

**EXHIBIT 6A
FCC PART 22
TEST REPORT**

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MPBT Report No.: c05e2295-1 Rev: 2 Date: 30 July 2001

Report for Emissions Testing of: LoCate
FCC ID: NJILOCA01

In accordance with: FCC Part 2 Frequency Allocations and Radio
Treaty Matters; General Rules and Regulations,
Subpart J (2000)

Test Personnel: E. Hails

Prepared for: CSI Wireless
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Client Acceptance
Authorized Signatory

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Electronics Test Centre (Airdrie)
Authorized Signatory

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1.0 INTRODUCTION

1.1 SCOPE

The purpose of this report is to present the findings and results of compliance testing performed in accordance with CFR 47 FCC Part 2, Subpart J, Equipment Authorization Procedures.

1.2 APPLICANT

This test report has been prepared for CSI Wireless, located in Calgary, Alberta, Canada.

1.3 APPLICABILITY

All test procedures, limits, and results defined in this document apply to the CSI Wireless LoCate unit, referred to herein as the Equipment Under Test (EUT).

The results contained in this report relate only to the item tested.

This report does not imply product endorsement by NVLAP or the Canadian or US governments.

1.4 TEST SAMPLE DESCRIPTION

The test sample provided for testing was a LoCate:

Product Type:	Telecommunications
Model Number:	LOCA01
Serial Number:	Rev 01 S/N 4
Cables:	power supply, data input/output, cellular antenna, GPS antenna
Power Requirements:	12 VDC, 1 A
Peripheral Equipment:	laptop computer, RS232 to CMOS level converter

More detailed information is provided by CSI Wireless in Appendix A.

1.5 GENERAL TEST CONDITIONS AND ASSUMPTIONS

The EUT was set up and exercised using the configurations, modes of operation and arrangements defined in this report only. All inputs and outputs to and from other equipment associated with the EUT were adequately simulated.

Where relevant, the EUT was only tested using the monitoring methods and test criteria defined in this report.

All testing, unless otherwise noted, was performed under the following environmental conditions:

Temperature:	17 to 23 °C
Humidity:	45 to 75 %
Barometric Pressure:	68 to 106 kPa

1.6 SCOPE OF TESTING

Testing was performed in accordance with FCC Part 2 Subpart J (2000).

1.6.1 VARIATIONS IN TEST METHODS

There were no variations from the test procedures outlined above.

1.6.2 MARGINAL EMISSIONS MEASUREMENTS

There were no emissions measured to be closer to the specified limits than -6 dB.

1.6.3 TEST SAMPLE MODIFICATIONS

There were no equipment modifications during test performance.

2.0 ABBREVIATIONS

CE	-Conducted Emissions
E	-Field - Electric Field
H	-Field - Magnetic Field
N/T	-Not Tested
N/A	-Not Applicable
RE	-Radiated Emissions

3.0 MEASUREMENT UNCERTAINTY

For Radiated E-Field Emissions and Conducted Emissions, the uncertainties in the measurements were calculated using the methods outlined in the NAMAS document, NIS81: May 1984.

Frequency	= ± 1 kHz
Amplitude (RE)	= ± 4.01 dB
Amplitude (CE)	= ± 3.25 dB

4.0 TEST CONCLUSION

The EUT was subjected to the following tests. Compliance status is indicated as **PASS**, **Marginal Pass**, or **FAIL**.

The following table summarizes the test results in terms of the specification and class or level applied, the unique test sample identification, the EUT modification state, and configuration as applicable.

TEST CASE	TEST TYPE	SPECIFICATION	TEST SAMPLE	MOD. STATE	CONFIGURATION	RESULT
§4.1	RF Output Power	FCC Parts 2.1046 & 22.913	LoCate NJILOCA01	nil	Simulated Installation	PASS
§4.2	Occupied Bandwidth	FCC Part 2.1049	LoCate NJILOCA01	nil	Simulated Installation	PASS
§4.3	Spurious Emissions at Antenna Terminals	FCC Part 2.1051, 2.1057 & 22.917(e)	LoCate NJILOCA01	nil	Simulated Installation	PASS
§4.4	Radiated Emissions	FCC Parts 2.1053, 2.1057 & 22.917(e)	LoCate NJILOCA01	nil	Simulated Installation	PASS
§4.5	Frequency Stability	FCC Parts 2.1055 & 22.355	LoCate NJILOCA01	nil	Simulated Installation	PASS
§4.6	Modulation Characteristics	FCC Parts 2.1047 & 22.915	LoCate NJILOCA01	nil	Simulated Installation	PASS

STATEMENT OF COMPLIANCE

The client equipment referred to in this report was found to comply with the requirements as stated above.

4.1 RF POWER OUTPUT

Test Lab: Electronics Test Centre (Airdrie)		Product:	
Test Personnel: E. Hails		LoCate	
Test Date: 26 April 2001			
Test Result, LoCate: PASS			
Objectives/Criteria		Specifications	
The effective radiated power emitted by a device at its carrier frequency, measured at the antenna terminal, shall not exceed the limits as specified.		FCC Part 22.913 ERP <= 500 W or 57.0 dBm	
Channel	Frequency [MHz]	ERP _{rated} [dBm]	ERP _{meas} [dBm]
001 – audio mode	825.030	28.00	27.51
367 – audio mode	836.010	28.00	25.77
800 – audio mode	849.000	28.00	25.34
001 – data mode	825.030	28.00	27.00
367 – data mode	836.010	28.00	25.71
800 – data mode	849.000	28.00	25.16

4.2 OCCUPIED BANDWIDTH

Test Lab: MPB Technologies Inc. Airdrie		Product:	
Test Personnel: E. Hails		LoCate	
Test Date: 26 April 2001			
Test Result: LoCate: PASS			
Objectives/Criteria		Specifications	
The occupied bandwidth shall be measured at its antenna terminal at the carrier frequency such that: 99.0% of the total mean power (area under the curve of spectral density vs. frequency) emitted by the device is within the occupied bandwidth; 0.5% of the total mean power lies below the lower frequency limit of the occupied bandwidth; and 0.5% of the total mean power lies above the higher frequency limit of the occupied bandwidth		The occupied bandwidth and channel spacing for audio mode transmission is 30 kHz. The occupied bandwidth and channel spacing for data mode transmission is 60 kHz.	
Channel	Frequency [MHz]		Occupied Bandwidth [kHz]
001 – Audio Mode Transmit	825.030		18.45
367 – Audio Mode Transmit	836.010		18.45
800 – Audio Mode Transmit	849.000		18.45
001 – Data Mode Transmit	825.030		34.20
367 – Data Mode Transmit	836.010		34.20
800 – Data Mode Transmit	849.000		34.20
Comments: The occupied bandwidth was measured using the occupied bandwidth softkey on the spectrum analyzer.			

4.3 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Test Lab: MPB Technologies Inc. Airdrie		Product:							
Test Personnel: E. Hails		LoCate							
Test Date: 26-27 April 2001									
Test Result, LoCate: PASS									
Objectives/Criteria		Specifications							
The spurious emissions at the antenna terminals shall not exceed the limits for the specifications as stated. Emission levels should meet the requirements with a margin of 6dB. (NB. f_c denotes carrier frequency)		FCC Part 2.1051 and 2.1057 FCC Part 22.917(e) <table border="1"> <thead> <tr> <th>Frequency</th> <th>Emission Level</th> </tr> </thead> <tbody> <tr> <td>9 kHz to lower edge of f_c</td> <td>-13 dBm or 94 dBμV</td> </tr> <tr> <td>upper edge of f_c to the tenth harmonic of f_c</td> <td>-13 dBm or 94 dBμV</td> </tr> </tbody> </table>		Frequency	Emission Level	9 kHz to lower edge of f_c	-13 dBm or 94 dB μ V	upper edge of f_c to the tenth harmonic of f_c	-13 dBm or 94 dB μ V
Frequency	Emission Level								
9 kHz to lower edge of f_c	-13 dBm or 94 dB μ V								
upper edge of f_c to the tenth harmonic of f_c	-13 dBm or 94 dB μ V								
Comments: The only peaks approaching the limit were harmonics of the fundamentals and so do not apply.									
Channel	Frequency [MHz]	Emission Level [dB μ V]	Delta [dB from limit]						
There were no more spurious emissions measured to be within -20 dB of the specified limit. Refer to the test data plots for more details.									

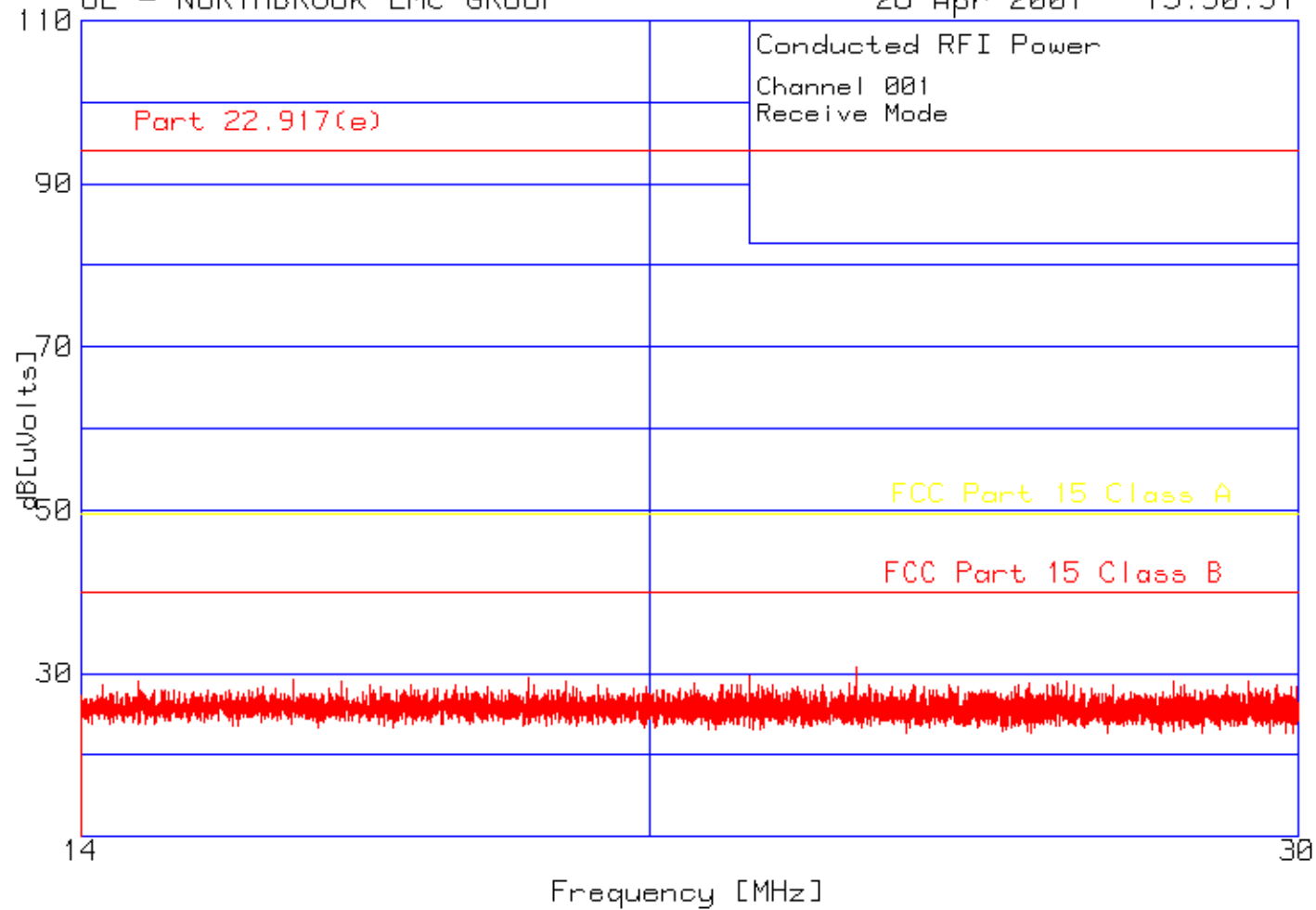
Spurious Antenna Terminal Emissions

Channel 001 Receive Mode 14-30 MHz

UL - NORTHBROOK EMC GROUP

26 Apr 2001

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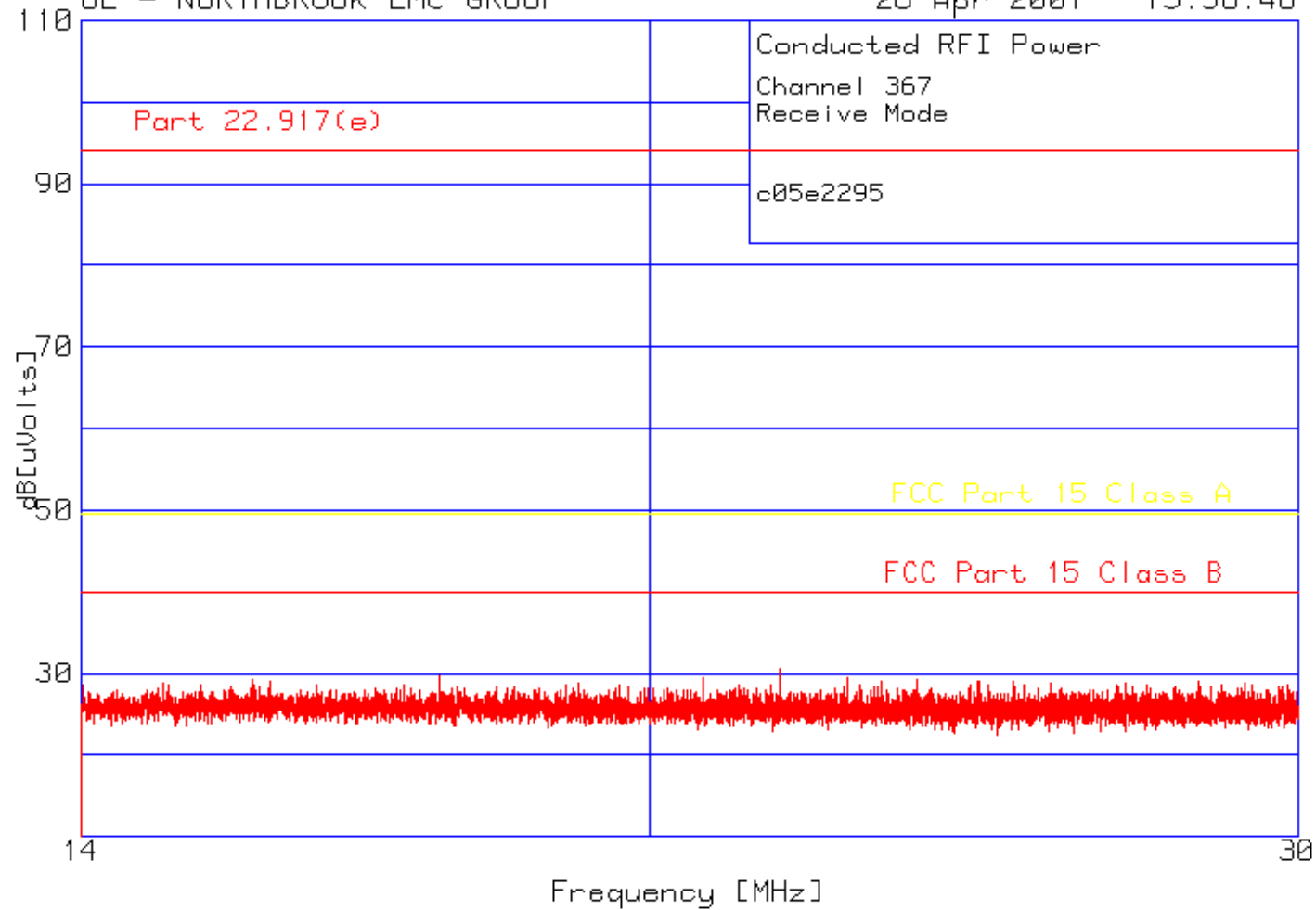
Spurious Antenna Terminal Emissions

Channel 367 Receive Mode 14-30 MHz

UL - NORTHBROOK EMC GROUP

26 Apr 2001

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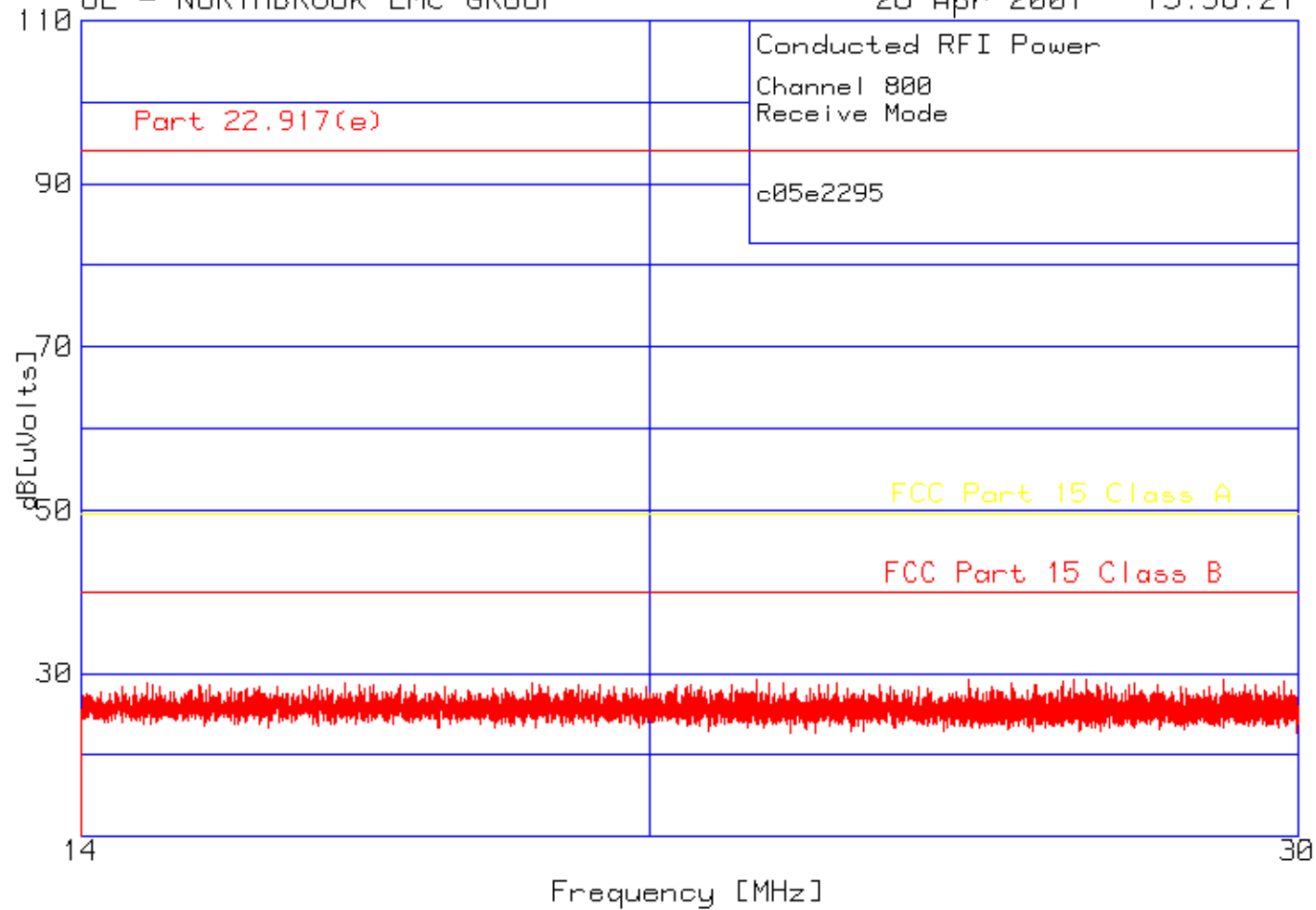
Spurious Antenna Terminal Emissions

Channel 800 Receive Mode 14-30 MHz

UL - NORTHBROOK EMC GROUP

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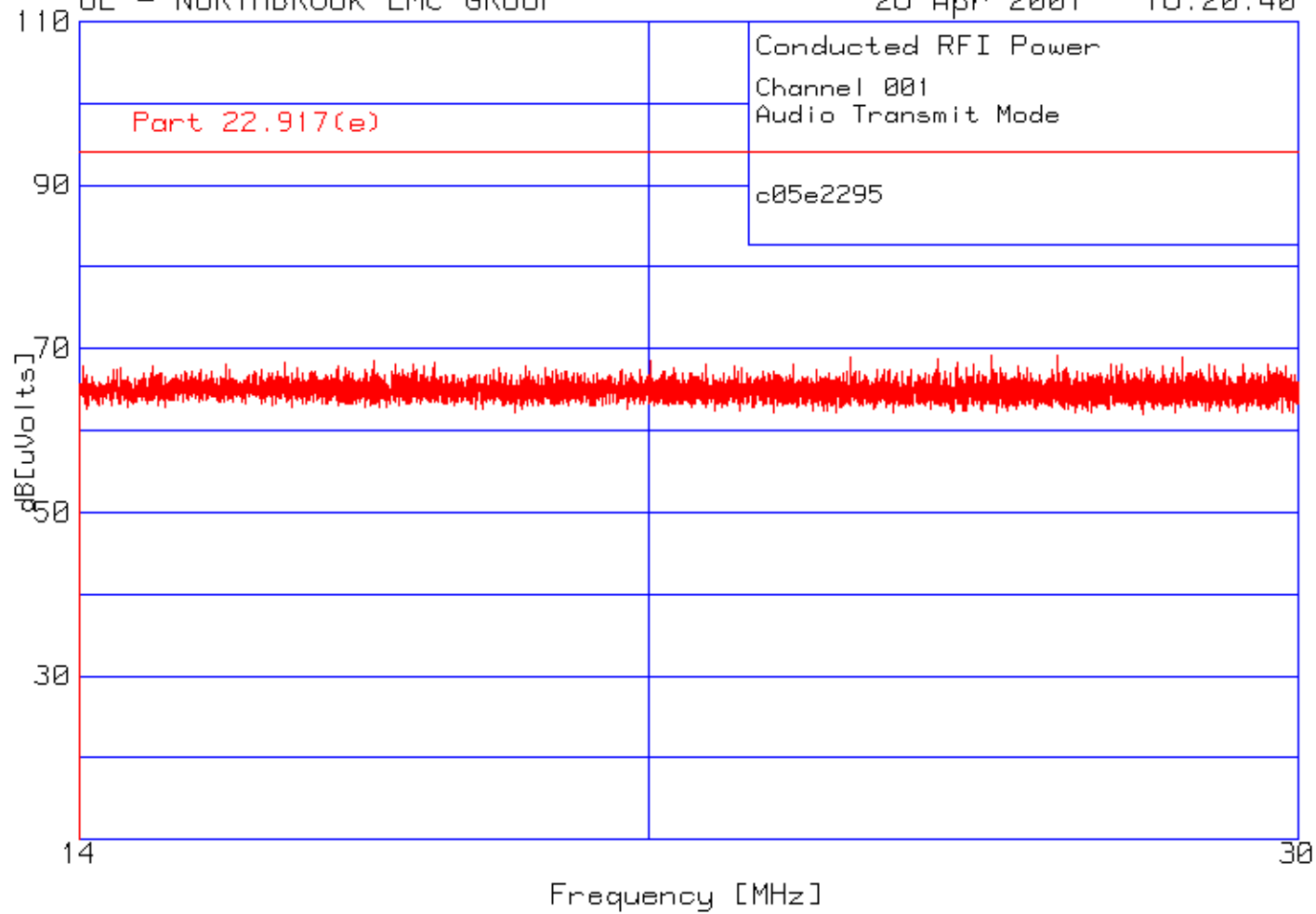


Spurious Antenna Terminal Emissions

Channel 001 Transmit Audio Mode 14-30 MHz

UL – NORTHBROOK EMC GROUP

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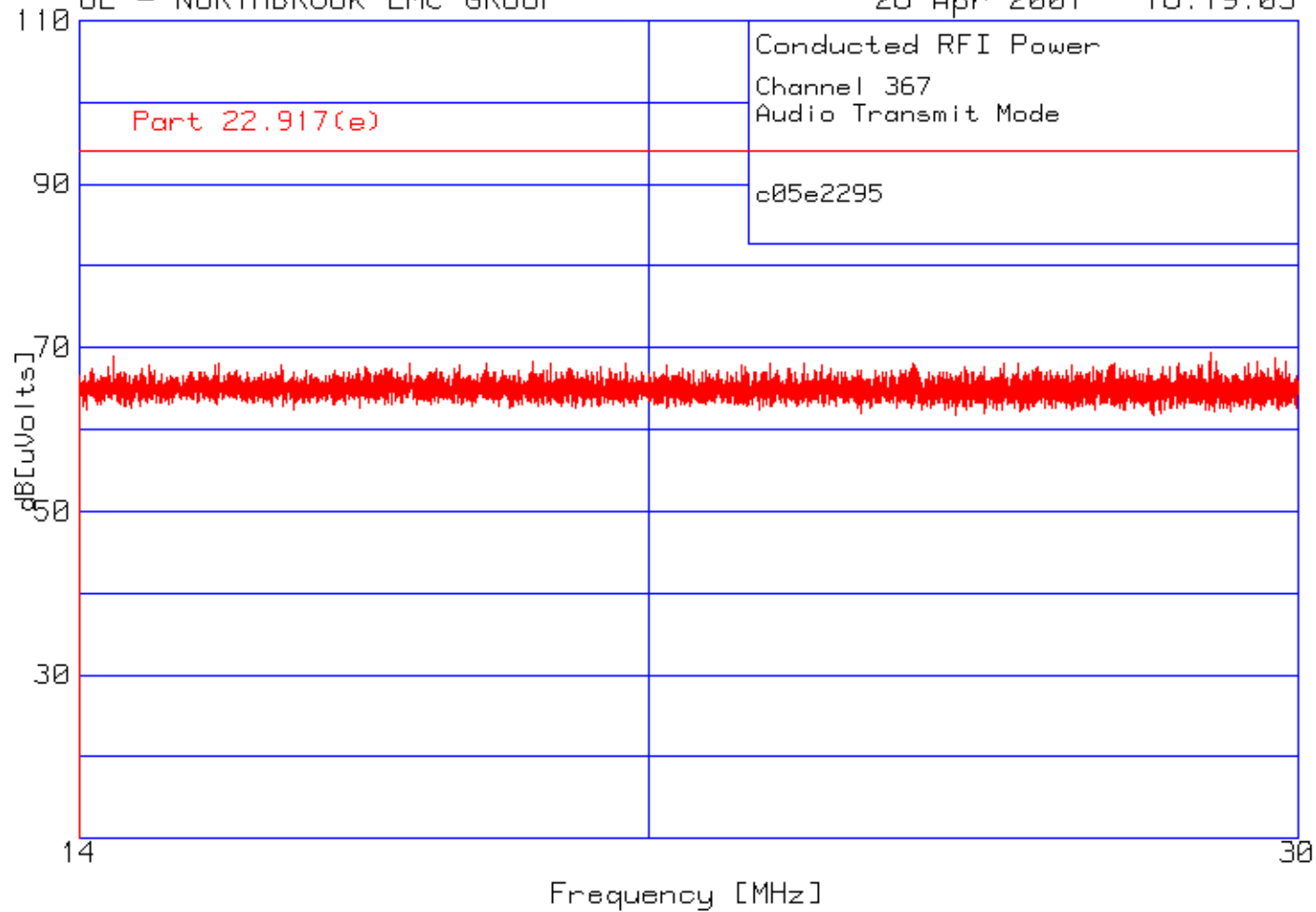


Spurious Antenna Terminal Emissions

Channel 367 Transmit Audio Mode 14-30 MHz

UL - NORTHBROOK EMC GROUP

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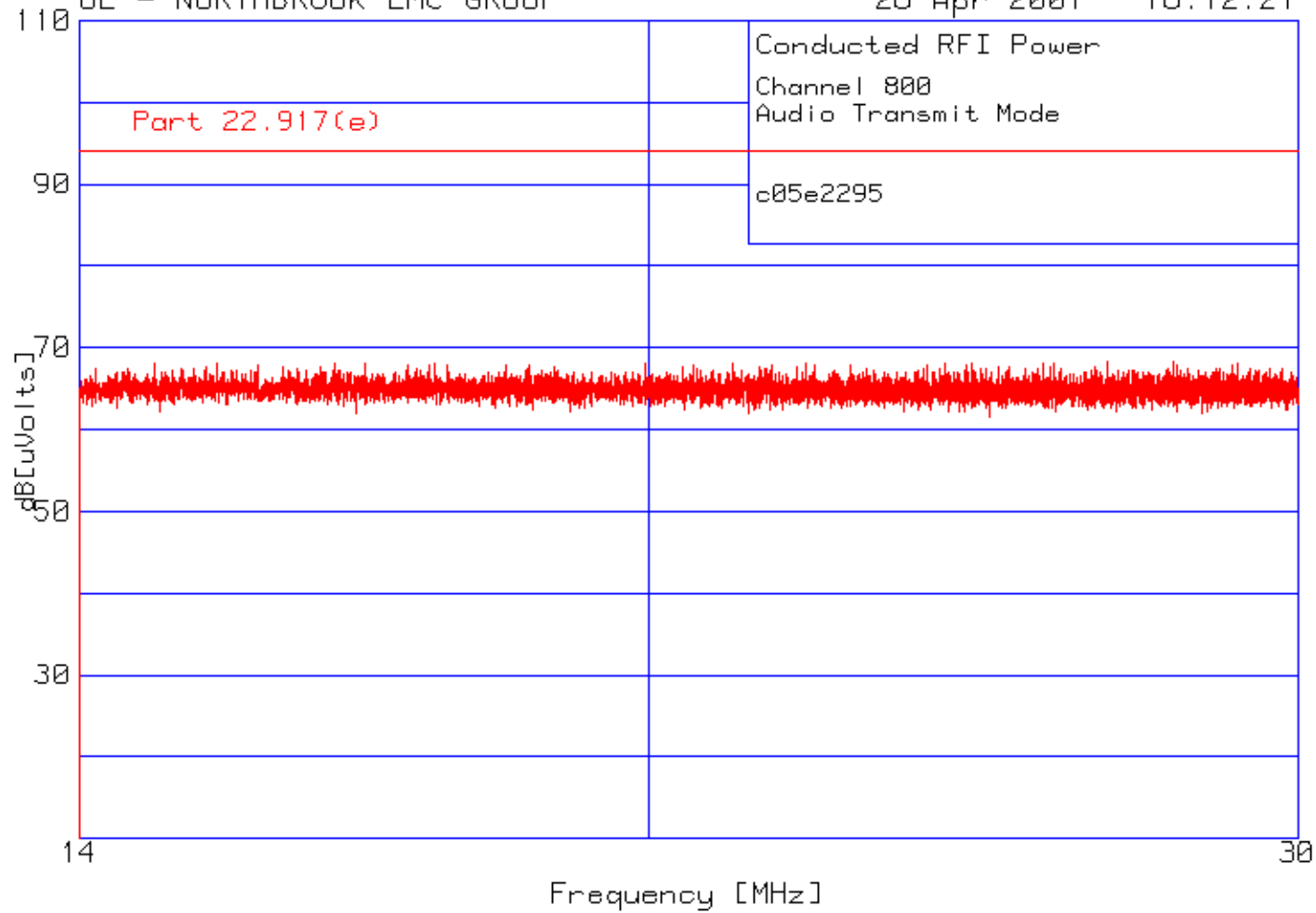


