TESTING CERT #3478.01

TEST REPORT

EUT Description	**WiGig, WLAN and BT, 2x2 PCIe M.2 adapter card**
Brand Name	**Intel® Tri-Band Wireless-AC 18260**
Model Name	**18260NGW, 18260NGW LC**
Serial Number	**WF MAC: 34:13:E8:31:A7:72** **BD MAC: 34:13:E8:31:A7:76** **WG MAC: 34:13:E8:31:A7:77** (see section 4)
FCC/IC ID	**FCC ID: PD918260NG** **IC ID: 1000M-18260NG**
Antenna type	**SkyCross WIMAX/WLAN Reference Antenna**
Hardware/Software Version	**HW config: 31.1** **Test SW: DRTU version 1.8.3-01557** **Op SW WiFi: 18.20**
Date of Sample Receipt	**2015-08-17**
Date of Test	**2015-09-08/2015-09-10**
Features	**WiGig + 802.11 a/b/g/n/ac Wireless LAN + BDR/EDR 2.1 + BLE 4.0** (see section 5)

Applicant	**Intel Mobile Communications**
Address	**100 Center Point Circle, Suite 200** **Columbia, South Carolina 29210** **USA**
Contact Person	**Steven Hackett**
Telephone/Fax/ Email	**steven.c.hackett@intel.com**

Reference Standards	**FCC CFR Title 47 Part 15E** **RSS 247 issue 1** (see section 1)

Test Report number	**15081803.TR05**
Revision Control	**Rev. 00**

The test results relate only to the samples tested.
The test report shall not be reproduced in full, without written approval of the laboratory.

Issued by	Reviewed by	Approved by
Digitally signed by Olivier FARGANT DN: cn=Olivier FARGANT, o=Intel Mobile Communications, ou=WRF Lab, email=olivier.fargant@intel.com, c=FR Date: 2015.10.14 16:20:21 +02'00'	Digitally signed by Jose M. FORTES DN: cn=Jose M. FORTES, o=Inter Mobile Communications, ou=WRF Lab, email=jose.m.fortes.lopez@intel.com, c=FR Date: 2015.10.14 16:19:34 +02'00'	Digitally signed by Nawfal ASRIH DN: cn=Nawfal ASRIH, o=Intel Mobile Communications, ou=Wireless RF Lab, email=nawfal.asrih@intel.com, c=FR Date: 2015.10.14 16:34:26 +02'00' Adobe Acrobat DC version: 2015.006.30060
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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. 905462 D02 UNII DFS Compliance Procedures New Rules v01r02 – Compliance measurement procedures for unlicenced-nationnal 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 C63.10-2009 American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

2. General conditions, competences and guarantees

- ✓ Intel Mobile Communications Wireless RF Lab (Intel WRF Lab) is a testing laboratory accredited by the American Association for Laboratory Accreditation (A2LA).
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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	55% ± 5%

4. Test samples

Sample	Control #	Description	Model	Serial #	Date of reception
#01	15081801.S06	WiGig/WiFi/BT High End Module	18260NGW LC	WFM:3413E831A772, BDM:3413E831A776, WGM:3413E831A777	2015-08-17
	15081801.S01	Extender board	PCB00432	ASS00432-001 4324612-083	2015-08-17
	15081801.S15	Switching power supply SINPRO 5V 6A	SPU60-102	08741178 1350	2015-08-17
	15051101.S09	Laptop	DELL E5440	9FSYN32	2015-05-12
	15081801.S14	PCI blue cable	PCI blue cable	NA	2015-08-17

NA: Not Applicable

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	5.3GHz (5250.0 – 5350.0 MHz) 5.6GHz (5470.0 – 5725.0 MHz) 5.8GHz (5725.0 – 5850.0 MHz)
BDR/EDR 2.1 BLE 4.0	2.4GHz (2400.0 – 2483.5 MHz)

6. Remarks and comments

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

7. Test Verdicts summary

FCC part 15.407 (h) (2)	
Test name	Verdict
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	2015-10-13	O. Fargant	First Issue

