

Permissive Change Application

For

Part 2, Subpart J, Paragraph 2.907 Equipment Authorization of Certification for an Intentional Radiator per Part 15, Subpart C, paragraphs 15.207, 15.209 and 15.247

Part 2, Subpart J, Section 2.902, Verification Per Part 15, Subpart B, for Unintentional Radiators, section 15.101, 15.107 and 15.109

And

Industry Canada RSS-Gen, Issue 4 and RSS-247, Issue 1

For the

Inventek Systems

Models: ISM43362-M3G-L44-U ISM43362-M3G-L44-E

FCC ID: 07P-362 IC: 10147A-362

UST Project: 16-0291 Issue Date: December 16, 2016

Total Pages in This Report: 46

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Page 1 of 46



I certify that I am authorized to sign for the Test Agency and that all of the statements in this report and in the Exhibits attached hereto are true and correct to the best of my knowledge and belief:

US TECH (Agent Responsible For Test):

By:	Alan Ghasiani		
Name:	Man 1	Marian	

Title: Compliance Engineer – President

Date December 16, 2016



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MEASUREMENT TECHNICAL REPORT

COMPANY NAME:	Inventek Systems
MODEL:	ISM43362-M3G-L44-U, ISM43362-M3G-L44-E
FCC ID:	O7P-362
IC:	10147A-362
DATE:	December 16, 2016

This report concerns (check one): Original grant [] Class II change [X]				
Equipment type: DSSS WiFi module for use in other devices				
Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? yes No <u>X</u>				
date				
agrees to notify the Commission by <u>N/A</u>				
of the intended date of announcement of the product so that the grant can be issued on that date.				
Report prepared by:				
US Tech 3505 Francis Circle Alpharetta, GA 30004 Phone Number: (770) 740-0717 Fax Number: (770) 740-1508				

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FCC Part 15 Certification 07P-362 10147A-362 16-0291 December 16, 2016 Inventek Systems ISM43362-M3G-L44-U, ISM43362-M3G-L44-E

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Agency Agreement Application Forms Letter of Confidentiality Equipment Label(s) Block Diagram(s) Schematic(s) Test Configuration Photographs Internal Photographs External Photographs Antenna Photographs Theory of Operation RF Exposure User's Manual

1 General Information

1.1 **Purpose of this Report**

The manufacturer is adding the following external antenna to be used with the radio module:

MFG: Zodiac Part Number: B0023200, 5 dBi gain, Omni Directional

This change does not affect the transmitter circuitry. The RF portion of the product remains identical to the originally tested product.

To show continued compliance with the relative subpart, the product was reevaluated for radiated intentional emissions. No other testing was deemed necessary. The additional test data is presented in this report for consideration.

1.2 Characterization of Test Sample

The sample used for testing was received by US Tech on December 6, 2016 in good operating condition.

1.3 Product Description

The Equipment Under Test (EUT) is the Inventek Systems eS-WiFi module. The module employs DSSS modulation techniques. The module comes with two antenna options, on board trace antenna or external u.fl connected antenna. Both models use the same radio module: BCM43362 from Broadcom. The module (BCM43362) is part of Inventek Systems eS-WiFi module family targeting embedded WiFi 802.11 b/g/n applications. eS-WiFi modules offer plug and play WiFi solution that enables the embedded designers to integrate WiFi into their devices. The eS-WiFi module hardware system consists of a host processor, integrated antenna and Broadcom WiFi device(BCM43362). The module provides SPI, USB and UART interfaces. The module requires no operation system and has a completely integrated TCP/IP stack that only requires a simple AT command set to establish connectivity.

The eS-WiFi module is offered in two configurations:

- 1. 15mm x 30mm module with integrated trace antenna (Designated as Model ISM43362-M3G-L44-E)
- 2. 15mm x 30mm module with external antenna, external antennas attached with a u.fl connector (Designated as Model ISM43362-M3G-L44-U) see user's manual for approved antennas.

1.4 Configuration of Tested System

The Test Sample was tested per ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices and per FCC KDB Publication number 558074 v03r05 for Digital Transmission Systems Operating Under section 15.247.

A list of EUT and Peripherals is found in Table 1 below. A block diagram of the tested system is shown in Figure 1. Test configuration photographs are provided in separate Appendices.

1.5 Test Facility

Testing was performed at US Tech's measurement facility at 3505 Francis Circle, Alpharetta, GA 30004. This site has been fully described and registered with the FCC. Its designation number is 186022. Additionally this site has also been fully described and submitted to Industry Canada (IC), and has been approved under file number 9900A.

1.6 Related Submittals

1.6.1 The EUT is subject to the following FCC authorizations:

- a) Certification under section 15.247 as a transmitter.
- b) Verification under 15.101 as a digital device and receiver.

1.6.2 Verification of the Digital Apparatus

The Verification requirement shares many common report elements with the Certification report. Therefore, though this report is mostly intended to provide data for the Certification process, the Verification authorization report (part 15.107 and 15.109) for the EUT is included herein.

Table 1. EUT and Peripherals

PERIPHERAL MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC/IC ID:	CABLES P/D
EUT Inventek Systems	ISM43362-M3G-L44-E ISM43362-M3G-L44-U	Engineering Sample	O7P-362/ 10147A-362	None
Antenna See antenna details				

U= Unshielded

S= Shielded

P= Power

D= Data

2 Tests and Measurements

2.1 Test Equipment

The table below lists test equipment used to evaluate this product. Model numbers, serial numbers and their calibration status are indicated.

Т	able	2.	Test	Instruments
---	------	----	------	-------------

TEST INSTRUMENT	MODEL NUMBER	MANUFACTURER	SERIAL NUMBER	CALIBRATION DUE DATE
SPECTRUM ANALYZER	E4407B	Agilent	US41442935	2/11/2017
PREAMP	8449B	HEWLETT- PACKARD	3008A00480	12/01/2016 Extended 90 days
HORN ANTENNA	3115	EMCO	9107-3723	09/22/2018 2 yr

Note: The calibration interval of the above test instruments are 12 months unless stated otherwise and all calibrations are traceable to NIST/USA.

2.2 Modifications to EUT Hardware

No physical modifications were made by US Tech in order to bring the EUT into compliance with FCC Part 15, Subpart C Intentional Radiator Limits for the transmitter portion of the EUT or the Subpart B Unintentional Radiator Limits (Receiver and Digital Device) Requirements.

2.3 Number of Measurements for Intentional Radiators (15.31(m))

Measurements of intentional radiators or receivers shall be performed and reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in Table 3 below.

Frequency Range over which the device operates	Number of Frequencies	Location in the Range of operation	
1 MHz or less	1	Middle	
1 to 10 MHz	2	1 near the top 1 near the bottom	
Greater than 10 MHz	3	1 near top 1 near middle 1 near bottom	

Because the EUT operates at 2412 MHz to 2462 MHz, 3 test frequencies were used.

2.4 Frequency Range of Radiated Measurements (Part 15.33)

2.4.1 Intentional Radiator

The spectrum shall be investigated for the intentional radiator from the lowest RF signal generated in the EUT, without going below 9 kHz to the 10th harmonic of the highest fundamental frequency generated or 40 GHz, whichever is the lowest.

2.4.2 Unintentional Radiator

For the digital device, an unintentional radiator, the frequency range shall be 30 MHz to 1000 MHz, or to 5 times the highest internal clock frequency.

2.5 Measurement Detector Function and Bandwidth (CFR 15.35)

The radiated and conducted emissions limits shown herein are based on the following:

2.5.1 Detector Function and Associated Bandwidth

On frequencies below 1000 MHz, the limits herein are based upon measurement equipment employing a CISPR Quasi-peak detector function and related measurement bandwidths (i.e. 9 kHz from 150 kHz to 30 MHz and 120 kHz from 30 MHz to 1000 MHz). Alternatively, measurements may be made with equipment employing a peak detector function as long as the same bandwidths specified for the Quasi-peak device are used.

2.5.2 Corresponding Peak and Average Requirements

Above 1000 MHz, radiated limits are based on measuring instrumentation employing an average detector function. When average radiated emissions are specified there is also a corresponding Peak requirement, as measured using a peak detector, of 20 dB greater than the average limit. For all measurements above 1000 MHz the Resolution Bandwidth shall be at least 1 MHz.

US Tech Test Report:	FCC Part 15 Certification
FCC ID:	O7P-362
IC:	10147A-362
Test Report Number:	16-0291
Issue Date:	December 16, 2016
Customer:	Inventek Systems
Model:	ISM43362-M3G-L44-U, ISM43362-M3G-L44-E

2.6 EUT Antenna Requirements (CFR 15.203)

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. Only the antenna(s) listed in Table 4 will be used with this module.

