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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-3
Test Start Date:	December 21, 2018
Test Finish Date:	January 8, 2018
Test Technician:	M. Seamans
Report Approved By:	S. Wentworth
Report Prepared By:	J. Ramsey

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Technical Information

Report Number:	R-6288N-3
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:	Frequency Hopping 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:	2402.0 MHz to 2480.0 MHz
Equipment Class:	DSS
Antenna Type:	Patch Antenna – 4.4 dBi 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

Table 1 – Tests Performed

FCC Part 15, Subpart C	Test Method
15.247(a)(1)	Channel Separation
15.247(a)(1)	20 dB Bandwidth
15.247(a)(1)(i)	Number of Channels and Occupancy Time
15.247(b)(1) and (4)	Peak Conducted Output Power
15.247(c)	Conducted Band Edge/Out of Band Emissions
15.247(d) / 15.209(a)	Spurious Emissions
15.207(a)	Conducted Emissions, Power Leads

EUT Operation:

- The EUT was transmitting a Bluetooth Classic signal at 2.402 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:

Table 2 – Support Equipment

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

Certification and Signatures

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

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.

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

Requirements and Test Results

Requirement:
FCC Section 15.247 (a)(1)
Channel Separation and 20 dB Bandwidth
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

- **Results**:
  The carrier frequencies were separated by 1.001 MHz which exceeded the two-thirds of the 20 dB bandwidth 0.954 MHz and the output power is less then 125 mW which complies with the requirements specified above.

FCC Section 15.247 (a)(1)(iii)
Number of Channels and Occupancy Time
Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

- **Results:**
  The number of hopping frequencies used was 79 and the average time of occupancy was 12.797 msec which complied with the above requirements.

Requirements and Test Results (con't)

FCC Section 15.247 (b)(1) and (4)
Peak Conducted Output Power
(1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

(4) The conducted output power limit specified in Paragraph (b) of Section 15.247 is based on the use of antenna with directional gains that do not exceed 6 dBi. Except as shown in Paragraph (c) of Section 15.247, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in Paragraph (b)(1), (b)(2) and (b)(3) of Section 15.247, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

- **Results:**
  The frequency hopping system utilizes a transmitting antenna with a gain of 4.4 dBi. The maximum peak conducted output power was measured to be 7.01 milliwatts and the EIRP is less than 1W.

FCC Section 15.247 (d)
Spurious Emissions
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under Paragraph (b)(3) of Section 15.247, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

- **Results:**
  The antenna port conducted spurious emissions comply with the requirement that the radio frequency power be at least 20 dB below the highest in band level.

  In addition, Harmonic and Spurious Emissions which were found to be within the restricted bands of operation, as defined in section 15.205 (a) were found to be in compliance with the general limits specified in section 15.209 (a).

Requirements and Test Results (con't)

FCC Section 15.247 (a)
Field Strength of Spurious Radiation
Operation under the provisions of Section 15.247 is limited to frequency hopping and digitally modulated intentional radiators that comply with the provisions stated in Section 15.247(a)(1).

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 3.

Table 3 - 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 3.

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 dBµV/m
M_R = Uncorrected Meter Reading in dBµV
C_F = Correction Factor in dB (Antenna Factor, Pre-amp + Cable Loss)

Example:

M_R = 15.35 dBµV
C_F = 16.85 dB
C_R = 15.35 dBuV + 16.85 = 32.2 dBµV/m

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

invLog dBµV/M/20

32.2 dBuV/m = 40.74 uV/m

RF Power Conversion:

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

InvLog dBm/10

Example: 20dBm = 100mW

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.

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

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 = 7.01mW

Gain = Max Power Gain of Antenna = 4.4 dBi = 2.75 numeric

$$1 \text{ mW/cmsq} = \frac{7.01 \times 2.75}{4 \times (3.14) \times D^2} = \frac{19.28}{12.56 \times D^2}$$

$$D^2 = \frac{19.28}{12.56 \text{ X } 1}$$

$$D = \sqrt{1.53} = 1.24 \text{ cm}$$

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

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

Table 4 - Conducted Emission Limits

Frequency of Emission (MHz)	**Conducted Limit (dBµV)**	
	Quasi-Peak	Average
0.15 to 0.5	66 to 56*	56 to 46*
0.5 to 5	56	46
5 to 30	60	50
*Decreases due to logarithm of the frequency		

- **Results:**
  The conducted emissions observed did not exceed the limits specified in Table 4.

Equipment List

FCC Section 15.247(a)(1)
Channel Separation

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(a)(1)
20 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 (a)(1) (iii)
Number of Channels and Occupancy Time

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 (a)(1)
Peak Conducted Output Power

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 (C)
Conducted Band Edge / OOB 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 (d) / FCC Section 15.209(a)
Spurious 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	PASTERNACK	CABLE, COAXIAL	10 kHz - 18 GHz	PE302-230	7/24/2017	7/31/2018

FCC Section 15.207 (a)
AC Line Conducted Emissions

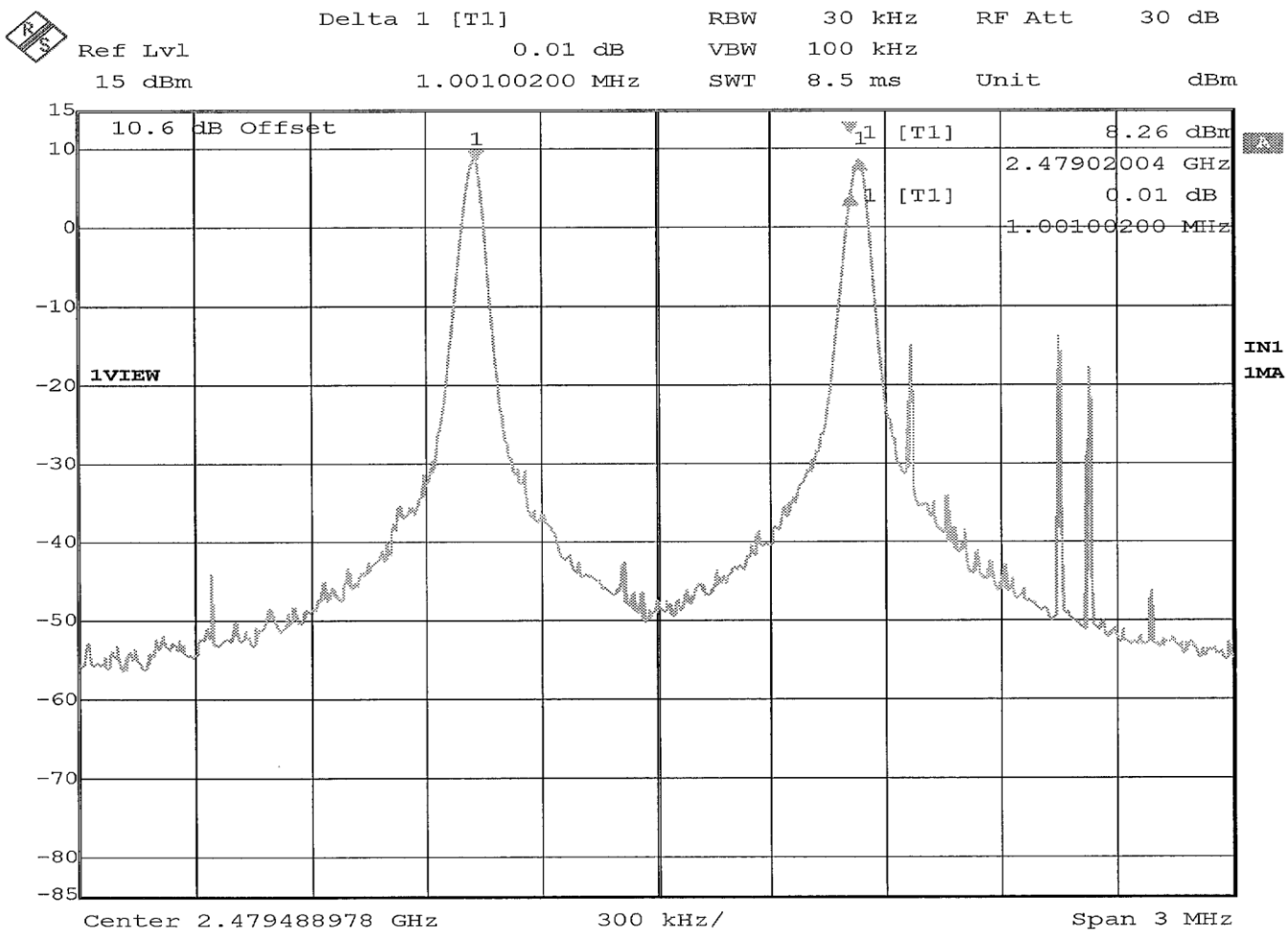
EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5030B	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz	757C-10	3/7/2017	3/31/2018
5209	SOLAR ELECTRONICS	LISN	50 uH, 150 kHz - 30 MHz	21106-50-BP-25-BNC	4/4/2017	4/30/2018
5210	SOLAR ELECTRONICS	LISN	50 uH, 150 kHz - 30 MHz	21106-50-BP-25-BNC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

Test Photographs
Channel Separation

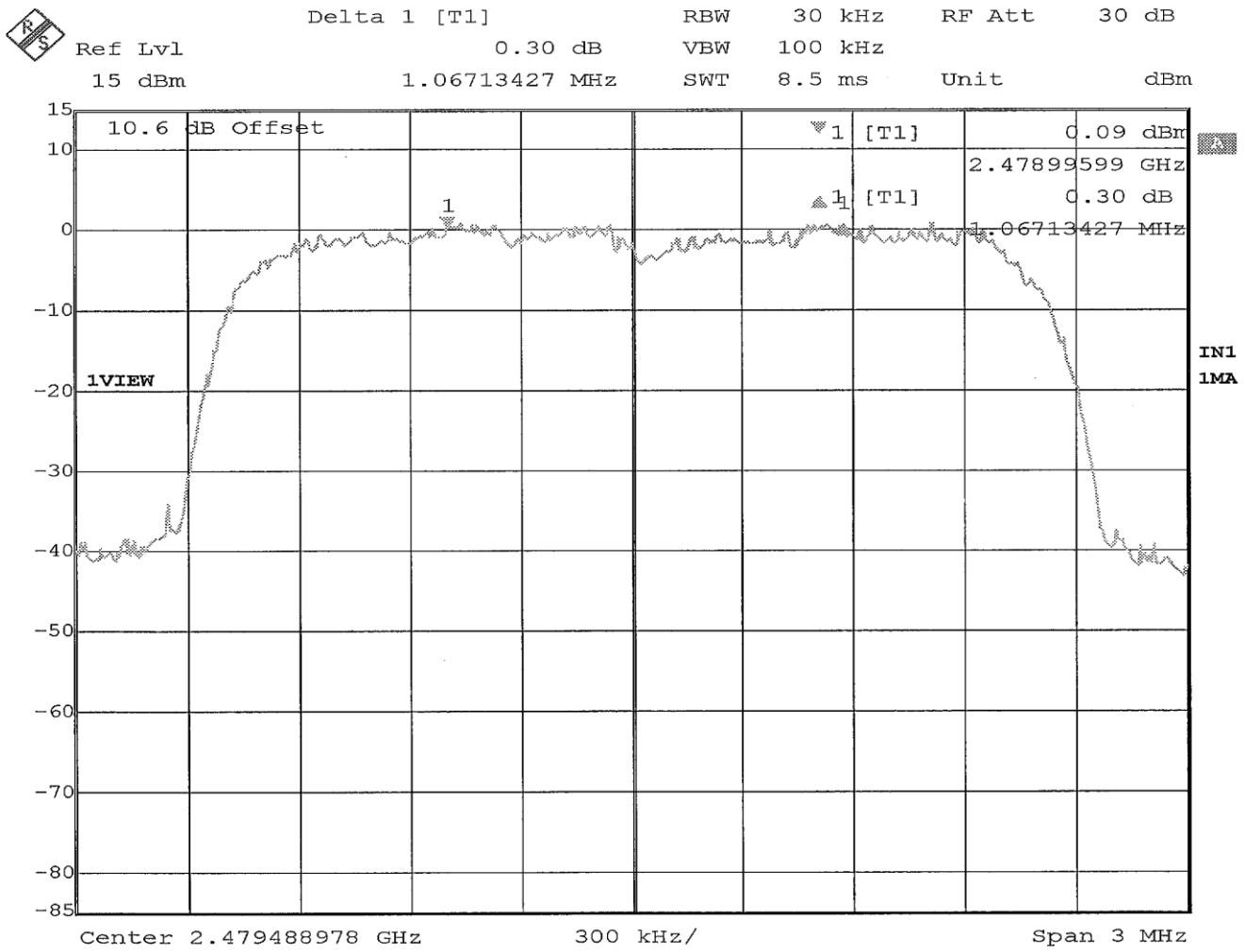
Test Setup

FCC Section 15.247(a)(1)
Channel Separation
Test Data

EMISSIONS TEST DATA SHEET	
Method:	**Channel Separation**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting CW signal at 2.479 GHz and 2.480 GHz
Technician:	M.Seamans
Date(s):	December 21st, 2017
Temp/ Relative Humidity:	21.4 °C / 22.6 %
Result:	Channel Separation: 1.001 MHz



