Supplemental Data

Table A1. The detailed comparison data between the actual measurement and simulation results of '0.5mm grid' in YZ-plane. 'Actual' denotes the results obtained from the hydrophone measurement, 'Sim.' represents the simulation results, and Δ_F, Δ_l, Δ_w, and Δ_{PR} are respective differences of focal location, focal length, width, and pressure peak ratio between the actual measurement and simulation results. The nomenclature was used throughout the remainder of supplementary data.

Rotation/ Skull ID		YZ-plane acoustic pressure profile											
		Focal position			Long axis length			Short axis length			Pressure peak ratio		
		Actual (Y,Z)	Sim. (Y,Z)	Δ_F (mm)	Actual (mm)	Sim. (mm)	Δ_l (mm)	Actual (mm)	Sim. (mm)	Δ_w (mm)	Actual (%)	Sim. (%)	Δ_{PR} (Ratio)
Ref 0º	S1	(2,29)	(0,30)	2.2	19	22	3	5	4	1	44.0	46.9	0.07
	S2	(0,28)	(-1,29)	1.4	19	17	2	5	4	1	55.6	51.6	0.07
	S3	(0,27)	(-1,26)	1.4	15	14	1	4	5	1	67.5	73.2	0.08
	S4	(0,28)	(-1,26)	2.2	17	13	4	3	4	1	68.3	69.7	0.02
	S5	(1,27)	(0,27)	1.0	16	14	2	4	4	0	73.6	71.2	0.03
X +10º	S1	(4,29)	(1,30)	3.2	20	16	4	5	4	1	39.3	45.2	0.15
	S2	(0,29)	(0,26)	3.0	20	14	6	5	4	1	60.9	54.8	0.10
	S3	(0,27)	(1,28)	1.4	16	16	0	4	5	1	67.5	68.5	0.01
	S4	(-1,27)	(0,27)	1.0	15	14	1	4	3	1	73.9	71.8	0.03
	S5	(1,27)	(0,27)	1.0	16	16	0	4	5	1	69.6	70.9	0.02
X +15º	S1	(3,24)	(0,31)	7.6	16	23	7	6	4	2	41.0	42.1	0.03
	S2	(0,29)	(0,26)	3.0	19	12	7	4	3	1	59.6	54.2	0.09
	S3	(1,27)	(2,26)	1.4	18	15	3	5	6	1	63.6	65.1	0.02
	S4	(0,29)	(0,28)	1.0	18	16	2	4	4	0	58.6	70.4	0.20
	S5	(1,26)	(0,28)	2.2	15	16	1	5	4	1	67.3	66.8	0.01
X -10º	S1	(1,31)	(-1,27)	4.5	22	14	8	4	3	1	53.0	55.6	0.05
	S2	(-1,27)	(-1,28)	1.0	17	16	1	5	4	1	40.5	46.7	0.15
	S3	(1,27)	(-2,24)	4.2	15	9	6	4	4	0	72.5	76.5	0.06
	S4	(0,27)	(-1,26)	1.4	17	14	3	4	3	1	63.5	61.2	0.04
	S5	(0,27)	(0,28)	1.0	16	17	1	5	4	1	73.4	70.6	0.04
X -15º	S1	(0,30)	(-1,28)	2.2	14	13	1	4	4	0	52.3	44.9	0.14
	S2	(-4,29)	(-1,28)	3.2	9	17	8	4	5	1	38.4	35.7	0.07
	S3	(-1,28)	(-2,26)	2.2	18	14	4	4	4	0	67.1	65.7	0.02
	S4	(0,29)	(-1,27)	2.2	13	13	0	4	4	0	51.5	49.8	0.03
	S5	(-1,26)	(-1,30)	4.0	16	17	1	5	4	1	68.0	67.7	0.00
Y +10º	S1	(2,27)	(-1.29)	3.6	20	22	2	6	4	2	44.7	47.7	0.07
	S2	(-1,26)	(-1,27)	1.0	14	15	1	4	3	1	39.8	43.0	0.08
	S3	(0,27)	(-1,25)	2.2	16	12	4	4	4	0	66.1	77.9	0.18
	S4	(0,27)	(-1,27)	1.0	17	14	3	4	3	1	60.2	64.6	0.07
	S5	(0,28)	(0,29)	1.0	19	17	2	4	4	0	59.3	63.8	0.08
Y +15º	S1	(2,24)	(-1,32)	8.5	12	17	5	5	4	1	38.3	38.4	0.00
	S2	(-3,26)	(0,27)	3.2	12	14	2	5	4	1	31.1	34.3	0.10
	S3	(0,28)	(-1,28)	1.0	18	17	1	4	4	0	62.4	68.3	0.09
	S4	(0,27)	(-1,29)	2.2	15	15	0	4	3	1	45.6	56.6	0.24
	S5	(1,26)	(0,29)	3.2	12	19	7	5	4	1	50.1	56.7	0.13
Y -10º	S1	(2,27)	(0,33)	6.3	16	18	2	4	4	1	50.6	42.2	0.17
	S2	(0,30)	(-1,25)	5.1	21	12	9	5	3	2	47.1	53.5	0.14
	S3	(0,27)	(-1,27)	1.0	16	15	1	4	5	1	70.8	67.2	0.05
	S4	(0,28)	(-1,27)	1.4	17	15	2	3	4	1	72.2	70.9	0.02
	S5	(0,27)	(0,27)	0.0	17	14	3	4	3	1	74.8	74.0	0.01
Y -15º	S1	(2,28)	(1,31)	3.2	15	9	6	4	4	0	45.9	36.4	0.21
	S2	(0,30)	(-1,26)	4.1	21	15	6	5	4	1	47.1	52.2	0.11
	S3	(0,28)	(-1,28)	1.0	17	17	0	4	4	0	68.0	62.7	0.08
	S4	(0,29)	(-1,28)	1.4	19	15	4	4	3	1	67.8	66.6	0.02
	S5	(0,28)	(0,27)	1.0	19	13	6	4	3	1	72.5	72.1	0.01

Table A2. The detailed comparison data between the actual measurement and simulation results of '0.5mm grid' in XZ-plane.

