



FCC DFS Test Report

FOR:

Manufacturer: Intel Corporation

Model Number: CZ120

Product Description: HSPA+ Smartphone

FCC ID: O2Z-CZ120

IC ID: 1000W-CZ120

**47 CFR Part 15.407 (h)(2), UNII, DFS Requirements
IC RSS-210 Issue 8, Annex 9**

**TEST REPORT #: EMC_INTEL-032-13001_DFS
DATE: 2013-08-27**



**FCC :
Accredited**

**IC recognized #
3462B-1**

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1 Assessment

The following equipment (and as identified in Ch.3 of this test report) was evaluated against the applicable DFS criteria specified in FCC CFR47 Part 15.407 (h)(2) and Industry Canada Standards RSS-210 Issue 8, Annex 9, (9.3).

No deviations were ascertained during the course of the tests performed.

Company	Description	Model #
Intel Corporation	HSPA+ Smartphone	CZ120

Responsible for Testing Laboratory:

2013-08-27	Compliance	Tunji Yusuf (Test Lab Manager)	
Date	Section	Name	Signature

Responsible for the Report:

2013-08-27	Compliance	Zack Gray (EMC Engineer)	
Date	Section	Name	Signature

The test results of this test report relate exclusively to the test item specified in Section3. CETECOM Inc. USA does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of CETECOM Inc. USA.

2 Administrative Data

2.1 Identification of the Testing Laboratory Issuing the Test Report

Company Name:	CETECOM Inc.
Department:	Compliance
Address:	411 Dixon Landing Road Milpitas, CA 95035 U.S.A.
Telephone:	+1 (408) 586 6200
Fax:	+1 (408) 586 6299
Test Lab Manager:	Tunji Yusuf
Responsible Project Leader:	Zack Gray

2.2 Identification of the Client

Applicant's Name:	Intel Corporation
Street Address:	2200 Mission College MS:SC1-20
City/Zip Code	Santa Clara, CA 94085
Country	USA
Contact Person:	Christine Ryan
Phone No.	4083002167
e-mail:	Christine.m.ryan@intel.com

2.3 Identification of the Manufacturer

Manufacturer's Name:	Same as client.
Manufacturers Address:	
City/Zip Code	
Country	

3 Equipment under Test (EUT)

3.1 Specification of the Equipment under Test

Model Numbers:	CZ120
FCC-IDs:	O2Z-CZ120
IC IDs:	1000W-CZ120
Product Description:	Smartphone with multiband GSM/GPRS/EDGE/UMTS/HSPA+, WLAN 802.11 a/b/g/n, Bluetooth, NFC and GPS
Applicable frequency range of test:	5250-5350 MHz and 5470-5725 MHz.
DFS Operational Mode:	Slave without Radar Detection
Rated Operating Voltage Range:	Vmin: 3.6V/ Vnom: 3.8V/ Vmax: 4.2V
Rated Operating Temperature Range:	Tmin: -10°C/ Tmax: 55°C
Test Sample Status:	Prototype
Radios included in the device:	<ol style="list-style-type: none"> 1. Intel XMM 6360 Radio Module <ul style="list-style-type: none"> • GSM 850 / 900 / 1800 / 1900 GPRS / EDGE Multislot Class 12 operation • WCDMA / HSPA+ 850 / 900 / 1800 / 2100 2. WLAN 802.11 a/b/g/n Texas Instruments WL 1283 chipset 2.4 and 5.0 GHz bands of operation 3. BT 2.1+ EDR Texas Instruments WL 1283 chipset 2.4 GHz band of operation 4. GPS 1575.42 MHz 5. NFC (13.56 MHz)

3.2 Identification of the Equipment under Test (EUT)

EUT #	Serial Number	HW Version	SW Version
1	RHBEC244302182	PR2.0	RHB JB r42-85

3.3 Identification of Accessory equipment

AE #	Type	Manufacturer	Model	Serial Number
1	AC/DC Adapter	Solcomp	SC1402	12374000330319

4 Applicability of DFS requirements

Requirement	Operational mode		
	Master	Slave Without Radar Detection	Slave With Radar Detection
<i>Channel Availability Check</i>	Yes	Not required	Not required
<i>UNII Detection Bandwidth</i>	Yes	Not required	Yes
<i>In-Service Monitoring</i>	Yes	Not required	Yes
<i>Channel Shutdown</i>	Yes	Yes	Yes
<i>Non-Occupancy Period</i>	Yes	Not required	Yes
<i>Uniform Spreading</i>	Yes	Not required	Not required

5 Radar test signals

5.1 Parameters of Short Pulse Radar Test Waveforms (FCC 06-96, Section 6.1)

Radar Type	Pulse Width (μsec)	PRI (μs)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
1	1	1428	18	60%	30
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

