Acoustic Test Conditions for ETC Dimmer Racks

The following ETC dimmer racks were acoustically tested on March 5, 1999 at Soundcoat in Irvine, California. The units were tested in accordance with the ISO 7779 (ANSI S12.10-1985) standard specifications. The A-weighted overall sound pressure level as well as the 1/3-octave band sound pressure levels were recorded. The frequency range for the 1/3-octave bands is 25 Hz to 20 kHz. The recording instruments and test chamber are specified below. The microphone is positioned on the front and side of the test unit. Microphone distances are also specified below. Acoustic measurements were taken by Joseph Tran, Acoustician at Soundcoat.

Recording Instruments

1. Bruel & Kjaer – Model 2131 Digital Frequency Analyzer
2. Bruel & Kjaer – Model 2669 Preamplifier
3. Bruel & Kjaer – Model 4165 Condenser Microphone
4. Bruel & Kjaer – Model 4220 Pistonphone
5. Packard Bell Personal Computer utilizing a custom acoustic software

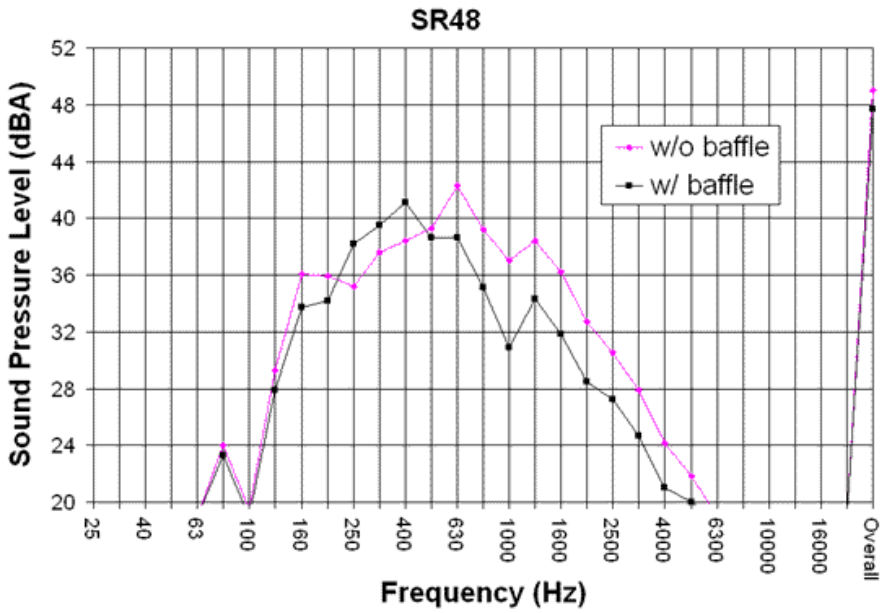
Test Chamber

The dimmer rack tested is placed against the wall of a semi-anechoic chamber, except for the SP touring rack which is placed in the center of the chamber. Chamber dimensions are 23 ft.(L) x 16 ft.(W) x 15 ft.(H). There are foam wedges 2 ft. long on all four walls and ceiling. The cut-off frequency of the chamber is approximately 140 Hz. The ambient sound pressure level of the chamber is approximately 22 dBA.