Table 4. Allowed Antenna(s)

REPORT REFERENCE	MANUFACTURER	TYPE OF ANTENNA	MODEL	GAIN dB _i	TYPE OF CONNECTOR
Antenna 3	Zodiac	External Omni	B0023200	5.0	u.fl
		directional			



Figure 1. Block Diagram of Test Configuration

2.7 Restricted Bands of Operation (Part 15.205)

Only spurious emissions can fall in the frequency bands of CFR 15.205. The field strength of these spurious cannot exceed the limits of 15.209. Radiated harmonics and other Spurious are examined for this requirement see paragraph 2.10 of the test report.

2.8 Intentional Radiator, Radiated Emissions (CFR 15.209, 15.247(d))

Radiated Spurious measurements: The EUT was placed into a continuous transmit mode of operation (>98%) duty cycle) and tested per ANSI C63.10:2013. A preliminary scan was performed on the EUT to find signal frequencies that were caused by the transmitter part of the device. A preliminary scan was performed on the EUT to find the worse case results the EUT was tested in X, Y, and Z axes or in the orientation of normal operation if the device is designed to operate in a fixed position.

Radiated measurements were then conducted up to the tenth harmonic of the device (not greater than 40 GHz). In the band below 30 MHz, a resolution bandwidth (RBW) of 9 kHz was used; emissions below 1 GHz were tested with a RBW of 100/120 kHz and emissions above 1 GHz were tested with a RBW of 1 MHz. All video bandwidth settings were at least three times the RBW value.

Test: FCC Part 15, Para 15.209, 15.247(d)					Client: Invente	ek Systems		
	Projec	:t: 16-0291						
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode	
	Low Channel – PEAK							
2411.90	71.08	30.16	101.24	-	3.0m./HORZ	-	PK	
4824.10	63.58	2.40	65.98	74.0	3.0m./HORZ	8.0	PK	
7236.70	46.56	8.05	54.61	74.0	3.0m./HORZ	19.4	PK	
			Mid Channel	– PEAK				
2441.75	70.98	30.13	101.11	-	3.0m./HORZ	-	PK	
4884.10	62.05	2.59	64.64	74.0	3.0m./HORZ	9.4	PK	
7288.30	47.06	7.77	52.24	74.0	3.0m./HORZ	21.8	PK	
High Channel – PEAK								
2462.15	67.67	30.13	97.80	-	3.0m./HORZ	-	PK	
4923.90	40.05	2.27	42.32	74.0	3.0m./HORZ	31.7	PK	
7382.25	35.62	7.53	43.15	74.0	3.0m./HORZ	30.8	PK	

Table 5. 802.11b Peak Radiated Fundamental & Harmonic Emissions

1. (*) Falls outside the restricted bands of CFR 15.205. Limits based on CFR15.209 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. The EUT was placed in three orthogonal positions and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 2411.90 MHz:

Magnitude of Measured Frequency	71.08	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain	30.16	dB/m
Corrected Result	101.24	dBuV/m

Test Date: December 7, 2016

Clast CAS Tested By Signature:

Test: FCC Part 15, Para 15.209, 15.247(d)				Client: Inventek Systems				
	Projec	:t: 16-0291						
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode	
	Low Channel – AVERAGE							
2411.90	59.58	30.16	89.74	-	3.0m./HORZ	-		
4824.10	49.20	2.40	51.60	54.0	3.0m./HORZ	2.4	AVG	
7236.70	30.22	8.05	38.27	54.0	3.0m./HORZ	15.7	AVG	
		Mi	d Channel –	AVERAGE				
2441.75	60.73	30.13	90.86	-	3.0m./HORZ	-		
4884.10	47.06	2.59	49.65	54.0	3.0m./HORZ	4.3	AVG	
7288.30	30.13	7.77	37.90	54.0	3.0m./HORZ	16.1	AVG	
High Channel – AVERAGE								
2462.15	56.53	30.13	86.66	-	3.0m./HORZ	-		
4923.90	25.61	2.27	27.88	54.0	3.0m./HORZ	26.1	AVG	
7382.25	21.76	7.53	29.29	54.0	3.0m./HORZ	24.7	AVG	

Table 6. 802.11b Average Radiated Fundamental & Harmonic Emissions

1. (*) Falls outside the restricted bands of CFR 15.205. Limits based on CFR15.209 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. The EUT was placed in three orthogonal positions and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 2411.90 MHz:

Magnitude of Measured Frequency	59.58	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain	30.16	dB/m
Corrected Result	89.74	dBuV/m

Test Date: December 7, 2016

Tested By

Table 7. 802.11g Peak Radiated Fundamental & Harmonic Emissions

Test: FCC Part 15, Para 15.209, 15.247(d)				Client: Inventek Systems			
	Projec	: t: 16-0291					
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode
		I	Low Channe	I – PEAK			
2412.65	70.92	30.16	101.08	-	3.0m./HORZ	-	PK
4820.80	63.21	2.40	65.61	74.0	3.0m./HORZ	8.4	PK
7232.15	44.41	8.05	52.46	74.0	3.0m./HORZ	21.5	PK
			Mid Channel	– PEAK			
2441.75	69.27	30.13	99.40	-	3.0m./HORZ	-	PK
4880.30	60.32	2.59	62.91	74.0	3.0m./HORZ	11.1	PK
7326.15	44.46	8.31	52.77	74.0	3.0m./HORZ	21.2	PK
High Channel - PEAK							
2462.15	67.75	30.13	97.88	-	3.0m./HORZ	-	PK
4927.20	60.81	2.34	63.15	74.0	3.0m./HORZ	10.8	PK
7378.10	45.03	7.53	52.56	74.0	3.0m./HORZ	21.4	PK

1. (*) Falls outside the restricted bands of CFR 15.205. Limits based on CFR15.209 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10^{th} harmonic

3. The EUT was placed in three orthogonal positions and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 2412.65 MHz:

Magnitude of Measured Frequency	70.92	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain	30.16	dB/m
Corrected Result	101.08	dBuV/m

Test Date: December 7, 2016

Tested By Signature:

	rabio or colling / torago radiatoa r andanontar a namono limotrono							
Test: FCC Part 15, Para 15.209, 15.247(d)				Client: Inventek Systems				
	Projec	:t: 16-0291						
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode	
	Low Channel – AVERAGE							
2412.65	52.19	30.16	82.35	-	3.0m./HORZ	-	QP	
4820.80	43.47	2.40	45.87	54.0	3.0m./HORZ	8.1	AVG	
7232.15	30.58	8.05	38.63	54.0	3.0m./HORZ	15.4	AVG	
		Mi	d Channel –	AVERAGE				
2441.75	50.27	30.13	80.40	-	3.0m./HORZ	-	QP	
4880.30	42.82	2.59	45.41	54.0	3.0m./HORZ	8.6	AVG	
7326.15	30.66	8.31	38.97	54.0	3.0m./HORZ	15.0	AVG	
High Channel – AVERAGE								
2462.15	49.95	30.13	80.08	-	3.0m./HORZ	-	QP	
4927.20	43.04	2.34	45.38	54.0	3.0m./HORZ	8.6	AVG	
7378.10	30.69	7.53	38.22	54.0	3.0m./HORZ	15.8	AVG	

Table 8. 802.11g Average Radiated Fundamental & Harmonic Emissions

1. (*) Falls outside the restricted bands of CFR 15.205. Limits based on CFR15.209 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. The EUT was placed in three orthogonal positions and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 2412.65 MHz:

Magnitude of Measured Frequency	52.19	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain	30.16	dB/m
Corrected Result	82.35	dBuV/m

Test Date: December 7, 2016

Tested By Signature:

Table 9. 802.11n Peak Radiated Fundamental & Harmonic Emissions

Test: FCC Part 15, Para 15.209, 15.247(d)				Client: Inventek Systems			
	Projec	t: 16-0291					
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode
			Low Channe	I – PEAK			
2410.15	70.11	30.16	100.27	-	3.0m./HORZ	-	PK
4826.30	59.55	2.40	61.95	74.0	3.0m./HORZ	12.1	PK
7233.55	43.97	8.05	52.02	74.0	3.0m./HORZ	22.0	PK
			Mid Channel	– PEAK			
2441.05	68.08	30.13	98.21	-	3.0m./HORZ	-	PK
4883.00	57.06	2.59	59.65	74.0	3.0m./HORZ	14.3	PK
7318.70	45.27	8.31	53.58	74.0	3.0m./HORZ	20.4	PK
High Channel – PEAK							
2460.70	66.76	30.13	96.89	-	3.0m./HORZ	-	PK
4924.55	47.34	2.27	58.85	74.0	3.0m./HORZ	15.2	PK
7386.15	44.40	7.53	51.93	74.0	3.0m./HORZ	22.1	PK

