Put Us To The Test"

FCC Part 15, Subpart C, Section 15.247

Test Report

On

Wireless 8 Channel Analog Input Sensor Node FCC ID: XJQMSLINK0004

Customer Name: Lord Corporation

Customer P.O: 670694

Date of Report: January 6, 2017

Test Report No: R-6140N-1

Test Start Date: September 30, 2016

Test Finish Date: October 13, 2016

Test Technician: M. Seamans

Report Approved By: T. Hannemann

Report Prepared By: J. Ramsey

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Technical Information

Report Number: R-6140N-1

Customer: Lord Corporation

Address: 459 Hurricane Lane, Suite 102

Williston, VT 05495

Manufacturer: Lord Corporation

Manufacturer Address: 459 Hurricane Lane, Suite 102

Williston, VT 05495

Test Sample: Wireless 8 Channel Analog Input Sensor Node

Model Number: V-Link 200

Serial Numbers: 6312-2000-19, 6312-2000-20, 6312-2000-22

FCC ID: XJQMSLINK0004

Digital Transmission – Direct Sequence Spread Spectrum

Type: Transmitter

Power Requirements: 3.6 VDC via four (4) Lithium Ion batteries*

Frequency of Operation: 2402.0 to 2480.0 MHz

Equipment Class: DTS

Internal Ceramic Chip Antenna, 3dBi Gain or External 1/4

Antenna Type: Wave Antenna with RP SMA Connector, 2.5 dBi Gain

Equipment Use: Wireless Data Node

*NOTE: The EUT had 10VDC supplied to the external DC Power Input, however for the EUT to properly operate the internal batteries were required to be installed.

Test Specification:

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

Test Procedure:

ANSI C63.4: 2014 ANSI C63.10: 2013

Test Facility:

Retlif Testing Laboratories 101 New Boston Road Goffstown, NH 03045

FCC Registered Test Site Number: 90899



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Table 1 – Tests Performed

FCC Part 15, Subpart C	Test Method
15.247(b)(3)	Power Output
15.247(a)(2)	Occupied Bandwidth
15.247(d)	Antenna Terminal Out of Band/Band Edge Conducted Emissions (30 MHz – 25 GHz)
15.247(d)	Spurious Emissions, 30 MHz to 10 GHz
15.247(e)	Power Density

Table 2 – Support Equipment

Description	Manufacturer	Model Number	Serial Number
Laptop	Gateway	E56R52U	NXY1UAA045348501F63400
Wireless Basestation	Lord Microstrain	WSDA-Base-104	6307-1040-57209

EUT Operation:

The EUT was transmitting a modulating signal at 2.405 GHz Channel 11, 2.442 GHz Channel 18 and 2.480 GHz Channel 26.

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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

Leur Wenter

NVLAP Approved Signatory

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 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 6, 2017	Original Release



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Requirements and Test Results

FCC Section 15.247 (a)(2) – Bandwidth

For systems using digital modulation techniques operating in the 902-928 MHz, 2400-2483.5 MHz, and 5725 – 5850 MHz bands the minimum 6 dB bandwidth shall be at least 500 kHz.

• **Results**: The minimum 6dB bandwidth measured while transmitting was 1.55 MHz. The device was found to meet the requirement of 15.247 (a)(2).

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

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 antennas 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 antennas 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 when transmitting was 58.75 mW. The maximum antenna gain of the internal antenna is 3.0 dB, the maximum gain of the external antenna is 2.5 dB. The device was found to meet the power output requirements of 15.247 (b)(3) including de facto EIRP.



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Requirements and Test Results (con't)

FCC Section 15.247(d) – Unwanted Emissions

Antenna Terminal Out of Band/Band Edge Conducted 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**: All measured out of band/band edge conducted emissions were below the specified limits and the device was found to meet the requirements of 15.247 (d).

FCC Section 15.247(d) - Unwanted Emissions

Radiated Spurious Emissions/Restricted Bands/Band Edge

Emissions which fall into restricted bands, as defined in 15.205(a) must comply with the radiated emissions limits specified in 15.209(a) and shown below in Table 1. Emissions emanating from the EUT cabinet and cables must also comply with the radiated emissions limits. Radiated emissions measurements were also performed at the band edges to ensure band edge compliance.

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 3 - Radiated Emission Limits

Results:

All spurious emissions were measured and found to be in compliance with the limits specified in 15.209(a). Band edge emissions were also found to be in compliance with the limits specified in 15.209(a).



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Requirements and Test Results (con't)

FCC Section 15.247(e) – Power Spectral Density

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.



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Requirements and Test Results (con't)

Field Strength Calculation/Conversion:

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

CR = MR + CF

Where:

CR = Corrected Reading in dBµV/m

MR = Uncorrected Meter Reading in dBµV

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

Example:

 $MR = 15.35 dB\mu V$

CF = 16.85 dB

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

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 2400 MHz S = 1 mW/cmsq

Power = Max Power Input to Antenna = 58.75 mW

Gain = Max Power Gain of Antenna = 3.0 dBi = 1.995 numeric

1.0 mW/cmsq =
$$\frac{58.75 \times 1.995}{4 \times (3.14) \times D^2}$$
 = $\frac{117.20}{12.56 \times D^2}$

$$D^2 = \frac{117.20}{12.56x1.0}$$

$$D = \sqrt{9.33} = 3.05 \text{ cm}$$

The calculation above uses the highest power level for the device in this band and the worst case (highest) antenna gain (internal antenna).



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Equipment List

FCC Section 15.247(a)(2) Occupied Bandwidth

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5039	FLUKE	ATTENUATOR, COAXIAL	20 dB, DC - 12.4 GHz	Y9305	12/2/2015	12/31/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016
5107	AGILENT / HP	GENERATOR, SIGNAL	100 kHz - 20 GHz	N5183A	2/2/2016	2/28/2017
5110	BK PRECISION	POWER SUPPLY, DC	30V / 3A	1630	Calibrate Be	fore Use

FCC Section 15.247 (d) Band Edge Conducted Emissions, 30 MHz to 25 GHz

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5039	FLUKE	ATTENUATOR, COAXIAL	20 dB, DC - 12.4 GHz	Y9305	12/2/2015	12/31/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016
5107	AGILENT / HP	GENERATOR, SIGNAL	100 kHz - 20 GHz	N5183A	2/2/2016	2/28/2017
5110	BK PRECISION	POWER SUPPLY, DC	30V / 3A	1630	Calibrate B	efore Use

FCC Section 15.247(b)(3) Power Output

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5039	FLUKE	ATTENUATOR, COAXIAL	20 dB, DC - 12.4 GHz	Y9305	12/2/2015	12/31/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016
5107	AGILENT / HP	GENERATOR, SIGNAL	100 kHz - 20 GHz	N5183A	2/2/2016	2/28/2017
5110	BK PRECISION	POWER SUPPLY, DC	30V / 3A	1630	Calibrate Be	fore Use



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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	6/16/2016	6/30/2017
3427B	ETS / EMCO	ANTENNA, BICONICAL	20 - 200 MHz	3104	2/5/2016	8/31/2017
3430	MCS	ANTENNA, HORN	18 - 26.5 GHz	K-5039	No Calibrat	ion Required
4029B	RETLIF	OPEN AREA TEST SITE, ATTENUATION	3 / 10 Meters	RNH	4/13/2016	4/30/2018
4984G	MICROLAB / FXR	ANTENNA, HIGH GAIN HORN	12.4 - 18 GHz	Y638A	No Calibrat	ion Required
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016
5179B	MICRO-COAX	CABLE, COAXIAL	10 kHz - 18 GHz	UFB311A-1- 036050U50U	10/7/2016	10/31/2017
5179D	MICRO-COAX	CABLE, COAXIAL	10 kHz - 18 GHz	UFB311A-1- 240050U50U	10/7/2016	10/31/2017
5195	ETS / EMCO	ANTENNA, DOUBLE RIDGED GUIDE	1 - 18 GHz	3117	12/30/2015	6/30/2017
7034	ETS / EMCO	ANTENNA, LOG PERIODIC	200 MHz - 1 GHz	3146	3/16/2015	10/31/2016

FCC Section 15.247(e) Power Density

EN	Manufacturer	Description	Range	Model No.	Cal Date Due Date
5039	FLUKE	ATTENUATOR, COAXIAL	20 dB, DC - 12.4 GHz	Y9305	12/2/2015 12/31/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014 10/31/2016
5107	AGILENT / HP	GENERATOR, SIGNAL	100 kHz - 20 GHz	N5183A	2/2/2016 2/28/2017
5110	BK PRECISION	POWER SUPPLY, DC	30V / 3A	1630	Calibrate Before Use



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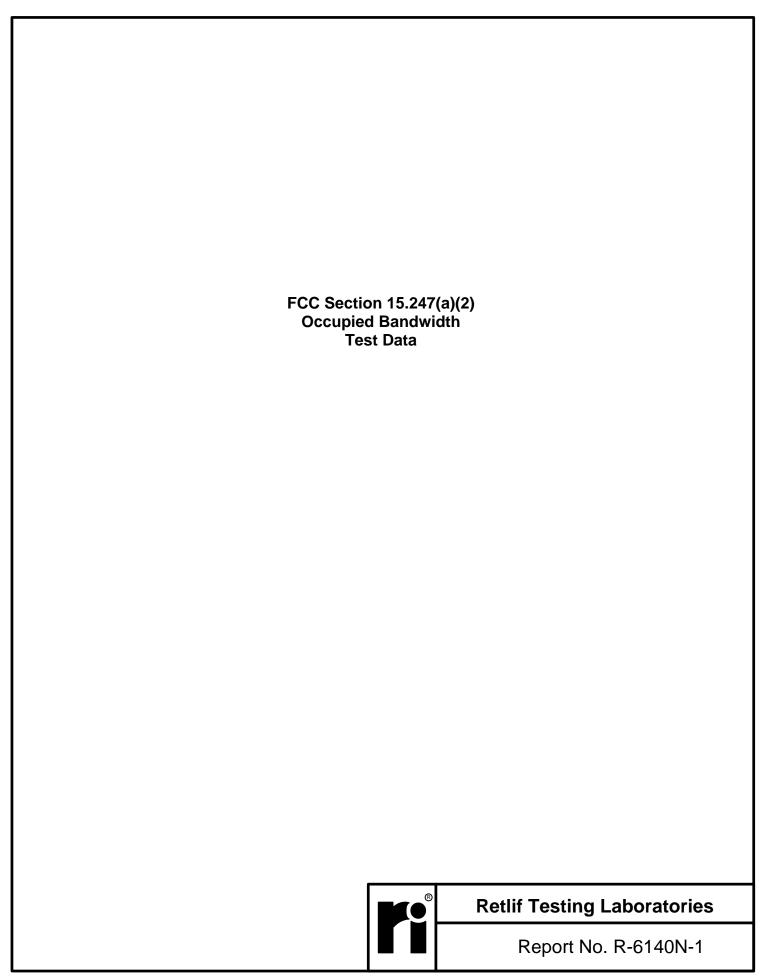
Test Photographs Occupied Bandwidth



