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FCC Part 15, Subpart C, Section 15.247

Test Report

On

Wireless Analog Input Node
FCC ID: XJQMSLINK0011

Customer Name:	Lord Corporation
Customer P.O:	749451
Date of Report:	September 21, 2018
Test Report No:	R-6339N-1
Test Start Date:	June 18, 2018
Test Finish Date:	September 20, 2018
Test Technician:	M. Seamans, M. Hippert, T. Hannemann
Report Approved By:	T. Hannemann
Report Prepared By:	M. Chambers

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Technical Information

Report Number:	R-6339N-1
Customer:	Lord Corporation
Address:	459 Hurricane Lane, Suite 102
	Williston, VT 05495
Manufacturer:	Lord Corporation
Manufacturer Address:	459 Hurricane Lane, Suite 102
	Williston, VT 05495
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Numbers:	6308-4200-00002 (Internal Antenna) 6308-4201-00002 (RF Port)
FCC ID:	XJQMSLINK0011
Type:	Digital Transmission – Direct Sequence Spread Spectrum Transmitter
Power Requirements:	3.3 – 30.0 VDC
Frequency of Operation:	2.402 - 2.480 GHz
Equipment Class:	DTS
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
FCC 558074 D01 DTS Meas Guidance V04, April 5, 2017

Test Facility:
Retlif Testing Laboratories
101 New Boston Road
Goffstown, NH 03045

FCC Designation Number: US5327

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 modulated signal (LXRS and LXRS+) at 2.405, 2.440 and 2.480 GHz.

EUT Description:
The SG-Link-200-OEM is a small, wireless, two-channel analog input sensor node ready for OEM integration. Featuring one differential and one single ended analog input channel and an internal temperature sensor. The SG-Link-200-OEM supports high resolution, low noise data collection at sample rates up to 1 kHz. Users can easily program nodes for continuous, periodic burst and event-triggered sampling with SenorConnect.

This test report also covers the model TC-Link-200-OEM which has resistor value changes from the SG-Link-200-OEM on the digital sensor inputs for different sensor configurations.

Table 2 – Antenna Configurations

System Component	Antenna Type	Manufacturer	Depth (cm)	Width (cm)	Height (cm)	Weight (kg)
External Antenna	Flex PCB Antenna	Taoglas	0.47	0.07	0.0001	0.0012
	Patch Antenna	Taoglas	1.20	1.20	0.40	0.05
Internal Antenna	SMD Chip Antenna	Johanson Technology	0.95	0.2	0.12	0.01
System Component	**Antenna Type**	**Manufacturer**	**Diameter (cm)**		**Height (cm)**	**Weight (kg)**
External Antenna	¼-wave dipole antenna	Linx	10.50		1.10	0.05
	½-wave dipole antenna	LSR	2.70		0.80	0.05
	½-wave dipole antenna	Linx	13.00		1.00	0.051

Out of Band/Band Edge Radiated Emissions were performed with cables ranging from 0.0 Meter (direct connection) to 3.0 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
Laptop PC	ASUS	K54C	15100-0196G000
Basestation	LORD	WSDA-200-USB	6307-2040-00086
Plastic Case	N/A	N/A	N/A
Representative AC – DC Power Supply	CUI Inc	48-12-1000D	N/A

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.

Revision History

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

Revision	Date	Pages Affected
-	September 21, 2018	Original Release

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 1.202 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 1 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 39.17 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.

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).

Requirements and Test Results (con't)

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).

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 µH/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 (dBµV)**	
	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 Representative AC-DC Power port did not exceed the limits specified in Table 5.

Requirements and Test Results (con't)

Field Strength Calculation/Conversion:

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

CR = MR + CF

Where:
CR = Corrected Reading in dBµV/m
MR = Uncorrected Meter Reading in dBµV
CF = Correction Factor in dB (Antenna Factor, Pre-amp + Cable Loss)

Example:

MR = 15.35 dBµV
CF = 16.85 dB
CR = 15.35 dBuV + 16.85 = 32.2 dBµV/m

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

invLog dBµV/M/20

32.2 dBuV/m = 40.74 uV/m

RF Power Conversion:

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

InvLog dBm/10

Example: 20dBm = 100mW

FCC Section 15.247 (i)
RF Exposure Limits

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

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

D = Minimum Separation Distance in cm

S = Max allowed Power Density in mW/cmsq

Per 1.1310 For the Frequency of 2405 MHz S = 1 mW/cmsq

Power = Max Power Input to Antenna = 39.17mW

Gain = Max Power Gain of Antenna = 2.58 dBi = 1.81 numeric

$$1 \text{ mW/cmsq} = \frac{39.17 \times 1.81}{4 \times (3.14) \times D^2} = \frac{70.90}{12.56 \times D^2}$$

$$D^2 = \frac{70.90}{12.56 \text{ X } 1}$$

$$D = \sqrt{5.64} = 2.38 \text{ cm}$$

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

Equipment List

FCC Section 15.247(a)(2)
Occupied Bandwidth

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
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 Conducted

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
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
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/17/2017	10/31/2018

FCC Section 15.247 (d)
Restricted Band Emissions

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
1232	AGILENT / HP	PRE-AMPLIFIER	1 - 26.5 GHz	8449B	5/25/2018	5/31/2019
3258	ETS / EMCO	ANTENNA, DOUBLE RIDGED GUIDE	1 - 18 GHz	3115	5/10/2018	11/30/2019
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	8/16/2017	8/31/2019
443	ELECTRO-METRICS	ANTENNA, LOG PERIODIC	200 MHz - 1000 MHz	LPA-25	5/21/2018	11/30/2019
5179B	MICRO-COAX	CABLE, COAXIAL	10 kHz - 18 GHz	UFB311A-1-036050U50U	10/11/2017	10/31/2018
5179D	MICRO-COAX	CABLE, COAXIAL	10 kHz - 18 GHz	UFB311A-1-240050U50U	10/11/2017	10/31/2018
5229	FLORIDA RS TECHNOLOGY	CABLE, COAXIAL	DC - 40 GHz	FLRST-2.92 (102ö)	10/13/2017	10/31/2018
5231	AGILENT / HP	ANALYZER, SPECTRUM	3 Hz - 26.5 GHz	E4440A	4/12/2018	4/30/2019

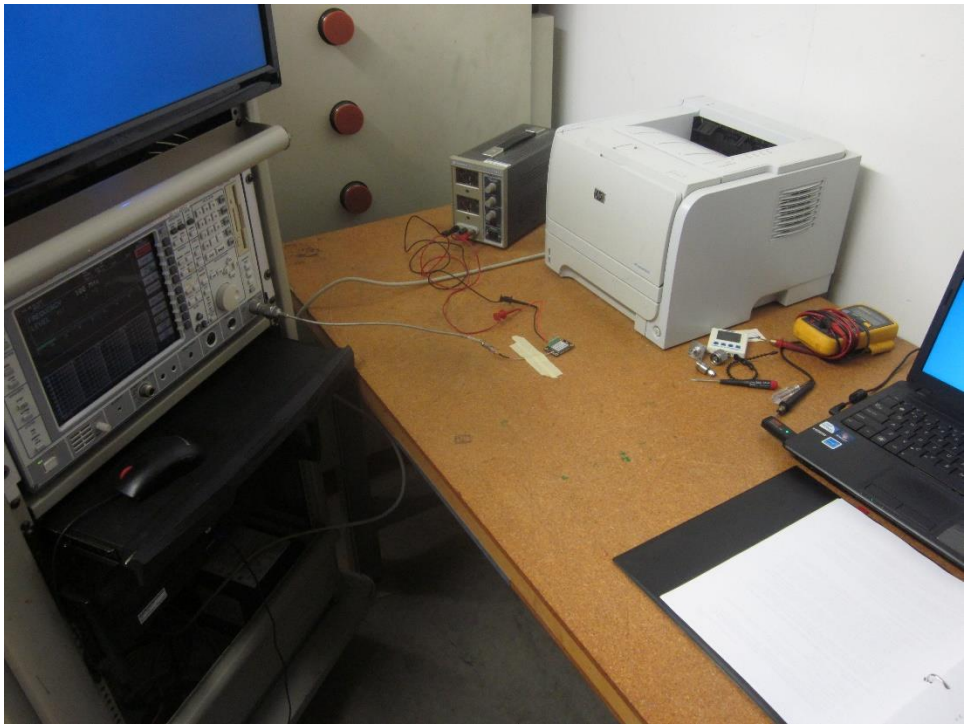
FCC Section 15.247(e)
Power Spectral Density

