



FCC Part 15, Subpart C, Section 15.247
Test Report

On

Blink Alarm

FCC ID: 2AF77-BAM00300U

Customer Name: Immedia Semiconductor

Customer P.O.: IMS HI12175-1

Date of Report: January 18, 2016

Test Report No.: R-6050N

Test Start Date: December 28, 2015

Test Finish Date: December 30, 2015

Test Technician: M. Seamans

Approved By: S. Wentworth

Report Prepared By: J. Ramsey

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Technical Information

Report Number: R-6050N

Customer: Immedia Semiconductor

Address: 100 Burt Road, Suite 100
Andover, MA 01810

Manufacturer: Immedia Semiconductor

Manufacturer Address: 100 Burt Road, Suite 100
Andover, MA 01810

Test Sample: Blink Alarm

Part Number: 030015300

Model Number: BAM00300U

Serial Number: 1

FCC ID: 2AF77-BAM00300U

Type: Frequency Hopping Spread Spectrum Transmitter

Power Requirements: 1.5 VDC via one (1) Lithium Ion AA battery

Frequency of Operation: 902.36 MHz to 927.6 MHz

Equipment Class: DSS

Antenna Type: Internal PCB Antenna – 1.5 dBi Gain

Equipment Use: Used in a Home Monitoring System

Test Specification:

FCC Rules and Regulations Part 15, Subpart C, Section 15.247

Test Procedure:

ANSI C63.4:2009



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Test Facility:

Retlif Testing Laboratories
 101 New Boston Road
 Goffstown, NH 03045

FCC Registered Test Site Number: 90899

Table 1 – Tests Performed

FCC Part 15, Subpart C	Test Method
15.247(a)(1)	Channel Separation
15.247(a)(1)	20 dB Bandwidth
15.247(a)(1)(i)	Number of Channels and Occupancy Time
15.247(b)(2) and (4)	Peak Conducted Output Power
15.247(d)	Spurious Emissions, 30 MHz to 10 GHz
15.247(a)/15.209(a)	Field Strength of Spurious Emissions

Table 2 – Support Equipment

Description	Manufacturer	Part Number	Model Number	Serial Number
Sync Module	Immedia	200-004-605	N/A	N/A
Laptop PC	Toshiba	PSPMJU-01U02J	Satellite P55-A5312	8D215205S



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Certification and Signatures

We certify that this report is a true representation of the results obtained from the tests of the equipment stated. We further certify that the measurements shown in this report were made in accordance with the procedures indicated and vouch for the qualifications of all Retlif Testing Laboratories personnel taking them.



Scott Wentworth
Branch Manager
NVLAP Approved Signatory

Non-Warranty Provision

The testing services have been performed, findings obtained and reports prepared in accordance with generally accepted laboratory principles and practices. This warranty is in lieu of all others, either expressed or implied.

Non-Endorsement

This test report contains only findings and results arrived at after employing the specific test procedures and standards listed herein. It is not intended to constitute a recommendation, endorsement or certification of the product or material tested. This test report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.



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Revision History

Revisions to this document are listed below; the latest revised document supersedes all previous issues of this document:

Revision	Date	Pages Affected
-	January 18, 2016	Original Release



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Requirements and Test Results

Requirement:

FCC Section 15.247 (a)(1)

Channel Separation and 20 dB Bandwidth

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

- **Results:**

The carrier frequencies were separated by 399.79 kHz which exceeded the maximum 20 dB bandwidth of 384.77 kHz which complies with the requirements specified above.

FCC Section 15.247 (a)(1)(i)

Number of Channels and Occupancy Time

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

- **Results:**

The number of hopping frequencies used was 53 and the average time of occupancy was 10.02 msec which complied with the above requirements.



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Requirements and Test Results (con't)

FCC Section 15.247 (b)(2) and (4) Peak Conducted Output Power

(1) For frequency hopping systems operating in the 902-928 MHz band employing at least 50 non-overlapping hopping channels: 1 watt. For systems employing less than 50 hopping channels, but at least 25 hopping channels: 0.25 watts.

(4) The conducted output power limit specified in Paragraph (b) of Section 15.247 is based on the use of antenna with directional gains that do not exceed 6 dBi. Except as shown in Paragraph (c) of Section 15.247, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in Paragraph (b)(1), (b)(2) and (b)(3) of Section 15.247, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

- **Results:**

The frequency hopping system utilizes a transmitting antenna with a gain of 1.5 dBi. The maximum peak conducted output power was measured to be 9.02 milliwatts and the EIRP is less than 1W.

FCC Section 15.247 (d) Spurious Emissions

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under Paragraph (b)(3) of Section 15.247, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

- **Results:**

The antenna port conducted spurious emissions comply with the requirement that the radio frequency power be at least 20 dB below the highest in band level.

In addition, Harmonic and Spurious Emissions which were found to be within the restricted bands of operation, as defined in section 15.205 (a) were found to be in compliance with the general limits specified in section 15.209 (a).



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Requirements and Test Results (con't)

FCC Section 15.247 (a)

Field Strength of Spurious Radiation

Operation under the provisions of Section 15.247 is limited to frequency hopping and digitally modulated intentional radiators that comply with the provisions stated in Section 15.247(a)(1).

FCC Section 15.209(a)

Radiated Emission Limits, General Requirements

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in Table 3.

Table 3 - Radiated Emission Limits

Frequency of Emission (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 to 88	100	3
88 to 216	150	3
216 to 960	200	3
Above 960	500	3

- **Results:**

The field strength of spurious radiated emissions did not exceed the limits specified in Table 3.



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Field Strength Calculation/Conversion:

The maximized field strength of the emission was obtained as follows:

$$C_R = M_R + C_F$$

Where:

C_R = Corrected Reading in dB μ V/m

M_R = Uncorrected Meter Reading in dB μ V

C_F = Correction Factor in dB (Antenna Factor, Pre-amp + Cable Loss)

Example:

$$M_R = 15.35 \text{ dB}\mu\text{V}$$

$$C_F = 16.85 \text{ dB}$$

$$C_R = 15.35 \text{ dB}\mu\text{V} + 16.85 = 32.2 \text{ dB}\mu\text{V/m}$$

dB μ V/M is converted to uV/M for comparison to the specified limit using the formula:

$$\text{invLog dB}\mu\text{V/M}/20$$

$$32.2 \text{ dB}\mu\text{V/m} = 40.74 \text{ uV/m}$$

RF Power Conversion:

Power readings in dBm may be converted to mW using the formula:

$$\text{InvLog dBm}/10$$

$$\text{Example: } 20\text{dBm} = 100\text{mW}$$



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Requirements and Test Results (con't)

FCC Section 15.247 (i)

RF Exposure Limits

Spread Spectrum Transmitters operating under 15.247 must be operated in a manner that ensures the public is not exposed to RF energy levels in excess of the commission's guidelines. Based on the transmitter power and maximum antenna gain (see calculation below) the minimum separation distance was calculated to determine the distance for acceptable MPE power density levels to meet both the Occupational/Controlled Exposure and the General Population/Uncontrolled Exposure requirements of FCC Part 1.1310. The calculation below uses the more stringent General Population MPE Limits.

$$S = \frac{PG}{4\pi D^2}$$

D = Minimum Separation Distance in cm

S = Max allowed Power Density in mW/cmsq

Per 1.1310 For the Frequency of 928 MHz $S = 928 / 1500 = 0.618$ mW/cmsq

Power = Max Power Input to Antenna = 9.02 mW

Gain = Max Power Gain of Antenna = 1.5 dBi = 1.41 numeric

$$0.618 \text{ mW/cmsq} = \frac{9.02 \times 1.41}{4 \times (3.14) \times D^2} = \frac{12.72}{12.56 \times D^2}$$

$$D^2 = \frac{12.72}{12.56 \times 0.618}$$

$$D = \sqrt{1.64} = 1.28 \text{ cm}$$

The test sample has an internal antenna and the minimum separation distance will always be maintained.



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Equipment List

FCC Section 15.247(a)(1) Channel Separation

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5030B	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz	757C-10	3/18/2015	3/31/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016

FCC Section 15.247(a)(1) 20 dB Bandwidth

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5030B	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz	757C-10	3/18/2015	3/31/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016

FCC Section 15.247 (a)(1) (iii) Number of Channels and Occupancy Time

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5030B	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz	757C-10	3/18/2015	3/31/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016

FCC Section 15.247 (a)(1) Peak Conducted Output Power

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5030B	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz	757C-10	3/18/2015	3/31/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016

FCC Section 15.247 (d) Conducted Spurious Emissions, 30 MHz to 10 GHz

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5030B	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz	757C-10	3/18/2015	3/31/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016



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**FCC Section 15.247 (a) / 15.209(a)
Field Strength of Spurious Radiated Emissions**

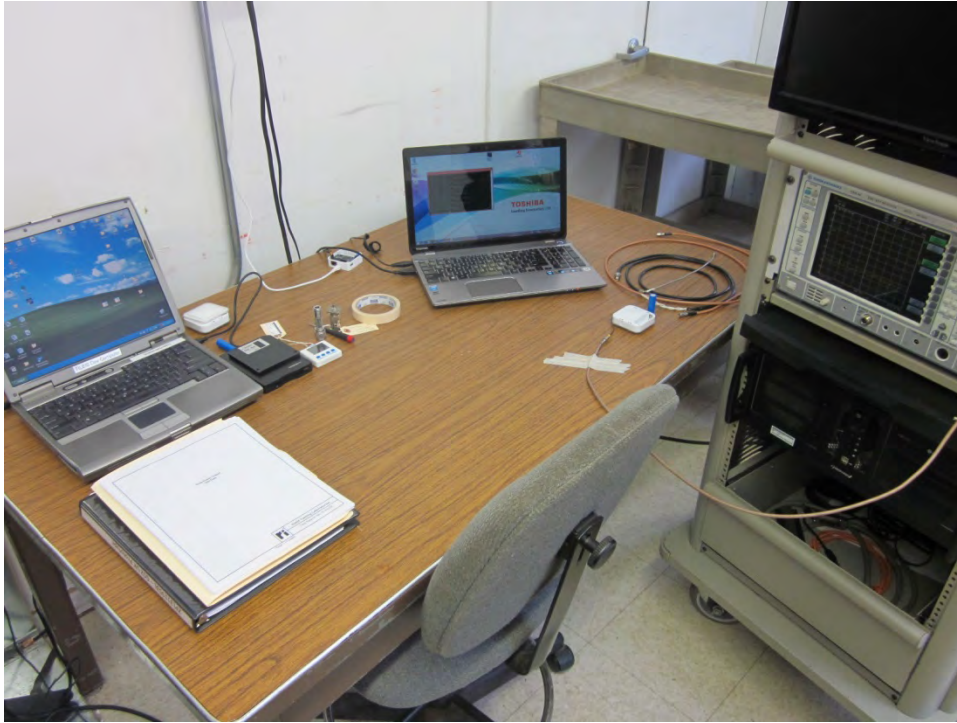
EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
1232	AGILENT / HP	PRE-AMPLIFIER	1 - 26.5 GHz	8449B	6/17/2015	6/30/2016
3258	ETS / EMCO	ANTENNA, DOUBLE RIDGED GUIDE	1 - 18 GHz	3115	3/24/2015	9/30/2016
4029	RETLIF	OPEN AREA TEST SITE, FILING	3 / 10 Meters	RNH	5/15/2013	5/31/2016
5013	POWERSTAT	TRANSFORMER, AUTO	0 - 140 V, 10 A, 60 Hz	116B	No Calibration Required	
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016
5188	Cybertron	COMPUTER, CONTROL	N/A	TSVQJA2221	No Calibration Required	
R462	AGILENT / HP	ANALYZER, SPECTRUM	9 kHz - 26.5 GHz	E7405A	1/8/2015	1/31/2016



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Test Photographs Channel Separation



Test Setup



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**FCC Section 15.247(a)(1)
Channel Separation
Test Data**

