



FCC Part 15, Subpart C, Section 15.247

Test Report

On

200 Series Radio Module
FCC ID: XJQMSLINK0007

Customer Name: Lord Corporation

Customer P.O.: 721378

Date of Report Revision: February 2, 2018

Test Report No.: R-6272N-1, Rev. A

Test Start Date: November 8, 2017

Test Finish Date: December 4, 2017

Test Technician: M. Seamans

Report Revision Approved By: T. Hannemann

Report Revision Prepared By: J. Ramsey

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Technical Information

Report Number: R-6272N-1, Rev. A

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: 200 Series Radio Module

3022-0021 (External Antenna Configuration)

Model Numbers: 3022-0017a (Internal Antenna Configuration)

3022-0021-00075 (External Antenna Configuration)

Serial Numbers: 3022-0017-00003 (Internal Antenna Configuration)

FCC ID: XJQMSLINK0007

Digital Transmission – Direct Sequence Spread Spectrum

Type: Transmitter

Power Requirements: 5.0 VDC

Frequency of Operation: 2402.0 to 2480.0 MHz

Equipment Class: DTS

Antenna Type: See Table 2 – EUT/Antenna/Test Configurations

Equipment Use: Wireless Data Module

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 Designation Number: US5327



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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
15.247(d)	Out of Band/Band Edge Radiated Emissions
15.247(e)	Power Density
15.207(a)	AC Conducted Emissions

EUT Operation:

The EUT was transmitting a modulating signal at 2.405 GHz Channel 11, 2.440 GHz Channel 18 and 2.480 GHz Channel 26.

EUT Description:

The EUT is a 2.4 GHz Wireless Module for use in Gateway and Sensor Node products.

Table 2 – EUT/Antenna/Test Configurations

EUT Model Number	Antenna Type	Antenna Model Number	Antenna Gain (dBi)	Antenna Manufacturer
3022-0017a	Internal SMD Chip	2450AT45A100	1.5	Johanson Technology
3022-0021	External ½ Wave Dipole	HG2403RD-RTF	3.0	L-COM
	External ½ Wave Dipole	ANT-231-RAF-RPS	2.5	LINX
	External Dipole	MMCX	1.5	Data Alliance
	External Dipole	001-0042	2.0	Laird

Out of Band/Band Edge Radiated Emissions was performed with cables ranging from 0.0 Meter (direct connection) to 1.0 Meter to allow for a range of cables to be utilized with the EUT.

All equipment that was utilized to achieve the EUT operating state is specified in the table below:

Table 3 – Support Equipment

Description	Manufacturer	Model Number	Serial Number
Host PC	Gateway	NE56R52U	NXY1UAA045348501F63400
AC Adapter for Host PC	Liteon	PA-1650-86	KP065030103405096PE02



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Certification and Signatures

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



Scott Wentworth
Branch Manager
NVLAP Approved Signatory



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 25, 2018	Original Release
A	February 2, 2018	Global Changes: <ul style="list-style-type: none">• Document changed from R-6272N-1 to R-6272N-1, Rev. A• Revised Model Number from 3022-0017 to 3022-0017a throughout document where applicable



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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 1.675 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 44.87 mW. The maximum antenna gain of the antennas is 2.5 dBi. 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 3. 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.

Table 4 - Radiated Emission Limits

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

- **Results:**

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.

FCC 15.207(a) – AC Conducted Emissions

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 5, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of the paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Table 5 - Conducted Emission Limits

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	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 as measured on the 120 VAC host computer AC Power port did not exceed the limits specified in Table 5.



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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 dB μ V/m

MR = Uncorrected Meter Reading in dB μ V

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

Example:

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

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

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

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

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

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

RF Power Conversion:

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

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

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



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FCC Section 15.247 (i)

RF Exposure Limits

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

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

D = Minimum Separation Distance in cm

S = Max allowed Power Density in mW/cm²

Per 1.1310 For the Frequency of 2400 MHz S = 1 mW/cm²

Power = Max Power Input to Antenna = 44.87 mW

Gain = Max Power Gain of Antenna = 2.5 dBi = 1.78 numeric

$$1.0 \text{ mW/cm}^2 = \frac{44.87 \times 1.78}{4 \times (3.14) \times D^2} = \frac{79.8}{12.56 \times D^2}$$

$$D^2 = \frac{79.8}{12.56 \times 1.0}$$

$$D = \sqrt{6.35} = 2.52 \text{ cm}$$

NOTE: The maximum measured RF power output and maximum antenna gain was utilized in the RF Exposure calculation.



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Equipment List

FCC Section 15.247(a)(2) Occupied Bandwidth

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5030B	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz	757C-10	3/7/2017	3/31/2018
5231	AGILENT / HP	ANALYZER, SPECTRUM	3 Hz - 26.5 GHz	E4440A	5/24/2017	5/31/2018

FCC Section 15.247 (d) Band Edge Conducted Emissions

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5030B	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz	757C-10	3/7/2017	3/31/2018
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/17/2017	10/31/2018

FCC Section 15.247(b)(3) Power Output

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5030B	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz	757C-10	3/7/2017	3/31/2018
5231	AGILENT / HP	ANALYZER, SPECTRUM	3 Hz - 26.5 GHz	E4440A	5/24/2017	5/31/2018
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/17/2017	10/31/2018

FCC Section 15.247 (d) Out of Band/Band Edge Radiated Emissions

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
1232	AGILENT / HP	PRE-AMPLIFIER	1 - 26.5 GHz	8449B	5/23/2017	5/31/2018
3258	ETS / EMCO	ANTENNA, DOUBLE RIDGED GUIDE	1 - 18 GHz	3115	10/13/2016	4/30/2018
3427B	ETS / EMCO	ANTENNA, BICONICAL	20 - 200 MHz	3104	9/21/2017	3/31/2019
3430	MCS	ANTENNA, HORN	18 - 26.5 GHz	K-5039	No Calibration Required	
4029B	RETLIF	OPEN AREA TEST SITE, ATTENUATION	3 / 10 Meters	RNH	4/13/2016	4/30/2018
443	ELECTRO-METRICS	ANTENNA, LOG PERIODIC	200 MHz - 1000 MHz	LPA-25	10/6/2016	4/30/2018
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/17/2017	10/31/2018



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**FCC Section 15.247(e)
Power Density**

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5030B	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz	757C-10	3/7/2017	3/31/2018
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/17/2017	10/31/2018

**FCC Section 15.207(a)
AC Conducted Emissions**

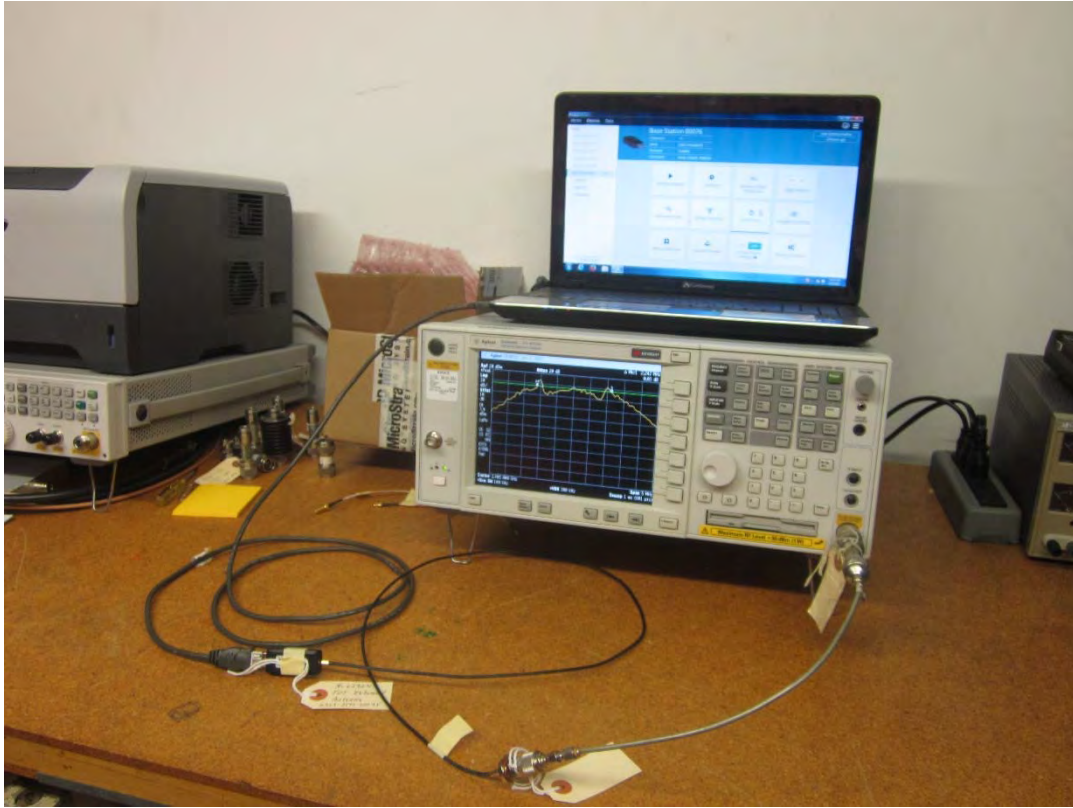
EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5030B	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz	757C-10	3/7/2017	3/31/2018
5209	SOLAR ELECTRONICS	LISN	50 uH, 150 kHz - 30 MHz	21106-50-BP-25-BNC	4/4/2017	4/30/2018
5210	SOLAR ELECTRONICS	LISN	50 uH, 150 kHz - 30 MHz	21106-50-BP-25-BNC	4/4/2017	4/30/2018
5231	AGILENT / HP	ANALYZER, SPECTRUM	3 Hz - 26.5 GHz	E4440A	5/24/2017	5/31/2018



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Test Photographs Occupied Bandwidth



Test Setup



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**FCC Section 15.247(a)(2)
Occupied Bandwidth
Test Data**



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Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Occupied Bandwidth
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS) signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	November 8 th , 2017
Temp/ Relative Humidity:	20.5 °C / 62 %
Notes:	6dB Bandwidth: 1.683 MHz

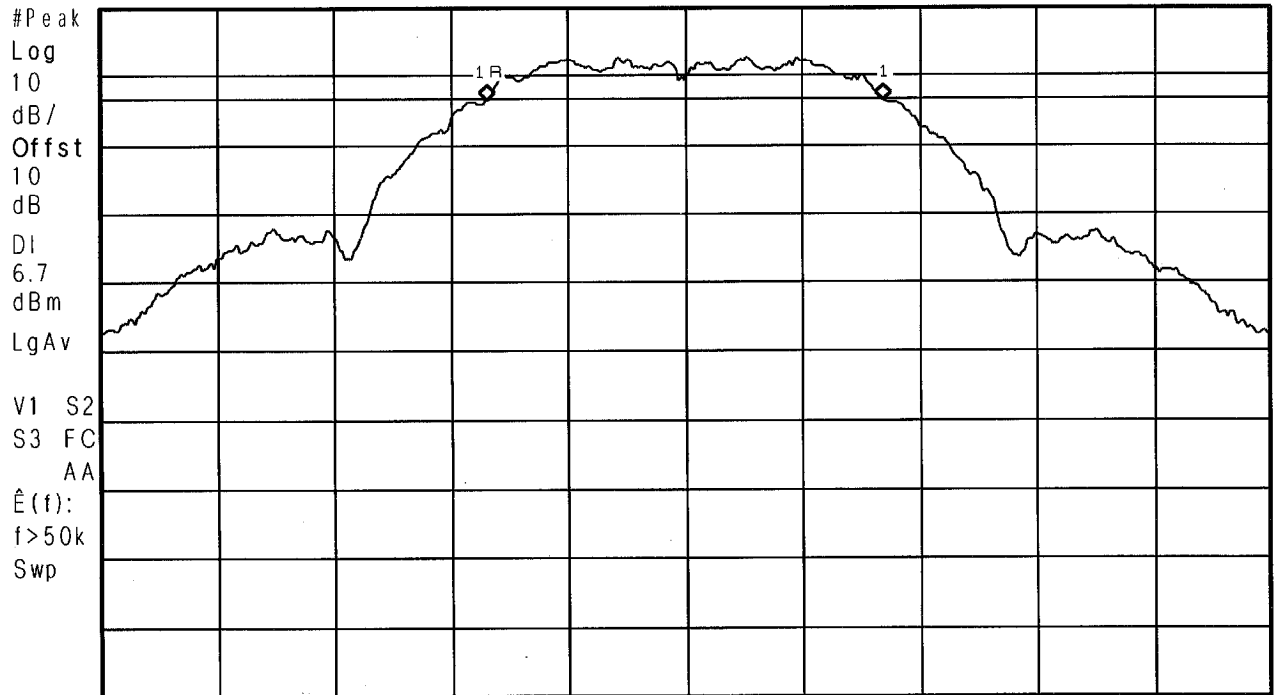
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Δ Mkr1 1.683 MHz

Ref 20 dBm

Atten 20 dB

0.04 dB



Center 2.405 000 GHz

Span 5 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1 ms (601 pts)



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Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Occupied Bandwidth
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS) signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	November 8 th , 2017
Temp/ Relative Humidity:	20.5 °C / 62 %
Notes:	6dB Bandwidth: 1.683 MHz

Agilent 08:39:27 Oct 2, 2037

Δ Mkr1 1.683 MHz
-0.18 dB

Ref 20 dBm

Atten 20 dB

#Peak
Log
10
dB/
Offst
10
dB
DI
6.3
dBm
LgAv

V1 S2
S3 FC
AA
Ê(f):
f>50k
Swp



Center 2.440 000 GHz

Span 5 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1 ms (601 pts)



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EMISSIONS TEST DATA SHEET

Method:	Occupied Bandwidth
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS) signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	November 8 th , 2017
Temp/ Relative Humidity:	20.5 °C / 62 %
Notes:	6dB Bandwidth: 1.675 MHz

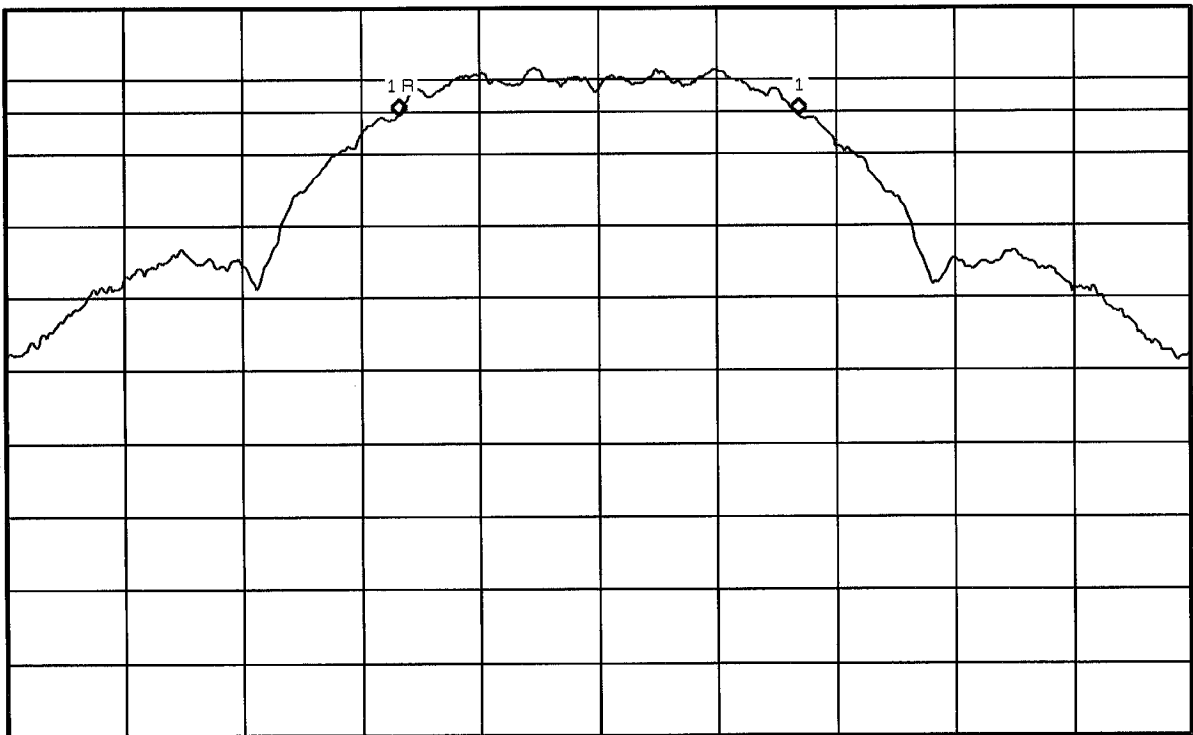
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Δ Mkr1 1.675 MHz
-0.17 dB

Ref 20 dBm

Atten 20 dB

#Peak
Log
10
dB/
Offst
10
dB
DI
5.6
dBm
LgAv
M1 S2
S3 FC
AA
Ê(f):
f>50k
Swp



Center 2.480 000 GHz

Span 5 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1 ms (601 pts)



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Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Occupied Bandwidth
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	November 8 th , 2017
Temp/ Relative Humidity:	20.5 °C / 62 %
Notes:	6dB Bandwidth: 2.275 MHz

Agilent 08:55:57 Oct 2, 2037

Δ Mkr1 2.275 MHz

0.02 dB

Ref 20 dBm

Atten 20 dB

#Peak

Log

10

dB/

Offst

10

dB

DI

8.9

dBm

LgAv

M1 S2

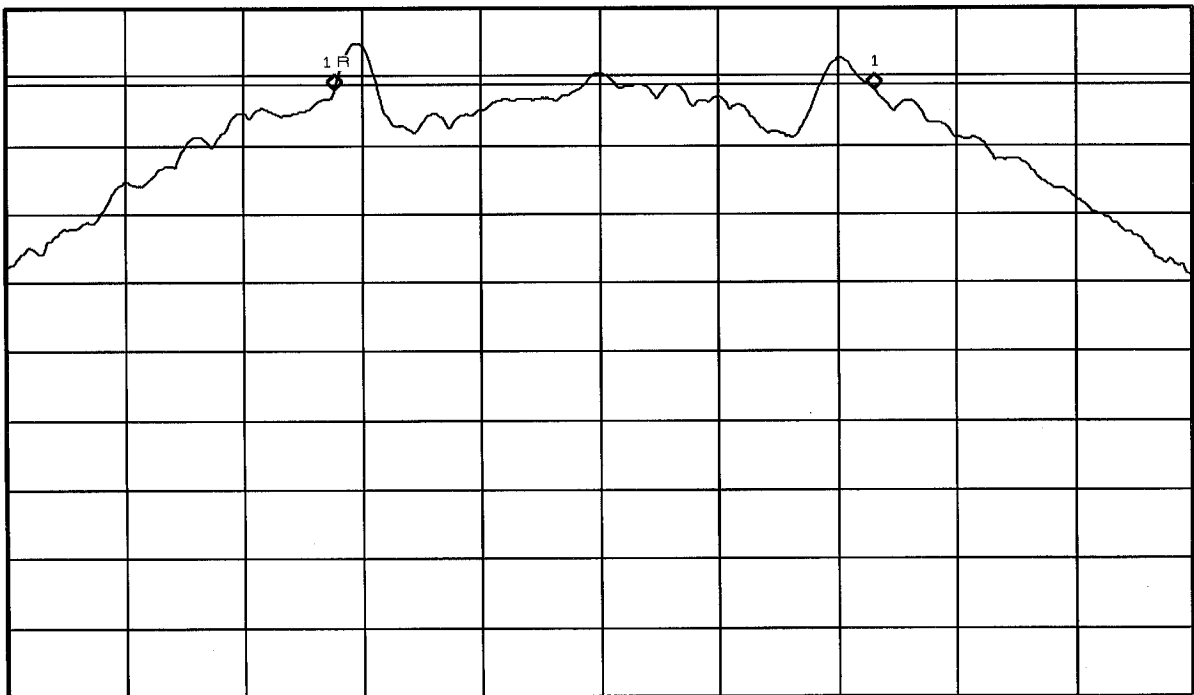
S3 FC

AA

Ê (1):

f>50k

Swp



Center 2.405 000 GHz

Span 5 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1 ms (601 pts)



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EMISSIONS TEST DATA SHEET

Method:	Occupied Bandwidth
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	November 8 th , 2017
Temp/ Relative Humidity:	20.5 °C / 62 %
Notes:	6dB Bandwidth: 2.275 MHz

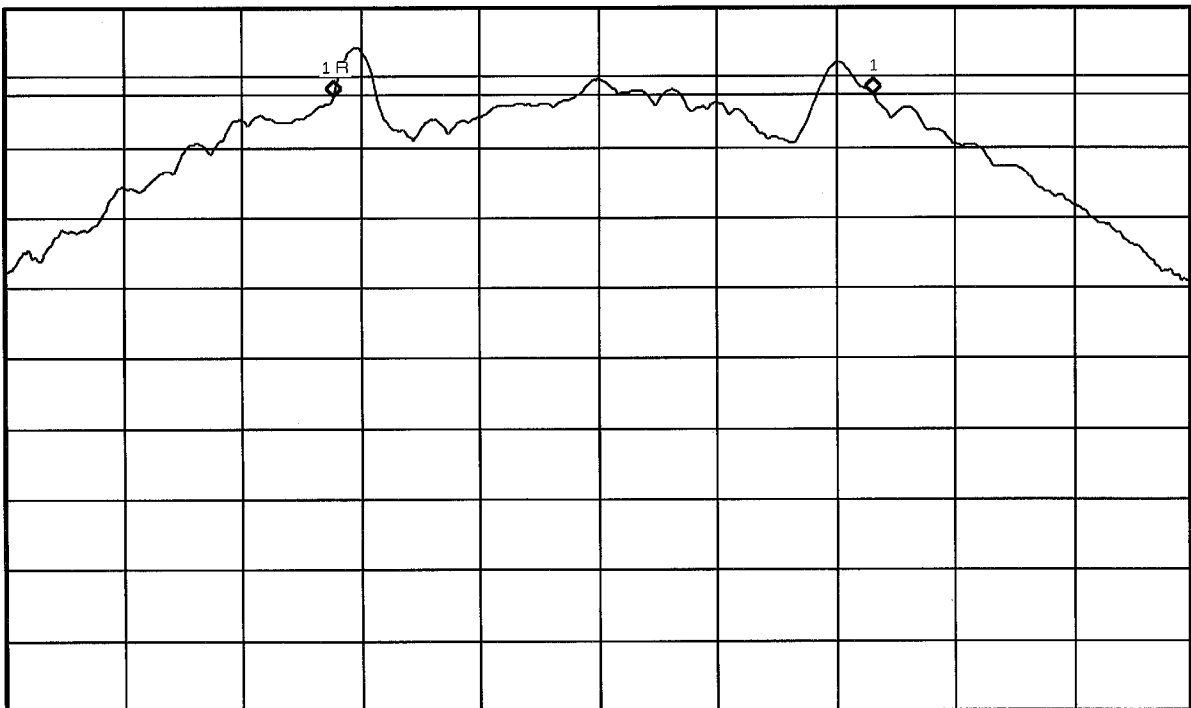
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Δ Mkr1 2.275 MHz
0.13 dB