Rotation/ Skull ID		XZ-plane acoustic pressure profile											
		Focal position			Long axis length			Short axis length			Pressure peak ratio		
		Actual (X,Z)	Sim. (X,Z)	Δ_F (mm)	Actual (mm)	Sim. (mm)	Δ_l (mm)	Actual (mm)	Sim. (mm)	Δ_w (mm)	Actual (%)	Sim. (%)	Δ_{PR} (Ratio)
Ref 0º	S1	(2,23)	(1,31)	8.1	8	23	15	4	4	0	50.1	47.4	0.05
	S2	(1,29)	(-1,28)	2.2	19	18	1	4	3	1	56.9	52.9	0.07
	S3	(0,27)	(0,27)	0.0	15	14	1	4	3	1	69.4	71.5	0.03
	S4	(0,27)	(-1,26)	1.4	17	13	4	4	3	1	69.4	71.9	0.04
	S5	(0,27)	(0,28)	1.0	16	14	2	4	3	1	74.1	71.2	0.04
X +10º	S1	(3,23)	(1,31)	8.2	7	13	6	3	5	2	41.0	46.4	0.13
	S2	(1,29)	(-1,26)	3.6	19	14	5	3	4	1	63.3	55.2	0.13
	S3	(0,27)	(0,29)	2.0	16	15	1	4	3	1	68.5	68.4	0.00
	S4	(0,27)	(-1,27)	1.0	15	14	1	3	3	0	73.6	75.5	0.03
	S5	(1,28)	(0,27)	1.4	18	16	2	4	3	1	68.0	70.9	0.04
X +15º	S1	(2,29)	(0,31)	2.8	20	21	1	4	4	0	43.5	42.1	0.03
	S2	(1,29)	(-1,25)	4.5	18	13	5	4	4	0	61.7	57.2	0.07
	S3	(-1,28)	(0,29)	1.4	18	13	5	4	3	1	61.7	61.6	0.00
	S4	(-1,27)	(-1,27)	0.0	16	16	0	4	3	1	60.5	74.2	0.23
	S5	(1,28)	(0,29)	1.4	20	15	5	4	3	1	64.3	66.7	0.04
X -10º	S1	(2,27)	(0,27)	2.0	18	15	3	5	4	1	58.6	54.3	0.07
	S2	(2,30)	(-1,28)	3.6	22	15	7	3	4	1	42.1	47.1	0.12
	S3	(-1,26)	(0,25)	1.4	14	11	3	4	3	1	73.6	69.9	0.05
	S4	(0,27)	(-1,27)	1.0	17	13	4	4	3	1	63.5	62.6	0.01
	S5	(1,27)	(0,28)	1.4	18	17	1	4	4	0	73.0	70.6	0.03
X -15º	S1	(2,27)	(0,28)	2.2	15	13	2	5	3	2	56.7	44.4	0.22
	S2	(2,36)	(0,29)	7.3	23	16	7	4	3	1	33.4	35.7	0.07
	S3	(-1,28)	(0,30)	2.2	18	13	5	4	3	1	67.5	58.4	0.13
	S4	(0,29)	(-1,27)	2.2	18	11	7	4	3	1	51.1	51.7	0.01
	S5	(1,29)	(0,31)	2.2	20	16	4	4	4	0	64.5	67.7	0.05
Y +10º	S1	(2,30)	(0,30)	2.0	23	22	1	4	4	0	44.5	47.3	0.06
	S2	(2,30)	(1,27)	3.2	18	15	3	4	3	1	40.0	42.9	0.07
	S3	(-1,27)	(0,26)	1.4	16	14	2	4	3	1	71.8	74.8	0.04
	S4	(0,28)	(-1,27)	1.4	17	14	3	4	3	1	60.3	67.9	0.13
	S5	(0,30)	(-1,28)	2.2	21	18	3	4	4	0	59.1	63.8	0.08
Y +15º	S1	(-4,22)	(-1,30)	8.5	6	21	15	6	5	1	41.2	38.2	0.07
	S2	(2,30)	(0,27)	3.6	20	15	5	5	4	1	27.8	34.3	0.23
	S3	(-1,29)	(0,29)	1.0	18	17	1	5	3	2	62.4	68.3	0.09
	S4	(1,28)	(-1,29)	2.2	15	15	0	4	3	1	46.4	58.1	0.25
	S5	(1,27)	(-1,28)	2.2	17	19	2	5	4	1	50.4	56.7	0.13
Y -10º	S1	(2,22)	(1,30)	8.1	6	16	10	3	4	1	56.0	44.8	0.20
	S2	(1,29)	(0,26)	3.2	20	13	7	4	4	0	50.1	52.7	0.05
	S3	(-1,27)	(0,28)	1.4	15	15	0	4	3	1	71.3	65.0	0.09
	S4	(0,28)	(-1,27)	1.4	18	15	3	3	3	0	71.8	72.0	0.00
	S5	(0,27)	(0,27)	0.0	17	14	3	4	4	0	74.6	74.0	0.01
Y -15º	S1	(2,27)	(2,29)	2.0	15	14	1	4	11	7	44.3	39.7	0.10
	S2	(1,29)	(0,26)	3.2	20	15	5	4	3	1	49.2	51.7	0.05
	S3	(0,28)	(0,28)	0.0	17	16	1	4	3	1	68.3	59.8	0.12
	S4	(0,29)	(-1,28)	1.4	19	15	4	4	4	0	67.6	66.1	0.02
	S5	(2,23)	(1,31)	8.1	8	23	15	4	4	0	50.1	47.4	0.05

Table A3. The detailed comparison data between the actual measurement and simulation results of '0.5mm grid' in XY-plane.

