# Application for Limited Single-Modular Transmitter Grant

ZOLL FCC ID:  ZKP-DMC001
Grantee Code:   ZKP
Product Code:   DMC001
Model  #:        ZOLL E Series Data Comm Card

Application Date: October 25, 2011

ZOLL Applicant and Technical Contact: Don Paradis  (978-421-9608)

**Purpose:**
An application is hereby made for a Limited Single-Modular Transmitter grant in respect to a module bearing model # ZOLL E Series Data Comm Card. The reasons for application for this type of grant are explained further below. For brevity, throughout the remainder of this application, the term DCC may be used in lieu of ZOLL E Series Data Comm Card.

**Brief Description of Equipment:**
The ZOLL E Series Data Comm Card is a small wireless adapter that contains a Wi2Wi radio module, a companion high performance processor, FLASH memory and a limited number of other digital logic components, all enclosed in a metal and plastic enclosure. Refer to photo #1 to view a DCC. The radio operates in the 2.4 GHz. range and meets the protocol requirements for Bluetooth Class 2 and WiFi 802.11b & g. The DCC has been designed exclusively to be installed into a ZOLL E Series unit (the host) and cannot be fitted or retrofitted into other ZOLL products due to physical and software incompatibilities. Refer to photo #2 to view an E Series unit and where a DCC is installed into an E Series.

**Reasons for Application:**
Pursuant to Part 15, Subpart C, Section 15.212, Subsection (b), approval may be granted for a single modular transmitter  that does not comply with all of the requirements stated in Part 15, Subpart C, Section 15.212, subject to the conditions as described in Subsection (b). Presented directly below are separate itemized lists for those requirements that are satisfied and for those requirements that are not satisfied. The section numbers used in the itemized lists follow the section numbers used in Section 15.212 and include only a brief summarized description of the particular section.

List of Requirements that are satisfied:

(ii) This section relates to buffered modulation/data inputs. The ZOLL E Series Data Comm Card (DCC) has its own companion high performance processor that directly controls the radio element. The E Series unit (the host) does not have any control of the radio element. The data interface between the DCC and the E Series is buffered via digital logic devices and via software. Data that are passed from the E Series to the DCC have embedded coding information specific to ZOLL specifications. The DCC decodes this information (accomplished by digital logic devices) to ascertain how to handle the information. The data are then passed onto the DCC companion processor for verification, and if the data are valid, it is passed to the radio element.

(iv) The antennae are permanently attached. Refer to photo #3.

(vi) The modular transmitter does have a permanently affixed label. Refer to photo #1.

(vii) The ZOLL E Series Data Comm Card can only be used in a ZOLL E Series unit. The DCC inserts into a dual slot PCMCIA housing contained within the ZOLL E Series unit. ZOLL has no other products with a dual slot PCMCIA housing, and therefore it is impossible for an end user to inadvertently install a DCC into any other ZOLL product other than an E Series unit. Printed instructions are included with the DCC illustrating the proper installation procedure and describing various operating conditions. The instruction document is included with this application.

(viii) The ZOLL E Series Data Comm Card meets RF exposure requirements and a separate exhibit has been submitted by Intertek.

List of Requirements that are not satisfied:

(.i) The radio element does have its own shield (refer to photo #4); however, once the DCC is installed into a ZOLL E Series unit, the overall shielding structure becomes much more complex. Specifically, the E Series plastic outer cases have a very low impedance material coated onto all inside surfaces of the cases. There are also metal structures contained within the E Series that can behave as shields; for example, the PCMCIA housing that the DCC inserts into is constructed of metal and significantly surrounds the DCC once installed. As another example, situated approximately one inch behind the E Series front panel, and a few inches in front of the DCC, is a metal plate that is nearly equal in width and height to the outer dimensions of the E Series. All of these metal E Series structures, plus others contained within the E Series, share a common connection to ground. Additionally, the shield that covers the radio element is tied to ground and therefore is tied to this same common connection. Therefore, once a DCC is installed into an E Series, the numerous adjacent metal surfaces surrounding the DCC, some of which are vertical and others horizontal relative to the

DCC, create an entirely different operating environment versus a free standing DCC.

(iii) The DCC does not contain its own power supply and obtains all of its power only once installed into a ZOLL E Series unit. The DCC has specific requirements related to voltage, polarity, tolerance and current protection which it obtains from the E Series unit. However, the radio element itself and its companion processor do have their own power regulators.

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Signature and date : _Alan Parabis 10-26-11_

Photo # 1: Showing front of ZOLL E Series Data Comm Card and label.

Photo #2: Showing front of E Series and location of ZOLL E Series Data Comm Card.