1. (*) Falls outside the restricted bands of CFR 15.205. Limits based on CFR15.209 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. The EUT was placed in three orthogonal positions and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 2410.15 MHz:

Magnitude of Measured Frequency	70.11	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain	30.16	dB/m
Corrected Result	100.27	dBuV/m

Test Date: December 7, 2016

Tested By Signature:

Table 10. 802.11n Average Radiated Fundamental & Harmonic Emissions

Test: FCC Part 15, Para 15.209, 15.247(d)					Client: Invente	k Systems	
	Projec	: t: 16-0291					
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector Mode
		Lov	w Channel –	AVERAGE			
2410.15	51.32	30.16	81.48	-	3.0m./HORZ	-	
4826.30	41.69	2.40	44.09	54.0	3.0m./HORZ	9.9	AVG
7233.55	30.21	8.05	38.26	54.0	3.0m./HORZ	15.7	AVG
		Mi	d Channel –	AVERAGE			
2441.05	47.56	30.13	77.69	-	3.0m./HORZ	-	
4883.00	39.29	2.59	41.88	54.0	3.0m./HORZ	12.1	AVG
7318.70	30.39	8.31	38.70	54.0	3.0m./HORZ	15.3	AVG
High Channel – AVERAGE							
2460.70	47.34	30.13	77.47	-	3.0m./HORZ	-	
4924.55	39.73	2.27	42.00	54.0	3.0m./HORZ	12.0	AVG
7386.15	30.45	7.53	37.98	54.0	3.0m./HORZ	16.0	AVG

1. (*) Falls outside the restricted bands of CFR 15.205. Limits based on CFR15.209 15.247.

2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic

3. The EUT was placed in three orthogonal positions and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 2410.15 MHz:

Magnitude of Measured Frequency	51.32	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain	30.16	dB/m
Corrected Result	81.48	dBuV/m

Test Date: December 7, 2016

Tested By Signature: Cast

2.9 Band Edge Measurements – (CFR 15.247)

Band Edge measurements are made following the guidelines in FCC KDB Publication No. 558074 V03R05 with the EUT initially operating on the Lowest Channel and then operating on the Highest Channel within its band of operation. Radiated measurements are performed to demonstrate compliance with the requirement of 15.249(d) that all emissions outside of the band edges be attenuated by at least 50 dB or 15.209 limits, when compared to its highest in-band value (contained in a 100 kHz band).

To capture the band edge, set the Spectrum Analyzer frequency span set to 2 MHz to capture the peak level of the emission operating on the channel closest to the band edge as well as any modulation products falling outside of the authorized band of operation. See figure and calculations following for more detail.

FCC Part 15 Certification 07P-362 10147A-362 16-0291 December 16, 2016 Inventek Systems ISM43362-M3G-L44-U, ISM43362-M3G-L44-E

₩ Agilent 12:55:41 Dec 9, 2016	Peak Search
Mkr1 ∆ 13.84 MH Ref 76.99 dBµV #Atten 5 dB 42.06 dE	
Log	
	Next Peak
	Next Pk Right
13.840000 MHz 42.06 dB	Next Pk Left
Start 2.39 GHz Stop 2.422 GH: #Res BW 100 kHz #VBW 300 kHz Sweep 4 ms (401 pts) Marker Trace Type X Axis Amplitude 1R (1) Freq 2.39840 GHz 29.21 dBull	Min Search
16 (1) Freq 13.84 MHz 42.06 dB	Pk-Pk Search
	More 1 of 2

Figure 2. 802.11b Band Edge Compliance, Low Channel Delta - Peak

Low Channel Corrected Measured Value from Table 5	101.24	dBuV
Low Channel Band Edge Delta from Figure 2	42.06	dB
Calculated Result	59.18	dBuV/m
Band Edge Limit	74.00	dBuV/m
Calculated Result	59.18	dBuV/m
Band Edge Margin	14.82	dBuV/m

FCC Part 15 Certification 07P-362 10147A-362 16-0291 December 16, 2016 Inventek Systems ISM43362-M3G-L44-U, ISM43362-M3G-L44-E

Ref 78.92 dBµV *Atten 5 dB 43.45 dB EmiAv 43.45 dB Log 1 10 1 dB/ 1 Marker \triangle 1 14.170749 MHz Next Peak Marker \triangle Next Pk Right 14.170749 MHz Next Pk Right 43.45 dB Next Pk Left Start 2.39 GHz Stop 2.415 GHz *Res BW 1 MHz *VBW 3 MHz Sweep 12.79 s (401 pts) Marker Trace Type X Axis Amplitude 1 \triangle (1) Freq 2.39875 GHz 1 \triangle (1) Freq 14.17 MHz 43.45 dB 0 More 1 \triangle 10 Freq 1 \triangle 10 Freq 1 \triangle 10 Freq 1 \triangle 14.17 MHz 43.45 dB	🔆 Agi	ilent (13:02:3	0 Dec	9,2010	6			ML-1	. 14	17 MU-	Pea	ak Search
10 dB/ 1R Next Peak Marker Δ 1R Next Pk Right 14.170749 MHz Next Pk Right 43.45 dB Next Pk Left Start 2.39 GHz Stop 2.415 GHz *Res BW 1 MHz *VBW 3 MHz Sweep 12.79 s (401 pts) Marker Trace Type X Axis Amplitude 1A (1) Freq 1A (1) </th <th>Ref 78 EmiAv Log</th> <th>3.92 dB</th> <th>μV</th> <th>#Atten</th> <th>5 dB</th> <th></th> <th></th> <th></th> <th>MKLI</th> <th>43 </th> <th>.17 MH2 3.45 dB</th> <th></th> <th>leas Tools⊦</th>	Ref 78 EmiAv Log	3.92 dB	μV	#Atten	5 dB				MKLI	43 	.17 MH2 3.45 dB		leas Tools⊦
Image: Angle Angl	10 dB/								-				Next Peak
14.170749 MHz Next Pk Left 43.45 dB Image: Stop 2.415 GHz Start 2.39 GHz Stop 2.415 GHz *Res BW 1 MHz *VBW 3 MHz Sweep 12.79 s (401 pts) Marker Trace Type X Axis 1R (1) Freq 2.39875 GHz 25.8 dBµU 1a (1) Freq 14.17 MHz 43.45 dB More 1 of 2		Mark	er 🛆	<u> </u>	1R \$							Ne	xt Pk Right
Start 2.39 GHz Stop 2.415 GHz *Res BW 1 MHz *VBW 3 MHz Sweep 12.79 s (401 pts) Marker Trace Type X Axis Amplitude 1R (1) Freq 2.39875 GHz 25.8 dBµV 1a (1) Freq 14.17 MHz 43.45 dB More 1 Freq 14.17 MHz 43.45 dB		14.1 43.	7074 45 dl	9 MH 8	Z							N	ext Pk Left
1Λ (1) Freq 14.17 MHz 43.45 dB Pk-Pk Search 1Δ (1) Freq 14.17 MHz 43.45 dB Pk-Pk Search 1Δ (1) Freq 14.17 MHz 43.45 dB Pk-Pk Search 1Δ (1) Freq 14.17 MHz 43.45 dB Pk-Pk Search 1 0 1 0 1 0 1	Start (#Res E Mark	2.39 GH <u>3W 1 MH</u> (er T	IZ IZ race (1)	Type	#V	BW 3 M X	Hz Axis	Swee	St p 12.7	op 2.4 3 s (40 Amplia 25 8 d	15 GHz 01 pts) tude		Min Search
More 1 of 2	10		(1)	Freq		14.	.17 MHz			43.4	5 dB	Pk-	-Pk Search
													More 1 of 2

Figure 3. 802.11b Band Edge Compliance, Low Channel Delta - Peak

Low Channel Corrected Measured Value from Table 6	89.74	dBuV
Low Channel Band Edge Delta from Figure 3	43.45	dB
Calculated Result	46.29	dBuV/m
Band Edge Limit	54.00	dBuV/m
Calculated Result	46.29	dBuV/m
Band Edge Margin	7.71	dBuV/m

