



PERFIT RFID Version 2

Case Study

PERFIT reached out to IBC to find a suitable solution for printing RFID labels and applying to synthetic and metal substrates, ideally utilizing a single printer format for savings on asset purchase requirements and using up to 30,000 labels per annum. Ideal test scan distance should be in 2-3' range, although testing will be subject to RFID readers available on hand.

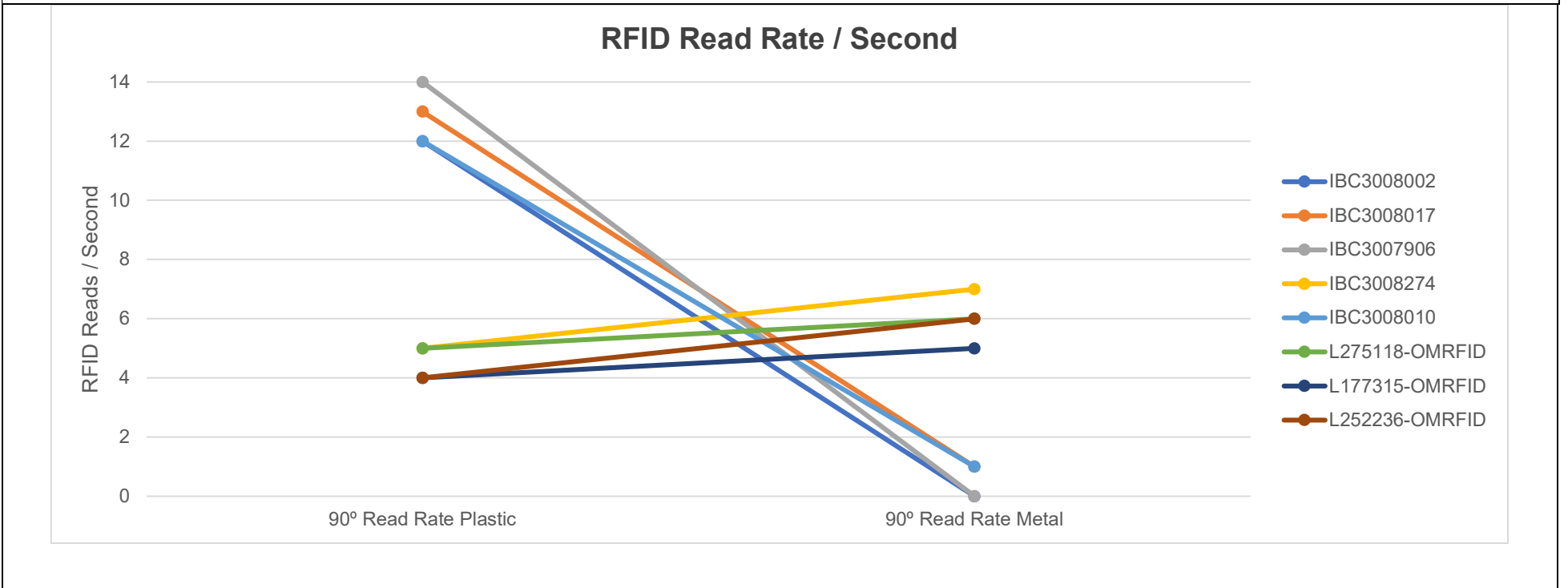
RFID Chip Test

Test Parameters:

Date Conducted: 05/24/22 0800-1100bx
 Location: Penticton BC Canada
 Weather: 15°C - 47% Humidity
 Ambient Temperature: 20°C – 25% Humidity
 Environment: Conference room free of items within 16' Radius that may cause RF or Wireless interference.

Reader: Static Handheld RFID Reader in 865-868Mhz or 920-920Mhz designed for short range portable RFID reading, with average RFID read distance 2'-5'.
 Read: All RFID reads were completed at 90° horizontally and 95° vertically from RFID Chip mounted on exterior of container closest to RFID Reader.
 Expectations: Standard acceptable read rates are 5 + scans / second.

Results





Results (Continued)													
Part #	Dimensions	Notes	RFID Printer	Frequency Band	Certified on Metal	Test On Plastic				Test On Metal			
						Scan Distance	90° Read Rate	Max Scan Distance	Pass / Fail	Scan Distance	90° Read Rate	Max Scan Distance	Pass / Fail
IBC3008002	2.875" x .5"		Desktop & Industrial	860-960Mhz UHF	No	3'	12 / second	6'	Pass	1'	0 / second	0'	Fail
IBC3008017	1.75" x .6875"				No		13 / second	5'	Pass	3'	1 / second	1'	Fail
IBC3007906	3.8125" x .5625"				No		14 / second	8'	Pass	1'	0 / second	0'	Fail
IBC3008274	1.6875" x .9375"				Yes		5 / second	3'	Pass	3'	7 / second	4'	Pass
IBC3008010	2.875" x .6875"				No		12 / second	8'	Pass	3'	1 / second	3'	Fail
L275118-OMRFID	2.75" x 1.875"	Foam Backed for On Metal	On-Metal Industrial	902-928MHz UHF	Yes		5 / second	4'	Pass	3'	6 / second	4'	Pass
L177315-OMRFID	1.77" x .315"	Foam Backed for On Metal	On-Metal Industrial	902-928MHz UHF	Yes		4 / second	3'	Pass	3'	5 / second	3'	Pass
L252236-OMRFID	2.52" x .236"	Foam Backed for On Metal	On-Metal Industrial	902-928MHz UHF	Yes		4 / second	3'	Pass	3'	6 / second	3'	Pass

Recommendations:

With L275118 dimensions extending above the top of the container, it is for this reason that an alternative be utilized. Other RFID inlays have exceptional on plastic RFID read ranges but see significant degradation in both read rate and scan distance when applied to metal substrates. The optimized solution from an asset purchase requirement perspective, would be to utilize IBC3008274 for both substrates; although, the flag portion extending above the container (reference L275118 picture), may be difficult with further packaging / material handling downstream. Utilizing separate printers wouldn't alleviate the read requirements to be on separate substrates, and would also require a custom foam backed on metal RFID label that has tooling, setup and minimum quantities closer to 750,000 labels which is unfeasible given the current quantities expected. In addition, separate printers would be required that would be cost prohibitive given the project scope.

Additional RFID Labels L177315-OMRFID and L252236-OMRFID meet the dimension constraints of the container and still have reasonably acceptable read range on both plastic and metal. Both labels are foam backed and have wings that extend from the edge of both sides of the label to give additional standoff from the cylinder they are applied to for additional scan distance. Both are compatible only with industrial printers but would be cross compatible across the substrates the labels would be applied to.