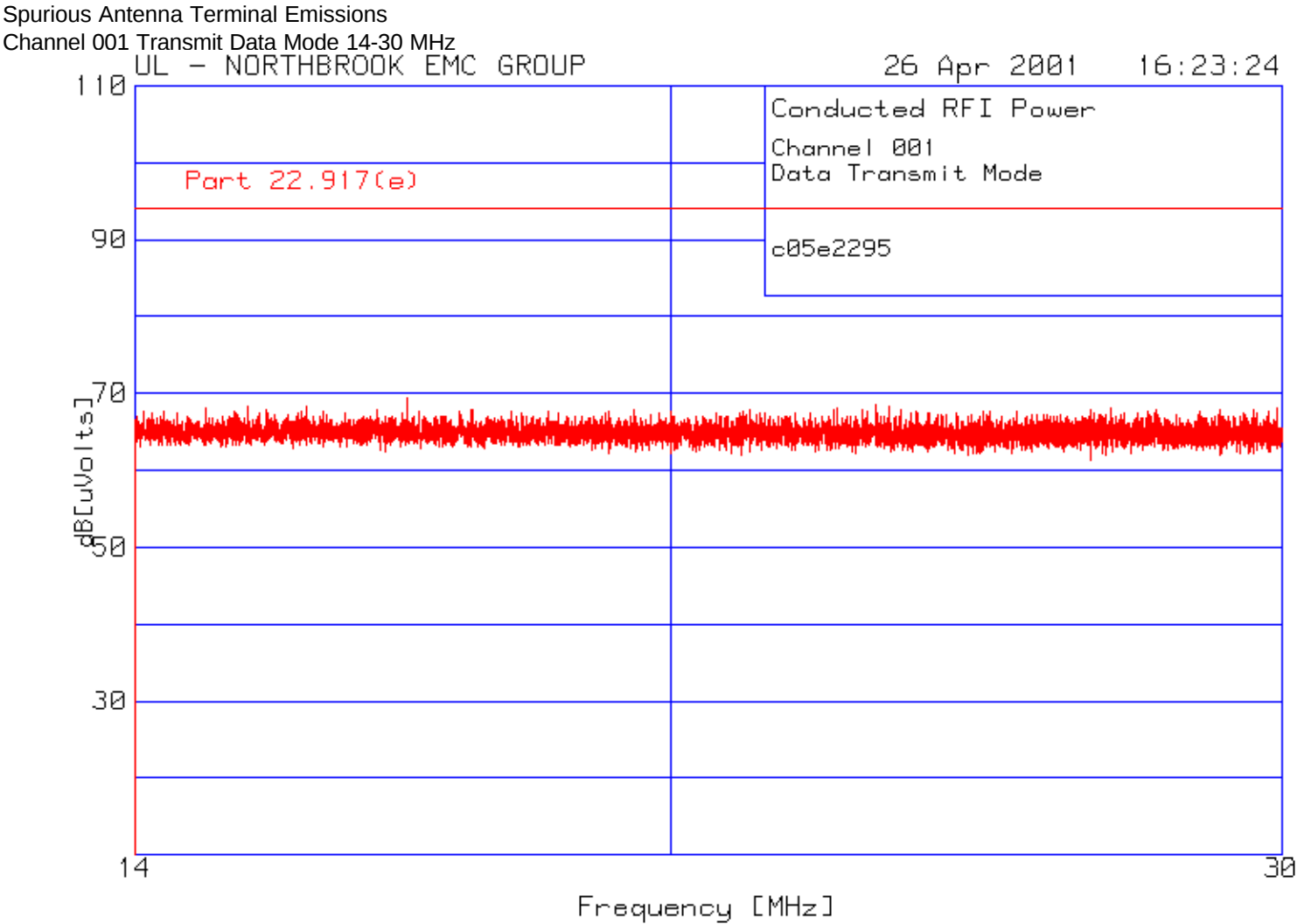
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Channel 800 Transmit Audio Mode 14-30 MHz

UL - NORTHBROOK EMC GROUP

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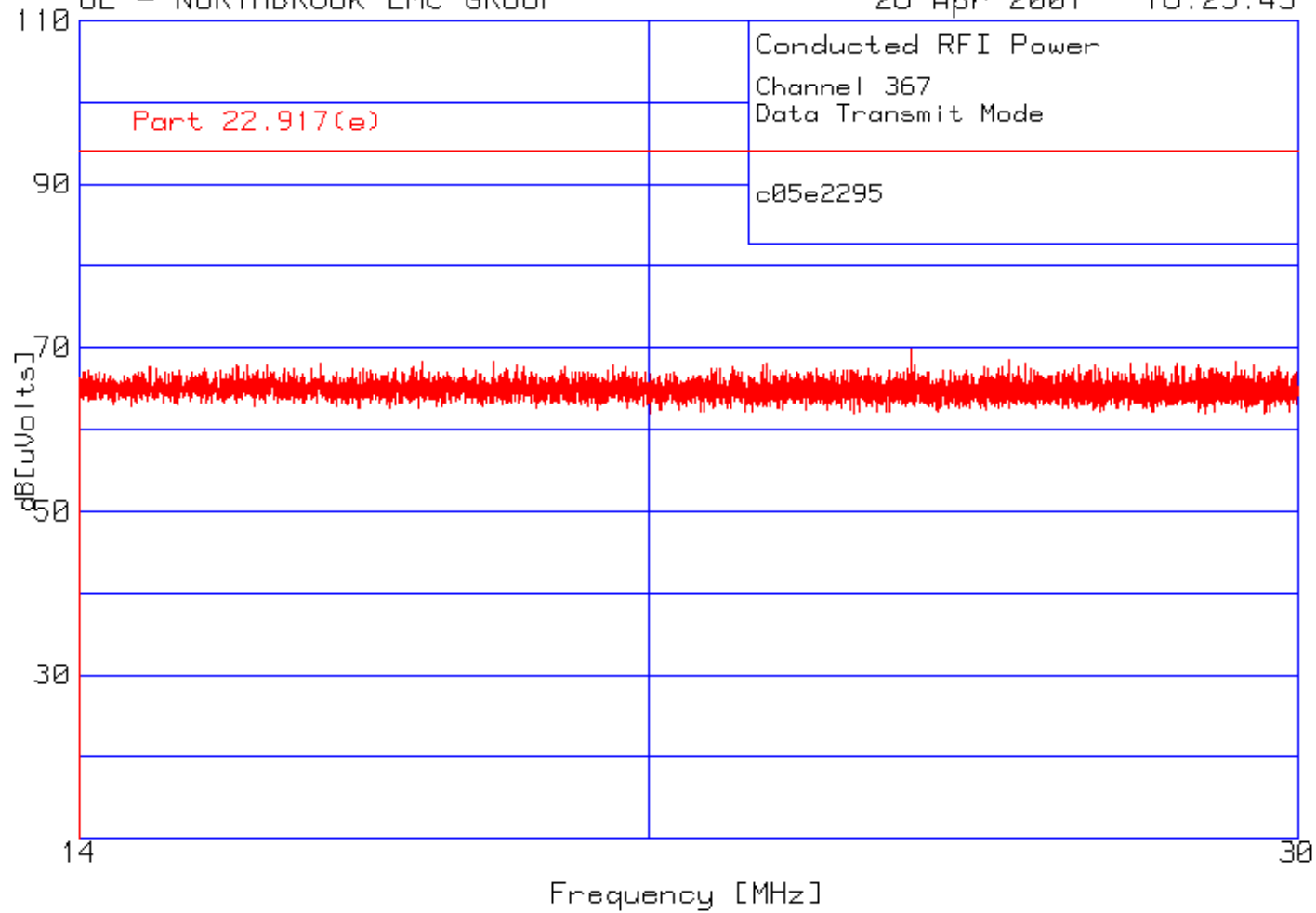


Spurious Antenna Terminal Emissions

Channel 367 Transmit Data Mode 14-30 MHz

UL – NORTHBROOK EMC GROUP

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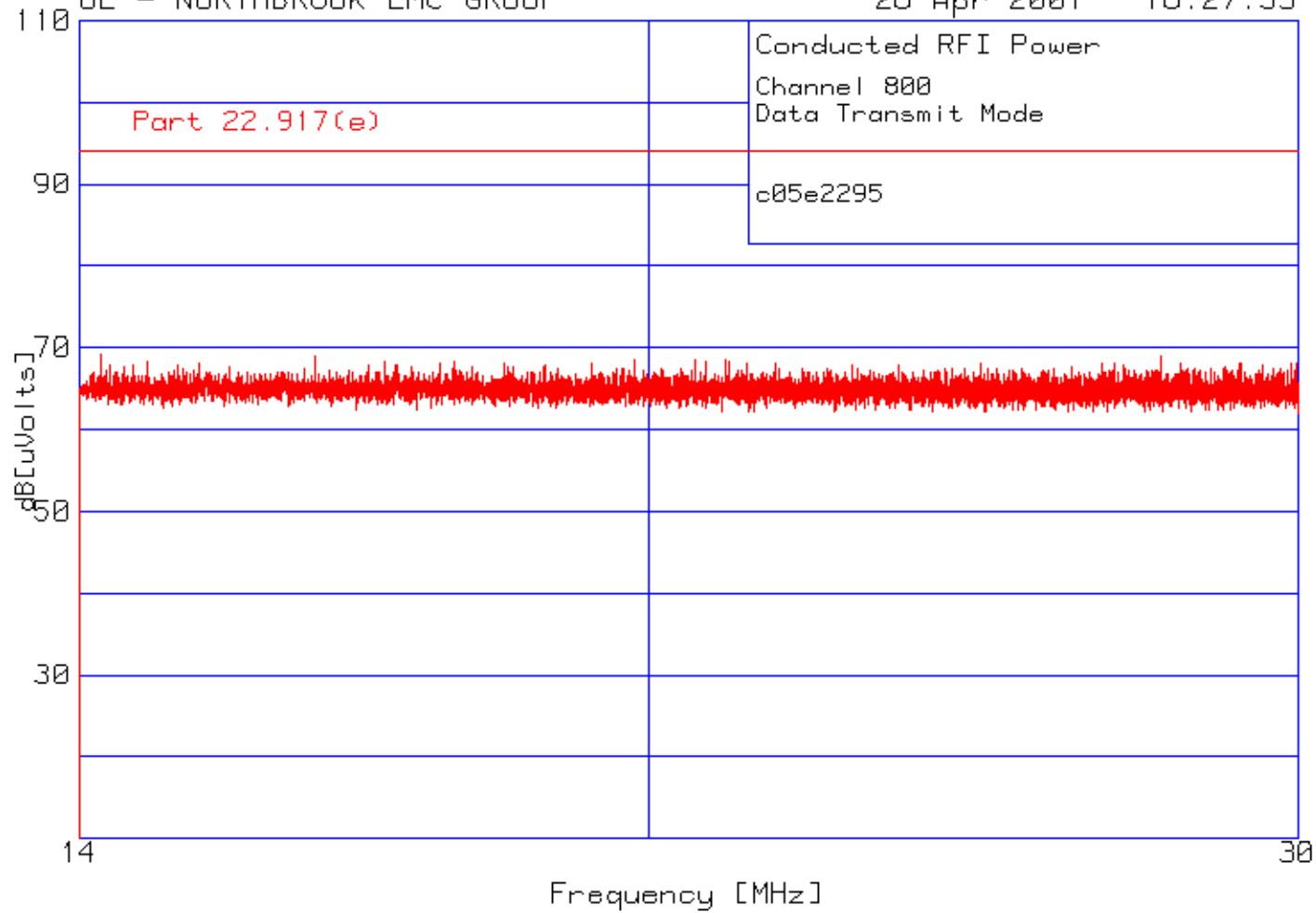
Spurious Antenna Terminal Emissions

Channel 800 Transmit Data Mode 14-30 MHz

UL – NORTHBROOK EMC GROUP

26 Apr 2001

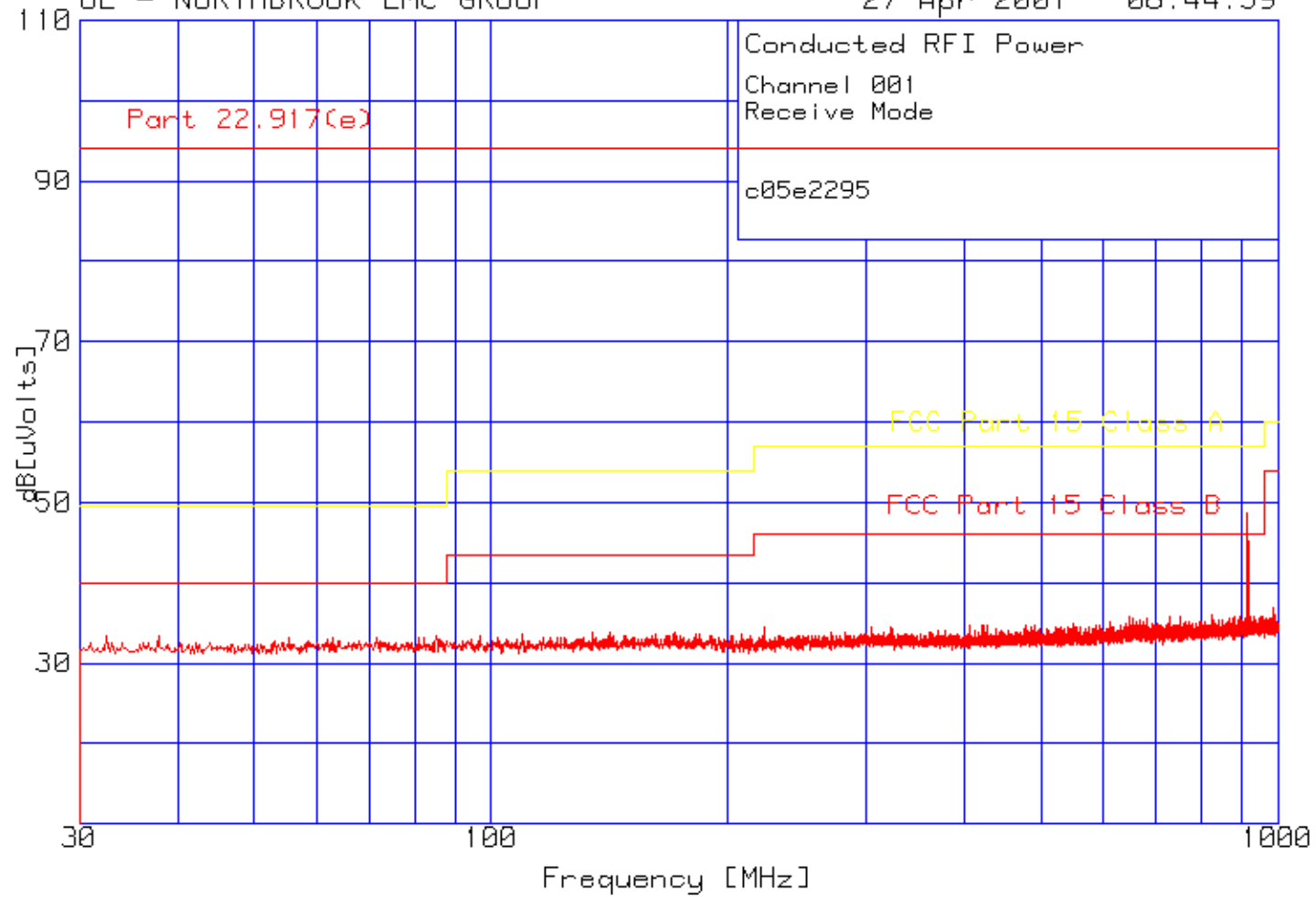
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Spurious Antenna Terminal Emissions
Channel 001 Receive Mode 30-1000 MHz

UL - NORTHBROOK EMC GROUP

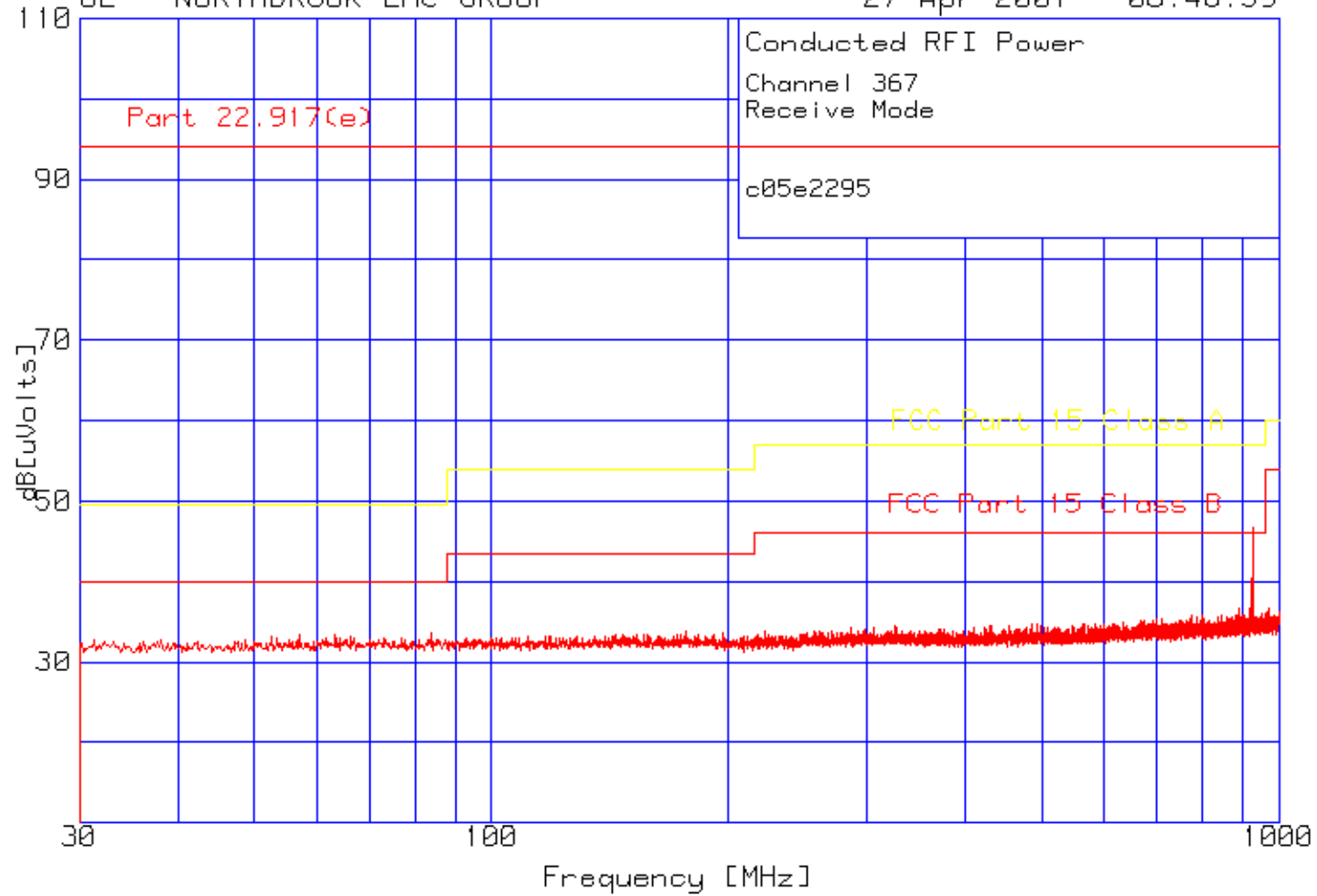
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Spurious Antenna Terminal Emissions
Channel 367 Receive Mode 30-1000 MHz

UL - NORTHBROOK EMC GROUP

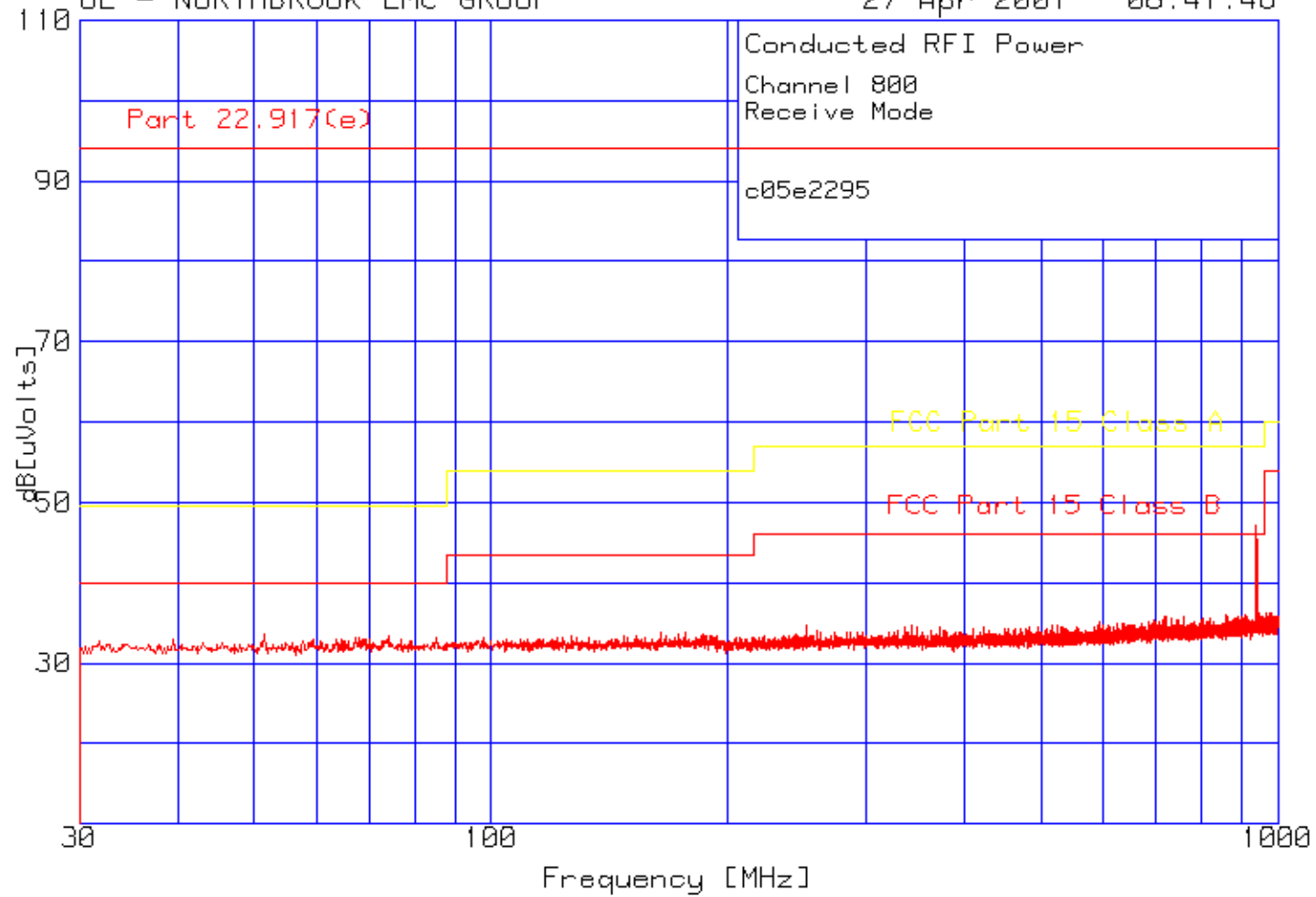
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Spurious Antenna Terminal Emissions
Channel 800 Receive Mode 30-1000 MHz

UL - NORTHBROOK EMC GROUP

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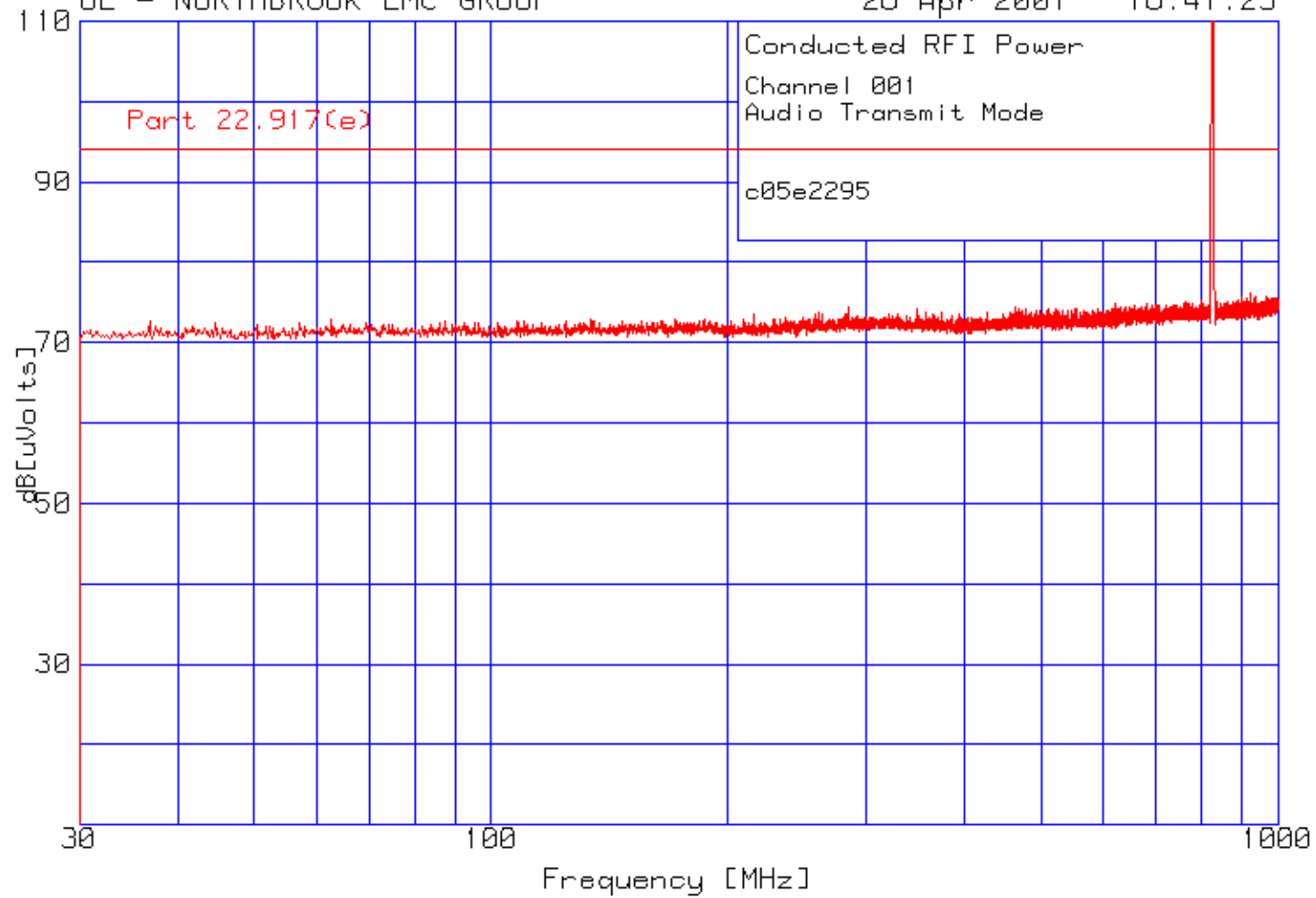