Rotation/ Skull ID		XY-plane acoustic pressure profile											
		Focal position			Long axis length			Short axis length			Pressure peak ratio		
		Actual (X,Y)	Sim. (X,Y)	Δ_F (mm)	Actual (mm)	Sim. (mm)	Δ_l (mm)	Actual (mm)	Sim. (mm)	Δ_w (mm)	Actual (%)	Sim. (%)	Δ_{PR} (Ratio)
Ref 0º	S1	(2,2)	(1,1)	1.4	4	4	0	5	4	1	47.6	47.5	0.00
	S2	(1,0)	(-1,-1)	2.2	5	4	1	4	3	1	55.8	52.3	0.06
	S3	(0,0)	(0,-1)	1.0	4	4	0	4	3	1	68.5	69.3	0.01
	S4	(0,0)	(-1,-1)	1.4	3	4	1	4	3	1	69.4	68.7	0.01
	S5	(0,1)	(0,0)	1.0	4	4	0	4	4	0	72.7	69.6	0.04
X +10º	S1	(3,4)	(1,1)	3.6	4	4	0	4	4	0	46.1	46.7	0.01
	S2	(1,0)	(-1,0)	2.0	5	4	1	3	4	1	61.2	55.0	0.10
	S3	(-1,1)	(0,0)	1.4	4	4	0	4	3	1	67.5	68.0	0.01
	S4	(0,0)	(-1,0)	1.0	4	3	1	4	3	1	72.7	72.3	0.01
	S5	(1,1)	(0,0)	1.4	4	3	1	4	4	0	67.6	69.7	0.03
X +15º	S1	(3,1)	(1,0)	2.2	6	4	2	4	4	0	43.0	42.1	0.02
	S2	(1,0)	(-1,0)	2.0	4	4	0	3	3	0	61.4	53.0	0.14
	S3	(-1,1)	(0,1)	1.0	4	5	1	5	3	2	62.3	62.7	0.01
	S4	(-1,0)	(-1,-1)	1.0	4	4	0	4	3	1	60.5	72.2	0.19
	S5	(0,1)	(0,0)	1.0	5	4	1	4	4	0	64.0	65.8	0.03
X -10º	S1	(2,1)	(0,-1)	2.8	4	3	1	4	3	1	57.6	53.5	0.07
	S2	(2,-1)	(-1,0)	3.2	6	4	2	3	4	1	41.4	45.8	0.11
	S3	(-1,1)	(0,-2)	3.2	4	5	1	4	3	1	70.8	68.1	0.04
	S4	(0,0)	(-1,-1)	1.4	5	4	1	4	3	1	61.0	60.7	0.00
	S5	(1,0)	(0,0)	1.0	4	4	0	4	4	0	71.3	69.9	0.02
X -15º	S1	(2,1)	(0,-1)	2.8	4	4	0	4	3	1	56.0	43.7	0.22
	S2	(1,-4)	(0,0)	4.1	4	4	0	4	3	1	38.3	35.2	0.08
	S3	(-1,-1)	(0,-2)	1.4	4	4	0	3	3	0	66.1	62.7	0.05
	S4	(1,1)	(-1,0)	2.2	4	4	0	4	3	1	49.7	49.5	0.00
	S5	(1,0)	(0,-1)	1.4	4	4	0	4	4	0	64.0	67.7	0.06
Y +10º	S1	(2,2)	(0,-1)	3.6	7	4	3	4	5	1	44.0	46.6	0.06
	S2	(2,-1)	(-1,-1)	3.0	4	4	0	4	4	0	40.2	41.3	0.03
	S3	(-1,0)	(0,-1)	1.4	4	5	1	4	3	1	69.6	71.2	0.02
	S4	(1,0)	(-1,-1)	2.2	4	4	0	4	4	0	59.1	65.9	0.12
	S5	(1,1)	(-1,0)	2.2	4	4	0	4	4	0	58.4	62.8	0.08
Y +15º	S1	(0,3)	(-1,-1)	4.1	5	4	1	6	3	3	35.7	38.2	0.07
	S2	(1,-3)	(0,0)	3.2	6	4	2	6	4	2	30.3	33.1	0.09
	S3	(-1,-1)	(0,0)	1.4	4	4	0	4	3	1	62.3	67.7	0.09
	S4	(1,0)	(-1,-1)	2.2	4	3	1	3	3	0	45.9	58.4	0.27
	S5	(1,1)	(0,0)	1.4	4	5	1	4	4	0	49.7	56.6	0.14
Y -10º	S1	(2,2)	(2,1)	1.0	4	4	0	3	4	1	55.5	45.0	0.19
	S2	(2,0)	(-1,-1)	3.2	5	4	1	4	4	0	49.2	49.4	0.00
	S3	(0,0)	(0,-1)	1.0	4	5	1	4	3	1	69.0	64.7	0.06
	S4	(0,0)	(-1,-1)	1.4	4	4	0	4	3	1	70.4	70.0	0.01
	S5	(0,0)	(0,0)	0.0	4	4	0	4	4	0	72.0	72.6	0.01
Y -15º	S1	(2,2)	(1,1)	1.4	3	4	1	4	3	1	48.2	38.8	0.20
	S2	(2,0)	(0,0)	2.0	4	4	0	4	3	1	48.2	50.3	0.04
	S3	(-1,0)	(0,-1)	1.4	4	3	1	4	3	1	66.6	62.7	0.06
	S4	(0,0)	(-1,-1)	1.4	4	4	0	4	4	0	66.9	65.8	0.02
	S5	(1,0)	(1,0)	0.0	4	5	1	4	4	0	71.5	70.1	0.02

Table A4. The detailed comparison of focal position with various resolution grids in the YZ-plane.

