



**RETLIF
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**FCC Part 15, Subpart C, Section 15.247
Test Report**

On

**Set Top Box
FCC ID: ACQ-XI6**

Customer Name: Arris

Customer P.O.: AR1123756

Date of Report: March 15, 2018

Test Report No: R-6288N-1

Test Start Date: December 19, 2017

Test Finish Date: January 8, 2018

Test Technician: M. Seamans

Report Approved By: S. Wentworth

Report Prepared By: J. Ramsey

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Fax: (215) 256-4130

Washington Regulatory Compliance
1600 North Oak Street, #1710
Arlington, VA 22209 USA
Tel: (703) 528-3895

Technical Information

Report Number: R-6288N-1

Customer: Arris

Address: 101 Tournament Drive
Horsham, PA 19044

Manufacturer: Arris

Manufacturer Address: 101 Tournament Drive
Horsham, PA 19044

Test Sample: Set Top Box

Model Number: AX061AEI

Serial Numbers: M11742TK0116 (Radiated)
M11742TK0102 (Conducted)

FCC ID: ACQ-XI6

Type: Digital Transmission - Direct Sequence Spread
Spectrum Transmitter

Power Requirements: 5 VDC via 115 VAC, 60 Hz AC/DC Power Adapter

Power Supply: AC Adapter, ARRIS, Model: NBC15B050300VU

Frequency of Operation: 2405.0 MHz to 2475.0 MHz

Equipment Class: DTS

Antenna Type: PCB Inverted F antenna, 3.2 dBi Peak Gain

Equipment Use: Television Set-Top Box

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



Retlif Testing Laboratories

Report No. R-6288N-1

Tests Performed

FCC Part 15, Subpart C	Test Method
15.247(a)(2)	Occupied Bandwidth (6dB Bandwidth)
15.247(b)(3)	Power Output
15.247(c)	Conducted Band Edge/Out of Band Emissions
15.247(d)	Antenna Port, Conducted Emissions
15.247(e)	Antenna Port, Power Density
15.247(d) / 15.209(a)	Spurious Radiated Emissions
15.207(b)	Conducted Emissions, Power Leads

EUT Operation:

- The EUT was transmitting a RF4CE modulated signal at 2.405 GHz (Low Band), 2.440 GHz (Mid Band) and 2.475 GHz (High Band).
- For AC Line Conducted Emissions and Spurious Radiated Emissions the EUT was transmitting a modulated signal with all transmitters operating simultaneously.

EUT Description:

The EUT is a Set Top Box which is used for streaming content to televisions for home entertainment purposes. The EUT contains the following transmitters: RF4CE, Bluetooth Classic, Bluetooth Low Energy, 2.4 GHz Wifi and 5 GHz Wifi. The EUT is constructed of plastic with the following connections: DC Power, Ethernet, HDMI Input and HDMI Output.

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

Support Equipment

Description	Manufacturer	Part Number	Model Number
Test PC	Dell	D400	Latitude
USB to Serial Adapter	SIIG	N/A	N/A



Retlif Testing Laboratories

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Certification and Signatures

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



Todd Hannemann
EMC Test Engineer
iNARTE Certified Technician ATL-0255-T



Dean F. Landers
EMC Test Engineer
NVLAP Approved Signatory

Non-Warranty Provision

The testing services have been performed, findings obtained and reports prepared in accordance with generally accepted laboratory principles and practices. This warranty is in lieu of all others, either expressed or implied.

Non-Endorsement

This test report contains only findings and results arrived at after employing the specific test procedures and standards listed herein. It is not intended to constitute a recommendation, endorsement or certification of the product or material tested. This test report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.



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Report No. R-6288N-1

Revision History

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

Revision	Date	Pages Affected
-	March 15, 2018	Original Release



Retlif Testing Laboratories

Report No. R-6288N-1

Requirements and Test Results

Requirement:

FCC Section 15.247(a)(2)

Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz

Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz bands. The minimum 6 dB bandwidths shall be at least 500 kHz.

- **Results:**

The minimum 6 dB bandwidth measured 1.619 MHz which complies with the requirement that the Bandwidth be no less than 500 kHz.

Requirement:

FCC Sections 15.247(b)(3)

Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz

The maximum peak conducted output power of the intentional radiator shall not exceed the following:

For systems using digital modulation in the 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antenna 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 antenna 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 was 3.81 mW. The maximum antenna gain of the PCB antenna is 3.2 dBi. The device was found to meet the power output requirements of 15.247 (b)(3) including de facto EIRP.



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Report No. R-6288N-1

Requirements and Test Results (con't)

Requirement:

FCC Section 15.247(d):

Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz

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 this section, 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 emissions limits specified in Section 15.209(a) (see Section 15.205(c)).

- **Results:**

In any 100 kHz bandwidth outside the frequency band in which the Spread spectrum intentional radiator was operating, the radio frequency power that was produced by the intentional radiator was at least 20 dB below that in the 100 kHz bandwidth within the band that contained the highest level of the desired power. All emissions, which fell within the restricted bands specified in 15.205(a), were measured and found to be in compliance with the limits specified in 15.209(a).



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Report No. R-6288N-1

Requirements and Test Results (con't)

Requirement:

FCC Section 15.247(e):

Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz

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.

Requirement:

FCC Section 15.209(a) - Radiated Emission Limits, General Requirements

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in Table 1.

Table 1 - 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:**

The field strength of spurious radiated emissions did not exceed the limits specified in Table 1.



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Requirements and Test Results (con't)

Requirement:

FCC Section 15.207(a) - Conducted Limits

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

Table 2 - Conducted Emission Limits

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-Peak	Average
0.15 to 0.5	66 to 56*	56 to 46*
0.5 to 5	56	46
5 to 30	60	50

*Decreases due to logarithm of the frequency

- **Results:**

The conducted emissions observed did not exceed the limits specified in Table 2.



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Requirements and Test Results (con't)

Field Strength Calculation/Conversion:

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

$$C_R = M_R + C_F$$

Where:

C_R = Corrected Reading in dB μ V/m

M_R = Uncorrected Meter Reading in dB μ V

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

Example:

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

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

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

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

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

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

RF Power Conversion:

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

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

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



Retlif Testing Laboratories

Report No. R-6288N-8

Requirements and Test Results (con't)

FCC Section 15.247 (i)

RF Exposure Limits

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

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

D = Minimum Separation Distance in cm

S = Max allowed Power Density in mW/cmsq

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

Power = Max Power Input to Antenna = 3.81mW

Gain = Max Power Gain of Antenna = 3.2 dBi = 2.09 numeric

$$1 \text{ mW/cmsq} = \frac{3.81 \times 2.09}{4 \times (3.14) \times D^2} = \frac{7.96}{12.56 \times D^2}$$

$$D^2 = \frac{7.96}{12.56 \times 1}$$

$$D = \sqrt{0.63} = 0.8 \text{ cm}$$

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



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Report No. R-6288N-8

Equipment List

FCC Section 15.247(a)(2) Occupied Bandwidth (6 dB 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
5134	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz	757C-10	12/6/2017	12/31/2018

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
5134	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz	757C-10	12/6/2017	12/31/2018

FCC Section 15.247(d) Antenna Port, Conducted Emissions

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
5134	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz	757C-10	12/6/2017	12/31/2018

FCC Section 15.247(e) Antenna Port, Power 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
5134	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz	757C-10	12/6/2017	12/31/2018



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**FCC Section 15.247(d) / FCC Section 15.209(a)
Spurious Radiated Emissions, 30 MHz to 40 GHz**

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
012	ETS / EMCO	ANTENNA, ACTIVE LOOP	10 kHz - 30 MHz	6502	9/29/2017	9/30/2018
1232	AGILENT / HP	PRE-AMPLIFIER	1 - 26.5 GHz	8449B	5/23/2017	5/31/2018
3258	ETS / EMCO	ANTENNA, DOUBLE RIDGED GUIDE	1 - 18 GHz	3115	10/13/2016	4/30/2018
3427B	ETS / EMCO	ANTENNA, BICONICAL	20 - 200 MHz	3104	9/21/2017	3/31/2019
3430	MCS	ANTENNA, HORN	18 - 26.5 GHz	K-5039	No Calibration Required	
3430A	MCS	ANTENNA, HORN	26.5 - 40 GHz	R-5041	No Calibration Required	
4029B	RETLIF	OPEN AREA TEST SITE, ATTENUATION	3 / 10 Meters	RNH	4/13/2016	4/30/2018
443	ELECTRO-METRICS	ANTENNA, LOG PERIODIC	200 MHz - 1000 MHz	LPA-25	10/6/2016	4/30/2018
4972	PHILCO	TERMINATION, COAXIAL	50 OHM, DC - 1 GHz	1608-150	10/26/2017	10/31/2018
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/17/2017	10/31/2018
5188	Cybertron	COMPUTER, CONTROL	N/A	TSVQJA2221	No Calibration Required	
5229	FLORIDA RS TECHNOLOGY	CABLE, COAXIAL	DC - 40 GHz	FLRST-2.92 (102ö)	10/13/2017	10/31/2018
5234	PASTERNAK	CABLE, COAXIAL	10 kHz - 18 GHz	PE302-230	7/24/2017	7/31/2018

**FCC Section 15.207(b)
Conducted Emissions, Power Leads, 150 kHz to 30 MHz**

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



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Test Photographs
Occupied Bandwidth (6dB Bandwidth)



Test Setup



Retlif Testing Laboratories

Report No. R-6288N-1

**FCC Part 15, Subpart C, Section 15.247(a)(2)
Occupied Bandwidth (6 dB Bandwidth)
Test Data**

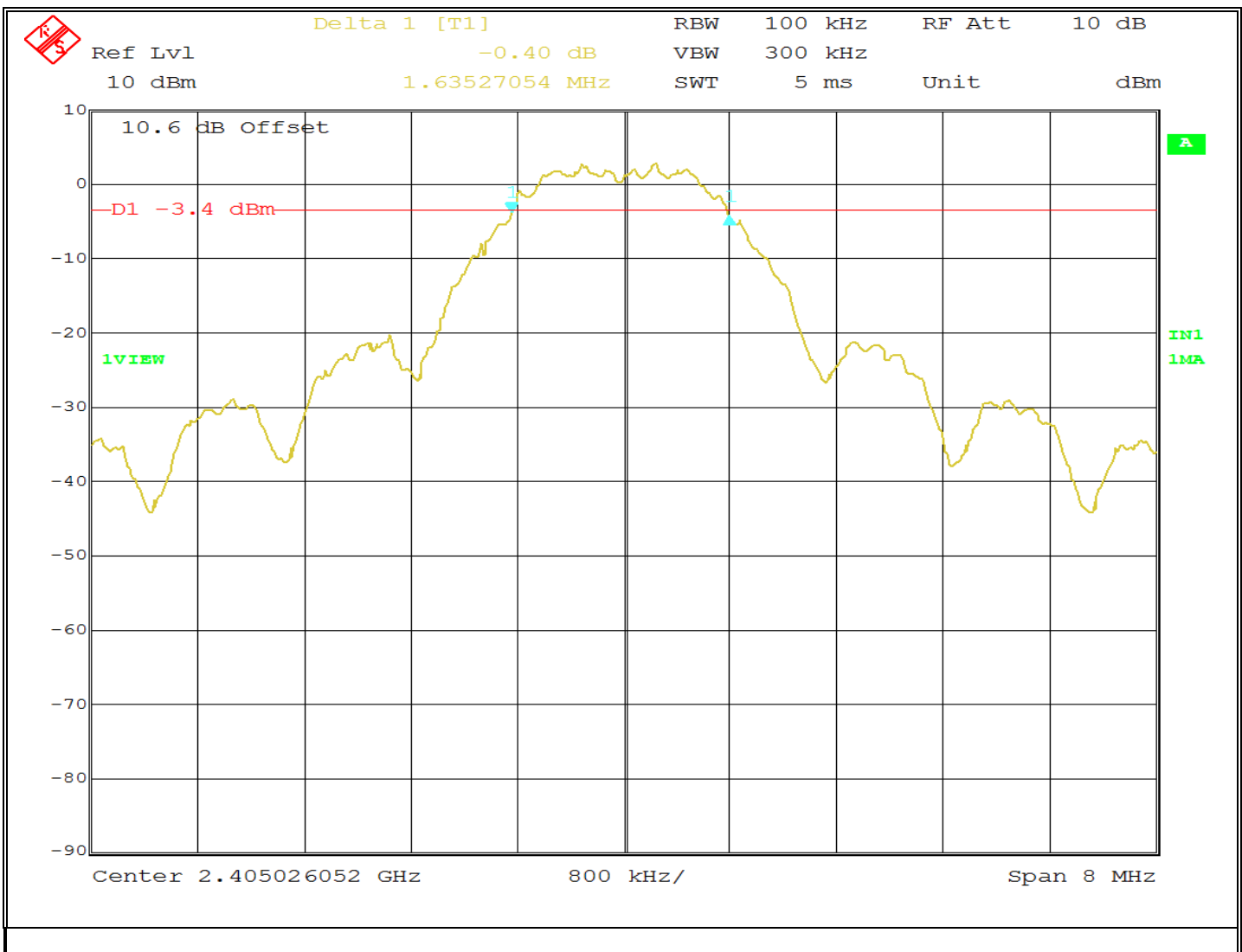


Retlif Testing Laboratories

Report No. R-6288N-1

EMISSIONS TEST DATA SHEET

Method:	Occupied Bandwidth
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)
Job Number:	R-6288N-1
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	December 19 th , 2017
Temp/ Relative Humidity:	19.6 °C / 26.4 %
Result:	6dB Bandwidth: 1.635 MHz

