

FCC Part 15, Subpart C, Section 15.247

Test Report

On

Blink Camera FCC ID: 2AF77-BCM00100U

Customer Name: Immedia Semiconductor

Customer P.O: H109215-1A2

Date of Report Revision: November 20, 2015

Test Report No: R-6022N-2, Rev. A

Test Start Date: October 2, 2015

Test Finish Date: October 6, 2015

Test Technician: M. Seamans

Revision Approved By: S. Wentworth

Report Revision Prepared By: J. Ramsey

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Technical Information

Report Number: R-6022N-2, Rev. A

Customer: Immedia Semiconductor

Address: 100 Burtt Road, Suite 100

Andover, MA 01810

Manufacturer: Immedia Semiconductor

Manufacturer Address: 100 Burtt Road, Suite 100

Andover, MA 01810

Test Sample: Blink Camera (Wifi Connected Home Security Camera)

Model Number: BCM00100U

FCC ID: 2AF77-BCM00100U

Type: Frequency Hopping Spread Spectrum Transmitter

Power Requirements: 5VDC Via 120 VAC, 60 Hz AC/DC Power Adapter

Power Supply: AC Adapter, Flypower, Model PS06B050K1000UU

Frequency of Operation: 902.3 MHz to 927.2 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)(1) 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		
15.207(a)	Conducted Emissions, Power Leads, 150 kHz to 30 MHz		

Table 2 – Support Equipment

Description	Manufacturer	Part Number	Model Number	Serial Number
Laptop PC	Toshiba	N/A	Satellite P55-A	00179-60817-80261-AAOEM



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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

Low Wenter

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

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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 November 9, 2015	Pages Affected Original Release
A	November 20, 2015	 Global Changes: Revised document from R-6022N-2 to R-6022N-2, Rev. A Removed all references and information regarding Industry Canada testing
		 Added calculations



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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 388.78 kHz which complies with the requirements specified above.



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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 64 and the average time of occupancy was 360.72msec which complied with the above requirements.



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FCC Section 15.247 (b)(1) and (4) Peak Conducted Output Power

- (1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 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 16.37 milliwatts.



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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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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 dBµV/m

 M_R = Uncorrected Meter Reading in dB μ V

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

Example:

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

 $C_F = 16.85 \text{ dB}$

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

dBµV/M is converted to uV/M for comparison to the specified limit using the formula:

invLog dBµV/M/20

32.2 dBuV/m = 40.74 uV/m

RF Power Conversion:

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

InvLog dBm/10

Example: 20dBm = 100mW



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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 access 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.

$$S = \frac{PG}{4 \prod Dsq}$$

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 = 16.37 mW

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

0.618 mW/cmsq =
$$\frac{16.37x1.41}{4x(3.14)xD^2}$$
 = $\frac{23.08}{12.56xD^2}$

$$D^{2} = \frac{23.08}{12.56 \times 0.618}$$

$$D = \sqrt{2.97} = 1.7 \text{ cm}$$

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



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Requirement:

FCC Section 15.207(a) - Conducted Limits

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits shown in Table 4, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of the paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Table 4 - Conducted Emission Limits

Fraguency of Emission (MU=)	Conducted Limit (dBµV)		
Frequency of Emission (MHz)	Quasi-Peak	Average	
0.15 to 0.5	66 to 56*	56 to 46*	
0.5 to 5	56	46	
5 to 30	60	50	
*Decreases due to logarithm of the frequency			

Results:

The conducted emissions observed did not exceed the limits specified in Table 4.



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Equipment List

FCC Section 15.247(a)(1) Channel Separation

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016
5137	NARDA MICROWA\	/E ATTENUATOR, COAXIAL	10 dB, DC - 11 GHz, 20) W 768-10	10/28/2014	10/31/2015

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

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016
5137	NARDA MICROWAY	/E ATTENUATOR, COAXIAL	10 dB, DC - 11 GHz, 2	0 W 768-10	10/28/2014	10/31/2015

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

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016
5137	NARDA MICROWAVI	E ATTENUATOR, COAXIAL	10 dB, DC - 11 GHz, 20	W 768-10	10/28/2014	10/31/2015

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

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	4 10/31/2016
5137	NARDA MICROWAV	E ATTENUATOR, COAXIAL	10 dB. DC - 11 GHz. 20	W 768-10	10/28/2014	4 10/31/2015

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

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	1 10/31/2016
5137	NARDA MICROWAV	/E ATTENUATOR, COAXIAL	10 dB, DC - 11 GHz, 2	20 W 768-10	10/28/2014	1 10/31/2015



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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
5053	ETS / EMCO	ANTENNA, BICONILOG	26 MHz - 3 GHz	3142C	2/24/2015	8/31/2016
R462	AGILENT / HP	ANALYZER, SPECTRUM	9 kHz - 26.5 GHz	E7405A	1/8/2015	1/31/2016

FCC Section 15.207 (a) AC Line Conducted Emissions

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
4027	SOLAR ELECTRONICS	LISN	50 uH, 10 kHz - 50 MHz	9252-50-R-24-BNC	2/23/2015	2/29/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016
5137	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 11 GHz, 20 V	V 768-10	10/28/2014	10/31/2015
5188	Cybertron	COMPUTER, CONTROL	N/A	TSVQJA2221	No Calibration	on Required



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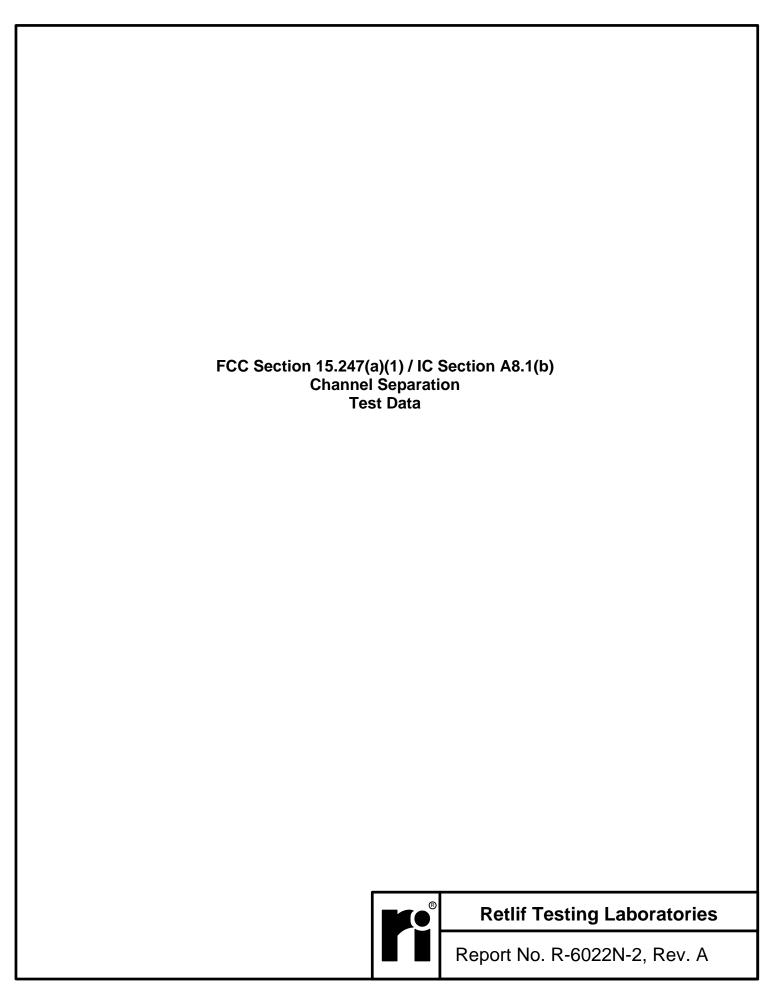
Test Photographs Channel Separation



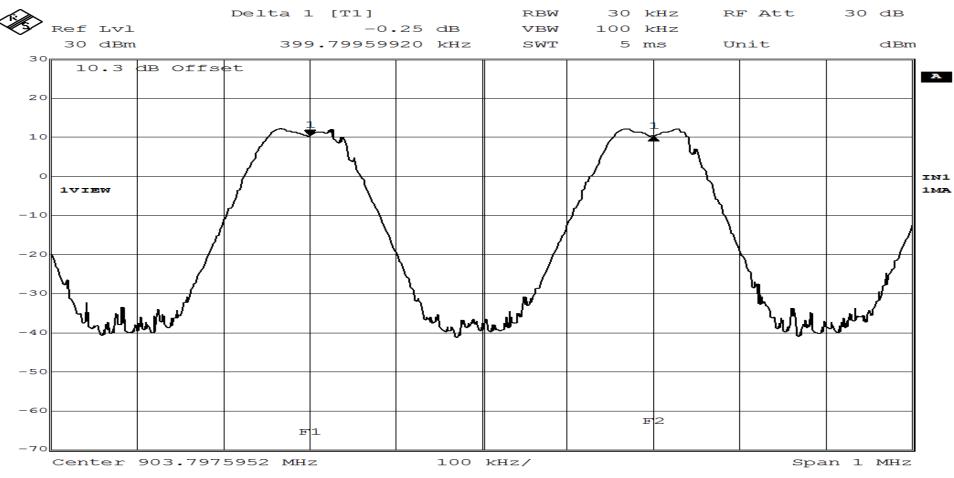
Test Setup



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RETLIF TESTING LABORATORIES				
Test Method:	Channel Carrier Frequency Separation			
Customer	Immedia Semiconductor	Job No.	R-6022N-2	
Test Sample	WiFi Connected Home Security Camera			
Model Number	BCM00100U	Serial No.	100-006-159	
Operating Mode	Transmitting hopping frequency data			
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)			
Technician	M. Seamans	Date	October 2 nd , 2015	
Climatic Conditions	Temp: 20.0 °C Relative Humidity: 42.0 %			
Notes	Channel Carrier Frequency Separation: 399.799 kHz			



