

## **Antenna International**

Application  
For  
Certification

**FCC ID: A5E-XPIRIS2**

**MID**

**Model: XP IRIS2**  
**Brand Name: Antenna International <sup>TM</sup>**

**WiFi Transceiver**

**Report No.: 140102026SZN-009**

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-13]

Prepared and Checked by:

Approved by:

Sign on file

Sen Lv  
Project Engineer

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Billy Li  
Supervisor  
Date: March 11, 2014

- The test results reported in this test report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample may be said to have been obtained.
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- The evaluation data of the report will be kept for 3 years from the date of issuance.

TRF no.: FCC 15C\_Tx\_b

**Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch**

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## LIST OF EXHIBITS

### *INTRODUCTION*

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# INTERTEK TESTING SERVICES

## MEASUREMENT/TECHNICAL REPORT

**Antenna International**  
**MODEL: XP IRIS2**

**FCC ID: A5E-XPIRIS2**

This report concerns (check one)    Original Grant ☒ Class II Change ☐

Equipment Type: DTS - Part 15 Digital Transmission Systems (WiFi transmitter portion)

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?    Yes ☐    No ☒

If yes, defer until : \_\_\_\_\_  
date

Company Name agrees to notify the Commission by: \_\_\_\_\_  
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37?    Yes ☐    No ☒

If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [10-1-13 Edition] provision.

Report prepared by:

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### List of attached file

Exhibit type	File Description	Filename
Test Report	Test Report	report.pdf
Test Setup Photo	Radiated Emission	radiated photos.pdf
Test Setup Photo	Conducted Emission	conducted photos.pdf
External Photo	External Photo	external photos.pdf
Internal Photo	Internal Photo	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
Operation Description	Technical Description	descri.pdf
ID Label/Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
Cover Letter	Confidentiality Letter	request.pdf
Cover Letter	Letter of Agency	agency.pdf
Cover Letter	Certification Agreement	agreement.pdf

**EXHIBIT 1**

**SUMMARY OF TEST RESULTS**

## INTERTEK TESTING SERVICES

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### 1.0 Summary of Test results

**Antenna International**  
**MODEL: XP IRIS2**

**FCC ID: A5E-XPIRIS2**

TEST	REFERENCE	RESULTS
Max. Output power	15.247(b)(3)	Pass
6 dB Bandwidth	15.247(a)(2)	Pass
Max. Power Density	15.247(e)	Pass
Out of Band Antenna Conducted Emission	15.247(d)	Pass
Radiated Emission in Restricted Bands	15.247(d)	Pass
AC Conducted Emission	15.207	Pass
Antenna Requirement	15.203	Pass (See Notes)

Notes: The EUT uses Integral Antenna which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.

**EXHIBIT 2**

**GENERAL DESCRIPTION**

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### 2.0 **General Description**

#### 2.1 Product Description

The equipment under test (EUT) is a MID, it includes Bluetooth (4.0, single mode) function operating in 2402-2480 MHz and WIFI function. The WiFi function is operating in 2412-2462 MHz, 11 channels with 5MHz separation, and in 2422-2452MHz, 7 channels with 5MHz separation. The EUT was powered by a 3.7 VDC Li-ion rechargeable battery which can be charged by AC/DC adapter. For more detail information pls. refer to the user manual.

Type of Modulation: BPSK, QPSK, 16QAM, 64QAM, CCK, DQPSK, DBPSK.  
Antenna Type: Integral Antenna.

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

## INTERTEK TESTING SERVICES

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### 2.2 Related Submittal(s) Grants

This is an application for certification of:

DTS- Part 15 Digital Transmission Systems (WiFi transmitter portion)

Remaining portions are subject to the following procedures:

1. Receiver portion of WiFi: exempt from technical requirement of this Part.
2. BT(4.0) Function: Refer to report 140102026SZN-008
3. Other digital function: Refer to report 140102026SZN-007

### 2.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2009) and KDB 558074. Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "Justification Section" of this Application. All other measurements were made in accordance with the procedures in part 2 of CFR 47.

### 2.4 Test Facility

The Semi-Anechoic chamber and shield room used to collect the radiated data and conducted data are **Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch** and located at 6F, Block D, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China. This test facility and site measurement data have been fully placed on file with the FCC (Registration Number: 242492).

**EXHIBIT 3**  
**SYSTEM TEST CONFIGURATION**

## INTERTEK TESTING SERVICES

### 3.0 System Test Configuration

#### 3.1 Justification

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables were manipulated to produce worst case emissions. The EUT was powered by a fully charged 3.7 VDC Li-ion rechargeable battery which is charged by a charging dock with DC 5V output and the charging dock is powered by an AC/DC adapter with AC 120V, 60Hz input during the test.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

The rear of unit shall be flushed with the rear of the table.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

#### 3.2 EUT Exercising Software

The EUT exercise program (provided by client) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The worst case configuration is used in all specified testing.

The parameters of test software setting:

During the test, Channel and power controlling software provided by the applicant was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the application and is going to be fixed on the firmware of the end product.

Power Parameters of IEEE 802.11b/g/n

Test software setting of IEEE 802.11b/g/n			
Channel No.	Output Power	Data rate	Modulation type
1,6,11	6.0	802.11b: 1-11Mbps	802.11b: CCK, DQPSK, DBPSK
	6.0	802.11g: 6-54Mbps	802.11g: BPSK, QPSK, 16QAM

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	6.0	802.11n-HT20: 6.5-65Mbps	802.11n: BPSK, QPSK, 16QAM,
3,6,9	6.0	802.11n-HT40: 13.5-135Mbps	802.11n: BPSK, QPSK, 16QAM, 64QAM

### 3.3 Special Accessories

N/A.

### 3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

Uncertainty and Compliance – Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

### 3.5 Equipment Modification

Any modifications installed previous to testing by Antenna International will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch.

### 3.6 Support Equipment List and Description

This product was tested in the following configuration:

Refer List:

Description	Manufacturer	Model No.
Headphone	Antenna International (will be marketed in one package with the MID)	N/A
Charging Unit (with USB Cable, unshielded, 90cm)	Antenna International	Output: DC 5V
USB Power Adapter	TP-Link	T050100-2A3 Input: AC 100-240V; 50/60Hz Output: DC 5V; 1A

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## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 4**

### **MEASUREMENT RESULTS**

## INTERTEK TESTING SERVICES

Applicant: Antenna International

Date of Test: January 17, 2014

Model: XP IRIS2

### 4.0 **Measurement Results**

#### 4.1 Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b)(3):

- ☐ The antenna power of the EUT was connected to the input of a spectrum analyzer. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.
- ☐ The antenna port of the EUT was connected to the input of a spectrum analyzer. The analyzer was set according to the FCC KDB 558074 spectrum analyzer's integrated band power measurement function with band limits set equal to the EBW band edges and power was read directly in dBm. External attenuation and cable loss were compensated from the measured value.
- ☒ The antenna port of the EUT was connected to the input of a broadband peak RF power meter. The power meter have a video bandwidth that is greater than DTS bandwidth and utilize a fast-responding diode detector. Power was read directly at the EUT antenna terminals.

For antennas with gains of 6 dBi or less, maximum allowed Transmitter output is 1 watt (+30 dBm).

IEEE 802.11b (Antenna Gain = 1dBi) (CCK, 1Mbps)		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2412	5.13	3.26
Middle Channel: 2437	5.29	3.38
High Channel: 2462	5.44	3.50

IEEE 802.11g (Antenna Gain = 1dBi) (16QAM, 6Mbps)		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2412	7.43	5.53
Middle Channel: 2437	6.89	4.89
High Channel: 2462	6.45	4.42

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IEEE 802.11n-HT20 (Antenna Gain = 1dBi) (16QAM, 6.5Mbps)		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2412	7.13	5.16
Middle Channel: 2437	7.14	5.18
High Channel: 2462	6.91	4.91

IEEE 802.11n-HT40 (Antenna Gain = 1dBi) (64QAM, 13.5Mbps)		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2422	7.24	5.30
Middle Channel: 2437	7.11	5.14
High Channel: 2452	7.32	5.40

Cable loss: 0.5 dB    External Attenuation: 0 dB

Cable loss, external attenuation has been included in OFFSET function

EUT max. output level = 7.43dBm

For RF Exposure, the information is saved with filename: RF exposure.pdf.

## INTERTEK TESTING SERVICES

Applicant: Antenna International  
Date of Test: January 17, 2014  
Model: XP IRIS2

### 4.2 Minimum 6 dB RF Bandwidth, FCC Rule 15.247(a)(2):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100 KHz according to FCC KDB 558074. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn 6 dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

Limit: The 6 dB Bandwidth is at least 500 kHz.

IEEE 802.11b (CCK, 1Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	9.70
2437	11.05
2462	11.00

IEEE 802.11g (16QAM, 6Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	16.45
2437	16.25
2462	16.40

IEEE 802.11n-HT20 (16QAM, 6.5Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	17.40
2437	17.10
2462	17.15

## INTERTEK TESTING SERVICES

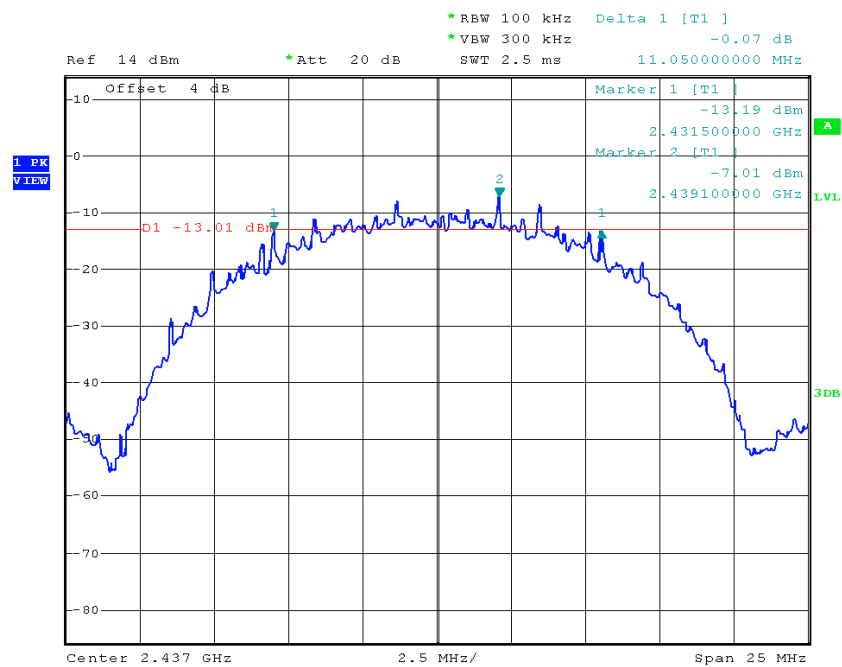
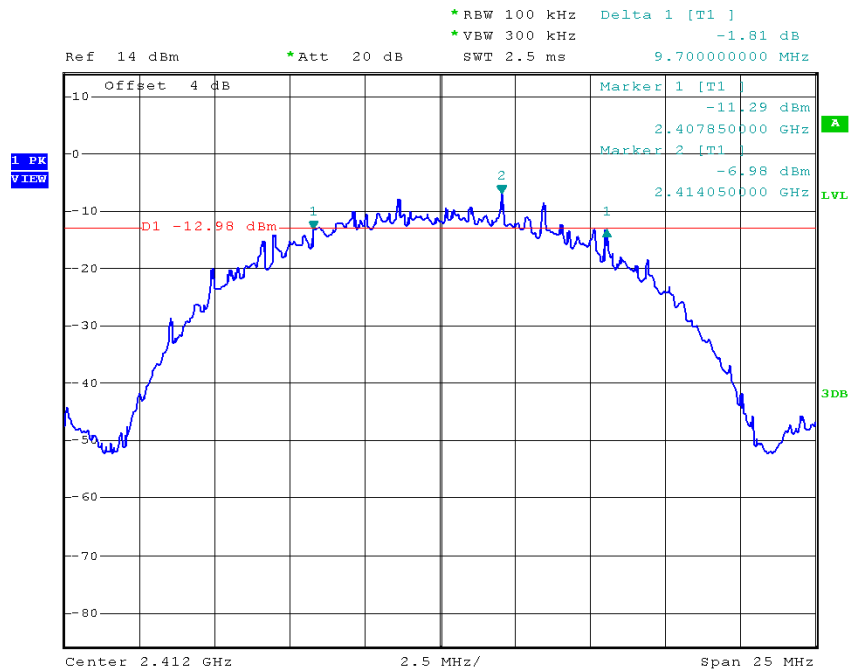
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IEEE 802.11n-HT40 (64QAM, 13.5Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2422	34.80
2437	34.50
2452	34.00

The test plots are attached as below.

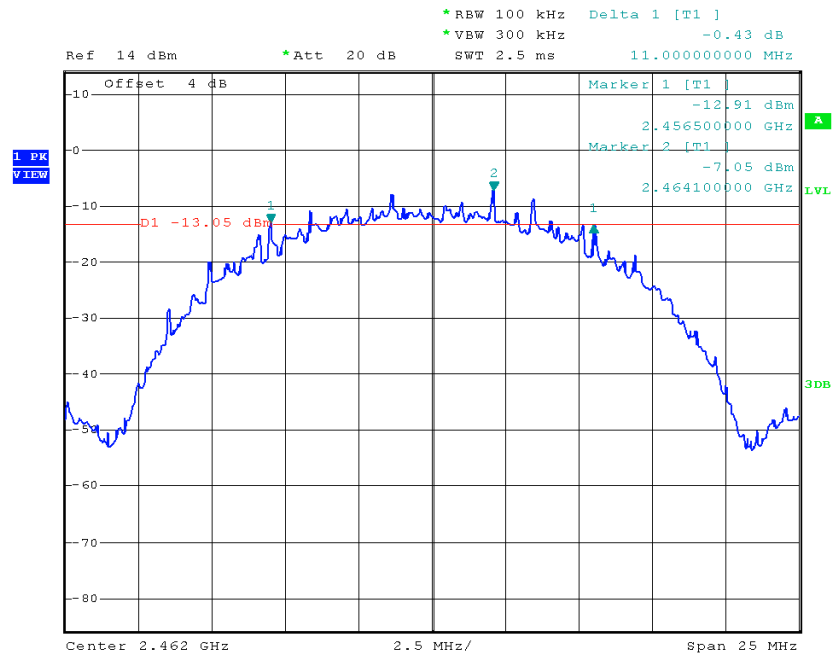
# INTERTEK TESTING SERVICES

802.11b



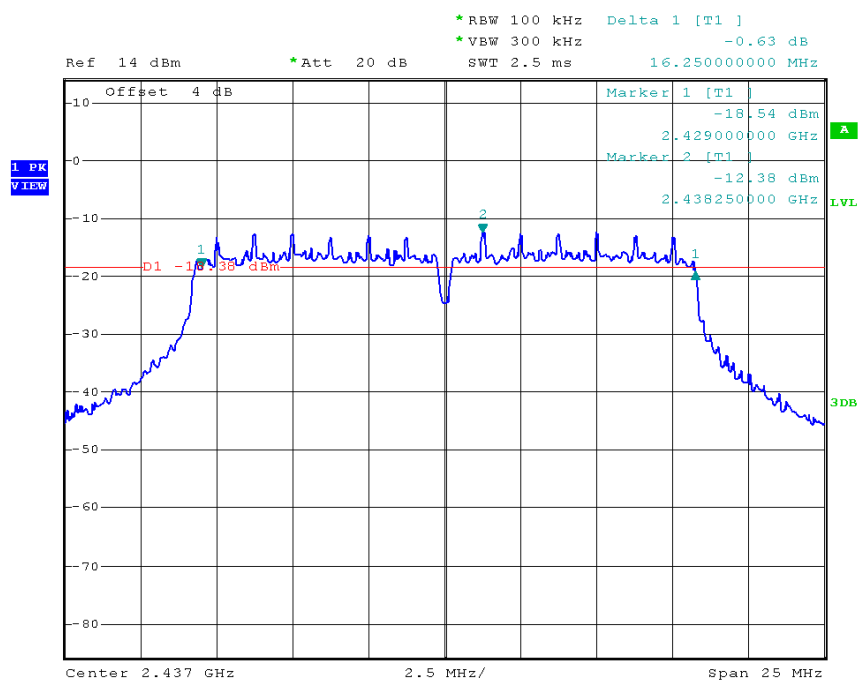
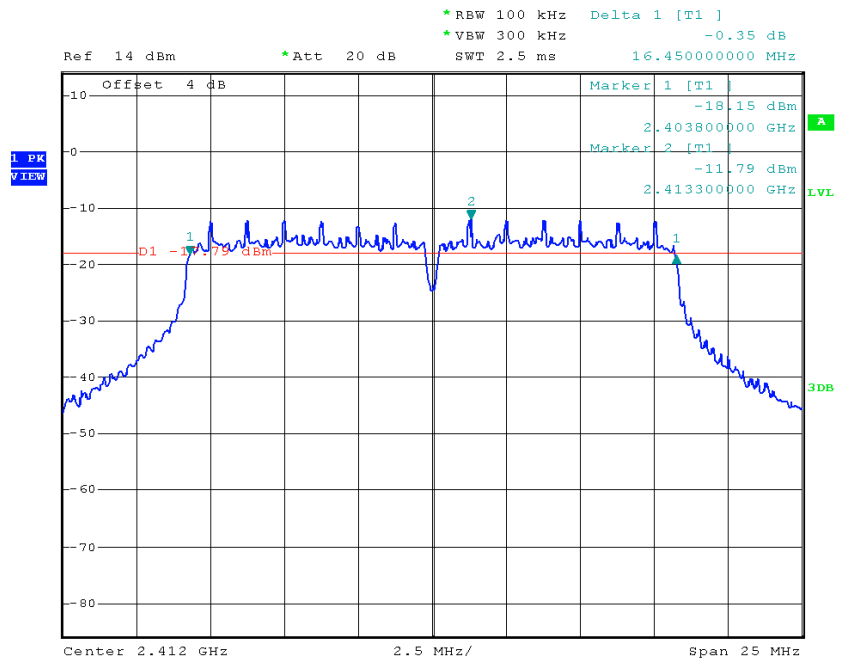
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FCC ID: A5E-XPIRIS2  
Report No.: 140102026SZN-009

## INTERTEK TESTING SERVICES



# INTERTEK TESTING SERVICES

802.11g

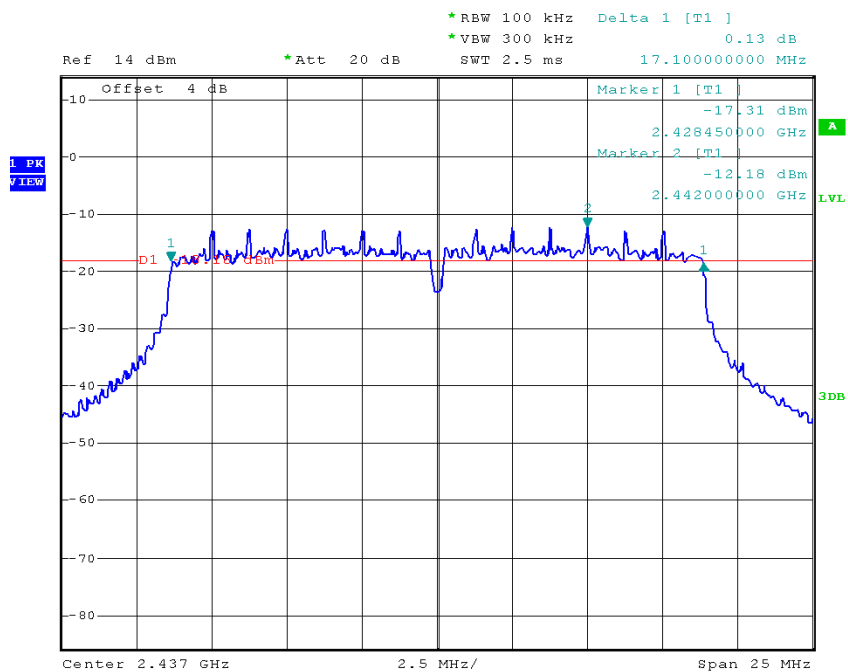
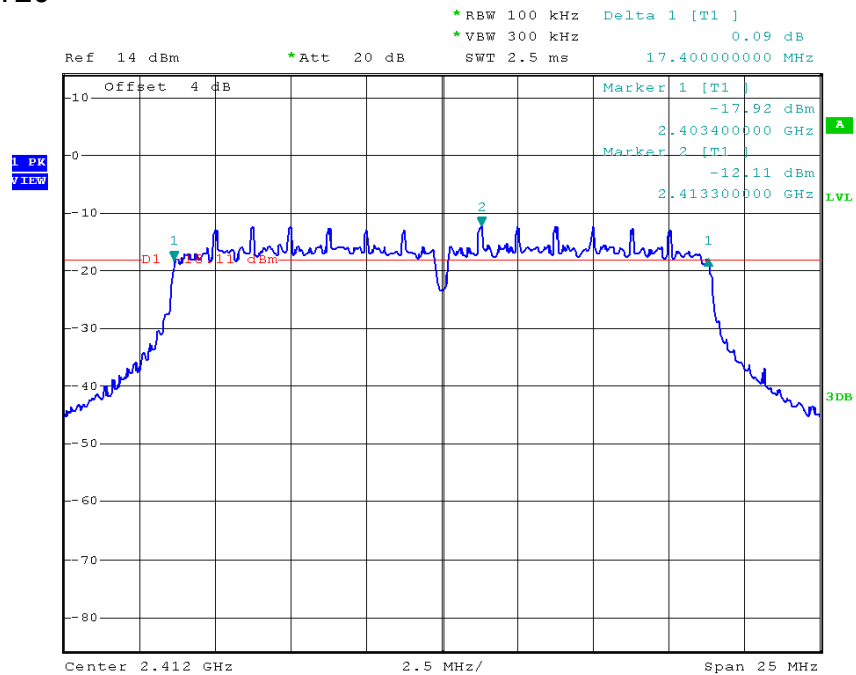


