

Facial Massager Depth Vibration Test, 10 Feb 2010

Ethel St. Laboratories, Headwaters R & D Inc.

Purpose:

A test set-up and methodology was developed in order to measure the depth effectiveness of a number of popular Facial Massage / Facial Cleaning devices. The question to be answered: "Can the vibration effectiveness of a Facial Massager be scientifically measured in a laboratory setting, using a displacement measuring vibration meter transducer and a commercial synthetic skin sample? "

Method:

A commercially available synthetic skin sample was obtained. This sample was 20 cm x 20 cm x 11 mm thick. It has 3 layers, representing adult skin, subcutaneous fat and skeletal muscle. This kind of sample is commonly used for its realistic physical properties in various types of medical training. The sample was prepared by attaching it to a perimeter frame, and attaching the transducer from a VM-6360 vibration meter to the back, or posterior side of the sample. The transducer can sense displacement distance due to motion on the back side of the sample, caused by massage motion acting on the front, or anterior side of the sample.

The Facial Massagers / Cleaners used in this test were the Body Essentials FM-360, the Clarisonic, the Pretika, and the Neutrogena Wave Duo. The 3 different heads were used with the Body Essentials FM-360; the cleansing brush, the bumpy cover, and the smooth cream-application cover.

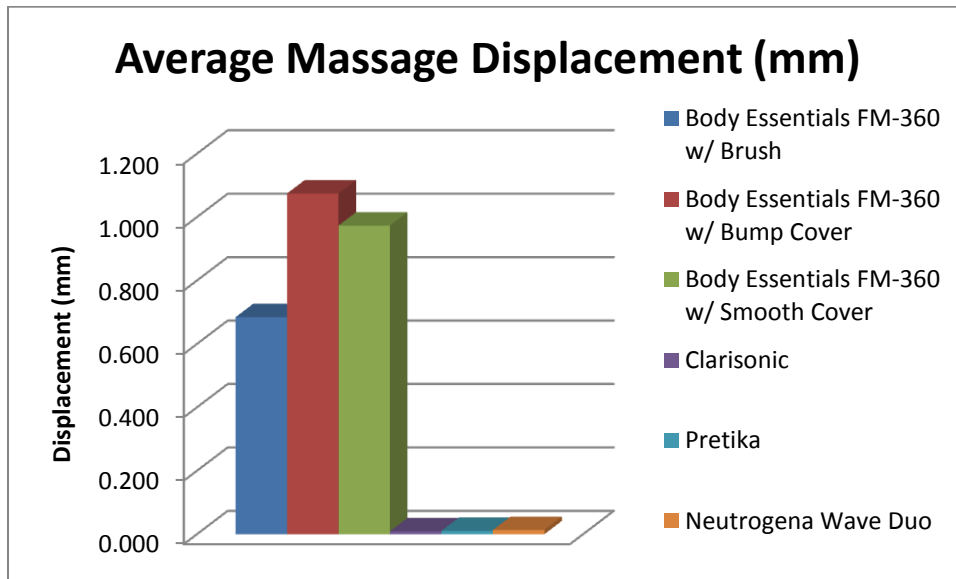
To smooth any inconsistencies due to massager and transducer placement, a test grid of 9 points in a 3 x 3 grid was used. The points were spaced at 2.5cm. The final result was the displacement average of all 9 test points for each massager. The application force of each massager was controlled by placing the test sample into a pivoting support structure. The sample would begin to pivot at the controlled force application of 120 grams.

Results:

Unit	Displacement Average (9 pts)	
Body Essentials FM-360 w/ Brush	0.684	mm
Body Essentials FM-360 w/ Bump Cover	1.074	mm
Body Essentials FM-360 w/ Smooth Cover	0.973	mm
Clarisonic	0.0091	mm
Pretika	0.0106	mm
Neutrogena Wave Duo	0.0134	mm

Test Point Data (mm of displacement)

A	B	C	D	E	F	G	H	J
0.65	0.63	0.1	0.72	0.58	0.81	0.86	0.94	0.87
1.32	1.17	0.63	1.21	0.71	0.93	1.33	1.03	1.34
1.4	1.3	0.43	0.91	0.89	0.36	0.92	1.32	1.23
0.008	0.011	0.01	0.008	0.012	0.013	0.007	0.007	0.006
0.009	0.012	0.01	0.011	0.01	0.015	0.011	0.008	0.009
0.012	0.014	0.013	0.015	0.016	0.013	0.015	0.01	0.013



Conclusions

This study showed the effectiveness of the Body Essentials FM-360 Face Massager. At a skin depth of 11mm, the FM-360 showed much greater massage displacement effect, with any of its included head-covers. The massage displacement was between .684 and 1.074 mm.

Synthetic Skin Sample, showing the 9 test points.



Vibration Meter, VM-6360, measuring mm of displacement.

