Marchmont Community Centre

Proposed New Services Installation

Environmental Noise Survey

Planning and Environmental Protection Issues

prepared for

architectsnetwork Ltd
15 Countess Road
London
NW5 2NS

Nicholas Pillans
Acoustic Design Consultancy
38 The Park
Ealing
London
W5 5NP

Telephone 020 8567 3825
Fax 020 8932 8783
E-mail adc@arachnid.uk.net

3 May 2007

Summary of Findings

In the period 21.45 to 22.00 the minimum ambient noise level recorded as L_{AFmn} was 39.5dBA and the statistical parameter L_{AF95} was 41.0dBA. On the basis of these values it is recommended that the proposed new services installation should be designed such that the maximum sound pressure level created by the plant does not exceed 36dBA at any site boundary. In view of the fact that the ambient noise level is likely to fall further after 22.00, it must be stressed that the new plant should not be operated later than 22.00.

A detailed study of the second by second noise profile provides information on the noise emission currently prevailing from two nearby services installations. The calculations show that each installation on its own creates a sound pressure level of approximately 42dBA at the rear elevation of 62 Marchmont Street, and that when both are running the cumulative sound pressure level is 45dBA. There is a tonal character to the noise emission of both installations and there is additionally a resonant pulsation to the noise emission of the nearer installation which lies to the south of No. 62. These levels are significantly higher than the local minimum ambient noise levels, and there can be little doubt that a case of public nuisance could be proved. Night-time ambient levels have not been measured, but it seems likely that the minimum level could be significantly lower than the 39.5dBA measured close to 22.00. The degree of noise nuisance arising from the two installations, or from each installation on its own is therefore likely to significantly greater during the night-time period.

Introduction

The survey was carried out to establish the levels of ambient noise prevailing to the rear of the Marchmont Community Centre. The information is required in order to establish a limiting level of noise emission for the proposed new services installation at the rear of the building. An additional study was carried out to show the noise levels produced by two existing services installations associated with nearby buildings.

The Survey

The survey was carried between 21.15 and 22.05 on Monday 23 April 2007. The weather was fine with a light breeze.

Equipment Used

CEL Precision Sound Level Meter type 480C1, serial number 089663, fitted with integral octave and third-octave filters and statistical analysis processor, pre-amplifier type 495 and half-inch electret microphone type 250, serial number 1886. Used in this configuration, this meter conforms to Type 1 specification of IEC 804-1985 and type S(1) specification of ANSI S1.4:1983.

CEL Acoustical Calibrator type 284/2, serial number 4/12023512 which conforms to IEC 942:1988 Class 1L and ANSI S1.4:1984.

Tripod

Operation of the Meter

The sound level meter operates under the control of an internal computer and is capable of automatic recording and storing of data over extended periods. The meter was operated in broad band mode, storing 13 different acoustic parameters simultaneously. Two crucial parameters, L_{Aeq} and L_{Amin} were selected for more detailed processing, with measurements made automatically every second. This yielded a very detailed time profile for these two parameters which was used additionally to analyse the effect of nearby existing services installation on the ambient noise level.

Measurement Technique

Calibration

Calibration was carried out before the survey started.

Configuration of the Meter

The meter was set to fast time response and to A-weighting, with the exception of L_{peak} values which were recorded as linear dB. Statistical percentile levels were to set to L_5, L_{10}, L_{50}, L_{90} and L_{95}.

Measurement Periods

The meter was set for two sequential runs of 15 minutes each, to terminate close to 22.00. This finishing time was selected as being the latest operational time for the proposed new plant.

