

**Guangzhou Walkera Technology Co., Ltd**

Application  
For  
Certification

**FCC ID: S29SCOUT-X4PRO**

**R/C Helicopter**

**Model: Scout-X4 PRO**

**2.4GHz Transceiver**

Report No.: 150422021SZN-001

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

Leo Lai  
Project Engineer

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Andy Yan  
Senior Project Engineer  
Date: June 05, 2015

- 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\_c

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

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INTERTEK TESTING SERVICES

MEASUREMENT/TECHNICAL REPORT

Guangzhou Walkera Technology Co., Ltd

Model: Scout-X4 PRO

FCC ID: S29SCOUT-X4PRO

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

Equipment Type: DTS - Part 15 Digital Transmission Systems

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 [10-01-13 Edition] provision

Report prepared by:

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### List of attached file

<b>Exhibit Type</b>	<b>File Description</b>	<b>Filename</b>
Test Report	Test Report	report.pdf
Test Setup Photo	Radiated Emission	radiated 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
Cover Letter	Confidentiality Letter	request.pdf
Cover Letter	Letter of Agency	agency.pdf
User Manual	User Manual	manual.pdf

**EXHIBIT 1**

**SUMMARY OF TEST RESULTS**

## INTERTEK TESTING SERVICES

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### 1.0 Summary of Test results

**Guangzhou Walkera Technology Co., Ltd**

**Model: Scout-X4 PRO**

**FCC ID: S29SCOUT-X4PRO**

TEST	REFERENCE	RESULTS
Max. Output power	15.247(b)	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
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 R/C Helicopter, Model: Scout-X4 PRO with 2.4GHz wireless transmission function operating in 2405-2479MHz. The EUT was powered by rechargeable battery 22.2Vdc, 5400mAh. For more detailed features description, please refer to the user's manual.

The EUT have two 2.4GHz wireless modules which are FCS-RX703 and BT-2405A, and they can't transmit simultaneously.

Type of Modulation:

DSSS for 2.4GHz wireless module FCS-RX703

DSSS for 2.4GHz wireless module BT-2405A

Antenna Type:

Integral Antenna for 2.4GHz wireless module FCS-RX703

Integral Antenna for 2.4GHz wireless module BT-2405A

Antenna No.:

2 Antennas for 2.4GHz wireless module FCS-RX703

2 Antennas for 2.4GHz wireless module BT-2405A

The two 2.4GHz wireless modules operate on SISO mode only, If the receiver sensitivity has meet the internal limit valve, the antenna of EUT will auto transfer to the another antenna.

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

### 2.2 Related Submittal(s) Grants

This is an application for certification of:

DTS - Part 15 Digital Transmission Systems (2.4GHz wireless transmission portion), and there is no corresponding unit for certification.

### 2.3 Test Methodology

Radiated emission measurements was performed according to the procedures in ANSI C63.4 (2009) and KDB 558074. Radiated emission measurement was performed in semi-anechoic chamber. 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.

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### 2.4 Test Facility

The Semi-Anechoic chamber used to collect the radiated data is **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**

## 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. It was powered by fully charged 22.2Vdc rechargeable battery during the test. The worst case data were reported for 2.4GHz wireless module FCS-RX703 and 2.4GHz wireless module BT-2405A respectively.

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 EUT was placed in the center 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.

## INTERTEK TESTING SERVICES

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### 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 Guangzhou Walkera Technology Co., Ltd 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

N/A

**EXHIBIT 4**

**MEASUREMENT RESULTS**

## INTERTEK TESTING SERVICES

Applicant: Guangzhou Walkera Technology Co., Ltd  
Model: Scout-X4 PRO

Date of Test: 22 May 2015

### 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 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 with cable loss added.

For antennas with gains of 6 dBi or less for two 2.4GHz wireless modules, maximum allowed Transmitter output is 1 watt (+30 dBm).

2.4GHz wireless module: FCS-RX703 (Antenna Gain =3dBi)		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2405	20.5	112.2
Middle Channel: 2441	20.1	102.3
High Channel: 2479	20.6	114.8

2.4GHz wireless module: BT-2405A (Antenna Gain =3dBi)		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2405	20.3	107.2
Middle Channel: 2441	19.9	97.7
High Channel: 2479	19.2	83.2

Cable loss: 0.5 dB External Attenuation: 0 dB

Cable loss, external attenuation has been included in OFFSET function

EUT max output level = 20.6dBm for 2.4GHz wireless module FCS-RX703

EUT max output level = 20.3dBm for 2.4GHz wireless module BT-2405A

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

## INTERTEK TESTING SERVICES

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Applicant: Guangzhou Walkera Technology Co., Ltd  
Model: Scout-X4 PRO

Date of Test: 22 May 2015

### 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 1-5 % of the emission bandwidth and not to exceed 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.

2.4GHz wireless module: FCS-RX703	
Frequency (MHz)	6 dB Bandwidth (MHz)
2405	0.912
2441	0.897
2479	0.912

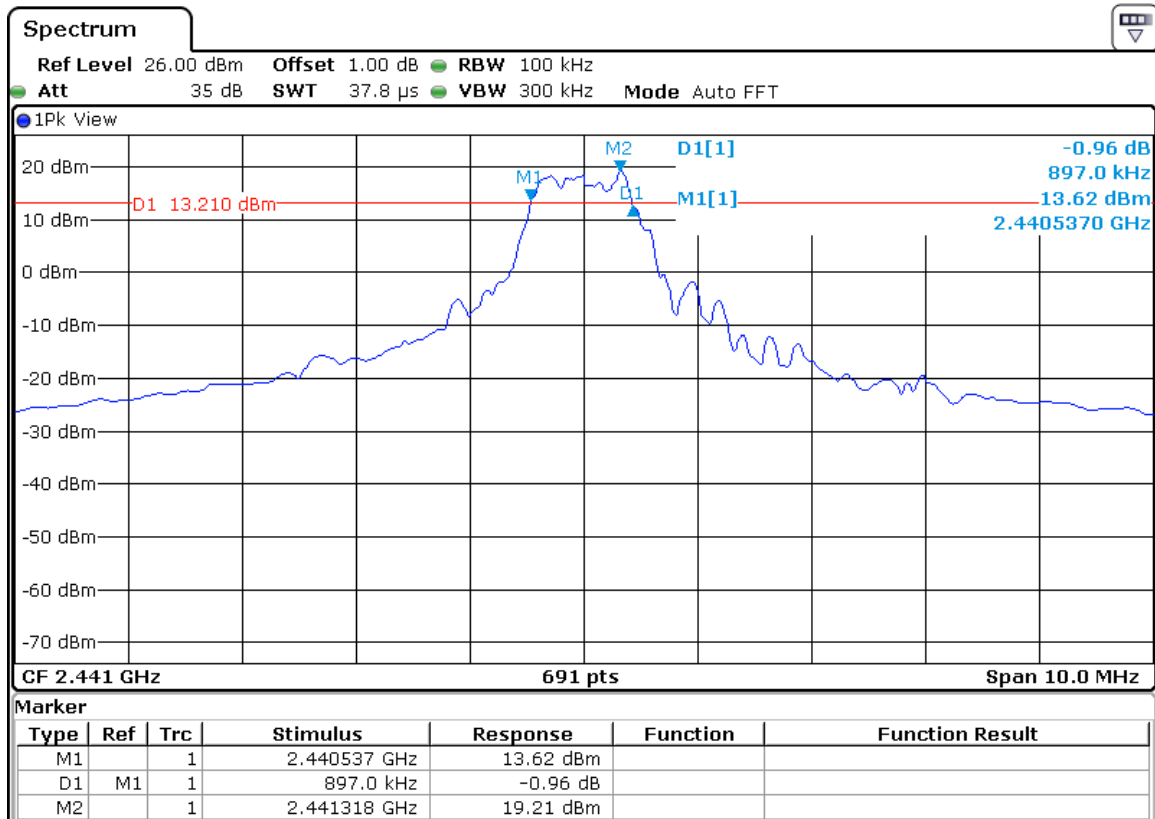
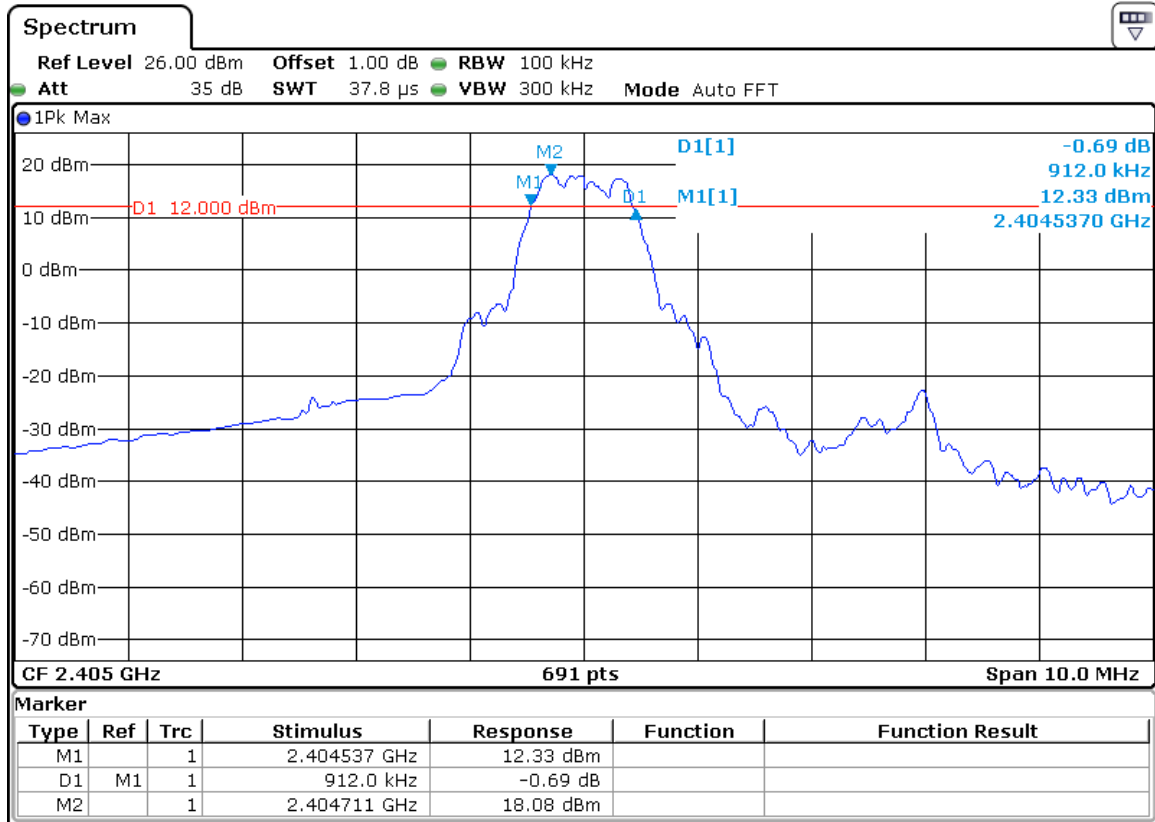
2.4GHz wireless module: BT-2405A	
Frequency (MHz)	6 dB Bandwidth (MHz)
2405	0.883
2441	0.897
2479	0.912

The test plots are attached as below.