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/17/2017	10/31/2018

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

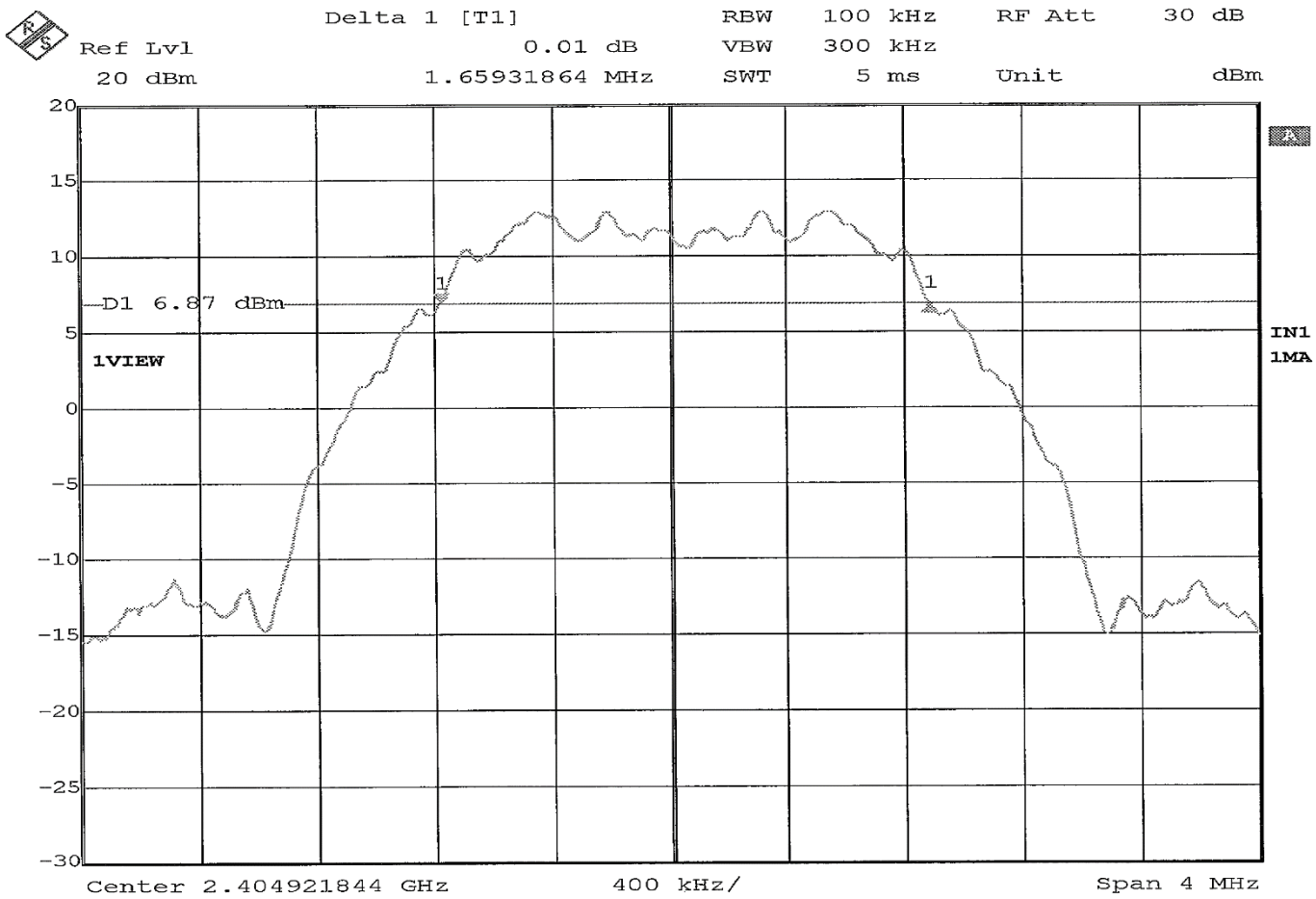
Test Photographs
Occupied Bandwidth



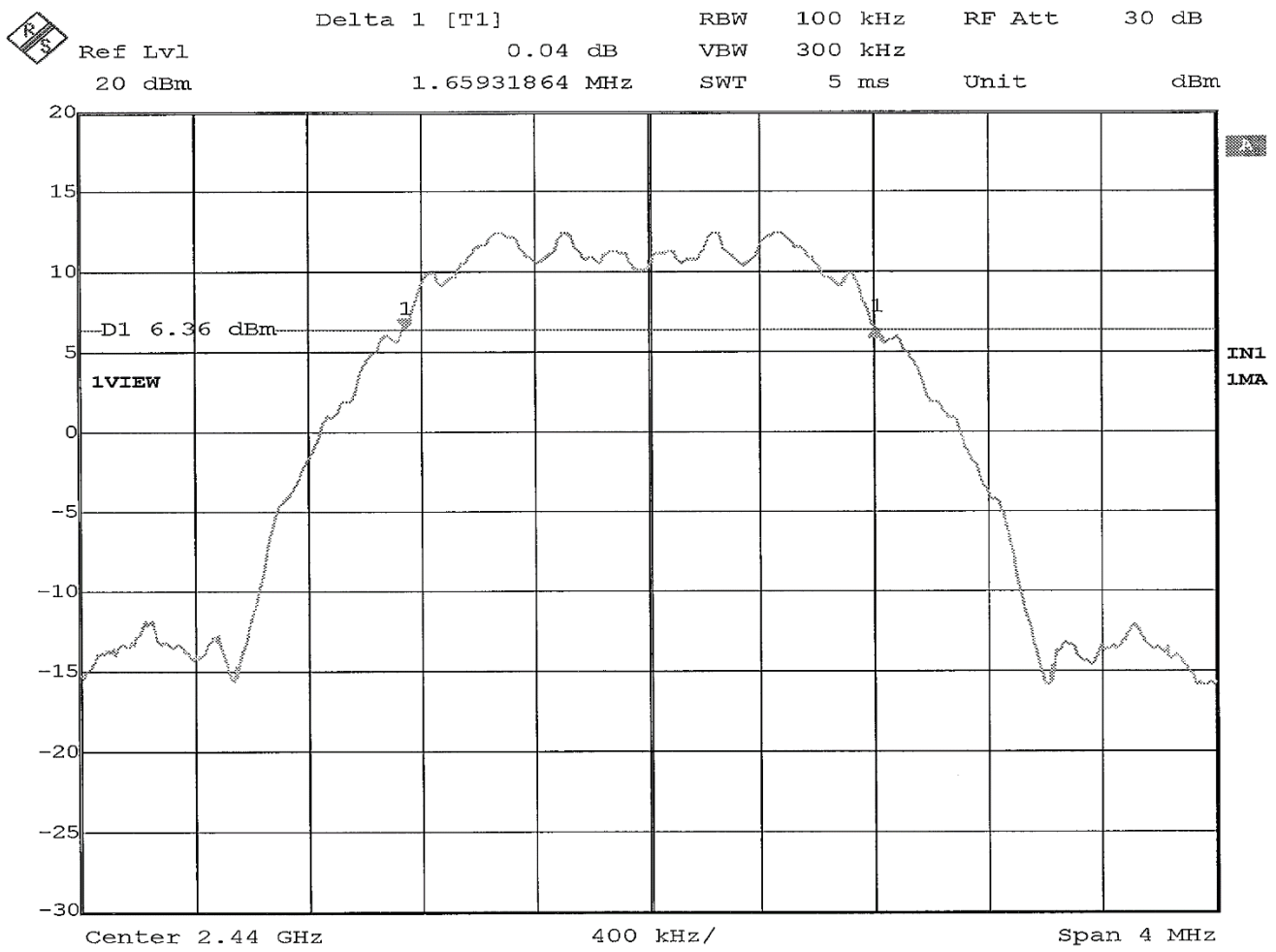
Test Setup

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

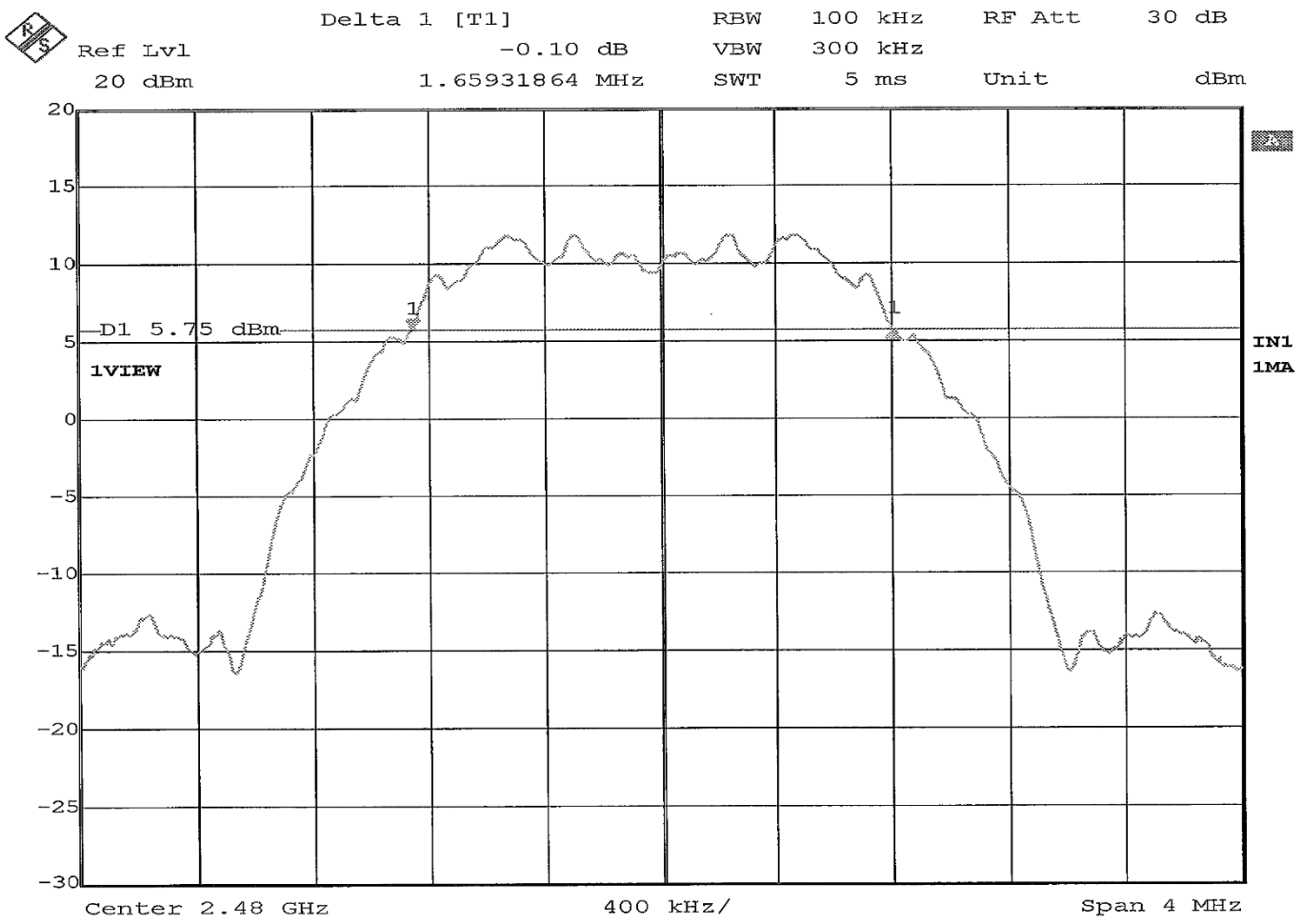
EMISSIONS TEST DATA SHEET	
Method:	**Occupied Bandwidth**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS) signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	June 19th, 2018
Temp/ Relative Humidity:	27.6 °C / 41.6 %
Notes:	6dB Bandwidth: 1.659 MHz



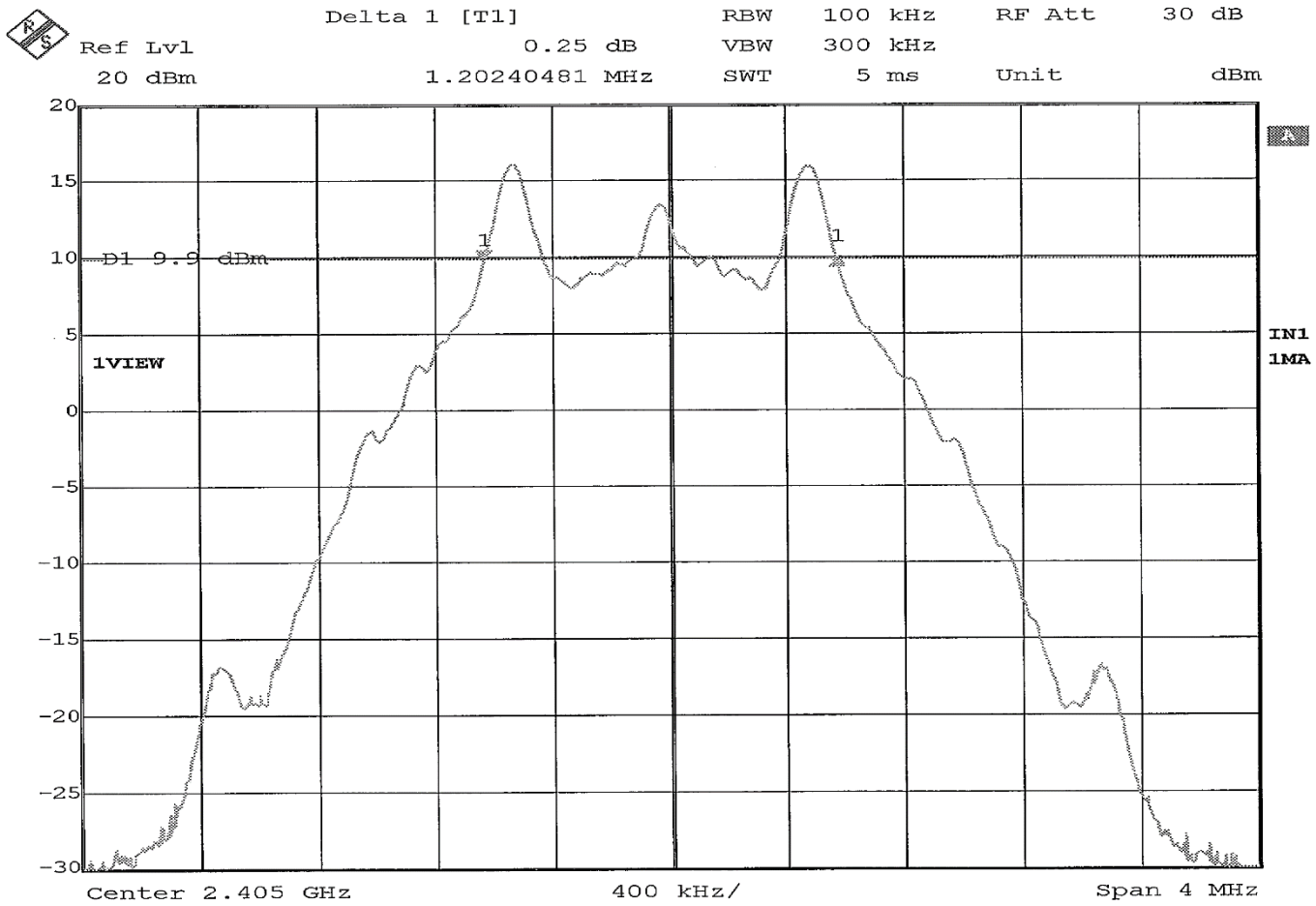
EMISSIONS TEST DATA SHEET	
Method:	**Occupied Bandwidth**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS) signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	June 19th, 2018
Temp/ Relative Humidity:	27.6 °C / 41.6 %
Notes:	6dB Bandwidth: 1.659 MHz



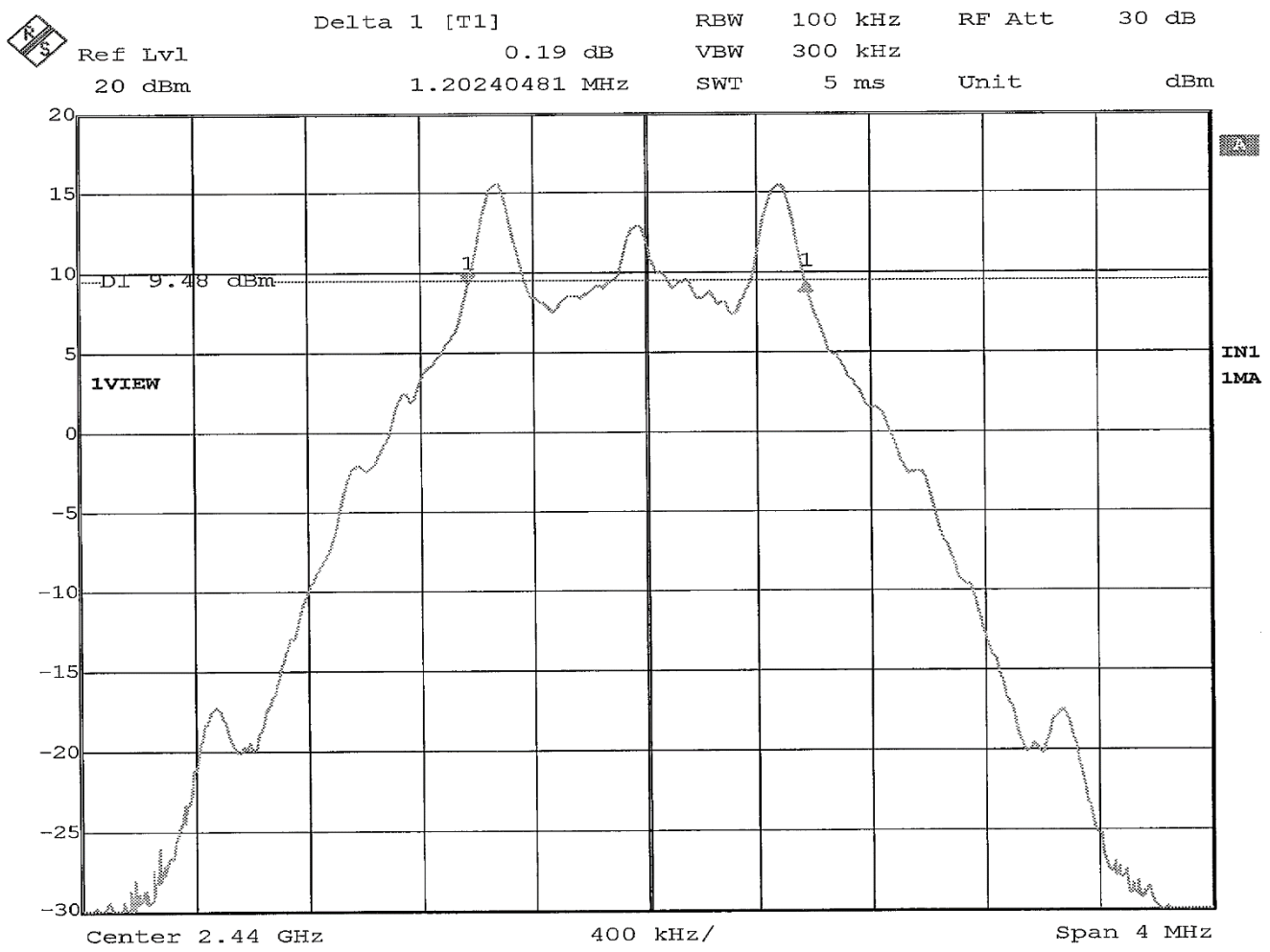
EMISSIONS TEST DATA SHEET	
Method:	**Occupied Bandwidth**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS) signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	June 19th, 2018
Temp/ Relative Humidity:	27.6 °C / 41.6 %
Notes:	6dB Bandwidth: 1.659 MHz