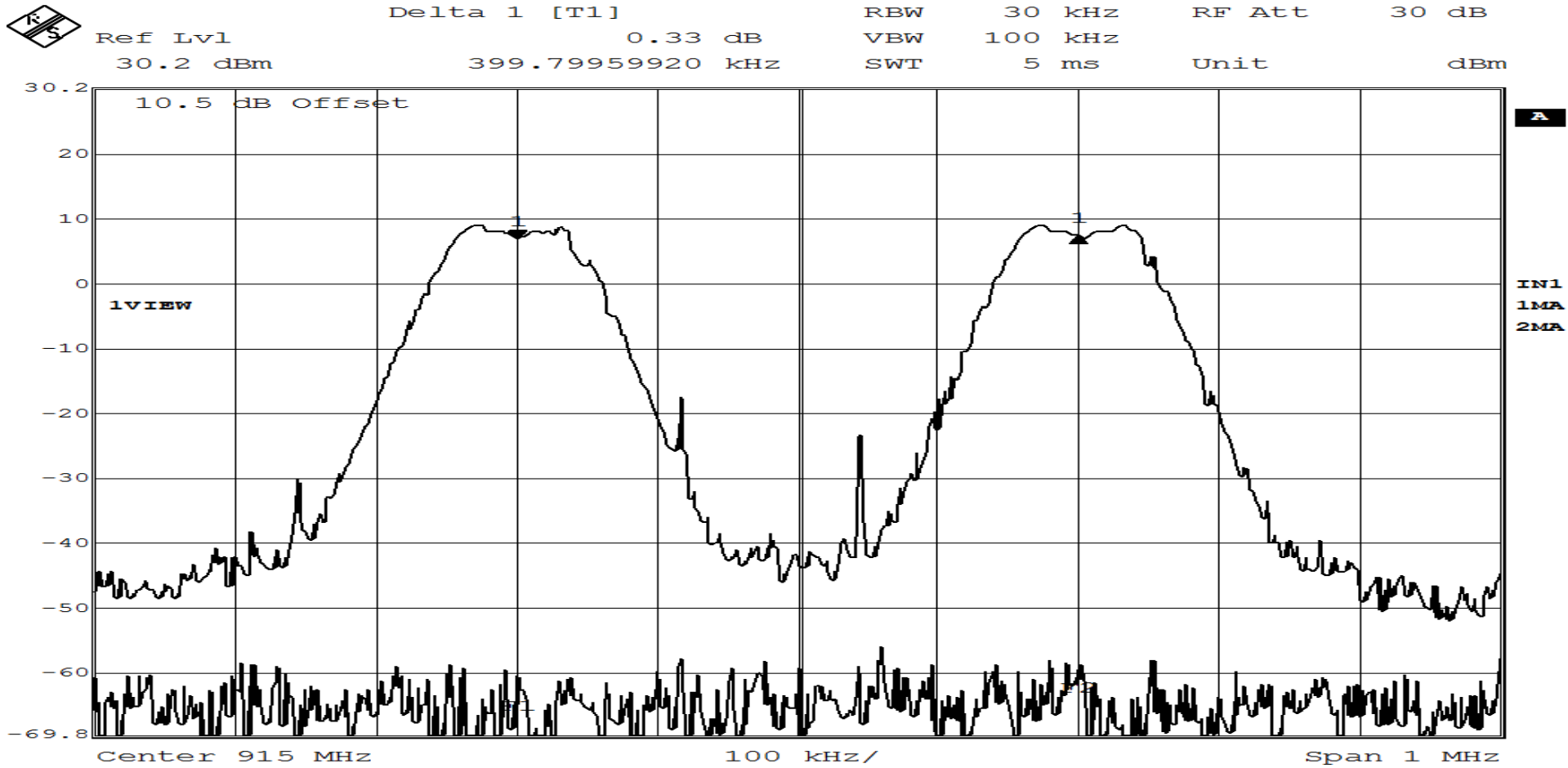


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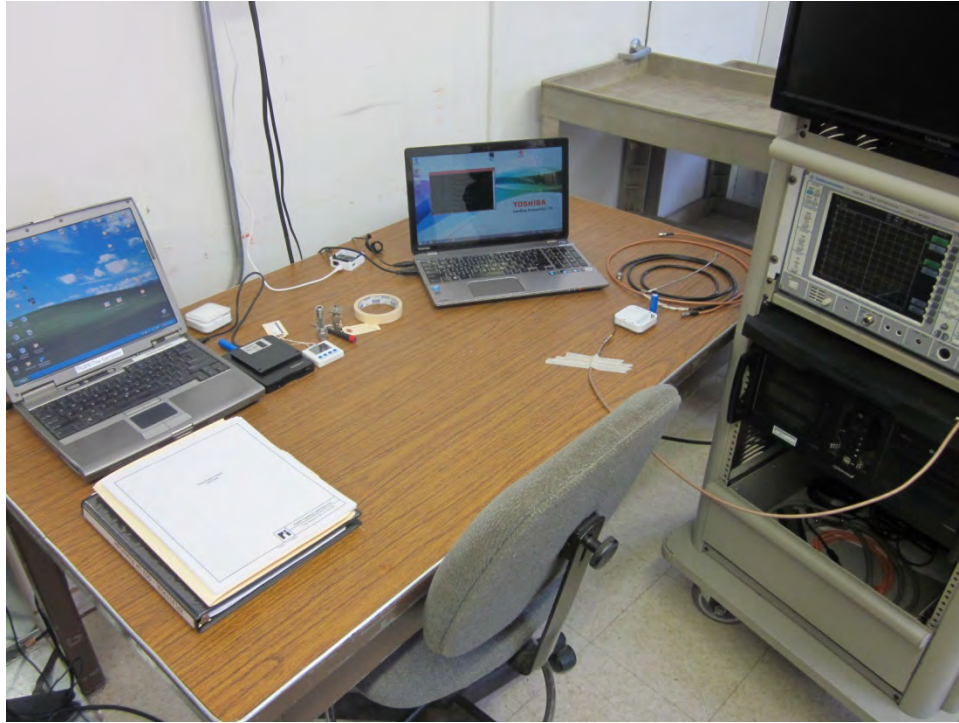
RETLIF TESTING LABORATORIES

Test Method:	Channel Carrier Frequency Separation		
Customer	Immedia Semiconductor	Job No.	R-6050N
Test Sample	Blink Alarm		
Model Number	BAM00300U	Serial No.	1
Operating Mode	Transmitting hopping frequency data		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)		
Technician	M. Seamans	Date	December 30 th , 2015
Climatic Conditions	Temp: 21.5 °C Relative Humidity: 33.2 %		
Notes	Channel Carrier Frequency Separation: 399.799 kHz		



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**Test Photographs
20 dB Bandwidth**



Test Setup



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**FCC Section 15.247(a)(1)
20 dB Bandwidth
Test Data**



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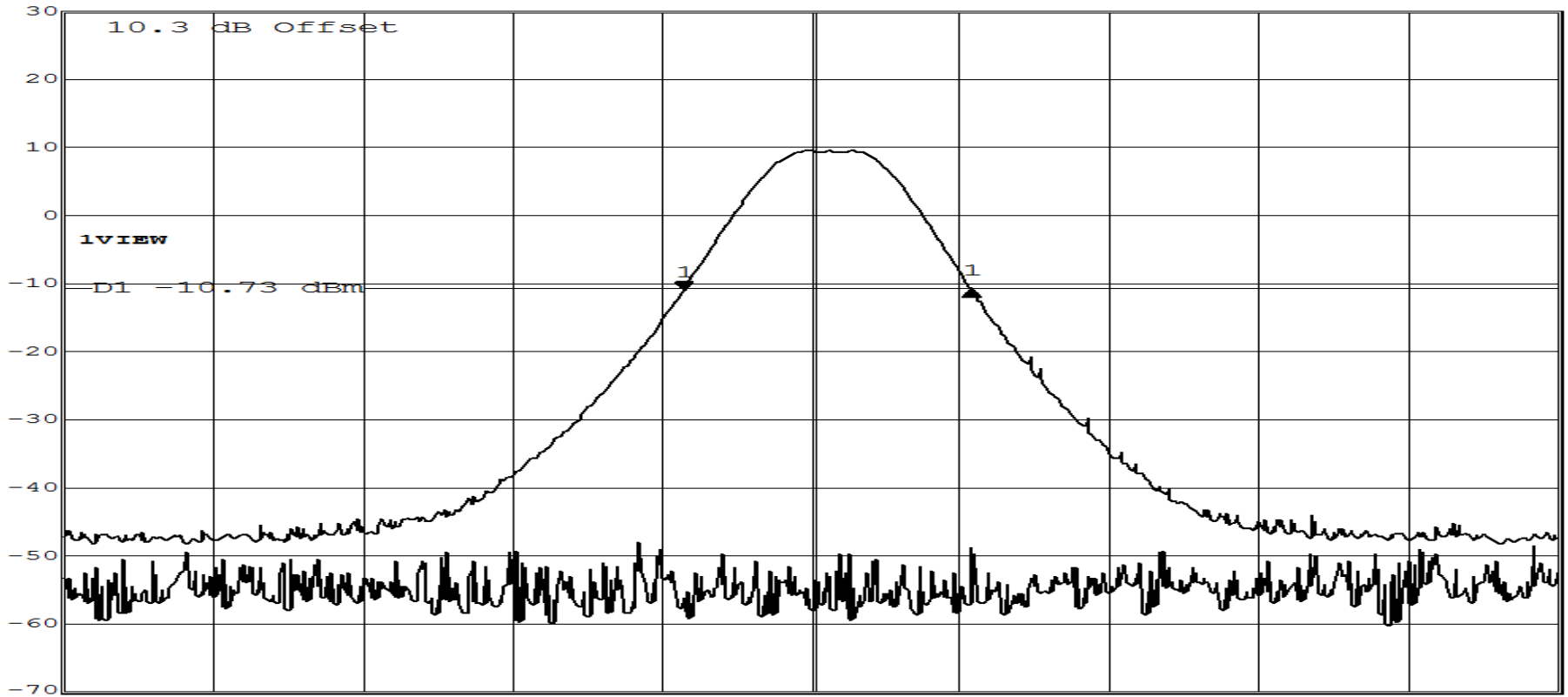
Report No. R-6050N

RETLIF TESTING LABORATORIES

Test Method:	20dB Bandwidth		
Customer	Immedia Semiconductor	Job No.	R-6050N
Test Sample	Blink Alarm		
Model Number	BAM00300U	Serial No.	1
Operating Mode	Transmitting modulated signal		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)(i)		
Technician	M. Seamans	Date	December 30 th , 2015
Climatic Conditions	Temp: 21.9 °C Relative Humidity: 34.4 %		
Notes	Transmit Frequency: 902.36 MHz 20dB Bandwidth: 384.769 kHz		



Delta 1 [T1] RBW 100 kHz RF Att 30 dB
 Ref Lvl 0.21 dB VBW 300 kHz
 30 dBm 384.76953908 kHz SWT 5 ms Unit dBm

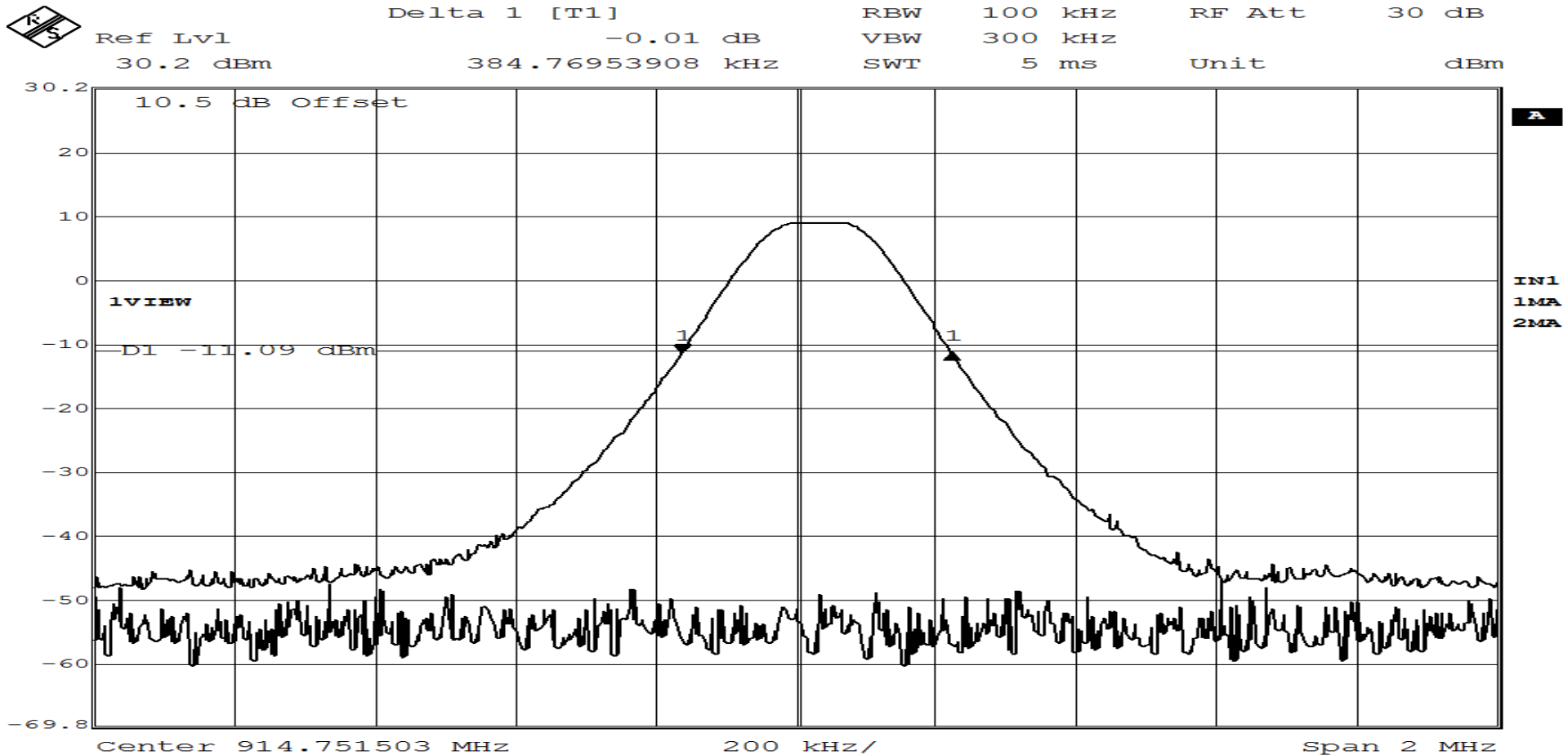


Center 902.3587174 MHz 200 kHz/ Span 2 MHz

Date: 30.DEC.2015 09:43:16
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RETLIF TESTING LABORATORIES