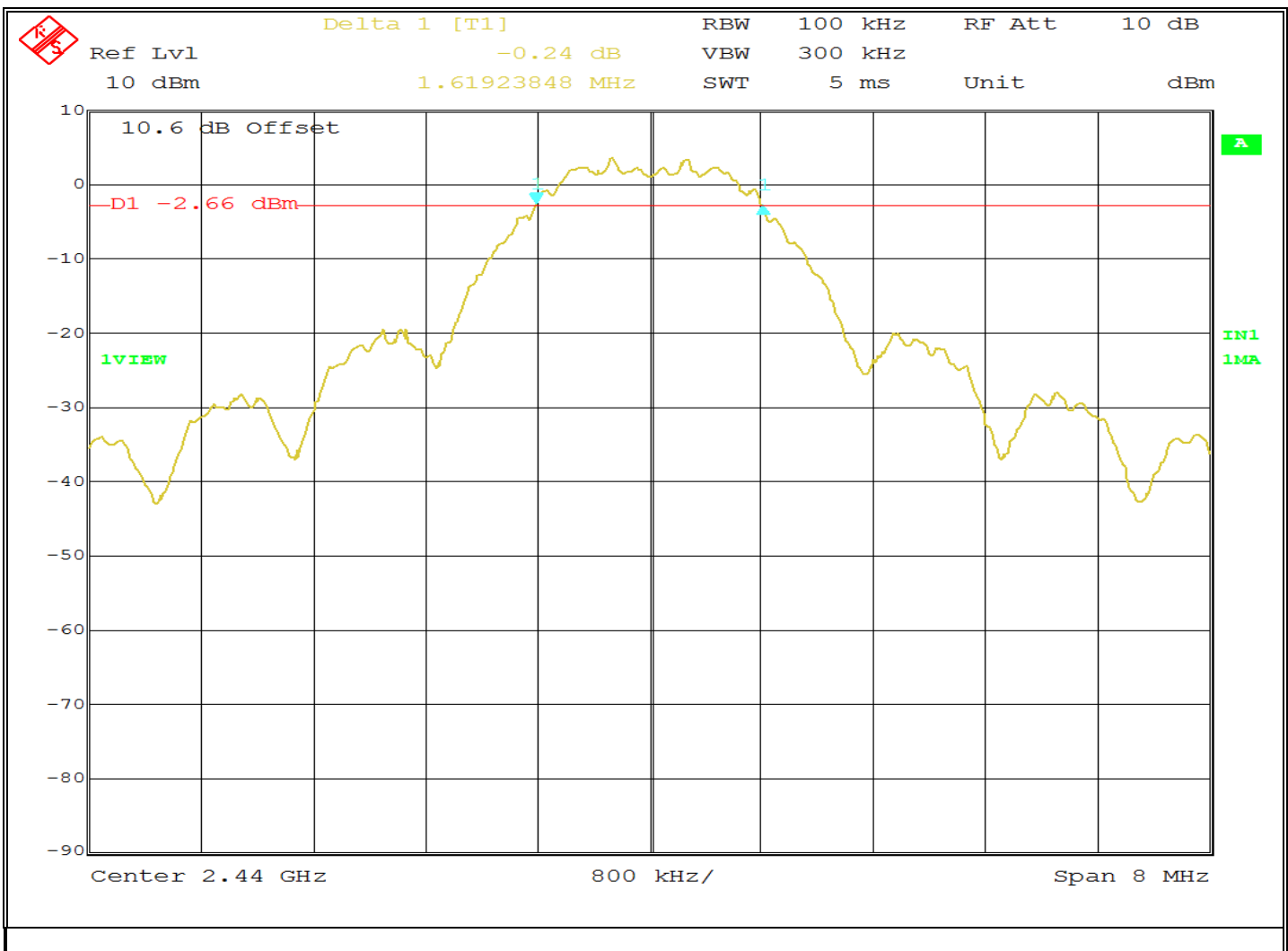


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EMISSIONS TEST DATA SHEET

Method:	Occupied Bandwidth
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)
Job Number:	R-6288N-1
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	December 19 th , 2017
Temp/ Relative Humidity:	19.6 °C / 26.4 %
Result:	6dB Bandwidth: 1.619 MHz

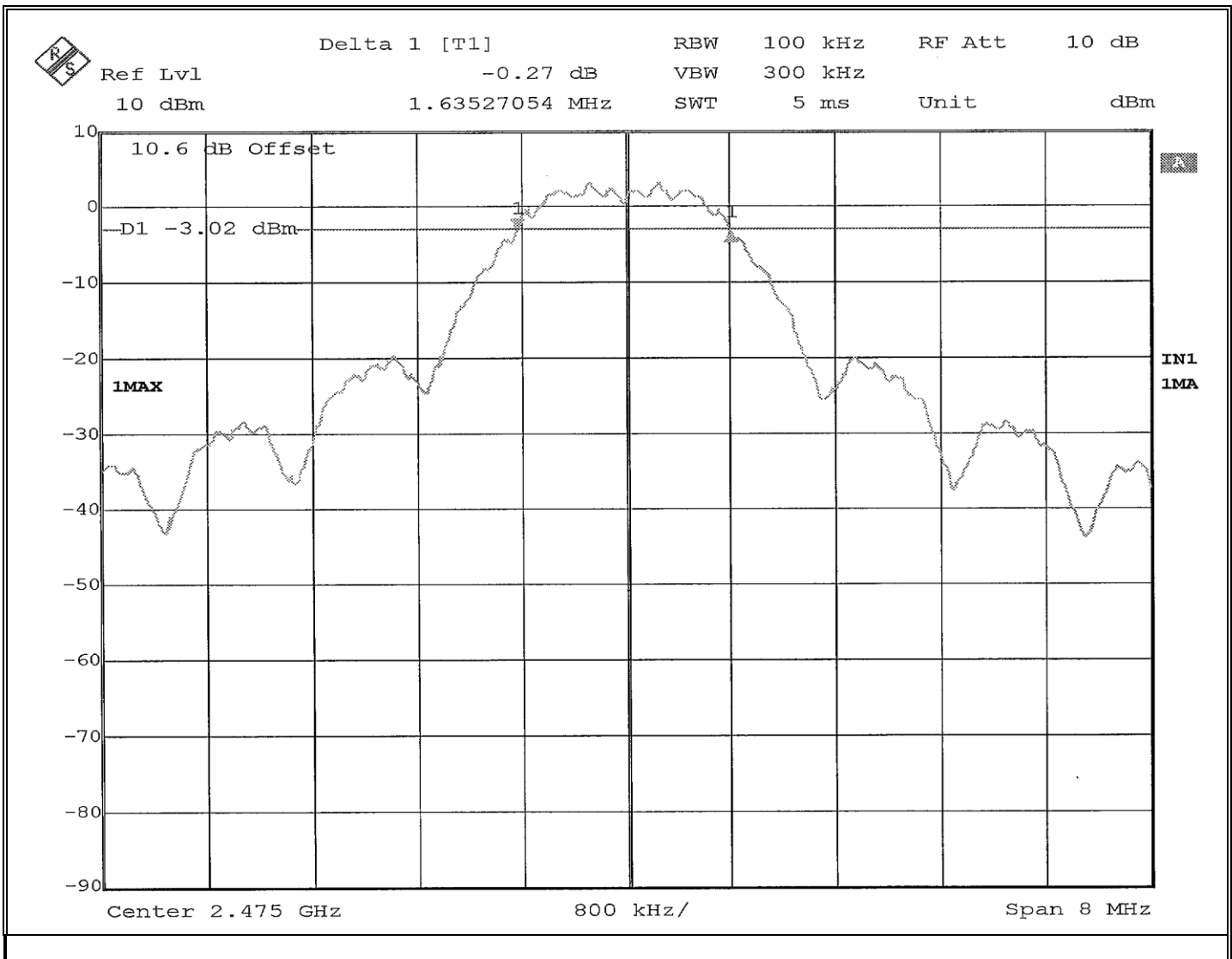


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Report No. R-6288N-1

EMISSIONS TEST DATA SHEET

Method:	Occupied Bandwidth
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(2)
Job Number:	R-6288N-1
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.475 GHz
Technician:	M.Seamans
Date(s):	December 20 th , 2017
Temp/ Relative Humidity:	21.5 °C / 25.3 %
Result:	6dB Bandwidth: 1.635 MHz



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Test Photographs Power Output



Test Setup



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Report No. R-6288N-1

FCC Part 15, Subpart C, Section 15.247(b)(3)
Power Output
Test Data

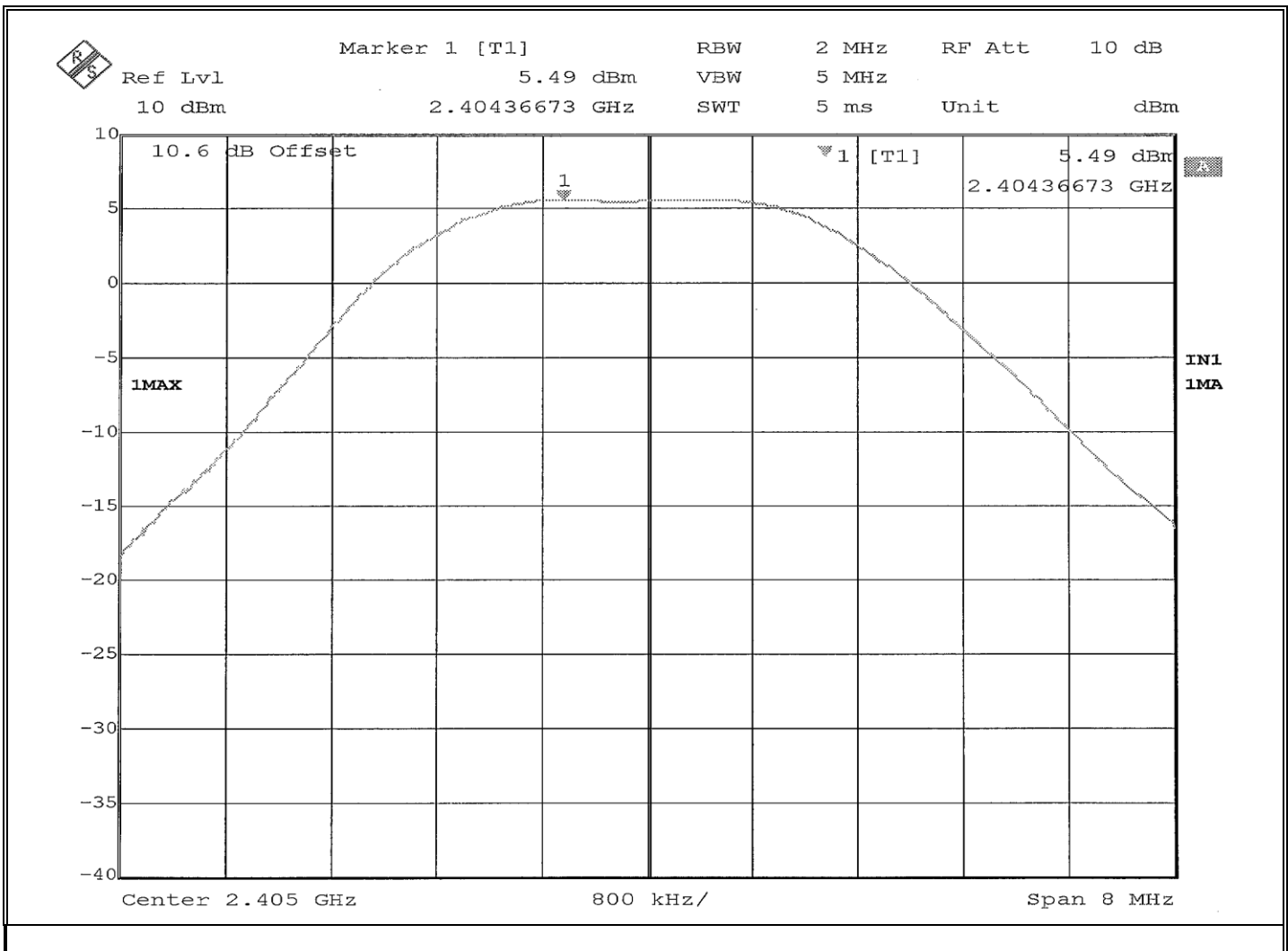


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EMISSIONS TEST DATA SHEET

Method:	Power Output
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)
Job Number:	R-6288N-1
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	December 19 th , 2017
Temp/ Relative Humidity:	21.6 °C / 25.9 %
Result:	Power Output: 5.49 dBm