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FCC ID: A5E-XPIRIS2  
Report No.: 140102026SZN-009



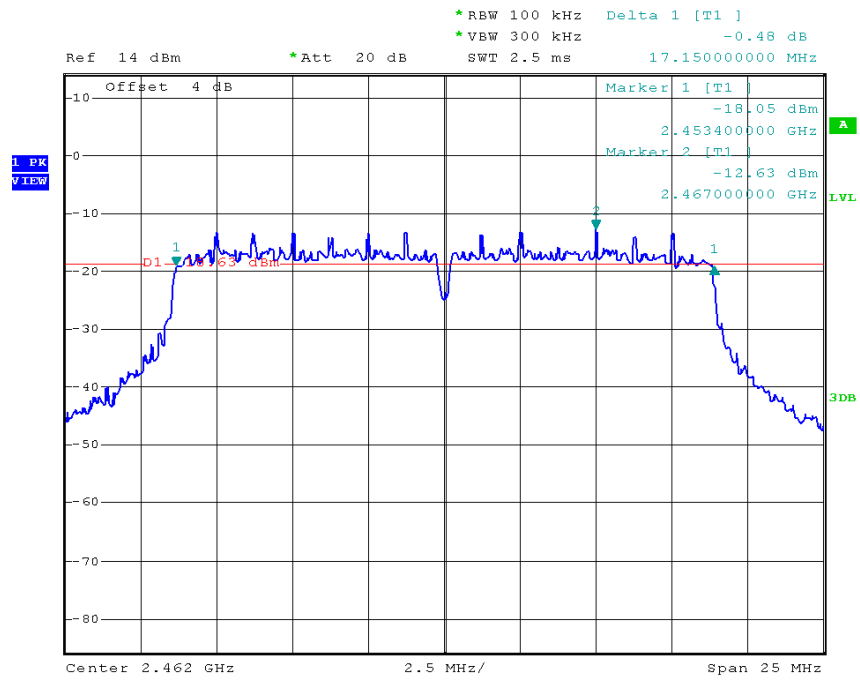
# INTERTEK TESTING SERVICES

802.11 n-HT20



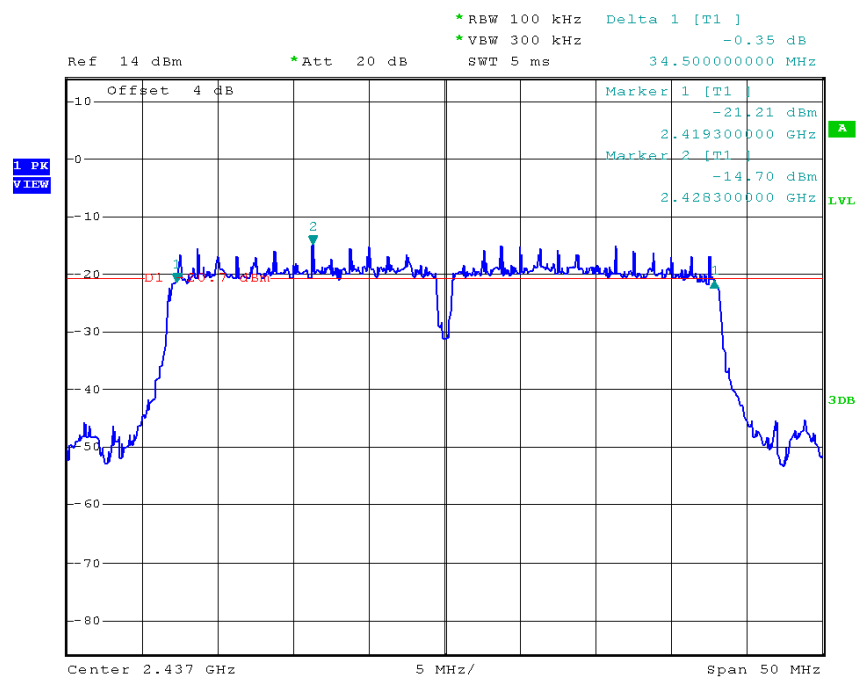
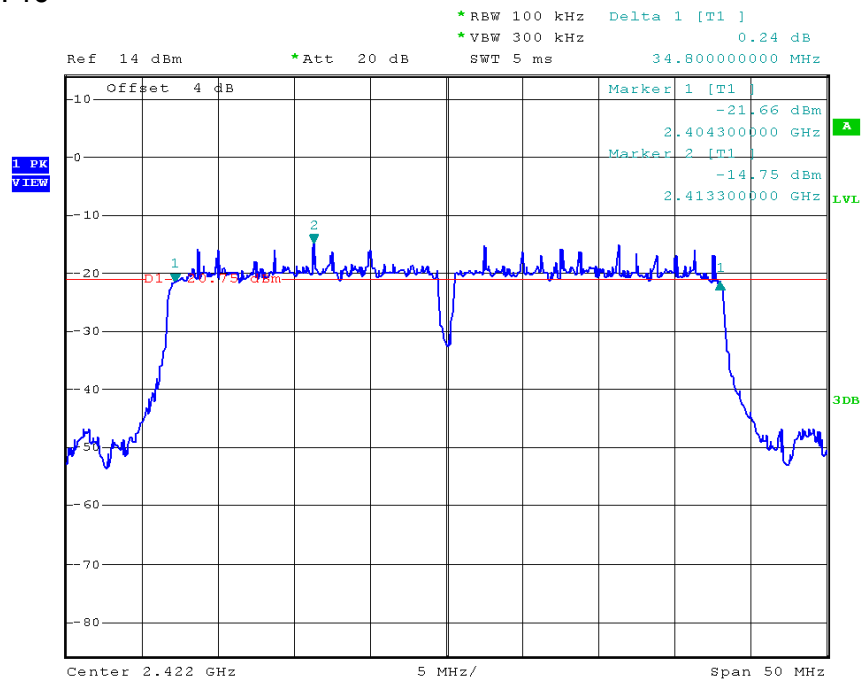
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Report No.: 140102026SZN-009

# INTERTEK TESTING SERVICES



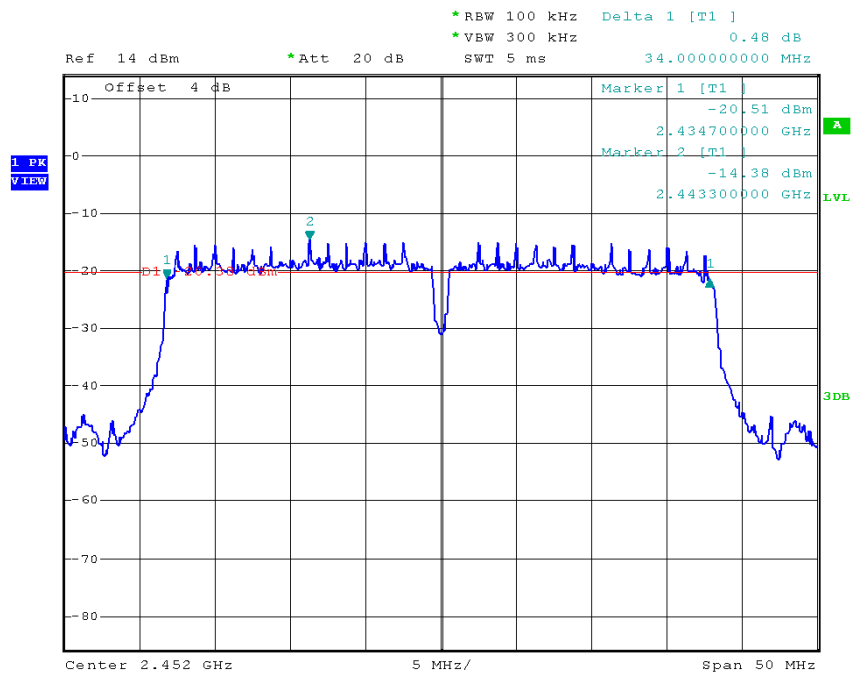
# INTERTEK TESTING SERVICES

802.11 n-HT40



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## INTERTEK TESTING SERVICES



## INTERTEK TESTING SERVICES

Applicant: Antenna International

Date of Test: January 17, 2014

Model: XP IRIS2

### 4.3 Maximum Power Density Reading, FCC Rule 15.247(e):

The Measurement Procedure PKPSD was set according to the FCC KDB 558074.

Antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

Limit: The Power Density does not exceed 8dBm/ 3 kHz.

IEEE 802.11b (CCK, 1Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2412	-7.00
2437	-7.06
2462	-7.07

IEEE 802.11g (16QAM, 6Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2412	-11.71
2437	-12.49
2462	-13.09

IEEE 802.11n-HT20 (16QAM, 6.5Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2412	-12.05
2437	-12.15
2462	-12.30

IEEE 802.11n-HT40 (64QAM, 13.5Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2422	-15.22
2437	-15.38
2452	-14.77

The test plots are attached as below.

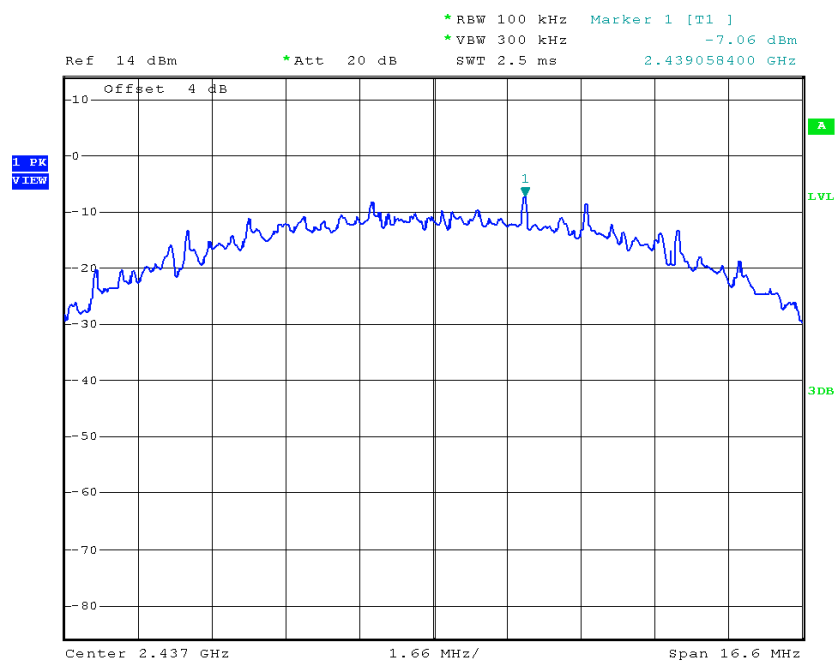
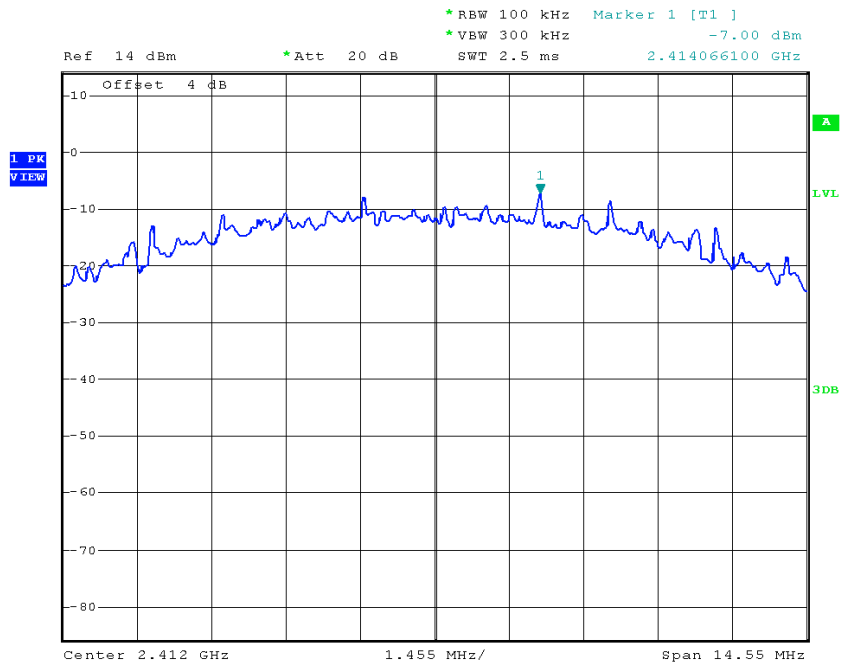
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Report No.: 140102026SZN-009

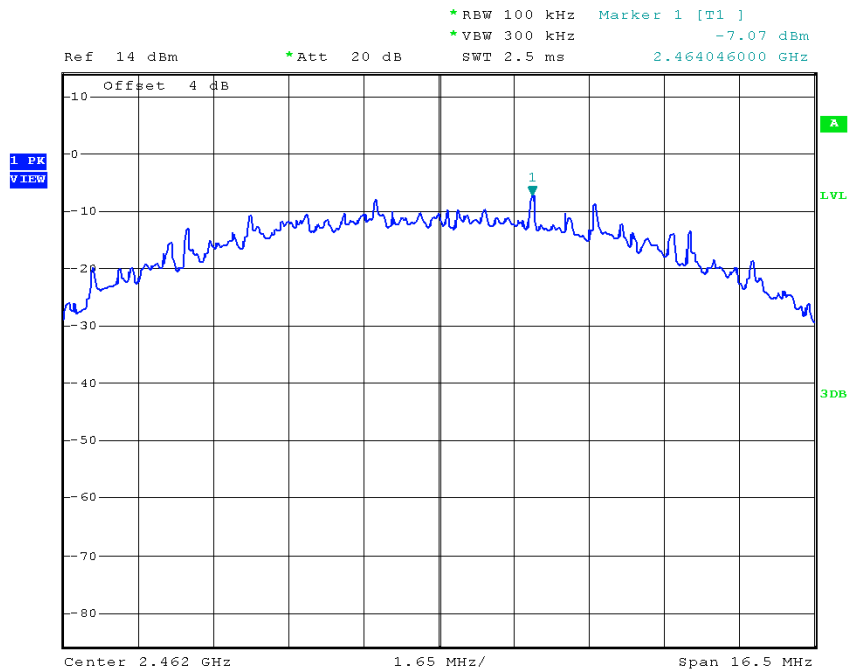
# INTERTEK TESTING SERVICES

802.11b



TRF no.: FCC 15C\_TX\_b  
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Report No.: 140102026SZN-009

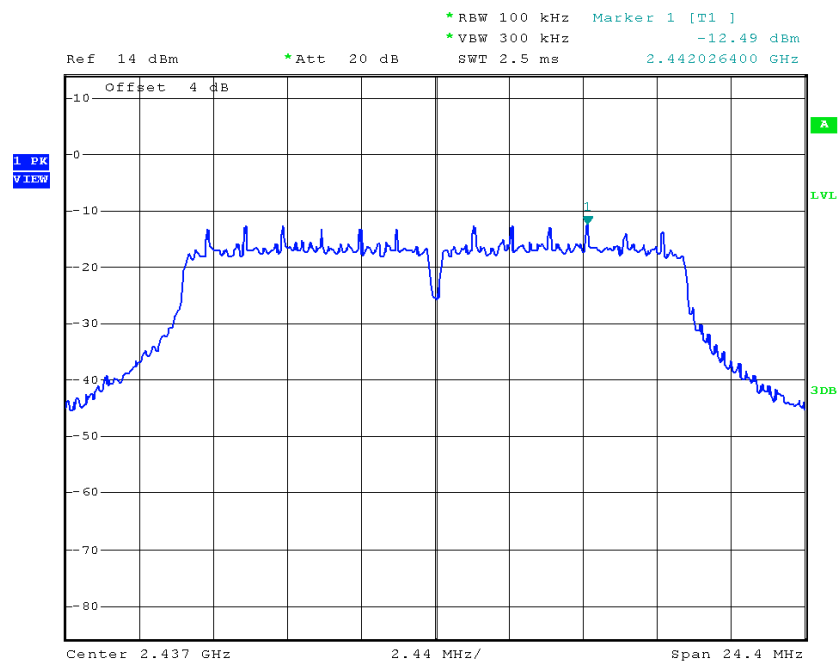
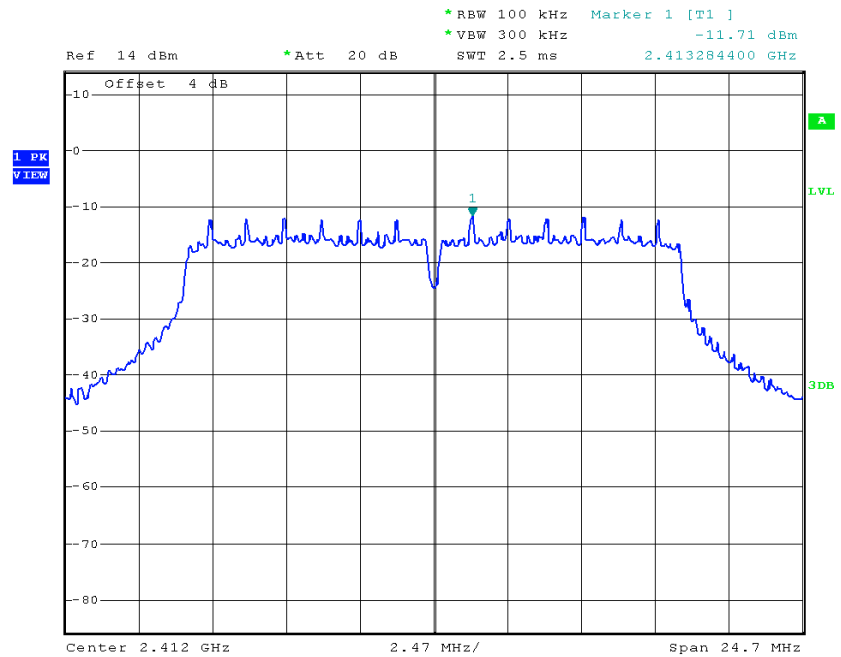
## INTERTEK TESTING SERVICES



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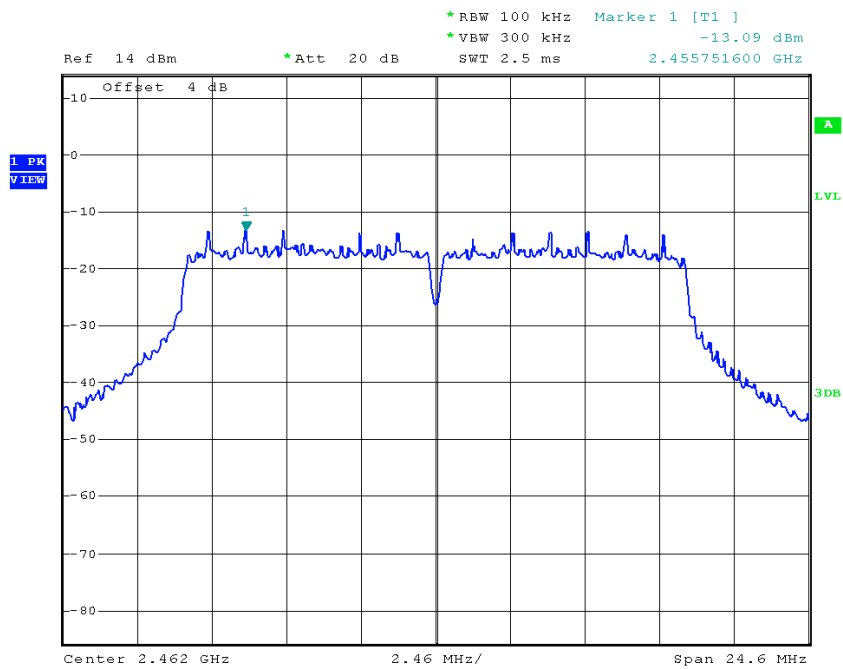
# INTERTEK TESTING SERVICES