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

* Agilent 13:04:26 Dec S	9,2016	ML-4 0.2010 CI	Marker
Ref 76.99 dBµV #Atten Peak Log	5 dB	32.66 dBµ	Select Marker
10 dB/		3 4	Normal
Marker			Delta
2.381600000 32.66 dBµV	GHz		- Delta Pair (Tracking Ref) Ref <u>Delta</u>
Start 2.31 GHz #Res BW 1 MHz Marker Trace Type	#VBW 3 MHz X Axis	Stop 2.39 GH Sweep 4 ms (401 pts Amolitude	z) Span Pair Span <u>Center</u>
1 (1) Freq 2 (1) Freq 3 (1) Freq 4 (1) Freq	2.3112 GHz 2.3346 GHz 2.3606 GHz 2.3816 GHz	35.49 dBµV 33.63 dBµV 33.19 dBµV 32.66 dBµV	Off
			More 1 of 2

Figure 4. 802.11b Radiated Restricted Band 2310 MHz to 2390 MHz, Peak

Table 11. 802.11b Radiated Restricted Band 2310 MHz to 2390 MHz, Peak										
2310 MHz to 2390 MHz Restricted Band Peak Measurements										
Test: Radiated Emissions Client: Inventek Systems										
	Projec	:t: 16-0291								
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG			
2311.2	35.49	29.49	64.98	74.0	3.0m./HORZ	9.0	PK			
2334.6	33.63	29.49	63.12	74.0	3.0m./HORZ	10.9	PK			
2360.6	33.19	29.49	62.68	74.0	3.0m./HORZ	11.3	PK			
2381.6	32.66	30.00	62.66	74.0	3.0m./HORZ	11.3	PK			

Table 11, 002 11b Dedicted Destricted D . .

Test Date: December 9, 2016

Tested By 12 Signature:

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

★ Agilent 13:07:05 Dec 9, 2016	Marker
Ref 34.11 dBµV #Atten 5 dB 20.15 d EmiAv 1 2 3 4 Log • • • •	dBµV 1 2 3 4
10 dB/	Normal
Marker	Delta
2.38160000 GHz 20.15 dBµV	Delta Pair (Tracking Ref) Ref <u>Delta</u>
Start 2.31 GHz Stop 2.39 #Res BW 1 MHz #VBW 3 MHz Sweep 64.23 s (401 Marker Trace Type X Axis Marker Call Axis Amplitude	9 GHz pts) Span Pair ^{Je Span <u>Center</u>}
1 (1) Freq 2.3112 GHz 20.37 GBJ 2 (1) Freq 2.3346 GHz 20.76 dBJ 3 (1) Freq 2.3606 GHz 20.54 dBJ 4 (1) Freq 2.3816 GHz 20.15 dBJ	ມ ມັນ ມັນ Off
	More 1 of 2

Figure 5. 802.11b Radiated Restricted Band 2310 MHz to 2390 MHz, Average

Table 12. 802.11b Radiated Restricted Band 2310 MHz to 2390 MHz, Average										
2310 MHz to 2390 MHz Restricted Band Peak Measurements										
Test: Radiated Emissions Client: Inventek Systems										
Project: 16-0291										
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG			
2311.2	20.87	29.49	50.36	54.0	3.0m./HORZ	3.6	AVG			
2334.6	20.76	29.49	50.25	54.0	3.0m./HORZ	3.8	AVG			
2360.6	20.54	29.49	50.03	54.0	3.0m./HORZ	4.0	AVG			
2381.6	20.15	30.00	50.15	54.0	3.0m./HORZ	3.9	AVG			

Test Date: December 9, 2016

Tested By KEN Signature:

Name<u>: Robert K. Mills</u>

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

🔆 Ag	ilent	13:16:3	8 Dec	9,2010	6			ML1		00 MU-	Peak Search
Ref 80 Peak Log	6.99 dE	3µV	#Atten	5 dB					47.	.74 dB	Meas Tool
10 dB/	\mathbb{Z}			$\overline{\mathbf{h}}$							Next Pea
	Mar	ker ∆		<u> </u>	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		1R				Next Pk Righ
<u>_</u>	-22	.003 .74 d	124 M B	Hz							Next Pk Le
Start #Res E Mark 1R	2.454 <u>3W 100</u> (er }	GHZ <u>kHz</u> Trace (1)	Type Frea	#VB	W 300 x 2.48	kHz (Axis 350 GHz	Sweep	4.792	Stop 2 ms (40 Amplit 24.84 d	.5 GHZ 1 pts) ude B⊔V	Min Searc
12	1	(1)	Freq		-22	.00 MHz			47.74	dB	Pk-Pk Searc
											Mor 1 of

Figure 6. 802.11b Band Edge Compliance, High Channel Delta – Peak

High Channel Corrected Measured Value from Table 5	97.80	dBuV
High Channel Band Edge Delta from Figure 5	47.74	dB
Calculated Result	50.06	dBuV/m
Band Edge Limit	54.00	dBuV/m
Calculated Result	50.06	dBuV/m
Band Edge Margin	3.94	dBuV/m

*Peak meets AVG limit.

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

🔆 Agi	lent	13:25:	:36 Dec	9,201	6			ML-1	0 40E	10 CU-	Peak S	earch
Ref 86 Peak Log	5.99 dE	3µV	#Atten	5 dB				мкгі	35.6		Meas	Tools•
10 dB/										4	Ne>	(t Peak
	Mar	∳ ker		÷	······	······	<u></u>			÷	Next P	k Right
	2.4	3519 3.6 c	11250 ∄₿µV	GHz							Next	Pk Left
Start 2 #Res E Mark 1	2.483 3 <u>W 1 M</u> :er	GHz <u>Hz</u> Trace (1)	Type	#V	BW 3 M X 2.485	Hz Axis 519 GHz	Si	меер 4	Stop 2 ms (40 Amplit 35.6 d	1 pts) ude BuU	Mins	Search
2 3 4		(1) (1) (1)	Freq Freq Freq		2.488 2.494 2.498	382 GHz 402 GHz 368 GHz			33.74 d 34.01 d 34.19 d	ВµV ВµV ВµV ВµV	Pk-Pk \$	Search
												More 1 of 2

Figure 7. 802.11b Radiated Restricted Band 2483.5 MHz to 2500 MHz, Peak

Table 13. 802.11b Radiated Restricted Band 2483.5 MHz to 2500 MHz, Peak										
2483.5 MHz to 2500 MHz Restricted Band Peak Measurements										
Test: Radiated Emissions Client: Inventek Systems										
Project: 16-0291										
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG			
2485.19	35.60	30.13	65.73	74.0	3.0m./HORZ	8.3	PK			
2488.82	33.74	30.13	63.87	74.0	3.0m./HORZ	10.1	PK			
2494.02	34.01	30.13	64.14	74.0	3.0m./HORZ	9.9	PK			
2498.68	34.19	30.13	64.32	74.0	3.0m./HORZ	9.7	PK			

Test Date: December 9, 2016

Tested By Signature:

15

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

🔆 Agi	lent	13:27:4	4 Dec	9,201	6			MI1	0.405	10.00-	Am	plitude
Ref 35 EmiAv Lna	i.06 dB		#Atten	5 dB			3	MKL	2.485			Ref Level 35.06 dBµV
10 dB/				• 							At Auto	t enuation 5.00 dB <u>Man</u>
												Scale/Div 10.00 dB
											So Log	ale Type
Start 2 #Res E Mark	tart 2.483 GHz Res BW 1 MHz #VBW 3 MHz Marker Trace Type X Axis 1 (1) Even 2 49510 SH-				Swee	p 13.25	Stop 2 5 s (40 Amplit 20.49 d	.5 GHz 1 pts) ude BuU	Pres	el Center		
2 3 4		(1) (1) (1) (1)	Freq Freq Freq		2.48319 6Hz 2.48882 GHz 2.49402 GHz 2.49868 GHz			20.44 dBµV 20.36 dBµV 20.43 dBµV			Pres 0.000	el Adjust 100000 Hz
												More 1 of 3

Figure 8. 802.11b Radiated Restricted Band 2483.5 MHz to 2500 MHz, Average

Table 14. 802.11b Radiated Restricted Band 2483.5 MHz to 2500 MHz, Average

	2483.5 MHz to 2500 MHz Restricted Band Average Measurements								
	Test: Radia	ated Emissions			Client: Inventek Systems				
	Projec	t: 16-0291							
Frequency (MHz)	Test Data (dBuv)	AF+CA- AMP+Duty Cycle (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG		
2485.19	20.49	30.13	50.62	54.0	3.0m./HORZ	3.4	AVG		
2488.82	20.44	30.13	50.57	54.0	3.0m./HORZ	3.4	AVG		
2494.02	20.36	30.13	50.49	54.0	3.0m./HORZ	3.5	AVG		
2498.68	20.43	30.13	50.56	54.0	3.0m./HORZ	3.4	AVG		