Annex A. Test & System Description

A.1 Test Conditions

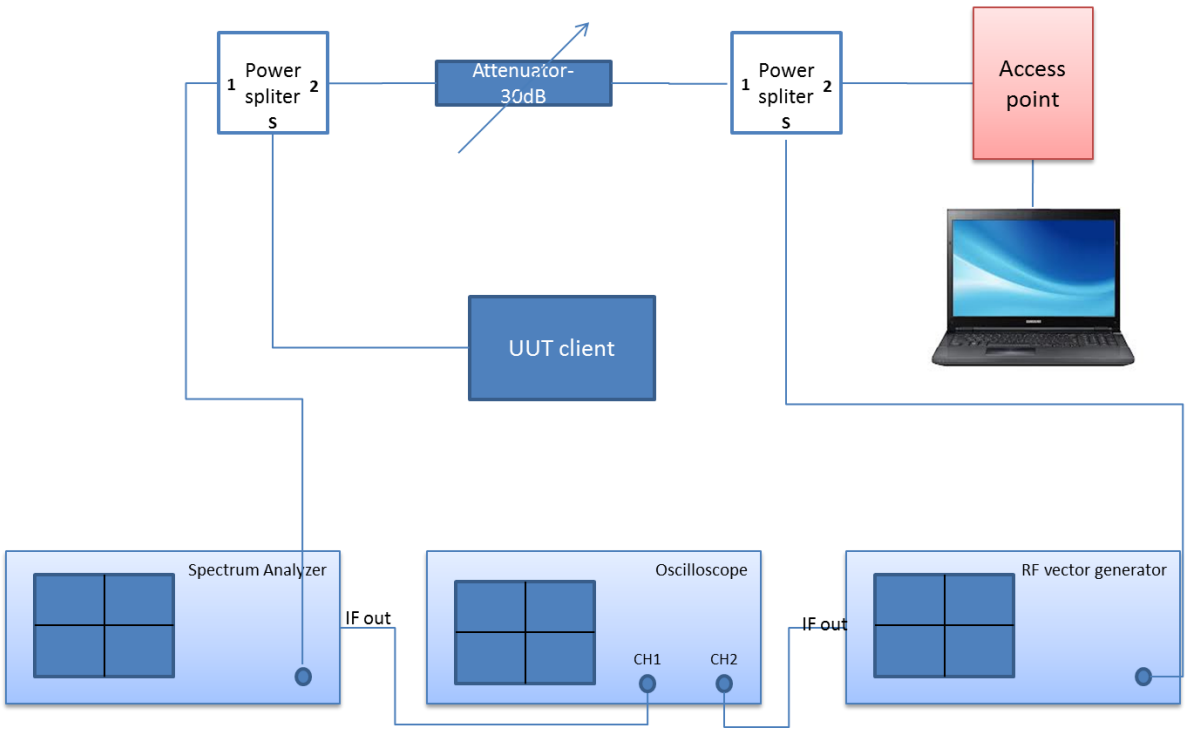
The EUT power supply was provided by the Extender test board, Vnominal = 3.3Vdc.
The Intel ProSet Wifi software was used to set the EUT in normal operation mode.

A.2 Measurement system

Measurements were performed using the following setups, made in accordance to the general provisions of 905462 D02 UNII DFS Compliance Procedures New Rules v01r02.

The DUT 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 UUT.

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	101425	Rohde & Schwarz	2015-03-25	2017-03-25
0017	Vector Signal Generator	SMJ100A	100458	Rohde & Schwarz	2013-09-19	2015-09-19
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:

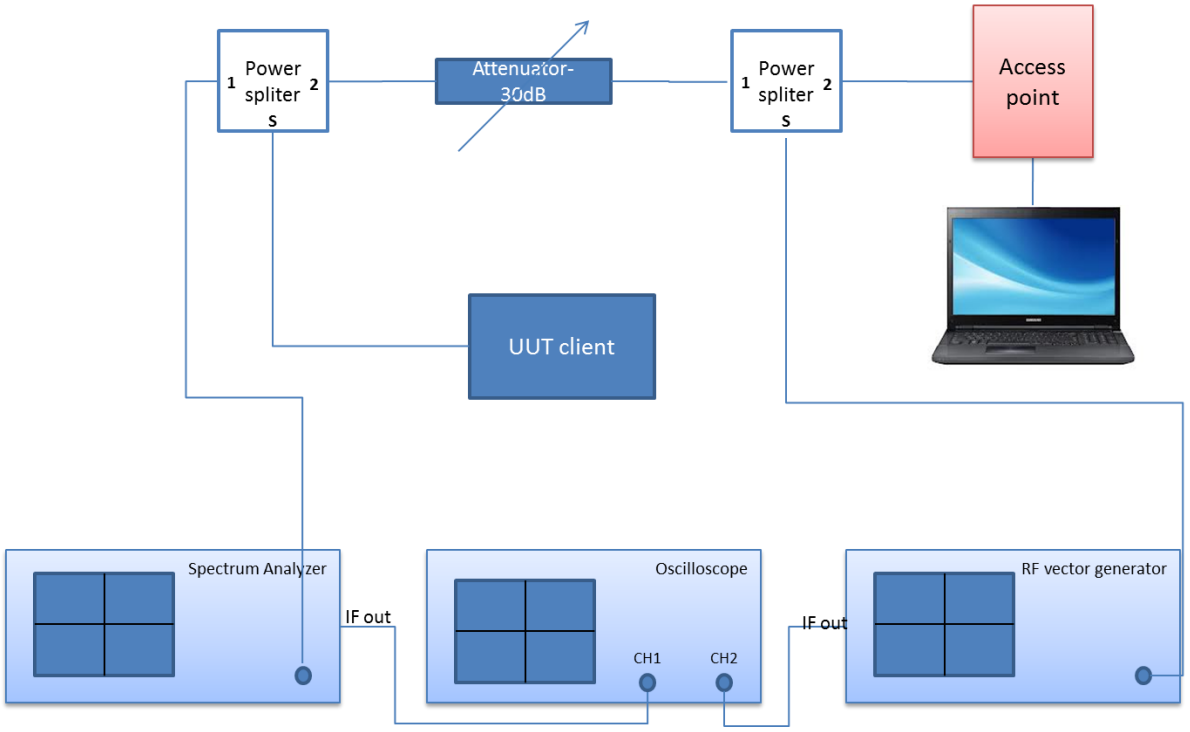
Measurement type	Uncertainty
Timing domain	+- 1ms

Annex B. Test Results

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

Test procedure

The setup below was used to measure verify measure the Non Occupancy Period, Channel Closing Transmission Time and Channel Move Time. Before sending the radar signal with the vector signal generator, the video streaming is launched to establish the channel loading.
The Non Occupancy Period is observed on the spectrum analyzer, and the radar signal, the Channel Closing Transmission Time and Channel Move Time are observed on the oscilloscope.

