

#### FCC Part 15, Subpart C, Section 15.247 Test Report

On

Outdoor XT2 Blink Camera Module FCC ID: 2AF77-H1981713

Customer Name: Immedia Semiconductor, LLC

Customer P.O: ISI032919\_PDG

**Date of Report:** May 1, 2019

**Test Report No:** R-6412N-3

**Test Start Date:** April 17, 2019

**Test Finish Date:** April 18, 2019

**Test Engineer:** T. Hannemann

Test Technician: M. Seamans

**Approved By:** S. Wentworth

**Report Prepared By:** P. Harris

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#### 40 YEARS OF TESTING EXCELLENCE

#### **Technical Information**

**Report Number:** R-6412N-3

Customer: Immedia Semiconductor, LLC

**Address:** 100 Riverpark Drive

North Reading, MA 01864

Manufacturer: Immedia Semiconductor, LLC

Manufacturer Address: 100 Riverpark Drive

North Reading, MA 01864

**Test Sample:** Outdoor XT2 Blink Camera Module

Model Number: BCM00200U

N/A (Conducted Testing)

Serial Number: 870-000-537 (Radiated Testing)

**FCC ID:** 2AF77-H1981713

Digital Transmission - Direct Sequence Spread Spectrum

**Type:** Transmitter

5 VDC via External 120 VAC power adapter or 3 VDC via

**Power Requirements:** internal batteries

Frequency of Operation: 2412.0 MHz to 2472.0 MHz

**Equipment Class:** DTS

**Antenna Type:** Internal PCB Antenna – 2.0 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 C63.4:2014 ANSI C63.10:2013

FCC 558074 D01 15.247 Meas Guidance v05r02, April 2, 2019

#### **Test Facility:**

Retlif Testing Laboratories 101 New Boston Road Goffstown, NH 03045

FCC Designation Number: US5327



#### **Retlif Testing Laboratories**

#### **Tests Performed**

FCC Test Method Part 15, Subpart C	
15.247(a)(2)	Occupied Bandwidth (6dB Bandwidth)
15.247(b)(3)	Power Output
15.247(d)	Antenna Port, Conducted Emissions
15.247(e)	Antenna Port, Power Density
15.247(d)	Spurious Radiated Emissions, 30 MHz to 25 GHz
15.207(a)	Conducted Emissions, Power Leads, 150 kHz to 30 MHz

#### **EUT Operation:**

The Outdoor XT2 Blink Camera operates using only 802.11n20 protocol in the 2.4 GHz Wi-Fi band. The EUT was evaluated in all possible data rates and the lowest data rate of 9Mbps (ofdm) was used for testing as this data rate resulted in the highest output power and worst case emissions.

Table 1 – Support Equipment

Description	Manufacturer	Model Number	Serial Number		
	Radiated Testing				
Laptop PC	HP	Probook 450G5	SC088466QTY		
USB Adapter	Alfa Network	AWUS036NHA	180636A0001785		
Sync Module	Immedia Semiconductor	BSM00200U	230-054-628		
	Conducted Testing				
Laptop PC	HP	Probook 450G5	SC088466QTY		
Sync Module	Immedia Semiconductor	BSM00200U	230-054-628		



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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

Todd Hannemann EMC Test Engineer

iNARTE Certified Technician ATL-0255-T

#### **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 report must not be used by the client to claim product endorsement by ANSI National Accreditation Board (ANAB).



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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
-	May 1, 2019	Original Release



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#### Requirements and Test Results

Requirement:

FCC Section 15.247(a)(2)

Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz bands. The minimum 6 dB bandwidths shall be at least 500 kHz.

#### Results:

The minimum 6 dB bandwidth measured 15,111 kHz which complies with the requirement that the Bandwidth be no less than 500 kHz.

#### Requirement:

**FCC Sections 15.247(b)(3)** 

Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz
The maximum peak conducted output power of the intentional radiator shall not exceed the following:

For systems using digital modulation in the 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antenna and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antenna and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

#### Results:

The maximum measured peak conducted output power was 98.99 mW. The maximum antenna gain of the PCB antenna is 2.0 dBi. The device was found to meet the power output requirements of 15.247 (b)(3) including de facto EIRP.



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#### Requirement:

**FCC Section 15.247(d):** 

Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz

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 this section, 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 emissions limits specified in Section 15.209(a) (see Section 15.205(c)).

#### Results:

In any 100 kHz bandwidth outside the frequency band in which the Spread spectrum intentional radiator was operating, the radio frequency power that was produced by the intentional radiator was at least 20 dB below that in the 100 kHz bandwidth within the band that contained the highest level of the desired power. All emissions, which fell within the restricted bands specified in 15.205(a), were measured and found to be in compliance with the limits specified in 15.209(a).



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#### Requirement:

#### **FCC Section 15.247(e):**

#### Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

#### Results:

The power spectral density conducted from the intentional radiator to the antenna was not greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density was determined in accordance with Section 15.247(b)(3), herein.

#### Requirement:

#### 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 2.

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

Table 2 - Radiated Emission Limits

#### Results:

The field strength of spurious radiated emissions did not exceed the limits specified in Table 2.



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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 3, as measured using a 50  $\mu$ 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 3 - Conducted Emission Limits

Frequency of Emission (MHz)	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 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<sub>R</sub> = Corrected Reading in dBµV/m

M<sub>R</sub> = Uncorrected Meter Reading in dBµV

C<sub>F</sub> = Correction Factor in dB (Antenna Factor, Pre-amp + Cable Loss)

Example:

 $M_R = 15.35 dB\mu V$ 

 $C_F = 16.85 \text{ dB}$ 

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

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 2405 MHz S = 1 mW/cmsq

Power = Max Power Input to Antenna = 98.99mW

Gain = Max Power Gain of Antenna = 2 dBi = 1.58 numeric

1 mW/cmsq = 
$$\frac{98.99 \times 1.58}{4 \times (3.14) \times D^2}$$
 =  $\frac{156.40}{12.56 \times D^2}$ 

$$D^{4}2 = \frac{156.40}{12.56 \times 1}$$

D = 
$$\sqrt{12.45} = 3.53$$
 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)(2) Occupied Bandwidth (6 dB Bandwidth)

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5134	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz, 2 W	757C-10	12/19/2018	12/31/2019
5231	AGILENT / HP	ANALYZER, SPECTRUM	3 Hz - 26.5 GHz	E4440A	4/12/2018	4/30/2019

## FCC Section 15.247(b)(3) Power Output

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5222	LENOVO	COMPUTER, CONTROL		E73	No Calibratio	n Required
5241	BOONTON ELECTRONICS	SENSOR, PEAK POWER	50 MHz - 6 GHz	RTP5006	9/7/2018	9/30/2019

## FCC Section 15.247(d) Antenna Port, Conducted Emissions

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	11/6/2018	11/30/2019
5134	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz, 2 W	757C-10	12/19/2018	12/31/2019

## FCC Section 15.247(e) Antenna Port, Power Density

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5134	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz, 2 W	757C-10	12/19/2018	12/31/2019
5231	AGILENT / HP	ANALYZER, SPECTRUM	3 Hz - 26.5 GHz	E4440A	4/12/2018	4/30/2019

#### FCC Section 15.247(d) Spurious Radiated Emissions, 30 MHz to 25 GHz

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
1232	AGILENT / HP	PRE-AMPLIFIER	1 - 26.5 GHz	8449B	5/25/2018	5/31/2019
3258	ETS / EMCO	ANTENNA, DOUBLE RIDGED GUIDE	1 - 18 GHz	3115	5/10/2018	11/30/2019
3430	MCS	ANTENNA, HORN	18 - 26.5 GHz	K-5039	No Calibration	Required
4029B	RETLIF	OPEN AREA TEST SITE, ATTENUATION	3 / 10 Meters	RNH	8/16/2017	8/31/2019
443	ELECTRO-METRICS	ANTENNA, LOG PERIODIC	200 MHz - 1000 MHz	LPA-25	5/21/2018	11/30/2019
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	11/6/2018	11/30/2019
5188	Cybertron	COMPUTER, CONTROL	N/A	TSVQJA2221	No Calibration	Required
5224	ETS / EMCO	ANTENNA, BICONICAL	20 - 200 MHz	3104C	4/10/2018	10/31/2019
5242	TELEDYNE MICROWAVE	CABLE, COAXIAL	10 kHz - 6 GHz	PR90-195-1275, 106'	9/5/2018	9/30/2019



