



*Testing Tomorrow's Technology*

**Test Report Addendum**

**For the**

**INVENTEK SYSTEMS**

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

**In Accordance with the Requirements of**

**European RE Directive 2014/53/EU**

**and**

**European Standards**

**ETSI EN EN 300 328 v2.1.1 (2016-11)**

**Addendum to Original Report Number: 16-0293**

**Original Issue Date: 01/09/2017**

**Addendum Project Number: 17-0228**

**Addendum Issue Date: 06/22/2017**

**Total Number of Pages Contained Within this Addendum: 9**

**3505 Francis Circle Alpharetta, GA 30004**

**PH: 770-740-0717 Fax: 770-740-1508**

**[www.ustech-lab.com](http://www.ustech-lab.com)**



*Testing Tomorrow's Technology*

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: 

Name: George Yang

Title: Lab Manager

Date: 06/22/2017



NVLAP LAB CODE 200162-0

This report shall not be reproduced except in full. This report may be copied in part only with the prior written approval of US Tech. The results contained in this report are subject to the adequacy and representative character of the sample provided. US Tech NVLAP accreditation does not allow product endorsement by NVLAP or any agency of the U.S. Government.

**3505 Francis Circle Alpharetta, GA 30004**

**PH: 770-740-0717 Fax: 770-740-1508**

**[www.ustech-lab.com](http://www.ustech-lab.com)**

## 1. Purpose of the Report Addendum

This Addendum to Original Report Number: 16-0293, dated 01/09/2017, is created because the standard previously applied and reported in the original test report was EN 300 328 V1.9.1 (2015-02), which is not harmonized under the RE Directive 2014/53/EU and has been replaced by the harmonized EN 300 328 V2.1.1 (2011-16).

A gap analysis of the EUT original test report referenced above has been completed and it has been determined that the following testing is required to be added to the original test report in order to apply the later version of the harmonized standard to the EUT:

1. Receiver Blocking per clauses 4.3.1.12 and 5.4.11.

## 2. Description of EUT

The Equipment under Test (EUT) is the Inventek Systems ISM-43362-M3G-L44 MODULE, Model Numbers: ISM43362-M3G-L44-E, ISM43362-M3G-L44-U and ISM43362-M3G-L44-U-CE as described in the original report.

Table 1 below details the equipment included in the test set up.

**Table 1. EUT and Peripherals**

PERIPHERAL/ MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	NB Number	CABLES P/D
ISM-43362-M3G-L44 MODULE/ Inventek Systems	ISM-43362-M3G- L44-U-CE	Engineering Sample	N/A	None
WiFi Router KEEBOX	W150NR/EU	AD1034R1N2959	N/A	1.5 m U P

## 3. Applied Standards

The EUT was originally tested to EN 300 328 V1.9.1 (2015-02). Under this Addendum, the testing listed in Section 1 above was added to satisfy the requirements of EN 300 328 V2.1.1 (2016-11), harmonized under the RE Directive 2014/53/EU.

### 3.1 Essential Requirements

The relationship between EN 300 328 V2.1.1 (2016-11), and the essential requirements of Directive 2014/53/EU are shown following, in Table 2.

**Table 2. From ETSI EN 300 328 V2.1.1 (2016-11) Table A.1: Relationship between the present document and the essential requirements of Directive 2014/53/EU**

Requirement			Requirement Conditionality	
No.	Description	Reference Clause No.	U/C	Condition
1	RF Output Power	4.3.1.2 or 4.3.2.2	U	
2	Power Spectral Density	4.3.2.3	C	Only for equipment using wide band modulations other than FHSS
3	Duty Cycle, TX-Sequence, TX-Gap	4.3.1.3 or 4.3.2.4	C	Only for non-Adaptive equipment
4	Accumulated Transmit time, Frequency Occupation & Hopping Sequence	4.3.1.4	C	Only for FHSS equipment
5	Hopping Frequency Separation	4.3.1.5	C	Only for FHSS equipment
6	Medium Utilization	4.3.1.6 or 4.3.2.5	C	Only for non-Adaptive equipment
7	Adaptivity	4.3.1.7 or 4.3.2.6	C	Only for Adaptive Equipment
8	Occupied Channel Bandwidth	4.3.1.8 or 4.3.2.7	U	
9	Transmitter unwanted emissions in the OOB domain	4.3.1.9 or 4.3.2.8	U	
10	Transmitter unwanted emissions in the spurious domain	4.3.1.10 or 4.3.2.9	U	
11	Receiver spurious emissions	4.3.1.11 or 4.3.2.10	U	
12	Receiver Blocking	4.3.1.12 or 4.3.2.11	U	
13	Geo-location capability	4.3.1.13 or 4.3.2.12	C	Only for equipment with geo-location capability

