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## TEST REPORT

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Report No.: SRMC2008-H024-E0038

Product Name: CDMA 1X Digital Mobile Phone

Product Model: RM-388

Applicant: Nokia Inc.

Manufacturer: BYD Company Limited

Specification: FCC Part 15B (Certification)

FCC ID: QMNRN-388

The State Radio Monitoring Center, Equipment Testing Division

The State Radio Spectrum Monitoring and Testing Center

No.80 Beilishi Road Xicheng District Beijing, China

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## 1. General information

### 1.1 Notes of the test report

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The test results relate only to individual items of the samples which have been tested.

### 1.2 Information about the testing laboratory

Company: The State Radio Monitoring Center, Equipment Testing Division  
The State Radio Spectrum Monitoring and Testing Center  
Address: No.80 Beilishi Road, Xicheng District, Beijing China  
City: Beijing  
Country or Region: China  
Contacted person: Wang Junfeng  
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Email: Wangjf@srrc.org.cn

### 1.3 Applicant's details

Company: Nokia Inc.  
Address: 12278 Scripps Summit Drive 92131  
City: San Diego, CA  
Country or Region: USA  
Grantee Code: QMN  
Contacted person: Mary Washington  
Tel: +1 858 831 5000  
Fax: +1 858 831 6500  
Email: mary.washington@Nokia.com

### 1.4 Manufacturer's details

Company: BYD Company Limited  
Address: No.1 Yan an Road, Kuichong, Longgang, 518119  
City: Shenzhen  
Country or Region: P. R. China  
Contacted person: Konger Kong  
Tel: +86-021-61009669-2102  
Fax: +86-021-61009668  
Email: konger.kong@byd.com

## 1.5 Application details

Date of receipt of test sample: 23<sup>th</sup> June 2008  
Date of test: 23<sup>th</sup> June 2008 to 27<sup>th</sup> June 2008

## 1.6 Reference specification

FCC Part 15B (Certification)

## 1.7 Information of EUT

### 1.7.1 General information

|                            |                                |
|----------------------------|--------------------------------|
| Name of EUT                | CDMA 1X Digital Mobile Phone   |
| FCC ID                     | QMNRN-388                      |
| Frequency range            | Tx:824~849MHz<br>Rx:869~894MHz |
| Rated output power         | 24.0dBm                        |
| Modulation type            | OQPSK                          |
| Emission Designator        | 1M25F9W                        |
| Equipment Class            | Class B                        |
| Duplex mode                | FDD                            |
| Duplex spacing:            | 45MHz                          |
| Antenna type               | Fixed Internal                 |
| Power Supply               | Battery or charger             |
| Rated Power Supply Voltage | 3.7V                           |
| Extreme Temperature        | -30°C~+50°C                    |
| Extreme Voltage            | Minimum: 3.1V<br>Maximum: 4.2V |
| HW Version                 | 3000                           |
| SW Version                 | DN_1300B_0509_R800-FCC_R80     |

### 1.7.2 EUT details

| Name                         | Model  | Serial number       |
|------------------------------|--------|---------------------|
| CDMA 1X Digital Mobile Phone | RM-388 | MEID A0000001268E23 |

### 1.7.3 Auxiliary equipment details

|              |            |
|--------------|------------|
| Equipment    | Charger    |
| Manufacturer | Nokia Inc. |
| Model Number | AC-6U      |

|               |            |
|---------------|------------|
| Equipment     | Battery    |
| Manufacturer  | Nokia Inc. |
| Model Number  | BL-4C      |
| Capacity      | 860 mAh    |
| Rated Voltage | 3.7V       |

|              |            |
|--------------|------------|
| Equipment    | Headset    |
| Manufacturer | Nokia Inc. |
| Model Number | HS-9       |

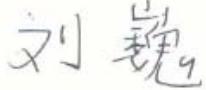
|              |            |
|--------------|------------|
| Equipment    | USB Cable  |
| Manufacturer | Nokia Inc. |
| Model Number | CA-101     |

|              |        |
|--------------|--------|
| Equipment    | Laptop |
| Manufacturer | IBM    |
| Model Number | X32    |