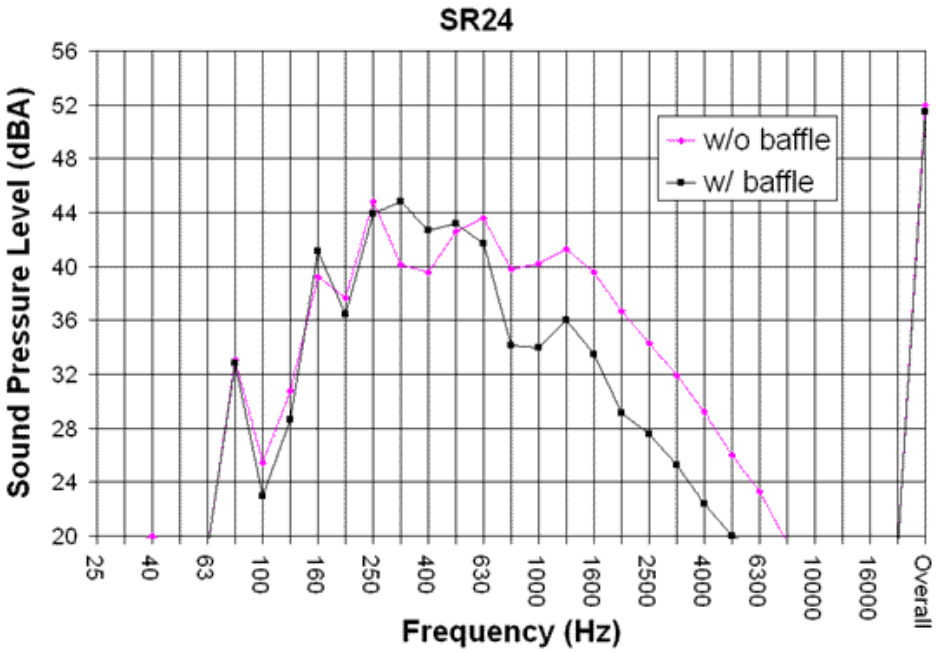
Microphone Positions

All measurements are taken 1m from the front/center of the rack parallel with the top and 1m from the side at the right/front corner parallel with the top. There is an exception with the SR48 and ESR48 racks. The microphone is positioned 1.5m from the floor (average human ear height) while the front and side distances remain the same. The total height of each of these two racks is 2.1m.

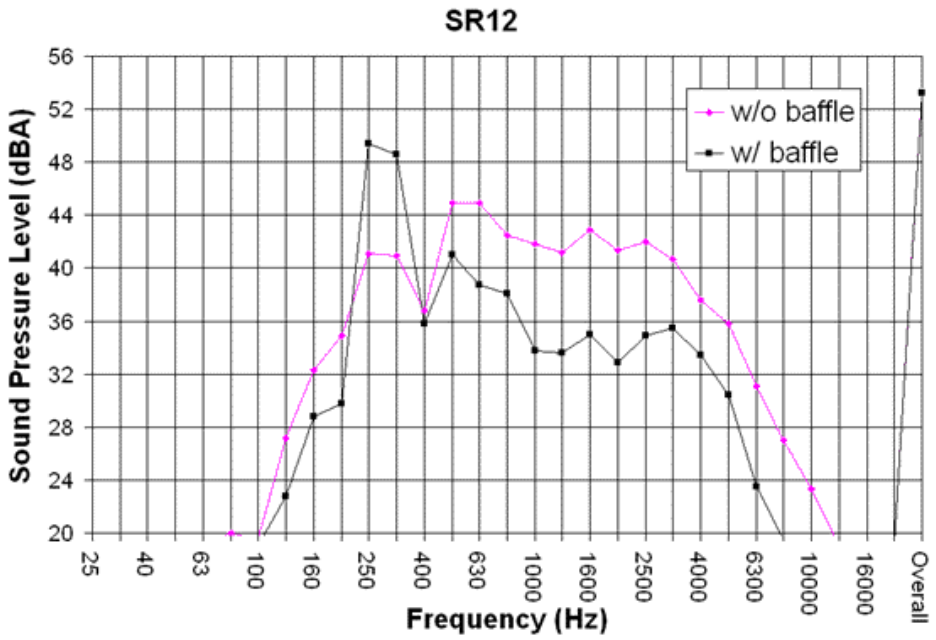
Note: Sound pressure decreases as distance from the sound source increases. Any dB data comparison of the ETC dimmer racks in this report to similar dimmer racks from other manufactures can only be accurate if the other dimmer racks are measured from the same microphone positions in an acoustically controlled chamber.