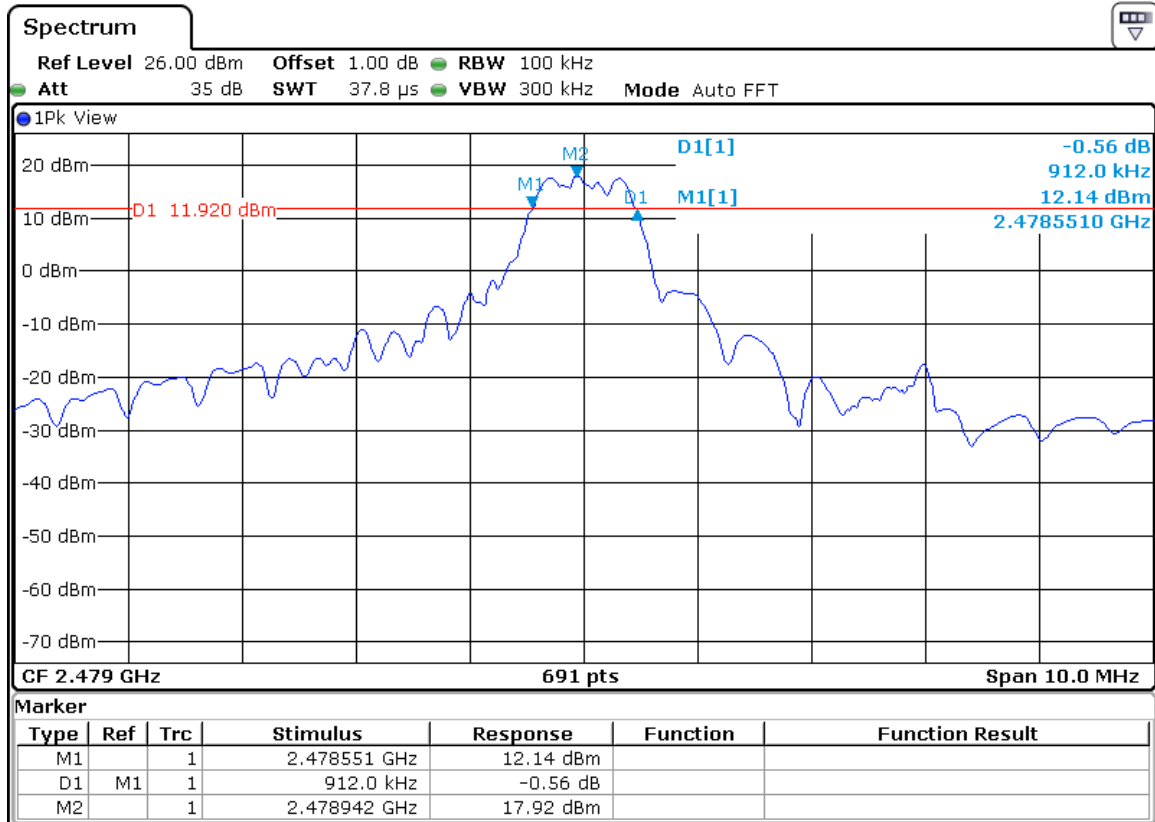


# INTERTEK TESTING SERVICES

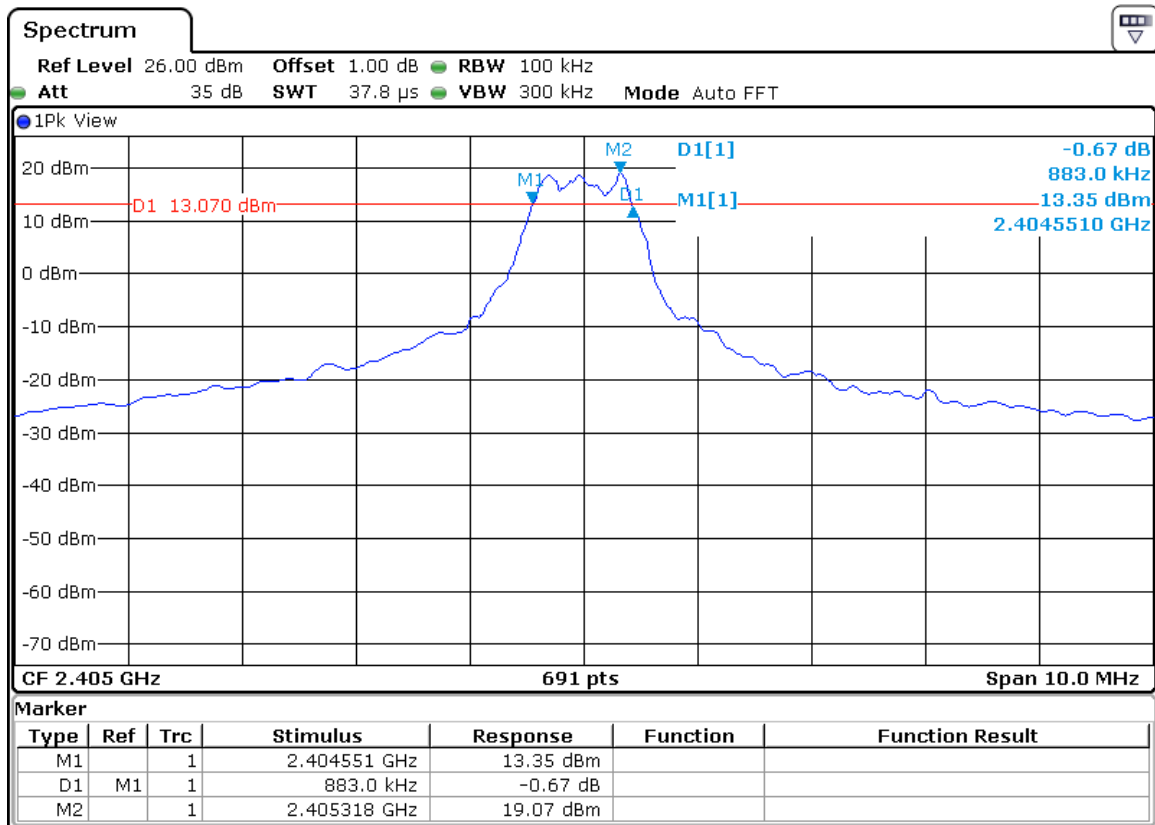
2.4GHz wireless module: FCS-RX703



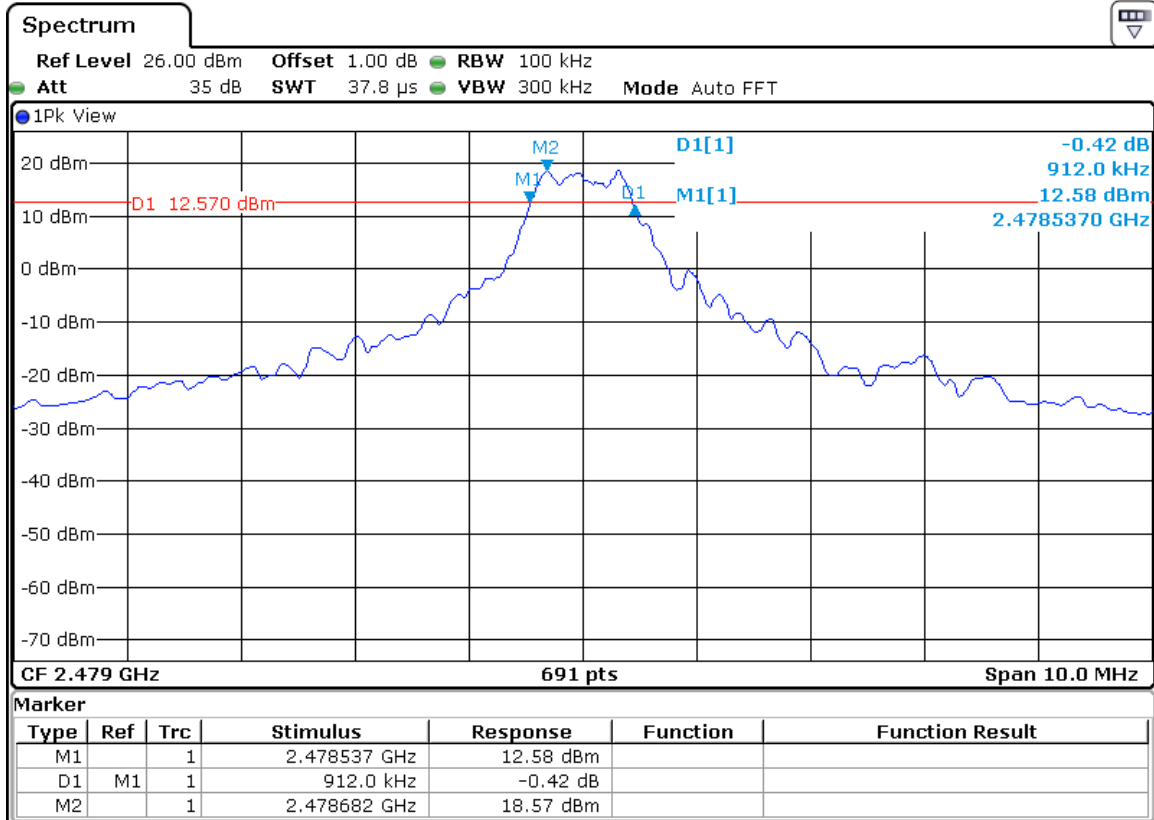
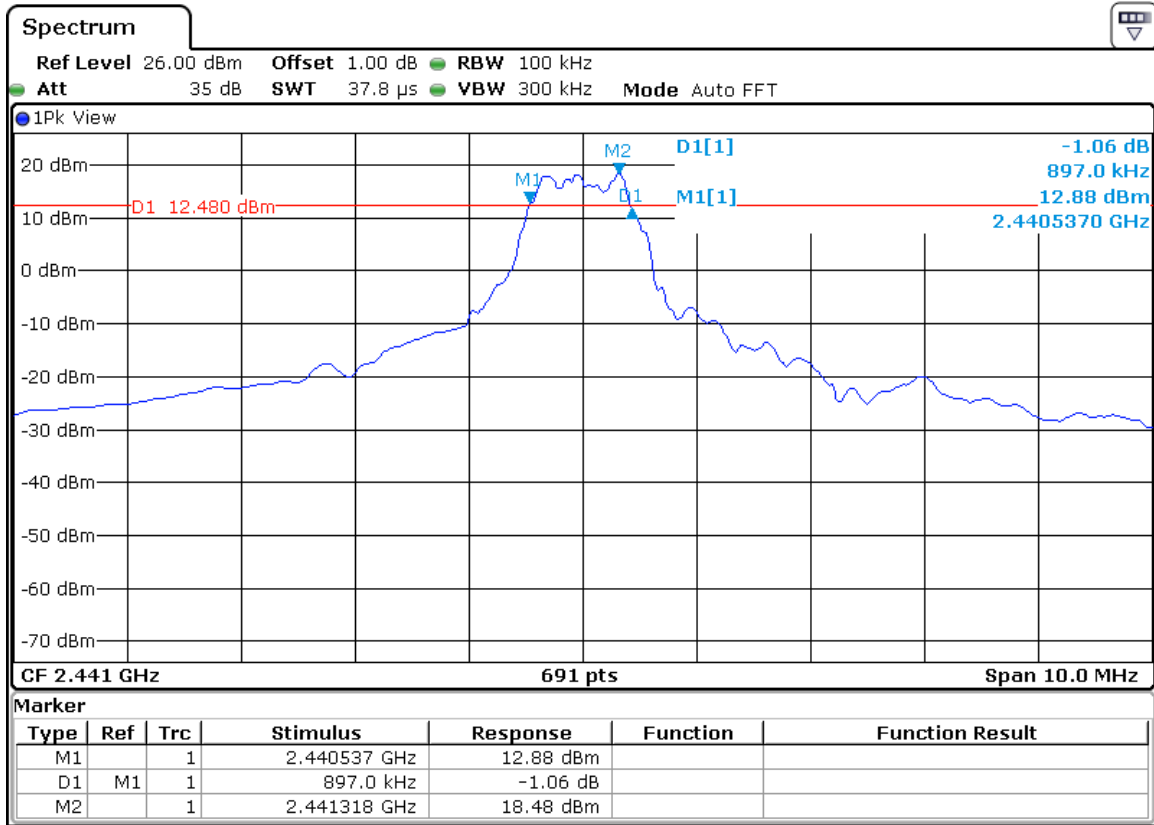
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2.4GHz wireless module: BT-2405A



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## INTERTEK TESTING SERVICES

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Applicant: Guangzhou Walkera Technology Co., Ltd  
Model: Scout-X4 PRO