### **Retlif Testing Laboratories**

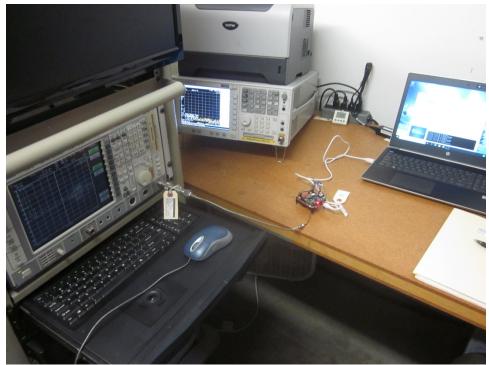
# FCC Section 15.207(b) Conducted Emissions, Power Leads, 150 kHz to 30 MHz

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	11/6/2018	11/30/2019
5135	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz, 2 W	757C-10	11/9/2018	11/30/2019
5188	Cybertron	COMPUTER, CONTROL	N/A	TSVQJA2221	No Calibration	n Required
5209	SOLAR ELECTRONICS	LISN	50 uH, 150 kHz - 30 MHz	21106-50-BP-25-BNC	4/26/2018	4/30/2019
5210	SOLAR ELECTRONICS	LISN	50 uH, 150 kHz - 30 MHz	21106-50-BP-25-BNC	4/26/2018	4/30/2019



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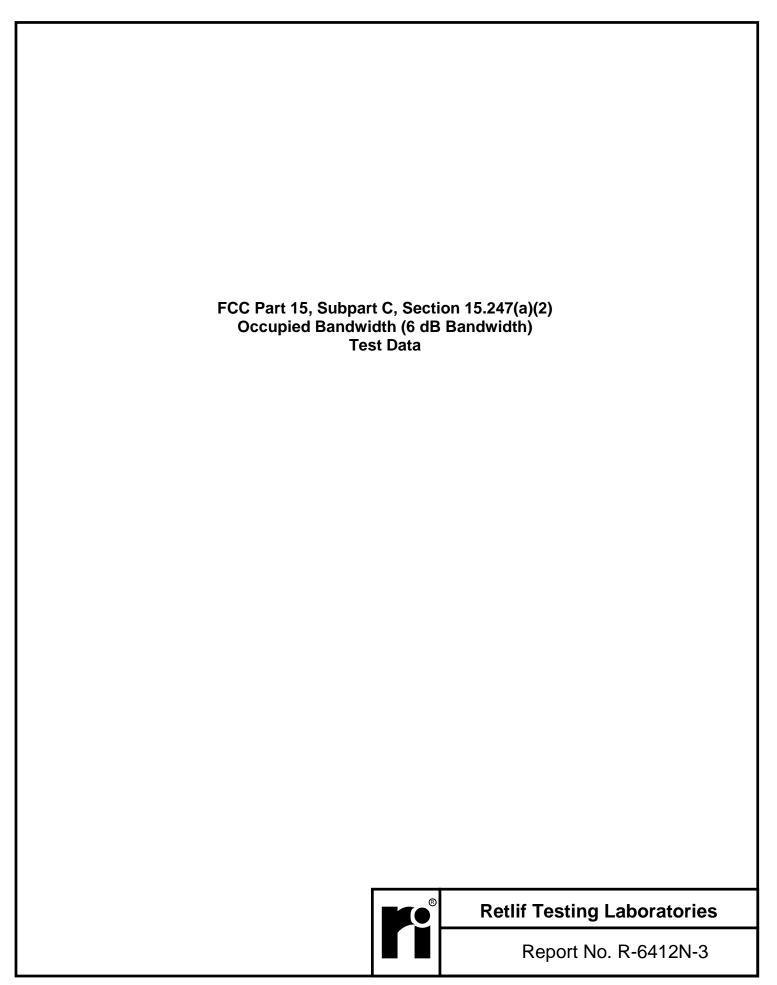
# Test Photographs Occupied Bandwidth (6dB Bandwidth)



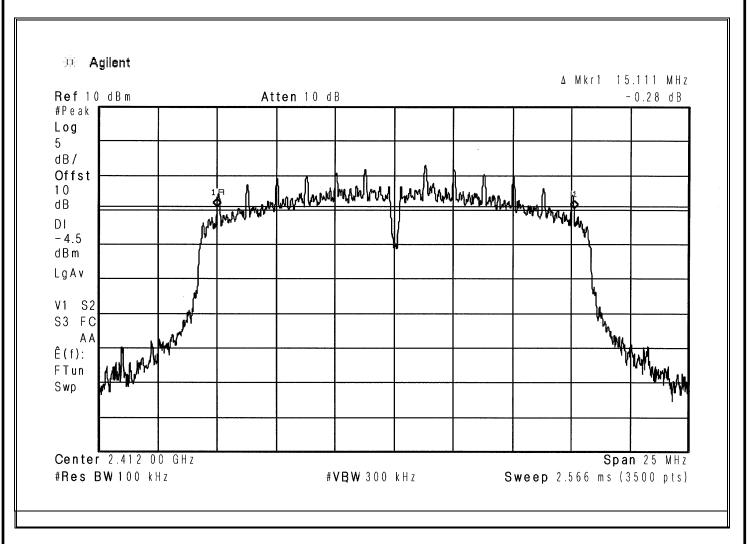
Test Setup



## **Retlif Testing Laboratories**

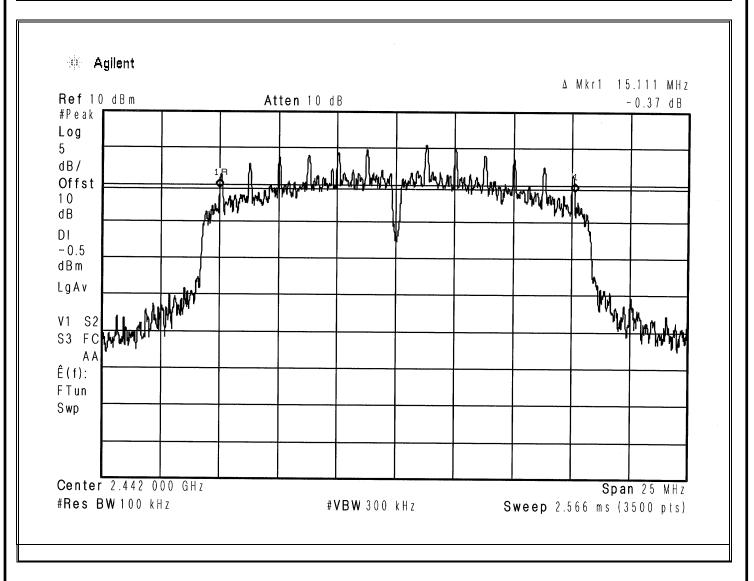


	EMISSIONS TEST DATA SHEET		
Method:	Occupied Bandwidth		
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)		
Job Number:	R-6412N-3		
Customer:	Immedia Semiconductor LLC		
Test Sample:	Outdoor XT2 Blink Camera Module		
Model Number:	BCM00200U		
Serial Number:	N/A		
Operating Mode:	Transmitting modulated signal at 2412 MHz (OFDM)		
Technician:	M.Seamans		
Date(s):	April 18 <sup>th</sup> , 2019		
Temp/ Relative Humidity:	21.6 °C / 30.6 %		
Notes:	6dB Bandwidth: 15.111 MHz		



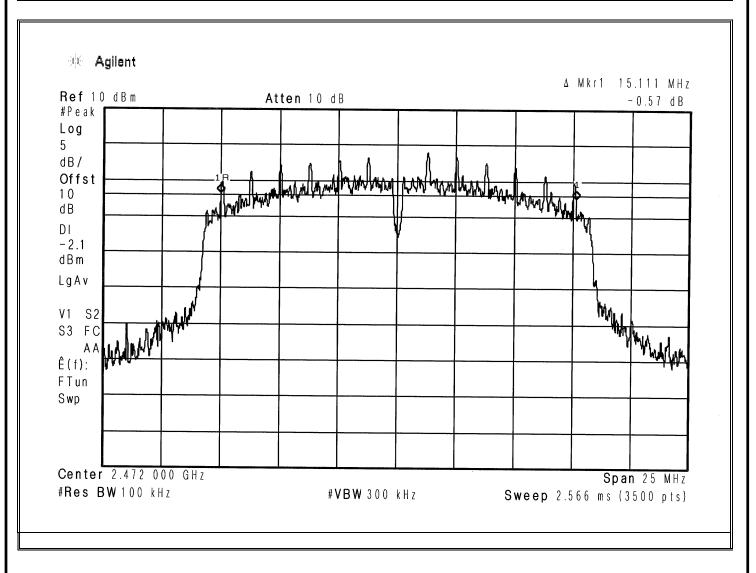


EMISSIONS TEST DATA SHEET		
Method:	Occupied Bandwidth	
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)	
Job Number:	R-6412N-3	
Customer:	Immedia Semiconductor LLC	
Test Sample:	Outdoor XT2 Blink Camera Module	
Model Number:	BCM00200U	
Serial Number:	N/A	
Operating Mode:	Transmitting modulated signal at 2442 MHz (OFDM)	
Technician:	M.Seamans	
Date(s):	April 18 <sup>th</sup> , 2019	
Temp/ Relative Humidity:	21.6 °C / 30.6 %	
Notes:	6dB Bandwidth: 15.111 MHz	



