

U.S. FAN INTERNATIONAL®

USTB Series

Sound Power Levels



U.S. FAN INTERNATIONAL®
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Licensed to bear the AMCA Seal for Sound and Air Performance

USS119A
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U.S. Fan International® certifies that the USTB Series fans shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. For air performance data refer to catalog USC119.

INTRODUCTION

This catalog should be used in conjunction with the USC119 Catalog which provides the air performance data.

This catalog uses procedures in accordance with AMCA Standards. Tests have been conducted using AMCA Standard 300, Figure 2, Fan Inlet Sound Testing. Sound power level ratings are in decibels, referred to 10^{-12} watts calculated per AMCA Standard 301, "Methods for Calculating Fan Sound Ratings from Laboratory Test Data". Values shown are for inlet sound power levels (L_{wi}) for installation type 'B'; Free inlet, ducted outlet. Ratings do not include the effects of duct end correction.

Specific sound power is the means by which a fan's overall sound can be reduced to a set of base numbers which still represent the "signature" of the original fan.

$$L_{wi} = L_{wki} + L_{wf} - E$$

Where:

L_{wi} is Inlet sound power of fan

L_{wki} is Inlet specific sound power for a particular fan design

L_{wf} is Capacity fraction which is $10 \log(\text{CFM}) + 20 \log(\text{static pressure})$

E is Correction for fan size

The specific sound power of a fan changes with operating point location on the fan curve. This is done using the term VP/SP in that regardless of speed, fan size or density, the VP/SP ratio remains constant and defines the same corresponding operating point for the base fan as well as the new fan.

The capacity fraction (L_{wf}) and VP/SP ratio can easily be calculated or determined using Tables I and II. It is important to note that the VP/SP ratio requires both the VP and SP values to be at the same density. Because it is necessary that SP values be known at standard conditions in order to use catalog USC119, it is convenient to determine the VP/SP ratio at standard conditions using Table I. However, the acoustic energy (capacity fraction - L_{wf}) is a function of the SP at the actual operating conditions of the new fan. Therefore, use the SP corresponding to the actual operating conditions in Table II or you will obtain the wrong values of sound power.

SAMPLE CALCULATION

A size 60 fan must deliver 35,680 CFM at $1 \frac{1}{2}$ inches wg (373 Pa) static pressure. The fan must perform at an altitude of 4000 feet (1219 m) with air entering the fan in let at 150°F (65.5°C).

1. DETERMINE THE AERODYNAMIC RATING

The aerodynamic rating is found using the procedures found in the USC119 Catalog. The final rating at actual operating conditions is:

35,680 CFM (16.84 m^3/s), 1.5 inches wg SP (373 Pa), 481 RPM, 13.11 HP (9.8 kW).

2. DETERMINE THE VP/SP RATIO AT STANDARD CONDITIONS

The inlet velocity may be read directly from the catalog or calculated using the inlet area at the top of the page. The inlet area is 35.61 sq. ft. (3.3 m^2).

$$\text{Inlet velocity} = \frac{35680 \text{ CFM} (16.84 \text{ m}^3/\text{s})}{35.61 \text{ sq. ft.} (3.3 \text{ m}^2)}$$

$$= 1000 \text{ FPM} (5.08 \text{ m/s}) \text{ and}$$

$$\text{Velocity Pressure VP} = \frac{(1000 \text{ FPM})^2}{4005} = 0.062 \text{ in. wg} (15.5 \text{ Pa}).$$

The SP at standard conditions is 2.0 in. wg (497 Pa).

$$\text{The VP/SP ratio} = \frac{0.062 \text{ in. wg.} (15.5 \text{ Pa})}{2 \text{ in. wg.} (4.97 \text{ Pa})} = 0.031 \text{ or}$$

from Table I, for 1000 FPM and 2.0 inches wg., the VP/SP is .03.

3. DETERMINE THE CAPACITY FRACTION (L_{wf})

The static pressure at the actual operating conditions is 1.5 inches. By using the capacity fraction formula or Table II the L_{wf} is 49 dB.

4. DETERMINE THE INLET SPECIFIC SOUND POWER (L_{wki}) FOR THE FAN SIZE AND SPEED DESIRED.

The size 60 fan will run at 481 RPM and operate at a VP/SP ratio of .03. For the listed speed NEAREST the desired speed and in interpolating for values of VP/SP, determine the values of L_{wki} .