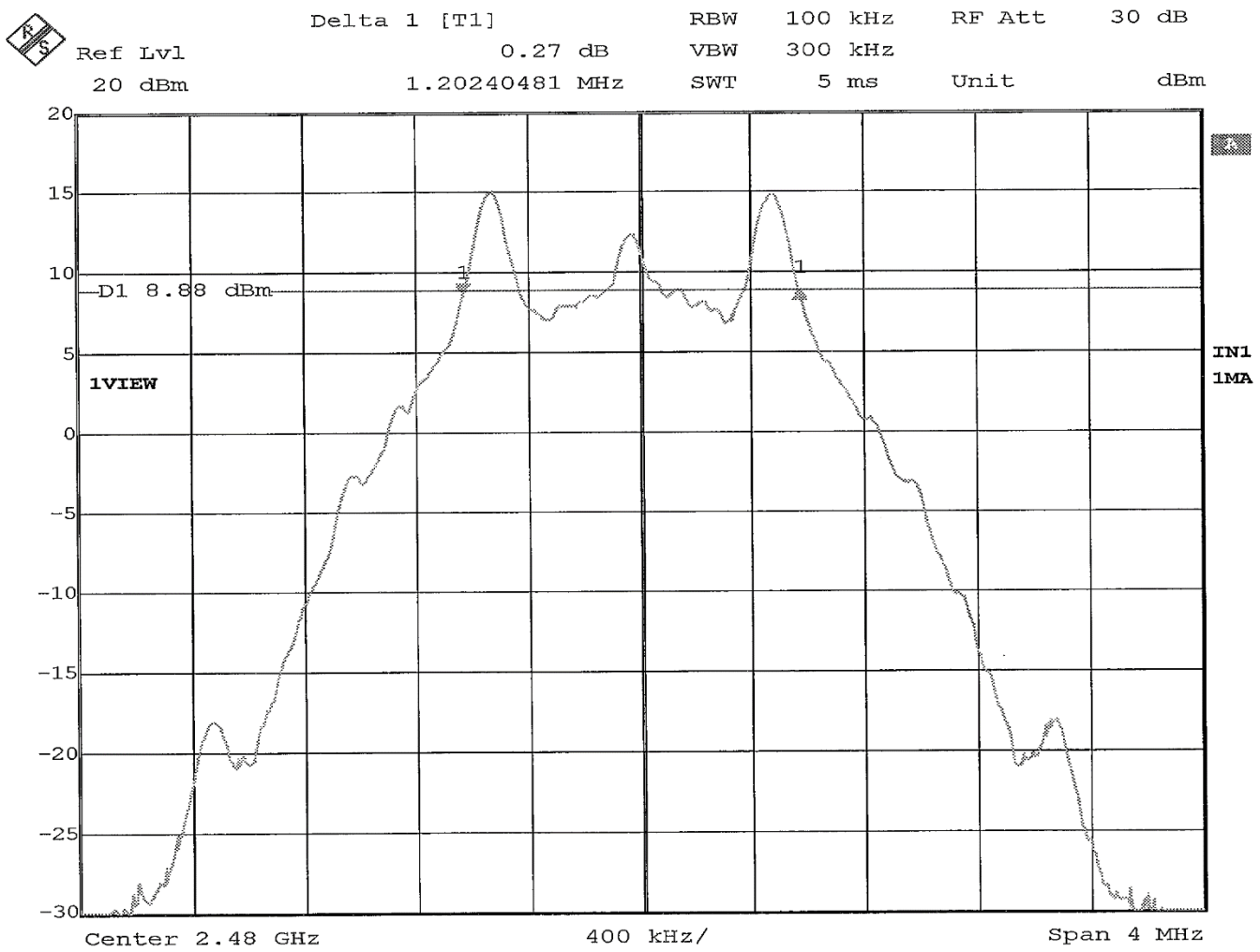
EMISSIONS TEST DATA SHEET	
Method:	**Occupied Bandwidth**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	June 19th, 2018
Temp/ Relative Humidity:	27.6 °C / 41.6 %
Notes:	6dB Bandwidth: 1.202 MHz



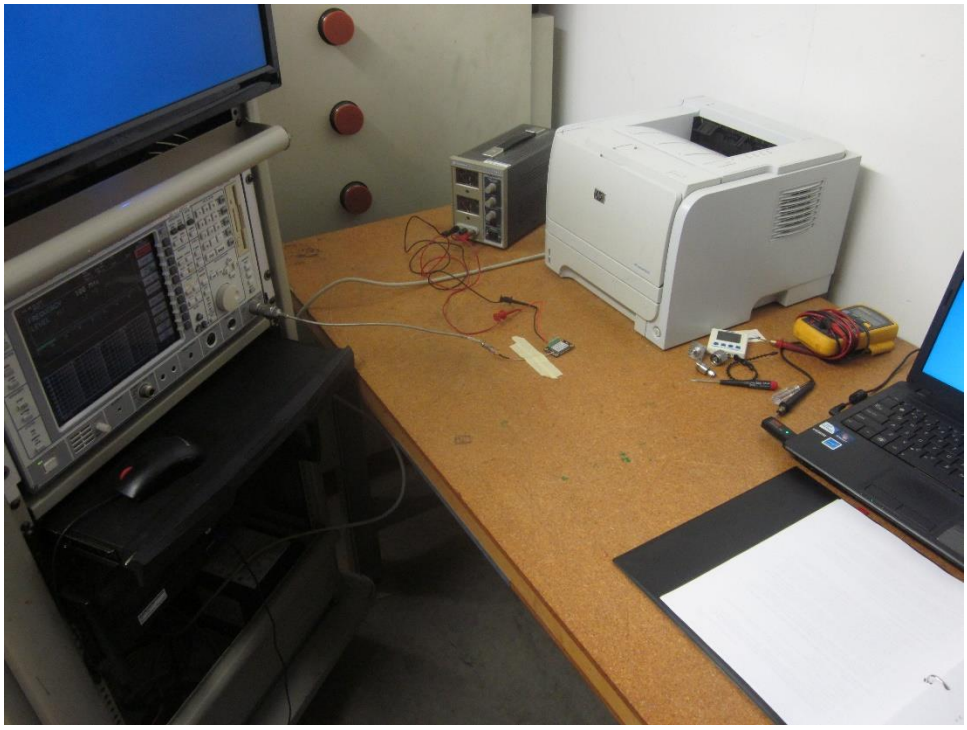
EMISSIONS TEST DATA SHEET	
Method:	**Occupied Bandwidth**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	June 19th, 2018
Temp/ Relative Humidity:	27.6 °C / 41.6 %
Notes:	6dB Bandwidth: 1.202 MHz



EMISSIONS TEST DATA SHEET	
Method:	**Occupied Bandwidth**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	June 19th, 2018
Temp/ Relative Humidity:	27.6 °C / 41.6 %
Notes:	6dB Bandwidth: 1.202 MHz



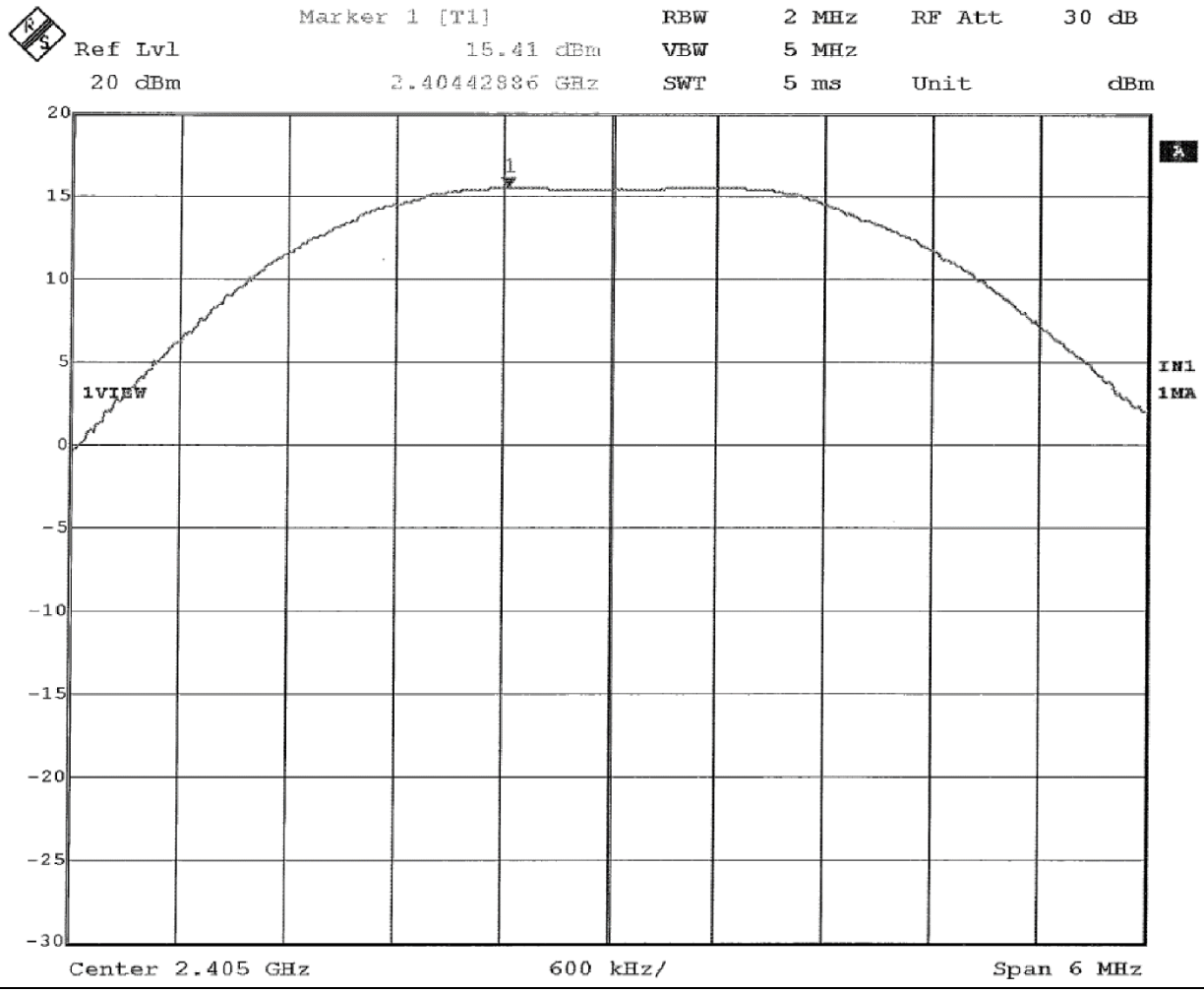
Test Photographs
Power Output



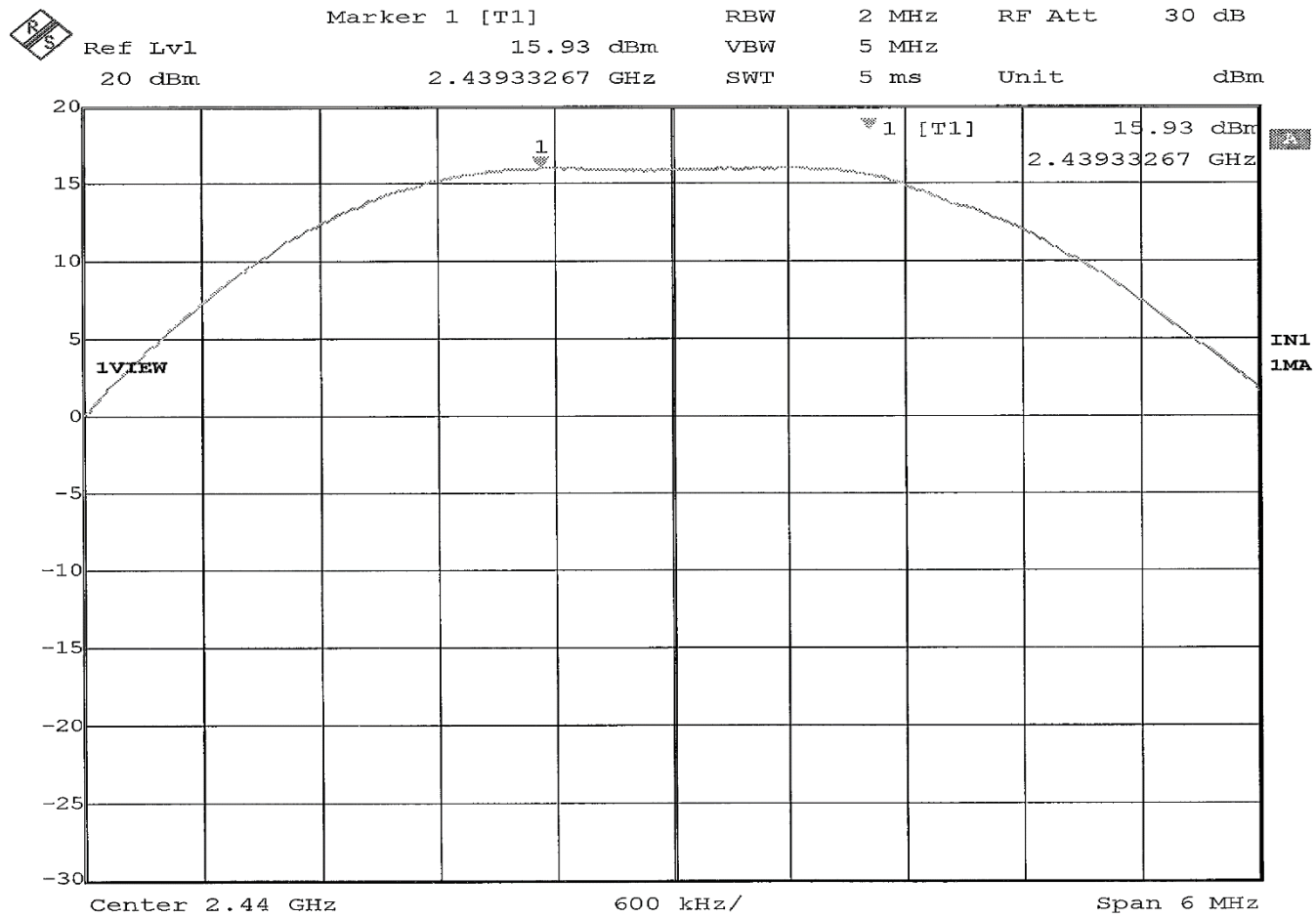
Test Setup

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

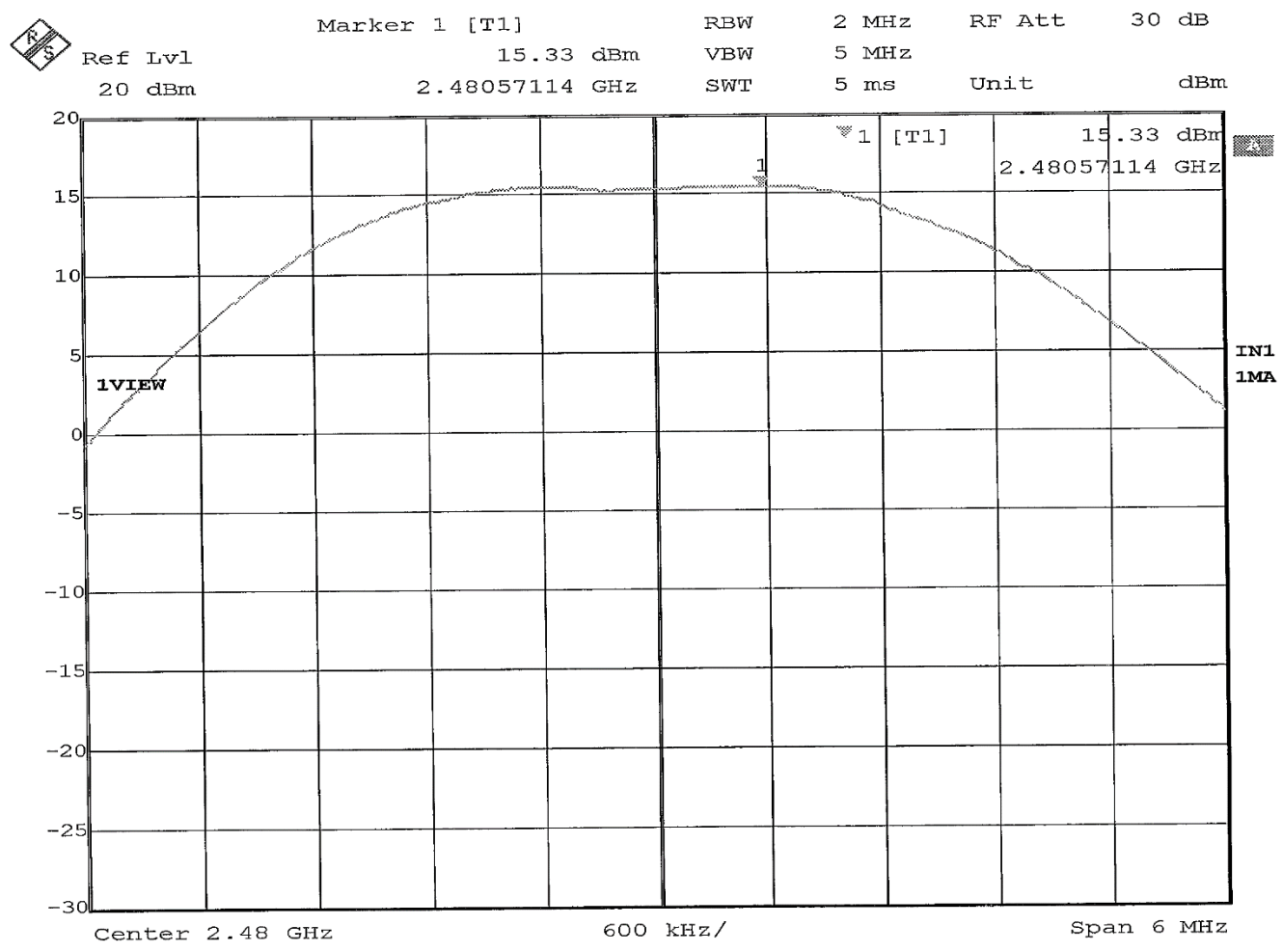
EMISSIONS TEST DATA SHEET	
Method:	**Power Output**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS) signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	June 19th, 2018
Temp/ Relative Humidity:	28.0 °C / 44.0 %
Notes:	KDB Method: 9.1.1 Power Output: 15.41 dBm