802.11g



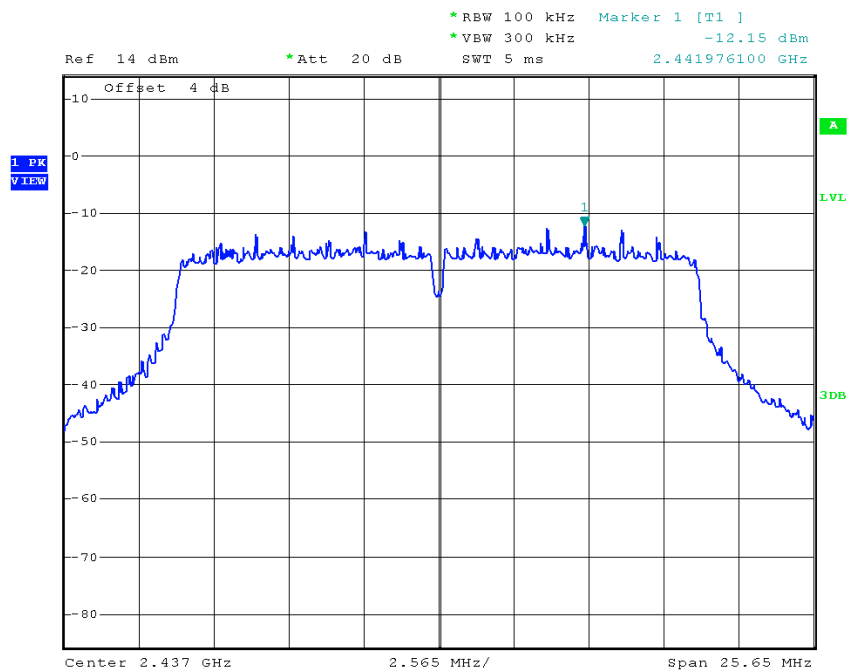
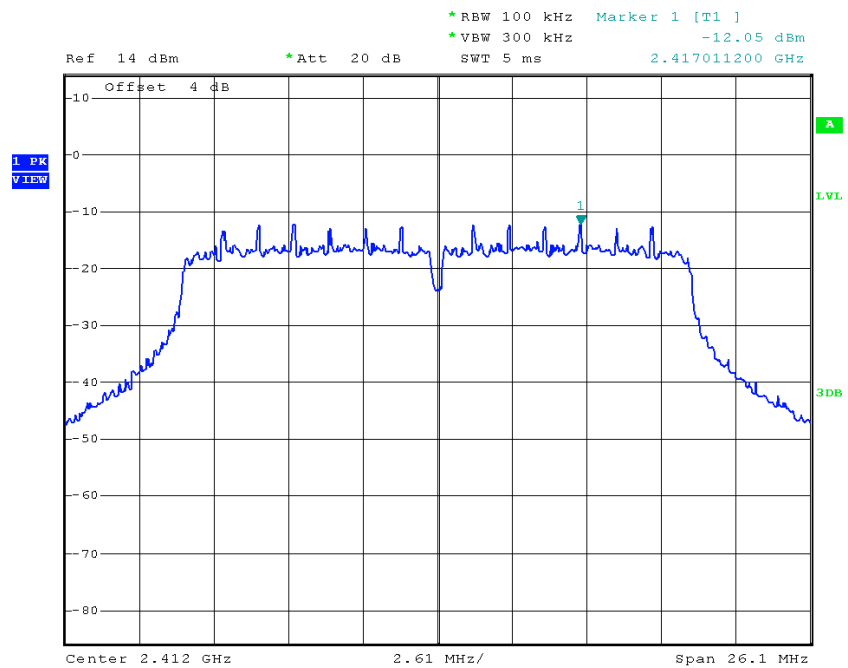
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## INTERTEK TESTING SERVICES



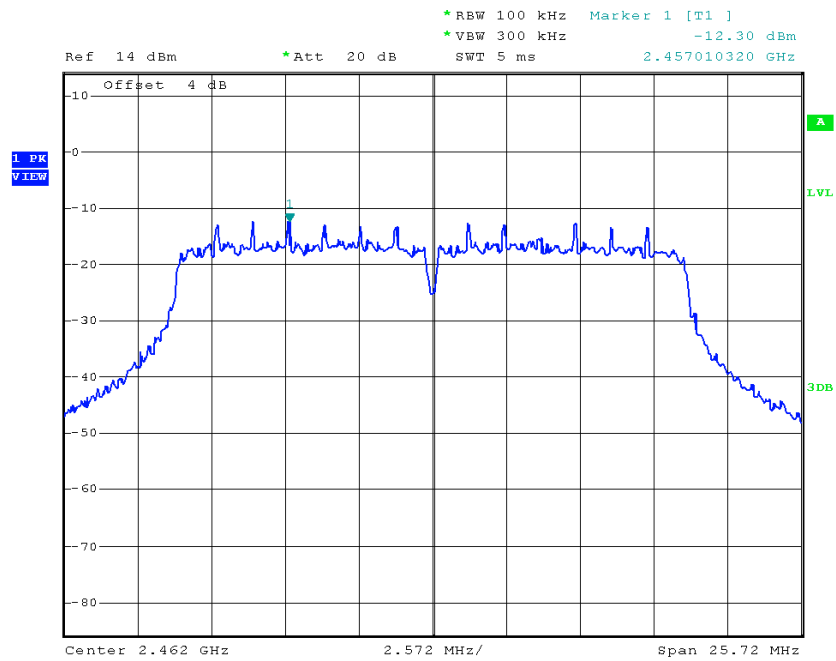
# INTERTEK TESTING SERVICES

802.11 n-HT20



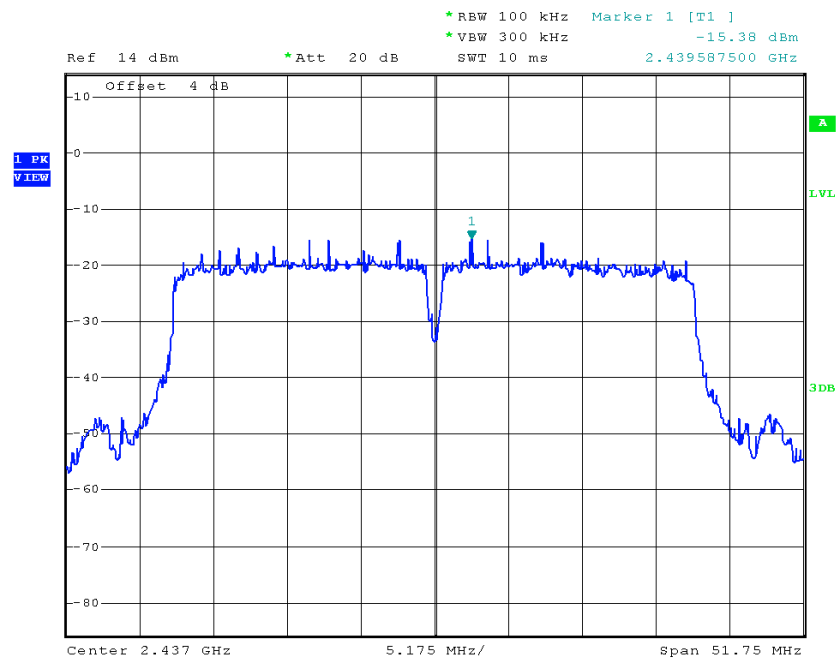
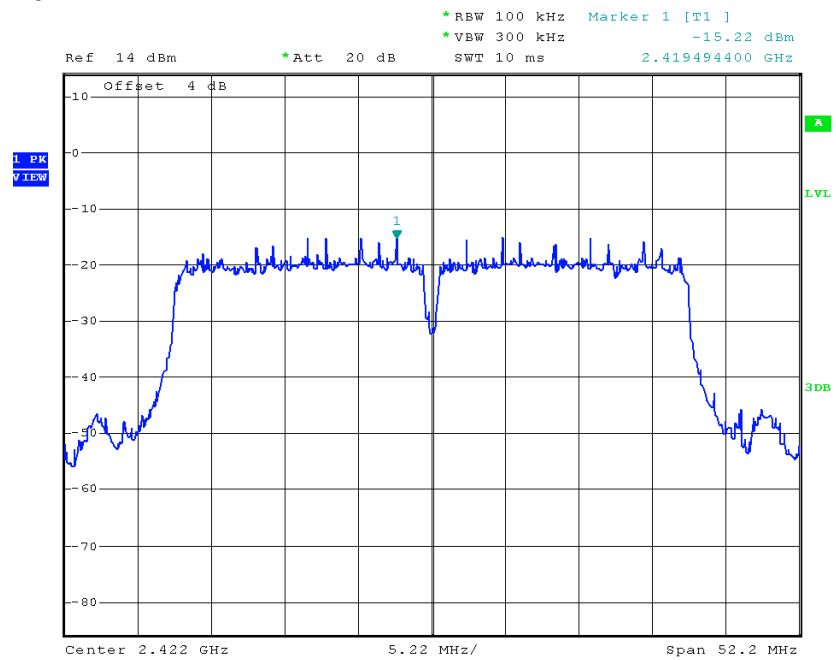
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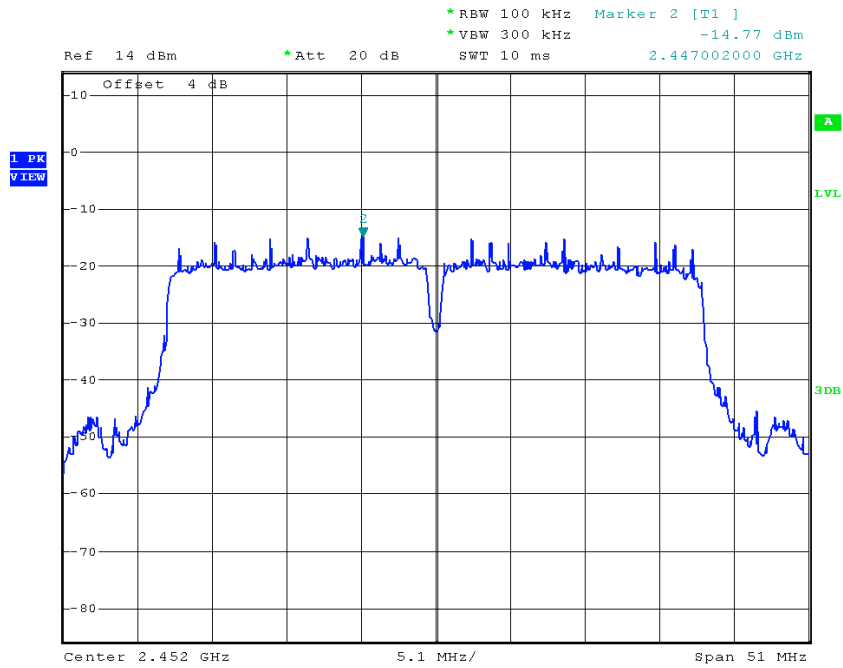
# INTERTEK TESTING SERVICES

802.11 n-HT40



TRF no.: FCC 15C\_TX\_b  
FCC ID: A5E-XPIRIS2  
Report No.: 140102026SZN-009

## INTERTEK TESTING SERVICES



## INTERTEK TESTING SERVICES

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Applicant: Antenna International  
Date of Test: January 17, 2014  
Model: XP IRIS2

### 4.4 Out of Band Conducted Emissions, FCC Rule 15.247(d)

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. The Measurement Procedure was set according to the FCC KDB 558074.

Refer to the attached test plots for out of band conducted emissions data with rate of 1Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n-HT20 and 13.5Mbps for 802.11n-HT40.

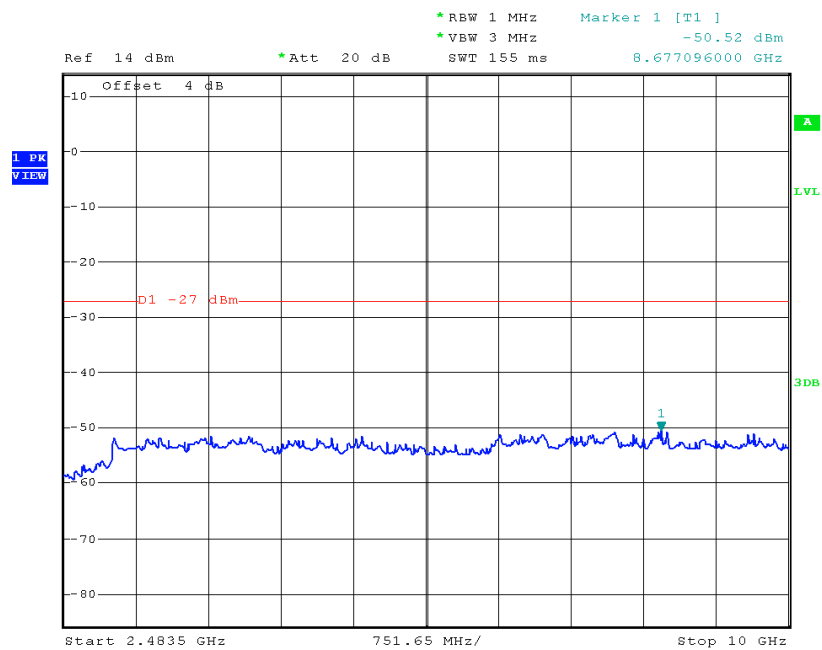
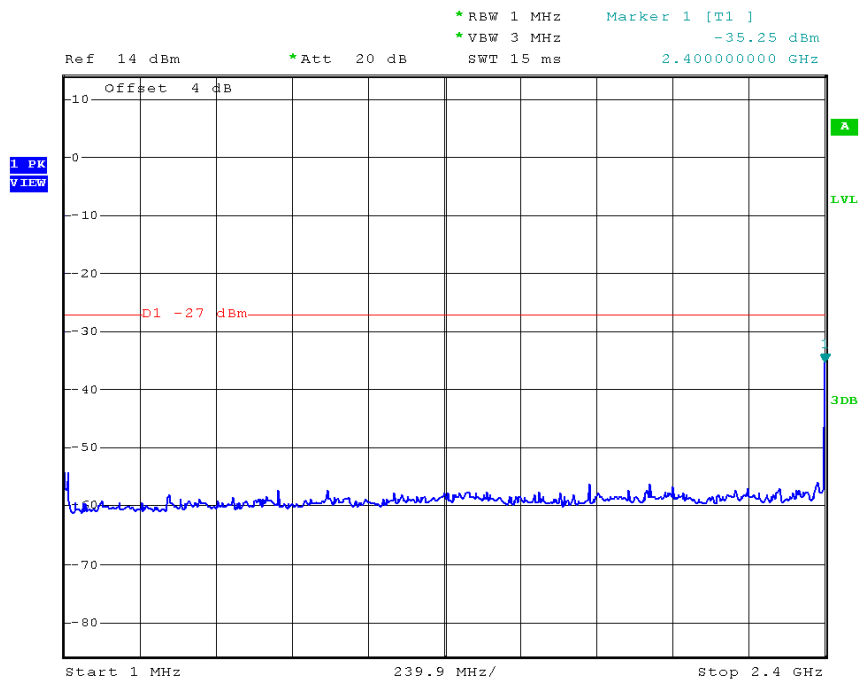
The test plots showed all spurious emission up to the tenth harmonic was measured and they were found to be at least 20 dB below the highest level of the desired power in the passband.

The test plots are attached as below.

# INTERTEK TESTING SERVICES

802.11b

Channel 01 (2412MHz) Reference Level: -7.0dBm

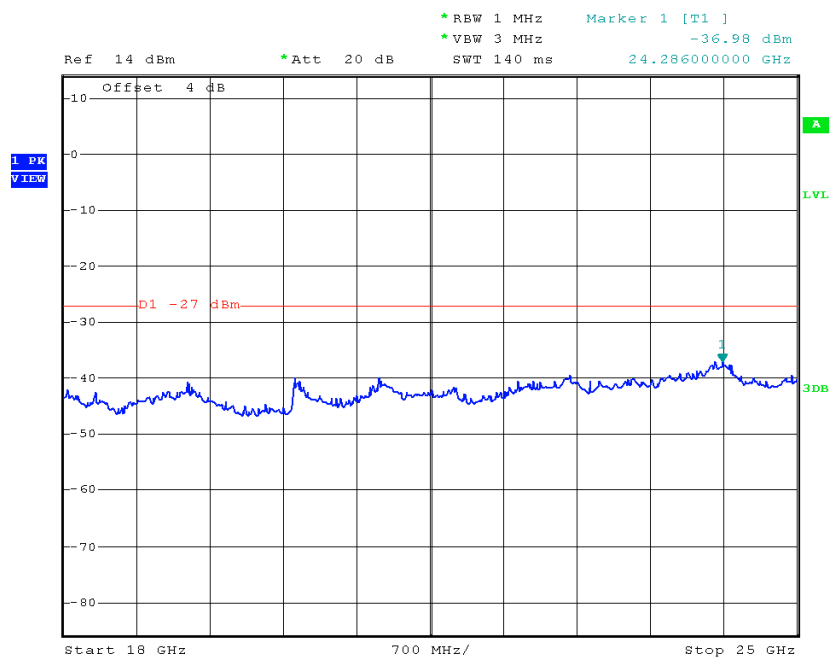
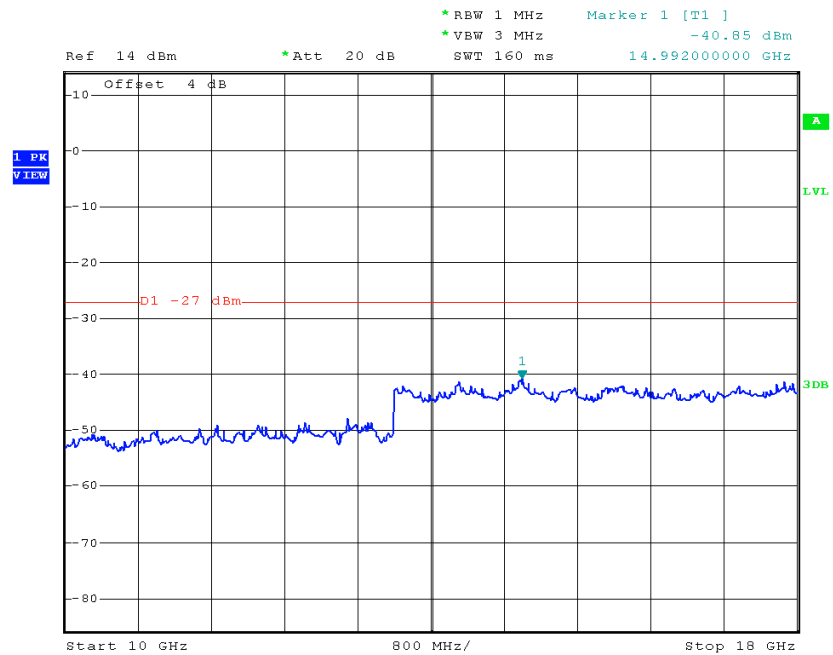


