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FCC/IC Test Report on

Sekonic Radio Transmitter Module
Model: RT-32CTL

Applicant Name: Sekonic Corporation

Customer P.O.: 200505

Equipment Authorization: Limited Modular Certification

Date of Report: December 21, 2011

Test Report No: R-5534N-1

Test Start Date: November 11, 2011

Test Finish Date: December 1, 2011

Test Technician: M. Seamans

Laboratory Supervisor: T. Hannemann

Branch Manager: S. Wentworth

Report Prepared By: J. Ramsey

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Technical Information

MODULE MANUFACTURER	APPLICANT
Name: LPA Design, Inc.	Name: Sekonic Corporation
Address: 21 Gregory Drive, Suite 140	Address: 7-24-14, Oizumi Gakuen Cho, Nerima-ku, Tokyo 178-8686 Japan
City, State, Zip: South Burlington, VT 05403	

TEST SPECIFICATION:

FCC Rules and Regulations Part 15, Subpart C, Section 15.231

Radio Standards Specification, RSS-210, Issue 8, December 2010 and RSS-GEN, Issue 3, December 2010

TEST PROCEDURE: ANSI C63.4:2003

Test Sample Description

TEST SAMPLE: Sekonic Radio Transmitter Module

BRANDNAME(s): Sekonic

MODEL: RT-32CTL

FCC ID: PFK-RT32-03

IC : 3916A-RT3203

TYPE: Wireless Flash Control

POWER REQUIREMENTS: 3VDC via battery powered Host Exposure Meter

FREQUENCY OF OPERATION: 340MHz to 354MHz

Purpose:

The purpose of this test program was to demonstrate compliance of the RT-32CTL Radio Module when installed in the Sekonic Exposure Meters referenced below in order to obtain Limited Modular Certification of the RT-32CTL Radio Module.

Sekonic Meters

Description	Manufacturer	Part Number	Model Number
Exposure Meter	Sekonic	JC12-264205	L-358
Exposure Meter	Sekonic	JH31-106919	L-758D
Color Meter	Sekonic	JS22-060042	C-500R

Tests Performed

The test methods performed on the Sekonic Radio Transmitter are shown below:

FCC Part 15, Subpart C	Industry Canada RSS-210 Issue 7, June 2007	Industry Canada RSS-GEN Issue 2, June 2007	Test Method
15.231(b)	A1.1.2(1)	N/A	Field Strength of Fundamental Emissions
15.231(b)(2)	A1.1.2(2)	4.5	Duty Cycle Determination
15.231(b)(3)	A1.1.2(3)	N/A	Field Strength of Spurious Emissions
15.231(c)	A1.1.3	N/A	Bandwidth of Emission
N/A	N/A	4.10	Receiver Spurious Emissions

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) and IC RSS-GEN Section 4.1.
2. All radiated emissions measurements were performed on an Open Area Test Site (OATS), listed with the FCC and IC, in accordance with FCC Section 15.31(d) and IC Section 4.2.
3. The level of the fundamental field strength was recorded with a new battery installed in the EUT, in accordance with FCC Section 15.231(e) and IC Section 4.3(e).
4. All measurements were performed at the specified 3 meter test distance as required by FCC Section 15.31(f) and IC Section 7.25.
5. The EUT was rotated throughout 360 degrees for all radiated emissions measurements as specified in FCC Section 15.31(f)(5) and IC Section 4.3(h).
6. 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) and IC Section 4.3(h).
7. Appropriate accessories were attached to all EUT ports during the performance of radiated emissions measurements as required by FCC Section 15.31(i) and IC Section 4.3(d).
8. The EUT operated over the frequency range of 340 MHz to 354 MHz. A total range of 14 MHz. Testing was performed with the device operating at
 - a. 3 frequencies, 1 at the top, 1 in the middle and 1 at the bottom of the range of operation in accordance with FCC Section 15.31(m) and IC Section 4.3(f)(g).
9. The frequency spectrum was investigated from the lowest frequency generated in the device up to the 10th harmonic of the highest fundamental frequency in accordance with FCC Section 15.33(a)(1) and IC Section 4.9.
10. All measurements were taken with a peak detector function as specified in FCC Section 15.35(a) and IC Section 4.4. The duty cycle, calculated in accordance with FCC Section 15.35(c) and IC Section 4.5, was applied to the peak readings in order to obtain the average value of emissions. The peak value of emissions was verified to meet the 20 dB requirement of FCC Section 15.35(b) and IC Section 7.2.1.

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 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
-	December 21, 2011	Original Release

Requirements and Test Results

Requirement:

FCC Section 15.231(a) - Periodic operation in the band 40.66 - 40.7 MHz and above 70 MHz

The provisions of this Section are restricted to periodic operation within the band 40.66-40.7 MHz and above 70 MHz. Except as shown in Paragraph (e) of this Section, the intentional radiator is restricted to the transmissions of a control signal such as those used with alarm systems, door openers, remote switches, etc. Continuous transmissions, voice, video and the radio control of toys are not permitted. Data is permitted to be sent with a control signal.

IC RSS-210, A1.1 - Momentarily Operated Devices

The frequency bands and field strength limits in Tables 4 and 5 are only for the transmission of a control signal such as that used with alarm systems, door openers, remote switches, etc. Radio control of toys or model aircrafts, and continuous transmissions such as voice or video are not permitted except as provided in A1.1.5. Data is permitted to be sent with a control signal.

- Results:
The device operates over the frequency range of 340 MHz to 354 MHz and is used for the transmission of a control signal in the photography industry for remote flash control.

Requirement:

FCC Sections 15.231(a)(1)-(5)

Periodic operation in the band 40.66 - 40.7 MHz and above 70 MHz

The following conditions were met in order to comply with the provisions for momentary operation:

IC RSS-210, A1.1.1(a)-(d) - Types of Momentary Signals

The following conditions were met in order to comply with the provisions for momentary operation:

FCC 15.231(a)(1): A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

IC A1.1.1(a): A manually operated transmitter shall employ a push-to-operate switch and be under manual control at all transmission times. When released, the transmitter shall cease transmission (holdover time of up to 5 seconds of operation).

- Results:
The device is a manually operated, push to operate transmitter under manual control. The device ceased transmission within 5 seconds of deactivation.

FCC 15.231(a)(2): A transmitter activated automatically shall cease transmission within 5 seconds after activation.

IC A1.1.1(b): A transmitter activated automatically shall cease transmission with 5 seconds after activation, (i.e. maximum 5 seconds of operation).

- Results:
Transmission is not automatically activated.

Requirements and Test Results (con't)

FCC 15.231(a)(3): Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.

IC A1.1.1(c): Periodic transmissions at regular predetermined intervals are not permitted, except as provided in A1.1.5. However, polling or supervision transmissions, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed 2 seconds per hour for each transmitter.

- Results:
The transmitter does not perform periodic transmissions.

FCC 15.231(a)(4): Intentional radiators which are employed for radio control purposes during emergencies involving fire, security and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition.

IC A1.1.1(d): Intentional radiators employed for radio control purposes during emergencies involving fire, security of goods (e.g. burglar alarms), and safety-of-life, when activated to signal an alarm, may operate during the interval of the alarm condition.

- Results:
This device is not employed for radio control purposes during emergencies involving fire, security and safety for life.

FCC 15.231(a)(5): Transmission of set-up information for security systems may exceed the transmission duration limits in paragraphs (a)(1) and (a)(2) of this section, provided such transmission are under the control of a professional installer and do not exceed ten seconds after a manually operated switch is released or a transmitter is activated automatically. Such set-up information may include data.

- Results:
The device is not employed for security systems.

Requirements and Test Results (con't)

Requirement:

FCC Section 15.231(b) - Field Strength of Emissions

In addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under this Section shall not exceed the limits specified in Table 1.

IC RSS-210, A1.1.2(1) - Field Strengths and Frequency Bands

The field strength of emissions from momentarily operated intentional radiators shall not exceed the limits specified in Table 1:

Table 1 - Test Limits, Field Strength of Emissions

Fundamental Frequency (MHz)	Field Strength of Fundamental microvolts/meter @3 meters (watts, e.i.r.p.) Quasi Peak or Average	Field Strength of Spurious Emissions microvolts/meter @3 meters Quasi Peak or Average
40.66 to 40.70	2,250	225
70 to 130	1,250 (470 nW)	125
130 to 174	1,250 to 3,750**	125 to 375**
174 to 260	3,750 (4.2 μ W)	375
260 to 470	3,750 to 12,500**	375 to 1,250**
Above 470	12,500 (47 μ W)	1,250
**Linear Interpolations For 130-174 MHz: FS (microvolts/m) = (56.82 x F) - 6,136 For 260-470 MHz: FS (microvolts/m) = (41.67 x F) - 7,083 The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.		

The Fundamental and Harmonic Emissions limits for a device operating at 340 MHz, 347 MHz and 354 MHz are listed in Table 2.

Table 2 - Fundamental and Harmonic Limits

Frequency of Operation MHz	Fundamental μ V/m	Harmonics μ V/m
340.0	7083.4	708.34
347.0	7375.1	737.51
354.0	7666.7	766.67

- Results:

The Fundamental and Harmonics field strengths did not exceed the limits specified in Table 2 at a test distance of 3 meters. See Table 3 for the worst case Fundamental and Harmonic emissions test results.

Requirements and Test Results (con't)

Field Strength Calculation:

The final average field strength of the emission was calculated by subtracting the duty cycle factor in dB from the maximized corrected peak reading in dBuV/m.

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

$$P_C = M_R + C_F$$

Where:

P_C = Corrected Peak Reading in dB μ V/m

M_R = Uncorrected Meter Reading in dB μ V

C_F = Correction Factor in dB (Antenna Factor + Cable Loss)

The final average field strength of the emission was obtained as follows:

$$A_F = P_C - D_F$$

Where:

A_F = Average Field Strength in dB μ V/m

P_C = Corrected Peak Reading in dB μ V/m

D_F = Duty Cycle Factor in dB

Example: For the RT32-CTL Installed in the C-500R at a frequency of 340 MHz:

$$M_R = 74.05 \text{ dB}\mu\text{V}$$

$$C_F = 18.08 \text{ dB}$$

$$P_C = 74.05 \text{ dB}\mu\text{V} + 18.08 \text{ dB} = 92.13 \text{ dB}\mu\text{V/m}$$

$$D_F = 22.9 \text{ dB}$$

$$A_F = 92.13 \text{ dB}\mu\text{V/m} - 22.9 \text{ dB} = 69.23 \text{ dB}\mu\text{V/m}$$

$$69.23 \text{ dB}\mu\text{V/m} = 2894 \text{ }\mu\text{V/m}$$

Table 3 - Fundamental and Harmonics Test Results

Fundamental Frequency MHz	Maximum Fundamental μV/m	Maximum Harmonics μV/m
340.0	4791.81	27.51
347.0	4943.11	24.38
354.0	5081.59	35.65

Requirements and Test Results (con't)

Requirement:

FCC Section 15.231(b)(2) - Duty Cycle Determination-Pulsed Operation

Intentional radiators operating under the provisions of the Section shall demonstrate compliance with the limits on the field strength emissions, as shown in Table 1, based on the average value of the measured emissions. As an alternative, compliance with the limits in the Table 1 may be based on the use of measurement instrumentation with a CISPR quasi-peak detector. The specific method of measurement employed shall be specified in the application for equipment authorization. If average emission measurements are employed, the provisions in Section 15.35 for averaging pulsed emissions and for limiting peak emissions apply. Further, compliance with the provisions of Section 15.205 shall be demonstrated using the measurement instrumentation specified in that Section.

IC RSS-GEN, Paragraph 4.5, Pulsed Operation

When the field strength (or envelope power) is not constant or when it is in pulses, and an average detector is specified to be used, the value of field strength or power shall be determined by averaging over one complete pulse train, including blanking intervals within the pulse train, as long as the pulse train does not exceed 0.1 seconds. In cases where the pulse train exceeds 0.1 seconds, the average value (of field strength or output power) shall be determined during a 0.1 second interval during which the field strength or power is at its maximum value.

The unit's RF output was coupled to the input of the spectrum analyzer. The analyzer was set for a frequency span of 0 Hz. The sweep time was then adjusted in order to display one full pulse train. The transmitter on time was then summed and compared to the time for one full cycle in order to obtain the duty cycle. See Duty Cycle Plots for additional information.

- **Results:**
The emissions did not exceed the limits specified in Table 1. See below for the exact method of calculating the duty cycle and average field strength.

Requirements and Test Results (con't)

The duty cycle of the RT-32CTL Module was evaluated with the RT-32CTL installed in each of the 3 light meters. The worst case duty cycle of the RT-32CT Module was determined and the following calculations were used to determine the duty cycle correction factor.

For the RT-32CTL installed in the L-358 Light Meter at a frequency of 340MHz:

Transmitter On Time = .986 milliseconds (maximum per cycle)
Transmitter Cycle Time = 14.08 milliseconds
Transmitter Duty Cycle = .070 %

CALCULATION

There were 3 pulse bursts within the 14.08msec cycle time. Each pulse burst was identical in terms of number of pulses and pulse durations.

On time for 1 st Pulse =	74.138	microseconds
On time for the 2 nd pulse =	34.058	microseconds
On time for the 3 rd pulse =	8.006	microseconds
On time for the 4 th pulse =	84.158	microseconds
On time for the 5 th pulse =	74.138	microseconds
On time for the 6 th pulse =	54.098	microseconds
Total on time in the 1 st pulse burst =	328.596	microseconds
328.596 x 3 pulse bursts in 14.08msec =	.986	milliseconds
Total on Time =	.986	milliseconds
Duty Cycle (.986/14.08) =	.070	%
Correction Factor =20 log (0.07)=	23.09	dB

Requirements and Test Results (con't)

For the RT-32CTL installed in the L-758 Meter at a frequency of 340MHz:

$$\begin{aligned}\text{Transmitter On Time} &= \underline{1.024} \text{ milliseconds (maximum per cycle)} \\ \text{Transmitter Cycle Time} &= \underline{14.078} \text{ milliseconds} \\ \text{Transmitter Duty Cycle} &= \underline{.072} \text{ \%}\end{aligned}$$

CALCULATION

There were 3 pulse bursts within the 14.08msec cycle time. Each pulse burst was identical in terms of number of pulses and pulse durations.

$$\begin{aligned}\text{On time for 1}^{\text{st}} \text{ Pulse} &= 82.365 \text{ microseconds} \\ \text{On time for the 2}^{\text{nd}} \text{ pulse} &= 36.273 \text{ microseconds} \\ \text{On time for the 3}^{\text{rd}} \text{ pulse} &= 6.212 \text{ microseconds} \\ \text{On time for the 4}^{\text{th}} \text{ pulse} &= 88.377 \text{ microseconds} \\ \text{On time for the 5}^{\text{th}} \text{ pulse} &= 74.138 \text{ microseconds} \\ \text{On time for the 6}^{\text{th}} \text{ pulse} &= 54.098 \text{ microseconds} \\ \text{Total on time in the 1}^{\text{st}} \text{ pulse burst} &= 341.463 \text{ microseconds} \\ 341.463 \times 3 \text{ pulse bursts in 14.08msec} &= 1.024 \text{ milliseconds} \\ \text{Total on Time} &= 1.024 \text{ milliseconds} \\ \text{Duty Cycle (1.024/14.08)} &= .072 \text{ \%} \\ \text{Correction Factor } = 20 \log (0.072) &= 22.75 \text{ dB}\end{aligned}$$

Requirements and Test Results (con't)

For the RT-32CTL installed in the C-500R Meter at a frequency of 340MHz:

Transmitter On Time = 1.00 milliseconds (maximum per cycle)
Transmitter Cycle Time = 14.06 milliseconds
Transmitter Duty Cycle = .071 %

CALCULATION

There were 3 pulse bursts within the 14.06msec cycle time. Each pulse burst was identical in terms of number of pulses and pulse durations.

On time for 1 st Pulse =	77.352	microseconds
On time for the 2 nd pulse =	35.268	microseconds
On time for the 3 rd pulse =	5.208	microseconds
On time for the 4 th pulse =	85.369	microseconds
On time for the 5 th pulse =	75.349	microseconds
On time for the 6 th pulse =	55.309	microseconds
Total on time in the 1 st pulse burst =	333.855	microseconds
333.855 x 3 pulse bursts in 14.06msec =	1.00	milliseconds
Total on Time =	1.00	milliseconds
Duty Cycle (1.00/14.06) =	.071	%
Correction Factor =20 log (0.071)=	22.90	dB

Requirements and Test Results (con't)

Requirement:

FCC Section 15.231(b)(3) - Field Strength of Spurious Emissions

The limits on the field strength of the spurious emissions specified in Table 1 are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in Table 1 or to the general limits shown in Section 15.209, whichever limit permits a higher field strength.

IC RSS-210, A1.1.2(3) - Field Strength of Unwanted Emissions

The limits on the field strength of unwanted emissions in Table 4 of RSS-210 are based on the fundamental frequency of the intentional radiator. Unwanted emissions shall be attenuated to the limits shown in Table 2 of RSS-210 or to the limits shown in Table 4 of RSS-210, whichever is less stringent.

- Results:
No spurious emissions were observed within 10 dB of the specified limit.

Requirement:

FCC Section 15.231(c) - Bandwidth of Emissions

The bandwidth of the emissions shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

- Results:
The emission bandwidth was measured and did not exceed the specified limits. See Table 3 for the worst case occupied bandwidth test results.

Table 4 – Occupied Bandwidth Test Results

Fundamental Frequency MHz	Occupied Bandwidth kHz	Occupied Bandwidth Limit kHz
340.0	424.85	850 kHz
347.0	424.85	867.5 kHz
354.0	232.46	885 kHz

Requirements and Test Results (con't)

IC RSS-210, A1.1.3 - Bandwidth of Momentary Signals

For the purpose of Section A1.1, the 99% bandwidth shall be no wider than 0.25% of the center frequency for devices operating between 70-900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency.

- Results:
The emission bandwidth was measured and did not exceed the specified limits. See Table 3 for the worst case 99% bandwidth test results.

Table 5 – 99% Bandwidth Test Results

Fundamental Frequency MHz	99% Bandwidth kHz	99% Bandwidth Limit kHz
340.0	845.691	850 kHz
347.0	845.691	867.5 kHz
354.0	689.378	885 kHz

Equipment Lists

FCC Section 15.231(b) - Field Strength of Emissions IC RSS-210, A1.1.2(1) - Field Strength and Frequency Bands

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
4029	RETLIF	OPEN AREA TEST SITE	3 / 10 Meters	RNH	8/21/2009	8/21/2012
8165	EMCO	BICONILOG	26 - 2000 MHz	3142	6/13/2011	6/13/2012
R444	AGILENT / HP	SPECTRUM ANALYZER	100 Hz - 26.5 GHz	E7405A;A	6/4/2010	6/4/2012

FCC Section 15.231(b)(2) - Duty Cycle Determination - Pulsed Operation IC RSS-210, A1.1.2(2), RSS-GEN, 4.5 - Pulsed Operation

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5070	ROHDE & SCHWARZ	EMI TEST RECEIVER	20 Hz - 40 GHz	ESIB40	10/26/2011	10/26/2012
5152 Required	GENERAL TECHNICS			Control Computer	INDUSTRIAL PC	No Calibration

FCC Section 15.231(b)(3) - Field Strength of Spurious Emissions IC RSS-210, A1.1.2(3) - Field Strength of Unwanted Emissions

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
3258	EMCO	DOUBLE RIDGED GUIDE ANTENNA	1 GHZ - 18GHZ	3115	1/12/2011	1/12/2012
4029	RETLIF	OPEN AREA TEST SITE	3 / 10 Meters	RNH	8/21/2009	8/21/2012
5070	ROHDE & SCHWARZ	EMI TEST RECEIVER	20 Hz - 40 GHz	ESIB40	10/26/2011	10/26/2012
5070C	ANDREW	COAXIAL CABLE	10 kHz - 18 GHz	25'	10/26/2011	10/26/2012
8165	EMCO	BICONILOG	26 - 2000 MHz	3142	6/13/2011	6/13/2012
R444	AGILENT / HP	SPECTRUM ANALYZER	100 Hz - 26.5 GHz	E7405A;A	6/4/2010	6/4/2012

FCC Section 15.231(c) - Bandwidth of Emission IC RSS-210, A1.1.3 - Bandwidth of Momentary Signals

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5070	ROHDE & SCHWARZ	EMI TEST RECEIVER	20 Hz - 40 GHz	ESIB40	10/26/2011	10/26/2012

**FCC Section 15.231(b) - Field Strength of Fundamental Emissions
IC RSS-210, A1.1.2(1) - Field Strength and Frequency Bands**

Photographs



Radio Transmitter with Exposure Meter, Model: L-358
Horizontal Antenna Polarization, 30 to 1000 MHz



Radio Transmitter with Exposure Meter, Model: L-358
Vertical Antenna Polarization, 30 to 1000 MHz



Radio Transmitter with Exposure Meter, Model: L-758D
Horizontal Antenna Polarization, 30 to 1000 MHz



Radio Transmitter with Exposure Meter, Model: L-758D
Vertical Antenna Polarization, 30 to 1000 MHz



Radio Transmitter with Color Meter, Model: C-500R
Horizontal Antenna Polarization, 30 to 1000 MHz



Radio Transmitter with Color Meter, Model: C-500R
Vertical Antenna Polarization, 30 to 1000 MHz

**FCC Section 15.231(b) - Field Strength of Fundamental Emissions
IC RSS-210, A1.1.2(1) - Field Strength and Frequency Bands**

Test Data

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

Test Method:	Fundamental Field Strength		
Customer:	LPA Design, Inc.	Job No:	R-5534N-1
Test Sample:	Radio Module Installed in L-358 Light Meter		
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.231(b)		
Operating Mode:	Continuously Transmitting		
Technician:	M.Seamans	Date:	November 3, 2011
Notes:	Corrected peak readings meet peak limit (20dB above average limit) per 15.35		

[illegible]

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

Test Method:	Fundamental Field Strength		
Customer:	LPA Design, Inc.	Job No:	R-5534N-1
Test Sample:	Radio Module Installed in L-758D Light Meter		
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.231(b)		
Operating Mode:	Continuously Transmitting		
Technician:	M.Seamans	Date:	November 3, 2011
Notes:	Corrected peak readings meet peak limit (20dB above average limit) per 15.35		

[illegible]

RETLIF TESTING LABORATORIES

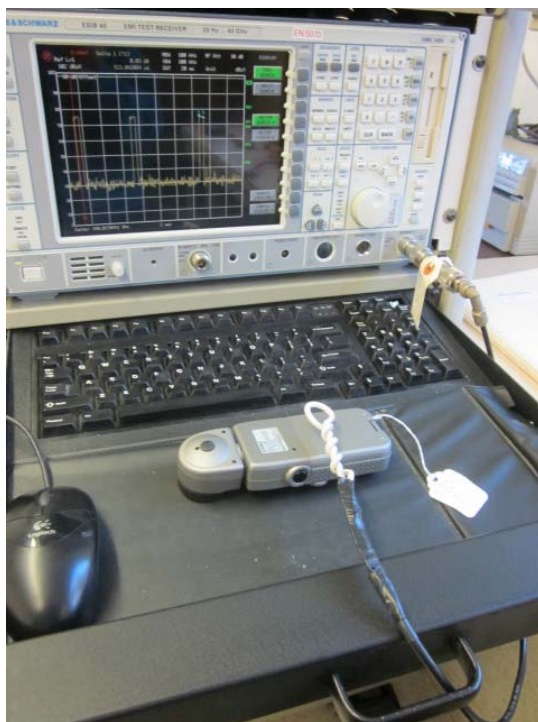
TABULAR DATA SHEET

Test Method:	Fundamental Field Strength		
Customer:	LPA Design, Inc.	Job No:	R-5534N-1
Test Sample:	Radio Module Installed in C-500R Light Meter		
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.231(b)		
Operating Mode:	Continuously Transmitting		
Technician:	M.Seamans	Date:	November 3, 2011
Notes:	Corrected peak readings meet peak limit (20dB above average limit) per 15.35		