Test Date: December 9, 2016
Tested By
Signature:

US Tec FCC ID IC: Test Re Issue D Custom <u>Model:</u>	h Test : eport Nu ate: er:	Report: Imber:					ISM4	<u>43362-N</u>	<u>13G-L</u> 4	FCC	Part 15 Certification O7P-362 10147A-362 16-0291 December 16, 2016 Inventek Systems 143362-M3G-L44-E
🔆 Ag	ilent	15:56:2	9 Dec	9,201	6			Mkr1	A 16	19 MH-	Peak Search
Ref 80 Peak Log	6.99 dE	βµV	#Atter	n 5 dB					39	.23 dB	Meas Tools•
10 dB/							wante are	~~~~~~	er a casi		Next Peak
	Mari			1R	mm	γ 					Next Pk Right

I	9.23 dB						2 dB	Htten	۷ :	.aa qR⊨	Ket 86
Meas Tools∙											Peak Log
Next Peak		traces of a	*~~Y~X								10 dB/
Next Pk Right						man	1R		er A	Mark	
Next Pk Left							Z) MH	91200 13 dB	16.1 - 39.2	
Min Search	22 GHz 01 pts) ^{tude}	top 2.42 ms (40 Amplit	St veep 4	Si	kHz Axis	W 300 X	#VE	Type	lz Hz ace	2.383 GH 3W 100 H er Tr	Start 2 #Res E Mark
Pk-Pk Search	3 dB 3800	29.5 di 39.23			/11 GHz .19 MHz	2.39		Freq Freq	1) 1)		1R 15
More 1 of 2											

Figure 9. 802.11g Band Edge Compliance, Low Channel Delta - Peak

Low Channel Corrected Measured Value from Table 7	101.08	dBuV
Low Channel Band Edge Delta from Figure 8	39.23	dB
Calculated Result	61.85	dBuV/m
Band Edge Limit	74.00	dBuV/m
Calculated Result	61.85	dBuV/m
Band Edge Margin	12.15	dBuV/m

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:	FCC Part 15 Certification O7P-362 10147A-362 16-0291 December 16, 2016 Inventek Systems ISM43362-M3G-L44-U, ISM43362-M3G-L44-E
₩ Agilent 16:04:16 Dec 9, 2016	Mkr1 a 12.26 MHz
Ref 68.25 dBµV #Atten 5 dB EmiAv	37.63 dB Meas Tools

11

S.

Next Peak

Next Pk Right

Log 10 dB/

								er ∆	Mark
Next Pk Left						z	16 МН В	6136 63 d	12.2 - 37 .
GHz pts) Min Search	op 2.42) s (40) Amplite	St p 194.6	Swee	kHz Axis	300 ×	#VE	Туре	Hz <u>kHz</u> race	Start 2.383 G #Res BW 100 Marker T
Pk-Pk Search	14.89 dt 37.63			2.39845 GHz 12.26 MHz			Fred Fred	(1) (1)	18 14
More 1 of 2									

Figure 10. 802.11g Band Edge Compliance, Low Channel Delta - Average

Low Channel Corrected Measured Value from Table 8	82.35	dBuV
Low Channel Band Edge Delta from Figure 10	37.63	dB
Calculated Result	44.72	dBuV/m
Band Edge Limit	54.00	dBuV/m
Calculated Result	44.72	dBuV/m
Band Edge Margin	9.28	dBuV/m

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

🔆 Agi	lent 1	16:17:5	7 Dec	9,2010	ô			MLar	1 2 2 2	00 CU-	B	l/Avg
Ref 86 Peak Log	.99 dB	μV	#Atten	5 dB				ны. 	34.04	dBµV	1.000 Auto	Res BW 00000 MHz <u>Man</u>
10 dB/		1		2			3		4		3.000 Auto	Video BW 00000 MHz <u>Man</u>
	VBW			· · · ·			ě.		ð.		Auto	VBW/RBW 3.00000 <u>Man</u>
	3.00	0000	000	MHz							0n	Average 100 <u>Off</u>
Start 2.31 GHz #Res BW 1 MHz #VBW 3 MHz Marker Trace Type X Axis				Hz Axis	Si	veep 4	Stop 2.3 <u>ms (40</u> Amplite 24.04 al	 <u>Auto</u>	Avg Type Video∙ Man			
2 (1) Freq 2 (1) Freq 3 (1) Freq 4 (1) Freq			2.3206 6H2 34.04 de 2.3378 GHz 34.91 dE 2.3608 GHz 34.13 dE 2.3802 GHz 34.06 dE				вµО ВµV ВµV ВµV	EM	II Res BW, None			

Figure 11. 802.11g Radiated Restricted Band 2310 MHz to 2390 MHz, Peak

lable	Table 15. 802.119 Radiated Restricted Band 2310 MHz to 2390 MHz, Peak									
	2310 MHz to 2390 MHz Restricted Band Peak Measurements									
	Test: Radia	ated Emissions	Client: Inventek Systems							
	Projec	:t: 16-0291								
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG			
2320.6	34.04	29.49	63.53	74.0	3.0m./HORZ	10.5	PK			
2337.8	34.91	29.49	64.40	74.0	3.0m./HORZ	9.6	PK			
2360.8	34.13	29.49	63.62	74.0	3.0m./HORZ	10.4	PK			
2380.2	34.06	30.00	64.06	74.0	3.0m./HORZ	9.9	PK			

Table 15, 802 11g Padiated Pastriated Pand 2210 MHz to 2200 MHz, Paak

Test Date: December 9, 2016

Tested By Signature: Name<u>: Robert K. Mills</u>

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

★ Agilent 16:23:18 Dec 9, 2016	Mbs1 2 2158 CUT
Ref 35.47 dBµV #Atten 5 dB EmiAv 1 2 Log X	21.05 dBµV 3 4 A A A A A A A A A A A A A A A A A A A
10 dB/	Next Peak
Marker	Next Pk Right
2.315800000 GHz 21.05 dBµV	Next Pk Left
Start 2.31 GHz #Res BW 1 MHz #VBW 3 MH Marker Trace Type X f 1 (1) Freq 2.315	Stop 2.39 GHz Sweep 64.23 s (401 pts) Amplitude 1z 21.45 dBull
2 (1) Freq 2.337 3 (1) Freq 2.360 4 (1) Freq 2.380	12 21.32 dBμV 12 20.71 dBμV 12 20.71 dBμV 12 20.9 dBμV
	More 1 of 2

Figure 12. 802.11g Radiated Restricted Band 2310 MHz to 2390 MHz, Average

Table 1	Table 16. 802.11g Radiated Restricted Band 2310 MHz to 2390 MHz, Average										
2310 MHz to 2390 MHz Restricted Band Peak Measurements											
	k Systems										
	Projec	t: 16-0291									
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG				
2315.8	21.05	29.49	50.54	54.0	3.0m./HORZ	3.5	AVG				
2337.8	21.32	29.49	50.81	54.0	3.0m./HORZ	3.2	AVG				
2360.8	20.71	29.49	50.20	54.0	3.0m./HORZ	3.8	AVG				
2380.2	20.90	30.00	50.90	54.0	3.0m./HORZ	3.1	AVG				

Test Date: December 9, 2016

Tested By Name: Robert K. Mills Signature:

FCC Part 15 Certification
O7P-362
10147A-362
16-0291
December 16, 2016
Inventek Systems
ISM43362-M3G-L44-U, ISM43362-M3G-L44-E

★ Agilent 16:38:42 Dec 9, 2016 Mike1 A 22.76 MHz	Peak Search
Ref 86.99 dBµV #Atten 5 dB 41.26 dB Peak	Meas Tools∙
10 dB/	Next Peak
Marker A	Next Pk Right
-22.761834 MHz -41.26 dB	Next Pk Left
Start 2.452 GHz Stop 2.5 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 5.006 ms (401 pts) Marker Trace Type X Axis Amplitude 18 (1) Freq 2.48350 GHz 28.08 dBuU	Min Search
16 (1) Freq -22.76 MHz 41.26 dB	Pk-Pk Search
	More 1 of 2

