



**FCC Part 15, Subpart C  
Test Report**

On

**RFID Reader**  
**FCC ID: 2ABSR-5396-9920**

**Customer Name:** Monarch Instrument

**Customer P.O.:** 21080

**Date of Report:** March 19, 2014

**Test Report No:** R-5812N

**Test Start Date:** February 12, 2014

**Test Finish Date:** February 13, 2014

**Test Technician:** M. Seamans

**Approved By:** S. Wentworth

**Report Prepared By:** J. Ramsey

Our letters, procedures and reports are for the exclusive use of the customer to whom they are addressed and their communication or the use of the name of Retlif Testing Laboratories must receive our prior written approval. Our letters, procedures and reports apply only to the sample tested and are not necessarily indicative of the qualities of apparently identical or similar products. The letters, procedures and reports and the name of Retlif Testing Laboratories or insignia are not to be used under any circumstances in advertising to the general public. This test report shall not be reproduced, except in full, without the written approval of Retlif Testing Laboratories.

## 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  
Laboratory Supervisor  
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.



**Retlif Testing Laboratories**

Report No. R-5812N

## Technical Information

<b>Report Number:</b>	R-5812N
<b>Applicant:</b>	Monarch International, Inc. dba Monarch Instrument
	15 Columbia Drive
	Amherst, NH 03031
<b>Manufacturer:</b>	Monarch Instrument
<b>Test Sample:</b>	RFID Reader
<b>Part Number:</b>	N/A
<b>Model Number:</b>	RFID-RDR
<b>Serial Numbers:</b>	Beta-002, Beta-001 (Frequency Tolerance only)
<b>Brand Name:</b>	Monarch Instrument
<b>Power Requirements:</b>	5 VDC
<b>Frequency of Operation:</b>	13.56 MHz
<b>Equipment Use:</b>	RFID Tag Reader

### Test Specification:

FCC Rules and Regulations Part 15, Subpart C, Section 15.225 and 15.209

### Test Procedure:

ANSI C63.4:2003

### EUT Description/Installation:

The RFID Reader is used to read and write information from passive Near Field Communication (NFC) tags (RFID Track – Its). The reader is a peripheral accessory that plugs into the USB port on a PC or laptop to enable the tags to be read by the user. The tags can also be read using the NFC capability of certain mobile smart phones.



**Retlif Testing Laboratories**

Report No. R-5812N

## **EUT Description/Installation (continued)**

The RFID Reader is built around the ST micro CR95HF which is an integrated transceiver IC for contactless applications. The CR95HF manages frame coding and decoding in Reader Mode for standard applications such as NFC, proximity and vicinity standards. The CR95HF embeds an Analog Front End to provide the 13.56 MHz Air Interface.

### **Tests Performed**

The test methods performed on the RFID Reader are shown below:

<b>FCC Part 15, Subpart C</b>	<b>Test Method</b>
15.255(a)	Field Strength of Fundamental
15.225(b)(c)(d) and 15.209	Field Strength of Spurious, Out of Band/Band Edge Emissions
15.225(e)	Frequency Tolerance
15.207(a)	Conducted Emissions, 150 kHz to 30 MHz

### **Support Equipment**

The EUT was tested while connected to the USB port of a Laptop Computer System. The following support equipment was used during testing:

<b>Description</b>	<b>Manufacturer</b>	<b>Model Number</b>	<b>Serial Number</b>
Laptop Computer	Samsung	Series 9	N/A
Laptop Computer	Dell	PP05L	CN-0X2034-48643-41E-0420
Mouse	Dell	N/A	N/A
Monitor	Dell	E197FPF	CN-OWM319-72872-698-281L
Ethernet Switch	Linksys	EZXS55W	R9150H443962

### **General Test Requirements**

1. The measurement procedures of ANSI C63.4:2003 were utilized as specified in FCC Part 15, Subpart C, Section 15.31(a)(3).
2. All measurements were performed at a 3 meter test distance.
3. The EUT was rotated throughout 360 degrees for all radiated emissions measurements as specified in FCC Section 15.31(f)(5).
4. All readily accessible EUT controls were adjusted in such a manner as to maximize the level of emissions in accordance with FCC Section 15.31(g).
5. Appropriate accessories were attached to all EUT ports during the performance of radiated emissions measurements as required by FCC Section 15.31(i).