EMISSIONS TEST DATA SHEET	
Method:	**Channel Separation**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.479 GHz and 2.480 GHz
Technician:	M.Seamans
Date(s):	December 21st, 2017
Temp/ Relative Humidity:	21.4 °C / 22.6 %
Result:	Channel Separation: 1.067 MHz



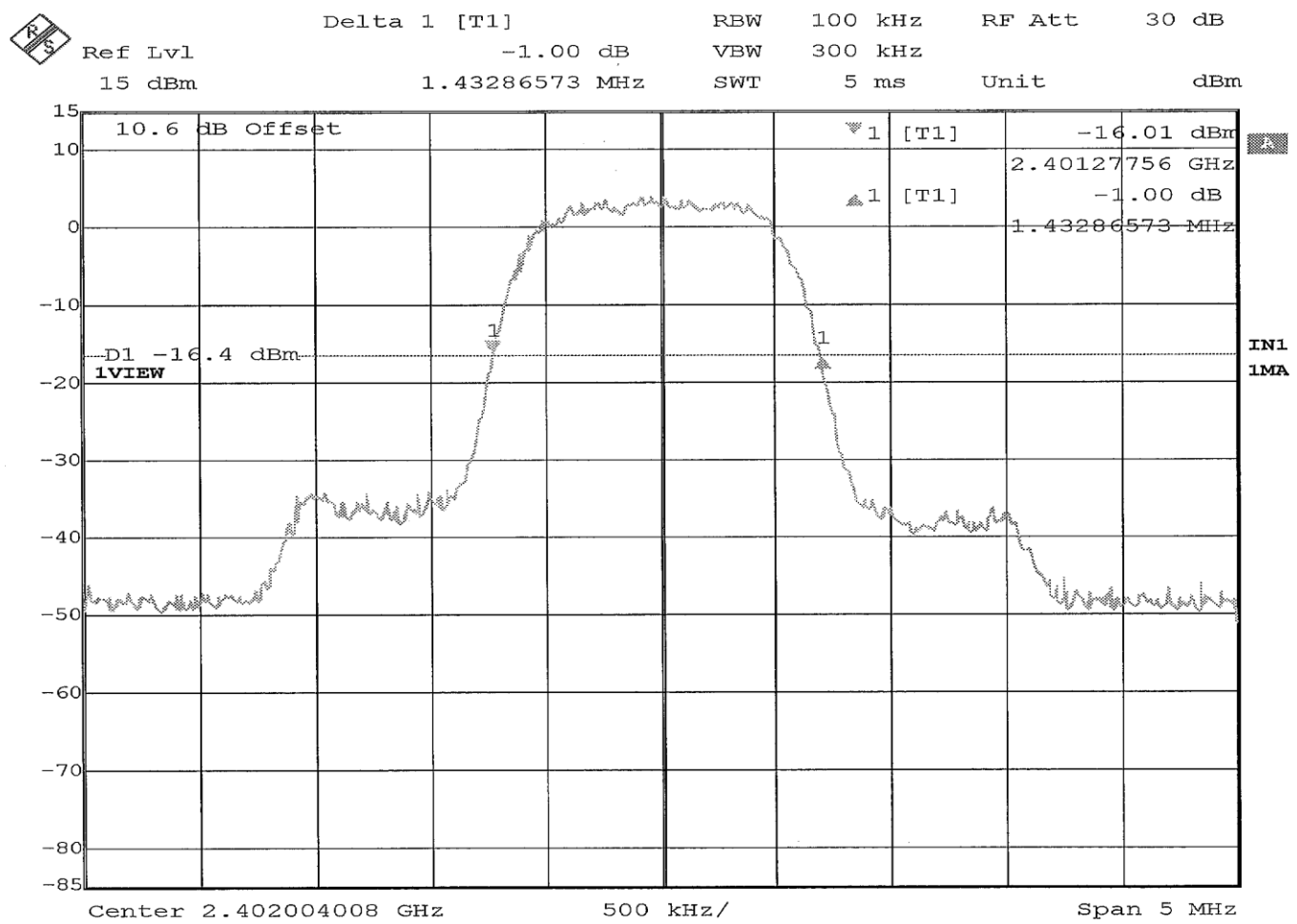
Modulation: PRBS15 (8DPSK)

Test Photographs
20 dB Bandwidth

Test Setup

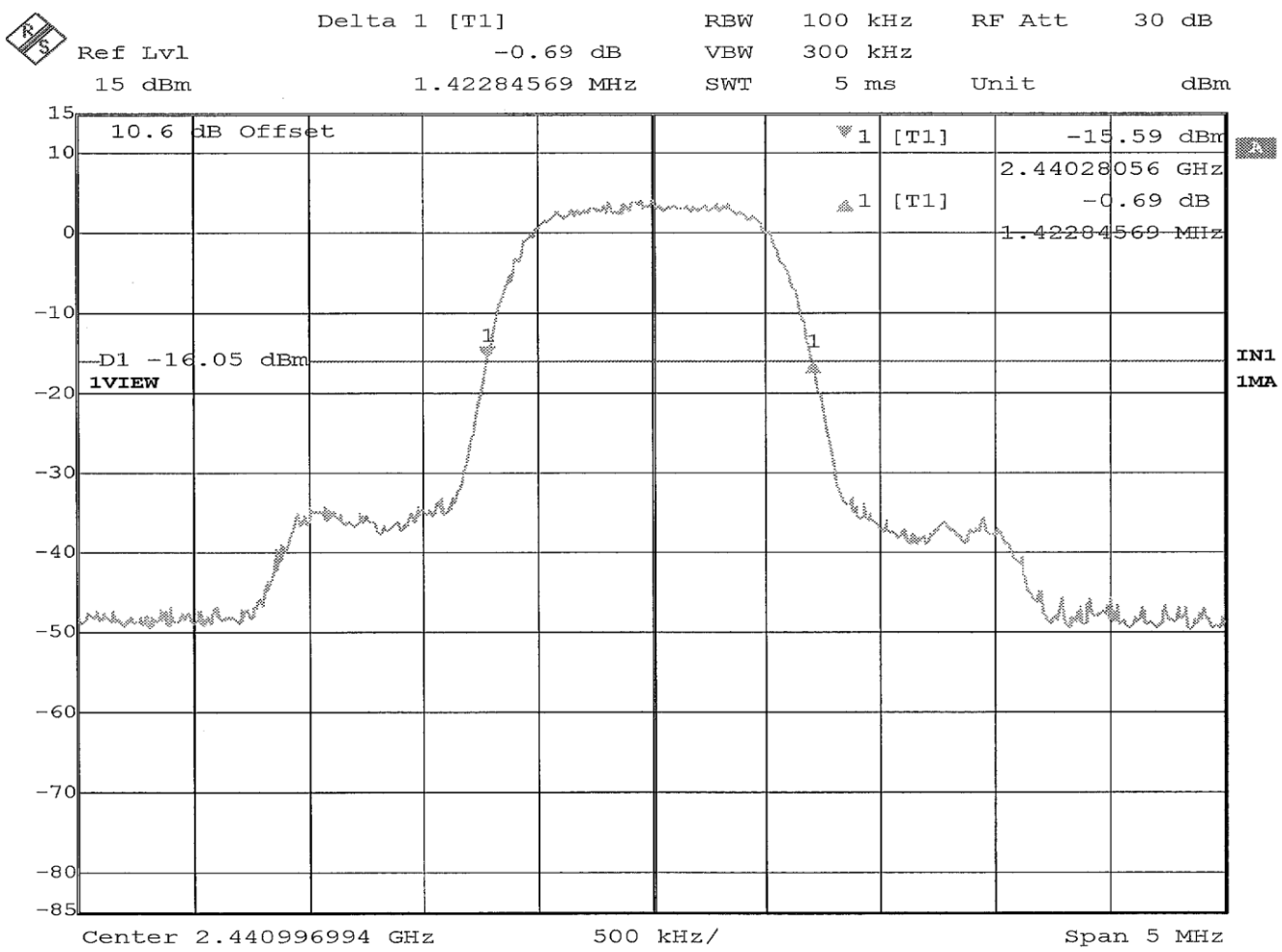
FCC Section 15.247(a)(1)
20 dB Bandwidth
Test Data

EMISSIONS TEST DATA SHEET	
Method:	**Occupied Bandwidth**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(iii)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.402 GHz
Technician:	M.Seamans
Date(s):	December 22nd, 2017
Temp/ Relative Humidity:	20.5 °C / 24.2 %
Result:	20dB Bandwidth: 1.432 MHz



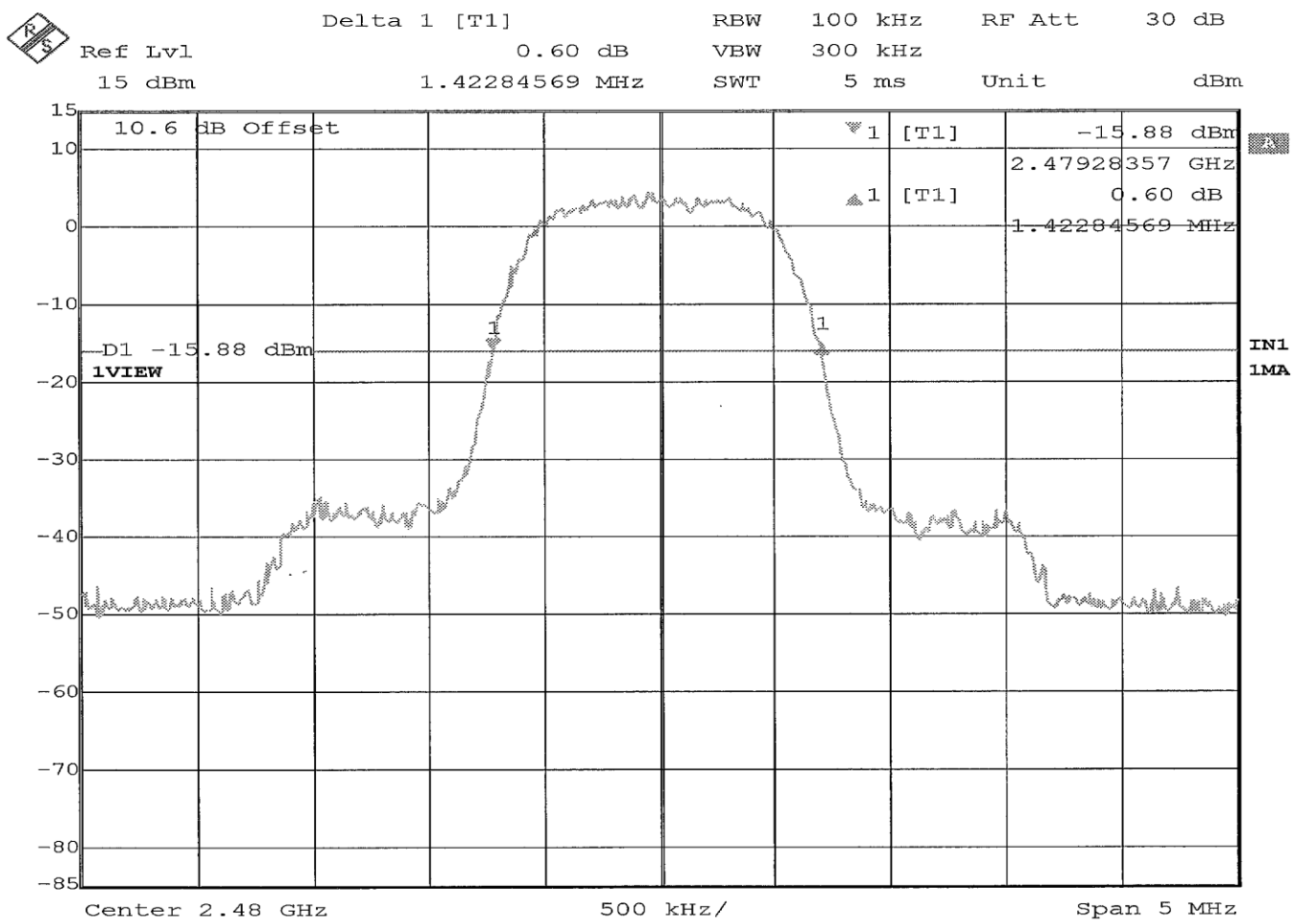
Modulation: PRBS15 (8DPSK)

