

## APPENDIX A - INVESTIGATION OF ATTENUATION

$OS_{\%}$	90%	85%	80%	75%	70%	60%
$F_0$	N.S.	N.S.	N.S.	N.S.	N.S.	t=-3,33 p=0,023
$F_{th}$	t=26,14 p<0,001	t=17,16 p<0,001	t=16,78 p<0,001	t=20,66 p<0,001	t=22,41 p<0,001	t=18,68 p<0,001

  

$OS_{\%}$	50%	40%	30%	20%	10%	0%	Mesh
$F_0$	t=-4,29 p=0,001	N.S.	t=-7,24 p<0,001	t=-5,96 p<0,001	t=-13,83 p<0,001	t=-40,97 p<0,001	t=-4,29 p<0,001
$F_{th}$	t=17,22 p<0,001	t=15,18 p<0,001	t=11,07 p<0,001	t=6,64 p<0,001	t=4,68 p=0,01	t=-14,99 p<0,001	t=20,65 p<0,001

TABLE I

SUMMARY OF TEST STATISTICS FOR THE COMPARISON OF FORCE DATA WHEN FOCUSING A 200HZ AM FOCAL POINT THROUGH ATT PLATES WITH DIFFERENT PERCENTAGES OF OPEN SPACE  $OS_{\%}$  ORIENTED PARALLEL TO THE UMH DEVICE FACE. ALL TESTS WERE TWO-SAMPLED T-TESTS COMPARING  $F_i$  TO EITHER  $F_0$  OR  $F_{th}$  (NORMALITY AND HOMOSCEDASTICITY OF THE DATA WAS VERIFIED BY SHAPIRO-WILK AND BARTLETT TESTS RESPECTIVELY). WE CONSIDERED TWELVE 0.6MM-THICK ATT SAMPLES WITH A TRIANGLE GRID PATTERN AND PERCENTAGES OF OPEN SPACE  $OS_{\%} = [90\%, 85\%, 80\%, 75\%, 70\%, 60\%, 50\%, 40\%, 30\%, 20\%, 10\%, 0\%]$  AS WELL AS A SQUARE OF GENERIC SPEAKER MESH TAUT ACROSS A 3D-PRINTED SQUARE FRAME.

$t$	0.6mm	2mm	4mm	8mm
$F_0$	N.S.	N.S.	t = 3,39 p = 0,0065	t = 3,86 p = 0,002
$F_{th}$	t = -20,63 p < 0,001	t = -23,63 p < 0,001	t = -18,3 p < 0,001	t = -16,14 p < 0,001

TABLE II

SUMMARY OF TEST STATISTICS FOR THE COMPARISON OF FORCE DATA WHEN FOCUSING A 200HZ AM FOCAL POINT THROUGH ATT PLATES OF DIFFERENT THICKNESSES  $t$  ORIENTED PARALLEL TO THE UMH DEVICE FACE. ALL TESTS WERE TWO-SAMPLED T-TESTS COMPARING  $F_i$  TO EITHER  $F_0$  OR  $F_{th}$  (NORMALITY AND HOMOSCEDASTICITY OF THE DATA WAS VERIFIED BY SHAPIRO-WILK AND BARTLETT TESTS RESPECTIVELY). WE CONSIDERED FOUR ATT SAMPLES WITH A TRIANGLE GRID PATTERN AND A PERCENTAGES OF OPEN SPACE  $OS_{\%} = 25\%$ , WITH THICKNESSES OF 0.6 MM, 2 MM, 4 MM AND 8 MM.

$OS_{\%}$	90%	75%	70%	50%	30%	10%	0%
$F_0$	N.S.	N.S.	N.S.	T=-4,47 P<0,001	T=-11,51 P<0,001	T=-15,84 P<0,001	T=-40,08 P<0,001
$F_{th}$	T=14,25 P<0,001	T=9,69 P<0,001	T=8,89 P<0,001	T=8,82 <0,001	N.S.	N.S.	T=-21,59 P<0,001

TABLE III

SUMMARY OF TEST STATISTICS FOR THE COMPARISON OF FORCE DATA WHEN FOCUSING A 200HZ AM FOCAL POINT THROUGH ATT PLATES WITH DIFFERENT PERCENTAGES OF OPEN SPACE  $OS_{\%}$  ORIENTED AT A  $45^{\circ}$  ANGLE TO THE UMH DEVICE FACE. ALL TESTS WERE TWO-SAMPLED T-TESTS COMPARING  $F_i$  TO EITHER  $F_0$  OR  $F_{th}$  (NORMALITY AND HOMOSCEDASTICITY OF THE DATA WAS VERIFIED BY SHAPIRO-WILK AND BARTLETT TESTS RESPECTIVELY). WE CONSIDERED SEVEN 0.6MM-THICK ATT SAMPLES WITH A TRIANGLE GRID PATTERN AND PERCENTAGES OF OPEN SPACE  $OS_{\%} = [90\%, 75\%, 70\%, 50\%, 30\%, 10\%, 0\%]$ .

$t$	0.6mm	2mm	4mm	8mm
$F_0$	NS	NS	T=5,77 P<0,001	T=10,06 P<0,001
$F_{th}$	T=-9,69 P<0,001	T=-9,74 P<0,001	T=-8,15 P<0,001	T=-3,49 P=0,006

TABLE IV

SUMMARY OF TEST STATISTICS FOR THE COMPARISON OF FORCE DATA WHEN FOCUSING A 200HZ AM FOCAL POINT THROUGH ATT PLATES OF DIFFERENT THICKNESSES  $t$  ORIENTED AT A  $45^{\circ}$  ANGLE TO THE UMH DEVICE FACE. ALL TESTS WERE TWO-SAMPLED T-TESTS COMPARING  $F_i$  TO EITHER  $F_0$  OR  $F_{th}$  (NORMALITY AND HOMOSCEDASTICITY OF THE DATA WAS VERIFIED BY SHAPIRO-WILK AND BARTLETT TESTS RESPECTIVELY). WE CONSIDERED FOUR ATT SAMPLES WITH A TRIANGLE GRID PATTERN AND A PERCENTAGES OF OPEN SPACE  $OS_{\%} = 25\%$ , WITH THICKNESSES OF 0.6 MM, 2 MM, 4 MM AND 8 MM.