TESTING CERT #3478.01

TEST REPORT

EUT Description	**WiGig, WLAN and BT, 2x2 PCIe M.2 2230 adapter card**
Brand Name	**Intel® Tri Band Wireless-AC 18265**
Model Name	**18265NGW, 18265NGW LC**
Serial Number	**TA#: J30458-002** **WFM : 34:13:E8:44:A9:00** (see section 4)
FCC/IC ID	**FCC ID: PD918265NG** **IC ID: 1000M-18265NG**
Antenna type	**Universe Technology**
Hardware/Software Version	**HW cfg:33.10** **Op SW : ProSet : 19.20.0 (driver version: 19.10.1.2)**
Date of Sample Receipt	**2016-08-30**
Date of Test	**2016-11-02**
Features	**WiGig + 802.11 a/b/g/n/ac Wireless LAN + BDR/EDR 2.1 + BLE 4.2** (see section 5)

Applicant	**Intel Mobile Communications**
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Contact Person	**Steven Hackett**
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Reference Standards	**FCC CFR Title 47 Part 15E** **RSS 247 issue 1** (see section 1)

Test Report number	**160830-01.TR06**
Revision Control	**Rev. 00**

The test results relate only to the samples tested.
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Table of Contents

1. Standards, reference documents and applicable test methods

1. FCC 47 CFR part 15 - Subpart E – Unlicensed National Information Infrastructure Devices.
2. FCC OET KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02 – Compliance Measurement procedures for Unlicenced-National Information Infrastructure Devices Operating in the 5250-5350 MHz and 5470-5725 MHz Bands Incorporating Dynamic Frequency Selection.
3. RSS-247 Issue 1 — Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSS) and Licence-Exempt Local Area Network (LE-LAN) Devices
4. ANSI C63.10-2013 American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

2. General conditions, competences and guarantees

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3. Environmental Conditions

- ✓ At the site where the measurements were performed the following limits were not exceeded during the tests:

Temperature	22ºC ± 2ºC
Humidity	38% ± 5%

4. Test samples

Sample	Control #	Description	Model	Serial #	Date of reception
#01	160830-01.S04	WiGig/WiFi/ BT Module	18265NGW	WFM 34:13:E8:44:A9:00 BDM 34:13:E8:44:90:A WGM 34:13:E8:44:90:B	2016-08-30
	150818-01.S01	Extender board	PCB00432	4324612-083	2015-08-17
	160107-01.S21	AC/DC Adapter	SPU60-102	08741181 1350	2016-01-07
	150202-02.S22	Laptop	DELL Latitude E5440	8P8YN32	2016-02-10

5. EUT features

These are the detailed bands and modes supported by the Equipment Under Test:

WiGig	60GHz (57.24 – 63.72 GHz)
802.11b/g/n	2.4GHz (2400.0 – 2483.5 MHz)
802.11a/n/ac	5.2GHz (5150.0 – 5250.0 MHz) 5.3GHz (5250.0 – 5350.0 MHz) 5.6GHz (5470.0 – 5725.0 MHz) 5.8GHz (5725.0 – 5850.0 MHz)
BDR/EDR 2.1 BLE 4.2	2.4GHz (2400.0 – 2483.5 MHz)

6. Remarks and comments

1. The operating mode of the sample is client only without radar detection.
2. The maximum antenna gain is 5dBi.

7. Test Verdicts summary

FCC part	RSS part	Test name	Verdict
15.407 (h) (2)	RSS-247 part 6.3	Non Occupancy Period	P
		DFS Detection Threshold	NA
		Channel Availability Check Time	NA
		Uniform Spreading	NA
		U-NII Detection Bandwidth	NA
		DFS Detection Threshold	NA
		Channel Closing Transmission Time	P
		Channel Move Time	P
		U-NII Detection Bandwidth	NA