Date: 2.OCT.2015 10:48:50 Page 1 of 1

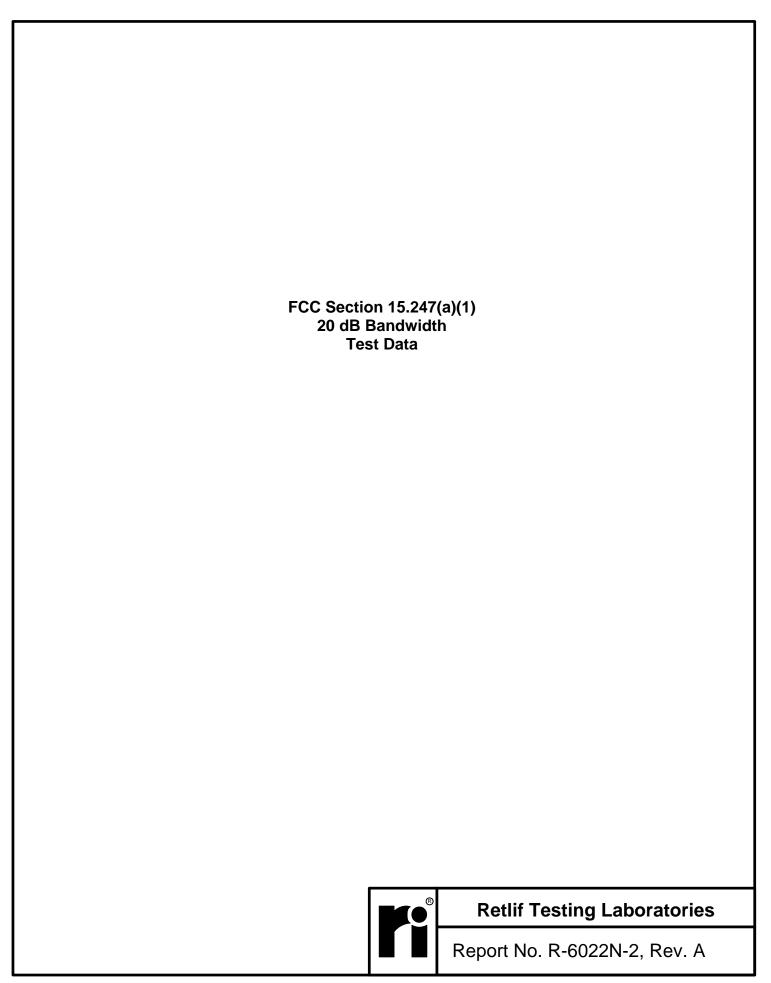
Test Photographs 20 dB Bandwidth



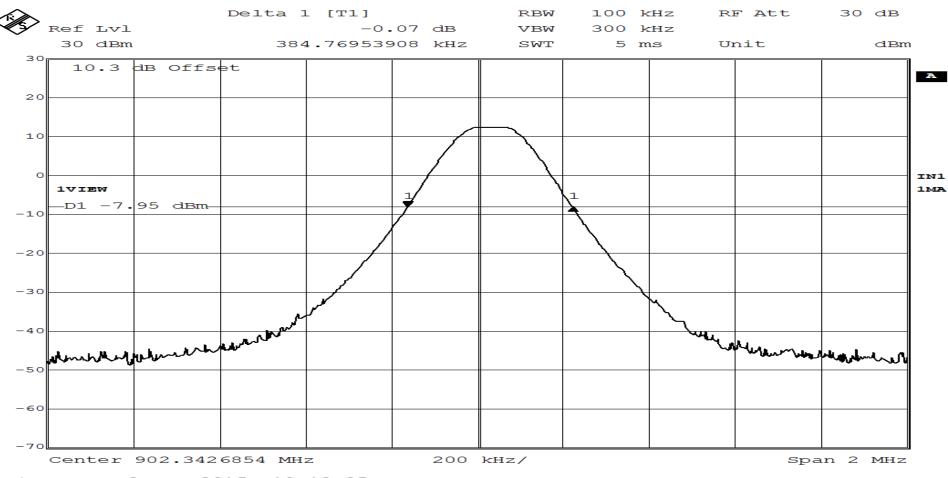
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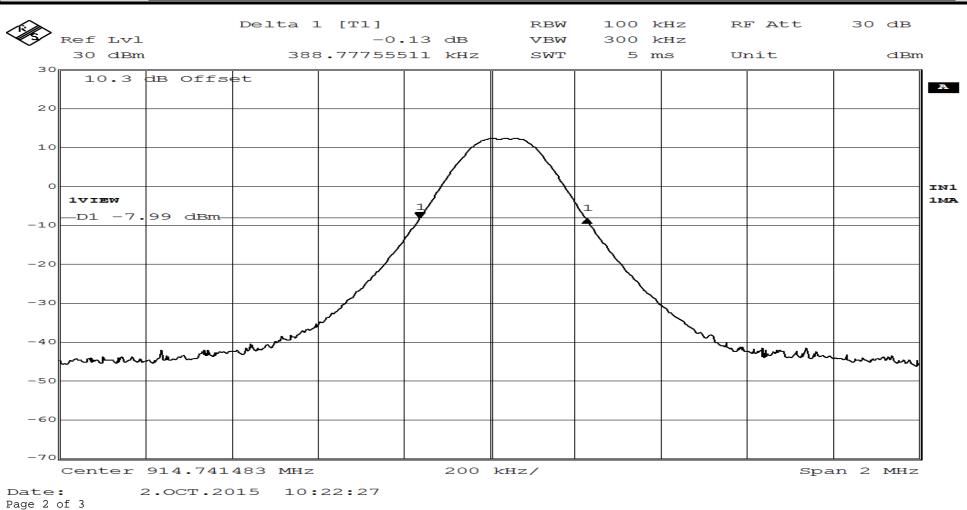
Retlif Testing Laboratories



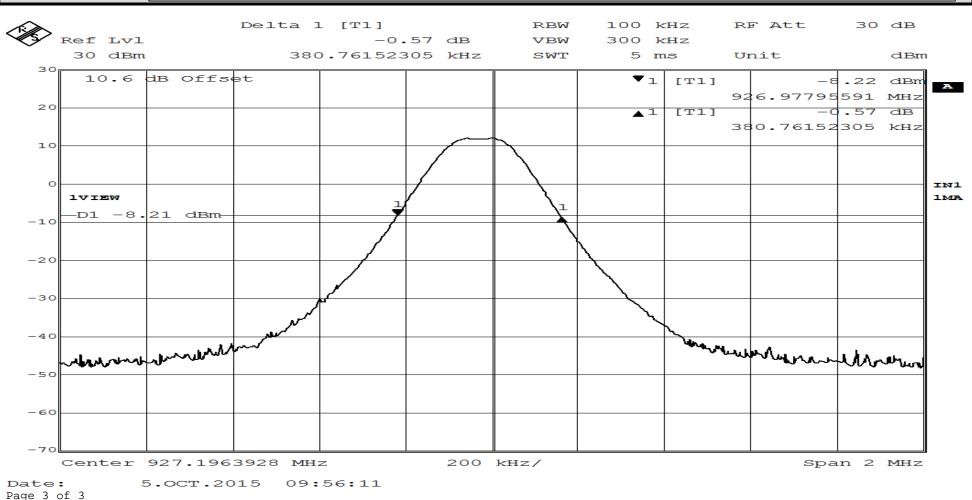
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Test Method:	20dB Bandwidth			
Customer	Immedia Semiconductor	Job No.	R-6022N-2	
Test Sample	WiFi Connected Home Security Camera			
Model Number	BCM00100U	Serial No.	100-006-159	
Operating Mode	Transmitting modulated signal			
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)(i)			
Technician	M. Seamans	Date	October 2 nd , 2015	
Climatic Conditions	Temp: 20.0 °C Relative Humidity: 42.0 %			
Notes	Transmit Frequency: 902.34 MHz 20dB Bandwidth: 384.769 kHz			



RETLIF TESTING LABORATORIES				
Test Method:	20dB Bandwidth			
Customer	Immedia Semiconductor	Job No.	R-6022N-2	
Test Sample	WiFi Connected Home Security Camera			
Model Number	BCM00100U	Serial No.	100-006-159	
Operating Mode	Transmitting modulated signal			
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)(i)			
Technician	M. Seamans	Date	October 2 nd , 2015	
Climatic Conditions	Temp: 20.0 °C Relative Humidity: 42.0 %			
Notes	Transmit Frequency: 914.74 MHz 20dB Bandwidth: 388.777 kHz			



RETLIF TESTING LABORATORIES				
Test Method:	20dB Bandwidth			
Customer	Immedia Semiconductor	Job No.	R-6022N-2	
Test Sample	WiFi Connected Home Security Camera			
Model Number	BCM00100U	Serial No.	100-006-159	
Operating Mode	Transmitting modulated signal			
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)(i)			
Technician	M. Seamans	Date	October 2 nd , 2015	
Climatic Conditions	Temp: 20.0 °C Relative Humidity: 42.0 %			
Notes	Transmit Frequency: 927.196 MHz 20dB Bandwidth: 380.761 kHz			



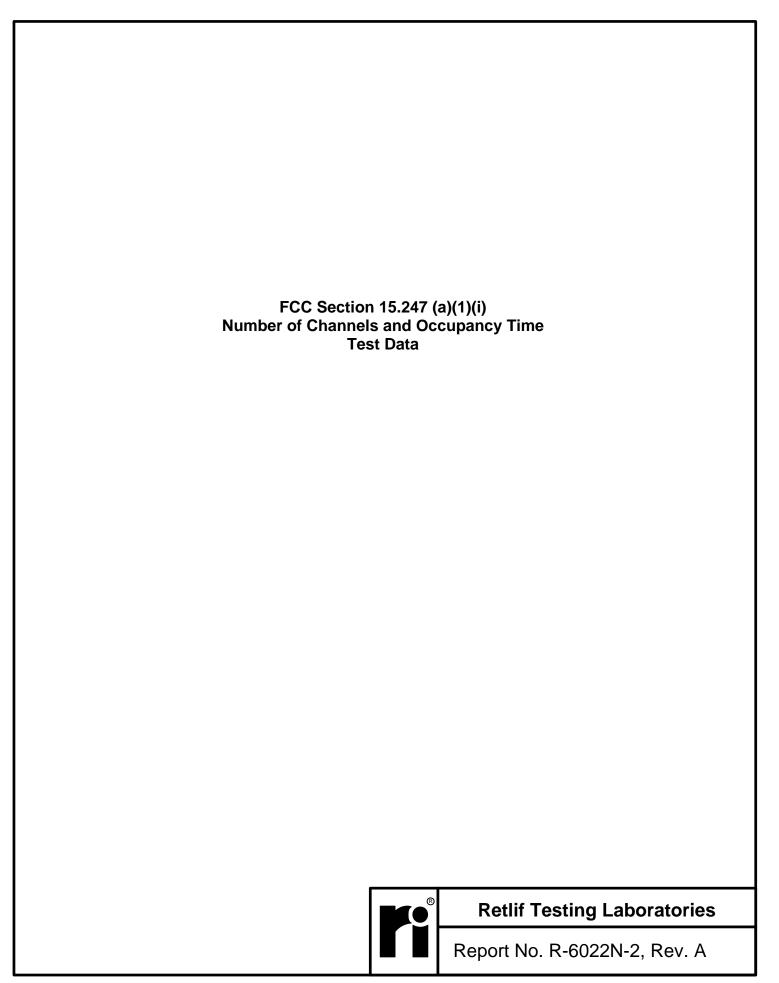
Test Photographs Number of Channels and Occupancy Time