5.2 Parameters of Long Pulse Radar Test Waveforms (FCC 06-96, Section 6.2)

Radar Type	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μs)	Number of Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Number of Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

5.3 Parameters of Frequency Hopping Radar Test Waveforms (FCC 06-96, Section 6.3)

Radar Type	Pulse Width (μsec)	PRI (μsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Number of Trials
6	1	333	9	0.333	300	70%	30

6 Test Method

6.1 Conducted Measurements:

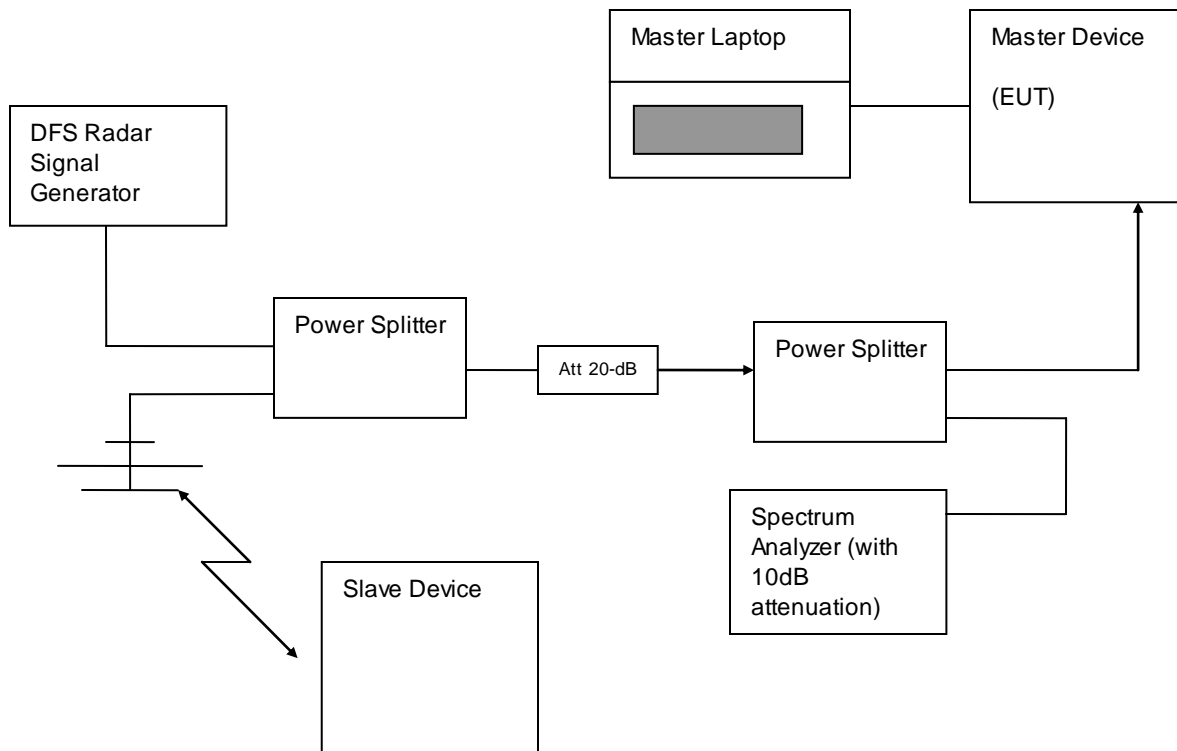
Conducted measurements were performed according to FCC 06-96.

The device does not support any channels whose nominal bandwidth falls completely or partially within the 5600 MHz to 5650 MHz band.

The measurements were performed on one channel for all tests : 5300MHz. The largest bandwidth, 20MHz, was used for all measurements.

The DFS threshold used was -64 dBm.

6.2 Measurement Setup:



6.3 Limits

The *Channel Move Time* shall not exceed 10 seconds.

The *Channel Closing Transmission Time* shall not exceed 260ms. (200 ms of regular transmissions + 60 ms of aggregate transmission time for channel move information)

The *Non-Occupancy Period* shall not be less than 30 minutes.