**Retlif Testing Laboratories**

Report No. R-5812N

## **Requirements and Test Results**

### **Requirement:**

#### **FCC Section 15.225 (a)**

#### **Field Strength of Fundamental**

FCC Section 15.225(a) – The field strength of any emission within the band 13.553 MHz – 13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

#### **Field Strength Measurement & Calculation:**

The following spectrum analyzer settings were used:

RBW = 1 MHz for  $f \geq 1$  GHz, 100 kHz for  $f \leq 1$  GHz

VBW  $\geq$  RBW

Detector Function = Peak or Average as applicable

Trace = Max Hold

Sweep = Auto

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

$$F_C = M_R + C_F$$

Where:

$F_C$  = Corrected Field Strength Reading in dB $\mu$ V/m

$M_R$  = Uncorrected Meter Reading in dB $\mu$ V

$C_F$  = Correction Factor in dB (Pre-Amp + Antenna Factor + Cable Loss + Distance Factor)

For frequencies below 30 MHz a distance factor of -40dB/decade was utilized



**Retlif Testing Laboratories**

Report No. R-5812N

## Requirements and Test Results (con't)

### 15.225 (a) Field Strength of Fundamental

#### Radiated Emissions Measurement Procedure:

The field strength of the fundamental emission was measured with a spectrum analyzer or EMI Receiver. The EUT was placed on an 80cm high wooden test stand located 3 meters from the test antenna on a FCC listed open area test site. Emissions from the EUT were maximized by re-orientating the test sample, rotating the test sample 360 degrees, changing the orientation of the receive antenna and raising and lowering the test antenna from 1 – 4 meters. The maximized field strength of each observed emission was measured, recorded and compared to the specified limits of 15.225(a) as appropriate.

- **Results:** The maximized measured field strength of the fundamental emission was below the specified test limit of 15.225(a). See test data.

#### Requirement:

**FCC Section 15.225 (b)** - The field strength of any emission within the 13.410 – 13.553 MHz and 13.567 MHz – 13.710 MHz bands shall not exceed 334 uV/M at 30 meters.

**FCC Section 15.225 (c)** - The field strength of any emission within the 13.110 – 13.410 MHz and 13.710 – 14.010 MHz band shall not exceed 106 uV/M at 30 meters.

**FCC Section 15.225 (d)** - The field strength of any emission outside the 13.553 MHz – 13.567 MHz band shall not exceed the general radiated limits of 15.209 as shown below.

Test Limits, Field Strength of Out of Band Emissions

Fundamental Frequency (MHz)	Field Strength of Fundamental microvolts/meter	Measurement Distance
0.009 to 0.490	2400/F(kHz)	300
0.490 to 1.705	24000/F(kHz)	30
1.705 to 30.0	30	30
30.0 to 88.0	100	3
88.0 to 216.0	150	3
216.0 to 960.0	200	3
Above 960.0	500	3



**Retlif Testing Laboratories**

Report No. R-5812N

## Requirements and Test Results (con't)

### FCC Section 15.225 (b)(c)(d)

#### Radiated Emissions Measurement Procedure:

The field strength of radiated emissions were measured with a spectrum analyzer or EMI Receiver. The EUT was placed on an 80cm high wooden test stand located 3 meters from the test antenna on a FCC listed open area test site. Emissions from the EUT were maximized by re-orientating the test sample, rotating the test sample 360 degrees, changing the polarization/orientation of the test antenna and raising and lowering the test antenna from 1 – 4 meters. The maximized field strength of each observed emission was measured, recorded and compared to the specified limits of 15.225(b)(c)(d)/15.209. When necessary, the marker/delta method was used to verify bandedge compliance.

- **Results:** The maximized measured field strength of the radiated emissions were below the specified test limits of 15.225(b)(c)(d)/15.209. See test data.

#### Requirement:

### FCC Section 15.225 (e) Frequency Tolerance

The frequency tolerance of the carrier signal must be maintained within  $\pm 0.01\%$  of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage.

#### Frequency Tolerance Measurement Procedure

The EUT was placed in a temperature chamber and a frequency counter was connected to the EUT's RF output. The EUT's RF output frequency was measured and recorded over the temperature range of -20 degrees to +50 degrees C at 10 degree increments.

- **Results:** The frequency tolerance of the EUT was in compliance with the specified requirements of 15.225(e). See test data.



**Retlif Testing Laboratories**

Report No. R-5812N

## Requirements and Test Results (con't)

### Requirement:

#### FCC Section 15.207(a)

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

Conducted Emission Limits

Frequency of Emission (MHz)	Conducted Limit (dB $\mu$ 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		

#### Conducted Emissions Measurement Procedure

The EUT and associated cabling was placed on a 0.8 m high non-conductive test stand above the horizontal ground plane. The horizontal ground plane extended at least 0.5 m beyond the boundary of the equipment under test, and had a minimum size of 2.0 m x 2.0 m. The 0.8 m test stand was positioned such that the distance between the EUT and the vertical reference plane was 0.4 m. The LISN was located so that its closest surface was no less than 0.8 m from the nearest boundary of the equipment under test.

Each current carrying conductor of the EUT's power cord was then connected to a 50 ohm/50  $\mu$ H LISN. The LISN was mounted to the ground plane in a position that produced a minimum distance of 0.8 m between the EUT and the LISN.