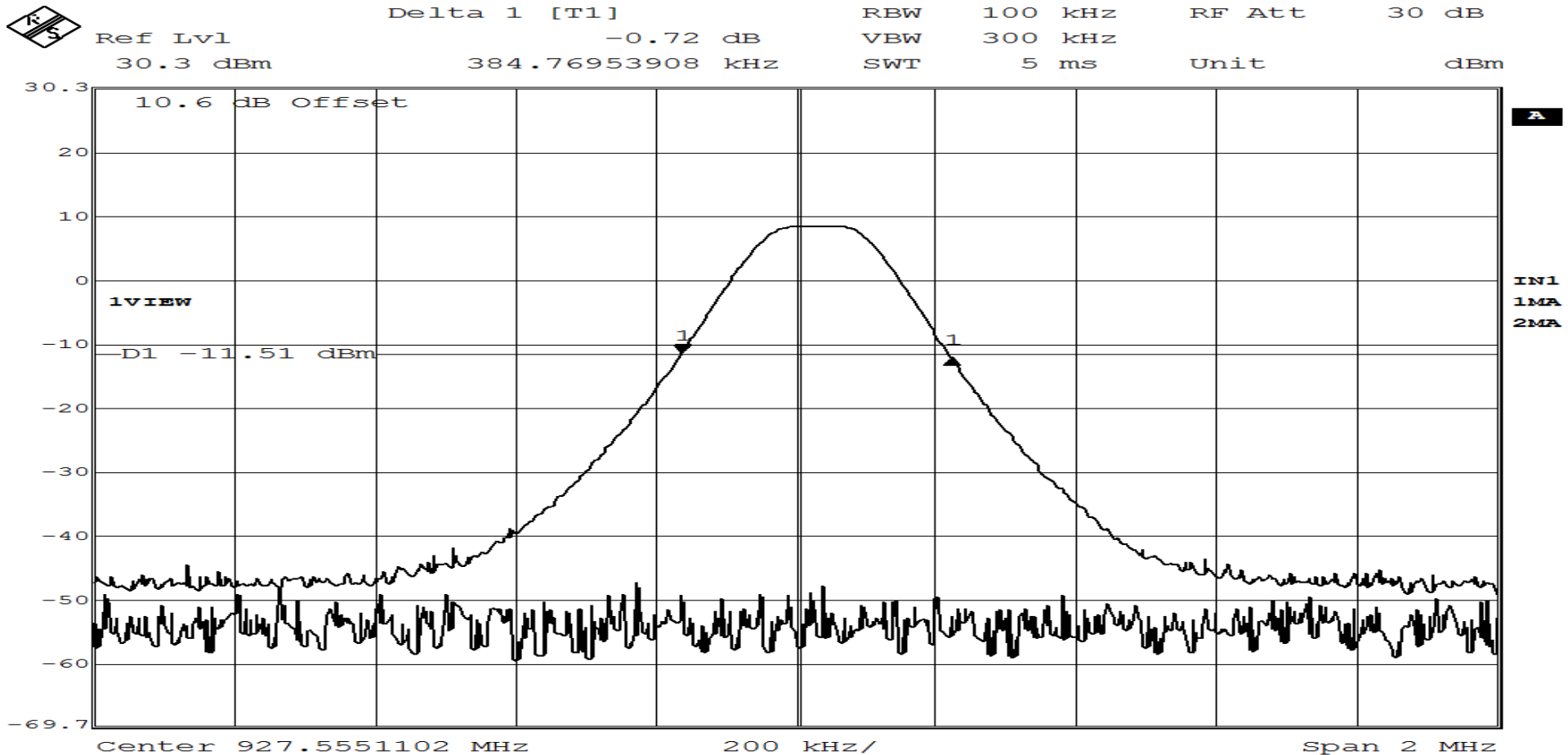
Test Method:	20dB Bandwidth		
Customer	Immedia Semiconductor	Job No.	R-6050N
Test Sample	Blink Alarm		
Model Number	BAM00300U	Serial No.	1
Operating Mode	Transmitting modulated signal		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)(i)		
Technician	M. Seamans	Date	December 30 th , 2015
Climatic Conditions	Temp: 21.9 °C Relative Humidity: 34.4 %		
Notes	Transmit Frequency: 914.80 MHz 20dB Bandwidth: 384.769 kHz		



Date: 30.DEC.2015 09:50:45
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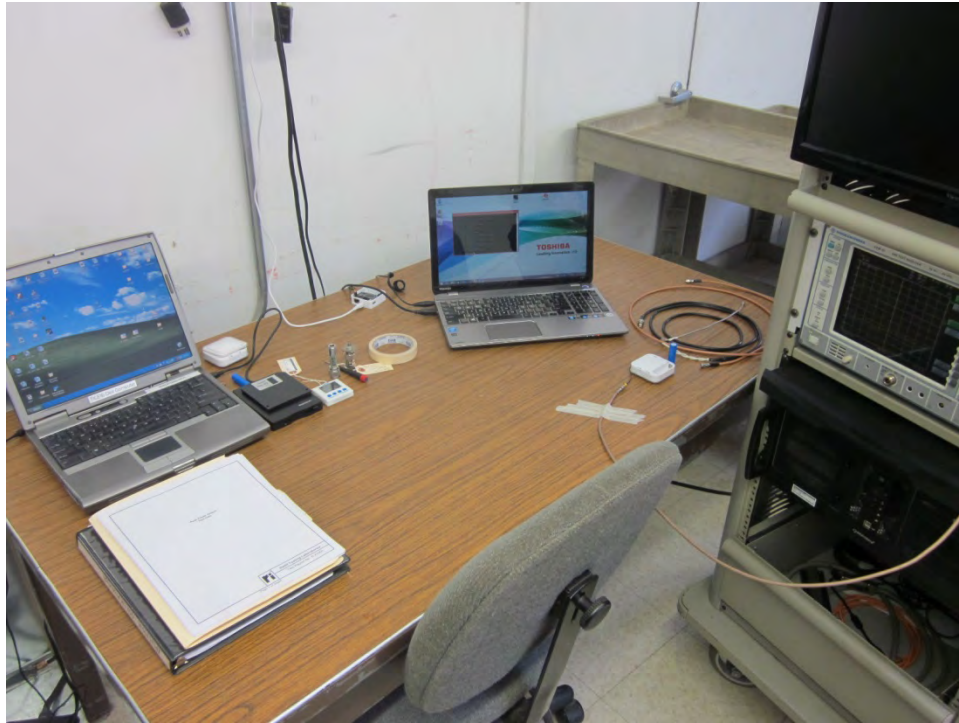
RETLIF TESTING LABORATORIES

Test Method:	20dB Bandwidth		
Customer	Immedia Semiconductor	Job No.	R-6050N
Test Sample	Blink Alarm		
Model Number	BAM00300U	Serial No.	1
Operating Mode	Transmitting modulated signal		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)(i)		
Technician	M. Seamans	Date	December 30 th , 2015
Climatic Conditions	Temp: 21.9 °C Relative Humidity: 34.4 %		
Notes	Transmit Frequency: 927.60 MHz 20dB Bandwidth: 384.769 kHz		



Date: 30.DEC.2015 09:56:02
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Test Photographs
Number of Channels and Occupancy Time



Test Setup



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**FCC Section 15.247 (a)(1)(i)
Number of Channels and Occupancy Time
Test Data**

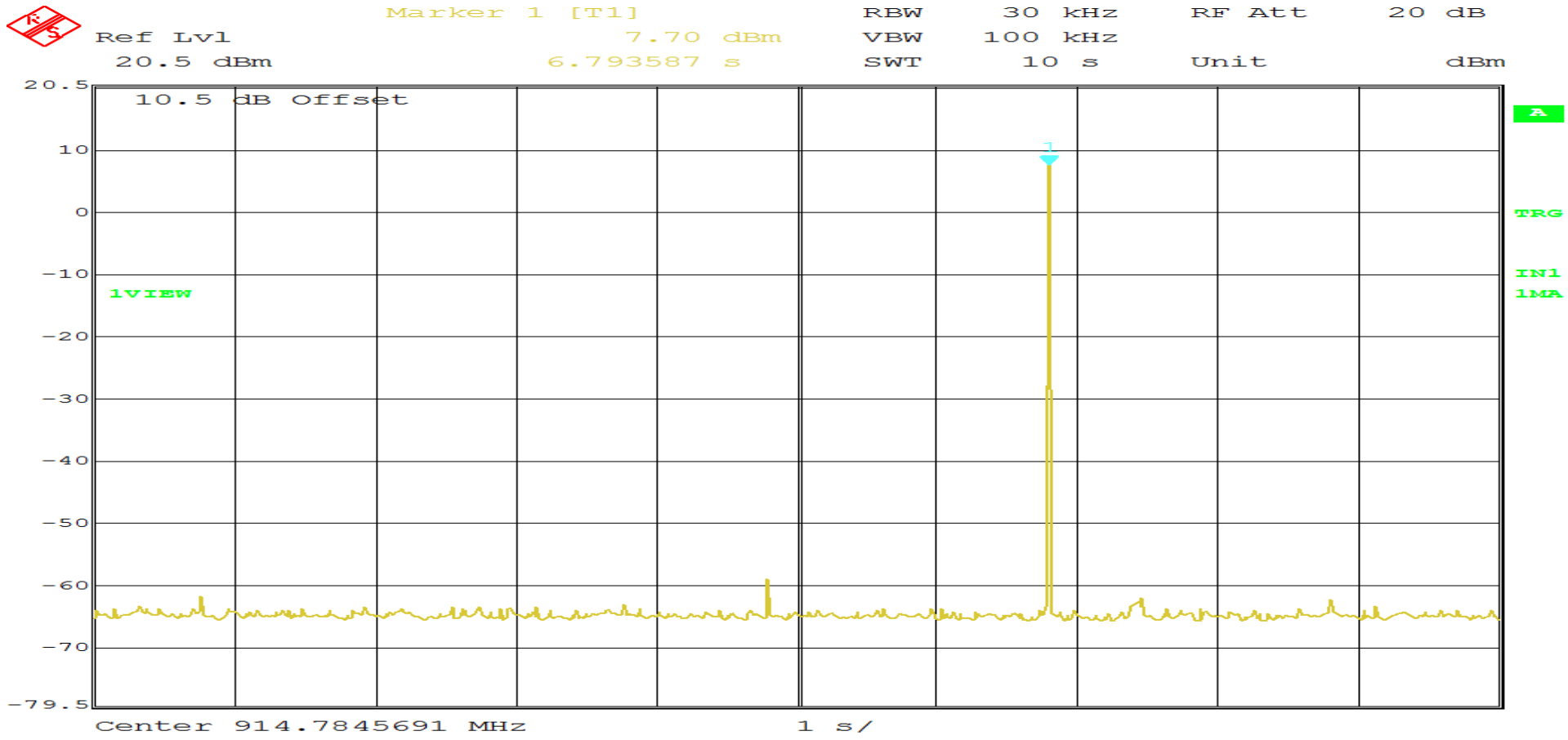


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RETLIF TESTING LABORATORIES

Test Method:	Time of Occupancy		
Customer	Immedia Semiconductor	Job No.	R-6050N
Test Sample	Blink Alarm		
Model Number	BAM00300U	Serial No.	1
Operating Mode	Transmitting hopping frequency data		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)(i)		
Technician	M. Seamans	Date	December 30 th , 2015
Climatic Conditions	Temp: 21.9 °C Relative Humidity: 34.4 %		
Notes	Test Frequency: 914.80 MHz Pulse Width: 10.02ms		