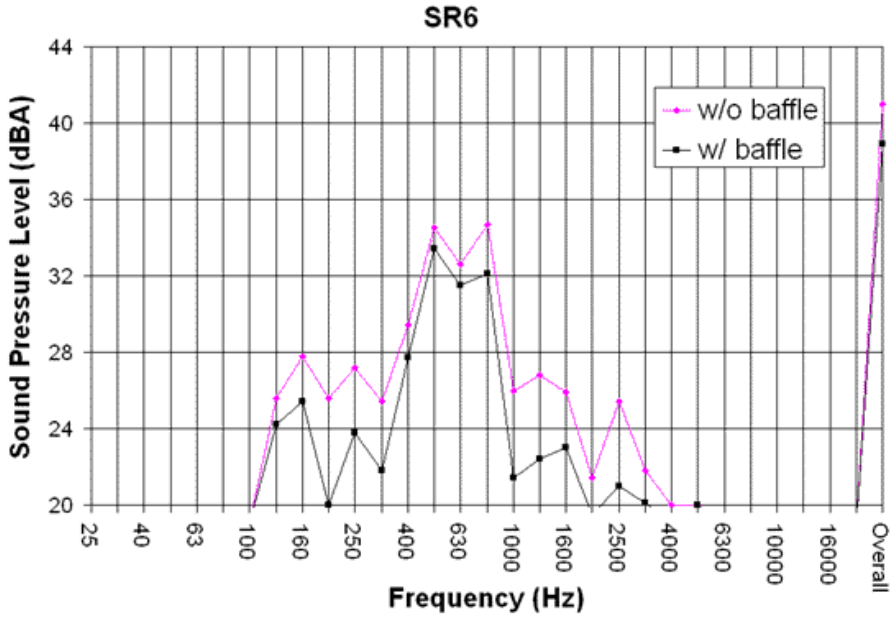
	SR48					
	w/o baffle			w/ baffle		
Frequency (Hz)	Front	Side	**Average**	Front	Side	**Average**
25	19.0	19.0	19.0	19.0	19.0	19.0
32	19.0	19.0	19.0	19.0	19.0	19.0
40	20.0	19.0	19.5	20.0	19.0	19.5
50	19.0	19.0	19.0	19.0	19.0	19.0
63	19.0	19.0	19.0	19.0	19.0	19.0
80	26.0	20.0	24.0	25.4	19.0	23.3
100	20.0	19.0	19.5	19.0	19.0	19.0
125	30.5	27.6	29.3	28.7	27.0	27.9
160	37.1	34.9	36.1	31.9	34.9	33.7
200	36.3	35.4	35.9	34.7	33.7	34.2
250	35.7	34.6	35.2	38.0	38.3	38.2
315	39.2	35.0	37.6	40.1	38.7	39.5
400	39.3	37.3	38.4	43.4	35.9	41.1
500	39.9	38.6	39.3	40.1	36.2	38.6
630	40.1	43.7	42.3	38.6	38.6	38.6
800	40.0	38.1	39.2	35.5	34.6	35.1
1000	37.7	36.2	37.0	32.0	29.3	30.9
1250	39.9	36.2	38.4	35.6	32.5	34.3
1600	37.0	35.3	36.2	33.2	29.6	31.8
2000	32.9	32.4	32.7	28.3	28.7	28.5
2500	30.8	30.2	30.5	28.1	26.0	27.2
3150	28.6	27.0	27.9	25.7	23.5	24.7
4000	24.8	23.5	24.2	21.8	20.0	21.0
5000	21.8	21.8	21.8	20.0	20.0	20.0
6300	19.0	19.0	19.0	19.0	19.0	19.0
8000	19.0	19.0	19.0	19.0	19.0	19.0
10000	19.0	19.0	19.0	19.0	19.0	19.0
12500	19.0	19.0	19.0	19.0	19.0	19.0
16000	19.0	19.0	19.0	19.0	19.0	19.0
20000	19.0	19.0	19.0	19.0	19.0	19.0
Overall	**49.4**	**48.5**	**49.0**	**48.7**	**46.4**	**47.7**



	SR24					
	w/o baffle			w/ baffle		
Frequency (Hz)	Front	Side	Average	Front	Side	Average
25	19.0	19.0	19.0	19.0	19.0	19.0
32	19.0	19.0	19.0	19.0	19.0	19.0
40	20.0	20.0	20.0	19.0	20.0	19.5
50	19.0	19.0	19.0	19.0	19.0	19.0
63	19.0	19.0	19.0	19.0	19.0	19.0
80	35.0	29.5	33.1	35.5	24.8	32.8
100	26.7	23.5	25.4	24.8	20.0	23.0
125	32.4	28.4	30.8	29.7	27.2	28.6
160	39.9	38.3	39.2	41.7	40.3	41.1
200	37.9	37.5	37.7	36.9	35.9	36.4
250	43.8	45.6	44.8	44.5	43.1	43.9
315	41.1	38.7	40.1	44.9	44.6	44.8
400	40.3	38.7	39.6	44.4	39.7	42.7
500	43.8	40.8	42.6	45.7	36.4	43.2
630	44.6	42.2	43.6	43.9	36.9	41.7
800	40.1	39.4	39.8	34.9	33.0	34.1
1000	41.3	38.7	40.2	35.4	32.0	34.0
1250	42.3	40.1	41.3	37.5	33.8	36.0
1600	39.8	39.3	39.6	34.9	31.3	33.5
2000	37.2	36.1	36.7	30.2	27.6	29.1
2500	34.6	34.0	34.3	28.1	27.0	27.6
3150	31.9	31.9	31.9	26.3	24.0	25.3
4000	29.0	29.3	29.2	23.0	21.8	22.4
5000	26.0	26.0	26.0	20.0	20.0	20.0
6300	23.0	23.5	23.3	19.0	19.0	19.0
8000	19.0	20.0	19.5	19.0	19.0	19.0
10000	19.0	19.0	19.0	19.0	19.0	19.0
12500	19.0	19.0	19.0	19.0	19.0	19.0
16000	19.0	19.0	19.0	19.0	19.0	19.0
20000	19.0	19.0	19.0	19.0	19.0	19.0
Overall	**52.6**	**51.4**	**52.0**	**52.8**	**49.7**	**51.5**



