



# **EXHIBIT 2**

## **Test Report Summary**

**Applicant: Nortel Networks**

**For Class II Permissive  
Change on :**

**FCC: AB6NT1900RM-CBTS**

**IC: 332D-CBS1G9RM**



---

## Test Report Summary for FCC Equipment Authorization

**FCC ID :** AB6NT1900RM-CBTS (CDMA cBTS 1900MHz RM)  
**IC ID:** 332D-CBS1G9RM

**Document:** TRS\_AB6NT1900RM-CBTS  
**Stream:** 00  
**Issue:** 02  
**Issue Date:** March 15, 2006  
**Security Status:** Nortel Networks Confidential  
**Author:** Thomas Wong

---

© 2006 Nortel Networks Limited

### Disclaimer

The master of this document is stored on an electronic database and “write protected”. The protection can be altered by authorized persons only. Viewing of the master document electronically ensures access to the current issue. Any hardcopies must be regarded as uncontrolled copies.

### Security Warning

The information disclosed herein is proprietary to Nortel Networks and not to be used by or disclosed by unauthorized persons without the written consent of Nortel Networks. The recipient of this document shall respect the security status of the information.

---

# 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 1900 MHz Radio Module for cBTS Basestation. The 1900 MHz cBTS RM is intended for use in the Domestic Public Cellular Radio Telecommunications Service and is designed in accordance with the following standards:

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

## 1. Test Result Summary

Table 1 summarizes the measurement results for the CDMA 1900 MHz cBTS RM.

**Table 1: Test Results Summary**

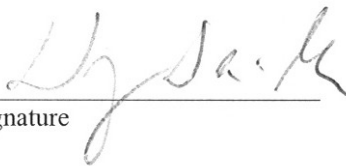
FCC Measurement Specification	FCC Limit Specification	Description	Results	Test(s) Conducted by	Remarks
2.1033(c)(8)		Measurement of DC Power		Nortel Networks	
2.1046	24.232	RF Output Power	Compliant	Nortel Networks	See Exhibit 2A
2.1049		Occupied Bandwidth	OBW = 1.27054 MHz (one carrier) OBW = 2.49298 MHz (two carriers) OBW = 3.71943MHz (three carriers)	Nortel Networks	See Exhibit 2A
2.1051, 2.1057	24.238	Spurious Emission at Antenna Terminals	Compliant	Nortel Networks	See Exhibit 2A
2.1053, 2.1057	24.238	Field Strength of Spurious Radiation	Compliant	NTS Calgary	See Exhibit 2B
2.1055	24.238	Frequency Stability	Compliant	Nortel Networks	See Exhibit 2A

## 2. Engineering Declaration

The CDMA 1900 MHz cBTS RM has been tested in accordance with the requirements contained in the Federal Communication Rules and Regulations Part 2 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 NTS Calgary) were conducted on a representative sample of the equipment for which original equipment certification is sought.

Report Prepared by

  
Signature

Thomas Wong  
Regulatory Prime  
Nortel Networks  
Calgary, Alberta

March 15, 2006

### **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 1900 MHz cBTS RM. The 1900MHz cBTS RM is marketed under the model number NT1900RM. The FCC ID number sought for original equipment certification is AB6NT1900RM-CBTS. The IC number is 332D-CBS1G9RM.

#### **3.3 Quantity Production**

The 1900 MHz cBTS RM will be produced in quantity.

#### **3.4 Technical Description**

See Exhibit 3.

#### **3.5 Type of Emissions**

The 1900 MHz cBTS RM Assembly is designed to operate in digital mode.

The emission type is F9W for CDMA mode (IS95A and IS2000). The emission designators are 1M25F9W (1 Channel), 2M50F9W (2 Channels) and 3M75F9W (3 Channels).

The emission type is D9W for 1xEV-DO mode (IS856). The emission designators are 1M25D9W (1 Channel), 2M50D9W (2 Channels) and 3M75D9W (3 Channels).

Testing was conducted in single channel, two channel, and three channel modes for compliant. The emission designators were calculated based on requirements of FCC Rule Part 2, Subpart C - Emissions, section 2.201 and Section 2.202.