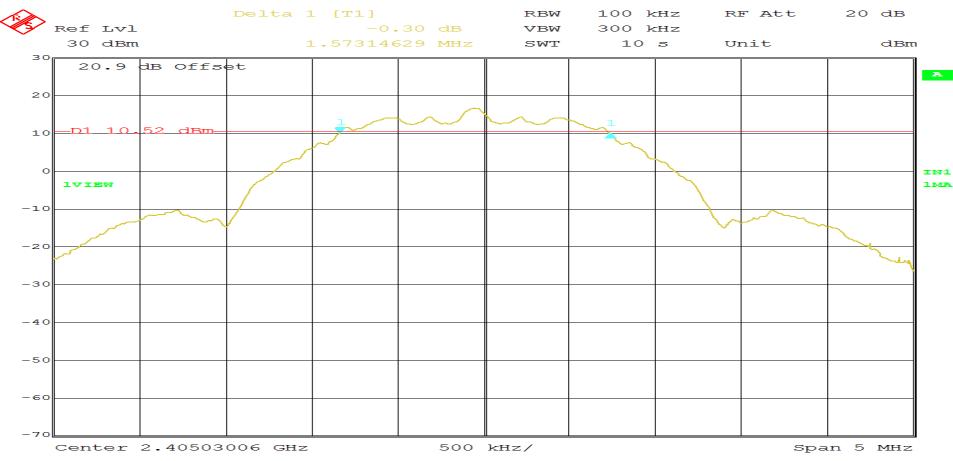
Test Setup



Retlif Testing Laboratories

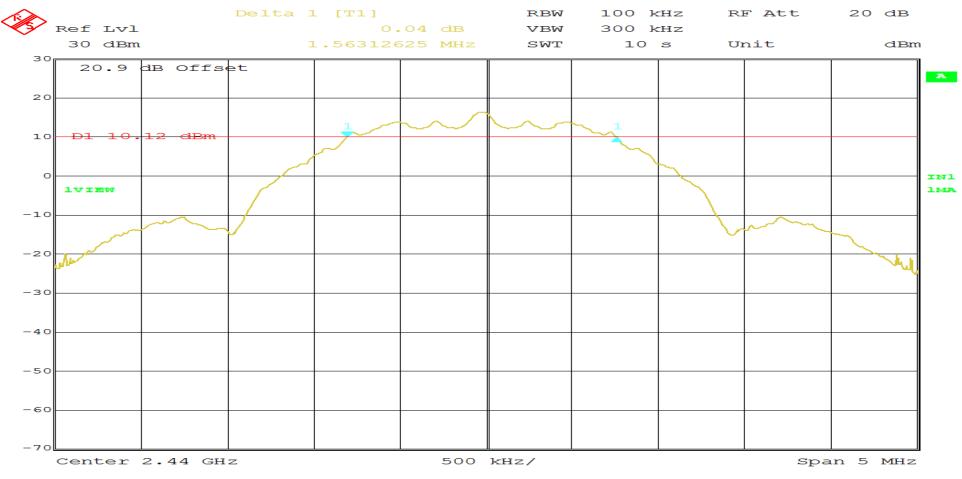


	RETLIF TESTING LABORATORIES				
Test Method:	6dB Bandwidth				
Customer	Lord Corporation	Job No.	R-6140N-1		
Test Sample	Wireless 8 Channel Analog Input Sensor Node				
Model Number	V-Link® 200	Serial No.	6312-2000-19		
Operating Mode	Transmitting modulated signal at 2.405 GHz				
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)				
Technician	M. Seamans	Date	September 30 th , 2016		
Climatic Conditions	Temp: 21.8 °C Relative Humidity: 44.2 %				
Notes	Occupied Bandwidth: 1.57 MHz				

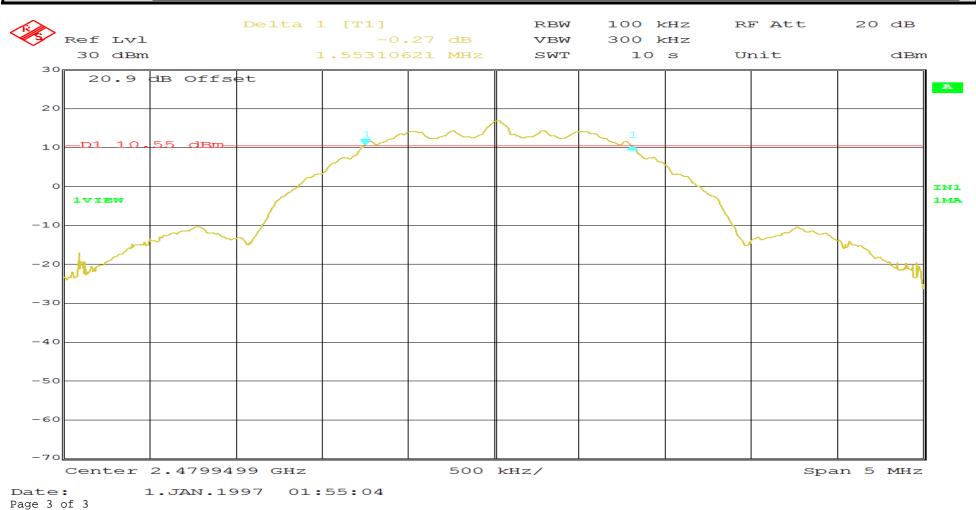


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	RETLIF TESTING LABORATORIES				
Test Method:	6dB Bandwidth				
Customer	Lord Corporation	Job No.	R-6140N-1		
Test Sample	Wireless 8 Channel Analog Input Sensor Node				
Model Number	V-Link® 200	Serial No.	6312-2000-19		
Operating Mode	Transmitting modulated signal at 2.440 GHz				
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)				
Technician	M. Seamans	Date	September 30 th , 2016		
Climatic Conditions	Temp: 21.8 °C Relative Humidity: 44.2 %				
Notes	Occupied Bandwidth: 1.56 MHz				



	RETLIF TESTING LABORATORIES				
Test Method:	6dB Bandwidth				
Customer	Lord Corporation	Job No.	R-6140N-1		
Test Sample	Wireless 8 Channel Analog Input Sensor Node				
Model Number	V-Link® 200	Serial No.	6312-2000-19		
Operating Mode	Transmitting modulated signal at 2.480GHz				
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)				
Technician	M. Seamans	Date	September 30 th , 2016		
Climatic Conditions	Temp: 21.8 °C Relative Humidity: 44.2 %				
Notes	Occupied Bandwidth: 1.55 MHz				