Spurious Antenna Terminal Emissions

Channel 001 Transmit Audio Mode 30-1000 MHz

UL - NORTHBROOK EMC GROUP

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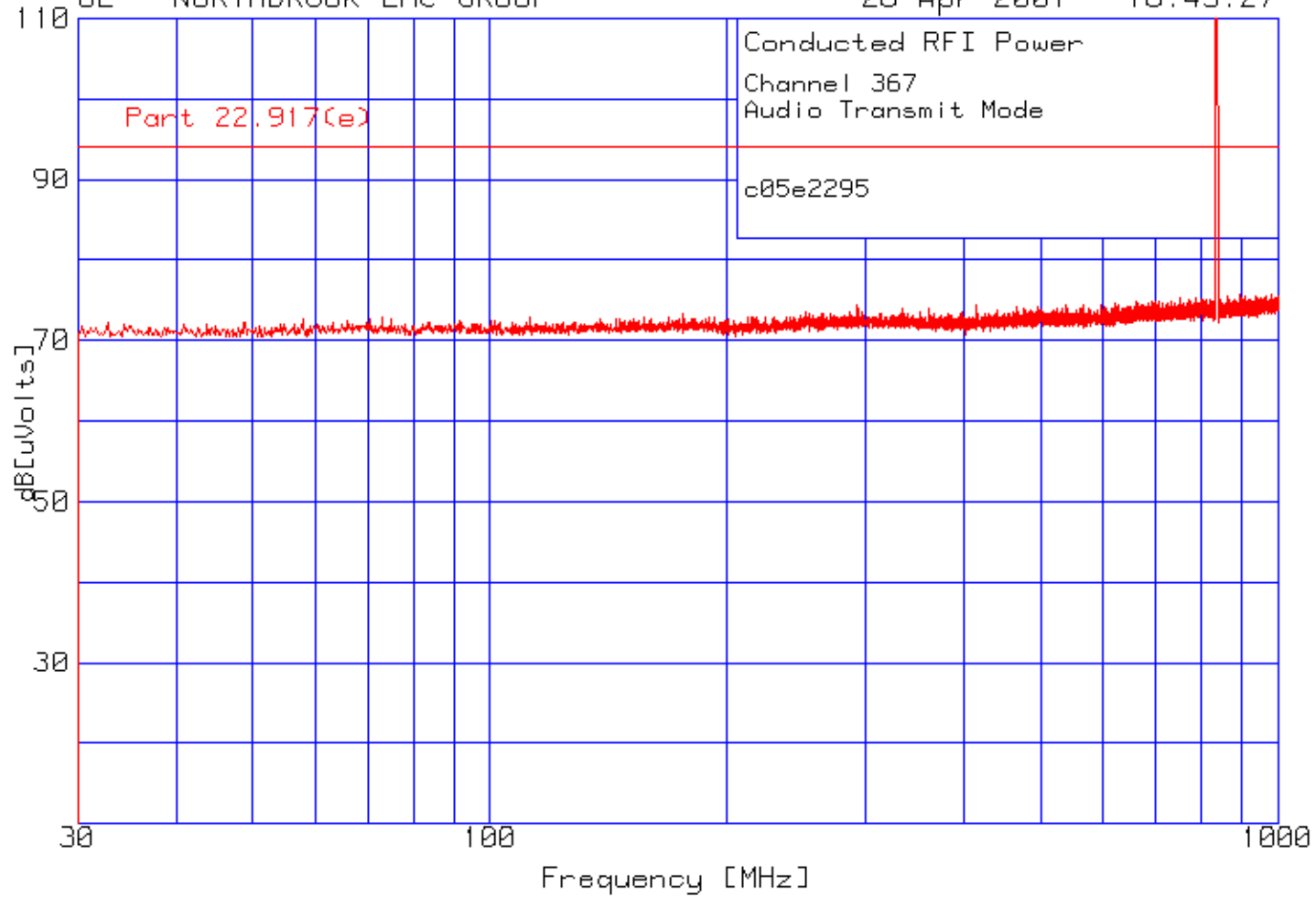
Spurious Antenna Terminal Emissions

Channel 367 Transmit Audio Mode 30-1000 MHz

UL - NORTHBROOK EMC GROUP

26 Apr 2001

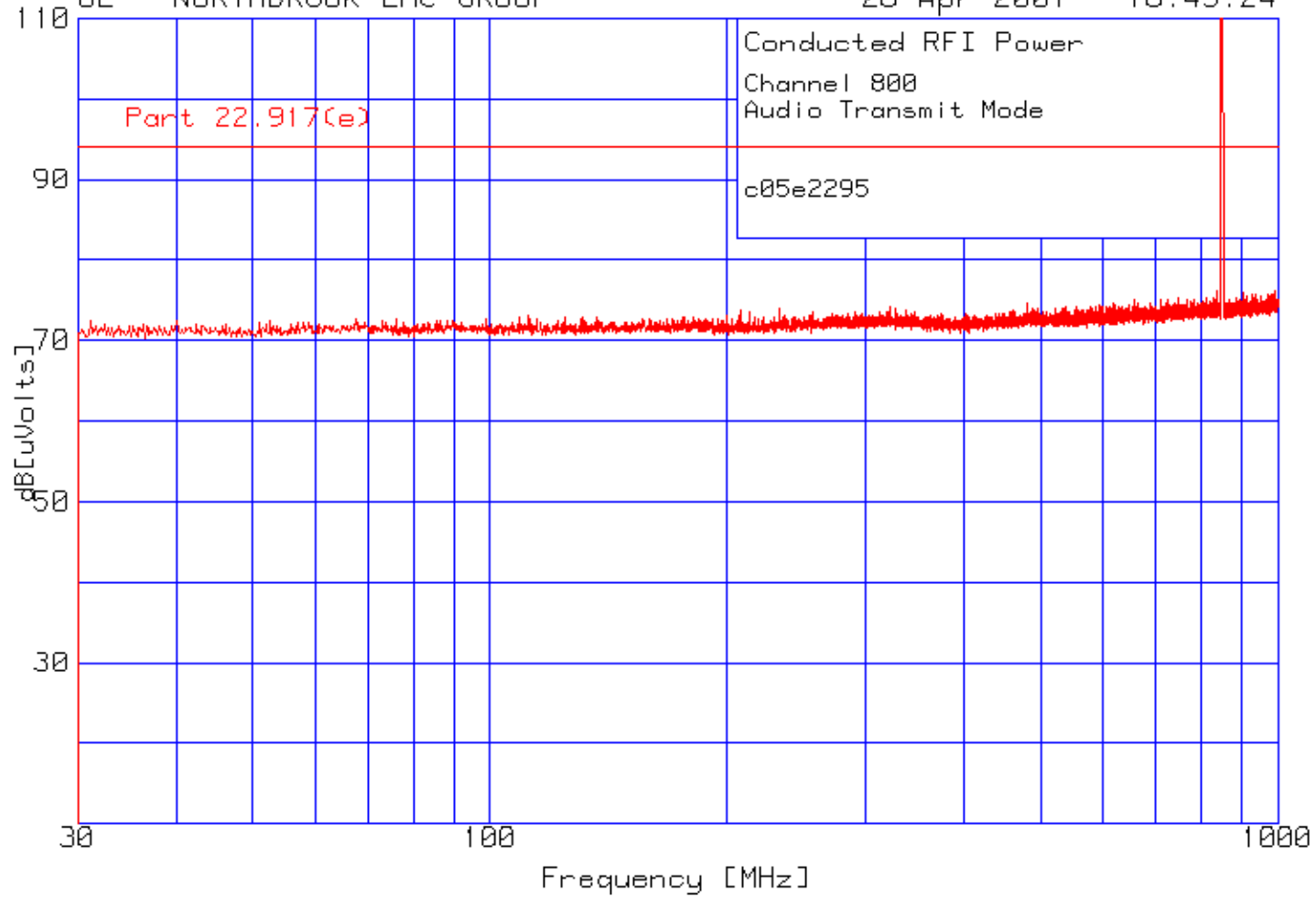
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Spurious Antenna Terminal Emissions
Channel 800 Transmit Audio Mode 30-1000 MHz

UL - NORTHBROOK EMC GROUP

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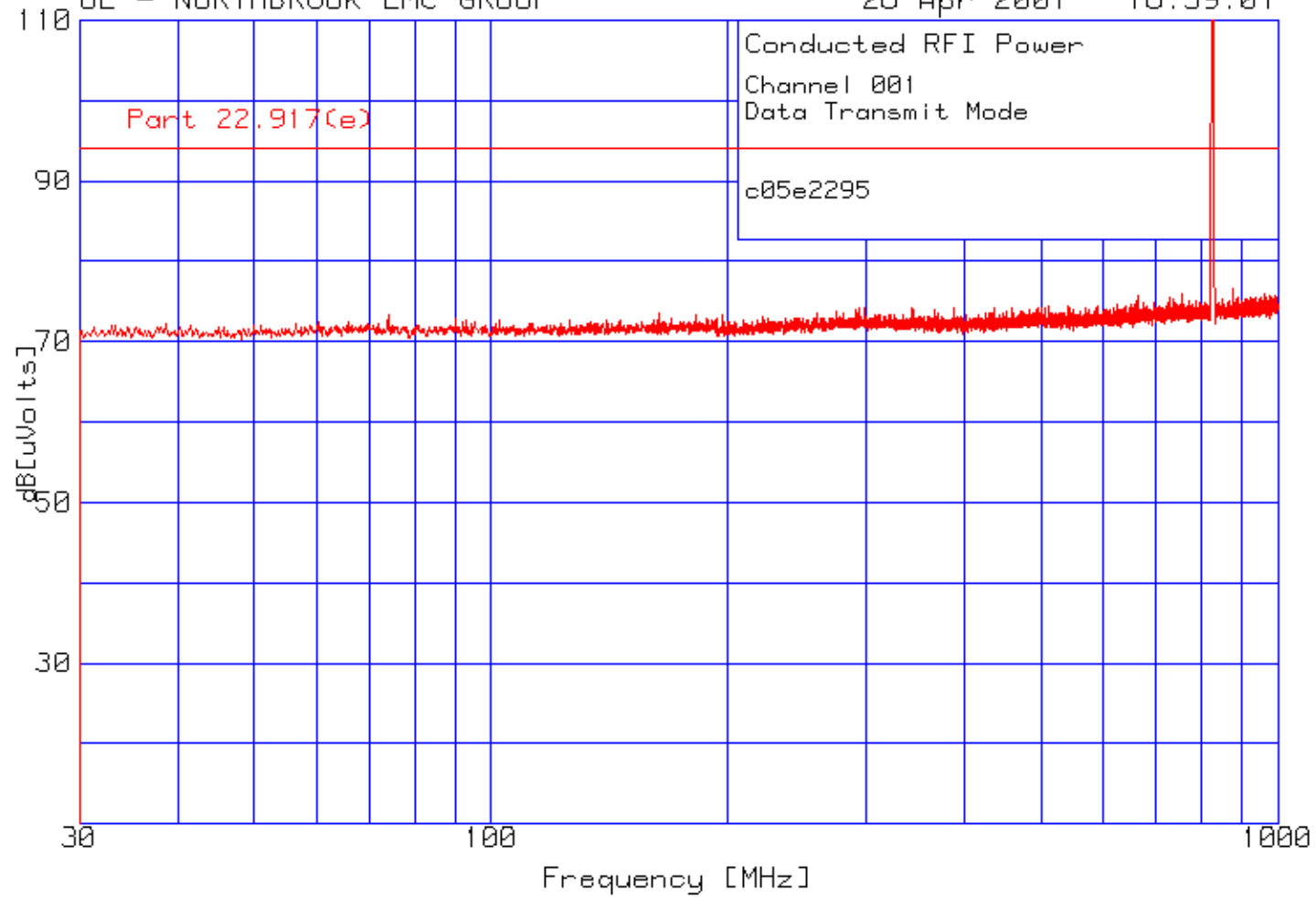


Spurious Antenna Terminal Emissions

Channel 001 Transmit Data Mode 30-1000 MHz

UL - NORTHBROOK EMC GROUP

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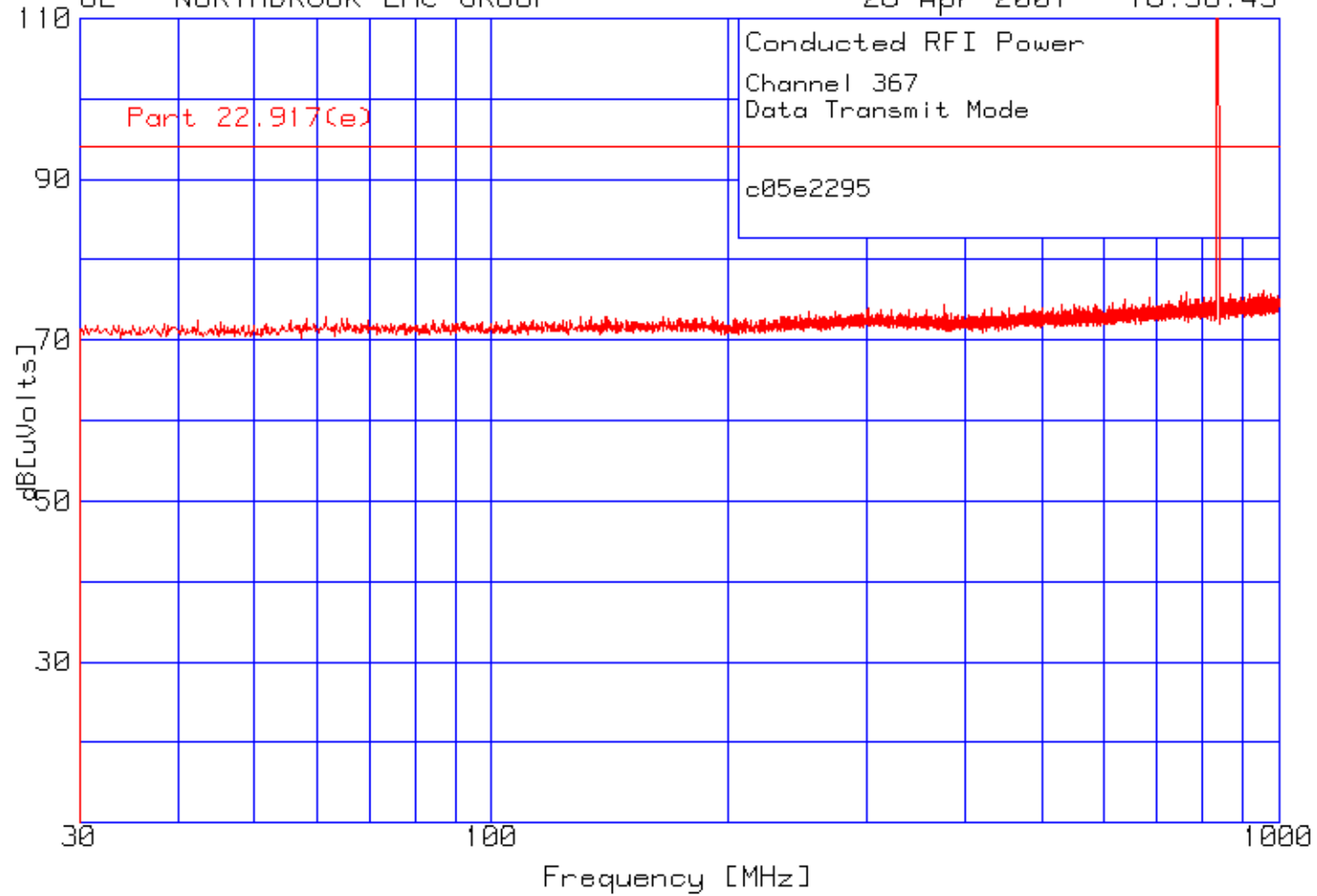


Spurious Antenna Terminal Emissions

Channel 367 Transmit Data Mode 30-1000 MHz

UL - NORTHBROOK EMC GROUP

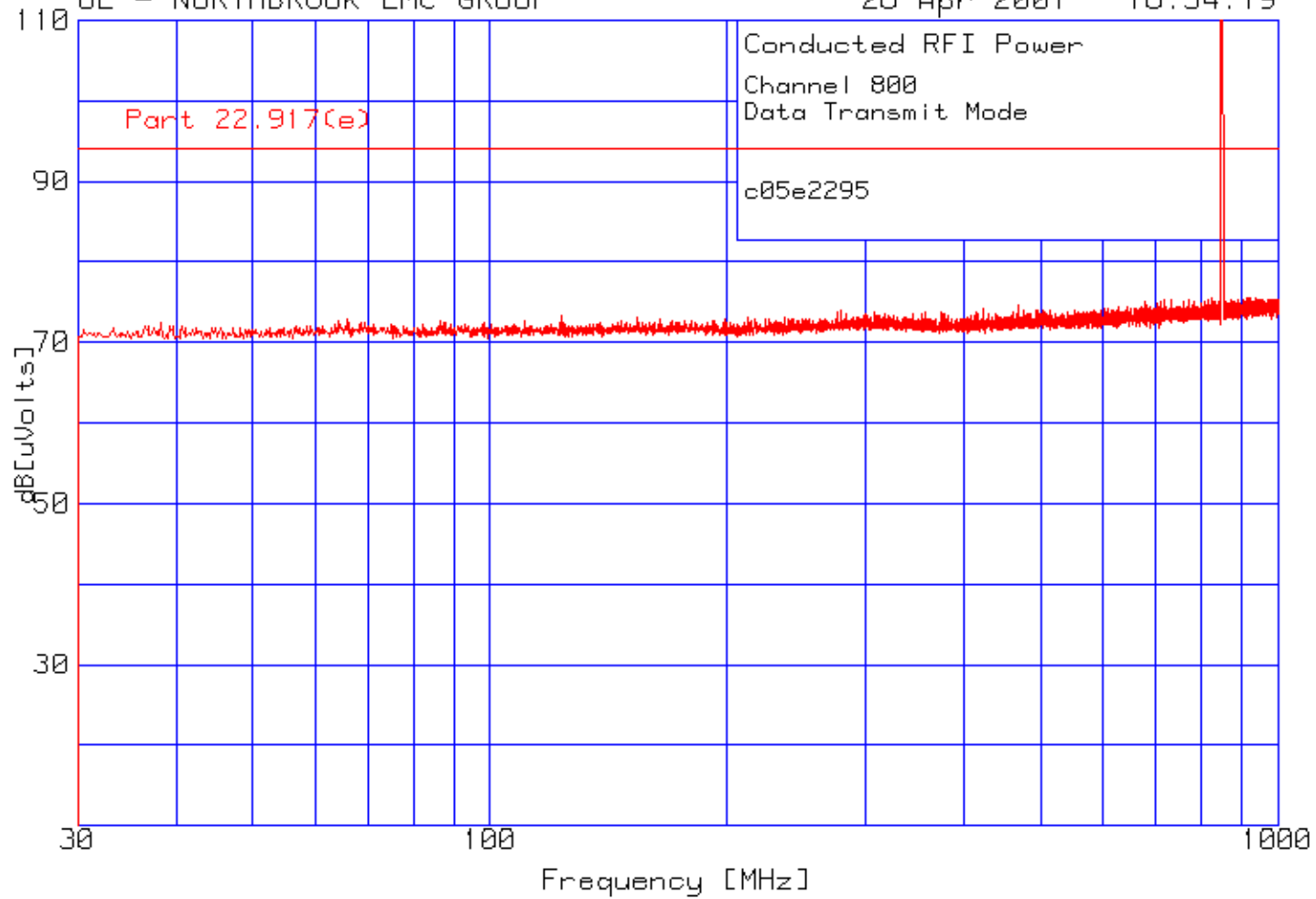
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Spurious Antenna Terminal Emissions
Channel 800 Transmit Data Mode 30-1000 MHz

UL - NORTHBROOK EMC GROUP

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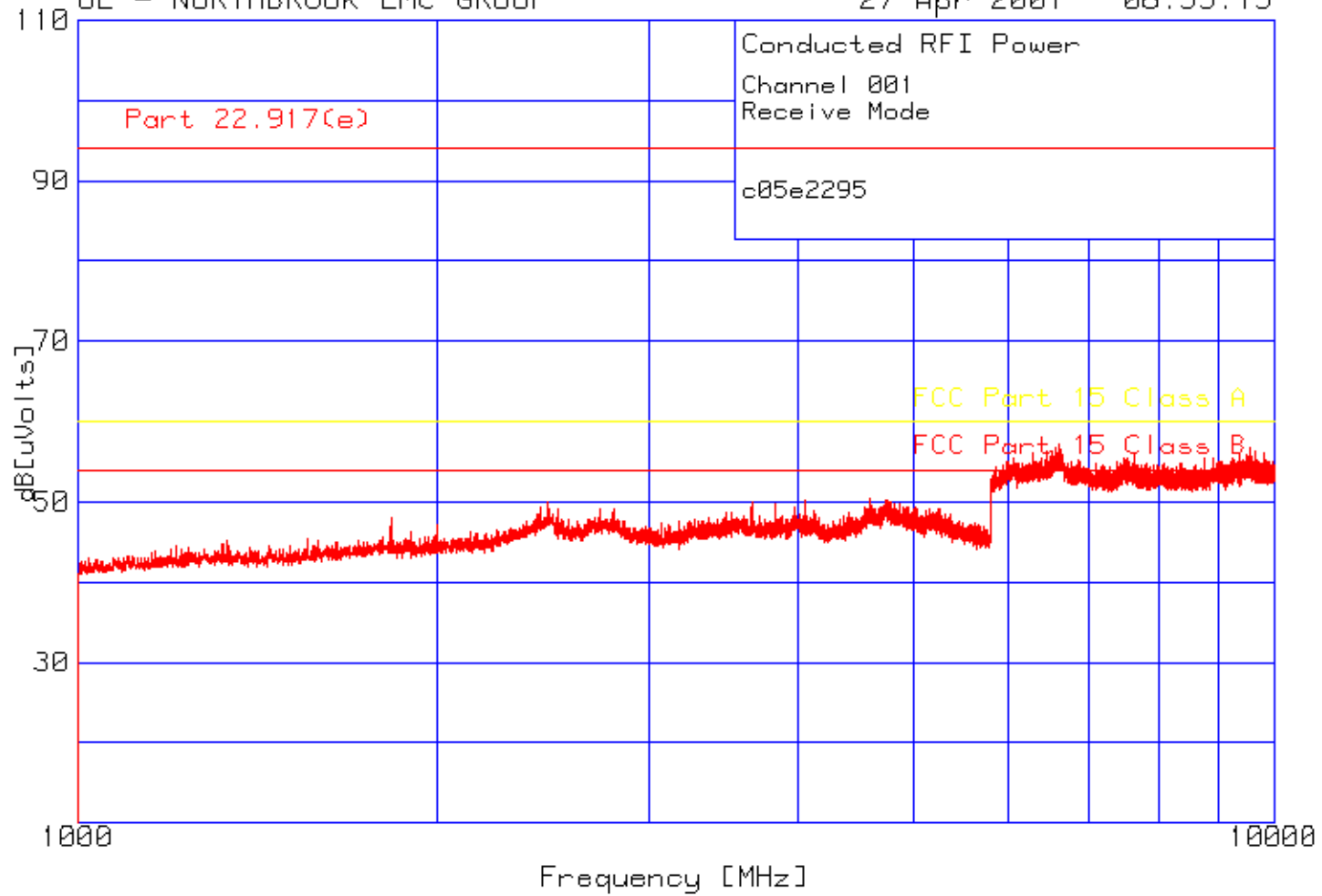
Spurious Antenna Terminal Emissions

Channel 001 Receive Mode 1-10 GHz

UL - NORTHBROOK EMC GROUP

27 Apr 2001

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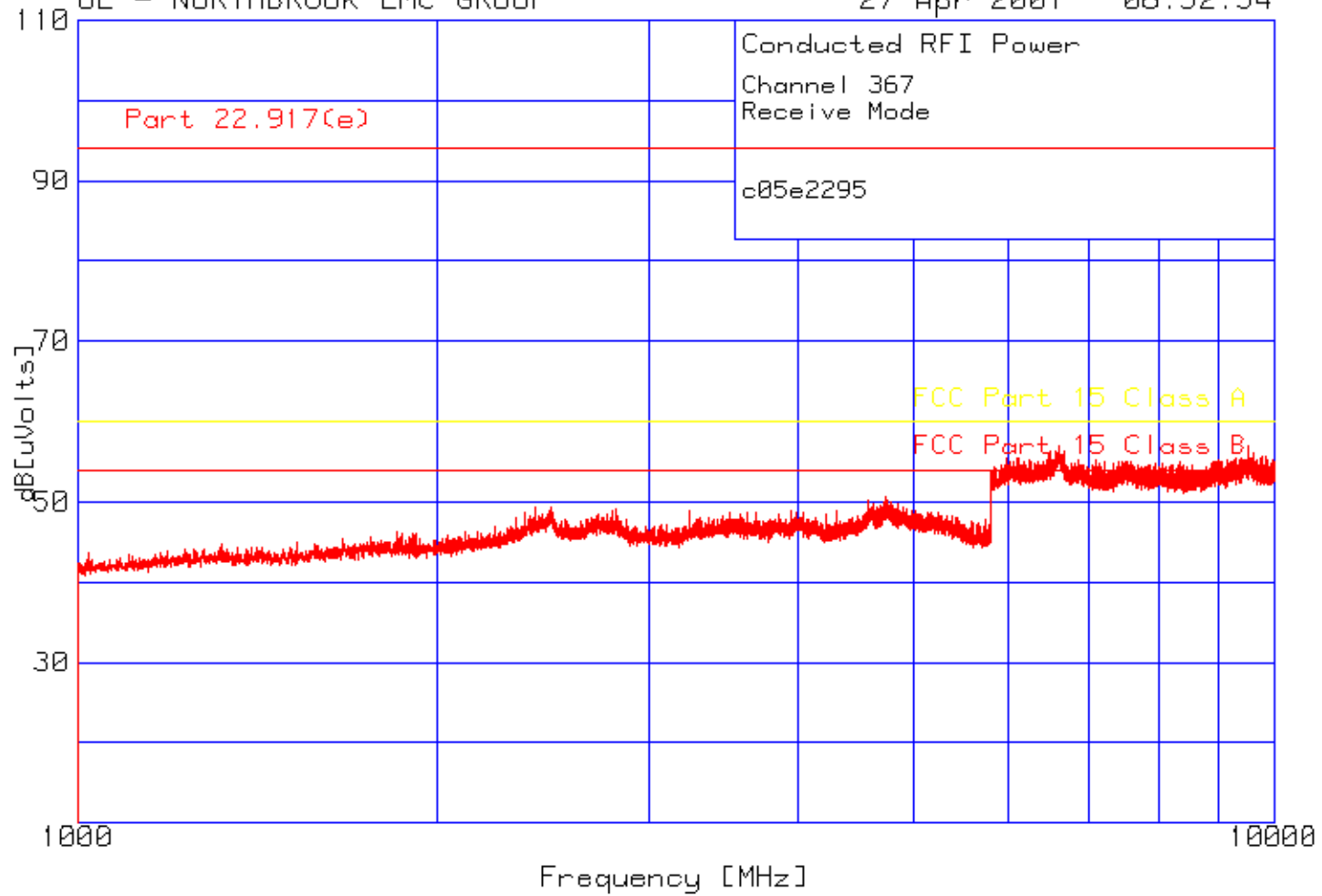
Spurious Antenna Terminal Emissions

Channel 367 Receive Mode 1-10 GHz

UL - NORTHBROOK EMC GROUP

27 Apr 2001

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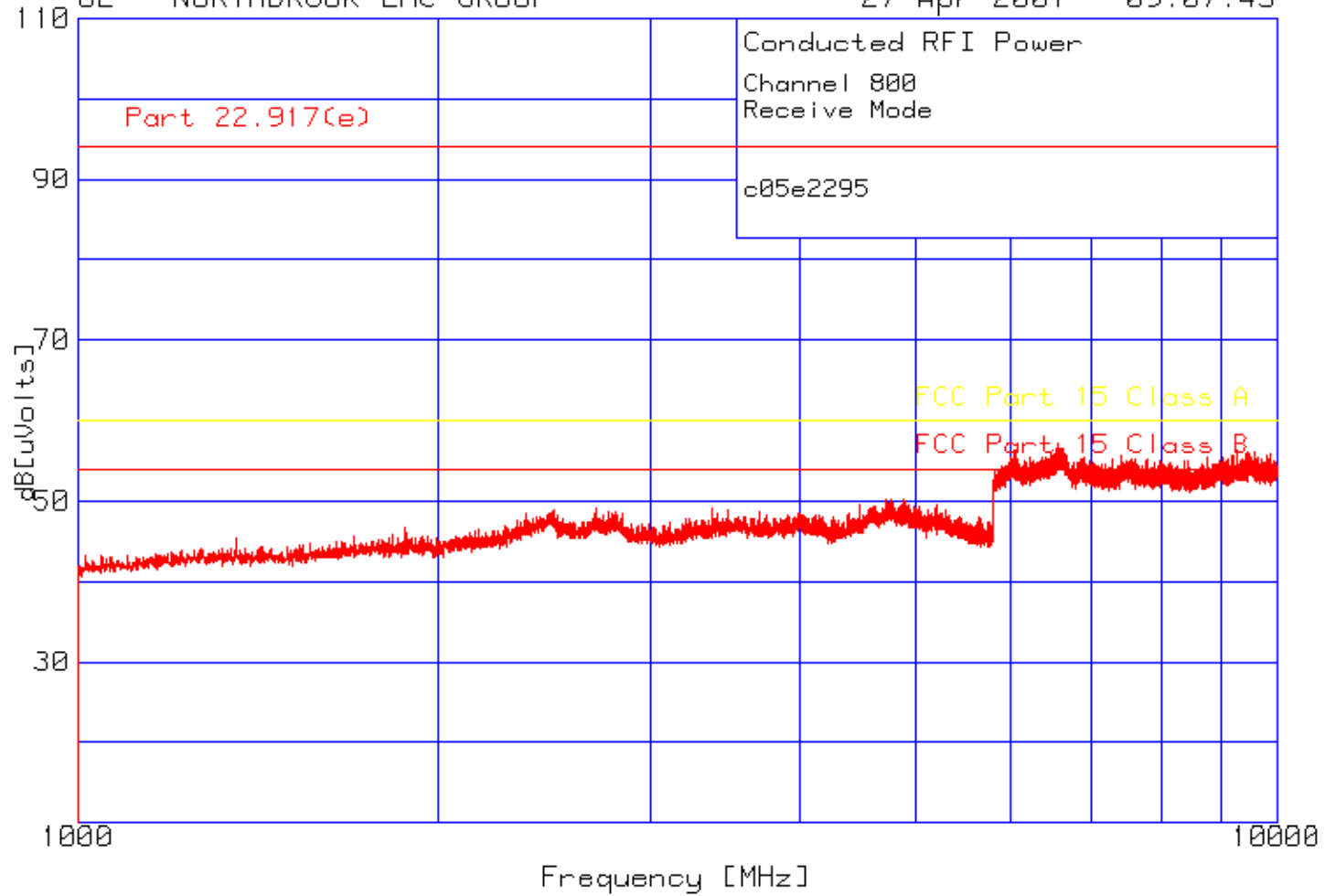
Spurious Antenna Terminal Emissions