Figure 13. 802.11g Band Edge Compliance, High Channel Delta – Peak

High Channel Corrected Measured Value from Table 7	97.88	dBuV
High Channel Band Edge Delta from Figure 11	41.26	dB
Calculated Result	56.62	dBuV/m
Band Edge Limit	74.00	dBuV/m
Calculated Result	56.62	dBuV/m
Band Edge Margin	17.38	dBuV/m

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

🔆 Ag	ilent	16:49:1	2 Dec 3	9,2010	ô			ML1			Peak Search
Ref 68 EmiAv Log	3.47 dB		#Atten	5 dB				MKr1 4	3 -22.	76 MHZ .84 dB	Meas Tools
10 dB/	Ť"		al fannan ar	Marine and							Next Pea
	Mark	er A					1R \$		···-		Next Pk Righ
	-22 -38.	7618 84 d	334 M B	Hz							Next Pk Let
Start #Res E Mari 1R	2.452 (<u>3W 100</u> (er 1	iHz <u>kHz</u> irace (1)	Type Frea	#VB	W 300 > 2.48	kHz (Axis 350 GHz	Swee	p 245.	Stop 2 4 s (40 Amplit 13.84 d	.5 GHZ 1 pts) ude B⊔V	Min Searc
12	1		Freq		-22	2.76 MHz			38.84	dB	Pk-Pk Searc
											Mor 1 of

Figure 14. 802.11g Band Edge Compliance, High Channel Delta – Average

High Channel Corrected Measured Value from Table 8	80.08	dBuV
High Channel Band Edge Delta from Figure 14	38.84	dB
Calculated Result	41.24	dBuV/m
Band Edge Limit	54.00	dBuV/m
Calculated Result	41.24	dBuV/m
Band Edge Margin	12.76	dBuV/m

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

🔆 Agi	lent 🛛	17:22:3	8 Jan	4,2017	7							larker
P≏f 76	aa AB	οU	<u>A</u> ++or	5 dB				Mkr4	2.498	35 GHz JBUV		
#Peak	.99 ub								55.52		Sele	ect Marker
Log											÷	2 3 4
10 dB7												Normal
ч <i>ь</i> ,			.		2		3 �			<u></u>		NUTINAL
											-	
	Morl	or										Delta
			000	сu-							-	D. H. D. I
	2.40	22 4	Dull	UNZ-							(T	Delta Pair racking Ref)
	_ວວ.	pz u	ρμν								Ref	<u>Delta</u>
Start 2 #Poc B	2.483 0 NU 1 MU	iHz J∍		U	рці зімі	∐-,	¢,	Joon 1	Stop 2	.5 GHz	[Span Pair
Mark	er T	race	Туре		X X	nz Axis	<u></u>	reep 4	Amplit	ude	Span	<u>Center</u>
1 2		(1) (1)	Frec Frec	1	2.488 2.498	680 GHz 022 GH z			33.76 d 33.36 d	ВµV В∩U	-	
3			Fred		2.493	381 GHz			34.89 d	ВµV ВµV		Off
4		(1)	Fred		2.490	835 UHZ			33.32 a	вро		
												More
												1 of 2

Figure 15. 802.11g Radiated Restricted Band 2483.5 MHz to 2500 MHz, Peak

Table	Table 17. 802.11g Radiated Restricted Band 2483.5 MHz to 2500 MHz, Peak										
2483.5 MHz to 2500 MHz Restricted Band Peak Measurements											
Test: Radiated Emissions Client: Inventek Systems											
	Projec	t: 16-0291									
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG				
2484.78	33.76	30.13	63.89	74.0	3.0m./HORZ	10.1	PK				
2489.69	33.36	30.13	63.49	74.0	3.0m./HORZ	10.5	PK				
2493.94	34.89	30.13	65.02	74.0	3.0m./HORZ	9.0	PK				
2498.60	33.32	30.13	63.45	74.0	3.0m./HORZ	10.5	PK				

Test Date: January 4, 2017 Tested By 1/2/ Signature:

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

🔆 Agi	lent	17 : 24:3	1 Jan	4,2017	7							Marker
Ref 43	91 dB	5 IV	Atter	5 dB				Mkr4	2.498 20.46	35 GHz dBuW		
#EmiAv									20.40		Sele	2 3 4
Log 10			÷		2		3			• •	-	
dB/												Normal
												Delta
	Marl	(er										Denta
	2.48	36800	1000	GHz							Ē	Delta Pair
	-20.	.46 d	BµV−								(T Ref	racking Ref) Delta
Start 2	2.483 (Hz							Stop 2	.5 GHz		Cnon Dair
#Res B	W 1 M	lz		V	<u>BW 3 MI</u>	Hz	Swee	p 13.25	os(40	1 pts)	Snan	Span Pair Center
Mark 1	er	(1)	lype Frec	1	× 2.480	. Hxis 680 GHz			Hmpliti 20.56 di	ude BuV	opun	
2		(1)	Fred	1	2.49	022 GHz			2 0.4 8 di	BµV		
3 4		(1) (1)	⊦reo Freo	1	2.49	381 GHz 835 GHz			20.46 di 20.46 di	ВµV ВµV		Off
											_	
												More
												1 of 2

Figure 16. 802.11g Radiated Restricted Band 2483.5 MHz to 2500 MHz, Average

Table 18	Table 18. 802.11g Radiated Restricted Band 2483.5 MHz to 2500 MHz, Average											
2483.5 MHz to 2500 MHz Restricted Band Average Measurements												
	Test: Radia	ated Emissions	Client: Inventek Systems									
	Projec	t: 16-0291										
Frequency (MHz)	Test Data (dBuv)	AF+CA- AMP+Duty Cycle (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG					
2486.80	20.56	30.13	50.69	54.0	3.0m./HORZ	3.3	AVG					
2490.22	20.48	30.13	50.61	54.0	3.0m./HORZ	3.4	AVG					
2493.81	20.46	30.13	50.59	54.0	3.0m./HORZ	3.4	AVG					
2498.35	20.46	30.13	50.59	54.0	3.0m./HORZ	3.4	AVG					

Test Date: January 4, 2017 Tested By -15 Signature:

US Tecl FCC ID: IC: Test Re Issue Da Custom <u>Model:</u>	h Test R port Nur ate: er:	eport: mber:					ISM4	13362-M	<u>3G-L4</u>	FCC 4-U, ISN	Part 15 Certification 07P-362 10147A-362 16-0291 December 16, 2016 Inventek Systems <u>/43362-M3G-L44-E</u>
🔆 Ag	ilent 1	7:12:5	6 Dec	9,201	ô			Mkr1	× 15	36 MH-	Marker
Ref 76 Peak	6.99 dBj	UV I	#Attei	n 5 dB		1	1		40.	.01 dB	Select Marker
Log					marent	mon	may	- Anna		my	<u>1</u> 2 3 4
10 dB/			18								Marker Trace <u>Auto</u> 1 2 3
			~ <u>~</u>	and a second							Readout
	Mark	er 🛆									Frequency
	15.3	6000 21 - II	IØ M⊦	z							Function
	<u> 40.</u>	ø⊥a	Þ—								Off"

Stop 2.422 GHz

Amplitude

28.54 dBµV 40.01 dB

Sweep 4 ms (401 pts)

Marker Table

Marker All Off

<u>0n</u>

Off

More 2 of 2

Figure 17. 802.11n Band Edge Compliance, Low Channel Delta - Peak

#VBW 300 kHz

X Axis

2.39792 GHz 15.36 MHz

Start 2.39 GHz

Marker

1R 1∆

#Res BW 100 kHz

Trace

(1) (1) Туре

Freq Freq

Low Channel Corrected Measured Value from Table 9	100.27	dBuV
Low Channel Band Edge Delta from Figure 17	40.01	dB
Calculated Result	60.26	dBuV/m
Band Edge Limit	74.00	dBuV/m
Calculated Result	60.26	dBuV/m
Band Edge Margin	13.74	dBuV/m

US Tech Test Report:
FCC ID:
IC:
Test Report Number:
Issue Date:
Customer:
Model:

🔆 Agi	lent	17:18:0	4 Dec S	9,2010	6			- LII 4	. 10	0.4 MU	Peak Sear	ch
Ref 67 EmiAv Log	'.49 dB		#Atten	5 dB			1	MKri	Δ 12. 3	64 MHZ 7.8 dB	Meas To	ols∙
10 dB/			4.0		for the second s	h			0	Mony	Next P	'eak
	Mark	er A									Next Pk R	ight
	12.t	4000 .8 dl	10 МН; 3	Z							Next Pk I	Left
Start 2 #Res E Mark	2.39 GH 3W 100 :er T	łz <u>kHz</u> race (1)	Type	#VB	W 300 >	kHz (Axis 808 GH→	Swee	St p 162.5	:op 2.4; 5 s (40 Amplit 13 91 d	22 GHz 1 pts) ude Bull	Min Sea	ırch
10		(1)	Freq		12	.64 MHz			37.8	dB	Pk-Pk Sea	ırch
											M 1	lore of 2

