EXHIBIT 2C

RE Test Report Provided by Sanmina-SCI

Applicant: Nortel Networks

For Class II Permissive Change Certification on:

FCC ID: AB6NT800MFRM
IC ID: 332292158

SANMINA-SCI

Product Integrity Laboratory

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Calgary, Alberta T3J 3R2
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Radiated Emissions Test Report
Project Code PI80304

Narrow Band DPM Part22

Revision: 0

Date: April 28, 2003

Prepared for: Nortel Networks

Author: Jacky Wong
EMC Technologists

Approved by: Glen Moore
EMC Manager

Summary.

Sanmina-SCI Canada
Product Integrity Laboratory
5151-47th Street, N.E. Calgary Alberta T3J 3R2

Accreditation Numbers: FCC 101386
IC 46405-3978 File # IC3978-2
Standards Council of Canada Accredited Laboratory No. 440

Performed For: Nortel Networks
5111-47th Street N.E.
Calgary, Alberta, Canada T3J 3R2
Tel: (403) 769-2000

Customer Representative: Thomas Wong

EUT Description: Narrow Band DPM
Model: Engineering Prototype
Serial Number: Engineering Prototype

Appendix	Standards		Description & Range	Deviations		Pass / Fail	Criteria
	Base	Test Basis		From Standard	From Test Plan		
B	ANSI C63.4-1992	FCC Part 22	Radiated Emissions Signal Substitution 30MHz-1GHz	Yes[1]	No	PASS	None
C	ANSI C63.4-1992	FCC Part 22	Radiated Emissions Signal Substitution 1GHz-10GHz	No	No	PASS	None

Note 1: Test Plan deviations are listed in Appendix A.

Test Result: The product presented for testing complied with test requirements as shown above.

Tested By: Digitally signed by Jacky Wong DN: cn=Jacky Wong, o=Sanmina-SCI, ou=Product Integrity, c=CA Date: 2003.04.29 14:44:17 -07'00'
Jacky Wong
EMC Technologist

Checked By: Duane Friesen
Duane Friesen C.E.T.
EMC Technical Advisor

Table of Contents

REGISTER OF REVISIONS

Revision	Date	Description of Revisions
0	April 28, 2003	Initial Release

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this document is to describe the tests applied by Sanmina-SCI Canada to demonstrate compliance of Nortel Network's Narrow Band DPM system, to the applicable Electromagnetic Compatibility (EMC) standards as outlined in section 1.3.

The tests outlined may not be inclusive of all testing required by the Base Standards or fulfill the applicable regulatory requirements in their entirety.

The testing performed was client directed and based on their requirements as outlined in their reference test plan if applicable and directions during testing. The client determined worst-case configurations after performing pre-tests and troubleshooting scans. EUT configuration, setup and monitoring were the responsibility of the client along with verification of the EUT description. Deviations from the plan, as highlighted by the client, are described herein.

1.2 ABBREVIATIONS AND DEFINITIONS

The following are the abbreviations and definitions that may be relevant to this document.

Abbreviation	Explanation
BTS	Base Station Transceiver Subsystem
dBm	decibel relative to 1 mW
dB	Decibel
EMI	Electro-Magnetic Interference
EMC	Electromagnetic Compatibility
EUT	Equipment Under Test
FER	Frame Error Rate
GHz	Giga Hertz
GPS	Global Positioning System
Hz	Hertz
IEC	International Electro technical Commission
ITE	Information Technology Equipment
MFRM	Multi-carrier Flexible Radio Module
MHz	Megahertz
N/A	Not Applicable
NA	Not Available
PEC	Procurement Engineering Code
PI	Product Integrity
PWA	Printed Wiring Assembly
QA	Quality Assurance
RF	Radio Frequency
RR	Radio Rack
μV	Microvolts

Definitions:

Equipment Under Test (EUT): A representative ITE or functionally interactive group of ITE (that is a system), which includes one or more host units and is used for evaluation purposes.

Electromagnetic compatibility: EMC (abbreviation): The ability of an equipment or system to function satisfactorily in its electromagnetic environment without introducing intolerable electromagnetic disturbances to anything in that environment.

1.3 REFERENCES

US Code of Federal Regulations

- 47 CFR Part 15 — Federal Communications Commission, Part 15, 10-01-00 edition.
- 47 CFR Part 22 — Federal Communications Commission, Part 15, 10-01-00 edition.

European Normative Standards

- EN 55022:1998 — Information technology equipment – Radio Disturbance characteristics – Limits and methods of measurement, (formerly CISPR 22: 1997), dated 1998.

Normative References – International Standards

- CISPR 22 — Information technology equipment – Radio Disturbance characteristics - Limits and methods of measurement, dated 1997

Bellcore

- GR-1089-CORE — Electromagnetic Compatibility and Electrical Safety- Generic Criteria for Network Telecommunications Equipments, *Issue 2, December 1997 With Revision 1, February 1999*

American National Standards Institute

- ANSI C63.4-2000 — American National Standards for Methods of Measurements of Radio-Noise Emissions from Low Voltage Electrical and Electronic Equipments in the range of 9 KHz to 40 GHz, 2000

Nortel Network Documentation

- Document No: — Document number: XXXXXXXX, Stream:00, Issue: 01, Document status: Draft, Issued Date: Mar xx, 2003, Security status: proprietary, Author: Michael Rovers.

