



FCC/IC Test Report

FOR:

**Model Name: 710.1
Smart Phone**

**FCC ID: QMNRM-809
IC ID: 661X-RM809**

**47 CFR Part 15.247 for DSSS Systems
IC RSS-210 Issue 8**

**TEST REPORT #: EMC_NOKIA_028_12001_FCC15.247_Rev1
DATE: 2012-01-09**



**FCC listed
A2LA Accredited

IC recognized #
3462B**

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1 Assessment

The following device was tested against the applicable criteria specified in FCC rules Parts 15.247 of Title 47 of the Code of Federal Regulations and Industry Canada Standards RSS 210 Issue 8 and no deviations were ascertained during the course of the tests performed.

Company	Description	Model #
Nokia Corporation	Smart Phone	710.1

Responsible for Testing Laboratory:

2012-01-09	Compliance	Sajay Jose Test Lab Manager	
Date	Section	Name	Signature

Responsible for the Report:

2012-01-09	Compliance	Calvin Lee 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 EMC 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 Director:	Heiko Strehlow
Responsible Project Leader:	Sajay Jose

2.2 Identification of the Client

Applicant's Name:	Nokia Corporation
Street Address:	16620 West Brenardo Drive
City/Zip Code	San Diego, CA 92127
Country	USA
Contact Person:	Kevin Hasselquist
Phone No.	619-322-4288
Fax:	858-385-1471
e-mail:	Kevin.Hasselquist@nokia.com

2.3 Identification of the Manufacturer

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

3 Equipment under Test (EUT)

3.1 Specification of the Equipment under Test

Model No:	Smart Phone / 710.1
HW / SW Revision :	0201 / 1600.3009.8104.11470
FCC-ID / IC-ID:	QMNRM-809 / 661X-RM809
Product Type:	Smart Phone
Frequency Range / number of channels:	2412-2462 MHz / 11 channels
Type(s) of Modulation:	DSSS
Modes of Operation:	802.11b
Power Supply	Battery, BP-3L
Prototype / Production unit	Prototype
Date of testing:	Jan 6, 2012

3.2 Identification of the Equipment under Test (EUT)

EUT #	Serial Number	HWID	SW Version	Comments
1	4402137040287	0201	1600.3009.8104.11470	Conducted Unit

3.3 Identification of Accessory equipment

AE #	Type	Manufacturer	Model	Serial Number
1	Battery	Nokia	BP-3L	n/a

3.4 Test modes of operation:

Mode	Data rate (Mbps)	Modulation scheme
802.11b	11.0	QPSK

4 Subject Of Investigation

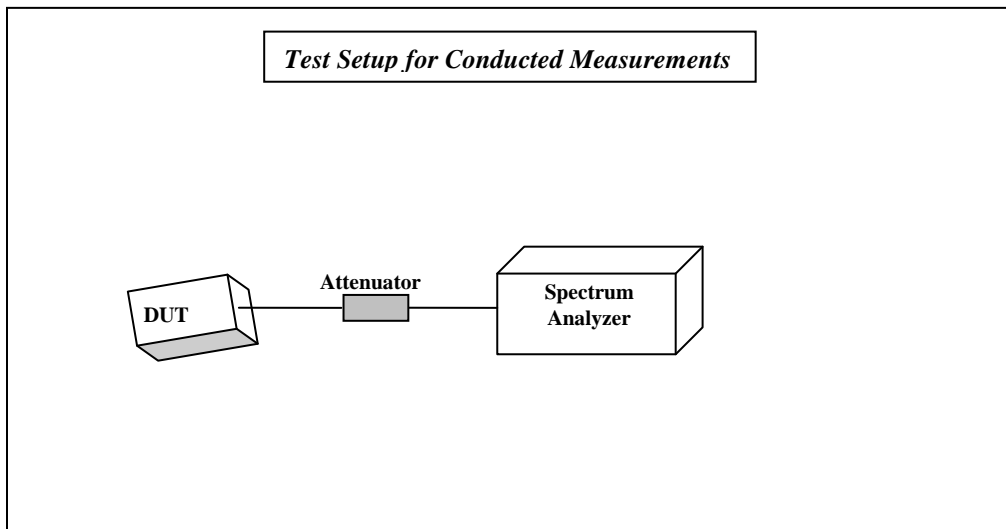
The objective of the measurements done by Cetecom Inc. was to measure the performance of the EUT as specified by requirements listed in

- 47 CFR Part 15: Title 47 of the Code of Federal Regulations: Chapter I-Federal Communications Commission subchapter A- General, Part 15- Radio Frequency Devices.
- RSS-210 Issue 8: Spectrum Management and Telecommunications- Radio Standards Specification. Low-power Licence-exempt radio communication devices (All frequency bands): Category 1 equipment.

This test report is to support a request for Peak Conducted Power measurement in 802.11b mode under the FCC ID **QMNRM-809** and IC ID **661X-RM809**.

