



BEC INCORPORATED

CERTIFICATION APPLICATION TEST REPORT

**TEST STANDARDS:
FCC Part 15 Subpart C, IC RSS-Gen, IC RSS-247
Intentional Radiator**

**ARRIS Model DCX900
Set Top Box**

REPORT BEC-1751-02

TEST DATES: 10/07/2016 – 10/12/2016

**CUSTOMER:
ARRIS Group Incorporated
101 Tournament Drive
Horsham, PA 19044**

PREPARED BY: _____

Steve Fanella, Test Engineer

REVIEWED and APPROVED BY: _____

Al Fanella, Test Director

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Notice To Customer

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Revision History

Revision #	Description of Changes	Date of Changes	Date Released
0	Test Report Initial Release	N/A	11/29/2016
1	Removed all references to Bluetooth.	04/17/2017	04/17/2017



1.0 Administrative Information

1.1 Project Details

Project Number	BEC-1752
Set Top Box Manufacturer	ARRIS Group Incorporated
Set Top Box Model Number	DCX900_ppr1a
Set Top Box Serial Number	M11632TC3620
Set Top Box Sample Number	1752-02 (Modified With SMA Ports to the Antennas)
Set Top Box Serial Number	M11633TC5599
Set Top Box Sample Number	1752-03 (Unmodified Antennas)
FCC ID	ACQ-DCX900
Antenna Manufacturer	GreenPeak Technologies
Antenna Model Number	GP501
Frequency of Operation	2400 - 2483.5 MHz
Test Laboratory Location	BEC Incorporated 970 East High Street Pottstown, PA 19464
Test Performed For	ARRIS Group Incorporated 101 Tournament Drive Horsham, PA 19044
Test Personnel	Paul Banker / Steve Fanella
Technical Contact	Mark Hageali
Date Received	09/29/2016
Condition Received	Suitable for test
Sample Type	Production unit
EUT Classification	Cable Set Top Box with wireless capability supporting RF4CE
FCC Classification	DTS- Part 15 Digital Transmission System
Applicable FCC Rule Part	FCC Rules Part 15.247: Operation within the bands 920-928 MHz, 2400-2483.5 MHz and 5725- 5850 MHz Direct Sequence System
Applicable IC Rule	RSS-Gen, RSS-247



1.2 Preface

This report documents product testing conducted to verify compliance of the specified EUT with applicable standards and requirements as identified herein. EUT, test instrument configurations, test procedures, and recorded data are generally described in this report. The reader is referred to the applicable test standards for detailed procedures. The following table summarizes the test results obtained during this evaluation.

1.3 Test Result Summary Table

The ARRIS Model DCX900 Set Top Box was tested and found to be compliant to the sections of the FCC Part 15 Subpart C, RSS-Gen and RSS-247 standards listed below:

FCC Part 15, Subpart C Intentional Radiators, IC RSS-Gen and IC RSS-247	Test Description	Result
15.207(b), RSS-Gen	Conducted Emissions, Power Leads, 150 kHz to 30 MHz	PASS
15.209(a), RSS-Gen	Spurious Radiated Emissions, 30 MHz to 1 GHz	PASS
15.209, 15.205, RSS-Gen	Spurious Radiated Emissions, 1 GHz to 25 GHz	PASS
15.247(a)(2), RSS-Gen 6.6, RSS-247 5.2(1)	6 dB Occupied Bandwidth	PASS
15.247(b)(3), RSS-247 5.4(4)	Maximum Peak Power Output	PASS
15.247(d), RSS-Gen	Antenna Port, Conducted Spurious Emissions	PASS
15.247(e), RSS-247 5.4(2)	Antenna Port, Power Spectral Density	PASS
15.247(d), RSS-247 5.5	Band Edge Measurement	PASS



1.4 Measurement Uncertainty

Measurement	Measurement Distance	Frequency Range	Measurement Limit	Expanded Uncertainty
Conducted Disturbance	N/A	150 kHz – 30 MHz	FCC Section 15.207, RSS-Gen	3.58
Radiated Disturbance	3 m	30 MHz – 1 GHz	FCC Section 15.209, RSS-Gen	4.61

No adjustments to measured data presented in this report are required because all values of uncertainty are less than the CISPR 16-4-2:2011 recommendations. These uncertainties have a coverage factor of $k = 2$, which yields approximately a 95% level of confidence for the near-normal distribution typical of most measurement results.

1.5 Condition of Received Sample

An evaluation of the EUT was conducted in order to verify test subject identity and condition and to ensure suitability for testing. No evidence of physical damage was noted. The test item condition was deemed acceptable for the performance of the requested test services.

1.6 Climatic Environment

Unless noted elsewhere in this report, the following were the ambient conditions in the laboratory during testing:

Temperature: $22^{\circ} \pm 5^{\circ}$

Humidity: $50\% \pm 20\%$

Barometric Pressure: $1000\text{mb} \pm 20\%$

1.7 Test Equipment

All test equipment is checked to manufacturer's specifications and, when applicable, have current N.I.S.T. traceable, ISO 9002 conforming certificates of calibration. Test equipment used for the tests described herein is listed in Appendix A.



2.0 Equipment Under Test

Unless otherwise noted in the individual test results sections, testing was performed on the EUT as follows.

2.1 EUT Description

The ARRIS Model DCX900 is a UHD 4kp60 Cable Television Set-top box with an embedded multi-channel full-band capture QAM front-end receiver and video back-end processor supporting video presentation and transcoding as well as other embedded functions. It is capable of presenting encrypted SD and HD video content through HDMI™ 2.0 and Analog Composite (SD content only), digital audio is presented through HDMI™ and Optical SPDIF, and analog audio is presented through baseband 3.5mm connector. It has a removable hard-drive for DVR capability and dual USB3.0 ports for external peripherals. Wireless interface includes RF4CE with embedded antennas. It has front panel buttons and 38 kHz IR receiver for user interface. System memory consists of DDR4, eMMC, and SPI Flash. The DCX900 is home networking capable through MoCA® and Gigabit Ethernet. This model has removable CableCard for content security.

2.2 Receiver Classification

N/A

2.3 Product Category

FCC Part 15, Subpart C (Section 15.247), IC RSS-Gen, IC RSS-247

2.4 Product Classification

RF4CE Intentional Radiator Testing Requirements for IR Signal Operation within the bands of 920-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz-Direct Sequence System

2.5 Test Configuration

The antennas within the ARRIS DCX900 set top box were controlled by software which allowed the test technician to select the specific antenna within the EUT, designate the specific Channel Frequency, control the antenna power and control the antenna modulation (on/off).

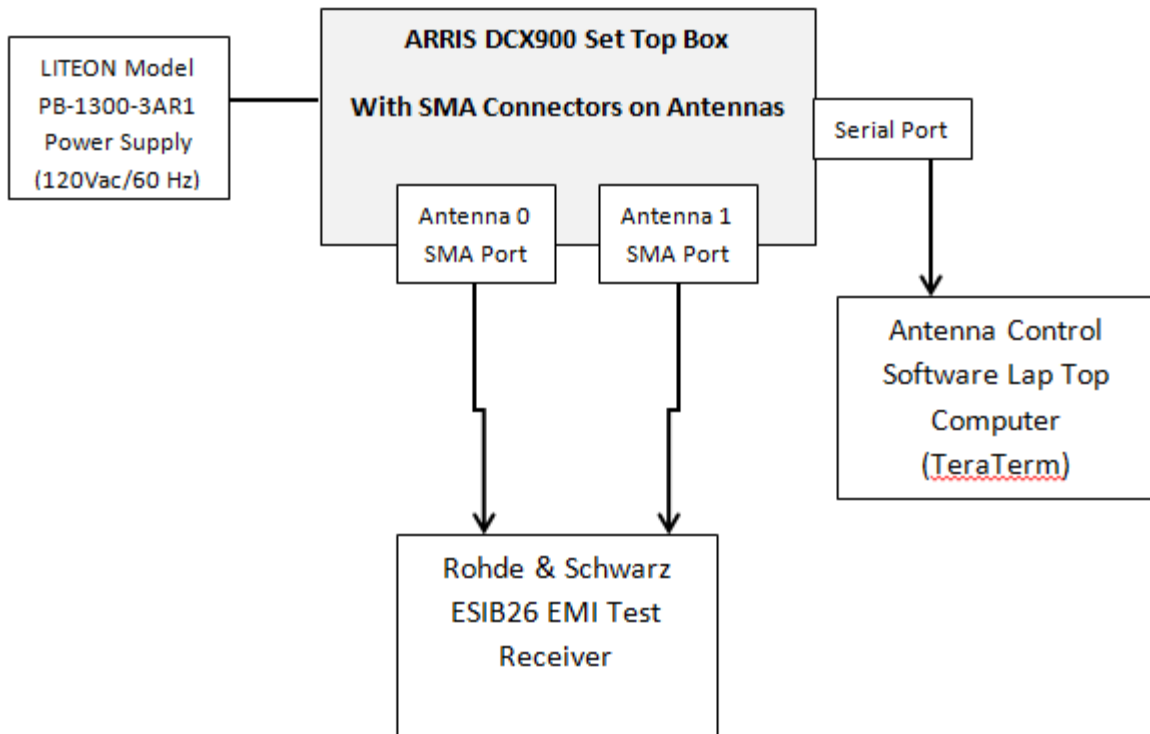
2.6 Test Configuration Rationale

The tested configuration of the EUT was required so that the test technician could view the characteristics of the antenna at specific frequencies and allow the technician to record the required measurements.



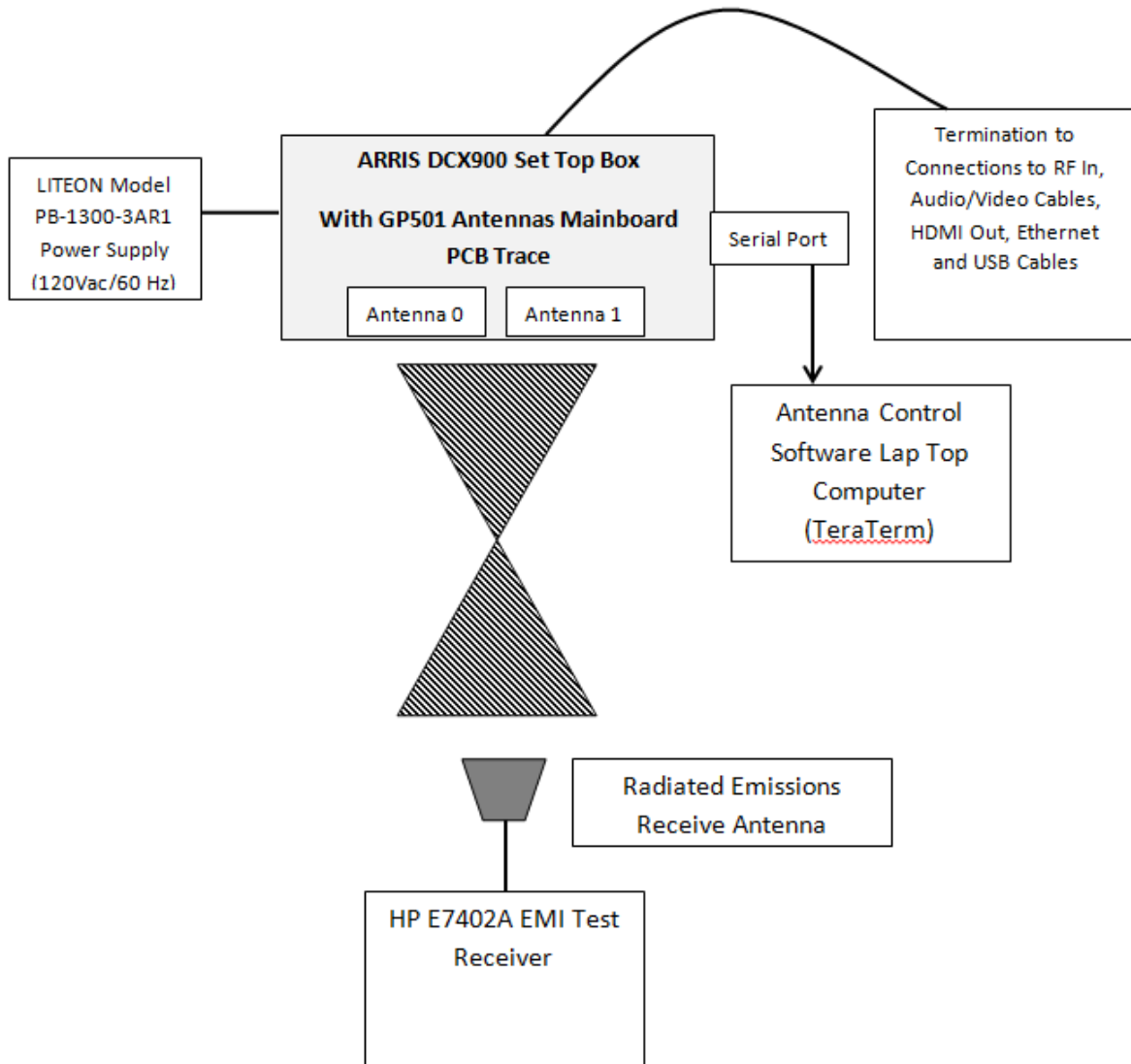
2.7 Test Configuration Diagram (Conducted Measurements)

A block diagram of the EUT configuration showing interconnection cables is illustrated below. The drawing shows the physical hardware layout used for the tests along with I/O cables and AC power distribution.



2.8 Test Configuration Diagram (Radiated Measurements)

A block diagram of the EUT configuration showing interconnection cables is illustrated below. The drawing shows the physical hardware layout used for the tests along with I/O cables and AC power distribution.





2.9 EUT Information, Interconnection Cabling and Support Equipment

EUT Hardware

Description	Manufacturer	Model	Serial Number	Sample Number
Set Top Box (Modified Antennas with SMA Connectors)	ARRIS	DCX900_ppr1a	M11632TC3620	1752-02
Set Top Box (Unmodified Antennas)	ARRIS	DCX900_ppr1b	M11635TD455 0	1752-03

Interconnection Cable List (Conducted Test Setup)

Manufacturer	Model	Type	Shielding	Length	Description
Workhorse	WHU18-3636-036	High Frequency RF Cable 1 to 40 GHz	Double Braid	1 Meter	Measurement Cable from the Antenna SMA Connector to the Rohde and Schwarz ESIB26 Receiver. Asset # BEC-814

Interconnection Cable List (Radiated Test Setup)

Type	Mfr/Part#	Shielding	Length	Description
Audio Video	Acoustic Research/PR161	95% braid w/100% aluminum Mylar foil	6 Ft	Audio & Video Out Ports
HDMI	Rocketfish	Braid over foil	1.3 m	HDMI Port
75-Ohm Coax	Belden-T 9114 Duobond	Double Braid	1 m	RF In and RF Out
Ethernet CAT5	Siemon Co. / MC5-8-T-07-20	Mylar foil	7 Ft	Ethernet Port
USB	Hannstar/E52534-D	Braid over foil	2 m	USB Port

Support Equipment

Description	Manufacturer	Model	Serial Number
AC/DC Power Convertor for DCX900 Set Top Box	Liteon	PB-1300-3AR1	596530001001621006239
Antenna Control Software Lap Top Computer	Dell	Latitude D830	CH-0HN338-48643-84F-0307



2.10 Test Signals and Test Modulation

By design this product does not have an external Modulation input connector, therefore, normal operating modulation was used for all testing reported herein. The only test where modulation was not active was during testing of the Maximum Peak Power Output FCC Section 15.247(b)(3) and Industry Canada RSS-247 5.4(4) (Section 4.4 of this report) because the signal amplitude was higher without modulation applied when measuring.

The control unit in this product is a digital frequency transmitter. The EUT transmits to a discrete frequency on a specific channel. The RF4CE Device has 16 Channels available. The 16 Channels and frequencies that can be transmitted by the EUT are as follows:

Channel 11	2.405 GHz	Channel 19	2.445 GHz
Channel 12	2.410 GHz	Channel 20	2.450 GHz
Channel 13	2.415 GHz	Channel 21	2.455 GHz
Channel 14	2.420 GHz	Channel 22	2.460 GHz
Channel 15	2.425 GHz	Channel 23	2.465 GHz
Channel 16	2.430 GHz	Channel 24	2.470 GHz
Channel 17	2.435 GHz	Channel 25	2.475 GHz
Channel 18	2.440 GHz	Channel 26	2.480 GHz

For some of the required testing, the EUT was configured to transmit individually at low Channel 11 (2.405 GHz), middle Channel 19 (2.445 GHz) or high Channel 26 (2.480 GHz) during the measurement of the signal.

2.11 Grounding

During all testing presented in this report, earth grounding of the test sample was accomplished through the AC mains input power cord to the EUT and through the return of the DC line to the Controller.

2.12 EUT Modifications

No modifications were made to the ARRIS DCX900 set top box.



2.13 EUT Pictures

ARRIS MODEL DCX900 SET TOP BOX







ARRIS MODEL DCX900 SET TOP BOX SAMPLE 1752-02 MODIFIED ANTENNA UNIT





ARRIS MODEL DCX900 SET TOP BOX SAMPLE 1752-02 MODIFIED ANTENNA UNIT





ARRIS MODEL DCX900 SET TOP BOX SAMPLE 1752-02 MODIFIED ANTENNA UNIT

BEC Incorporated Compliance Test Lab	
<input checked="" type="checkbox"/> Test Item <input type="checkbox"/> Support Item	
Project/Sample #: <u>1752-02</u>	
Customer: <u>ARRIS</u>	
Model #: <u>DCX900_ppr1a</u>	
Serial #: <u>M11632TC3620</u>	
Item Received Date: <u>9/14/16</u>	
Notes: <u>RF4CE</u>	
BEC-P010002	

MFG PN: 89184-001-00 SET TOP BOX - MODEL DCX900/P68C/S322/1000 Platform ID Phase 1 12572 21307		ARRIS MADE IN THAILAND
WARNING: TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		12V 30W SET TOP BOX DCX900
NOTICE THEFT OF SERVICE IS A CRIME. INSTALLING THIS DEVICE WITHOUT PERMISSION OR UNAUTHORIZED REPAIRING, MODIFYING OR ALTERING IT IN ANY WAY MAY SUBJECT YOU TO CIVIL OR CRIMINAL PENALTIES. CHECK WITH YOUR LOCAL CABLE COMPANY.		
Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.		
TSN: 169058408F8FC57		
Host ID: 10E040421D		
DATA ID: 08036347048		
Host SN: M11632TC3620		



ARRIS MODEL DCX900 SET TOP BOX SAMPLE 1752-03 UN-MODIFIED ANTENNA UNIT





ARRIS MODEL DCX900 SET TOP BOX SAMPLE 1752-03 UN-MODIFIED ANTENNA UNIT

	MFG PN: 599184-001-09 SET-TOP BOX - MODEL DCX900/IP68C/0322/1800 Platform ID Phase 1 6 12572 21307
BEC Incorporated Compliance Test Lab	ARRIS 12V 35W SET TOP I DCX900
<input checked="" type="checkbox"/> Test Item <input type="checkbox"/> Support Item	WARNING: TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
Project/Sample #: 1752-03	NOTICE THEFT OF SERVICE IS A CRIME. INSTALLING THIS DEVICE WITHOUT PERMISSION OR UNAUTHORIZED TAMPERING, MODIFYING OR ALTERING IT IN ANY WAY MAY SUBJECT YOU TO CIVIL OR CRIMINAL PENALTIES. CHECK WITH YOUR LOCAL CABLE COMPANY.
Customer: ARRIS	Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.
Model #: DCX900 - ppr 16	TSN: D690C8CE7BDB404
Serial #: M11635TD4550	Host ID: 10E05002FF
Item Received Date: 9/14/16	DATA ID: 21312778687
Notes: _____	Host SN: M11635TD4550



3.0 Applicable Requirements, Methods, and Procedures

3.1 Applicable Requirements

The results of the measurement of the radio disturbance characteristics of the EUT described herein may be applied and where appropriate, provide a presumption of compliance to one or more of the following requirements or to other requirements at the discretion of the customer, regulatory agencies, or other entities.