Sanmina-SCI Documentation

- Sanmina-SCI Radiated Emissions 30MHz – 1GHz Automated Test Method E001R7
- Conducted Emissions 150 kHz – 30MHz (Automated) Test Method Document No. 6.0A, Rev. 2
- Conducted Current Emissions 10 kHz - 30MHz (Manual) Test Method Document No. E007R3
- Sanmina–SCI Radiated Emissions Method E006R4

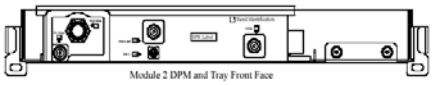
2.0 TEST LOG

Appendix	Test Case	Start	End
Date Received: 06 Apr 03			
B	Radiated Emissions 30MHz – 1GHz FCC Part 22	08 Apr 03	09 Apr 03
C	Radiated Emissions 1GHz – 10GHz FCC Part 22	17 Apr 03	18 Apr 03
Date Shipped: N/A			

3.0 EUT DESCRIPTION

3.1 CONFIGURATION

Description of EUT

Name	Narrow Band DPM (Band Specific DPM)
Model Number	Engineering Prototype
Revision Number	Engineering Prototype
Serial Number	2xSFRM-B Band DPM, 1xSFRM A-Band DPM 2xMFRM-A Band DPM, 1xMFRM B-Band DPM, all are 800MHz DPMs
Physical Description	 **DPM With preselector/LNA**  **DPM Without preselector/LNA**  **Top view of DPM**  **Front view of DPM** The DPM Front panel has 8 connector ports, 2 of the connectors were BNC named as Test2 D1&Test1 D7. 5 connectors were N-type named as Div Ant D2, Rx Div D4, Rx Main D3, Main Ant D6 and Tx In D8. The other connector was PWR Data D4 to power the DPM.
Classification	Floor standing when installed for normal use.
Size (m)	Not available
Weight	Not available
Power	Rated: -48V DC (nominal), 85 Amps

Functional Description	The DPM operates within the framework of the 800 MHz CDMA base station. The DPM is the last stage in the transmit section of the system preceding the antenna and lightning surge protectors; the DPM is the first stage in the receive section of the system following the antenna and lightning surge protectors. The base station is designed to operate in the 824 to 849 and 869 to 894 MHz regions. The design of the system permits an easy transition from one carrier to multicarrier capability. In the single carrier per sector case, the DPM must include a preselector/LNA that provides a conditioned antenna diversity signal to the receiver. The DPM is comprised of a preselector/LNA. In the multicarrier per sector case, the FDPM-H does not require the additional preselector/LNA to achieve antenna diversity. The preselector/LNA and main LNA must be entirely separate submodules, from the point of view of reliability, within the FDPM-H except for the mechanical housing, common D-sub connector and I2C interface circuitry. The narrowband DPM is a band specific DPM. There are one for band A and one for band B.

3.1.1 SET UP CONFIGURATION

The client described the configuration used in the performance of this test case as being worst-case but typical. The Radiated emissions on Narrow Band DPM were measured in one configuration. The 3x800MHz DPM configuration with B-Band 2xSFRM and with A-Band 1xSFRM and other 3x800MHz DPMs were configured with A-Band 2xMFRMs and B-Band 1xMFRM.

The radio rack, contained three 800MHz SFRMs and three MFRMs. The 2xSFRMs (B-Band) and 1x SFRM (A-Band) were connected to the one Hubble, and the 2xMFRMs (A-Band) and 1xMFRM (B-Band) connected to the second Hubble to power all the radios. Power to both hubbles was supplied by a –48VDC power supply. The radio rack was placed on a 10 cm high, wooden pallet in the center of the 10-m RFAC turntable with all power and control cabling routed through a wooden overhead cable support. All RF cables were terminated in feed-through bulkhead connectors at the center of the table connecting to 50 ohm, 150-watt loads in the support room below.

The DCG shelf was located under the 10m chamber in the support room. This shelf was connected to the radio rack in the 10-m RFAC turntable using a fiber optical link.

EUT Description List – The following module list was supplied by the client but was not verified by Sanmina-SCI.

For all Emissions Test Case				
Quantity	**EUT Description**	**P/N**	**S/N**	**Rev**
3	SFRM DPMs	Engineering Proto type	Engineering Proto type	N/A
3	MFRM DPMs	Engineering Proto type	Engineering Proto type	N/A

Co-Located Support Equipment

Emissions Test Case				
Quantity	**EUT Description**	**P/N**	**S/N**	**Rev**
6	FAM1	NTGS5652 01	N/A	
	FAM2	NTGS5654 P3	N/A	
	FAM3	NTGY60AD 01	N/A	
	FAM4	NTGS5651 01	N/A	
	FAM5	NTGSS565 01	N/A	
	FAM6	NTGY60AB 01	N/A	
3	S-TRM1	NTGS85AA AE	N/A	
	S-TRM2	NTGS85AB P2	N/A	
	S-TRM3	NTGS85BA 06	N/A	
3	MTRM4	NTGY10CA LM	N/A	
	MTRM5	NTGY10CA LM	N/A	
	MTRM6	NTGY10CA LM	N/A	
3	PAM1	NTGS8660 43	N/A	
	PAM2	NTGS8660 24	N/A	
	PAM3	NTGS8660 43	N/A	
3	MPAM4	NTGY70AB 69	N/A	
	MPAM5	NTGY70AB 69	N/A	
	MPAM6	NTGY70AB 69	N/A	

3.1.2 TEST PLAN CONFIGURATION DEVIATIONS

Client directed.