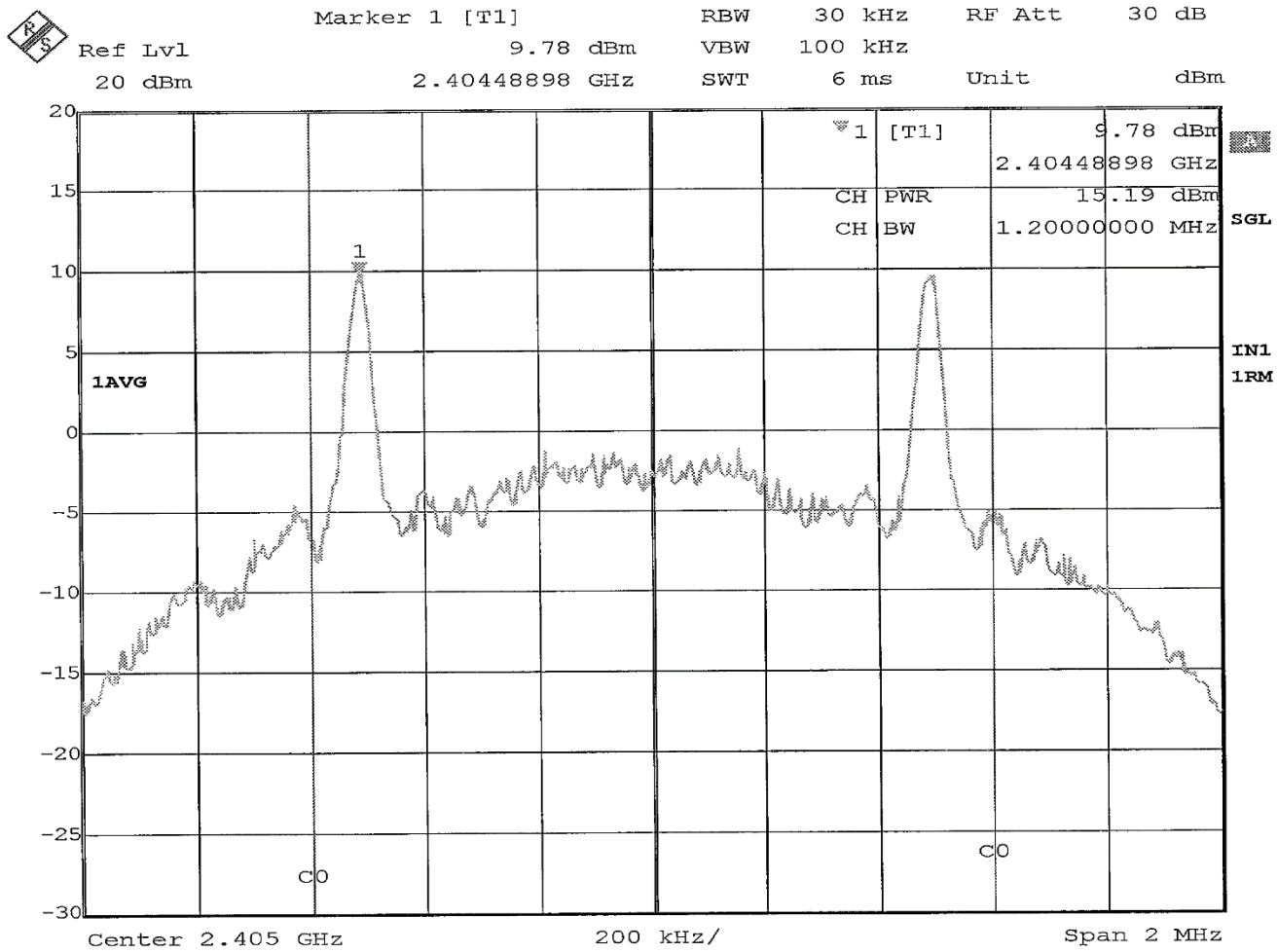
EMISSIONS TEST DATA SHEET	
Method:	**Peak Power Output**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS) signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	June 19th, 2018
Temp/ Relative Humidity:	28.0 °C / 44.0 %
Notes:	KDB Method: 9.1.1 Power Output: 15.93 dBm



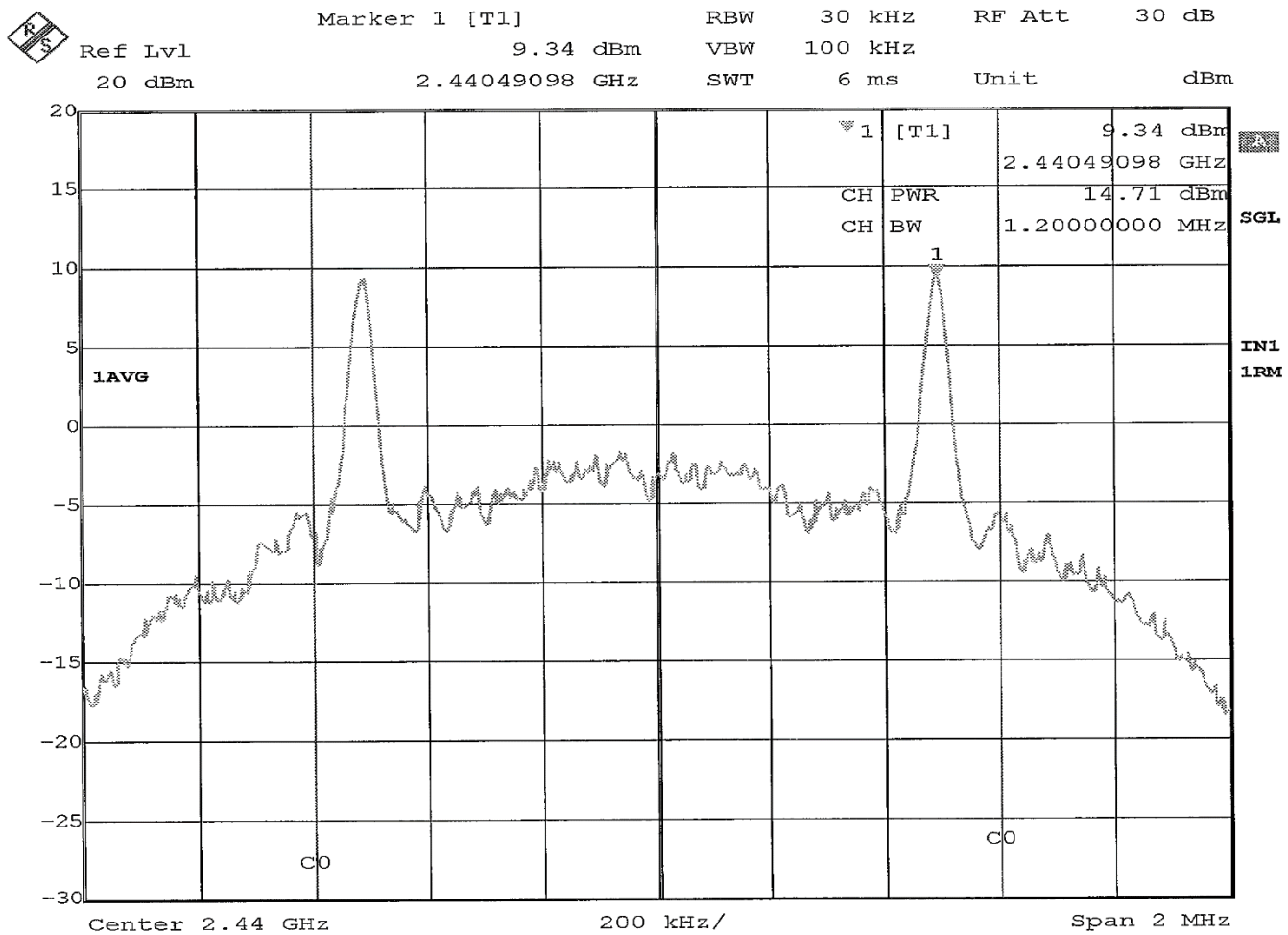
EMISSIONS TEST DATA SHEET	
Method:	**Peak Power Output**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS) signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	June 19th, 2018
Temp/ Relative Humidity:	28.0 °C / 44.0 %
Notes:	KDB Method: 9.1.1 Power Output: 15.33 dBm



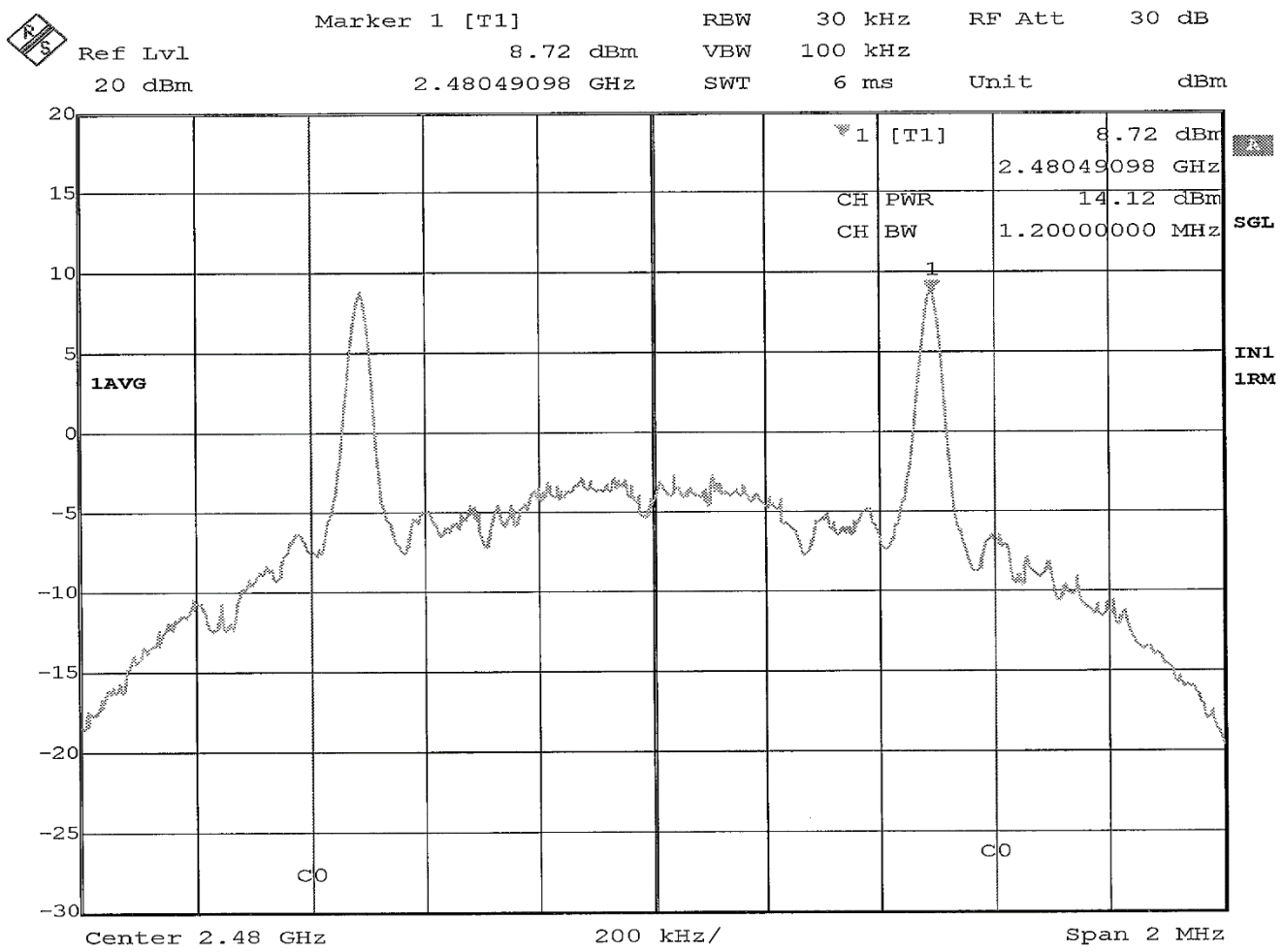
EMISSIONS TEST DATA SHEET	
Method:	**Power Output**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	June 19th, 2018
Temp/ Relative Humidity:	28.0 °C / 44.0 %
Notes:	KDB Method: 9.2.2.2 Power Output: 15.19 dBm



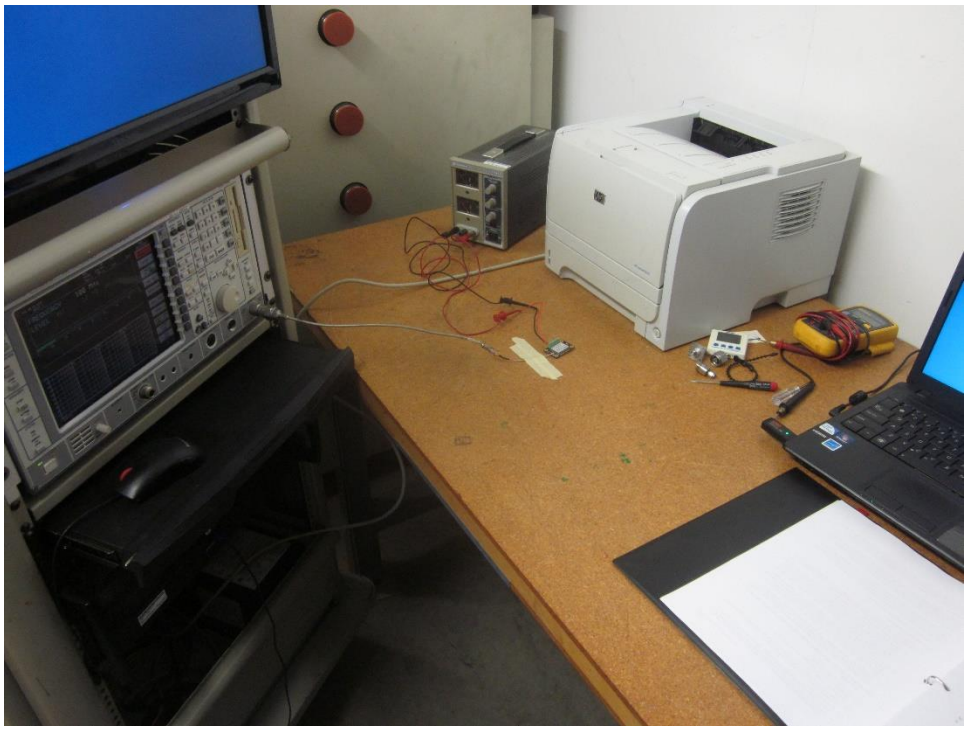
EMISSIONS TEST DATA SHEET	
Method:	**Peak Power Output**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	June 19th, 2018
Temp/ Relative Humidity:	28.0 °C / 44.0 %
Notes:	KDB Method: 9.2.2.2 Power Output: 14.71 dBm