Ref 20 dBm

Atten 20 dB

#Peak
Log
10
dB/
Offst
10
dB
DI
7.6
dBm
LgAv
V1 S2
S3 FC
AA
Ê(f):
f>50k
Swp



Center 2.440 000 GHz

Span 5 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1 ms (601 pts)



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

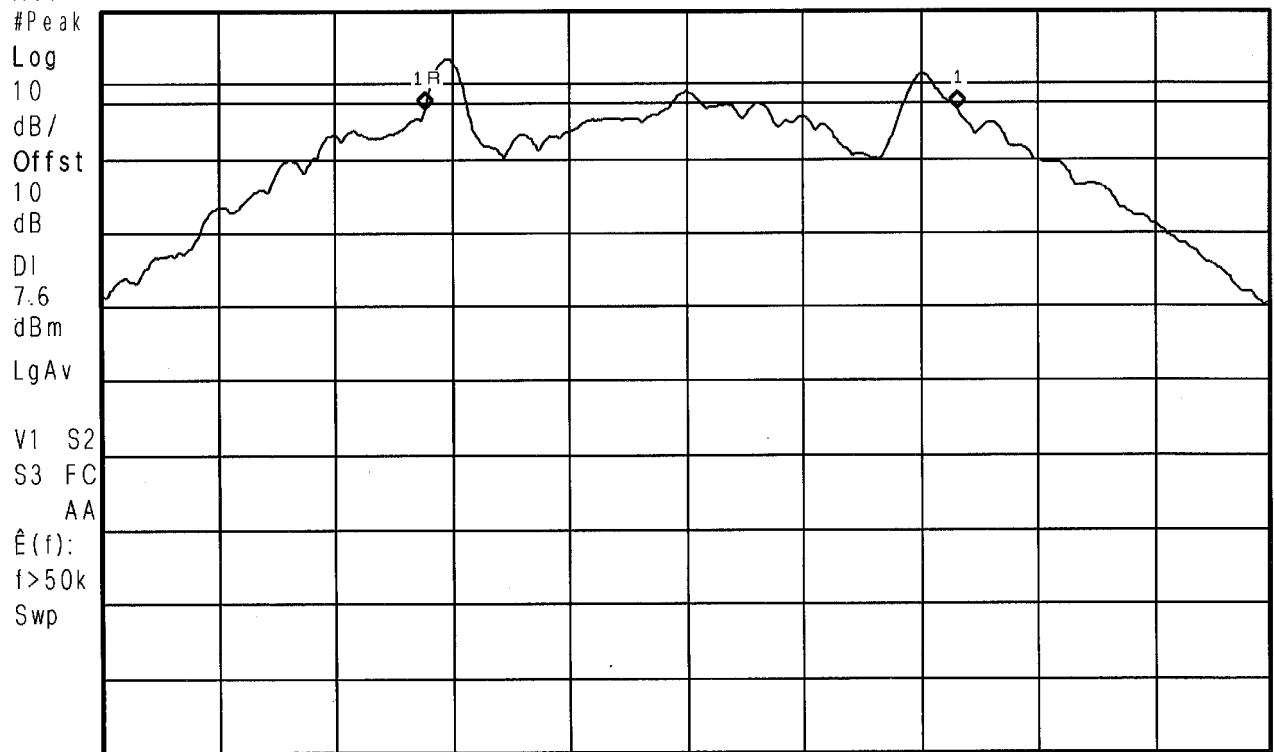
Method:	Occupied Bandwidth
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	November 8 th , 2017
Temp/ Relative Humidity:	20.5 °C / 62 %
Notes:	6dB Bandwidth: 2.275 MHz

Agilent 08:49:01 Oct 2, 2037

Δ Mkr1 2.275 MHz
-0.05 dB

Ref 20 dBm

Atten 20 dB



Center 2.480 000 GHz

Span 5 MHz

#Res BW 100 kHz

#VBW 300 kHz

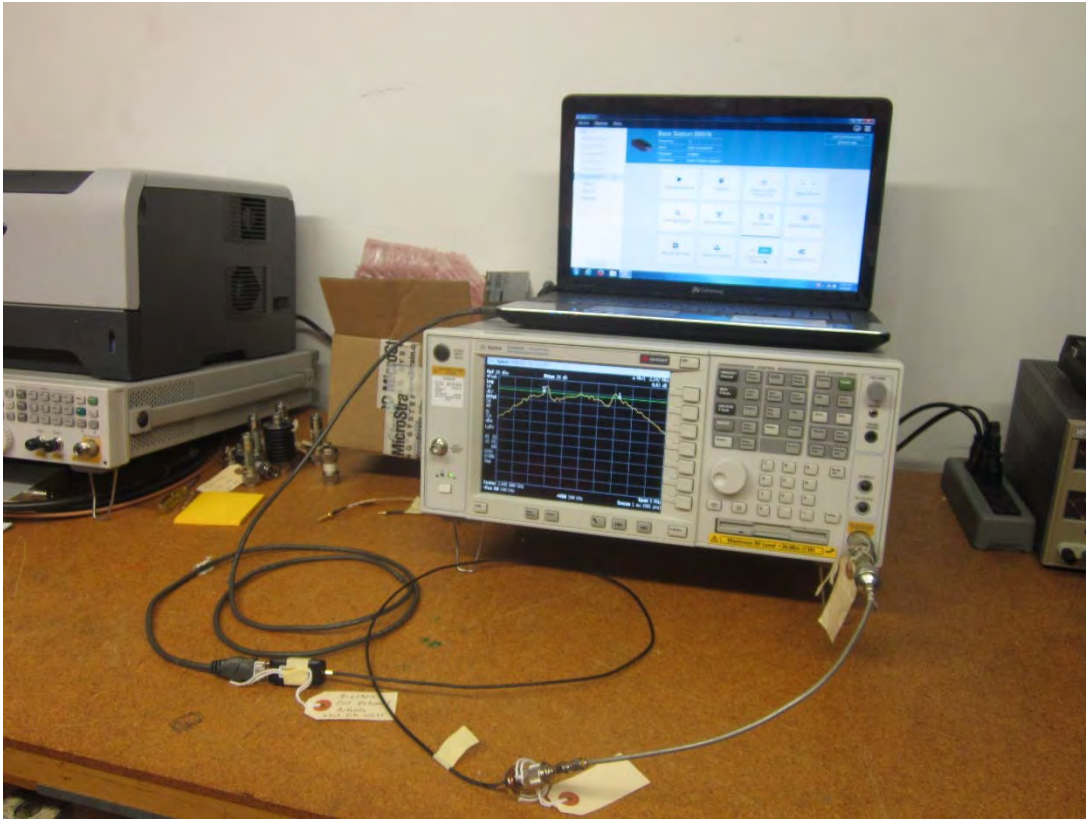
Sweep 1 ms (601 pts)



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Test Photographs Power Output



Test Setup



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**FCC Section 15.247 (b)(3)
Power Output
Test Data**

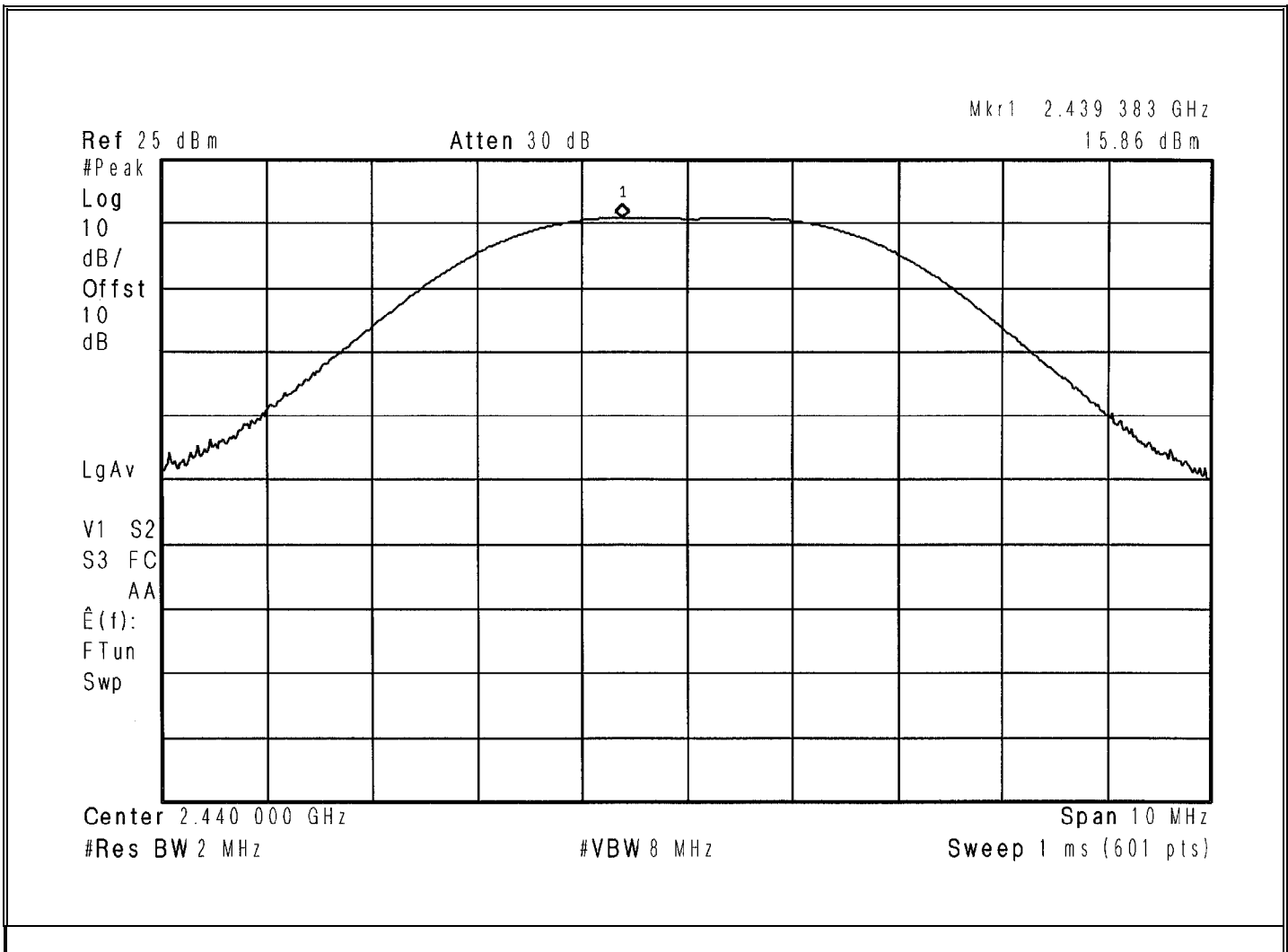


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Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Peak Power Output
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS) signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	November 8 th , 2017
Temp/ Relative Humidity:	20.5 °C / 62 %
Notes:	KDB Method: 9.1.1, Power Output: 15.86 dBm

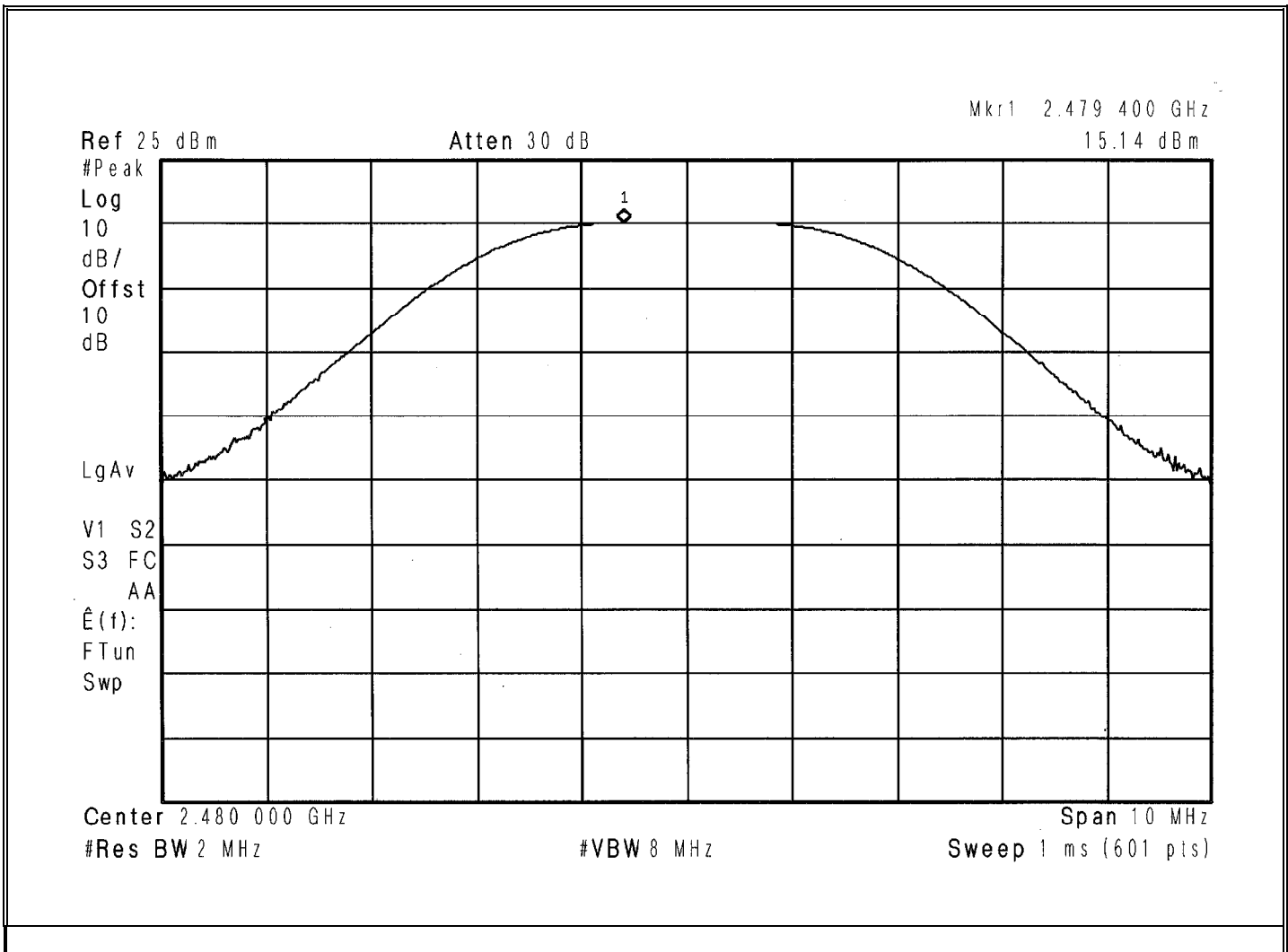


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EMISSIONS TEST DATA SHEET

Method:	Peak Power Output
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS) signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	November 8 th , 2017
Temp/ Relative Humidity:	20.5 °C / 62 %
Notes:	KDB Method: 9.1.1, Power Output: 15.14 dBm

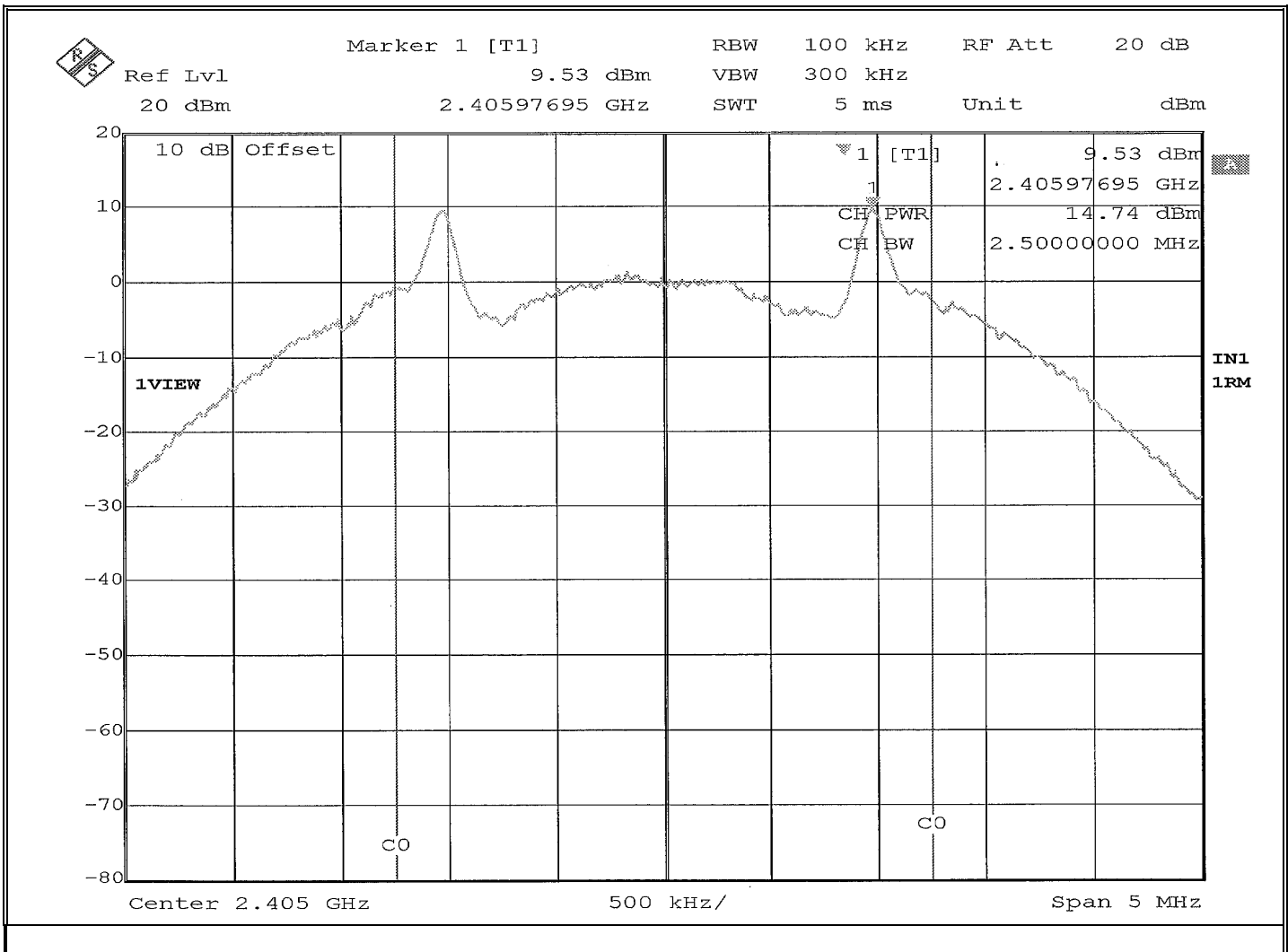


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EMISSIONS TEST DATA SHEET

Method:	Power Output
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	21 °C / 65 %
Notes:	KDB Method: 9.2.2.2, Power Output: 14.74 dBm