3.1.3 EUT POWER

DC Voltage	-48V (nominal)
Number of Feeds	2 – Hubble A and B available
Gauge of cable	6/0
Current Draw	85 Amp
Special Requirements	Power was configured per Nortel Instructions See each Appendix for specific power configurations

3.1.4 TEST PLAN POWER DEVIATIONS

Client directed.

3.2 CABLES

EUT Cable List

The following cable list was supplied by the client but was not verified by Sanmina-SCI.

QTY	Description	Routing	Length (m)
3	Coaxial, LMR400	From each MFRM Main Antenna through bulkhead to loads (3x150 watt, 50ohm) in support room.	~9.0
3	Coaxial, LMR400	From each SFRM Main Antenna through bulkhead to loads (2x500 watt& 1x2000 watt, 50ohm) in support room.	-9.0
1	Coaxial, LMR400	From GPSTM (Digital Rack) through bulkhead to external GPS.	~9.0
1	BMU Cable	From CMs to Monitoring equipment (Vortex)	N/A
1	N/A	From Radio Rack frame, to ground at bulkhead	~3.0
6	N/A	From Hubble power to MFRMs and SFRMs	~10.0
1	Main Power Cable	From Breaker Module to Hubble connection	~7.0
6	Power Cable extension	From hubble connection to LISN. (2 AWG ESSEX EXCELENE. +105C – 50C, 600W)	~1.0
1	N/A	Loop back T1/E1 Connector to Shorted pairs	~15.5
1	NTGS3518	From Digital rack loop back Customer Alarm Connector (Radio Rack) to Shorted pairs	~30.0

3.2.1 TEST PLAN CABLE LIST DEVIATIONS

Not all cables specified in plan

3.3 FREQUENCIES

Narrow Band DPM Frequency List

The following frequency list for CDMA Metro Cell base station was supplied by the client but was not verified by Sanmina-SCI.

Signal	Frequency	Units
Transmit Band	869 – 894	MHz
Receive Band	824 – 849	MHz
RF LO Range	750 - 776	MHz
RF LO Resolution	30	KHz
Carrier Spacing	1.26	MHz
Tx IF LO	108.7488	MHz
Rx IF (Center)	73.5792	MHz
Tx IF (Center)	118.5792	MHz
26Fc	31.9488	MHz
32Fc	39.3216	MHz
52Fc	63.8976	MHz
64Fc	78.6432	MHz
520Fc	638.9760	MHz

Fc = CDMA single channel spreading rate = 1.2288 MHz

The following frequency list for MFRM Digital modules were supplied by the client but were not verified by Sanmina-SCI.

Signal	Frequency	Units
CORE (1Fc)	1.2288	MHz
CORE (8Fc)	9.8304	MHz
CORE (32Fc)	39.3216	MHz
CORE (52Fc)	63.9876	KHz
CORE (520 Fc)	638.9760	MHz
CORE (Oscillator)	20	MHz
GPSTM (8Fc)	9.8304	MHz
GPSTM	10	MHz
GPSTM (Even Second)	31.9488	50nS neg pulse 2 sec
GPSTM (GPS L1 Carrier)	1575.42 +/- 1.023	MHz
52Fc	63.9876	MHz
64Fc	78.6432	MHz
520Fc	638.9760	MHz
CM (IML)	3.5	MHz
CM (IMC)	20	MHz
CM (TDM I/F)	39.3216	MHz
CEM/XCEM 8Fc	9.8304	MHz
CEM/XCEM 32Fc	39.3216	MHz
CEM/XCEM 52Fc	63.8976	MHz
CEM/XCEM 520Fc	638.9760	MHz
CEM CPU clock	40	MHz
XCEM CPU clock	33, 133 & 200	MHz

3.3.1 TEST PLAN FREQUENCY LIST DEVIATIONS

Client directed.

3.4 EUT SOFTWARE

The version of Vortex software used to control the BTS was Ver.11.1. The client supplied no other software information.

3.5 MODE OF OPERATION

Not defined by Nortel Networks

3.5.1 TEST PLAN MODE OF OPERATION DEVIATION

Client directed.

3.6 PASS / FAIL CRITERIA

The emissions pass/fail criteria or limits are defined by reference standards. For emissions testing, the levels measured must be no greater than the emission limits as defined in the reference standards to pass. The limits for each emission test case are outlined in each specific Appendix.

4.0 SUPPORT EQUIPMENT

Support Modules used for Narrow Band DPM testing defined for by Nortel Networks are as follows; they were not verified by Sanmina-SCI:

Description	Module Description	P/N	Release Number	S/N
BIP	Breaker Interface Panel	NTGS47AB	17	N/A
CEM	CEM slot 1	NTB1070BA	14	N/A
	CEM slot 2	NTB1070BA	14	N/A
	CEM slot 3	NTB1070BA	14	N/A
	CEM slot 4	NTB1070BA	14	N/A
	CEM slot 5	NTB1070BA	14	N/A
	CEM slot 6	NTB1070BA	14	N/A
GPSTM-1	GPSTM	NTGS50AA	14	N/A
CM slot 4	CM1	NTGS40AA	BX	N/A
	CM2	NTGS40AA	BX	N/A
CORE	CORE 1	NTGS30AA	56	N/A
	CORE 2	NTGS30AA	56	N/A
FRAME	CHASIS	NTGS45BA	16	N/A
POWER	3x150 Watts	N/A	N/A	N/A
	2x500 Watts	N/A	N/A	N/A
	1x200 Watts	N/A	N/A	N/A
SOFTWARE	Voltex 3.2V	N/A	N/A	N/A