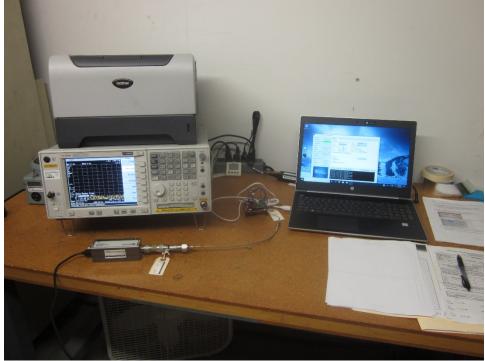


EMISSIONS TEST DATA SHEET		
Method:	Occupied Bandwidth	
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)	
Job Number:	R-6412N-3	
Customer:	Immedia Semiconductor LLC	
Test Sample:	Outdoor XT2 Blink Camera Module	
Model Number:	BCM00200U	
Serial Number:	N/A	
Operating Mode:	Transmitting modulated signal at 2472 MHz (OFDM)	
Technician:	M.Seamans	
Date(s):	April 18 <sup>th</sup> , 2019	
Temp/ Relative Humidity:	21.6 °C / 30.6 %	
Notes:	6dB Bandwidth: 15.111 MHz	





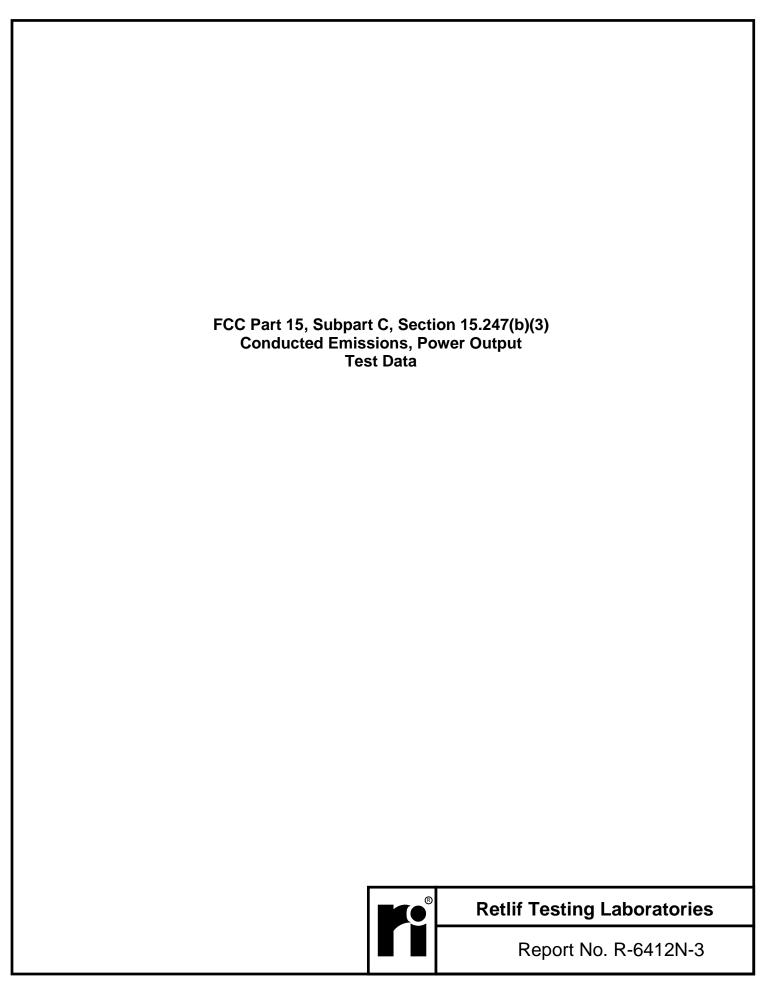
# Test Photographs Conducted Emissions, Power Output



Test Setup



**Retlif Testing Laboratories** 



RETLIF TESTING LABORATORIES		
	EMISSIONS TEST DATA SHEET	
Test Method	Peak Power Output	
Customer	Immedia Semiconductor LLC	
Job Number	R-6412N-3	
Test Sample	Outdoor XT2 Blink Camera Module	
Model Number	BCM00200U	
Serial Number	N/A	
Test Specification	FCC Part 15, Subpart C Paragraph 15.247 (b)(3)	
Operating Mode	Transmitting modulated signal (OFDM)	
Technician	M. Seamans	
Date	April 18 <sup>th</sup> , 2019	

Notes: Measurement method: Peak-reading power meter

Transmit Frequency	Power Meter Reading	Converted Reading	Limit
MHz	dBm	mW	mW
2412.00	19.362	86.33761	1000.00
2442.00	19.956	98.99198	1000.00
2472.00	19.747	94.34090	1000.00
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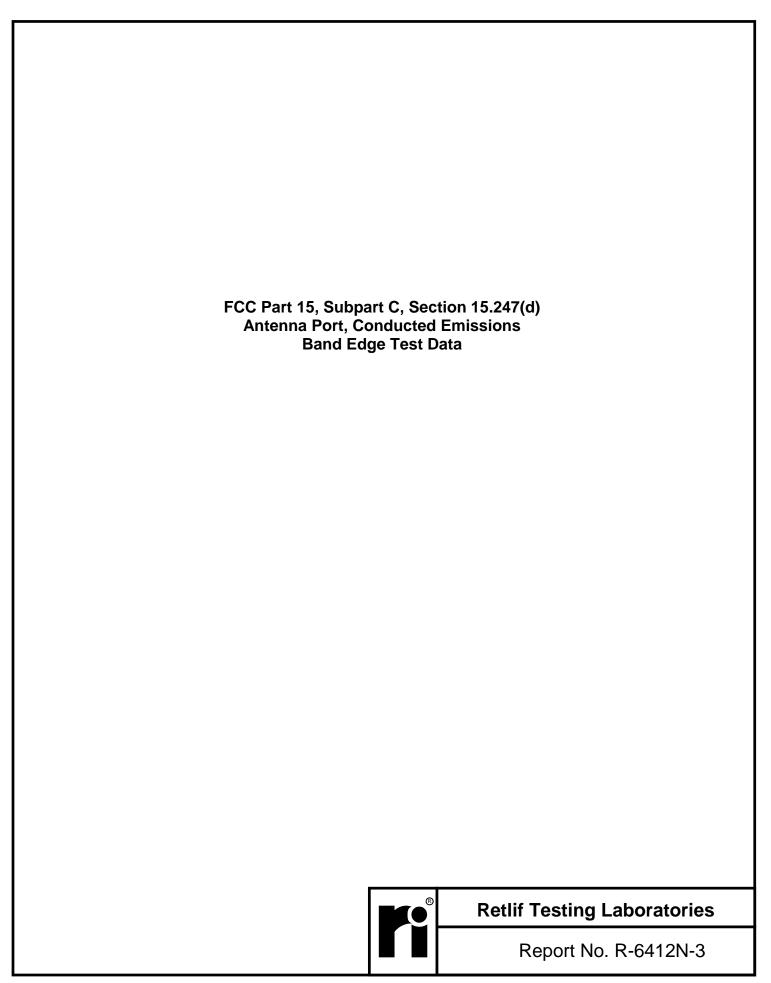
# Test Photographs Antenna Port, Conducted Emissions