All testing was performed on the product referred to in Section 3 as EUT.

4.1 Conducted Measurement Procedure



1. Connect the equipment as shown in the above diagram.
2. Adjust the settings of the Digital Radio Communication Tester (DRT) to connect the EUT at the required channel (OR) alternatively use the EUT to set to transmit at a specific mode.
3. Measurements are to be performed with the EUT set to the low, middle and high channels.

4.2 Maximum Peak Output Power

4.2.1 Limits:

4.2.1.1 §15.247 (b)(3)

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the *maximum conducted output power* is the highest total transmit power occurring in any mode.

4.2.1.2 RSS 210- A8.4(2)

Nominal Peak Output Power < 30 dBm (1W)

EIRP < 36dBm

4.2.2 Test Conditions:

Tnom: 25°C; Vnom: Battery

Spectrum Analyzer settings:

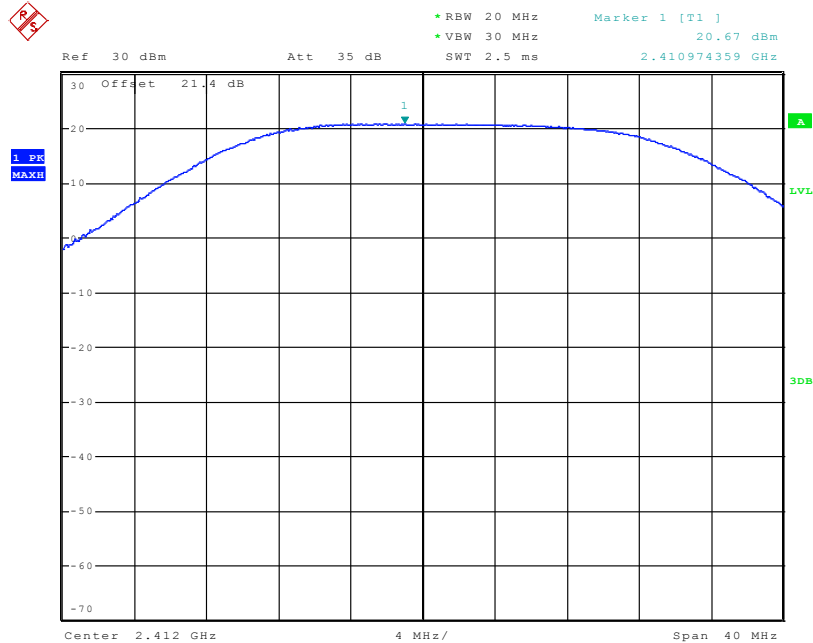
RBW=20MHz, VBW=30MHz, Detector: Peak- Max Hold.