Date of Test: 22 May 2015

### 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.

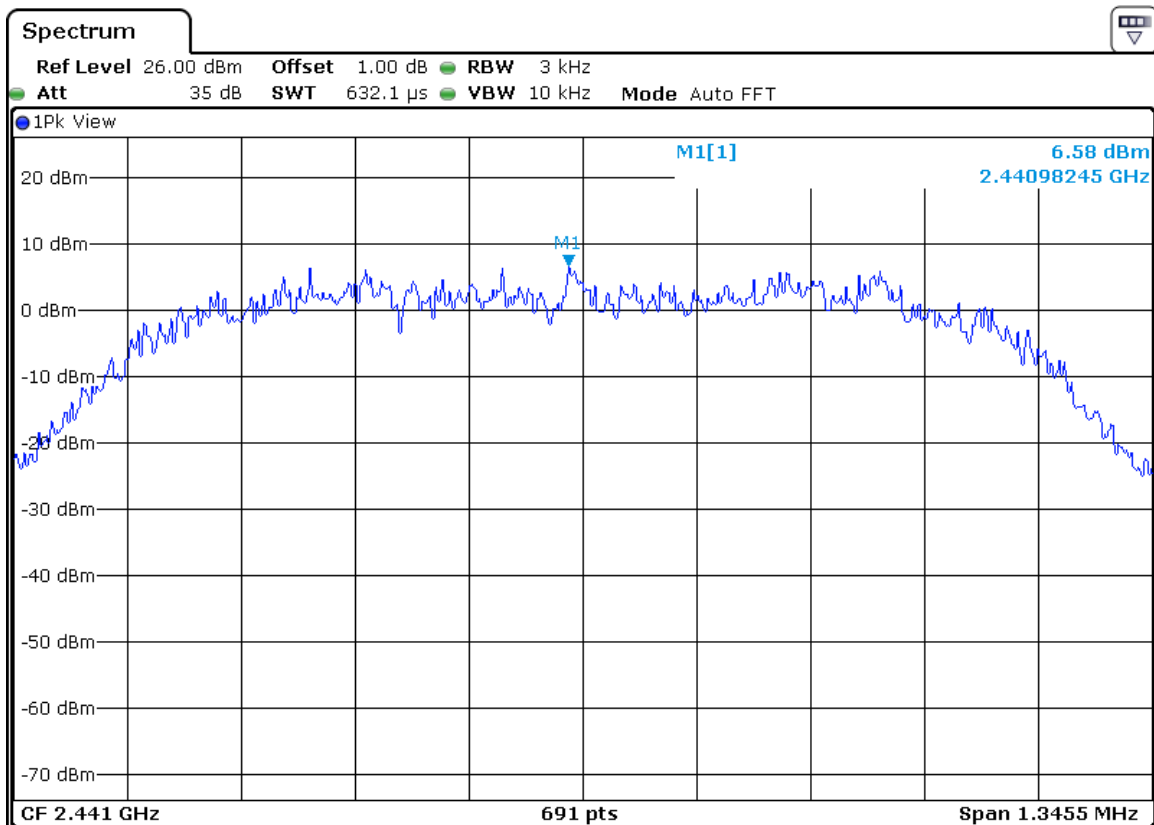
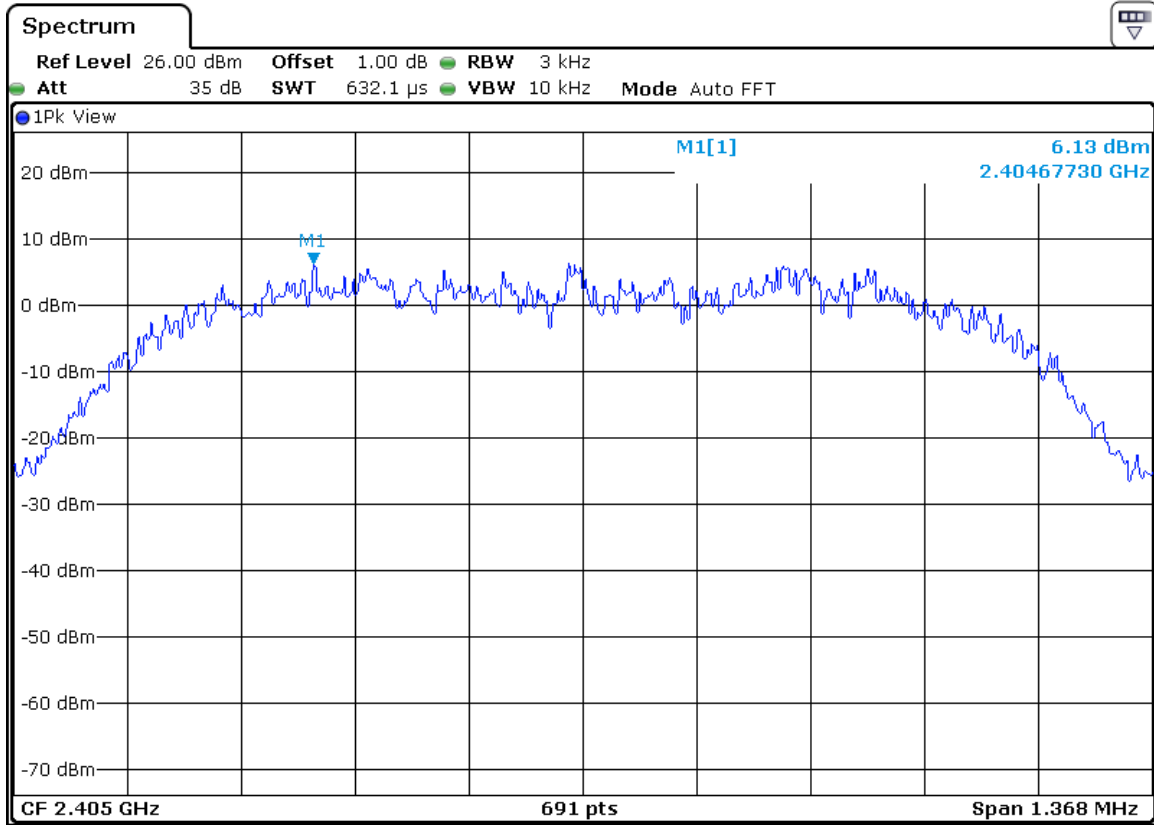
2.4GHz wireless module: FCS-RX703	
Frequency (MHz)	Power Density with RBW 3KHz
Low Channel: 2405	6.13
Middle Channel: 2441	6.58
High Channel: 2479	5.43

2.4GHz wireless module: BT-2405A	
Frequency (MHz)	Power Density with RBW 3KHz
Low Channel: 2405	6.48
Middle Channel: 2441	7.60
High Channel: 2479	6.19

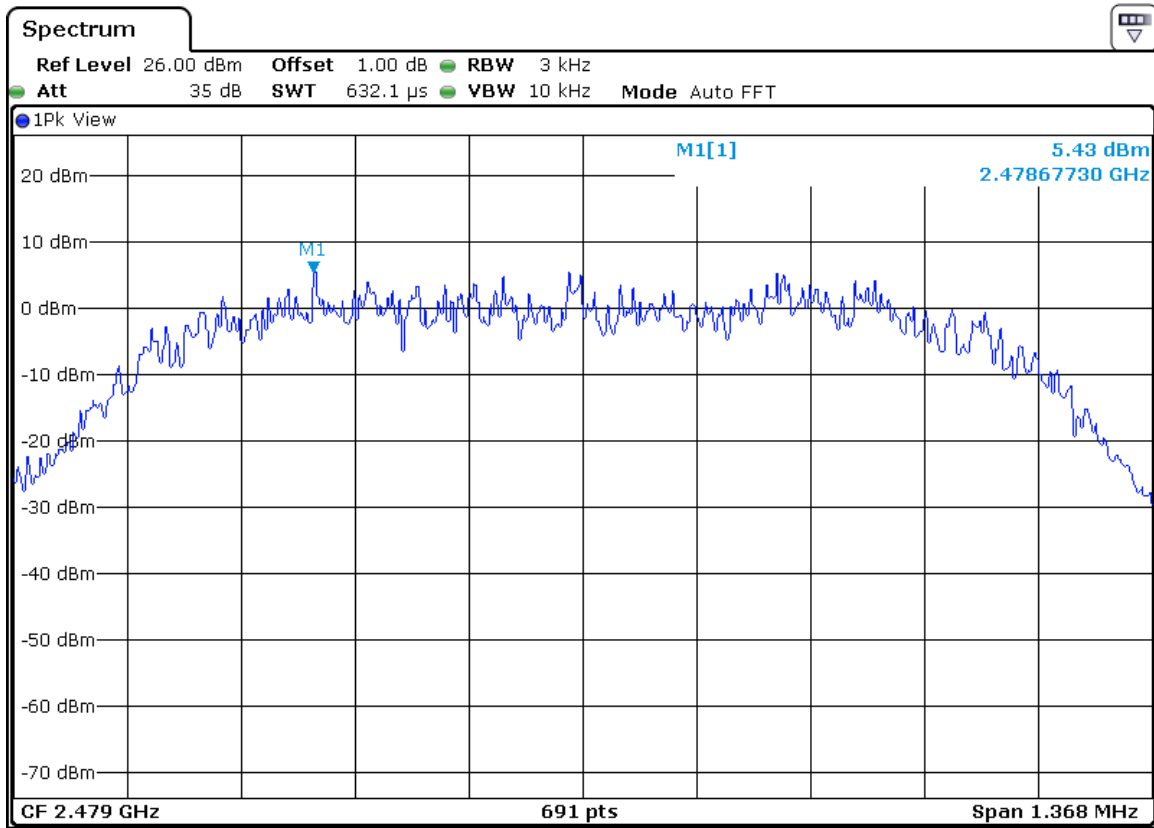
The test plots are attached as below.

