



FCC DFS Test Report

FOR:

Honeywell International Inc

Model Number(s): 70eLGN/ 70eLG0/ 70eL00

Product Description: Dolphin 70e Black, Enterprise Digital Assistant (EDA)

FCC ID: HD570ELGN, HD570ELG0, HD570EL00

IC ID: 1693B-70E1, 1693B-70E2, 1693B-70E3

47 CFR Part 15.407 (h)(2), UNII, DFS Requirements

IC RSS-210 Issue 8, Annex 9

TEST REPORT #: EMC_HONEY_095_12003_70e_DFS

DATE: 2013-05-28



**FCC :
accredited**

**IC recognized #
3462B**

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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 #
Honeywell International Inc.	Dolphin 70e Black Enterprise Digital Assistant (EDA)	70eLGN/ 70eLG0/ 70eL00

Responsible for Testing Laboratory:

2013-05-28	Compliance	Franz Engert (Acting Lab Manager)	
Date	Section	Name	Signature

Responsible for the Report:

2013-05-28	Compliance	Tunji Yusuf (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
Acting Lab Manager:	Franz Engert
Responsible Project Leader:	Tunji Yusuf

2.2 Identification of the Client

Applicant's Name:	Honeywell International Inc
Street Address:	700 Visions Drive
City/Zip Code	Skaneateles Falls, NY 13153
Country	USA
Contact Person:	Michael Robinson
Phone No.	+1 (315) 554 6387
Fax:	+1 (315) 554 6393
e-mail:	michael.robinson3@honeywell.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

Marketing Name:	Dolphin 70e Black
Model Numbers:	70eLGN/ 70eLG0/ 70eL00
FCC-IDs:	HD570ELGN/ HD570ELG0/ HD570EL00
IC IDs:	1693B-70E1/ 1693B-70E2/ 1693B-70E2
Product Description:	Dolphin 70e Black Enterprise Digital Assistant (EDA)
Applicable frequency range of test:	5250-5350 MHz and 5470-5725 MHz.
DFS Operational Mode:	Slave without Radar Detection
Rated Operating Voltage Range:	Vmin: 3.3V/ Vnom: 3.6V/ Vmax: 4.3V
Rated Operating Temperature Range:	Tmin: -30°C/ Tmax: 70°C
Test Sample Status:	Prototype
Radios included in the device:	1. Sierra Wireless SL9090 Radio Module • 850/900/1800/1900Mhz GSM power class 4/1 GPRS Class B, Multislot 10 operation EDGE Multislot class 12 operation • 850/1900/2100 Mhz WCDMA / HSPA+ HSDPA Category 10 data rate - 14.4 Mbps HSUPA Category 6 data rate - 5.76 Mbps • 800/1900 Mhz CDMA 1xRTT / EV-D0 CDMA EVDO Rev A data rate - 3.1 Mbps 2. WLAN 802.11 a/b/g/n Murata LBEH5Z9UWC module with TI WL1273L Chipset 2.4 and 5.0 GHz bands of operation 3. BT 2.1+EDR Murata LBEH5Z9UWC module 2.4 GHz band of operation 4. GPS 1575.42 MHz 5. NFC (NXP PN65N Module; 13.56 MHz)

3.2 Identification of the Equipment under Test (EUT)

EUT #	Model	HW Version	SW Version	Model	Serial Number
1	12357J0030	DVT1.5-8092N	40.00	70eLGN	Radiated Sample

3.3 Identification of Accessory equipment

AE #	Type	Manufacturer	Model	Serial Number
1	AC Switching Power Supply	PHIHONG	PSAI05R-050Q	P112103004A1

3.4 Testing notes:

Based on the product equality statement provided by the manufacturer, models **70eLGN**, **70eLG0** and **70eL00** include the same WLAN radio and associated circuitry, and hence testing was only performed on the 70eLGN model and its results deemed sufficient to establish compliance of the other models to the applicable requirements.