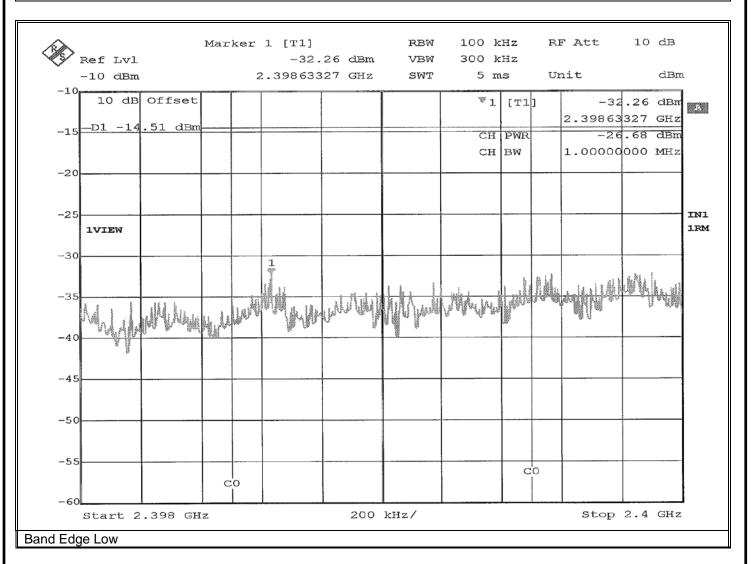
Test Setup



## **Retlif Testing Laboratories**

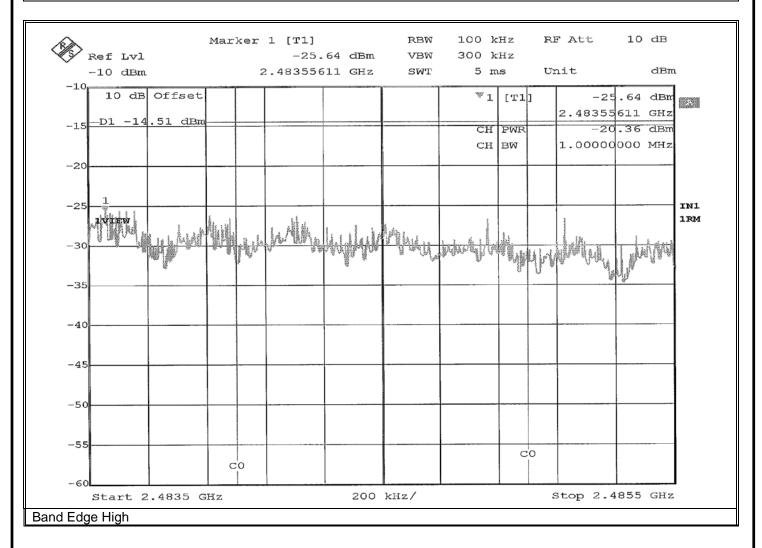


EMISSIONS TEST DATA SHEET		
Method:	Band Edge	
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)	
Job Number:	R-6412N-3	
Customer:	Immedia Semiconductor LLC	
Test Sample:	Outdoor XT2 Blink Camera Module	
Model Number:	BCM00200U	
Serial Number:	N/A	
Operating Mode:	Transmitting modulated signal at 2.412 GHz	
Technician:	M.Seamans	
Date(s):	April 18 <sup>th</sup> , 2019	
Temp/ Relative Humidity:	20.3 °C / 28.6 %	
Notes:	Limit: -14.51 dBm	





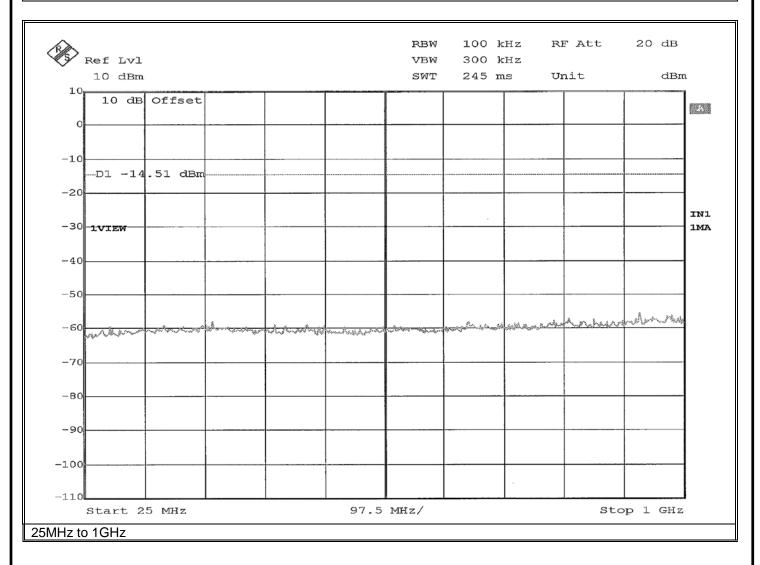
EMISSIONS TEST DATA SHEET		
Method:	Band Edge	
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)	
Job Number:	R-6412N-3	
Customer:	Immedia Semiconductor LLC	
Test Sample:	Outdoor XT2 Blink Camera Module	
Model Number:	BCM00200U	
Serial Number:	N/A	
Operating Mode:	Transmitting modulated signal at 2.472 GHz	
Technician:	M.Seamans	
Date(s):	April 18 <sup>th</sup> , 2019	
Temp/ Relative Humidity:	20.3 °C / 28.6 %	
Notes:	Limit: -14.51 dBm	





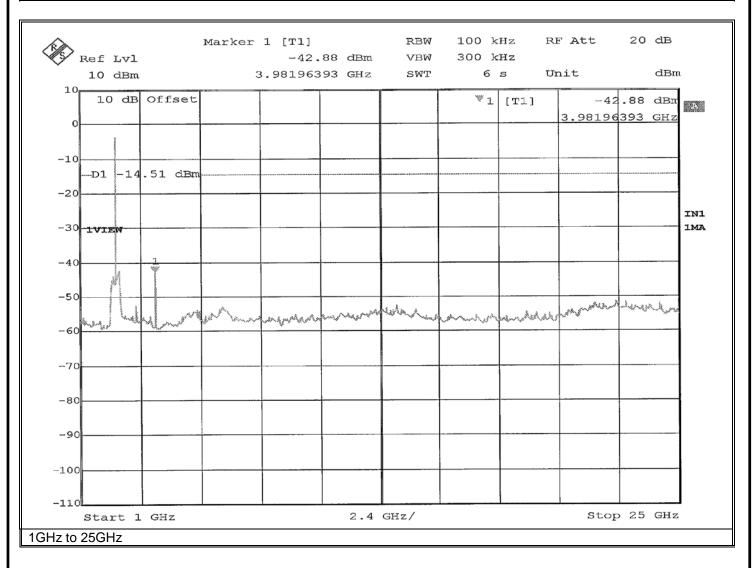
Unwanted Emissions into Non-Restri	cted Frequency Bands
25 MHz to 25 GH Test Data	łz
i est Data	
	Retlif Testing Laboratories
	Report No. R-6412N-3

EMISSIONS TEST DATA SHEET		
Method:	Conducted Out of Band	
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)	
Job Number:	R-6412N-3	
Customer:	Immedia Semiconductor LLC	
Test Sample:	Outdoor XT2 Blink Camera Module	
Model Number:	BCM00200U	
Serial Number:	N/A	
Operating Mode:	Transmitting modulated signal at 2412 MHz	
Technician:	M.Seamans	
Date(s):	April 18 <sup>th</sup> , 2019	
Temp/ Relative Humidity:	20.3 °C / 28.6 %	
Notes:	Limit: -14.51 dBm	