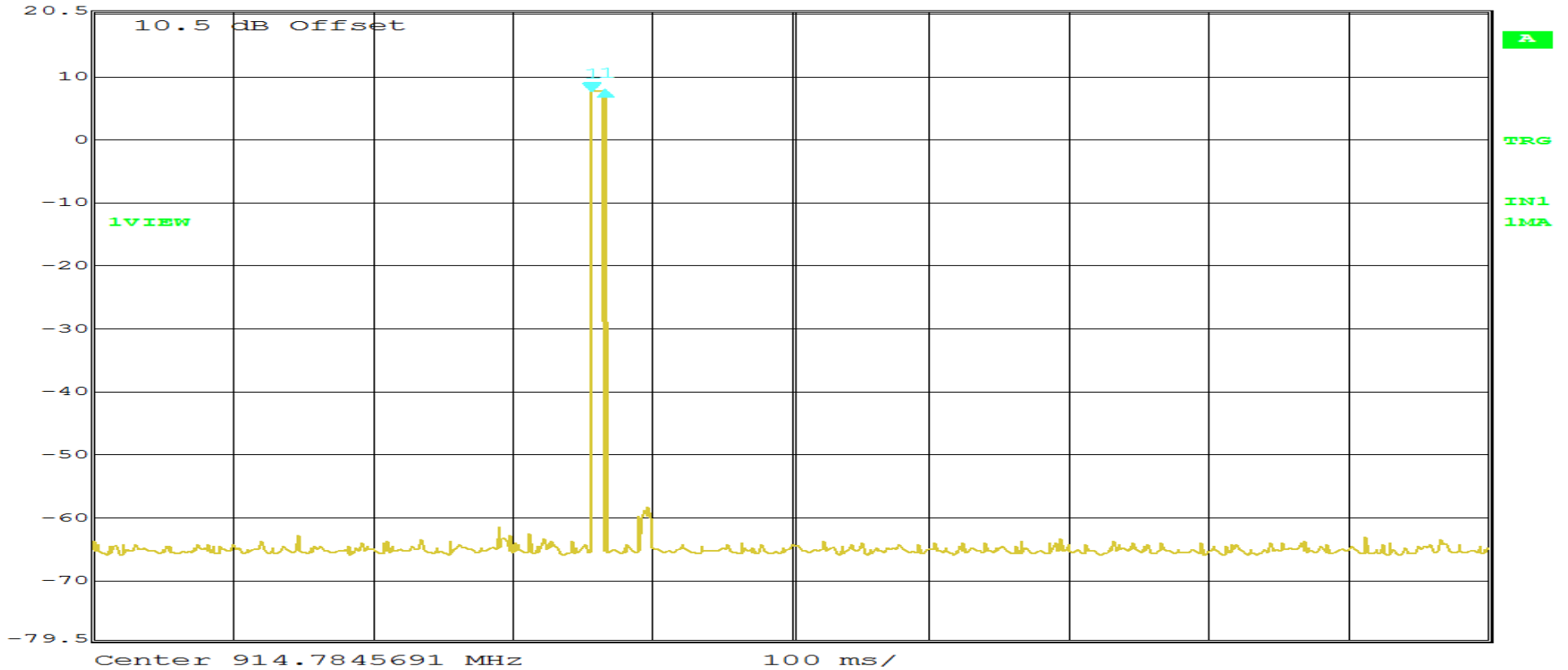


Date: 30.DEC.2015 12:04:41
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RETLIF TESTING LABORATORIES

Test Method:	Time of Occupancy		
Customer	Immedia Semiconductor	Job No.	R-6050N
Test Sample	Blink Alarm		
Model Number	BAM00300U	Serial No.	1
Operating Mode	Transmitting hopping frequency data		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)(i)		
Technician	M. Seamans	Date	December 30 th , 2015
Climatic Conditions	Temp: 21.9 °C Relative Humidity: 34.4 %		
Notes	Test Frequency: 914.80 MHz Pulse Width: 10.02ms		

◆ Delta 1 [T1] RBW 30 kHz RF Att 20 dB
 Ref Lvl 0.12 dB VBW 100 kHz
 20.5 dBm 10.020040 ms SWT 1 s Unit dBm



Date: 30.DEC.2015 12:12:04
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**Number of Hopping Frequencies
Test Data**



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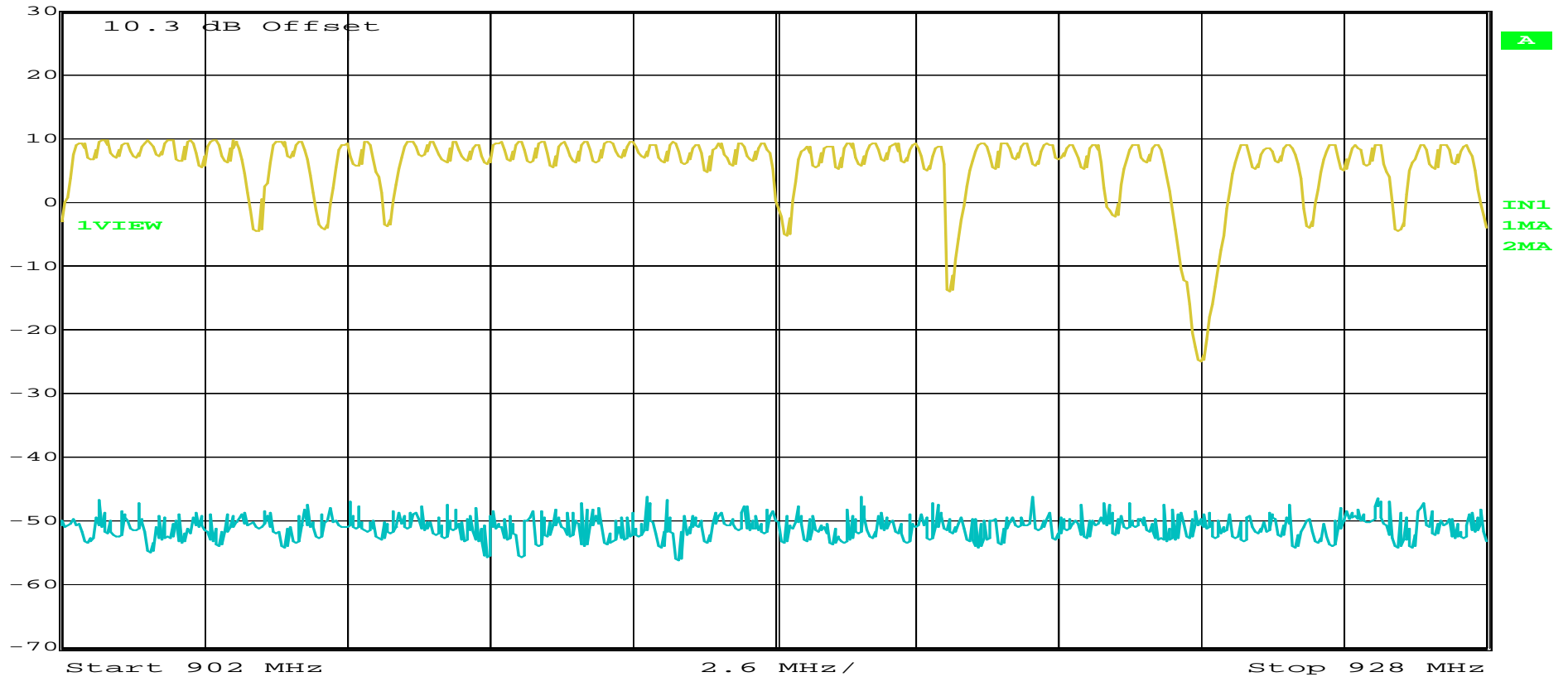
RETLIF TESTING LABORATORIES

Test Method:	Number of Hopping Frequencies		
Customer	Immedia Semiconductor	Job No.	R-6050N
Test Sample	Blink Alarm		
Model Number	BAM00300U	Serial No.	1
Operating Mode	Transmitting hopping frequency data		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)(i)		
Technician	M. Seamans	Date	December 30 th , 2015
Climatic Conditions	Temp: 21.9 °C Relative Humidity: 33.8 %		
Notes	Number of Hopping Frequencies: 53		



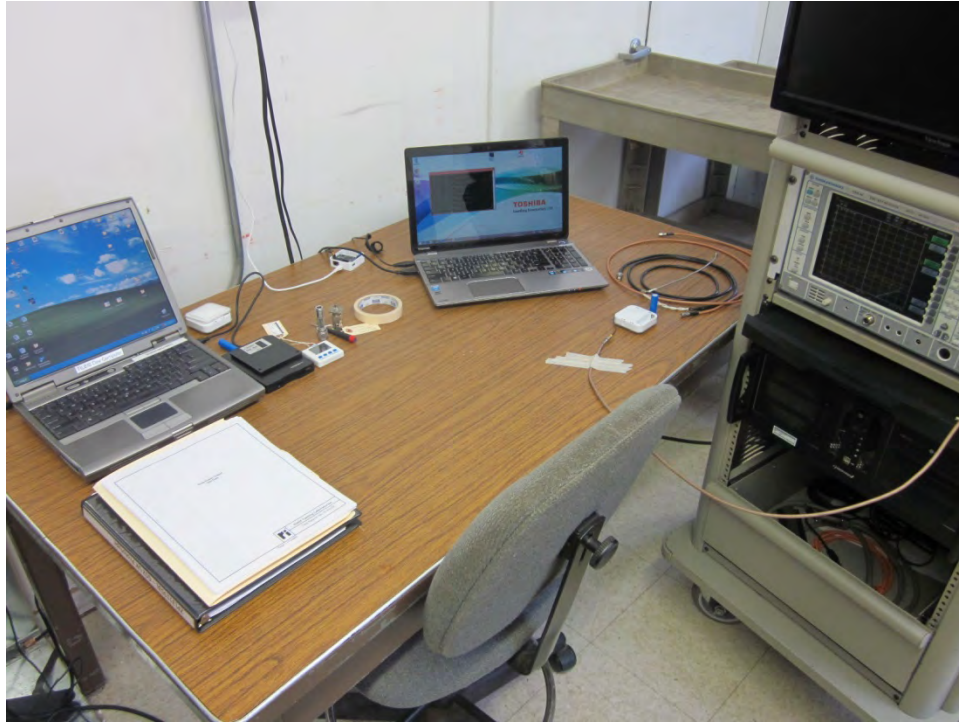
Ref Lvl
30 dBm

RBW 300 kHz RF Att 30 dB
VBW 1 MHz
SWT 5 ms Unit dBm



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Test Photographs
Peak Conducted Output Power



Test Setup



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**FCC Section 15.247 (a)(1)
Peak Conducted Output Power
Test Data**