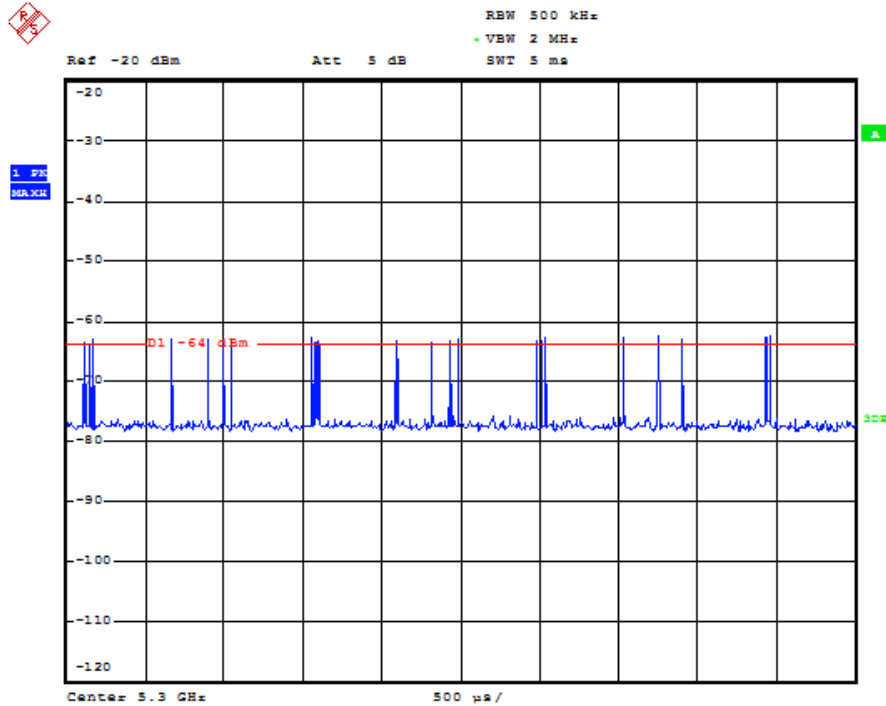
From FCC KDB Publication Number 905462 "5 GHz UNII DFS Compliance Procedures" :

The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

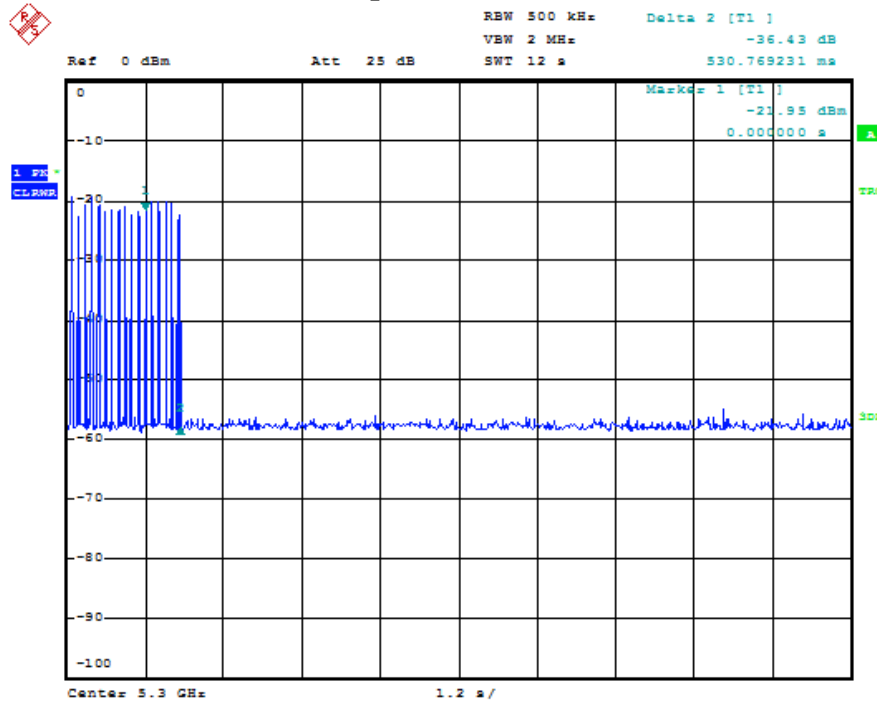
6.4 Test Results

Reference Level Measurement:

5.3GHz Reference (20MHz BW operation)

