't necessarily point to professional installation. Additionally, where are specific instructions to the installer given on how to meet all necessary requirements for FCC (i.e. show how power must be controlled, etc.), limitations on antennas used, etc.

Antenna spacing requirements and professional installation references are on pages 4 and 3, respectively, of submitted document 2028835-160.

15) FCC information stated that in effort to use QP detector that "a Quasi-peak (QP)detector is used if the bandwidth of the signal is less than the bandwidth of the QP instrumentation". It appears that a QP detector was used, but it is uncertain if this requirement was met reviewing other information in the report and actually appears that the bandwidth may exceed 120 kHz (bandwidth of QP). Please review.

Based upon the correspondence from Joe Dichoso and Tim McGuire, QP measurements are allowed for greater than 120 kHz Bandwidth, with unit hop stopped.

Report corrected and uploaded.

16) All spurious are compared to a peak limit (from Part 15), which the licensed rules do not fully account for. Please explain compliance to the average limit requirements given in the rules. Note that some peak emissions exceeded the average limits.

Average values were calculated using a 5/35 or 14% duty correction factor. All peak values for spurious emissions now meet average limits.

Report Corrected and uploaded.

17) The switch matrix appear to allow switching of more than one input to one antenna. However other information states this will not occur. How is this controlled or insured that automatic mapping will not allow switching of multiple inputs to a single output.

Moot per Tim Johnson, e-mail on 8/24/2007 8:23 PM, testing confirms.

18) Spurious emissions reported frequencies appear odd. Please review/correct as necessary.

Corrected and uploaded.

19) Please justify emissions type - (i.e. what type of emissions from AP's that it will be used with). Please explain the nature of the modulating signal. Final use will only be approved for what was tested.

Please refer to uploaded theory of operation for the GE Healthcare, Model 07APFH-AP.
This description represents the emission type used during testing, and will be met after approval.
List of possible APs to be used with the SHU is on page 6 of the 2028835-160 document (all have equivalent emission types/timing/performance).

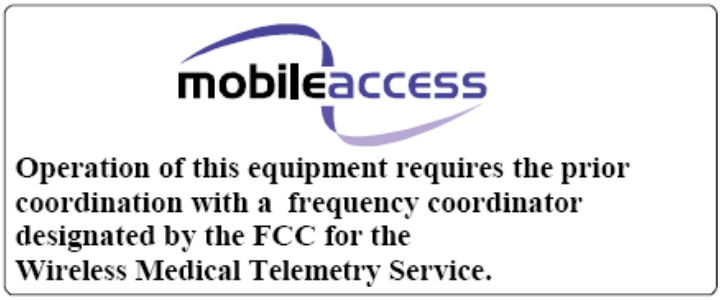
20) Conducted power is necessary to properly document the grant as required. However proper conducted measurements should ensure that the BW used is > bandwidth of the signal. It is uncertain if this condition has been met given previous questions above. Please review.

Conducted Power Plots corrected and Report Uploaded

21) Please provide a confirmation that GE understands their obligations under 95.1111.

§95.1111 clearly dictates the requirements for the healthcare provider dealing with WMTS. §95.1109 clearly delineates language which is required to be on each device, which is the responsibility of the manufacturer. Standard installation procedure states: "Direct the customer to ASHE, the FCC's designated WMTS frequency coordinator, for WMTS coordination."

The labeling on each device, which meets the criterion of §95.1109, is as follows:



22) Test report shows 69 pages, but only 60 pages were provided. Please review.

Report corrected and uploaded.

23) Page 6 of the users manual suggests this device is 15B certified. This is not correct.

User Manual provided by MobileAccess is to be removed from the submission.

24) Users manual mentions integration with WLAN and mobile services. This is not covered by this application. This information should be removed, corrected, or suggested as a future available options not yet available Given the nature of complexity of compliance issues involved around the architectures shown in the manual, mixing of licensed and unlicensed services (some of which are approved as a system), and yet undermined FCC consequences to such convergence – it would seem best to remove this information until approved.

User Manual provided by MobileAccess is to be removed from the submission.
This information has been removed in the SHU Installation manual as part of this submission, GE p/n 2028835-160.

25) Occupied Bandwidth (input/output) should normally be done with RBW appx but > 1% of the bandwidth. Please retest worse case from data provided.

Retested, report corrected and uploaded.

26) Please explain/document input drive levels as appropriate.

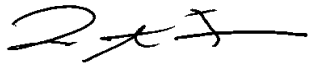
Input drive levels were varied during conducted power testing from +5 dBm to +17 dBm and output power was measured (using proper bandwidth). No discernible difference was noted across this range. Therefore, all testing was conducted at the input of the SHU with a level of 12 dBm (do not confuse with output power mentioned prior in this letter) from the GE AP unit.

27) Please provide out of band rejection data.

Added to report and Uploaded

Please contact me with any further questions.

Sincerely,



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