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:

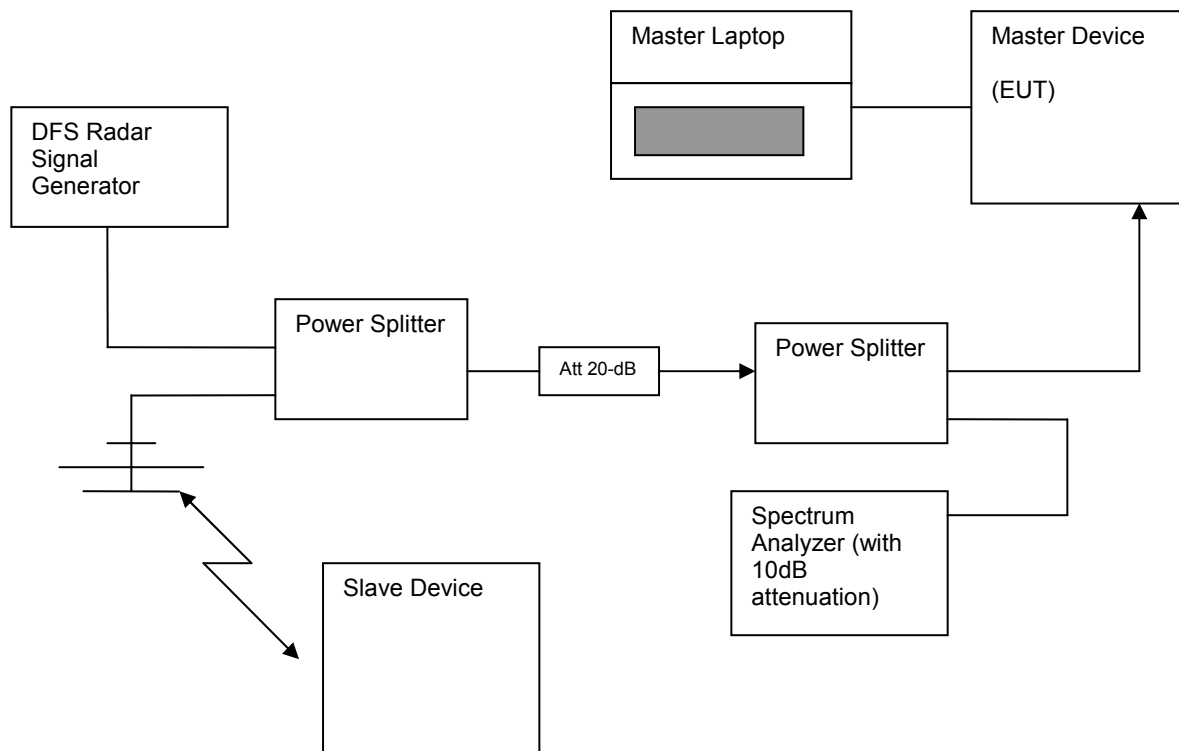
Conducted measurements were performed according to FCC 06-96.

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.

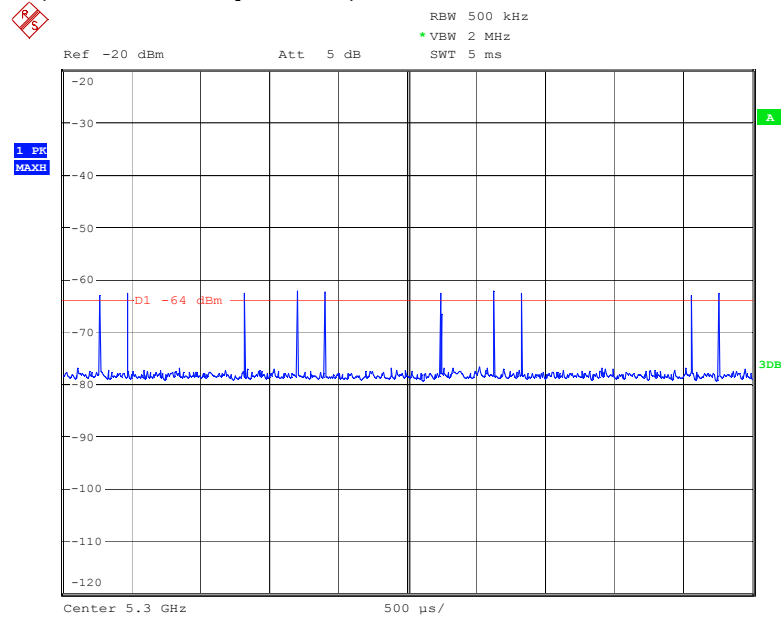
The *Channel Closing Transmission Time* shall not exceed 200ms.