3.1.1 FCC Requirements

USA

Code of Federal Regulations:

Title 47 – Telecommunication

Chapter I - Federal Communications Commission

Sub-chapter A – General

Part 15 – Radio Frequency Devices

Subpart C - Intentional Radiators

Subpart D - Unlicensed Personal Communications Service Devices

Subpart E - Unlicensed National Information Infrastructure Devices

Industry Canada

RSS-Gen Issue 4: General Requirements for Compliance of Radio Apparatus

RSS-247 Issue 1: Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices



3.1.2 Basic Test Methods and Test Procedures

ANSI C63.4: 2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

ANSI C63.10, 2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

3.2 Deviations or Exclusions from the Requirements

No deviations or exclusions were made.



4.0 Test Results

4.1 Conducted Emissions Power Leads, 150 kHz to 30 MHz. FCC Section 15.207(b) and IC RSS-Gen

4.1.1 Conducted Emissions Test Procedure

AC Power Line

Conducted emissions at the power line input of the EUT were measured with an EMI receiver set to the appropriate detector and CISPR bandwidth, which was connected to the RF output of a 50 Ω , 50 μ H Line Impedance Stabilization Network (LISN) installed in each power line.

Measurements were made over the frequency range of 150 kHz to 30 MHz while the EUT was operating as described in the EUT section of this report. The significant amplitudes of emissions measured on the AC power lines of the EUT were recorded as follows:

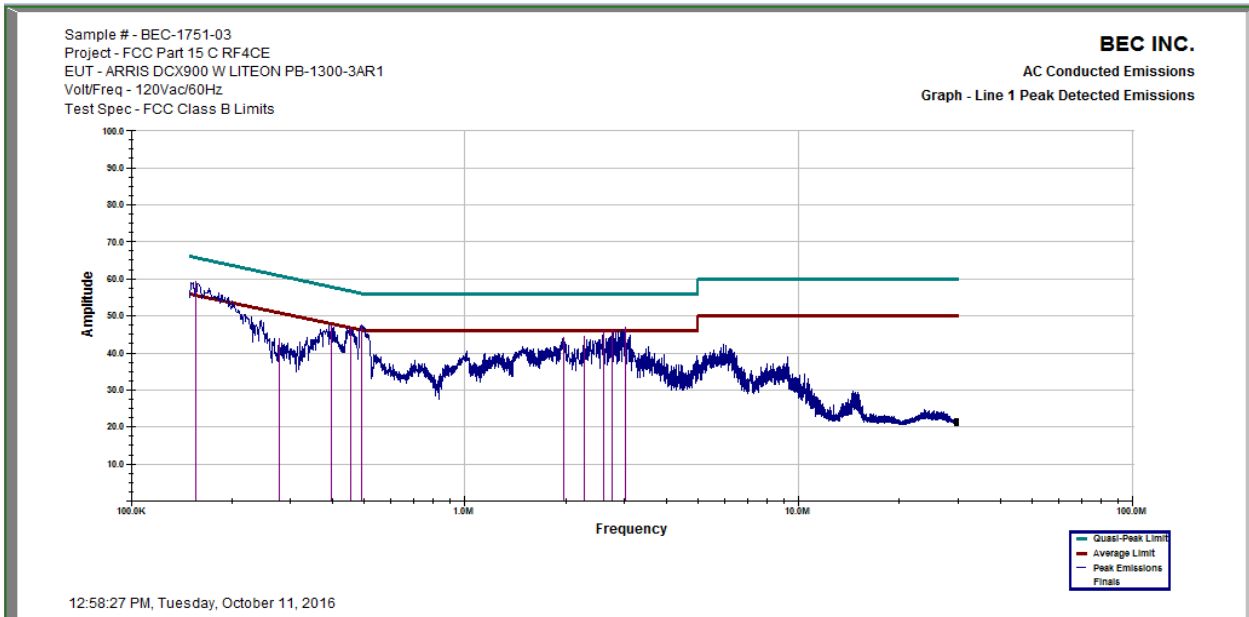
Emission (dB μ V) = Meter Reading (dB μ v) + Cable Loss (dB) + LISN Factor (dB) + Limiter Loss (dB)



4.1.2 Conducted Emissions Test Results DCX900 with LITEON Model PB-1300-3AR1 Power Supply (10/11/2016)

The following graphs and tables show the conducted emissions recorded on the AC power line of the EUT displayed against the FCC limits as outlined in Section 15.207(b) and RSS-Gen. The LITEON Model PB-1300-3AR1 supply was powered at 120Vac/60 Hz.

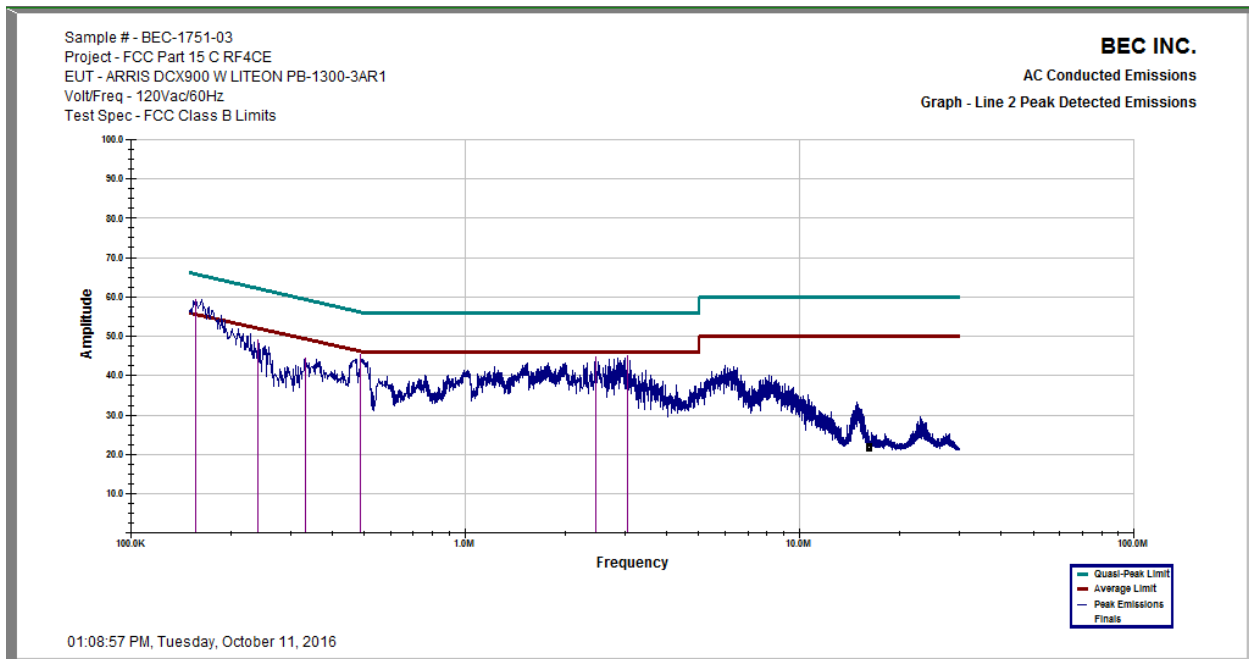
BEC INC.							
Line 1 Conducted Emissions							
12:58:23 PM, Tuesday, October 11, 2016							
	1	2	3	4	5	6	7
Frequency	AVG	AVG	AVG	QP	QP	QP	Corr
MHz	dBuV	Limit	Margin	dBuV	Limit	Margin	Factor
156.396 KHz	46.94	55.82	-8.88	53.14	65.82	-12.68	0.130
277.840 KHz	30.74	52.35	-21.60	37.93	62.35	-24.42	0.120
394.797 KHz	36.70	49.01	-12.30	42.06	59.01	-16.95	0.130
450.325 KHz	39.32	47.42	-8.10	43.20	57.42	-14.22	0.140
486.563 KHz	36.29	46.38	-10.09	44.26	56.38	-12.12	0.133
1.972 MHz	29.95	46.00	-16.05	38.33	56.00	-17.67	0.219
2.281 MHz	31.69	46.00	-14.31	38.16	56.00	-17.84	0.231
2.577 MHz	32.13	46.00	-13.87	39.56	56.00	-16.44	0.245
2.752 MHz	32.55	46.00	-13.45	40.02	56.00	-15.98	0.255
3.071 MHz	32.98	46.00	-13.02	42.90	56.00	-13.10	0.272
Sample # - BEC-1751-03							
Project - FCC Part 15 C RF4CE							
EUT - ARRIS DCX900 W LITEON PB-1300-3AR1							
Volt/Freq - 120Vac/60Hz							
Test Spec - FCC Class B Limits							





BEC INC.
Line 2 Conducted Emissions
01:08:54 PM, Tuesday, October 11, 2016

	1	2	3	4	5	6	7
Frequency	AVG	AVG	AVG	QP	QP	QP	Corr
MHz	dBuV	Limit	Margin	dBuV	Limit	Margin	Factor
157.568 KHz	47.325	55.784	-8.459	54.300	65.784	-11.484	0.130
239.337 KHz	34.458	53.448	-18.990	43.090	63.448	-20.358	0.130
333.652 KHz	32.544	50.753	-18.209	38.487	60.753	-22.266	0.137
486.308 KHz	33.935	46.391	-12.456	42.233	56.391	-14.158	0.143
2.458 MHz	31.597	46.000	-14.403	38.137	56.000	-17.863	0.237
3.087 MHz	31.538	46.000	-14.462	40.353	56.000	-15.647	0.273
Sample # - BEC-1751-03							
Project - FCC Part 15 C RF4CE							
EUT - ARRIS DCX900 W LITEON PB-1300-3AR1							
Volt/Freq - 120Vac/60Hz							
Test Spec - FCC Class B Limits							



Results: All conducted emissions measured on the AC power line of the LITEON Model PB-1300-3AR1 supply are below the limits specified in FCC Section 15.207 and RSS-Gen by a margin of at least 8.10 dB.



4.2 Spurious Radiated Emissions, 1 GHz to 25 GHz. FCC Section 15.209 and IC RSS-Gen

4.2.1 Test Facility

OATS

The Open Area Test Site (OATS) is an all-weather facility with a wooden enclosure that contains a ground level 4-foot diameter turntable capable of rotating equipment 360 degrees. The enclosure is free of reflective metallic objects and extraneous electromagnetic signals. This non-metallic enclosure and the 3 and 10 meter test range existing outside the enclosure rest upon a protective insulating material, which in turn covers a flat, metal, continuous ground plane.

Instrumentation for remote control of the antenna mast, turntable, and other equipment are controlled by personnel indoors. The EUT and support peripherals required for EUT operation were placed on a table 80 cm high for tabletop equipment or directly on the turntable surface for floor standing equipment.

The test site complies with the attenuation measurements specified in ANSI C63.4 and CISPR 22.

SR#1

The Semi-Anechoic Shielded Room (SR#1) is an ferrite and absorber lined chamber which houses a 5-foot diameter turntable capable of rotating equipment 360 degrees and antenna mast for Horizontal and Vertical polarity measurements. The enclosure is free of reflective metallic objects and extraneous electromagnetic signals. This 3 meter shielded enclosure has a raised computer floor with metal tile bottoms providing a continuous ground plane.

Instrumentation for remote control of the antenna mast, turntable, and other equipment are controlled by personnel outside the chamber. The EUT and support peripherals required for EUT operation were placed on a table 80 cm high for tabletop equipment or directly on the turntable surface for floor standing equipment.

The test site complies with the attenuation measurements specified in ANSI C63.4 and CISPR 22.



4.2.2 Spurious Radiated Emissions Test Procedure

Radiated Emissions 30 MHz – 40 GHz

The EMI receiver was set to quasi-peak mode for frequencies from 30MHz to 1GHz and the appropriate CISPR bandwidths were employed. The receiver was set to average mode for frequencies above 1GHz with the appropriate CISPR bandwidths were employed. Significant emissions found during the preliminary scans were maximized by rotating the turntable and varying the antenna height. Both horizontal and vertical antenna polarities were also investigated for suspect emissions. The signals are maximized and measured using the in house generated RADE or off the shelf TILE software. The support equipment and test item(s) were powered off in turn to determine the source of the emissions where appropriate.

Field strengths were calculated as follows:

Field Strength (dB μ V/m) = Meter Reading (dB μ V) + Antenna Factor (dB/m) + Cable Loss (dB) – Amplifier Gain (dB)

Because the intentional radiator has a pulse modulated amplitude signal, a “duty cycle correction factor” must be taken against the Peak Measurement of the harmonic spurious emissions when calculating the final field strengths against the required limits. The duty cycle correction factor for the GreenPeak GP501 is 20 dB (maximum allowed by the FCC).

Section 15.35 (c) mentions: “Unless otherwise specified, e.g. Section 15.255(b), when the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds.”

The maximum duty cycle of the RF4CE set top box is gated by the remote control. The maximum repeat rate of a RF4CE remote control, while continuously pressing a key, is 1 packet per 100 ms, so the set top box can confirm every 100 ms a packet with an ACK. The duration of an ACK is ~0.5 ms.

The duration of a ACK is 0.5 ms, the interval time is 100 ms. This means that the correction factor for the average spurious emission field strength is:

$20 * \log_{10}(0.5 / 100) = -46$ dB. FCC limits the max duty cycle correction factor to 20 dB.



4.2.3 Spurious Radiated Emissions 1GHz to 25 GHz Test Results (10/12/2016, 10/13/2016 and 10/20/2016)

The following table shows the highest amplitude average detected field strengths as recorded from the EUT. These measurements were performed over the frequency range of 1.0 GHz to 25 GHz at a distance of 3 meters to satisfy FCC Section 15.209 and IC RSS-Gen requirements. Spurious emissions from the Antenna 0 and Antenna 1 were measured when individually set to low (Channel 11), middle (Channel 19) and high (Channel 26). The signal output was maximized with modulation.

Settings: Antenna 0, Channel 11 (2.405 GHz Fundamental) Maximum Output with Modulation

Frequency (GHz)	Peak Level dBuV/m	Average Level dBuV/m	Antenna Polarity H/V	Turntable Angle Degrees	Antenna Height cm	Correction Factor dBm ⁻¹	Average Limit dBuV/m	Average Margin dB	Comment PASS/FAIL
3.5964	45.99	42.64	V	066	122	-0.29	53.98	-11.34	PASS
4.50002	45.46	41.43	V	056	100	1.10	53.98	-12.55	PASS
4.50014	45.22	39.31	H	092	099	1.10	53.98	-14.67	PASS
4.81101	57.41	50.94	V	249	099	2.28	53.98	-23.04	PASS
5.40002	51.82	49.75	V	326	123	4.04	53.98	-4.24	PASS
7.50019	54.29	51.47	V	189	107	5.90	53.98	-2.51	PASS

Settings: Antenna 0, Channel 19 (2.445 GHz Fundamental) Maximum Output with Modulation

Frequency (GHz)	Peak Level dBuV/m	Average Level dBuV/m	Antenna Polarity H/V	Turntable Angle Degrees	Antenna Height cm	Correction Factor dBm ⁻¹	Average Limit dBuV/m	Average Margin dB	Comment PASS/FAIL
3.59649	43.80	38.78	H	210	100	-0.29	53.98	-15.20	PASS
4.50014	45.37	40.79	H	088	107	1.10	53.98	-13.19	PASS
4.79523	45.88	41.58	H	139	100	2.22	53.98	-12.40	PASS
4.88899	58.13	52.39	H	313	202	2.58	53.98	-21.59	PASS
3.59645	47.58	45.16	V	067	100	-0.29	53.98	-8.82	PASS
4.50002	45.74	41.31	V	056	101	1.10	53.98	-12.67	PASS
4.725	43.96	37.78	V	090	101	1.96	53.98	-16.20	PASS
4.79513	45.67	41.95	V	014	108	2.22	53.98	-12.03	PASS
4.88893	59.58	52.78	V	264	103	2.58	53.98	-21.21	PASS
5.39999	50.41	49.61	V	323	113	4.04	53.98	-4.37	PASS
7.50009	54.12	51.15	V	194	103	5.90	53.98	-2.83	PASS



Settings: Antenna 0, Channel 26 (2.480 GHz Fundamental) Maximum Output with Modulation

Frequency	Peak Level	Average Level	Antenna Polarity	Turntable Angle	Antenna Height	Correction Factor	Average Limit	Average Margin	Comment
(GHz)	dBuV/m	dBuV/m	H/V	Degrees	cm	dBm ⁻¹	dBuV/m	dB	PASS/FAIL
3.59638	44.63	38.48	H	206	099	-0.29	53.98	-15.50	PASS
4.49992	44.23	37.80	H	091	101	1.10	53.98	-16.18	PASS
4.96096	54.33	47.89	H	050	102	2.85	53.98	-26.09	PASS
5.40007	48.91	47.05	H	315	100	4.04	53.98	-6.93	PASS
3.59631	47.05	42.85	V	207	100	-0.29	53.98	-11.13	PASS
4.50008	44.91	41.66	V	055	107	1.10	53.98	-12.32	PASS
4.79507	45.03	40.96	V	146	171	2.22	53.98	-13.02	PASS
4.95894	55.31	49.11	V	220	110	2.84	53.98	-24.87	PASS
5.40026	52.02	49.88	V	323	118	4.04	53.98	-4.10	PASS
7.50009	53.99	48.32	V	301	100	5.90	53.98	-5.67	PASS

Settings: Antenna 1, Channel 11 (2.405 GHz Fundamental) Maximum Output with Modulation