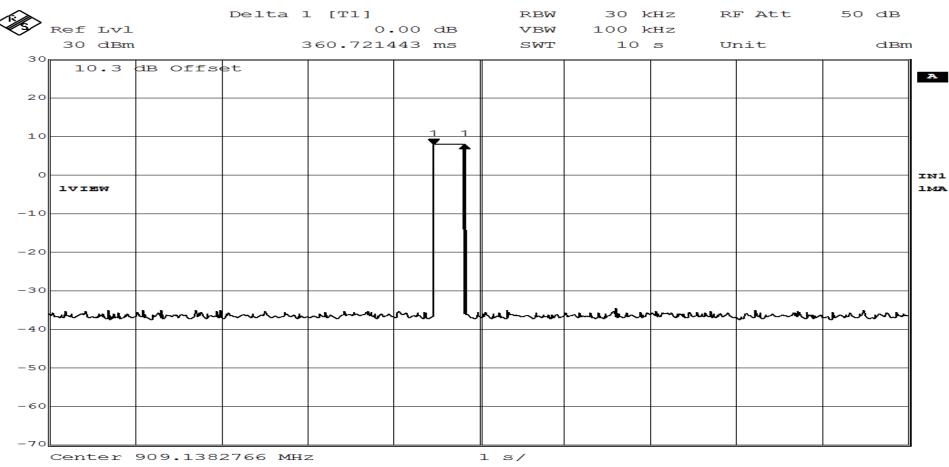
Test Setup



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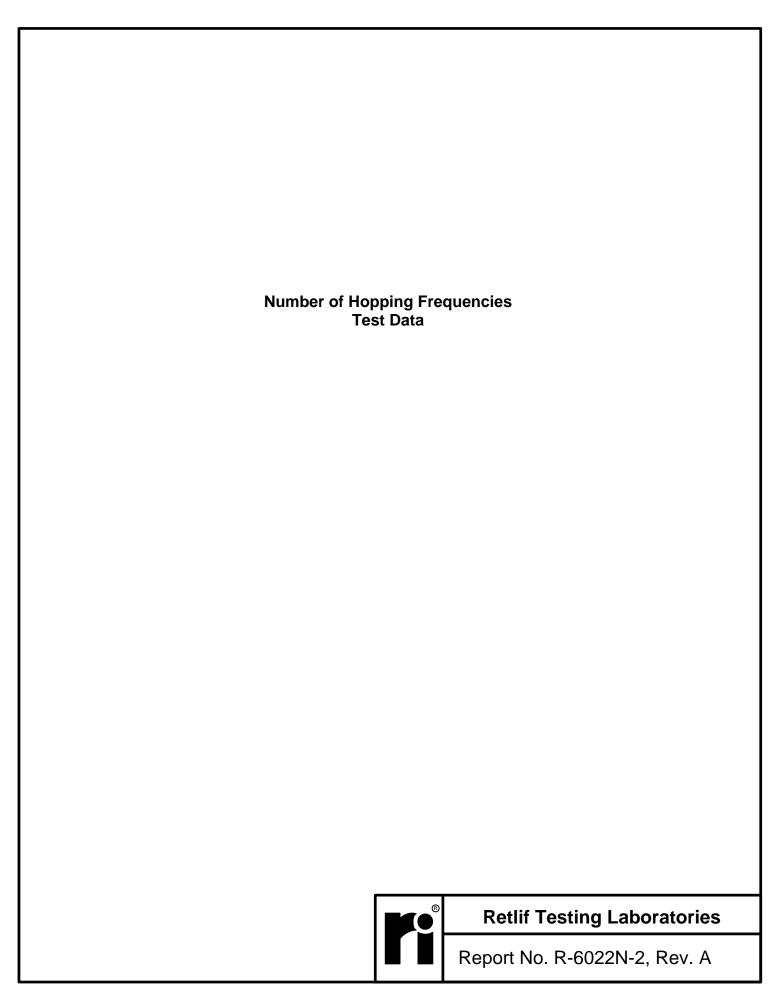


RETLIF TESTING LABORATORIES				
Test Method:	Time of Occupancy			
Customer	Immedia Semiconductor	Job No.	R-6022N-2	
Test Sample	WiFi Connected Home Security Camera			
Model Number	BCM00100U	Serial No.	100-006-159	
Operating Mode	Transmitting hopping frequency data			
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)(i)			
Technician	M. Seamans	Date	October 2 nd , 2015	
Climatic Conditions	Temp: 20.0 °C Relative Humidity: 42.0 %			
Notes	Test Frequency: 909.138 MHz Pulse Width: 360.721ms			

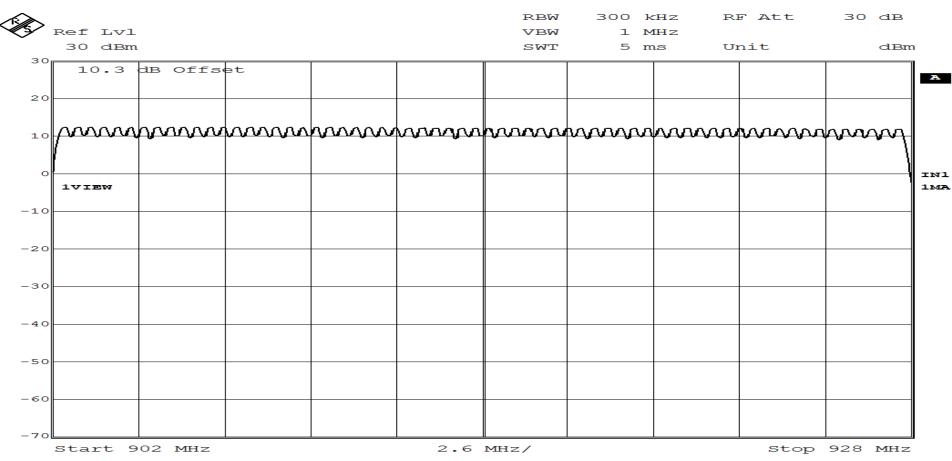


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Page 1 of 1



RETLIF TESTING LABORATORIES				
Test Method:	Number of Hopping Frequencies			
Customer	Immedia Semiconductor	Job No.	R-6022N-2	
Test Sample	WiFi Connected Home Security Camera			
Part Number	BCM00100U	Serial No.	100-006-159	
Operating Mode	Transmitting hopping frequency data			
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)(i)			
Technician	M. Seamans	Date	October 2 nd , 2015	
Climatic Conditions	Temp: 20.0 °C Relative Humidity: 42.0 %			
Notes	Number of Hopping Frequencies: 64			



Date: 2.OCT.2015 11:04:37 Page 1 of 1

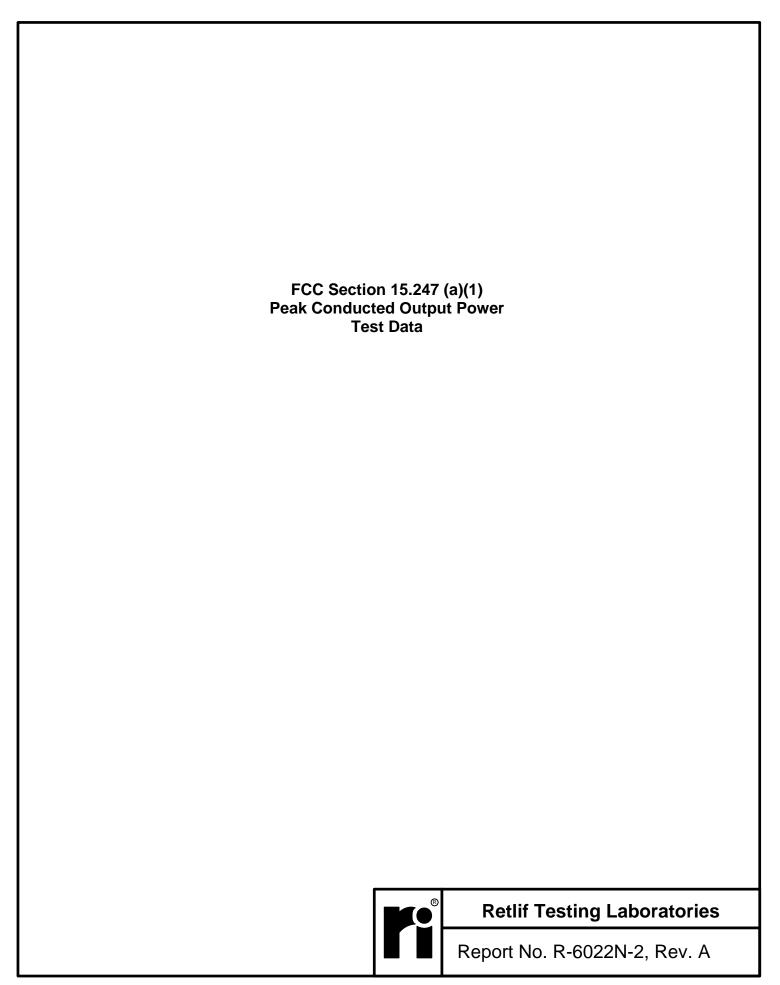
Test Photographs Peak Conducted Output Power



