

Indy RS500-EU and RS2000-1 ETSI Compliance Plots

1 Introduction

The Indy RS500-EU and RS2000-1 SiP SKUs are designed to operate in ETSI regions by using an ETSI SAW filter as well as user-selectable frequency tables.

Impinj tests the RS500-EU and RS2000-1 hardware at manufacturing to determine ETSI compliance, and failing units are scrapped. Impinj also tests the application firmware images with each release to ensure that they meet ETSI regulations.

Because the RS500-EU and RS2000-1 are mere electronic components, and not full RFID systems including an antenna, they are not eligible for ETSI certification. RS500-EU and RS2000-1 can only be ETSI certified as part of a larger RFID system.

However, to demonstrate that RS500-EU and RS2000-1 can achieve ETSI certification, Impinj has generated the plots shown in this document.



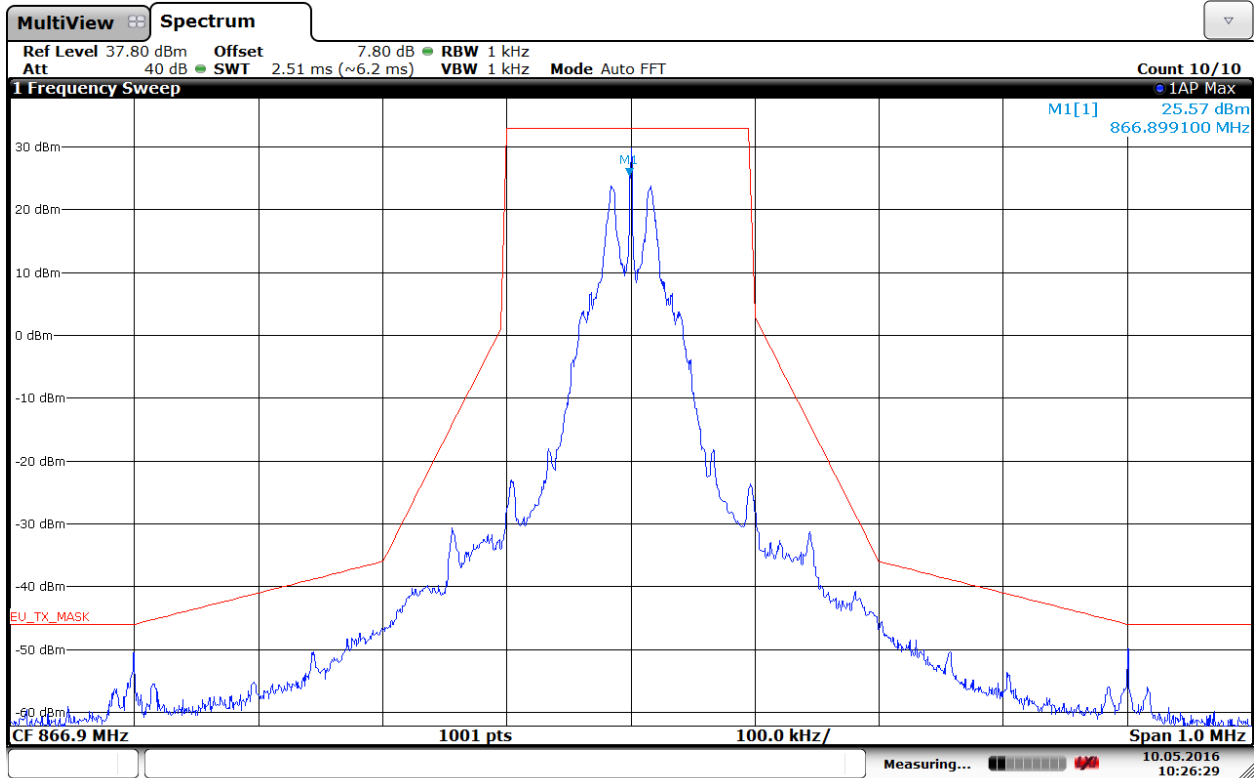
2 Spectral Plots

2.1 RS500-EU Plot

Shown in Figure 2-1 and Figure 2-2 are two plots demonstrating RS500-EU's ETSI compliance when configured for both query rep pulses and random data modulation.

