

FCC DFS Test Report

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



A division of BlackBerry Limited

REPORT NO.: RTS-6046-1308-10

PRODUCT MODEL NO.: RFX101LW
TYPE NAME: BlackBerry® smartphone
FCC ID: L6ARFX100LW

DATE: August 02, 2013

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



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|  <p>DFS Test Report for the BlackBerry® smartphone Model RFX101LW</p> | | |
| Test Report No. RTS-6046-1308-10 | Date of Test July 11, 15 and 29, 2013 | FCC ID: L6ARFX100LW |

Statement of Performance:

The BlackBerry® smartphone, model RFX101LW, part number CER-54735-001 Rev1-x04-00 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:

Heng Lin
 Regulatory Compliance Specialist

Reviewed by:

Forhad Hasnat
 Regulatory Compliance Specialist

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, 2012

B. Associated Documents

None

C. Product Identification

Manufactured by BlackBerry Limited whose headquarters is located at:
 295 Phillip Street
 Waterloo, Ontario
 Canada, N2L 3W8
 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 July 11, 15 and 29, 2013.

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BlackBerry® smartphone Samples Tested

| SAMPLE | MODEL | CER NUMBER | PIN | SOFTWARE |
|--------|----------|---------------------------|----------|------------|
| 1 | RFX101LW | CER-54735-001 Rev1-x04-00 | 333E2860 | 10.2.0.519 |

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 | Access Point | AIR-RM1252G-A-K9 | FCW1336Z03R | LDK102061/2 2461B-102061/2 |
| Lenovo | Laptop | 8742-C2U | L3-B3615 07/06 | MCLJ07H081 2878D-J07H081 |
| D-Link | Router | WBR-1310 | P10317B010096 | KA2WBR1310 4216A-WBR1310 |

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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 - associated | Yes | 1 |

F. Summary of Result

- 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 52 (5260 MHz) of the DFS band. 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 | 13-11-21 | DFS |
| DFS RF Modulator | National Instruments | PXIe-5611 | EC157C | 14-02-25 | DFS |
| DFS I/Q Signal Generator | National Instruments | PXIe-5450 | EC6BB1 | 14-02-25 | DFS |
| DFS RF Signal Generator | National Instruments | PXIe-5620 | ED2167 | 14-02-25 | DFS |
| T/RH Meter | OMEGA | iTHX-SD | 0380564 | 13-10-30 | DFS |

H. Test Software used

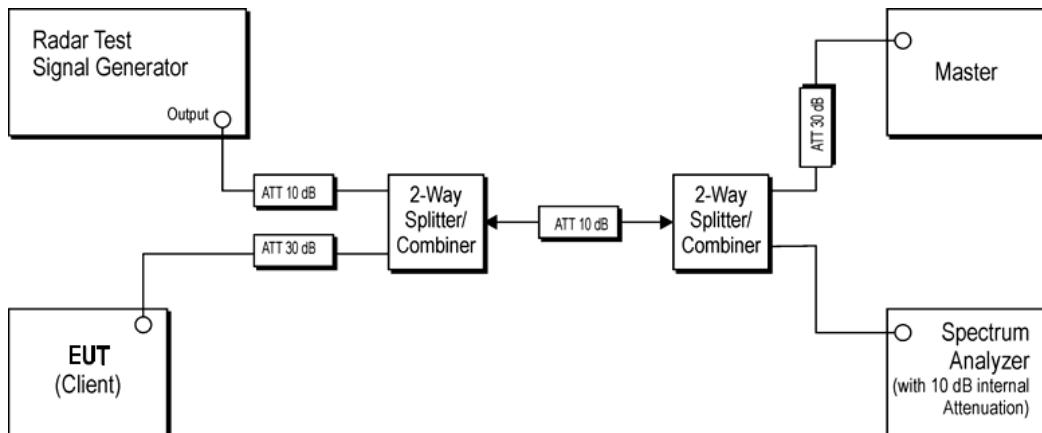
| <u>SOFTWARE</u> | <u>COMPANY</u> | <u>VERSION</u> | <u>USE</u> |
|-----------------|----------------|----------------|------------|
| iDFTest | Redwolf | 2.5 | DFS |

APPENDIX 1 - DFS TEST PLOTS and DATA

DFS Conducted Test Results

DFS Test Methods

Conducted Test Method



| UNIT | MANUFACTURER | MODEL | SERIAL NUMBER |
|-----------------|--------------------|----------|---------------|
| 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, and does not transmit on a Channel during the Non-Occupancy Period after the detection and Channel Move. It is also used to monitor EUT transmissions during the Channel Availability Check 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

