



ADDENDUM TO IMPINJ INC TEST REPORT FC06-010I
FOR THE
ANTENNA, IPJ-A0402-USA
FCC PART 15 SUBPART C SECTION 15.247(d)
TESTING

DATE OF ISSUE: SEPTEMBER 25, 2008

PREPARED FOR:

Impinj Inc
701 N. 34th Street
Seattle, WA 98103

PREPARED BY:

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P.O. No.: 100400
W.O. No.: 88581

Date of test: September 18-23, 2008

Report No.: FC06-010J

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ADMINISTRATIVE INFORMATION

DATE OF TEST: September 18-23, 2008

DATE OF RECEIPT: September 18, 2008

REPRESENTATIVE: Dan Apone

MANUFACTURER:

Impinj Inc
701 N. 34th Street
Seattle, WA 98103

TEST LOCATION:

CKC Laboratories, Inc.
22116 23rd Drive S.E., Suite A
Bothell, WA 98021-4413

TEST METHOD: ANSI C63.4 (2003)

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:



Donald Jones, Senior EMC Engineer / Lab
Manager

TEST PERSONNEL:



Jeffrey A. Gilbert, EMC Engineer

PURPOSE OF TEST:

Original Report: To demonstrate the compliance of the Speedway Reader, IPJ-R1000, with the requirements for FCC part 15 Subpart B sections 15.107 & 15.109 Class B, Subpart C Sections 15.207, 15.209 & 15.247 and RSS-210 devices.

Addendum A: To clarify the plot on page 21 with no new testing.

Addendum B: To demonstrate the compliance of the RFID Reader, IPJ-R1000, with partial re-testing for FCC Part 15 Subpart C Sections 15.209 and 15.247 after component changes in the EUT.

Addendum C is to add limit lines to the band edge plots and revise the frequency range on page 5.

Addendum D: To demonstrate the compliance of the RFID Reader Antenna (Brickyard), IPJ-A0400-USA; RFID Reader Antenna (Guardwall), IPJ-A0401-USA and RFID Reader Antenna (Mini-Guardrail), IPJ-A0301-USA with the requirements for FCC Part 15 Subpart C Sections 15.209 & 15.247 devices with testing of new antennas.

Addendum E: To correct sequence 7 on page 12 and sequence 6 on page 18 with no new testing.

Addendum F: To demonstrate the compliance of the RFID Reader Core, IPJ-R1000-USA-0-01-01 with the requirements for FCC Part 15 Subpart C Section 15.247 devices. This EUT was re-tested with a cable attached. It will be professionally installed and the power output was measured at the end of the cable. Additional data from FC06-010A (Number of Hopping Channels, Dwell Time and Average Time of Occupancy) is included in this report because these sections were not affected by the re-testing.

Addendum G: To perform partial testing to demonstrate the RFID Reader Core, IPJ-R1000-USA1M still complies with the requirements for FCC Part 15 Subpart C Section 15.247 for: 1) hopping channel bandwidth and band-edge spurious for modify transmit data format (highest data rate mode only) and 2) reduced power channels. Both due to firmware changes only.

Addendum H: To correct the name of the test on page 29 and the units on page 30 with no new testing.

Addendum I: To perform new testing of the IPJ-R1000-USA1M with the Threshold Antenna to show compliance with the requirements of FCC Part 15 Subpart C Sections 15.209 and 15.247(d).

Addendum J: To perform testing of the IPJ-R1000-USA1M with the Antenna, IPJ-A0402-USA with the requirements for FCC Part 15 Subpart C Section 15.247(d).

SUMMARY OF RESULTS

Test	Specification/Method	Results
Radiated Emissions	FCC 15.247(d)	Pass
Band Edge	FCC 15.247(d)	Pass
20dBc	FCC 15.247(d)	Pass
Site File No.	FCC Site No.318736 Industry of Canada File No. IC 4653	

CONDITIONS DURING TESTING

No modifications to the EUT were necessary during testing.

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The customer declares the EUT tested by CKC Laboratories was representative of a production unit.

EQUIPMENT UNDER TEST

Antenna

Manuf: Impinj, Inc.
Model: IPJ-A0402-USA
Serial: NA

RFID Transceiver

Manuf: Impinj, Inc.
Model: IPJ-R1000-USAM1
Serial: 40307140716
FCC ID: TWYIPJR1000

AC/DC Power Supply

Manuf: CUI, Inc.
Model: DSA-60W-20
Serial: NA

PERIPHERAL DEVICES

The EUT was not tested with peripheral devices.

REPORT OF EMISSIONS MEASUREMENTS

TESTING PARAMETERS

TEMPERATURE AND HUMIDITY DURING TESTING

The temperature during testing was within +15°C and + 35°C.

The relative humidity was between 20% and 75%.

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dB μ V/m, the spectrum analyzer reading in dB μ V was corrected by using the following formula. This reading was then compared to the applicable specification limit.

SAMPLE CALCULATIONS		
	Meter reading	(dB μ V)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dB μ V/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. The following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. When conducted emissions testing was performed, a 10 dB external attenuator was used with internal offset correction in the analyzer.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the highest readings, this is indicated as a "QP" or an "Ave" on the appropriate rows of the data sheets. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer/receiver readings were recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the measuring device called "peak hold," the measuring device had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the quasi-peak detector.

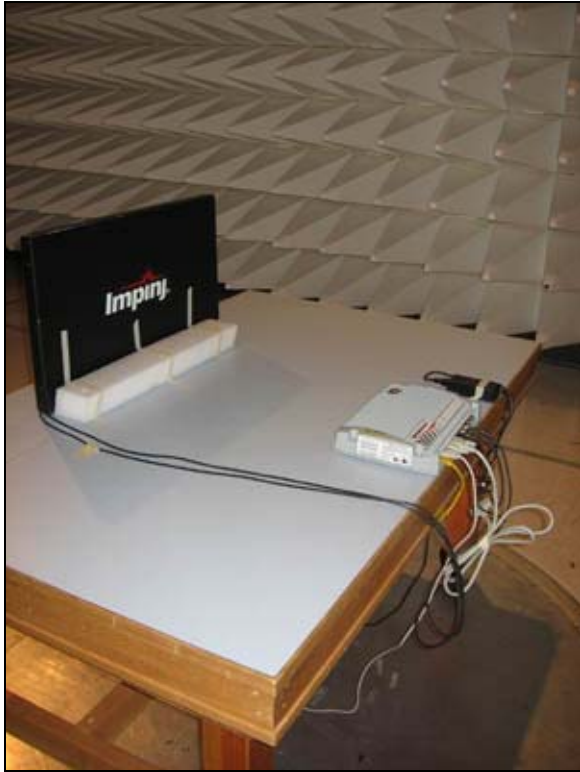
Average

For certain frequencies, average measurements may be made using the spectrum analyzer/receiver. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.

FCC 15.247(d) –RADIATED SPURIOUS EMISSIONS

Test Setup Photos





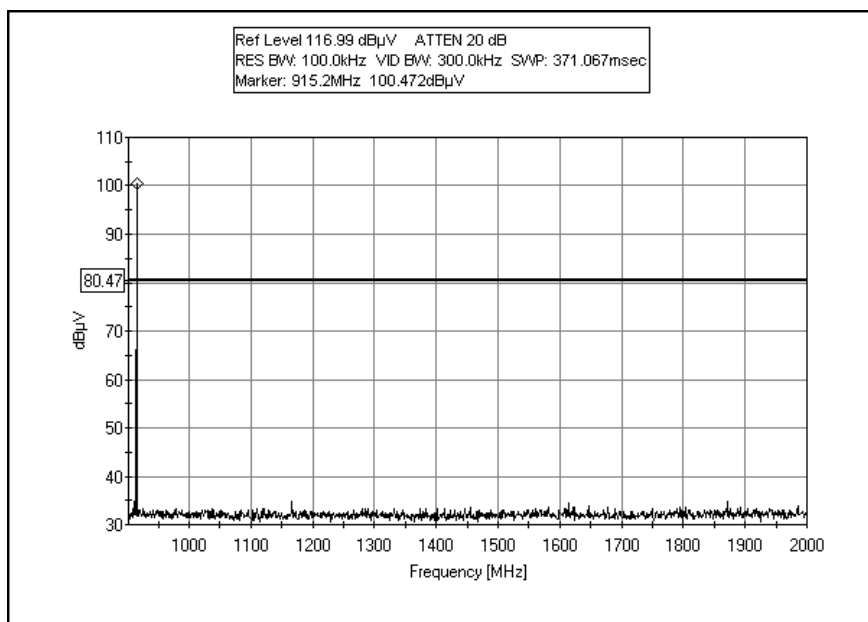
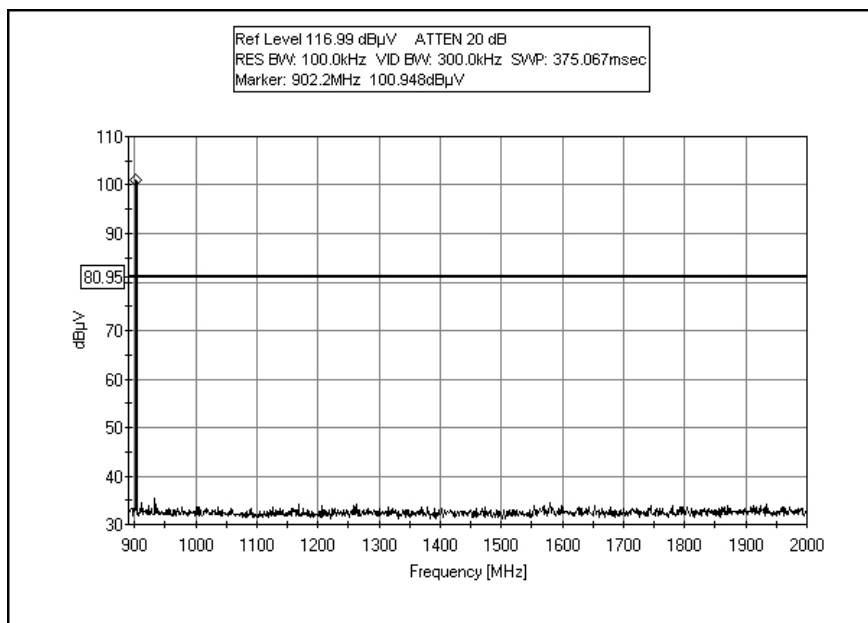


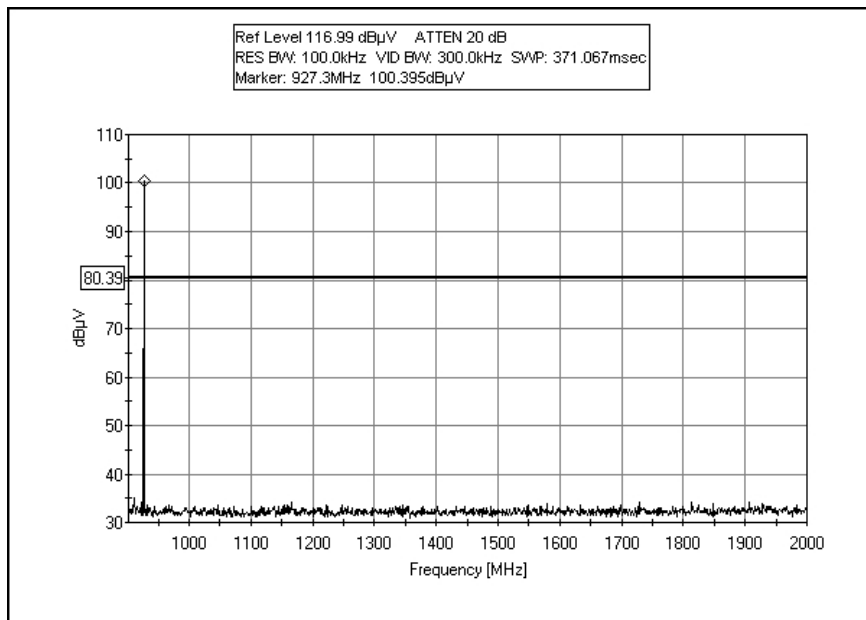


Test Data

Worst Case Radiated Emissions Plots

Test Equipment and Test Conditions are listed in the following data sheets.