For a speed of 500 RPM and a VP/SP of .03, the values of L_{wki} are:

OCTAVE BAND	1	2	3	4	5	6	7	8
L_{wki}	50	37	32	28	24	20	18	16

5. DETERMINE INLET SOUND POWER LEVELS (L_{wi}) dB re 10^{-12} Watts

OCTAVE BAND	1	2	3	4	5	6	7	8
$+L_{wki}$	50	37	32	28	24	20	18	16
$+L_{wf}$	49	49	49	49	49	49	49	49
$-E$	-1	0	0	0	0	0	0	0
L_{wi}	98	86	81	77	73	69	67	65

VP/SP RA TIO TA BLE I

Velo- city	Static Pres sure at Stan dard Con di tions																																								
	¼	⅜	½	⅝	¾	⅞	1	1 ¼	1 ½	2	2 ½	3	3 ½	4	4 ½	5	5 ½	6	6 ½	7	8	9	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40			
600	.09	.06	.04	.04	.03	.03	.02	.02	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01																					
800	.16	.11	.08	.06	.05	.05	.04	.03	.03	.02	.02	.02	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01															
1000	.25	.17	.12	.10	.08	.07	.06	.05	.04	.03	.02	.02	.02	.02	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01															
1200	.36	.24	.18	.14	.12	.10	.09	.07	.06	.04	.04	.03	.03	.02	.02	.02	.02	.01	.01	.01	.01	.01	.01	.01	.01	.01															
1400	.49	.33	.24	.20	.16	.14	.12	.10	.08	.06	.05	.04	.03	.03	.03	.02	.02	.02	.02	.02	.02	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01								
1600	.64	.43	.32	.26	.21	.18	.16	.13	.11	.08	.06	.05	.05	.04	.04	.03	.03	.03	.02	.02	.02	.02	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01						
1800	.81	.54	.40	.32	.27	.23	.20	.16	.13	.10	.08	.07	.06	.05	.04	.04	.03	.03	.03	.03	.03	.02	.02	.02	.02	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	
2000	1.00	.67	.50	.40	.33	.29	.25	.20	.17	.12	.10	.08	.07	.06	.05	.05	.04	.04	.04	.03	.03	.02	.02	.02	.02	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	
2200		.80	.60	.48	.40	.34	.30	.24	.20	.15	.12	.10	.09	.08	.07	.06	.05	.05	.04	.04	.03	.03	.03	.02	.02	.02	.02	.02	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01		
2400			.96	.72	.57	.48	.41	.36	.29	.24	.18	.14	.12	.10	.09	.08	.07	.06	.06	.05	.04	.04	.04	.03	.03	.03	.02	.02	.02	.02	.01	.01	.01	.01	.01	.01	.01	.01	.01		
2600				.84	.67	.56	.48	.42	.34	.28	.21	.17	.14	.12	.11	.09	.08	.07	.06	.06	.05	.05	.04	.03	.03	.03	.02	.02	.02	.02	.02	.02	.01	.01	.01	.01	.01	.01	.01		
2800				.98	.78	.65	.56	.49	.39	.33	.24	.20	.16	.14	.12	.11	.10	.09	.08	.07	.06	.05	.05	.04	.03	.03	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02		
