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: HASPI.

Information Criteria[a]

-2 Restricted Log Likelihood	-551.29635459
Akaike's Information Criterion (AIC)	-547.29635459
Hurvich and Tsai's Criterion (AICC)	-547.27473296
Bozdogan's Criterion (CAIC)	-536.64763666
Schwarz's Bayesian Criterion (BIC)	-538.64763666

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

a. Dependent Variable: HASPI.

Coefficients of Determination

Pseudo-R Square Measures	Marginal	.647
	Conditional	.682

Intraclass Correlation Coefficients

Overall ICCs	Adjusted	.099
	Conditional	.035

Fixed Effects

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	3.000	117.251	.002
SNR	2	555.000	454.123	<.001
Program	5	555	44.084	<.001
SNR * Program	10	555.000	4.175	<.001

a. Dependent Variable: HASPI.

Covariance Parameters

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error
Residual		.019	.001
Audiogram	Variance	.002	.002

a. Dependent Variable: HASPI.

Estimated Marginal Means

1. Grand Mean[a]

			95% Confidence Interval	
Mean	Std. Error	df	Lower Bound	Upper Bound
.257	.024	3.000	.181	.332

a. Dependent Variable: HASPI.

2. SNR

Estimates[a]

				95% Confidence Interval	
SNR	Mean	Std. Error	df	Lower Bound	Upper Bound
-5	.063	.025	3.754	-.009	.134
0	.223	.025	3.754	.151	.294
5	.485	.025	3.754	.413	.556

a. Dependent Variable: HASPI.

Pairwise Comparisons[a]

(I) SNR	(J) SNR	Mean Difference (I-J)	Std. Error	df	Sig.[c]	95% Confidence Interval for Difference[c] Lower Bound
-5	0	-.160*	.014	555	<.001	-.194
	5	-.422*	.014	555	<.001	-.456
0	-5	.160*	.014	555	<.001	.126
	5	-.262*	.014	555	<.001	-.296
5	-5	.422*	.014	555	<.001	.388
	0	.262*	.014	555	<.001	.228

Pairwise Comparisons[a]

(I) SNR	(J) SNR	95% Confidence Interval for Difference Upper Bound
-5	0	-.126
	5	-.388
0	-5	.194
	5	-.228
5	-5	.456
	0	.296

Based on estimated marginal means[a]

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

a. Dependent Variable: HASPI.

c. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests[a]

Numerator df	Denominator df	F	Sig.
2	555.000	454.123	<.001

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

a. Dependent Variable: HASPI.

3. Program

Estimates[a]

Program	Mean	Std. Error	df	95% Confidence Interval Lower Bound	Upper Bound
No_Processing	.157	.027	5.040	.088	.227
Beam	.277	.027	5.040	.208	.346
Beam+NoiseBlock	.256	.027	5.040	.187	.325
DNN	.280	.027	5.040	.210	.349
NoiseBlock	.159	.027	5.040	.090	.228
DNN+Directional	.411	.027	5.040	.342	.480

a. Dependent Variable: HASPI.

Pairwise Comparisons[a]

(I) Program	(J) Program	Mean Difference (I-J)	Std. Error	df	Sig.[c]
No_Processing	Beam	-.120*	.020	555	<.001
	Beam+NoiseBlock	-.099*	.020	555	<.001
	DNN	-.122*	.020	555	<.001
	NoiseBlock	-.002	.020	555	1.000
	DNN+Directional	-.253*	.020	555	<.001
Beam	No_Processing	.120*	.020	555	<.001
	Beam+NoiseBlock	.021	.020	555	1.000
	DNN	-.003	.020	555	1.000
	NoiseBlock	.118*	.020	555	<.001
	DNN+Directional	-.134*	.020	555	<.001
Beam+NoiseBlock	No_Processing	.099*	.020	555	<.001
	Beam	-.021	.020	555	1.000
	DNN	-.023	.020	555	1.000
	NoiseBlock	.097*	.020	555	<.001
	DNN+Directional	-.155*	.020	555	<.001
DNN	No_Processing	.122*	.020	555	<.001
	Beam	.003	.020	555	1.000
	Beam+NoiseBlock	.023	.020	555	1.000
	NoiseBlock	.120*	.020	555	<.001
	DNN+Directional	-.131*	.020	555	<.001
NoiseBlock	No_Processing	.002	.020	555	1.000
	Beam	-.118*	.020	555	<.001
	Beam+NoiseBlock	-.097*	.020	555	<.001
	DNN	-.120*	.020	555	<.001
	DNN+Directional	-.252*	.020	555	<.001
DNN+Directional	No_Processing	.253*	.020	555	<.001
	Beam	.134*	.020	555	<.001
	Beam+NoiseBlock	.155*	.020	555	<.001
	DNN	.131*	.020	555	<.001
	NoiseBlock	.252*	.020	555	<.001

Pairwise Comparisons[a]

		95% Confidence Interval for Difference[c]	
(I) Program	(J) Program	Lower Bound	Upper Bound
No_Processing	Beam	-.179	-.061
	Beam+NoiseBlock	-.158	-.040
	DNN	-.181	-.063
	NoiseBlock	-.061	.057
	DNN+Directional	-.312	-.195
Beam	No_Processing	.061	.179

	Beam+NoiseBlock	-.038	.080
	DNN	-.061	.056
	NoiseBlock	.059	.177
	DNN+Directional	-.193	-.075
Beam+NoiseBlock	No_Processing	.040	.158
	Beam	-.080	.038
	DNN	-.082	.035
	NoiseBlock	.038	.156
	DNN+Directional	-.214	-.096
DNN	No_Processing	.063	.181
	Beam	-.056	.061
	Beam+NoiseBlock	-.035	.082
	NoiseBlock	.061	.179
	DNN+Directional	-.190	-.072
NoiseBlock	No_Processing	-.057	.061
	Beam	-.177	-.059
	Beam+NoiseBlock	-.156	-.038
	DNN	-.179	-.061
	DNN+Directional	-.311	-.193
DNN+Directional	No_Processing	.195	.312
	Beam	.075	.193
	Beam+NoiseBlock	.096	.214
	DNN	.072	.190
	NoiseBlock	.193	.311

Based on estimated marginal means[a]

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

a. Dependent Variable: HASPI.

c. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests[a]

Numerator df	Denominator df	F	Sig.
5	555	44.084	<.001

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

a. Dependent Variable: HASPI.

