

FCC DFS Test Report

Tested in accordance with
Federal Communications Commission (FCC)
Personal Communications Services
CFR 47, Parts 15.407



REPORT NO.: RTS-6057-1411-20


PRODUCT MODEL NO.: RGV161LW (SQW100-3)
TYPE NAME: BlackBerry® smartphone
FCC ID: L6ARGV160LW

DATE: November 28, 2014

RTS is accredited
according to
EN ISO/IEC 17025 by:



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	DFS Test Report for the BlackBerry® smartphone Model RGV161LW (SQW100-3)	
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Statement of Performance:

The BlackBerry® smartphone, model RGV161LW (SQW100-3), part number CER-59664-001 Rev 1-x07-001 and accessories perform within the requirements of the test standards when configured and operated per Blackberry's operation instructions.

Declaration:

We hereby certify that:

The test data reported herein is an accurate record of the performance of the sample(s) tested.

The test results are valid for the tested unit (s) only.

The test equipment used was suitable for the tests performed and within manufacturer's published specifications and operating parameters.

The test methods were consistent with the methods described in the relevant standards.

Documented by:

Kevin Guo
Compliance Specialist I

Reviewed and Approved by:

Masud S. Attayi, P.Eng.
Manager, Regulatory Compliance



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A. Scope

This report details the results of compliance tests that were performed in accordance with the requirements of:

- FCC CFR 47 Part 15.407, October, 2013
- KDB 905462 D02 UNII DFS Compliance Procedures
- KDB 848637 Guidance for U-NII client devices without radar detection capabilities

B. Associated Documents

None

C. Product Identification


Manufactured by BlackBerry Limited whose headquarters is located at:

2200 University Ave. East
 Waterloo, Ontario
 Canada, N2K 0A7
 Phone: 519 888 7465
 Fax: 519 888 6906

The equipment under test (EUT) was tested at the following location:

RTS Test Facility
 440 Phillip Street
 Waterloo, Ontario
 Canada, N2L 5R9
 Phone: 519 888 7465
 Fax: 519 888 6906

The testing was performed on November 28, 2014.

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BlackBerry® smartphone Samples Tested

SAMPLE	MODEL	CER NUMBER	PIN	SOFTWARE
1	RGV161LW (SQW100-3)	CER-59664-001 Rev 1-x07-001	2FFEDD09	10.3.1.887

DFS testing was performed on sample 1.

The manufacturer declared modes for the EUT operational characteristics that affect DFS are as follows:

Operating Modes (5250 -5350 MHz, 5470-5725MHz)


- ☐ Master Device
- ☒ Client Device (no In-Service Monitoring, no Ad – Hoc mode)
- ☐ Client Device with In-Service Monitoring

Channel Protocol

- ☒ IP Based
- ☐ Frame Based
- ☐ Other _____

D. Support Equipment Used for the Testing of the EUT

Manufacturer	Description	Model	Serial Number	FCC ID and IC
Cisco	Wireless Controller	2504	PSJ162904G5	-
Cisco	Access Point	AIR-CAP3702E-A-K9	FTX181077V8	LDK102087 2461B-102087
D-Link	Router	WBR-1310	P10317B010096	KA2WBR1310 4216A-WBR1310
Lenovo	Laptop	4236-D84	R8-A1XXN 11/05	-

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E. Test Results Chart – FCC Part 15, Client Device

SPECIFICATION	TEST TYPE	Meets Requirement	Test Data APPENDIX
FCC CFR 47			
Part 15.407	Channel closing transmission time	Yes	1
Part 15.407	Channel move time	Yes	1
Part 15.407	Non-Occupancy Period	Yes	1


F. Summary of Result

- a). The BlackBerry® smartphone met the requirement of the Channel Closing Transmission and Time, Channel Move time and Non-occupancy period requirement as per FCC 15.407. The measurement was performed on Channel 60 of the DFS band with 20 MHz bandwidth and Channel 106 of the DFS band with 80MHz bandwidth. Radar Type 1 of the Short Pulse Test waveform was used for tests.

See APPENDIX 1 for the test data.