Tabulated Period Results

Two fifteen minute runs, records 1:2 and 2:2
* indicates time-related noise exposure parameter not used in this survey

Record number 1 : 2

Record start 23/04/2007 21:31:49
Period time 00:15:00
Overload occurred Yes
Under-range occurred No
Low battery occurred No
Pause was used Yes

Function	Level (dB)
LAFmx	78.2
LAFmn	40.8
LAeq	55.7
LZpk	94.8
LAE	84.2*
LEP,d	39.6*
LTm3	61.2
LTm5	62.6
LAF5.0	60.5
LAF10.0	53.0
LAF50.0	45.0
LAF90.0	43.0
LAF95.0	43.0

Notes: Pause was used in this preliminary measurement period to remove interference arising from conversations

Record number 2 : 2

Record start 23/04/2007 21:46:49
Period time 00:15:00
Overload occurred Yes
Under-range occurred No
Low battery occurred No
Pause was used No

Function	Level (dB)
LAFmx	69.0
LAFmn	39.5
LAeq	48.3
LZpk	91.6
LAE	77.8*
LEP,d	33.3*
LTm3	51.7
LTm5	52.6
LAF5.0	52.5
LAF10.0	49.5
LAF50.0	44.0
LAF90.0	41.5
LAF95.0	41.0

Notes: Pause was not used. The 15 minute period provides a continuous record.

Noise Profile Results

The graphs on the following pages show the record of the second by second measurements of the minimum level, L_{AFmn}. The first graph shows the overall record and the succeeding graphs show detailed sections of the measurement period.

Graph 1 shows the overall trends during the measurement period, with the lowest value of 39.5dBA occurring at 21:52:56.

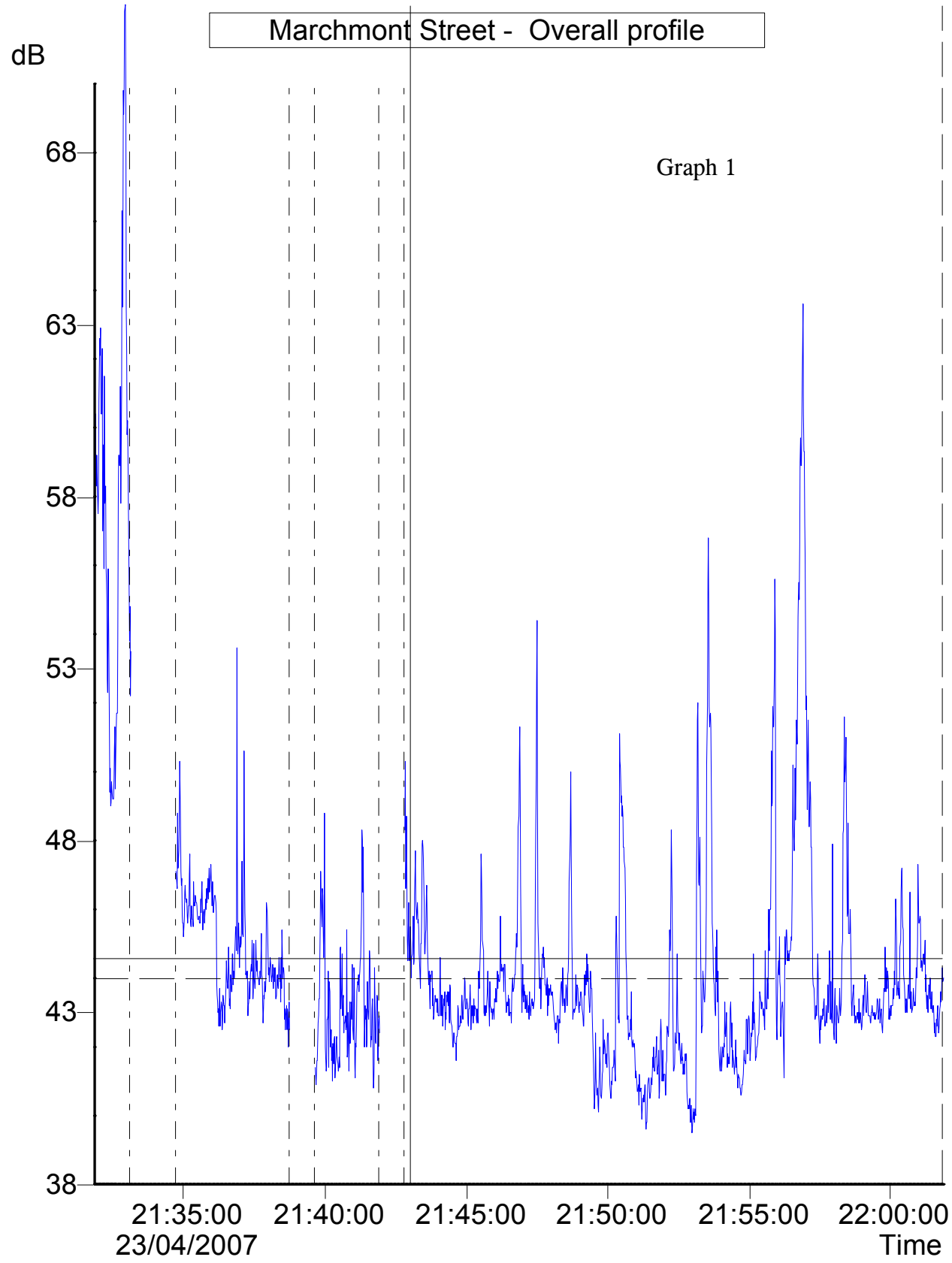
Graph 2 shows the detail around the time of the time of minimum value of L_{AFmn}.