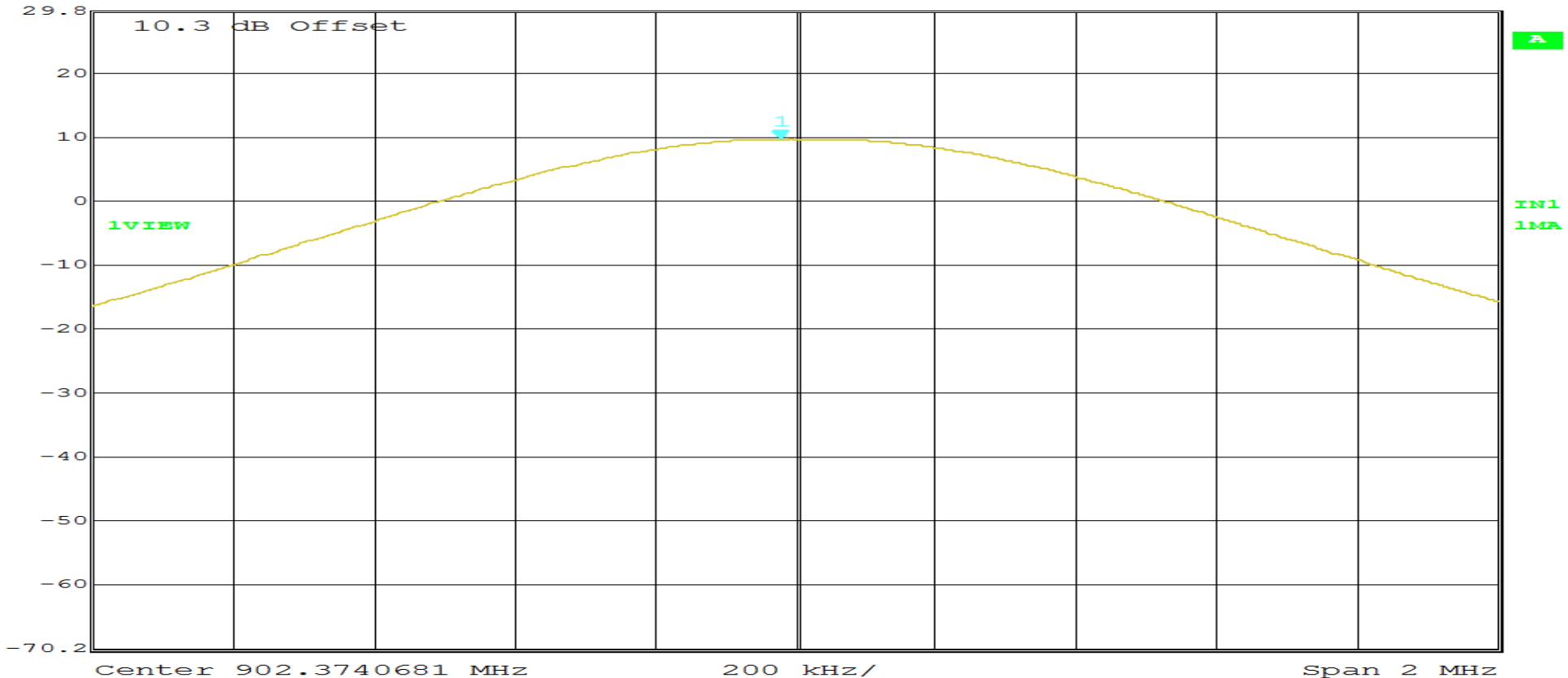
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Report No. R-6050N

RETLIF TESTING LABORATORIES

Test Method	Peak Power Output		
Customer	Immedia Semiconductor	Job No.	R-6050N
Test Sample	Blink Alarm		
Model Number	BAM00300U	Serial No.	1
Operating Mode	Transmitting modulated signal		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)		
Technician	M. Seamans	Date	December 30 th , 2015
Climatic Conditions	Temp: 21.9 °C Relative Humidity: 34.4 %		
Notes	Transmit Frequency: 902.35 MHz Peak Power Output: 9.55 dBm (9.016mW)		

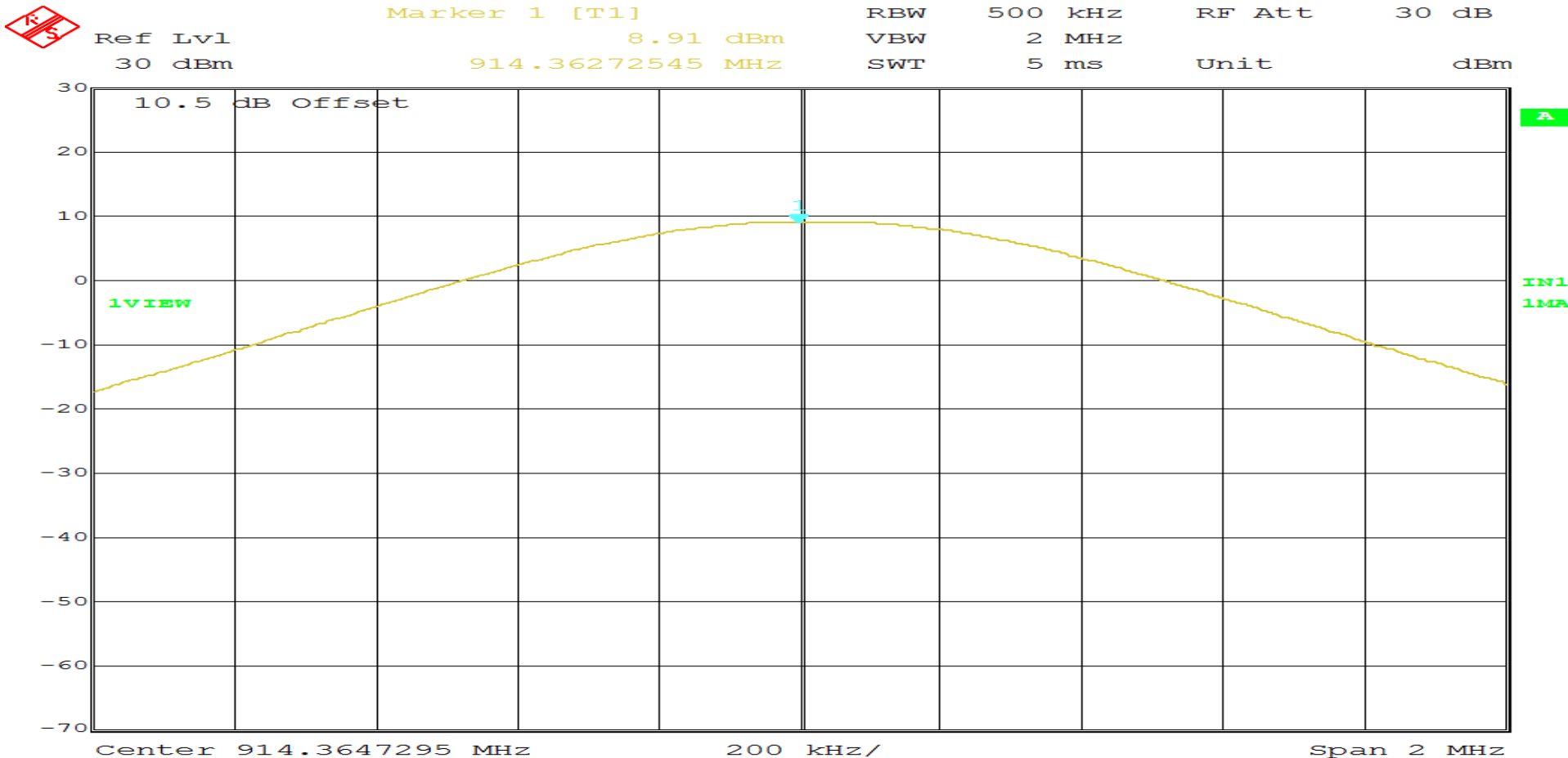
	Marker 1 [T1]	RBW	500 kHz	RF Att	30 dB
	Ref Lvl		9.55 dBm	VBW	2 MHz
	29.8 dBm		902.35202405 MHz	SWT	5 ms
				Unit	dBm



Date: 30.DEC.2015 12:54:48
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RETLIF TESTING LABORATORIES

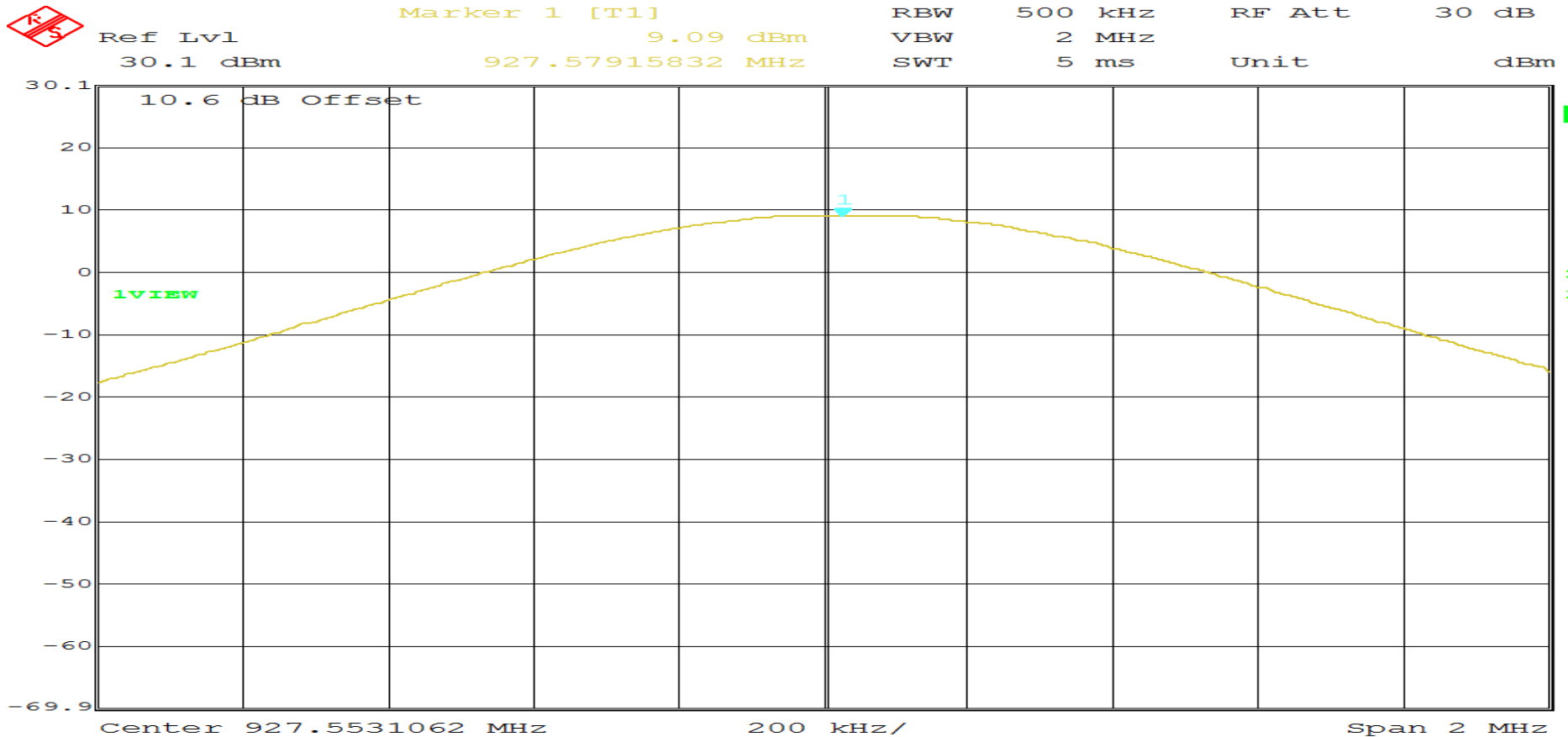
Test Method	Peak Power Output		
Customer	Immedia Semiconductor	Job No.	R-6050N
Test Sample	Blink Alarm		
Model Number	BAM00300U	Serial No.	1
Operating Mode	Transmitting modulated signal		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)		
Technician	M. Seamans	Date	December 30 th , 2015
Climatic Conditions	Temp: 21.9 °C Relative Humidity: 34.4 %		
Notes	Transmit Frequency: 914.4 MHz Peak Power Output: 8.91 dBm (7.78mW)		



Date: 30.DEC.2015 12:59:02
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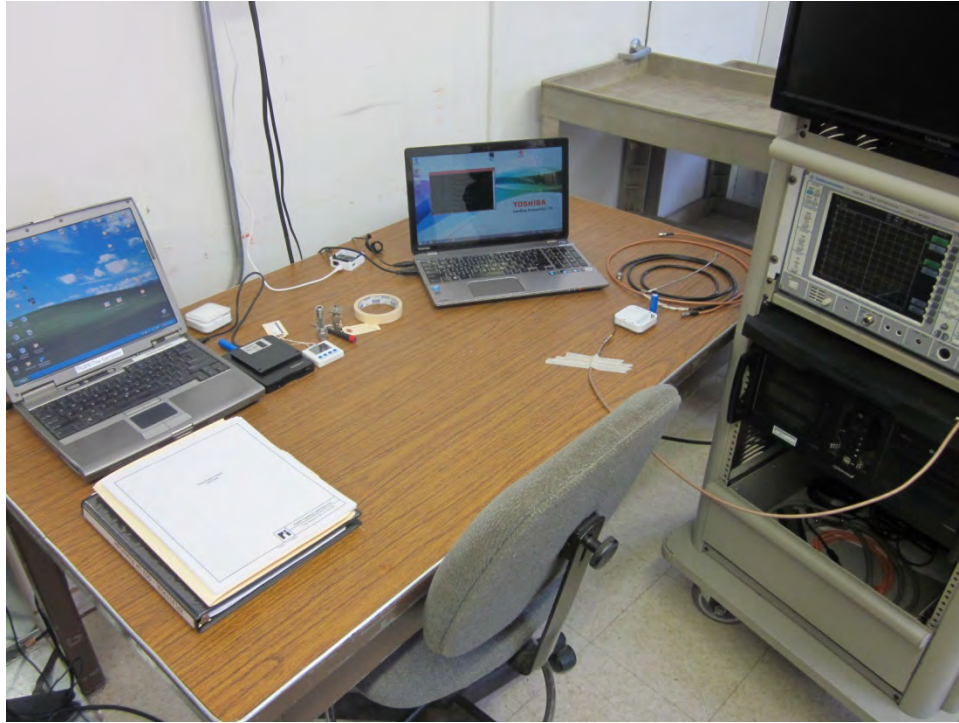
RETLIF TESTING LABORATORIES