Radiated Emissions Data

Test Location: CKC Laboratories • 22116 23rd Dr SE • Bothell, WA 98021-4413 • 425-402-1717

Customer: **Impinj Inc**
 Specification: **15.247(d)/15.209/15.205**
 Work Order #: **88581**
 Test Type: **Radiated Scan**
 Equipment: **Antenna**
 Manufacturer: **Impinj, Inc.**
 Model: **IPJ-A0402-USA**
 S/N: **n/a**

Date: 9/18/2008
 Time: 10:28:34
 Sequence#: 7
 Tested By: Jeff Gilbert

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4440A	MY46186330	01/31/2008	01/31/2010	AN02872
EMCO 3115 Horn	9606-4854	11/12/2007	11/12/2009	AN01412
Andrews Helix		07/22/2008	07/22/2010	ANP05545
Filter		05/01/2008	05/01/2010	AN02750
Pasternack Coax		07/20/2007	07/20/2009	AN05425

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Antenna*	Impinj, Inc.	IPJ-A0402-USA	n/a
RFID transceiver	Impinj, Inc.	IPJ-R1000-USAM1	40307140716
AC/DC Power Supply	CUI, Inc.	DSA-60W-20	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

FCC 15.247(d) / RSS-210. Frequency Range Investigated: 1 - 2 GHz. 23°C / 42% relative humidity / 102.3 kPa. The EUT is a new antenna for the previously certified IPJ-R1000 RFID reader. The EUT is on low channel, continuous TX (902.75 MHz). There are two antennas in the enclosure. This test was antenna 1.

Transducer Legend:

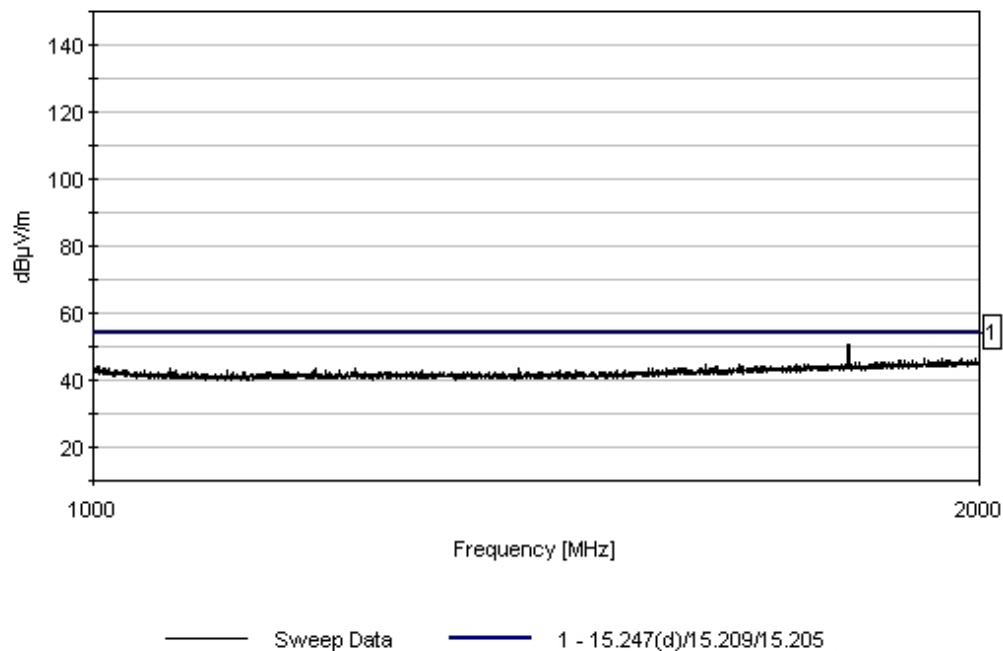
T1=ANT-AN01412-111207	T2=CAB-ANP05425-072007
T3=CAB-ANP05545-072208	T4=Filter 1GHz HP AN02750

Measurement Data: Reading listed by margin. Test Distance: 1 Meter

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	1805.499M	27.6	+26.5	+3.7	+2.2	+0.4	-10.0	50.4	54.0	-3.6	Horiz
	Ave						342				115
^	1805.499M	31.3	+26.5	+3.7	+2.2	+0.4	-10.0	54.1	54.0	+0.1	Horiz
							342				115
3	1942.649M	22.7	+27.2	+3.8	+2.3	+0.3	-10.0	46.3	54.0	-7.7	Horiz
											100
4	1915.005M	22.6	+27.1	+3.8	+2.3	+0.4	-10.0	46.2	54.0	-7.8	Horiz
											100
5	1972.356M	22.3	+27.4	+3.9	+2.3	+0.3	-10.0	46.2	54.0	-7.8	Horiz
											100
6	1995.049M	22.2	+27.5	+3.9	+2.3	+0.3	-10.0	46.2	54.0	-7.8	Horiz
											100

7	1981.433M	22.2	+27.4	+3.9	+2.3	+0.3	-10.0	46.1	54.0	-7.9	Horiz 100
8	1881.172M	22.7	+26.9	+3.8	+2.2	+0.4	-10.0	46.0	54.0	-8.0	Horiz 100
9	1887.360M	22.7	+26.9	+3.8	+2.2	+0.4	-10.0	46.0	54.0	-8.0	Horiz 100
10	1878.696M	22.4	+26.9	+3.8	+2.2	+0.4	-10.0	45.7	54.0	-8.3	Horiz 100
11	1820.932M	22.6	+26.6	+3.7	+2.2	+0.4	-10.0	45.5	54.0	-8.5	Horiz 100
12	1856.416M	22.3	+26.8	+3.8	+2.2	+0.4	-10.0	45.5	54.0	-8.5	Horiz 100
13	1815.156M	22.3	+26.6	+3.7	+2.2	+0.4	-10.0	45.2	54.0	-8.8	Horiz 100
14	1842.387M	22.1	+26.7	+3.7	+2.2	+0.4	-10.0	45.1	54.0	-8.9	Horiz 100
15	1847.338M	22.1	+26.7	+3.7	+2.2	+0.4	-10.0	45.1	54.0	-8.9	Horiz 100
16	1838.674M	22.0	+26.7	+3.7	+2.2	+0.4	-10.0	45.0	54.0	-9.0	Horiz 100
17	1657.543M	22.9	+25.7	+3.6	+2.1	+0.5	-10.0	44.8	54.0	-9.2	Horiz 100
18	1614.633M	23.3	+25.4	+3.5	+2.0	+0.5	-10.0	44.7	54.0	-9.3	Horiz 100
19	1743.363M	22.3	+26.2	+3.6	+2.1	+0.5	-10.0	44.7	54.0	-9.3	Horiz 100
20	1733.048M	22.3	+26.1	+3.6	+2.1	+0.5	-10.0	44.6	54.0	-9.4	Horiz 100
21	1749.965M	22.0	+26.2	+3.7	+2.2	+0.5	-10.0	44.6	54.0	-9.4	Horiz 100
22	1000.000M	22.7	+24.4	+2.9	+1.6	+2.7	-10.0	44.3	54.0	-9.7	Horiz 100
23	1003.379M	22.8	+24.4	+2.9	+1.6	+2.6	-10.0	44.3	54.0	-9.7	Horiz 100
24	1007.278M	22.5	+24.4	+2.9	+1.6	+2.4	-10.0	43.8	54.0	-10.2	Horiz 100
25	1189.223M	23.3	+24.5	+3.1	+1.8	+0.9	-10.0	43.6	54.0	-10.4	Horiz 100
26	1581.834M	22.3	+25.2	+3.5	+2.0	+0.6	-10.0	43.6	54.0	-10.4	Horiz 100
27	1394.843M	23.2	+24.6	+3.3	+1.9	+0.5	-10.0	43.5	54.0	-10.5	Horiz 100
28	1548.431M	22.5	+25.0	+3.5	+2.0	+0.5	-10.0	43.5	54.0	-10.5	Horiz 100
29	1575.612M	22.2	+25.2	+3.5	+2.0	+0.6	-10.0	43.5	54.0	-10.5	Horiz 100
30	1227.171M	23.1	+24.6	+3.1	+1.8	+0.8	-10.0	43.4	54.0	-10.6	Horiz 100
31	1586.091M	22.1	+25.2	+3.5	+2.0	+0.6	-10.0	43.4	54.0	-10.6	Horiz 100

CKC Laboratories Date: 9/18/2008 Time: 10:28:34 Impinj Inc W/O#: 88581
 15.247(d)/15.209/15.205 Test Distance: 1 Meter Sequence#: 7 Polarity: Horiz
 Notes:



Test Location: CKC Laboratories • 22116 23rd Dr SE • Bothell, WA 98021-4413 • 425-402-1717

Customer: **Impinj Inc**

Specification: **15.247(d)/15.209/15.205**

Work Order #: **88581**

Date: 9/18/2008

Test Type: **Radiated Scan**

Time: 10:19:37

Equipment: **Antenna**

Sequence#: 6

Manufacturer: Impinj, Inc.

Tested By: Jeff Gilbert

Model: IPJ-A0402-USA

S/N: n/a

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4440A	MY46186330	01/31/2008	01/31/2010	AN02872
EMCO 3115 Horn	9606-4854	11/12/2007	11/12/2009	AN01412
Andrews Helix		07/22/2008	07/22/2010	ANP05545
Filter		05/01/2008	05/01/2010	AN02750
Pasternack Coax		07/20/2007	07/20/2009	AN05425

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Antenna*	Impinj, Inc.	IPJ-A0402-USA	n/a
RFID transceiver	Impinj, Inc.	IPJ-R1000-USAM1	40307140716
AC/DC Power Supply	CUI, Inc.	DSA-60W-20	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

FCC 15.247(d) / RSS-210. Frequency Range Investigated: 1 - 2 GHz. 23°C / 42% relative humidity / 102.3 kPa. The EUT is a new antenna for the previously certified IPJ-R1000 RFID reader. The EUT is on low channel, continuous TX (902.75 MHz). There are two antennas in the enclosure. This test was antenna 1.

Transducer Legend:

T1=ANT-AN01412-111207	T2=CAB-ANP05425-072007
T3=CAB-ANP05545-072208	T4=Filter 1GHz HP AN02750

Measurement Data:

Reading listed by margin.

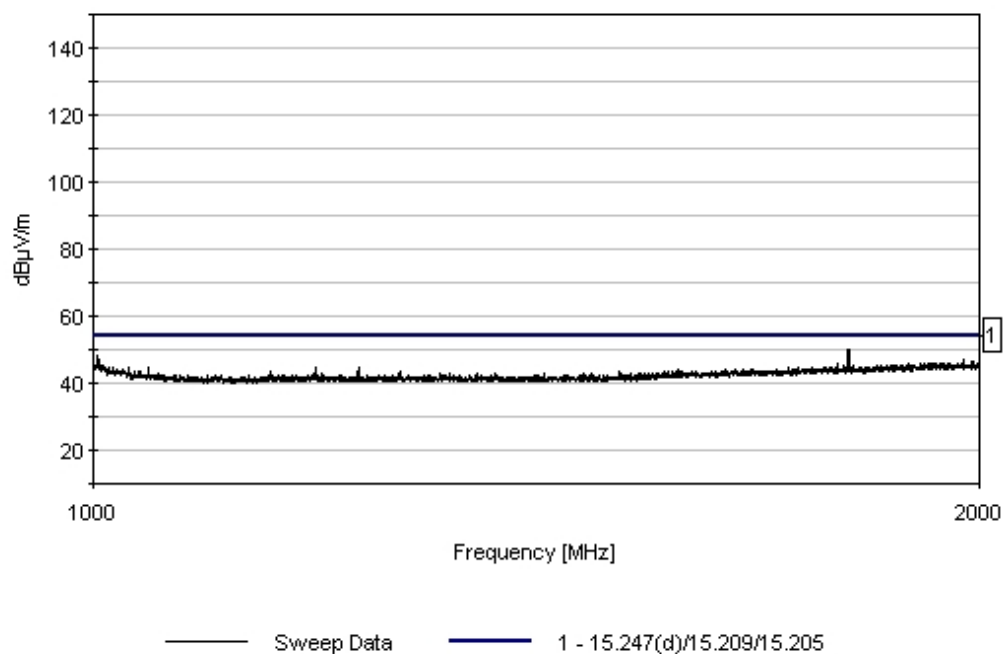
Test Distance: 1 Meter

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	1805.503M	25.3	+26.5	+3.7	+2.2	+0.4	-10.0	48.1	54.0	-5.9	Vert
	Ave						351				105
^	1805.503M	29.8	+26.5	+3.7	+2.2	+0.4	-10.0	52.6	54.0	-1.4	Vert
							351				105
3	1974.419M	23.1	+27.4	+3.9	+2.3	+0.3	-10.0	47.0	54.0	-7.0	Vert
											100
4	1990.923M	22.6	+27.5	+3.9	+2.3	+0.3	-10.0	46.6	54.0	-7.4	Vert
											100
5	1789.575M	23.3	+26.4	+3.7	+2.2	+0.4	-10.0	46.0	54.0	-8.0	Vert
											100
6	1811.030M	22.7	+26.5	+3.7	+2.2	+0.4	-10.0	45.5	54.0	-8.5	Vert
											100