Graph 3 shows the detail with both the Pizza fan and the south fan running

Graph 4 shows the drop in minimum level as the Pizza fan turns off - the south fan is still running

Graph 5 shows the drop in minimum level to about 40dBA as the south fan turns off

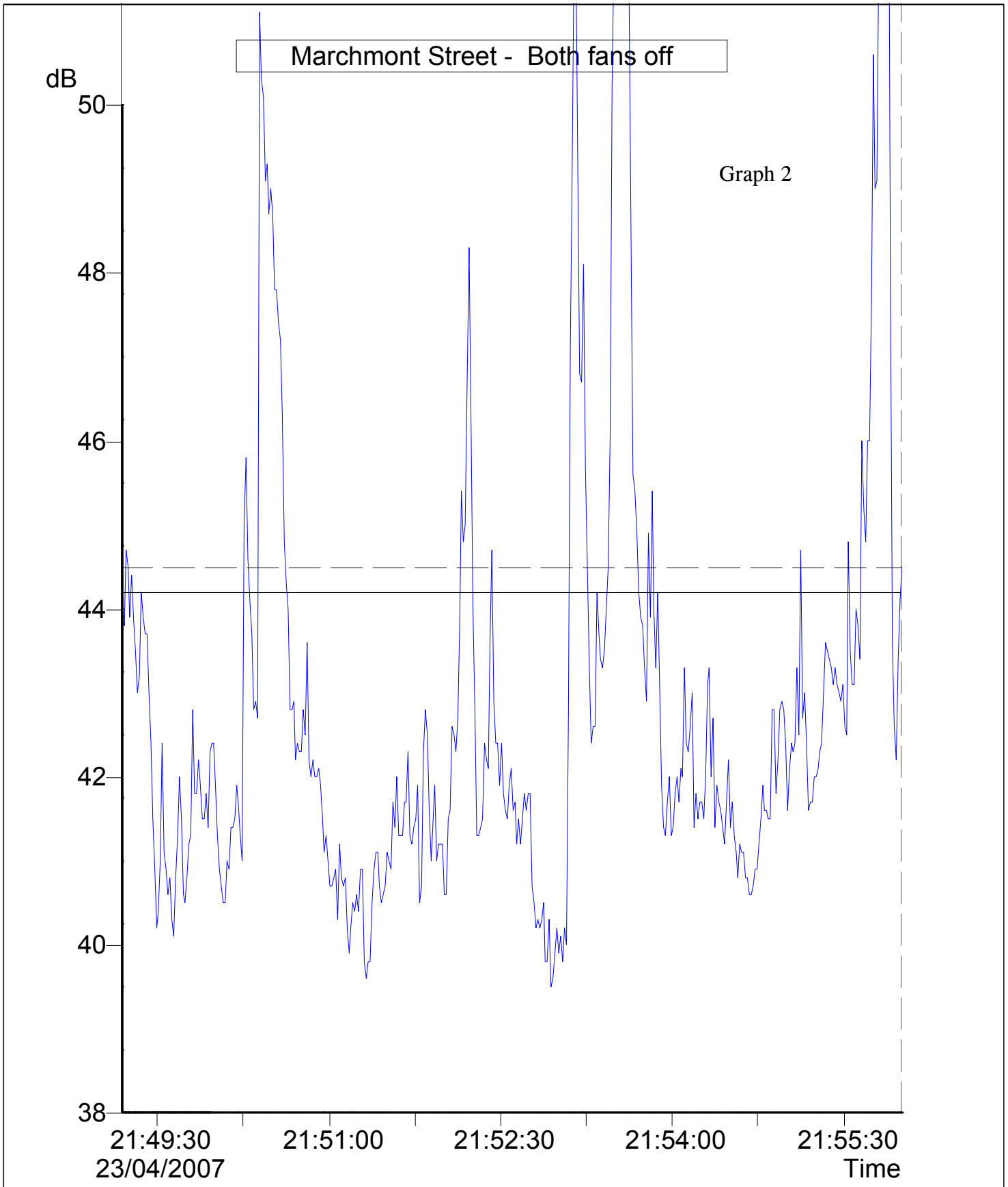
Calculations based on the information in graphs 3-5 show that the Pizza fan and the south fan individually create a sound level of 42dBA at the rear of 62 Marchmont Street, and that cumulatively they create a level of 45dBA.