TRF no.: FCC 15C\_TX\_b

FCC ID: A5E-XPIRIS2

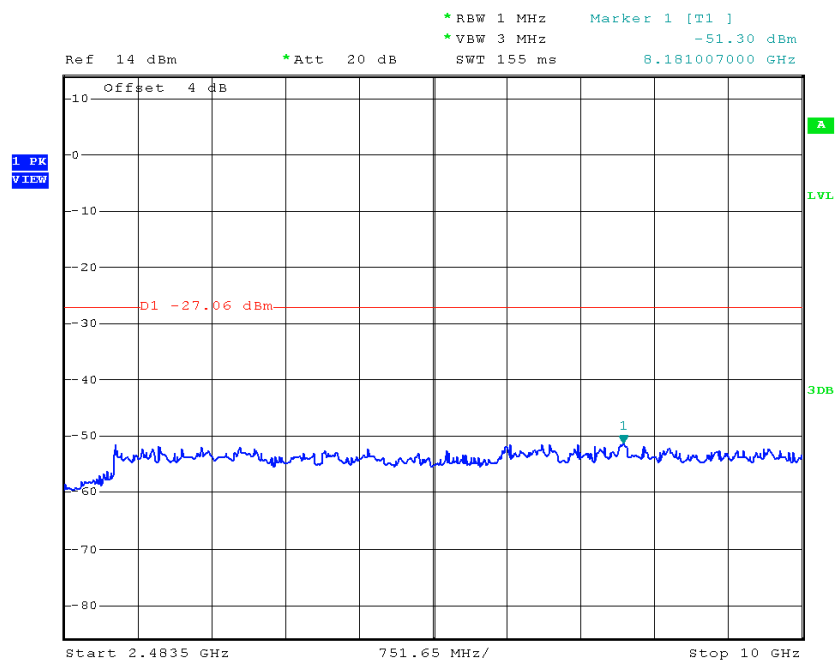
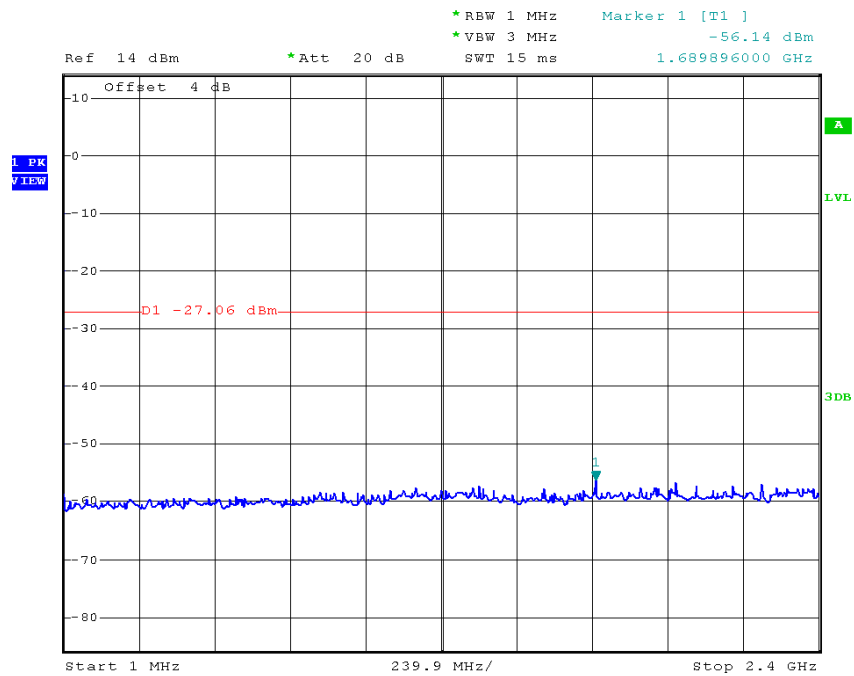
Report No.: 140102026SZN-009

# INTERTEK TESTING SERVICES



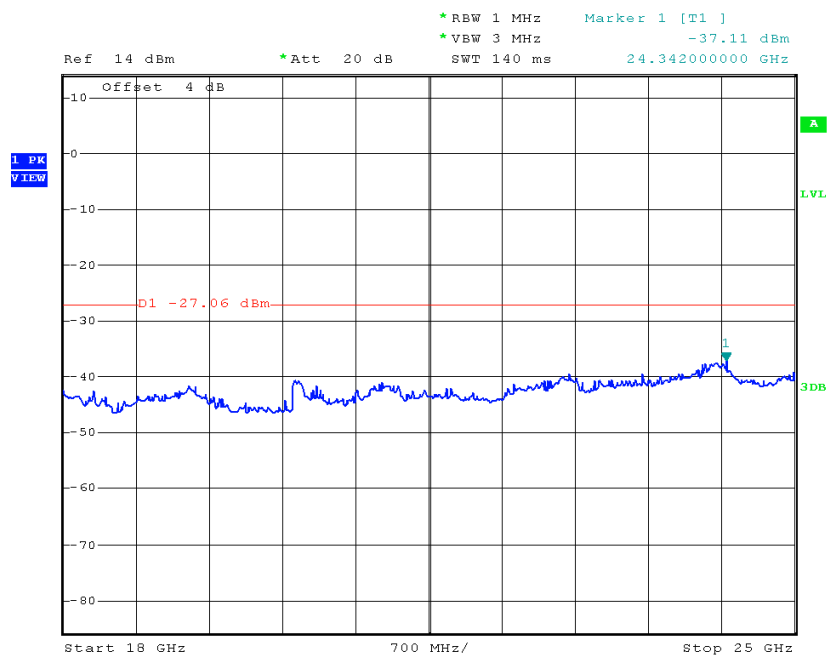
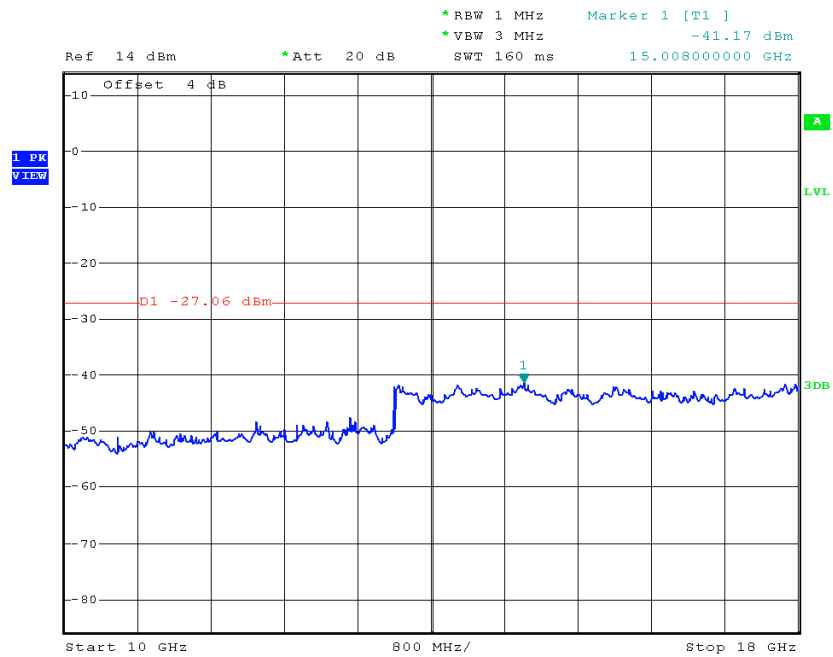
## INTERTEK TESTING SERVICES

Channel 06 (2437MHz) Reference Level: -7.06dBm



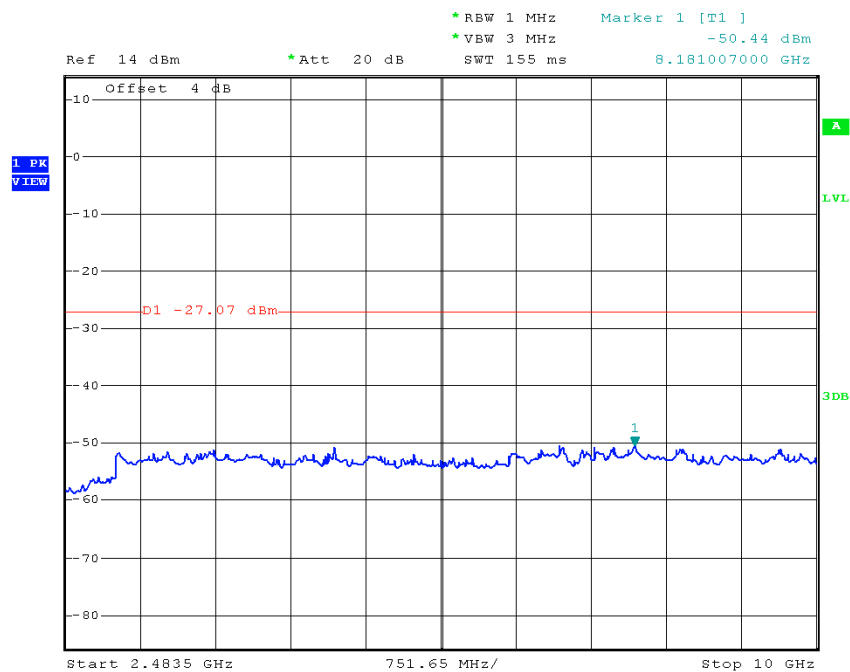
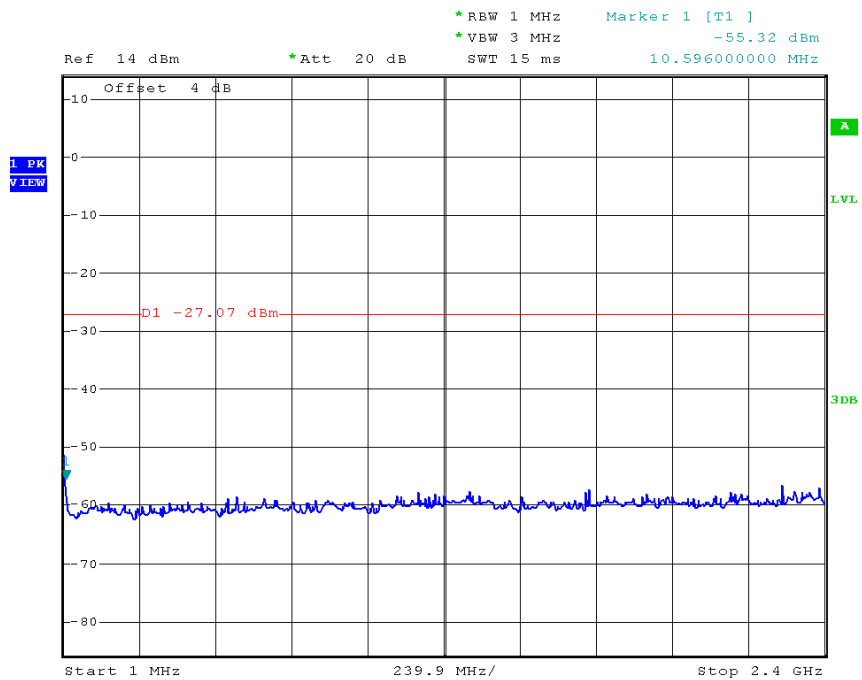
TRF no.: FCC 15C\_TX\_b  
FCC ID: A5E-XPIRIS2  
Report No.: 140102026SZN-009

# INTERTEK TESTING SERVICES



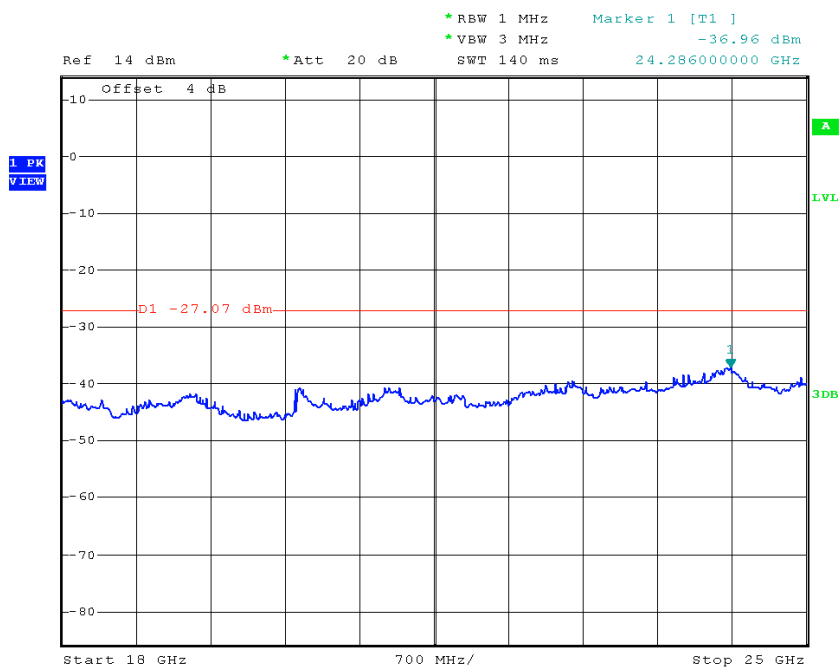
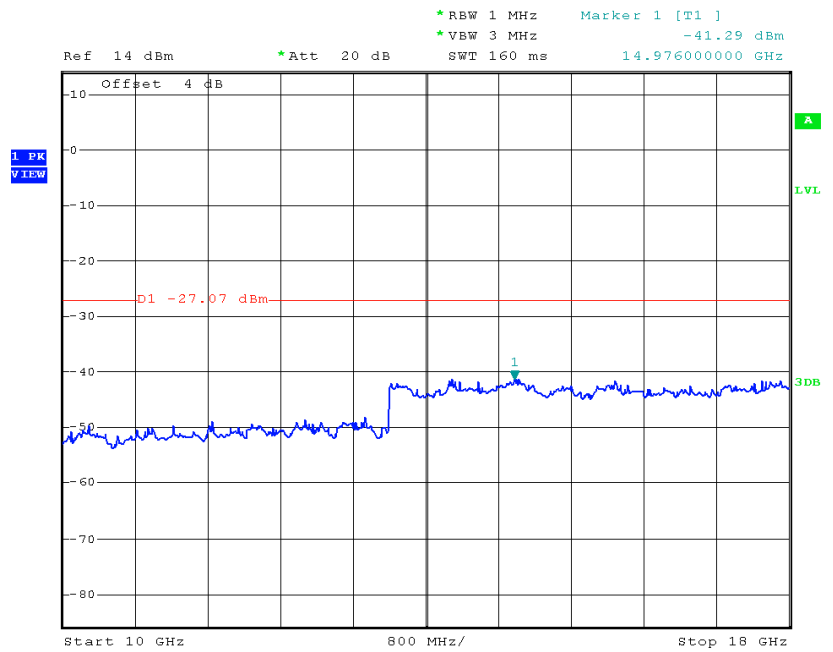
# INTERTEK TESTING SERVICES

Channel 11 (2462MHz) Reference Level: -7.07dBm



TRF no.: FCC 15C\_TX\_b  
FCC ID: A5E-XPIRIS2  
Report No.: 140102026SZN-009

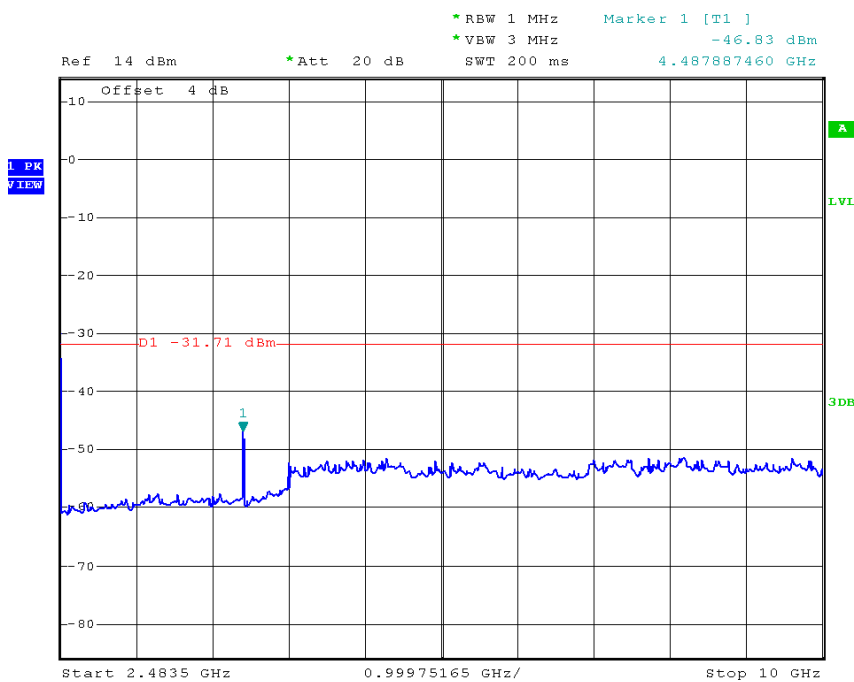
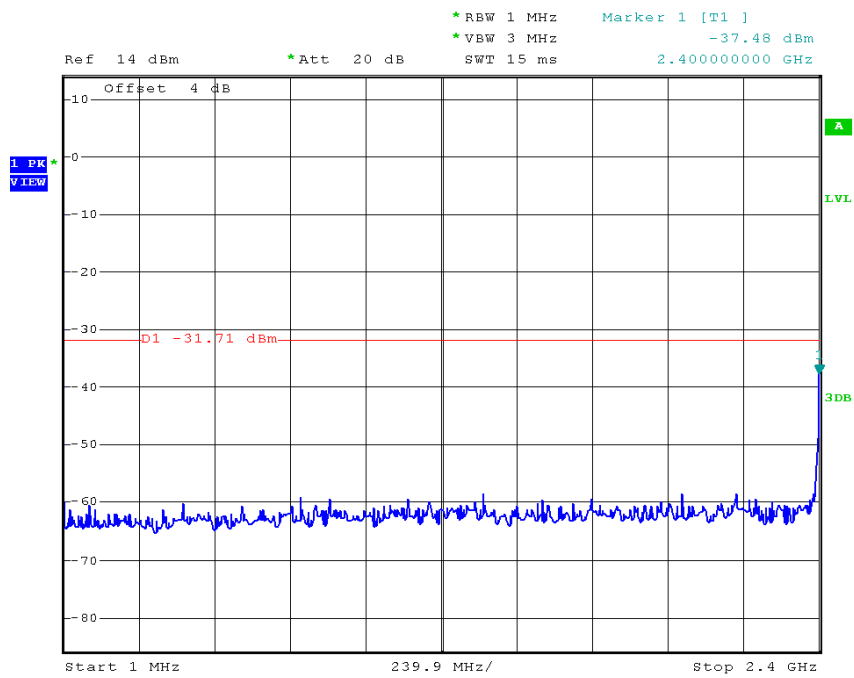
# INTERTEK TESTING SERVICES



# INTERTEK TESTING SERVICES

802.11g

Channel 01 (2412MHz) Reference Level: -11.71dBm

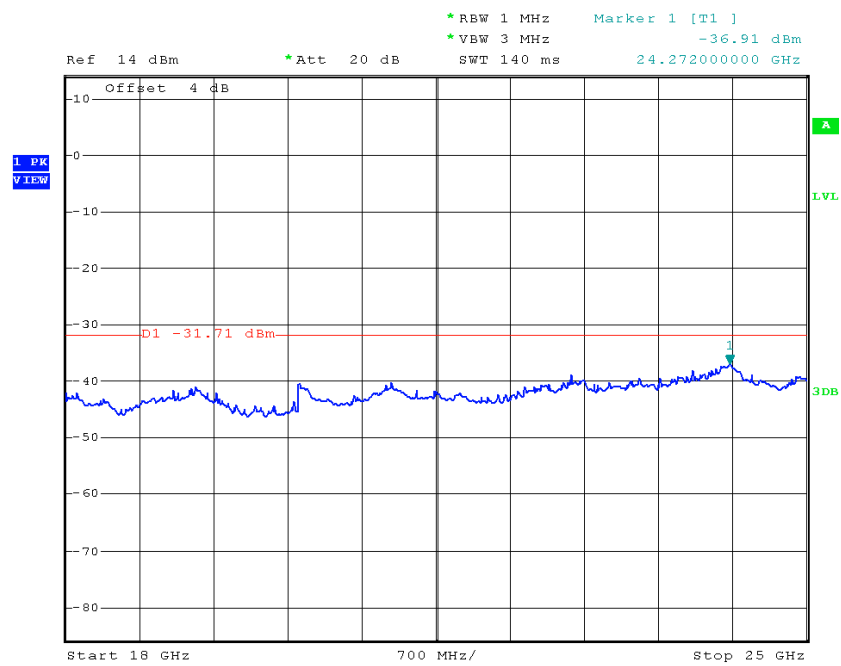
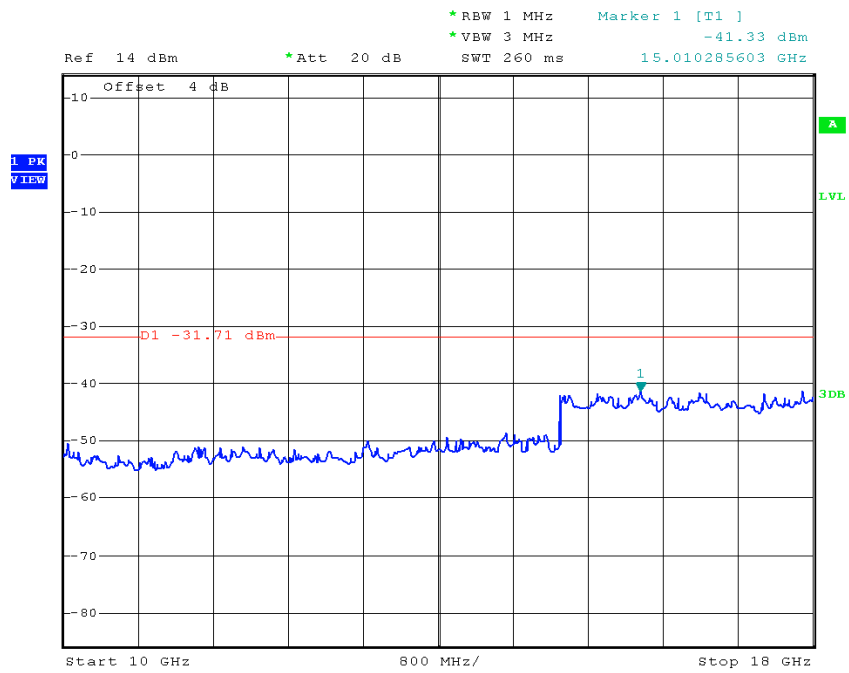