[illegible]

**FCC Section 15.231(b)(2) - Duty Cycle Determination - Pulsed Operation
IC RSS-210, A1.1.2(2), RSS-GEN, 4.5 - Pulsed Operation**

Test Photograph



Test Setup, Radio Transmitter with Exposure Meter, Model: L-358



Test Setup, Radio Transmitter with Exposure Meter, Model: L-758D



Test Setup, Radio Transmitter with Color Meter, Model: C-500R

**FCC Section 15.231(b)(2) - Duty Cycle Determination - Pulsed Operation
IC RSS-210, A1.1.2(2), RSS-GEN, 4.5 - Pulsed Operation**

Test Data

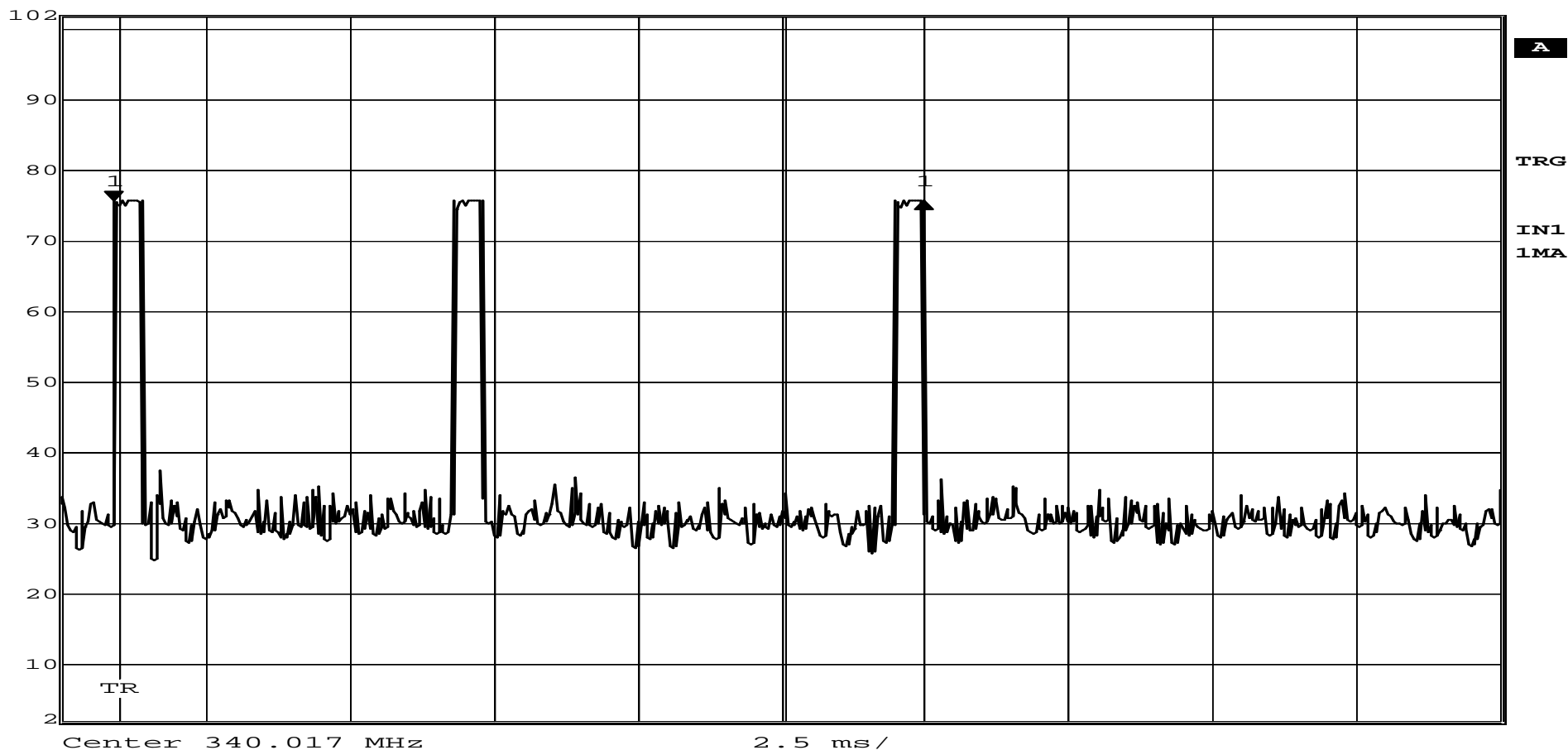
RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-358 Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Date: 1/19/2012
Operating Mode:	Continuously Transmitting		
Notes:	Maximum Duty Cycle measured		



Delta 1 [T1] RBW 100 kHz RF Att 20 dB
 Ref Lvl -0.03 dB VBW 100 kHz
 102 dBμV 14.078156 ms SWT 25 ms Unit dBμV



Date: 19.JAN.2012 17:34:42

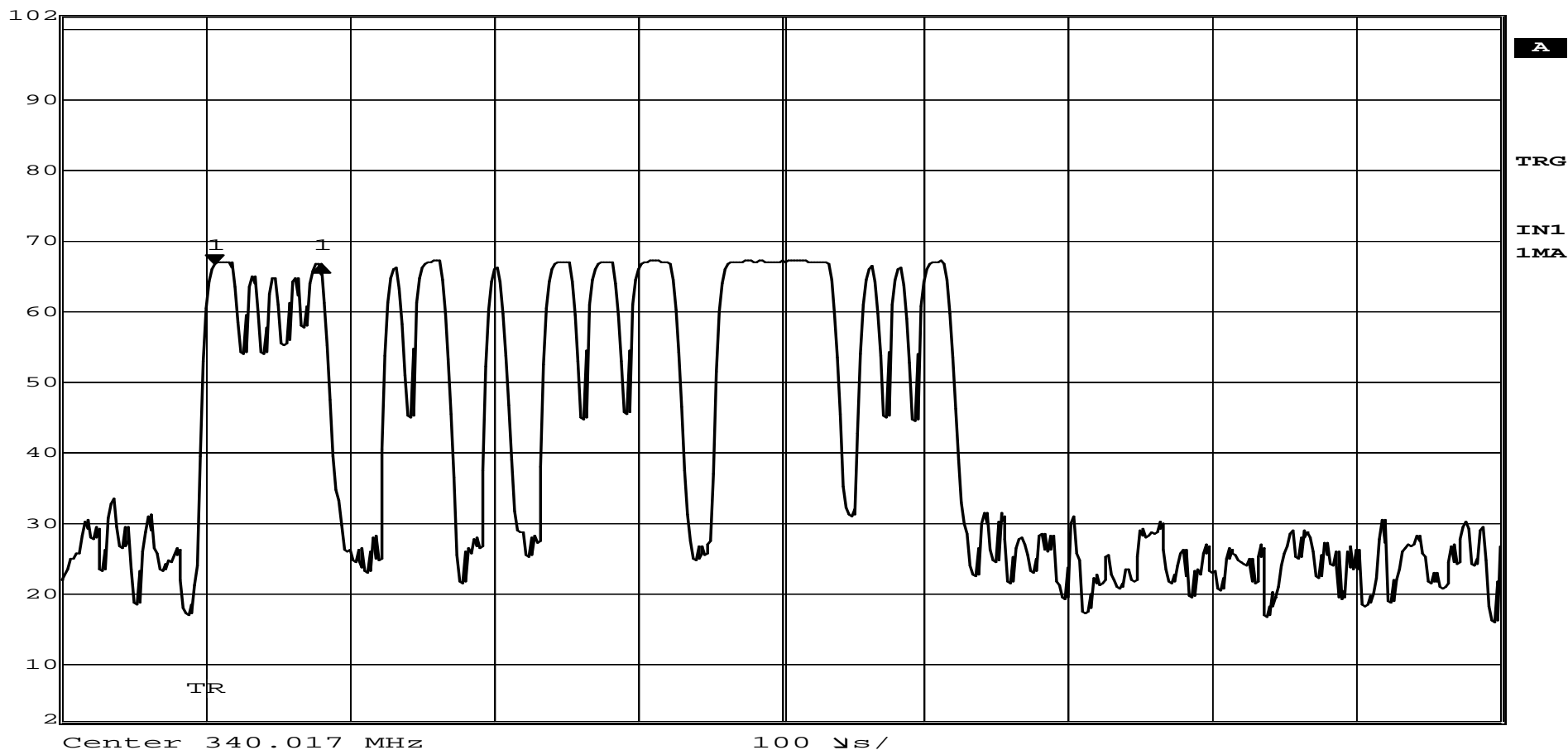
RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-358 Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		Technician: T. Hannemann
Notes:	Maximum Duty Cycle measured		Date: 1/19/2012



Delta 1 [T1] RBW 100 kHz RF Att 20 dB
 Ref Lvl -0.07 dB VBW 100 kHz
 102 dBμV 74.138277 μs SWT 1 ms Unit dBμV

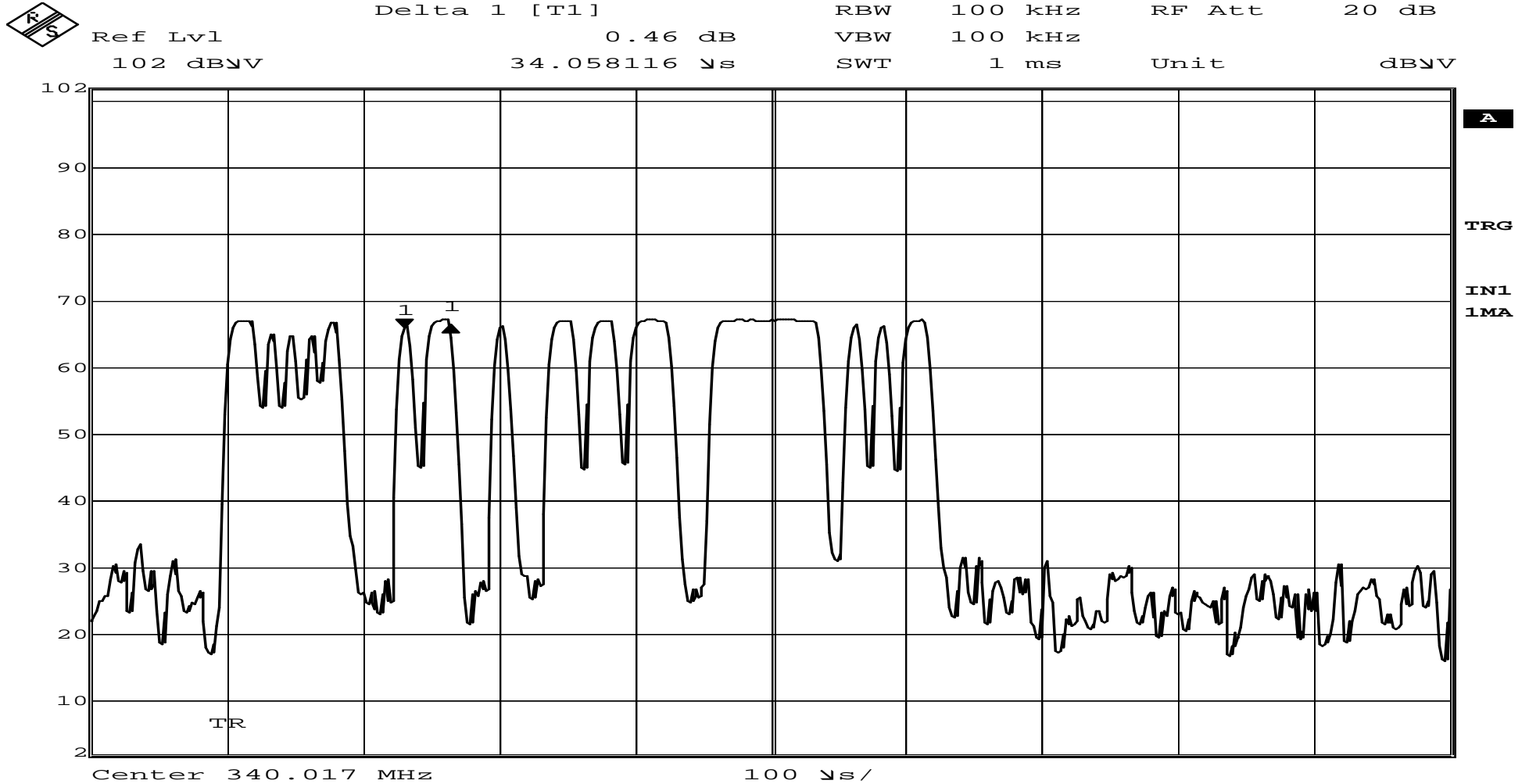


Date: 19.JAN.2012 17:03:12

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-358 Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		Technician: T. Hannemann
Notes:	Maximum Duty Cycle measured		

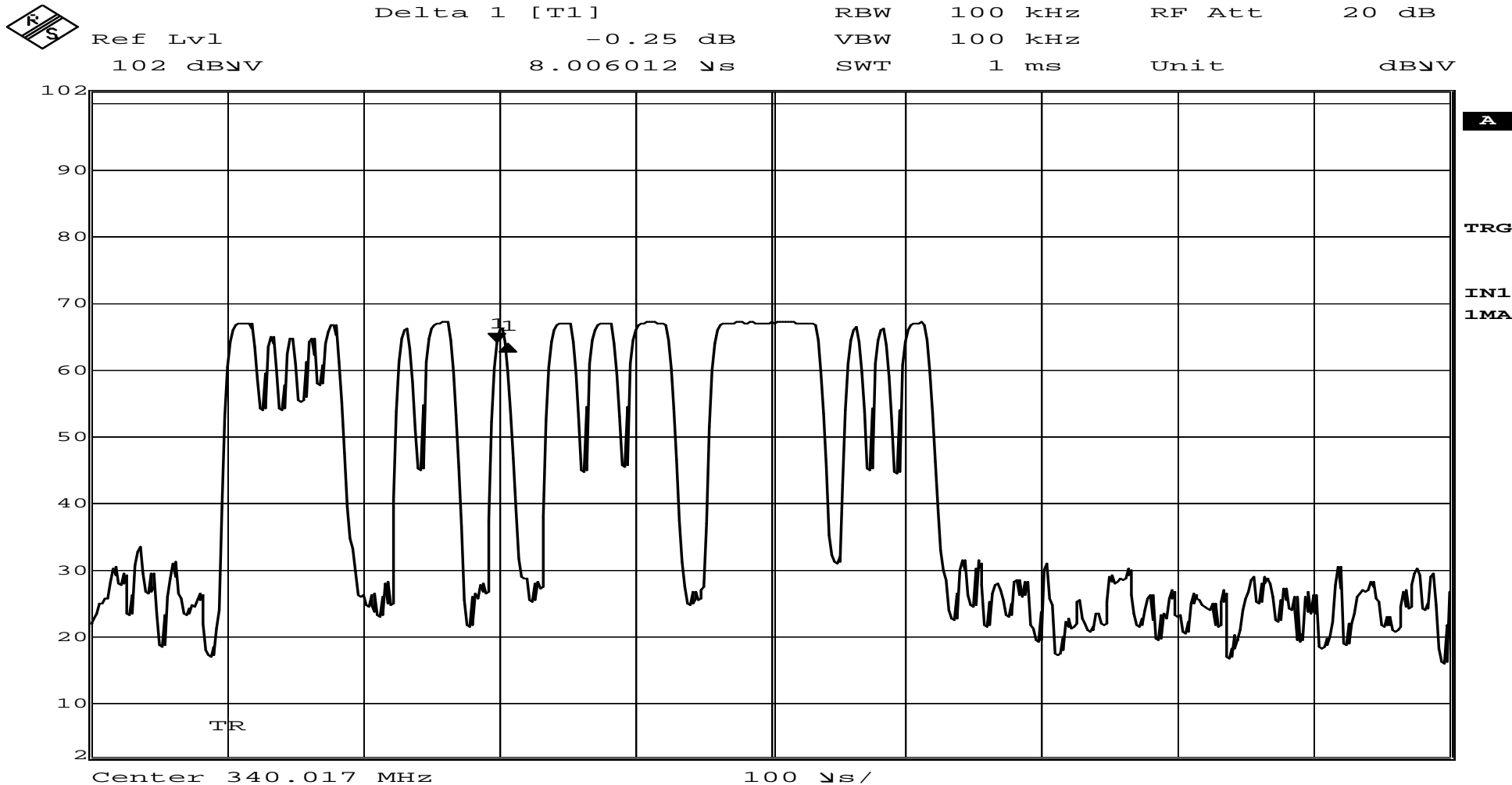


Date: 19.JAN.2012 17:03:46

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-358 Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		Technician: T. Hannemann
Notes:	Maximum Duty Cycle measured		Date: 1/19/2012

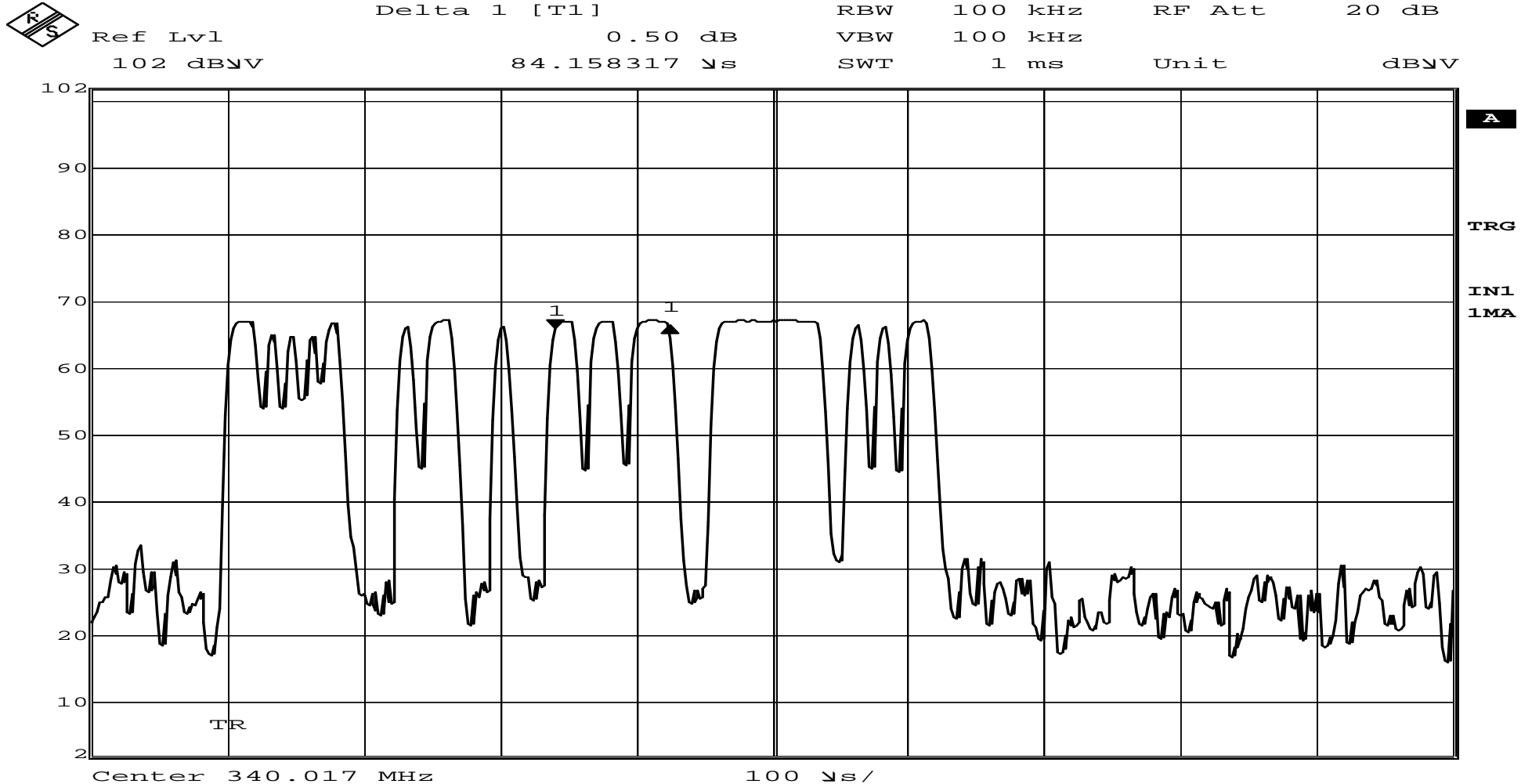


Date: 19.JAN.2012 17:04:17

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-358 Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		Technician: T. Hannemann
Notes:	Maximum Duty Cycle measured		Date: 1/19/2012