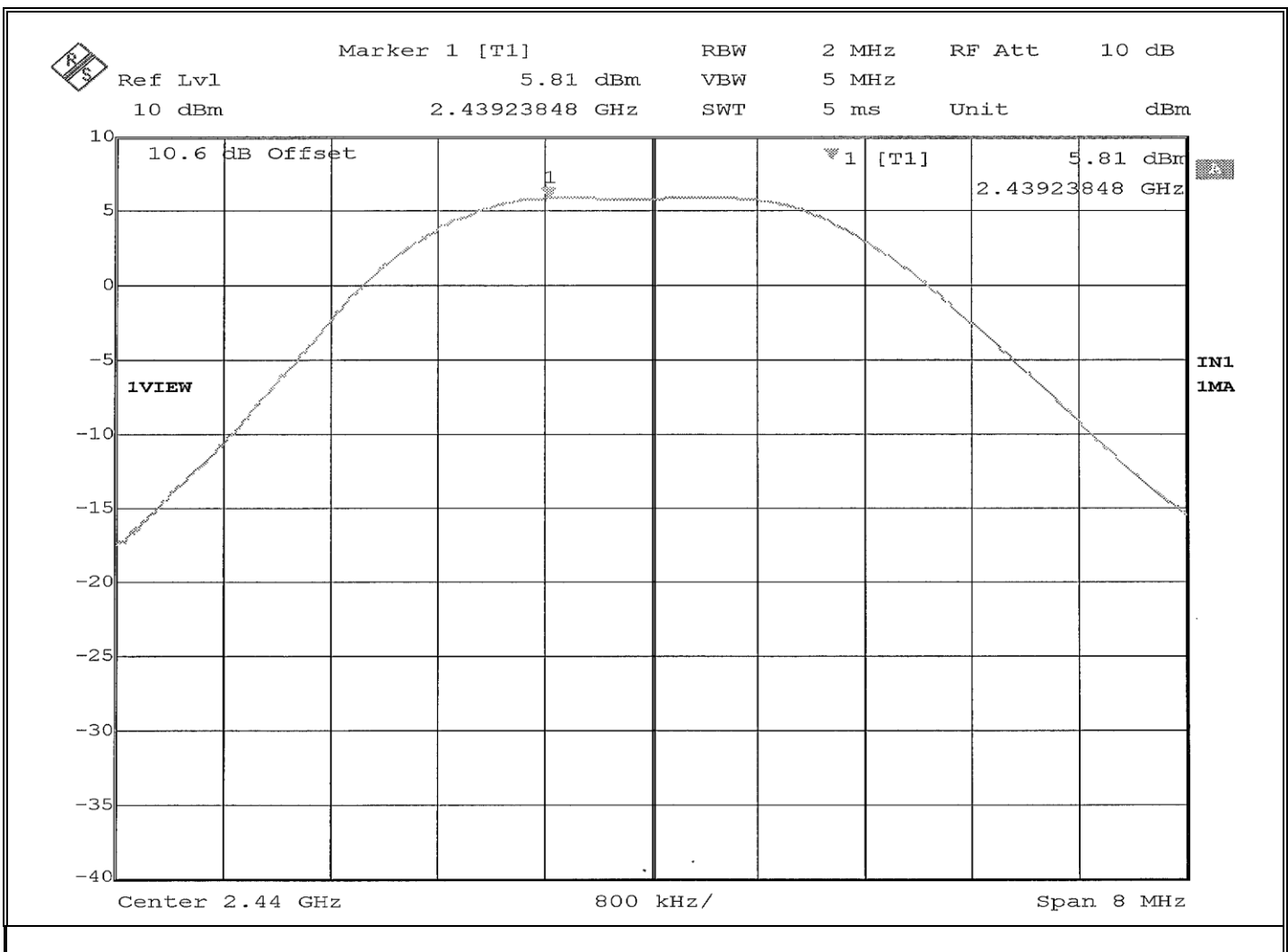


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EMISSIONS TEST DATA SHEET

Method:	Power Output
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)
Job Number:	R-6288N-1
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	December 19 th , 2017
Temp/ Relative Humidity:	21.6 °C / 25.9 %
Result:	Power Output: 5.81 dBm

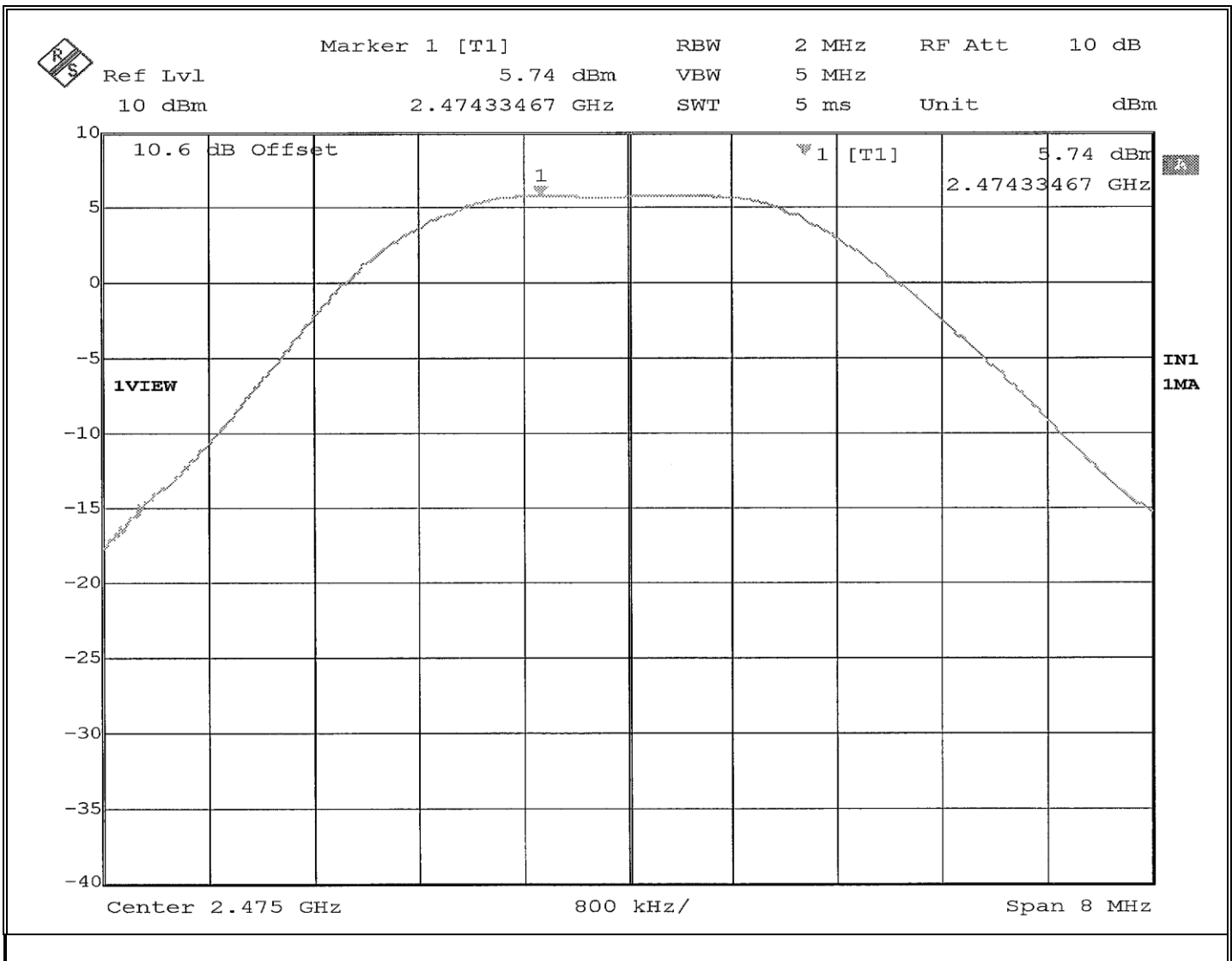


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EMISSIONS TEST DATA SHEET

Method:	Power Output
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (b)(3)
Job Number:	R-6288N-1
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.475 GHz
Technician:	M.Seamans
Date(s):	December 20 th , 2017
Temp/ Relative Humidity:	21.5 °C / 25.3 %
Result:	Power Output: 5.74 dBm



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Test Photographs

Antenna Port, Conducted Emissions



Test Setup



Retlif Testing Laboratories

Report No. R-6288N-1

**FCC Part 15, Subpart C, Section 15.247(d)
Antenna Port, Conducted Emissions
Band Edge Test Data**

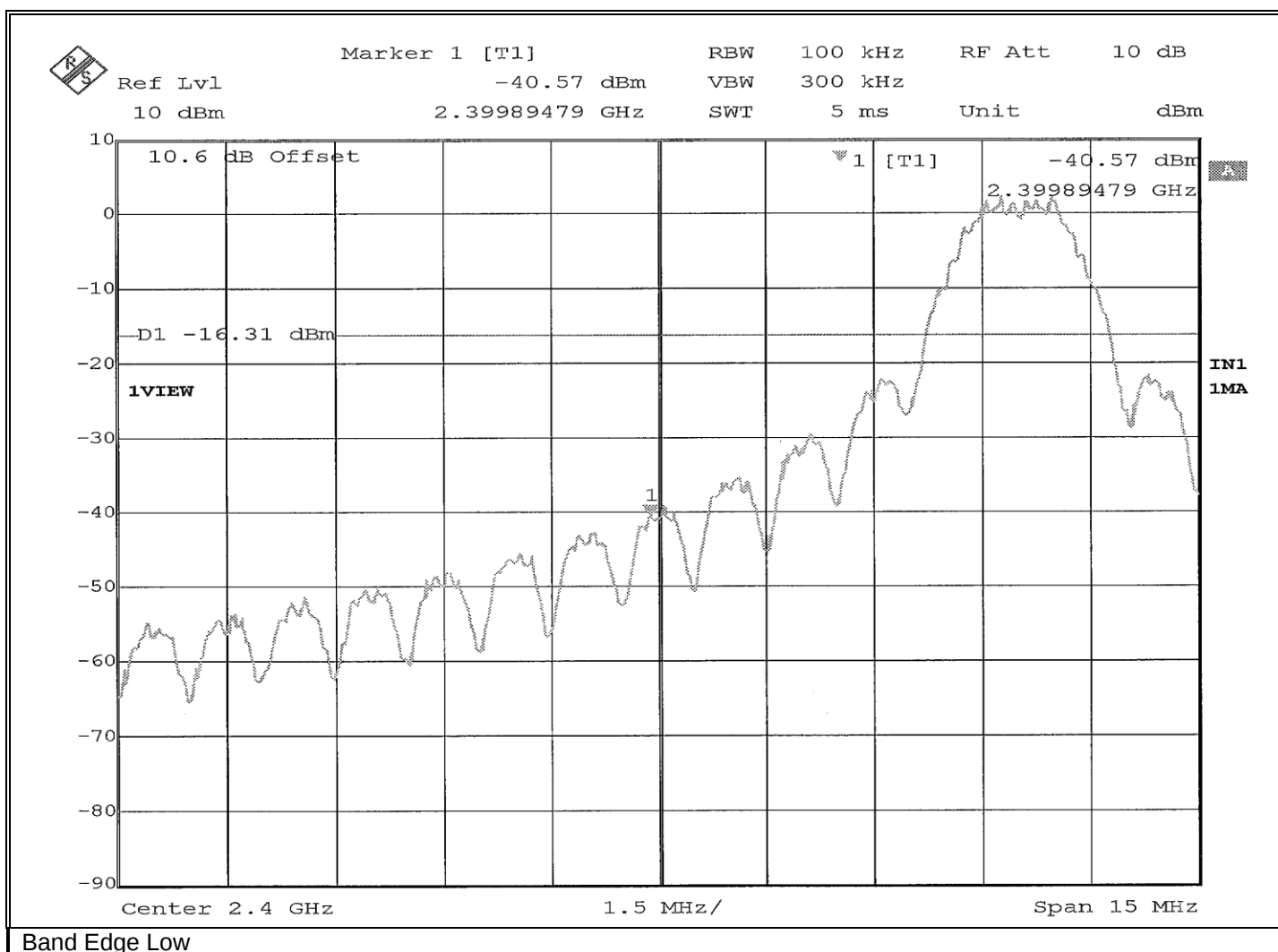


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EMISSIONS TEST DATA SHEET

Method:	Band Edge
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Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	December 19 th , 2017
Temp/ Relative Humidity:	22.5 °C / 24.9 %
Notes:	Limit: -16.31 dBm

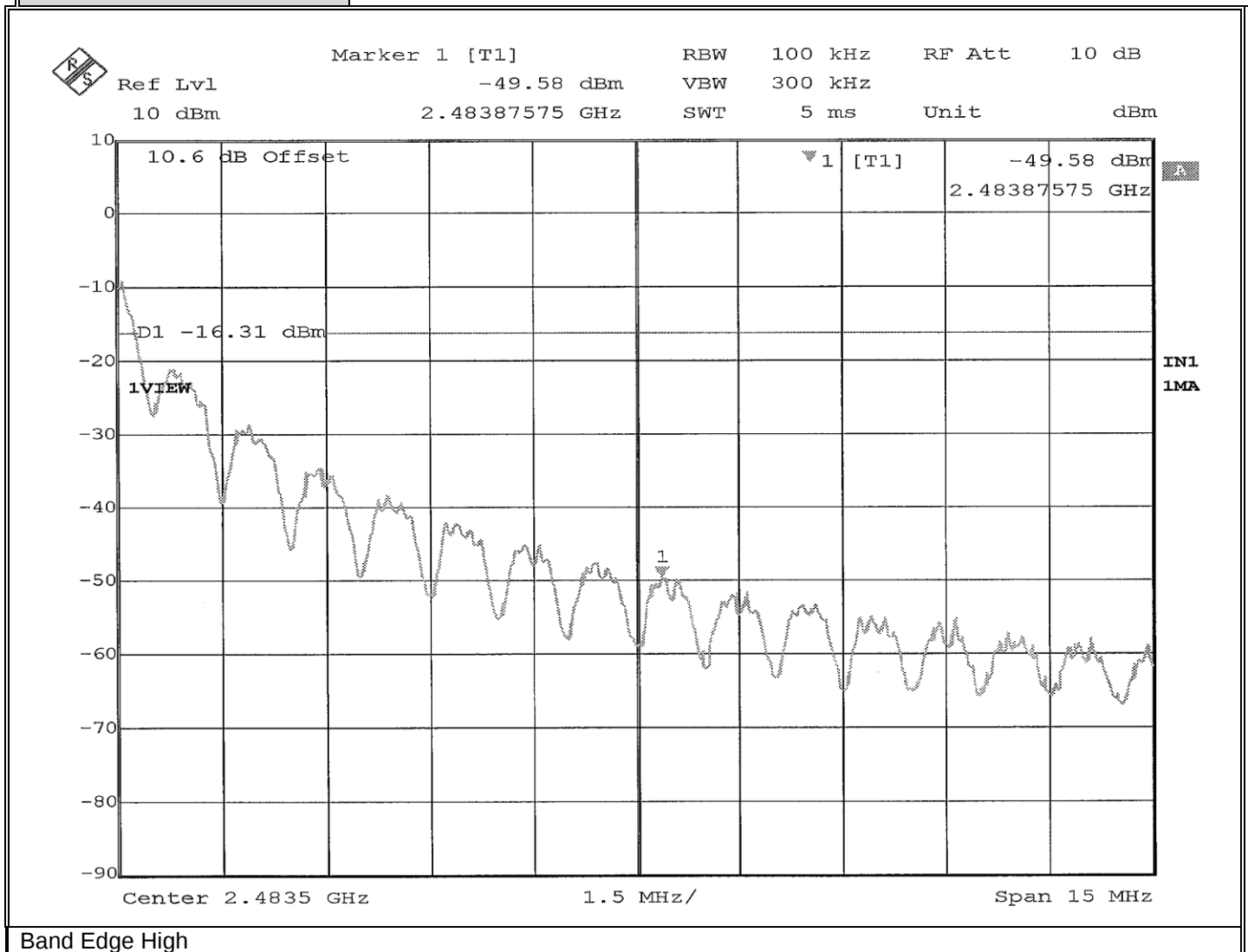


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Technician:	M.Seamans
Date(s):	December 20 th , 2017
Temp/ Relative Humidity:	21.5 °C / 25.3 %
Notes:	Limit: -16.31 dBm