TRF no.: FCC 15C\_TX\_b

FCC ID: A5E-XPIRIS2

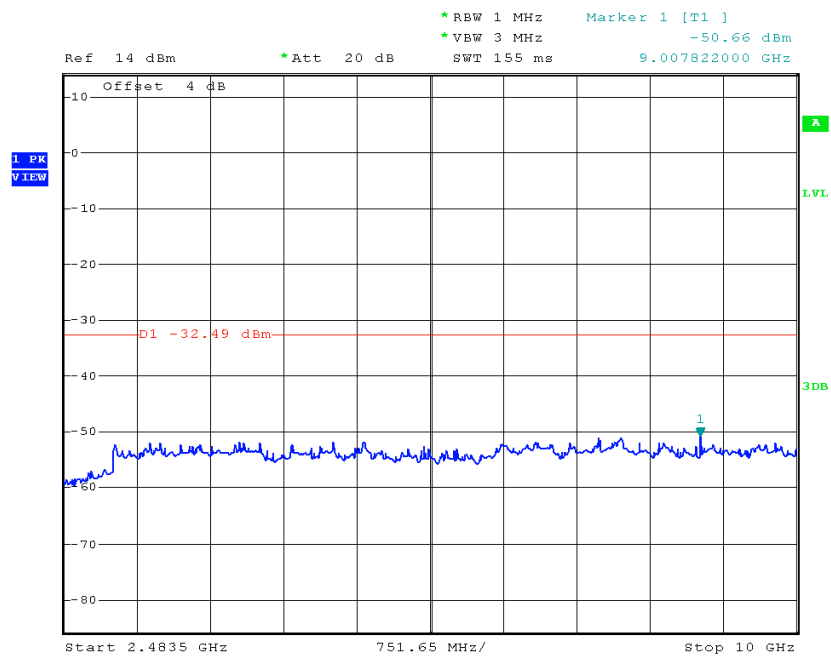
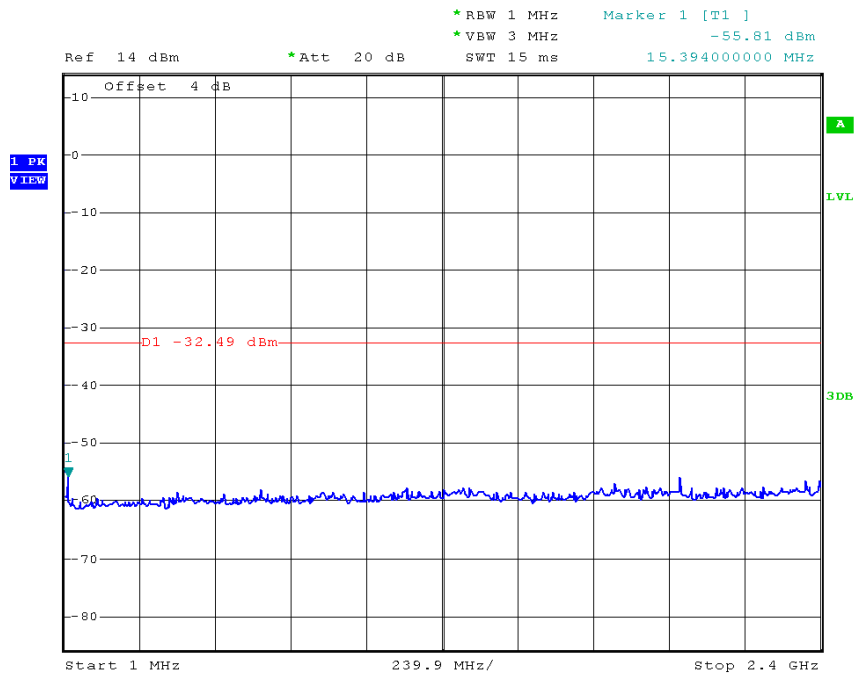
Report No.: 140102026SZN-009

# INTERTEK TESTING SERVICES



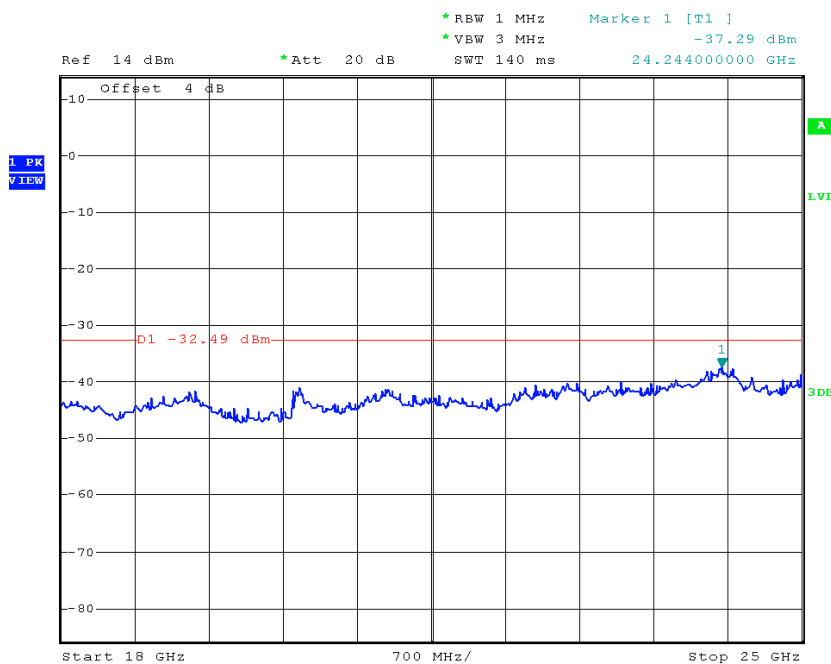
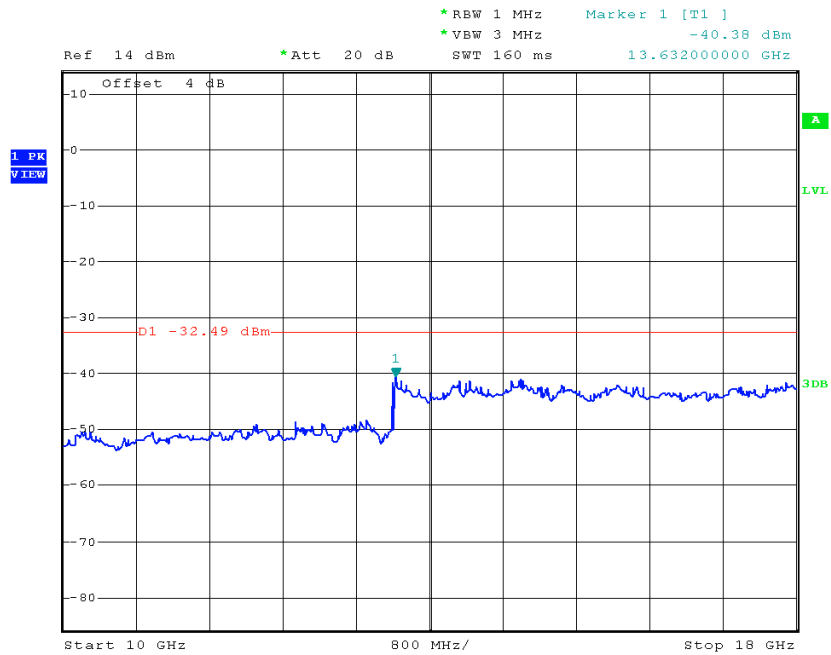
# INTERTEK TESTING SERVICES

Channel 06 (2437MHz) Reference Level: -12.49dBm



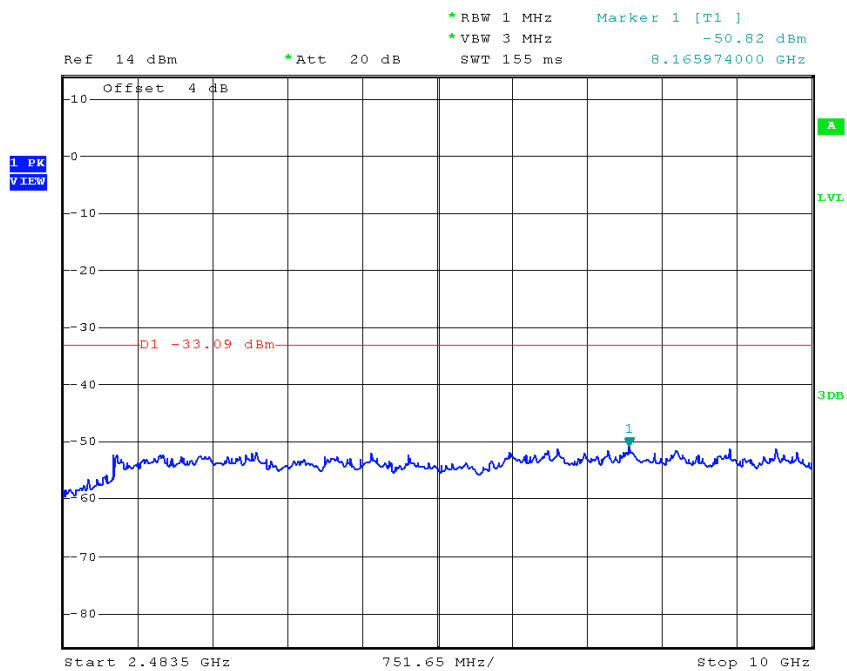
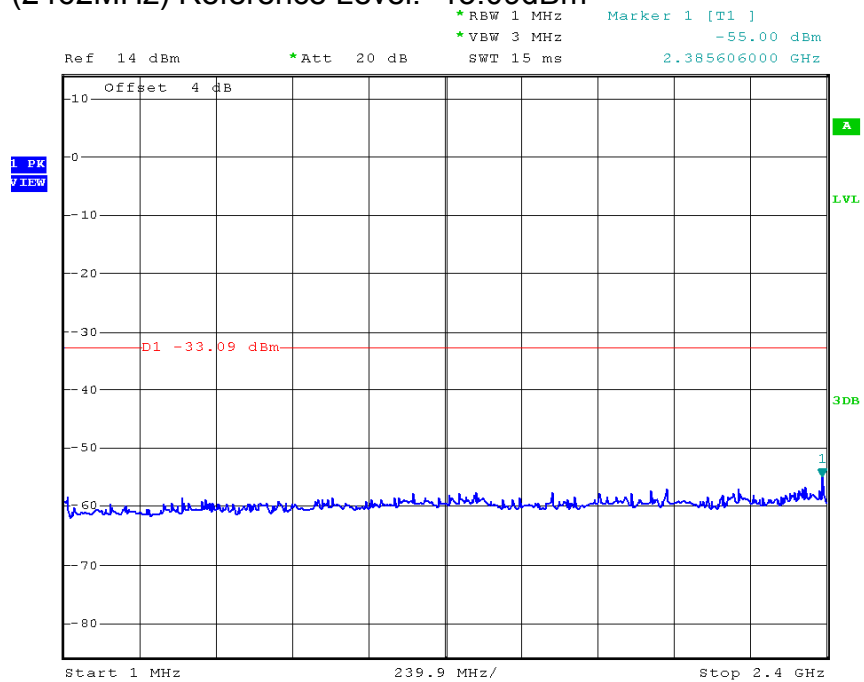
TRF no.: FCC 15C\_TX\_b  
 FCC ID: A5E-XPIRIS2  
 Report No.: 140102026SZN-009

# INTERTEK TESTING SERVICES



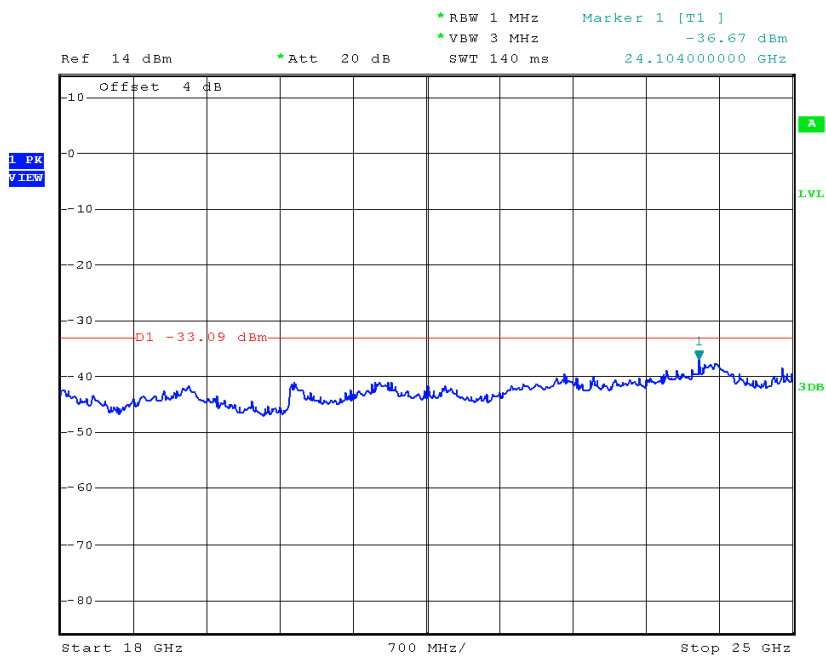
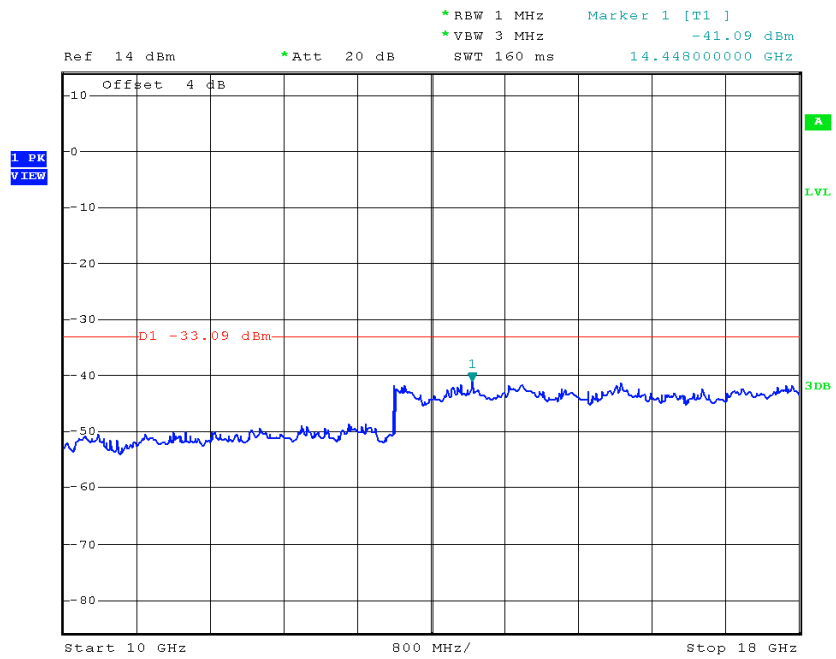
# INTERTEK TESTING SERVICES

Channel 11 (2462MHz) Reference Level: -13.09dBm



TRF no.: FCC 15C\_TX\_b  
FCC ID: A5E-XPIRIS2  
Report No.: 140102026SZN-009

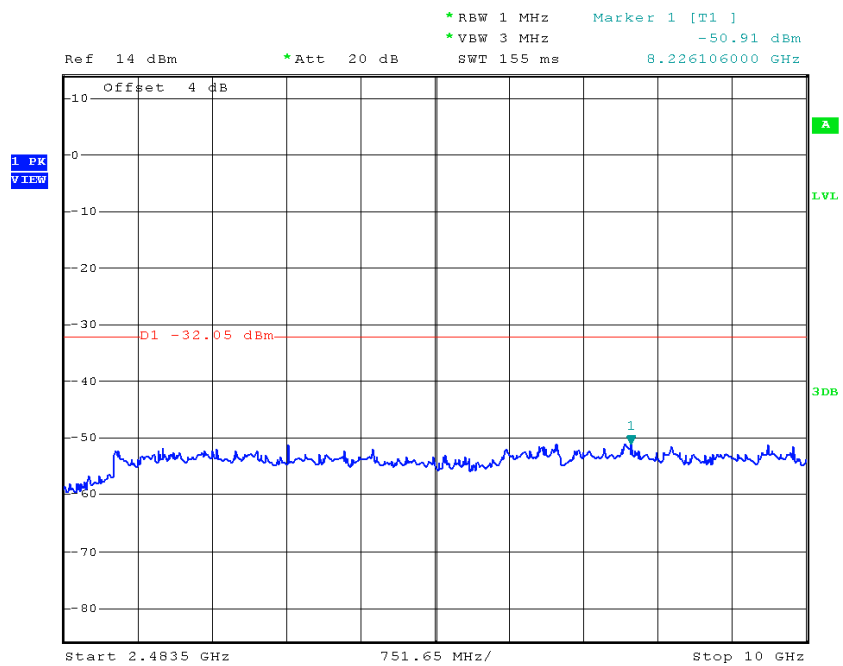
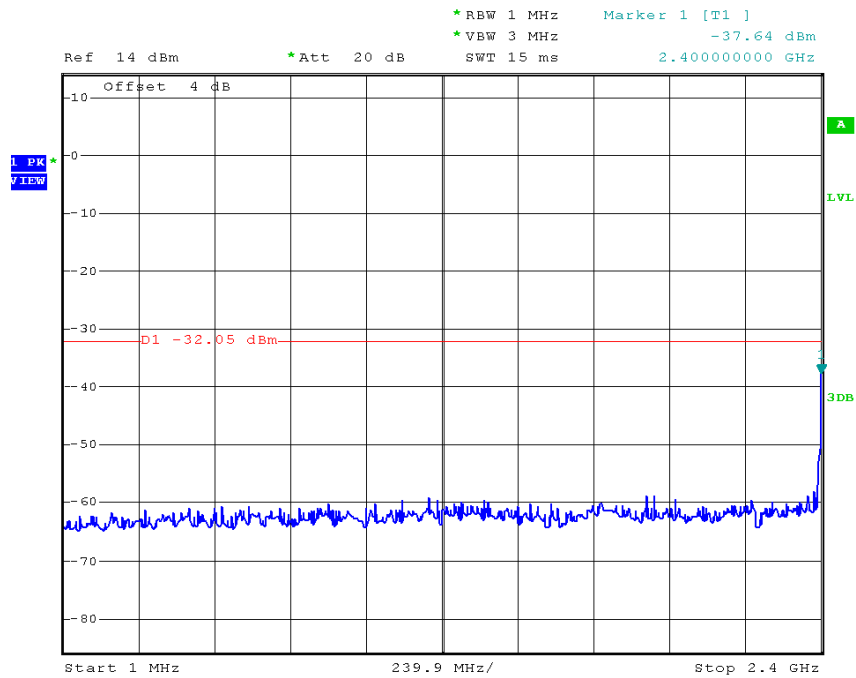
# INTERTEK TESTING SERVICES