Rotation/ Skull ID		YZ-plane acoustic pressure profile											
		Focal position											
		Actual (Y,Z)	0.5mm grid		1.0mm grid		2.0mm grid		0.5&1.0mm grids		0.5&2.0mm grids		1.0&2.0mm grids	
			Sim. (Y,Z)	Δ_F (mm)	Sim. (Y,Z)	Δ_F (mm)	Sim. (Y,Z)	Δ_F (mm)	Sim. (Y,Z)	Δ_F (mm)	Sim. (Y,Z)	Δ_F (mm)	Sim. (Y,Z)	Δ_F (mm)
Ref 0º	S3	(0,27)	(-1,26)	1.4	(-3,24)	4.2	(-3,20)	7.6	(-1,26)	1.4	(-1,25)	2.2	(-3,24)	4.2
	S4	(0,28)	(-1,26)	2.2	(0,26)	2.0	(0,20)	8.0	(-1,26)	2.2	(-1,26)	2.2	(0,26)	2.0
	S5	(1,27)	(0,27)	1.0	(0,27)	2.0	(0,20)	7.1	(1,28)	1.0	(0,28)	1.4	(0,27)	1.0
X +10º	S3	(0,27)	(1,28)	1.4	(2,27)	2.0	(-1,20)	7.1	(0,27)	0.0	(1,27)	1.0	(2,27)	2.0
	S4	(-1,27)	(0,27)	1.0	(1,29)	2.8	(0,20)	7.1	(0,28)	1.4	(0,26)	1.4	(1,29)	2.8
	S5	(1,27)	(0,27)	1.0	(0,,27)	1.0	(-2,20)	7.6	(0,27)	1.0	(0,28)	1.4	(0,27)	1.0
X -10º	S3	(1,27)	(-2,24)	4.2	(-3,24)	5.0	(-6,20)	9.9	(-2,23)	5.0	(-2,24)	4.2	(-3,24)	5.0
	S4	(0,27)	(-1,26)	1.4	(-2,27)	2.0	(-3,20)	7.6	(-1,26)	1.4	(-1,26)	1.4	(-2,27)	2.0
	S5	(0,27)	(0,28)	1.0	(-2,29)	2.8	(-3,20)	7.6	(0,28)	1.0	(0,27)	0.0	(-2,29)	2.8
Y +10º	S3	(0,27)	(-1,25)	2.2	(-2,25)	2.8	(-4,20)	8.1	(-1,25)	2.2	(-1,26)	1.4	(-2,26)	2.2
	S4	(0,27)	(-1,27)	1.0	(-1,28)	1.4	(-1,20)	7.1	(-1,27)	1.0	(-1,26)	1.4	(-1,28)	1.4
	S5	(0,28)	(0,29)	1.0	(-1,30)	2.2	(-3,21)	7.6	(0,29)	1.0	(0,29)	1.0	(-1,30)	2.2
Y -10º	S3	(0,27)	(-1,27)	1.0	(-2,26)	2.2	(-5,20)	8.6	(-1,26)	1.4	(-1,27)	1.0	(-2,26)	2.2
	S4	(0,28)	(-1,27)	1.4	(-1,26)	2.2	(-1,20)	8.1	(-1,26)	2.2	(-1,26)	2.2	(-1,26)	2.2
	S5	(0,27)	(0,27)	0.0	(-1,27)	1.0	(-2,20)	7.3	(0,26)	1.0	(0,27)	0.0	(-1,28)	1.4

Table A5. The detailed comparison of focal position with various resolution grids in the XZ-plane.

Rotation/ Skull ID		XZ-plane acoustic pressure profile											
		Focal position											
		Actual (X,Z)	0.5mm grid		1.0mm grid		2.0mm grid		0.5&1.0mm grids		0.5&2.0mm grids		1.0&2.0mm grids	
			Sim. (X,Z)	Δ_F (mm)	Sim. (X,Z)	Δ_F (mm)	Sim. (X,Z)	Δ_F (mm)	Sim. (X,Z)	Δ_F (mm)	Sim. (X,Z)	Δ_F (mm)	Sim. (X,Z)	Δ_F (mm)
Ref 0º	S3	(0,27)	(0,27)	0.0	(0,27)	0.0	(0,20)	7.0	(0,27)	0.0	(0,27)	0.0	(0,28)	1.0
	S4	(0,27)	(-1,26)	1.4	(-2,26)	2.2	(-3,20)	7.6	(-1,26)	1.4	(-1,27)	1.0	(-2,27)	2.0
	S5	(0,27)	(0,28)	1.0	(1,27)	1.0	(-2,20)	7.3	(0,28)	1.0	(0,28)	1.0	(1,27)	1.0
X +10º	S3	(0,27)	(0,29)	2.0	(0,29)	2.0	(6,20)	9.2	(0,29)	2.0	(0,29)	2.0	(0,29)	2.0
	S4	(0,27)	(-1,27)	1.0	(-2,29)	2.8	(-2,21)	6.3	(-1,28)	1.4	(-1,27)	1.0	(-2,29)	2.8
	S5	(1,28)	(0,27)	1.4	(0,27)	1.4	(-5,20)	10.0	(0,27)	1.4	(0,28)	1.0	(0,27)	1.4
X -10º	S3	(-1,26)	(0,25)	1.4	(0,27)	1.4	(-3,21)	5.4	(0,26)	1.0	(0,26)	1.0	(0,27)	1.4
	S4	(0,27)	(-1,27)	1.0	(-2,28)	2.2	(-9,20)	11.4	(-1,27)	1.0	(-1,27)	1.0	(-2,28)	2.2
	S5	(1,27)	(0,28)	1.4	(0,29)	2.2	(2,21)	6.1	(0,28)	1.4	(0,28)	1.4	(0,29)	2.2
Y +10º	S3	(-1,27)	(0,26)	1.4	(0,27)	1.0	(1,20)	7.3	(0,26)	1.4	(0,26)	1.4	(0,27)	1.0
	S4	(0,28)	(-1,27)	1.4	(-2,29)	2.2	(-3,21)	7.6	(-1,27)	1.4	(-1,27)	1.4	(-2,29)	2.2
	S5	(0,30)	(-1,28)	2.2	(-1,29)	1.4	(0,20)	10.0	(-1,28)	2.2	(-1,29)	1.4	(-1,29)	1.4
Y -10º	S3	(-1,27)	(0,28)	1.4	(0,29)	2.2	(-3,21)	6.3	(0,27)	1.0	(0,28)	1.4	(0,29)	2.2
	S4	(0,28)	(-1,27)	1.4	(-1,26)	2.2	(-2,20)	8.2	(-1,26)	2.2	(-1,26)	2.2	(-1,27)	1.4
	S5	(0,27)	(0,27)	0.0	(1,27)	1.0	(2,20)	7.3	(0,27)	0.0	(0,27)	0.0	(1,26)	1.4