4. SNR * Program

Estimates[a]

SNR	Program	Mean	Std. Error	df	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
-5	No_Processing	.027	.034	12.029	-.046	.101
	Beam	.041	.034	12.029	-.033	.114
	Beam+NoiseBlock	.043	.034	12.029	-.030	.116
	DNN	.074	.034	12.029	.001	.147
	NoiseBlock	.032	.034	12.029	-.041	.105
	DNN+Directional	.158	.034	12.029	.085	.231
0	No_Processing	.101	.034	12.029	.028	.174
	Beam	.244	.034	12.029	.171	.317
	Beam+NoiseBlock	.237	.034	12.029	.164	.310
	DNN	.226	.034	12.029	.152	.299
	NoiseBlock	.102	.034	12.029	.029	.175
	DNN+Directional	.428	.034	12.029	.355	.501
5	No_Processing	.344	.034	12.029	.271	.417
	Beam	.547	.034	12.029	.473	.620
	Beam+NoiseBlock	.488	.034	12.029	.415	.561
	DNN	.539	.034	12.029	.466	.613
	NoiseBlock	.344	.034	12.029	.271	.417
	DNN+Directional	.647	.034	12.029	.574	.720

a. Dependent Variable: HASPI.

Pairwise Comparisons[a]

SNR	(I) Program	(J) Program	Mean Difference (I-J)	Std. Error	df	Sig.[c]	95% Confidence Interval for Difference[c] Lower Bound	95% Confidence Interval for Difference[c] Upper Bound
-5	No_Processing	Beam	-.013	.035	555	1.000	-.115	.089
		Beam+ NoiseBlock	-.016	.035	555	1.000	-.118	.086
		DNN	-.046	.035	555	1.000	-.148	.056
		NoiseBlock	-.005	.035	555	1.000	-.107	.097
		DNN+ Directional	-.131*	.035	555.000	.003	-.233	-.029
	Beam	No_Processing	.013	.035	555	1.000	-.089	.115
		Beam+ NoiseBlock	-.003	.035	555	1.000	-.105	.099
		DNN	-.033	.035	555	1.000	-.135	.069
		NoiseBlock	.008	.035	555	1.000	-.094	.110
		DNN+ Directional	-.118*	.035	555.000	.011	-.220	-.016
	Beam+ NoiseBlock	No_Processing	.016	.035	555	1.000	-.086	.118
		Beam	.003	.035	555	1.000	-.099	.105
		DNN	-.031	.035	555	1.000	-.133	.071

		NoiseBlock	.011	.035	555	1.000	-.091	.113
		DNN+ Directional	-.115*	.035	555.000	.014	-.217	-.013
	DNN	No_Processing	.046	.035	555	1.000	-.056	.148
		Beam	.033	.035	555	1.000	-.069	.135
		Beam+ NoiseBlock	.031	.035	555	1.000	-.071	.133
		NoiseBlock	.042	.035	555	1.000	-.060	.144
		DNN+ Directional	-.084	.035	555.000	.227	-.187	.018
	NoiseBlock	No_Processing	.005	.035	555	1.000	-.097	.107
		Beam	-.008	.035	555	1.000	-.110	.094
		Beam+ NoiseBlock	-.011	.035	555	1.000	-.113	.091
		DNN	-.042	.035	555	1.000	-.144	.060
		DNN+ Directional	-.126*	.035	555.000	.005	-.228	-.024
	DNN+ Directional	No_Processing	.131*	.035	555.000	.003	.029	.233
		Beam	.118*	.035	555.000	.011	.016	.220
		Beam+ NoiseBlock	.115*	.035	555.000	.014	.013	.217
		DNN	.084	.035	555.000	.227	-.018	.187
		NoiseBlock	.126*	.035	555.000	.005	.024	.228
0	No_Processing	Beam	-.143*	.035	555	<.001	-.245	-.041
		Beam+ NoiseBlock	-.136*	.035	555	.001	-.238	-.034
		DNN	-.124*	.035	555	.005	-.227	-.022
		NoiseBlock	-.001	.035	555	1.000	-.103	.102
		DNN+ Directional	-.327*	.035	555.000	<.001	-.429	-.225
	Beam	No_Processing	.143*	.035	555	<.001	.041	.245
		Beam+ NoiseBlock	.007	.035	555	1.000	-.095	.109
		DNN	.019	.035	555	1.000	-.084	.121
		NoiseBlock	.142*	.035	555	<.001	.040	.245
		DNN+ Directional	-.184*	.035	555.000	<.001	-.286	-.082
	Beam+ NoiseBlock	No_Processing	.136*	.035	555	.001	.034	.238
		Beam	-.007	.035	555	1.000	-.109	.095
		DNN	.012	.035	555	1.000	-.090	.114
		NoiseBlock	.136*	.035	555	.002	.033	.238
		DNN+ Directional	-.191*	.035	555.000	<.001	-.293	-.089
	DNN	No_Processing	.124*	.035	555	.005	.022	.227
		Beam	-.019	.035	555	1.000	-.121	.084
		Beam+ NoiseBlock	-.012	.035	555	1.000	-.114	.090