The RF port of the LISN was connected to the test receiver by means of 50 Ohm coaxial cable.

- **Results:**

The conducted emissions observed from the EUT did not exceed the limits specified in 15.207(a).



**Retlif Testing Laboratories**

Report No. R-5812N



## Equipment Lists

### FCC Section 15.225(a) – Field Strength of Fundamental

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
3207	EMCO	ACTIVE LOOP	10 KHZ - 30 MHZ	6502	1/22/2014	1/31/2015
4029	RETLIF	OPEN AREA TEST SITE	3 / 10 Meters	RNH	7/24/2012	7/24/2015
5070	ROHDE & SCHWARZ	EMI TEST RECEIVER	20 Hz - 40 GHz	ESIB40	11/6/2012	11/30/2014
5188	Cybertron	Control Computer	N/A	TSVQJA2221	No Calibration Required	

### FCC Section 15.225(d) & 15.209 – Field Strength of Spurious and Out of Band Emissions

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5030B	NARDA	10DB ATTENUATOR	DC - 12.4 GHz	757C-10	1/14/2014	12/31/2014
5070	ROHDE & SCHWARZ	EMI TEST RECEIVER	20 Hz - 40 GHz	ESIB40	11/6/2012	11/30/2014
3207	EMCO	ACTIVE LOOP	10 KHZ - 30 MHZ	6502	1/22/2014	1/31/2015
4029	RETLIF	OPEN AREA TEST SITE	3 / 10 Meters	RNH	7/24/2012	7/24/2015
5053	EMCO	BICONILOG ANTENNA	26 MHz - 3 GHz	3142C	7/2/2013	1/31/2015
5188	Cybertron	Control Computer	N/A	TSVQJA2221	No Calibration Required	

### FCC Section 15.225(e) – Frequency Tolerance

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
4911	ELENCO	FREQUENCY COUNTER	DC - 1.3 GHz	F-1300	10/21/2013	10/31/2014
4997	OMEGA	DIGITAL THERMOMETER	-200 DEG C - +1372 DEG C	HH22	9/4/2013	9/30/2014
5077	ASSOCIATED ENVIRONME	TEMPERATURE CHAMBER	-50 to 150 C	ZFD-531	8/15/2012	2/28/2014
530A	MARCONI	SIGNAL GENERATOR	10 kHz - 1.2 GHz	2023	10/23/2013	10/31/2014

### FCC Section 15.207– Conducted Emissions, 150 kHz to 30 MHz

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
4027	SOLAR ELECTRONICS	LINE IMPEDANCE STABILIZATION NETWORK	10KHZ-50MHZ	9252-50-R-24BNC	1/13/2014	1/31/2015
4028	ACME	ISOLATION TRANSFORMER		120X240	No Calibration Required	
5030B	NARDA	10DB ATTENUATOR	DC - 12.4 GHz	757C-10	1/14/2014	12/31/2014
5070	ROHDE & SCHWARZ	EMI TEST RECEIVER	20 Hz - 40 GHz	ESIB40	11/6/2012	11/30/2014
5188	Cybertron	Control Computer	N/A	TSVQJA2221	No Calibration Required	



**Retlif Testing Laboratories**

Report No. R-5812N

**Test Photograph(s)  
Field Strength of Fundamental  
FCC Part 15, Subpart C, Section 15.225(a)**



**Retlif Testing Laboratories**

Report No. R-5812N

**Test Photograph(s)**  
**Field Strength of Fundamental**



Test Setup, OATS, 9 kHz to 30 MHz



Test Configuration



**Retlif Testing Laboratories**

Report No. R-5812N

**FCC Section 15.225(a) – Field Strength of Fundamental  
Test Data**



**Retlif Testing Laboratories**

Report No. R-5812N

# RETLIF TESTING LABORATORIES

## EMISSIONS TEST DATA SHEET

<b>Test Method</b>	<b>Field Strength of Fundamental</b>	
<b>Customer</b>	Monarch Instruments	
<b>Job Number</b>	R-5812N	
<b>Test Sample</b>	RFID Reader	
<b>Model Number</b>	RFID-RDR	
<b>Serial Number</b>	Beta-002	
<b>Test Specification</b>	FCC Part 15, Subpart C	Paragraph: 15.225(a)
<b>Operating Mode</b>	Continuously transmitting at 13.56 MHz	
<b>Technician</b>	M. Seamans	
<b>Date</b>	Feb. 13 <sup>th</sup> , 2014	

**Notes:** Test Distance: 3 meters      Detector: Peak

## TEST PARAMETERS

[illegible]

