PHILIPS

Philips Medical Systems

To: Federal Communications Commission, Washington, DC 20554
Attention: Mr. Tim Harrington
Date: February 22, 2007
From: Barry Wyshogrod, Philips Medical Systems, Andover, MA
Subject: **Reply to Correspondence References 32270, 32271**
731 Application #EA596625 (PQC-MDL4851)

Dear Mr. Harrington and FCC Reviewers,

On 21-Dec-06, you e-mailed the following questions/requests. I will reply to each item individually:

Issue 1:

"If not in filing already, per FCC-DA-00-1407 please submit a Modular or Limited Modular Approval request cover letter."

Philips Medical Systems' response:
Philips Medical Systems is requesting Modular Approval for the MDL4851 device. In the cover letter of the original submission, dated 22-Nov-06, Philips requested equipment authorization for the MDL4851 device as a module. What follows are excerpts from that cover letter. I bolded the relevant items:

> *"Philips Medical Systems of Andover, Massachusetts hereby submits the enclosed application for Equipment Authorization under 47 CFR Part 15 for a wireless medical telemetry* ***module****, model MDL4851, with FCC ID PQC-MDL4851.*
>
> *This* ***module*** *incorporates the same radio technology and implementation as that used in two other Philips devices, PQC-4851 and PQC-4852.* ***This device differs in that it is modular, intended to be incorporated into certain Philips patient monitors****, thereby providing wireless communication to existing healthcare facility infrastructure.* ***The module complies with FCC Rules as a self-contained entity; it does not rely on external mounting or shielding or other input/output mechanisms to achieve compliance to Parts 15 of the FCC Rules. The device was designed in accordance with FCC Public Notice DA 00-1407, 26-Jun-2000, "Unlicensed Modular Transmitter Approval". The module is not being offered for sale as an OEM component. It is for incorporation into Philips Medical Systems products only.****"*

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Issue 2:

"Further to 1), test setup photos appear to show device in enclosure, differing from external photos, such that Limited Modular Approval may be appropriate - please explain or revise where appropriate."

Philips Medical Systems' response:
The reviewer is correct. The enclosure shown in the Test Setup does differ from that shown in the device External Photo, but this difference has no bearing on either technical performance or radio compliance.

Test Setup External Photo

The Test Setup removes all metal housing/mounting so as to "strip down" the MDL4851 module to its minimal construction for worst-case testing. This enabled Philips to qualify the device – as a module - in a minimal configuration. This provides maximum flexibility for the use of the module in various medical products. The enclosure shown in the Test Setup is plastic, used only to facilitate interconnections. It has no influence on the radio test results.

The External Photo shows a metal mounting topology used to install the module into specific Philips medical patient monitors. It only serves a mechanical purpose. It does not provide any radio shielding. It was not used in the compliance testing, and it is not used in all installations.

Issue 3:

"This application was filed under Eqpt Class TNT and rule part 90, however test report indicates testing to 15.247 which is either Eqpt Class DTS or DSS - please indicate which. We will change away from TNT, and in accordance with channels tested will list freqs 2401.056-2482.272."

Philips Medical Systems' response:
Based on a re-review of the classification definitions, the Equipment Class should be changed from TNT to DTS. The frequency range of 2401.056 - 2482.272 MHz is acceptable to Philips.

Issue 4:

"Present form 731 has 50mW output power, which is not consistent with test report - please advise for actual output power requested."

Philips Medical Systems' response:
The reviewer is correct. The conducted power output specification of 50 mW cited by Philips in Form 731 does differ from the measured values reported in Section 6.2.1 (Maximum Peak Conducted Output Power) of the Compliance Worldwide FCC Part 15 Test Report. However, this difference relates to the measurement technique employed. The Compliance Worldwide measurement is taken over a wider bandwidth of 1 MHz, whereas the Philips internal measurement, upon which our specification is based, is done using a narrower 100 kHz bandwidth. Please refer to Section 6.4.1 of the Test Report. Here you can see results which

align with Philips' internal measurements, as these measurements were done with the narrower bandwidth (~16 dBM, which falls within the Philips spec of 16-18 dBm / 40-63 mW).

In conclusion, the MDL4851 meets FCC limits. The difference in values relates to different measurement techniques. The Compliance Worldwide Test report also includes supporting evidence for the 50 mW conducted output power specification quoted by Philips (Section 6.4.1).

Issue 5:

"E-filing for 15C requires additional separate exhibits for Block Diagram and Test Setup Photos [2.1033(b)] - please submit these."

Philips Medical Systems' response:
Block Diagram:
As per 2.1033(b)(5), we submitted the Block Diagram & Operational Description with our initial submission of 22-Nov-06. However, I noticed that our document did not list the "frequencies of all oscillators in the device, including intermediate frequencies..." These details have now been added to the block diagram, and I am hereby submitting the revised Block Diagram and Operational Description as attachments for your review.

Test Setup Photos:
Photographs of the test setup used for radio compliance testing are included as part of the Compliance Worldwide Test Report, submitted in our initial submission of 22-Nov-06. Please refer to pages 29-32 of the 32-page report. In addition, I am hereby attaching a copy of these photos as the Test Setup Photos attachment.

Issue 6:

"If not in filing already, please provide info about both internal and external antenna(s) per 2.1033(b)(4), 2.1033(b)(7), 15.204(c), 15.204(c)(3)."

Philips Medical Systems' response:
The Philips MDL4851 module operates with one of two antennas:

1. Radiall/Larsen right angle dipole (Philips part #: M4842-61400).
2. Custom internal multi-band printed circuit board antenna (Philips part #: M8100-66490).