		NoiseBlock	.124*	.035	555	.006	.022	.226
		DNN+ Directional	-.202*	.035	555.000	<.001	-.305	-.100
	NoiseBlock	No_Processing	.001	.035	555	1.000	-.102	.103
		Beam	-.142*	.035	555	<.001	-.245	-.040
		Beam+ NoiseBlock	-.136*	.035	555	.002	-.238	-.033
		DNN	-.124*	.035	555	.006	-.226	-.022
		DNN+ Directional	-.326*	.035	555.000	<.001	-.428	-.224
	DNN+ Directional	No_Processing	.327*	.035	555.000	<.001	.225	.429
		Beam	.184*	.035	555.000	<.001	.082	.286
		Beam+ NoiseBlock	.191*	.035	555.000	<.001	.089	.293
		DNN	.202*	.035	555.000	<.001	.100	.305
		NoiseBlock	.326*	.035	555.000	<.001	.224	.428
5	No_Processing	Beam	-.203*	.035	555	<.001	-.305	-.101
		Beam+ NoiseBlock	-.144*	.035	555	<.001	-.246	-.042
		DNN	-.196*	.035	555	<.001	-.298	-.093
		NoiseBlock	9.116e-5	.035	555	1.000	-.102	.102
		DNN+ Directional	-.303*	.035	555	<.001	-.405	-.201
	Beam	No_Processing	.203*	.035	555	<.001	.101	.305
		Beam+ NoiseBlock	.059	.035	555	1.000	-.044	.161
		DNN	.007	.035	555	1.000	-.095	.109
		NoiseBlock	.203*	.035	555	<.001	.101	.305
		DNN+ Directional	-.100	.035	555	.060	-.202	.002
	Beam+ NoiseBlock	No_Processing	.144*	.035	555	<.001	.042	.246
		Beam	-.059	.035	555	1.000	-.161	.044
		DNN	-.051	.035	555	1.000	-.154	.051
		NoiseBlock	.144*	.035	555	<.001	.042	.246
		DNN+ Directional	-.159*	.035	555	<.001	-.261	-.057
	DNN	No_Processing	.196*	.035	555	<.001	.093	.298
		Beam	-.007	.035	555	1.000	-.109	.095
		Beam+ NoiseBlock	.051	.035	555	1.000	-.051	.154
		NoiseBlock	.196*	.035	555	<.001	.094	.298
		DNN+ Directional	-.107*	.035	555	.031	-.209	-.005
	NoiseBlock	No_Processing	-9.116e-5	.035	555	1.000	-.102	.102
		Beam	-.203*	.035	555	<.001	-.305	-.101
		Beam+ NoiseBlock	-.144*	.035	555	<.001	-.246	-.042

		DNN	-.196*	.035	555	<.001	-.298	-.094
		DNN+ Directional	-.303*	.035	555	<.001	-.405	-.201
	DNN+ Directional	No_Processing	.303*	.035	555	<.001	.201	.405
		Beam	.100	.035	555	.060	-.002	.202
		Beam+ NoiseBlock	.159*	.035	555	<.001	.057	.261
		DNN	.107*	.035	555	.031	.005	.209
		NoiseBlock	.303*	.035	555	<.001	.201	.405

Based on estimated marginal means[a]

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

a. Dependent Variable: HASPI.

c. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests[a]

SNR	Numerator df	Denominator df	F	Sig.
-5	5	555	4.097	.001
0	5	555	24.080	<.001
5	5	555	24.257	<.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]

a. Dependent Variable: HASPI.

Mixed Model Analysis

Model Dimension[a]

		Number of Levels	Number of Parameters
Fixed Effects	Intercept	1	1
	SNR	3	2
	Room	2	1
	Program	6	5
	SNR * Room	6	2
	SNR * Program	18	10
	Room * Program	12	5
	SNR * Room * Program	36	10
Residual			1
Total		84	37

a. Dependent Variable: HASQI.

Information Criteria[a]

-2 Restricted Log Likelihood	-2045.48174567
Akaike's Information Criterion (AIC)	-2043.48174567
Hurvich and Tsai's Criterion (AICC)	-2043.47815500
Bozdogan's Criterion (CAIC)	-2037.46423952
Schwarz's Bayesian Criterion (BIC)	-2038.46423952

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

a. Dependent Variable: HASQI.

Coefficients of Determination

Pseudo-R Square Measures	Marginal	.524
	Conditional	.524

Fixed Effects

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	1116	4838.793	<.001
SNR	2	1116	469.358	<.001
Room	1	1116	36.003	<.001
Program	5	1116	40.447	<.001
SNR * Room	2	1116	10.795	<.001
SNR * Program	10	1116.000	.913	.520
Room * Program	5	1116	3.944	.002
SNR * Room * Program	10	1116.000	.118	1.000

a. Dependent Variable: HASQI.

Covariance Parameters

Estimates of Covariance Parameters[a]

Parameter	Estimate	Std. Error
Residual	.008	.000

a. Dependent Variable: HASQI.

Estimated Marginal Means

1. Grand Mean[a]

			95% Confidence Interval	
Mean	Std. Error	df	Lower Bound	Upper Bound
.188	.003	1116.000	.182	.193

a. Dependent Variable: HASQI.

2. SNR

Estimates[a]

SNR	Mean	Std. Error	df	95% Confidence Interval	
				Lower Bound	Upper Bound
-5	.089	.005	1116	.080	.098
0	.182	.005	1116.000	.173	.191
5	.291	.005	1116	.282	.300

a. Dependent Variable: HASQI.

Pairwise Comparisons[a]

(I) SNR	(J) SNR	Mean Difference (I-J)	Std. Error	df	Sig.[c]	95% Confidence Interval for Difference[c]
						Lower Bound
-5	0	-.093*	.007	1116.000	<.001	-.109
	5	-.202*	.007	1116	<.001	-.218
0	-5	.093*	.007	1116.000	<.001	.077
	5	-.109*	.007	1116.000	<.001	-.125
5	-5	.202*	.007	1116	<.001	.186
	0	.109*	.007	1116.000	<.001	.093

Pairwise Comparisons[a]

(I) SNR	(J) SNR	95% Confidence Interval for Difference
		Upper Bound
-5	0	-.077
	5	-.186
0	-5	.109
	5	-.093
5	-5	.218
	0	.125

Based on estimated marginal means[a]

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

a. Dependent Variable: HASQI.

c. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests[a]

Numerator df	Denominator df	F	Sig.
2	1116	469.358	<.001

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

a. Dependent Variable: HASQI.