APPENDICES:

APPENDIX A: TEST PLAN DEVIATION LOG

Deviation Number	Time & Date	Reference to Test Plan	Deviation from Standard (Y/N)	Description and Justification of Deviation	Core Standard Affected	Approval
1				No Signal substitution was performed for 30MHz-1GHz		

APPENDIX B: NARROW BAND DPM - RADIATED EMISSIONS 30MHZ – 1GHZ PART 22

B.1. Base Standard & Test Basis

Base Standard	ANSI C 63.4: ITE Radio Disturbance Characteristics.
Test Basis	FCC CFR 47 Part 22:ITE Radio Disturbance Characteristics. Limits and Methods of Measurement
Test Method	Sanmina–SCI Radiated Emissions Signal Substitution Method 30MHz-20GHz Revision 1.0.

B.2. Specifications

FCC Part 22		
Frequency	ERP Limit	Theoretical Peak Limit @ 10 meters*
MHz	dBm	dBμV/m
30MHz – 1 GHz	-13	73.90

B.3. Measurement Uncertainty

Radiated Emissions 30MHz – 1GHz	Measurement Uncertainty	Expanded Uncertainty (K=2)
(dB)	+2.15/-2.19	+4.29/-4.37
Radiated Emissions Signal Substitution 30MHz – 1GHz	Measurement Uncertainty	Expanded Uncertainty (K=2)
	+/-2.74	+/-5.49

B.4. Deviations

From Standard
None

From Test Plan
None.

B.5. Radiated Emissions 30MHz – 1GHz Measurement Equipment

Radiated Emissions Signal Substitution 30MHz – 1GHz

Description	Type/Model	Manufacturer	Serial #	Cal Due	Cal Date
10m ANECHOIC CHAMBER					
Bilog Antenna	CBL 6112B	Chase	260232	21 May 03	21 May 02
RF Cable East range	Ferrite bead loaded cable	Suhner Succoflex	260388	17 Mar 04	17 Mar 03
CONTROL ROOM					
ESMI	1032.5510.23	Rohde & Schwarz	260142/ 260141	27 Jun 03	27 Jun 02
Amplifier	HP-8447F OPT H64	Hewlett Packard	260164	04 Sept 03	04 Sept 02
Switch Matrix Controller	SMC-002	TDL	260162	N/A	N/A
Mast Controller	2090	EMCO	260166	N/A	N/A
Multi Device Controller TT1 (Turntable)	2090	EMCO	260165	N/A	N/A
RF Cable from Ctrl room bulkhead to SW Matrix ANT2	Succoflex 100	Suhner Succoflex	40500623	10 Jan 04	10 Jan 03
RF Cable from SW Matrix to LNA	Succoflex 100	Suhner Succoflex	40500621	10 Jan 04	10 Jan 03
RF Cable from Ctrl room bulkhead to 10m East site bulkhead	Succoflex	Suhner Succoflex	40500622	10 Jan 04	10 Jan 03
VERIFICATION EQUIPMENT					
RefRad Fixture	NA	Sanmina	RefRad Fixture #1	N/A	N/A
Signal Generator 10MHz – 40GHz	SMP04	Rohde & Schwarz	260425	19 Mar 06	19 Mar 03
Cable from RX antenna to 3M center bulk head in 10M Chamber	104	Succoflex	116558/4	30 Jan 04	30 Jan 03
Cable from 3M center bulk head to Control room	104	Succoflex	40500627	30 Jan 04	30 Jan 03

B.6. Test Set-up Special Considerations

For EUT configuration, please refer to section 3.1.1, Set-up configuration, in this report

B.7. Test Results

Project Name:	Narrow Band DPM	**Tester:**	**Jacky Wong**
Model:	Narrow Band DPM	**Test ID:**	**RE02-10M-2003-014**
Comments:	Compliance Scan 30MHz-1GHz		

Standard	FCC Part 22	Measurement Distance	10	meters

Antenna	Frequency	AF	CF	Detector	Measured Value	Corrected Value	Limit	Margin
	MHz	dB/m	dB		dBuV	dBuV/m	dBuV/m	dB
2701 RX BiCon Hpol	314.5756	13.56	-24.43	Peak	39.34	28.47	73.90	45.43
2701 RX BiCon Hpol	319.4885	13.67	-24.44	Peak	36.85	26.08	73.90	47.82
2701 RX BiCon Vpol	75.0362	7.11	-26.15	Peak	43.15	24.11	73.90	49.79
2701 RX BiCon Vpol	82.8028	7.97	-26.08	Peak	42.92	24.82	73.90	49.08
2701 RX BiCon Vpol	319.4983	13.85	-24.44	Peak	40.66	30.07	73.90	43.83
2701 RX BiCon Vpol	638.9829	19.09	-25.02	Peak	36.09	30.16	73.90	43.74
2701 RX BiCon Vpol	958.4780	21.80	-23.60	Peak	31.97	30.17	73.90	43.73

Corrected Value: Measured Value + AF + CF AF: Antenna Factors & CF: Correction Factors (LNA Gain + Cable Loss)

Notes:
Positive Margin indicates a pass

Note: Positive Margin indicates a Pass.
Due to a peak-to-theoretical-limit after than 20dB, only peak data was recorded and no signal substitution was performed.