EMISSIONS TEST DATA SHEET	
Method:	**Peak Power Output**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	June 19th, 2018
Temp/ Relative Humidity:	28.0 °C / 44.0 %
Notes:	KDB Method: 9.2.2.2 Power Output: 14.12 dBm



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

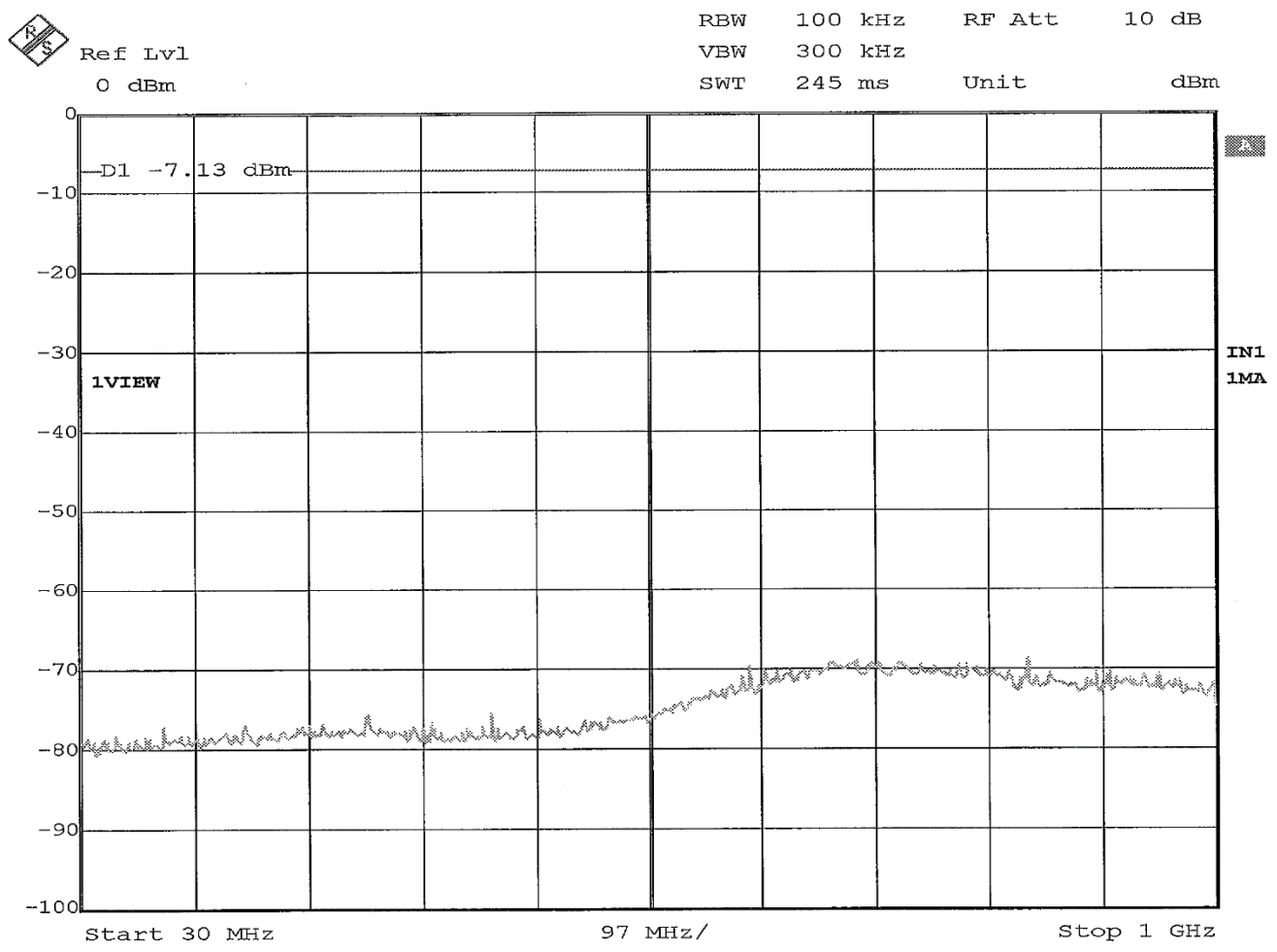


Test Setup

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

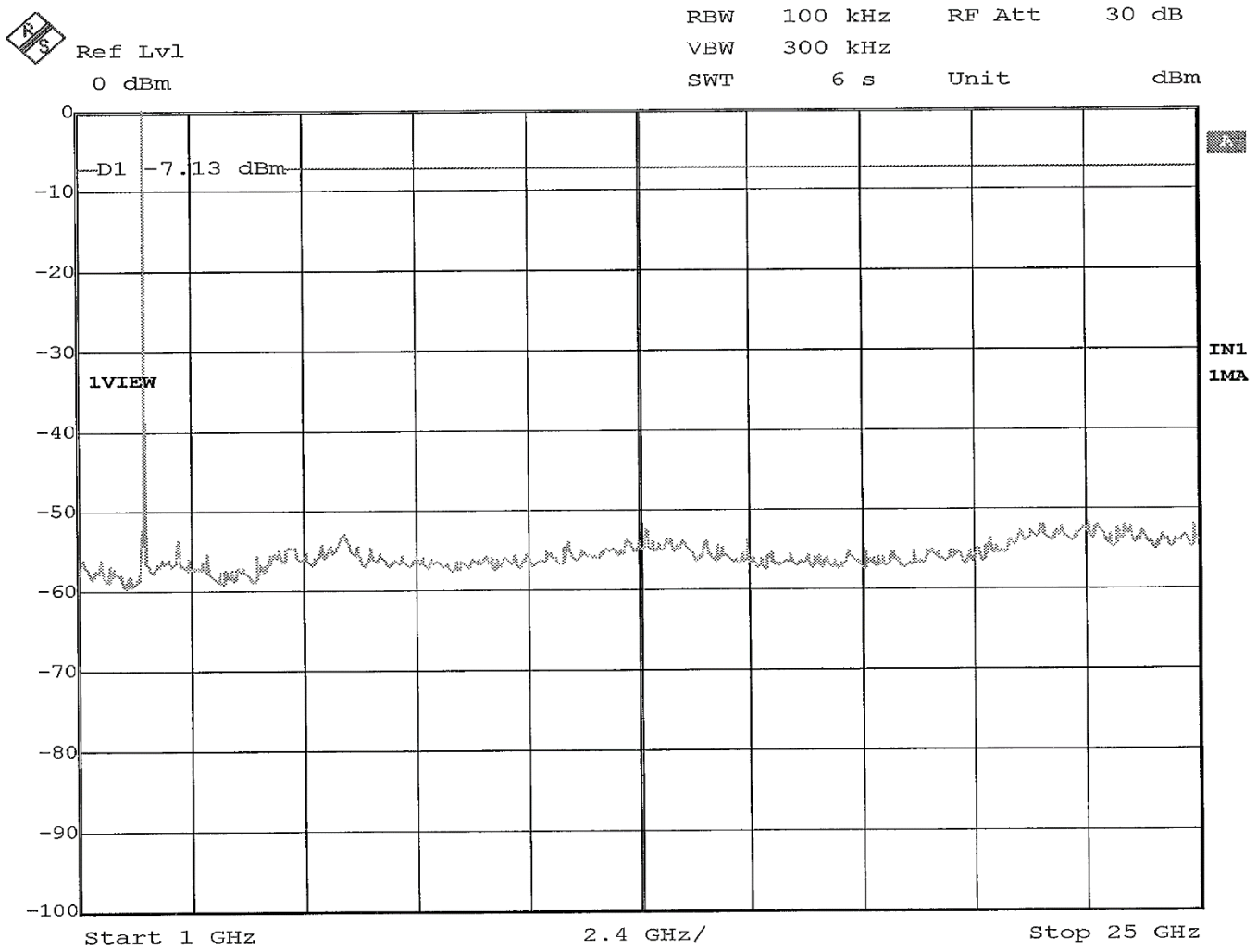
Conducted Out of Band
Test Data

EMISSIONS TEST DATA SHEET	
Method:	**Conducted Out of Band**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS) signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	June 20th, 2018
Temp/ Relative Humidity:	23.3 °C / 49.6 %
Notes:	Limit: -7.13 dBm



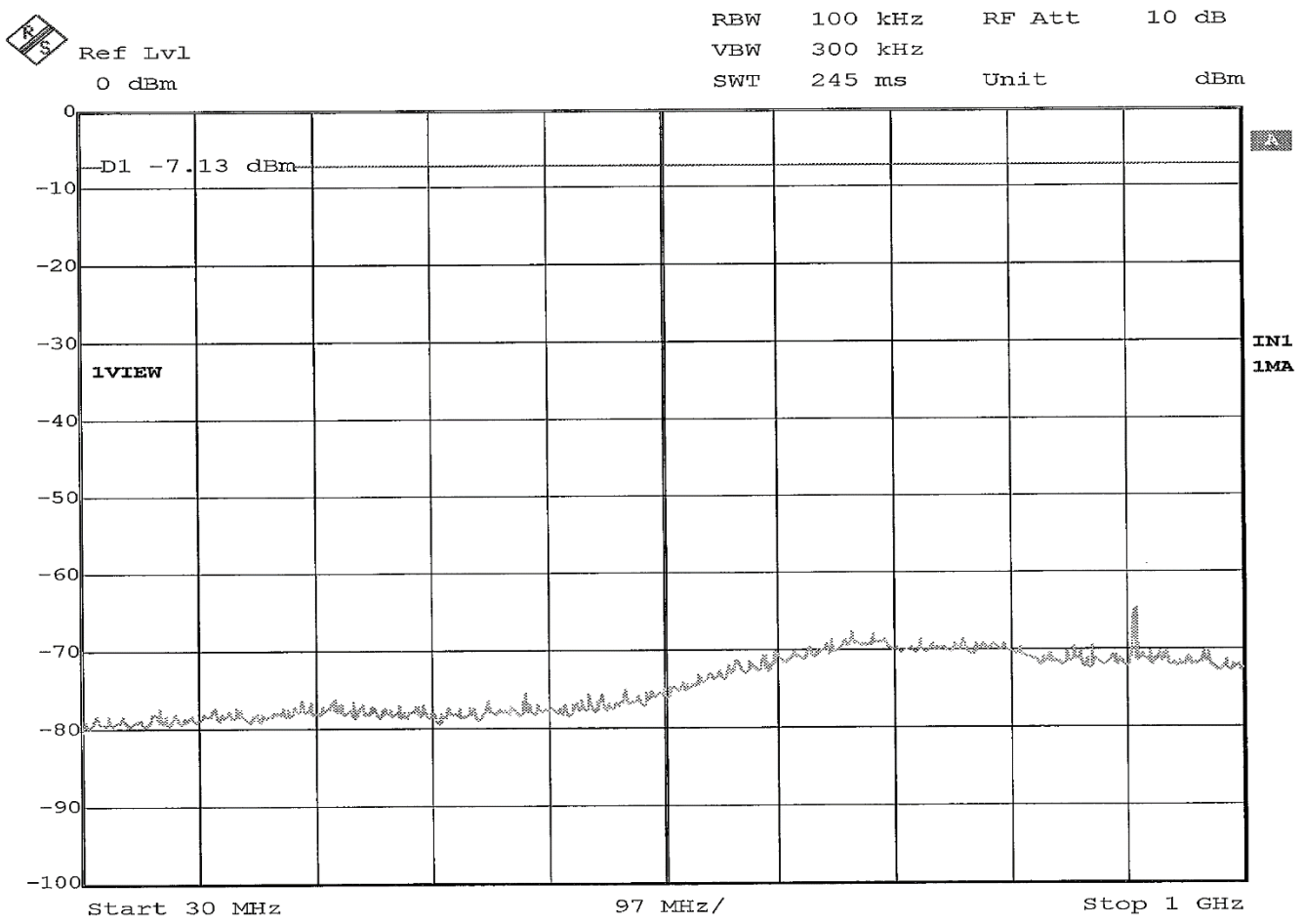
25MHz to 1GHz

EMISSIONS TEST DATA SHEET	
Method:	**Conducted Out of Band**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS) signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	June 20th, 2018
Temp/ Relative Humidity:	23.3 °C / 49.6 %
Notes:	Limit: -7.13 dBm



