Metal Mesh Filters Development

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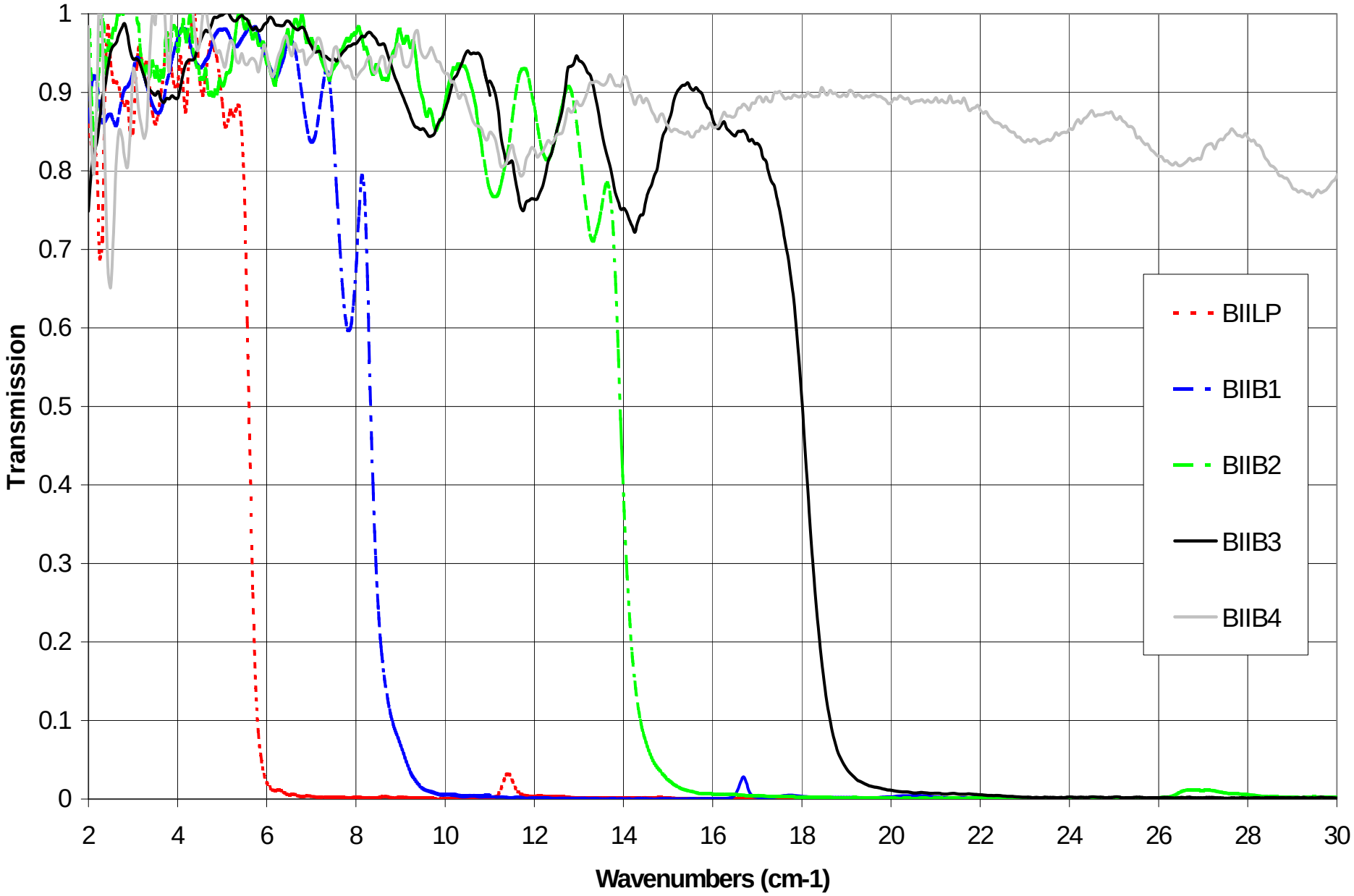
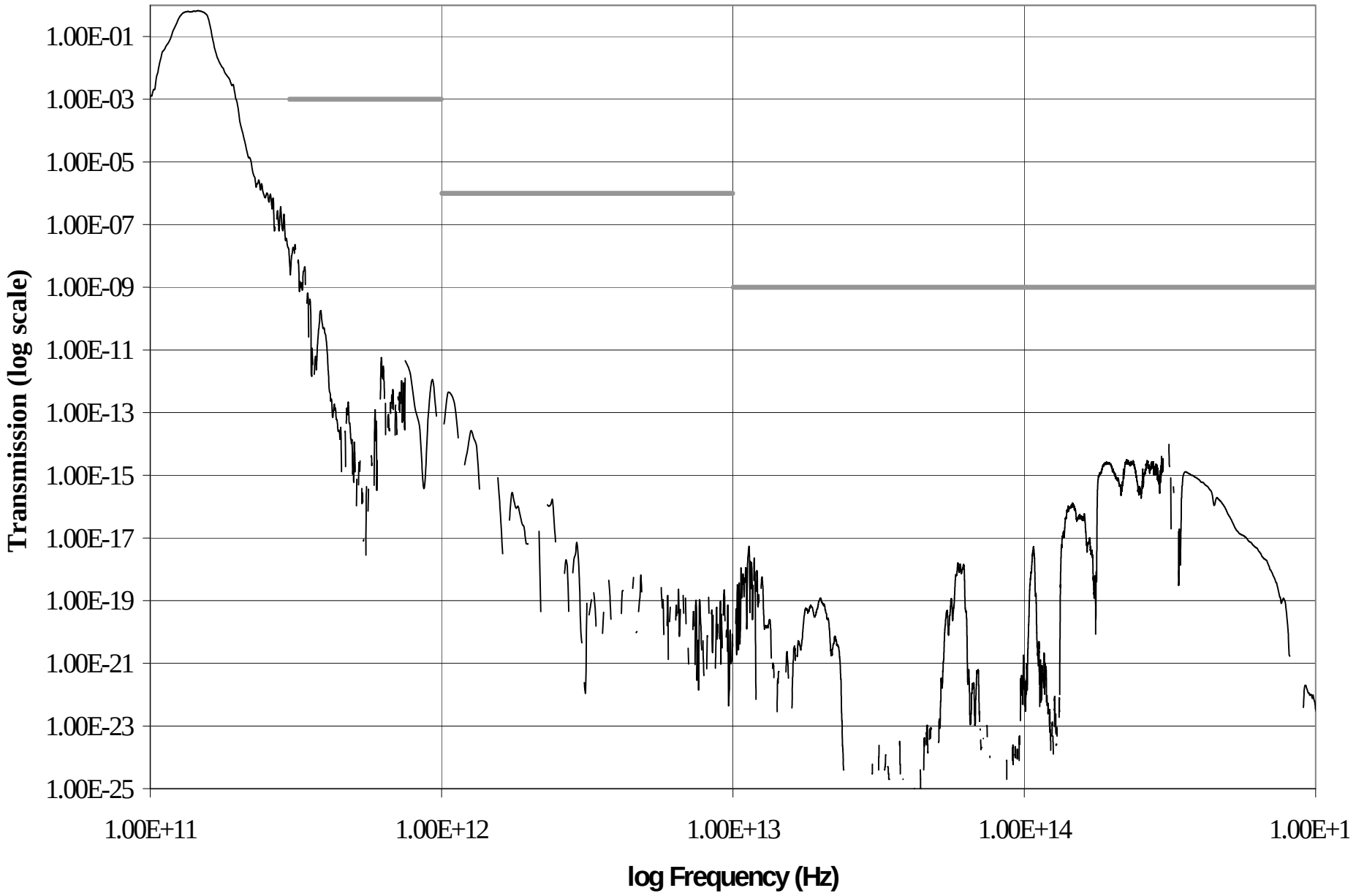
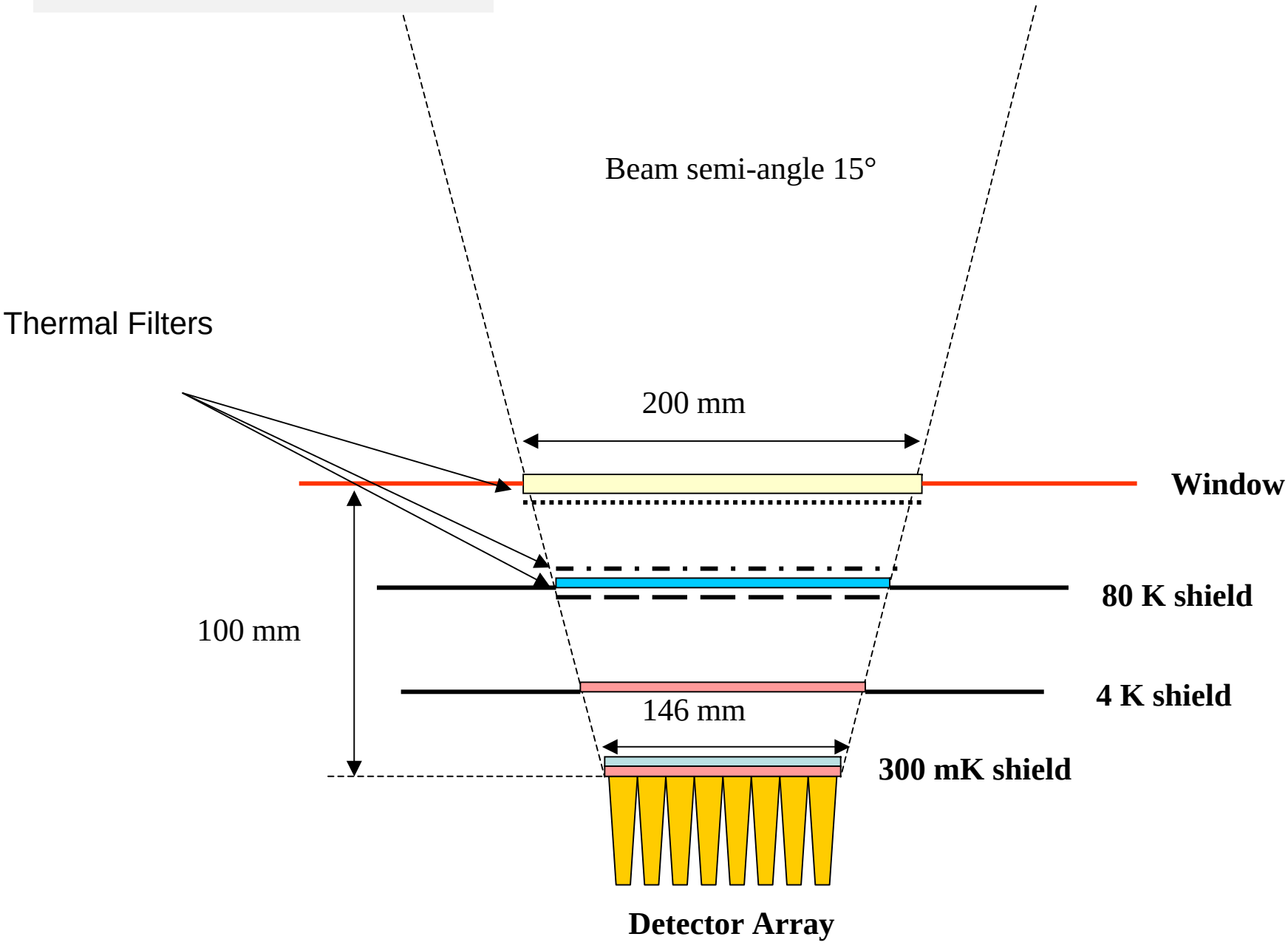
Low-pass Edge Filters Examples



Planck Filter Stack Rejection



Clover Filters Schematic



Are 1-2 metre filters possible ?

	Current techniques	Alternatives
Substrate materials	2-5 metres available	
Annealing	Lab ovens 500 mm	Self build
Copper coating	Evaporation 600 mm	Electroless
Photoresist coating	Spin on 300 mm	Automatic spray
Mask size	Glass plates 600 mm	Large printer ?
Exposure to UV	Frame limit 500 mm	3 metres
Developing	Large tank	Automatic spray
Etching	Large tank 500 mm	Automatic spray
Hot pressing	Lab ovens 500 mm	Self build

Conclusion: Very large filters are possible

Facilities needed:-

- Automated spray unit
- Large tanks with high ceiling
- Large home made oven
- Large well lapped heavy metal plates

Filters have been developed from 10-300 mm, unexpected problems have arisen and have been solved. The alternative is tiling which must be aligned with the horn array and still requires the large home made oven. Antireflection coating is a problem due to materials not being commercially available but tiling may be possible here.