Retlif Testing Laboratories

Report No. R-6288N-1

**Conducted Out of Band
Test Data**

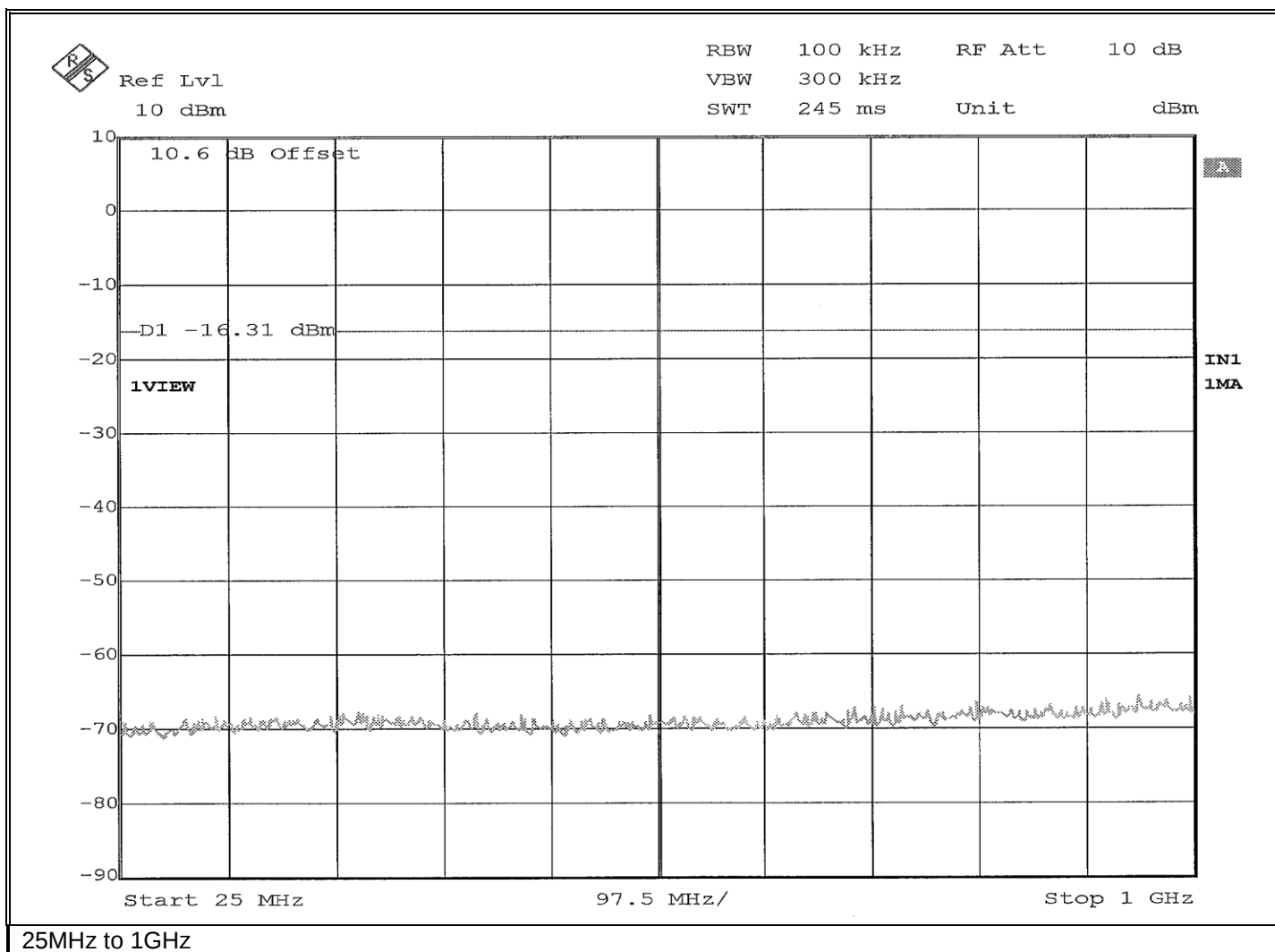


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Temp/ Relative Humidity:	22.5 °C / 24.9 %
Notes:	Limit: -16.31 dBm

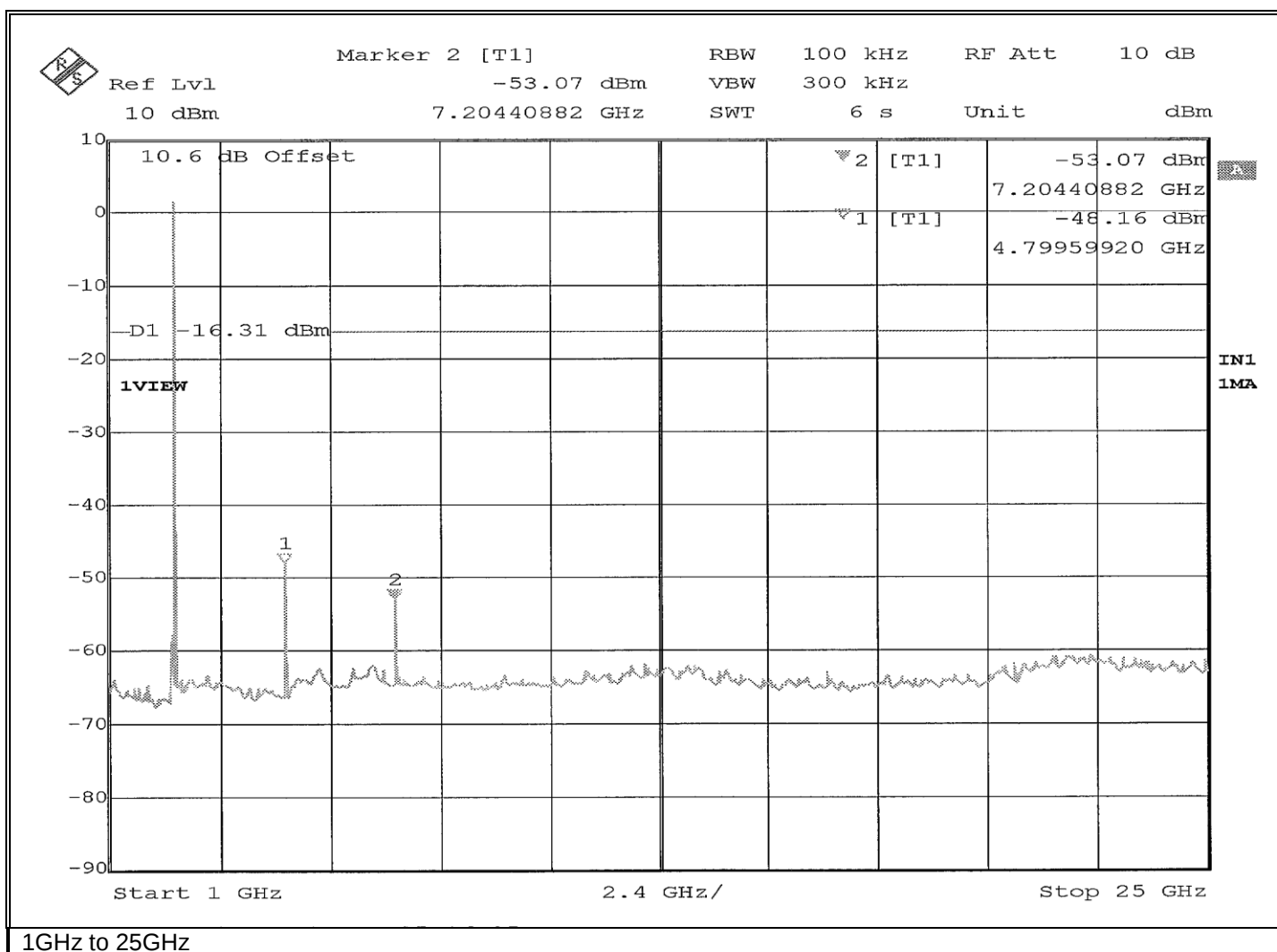


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Temp/ Relative Humidity:	22.5 °C / 24.9 %
Notes:	Limit: -16.31 dBm

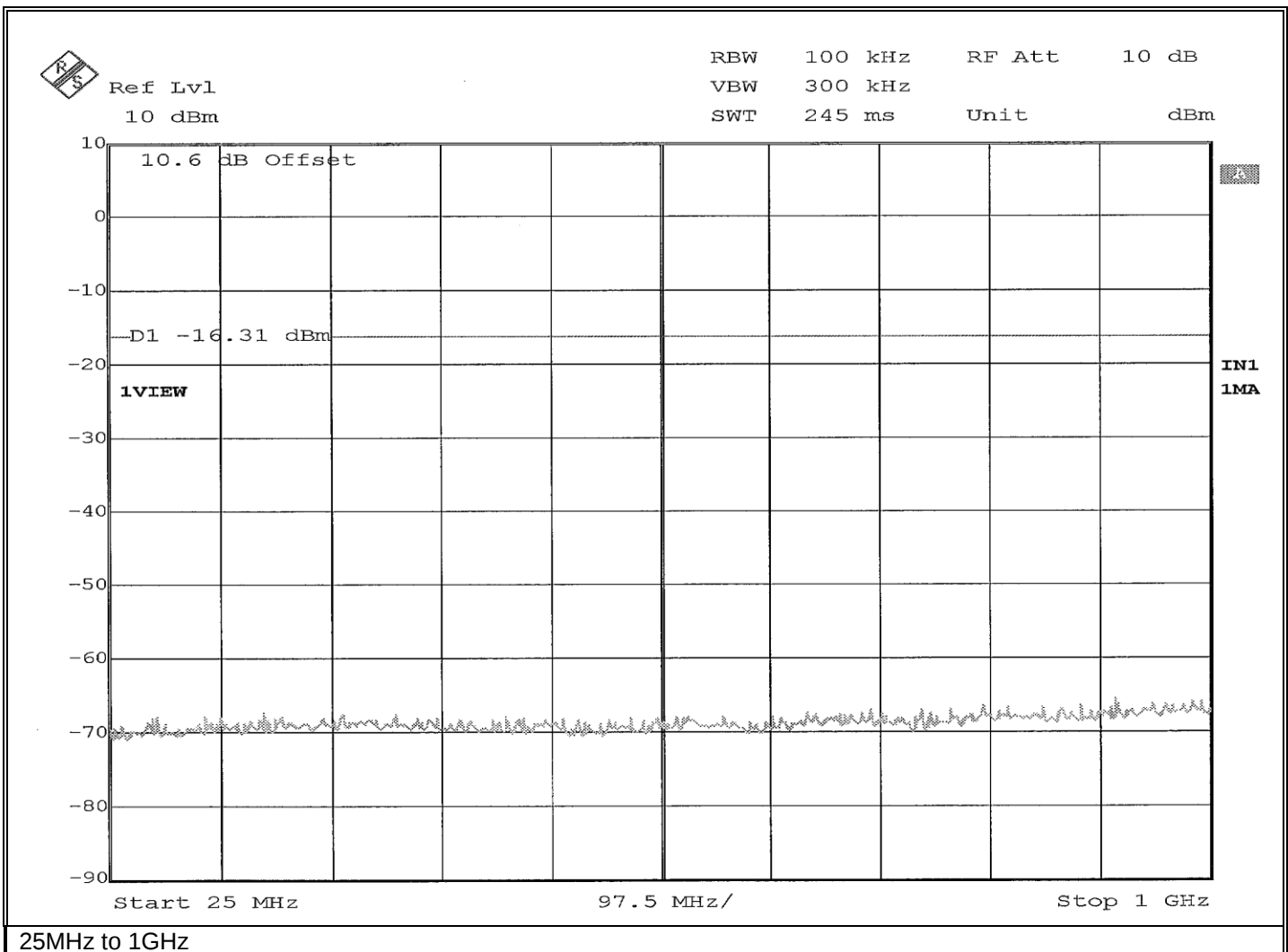


Retlif Testing Laboratories

Report No. R-6288N-1

EMISSIONS TEST DATA SHEET

Method:	Conducted Out of Band
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6288N-1
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	December 19 th , 2017
Temp/ Relative Humidity:	22.5 °C / 24.9 %
Notes:	Limit: -16.31 dBm