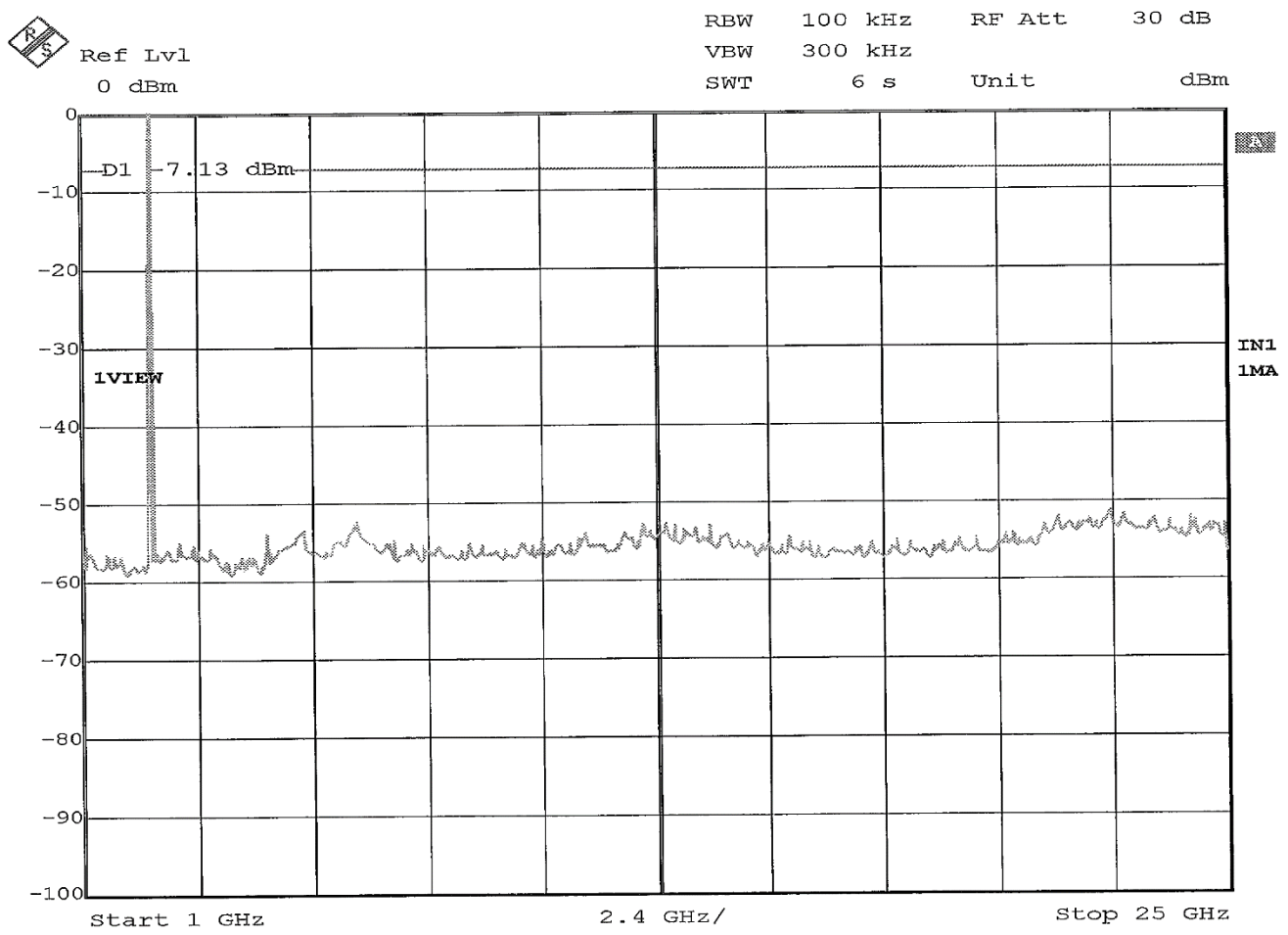
1GHz to 25GHz

EMISSIONS TEST DATA SHEET	
Method:	**Conducted Out of Band**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS) signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	June 20th, 2018
Temp/ Relative Humidity:	23.3 °C / 49.6 %
Notes:	Limit: -7.13 dBm



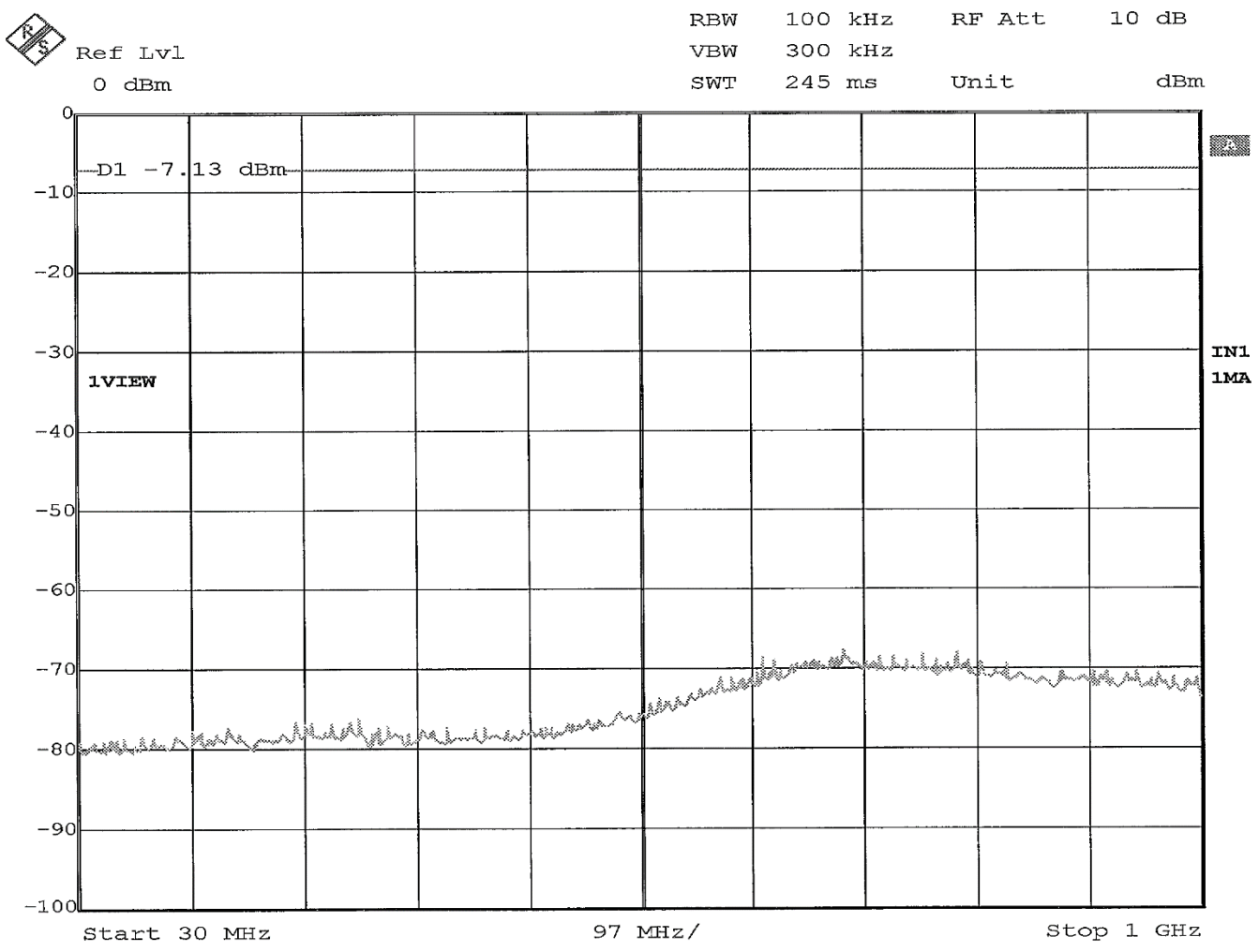
25MHz to 1GHz

EMISSIONS TEST DATA SHEET	
Method:	**Conducted Out of Band**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS) signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	June 20th, 2018
Temp/ Relative Humidity:	23.3 °C / 49.6 %
Notes:	Limit: -7.13 dBm



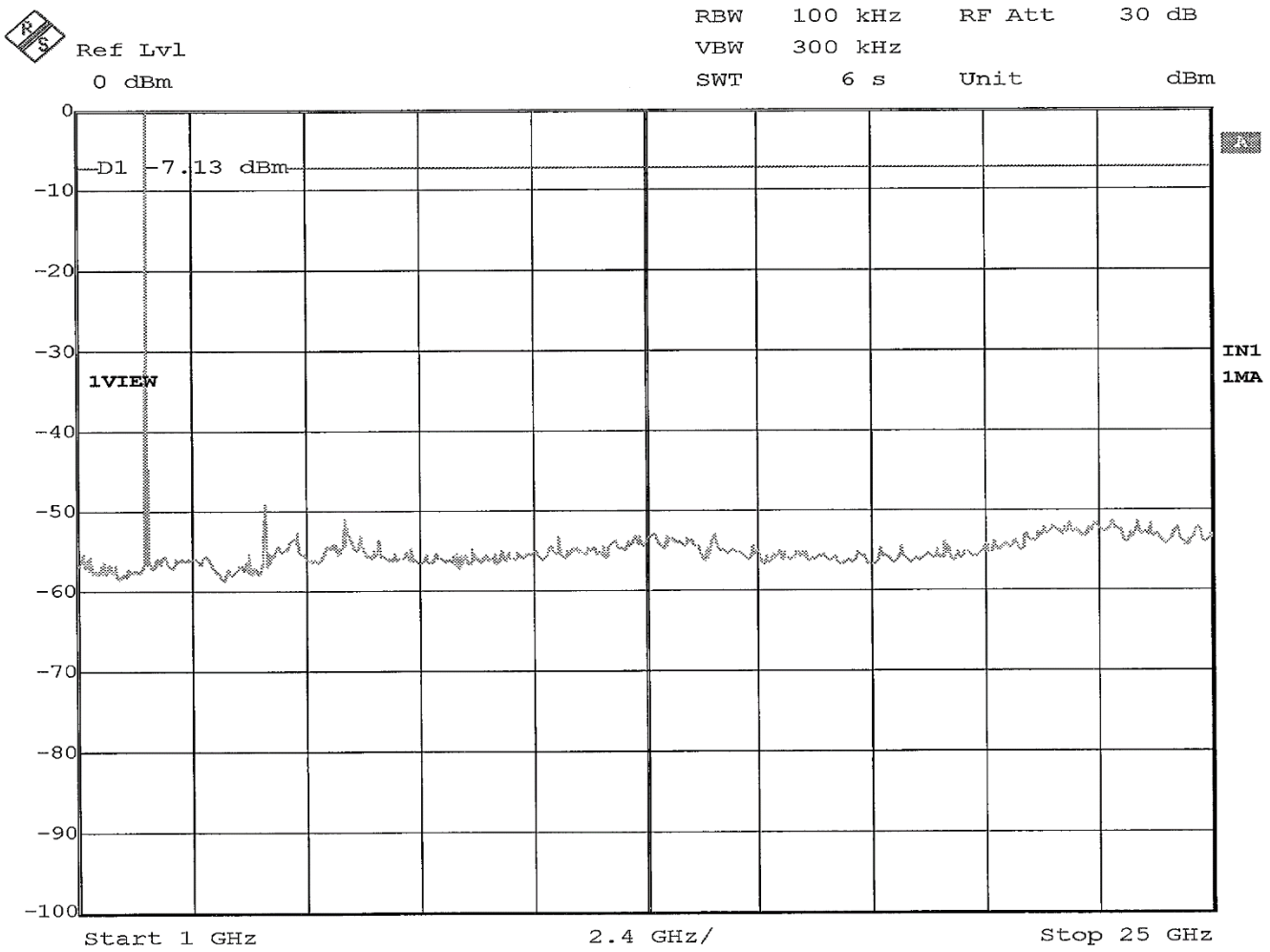
1GHz to 25GHz

EMISSIONS TEST DATA SHEET	
Method:	**Conducted Out of Band**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS) signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	June 20th, 2018
Temp/ Relative Humidity:	23.3 °C / 49.6 %
Notes:	Limit: -7.13 dBm



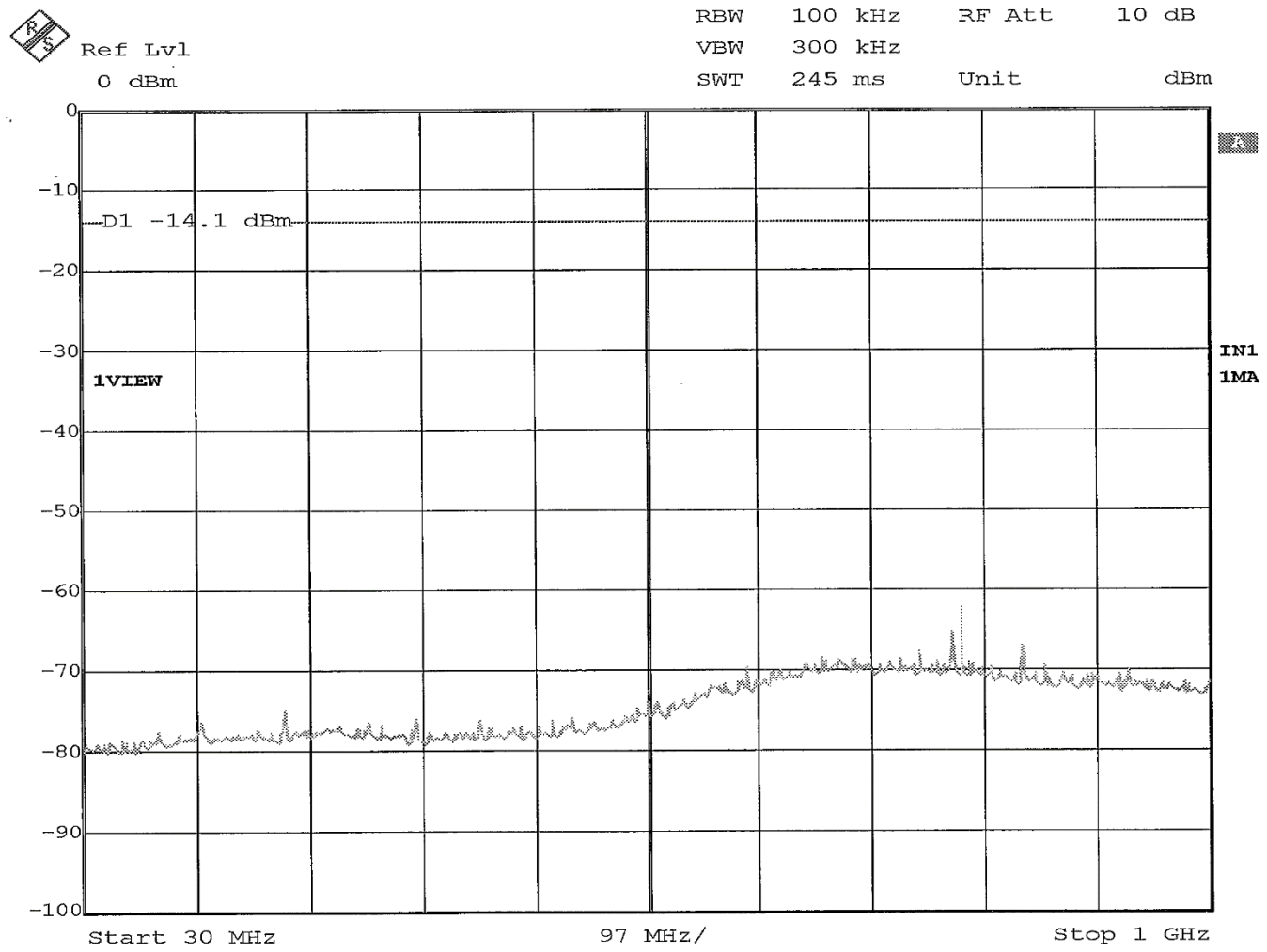
25MHz to 1GHz

EMISSIONS TEST DATA SHEET	
Method:	**Conducted Out of Band**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS) signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	June 20th, 2018
Temp/ Relative Humidity:	23.3 °C / 49.6 %
Notes:	Limit: -7.13 dBm