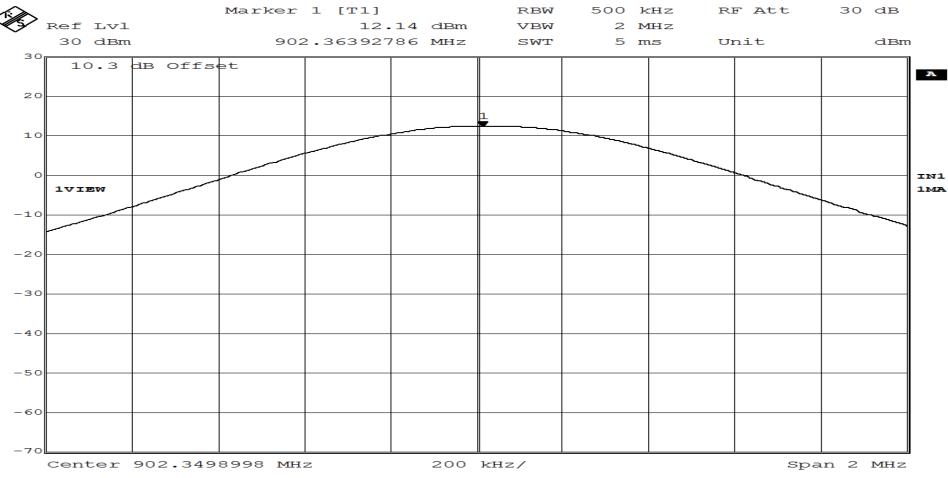
Test Setup



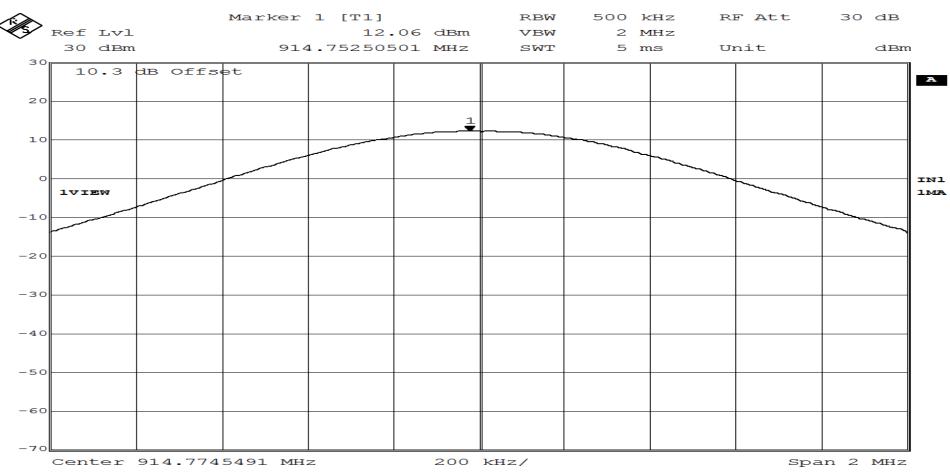
Retlif Testing Laboratories



RETLIF TESTING LABORATORIES				
Test Method	Peak Power Output			
Customer	Immedia Semiconductor	Job No.	R-6022N-2	
Test Sample	WiFi Connected Home Security Camera			
Model Number	BCM00100U	Serial No.	100-006-159	
Operating Mode	Transmitting modulated signal			
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)			
Technician	M. Seamans	Date	October 2 nd , 2015	
Climatic Conditions	Temp: 20.0 °C Relative Humidity: 42.0 %			
Notes	Transmit Frequency: 902.36 MHz Peak Power Output: 12.14 dBm (16.36)	68mW)		

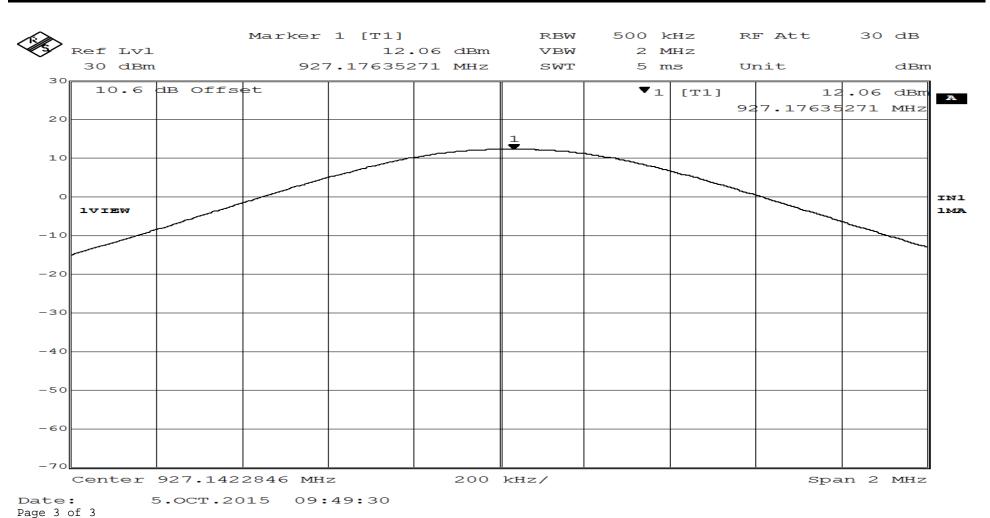


RETLIF TESTING LABORATORIES			
Test Method	Peak Power Output		
Customer	Immedia Semiconductor	Job No.	R-6022N-2
Test Sample	WiFi Connected Home Security Camera		
Model Number	BCM00100U	Serial No.	100-006-159
Operating Mode	Transmitting modulated signal		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)		
Technician	M. Seamans	Date	October 2 nd , 2015
Climatic Conditions	Temp: 20.0 °C Relative Humidity: 42.0 %		
Notes	Transmit Frequency: 914.774 MHz Peak Power Output: 12.06 dBm (16.069mW)		

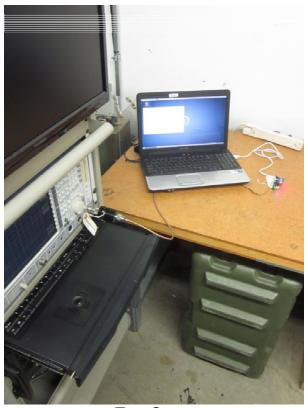


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RETLIF TESTING LABORATORIES				
Test Method	Peak Power Output			
Customer	Immedia Semiconductor	Job No.	R-6022N-2	
Test Sample	WiFi Connected Home Security Camera			
Model Number	BCM00100U	Serial No.	100-006-159	
Operating Mode	Transmitting modulated signal			
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)			
Technician	M. Seamans	Date	October 2 nd , 2015	
Climatic Conditions	Temp: 20.0 °C Relative Humidity: 42.0 %			
Notes	Transmit Frequency: 927.176 MHz Peak Power Output: 12.06 dBm (16.0)69mW)		



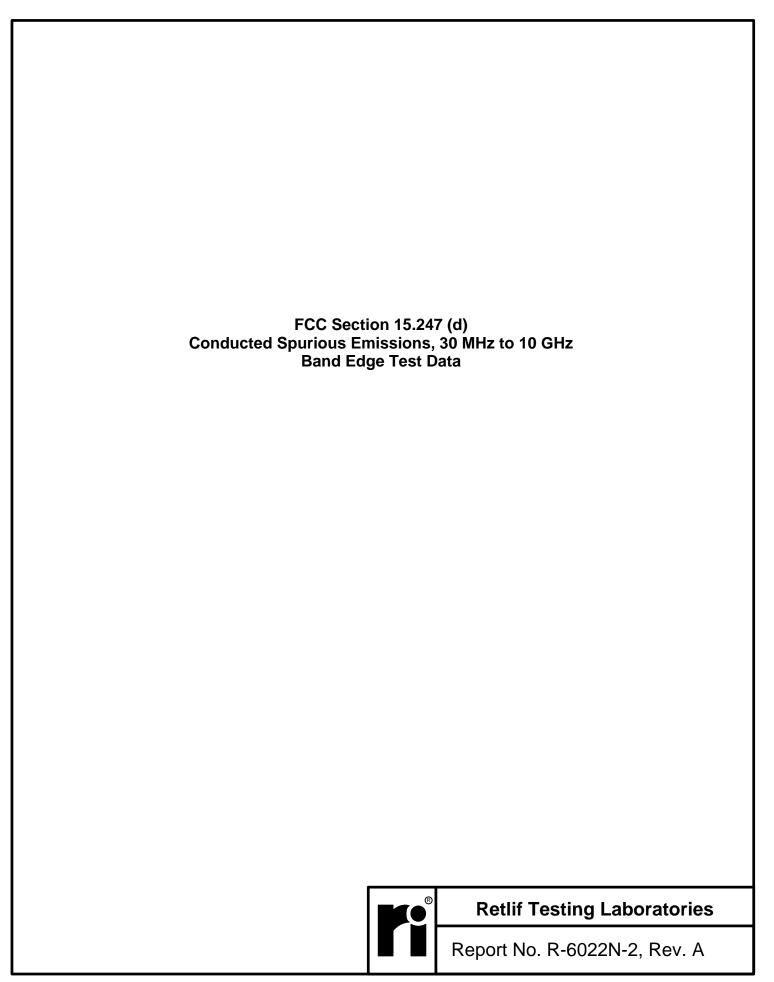
Test Photographs Conducted Spurious Emissions, 30 MHz to 10 GHz