Channel 800 Receive Mode 1-10 GHz

UL - NORTHBROOK EMC GROUP

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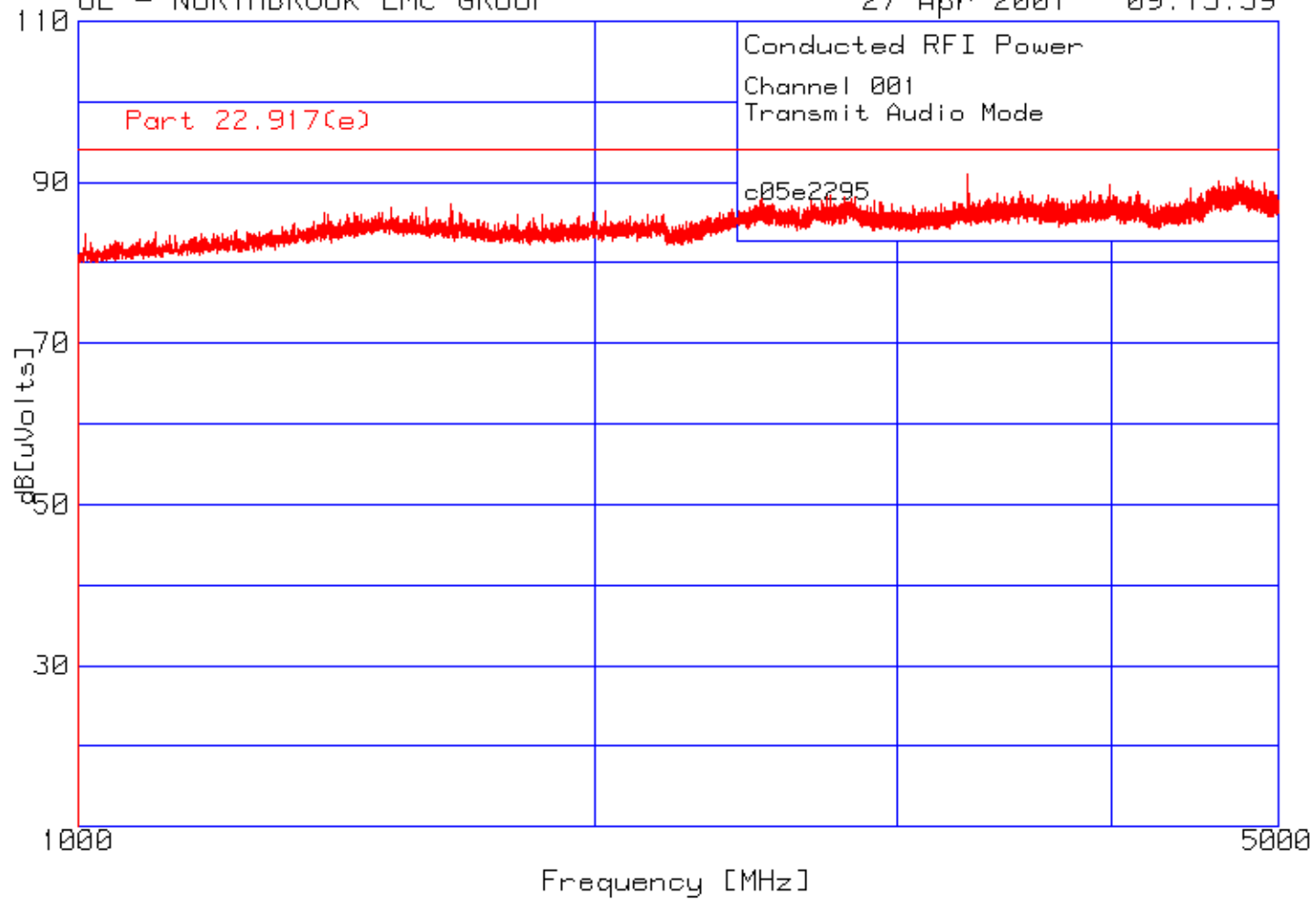


Spurious Antenna Terminal Emissions

Channel 001 Transmit Audio Mode 1-5 GHz

UL - NORTHBROOK EMC GROUP

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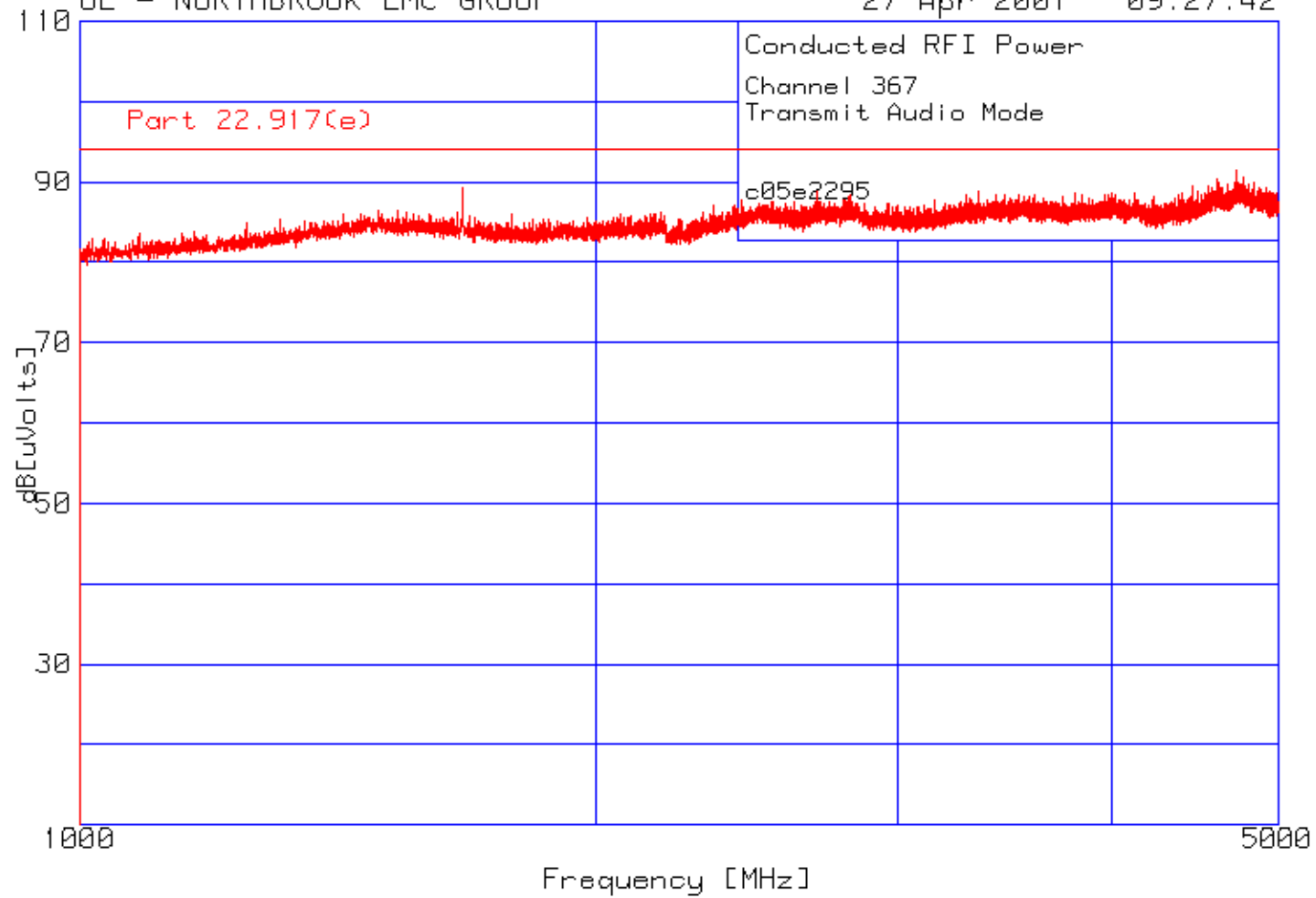


Spurious Antenna Terminal Emissions

Channel 367 Transmit Audio Mode 1-5 GHz

UL - NORTHBROOK EMC GROUP

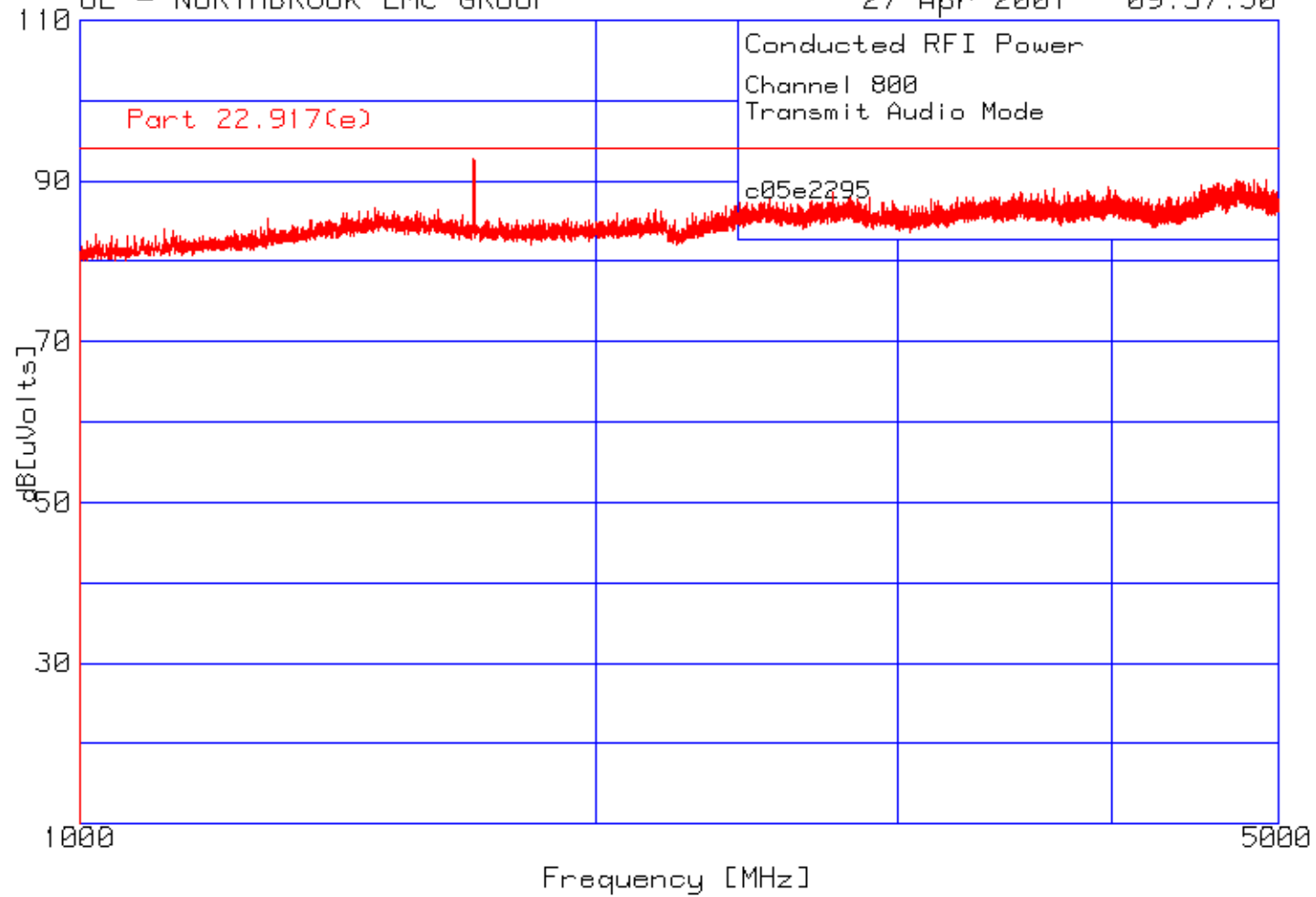
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Spurious Antenna Terminal Emissions
Channel 800 Transmit Audio Mode 1-5 GHz

UL - NORTHBROOK EMC GROUP

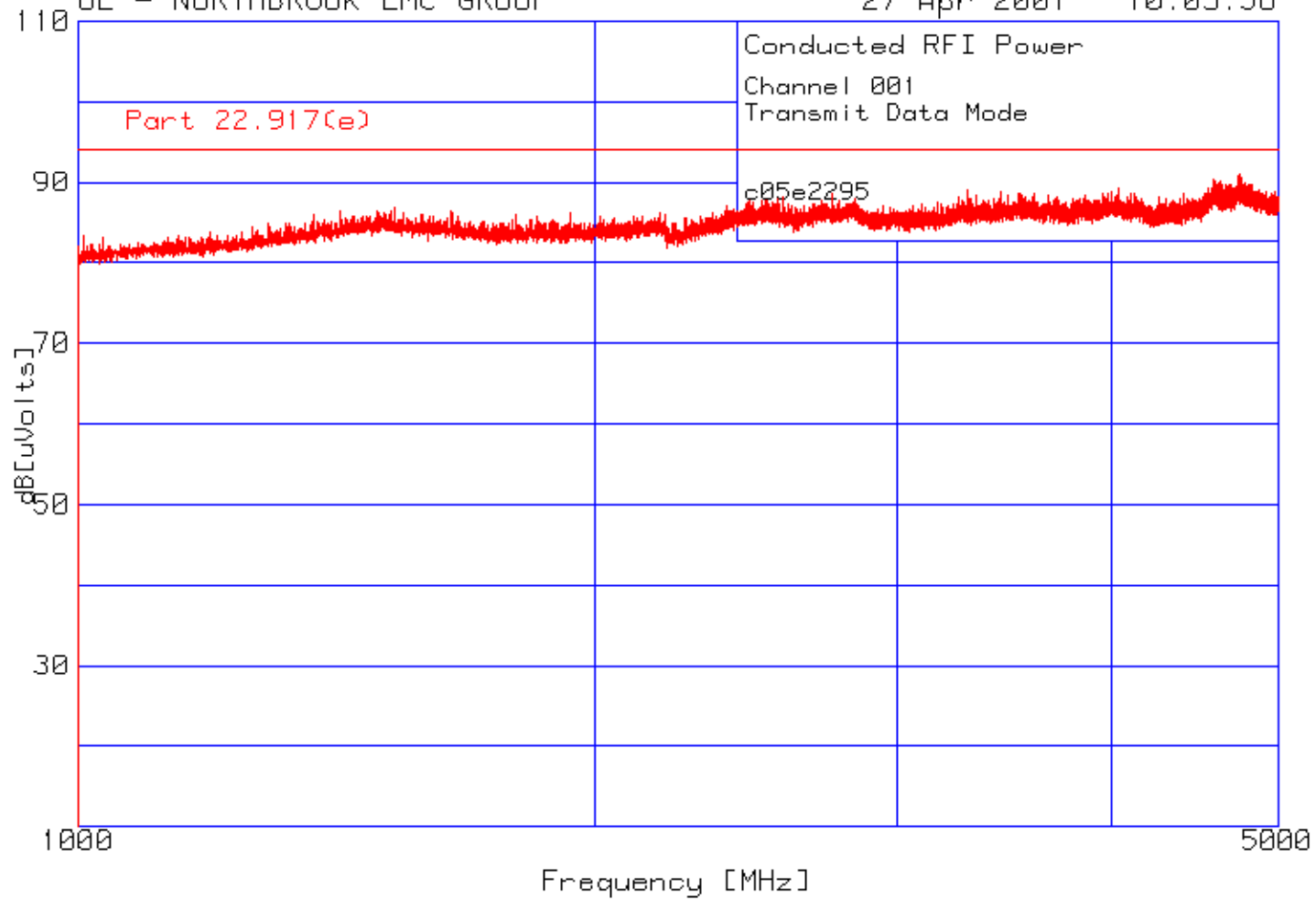
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Spurious Antenna Terminal Emissions
Channel 001 Transmit Data Mode 1-5 GHz

UL - NORTHBROOK EMC GROUP

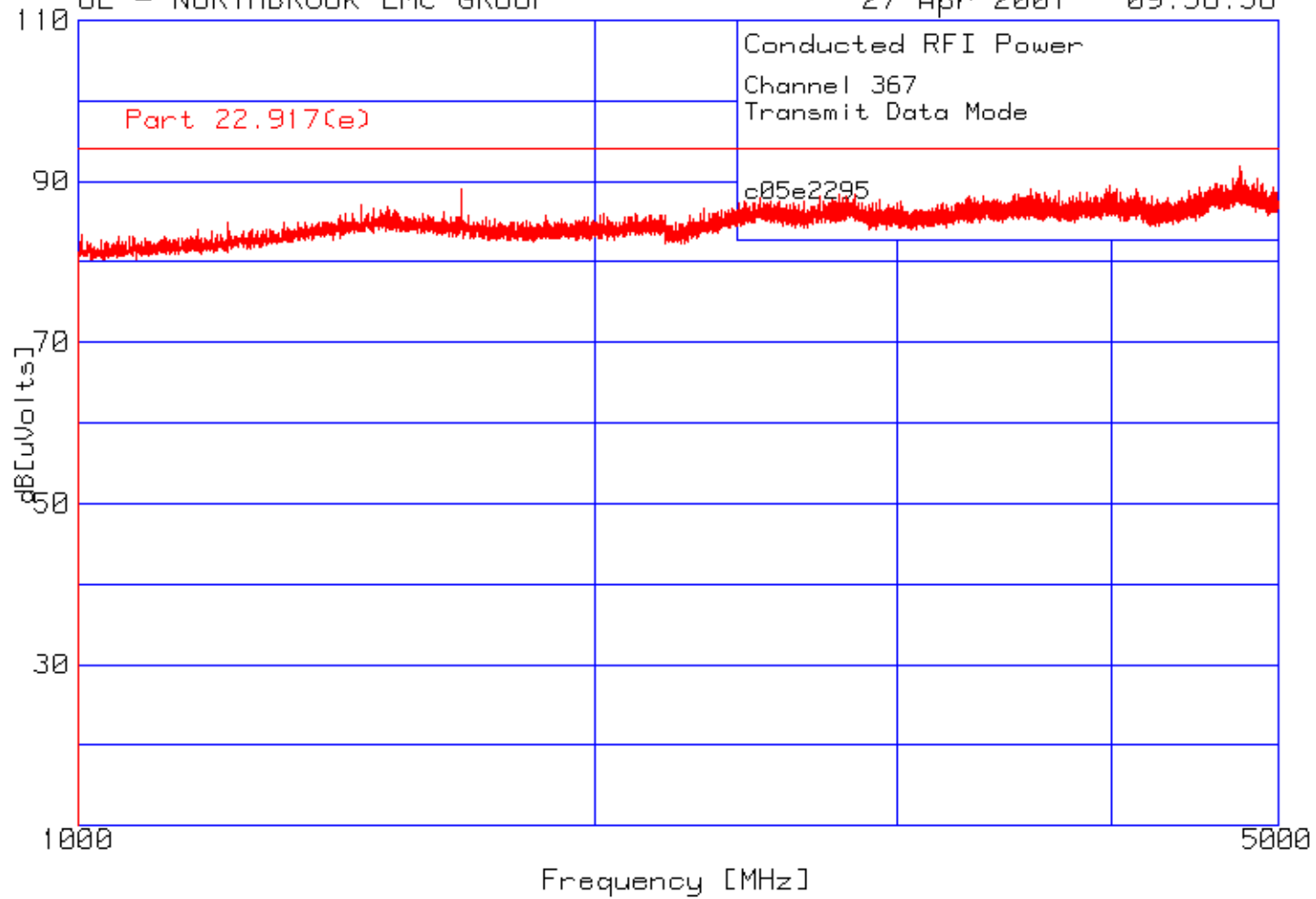
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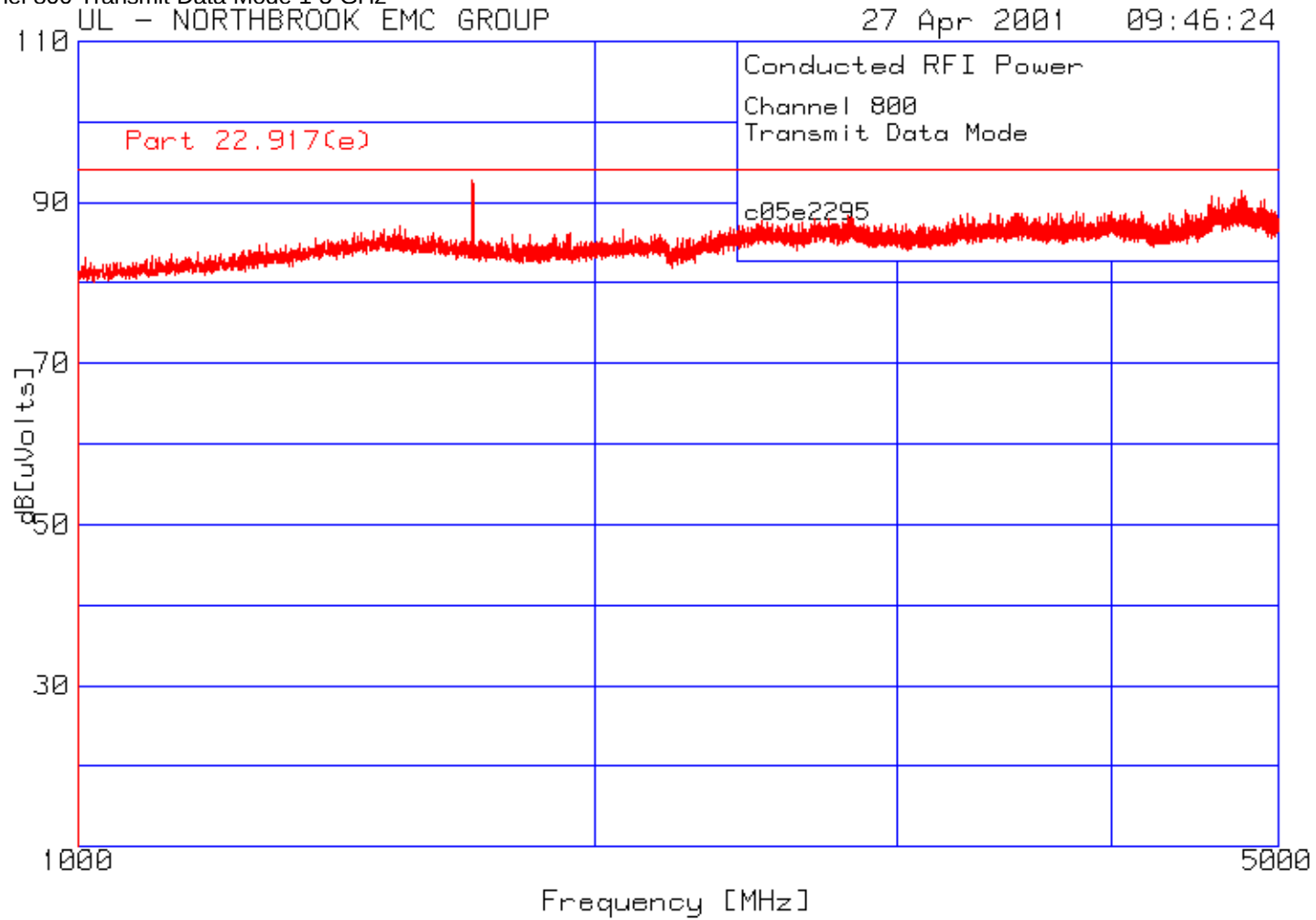
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Channel 367 Transmit Data Mode 1-5 GHz

UL - NORTHBROOK EMC GROUP

27 Apr 2001 09:56:56



Spurious Antenna Terminal Emissions
Channel 800 Transmit Data Mode 1-5 GHz

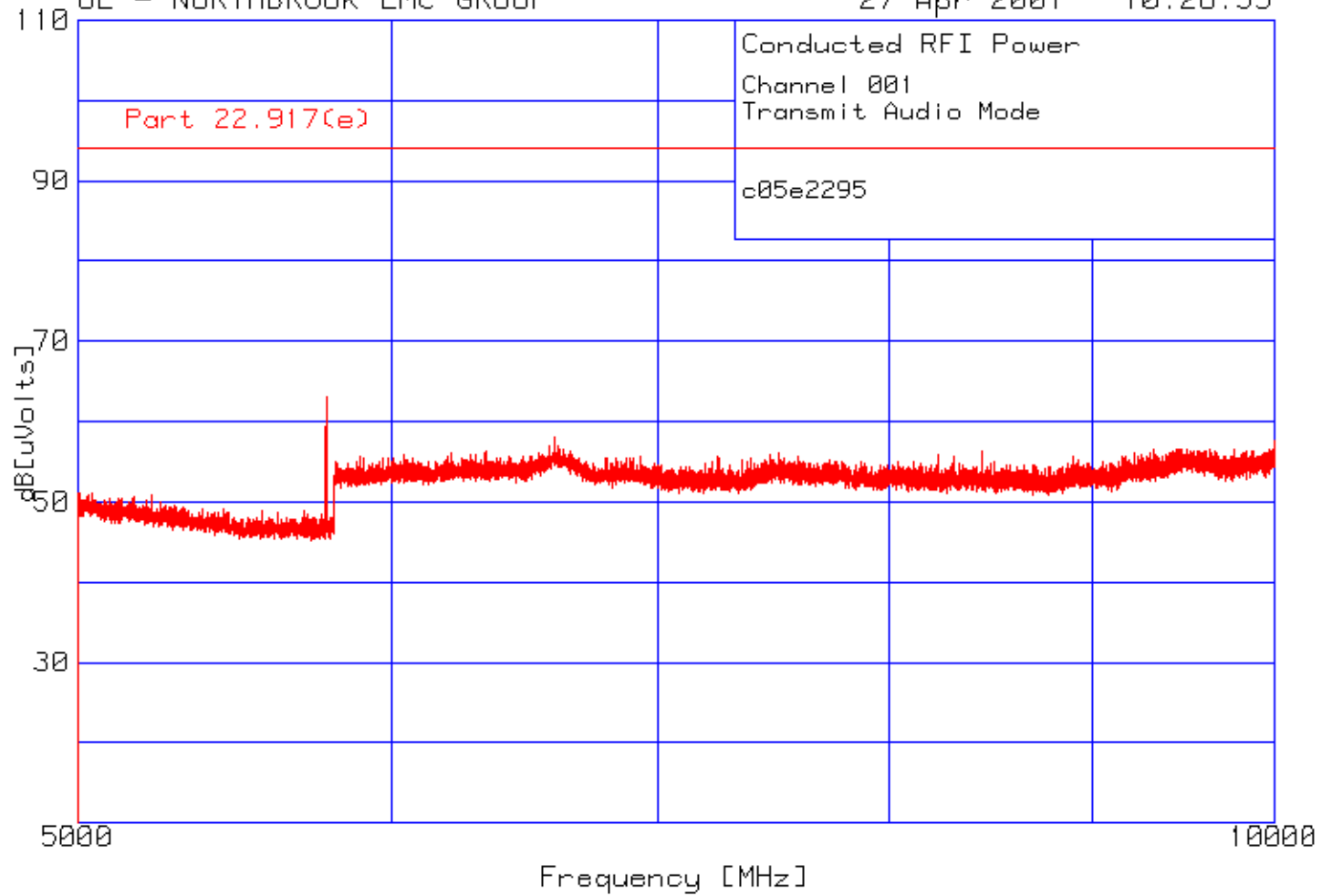


Spurious Antenna Terminal Emissions

Channel 001 Transmit Audio Mode 5-10 GHz

UL - NORTHBROOK EMC GROUP

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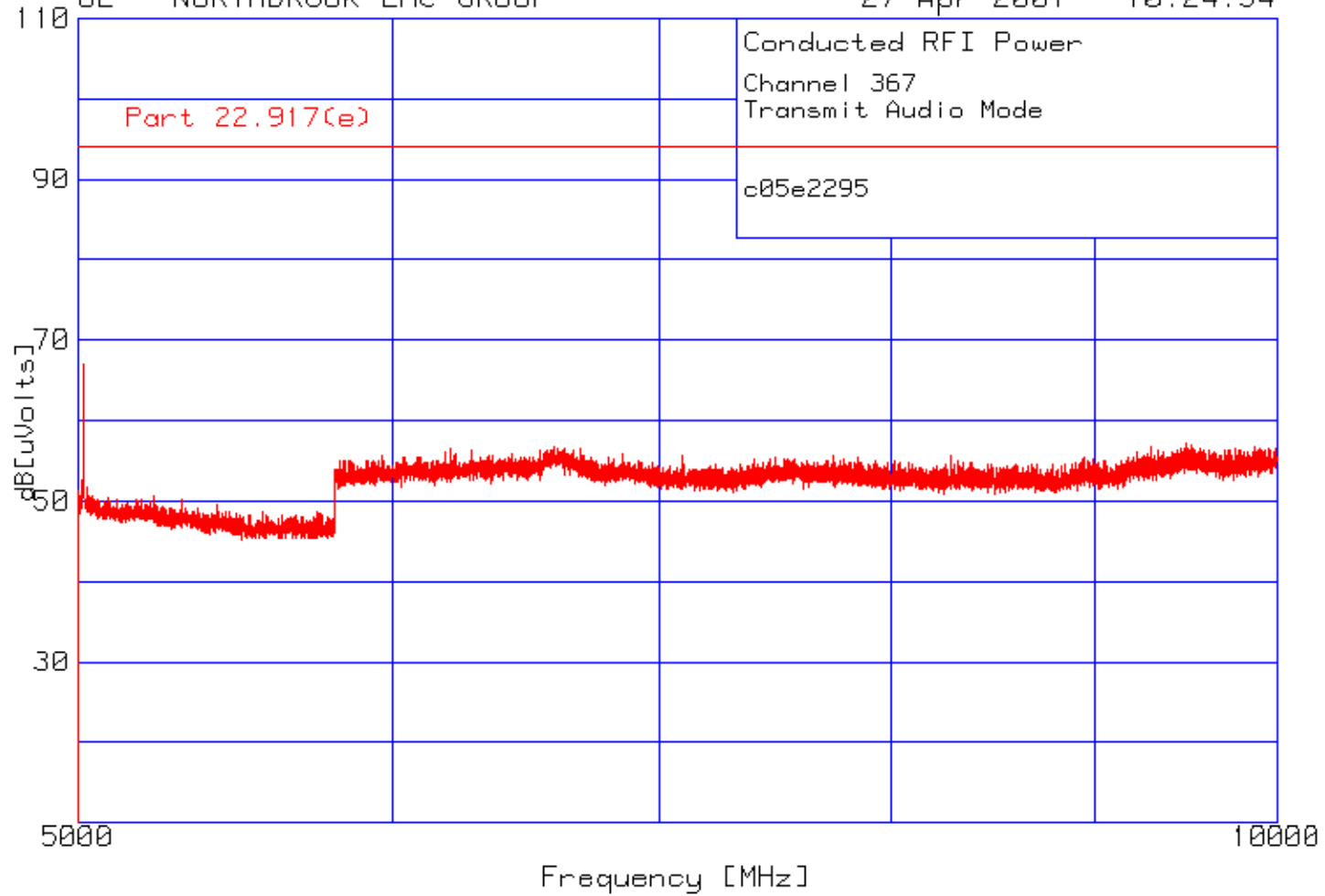