# INTERTEK TESTING SERVICES

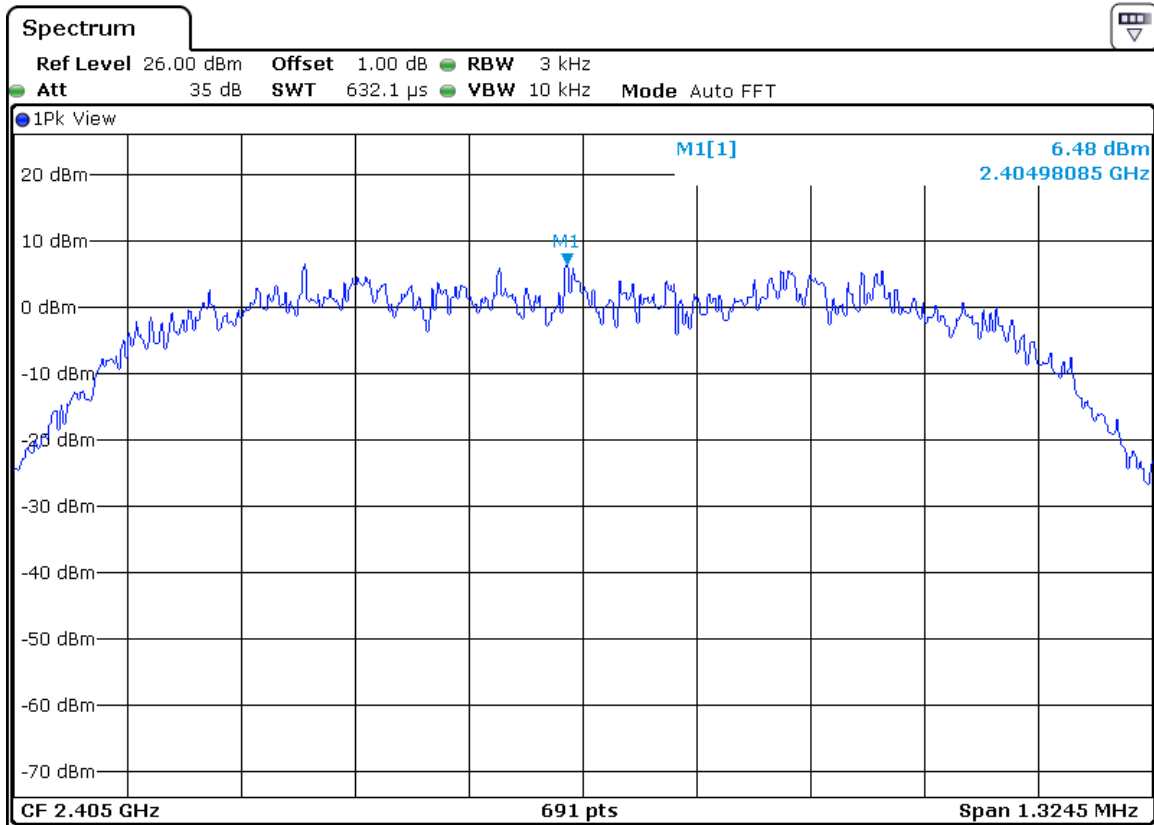
## 2.4GHz wireless module: FCS-RX703



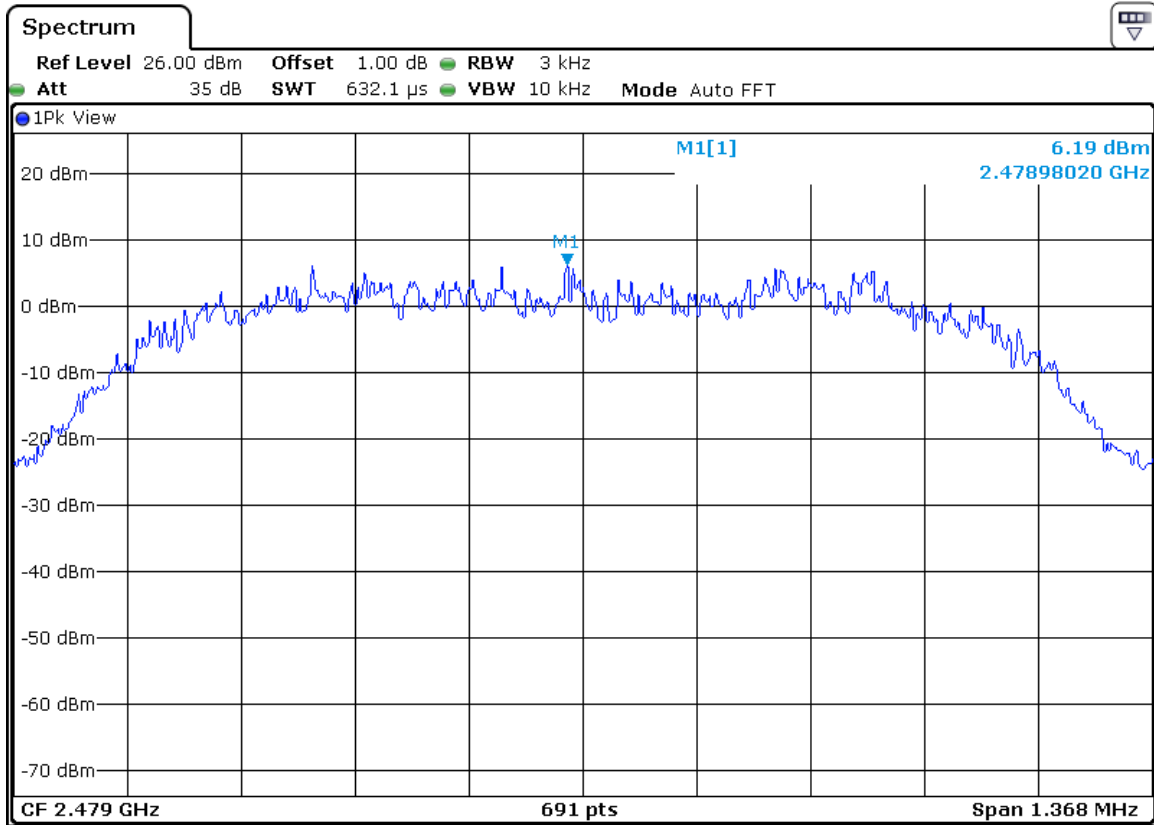
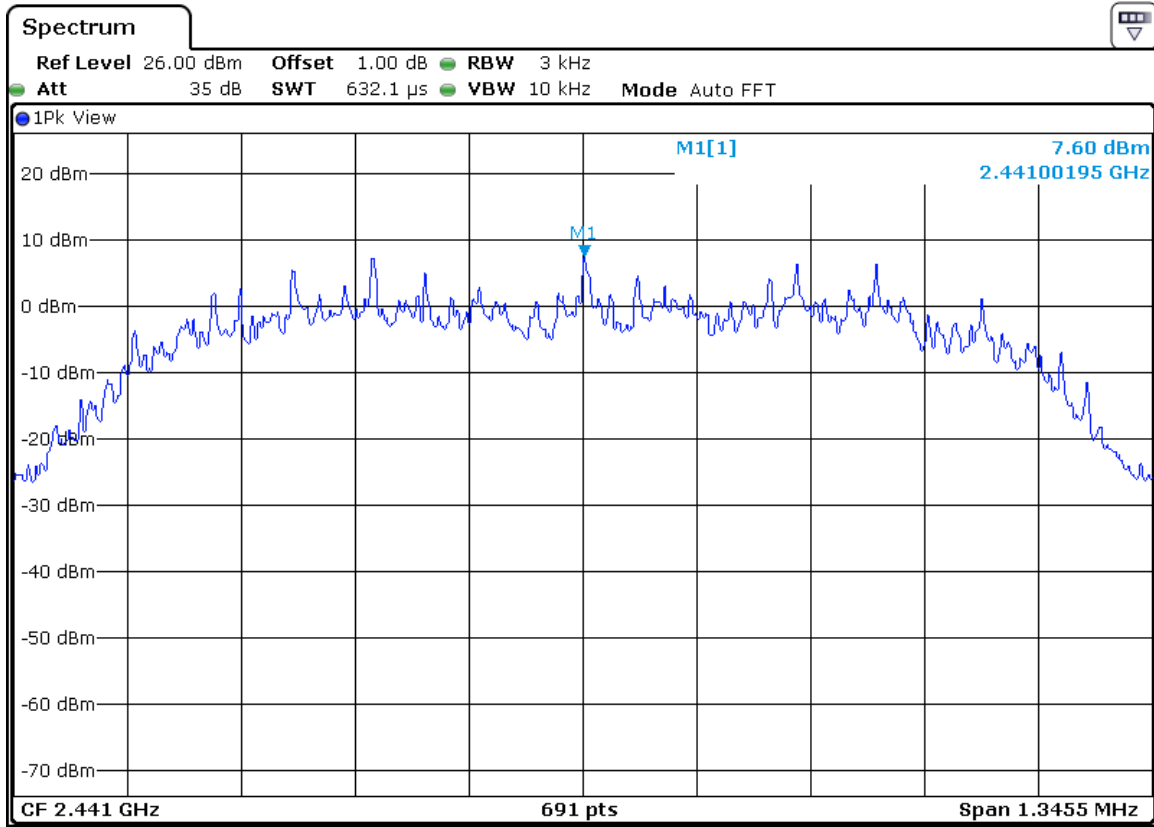
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2.4GHz wireless module: BT-2405A



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Applicant: Guangzhou Walkera Technology Co., Ltd  
Model: Scout-X4 PRO

Date of Test: 22 May 2015

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

In any 100 kHz bandwidth outside the EUT passband, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20dB below that of the maximum in-band 100 kHz emission, or else shall meet the general limits for radiated emissions at frequencies outside the passband, whichever results in lower attenuation. The Measurement Procedure was set according to the FCC KDB 558074.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the passband.

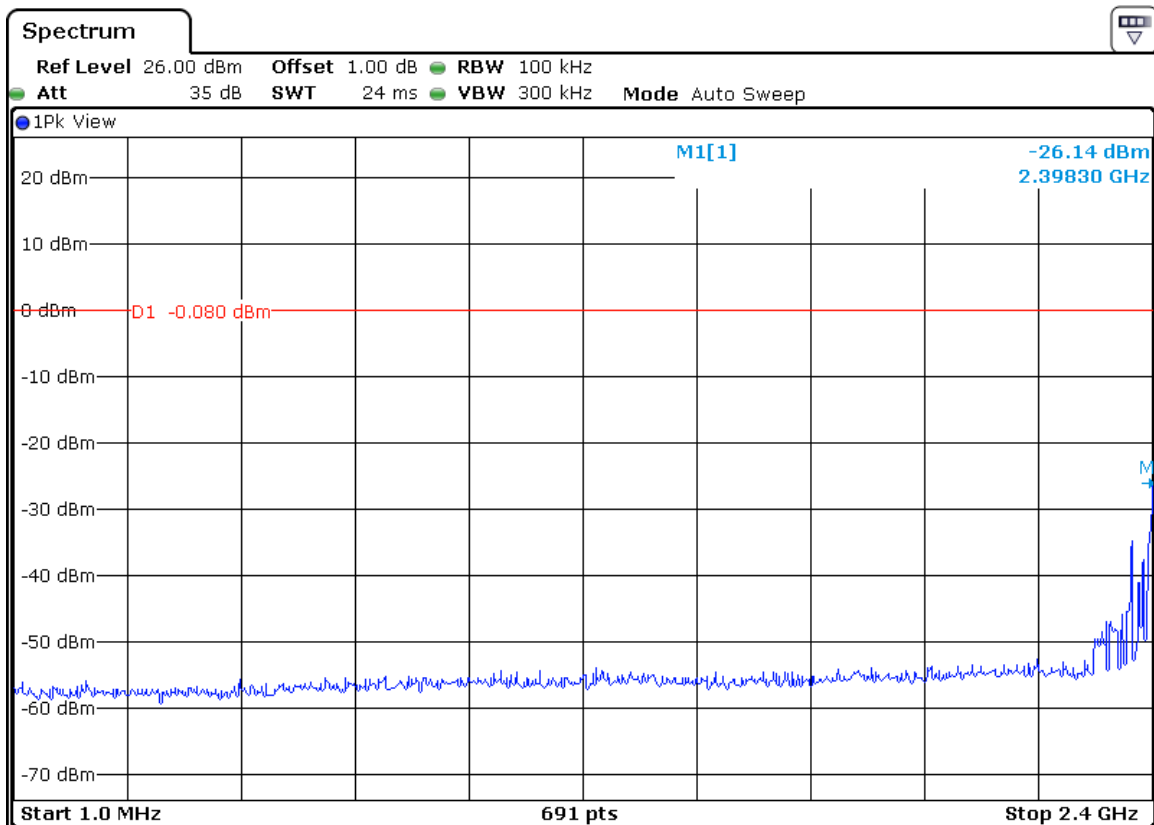
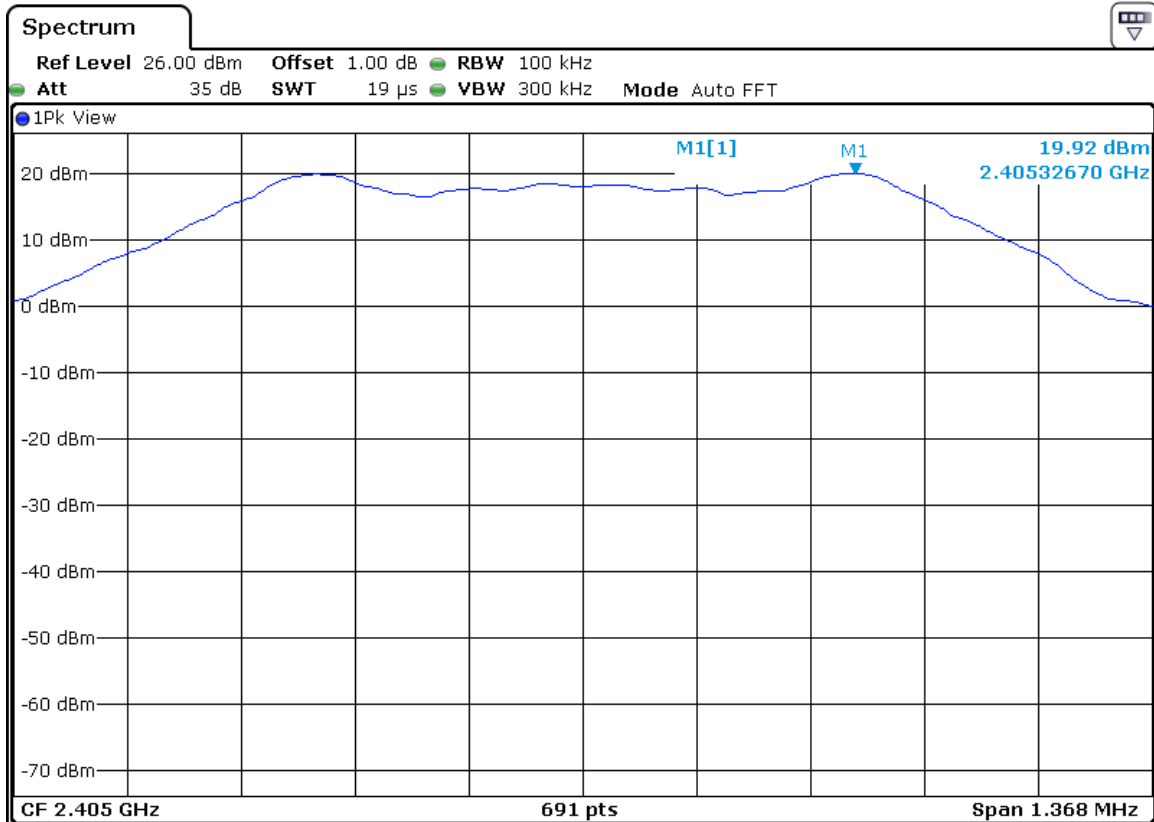
The test plots showed all spurious emission and up to the tenth harmonic were measured and they were found to be at least 20 dB below the highest level of the desired power in the passband.

The test plots are attached as below.