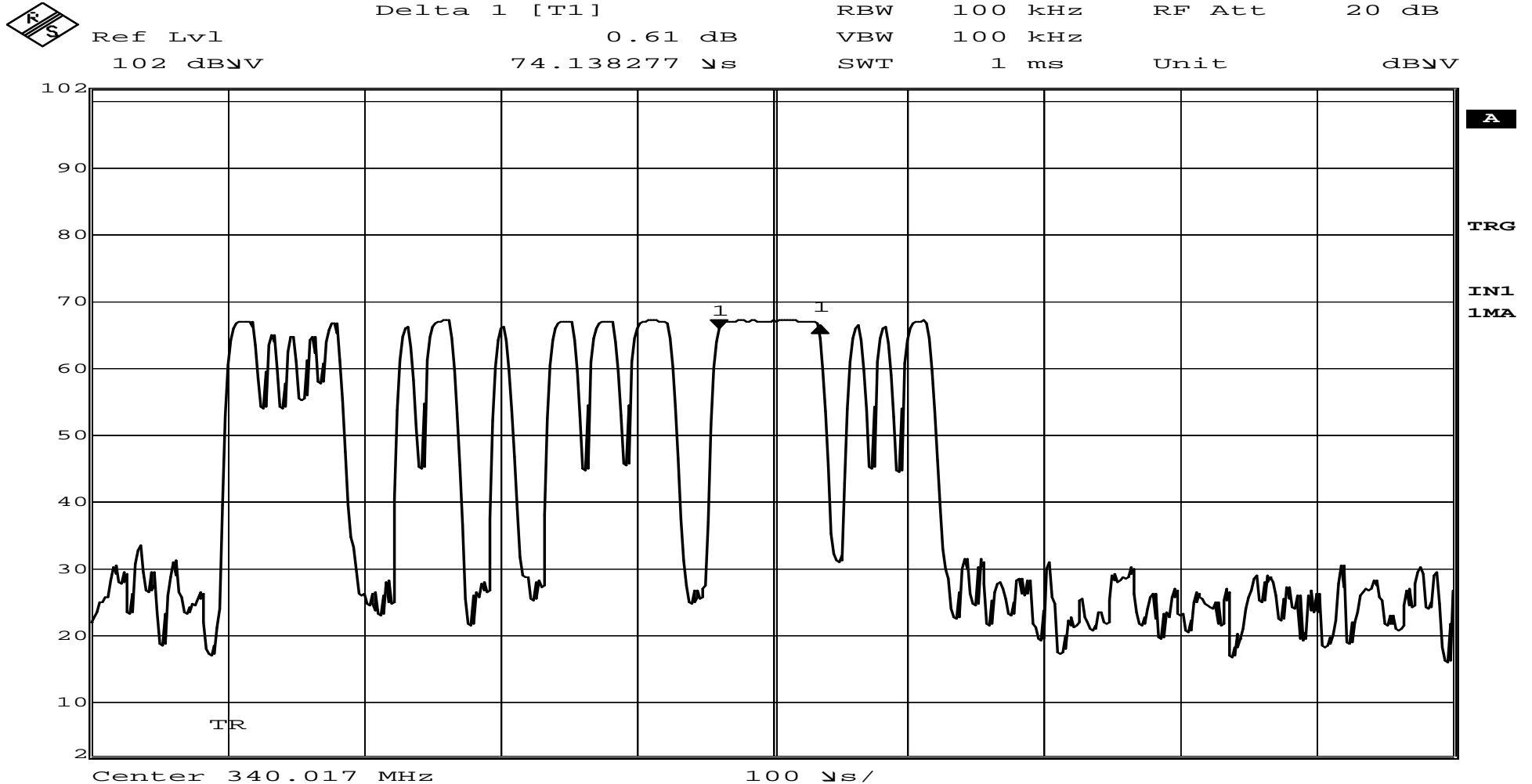


Date: 19.JAN.2012 17:05:31

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-358 Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		Technician: T. Hannemann
Notes:	Maximum Duty Cycle measured		Date: 1/19/2012

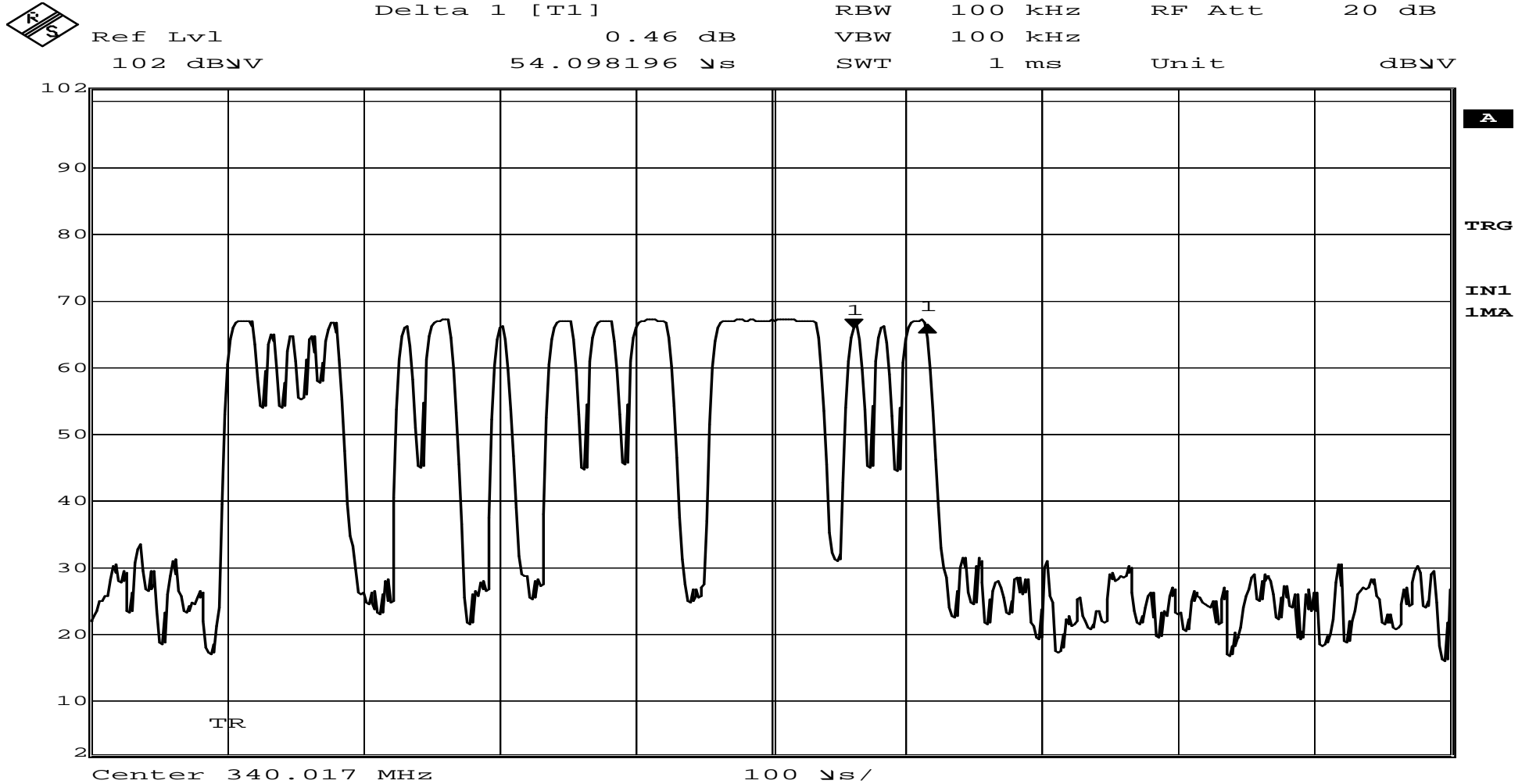


Date: 19.JAN.2012 17:06:03

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-358 Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		Technician: T. Hannemann
Notes:	Maximum Duty Cycle measured		Date: 1/19/2012

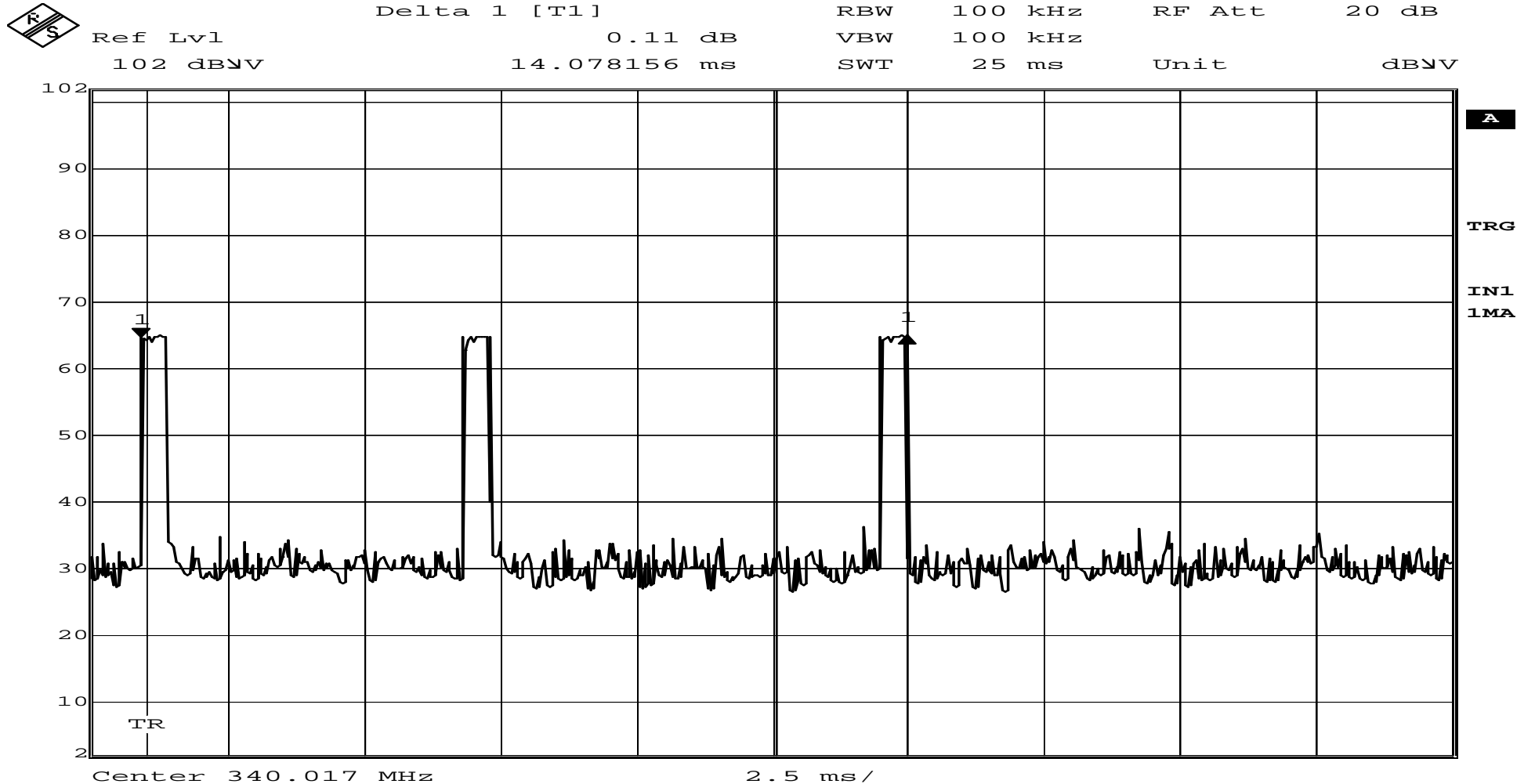


Date: 19.JAN.2012 17:06:34

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-758D Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Date: 1/19/2012
Operating Mode:	Continuously Transmitting		
Notes:	Maximum Duty Cycle measured		

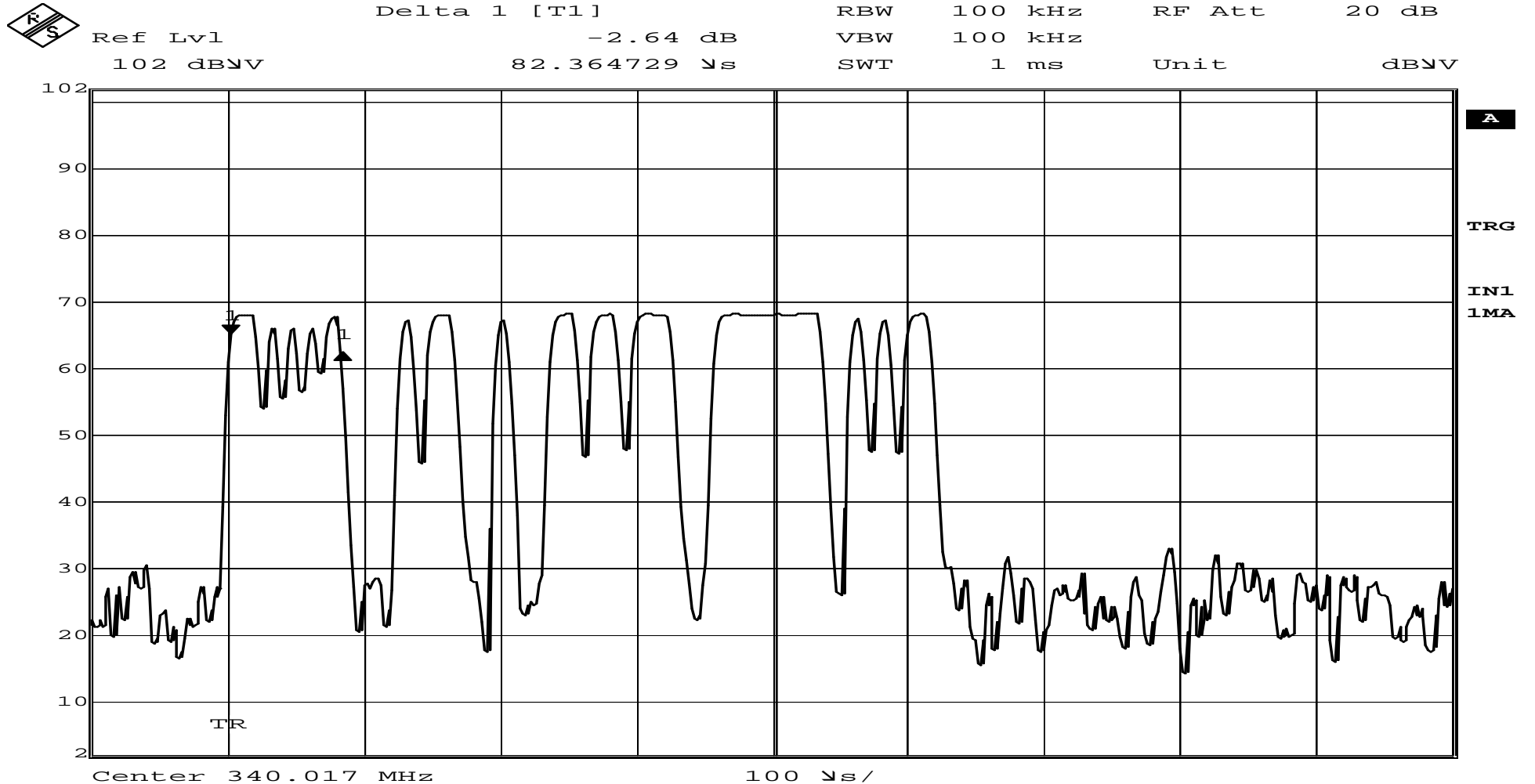


Date: 19.JAN.2012 17:32:45

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-758D Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		Technician: T. Hannemann
Notes:	Maximum Duty Cycle measured		Date: 1/19/2012



Date: 19.JAN.2012 17:17:01

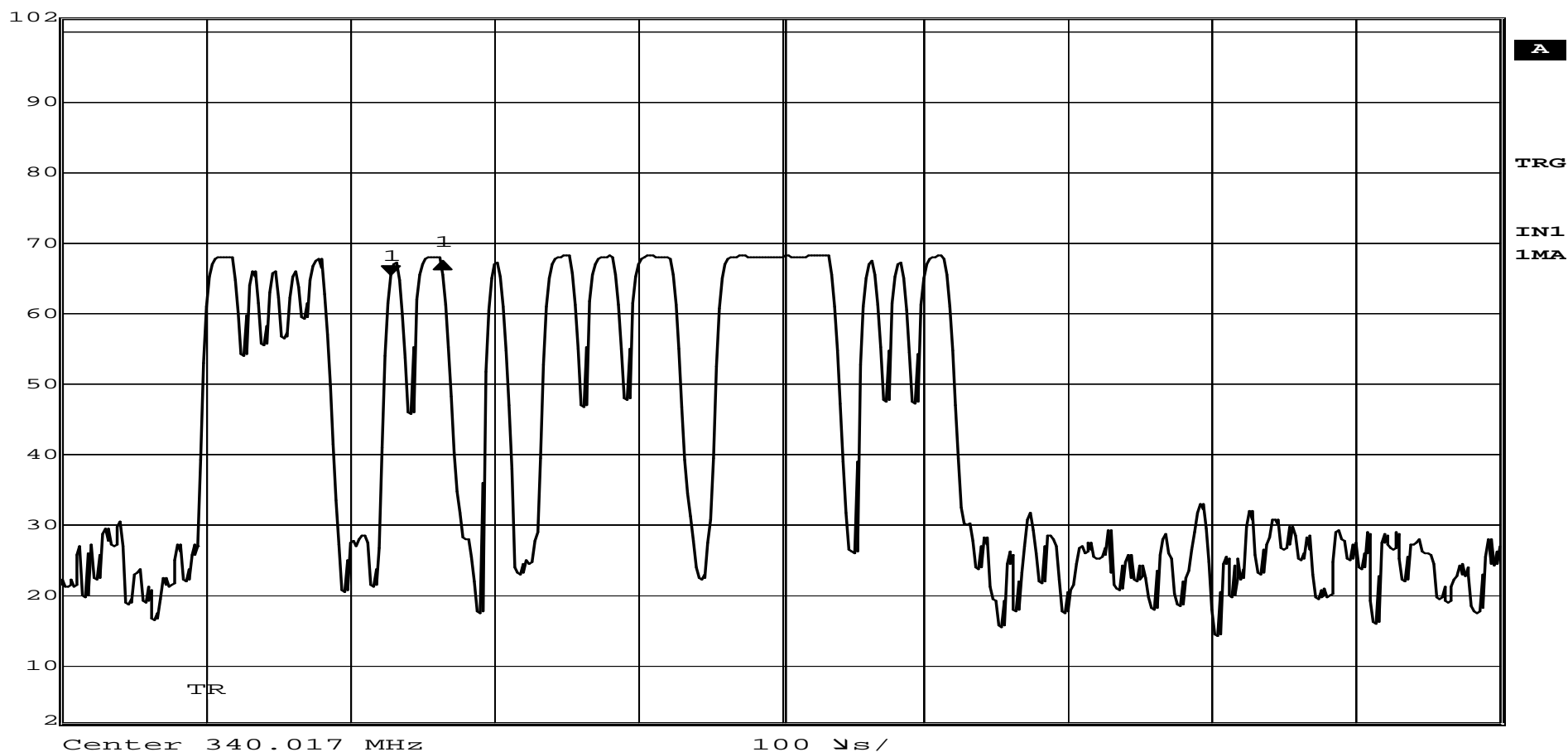
RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-758D Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		Technician: T. Hannemann
Notes:	Maximum Duty Cycle measured		Date: 1/19/2012



Delta 1 [T1] RBW 100 kHz RF Att 20 dB
 Ref Lvl 2.17 dB VBW 100 kHz
 102 dBμV 36.272545 μs SWT 1 ms Unit dBμV



Date: 19.JAN.2012 17:17:28

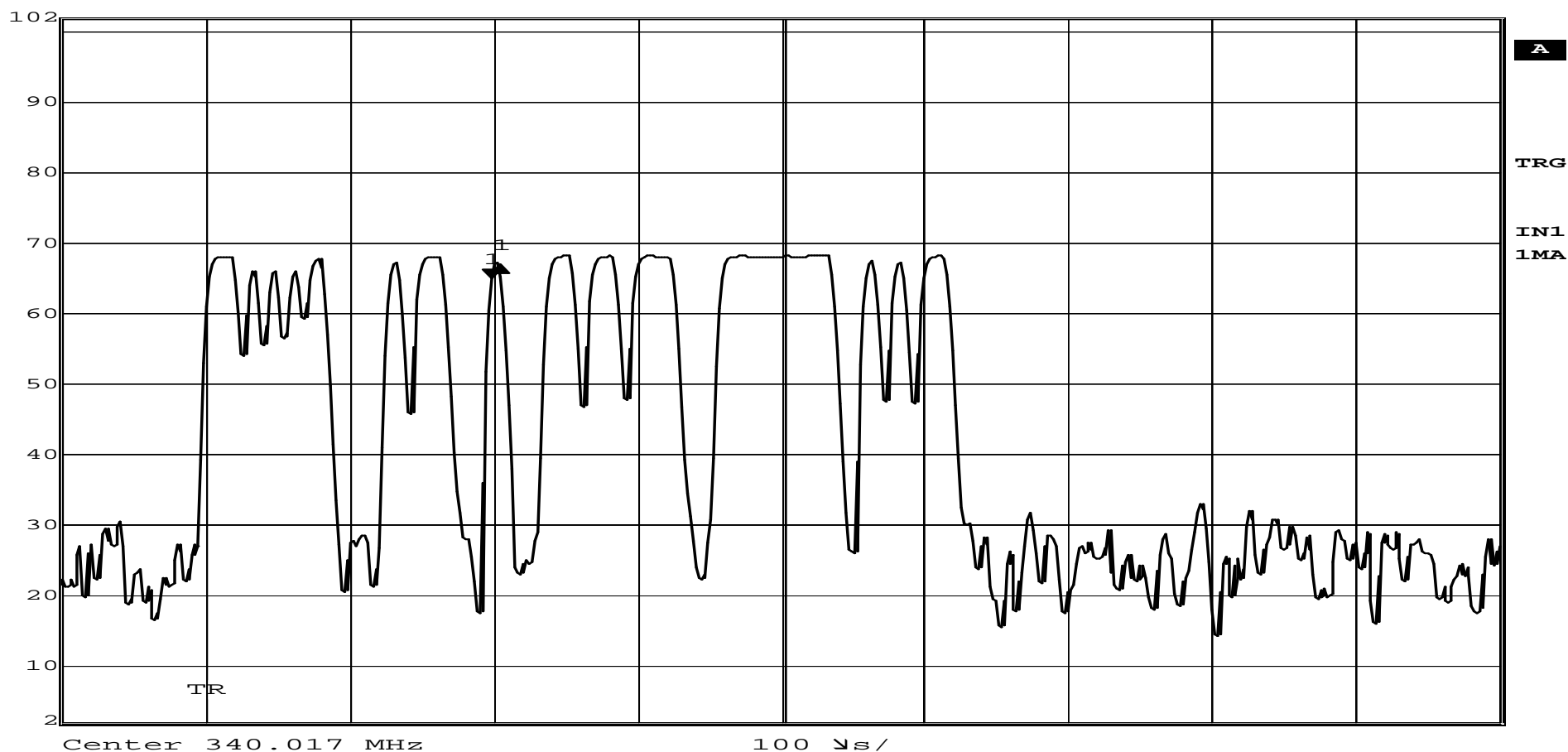
RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-758D Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		Technician: T. Hannemann
Notes:	Maximum Duty Cycle measured		Date: 1/19/2012



Delta 1 [T1] RBW 100 kHz RF Att 20 dB
 Ref Lvl 2.16 dB VBW 100 kHz
 102 dBμV 6.212425 μs SWT 1 ms Unit dBμV



