



Introduction

This document describes the Smart Label Solutions **SLS3050** inlay. The SLS3050 inlay is optimized for use with Monza R6 RFID tag chips and is available as either a wet (adhesive backing) or dry (no adhesive backing) product. It is a high-performance inlay for operation across all worldwide RFID frequency bands on all dielectric loading materials.

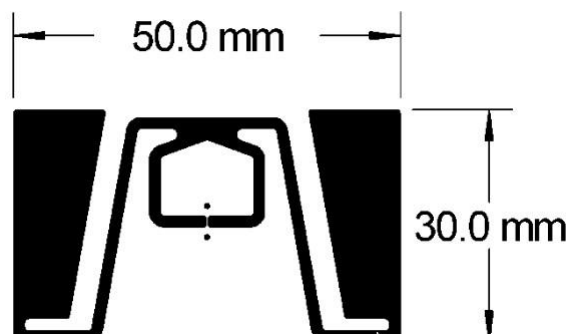


Figure 1: SLS3050 Inlay Dimensions

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Specifications

Table 1: Specifications

| Parameter | |
|--------------------|-----------------------|
| Inlay Designation | SLS3050 |
| Chip Compatibility | Impinj Monza R6, R6-P |
| EPC Memory Bank | 96 Bits, 128 bits |
| User Memory | None, 64 bits |

Performance

Samples of tags fabricated using the SLS3050 inlay were characterized in the Impinj anechoic chamber under well-controlled conditions. Tags were applied to materials that are consistent, commonly available, and which have electrical characteristics that correlate well with loading effects the tags may encounter in a typical deployment. The typical expected read range across frequency is plotted for the conditions of light, medium, and heavy dielectric loading.

Smart Label Solutions - SLS3050 Inlay Data Sheet

Test Materials

- FS: Styrofoam block
- CB: corrugated cardboard box
- PL15: thin plastic (1.5 mm thick LDPE); McMaster-Carr® Part #8657K111
- PL30: thick plastic (3 mm thick HDPE), McMaster-Carr® Part #8657K112
- Jeans: denim jeans
- Books: notebook, National® Brand chemistry notebook item No. 43-571

Note:

1. Lower sensitivity number indicates greater tag sensitivity.
2. The plots illustrate typical frequency responses. The responses may shift depending on inlay material selection and assembly parameters.