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2.4GHz wireless module: FCS-RX703  
CH Low (2405MHz) Reference Level: 19.92dBm

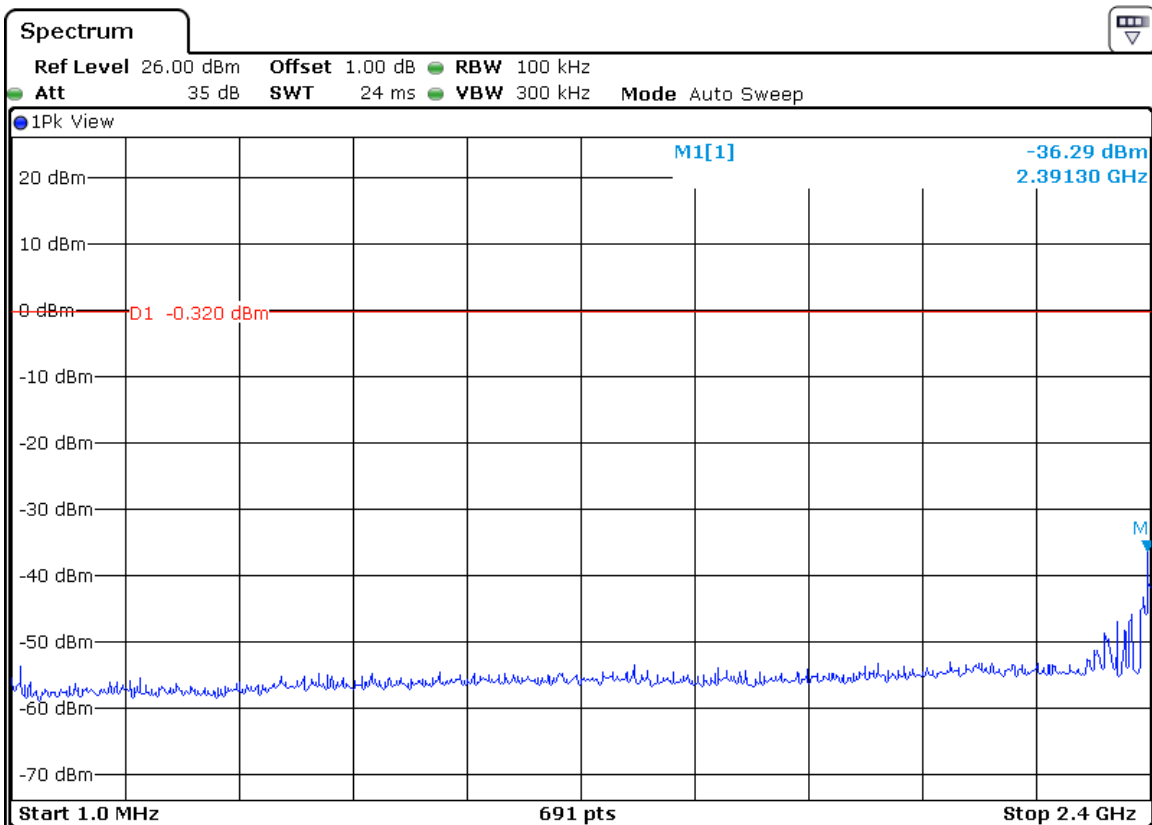
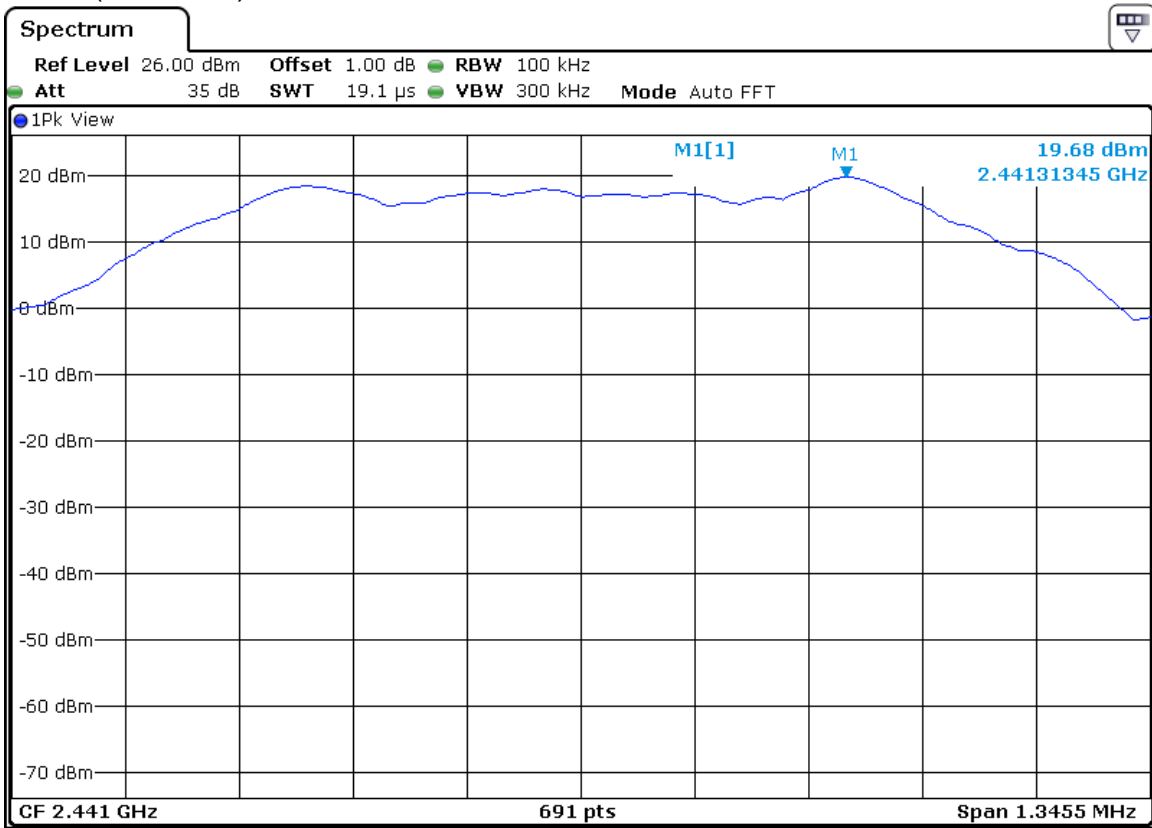


TRF no.: FCC 15C\_TX\_c  
FCC ID: S29SCOUT-X4PRO  
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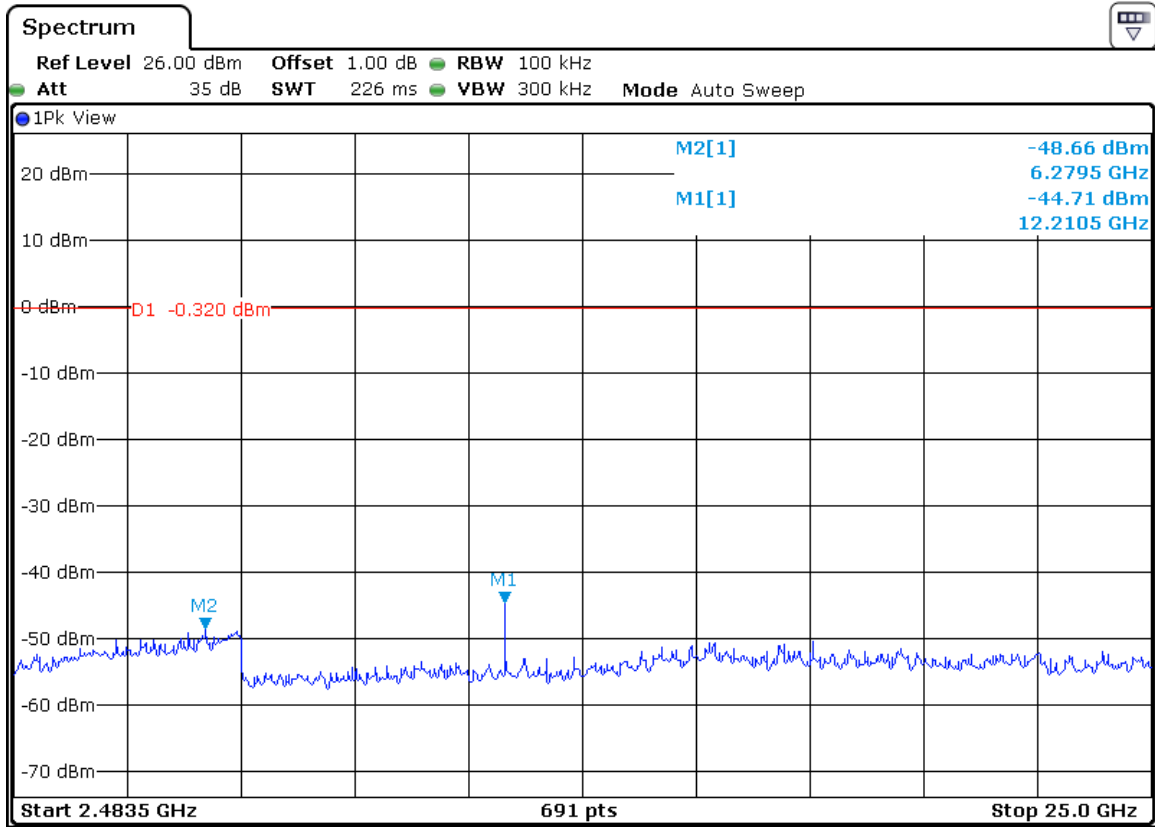


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CH Mid (2441MHz) Reference Level: 19.68dBm

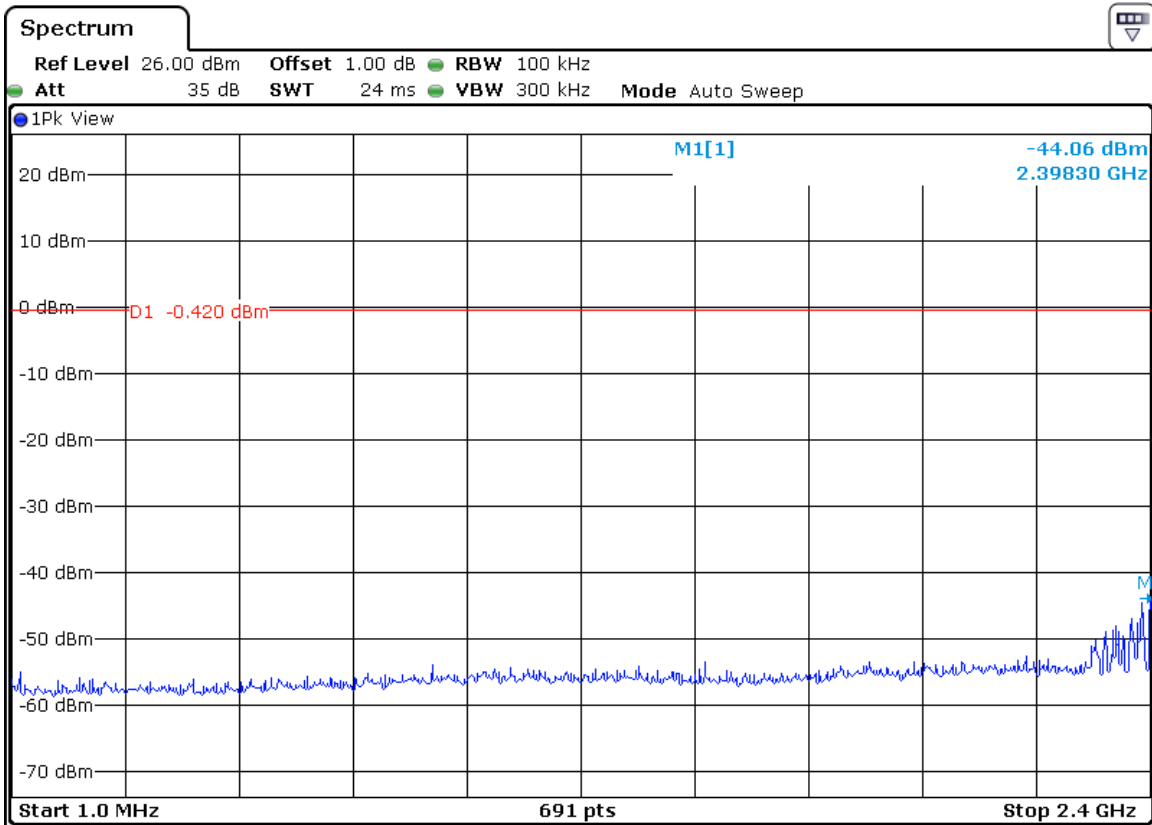
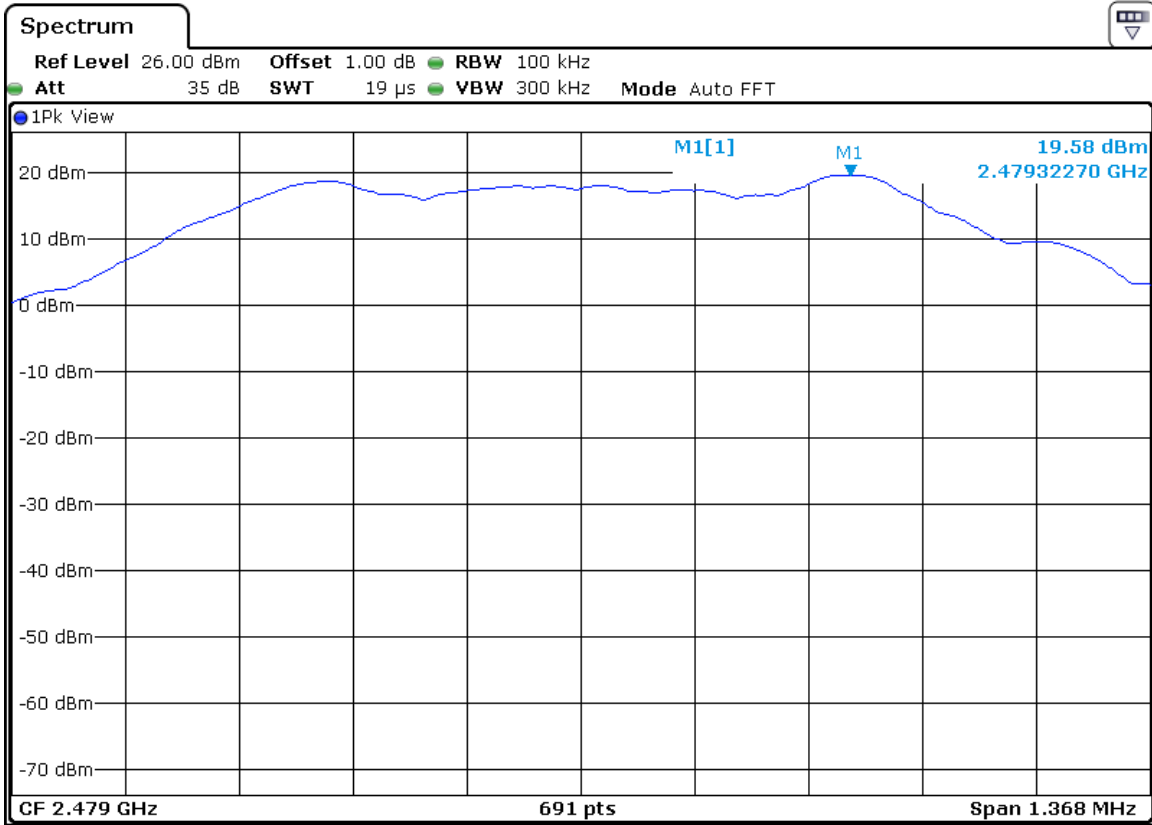