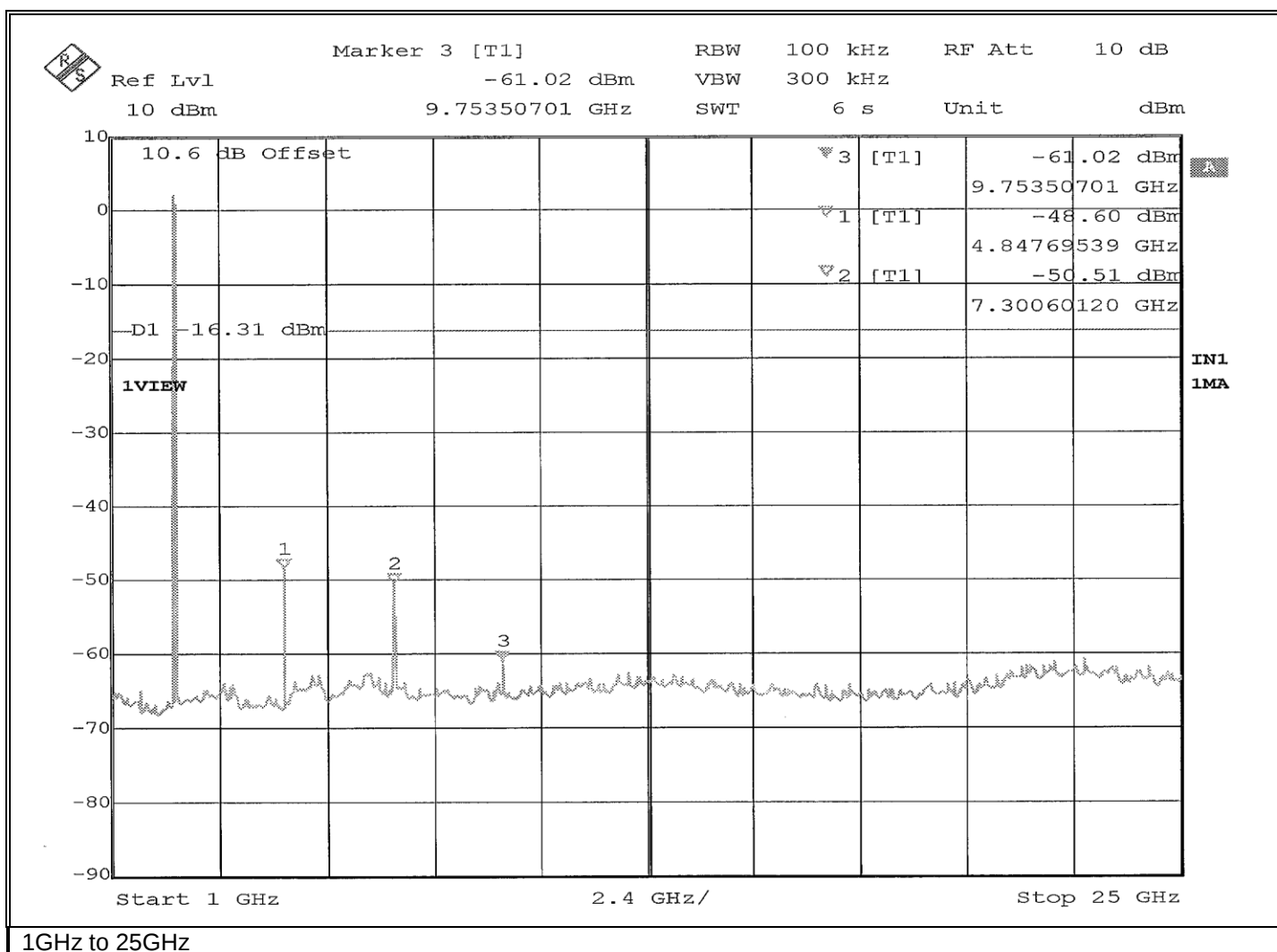


Retlif Testing Laboratories

Report No. R-6288N-1

EMISSIONS TEST DATA SHEET

Method:	Conducted Out of Band
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6288N-1
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	December 19 th , 2017
Temp/ Relative Humidity:	22.5 °C / 24.9 %
Notes:	Limit: -16.31 dBm

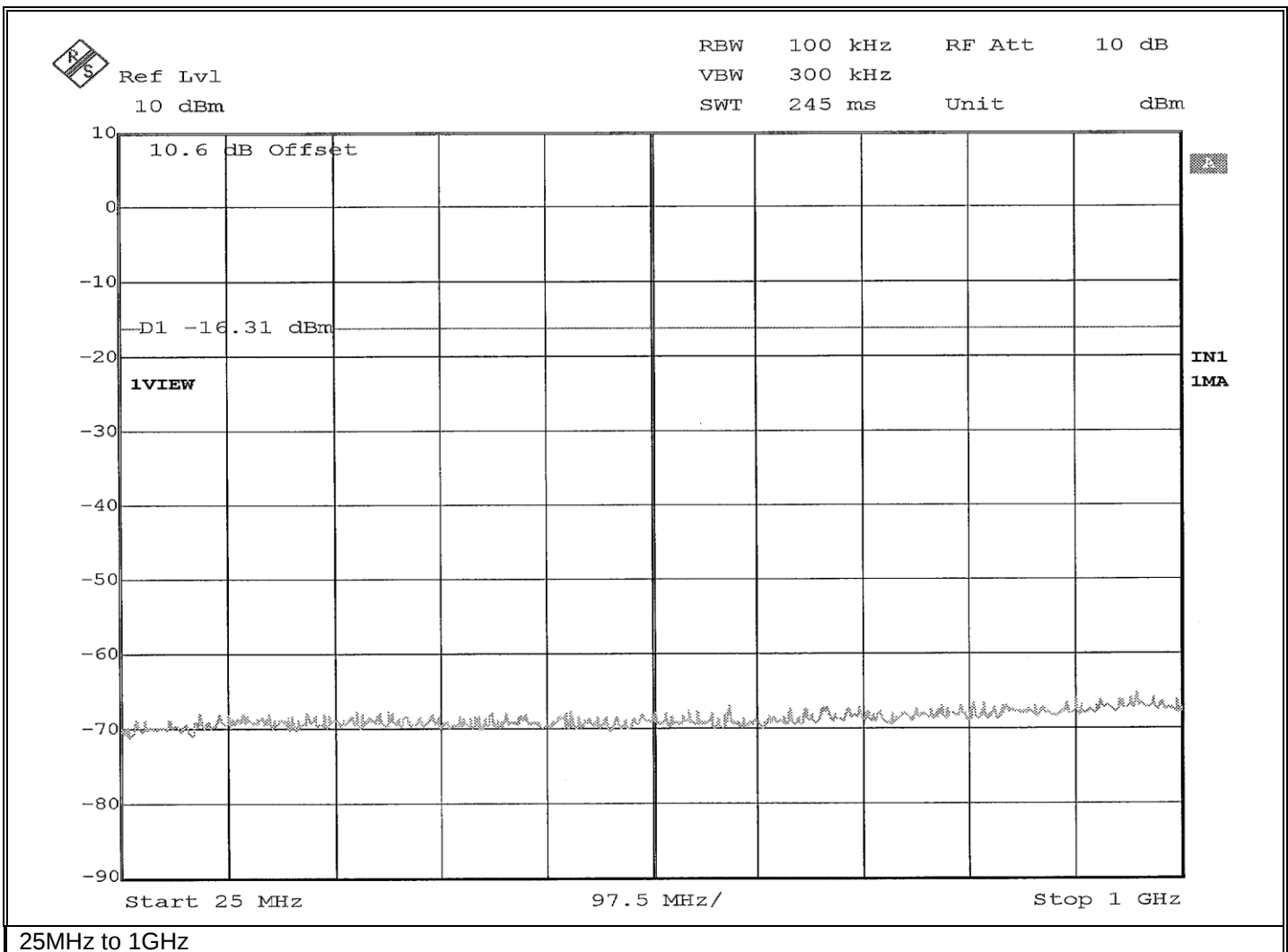


Retlif Testing Laboratories

Report No. R-6288N-1

EMISSIONS TEST DATA SHEET

Method:	Conducted Out of Band
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6288N-1
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.475 GHz
Technician:	M.Seamans
Date(s):	December 20 th , 2017
Temp/ Relative Humidity:	21.5 °C / 25.3 %
Notes:	Limit: -16.31 dBm

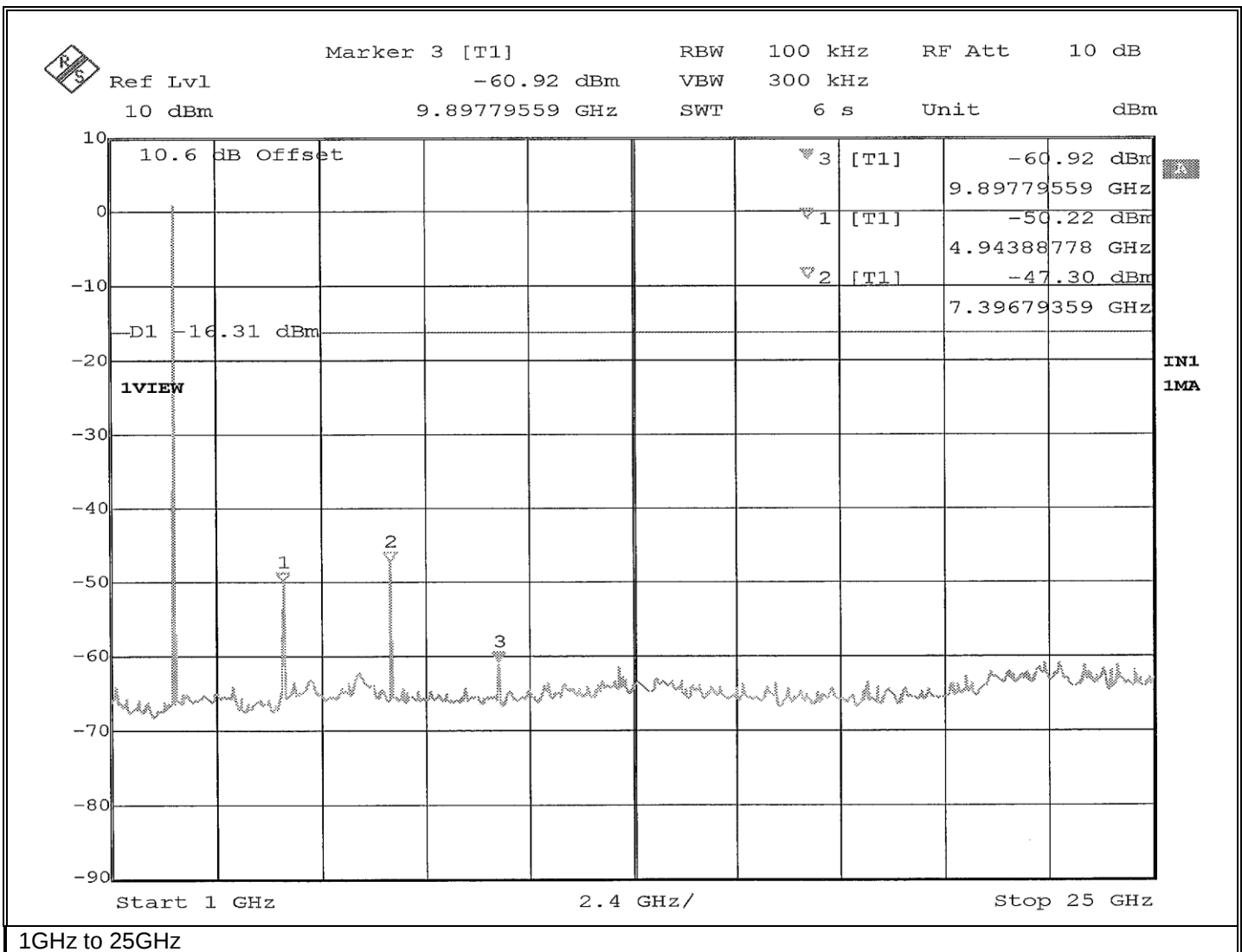


Retlif Testing Laboratories

Report No. R-6288N-1

EMISSIONS TEST DATA SHEET

Method:	Conducted Out of Band
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6288N-1
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.475 GHz
Technician:	M.Seamans
Date(s):	December 20 th , 2017
Temp/ Relative Humidity:	21.5 °C / 25.3 %
Notes:	Limit: -16.31 dBm



Retlif Testing Laboratories

Report No. R-6288N-1

Test Photographs
Unwanted Emissions into Restricted Frequency Band, 30 MHz to 25 GHz



Test Setup



Retlif Testing Laboratories

Report No. R-6288N-1

**Unwanted Emissions into Restricted Frequency Bands
Test Data**



Retlif Testing Laboratories

Report No. R-6288N-1

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	ARRIS	
Job Number	R-6288N-1	
Test Sample	Set Top Box	
Model Number	AX061AEI	
Serial Number	M11742TK0102	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated signal at 2405 MHz, 2440 MHz and 2480 MHz consecutively.	
Technician	M. Seamans	
Date	December 20 th , 2017	

Notes: Detector: Quasi-Peak <1GHz, Average >1GHz X= 0.0

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Antenna Gain	Duty Cycle Factor 10log(1/x)	Duty Cycle Factor 20log(x)	Corrected Reading	Converted Field Strength	Converted Reading	Limit
MHz	MHz	dBm	dB	dB	dBm	dBm	dBuV/m	uV/m	uV/m
37.50	-	-	-	-	-	-	-	-	100.00
	38.00*	-75.01	-	-	-	-75.01	20.247	10.289	
38.25	-	-	-	-	-	-	-	-	100.00
73.00	-	-	-	-	-	-	-	-	100.00
	74.00*	-71.05	-	-	-	-71.05	24.207	16.232	
74.60	-	-	-	-	-	-	-	-	100.00
74.80	-	-	-	-	-	-	-	-	100.00
	75.00*	-71.05	-	-	-	-71.05	24.207	16.232	
75.20	-	-	-	-	-	-	-	-	100.00
108.00	-	-	-	-	-	-	-	-	100.00
	115.00*	-71.25	-	-	-	-71.25	24.007	15.862	
121.94	-	-	-	-	-	-	-	-	100.00
123.00	-	-	-	-	-	-	-	-	100.00
	130.00*	-71.25	-	-	-	-71.25	24.007	15.862	
138.00	-	-	-	-	-	-	-	-	100.00

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).