3. Room

Estimates[a]

Room	Mean	Std. Error	df	95% Confidence Interval	
				Lower Bound	Upper Bound
SoundBooth	.204	.004	1116	.196	.211
RevRoom	.171	.004	1116	.164	.179

a. Dependent Variable: HASQI.

Pairwise Comparisons[a]

(I) Room	(J) Room	Mean Difference (I-J)	Std. Error	df	Sig.[c]	95% Confidence Interval for Difference[c]
						Lower Bound
SoundBooth	RevRoom	.032*	.005	1116	<.001	.022
RevRoom	SoundBooth	-.032*	.005	1116	<.001	-.043

Pairwise Comparisons[a]

(I) Room	(J) Room	95% Confidence Interval for Difference
		Upper Bound
SoundBooth	RevRoom	.043
RevRoom	SoundBooth	-.022

Based on estimated marginal means[a]

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

a. Dependent Variable: HASQI.

c. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests[a]

Numerator df	Denominator df	F	Sig.
1	1116	36.003	<.001

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

a. Dependent Variable: HASQI.

4. Program

Estimates[a]

Program	Mean	Std. Error	df	95% Confidence Interval	
				Lower Bound	Upper Bound
No_Processing	.146	.007	1116	.133	.159
Beam	.170	.007	1116.000	.157	.183
Beam+NoiseBlock	.184	.007	1116.000	.171	.197
DNN	.206	.007	1116	.193	.219
NoiseBlock	.157	.007	1116.000	.144	.170
DNN+Directional	.262	.007	1116	.249	.275

a. Dependent Variable: HASQI.

Pairwise Comparisons[a]

(I) Program	(J) Program	Mean Difference (I-J)	Std. Error	df	Sig.[c]
No_Processing	Beam	-.024	.009	1116.000	.143
	Beam+NoiseBlock	-.038*	.009	1116.000	<.001
	DNN	-.060*	.009	1116	<.001
	NoiseBlock	-.011	.009	1116.000	1.000
	DNN+Directional	-.116*	.009	1116.000	<.001
Beam	No_Processing	.024	.009	1116.000	.143
	Beam+NoiseBlock	-.014	.009	1116.000	1.000
	DNN	-.036*	.009	1116	.002
	NoiseBlock	.013	.009	1116	1.000
	DNN+Directional	-.092*	.009	1116	<.001
Beam+NoiseBlock	No_Processing	.038*	.009	1116.000	<.001
	Beam	.014	.009	1116.000	1.000
	DNN	-.022	.009	1116.000	.289
	NoiseBlock	.027	.009	1116.000	.054
	DNN+Directional	-.077*	.009	1116.000	<.001
DNN	No_Processing	.060*	.009	1116	<.001
	Beam	.036*	.009	1116	.002
	Beam+NoiseBlock	.022	.009	1116.000	.289
	NoiseBlock	.049*	.009	1116	<.001
	DNN+Directional	-.056*	.009	1116	<.001
NoiseBlock	No_Processing	.011	.009	1116.000	1.000
	Beam	-.013	.009	1116	1.000
	Beam+NoiseBlock	-.027	.009	1116.000	.054
	DNN	-.049*	.009	1116	<.001
	DNN+Directional	-.105*	.009	1116	<.001
DNN+Directional	No_Processing	.116*	.009	1116.000	<.001
	Beam	.092*	.009	1116	<.001
	Beam+NoiseBlock	.077*	.009	1116.000	<.001
	DNN	.056*	.009	1116	<.001
	NoiseBlock	.105*	.009	1116	<.001

Pairwise Comparisons[a]

(I) Program	(J) Program	95% Confidence Interval for Difference[c] Lower Bound	Upper Bound
No_Processing	Beam	-.052	.003
	Beam+NoiseBlock	-.066	-.011
	DNN	-.088	-.033
	NoiseBlock	-.039	.016
	DNN+Directional	-.143	-.088
Beam	No_Processing	-.003	.052
	Beam+NoiseBlock	-.042	.013
	DNN	-.063	-.009
	NoiseBlock	-.014	.041
	DNN+Directional	-.119	-.064
Beam+NoiseBlock	No_Processing	.011	.066
	Beam	-.013	.042
	DNN	-.049	.006
	NoiseBlock	.000	.055
	DNN+Directional	-.105	-.050
DNN	No_Processing	.033	.088
	Beam	.009	.063
	Beam+NoiseBlock	-.006	.049
	NoiseBlock	.022	.077
	DNN+Directional	-.083	-.028
NoiseBlock	No_Processing	-.016	.039
	Beam	-.041	.014
	Beam+NoiseBlock	-.055	.000
	DNN	-.077	-.022
	DNN+Directional	-.132	-.077
DNN+Directional	No_Processing	.088	.143
	Beam	.064	.119
	Beam+NoiseBlock	.050	.105
	DNN	.028	.083
	NoiseBlock	.077	.132

Based on estimated marginal means[a]

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

a. Dependent Variable: HASQI.

c. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests[a]

Numerator df	Denominator df	F	Sig.
5	1116	40.447	<.001

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

a. Dependent Variable: HASQI.

5. SNR * Room[a]

SNR	Room	Mean	Std. Error	df	95% Confidence Interval	
					Lower Bound	Upper Bound
-5	SoundBooth	.092	.007	1116	.079	.105
	RevRoom	.086	.007	1116	.073	.099
0	SoundBooth	.195	.007	1116.000	.182	.208
	RevRoom	.169	.007	1116.000	.156	.182
5	SoundBooth	.324	.007	1116	.311	.337
	RevRoom	.258	.007	1116	.245	.271

a. Dependent Variable: HASQI.

