

Overview of IEEE 1073.0.1.1 / ISO 11073.0.1.1: "Draft Guide for Health informatics – Point-of-care medical device communication – Technical report – Guidelines for the use of RF wireless technology"

Joe Morrissey

Motorola, 8000 West Sunrise Blvd, Plantation, Florida 33322 (e-mail: ejm037@motorola.com)

ABSTRACT

The IEEE 1073.0.1.1 / ISO 11073.0.1.1 Technical Report provides an overview and analysis of the issues related to the use of radio frequency (RF) wireless technology for the transport of data both to and from point-of-care (PoC) medical devices. Currently, several different RF wireless technologies exist that might be applicable, each with different capabilities, stages of maturity in terms of standardization, and active implementation in medical devices and healthcare facilities. It is recognized that RF technologies are rapidly evolving, and new options may become available (or sufficiently established) in the near future offering additional (perhaps superior) solutions for PoC medical device data transport needs. Therefore, the IEEE 1073.0.1.1 / ISO 11073.0.1.1 Technical Report avoids being overly prescriptive but instead aims to assist end users in identifying the necessary requirements and considerations to select an appropriate RF wireless technology solution. Guidance is offered with the objective of allowing medical device manufacturers, wireless equipment manufacturers, healthcare providers, government agencies and any other end-user to make reasonable judgments regarding the performance and practical implementation of wireless solutions. The Technical Report outlines specific exercises using summarized use case scenarios to estimate, compare, and contrast the performance of known technologies operating on personal area (WPAN), local area (WLAN), metropolitan area (WMAN), and wide area (WWAN) networks. Major considerations in these exercises are 1) the physical requirements of data transport, 2) the quality of service (QoS) requirements associated with the data being transported, and 3) the capabilities of the wireless system. Also considered are related issues such as network architecture, EMI/EMC, co-existence with other data streams, security, cost, power consumption, and technology configurability. Such comparisons are not necessarily intended to endorse an optimal solution, because widely different needs, resources, sizes, and environments associated with healthcare facilities may have a large influence on determining appropriate solutions. The Technical Report is considered an overview document, and is planned to spawn follow-on standardization projects that profile existing off-the-shelf RF wireless technologies for use in medical equipment. It is anticipated that such standards would be similarly applicable to PoC interfaces as are the current IEEE 1073 transports.