Frequency	Peak Level	Average Level	Antenna Polarity	Turntable Angle	Antenna Height	Correction Factor	Average Limit	Average Margin	Comment
(GHz)	dBuV/m	dBuV/m	H/V	Degrees	cm	dBm ⁻¹	dBuV/m	dB	PASS/FAIL
4.50021	45.08	39.76	H	187	171	1.10	53.98	-14.22	PASS
4.81113	56.69	44.86	H	048	127	2.28	53.98	-9.12	PASS
5.40002	49.91	45.78	H	101	100	4.04	53.98	-8.20	PASS
3.59630	46.77	44.38	V	068	099	-0.29	53.98	-9.60	PASS
4.50000	43.31	38.99	V	055	102	1.10	53.98	-14.99	PASS
4.80277	39.49	28.82	V	345	101	2.25	53.98	-25.16	PASS
5.40000	50.34	49.85	V	323	117	4.04	53.98	-4.13	PASS
7.50000	53.40	50.04	V	194	100	5.90	53.98	-3.95	PASS



Settings: Antenna 1, Channel 19 (2.445 GHz Fundamental) Maximum Output with Modulation

Frequency (GHz)	Peak Level dBuV/m	Average Level dBuV/m	Antenna Polarity H/V	Turntable Angle Degrees	Antenna Height cm	Correction Factor dBm ⁻¹	Average Limit dBuV/m	Average Margin dB	Comment PASS/FAIL
4.50008	44.44	39.29	H	091	100	1.10	53.98	-14.69	PASS
4.88893	57.40	50.65	H	051	106	2.58	53.98	-23.33	PASS
5.40003	49.12	45.36	H	314	101	4.04	53.98	-8.62	PASS
3.59622	46.03	43.86	V	067	100	-0.29	53.98	-10.13	PASS
4.50000	45.51	42.03	V	056	100	1.10	53.98	-11.95	PASS
4.79517	45.95	42.38	V	144	100	2.22	53.98	-11.60	PASS
4.89104	56.89	50.73	V	158	112	2.59	53.98	-23.25	PASS
5.40000	50.79	46.96	V	319	101	4.04	53.98	-7.02	PASS
7.50009	53.94	51.25	V	302	100	5.90	53.98	-2.73	PASS

Settings: Antenna 1, Channel 26 (2.480 GHz Fundamental) Maximum Output with Modulation

Frequency (GHz)	Peak Level dBuV/m	Average Level dBuV/m	Antenna Polarity H/V	Turntable Angle Degrees	Antenna Height cm	Correction Factor dBm ⁻¹	Average Limit dBuV/m	Average Margin dB	Comment PASS/FAIL
3.59642	43.56	39.91	H	206	101	-0.29	53.98	-14.07	PASS
4.50014	46.97	43.13	H	075	125	1.10	53.98	-10.85	PASS
4.95882	55.04	48.93	H	050	099	2.84	53.98	-5.05	PASS
5.40008	49.05	44.55	H	102	103	4.04	53.98	-9.44	PASS
2.99999	51.98	49.70	V	048	115	-2.40	53.98	-4.28	PASS
4.49996	46.14	38.79	V	273	100	1.10	53.98	-15.19	PASS
4.72502	44.89	39.86	V	042	121	1.96	53.98	-14.12	PASS
4.96097	57.01	50.62	V	139	146	2.85	53.98	-3.36	PASS
5.40012	51.20	47.33	V	322	100	4.04	53.98	-6.65	PASS
7.50011	53.22	43.47	V	190	100	5.90	53.98	-10.51	PASS

Results: All harmonic spurious radiated emissions as recorded at a distance of 3 meters from the ARRIS Model DCX900 Set Top Box are below the 3 meter limit specified by FCC Section 15.209 and IC RSS-Gen requirements by a margin of at least 2.51 dB.



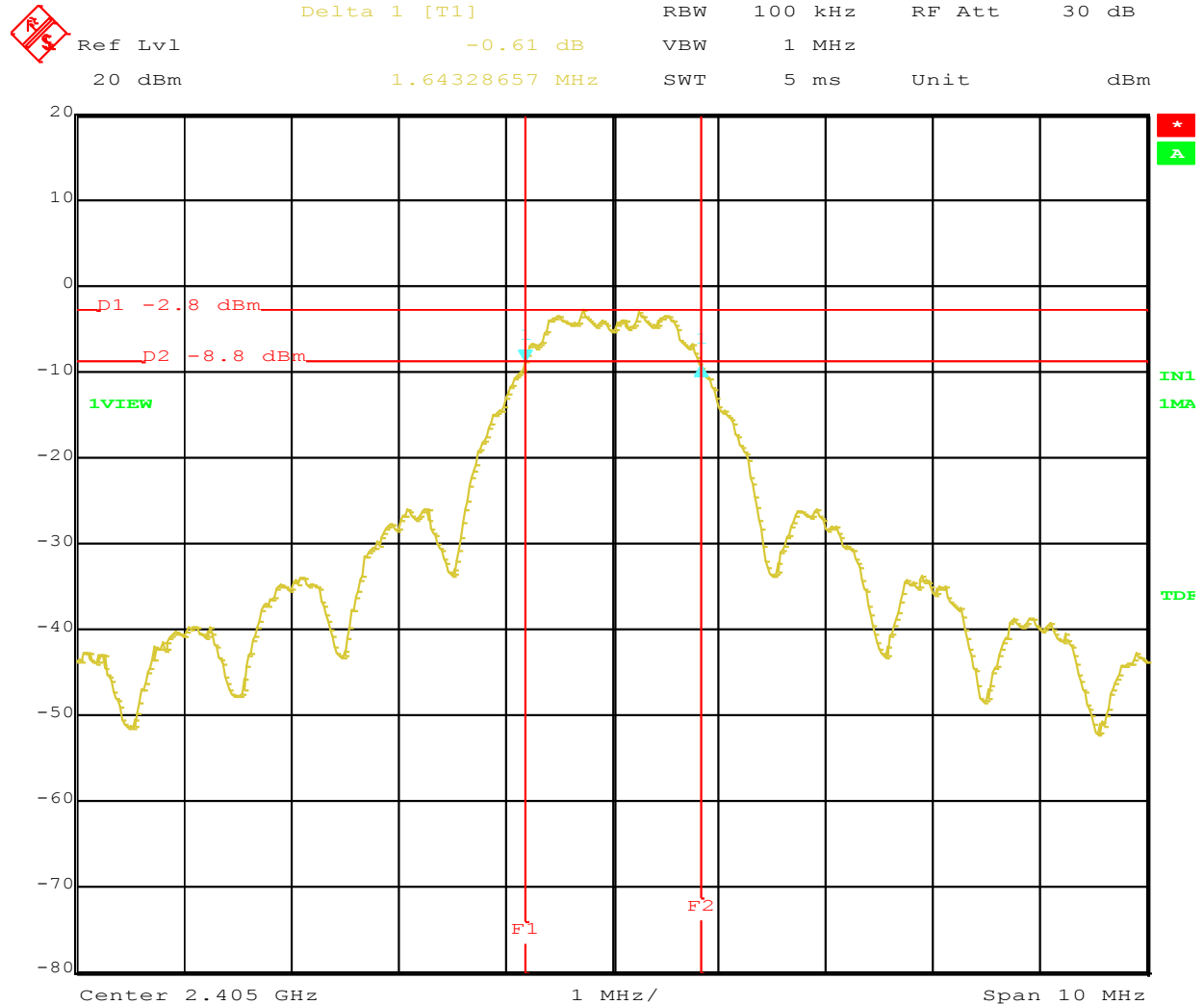
4.3 6 dB Occupied Bandwidth FCC 15.247(a)(2), RSS-Gen, RSS-247 5.2(1)

4.3.1 6 dB Occupied Bandwidth – Test Procedure

The minimum 6 dB bandwidths per FCC Section 15.247(a)(2), RSS-Gen and IC RSS-247 5.2(1), were measured using a 50-Ohm EMI Test Receiver with settings of 100 kHz resolution bandwidth and 300 kHz video bandwidth. The Antenna 0 and Antenna 1 were set individually to low (Channel 11), middle (Channel 19) and high (Channel 26). The signal output was maximized with modulation.

4.3.2 6 dB Occupied Bandwidth Analyzer Display Captures Antenna 0


Antenna 0, Channel 11 (2.405 GHz)

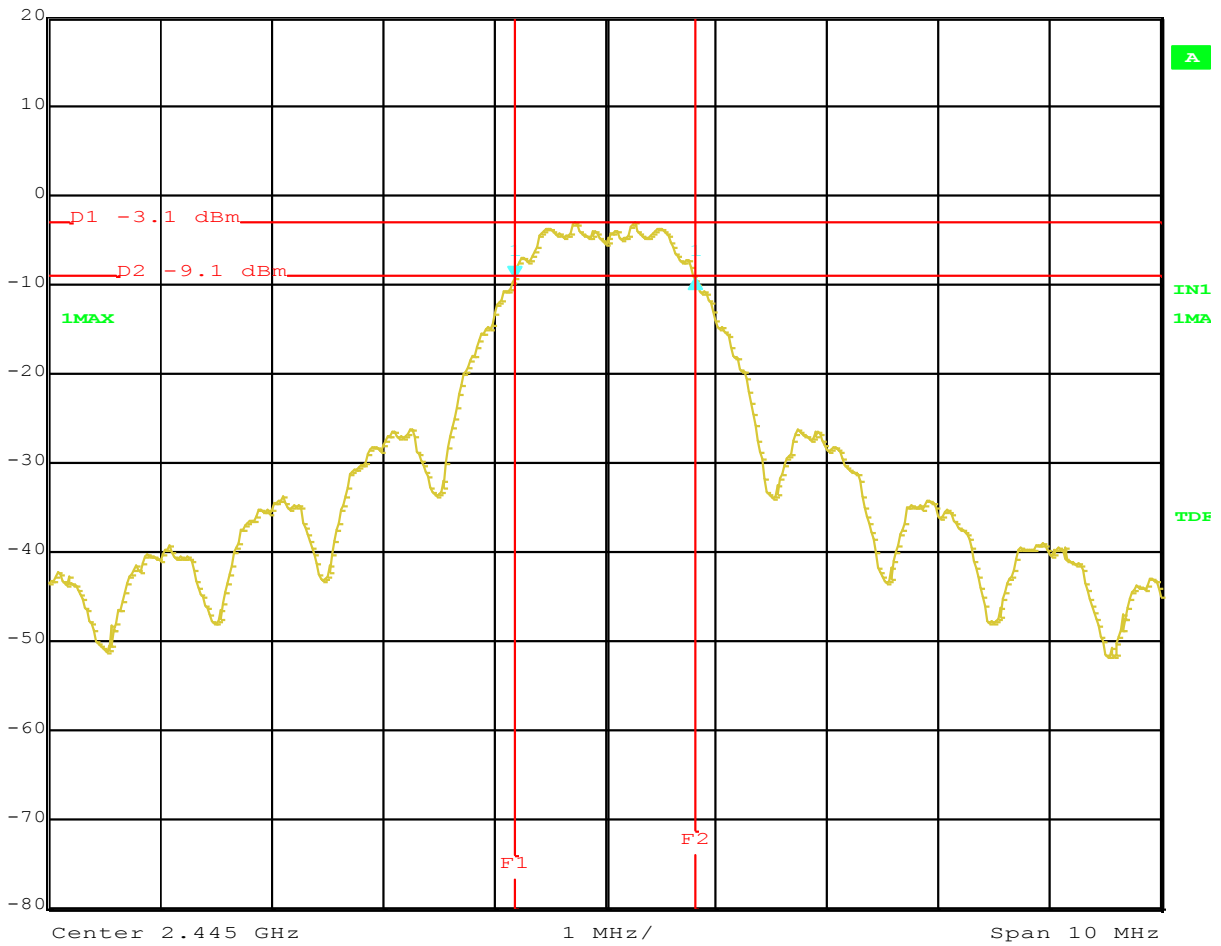


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Antenna 0, Channel 19 (2.445 GHz)

	Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	30 dB
	20 dBm	0.01 dB	VBW	1 MHz		
		1.62324649 MHz	SWT	5 ms	Unit	dBm



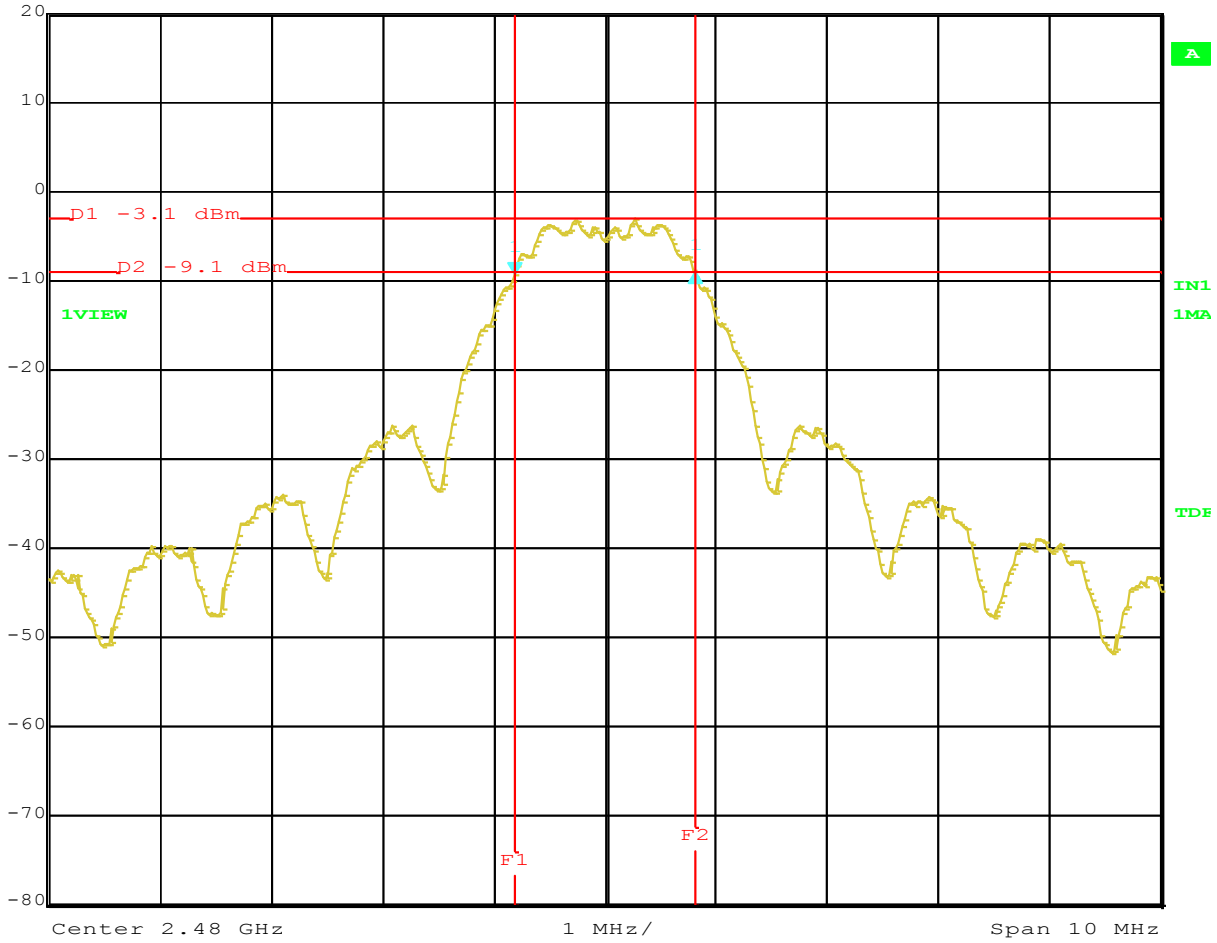
Date: 7.OCT.2016 15:08:45



Antenna 0, Channel 26 (2.480 GHz)



Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	30 dB
20 dBm	0.24 dB	VBW	1 MHz	Unit	dBm
	1.62324649 MHz	SWT	5 ms		

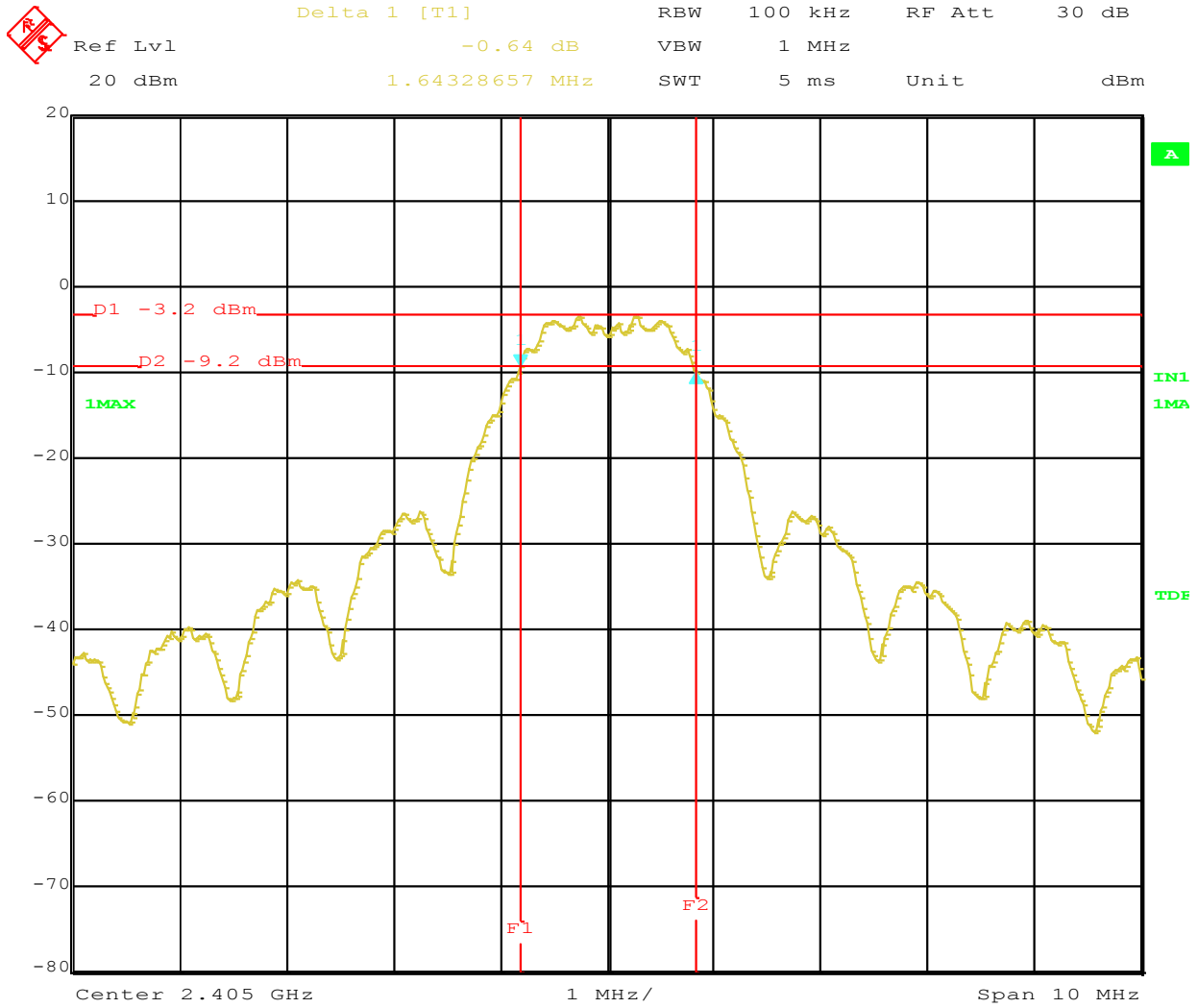


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4.3.3 6 dB Occupied Bandwidth Analyzer Display Captures Antenna 1