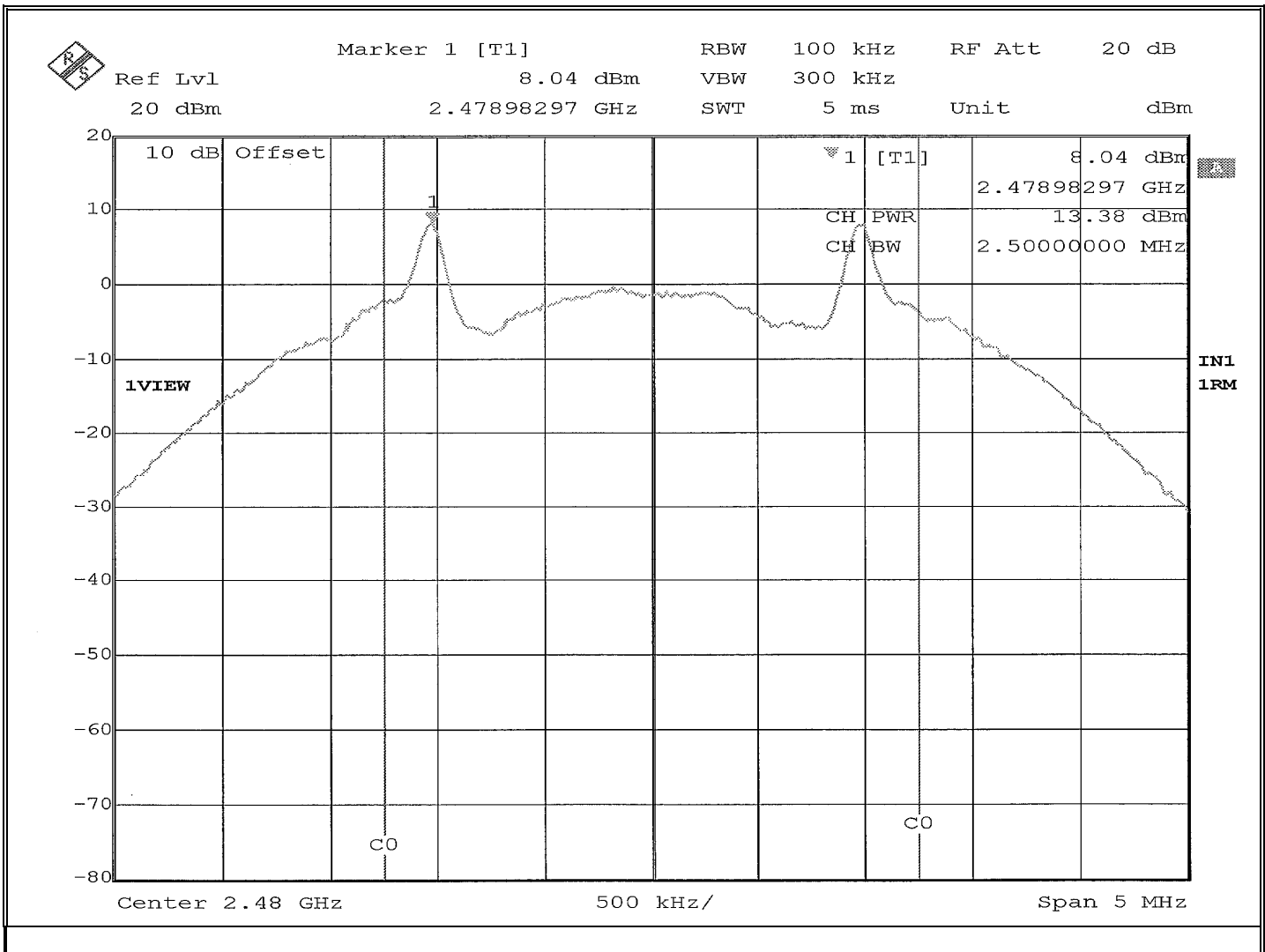


Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Peak Power Output
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	21 °C / 65 %
Notes:	KDB Method: 9.2.2.2, Power Output: 13.38 dBm



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs
Antenna Terminal Out of Band/Band Edge Conducted Emissions



Test Setup



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

FCC Section 15.247 (d)
Antenna Terminal Out of Band/Band Edge Conducted Emissions
Test Data



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

**Out of Band Conducted Emissions
Test Data**

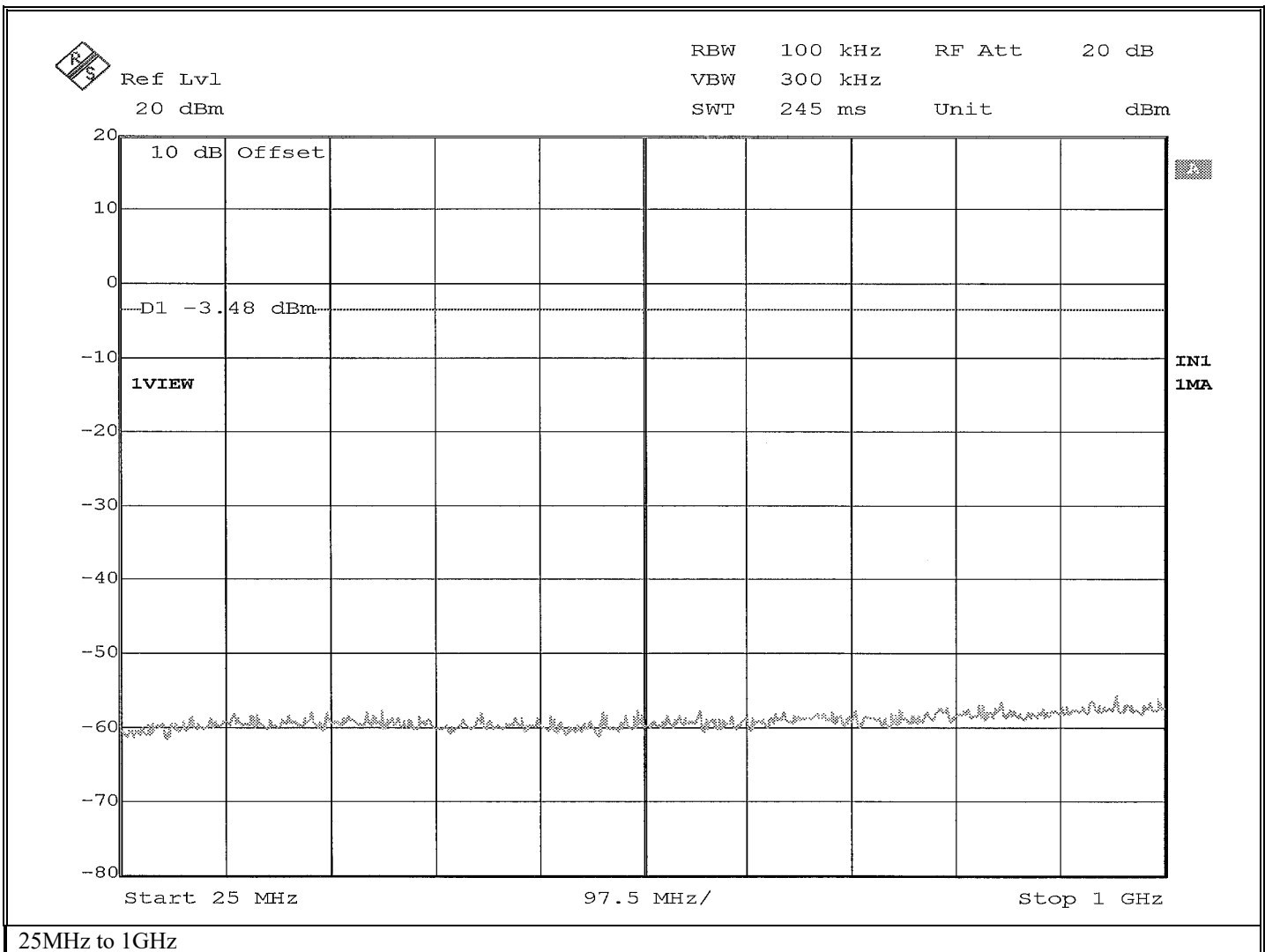


Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Conducted Out of Band
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS) signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 65 %
Notes:	Limit: -3.48 dBm

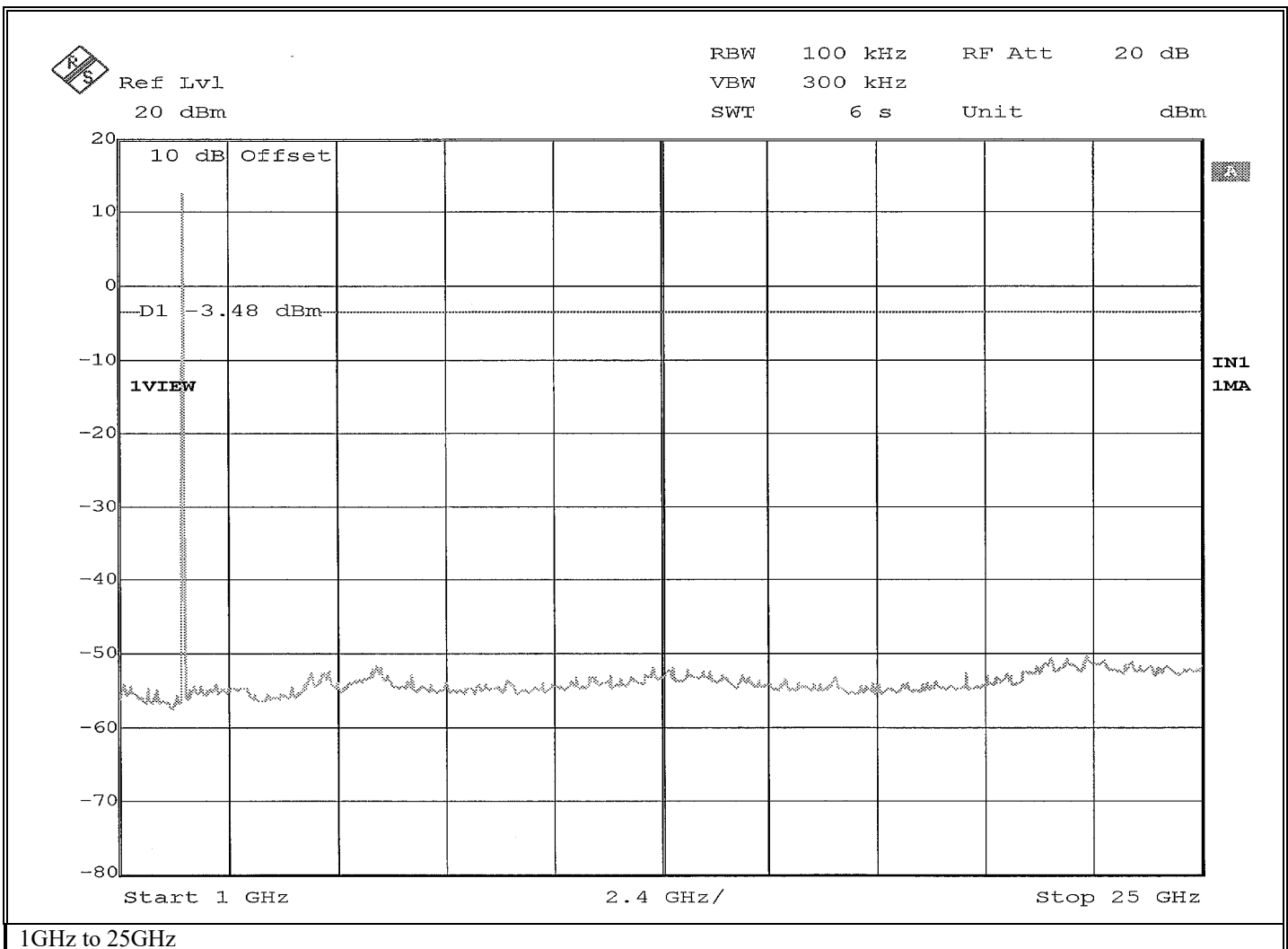


Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Conducted Out of Band
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS) signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 65 %
Notes:	Limit: -3.48 dBm

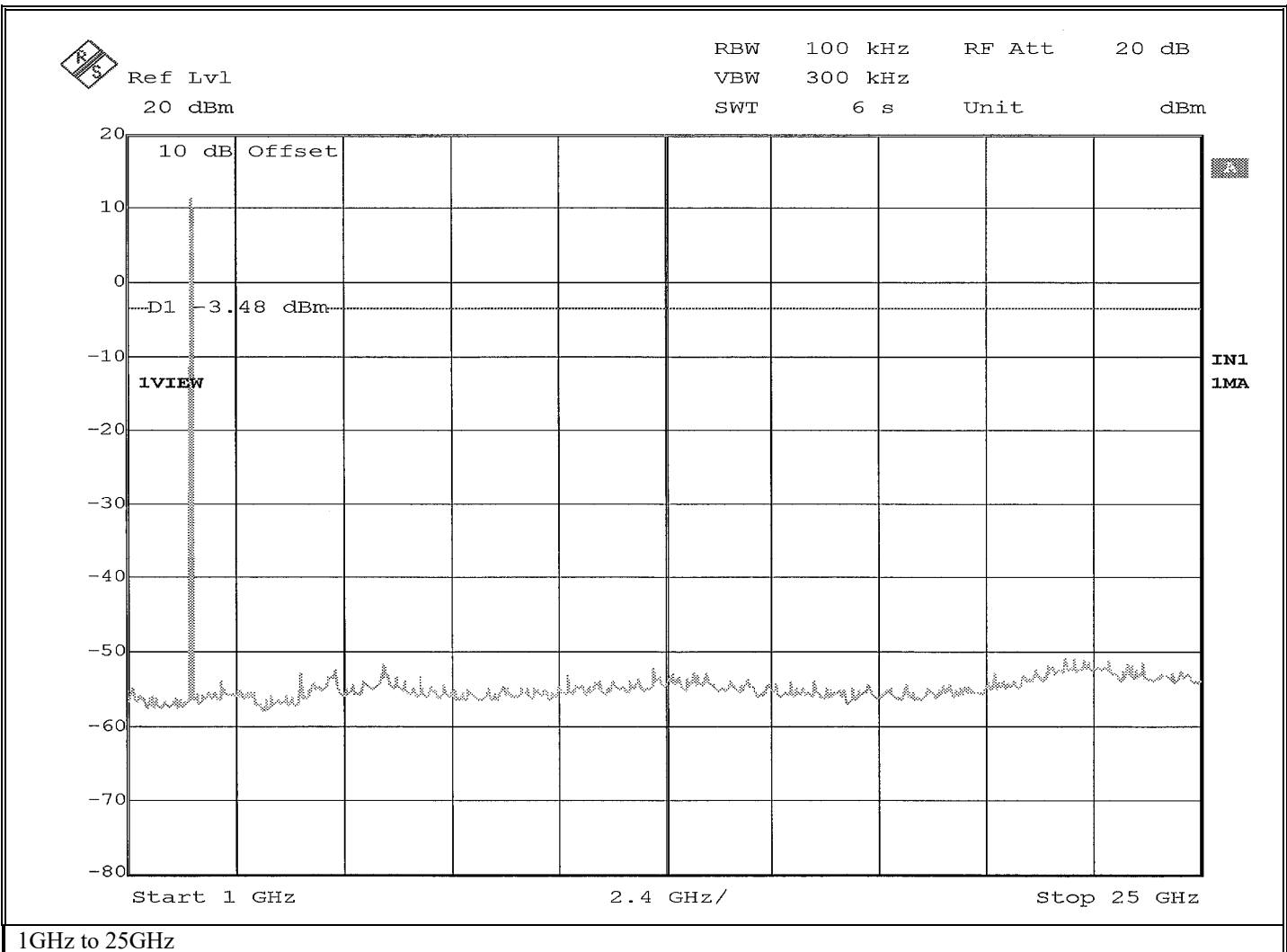


Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Conducted Out of Band
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS) signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 65 %
Notes:	Limit: -3.48 dBm

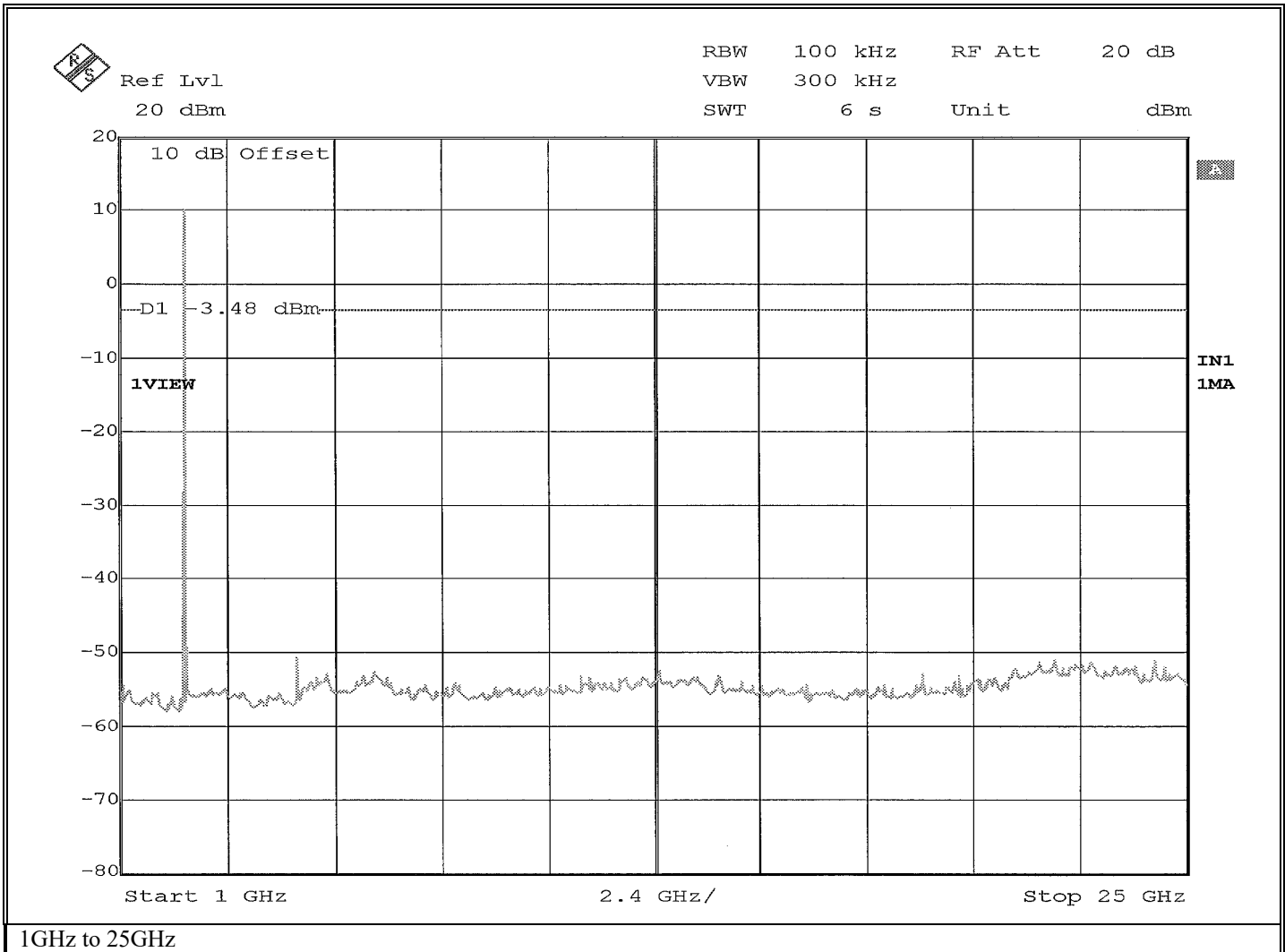


Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Conducted Out of Band
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS) signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 65 %
Notes:	Limit: -3.48 dBm

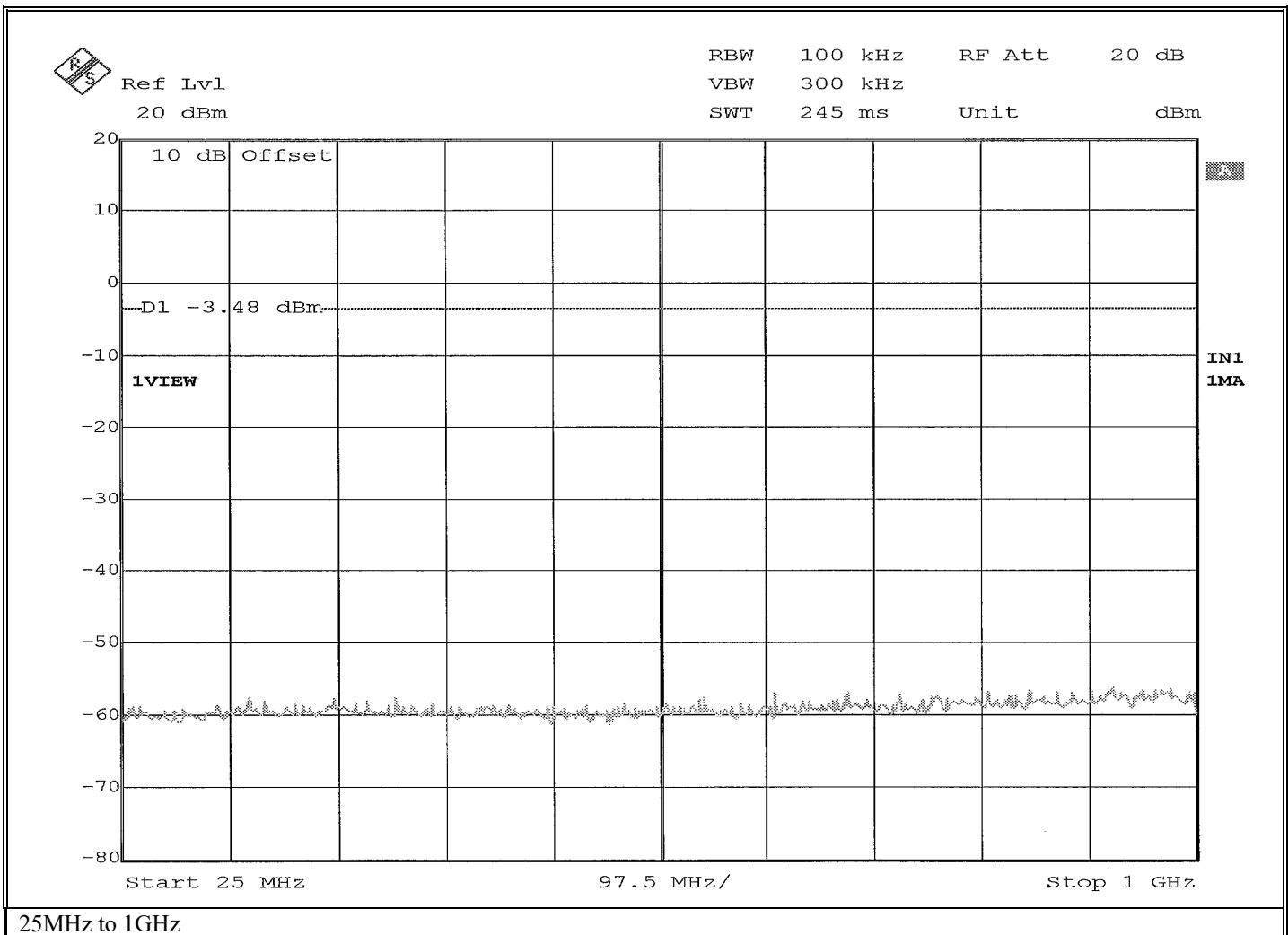


Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Conducted Out of Band
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 65 %
Notes:	Limit: -3.48 dBm