6. SNR * Program

Estimates[a]

SNR	Program	Mean	Std. Error	df	95% Confidence Interval	
					Lower Bound	Upper Bound
-5	No_Processing	.058	.011	1116	.036	.081
	Beam	.080	.011	1116	.058	.103
	Beam+NoiseBlock	.089	.011	1116.000	.066	.111
	DNN	.100	.011	1116	.077	.122
	NoiseBlock	.065	.011	1116.000	.043	.088
	DNN+Directional	.142	.011	1116	.120	.165
0	No_Processing	.135	.011	1116	.113	.158
	Beam	.164	.011	1116.000	.142	.187
	Beam+NoiseBlock	.180	.011	1116.000	.158	.203
	DNN	.200	.011	1116	.177	.222
	NoiseBlock	.148	.011	1116.000	.125	.170
	DNN+Directional	.266	.011	1116.000	.244	.288
5	No_Processing	.244	.011	1116.000	.221	.266
	Beam	.266	.011	1116.000	.244	.288
	Beam+NoiseBlock	.284	.011	1116.000	.262	.306
	DNN	.319	.011	1116	.296	.341
	NoiseBlock	.258	.011	1116.000	.236	.281
	DNN+Directional	.377	.011	1116.000	.354	.399

a. Dependent Variable: HASQI.

Pairwise Comparisons[a]

SNR	(I) Program	(J) Program	Mean Difference (I-J)	Std. Error	df	Sig.[c]	95% Confidence Interval for Difference[c]	
							Lower Bound	Upper Bound
-5	No_Processing	Beam	-.022	.016	1116.000	1.000	-.069	.026
		Beam+ NoiseBlock	-.030	.016	1116.000	.917	-.078	.017

	DNN	-.041	.016	1116.000	.157	-.089	.006
	NoiseBlock	-.007	.016	1116.000	1.000	-.054	.041
	DNN+ Directional	-.084*	.016	1116.000	<.001	-.132	-.036
Beam	No_Processing	.022	.016	1116.000	1.000	-.026	.069
	Beam+ NoiseBlock	-.009	.016	1116.000	1.000	-.056	.039
	DNN	-.020	.016	1116	1.000	-.067	.028
	NoiseBlock	.015	.016	1116	1.000	-.033	.063
	DNN+ Directional	-.062*	.016	1116	.002	-.110	-.015
Beam+ NoiseBlock	No_Processing	.030	.016	1116.000	.917	-.017	.078
	Beam	.009	.016	1116.000	1.000	-.039	.056
	DNN	-.011	.016	1116.000	1.000	-.059	.036
	NoiseBlock	.024	.016	1116.000	1.000	-.024	.071
	DNN+ Directional	-.054*	.016	1116.000	.014	-.101	-.006
DNN	No_Processing	.041	.016	1116.000	.157	-.006	.089
	Beam	.020	.016	1116	1.000	-.028	.067
	Beam+ NoiseBlock	.011	.016	1116.000	1.000	-.036	.059
	NoiseBlock	.035	.016	1116.000	.473	-.013	.082
	DNN+ Directional	-.043	.016	1116	.130	-.090	.005
NoiseBlock	No_Processing	.007	.016	1116.000	1.000	-.041	.054
	Beam	-.015	.016	1116	1.000	-.063	.033
	Beam+ NoiseBlock	-.024	.016	1116.000	1.000	-.071	.024
	DNN	-.035	.016	1116.000	.473	-.082	.013
	DNN+ Directional	-.077*	.016	1116.000	<.001	-.125	-.030
DNN+ Directional	No_Processing	.084*	.016	1116.000	<.001	.036	.132
	Beam	.062*	.016	1116	.002	.015	.110
	Beam+ NoiseBlock	.054*	.016	1116.000	.014	.006	.101
	DNN	.043	.016	1116	.130	-.005	.090

		NoiseBlock	.077*	.016	1116.000	<.001	.030	.125
0	No_Processing	Beam	-.029	.016	1116	1.000	-.076	.019
		Beam+ NoiseBlock	-.045	.016	1116	.088	-.092	.003
		DNN	-.064*	.016	1116.000	.001	-.112	-.017
		NoiseBlock	-.012	.016	1116.000	1.000	-.060	.035
		DNN+ Directional	-.131*	.016	1116	<.001	-.178	-.083
	Beam	No_Processing	.029	.016	1116	1.000	-.019	.076
		Beam+ NoiseBlock	-.016	.016	1116	1.000	-.063	.032
		DNN	-.036	.016	1116	.420	-.083	.012
		NoiseBlock	.017	.016	1116.000	1.000	-.031	.064
		DNN+ Directional	-.102*	.016	1116	<.001	-.149	-.054
	Beam+ NoiseBlock	No_Processing	.045	.016	1116	.088	-.003	.092
		Beam	.016	.016	1116	1.000	-.032	.063
		DNN	-.020	.016	1116	1.000	-.067	.028
		NoiseBlock	.033	.016	1116.000	.668	-.015	.080
		DNN+ Directional	-.086*	.016	1116.000	<.001	-.134	-.038
	DNN	No_Processing	.064*	.016	1116.000	.001	.017	.112
		Beam	.036	.016	1116	.420	-.012	.083
		Beam+ NoiseBlock	.020	.016	1116	1.000	-.028	.067
		NoiseBlock	.052*	.016	1116	.019	.005	.100
		DNN+ Directional	-.066*	.016	1116	<.001	-.114	-.019
	NoiseBlock	No_Processing	.012	.016	1116.000	1.000	-.035	.060
		Beam	-.017	.016	1116.000	1.000	-.064	.031
		Beam+ NoiseBlock	-.033	.016	1116.000	.668	-.080	.015
		DNN	-.052*	.016	1116	.019	-.100	-.005
		DNN+Directional	-.118*	.016	1116	<.001	-.166	-.071
	DNN+ Directional	No_Processing	.131*	.016	1116	<.001	.083	.178
		Beam	.102*	.016	1116	<.001	.054	.149
		Beam+ NoiseBlock	.086*	.016	1116.000	<.001	.038	.134
		DNN	.066*	.016	1116	<.001	.019	.114