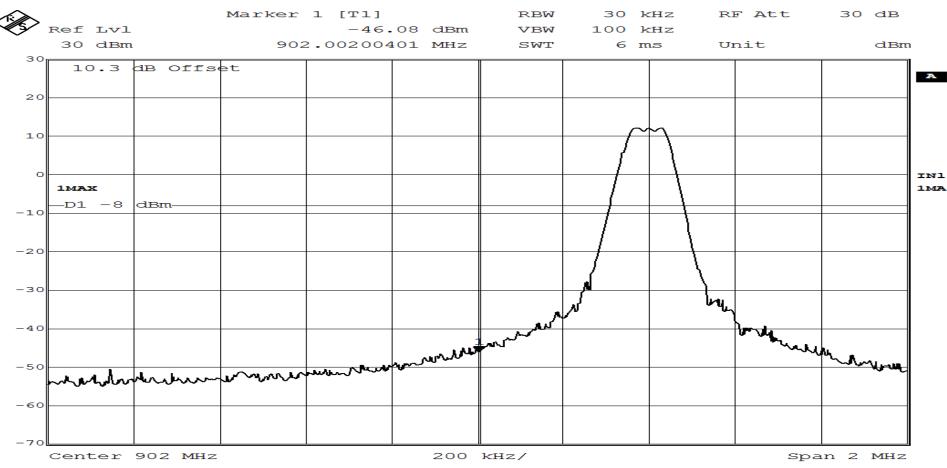
Test Setup



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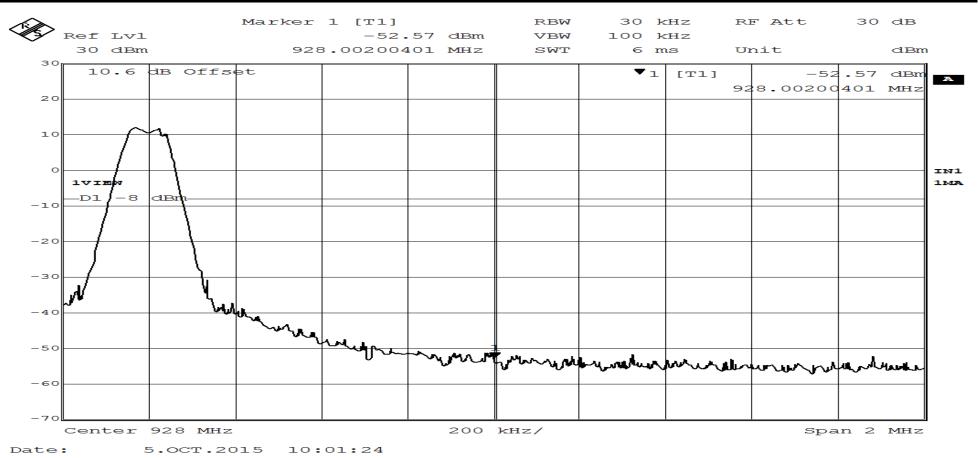


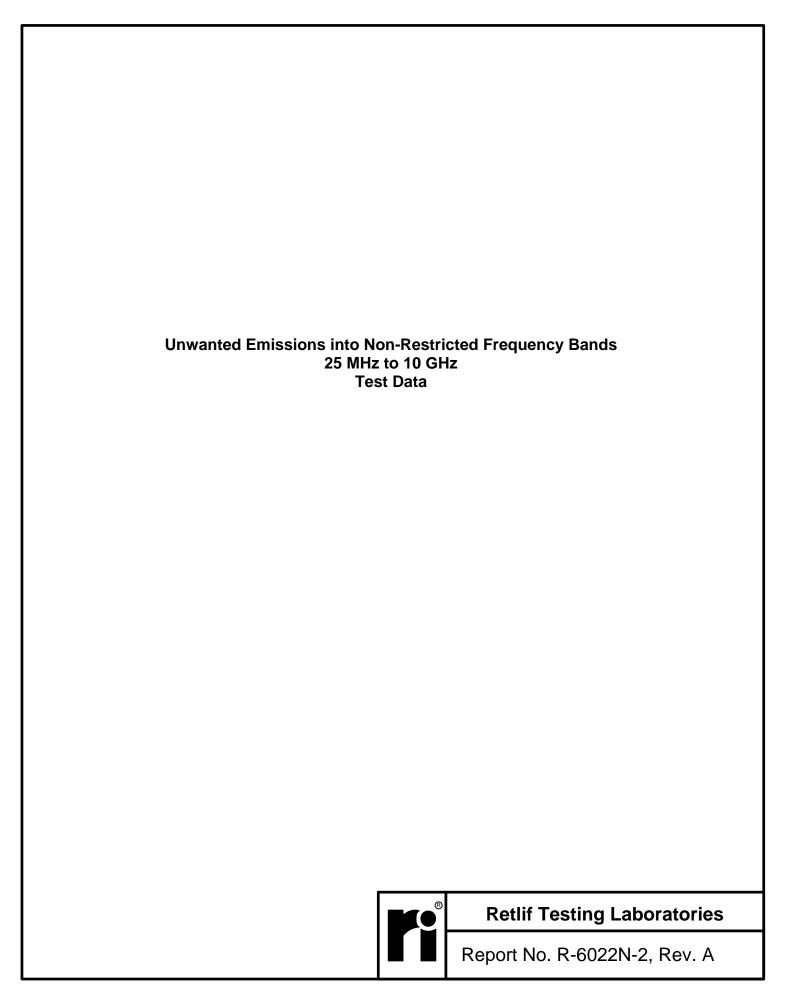
RETLIF TESTING LABORATORIES			
Test Method	Band Edge Emissions Conducted		
Customer	Immedia Semiconductor	Job No.	R-6022N-2
Test Sample	WiFi Connected Home Security Camera		
Model Number	BCM00100U	Serial No.	100-006-159
Operating Mode	Transmitting modulated signal		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)		
Technician	M. Seamans	Date	October 2 nd , 2015
Climatic Conditions	Temp: 20.0 °C Relative Humidity: 42.0 %		
Notes	Transmit Frequency: 902.36 MHz		



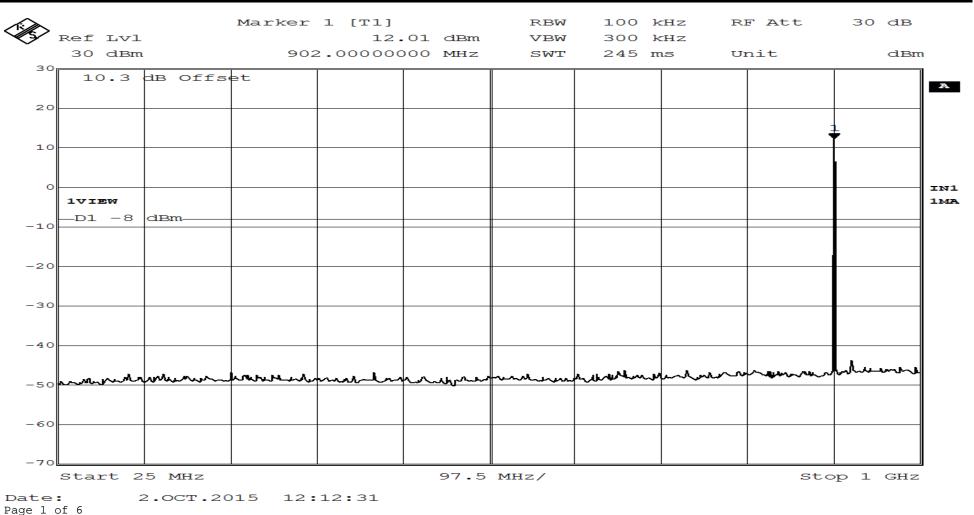
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Page 1 of 2

	EXAMPLE 2 RETLIF TESTING LABORATORIES						
Test Method	Band Edge Emissions Conducted						
Customer	Immedia Semiconductor	Job No.	R-6022N-2				
Test Sample	WiFi Connected Home Security Camera						
Model Number	BCM00100U Serial No. 100-006-159						
Operating Mode	Transmitting modulated signal						
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)						
Technician	M. Seamans	Date	October 2 nd , 2015				
Climatic Conditions	Temp: 20.0 °C Relative Humidity: 42.0 %						
Notes	Transmit Frequency: 927.3 MHz						





RETLIF TESTING LABORATORIES							
Test Method	Unwanted Emissions into Non-Restricted Frequency Bands						
Customer	Immedia Semiconductor	Job No.	R-6022N-2				
Test Sample	WiFi Connected Home Security Camera						
Model Number	BCM00100U	Serial No.	100-006-159				
Operating Mode	Transmitting modulated signal						
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)						
Technician	M. Seamans Date October 2 nd , 2015						
Climatic Conditions	Climatic Conditions Temp: 20.0 °C Relative Humidity: 42.0 %						
Notes	Transmit Frequency: 902.4 MHz Limit is 20dB down from the Fundame	ental Frequenc	y Peak Power Output				

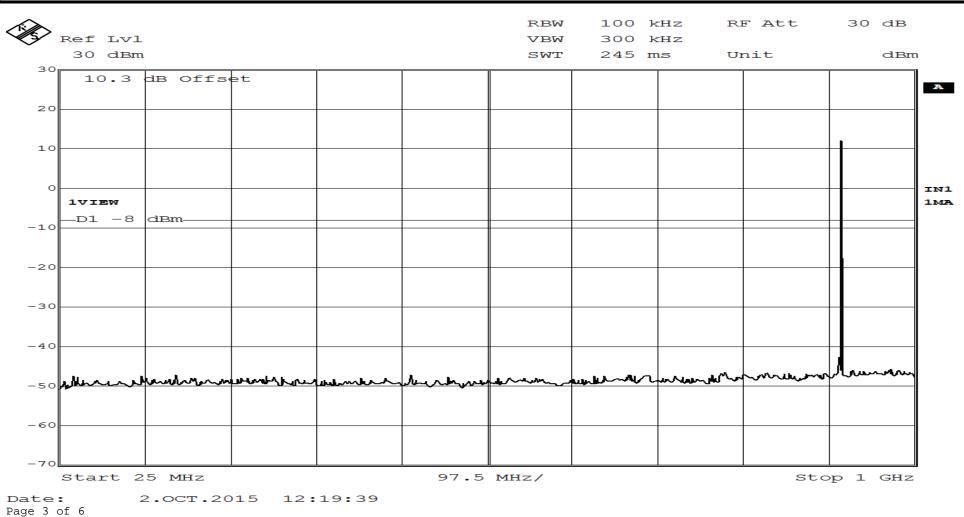


	RETLIF TESTING LABORATORIES						
Test Method	Unwanted Emissions into Non-Restricted Frequency Bands						
Customer	Immedia Semiconductor	Job No.	R-6022N-2				
Test Sample	WiFi Connected Home Security Camera						
Model Number	BCM00100U	Serial No.	100-006-159				
Operating Mode	Transmitting modulated signal						
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)						
Technician	M. Seamans Date October 2 nd , 2015						
Climatic Conditions	Climatic Conditions Temp: 20.0 °C Relative Humidity: 42.0 %						
Notes	Transmit Frequency: 902.4 MHz Limit is 20dB down from the Fundame	ental Frequenc	ey Peak Power Output				