7	1860.129M	22.1	+26.8	+3.8	+2.2	+0.4	-10.0	45.3	54.0	-8.7	Vert 100
8	1851.052M	22.2	+26.7	+3.8	+2.2	+0.4	-10.0	45.3	54.0	-8.7	Vert 100
9	1799.064M	22.4	+26.5	+3.7	+2.2	+0.4	-10.0	45.2	54.0	-8.8	Vert 100
10	1028.591M	24.3	+24.4	+2.9	+1.6	+1.7	-10.0	44.9	54.0	-9.1	Vert 100
11	1044.187M	24.3	+24.4	+2.9	+1.6	+1.5	-10.0	44.7	54.0	-9.3	Vert 100
12	1189.742M	24.4	+24.5	+3.1	+1.8	+0.9	-10.0	44.7	54.0	-9.3	Vert 100
13	1230.550M	24.3	+24.6	+3.1	+1.8	+0.8	-10.0	44.6	54.0	-9.4	Vert 100
14	1023.653M	23.2	+24.4	+2.9	+1.6	+1.9	-10.0	44.0	54.0	-10.0	Vert 100
15	1580.524M	22.6	+25.2	+3.5	+2.0	+0.6	-10.0	43.9	54.0	-10.1	Vert 100
16	1638.563M	22.3	+25.6	+3.5	+2.0	+0.5	-10.0	43.9	54.0	-10.1	Vert 100
17	1148.415M	23.5	+24.5	+3.1	+1.8	+0.9	-10.0	43.8	54.0	-10.2	Vert 100
18	1620.822M	22.3	+25.5	+3.5	+2.0	+0.5	-10.0	43.8	54.0	-10.2	Vert 100
19	1627.836M	22.3	+25.5	+3.5	+2.0	+0.5	-10.0	43.8	54.0	-10.2	Vert 100
20	1271.383M	23.2	+24.6	+3.2	+1.8	+0.7	-10.0	43.5	54.0	-10.5	Vert 100
21	1509.461M	22.7	+24.8	+3.4	+2.0	+0.5	-10.0	43.4	54.0	-10.6	Vert 100
22	1552.361M	22.2	+25.0	+3.5	+2.0	+0.5	-10.0	43.2	54.0	-10.8	Vert 100
23	1051.984M	22.3	+24.4	+3.0	+1.7	+1.4	-10.0	42.8	54.0	-11.2	Vert 100
24	1238.867M	22.4	+24.6	+3.1	+1.8	+0.7	-10.0	42.6	54.0	-11.4	Vert 100
25	1250.044M	22.3	+24.6	+3.2	+1.8	+0.7	-10.0	42.6	54.0	-11.4	Vert 100
26	1003.518M Ave	20.9	+24.4	+2.9	+1.6	+2.6	-10.0 360	42.4	54.0	-11.6	Vert 100
^	1003.518M	29.8	+24.4	+2.9	+1.6	+2.6	-10.0 360	51.3	54.0	-2.7	Vert 100
28	1067.060M	22.1	+24.4	+3.0	+1.7	+1.2	-10.0	42.4	54.0	-11.6	Vert 100

29	1094.091M	22.2	+24.5	+3.0	+1.7	+1.0	-10.0	42.4	54.0	-11.6	Vert 100
30	1105.008M	22.1	+24.5	+3.0	+1.7	+1.0	-10.0	42.3	54.0	-11.7	Vert 100
31	1100.329M	22.0	+24.5	+3.0	+1.7	+1.0	-10.0	42.2	54.0	-11.8	Vert 100
32	1128.921M	22.1	+24.5	+3.0	+1.7	+0.9	-10.0	42.2	54.0	-11.8	Vert 100

CKC Laboratories Date: 9/18/2008 Time: 10:19:37 Impinj Inc WVO#: 88581
15.247(d)/15.209/15.205 Test Distance: 1 Meter Sequence#: 6 Polarity: Vert
Notes:



Test Location: CKC Laboratories • 22116 23rd Dr SE • Bothell, WA 98021-4413 • 425-402-1717

Customer: **Impinj Inc**

Specification: **15.247(d)/15.209/15.205**

Work Order #: **88581**

Test Type: **Radiated Scan**

Equipment: **Antenna**

Manufacturer: **Impinj, Inc.**

Model: **IPJ-A0402-USA**

S/N: **n/a**

Date: 9/18/2008

Time: 11:07:29

Sequence#: 10

Tested By: Jeff Gilbert

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4440A	MY46186330	01/31/2008	01/31/2010	AN02872
EMCO 3115 Horn	9606-4854	11/12/2007	11/12/2009	AN01412
Andrews Helix		07/22/2008	07/22/2010	ANP05545
Filter		05/01/2008	05/01/2010	AN02750
Pasternack Coax		07/20/2007	07/20/2009	AN05425

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Antenna*	Impinj, Inc.	IPJ-A0402-USA	n/a
RFID transceiver	Impinj, Inc.	IPJ-R1000-USAM1	40307140716
AC/DC Power Supply	CUI, Inc.	DSA-60W-20	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

FCC 15.247(d) / RSS-210. Frequency Range Investigated: 2 - 9.3 GHz. 23°C / 42% relative humidity / 102.3 kPa. The EUT is a new antenna for the previously certified IPJ-R1000 RFID reader. The EUT is on low channel, continuous TX (902.75 MHz). There are two antennas in the enclosure. This test was antenna 1. There were no emissions found within 20 dB of the limit from 6 - 9.3 GHz.

Transducer Legend:

T1=ANT-AN01412-111207	T2=CAB-ANP05425-072007
T3=CAB-ANP05545-072208	T4=Filter 1GHz HP AN02750

Measurement Data:

Reading listed by margin.

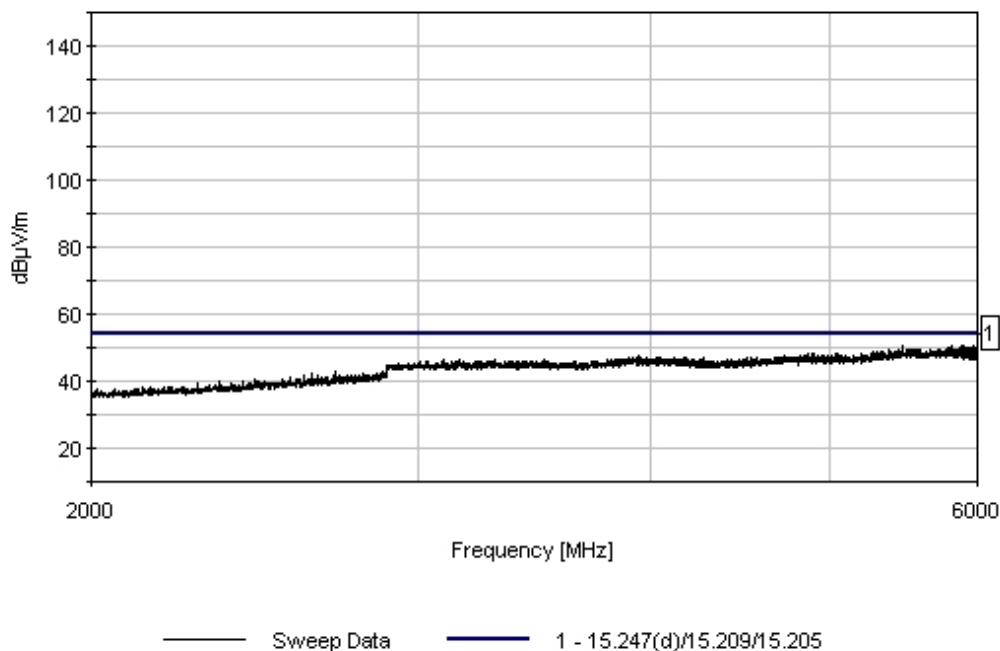
Test Distance: 1 Meter

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	5890.987M	15.2	+34.7	+6.4	+4.1	+0.2	-10.0	50.6	54.0	-3.4	Horiz 100
2	5819.431M	15.1	+34.7	+6.4	+4.1	+0.2	-10.0	50.5	54.0	-3.5	Horiz 100
3	5470.082M	15.2	+34.6	+6.4	+3.9	+0.3	-10.0	50.4	54.0	-3.6	Horiz 100
4	5900.774M	15.0	+34.7	+6.4	+4.1	+0.2	-10.0	50.4	54.0	-3.6	Horiz 100
5	5970.300M	15.0	+34.7	+6.4	+4.1	+0.2	-10.0	50.4	54.0	-3.6	Horiz 100
6	5963.775M	14.9	+34.7	+6.4	+4.1	+0.2	-10.0	50.3	54.0	-3.7	Horiz 100

7	5941.950M	14.8	+34.7	+6.4	+4.1	+0.2	-10.0	50.2	54.0	-3.8	Horiz 100
8	5805.417M	14.6	+34.7	+6.4	+4.1	+0.2	-10.0	50.0	54.0	-4.0	Horiz 100
9	5862.474M	14.6	+34.7	+6.4	+4.1	+0.2	-10.0	50.0	54.0	-4.0	Horiz 100
10	5919.562M	14.6	+34.7	+6.4	+4.1	+0.2	-10.0	50.0	54.0	-4.0	Horiz 100
11	5938.799M	14.6	+34.7	+6.4	+4.1	+0.2	-10.0	50.0	54.0	-4.0	Horiz 100
12	5962.200M	14.6	+34.7	+6.4	+4.1	+0.2	-10.0	50.0	54.0	-4.0	Horiz 100
13	5777.389M	14.5	+34.7	+6.4	+4.1	+0.2	-10.0	49.9	54.0	-4.1	Horiz 100
14	5933.287M	14.5	+34.7	+6.4	+4.1	+0.2	-10.0	49.9	54.0	-4.1	Horiz 100
15	5990.438M	14.5	+34.7	+6.4	+4.1	+0.2	-10.0	49.9	54.0	-4.1	Horiz 100
16	5899.199M	14.4	+34.7	+6.4	+4.1	+0.2	-10.0	49.8	54.0	-4.2	Horiz 100
17	5542.154M	14.2	+34.7	+6.5	+4.0	+0.3	-10.0	49.7	54.0	-4.3	Horiz 100
18	5903.587M	14.3	+34.7	+6.4	+4.1	+0.2	-10.0	49.7	54.0	-4.3	Horiz 100
19	5992.350M	14.3	+34.7	+6.4	+4.1	+0.2	-10.0	49.7	54.0	-4.3	Horiz 100
20	5550.162M	14.1	+34.7	+6.5	+4.0	+0.3	-10.0	49.6	54.0	-4.4	Horiz 100
21	5562.174M	14.1	+34.7	+6.5	+4.0	+0.3	-10.0	49.6	54.0	-4.4	Horiz 100
22	5574.186M	14.2	+34.7	+6.4	+4.0	+0.3	-10.0	49.6	54.0	-4.4	Horiz 100
23	5837.449M	14.2	+34.7	+6.4	+4.1	+0.2	-10.0	49.6	54.0	-4.4	Horiz 100
24	5955.450M	14.2	+34.7	+6.4	+4.1	+0.2	-10.0	49.6	54.0	-4.4	Horiz 100
25	5974.125M	14.2	+34.7	+6.4	+4.1	+0.2	-10.0	49.6	54.0	-4.4	Horiz 100
26	5594.206M	14.1	+34.7	+6.5	+4.0	+0.2	-10.0	49.5	54.0	-4.5	Horiz 100
27	5829.441M	14.1	+34.7	+6.4	+4.1	+0.2	-10.0	49.5	54.0	-4.5	Horiz 100
28	5964.112M	14.1	+34.7	+6.4	+4.1	+0.2	-10.0	49.5	54.0	-4.5	Horiz 100
29	5914.387M	14.0	+34.7	+6.4	+4.1	+0.2	-10.0	49.4	54.0	-4.6	Horiz 100
30	5993.137M	14.0	+34.7	+6.4	+4.1	+0.2	-10.0	49.4	54.0	-4.6	Horiz 100

31	4513.712M Ave	11.6	+32.4	+5.8	+3.6	+0.2	-10.0 169	43.6	54.0	-10.4	Horiz 99
^	4513.754M	14.0	+32.4	+5.8	+3.6	+0.2	-10.0 169	46.0	54.0	-8.0	Horiz 99
33	3611.048M Ave	12.5	+31.8	+5.3	+3.0	+0.5	-10.0 175	43.1	54.0	-10.9	Horiz 99
^	3611.004M	15.3	+31.8	+5.3	+3.0	+0.5	-10.0 175	45.9	54.0	-8.1	Horiz 99
35	2708.272M Ave	14.3	+29.8	+4.5	+2.7	+0.6	-10.0 177	41.9	54.0	-12.1	Horiz 100
^	2708.266M	24.4	+29.8	+4.5	+2.7	+0.6	-10.0 177	52.0	54.0	-2.0	Horiz 100

CKC Laboratories Date: 9/18/2008 Time: 11:07:29 Impinj Inc WVO#: 88581
15.247(d)/15.209/15.205 Test Distance: 1 Meter Sequence#: 10 Polarity: Horiz
Notes:



Test Location: CKC Laboratories • 22116 23rd Dr SE • Bothell, WA 98021-4413 • 425-402-1717

Customer: **Impinj Inc**

Specification: **15.247(d)/15.209/15.205**

Work Order #: **88581**

Date: 9/18/2008

Test Type: **Radiated Scan**

Time: 11:27:08

Equipment: **Antenna**

Sequence#: 12

Manufacturer: Impinj, Inc.