## 4. Test Data

### 4.1 Receiver Blocking

The EUT is categorized as Receiver Category 1 equipment.

Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 2)	Type of blocking signal
$P_{\min} + 6 \text{ dB}$	2 380 2 503,5	-53	CW
$P_{\min} + 6 \text{ dB}$	2 300 2 330 2 360	-47	CW
$P_{\min} + 6 \text{ dB}$	2 523,5 2 553,5 2 583,5 2 613,5 2 643,5 2 673,5	-47	CW
NOTE 1: $P_{\min}$ is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined in clause 4.3.2.11.3 in the absence of any blocking signal.			
NOTE 2: The levels specified are levels in front of the UUT antenna. In case of conducted measurements, the levels have to be corrected by the actual antenna assembly gain.			

**Figure 1. Receiver Blocking Parameters for Receiver Category 1 Equipment**

The measurements were performed at normal test conditions. The EUT had its FHSS featured turned ON during testing. The system has only one receiver chain. The procedures in clause 5.4.11.2.1 were followed for this test. The test results are provided below.

Antenna Gain: 5 dBi

Power minimum: Transmitter was set at 12% of rated output level and transmission was generated using radiated method with the router positioned 0.35m away from the receiver. This simulated required the required signal threshold level for testing.

FHSS: No; EUT was programmed to receive first on the lowest channel then on the highest channel.

**Table 3. Blocking Signal Test Results**

Wanted Signal Mean Power	Blocking Signal Frequency (MHz)	Blocking Signal Power Limit (dBm)	Actual Blocking Signal Power Low Channel (dBm)	Actual Blocking Signal Power High Channel (dBm)
Pmin + 6 dBm	2380	-53 + max antenna gain (-48)	-16	-24
Pmin + 6 dBm	2503.5	-48	-10	-16
Pmin + 6 dBm	2300	-47 + max antenna gain (-42)	-13	-12
Pmin + 6 dBm	2330	-42	-24	-8
Pmin + 6 dBm	2360	-42	-15	-11
Pmin + 6 dBm	2523.5	-47 + max antenna gain (-42)	-10	-10
Pmin + 6 dBm	2553.5	-42	-12	-10
Pmin + 6 dBm	2583.5	-42	-13	-10
Pmin + 6 dBm	2613.5	-42	-10	-9
Pmin + 6 dBm	2643.5	-42	-10	-8
Pmin + 6 dBm	2673.5	-42	-10	-7

**Test Results:** The actual blocking signal power is greater than the required minimum level per the standard. The EUT meets these requirements.

US Tech Test Report:  
Test Report Number:  
Issue Date:  
Customer:  
Model:

ETSI EN 300 328 V2.1.1 (2016-11) ADDENDUM  
17-0228  
06/22/2017  
Inventek Systems  
**ISM-43362-M3G-L44 MODULE**

**Table 4. Test Equipment and Ancillaries Used for Tests**

INSTRUMENT	MODEL NUMBER	MANUFACTURER	SERIAL NUMBER	CALIBRATION DUE DATE
SPECTRUM ANALYZER	8593E	HEWLETT-PACKARD	3205A00124	8/23/17
SIGNAL GENERATOR	8664B	HEWLETT-PACKARD	3438A00787	9/22/2017

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

US Tech Test Report:  
Test Report Number:  
Issue Date:  
Customer:  
Model:

ETSI EN 300 328 V2.1.1 (2016-11) ADDENDUM  
17-0228  
06/22/2017  
Inventek Systems  
ISM-43362-M3G-L44 MODULE