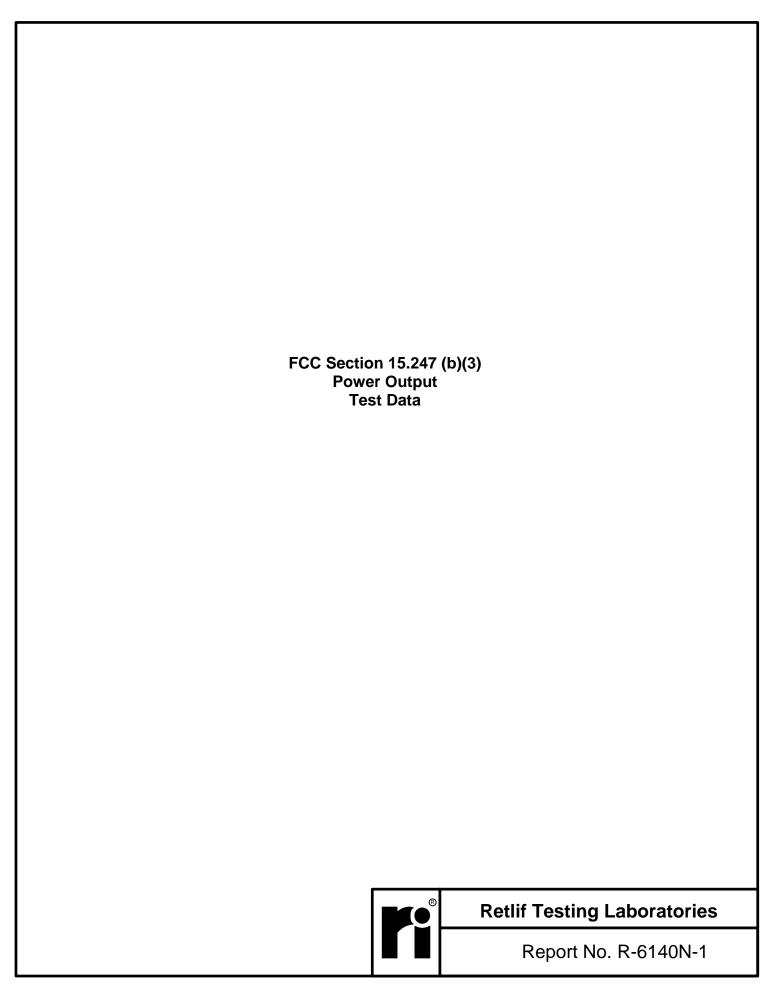
Test Photographs Power Output



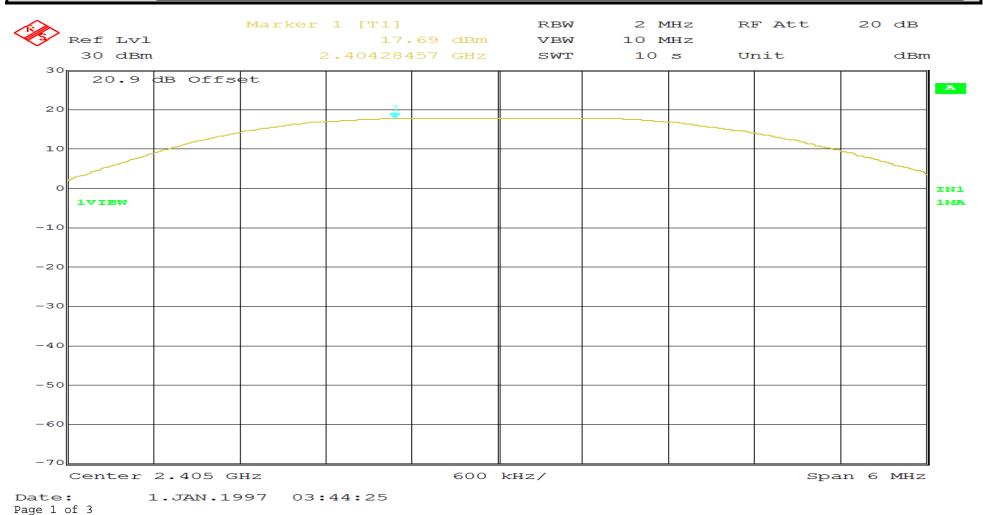
Test Setup, External Antenna



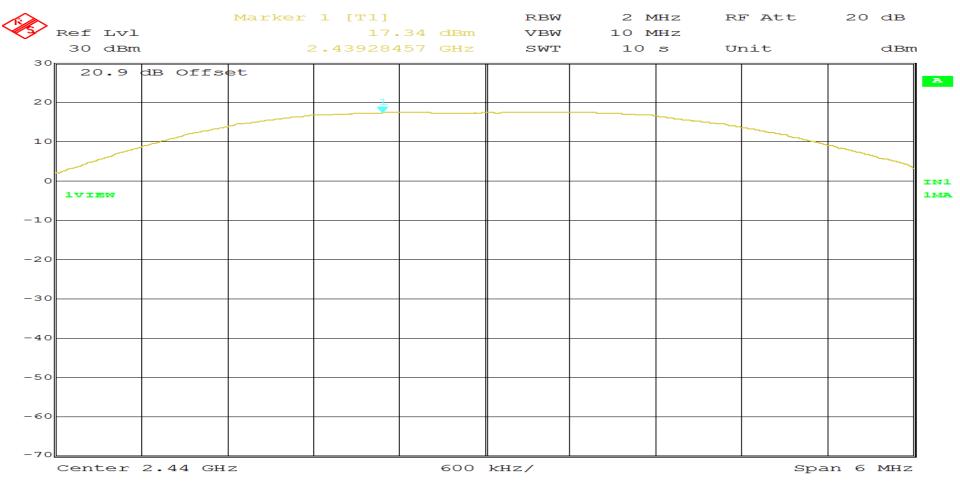
Retlif Testing Laboratories



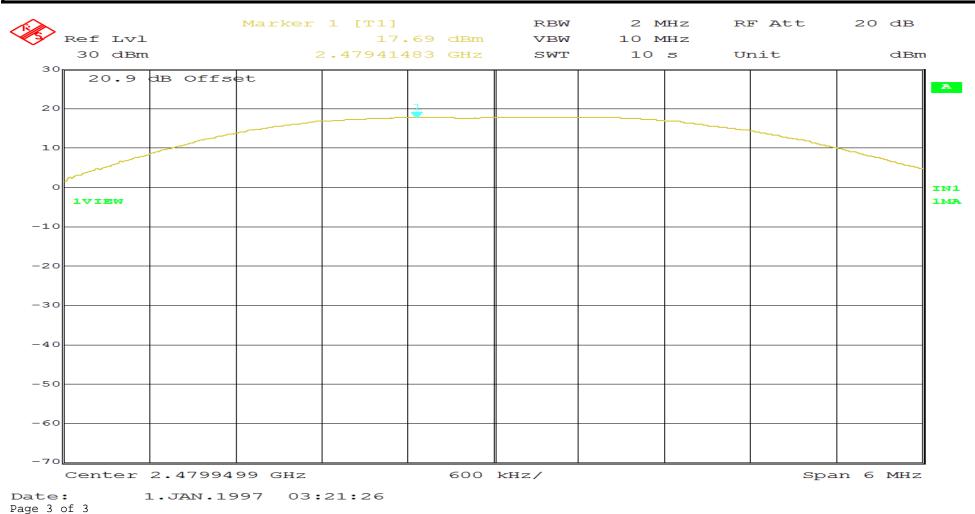
RETLIF TESTING LABORATORIES				
Test Method:	Conducted Peak Power Output			
Customer	Lord Corporation	Job No.	R-6140N-1	
Test Sample	Wireless 8 Channel Analog Input Sensor Node			
Model Number	V-Link® 200	Serial No.	6312-2000-19	
Operating Mode	Transmitting modulated signal at 2.405 GHz			
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)			
Technician	M. Seamans	Date	September 30 th , 2016	
Climatic Conditions	Temp: 21.8 °C Relative Humidity: 44.2 %			
Notes	Peak Power Output: 17.69 dBm			



RETLIF TESTING LABORATORIES				
Test Method:	Conducted Peak Power Output			
Customer	Lord Corporation	Job No.	R-6140N-1	
Test Sample	Wireless 8 Channel Analog Input Sensor Node			
Model Number	V-Link® 200	Serial No.	6312-2000-19	
Operating Mode	Transmitting modulated signal at 2.440 GHz			
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)			
Technician	M. Seamans	Date	September 30 th , 2016	
Climatic Conditions	Temp: 21.8 °C Relative Humidity: 44.2 %			
Notes	Peak Power Output: 17.34 dBm			



RETLIF TESTING LABORATORIES				
Test Method:	Conducted Peak Power Output			
Customer	Lord Corporation	Job No.	R-6140N-1	
Test Sample	Wireless 8 Channel Analog Input Sensor Node			
Model Number	V-Link® 200	Serial No.	6312-2000-19	
Operating Mode	Transmitting modulated signal at 2.480GHz			
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)			
Technician	M. Seamans	Date	September 30 th , 2016	
Climatic Conditions	Temp: 21.8 °C Relative Humidity: 44.2 %			
Notes	Peak Power Output: 17.69 dBm			



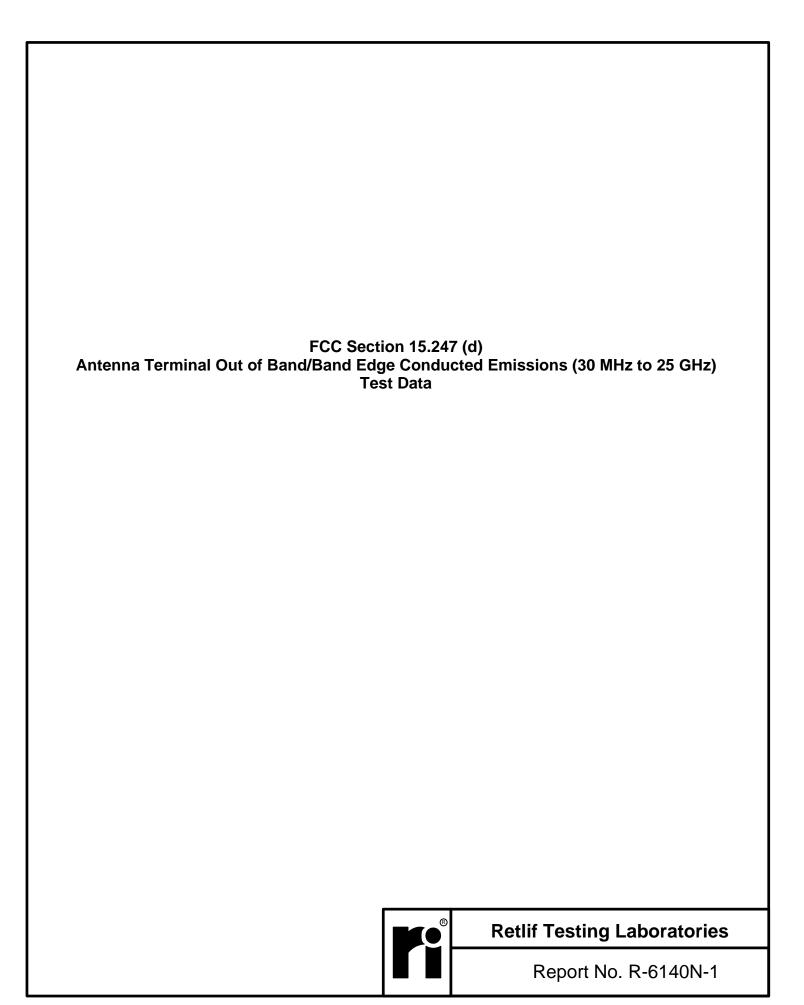
Test Photographs Antenna Terminal Out of Band/Band Edge Conducted Emissions (30 MHz to 25 GHz)