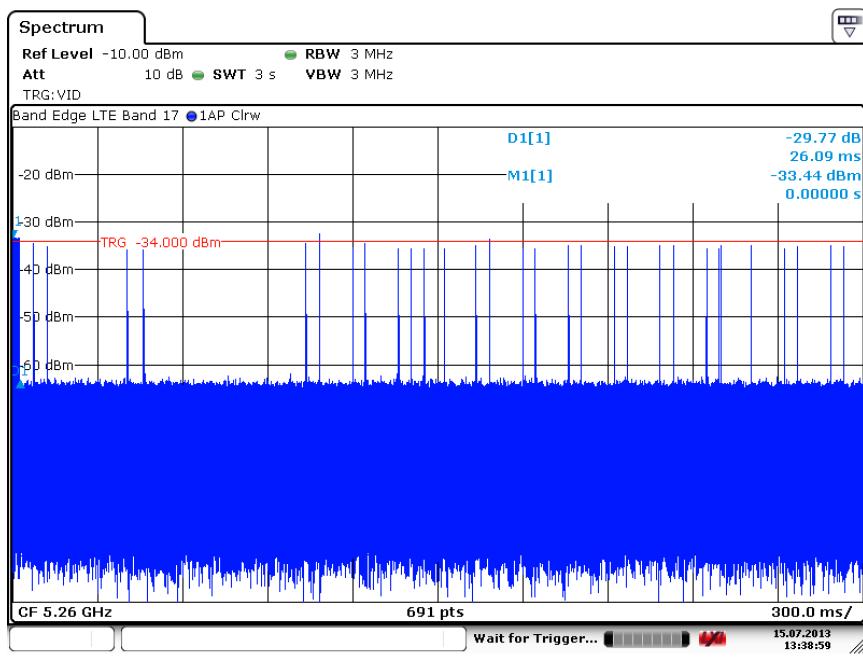
The following tests were performed by Heng Lin

Date of the test: July 11, 15 and 29, 2013

The environmental conditions were: Temperature: 23.6 – 24.7 °C
 Humidity: 22.9 – 49.5 %

| Wave form Type | Channel Closing Transmission Time | | Channel Move Time | | Result |
|----------------|-----------------------------------|--------|-------------------|-------|--------|
| | Measured | Limit | Measured | Limit | |
| Radar Type 1 | 26.09 ms | 260 ms | 3.32 s | 10 s | PASS |

Channel Closing Transmission Time



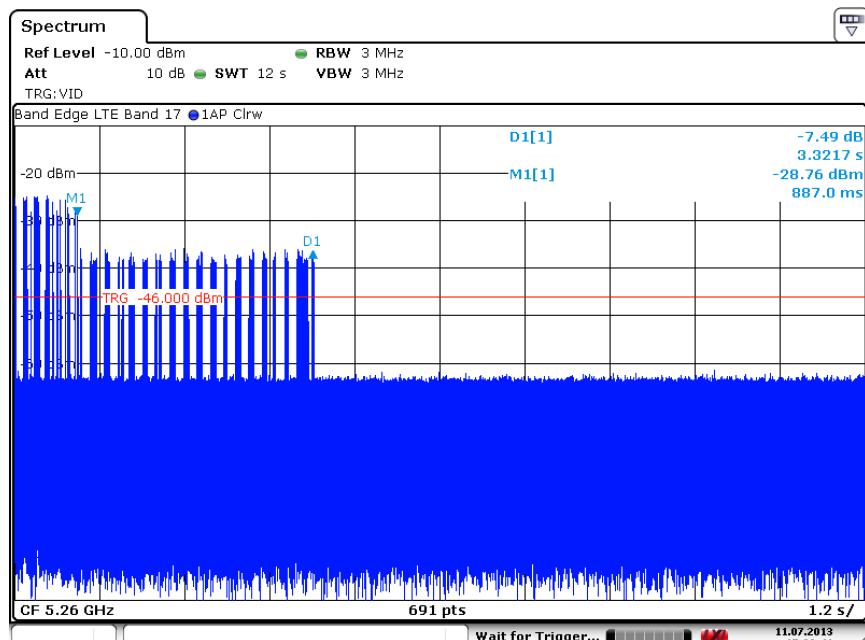
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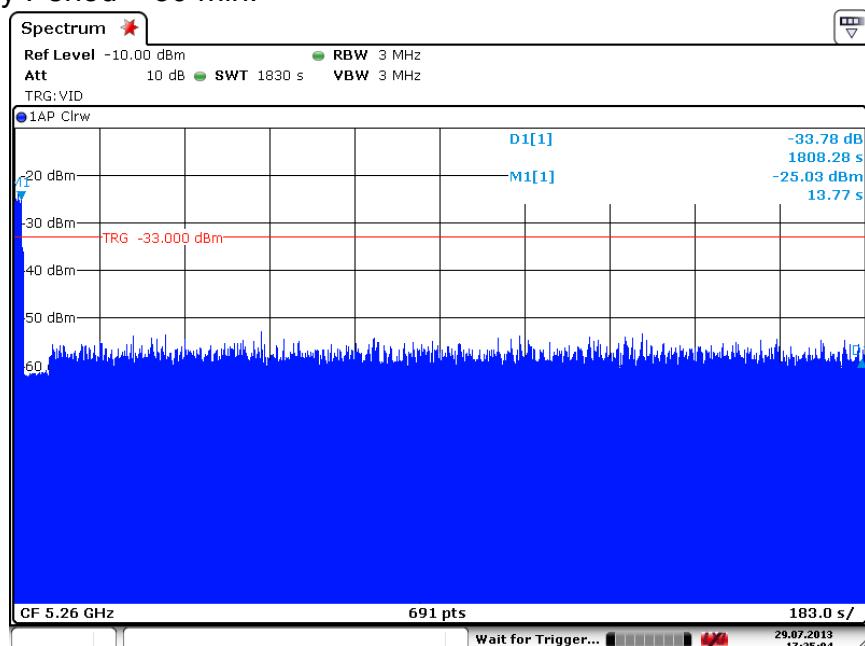
DFS Conducted Test Results Cont'd

Channel Move Time



Date: 11.JUL.2013 15:39:41

Non-Occupancy Period \geq 30 min.



Date: 29.JUL.2013 17:35:04