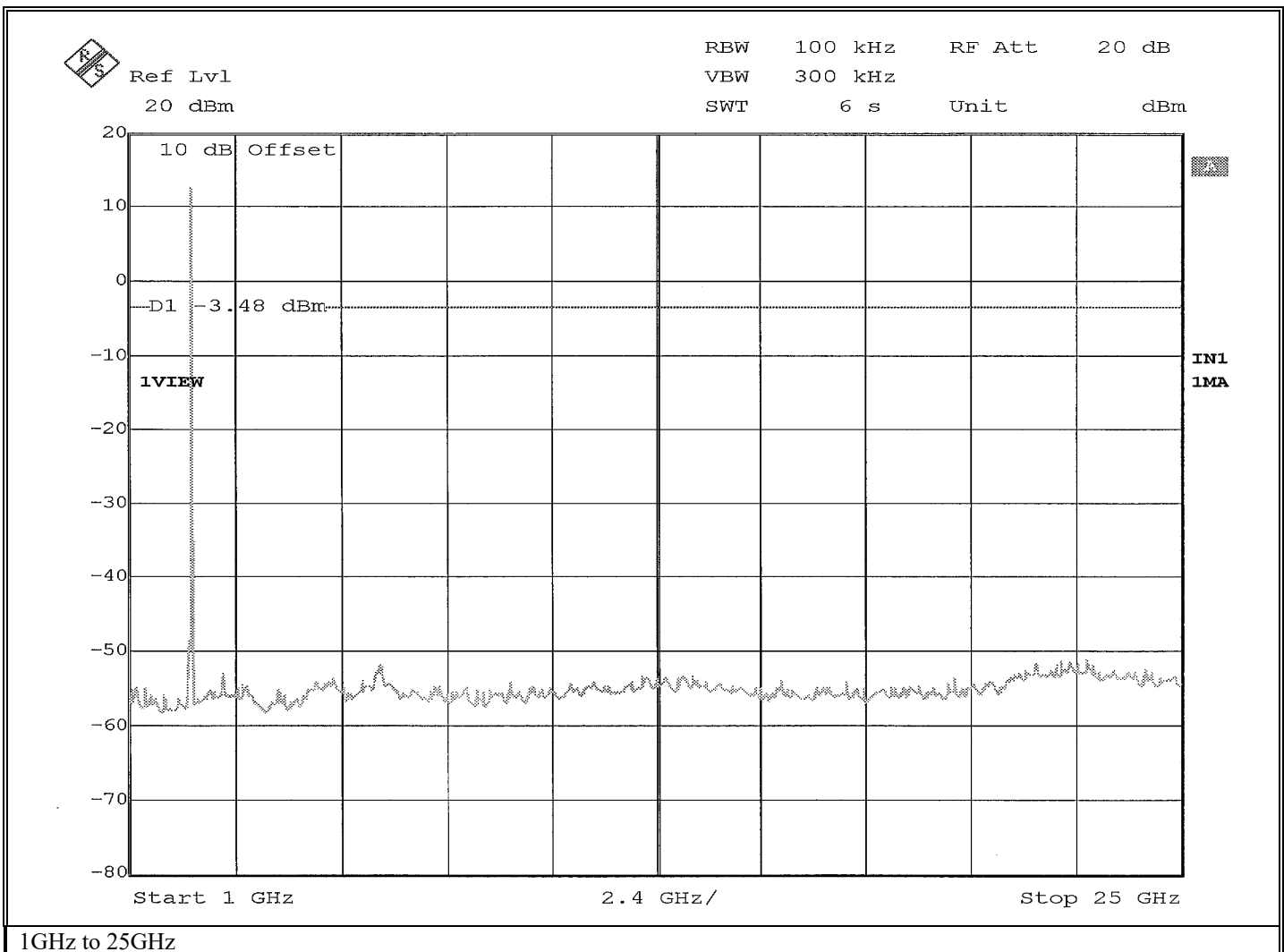


Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Conducted Out of Band
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 65 %
Notes:	Limit: -3.48 dBm

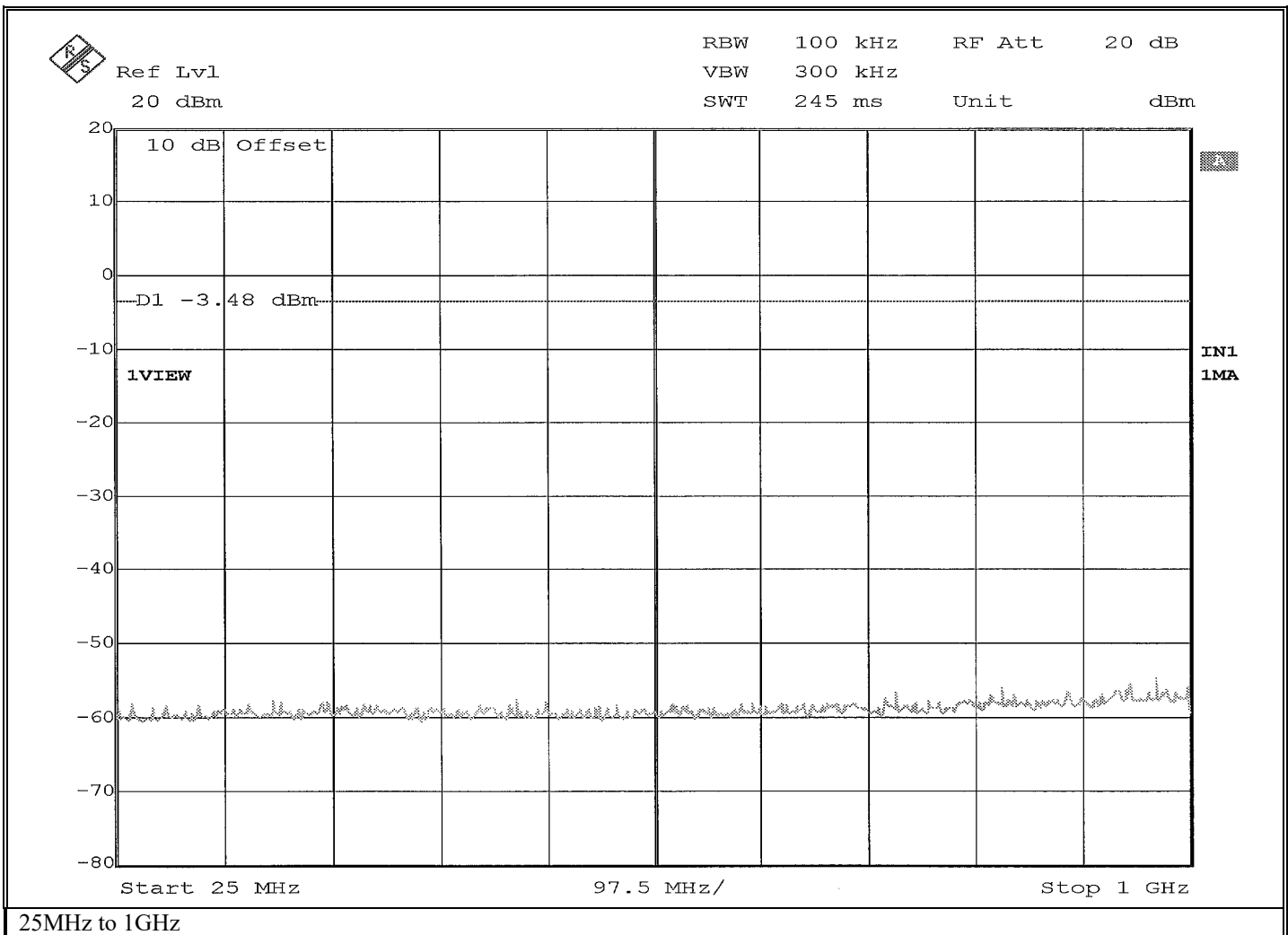


Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Conducted Out of Band
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 65 %
Notes:	Limit: -3.48 dBm

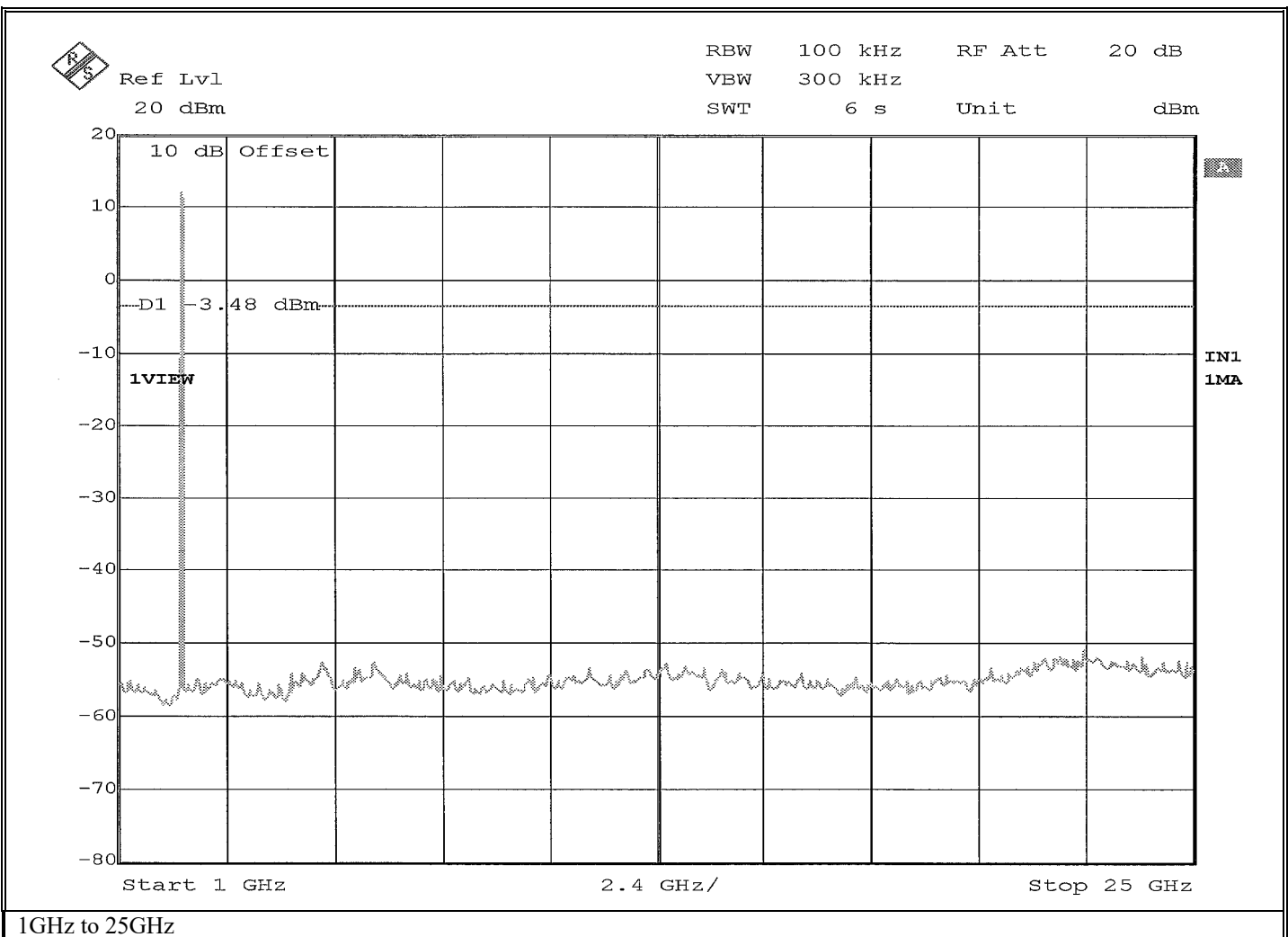


Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Conducted Out of Band
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 65 %
Notes:	Limit: -3.48 dBm

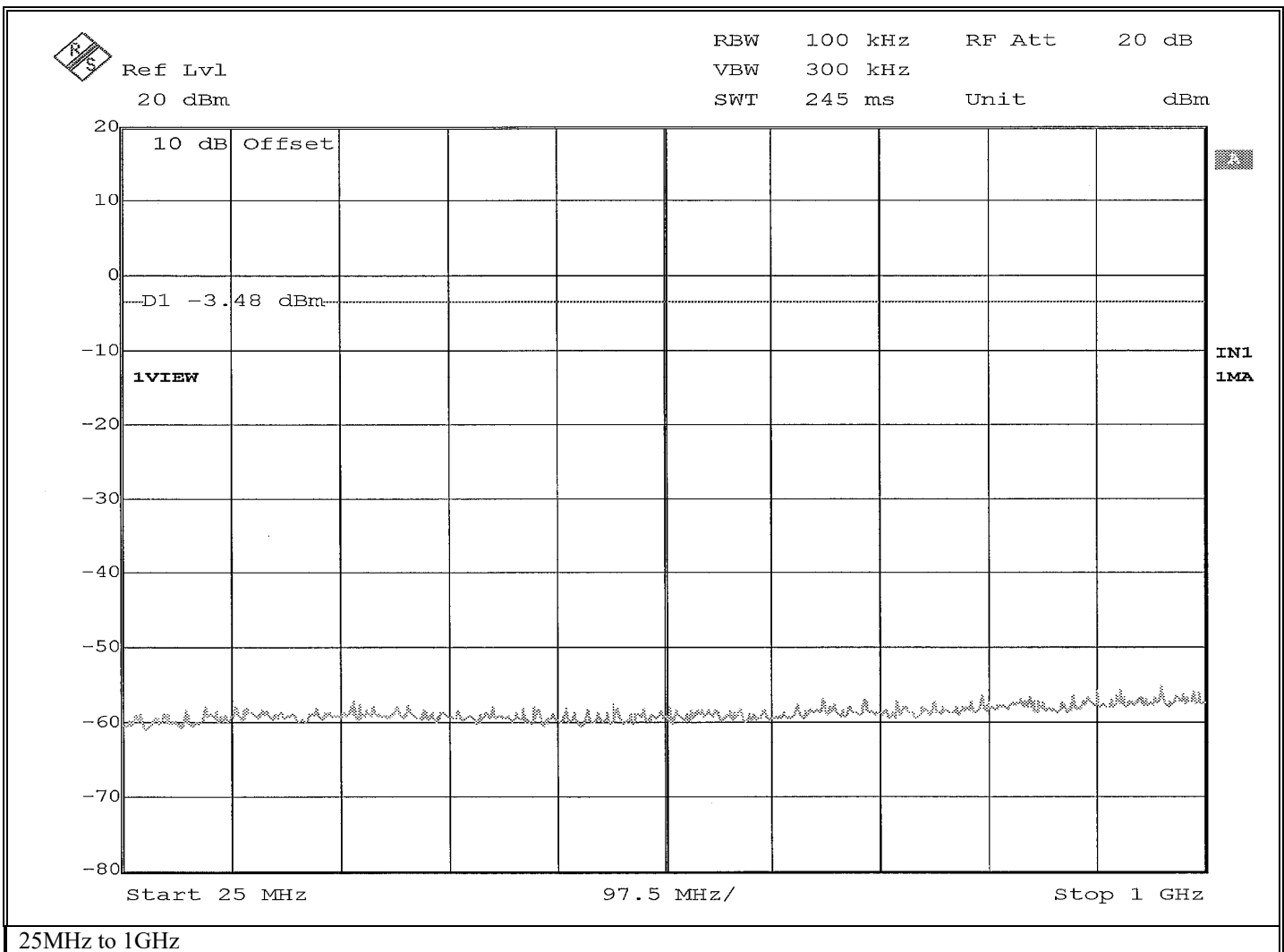


Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Conducted Out of Band
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 65 %
Notes:	Limit: -3.48 dBm

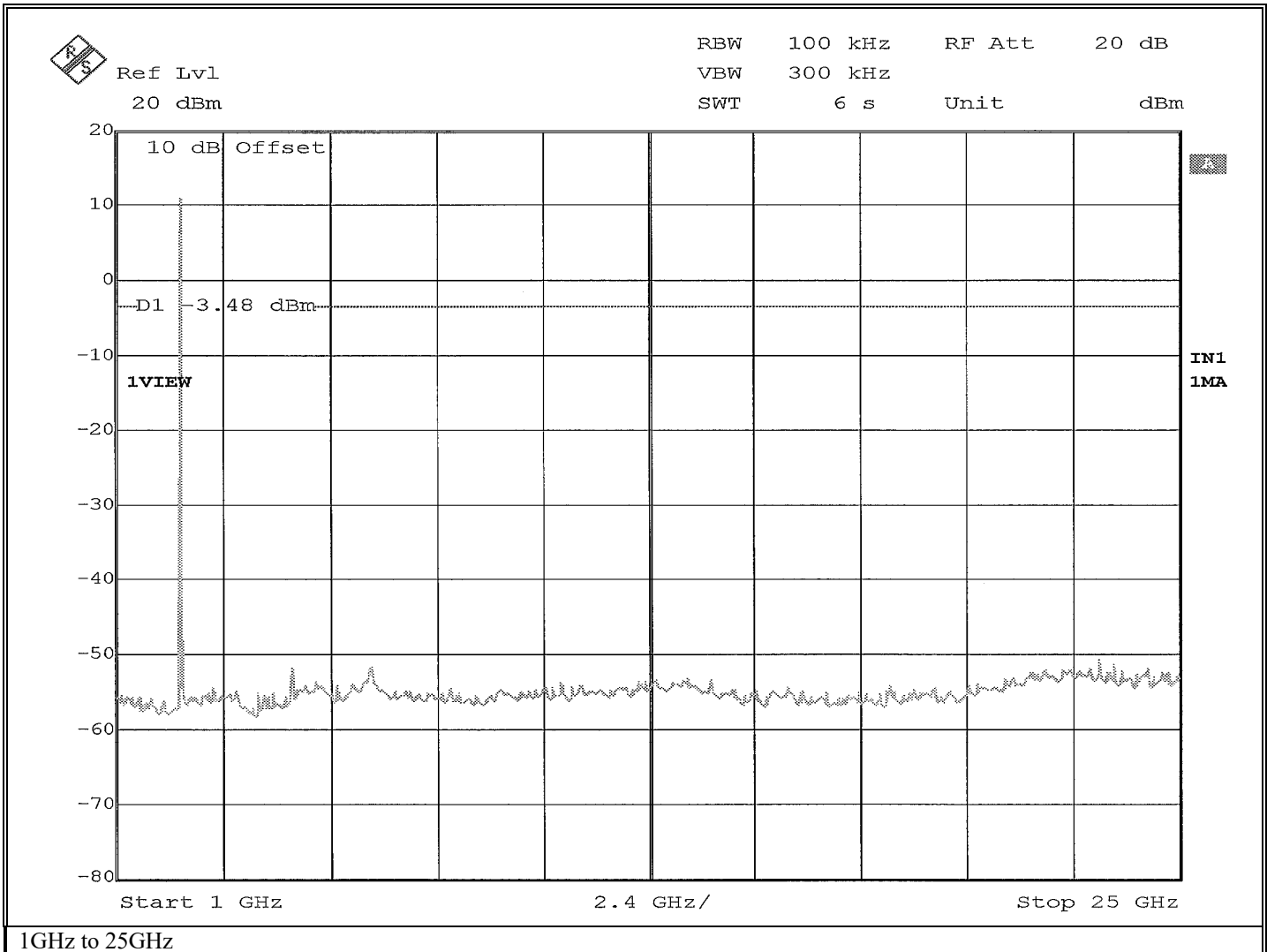


Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Conducted Out of Band
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 65 %
Notes:	Limit: -3.48 dBm