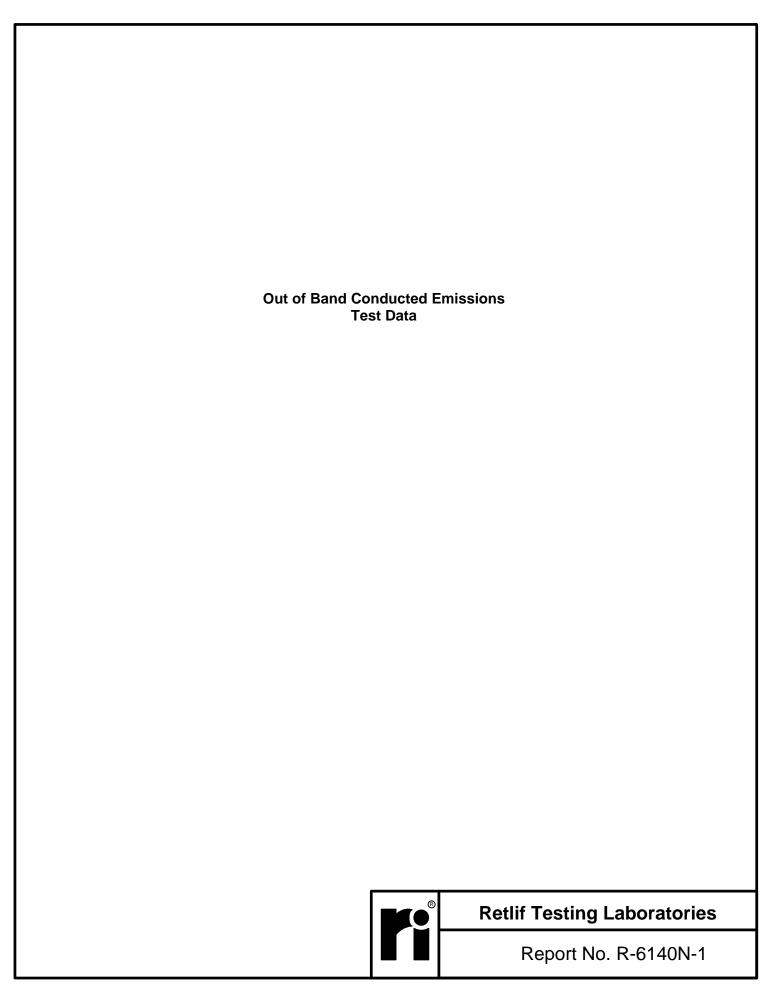


Test Setup

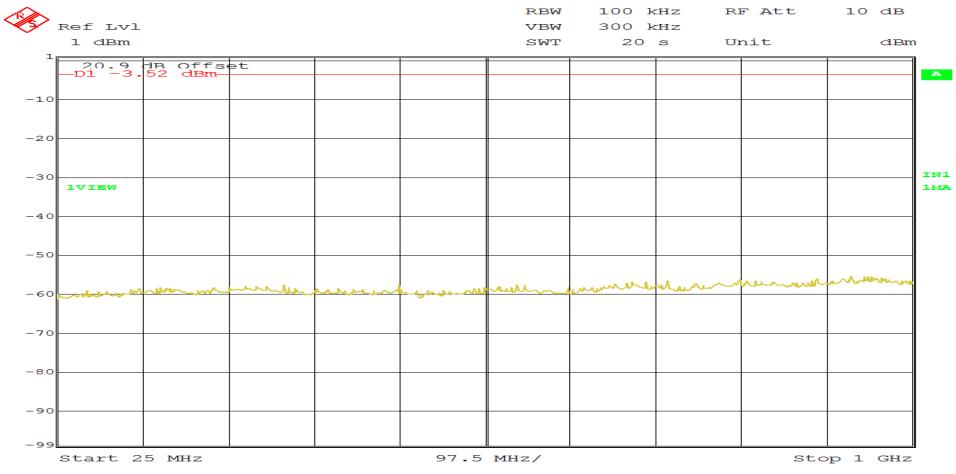


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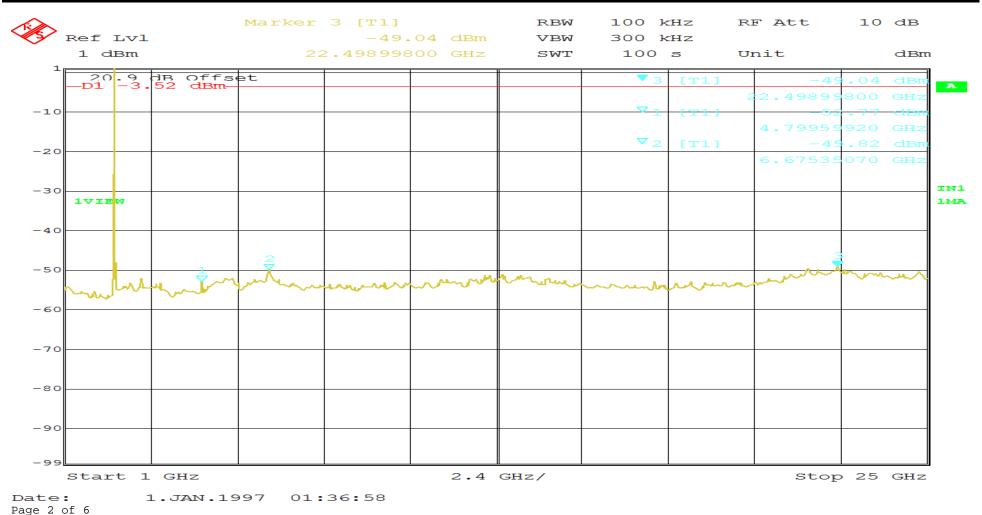


RETLIF TESTING LABORATORIES				
Test Method:	Out of Band Conducted Emissions 25 MHz to 25 GHz			
Customer	Lord Corporation	Job No.	R-6140N-1	
Test Sample	Wireless 8 Channel Analog Input Sensor Node			
Model Number	V-Link® 200	Serial No.	6312-2000-19	
Operating Mode	Transmitting modulated signal at 2.405 GHz			
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)			
Technician	M. Seamans	Date	October 3 rd , 2016	
Climatic Conditions	Temp: 19.3 °C Relative Humidity: 55.1 %			
Notes	Limit: -3.52 dBm			

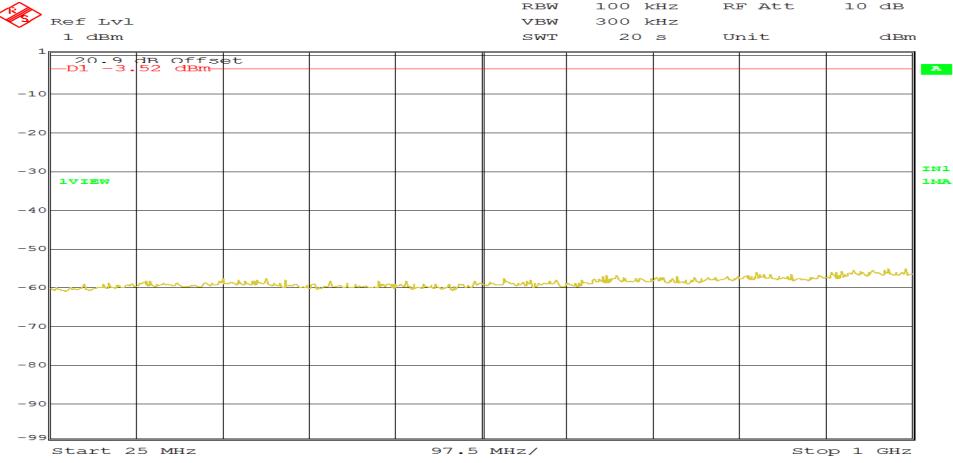


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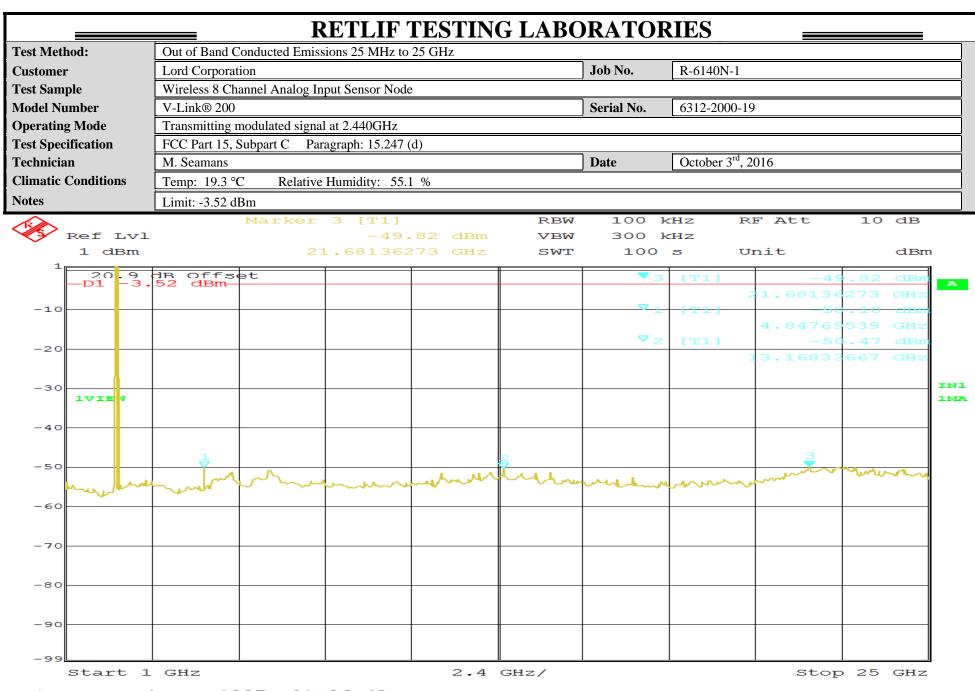
RETLIF TESTING LABORATORIES				
Test Method:	Out of Band Conducted Emissions 25 MHz to 25 GHz			
Customer	Lord Corporation	Job No.	R-6140N-1	
Test Sample	Wireless 8 Channel Analog Input Sensor Node			
Model Number	V-Link® 200	Serial No.	6312-2000-19	
Operating Mode	Transmitting modulated signal at 2.405 GHz			
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)			
Technician	M. Seamans	Date	October 3 rd , 2016	
Climatic Conditions	Temp: 19.3 °C Relative Humidity: 55.1 %			
Notes	Limit: -3.52 dBm			



RETLIF TESTING LABORATORIES				
Test Method:	Out of Band Conducted Emissions 25 MHz to 25 GHz			
Customer	Lord Corporation	Job No.	R-6140N-1	
Test Sample	Wireless 8 Channel Analog Input Sensor Node			
Model Number	V-Link® 200	Serial No.	6312-2000-19	
Operating Mode	Transmitting modulated signal at 2.440GHz			
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)			
Technician	M. Seamans	Date	October 3 rd , 2016	
Climatic Conditions	Temp: 19.3 °C Relative Humidity: 55.1 %			
Notes	Limit: -3.52 dBm			



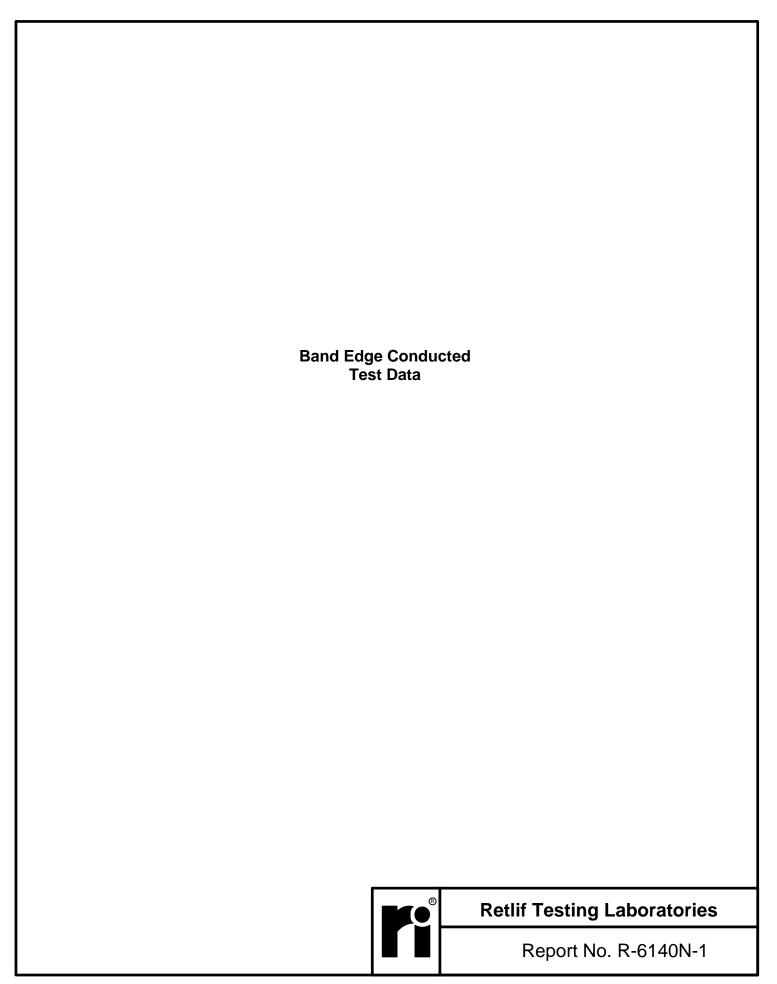
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Page 3 of 6