Data Sheet 1 of 1



## Retlif Testing Laboratories

Report No. R-5812N

**Test Photograph(s)**  
**Field Strength of Spurious and Out of Band Emissions**  
**FCC Part 15, Subpart C, Section 15.225 (b)(c)(d) and FCC 15.209**



**Retlif Testing Laboratories**

Report No. R-5812N

**Test Photograph(s)**  
**Field Strength of Spurious and Out of Band Emissions**



Test Setup



**Retlif Testing Laboratories**

Report No. R-5812N

**Test Photograph(s)**  
**Field Strength of Spurious and Out of Band Emissions**



Test Setup, OATS, 9 kHz to 30 MHz



**Retlif Testing Laboratories**

Report No. R-5812N



**Test Photograph(s)**  
**Field Strength of Spurious and Out of Band Emissions**



Test Setup, OATS, 30 MHz to 1 GHz, Horizontal Antenna Polarization



Test Setup, OATS, 30 MHz to 1 GHz, Vertical Antenna Polarization



**Retlif Testing Laboratories**

Report No. R-5812N

**FCC Part 15, Subpart C, Section 15.225 (b)(c)(d) and FCC 15.209 –  
Field Strength of Spurious and Out of Band Emissions**

**Test Data**



**Retlif Testing Laboratories**

Report No. R-5812N

# RETLIF TESTING LABORATORIES

## EMISSIONS TEST DATA SHEET

<b>Test Method</b>	<b>Field Strength of Out of Band Emissions</b>	
<b>Customer</b>	Monarch Instrument	
<b>Job Number</b>	R-5812N	
<b>Test Sample</b>	RFID Reader	
<b>Model Number</b>	RFID-RDR	
<b>Serial Number</b>	Beta-002	
<b>Test Specification</b>	FCC Part 15, Subpart C	Paragraph: 15.209
<b>Operating Mode</b>	Continuously transmitting at 13.56 MHz	
<b>Technician</b>	M. Seamans	
<b>Date</b>	Feb. 13 <sup>th</sup> , 2014	

**Notes:** Antenna Test Distance: 3 meters

## TEST PARAMETERS

[illegible]

No EUT emissions were observed at the stated test distance throughout the given frequency spectrum.

Data Sheet 1 of 4



## Retlif Testing Laboratories

Report No. R-5812N

# RETLIF TESTING LABORATORIES

## EMISSIONS TEST DATA SHEET

Test Method	Field Strength of Out of Band Emissions	
Customer	Monarch Instrument	
Job Number	R-5812N	
Test Sample	RFID Reader	
Model Number	RFID-RDR	
Serial Number	Beta-002	
Test Specification	FCC Part 15, Subpart C	Paragraphs: 15.209, 15.225(b/c/d)
Operating Mode	Continuously transmitting at 13.56 MHz	
Technician	M. Seamans	
Date	Feb. 13 <sup>th</sup> , 2014	

**Notes:** Antenna Test Distance: 3 meters

## TEST PARAMETERS

Frequency	Antenna Position	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading	Converted to 30M	Converted Reading	Limit at 30M
MHz	(H/V) / Height	Degrees	dBuV	dB	dBuV/m	dBuV/m	uV/m	uV/m
0.490	-	-	-	-	-	-	-	48.98
	-	-	-	-	-	-	-	
1.705	-	-	-	-	-	-	-	14.08
1.705	-	-	-	-	-	-	-	30.00
	-	-	-	-	-	-	-	
13.110	-	-	-	-	-	-	-	30.00
13.110	-	-	-	-	-	-	-	106.00
	-	-	-	-	-	-	-	
13.410	-	-	-	-	-	-	-	106.00
13.410	-	-	-	-	-	-	-	334.00
	-	-	-	-	-	-	-	
13.553	-	-	-	-	-	-	-	334.00
13.553	-	-	-	-	-	-	-	15848.00
	-	-	-	-	-	-	-	
13.567	-	-	-	-	-	-	-	15848.00
13.567	-	-	-	-	-	-	-	334.00
	-	-	-	-	-	-	-	
13.710	-	-	-	-	-	-	-	334.00
13.710	-	-	-	-	-	-	-	106.00
	-	-	-	-	-	-	-	
14.010	-	-	-	-	-	-	-	106.00

No EUT emissions were observed at the stated test distance throughout the given frequency spectrum.

Data Sheet 2 of 4



**Retlif Testing Laboratories**

Report No. R-5812N

# RETLIF TESTING LABORATORIES

## EMISSIONS TEST DATA SHEET

<b>Test Method</b>	<b>Field Strength of Out of Band Emissions</b>	
<b>Customer</b>	Monarch Instrument	
<b>Job Number</b>	R-5812N	
<b>Test Sample</b>	RFID Reader	
<b>Model Number</b>	RFID-RDR	
<b>Serial Number</b>	Beta-002	
<b>Test Specification</b>	FCC Part 15, Subpart C	Paragraphs: 15.209, 15.225(b/c/d)
<b>Operating Mode</b>	Continuously transmitting at 13.56 MHz	
<b>Technician</b>	M. Seamans	
<b>Date</b>	Feb. 13 <sup>th</sup> , 2014	

**Notes:** Antenna Test Distance: 3 meters

## TEST PARAMETERS

[illegible]

No EUT emissions were observed at the stated test distance throughout the given frequency spectrum.