EMISSIONS TEST DATA SHEET	
Method:	**Occupied Bandwidth**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(iii)
Job Number:	R-6288N-3
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 22nd, 2017
Temp/ Relative Humidity:	20.5 °C / 24.2 %
Result:	20dB Bandwidth: 1.422 MHz



Modulation: PRBS15 (8DPSK)

EMISSIONS TEST DATA SHEET	
Method:	**Occupied Bandwidth**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(iii)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	December 22nd, 2017
Temp/ Relative Humidity:	20.5 °C / 24.2 %
Result:	20dB Bandwidth: 1.422 MHz



Modulation: PRBS15 (8DPSK)

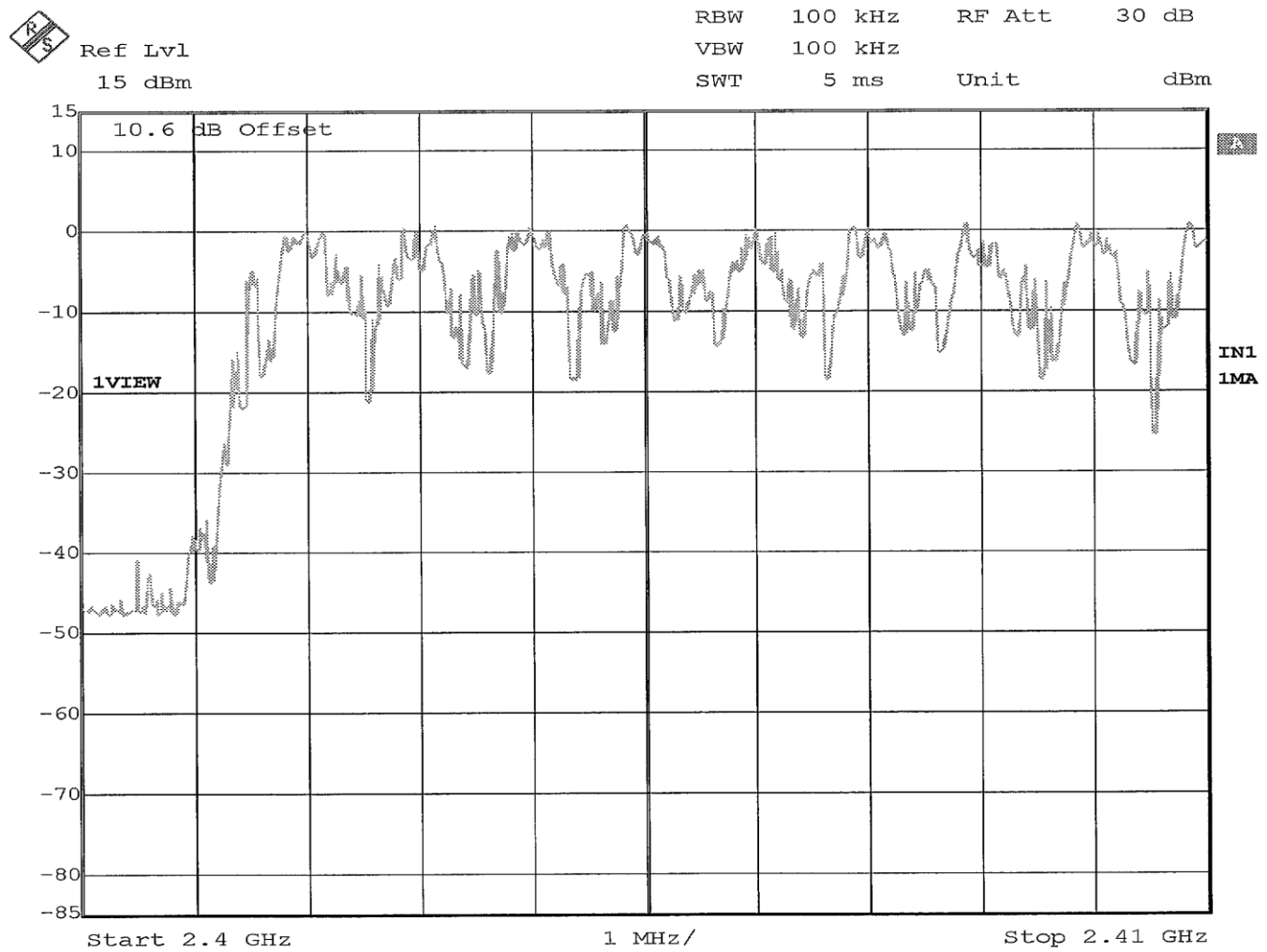
Test Photographs
Number of Channels and Occupancy Time

Test Setup

FCC Section 15.247 (a)(1)(i)
Number of Channels and Occupancy Time
Test Data

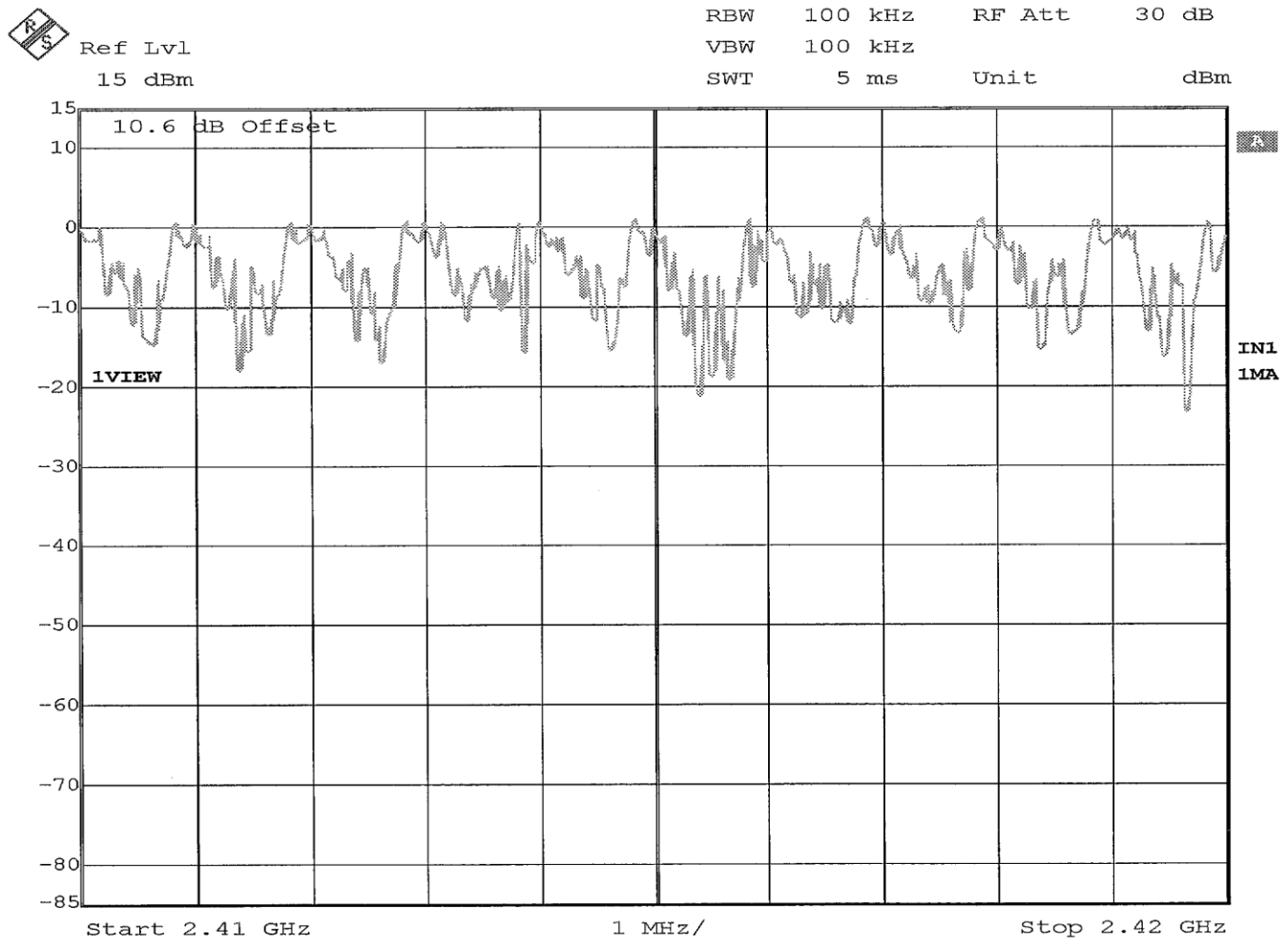
Number of Hopping Frequencies
Test Data

EMISSIONS TEST DATA SHEET	
Method:	**Number of Hopping Frequencies**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(iii)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting hopping signal data
Technician:	M.Seamans
Date(s):	December 21st, 2017
Temp/ Relative Humidity:	21.7 °C / 22.7 %
Result:	Number of Hopping Channels: 79



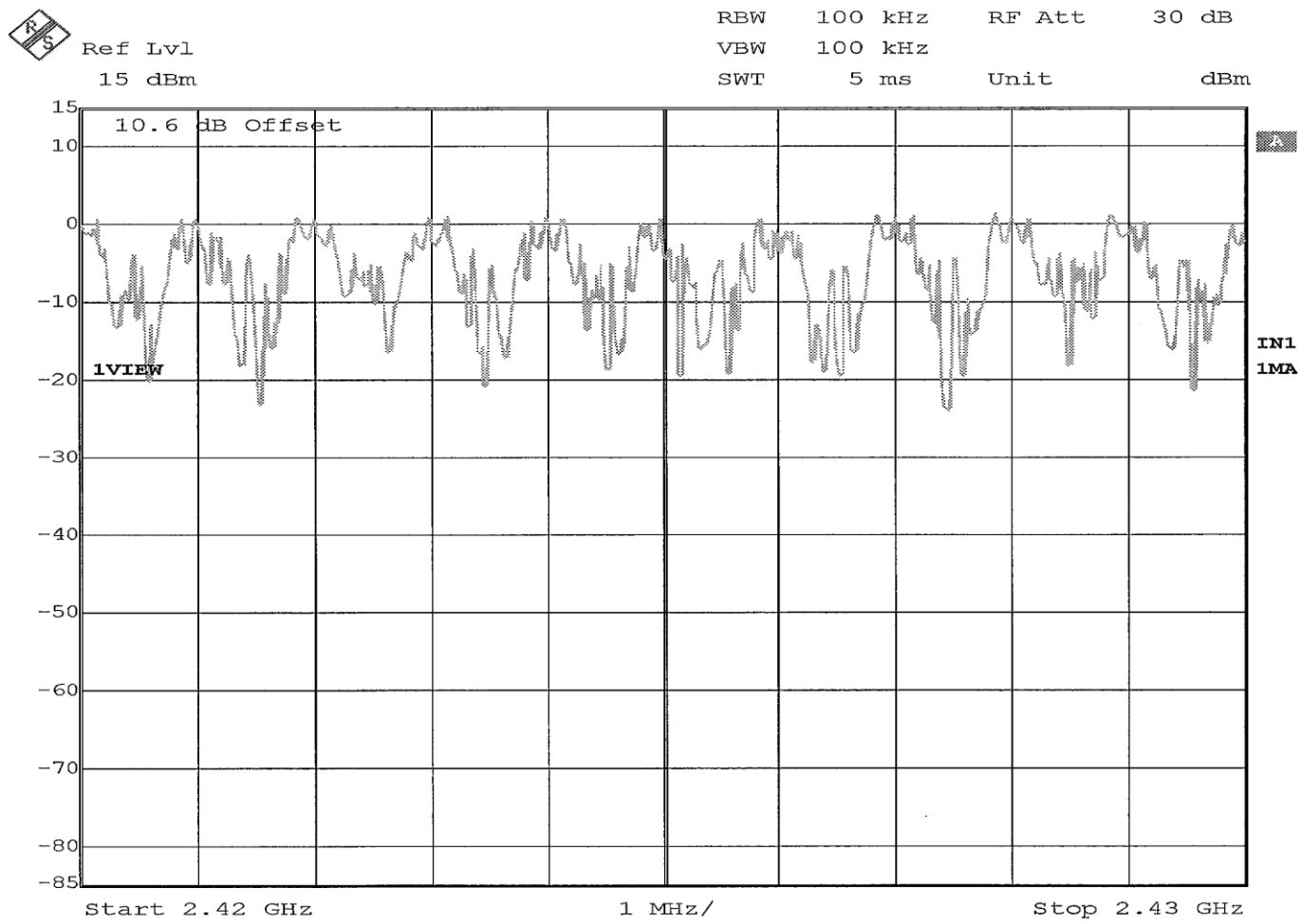
Modulation: DH5 1021 Bytes, PRBS15 (8DPSK)