Antenna 1, Channel 11 (2.405 GHz)



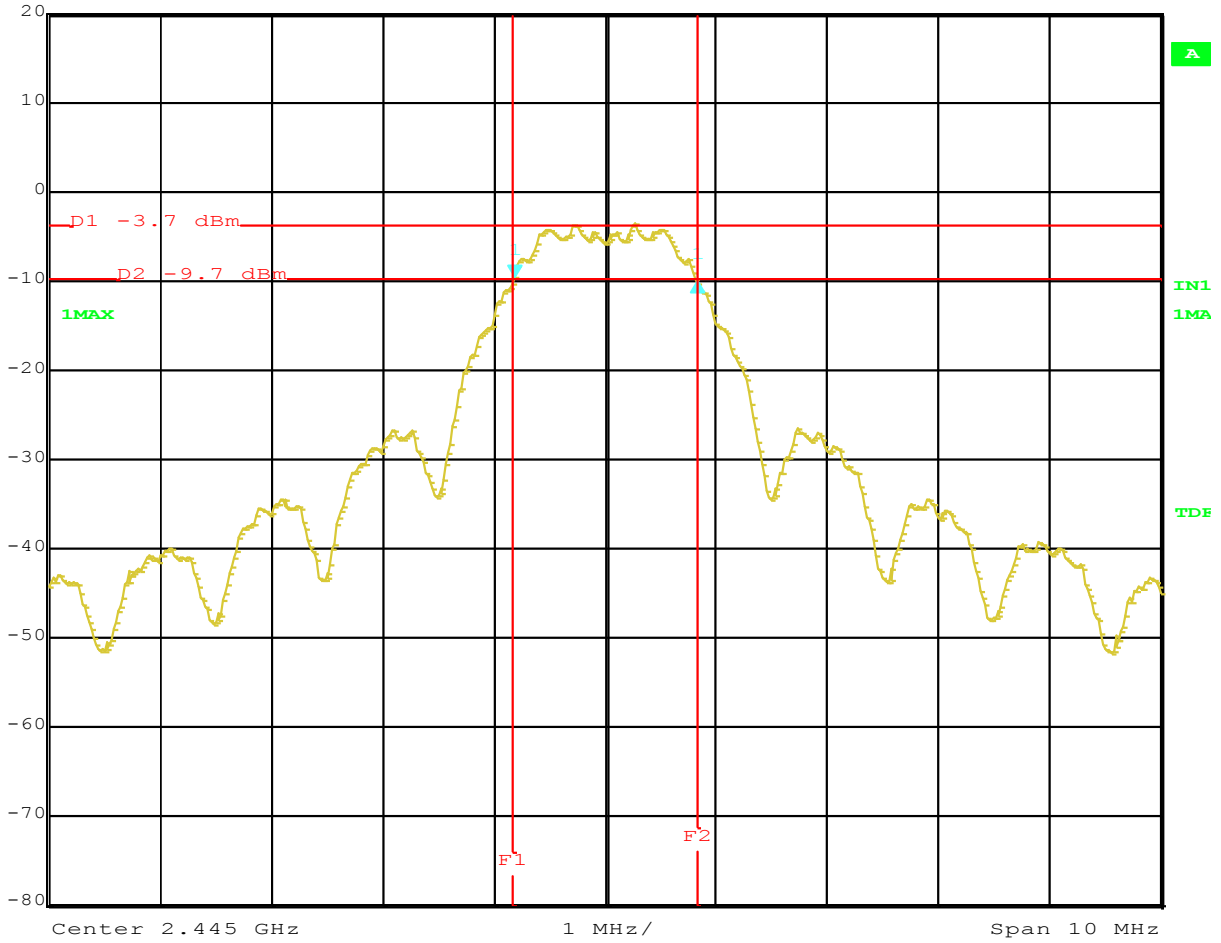
Date: 7.OCT.2016 14:45:04



Antenna 1, Channel 19 (2.445 GHz)



Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	30 dB
20 dBm	-0.70 dB	VBW	1 MHz	Unit	
	1.64328657 MHz	SWT	5 ms		dBm



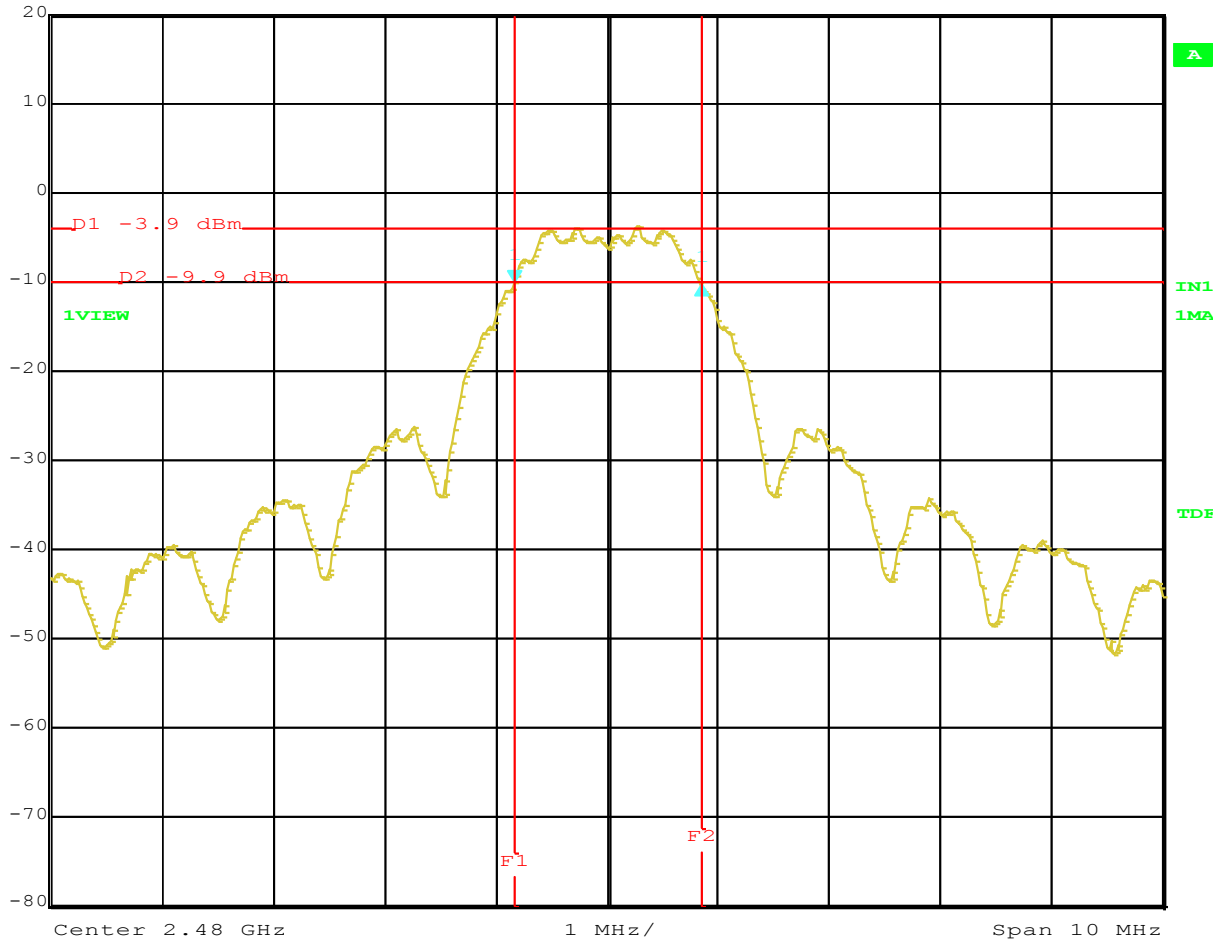
Date: 7.OCT.2016 14:48:45



Antenna 1, Channel 26 (2.480 GHz)



Delta 1 [T1] RBW 100 kHz RF Att 30 dB
Ref Lvl -0.43 dB VBW 1 MHz
20 dBm 1.68336673 MHz SWT 5 ms Unit dBm



Date: 7.OCT.2016 14:57:44



4.3.4 6 dB Occupied Bandwidth Test Results (10/07/2016)

Antenna 0

Antenna Number	Freq (GHz)	6 - dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/Fail
0	2.405	1.6432	0.5	PASS
0	2.445	1.6232	0.5	PASS
0	2.480	1.6232	0.5	PASS

Antenna 1

Antenna Number	Freq (GHz)	6 - dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/Fail
1	2.405	1.6432	0.5	PASS
1	2.445	1.6432	0.5	PASS
1	2.480	1.6833	0.5	PASS

Results: The 6 dB Occupied Bandwidth measurements for antenna 0 and antenna 1 of the ARRIS Model DCX900 Set Top Box are compliant with the limits specified in FCC Section 15.247(a)(2), IC RSS-Gen and IC RSS-247 5.2(1).



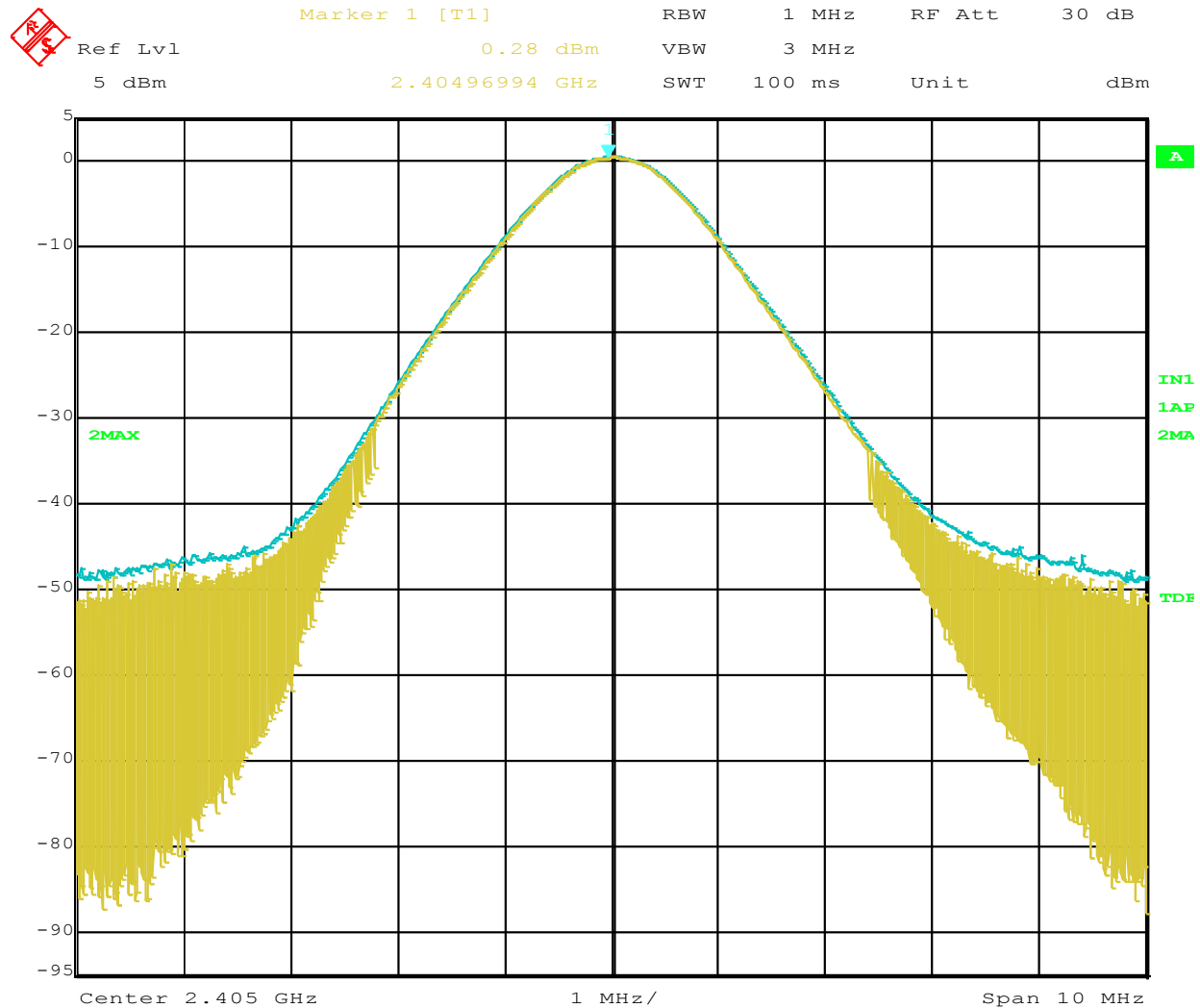
4.4 Maximum Peak Power Output FCC Section 15.247(b)(3) and IC RSS-247 5.4(4).

4.4.1 Maximum Peak Power Output Test Procedure

A conducted power measurement of the output frequency was measured for both Antenna 0 and Antenna 1. The Antenna 0 and Antenna 1 were set individually to low (Channel 11), middle (Channel 19) and high (Channel 26). The signal output was maximized without modulation. Signal was measured with no modulation since the peak of the signal was higher when modulation was turned off.

4.4.2 Maximum Peak Power Output Analyzer Display Captures Antenna 0

Antenna 0, Channel 11 (2.405 GHz)



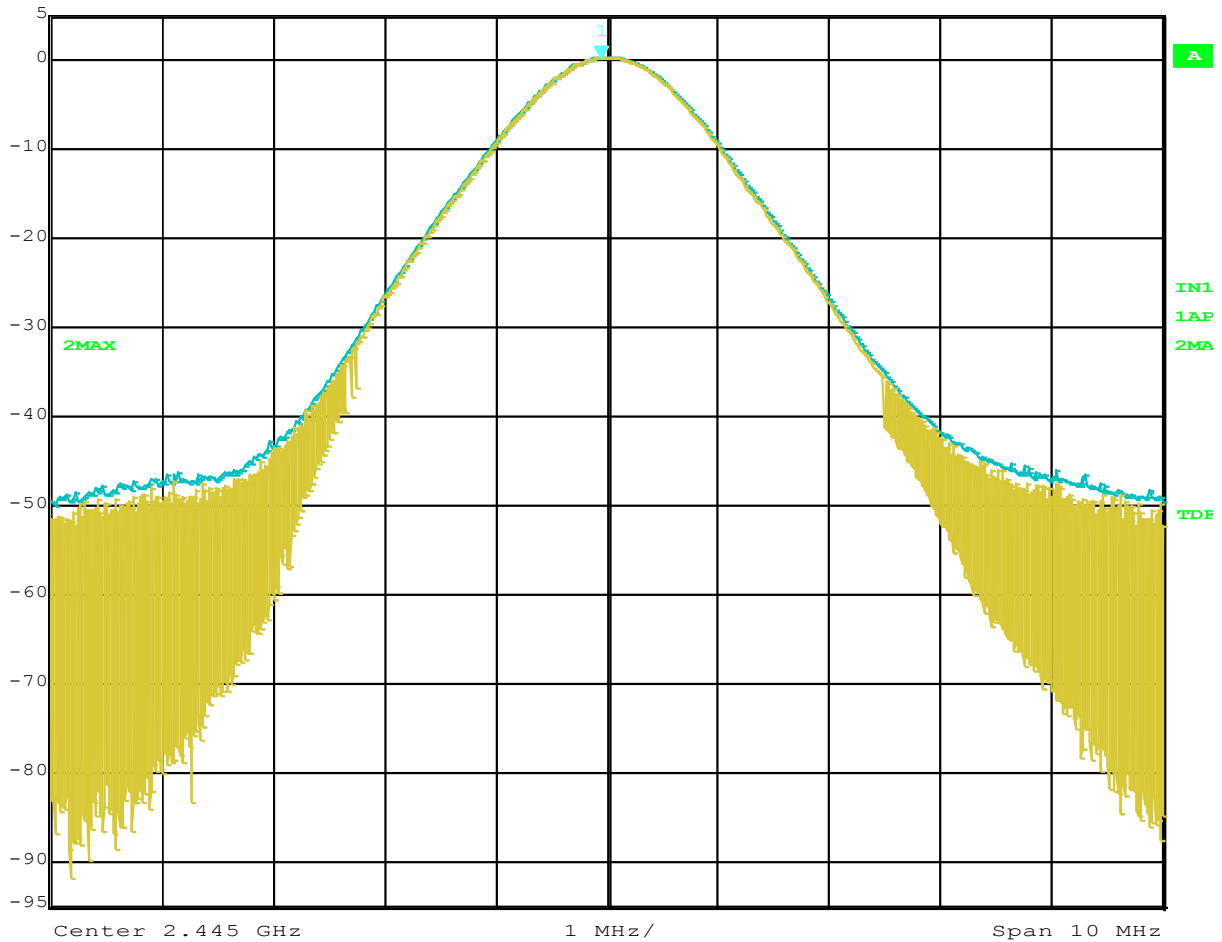
Date: 7.OCT.2016 13:00:18



Antenna 0, Channel 19 (2.445 GHz)



Marker 1 [T2] RBW 1 MHz RF Att 30 dB
Ref Lvl 0.11 dBm VBW 3 MHz
5 dBm 2.44494990 GHz SWT 100 ms Unit dBm



