

Mixed Model Analysis

Model Dimension^a

		Number of Levels	Covariance Structure	Number of Parameters
Fixed Effects	Intercept	1		1
	SNR	3		2
	Program	6		5
	SNR * Program	18		10
Random Effects	Audiogram	4	Variance Components	1
Residual				1
Total		32		20

a. Dependent Variable: pMOS.

Information Criteria^a

-2 Restricted Log Likelihood	298.43975220
Akaike's Information Criterion (AIC)	302.43975220
Hurvich and Tsai's Criterion (AICC)	302.46137382
Bozdogan's Criterion (CAIC)	313.08847012
Schwarz's Bayesian Criterion (BIC)	311.08847012

The information criteria are displayed in smaller-is-better form.

a. Dependent Variable: pMOS.

Coefficients of Determination

Pseudo-R Square Measures	Marginal	.509
	Conditional	.546

Intraclass Correlation Coefficients

Overall ICCs	Adjusted	.076
	Conditional	.037

Fixed Effects

Type III Tests of Fixed Effects^a

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	3.000	1797.974	<.001
SNR	2	555.000	216.085	<.001
Program	5	555.000	38.745	<.001
SNR * Program	10	555.000	1.863	.048

a. Dependent Variable: pMOS.

Covariance Parameters

Estimates of Covariance Parameters^a

Parameter	Estimate	Std. Error
Residual	.088	.005
Audiogram Variance	.007	.006

a. Dependent Variable: pMOS.

Estimated Marginal Means

1. Grand Mean^a

Mean	Std. Error	df	95% Confidence Interval	
			Lower Bound	Upper Bound
1.876	.044	3.000	1.735	2.017

a. Dependent Variable: pMOS.

2. SNR

Estimates^a

SNR	Mean	Std. Error	df	95% Confidence Interval	
				Lower Bound	Upper Bound
-5	1.583	.048	4.011	1.451	1.715
0	1.837	.048	4.011	1.705	1.969
5	2.209	.048	4.011	2.077	2.341

a. Dependent Variable: pMOS.

Pairwise Comparisons^a

(I) SNR	(J) SNR	Mean Difference (I-J)	Std. Error	df	Sig. ^c	95% Confidence Interval for Difference ^c	
						Lower Bound	Upper Bound
-5	0	-.255 [*]	.030	555.000	<.001	-.328	-.182
	5	-.626 [*]	.030	555.000	<.001	-.699	-.554
0	-5	.255 [*]	.030	555.000	<.001	.182	.328
	5	-.372 [*]	.030	555.000	<.001	-.444	-.299
5	-5	.626 [*]	.030	555.000	<.001	.554	.699
	0	.372 [*]	.030	555.000	<.001	.299	.444

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Dependent Variable: pMOS.

c. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests^a

Numerator df	Denominator df	F	Sig.
2	555.000	216.085	<.001

The F tests the effect of SNR. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Dependent Variable: pMOS.

3. Program

Estimates^a

Program	Mean	Std. Error	df	95% Confidence Interval	
				Lower Bound	Upper Bound
No Processing	1.674	.052	5.799	1.545	1.802
Beam	1.830	.052	5.799	1.701	1.958
Beam + NoiseBlock	1.901	.052	5.799	1.772	2.029
DNN	1.948	.052	5.799	1.819	2.076
NoiseBlock	1.711	.052	5.799	1.582	1.840
Beam + DNN	2.195	.052	5.799	2.066	2.324

a. Dependent Variable: pMOS.

Pairwise Comparisons^a

(I) Program	(J) Program	Mean Difference (I-J)	Std. Error	df	Sig. ^c
No Processing	Beam	-.156 [*]	.043	555.000	.004
	Beam + NoiseBlock	-.227 [*]	.043	555.000	<.001
	DNN	-.274 [*]	.043	555.000	<.001
	NoiseBlock	-.038	.043	555.000	1.000
	Beam + DNN	-.522 [*]	.043	555.000	<.001
Beam	No Processing	.156 [*]	.043	555.000	.004
	Beam + NoiseBlock	-.071	.043	555.000	1.000
	DNN	-.118	.043	555.000	.092
	NoiseBlock	.119	.043	555.000	.088
	Beam + DNN	-.365 [*]	.043	555.000	<.001
Beam + NoiseBlock	No Processing	.227 [*]	.043	555.000	<.001
	Beam	.071	.043	555.000	1.000
	DNN	-.047	.043	555.000	1.000
	NoiseBlock	.190 [*]	.043	555.000	<.001
	Beam + DNN	-.295 [*]	.043	555.000	<.001
DNN	No Processing	.274 [*]	.043	555.000	<.001
	Beam	.118	.043	555.000	.092
	Beam + NoiseBlock	.047	.043	555.000	1.000
	NoiseBlock	.236 [*]	.043	555.000	<.001
	Beam + DNN	-.248 [*]	.043	555.000	<.001
NoiseBlock	No Processing	.038	.043	555.000	1.000
	Beam	-.119	.043	555.000	.088
	Beam + NoiseBlock	-.190 [*]	.043	555.000	<.001
	DNN	-.236 [*]	.043	555.000	<.001
	Beam + DNN	-.484 [*]	.043	555.000	<.001
Beam + DNN	No Processing	.522 [*]	.043	555.000	<.001
	Beam	.365 [*]	.043	555.000	<.001
	Beam + NoiseBlock	.295 [*]	.043	555.000	<.001
	DNN	.248 [*]	.043	555.000	<.001
	NoiseBlock	.484 [*]	.043	555.000	<.001

