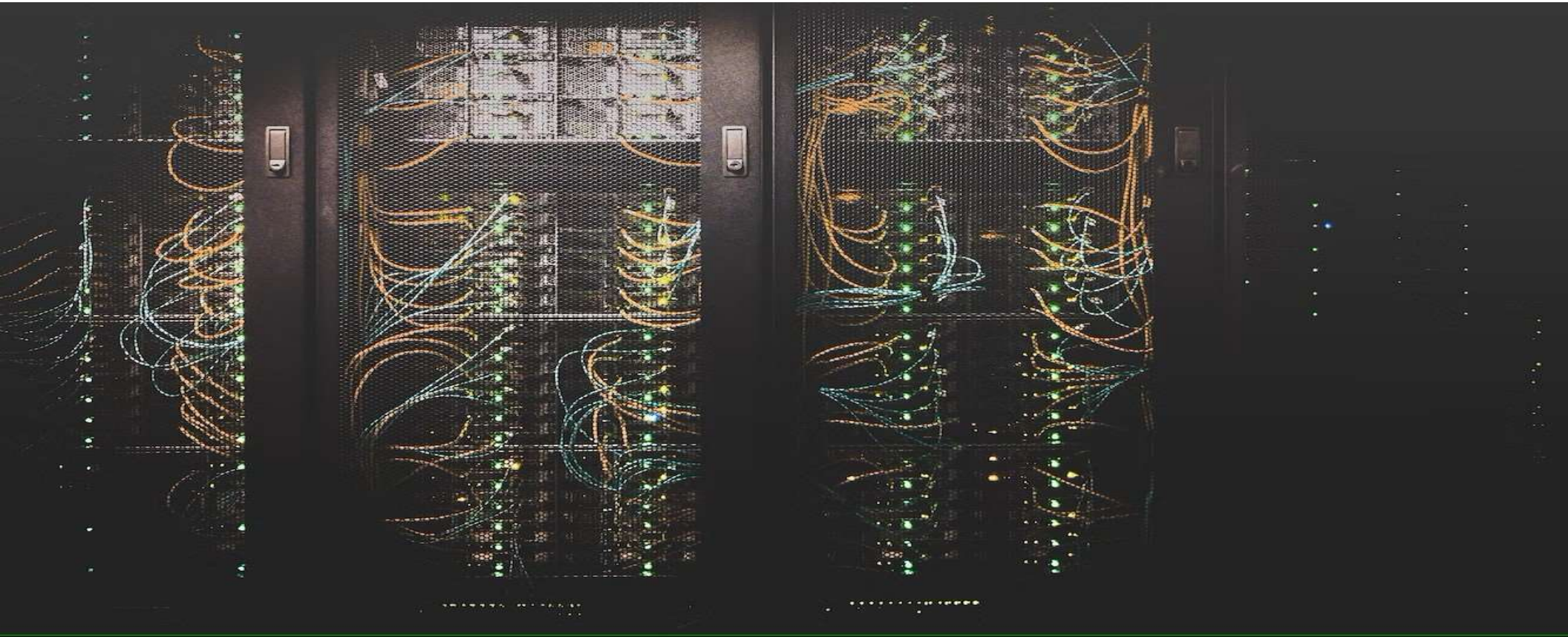# Silencing the Noise:
A Regional Study of Noise Levels in Data Centre

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Data centres are expected to see a 10 % growth in the next decade

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Introduction

Data centre especially in sever room are relatively noisy

The source of noise varies and can be from

Servers Cooling fans	Room cooling system	Power supply unit	Mechanical hard-drive	Cable whine