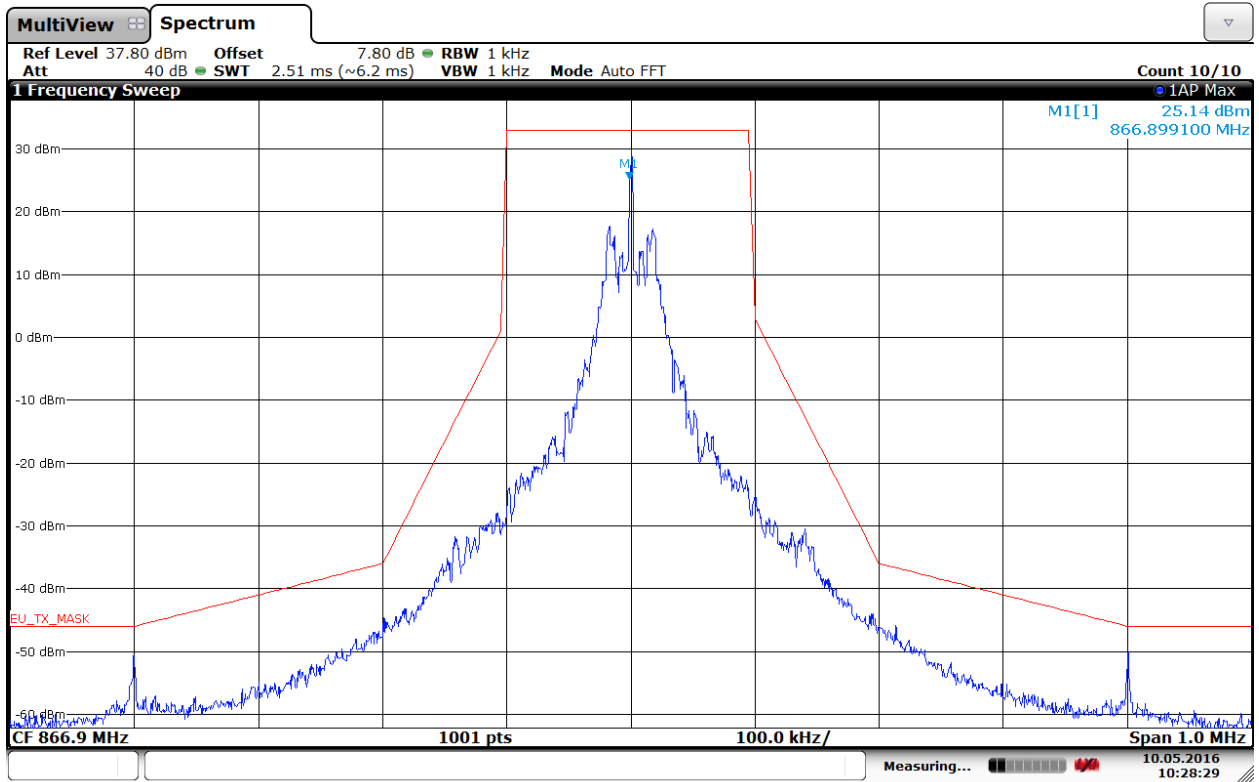
Details on the configurations used for the plots are shown in section 3 - Test Setup.