Date: 19.JAN.2012 17:18:10

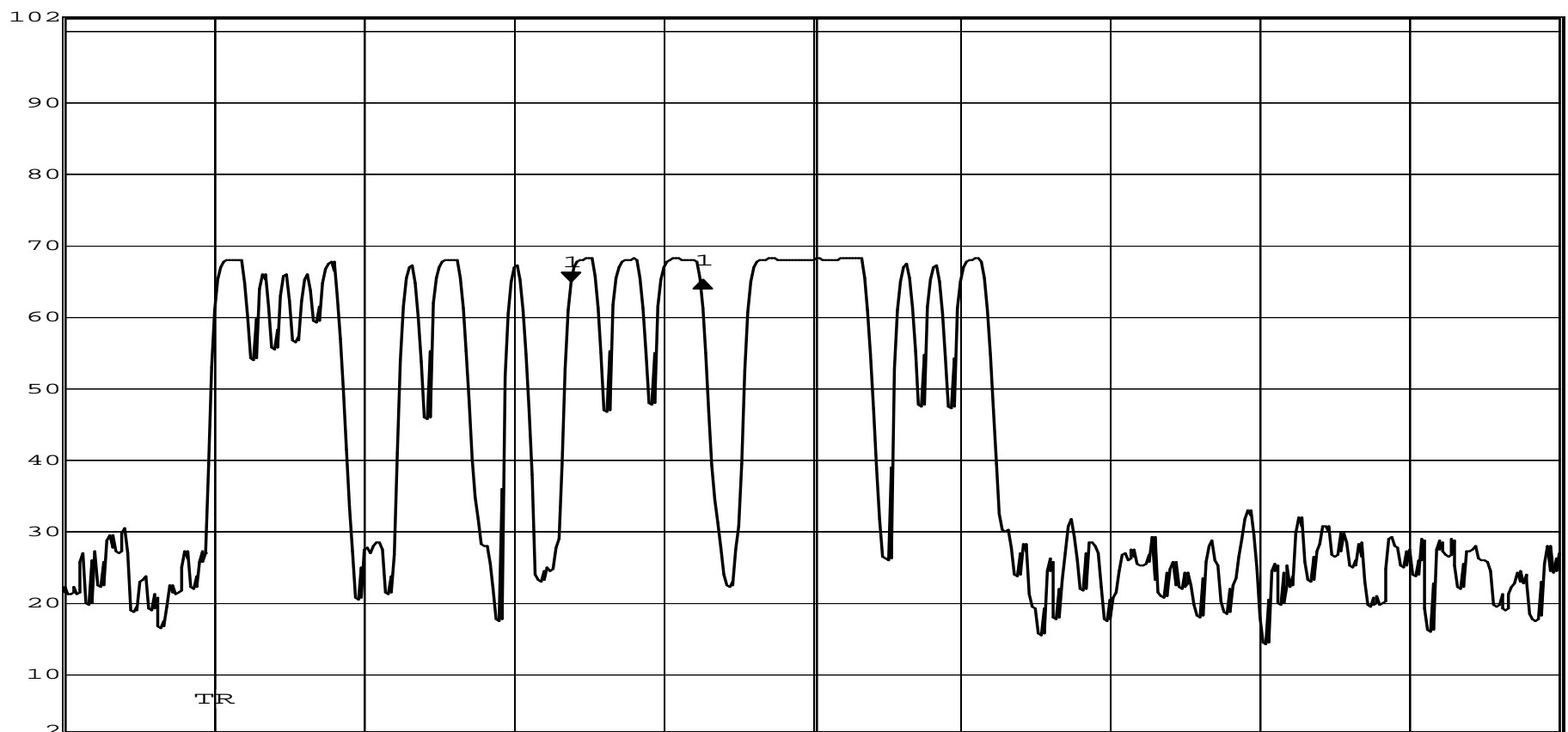
RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-758D Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Date: 1/19/2012
Operating Mode:	Continuously Transmitting		
Notes:	Maximum Duty Cycle measured		



Delta 1 [T1] RBW 100 kHz RF Att 20 dB
 Ref Lvl 0.29 dB VBW 100 kHz
 102 dBμV 88.376754 μs SWT 1 ms Unit dBμV



Center 340.017 MHz 100 μs/

Date: 19.JAN.2012 17:18:46

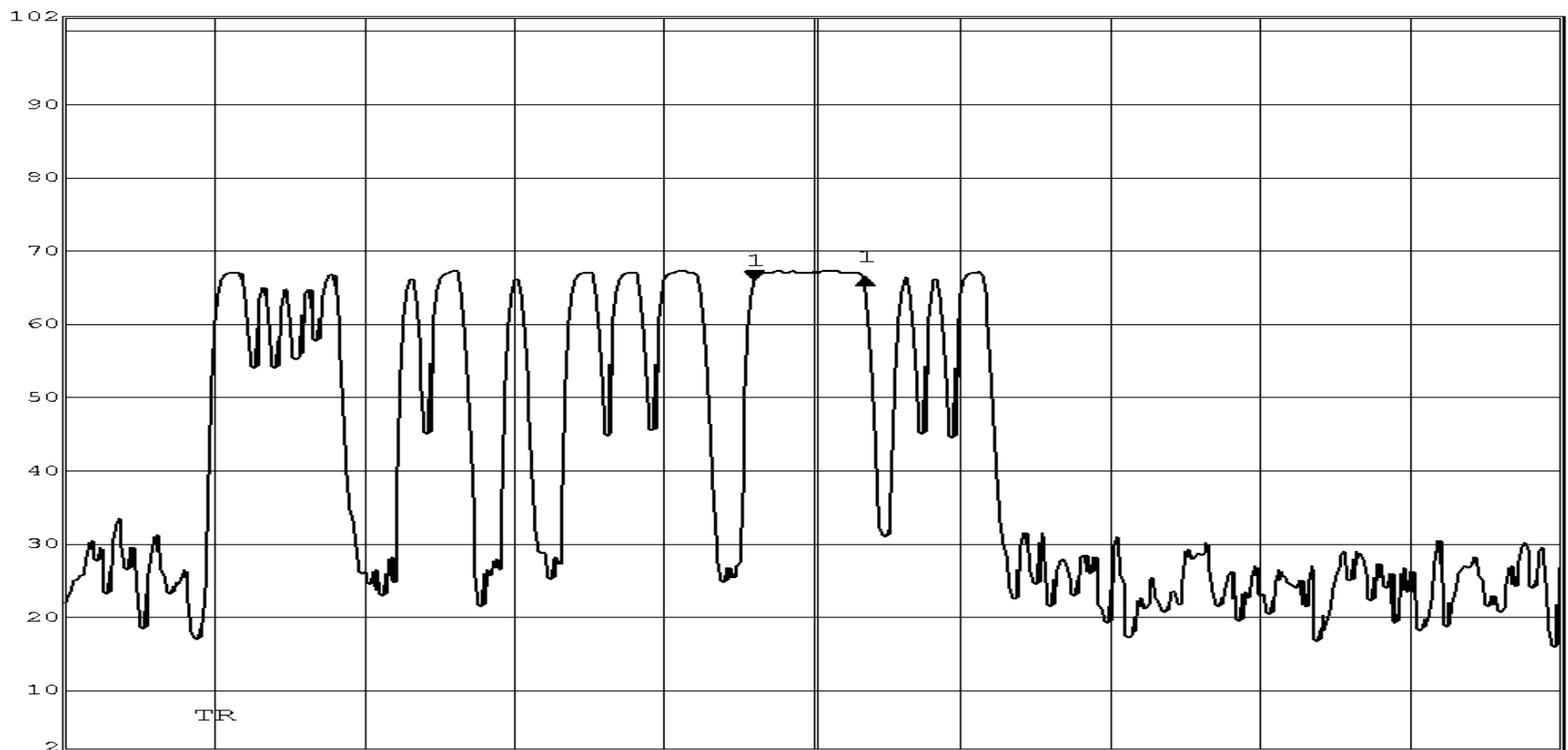
RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-758D Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		Technician: T. Hannemann
Notes:	Maximum Duty Cycle measured		Date: 1/19/2012



Delta 1 [T1] RBW 100 kHz RF Att 20 dB
 Ref Lvl 0.61 dB VBW 100 kHz
 102 dBμV 74.138277 μs SWT 1 ms Unit dBμV



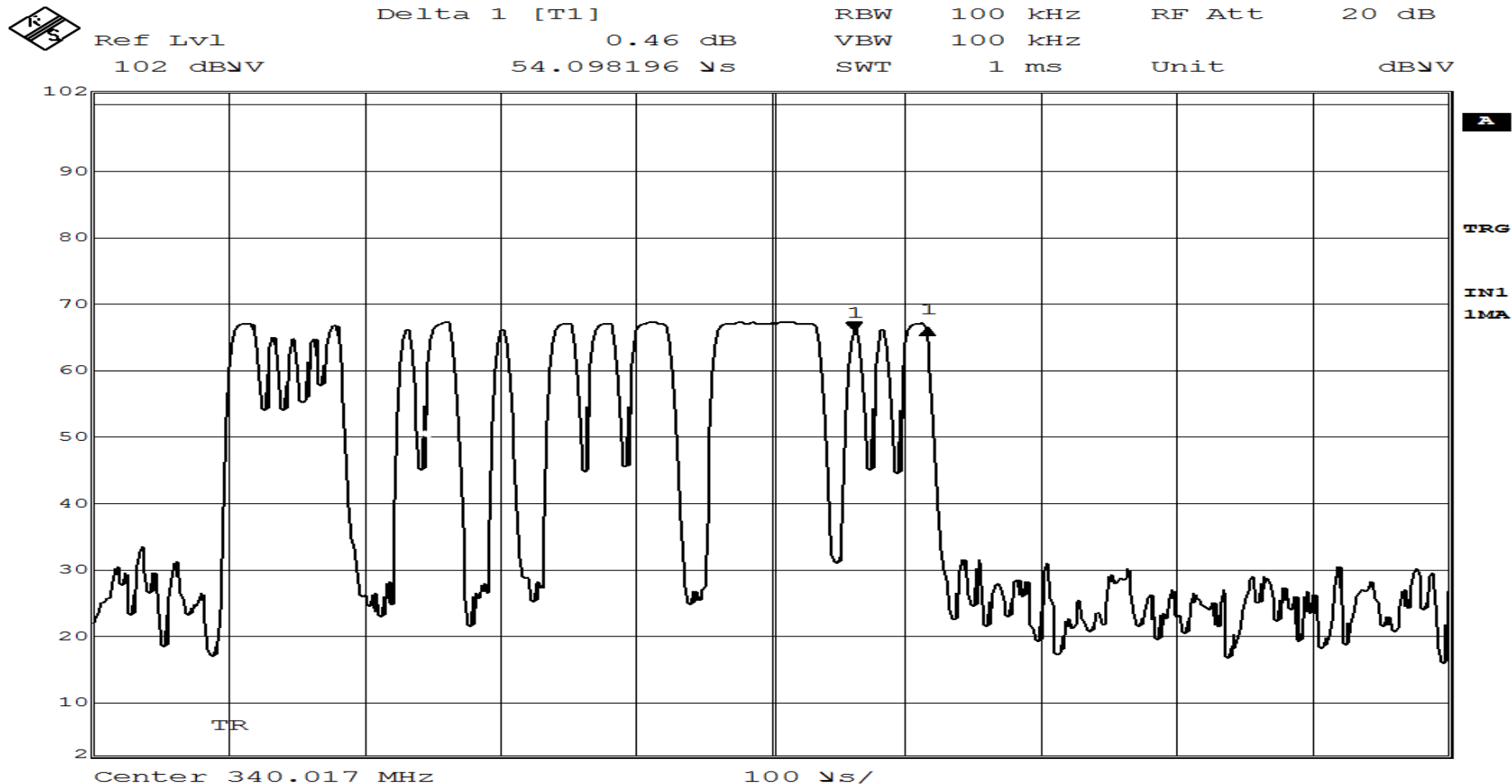
Center 340.017 MHz 100 μs/

Date: 19.JAN.2012 17:19:03

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-758D Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		Technician: T. Hannemann
Notes:	Maximum Duty Cycle measured		Date: 1/19/2012

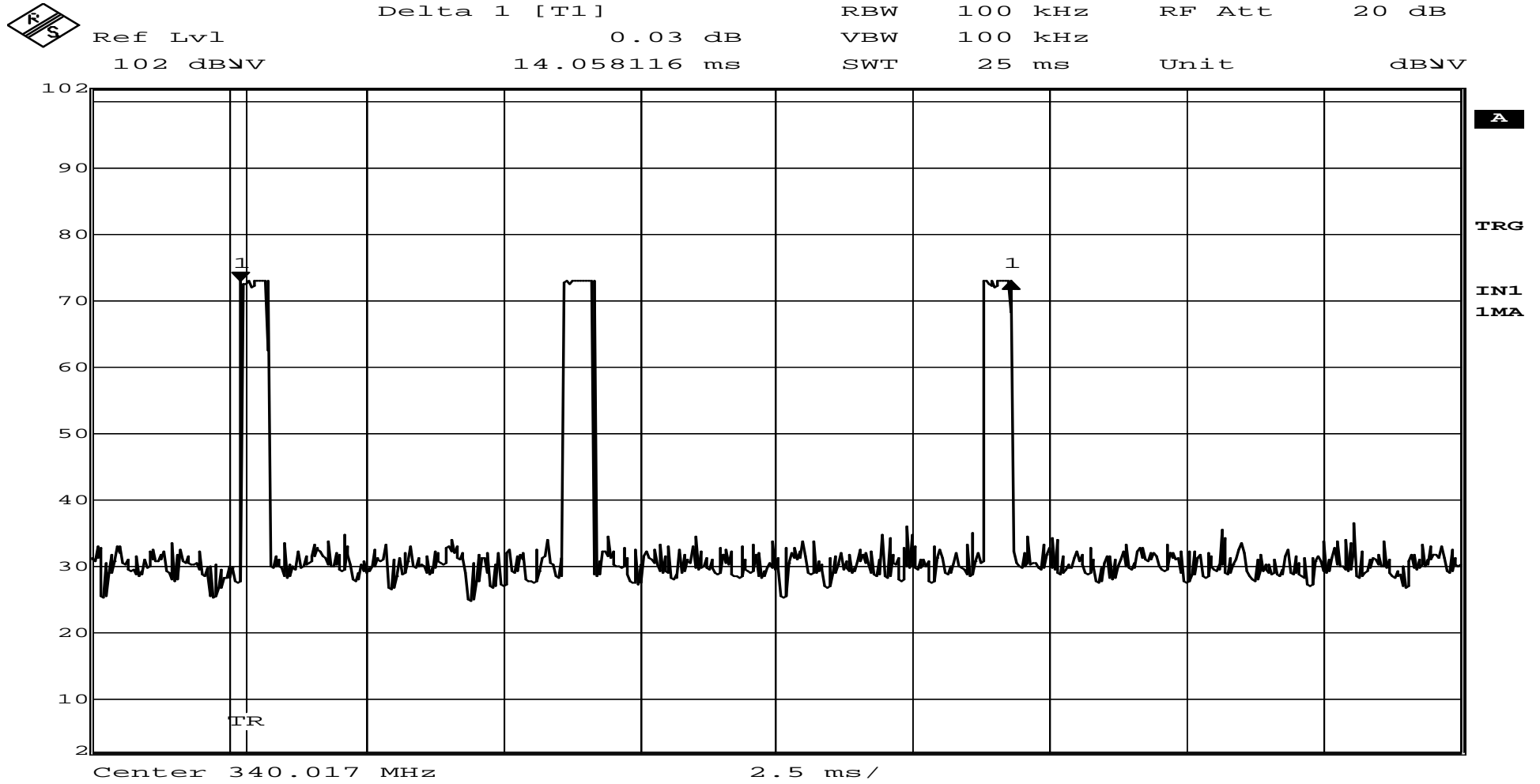


Date: 19.JAN.2012 17:19:34

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in C-500R Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Date: 1/19/2012
Operating Mode:	Continuously Transmitting		
Notes:	Maximum Duty Cycle measured		



Date: 19.JAN.2012 17:46:23

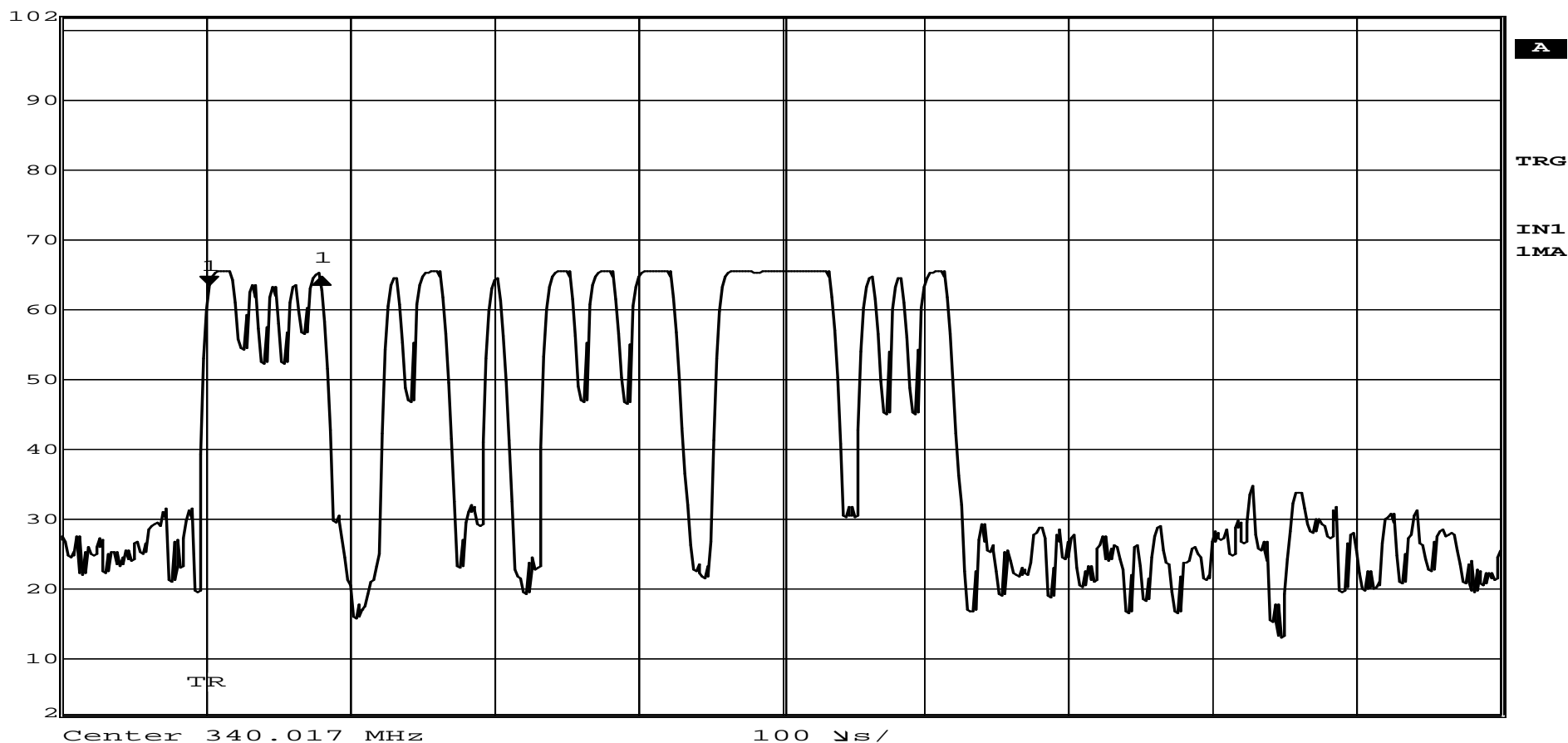
RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in C-500R Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		Technician: T. Hannemann
Notes:	Maximum Duty Cycle measured		



Delta 1 [T1] RBW 100 kHz RF Att 20 dB
 Ref Lvl 1.45 dB VBW 100 kHz
 102 dBμV 77.352705 μs SWT 1 ms Unit dBμV

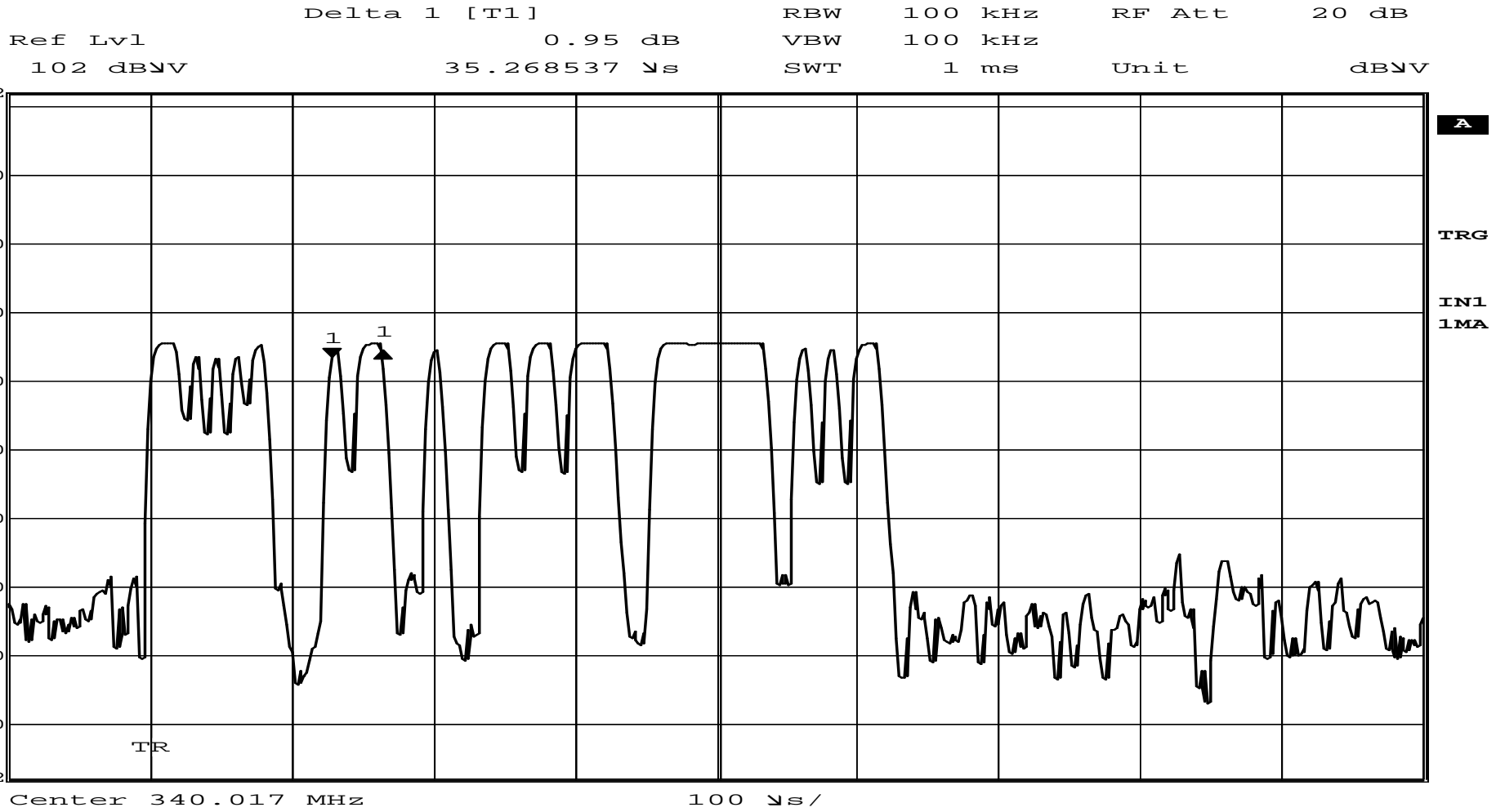


Date: 19.JAN.2012 17:48:05

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in C-500R Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Date: 1/19/2012
Operating Mode:	Continuously Transmitting		
Notes:	Maximum Duty Cycle measured		