Tested By: Jeff Gilbert

Model: IPJ-A0402-USA

S/N: n/a

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4440A	MY46186330	01/31/2008	01/31/2010	AN02872
EMCO 3115 Horn	9606-4854	11/12/2007	11/12/2009	AN01412
Andrews Helix		07/22/2008	07/22/2010	ANP05545
Filter		05/01/2008	05/01/2010	AN02750
Pasternack Coax		07/20/2007	07/20/2009	AN05425

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Antenna*	Impinj, Inc.	IPJ-A0402-USA	n/a
RFID transceiver	Impinj, Inc.	IPJ-R1000-USAM1	40307140716
AC/DC Power Supply	CUI, Inc.	DSA-60W-20	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

FCC 15.247(d) / RSS-210. Frequency Range Investigated: 2 - 9.3 GHz. 23°C / 42% relative humidity / 102.3 kPa. The EUT is a new antenna for the previously certified IPJ-R1000 RFID reader. The EUT is on low channel, continuous TX (902.75 MHz). There are two antennas in the enclosure. This test was antenna 1. There were no emissions found within 20 dB of the limit from 6 - 9.3 GHz.

Transducer Legend:

T1=ANT-AN01412-111207	T2=CAB-ANP05425-072007
T3=CAB-ANP05545-072208	T4=Filter 1GHz HP AN02750

Measurement Data:

Reading listed by margin.

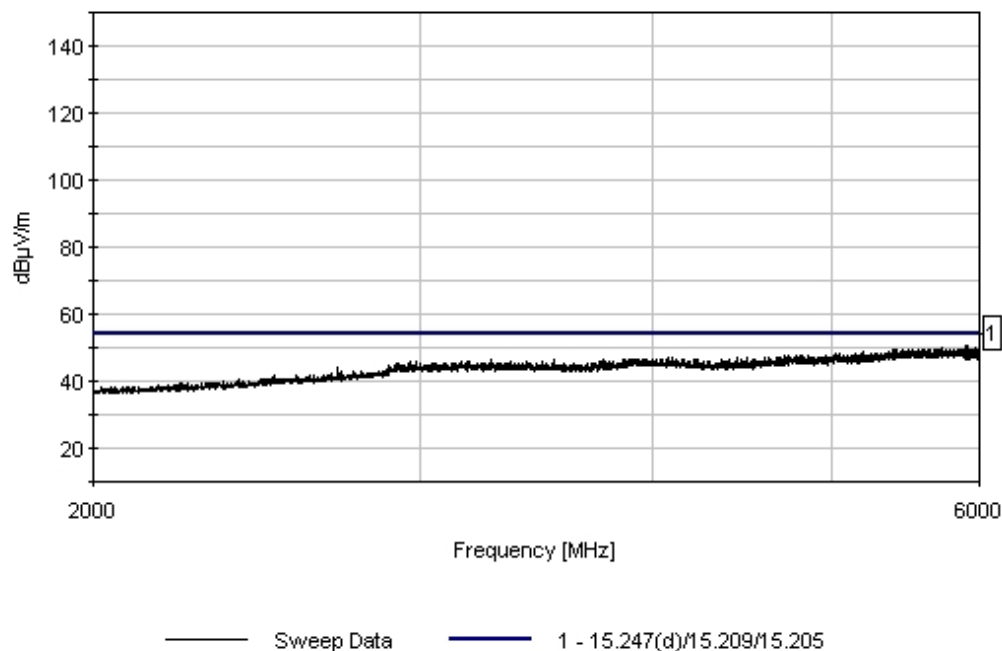
Test Distance: 1 Meter

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	5914.612M	15.1	+34.7	+6.4	+4.1	+0.2	-10.0 360	50.5	54.0	-3.5	Vert 100
2	5903.587M	14.9	+34.7	+6.4	+4.1	+0.2	-10.0 360	50.3	54.0	-3.7	Vert 100
3	5726.338M	14.6	+34.7	+6.4	+4.1	+0.2	-10.0 360	50.0	54.0	-4.0	Vert 100
4	5895.937M	14.5	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.9	54.0	-4.1	Vert 100
5	5908.649M	14.5	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.9	54.0	-4.1	Vert 100
6	5971.537M	14.5	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.9	54.0	-4.1	Vert 100

7	5412.024M	14.8	+34.5	+6.2	+3.9	+0.3	-10.0 360	49.7	54.0	-4.3	Vert 100
8	5416.028M	14.7	+34.5	+6.3	+3.9	+0.3	-10.0 360	49.7	54.0	-4.3	Vert 100
9	5690.302M	14.4	+34.7	+6.4	+4.0	+0.2	-10.0 360	49.7	54.0	-4.3	Vert 100
10	5787.399M	14.3	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.7	54.0	-4.3	Vert 100
11	5891.549M	14.3	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.7	54.0	-4.3	Vert 100
12	5924.399M	14.3	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.7	54.0	-4.3	Vert 100
13	5959.275M	14.3	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.7	54.0	-4.3	Vert 100
14	5960.962M	14.3	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.7	54.0	-4.3	Vert 100
15	5962.200M	14.2	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.6	54.0	-4.4	Vert 100
16	5982.563M	14.2	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.6	54.0	-4.4	Vert 100
17	5992.913M	14.2	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.6	54.0	-4.4	Vert 100
18	5404.016M	14.6	+34.5	+6.2	+3.9	+0.3	-10.0 360	49.5	54.0	-4.5	Vert 100
19	5501.113M	14.1	+34.7	+6.4	+4.0	+0.3	-10.0 360	49.5	54.0	-4.5	Vert 100
20	5518.130M	14.0	+34.7	+6.5	+4.0	+0.3	-10.0 360	49.5	54.0	-4.5	Vert 100
21	5584.196M	14.0	+34.7	+6.5	+4.0	+0.3	-10.0 360	49.5	54.0	-4.5	Vert 100
22	5594.206M	14.1	+34.7	+6.5	+4.0	+0.2	-10.0 360	49.5	54.0	-4.5	Vert 100
23	5732.344M	14.1	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.5	54.0	-4.5	Vert 100
24	5930.812M	14.1	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.5	54.0	-4.5	Vert 100
25	5957.925M	14.1	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.5	54.0	-4.5	Vert 100
26	5647.259M	14.1	+34.7	+6.4	+4.0	+0.2	-10.0 360	49.4	54.0	-4.6	Vert 100
27	5948.362M	14.0	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.4	54.0	-4.6	Vert 100
28	5972.100M	14.0	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.4	54.0	-4.6	Vert 100
29	5973.112M	14.0	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.4	54.0	-4.6	Vert 100
30	5994.150M	14.0	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.4	54.0	-4.6	Vert 100

31	4513.776M Ave	11.7	+32.4	+5.8	+3.6	+0.2	-10.0 180	43.7	54.0	-10.3	Vert 100
^	4513.754M	22.3	+32.4	+5.8	+3.6	+0.2	-10.0 180	54.3	54.0	+0.3	Vert 100
33	2708.267M Ave	15.6	+29.8	+4.5	+2.7	+0.6	-10.0 184	43.2	54.0	-10.8	Vert 100
^	2708.267M	25.2	+29.8	+4.5	+2.7	+0.6	-10.0 184	52.8	54.0	-1.2	Vert 100
35	3611.024M Ave	12.4	+31.8	+5.3	+3.0	+0.5	-10.0 191	43.0	54.0	-11.0	Vert 100
^	3611.004M	23.5	+31.8	+5.3	+3.0	+0.5	-10.0 191	54.1	54.0	+0.1	Vert 100

CKC Laboratories Date: 9/18/2008 Time: 11:27:08 Impinj Inc WO#: 88581
15.247(d)/15.209/15.205 Test Distance: 1 Meter Sequence#: 12 Polarity: Vert
Notes:



Test Location: CKC Laboratories • 22116 23rd Dr SE • Bothell, WA 98021-4413 • 425-402-1717

Customer: **Impinj Inc**

Specification: **15.247(d)/15.209/15.205**

Work Order #: **88581**

Test Type: **Radiated Scan**

Equipment: **Antenna**

Manufacturer: **Impinj, Inc.**

Model: **IPJ-A0402-USA**

S/N: **n/a**

Date: 9/18/2008

Time: 12:40:14

Sequence#: 14

Tested By: Jeff Gilbert

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4440A	MY46186330	01/31/2008	01/31/2010	AN02872
EMCO 3115 Horn	9606-4854	11/12/2007	11/12/2009	AN01412
Andrews Helix		07/22/2008	07/22/2010	ANP05545
Filter		05/01/2008	05/01/2010	AN02750
Pasternack Coax		07/20/2007	07/20/2009	AN05425

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Antenna*	Impinj, Inc.	IPJ-A0402-USA	n/a
RFID transceiver	Impinj, Inc.	IPJ-R1000-USAM1	40307140716
AC/DC Power Supply	CUI, Inc.	DSA-60W-20	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

FCC 15.247(d) / RSS-210. Frequency Range Investigated: 1 - 9.3 GHz. 23°C / 42% relative humidity / 102.3 kPa. The EUT is a new antenna for the previously certified IPJ-R1000 RFID reader. The EUT is on mid channel, continuous TX (915.25 MHz). There are two antennas in the enclosure. This test was antenna 1.

Transducer Legend:

T1=ANT-AN01412-111207	T2=CAB-ANP05425-072007
T3=CAB-ANP05545-072208	T4=Filter 1GHz HP AN02750

Measurement Data:

Reading listed by margin.