Table A6. The detailed comparison of focal position with various resolution grids in the XY-plane.

Rotation/ Skull ID		XY-plane acoustic pressure profile												
		Focal position												
		Actual (X,Y)	0.5mm grid		1.0mm grid		2.0mm grid		0.5&1.0mm grids		0.5&2.0mm grids		1.0&2.0mm grids	
			Sim. (X,Y)	Δ_F (mm)	Sim. (X,Y)	Δ_F (mm)	Sim. (X,Y)	Δ_F (mm)	Sim. (X,Y)	Δ_F (mm)	Sim. (X,Y)	Δ_F (mm)	Sim. (X,Y)	Δ_F (mm)
Ref 0º	S3	(0,0)	(0,-1)	1.0	(0,-2)	2.0	(1,-5)	5.1	(0,-1)	1.0	(0,-1)	1.0	(0,-2)	2.0
	S4	(0,0)	(-1,-1)	1.4	(-2,0)	2.0	(-7,1)	7.1	(-1,-1)	1.4	(-1,-1)	1.4	(-2,-1)	2.2
	S5	(0,1)	(0,0)	1.0	(1,0)	1.4	(10,-9)	14.1	(1,0)	1.4	(0,1)	0.0	(1,0)	1.4
X +10º	S3	(-1,1)	(0,0)	1.4	(0,2)	1.4	(1,2)	2.2	(0,1)	1.0	(0,1)	1.0	(0,1)	1.0
	S4	(0,0)	(-1,0)	1.0	(-2,1)	2.2	(-7,4)	8.1	(-1,-1)	1.4	(-1,0)	1.0	(-2,1)	2.2
	S5	(1,1)	(0,0)	1.4	(0,0)	1.4	(6,3)	5.4	(0,0)	1.4	(1,0)	1.0	(0,0)	1.4
X -10º	S3	(-1,1)	(0,-2)	3.2	(0,-4)	5.1	(-10,-10)	14.2	(0,-2)	3.2	(0,-2)	3.2	(0,-4)	5.1
	S4	(0,0)	(-1,-1)	1.4	(-2,-1)	2.2	(-4,-6)	7.2	(-1,-1)	1.4	(-1,-1)	1.4	(-2,-2)	2.8
	S5	(1,0)	(0,0)	1.0	(0,-2)	2.2	(8,-9)	11.4	(0,0)	1.0	(1,0)	0.0	(0,-2)	2.2
Y +10º	S3	(-1,0)	(0,-1)	1.4	(0,-2)	2.2	(-9,-9)	12.0	(0,-1)	1.4	(0,-2)	2.2	(0,-2)	2.2
	S4	(1,0)	(-1,-1)	2.2	(-2,-1)	3.2	(-6,3)	7.6	(-1,-1)	2.2	(-2,-1)	3.2	(-2,-1)	3.2
	S5	(1,1)	(-1,0)	2.2	(-1,-1)	2.8	(-5,-6)	9.2	(0,-1)	2.2	(-1,0)	2.2	(-1,-1)	2.8
Y -10º	S3	(0,0)	(0,-1)	1.0	(1,-2)	2.2	(8,-8)	11.3	(0,-1)	1.0	(0,-1)	1.0	(1,-2)	2.2
	S4	(0,0)	(-1,-1)	1.4	(-1,-1)	1.4	(-2,5)	5.4	(-1,-1)	1.4	(-1,-1)	1.4	(-1,-1)	1.4
	S5	(0,0)	(0,0)	0.0	(1,-1)	1.4	(9,-9)	12.7	(0,1)	1.0	(1,0)	1.0	(1,-1)	1.4

Table A7. The detailed comparison of long axis length with various resolution grids in the YZ-plane.