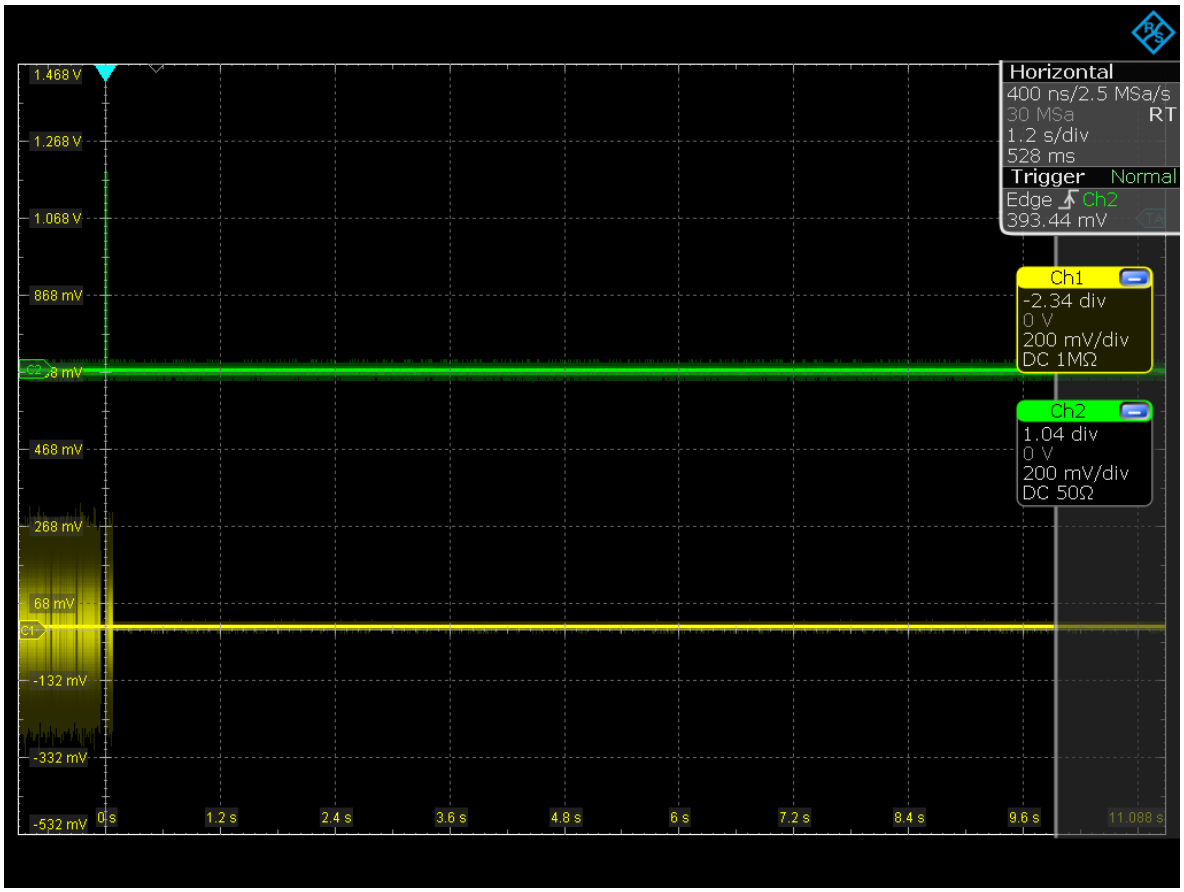


Results tables

Tested Channel: 64, Frequency: 5320 MHz

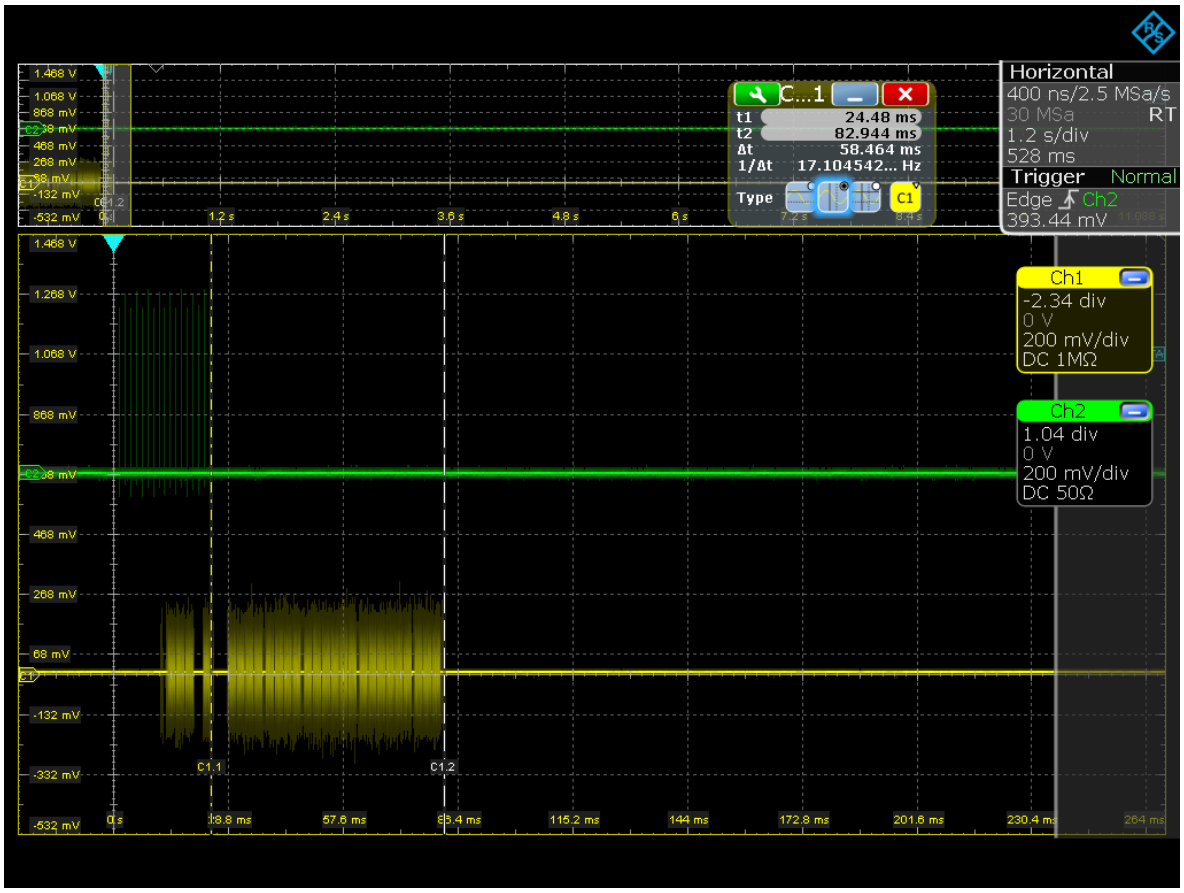
Test item	Results	Limit
Channel Closing Transmission Time	< 58.46 ms	200 milliseconds + an aggregate of 60milliseconds over remaining 10 seconds period.
Channel Move Time	58.46 ms	10 seconds
Non-occupancy period	> 30 minutes	Minimum 30 minutes