Spurious Antenna Terminal Emissions

Channel 367 Transmit Audio Mode 5-10 GHz

UL - NORTHBROOK EMC GROUP

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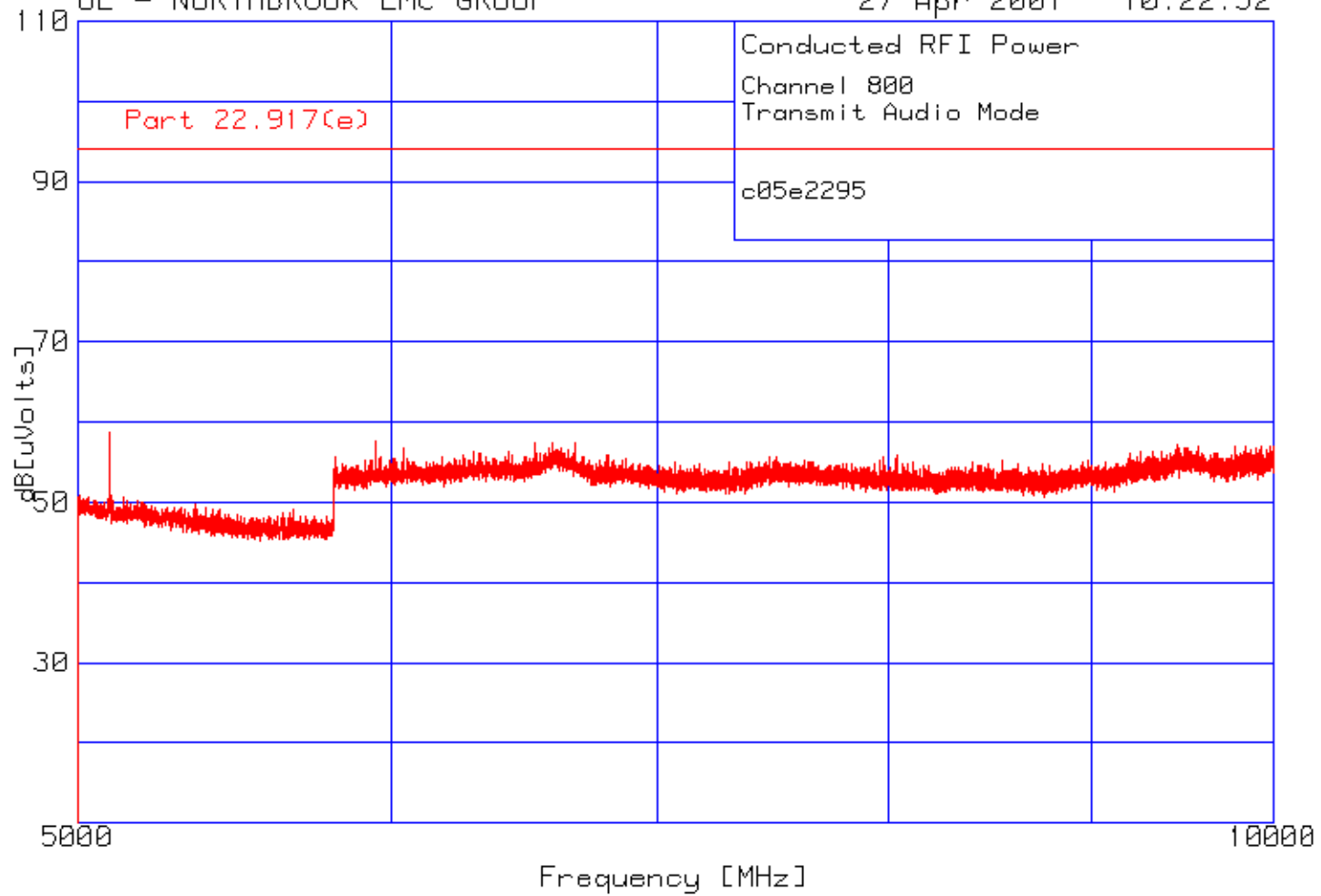


Spurious Antenna Terminal Emissions

Channel 800 Transmit Audio Mode 5-10 GHz

UL - NORTHBROOK EMC GROUP

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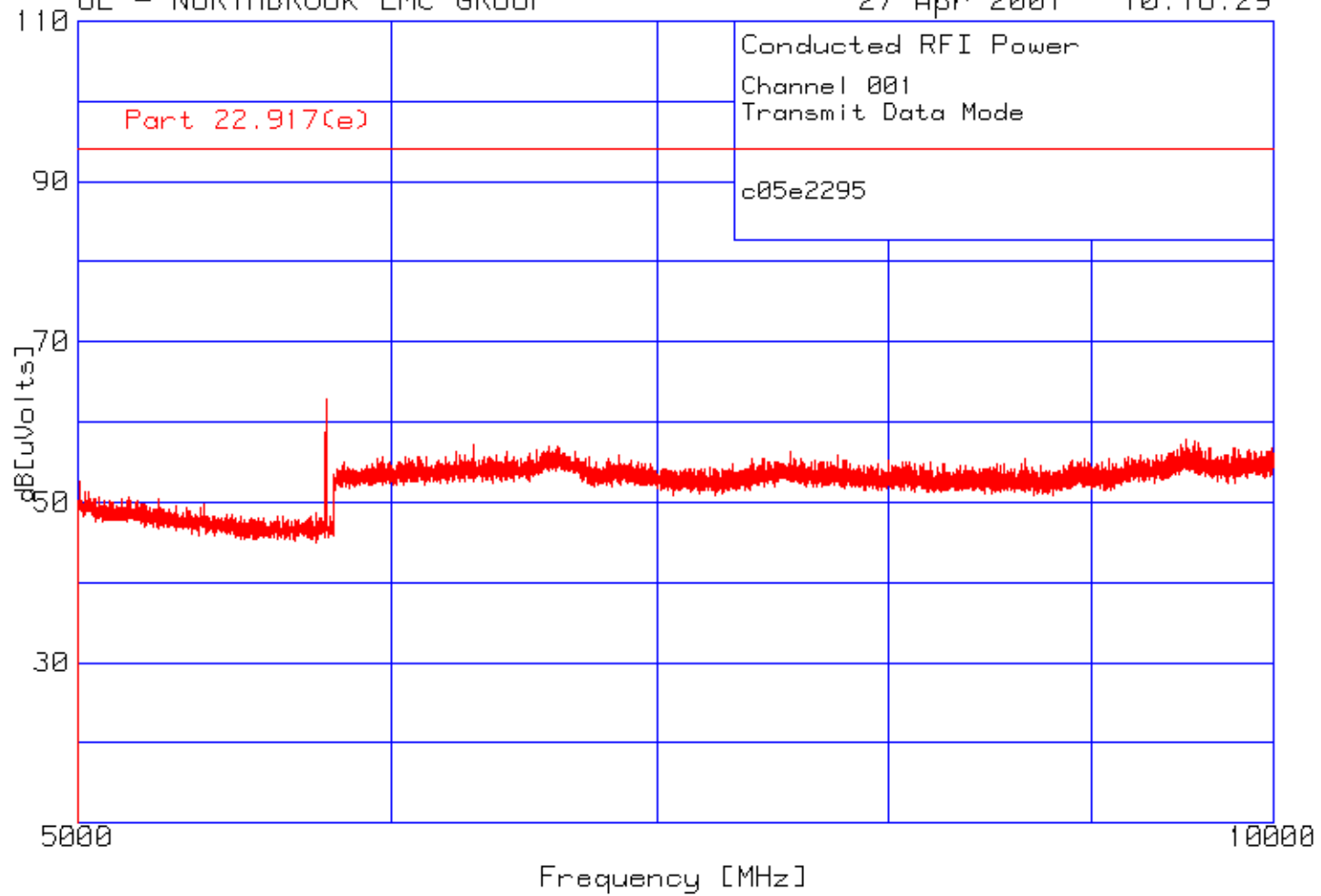


Spurious Antenna Terminal Emissions

Channel 001 Transmit Data Mode 5-10 GHz

UL - NORTHBROOK EMC GROUP

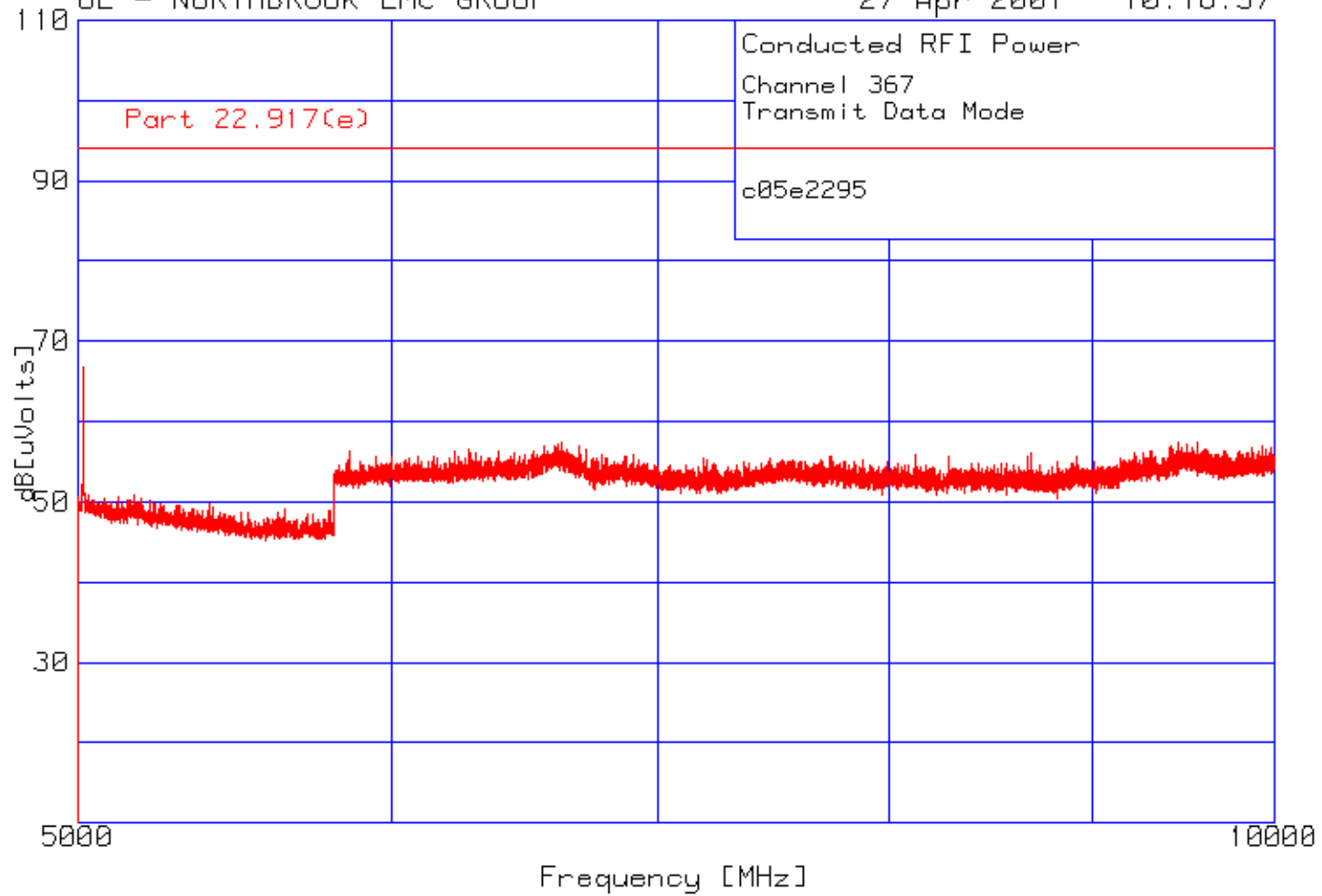
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Spurious Antenna Terminal Emissions
Channel 367 Transmit Data Mode 5-10 GHz

UL - NORTHBROOK EMC GROUP

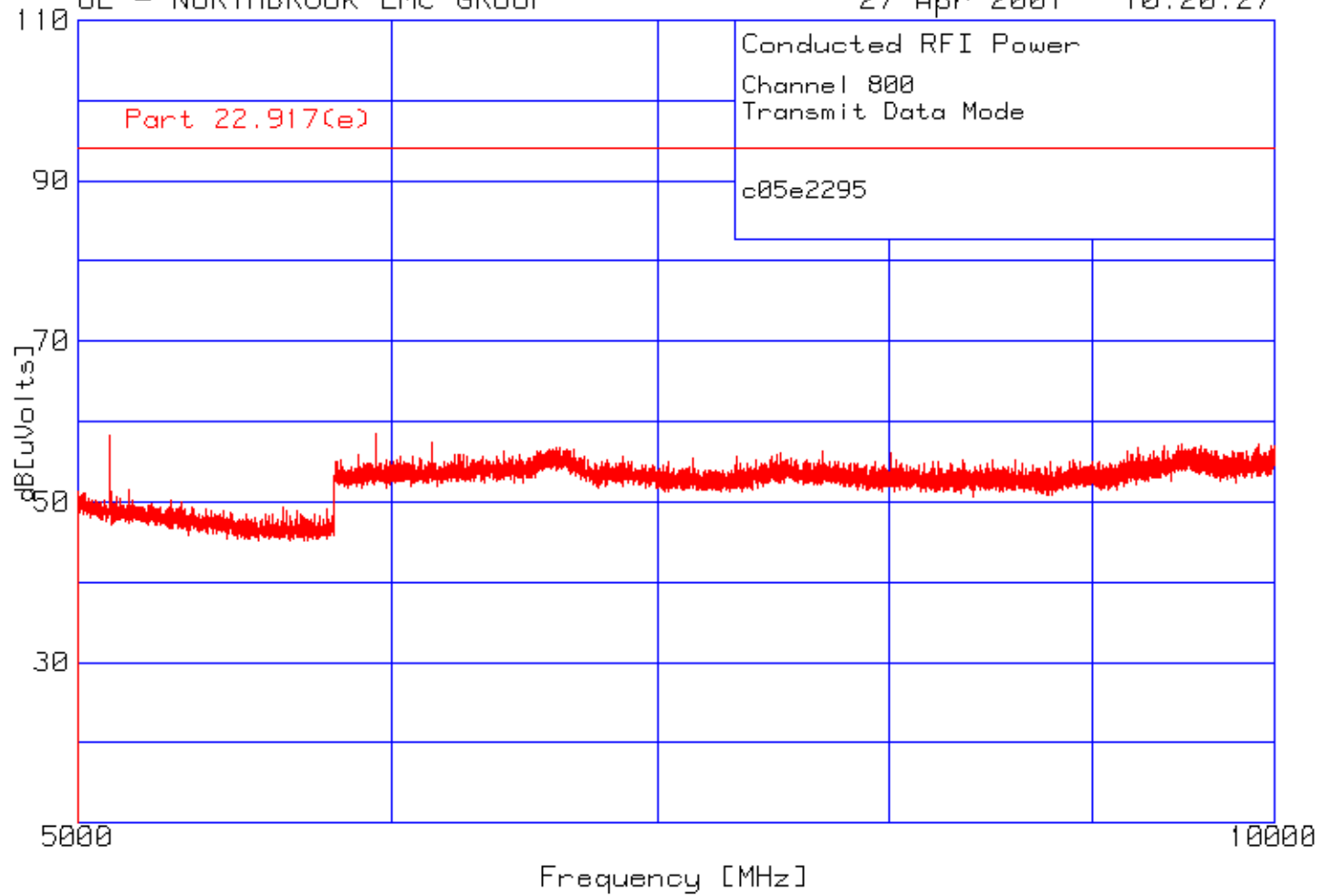
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Spurious Antenna Terminal Emissions
Channel 800 Transmit Data Mode 5-10 GHz

UL - NORTHBROOK EMC GROUP

27 Apr 2001 10:20:27



4.4 RADIATED EMISSIONS

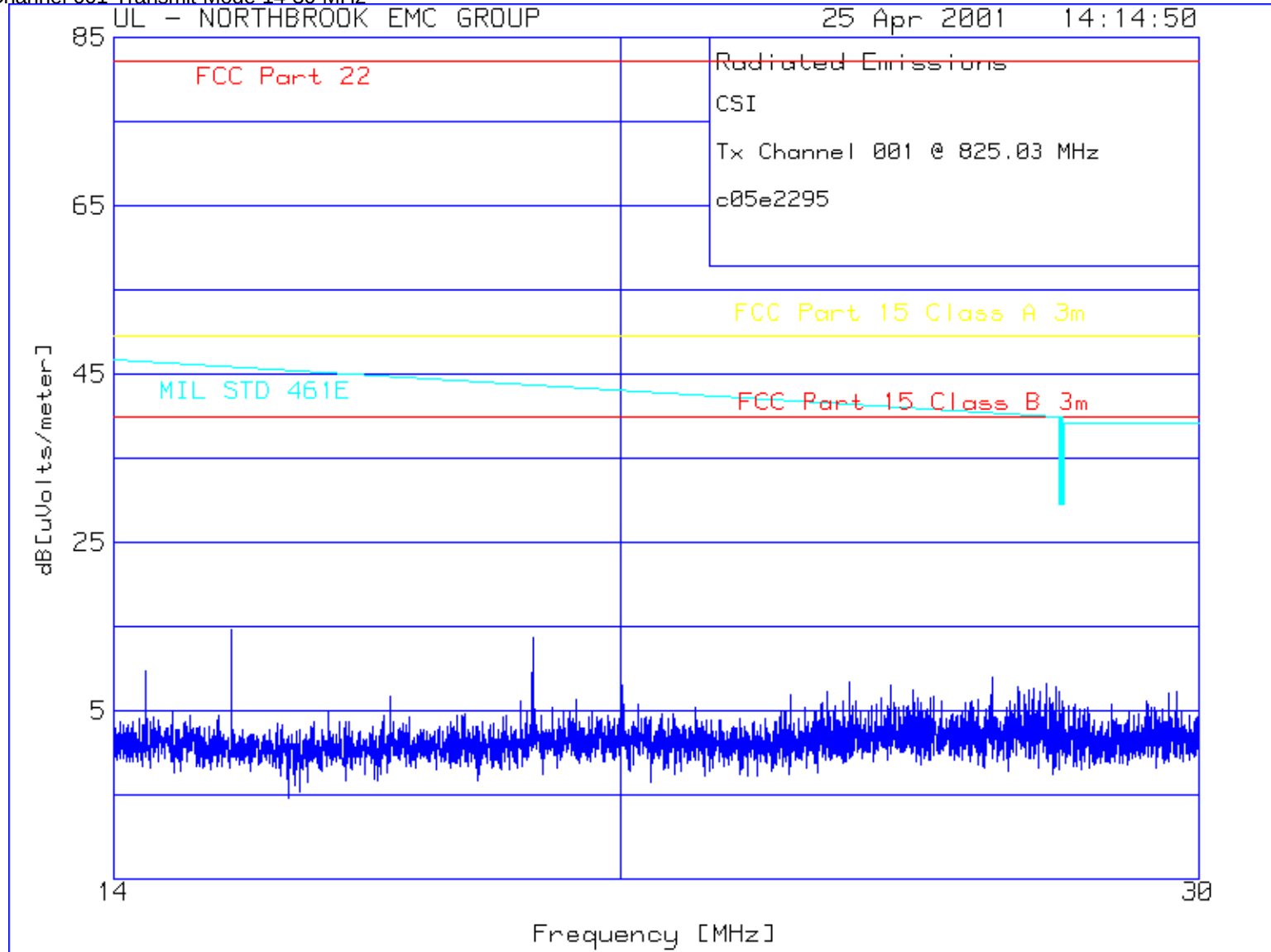
Test Lab: MPB Technologies Inc. Airdrie		Product:							
Test Personnel: E. Hails		LoCate							
Test Date: 23-25 April, 2-3 May 2001									
Test Result, LoCate: PASS									
Objectives/Criteria		Specifications							
The field strength emissions shall not exceed the limits for the specifications as stated. Emission levels should meet the requirements with a margin of 6dB. Tests should be performed from the lowest internally used/generated frequency to the tenth harmonic of the highest internally used/generated frequency. (NB. f_c denotes carrier frequency)		FCC Part 2.1053 and 2.1057 FCC Part 22.917(e) <table border="1"> <thead> <tr> <th>Frequency</th> <th>Emission Level</th> </tr> </thead> <tbody> <tr> <td>9 kHz to lower edge of f_c</td> <td>-13 dBm or 82.2 dBμV/m</td> </tr> <tr> <td>upper edge of f_c to the tenth harmonic of f_c</td> <td>-13 dBm or 82.2 dBμV/m</td> </tr> </tbody> </table>		Frequency	Emission Level	9 kHz to lower edge of f_c	-13 dBm or 82.2 dB μ V/m	upper edge of f_c to the tenth harmonic of f_c	-13 dBm or 82.2 dB μ V/m
Frequency	Emission Level								
9 kHz to lower edge of f_c	-13 dBm or 82.2 dB μ V/m								
upper edge of f_c to the tenth harmonic of f_c	-13 dBm or 82.2 dB μ V/m								
Comments: The only peaks approaching the limit were harmonics of the fundamentals and so do not apply.									
Channel	Frequency [MHz]	Emission Level [dB μ V/m]	Delta [dB from limit]						
There were no spurious emissions measured to be within -20 dB of the specified limit. Refer to the test data plots for more details. Note that the test plots include MIL-STD 461E limits, but these are strictly for the purpose of comparing results. MIL-STD tests were not performed.									