Rotation/ Skull ID		YZ-plane acoustic pressure profile												
		Long axis length (mm)												
		Actual	0.5mm grid		1.0mm grid		2.0mm grid		0.5&1.0mm grids		0.5&2.0mm grids		1.0&2.0mm grids	
			Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F
Ref 0º	S3	15	14	1	9	6	1	14	14	1	13	2	10	5
	S4	17	13	4	14	3	1	16	13	4	13	4	15	2
	S5	16	14	2	16	0	1	15	16	0	16	0	16	0
X +10º	S3	16	16	0	16	0	2	14	14	2	12	4	16	0
	S4	15	14	1	19	4	2	13	15	0	14	1	19	4
	S5	16	16	0	15	1	1	15	16	0	18	2	17	1
X -10º	S3	15	9	6	9	6	1	14	8	7	10	5	10	5
	S4	17	14	3	16	1	2	15	14	3	14	3	16	1
	S5	16	17	1	19	3	2	14	16	0	16	0	19	3
Y +10º	S3	16	12	4	13	3	2	14	12	4	14	2	14	2
	S4	17	14	3	15	2	2	15	15	2	12	5	16	1
	S5	19	17	2	21	2	4	15	20	1	20	1	21	2
Y -10º	S3	16	15	1	14	2	3	13	14	2	16	0	16	0
	S4	17	15	2	14	3	1	16	15	2	13	4	14	3
	S5	17	14	3	16	1	1	16	14	3	15	2	18	1

Table A8. The detailed comparison of long axis length with various resolution grids in the XZ-plane.

Rotation/ Skull ID		XZ-plane acoustic pressure profile												
		Long axis length (mm)												
		Actual	0.5mm grid		1.0mm grid		2.0mm grid		0.5&1.0mm grids		0.5&2.0mm grids		1.0&2.0mm grids	
			Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F
Ref 0º	S3	15	14	1	14	1	2	13	14	1	14	1	15	0
	S4	17	13	4	15	2	1	16	13	4	13	4	16	1
	S5	16	14	2	16	0	1	15	15	1	17	1	17	1
X +10º	S3	16	15	1	15	1	2	14	15	1	11	5	14	2
	S4	15	14	1	17	2	4	11	16	1	15	0	19	4
	S5	18	16	2	15	3	2	16	16	2	17	1	17	1
X -10º	S3	14	11	3	16	2	3	11	15	1	14	0	16	2
	S4	17	13	4	15	2	1	16	13	4	12	5	14	3
	S5	18	17	1	16	2	2	16	16	2	16	2	18	0
Y +10º	S3	16	14	2	15	1	2	14	13	3	14	2	16	0
	S4	17	14	3	19	2	3	14	14	3	10	7	17	0
	S5	21	18	3	19	2	2	19	18	3	20	1	20	1
Y -10º	S3	15	15	0	17	2	3	12	13	2	17	2	16	1
	S4	18	15	3	14	4	2	16	14	4	13	5	14	4
	S5	17	14	3	15	2	2	15	14	3	13	4	14	3

Table A9. The detailed comparison of long axis length with various resolution grids in the XY-plane.

Rotation/ Skull ID		XY-plane acoustic pressure profile												
		Long axis length (mm)												
		Actual	0.5mm grid		1.0mm grid		2.0mm grid		0.5&1.0mm grids		0.5&2.0mm grids		1.0&2.0mm grids	
			Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F
Ref 0º	S3	4	4	0	5	1	8	4	4	0	4	0	5	1
	S4	3	4	1	4	1	21	18	4	1	4	1	4	1
	S5	4	4	0	5	1	3	1	4	0	4	0	5	1
X +10º	S3	4	4	0	6	2	9	5	4	0	4	0	6	2
	S4	4	3	1	4	0	3	1	4	0	4	0	5	1
	S5	4	3	1	5	1	8	4	5	1	5	1	5	1
X -10º	S3	4	5	1	4	0	1	3	5	1	4	0	4	0
	S4	5	4	1	4	1	8	3	4	1	3	2	4	1
	S5	4	4	0	4	0	4	0	4	0	5	1	4	0
Y +10º	S3	4	5	1	5	1	4	0	4	0	4	0	5	1
	S4	4	4	0	4	0	5	1	4	0	4	0	4	0
	S5	4	4	0	5	1	7	3	4	0	5	1	5	1
Y -10º	S3	4	5	1	6	2	5	1	4	0	4	0	5	1
	S4	4	4	0	5	1	11	7	4	0	4	0	5	1
	S5	4	4	0	4	0	3	1	4	0	4	0	5	1

Table A10. The detailed comparison of short axis length with various resolution grids in the YZ-plane.

Rotation/ Skull ID		YZ-plane acoustic pressure profile												
		Short axis length (mm)												
		Actual	0.5mm grid		1.0mm grid		2.0mm grid		0.5&1.0mm grids		0.5&2.0mm grids		1.0&2.0mm grids	
			Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F
Ref 0º	S3	4	5	1	4	0	4	0	5	1	5	1	4	0
	S4	3	4	1	4	1	3	0	4	1	4	1	4	1
	S5	4	4	0	5	1	3	1	4	0	4	0	4	0
X +10º	S3	4	5	1	6	2	5	1	4	0	5	1	6	2
	S4	4	3	1	4	0	3	1	3	1	3	1	4	0
	S5	4	5	1	5	1	3	1	3	1	3	1	5	1
X -10º	S3	4	4	0	3	1	5	1	3	1	4	0	4	0
	S4	4	3	1	4	0	4	0	3	1	3	1	4	0
	S5	5	4	1	4	1	5	0	3	2	3	2	4	1
Y +10º	S3	4	4	0	5	1	10	6	4	0	4	0	5	1
	S4	4	3	1	3	1	3	1	4	0	3	1	4	0
	S5	4	4	0	5	1	5	1	4	0	4	0	5	1
Y -10º	S3	4	5	1	4	0	15	11	4	0	4	0	4	0
	S4	3	4	1	4	1	3	0	4	1	3	0	4	1
	S5	4	3	1	5	1	5	1	4	0	3	1	5	1

Table A11. The detailed comparison of short axis length with various resolution grids in the XZ-plane.

