

Supplementary Table 1		
GROUPS	TRAINED FREQUENCIES (kHz)	NUMBER OR ANIMALS
1	4.8 – 6.7	4
2	8.0 – 13.0	4

Experimental groups established as a function of tone frequencies used for the training and the number of animals assigned to each group.

Supplementary Table 2						
Wave amplitude						
Group	F(1,5) = 0.869, p = 0.394					
Time (Before/After)	F(1,5) = 2.503, p = 0.174					
Ear (Right/Left)	F(1,5) = 8.198, p = 0.035					
Group x Time	F(1,5) = 0.479, p = 0.520					
Group x Ear	F(1,5) = 0.193, p = 0.679					
Time x Ear	F(1,5) = 0.341, p = 0.584					
Group x Ear x Time	F(1,5) = 0.424 , p = 0.543					
Response latency						
Group	F(1,5) = 0.030, p = 0.870					
Time (Before/After)	F(1,5) = 60.044, p = 0.001					
Ear (Right/Left)	F(1,5) = 0.123, p = 0.740					
Group x Time	F(1,5) = 5.685, p = 0.063					
Group x Ear	F(1,5) = 0.058, p = 0.820					
Time x Ear	F(1,5) = 1.386, p = 0.292					
Group x Ear x Time	F(1,5) = 0.286 , p = 0.616					
Amplitude comparisons (Holm-Sidak method)						
Ear	<i>p</i>	<i>p</i> (I)	<i>p</i> (II)	<i>p</i> (III)	<i>p</i> (IV)	<i>p</i> (V)
Left ear x Right ear	0.035	0.027	0.330	0.035	0.035	0.688
Latency comparisons (Holm-Sidak method)						
Time	<i>p</i>	<i>p</i> (I)	<i>p</i> (II)	<i>p</i> (III)	<i>p</i> (IV)	<i>p</i> (V)
Before x After	0.001	0.023	0.000	0.004	0.004	0.012

Statistical details of the ABR comparisons (cf., Fig. 1d). 3-ways ANOVA test for repeated measures. Data show significant differences across categories ($p > 0.05$).

Supplementary Table 3						
%HIT & %MISS						
Session	F(4,20) = 0.329, p = 0.855					
ISI (1.5, 2, 4 seconds)	F(2,10) = 1.845, p = 0.208					
Group	F(1,5) = 0.870, p = 0.394					
Session x Group	F(4,20) = 1.252, p = 0.321					
ISI x Group	F(2,10) = 0.955, p = 0.417					
Session x ISI	F(8,40) = 1.940, p = 0.080					
%CR & %FA						
Session	F(4,20) = 6.601, p = 0.001					
ISI (1.5, 2, 4 seconds)	F(2,10) = 8.733, p = 0.006					
Group	F(1,5) = 0.007, p = 0.939					
Session x Group	F(4,20) = 0.505, p = 0.733					
ISI x Group	F(2,10) = 1.253, p = 0.327					
Session x ISI	F(8,40) = 2.131, p = 0.055					
d'						
Session	F(4,20) = 2.275, p = 0.097					
ISI (1.5, 2, 4 seconds)	F(2,10) = 12.057, p = 0.002					
Group	F(1,5) = 0.594, p = 0.476					
Session x Group	F(4,20) = 1.276, p = 0.313					
ISI x Group	F(2,10) = 1.456, p = 0.279					
Session x ISI	F(8,40) = 3.316, p = 0.005					
HIT Latency						
Session	F(4,20) = 0.909, p = 0.478					
ISI (1.5, 2, 4 seconds)	F(2,10) = 7.937, p = 0.009					
Group	F(1,5) = 4.266, p = 0.094					
Session x Group	F(4,20) = 3.217, p = 0.034					
ISI x Group	F(2,10) = 0.808, p = 0.473					
Session x ISI	F(8,40) = 2.497, p = 0.027					
FA Latency						
Session	F(4,20) = 1.749, p = 0.179					
ISI (1.5, 2, 4 seconds)	F(2,10) = 80.281, p = 0.000					
Group	F(1,5) = 0.466, p = 0.525					
Session x Group	F(4,20) = 0.655, p = 0.630					
ISI x Group	F(2,10) = 7.094, p = 0.012					
Session x ISI	F(8,40) = 4.931, p = 0.000					
d' comparisons (Holm-Sidak method)						
Group	<i>p</i>	<i>p</i> (ISI 1.5 s)	<i>p</i> (ISI 2 s)	<i>p</i> (ISI 4 s)		
4.8-6.7 kHz x 8.0-11.3 kHz	0.476	0.284	0.370	0.974		
ISI	<i>p</i>	<i>p</i> (S1)	<i>p</i> (S2)	<i>p</i> (S3)	<i>p</i> (S4)	<i>p</i> (S5)
1.5 s x 2 s	0.046	0.051	0.007	0.893	0.026	1.000
1.5 s x 4 s	0.028	0.070	0.788	0.002	0.256	0.032
2 s x 4 s	0.181	1.000	0.987	0.021	0.977	0.035