Test Method	Peak Power Output		
Customer	Immedia Semiconductor	Job No.	R-6050N
Test Sample	Blink Alarm		
Model Number	BAM00300U	Serial No.	1
Operating Mode	Transmitting modulated signal		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)		
Technician	M. Seamans	Date	December 30 th , 2015
Climatic Conditions	Temp: 21.9 °C Relative Humidity: 34.4 %		
Notes	Transmit Frequency: 927.55 MHz Peak Power Output: 9.09 dBm (8.11mW)		



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Test Photographs
Conducted Spurious Emissions, 30 MHz to 10 GHz



Test Setup



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**FCC Section 15.247 (d)
Conducted Spurious Emissions, 30 MHz to 10 GHz
Band Edge Test Data**

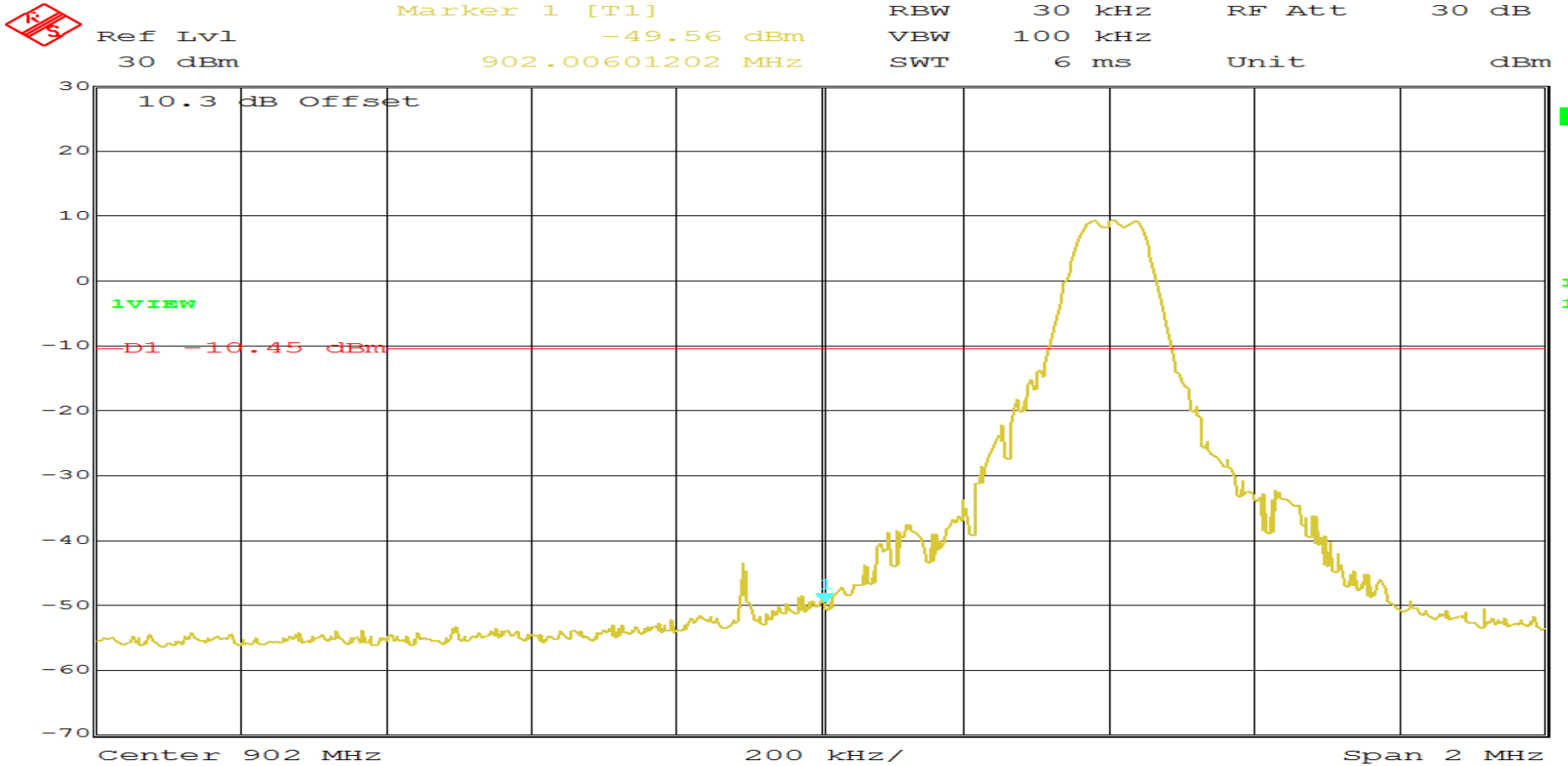


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Report No. R-6050N

RETLIF TESTING LABORATORIES

Test Method	Band Edge Emissions Conducted		
Customer	Immedia Semiconductor	Job No.	R-6050N
Test Sample	Blink Alarm		
Model Number	BAM00300U	Serial No.	1
Operating Mode	Transmitting modulated signal		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)		
Technician	M. Seamans	Date	December 30 th , 2015
Climatic Conditions	Temp: 21.6 °C Relative Humidity: 32.4 %		
Notes	Transmit Frequency: 902.34 MHz		

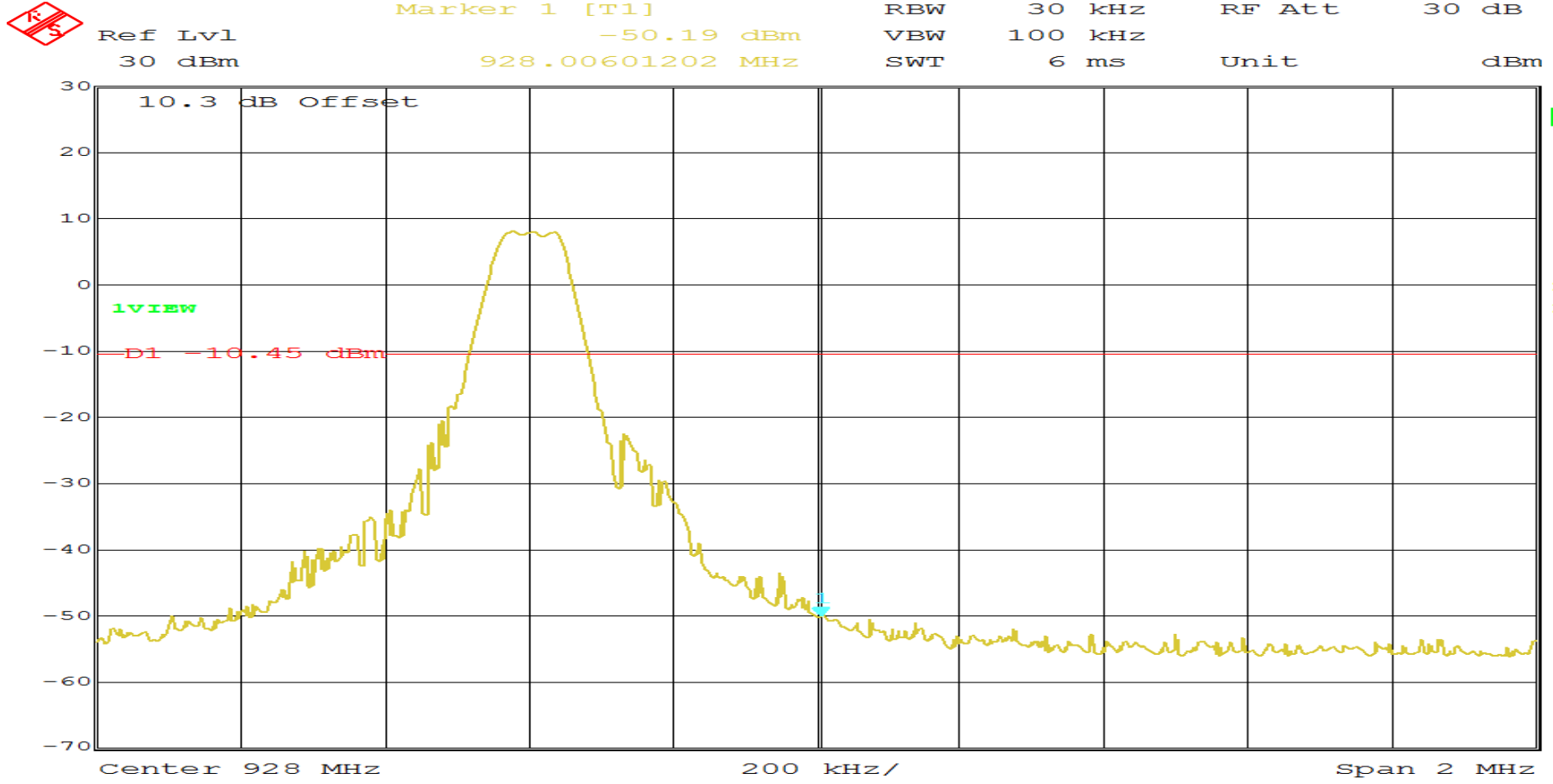


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RETLIF TESTING LABORATORIES

Test Method	Band Edge Emissions Conducted		
Customer	Immedia Semiconductor	Job No.	R-6050N
Test Sample	Blink Alarm		
Model Number	BAM00300U	Serial No.	1
Operating Mode	Transmitting modulated signal		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)		
Technician	M. Seamans	Date	December 30 th , 2015
Climatic Conditions	Temp: 21.6 °C Relative Humidity: 32.4 %		
Notes	Transmit Frequency: 927.6 MHz		