Data Sheet 3 of 4



## Retlif Testing Laboratories

Report No. R-5812N

# RETLIF TESTING LABORATORIES

## EMISSIONS TEST DATA SHEET

<b>Test Method</b>	<b>Field Strength of Out of Band Emissions</b>	
<b>Customer</b>	Monarch Instrument	
<b>Job Number</b>	R-5812N	
<b>Test Sample</b>	RFID Reader	
<b>Model Number</b>	RFID-RDR	
<b>Serial Number</b>	Beta-002	
<b>Test Specification</b>	FCC Part 15, Subpart C	Paragraph: 15.209
<b>Operating Mode</b>	Continuously transmitting at 13.56 MHz	
<b>Technician</b>	M. Seamans	
<b>Date</b>	Feb. 13 <sup>th</sup> , 2014	

**Notes:** Antenna Test Distance: 3 meters

## TEST PARAMETERS

Frequency	Antenna Position	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M
MHz	(H/V) / Height	Degrees	dBuV	dB	dBuV/m		uV/m	uV/m
30.00	-	-	-	-	-		-	100.00
	-	-	-	-	-		-	
	-	-	-	-	-		-	
	-	-	-	-	-		-	
88.00	-	-	-	-	-		-	100.00
88.00	-	-	-	-	-		-	150.00
	-	-	-	-	-		-	
135.56	V-1m	45.0	17.11	9.29	26.40		20.89	
	-	-	-	-	-		-	
216.00	-	-	-	-	-		-	150.00
216.00	-	-	-	-	-		-	200.00
	-	-	-	-	-		-	
338.99	V-1m	45.0	17.87	18.13	36.00		63.10	
338.99	H-1m	90.0	25.07	18.13	43.20		144.54	
366.11	V-1m	45.0	16.04	19.06	39.40		93.33	
366.11	H-1m	90.0	20.34	19.06	35.10		56.89	
	-	-	-	-	-		-	
960.00	-	-	-	-	-		-	200.00
960.00	-	-	-	-	-		-	500.00
	-	-	-	-	-		-	
1000.00	-	-	-	-	-		-	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.

Data Sheet 4 of 4



**Retlif Testing Laboratories**

Report No. R-5812N

**Test Photograph(s)  
Frequency Tolerance  
FCC Part 15, Subpart C, Section 15.255(e)**



**Retlif Testing Laboratories**

Report No. R-5812N

**Test Photograph(s)  
Frequency Tolerance**



Test Setup



**Retlif Testing Laboratories**

Report No. R-5812N



**FCC Section 15.255(e) – Frequency Tolerance  
Test Data**



**Retlif Testing Laboratories**

Report No. R-5812N

# RETLIF TESTING LABORATORIES

## EMISSIONS TEST DATA SHEET

<b>Test Method</b>	<b>Frequency Tolerance</b>
<b>Customer</b>	Monarch Instruments
<b>Job Number</b>	R-5812N
<b>Test Sample</b>	RFID Reader
<b>Model Number</b>	RFID-RDR
<b>Serial Number</b>	Beta-002
<b>Test Specification</b>	FCC Part 15.225(e)
<b>Operating Mode</b>	Continuously transmitting signal at 13.56MHz
<b>Technician</b>	M. Seamans
<b>Date</b>	Feb. 12 <sup>th</sup> , 2014

### Notes: Frequency Counter

## TEST PARAMETERS

[illegible]