HITlat comparisons (Holm-Sidak method)						
Group	<i>p</i>	<i>p</i> (ISI 1.5 s)	<i>p</i> (ISI 2 s)	<i>p</i> (ISI 4 s)		
4.8-6.7 kHz x 8.0-11.3 kHz	0.094	0.259	0.082	0.869		
ISI	<i>p</i>	<i>p</i> (S1)	<i>p</i> (S2)	<i>p</i> (S3)	<i>p</i> (S4)	<i>p</i> (S5)
1.5 s x 2 s	0.983	0.063	0.988	0.997	0.617	0.913
1.5 s x 4 s	0.072	0.011	0.643	0.722	0.990	0.027
2 s x 4 s	0.000	0.157	0.381	0.117	0.465	0.081
FAlat comparisons (Holm-Sidak method)						
Group	<i>p</i>	<i>p</i> (ISI 1.5 s)	<i>p</i> (ISI 2 s)	<i>p</i> (ISI 4 s)		
4.8-6.7 kHz x 8.0-11.3 kHz	0.525	0.072	0.296	0.817		
ISI	<i>p</i>	<i>p</i> (S1)	<i>p</i> (S2)	<i>p</i> (S3)	<i>p</i> (S4)	<i>p</i> (S5)
1.5 s x 2 s	0.236	0.299	0.103	0.034	0.997	0.852
1.5 s x 4 s	0.000	0.002	0.005	0.079	1.000	0.001
2 s x 4 s	0.001	0.071	0.033	0.552	0.991	0.006

Statistical details of the oddball paradigm responses with the different ISIs tested (cf.,

Fig. 3). 3-ways ANOVA-test for repeated measures (one test per category). Statistically significant comparisons ($p < 0.05$) highlighted in bold.