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

**Band Edge Conducted
Test Data**

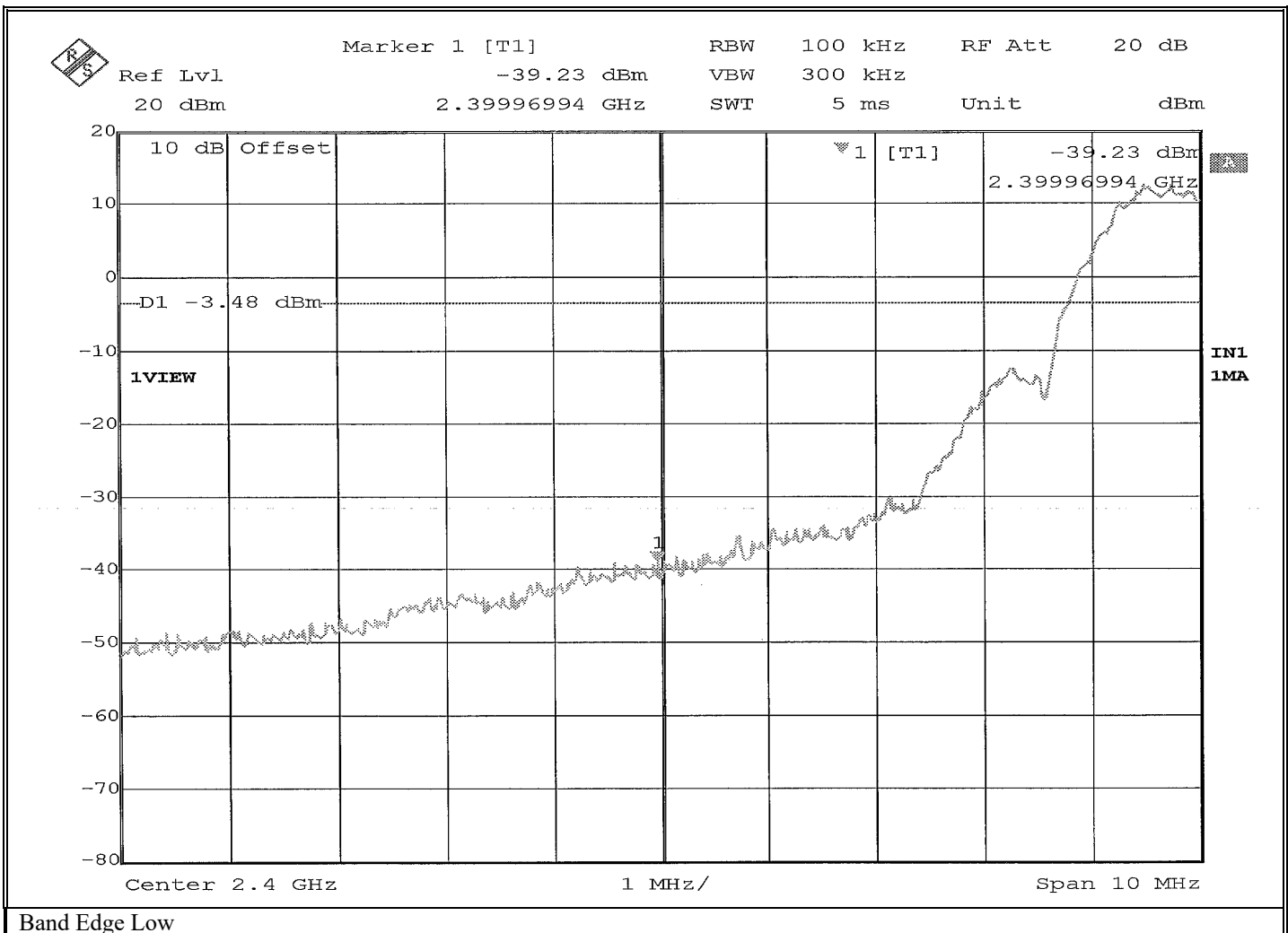


Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Band Edge
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS) signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 65 %
Notes:	Limit: -3.48 dBm

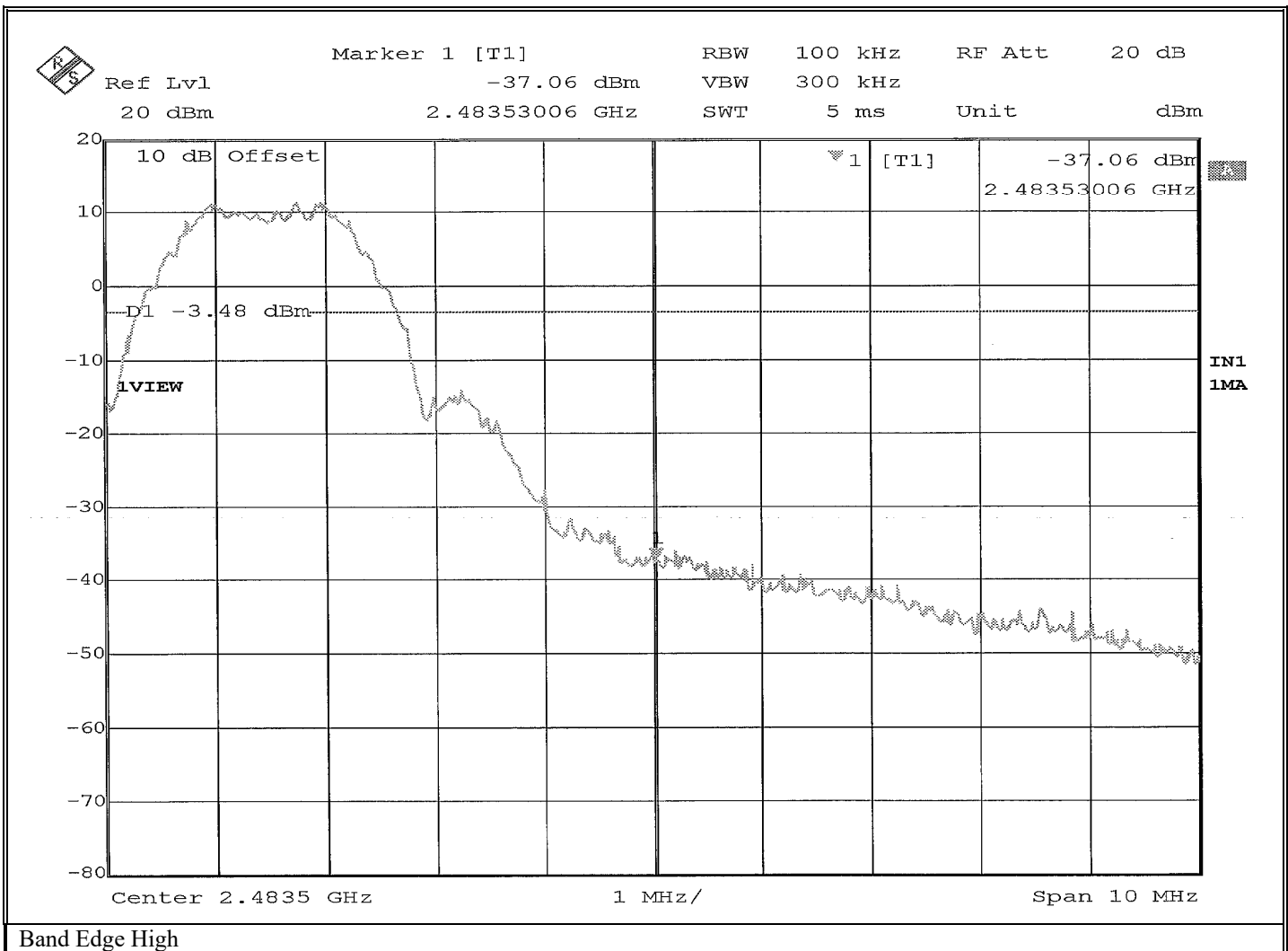


Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Band Edge
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS) signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 65 %
Notes:	Limit: -3.48 dBm

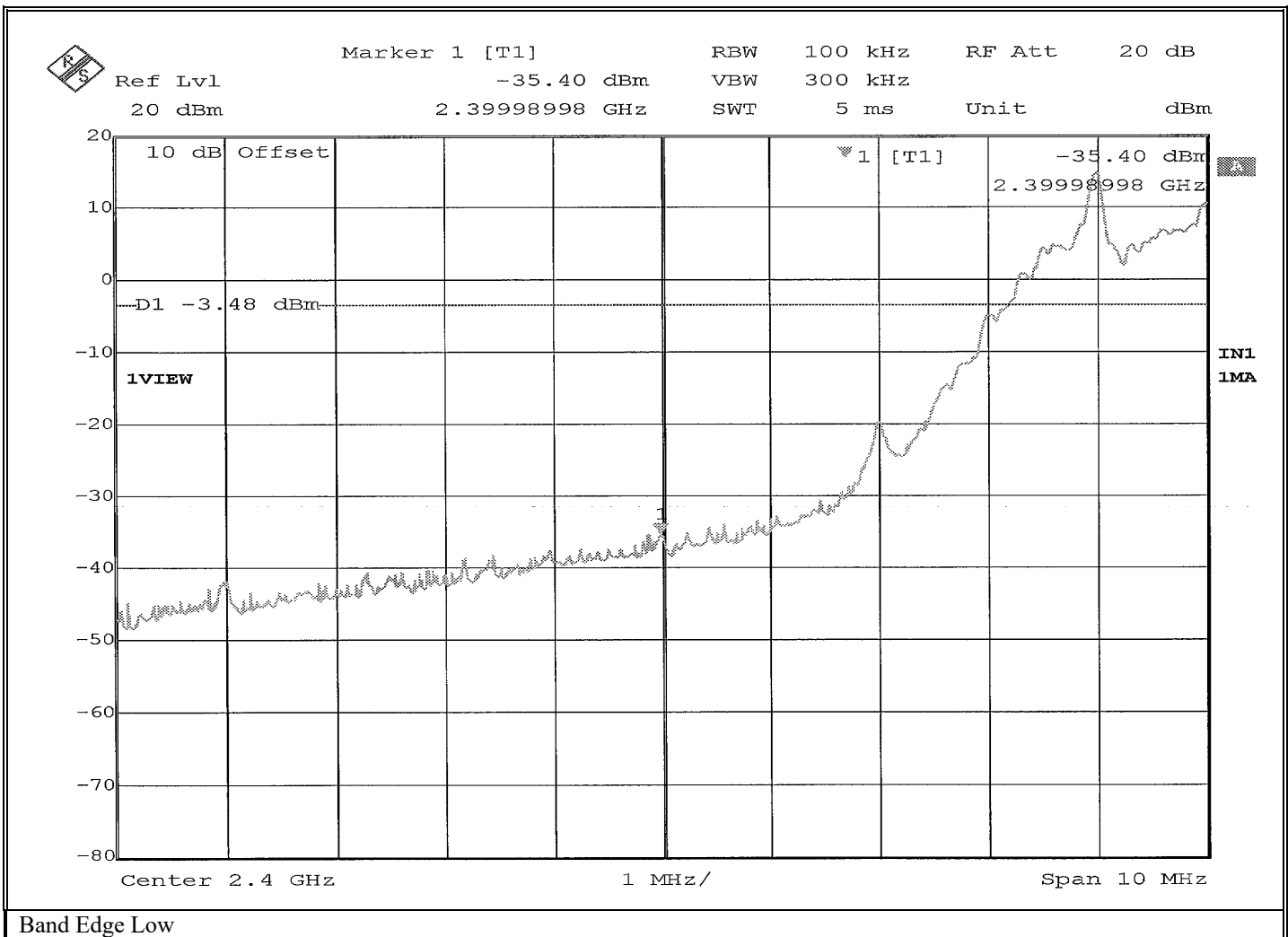


Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Band Edge
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 65 %
Notes:	Limit: -3.48 dBm

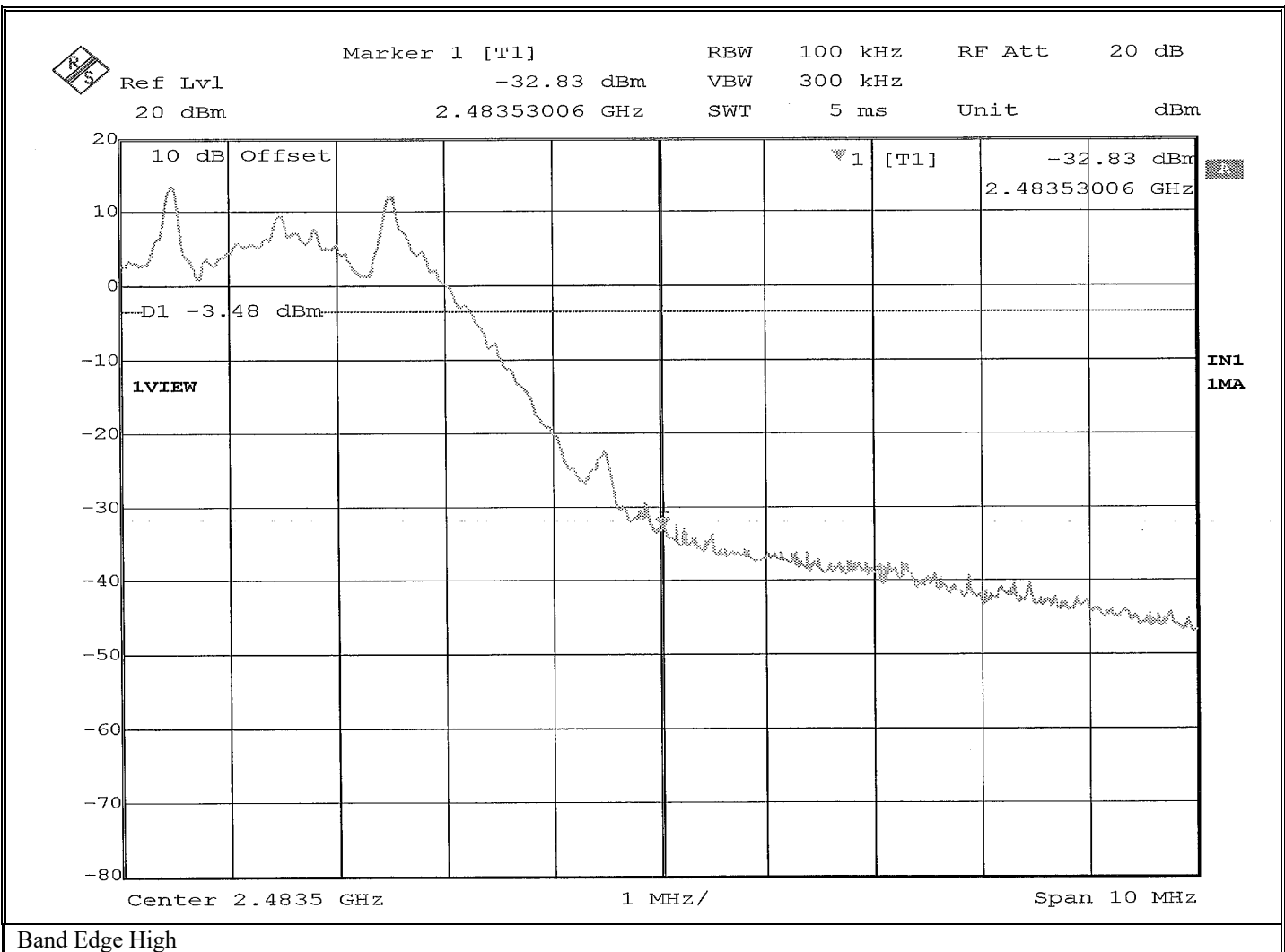


Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

EMISSIONS TEST DATA SHEET

Method:	Band Edge
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 65 %
Notes:	Limit: -3.48 dBm



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

**Test Photographs
Spurious Radiated Emissions**



Internal Antenna Configuration



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs Spurious Radiated Emissions



Horizontal Antenna Polarization, Internal Antenna Configuration, 30 MHz to 200 MHz,
Biconical Antenna



Vertical Antenna Polarization, Internal Antenna Configuration, 30 MHz to 200 MHz,
Biconical Antenna



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs Spurious Radiated Emissions



Horizontal Antenna Polarization, Internal Antenna Configuration, 200 MHz to 1 GHz,
Log Periodic



Vertical Antenna Polarization, Internal Antenna Configuration, 200 MHz to 1 GHz,
Log Periodic



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs
Spurious Radiated Emissions



Laird Antenna & 1 m Cable Configuration



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs Spurious Radiated Emissions



Horizontal Antenna Polarization, Laird Antenna & 1 m Cable Configuration,
30 MHz to 200 MHz, Biconical Antenna



Vertical Antenna Polarization, Laird Antenna & 1 m Cable Configuration,
30 MHz to 200 MHz, Biconical Antenna



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs Spurious Radiated Emissions



Horizontal Antenna Polarization, Laird Antenna & 1 m Cable Configuration,
200 MHz to 1 GHz, Log Periodic



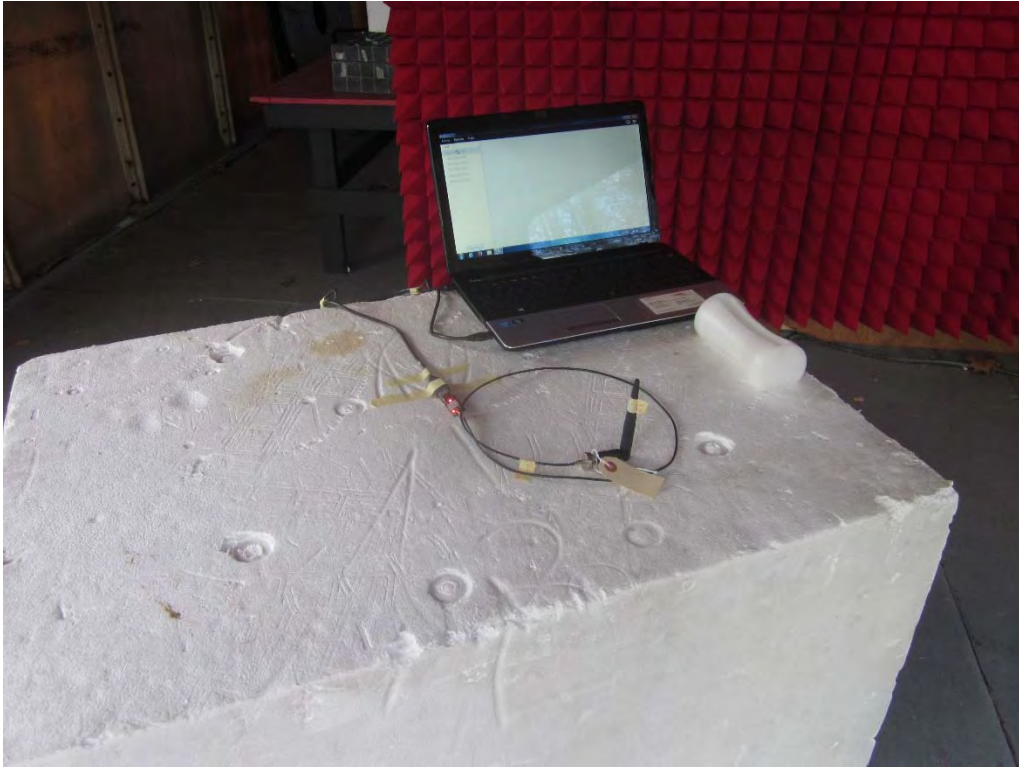
Vertical Antenna Polarization, Laird Antenna & 1 m Cable Configuration,
200 MHz to 1 GHz, Log Periodic



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs
Spurious Radiated Emissions



L-Com Antenna & 1m Cable Configuration



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs Spurious Radiated Emissions



Horizontal Antenna Polarization, L-Com Antenna & 1m Cable, 30 MHz to 200 MHz,
Biconical Antenna



Vertical Antenna Polarization, L-Com Antenna & 1m Cable, 30 MHz to 200 MHz,
Biconical Antenna



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs Spurious Radiated Emissions



Horizontal Antenna Polarization, L-Com Antenna & 1m Cable, 200 MHz to 1 GHz,
Log Periodic



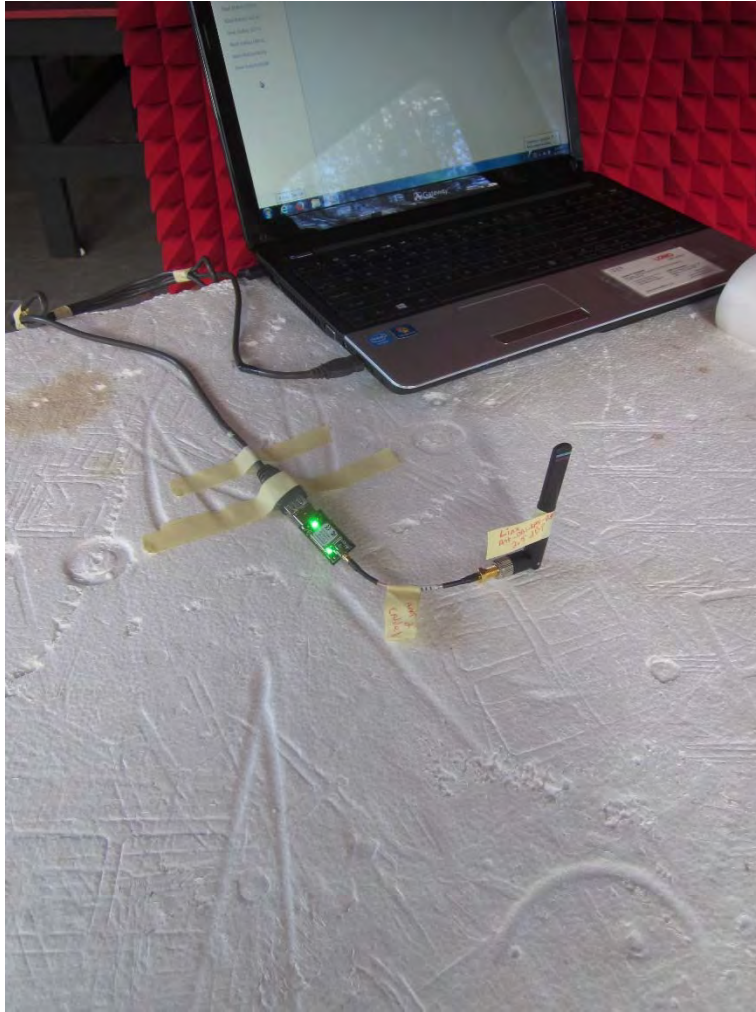
Vertical Antenna Polarization, L-Com Antenna & 1m Cable, 200 MHz to 1 GHz,
Log Periodic



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs Spurious Radiated Emissions



Linx Antenna & 3" Cable Configuration



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs Spurious Radiated Emissions



Horizontal Antenna Polarization, Linx Antenna & 3" Cable Configuration,
30 MHz to 200 MHz, Biconical Antenna



Vertical Antenna Polarization, Linx Antenna & 3" Cable Configuration,
30 MHz to 200 MHz, Biconical Antenna



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs Spurious Radiated Emissions



Horizontal Antenna Polarization, Linx Antenna & 3 Cable Configuration, 200 MHz to 1 GHz,
Log Periodic



Vertical Antenna Polarization, Linx Antenna & 3 Cable Configuration, 200 MHz to 1 GHz,
Log Periodic



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

**Test Photographs
Spurious Radiated Emissions**



Linx Antenna & 12" Cable Configuration



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs Spurious Radiated Emissions



Horizontal Antenna Polarization, Linx Antenna & 12" Cable Configuration,
30 MHz to 200 MHz, Biconical Antenna



Vertical Antenna Polarization, Linx Antenna & 12" Cable Configuration,
30 MHz to 200 MHz, Biconical Antenna