**Unwanted Emissions into Non-Restricted Frequency Bands
25 MHz to 10 GHz
Test Data**



Retlif Testing Laboratories

Report No. R-6050N

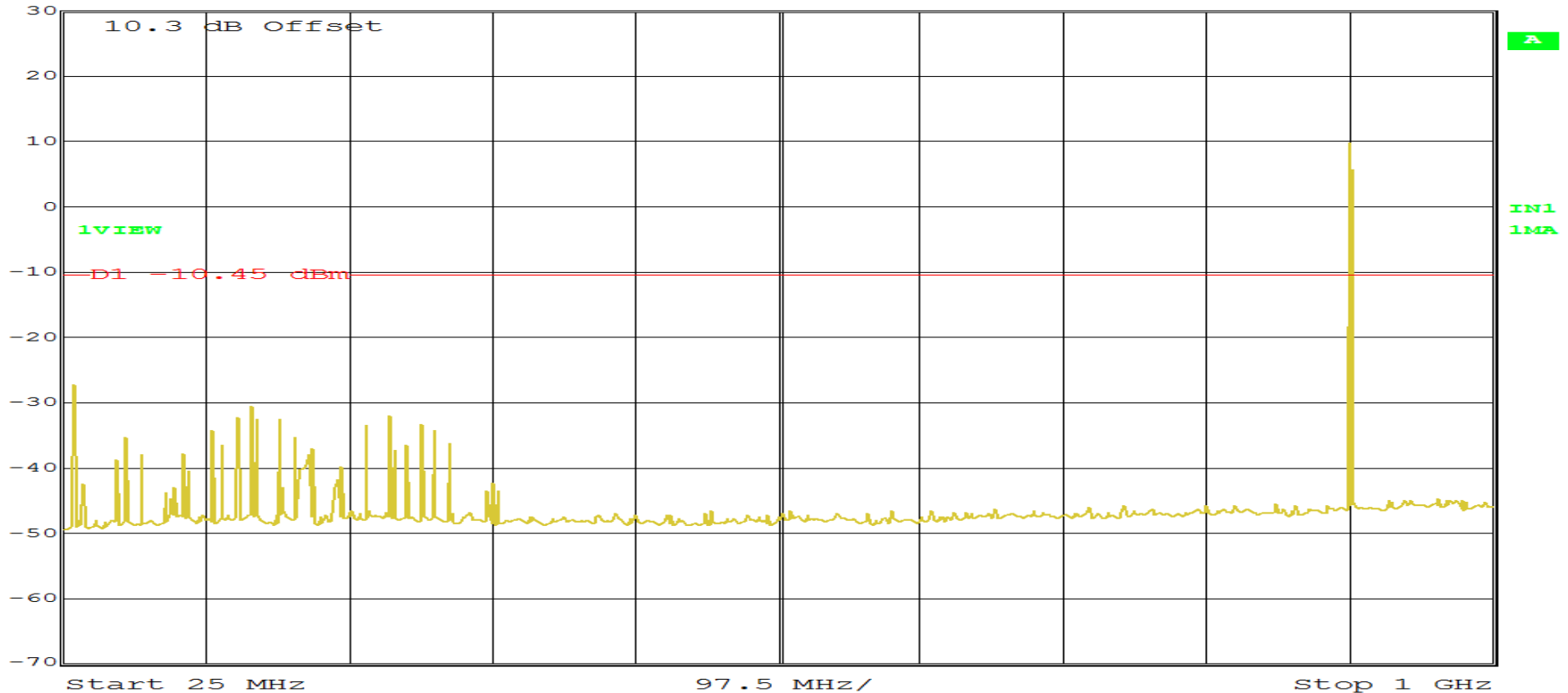
RETLIF TESTING LABORATORIES

Test Method	Unwanted Emissions into Non-Restricted Frequency Bands		
Customer	Immedia Semiconductor	Job No.	R-6050N
Test Sample	Blink Alarm		
Model Number	BAM00300U	Serial No.	1
Operating Mode	Transmitting modulated signal		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)		
Technician	M. Seamans	Date	December 30 th , 2015
Climatic Conditions	Temp: 21.6 °C Relative Humidity: 32.4 %		
Notes	Transmit Frequency: 902.4 MHz Limit is 20dB down from the Fundamental Frequency Peak Power Output		



Ref Lvl
30 dBm

RBW 100 kHz RF Att 30 dB
 VBW 300 kHz
 SWT 245 ms Unit dBm

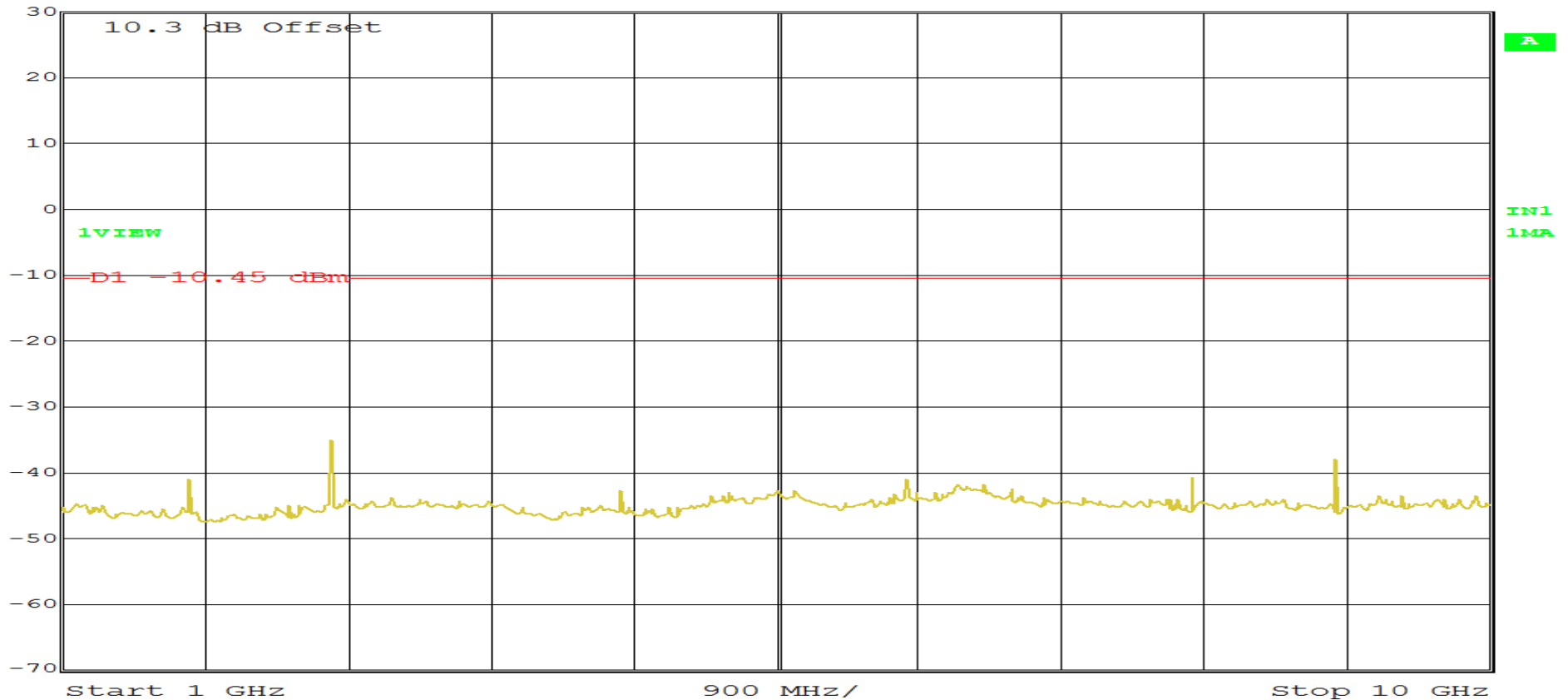


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RETLIF TESTING LABORATORIES

Test Method	Unwanted Emissions into Non-Restricted Frequency Bands		
Customer	Immedia Semiconductor	Job No.	R-6050N
Test Sample	Blink Alarm		
Model Number	BAM00300U	Serial No.	1
Operating Mode	Transmitting modulated signal		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)		
Technician	M. Seamans	Date	December 30 th , 2015
Climatic Conditions	Temp: 21.6 °C Relative Humidity: 32.4 %		
Notes	Transmit Frequency: 902.4 MHz Limit is 20dB down from the Fundamental Frequency Peak Power Output		

	Ref Lvl 30 dBm	RBW 100 kHz	RF Att 30 dB	
		VBW 300 kHz		
		SWT 2.25 s	Unit dBm	



Date: 30.DEC.2015 13:25:02
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RETLIF TESTING LABORATORIES

Test Method	Unwanted Emissions into Non-Restricted Frequency Bands		
Customer	Immedia Semiconductor	Job No.	R-6050N
Test Sample	Blink Alarm		
Model Number	BAM00300U	Serial No.	1
Operating Mode	Transmitting modulated signal		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)		
Technician	M. Seamans	Date	December 30 th , 2015
Climatic Conditions	Temp: 21.6 °C Relative Humidity: 32.4 %		
Notes	Transmit Frequency: 915 MHz Limit is 20dB down from the Fundamental Frequency Peak Power Output		

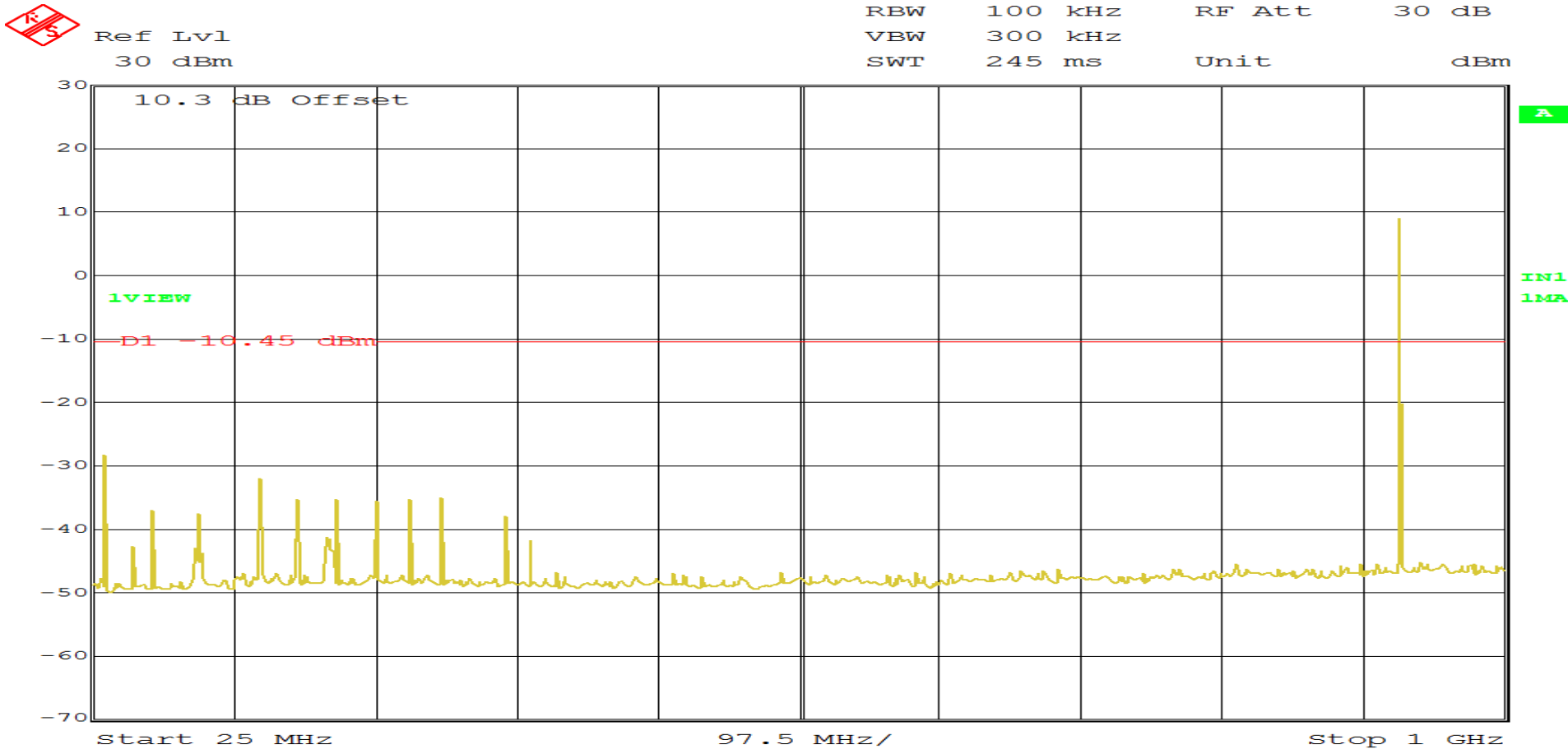
	Ref Lvl 30 dBm	RBW 100 kHz	RF Att 30 dB	
		VBW 300 kHz		
		SWT 245 ms	Unit dBm	



Date: 30.DEC.2015 13:29:34
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RETLIF TESTING LABORATORIES