Test Equipment Setup



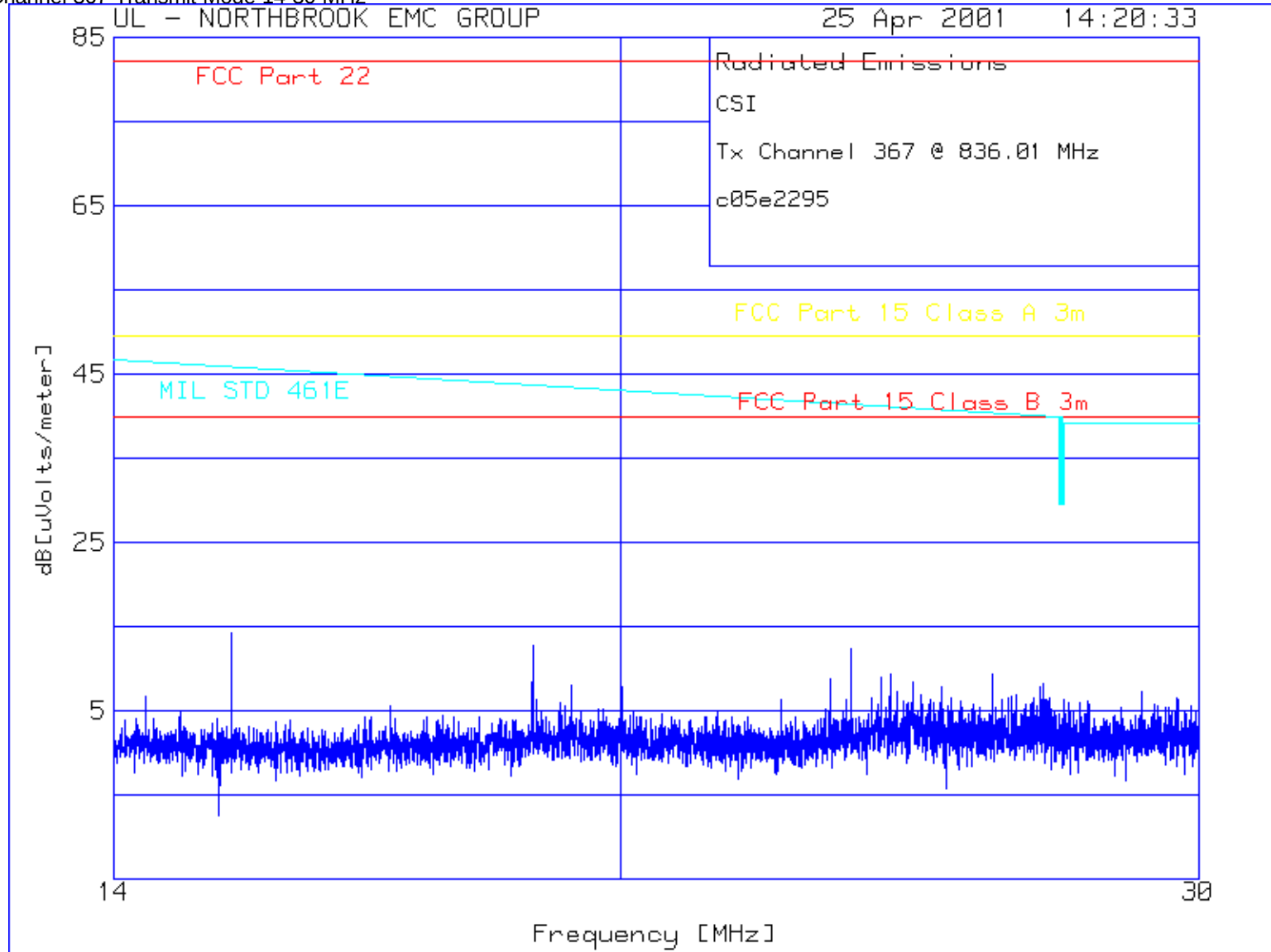
Radiated Emissions

Channel 001 Transmit Mode 14-30 MHz



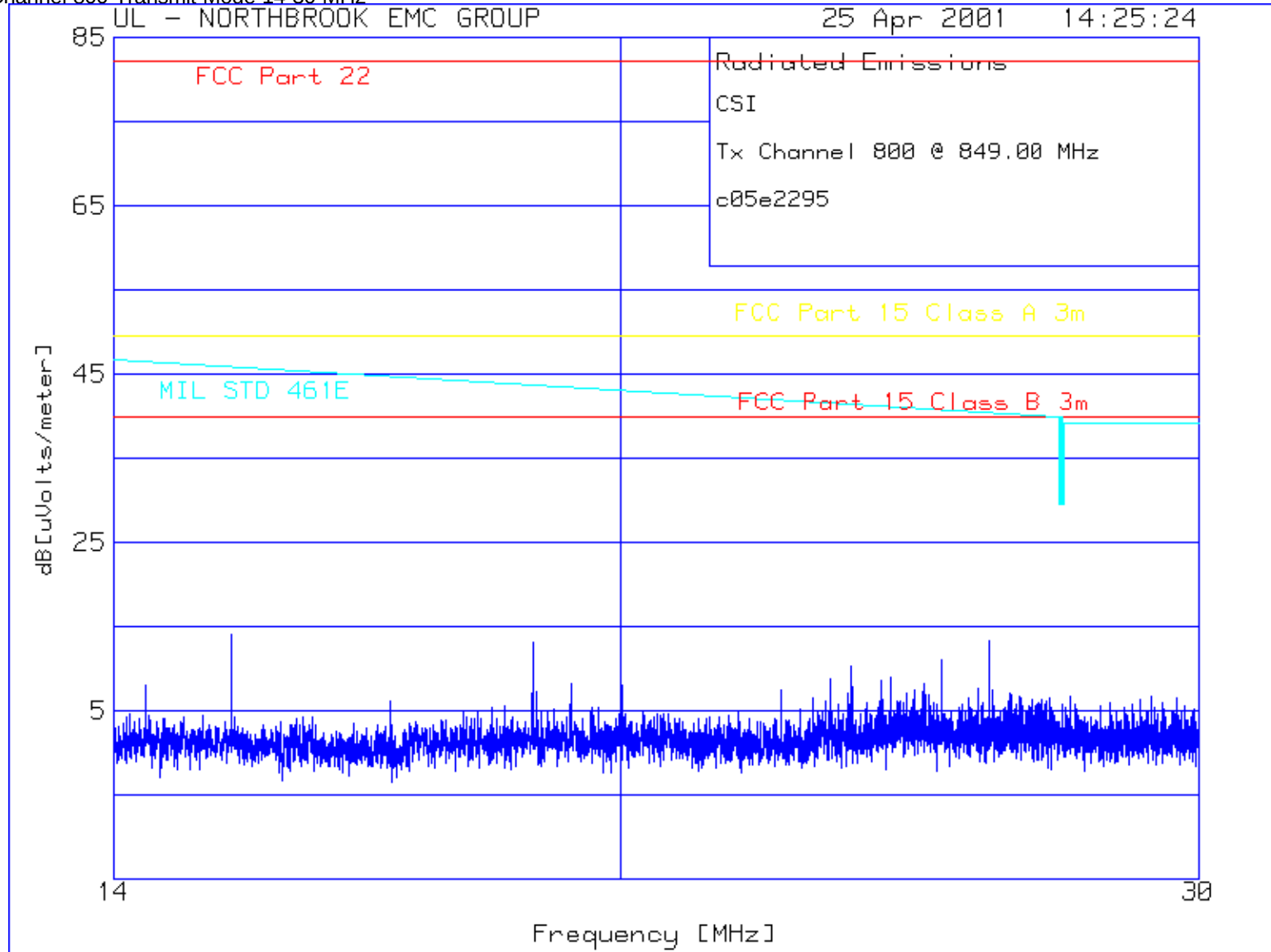
Radiated Emissions

Channel 367 Transmit Mode 14-30 MHz



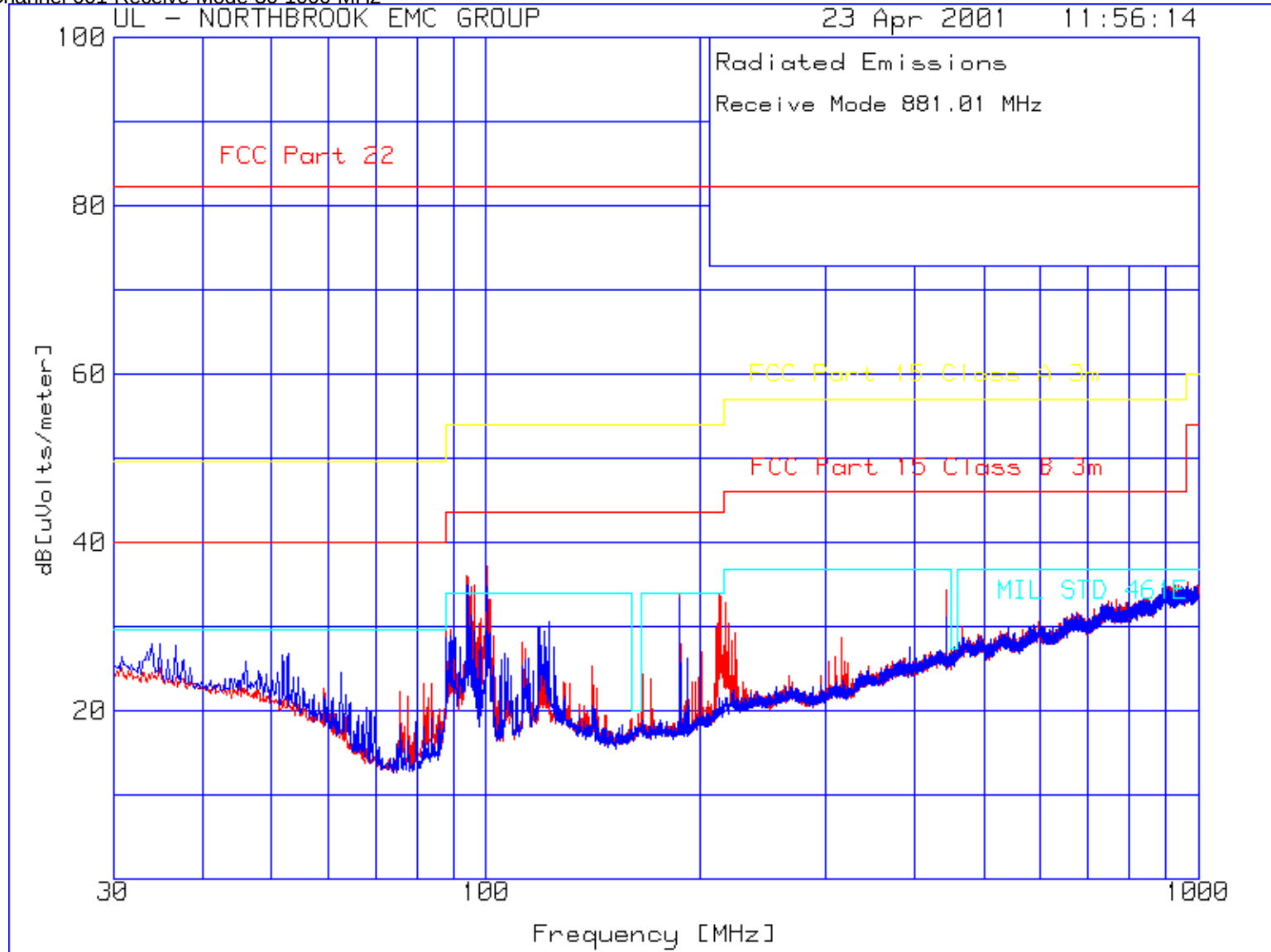
Radiated Emissions

Channel 800 Transmit Mode 14-30 MHz



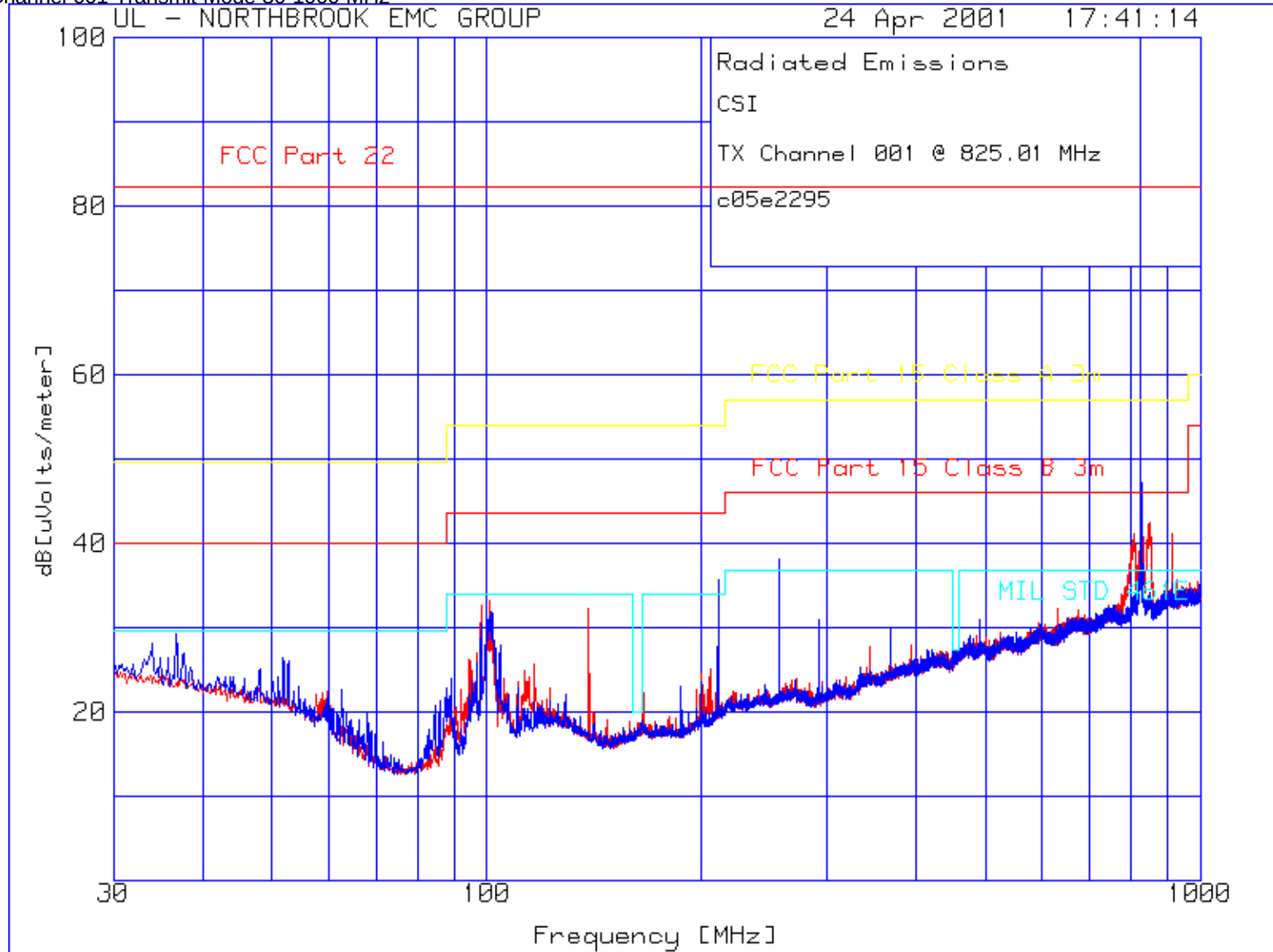
Radiated Emissions

Channel 001 Receive Mode 30-1000 MHz

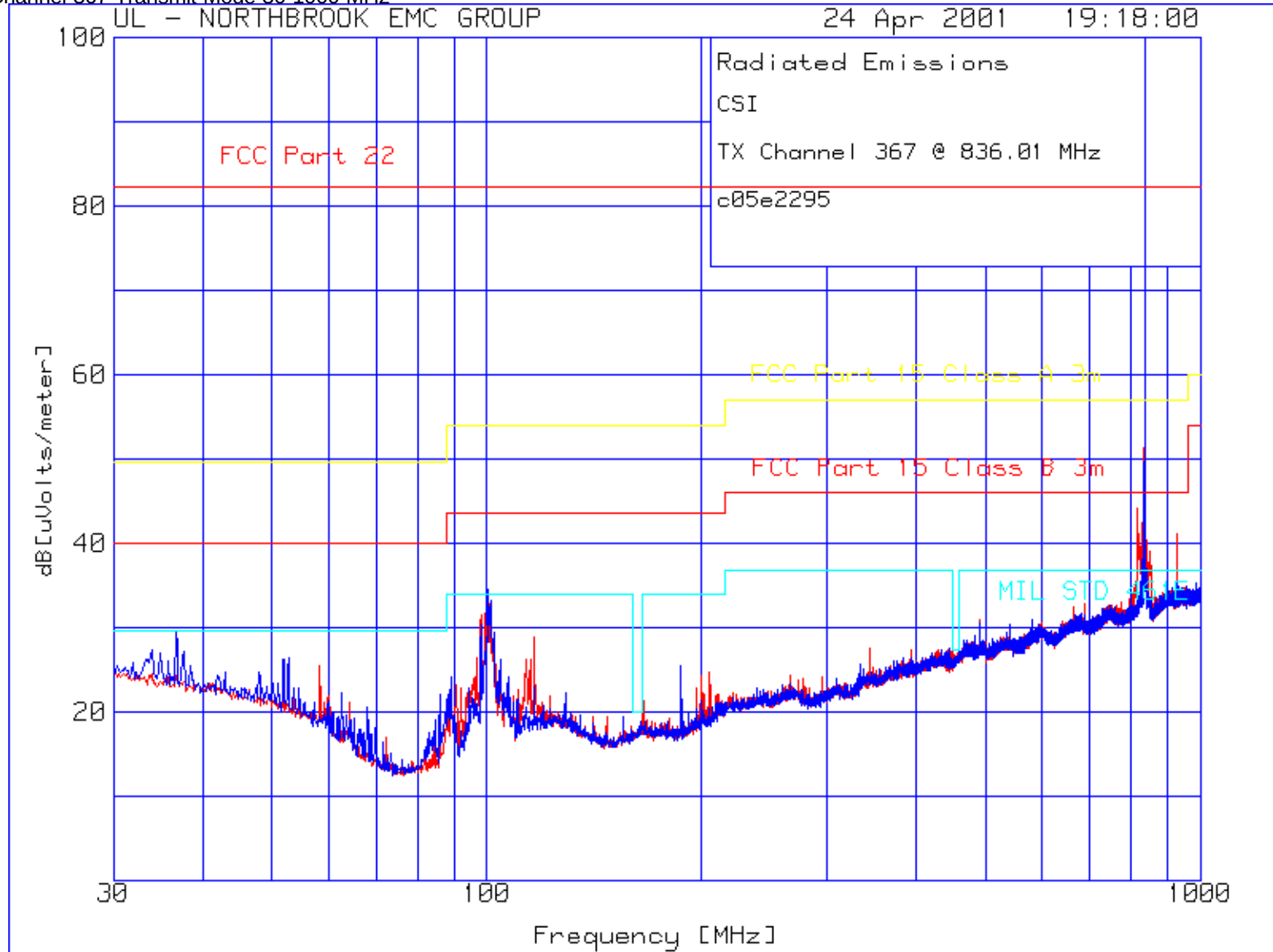


Radiated Emissions

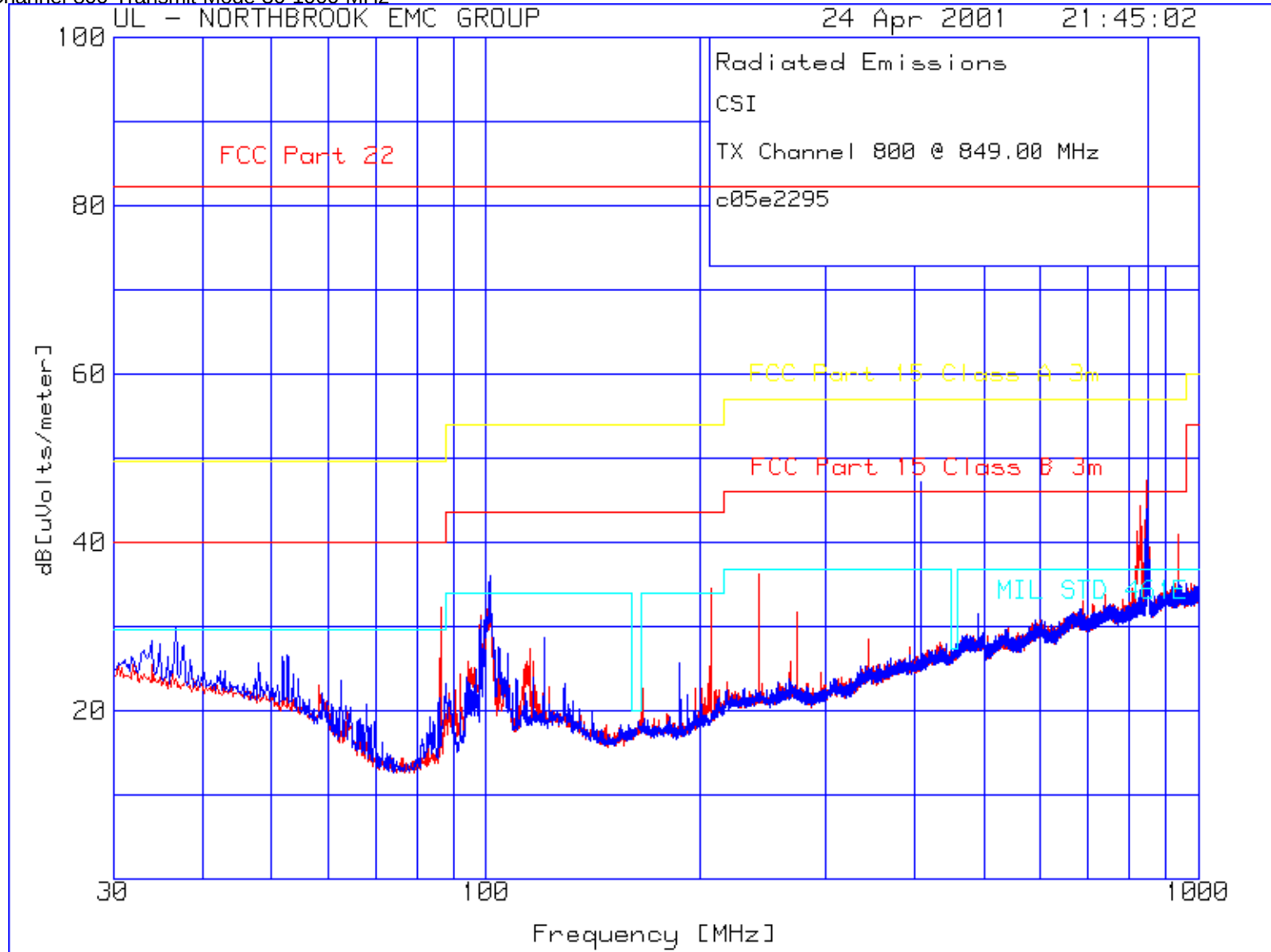
Channel 001 Transmit Mode 30-1000 MHz



Radiated Emissions
Channel 367 Transmit Mode 30-1000 MHz

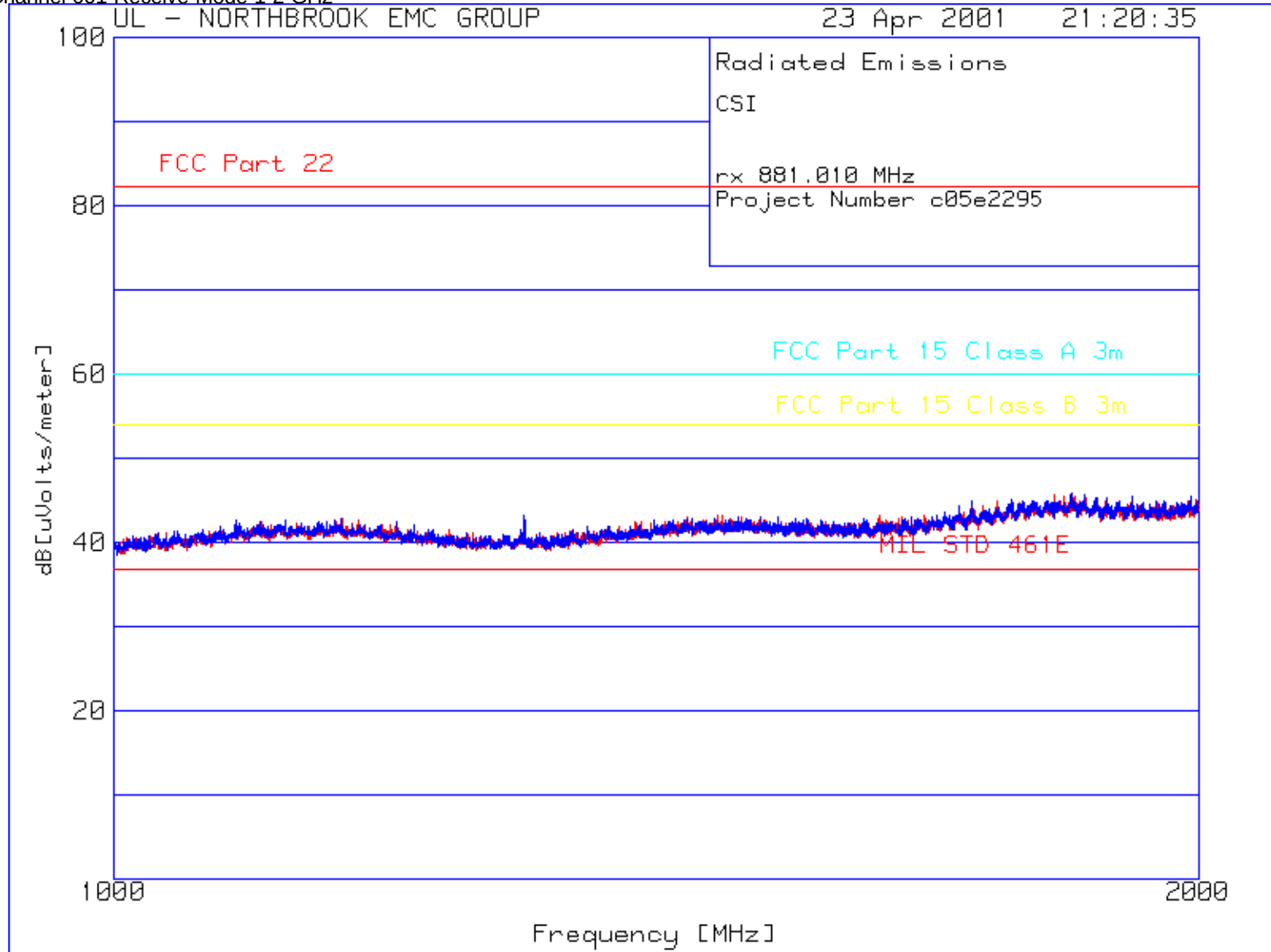


Radiated Emissions
Channel 800 Transmit Mode 30-1000 MHz



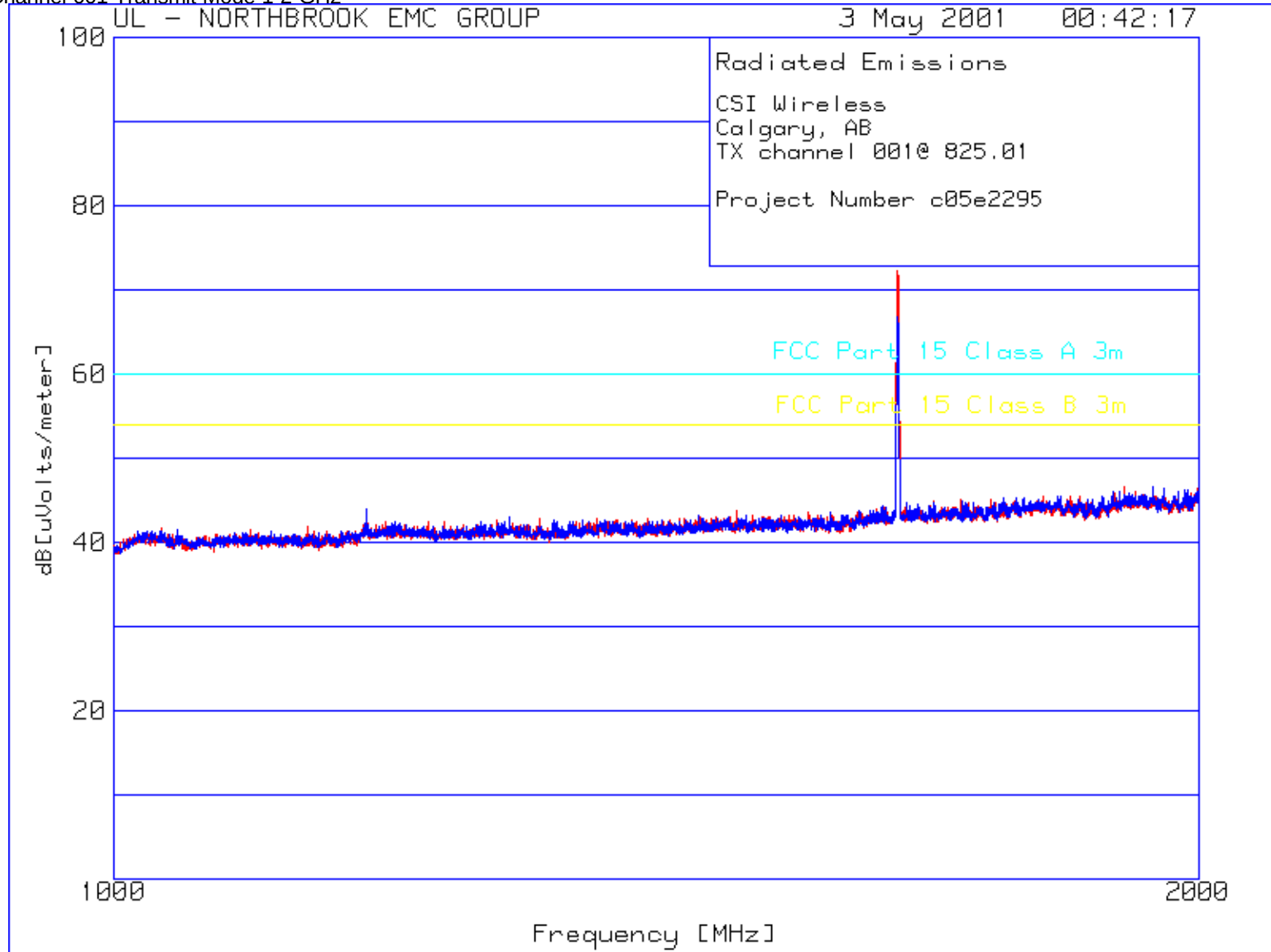
Radiated Emissions

Channel 001 Receive Mode 1-2 GHz



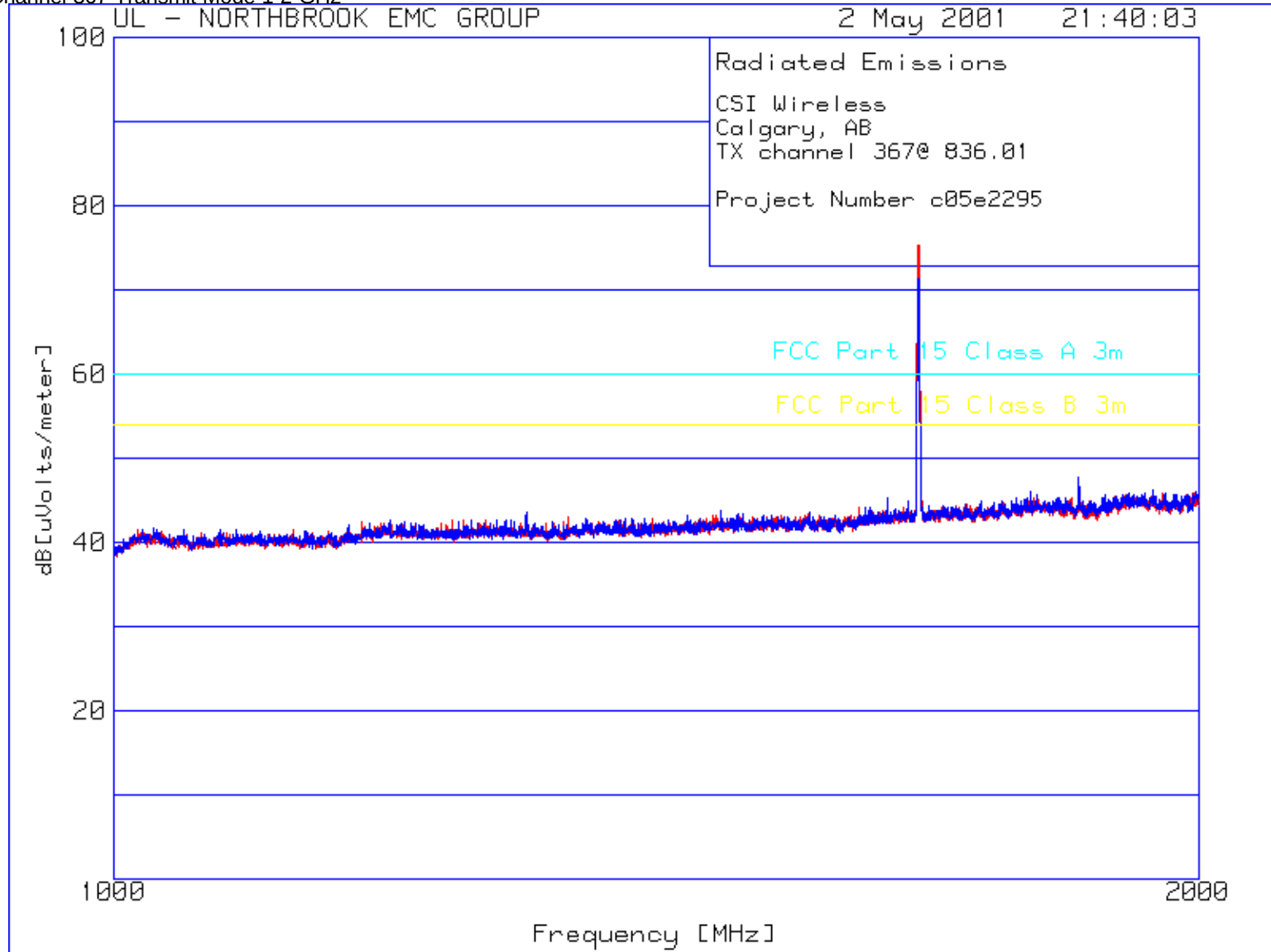
Radiated Emissions

Channel 001 Transmit Mode 1-2 GHz



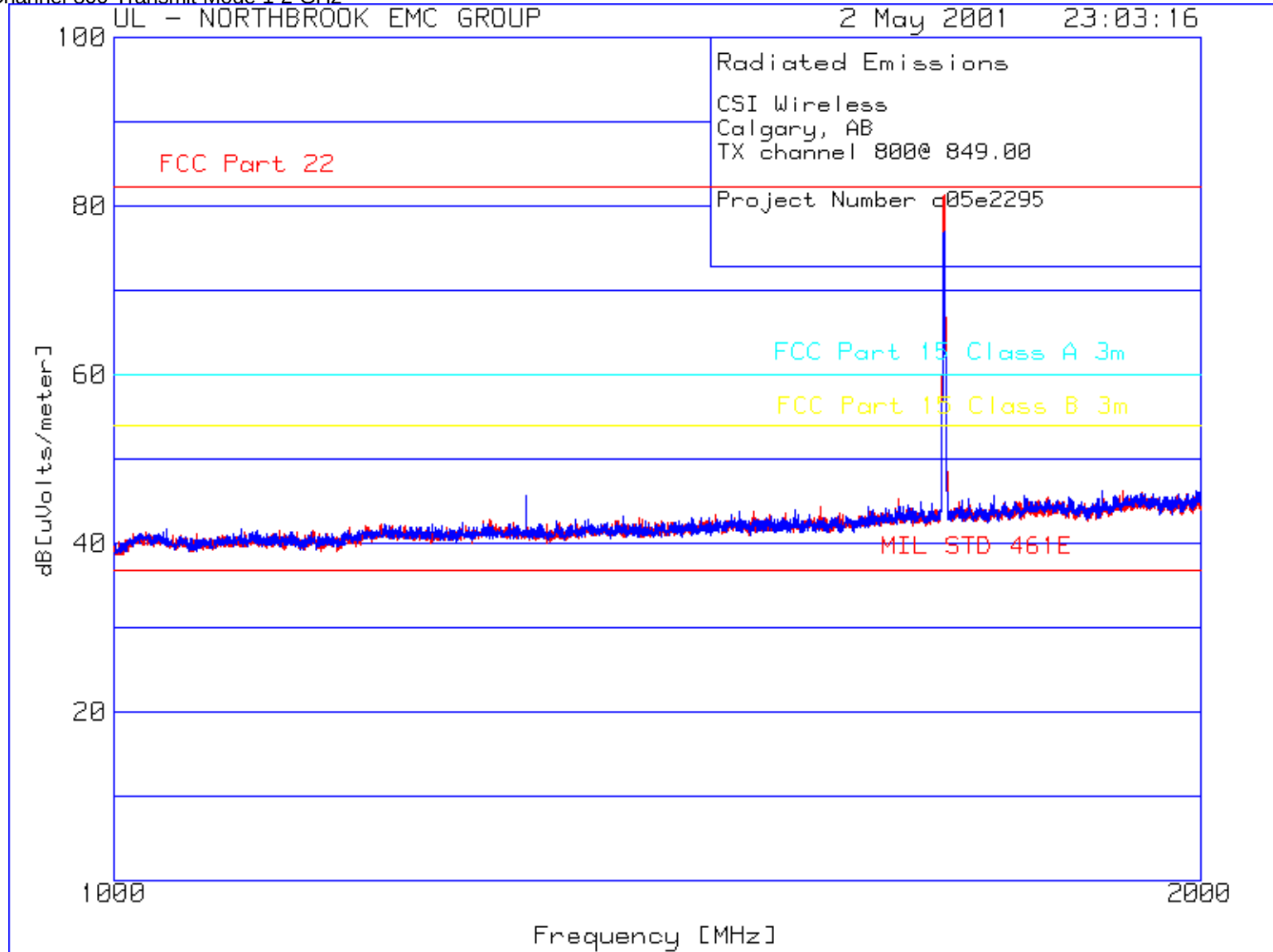
Radiated Emissions

Channel 367 Transmit Mode 1-2 GHz



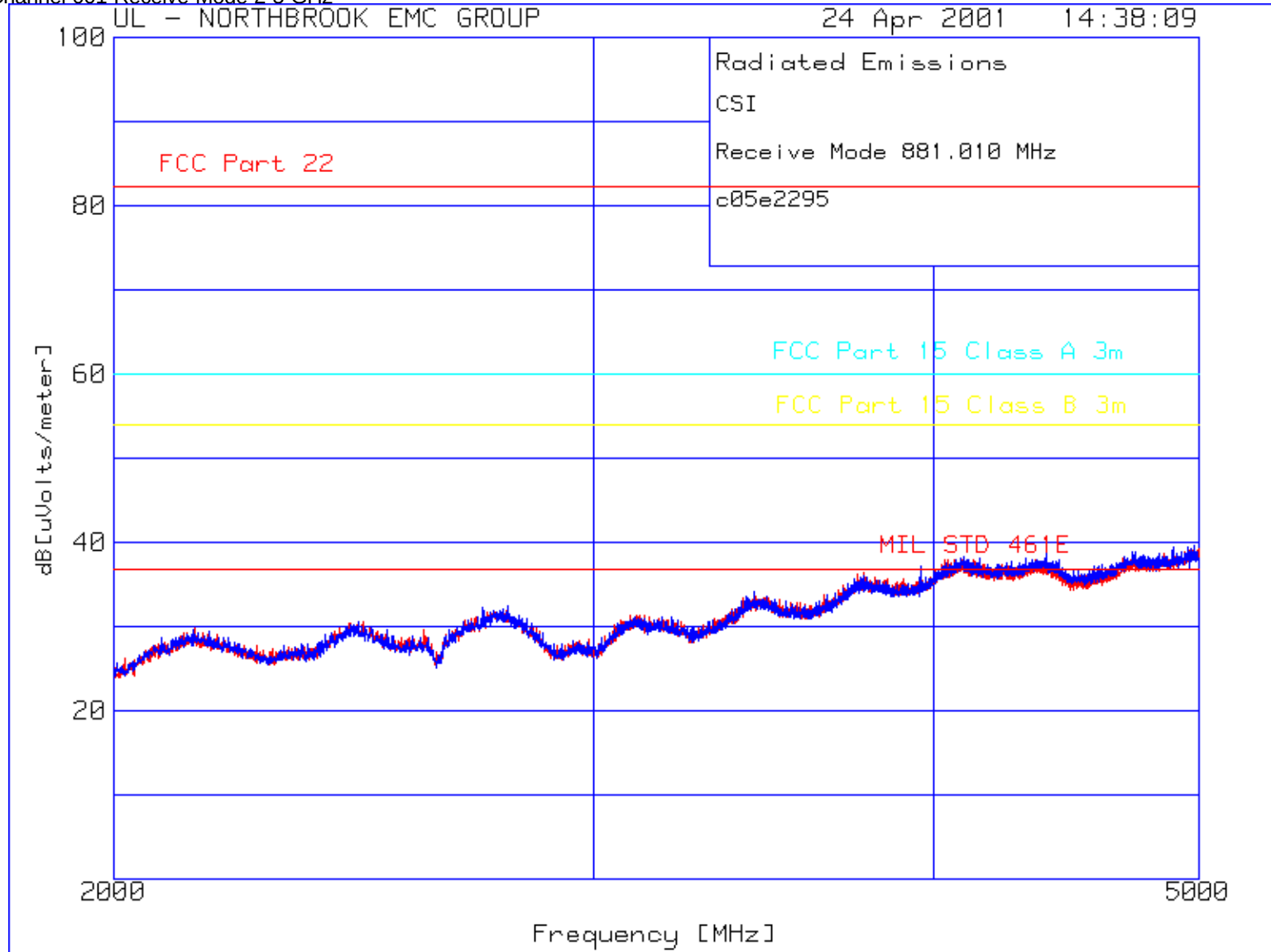
Radiated Emissions

Channel 800 Transmit Mode 1-2 GHz



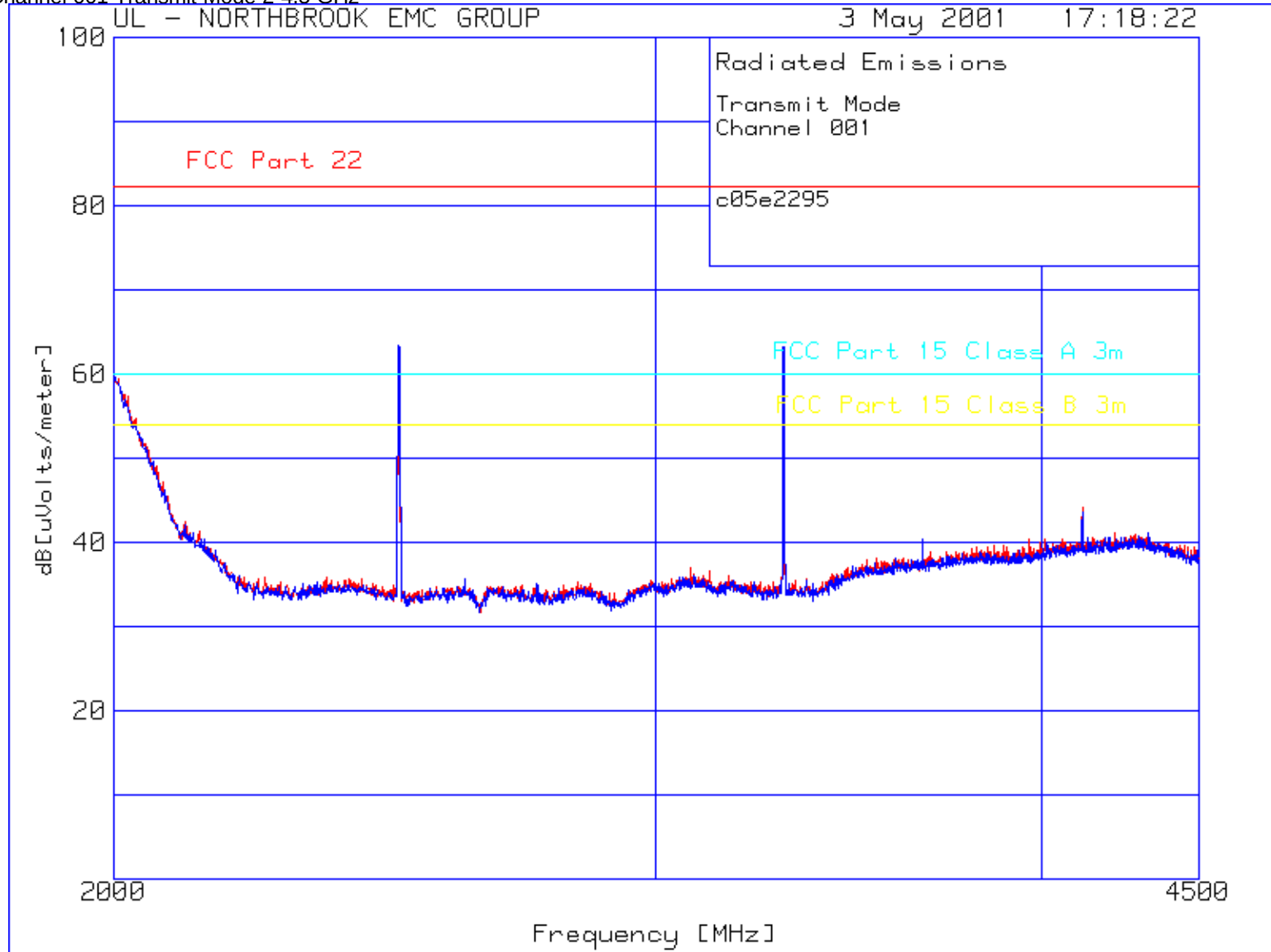
Radiated Emissions

Channel 001 Receive Mode 2-5 GHz



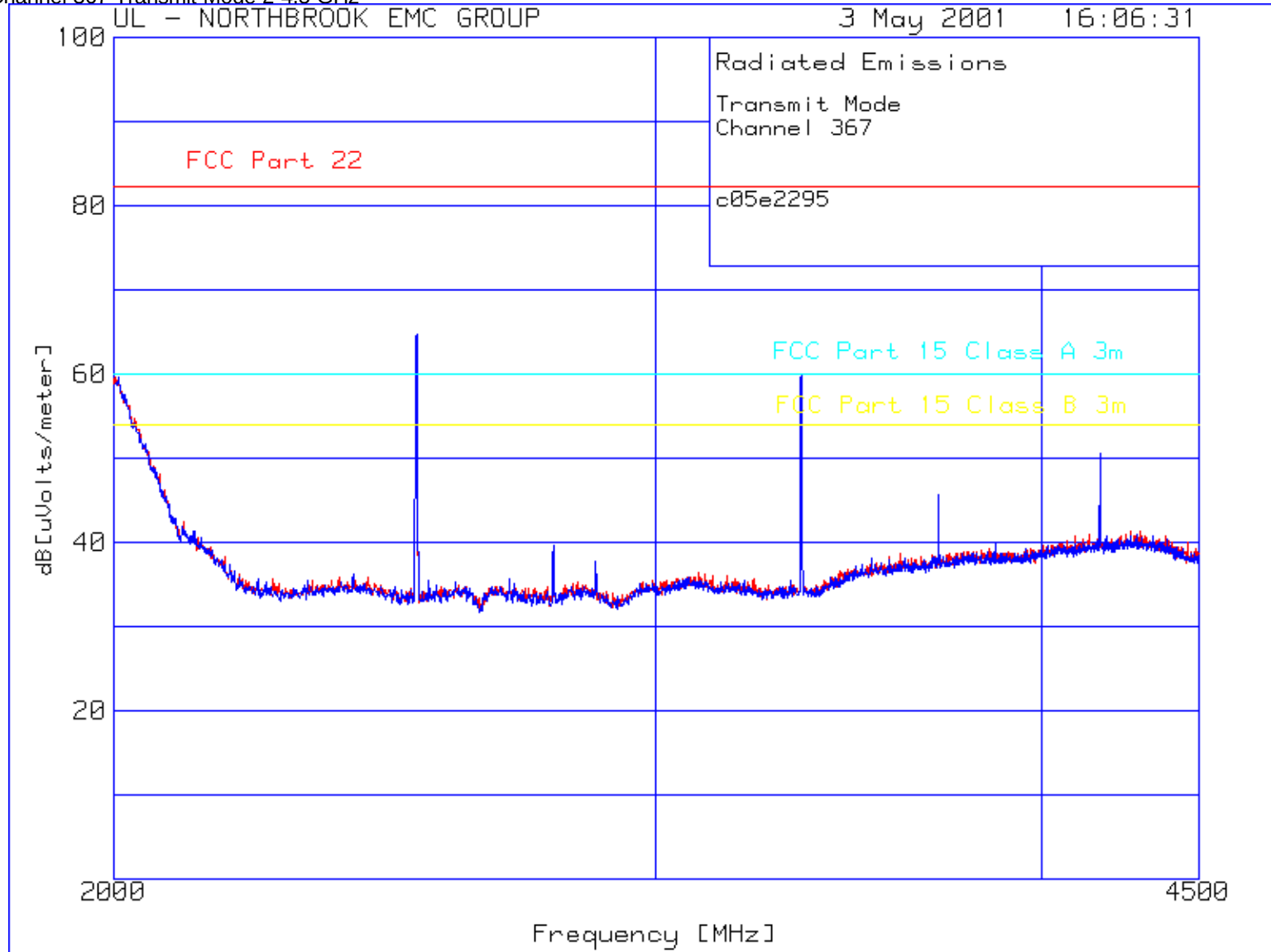
Radiated Emissions

Channel 001 Transmit Mode 2-4.5 GHz



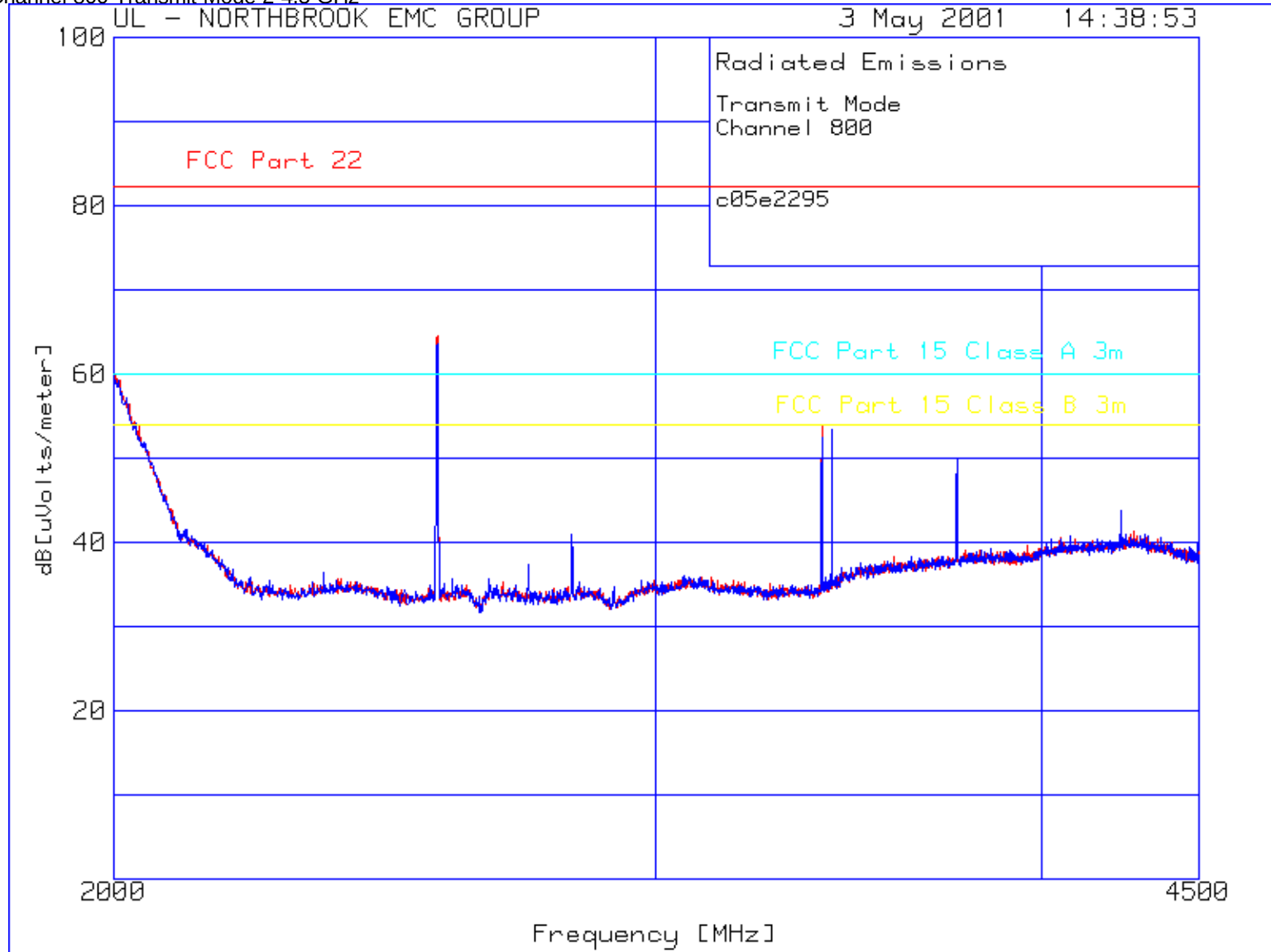
Radiated Emissions

Channel 367 Transmit Mode 2-4.5 GHz



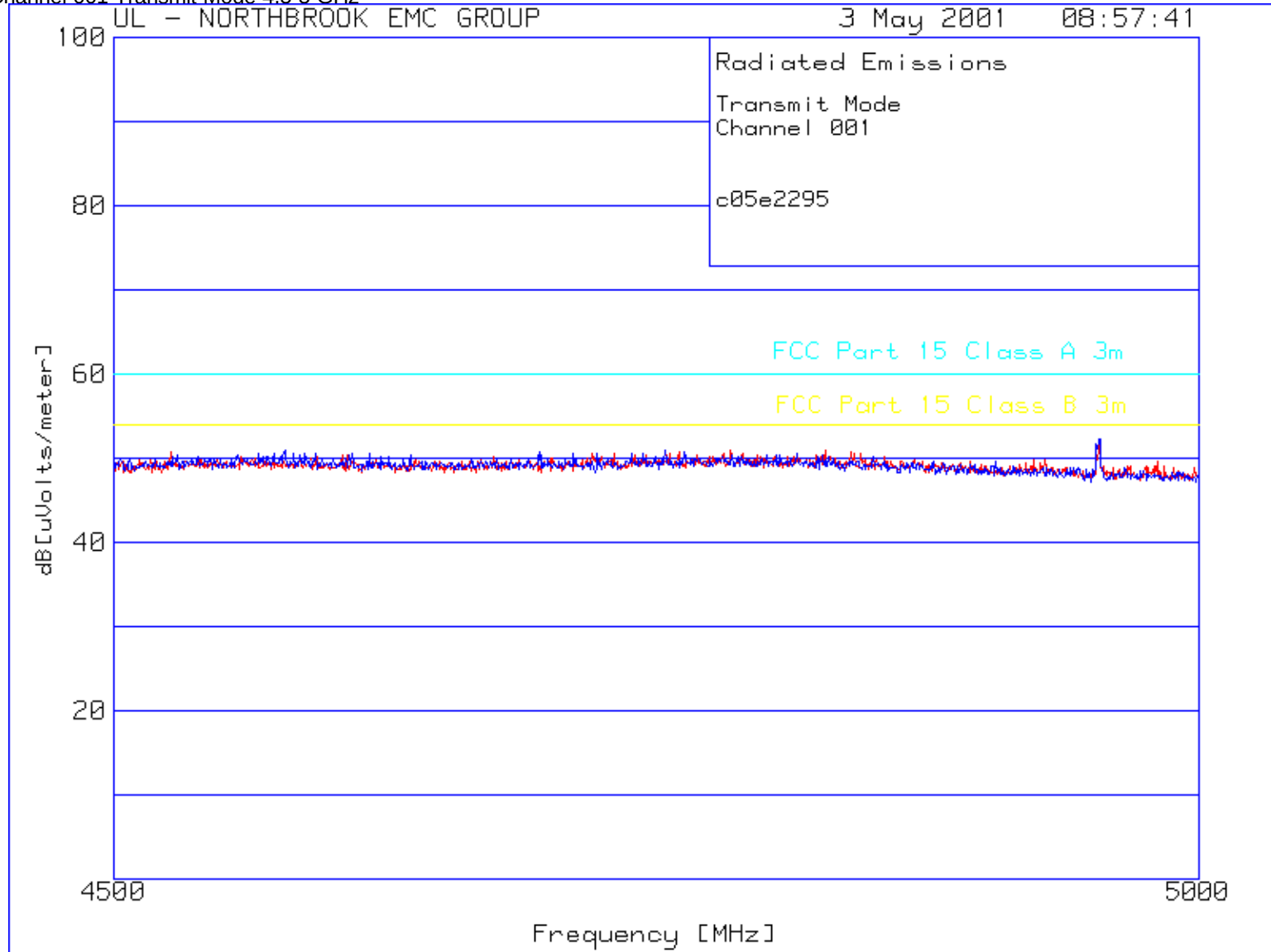
Radiated Emissions

Channel 800 Transmit Mode 2-4.5 GHz



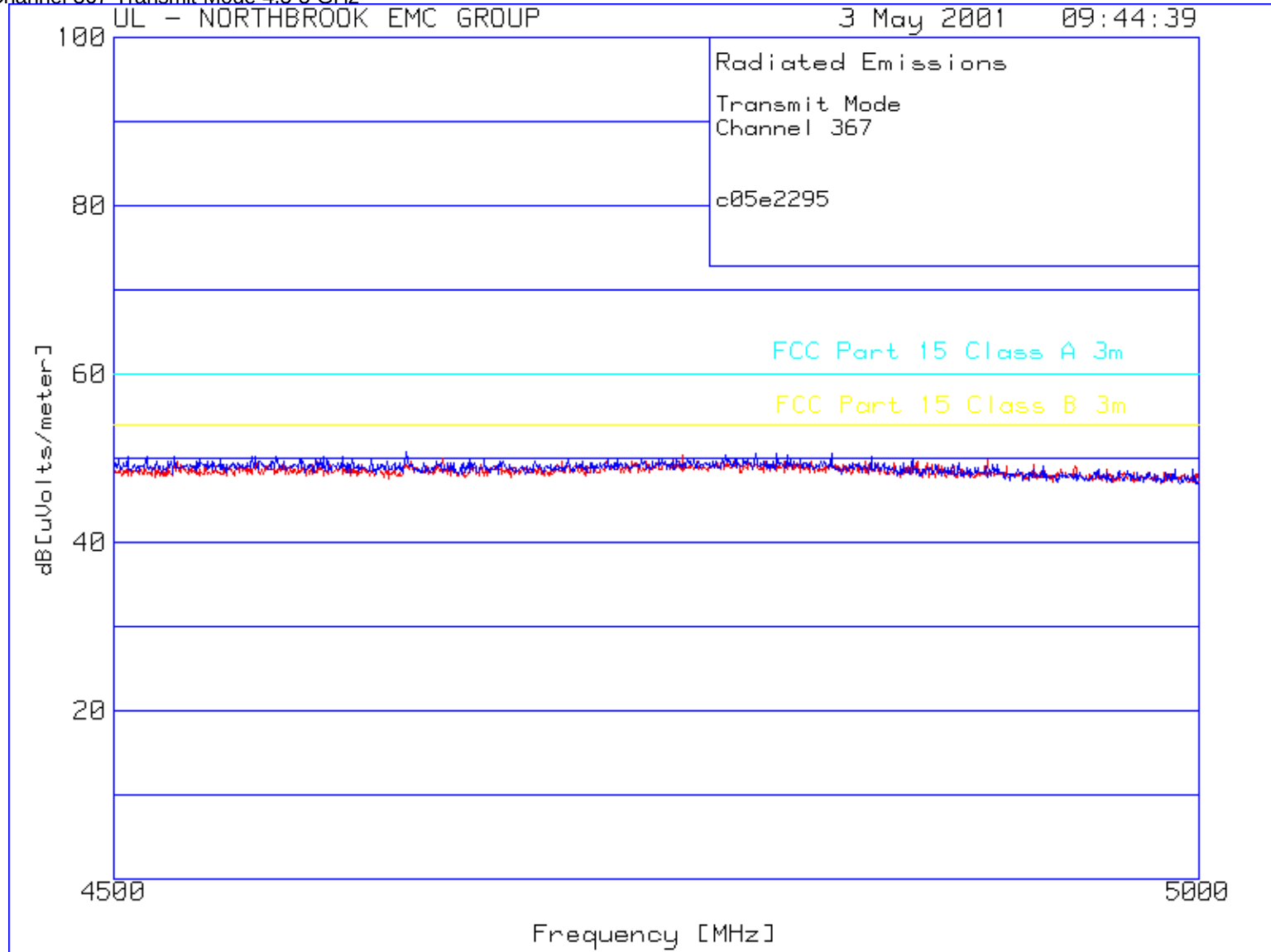
Radiated Emissions

Channel 001 Transmit Mode 4.5-5 GHz



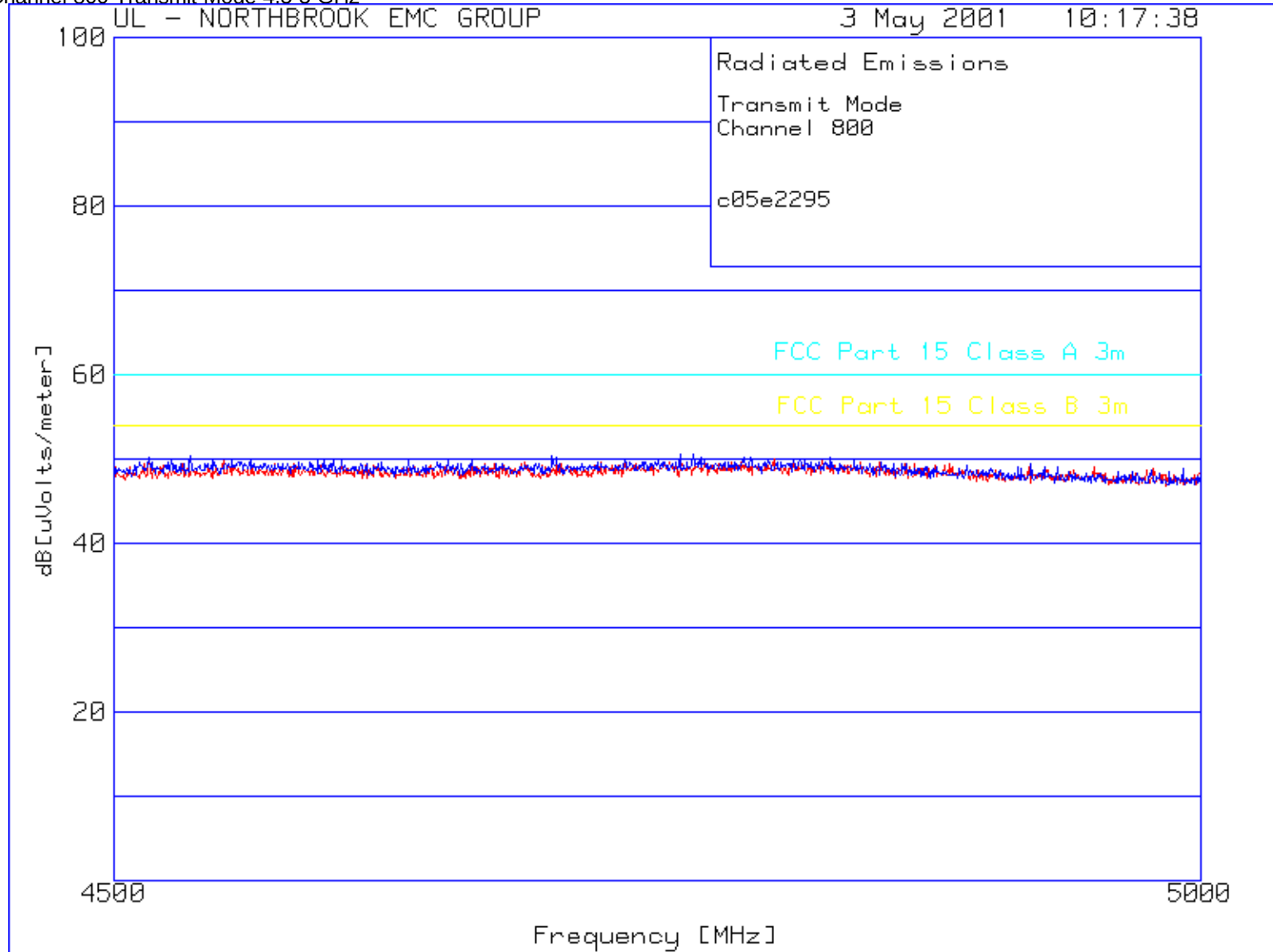
Radiated Emissions

Channel 367 Transmit Mode 4.5-5 GHz



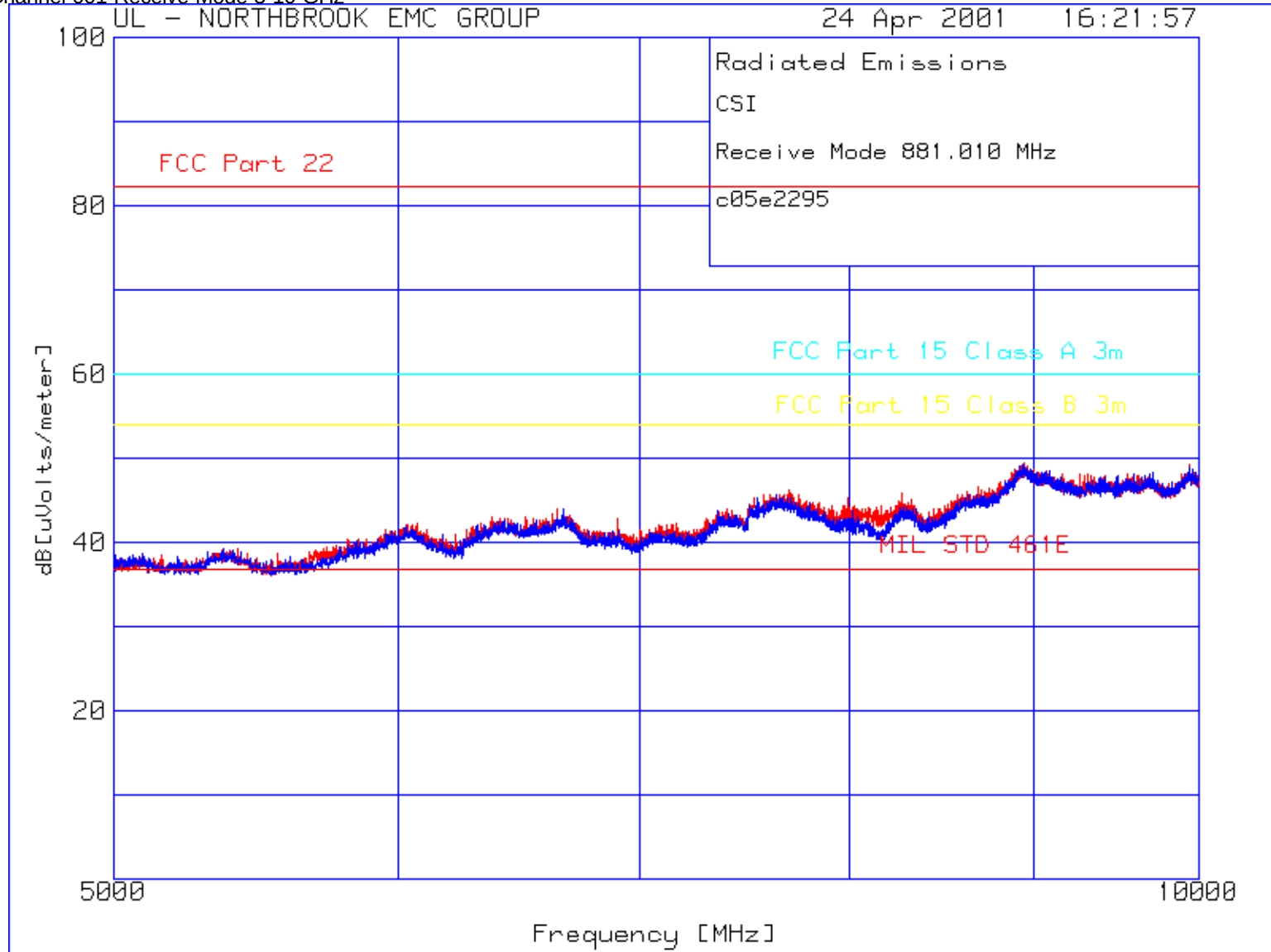
Radiated Emissions

Channel 800 Transmit Mode 4.5-5 GHz



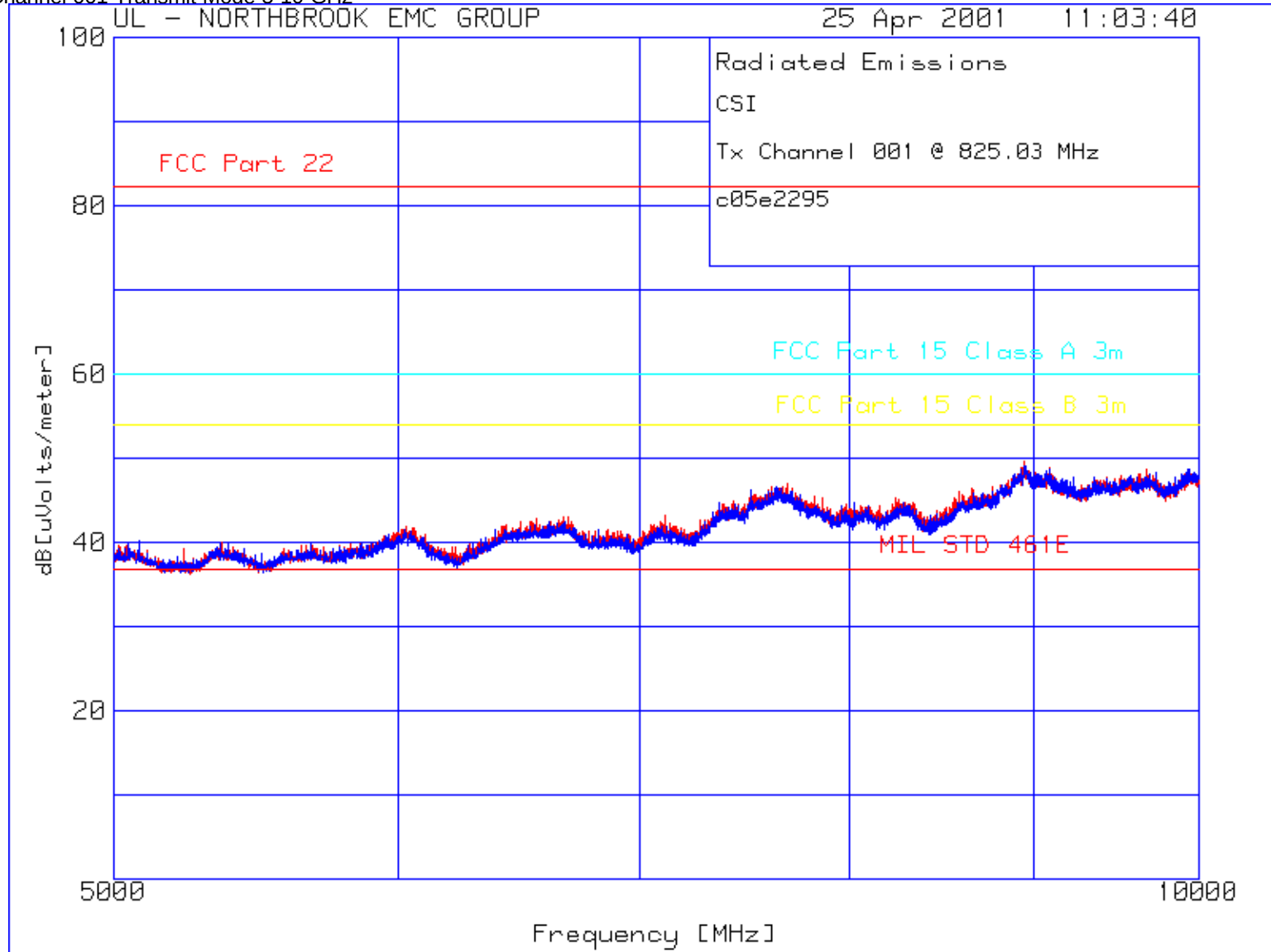
Radiated Emissions

Channel 001 Receive Mode 5-10 GHz



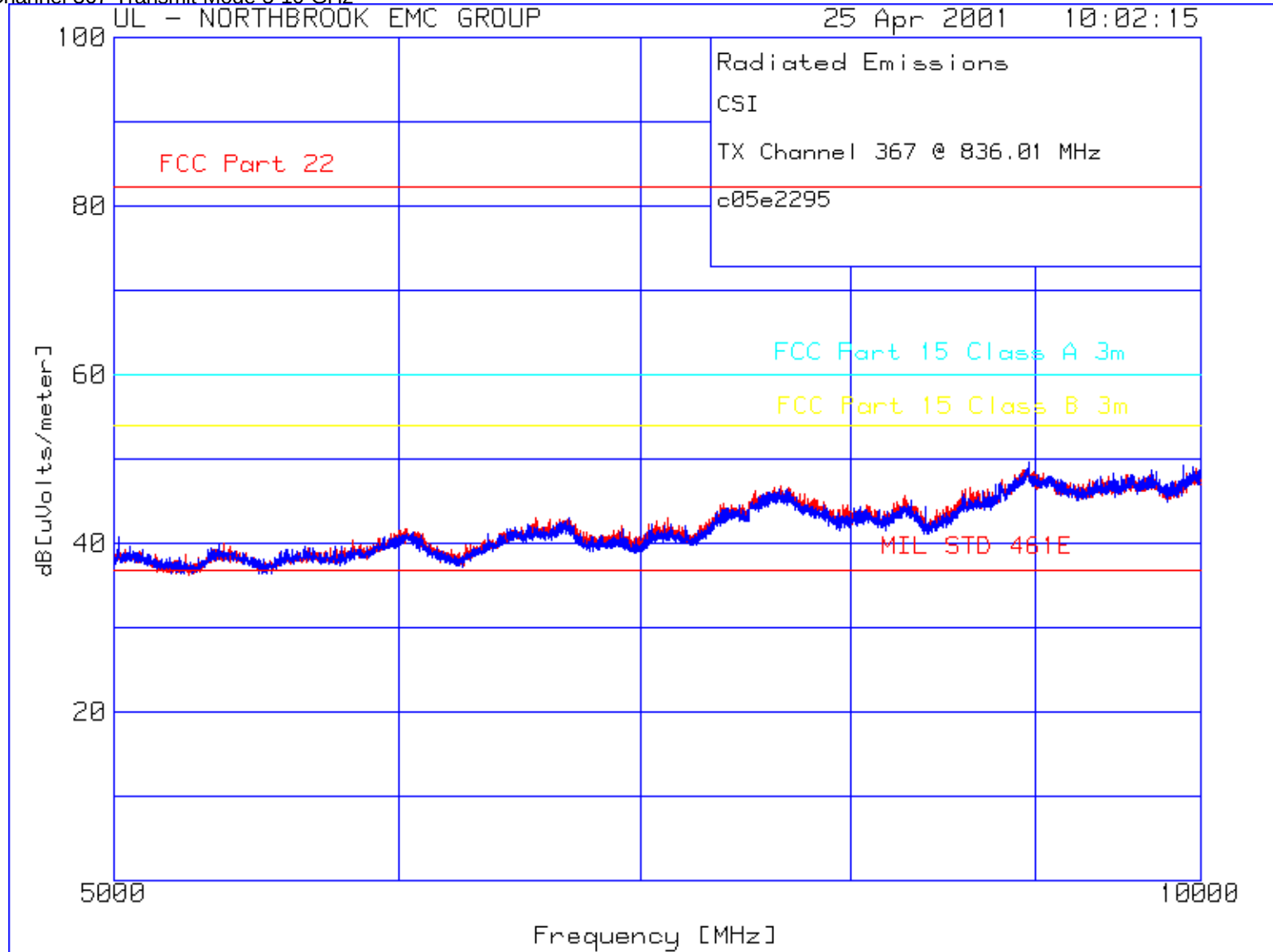
Radiated Emissions

Channel 001 Transmit Mode 5-10 GHz



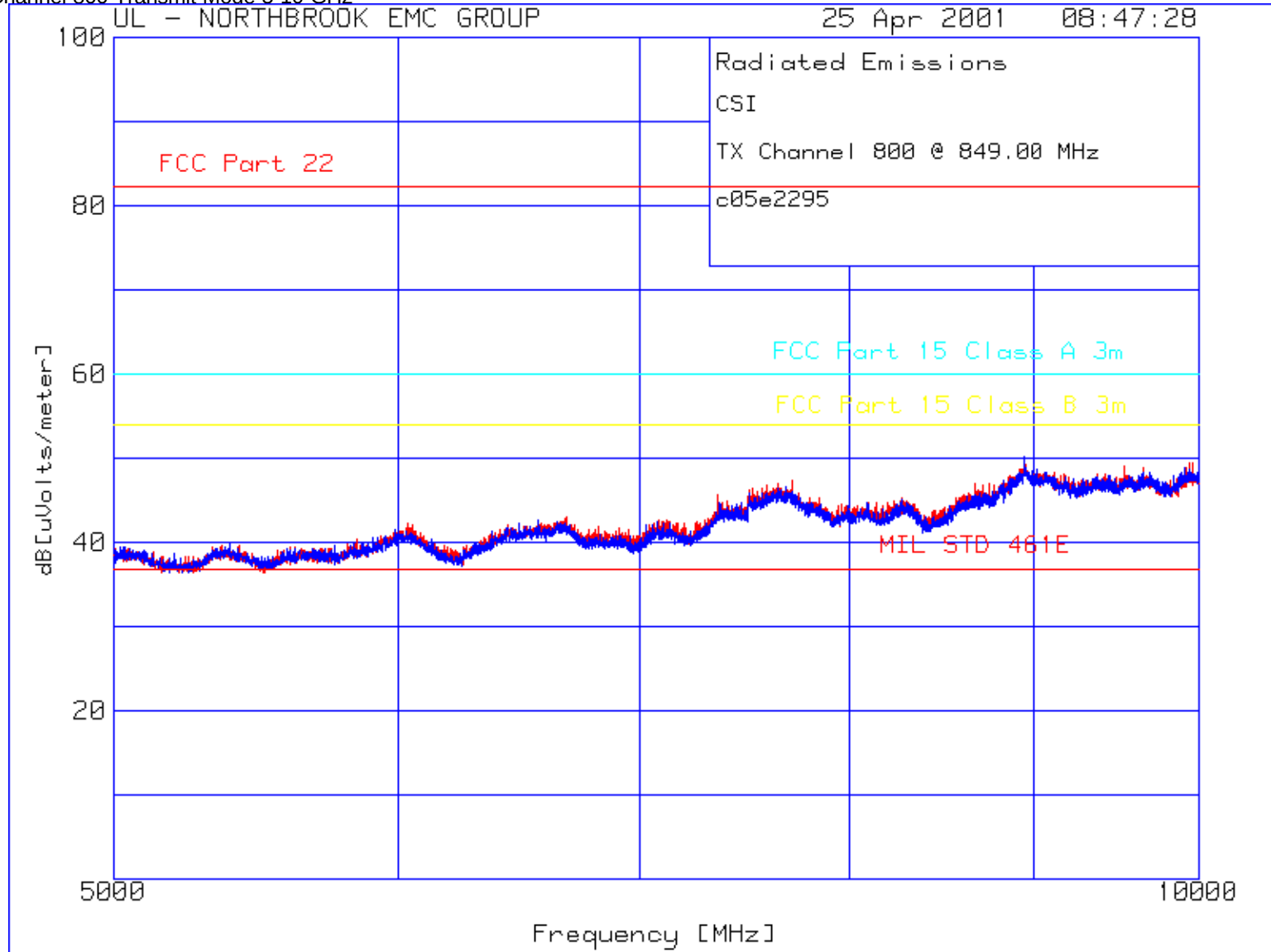
Radiated Emissions

Channel 367 Transmit Mode 5-10 GHz



Radiated Emissions

Channel 800 Transmit Mode 5-10 GHz



4.5 FREQUENCY STABILITY

Test Lab: MPB Technologies Inc. Airdrie Test Personnel: E. Hails Test Date: 20 July 2001	Product: LoCate
Test Result, LoCate: PASS	
Objectives/Criteria	Specifications
The frequency shall not deviate from the rated frequency by more the specified amount under the following conditions: At the rated voltage, vary the temperature from -30°C to +50°C in 10°C increments and measure the transmit frequency. At room temperature, change the voltage to 85% and 115% of the rated voltage, and measure the transmit frequency. Also measure at the battery end point.	FCC Part 2.1055 FCC Part 22.355 Allowed deviation from the rated frequency: ± 2.5 ppm
Comments: The frequency as a function of voltage was measured when the temperature was still at 50°C, in order to save time. The data are a measure of a worst-case scenario. The voltage was also reduced decrementally until it reached the battery end point, and the frequency was not significantly altered. See the next page for the test data.	

FREQUENCY STABILITY TEST DATA

DEPENDENCE OF FREQUENCY ON TEMPERATURE

Temperature [degrees C]	Channel 001 Frequency 825.030 MHz			Channel 367 Frequency 836.010 MHz			Channel 800 Frequency 849.000 MHz		
	Measured	Difference		Measured	Difference		Measured	Difference	
	[Hz]	[Hz]	[ppm]	[Hz]	[Hz]	[ppm]	[Hz]	[Hz]	[ppm]
-30	825029550	-450	-0.55	836009618	-382	-0.46	848999508	-492	-0.58
-20	825029548	-452	-0.55	836009492	-508	-0.61	848999492	-508	-0.60
-10	825029428	-572	-0.69	836009370	-630	-0.75	848999310	-690	-0.81
0	825029488	-512	-0.62	836009418	-582	-0.70	848999512	-488	-0.57
10	825030038	38	0.05	836009958	-42	-0.05	848999994	-6	-0.01
20	825030090	90	0.11	836010004	4	0.00	849000044	44	0.05
30	825029954	-46	-0.06	836010000	0	0.00	848999872	-128	-0.15
40	825029950	-50	-0.06	836009832	-168	-0.20	848999818	-182	-0.21
50	825029852	-148	-0.18	836009868	-132	-0.16	848999812	-188	-0.22

DEPENDENCE OF FREQUENCY ON INPUT VOLTAGE