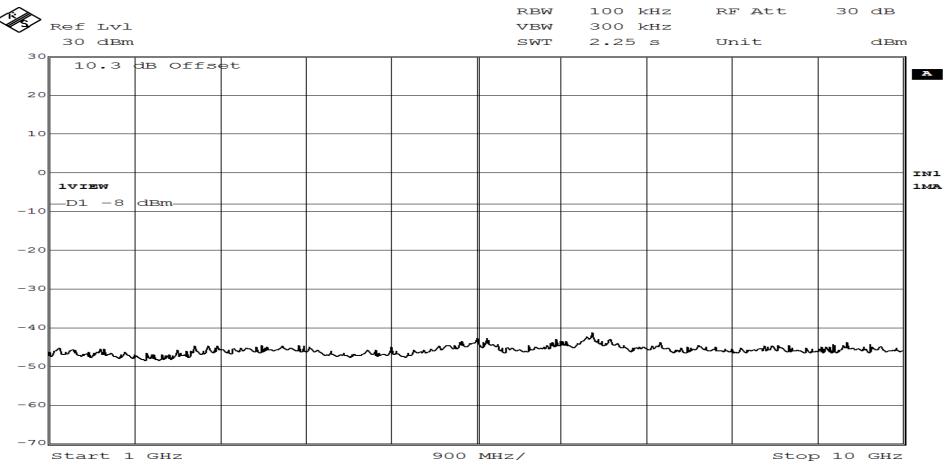


Page 2 of 6

RETLIF TESTING LABORATORIES						
Test Method	Unwanted Emissions into Non-Restricted Frequency Bands					
Customer	Immedia Semiconductor	Job No.	R-6022N-2			
Test Sample	WiFi Connected Home Security Camera					
Model Number	BCM00100U	Serial No.	100-006-159			
Operating Mode	Transmitting modulated signal					
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)					
Technician	M. Seamans Date October 2 nd , 2015					
Climatic Conditions Temp: 20.0 °C Relative Humidity: 42.0 %						
Notes	Transmit Frequency: 915 MHz Limit is 20dB down from the Fundame	ntal Frequency	Peak Power Output			

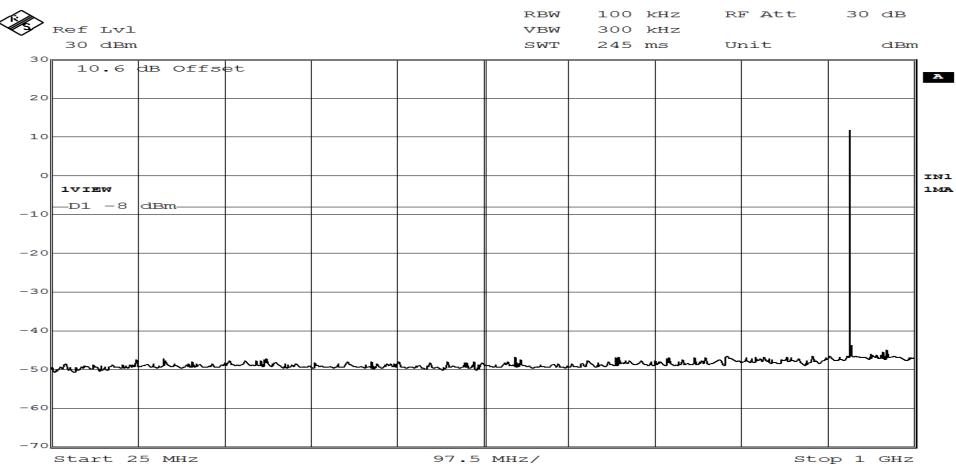


	RETLIF TESTING LABORATORIES						
Test Method	Unwanted Emissions into Non-Restricted Frequency Bands						
Customer	Immedia Semiconductor	Job No.	R-6022N-2				
Test Sample	WiFi Connected Home Security Camera						
Model Number	BCM00100U	Serial No.	100-006-159				
Operating Mode	Transmitting modulated signal						
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)						
Technician	M. Seamans Date October 2 nd , 2015						
Climatic Conditions	Conditions Temp: 20.0 °C Relative Humidity: 42.0 %						
Notes	Transmit Frequency: 915 MHz Limit is 20dB down from the Fundame	ental Frequency	Peak Power Output				



Date: 2.OCT.2015 12:17:25
Page 4 of 6

	RETLIF TESTING LABORATORIES						
Test Method	Unwanted Emissions into Non-Restricted Frequency Bands						
Customer	Immedia Semiconductor	Job No.	R-6022N-2				
Test Sample	WiFi Connected Home Security Camera						
Model Number	BCM00100U Serial No. 100-006-159						
Operating Mode	Transmitting modulated signal						
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)						
Technician	M. Seamans	Date	October 2 nd , 2015				
Climatic Conditions	Climatic Conditions Temp: 20.0 °C Relative Humidity: 42.0 %						
Notes	Transmit Frequency: 927 MHz Limit is 20dB down from the Fundamen	tal Frequency	Peak Power Output				

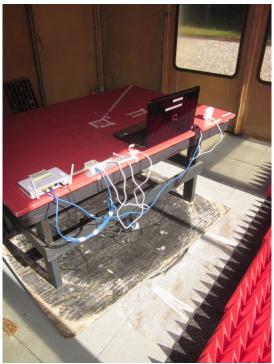


	RETLIF TESTING LABORATORIES							
Test Method	Unwanted Emissions into Non-Restricted Frequency Bands							
Customer	Immedia Semiconductor	Job No.	R-6022N-2					
Test Sample	WiFi Connected Home Security Camera							
Model Number	BCM00100U	Serial No.	100-006-159					
Operating Mode	Transmitting modulated signal							
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)							
Technician	M. Seamans	Date	October 2 nd , 2015					
Climatic Conditions	Climatic Conditions Temp: 20.0 °C Relative Humidity: 42.0 %							
Notes	Transmit Frequency: 927 MHz Limit is 20dB down from the Fundame	ntal Frequency	Peak Power Output					



Page 6 of 6

Test Photographs Field Strength of Spurious Emissions



Test Configuration



Retlif Testing Laboratories

Test Photographs Field Strength of Spurious Emissions



Horizontal Antenna Polarization, 25 MHz – 1 GHz

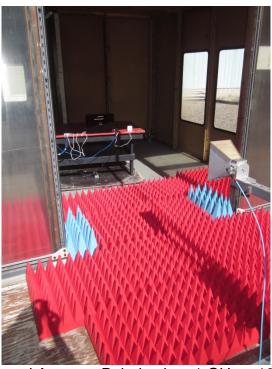


Vertical Antenna Polarization, 25 MHz – 1 GHz

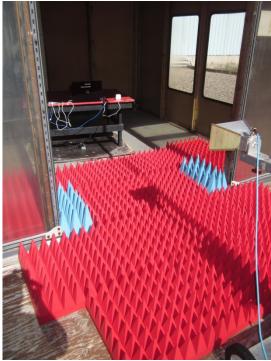


Retlif Testing Laboratories

Test Photographs Field Strength of Spurious Emissions



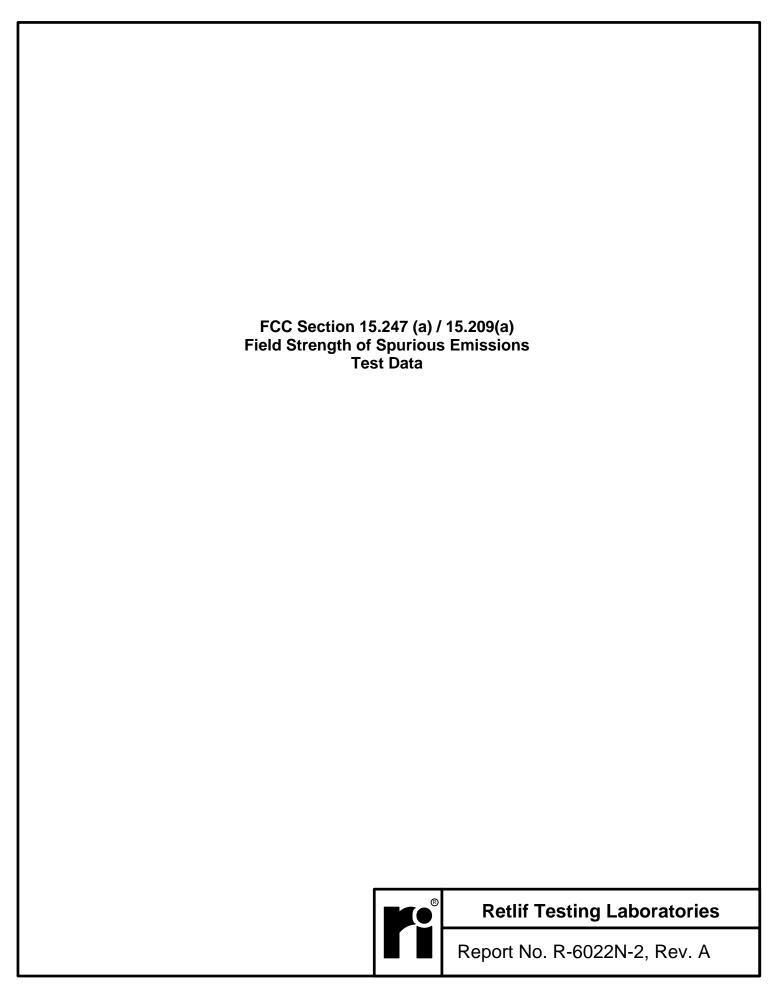
Horizontal Antenna Polarization, 1 GHz – 10 GHz



Vertical Antenna Polarization, 1 GHz – 10 GHz



Retlif Testing Laboratories



RETLIF TESTING LABORATORIES						
EMISSIONS TEST DATA SHEET						
Test Method	Test Method Unwanted Emissions into Restricted Frequency Bands					
Customer	Immedia Semiconductor					
Job Number	Job Number R-6022N-2					
Test Sample	Test Sample WiFi Connected Home Security Camera					
Model Number	Model Number BCM00100U					
Serial Number	100-006-159					
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)				
Operating Mode Transmitting hopping frequency data						
Technician M. Seamans						
Date	October 6 th , 2015					

Detector: Quasi-Peak <1GHz, Average >1GHz

Notes: Antenna Test Distance: 3 meters

138.00

TEST PARAMETERS Restricted Meter Correction Corrected Converted Limit at Measured **Factor** Reading Reading Band Frequency Reading **3M** MHz MHz dBuV dB dBuV/m uV/muV/m100.00 37.50 38.00 21.99 36.19 * 64.49 14.20 I 38.25 100.00 73.00 100.00 8.36 74.00 17.88 26.24 20.51 I 74.60 100.00 74.80 100.00 75.00 17.14 8.36 25.50 * 18.84 75.20 100.00 108.00 150.00 111.60 18.65 10.02 27.13 28.67 114.20 24.29 9.86 34.15 50.99 121.94 ----150.00 123.00 150.00 123.30 13.29 9.44 22.73 13.69 125.60 19.34 9.40 28.74 27.35

