



EXHIBIT 1

Application for Certification and Letters

Applicant: Northern Telecom Ltd.

For Certification on:

AB6INDS12000



Certification Application

July 30, 2002

American Telecommunications Certification Body, Inc.
6731 Whittier Avenue
Suite C110
McLean, VA 22101

RE: Certification Application
FCC ID: AB6INDS12000

Dear Sir/Madam,

Please accept this application for the certification of the product filed under Part 2 Subpart J, for equipment operating under Part 22, Subpart H and Part 24 Subpart E of the regulations of the Federal Communications Commission. With authority to act as an agent, Sanmina-SCI is filing this application for certification on behalf of Nortel Networks.

The product for which certification is sought is Nortel Network's 850 MHz/1900 MHz GSM indoor BTS (S12000). All detailed information for the system is included in the respective exhibits as required by the Rules.

As per Section 2.1033 paragraph c-8 the DC voltages and currents into the final amplifying stages are:

- For the 850 MHz system the DC voltages are -38 VDC to -58.5 VDC at 3.42 Amps to 5.26 Amps (200 W maximum power consumption)
- For the 1900 MHz PA the DC voltages are -36 VDC to -57 VDC at 2.98 Amps to 4.72 Amps (170 W maximum power consumption)
- For the 1900 MHz e-PA the DC voltages are -36 VDC to -60 VDC at 3.33 Amps to 5.56 Amps (200 W maximum power consumption)

Note that the PA 1900 and e-PA 1900 have received stand-alone certification by their manufacturer Powerwave Technologies. The PA 1900 is certified under FCC ID: E675JS0041 and the e-PA 1900 is certified under FCC ID: E675JS0055.

Please find the following attached exhibits:

EXHIBIT 1	Application and Letters
EXHIBIT 2	Test Report List
EXHIBIT 2A	S12000 Radio Report
EXHIBIT 2B	S12000 EMC Report
EXHIBIT 3	Transmit Label Photo
EXHIBIT 4	Technical and Functional Description
EXHIBIT 5	External Photographs
EXHIBIT 6	Internal Photographs
EXHIBIT 7	Parts Lists
EXHIBIT 8	Schematics List
EXHIBIT 8A	E-RDRX 850 MHz (Radio Board) Schematics
EXHIBIT 8B	E-LDRX 850 MHz (Logic Board) Schematics
EXHIBIT 8C	E-RDRX 1900 MHz (Radio Board) Schematics
EXHIBIT 8D	E-RDRX 1900 MHz (Radio Board) Schematics (continued)
EXHIBIT 8E	LDRX and E-LDRX 1900 MHz (Logic Board) Schematics
EXHIBIT 8F	RDRX 1900 MHz (Radio Board) Schematics



SANMINA-SCI

Certification Application

EXHIBIT 9 RF Exposure
EXHIBIT 10 Factory Test Specification
EXHIBIT 11 Reference Manual

Please contact me if any further information is required.
Important: Please see attached request for confidentiality.

Sincerely,

Glen Moore
Manager, EMC Design Services
Sanmina-SCI Canada ULC
Ph: (403) 295-5144
Glen.moore@sanmina-sci.com
Sanmina-SCI Canada ULC
On behalf of Nortel Networks



SANMINA-SCI

Letter on behalf of Manufacturer

July 30, 2002

American Telecommunications Certification Body, Inc.
6731 Whittier Avenue
Suite C110
McLean, VA 22101

RE: Certification Application
FCC ID: AB6INDS12000

To Whom It May Concern:

Please be advised that the manufacturer will ensure that the above-referenced model will be manufactured in accordance with the FCC Rules and Regulations.

Thank you for your attention to this matter.

Sincerely,

Glen Moore
Manager, EMC Design Services
Sanmina-SCI Canada ULC
Ph: (403) 295-5144
Glen.moore@sanmina-sci.com
Sanmina-SCI Canada ULC
On behalf of Nortel Networks



SANMINA-SCI

Request for Confidentiality

July 30, 2002

American Telecommunications Certification Body, Inc.
6731 Whittier Avenue
Suite C110
McLean, VA 22101

RE: Certification Application
FCC ID: AB6INDS12000

Please accept this request on behalf of Nortel Networks for the confidentiality of sensitive information contained in this application. The request for confidentiality applies to the following sections:

EXHIBIT 4	Technical and Functional Description
EXHIBIT 7	Parts List
EXHIBIT 8	Schematics List
EXHIBIT 8A	E-RDRX 850 MHz (Radio Board) Schematics
EXHIBIT 8B	E-LDRX 850 MHz (Logic Board) Schematics
EXHIBIT 8C	E-RDRX 1900 MHz (Radio Board) Schematics
EXHIBIT 8D	E-RDRX 1900 MHz (Radio Board) Schematics (continued)
EXHIBIT 8E	LDRX and E-LDRX 1900 MHz (Logic Board) Schematics
EXHIBIT 8F	RDRX 1900 MHz (Radio Board) Schematics
EXHIBIT 10	Factory Test Specification
EXHIBIT 11	Reference Manual

The application contains technical information that Nortel Networks deems to be trade secrets and proprietary. If made possible, the information might be used to the disadvantage of the applicant in the market place.