B.8. Observations

None

B.9. Deviations from Normal Operating Mode During Test

None

B.10. Sample Calculation

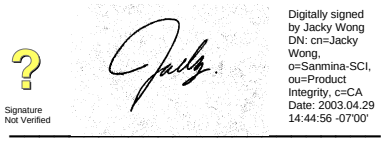
Emission Level = Measured Level + Correction Factors
Margin = Limit – Emission Level

B.11. Test Data & Photographs

The test data and photographs for the Radiated Emission test appear following this page.

B.12. Signature

This testing was conducted in accordance with the ISO 17025:1999 scope of accreditation, table 1; Quality Manual.

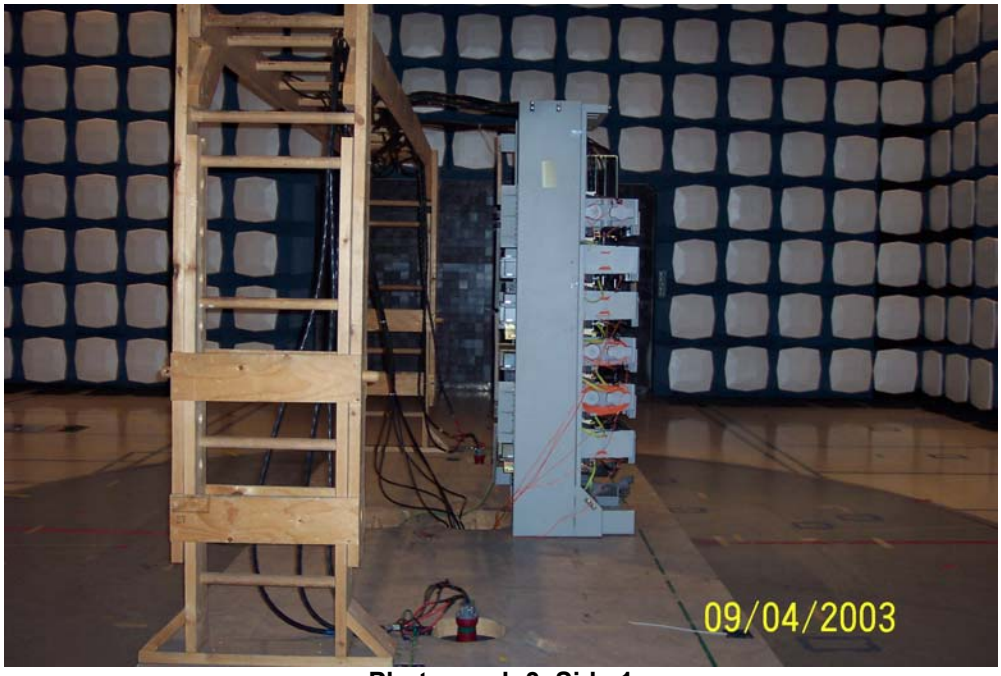
Signature/Date: 

Name: Jacky Wong
Function: EMC Technologist

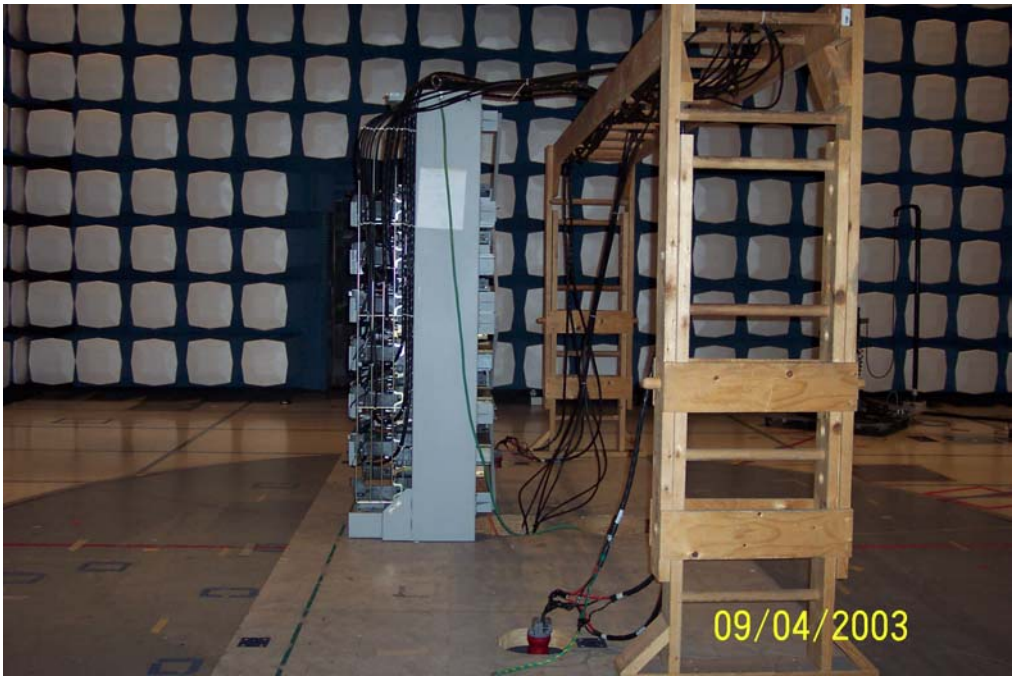
30MHz – 1GHz Radiated Emissions Test

Photograph 1. Front

Photograph 2. Back



Photograph 3. Side 1



Photograph 4. Side 2

APPENDIX C: NARROW BAND DPM - RADIATED EMISSIONS 1GHZ – 10GHZ PART 22

C.1. Reference Standard & Test Basis

Reference Standard	ANSI C 63.4: ITE Radio Disturbance Characteristics.
Test Basis	FCC CFR 47 Part 22:ITE Radio Disturbance Characteristics. Limits and Methods of Measurement
Test Method	Radiated Emissions Manual Method 1GHz-18GHz. EMC Test Method E006R4 Radiated Emissions Signal Substitution Method 30MHz-20GHz. (EMC Test Method 11.0)