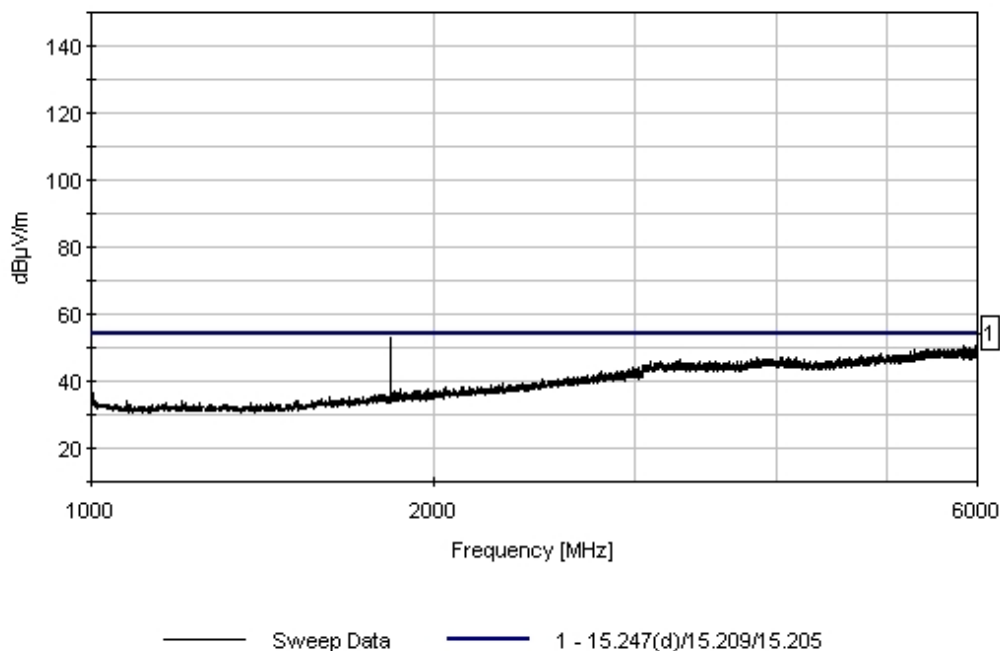
Test Distance: 1 Meter

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	1830.507M	30.3	+26.6	+3.7	+2.2	+0.4	-10.0	53.2	54.0	-0.8	Horiz
	Ave						345				115
^	1830.507M	33.2	+26.6	+3.7	+2.2	+0.4	-10.0	56.1	54.0	+2.1	Horiz
							345				115
3	5833.821M	15.2	+34.7	+6.4	+4.1	+0.2	-10.0	50.6	54.0	-3.4	Horiz
							360				100
4	5985.689M	14.9	+34.7	+6.4	+4.1	+0.2	-10.0	50.3	54.0	-3.7	Horiz
							360				100
5	5855.287M	14.8	+34.7	+6.4	+4.1	+0.2	-10.0	50.2	54.0	-3.8	Horiz
							360				100
6	5904.657M	14.5	+34.7	+6.4	+4.1	+0.2	-10.0	49.9	54.0	-4.1	Horiz
							360				100

7	5978.355M	14.4	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.8	54.0	-4.2	Horiz 100
8	5570.871M	14.3	+34.7	+6.4	+4.0	+0.3	-10.0 360	49.7	54.0	-4.3	Horiz 100
9	5717.017M	14.3	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.7	54.0	-4.3	Horiz 100
10	5764.063M	14.3	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.7	54.0	-4.3	Horiz 100
11	5874.069M	14.3	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.7	54.0	-4.3	Horiz 100
12	5881.045M	14.3	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.7	54.0	-4.3	Horiz 100
13	5921.472M	14.3	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.7	54.0	-4.3	Horiz 100
14	5933.636M	14.3	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.7	54.0	-4.3	Horiz 100
15	5839.903M	14.2	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.6	54.0	-4.4	Horiz 100
16	5292.593M	15.1	+34.3	+6.1	+3.8	+0.2	-10.0 360	49.5	54.0	-4.5	Horiz 100
17	5696.997M	14.2	+34.7	+6.4	+4.0	+0.2	-10.0 360	49.5	54.0	-4.5	Horiz 100
18	5756.056M	14.1	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.5	54.0	-4.5	Horiz 100
19	5758.058M	14.1	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.5	54.0	-4.5	Horiz 100
20	5848.310M	14.1	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.5	54.0	-4.5	Horiz 100
21	5905.730M	14.1	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.5	54.0	-4.5	Horiz 100
22	5913.780M	14.1	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.5	54.0	-4.5	Horiz 100
23	5401.702M	14.6	+34.5	+6.2	+3.9	+0.2	-10.0 360	49.4	54.0	-4.6	Horiz 100
24	5877.289M	14.0	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.4	54.0	-4.6	Horiz 100
25	5889.273M	14.0	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.4	54.0	-4.6	Horiz 100
26	5892.136M	14.0	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.4	54.0	-4.6	Horiz 100
27	5655.956M	14.0	+34.7	+6.4	+4.0	+0.2	-10.0 360	49.3	54.0	-4.7	Horiz 100
28	5841.155M	13.9	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.3	54.0	-4.7	Horiz 100
29	5878.720M	13.8	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.2	54.0	-4.8	Horiz 100
30	5936.140M	13.8	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.2	54.0	-4.8	Horiz 100

31	3661.000M Ave	13.3	+31.9	+5.3	+3.0	+0.5	-10.0 180	44.0	54.0	-10.0	Horiz 100
^	3660.915M	25.4	+31.9	+5.3	+3.0	+0.5	-10.0 180	56.1	54.0	+2.1	Horiz 100
33	4576.252M Ave	11.2	+32.6	+6.0	+3.6	+0.2	-10.0 180	43.6	54.0	-10.4	Horiz 100
^	4576.252M	24.7	+32.6	+6.0	+3.6	+0.2	-10.0 180	57.1	54.0	+3.1	Horiz 100
35	2745.752M Ave	14.8	+29.9	+4.5	+2.7	+0.6	-10.0 350	42.5	54.0	-11.5	Horiz 118
^	2745.752M	25.1	+29.9	+4.5	+2.7	+0.6	-10.0 350	52.8	54.0	-1.2	Horiz 118

CKC Laboratories Date: 9/18/2008 Time: 12:40:14 Impinj Inc WVO#: 88581
15.247(d)/15.209/15.205 Test Distance: 1 Meter Sequence#: 14 Polarity: Horiz
Notes:



Test Location: CKC Laboratories • 22116 23rd Dr SE • Bothell, WA 98021-4413 • 425-402-1717

Customer: **Impinj Inc**

Specification: **15.247(d)/15.209/15.205**

Work Order #: **88581**

Test Type: **Radiated Scan**

Equipment: **Antenna**

Manufacturer: **Impinj, Inc.**

Model: **IPJ-A0402-USA**

S/N: **n/a**

Date: 9/18/2008

Time: 11:55:03

Sequence#: 13

Tested By: Jeff Gilbert

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4440A	MY46186330	01/31/2008	01/31/2010	AN02872
EMCO 3115 Horn	9606-4854	11/12/2007	11/12/2009	AN01412
Andrews Helix		07/22/2008	07/22/2010	ANP05545
Filter		05/01/2008	05/01/2010	AN02750
Pasternack Coax		07/20/2007	07/20/2009	AN05425

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Antenna*	Impinj, Inc.	IPJ-A0402-USA	n/a
RFID transceiver	Impinj, Inc.	IPJ-R1000-USAM1	40307140716
AC/DC Power Supply	CUI, Inc.	DSA-60W-20	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

FCC 15.247(d) / RSS-210. Frequency Range Investigated: 1 - 9.3 GHz. 23°C / 42% relative humidity / 102.3 kPa. The EUT is a new antenna for the previously certified IPJ-R1000 RFID reader. The EUT is on mid channel, continuous TX (915.25 MHz). There are two antennas in the enclosure. This test was antenna 1.

Transducer Legend:

T1=ANT-AN01412-111207	T2=CAB-ANP05425-072007
T3=CAB-ANP05545-072208	T4=Filter 1GHz HP AN02750

Measurement Data:

Reading listed by margin.

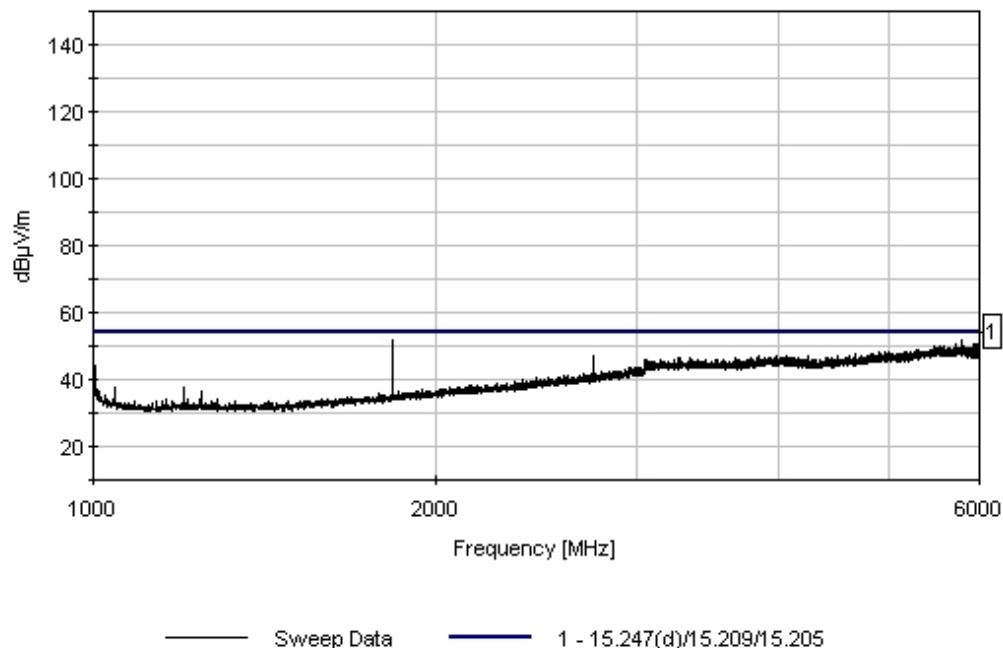
Test Distance: 1 Meter

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	1830.509M	29.3	+26.6	+3.7	+2.2	+0.4	-10.0	52.2	54.0	-1.8	Vert
	Ave						349				114
^	1830.509M	32.6	+26.6	+3.7	+2.2	+0.4	-10.0	55.5	54.0	+1.5	Vert
							349				114
3	5797.097M	16.2	+34.7	+6.4	+4.1	+0.2	-10.0	51.6	54.0	-2.4	Vert
											100
4	5925.407M	15.2	+34.7	+6.4	+4.1	+0.2	-10.0	50.6	54.0	-3.4	Vert
											100
5	5929.521M	15.1	+34.7	+6.4	+4.1	+0.2	-10.0	50.5	54.0	-3.5	Vert
											100
6	5713.013M	15.0	+34.7	+6.4	+4.1	+0.2	-10.0	50.4	54.0	-3.6	Vert
											100

7	5958.679M	15.0	+34.7	+6.4	+4.1	+0.2	-10.0	50.4	54.0	-3.6	Vert 100
8	5983.722M	14.9	+34.7	+6.4	+4.1	+0.2	-10.0	50.3	54.0	-3.7	Vert 100
9	5466.767M	15.0	+34.6	+6.4	+3.9	+0.3	-10.0	50.2	54.0	-3.8	Vert 100
10	5533.833M	14.6	+34.7	+6.5	+4.0	+0.3	-10.0	50.1	54.0	-3.9	Vert 100
11	5583.884M	14.6	+34.7	+6.5	+4.0	+0.3	-10.0	50.1	54.0	-3.9	Vert 100
12	5805.104M	14.6	+34.7	+6.4	+4.1	+0.2	-10.0	50.0	54.0	-4.0	Vert 100
13	5920.935M	14.4	+34.7	+6.4	+4.1	+0.2	-10.0	49.8	54.0	-4.2	Vert 100
14	5974.241M	14.4	+34.7	+6.4	+4.1	+0.2	-10.0	49.8	54.0	-4.2	Vert 100
15	5854.034M	14.3	+34.7	+6.4	+4.1	+0.2	-10.0	49.7	54.0	-4.3	Vert 100
16	5928.806M	14.3	+34.7	+6.4	+4.1	+0.2	-10.0	49.7	54.0	-4.3	Vert 100
17	5987.479M	14.3	+34.7	+6.4	+4.1	+0.2	-10.0	49.7	54.0	-4.3	Vert 100
18	5952.776M	14.2	+34.7	+6.4	+4.1	+0.2	-10.0	49.6	54.0	-4.4	Vert 100
19	5627.928M	14.2	+34.7	+6.4	+4.0	+0.2	-10.0	49.5	54.0	-4.5	Vert 100
20	5703.002M	14.1	+34.7	+6.4	+4.1	+0.2	-10.0	49.5	54.0	-4.5	Vert 100
21	5978.177M	14.1	+34.7	+6.4	+4.1	+0.2	-10.0	49.5	54.0	-4.5	Vert 100
22	5993.024M	14.1	+34.7	+6.4	+4.1	+0.2	-10.0	49.5	54.0	-4.5	Vert 100
23	5989.804M	14.0	+34.7	+6.4	+4.1	+0.2	-10.0	49.4	54.0	-4.6	Vert 100
24	5961.362M	13.9	+34.7	+6.4	+4.1	+0.2	-10.0	49.3	54.0	-4.7	Vert 100
25	5967.802M	13.9	+34.7	+6.4	+4.1	+0.2	-10.0	49.3	54.0	-4.7	Vert 100
26	5934.351M	13.8	+34.7	+6.4	+4.1	+0.2	-10.0	49.2	54.0	-4.8	Vert 100
27	5962.793M	13.8	+34.7	+6.4	+4.1	+0.2	-10.0	49.2	54.0	-4.8	Vert 100
28	5451.751M	13.8	+34.6	+6.4	+3.9	+0.3	-10.0	49.0	54.0	-5.0	Vert 100
29	5940.791M	13.6	+34.7	+6.4	+4.1	+0.2	-10.0	49.0	54.0	-5.0	Vert 100
30	5961.720M	13.6	+34.7	+6.4	+4.1	+0.2	-10.0	49.0	54.0	-5.0	Vert 100