3000					.90	.75	.64	.56	.45	.37	.28	.22	.19	.16	.14	.12	.11	.10	.09	.08	.07	.06	.06	.05	.04	.04	.03	.03	.03	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02		
3200					1.00	.85	.73	.64	.51	.43	.32	.26	.21	.18	.16	.14	.13	.12	.11	.10	.09	.08	.07	.06	.05	.05	.04	.04	.03	.03	.03	.03	.02	.02	.02	.02	.02	.02	.02		
3400						.96	.82	.72	.58	.48	.36	.29	.24	.21	.18	.16	.14	.13	.12	.11	.10	.09	.08	.07	.06	.05	.05	.04	.04	.03	.03	.03	.03	.02	.02	.02	.02	.02	.02		
3600							.92	.81	.65	.54	.40	.32	.27	.23	.20	.18	.16	.15	.13	.12	.12	.10	.09	.08	.07	.06	.05	.04	.04	.03	.03	.03	.03	.03	.02	.02	.02	.02	.02		
3800							.90	.72	.60	.45	.36	.30	.26	.23	.20	.18	.16	.15	.14	.13	.11	.10	.09	.08	.06	.06	.05	.05	.04	.04	.03	.03	.03	.03	.03	.03	.03	.03	.02		
4000						1.00	.80	.67	.50	.40	.33	.29	.25	.22	.20	.18	.17	.15	.14	.12	.11	.10	.08	.07	.06	.06	.05	.05	.04	.04	.03	.03	.03	.03	.03	.03	.03	.03	.02		
4200							.88	.73	.55	.44	.37	.31	.28	.24	.22	.20	.18	.17	.16	.14	.12	.11	.09	.08	.07	.06	.06	.05	.05	.04	.04	.03	.03	.03	.03	.03	.03	.03	.03	.03	
4400							.97	.80	.60	.48	.40	.34	.30	.27	.24	.22	.20	.19	.17	.15	.13	.12	.10	.09	.08	.07	.06	.05	.05	.04	.04	.04	.04	.04	.04	.03	.03	.03	.03		
4600								.88	.66	.53	.44	.38	.33	.29	.26	.24	.22	.20	.19	.16	.15	.13	.11	.09	.08	.07	.07	.06	.05	.05	.05	.04	.04	.04	.04	.04	.04	.03	.03		
4800								.96	.72	.57	.48	.41	.36	.32	.29	.26	.24	.22	.21	.18	.16	.14	.12	.10	.09	.08	.07	.07	.06	.06	.05	.05	.05	.04	.04	.04	.04	.04	.04		
5000									.78	.62	.52	.45	.39	.35	.31	.28	.26	.24	.22	.19	.17	.16	.13	.11	.10	.09	.08	.07	.06	.06	.06	.05	.05	.05	.05	.05	.04	.04	.04		
5200									.84	.67	.56	.48	.42	.37	.34	.31	.28	.26	.24	.21	.19	.17	.14	.12	.11	.09	.08	.08	.07	.06	.06	.06	.05	.05	.05	.05	.05	.04	.04		
5400									.91	.73	.61	.52	.45	.40	.36	.33	.30	.28	.26	.23	.20	.18	.15	.13	.11	.10	.09	.08	.08	.07	.06	.06	.06	.05	.05	.05	.05	.05	.05		
5600									.98	.78	.65	.56	.49	.43	.39	.36	.33	.30	.28	.24	.22	.20	.16	.14	.12	.11	.10	.09	.08	.08	.07	.07	.06	.06	.05	.05	.05	.05	.05		
5800										.84	.70	.60	.52	.47	.42	.38	.35	.32	.30	.26	.23	.21	.17	.15	.13	.12	.10	.10	.09	.08	.07	.07	.06	.06	.05	.05	.05	.05			
6000										.90	.75	.64	.56	.50	.45	.41	.37	.35	.32	.28	.25	.22	.19	.16	.14	.12	.11	.10	.09	.09	.08	.07	.07	.07	.06	.06	.06	.06			