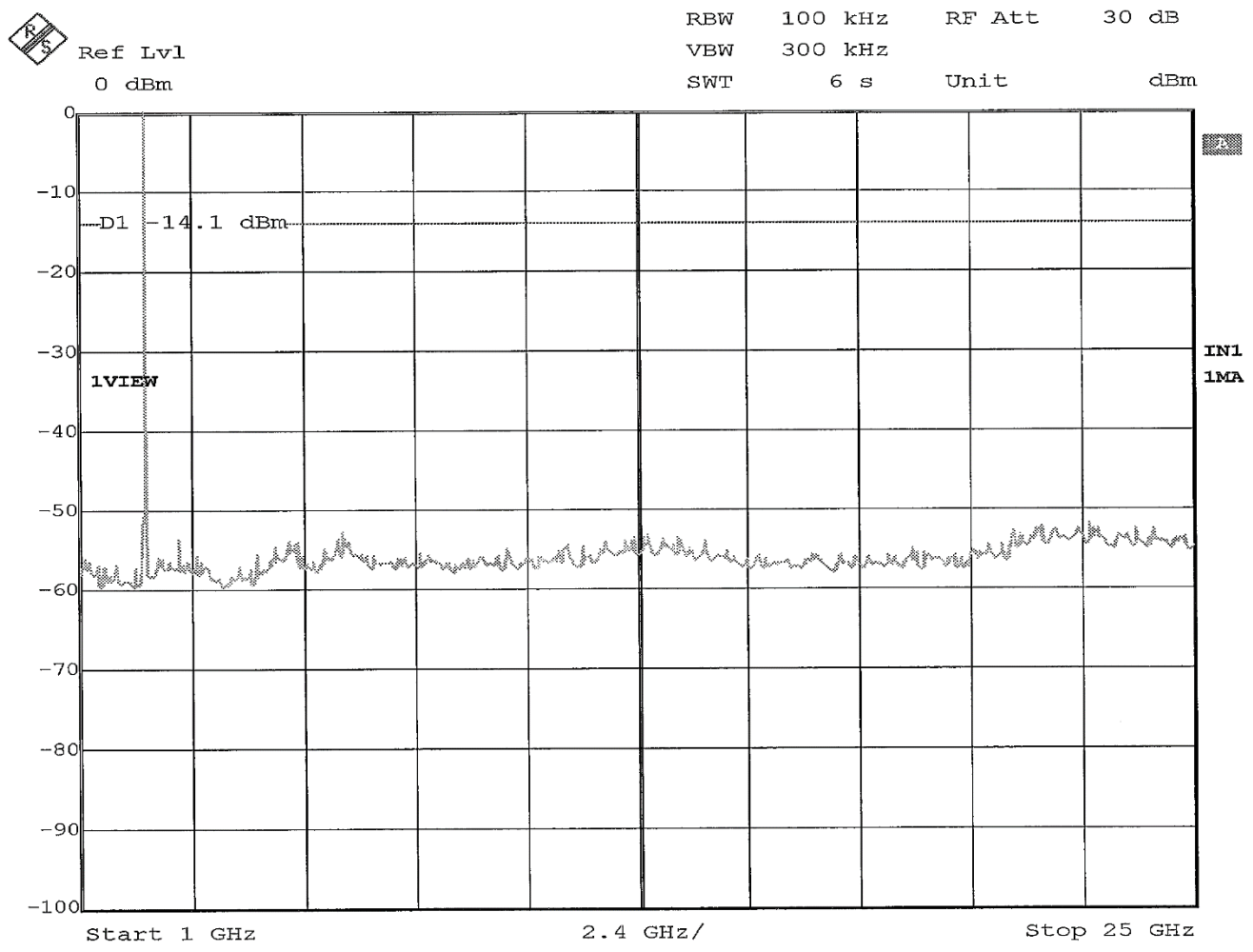
1GHz to 25GHz

EMISSIONS TEST DATA SHEET	
Method:	**Conducted Out of Band**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	June 20th, 2018
Temp/ Relative Humidity:	23.3 °C / 49.6 %
Notes:	Limit: -14.10 dBm



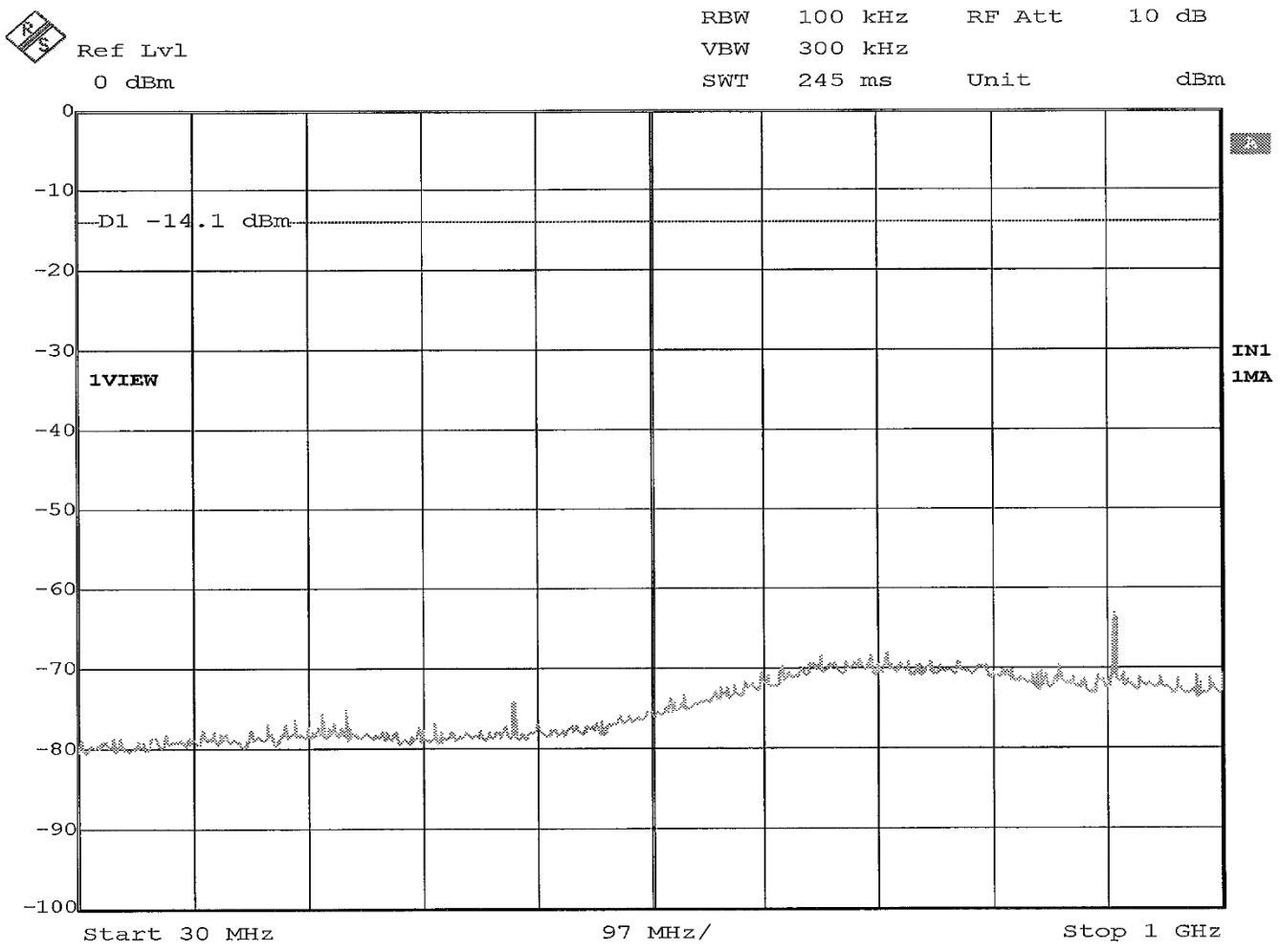
25MHz to 1GHz

EMISSIONS TEST DATA SHEET	
Method:	**Conducted Out of Band**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	June 20th, 2018
Temp/ Relative Humidity:	23.3 °C / 49.6 %
Notes:	Limit: -14.10 dBm



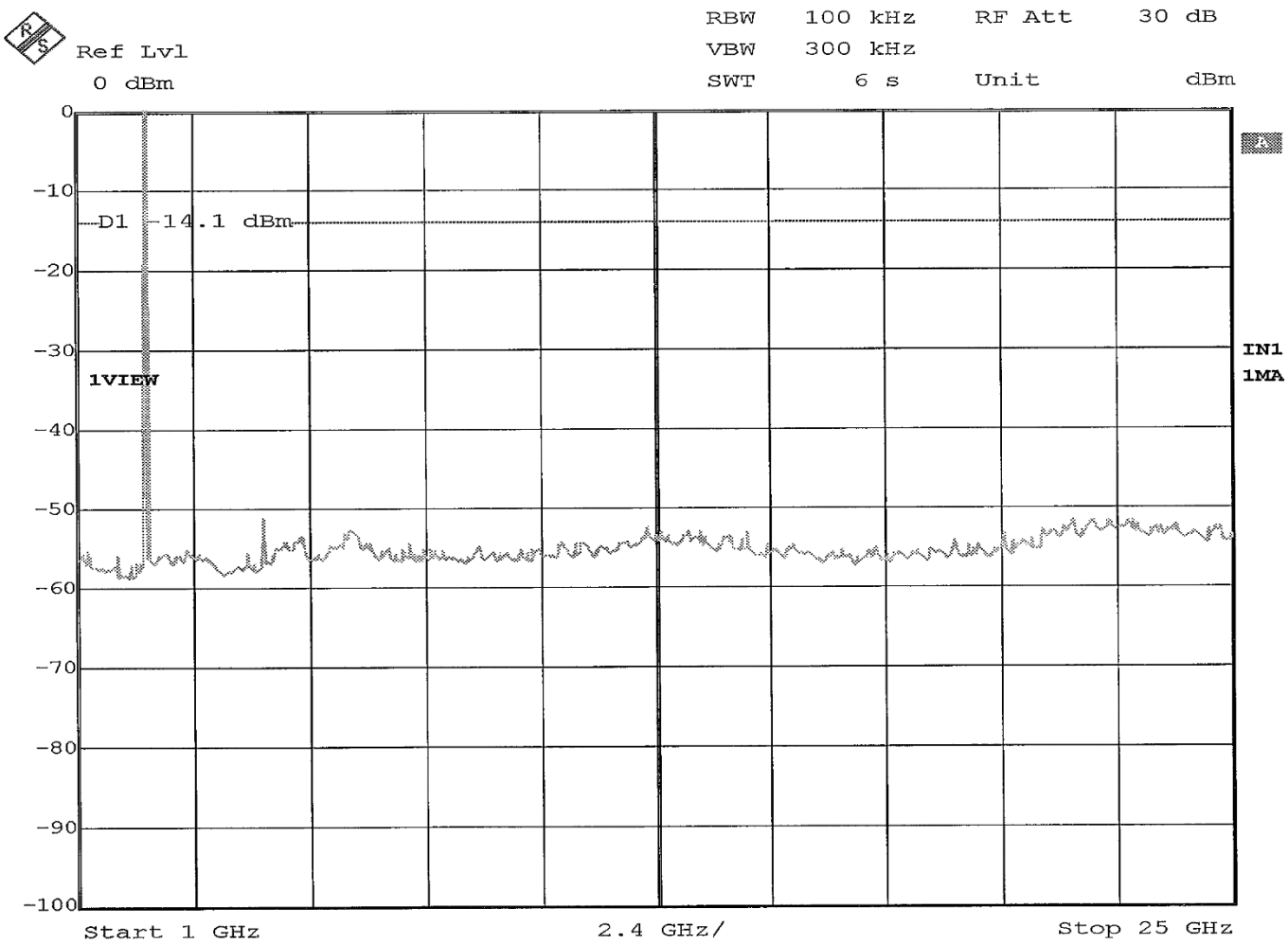
1GHz to 25GHz

EMISSIONS TEST DATA SHEET	
Method:	**Conducted Out of Band**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	June 20th, 2018
Temp/ Relative Humidity:	23.3 °C / 49.6 %
Notes:	Limit: -14.10 dBm



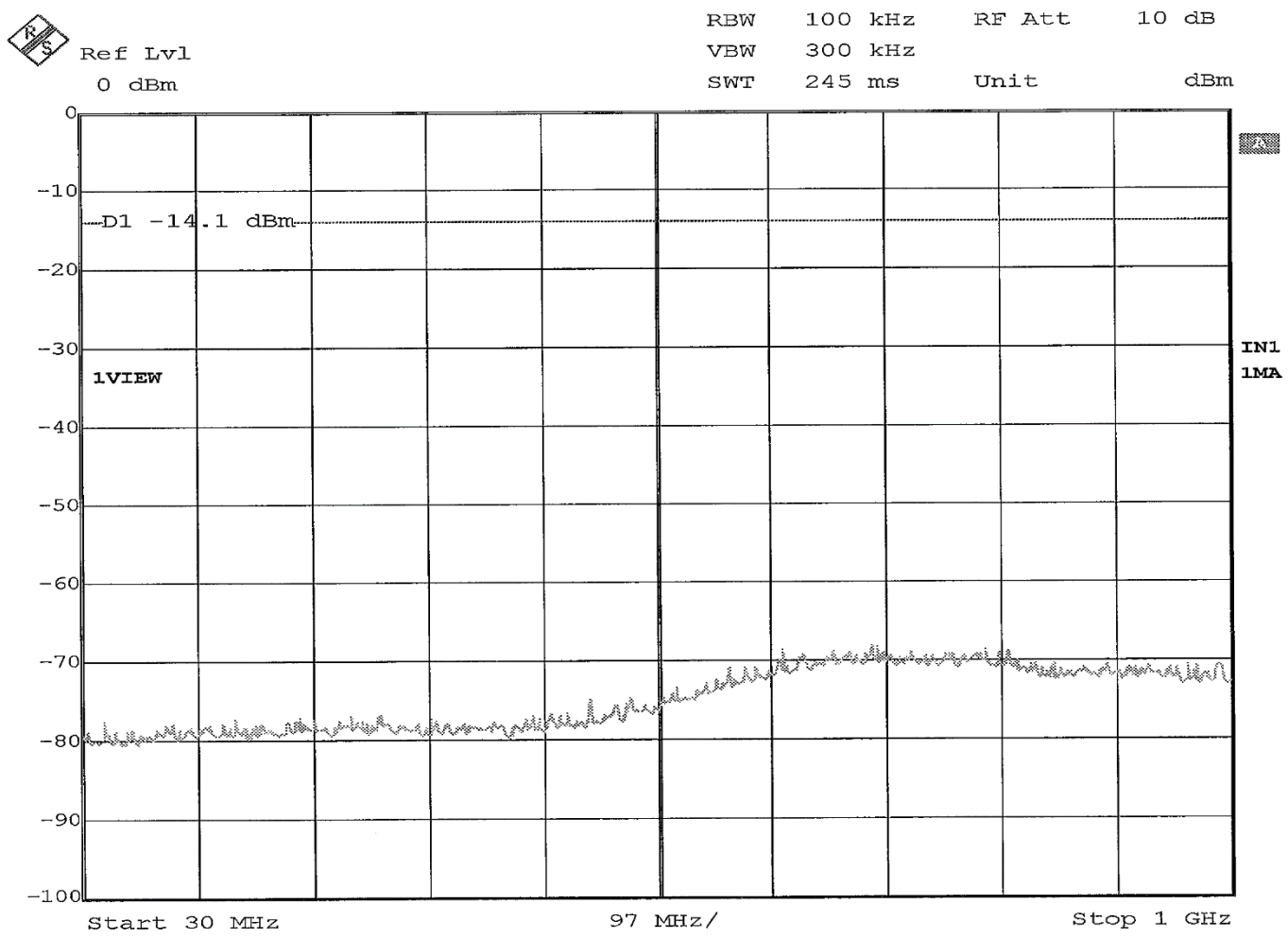
25MHz to 1GHz

EMISSIONS TEST DATA SHEET	
Method:	**Conducted Out of Band**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	June 20th, 2018
Temp/ Relative Humidity:	23.3 °C / 49.6 %
Notes:	Limit: -14.10 dBm