Figure 2-1 – RS500-EU 23 dBm +6 dB 50-10 Random Data Spectral Plot



Date: 10.MAY.2016 10:26:29

Figure 2-2 – RS500-EU 23 dBm +6 dB 50-10 Query-Rep Pulse Spectral Plot



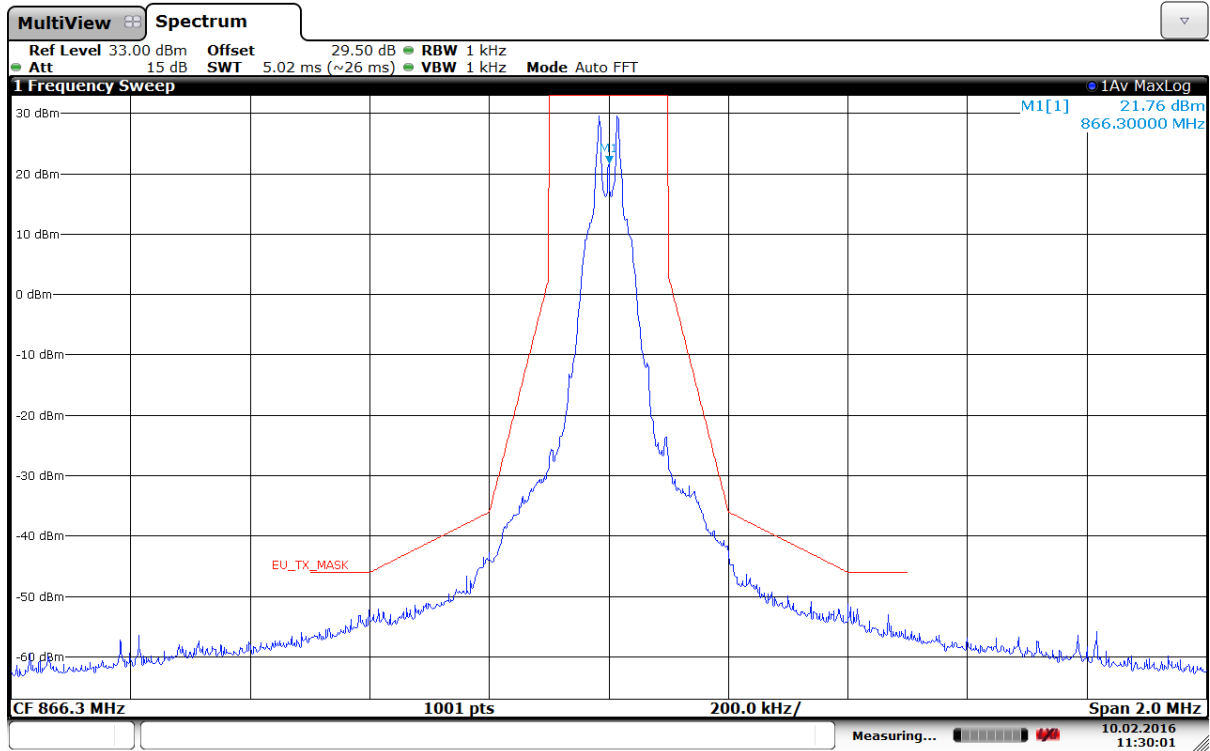
Date: 10.MAY.2016 10:28:29

2.2 RS2000-1 Plot

Shown in Figure 2-3 and Figure 2-4 are two plots demonstrating RS2000-1's ETSI compliance when configured for both query rep pulses and random data modulation.