#### **3.6 Frequency Range**

The 1900 MHz cBTS RM operates in the 1900 MHz cellular band where the operating frequency ranges are 1850 – 1910 MHz for the receiver and 1930 – 1990 MHz for the transmitter. The following table shows the valid CDMA channels within this band. The 1900MHz cBTS RM

meets all FCC requirements within the valid (and conditional valid if A/D, B/E, or C/F are under the same operator) channels.

<b>Band</b>	<b>CDMA Channel Number</b>	<b>Transmitter Frequency Assignment for Base Station (MHz)</b>	<b>Valid IS97 CDMA Frequency Assignment</b>
A	0-24	1930.00-1931.20	In-Valid
	25-275	1931.25-1943.75	Valid
	276-299	1943.80-1944.95	Cond. Valid
D	300-324	1945.00-1946.20	In-Valid
	325-375	1946.25-1948.75	Valid
	376-399	1948.80-1949.95	Cond. Valid
B	400-424	1950.00-1951.20	In-Valid
	425-675	1951.25-1963.75	Valid
	676-699	1963.80-1964.95	Cond. Valid
E	700-724	1965.00-1966.20	In-Valid
	725-775	1966.25-1968.75	Valid
	776-799	1968.80-1969.95	Cond. Valid
F	800-824	1970.00-1971.20	In-Valid
	825-875	1971.25-1973.75	Valid
	876-899	1973.80-1974.95	Cond. Valid
C	900-924	1975.00-1976.20	In-Valid
	925-1175	1976.25-1988.75	Valid
	1176-1199	1988.80-1989.95	Cond. Valid

### 3.7 Range of Operating Power

The 1900 MHz cBTS RM range of operating RF power is 0 dBm (1W) to 46.0 dBm (40W). The maximum RF power output is 46.0 dBm (40W).

### 3.8 Complete Circuit Diagrams

The Tx chain of the 1900 MHz cBTS RM for certification is made up of RM (consists of radio and PA portions) and DPM (an OEM equipment). Exhibit 8 contains the schematics of circuit cards inside the RM and Exhibit 9 contains the parts lists of the circuit cards inside RM.

### 3.9 Tune-up Procedure

The tune-up tests will be performed as part of the factory testing on the 1900MHz cBTS RM. 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.

### **3.10 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 1900MHz RM via the high speed serial link.

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

### **3.11 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. The close in-band spurs are being taken care of by the BBPD (Base-Band Pre-Distortion) circuitry in the 1900MHz RM.

### **3.12 Circuit Description for Limiting Modulation**

This system employs digital modulation techniques producing CDMA forward and reverse channel air interfaces which are compatible with IS 95A, IS2000 and IS856 technical standards.

## 4. Measurement of DC Power

### *Section 2.1033(C)(8)*

*The DC voltages applied to and DC currents into the several elements of the final radio frequency amplifying device for normal operation over the power range.*

#### **Response:**

Final Output Transistor: It has four final stage power transistors in parallel. The final state output power transistors each draw average about 2.3A @ 27Vdc.

## 5. Test Method and Test Result

### 5.1 Tests performed by Nortel Networks

#### **RF Power Output**

The maximum measured RF output power was 46.06 dBm for single carrier.

The maximum measured RF output power was 46.05 dBm for two carriers.

The maximum measured RF output power was 46.02 dBm for three carriers.

#### **Occupied Bandwidth**

The maximum measured occupied bandwidth was 1,270.54 kHz for single carrier.

The maximum measured occupied bandwidth was 2,492.98 kHz for two carriers.

The maximum measured occupied bandwidth was 3,719.43 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 8.65 dB

1 MHz to 20 GHz measurements was 7.97 dB.

#### **Frequency Stability**

The worst case of the frequency stability over temperature  $-30$  deg to  $50$  deg C and 85% to 115% of the nominal voltages is 0.005 ppm (9.538 Hz / 1960MHz).



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

## **5.2 Tests performed by NTS Canada (Calgary).**

### **Radiated Emission Test Results from 30MHz to 20 GHz**

The minimum pass margin: 18.43 dB for H-Pol and V-Pol

Please refer to the Exhibit 2B for all test setups and results in details provided by NTS (Calgary).