Data Sheet 1 of 1



## Retlif Testing Laboratories

Report No. R-5812N

**Test Photograph(s)  
Conducted Emissions, 150 kHz to 30 MHz  
FCC Section 15.207(a)**



**Retlif Testing Laboratories**

Report No. R-5812N

**Test Photograph(s)**  
**Conducted Emissions, 150 kHz to 30 MHz**



Test Configuration



Test Setup



**Retlif Testing Laboratories**

Report No. R-5812N

**FCC Section 15.207(a) – Conducted Emissions, 150 kHz to 30 MHz  
Test Data**

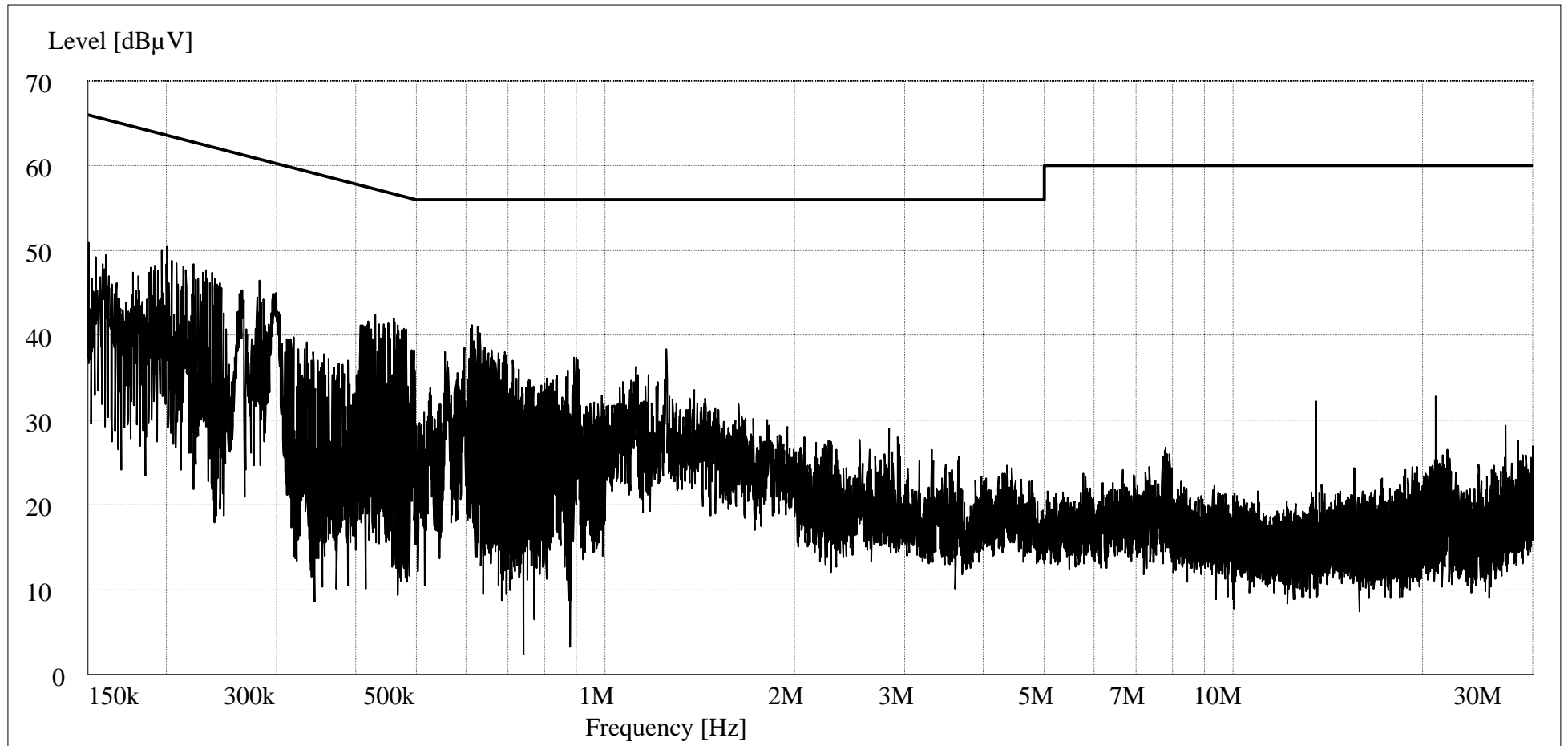


**Retlif Testing Laboratories**

Report No. R-5812N