C.2. Test Specifications

FCC Part 22 Radiated Electric Field @ 3m West Site

FCC Part 22		
Frequency	**ERP Limit**	**Theoretical Peak Limit @ 3 meters***
MHz	**dBm**	**dBµV/m**
1GHz – 10GHz	-13	84.3

* Theoretical field strength based on a dipole

C.3. Measurement Uncertainty

Radiated Emissions 1GHz-18GHz	**Measurement Uncertainty**	**Expanded Uncertainty (K=2)**
(dB)	+3.48/-3.51	+6.96/-7.02
Radiated Emissions 1GHz-20GHz Signal Substitution	**Measurement Uncertainty**	**Expanded Uncertainty (K=2)**
(dB)	+/-2.74	+/-5.49

C.4. Deviations

From Standard
None

From Test Plan
None

C.5. Measurement Equipment

Radiated Emission 1GHz- 18GHz

Description	Type/Model	Manufacturer	Serial #	Cal Due	Cal Date
10m ANECHOIC CHAMBER					
Horn Antenna	3115	EMCO	260095	24 Oct 03	24 Oct 03
High Pass filter	11SH103860	K&L	1	30 Jan 04	30 Jan 04
Spectrum Analyzer 9KHz – 40GHz	FSEK	Rohde & Schwarz	260104	31 Mar 04	31 Mar 03
Step Attenuator/Switch	HP11713A	HP	260098/ 260097	N/A	N/A
DC Power Supply for LNA	LXO 30-2	Xantrex	4050021 1	N/A	N/A
HPIB Extender	HP37204	HP	290096	N/A	N/A
Cable from LNA to SA	101PEA	Succoflex	1713/1P EA	4 Apr 04	4 Apr 03
CONTROL ROOM					
PC FSEK Manual control SW	N/A	N/A	N/A	N/A	N/A
HPIB Extender	HP37204	HP	260168	N/A	N/A
Mast Controller	2090	EMCO	260166	N/A	N/A
Multi Device Controller TT1	2090	EMCO	260165	N/A	N/A
VERIFICATION EQUIPMENT					
Horn Antenna (TX) 1GHz-18GHz	3115	EMCO	260088	N/A	N/A
Signal Generator 10MHz – 40GHz	SMP04	Rohde & Schwarz	260425	31 Mar 04	31 Mar 04
Cable from RX antenna to 3M center bulk head in 10M Chamber	104	Succoflex	116558/4	30 Jan 04	30 Jan 03
Cable from 3M center bulk head to Control room	104	Succoflex	4050062 7	30 Jan 04	30 Jan 03
Cable from Control room bulk head TO Signal Generator	104	Succoflex	4050062 6	30 Jan 04	30 Jan 03

Signal Substitution 1GHz-18GHz

Description	Type/Model	Manufacturer	Serial #	Cal Due	Cal Date
10m ANECHOIC CHAMBER					
Horn Antenna 1G-10GHz (Tx)	3115	EMCO	260091	24 Oct 03	24 Oct 02
Horn Antenna 1G-5.95GHz (Rx)	3115	EMCO	260092	21 Jun 03	21 Jun 02
Std Gain Horn 5.95G-8.2GHz	3160-06	EMCO	260090	N/A	N/A
Std Gain Horn 8.2G-12.5GHz	3160-07	EMCO	260089	N/A	N/A
High Pass filter	11SH103860	K&L	1	30 Jan 04	30 Jan 04
Spectrum Analyzer 9KHz – 40GHz	FSEK	Rohde & Schwarz	260104	31 Mar 04	31 Mar 03
Step Attenuator/Switch	HP11713A	HP	260098/ 260097	N/A	N/A
DC Power Supply for LNA	LXO 30-2	Xantrex	40500211	N/A	N/A
HPIB Extender	HP37204	HP	290096	N/A	N/A
Cable from Antenna to LNA	101PEA	Succoflex	1713/1PEA	4 Apr 04	4 Apr 03
LNA	JSD000121	Miteq	830620 in box	9 Apr 04	9 Apr 03
CONTROL ROOM					
PC FSEK Manual control SW	N/A	N/A	N/A	N/A	N/A
HPIB Extender	HP37204	HP	260168	N/A	N/A
Signal Generator 10M-40GHz	SMP04	Rohde & Schwarz	260425	19 Mar 06	19 Mar 03
Mast Controller	2090	EMCO	260166	N/A	N/A
Multi Device Controller TT1	2090	EMCO	260165	N/A	N/A
VERIFICATION EQUIPMENT					
Horn Antenna (TX) 1GHz-18GHz	3115	EMCO	260088	N/A	N/A
Signal Generator 10MHz – 40GHz	SMP04	Rohde & Schwarz	260425	19 Mar 06	19 Mar 03
Cable from RX antenna to 3M center bulk head in 10M Chamber	104	Succoflex	116558/4	30 Jan 04	30 Jan 03
Cable from 3M center bulk head to Control room	104	Succoflex	40500627	30 Jan 04	30 Jan 03
Cable from Control room bulk head TO Signal Generator	104	Succoflex	40500626	30 Jan 04	30 Jan 03