EMISSIONS TEST DATA SHEET	
Method:	**Number of Hopping Frequencies**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(iii)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting hopping signal data
Technician:	M.Seamans
Date(s):	December 21st, 2017
Temp/ Relative Humidity:	21.7 °C / 22.7 %
Result:	Number of Hopping Channels: 79



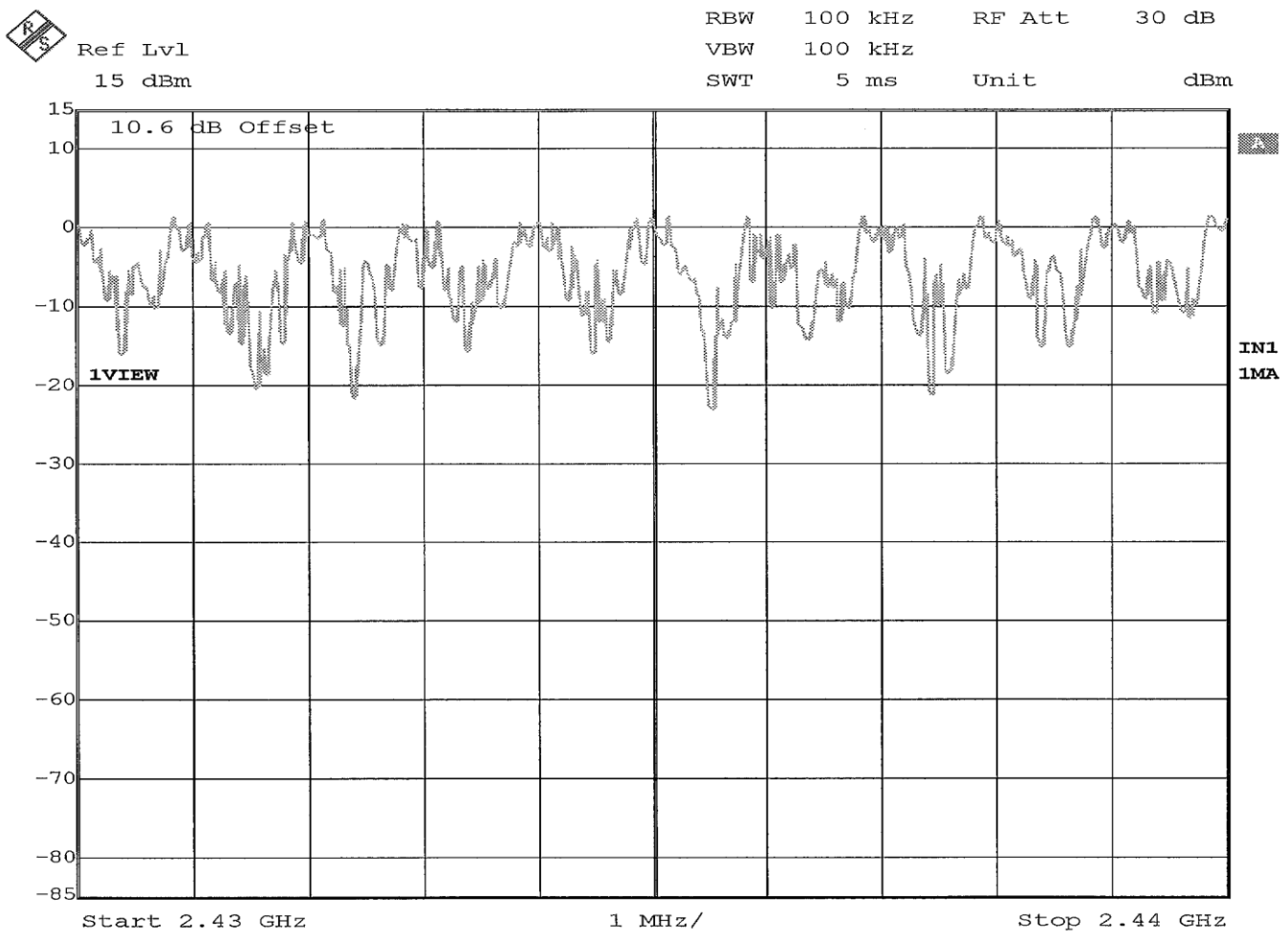
Modulation: DH5 1021 Bytes, PRBS15 (8DPSK)

EMISSIONS TEST DATA SHEET	
Method:	**Number of Hopping Frequencies**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(iii)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting hopping signal data
Technician:	M.Seamans
Date(s):	December 21st, 2017
Temp/ Relative Humidity:	21.7 °C / 22.7 %
Result:	Number of Hopping Channels: 79



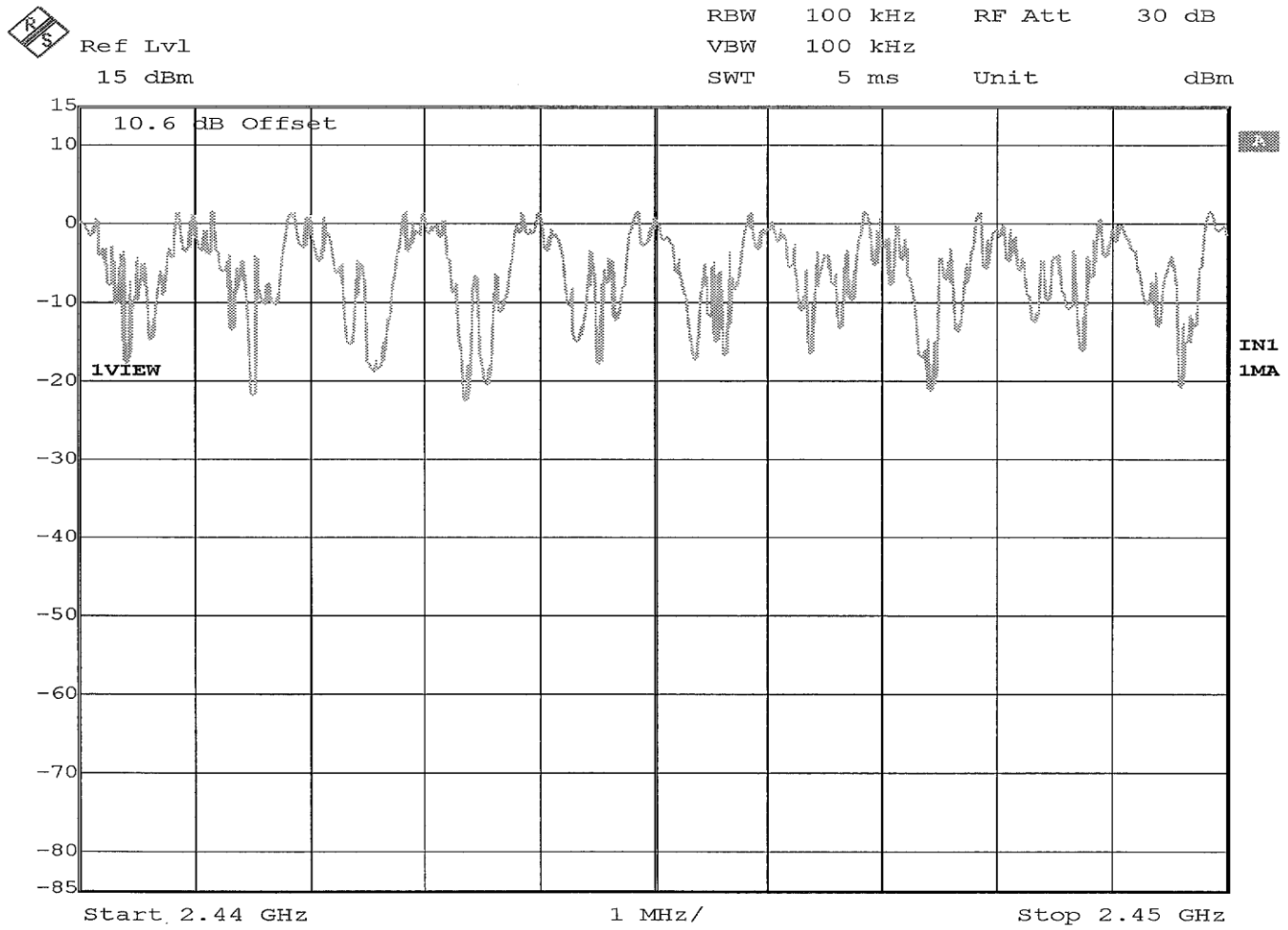
Modulation: DH5 1021 Bytes, PRBS15 (8DPSK)

EMISSIONS TEST DATA SHEET	
Method:	**Number of Hopping Frequencies**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(iii)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting hopping signal data
Technician:	M.Seamans
Date(s):	December 21st, 2017
Temp/ Relative Humidity:	21.7 °C / 22.7 %
Result:	Number of Hopping Channels: 79



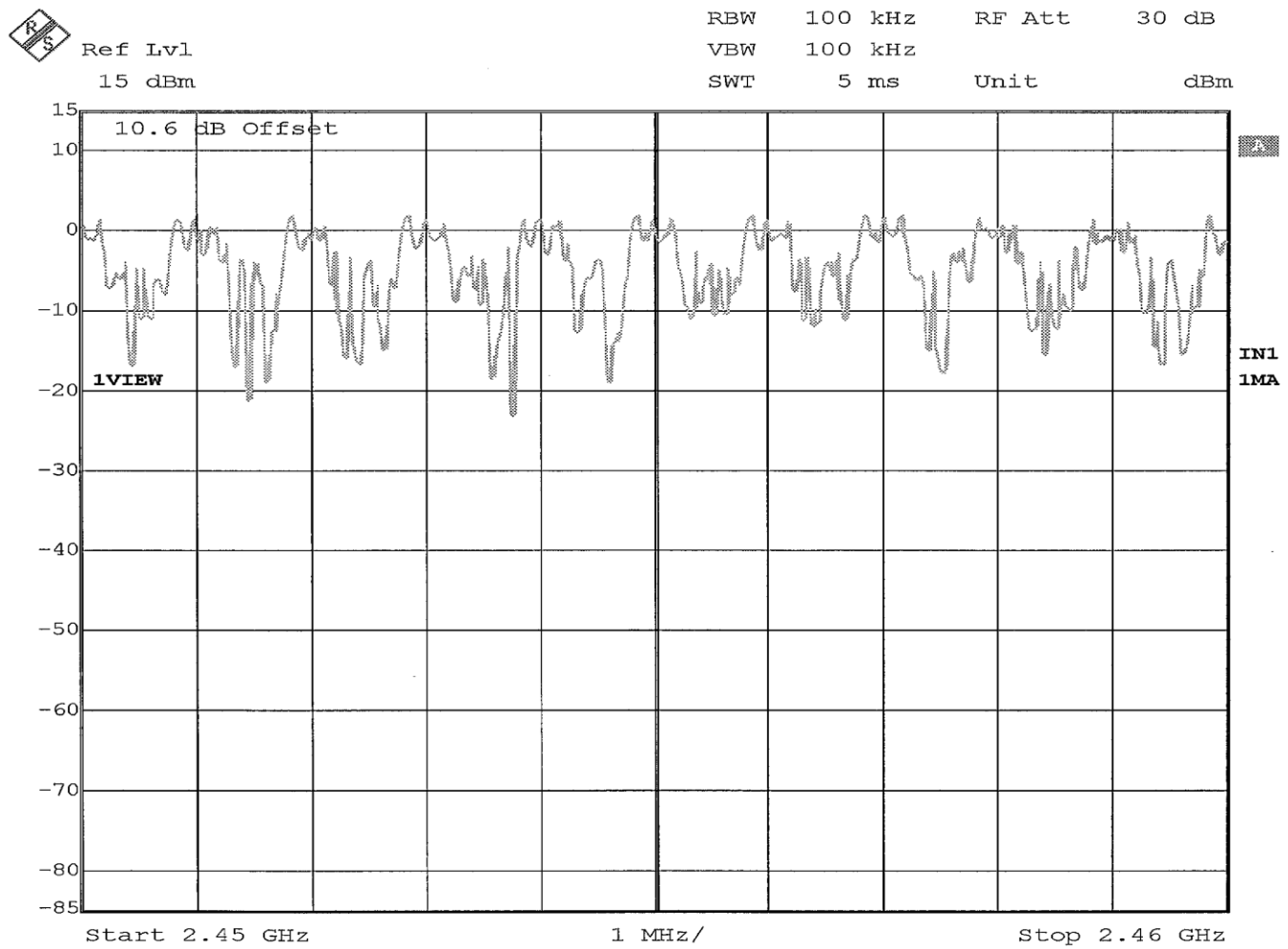
Modulation: DH5 1021 Bytes, PRBS15 (8DPSK)

EMISSIONS TEST DATA SHEET	
Method:	**Number of Hopping Frequencies**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(iii)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting hopping signal data
Technician:	M.Seamans
Date(s):	December 21st, 2017
Temp/ Relative Humidity:	21.7 °C / 22.7 %
Result:	Number of Hopping Channels: 79



