



EXHIBIT 2

Test Report Summary

Applicant: Nortel Networks

**For Class II Permissive Change
Certification on:**

AB6NT800MFRM



Test Report Summary for FCC Class II Permissive Change Equipment Authorization

FCC ID : AB6NT800MFRM Multi-carrier Flexible Radio Module

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1 Introduction

This test report is submitted in accordance with the FCC Rules and Regulations, Part 2, Subpart J, Sections 2.1046 through 2.1057 for equipment authorization of Nortel Networks' CDMA 800 MHz Multi-carrier Flexible Radio Module (MFRM). The 800 MHz_MFRM is intended for use in the Domestic Public Cellular Radio Telecommunications Service and is designed in accordance with the following standards:

- *CFR 47, Part 22, Subpart H, Subpart H, Cellular Radiotelephone Service[1]*
- *CFR 47, Part 2, Subpart J, Equipment Authorization Procedures - Equipment Authorization[2]*
- *CFR 47, Part 24, Subpart E, Broadband Personal Communications Service [3]*

1. Test Result Summary

Table 1 summarizes the measurement results for the CDMA 800 MHz MFRM.

Table 1: Test Results Summary

FCC Measurement Specification	FCC Limit Specification	Description	Results	Test(s) Conducted by	Remarks
2.1046	22.913	RF Output Power	Compliant	Nortel Networks	See Exhibit 2A
2.1047	22.901	Modulation Characteristics	Not Applicable		
2.1049		Occupied Bandwidth	OBW = 1.2626 MHz (one carrier) OBW = 2.4649 MHz (two carriers) OBW = 3.6673 MHz (three carriers)	Nortel Networks	See Exhibit 2A
2.1051, 2.1057	22.901, 24.238	Spurious Emission at Antenna Terminals	Compliant	Nortel Networks	See Exhibit 2A
2.1053, 2.1057	22.901, 24.238	Field Strength of Spurious Radiation	Compliant	Sanmina Canada ULC	See Exhibit 2B
2.1055	22.913	Frequency Stability	Compliant	Nortel Networks	See Exhibit 2A

2. Engineering Declaration

The CDMA 800 MHz Multi-carrier Flexible Radio has been tested in accordance with the requirements contained in the Federal Communication Rules and Regulations Part 2, 22 and 24.

To the best of my knowledge, these tests were performed in accordance with good engineering practices using measurement procedures consistent with industry or commission standards or previous Commission correspondence or guidance and demonstrate that this equipment complies with the appropriate standards. All tests (including tests performed by Sanmina Canada ULC) were conducted on a representative sample of the equipment for which type acceptance/certification is sought.

Report Prepared by

Thomas Wong
Regulatory Prime
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Calgary, Alberta


Signature

May 17, 2002
Date

3. Type Acceptance Application Requirements

3.1 Name of Applicant

The applicant is Nortel Networks Inc.

3.2 Identification of Equipment

The equipment in this application for type acceptance is the Nortel's CDMA 800 MHz Multi-carrier Flexible Radio Module (MFRM). The 800MHz MFRM is marketed under the model number NT800MFRM. The FCC ID number sought is AB6NT800MFRM.

3.3 Quantity Production

The 800 MHz MFRM will be produced in quantity.

3.4 Type of Emissions

The 800 MHz MFRM Assembly is designed to operate in digital mode. The emission type is F9W for CDMA mode. The emission designators are 1M25F9W (1 Channel), 2M50F9W (2 Channels) and 3M75F9W (3 Channels). Testing was conducted in single channel, two channel, and 3 channel mode to determine compliance. The emission designators were calculated based on requirements of FCC Rule Part 2, Subpart C - Emissions, section 2.201 and Section 2.202.

3.5 Frequency Range

The 800 MHz MFRM operates in the 800 MHz cellular band where the operating frequency ranges are 824 – 849 MHz for the receiver and 869 - 894 MHz for the transmitter. The following table shows the valid CDMA channels within this band.