Supplementary Table 4						
Latency ISI 1.5 s						
Session	F(4,20) = 4.036, p = 0.015					
Response (HIT, FA)	F(1,5) = 5.150, p = 0.072					
Group	F(1,5) = 4.815, p = 0.080					
Session x Group	F(4,20) = 0.839, p = 0.101					
Response x Group	F(1,5) = 0.048, p = 0.836					
Session x Response	F(4,20) = 1.315, p = 0.298					
Latency ISI 2 s						
Session	F(4,20) = 2.350, p = 0.089					
Response (HIT, FA)	F(1,5) = 12.330, p = 0.017					
Group	F(1,5) = 2.419, p = 0.181					
Session x Group	F(4,20) = 1.603, p = 0.212					
Response x Group	F(1,5) = 5.461, p = 0.067					
Session x Response	F(4,20) = 0.860, p = 0.505					
Latency ISI 4 s						
Session	F(4,20) = 2.825, p = 0.052					
Response (HIT, FA)	F(1,5) = 53.545, p = 0.001					
Group	F(1,5) = 0.000, p = 0.993					
Session x Group	F(4,20) = 2.059, p = 0.125					
Response x Group	F(1,5) = 0.552, p = 0.491					
Session x Response	F(4,20) = 3.387, p = 0.029					
Latency ISI 1.5 s comparisons (Holm-Sidak method)						
Group	<i>p</i>	<i>p</i> (HIT)	<i>p</i> (FA)			
4.8-6.7 kHz x 8.0-11.3 kHz	0.080	0.259	0.072			
Response	<i>p</i>	<i>p</i> (S1)	<i>p</i> (S2)	<i>p</i> (S3)	<i>p</i> (S4)	<i>p</i> (S5)
HIT X FA	0.072	0.541	0.025	0.080	0.146	0.016
Latency ISI 2 s comparisons (Holm-Sidak method)						
Group	<i>p</i>	<i>p</i> (HIT)	<i>p</i> (FA)			
4.8-6.7 kHz x 8.0-11.3 kHz	0.181	0.082	0.296			
Response	<i>p</i>	<i>p</i> (S1)	<i>p</i> (S2)	<i>p</i> (S3)	<i>p</i> (S4)	<i>p</i> (S5)
HIT X FA	0.017	0.006	0.343	0.622	0.418	0.143
Latency ISI 4 s comparisons (Holm-Sidak method)						
Group	<i>p</i>	<i>p</i> (HIT)	<i>p</i> (FA)			
4.8-6.7 kHz x 8.0-11.3 kHz	0.993	0.869	0.817			
Response	<i>p</i>	<i>p</i> (S1)	<i>p</i> (S2)	<i>p</i> (S3)	<i>p</i> (S4)	<i>p</i> (S5)
HIT X FA	0.001	0.008	0.089	0.217	0.005	0.108

Statistical details of the latency comparison for the oddball paradigm with the different ISIs tested (cf., Fig. 3). 3-ways ANOVA-test for repeated measures (one test per category).

Statistically significant comparisons ($p < 0.05$) highlighted in bold.

Supplementary Table 5	
%HIT & %MISS	
Session	F(4,20) = 3.781, p = 0.019
Contrast (0.50, 0.75, 1.00, 1.25 octaves)	F(3,15) = 0.804, p = 0.511
Group	F(1,5) = 0.517, p = 0.504
Session x Group	F(4,20) = 2.823, p= 0.052
Contrast x Group	F(3,15) = 0.419, p = 0.742
Session x Contrast	F(12,60) = 4.031, p = 0.000
%CR & %FA	
Session	F(4,20) = 9.719, p = 0.000
Contrast (0.50, 0.75, 1.00, 1.25 octaves)	F(3,15) = 14.535, p = 0.000
Group	F(1,5) = 0.020, p = 0.894
Session x Group	F(4,20) = 0.994, p= 0.433
Contrast x Group	F(3,15) = 1.094, p = 0.382
Session x Contrast	F(12,60) = 1.006, p = 0.455
d'	
Session	F(4,20) = 0.619, p = 0.654
Contrast (0.50, 0.75, 1.00, 1.25 octaves)	F(3,15) = 7.479, p = 0.003
Group	F(1,5) = 0.311, p = 0.601
Session x Group	F(4,20) = 1.737, p= 0.181
Contrast x Group	F(3,15) = 1.719, p = 0.206
Session x Contrast	F(12,60) = 3.196, p = 0.001
HIT Latency	
Session	F(4,20) = 2.591, p = 0.068
Contrast (0.50, 0.75, 1.00, 1.25 octaves)	F(3,15) = 5.232, p = 0.011
Group	F(1,5) = 0.812, p = 0.409
Session x Group	F(4,20) = 0.969, p= 0.446
Contrast x Group	F(3,15) = 0.615 p = 0.616
Session x Contrast	F(12,60) = 1.654, p = 0.101
FA Latency	
Session	F(4,20) = 0.251, p = 0.905
Contrast (0.50, 0.75, 1.00, 1.25 octaves)	F(3,15) = 2.442, p = 0.104
Group	F(1,5) = 6.386, p = 0.053
Session x Group	F(4,20) = 0.320, p= 0.861
Contrast x Group	F(3,15) = 0.195, p = 0.898
Session x Contrast	F(12,60) = 1.364, p = 0.209
d' comparisons (Holm-Sidak method)	