Measurement Uncertainties:

Measurement	Measurement Unit	Expanded Uncertainty
DFS Threshold (Conducted)	dBm	1.2

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G. Compliance Test Equipment Used

<u>UNIT</u>	<u>MANUFACTURER</u>	<u>MODEL</u>	<u>SERIAL NUMBER</u>	<u>CAL DUE DATE (YY MM DD)</u>	<u>USE</u>
Spectrum Analyzer	Rohde & Schwarz	FSV	101820	14-12-05	DFS
DFS RF Modulator	National Instruments	PXIe-5611	EC157C	15-03-17	DFS
DFS I/Q Signal Generator	National Instruments	PXIe-5450	EC6BB1	15-03-17	DFS
DFS RF Signal Generator	National Instruments	PXIe-5620	ED2167	15-03-17	DFS
T/RH Meter	OMEGA	iTHX-SD	0380564	16-11-14	DFS

H. Test Software used

<u>SOFTWARE</u>	<u>COMPANY</u>	<u>VERSION</u>	<u>USE</u>
iDFTest	Redwolf	2.5	DFS

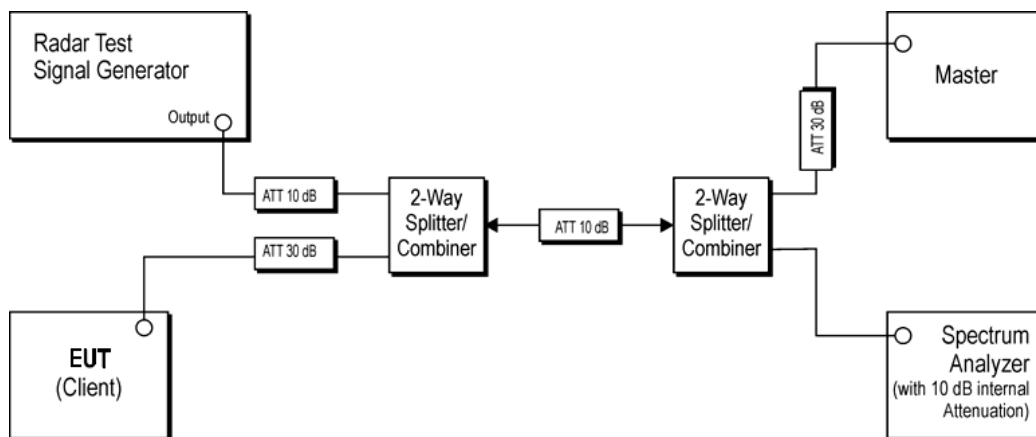
APPENDIX 1 - DFS TEST PLOTS and DATA

BlackBerry	DFS Test Report for the BlackBerry® smartphone Model RGV161LW (SQW100-3) APPENDIX 1	
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DFS Conducted Test Results


DFS Test Methods

Conducted Test Method



<u>UNIT</u>	<u>MANUFACTURER</u>	<u>MODEL</u>	<u>SERIAL NUMBER</u>
10dB Attenuator	Aeroflex Weinschel	3330A-10	-
30dB Attenuator	Aeroflex Weinschel	3330A-30	-
2-Way Splitter	Weinschel	1515	QC170
2-Way Splitter	Weinschel	1534	221

A spectrum analyzer is used as a monitor to verify that the EUT has vacated the Channel within the Channel Closing Transmission Time and Channel Move Time.

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DFS Conducted Test Results Cont'd

Radar Waveforms

FCC Short Pulse Radar Test Waveforms					
Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Detection Percentage	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

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

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

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DFS Conducted Test Results Cont'd