	SR12					
	w/o baffle			w/ baffle		
Frequency (Hz)	Front	Side	**Average**	Front	Side	**Average**
25	19.0	19.0	19.0	19.0	19.0	19.0
32	19.0	19.0	19.0	19.0	19.0	19.0
40	19.0	19.0	19.0	19.0	19.0	19.0
50	19.0	19.0	19.0	19.0	19.0	19.0
63	19.0	19.0	19.0	19.0	19.0	19.0
80	20.0	20.0	20.0	19.0	19.0	19.0
100	20.0	19.0	19.5	19.0	19.0	19.0
125	28.6	25.1	27.2	24.0	21.0	22.8
160	32.5	32.1	32.3	29.1	28.4	28.8
200	34.3	35.4	34.9	29.6	30.0	29.8
250	41.9	40.0	41.1	50.9	47.0	49.4
315	41.5	40.3	40.9	49.8	47.0	48.6
400	36.8	36.8	36.8	36.9	34.4	35.8
500	44.7	45.1	44.9	43.4	34.9	41.0
630	44.1	45.5	44.9	40.8	34.3	38.7
800	42.2	42.8	42.5	38.4	37.8	38.1
1000	41.5	42.0	41.8	34.7	32.6	33.8
1250	40.7	41.6	41.2	34.1	33.1	33.6
1600	42.4	43.3	42.9	36.7	32.3	35.0
2000	40.4	42.1	41.3	33.2	32.5	32.9
2500	41.5	42.5	42.0	35.6	34.0	34.9
3150	40.3	41.0	40.7	36.3	34.5	35.5
4000	37.7	37.4	37.6	35.0	30.9	33.4
5000	34.8	36.6	35.8	31.3	29.3	30.4
6300	30.3	31.8	31.1	23.5	23.5	23.5
8000	26.3	27.6	27.0	19.0	20.0	19.5
10000	23.0	23.5	23.3	19.0	19.0	19.0
12500	19.0	19.0	19.0	19.0	19.0	19.0
16000	19.0	19.0	19.0	19.0	19.0	19.0
20000	19.0	19.0	19.0	19.0	19.0	19.0
Overall	**53.0**	**53.6**	**53.3**	**54.6**	**51.2**	**53.2**



	SR6					
	w/o baffle			w/ baffle		
Frequency (Hz)	Front	Side	**Average**	Front	Side	**Average**
25	19.0	19.0	19.0	19.0	19.0	19.0
32	19.0	19.0	19.0	19.0	19.0	19.0
40	19.0	19.0	19.0	19.0	19.0	19.0
50	19.0	19.0	19.0	19.0	19.0	19.0
63	19.0	19.0	19.0	19.0	19.0	19.0
80	19.0	19.0	19.0	19.0	19.0	19.0
100	19.0	19.0	19.0	19.0	19.0	19.0
125	26.7	24.0	25.6	25.4	22.4	24.2
160	28.6	26.7	27.8	26.5	24.0	25.4
200	24.8	26.3	25.6	20.0	20.0	20.0
250	27.4	27.0	27.2	24.0	23.5	23.8
315	26.0	24.8	25.4	23.0	20.0	21.8
400	30.2	28.3	29.4	27.0	28.3	27.7
500	37.1	26.7	34.5	36.0	25.7	33.4
630	31.2	33.6	32.6	30.6	32.3	31.5
800	32.3	36.2	34.7	31.4	32.7	32.1
1000	26.3	25.7	26.0	22.4	20.0	21.4
1250	27.4	26.0	26.8	24.0	20.0	22.4
1600	26.3	25.4	25.9	24.8	20.0	23.0
2000	21.8	21.0	21.4	20.0	19.0	19.5
2500	25.4	25.4	25.4	21.8	20.0	21.0
3150	21.8	21.8	21.8	21.0	19.0	20.1
4000	20.0	20.0	20.0	19.0	19.0	19.0
5000	20.0	20.0	20.0	20.0	20.0	20.0
6300	19.0	19.0	19.0	19.0	19.0	19.0
8000	19.0	19.0	19.0	19.0	19.0	19.0
10000	19.0	19.0	19.0	19.0	19.0	19.0
12500	19.0	19.0	19.0	19.0	19.0	19.0
16000	19.0	19.0	19.0	19.0	19.0	19.0
20000	19.0	19.0	19.0	19.0	19.0	19.0
Overall	**41.4**	**40.6**	**41.0**	**39.8**	**37.8**	**38.9**

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