



*Testing Tomorrow's Technology*

## **Test Report Addendum**

**For the  
Inventek Systems  
Model: ISM4334X-M4G-L44  
(802.11 a/n)**

**In Accordance with the Requirements of  
European Directives**

**2014/53/EU (RED Directive)**

**and**

**European Standards**

**ETSI EN EN 302 502 v2.1.1 (2017-03)**

**Addendum to Original Report Number: UST 15-0112  
Original Report Date: November 17, 2015  
Addendum Project Number: 17-0423B  
Addendum Issue Date: November 27, 2017**

**Total Number of Pages Contained Within this Addendum: 6**

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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: November 27, 2017



TESTING  
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## 1. Purpose of the Report Addendum

This Addendum to Original Report Number: 15-0112, issue date November 17, 2015, is created because the standard previously applied and reported in the original test report was EN 302 502 V1.2.1, which is not harmonized under the RE Directive 2014/53/EU and has been replaced by the harmonized EN 302 502 V2.1.1 (2017-03).

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

## 2. Description of EUT

The Equipment under Test (EUT) is the Inventek Systems Model ISM4334X-M4G-L44 as described in the original report. Table 1 below details the equipment included in the test set up.

**Table 1.EUT and Peripherals**

| PERIPHERAL<br>MANUFACTURER                | MODEL<br>NUMBER  | SERIAL<br>NUMBER      | NB<br>Number | CABLES<br>P/D |
|---|------------------|-----------------------|--------------|---------------|
| Radio Module<br>Inventek Systems<br>(EUT) | ISM4334X-M4G-L44 | Engineering<br>Sample | N/A          | None          |
| Evaluation Board<br>Inventek Systems      | Evaluation Board | Engineering<br>Sample | N/A          | 1 m UD        |

## 3. Applied Standards

The EUT was originally tested to EN 302 502 V1.2.1. Under this Addendum, the testing listed in Section 1 above was added to satisfy the requirements of EN 302 502 v2.1.1 (2017-03), harmonized under the RE Directive 2014/53/EU.

### 3.1 Essential Requirements

The relationship between EN 302 502 v2.1.1 (2017-03), and the essential requirements of Directive 2014/53/EU are shown following, in Table 1. Item 7 Receiver Blocking was evaluated for this exhibit.

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

ETSI EN 302 502 v2.1.1 (2017-03) Addendum  
17-0423B  
November 27, 2017  
Inventek Systems  
ISM4334X-M4G-L44

**Table 2. From ETSI EN 302 502 v2.1.1 (2017-03) Table A.1: Relationship between the present document and the essential requirements of Directive 2014/53/EU**

| Harmonised Standard ETSI EN 302 502 |   |                         |                            |   |
|-------------------------------------|---|-------------------------|----------------------------|---|
| Requirement                         |   |                         | Requirement Conditionality |   |
| No                                  | Description   | Reference:<br>Clause No | U/C                        | Condition   |
| 1                                   | Designation of Centre Frequencies and frequency error       | 4.2.1                   | U                          |   |
| 2                                   | Transmitter RF Output Power, EIRP and EIRP Spectral Density | 4.2.2                   | U                          |   |
| 3                                   | Transmitter unwanted emissions                              | 4.2.3                   | U                          |   |
| 4                                   | Transmitter Power Control                                   | 4.2.4                   | U                          |   |
| 5                                   | Receiver Spurious Emissions                                 | 4.2.5                   | U                          |   |
| 6                                   | Dynamic Frequency Selection (DFS)                           | 4.2.6                   | C                          | Dynamic Frequency Selection (DFS) is only required in the frequency range 5 725 MHz to 5 850 MHz. |
| 7                                   | Receiver Blocking   | 4.2.7                   | U                          |   |
| 8                                   | User Access Restrictions                                    | 4.2.8                   | U                          |   |

## 4. Test Data

### 4.1 Receiver Blocking

The requirements apply to all equipment covered by the scope of the test standard.

The minimum performance criterion shall be a PER of less than or equal to 10%. The manufacturer may declare alternative performance criteria as long as that is appropriate for the intended use of the equipment.

In this case an alternate performance criterion was provided. The criteria is based on the receiver blocking performance of the radio when tested to the limits of EN 300 328 V2.1.1. If the EUT meets the requirements of EN 300 328 V2.1.1, the EUT is deemed to have meet the requirements of the present test standard on the basis that the radio module used is identical and therefore the performance characteristics will also be identical and the blocking signal required to interfere with the EUT in receive mode will be the same level as used during testing per EN 300 328.

Limits:

| Wanted signal mean power from companion device (dBm)  | Blocking signal frequency (MHz) | Blocking signal power (dBm) | Type of blocking signal |
|---|---------------------------------|-----------------------------|-------------------------|
| Pmin + 6 dB   | 5 420<br>5 925                  | -42                         | CW                      |
| Pmin + 6 dB   | 5 320<br>6 025<br>6 125         |                             | CW                      |
| NOTE 1: Pmin is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined in clause 4.2.7.3 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 same levels should be used at the antenna connector irrespective of antenna gain. |                                 |                             |                         |

The system has only one receiver chain  
EUT is a Slave device with radar detection  
Antenna Gain: +2.3 dBi (PCB Integrated Antenna)

**Table 3. Blocking Signal Test Results**

| <b>Wanted Signal<br/>Mean Power</b> | <b>Blocking<br/>Signal<br/>Frequency<br/>(MHz)</b> | <b>Blocking Signal<br/>Power<br/>Limit (dBm)</b> | <b>Actual Blocking<br/>Signal Power<br/>(dBm)</b> |
|-------------------------------------|--|--|---|
| Pmin + 6dB                          | 5420<br>5925                                       | -42  | >-42  |
| Pmin + 6dB                          | 5320<br>6025<br>6125                               | -42  | >-42  |

**Test Results:** Based on the results collected during receiver blocking testing per EN 300 328 V2.1.1, the blocking signal power will be greater than the limits provided.

## 5. Conclusions

In our opinion, the data and information presented herein together with the original report number 15-0112 dated November 17, 2015, constitute sufficient proof that the Inventek Systems Model ISM4334X-M4G-L44 is in compliance with the applicable requirements of EN 302 502 v2.1.1 (2017-03), harmonized under RED 2014/53/EU.