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Introduction

The noise level are of concern primarily because of

Equipment Performance

Employee Health

Objective

- To gain a better understanding of noise levels and sources in data centers

- To identify trends or patterns in noise levels

- To evaluate the effectiveness of noise mitigation measures

- To compare noise levels between different types of data centers or equipment
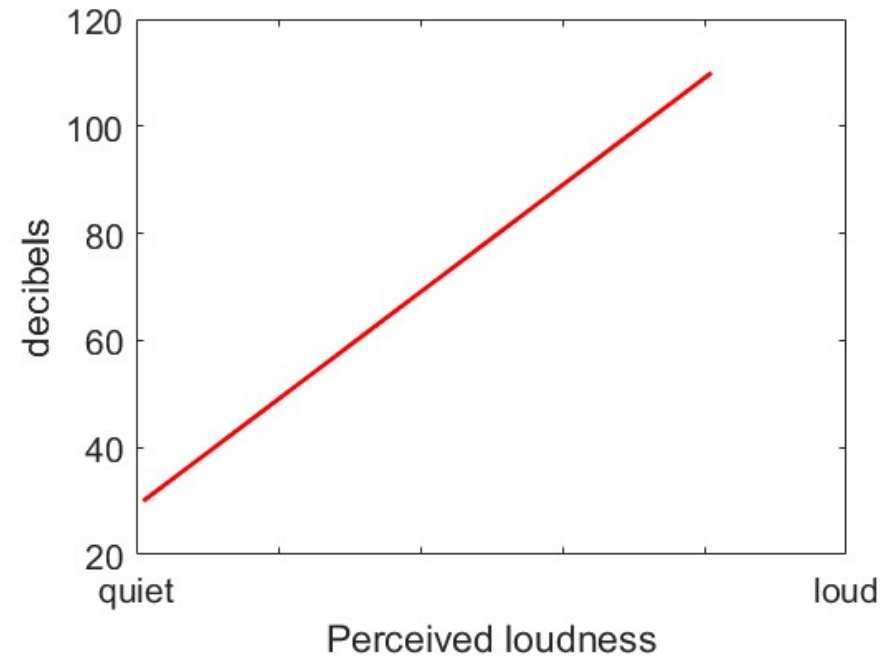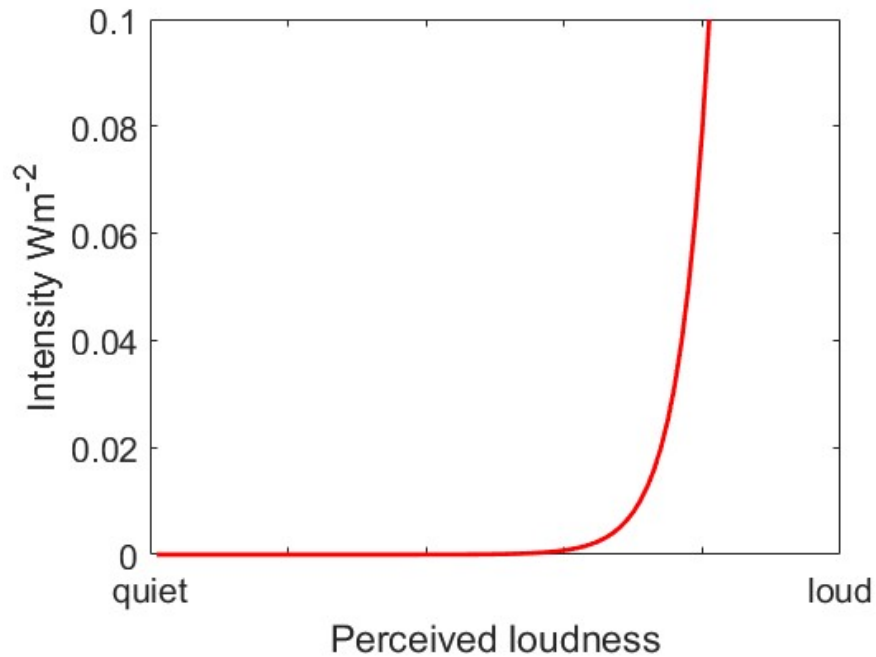
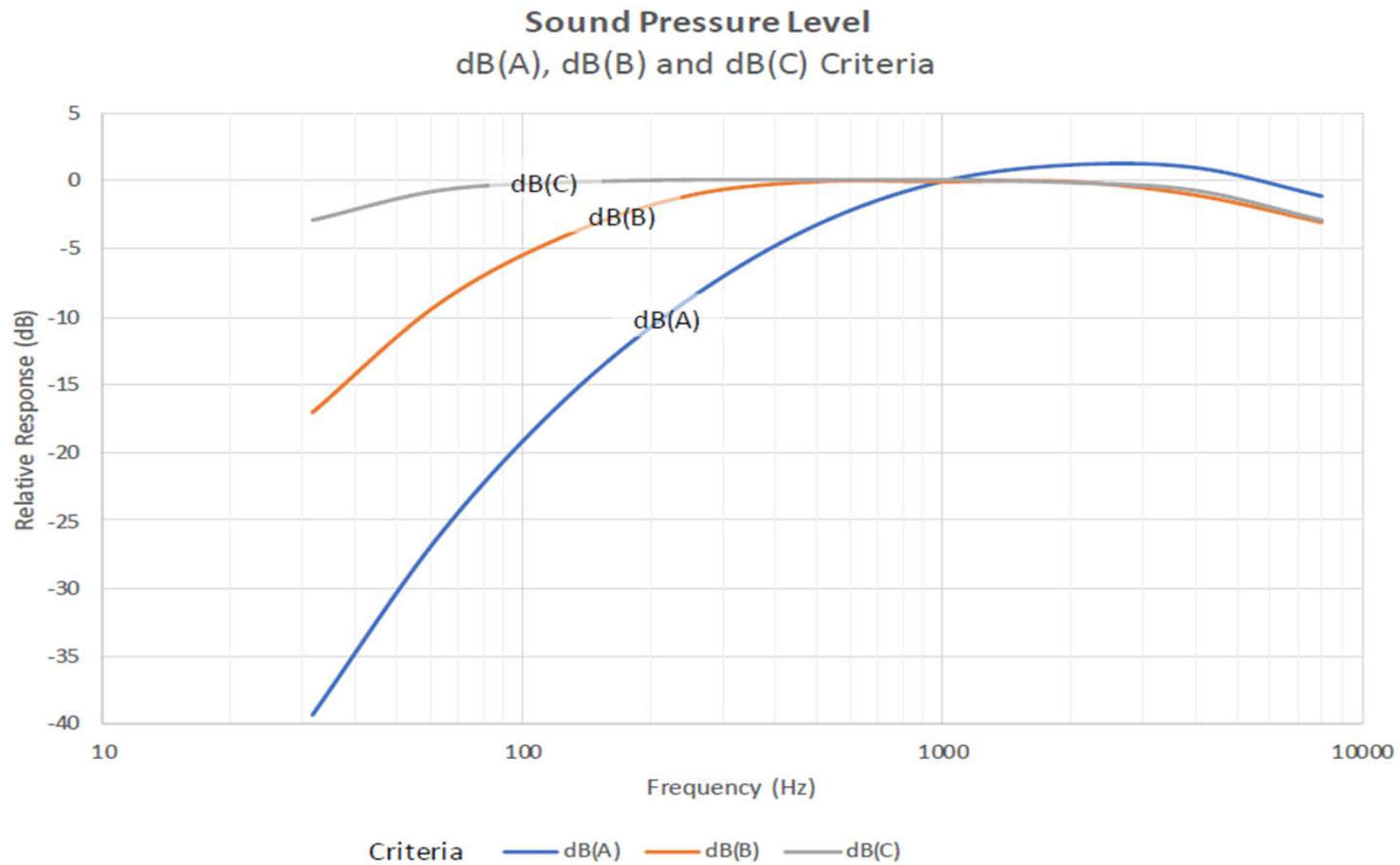# Methodology - Equipment