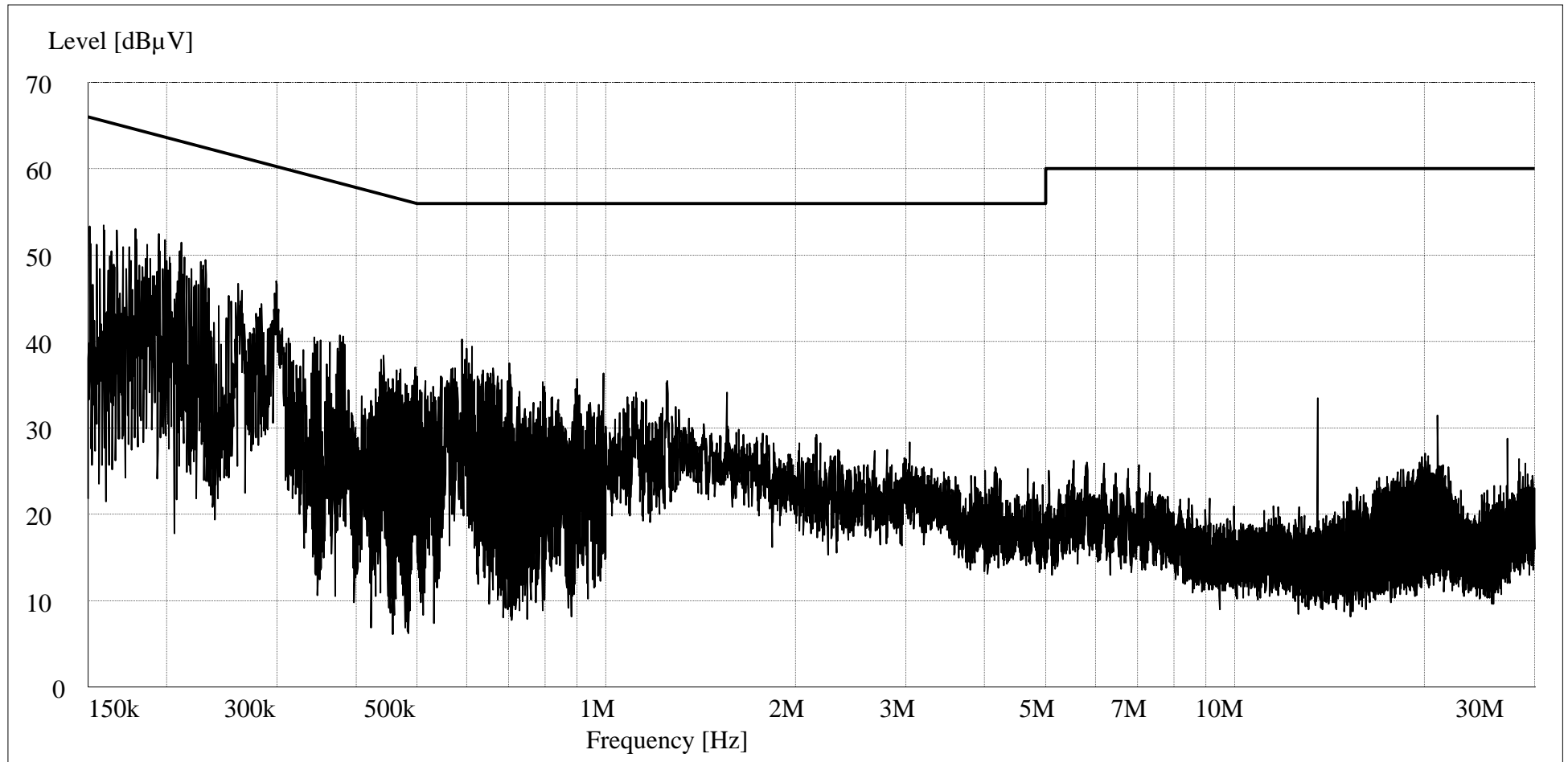
# RETLIF TESTING LABORATORIES

Test Method	Conducted Emissions 150 kHz to 30 MHz		
Customer	Monarch Instrument	Job No.	R-5812N
Test Sample	RFID Reader		
Model No.	RFID-RDR	Serial No.	Beta 002
Operating Mode	Continuously transmitting at 13.56MHz		
Test Specification	FCC Part 15. 207(a)		
Technician	M. Seamans	Date	Feb. 12 <sup>th</sup> , 2014
Climatic Conditions	Temp: 22.0 °C      Relative Humidity: 23.0 %		
Lead Tested	120 VAC 60 Hz Hot      Peak Readings to Quasi-Peak Limits.		