P: Pass
F: Fail
NM: Not Measured
NA: Not Applicable

8. Document Revision History

Revision #	Date	Modified by	Details
Rev. 00	2016-10-26	A. Del Real	First Issue

Annex A. Test & System Description

A.1 Test Conditions

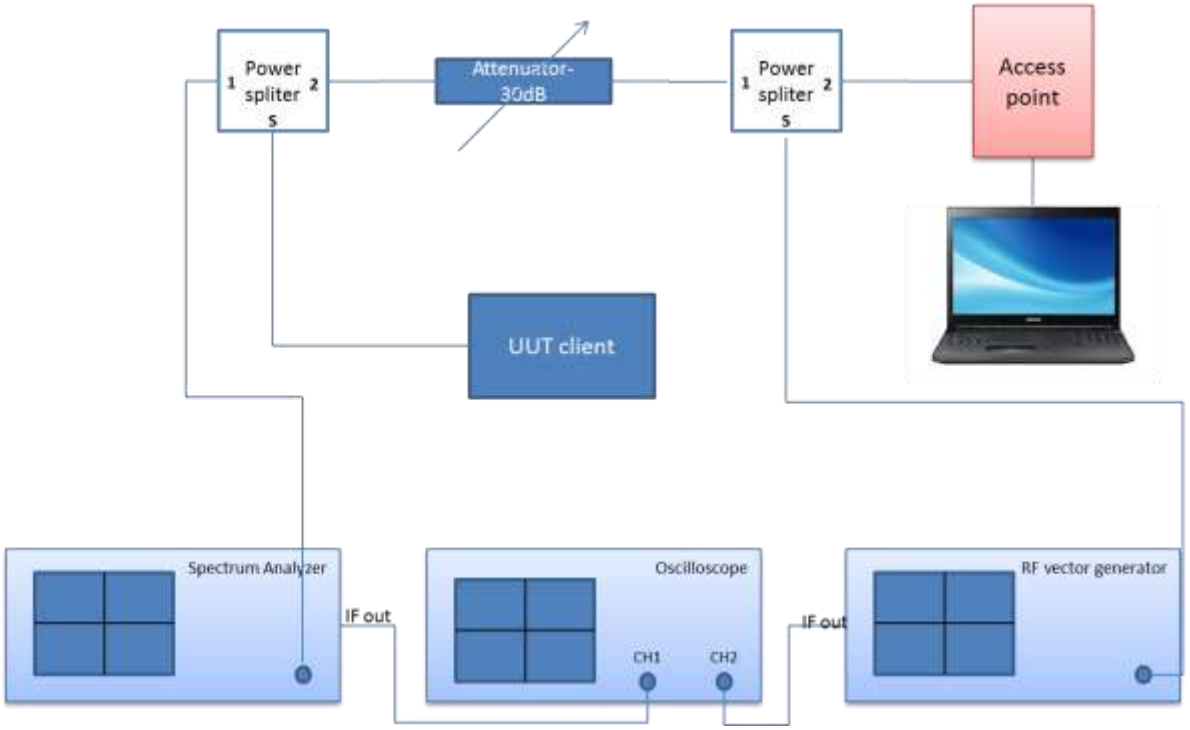
The EUT power supply was provided by the Extender test board, $V_{nominal}$ = 3.3 V_{DC}.
The software PROSet/Wireless Intel® 19.20.0 was used to set the EUT in normal operation mode.

A.2 Measurement system

Measurements were performed using the following setups, made in accordance to the general provisions of FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02.

The EUT was installed in a test fixture and this test fixture is connected to a laptop computer and AC/DC power adapter. A second laptop computer was used to configure the access point on the DFS channels; a channel was selected randomly by the access point. To enable channel loading, this second laptop computer is also used as a server host, a video was streamed on the EUT.

Conducted Setup



A.3 Test Equipment List

Conducted Setup

ID#	Device	Type/Model	Serial Number	Manufacturer	Cal. Date	Cal. Due Date
0033	Spectrum analyzer	FSV40	101072	Rohde & Schwarz	2016-01-20	2018-01-20
0017	Vector Signal Generator	SMJ100A	100458	Rohde & Schwarz	2015-10-21	2017-10-21
0312	Digital Oscilloscope	RTE1052	101135	Rohde & Schwarz	2015-05-25	2017-03-25
0261	Access point*	Aironet IOS	FTX134390GV	Cisco	NA	NA
-	Laptop DELL	Lattitude 5440	-	DELL	NA	NA

*: FCC ID: LDK102061

A.4 Measurement Uncertainty Evaluation

The system uncertainty evaluation is shown in the below table:

Measurement type	Uncertainty
Time domain	± 1ms

Annex B. Test Results

B.1 Test results for Dynamic Frequency Selection (DFS)

Test procedure

The conducted setup shown on *§A.2 Measurement system* was used to measure the Channel Closing Transmission Time and Channel Move Time.

The *Client Device* (UUT) is set up to associate with the *Master Device.* The channel loading test file is streamed from the *Master Device* to the *Client Device*. Radar test waveforms generated with the vector signal generator are injected into the *Master* on the operating channel above the DFS detection threshold. Observations are done on the transmissions of the UUT at the end of the radar burst on the Operating Channel for a duration greater than 10 seconds. We measured the transmissions from the UUT during the observation time, after radar detection occurs the Channel Move Time and Channel Closing Transmission Time are recorded.