Thank you for your attention to this matter.

Sincerely,

Glen Moore
Manager, EMC Design Services
Sanmina-SCI Canada ULC
Ph: (403) 295-5144
Glen.moore@sanmina-sci.com
Sanmina-SCI Canada ULC
On behalf of Nortel Networks

July 24, 2002

American Telecommunications Certification Body, Inc.
6731 Whittier Avenue
Suite C110
McLean, VA 22101

RE: Certification Application
FCC ID: AB6INDS12000

Dear Sir/Madam,

This letter is an explanation of the steps taken to ensure that the Dual Band 850 MHz – 1900MHz S12000 system meets the band edge requirements (see Section 3.5.2 for GSM 850 and section 3.5.3 for PCS1900 of “Exhibit – Radio Test Report” for details of this issue).

GSM 850 System Information:

GSM 850 band operates in the following band:
824 MHz to 849 MHz uplink, 869 MHz to 894 MHz downlink.

That correspond to ARFCN in the [128;251] range.

GSM 850 band is divided into two non-contiguous sub bands A and B, defined in frequency and corresponding ARFCN, as:

sub_band	Mobile TX MHz (UL)	BTS TX MHz (DL)	ARFCN
A	825.00 - 835.00	870.00 - 880.00	128 to 131
A	824.00 - 825.00	869.00 - 870.00	133 to 181
B	845.00 - 846.50	890.00 - 891.50	183 to 231
A	835.00 - 845.00	880.00 - 890.00	233 to 238
B	846.50 - 849.00	891.50 - 894.00	241 to 251

The condition to be met is that the edge channels (ARFCN 128, 131, 133, 181, 183, 231, 233, 238, 241 and 251) shall not emit at maximum power in order to meet the spurious emissions at the antenna terminals requirements.

With Nortel S12000 850 MHz Band BTS, max power for these channels has to be reduced by 2 dB to be compliant with requirements. In order to accomplish this the OMC-R software that controls the output power of the system has been modified so that the maximum output power of the system is limited so that if one edge channel belongs to a cell and the max power of this cell is greater than the max power authorized for an edge channel, the cell creation or modification is forbidden. In this way the spurious emissions cannot exceed the limit required. This limitation is done at the software level and cannot be changed by the customer.

GSM 1900 System Information:

GSM 1900 band operates in the following band:
 1930 MHz to 1990 MHz uplink, 1850 MHz to 1910 MHz downlink.

That correspond to ARFCN in the [512;810] range.

GSM 1900 band is divided in following sub bands below , defined in frequency and corresponding ARFCN, as:

sub_band	Mobile TX MHz (UL)	BTS TX MHz (DL)	ARFCN
A	1850.2 – 1864.8	1930.2 – 1944.8	512 to 585
D	1865.2 – 1869.8	1945.2 – 1949.8	587 to 610
B	1870.2 – 1884.8	1950.2 – 1964.8	612 to 685
E	1885.2 – 1889.8	1965.2 – 1969.8	687 to 710
F	1890.2 – 1894.8	1970.2 – 1974.8	712 to 735
C	1895.2 – 1909.8	1975.2 – 1989.8	737 to 810

The condition to be met is that the edge channels (ARFCN 512 , 585 , 587 , 610 , 612 , 685 , 687 , 710 , 712 , 735 , 737 and 810) shall not emit at maximum power in order to meet the spurious emissions at the antenna terminals requirements.

With Nortel S12000 Band 1900 MHz BTS, max power for these channels has to be reduced by 4 dB to be compliant with requirements. In order to accomplish this the OMC-R software that controls the output power of the system has been modified so that the maximum output power of the system is limited so that if one edge channel belongs to a cell and the max power of this cell is greater than the max power authorized for an edge channel, the cell creation or modification is forbidden. In this way the spurious emissions cannot exceed the limit required. This limitation is done at the software level and cannot be changed by the customer.

Sincerely,

A. DRICI
 Nortel Networks
 GSM BTS R&D Director