Group	<i>p</i>	<i>p</i> (C 0.50 oct)	<i>p</i> (C 0.75 oct)	<i>p</i> (C 1.00 oct)	<i>p</i> (C 1.25 oct)
4.8-6.7 kHz x 8.0-11.3 kHz	0.601	0.284	0.467	0.868	0.718
Contrast	<i>p</i>				
0.50 x 0.75 oct	0.040				
0.50 x 1.00 oct	0.136				
0.50 x 1.25 oct	0.045				
0.75 x 1.00 oct	0.512				
0.75 x 1.25 oct	0.480				
1.00 x 1.25 oct	0.999				
%HIT comparisons (Holm-Sidak method)					
Group	<i>p</i>	<i>p</i> (C 0.50 oct)	<i>p</i> (C 0.75 oct)	<i>p</i> (C 1.00 oct)	<i>p</i> (C 1.25 oct)
4.8-6.7 kHz x 8.0-11.3 kHz	0.504	0.450	0.534	0.522	0.903
Contrast	<i>p</i>				
0.50 x 0.75 oct	0.934				
0.50 x 1.00 oct	0.968				
0.50 x 1.25 oct	0.979				
0.75 x 1.00 oct	0.736				
0.75 x 1.25 oct	0.888				
1.00 x 1.25 oct	1.000				
%CR comparisons (Holm-Sidak method)					
Group	<i>p</i>	<i>p</i> (C 0.50 oct)	<i>p</i> (C 0.75 oct)	<i>p</i> (C 1.00 oct)	<i>p</i> (C 1.25 oct)
4.8-6.7 kHz x 8.0-11.3 kHz	0.894	0.479	0.704	0.100	0.760
Contrast	<i>p</i>				
0.50 x 0.75 oct	0.671				
0.50 x 1.00 oct	0.020				
0.50 x 1.25 oct	0.028				
0.75 x 1.00 oct	0.076				
0.75 x 1.25 oct	0.082				
1.00 x 1.25 oct	1.000				

Statistical details of the frequency contrast impact on oddball responses with a STD/DED probability of 90/10% (cf., Fig. 4). 3-ways ANOVA test for repeated measures (one test per category). Statistically significant comparisons ($p < 0.05$) highlighted in bold.

Supplementary Table 6					
%HIT & %MISS					
Session					F(4,24) = 2.304, p = 0.088
Contrast (0.50, 0.75, 1.00, 1.25 octaves)					F(3,18) = 6.690, p = 0.003
Group					F(1,6) = 15.322, p = 0.008
Session x Group					F(4,24) = 0.712, p = 0.592
Contrast x Group					F(3,18) = 1.611, p = 0.222
Session x Contrast					F(12,72) = 2.764, p = 0.004
%CR & %FA					
Session					F(4,24) = 2.255, p = 0.093
Contrast (0.50, 0.75, 1.00, 1.25 octaves)					F(3,18) = 2.891, p = 0.064
Group					F(1,6) = 1.153, p = 0.324
Session x Group					F(4,24) = 1.379, p = 0.271
Contrast x Group					F(3,18) = 1.108, p = 0.372
Session x Contrast					F(12,72) = 1.100, p = 0.374
d'					
Session					F(4,24) = 3.468, p = 0.023
Contrast (0.50, 0.75, 1.00, 1.25 octaves)					F(3,18) = 8.783, p = 0.001
Group					F(1,6) = 0.121, p = 0.740
Session x Group					F(4,24) = 1.168, p = 0.350
Contrast x Group					F(3,18) = 1.381, p = 0.281
Session x Contrast					F(12,72) = 1.535, p = 0.132
HIT Latency					
Session					F(4,24) = 2.401, p = 0.078
Contrast (0.50, 0.75, 1.00, 1.25 octaves)					F(3,18) = 0.457, p = 0.715
Group					F(1,6) = 0.117, p = 0.744
Session x Group					F(4,24) = 0.892, p = 0.484
Contrast x Group					F(3,18) = 0.903, p = 0.459
Session x Contrast					F(12,72) = 1.083, p = 0.387
FA Latency					
Session					F(4,24) = 1.473, p = 0.242
Contrast (0.50, 0.75, 1.00, 1.25 octaves)					F(3,18) = 4.572, p = 0.015
Group					F(1,6) = 0.036, p = 0.857
Session x Group					F(4,24) = 3.744, p = 0.017
Contrast x Group					F(3,18) = 1.073, p = 0.385
Session x Contrast					F(12,72) = 0.396, p = 0.961
d' comparisons (Holm-Sidak method)					
Group	<i>p</i>	<i>p</i> (C 0.50 oct)	<i>p</i> (C 0.75 oct)	<i>p</i> (C 1.00 oct)	<i>p</i> (C 1.25 oct)