C.6. Test Setup Special Considerations

For EUT configuration, please refer to section 3.1.1, Set-up configuration, in this report

C.7. Test Results Summary

FCC Part 22
Peak Scan 1GHz - 10GHz (Horizontal Polarization)

Project Name:	Narrow Band DPM	**Tester:**	Jacky Wong
Model:	Narrow Band DPM	**Test ID:**	RE03-10M-2003-004
Comments:	Compliance Scan 1G-10GHz Horizontal Polarization		

Standard	FCC 22	Measurement Distance	3	meters

Antenna	CL	Start Frequency	Stop Frequency	Frequency	AF	CL+LNA	Detector	Measured Value	Corrected Value	Theoretical Limit	Theoretical Margin
		MHz	MHz	MHz	dB/m	dB		dBuV	dBuV/m	dBuV/m	dB
3115 Hpol	HFM 10dB	1000	2700	1211.43	25.92	-20.28	PK	32.35	37.99	84.30	**46.31**
3115 Hpol	HFM 10dB	1000	2700	1276.43	26.14	-20.15	PK	37.16	43.15	84.30	**41.15**
3115 Hpol	HFM 10dB	1000	2700	1595.50	27.36	-19.58	PK	33.47	41.25	84.30	**43.05**
3115 Hpol	HFM 10dB	1000	2700	1763.12	28.16	-19.24	PK	49.39	58.31	84.30	**25.99**
3115 Hpol	HFM 0dB filter	2700	5950	4407.52	33.79	-24.69	PK	44.01	53.11	84.30	**31.19**
3115 Hpol	HFM 0dB filter	2700	5950	5289.15	35.36	-23.45	PK	40.01	51.92	84.30	**32.38**
3160-06	HFM 0dB filter	5950	8200	6169.13	29.90	-21.89	PK	45.81	53.82	84.30	**30.48**
3160-06	HFM 0dB filter	5950	8200	7896.00	30.00	-19.36	PK	38.88	49.52	84.30	**34.78**

Corrected Value: Measured Value + AF + CL + LNA. AF: Antenna Factors & CL: Cable Loss & LNA: Amplifier

Note: Positive Margin indicates a Pass.

Peak Scan 1GHz – 10GHz (Vertical Polarization)

Project Name: Narrow Band DPM
Model: Narrow Band DPM
Comments: Compliance scan 1G-10GHz Vertical Polarization
Tester: Jacky Wong
Test ID: RE03-10M-2003-004

Standard FCC 22 Measurement Distance 3 meters

Antenna	CL	Start Frequency	Stop Frequency	Frequency	AF	CL+LNA	Detector	Measured Value	Corrected Value	Theoretical Limit	Theoretical Margin
		MHz	MHz	MHz	dB/m	dB		dBuV	dBuV/m	dBuV/m	dB
3115 Vpol	HFM 10dB	1000	2700	1214.17	25.93	-20.28	PK	35.09	40.74	84.30	**43.56**
3115 Vpol	HFM 10dB	1000	2700	1277.93	26.14	-20.15	PK	38.37	44.37	84.30	**39.93**
3115 Vpol	HFM 10dB	1000	2700	1405.80	26.58	-19.91	PK	31.91	38.58	84.30	**45.72**
3115 Vpol	HFM 10dB	1000	2700	1597.60	27.33	-19.58	PK	35.73	43.48	84.30	**40.82**
3115 Vpol	HFM 10dB	1000	2700	1756.70	28.03	-19.26	PK	44.29	53.06	84.30	**31.24**
3115 Vpol	HFM 10dB	1000	2700	1763.36	28.06	-19.24	PK	48.09	56.91	84.30	**27.39**
3115 Vpol	HFM 10dB	1000	2700	2644.68	30.72	-17.93	PK	40.83	53.62	84.30	**30.68**
3115 Vpol	HFM 0dB filter	2700	5950	4407.93	33.79	-24.69	PK	43.88	52.98	84.30	**31.32**
3115 Vpol	HFM 0dB filter	2700	5950	5289.22	35.48	-23.45	PK	45.71	57.73	84.30	**26.57**
3160-06	HFM 0dB filter	5950	8200	6168.48	29.90	-21.89	PK	51.23	59.24	84.30	**25.06**
3160-06	HFM 0dB filter	5950	8200	7895.92	30.00	-19.36	PK	38.01	48.65	84.30	**35.65**

Corrected Value: Measured Value + AF + CL + LNA. AF: Antenna Factors & CL: Cable Loss & LNA: Amplifier

Note: Positive Margin indicates a Pass.