Photo #3. Showing antennae, which are located at top right and top left corners of the PCB.
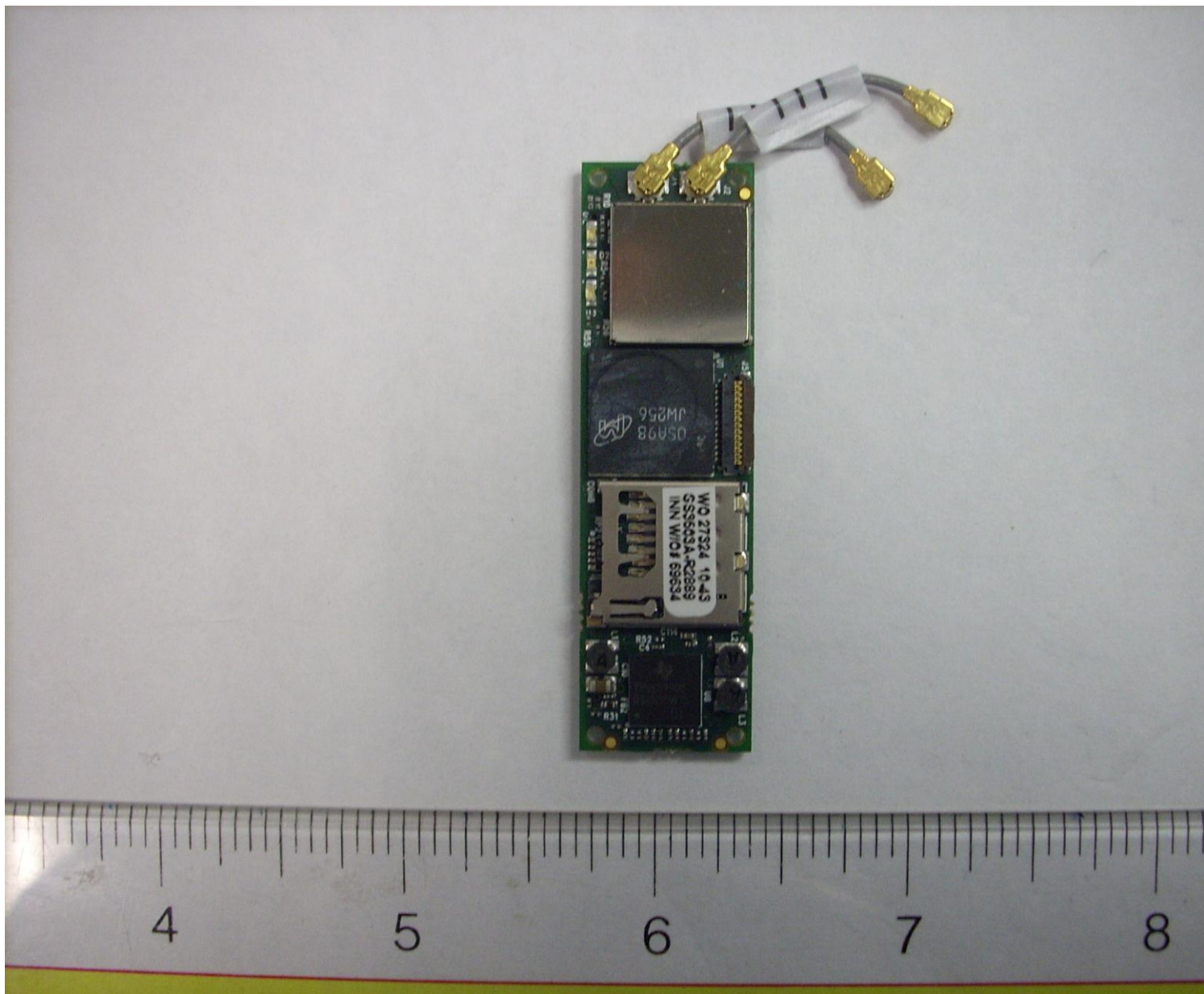
Photo #4. Showing radio element (covered by metal shield) and companion processor.

# E Series® Data Comm

## PRODUCT DESCRIPTION

**Data Comm** is an accessory card that plugs into the PCMCIA data card (rear most) slot on the E Series® defibrillator/monitor and provides case data storage and upload services. Data is transmitted to remote data management systems, such as RescueNet® ePCR, via the IEEE 802.11b/g (Wi-Fi) protocol. The Data Comm card is operational when the E Series is in a clinical operating mode and configured to record data to the PCMCIA data card. Data storage and transmission stops when the CARD FULL message is displayed on the E Series screen.

## GETTING STARTED

The Data Comm card provides storage of all E Series data currently written to the PCMCIA data card (based on unit configuration) with the exception of audio data. Data may be retrieved or erased manually by the user when the E Series system is in System Utilities Mode (see Appendix B of the Series Operator's Guide, P/N 9650-1210-01).

When the Data Comm card is installed in the E Series, the following E Series configuration options will automatically be set as shown below (see the E Series Configuration Guide, P/N 9650-1201-01):

| | |
|---|---|
| REPORT MEMORY CARD ERRORS | YES |
| CARD CAPACITY MESSAGE ENABLED | YES |
| REMOVE CARD PROMPT AT PWR OFF | NO |

Communication with the Data Comm card is established by the receiving data management system (such as RescueNet ePCR). See the appropriate receiving system documentation for instructions on establishing the connection between the Data Comm card and the receiving system.

