

# **EXHIBIT 2**

## **Test Report Summary**

**Applicant: Nortel Networks**

**For Original Equipment  
Certification on:**

**FCC Tx ID: AB6NT1030VBTS  
IC: 332D-VBTS1030**



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## **Test Report Summary for Original Equipment Authorization**

**FCC Tx ID : AB6NT1030VTBS 800MHz Village BTS**

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<b>Author:</b>	Thomas Wong

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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 Village Basestation 1030 Radio Module (vBTS 1030 RM). The 800 MHz vBTS 1030 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 22, Subpart H, Subpart H, Cellular Radiotelephone Service[1]*
- *CFR 47, Part 2, Subpart J, Equipment Authorization Procedures - Equipment Authorization[2]*

## 2. Test Result Summary

Table 1 summarizes the measurement results for the CDMA 800 MHz vBTS 1030 RM.

**Table 1: Test Results Summary**

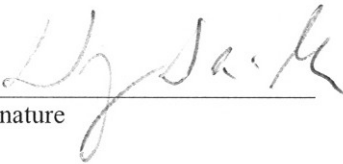
FCC Measurement Specification	FCC Limit Specification	Description	Results	Test(s) Conducted by	Remarks
2.1033(c)(8)		Measurement of DC Power	Provided		
2.1046		RF Output Power	Provided	Nortel Networks	See Exhibit 2A
2.1047		Modulation Characteristics	Not Applicable		
2.1049		Occupied Bandwidth	Provided	Nortel Networks	See Exhibit 2A
2.1051, 2.1057	22.917	Spurious Emission at Antenna Terminals	Compliant	Nortel Networks	See Exhibit 2A
2.1053, 2.1057	22.917	Field Strength of Spurious Radiation	Compliant	NTS Calgary	See Exhibit 2B
2.1055	22.355	Frequency Stability	Compliant	Nortel Networks	See Exhibit 2A

## 2. Engineering Declaration

The CDMA 800 MHz vBTS 1030 RM has been tested in accordance with the requirements contained in the Federal Communication Rules and Regulations Part 2 and 22.

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 type acceptance/certification is sought.

Report Prepared by



Signature

Thomas Wong  
Regulatory Prime  
Nortel Networks  
Calgary, Alberta

June 9, 2005



### **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 vBTS 1030 RM. The 800MHz CDMA Village BTS 1030 RM is marketed under the model vBTS 1030 RM. The FCC ID number sought is AB6NT1030VBTS.

#### **3.3 Quantity Production**

The 800 MHz vBTS 1030 RM will be produced in quantity.

#### **3.4 Technical Description**

See Exhibit 3.

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

The 800MHz vBTS 1030 RM Assembly is designed to operate in digital mode to support 1 carrier and 3 sectors. The emission designators for IS95 and IS2000 are 1M25F9W. Testing was conducted with 1 carrier in one of the sectors. 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 800 MHz vBTS 1030 RM 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 CDMA channels within this band meeting FCC requirements.

Band	CDMA Channel Number	Transmitter Center Frequency Assignment for Base Station (MHz)	Channel Meeting FCC Requirements
A'' + A	991-1014	869.040-869.730	Non-compliance
	1015-308	869.760-879.240	Compliance
	309-333	879.270-879.990	Non-compliance
B	334-357	880.020-880.710	Non-compliance
	358-642	880.740-889.260	Compliance
	643-666	889.290-889.980	Non-compliance
A'	667-691	890.010-890.730	Non-compliance
	692	890.760	Compliance
	693-716	890.790-891.480	Non-compliance
B'	717-741	891.510-892.230	Non-compliance
	742-775	892.260-893.250	Compliance
	776-799	893.280-893.970	Non-compliance

### 3.7 Range of Operating Power

The 800 MHz vBTS 1030 RM range of operating RF power is 0 dBm to 43 dBm . The maximum RF power output is 43 dBm..

### 3.8 Complete Circuit Diagrams

The Tx chain of the 800 MHz vBTS 1030 radio system for certification is made up of the 800MHz vBTS 1030 RM (radio, and PA) and DPM (Duplexer and filter, an OEM equipment). Exhibit 8 contains the schematics of circuit cards inside the 800MHz vBTS 1030 and Exhibit 9 contains the parts lists of the circuit cards inside 800MHz vBTS 1030.

### 3.9 Tune-up Procedure

The tune-up tests will be performed as part of the factory testing on the 800MHz vBTS 1030 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 Card (GPSTC, NTDV27AA) in the vBTS 1030 DM (Digital Module, NTDV25AA) 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 GPSTC has a 10 MHz reference output that can be used to synchronize external measurement equipment during system testing.

The GPSTC distributes the primary clock signals directly inside the vBTS 1030 DM which in-turn distribute the clock signals to the 800MHz vBTS 1030 RM via the high speed serial link.

The GPSTC 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 inband spurs are being taken care of by the BBPD (Band Band Pre-Distortion) circuitry in the vBTS 1030 RM.

### **3.12 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 IS2000 technical standards.

## **4. Test Methods and Test Results**

### **4.1 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 two final stage power transistors in parallel. The final state output power transistors each draw average about 2.32A @ 21Vdc.

### **4.2 Tests performed by Nortel Networks**

#### **RF Power Output for IS95 and IS2000**

The maximum measured RF output power was 42.98 dBm.

#### **Occupied Bandwidth for IS95 and IS2000**

The maximum measured occupied bandwidth was 1270.5 KHz.

#### **Spurious Emissions at Antenna Terminals for IS95 and IS2000**

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

1 MHz upper and lower band edge measurements was 7.39 dB  
50 MHz to 10 GHz measurements was 15.37 dB.

#### **Frequency Stability**

The frequency stability over temperature -5 deg to 50 deg C and 85% to 115% of the nominal voltages was 0.01151 ppm. Since the 800MHz vBTS 1030 is an indoor product, the operating temperature range is from -5 to 50 deg C stated in Nortel's design documents. This test was performed within the operator temperature range of the vBTS 1030.

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



## **4.2 Tests performed by NTS – Calgary**

The tests were performed in the 10M chamber with a vBTS 1030 800MHz basestation.

### **Radiated Emission Test Results from 30MHz to 10 GHz**

The minimum pass margin after the substitution method:   14.37 dB for H-Pol  
  13.77 dB for V-Pol

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