		NoiseBlock	.118*	.016	1116	<.001	.071	.166
5	No_Processing	Beam	-.022	.016	1116	1.000	-.070	.025
		Beam+ NoiseBlock	-.040	.016	1116.000	.198	-.088	.007
		DNN	-.075*	.016	1116.000	<.001	-.122	-.027
		NoiseBlock	-.015	.016	1116.000	1.000	-.062	.033
		DNN+ Directional	-.133*	.016	1116	<.001	-.180	-.085
	Beam	No_Processing	.022	.016	1116	1.000	-.025	.070
		Beam+ NoiseBlock	-.018	.016	1116.000	1.000	-.066	.030
		DNN	-.053*	.016	1116	.017	-.100	-.005
		NoiseBlock	.008	.016	1116.000	1.000	-.040	.055
		DNN+ Directional	-.111*	.016	1116	<.001	-.158	-.063
	Beam+ NoiseBlock	No_Processing	.040	.016	1116.000	.198	-.007	.088
		Beam	.018	.016	1116.000	1.000	-.030	.066
		DNN	-.035	.016	1116	.481	-.082	.013
		NoiseBlock	.026	.016	1116.000	1.000	-.022	.073
		DNN+ Directional	-.093*	.016	1116.000	<.001	-.140	-.045
	DNN	No_Processing	.075*	.016	1116.000	<.001	.027	.122
		Beam	.053*	.016	1116	.017	.005	.100
		Beam+ NoiseBlock	.035	.016	1116	.481	-.013	.082
		NoiseBlock	.060*	.016	1116	.003	.013	.108
		DNN+ Directional	-.058*	.016	1116.000	.005	-.105	-.010
	NoiseBlock	No_Processing	.015	.016	1116.000	1.000	-.033	.062
		Beam	-.008	.016	1116.000	1.000	-.055	.040
		Beam+ NoiseBlock	-.026	.016	1116.000	1.000	-.073	.022
		DNN	-.060*	.016	1116	.003	-.108	-.013
		DNN+ Directional	-.118*	.016	1116.000	<.001	-.166	-.070
	DNN+ Directional	No_Processing	.133*	.016	1116	<.001	.085	.180
		Beam	.111*	.016	1116	<.001	.063	.158
		Beam+ NoiseBlock	.093*	.016	1116.000	<.001	.045	.140

	DNN	.058*	.016	1116.000	.005	.010	.105
	NoiseBlock	.118*	.016	1116.000	<.001	.070	.166

Based on estimated marginal means[a]

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

a. Dependent Variable: HASQI.

c. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests[a]

SNR	Numerator df	Denominator df	F	Sig.
-5	5	1116	6.970	<.001
0	5	1116	16.896	<.001
5	5	1116	18.407	<.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]

a. Dependent Variable: HASQI.

7. Room * Program

Estimates[a]

					95% Confidence Interval	
Room	Program	Mean	Std. Error	df	Lower Bound	Upper Bound
SoundBooth	No_Processing	.148	.009	1116	.130	.166
	Beam	.196	.009	1116.000	.178	.214
	Beam+NoiseBlock	.209	.009	1116.000	.191	.227
	DNN	.217	.009	1116	.199	.235
	NoiseBlock	.159	.009	1116.000	.140	.177
	DNN+Directional	.294	.009	1116	.275	.312
RevRoom	No_Processing	.144	.009	1116.000	.126	.162
	Beam	.144	.009	1116	.126	.163
	Beam+NoiseBlock	.160	.009	1116.000	.141	.178
	DNN	.195	.009	1116	.177	.214
	NoiseBlock	.156	.009	1116.000	.137	.174
	DNN+Directional	.230	.009	1116	.211	.248

a. Dependent Variable: HASQI.

Pairwise Comparisons[a]

Room	(I) Program	(J) Program	Mean Difference (I-J)	Std. Error	df	Sig.[c]	95% Confidence Interval for Difference[c] Lower Bound	Upper Bound
SoundBooth	No_Processing	Beam	-.048*	.013	1116.000	.004	-.087	-.009
		Beam+ NoiseBlock	-.061*	.013	1116.000	<.001	-.100	-.022
		DNN	-.069*	.013	1116	<.001	-.108	-.030
		NoiseBlock	-.011	.013	1116.000	1.000	-.049	.028
		DNN+ Directional	-.146*	.013	1116.000	<.001	-.185	-.107
	Beam	No_Processing	.048*	.013	1116.000	.004	.009	.087
		Beam+ NoiseBlock	-.013	.013	1116.000	1.000	-.052	.026
		DNN	-.021	.013	1116	1.000	-.060	.018
		NoiseBlock	.038	.013	1116.000	.069	-.001	.076
		DNN+ Directional	-.098*	.013	1116	<.001	-.136	-.059
	Beam+ NoiseBlock	No_Processing	.061*	.013	1116.000	<.001	.022	.100
		Beam	.013	.013	1116.000	1.000	-.026	.052
		DNN	-.008	.013	1116.000	1.000	-.047	.031
		NoiseBlock	.051*	.013	1116.000	.002	.012	.089
		DNN+ Directional	-.085*	.013	1116.000	<.001	-.123	-.046
	DNN	No_Processing	.069*	.013	1116	<.001	.030	.108
		Beam	.021	.013	1116	1.000	-.018	.060
		Beam+ NoiseBlock	.008	.013	1116.000	1.000	-.031	.047
		NoiseBlock	.059*	.013	1116.000	<.001	.020	.097
		DNN+ Directional	-.077*	.013	1116.000	<.001	-.115	-.038
	NoiseBlock	No_Processing	.011	.013	1116.000	1.000	-.028	.049
		Beam	-.038	.013	1116.000	.069	-.076	.001
		Beam+ NoiseBlock	-.051*	.013	1116.000	.002	-.089	-.012
		DNN	-.059*	.013	1116.00	<.001	-.097	-.020