**The Data Comm card is compatible with E Series units containing software version 7.44.000 or higher.**

## SYMBOLS USED

⚠️      Attention, consult accompany documents.

📖      Follow operator instructions.

🏭      Manufacturer.

REF      Catalogue Number

SN      Serial Number

(((•)))      Nonionizing electromagnetic radiation.

🗑️      Return to a collection site intended for waste electrical and electronic equipment (WEEE). Do not dispose of in unsorted trash.

IP32      Protected against ingress of solid foreign objects ≥ 2.5mm in diameter. Protected against dripping water when installed as shown in Figure 2.

## WARNINGS

- The Data Comm card is not a hot-swappable device. The E Series should be powered down and AC power removed prior to removing and/or inserting the card.
- The Data Comm card will stop recording data when the CARD FULL message is displayed on the E Series.
- Up to 16MB of data may be stored in memory before the CARD FULL message is displayed. Erasing the memory on a regular basis is recommended in order to prevent interruption of data storage and transmission during subsequent uses. **Note:** As a rule of thumb, the E Series stores approximately 4MB of data for each hour of operation (when audio recording is not activated) if configured to store all physiological data.
- The Data Comm card will stop transmitting data to external systems when the CARD FULL message is displayed on the E Series.
- Transmission of audio recording data, to a remote data management system, is not supported.
- The Data Comm card is protected against dripping water when installed as shown in Figure 2. The Data Comm card will stop recording and transmitting data if exposed to extensive moisture.
- Do not subject the Data Comm card to extreme temperatures.

- Do not place heavy objects on the Data Comm card. Protect the connector located on the Data Comm card from physical damage.
- Do not use alcohol or ketones on the Data Comm card as these fluids may damage the device.
- The Data Comm card uses one or more radio transmitters for communicating with remote data management systems. While this card has demonstrated EMC compliance when used as designed with the E Series, there is no guarantee that interference will not occur in a particular installation. Transmissions from these radios may interfere with other electronic medical equipment used within the ambulance. Before using the Data Comm card for the first time, ensure that the performance of other patient care devices is not compromised by interference from Data Comm radio transmissions.
- The Data Comm card is a non-serviceable/repairable item. Please contact ZOLL® Medical Corporation for assistance. (See the E Series Operator's Guide for current contact information.)

## INSTALLATION

The existing rubber cover, PCMCIA data cards and modem cards must be removed (see Figure 1 below). Carefully remove the paper backing strip from the adhesive gasket. (**Note:** The adhesive is extremely sticky and will be difficult to reposition once applied.) Align the gasket with the top surface of the card slot and the screw holes for the modem bracket as shown in Figure 2 below and press the gasket in place. The Data Comm card is then installed in the rear most card slot on the E Series when facing the front of the device (see Figure 2 below). Make sure the Data Comm card is fully seated in the card slot. The new rubber cover is then fit down over the top of the Data Comm until it is firmly in place. Two screws, with washers, are used to secure the rubber cover to the top of the E Series.
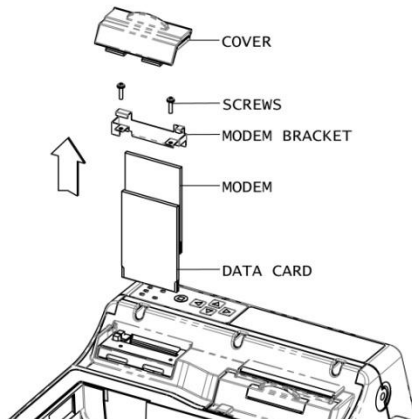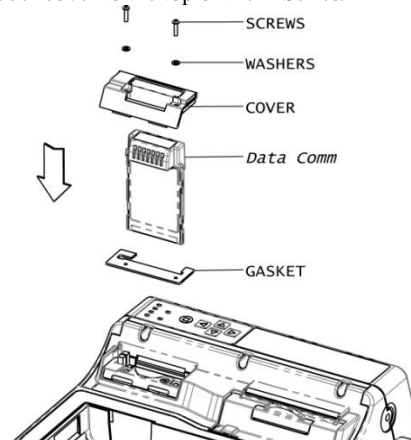
Figure 1

Figure 2

## COMPLIANCE INFORMATION

The Data Comm card generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with these instructions, may cause harmful interference to radio communications. While this card has demonstrated EMC compliance when used as designed with the E Series, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio reception, you are encouraged to relocate the E Series away from the radio. This device has been tested and found to comply with the following standards:

- Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation (of the radio function).

- RSS 210 of Industry & Science Canada. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation (of the radio function).

## SOFTWARE LICENSE

Certain software components (referred to herein as "Open Source Components") that are used by the E Series Data Comm card are licensed by ZOLL Medical Corporation (referred to herein as "ZOLL Medical") under various open source license agreements. As required by the terms of these open source license agreements, ZOLL Medical offers to make the source code corresponding to the Open Source Components, and any ZOLL Medical modifications thereof, available upon request.

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