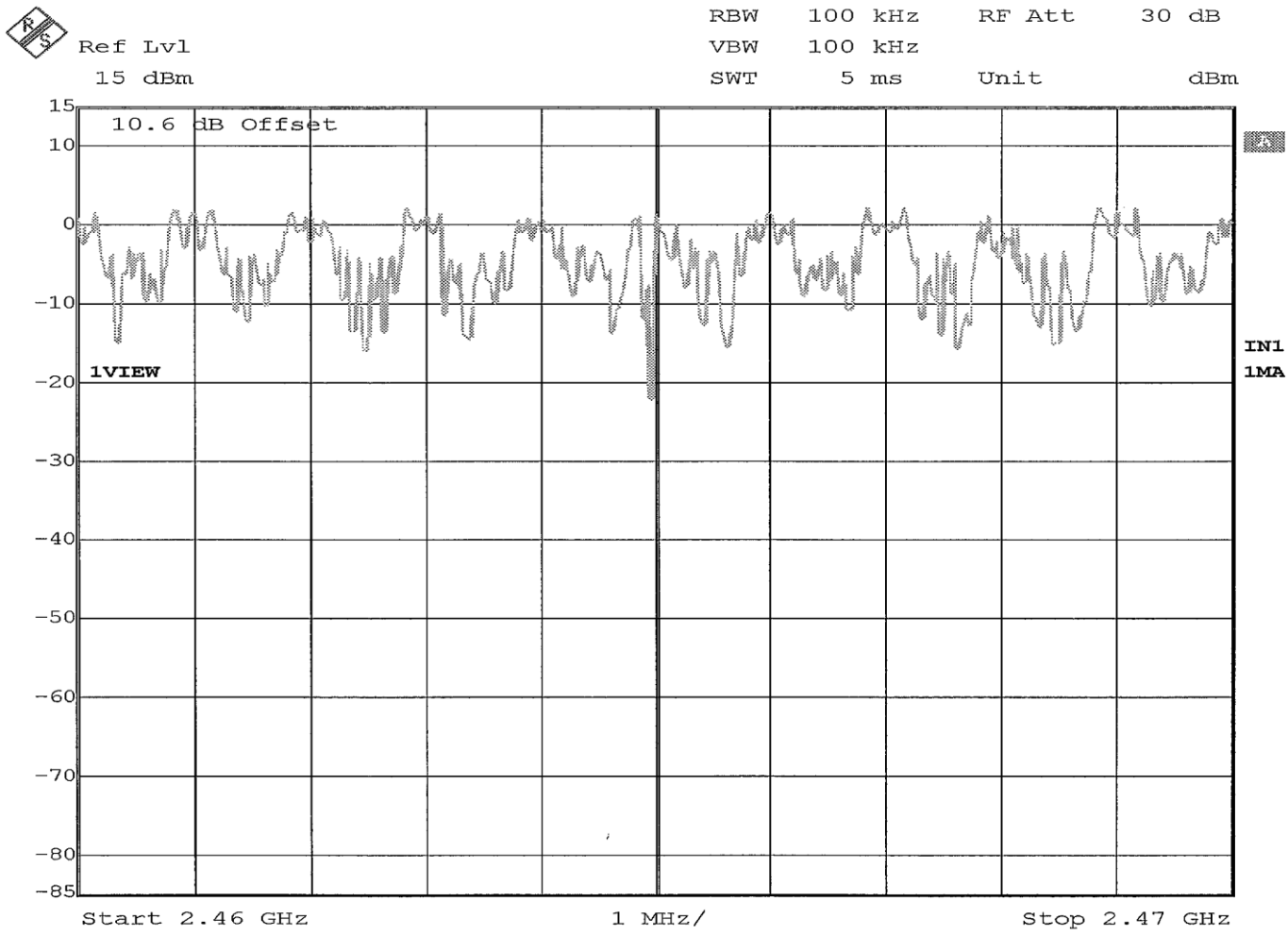
Modulation: DH5 1021 Bytes, PRBS15 (8DPSK)

EMISSIONS TEST DATA SHEET	
Method:	**Number of Hopping Frequencies**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(iii)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting hopping signal data
Technician:	M.Seamans
Date(s):	December 21st, 2017
Temp/ Relative Humidity:	21.7 °C / 22.7 %
Result:	Number of Hopping Channels: 79



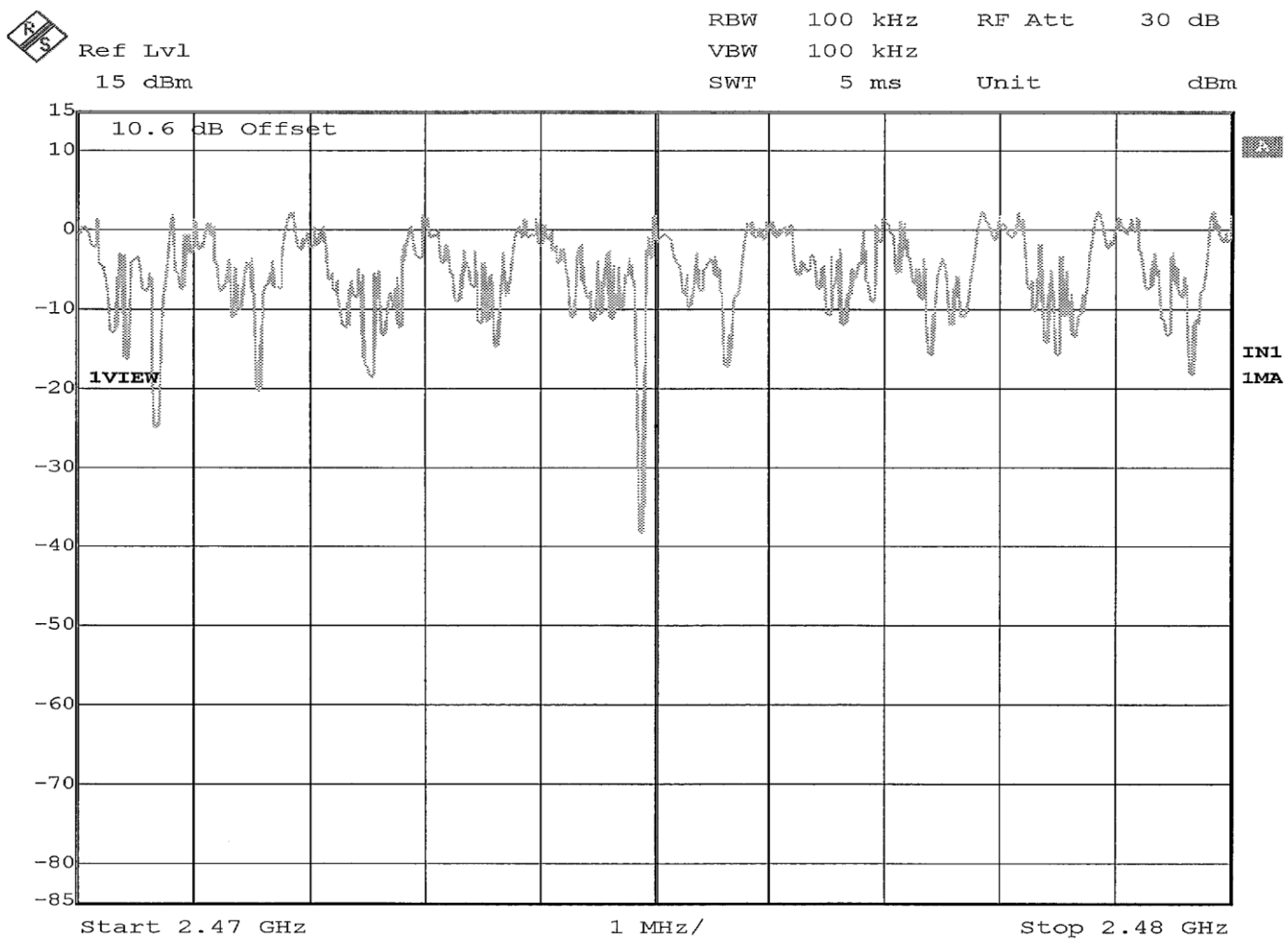
Modulation: DH5 1021 Bytes, PRBS15 (8DPSK)

EMISSIONS TEST DATA SHEET	
Method:	**Number of Hopping Frequencies**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(iii)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting hopping signal data
Technician:	M.Seamans
Date(s):	December 21st, 2017
Temp/ Relative Humidity:	21.7 °C / 22.7 %
Result:	Number of Hopping Channels: 79



Modulation: DH5 1021 Bytes, PRBS15 (8DPSK)

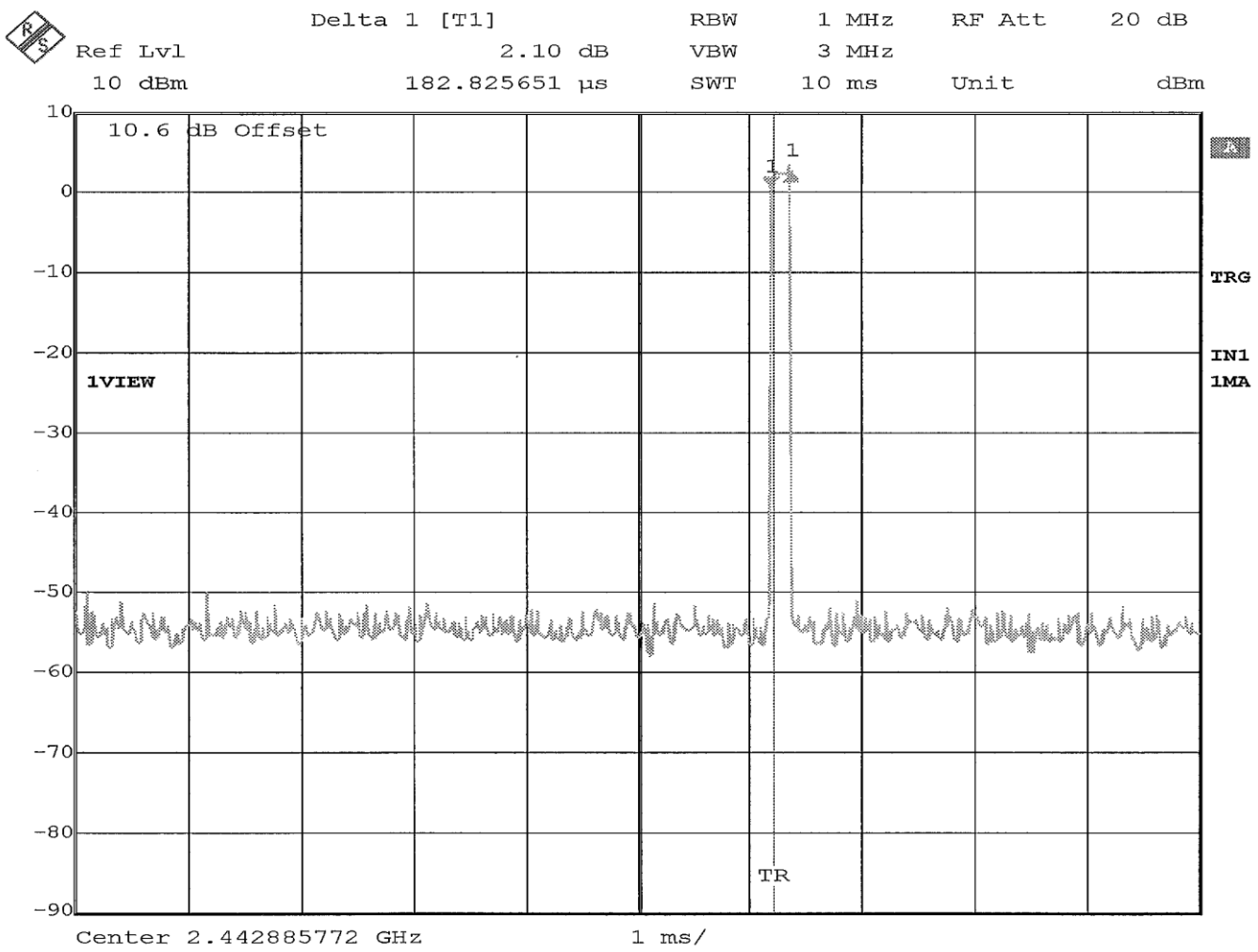
EMISSIONS TEST DATA SHEET	
Method:	**Number of Hopping Frequencies**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(iii)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting hopping signal data
Technician:	M.Seamans
Date(s):	December 21st, 2017
Temp/ Relative Humidity:	21.7 °C / 22.7 %
Result:	Number of Hopping Channels: 79



Modulation: DH5 1021 Bytes, PRBS15 (8DPSK)