## 2. Test information:

### 2.1 Summary of the test results:

| No. | Test case           | FCC reference | Verdict |
|-----|---------------------|---------------|---------|
| 1   | Conducted emissions | 15.107        | Pass    |
| 2   | Radiated emissions  | 15.109        | Pass    |

|   |  |
|---|--|
| This Test Report Is Issued by:<br>Mr. Kan Runtian, Director of the test lab<br> | Checked by:<br> |
| Tested by:<br>   | Issued date:<br>27 <sup>th</sup> June 2008   |

### Test report revision:

| Revision | Report No. | Issue Date |
|----------|------------|------------|
| 0        |            |            |
| 1        |            |            |
| 2        |            |            |
|          |            |            |
|          |            |            |

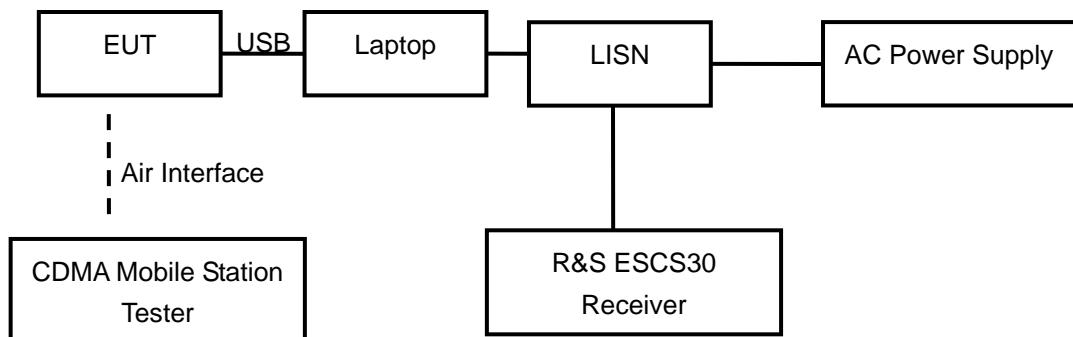
## 2.2 Test result

### 2.2.1 Conducted Emissions-FCC Part15.107

Ambient condition:

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 21°C        | 45%               | 101.0kPa |

Test Setup:



Test Procedure:

The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The EUT connects with a laptop via the USB cable. The phone modem drivers were installed on the laptop to be able to communicate with the EUT by continuously sending a querying text file (AT Command) to the phone using Hyper Terminal during the test. The accessories of the EUT are connected with the EUT such as headset etc. The AC main power supply of the laptop is connected to LISN and LISN is connected to the reference ground. The test set-up and the test methods are performed according to ANSI C63.4:2003. The measurement should be done for both L line and N line. The receiver uses both average detector and Quasi-peak detector. The EUT is working in idle mode.

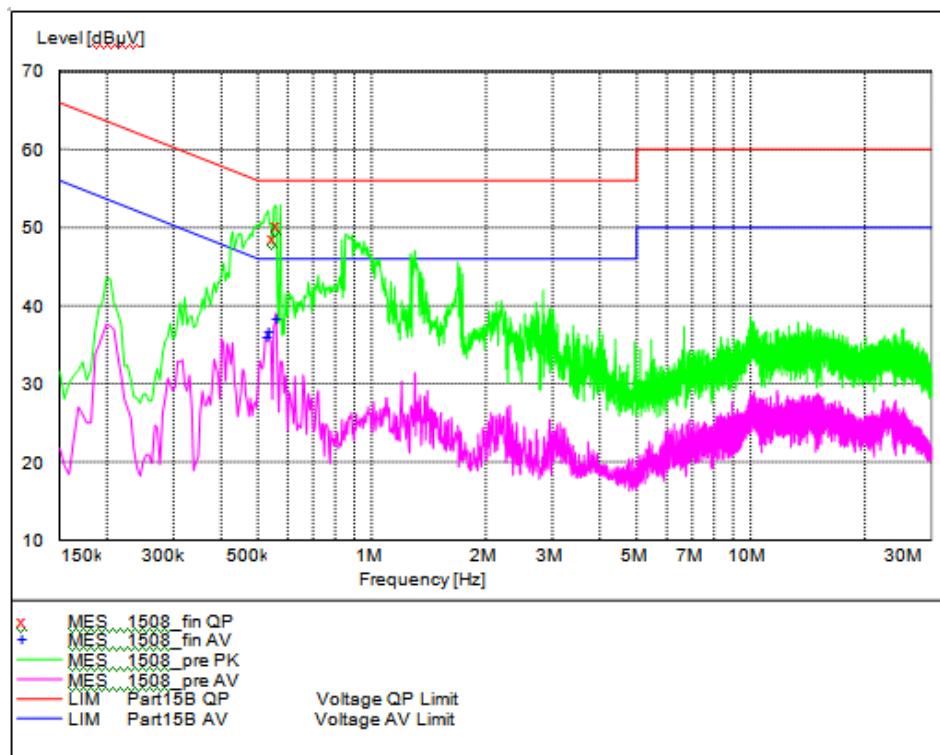
Limit:

| Frequency of Emission(MHz) | Limits(dB $\mu$ V) |           |
|----------------------------|--------------------|-----------|
|                            | Quasi-peak         | Average   |
| 0.15~0.5                   | 66 to 56*          | 56 to 46* |
| 0.5~5                      | 56                 | 46        |
| 5~30                       | 60                 | 50        |

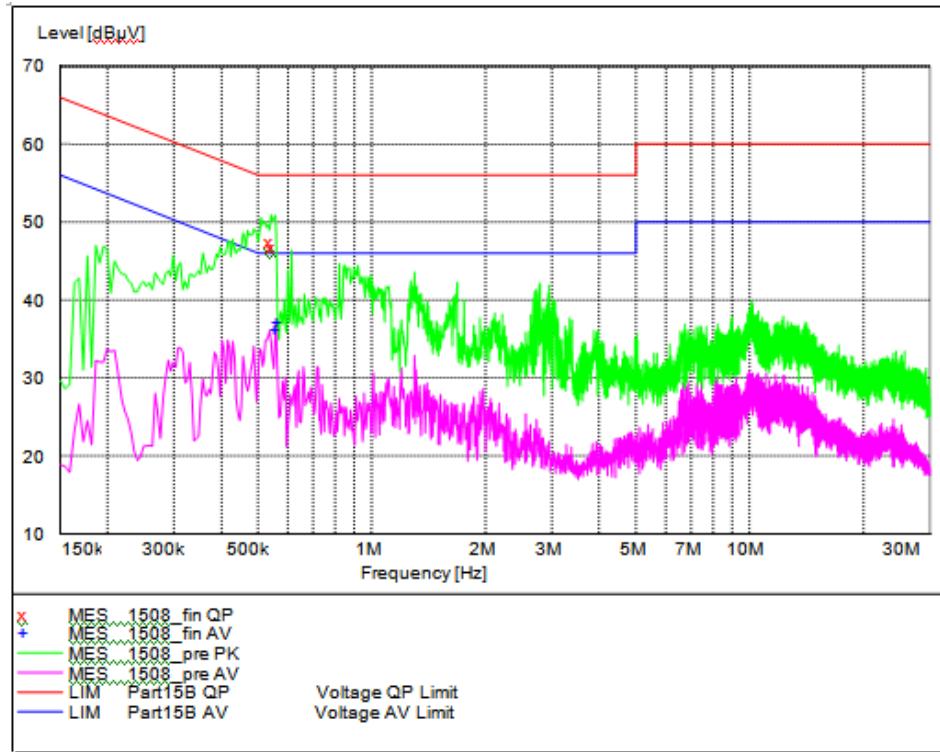
Note: \* Decreases with the logarithm of the frequency

Test result:

Refer to the following figures.