# INTERTEK TESTING SERVICES

802.11 n-HT20

Channel 01 (2412MHz) Reference Level: -12.05dBm

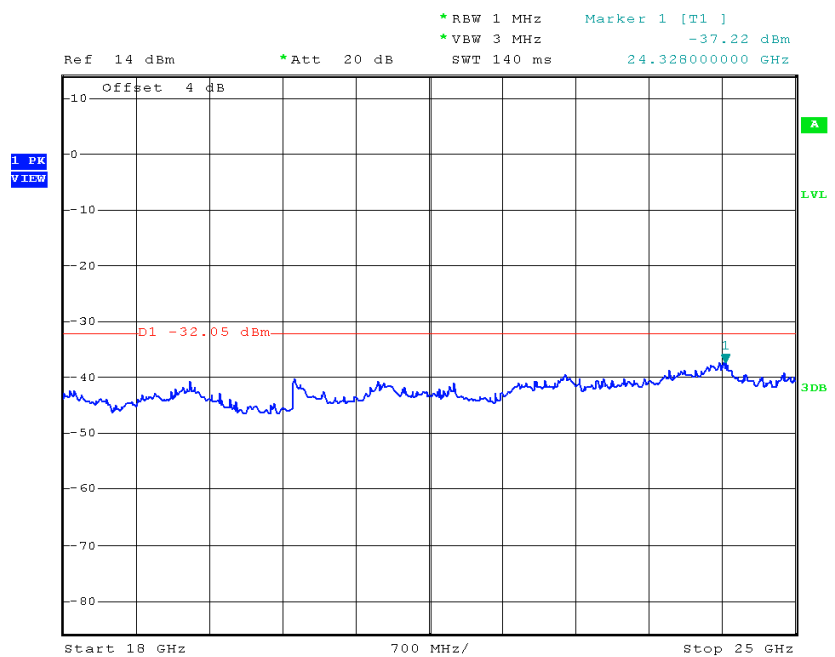
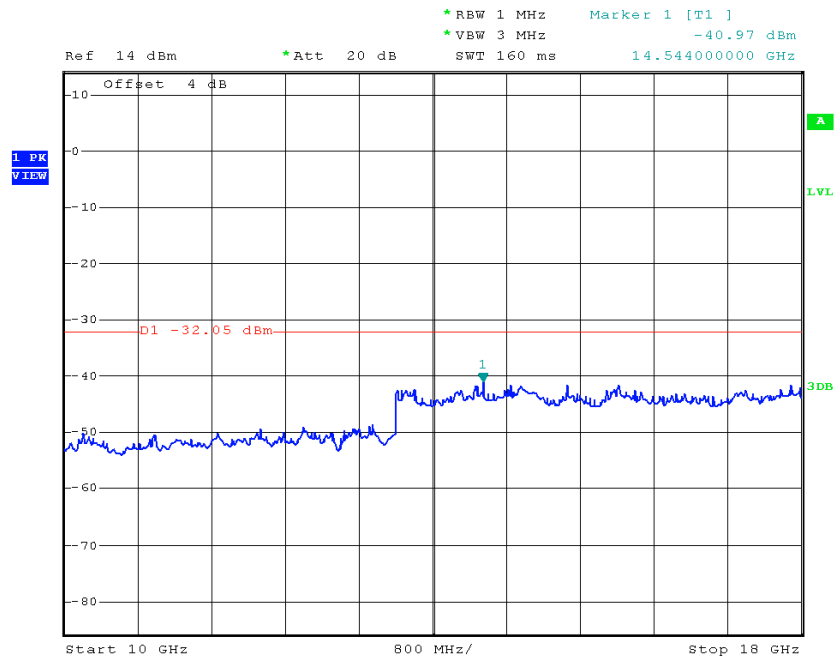


TRF no.: FCC 15C\_TX\_b

FCC ID: A5E-XPIRIS2

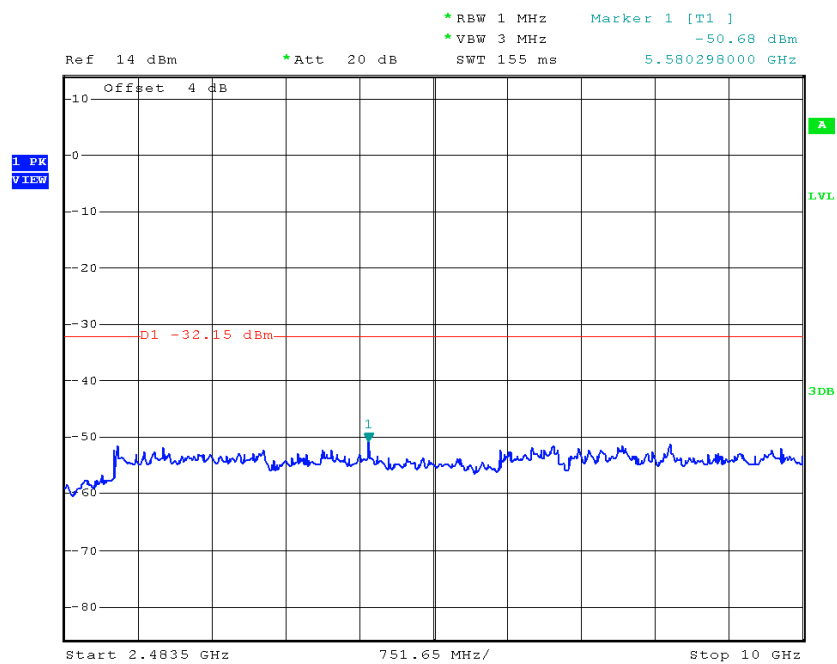
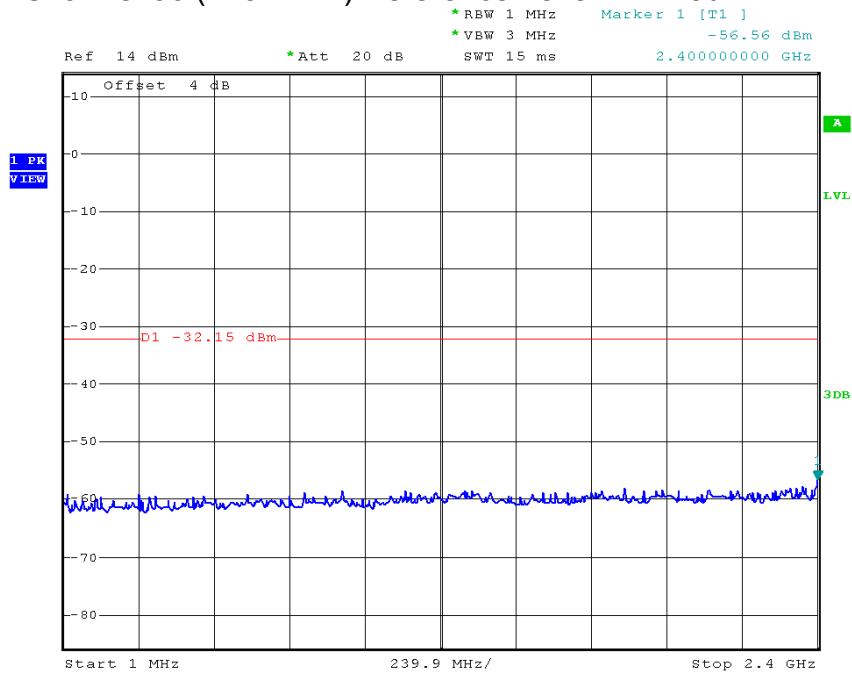
Report No.: 140102026SZN-009

# INTERTEK TESTING SERVICES

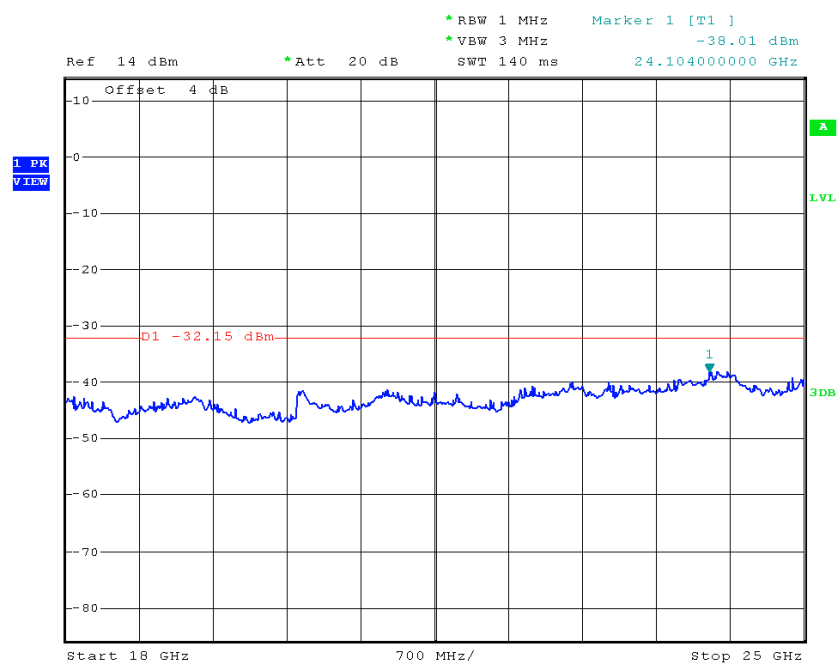
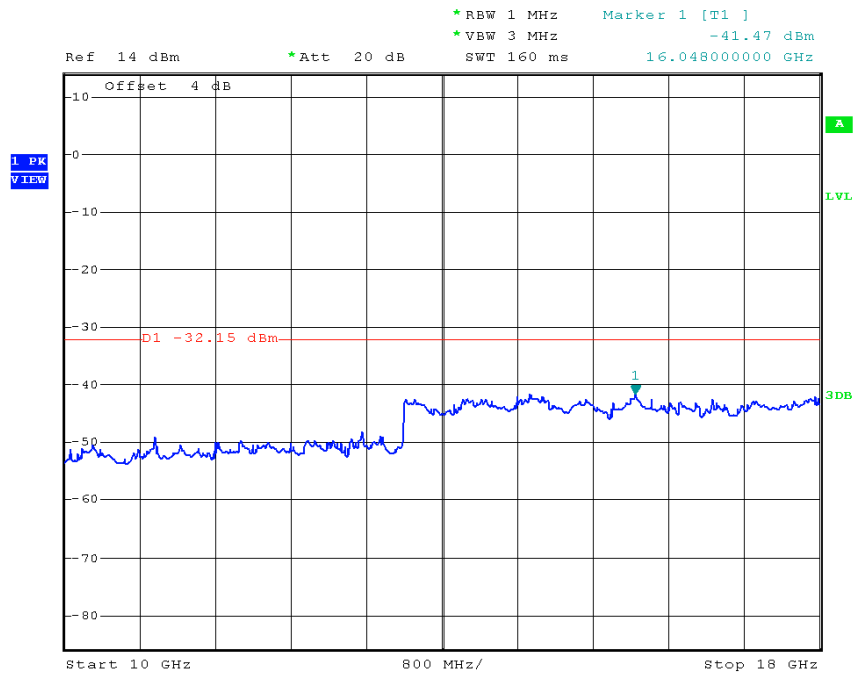


# INTERTEK TESTING SERVICES

Channel 06 (2437MHz) Reference Level: -12.15dBm

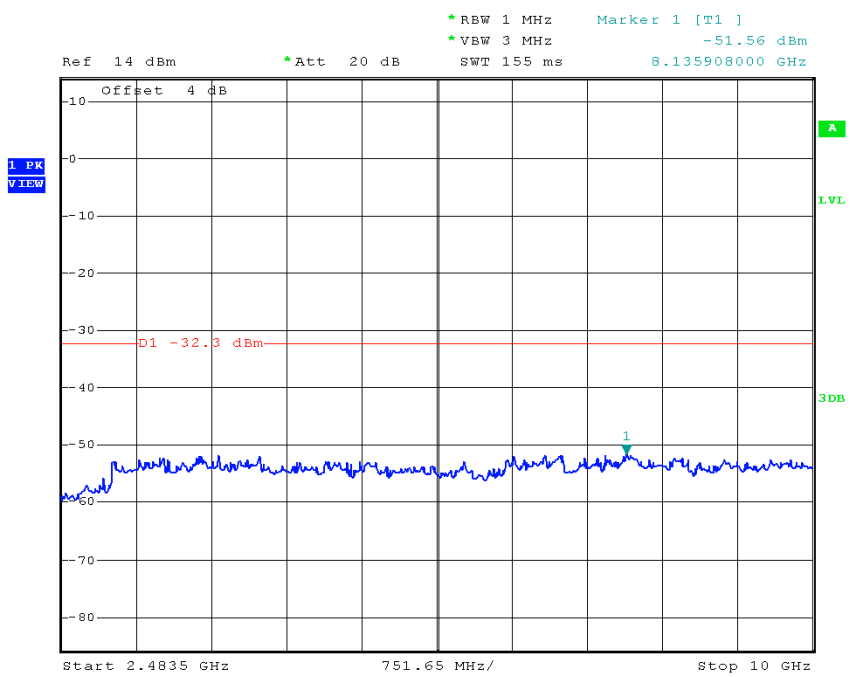
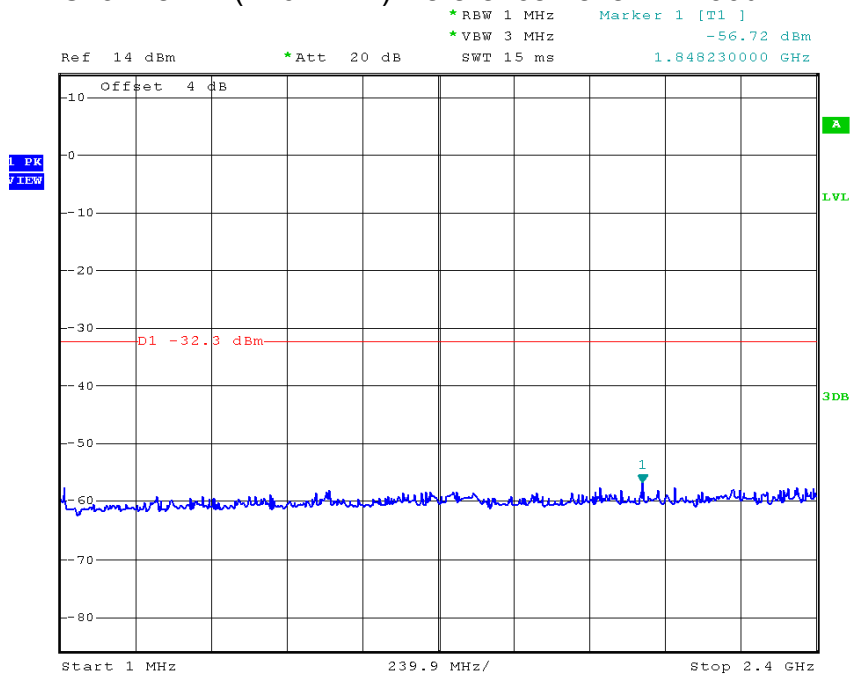


# INTERTEK TESTING SERVICES



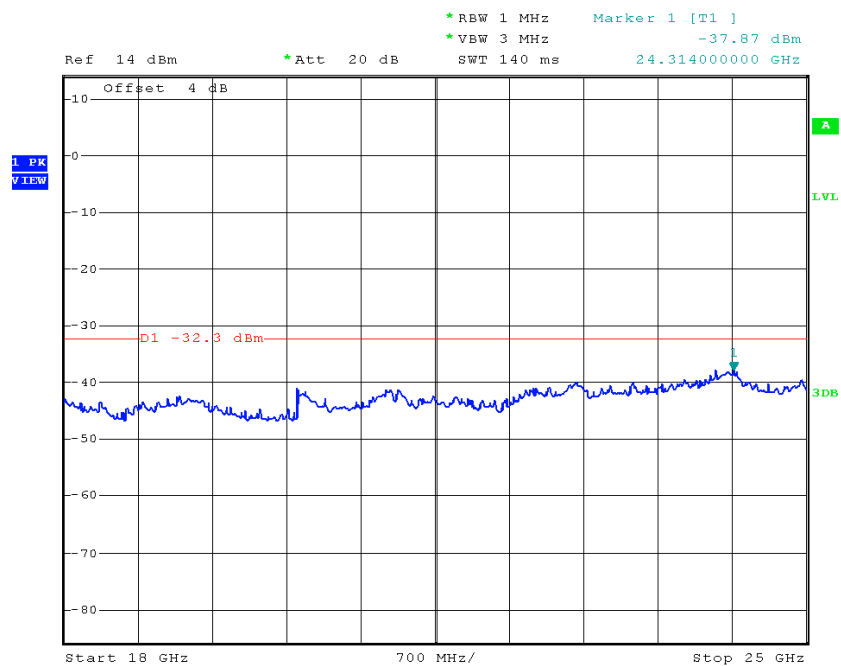
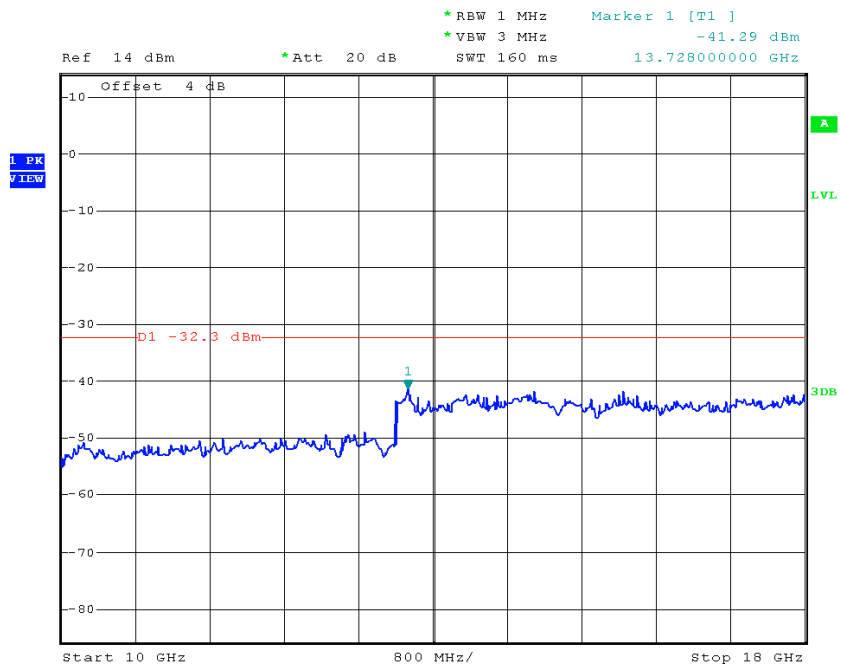
# INTERTEK TESTING SERVICES

## Channel 11 (2462MHz) Reference Level: -12.30dBm



TRF no.: FCC 15C\_TX\_b  
FCC ID: A5E-XPIRIS2  
Report No.: 140102026SZN-009

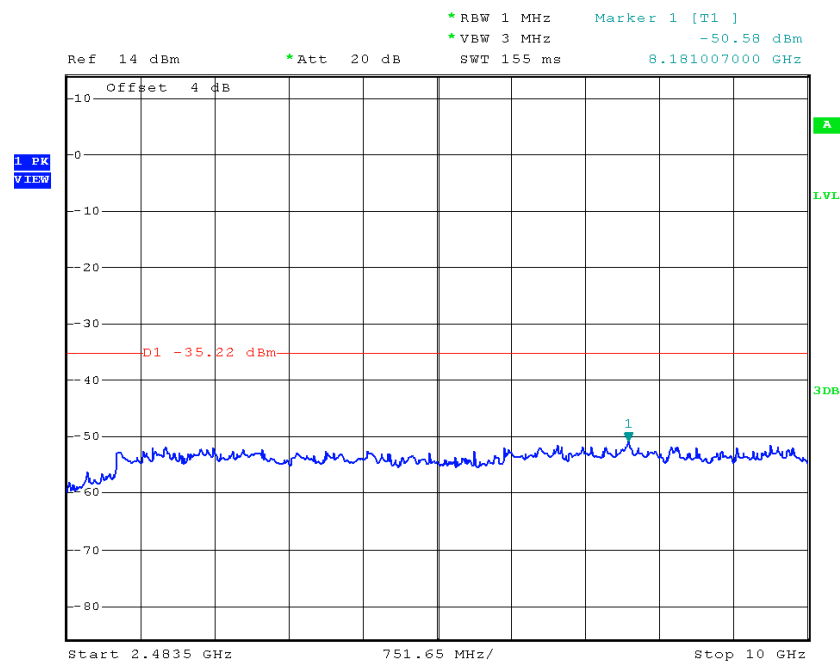
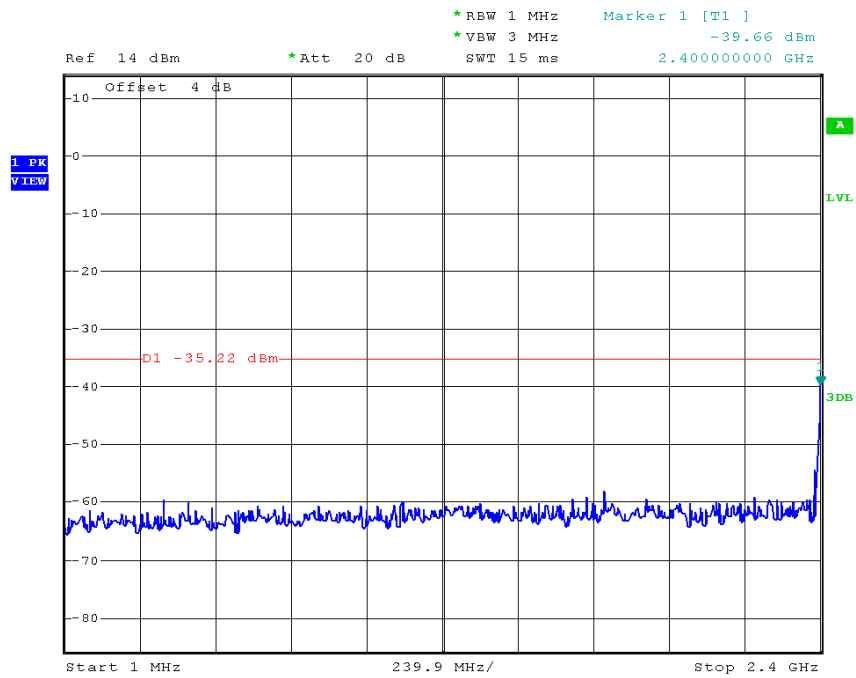
# INTERTEK TESTING SERVICES