# INTERTEK TESTING SERVICES



# INTERTEK TESTING SERVICES

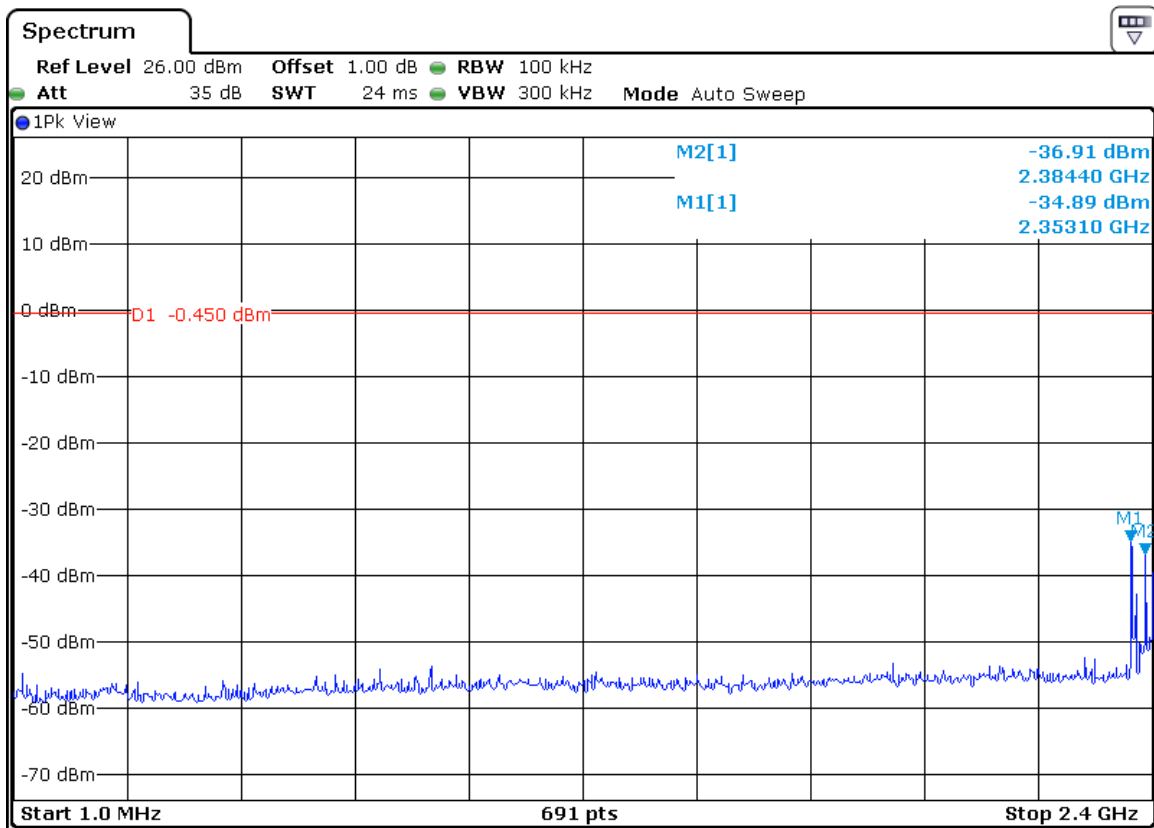
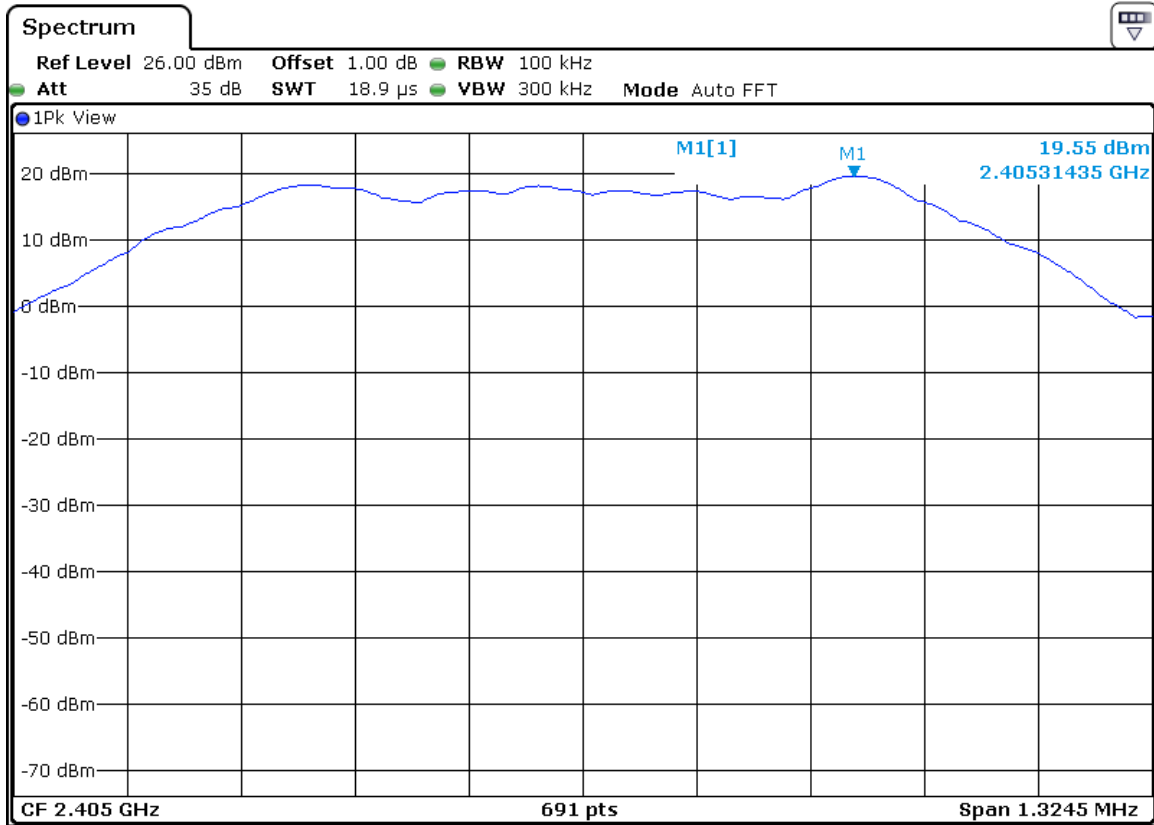
CH High (2479MHz) Reference Level: 19.58dBm



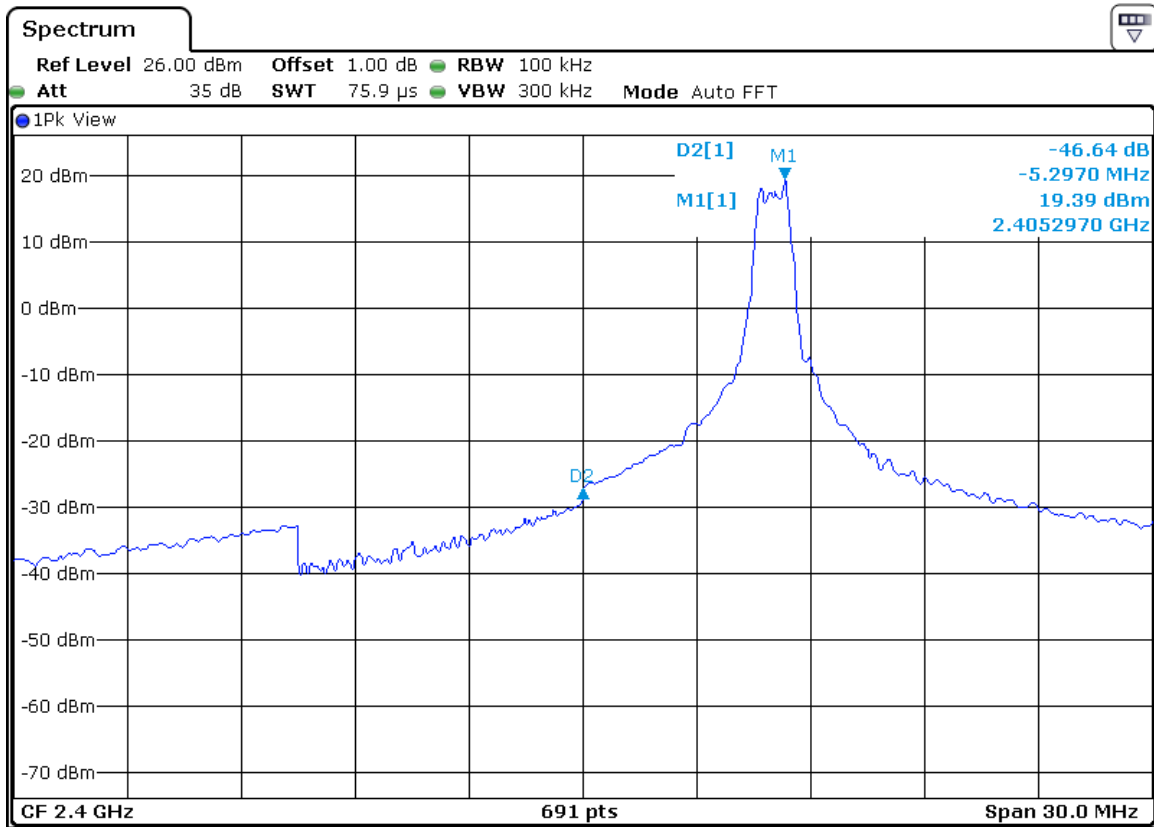
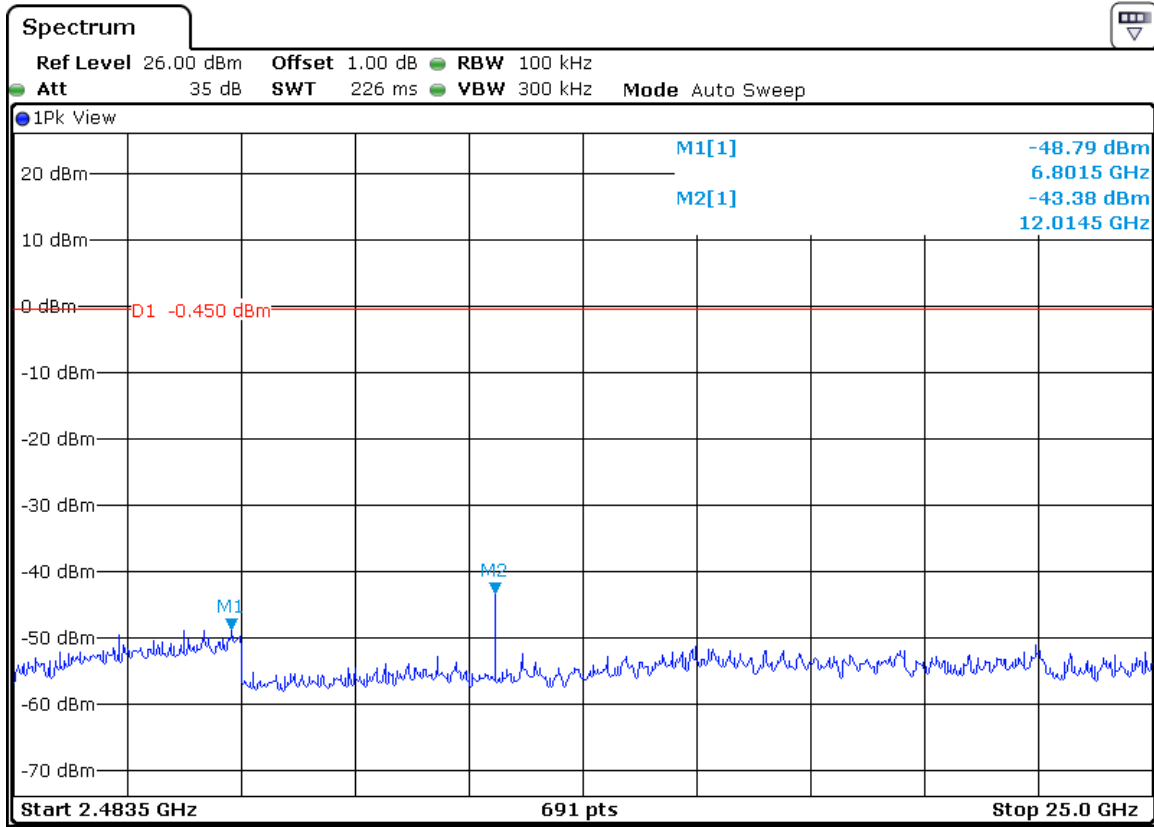