Band	CDMA Channel Number	Transmitter Frequency Assignment for Base Station (MHz)	Valid CDMA Frequency Assignment
A''	991-1012	869.040-869.670	In-Valid
	1013-1023	869.700-870.000	Valid
A	1-311	870.030-879.330	Valid
	312-333	879.360-879.990	In-Valid
B	334-355	880.020-880.650	In-Valid
	356-644	880.680-889.320	Valid
	645-666	889.350-889.980	In-Valid
A'	667-688	890.010-890.640	In-Valid
	689-694	890.670-890.820	Valid
	695-716	890.850-891.480	In-Valid
B'	717-738	891.510-892.140	In-Valid
	739-777	892.170-893.310	Valid
	778-799	893.340-893.970	In-Valid

3.6 Range of Operating Power

The 800 MHz MFRM range of operating RF power is 0 dBm to 47.8 dBm . The maximum RF power output is 47.8 dBm..

3.7 Complete Circuit Diagrams

The RF chain of the 800 MHz MFRM is made up of Nortel's MTRM (Multi-carrier Transmit/Receive Module) and OEM equipment. Exhibit 8 contains the schematics of the MTRM and Exhibit 9 contains the parts lists of the MTRM.

The OEM MCPA 800 MHz power amplifier is approved under FCC ID E675JS0047.

3.8 Tune-up Procedure

The tune-up tests will be performed as part of the factory testing on the MFRM. This procedure includes power output levels, spurious emissions, and occupied bandwidth. There are no end-user adjustments that will have any effect on these settings. No tune-up testing is required in the field.

3.9 Circuit Description for Frequency Determining and Stabilizing

The Global Positioning Satellite Timing Module (GPSTM) is the primary clock source in the system. It consists of two outputs:

EVEN_SEC Clock and,
SYS_CLK (at 8fc or 9.8304 MHz)

In addition, the GPSTM has a 10 MHz reference output that can be used to synchronize external measurement equipment during system testing.

The GPSTM distributes the primary clock signals directly to the Control Module (CM) and the CORE modules (see Exhibit 3) which in-turn distribute the clock signals to the digital modules and to the MFRM via the high speed optical link.

The GPSTM has a frequency stability of better than 1.0 part per billion.

3.10 Circuit Description for Suppression of Spurious Radiation

The Tx band pass filter in the DPM provides out of band emission rejection and permits only signals in the Tx band to the antenna for emission.

3.11 Circuit Description for Limiting Modulation

This systems employs digital modulation techniques producing CDMA forward and reverse channel air interfaces which are compatible with IS 95A and IS 97A technical standards.

4. Test Method and Test Result

4.1 Tests performed by Nortel Networks

RF Power Output

The maximum measured RF output power was 47.66 dBm for single carrier.

The maximum measured RF output power was 46.96 dBm for two carriers.

The maximum measured RF output power was 47.67 dBm for three carriers.

Occupied Bandwidth

The maximum measured occupied bandwidth was 1262.565 KHz for single carrier.

The maximum measured occupied bandwidth was 2464.929 KHz for two carriers.

The maximum measured occupied bandwidth was 3667.334 KHz for three carriers.

Spurious Emissions at Antenna Terminals

The minimum pass margin for one, two and three carrier(s) is:

- 1 MHz upper and lower band edge measurements was 3.9 dB

- 1 MHz to 10 GHz measurements was > 20 dB (@ noise floor of the measuring instruments).

Frequency Stability

The GPS module has a frequency stability of 0.8 ppb over the range of -5 °C to 70 °C.

Please refer to the Exhibit 2A for all test setups and results in details provided by Nortel Networks.

4.2 Tests performed by Sanmina Canada ULC

Radiated Emission Test Results from 30 MHz to 1 GHz

The minimum pass margin: 52.12 dB for H-Pol
57.20 dB for V-Pol

Radiated Emission Test Results from 1 GHz to 18 GHz

The minimum pass margin: 23.74 dB for H-Pol
24.64 dB for V-Pol

Please refer to the Exhibit 2B for all test setups and results in details provided by Sanmina Canada ULC.