Channel 001 - 825.030 MHz					Channel 367 - 836.010 MHz					Channel 800 - 849.000 MHz				
Input Voltage		Measured	Difference		Input Voltage		Measured	Difference		Input Voltage		Measured	Difference	
[VDC]	[% nominal]	[Hz]	[Hz]	[ppm]	[VDC]	[% nominal]	[Hz]	[Hz]	[ppm]	[VDC]	[% nominal]	[Hz]	[Hz]	[ppm]
12.28	100	825029934	-66	-0.08	12.28	100	836009878	-122	-0.15	12.27	100	848999874	-126	-0.15
14.18	115	825029936	-64	-0.08	14.15	115	836009884	-116	-0.14	14.49	118	848999884	-116	-0.14
10.41	85	825029946	-54	-0.07	10.42	85	836009864	-136	-0.16	10.43	85	848999930	-70	-0.08
8.00	65	825029942	-58	-0.07	8.00	65	836009856	-144	-0.17	8.00	65	848999864	-136	-0.16
5.97	49	825029958	-42	-0.05	6.07	49	836009928	-72	-0.09	6.07	49	848999942	-58	-0.07

4.6 MODULATION CHARACTERISTICS

Test Lab: MPB Technologies Inc. Airdrie Test Personnel: E. Hails Test Date: 20 July 2001	Product: LoCate
Test Result, LoCate: PASS	
Objectives/Criteria	Specifications
The equipment shall meet the modulation requirements in these aspects: (a) Non-voice modulating signals (b) Modulation levels (c) Deviation limitation circuitry (d) Audio filter characteristics	FCC Part 2.1047 FCC Part 22.915 See Part 22.915 for details.
(a) Non-voice modulating signals (b) Modulation levels (c) Deviation limitation circuitry (d) Audio filter characteristics	PASS PASS 11.6 kHz PASS PASS

5.0 TEST FACILITY

5.1 LOCATION

The EUT was tested for Electromagnetic Compatibility at the Electronics Test Centre, located in Airdrie, Alberta, Canada.

The RF Anechoic Chamber (RFAC) is identified as Chamber 1, located in the main building complex at the Electronics Test Centre. Its usable working space measures 10.6 m long x 7.3 m wide x 6.5 m high.

This test site is listed with the FCC under Registration Number 99541. Measurements taken at this site are accepted by Industry Canada per file number IC 2046-1.

The floor, walls and ceiling consist of annealed steel panels. The walls and ceiling are covered with ferrite tile, augmented by RF absorbant foam material on the end wall nearest the turntable, and on the adjacent walls and the ceiling. The chamber floor supports a 15 cm high internal floor, constructed of annealed steel panels, that forms the ground plane, and is bonded to the chamber walls.

The 3-m diameter turntable is flush-mounted with the floor. A sub-floor cable-way is provided to route cables between the turntable pit and EUT support equipment. Cables reach the EUT through an opening in the centre of the turntable.

Test instrumentation and EUT support equipment is located in two shielded vestibules located at the side of the main room. Cables are routed through bulkhead panels between the rooms as required. Power feeds are routed into the main room and vestibules through line filters providing at least 100 dB of attenuation between 10 kHz and 10 GHz.

5.2 GROUNDING PLAN

The EUT was located on a wooden table 80 cm above the ground plane. The EUT was grounded according to the client's specifications.

5.3 POWER

AC power was supplied via an Underwriter's Laboratories ULW100-69, 100 dB, 100 Ampere wall mounted filter. Bonding to ground is implemented at the chamber wall.

5.4 EMISSIONS PROFILE

Ambient conducted and radiated electromagnetic emission profiles were generated throughout the tests and are included in the test data.

5.5 TEST CONFIGURATION

5.5.1 RF OUTPUT POWER

Figure 1 illustrates the configuration of the test and measurement equipment used for RF Output Power (FCC Part 2.1046).

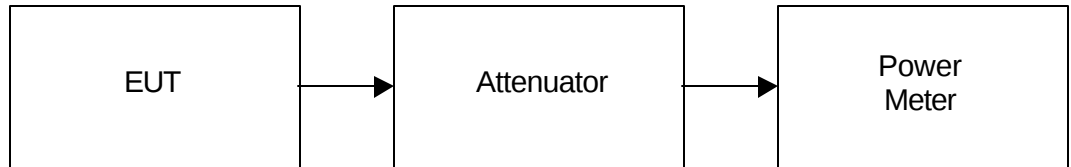


Figure 1 - Measurement Setup for RF Output Power

5.5.2 OCCUPIED BANDWIDTH AND SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Figure 2 illustrates the configuration of the test and measurement equipment used for Occupied Bandwidth and Spurious Emissions at Antenna Terminals (FCC Part 2.1049, 2.1051 and 2.1057).

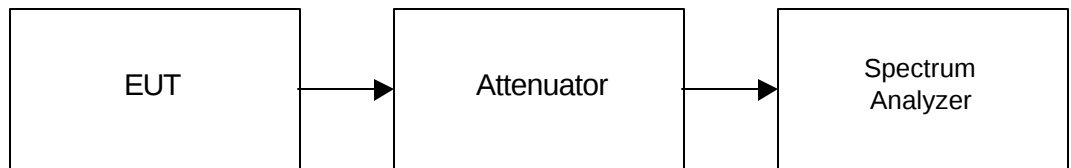


Figure 2 - Measurement Setup for Occupied Bandwidth and Spurious Emissions at Antenna Terminals

5.5.3 Radiated Emissions

Figure 3 illustrates the configuration of the test and measurement equipment used for Radiated Emissions (FCC Part 2.1053 and 2.1057) for *Rack-Mounted* equipment.