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2.4GHz wireless module: BT-2405A  
CH Low (2405MHz) Reference Level: 19.55dBm



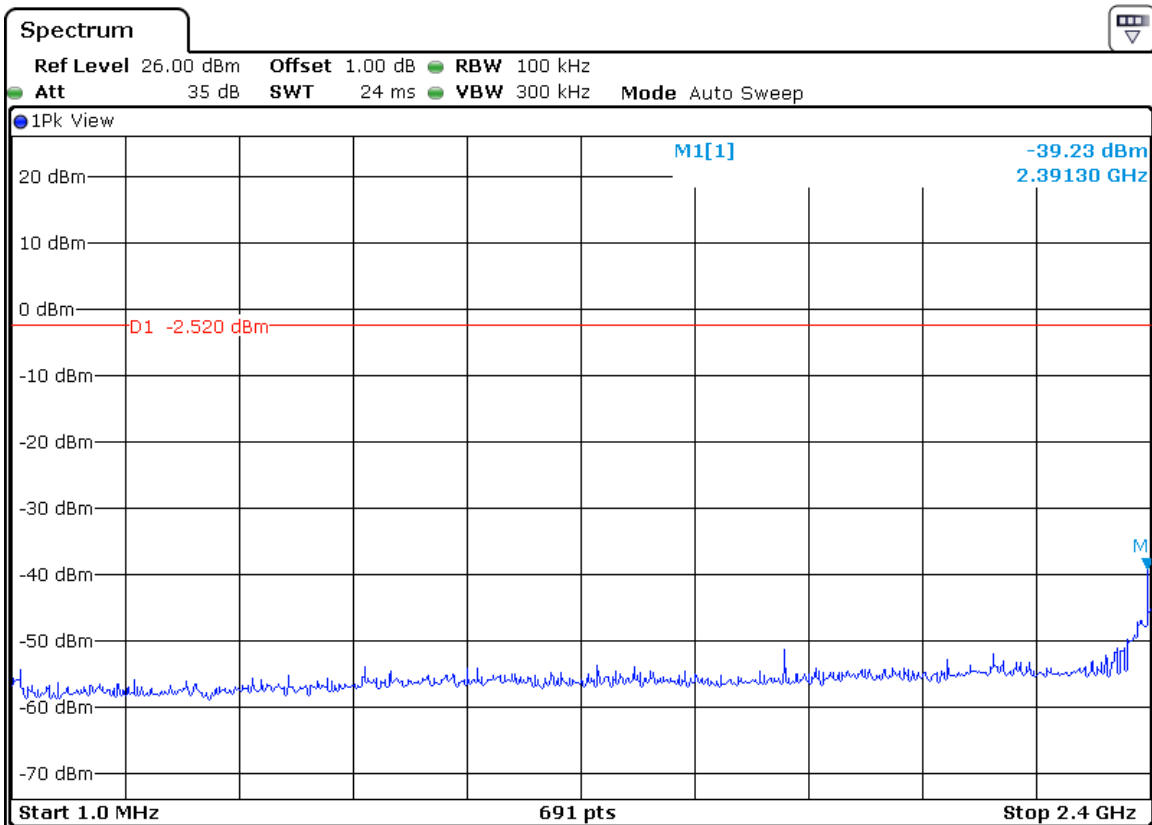
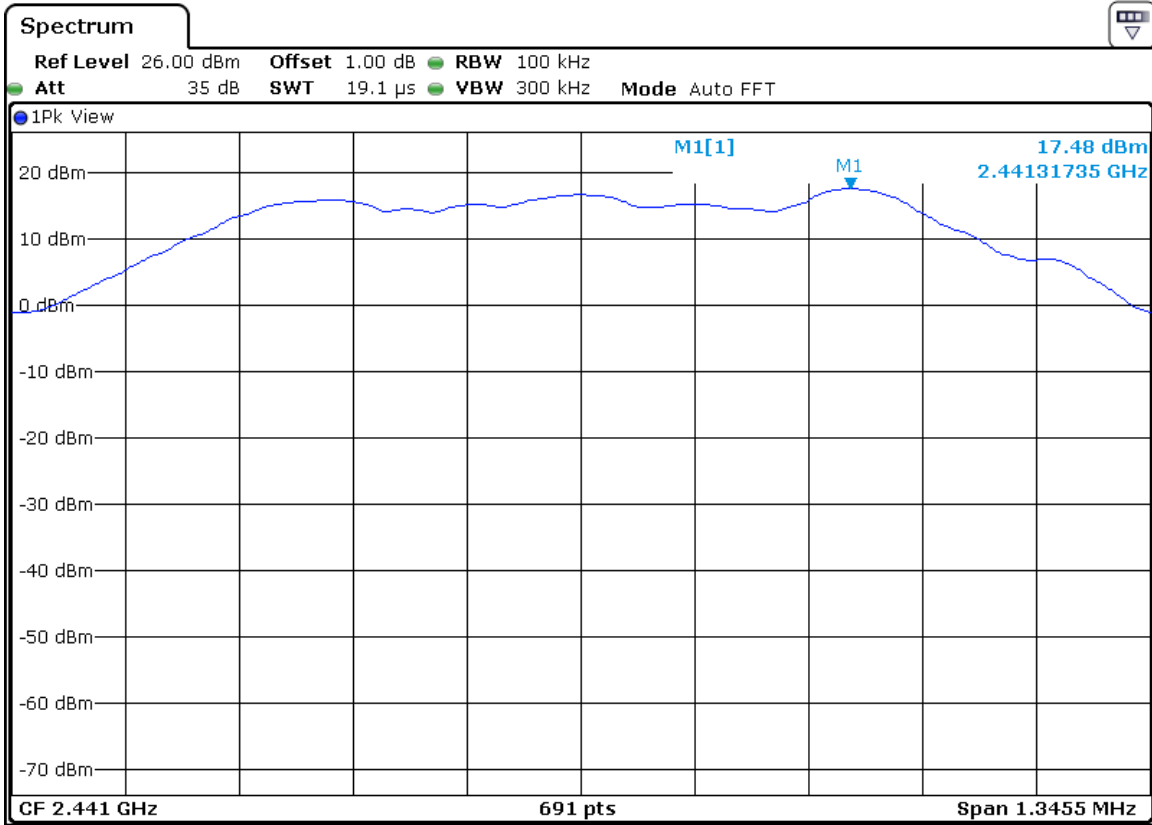
# INTERTEK TESTING SERVICES