The following tests were performed by Kevin Guo

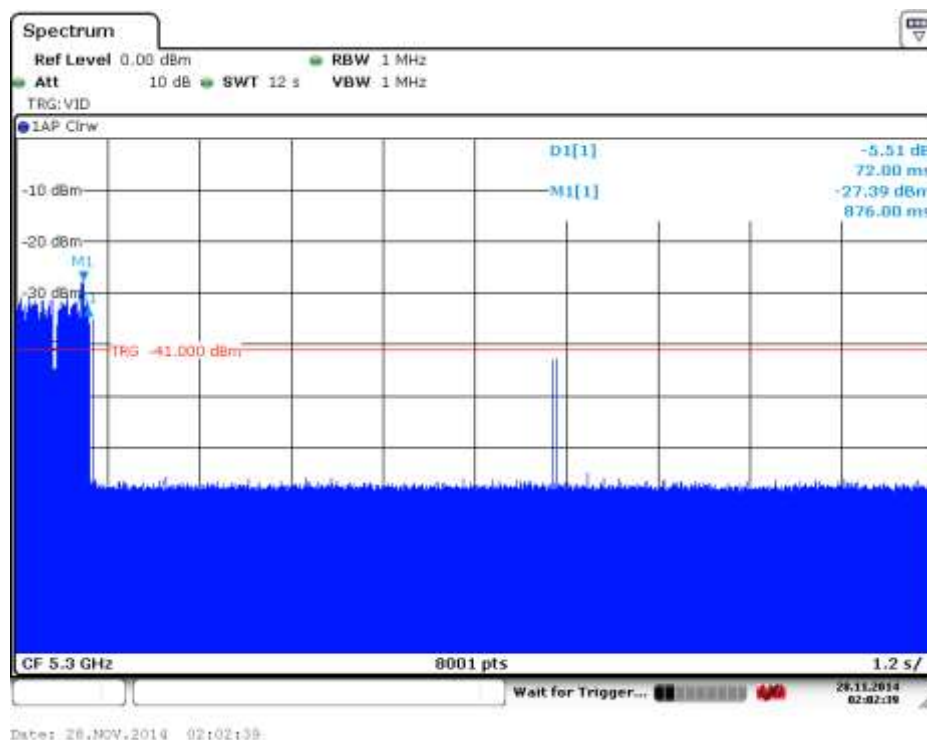
Date of the test: November 28, 2014


The environmental conditions were: Temperature: 24.7 °C
Humidity: 45.5 %

Wave form Type	Channel Closing Transmission Time		Channel Move Time		Non Occupancy	Result
	Measured	Limit	Measured	Limit		
Radar Type 1	72 ms	260 ms	135 ms	10 s	>30 mins	PASS

Channel Bandwidth (20MHz)

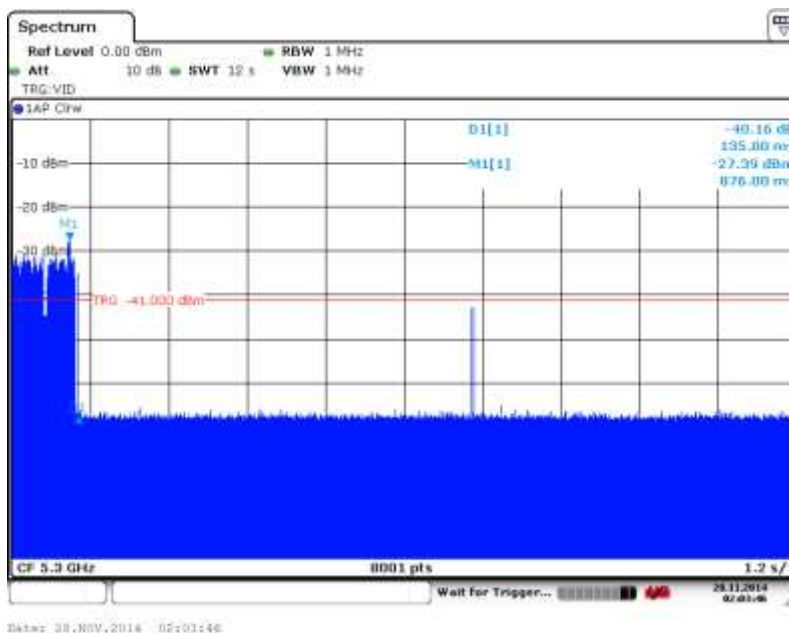
Channel Closing Transmission Time



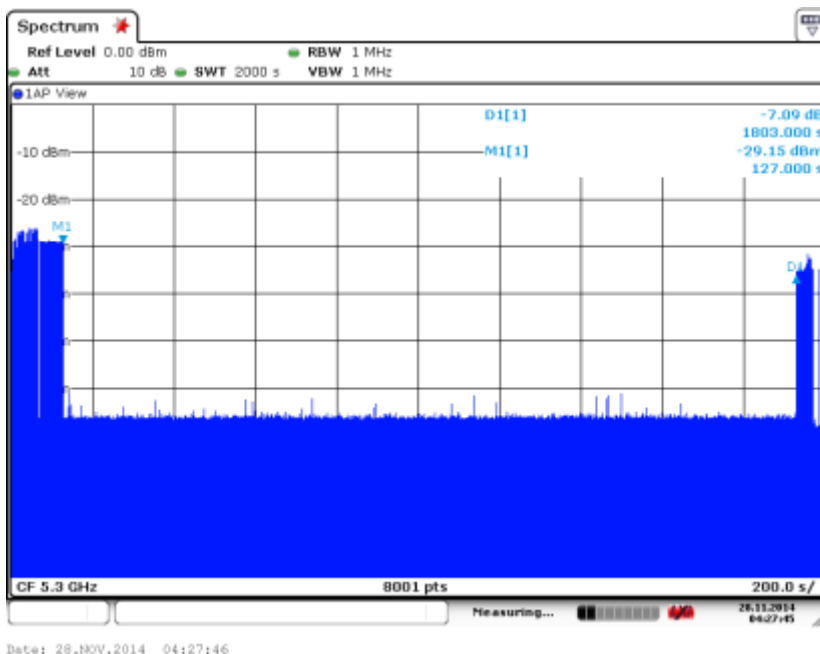
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DFS Conducted Test Results Cont'd