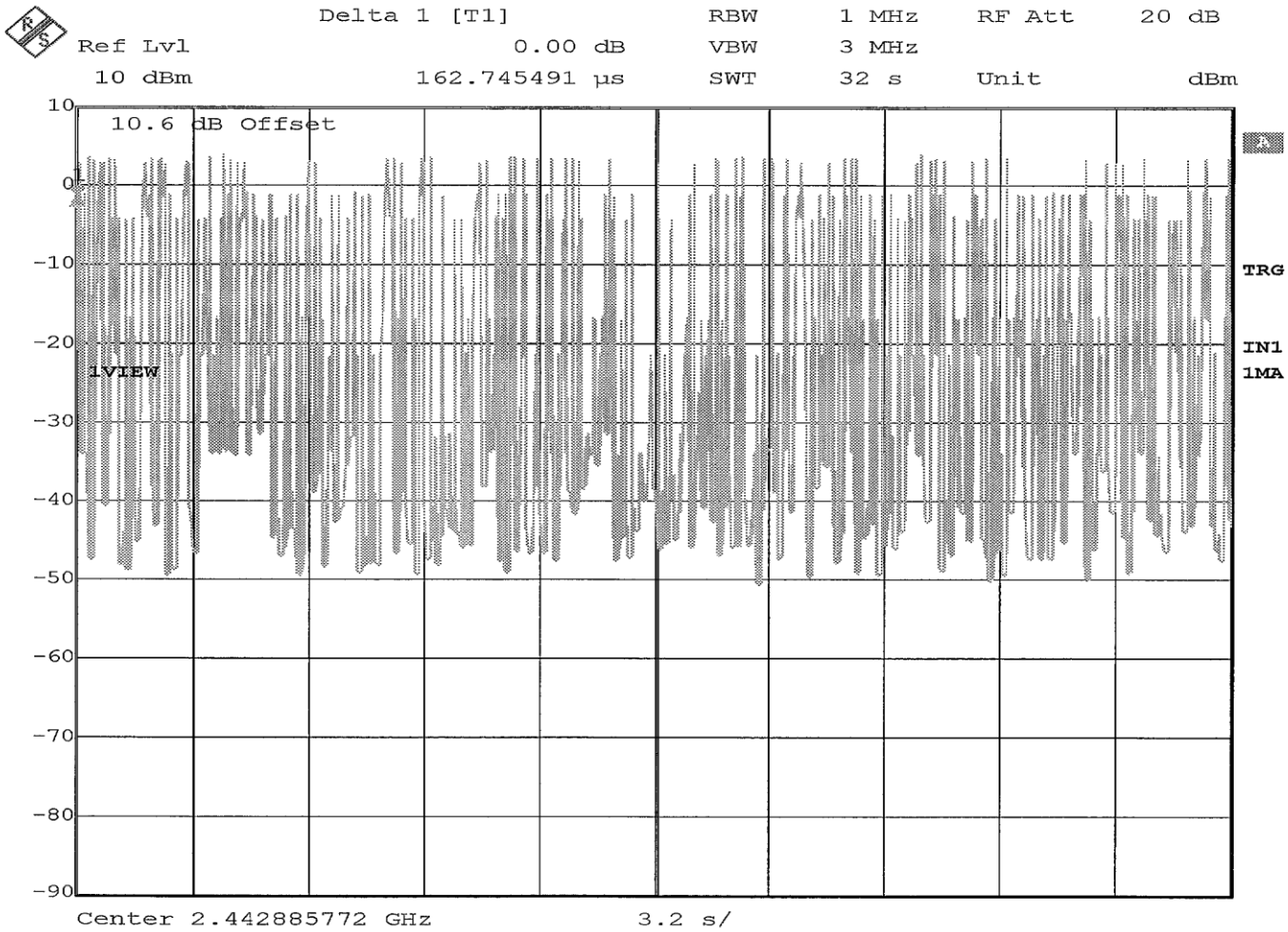
Time of Occupancy
Test Data

EMISSIONS TEST DATA SHEET	
Method:	**Time of Occupancy**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(iii)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting hopping signal data
Technician:	M.Seamans
Date(s):	December 21st, 2017
Temp/ Relative Humidity:	22.4 °C / 22.6 %
Result:	Time of Occupancy: 12.797mS (182.825uS * 70 pulses in 32 second window)



Modulation: DH5 1021 Bytes, PRBS15 (8DPSK)

EMISSIONS TEST DATA SHEET	
Method:	**Time of Occupancy**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (a)(iii)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting hopping signal data
Technician:	M.Seamans
Date(s):	December 21st, 2017
Temp/ Relative Humidity:	22.4 °C / 22.6 %
Result:	Time of Occupancy: 12.797mS (182.825uS * 70 pulses in 32 second window)



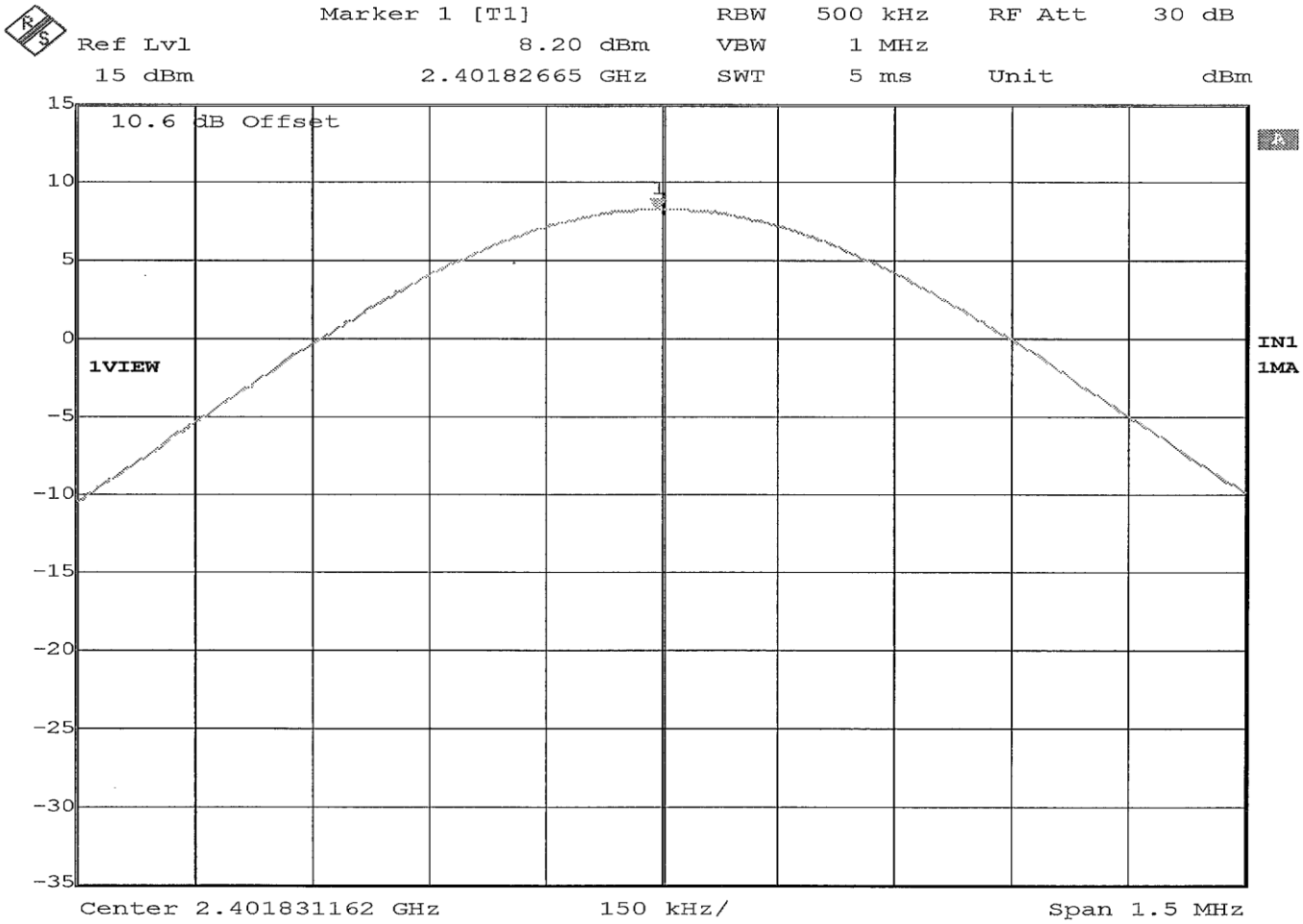
Modulation: DH5 1021 Bytes, PRBS15 (8DPSK)

Test Photographs
Peak Conducted Output Power

Test Setup

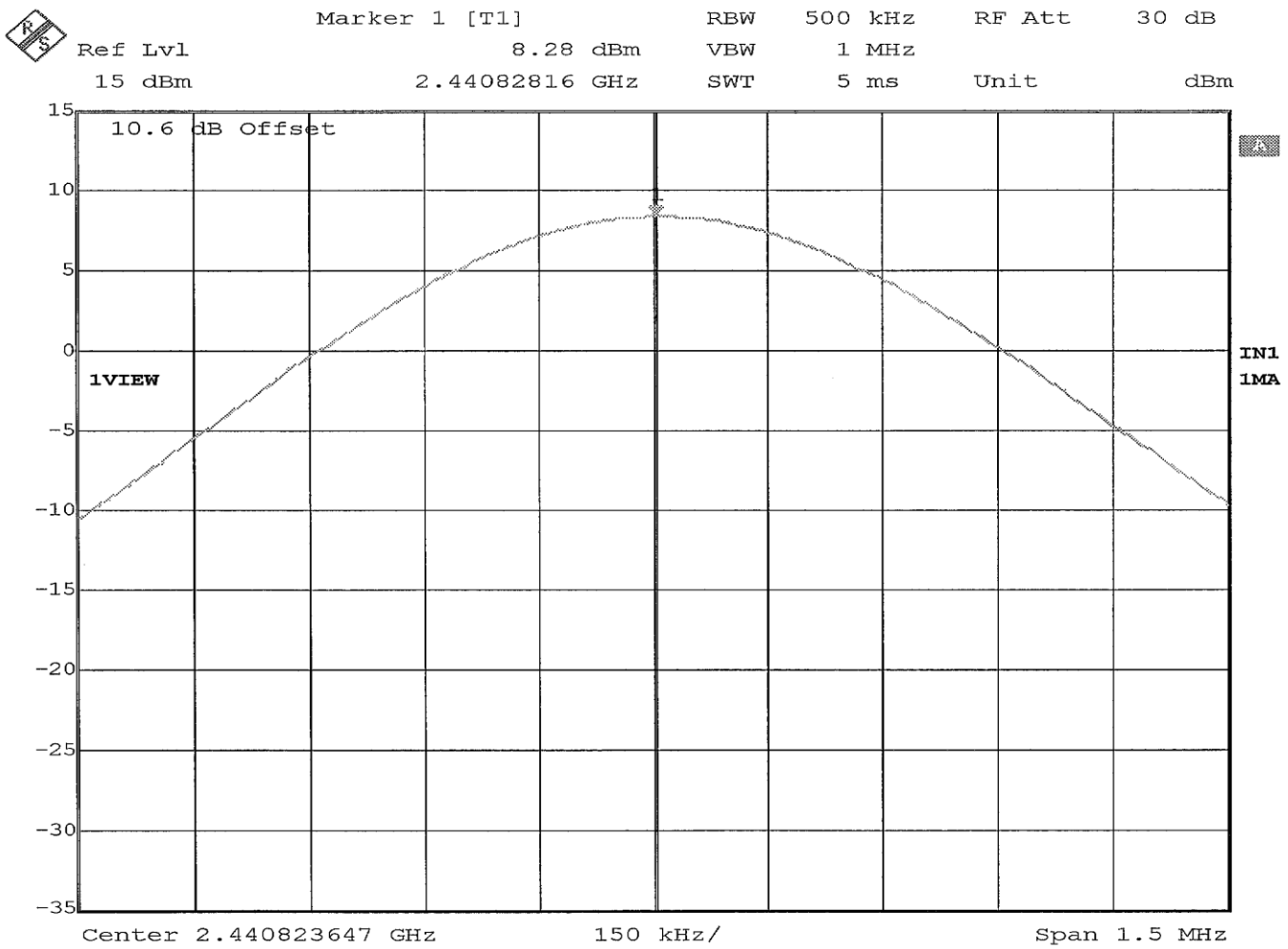
FCC Section 15.247 (a)(1)
Peak Conducted Output Power
Test Data

EMISSIONS TEST DATA SHEET	
Method:	**Power Output**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (b)(1)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.402 GHz
Technician:	M.Seamans
Date(s):	December 22nd, 2017
Temp/ Relative Humidity:	19.0 °C / 23.6 %
Result:	Power Output: 8.20 dBm