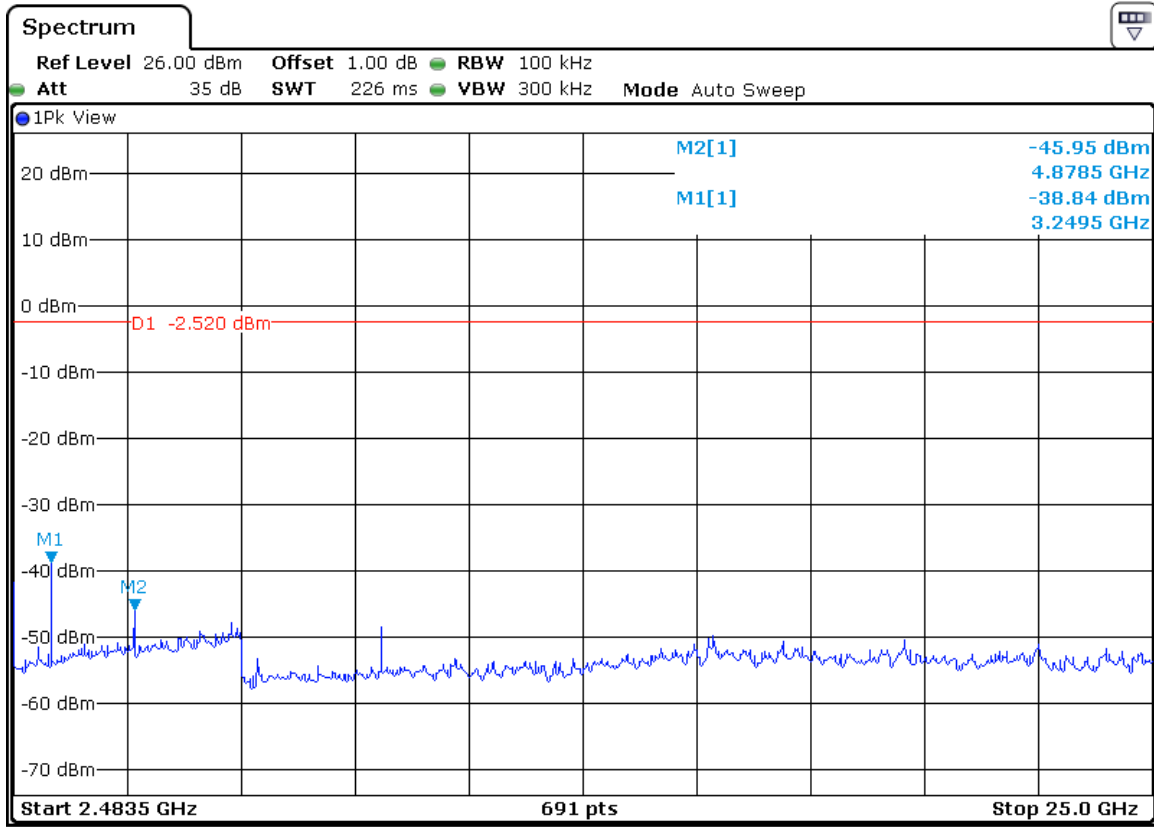
# INTERTEK TESTING SERVICES

CH Mid (2441MHz) Reference Level: 17.48dBm



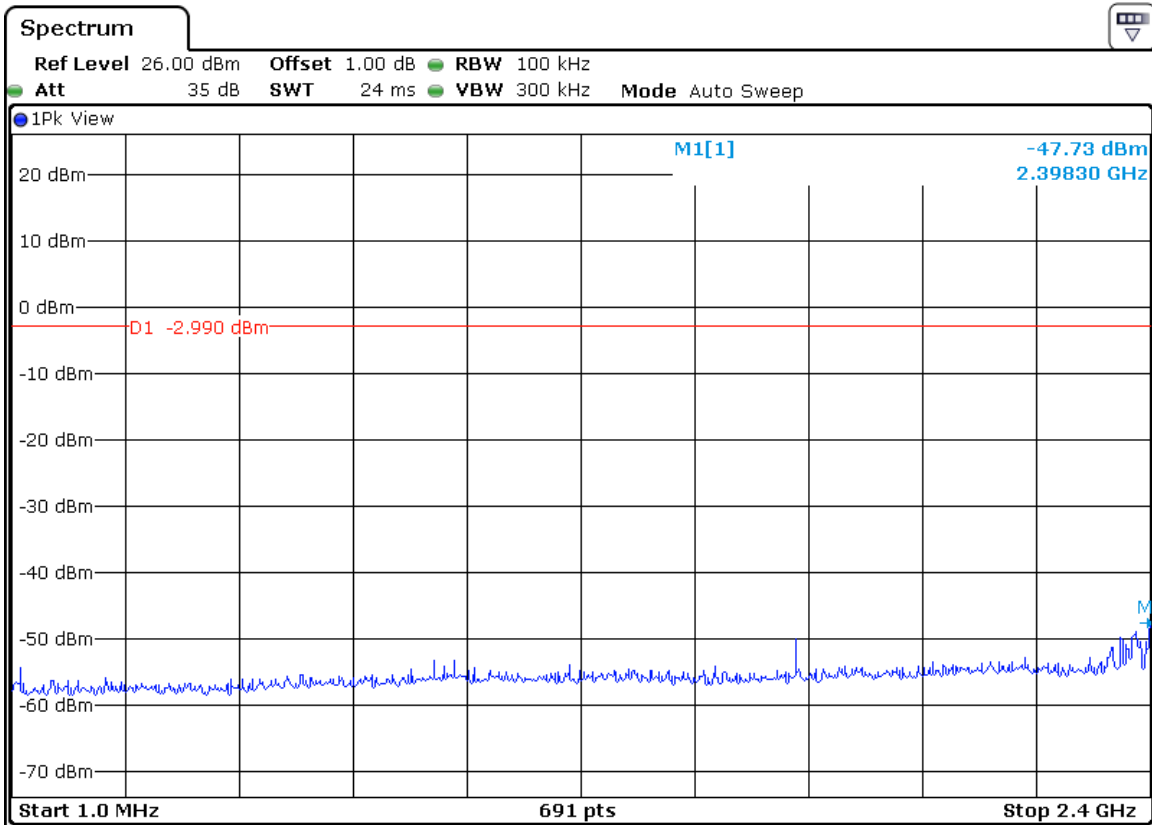
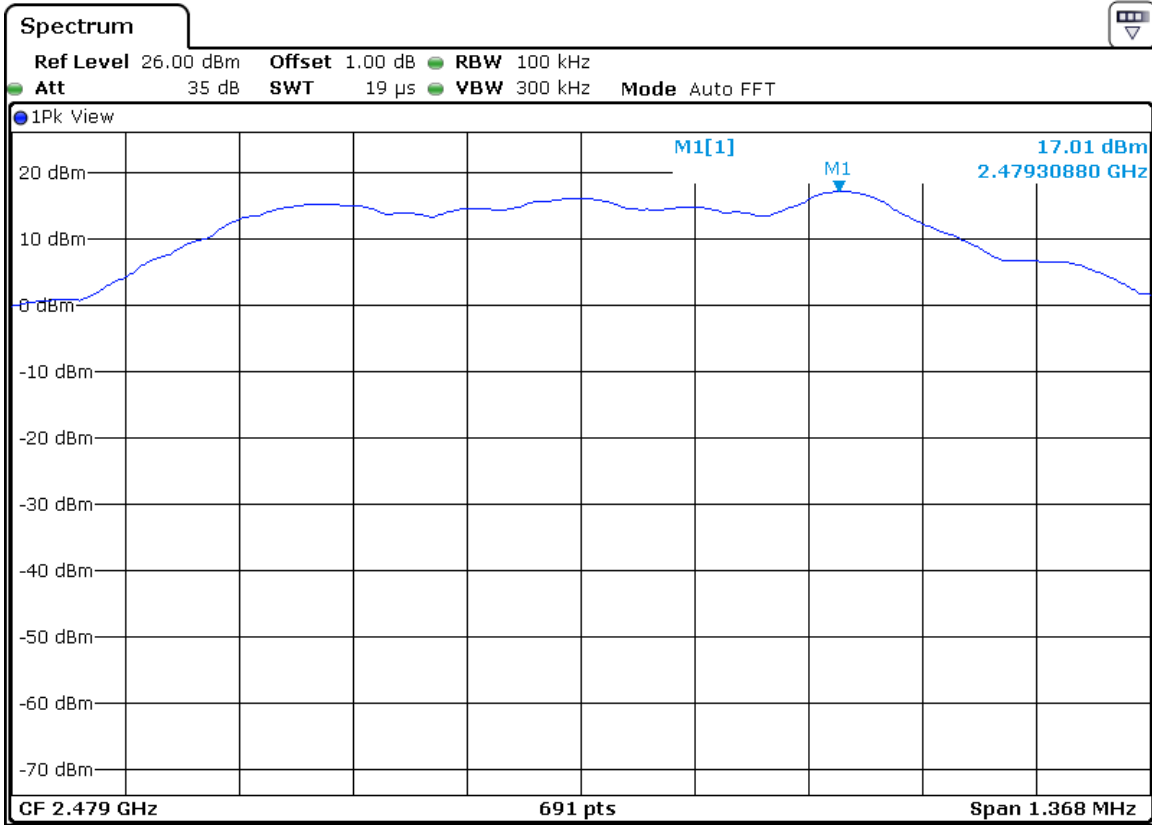
TRF no.: FCC 15C\_TX\_c  
FCC ID: S29SCOUT-X4PRO  
Report No.: 150422021SZN-001

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CH High (2479MHz) Reference Level: 17.01dBm





## INTERTEK TESTING SERVICES

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Applicant: Guangzhou Walkera Technology Co., Ltd  
Model: Scout-X4 PRO

Date of Test: 22 May 2015

### 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: Guangzhou Walkera Technology Co., Ltd  
Model: Scout-X4 PRO

Date of Test: 22 May 2015

### 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.

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Applicant: Guangzhou Walkera Technology Co., Ltd  
Model: Scout-X4 PRO

Date of Test: 22 May 2015

### 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 32 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

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

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

## INTERTEK TESTING SERVICES

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Applicant: Guangzhou Walkera Technology Co., Ltd  
Model: Scout-X4 PRO

Date of Test: 22 May 2015

### 4.8 Radiated Spurious Emission

Worst Case Radiated Spurious Emission at 2483.580MHz is passed by 6.3dB margin for 2.4GHz wireless module: FCS-RX703

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



## INTERTEK TESTING SERVICES

Applicant: Guangzhou Walkera Technology Co., Ltd

Date of Test: 22 May 2015

Model: Scout-X4 PRO

Worst Case Operating Mode: CH Low (2405MHz) for 2.4GHz wireless module: FCS-RX703

### 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	30.045	23.4	20.0	18.3	21.7	40.0	-18.3
Horizontal	638.190	38.2	20.0	13.9	32.1	46.0	-13.9
Horizontal	946.650	42.4	20.0	11.8	34.2	46.0	-11.8
Vertical	30.485	24.2	20.0	17.2	21.4	40.0	-18.6
Vertical	140.095	30.6	20.0	9.9	20.5	43.5	-23.0
Vertical	441.765	26.9	20.0	19.3	26.2	46.0	-19.8

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.

## INTERTEK TESTING SERVICES

Applicant: Guangzhou Walkera Technology Co., Ltd

Date of Test: 22 May 2015

Model: Scout-X4 PRO

Mode: CH Low (2405MHz) for 2.4GHz wireless module: FCS-RX703

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	*4810.000	46.6	36.1	35.5	46.0	74.0	-28.0
Vertical	*2389.390	67.0	36.7	28.1	58.4	74.0	-15.6

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	*4810.000	39.8	36.1	35.5	39.2	54.0	-14.8
Vertical	*2389.093	54.8	36.7	28.1	46.2	54.0	-7.8

- NOTES:
1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
  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: Guangzhou Walkera Technology Co., Ltd      Date of Test: 22 May 2015  
 Model: Scout-X4 PRO  
 Mode: CH Mid (2441MHz) for 2.4GHz wireless module: FCS-RX703

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	*4882.000	46.2	36.1	35.5	45.6	74.0	-28.4
Vertical	*7323.000	53.4	36.2	36.5	53.7	74.0	-20.3

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	*4882.000	44.3	36.1	35.5	43.7	54.0	-10.3
Vertical	*7323.000	47.2	36.2	36.5	47.5	54.0	-6.5

- NOTES:
1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
  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: Guangzhou Walkera Technology Co., Ltd

Date of Test: 22 May 2015

Model: Scout-X4 PRO

Mode: CH High (2479MHz) for 2.4GHz wireless module: FCS-RX703

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	*4958.000	53.8	36.1	35.5	53.2	74.0	-20.8
Vertical	*2483.580	70.7	36.7	28.1	62.1	74.0	-11.9

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	*4958.000	39.0	36.1	35.5	38.4	54.0	-15.6
Vertical	*2483.580	56.3	36.7	28.1	47.7	54.0	-6.3

- NOTES: 1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
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: Guangzhou Walkera Technology Co., Ltd

Date of Test: 22 May 2015

Model: Scout-X4 PRO

Mode: CH Low (2405MHz) for 2.4GHz wireless module: BT-2405A

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	*4810.000	46.5	36.1	35.5	45.9	74.0	-28.1
Vertical	*2389.460	65.4	36.7	28.1	56.8	74.0	-17.2

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	*4810.000	39.2	36.1	35.5	38.6	54.0	-15.4
Vertical	*2389.460	53.3	36.7	28.1	44.7	54.0	-9.3

- NOTES:
1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
  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: Guangzhou Walkera Technology Co., Ltd      Date of Test: 22 May 2015  
Model: Scout-X4 PRO  
Mode: CH Mid (2441MHz) for 2.4GHz wireless module: BT-2405A

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	*4882.000	47.4	36.1	35.5	46.8	74.0	-27.2
Vertical	*7323.000	52.5	36.2	36.5	52.8	74.0	-21.2

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	*4882.000	40.0	36.1	35.5	39.4	54.0	-14.6
Vertical	*7323.000	43.4	36.2	36.5	43.7	54.0	-10.3

- NOTES:
1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
  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: Guangzhou Walkera Technology Co., Ltd      Date of Test: 22 May 2015  
 Model: Scout-X4 PRO  
 Mode: CH High (2479MHz) for 2.4GHz wireless module: BT-2405A

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	*4958.000	47.5	36.1	35.5	46.9	74.0	-27.1
Vertical	*2483.610	70.9	36.7	28.1	62.3	74.0	-11.7

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	*4958.000	40.8	36.1	35.5	40.2	54.0	-13.8
Vertical	*2483.610	55.1	36.7	28.1	46.5	54.0	-7.5

- NOTES:
1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
  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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Applicant: Guangzhou Walkera Technology Co., Ltd  
Model: Scout-X4 PRO

Date of Test: 22 May 2015

### 4.9 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: Guangzhou Walkera Technology Co., Ltd  
Model: Scout-X4 PRO

Date of Test: 22 May 2015

### 4.10 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**

### 5.0 Equipment Photographs

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

**EXHIBIT 6**

**PRODUCT LABELLING**

### 6.0 Product Labelling

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

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

### 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**

### 9.0 **Confidentiality Request**

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

**EXHIBIT 10**

**MISCELLANEOUS INFORMATION**

### 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
SZ182-02	RF Power Meter	Anritsu	ML2496A	1302005	20-May-2015	20-May-2016
SZ182-02-01	Power Sensor	Anritsu	MA2411B	1207429	20-May-2015	20-May-2016
SZ061-03	BiConiLog Antenna	ETS	3142C	00066460	28-Jun-2014	28-Jun-2015
SZ185-01	EMI Receiver	R&S	ESCI	100547	07-Feb-2015	07-Feb-2016
SZ061-09	Horn Antenna	ETS	3115	00092346	01-Nov-2014	01-Nov-2015
SZ061-07	Pyramidal Horn Antenna	ETS	3160-09	00083067	03-Sep-2014	03-Sep-2015
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	29-Apr-2015	29-Apr-2016
EM031-03	EXA Spectrum Analyzer	R&S	FSV40	101506	09-Jun-2014	09-Jun-2015
SZ181-04	Preamplifier	Agilent	8449B	3008A024 74	07-Feb-2015	07-Feb-2016
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	19-Apr-2014	19-Apr-2016
SZ062-02	RF Cable	RADIALL	RG 213U	--	31-Dec-2014	30-Jun-2015
SZ062-05	RF Cable	RADIALL	0.04-26.5GHz	--	07-Apr-2015	07-Oct-2015
SZ062-12	RF Cable	RADIALL	0.04-26.5GHz	--	07-Apr-2015	07-Oct-2015
SZ067-04	Notch Filter	Micro-Tronics	BRM5070 2-02	--	20-May-2015	20-May-2016