I hereby enclose technical specifications for both antennas as attachments to this correspondence (Operational Description: Radiall/Larsen Dipole Whip, Operational Description: Tri-Band)

The input impedance of both of these antennas is 50 ohms. The FCC Part 15 Test Report supplied with this submission reports results obtained with the Radiall/Larsen right angle dipole. In addition, an analysis was done to confirm that the gain and radiation pattern of the second, custom multi-band design is less than, or equal to that of the dipole. I am hereby supplying this analysis as an attachment to this correspondence (Operational Description: Antenna Equivalence).

Issue 7:

"If not in filing already, where appropriate per all subsections of 15.204(c), please provide test data for all antennas."

Philips Medical Systems' response:
Please refer to the information and data supplied for Issue 6 above.

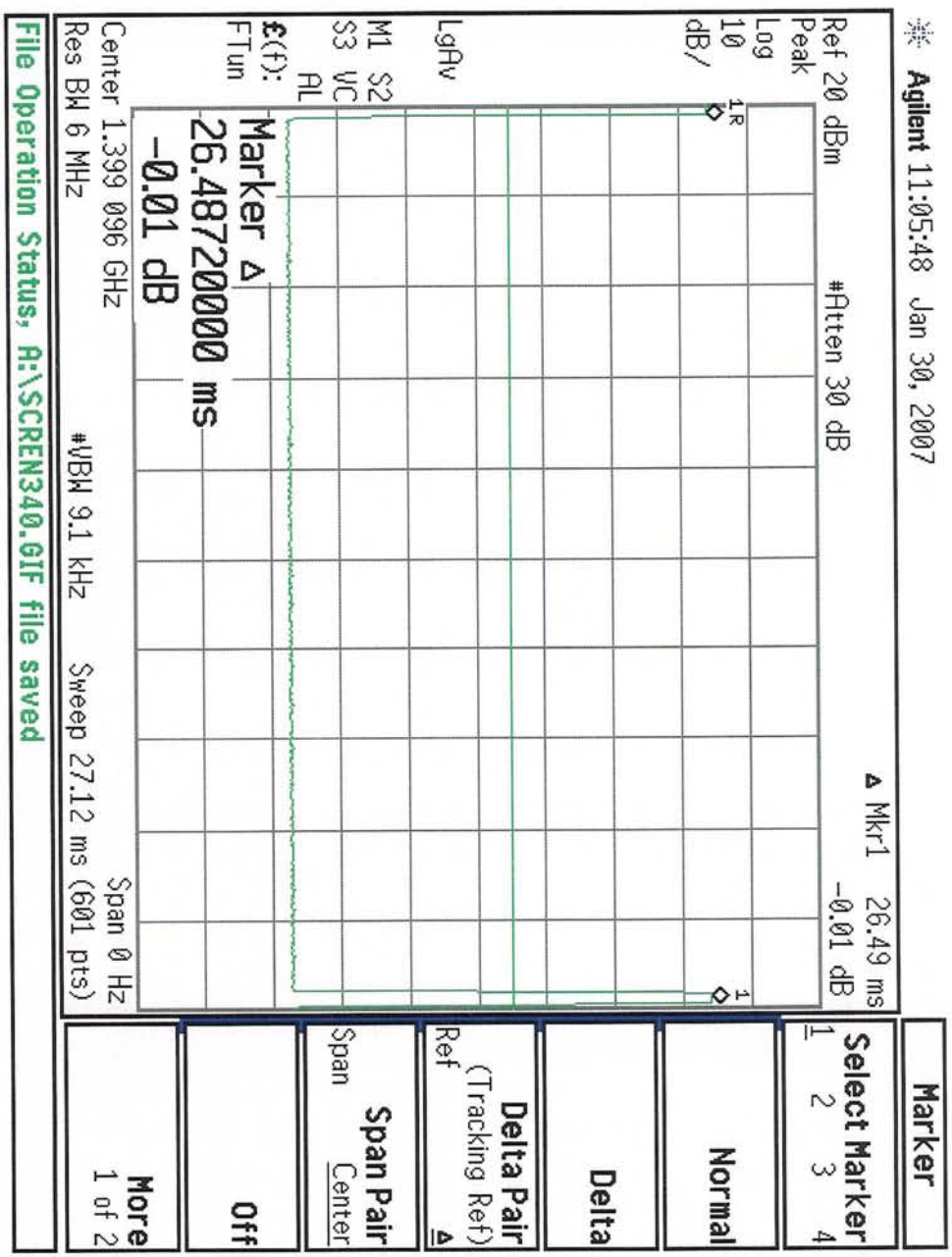
Issue 8:

"RF exposure exhibit says source-based time-averaged output is less than 1 mW - if not in filing already, please provide details how this power is derived, and provide details about how duty factor is established by device."

Philips Medical Systems' response:

The MDL4851 device is not transmitting all the time; rather it transmits for only 416 microseconds in each 26 millisecond period. This equates to a duty cycle of 1.6%. During the time that the device is transmitting, its peak radiated power emanating from the antenna is 32 milliwatts. 32 milliwatts with a duty cycle of 1.6% translates to an average power of 0.5 milliwatts. Therefore, the average time-based power output of this device is 0.5 milliwatts.

The following screen capture depicts the relative timing of the radio output of the device, as described above.



Thank you in advance for your continued consideration of our application. For any further issues, I can be reached at **(978) 659-7383** or by e-mail to: **barry.wyshogrod@philips.com**. If I am not available, please contact Ms. Zety Billard at **(978) 659-3603** or by e-mail to: zety.billard@philips.com.

Sincerely yours,

Barry Wyshogrod

Barry Wyshogrod
Regulatory Engineer