

Medical device tagging with PJM RFID

A global medical device manufacturer successfully utilized passive HF RFID to accurately identify and track their orthopedic implant kits

R RFID has many established applications within multiple industries, and the healthcare sector has been no exception in acknowledging the opportunities offered by the technology and particularly the broad scale applications that exist for low cost passive (non-battery powered) RFID. While most column inches have been given over to the discussion of pharmaceutical item level tagging, a number of pioneering market leading manufacturers of medical devices have been quick to seize the chance to re-engineer

their business processes around RFID to improve patient care whilst also extending their competitive advantage.

One global medical device manufacturer has publicly released information explaining its decision to move forward with the global rollout of item level RFID and its selection of ISO standard High Frequency passive Phase Jitter Modulation

(PJM) RFID provided by Magellan Technology and their technology partners. Their case for deploying PJM RFID contains many of the characteristics common to most critical and/or high value implant device supply chain processes, an initial starting point for the item level tagging of most medical device manufacturers.

Tracking orthopedic implants

To understand why medical device manufacturers have chosen to tackle orthopedic implants it is necessary to understand the basics of the supply chain parameters.

Firstly, individual orthopedic implants form part of a kit supplied to the hospital or clinic operation room. Most of these medical devices are highly valuable and/or critical to a successful operation. 100% item picking accuracy in preparing a kit for an operation is a mandatory process requirement. The kitting process is carried out with care, ensuring that the items are easily visible so as to facilitate predispatch and receipt quality checks. Significantly there is not sufficient time available to barcode scan the numerous items within a kit when the kit is prepared for an orthopedic emergency, nor at any point in the process prior to dispatch to the hospital or clinic.

Many of the items within the orthopedic kits are returned with as little as 3% being consumed. One medical manufacturer alone reports that as many as 970,000 items from orthopedic kits can be expected to be returned in any one year alone. Returned items are frequently no longer in the same carefully prepared order when the kit was first dispatched from the manufacturer, resulting in lost time and additional costs in sorting and identification prior to the items being placed back into stock. As a result of the returns process, the cost and levels of supply chain and particularly manufacturer inventory increases significantly.

Four principle drivers have led medical device manufacturers to

100% item picking accuracy in preparing medical kits for operations is essential, hence one manufacturer's decision to track orthopedic implants



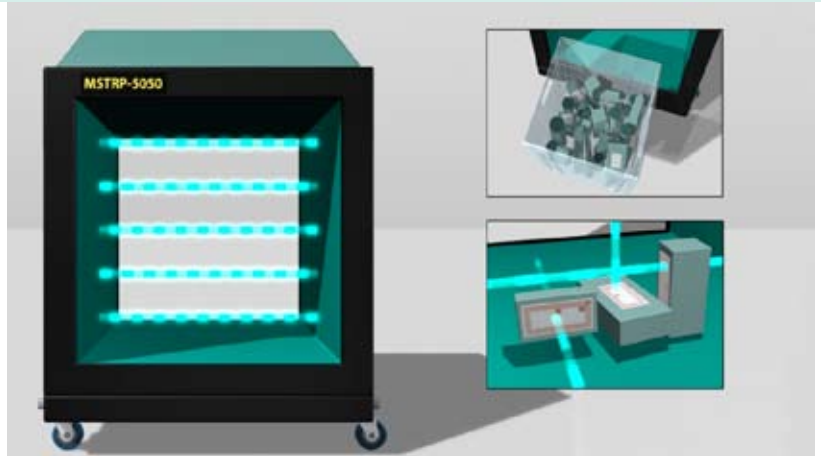
With PJM RFID a kit of orthopedic devices can be identified with each item read individually in split seconds - visibly quicker than other low cost RFID tag

consider the RFID item tagging of orthopedic implants: bullet proof reliable accuracy; lightening like speed of identification; non line-of-sight identification; and hands-free automation. But not all RFID is the same, not even within the arena of passive (non- battery powered) tags. Medical device manufacturers rolling out PJM RFID have studied the RFID market and many have tested and become very familiar with numerous RFID products. So why have they selected PJM RFID?

Why PJM RFID?

Unlike other RFID tags, PJM RFID tags continue to work even when in direct contact with one another, providing reliable and robust accuracy even for returns processes where items are packed for shipping with less care. These tags are also the least sensitive to orientation or

positioning on the item, again reinforcing dependability during both the outbound and the technology challenging returns processes. PJM RFID is the fastest RFID air interface protocol meaning that process speeds can be maximized at all process locations whether reading or encoding a tag identification number or additional data. An entire kit of orthopedic devices can be identified with each item being read individually in split seconds, visibly quicker than any other low cost RFID tag. Off the shelf production line manufactured PJM RFID reader tunnels are compact and yet very well shielded from other radio interference meaning that installation requires the very minimum of preparation, certainly well within the capabilities of most technically orientated people. PJM RFID operates at a frequency that offers



PJM RFID reader tunnels. One manufacturer reports that they have not recorded a single orthopedic implant error since introducing PJM RFID on all their orthopedic items

globally accessible full performance, an essential factor if hospitals and other critical supply chain partners around the world are to be equipped with PJM RFID too.

The business benefits

It is very easy to get overwhelmed by the technology and lose sight of the business goals and objectives originally set out. RFID is no exception in this sense. So in what respect has PJM RFID brought about measurable business improvements?

One world-leading medical device manufacturer has reported that they have not recorded a single orthopedic implant error since introducing PJM RFID on all their orthopedic items many months ago. Closed and sealed boxes containing the kitted items have all their items identified and verified against the kit list. Identifying the kitted items within sealed boxes improves the integrity of the kit as open boxes can easily have items removed from them to replenish other emergency

kits. This also applies to emergency trauma implant sets, even when such kits have to be prepared within minutes of the request being received. Inventory record accuracy has improved particularly due to the fact that missing items from returned kits can be identified extremely quickly, dramatically increasing the chances of their recovery and safe return to the hospital as a consequence. A 4.4% saving in inventory has been achieved due to faster inventory turns. Serializing of the identification number encoded by the manufacturer within the PJM RFID tag has helped the manufacturer reconcile each item with each kit during kit preparation. When items are returned there is an immediate match possible to identify medical devices which have been retained by the hospital or clinic and with a quick manual verification to understand the true availability of critical and costly inventory.

Refreshingly there are no mandates involved in this, one of the largest global rollouts of low cost passive RFID. This ISO standard PJM RFID-based deployment is driven by supply chain improvements in patient

care and business driven ROI based on improving process responsiveness, control, accuracy and all this in a cost-efficient way.

Phase Jitter Modulation: The basics

Phase Jitter Modulation RFID technology is optimized for applications where many hundreds of tags are stacked tightly or need to be identified reliably in dynamic situations such as pharmaceutical authentication, document control, jewelry tracking and gaming management. The technology is also optimized for conveyor fed applications where tags are presented in all orientations. Typical applications are the airline baggage, postal and courier markets. PJM complies with the International Standard ISO/IEC 18000 Part 3 Mode 2.

Further information is available at www.magellan-technology.com.