C:\USERFI~1\NICK\TEXT\CONSULT\MARCHM~1\MRCH004.DTA
Overall profile duration = 00:30:02 (1802 samples)
Function order = LAFmn dB
Cursor 1: Time = 23/04/2007 21:43:02, Level = 44.6 dB, Flags: -----
Cursor 2: Time = 23/04/2007 22:01:50, Level = 44.0 dB, Flags: -----
Duration on / between the cursors = 00:18:49, Flags: , Scale: 1:1

- LAFmn dB -

Minimum LAFmn = 39.5 dB, On / between the cursors. Time of minimum = 23/04/2007 21:52:56
Maximum LAFmn = 63.6 dB, On / between the cursors. Time of maximum = 23/04/2007 21:56:52

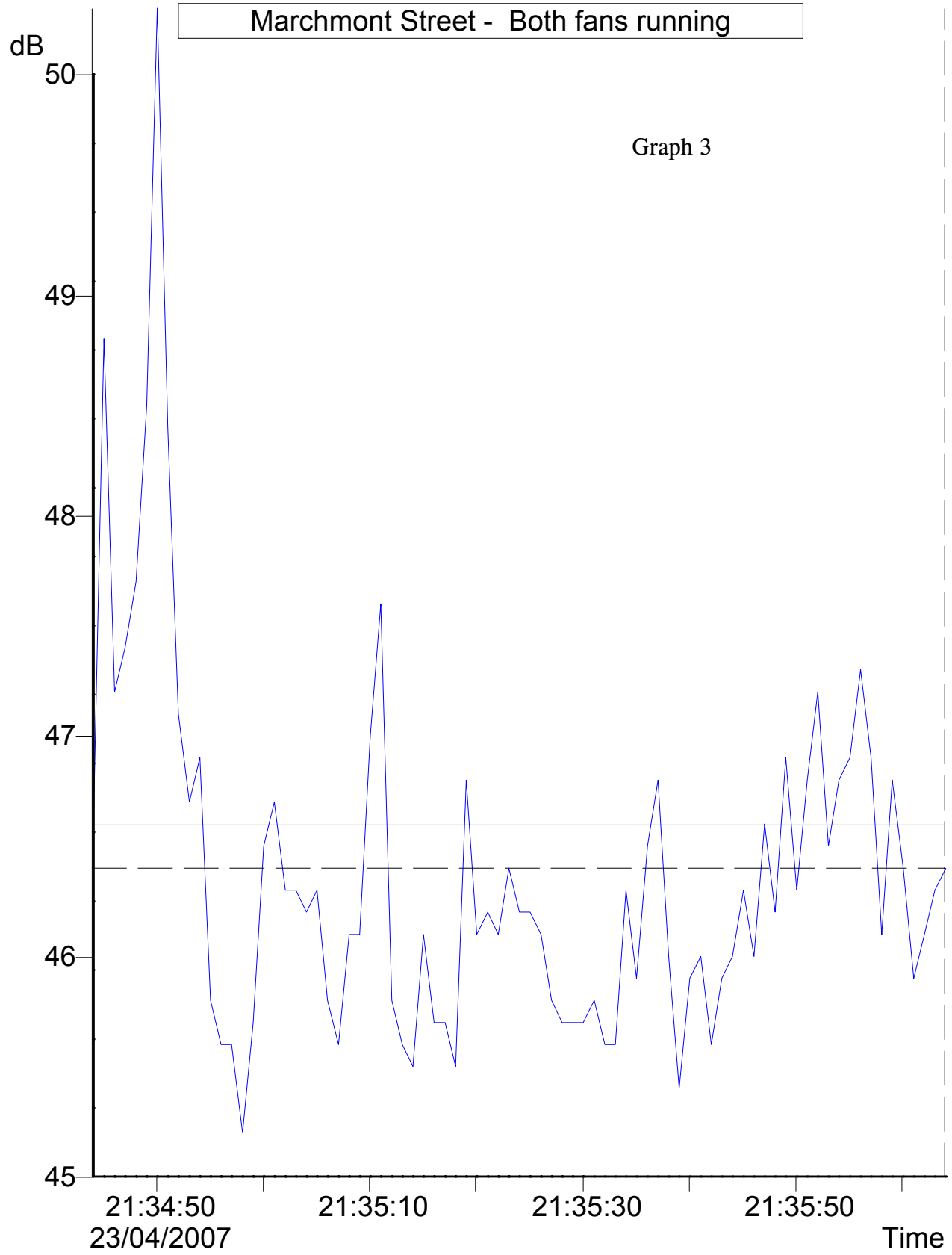


Graph 2

C:\USERFI~1\NICK\TEXT\CONSULT\MARCHM~1\MRCH004.DTA
Overall profile duration = 00:30:02 (1802 samples)
Function order = LAFmn dB
Cursor 1: Time = 23/04/2007 21:49:11, Level = 44.2 dB, Flags: -----
Cursor 2: Time = 23/04/2007 21:56:00, Level = 44.5 dB, Flags: -----
Duration on / between the cursors = 00:06:50, Flags: , Scale: 1:1