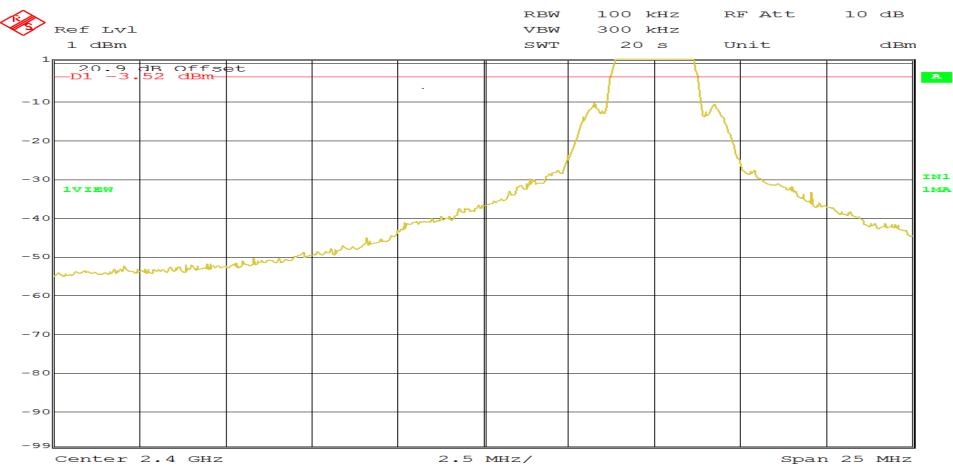
RETLIF TESTING LABORATORIES Out of Band Conducted Emissions 25 MHz to 25 GHz **Test Method:** Customer Lord Corporation Job No. R-6140N-1 Wireless 8 Channel Analog Input Sensor Node **Test Sample Model Number** V-Link® 200 Serial No. 6312-2000-19 Transmitting modulated signal at 2.480GHz **Operating Mode Test Specification** FCC Part 15, Subpart C Paragraph: 15.247 (d) October 3rd, 2016 **Technician** M. Seamans Date **Climatic Conditions** Temp: 19.3 °C Relative Humidity: 55.1 % **Notes** Limit: -3.52 dBm RBW 100 kHz RF Att 10 dв Ref Lvl VBW 300 kHz 1 dBm SWT 20 s Unit dBm 20.9 -D1 -3. dB Offset 52 dBm A -10 -20 IN1 -30 1VIEW 1MA -40-50 -60 -70 -80 -90 -99 Start 25 MHz 97.5 MHz/ Stop 1 GHz

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RETLIF TESTING LABORATORIES Test Method: Out of Band Conducted Emissions 25 MHz to 25 GHz Customer Lord Corporation Job No. R-6140N-1 Wireless 8 Channel Analog Input Sensor Node **Test Sample Model Number** V-Link® 200 Serial No. 6312-2000-19 Transmitting modulated signal at 2.480GHz **Operating Mode Test Specification** FCC Part 15, Subpart C Paragraph: 15.247 (d) October 3rd, 2016 **Technician** M. Seamans Date **Climatic Conditions** Temp: 19.3 °C Relative Humidity: 55.1 % **Notes** Limit: -3.52 dBm RF Att RBW 100 kHz 10 dв Ref Lvl -49.97 dBm VBW 300 kHz 1 dBm Unit 22.11422846 GHz SWT 100 s dBm dB Offset 52 dBm A -10 **v**₂ -20 IN1 -30 1VIEW 1MA -40-50 -60 -70 -80 -90 -99 2.4 GHz/ Start 1 GHz Stop 25 GHz

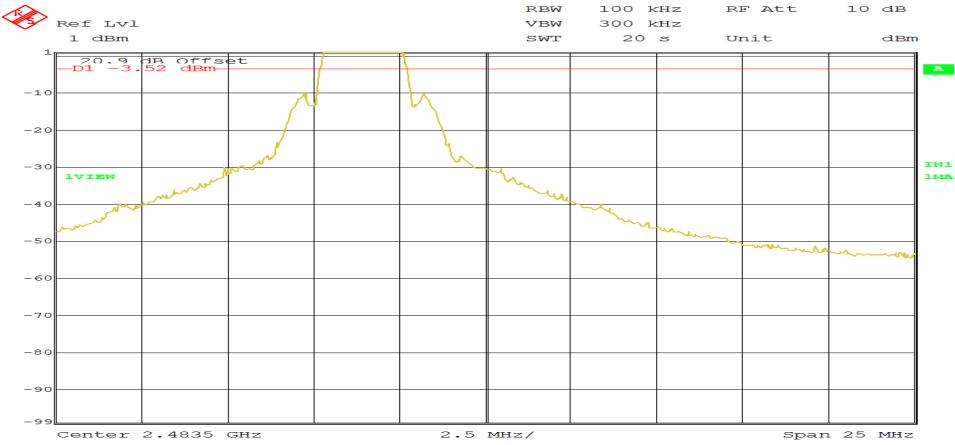


RETLIF TESTING LABORATORIES				
Test Method:	Band Edge Conducted			
Customer	Lord Corporation	Job No.	R-6140N-1	
Test Sample	Wireless 8 Channel Analog Input Sensor Node			
Model Number	V-Link® 200	Serial No.	6312-2000-19	
Operating Mode	Transmitting modulated signal at 2.405 GHz			
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)			
Technician	M. Seamans	Date	October 3 rd , 2016	
Climatic Conditions	Temp: 19.3 °C Relative Humidity: 55.1 %			
Notes	Limit: -3.52 dBm			



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RETLIF TESTING LABORATORIES				
Test Method:	Band Edge Conducted			
Customer	Lord Corporation	Job No.	R-6140N-1	
Test Sample	Wireless 8 Channel Analog Input Sensor Node	·		
Model Number	V-Link® 200	Serial No.	6312-2000-19	
Operating Mode	Transmitting modulated signal at 2.480GHz			
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)			
Technician	M. Seamans	Date	October 3 rd , 2016	
Climatic Conditions	Temp: 19.3 °C Relative Humidity: 55.1 %			
Notes	Limit: -3.52 dBm	_		



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Test Photographs Spurious Radiated Emissions (30 MHz to 25 GHz)



Test Setup, External Antenna Configuration



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Test Photographs Spurious Radiated Emissions (30 MHz to 25 GHz)



Horizontal Antenna Polarization, External Antenna



Vertical Antenna Polarization, External Antenna



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Horizontal Antenna Polarization, 30 MHz to 200 MHz, External Antenna



Vertical Antenna Polarization, 30 MHz to 200 MHz, External Antenna



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Horizontal Antenna Polarization, 1 GHz to 12 GHz, External Antenna, 150 cm



Vertical Antenna Polarization, 1 GHz to 12 GHz, External Antenna, 150 cm



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Horizontal Antenna Polarization, 12 GHz to 18 GHz, External Antenna, 150 cm



Vertical Antenna Polarization, 12 GHz to 18 GHz, External Antenna, 150 cm



Retlif Testing Laboratories



Horizontal Antenna Polarization, 18 GHz to 25 GHz, External Antenna, 150 cm



Vertical Antenna Polarization, 18 GHz to 25 GHz, External Antenna, 150 cm



Retlif Testing Laboratories



Test Setup, Internal Antenna Configuration



Retlif Testing Laboratories



Horizontal Antenna Polarization, Internal Antenna



Vertical Antenna Polarization, Internal Antenna



Retlif Testing Laboratories



Horizontal Antenna Polarization, Internal Antenna



Vertical Antenna Polarization, Internal Antenna



Retlif Testing Laboratories



Horizontal Antenna Polarization, 1 GHz to 12 GHz, Internal Antenna, 150 cm



Vertical Antenna Polarization, 1 GHz to 12 GHz, Internal Antenna, 150 cm



Retlif Testing Laboratories



Horizontal Antenna Polarization, 12 GHz to 18 GHz, Internal Antenna, 150 cm



Vertical Antenna Polarization, 12 GHz to 18 GHz, Internal Antenna, 150 cm



Retlif Testing Laboratories



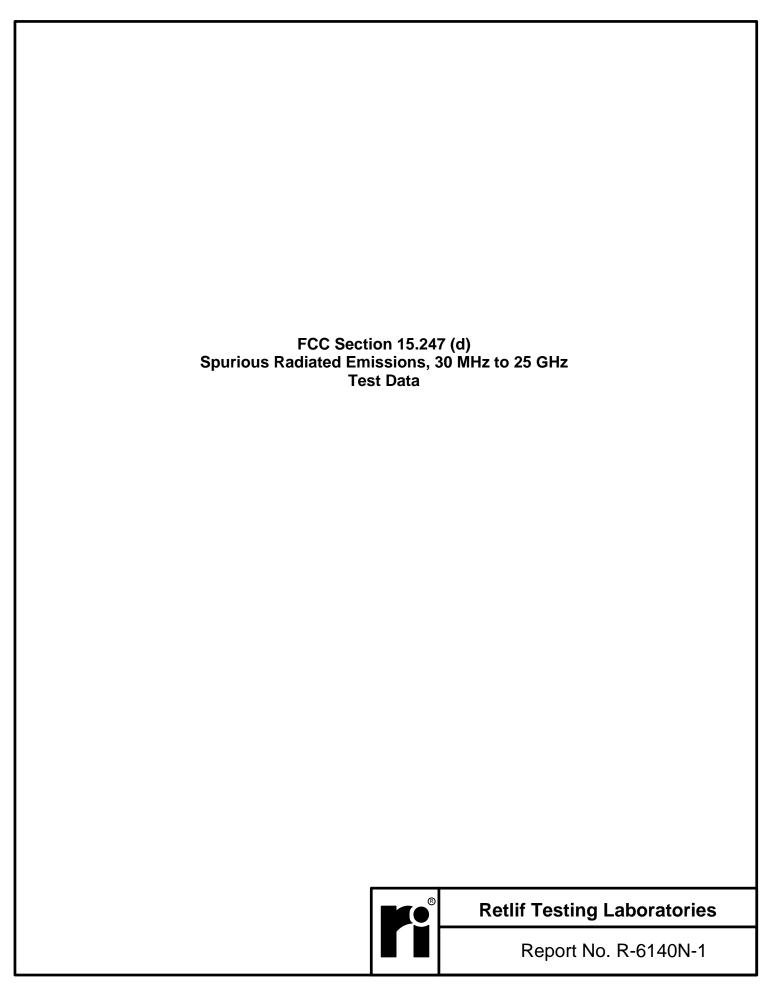
Horizontal Antenna Polarization, 18 GHz to 25 GHz, Internal Antenna, 150 cm