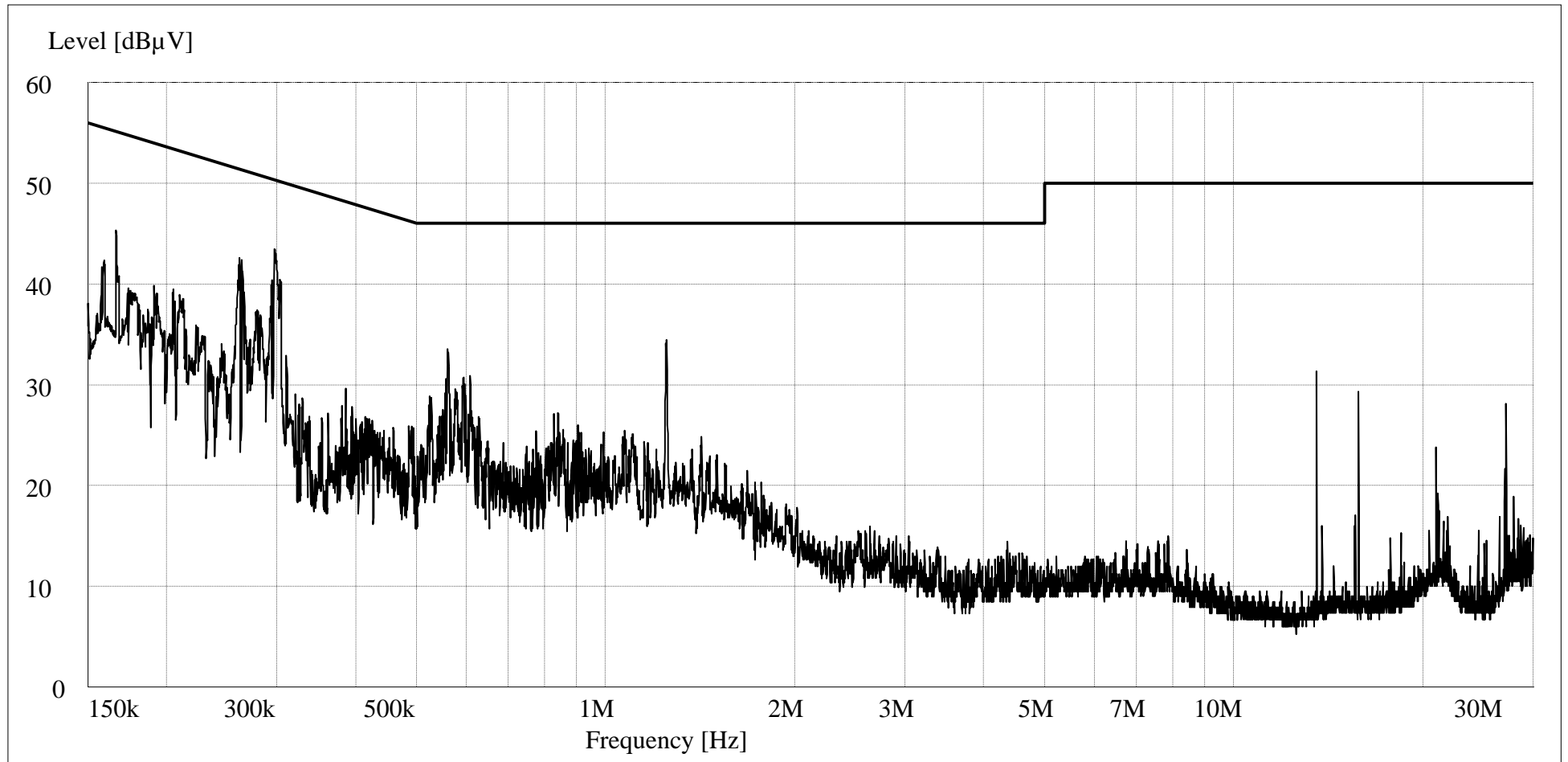
# RETLIF TESTING LABORATORIES

<b>Test Method</b>	Conducted Emissions 150 kHz to 30 MHz		
<b>Customer</b>	Monarch Instrument	<b>Job No.</b>	R-5812N
<b>Test Sample</b>	RFID Reader		
<b>Model No.</b>	RFID-RDR	<b>Serial No.</b>	Beta 002
<b>Operating Mode</b>	Continuously transmitting at 13.56MHz		
<b>Test Specification</b>	FCC Part 15. 207(a)		
<b>Technician</b>	M. Seamans	<b>Date</b>	Feb. 12 <sup>th</sup> , 2014
<b>Climatic Conditions</b>	Temp: 22.0 °C      Relative Humidity: 23.0 %		
<b>Lead Tested</b>	120 VAC 60 Hz Neutral      Peak Readings to Quasi-Peak Limits.		



# RETLIF TESTING LABORATORIES

Test Method	Conducted Emissions 150 kHz to 30 MHz		
Customer	Monarch Instrument	Job No.	R-5812N
Test Sample	RFID Reader		
Model No.	RFID-RDR	Serial No.	Beta 002
Operating Mode	Continuously transmitting at 13.56MHz		
Test Specification	FCC Part 15. 207(a)		
Technician	M. Seamans	Date	Feb. 12 <sup>th</sup> , 2014
Climatic Conditions	Temp: 22.0 °C      Relative Humidity: 23.0 %		
Lead Tested	120 VAC 60 Hz Hot      Average Readings to Average Limits.		





# RETLIF TESTING LABORATORIES

Test Method	Conducted Emissions 150 kHz to 30 MHz		
Customer	Monarch Instrument	Job No.	R-5812N
Test Sample	RFID Reader		
Model No.	RFID-RDR	Serial No.	Beta 002
Operating Mode	Continuously transmitting at 13.56MHz		
Test Specification	FCC Part 15. 207(a)		
Technician	M. Seamans	Date	Feb. 12 <sup>th</sup> , 2014
Climatic Conditions	Temp: 22.0 °C      Relative Humidity: 23.0 %		
Lead Tested	120 VAC 60 Hz Neutral      Average Readings to Average Limits.		