- LAFmn dB -

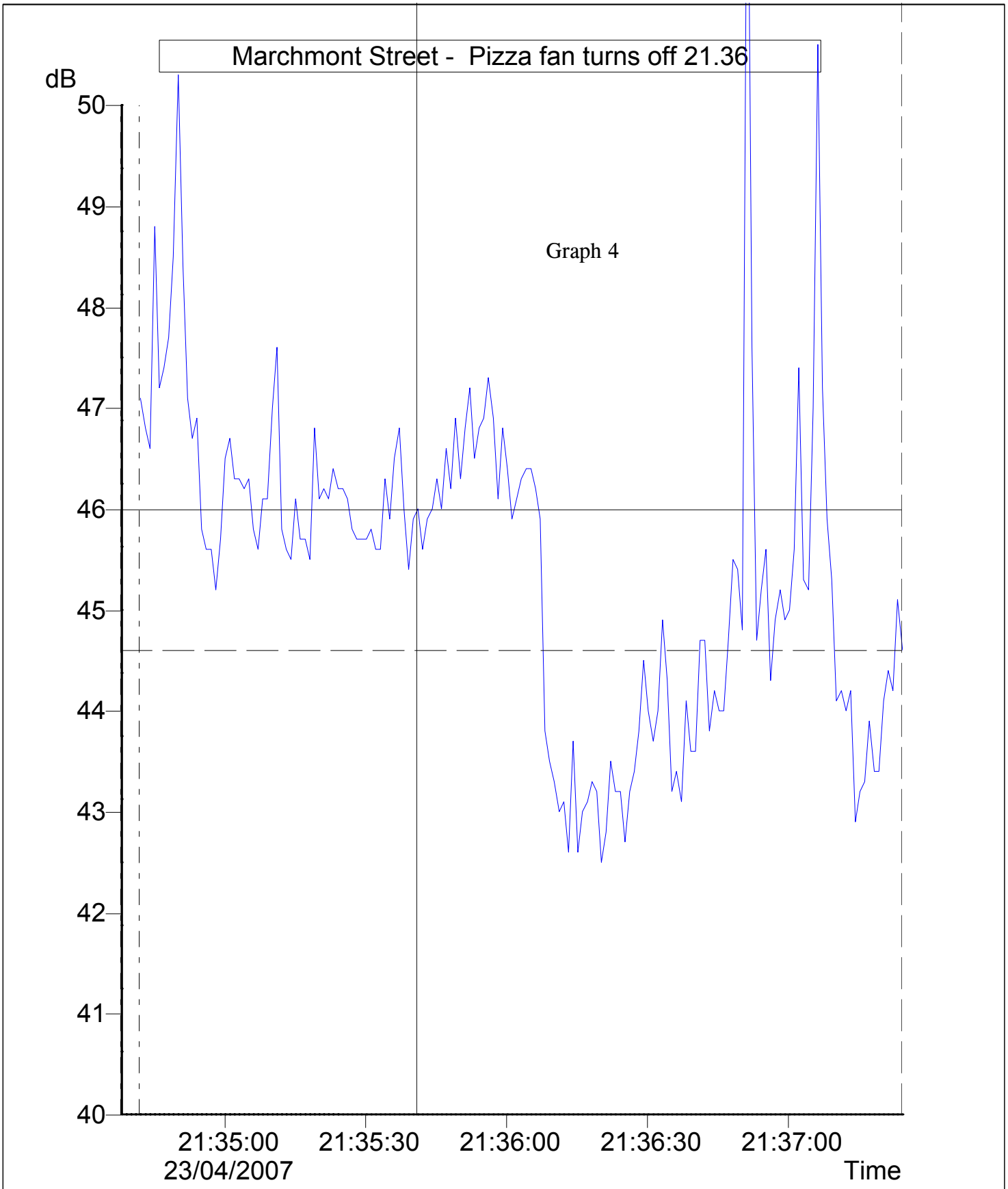
Minimum LAFmn = 39.5 dB, On / between the cursors. Time of minimum = 23/04/2007 21:52:56
Maximum LAFmn = 56.8 dB, On / between the cursors. Time of maximum = 23/04/2007 21:53:31



C:\USERFI~1\NICK\TEXT\CONSULT\MARCHM~1\MRCH004.DTA
Overall profile duration = 00:30:02 (1802 samples)
Function order = LAFmn dB
Cursor 1: Time = 23/04/2007 21:34:44, Level = 46.6 dB, Flags: -----
Cursor 2: Time = 23/04/2007 21:36:04, Level = 46.4 dB, Flags: -----
Duration on / between the cursors = 00:01:21, Flags: , Scale: 1:1