#### 4.1 Test Configuration Photograph

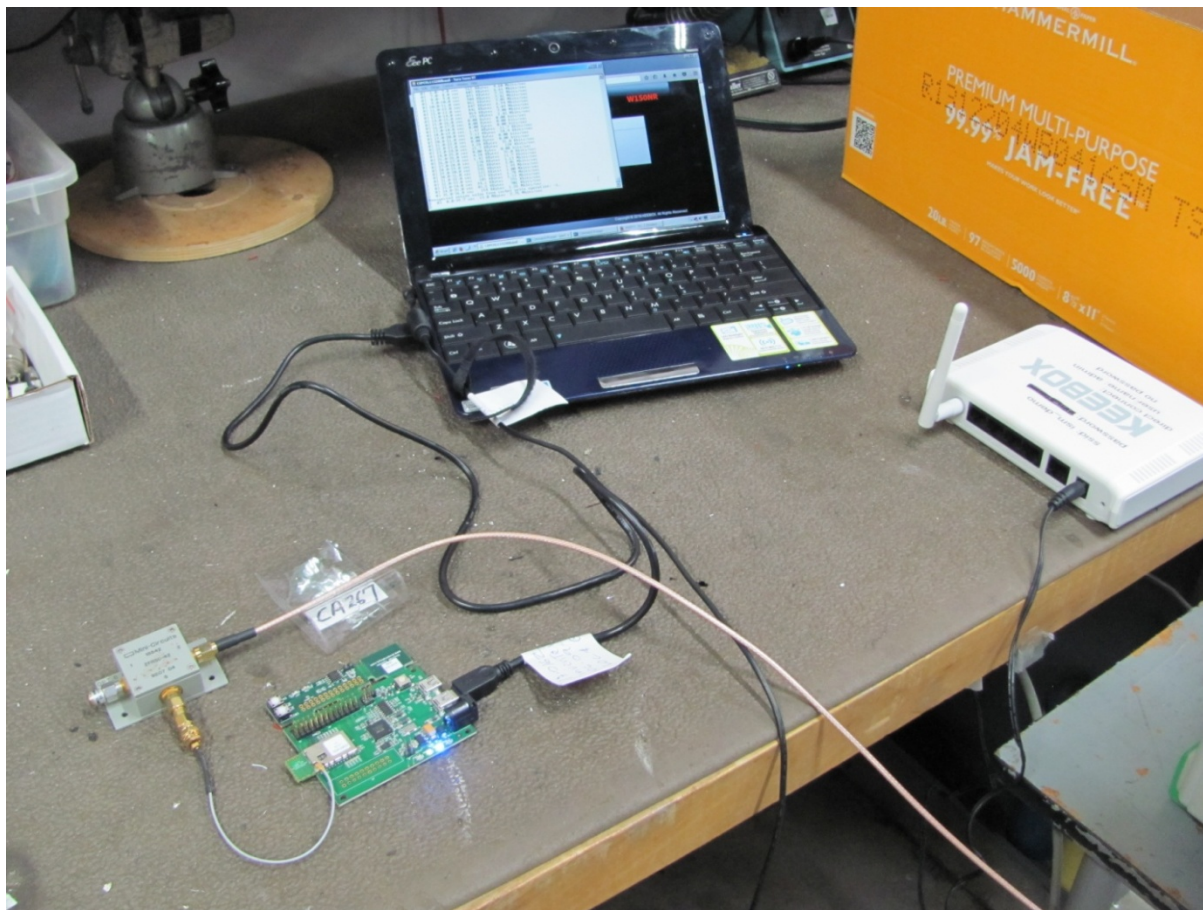


Figure 2. Test Configuration Photograph



US Tech Test Report:  
Test Report Number:  
Issue Date:  
Customer:  
Model:

ETSI EN 300 328 V2.1.1 (2016-11) ADDENDUM  
17-0228  
06/22/2017  
Inventek Systems  
ISM-43362-M3G-L44 MODULE

## 5. Conclusions

In our opinion, the data and information presented herein together with the original report number 16-0293, dated 01/09/2017, constitute sufficient proof that the the Inventek Systems ISM-43362-M3G-L44 MODULE, Model Numbers: ISM43362-M3G-L44-E, ISM43362-M3G-L44-U and ISM43362-M3G-L44-U-CE is in compliance with the applicable requirements of EN 300 328 V2.1.1 (2016-11), harmonized under RED 2014/53/EU.