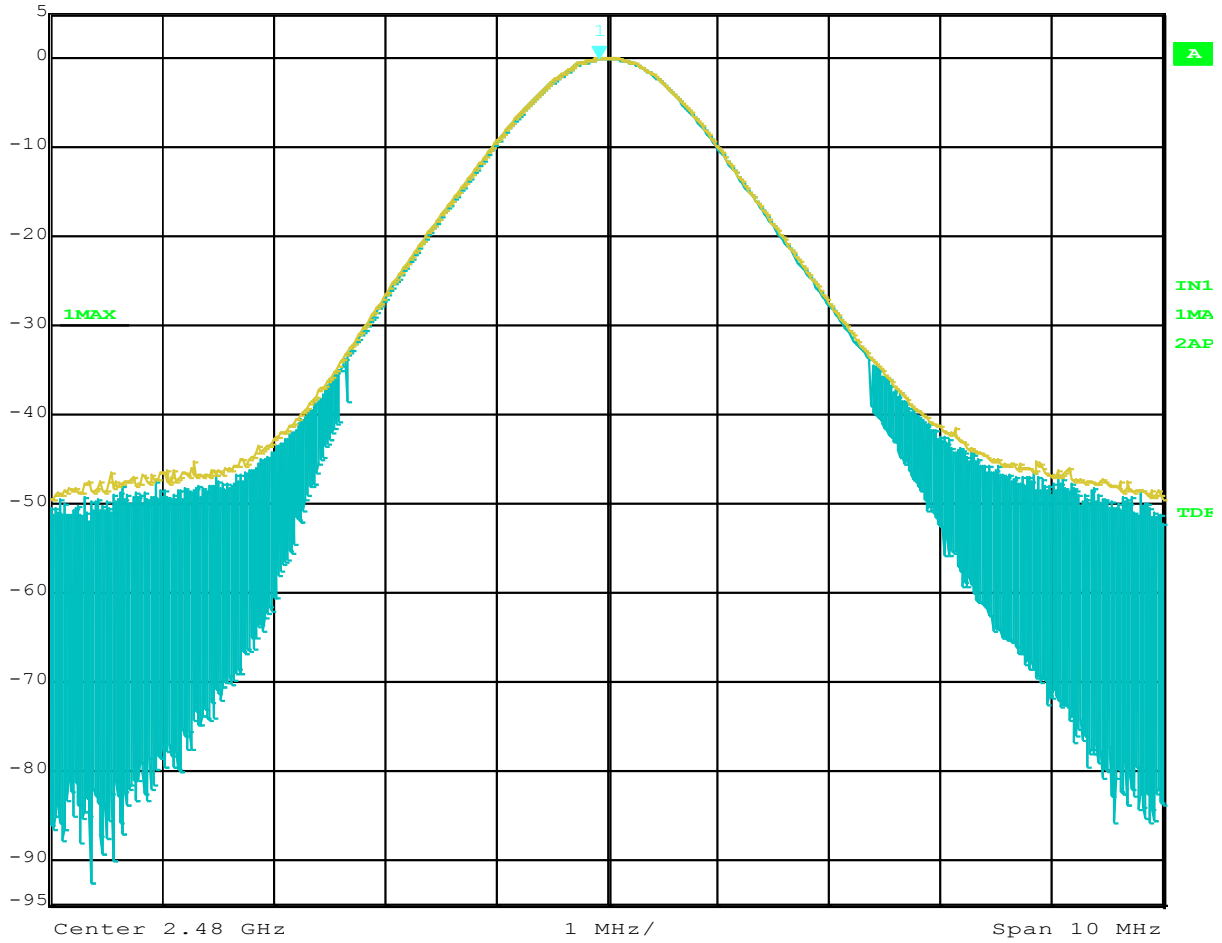
Date: 7.OCT.2016 13:02:09



Antenna 0, Channel 26 (2.480 GHz)



Marker 1 [T1] RBW 1 MHz RF Att 30 dB
Ref Lvl -0.18 dBm VBW 3 MHz
5 dBm 2.47992986 GHz SWT 100 ms Unit dBm

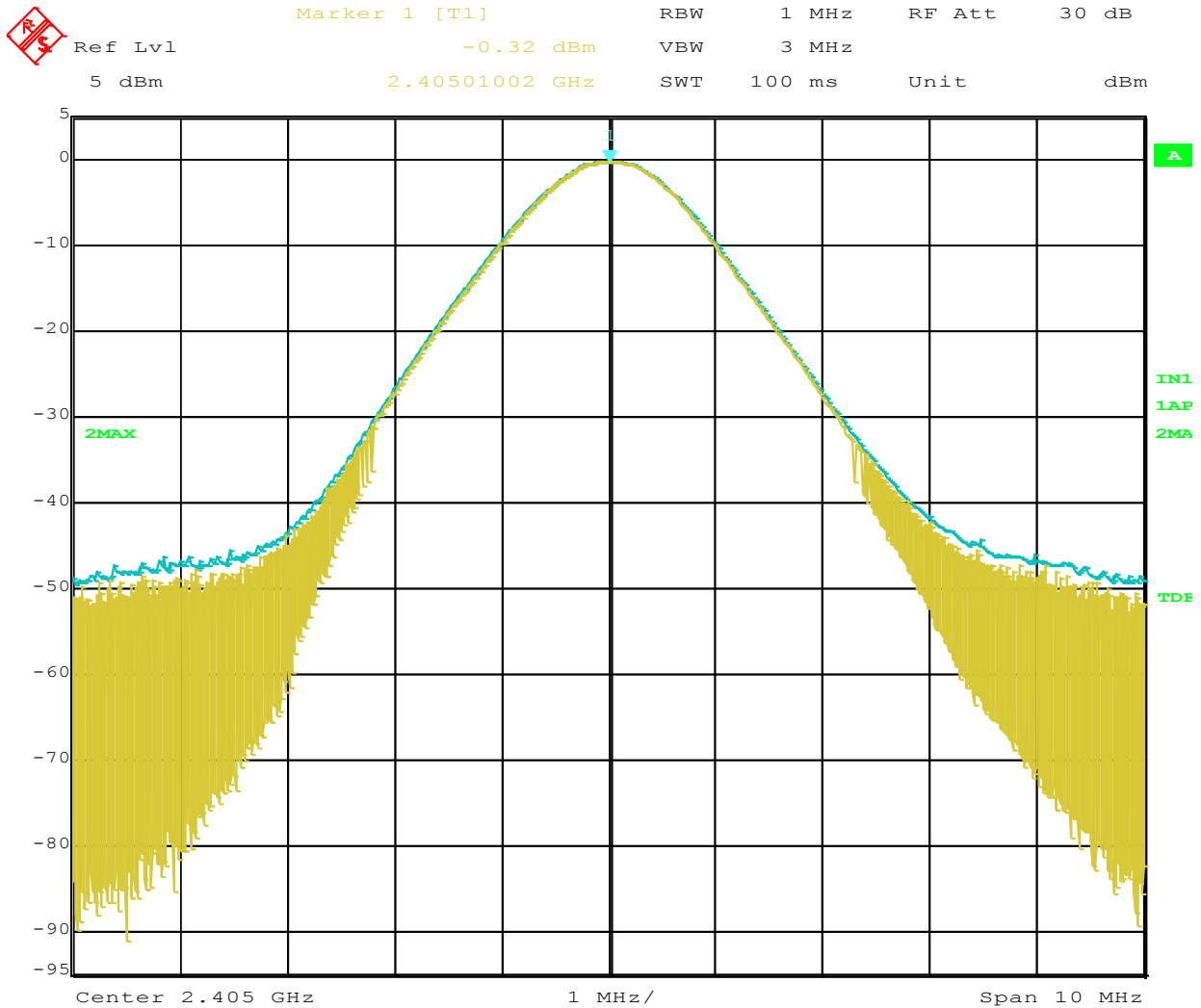


Date: 7.OCT.2016 13:12:02



4.4.3 Maximum Peak Power Output Analyzer Display Captures Antenna 1

Antenna 1, Channel 11 (2.405 GHz)



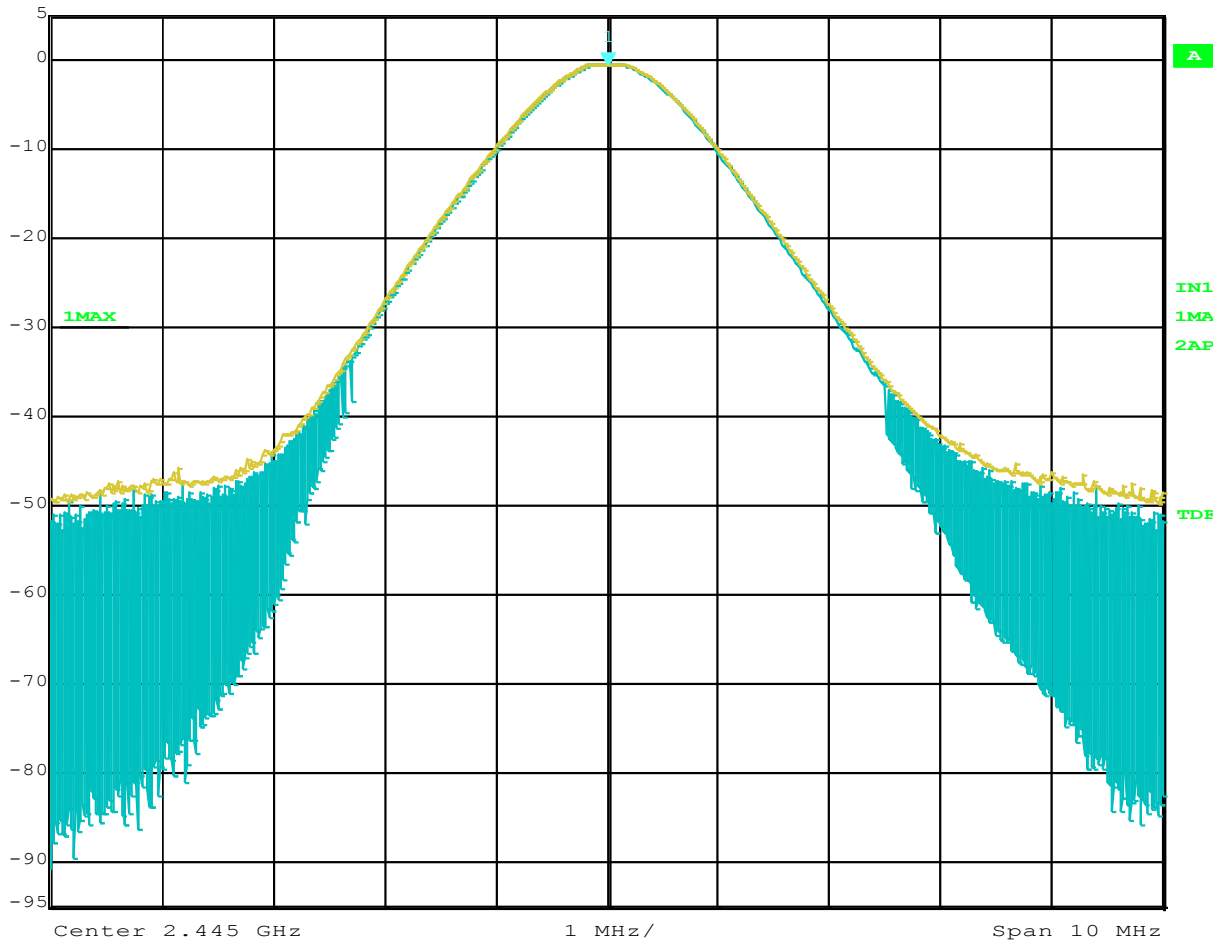
Date: 7.OCT.2016 13:06:58



Antenna 1, Channel 19 (2.445 GHz)



Ref Lvl 5 dBm
Marker 1 [T1] -0.54 dBm
2.44501002 GHz
RBW 1 MHz
RF Att 30 dB
VBW 3 MHz
SWT 100 ms
Unit dBm



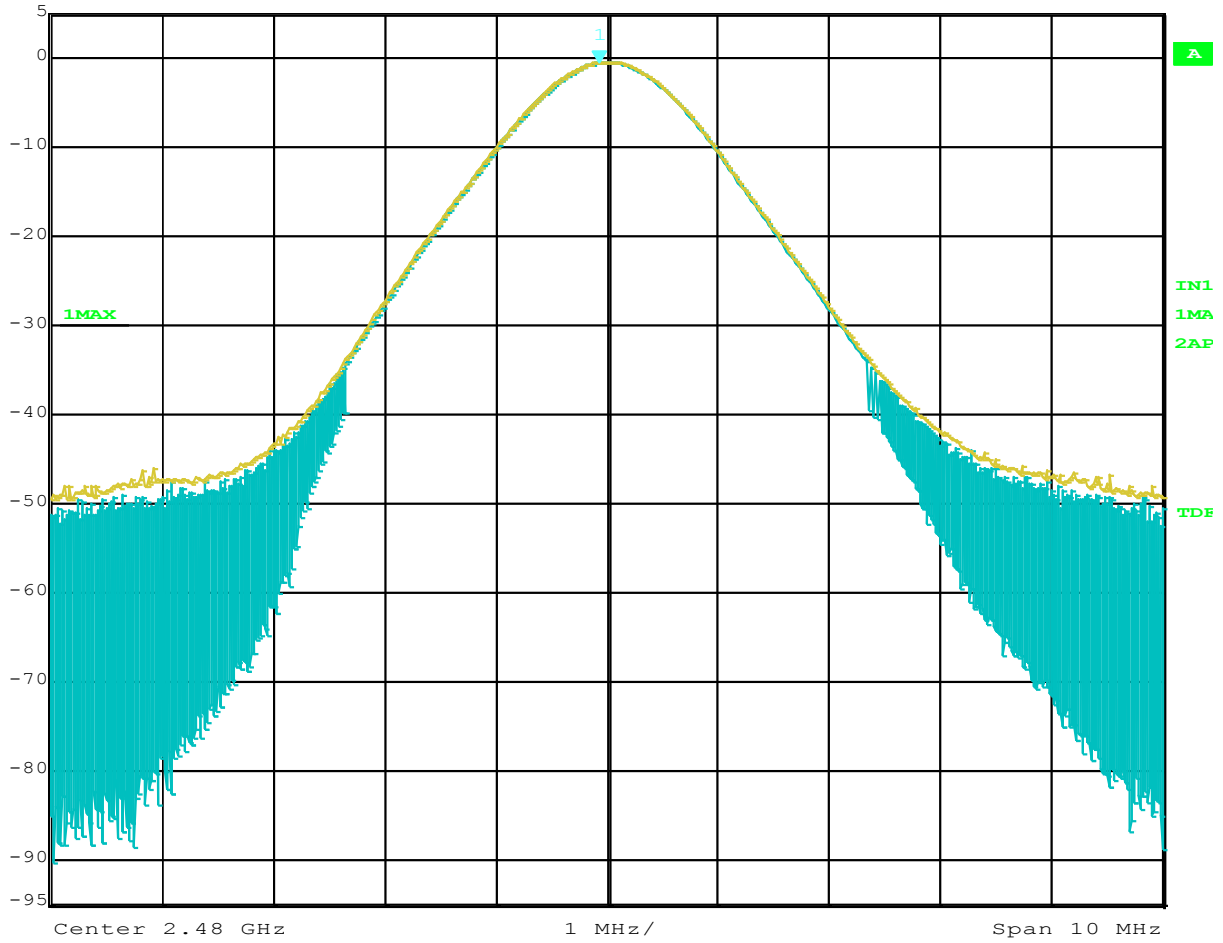
Date: 7.OCT.2016 13:08:41



Antenna 1, Channel 26 (2.480 GHz)



Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	30 dB
5 dBm	-0.65 dBm	VBW	3 MHz		
	2.47992986 GHz	SWT	100 ms	Unit	dBm



Date: 7.OCT.2016 13:09:40



4.4.4 Maximum Peak Power Output Test Results (10/07/2016)

Antenna 0

Frequency GHz	Measured Level dBm	Cable Loss dB	Total		Limit		Margin	
			dBm	Watts	dBm	Watts	dBm	Watts
2.405	0.28	0.6	0.88	0.00122	30	1	-29.12	-0.99878
2.445	0.11	0.6	0.71	0.00118	30	1	-29.29	-0.99882
2.480	-0.18	0.6	0.42	0.0011	30	1	-29.58	-0.9989

Antenna 1

Frequency GHz	Measured Level dBm	Cable Loss dB	Total		Limit		Margin	
			dBm	Watts	dBm	Watts	dBm	Watts
2.405	-0.32	0.6	0.28	0.00107	30	1	-29.72	-0.99893
2.445	-0.54	0.6	0.06	0.00101	30	1	-29.94	-0.99899
2.480	-0.65	0.6	-0.05	0.00099	30	1	-30.05	-0.99901

Results: The Peak Power Output measurements for antenna 0 and antenna 1 of the ARRIS Model DCX900 Set Top Box are compliant with the limits specified in FCC Section 15.247(b)(3) and IC RSS-247 5.4(4).



4.5 Antenna Conducted Spurious Emissions FCC Section 15.247(d) and IC RSS-Gen

4.5.1 Antenna Conducted Spurious Emissions Test Procedure

A conducted power measurement of the output frequency was measured for both Antenna 0 and Antenna 1. The Antenna 0 and Antenna 1 were set individually to low (Channel 11), middle (Channel 19) and high (Channel 26). The signal output was maximized with modulation.

4.5.2 Antenna Conducted Spurious Emissions Test Results (10/10/2016)

Antenna 0

Channel	Fundamental Channel Freq (GHz)	Freq (GHz)	Measured Level (dBm)	#814 Cable Loss (dB)	Total Corrected Level (dBm)	Output Spurious Limit (dBm)	Pass/Fail	
11	2.405	4.7995	-64	0.9	-63.1	-21.84	PASS	
11	2.405	14.4188	-65.24	1.5	-63.74	-21.84	PASS	
11	2.405	No other harmonics to 25 GHz						
19	2.445	4.8958	-67.77	0.9	-66.87	-21.99	PASS	
19	2.445	No other harmonics to 25 GHz						
26	2.480	4.9438	-65.92	0.9	-65.02	-23.23	PASS	
26	2.480	12.3988	-65.12	1.4	-63.72	-23.23	PASS	
26	2.480	No other harmonics to 25 GHz						

Antenna 1

Channel	Fundamental Channel Freq (GHz)	Freq (GHz)	Measured Level (dBm)	#814 Cable Loss (dB)	Total Corrected Level (dBm)	Output Spurious Limit (dBm)	Pass/Fail	
11	2.405	4.7996	-63.12	0.9	-62.22	-21.7	PASS	
11	2.405	No other harmonics to 25 GHz						
19	2.445	4.8960	-66.72	0.9	-65.82	-22.07	PASS	
19	2.445	No other harmonics to 25 GHz						
26	2.480	4.9440	-65.94	0.9	-65.04	-23.59	PASS	
26	2.480	17.0640	-64.18	1.7	-62.48	-23.59	PASS	
26	2.480	No other harmonics to 25 GHz						

Results: The Antenna Conducted Spurious Emissions measurements for antenna 0 and antenna 1 of the ARRIS Model DCX900 Set Top Box are compliant with the limits specified in FCC Section 15.247(d) and IC RSS-Gen.