Rotation/ Skull ID		XZ-plane acoustic pressure profile												
		Short axis length (mm)												
		Actual	0.5mm grid		1.0mm grid		2.0mm grid		0.5&1.0mm grids		0.5&2.0mm grids		1.0&2.0mm grids	
			Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F
Ref 0º	S3	4	3	1	3	1	7	3	3	1	3	1	3	1
	S4	4	3	1	4	0	4	0	3	1	3	1	4	0
	S5	4	3	1	4	0	3	1	3	1	3	1	4	0
X +10º	S3	4	3	1	4	0	3	1	3	1	3	1	3	1
	S4	3	3	0	4	1	4	1	3	0	3	0	4	1
	S5	4	3	1	4	0	6	2	3	1	3	1	4	0
X -10º	S3	4	3	1	3	1	4	0	3	1	3	1	3	1
	S4	4	3	1	4	0	3	1	3	1	3	1	4	0
	S5	4	4	0	4	0	1	3	4	0	4	0	4	0
Y +10º	S3	4	3	1	3	1	3	1	3	1	3	1	3	1
	S4	4	3	1	4	0	4	0	3	1	3	1	4	0
	S5	4	4	0	4	0	5	1	4	0	5	1	4	0
Y -10º	S3	4	3	1	4	0	8	4	3	1	3	1	4	0
	S4	3	3	0	3	0	5	2	3	0	3	0	4	1
	S5	4	4	0	4	0	4	0	4	0	4	0	4	0

Table A12. The detailed comparison of short axis length with various resolution grids in the XY-plane.

Rotation/ Skull ID		XY-plane acoustic pressure profile												
		Short axis length (mm)												
		Actual	0.5mm grid		1.0mm grid		2.0mm grid		0.5&1.0mm grids		0.5&2.0mm grids		1.0&2.0mm grids	
			Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F	Sim.	Δ_F
Ref 0º	S3	4	3	1	4	0	13	9	3	1	3	1	4	0
	S4	4	3	1	4	0	9	5	3	1	3	1	4	0
	S5	4	4	0	5	1	1	3	4	0	4	0	5	1
X +10º	S3	4	3	1	4	0	21	17	3	1	3	1	4	0
	S4	4	3	1	3	1	4	0	3	1	3	1	4	0
	S5	4	4	0	4	0	9	5	4	0	4	0	4	0
X -10º	S3	4	3	1	4	0	2	2	3	1	3	1	4	0
	S4	4	3	1	4	0	9	5	3	1	4	0	4	0
	S5	4	4	0	4	0	4	0	4	0	4	0	4	0
Y +10º	S3	4	3	1	3	1	3	1	3	1	3	1	3	1
	S4	4	4	0	4	0	4	0	3	1	4	0	4	0
	S5	4	4	0	4	0	6	2	4	0	4	0	4	0
Y -10º	S3	4	3	1	4	0	5	1	3	1	4	0	4	0
	S4	4	3	1	5	1	20	16	3	1	3	1	5	1
	S5	4	4	0	5	1	3	1	4	0	4	0	5	1

Table A13. The detailed comparison of pressure peak ratio with various resolution grids in the YZ-plane.

Rotation/ Skull ID		YZ-plane acoustic pressure profile												
		Pressure peak ratio												
		Actual (%)	0.5mm grid		1.0mm grid		2.0mm grid		0.5&1.0mm grids		0.5&2.0mm grids		1.0&2.0mm grids	
			Sim. (%)	Δ_F (Ratio)	Sim. (%)	Δ_F (Ratio)	Sim. (%)	Δ_F (Ratio)	Sim. (%)	Δ_F (Ratio)	Sim. (%)	Δ_F (Ratio)	Sim. (%)	Δ_F (Ratio)
Ref 0º	S3	67.5	73.2	0.08	77.8	0.15	55.8	0.17	73.2	0.08	72.2	0.07	77.7	0.15
	S4	68.3	69.7	0.02	67.8	0.01	49.3	0.28	69.0	0.01	66.7	0.02	65.6	0.04
	S5	73.6	71.2	0.03	70.8	0.04	55.3	0.25	70.6	0.04	68.4	0.07	68.1	0.07
X +10º	S3	67.5	68.5	0.01	68.9	0.02	46.3	0.31	69.5	0.03	69.8	0.03	68.2	0.01
	S4	73.9	71.8	0.03	64.0	0.13	66.1	0.11	71.2	0.04	70.3	0.05	63.2	0.14
	S5	69.6	70.9	0.02	71.0	0.02	48.6	0.30	72.0	0.03	68.1	0.02	68.7	0.01
X -10º	S3	72.5	76.5	0.06	82.7	0.14	60.3	0.17	80.6	0.11	75.4	0.04	77.2	0.06
	S4	63.5	61.2	0.04	56.0	0.12	40.1	0.37	60.7	0.04	58.8	0.07	55.0	0.13
	S5	73.4	70.6	0.04	68.6	0.07	59.8	0.19	70.7	0.04	69.4	0.05	67.3	0.08
Y +10º	S3	66.1	77.9	0.18	75.8	0.15	56.5	0.15	78.1	0.18	73.3	0.11	73.1	0.11
	S4	60.2	64.6	0.07	57.1	0.05	53.3	0.11	63.7	0.06	63.8	0.06	55.3	0.08
	S5	59.3	63.8	0.08	61.1	0.03	51.2	0.14	62.3	0.05	61.5	0.04	59.9	0.01
Y -10º	S3	70.8	67.2	0.05	68.2	0.04	41.4	0.42	67.6	0.05	64.7	0.09	67.2	0.05
	S4	72.2	70.9	0.02	73.0	0.01	48.2	0.33	70.7	0.02	70.4	0.02	71.0	0.02
	S5	74.8	74.0	0.01	71.8	0.04	46.9	0.37	72.8	0.03	71.2	0.05	68.9	0.08

Table A14. The detailed comparison of pressure peak ratio with various resolution grids in the XZ-plane.