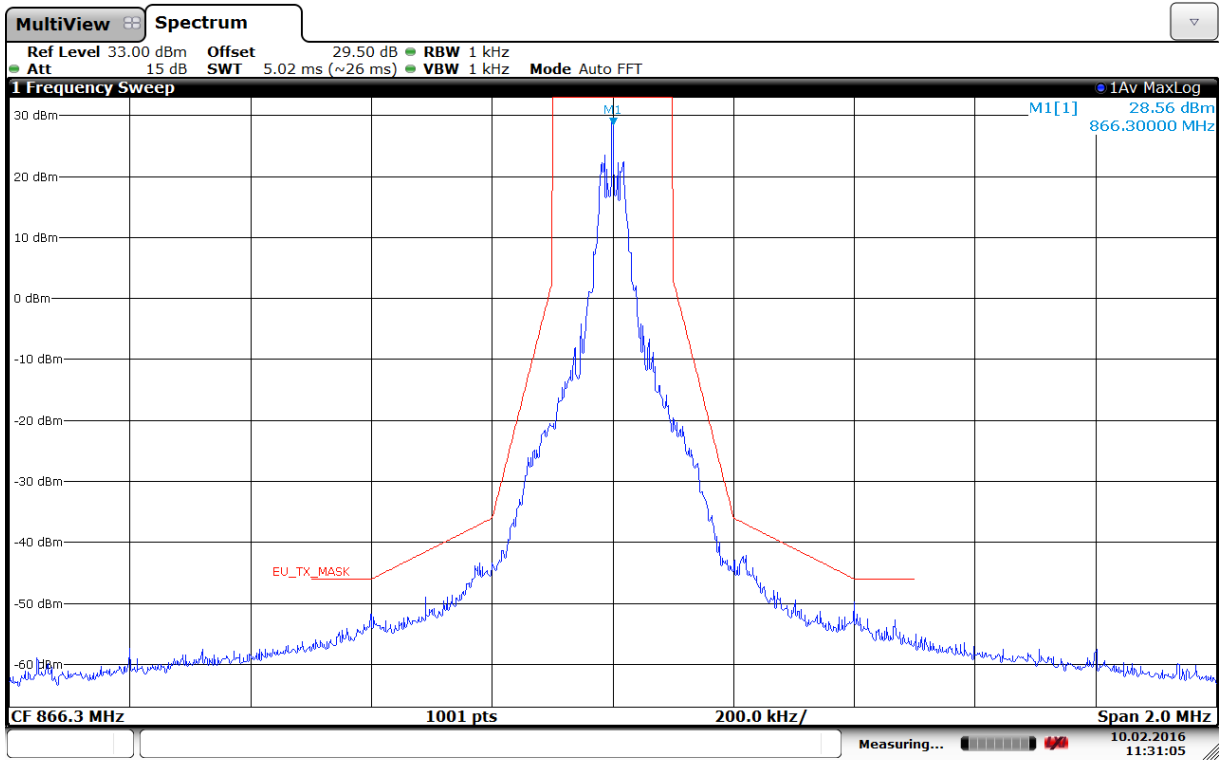
Details on the configurations used for the plots are shown in section 3 - Test Setup.

Figure 2-3 – RS2000 30 dBm 50-10 Random Data Spectral Plot



Date: 10.FEB.2016 11:30:01

Figure 2-4 – RS2000 30 dBm 50-10 Query-Rep Pulse Spectral Plot



Date: 10.FEB.2016 11:31:05

3 Test Setup

3.1 Firmware Configuration

3.1.1 RS500-EU Setup

These tests were performed with an RS500-EU SiP running firmware application image 1.6.0.240.

The SiP was configured using the Tx Control tab of the Indy Demo Tool Software

The SiP was configured for operation in ETSI, at a center frequency of 866.9 MHz (see the marker in the plots).

The SiP was configured at 23 dBm.

The FSW-8 was configured for a power offset of +6 dB, simulating 6 dB of antenna gain, for 29 dBm EIRP.

It was configured for both PRBS query reps and PRBS random data at 50-10 on/off time.

3.1.2 RS2000-1 Setup

These tests were performed with an RS2000-1 SiP running firmware application image 1.6.0.5.