Vertical Antenna Polarization, 18 GHz to 25 GHz, Internal Antenna, 150 cm



Retlif Testing Laboratories



RETLIF TESTING LABORATORIES					
	EMISSIONS TEST DATA SHEET				
Test Method	Unwanted Emissions into Restricted Frequency Bands				
Customer	Lord Corporation				
Job Number	R-6140N-1				
Test Sample	Sample Wireless 8 Channel Analog Input Sensor Node (External Antenna Configuration)				
Model Number	V-Link® 200				
Serial Number	6312-2000-20				
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)			
Operating Mode	Transmitting modulated signal at 2405 MHz, 2442 MHz and 2480 MHz consecutive	utively.			
Technician	M. Seamans				
Date	October 13 th , 2016				

			TEST P	ARAMETERS	S		
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	12.71	14.20	26.91	*	22.16	I
38.25	-	-	-	-		-	100.00
73.00	-	-	-	-		-	100.00
	74.00	19.74	8.36	28.10	*	25.41	I
74.60	-	-	-	-		-	100.00
74.80	-	-	-	-		-	100.00
	75.00	16.54	8.36	24.90	*	17.58	
75.20	-	-	-	-		-	100.00
108.00	-	-	-	-		-	150.00
	115.00	14.18	10.02	24.20	*	16.22	
	-	-	-	-		-	
121.94	-	-	-	-		-	150.00
123.00	-	-	-	-		-	150.00
	130.00	15.96	9.44	25.40	*	18.62	
	-	-	-	-		-	
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 8



Retlif Testing Laboratories

RETLIF TESTING LABORATORIES					
	EMISSIONS TEST DATA SHEET				
Test Method	Unwanted Emissions into Restricted Frequency Bands				
Customer	Lord Corporation				
Job Number	R-6140N-1				
Test Sample	Sample Wireless 8 Channel Analog Input Sensor Node (External Antenna Configuration)				
Model Number	V-Link® 200				
Serial Number	6312-2000-20				
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)			
Operating Mode	Transmitting modulated signal at 2405 MHz, 2442 MHz and 2480 MHz consecutively.				
Technician	M. Seamans				
Date	October 13 th , 2016				

			TEST PA	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	8.23	11.17	19.40	*	9.33	
150.05	-	-	-	-		-	150.00
156.52	-	-	-	-		-	150.00
	156.52	5.02	12.08	17.10	*	7.16	
156.52	-	-	-	-		-	150.00
156.70	-	-	-	-		-	150.00
	156.80	4.91	12.12	17.30	*	7.33	
156.90	-	-	-	-		-	150.00
162.01	-	-	-	-		-	150.00
	165.00	8.02	12.68	20.70	*	10.84	
167.17	-	-	-	-		-	150.00
167.72	-	-	-	-		-	150.00
	170.00	8.30	12.80	21.10	*	11.35	
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 8



Retlif Testing Laboratories

RETLIF TESTING LABORATORIES					
	EMISSIONS TEST DATA SHEET				
Test Method	Unwanted Emissions into Restricted Frequency Bands				
Customer	Lord Corporation				
Job Number	R-6140N-1				
Test Sample	Sample Wireless 8 Channel Analog Input Sensor Node (External Antenna Configuration)				
Model Number	V-Link® 200				
Serial Number	6312-2000-20				
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)			
Operating Mode	Transmitting modulated signal at 2405 MHz, 2442 MHz and 2480 MHz consecu-	utively.			
Technician	M. Seamans				
Date	October 13 th , 2016				

			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
240.00	-	-	-	-		-	200.00
	260.00	1.45	16.85	18.30	*	8.22	
285.00	-	-	-	-		-	200.00
322.80	-	-	-	-		-	200.00
	330.00	0.69	18.91	19.60	*	9.55	
335.40	-	-	-	-		-	200.00
399.90	-	-	-	-		-	200.00
	405.00	1.01	21.49	22.50	*	13.34	
410.00	-	-	-	-		-	200.00
608.00	-	-	-	-		-	200.00
	611.00	-0.64	27.34	26.70	*	21.63	
614.00	-	-	-	-		-	200.00
960.00	-	-	-	-		-	500.00
	975.00	1.50	32.10	33.60	*	47.63	
1240.00	-	-	-	-		-	500.00
_		-					
1300.00	-	-	-	-		-	500.00
	1350.00	33.67	-5.55	28.12	*	25.47	
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 8



Retlif Testing Laboratories

RETLIF TESTING LABORATORIES							
	EMISSIONS TEST DATA SHEET						
Test Method	Unwanted Emissions into Restricted Frequency Bands						
Customer	Lord Corporation						
Job Number	R-6140N-1						
Test Sample	Wireless 8 Channel Analog Input Sensor Node (External Antenna Configuration)						
Model Number	V-Link® 200						
Serial Number	6312-2000-20	6312-2000-20					
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)					
Operating Mode	Transmitting modulated signal at 2405 MHz, 2442 MHz and 2480 MHz consec	utively.					
Technician	M. Seamans						
Date	October 13 th , 2016						
Notes: Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz							

			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
1435.00	-	-	-	-		-	500.00
	1500.00	32.21	-4.81	27.40	*	23.44	
1646.50	-	-	-	-		-	500.00
1660.00	_	_	_	-		_	500.00
	1680.00	31.41	-4.01	27.40	*	23.44	300.00
1710.00	-	-	-	-		-	500.00
1718.80	-	-	-	-			500.00
	1720.00	32.08	-3.84	28.24	*	25.82	
1722.20	-	-	-	-		-	500.00
2200.00	_	_	-	-		-	500.00
ı	2250.00	32.14	-2.07	30.07	*	31.88	
2300.00	-	-	-	-		-	500.00
2310.00	-		-	-		_	500.00
	2360.00	31.69	-1.79	29.90	*	31.26	
2390.00	-	-	-	-		-	500.00
2483.50	-	-	-	-			500.00
	2490.00	31.91	-1.47	30.44	*	33.27	
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 8



Retlif Testing Laboratories

RETLIF TESTING LABORATORIES					
	EMISSIONS TEST DATA SHEET				
Test Method	Unwanted Emissions into Restricted Frequency Bands				
Customer	Lord Corporation				
Job Number	R-6140N-1				
Test Sample	Sample Wireless 8 Channel Analog Input Sensor Node (External Antenna Configuration)				
Model Number	V-Link® 200				
Serial Number	6312-2000-20				
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)			
Operating Mode	Transmitting modulated signal at 2405 MHz, 2442 MHz and 2480 MHz consecu-	utively.			
Technician	M. Seamans				
Date	October 13 th , 2016				

			TEST P.	ARAMETERS	S		
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	32.34	-0.88	31.46	*	37.47	
	-	-	-	-		-	
2900.00	-	-	-	-		-	500.00
3260.00	-	-	-	-		-	500.00
	3263.00	30.75	0.11	30.86	*	34.91	
3267.00	-	-	-	-		-	500.00
3332.00	-	-	-	-		-	500.00
	3336.00	30.80	0.23	31.03	*	35.60	
3339.00	-	-	-	-		-	500.00
3345.00	-	-	-	-		-	500.00
	3350.00	31.45	0.26	31.71	*	38.50	
3358.00	-	-	-	-		-	500.00
3600.00	-	-	-	-		-	500.00
	-	-	-	-		-	
	3700.00	30.66	0.81	31.47	*	37.45	
	-	-	-	-		-	

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 8



Retlif Testing Laboratories

RETLIF TESTING LABORATORIES					
	EMISSIONS TEST DATA SHEET				
Test Method	Unwanted Emissions into Restricted Frequency Bands				
Customer	Lord Corporation				
Job Number	R-6140N-1				
Test Sample	Sample Wireless 8 Channel Analog Input Sensor Node (External Antenna Configuration)				
Model Number	V-Link® 200				
Serial Number	6312-2000-20				
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)			
Operating Mode	Transmitting modulated signal at 2405 MHz, 2442 MHz and 2480 MHz consecu-	utively.			
Technician	M. Seamans				
Date	October 13 th , 2016				

			TEST P	ARAMETERS	S		
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
1	_			_			1
4400.00	_		-	_		-	500.00
4500.00	-	-	-	-		-	500.00
	4810.00	42.96	1.95	44.91		175.99	
	4880.00	39.85	2.01	41.86		123.88	
	4960.00	40.53	2.07	42.60		134.90	
I	-	-	-	-		-	
5150.00	-	-	-	-		-	500.00
5350.00	-	-	-	-		-	500.00
	5400.00	29.72	2.70	32.42	*	41.78	
5460.00	-	-	-	-		-	500.00
7250.00	-	-	-	-		-	500.00
	7320.00	31.25	4.45	35.70	*	60.95	
	7440.00	31.43	4.34	35.77	*	61.45	
	-	-	-	-		-	
7750.00	-	-	-	-		-	500.00
8025.00	-	-	-	-		-	500.00
	8300.00	31.50	4.45	35.95	*	62.73	
8500.00	-	-	-	-		-	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 6 of 8



Retlif Testing Laboratories

RETLIF TESTING LABORATORIES						
	EMISSIONS TEST DATA SHEET					
Test Method	Unwanted Emissions into Restricted Frequency Bands					
Customer	Lord Corporation					
Job Number	R-6140N-1					
Test Sample	Wireless 8 Channel Analog Input Sensor Node (External Antenna Configuration)					
Model Number	V-Link® 200	V-Link® 200				
Serial Number	6312-2000-20					
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)				
Operating Mode	Transmitting modulated signal at 2405 MHz, 2442 MHz and 2480 MHz consecutive	utively.				
Technician	M. Seamans					
Date	October 13 th , 2016					

	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	31.99	4.85	36.84	*	69.50			
9200.00	-	-	-	-		-	500.00		
9300.00	-	-	-	-			500.00		
	9400.00	31.72	4.95	36.67	*	68.16			
9500.00	-	-	-	-		-	500.00		
10600.00	_		-	-			500.00		
	12025.00	31.77	8.30	40.07	*	100.81			
	12200.00	32.03	8.50	40.53	*	106.29	i		
	12400.00	30.63	8.70	39.33	*	92.58	i		
12700.00	-	-	-	-		-	500.00		
13250.00	-		-	-		-	500.00		
	15800.00	33.80	-0.34	33.46	*	47.10			
16200.00	-	-	-	-		-	500.00		
ETIM							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 7 of 8