Rotation/ Skull ID		XZ-plane acoustic pressure profile												
		Pressure peak ratio												
		Actual (%)	0.5mm grid		1.0mm grid		2.0mm grid		0.5&1.0mm grids		0.5&2.0mm grids		1.0&2.0mm grids	
			Sim. (%)	Δ_F (Ratio)	Sim. (%)	Δ_F (Ratio)	Sim. (%)	Δ_F (Ratio)	Sim. (%)	Δ_F (Ratio)	Sim. (%)	Δ_F (Ratio)	Sim. (%)	Δ_F (Ratio)
Ref 0º	S3	69.4	71.5	0.03	64.3	0.07	42.0	0.39	71.8	0.03	69.4	0.00	63.3	0.09
	S4	69.4	71.9	0.04	72.4	0.04	59.5	0.14	71.0	0.02	68.4	0.01	70.1	0.01
	S5	74.1	71.2	0.04	72.1	0.03	66.7	0.10	70.6	0.05	67.6	0.09	70.2	0.05
X +10º	S3	68.5	68.4	0.00	66.0	0.04	51.3	0.25	68.5	0.00	69.8	0.02	66.2	0.03
	S4	73.6	75.5	0.03	70.4	0.04	70.3	0.04	74.2	0.01	71.6	0.03	68.2	0.07
	S5	68.0	70.9	0.04	71.0	0.04	56.9	0.16	72.0	0.06	69.0	0.01	68.8	0.01
X -10º	S3	73.6	69.9	0.05	59.0	0.20	57.8	0.21	67.8	0.08	65.9	0.10	57.5	0.22
	S4	63.5	62.6	0.01	55.7	0.12	51.9	0.18	61.9	0.03	60.5	0.05	54.9	0.14
	S5	73.0	70.6	0.03	65.7	0.10	76.1	0.04	70.7	0.03	69.4	0.05	64.0	0.12
Y +10º	S3	71.8	74.8	0.04	69.0	0.04	50.6	0.30	74.2	0.03	70.6	0.02	67.1	0.07
	S4	60.3	67.9	0.13	64.1	0.06	61.9	0.03	67.4	0.12	68.7	0.14	63.5	0.05
	S5	59.1	63.8	0.08	61.7	0.04	45.7	0.23	63.1	0.07	60.8	0.03	60.7	0.03
Y -10º	S3	71.3	65.0	0.09	60.2	0.16	41.0	0.42	66.0	0.07	62.5	0.12	59.5	0.17
	S4	71.8	72.0	0.00	72.5	0.01	52.5	0.27	71.8	0.00	70.4	0.02	70.5	0.02
	S5	74.6	74.0	0.01	71.5	0.04	50.4	0.32	72.9	0.02	72.6	0.03	71.1	0.05

Table A15. The detailed comparison of pressure peak ratio with various resolution grids in the XY-plane.

Rotation/ Skull ID		XY-plane acoustic pressure profile												
		Pressure peak ratio												
		Actual (%)	0.5mm grid		1.0mm grid		2.0mm grid		0.5&1.0mm grids		0.5&2.0mm grids		1.0&2.0mm grid	
			Sim. (%)	Δ_F (Ratio)	Sim. (%)	Δ_F (Ratio)	Sim. (%)	Δ_F (Ratio)	Sim. (%)	Δ_F (Ratio)	Sim. (%)	Δ_F (Ratio)	Sim. (%)	Δ_F (Ratio)
Ref 0º	S3	68.5	69.3	0.01	68.3	0.00	22.0	0.68	69.6	0.02	68.3	0.00	68.6	0.00
	S4	69.4	68.7	0.01	70.6	0.02	23.6	0.66	67.9	0.02	66.5	0.04	68.3	0.02
	S5	72.7	69.6	0.04	71.0	0.02	42.2	0.42	69.5	0.04	67.6	0.07	69.0	0.05
X +10º	S3	67.5	68.0	0.01	68.2	0.01	23.1	0.66	68.8	0.02	68.6	0.02	67.4	0.00
	S4	72.7	72.3	0.01	71.0	0.02	59.0	0.19	72.1	0.01	70.2	0.03	68.1	0.06
	S5	67.6	69.7	0.03	69.4	0.03	26.5	0.61	67.9	0.00	65.7	0.03	67.9	0.00
X -10º	S3	70.8	68.1	0.04	70.5	0.00	39.1	0.45	66.8	0.06	67.3	0.05	69.5	0.02
	S4	61.0	60.7	0.00	58.1	0.05	23.6	0.61	60.3	0.01	59.8	0.02	57.7	0.05
	S5	71.3	69.9	0.02	68.6	0.04	64.0	0.10	70.0	0.02	67.2	0.06	68.0	0.05
Y +10º	S3	69.6	71.2	0.02	70.9	0.02	36.2	0.48	72.1	0.04	71.3	0.02	69.8	0.00
	S4	59.1	65.9	0.12	65.5	0.11	37.3	0.37	65.5	0.11	65.7	0.11	64.0	0.08
	S5	58.4	62.8	0.08	62.1	0.06	35.8	0.39	62.2	0.07	60.7	0.04	61.5	0.05
Y -10º	S3	69.0	64.7	0.06	64.1	0.07	32.2	0.53	66.3	0.04	62.9	0.09	63.5	0.08
	S4	70.4	70.0	0.01	71.7	0.02	22.1	0.69	68.7	0.02	66.6	0.05	69.0	0.02
	S5	72.0	72.6	0.01	71.7	0.00	49.2	0.32	72.3	0.00	69.3	0.04	70.3	0.02