Figure 18. 802.11n Band Edge Compliance, Low Channel Delta - Average

Low Channel Corrected Measured Value from Table 10	81.48	dBuV
Low Channel Band Edge Delta from Figure 18	37.80	dB
Calculated Result	43.68	dBuV/m
Band Edge Limit	54.00	dBuV/m
Calculated Result	43.68	dBuV/m
Band Edge Margin	10.32	dBuV/m

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

🔆 Agi	lent 🔅	17:15:0	5 Jan	4,2017	7							larker
Ref 76	99 dB	ιW	Atter	5 dB				Mkr	4 2.38 33.76	20 GHz CdBuW		
#Peak											Sele	2 3 4
Log 10											-	
dB/												Normal
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		h		2 <b>9</b>		**************************************	haran an a	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Lonn		
												Dolto
	Mark	er										Deita
	2.32	6000	1000	GHz_							-	Delta Pair
	-33.	76 d	BμV								(T Pof	racking Ref)
Start 2	∟ 2.31 G⊦	ı İz						L	i Stop 2.3	39 GHz	NG1	
<b>#</b> Res B	8W 1 M⊦	lz		V	3W 3 MI	Hz	Si	weep 4	ms (40	1 pts)	C	Span Pair
Mark 1	er T	race (1)	Type Fred		X 2.30	Axis 260 GH <del>-</del>			Amplit 34.02 di	ude RnU	Span	<u>Center</u>
2		(1)	Fred		2.3	426 GHz			33.15 d	BμŲ		
3 4		(1) (1)	Frec Frec		2.3	500 GHz 320 GHz			33.84 di 33.76 di	ВµV ВµV		Off
												More
												1 of 2

Figure 19. 802.11n Radiated Restricted Band 2310 MHz to 2390 MHz, Peak

Table	Table 19. 802.11n Radiated Restricted Band 2310 MHz to 2390 MHz, Peak										
2310 MHz to 2390 MHz Restricted Band Peak Measurements											
Test: Radiated Emissions       Client: Inventek Systems											
	Projec	t: 16-0291									
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG				
2326.00	34.02	29.49	63.51	74.0	3.0m./HORZ	10.5	PK				
2342.60	33.15	29.49	62.64	74.0	3.0m./HORZ	11.4	PK				
2360.00	33.84	29.49	63.33	74.0	3.0m./HORZ	10.7	PK				
2382.00	33.76	30.00	63.76	74.0	3.0m./HORZ	10.2	PK				

Test Date: January 4, 2017 Tested By Name<u>: Robert K. Mills</u> Signature. 6

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

Mkr4       2,3820       GHz         20.2       dB/V       Atten 5 dB       20.2 dBpV         Log       2       3       4         10       2       3       4         dB/       2       3       4         Marker       2       3       4         2.326000000       GHz       0       0         20.2       dBpV       0       0         Marker       0       0       0         20.2       dBpV       0       0         Marker       0       0       0         2.3260000000       GHz       0       0         20.2       dBpV       0       0         Start 2.31 GHz       VBW 3 MHz       Stop 2.39 GHz         *Res BW 1 MHz       VBW 3 MHz       Sweep 64.23 s (401 pts)         Marker       Trace       Type       X Axis         1       (1)       Freq       2.3426 GHz       20.27 dBpV         2       (1)       Freq       2.3828 GHz       20.2 dBpV       0ff         4       (1)       Freq       2.3828 GHz       20.2 dBpV       0ff         4       (1)       Freq       2.3828 GHz <th>🔆 Agi</th> <th>lent (</th> <th>1<b>7:18:1</b>:</th> <th>1 Jan</th> <th>4,2017</th> <th>7</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>1</th> <th>larker</th>	🔆 Agi	lent (	1 <b>7:18:1</b> :	1 Jan	4,2017	7						1	larker
*EmiAv	Ref 44	.16 dB	ų٨	Atter	5 dB				Mkr∠	1 2.38 20.2	20 GHz dBµV	Sole	ot Marker
10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10 <td< th=""><th>#EmiAv Ina</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th><u>1</u></th><th>2 3 4</th></td<>	#EmiAv Ina											<u>1</u>	2 3 4
db7       Image: Construction of the second se	10		: •	•		2 \$		3 �			+ >	<b>F</b>	
Marker         Delta           2.326000000         GHz	dB∕												Normal
Marker       Delta         2.326000000       GHz       GHz <th></th> <th>-</th> <th></th>												-	
2.326000000       GHz       Image: Construction of the co		Mark	er										Delta
20.2 dBµV(Tracking Ref) DeltaStart 2.31 GHzStop 2.39 GHz*Res BW 1 MHzVBW 3 MHzSweep 64.23 s (401 pts)MarkerTraceTypeX Axis1(1)Freq2.3260 GHz2(1)Freq2.3426 GHz3(1)Freq2.3600 GHz4(1)Freq2.3820 GHz4(1)Freq2.3820 GHz0ff1 of 2		2.32	6000	000	GHz							-	Delta Pair
Start 2.31 GHz       Stop 2.39 GHz         #Res BW 1 MHz       VBW 3 MHz       Sweep 64.23 s (401 pts)         Marker       Trace       Type       X Axis       Amplitude         1       (1)       Freq       2.3260 GHz       20.27 dBµV         2       (1)       Freq       2.3426 GHz       20.37 dBµV         3       (1)       Freq       2.3600 GHz       20.35 dBµV         4       (1)       Freq       2.3820 GHz       20.2 dBµV         4       (1)       Freq       2.3820 GHz       20.2 dBµV         0ff       1       0ff       1         1       1       Freq       2.3820 GHz       20.2 dBµV		20	<mark>.2 d</mark> [	8µV—								(T Ref	racking Ref) Delta
#Res BW 1 MHZ         VBW 3 MHZ         Sweep 64.23 s (401 pts)         Span         Center           Marker         Trace         Type         X Axis         Amplitude         Span         Center           1         (1)         Freq         2.3260 GHz         20.27 dBµU         Span         Center           2         (1)         Freq         2.3426 GHz         20.34 dBµU         Off           3         (1)         Freq         2.3600 GHz         20.35 dBµU         Off           4         (1)         Freq         2.3820 GHz         20.2 dBµU         Off           4         (1)         Freq         2.3820 GHz         20.2 dBµU         0ff           1         of 2         0.1 of 2         0.1 of 2         0.1 of 2	Start 2	2.31 GH	lz							top 2.3	39 GHz		Spon Boir
Marker         Irace         Type         X Hxis         Hmplitude         Opdit         Conternation           1         (1)         Freq         2.3260 GHz         20.27 dBµU         2         2         2         1         Freq         2.3426 GHz         20.34 dBµU         3         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	#Kes B	W I MF	IZ		VI	<u>3M 3 MI</u>	HZ	Swee	ер 64 <b>.</b> 23	<u>s (40</u>	l pts)	Snan	Span Fail Center
2 (1) Freq 2.3426 GHz 20.34 dBμV 3 (1) Freq 2.3600 GHz 20.35 dBμV 4 (1) Freq 2.3820 GHz 20.2 dBμV <b>More</b> 1 of 2	Marki 1	er I	race (1)	lype Fred		× 2.33	нхіs 260 6Hz			Hmpliti 20.27 di	ude RuU	opun	
3 (1) Freq 2.3600 GHz 20.35 dBμV 4 (1) Freq 2.3820 GHz 20.2 dBμV More 1 of 2	2			Fred		2.3	426 GHz			20.34 di	ΒμŲ		
4 (1) Freq 2.3820 GH2 20.2 авро Моге 1 of 2	3		(1)	Free		2.36	500 GHz			20.35 dl	ВµŲ		Off
More 1 of 2	4		(1)	Frec		2.30	820 GHZ			20.2 ai	зµу		
· · · · · · · · · · · · · · · · · · ·													<b>More</b> 1 of 2