Substitution Data 1GHz – 10GHz

Project Name: Narrow Band DPM **Tester:** Jacky Wong
Model: Narrow Band DPM **Test ID:** RE03-10M-2003-004
Comments: FCC Part 22 Substitution Data

Frequency (MHz)	Polarization (V/H)	Emission level	Corrected Substitution measure level	Signal Generator level (source) dBuV	Cable factor	Antenna Gain	Effective Radiated Power (E.R.P.)	E.R.P Limit	Margin
		dBuV/m	dBuV/m	dBm	dB	dB	dBm	dBm	dB
1278.01	H	43.15	43.08	-66.10	-5.41	6.00	**-65.51**	-13	52.51
1214.54	H	37.99	37.84	-78.50	-5.25	5.77	**-77.98**	-13	64.98
1597.46	H	41.25	40.47	-76.40	-6.06	6.84	**-75.62**	-13	62.62
1763.13	H	58.31	58.26	-48.00	-6.42	6.91	**-47.52**	-13	34.52
2644.71	H	53.31	53.49	-55.40	-7.91	7.92	**-55.40**	-13	42.40
5289.15	H	51.92	51.81	-53.90	-11.75	9.26	**-56.39**	-13	43.39
4407.52	H	53.11	53.55	-52.90	-10.36	9.30	**-53.96**	-13	40.96
7896.00	H	49.52	49.38	-54.00	-14.77	10.58	**-58.20**	-13	45.20
6169.13	H	53.82	53.78	-47.80	-12.59	9.64	**-50.75**	-13	37.75
1214.17	V	40.74	40.63	-71.50	-5.25	5.77	**-70.98**	-13	57.98
1277.93	V	44.37	44.60	-64.30	-5.41	6.00	**-63.71**	-13	50.71
1405.80	V	38.58	38.59	-80.80	-5.67	6.46	**-80.01**	-13	67.01
1597.60	V	43.48	43.46	-71.00	-6.06	6.86	**-70.20**	-13	57.20
1763.36	V	56.91	57.04	-49.60	-6.42	6.96	**-49.06**	-13	36.06
1756.70	V	53.06	52.99	-53.70	-6.40	6.95	**-53.15**	-13	40.15
2644.68	V	53.62	53.42	-54.70	-7.91	7.92	**-54.70**	-13	41.70
4407.93	V	52.98	52.97	-53.60	-10.36	9.31	**-54.66**	-13	41.66
5289.22	V	57.73	57.72	-46.30	-11.75	9.14	**-48.91**	-13	35.91
6168.48	V	59.24	59.21	-42.00	-12.58	9.60	**-44.98**	-13	31.98
7895.92	V	48.65	48.90	-55.00	-14.77	10.45	**-59.32**	-13	46.32

Effective Radiate Power (E.R.P) = Signal Generator + Cable Factor + Antenna Gain

Note: Positive Margin indicates a Pass.

The EUT is in compliance with the limits as specified in the standard FCC Part 22.

C.8. Observations.

None

C.9. Deviations from Normal Operating Mode

None

C.10. Sample Calculation

Emission Level = Measured Level + Correction Factors
Margin = Limit – Emission Level
Effective Radiated Power (ERP) = signal generator + cable factor + Antenna Gain

ERP Limit = P_{dBm} – (43 + 10Log(P))
Example
P=20w
ERP Limit
= 43dBm – (43 + 10Log(20)) = -13dBm

Peak Limit = 120 + 20Log(SQRT (49.2 * P) / D)
Example
P= -13dBm = 0.00005w
D= 10m
Peak Limit
= 120 + 20Log(SQRT (49.2 * 0.00005)) / **10**)
= 73.9 dBuV/m

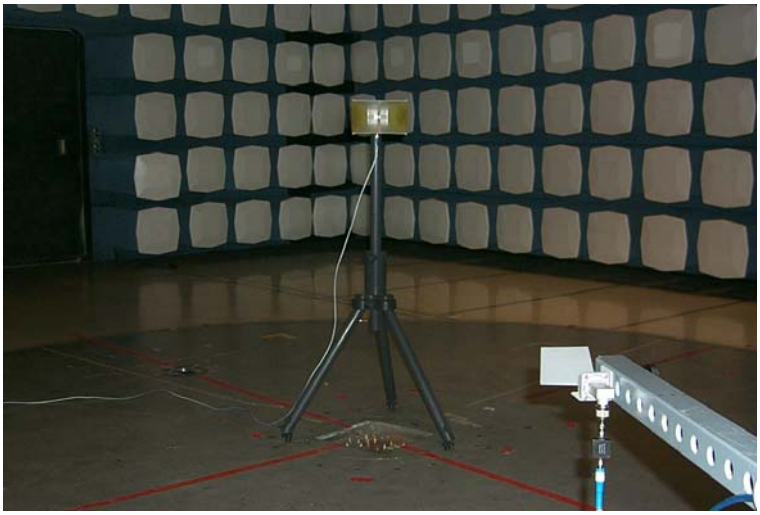
Peak Limit = 120 + 20Log(SQRT (49.2 * P) / D)
Example
P= -13dBm = 0.00005w
D= 3m
Peak Limit
= 120 + 20Log((SQRT (49.2 * 0.00005)) / **3**)
=84.3

C.11. Test Data and Pictures

Test data and pictures for Radiated Emission appear following this page.

C.12. Signature

Signature/Date: Signature Not Verified Digitally signed by Jacky Wong DN: cn=Jacky Wong, o=Sanmina-SCI, ou=Product Integrity, c=CA Date: 2003.04.29 14:45:27 -07'00'
Name: Jacky Wong
Function: EMC Technologist



Picture 3: Signal Substitution measurement setup

APPENDIX D: TEST PLAN

Refer test plan: CDMA MCBTS 650Watt Rectifier Product Integrity test support plan Document number: xxxxxx, Stream:00, Issue:01, Document status: Draft, Issue Date: Mar 14,2002, Security status Proprietary, Author: Michael Rovers.

APPENDIX E: SUPPLEMENTARY INFORMATION

(no supporting document was provided)

END OF DOCUMENT

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