Sound level Meter
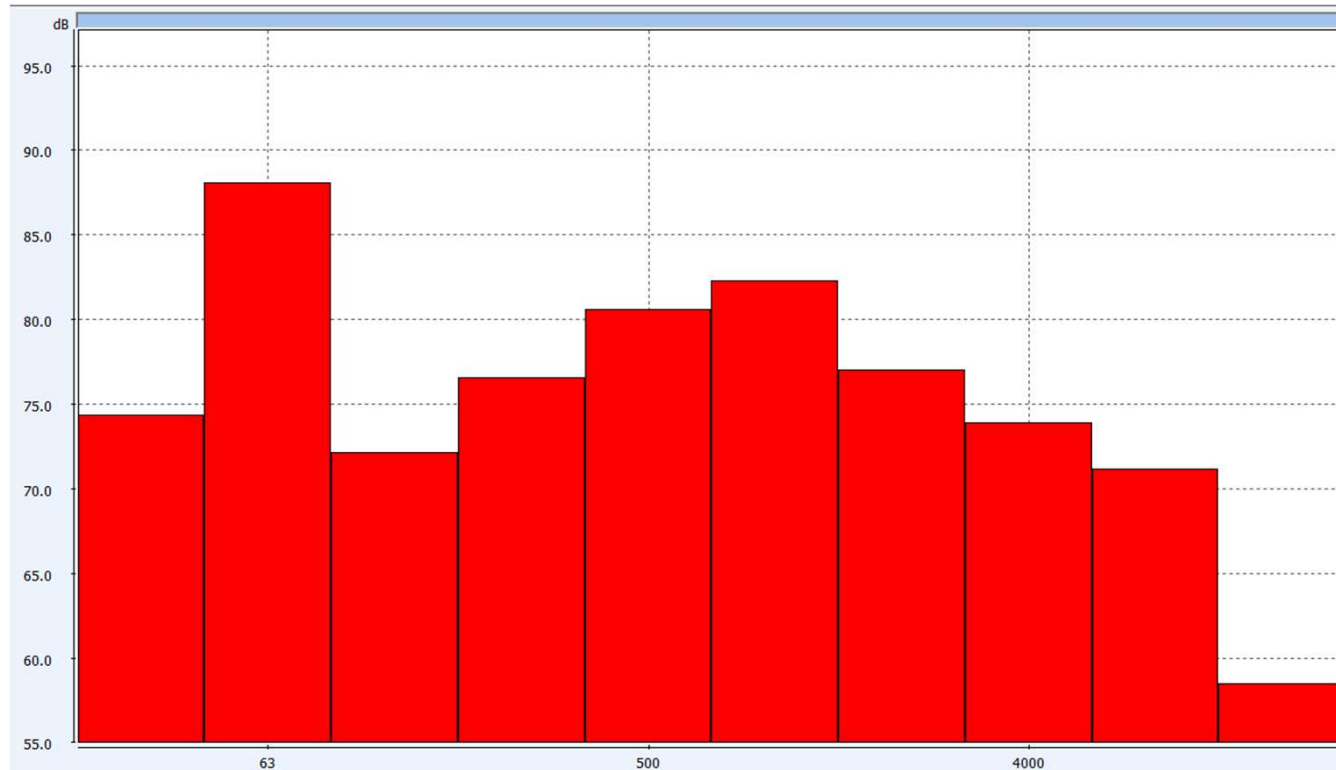SLM

Personal Dosimeter

Methodology - Term

Decibel is a logarithmic scale that is design for human by human

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Methodology - Term
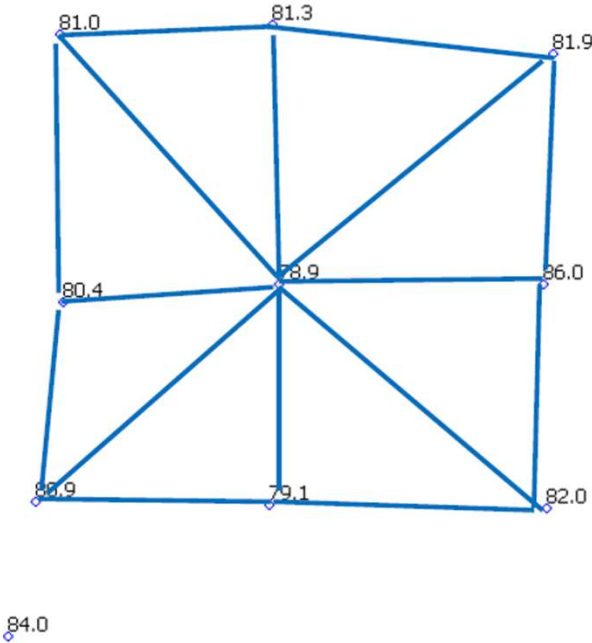
Methodology - Term