Date: 19.JAN.2012 17:48:32

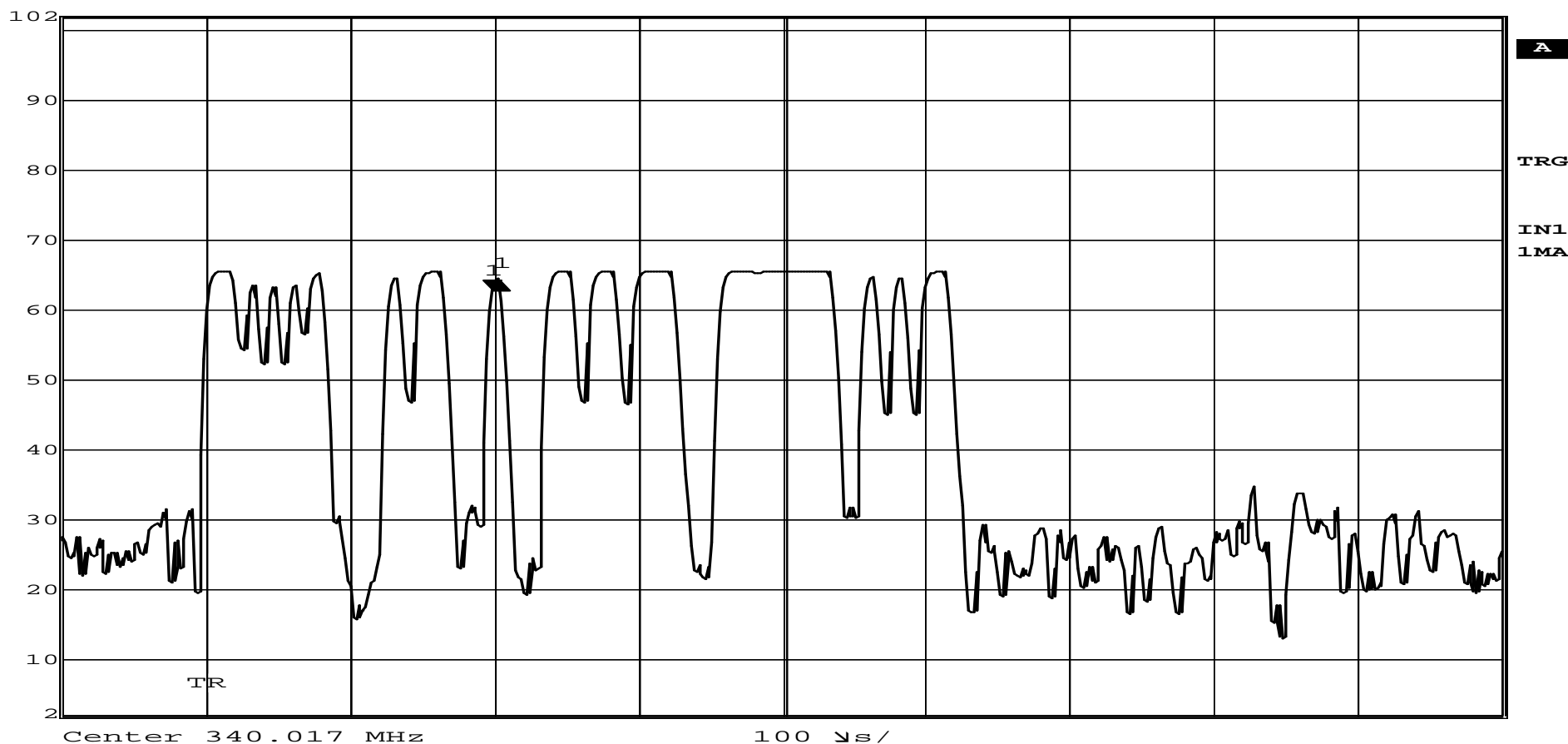
RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in C-500R Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		Technician: T. Hannemann
Notes:	Maximum Duty Cycle measured		Date: 1/19/2012



Delta 1 [T1] RBW 100 kHz RF Att 20 dB
 Ref Lvl 0.96 dB VBW 100 kHz
 102 dBμV 5.208417 μs SWT 1 ms Unit dBμV

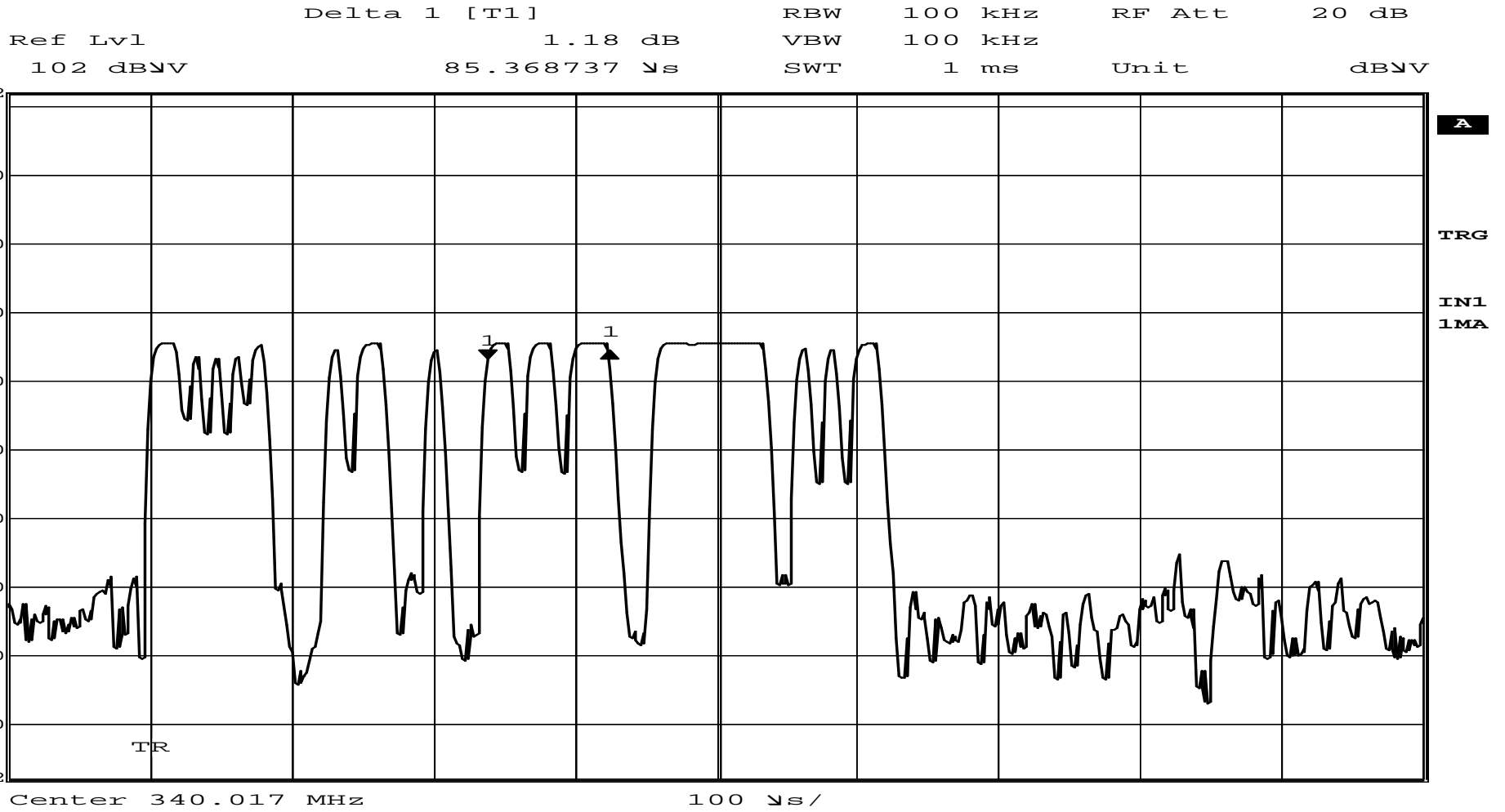


Date: 19.JAN.2012 17:49:05

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in C-500R Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		Technician: T. Hannemann
Notes:	Maximum Duty Cycle measured		Date: 1/19/2012

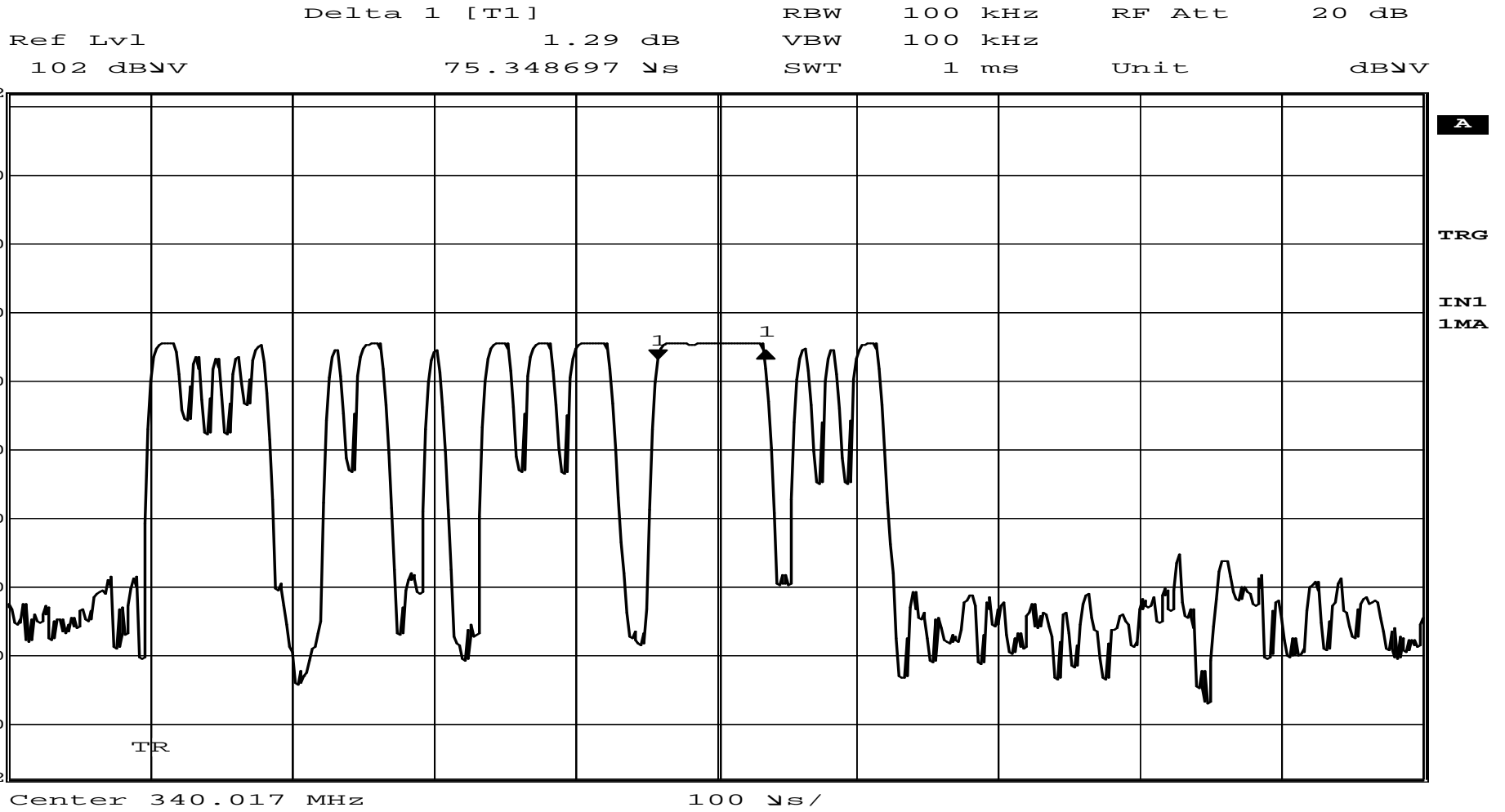


Date: 19.JAN.2012 17:49:41

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in C-500R Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Date: 1/19/2012
Operating Mode:	Continuously Transmitting		
Notes:	Maximum Duty Cycle measured		



Date: 19.JAN.2012 17:50:07

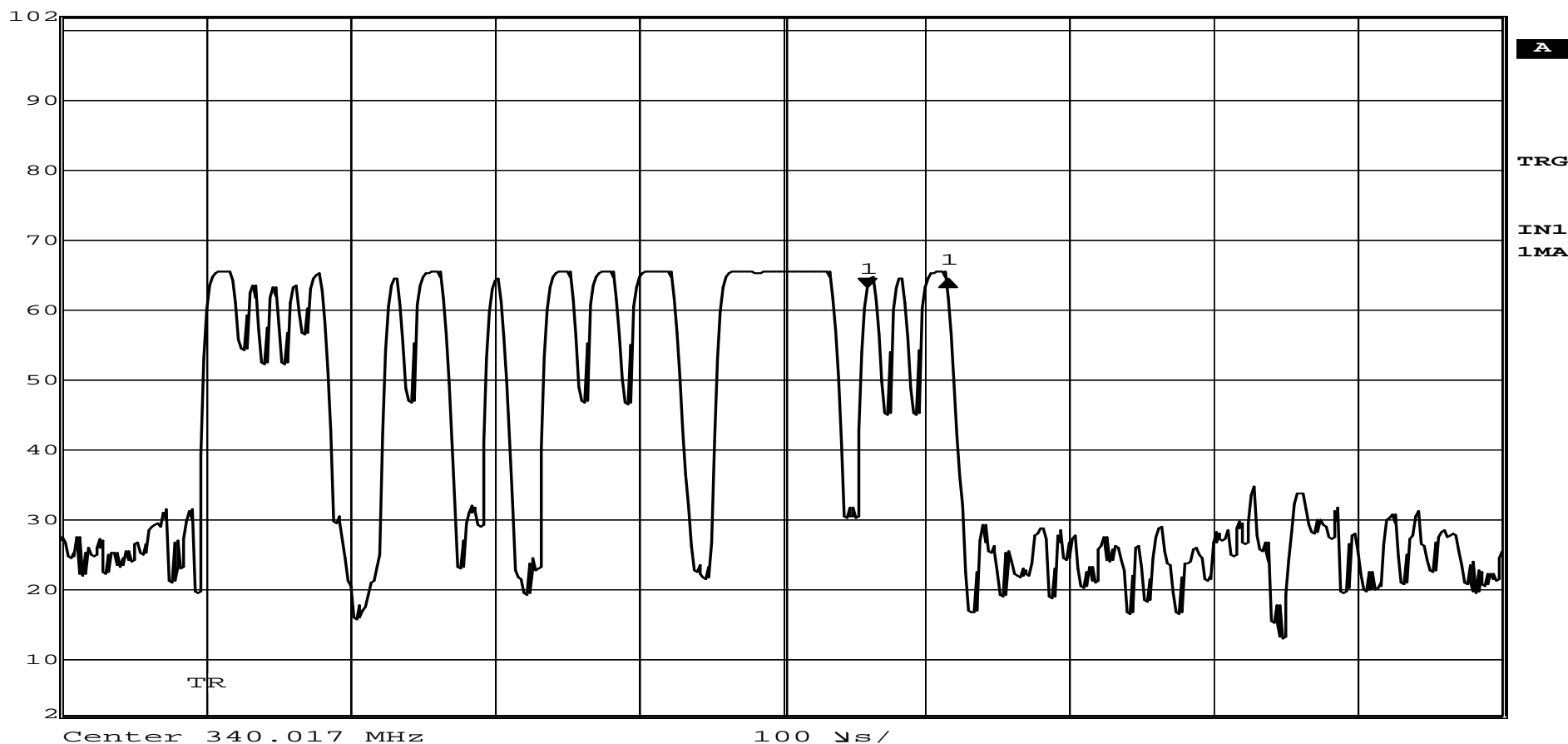
RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Duty Cycle Plots		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in C-500R Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(b)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		Technician: T. Hannemann
Notes:	Maximum Duty Cycle measured		Date: 1/19/2012



Delta 1 [T1] RBW 100 kHz RF Att 20 dB
 Ref Lvl 1.17 dB VBW 100 kHz
 102 dBμV 55.308617 μs SWT 1 ms Unit dBμV



Date: 19.JAN.2012 17:50:35

**FCC Section 15.231(b)(3) - Field Strength of Spurious Emissions
IC RSS-210, A1.1.2(3) - Field Strength of Unwanted Emissions**

Test Photographs



Radio Transmitter with Exposure Meter, Model: L-358
Horizontal Antenna Polarization, 30 to 1000 MHz



Radio Transmitter with Exposure Meter, Model: L-358
Vertical Antenna Polarization, 30 to 1000 MHz



Radio Transmitter with Exposure Meter, Model: L-358
Horizontal Antenna Polarization, 1 to 4 GHz



Radio Transmitter with Exposure Meter, Model: L-358
Vertical Antenna Polarization, 1 to 4 GHz



Radio Transmitter with Exposure Meter, Model: L-758D
Horizontal Antenna Polarization, 30 to 1000 MHz



Radio Transmitter with Exposure Meter, Model: L-758D
Vertical Antenna Polarization, 30 to 1000 MHz



Radio Transmitter with Exposure Meter, Model: L-758D
Horizontal Antenna Polarization, 1 to 4 GHz



Radio Transmitter with Exposure Meter, Model: L-758D
Vertical Antenna Polarization, 1 to 4 GHz



Radio Transmitter with Color Meter, Model: C-500R
Horizontal Antenna Polarization, 30 to 1000 MHz



Radio Transmitter with Color Meter, Model: C-500R
Vertical Antenna Polarization, 30 to 1000 MHz



Radio Transmitter with Color Meter, Model: C-500R
Horizontal Antenna Polarization, 1 to 4 GHz



Radio Transmitter with Color Meter, Model: C-500R
Vertical Antenna Polarization, 1 to 4 GHz

**FCC Section 15.231(b)(3) - Field Strength of Spurious Emissions
IC RSS-210, A1.1.2(3) - Field Strength of Unwanted Emissions**

Test Data

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

Test Method:	Spurious Emissions 30MHz to 3.6GHz		
Customer:	LPA Design, Inc.	Job No:	R-5534N-1
Test Sample:	Radio Module Installed in L-358 Light Meter		
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.231(b)		
Operating Mode:	Continuously Transmitting		
Technician:	M.Seamans	Date:	11/11/2011
Notes:	Fundamental Frequency: 340 MHz		

[illegible]

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

Test Method:	Spurious Emissions 30MHz to 3.6GHz		
Customer:	LPA Design, Inc.	Job No:	R-5534N-1
Test Sample:	Radio Module Installed in L-758D Light Meter		
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.231(b)		
Operating Mode:	Continuously Transmitting		
Technician:	M.Seamans	Date:	11/11/2011
Notes:	Fundamental Frequency: 340 MHz		

[illegible]

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

Test Method:	Spurious Emissions 30MHz to 3.6GHz		
Customer:	LPA Design, Inc.	Job No:	R-5534N-1
Test Sample:	Radio Module Installed in C-500R Light Meter		
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.231(b)		
Operating Mode:	Continuously Transmitting		
Technician:	M.Seamans	Date:	
Notes:	Fundamental Frequency: 340 MHz		

[illegible]

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

Test Method:	Spurious Emissions 30MHz to 3.6GHz		
Customer:	LPA Design, Inc.	Job No:	R-5534N-1
Test Sample:	Radio Module Installed in L-358 Light Meter		
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.231(b)		
Operating Mode:	Continuously Transmitting		
Technician:	M.Seamans	Date:	11/11/2011
Notes:	Fundamental Frequency: 347 MHz		

[illegible]

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

Test Method:

Spurious Emissions 30MHz to 3.6GHz

Customer:

LPA Design, Inc.

Job No:

R-5534N-1

Test Sample:

Radio Module Installed in L-758D Light Meter

Model No:

RT-32CTL

Serial No:

	N/A
--	-----

Test Specification:

FCC Part 15, Subpart C

Paragraph: 15.231(b)

Operating Mode:

Continuously Transmitting

Technician:

M.Seamans

Date:

Notes:

Fundamental Frequency: 347 MHz

[illegible]

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

Test Method:	Spurious Emissions 30MHz to 3.6GHz		
Customer:	LPA Design, Inc.	Job No:	R-5534N-1
Test Sample:	Radio Module Installed in C-500R Light Meter		
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.231(b)		
Operating Mode:	Continuously Transmitting		
Technician:	M.Seamans	Date:	11/11/2011
Notes:	Fundamental Frequency: 347 MHz		

[illegible]

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

Test Method:	Spurious Emissions 30MHz to 3.6GHz		
Customer:	LPA Design, Inc.	Job No:	R-5534N-1
Test Sample:	Radio Module Installed in L-358 Light Meter		
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.231(b)		
Operating Mode:	Continuously Transmitting		
Technician:	M.Seamans	Date:	11/11/2011
Notes:	Fundamental Frequency: 354 MHz		

[illegible]

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

Test Method:	Spurious Emissions 30MHz to 3.6GHz		
Customer:	LPA Design, Inc.	Job No:	R-5534N-1
Test Sample:	Radio Module Installed in L-758D Light Meter		
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.231(b)		
Operating Mode:	Continuously Transmitting		
Technician:	M.Seamans	Date:	11/11/2011
Notes:	Fundamental Frequency: 354 MHz		

[illegible]

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

Test Method:

Spurious Emissions 30MHz to 3.6GHz

Customer:

LPA Design, Inc.