EUT emissions observed throughout the given frequency spectrum were recorded and evaluated. Emission levels closest to the limit are listed on this data sheet. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 1 of 7

150.00



Retlif Testing Laboratories

===== RETLIF TESTING LABORATORIES ======							
EMISSIONS TEST DATA SHEET							
Test Method	Unwanted Emissions into Restricted Frequency Bands						
Customer	Immedia Semiconductor						
Job Number	Job Number R-6022N-2						
Test Sample WiFi Connected Home Security Camera							
Model Number	BCM00100U						
Serial Number	100-006-159						
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)					
Operating Mode Transmitting hopping frequency data							
Technician M. Seamans							
Date	October 6 th , 2015						
		·					

			TEST P	ARAMETERS			
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	13.66	11.17	24.83	*	17.44	
150.05	-	-	-	-		-	150.00
156.52	_		_	_			150.00
130.32	156.52	8.88	12.08	20.96	*	11.17	150.00
156.52	-	-	-	-		-	150.00
17.70							
156.70	-	-	-	-		-	150.00
	156.80	6.31	12.12	18.43	*	8.35	
156.90	-	-	-	-		-	150.00
162.01	_	_	_	-			150.00
	165.00	9.21	12.68	21.89	*	12.43	
167.17	-	-	-	-		-	150.00
167.72	-	-	-	-		-	150.00
	170.00	9.50	12.80	22.30	*	13.03	
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

RETLIF TESTING LABORATORIES						
EMISSIONS TEST DATA SHEET						
Test Method	Test Method Unwanted Emissions into Restricted Frequency Bands					
Customer	Immedia Semiconductor					
Job Number	Job Number R-6022N-2					
Test Sample WiFi Connected Home Security Camera						
Model Number	Model Number BCM00100U					
Serial Number	100-006-159					
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)				
Operating Mode Transmitting hopping frequency data						
Technician M. Seamans						
Date	October 6 th , 2015					

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	
[266.70	15.35	16.85	32.20		40.74		
285.00	-	-	-	-		-	200.00	
322.80	-	-	-	-		-	200.00	
	330.00	3.41	18.91	22.32	*	13.06		
335.40	-	-	-	-		-	200.00	
399.90	_		-	-			200.00	
I	405.00	3.40	21.49	24.89	*	17.56		
410.00	-	-	-	-		-	200.00	
608.00	_	_	_	-		_	200.00	
	611.00	0.54	27.34	27.88	*	24.77	200.00	
614.00	-	-	-	-		-	200.00	
960.00	-		-	-		_	500.00	
1	975.00	1.33	32.10	33.43	*	46.94		
1240.00	-	-	-	-		-	500.00	
1300.00	_	_	_	-		-	500.00	
	1350.00	32.8	-9.50	23.30	*	14.62		
1427.00	-	-	-	-		-	500.00	

EUT emissions observed throughout the given frequency spectrum were recorded and evaluated. Emission levels closest to the limit are listed on this data sheet. * 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

RETLIF TESTING LABORATORIES					
EMISSIONS TEST DATA SHEET					
Test Method	Unwanted Emissions into Restricted Frequency Bands				
Customer	Immedia Semiconductor				
Job Number	R-6022N-2				
Test Sample	WiFi Connected Home Security Camera				
Model Number	BCM00100U				
Serial Number	100-006-159				
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)			
Operating Mode	Transmitting hopping frequency data	·			
Technician	M. Seamans				
Date	October 6 th , 2015				
Notes: Antenna Test D	istance: 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	
1435.00	-	-	-	-		-	500.00	
	1500.00	36.73	-9.4	27.33	*	23.25		
1646.50	-	-	-	-		-	500.00	
1660.00	-	-	-	-		-	500.00	
	1680.00	31.71	-9.04	22.67	*	13.59		
1710.00	-	-	-	-		-	500.00	
1718.80	-	-	-	-		-	500.00	
	1720.00	31.46	-8.64	22.82	*	13.83		
1722.20	-	-	-	-		-	500.00	
2200.00	-	-	-	-		-	500.00	
	2250.00	31.79	-6.76	25.03	*	17.84		
2300.00	-	-	-	-		-	500.00	
2310.00	-	-	-	-		-	500.00	
	2360.00	30.93	-6.51	24.42	*	16.63		
2390.00	-	-	-	-		-	500.00	
			1					
2483.50	-	-	-	-		-	500.00	
	2490.00	32.19	-6.11	26.08	*	20.13		
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

RETLIF TESTING LABORATORIES				
EMISSIONS TEST DATA SHEET				
Test Method	Unwanted Emissions into Restricted Frequency Bands			
Customer	Immedia Semiconductor			
Job Number	R-6022N-2			
Test Sample	WiFi Connected Home Security Camera			
Model Number	Model Number BCM00100U			
Serial Number	100-006-159			
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)		
Operating Mode	Transmitting hopping frequency data			
Technician	M. Seamans			
Date	October 6 th , 2015			

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
	2706.00	36.42	-5.4	31.02		35.56	
	2745.00	36.91	-5.4	31.51		37.62	
	2781.00	37.15	-5.4	31.51		38.68	
2900.00	-	-	-	-		-	500.00
3260.00	-	-	-	-		-	500.00
	3263.00	29.93	-3.4	26.53	*	21.20	
3267.00	-	-	-	-		-	500.00
3332.00	-	-	-	-		-	500.00
	3336.00	30.58	-3.1	27.48	*	23.65	
3339.00	-	-	-	-		-	500.00
3345.00	-	-	-	-		-	500.00
	3350.00	30.1	-3.1	27.00	*	22.38	
3358.00	-	-	-	-		-	500.00
3600.00	-	-	-	-		-	500.00
	3608.00	38.19	-2.4	35.79		61.58	
	3660.00	37.90	-2.4	35.50		59.56	
	3708.00	37.50	-2.4	35.10		56.88	

EUT emissions observed throughout the given frequency spectrum were recorded and evaluated. Emission levels closest to the limit are listed on this data sheet. * 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

RETLIF TESTING LABORATORIES				
EMISSIONS TEST DATA SHEET				
Test Method	Unwanted Emissions into Restricted Frequency Bands			
Customer	Immedia Semiconductor			
Job Number	R-6022N-2			
Test Sample	WiFi Connected Home Security Camera			
Model Number	BCM00100U			
Serial Number	100-006-159			
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)		
Operating Mode	Transmitting hopping frequency data			
Technician	M. Seamans			
Date	October 6 th , 2015			
		·		

	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	
	3800.00	29.29	-0.74	28.55	*	26.76		
4400.00	-	-	-	-		-	500.00	
4500.00	-	-	-	-		-	500.00	
	4510.00	40.17	-1.16	39.01		89.22		
	4575.00	39.85	-1.16	38.69		86.00		
	4635.00	40.16	-0.91	39.25		91.72		
	4900.00	29.47	-0.48	28.99	*	28.15		
5150.00	-	-	-	-		-	500.00	
5350.00	-	-	-	-		-	500.00	
	5400.00	28.45	0.89	29.34	*	29.32		
5460.00	-	-	-	-		-	500.00	
7250.00	-	-	-	-		-	500.00	
	7500.00	30.58	2.87	33.45	*	47.04		
7750.00	-	-	-	-		-	500.00	
8025.00	-	-	-	-		-	500.00	
	8118.00	30.89	3.20	34.09	*	50.64		
	8235.00	30.56	3.30	33.86	*	49.31		
	8250.00	30.35	3.50	33.90	*	49.54		
	8343.00	30.30	3.30	33.60	*	47.86		
8500.00	-	-	-	-		-	500.00	
TOT 100	1 1.1				1 . 1 5	1 1 1		

EUT emissions observed throughout the given frequency spectrum were recorded and evaluated. Emission levels closest to the limit are listed on this data sheet. * 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

======================================					
EMISSIONS TEST DATA SHEET					
Test Method	Unwanted Emissions into Restricted Frequency Bands				
Customer	Immedia Semiconductor				
Job Number	R-6022N-2				
Test Sample	WiFi Connected Home Security Camera				
Model Number	BCM00100U				
Serial Number	100-006-159				
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)			
Operating Mode	Transmitting hopping frequency data				
Technician	M. Seamans				
Date	October 6 th , 2015				

	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
9000.00	-	-	-	-			-	500.00
	9100.00	31.02	4.72	35.74	*		61.23	
9200.00	-	-	-	-			-	500.00
9300.00	_	-	_	-			-	500.00
	9400.00	31.21	4.56	35.77	*		61.44	
9500.00	-	-	-	-			-	500.00

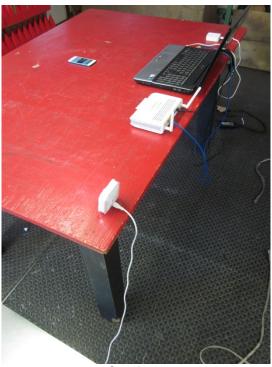
No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 7 of 7