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs Spurious Radiated Emissions



Horizontal Antenna Polarization, Linx Antenna & 12" Cable Configuration,
200 MHz to 1 GHz, Log Periodic



Vertical Antenna Polarization, Linx Antenna & 12" Cable Configuration, 200 MHz to 1 GHz,
Log Periodic



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

**Test Photographs
Spurious Radiated Emissions**



MMCX Antenna Configuration



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs Spurious Radiated Emissions



Horizontal Antenna Polarization, MMCX Antenna Configuration, 30 MHz to 200 MHz,
Biconical Antenna



Vertical Antenna Polarization, MMCX Antenna Configuration, 30 MHz to 200 MHz,
Biconical Antenna



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs Spurious Radiated Emissions



Horizontal Antenna Polarization, MMCX Antenna Configuration, 200 MHz to 1 GHz,
Log Periodic



Vertical Antenna Polarization, MMCX Antenna Configuration, 200 MHz to 1 GHz,
Log Periodic



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs Spurious Radiated Emissions



1 to 18 GHz, Horizontal Antenna Polarization



1 to 18 GHz, Vertical Antenna Polarization



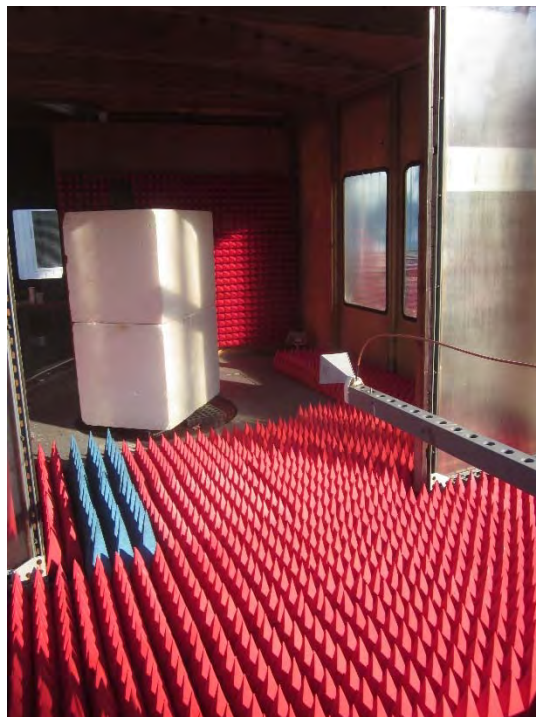
Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

Test Photographs Spurious Radiated Emissions



18 to 25 GHz, Horizontal Antenna Polarization



18 to 25 GHz, Vertical Antenna Polarization



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

**Test Photographs
Spurious Radiated Emissions**



Substitution Antenna



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

**FCC Section 15.247 (d)
Out of Band/Band Edge Radiated Emissions
Test Data**



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0017a	
Serial Number	3022-0017-00003	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Internal Antenna Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
 LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m
37.50	-	-	-	-		-	100.00
	38.00	9.10	14.20	23.30	*	14.62	I
38.25	-	-	-	-		-	100.00
73.00	-	-	-	-		-	100.00
	74.00	16.94	8.36	25.30	*	18.41	I
74.60	-	-	-	-		-	100.00
74.80	-	-	-	-		-	100.00
	75.00	12.64	8.36	21.00	*	11.22	
75.20	-	-	-	-		-	100.00
108.00	-	-	-	-		-	150.00
	115.00	7.28	10.02	17.30	*	7.33	
	-	-	-	-		-	
121.94	-	-	-	-		-	150.00
123.00	-	-	-	-		-	150.00
	130.00	6.36	9.44	15.80	*	6.17	
	-	-	-	-		-	
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

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0017a	
Serial Number	3022-0017-00003	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Internal Antenna Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
 LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	5.43	11.17	16.60	*		6.76	
150.05	-	-	-	-			-	150.00
156.52	-	-	-	-			-	150.00
	156.52	4.52	12.08	16.60	*		6.76	
156.52	-	-	-	-			-	150.00
156.70	-	-	-	-			-	150.00
	156.80	5.38	12.12	17.50	*		7.50	
156.90	-	-	-	-			-	150.00
162.01	-	-	-	-			-	150.00
	165.00	5.92	12.68	18.60	*		8.51	
167.17	-	-	-	-			-	150.00
167.72	-	-	-	-			-	150.00
	170.00	5.10	12.80	17.90	*		7.85	
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

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0017a	
Serial Number	3022-0017-00003	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Internal Antenna Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
 LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	-0.65	16.85	16.20	*		6.46	
285.00	-	-	-	-			-	200.00
322.80	-	-	-	-			-	200.00
	330.00	2.99	18.91	21.90	*		12.45	
335.40	-	-	-	-			-	200.00
399.90	-	-	-	-			-	200.00
	405.00	1.51	21.49	23.00	*		14.13	
410.00	-	-	-	-			-	200.00
608.00	-	-	-	-			-	200.00
	611.00	-3.84	27.34	23.50	*		14.96	
614.00	-	-	-	-			-	200.00
960.00	-	-	-	-			-	500.00
	975.00	-0.60	32.10	31.50	*		37.58	
1240.00	-	-	-	-			-	500.00
1300.00	-	-	-	-			-	500.00
	1350.00	32.84	-9.40	23.44	*		14.86	
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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0017a	
Serial Number	3022-0017-00003	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Internal Antenna Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
 LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading			Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m			uV/m	uV/m
1435.00	-	-	-	-			-	500.00
	1500.00	33.82	-8.64	25.18	*		18.16	
1646.50	-	-	-	-			-	500.00
1660.00	-	-	-	-			-	500.00
	1680.00	32.80	-7.65	25.15	*		18.09	
1710.00	-	-	-	-			-	500.00
1718.80	-	-	-	-			-	500.00
	1720.00	32.40	-5.78	26.62	*		21.43	
1722.20	-	-	-	-			-	500.00
2200.00	-	-	-	-			-	500.00
	2250.00	32.60	-5.46	27.14	*		22.75	
2300.00	-	-	-	-			-	500.00
2310.00	-	-	-	-			-	500.00
	2360.00	32.06	-5.46	26.60	*		21.38	
2390.00	-	-	-	-			-	500.00
2483.50	-	-	-	-			-	500.00
	2490.00	32.36	-5.11	27.25	*		23.04	
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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0017a	
Serial Number	3022-0017-00003	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Internal Antenna Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
 LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	32.12	-4.45	27.67	*		24.18	
	-	-	-	-			-	
2900.00	-	-	-	-			-	500.00
3260.00	-	-	-	-			-	500.00
	3263.00	32.21	-2.88	29.88	*		31.19	
3267.00	-	-	-	-			-	500.00
3332.00	-	-	-	-			-	500.00
	3336.00	32.23	-2.62	29.61	*		30.23	
3339.00	-	-	-	-			-	500.00
3345.00	-	-	-	-			-	500.00
	3350.00	32.09	-2.57	29.52	*		29.92	
3358.00	-	-	-	-			-	500.00
3600.00	-	-	-	-			-	500.00
	-	-	-	-			-	
	3700.00	31.55	-1.40	30.15	*		32.17	
	-	-	-	-			-	

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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0017a	
Serial Number	3022-0017-00003	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Internal Antenna Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
 LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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
	-	-	-				-	
4400.00	-	-	-				-	500.00
4500.00	-	-	-				-	500.00
	4810.00	9.00	38.60	47.60			239.88	
	-	-	-				-	
5150.00	-	-	-				-	500.00
5350.00	-	-	-				-	500.00
	5400.00	31.40	0.92	32.32	*		41.30	
5460.00	-	-	-				-	500.00
7250.00	-	-	-				-	500.00
	7440.00	32.74	3.65	36.39	*		65.99	
7750.00	-	-	-				-	500.00
8025.00	-	-	-				-	500.00
	8300.00	32.98	4.43	37.41	*		74.22	
8500.00	-	-	-				-	500.00
9000.00	-	-	-				-	500.00
	9100.00	34.81	5.10	39.91	*		98.97	
9200.00	-	-	-				-	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).



Retlif Testing Laboratories

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RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0017a	
Serial Number	3022-0017-00003	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Internal Antenna Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
 LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	33.16	5.38	38.54	*		84.53	
9500.00	-	-	-	-			-	500.00
10600.00	-	-	-	-			-	500.00
	12200.00	33.46	8.37	41.83	*		123.45	
12700.00	-	-	-	-			-	500.00
13250.00	-	-	-	-			-	500.00
	15800.00	34.77	8.84	43.61	*		151.53	
16200.00	-	-	-	-			-	500.00
17700.00	-	-	-	-			-	500.00
	19240.00	34.84	-6.52	28.32	*		26.06	
21400.00	-	-	-	-			-	500.00
22010.00	-	-	-	-			-	500.00
	22320.00	34.50	-5.30	29.20	*		28.84	
23120.00	-	-	-	-			-	500.00
23600.00	-	-	-	-			-	500.00
	23800.00	35.19	-4.17	31.02	*		35.56	
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).



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RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Laird 001-0042 Antenna, 1m Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
 LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m
37.50	-	-	-	-		-	100.00
	38.00	9.10	14.20	23.30	*	14.62	I
38.25	-	-	-	-		-	100.00
73.00	-	-	-	-		-	100.00
	74.00	16.94	8.36	25.30	*	18.41	I
74.60	-	-	-	-		-	100.00
74.80	-	-	-	-		-	100.00
	75.00	12.64	8.36	21.00	*	11.22	
75.20	-	-	-	-		-	100.00
108.00	-	-	-	-		-	150.00
	115.00	7.28	10.02	17.30	*	7.33	
	-	-	-	-		-	
121.94	-	-	-	-		-	150.00
123.00	-	-	-	-		-	150.00
	130.00	6.36	9.44	15.80	*	6.17	
	-	-	-	-		-	
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).



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RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Laird 001-0042 Antenna, 1m Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
 LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	5.43	11.17	16.60	*		6.76	
150.05	-	-	-	-			-	150.00
156.52	-	-	-	-			-	150.00
	156.52	4.52	12.08	16.60	*		6.76	
156.52	-	-	-	-			-	150.00
156.70	-	-	-	-			-	150.00
	156.80	5.38	12.12	17.50	*		7.50	
156.90	-	-	-	-			-	150.00
162.01	-	-	-	-			-	150.00
	165.00	5.92	12.68	18.60	*		8.51	
167.17	-	-	-	-			-	150.00
167.72	-	-	-	-			-	150.00
	170.00	5.10	12.80	17.90	*		7.85	
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).



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RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Laird 001-0042 Antenna, 1m Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
 LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	-0.65	16.85	16.20	*		6.46	
285.00	-	-	-	-			-	200.00
322.80	-	-	-	-			-	200.00
	330.00	2.99	18.91	21.90	*		12.45	
335.40	-	-	-	-			-	200.00
399.90	-	-	-	-			-	200.00
	405.00	1.51	21.49	23.00	*		14.13	
410.00	-	-	-	-			-	200.00
608.00	-	-	-	-			-	200.00
	611.00	-3.84	27.34	23.50	*		14.96	
614.00	-	-	-	-			-	200.00
960.00	-	-	-	-			-	500.00
	975.00	-0.60	32.10	31.50	*		37.58	
1240.00	-	-	-	-			-	500.00
1300.00	-	-	-	-			-	500.00
	1350.00	32.84	-9.40	23.44	*		14.86	
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).



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RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Laird 001-0042 Antenna, 1m Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m
1435.00	-	-	-	-		-	500.00
	1500.00	33.82	-8.64	25.18	*	18.16	
1646.50	-	-	-	-		-	500.00
1660.00	-	-	-	-		-	500.00
	1680.00	32.80	-7.65	25.15	*	18.09	
1710.00	-	-	-	-		-	500.00
1718.80	-	-	-	-		-	500.00
	1720.00	32.40	-5.78	26.62	*	21.43	
1722.20	-	-	-	-		-	500.00
2200.00	-	-	-	-		-	500.00
	2250.00	32.60	-5.46	27.14	*	22.75	
2300.00	-	-	-	-		-	500.00
2310.00	-	-	-	-		-	500.00
	2360.00	32.06	-5.46	26.60	*	21.38	
2390.00	-	-	-	-		-	500.00
2483.50	-	-	-	-		-	500.00
	2490.00	32.36	-5.11	27.25	*	23.04	
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).



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RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Laird 001-0042 Antenna, 1m Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
 LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	32.12	-4.45	27.67	*		24.18	
	-	-	-	-			-	
2900.00	-	-	-	-			-	500.00
3260.00	-	-	-	-			-	500.00
	3263.00	32.21	-2.88	29.88	*		31.19	
3267.00	-	-	-	-			-	500.00
3332.00	-	-	-	-			-	500.00
	3336.00	32.23	-2.62	29.61	*		30.23	
3339.00	-	-	-	-			-	500.00
3345.00	-	-	-	-			-	500.00
	3350.00	32.09	-2.57	29.52	*		29.92	
3358.00	-	-	-	-			-	500.00
3600.00	-	-	-	-			-	500.00
	-	-	-	-			-	
	3700.00	31.55	-1.40	30.15	*		32.17	
	-	-	-	-			-	

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).



Retlif Testing Laboratories

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RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Laird 001-0042 Antenna, 1m Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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
	-	-	-			-	
4400.00	-	-	-			-	500.00
4500.00	-	-	-			-	500.00
	4810.00	11.45	38.60	50.05		318.05	
	-	-	-			-	
5150.00	-	-	-			-	500.00
5350.00	-	-	-			-	500.00
	5400.00	31.40	0.92	32.32	*	41.30	
5460.00	-	-	-			-	500.00
7250.00	-	-	-			-	500.00
	7440.00	32.74	3.65	36.39	*	65.99	
7750.00	-	-	-			-	500.00
8025.00	-	-	-			-	500.00
	8300.00	32.98	4.43	37.41	*	74.22	
8500.00	-	-	-			-	500.00
9000.00	-	-	-			-	500.00
	9100.00	34.81	5.10	39.91	*	98.97	
9200.00	-	-	-			-	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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Laird 001-0042 Antenna, 1m Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
 LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	33.16	5.38	38.54	*		84.53	
9500.00	-	-	-	-			-	500.00
10600.00	-	-	-	-			-	500.00
	12200.00	33.46	8.37	41.83	*		123.45	
12700.00	-	-	-	-			-	500.00
13250.00	-	-	-	-			-	500.00
	15800.00	34.77	8.84	43.61	*		151.53	
16200.00	-	-	-	-			-	500.00
17700.00	-	-	-	-			-	500.00
	19240.00	34.84	-6.52	28.32	*		26.06	
21400.00	-	-	-	-			-	500.00
22010.00	-	-	-	-			-	500.00
	22320.00	34.50	-5.30	29.20	*		28.84	
23120.00	-	-	-	-			-	500.00
23600.00	-	-	-	-			-	500.00
	23800.00	35.19	-4.17	31.02	*		35.56	
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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: L-Com HG2403RD-RTF Antenna, 1m Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m
37.50	-	-	-	-		-	100.00
	38.00	9.10	14.20	23.30	*	14.62	I
38.25	-	-	-	-		-	100.00
73.00	-	-	-	-		-	100.00
	74.00	16.94	8.36	25.30	*	18.41	I
74.60	-	-	-	-		-	100.00
74.80	-	-	-	-		-	100.00
	75.00	12.64	8.36	21.00	*	11.22	
75.20	-	-	-	-		-	100.00
108.00	-	-	-	-		-	150.00
	115.00	7.28	10.02	17.30	*	7.33	
	-	-	-	-		-	
121.94	-	-	-	-		-	150.00
123.00	-	-	-	-		-	150.00
	130.00	6.36	9.44	15.80	*	6.17	
	-	-	-	-		-	
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

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: L-Com HG2403RD-RTF Antenna, 1m Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	5.43	11.17	16.60	*		6.76	
150.05	-	-	-	-			-	150.00
156.52	-	-	-	-			-	150.00
	156.52	4.52	12.08	16.60	*		6.76	
156.52	-	-	-	-			-	150.00
156.70	-	-	-	-			-	150.00
	156.80	5.38	12.12	17.50	*		7.50	
156.90	-	-	-	-			-	150.00
162.01	-	-	-	-			-	150.00
	165.00	5.92	12.68	18.60	*		8.51	
167.17	-	-	-	-			-	150.00
167.72	-	-	-	-			-	150.00
	170.00	5.10	12.80	17.90	*		7.85	
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

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: L-Com HG2403RD-RTF Antenna, 1m Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	-0.65	16.85	16.20	*	6.46	
285.00	-	-	-	-		-	200.00
322.80	-	-	-	-		-	200.00
	330.00	2.99	18.91	21.90	*	12.45	
335.40	-	-	-	-		-	200.00
399.90	-	-	-	-		-	200.00
	405.00	1.51	21.49	23.00	*	14.13	
410.00	-	-	-	-		-	200.00
608.00	-	-	-	-		-	200.00
	611.00	-3.84	27.34	23.50	*	14.96	
614.00	-	-	-	-		-	200.00
960.00	-	-	-	-		-	500.00
	975.00	-0.60	32.10	31.50	*	37.58	
1240.00	-	-	-	-		-	500.00
1300.00	-	-	-	-		-	500.00
	1350.00	32.84	-9.40	23.44	*	14.86	
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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: L-Com HG2403RD-RTF Antenna, 1m Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading			Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m			uV/m	uV/m
1435.00	-	-	-	-			-	500.00
	1500.00	33.82	-8.64	25.18	*		18.16	
1646.50	-	-	-	-			-	500.00
1660.00	-	-	-	-			-	500.00
	1680.00	32.80	-7.65	25.15	*		18.09	
1710.00	-	-	-	-			-	500.00
1718.80	-	-	-	-			-	500.00
	1720.00	32.40	-5.78	26.62	*		21.43	
1722.20	-	-	-	-			-	500.00
2200.00	-	-	-	-			-	500.00
	2250.00	32.60	-5.46	27.14	*		22.75	
2300.00	-	-	-	-			-	500.00
2310.00	-	-	-	-			-	500.00
	2360.00	32.06	-5.46	26.60	*		21.38	
2390.00	-	-	-	-			-	500.00
2483.50	-	-	-	-			-	500.00
	2490.00	32.36	-5.11	27.25	*		23.04	
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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: L-Com HG2403RD-RTF Antenna, 1m Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	32.12	-4.45	27.67	*	24.18	
	-	-	-	-		-	
2900.00	-	-	-	-		-	500.00
3260.00	-	-	-	-		-	500.00
	3263.00	32.21	-2.88	29.88	*	31.19	
3267.00	-	-	-	-		-	500.00
3332.00	-	-	-	-		-	500.00
	3336.00	32.23	-2.62	29.61	*	30.23	
3339.00	-	-	-	-		-	500.00
3345.00	-	-	-	-		-	500.00
	3350.00	32.09	-2.57	29.52	*	29.92	
3358.00	-	-	-	-		-	500.00
3600.00	-	-	-	-		-	500.00
	-	-	-	-		-	
	3700.00	31.55	-1.40	30.15	*	32.17	
	-	-	-	-		-	

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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: L-Com HG2403RD-RTF Antenna, 1m Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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
	-	-	-				-	
4400.00	-	-	-				-	500.00
4500.00	-	-	-				-	500.00
	4810.00	12.75	38.60	51.35			369.40	
	-	-	-				-	
5150.00	-	-	-				-	500.00
5350.00	-	-	-				-	500.00
	5400.00	31.40	0.92	32.32	*		41.30	
5460.00	-	-	-				-	500.00
7250.00	-	-	-				-	500.00
	7440.00	32.74	3.65	36.39	*		65.99	
7750.00	-	-	-				-	500.00
8025.00	-	-	-				-	500.00
	8300.00	32.98	4.43	37.41	*		74.22	
8500.00	-	-	-				-	500.00
9000.00	-	-	-				-	500.00
	9100.00	34.81	5.10	39.91	*		98.97	
9200.00	-	-	-				-	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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: L-Com HG2403RD-RTF Antenna, 1m Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	33.16	5.38	38.54	*		84.53	
9500.00	-	-	-	-			-	500.00
10600.00	-	-	-	-			-	500.00
	12200.00	33.46	8.37	41.83	*		123.45	
12700.00	-	-	-	-			-	500.00
13250.00	-	-	-	-			-	500.00
	15800.00	34.77	8.84	43.61	*		151.53	
16200.00	-	-	-	-			-	500.00
17700.00	-	-	-	-			-	500.00
	19240.00	34.84	-6.52	28.32	*		26.06	
21400.00	-	-	-	-			-	500.00
22010.00	-	-	-	-			-	500.00
	22320.00	34.50	-5.30	29.20	*		28.84	
23120.00	-	-	-	-			-	500.00
23600.00	-	-	-	-			-	500.00
	23800.00	35.19	-4.17	31.02	*		35.56	
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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Linx Ant-DB1-RAF-RPS Antenna, 3" Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m
37.50	-	-	-	-		-	100.00
	38.00	9.10	14.20	23.30	*	14.62	I
38.25	-	-	-	-		-	100.00
73.00	-	-	-	-		-	100.00
	74.00	16.94	8.36	25.30	*	18.41	I
74.60	-	-	-	-		-	100.00
74.80	-	-	-	-		-	100.00
	75.00	12.64	8.36	21.00	*	11.22	
75.20	-	-	-	-		-	100.00
108.00	-	-	-	-		-	150.00
	115.00	7.28	10.02	17.30	*	7.33	
	-	-	-	-		-	
121.94	-	-	-	-		-	150.00
123.00	-	-	-	-		-	150.00
	130.00	6.36	9.44	15.80	*	6.17	
	-	-	-	-		-	
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

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Linx Ant-DB1-RAF-RPS Antenna, 3"Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	5.43	11.17	16.60	*		6.76	
150.05	-	-	-	-			-	150.00
156.52	-	-	-	-			-	150.00
	156.52	4.52	12.08	16.60	*		6.76	
156.52	-	-	-	-			-	150.00
156.70	-	-	-	-			-	150.00
	156.80	5.38	12.12	17.50	*		7.50	
156.90	-	-	-	-			-	150.00
162.01	-	-	-	-			-	150.00
	165.00	5.92	12.68	18.60	*		8.51	
167.17	-	-	-	-			-	150.00
167.72	-	-	-	-			-	150.00
	170.00	5.10	12.80	17.90	*		7.85	
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

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	
Notes: Linx Ant-DB1-RAF-RPS Antenna, 3”Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.		