L Line



N Line

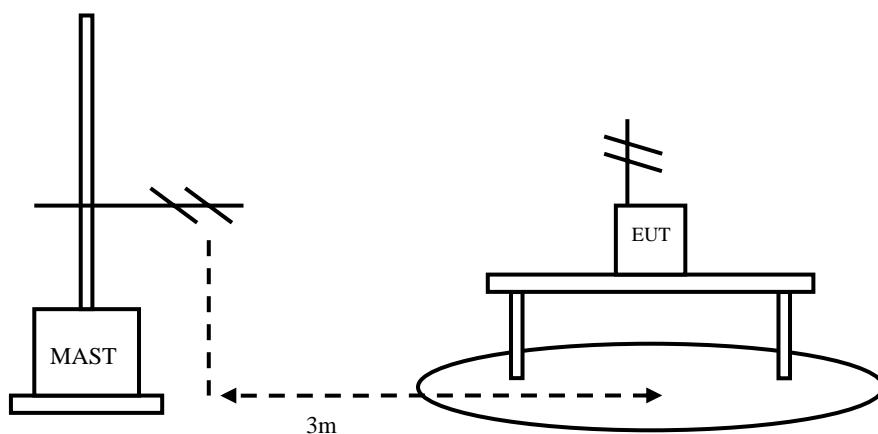
| Frequency (MHz) | Detector   | Line | Level (dB $\mu$ V) | Limit (dB $\mu$ V) | Margin (dB) |
|-----------------|------------|------|--------------------|--------------------|-------------|
| 0.528000        | Average    | L    | 35.90              | 46.0               | 10.10       |
| 0.537000        | Average    | L    | 36.70              | 46.0               | 9.30        |
| 0.559500        | Average    | L    | 38.30              | 46.0               | 7.70        |
| 0.532500        | Average    | N    | 35.38              | 46.0               | 10.62       |
| 0.555000        | Average    | N    | 36.20              | 46.0               | 9.80        |
| 0.559500        | Average    | N    | 37.00              | 46.0               | 9.00        |
| 0.528000        | Quasi-peak | L    | 51.71              | 56.0               | 4.29        |
| 0.537000        | Quasi-peak | L    | 48.70              | 56.0               | 7.30        |
| 0.559500        | Quasi-peak | L    | 50.40              | 56.0               | 5.60        |
| 0.532500        | Quasi-peak | N    | 49.66              | 56.0               | 6.34        |
| 0.555000        | Quasi-peak | N    | 47.50              | 56.0               | 8.50        |
| 0.559500        | Quasi-peak | N    | 46.70              | 56.0               | 9.30        |

## 2.2.2 Radiated Emissions -FCC Part15.109

Ambient condition:

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 21°C        | 45%               | 101.0kPa |

Test Setup:



Test Procedure:

The EUT should be placed on a non-metallic table 80cm above the ground plane. The receive antennas shall be moved from 1 to 4 meters. The distance between EUT and receive antenna should be 3 meters.

The EUT connect with a laptop via the USB cable. The phone modem drivers were installed on the laptop to be able to communicate with the EUT by continuously sending a querying text file (AT Command) to the phone using Hyper Terminal during the test. The accessories of the EUT are connected with the EUT such as headset etc. The test set-up and the test methods are performed according to ANSI C63.4:2003.

Then start the test software ES-K1. Sweep the whole frequency band through the range from 30MHz to 1GHz, using receive log period antenna HL562.

During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna.

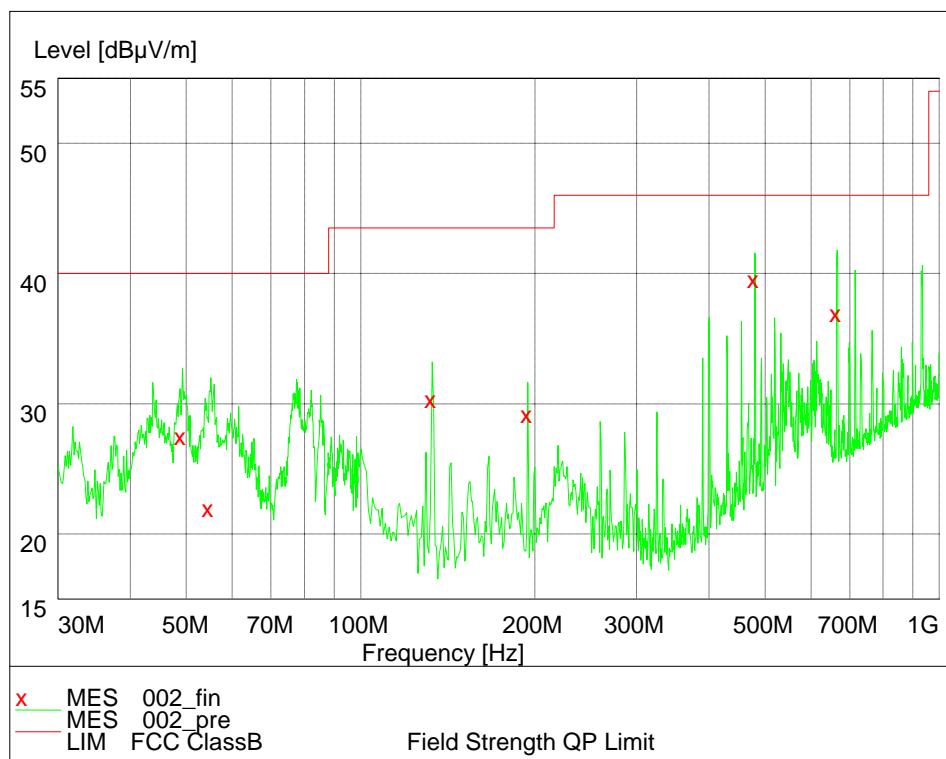
The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.