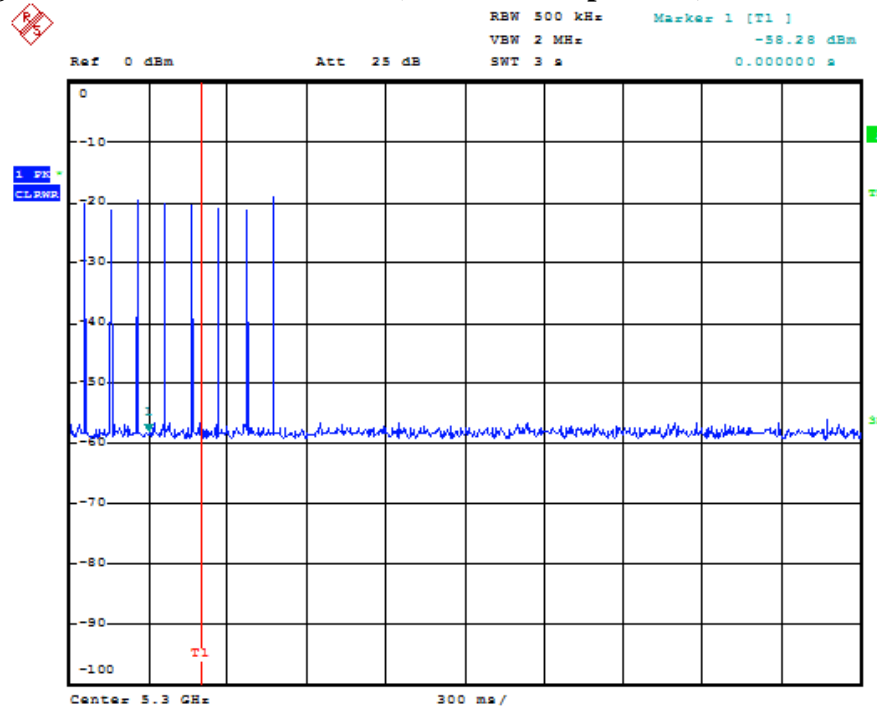


Channel Move time 5.3 GHz (20MHz BW operation)



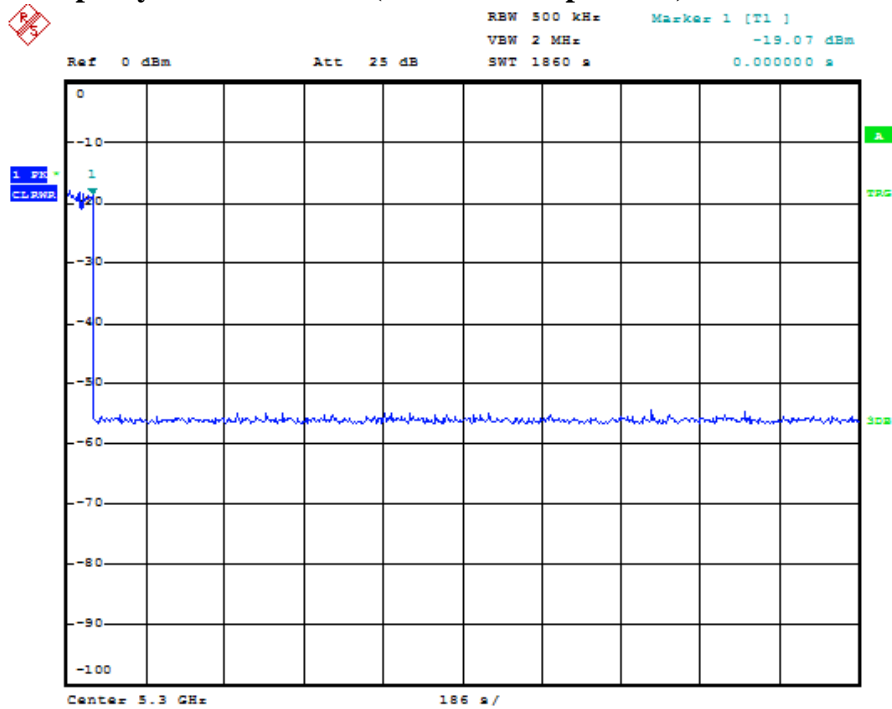
Channel move time is shown to be less than 10 seconds.

Channel Closing Transmission Time 5.3 GHz (20MHz BW operation)



T1 shows the 200 ms. point at which normal transmissions are no longer allowed. It can be seen that the total aggregate duration of transmissions past this point is less than 60 ms.

Non-Occupancy Period 5.3 GHz (20MHz BW operation)



30+ minute window after initial channel closing shows no further transmissions made on the channel during that timeframe.

6.4.1.1 Test Verdict

Measured Move time < 10secs

Measured channel closing time < 200 msec. (normal transmissions) + 60 msec. (aggregate time of channel move signals)

Non-Occupancy Time > 30 mins

Pass.

7 TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

Instrument/Ancillary	Type	Manufacturer	Serial No.	Cal Date	Cal Interval
Spectrum Analyzer	FSU	Rohde & Schwarz	200302	May 2011	2 Years
Upconverter	PXI-5610	National Instruments	E93740	Jun 2012	2 Years
DFS Waveform Generator / PXI 5421 Card	PXI-5421	National Instruments	E965F1	Jun 2012	2 Years
DFS Signal Generator / PXI 5610 Card	NI PXI 1042	National Instruments	E93740	July 2012	2 Years



8 Report History

Date	Report Name	Changes to report	Report prepared by
2013-08-27	EMC_INTEL-032-13001_DFS	First Version	Z. Gray