31	5972.811M	13.6	+34.7	+6.4	+4.1	+0.2	-10.0	49.0	54.0	-5.0	Vert 100
32	2745.763M Ave	17.9	+29.9	+4.5	+2.7	+0.6	-10.0 351	45.6	54.0	-8.4	Vert 100
^	2745.763M	27.0	+29.9	+4.5	+2.7	+0.6	-10.0 351	54.7	54.0	+0.7	Vert 100
34	3661.004M Ave	14.6	+31.9	+5.3	+3.0	+0.5	-10.0 190	45.3	54.0	-8.7	Vert 100
^	3661.003M	23.8	+31.9	+5.3	+3.0	+0.5	-10.0 190	54.5	54.0	+0.5	Vert 100
36	1003.548M Ave	23.4	+24.4	+2.9	+1.6	+2.6	-10.0 354	44.9	54.0	-9.1	Vert 99
^	1003.536M	34.6	+24.4	+2.9	+1.6	+2.6	-10.0 354	56.1	54.0	+2.1	Vert 99
38	4576.239M Ave	11.6	+32.6	+6.0	+3.6	+0.2	-10.0 190	44.0	54.0	-10.0	Vert 100
^	4576.253M	22.2	+32.6	+6.0	+3.6	+0.2	-10.0 190	54.6	54.0	+0.6	Vert 100

CKC Laboratories Date: 9/18/2008 Time: 11:55:03 Impinj Inc WVO#: 88581
15.247(d)/15.209/15.205 Test Distance: 1 Meter Sequence#: 13 Polarity: Vert
Notes:



Test Location: CKC Laboratories • 22116 23rd Dr SE • Bothell, WA 98021-4413 • 425-402-1717

Customer: **Impinj Inc**

Specification: **15.247(d)/15.209/15.205**

Work Order #: **88581**

Date: 9/18/2008

Test Type: **Radiated Scan**

Time: 12:55:31

Equipment: **Antenna**

Sequence#: 15

Manufacturer: Impinj, Inc.

Tested By: Jeff Gilbert

Model: IPJ-A0402-USA

S/N: n/a

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4440A	MY46186330	01/31/2008	01/31/2010	AN02872
EMCO 3115 Horn	9606-4854	11/12/2007	11/12/2009	AN01412
Andrews Helix		07/22/2008	07/22/2010	ANP05545
Filter		05/01/2008	05/01/2010	AN02750
Pasternack Coax		07/20/2007	07/20/2009	AN05425

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Antenna*	Impinj, Inc.	IPJ-A0402-USA	n/a
RFID transceiver	Impinj, Inc.	IPJ-R1000-USAM1	40307140716
AC/DC Power Supply	CUI, Inc.	DSA-60W-20	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

FCC 15.247(d) / RSS-210. Frequency Range Investigated: 1 - 9.3 GHz. 23°C / 42% relative humidity / 102.3 kPa. The EUT is a new antenna for the previously certified IPJ-R1000 RFID reader. The EUT is on high channel, continuous TX (927.25 MHz). There are two antennas in the enclosure. This test was antenna 1.

Transducer Legend:

T1=ANT-AN01412-111207	T2=CAB-ANP05425-072007
T3=CAB-ANP05545-072208	T4=Filter 1GHz HP AN02750

Measurement Data:

Reading listed by margin.

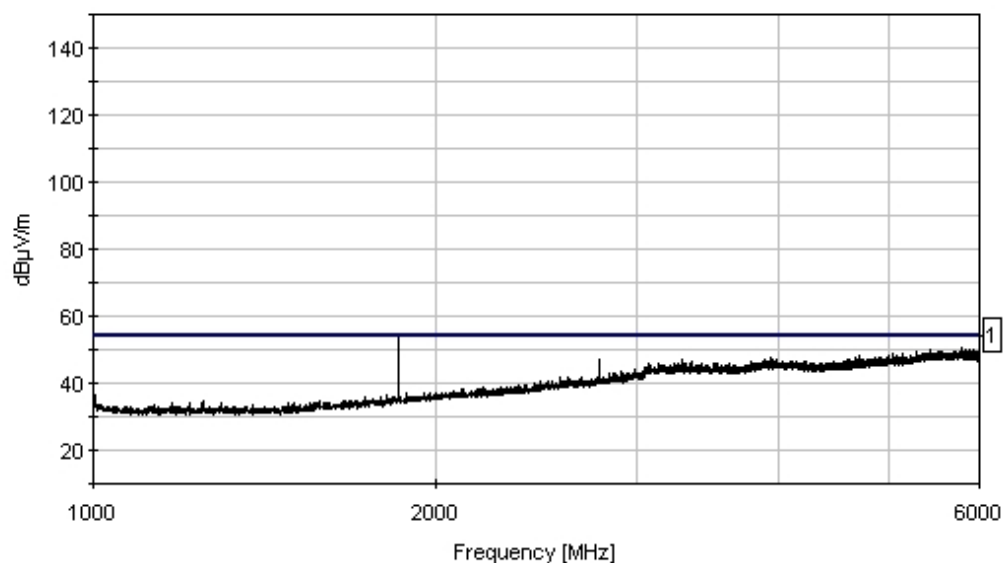
Test Distance: 1 Meter

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	3708.899M	21.7	+32.1	+5.4	+2.9	+0.4	-10.0	52.5	54.0	-1.5	Horiz
	Ave						350				110
^	3708.899M	34.5	+32.1	+5.4	+2.9	+0.4	-10.0	65.3	54.0	+11.3	Horiz
							350				110
3	5788.087M	14.9	+34.7	+6.4	+4.1	+0.2	-10.0	50.3	54.0	-3.7	Horiz
							360				100
4	5886.054M	14.7	+34.7	+6.4	+4.1	+0.2	-10.0	50.1	54.0	-3.9	Horiz
							360				100
5	5838.830M	14.5	+34.7	+6.4	+4.1	+0.2	-10.0	49.9	54.0	-4.1	Horiz
							360				100
6	5891.599M	14.4	+34.7	+6.4	+4.1	+0.2	-10.0	49.8	54.0	-4.2	Horiz
							360				100

7	5922.545M	14.4	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.8	54.0	-4.2	Horiz 100
8	5992.845M	14.3	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.7	54.0	-4.3	Horiz 100
9	5276.577M	15.2	+34.3	+6.1	+3.8	+0.2	-10.0 360	49.6	54.0	-4.4	Horiz 100
10	5979.608M	14.2	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.6	54.0	-4.4	Horiz 100
11	5960.110M	14.1	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.5	54.0	-4.5	Horiz 100
12	5962.078M	14.1	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.5	54.0	-4.5	Horiz 100
13	5981.933M	14.0	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.4	54.0	-4.6	Horiz 100
14	5992.487M	13.9	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.3	54.0	-4.7	Horiz 100
15	5974.778M	13.8	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.2	54.0	-4.8	Horiz 100
16	5983.543M	13.8	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.2	54.0	-4.8	Horiz 100
17	5965.476M	13.7	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.1	54.0	-4.9	Horiz 100
18	5977.282M	13.7	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.1	54.0	-4.9	Horiz 100
19	5987.657M	13.6	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.0	54.0	-5.0	Horiz 100
20	5997.496M	13.6	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.0	54.0	-5.0	Horiz 100
21	5975.494M	13.5	+34.7	+6.4	+4.1	+0.2	-10.0 360	48.9	54.0	-5.1	Horiz 100
22	5144.445M	14.7	+34.0	+6.0	+3.8	+0.3	-10.0 360	48.8	54.0	-5.2	Horiz 100
23	5353.654M	14.1	+34.4	+6.2	+3.9	+0.2	-10.0 360	48.8	54.0	-5.2	Horiz 100
24	5372.672M	14.0	+34.5	+6.2	+3.9	+0.2	-10.0 360	48.8	54.0	-5.2	Horiz 100
25	2781.730M Ave	20.9	+30.0	+4.5	+2.7	+0.6	-10.0 345	48.7	54.0	-5.3	Horiz 106
^	2781.730M	33.9	+30.0	+4.5	+2.7	+0.6	-10.0 345	61.7	54.0	+7.7	Horiz 106
27	5399.700M	13.9	+34.5	+6.2	+3.9	+0.2	-10.0 360	48.7	54.0	-5.3	Horiz 100
28	5032.333M	14.7	+33.8	+6.1	+3.7	+0.3	-10.0 360	48.6	54.0	-5.4	Horiz 100
29	1854.526M Ave	25.3	+26.8	+3.8	+2.2	+0.4	-10.0 350	48.5	54.0	-5.5	Horiz 110
^	1854.526M	34.7	+26.8	+3.8	+2.2	+0.4	-10.0 350	57.9	54.0	+3.9	Horiz 110

31	4701.001M	15.3	+32.9	+6.1	+3.6	+0.2	-10.0	48.1	54.0	-5.9	Horiz
							360				100
32	5082.383M	14.1	+33.9	+6.1	+3.7	+0.3	-10.0	48.1	54.0	-5.9	Horiz
							360				100
33	5214.515M	13.9	+34.1	+6.0	+3.8	+0.3	-10.0	48.1	54.0	-5.9	Horiz
							360				100
34	4991.292M	14.2	+33.7	+6.1	+3.7	+0.3	-10.0	48.0	54.0	-6.0	Horiz
							360				100
35	5258.559M	13.5	+34.2	+6.1	+3.8	+0.3	-10.0	47.9	54.0	-6.1	Horiz
							360				100

CKC Laboratories Date: 9/18/2008 Time: 12:55:31 Impinj Inc WO#: 88581
15.247(d)/15.209/15.205 Test Distance: 1 Meter Sequence#: 15 Polarity: Horiz
Notes:



— Sweep Data — 1 - 15.247(d)/15.209/15.205

Test Location: CKC Laboratories • 22116 23rd Dr SE • Bothell, WA 98021-4413 • 425-402-1717

Customer: **Impinj Inc**
 Specification: **15.247(d)/15.209/15.205**
 Work Order #: **88581**
 Test Type: **Radiated Scan**
 Equipment: **Antenna**
 Manufacturer: **Impinj, Inc.**
 Model: **IPJ-A0402-USA**
 S/N: **n/a**

Date: 9/23/2008
 Time: 08:20:41
 Sequence#: 16
 Tested By: Jeff Gilbert

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4440A	MY46186330	01/31/2008	01/31/2010	AN02872
EMCO 3115 Horn	9606-4854	11/12/2007	11/12/2009	AN01412
Andrews Helix		07/22/2008	07/22/2010	ANP05545
Filter		05/01/2008	05/01/2010	AN02750
Pasternack Coax		07/20/2007	07/20/2009	AN05425
Pasternack Coax		07/20/2007	07/20/2009	AN05428
HP 83017A Pre-amp	3123A00464	10/02/2007	10/02/2009	AN01271

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Antenna*	Impinj, Inc.	IPJ-A0402-USA	n/a
RFID transceiver	Impinj, Inc.	IPJ-R1000-USAM1	40307140716
AC/DC Power Supply	CUI, Inc.	DSA-60W-20	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

FCC 15.247(d) / RSS-210. Frequency Range Investigated: 1 - 9.3 GHz 20° / 39% / 103.1 kPa. The EUT is a new antenna for the previously certified IPJ-R1000 RFID reader. The EUT is on high channel, continuous TX (927.25 MHz). There are two antennas in the enclosure. This test was antenna 1.