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	-0.65	16.85	16.20	*		6.46	
285.00	-	-	-	-			-	200.00
322.80	-	-	-	-			-	200.00
	330.00	2.99	18.91	21.90	*		12.45	
335.40	-	-	-	-			-	200.00
399.90	-	-	-	-			-	200.00
	405.00	1.51	21.49	23.00	*		14.13	
410.00	-	-	-	-			-	200.00
608.00	-	-	-	-			-	200.00
	611.00	-3.84	27.34	23.50	*		14.96	
614.00	-	-	-	-			-	200.00
960.00	-	-	-	-			-	500.00
	975.00	-0.60	32.10	31.50	*		37.58	
1240.00	-	-	-	-			-	500.00
1300.00	-	-	-	-			-	500.00
	1350.00	32.84	-9.40	23.44	*		14.86	
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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Linx Ant-DB1-RAF-RPS Antenna, 3" Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading			Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m			uV/m	uV/m
1435.00	-	-	-	-			-	500.00
	1500.00	33.82	-8.64	25.18	*		18.16	
1646.50	-	-	-	-			-	500.00
1660.00	-	-	-	-			-	500.00
	1680.00	32.80	-7.65	25.15	*		18.09	
1710.00	-	-	-	-			-	500.00
1718.80	-	-	-	-			-	500.00
	1720.00	32.40	-5.78	26.62	*		21.43	
1722.20	-	-	-	-			-	500.00
2200.00	-	-	-	-			-	500.00
	2250.00	32.60	-5.46	27.14	*		22.75	
2300.00	-	-	-	-			-	500.00
2310.00	-	-	-	-			-	500.00
	2360.00	32.06	-5.46	26.60	*		21.38	
2390.00	-	-	-	-			-	500.00
2483.50	-	-	-	-			-	500.00
	2490.00	32.36	-5.11	27.25	*		23.04	
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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Linx Ant-DB1-RAF-RPS Antenna, 3" Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	32.12	-4.45	27.67	*		24.18	
	-	-	-	-			-	
2900.00	-	-	-	-			-	500.00
3260.00	-	-	-	-			-	500.00
	3263.00	32.21	-2.88	29.88	*		31.19	
3267.00	-	-	-	-			-	500.00
3332.00	-	-	-	-			-	500.00
	3336.00	32.23	-2.62	29.61	*		30.23	
3339.00	-	-	-	-			-	500.00
3345.00	-	-	-	-			-	500.00
	3350.00	32.09	-2.57	29.52	*		29.92	
3358.00	-	-	-	-			-	500.00
3600.00	-	-	-	-			-	500.00
	-	-	-	-			-	
	3700.00	31.55	-1.40	30.15	*		32.17	
	-	-	-	-			-	

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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Linx Ant-DB1-RAF-RPS Antenna, 3" Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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
	-	-	-				-	
4400.00	-	-	-				-	500.00
4500.00	-	-	-				-	500.00
	4810.00	12.10	38.60	50.70			342.77	
	-	-	-				-	
5150.00	-	-	-				-	500.00
5350.00	-	-	-				-	500.00
	5400.00	31.40	0.92	32.32	*		41.30	
5460.00	-	-	-				-	500.00
7250.00	-	-	-				-	500.00
	7440.00	32.74	3.65	36.39	*		65.99	
7750.00	-	-	-				-	500.00
8025.00	-	-	-				-	500.00
	8300.00	32.98	4.43	37.41	*		74.22	
8500.00	-	-	-				-	500.00
9000.00	-	-	-				-	500.00
	9100.00	34.81	5.10	39.91	*		98.97	
9200.00	-	-	-				-	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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Linx Ant-DB1-RAF-RPS Antenna, 3" Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	33.16	5.38	38.54	*	84.53	
9500.00	-	-	-	-		-	500.00
10600.00	-	-	-	-		-	500.00
	12200.00	33.46	8.37	41.83	*	123.45	
12700.00	-	-	-	-		-	500.00
13250.00	-	-	-	-		-	500.00
	15800.00	34.77	8.84	43.61	*	151.53	
16200.00	-	-	-	-		-	500.00
17700.00	-	-	-	-		-	500.00
	19240.00	34.84	-6.52	28.32	*	26.06	
21400.00	-	-	-	-		-	500.00
22010.00	-	-	-	-		-	500.00
	22320.00	34.50	-5.30	29.20	*	28.84	
23120.00	-	-	-	-		-	500.00
23600.00	-	-	-	-		-	500.00
	23800.00	35.19	-4.17	31.02	*	35.56	
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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Linx Ant-DB1-RAF-RPS Antenna, 12" Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m
37.50	-	-	-	-		-	100.00
	38.00	9.10	14.20	23.30	*	14.62	I
38.25	-	-	-	-		-	100.00
73.00	-	-	-	-		-	100.00
	74.00	16.94	8.36	25.30	*	18.41	I
74.60	-	-	-	-		-	100.00
74.80	-	-	-	-		-	100.00
	75.00	12.64	8.36	21.00	*	11.22	
75.20	-	-	-	-		-	100.00
108.00	-	-	-	-		-	150.00
	115.00	7.28	10.02	17.30	*	7.33	
	-	-	-	-		-	
121.94	-	-	-	-		-	150.00
123.00	-	-	-	-		-	150.00
	130.00	6.36	9.44	15.80	*	6.17	
	-	-	-	-		-	
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

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Linx Ant-DB1-RAF-RPS Antenna, 12" Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	5.43	11.17	16.60	*		6.76	
150.05	-	-	-	-			-	150.00
156.52	-	-	-	-			-	150.00
	156.52	4.52	12.08	16.60	*		6.76	
156.52	-	-	-	-			-	150.00
156.70	-	-	-	-			-	150.00
	156.80	5.38	12.12	17.50	*		7.50	
156.90	-	-	-	-			-	150.00
162.01	-	-	-	-			-	150.00
	165.00	5.92	12.68	18.60	*		8.51	
167.17	-	-	-	-			-	150.00
167.72	-	-	-	-			-	150.00
	170.00	5.10	12.80	17.90	*		7.85	
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

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Linx Ant-DB1-RAF-RPS Antenna, 12" Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	-0.65	16.85	16.20	*		6.46	
285.00	-	-	-	-			-	200.00
322.80	-	-	-	-			-	200.00
	330.00	2.99	18.91	21.90	*		12.45	
335.40	-	-	-	-			-	200.00
399.90	-	-	-	-			-	200.00
	405.00	1.51	21.49	23.00	*		14.13	
410.00	-	-	-	-			-	200.00
608.00	-	-	-	-			-	200.00
	611.00	-3.84	27.34	23.50	*		14.96	
614.00	-	-	-	-			-	200.00
960.00	-	-	-	-			-	500.00
	975.00	-0.60	32.10	31.50	*		37.58	
1240.00	-	-	-	-			-	500.00
1300.00	-	-	-	-			-	500.00
	1350.00	32.84	-9.40	23.44	*		14.86	
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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Linx Ant-DB1-RAF-RPS Antenna, 12" Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading			Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m			uV/m	uV/m
1435.00	-	-	-	-			-	500.00
	1500.00	33.82	-8.64	25.18	*		18.16	
1646.50	-	-	-	-			-	500.00
1660.00	-	-	-	-			-	500.00
	1680.00	32.80	-7.65	25.15	*		18.09	
1710.00	-	-	-	-			-	500.00
1718.80	-	-	-	-			-	500.00
	1720.00	32.40	-5.78	26.62	*		21.43	
1722.20	-	-	-	-			-	500.00
2200.00	-	-	-	-			-	500.00
	2250.00	32.60	-5.46	27.14	*		22.75	
2300.00	-	-	-	-			-	500.00
2310.00	-	-	-	-			-	500.00
	2360.00	32.06	-5.46	26.60	*		21.38	
2390.00	-	-	-	-			-	500.00
2483.50	-	-	-	-			-	500.00
	2490.00	32.36	-5.11	27.25	*		23.04	
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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Linx Ant-DB1-RAF-RPS Antenna, 12" Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	32.12	-4.45	27.67	*	24.18	
	-	-	-	-		-	
2900.00	-	-	-	-		-	500.00
3260.00	-	-	-	-		-	500.00
	3263.00	32.21	-2.88	29.88	*	31.19	
3267.00	-	-	-	-		-	500.00
3332.00	-	-	-	-		-	500.00
	3336.00	32.23	-2.62	29.61	*	30.23	
3339.00	-	-	-	-		-	500.00
3345.00	-	-	-	-		-	500.00
	3350.00	32.09	-2.57	29.52	*	29.92	
3358.00	-	-	-	-		-	500.00
3600.00	-	-	-	-		-	500.00
	-	-	-	-		-	
	3700.00	31.55	-1.40	30.15	*	32.17	
	-	-	-	-		-	

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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Linx Ant-DB1-RAF-RPS Antenna, 12" Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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
	-	-	-				-	
4400.00	-	-	-				-	500.00
4500.00	-	-	-				-	500.00
	4810.00	11.90	38.60	50.50			334.97	
	-	-	-				-	
5150.00	-	-	-				-	500.00
5350.00	-	-	-				-	500.00
	5400.00	31.40	0.92	32.32	*		41.30	
5460.00	-	-	-				-	500.00
7250.00	-	-	-				-	500.00
	7440.00	32.74	3.65	36.39	*		65.99	
7750.00	-	-	-				-	500.00
8025.00	-	-	-				-	500.00
	8300.00	32.98	4.43	37.41	*		74.22	
8500.00	-	-	-				-	500.00
9000.00	-	-	-				-	500.00
	9100.00	34.81	5.10	39.91	*		98.97	
9200.00	-	-	-				-	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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Linx Ant-DB1-RAF-RPS Antenna, 12" Cable Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	33.16	5.38	38.54	*	84.53	
9500.00	-	-	-	-		-	500.00
10600.00	-	-	-	-		-	500.00
	12200.00	33.46	8.37	41.83	*	123.45	
12700.00	-	-	-	-		-	500.00
13250.00	-	-	-	-		-	500.00
	15800.00	34.77	8.84	43.61	*	151.53	
16200.00	-	-	-	-		-	500.00
17700.00	-	-	-	-		-	500.00
	19240.00	34.84	-6.52	28.32	*	26.06	
21400.00	-	-	-	-		-	500.00
22010.00	-	-	-	-		-	500.00
	22320.00	34.50	-5.30	29.20	*	28.84	
23120.00	-	-	-	-		-	500.00
23600.00	-	-	-	-		-	500.00
	23800.00	35.19	-4.17	31.02	*	35.56	
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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Data Alliance A9 MMCX Antenna Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
 LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m
37.50	-	-	-	-		-	100.00
	38.00	9.10	14.20	23.30	*	14.62	I
38.25	-	-	-	-		-	100.00
73.00	-	-	-	-		-	100.00
	74.00	16.94	8.36	25.30	*	18.41	I
74.60	-	-	-	-		-	100.00
74.80	-	-	-	-		-	100.00
	75.00	12.64	8.36	21.00	*	11.22	
75.20	-	-	-	-		-	100.00
108.00	-	-	-	-		-	150.00
	115.00	7.28	10.02	17.30	*	7.33	
	-	-	-	-		-	
121.94	-	-	-	-		-	150.00
123.00	-	-	-	-		-	150.00
	130.00	6.36	9.44	15.80	*	6.17	
	-	-	-	-		-	
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

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Data Alliance A9 MMCX Antenna Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
 LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	5.43	11.17	16.60	*		6.76	
150.05	-	-	-	-			-	150.00
156.52	-	-	-	-			-	150.00
	156.52	4.52	12.08	16.60	*		6.76	
156.52	-	-	-	-			-	150.00
156.70	-	-	-	-			-	150.00
	156.80	5.38	12.12	17.50	*		7.50	
156.90	-	-	-	-			-	150.00
162.01	-	-	-	-			-	150.00
	165.00	5.92	12.68	18.60	*		8.51	
167.17	-	-	-	-			-	150.00
167.72	-	-	-	-			-	150.00
	170.00	5.10	12.80	17.90	*		7.85	
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

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Data Alliance A9 MMCX Antenna Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	-0.65	16.85	16.20	*		6.46	
285.00	-	-	-	-			-	200.00
322.80	-	-	-	-			-	200.00
	330.00	2.99	18.91	21.90	*		12.45	
335.40	-	-	-	-			-	200.00
399.90	-	-	-	-			-	200.00
	405.00	1.51	21.49	23.00	*		14.13	
410.00	-	-	-	-			-	200.00
608.00	-	-	-	-			-	200.00
	611.00	-3.84	27.34	23.50	*		14.96	
614.00	-	-	-	-			-	200.00
960.00	-	-	-	-			-	500.00
	975.00	-0.60	32.10	31.50	*		37.58	
1240.00	-	-	-	-			-	500.00
1300.00	-	-	-	-			-	500.00
	1350.00	32.84	-9.40	23.44	*		14.86	
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).



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RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Data Alliance A9 MMCX Antenna Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading			Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m			uV/m	uV/m
1435.00	-	-	-	-			-	500.00
	1500.00	33.82	-8.64	25.18	*		18.16	
1646.50	-	-	-	-			-	500.00
1660.00	-	-	-	-			-	500.00
	1680.00	32.80	-7.65	25.15	*		18.09	
1710.00	-	-	-	-			-	500.00
1718.80	-	-	-	-			-	500.00
	1720.00	32.40	-5.78	26.62	*		21.43	
1722.20	-	-	-	-			-	500.00
2200.00	-	-	-	-			-	500.00
	2250.00	32.60	-5.46	27.14	*		22.75	
2300.00	-	-	-	-			-	500.00
2310.00	-	-	-	-			-	500.00
	2360.00	32.06	-5.46	26.60	*		21.38	
2390.00	-	-	-	-			-	500.00
2483.50	-	-	-	-			-	500.00
	2490.00	32.36	-5.11	27.25	*		23.04	
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).



Retlif Testing Laboratories

Report No. R-6272N-1, Rev. A

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Data Alliance A9 MMCX Antenna Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
 LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	32.12	-4.45	27.67	*		24.18	
	-	-	-	-			-	
2900.00	-	-	-	-			-	500.00
3260.00	-	-	-	-			-	500.00
	3263.00	32.21	-2.88	29.88	*		31.19	
3267.00	-	-	-	-			-	500.00
3332.00	-	-	-	-			-	500.00
	3336.00	32.23	-2.62	29.61	*		30.23	
3339.00	-	-	-	-			-	500.00
3345.00	-	-	-	-			-	500.00
	3350.00	32.09	-2.57	29.52	*		29.92	
3358.00	-	-	-	-			-	500.00
3600.00	-	-	-	-			-	500.00
	-	-	-	-			-	
	3700.00	31.55	-1.40	30.15	*		32.17	
	-	-	-	-			-	

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).



Retlif Testing Laboratories

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RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Data Alliance A9 MMCX Antenna Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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
4400.00	-	-	-				-	500.00
4500.00	-	-	-				-	500.00
	4810.00	13.37	38.60	51.97			396.73	
5150.00	-	-	-				-	500.00
5350.00	-	-	-				-	500.00
	5400.00	31.40	0.92	32.32	*		41.30	
5460.00	-	-	-				-	500.00
7250.00	-	-	-				-	500.00
	7440.00	32.74	3.65	36.39	*		65.99	
7750.00	-	-	-				-	500.00
8025.00	-	-	-				-	500.00
	8300.00	32.98	4.43	37.41	*		74.22	
8500.00	-	-	-				-	500.00
9000.00	-	-	-				-	500.00
	9100.00	34.81	5.10	39.91	*		98.97	
9200.00	-	-	-				-	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).



Retlif Testing Laboratories

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RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Lord Corporation	
Job Number	R-6272N-1	
Test Sample	200 Series Radio Module	
Model Number	3022-0021	
Serial Number	3022-0021-00075	
Test Specification	FCC Part 15 Subpart C	FCC Part 15 Subpart C
Operating Mode	Transmitting modulated(LXRS+) signal	
Technician	M. Seamans	
Date	December 4 th , 2017	

Notes: Data Alliance A9 MMCX Antenna Antenna Test Distance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz
 LXRS+ modulation used based on it being the highest peak power when measured as per KDB paragraph 9.1.1.

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	33.16	5.38	38.54	*		84.53	
9500.00	-	-	-	-			-	500.00
10600.00	-	-	-	-			-	500.00
	12200.00	33.46	8.37	41.83	*		123.45	
12700.00	-	-	-	-			-	500.00
13250.00	-	-	-	-			-	500.00
	15800.00	34.77	8.84	43.61	*		151.53	
16200.00	-	-	-	-			-	500.00
17700.00	-	-	-	-			-	500.00
	19240.00	34.84	-6.52	28.32	*		26.06	
21400.00	-	-	-	-			-	500.00
22010.00	-	-	-	-			-	500.00
	22320.00	34.50	-5.30	29.20	*		28.84	
23120.00	-	-	-	-			-	500.00
23600.00	-	-	-	-			-	500.00
	23800.00	35.19	-4.17	31.02	*		35.56	
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).



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Test Photographs Power Density



Test Configuration



Retlif Testing Laboratories

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**FCC Section 15.247(e)
Power Density
Test Data**

