ultrahaptics

COVER MATERIAL Accessory Guide

Ultrahaptics brings the sense of touch to mid-air gestures. For the first time, gesture recognition has feedback without a physical connection, it is responsive and reactive. Ultrahaptics' core technology manipulates modulated ultrasound, from an array of ultrasonic transducers, to give you complete control of virtual buttons, sliders and dials. Proprietary algorithms control the projection and nature of the desired sensations, when and where you need them.

The Cover material package provides Ultrahaptics customers with sample of suitable cover materials that can be used to cover and protect the technology when integrating into a prototype or product.

Benefits

- Recommended optimum material selection
- Opportunity to compare material performance
- Opportunity to visually compare materials for best fit to the end application

Material characteristics

- Acoustically transparent to minimise attenuation of the ultrasound
- Visually opaque to integrate discretely in to a customer end-product
- Hydrophobic, and provide mechanical protection from the elements

What's included

- 5 cover materials:
  - 2 metal grilles
  - 3 soft materials (mounted in a frame)
- Supplier contact information

Material ref.	Characteristics	dB*	µm**	Open area (%)	Type
USX / UHDK5-CM1-S1	Saati Acoustex B003HYD	0.15	285	44	Woven fabric
USX / UHDK5-CM1-S2	Saati Acoustex B032HYD	0.35	38	31	Woven fabric
USX / UHDK5-CM1-S3	Saati Acoustex B090HYD	1.00	41	14	Woven fabric
USX / UHDK5-CM1-H1	Photo etched 0.3mm HR302 stainless steel Centre distance: 1.26mm	0.43	900	46	Circular etched holes
USX / UHDK5-CM1-H2	Photo etched 0.3mm HR302 stainless steel Centre distance: 2.25mm	0.32	1850	41	Circular etched holes

*Multiple measurements were performed and averaged on a TOUCH UHDK5 Development kit. The 1/8" microphone was placed at 20cm above the surface of the 14x14 array and repositioned at different angles. The relative attenuations of each material remain the same over time but the absolute values may vary by at most 0.5dB. *Attenuation measured ** Pore Diameter

Where to find cover material

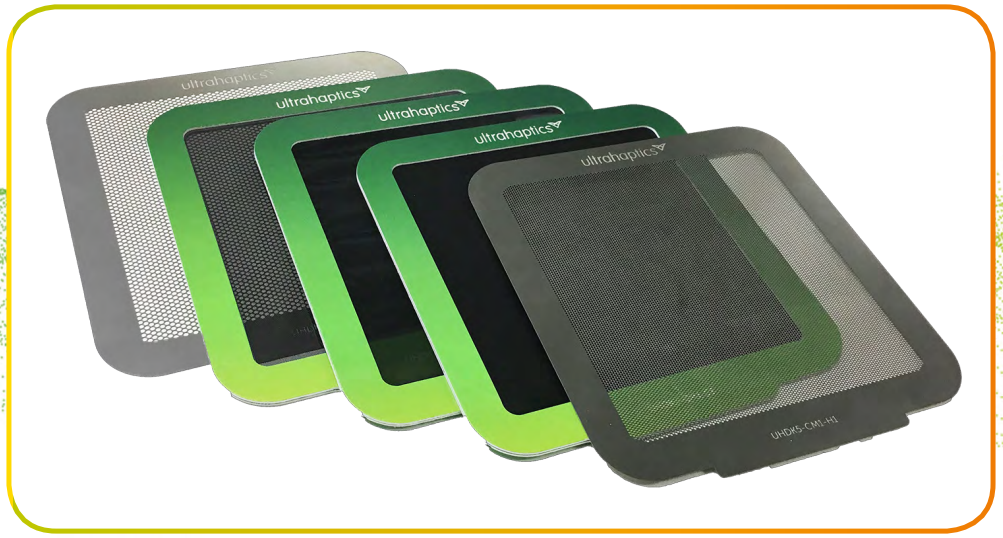
Ultrahaptics has worked closely with SAATI (www.saati.com/filtration-acoustic.php) to identify suitable examples of cloth materials. Other manufacturers of suitable materials are available.

Metal grilles were simulated then manufactured using a chemical etching process. Mass production can make use of grilles similar to those found on speakers.

Characterising a material

There are a number of cover material options which could be used in-conjunction with the Ultrahaptics transducer array board. To obtain the maximum performance from the ultrasonic array, the attenuation characteristics of a given material will require evaluation. Soft materials can be woven in various ways to maximise the performance whilst pitch, hole diameter and material depth characteristics all have an influence when defining a hard material.

Ultrahaptics is continuously working to improve material characterisation and has the ability to provide accurate measurements of the Sound Pressure Level in the haptics interaction zone for a specific scenario. Should customers be interested in evaluating the performance of their own material, they should contact Ultrahaptics to discuss.



Contact us

For further information on Ultrahaptics and our current product range, please visit ***www.ultrahaptics.com***. Alternatively, if you would like to enquire about characterising a material, please send an email to ***info@ultrahaptics.com***.