Retlif Testing Laboratories

RETLIF TESTING LABORATORIES						
	EMISSIONS TEST DATA SHEET					
Test Method	Unwanted Emissions into Restricted Frequency Bands					
Customer	Lord Corporation					
Job Number	R-6140N-1					
Test Sample	Wireless 8 Channel Analog Input Sensor Node (External Antenna Configuration)					
Model Number	V-Link® 200	V-Link® 200				
Serial Number	6312-2000-20					
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)				
Operating Mode	Transmitting modulated signal at 2405 MHz, 2442 MHz and 2480 MHz consecutive	utively.				
Technician	M. Seamans					
Date	October 13 th , 2016					

			TEST P.	ARAMETERS	3		
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
17700.00	-	-	-	-		-	500.00
	19240.00	33.07	-6.50	26.57	*	21.31	
	19520.00	32.87	-6.50	26.37	*	20.82	
	19840.00	32.87	-6.50	26.37	*	20.82	
21400.00	-	-	-	-		-	500.00
22010.00	-	-	-	-		-	500.00
	22320.00	34.90	-6.00	28.90	*	27.86	
23120.00	-	-	-	-		-	500.00
23000.00	-	-	-	-		-	500.00
	23800.00	35.52	-4.40	31.12	*	35.97	
24000.00	-	-	-	-		-	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 8 of 8



Retlif Testing Laboratories

RETLIF TESTING LABORATORIES						
	EMISSIONS TEST DATA SHEET					
Test Method	Unwanted Emissions into Restricted Frequency Bands					
Customer	Lord Corporation					
Job Number	R-6140N-1					
Test Sample	Wireless 8 Channel Analog Input Sensor Node (Internal Antenna Configuration)					
Model Number	V-Link® 200					
Serial Number	6312-2000-22					
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)				
Operating Mode	Transmitting modulated signal at 2405 MHz, 2442 MHz and 2480 MHz consec	Transmitting modulated signal at 2405 MHz, 2442 MHz and 2480 MHz consecutively.				
Technician	M. Seamans	·				
Date	October 13 th , 2016					
i	•					

			TEST P	ARAMETERS	S		
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	12.71	14.20	26.91	*	22.16	I
38.25	-	-	-	-		-	100.00
73.00	-	-	-	-		-	100.00
	74.00	19.74	8.36	28.10	*	25.41	I
74.60	-	-	-	-		-	100.00
74.80	-	-	-	-		-	100.00
	75.00	16.54	8.36	24.90	*	17.58	
75.20	-	-	-	-		-	100.00
108.00	-	-	-	-		-	150.00
	115.00	14.18	10.02	24.20	*	16.22	
	-	-	-	-		-	
121.94	-	-	-	-		-	150.00
123.00	-	-	-	-		-	150.00
	130.00	15.96	9.44	25.40	*	18.62	
	-	-	-	-		-	
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 8



Retlif Testing Laboratories

RETLIF TESTING LABORATORIES						
	EMISSIONS TEST DATA SHEET					
Test Method	Unwanted Emissions into Restricted Frequency Bands					
Customer	Lord Corporation					
Job Number	R-6140N-1					
Test Sample	Wireless 8 Channel Analog Input Sensor Node (Internal Antenna Configuration)					
Model Number	V-Link® 200	V-Link® 200				
Serial Number	6312-2000-22					
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)				
Operating Mode	Transmitting modulated signal at 2405 MHz, 2442 MHz and 2480 MHz consec	utively.				
Technician	M. Seamans					
Date	October 13 th , 2016					

	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	8.23	11.17	19.40	*	9.33		
150.05	-	-	-	-		-	150.00	
156.52	-	_	_	-		-	150.00	
	156.52	5.02	12.08	17.10	*	7.16	1	
156.52	-	-	-	-		-	150.00	
156.70	-		-	-		_	150.00	
	156.80	4.91	12.12	17.30	*	7.33		
156.90	-	-	-	-		-	150.00	
162.01	-	_	_	-		-	150.00	
	165.00	8.02	12.68	20.70	*	10.84		
167.17	-	-	-	-		-	150.00	
167.72	_	_	_	_		_	150.00	
137.1.2	170.00	8.30	12.80	21.10	*	11.35	130.00	
173.20	-	-	-	-		-	150.00	
			<u> </u>					

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 8



Retlif Testing Laboratories

RETLIF TESTING LABORATORIES						
	EMISSIONS TEST DATA SHEET					
Test Method	Unwanted Emissions into Restricted Frequency Bands					
Customer	Lord Corporation					
Job Number	R-6140N-1					
Test Sample	Wireless 8 Channel Analog Input Sensor Node (Internal Antenna Configuration)					
Model Number	V-Link® 200	V-Link® 200				
Serial Number	6312-2000-22					
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)				
Operating Mode	Transmitting modulated signal at 2405 MHz, 2442 MHz and 2480 MHz consecu-	utively.				
Technician	M. Seamans					
Date	October 13 th , 2016					

			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
240.00	-	-	-	-		-	200.00
	260.00	1.45	16.85	18.30	*	8.22	
285.00	-	-	-	-		-	200.00
322.80	-	-	-	-		-	200.00
	330.00	0.69	18.91	19.60	*	9.55	
335.40	-	-	-	-		-	200.00
399.90	-	-	-	-		-	200.00
	405.00	1.01	21.49	22.50	*	13.34	
410.00	-	-	-	-		-	200.00
608.00	-	-	-	-		-	200.00
	611.00	-0.64	27.34	26.70	*	21.63	
614.00	-	-	-	-		-	200.00
960.00	-	-	-	-		-	500.00
	975.00	1.50	32.10	33.60	*	47.63	
1240.00	-	-	-	-		-	500.00
_		-					
1300.00	-	-	-	-		-	500.00
	1350.00	33.67	-5.55	28.12	*	25.47	
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 8



Retlif Testing Laboratories

RETLIF TESTING LABORATORIES						
	EMISSIONS TEST DATA SHEET					
Test Method	Unwanted Emissions into Restricted Frequency Bands					
Customer	Lord Corporation					
Job Number	R-6140N-1					
Test Sample	Wireless 8 Channel Analog Input Sensor Node (Internal Antenna Configuration)					
Model Number	V-Link® 200					
Serial Number	6312-2000-22	6312-2000-22				
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)				
Operating Mode	Transmitting modulated signal at 2405 MHz, 2442 MHz and 2480 MHz consec	utively.				
Technician	M. Seamans					
Date	October 13 th , 2016					
Notes: Antenna Test D	istance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz					

			TEST P	ARAMETERS	S		
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	32.21	-4.81	27.40	*	23.44	
1646.50	-	-	-	-		-	500.00
1660.00	-	-	-	-		-	500.00
	1680.00	31.41	-4.01	27.40	*	23.44	
1710.00	-	-	-	-		-	500.00
1718.80	-	-	-	-		-	500.00
	1720.00	32.08	-3.84	28.24	*	25.82	
1722.20	-	-	-	-		-	500.00
2200.00	-	-	-	-		-	500.00
	2250.00	32.14	-2.07	30.07	*	31.88	
2300.00	-	-	-	-		-	500.00
2310.00	-	-	-	-		-	500.00
	2360.00	31.69	-1.79	29.90	*	31.26	
2390.00	-	-	-	-		-	500.00
2483.50	-	-	-	-		-	500.00
	2490.00	31.91	-1.47	30.44	*	33.27	
2500.00	-	-	-	-		-	500.00
M. Dille .	1. 10 10	C .1 .C. 1 .	. 11 1. 1	1 1			

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 8



Retlif Testing Laboratories

RETLIF TESTING LABORATORIES				
EMISSIONS TEST DATA SHEET				
Test Method	Unwanted Emissions into Restricted Frequency Bands			
Customer	Lord Corporation			
Job Number	R-6140N-1			
Test Sample	Wireless 8 Channel Analog Input Sensor Node (Internal Antenna Configuration)			
Model Number	V-Link® 200			
Serial Number	6312-2000-22			
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)		
Operating Mode Transmitting modulated signal at 2405 MHz, 2442 MHz and 2480 MHz consecutively.				
Technician	M. Seamans			
Date	October 13 th , 2016			

	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	32.34	-0.88	31.46	*	37.47	
	-	-	-	-		-	
2900.00	-	-	-	-		-	500.00
3260.00	-	-	-	-		-	500.00
	3263.00	30.75	0.11	30.86	*	34.91	
3267.00	-	-	-	-		-	500.00
3332.00	-	-	-	-		-	500.00
	3336.00	30.80	0.23	31.03	*	35.60	
3339.00	-	-	-	-		-	500.00
3345.00	-	-	-	-		-	500.00
	3350.00	31.45	0.26	31.71	*	38.50	
3358.00	-	-	-	-		-	500.00
3600.00	-	-	-	-		-	500.00
	-	-	-	-		-	
	3700.00	30.66	0.81	31.47	*	37.45	
	-	-	-	-		-	

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 8



Retlif Testing Laboratories

RETLIF TESTING LABORATORIES				
EMISSIONS TEST DATA SHEET				
Test Method	Unwanted Emissions into Restricted Frequency Bands			
Customer	Lord Corporation			
Job Number	R-6140N-1			
Test Sample	Wireless 8 Channel Analog Input Sensor Node (Internal Antenna Configuration)			
Model Number	V-Link® 200			
Serial Number	6312-2000-22			
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)		
Operating Mode Transmitting modulated signal at 2405 MHz, 2442 MHz and 2480 MHz consecutively.				
Technician	M. Seamans			
Date	October 13 th , 2016			

	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
	4810.00	42.54	1.95	44.49		167.69	
	4880.00	42.35	2.01	44.36		165.20	i
	4960.00	43.03	2.07	45.10		179.89	
	-	-	-	-		-	
5150.00	-	-	-	-		-	500.00
5350.00	-	-	-	-		-	500.00
	5400.00	29.72	2.70	32.42	*	41.78	
5460.00	-	-	-	-		-	500.00
7250.00	-	-	-	-		-	500.00
	7320.00	31.25	4.45	35.70	*	60.95	
	7440.00	31.43	4.34	35.77	*	61.45	
	-	-	-	-		-	
7750.00	-	-	-	-		-	500.00
8025.00	-	-	-	-		-	500.00
	8300.00	31.50	4.45	35.95	*	62.73	
8500.00	-	-	-	-		-	500.00
8500.00	- 1		-		F : 1 1 1 1		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 6 of 8