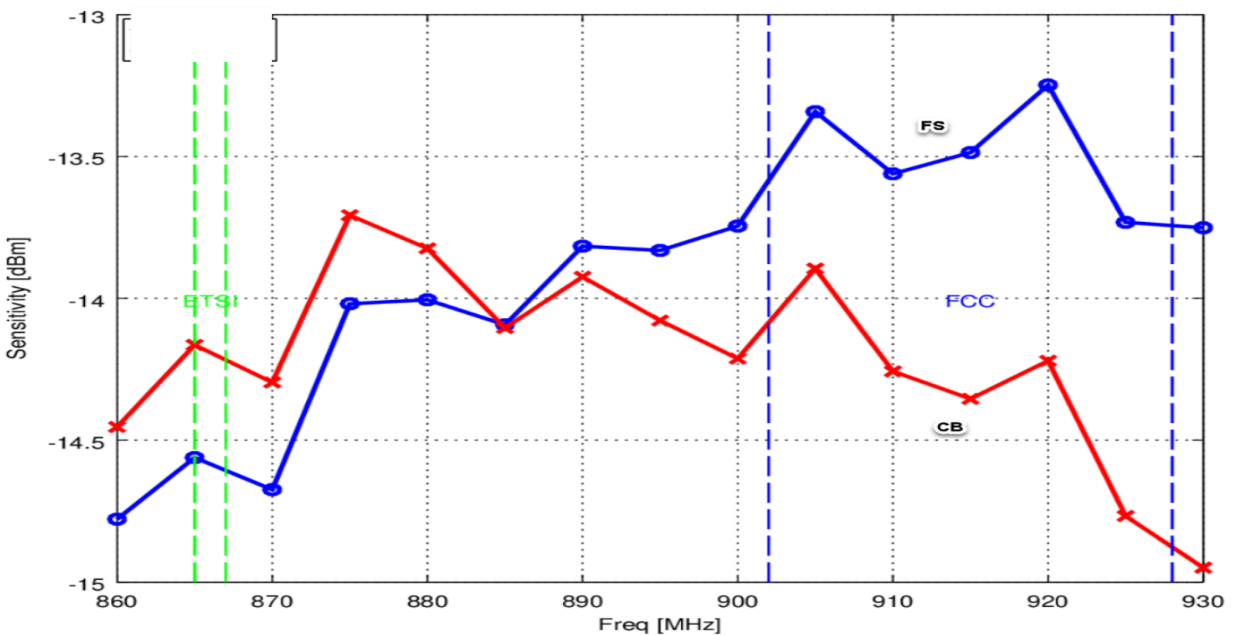


Figure 2: Sensitivity of SLS3050 tag applied to lightly loading materials

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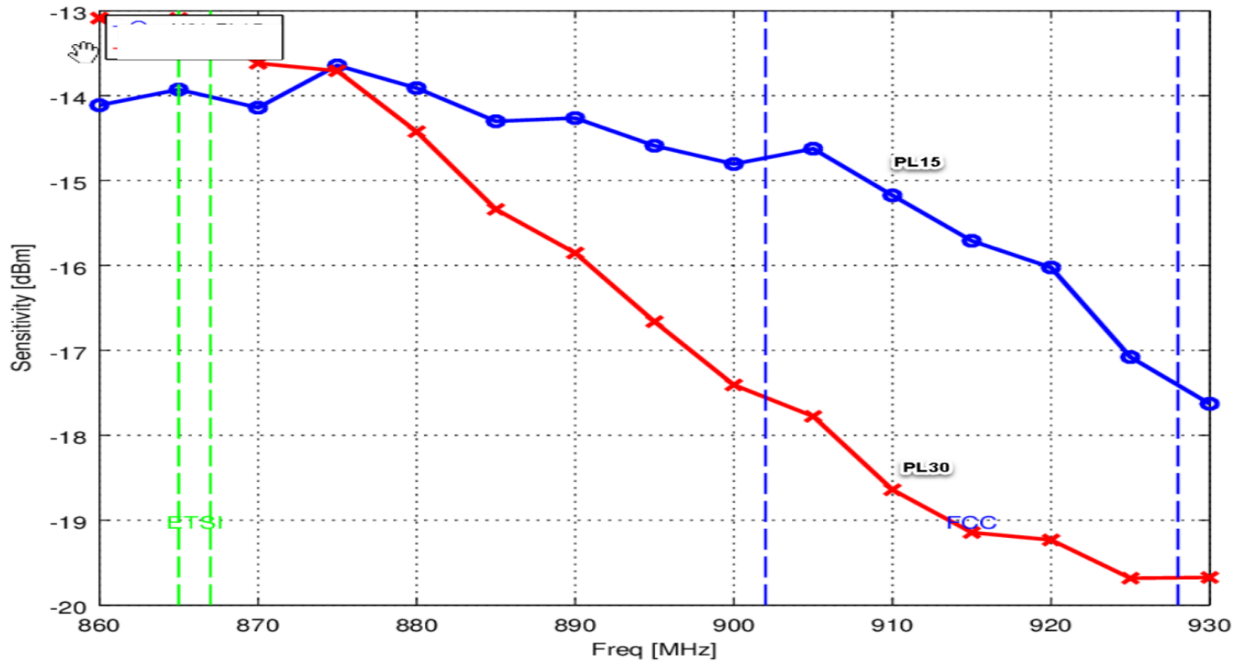