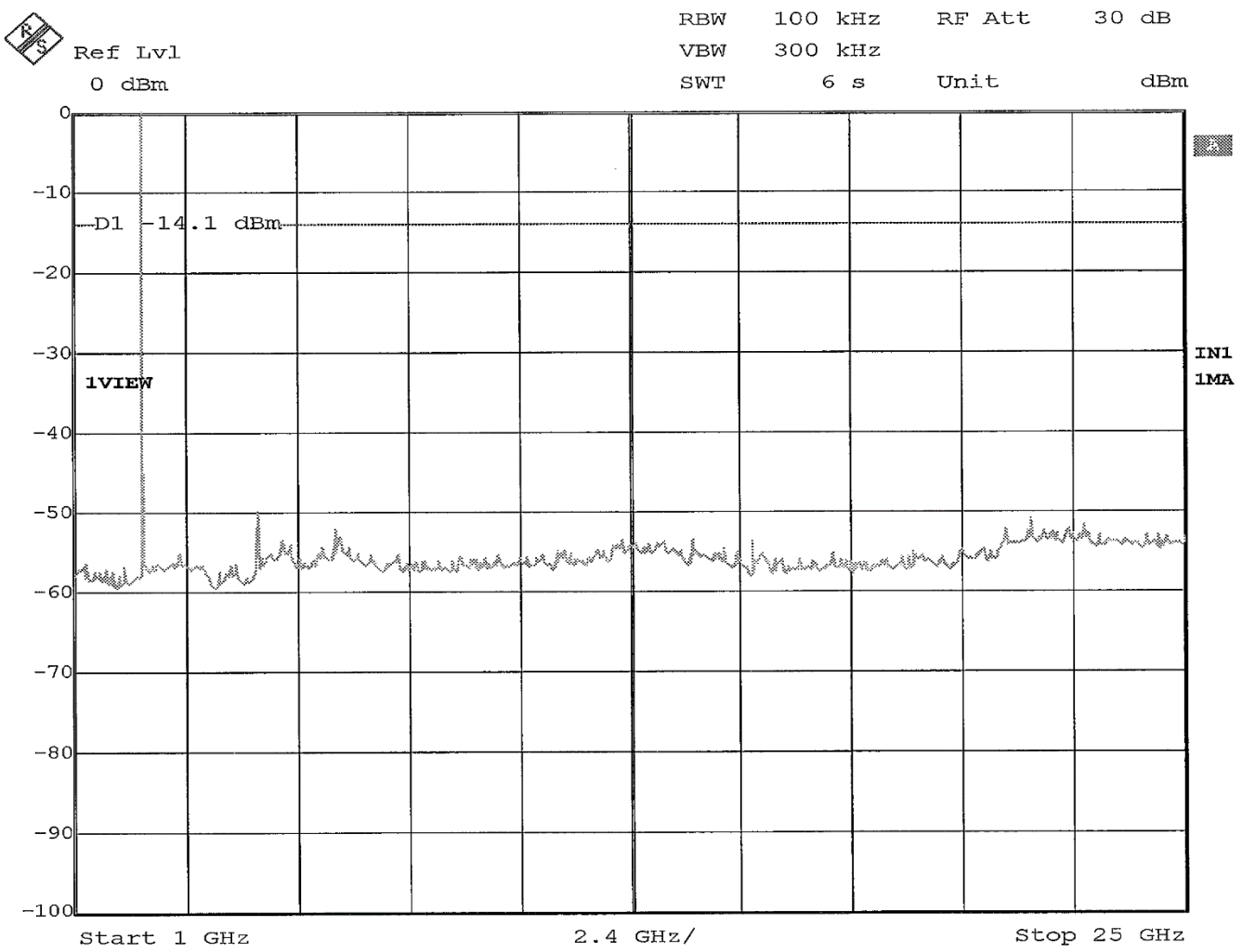
1GHz to 25GHz

EMISSIONS TEST DATA SHEET	
Method:	**Conducted Out of Band**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	June 20th, 2018
Temp/ Relative Humidity:	23.3 °C / 49.6 %
Notes:	Limit: -14.10 dBm



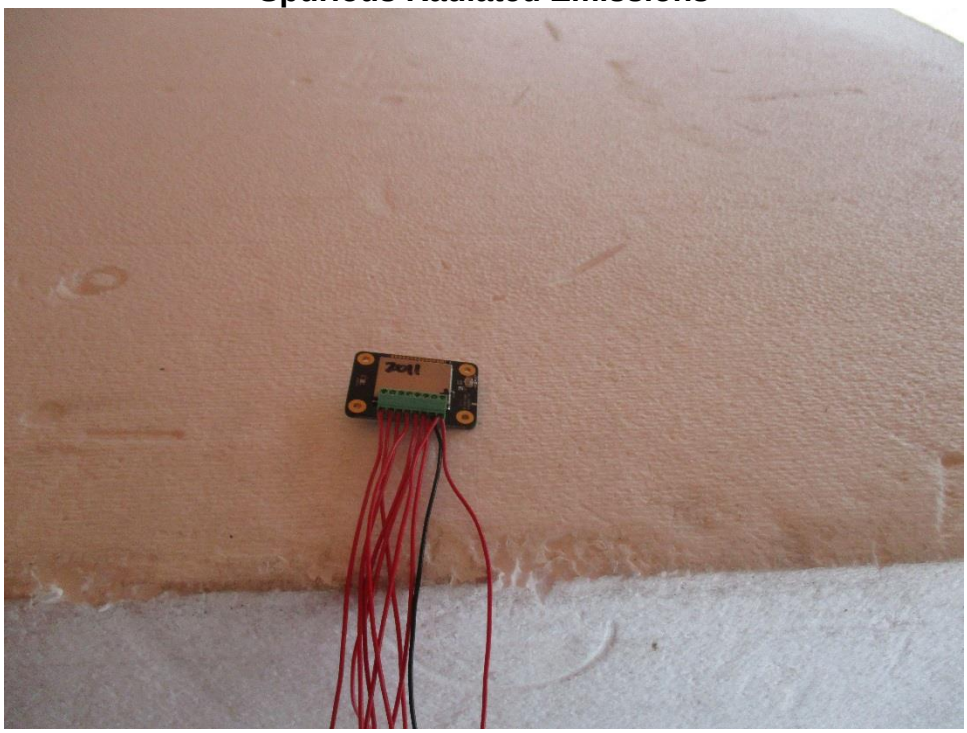
25MHz to 1GHz

EMISSIONS TEST DATA SHEET	
Method:	**Conducted Out of Band**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6339N-1
Customer:	Lord Corporation
Test Sample:	Wireless Analog Input Node
Model Number:	SG-Link-200-OEM
Serial Number:	6308-4201-00002
Operating Mode:	Transmitting modulated (LXRS+) signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	June 20th, 2018
Temp/ Relative Humidity:	23.3 °C / 49.6 %
Notes:	Limit: -14.10 dBm



1GHz to 25GHz

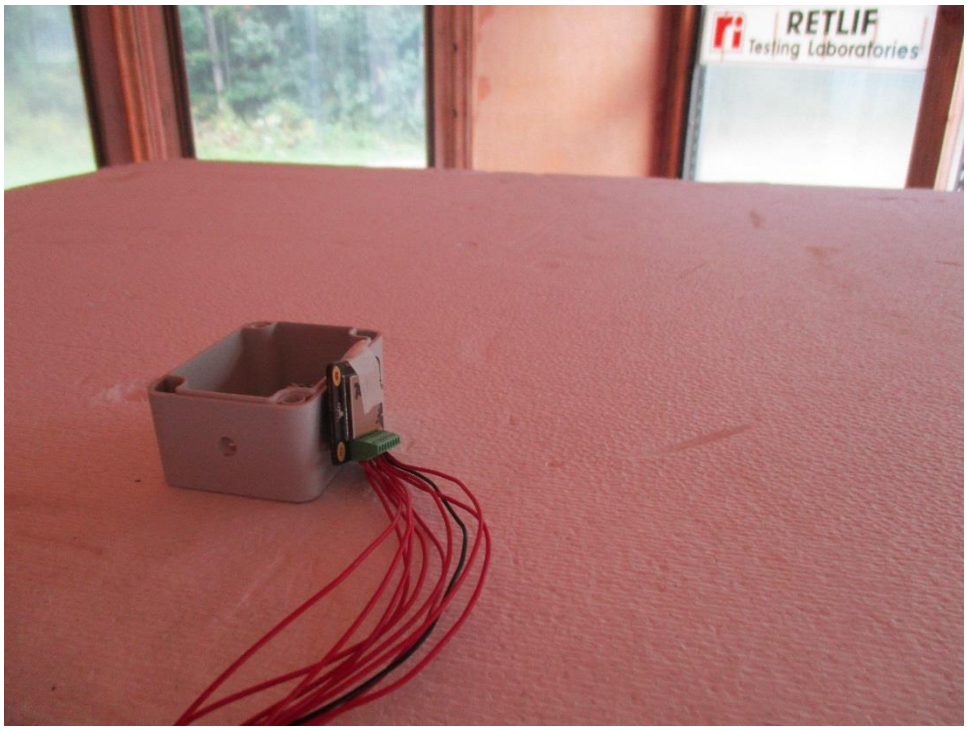
Test Photographs
Spurious Radiated Emissions



X Axis

Y Axis

Test Photographs
Spurious Radiated Emissions



Z Axis

Test Photographs
Spurious Radiated Emissions

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

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

Test Photographs
Spurious Radiated Emissions

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

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

Test Photographs
Spurious Radiated Emissions

Horizontal Antenna Polarization, 1 MHz to 18 GHz, Log Periodic
Internal Antenna

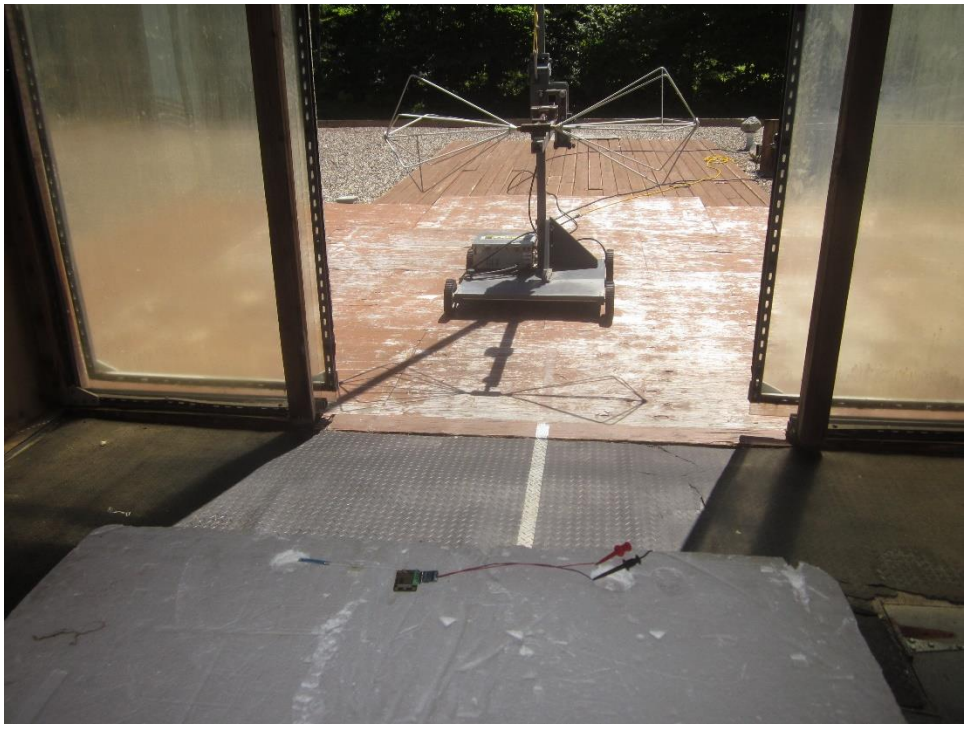
Vertical Antenna Polarization, 1 GHz to 18 GHz, Log Periodic
Internal Antenna

Test Photographs
Spurious Radiated Emissions

Horizontal Antenna Polarization, 18 GHz to 25 GHz, Log Periodic
Internal Antenna

Vertical Antenna Polarization, 18 GHz to 25 GHz, Log Periodic
Internal Antenna

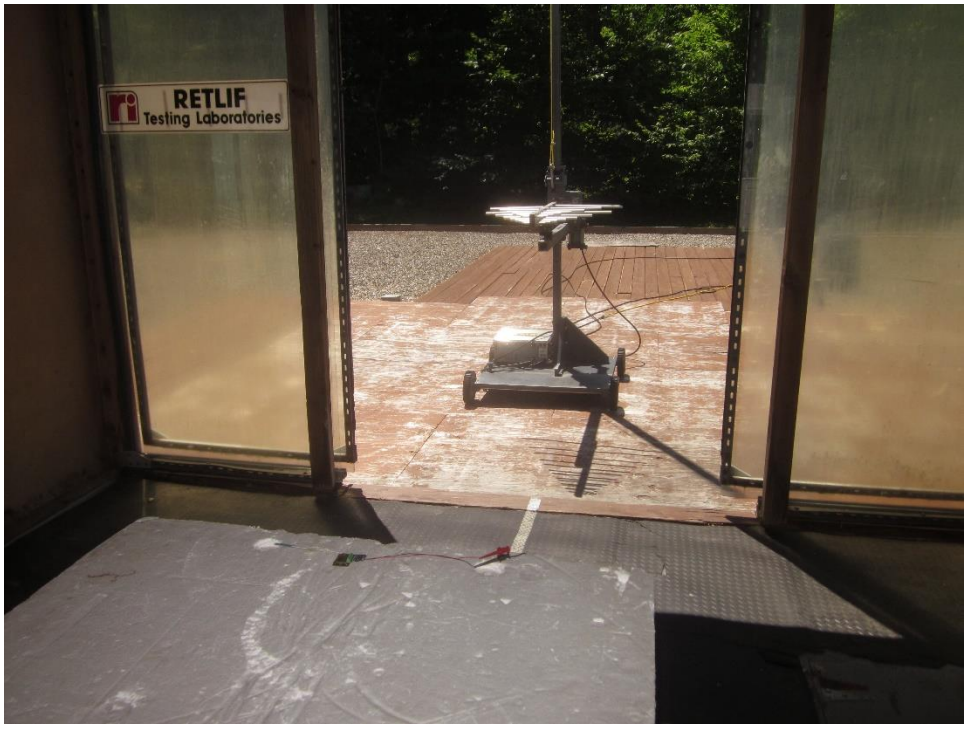
Test Photographs
Spurious Radiated Emissions



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

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

Test Photographs
Spurious Radiated Emissions



Horizontal Antenna Polarization, 200 MHz to 1 GHz, Log Periodic,
External Antenna

Vertical Antenna Polarization, 200 MHz to 1 GHz, Log Periodic,
External Antenna