Retlif Testing Laboratories

RETLIF TESTING LABORATORIES					
	EMISSIONS TEST DATA SHEET				
Test Method	Unwanted Emissions into Restricted Frequency Bands				
Customer	Lord Corporation				
Job Number	R-6140N-1				
Test Sample	Wireless 8 Channel Analog Input Sensor Node (Internal Antenna Configuration)				
Model Number	V-Link® 200				
Serial Number	6312-2000-22				
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)			
Operating Mode	Transmitting modulated signal at 2405 MHz, 2442 MHz and 2480 MHz consecutive	utively.			
Technician	M. Seamans				
Date	October 13 th , 2016				

	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	31.99	4.85	36.84	*	69.50	
9200.00	-	-	-	-		-	500.00
9300.00	-	-	-	-		-	500.00
	9400.00	31.72	4.95	36.67	*	68.16	
9500.00	-	-	-	-		-	500.00
10600.00	-	-	-	-		-	500.00
	12025.00	31.77	8.30	40.07	*	100.81	
	12200.00	32.03	8.50	40.53	*	106.29	
	12400.00	30.63	8.70	39.33	*	92.58	
12700.00	-	-	-	-		-	500.00
13250.00	-	-	-	-		-	500.00
	15800.00	33.80	-0.34	33.46	*	47.10	
16200.00	-	-	-	-		-	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 7 of 8



Retlif Testing Laboratories

RETLIF TESTING LABORATORIES				
EMISSIONS TEST DATA SHEET				
Test Method	Unwanted Emissions into Restricted Frequency Bands			
Customer	Lord Corporation			
Job Number	R-6140N-1			
Test Sample	Wireless 8 Channel Analog Input Sensor Node (Internal Antenna Configuration)			
Model Number	V-Link® 200			
Serial Number	6312-2000-22			
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)		
Operating Mode	Transmitting modulated signal at 2405 MHz, 2442 MHz and 2480 MHz consecutive	utively.		
Technician	M. Seamans			
Date	October 13 th , 2016			

Band 1	Measured Frequency MHz	Meter Reading dBuV	Correction Factor	Corrected Reading		Converted	Limit at
	MHz	dD.W		- Acading		Reading	3M
MHz		ubuv	dB	dBuV/m		uV/m	uV/m
17700.00	-	-	-	-		-	500.00
I	19240.00	33.07	-6.50	26.57	*	21.31	
	19520.00	32.87	-6.50	26.37	*	20.82	
	19840.00	32.87	-6.50	26.37	*	20.82	
21400.00	-	-	-	-		-	500.00
22010.00	-	-	-	-		-	500.00
	22320.00	34.90	-6.00	28.90	*	27.86	
23120.00	-	-	-	_		-	500.00
23000.00	-	-	-	-		-	500.00
	23800.00	35.52	-4.40	31.12	*	35.97	
24000.00	-	-	-	-		-	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 8 of 8



Retlif Testing Laboratories

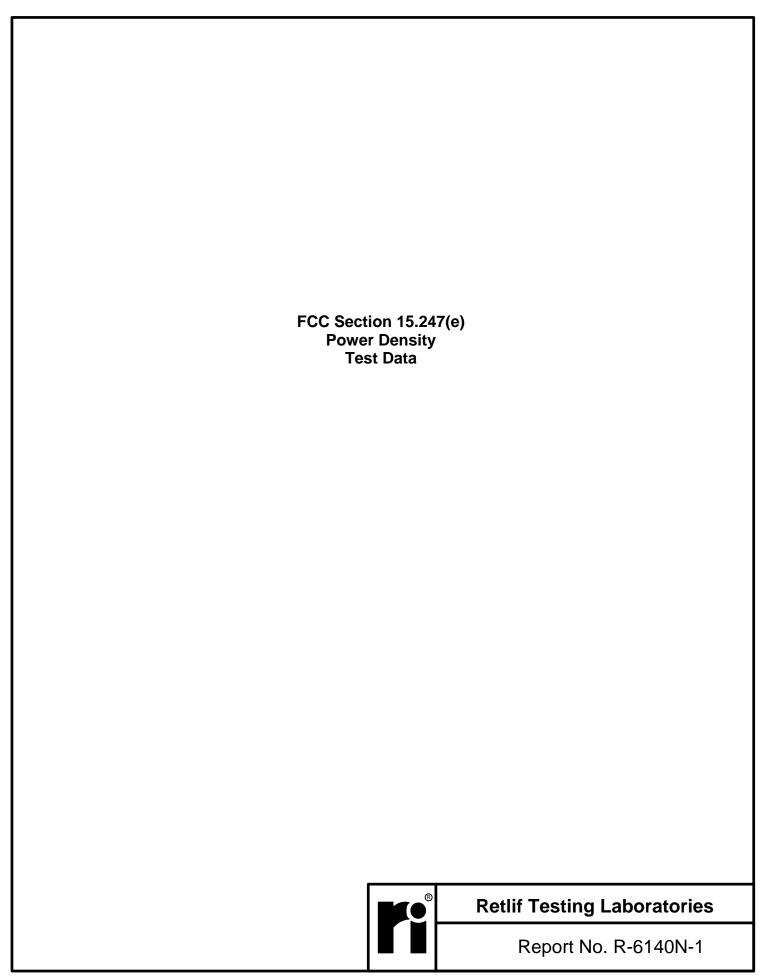
Test Photographs Power Density



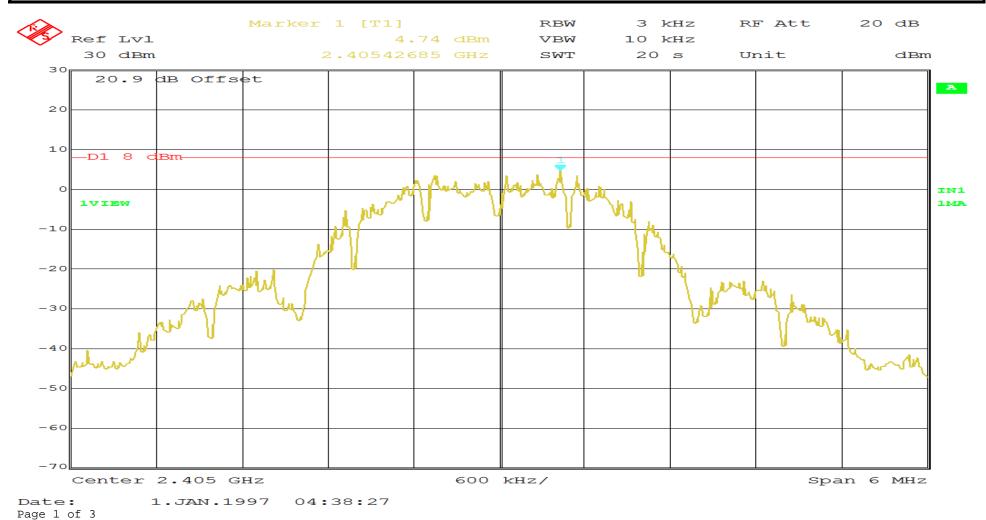
Test Configuration



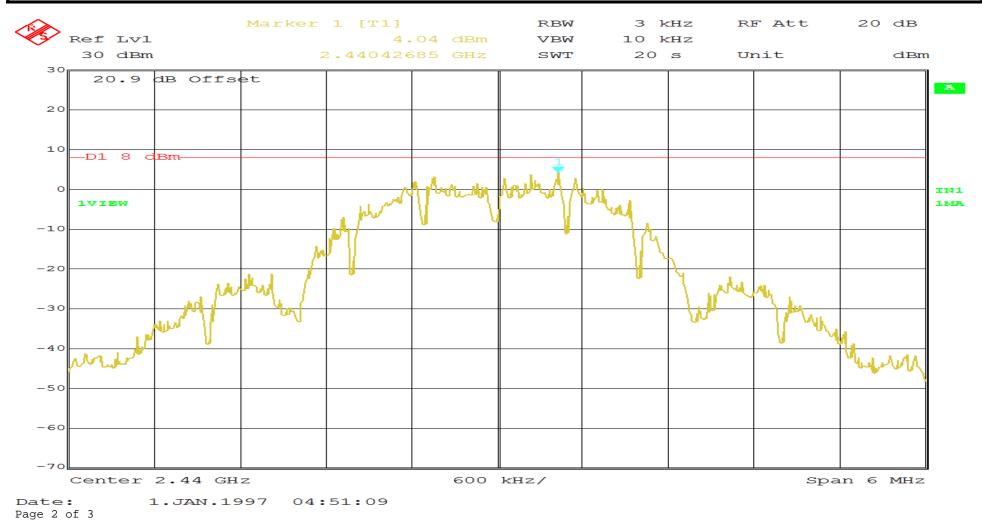
Retlif Testing Laboratories



RETLIF TESTING LABORATORIES						
Test Method:	Power Spectral Density					
Customer	Lord Corporation	Job No.	R-6140N-1			
Test Sample	Wireless 8 Channel Analog Input Sensor Node					
Model Number	V-Link® 200	Serial No.	6312-2000-19			
Operating Mode	Transmitting modulated signal at 2.405 GHz					
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (e)					
Technician	M. Seamans	Date	September 30 th , 2016			
Climatic Conditions	Temp: 21.8 °C Relative Humidity: 51.9 %					
Notes	Power Spectral Density: 4.74 dBm Limit: 8 dBm					



RETLIF TESTING LABORATORIES						
Test Method:	Power Spectral Density					
Customer	Lord Corporation	Job No.	R-6140N-1			
Test Sample	Wireless 8 Channel Analog Input Sensor Node	·				
Model Number	V-Link® 200	Serial No.	6312-2000-19			
Operating Mode	Transmitting modulated signal at 2.440 GHz					
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (e)					
Technician	M. Seamans	Date	September 30 th , 2016			
Climatic Conditions	Temp: 21.8 °C Relative Humidity: 51.9 %					
Notes	Power Spectral Density: 4.04 dBm Limit: 8 dBm					



RETLIF TESTING LABORATORIES						
Test Method:	Power Spectral Density					
Customer	Lord Corporation	Job No.	R-6140N-1			
Test Sample	Wireless 8 Channel Analog Input Sensor Node					
Model Number	V-Link® 200	Serial No.	6312-2000-19			
Operating Mode	Transmitting modulated signal at 2.480GHz					
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (e)					
Technician	M. Seamans	Date	September 30 th , 2016			
Climatic Conditions	Temp: 21.8 °C Relative Humidity: 51.9 %					
Notes	Power Spectral Density: 4.76 dBm Limit: 8 dBm					