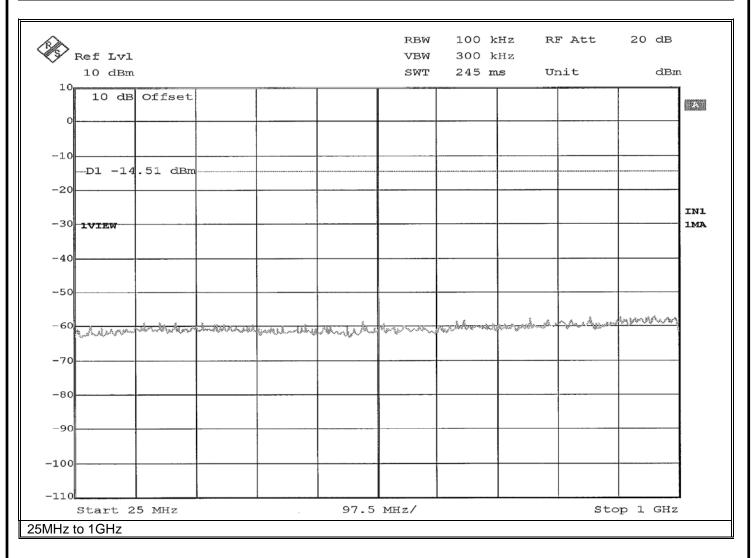


EMISSIONS TEST DATA SHEET		
Method:	Conducted Out of Band	
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)	
Job Number:	R-6412N-3	
Customer:	Immedia Semiconductor LLC	
Test Sample:	Outdoor XT2 Blink Camera Module	
Model Number:	BCM00200U	
Serial Number:	N/A	
Operating Mode:	Transmitting modulated signal at 2412 MHz	
Technician:	M.Seamans	
Date(s):	April 18 <sup>th</sup> , 2019	
Temp/ Relative Humidity:	20.3 °C / 28.6 %	
Notes:	Limit: -14.51 dBm	



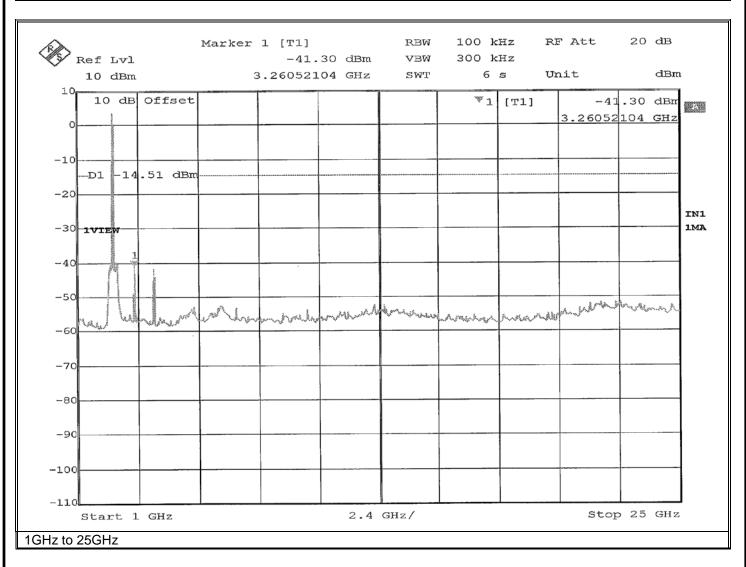


EMISSIONS TEST DATA SHEET		
Method:	Conducted Out of Band	
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)	
Job Number:	R-6412N-3	
Customer:	Immedia Semiconductor LLC	
Test Sample:	Outdoor XT2 Blink Camera Module	
Model Number:	BCM00200U	
Serial Number:	N/A	
Operating Mode:	Transmitting modulated signal at 2442 MHz	
Technician:	M.Seamans	
Date(s):	April 18 <sup>th</sup> , 2019	
Temp/ Relative Humidity:	20.3 °C / 28.6 %	
Notes:	Limit: -14.51 dBm	



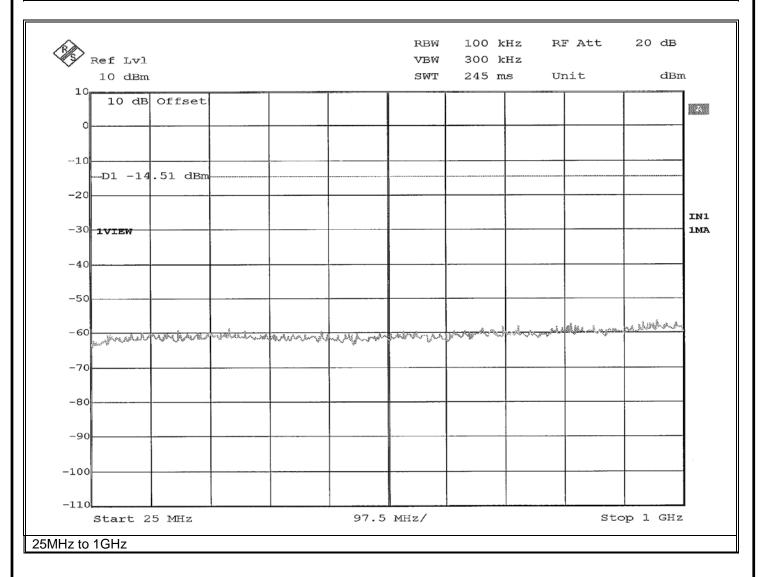


EMISSIONS TEST DATA SHEET		
Method:	Conducted Out of Band	
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)	
Job Number:	R-6412N-3	
Customer:	Immedia Semiconductor LLC	
Test Sample:	Outdoor XT2 Blink Camera Module	
Model Number:	BCM00200U	
Serial Number:	N/A	
Operating Mode:	Transmitting modulated signal at 2442 MHz	
Technician:	M.Seamans	
Date(s):	April 18 <sup>th</sup> , 2019	
Temp/ Relative Humidity:	20.3 °C / 28.6 %	
Notes:	Limit: -14.51 dBm	



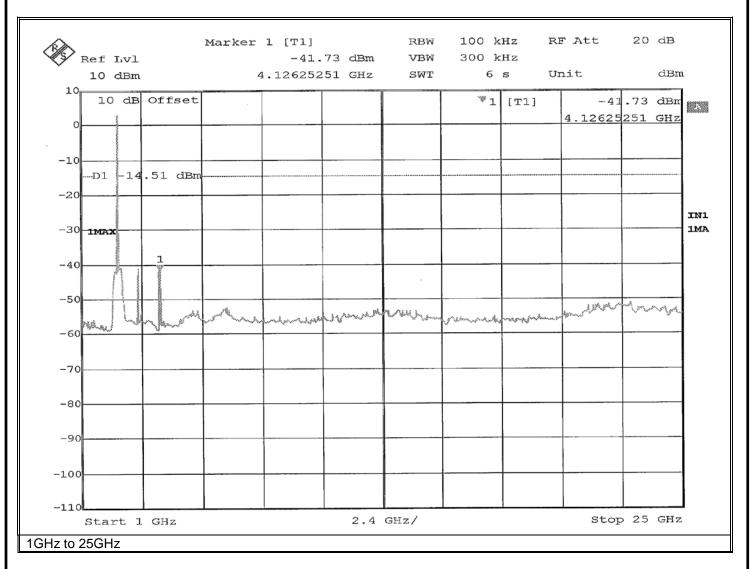


EMISSIONS TEST DATA SHEET		
Method:	Conducted Out of Band	
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)	
Job Number:	R-6412N-3	
Customer:	Immedia Semiconductor LLC	
Test Sample:	Outdoor XT2 Blink Camera Module	
Model Number:	BCM00200U	
Serial Number:	N/A	
Operating Mode:	Transmitting modulated signal at 2472 MHz	
Technician:	M.Seamans	
Date(s):	April 18 <sup>th</sup> , 2019	
Temp/ Relative Humidity:	20.3 °C / 28.6 %	
Notes:	Limit: -14.51 dBm	





EMISSIONS TEST DATA SHEET	
Method:	Conducted Out of Band
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6412N-3
Customer:	Immedia Semiconductor LLC
Test Sample:	Outdoor XT2 Blink Camera Module
Model Number:	BCM00200U
Serial Number:	N/A
Operating Mode:	Transmitting modulated signal at 2472 MHz
Technician:	M.Seamans
Date(s):	April 18 <sup>th</sup> , 2019
Temp/ Relative Humidity:	20.3 °C / 28.6 %
Notes:	Limit: -14.51 dBm