Job No:

R-5534N-1

Test Sample:

Radio Module Installed in C-500R Light Meter

Model No:

RT-32CTL

Serial No:

	N/A
--	-----

Test Specification:

FCC Part 15, Subpart C

Paragraph: 15.231(b)

Operating Mode:

Continuously Transmitting

Technician:

M.Seamans

Date:

11/11/2011

Notes:

Fundamental Frequency: 354 MHz

[illegible]

**FCC Section 15.231(c) - Bandwidth of Emission
IC RSS-210, A1.1.3 - Bandwidth of Momentary Signals**

Test Photograph



Test Setup, Radio Transmitter with Exposure Meter, Model: L-358



Test Setup, Radio Transmitter with Exposure Meter, Model: L-758D



Test Setup, Radio Transmitter with Color Meter, Model: C-500R

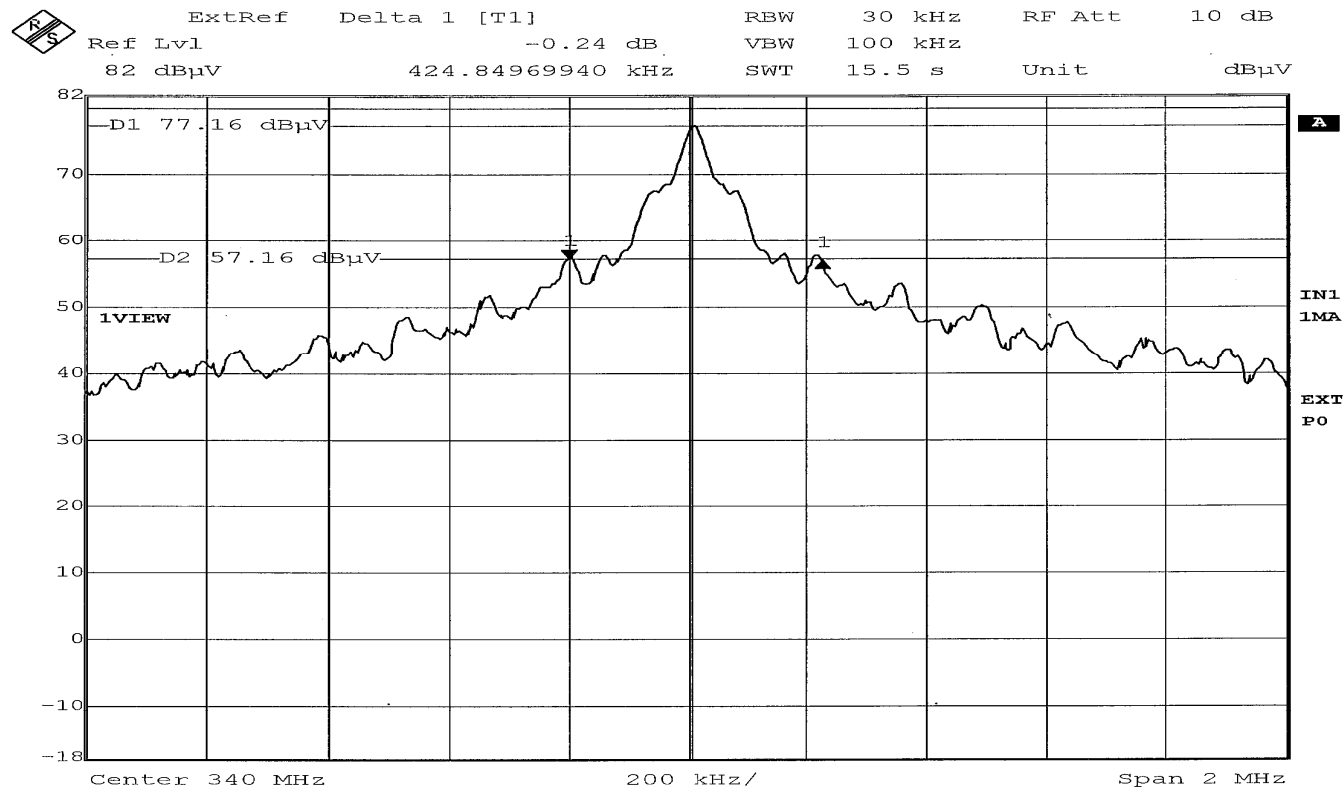
**FCC Section 15.231(c) - Bandwidth of Emission
IC RSS-210, A1.1.3 - Bandwidth of Momentary Signals**

Test Data

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-358 Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(c)	Date: 11-Nov-11
Operating Mode:	Continuously Transmitting		
Notes:	Transmit Frequency 340 MHz Occupied Bandwidth: 424.849 kHz		

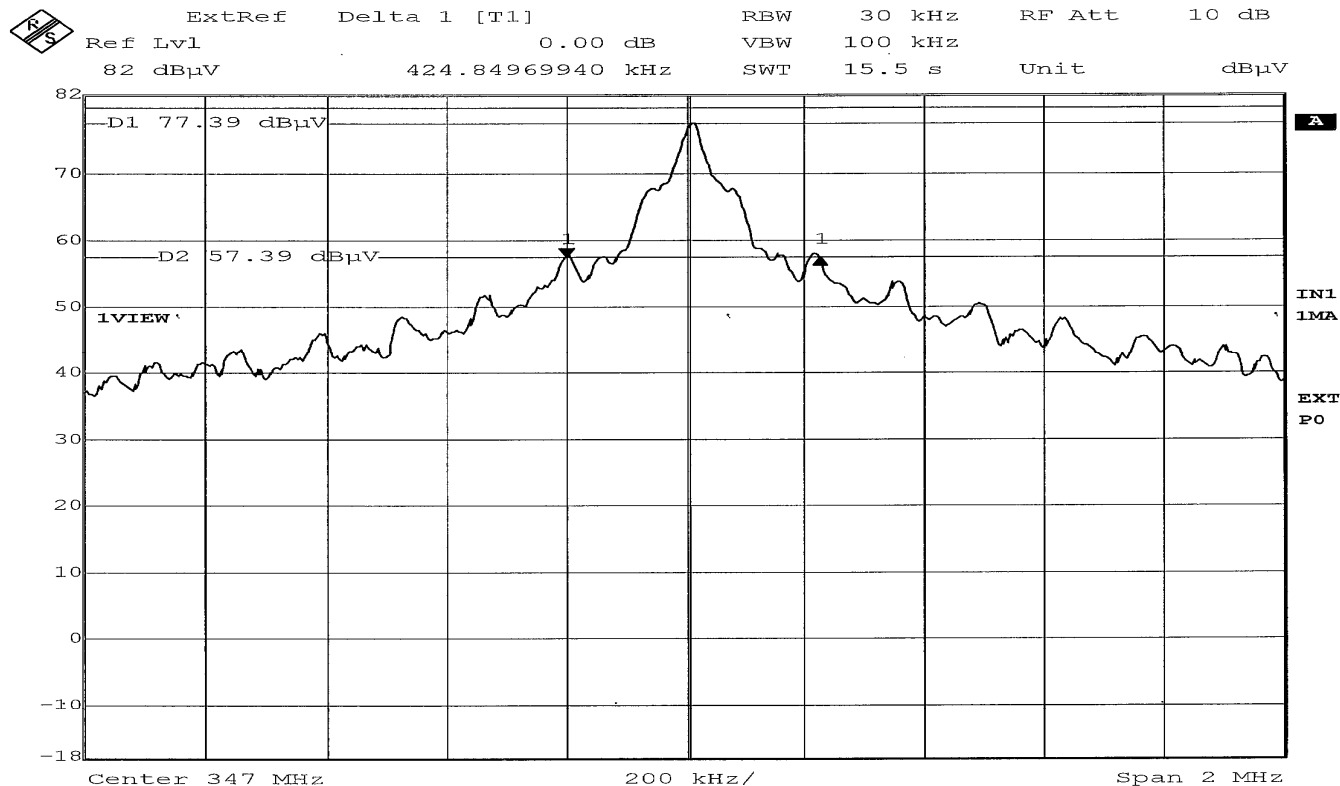


Date: 11.NOV.2011 09:52:25

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-358 Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(c)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		
Notes:	Transmit Frequency 347 MHz Occupied Bandwidth: 424.849 kHz		
Technician: M. Seamans			
Date: 11/11/2011			

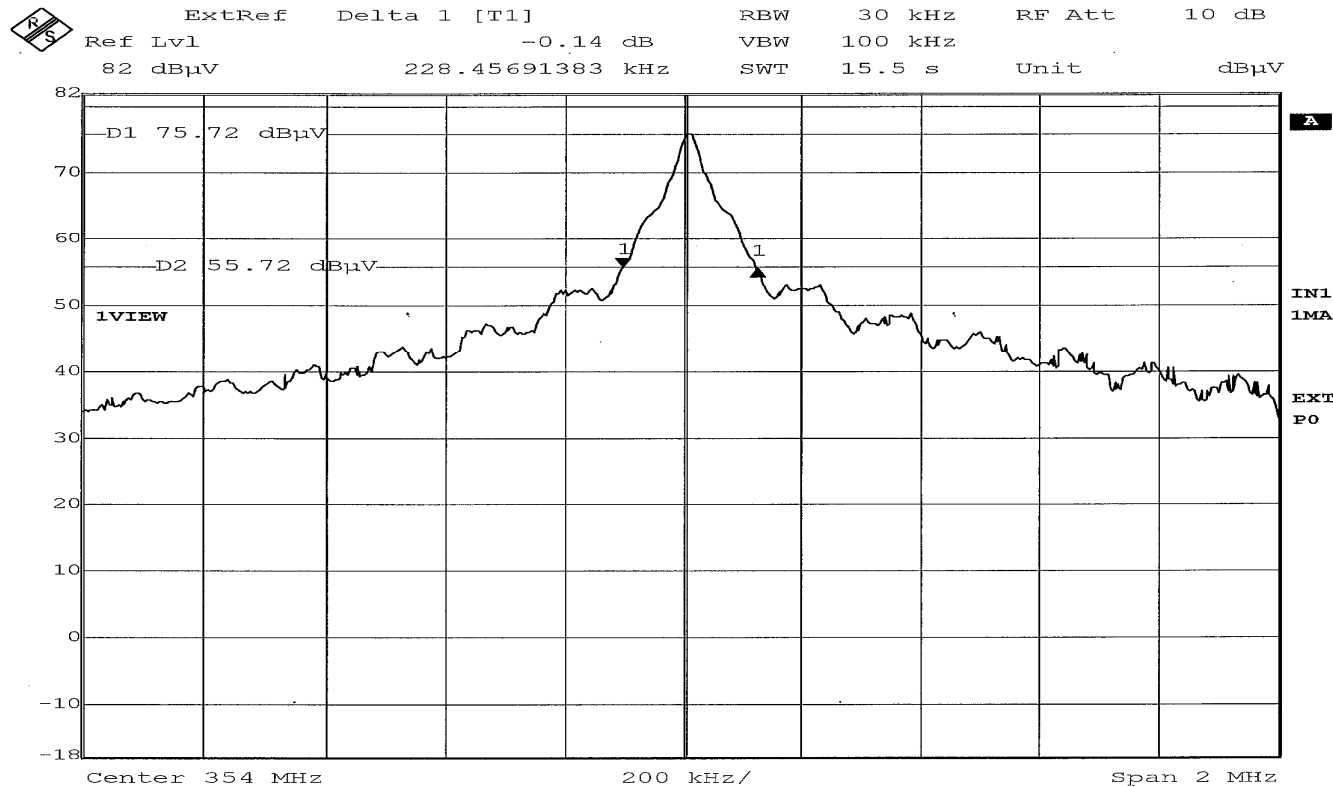


Date: 11.NOV.2011 09:57:32

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-358 Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(c)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		
Notes:	Transmit Frequency 354 MHz Occupied Bandwidth: 228.456 kHz		

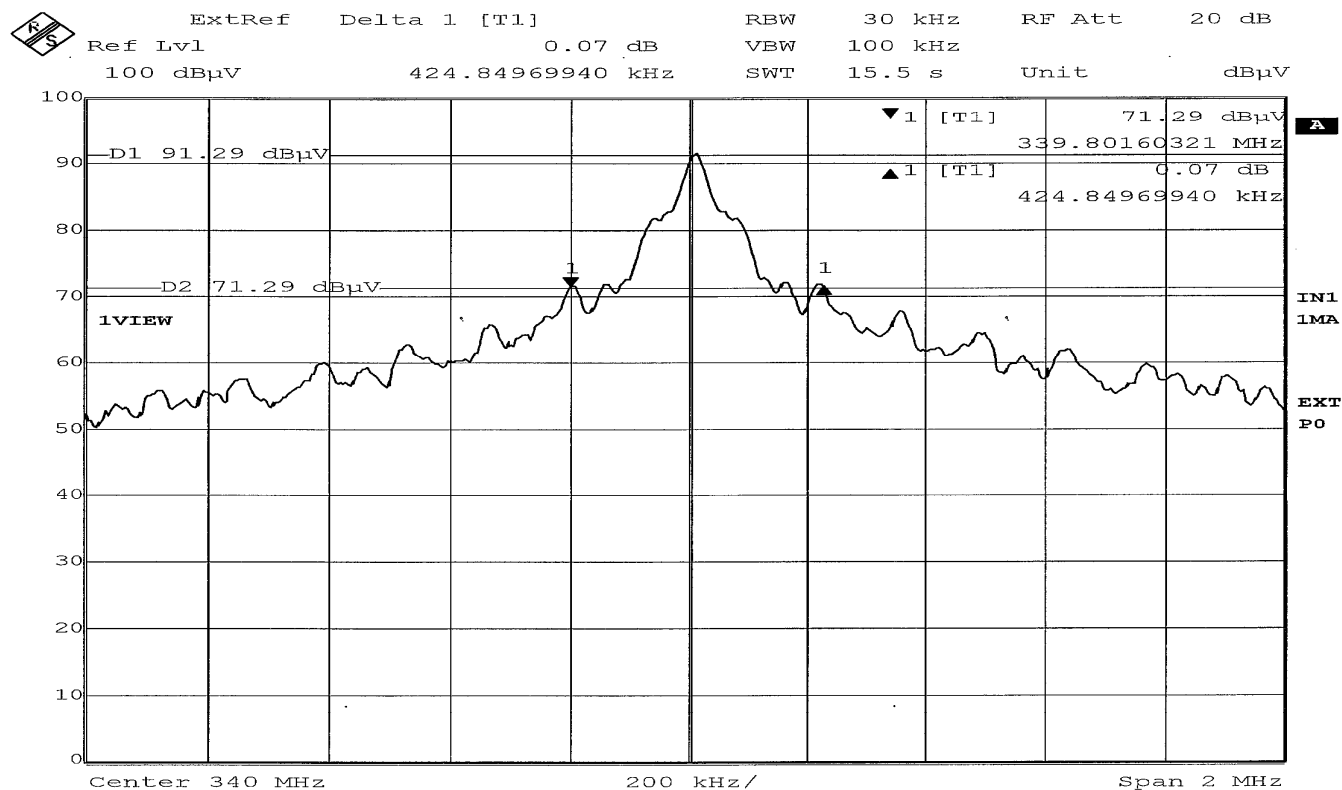


Date: 11.NOV.2011 10:04:22

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-758D Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(c)	Date: 11-Nov-11
Operating Mode:	Continuously Transmitting		
Notes:	Transmit Frequency 340 MHz Occupied Bandwidth: 424.849 kHz		

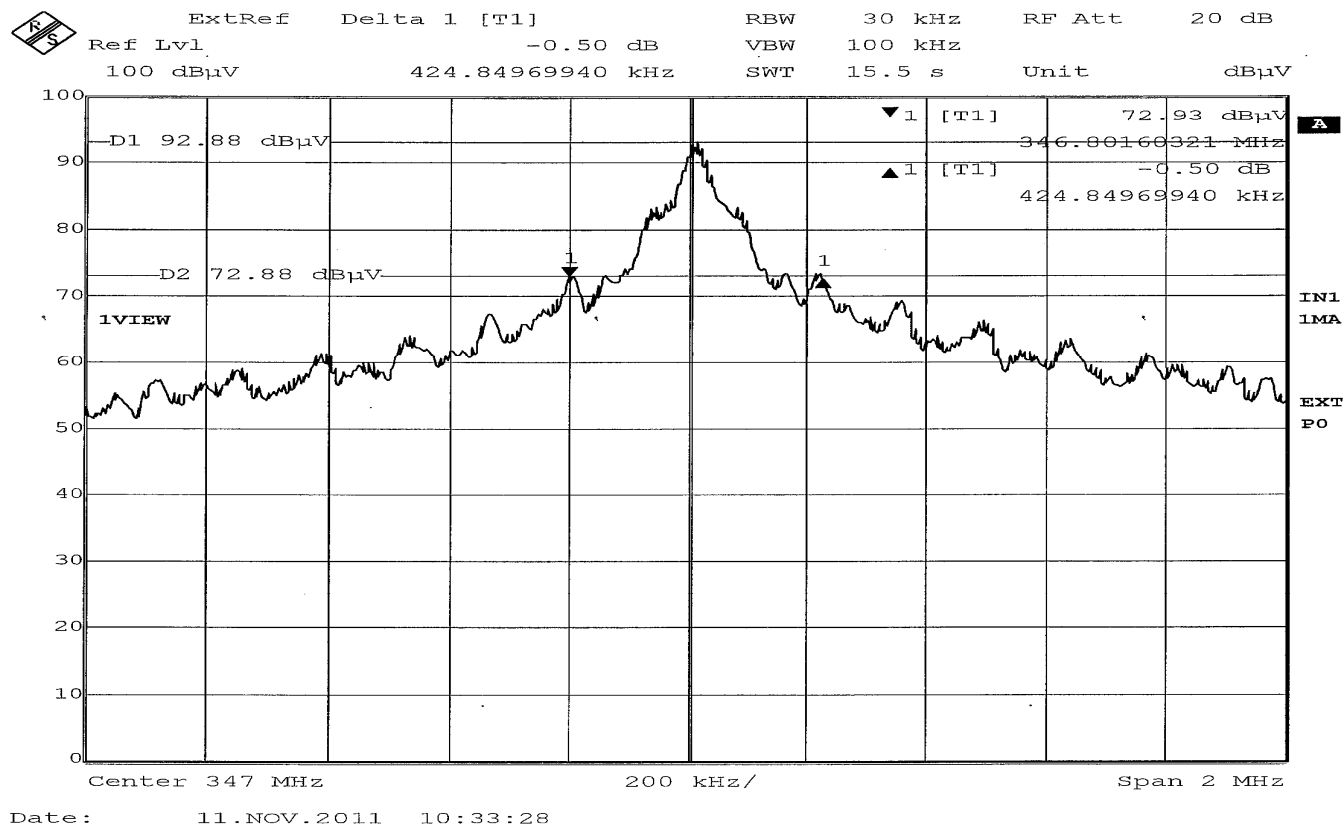


Date: 11.NOV.2011 10:23:06

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

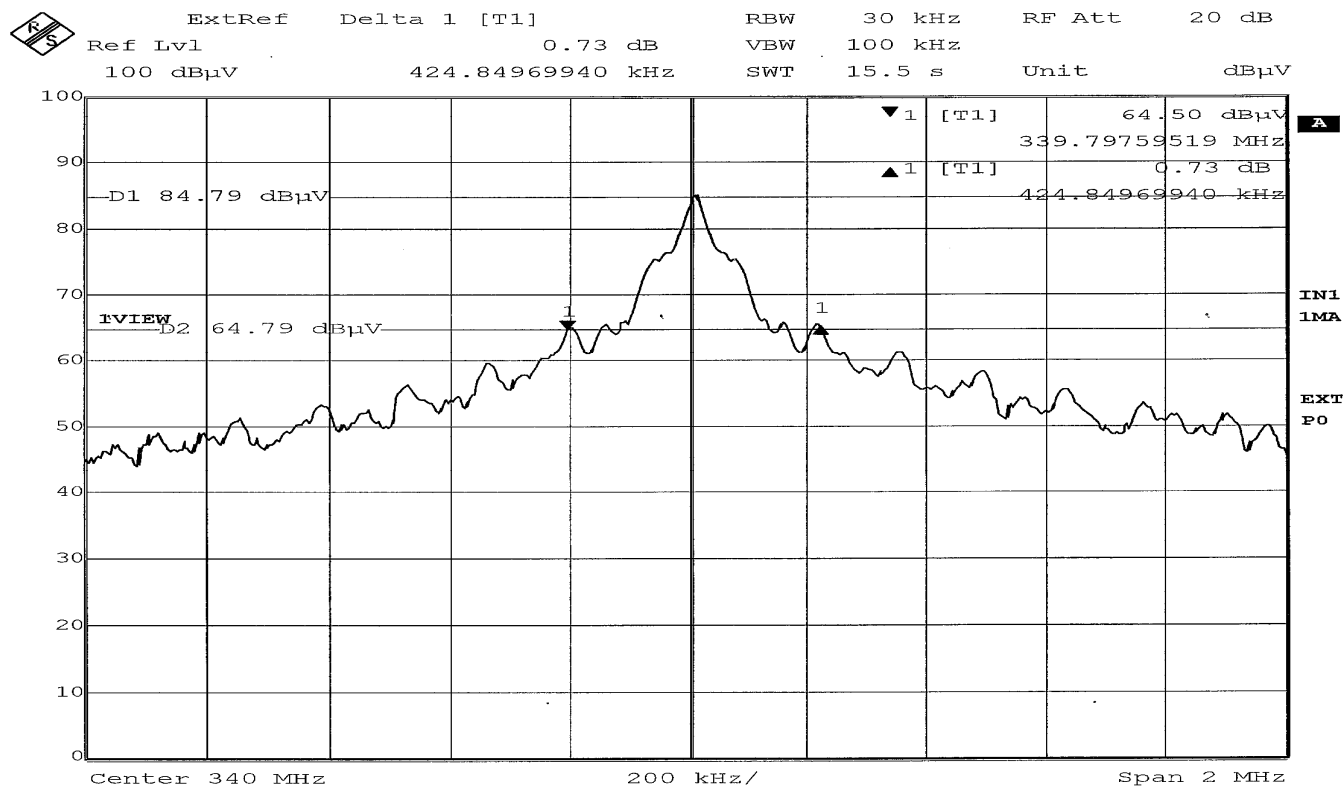
Test Method:	Occupied Bandwidth		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-758D Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(c)	Date: 11/11/2011
Operating Mode:	Continuously Transmitting		
Notes:	Transmit Frequency 347 MHz Occupied Bandwidth: 424.849 kHz		



RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in C-500R Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(c)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		
Notes:	Transmit Frequency 340 MHz Occupied Bandwidth: 424.849 kHz		
	Technician: M. Seamans		
	Date: 11-Nov-11		

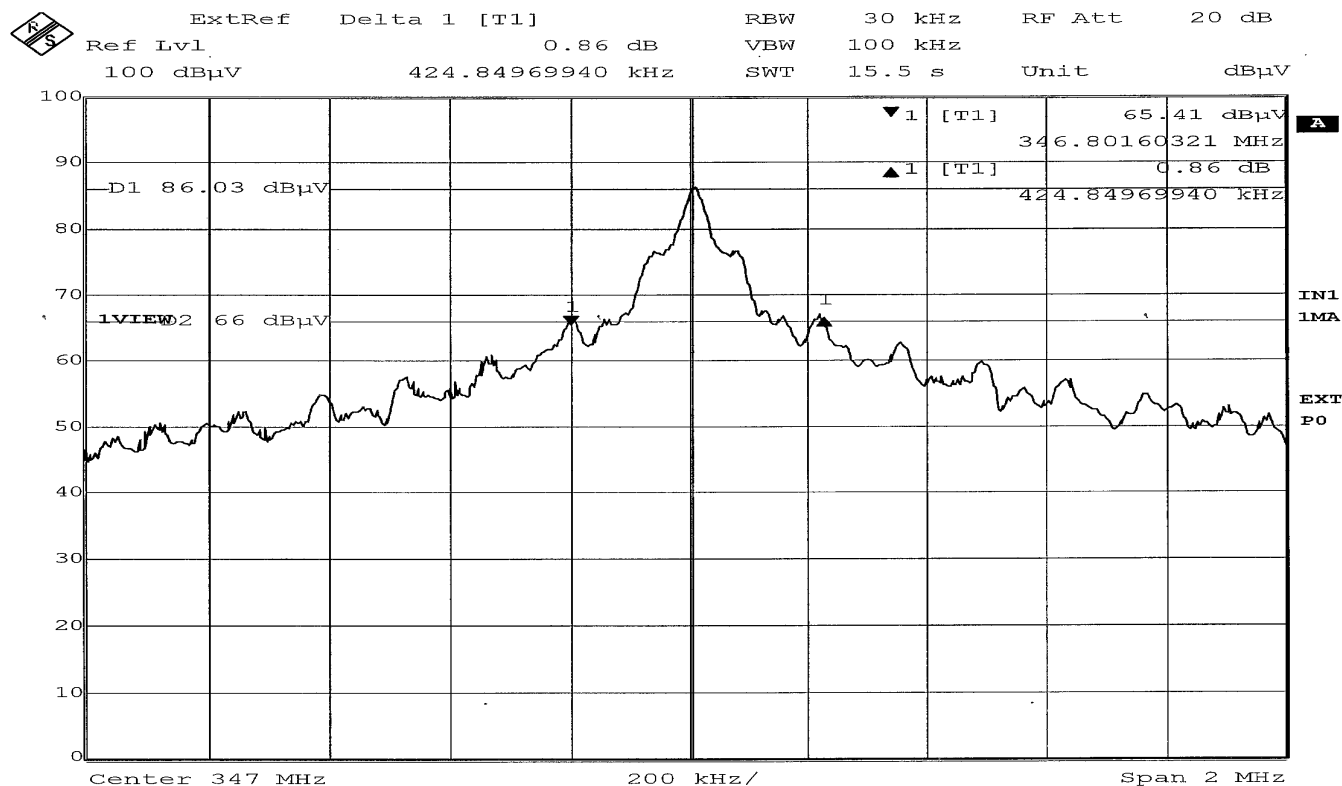


Date: 11.NOV.2011 11:00:36

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Occupied Bandwidth		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in C-500R Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(c)	Job No: R-5534N-1
Operating Mode:	Continuously Transmitting		
Notes:	Transmit Frequency 347 MHz Occupied Bandwidth: 424.849 kHz		
	Technician: M. Seamans		
	Date: 11/11/2011		