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

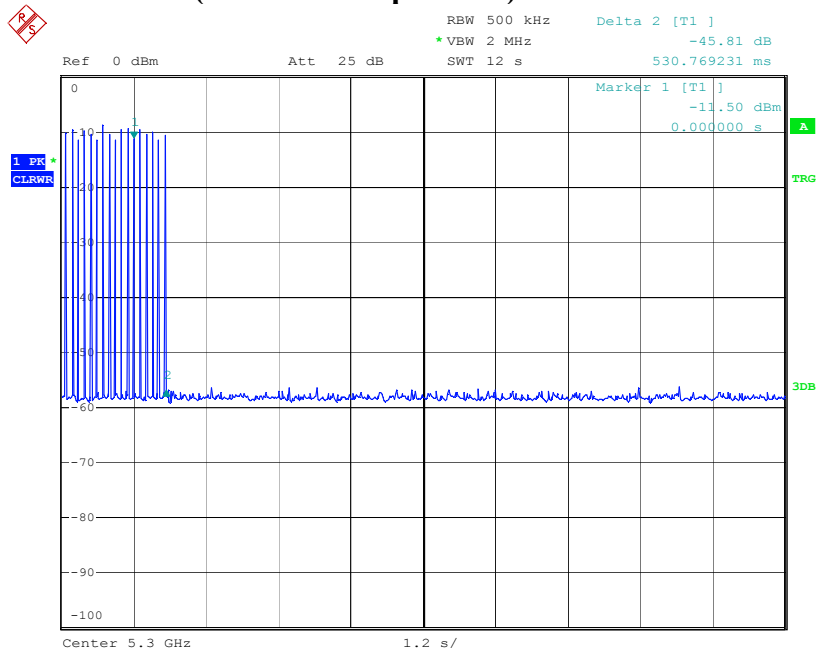
6.4 Test Results

Reference Level Measurement:

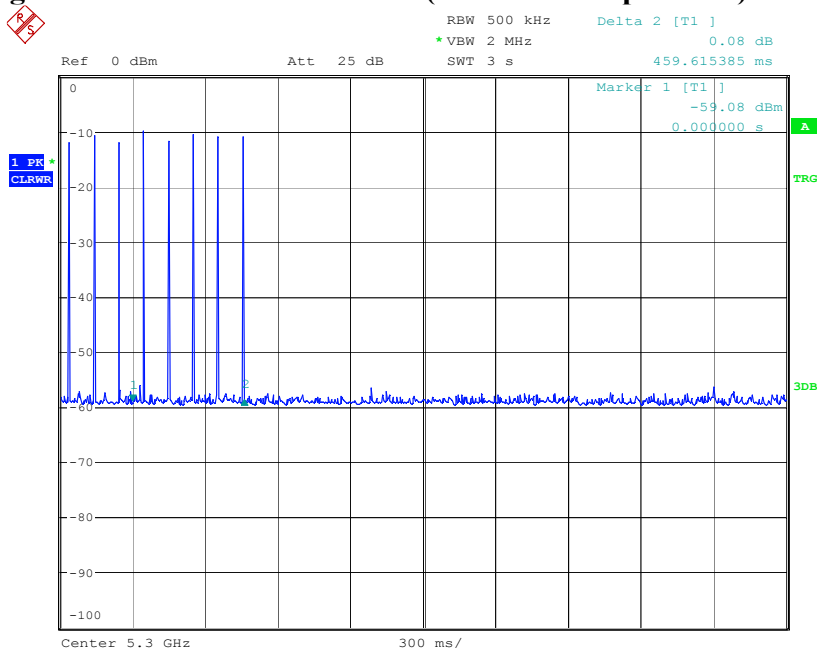
5.3GHz Reference (20MHz BW operation)



Date: 30.JAN.2013 12:04:00

Channel Move time 5.3 GHz (20MHz BW operation)

Date: 30.JAN.2013 14:05:57

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

Date: 30.JAN.2013 15:15:26

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

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8 Report History

Date	Report Name	Changes to report	Report prepared by
2013-05-28	EMC_HONEY_095_12003_70e_DFS	First Version	Tunji Yusuf