

General Linear Model

Mauchly's Test of Sphericity^a

Measure: EffectiveWidth

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b Greenhouse-Geisser
Cursor	.624	12.112	5	.033	.787
Amp	.946	1.451	2	.484	.949
Width	.455	20.453	2	<.001	.647
Cursor * Amp	.305	29.407	20	.082	.737
Cursor * Width	.178	42.740	20	.002	.683
Amp * Width	.531	16.100	9	.065	.799
Cursor * Amp * Width	.021	88.640	77	.200	.640

Mauchly's Test of Sphericity^a

Measure: EffectiveWidth

Within Subjects Effect	Epsilon ^b	
	Huynh-Feldt	Lower-bound
Cursor	.867	.333
Amp	1.000	.500
Width	.666	.500
Cursor * Amp	.900	.167
Cursor * Width	.820	.167
Amp * Width	.919	.250
Cursor * Amp * Width	.919	.083

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept

Within Subjects Design: Cursor + Amp + Width + Cursor * Amp + Cursor * Width + Amp * Width + Cursor * Amp * Width

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: EffectiveWidth

Source		Type III Sum of Squares	df	Mean Square
Cursor	Sphericity Assumed	1.612	3	.537
	Greenhouse-Geisser	1.612	2.361	.683
	Huynh-Feldt	1.612	2.602	.619
	Lower-bound	1.612	1.000	1.612
Error(Cursor)	Sphericity Assumed	74.944	81	.925
	Greenhouse-Geisser	74.944	63.758	1.175
	Huynh-Feldt	74.944	70.264	1.067
	Lower-bound	74.944	27.000	2.776
Amp	Sphericity Assumed	26.574	2	13.287
	Greenhouse-Geisser	26.574	1.897	14.008
	Huynh-Feldt	26.574	2.000	13.287
	Lower-bound	26.574	1.000	26.574
Error(Amp)	Sphericity Assumed	19.665	54	.364
	Greenhouse-Geisser	19.665	51.221	.384
	Huynh-Feldt	19.665	54.000	.364
	Lower-bound	19.665	27.000	.728
Width	Sphericity Assumed	1134.561	2	567.280
	Greenhouse-Geisser	1134.561	1.295	876.237
	Huynh-Feldt	1134.561	1.333	851.390
	Lower-bound	1134.561	1.000	1134.561
Error(Width)	Sphericity Assumed	33.203	54	.615
	Greenhouse-Geisser	33.203	34.960	.950
	Huynh-Feldt	33.203	35.980	.923
	Lower-bound	33.203	27.000	1.230
Cursor * Amp	Sphericity Assumed	7.676	6	1.279
	Greenhouse-Geisser	7.676	4.423	1.735
	Huynh-Feldt	7.676	5.397	1.422
	Lower-bound	7.676	1.000	7.676
Error(Cursor*Amp)	Sphericity Assumed	62.908	162	.388
	Greenhouse-Geisser	62.908	119.429	.527
	Huynh-Feldt	62.908	145.726	.432
	Lower-bound	62.908	27.000	2.330
Cursor * Width	Sphericity Assumed	4.503	6	.751
	Greenhouse-Geisser	4.503	4.096	1.099
	Huynh-Feldt	4.503	4.920	.915
	Lower-bound	4.503	1.000	4.503
Error(Cursor*Width)	Sphericity Assumed	71.114	162	.439
	Greenhouse-Geisser	71.114	110.594	.643
	Huynh-Feldt	71.114	132.843	.535
	Lower-bound	71.114	27.000	2.634

Tests of Within-Subjects Effects

Measure: EffectiveWidth

Source		F	Sig.	Partial Eta Squared
Cursor	Sphericity Assumed	.581	.629	.021
	Greenhouse-Geisser	.581	.590	.021
	Huynh-Feldt	.581	.606	.021
	Lower-bound	.581	.453	.021
Error(Cursor)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			
Amp	Sphericity Assumed	36.487	<.001	.575
	Greenhouse-Geisser	36.487	<.001	.575
	Huynh-Feldt	36.487	<.001	.575
	Lower-bound	36.487	<.001	.575
Error(Amp)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			
Width	Sphericity Assumed	922.589	<.001	.972
	Greenhouse-Geisser	922.589	<.001	.972
	Huynh-Feldt	922.589	<.001	.972
	Lower-bound	922.589	<.001	.972
Error(Width)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			
Cursor * Amp	Sphericity Assumed	3.295	.004	.109
	Greenhouse-Geisser	3.295	.011	.109
	Huynh-Feldt	3.295	.006	.109
	Lower-bound	3.295	.081	.109
Error(Cursor*Amp)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			
Cursor * Width	Sphericity Assumed	1.710	.122	.060
	Greenhouse-Geisser	1.710	.151	.060
	Huynh-Feldt	1.710	.138	.060
	Lower-bound	1.710	.202	.060
Error(Cursor*Width)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			

Tests of Within-Subjects Effects

Measure: EffectiveWidth

Source		Type III Sum of Squares	df	Mean Square
Amp * Width	Sphericity Assumed	3.658	4	.914
	Greenhouse-Geisser	3.658	3.197	1.144
	Huynh-Feldt	3.658	3.677	.995
	Lower-bound	3.658	1.000	3.658
Error(Amp*Width)	Sphericity Assumed	46.593	108	.431
	Greenhouse-Geisser	46.593	86.320	.540
	Huynh-Feldt	46.593	99.271	.469
	Lower-bound	46.593	27.000	1.726
Cursor * Amp * Width	Sphericity Assumed	5.817	12	.485
	Greenhouse-Geisser	5.817	7.680	.758
	Huynh-Feldt	5.817	11.026	.528
	Lower-bound	5.817	1.000	5.817
Error(Cursor*Amp*Width)	Sphericity Assumed	119.386	324	.368
	Greenhouse-Geisser	119.386	207.349	.576
	Huynh-Feldt	119.386	297.704	.401
	Lower-bound	119.386	27.000	4.422