# INTERTEK TESTING SERVICES

802.11 n-HT40

Channel 03 (2422MHz) Reference Level: -15.22dBm

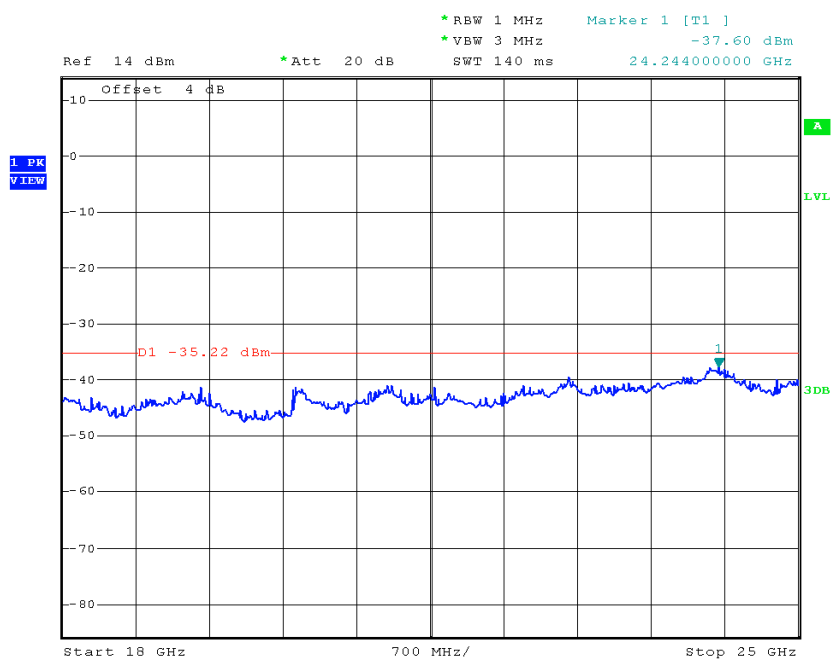
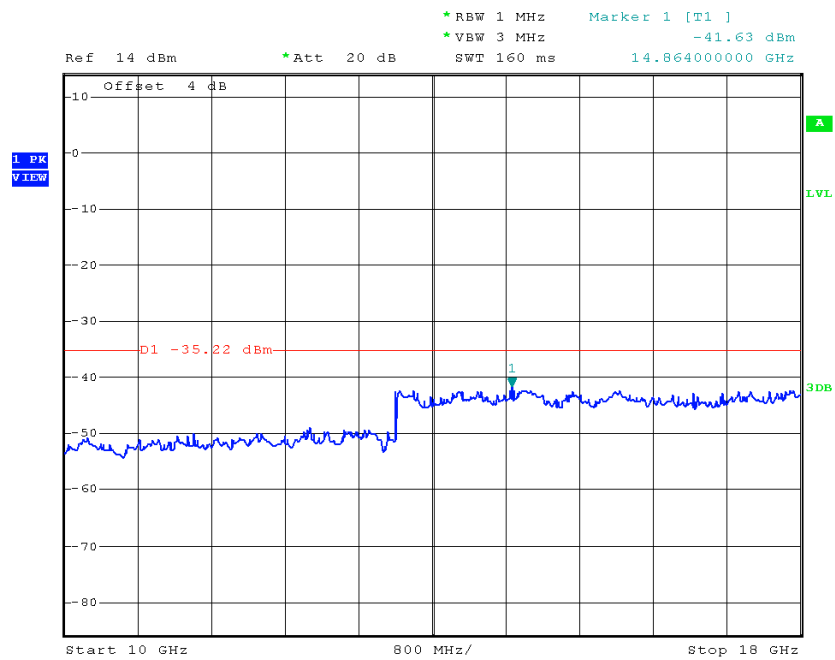


TRF no.: FCC 15C\_TX\_b

FCC ID: A5E-XPIRIS2

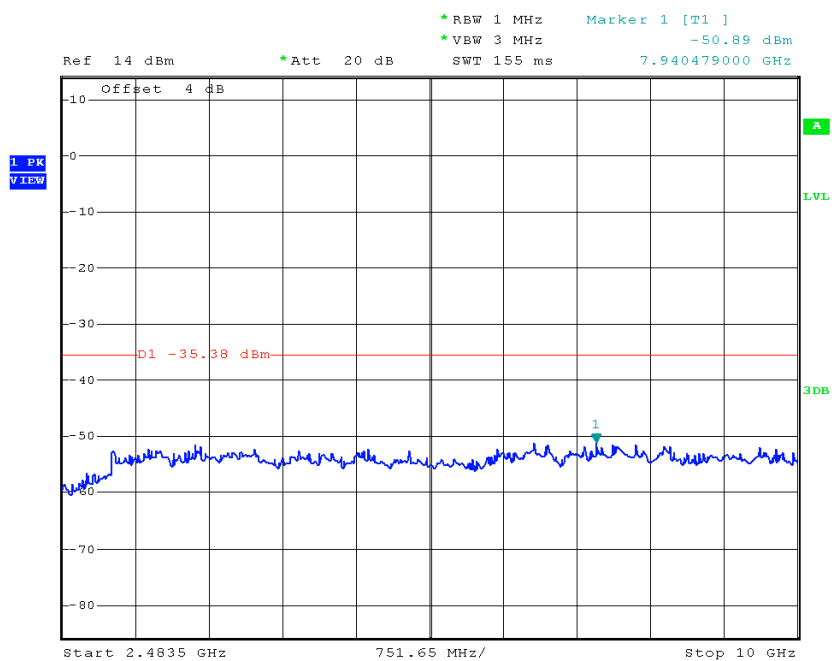
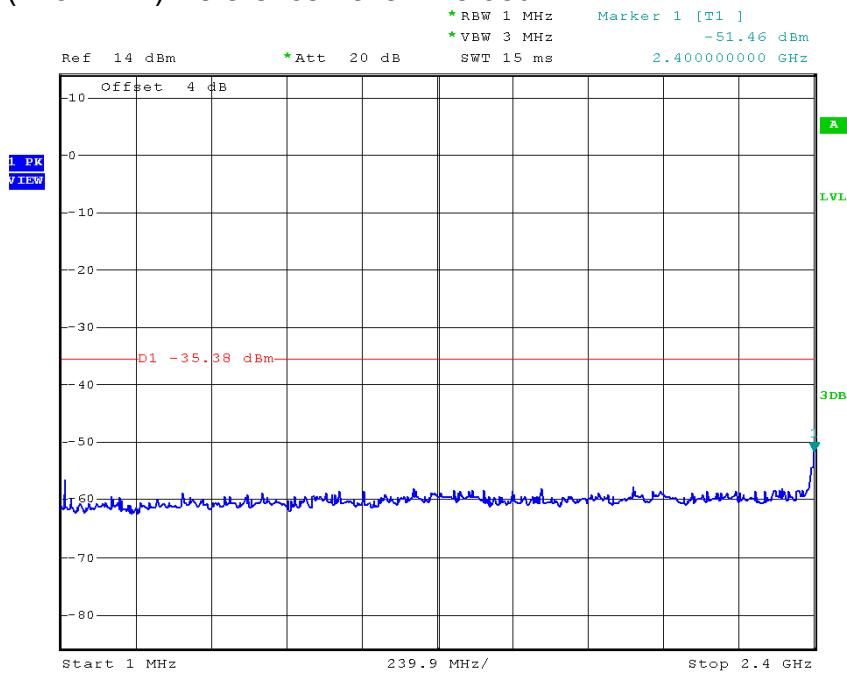
Report No.: 140102026SZN-009

# INTERTEK TESTING SERVICES



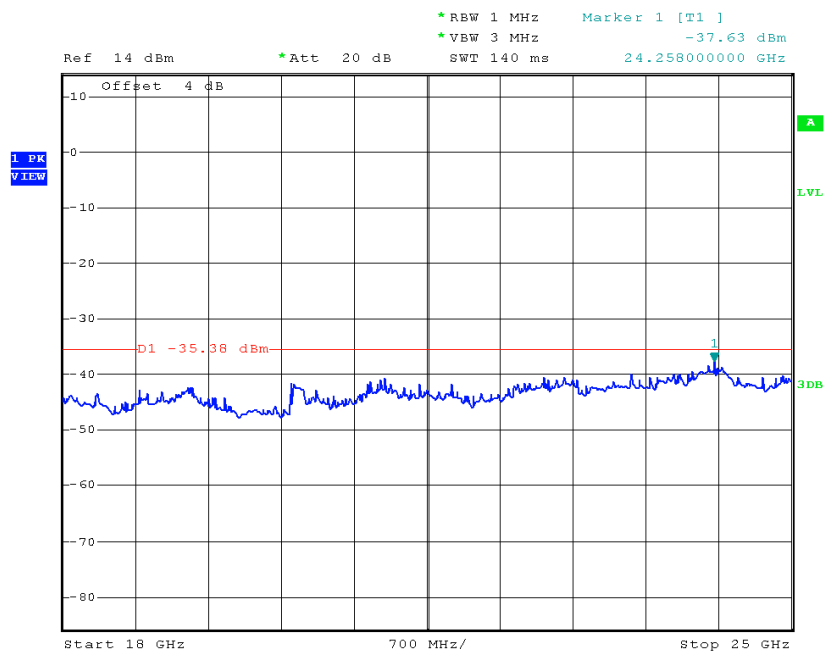
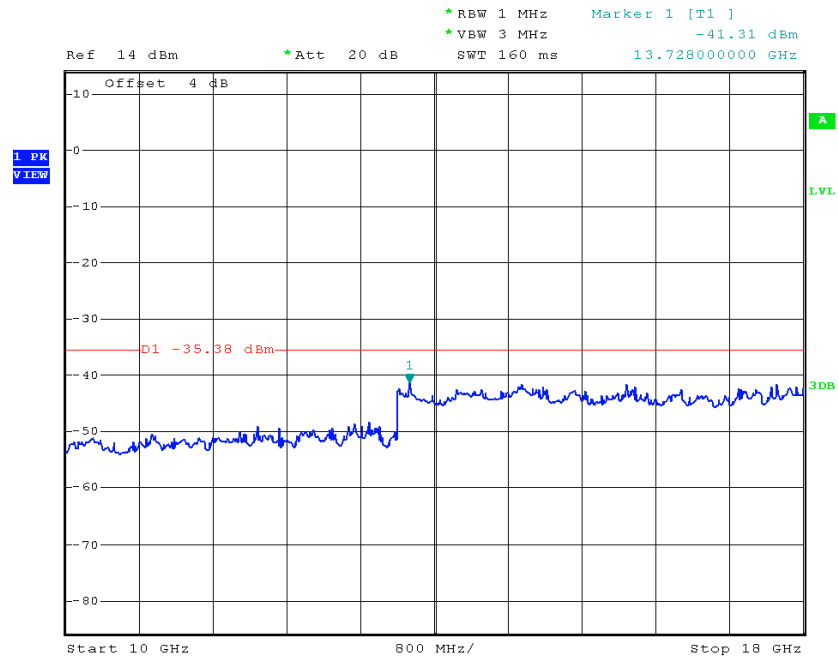
# INTERTEK TESTING SERVICES

Channel 06 (2437MHz) Reference Level: -15.38dBm



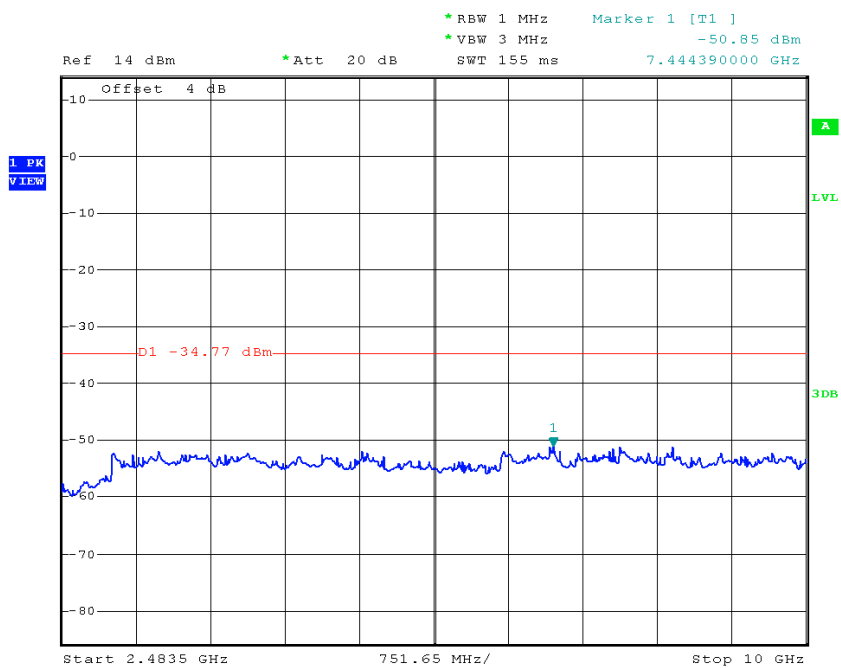
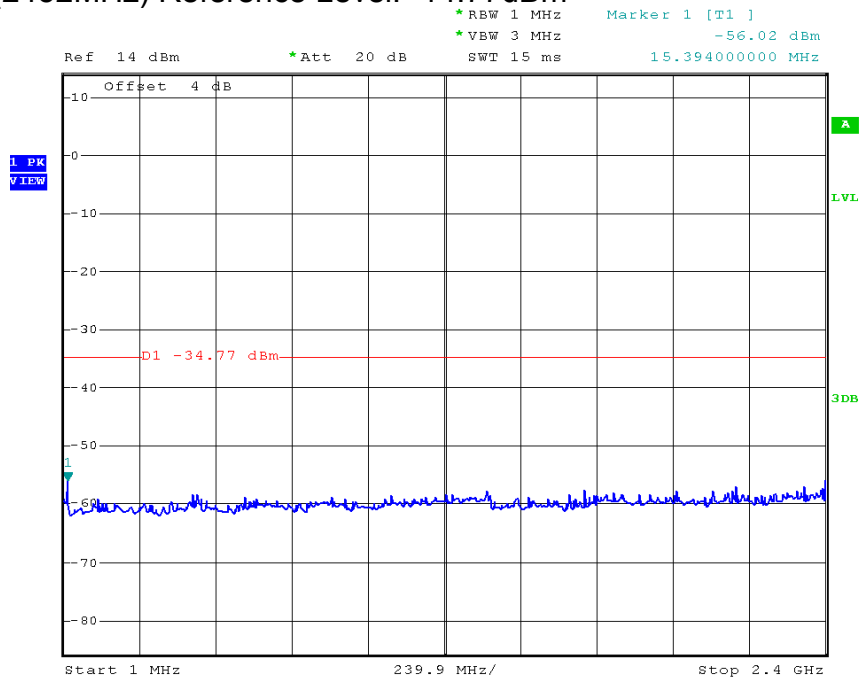
TRF no.: FCC 15C\_TX\_b  
FCC ID: A5E-XPIRIS2  
Report No.: 140102026SZN-009

# INTERTEK TESTING SERVICES



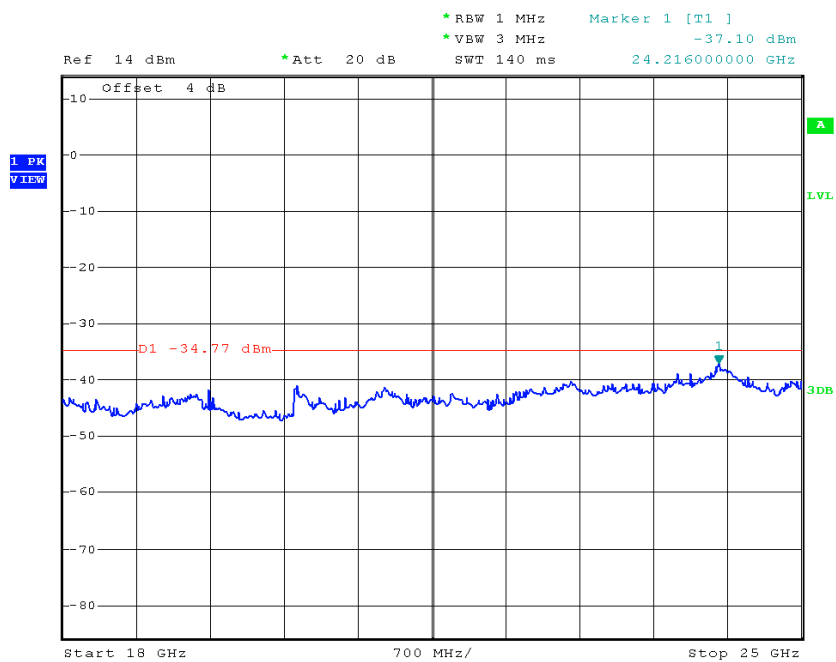
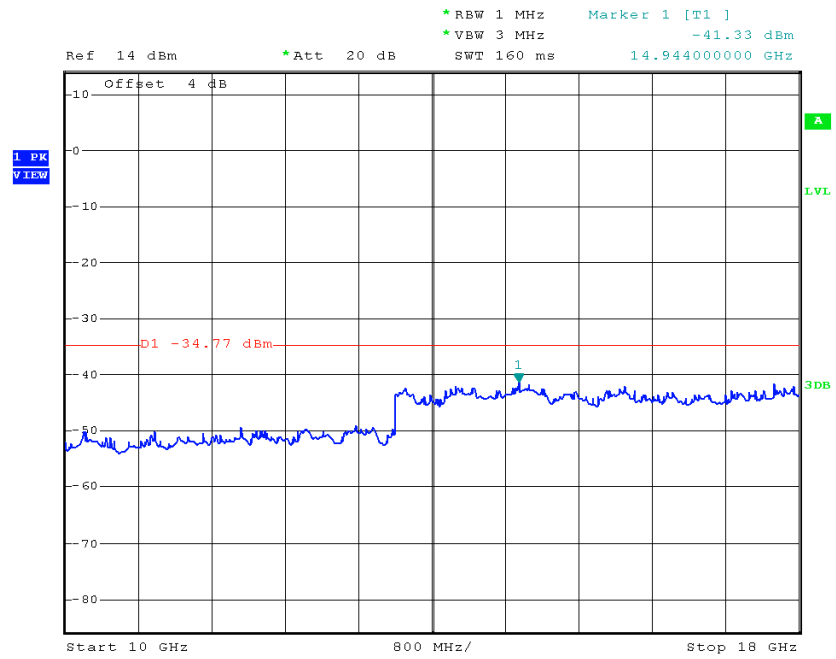
# INTERTEK TESTING SERVICES

Channel 9 (2452MHz) Reference Level: -14.77dBm



TRF no.: FCC 15C\_TX\_b  
FCC ID: A5E-XPIRIS2  
Report No.: 140102026SZN-009

# INTERTEK TESTING SERVICES



## INTERTEK TESTING SERVICES

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Applicant: Antenna International

Date of Test: January 17, 2014

Model: XP IRIS2

### 4.5 Out of Band Radiated Emissions (for emissions in 4.4 above that are less than 20dB below carrier), FCC Rule 15.247(d):

For out of band emissions that are close to or that exceed the 20dB attenuation requirement described in the specification, radiated measurements were performed at a 3m separation distance to determine whether these emissions complied with the general radiated emission requirement.