Channel Move Time

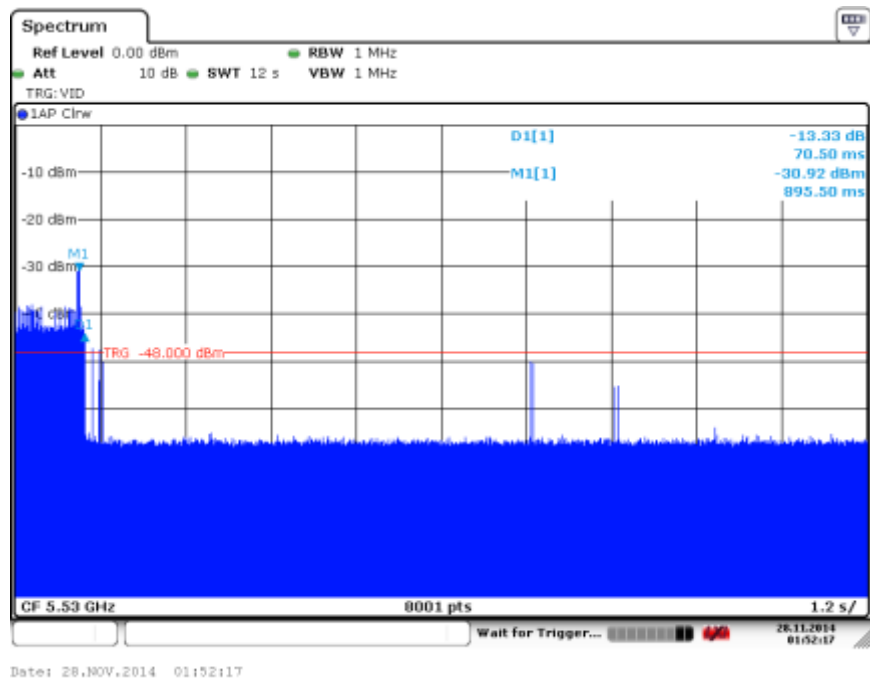



Non-Occupancy Time



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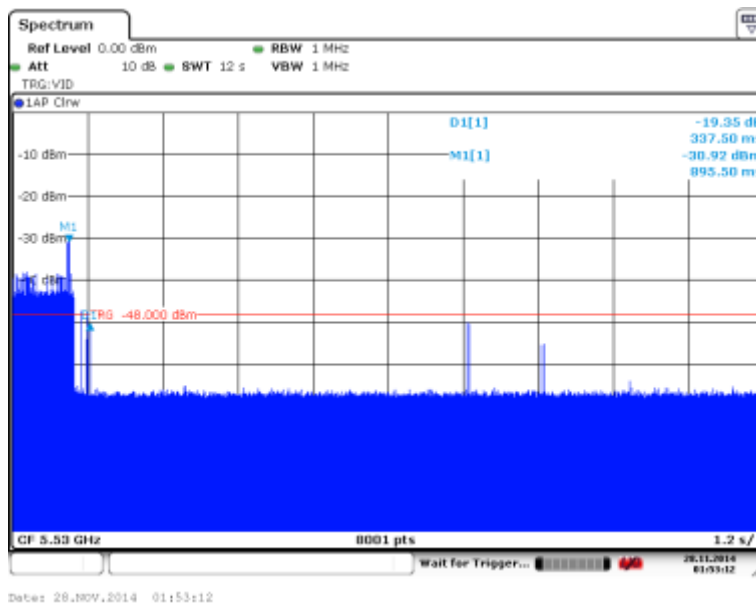
Channel Closing Transmission Time



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DFS Conducted Test Results Cont'd

Channel Move Time



Non-Occupancy Time