The SiP was configured using the Tx Control tab of the Indy Demo Tool Software

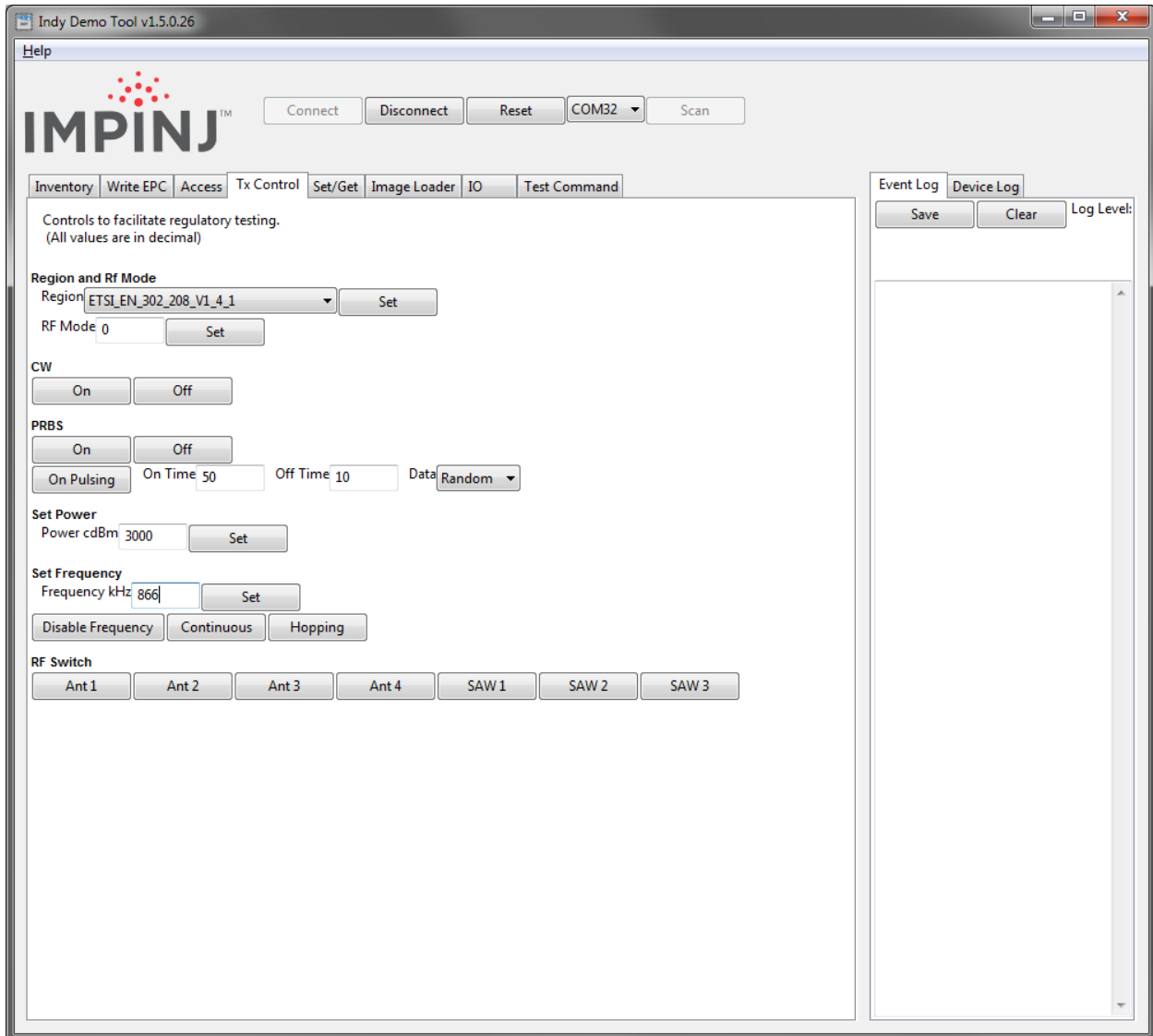
The SiP was configured for operation in ETSI, at a center frequency of 866.3 MHz (see the marker in the plots).

The SiP was configured at 30 dBm.

The FSW-8 was configured with no power offset, for 30 dBm EIRP.

It was configured for both PRBS query reps and PRBS random data at 50-10 on/off time.