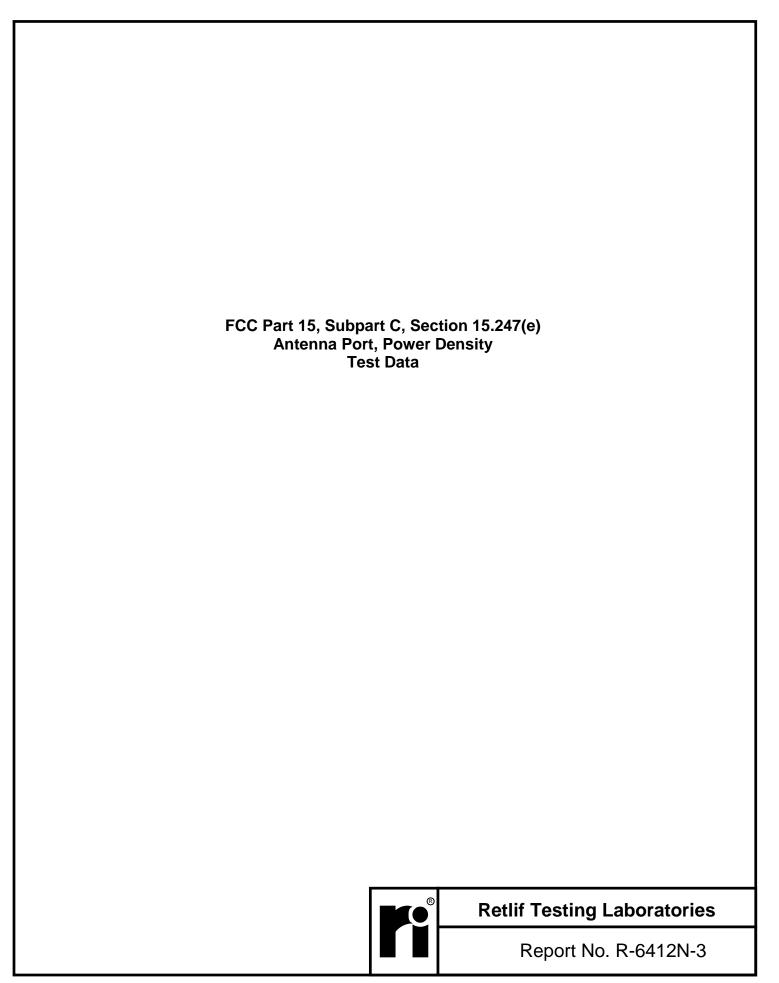
### Test Photographs Antenna Port, Power Density



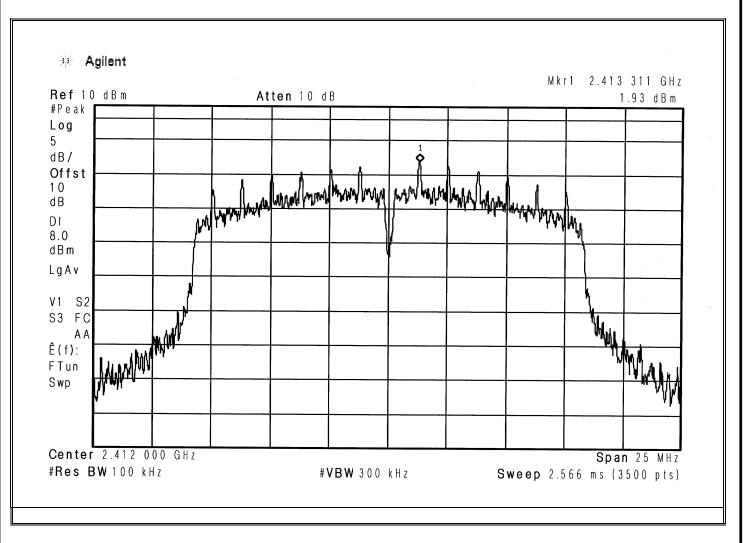
Test Setup



## **Retlif Testing Laboratories**

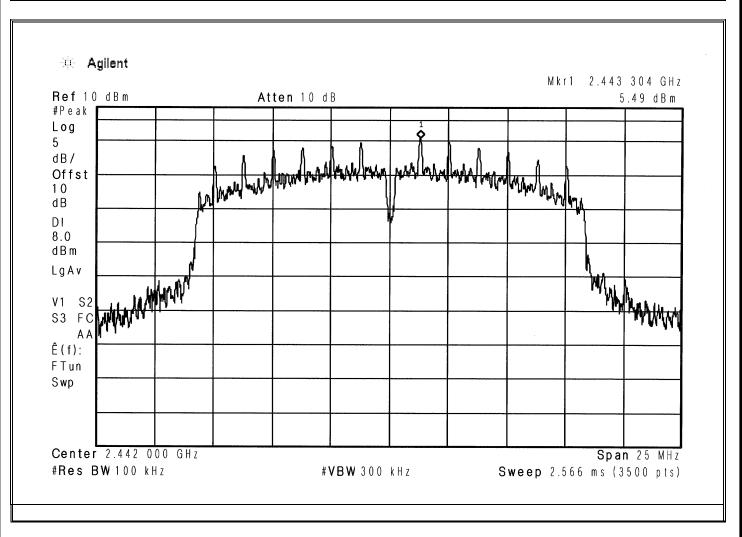


EMISSIONS TEST DATA SHEET	
Method:	Power Spectral Density
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (e)
Job Number:	R-6412N-3
Customer:	Immedia Semiconductor LLC
Test Sample:	Outdoor XT2 Blink Camera Module
Model Number:	BCM00200U
Serial Number:	N/A
Operating Mode:	Transmitting modulated signal at 2412 MHz (OFDM)
Technician:	M.Seamans
Date(s):	April 18 <sup>th</sup> , 2019
Temp/ Relative Humidity:	19.9 °C / 31.1 %
Notes:	Power Spectral Density: 1.93 dBm



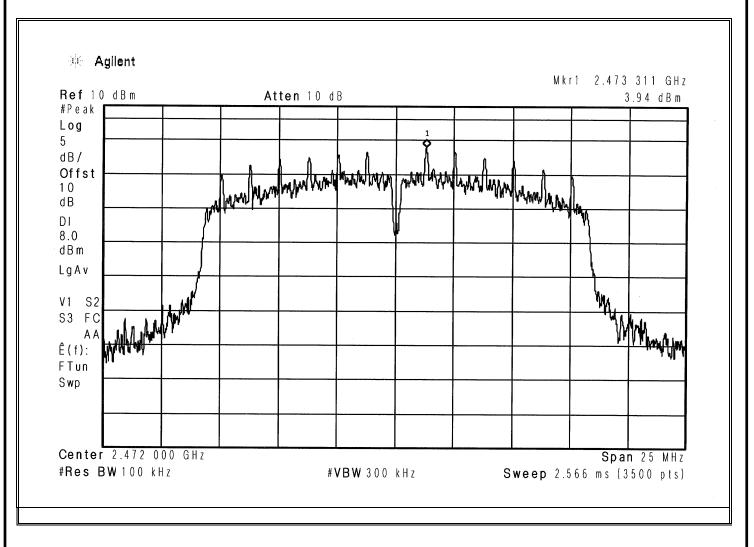


EMISSIONS TEST DATA SHEET	
Method:	Power Spectral Density
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (e)
Job Number:	R-6412N-3
Customer:	Immedia Semiconductor LLC
Test Sample:	Outdoor XT2 Blink Camera Module
Model Number:	BCM00200U
Serial Number:	N/A
Operating Mode:	Transmitting modulated signal at 2412 MHz (OFDM)
Technician:	M.Seamans
Date(s):	April 18 <sup>th</sup> , 2019
Temp/ Relative Humidity:	19.9 °C / 31.1 %
Notes:	Power Spectral Density: 5.49 dBm





EMISSIONS TEST DATA SHEET						
Method:	Power Spectral Density					
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (e)					
Job Number:	R-6412N-3					
Customer:	Immedia Semiconductor LLC					
Test Sample:	Outdoor XT2 Blink Camera Module					
Model Number:	BCM00200U					
Serial Number:	N/A					
Operating Mode:	Transmitting modulated signal at 2412 MHz (OFDM)					
Technician:	M.Seamans					
Date(s):	April 18 <sup>th</sup> , 2019					
Temp/ Relative Humidity:	19.9 °C / 31.1 %					
Notes:	Power Spectral Density: 3.94 dBm					