					0			
		DNN+ Directional	-.135*	.013	1116.000	<.001	-.174	-.096
	DNN+ Directional	No_Processing	.146*	.013	1116.000	<.001	.107	.185
		Beam	.098*	.013	1116	<.001	.059	.136
		Beam+ NoiseBlock	.085*	.013	1116.000	<.001	.046	.123
		DNN	.077*	.013	1116.000	<.001	.038	.115
		NoiseBlock	.135*	.013	1116.000	<.001	.096	.174
RevRoom	No_Processing	Beam	.000	.013	1116.000	1.000	-.039	.038
		Beam+ NoiseBlock	-.016	.013	1116.000	1.000	-.055	.023
		DNN	-.051*	.013	1116.000	.002	-.090	-.013
		NoiseBlock	-.012	.013	1116.000	1.000	-.051	.027
		DNN+ Directional	-.086*	.013	1116	<.001	-.125	-.047
	Beam	No_Processing	.000	.013	1116.000	1.000	-.038	.039
		Beam+ NoiseBlock	-.015	.013	1116.000	1.000	-.054	.024
		DNN	-.051*	.013	1116	.002	-.090	-.012
		NoiseBlock	-.011	.013	1116.000	1.000	-.050	.028
		DNN+ Directional	-.085*	.013	1116	<.001	-.124	-.047
	Beam+ NoiseBlock	No_Processing	.016	.013	1116.000	1.000	-.023	.055
		Beam	.015	.013	1116.000	1.000	-.024	.054
		DNN	-.036	.013	1116.000	.103	-.075	.003
		NoiseBlock	.004	.013	1116.000	1.000	-.035	.043
		DNN+ Directional	-.070*	.013	1116	<.001	-.109	-.031
	DNN	No_Processing	.051*	.013	1116.000	.002	.013	.090
		Beam	.051*	.013	1116	.002	.012	.090
		Beam+ NoiseBlock	.036	.013	1116.000	.103	-.003	.075
		NoiseBlock	.040*	.013	1116	.040	.001	.079
		DNN+	-.034	.013	1116	.139	-.073	.004

		Directional						
	NoiseBlock	No_Processing	.012	.013	1116.000	1.000	-.027	.051
		Beam	.011	.013	1116.000	1.000	-.028	.050
		Beam+ NoiseBlock	-.004	.013	1116.000	1.000	-.043	.035
		DNN	-.040*	.013	1116	.040	-.079	-.001
		DNN+ Directional	-.074*	.013	1116.000	<.001	-.113	-.035
	DNN+ Directional	No_Processing	.086*	.013	1116	<.001	.047	.125
		Beam	.085*	.013	1116	<.001	.047	.124
		Beam+ NoiseBlock	.070*	.013	1116	<.001	.031	.109
		DNN	.034	.013	1116	.139	-.004	.073
		NoiseBlock	.074*	.013	1116.000	<.001	.035	.113

Based on estimated marginal means[a]

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

a. Dependent Variable: HASQI.

c. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests[a]

Room	Numerator df	Denominator df	F	Sig.
SoundBooth	5	1116	30.953	<.001
RevRoom	5	1116	13.437	<.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]

a. Dependent Variable: HASQI.

8. SNR * Room * Program

Estimates[a]

						95% Confidence Interval	
SNR	Room	Program	Mean	Std. Error	df	Lower Bound	Upper Bound
-5	SoundBooth	No_Processing	.052	.016	1116	.021	.084
		Beam	.091	.016	1116	.059	.123
		Beam+NoiseBlock	.098	.016	1116.000	.066	.130
		DNN	.095	.016	1116	.063	.127
		NoiseBlock	.058	.016	1116.000	.026	.090
		DNN+Directional	.157	.016	1116	.125	.188
	RevRoom	No_Processing	.065	.016	1116	.033	.096
		Beam	.069	.016	1116	.038	.101
		Beam+NoiseBlock	.080	.016	1116.000	.048	.111
		DNN	.105	.016	1116	.073	.136
		NoiseBlock	.072	.016	1116.000	.040	.104

		DNN+Directional	.128	.016	1116	.097	.160
0	SoundBooth	No_Processing	.133	.016	1116	.101	.165
		Beam	.188	.016	1116.000	.157	.220
		Beam+NoiseBlock	.203	.016	1116.000	.171	.235
		DNN	.205	.016	1116	.173	.237
		NoiseBlock	.144	.016	1116.000	.112	.176
		DNN+Directional	.297	.016	1116	.265	.329
	RevRoom	No_Processing	.138	.016	1116	.106	.169
		Beam	.140	.016	1116	.108	.172
		Beam+NoiseBlock	.157	.016	1116	.125	.189
		DNN	.195	.016	1116	.163	.226
		NoiseBlock	.151	.016	1116.000	.119	.183
		DNN+Directional	.235	.016	1116	.203	.267
5	SoundBooth	No_Processing	.258	.016	1116	.227	.290
		Beam	.309	.016	1116.000	.277	.340
		Beam+NoiseBlock	.326	.016	1116	.295	.358
		DNN	.351	.016	1116	.319	.382
		NoiseBlock	.273	.016	1116.000	.242	.305
		DNN+Directional	.427	.016	1116.000	.396	.459
	RevRoom	No_Processing	.229	.016	1116.000	.198	.261
		Beam	.223	.016	1116	.192	.255
		Beam+NoiseBlock	.242	.016	1116	.210	.273
		DNN	.287	.016	1116	.255	.318
		NoiseBlock	.244	.016	1116	.212	.275
		DNN+Directional	.326	.016	1116	.294	.358

a. Dependent Variable: HASQI.