Results screenshot

10 Seconds capture after radar signal


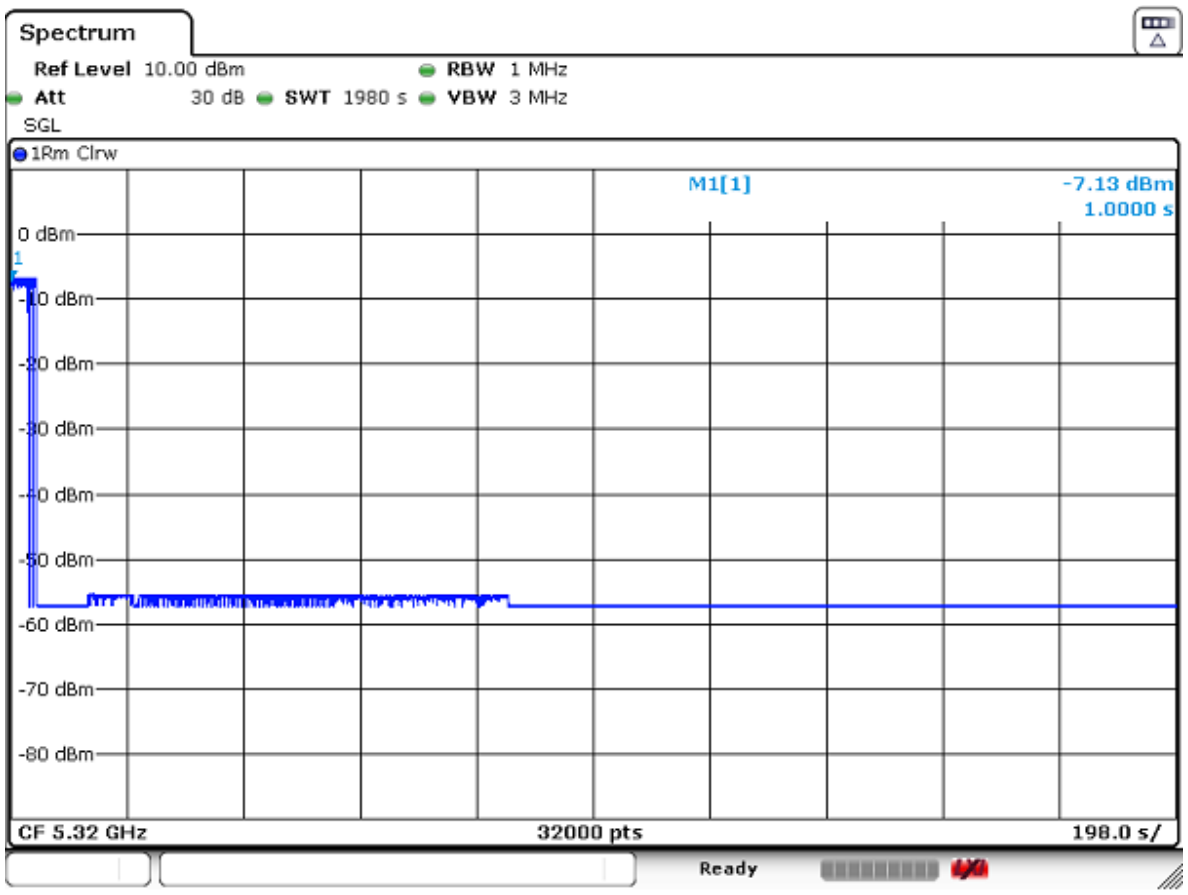
This zoomed screenshot above shows that no transmission from the EUT occur after 200ms following the radar signal.

Zoom view to show the channel move time



On the screenshot above, the cursors are placed between the latest radar signal and the latest data packet transmitted by the EUT to the master device. The time delta value show the channel move time, here the value is 58.46 ms.

Spectrum view of the Non-occupancy period measurement



The screenshot above show the Non occupancy period during 30 minutes. No transmission from the EUT occurs during this period.