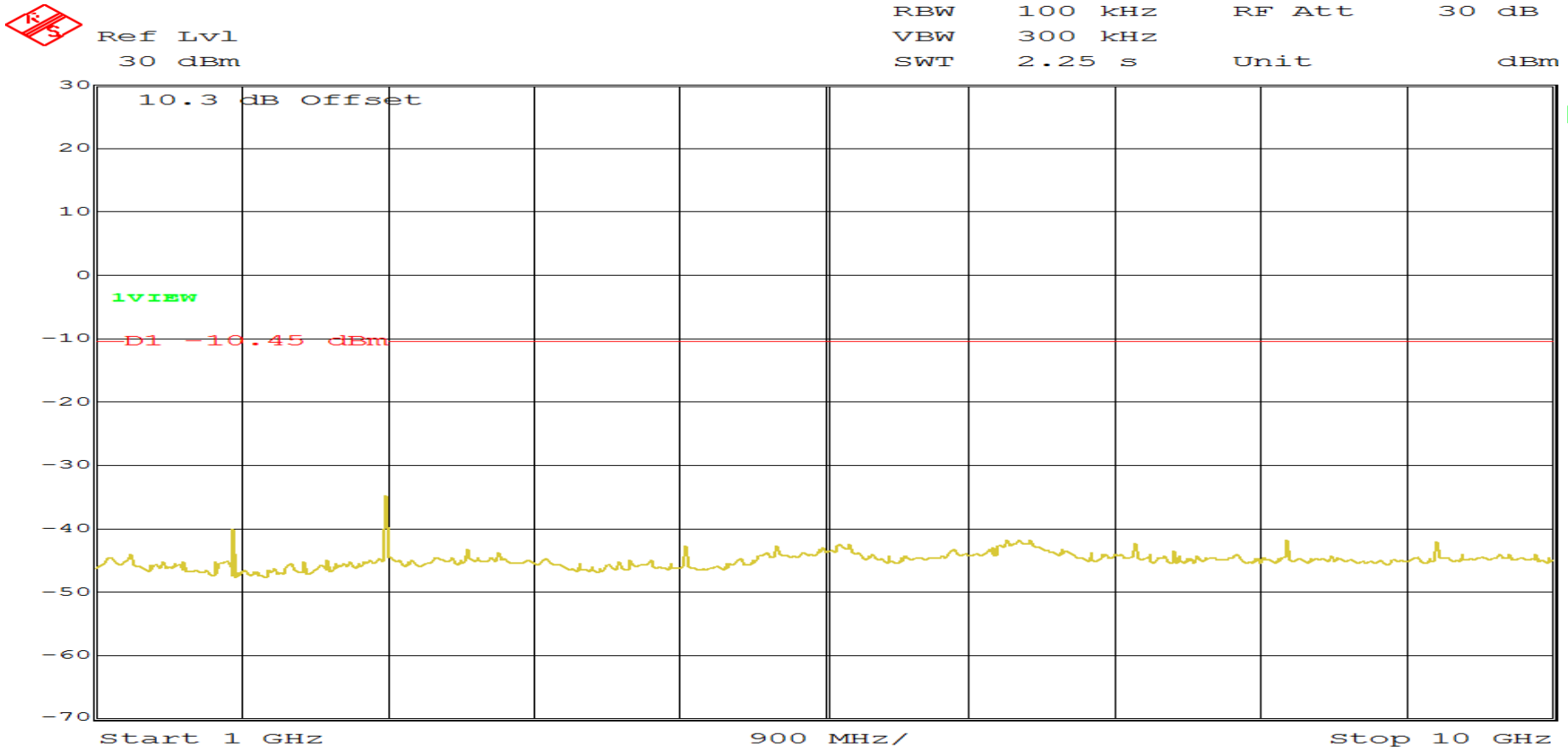
Test Method	Unwanted Emissions into Non-Restricted Frequency Bands		
Customer	Immedia Semiconductor	Job No.	R-6050N
Test Sample	Blink Alarm		
Model Number	BAM00300U	Serial No.	1
Operating Mode	Transmitting modulated signal		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)		
Technician	M. Seamans	Date	December 30 th , 2015
Climatic Conditions	Temp: 21.6 °C Relative Humidity: 32.4 %		
Notes	Transmit Frequency: 927 MHz Limit is 20dB down from the Fundamental Frequency Peak Power Output		



Date: 30.DEC.2015 13:34:01
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RETLIF TESTING LABORATORIES

Test Method	Unwanted Emissions into Non-Restricted Frequency Bands		
Customer	Immedia Semiconductor	Job No.	R-6050N
Test Sample	Blink Alarm		
Model Number	BAM00300U	Serial No.	1
Operating Mode	Transmitting modulated signal		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)		
Technician	M. Seamans	Date	December 30 th , 2015
Climatic Conditions	Temp: 21.6 °C Relative Humidity: 32.4 %		
Notes	Transmit Frequency: 927 MHz Limit is 20dB down from the Fundamental Frequency Peak Power Output		



Date: 30.DEC.2015 13:37:26
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Test Photographs
Field Strength of Spurious Emissions



Test Configuration



Retlif Testing Laboratories

Report No. R-6050N

Test Photographs Field Strength of Spurious Emissions



Horizontal Antenna Polarization, 25 MHz – 1 GHz



Vertical Antenna Polarization, 25 MHz – 1 GHz



Retlif Testing Laboratories

Report No. R-6050N

Test Photographs
Field Strength of Spurious Emissions



Horizontal Antenna Polarization, 1 GHz – 10 GHz



Vertical Antenna Polarization, 1 GHz – 10 GHz



Retlif Testing Laboratories

Report No. R-6050N

**FCC Section 15.247 (a) / 15.209(a)
Field Strength of Spurious Emissions
Test Data**



Retlif Testing Laboratories

Report No. R-6050N

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Immedia Semiconductor	
Job Number	R-6050N	
Test Sample	Blink Alarm	
Model Number	BAM00300U	
Serial Number	1	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting hopping frequency data	
Technician	M. Seamans	
Date	December 28 th , 2015	

Notes: Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m
37.50	-	-	-	-		-	100.00
	38.00	13.70	14.20	27.90	*	24.93	I
38.25	-	-	-	-		-	100.00
73.00	-	-	-	-		-	100.00
	74.00	13.24	8.36	21.60	*	12.02	I
74.60	-	-	-	-		-	100.00
74.80	-	-	-	-		-	100.00
	75.00	16.44	8.36	24.80	*	17.38	
75.20	-	-	-	-		-	100.00
108.00	-	-	-	-		-	150.00
	111.22	5.78	10.02	15.80	*	6.17	
	-	-	-	-		-	
121.94	-	-	-	-		-	150.00
123.00	-	-	-	-		-	150.00
	125.00	4.16	9.44	13.60	*	4.79	
	135.00	3.26	9.44	12.70	*	4.32	
138.00	-	-	-	-		-	150.00

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum.
 * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 1 of 7



Retlif Testing Laboratories

Report No. R-6050N

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Immedia Semiconductor	
Job Number	R-6050N	
Test Sample	Blink Alarm	
Model Number	BAM00300U	
Serial Number	1	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting hopping frequency data	
Technician	M. Seamans	
Date	December 28 th , 2015	

Notes: Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading			Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m			uV/m	uV/m
149.90	-	-	-	-			-	150.00
	150.00	10.33	11.17	21.50	*		11.89	
150.05	-	-	-	-			-	150.00
156.52	-	-	-	-			-	150.00
	156.52	0.42	12.08	12.50	*		4.22	
156.52	-	-	-	-			-	150.00
156.70	-	-	-	-			-	150.00
	156.80	0.68	12.12	12.80	*		4.37	
156.90	-	-	-	-			-	150.00
162.01	-	-	-	-			-	150.00
	165.00	4.82	12.68	17.50	*		7.50	
167.17	-	-	-	-			-	150.00
167.72	-	-	-	-			-	150.00
	170.00	1.80	12.80	14.60	*		5.37	
173.20	-	-	-	-			-	150.00

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum.
 * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 2 of 7



Retlif Testing Laboratories

Report No. R-6050N

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Immedia Semiconductor	
Job Number	R-6050N	
Test Sample	Blink Alarm	
Model Number	BAM00300U	
Serial Number	1	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting hopping frequency data	
Technician	M. Seamans	
Date	December 28 th , 2015	

Notes: Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading			Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m			uV/m	uV/m
240.00	-	-	-	-			-	200.00
	260.00	5.05	16.85	21.90	*		12.45	
285.00	-	-	-	-			-	200.00
322.80	-	-	-	-			-	200.00
	330.00	0.39	18.91	19.30	*		9.23	
335.40	-	-	-	-			-	200.00
399.90	-	-	-	-			-	200.00
	405.00	-0.59	21.49	20.90	*		11.09	
410.00	-	-	-	-			-	200.00
608.00	-	-	-	-			-	200.00
	611.00	-0.74	27.34	26.60	*		21.38	
614.00	-	-	-	-			-	200.00
960.00	-	-	-	-			-	500.00
	975.00	1.00	32.10	33.10	*		45.19	
1240.00	-	-	-	-			-	500.00
1300.00	-	-	-	-			-	500.00
	1350.00	33.51	-9.50	24.01	*		15.87	
1427.00	-	-	-	-			-	500.00

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum.
 * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 3 of 7



Retlif Testing Laboratories

Report No. R-6050N

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Immedia Semiconductor	
Job Number	R-6050N	
Test Sample	Blink Alarm	
Model Number	BAM00300U	
Serial Number	1	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting hopping frequency data	
Technician	M. Seamans	
Date	December 28 th , 2015	
Notes: Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz		

TEST PARAMETERS

Restricted Band MHz	Measured Frequency MHz	Meter Reading dBuV	Correction Factor dB	Corrected Reading dBuV/m		Converted Reading uV/m	Limit at 3M uV/m
1435.00	-	-	-	-		-	500.00
	1541.00	32.34	-9.4	22.94	*	14.03	
1646.50	-	-	-	-		-	500.00
1660.00	-	-	-	-		-	500.00
	1680.00	32.72	-9.04	23.68	*	15.28	
1710.00	-	-	-	-		-	500.00
1718.80	-	-	-	-		-	500.00
	1720.00	32.58	-8.64	23.94	*	15.74	
1722.20	-	-	-	-		-	500.00
2200.00	-	-	-	-		-	500.00
	2250.00	31.43	-6.76	24.67	*	17.12	
2300.00	-	-	-	-		-	500.00
2310.00	-	-	-	-		-	500.00
	2360.00	31.60	-6.51	25.09	*	17.97	
2390.00	-	-	-	-		-	500.00
2483.50	-	-	-	-		-	500.00
	2490.00	30.57	-6.11	24.46	*	16.71	
2500.00	-	-	-	-		-	500.00

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum.
 * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 4 of 7



Retlif Testing Laboratories

Report No. R-6050N

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Immedia Semiconductor	
Job Number	R-6050N	
Test Sample	Blink Alarm	
Model Number	BAM00300U	
Serial Number	1	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting hopping frequency data	
Technician	M. Seamans	
Date	December 28 th , 2015	

Notes: Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m
2690.00	-	-	-	-		-	500.00
	2707.00	32.54	-5.4	27.14	*	22.75	
	2745.00	35.10	-5.4	29.70	*	30.55	
	2781.00	34.60	-5.4	29.20	*	28.84	
2900.00	-	-	-	-		-	500.00
3260.00	-	-	-	-		-	500.00
	3263.00	31.16	-3.4	27.76	*	24.43	
3267.00	-	-	-	-		-	500.00
3332.00	-	-	-	-		-	500.00
	3336.00	31.67	-3.1	28.57	*	26.82	
3339.00	-	-	-	-		-	500.00
3345.00	-	-	-	-		-	500.00
	3350.00	31.02	-3.1	27.92	*	24.89	
3358.00	-	-	-	-		-	500.00
3600.00	-	-	-	-		-	500.00
	3608.00	31.07	-2.4	28.67	*	27.13	
	3660.00	31.23	-2.4	28.83	*	27.64	
	3708.00	31.29	-2.4	28.89	*	27.83	

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum.
 * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 5 of 7



Retlif Testing Laboratories

Report No. R-6050N

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Immedia Semiconductor	
Job Number	R-6050N	
Test Sample	Blink Alarm	
Model Number	BAM00300U	
Serial Number	1	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting hopping frequency data	
Technician	M. Seamans	
Date	December 28 th , 2015	

Notes: Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz

TEST PARAMETERS

Restricted Band MHz	Measured Frequency MHz	Meter Reading dBuV	Correction Factor dB	Corrected Reading dBuV/m			Converted Reading uV/m	Limit at 3M uV/m
	-		-	-			-	
4400.00	-	-	-	-			-	500.00
4500.00	-	-	-	-			-	500.00
	4510.00	31.16	-1.16	30.00	*		31.62	
	4575.00	30.95	-1.16	29.79	*		30.87	
	4635.00	31.51	-0.91	30.60	*		33.88	
	4900.00	30.88	-0.48	30.40	*		33.11	
5150.00	-	-	-	-			-	500.00
5350.00	-	-	-	-			-	500.00
	5400.00	29.60	0.89	30.49	*		33.46	
5460.00	-	-	-	-			-	500.00
7250.00	-	-	-	-			-	500.00
	7500.00	31.89	2.87	34.76	*		54.70	
7750.00	-	-	-	-			-	500.00
8025.00	-	-	-	-			-	500.00
	8118.00	34.92	3.20	38.12	*		80.54	
	8235.00	35.15	3.30	38.45	*		83.66	
	8250.00	36.17	3.50	39.67	*		96.27	
	8343.00	37.11	3.30	40.41	*		104.83	
8500.00	-	-	-	-			-	500.00

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum.
 * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 6 of 7



Retlif Testing Laboratories

Report No. R-6050N