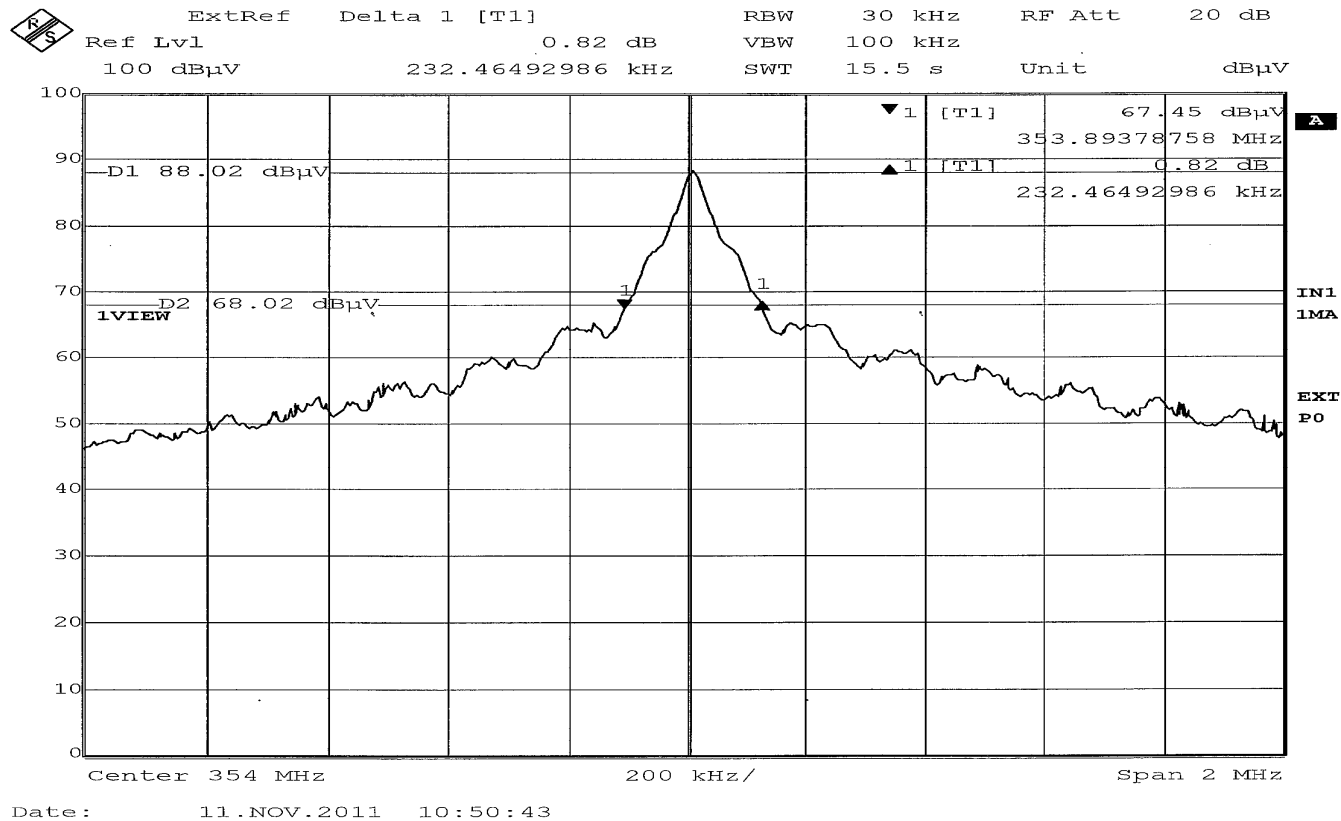


Date: 11.NOV.2011 10:55:00

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

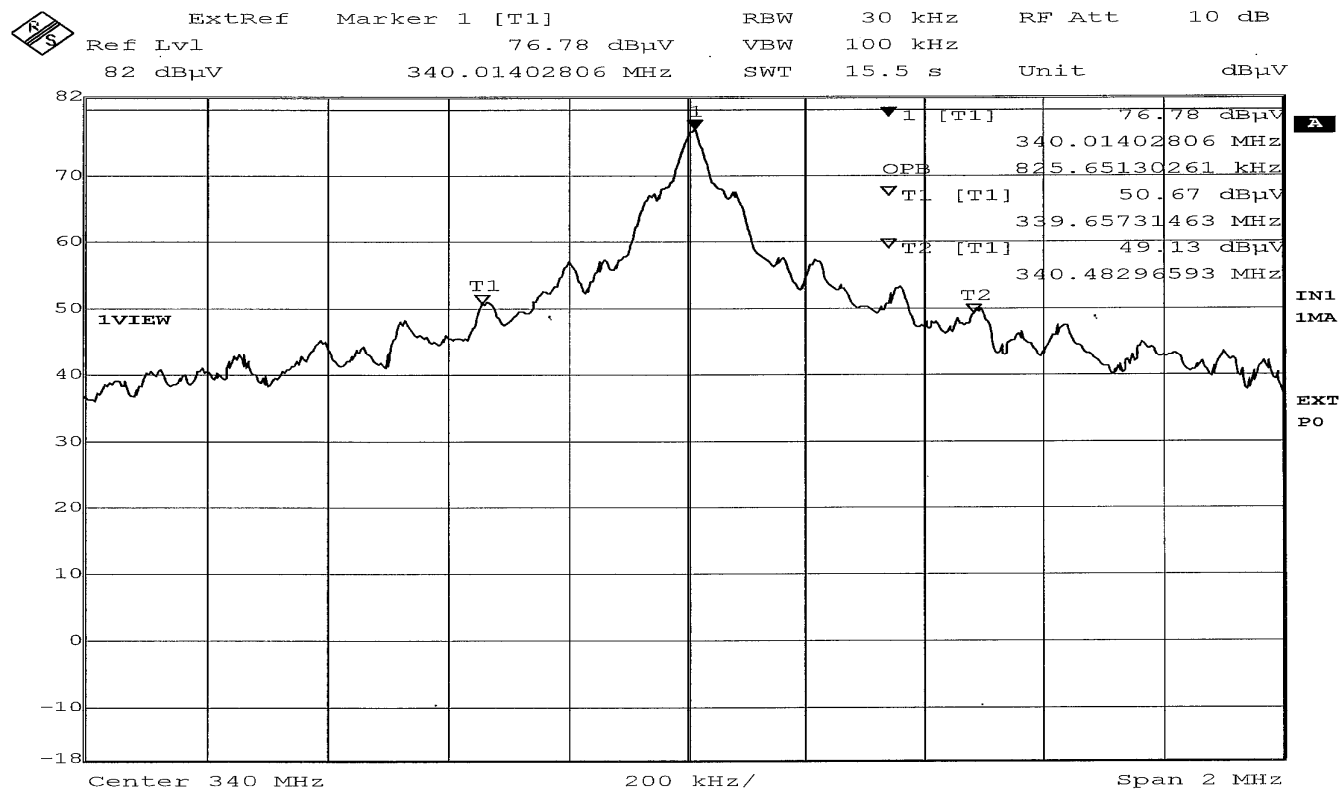
Test Method:	Occupied Bandwidth		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in C-500R Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	FCC Part 15, Subpart C	15.231(c)	Date: 11/11/2011
Operating Mode:	Continuously Transmitting		
Notes:	Transmit Frequency 354 MHz Occupied Bandwidth: 232.464 kHz		



RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	99% Bandwidth		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-358 Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	RSS-210		Job No:
Operating Mode:	Continuously Transmitting		Technician:
Notes:	Transmit Frequency 340.0 MHz, 99% BW 825.651 kHz		Date:

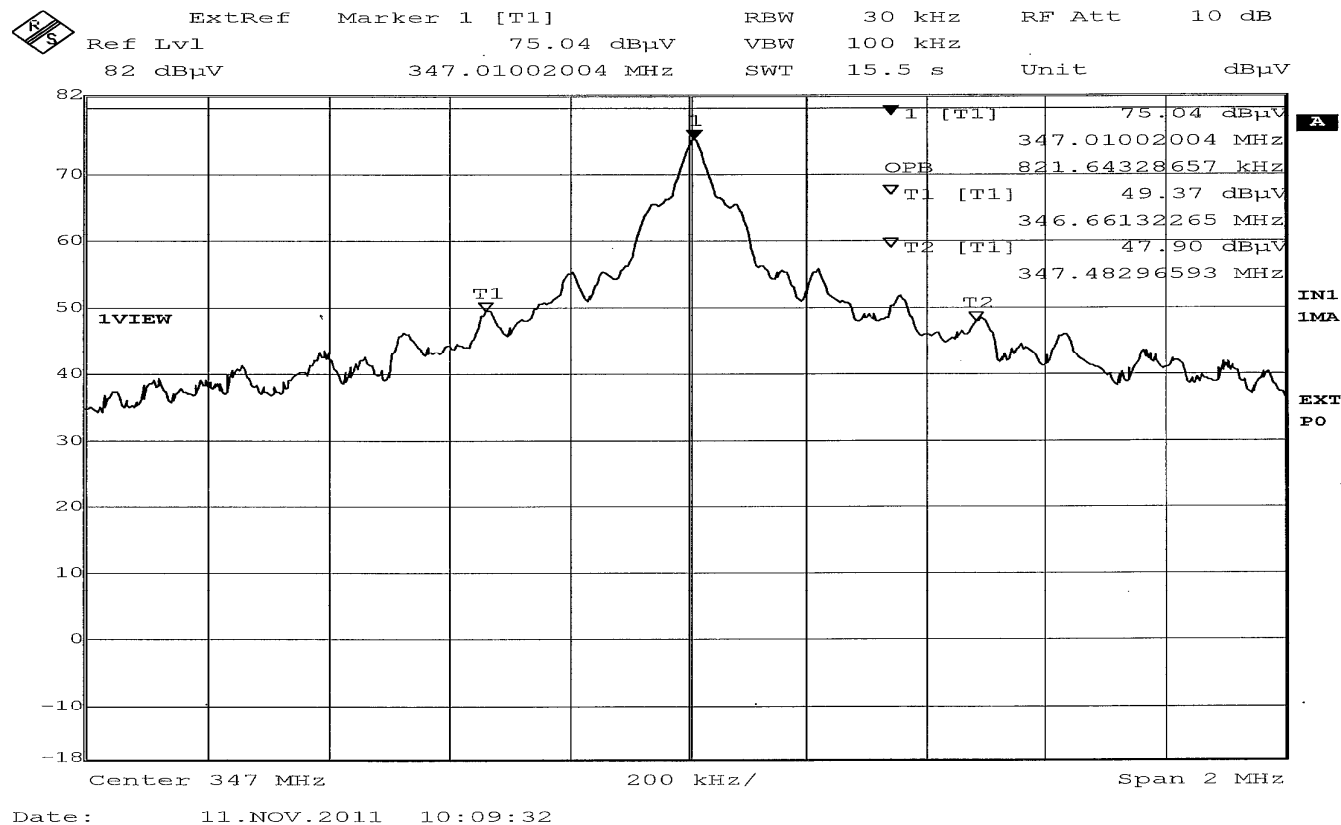


Date: 11.NOV.2011 10:15:14

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

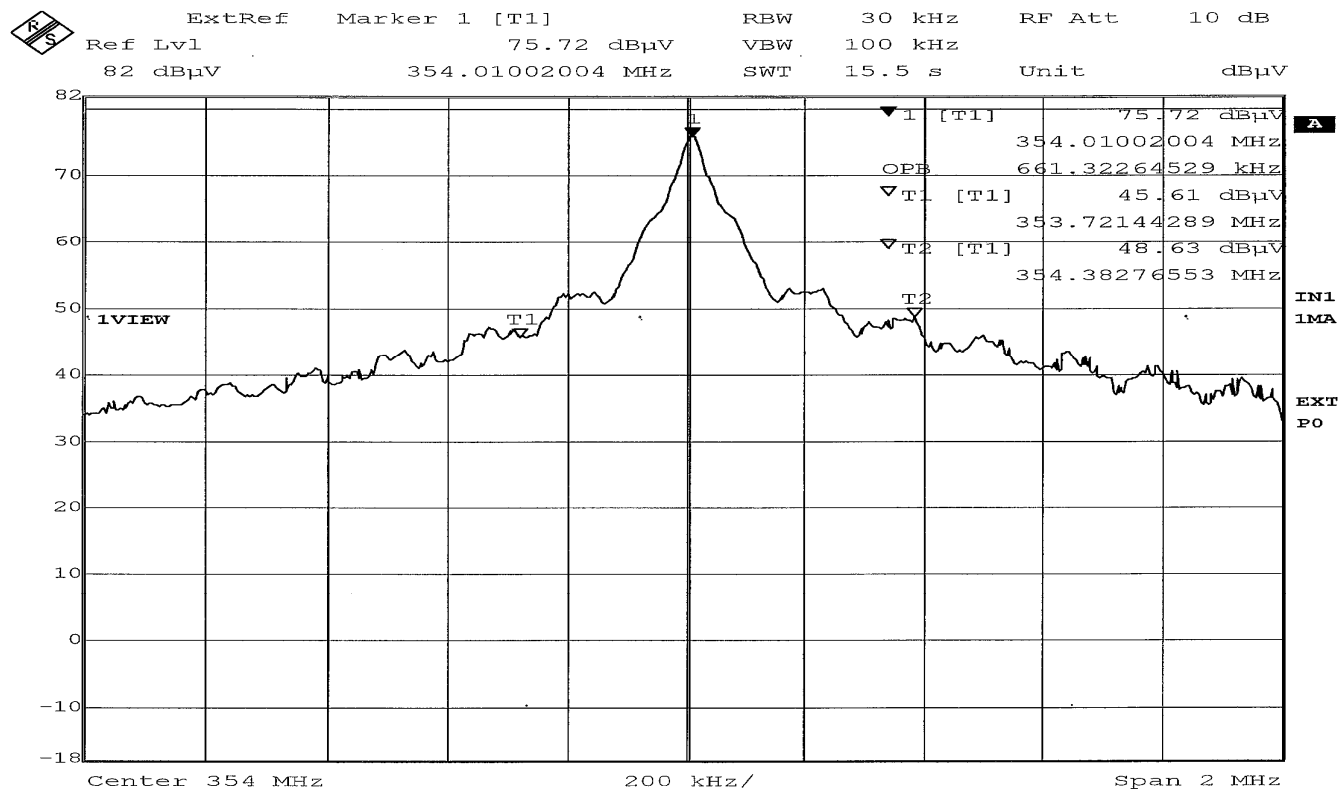
Test Method:	99% Bandwidth		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-358 Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	RSS-210		Job No:
Operating Mode:	Continuously Transmitting		Technician:
Notes:	Transmit Frequency 347.0 MHz, 99% BW 821.643 kHz		Date:



RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	99% Bandwidth		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-358 Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	RSS-210		Job No:
Operating Mode:	Continuously Transmitting		Technician:
Notes:	Transmit Frequency 354.0 MHz, 99% BW 661.322 kHz		Date:

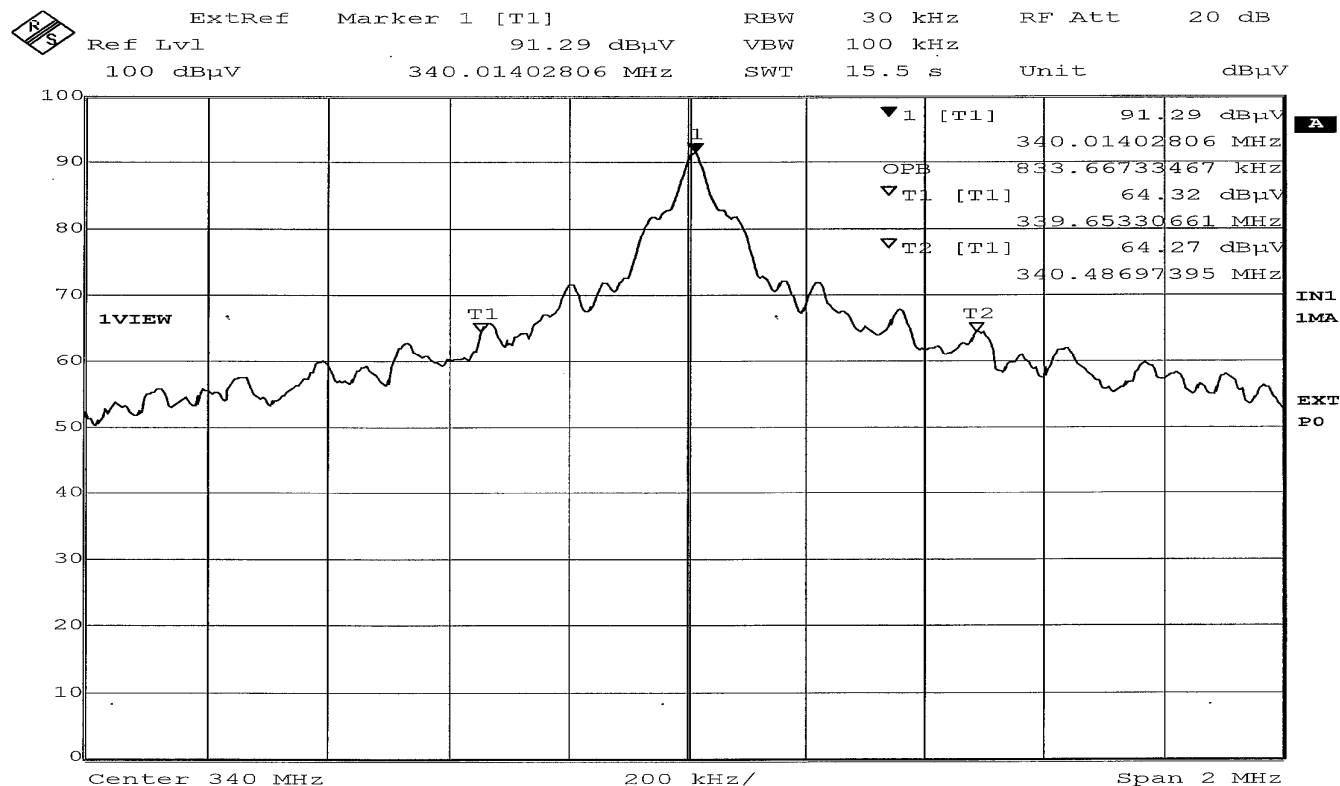


Date: 11.NOV.2011 10:05:54

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	99% Bandwidth		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-758D Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	RSS-210		Job No:
Operating Mode:	Continuously Transmitting		Technician:
Notes:	Transmit Frequency 340.0 MHz, 99% BW 833.667 kHz		Date:

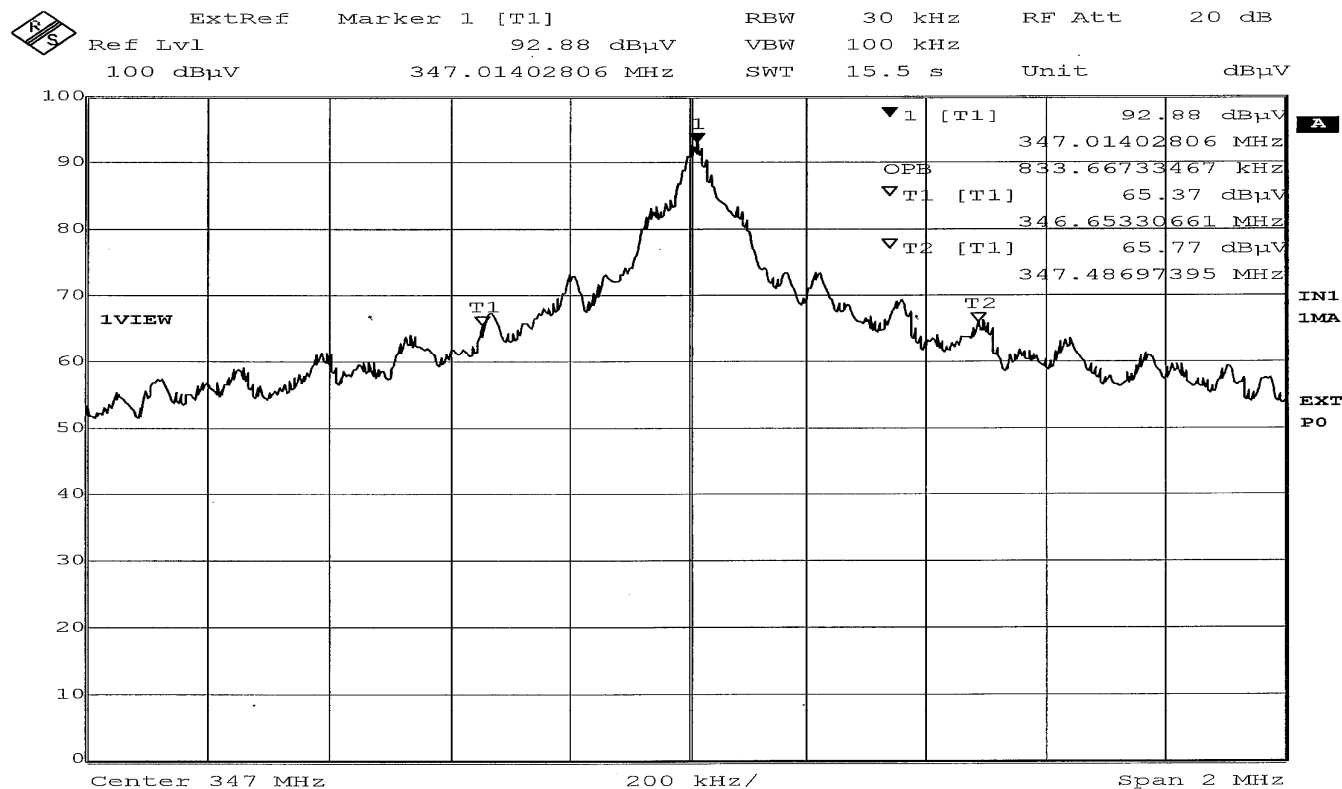


Date: 11.NOV.2011 10:21:37

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	99% Bandwidth		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-758D Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	RSS-210		Job No:
Operating Mode:	Continuously Transmitting		Technician:
Notes:	Transmit Frequency 347.0 MHz, 99% BW 833.667 kHz		Date:

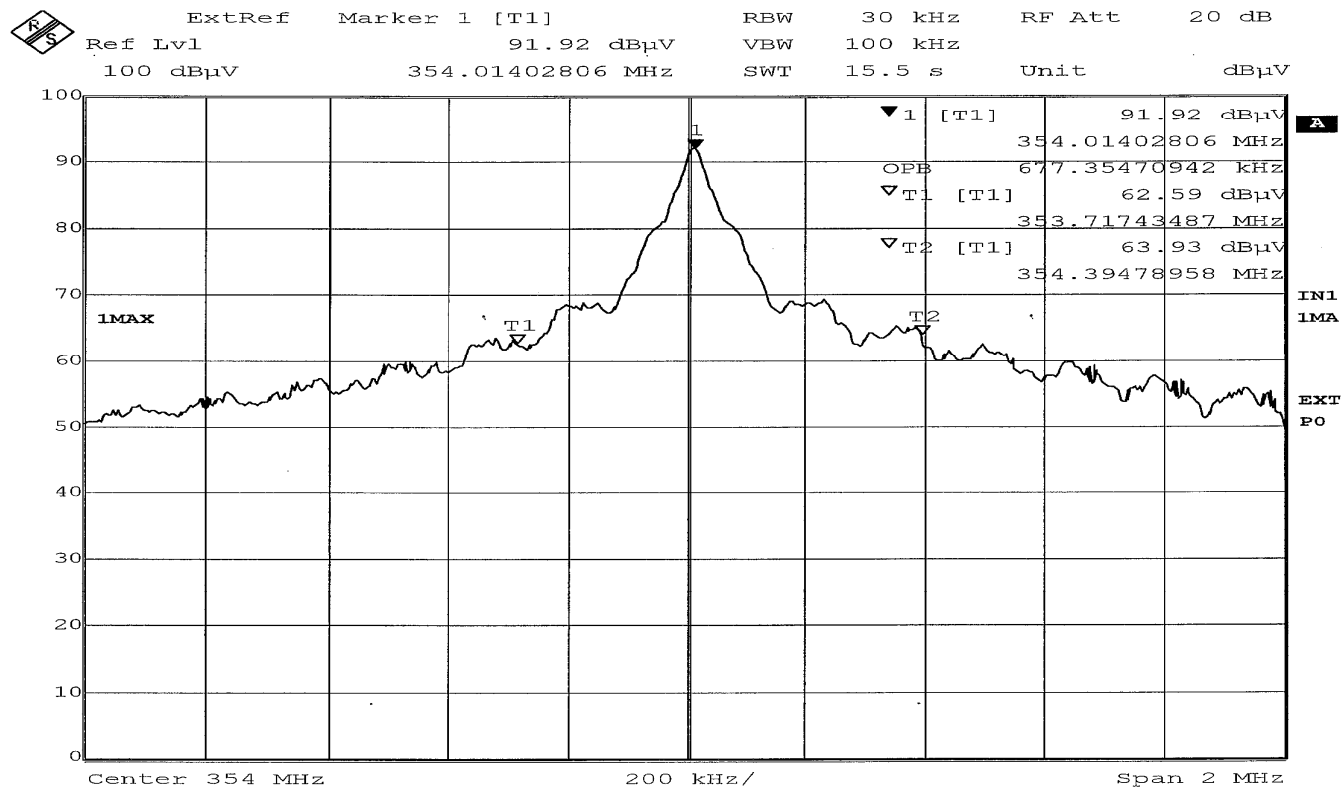


Date: 11.NOV.2011 10:31:43

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	99% Bandwidth		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in L-758D Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	RSS-210		Job No:
Operating Mode:	Continuously Transmitting		Technician:
Notes:	Transmit Frequency 354.0 MHz, 99% BW 677.354 kHz		Date:

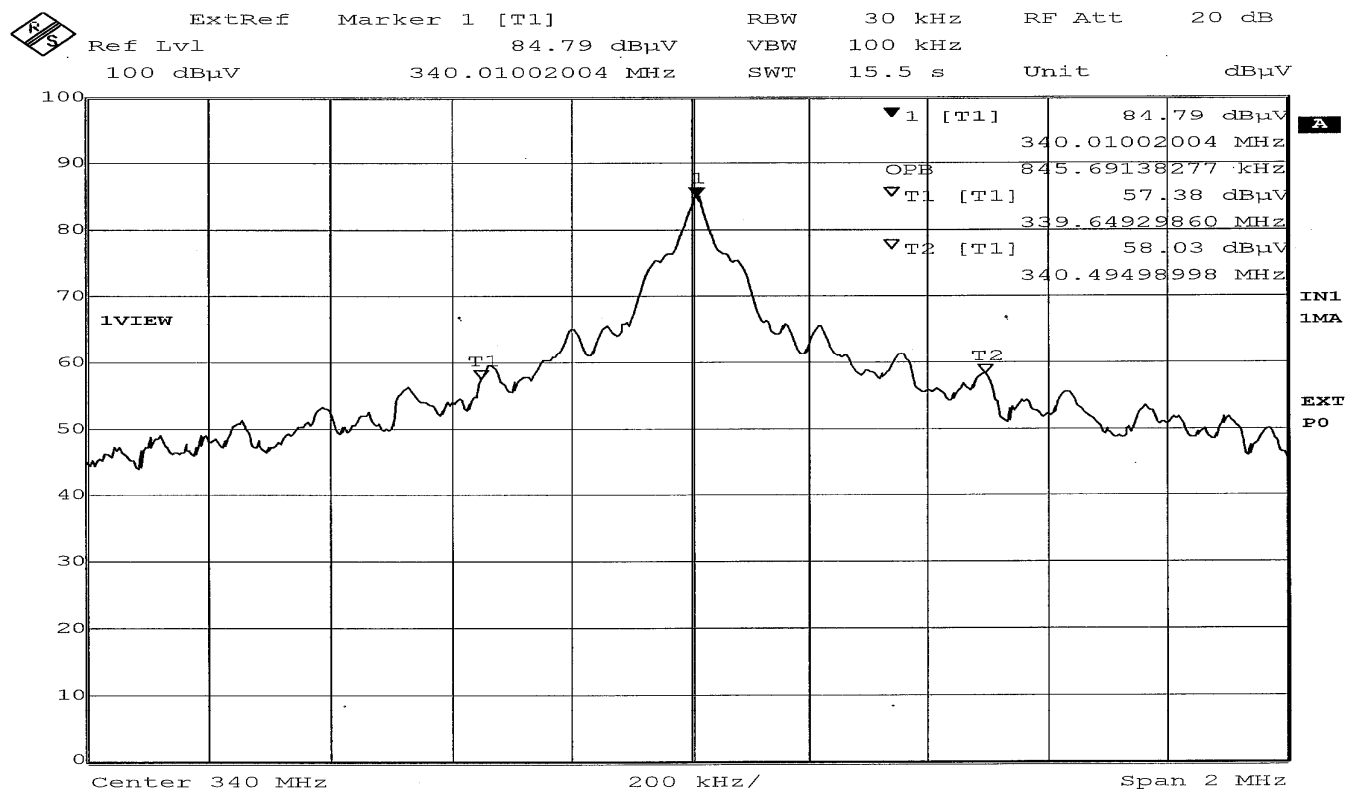


Date: 11.NOV.2011 10:37:49

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	99% Bandwidth		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in C-500R Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	RSS-210		Job No:
Operating Mode:	Continuously Transmitting		Technician:
Notes:	Transmit Frequency 340.0 MHz, 99% BW 845.691 kHz		Date:

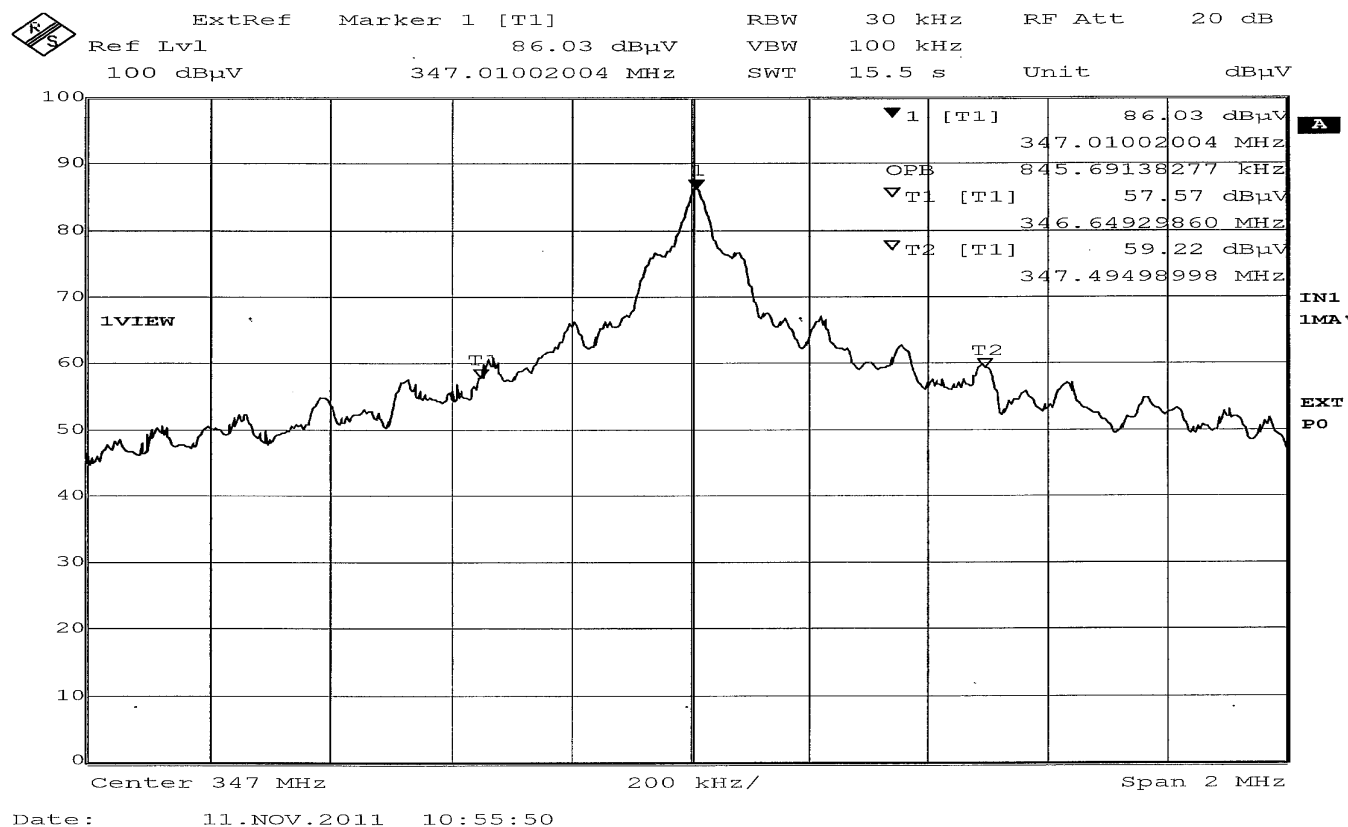


Date: 11.NOV.2011 10:59:34

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

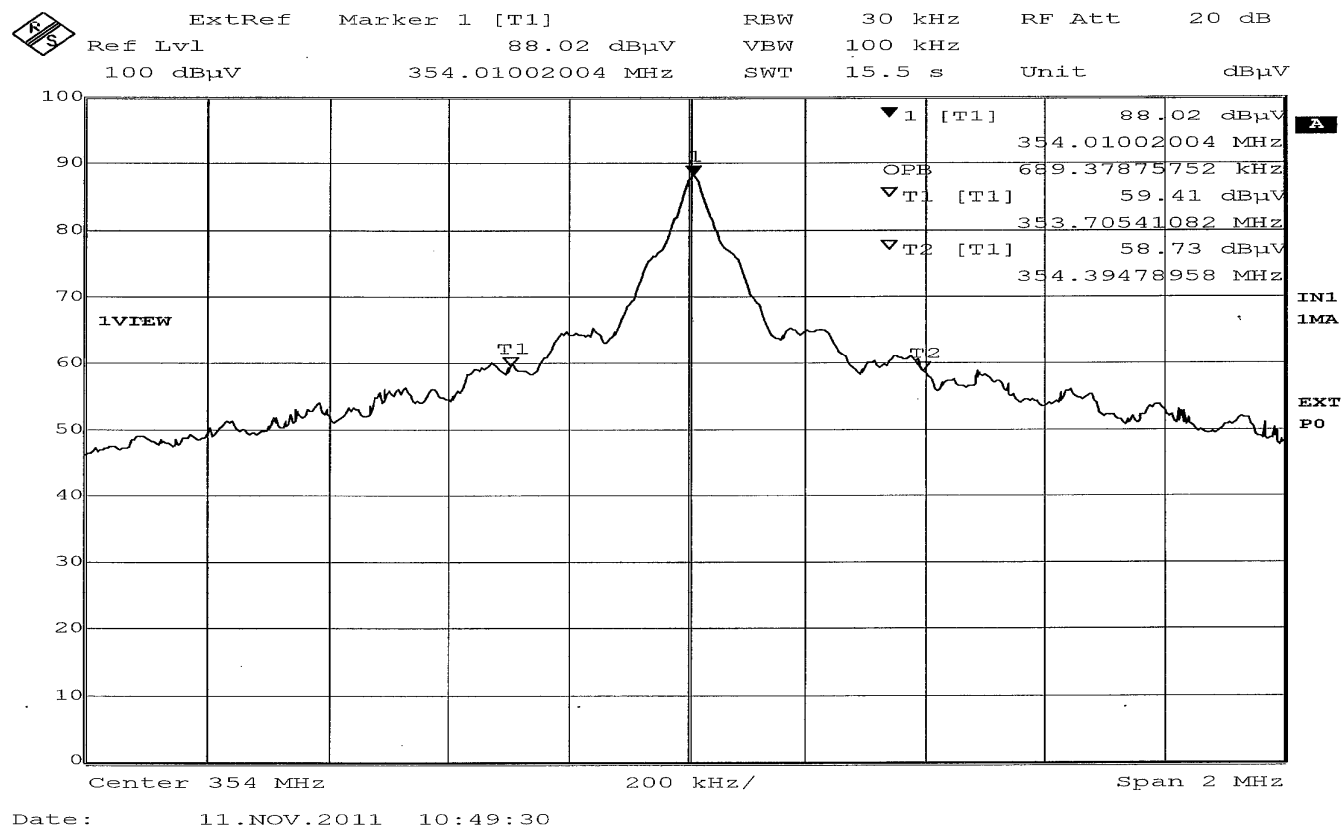
Test Method:	99% Bandwidth		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in C-500R Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	RSS-210		Job No:
Operating Mode:	Continuously Transmitting		Technician:
Notes:	Transmit Frequency 347.0 MHz, 99% BW 845.691 kHz		Date:



RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	99% Bandwidth		
Customer:	LPA Design, Inc.	Test Sample:	Radio Module Installed in C-500R Light Meter
Model No:	RT-32CTL	Serial No:	N/A
Test Specification:	RSS-210		Job No:
Operating Mode:	Continuously Transmitting		Technician:
Notes:	Transmit Frequency 354.0 MHz, 99% BW 689.378 kHz		Date:



IC RSS-GEN, 4.10 - Field Strength of Receiver Spurious Emissions

Test Photographs



Radio Transmitter with Exposure Meter, Model: L-358
Horizontal Antenna Polarization, 30 to 1000 MHz



Radio Transmitter with Exposure Meter, Model: L-358
Vertical Antenna Polarization, 30 to 1000 MHz



Radio Transmitter with Exposure Meter, Model: L-358
Horizontal Antenna Polarization, 1 to 4 GHz



Radio Transmitter with Exposure Meter, Model: L-358
Vertical Antenna Polarization, 1 to 4 GHz



Radio Transmitter with Exposure Meter, Model: L-758D
Horizontal Antenna Polarization, 30 to 1000 MHz



Radio Transmitter with Exposure Meter, Model: L-758D
Vertical Antenna Polarization, 30 to 1000 MHz



Radio Transmitter with Exposure Meter, Model: L-758D
Horizontal Antenna Polarization, 1 to 4 GHz



Radio Transmitter with Exposure Meter, Model: L-758D
Vertical Antenna Polarization, 1 to 4 GHz



Radio Transmitter with Color Meter, Model: C-500R
Horizontal Antenna Polarization, 30 to 1000 MHz



Radio Transmitter with Color Meter, Model: C-500R
Vertical Antenna Polarization, 30 to 1000 MHz



Radio Transmitter with Color Meter, Model: C-500R
Horizontal Antenna Polarization, 1 to 4 GHz



Radio Transmitter with Color Meter, Model: C-500R
Vertical Antenna Polarization, 1 to 4 GHz

IC RSS-GEN, 4.10 - Field Strength of Receiver Spurious Emissions

Test Data

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Radiated Emissions 30 MHz to 2 GHz		
Customer	LPA Design, Inc.	Job No.	R-5534N-2
Test Sample	Radio Module Installed in L-358 Light Meter		
Model No.	RT-32CTL	Serial No.	N/A
Test Specification:	RSS-GEN Paragraph 6.1		
Operating Mode:	Receiving signal Tested at 340 MHz, 347 MHz and 354MHz		
Technician:	M. Seamans	Date:	November 11, 2011
Notes:	Test Distance: 3 Meters Detector: Quasi-Peak<1000 MHz Average>1000 MHz		

Test Frequency	Antenna Position	Turntable Position	Uncorrected Reading	Correction Factor	Corrected Reading					Limit at 3 Meters
MHz	(H/V) - Height	Degrees	dBuV	dB	dBuV/m					dBuV/m
30.00	-	-	-	-	-					40.0
	-	-	-	-	-					
35.00	H-1m	0.0	12.35	16.24	28.59	*				
35.00	V-1m	0.0	11.93	16.24	28.17	*				
	-	-	-	-	-					
88.00	-	-	-	-	-					40.0
88.00	-	-	-	-	-					43.5
	-	-	-	-	-					
105.00	H-1m	0.0	8.25	9.88	18.13	*				
105.00	V-1m	0.0	7.81	9.88	17.69	*				
195.00	H-1m	0.0	13.40	12.40	25.80	*				
195.00	V-1m	0.0	13.95	12.40	26.35	*				
205.00	H-1m	0.0	14.09	12.32	26.41	*				
205.00	V-1m	0.0	14.76	12.32	27.08	*				
	-	-	-	-	-					
216.00	-	-	-	-	-					43.5
216.00	-	-	-	-	-					46.0
	-	-	-	-	-					
600.00	H-1m	0.0	16.14	24.18	40.32	*				
600.00	V-1m	0.0	15.44	24.18	39.62	*				
	-	-	-	-	-					
960.00	-	-	-	-	-					46.0
960.00	-	-	-	-	-					54.0
	-	-	-	-	-					
995.00	H-1m	0.0	19.76	29.15	48.91	*				
995.00	V-1m	0.0	21.20	29.15	50.35	*				
	-	-	-	-	-					
2000.00	-	-	-	-	-					54.0

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

EMISSIONS DATA SHEET

Test Method:	Radiated Emissions 30 MHz to 2 GHz		
Customer	LPA Design, Inc.	Job No.	R-5534N-2
Test Sample	Radio Module Installed in L-758D Light Meter		
Model No.	RT-32CTL	Serial No.	N/A
Test Specification:	RSS-GEN Paragraph 6.1		
Operating Mode:	Receiving signal Tested at 340 MHz, 347 MHz and 354MHz		
Technician:	M. Seamans	Date:	November 11, 2011
Notes:	Test Distance: 3 Meters Detector: Quasi-Peak<1000 MHz Average>1000 MHz		

Test Frequency	Antenna Position	Turntable Position	Uncorrected Reading	Correction Factor	Corrected Reading					Limit at 3 Meters
MHz	(H/V) - Height	Degrees	dBuV	dB	dBuV/m					dBuV/m
30.00	-	-	-	-	-					40.0
	-	-	-	-	-					
35.00	H-1m	0.0	12.35	16.24	28.59	*				
35.00	V-1m	0.0	11.93	16.24	28.17	*				
	-	-	-	-	-					
88.00	-	-	-	-	-					40.0
88.00	-	-	-	-	-					43.5
	-	-	-	-	-					
105.00	H-1m	0.0	8.25	9.88	18.13	*				
105.00	V-1m	0.0	7.81	9.88	17.69	*				
195.00	H-1m	0.0	13.40	12.40	25.80	*				
195.00	V-1m	0.0	13.95	12.40	26.35	*				
205.00	H-1m	0.0	14.09	12.32	26.41	*				
205.00	V-1m	0.0	14.76	12.32	27.08	*				
	-	-	-	-	-					
216.00	-	-	-	-	-					43.5
216.00	-	-	-	-	-					46.0
	-	-	-	-	-					
600.00	H-1m	0.0	16.14	24.18	40.32	*				
600.00	V-1m	0.0	15.44	24.18	39.62	*				
	-	-	-	-	-					
960.00	-	-	-	-	-					46.0
960.00	-	-	-	-	-					54.0
	-	-	-	-	-					
995.00	H-1m	0.0	19.76	29.15	48.91	*				
995.00	V-1m	0.0	21.20	29.15	50.35	*				
	-	-	-	-	-					
2000.00	-	-	-	-	-					54.0

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

EMISSIONS DATA SHEET

Test Method:	Radiated Emissions 30 MHz to 2 GHz		
Customer	LPA Design, Inc.	Job No.	R-5534N-2
Test Sample	Radio Module Installed in C-500R Light Meter		
Model No.	RT-32CTL	Serial No.	N/A
Test Specification:	RSS-GEN Paragraph 6.1		
Operating Mode:	Receiving signal Tested at 340 MHz, 347 MHz and 354MHz		
Technician:	M. Seamans	Date:	November 11, 2011
Notes:	Test Distance: 3 Meters Detector: Quasi-Peak<1000 MHz Average>1000 MHz		

Test Frequency	Antenna Position	Turntable Position	Uncorrected Reading	Correction Factor	Corrected Reading					Limit at 3 Meters
MHz	(H/V) - Height	Degrees	dBuV	dB	dBuV/m					dBuV/m
30.00	-	-	-	-	-					40.0
	-	-	-	-	-					
35.00	H-1m	0.0	12.35	16.24	28.59	*				
35.00	V-1m	0.0	11.93	16.24	28.17	*				
	-	-	-	-	-					
88.00	-	-	-	-	-					40.0
88.00	-	-	-	-	-					43.5
	-	-	-	-	-					
105.00	H-1m	0.0	8.25	9.88	18.13	*				
105.00	V-1m	0.0	7.81	9.88	17.69	*				
195.00	H-1m	0.0	13.40	12.40	25.80	*				
195.00	V-1m	0.0	13.95	12.40	26.35	*				
205.00	H-1m	0.0	14.09	12.32	26.41	*				
205.00	V-1m	0.0	14.76	12.32	27.08	*				
	-	-	-	-	-					
216.00	-	-	-	-	-					43.5
216.00	-	-	-	-	-					46.0
	-	-	-	-	-					
600.00	H-1m	0.0	16.14	24.18	40.32	*				
600.00	V-1m	0.0	15.44	24.18	39.62	*				
	-	-	-	-	-					
960.00	-	-	-	-	-					46.0
960.00	-	-	-	-	-					54.0
	-	-	-	-	-					
995.00	H-1m	0.0	19.76	29.15	48.91	*				
995.00	V-1m	0.0	21.20	29.15	50.35	*				
	-	-	-	-	-					
2000.00	-	-	-	-	-					54.0

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).