Pairwise Comparisons^a

(I) Program	(J) Program	95% Confidence Interval for Difference ^c	
		Lower Bound	Upper Bound
No Processing	Beam	-.282	-.030
	Beam + NoiseBlock	-.353	-.101
	DNN	-.400	-.148
	NoiseBlock	-.164	.089
	Beam + DNN	-.648	-.395
Beam	No Processing	.030	.282
	Beam + NoiseBlock	-.197	.055
	DNN	-.244	.008
	NoiseBlock	-.008	.245
	Beam + DNN	-.492	-.239
Beam + NoiseBlock	No Processing	.101	.353
	Beam	-.055	.197
	DNN	-.173	.079
	NoiseBlock	.063	.316
	Beam + DNN	-.421	-.168
DNN	No Processing	.148	.400
	Beam	-.008	.244
	Beam + NoiseBlock	-.079	.173
	NoiseBlock	.110	.363
	Beam + DNN	-.374	-.121
NoiseBlock	No Processing	-.089	.164
	Beam	-.245	.008
	Beam + NoiseBlock	-.316	-.063
	DNN	-.363	-.110
	Beam + DNN	-.610	-.358
Beam + DNN	No Processing	.395	.648
	Beam	.239	.492
	Beam + NoiseBlock	.168	.421
	DNN	.121	.374
	NoiseBlock	.358	.610

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Dependent Variable: pMOS.

c. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests^a

Numerator df	Denominator df	F	Sig.
5	555.000	38.745	<.001

The F tests the effect of Program. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Dependent Variable: pMOS.

4. SNR * Program

Estimates^a

SNR	Program	Mean	Std. Error	df	95% Confidence Interval	
					Lower Bound	Upper Bound
-5	No Processing	1.468	.068	16.120	1.325	1.611
	Beam	1.532	.068	16.120	1.389	1.675
	Beam + NoiseBlock	1.589	.068	16.120	1.445	1.732
	DNN	1.629	.068	16.120	1.486	1.772
	NoiseBlock	1.485	.068	16.120	1.342	1.629
	Beam + DNN	1.792	.068	16.120	1.649	1.935
0	No Processing	1.641	.068	16.120	1.498	1.784
	Beam	1.799	.068	16.120	1.656	1.942
	Beam + NoiseBlock	1.881	.068	16.120	1.737	2.024
	DNN	1.878	.068	16.120	1.734	2.021
	NoiseBlock	1.656	.068	16.120	1.513	1.799
	Beam + DNN	2.169	.068	16.120	2.026	2.312
5	No Processing	1.911	.068	16.120	1.768	2.054
	Beam	2.158	.068	16.120	2.015	2.301
	Beam + NoiseBlock	2.233	.068	16.120	2.090	2.376
	DNN	2.336	.068	16.120	2.193	2.479
	NoiseBlock	1.992	.068	16.120	1.849	2.135
	Beam + DNN	2.624	.068	16.120	2.481	2.767

a. Dependent Variable: pMOS.