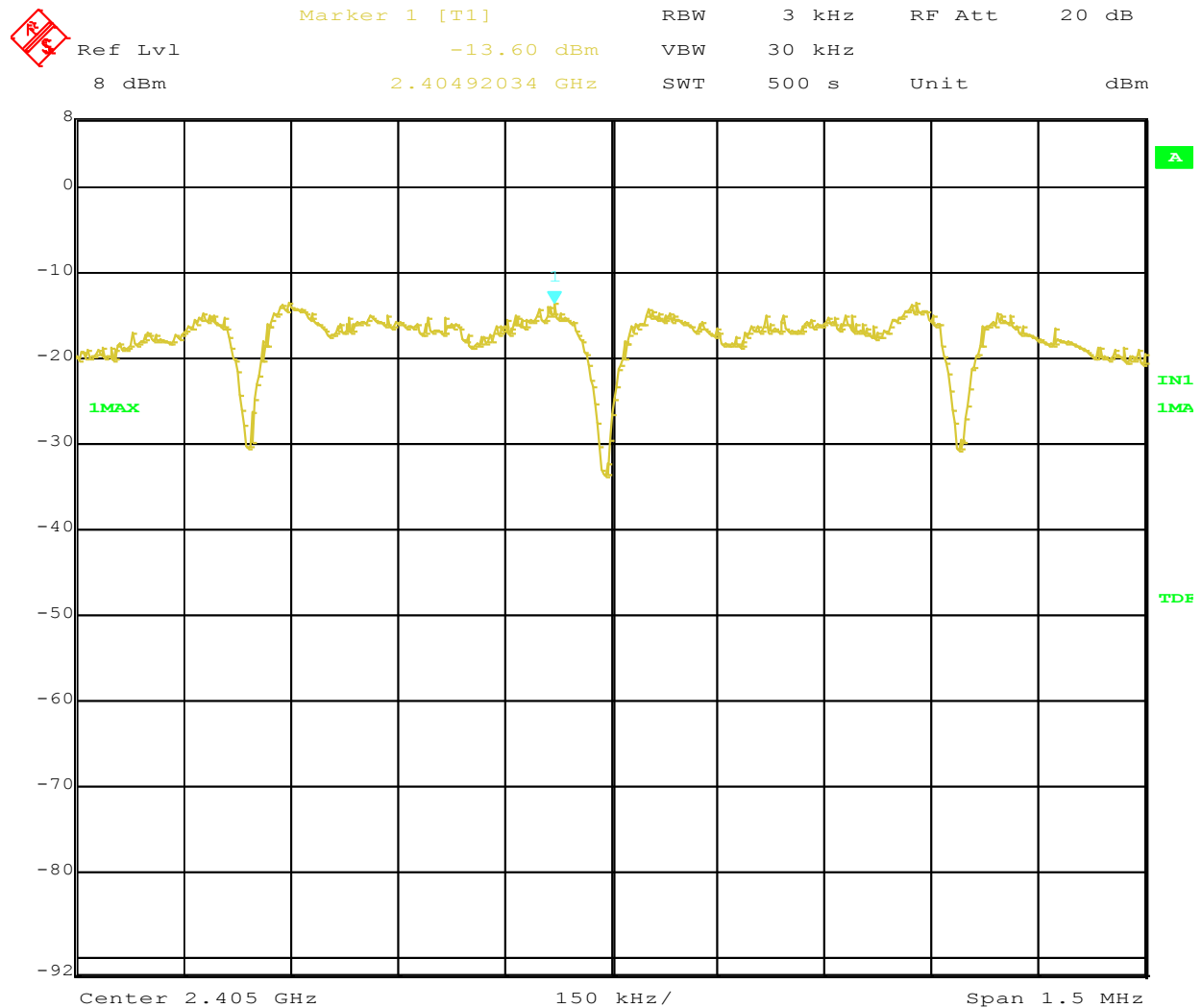
4.6 Power Spectral Density FCC Section 15.247(e) and IC RSS-247 5.4(2)

4.6.1 Power Spectral Density Test Procedure

A conducted power measurement of the output frequency was measured for both Antenna 0 and Antenna 1. The Antenna 0 and Antenna 1 were set individually to low (Channel 11), middle (Channel 19) and high (Channel 26). The signal output was maximized with modulation.

4.6.2 Power Spectral Density Analyzer Display Captures Antenna 0

Antenna 0, Channel 11 (2.405 GHz)



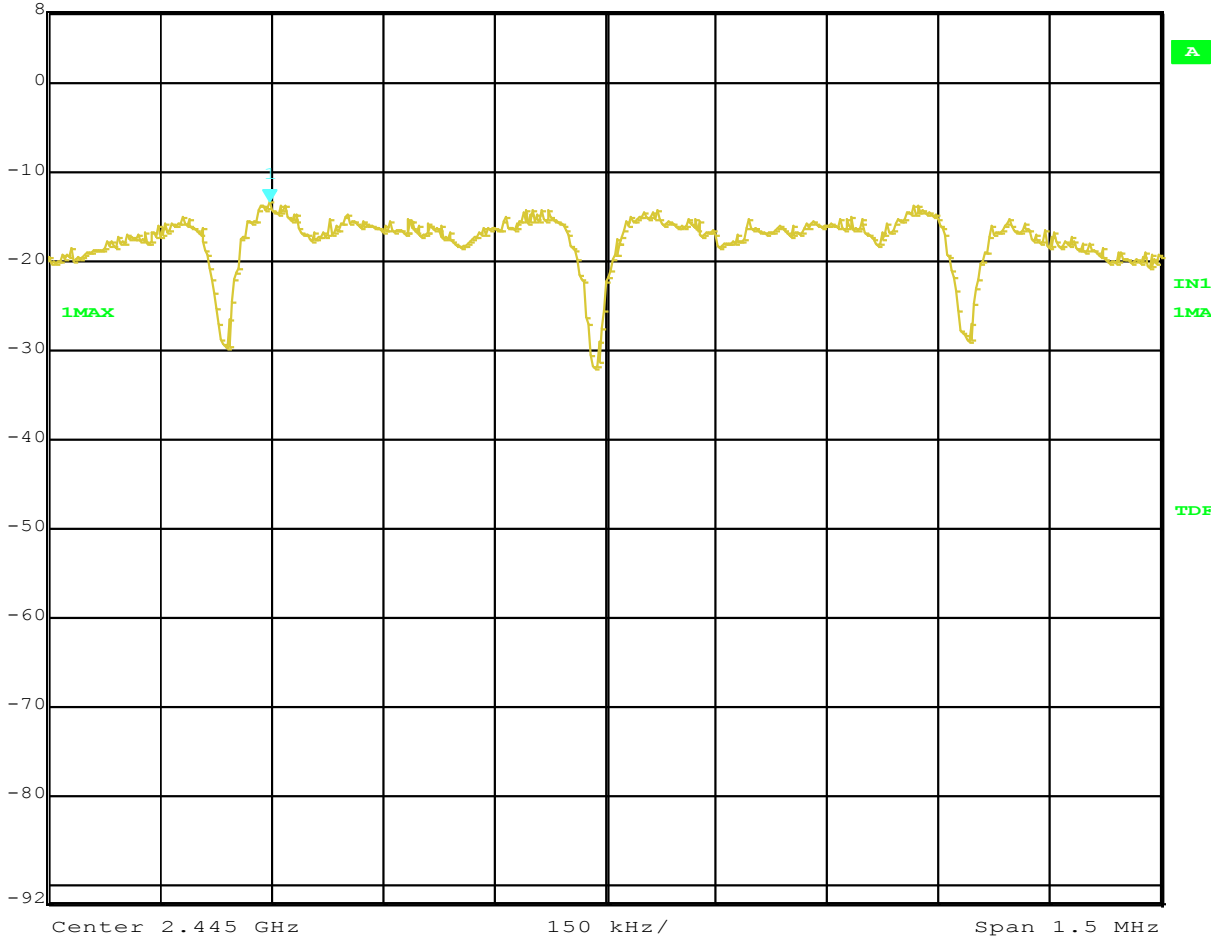
Date: 10.OCT.2016 10:37:31



Antenna 0, Channel 19 (2.445 GHz)



Ref Lvl	Marker 1 [T1]	RBW	3 kHz	RF Att	20 dB
8 dBm	-13.48 dBm	VBW	30 kHz		
	2.44454760 GHz	SWT	500 s	Unit	dBm



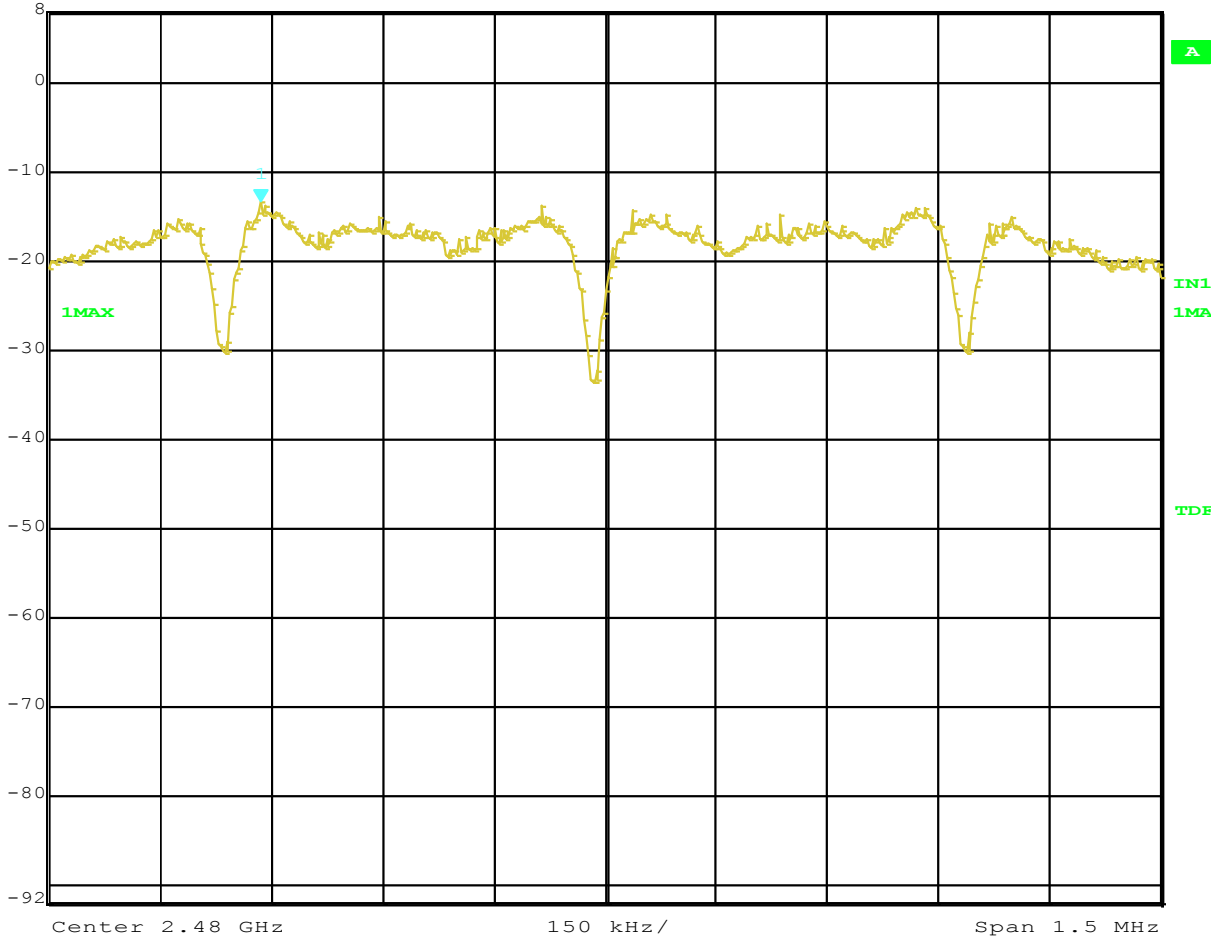
Date: 10.OCT.2016 10:53:27



Antenna 0, Channel 26 (2.480 GHz)



Ref Lvl	Marker 1 [T1]	RBW	3 kHz	RF Att	20 dB
8 dBm	-13.43 dBm	VBW	30 kHz		
	2.47953557 GHz	SWT	500 s	Unit	dBm

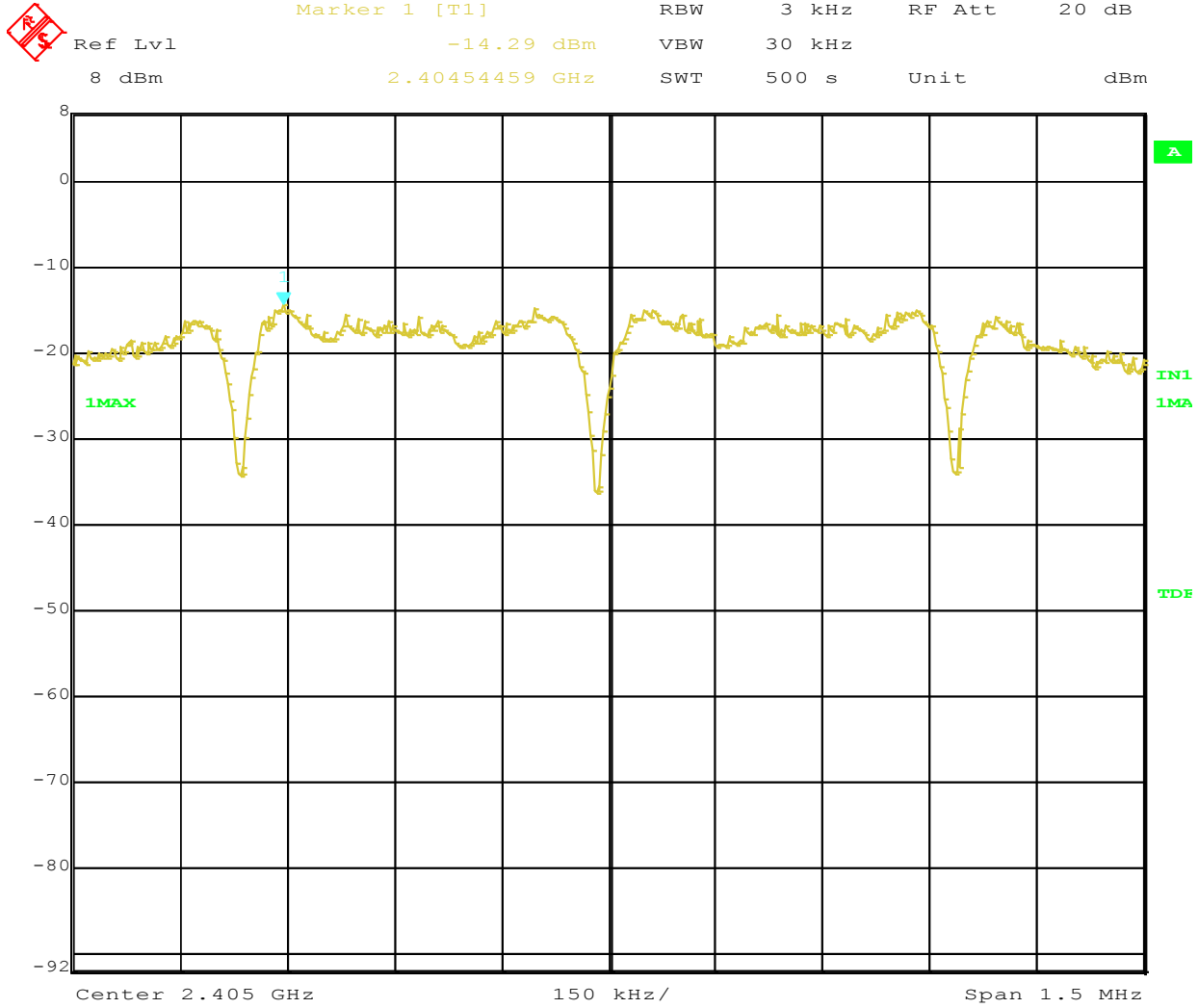


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4.6.3 Power Spectral Density Analyzer Display Captures Antenna 1

Antenna 1, Channel 11 (2.405 GHz)



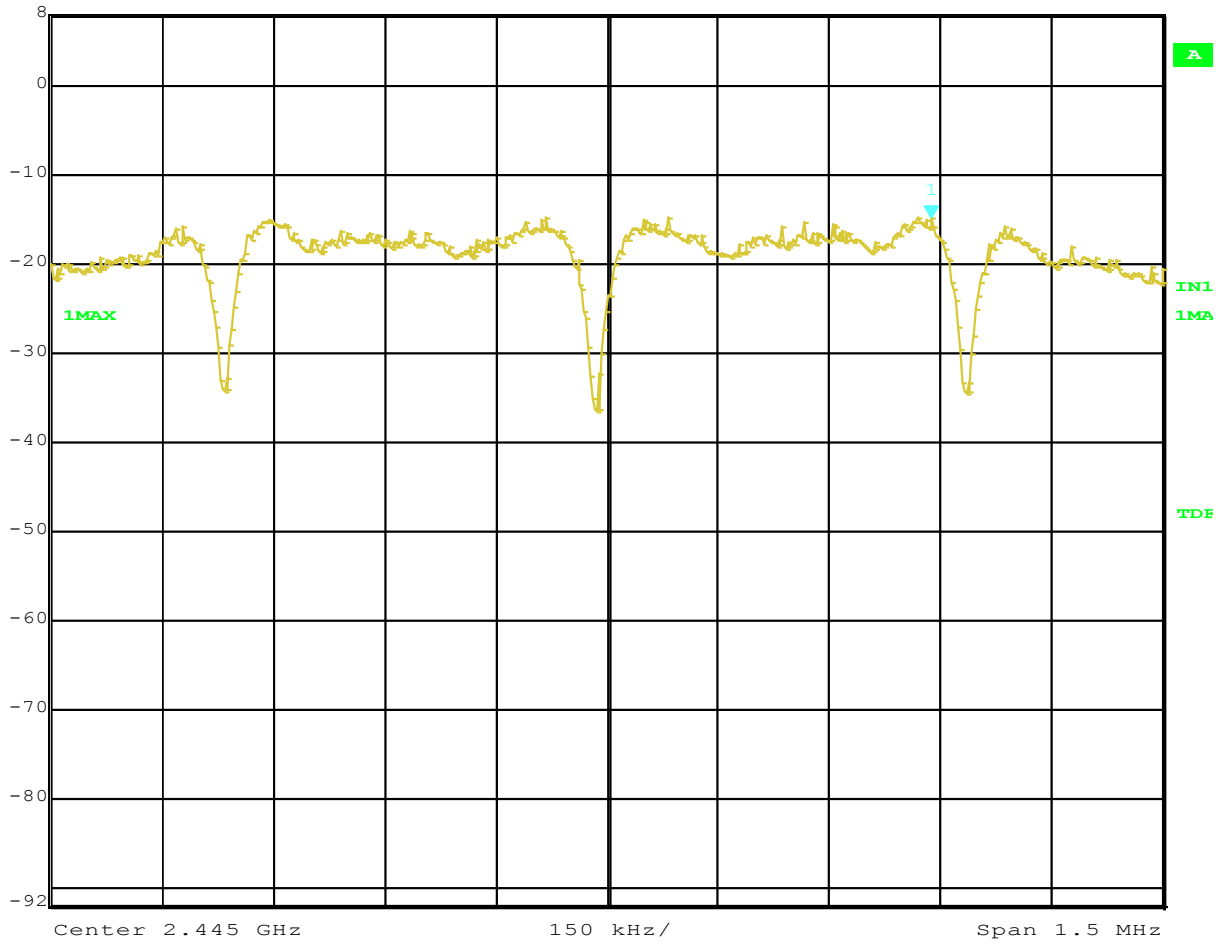
Date: 10.OCT.2016 11:39:26



Antenna 1, Channel 19 (2.445 GHz)