Figure 3-1 – RS2000-1 Indy Demo Tool Configuration

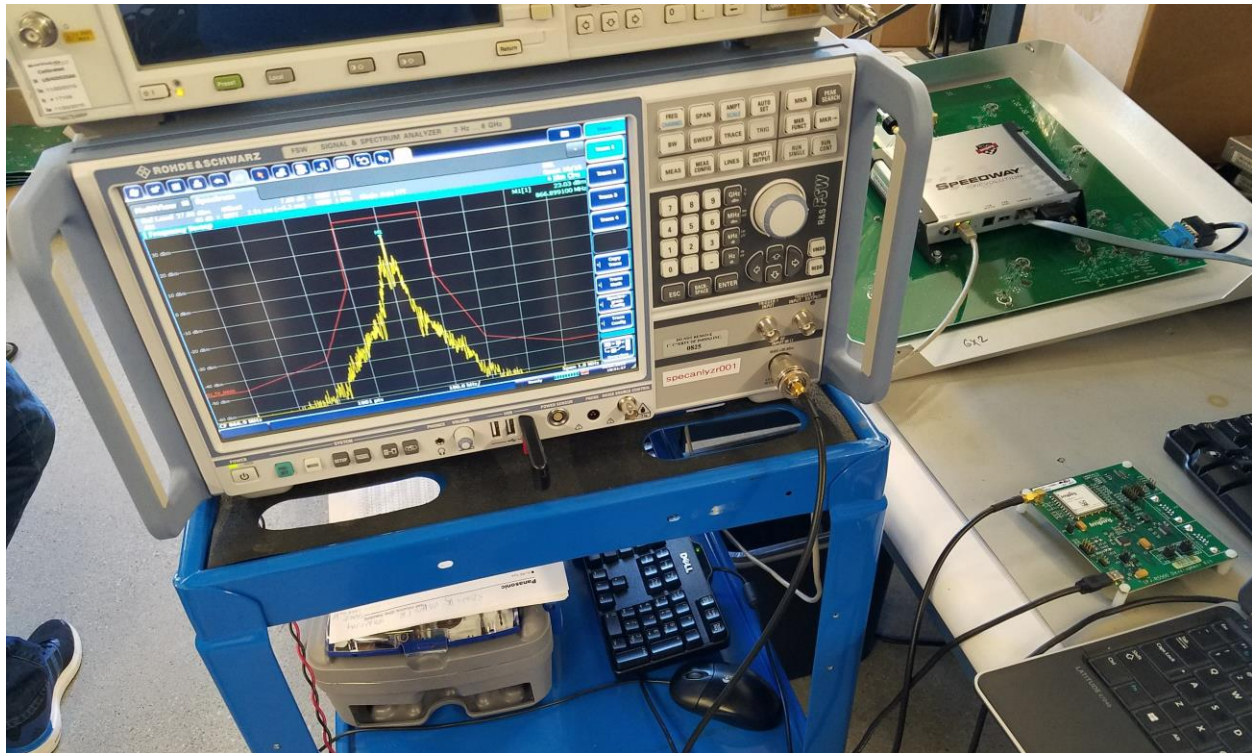


3.2 Hardware Configuration

3.2.1 General

The spectral plots were gathered using a Rhode and Schwarz [FSW-8](#) Spectrum Analyzer. The test setup including the RS500-EU is shown in Figure 3-2.

Figure 3-2 – Rhode and Schwarz FSW-8 Spectrum Analyzer and RS500



3.2.2 RS500-EU

These tests were performed using an RS500-EU SiP mounted on the RS500 development board, powered and controlled via a USB connection to a laptop running Windows 7.

The RS500-EU was connected to the FSW-8 by an SMA-SMA cable, which was attached to the J2 (RF) port of the RS500-EU development board.

3.2.3 RS2000-1

These tests were performed using an RS2000-1 SiP mounted on the RS2000 development board, powered by a Cincon TRG70A120 12V DC power adapter, and controlled via a USB connection to a laptop running Windows 7.

The RS2000-1 was connected to the FSW-8 by an SMA-SMA cable, which was attached to the J201 (ANT1) port of the RS2000 development board.

4 Document Change Log

Table 4-1: Document Change Log

Version	Date	Description
1.0	5/19/2016	Production release

5 Notices

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