Transducer Legend:

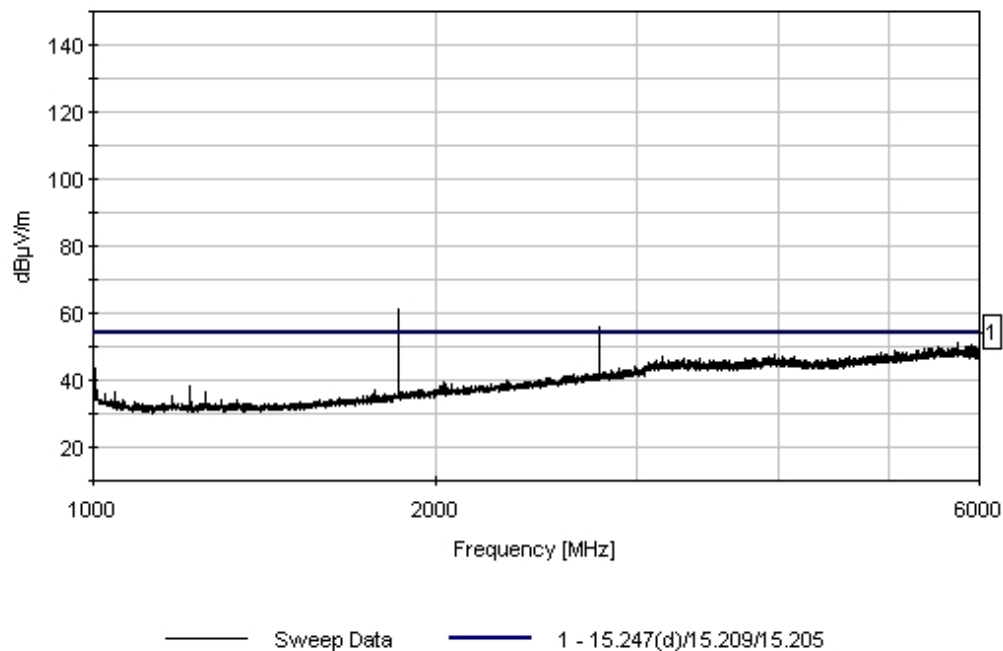
T1=ANT-AN01412-111207	T2=CAB-ANP05425-072007
T3=CAB-ANP05545-072208	T4=Filter 1GHz HP AN02750

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	5738.038M	15.6	+34.7	+6.4	+4.1	+0.2	-10.0 360	51.0	54.0	-3.0	Vert 100
2	5911.813M	15.1	+34.7	+6.4	+4.1	+0.2	-10.0 360	50.5	54.0	-3.5	Vert 100
3	5952.418M	14.8	+34.7	+6.4	+4.1	+0.2	-10.0 360	50.2	54.0	-3.8	Vert 100
4	5990.698M	14.8	+34.7	+6.4	+4.1	+0.2	-10.0 360	50.2	54.0	-3.8	Vert 100
5	5925.049M	14.7	+34.7	+6.4	+4.1	+0.2	-10.0 360	50.1	54.0	-3.9	Vert 100

6	5869.418M	14.6	+34.7	+6.4	+4.1	+0.2	-10.0 360	50.0	54.0	-4.0	Vert 100
7	5993.203M	14.6	+34.7	+6.4	+4.1	+0.2	-10.0 360	50.0	54.0	-4.0	Vert 100
8	5829.170M	14.5	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.9	54.0	-4.1	Vert 100
9	5836.862M	14.5	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.9	54.0	-4.1	Vert 100
10	5875.321M	14.5	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.9	54.0	-4.1	Vert 100
11	5959.395M	14.5	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.9	54.0	-4.1	Vert 100
12	5519.820M	14.3	+34.7	+6.5	+4.0	+0.3	-10.0 360	49.8	54.0	-4.2	Vert 100
13	5876.037M	14.4	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.8	54.0	-4.2	Vert 100
14	5877.468M	14.4	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.8	54.0	-4.2	Vert 100
15	5919.683M	14.4	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.8	54.0	-4.2	Vert 100
16	5400.701M	14.9	+34.5	+6.2	+3.9	+0.2	-10.0 360	49.7	54.0	-4.3	Vert 100
17	5439.740M	14.5	+34.6	+6.4	+3.9	+0.3	-10.0 360	49.7	54.0	-4.3	Vert 100
18	5859.401M	14.2	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.6	54.0	-4.4	Vert 100
19	5866.735M	14.2	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.6	54.0	-4.4	Vert 100
20	5928.806M	14.2	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.6	54.0	-4.4	Vert 100
21	5996.601M	14.2	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.6	54.0	-4.4	Vert 100
22	5981.933M	14.1	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.5	54.0	-4.5	Vert 100
23	5867.271M	14.0	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.4	54.0	-4.6	Vert 100
24	5876.752M	14.0	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.4	54.0	-4.6	Vert 100
25	5949.914M	14.0	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.4	54.0	-4.6	Vert 100
26	5950.987M	14.0	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.4	54.0	-4.6	Vert 100
27	5961.362M	14.0	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.4	54.0	-4.6	Vert 100
28	5970.127M	14.0	+34.7	+6.4	+4.1	+0.2	-10.0 360	49.4	54.0	-4.6	Vert 100
29	2781.740M Ave	10.8	+30.0	+4.5	+2.7	+0.6	+0.0 351	48.6	54.0	-5.4	Vert 100
^	2781.740M	31.9	+30.0	+4.5	+2.7	+0.6	+0.0 349	69.7	54.0	+15.7	Vert 100

CKC Laboratories Date: 9/23/2008 Time: 08:20:41 Impinj Inc WO#: 88581
 15.247(d)/15.209/15.205 Test Distance: 3 Meters Sequence#: 16 Polarity: Vert
 Notes:



Test Location: CKC Laboratories • 22116 23rd Dr SE • Bothell, WA 98021-4413 • 425-402-1717

Customer: **Impinj Inc**

Specification: **15.247(d)/15.209/15.205**

Work Order #: **88581**

Test Type: **Maximized Emissions**

Equipment: **Antenna**

Manufacturer: **Impinj, Inc.**

Model: **IPJ-A0402-USA**

S/N: **n/a**

Date: 9/18/2008

Time: 1:49:59 PM

Sequence#: 18

Tested By: Jeff Gilbert

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4440A	MY46186330	01/31/2008	01/31/2010	AN02872
Andrews Helix		07/22/2008	07/22/2010	ANP05545
Pasternack Coax		07/20/2007	07/20/2009	AN05425
Chase BILOG	2458	01/31/2007	01/31/2009	AN01993

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Antenna*	Impinj, Inc.	IPJ-A0402-USA	n/a
RFID transceiver	Impinj, Inc.	IPJ-R1000-USAM1	40307140716
AC/DC Power Supply	CUI, Inc.	DSA-60W-20	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

FCC 15.247(d) / RSS-210. BAND EDGE. 23°C / 42% relative humidity / 102.3 kPa. The EUT is a new antenna for the previously certified IPJ-R1000 RFID reader. Testing is on low & high channel, continuous TX (902.75 & 927.25 MHz). There are two antennas in the enclosure. This test was antenna 1.

Transducer Legend:

T1=CAB-ANP05425-072007	T2=CAB-ANP05545-072208
T3=ANT AN01993 25-1000MHz	

Measurement Data:

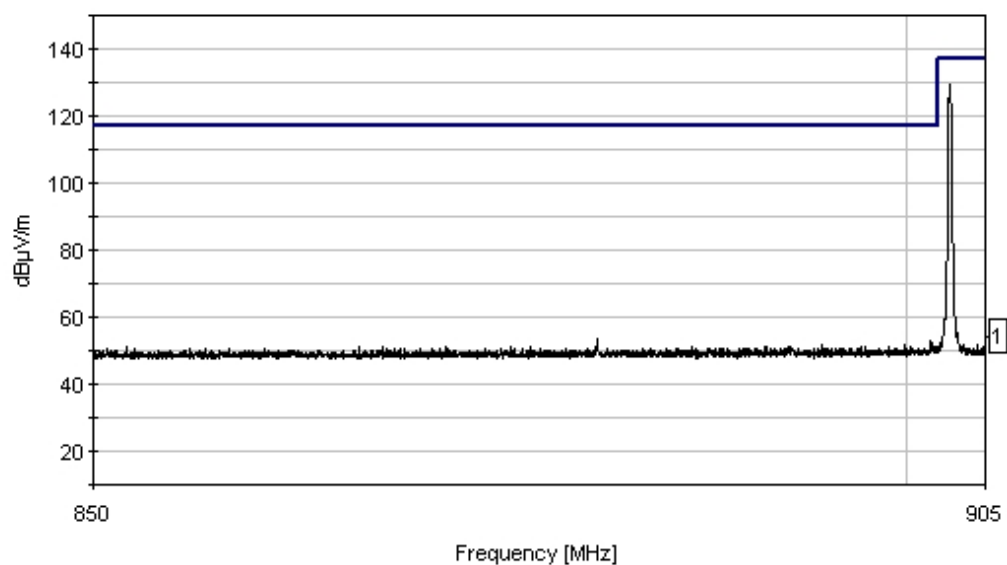
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	902.754M	101.8	+2.8	+1.5	+23.4		+0.0	129.5	137.0	-7.5	Horiz 100
2	880.673M	26.3	+2.7	+1.5	+23.2		+0.0	53.7	117.0	-63.3	Horiz 100
3	901.556M	25.0	+2.8	+1.5	+23.4		+0.0	52.7	117.0	-64.3	Horiz 100
4	894.724M	24.1	+2.8	+1.5	+23.3		+0.0	51.7	117.0	-65.3	Horiz 100
5	899.853M	23.8	+2.8	+1.5	+23.4		+0.0	51.5	117.0	-65.5	Horiz 100

6	871.361M	24.1	+2.7	+1.5	+23.1	+0.0	51.4	117.0	-65.6	Horiz 100
7	891.074M	23.9	+2.7	+1.5	+23.3	+0.0	51.4	117.0	-65.6	Horiz 100
8	852.029M	24.1	+2.7	+1.5	+22.9	+0.0	51.2	117.0	-65.8	Horiz 100
9	866.013M	24.0	+2.7	+1.5	+23.0	+0.0	51.2	117.0	-65.8	Horiz 100
10	891.205M	23.6	+2.7	+1.5	+23.3	+0.0	51.1	117.0	-65.9	Horiz 100

CKC Laboratories Date: 9/18/2008 Time: 1:49:59 PM Impinj Inc WVO#: 88581
15.247(d)/15.209/15.205 Test Distance: 3 Meters Sequence#: 18 Polarity: Horiz
Notes:



— Sweep Data — 1 - 15.247(d)/15.209/15.205

Test Location: CKC Laboratories • 22116 23rd Dr SE • Bothell, WA 98021-4413 • 425-402-1717

Customer: **Impinj Inc**
 Specification: **15.247(d)/15.209/15.205**
 Work Order #: **88581**
 Test Type: **Maximized Emissions**
 Equipment: **Antenna**
 Manufacturer: **Impinj, Inc.**
 Model: **IPJ-A0402-USA**
 S/N: **n/a**

Date: 9/18/2008
 Time: 1:52:47 PM
 Sequence#: 19
 Tested By: Jeff Gilbert

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4440A	MY46186330	01/31/2008	01/31/2010	AN02872
Andrews Helix		07/22/2008	07/22/2010	ANP05545
Pasternack Coax		07/20/2007	07/20/2009	AN05425
Chase BILOG	2458	01/31/2007	01/31/2009	AN01993

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Antenna*	Impinj, Inc.	IPJ-A0402-USA	n/a
RFID transceiver	Impinj, Inc.	IPJ-R1000-USAM1	40307140716
AC/DC Power Supply	CUI, Inc.	DSA-60W-20	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

FCC 15.247(d) / RSS-210 BAND EDGE. 23°C / 42% relative humidity / 102.3 kPa. The EUT is a new antenna for the previously certified IPJ-R1000 RFID reader. Testing is on low & high channel, continuous TX (902.75 & 927.25 MHz). There are two antennas in the enclosure. This test was antenna 1.