**Retlif Testing Laboratories** 

# Test Photographs Spurious Radiated Emissions, 30 MHz to 25 GHz



EUT Configuration, 80 cm



**Retlif Testing Laboratories** 

Test Photographs
Spurious Radiated Emissions, 30 MHz to 25 GHz



Horizontal Polarization, 30 to 200 MHz, Biconical Antenna, 80 cm



Vertical Polarization, 30 to 200 MHz, Biconical Antenna, 80 cm



### **Retlif Testing Laboratories**

Test Photographs
Spurious Radiated Emissions, 30 MHz to 25 GHz



Horizontal Polarization, 200 MHz to 1 GHz, Log Periodic, 80 cm



Vertical Polarization, 200 MHz to 1 GHz, Log Periodic, 80 cm



### **Retlif Testing Laboratories**

Test Photographs
Spurious Radiated Emissions, 30 MHz to 25 GHz



Horizontal Polarization, 1 to 18 GHz, Double Ridge Guide, 150 cm



Vertical Polarization, 1 to 18 GHz, Double Ridge Guide, 150 cm



### **Retlif Testing Laboratories**

Test Photographs
Spurious Radiated Emissions, 30 MHz to 25 GHz



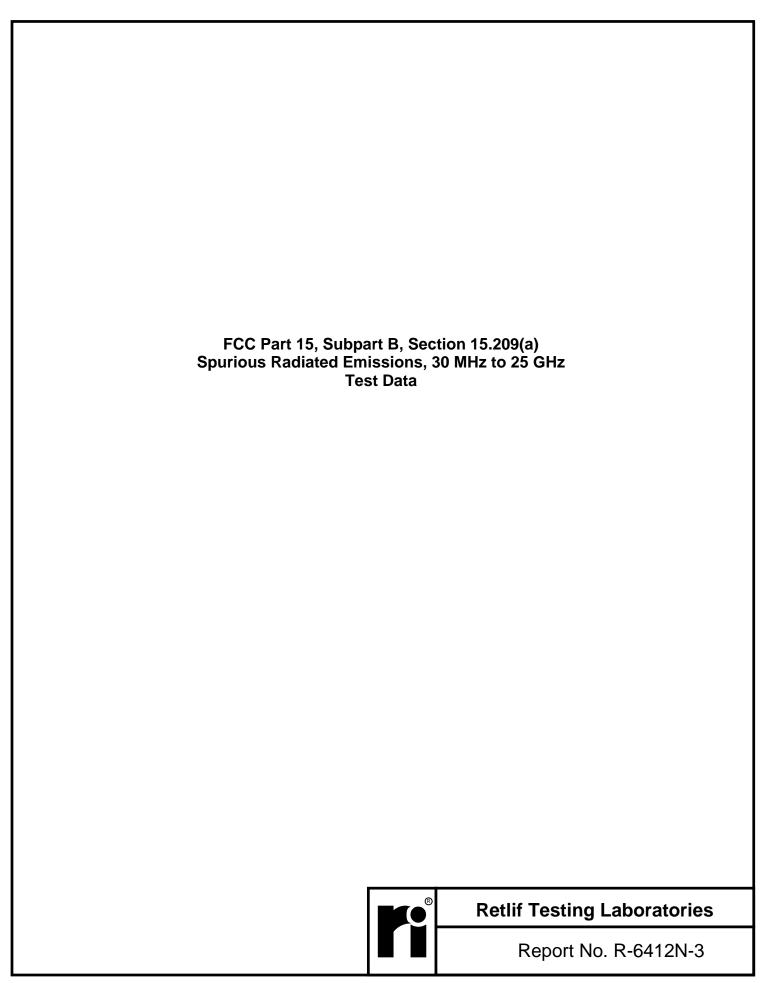
Horizontal Polarization, 18 to 25 GHz, High Gain Horn, 150 cm



Vertical Polarization, 18 to 25 GHz, High Gain Horn, 150 cm



### **Retlif Testing Laboratories**



RETLIF TESTING LABORATORIES						
	EMISSIONS TEST DATA SHEET					
Test Method	Unwanted Emissions into Restricted Frequency Bands					
Customer	Immedia Semiconductor LLC					
Job Number	R-6412N-3					
Test Sample	Outdoor XT2 Blink Camera Module					
Model Number	BCM00200U					
Serial Number	820-000-523					
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)				
Operating Mode	Streaming video to laptop					
Technician	M. Seamans					
Date	April 17 <sup>th</sup> , 2019					

TEST PARAMETERS							
Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m
37.50	-	-	-	-		-	100.00
	38.00	9.32	13.28	22.60	*	13.49	1
38.25	-	-	-	-		-	100.00
73.00	-	-	_	-		-	100.00
	74.00	14.78	9.02	23.80	*	15.49	100.00
74.60	-	-	-	-		-	100.00
74.80	-		-	-		-	100.00
	75.00	13.78	9.02	22.80	*	13.80	100.00
75.20	-	-	-	-		-	100.00
108.00	-	-	_	-			150.00
	115.00	8.34	15.46	23.80	*	14.62	100.00
i	-	-	-	-		-	
121.94	-	-	-	-		-	150.00
123.00	-	-	_	-		-	150.00
	130.00	8.19	15.11	23.30	*		
	-	-	-	-		-	
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).



### **Retlif Testing Laboratories**

	<b>RETLIF TESTING LABORATORIES</b>						
	EMISSIONS TEST DATA SHEET						
Test Method	Unwanted Emissions into Restricted Frequency Bands						
Customer	Immedia Semiconductor LLC						
Job Number	R-6412N-3						
Test Sample	Outdoor XT2 Blink Camera Module						
Model Number	BCM00200U						
Serial Number	820-000-523						
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)					
Operating Mode	Streaming video to laptop						
Technician	M. Seamans						
Date	April 17 <sup>th</sup> , 2019						

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
I	150.00	7.03	16.07	23.10	*	14.29	ı
150.05	-	-	-	-		-	150.00
156.52	-	-	-	-		-	150.00
	156.52	5.73	17.37	23.10	*	14.29	
156.52	-	-	-	-		-	150.00
156.70	-	-	-	-		-	150.00
I	156.80	5.67	17.43	23.10	*	14.29	1
156.90	-	-	-	-		-	150.00
162.01	-	-	-	-		-	150.00
	165.00	5.57	18.63	24.20	*	16.22	
167.17	-	-	-	-		-	150.00
167.72	-	-	-	-		-	150.00
	170.00	6.20	19.20	25.40	*	18.62	
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).



### **Retlif Testing Laboratories**

RETLIF TESTING LABORATORIES						
	EMISSIONS TEST DATA SHEET					
Test Method	Unwanted Emissions into Restricted Frequency Bands					
Customer	Immedia Semiconductor LLC					
Job Number	R-6412N-3					
Test Sample	Outdoor XT2 Blink Camera Module					
Model Number	BCM00200U					
Serial Number	820-000-523					
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)				
Operating Mode	Streaming video to laptop					
Technician	M. Seamans					
Date	April 17 <sup>th</sup> , 2019					

	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	5.01	16.59	21.60	*	12.02		
285.00	-	-	-	-		-	200.00	
322.80	-	-	-	-		-	200.00	
	330.00	4.71	18.99	23.70	*	15.31		
335.40	-	-	-	-		-	200.00	
399.90	-	-	-	-		-	200.00	
	405.00	4.55	20.85	25.40	*	18.62		
410.00	-	-	-	-		-	200.00	
608.00	-	-	-	-		-	200.00	
	611.00	4.72	25.88	30.60	*	33.88		
614.00	-	-	-	-		-	200.00	
960.00	-	-	-	-		-	500.00	
	975.00	4.60	33.10	37.70	*	76.74		
1240.00	-	-	-	-		-	500.00	
1300.00	-	-	-	-		-	500.00	
	1350.00	31.94	-9.40	22.54	*	13.40		
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).



### **Retlif Testing Laboratories**

	■ RETLIF TESTING LABORATORIES ■						
	EMISSIONS TEST DATA SHEET						
Test Method	Unwanted Emissions into Restricted Frequency Bands						
Customer	Immedia Semiconductor LLC						
Job Number	R-6412N-3						
Test Sample	Outdoor XT2 Blink Camera Module						
Model Number	BCM00200U						
Serial Number	820-000-523						
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)					
Operating Mode	Streaming video to laptop						
Technician	M. Seamans						
Date	April 17 <sup>th</sup> , 2019						
Notes: Antenna Test D	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
1435.00	-	-	-	-		-	500.00
I	1500.00	32.25	-8.64	23.61	*	15.15	1
1646.50	-	-	-	-		-	500.00
1660.00	-	-	-	-		-	500.00
I	1680.00	32.10	-7.81	24.29	*	16.39	
1710.00	-	-	-	-		-	500.00
1718.80	-	-	-	-		-	500.00
	1720.00	32.00	-7.65	24.35	*	16.50	
1722.20	-	-	-	-		-	500.00
2200.00	-	-	-	-		-	500.00
	2250.00	31.31	-5.78	25.53	*	18.90	
2300.00	-	-	-	-		-	500.00
2310.00	-	-	-	-		-	500.00
1	2390.00	42.80	-5.46	37.34		73.62	
2390.00	-	-	-	-		-	500.00
2483.50	-	-	-	-		-	500.00
	2490.00	28.91	-5.11	23.80	*	15.43	
2500.00	-	-	-	-		-	500.00

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).