Limit:

| Frequency of Emission(MHz)  | Limits          |                     |
|---|-----------------|---------------------|
|   | Detector        | Unit (dB $\mu$ V/m) |
| 30~88   | Quasi-peak      | 40                  |
| 88~216  | Quasi-peak      | 43.5                |
| 216~960   | Quasi-peak      | 46                  |
| 960~1000  | Quasi-peak      | 54                  |
| 1000~5th harmonic of the highest frequency or 40GHz, whichever is lower | Average<br>Peak | 54<br>74            |

Test result:

Refer to the following figures.



For measurement above 1GHz, all emissions level measured were more than 10dB below the limit.

| Frequency (MHz) | Polarization | Level (dB $\mu$ V/m) | Limit (dB $\mu$ V/m) | Margin (dB) |
|-----------------|--------------|----------------------|----------------------|-------------|
| 49.140000       | Vertical     | 28.2                 | 40.0                 | 11.8        |
| 54.780000       | Vertical     | 22.70                | 40.0                 | 17.3        |
| 132.960000      | Vertical     | 31.10                | 43.5                 | 12.4        |
| 194.940000      | Vertical     | 29.90                | 43.5                 | 13.6        |
| 237.875752      | Horizontal   | 30.73                | 46.0                 | 15.27       |
| 479.980000      | Horizontal   | 40.30                | 46.0                 | 5.7         |
| 665.640000      | Vertical     | 37.70                | 46.0                 | 8.3         |

## 2.3. List of test equipments

| No. | Name/Model                                     | Manufacturer | S/N         | Calibration Date           |
|-----|--|--------------|-------------|----------------------------|
| 1   | 23.18mx16.88mx9.60m<br>Semi-Anechoic Chamber   | FRANKONIA    | -----       | 19 <sup>th</sup> Aug. 2007 |
| 2   | ESI 40 EMI test receiver                       | R&S          | 100015      | 19 <sup>th</sup> Aug. 2007 |
| 5   | E5515C(8960) Mobile<br>Station Tester          | Agilent      | GB44050904  | 19 <sup>th</sup> Aug. 2007 |
| 6   | 9.080mx5.255mx3.525m<br>Shielding room         | FRANKONIA    | -----       | 19 <sup>th</sup> Aug. 2007 |
| 7   | ESCS30 EMI test receiver                       | R&S          | 100029      | 19 <sup>th</sup> Aug. 2007 |
| 8   | HL562 Ultra log test<br>antenna                | R&S          | 100016      | 19 <sup>th</sup> Aug. 2007 |
| 9   | ESH3-Z2 Pulse limiter                          | R&S          | 10002       | 19 <sup>th</sup> Aug. 2007 |
| 10  | ESH3-Z5 Attenuator                             | R&S          | 100020      | 19 <sup>th</sup> Aug. 2007 |
| 11  | ESH2Z11 LISN                                   | R&S          | 50FH-020-10 | 19 <sup>th</sup> Aug. 2007 |
| 12  | HF 906 Double-Ridged<br>Waveguide Horn Antenna | R&S          | 100030      | 19 <sup>th</sup> Aug. 2007 |
| 13  | HF 906 Double-Ridged<br>Waveguide Horn Antenna | R&S          | 100029      | 19 <sup>th</sup> Aug. 2007 |
| 14  | PS2000 Turn Table                              | FRANKONIA    | -----       | 19 <sup>th</sup> Aug. 2007 |
| 15  | MA260 Antenna Master                           | FRANKONIA    | -----       | 19 <sup>th</sup> Aug. 2007 |
| 16  | ES-K1EMI test software                         | R&S          | -----       | 19 <sup>th</sup> Aug. 2007 |
| 17  | HL562 Receive antenna                          | R&S          | 100167      | 19 <sup>th</sup> Aug. 2007 |

## **Appendix**