Retlif Testing Laboratories

Report No. R-6288N-1

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	ARRIS	
Job Number	R-6288N-1	
Test Sample	Set Top Box	
Model Number	AX061AEI	
Serial Number	M11742TK0102	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated signal at 2405 MHz, 2440 MHz and 2480 MHz consecutively.	
Technician	M. Seamans	
Date	December 20 th , 2017	

Notes: Detector: Quasi-Peak <1GHz, Average >1GHz X= 0.0

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Antenna Gain	Duty Cycle Factor 10log(1/x)	Duty Cycle Factor 20log(x)	Corrected Reading	Converted Field Strength	Converted Reading	Limit at 3M
MHz	MHz	dBm	dB	dB	dBm	dBm	dBuV/m	uV/m	uV/m
149.90	-	-	-	-	-	-	-	-	100.00
	150.00*	-71.59	-	-	-	-71.59	23.667	15.253	
150.05	-	-	-	-	-	-	-	-	100.00
156.52	-	-	-	-	-	-	-	-	100.00
	156.52*	-71.59	-	-	-	-71.59	23.667	15.253	
156.52	-	-	-	-	-	-	-	-	100.00
156.70	-	-	-	-	-	-	-	-	100.00
	156.80*	-71.59	-	-	-	-71.59	23.667	15.253	
156.90	-	-	-	-	-	-	-	-	100.00
162.01	-	-	-	-	-	-	-	-	150.00
	165.00*	-71.59	-	-	-	-71.59	23.667	15.253	
167.17	-	-	-	-	-	-	-	-	150.00
167.72	-	-	-	-	-	-	-	-	150.00
	170.00*	-71.59	-	-	-	-71.59	23.667	15.253	
173.20	-	-	-	-	-	-	-	-	150.00

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).



Retlif Testing Laboratories

Report No. R-6288N-1

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	ARRIS	
Job Number	R-6288N-1	
Test Sample	Set Top Box	
Model Number	AX061AEI	
Serial Number	M11742TK0102	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated signal at 2405 MHz, 2440 MHz and 2480 MHz consecutively.	
Technician	M. Seamans	
Date	December 20 th , 2017	

Notes: Detector: Quasi-Peak <1GHz, Average >1GHz X= 0.0

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Antenna Gain	Duty Cycle Factor 10log(1/x)	Duty Cycle Factor 20log(x)	Corrected Reading	Converted Field Strength	Converted Reading	Limit at 3M
MHz	MHz	dBm	dB	dB	dBm	dBm	dBuV/m	uV/m	uV/m
240.00	-	-	-	-	-	-	-	-	200.00
	260.00*	-71.59	-	-	-	-71.59	23.667	15.253	
285.00	-	-	-	-	-	-	-	-	200.00
322.80	-	-	-	-	-	-	-	-	200.00
	330.00*	-71.25	-	-	-	-71.25	24.007	15.862	
335.40	-	-	-	-	-	-	-	-	200.00
399.90	-	-	-	-	-	-	-	-	200.00
	405.00*	-71.61	-	-	-	-71.61	23.647	15.218	
410.00	-	-	-	-	-	-	-	-	200.00
608.00	-	-	-	-	-	-	-	-	200.00
	611.00*	-71.59	-	-	-	-71.59	23.667	15.253	
614.00	-	-	-	-	-	-	-	-	200.00
960.00	-	-	-	-	-	-	-	-	500.00
	975.00*	-70.00	-	-	-	-70.00	25.257	18.318	
1240.00	-	-	-	-	-	-	-	-	500.00
1300.00	-	-	-	-	-	-	-	-	500.00
	1350.00*	-72.80	-	-	-	-72.80	22.457	13.270	
1427.00	-	-	-	-	-	-	-	-	500.00

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).



Retlif Testing Laboratories

Report No. R-6288N-1

RETLIF TESTING LABORATORIES

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Job Number	R-6288N-1	
Test Sample	Set Top Box	
Model Number	AX061AEI	
Serial Number	M11742TK0102	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated signal at 2405 MHz, 2440 MHz and 2480 MHz consecutively.	
Technician	M. Seamans	
Date	December 20 th , 2017	

Notes: Detector: Quasi-Peak <1GHz, Average >1GHz X= 0.0

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Antenna Gain	Duty Cycle Factor 10log(1/x)	Duty Cycle Factor 20log(x)	Corrected Reading	Converted Field Strength	Converted Reading	Limit at 3M
MHz	MHz	dBm	dB	dB	dBm	dBm	dBuV/m	uV/m	uV/m
1435.00	-	-	-	-	-	-	-	-	500.00
	1500.00*	-72.33	-	-	-	-72.33	22.928	14.008	
1646.50	-	-	-	-	-	-	-	-	500.00
1660.00	-	-	-	-	-	-	-	-	500.00
	1680.00*	-73.58	-	-	-	-73.58	21.678	12.131	
1710.00	-	-	-	-	-	-	-	-	500.00
1718.80	-	-	-	-	-	-	-	-	500.00
	1720.00*	-73.91	-	-	-	-73.91	21.348	11.678	
1722.20	-	-	-	-	-	-	-	-	500.00
2200.00	-	-	-	-	-	-	-	-	500.00
	2250.00*	-72.83	-	-	-	-72.83	22.428	13.224	
2300.00	-	-	-	-	-	-	-	-	500.00
2310.00	-	-	-	-	-	-	-	-	500.00
	2390.00	-60.42	3.2	-	-	-57.22	38.038	79.777	
2390.00	-	-	-	-	-	-	-	-	500.00
2483.50	-	-	-	-	-	-	-	-	500.00
	2483.50	-49.10	3.2	-	-	-45.90	49.357	293.683	
2500.00	-	-	-	-	-	-	-	-	500.00

EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).



Retlif Testing Laboratories

Report No. R-6288N-1

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	ARRIS	
Job Number	R-6288N-1	
Test Sample	Set Top Box	
Model Number	AX061AEI	
Serial Number	M11742TK0102	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated signal at 2405 MHz, 2440 MHz and 2480 MHz consecutively.	
Technician	M. Seamans	
Date	December 20 th , 2017	

Notes: Detector: Quasi-Peak <1GHz, Average >1GHz X= 0.0

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Antenna Gain	Duty Cycle Factor 10log(1/x)	Duty Cycle Factor 20log(x)	Corrected Reading	Converted Field Strength	Converted Reading	Limit at 3M
MHz	MHz	dBm	dB	dB	dBm	dBm	dBuV/m	uV/m	uV/m
2690.00	-	-	-	-	-	-	-	-	500.00
	2750.00*	-71.85	-	-	-	-71.85	23.408	14.804	
2900.00	-	-	-	-	-	-	-	-	500.00
3260.00	-	-	-	-	-	-	-	-	500.00
	3263.00*	-71.68	-	-	-	-71.68	23.578	15.097	
3267.00	-	-	-	-	-	-	-	-	500.00
3332.00	-	-	-	-	-	-	-	-	500.00
	3336.00*	-71.94	-	-	-	-71.94	23.318	14.651	
3339.00	-	-	-	-	-	-	-	-	500.00
3345.00	-	-	-	-	-	-	-	-	500.00
	3350.00*	-70.76	-	-	-	-70.76	24.498	16.783	
3358.00	-	-	-	-	-	-	-	-	500.00
3600.00	-	-	-	-	-	-	-	-	500.00
	3700.00*	-70.48	-	-	-	-70.48	24.778	17.333	
4400.00	-	-	-	-	-	-	-	-	500.00
4500.00	-	-	-	-	-	-	-	-	500.00
	4880.00	-48.70	3.2	-	-	-45.50	49.758	307.52	
5150.00	-	-	-	-	-	-	-	-	500.00

EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).



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RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

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Customer	ARRIS	
Job Number	R-6288N-1	
Test Sample	Set Top Box	
Model Number	AX061AEI	
Serial Number	M11742TK0102	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated signal at 2405 MHz, 2440 MHz and 2480 MHz consecutively.	
Technician	M. Seamans	
Date	December 20 th , 2017	

Notes: Detector: Quasi-Peak <1GHz, Average >1GHz X= 0.0

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Antenna Gain	Duty Cycle Factor 10log(1/x)	Duty Cycle Factor 20log(x)	Corrected Reading	Converted Field Strength	Converted Reading	Limit at 3M
MHz	MHz	dBm	dB	dB	dBm	dBm	dBuV/m	uV/m	uV/m
5350.00	-	-	-	-	-	-	-	-	500.00
	5400.00*	-69.17	-	-	-	-69.17	26.088	20.155	
5460.00	-	-	-	-	-	-	-	-	500.00
7250.00	-	-	-	-	-	-	-	-	500.00
	7425.00	-47.48	3.2	-	-	-44.28	50.977	353.899	
7750.00	-	-	-	-	-	-	-	-	500.00
8025.00	-	-	-	-	-	-	-	-	500.00
	8300.00*	-67.60	-	-	-	-67.60	27.658	24.148	
8500.00	-	-	-	-	-	-	-	-	500.00
9000.00	-	-	-	-	-	-	-	-	500.00
	9100.00*	-69.51	-	-	-	-69.51	25.538	19.381	
9200.00	-	-	-	-	-	-	-	-	500.00
9300.00	-	-	-	-	-	-	-	-	500.00
	9400.00*	-67.72	-	-	-	-67.72	27.838	23.817	
9500.00	-	-	-	-	-	-	-	-	500.00
10600.00	-	-	-	-	-	-	-	-	500.00
	12200.00*	-67.41	-	-	-	-67.41	27.848	24.682	
12700.00	-	-	-	-	-	-	-	-	500.00

EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).



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RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	ARRIS	
Job Number	R-6288N-1	
Test Sample	Set Top Box	
Model Number	AX061AEI	
Serial Number	M11742TK0102	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated signal at 2405 MHz, 2440 MHz and 2480 MHz consecutively.	
Technician	M. Seamans	
Date	December 20 th , 2017	

Notes: Detector: Quasi-Peak <1GHz, Average >1GHz X= 0.0

TEST PARAMETERS

[illegible]

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).



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Operating Mode	Transmitting modulated signal at 2405 MHz, 2440 MHz and 2480 MHz consecutively.	
Technician	M. Seamans	
Date	December 20 th , 2017	

Notes: Detector: Peak X= 0.0

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Antenna Gain	Duty Cycle Factor 10log(1/x)	Duty Cycle Factor 20log(x)	Corrected Reading	Converted Field Strength	Converted Reading	Limit at 3M
MHz	MHz	dBm	dB	dB	dBm	dBm	dBuV/m	uV/m	uV/m
1300.00	-	-	-	-	-	-	-	-	5000.00
	1350.00*	-59.19	-	-	-	-59.19	36.068	63.589	
1427.00	-	-	-	-	-	-	-	-	5000.00
1435.00	-	-	-	-	-	-	-	-	5000.00
	1500.00*	-58.75	-	-	-	-58.75	36.508	66.893	
1646.50	-	-	-	-	-	-	-	-	5000.00
1660.00	-	-	-	-	-	-	-	-	5000.00
	1680.00*	-59.84	-	-	-	-59.84	35.418	59.004	
1710.00	-	-	-	-	-	-	-	-	5000.00
1718.80	-	-	-	-	-	-	-	-	5000.00
	1720.00*	-60.06	-	-	-	-60.06	35.198	57.528	
1722.20	-	-	-	-	-	-	-	-	5000.00
2200.00	-	-	-	-	-	-	-	-	5000.00
	2250.00*	-60.17	-	-	-	-60.17	35.088	56.804	
2300.00	-	-	-	-	-	-	-	-	5000.00
2310.00	-	-	-	-	-	-	-	-	5000.00
	2390.00	-54.82	3.2	-	-	-51.62	43.638	152.010	
2390.00	-	-	-	-	-	-	-	-	5000.00

EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).



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TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Antenna Gain	Duty Cycle Factor 10log(1/x)	Duty Cycle Factor 20log(x)	Corrected Reading	Converted Field Strength	Converted Reading	Limit at 3M
MHz	MHz	dBm	dB	dB	dBm	dBm	dBuV/m	uV/m	uV/m
2483.50	-	-	-	-	-	-	-	-	5000.00
	2483.50	-41.82	3.2	-	-	-38.62	56.637	679.014	
2500.00	-	-	-	-	-	-	-	-	5000.00
2690.00	-	-	-	-	-	-	-	-	5000.00
	2750.00*	-58.93	-	-	-	-58.93	36.328	65.521	
2900.00	-	-	-	-	-	-	-	-	5000.00
3260.00	-	-	-	-	-	-	-	-	5000.00
	3263.00*	-58.36	-	-	-	-58.36	36.898	69.965	
3267.00	-	-	-	-	-	-	-	-	5000.00
3332.00	-	-	-	-	-	-	-	-	5000.00
	3336.00*	-58.35	-	-	-	-58.35	36.908	70.045	
3339.00	-	-	-	-	-	-	-	-	5000.00
3345.00	-	-	-	-	-	-	-	-	5000.00
	3350.00*	-58.39	-	-	-	-58.39	36.868	69.723	
3358.00	-	-	-	-	-	-	-	-	5000.00
3600.00	-	-	-	-	-	-	-	-	5000.00
	3700.00*	-58.37	-	-	-	-58.37	36.888	69.884	
4400.00	-	-	-	-	-	-	-	-	5000.00

EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).



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Customer	ARRIS	
Job Number	R-6288N-1	
Test Sample	Set Top Box	
Model Number	AX061AEI	
Serial Number	M11742TK0102	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated signal at 2405 MHz, 2440 MHz and 2480 MHz consecutively.	
Technician	M. Seamans	
Date	December 20 th , 2017	

Notes: Detector: Peak X= 0.0

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Antenna Gain	Duty Cycle Factor 10log(1/x)	Duty Cycle Factor 20log(x)	Corrected Reading	Converted Field Strength	Converted Reading	Limit at 3M
MHz	MHz	dBm	dB	dB	dBm	dBm	dBuV/m	uV/m	uV/m
4500.00	-	-	-	-	-	-	-	-	5000.00
	4880.00	-43.76	3.2	-	-	-40.56	54.698	543.10	
5150.00	-	-	-	-	-	-	-	-	5000.00
5350.00	-	-	-	-	-	-	-	-	5000.00
	5400.00*	-57.85	-	-	-	-57.85	37.408	74.196	
5460.00	-	-	-	-	-	-	-	-	5000.00
7250.00	-	-	-	-	-	-	-	-	5000.00
	7425.00	-40.30	3.2	-	-	-37.10	58.157	808.870	
7750.00	-	-	-	-	-	-	-	-	5000.00
8025.00	-	-	-	-	-	-	-	-	5000.00
	8300.00*	-55.78	-	-	-	-55.78	39.478	94.163	
8500.00	-	-	-	-	-	-	-	-	5000.00
9000.00	-	-	-	-	-	-	-	-	5000.00
	9100.00*	-56.52	-	-	-	-56.52	38.738	86.473	
9200.00	-	-	-	-	-	-	-	-	5000.00
9300.00	-	-	-	-	-	-	-	-	5000.00
	9400.00*	-55.92	-	-	-	-55.92	39.338	92.657	
9500.00	-	-	-	-	-	-	-	-	5000.00

EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).