Pairwise Comparisons[a]

SNR	Program	(I) Room	(J) Room	Mean Difference (I-J)	Std. Error	df	Sig.[c]
-5	No_Processing	SoundBooth	RevRoom	-.012	.023	1116	.592
		RevRoom	SoundBooth	.012	.023	1116	.592
	Beam	SoundBooth	RevRoom	.022	.023	1116	.342
		RevRoom	SoundBooth	-.022	.023	1116	.342
	Beam+NoiseBlock	SoundBooth	RevRoom	.018	.023	1116	.427
		RevRoom	SoundBooth	-.018	.023	1116	.427
	DNN	SoundBooth	RevRoom	-.009	.023	1116	.680
		RevRoom	SoundBooth	.009	.023	1116	.680
	NoiseBlock	SoundBooth	RevRoom	-.014	.023	1116	.543
		RevRoom	SoundBooth	.014	.023	1116	.543
	DNN+Directional	SoundBooth	RevRoom	.028	.023	1116.000	.216
		RevRoom	SoundBooth	-.028	.023	1116.000	.216
0	No_Processing	SoundBooth	RevRoom	-.004	.023	1116	.848
		RevRoom	SoundBooth	.004	.023	1116	.848
	Beam	SoundBooth	RevRoom	.048*	.023	1116.000	.035
		RevRoom	SoundBooth	-.048*	.023	1116.000	.035
	Beam+NoiseBlock	SoundBooth	RevRoom	.046*	.023	1116.000	.045

		RevRoom	SoundBooth	-.046*	.023	1116.000	.045
	DNN	SoundBooth	RevRoom	.011	.023	1116	.641
		RevRoom	SoundBooth	-.011	.023	1116	.641
	NoiseBlock	SoundBooth	RevRoom	-.007	.023	1116.000	.757
		RevRoom	SoundBooth	.007	.023	1116.000	.757
	DNN+Directional	SoundBooth	RevRoom	.062*	.023	1116.000	.007
		RevRoom	SoundBooth	-.062*	.023	1116.000	.007
5	No_Processing	SoundBooth	RevRoom	.029	.023	1116.000	.204
		RevRoom	SoundBooth	-.029	.023	1116.000	.204
	Beam	SoundBooth	RevRoom	.085*	.023	1116	<.001
		RevRoom	SoundBooth	-.085*	.023	1116	<.001
	Beam+NoiseBlock	SoundBooth	RevRoom	.085*	.023	1116	<.001
		RevRoom	SoundBooth	-.085*	.023	1116	<.001
	DNN	SoundBooth	RevRoom	.064*	.023	1116.000	.005
		RevRoom	SoundBooth	-.064*	.023	1116.000	.005
	NoiseBlock	SoundBooth	RevRoom	.030	.023	1116	.191
		RevRoom	SoundBooth	-.030	.023	1116	.191
	DNN+Directional	SoundBooth	RevRoom	.102*	.023	1116.000	<.001
		RevRoom	SoundBooth	-.102*	.023	1116.000	<.001

Pairwise Comparisons[a]

				95% Confidence Interval for Difference[c]	
SNR	Program	(I) Room	(J) Room	Lower Bound	Upper Bound
-5	No_Processing	SoundBooth	RevRoom	-.057	.033
		RevRoom	SoundBooth	-.033	.057
	Beam	SoundBooth	RevRoom	-.023	.067
		RevRoom	SoundBooth	-.067	.023
	Beam+NoiseBlock	SoundBooth	RevRoom	-.027	.063
		RevRoom	SoundBooth	-.063	.027
	DNN	SoundBooth	RevRoom	-.054	.035
		RevRoom	SoundBooth	-.035	.054
	NoiseBlock	SoundBooth	RevRoom	-.059	.031
		RevRoom	SoundBooth	-.031	.059
	DNN+Directional	SoundBooth	RevRoom	-.017	.073
		RevRoom	SoundBooth	-.073	.017
0	No_Processing	SoundBooth	RevRoom	-.049	.041
		RevRoom	SoundBooth	-.041	.049
	Beam	SoundBooth	RevRoom	.003	.093
		RevRoom	SoundBooth	-.093	-.003
	Beam+NoiseBlock	SoundBooth	RevRoom	.001	.091
		RevRoom	SoundBooth	-.091	-.001
	DNN	SoundBooth	RevRoom	-.034	.056
		RevRoom	SoundBooth	-.056	.034
	NoiseBlock	SoundBooth	RevRoom	-.052	.038
		RevRoom	SoundBooth	-.038	.052

	DNN+Directional	SoundBooth	RevRoom	.017	.107
		RevRoom	SoundBooth	-.107	-.017
5	No_Processing	SoundBooth	RevRoom	-.016	.074
		RevRoom	SoundBooth	-.074	.016
	Beam	SoundBooth	RevRoom	.041	.130
		RevRoom	SoundBooth	-.130	-.041
	Beam+NoiseBlock	SoundBooth	RevRoom	.040	.129
		RevRoom	SoundBooth	-.129	-.040
	DNN	SoundBooth	RevRoom	.019	.109
		RevRoom	SoundBooth	-.109	-.019
	NoiseBlock	SoundBooth	RevRoom	-.015	.075
		RevRoom	SoundBooth	-.075	.015
	DNN+Directional	SoundBooth	RevRoom	.057	.146
		RevRoom	SoundBooth	-.146	-.057

Based on estimated marginal means[a]

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

a. Dependent Variable: HASQI.

c. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests[a]

SNR	Program	Numerator df	Denominator df	F	Sig.
-5	No_Processing	1	1116	.288	.592
	Beam	1	1116	.903	.342
	Beam+NoiseBlock	1	1116	.631	.427
	DNN	1	1116	.170	.680
	NoiseBlock	1	1116	.370	.543
	DNN+Directional	1	1116.000	1.531	.216
0	No_Processing	1	1116	.037	.848
	Beam	1	1116.000	4.433	.035
	Beam+NoiseBlock	1	1116.000	4.022	.045
	DNN	1	1116	.218	.641
	NoiseBlock	1	1116.000	.096	.757
	DNN+Directional	1	1116.000	7.329	.007
5	No_Processing	1	1116.000	1.619	.204
	Beam	1	1116	13.935	<.001
	Beam+NoiseBlock	1	1116	13.672	<.001
	DNN	1	1116.000	7.829	.005
	NoiseBlock	1	1116	1.715	.191
	DNN+Directional	1	1116.000	19.696	<.001

Each F tests the simple effects of Room 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]

a. Dependent Variable: HASQI.