- LAFmn dB -

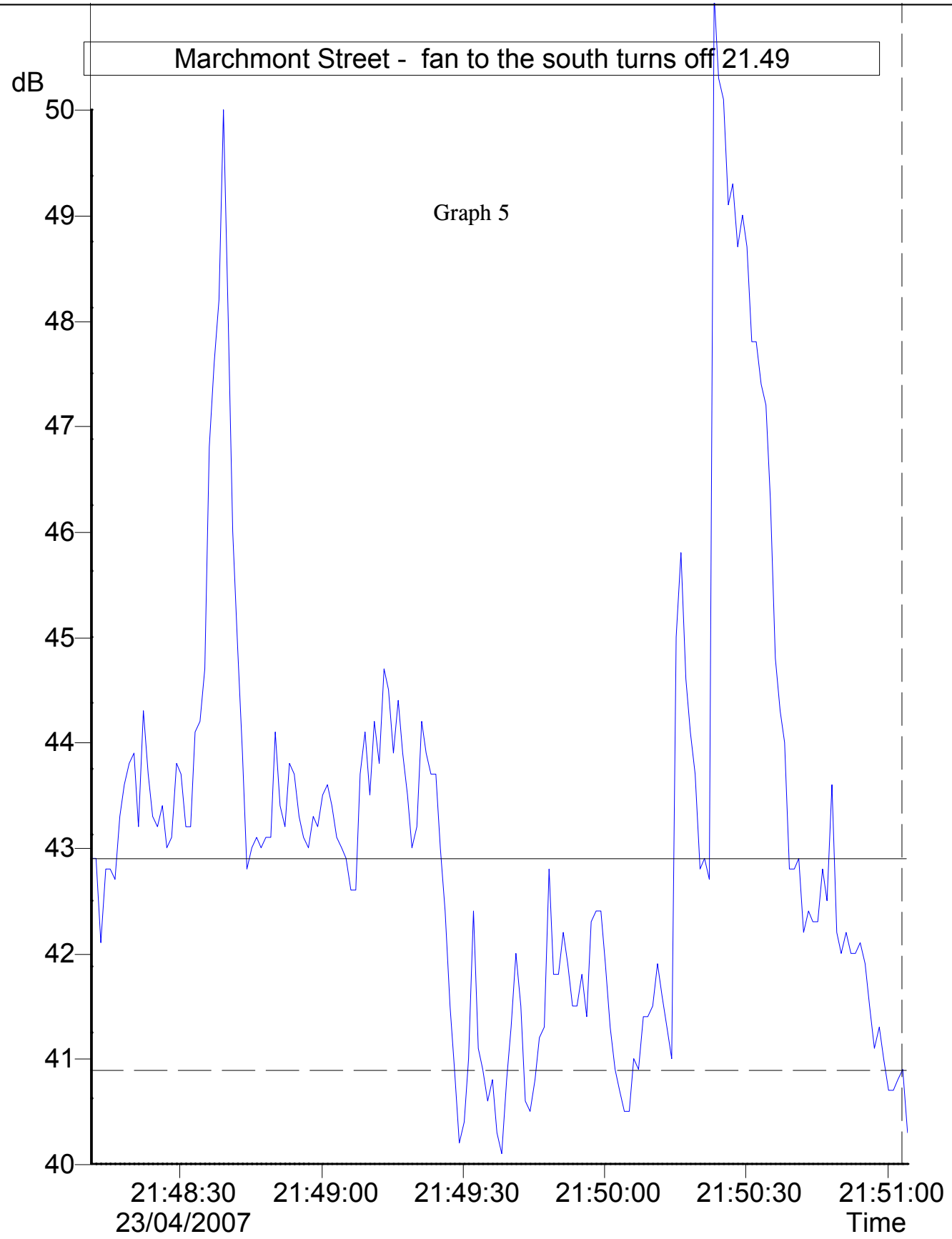
Minimum LAFmn = 45.2 dB, On / between the cursors. Time of minimum = 23/04/2007 21:34:58
Maximum LAFmn = 50.3 dB, On / between the cursors. Time of maximum = 23/04/2007 21:34:50



C:\USERFI~1\NICK\TEXT\CONSULT\MARCHM~1\MRCH004.DTA
Overall profile duration = 00:30:02 (1802 samples)
Function order = LAFmn dB
Cursor 1: Time = 23/04/2007 21:35:41, Level = 46.0 dB, Flags: -----
Cursor 2: Time = 23/04/2007 21:37:24, Level = 44.6 dB, Flags: O----
Duration on / between the cursors = 00:01:44, Flags: , Scale: 1:1

- LAFmn dB -

Minimum LAFmn = 42.5 dB, On / between the cursors. Time of minimum = 23/04/2007 21:36:20
Maximum LAFmn = 53.6 dB, On / between the cursors. Time of maximum = 23/04/2007 21:36:51



C:\USERFI~1\NICK\TEXT\CONSULT\MARCHM~1\MRCH004.DTA
Overall profile duration = 00:30:02 (1802 samples)
Function order = LAFmn dB
Cursor 1: Time = 23/04/2007 21:48:11, Level = 42.9 dB, Flags: -----
Cursor 2: Time = 23/04/2007 21:51:03, Level = 40.9 dB, Flags: -----
Duration on / between the cursors = 00:02:53, Flags: , Scale: 1:1

- LAFmn dB -

Minimum LAFmn = 40.1 dB, On / between the cursors. Time of minimum = 23/04/2007 21:49:38
Maximum LAFmn = 51.1 dB, On / between the cursors. Time of maximum = 23/04/2007 21:50:23