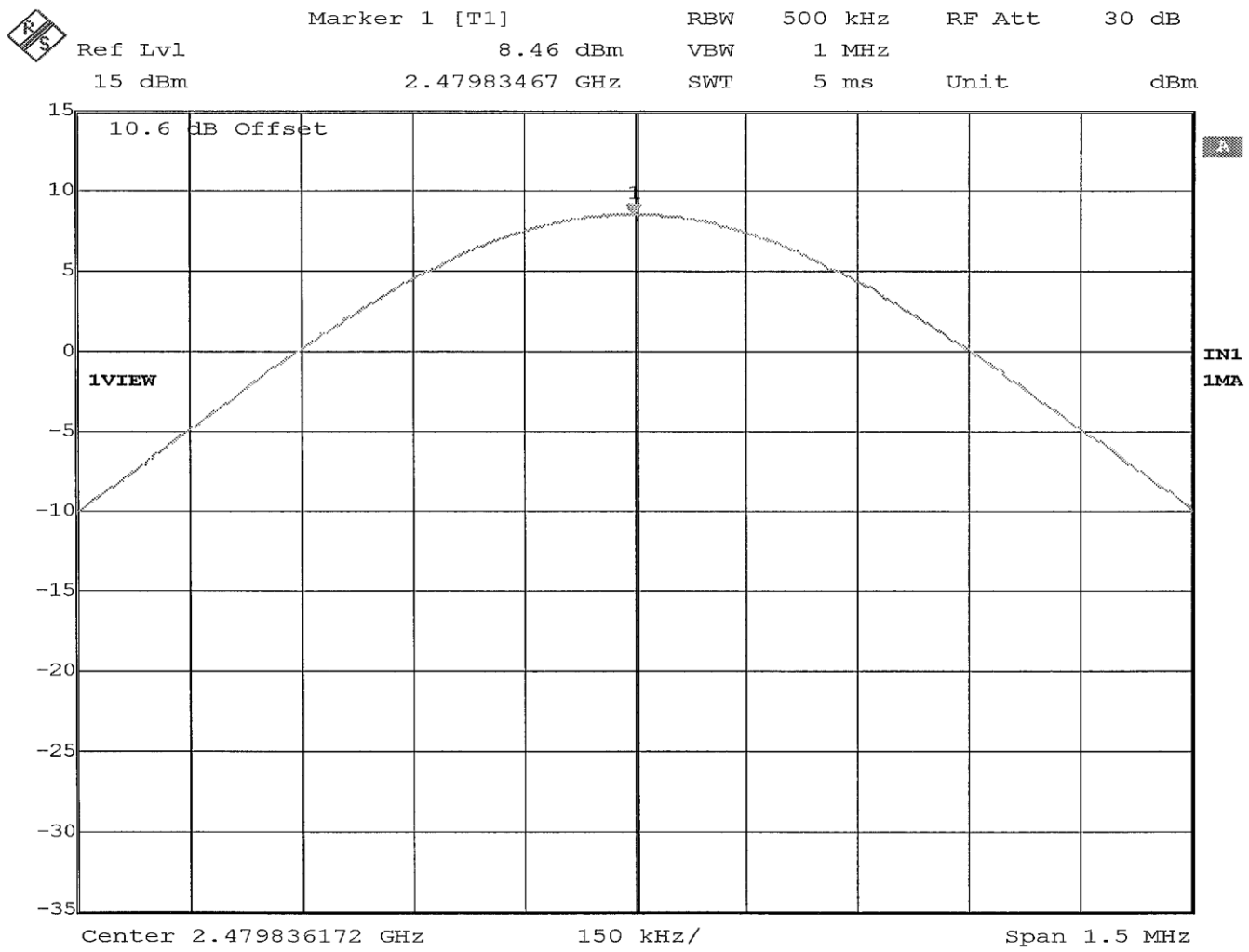
Modulation: Pattern (GFSK)

EMISSIONS TEST DATA SHEET	
Method:	**Power Output**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (b)(1)
Job Number:	R-6288N-3
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 22nd, 2017
Temp/ Relative Humidity:	19.0 °C / 23.6 %
Result:	Power Output: 8.28 dBm



Modulation: Pattern (GFSK)

EMISSIONS TEST DATA SHEET	
Method:	**Power Output**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (b)(1)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	December 22nd, 2017
Temp/ Relative Humidity:	19.0 °C / 23.6 %
Result:	Power Output:8.46 dBm



Modulation: Pattern (GFSK)

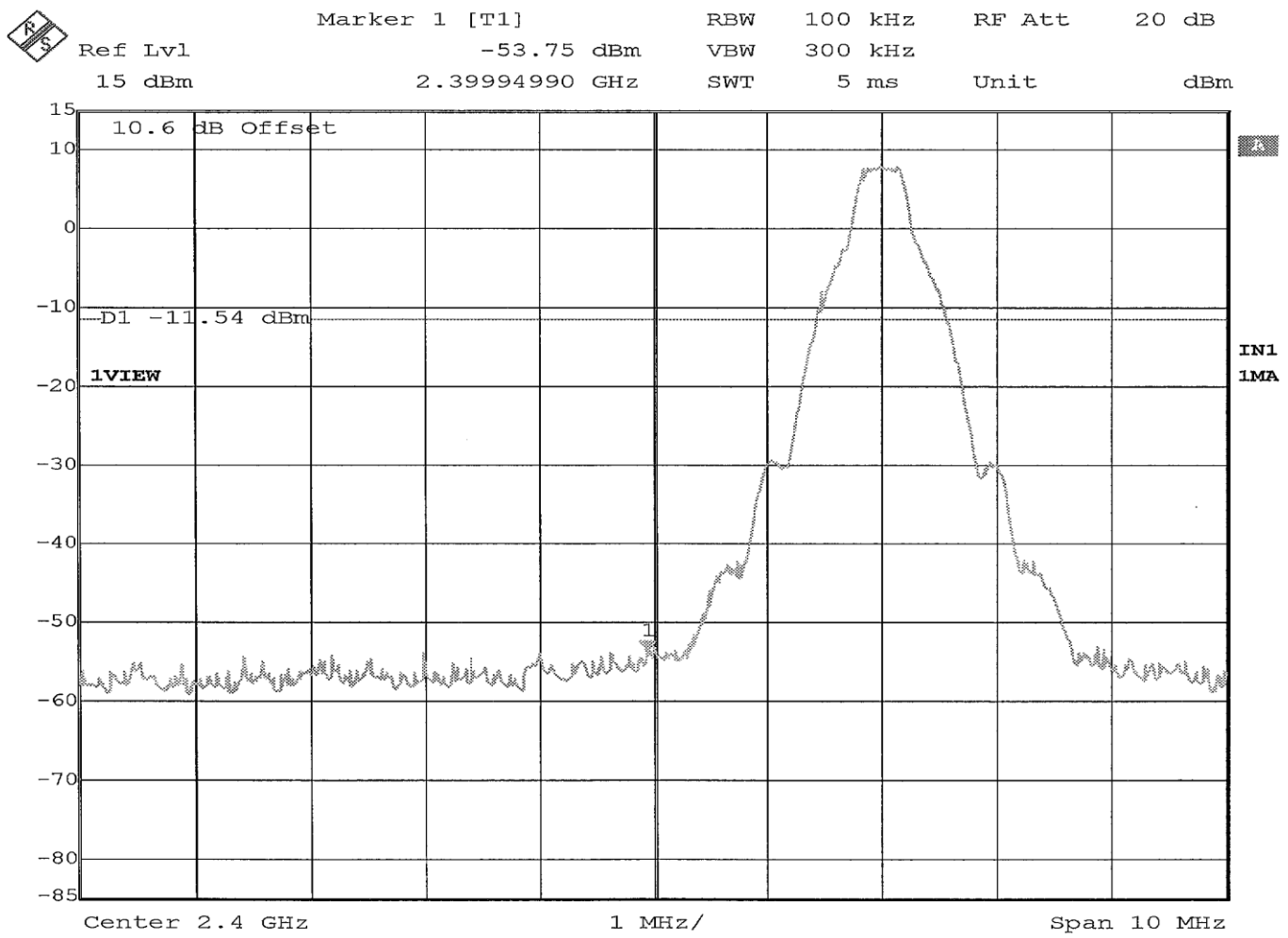
Test Photographs
Conducted Band Edge / Out of Band Emissions

Test Setup

Conducted Band Edge / Out of Band Emissions
25 MHz to 25 GHz
Test Data

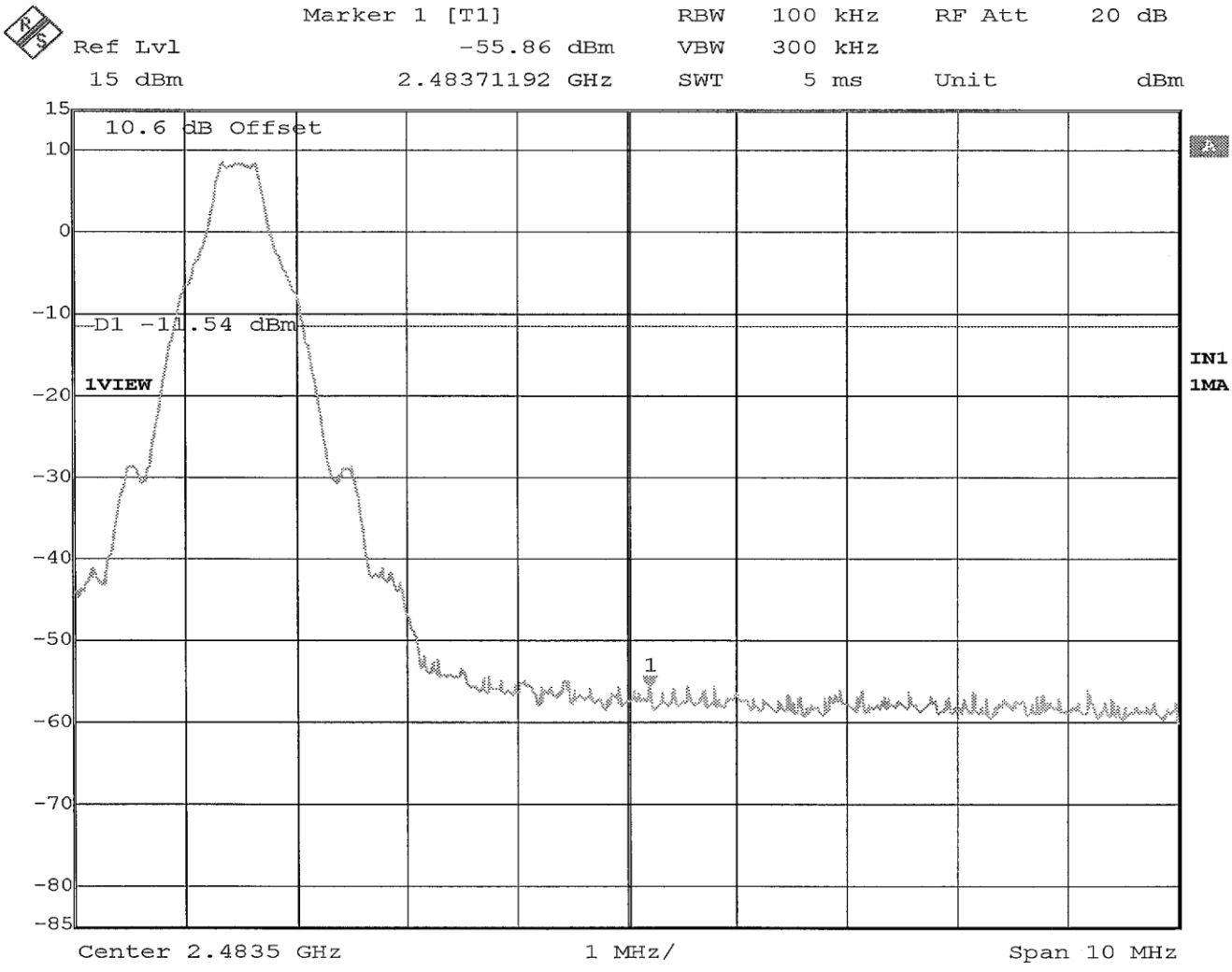
Band Edge Emissions Conducted
Test Data

EMISSIONS TEST DATA SHEET	
Method:	**Band Edge**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.402 GHz
Technician:	M.Seamans
Date(s):	December 22nd, 2017
Temp/ Relative Humidity:	20.4 °C / 23.1 %
Notes:	Limit: -11.54 dBm