Retlif Testing Laboratories

Report No. R-6288N-1

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	ARRIS	
Job Number	R-6288N-1	
Test Sample	Set Top Box	
Model Number	AX061AEI	
Serial Number	M11742TK0102	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated signal at 2405 MHz, 2440 MHz and 2480 MHz consecutively.	
Technician	M. Seamans	
Date	December 20 th , 2017	

Notes: Detector: Peak X= 0.0

TEST PARAMETERS

Restricted Band	Measured Frequency	Meter Reading	Antenna Gain	Duty Cycle Factor 10log(1/x)	Duty Cycle Factor 20log(x)	Corrected Reading	Converted Field Strength	Converted Reading	Limit at 3M
MHz	MHz	dBm	dB	dB	dBm	dBm	dBuV/m	uV/m	uV/m
10600.00	-	-	-	-	-	-	-	-	5000.00
	12400.00*	-55.23	-	-	-	-55.23	40.028	100.32	
12700.00	-	-	-	-	-	-	-	-	5000.00
13250.00	-	-	-	-	-	-	-	-	5000.00
	15800.00*	-55.58	-	-	-	-55.58	39.678	96.356	
16200.00	-	-	-	-	-	-	-	-	5000.00
17700.00	-	-	-	-	-	-	-	-	5000.00
	19240.00*	-55.74	-	-	-	-55.74	39.518	94.597	
21400.00	-	-	-	-	-	-	-	-	5000.00
22010.00	-	-	-	-	-	-	-	-	5000.00
	22320.00*	-56.19	-	-	-	-56.19	39.068	89.821	
23120.00	-	-	-	-	-	-	-	-	5000.00
23000.00	-	-	-	-	-	-	-	-	5000.00
	23800.00*	-53.95	-	-	-	-53.95	41.308	116.25	
24000.00	-	-	-	-	-	-	-	-	5000.00

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).



Retlif Testing Laboratories

Report No. R-6288N-1

Test Photographs

Antenna Port, Power Density



Test Setup



Retlif Testing Laboratories

Report No. R-6288N-1

**FCC Part 15, Subpart C, Section 15.247(e)
Antenna Port, Power Density
Test Data**

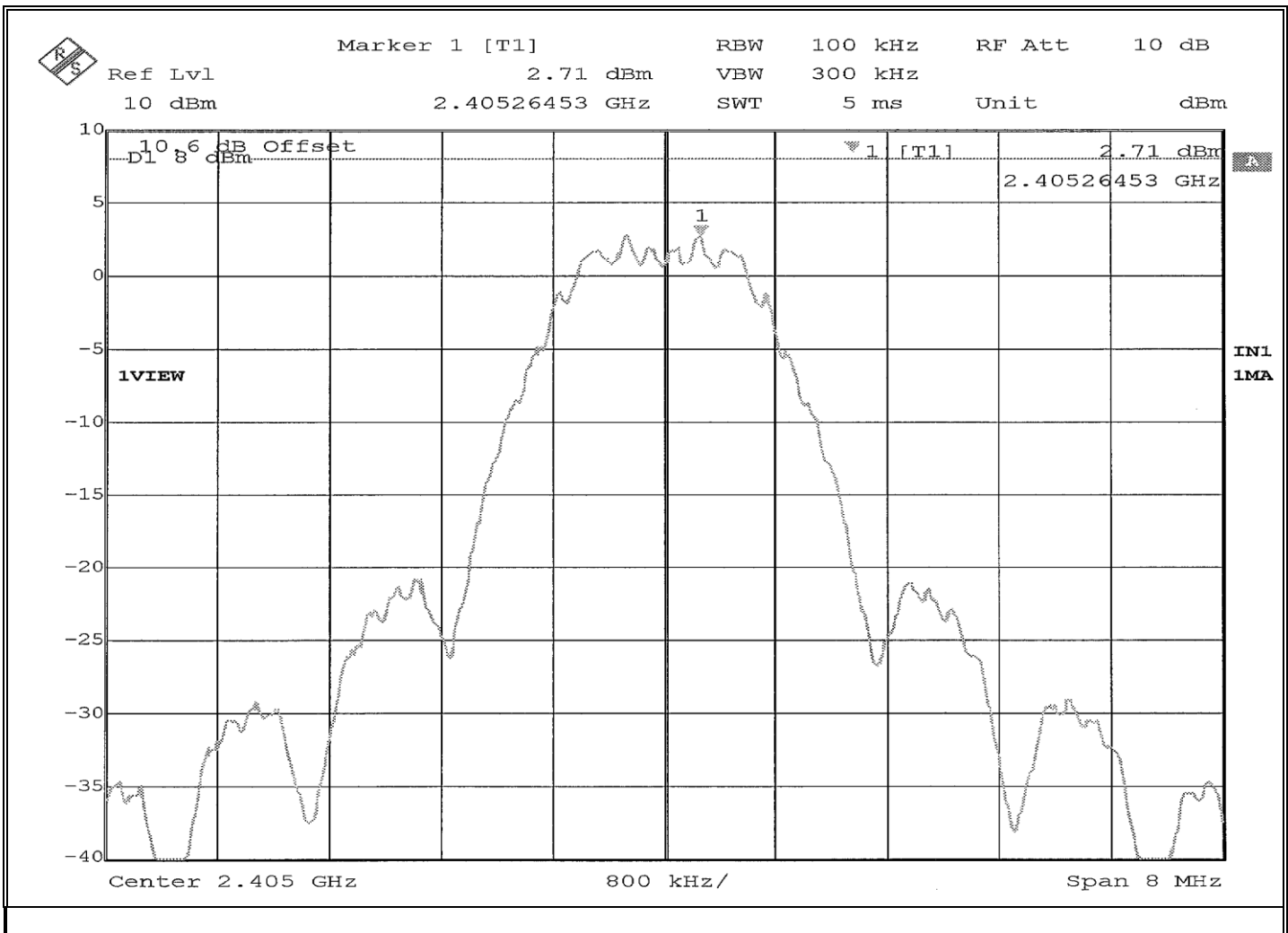


Retlif Testing Laboratories

Report No. R-6288N-1

EMISSIONS TEST DATA SHEET

Method:	Power Spectral Density
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (e)
Job Number:	R-6288N-1
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.405 GHz
Technician:	M.Seamans
Date(s):	December 19 th , 2017
Temp/ Relative Humidity:	22.1 °C / 25.1 %
Results:	Power Spectral Density: 2.71 dBm

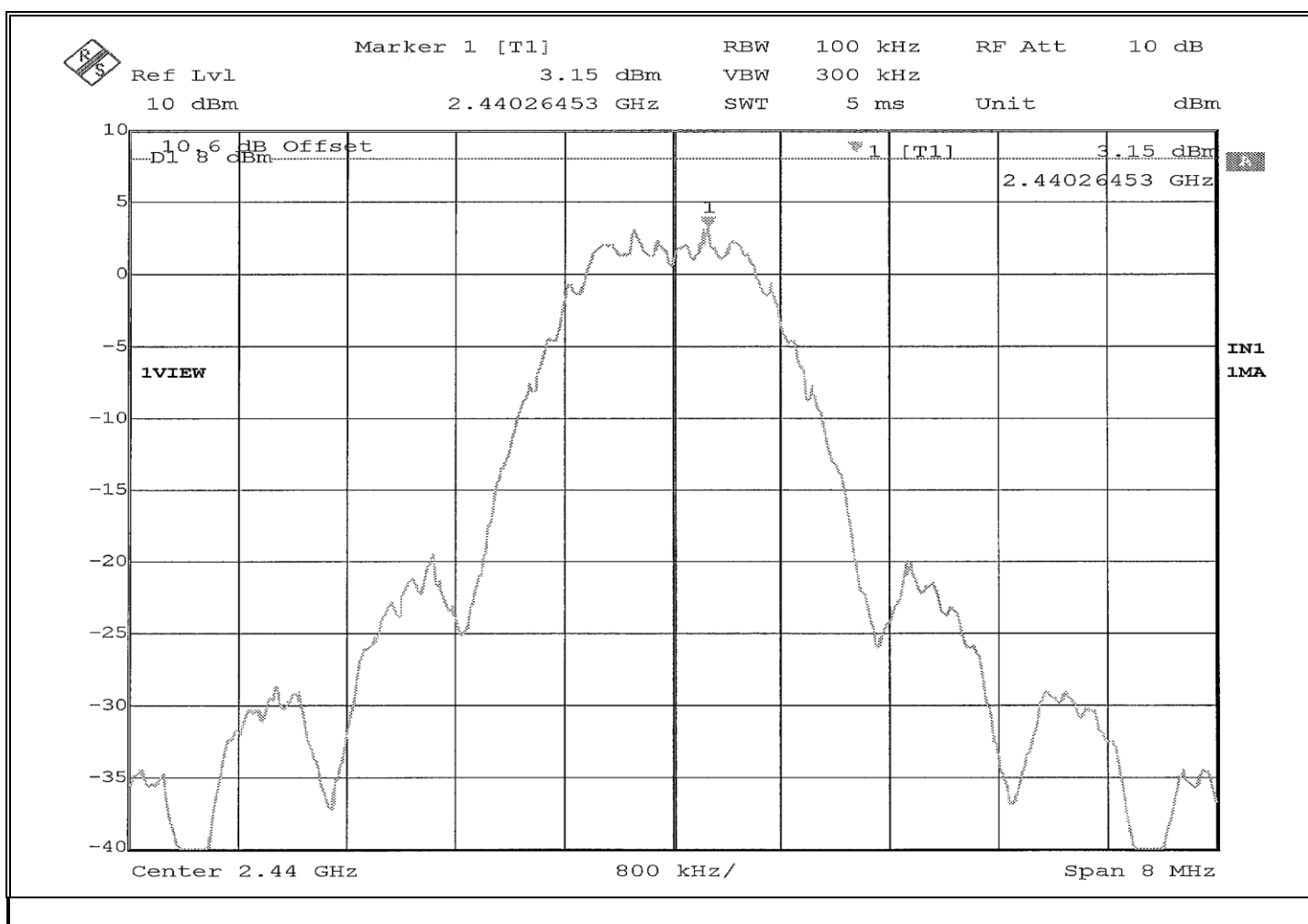


Retlif Testing Laboratories

Report No. R-6288N-1

EMISSIONS TEST DATA SHEET

Method:	Power Spectral Density
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (e)
Job Number:	R-6288N-1
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.440 GHz
Technician:	M.Seamans
Date(s):	December 19 th , 2017
Temp/ Relative Humidity:	22.1 °C / 25.1 %
Results:	Power Spectral Density: 3.15 dBm

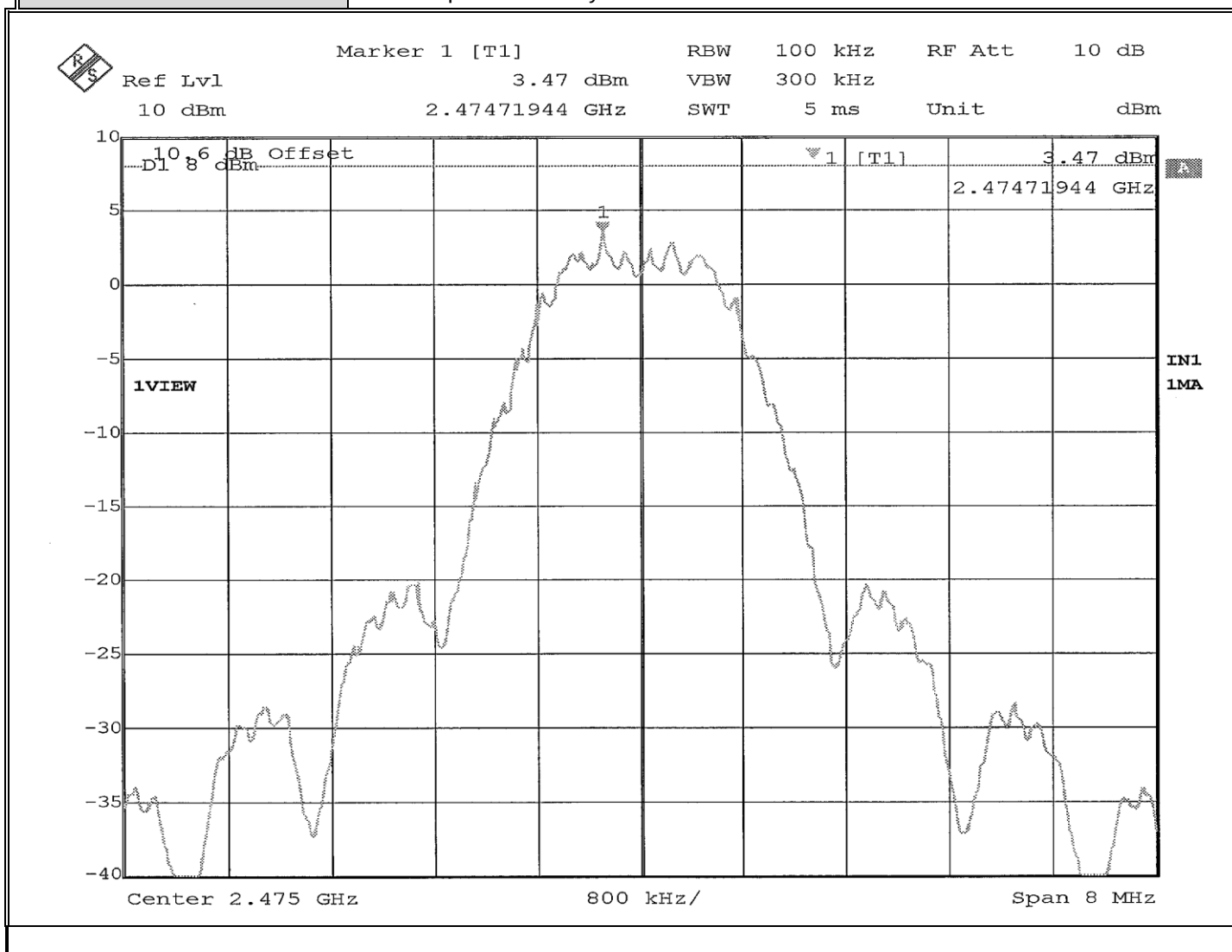


Retlif Testing Laboratories

Report No. R-6288N-1

EMISSIONS TEST DATA SHEET

Method:	Power Spectral Density
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (e)
Job Number:	R-6288N-1
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.475 GHz
Technician:	M.Seamans
Date(s):	December 20 th , 2017
Temp/ Relative Humidity:	21.5 °C / 25.3 %
Results:	Power Spectral Density: 3.47 dBm