Figure 20. 802.11n Radiated Restricted Band 2310 MHz to 2390 MHz, Average

Table 2	Table 20. 802.11n Radiated Restricted Band 2310 MHz to 2390 MHz, Average										
2310 MHz to 2390 MHz Restricted Band Peak Measurements											
	Test: Radia	ated Emissions		Client: Invente	k Systems						
	Projec	<b>:t:</b> 16-0291									
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG				
2326.00	20.27	29.49	49.76	54.0	3.0m./HORZ	4.2	AVG				
2342.60	20.34	29.49	49.83	54.0	3.0m./HORZ	4.2	AVG				
2360.00	20.35	29.49	49.84	54.0	3.0m./HORZ	4.2	AVG				
2382.00	20.2	30.00	50.20	54.0	3.0m./HORZ	3.8	AVG				

Test Date: January 4, 2017 Tested By Signature. Name: Robert K. Mills

FCC Part 15 Certification O7P-362 10147A-362 16-0291 December 16, 2016 Inventek Systems ISM43362-M3G-L44-U, ISM43362-M3G-L44-E

Ref 76.99 dBµV         #Atten 5 dB         42.64 dB           Peak             Log         10         10	Meas Tools•
	Next Peak
Marker A	Next Pk Right
-20,223184 MHz -42.64 dB	Next Pk Left
Start 2.453 GHz Stop 2.5 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 4.909 ms (401 pts) Marker Trace Type X Axis Amplitude 1R (1) Freq 2.48350 GHz 25.9 dBuU	Min Search
16 (1) Freq -20.22 MHz 42.64 dB	Pk-Pk Search
	<b>More</b> 1 of 2

Figure 21. 802.11n Band Edge Compliance, High Channel Delta – Peak

High Channel Corrected Measured Value from Table 9	96.89	dBuV
High Channel Band Edge Delta from Figure 21	42.64	dB
Calculated Result	54.25	dBuV/m
Band Edge Limit	74.00	dBuV/m
Calculated Result	54.25	dBuV/m
Band Edge Margin	19.75	dBuV/m

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:	FCC Part 15 Certification O7P-362 10147A-362 16-0291 December 16, 2016 Inventek Systems ISM43362-M3G-L44-U, ISM43362-M3G-L44-E
<b>※ Agilent</b> 17:50:40 Dec 9, 2016	Mint A 22.71 Mile
Ref 64.46 dBµV #Atten 5 dB EmiAv 1 Log 1	36.21 dB

1 R ÷

Span 47.38 MHz

Amplitude

12.9 dBµV

36.21 dB

Sweep 240.6 s (401 pts)

Next Peak

Next Pk Right

Next Pk Left

Min Search

Pk-Pk Search

More 1 of 2

Log 10 dB/

<u>Marker A</u>

Center 2.476 GHz

#Res BW 100 kHz

Marker

1R

1۵

<del>36.21 dB</del>

Trace

(1)

(1)

22,710883 MHz

Туре

Freq

Freq

Г						
L						

# Figure 22. 802.11n Band Edge Compliance, High Channel Delta – Average

#VBW 300 kHz

X Axis

2.48350 GHz

-22.71 MHz

High Channel Corrected Measured Value from Table 9	77.47	dBuV
High Channel Band Edge Delta from Figure 22	36.21	dB
Calculated Result	41.26	dBuV/m
Band Edge Limit	54.00	dBuV/m
Calculated Result	41.26	dBuV/m
Band Edge Margin	12.74	dBuV/m

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

🔆 Agi	lent	17:06:3	9 Jan	4,2017	7						ľ	larker
			<u>,</u>					Mkr4	2.498	35 GHz		
Ret /6 #Dook	.99 dB	μV -	Atter	15 dB					34.21	dBhA	Sele	ect Marker
#reak Log											<u>1</u>	2 3 4
10											<b>r</b> -	
dB/												Normal
			\$		2		3			\$		nor mar
											-	
												Delta
	Mark	er										Donta
	2.48	6800	IAAA	GHz							-	Delta Pair
	21	לב 1 א									(T	racking Ref)
	_J4.	LT U	Ph A								Ref	<u>Delta</u>
Start 2	2.483 0	ЭНz							Stop 2	.5 GHz	-	A
<b>#</b> Res B	3W 1 M⊦	lz		VI	<u>3W 3 M</u> I	Hz	<u> </u>	иеер 4	ms (40	<u>1 pts)</u>	C	Span Pair
Mark	er T	race 715	Type		2 494	Axis SQA GH⊸			Amplit ה או אב	ude Bull	shau	Center
2		(1)	Fred		2.496	000 GHZ			33.63 d	вµV		
3		(1)	Fred		2.493	381 GHz			34.06 d	ВµѴ		Off
4		(1)	Frec		2.498	535 GHZ			34.21 a	вно		
												More
												1 of 2
												1 01 2

Figure 23. 802.11n Radiated Restricted Band 2483.5 MHz to 2500 MHz, Peak

Table 21. 802.11n Radiated Restricted Band 2483.5 MHz to 2500 MHz, Peak												
2483.5 MHz to 2500 MHz Restricted Band Peak Measurements												
Test: Radiated Emissions         Client: Inventek Systems												
	Projec	t: 16-0291										
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG					
2486.80	34.16	30.13	64.29	74.0	3.0m./HORZ	9.7	PK					
2490.22	33.63	30.13	63.76	74.0	3.0m./HORZ	10.2	PK					
2493.81	34.06	30.13	64.19	74.0	3.0m./HORZ	9.8	PK					
2498.35	34.21	30.13	64.34	74.0	3.0m./HORZ	9.7	PK					

Test Date: January 4, 2017 Tested By M/ Signature:

US Tech Test Report: FCC ID: IC: Test Report Number: Issue Date: Customer: Model:

🔆 Agi	lent	17:09:2	5 Jan	4,2013	7						I	Marker
Ref 44	.21 dB	Vч	Atter	ı5 dB				Mkr4	2.498 20.47	35 GHz dBµV	Sold	oot Morkor
#EmiAv Log											<u>1</u>	2 3 4
10			4 •		2 \$		3 �		, {		<b>Г</b>	
dB/												Normal
											-	
	Marl	or										Delta
	2.48	16800	1000	GHz							-	Delta Pair
	-20	47 d	BµV								(T	racking Ref)
Start 2	2.483 (	L <u> </u>							Stop 2	.5 GHz	Ket	<u>Delta</u>
<b>#</b> Res B	W 1 M	łz		V	BW 3 MI	Hz	Swee	p 13.25	is (40	1 pts)	~	Span Pair
Mark 1	er 1	race /1>	Type		X ION C	Axis			Ampliti الم ۹۸ م	ude Suu	Span	<u>Lenter</u>
2		(1)	Fred		2.40	022 GHz			20.44 di 20.43 di	аµ∨ ВµV		
3 ⊿		(1)	Frec Frec	1	2.493 2.493	381 GHz 835 GHz			20.44 di 20.47 di	ЗµѴ ВиЮ		Off
		1-7	1100		2143	000 0112				-р •		
												More
												1 of 2

Figure 24. 802.11n Radiated Restricted Band 2483.5 MHz to 2500 MHz, Average

Table 22. 802.11n Radiated Restricted Band 2483.5 MHz to 2500 MHz, Average													
2483.5 MHz to 2500 MHz Restricted Band Average Measurements													
	Test: Radia	ated Emissions	Client: Inventek Systems										
	Projec	t: 16-0291											
Frequency (MHz)	Test Data (dBuv)	AF+CA- AMP+Duty Cycle (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG						
2486.80	20.44	30.13	50.57	54.0	3.0m./HORZ	3.4	AVG						
2490.22	20.43	30.13	50.56	54.0	3.0m./HORZ	3.4	AVG						
2493.81	20.44	30.13	50.57	54.0	3.0m./HORZ	3.4	AVG						
2498.35	20.47	30.13	50.60	54.0	3.0m./HORZ	3.4	AVG						

Test Date: January 4, 2017 Tested By 12 Signature:

#### 2.10 Measurement Uncertainty

The measurement uncertainties given were calculated using the method detailed in CISPR 16-4. A coverage factor of k=2 was used to give a level of confidence of approximately 95%.

For a measurement distance of 3 m the measurement uncertainty (with a 95% confidence level) for this test using a Biconical Antenna (30 MHz to 200 MHz) is  $\pm$  5.39 dB. This value includes all elements of measurement.

The measurement uncertainty (with a 95% confidence level) for this test using a Log Periodic Antenna (200 MHz to 1000 MHz) is  $\pm$  5.18 dB.

The measurement uncertainty (with a 95% confidence level) for this test using a Horn Antenna is  $\pm$  5.21dB.

#### 3 Test Results

The EUT is found to continue to comply with the requirements of Part 15.247.