Radiated Emissions

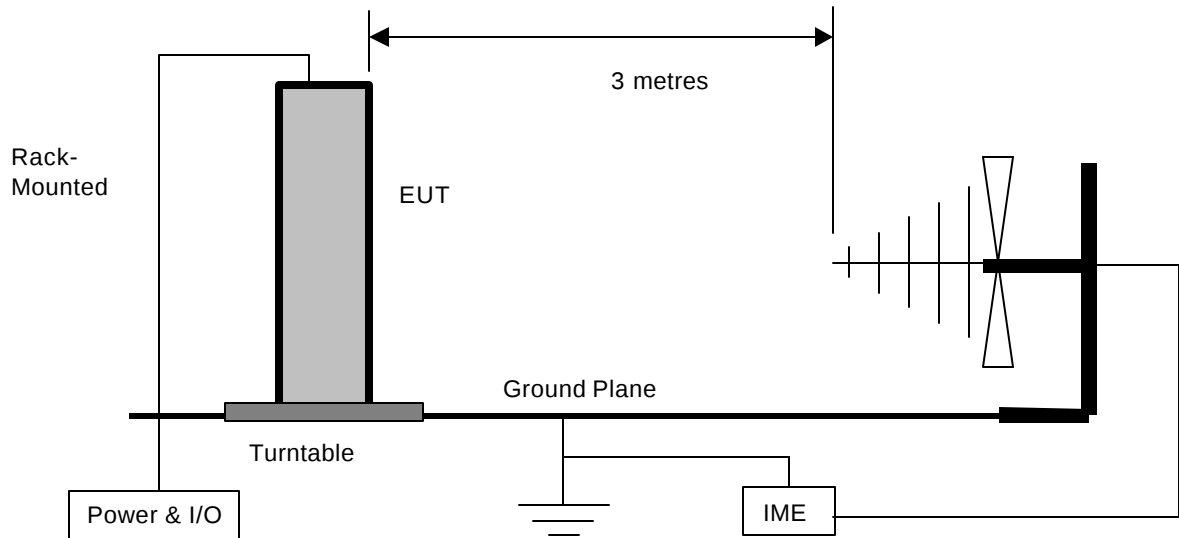


Figure 3 - Radiated Emissions for Rack-Mounted Equipment

Figure 4 illustrates the configuration of the test and measurement equipment used for Radiated Emissions (FCC Part 2.1053 and 2.1057) for *Tabletop* equipment.

Radiated Emissions

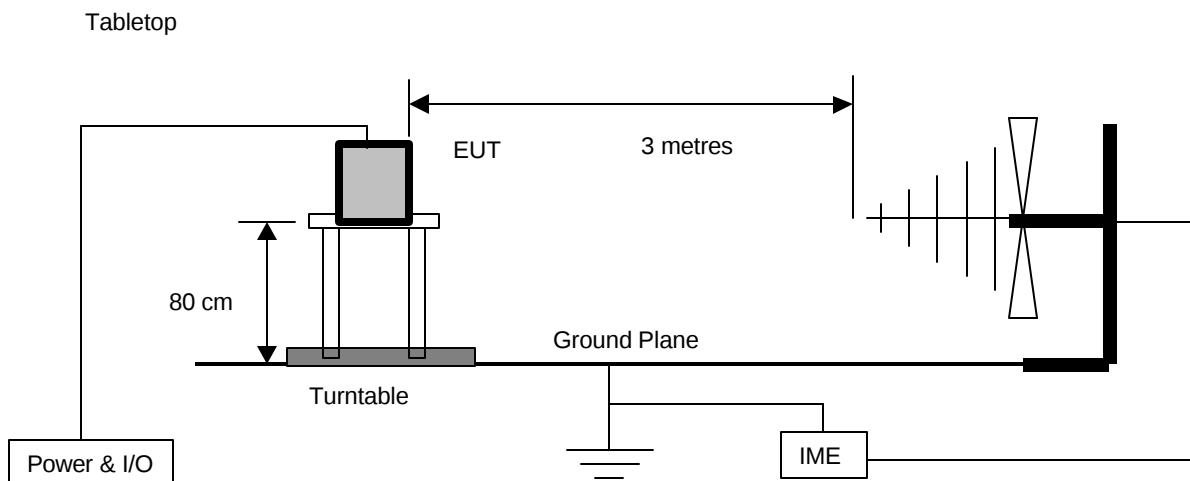


Figure 4 - Radiated Emissions for Tabletop Equipment

6.0 TEST EQUIPMENT

The following equipment was used for this procedure. All measurement devices are calibrated annually, traceable to NIST.

6.1 EQUIPMENT USED

The following equipment was used for this procedure. All measurement devices are calibrated annually, traceable to NIST.

RF Output Power:

- Power Meter

Occupied Bandwidth and Spurious Emissions at Antenna Terminals

- Spectrum Analyzer with RF Preselector
- CISPR Quasi-Peak Adapter
- Personal Computer and EMC Software

Radiated Emissions

- Spectrum Analyzer with RF Preselector
- CISPR Quasi-Peak Adapter
- Power Isolation Transformers
- Biconilog Antenna (25 MHz to 2 GHz)
- Antenna Mast Positioner and Controller
- Flush-mounted Turntable and Controller
- Personal Computer and EMC Software

Frequency Stability

- Spectrum Analyzer with RF Preselector
- CISPR Quasi-Peak Adapter
- Personal Computer and EMC Software
- Environmental Chamber

Modulation Characteristics

- Spectrum Analyzer with RF Preselector
- CISPR Quasi-Peak Adapter
- Personal Computer and EMC Software
- RF Communications Test Set

6.2 CALIBRATION

All measurement instrumentation conforms to ANSI C63.2. Calibration is maintained in accordance with manufacturer recommendations and ISO Guide 25. Each measurement device is labeled with its ETC asset number and calibration due date.

6.2.1 CALIBRATION ACCURACY

Test equipment used to provide quantitative measurements are calibrated with standards traceable to the National Research Council, National Institute of Standards and Technology or other national standards. Instrumentation systems for emissions measurements have the following accuracies:

Frequency = ± 1 kHz
Amplitude (RE) = ± 4.01 dB
Amplitude (CE) = ± 3.25 dB

6.2.2 TEST EQUIPMENT DESCRIPTION

The equipment used in the tests was selected from the following list.

Instrument	Manufacturer	Model No.	Asset No.	Calibration Due
Spectrum Analyzer	Hewlett Packard	8566B	9565	11 April 2002
Spectrum Analyzer	Hewlett Packard	8566B	9168	30 January 2002
RF Preselector	Hewlett Packard	85685A	9563	21 September 2001
RF Preselector	Hewlett Packard	85685A	9728	30 March 2002
Quasi-Peak Adapter	Hewlett Packard	85650A	9243	16 August 2001
Line Impedance Stabilization Network	EMCO	3825/2r	9331	2 November 2001
Line Impedance Stabilization Network	EMCO	3825/2r	9259	2 November 2001
Biconilog Antenna	ARA	Lpb-2520/A	4318	13 June 2002
Dual Ridged Guide Antenna	EMCO	3115	9588	6 August 2001
Low Noise Amplifier	MITEQ	JS43-01001800-21-5P	4354	14 February 2002
Power Meter	Hewlett Packard	436A	9061	3 August 2001
Power Sensor	Hewlett Packard	8482A	9758	3 August 2001
Environmental Chamber	Thermotron	8920B	9166	12 October 2001
RF Communications Test Set	Hewlett Packard	8920B	N/A	24 November 2001

Appendix A

LoCate

Test Sample Description (from data provided by CSI Wireless)

Product Application	Product Category
Commercial ☒ Military ☐	Telecommunications ☒ Aerospace ☐ Information Technology ☐ Test & Measurement ☐ Surface Transportation ☐ Other ☐ _____
Product Name	LoCate
Part/Model No.	LOCA01
Serial Number	Rev 01 S/N 4
Power Requirements: (Voltage, AC/DC, Hz, Current)	12 VDC 1 A
Typical Installation Instructions or Configuration	vehicle-mounted, asset tracking
Ground Connection (in addition to power cord)	chassis connected to ground
Internally Generated Frequencies	2.5 MHz, 14-88 MHz, 132 MHz, Transmit: 824-849 MHz, Receive: 869-894 MHz, 914-939 MHz (L.O.), GPS Receive: 1570 ± 10 MHz
Peripheral Support Equipment	Laptop computer, RS232 to CMOS level converter
Description and number of interconnecting Leads & Cables	Power supply, Data input/output, Cellular Antenna, GPS antenna
Brief Functional Description	GPS Receiver, Cellular Digital modem, I/O interface to vehicle for asset tracking and asset status.