Marker 1 [T1] RBW 3 kHz RF Att 20 dB
Ref Lvl -14.82 dBm VBW 30 kHz
8 dBm 2.44543737 GHz SWT 500 s Unit dBm



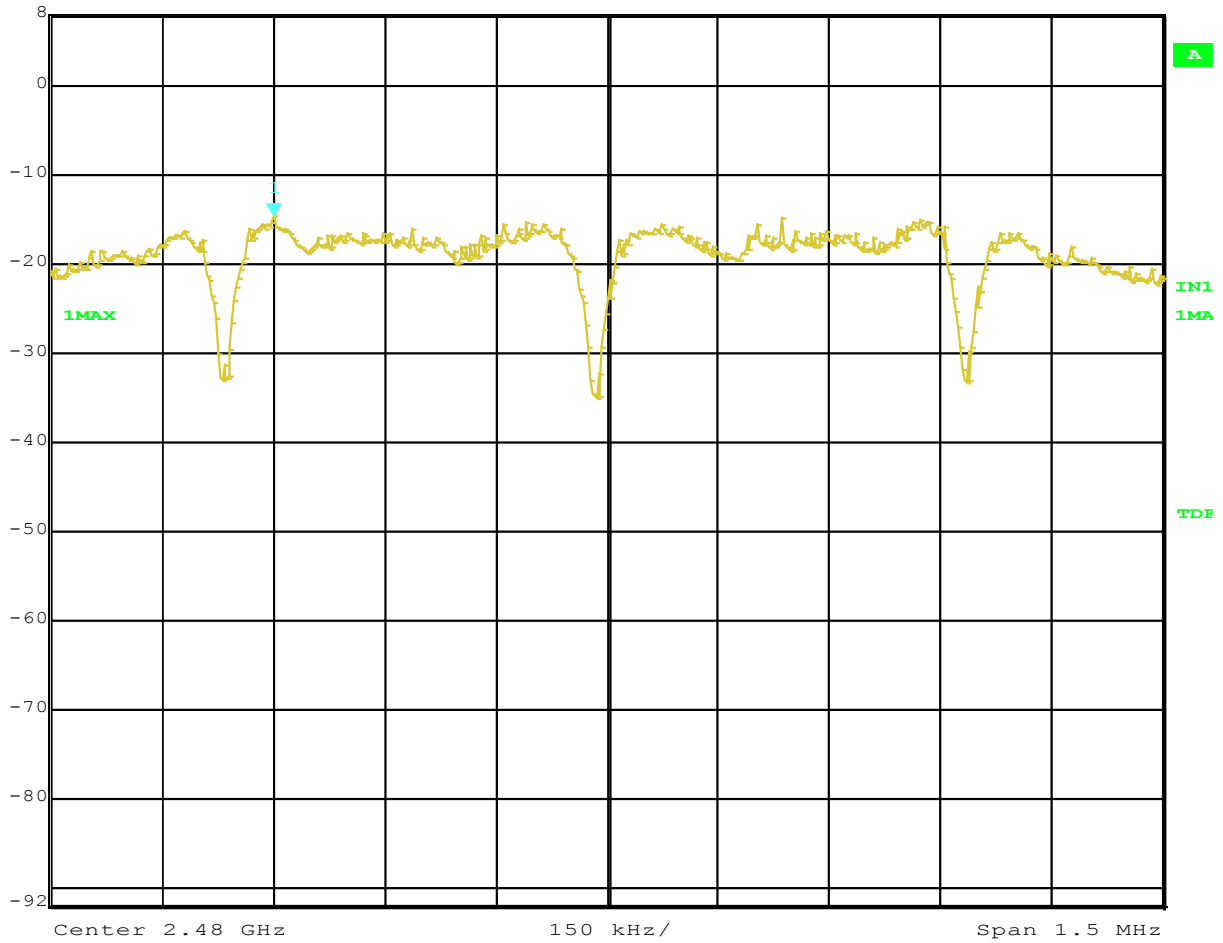
Date: 10.OCT.2016 11:28:04



Antenna 1, Channel 26 (2.480 GHz)



Marker 1 [T1] RBW 3 kHz RF Att 20 dB
Ref Lvl -14.67 dBm VBW 30 kHz
8 dBm 2.47955060 GHz SWT 500 s Unit dBm



Date: 10.OCT.2016 11:18:31



4.6.4 Power Spectral Density Test Results (10/10/2016)

Antenna 0

Antenna	Channel	Freq (GHz)	Measured Power Spectral Density (dBm)	Cable Loss (dB)	Total Power Spectral Density (dBm)	Power Spectral Density Limit (dBm)	Pass/Fail
0	CH.11	2.405	-13.6	0.6	-13	8	PASS
0	CH.19	2.445	-13.48	0.6	-12.88	8	PASS
0	CH.26	2.480	-13.43	0.6	-12.83	8	PASS

Antenna 1

Antenna	Channel	Freq (GHz)	Measured Power Spectral Density (dBm)	Cable Loss (dB)	Total Power Spectral Density (dBm)	Power Spectral Density Limit (dBm)	Pass/Fail
1	CH.11	2.405	-14.29	0.6	-13.69	8	PASS
1	CH.19	2.445	-14.82	0.6	-14.22	8	PASS
1	CH.26	2.480	-14.67	0.6	-14.07	8	PASS

Results: The Power Spectral Density measurements for antenna 0 and antenna 1 of the ARRIS Model DCX900 Set Top Box are compliant with the limits specified in FCC Section 15.247(e) and IC RSS-247 5.4(2).



4.7 Band Edge Measurement FCC Section 15.247(d) and IC RSS-247 5.5

4.7.1 Band Edge Measurement Test Procedure

Band edge measurements were recorded on the EUT while operating with a modulated carrier at three frequencies (low middle and high) in the operating band of 2.4 GHz to 2.48 GHz. The measurement procedure used was the conducted output power method, where the antenna output port of the EUT was connected to the receiver input port for direct measurement.

The frequencies and associated channel numbers chosen for measurement were as follows:

Channel	Frequency (GHz)
11	2.400
19	2.445
26	2.480

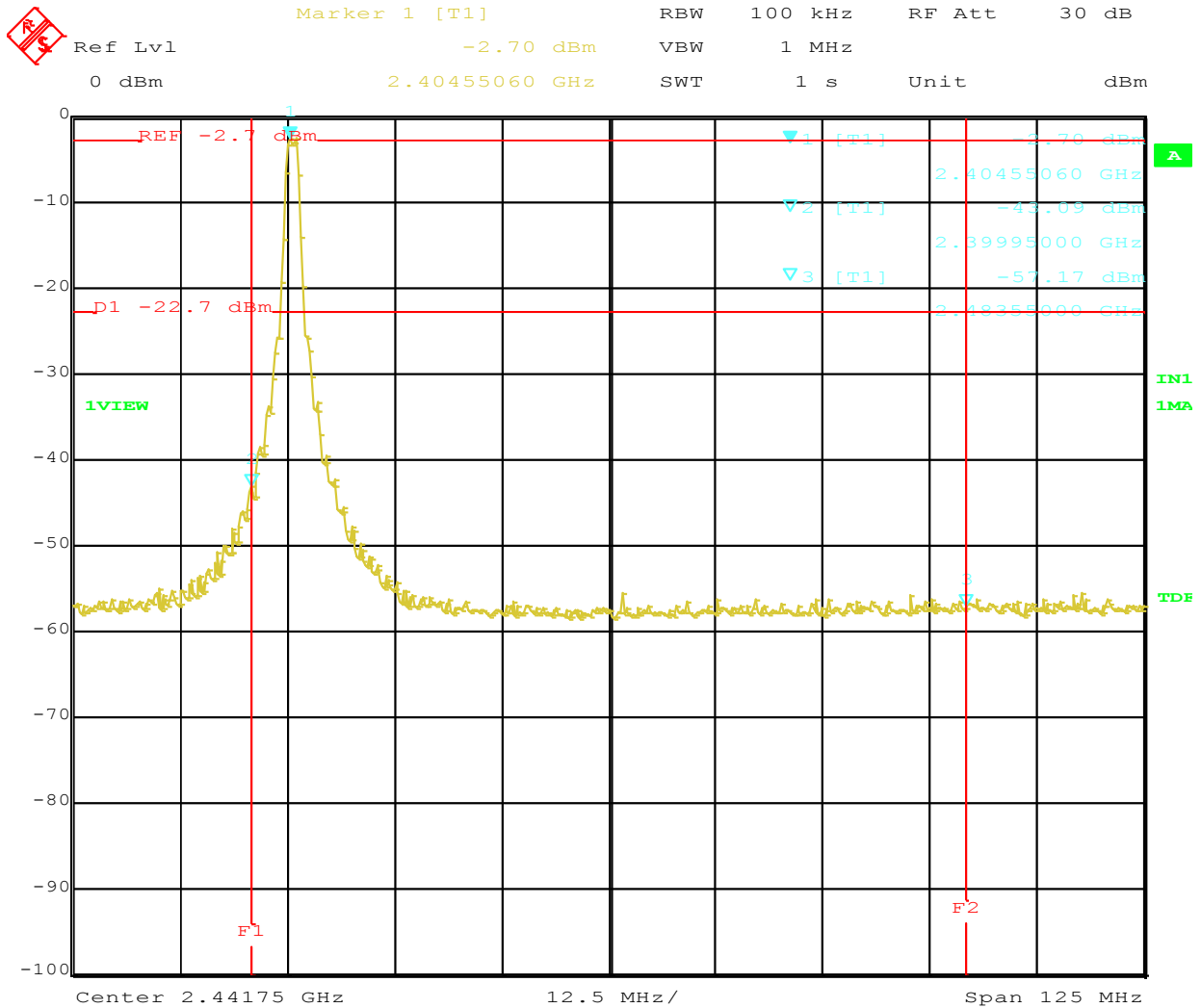
The data was recorded in three screen captures from the Spectrum Analyzer. Parameters particular to each measurement are as follows:

Center Frequency	
Resolution Bandwidth	100 kHz
Video Bandwidth	1 MHz
Span	125 MHz
Scale:	dBm
Reference Level:	0 dBm



4.7.2 Band Edge Measurement Analyzer Display Captures Antenna 0

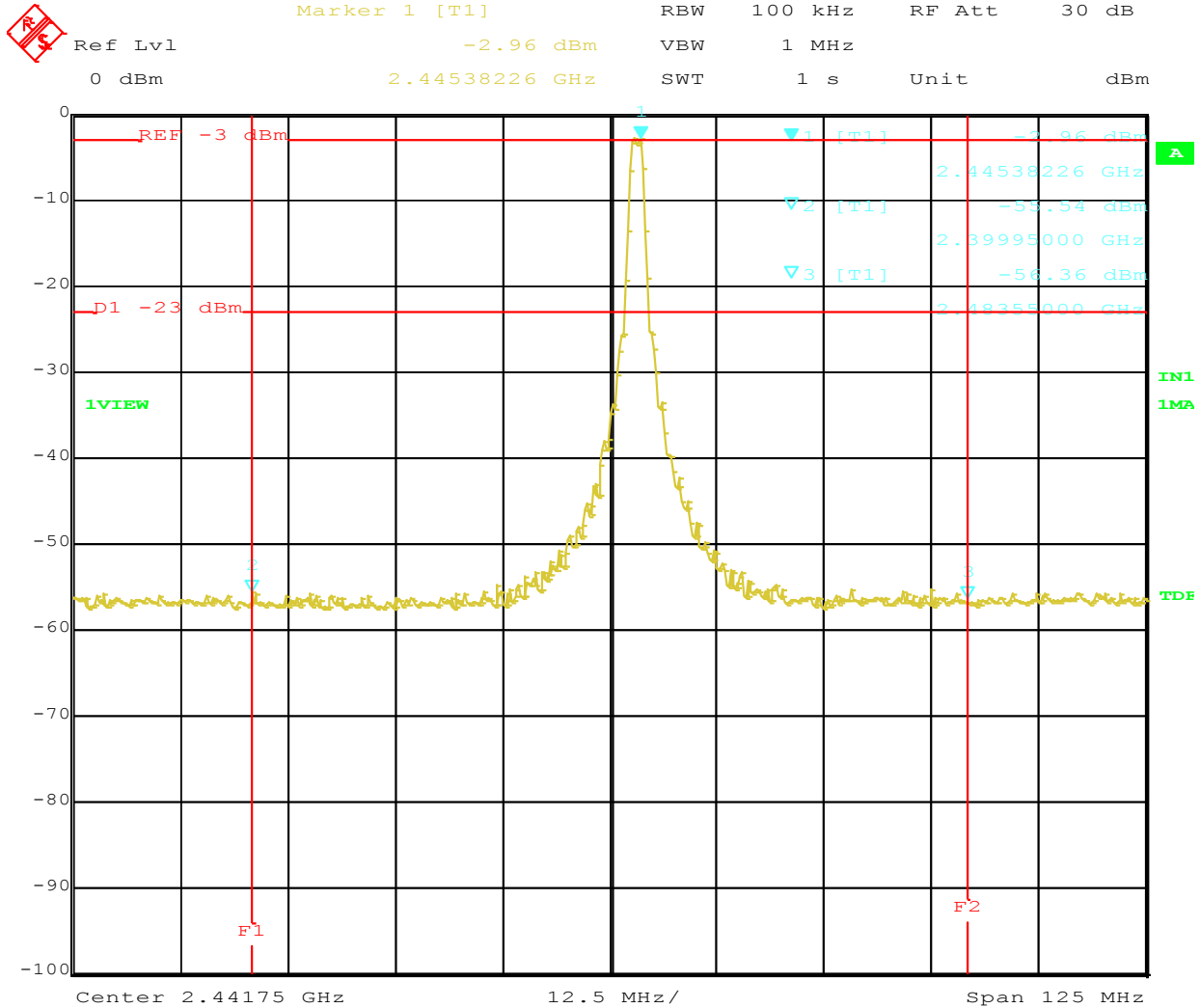
Antenna 0, Channel 11 (2.405 GHz)



Date: 10.OCT.2016 15:54:10



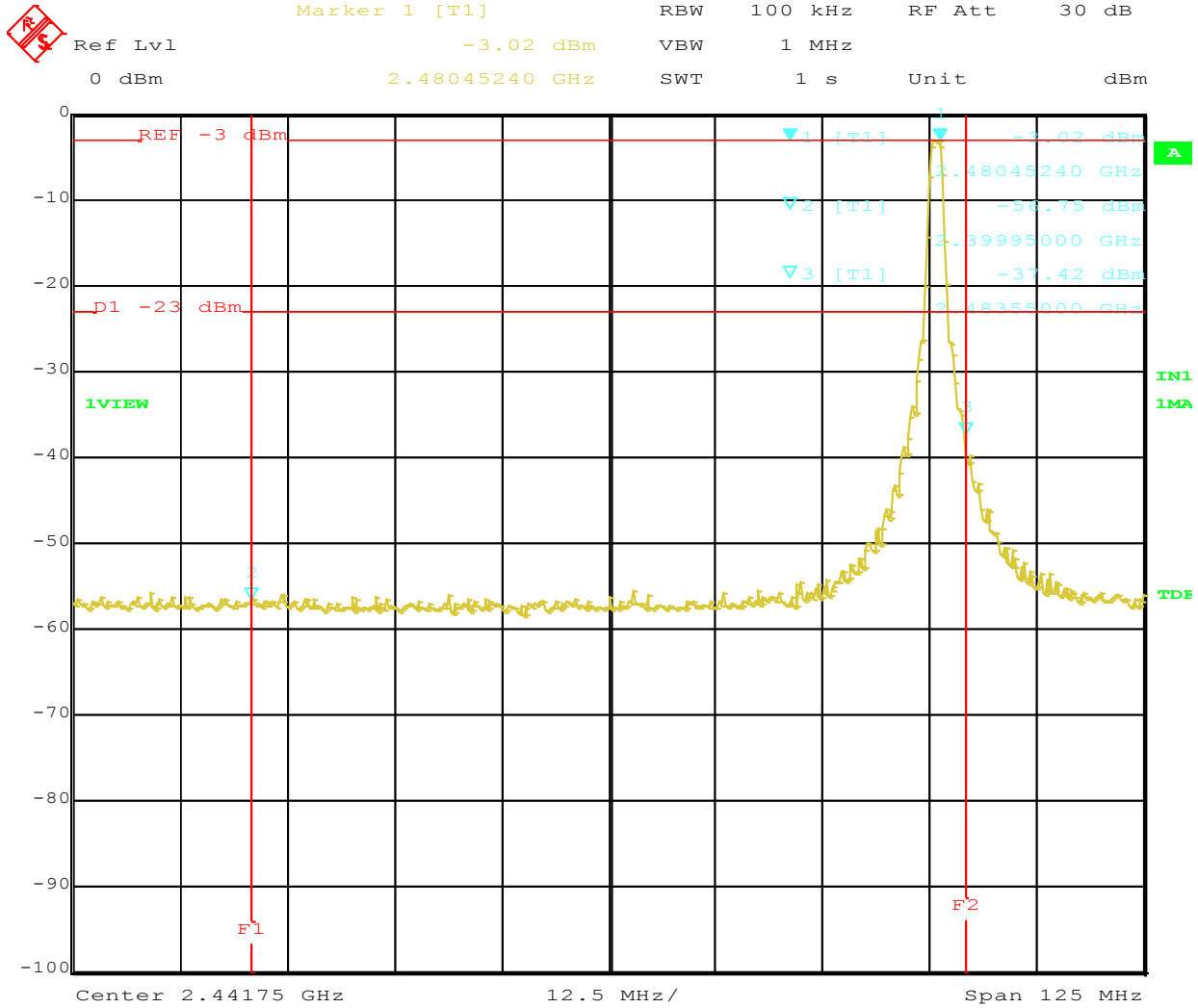
Antenna 0, Channel 19 (2.445 GHz)



Date: 10.OCT.2016 15:59:33



Antenna 0, Channel 26 (2.480 GHz)