Sweep Time: Auto

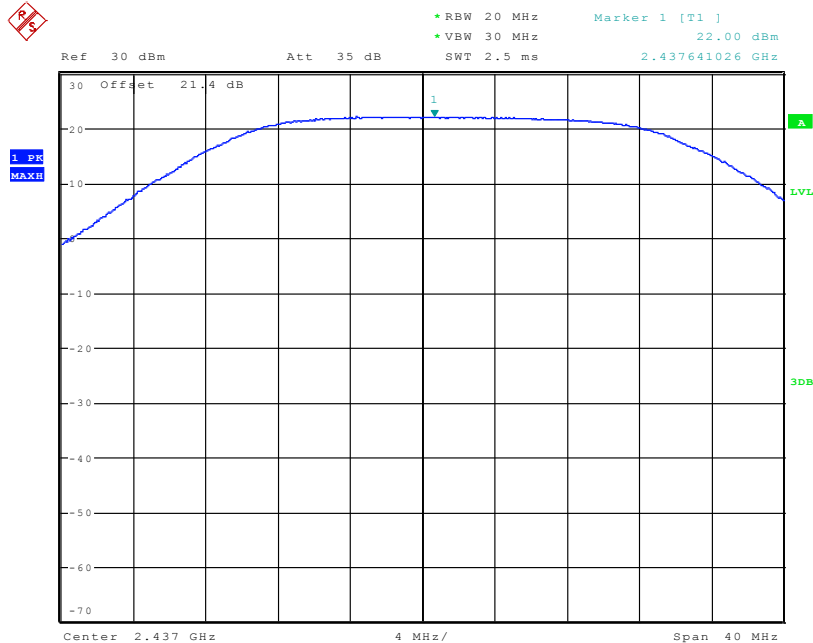
Span=40MHz

4.2.3 Test Result:

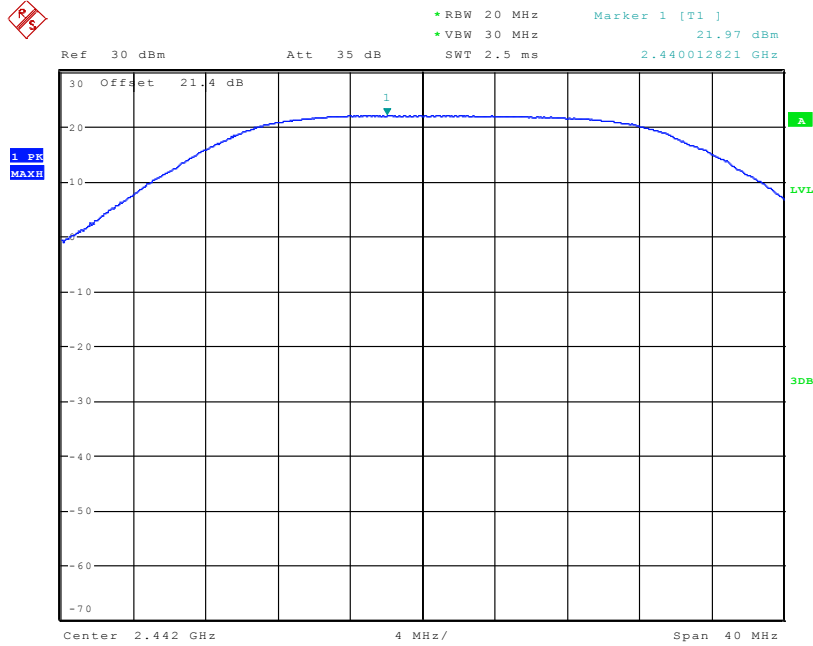
Output Power- Conducted (dBm)				
Mode	Frequency (MHz)			
	2412 Channel 1	2437 Channel 6	2437 Channel 7	2462 Channel 11
	Peak	Peak	Peak	Peak
802.11b	20.67	22.00	21.97	22.37
Measurement Uncertainty: ±0.5dB				

4.2.4 Test Data/plots:**Conducted Peak Power 802.11b 2412 MHz (Ch 1)**

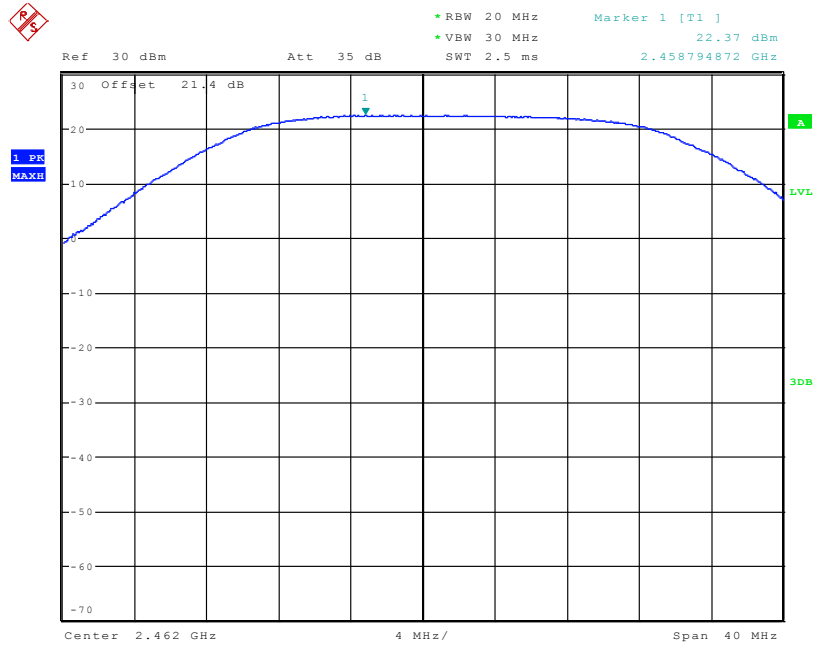
Date: 6.JAN.2012 10:43:00

Conducted Peak Power 802.11b 2437 MHz (Ch 6)

Date: 6.JAN.2012 10:49:55

Conducted Peak Power 802.11b 2442 MHz (Ch 7)

Date: 6.JAN.2012 10:48:53

Conducted Peak Power 802.11b 2462 MHz (Ch 11)

Date: 6.JAN.2012 10:52:31

5 Test Setup photo



6 Test Equipment and Ancillaries used for tests

Instrument/Ancillary	Model	Manufacturer	Serial No.	Cal Date	Cal Interval
Spectrum Analyzer	FSU	Rohde & Schwarz	200302	May 2011	1 year
20 dB Attenuator	6620_SMA-50-1/199_NE	Huber-Suhner	n/a	n/a	n/a
Multimeter	MM200	Klein	N/A	Apr 2011	1 Year
Temp Hum Logger	TM320	Dickson	03280063	Feb 2011	1 Year

7 Revision History

Date	Report Name	Changes to report	Report prepared by
2012-01-06	EMC_NOKIA_028_12001_FCC15.247	First version	Calvin Lee
2012-01-09	EMC_NOKIA_028_12001_FCC15.247_Rev1	Correct typo for HWID & Section 3.4 (Data Rate & Modulation Scheme)	Calvin Lee