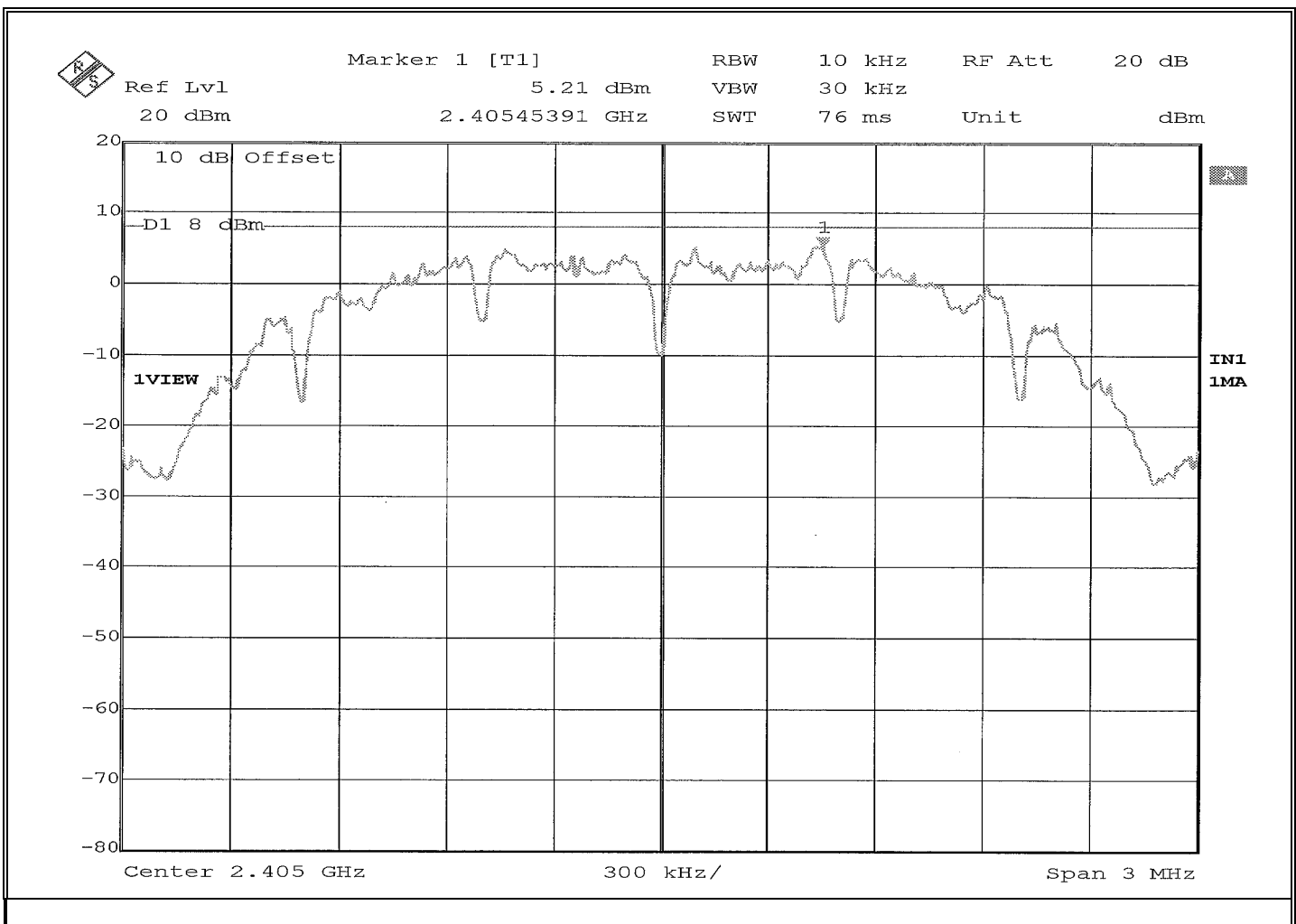



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EMISSIONS TEST DATA SHEET

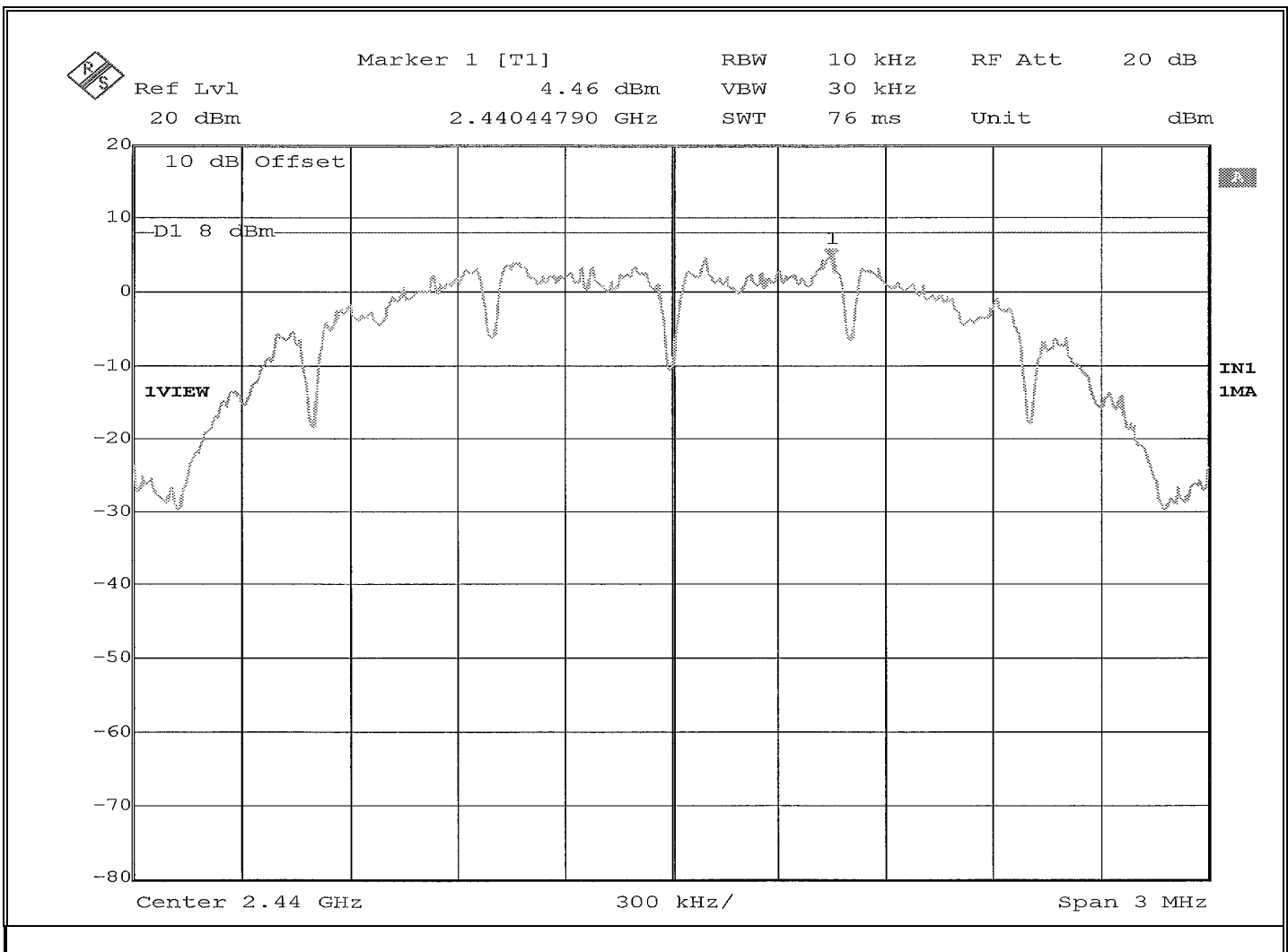
Method:	Power Spectral Density
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (e)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS) signal at 2.405GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 62.0 %
Notes:	KDB Method: 10.2, Power Spectral Density: 5.21dBm




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EMISSIONS TEST DATA SHEET

Method:	Power Spectral Density
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (e)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS) signal at 2.440GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 62.0 %
Notes:	KDB Method: 10.2, Power Spectral Density: 4.46dBm



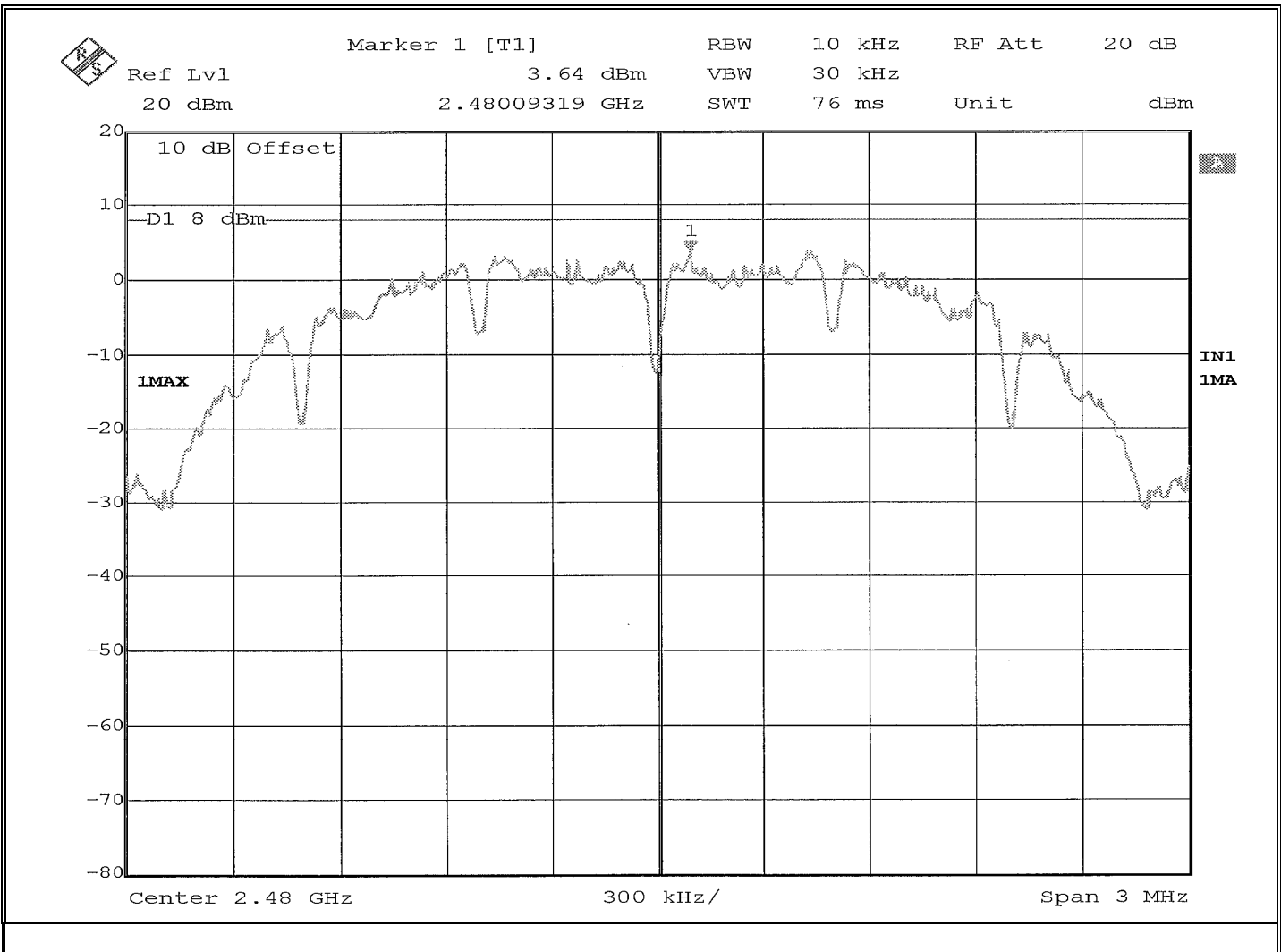


Retlif Testing Laboratories

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EMISSIONS TEST DATA SHEET

Method:	Power Spectral Density
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (e)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS) signal at 2.480GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 62.0 %
Notes:	KDB Method: 10.2, Power Spectral Density: 3.64dBm

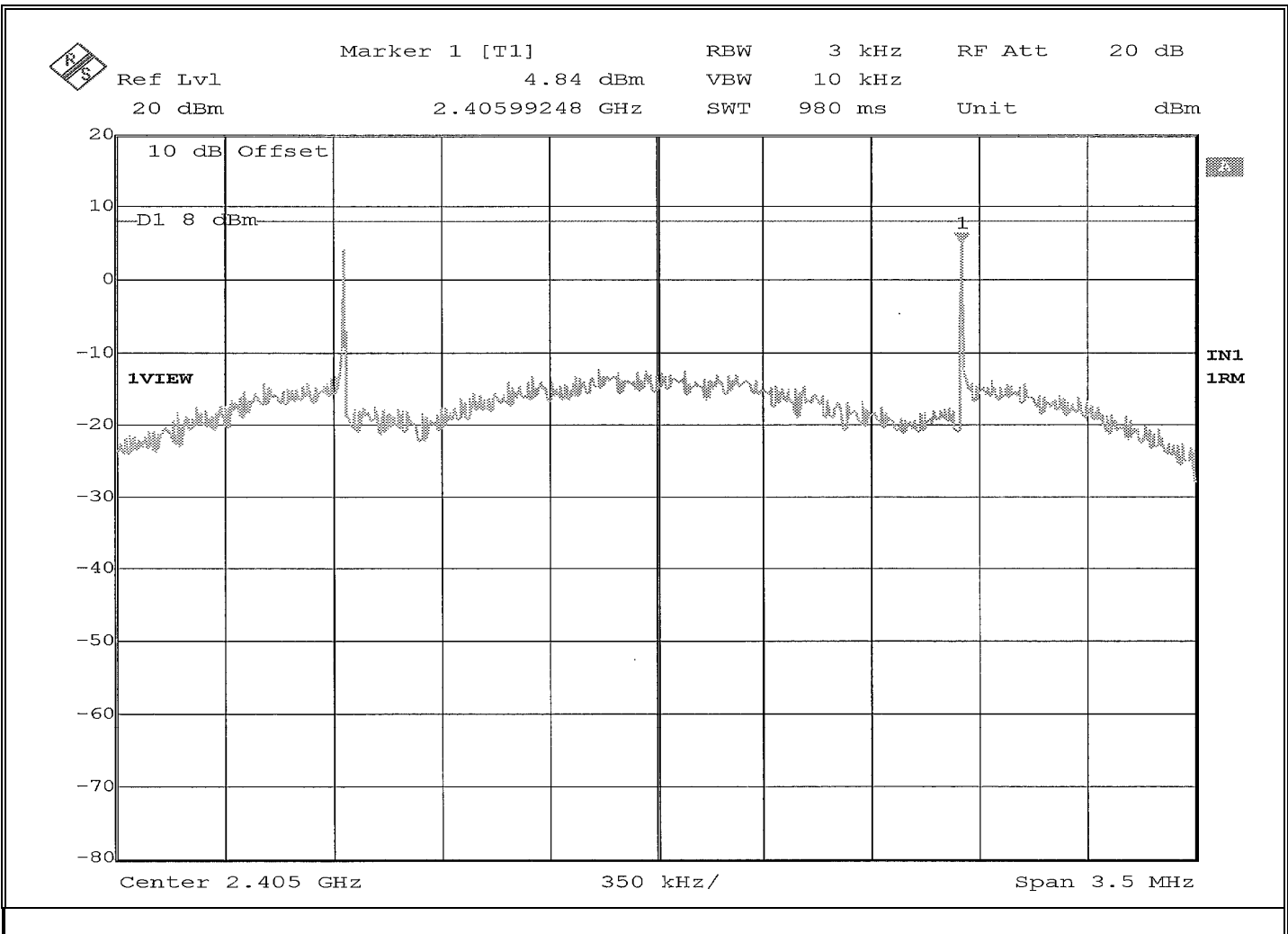


Retlif Testing Laboratories

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EMISSIONS TEST DATA SHEET

Method:	Power Spectral Density
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (e)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.405GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 62.0 %
Notes:	KDB Method: 10.3, Power Spectral Density: 4.84dBm

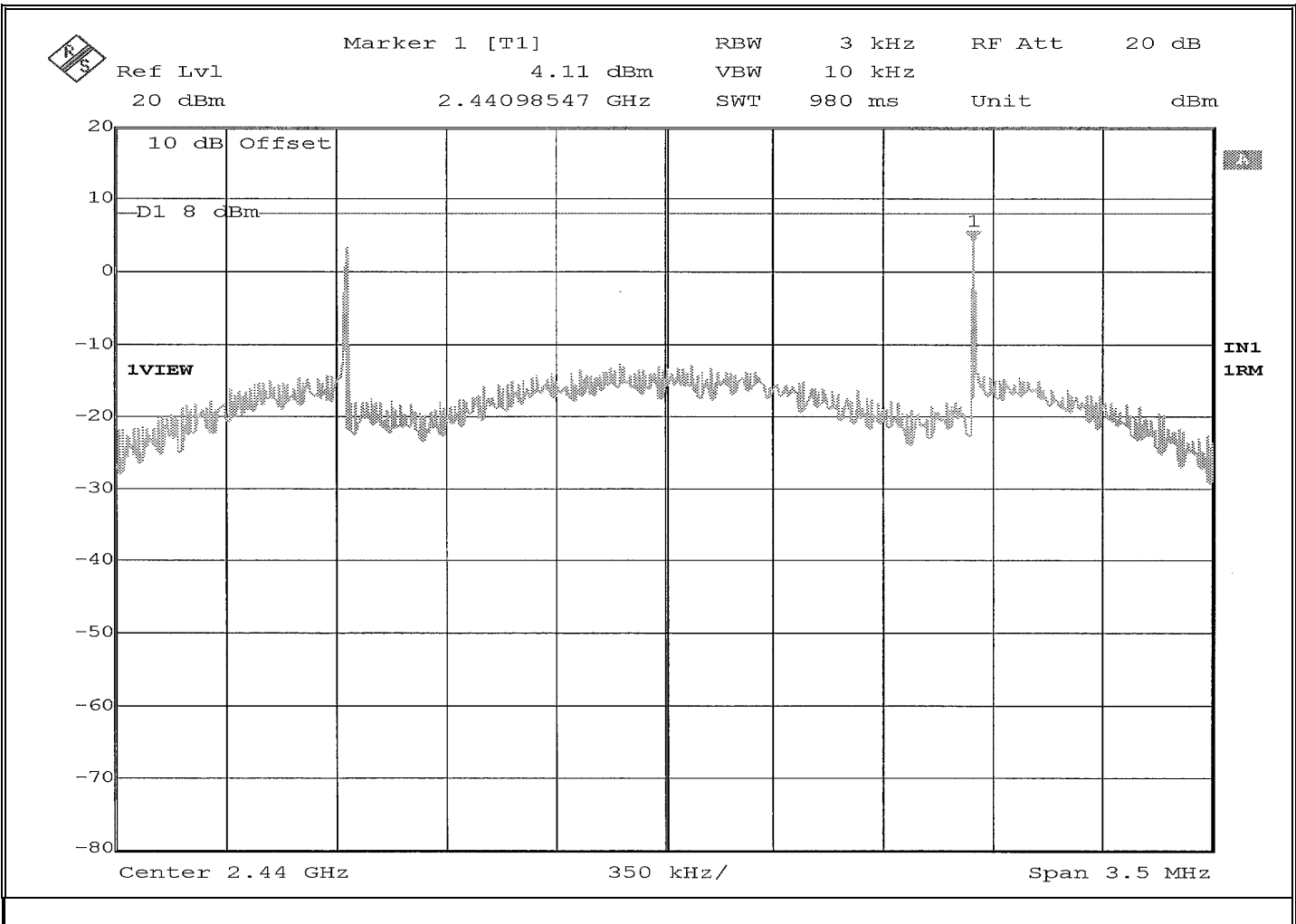


Retlif Testing Laboratories

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EMISSIONS TEST DATA SHEET

Method:	Power Spectral Density
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (e)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.440GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 62.0 %
Notes:	KDB Method: 10.3, Power Spectral Density: 4.11dBm

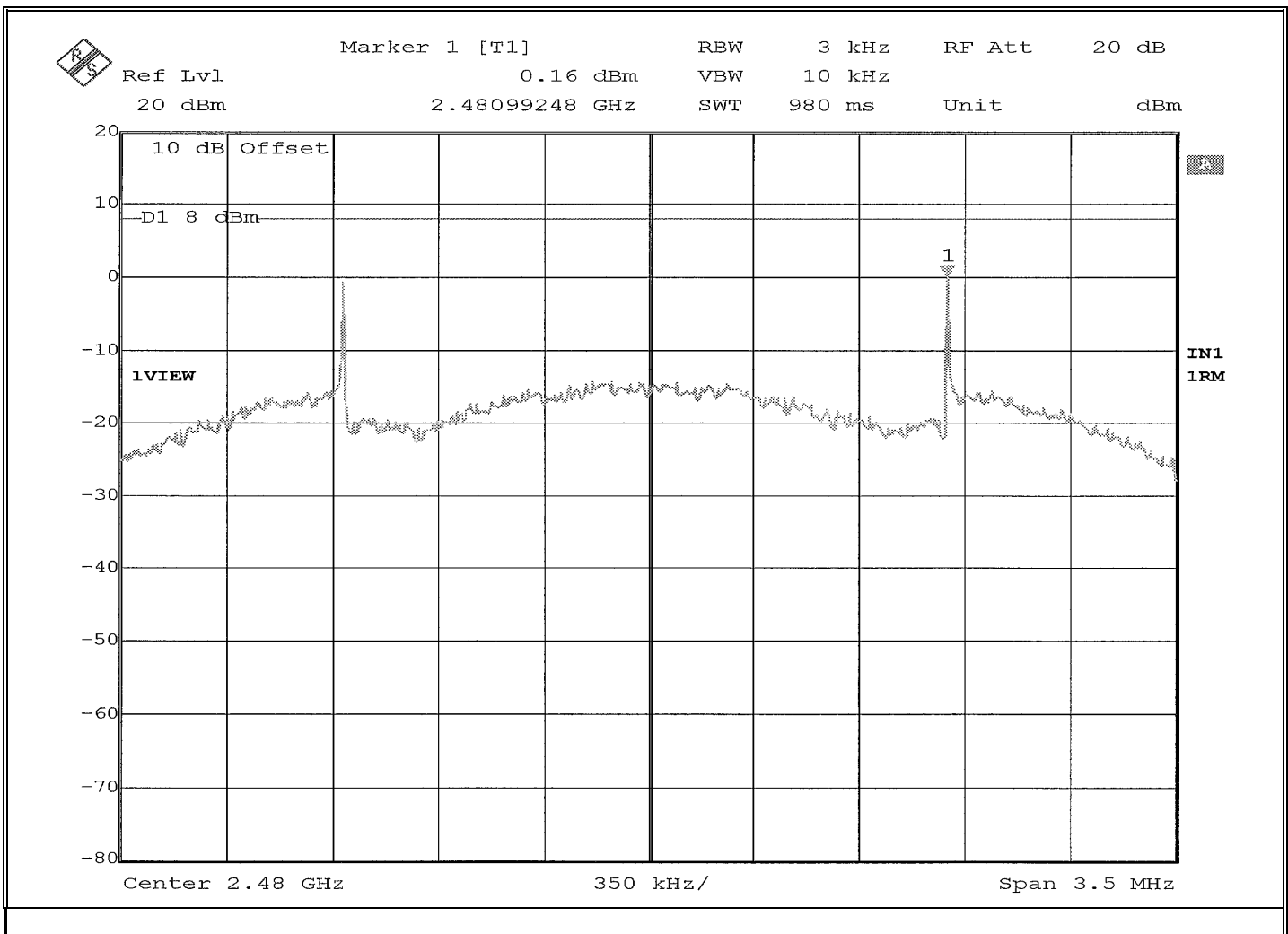


Retlif Testing Laboratories

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EMISSIONS TEST DATA SHEET

Method:	Power Spectral Density
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (e)
Job Number:	R-6272N-1
Customer:	Lord Corporation
Test Sample:	200 Series Radio Module
Model Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.480GHz
Technician:	M.Seamans
Date(s):	November 16 th , 2017
Temp/ Relative Humidity:	20.5 °C / 62.0 %
Notes:	KDB Method: 10.3, Power Spectral Density: 3.64dBm



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Test Photographs AC Conducted Emissions



EUT Configuration



Test Setup



Retlif Testing Laboratories

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**FCC Section 15.207(a)
AC Conducted Emissions
Test Data**



Retlif Testing Laboratories

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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-6272N-1
Test Sample:	Lord Corporation
Model Number:	200 Series Radio Module
Part Number:	3022-0021
Serial Number:	3022-0021-00075
Operating Mode:	Communicating with node, displaying node data on laptop
Technician:	M.Seamans
Date(s):	November 20 th , 2017
Temperature:	22.0 °C
Relative Humidity:	34.9 %
Port Tested:	120 VAC 60 Hz of Host Computer

Frequency	Lead Tested	Peak Meter Reading	Quasi-Peak Meter Reading	Average Meter Reading	Quasi-Peak Limit	Average Limit
MHz		dBuV	dBuv	dBuV	dBuV	dBuV
0.150	Hot	53.44	48.90	36.22	66	56
0.150	Neutral	54.38	48.69	33.58	66	56
0.377	Hot	39.71	34.80	26.06	58.35	48.35
4.295	Neutral	45.20	37.30	26.23	56	46
4.259	Hot	37.58	32.26	25.15	56	46
11.199	Neutral	39.64	29.38	20.67	60	50
6.923	Hot	33.55	27.30	20.12	60	50
13.612	Neutral	34.59	25.32	18.38	60	50
11.115	Hot	38.42	32.18	22.65	60	50
21.018	Neutral	33.72	25.89	20.13	60	50
13.397	Hot	33.70	26.58	19.00	60	50
24.768	Neutral	31.31	24.38	18.20	60	50

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.



Retlif Testing Laboratories

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