Results tables

Tested Channel: 132, Frequency: 5660 MHz

Test item	Results	Limit
Channel Closing Transmission Time	< 33.81ms	200 ms + an aggregate of 60ms over remaining 10 seconds period.
Channel Move Time	33.81ms	10 seconds
Non-Occupancy Period	>30 minutes	30 minutes

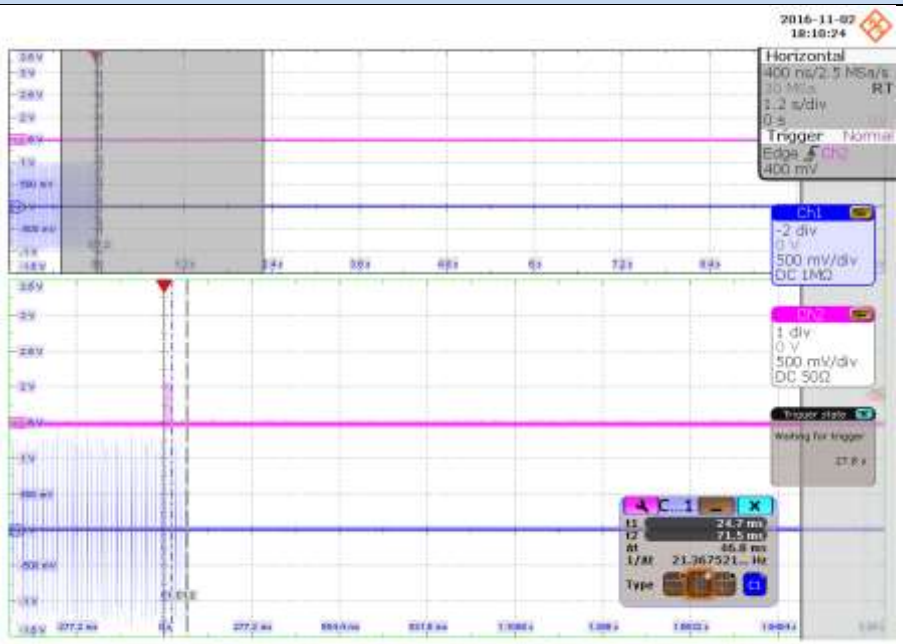
Results screenshot

Channel Move Time

M1 marks the beginning of the radar signal

Channel Move Time < 10s, test PASS

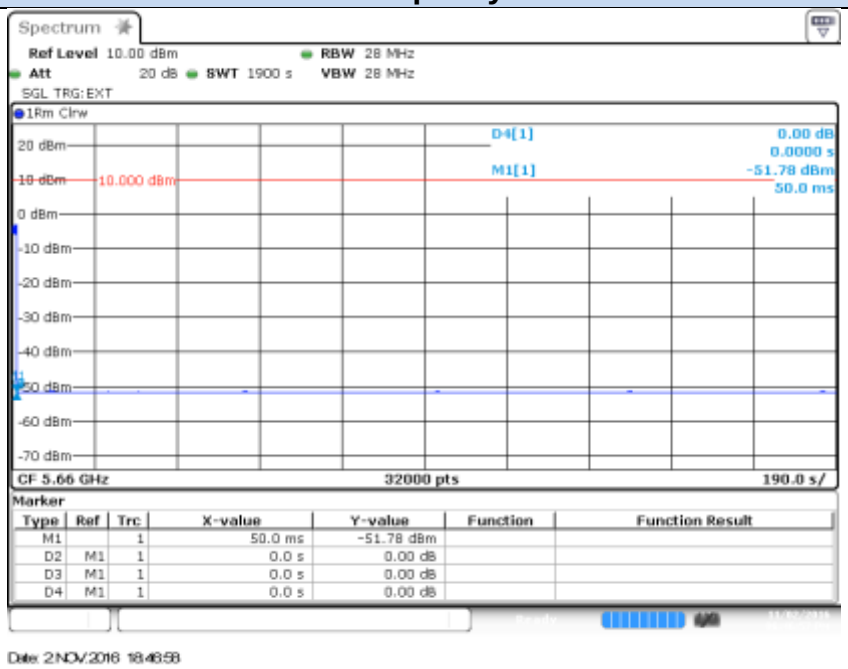
Zoom view to show the channel move time



Δt between C1.1 and C1.2 is the time to cease all transmissions on the current Channel upon detection of a Radar Waveform above the DFS Detection Threshold.

Channel Closing Transmission Time < 33.81ms, test PASS
Channel Move Time = 33.81ms, test PASS

Non-Occupancy Time



No transmission of any type has occurred for 30 minutes, test PASS