Retlif Testing Laboratories

Report No. R-6288N-1

Test Photographs
Spurious Radiated Emissions, 30 MHz to 25 GHz



EUT Configuration



Retlif Testing Laboratories

Report No. R-6288N-1

Test Photographs
Spurious Radiated Emissions, 30 MHz to 25 GHz



Horizontal Polarization, 30 MHz – 200 MHz, Biconical Antenna



Vertical Polarization, 30 MHz – 200 MHz, Biconical Antenna



Retlif Testing Laboratories

Report No. R-6288N-1

Test Photographs
Spurious Radiated Emissions, 30 MHz to 25 GHz



Horizontal Polarization, 200 MHz - 1 GHz, Log Periodic



Vertical Polarization, 200 MHz - 1 GHz, Log Periodic



Retlif Testing Laboratories

Report No. R-6288N-1

Test Photographs
Spurious Radiated Emissions, 30 MHz to 25 GHz



Horizontal Polarization, 1- 18 GHz, Double Ridge Guide



Vertical Polarization, 1- 18 GHz, Double Ridge Guide



Retlif Testing Laboratories

Report No. R-6288N-1

Test Photographs
Spurious Radiated Emissions, 30 MHz to 25 GHz



Horizontal Polarization, 18- 26 GHz, High Gain Horn



Vertical Polarization, 18- 26 GHz, High Gain Horn



Retlif Testing Laboratories

Report No. R-6288N-1

**Spurious Radiated Emissions, 30 MHz to 25 GHz
Test Data**



Retlif Testing Laboratories

Report No. R-6288N-1

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Spurious Emissions 30 MHz to 25 GHz
Customer	ARRIS
Job Number	R-6288N-1
Test Sample	Set Top Box
Model Number	AX061AEI
Serial Number	M11742TK0102
Test Specification	FCC 15.247(d) / RSS 247 Paragraph 5.5
Operating Mode	Transmitting modulated signal
Technician	M. Seamans
Date	January 3 rd , 2018

Notes: EUT Antenna replaced with Dummy Load

Test Antenna Distance: 3 meters

Detector: Quasi-Peak < 1GHz; Average > 1GHz

Frequency	Antenna Position	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading			Limit at 3M
MHz	(H/V) / Height	Degrees	dBuV	dB	dBuV/m			dBuV/m
30.00	-	-	-	-	-			40.0
	-	-	-	-	-			
37.75	V-1m	180.0	17.88	14.32	32.20			
78.39	V-1.5m	180.0	17.83	8.37	26.20			
	-	-	-	-	-			
88.00	-	-	-	-	-			40.0
88.00	-	-	-	-	-			43.5
	-	-	-	-	-			
128.95	H-1.5m	180.0	26.97	9.33	36.30			
135.56	V-1m	225.0	24.40	9.80	34.20			
209.40	H-1m	180.0	15.17	13.93	29.10			
	-	-	-	-	-			
216.00	-	-	-	-	-			43.5
216.00	-	-	-	-	-			46.0
	-	-	-	-	-			
242.31	H-1m	180.0	10.39	15.81	26.20			
	-	-	-	-	-			
960.00	-	-	-	-	-			46.0
960.00	-	-	-	-	-			54.0
	-	-	-	-	-			
5400.00	V-1m	0.0	30.44	0.92	31.36	*		
12200.00	V-1m	0.0	32.75	8.37	41.12	*		
22320.00	V-1m	0.0	35.42	-5.30	30.12	*		
	-	-	-	-	-			
25000.00	-	-	-	-	-			54.0

EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).



Retlif Testing Laboratories

Report No. R-6288N-1

Test Photographs
Spurious Radiated Emissions, 9 kHz to 40 GHz



Loop Antenna, 9 kHz to 30 MHz



Retlif Testing Laboratories

Report No. R-6288N-1

Test Photographs
Spurious Radiated Emissions, 9 kHz to 40 GHz



Horizontal Polarization, 30 MHz – 200 MHz, Biconical Antenna



Vertical Polarization, 30 MHz – 200 MHz, Biconical Antenna



Retlif Testing Laboratories

Report No. R-6288N-1

Test Photographs
Spurious Radiated Emissions, 9 kHz to 40 GHz



Horizontal Polarization, 200 MHz - 1 GHz, Log Periodic



Vertical Polarization, 200 MHz - 1 GHz, Log Periodic



Retlif Testing Laboratories

Report No. R-6288N-1

Test Photographs
Spurious Radiated Emissions, 9 kHz to 40 GHz



Horizontal Polarization, 1- 18 GHz, Double Ridge Guide



Vertical Polarization, 1- 18 GHz, Double Ridge Guide



Retlif Testing Laboratories

Report No. R-6288N-1

Test Photographs
Spurious Radiated Emissions, 9 kHz to 40 GHz



Horizontal Polarization, 18- 26 GHz, High Gain Horn



Vertical Polarization, 18- 26 GHz, High Gain Horn



Retlif Testing Laboratories

Report No. R-6288N-1

Test Photographs
Spurious Radiated Emissions, 9 kHz to 40 GHz



Horizontal Polarization, 26 - 40 GHz, High Gain Horn



Horizontal Polarization, 26 - 40 GHz, High Gain Horn



Retlif Testing Laboratories

Report No. R-6288N-1

**Spurious Radiated Emissions, 9 kHz to 40 GHz
Test Data**



Retlif Testing Laboratories

Report No. R-6288N-1

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Radiated Emissions 9 kHz to 40 GHz
Customer	ARRIS
Job Number	R-6288N-1
Test Sample	Set Top Box
Model Number	AX061AEI
Serial Number	M11742TK0116
Test Specification	FCC 15.209
Operating Mode	All Radios Active
Technician	M. Seamans
Date	January 3 rd , 2018

Notes: Test Antenna Distance: 3 meters Detector: Quasi-Peak < 1GHz; Average > 1GHz

Frequency	Antenna Position	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading	Converted to 300M	Converted Reading	Limit at 300M
MHz	(H/V) / Height	Degrees	dBuV	dB	dBuV/m	dBuV/m	uV/m	uV/m
0.009	-	-	-	-	-	-	-	266.67
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
0.490	-	-	-	-	-	-	-	4.89

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



Retlif Testing Laboratories

Report No. R-6288N-1

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Radiated Emissions 9 kHz to 40 GHz
Customer	ARRIS
Job Number	R-6288N-1
Test Sample	Set Top Box
Model Number	AX061AEI
Serial Number	M11742TK0116
Test Specification	FCC 15.209
Operating Mode	All Radios Active
Technician	M. Seamans
Date	January 3 rd , 2018

Notes: Test Antenna Distance: 3 meters Detector: Quasi-Peak < 1GHz; Average > 1GHz

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.



Retlif Testing Laboratories

Report No. R-6288N-1

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Radiated Emissions 9 kHz to 40 GHz
Customer	ARRIS
Job Number	R-6288N-1
Test Sample	Set Top Box
Model Number	AX061AEI
Serial Number	M11742TK0116
Test Specification	FCC 15.209
Operating Mode	All Radios Active
Technician	M. Seamans
Date	January 3 rd , 2018

Notes: Test Antenna Distance: 3 meters Detector: Quasi-Peak < 1GHz; Average > 1GHz

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
14.010	-	-	-	-	-	-	-	30.00
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
30.00	-	-	-	-	-	-	-	30.00

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



Retlif Testing Laboratories

Report No. R-6288N-1

RETLIF TESTING LABORATORIES

EMISSIONS TEST DATA SHEET

Test Method	Radiated Emissions 9 kHz to 40 GHz
Customer	ARRIS
Job Number	R-6288N-1
Test Sample	Set Top Box
Model Number	AX061AEI
Serial Number	M11742TK0116
Test Specification	FCC 15.209
Operating Mode	All radios operating simultaneously
Technician	M. Seamans
Date	January 3 rd , 2018

Notes: Test Antenna Distance: 3 meters Detector: Quasi-Peak < 1GHz; Average > 1GHz

Frequency	Antenna Position	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading			Limit at 3M
MHz	(H/V) / Height	Degrees	dBuV	dB	dBuV/m			dBuV/m
30.00	-	-	-	-	-			40.0
	-	-	-	-	-			
37.75	V-1m	180.0	17.88	14.32	32.20			
78.39	V-1.5m	180.0	17.83	8.37	26.20			
	-	-	-	-	-			
88.00	-	-	-	-	-			40.0
88.00	-	-	-	-	-			43.5
	-	-	-	-	-			
128.95	H-1.5m	180.0	26.97	9.33	36.30			
135.56	V-1m	225.0	24.40	9.80	34.20			
209.40	H-1m	180.0	15.17	13.93	29.10			
	-	-	-	-	-			
216.00	-	-	-	-	-			43.5
216.00	-	-	-	-	-			46.0
	-	-	-	-	-			
242.31	H-1m	180.0	10.39	15.81	26.20			
	-	-	-	-	-			
960.00	-	-	-	-	-			46.0
960.00	-	-	-	-	-			54.0
	-	-	-	-	-			
5400.00	V-1m	0.0	30.44	0.92	31.36	*		
12200.00	V-1m	0.0	32.75	8.37	41.12	*		
22320.00	V-1m	0.0	35.42	-5.30	30.12	*		
	-	-	-	-	-			
40000.00	-	-	-	-	-			54.0

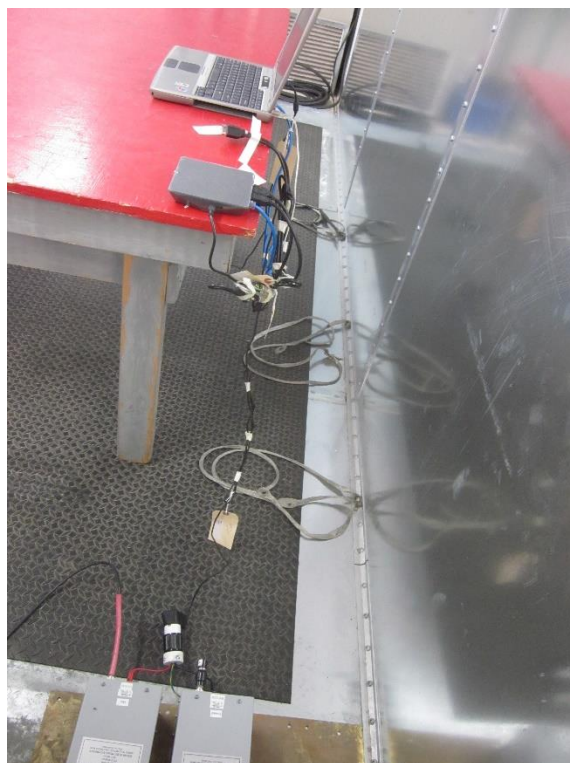
EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).



Retlif Testing Laboratories

Report No. R-6288N-1

Test Photographs
Conducted Emissions, Power Leads, 150 kHz to 30 MHz



EUT Configuration



Test Setup



Retlif Testing Laboratories

Report No. R-6288N-1

**FCC Part 15, Subpart B, Section 15.207(a)
Conducted Emissions, Power Leads, 150 kHz to 30 MHz
Test Data**



Retlif Testing Laboratories

Report No. R-6288N-1

EMISSIONS TEST DATA SHEET

Test Specification:	FCC Part 15, Subpart B, Section 15.207(a), Conducted Emissions
Method:	ANSI C63.4, Section 7, AC power-line conducted emission measurements
Job Number/Customer:	R-6288N-1 / ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Part Number:	N/A
Serial Number:	M11742TK0116
Operating Mode:	All Radios Active
Technician:	M.Seamans
Date(s):	January 8 th , 2017
Temperature:	20.8 °C
Relative Humidity:	16.4 %
Lead Tested:	120 VAC 60 Hz

Frequency	Lead Tested	Peak Meter Reading	Quasi-Peak Meter Reading	Average Meter Reading	Quasi-Peak Limit	Average Limit
MHz		dBuV	dBuV	dBuV	dBuV	dBuV
0.152	Hot	50.09	44.16	32.82	65.89	55.89
0.152	Neutral	53.24	45.91	31.88	65.89	55.89
0.227	Hot	45.99	40.12	28.78	62.56	52.56
0.246	Neutral	48.73	41.09	26.65	61.89	51.89
0.290	Hot	41.39	35.88	24.22	60.52	50.52
0.429	Neutral	39.38	30.09	15.51	57.27	47.27
1.244	Hot	45.58	34.73	27.06	56	46
0.899	Neutral	40.62	36.78	26.28	56	46
3.404	Hot	36.46	31.73	23.07	56	46
3.500	Neutral	35.05	25.99	16.20	56	46
24.003	Hot	37.65	33.96	30.23	60	50
24.000	Neutral	33.91	31.01	23.94	60	50

The frequency range was scanned from 0.15 MHz to 30 MHz.

The six highest emissions relative to the limit are presented.

The emissions observed from the EUT do not exceed the specified limits.



Retlif Testing Laboratories

Report No. R-6288N-1