Pairwise Comparisons^a

SNR	(I) Program	(J) Program	Mean Difference (I-J)	Std. Error	df	Sig. ^c
-5	No Processing	Beam	-.063	.074	555.000	1.000
		Beam + NoiseBlock	-.120	.074	555.000	1.000
		DNN	-.161	.074	555.000	.464
		NoiseBlock	-.017	.074	555.000	1.000
		Beam + DNN	-.324 [*]	.074	555.000	<.001
	Beam	No Processing	.063	.074	555.000	1.000
		Beam + NoiseBlock	-.057	.074	555.000	1.000
		DNN	-.097	.074	555.000	1.000
		NoiseBlock	.046	.074	555.000	1.000
		Beam + DNN	-.261 [*]	.074	555.000	.007
	Beam + NoiseBlock	No Processing	.120	.074	555.000	1.000
		Beam	.057	.074	555.000	1.000
		DNN	-.040	.074	555.000	1.000
		NoiseBlock	.103	.074	555.000	1.000
		Beam + DNN	-.204	.074	555.000	.093
	DNN	No Processing	.161	.074	555.000	.464
		Beam	.097	.074	555.000	1.000
		Beam + NoiseBlock	.040	.074	555.000	1.000
		NoiseBlock	.144	.074	555.000	.805
		Beam + DNN	-.163	.074	555.000	.421
	NoiseBlock	No Processing	.017	.074	555.000	1.000
		Beam	-.046	.074	555.000	1.000
		Beam + NoiseBlock	-.103	.074	555.000	1.000
		DNN	-.144	.074	555.000	.805
		Beam + DNN	-.307 [*]	.074	555.000	<.001
	Beam + DNN	No Processing	.324 [*]	.074	555.000	<.001
		Beam	.261 [*]	.074	555.000	.007
		Beam + NoiseBlock	.204	.074	555.000	.093
		DNN	.163	.074	555.000	.421
		NoiseBlock	.307 [*]	.074	555.000	<.001
0	No Processing	Beam	-.158	.074	555.000	.505
		Beam + NoiseBlock	-.239 [*]	.074	555.000	.020
		DNN	-.236 [*]	.074	555.000	.023
		NoiseBlock	-.015	.074	555.000	1.000
		Beam + DNN	-.528 [*]	.074	555.000	<.001

Pairwise Comparisons^a

SNR	(I) Program	(J) Program	95% Confidence Interval for Difference ^c	
			Lower Bound	Upper Bound
-5	No Processing	Beam	-.282	.156
		Beam + NoiseBlock	-.339	.099
		DNN	-.379	.058
		NoiseBlock	-.236	.202
		Beam + DNN	-.543	-.105
	Beam	No Processing	-.156	.282
		Beam + NoiseBlock	-.276	.162
		DNN	-.316	.121
		NoiseBlock	-.173	.265
		Beam + DNN	-.480	-.042
	Beam + NoiseBlock	No Processing	-.099	.339
		Beam	-.162	.276
		DNN	-.259	.178
		NoiseBlock	-.116	.322
		Beam + DNN	-.423	.015
	DNN	No Processing	-.058	.379
		Beam	-.121	.316
		Beam + NoiseBlock	-.178	.259
		NoiseBlock	-.075	.362
		Beam + DNN	-.382	.055
	NoiseBlock	No Processing	-.202	.236
		Beam	-.265	.173
		Beam + NoiseBlock	-.322	.116
		DNN	-.362	.075
		Beam + DNN	-.526	-.088
	Beam + DNN	No Processing	.105	.543
		Beam	.042	.480
		Beam + NoiseBlock	-.015	.423
		DNN	-.055	.382
		NoiseBlock	.088	.526
0	No Processing	Beam	-.377	.061
		Beam + NoiseBlock	-.458	-.020
		DNN	-.455	-.017
		NoiseBlock	-.234	.204
		Beam + DNN	-.747	-.309

Pairwise Comparisons^a

SNR	(I) Program	(J) Program	Mean Difference (I-J)	Std. Error	df	Sig. ^c
	Beam	No Processing	.158	.074	555.000	.505
		Beam + NoiseBlock	-.081	.074	555.000	1.000
		DNN	-.078	.074	555.000	1.000
		NoiseBlock	.143	.074	555.000	.810
		Beam + DNN	-.370 [*]	.074	555.000	<.001
	Beam + NoiseBlock	No Processing	.239 [*]	.074	555.000	.020
		Beam	.081	.074	555.000	1.000
		DNN	.003	.074	555.000	1.000
		NoiseBlock	.224 [*]	.074	555.000	.039
		Beam + DNN	-.289 [*]	.074	555.000	.002
	DNN	No Processing	.236 [*]	.074	555.000	.023
		Beam	.078	.074	555.000	1.000
		Beam + NoiseBlock	-.003	.074	555.000	1.000
		NoiseBlock	.222 [*]	.074	555.000	.045
		Beam + DNN	-.292 [*]	.074	555.000	.001
	NoiseBlock	No Processing	.015	.074	555.000	1.000
		Beam	-.143	.074	555.000	.810
		Beam + NoiseBlock	-.224 [*]	.074	555.000	.039
		DNN	-.222 [*]	.074	555.000	.045
		Beam + DNN	-.513 [*]	.074	555.000	<.001
	Beam + DNN	No Processing	.528 [*]	.074	555.000	<.001
		Beam	.370 [*]	.074	555.000	<.001
		Beam + NoiseBlock	.289 [*]	.074	555.000	.002
		DNN	.292 [*]	.074	555.000	.001
		NoiseBlock	.513 [*]	.074	555.000	<.001
5	No Processing	Beam	-.247 [*]	.074	555.000	.014
		Beam + NoiseBlock	-.322 [*]	.074	555.000	<.001
		DNN	-.425 [*]	.074	555.000	<.001
		NoiseBlock	-.081	.074	555.000	1.000
		Beam + DNN	-.713 [*]	.074	555.000	<.001
	Beam	No Processing	.247 [*]	.074	555.000	.014
		Beam + NoiseBlock	-.075	.074	555.000	1.000
		DNN	-.178	.074	555.000	.252
		NoiseBlock	.166	.074	555.000	.383
		Beam + DNN	-.466 [*]	.074	555.000	<.001