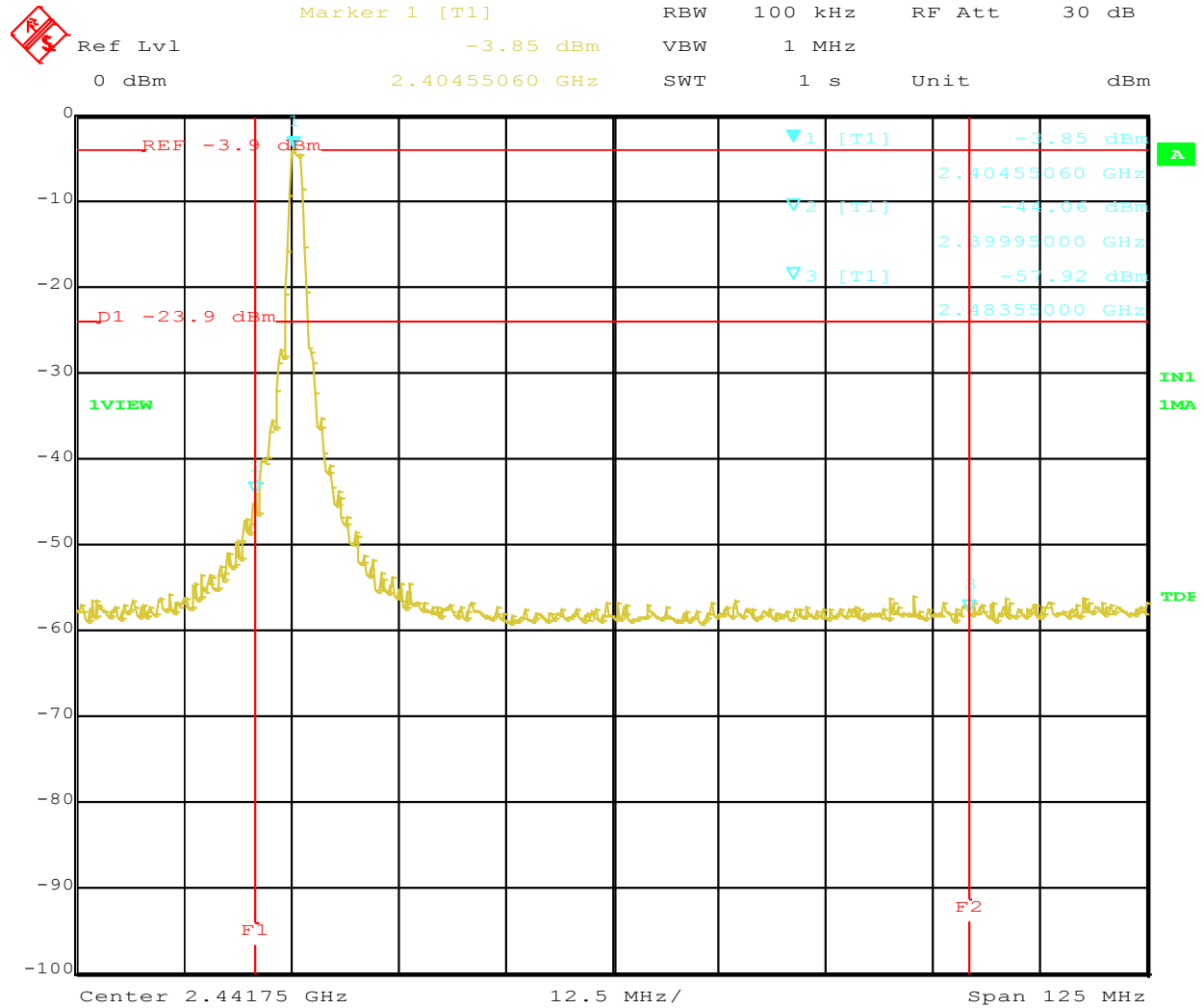


Date: 10.OCT.2016 16:03:09



4.7.3 Band Edge Measurement Analyzer Display Captures Antenna 1

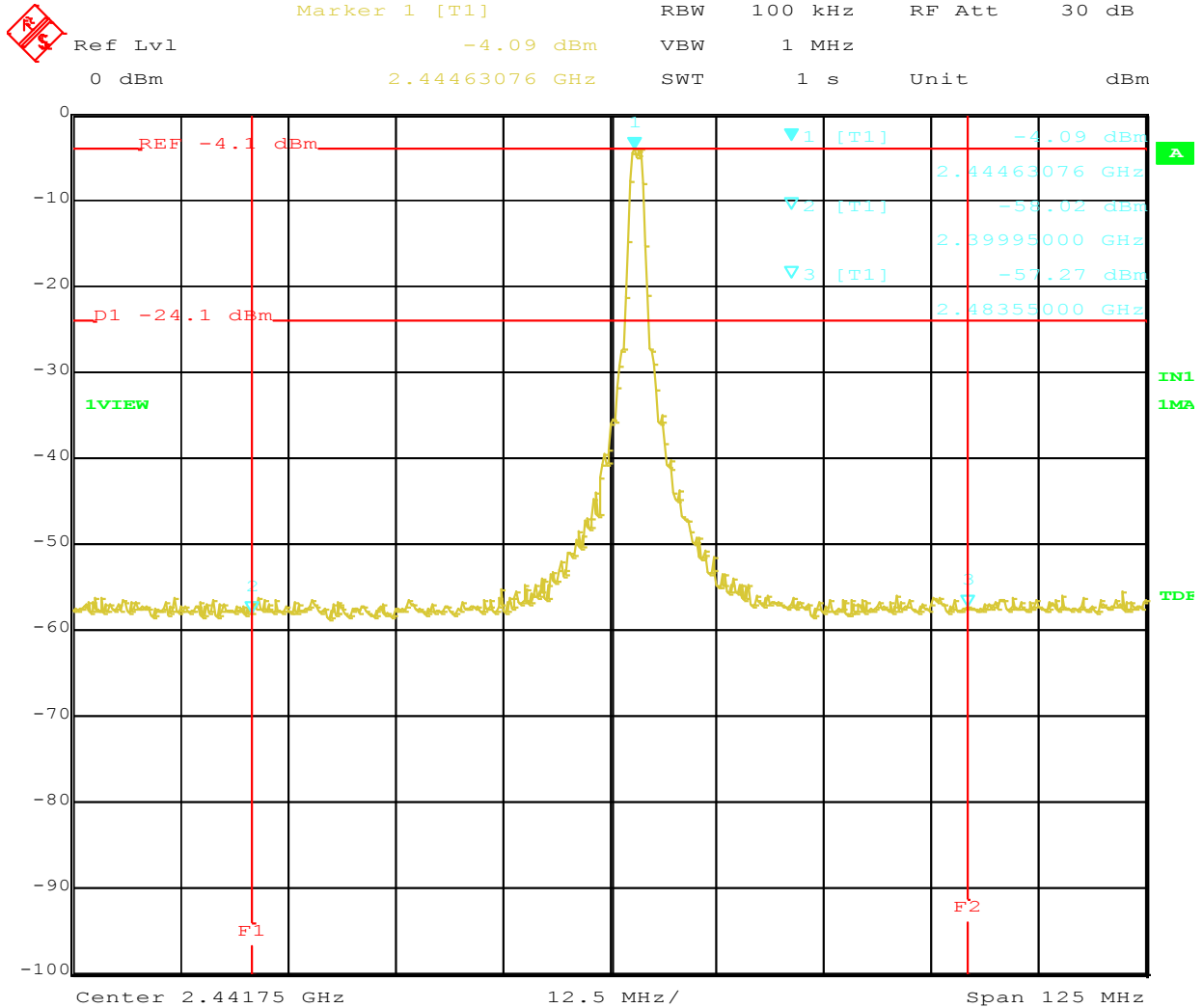
Antenna 1, Channel 11 (2.405 GHz)



Date: 10.OCT.2016 16:19:13



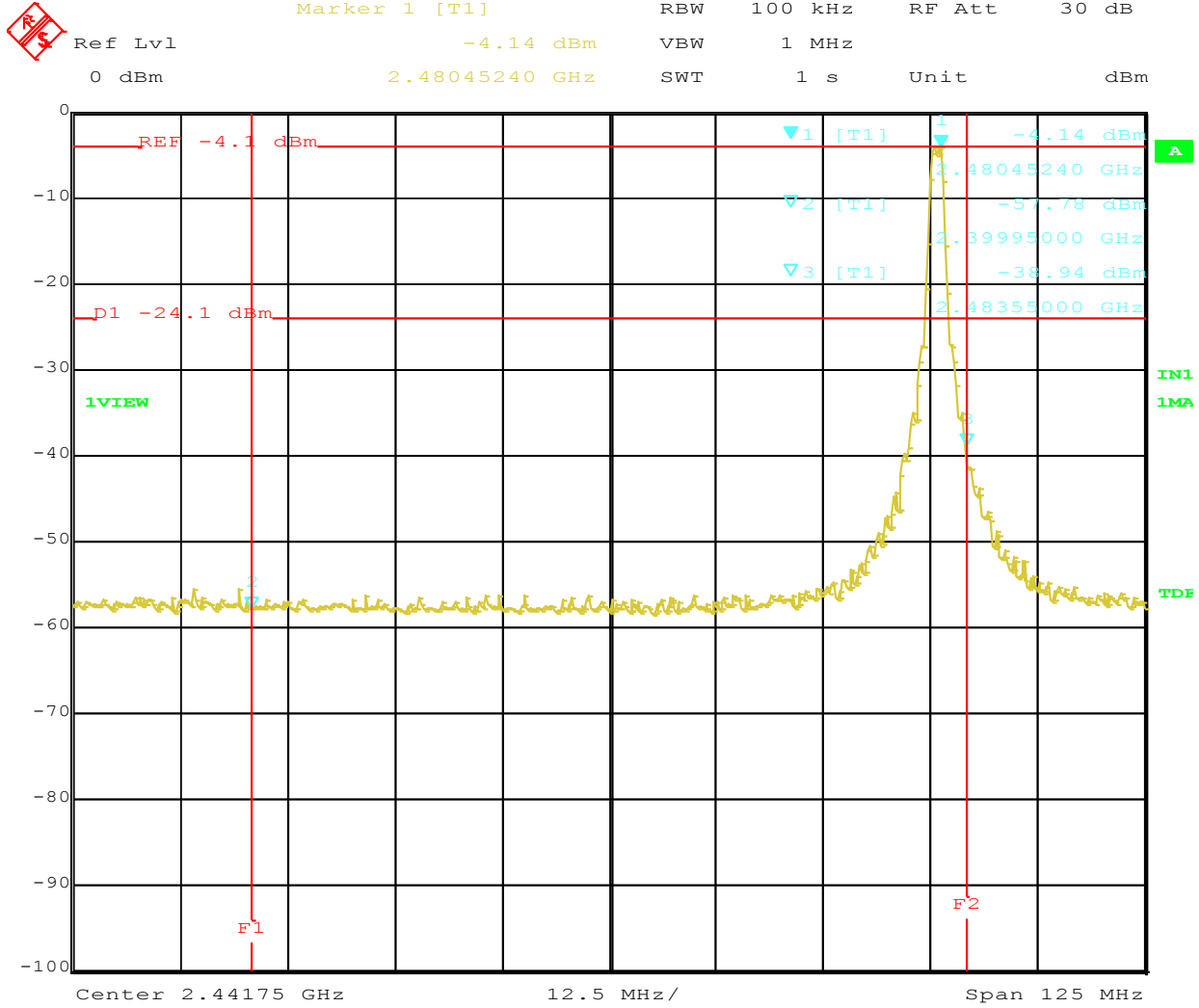
Antenna 1, Channel 19 (2.445 GHz)



Date: 10.OCT.2016 16:22:01



Antenna 1, Channel 26 (2.480 GHz)



Date: 10.OCT.2016 16:14:16



4.7.4 Band Edge Measurement Test Data Results (10/10/2016)

Antenna 0

Channel	Measurement Frequency (GHz)	Peak Amplitude (dBm)	20 dB Limit	Lower Edge of Frequency Band (GHz)	Upper Edge of Frequency Band (GHz)	Lower Measured Frequency (GHz)	Lower Measured Amplitude (dBm)	Upper Measured Frequency (GHz)	Upper Measured Amplitude (dBm)	Results
11	2.40455	-2.7	-22.7	2.4	2.4835	2.39995	-43.09	2.48355	-57.17	PASS
19	2.44538	-2.96	-22.96	2.4	2.4835	2.39995	-55.54	2.48355	-56.36	PASS
26	2.48045	-3.02	-23.02	2.4	2.4835	2.39995	-56.75	2.48355	-37.42	PASS

Antenna 1

Channel	Measurement Frequency (GHz)	Peak Amplitude (dBm)	20 dB Limit	Lower Edge of Frequency Band (GHz)	Upper Edge of Frequency Band (GHz)	Lower Measured Frequency (GHz)	Lower Measured Amplitude (dBm)	Upper Measured Frequency (GHz)	Upper Measured Amplitude (dBm)	Results
11	2.40455	-3.85	-23.85	2.4	2.4835	2.39995	-44.06	2.48355	-57.92	PASS
19	2.44463	-4.09	-24.09	2.4	2.4835	2.39995	-58.02	2.48355	-57.27	PASS
26	2.48045	-4.14	-24.14	2.4	2.4835	2.39995	-57.78	2.48355	-38.94	PASS

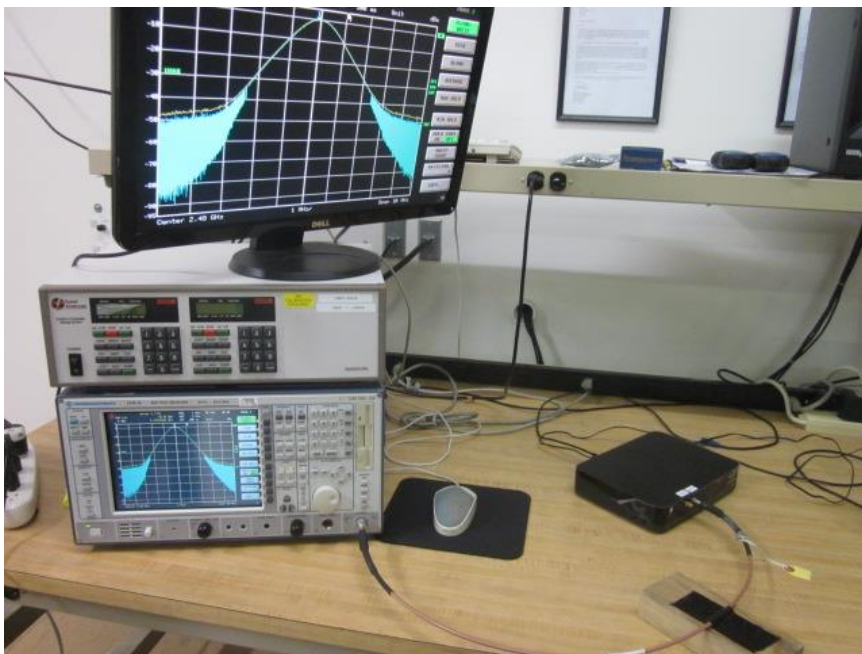
Results: The Band Edge measurements for antenna 0 and antenna 1 of the ARRIS Model DCX900 Set Top Box are compliant with the limits specified in FCC Section 15.247(d) and IC RSS-247 5.5.

5.0 Test Setup Pictures

5.1 Conducted Emissions Power Line Test Setup Picture

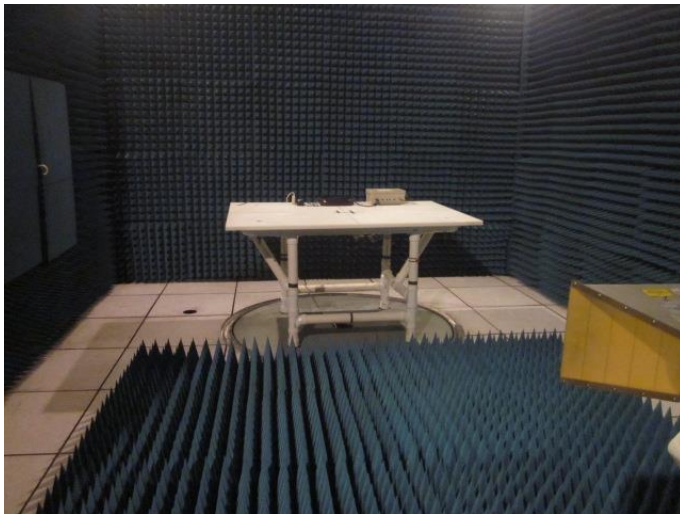


5.2 Conducted Emissions Antenna Test Setup Picture





5.3 Harmonic Radiated Emissions Test Setup Picture





Appendix A – Test Equipment

Equipment	Manufacturer	Model #	Serial #	BEC #	Calibration Date	Calibration Cycle	Calibration Due Date
EMI Receiver (20 Hz – 26.5 GHz)	Rohde & Schwarz	ESIB 26	836119/006	1010	07/01/16	2 Years	07/01/18
Antenna (30 MHz - 6 GHz)	Sunol Sciences	JB6	A020714	882	04/01/16	2 Years	04/01/18
9kHz-3GHz EMC Analyzer	Agilent	E7402A	US39440162	883	02/16/16	2 Years	02/16/18
Amplifier (.1 – 1300 MHz)	Hewlett Packard	8447F	2805A02896	1003	No Cal. Required	No Cal. Required	No Cal. Required
EMC Analyzer (9 kHz - 1.8 GHz)	Hewlett Packard	8591EM	3536A00746	821	10/14/14	3 Years	10/14/17
GTEM (30 MHz – 1 GHz)	ETS Lindgren	5317	1014	1001	No Cal. Required	No Cal. Required	No Cal. Required
Spectrum Analyzer (9 kHz - 40 GHz)	Hewlett Packard	8564E	3410A00129	769	12/29/15	3 Years	12/29/18
EMC Analyzer (9 kHz - 26.5 GHz)	Hewlett Packard	8593EM	3710A00214	1026	02/11/15	2 Years	02/11/17
Amplifier System (0.5 – 50 GHz)	Hewlett Packard	83015A 83017A	3123A00360 & 3332A00219	1027	10/03/16	2 Year	10/03/18
Double Ridged Horn Antenna (1 - 18 GHz)	EMCO	3115	9705-5225	1028	10/19/16	2 Years	10/19/18



Antenna (18 - 26.5 GHz)	Hewlett Packard	84125- 80008	N/A	1056	10/19/16	2 Years	10/19/18
EMI Receiver (9 kHz - 6.5 GHz)	Hewlett Packard	8546A	3325A00158	761	11/05/13	3 Years	11/05/16
LISN (9 kHz – 30 MHz)	EMCO	4825/2	9803-1047	750	04/21/15	2 Years	04/21/17
Shielded Room #1	ETS Lindgren	12-2/2-0	4078	859	12/16/15	2 Years	12/16/17
Intentional Radiator Testing High Frequency RF Test Cable	Workhorse	WHU18- 3636-036	N/A	814	12/04/14	2 Years	12/04/16
OATS Site (30 MHz – 1 GHz)	BEC	N/A	N/A	705	05/09/16	1 Year	05/09/17
Temp/Humidity Meter	Control Company	4096	151872672	780	11/19/15	2 Years	11/19/17
Software (Tile Instrument Control System)	Quantum Change/EMC Systems	Version 3	N/A	N/A	No Cal. Required	No Cal. Required	No Cal. Required
Radiated Emissions Test Software	BEC	RADE	2.2	N/A	No Cal. Required	No Cal. Required	No Cal. Required