## **Retlif Testing Laboratories**

	<b>RETLIF TESTING LABORATORIES</b>					
EMISSIONS TEST DATA SHEET						
Test Method	Unwanted Emissions into Restricted Frequency Bands					
Customer	Immedia Semiconductor LLC					
Job Number	R-6412N-3					
Test Sample	Outdoor XT2 Blink Camera Module					
Model Number	BCM00200U					
Serial Number	820-000-523					
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)				
Operating Mode	Streaming video to laptop					
Technician	M. Seamans					
Date	April 17 <sup>th</sup> , 2019					

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

Notes: Antenna Test Distance: 3 meters

	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	
	-	-	-	-		-		
	2750.00	31.64	-4.45	27.19	*	22.88		
	-	-	-	-		-		
2900.00	-	-	-	-		-	500.00	
3260.00	-	-	-	-		-	500.00	
	3263.00	31.05	-2.88	28.17	*	25.62		
3267.00	-	-	-	-		-	500.00	
3332.00	-		-	-		-	500.00	
I	3336.00	31.42	-2.62	28.80	*	27.54		
3339.00	-	-	-	-		-	500.00	
3345.00	_		_	_			500.00	
I	3350.00	31.97	-2.57	29.40	*	29.51	1	
3358.00	-	-	-	-		-	500.00	
							000.00	
3600.00	-	-	-	-		-	500.00	
	-	-	-	-		-		
I	3700.00	30.87	-1.52	29.35	*	29.34	i	
	-	-	-	-		-	i	

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).



### **Retlif Testing Laboratories**

RETLIF TESTING LABORATORIES						
	EMISSIONS TEST DATA SHEET					
Test Method	Unwanted Emissions into Restricted Frequency Bands					
Customer	Immedia Semiconductor LLC					
Job Number	R-6412N-3					
Test Sample	Outdoor XT2 Blink Camera Module					
Model Number	BCM00200U					
Serial Number	820-000-523					
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)				
Operating Mode	Streaming video to laptop					
Technician	M. Seamans					
Date	April 17 <sup>th</sup> , 2019					

Measured Frequency MHz	Meter Reading dBuV	Correction Factor	Corrected		Converted	Limit
MHz	4D·//		Reading		Reading	at 3M
	ubuv	dB	dBuV/m		uV/m	uV/m
-	-	-	-		-	
-	-	-	-		-	500.00
-	-	-	-		-	500.00
4800.00	34.66	0.29	34.95	*	55.91	
-	-	-	-		-	500.00
-	-	-	-		-	500.00
5400.00	32.52	0.92	33.44	*	46.99	
-	-	-	-		-	500.00
-	-	-	-		-	500.00
7440.00	32.35	3.65	36.00	*	63.10	
-	-	-	-		-	500.00
-	-	-	-		-	500.00
8300.00	32.28	4.43	36.71	*	68.47	
-	-	-	-		-	500.00
-	-	-	-		-	500.00
9100.00	33.70	5.10	38.80	*	87.10	
-	-	-	-		-	500.00
	- 4800.00 - 5400.00 - 7440.00 - 8300.00 - 9100.00					

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).



### **Retlif Testing Laboratories**

	RETLIF TESTING LABORATORIES					
EMISSIONS TEST DATA SHEET						
Test Method	Unwanted Emissions into Restricted Frequency Bands					
Customer	Immedia Semiconductor LLC					
Job Number	R-6412N-3					
Test Sample	Outdoor XT2 Blink Camera Module					
Model Number	BCM00200U					
Serial Number	820-000-523					
		Paragraph: 15.247(d)				
Operating Mode	Streaming video to laptop					
Technician	M. Seamans					
Date	April 17 <sup>th</sup> , 2019					

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

Notes: Antenna Test Distance: 3 meters

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
9300.00	-	-	-	-	_		500.00
	9400.00	32.76	5.38	38.14	*	80.72	
9500.00	-	-	-	-		-	500.00
10600.00	-	-	-	-		-	500.00
-	12200.00	33.17	7.90	41.07	*	113.11	
12700.00	-	-	-	-		-	500.00
13250.00	-	-	-	-		-	500.00
I	13300.00	33.50	-1.05	32.45	*	41.93	1
13400.00	-	-	-	-		-	500.00
14470.00	-	-	-	-		-	500.00
1	14490.00	34.25	-0.58	33.67	*	48.25	
14500.00	-	-	-	-		-	500.00
15350.00	-		-	-		-	500.00
I	15800.00	34.37	0.01	34.38	*	52.36	1
16200.00	-	-	-	-		-	500.00
17700.00	-	-	_	-		-	500.00
	19240.00	33.08	-6.25	26.83	*	21.95	
21400.00	-	-	-	-		-	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).



### **Retlif Testing Laboratories**

RETLIF TESTING LABORATORIES						
EMISSIONS TEST DATA SHEET						
Test Method	Unwanted Emissions into Restricted Frequency Bands					
Customer	Immedia Semiconductor LLC					
Job Number	R-6412N-3					
Test Sample	Outdoor XT2 Blink Camera Module					
Model Number	BCM00200U					
Serial Number	820-000-523					
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)				
Operating Mode	Streaming video to laptop					
Technician	M. Seamans					
Date	April 17 <sup>th</sup> , 2019					

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

Notes: Antenna Test Distance: 3 meters

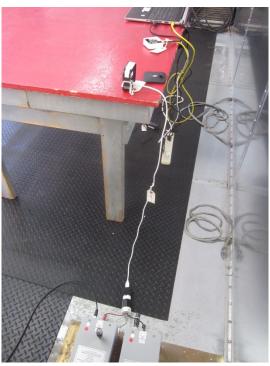
	TEST PARAMETERS							
Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading			Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m			uV/m	uV/m
22010.00	-	-	-	-			-	500.00
	22500.00	34.05	-5.25	28.80	*		27.54	
23120.00	-	-	-	-			-	500.00
23600.00	-	-	-	-			-	500.00
	23800.00	34.17	-4.15	30.02	*		31.70	
25000.00	-	-	-	-			-	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).



### **Retlif Testing Laboratories**

#### Test Photographs Conducted Emissions, Power Leads, 150 kHz to 30 MHz



**EUT Configuration** 



Test Setup



### **Retlif Testing Laboratories**



EMISSIONS TEST DATA SHEET					
Test Specification:	FCC Part 15, Subpart B, Section 15.207(a), Conducted Emissions				
Method:	ANSI C63.4, Section 7., AC power-line conducted emission measurements				
Job Number/Customer:	R-6412N-3 / Immedia Semiconductor LLC				
Test Sample:	Outdoor XT2 Blink Camera Module				
Model Number:	BCM00200U				
Serial Number:	820-000-523				
Operating Mode:	Sending video to laptop via sync module				
Technician:	M. Seamans				
Date(s):	April 17 <sup>th</sup> , 2019				
Temp/ Relative Humidity:	20.0 °C / 31.8 %				
Lead Tested:	120 VAC 60 Hz				

Frequency	Lead Tested	Peak Meter Reading	Quasi-Peak Meter Reading	Average Meter Reading	Quasi-Peak Limit	Average Limit
MHz		dBuV	dBuv	dBuV	dBuV	dBuV
0.158	Hot	38.05	34.60	21.10	65.57	55.57
0.150	Neutral	41.74	36.00	21.30	66.00	56.00
0.230	Hot	39.16	34.70	20.60	62.45	52.45
0.206	Neutral	39.96	35.00	19.30	63.37	53.37
0.382	Hot	39.16	34.40	25.10	58.24	48.24
0.258	Neutral	38.90	37.20	19.10	61.50	51.50
0.412	Hot	42.11	40.20	31.40	57.61	47.61
0.466	Neutral	40.31	36.30	23.30	56.58	46.58
0.722	Hot	37.79	33.10	21.90	56	46
0.882	Neutral	38.40	33.70	21.20	56	46
1.150	Hot	35.70	31.20	23.30	56	46
2.158	Neutral	35.19	28.60	17.40	56	46



### **Retlif Testing Laboratories**

The frequency range was scanned from 0.15 MHz to 30 MHz.
The six highest emissions relative to the limit are presented.
The emissions observed from the EUT do not exceed the specified limits.