Figure 3: Sensitivity of SLS3050 tag applied to medium-loading materials

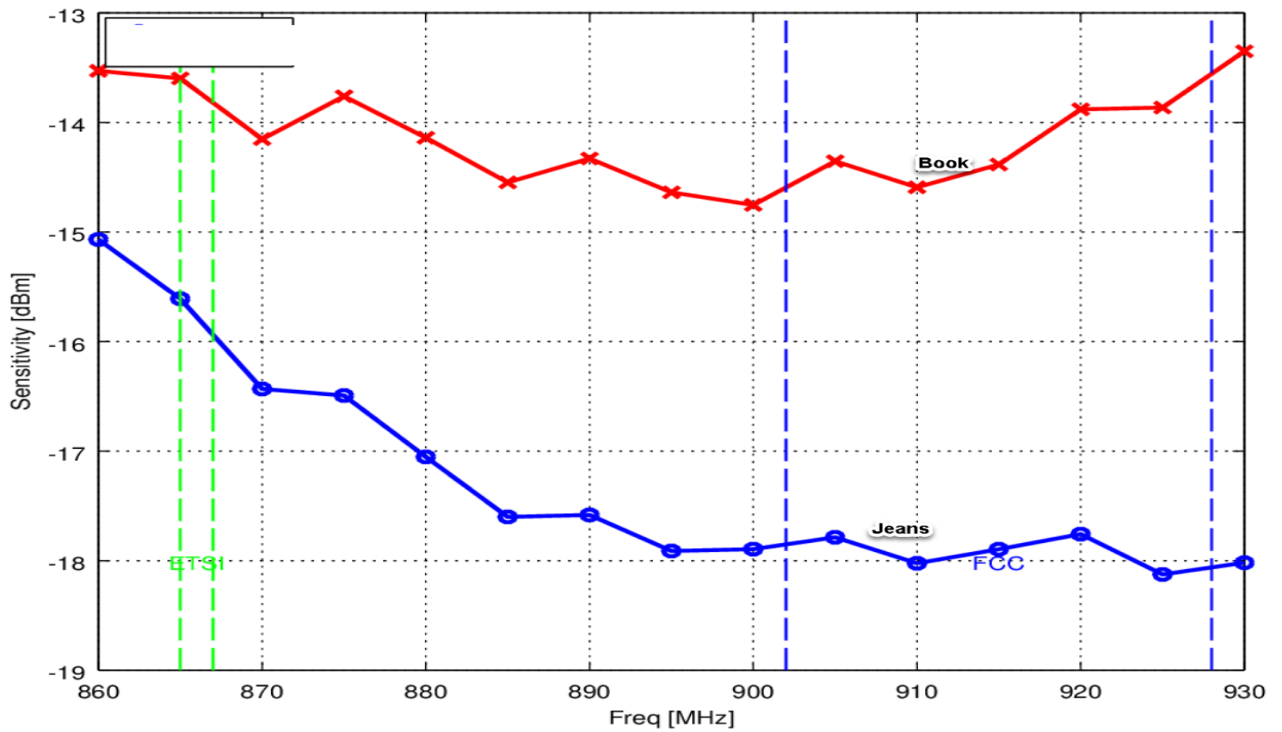


Figure 4: Sensitivity of SLS3050 tag applied to heavily loading material

Smart Label Solutions - SLS3050 Inlay Data Sheet

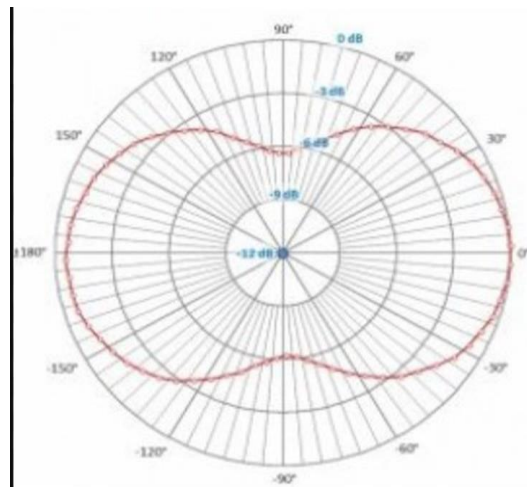
Table 1: Sensitivity to read range conversion table

| ETSI - 867 MHz | | | | | | | | | | | |
|-------------------|-------|-------|-------|------|------|------|------|------|------|------|------|
| Sensitivity [dBm] | -20 | -18 | -16 | -14 | -12 | -10 | -8 | -6 | -4 | -2 | 0 |
| Read Range [m] | 15.85 | 12.59 | 10.00 | 7.94 | 6.31 | 5.01 | 3.98 | 3.16 | 2.51 | 1.99 | 1.58 |

| FCC Low - 902 MHz | | | | | | | | | | | |
|-------------------|-------|-------|-------|------|------|------|------|------|------|------|------|
| Sensitivity [dBm] | -20 | -18 | -16 | -14 | -12 | -10 | -8 | -6 | -4 | -2 | 0 |
| Read Range [m] | 16.70 | 13.26 | 10.54 | 8.37 | 6.65 | 5.28 | 4.19 | 3.33 | 2.65 | 2.10 | 1.67 |

| FCC High - 928 MHz | | | | | | | | | | | |
|--------------------|-------|-------|-------|------|------|------|------|------|------|------|------|
| Sensitivity [dBm] | -20 | -18 | -16 | -14 | -12 | -10 | -8 | -6 | -4 | -2 | 0 |
| Read Range [m] | 16.23 | 12.89 | 10.24 | 8.14 | 6.46 | 5.13 | 4.08 | 3.24 | 2.57 | 2.04 | 1.62 |

Angular Sensitivity



Angular Sensitivity
(Relative Read Range vs. Orientation)
NOTE: NO NULLS

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