4.8-6.7 kHz x 8.0-11.3 kHz	0.740	0.993	0.422	0.406	0.769
Contrast	<i>p</i>				
0.50 x 0.75 oct	0.023				
0.50 x 1.00 oct	0.006				
0.50 x 1.25 oct	0.083				
0.75 x 1.00 oct	0.717				
0.75 x 1.00 oct	0.966				
1.00 x 1.25 oct	0.972				
%HIT comparisons (Holm-Sidak method)					
Group	<i>p</i>	<i>p</i> (C 0.50 oct)	<i>p</i> (C 0.75 oct)	<i>p</i> (C 1.00 oct)	<i>p</i> (C 1.25 oct)
4.8-6.7 kHz x 8.0-11.3 kHz	0.008	0.370	0.010	0.104	0.137
Contrast	<i>p</i>				
0.50 x 0.75 oct	1.000				
0.50 x 1.00 oct	0.250				
0.50 x 1.25 oct	0.007				
0.75 x 1.00 oct	0.393				
0.75 x 1.25 oct	0.027				
1.00 x 1.25 oct	0.997				
%CR comparisons (Holm-Sidak method)					
Group	<i>p</i>	<i>p</i> (C 0.50 oct)	<i>p</i> (C 0.75 oct)	<i>p</i> (C 1.00 oct)	<i>p</i> (C 1.25 oct)
4.8-6.7 kHz x 8.0-11.3 kHz	0.324	0.711	0.148	0.616	0.196
Contrast	<i>p</i>				
0.50 x 0.75 oct	0.005				
0.50 x 1.00 oct	0.971				
0.50 x 1.25 oct	1.000				
0.75 x 1.00 oct	0.832				
0.75 x 1.25 oct	0.148				
1.00 x 1.25 oct	0.822				

Statistical details of the frequency contrast impact on oddball responses with a STD/DEV probability of 70/30% (cf., Fig. 4). 3-ways ANOVA test for repeated measures (one test per category). Statistically significant comparisons ($p < 0.05$) highlighted in bold.

Supplementary Table 7	
d' Contrast 0.50 octaves	
Session	F(4,20) = 3.731, p = 0.020
STD/DEV Probability (90/10, 70/30 %)	F(1,5) = 34.272, p = 0.002
Group	F(1,5) = 1.478, p = 0.278
Session x Group	F(4,20) = 2.071, p = 0.123
STD/DEV Probability x Group	F(1,5) = 1.219, p = 0.320
Session x STD/DEV Probability	F(4,20) = 1.102, p = 0.383
d' Contrast 0.75 octaves	
Session	F(4,20) = 0.492, p = 0.742
STD/DEV Probability (90/10, 70/30 %)	F(1,5) = 17.124, p = 0.009
Group	F(1,5) = 1,616, p = 0.260
Session x Group	F(4,20) = 0.327, p = 0.857
STD/DEV Probability x Group	F(1,5) = 0.075, p = 0.795
Session x STD/DEV Probability	F(4,20) = 1.854, p = 0.158
d' Contrast 1.00 octaves	
Session	F(4,20) = 0.911, p = 0.477
STD/DEV Probability (90/10, 70/30 %)	F(1,5) = 29.138, p = 0.003
Group	F(1,5) = 0.096, p = 0.770
Session x Group	F(4,20) = 0.399, p = 0.807
STD/DEV Probability x Group	F(1,5) = 0.560, p = 0.488
Session x STD/DEV Probability	F(4,20) = 0.970, p = 0.446
d' Contrast 1.25 octaves	
Session	F(4,20) = 5.383, p = 0.004
STD/DEV Probability (90/10, 70/30 %)	F(1,5) = 47.680, p = 0.001
Group	F(1,5) = 0.336, p = 0.587
Session x Group	F(4,20) = 2.504, p = 0.075
STD/DEV Probability x Group	F(1,5) = 0.007, p = 0.935
Session x STD/DEV Probability	F(4,20) = 3.392, p = 0.028