Pairwise Comparisons^a

SNR	(I) Program	(J) Program	95% Confidence Interval for Difference ^c	
			Lower Bound	Upper Bound
	Beam	No Processing	-.061	.377
		Beam + NoiseBlock	-.300	.138
		DNN	-.297	.141
		NoiseBlock	-.075	.362
		Beam + DNN	-.589	-.151
	Beam + NoiseBlock	No Processing	.020	.458
		Beam	-.138	.300
		DNN	-.216	.222
		NoiseBlock	.006	.443
		Beam + DNN	-.508	-.070
	DNN	No Processing	.017	.455
		Beam	-.141	.297
		Beam + NoiseBlock	-.222	.216
		NoiseBlock	.003	.440
		Beam + DNN	-.511	-.073
	NoiseBlock	No Processing	-.204	.234
		Beam	-.362	.075
		Beam + NoiseBlock	-.443	-.006
		DNN	-.440	-.003
		Beam + DNN	-.732	-.295
	Beam + DNN	No Processing	.309	.747
		Beam	.151	.589
		Beam + NoiseBlock	.070	.508
		DNN	.073	.511
		NoiseBlock	.295	.732
5	No Processing	Beam	-.466	-.028
		Beam + NoiseBlock	-.541	-.103
		DNN	-.644	-.206
		NoiseBlock	-.300	.138
		Beam + DNN	-.932	-.494
	Beam	No Processing	.028	.466
		Beam + NoiseBlock	-.294	.144
		DNN	-.397	.041
		NoiseBlock	-.053	.385
		Beam + DNN	-.684	-.247

Pairwise Comparisons^a

SNR	(I) Program	(J) Program	Mean Difference (I-J)	Std. Error	df	Sig. ^c
	Beam + NoiseBlock	No Processing	.322 [*]	.074	555.000	<.001
		Beam	.075	.074	555.000	1.000
		DNN	-.103	.074	555.000	1.000
		NoiseBlock	.241 [*]	.074	555.000	.019
		Beam + DNN	-.391 [*]	.074	555.000	<.001
	DNN	No Processing	.425 [*]	.074	555.000	<.001
		Beam	.178	.074	555.000	.252
		Beam + NoiseBlock	.103	.074	555.000	1.000
		NoiseBlock	.344 [*]	.074	555.000	<.001
		Beam + DNN	-.288 [*]	.074	555.000	.002
	NoiseBlock	No Processing	.081	.074	555.000	1.000
		Beam	-.166	.074	555.000	.383
		Beam + NoiseBlock	-.241 [*]	.074	555.000	.019
		DNN	-.344 [*]	.074	555.000	<.001
		Beam + DNN	-.632 [*]	.074	555.000	<.001
	Beam + DNN	No Processing	.713 [*]	.074	555.000	<.001
		Beam	.466 [*]	.074	555.000	<.001
		Beam + NoiseBlock	.391 [*]	.074	555.000	<.001
		DNN	.288 [*]	.074	555.000	.002
		NoiseBlock	.632 [*]	.074	555.000	<.001

Pairwise Comparisons^a

SNR	(I) Program	(J) Program	95% Confidence Interval for Difference ^c	
			Lower Bound	Upper Bound
	Beam + NoiseBlock	No Processing	.103	.541
		Beam	-.144	.294
		DNN	-.322	.116
		NoiseBlock	.022	.460
		Beam + DNN	-.610	-.172
	DNN	No Processing	.206	.644
		Beam	-.041	.397
		Beam + NoiseBlock	-.116	.322
		NoiseBlock	.125	.563
		Beam + DNN	-.506	-.069
	NoiseBlock	No Processing	-.138	.300
		Beam	-.385	.053
		Beam + NoiseBlock	-.460	-.022
		DNN	-.563	-.125
		Beam + DNN	-.851	-.413
	Beam + DNN	No Processing	.494	.932
		Beam	.247	.684
		Beam + NoiseBlock	.172	.610
		DNN	.069	.506
		NoiseBlock	.413	.851

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Dependent Variable: pMOS.

c. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests^a

SNR	Numerator df	Denominator df	F	Sig.
-5	5	555.000	5.175	<.001
0	5	555.000	13.535	<.001
5	5	555.000	23.761	<.001

Each F tests the simple effects of Program within each level combination of the other effects shown. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Dependent Variable: pMOS.