Modulation: PRBS15 (GFSK) Band Edge Low

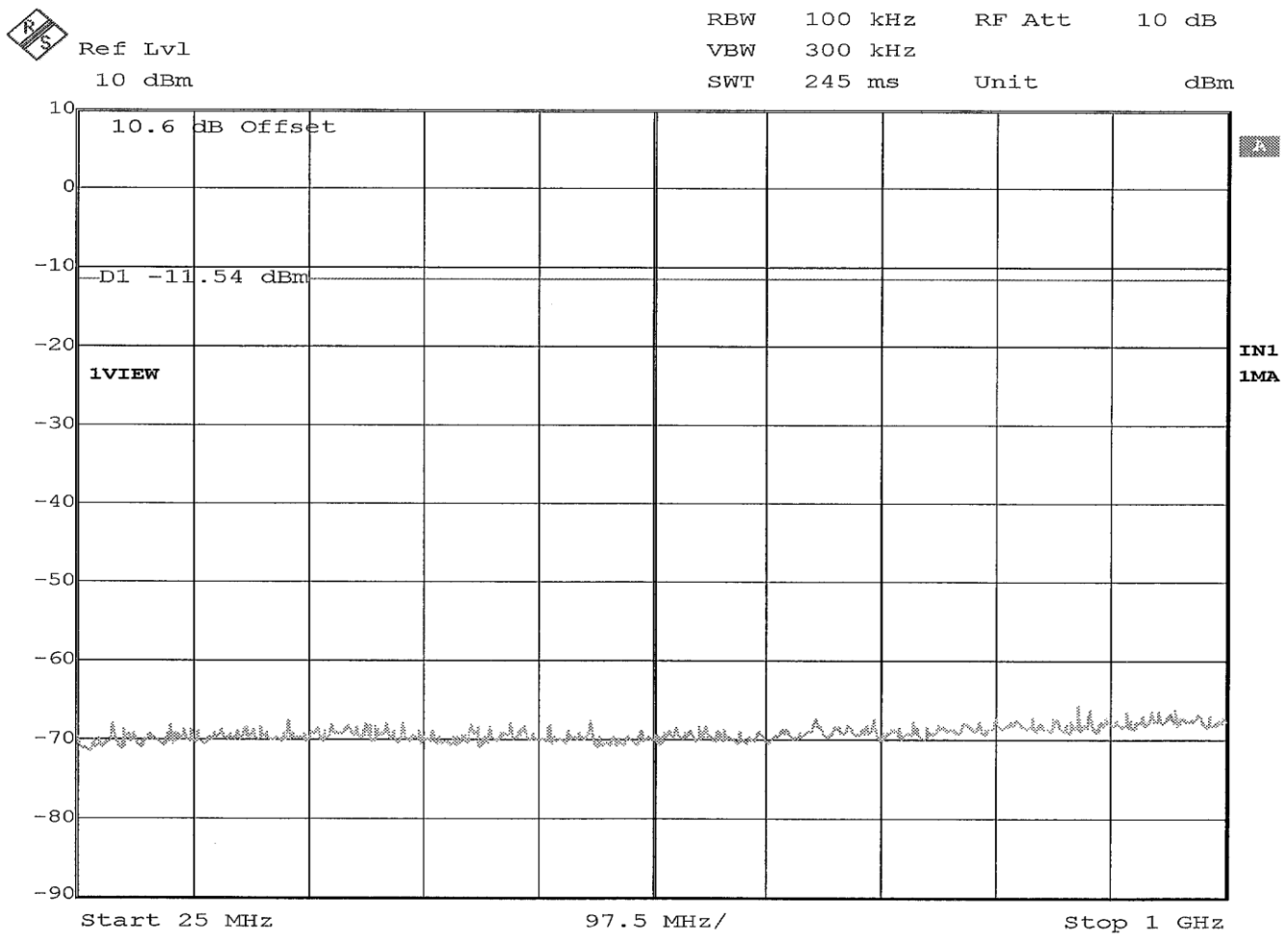
EMISSIONS TEST DATA SHEET	
Method:	**Band Edge**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.480 GHz
Technician:	M.Seamans
Date(s):	December 22nd, 2017
Temp/ Relative Humidity:	20.4 °C / 23.1 %
Notes:	Limit: -11.54 dBm



Modulation: PRBS15 (GFSK) Band Edge High

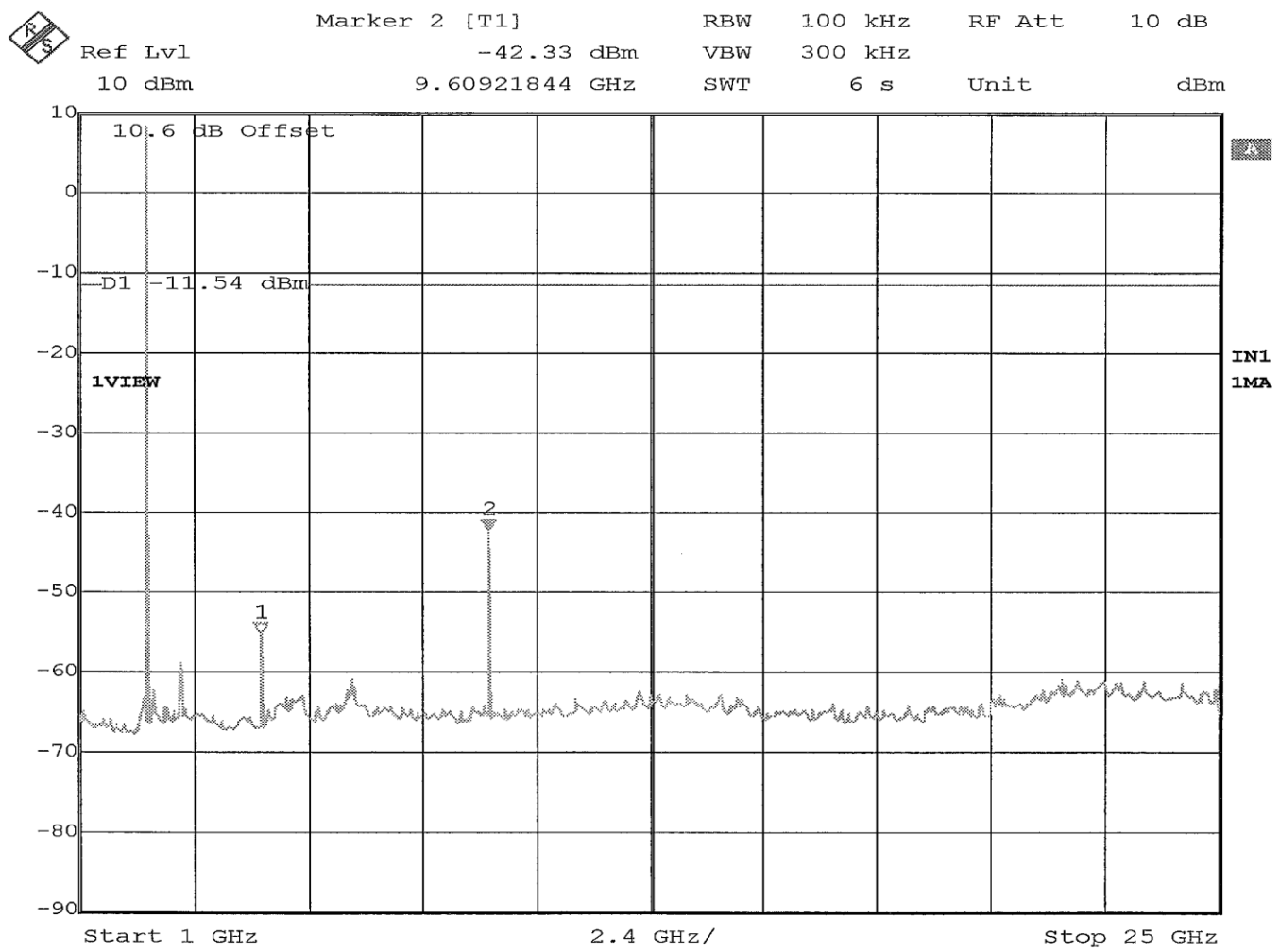
Conducted Out of Band Emissions
Test Data

EMISSIONS TEST DATA SHEET	
Method:	**Conducted Out of Band**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.402 GHz
Technician:	M.Seamans
Date(s):	December 22nd, 2017
Temp/ Relative Humidity:	20.4 °C / 23.1 %
Notes:	Limit: -11.54 dBm



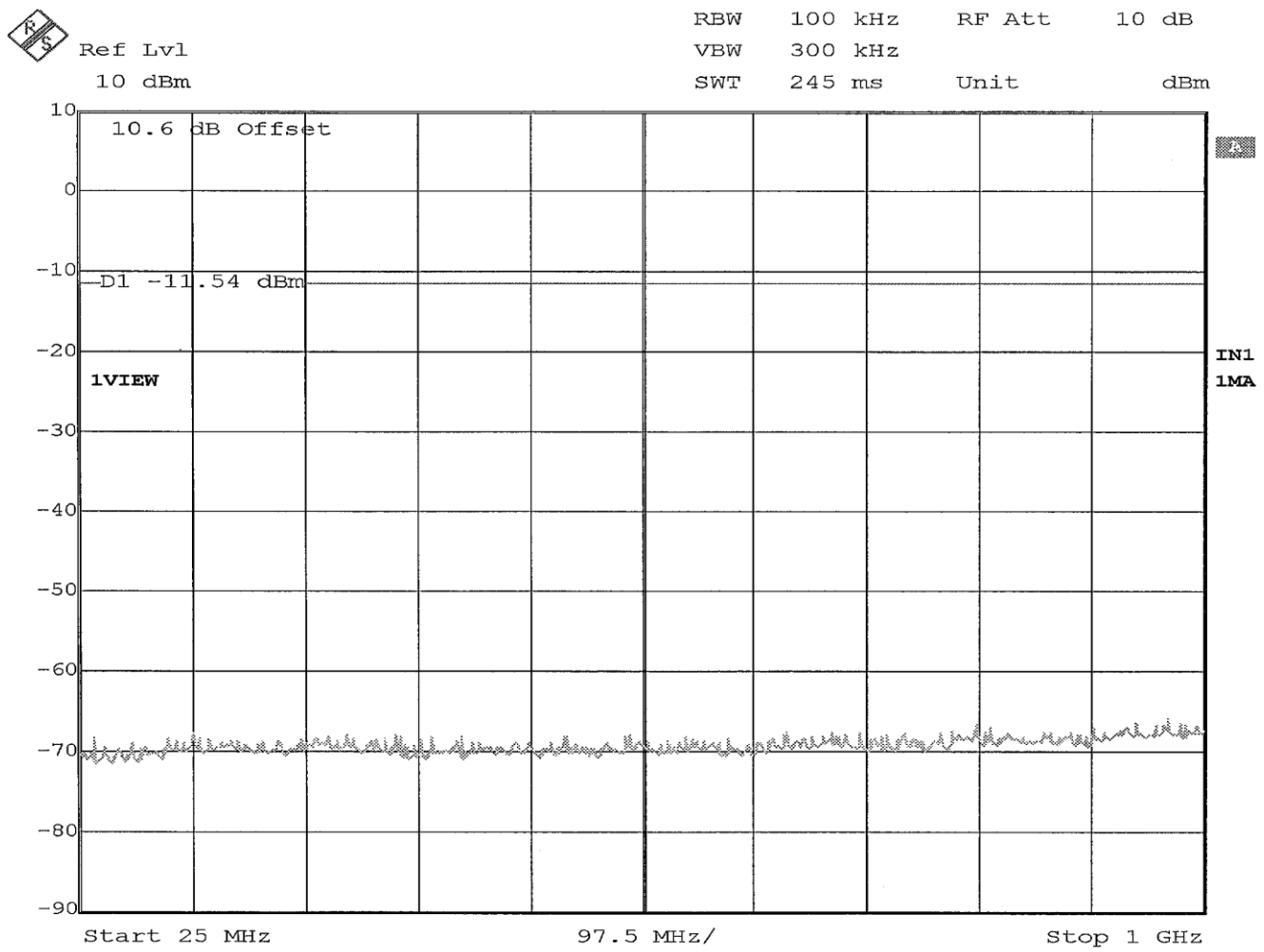
25MHz to 1GHz

EMISSIONS TEST DATA SHEET	
Method:	**Conducted Out of Band**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6288N-3
Customer:	ARRIS
Test Sample:	Set Top Box
Model Number:	AX061AEI
Serial Number:	M11742TK0102
Operating Mode:	Transmitting modulated signal at 2.402 GHz
Technician:	M.Seamans
Date(s):	December 22nd, 2017
Temp/ Relative Humidity:	20.4 °C / 23.1 %
Notes:	Limit: -11.54 dBm



1GHz to 25GHz

EMISSIONS TEST DATA SHEET	
Method:	**Conducted Out of Band**
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.247 (d)
Job Number:	R-6288N-3
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 22nd, 2017
Temp/ Relative Humidity:	20.4 °C / 23.1 %
Notes:	Limit: -11.54 dBm



25MHz to 1GHz