Retlif Testing Laboratories

Test Photographs AC Line Conducted Emissions



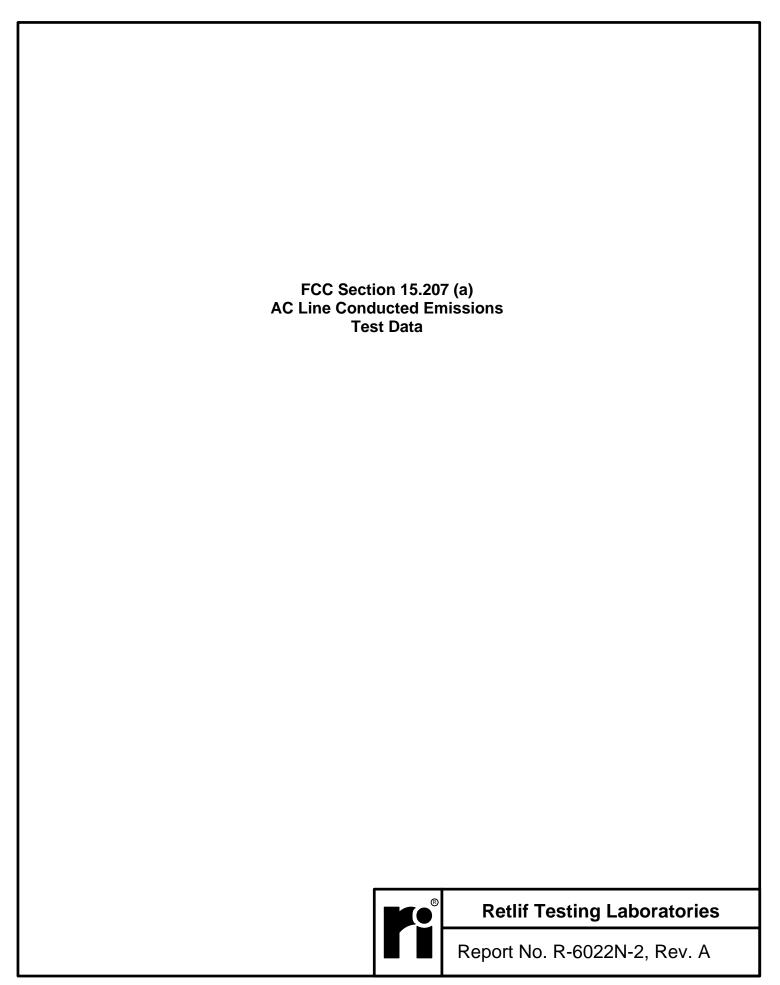
Test Configuration



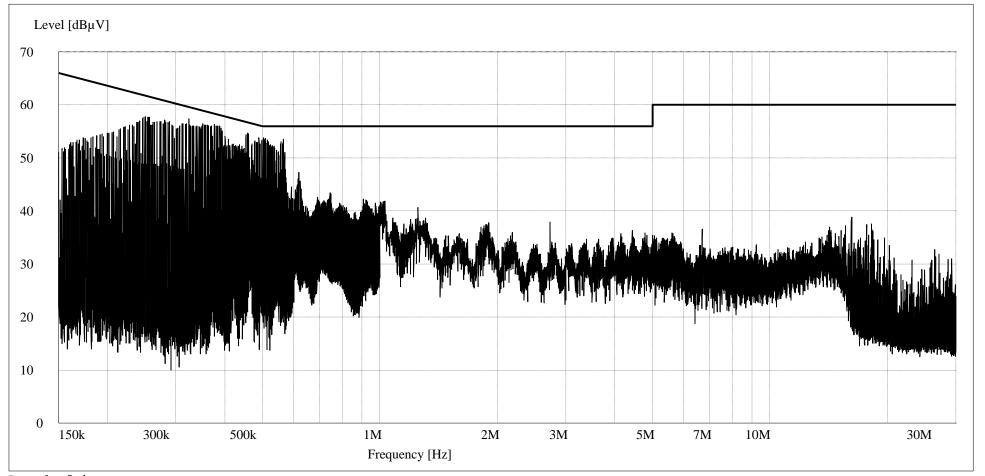
Test Setup



Retlif Testing Laboratories

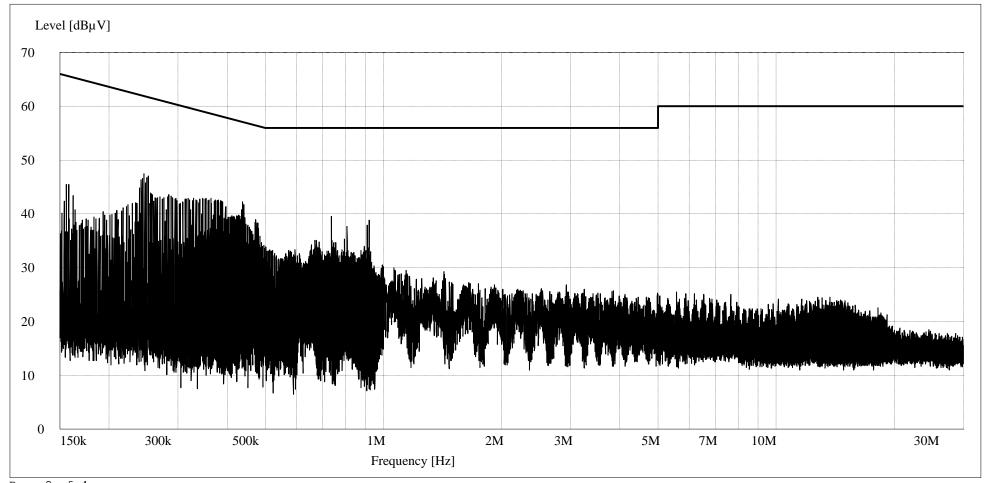


	RETLIF TESTING LABORATORIES						
Test Method	Conducted Emissions 150 kHz to 30 MHz						
Customer	Immedia Semiconductor	Job No.	R-6022N-2				
Test Sample	WiFi Connected Home Security Camera						
Model No.	BCM00100U	Serial No.	100-006-159				
Operating Mode	Live streaming video to iPod						
Test Specification	FCC Part 15. 207(a)						
Technician	M. Seamans	Date	October 6 th , 2015				
Climatic Conditions	Temp: 21.0 °C Relative Humidity: 40.0 %						
Lead Tested	120 VAC 60 Hz Hot Peak Readings to Quasi-Peak Limits.						



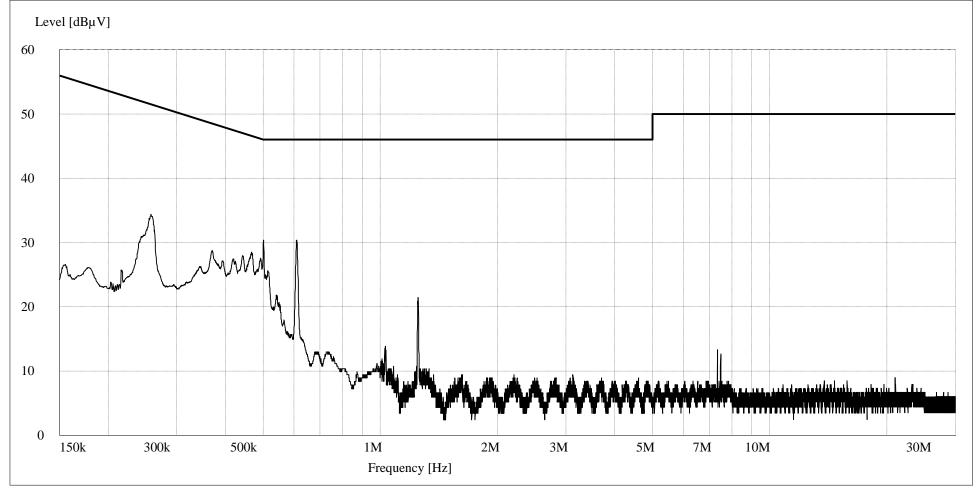
Page 1 of 4

	RETLIF TESTING LABORATORIES						
Test Method	Conducted Emissions 150 kHz to 30 MHz						
Customer	Immedia Semiconductor	Job No.	R-6022N-2				
Test Sample	WiFi Connected Home Security Camera						
Model No.	BCM00100U	Serial No.	100-006-159				
Operating Mode	Live streaming video to iPod						
Test Specification	FCC Part 15. 207(a)						
Technician	M. Seamans	Date	October 6 th , 2015				
Climatic Conditions	Temp: 21.0 °C Relative Humidity: 40.0 %						
Lead Tested	120 VAC 60 Hz Neutral Peak Readings to Quasi-Peak Limits.						



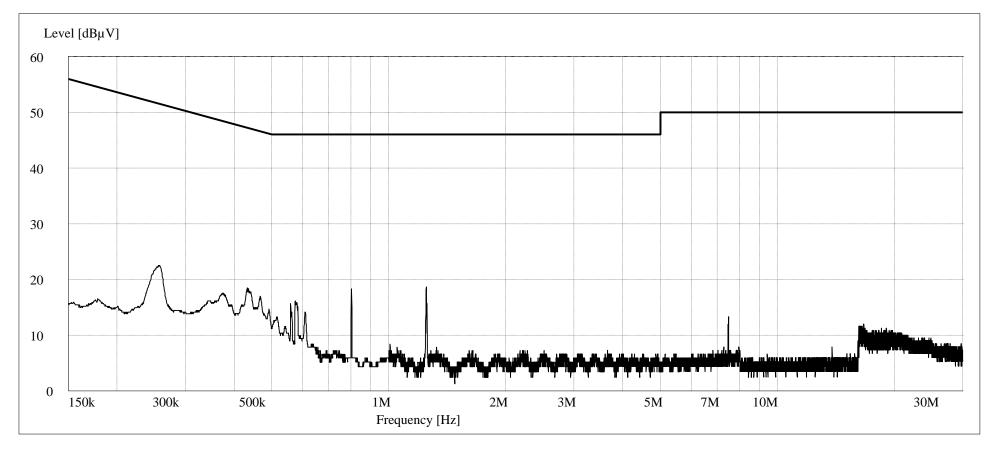
Page 2 of 4

RETLIF TESTING LABORATORIES						
Test Method	Conducted Emissions 150 kHz to 30 MHz					
Customer	Immedia Semiconductor	Job No.	R-6022N-2			
Test Sample	WiFi Connected Home Security Camera					
Model No.	BCM00100U	Serial No.	100-006-159			
Operating Mode	Live streaming video to iPod					
Test Specification	FCC Part 15. 207(a)					
Technician	M. Seamans	Date	October 6 th , 2015			
Climatic Conditions	Temp: 21.0 °C Relative Humidity: 40.0 %					
Lead Tested	120 VAC 60 Hz Hot Average Readings to Average Limits.					



Page 3 of 4

RETLIF TESTING LABORATORIES							
Test Method	Conducted Emissions 150 kHz to 30 MHz						
Customer	Immedia Semiconductor	Job No.	R-6022N-2				
Test Sample	WiFi Connected Home Security Camera						
Model No.	BCM00100U	Serial No.	100-006-159				
Operating Mode	Live streaming video to iPod						
Test Specification	FCC Part 15. 207(a)						
Technician	M. Seamans	Date	October 6 th , 2015				
Climatic Conditions	Temp: 21.0 °C Relative Humidity: 40.0 %						
Lead Tested	120 VAC 60 Hz Neutral Average Readings to Average Limits.						



Page 4 of 4