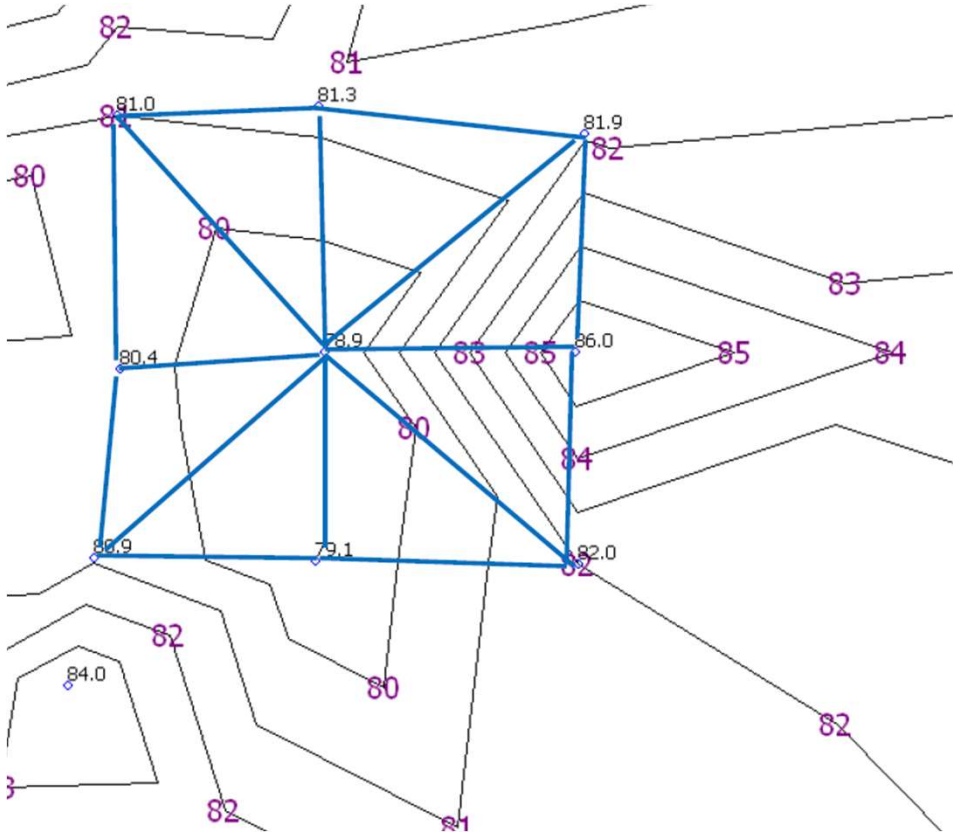**1/1 Octave , Each band is double of the previous band .
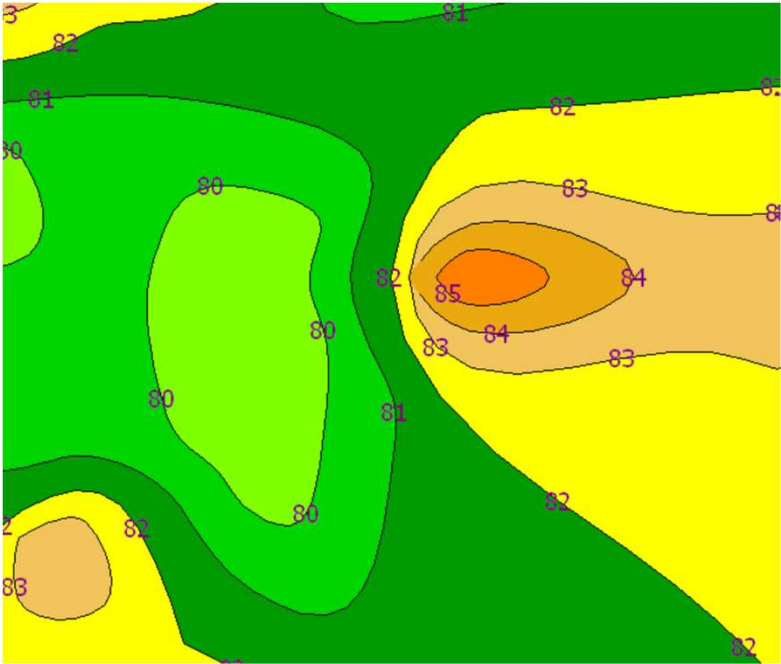It starts at 31.5 Hz
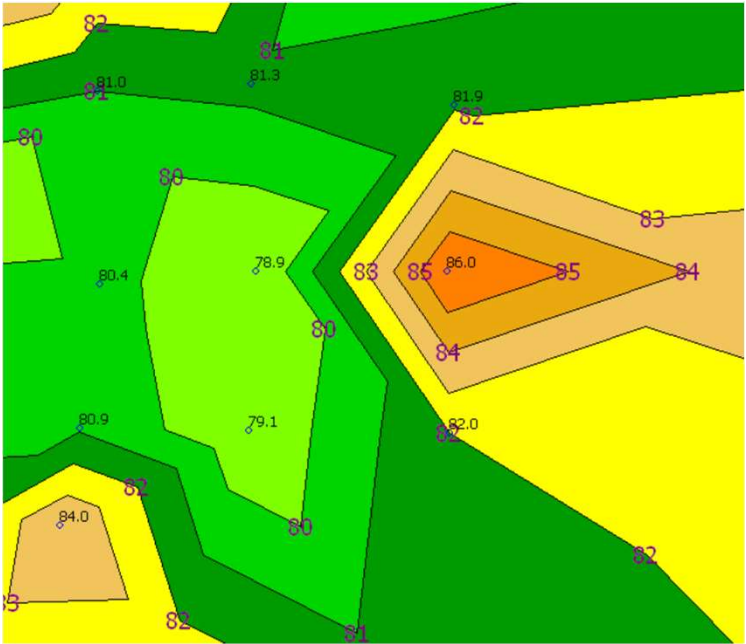1/3 Variant triple the number of bands**

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Results - Triangulation

Results - Interpolation

Results – Dissolving and smoothening

Discussion

• Area of high noise seem to be in the high frequency range

• Noise level in the server room is not uniform

• Work hour of employee in server room is not fixed

Conclusion

- Noise level at data centre can exceed acceptable noise level

  –Active noise cancellation headset is a possible response

  –There can be more options if it at the design stage

  –Lower the ambient temperature , this reduce the need for cooling and can increase the server life span. A cost benefit analysis should be conducted .

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Future Work

Further analysis of frequency analyser

To determine optimum solution to reduce noise level

To determine if common fault can be detected in advance

Determine Variation in data centre

System design layout and such varies for data centre of different organisation and in different country

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