Statistical details of the probability comparison for the different frequency contrast tested (cf., Fig. 4). 3-ways ANOVA-test for repeated measures (one test per category). Statistically significant comparisons ($p < 0.05$) highlighted in bold.

Supplementary Table 8	
	%HIT & %MISS
Session	F(4,20) = 0.394, p = 0.746
Group	F(1,5) = 1.652, p = 0.255
Session x Group	F(4,20) = 0.407, p = 0.737
	%CR & %FA
Session	F(4,20) = 0.558, p = 0.696
Group	F(1,5) = 5.113, p = 0.073
Session x Group	F(4,20) = 0.569, p = 0.688
	d'
Session	F(4,20) = 0.689, p = 0.608
Group	F(1,5) = 0.253, p = 0.637
Session x Group	F(4,20) = 0.411, p = 0.799
d' comparissons by sequence	
	<i>p</i>
Many-deviant x Oddball Paradigm C0.50 oct.	0.999
Many-deviant x Oddball Paradigm C0.75 oct.	1.000
Many-deviant x Oddball Paradigm C1.00 oct.	0.270
Many-deviant x Oddball Paradigm C1.25 oct.	0.030

Statistical details of the many-deviant task responses with a STD/DEV Probability of 90/10% (cf., Fig. 5). 2-way ANOVA test (one test per category). Statistically significant comparisons ($p < 0.05$) highlighted in bold.

Supplementary Table 9	
%HIT & %MISS	
Session	F(4,24) = 1.512, p = 0.230
Group	F(1,6) = 1.468, p = 0.271
Session x Group	F(4,24) = 0.784, p = 0.547
%CR & %FA	
Session	F(4,24) = 0.563, p = 0.691
Group	F(1,6) = 6.860, p = 0.040
Session x Group	F(4,24) = 0.702, p = 0.105
d'	
Session	F(4,24) = 2.073, p = 0.116
Group	F(1,6) = 1.062, p = 0.343
Session x Group	F(4,24) = 0.414, p = 0.797

Statistical details of the many-deviant task responses with a STD/DEV

Probability of 70/30% (cf., Fig. 5). 2-way ANOVA test (one test per category). Statistically significant comparisons ($p < 0.05$) highlighted in bold.

Supplementary Table 10						
	Group 1: 4.8-6.7 kHz			Group 2: 8.0-11.3 kHz		
	Task	Contrast	ISI	Task	Contrast	ISI
1°	Oddball sequence	0.50 oct	1.5 s	Oddball sequence	0.50 oct	1.5 s
2°	Deviant frequency contrast variation	0.75 oct	1.5 s	Oddball sequence	0.50 oct	2 s
3°	Oddball sequence	0.50 oct	2 s	Deviant frequency contrast variation	0.75 oct	1.5 s
4°	Deviant frequency contrast variation	1.00 oct	1.5 s	Oddball sequence	0.50 oct	4 s
5°	Oddball sequence	0.50 oct	4 s	Deviant frequency contrast variation	1.00 oct	1.5 s
6°	Many-deviant	N/A	1.5 s	Many-deviant	N/A	1.5 s
7°	Deviant frequency contrast variation	1.25 oct	1.5 s	Deviant frequency contrast variation	1.25 oct	1.5 s

Order of presentation of the different behavioural tasks for the STD/DEV probability of 90/10 %.