☒ Not required, since all emissions are more than 20dB below fundamental

☐ See attached data sheet

## **INTERTEK TESTING SERVICES**

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Applicant: Antenna International

Date of Test: January 17, 2014

Model: XP IRIS2

### **4.6 Transmitter Radiated Emissions in Restricted Bands, FCC Rule 15.35(b), (c):**

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection unless otherwise specified.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

## INTERTEK TESTING SERVICES

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Applicant: Antenna International

Date of Test: January 22, 2014

Model: XP IRIS2

### 4.7 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

$$FS = RA + AF + CF - AG + PD$$

Where      FS = Field Strength in dB $\mu$ V/m  
              RA = Receiver Amplitude (including preamplifier) in dB $\mu$ V  
              CF = Cable Attenuation Factor in dB  
              AF = Antenna Factor in dB  
              AG = Amplifier Gain in dB  
              PD = Pulse Desensitization in dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

$$FS = RA + AF + CF - AG + PD$$

#### Example

Assume a receiver reading of 62.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB. The net field strength for comparison to the appropriate emission limit is 42 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

$$\begin{aligned} RA &= 62.0 \text{ dB}\mu\text{V} \\ AF &= 7.4 \text{ dB} \\ CF &= 1.6 \text{ dB} \\ AG &= 29.0 \text{ dB} \\ PD &= 0 \text{ dB} \\ FS &= 62 + 7.4 + 1.6 - 29 + 0 = 42 \text{ dB}\mu\text{V/m} \end{aligned}$$

$$\text{Level in mV/m} = \text{Common Antilogarithm } [(42 \text{ dB}\mu\text{V/m})/20] = 125.9 \mu\text{V/m}$$

TRF no.: FCC 15C\_TX\_b

FCC ID: A5E-XPIRIS2

Report No.: 140102026SZN-009

## INTERTEK TESTING SERVICES

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Applicant: Antenna International

Date of Test: January 22, 2014

Model: XP IRIS2

### 4.8 Radiated Spurious Emission

Worst Case Radiated Spurious Emission (802.11n –HT40) at 2483.500MHz is passed by 0.9 dB margin.

For the electronic filing, the worst case radiated emission configuration photographs are saved with filename: radiated photos.pdf.

## INTERTEK TESTING SERVICES

Applicant: Antenna International

Date of Test: January 22, 2014

Model: XP IRIS2

Worst Case Operating Mode: 802.11 n-HT20 (TX-Channel 11)

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Horizontal	31.440	36.1	20.0	6.1	22.2	40.0	-17.8
Horizontal	161.920	42.8	20.0	10.3	33.1	43.5	-10.4
Horizontal	270.075	40.1	20.0	13.9	34.0	46.0	-12.0
Vertical	31.788	44.8	20.0	9.8	34.6	40.0	-5.4
Vertical	39.700	47.1	20.0	6.8	33.9	40.0	-6.1
Vertical	191.990	33.4	20.0	16.3	29.7	43.5	-13.8

NOTES: 1. Quasi-Peak detector is used except for others stated.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. All emissions are below the QP limit.

TRF no.: FCC 15C\_TX\_b

FCC ID: A5E-XPIRIS2

Report No.: 140102026SZN-009

## INTERTEK TESTING SERVICES

Applicant: Antenna International  
 Date of Test: January 22, 2014  
 Model: XP IRIS2  
 Mode: 802.11b (TX-Channel 01)

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4824.000	54.2	36.1	34.1	52.2	74.0	-21.8
Horizontal	*2390.000	73.4	36.8	26.5	63.1	74.0	-10.9

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4824.000	41.8	36.1	34.1	39.8	54.0	-14.2
Horizontal	*2390.000	62.4	36.8	26.5	52.1	54.0	-1.9

- NOTES: 1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

## INTERTEK TESTING SERVICES

Applicant: Antenna International  
Date of Test: January 22, 2014  
Model: XP IRIS2  
Mode: 802.11b (TX-Channel 06)

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	51.1	36.1	34.5	49.5	74.0	-24.5
Horizontal	*7311.000	50.6	35.6	37.1	52.1	74.0	-21.9

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	40.5	36.1	34.5	38.9	54.0	-15.1
Horizontal	*7311.000	36.4	35.6	37.1	37.9	54.0	-16.1

- NOTES: 1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

## INTERTEK TESTING SERVICES

Applicant: Antenna International  
 Date of Test: January 22, 2014  
 Model: XP IRIS2  
 Mode: 802.11b (TX-Channel 11)

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4924.000	50.6	36.1	34.7	49.2	74.0	-24.8
Horizontal	*2483.700	63.0	35.6	39.5	66.9	74.0	-7.1

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4924.000	38.3	36.1	34.7	36.9	54.0	-17.1
Horizontal	*2483.700	49.1	35.6	39.5	53.0	54.0	-1.0

- NOTES: 1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

## INTERTEK TESTING SERVICES

Applicant: Antenna International  
 Date of Test: January 22, 2014  
 Model: XP IRIS2  
 Mode: 802.11g (TX-Channel 01)

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4824.000	51.2	36.1	34.1	49.2	74.0	-24.8
Horizontal	*2390.000	72.7	36.8	26.5	62.4	74.0	-11.6

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4824.000	38.5	36.1	34.1	36.5	54.0	-17.5
Horizontal	*2390.000	61.5	36.8	26.5	51.2	54.0	-2.8

- NOTES: 1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

## INTERTEK TESTING SERVICES

Applicant: Antenna International  
 Date of Test: January 22, 2014  
 Model: XP IRIS2  
 Mode: 802.11g (TX-Channel 06)

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	50.5	36.1	34.5	48.9	74.0	-25.1
Horizontal	*7311.000	49.6	35.6	37.1	51.1	74.0	-22.9

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	37.7	36.1	34.5	36.1	54.0	-17.9
Horizontal	*7311.000	35.2	35.6	37.1	36.7	54.0	-17.3

- NOTES: 1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

## INTERTEK TESTING SERVICES

Applicant: Antenna International  
 Date of Test: January 22, 2014  
 Model: XP IRIS2  
 Mode: 802.11g (TX-Channel 11)

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4924.000	51.0	36.1	34.7	49.6	74.0	-24.4
Horizontal	*2483.500	59.4	35.6	39.5	63.3	74.0	-10.7

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4924.000	37.7	36.1	34.7	36.3	54.0	-17.7
Horizontal	*2483.500	48.2	35.6	39.5	52.1	54.0	-1.9

- NOTES: 1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

## INTERTEK TESTING SERVICES

Applicant: Antenna International  
 Date of Test: January 22, 2014  
 Model: XP IRIS2  
 Mode: 802.11 n-HT20 (TX-Channel 01)

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4824.000	51.5	36.1	34.1	49.5	74.0	-24.5
Horizontal	*2390.000	73.4	36.8	26.5	63.1	74.0	-10.9

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4824.000	38.8	36.1	34.1	36.8	54.0	-17.2
Horizontal	*2390.000	62.5	36.8	26.5	52.2	54.0	-1.8

- NOTES: 1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

## INTERTEK TESTING SERVICES

Applicant: Antenna International  
 Date of Test: January 22, 2014  
 Model: XP IRIS2  
 Mode: 802.11 n-HT20 (TX-Channel 06)

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	50.5	36.1	34.5	48.9	74.0	-25.1
Horizontal	*7311.000	50.9	35.6	37.1	52.4	74.0	-21.6

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	37.7	36.1	34.5	36.1	54.0	-17.9
Horizontal	*7311.000	40.5	35.6	37.1	42.0	54.0	-12.0

- NOTES: 1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

## INTERTEK TESTING SERVICES

Applicant: Antenna International  
 Date of Test: January 22, 2014  
 Model: XP IRIS2  
 Mode: 802.11 n-HT20 (TX-Channel 11)

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4924.000	50.5	36.1	34.7	49.1	74.0	-24.9
Horizontal	*2483.500	60.4	35.6	39.5	64.3	74.0	-9.7

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4924.000	37.4	36.1	34.7	36.0	54.0	-18.0
Horizontal	*2483.500	49.0	35.6	39.5	52.9	54.0	-1.1

- NOTES: 1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

## INTERTEK TESTING SERVICES

Applicant: Antenna International  
 Date of Test: January 22, 2014  
 Model: XP IRIS2  
 Mode: 802.11 n-HT40 (TX-Channel 03)

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4844.000	50.9	36.1	34.1	48.9	74.0	-25.1
Horizontal	2390.000	74.6	36.8	26.5	64.3	74.0	-9.7

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4844.000	37.8	36.1	34.1	35.8	54.0	-18.2
Horizontal	*2390.000	62.4	36.8	26.5	52.1	54.0	-1.9

- NOTES: 1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

## INTERTEK TESTING SERVICES

Applicant: Antenna International  
 Date of Test: January 22, 2014  
 Model: XP IRIS2  
 Mode: 802.11 n-HT40 (TX-Channel 06)

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	50.7	36.1	34.5	49.1	74.0	-24.9
Horizontal	*7311.000	49.4	35.6	37.1	50.9	74.0	-23.1

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	37.8	36.1	34.5	36.2	54.0	-17.8
Horizontal	*7311.000	35.2	35.6	37.1	36.7	54.0	-17.3

- NOTES: 1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

## INTERTEK TESTING SERVICES

Applicant: Antenna International  
 Date of Test: January 22, 2014  
 Model: XP IRIS2  
 Mode: 802.11 n-HT40 (TX-Channel 9)

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4904.000	50.0	36.1	34.7	48.6	74.0	-25.4
Horizontal	*2483.500	61.5	35.6	39.5	65.4	74.0	-8.6

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4904.000	37.5	36.1	34.7	36.1	54.0	-17.9
Horizontal	*2483.500	49.2	35.6	39.5	53.1	54.0	-0.9

- NOTES: 1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

## INTERTEK TESTING SERVICES

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### 4.9 Conducted Emission

Worst Case Conducted emission at 3.002MHz is Passed by 10.7 dB margin

For electronic filing, the worst case conducted emission configuration photograph is saved with filename: conducted photos.pdf.

## INTERTEK TESTING SERVICES

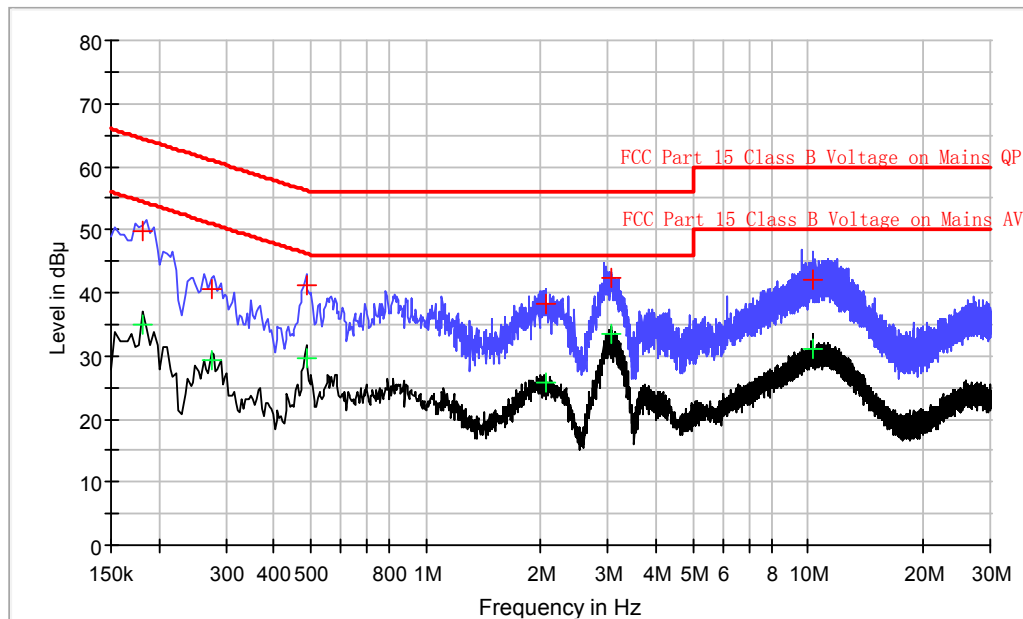
Applicant: Antenna International

Date of Test: January 22, 2014

Model: XP IRIS2

Worst Case Operating Mode: 802.11 n-HT20 (TX-Channel 11)

### Conducted Emission Test - FCC



#### Result Table QP

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.182000	49.7	L1	9.8	14.7	64.4
0.274000	40.5	L1	9.7	20.5	61.0
0.486000	41.2	L1	9.7	15.0	56.2
2.066000	38.2	L1	9.9	17.8	56.0
3.046000	42.3	L1	9.8	13.7	56.0
10.270000	42.0	L1	10.0	18.0	60.0

#### Result Table AV

Frequency (MHz)	Average (dB $\mu$ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.182000	35.0	L1	9.8	19.4	54.4
0.274000	29.3	L1	9.7	21.7	51.0
0.486000	29.7	L1	9.7	16.5	46.2
2.066000	25.7	L1	9.9	20.3	46.0
3.046000	33.6	L1	9.8	12.4	46.0
10.270000	31.0	L1	10.0	19.0	50.0

TRF no.: FCC 15C\_TX\_b

FCC ID: A5E-XPIRIS2

Report No.: 140102026SZN-009

## INTERTEK TESTING SERVICES

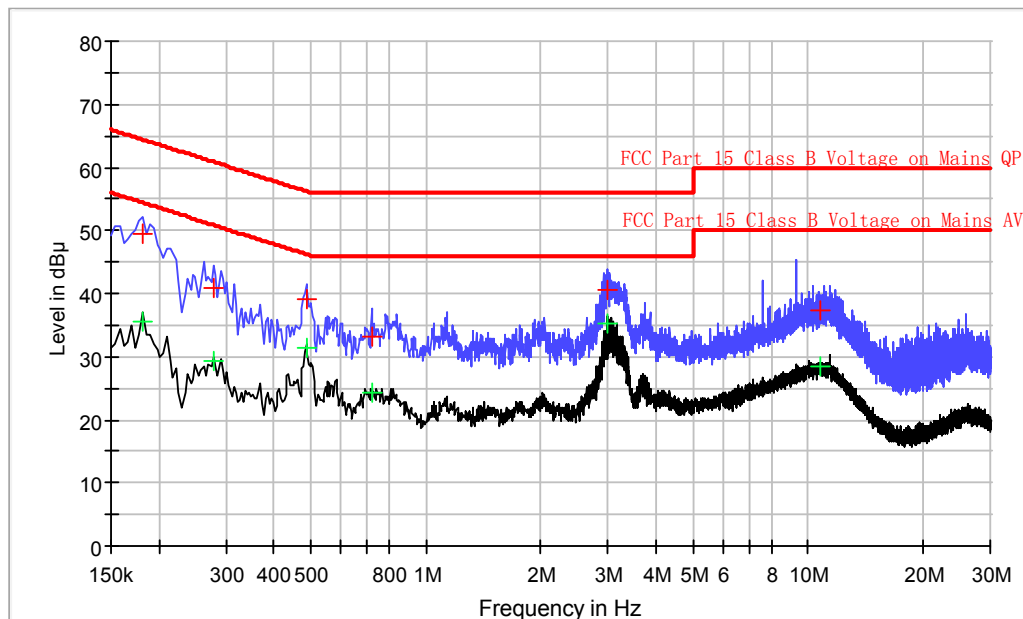
Applicant: Antenna International

Date of Test: January 22, 2014

Model: XP IRIS2

Worst Case Operating Mode: 802.11n-HT20 (TX-Channel 01)

### Conducted Emission Test - FCC



#### Result Table QP

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.182000	49.6	N	10.2	14.8	64.4
0.278000	40.8	N	10.2	20.1	60.9
0.486000	39.0	N	10.2	17.2	56.2
0.722000	33.3	N	10.3	22.7	56.0
3.002000	40.6	N	10.3	15.4	56.0
10.814000	37.3	N	10.5	22.7	60.0

#### Result Table AV

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.182000	35.4	N	10.2	19.0	54.4
0.278000	29.4	N	10.2	21.5	50.9
0.486000	31.3	N	10.2	14.9	46.2
0.722000	24.3	N	10.3	21.7	46.0
3.002000	35.3	N	10.3	10.7	46.0
10.814000	28.4	N	10.5	21.6	50.0

TRF no.: FCC 15C\_TX\_b

FCC ID: A5E-XPIRIS2

Report No.: 140102026SZN-009

## INTERTEK TESTING SERVICES

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Applicant: Antenna International

Date of Test: January 17, 2014

Model: XP IRIS2

4.10 Radiated Emissions from Digital Section of Transceiver, FCC Ref: 15.109

☐ Not required - No digital part

☐ Test results are attached

☒ Included in the separated report.

## INTERTEK TESTING SERVICES

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Applicant: Antenna International

Date of Test: January 17, 2014

Model: XP IRIS2

### 4.11 Transmitter Duty Cycle Calculation and Measurements, FCC Rule 15.35(b), (c)

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEP function on the analyzer was set to ZERO SPAN. The Transmitter ON time was determined from the resultant time-amplitude display:

	See attached spectrum analyzer chart (s) for Transmitter timing
	See Transmitter timing diagram provided by manufacturer
x	Not applicable, duty cycle was not used.

**EXHIBIT 5**  
**EQUIPMENT PHOTOGRAPHS**

## INTERTEK TESTING SERVICES

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### 5.0 Equipment Photographs

For electronic filing, the photographs are saved with filename: external photos.doc & internal photos.pdf.

**EXHIBIT 6**  
**PRODUCT LABELLING**

## INTERTEK TESTING SERVICES

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### 6.0 **Product Labeling**

For electronic filing, the FCC ID label artwork and location is saved with filename: label.pdf.

**EXHIBIT 7**  
**TECHNICAL SPECIFICATIONS**

## INTERTEK TESTING SERVICES

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### 7.0 Technical Specifications

For electronic filing, the block diagram and circuit diagram are saved with filename: block.pdf and circuit.pdf respectively.

**EXHIBIT 8**  
**INSTRUCTION MANUAL**

## INTERTEK TESTING SERVICES

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### 8.0 **Instruction Manual**

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

**EXHIBIT 9**  
**CONFIDENTIALITY REQUEST**

## INTERTEK TESTING SERVICES

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### 9.0 **Confidentiality Request**

For electronic filing, the confidentiality request of the tested EUT is saved with filename: request.pdf.

## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 10**

### **MISCELLANEOUS INFORMATION**

## INTERTEK TESTING SERVICES

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### 10.0 **Discussion of Pulse Desensitization**

The determination of pulse desensitivity was made in accordance with Hewlett Packard Application Note 150-2, *Spectrum Analysis ... Pulsed RF*.

Pulse desensitivity is not applicable for this device since the transmitter transmits the RF signal continuously.

**EXHIBIT 11**  
**TEST EQUIPMENT LIST**

## INTERTEK TESTING SERVICES

### 11.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-03	BiConiLog Antenna	ETS	3142C	00066460	29-Jun-13	29-Jun-14
SZ185-01	EMI Receiver	R&S	ESCI	100547	12-Mar-13	12-Mar-14
SZ061-07	Pyramidal Horn Antenna	ETS	3160-09	00083067	27-Aug-13	27-Aug-14
SZ061-08	Horn Antenna	ETS	3115	00092346	26-Oct-13	26-Oct-14
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	13-May-13	13-May-14
SZ056-03	Spectrum Analyzer	R&S	FSP 30	101148	12-Mar-13	12-Mar-14
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	12-Mar-13	12-Mar-14
SZ182-02	RF Power Meter	Anritsu	ML2496A	1302005	2-Mar-13	2-Mar-14
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	29-Jun-13	29-Jun-14
SZ062-02	RF Cable	RADIAL	RG 213U	--	20-Jul-13	20-Jul-14
SZ062-06	RF Cable	RADIAL	0.04-26.5GHz	--	17-Oct-13	17-Apr-14
SZ062-12	RF Cable	RADIAL	0.04-26.5GHz	--	17-Oct-13	17-Apr-14
SZ067-04	Notch Filter	Micro-Tronics	BRM5070 2-02	--	20-Jul-13	20-Jul-14
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	9-Nov-13	9-Nov-14
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	9-Nov-13	9-Nov-14
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	9-Nov-13	9-Nov-14
SZ188-03	Shielding Room	ETS	RFD-100	4100	23-Aug-13	23-Aug-14