Tests of Within-Subjects Effects

Measure: EffectiveWidth

Source		F	Sig.	Partial Eta Squared
Amp * Width	Sphericity Assumed	2.120	.083	.073
	Greenhouse-Geisser	2.120	.100	.073
	Huynh-Feldt	2.120	.089	.073
	Lower-bound	2.120	.157	.073
Error(Amp*Width)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			
Cursor * Amp * Width	Sphericity Assumed	1.316	.208	.046
	Greenhouse-Geisser	1.316	.239	.046
	Huynh-Feldt	1.316	.214	.046
	Lower-bound	1.316	.261	.046
Error(Cursor*Amp*Width)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			

Estimated Marginal Means

3. Amp

Estimates

Measure: EffectiveWidth

Amp	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	2.652	.080	2.488	2.817
2	2.997	.087	2.818	3.176
3	2.996	.089	2.814	3.178

Pairwise Comparisons

Measure: EffectiveWidth

(I) Amp	(J) Amp	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	-.345 [*]	.042	<.001	-.452	-.238
	3	-.344 [*]	.051	<.001	-.475	-.213
2	1	.345 [*]	.042	<.001	.238	.452
	3	.001	.046	1.000	-.116	.118
3	1	.344 [*]	.051	<.001	.213	.475
	2	-.001	.046	1.000	-.118	.116

Based on estimated marginal means

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

b. Adjustment for multiple comparisons: Bonferroni.

4. Width

Estimates

Measure: EffectiveWidth

Width	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	1.676	.075	1.522	1.830
2	2.711	.083	2.542	2.881
3	4.258	.104	4.044	4.472

Pairwise Comparisons

Measure: EffectiveWidth

(I) Width	(J) Width	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	-1.035 [*]	.031	<.001	-1.115	-.956
	3	-2.582 [*]	.072	<.001	-2.766	-2.398
2	1	1.035 [*]	.031	<.001	.956	1.115
	3	-1.546 [*]	.069	<.001	-1.724	-1.369
3	1	2.582 [*]	.072	<.001	2.398	2.766
	2	1.546 [*]	.069	<.001	1.369	1.724

Based on estimated marginal means

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

b. Adjustment for multiple comparisons: Bonferroni.

5. Cursor * Amp

Pairwise Comparisons

Measure: EffectiveWidth

Amp	(I) Cursor	(J) Cursor	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b
						Lower Bound
1	1	2	-.013	.113	1.000	-.335
		3	-.299	.115	.090	-.626
		4	-.253	.090	.055	-.510
	2	1	.013	.113	1.000	-.309
		3	-.285 [*]	.092	.026	-.546
		4	-.240	.094	.098	-.507
	3	1	.299	.115	.090	-.029
		2	.285 [*]	.092	.026	.025
		4	.045	.092	1.000	-.217
	4	1	.253	.090	.055	-.004
		2	.240	.094	.098	-.027
		3	-.045	.092	1.000	-.308
2	1	2	.143	.116	1.000	-.187
		3	.194	.133	.933	-.184
		4	.092	.131	1.000	-.281
	2	1	-.143	.116	1.000	-.473
		3	.051	.119	1.000	-.289
		4	-.051	.126	1.000	-.410
	3	1	-.194	.133	.933	-.571
		2	-.051	.119	1.000	-.391
		4	-.102	.088	1.000	-.351

Pairwise Comparisons

Measure: EffectiveWidth

			95% Confidence Interval for ^b ...
Amp	(I) Cursor	(J) Cursor	Upper Bound
1	1	2	.309
		3	.029
		4	.004
	2	1	.335
		3	-.025
		4	.027
	3	1	.626
		2	.546
		4	.308
	4	1	.510
		2	.507
		3	.217
2	1	2	.473
		3	.571
		4	.465
	2	1	.187
		3	.391
		4	.308
	3	1	.184
		2	.289
		4	.147

Pairwise Comparisons

Measure: EffectiveWidth

Amp	(I) Cursor	(J) Cursor	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for ^b ... Lower Bound
	4	1	-.092	.131	1.000	-.465
		2	.051	.126	1.000	-.308
		3	.102	.088	1.000	-.147
3	1	2	.006	.137	1.000	-.385
		3	.134	.159	1.000	-.320
		4	-.035	.127	1.000	-.395
	2	1	-.006	.137	1.000	-.397
		3	.128	.132	1.000	-.247
		4	-.041	.098	1.000	-.320
	3	1	-.134	.159	1.000	-.588
		2	-.128	.132	1.000	-.503
		4	-.169	.100	.622	-.454
	4	1	.035	.127	1.000	-.325
		2	.041	.098	1.000	-.238
		3	.169	.100	.622	-.117

Pairwise Comparisons

Measure: EffectiveWidth

Amp	(I) Cursor	(J) Cursor	95% Confidence Interval for ^b ... Upper Bound
	4	1	.281
		2	.410
		3	.351
3	1	2	.397
		3	.588
		4	.325
	2	1	.385
		3	.503
		4	.238
	3	1	.320
		2	.247
		4	.117
	4	1	.395
		2	.320
		3	.454

Based on estimated marginal means

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

b. Adjustment for multiple comparisons: Bonferroni.

Profile Plots