Transducer Legend:

T1=CAB-ANP05425-072007	T2=CAB-ANP05545-072208
T3=ANT AN01993 25-1000MHz	

Measurement Data:

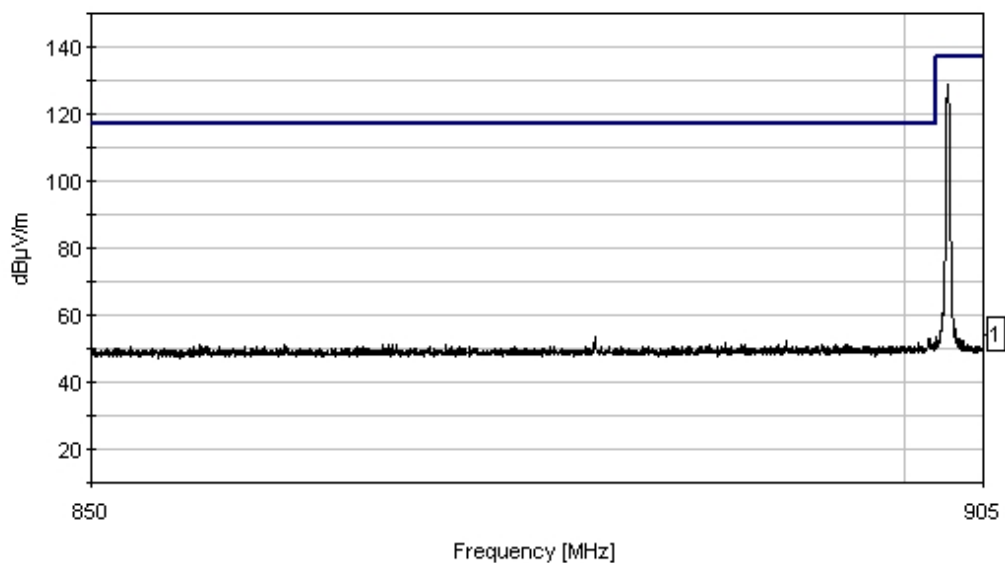
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	902.735M	100.9	+2.8	+1.5	+23.4	+0.0	128.6	137.0	-8.4	Vert 100
2	880.655M	26.0	+2.7	+1.5	+23.2	+0.0	53.4	117.0	-63.6	Vert 100
3	901.575M	25.1	+2.8	+1.5	+23.4	+0.0	52.8	117.0	-64.2	Vert 100
4	892.534M	25.1	+2.7	+1.5	+23.3	+0.0	52.6	117.0	-64.4	Vert 100
5	888.734M	24.2	+2.7	+1.5	+23.3	+0.0	51.7	117.0	-65.3	Vert 100

6	900.845M	23.9	+2.8	+1.5	+23.4	+0.0	51.6	117.0	-65.4	Vert 100
7	871.416M	24.1	+2.7	+1.5	+23.1	+0.0	51.4	117.0	-65.6	Vert 100
8	894.761M	23.8	+2.8	+1.5	+23.3	+0.0	51.4	117.0	-65.6	Vert 100
9	892.047M	23.8	+2.7	+1.5	+23.3	+0.0	51.3	117.0	-65.7	Vert 100
10	896.352M	23.6	+2.8	+1.5	+23.4	+0.0	51.3	117.0	-65.7	Vert 100

CKC Laboratories Date: 9/18/2008 Time: 1:52:47 PM Impinj Inc WVO#: 88581
15.247(d)/15.209/15.205 Test Distance: 3 Meters Sequence#: 19 Polarity: Vert
Notes:



— Sweep Data — 1 - 15.247(d)/15.209/15.205

Test Location: CKC Laboratories • 22116 23rd Dr SE • Bothell, WA 98021-4413 • 425-402-1717

Customer: **Impinj Inc**
 Specification: **15.247(d)/15.209/15.205**
 Work Order #: **88581**
 Test Type: **Maximized Emissions**
 Equipment: **Antenna**
 Manufacturer: **Impinj, Inc.**
 Model: **IPJ-A0402-USA**
 S/N: **n/a**

Date: 9/18/2008
 Time: 1:59:54 PM
 Sequence#: 22
 Tested By: Jeff Gilbert

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4440A	MY46186330	01/31/2008	01/31/2010	AN02872
Andrews Helix		07/22/2008	07/22/2010	ANP05545
Pasternack Coax		07/20/2007	07/20/2009	AN05425
Chase BILOG	2458	01/31/2007	01/31/2009	AN01993

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Antenna*	Impinj, Inc.	IPJ-A0402-USA	n/a
RFID transceiver	Impinj, Inc.	IPJ-R1000-USAM1	40307140716
AC/DC Power Supply	CUI, Inc.	DSA-60W-20	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

FCC 15.247(d) / RSS-210 BAND EDGE. 23°C / 42% relative humidity / 102.3 kPa. The EUT is a new antenna for the previously certified IPJ-R1000 RFID reader. Testing is on low & high channel, continuous TX (902.75 & 927.25 MHz). There are two antennas in the enclosure. This test was antenna 1.

Transducer Legend:

T1=CAB-ANP05425-072007	T2=CAB-ANP05545-072208
T3=ANT AN01993 25-1000MHz	

Measurement Data:

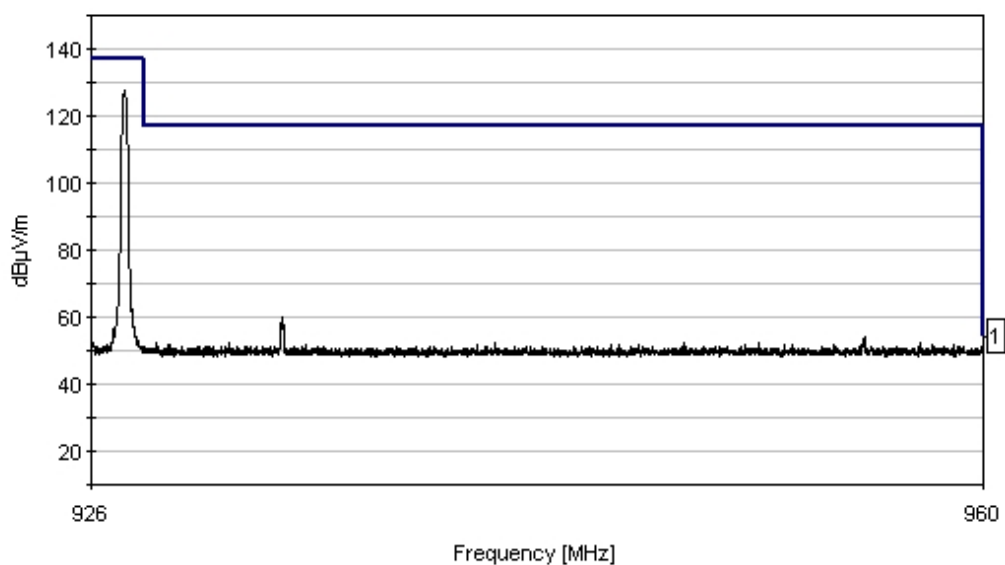
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	927.243M	99.9	+2.8	+1.5	+23.7	+0.0	127.9	137.0	-9.1	Horiz 100
2	933.178M	31.9	+2.8	+1.5	+23.8	+0.0	60.0	117.0	-57.0	Horiz 100
3	933.256M	26.2	+2.8	+1.5	+23.8	+0.0	54.3	117.0	-62.7	Horiz 100
4	955.424M	25.7	+2.8	+1.6	+24.0	+0.0	54.1	117.0	-62.9	Horiz 100
5	928.463M	24.5	+2.8	+1.5	+23.7	+0.0	52.5	117.0	-64.5	Horiz 100

6	931.184M	24.2	+2.8	+1.5	+23.8	+0.0	52.3	117.0	-64.7	Horiz 100
7	957.523M	23.9	+2.8	+1.6	+24.0	+0.0	52.3	117.0	-64.7	Horiz 100
8	948.485M	23.9	+2.8	+1.6	+23.9	+0.0	52.2	117.0	-64.8	Horiz 100
9	941.255M	23.9	+2.8	+1.5	+23.9	+0.0	52.1	117.0	-64.9	Horiz 100
10	951.363M	23.7	+2.8	+1.6	+24.0	+0.0	52.1	117.0	-64.9	Horiz 100

CKC Laboratories Date: 9/18/2008 Time: 1:59:54 PM Impinj Inc WVO#: 88581
15.247(d)/15.209/15.205 Test Distance: 3 Meters Sequence#: 22 Polarity: Horiz
Notes:



— Sweep Data — 1 - 15.247(d)/15.209/15.205

Test Location: CKC Laboratories • 22116 23rd Dr SE • Bothell, WA 98021-4413 • 425-402-1717

Customer: **Impinj Inc**
 Specification: **15.247(d)/15.209/15.205**
 Work Order #: **88581**
 Test Type: **Maximized Emissions**
 Equipment: **Antenna**
 Manufacturer: **Impinj, Inc.**
 Model: **IPJ-A0402-USA**
 S/N: **n/a**

Date: 9/18/2008
 Time: 1:57:10 PM
 Sequence#: 21
 Tested By: Jeff Gilbert

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4440A	MY46186330	01/31/2008	01/31/2010	AN02872
Andrews Helix		07/22/2008	07/22/2010	ANP05545
Pasternack Coax		07/20/2007	07/20/2009	AN05425
Chase BILOG	2458	01/31/2007	01/31/2009	AN01993

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Antenna*	Impinj, Inc.	IPJ-A0402-USA	n/a
RFID transceiver	Impinj, Inc.	IPJ-R1000-USAM1	40307140716
AC/DC Power Supply	CUI, Inc.	DSA-60W-20	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

FCC 15.247(d) / RSS-210 BAND EDGE. 23°C / 42% relative humidity / 102.3 kPa. The EUT is a new antenna for the previously certified IPJ-R1000 RFID reader. Testing is on low & high channel, continuous TX (902.75 & 927.25 MHz). There are two antennas in the enclosure. This test was antenna 1.

Transducer Legend:

T1=CAB-ANP05425-072007	T2=CAB-ANP05545-072208
T3=ANT AN01993 25-1000MHz	

Measurement Data:

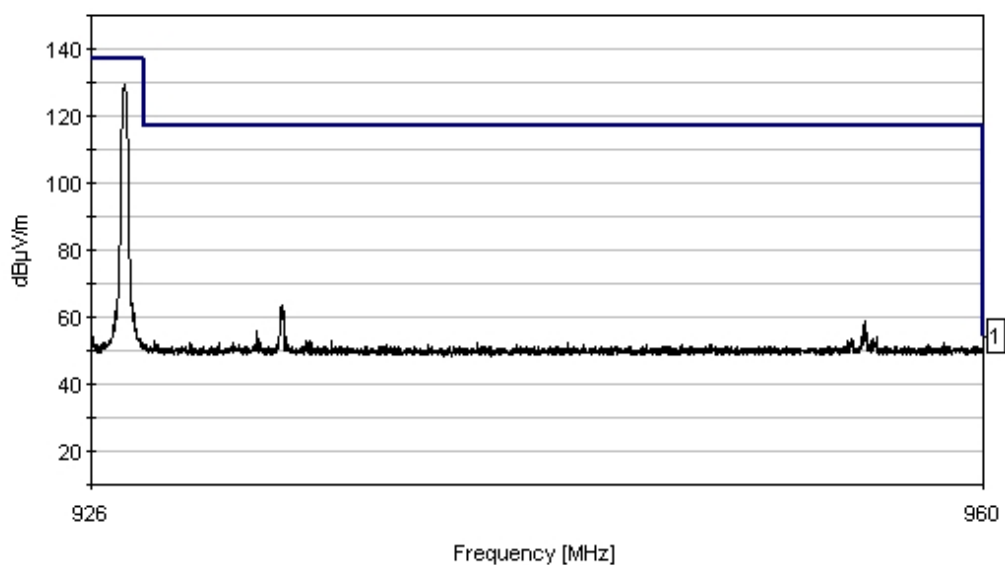
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	927.243M	101.7	+2.8	+1.5	+23.7	+0.0	129.7	137.0	-7.3	Vert 100
2	933.155M	35.6	+2.8	+1.5	+23.8	+0.0	63.7	117.0	-53.3	Vert 100
3	955.389M	30.7	+2.8	+1.6	+24.0	+0.0	59.1	117.0	-57.9	Vert 100
4	955.366M	29.2	+2.8	+1.6	+24.0	+0.0	57.6	117.0	-59.4	Vert 100
5	932.226M	27.5	+2.8	+1.5	+23.8	+0.0	55.6	117.0	-61.4	Vert 100

6	955.469M	27.0	+2.8	+1.6	+24.0	+0.0	55.4	117.0	-61.6	Vert 100
7	955.286M	26.0	+2.8	+1.6	+24.0	+0.0	54.4	117.0	-62.6	Vert 100
8	955.492M	25.9	+2.8	+1.6	+24.0	+0.0	54.3	117.0	-62.7	Vert 100
9	933.301M	26.1	+2.8	+1.5	+23.8	+0.0	54.2	117.0	-62.8	Vert 100
10	955.882M	25.5	+2.8	+1.6	+24.0	+0.0	53.9	117.0	-63.1	Vert 100

CKC Laboratories Date: 9/18/2008 Time: 1:57:10 PM Impinj Inc WVO#: 88581
15.247(d)/15.209/15.205 Test Distance: 3 Meters Sequence#: 21 Polarity: Vert
Notes:



— Sweep Data — 1 - 15.247(d)/15.209/15.205