CAPACITY FRACTION (L_w) TA BLE II

CFM	Static Pressure at Operating Conditions																																							
	¼	⅜	½	⅝	¾	⅞	1	1 ¼	1 ½	2	2 ½	3	3 ½	4	4 ½	5	5 ½	6	6 ½	7	8	9	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40		
100	8	11	14	16	18	19	20	22	24	26	28	30	31	32	33	34	35	36	36	37	38	39	40	42	43	44	45	46	47	48	48	49	50	50	51	51	52	52		
150	10	13	16	18	19	21	22	24	25	28	30	31	33	34	35	36	37	37	38	39	40	41	42	43	45	46	47	48	49	49	50	51	51	52	52	53	53	54	54	
200	11	14	17	19	21	22	23	25	27	29	31	33	34	35	36	37	38	39	39	40	41	42	43	45	46	47	48	49	50	51	51	52	53	53	54	54	55	55		
300	13	16	19	21	22	24	25	27	28	31	33	34	36	37	38	39	40	40	41	42	43	44	45	46	48	49	50	51	52	52	53	54	54	55	55	56	56	57	57	
500	15	18	21	23	24	26	27	29	31	33	35	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	55	56	57	57	58	58	59	59		
750	17	20	23	25	26	28	29	31	32	35	37	38	40	41	42	43	44	44	45	46	47	48	49	50	52	53	54	55	56	56	57	58	58	59	59	60	60	61		
1000	18	21	24	26	28	29	30	32	34	36	38	40	41	42	43	44	45	46	46	47	48	49	50	52	53	54	55	56	57	58	58	59	60	60	61	61	62	62		
1500	20	23	26	28	29	31	32	34	35	38	40	41	43	44	45	46	47	47	48	49	50	51	52	53	55	56	57	58	59	59	60	61	61	62	62	63	63	64		
2000	21	24	27	29	31	32	33	35	37	39	41	43	44	45	46	47	48	49	50	51	52	53	55	56	57	58	59	60	61	61	62	63	63	64	64	65	65			
3000	23	26	29	31	32	34	35	37	38	41	43	44	46	47	48	49	50	51	52	53	54	55	56	58	59	60	61	62	62	63	64	64	65	65	66	66	67	67		
5000	25	28	31	33	34	36	37	39	41	43	45	47	48	49	50	51	52	53	53	54	55	56	57	59	60	61	62	63	64	65	65	66	67	67	68	68	69	69		
7500	27	30	33	35	36	38	39	41	42	45	47	48	50	51	52	53	54	54	55	56	57	58	59	60	62	63	64	65	66	66	67	68	68	69	69	70	70	71		
10000	28	31	34	36	38	39	40	42	44	46	48	50	51	52	53	54	55	56	56	57	58	59	60	62	63	64	65	66	67	68	68	69	70	70	71	71	72	72		
15000	30	33	36	38	39	41	42	44	46	48	50	51	53	54	55	56	57	57	58	59	60	61	62	63	65	66	67	68	69	70	71	71	72	72	73	73	74			
20000	31	34	37	39	41	42	43	45	47	49	51	53	54	55	56	57	58	59	60	61	62	63	65	66	67	68	69	70	71	71	72	73	74	74	75	75	76			
30000	33	36	39	41	42	44	45	47	48	51	53	54	56	57	58	59	60	61	62	63	64	65	66	68	69	70	71	72	72	73	74	74	75	75	76	76	77			
50000	35	38	41	43	44	46	47	49	51	53	55	57	58	59	60	61	62	63	64	65	66	67	69	70	71	72	73	74	75	75	76	77	77	78	78	79	79			
75000	37	40	43	45	46	48	49	51	52	55	57	58	60	61	62	63	64	64	65	66	67	68	69	70	72	73	74	75	76	76	77	78	78	79	79	80	80			
100000	38	41	44	46	48	49	50	52	54	56	58	60	61	62	63	64	65	66	66	67	68	69	70	72	73	74	75	76	77	78	78	79	80	81	81	82	82			
150000	40	43	46	48	49	51	52	54	55	58	60	61	63	64	65	66	67	67	68	69	70	71	72	73	75	76	77	78	79	80	81	81	82	82	83	83				
200000	41	44	47	49	51	52	53	55	57	59	61	63	64	65	66	67	68	69	69	70	71	72	73	75	76	77	78	79	80	81	81	82	83	83	84	84	85			

IN LET SPE CIFIC SOUND POWER LEVELS IN DECI BELS RE FERRED TO 10^{-12} WATTS (L_{wki})

SIZE 15																																								
	VP/SP = .015								VP/SP = .030								VP/SP = .060								VP/SP = .120								VP/SP = .250							
RPM	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
600	49	39	35	30	27	25	24	23	51	43	37	34	32	30	27	24	54	46	40	37	35	33	30	27	58	52	45	42	40	38	35	32	62	56	50	47	45	43	40	37
700	51	40	36	31	27	25	24	23	53	45	38	34	32	30	27	24	56	48	41	37	35	33	30	27	60	54	46	42	40	38	35	32	64	58	51	47	45	43	40	37
800	52	42	36	32	28	26	25	24	54	47	39	35	33	31	28	25	57	50	42	38	36	34	31	28	62	55	48	43	41	39	36	33	66	60	53	48	46	44	41	38
1000	54	47	38	34	29	26	25	24	56	50	41	36	33	32	29	26	59	53	44	39	36	35	32	29	64	57	49	44	41	40	37	34	68	61	54	49	46	45	42	39
1200	53	49	39	35	30	27	25	24	55	51	43	37	34	32	30	27	58	54	46	40	37	35	33	30	63	58	52	45	42	40	38	35	67	62	56	50	47	45	43	40
1500	48	51	41	36	31	27	25	24	52	53	46	38	34	32	30	27	55	56	49	41	37	35	33	30	60	61	55	47	42	40	38	35	64	65	59	52	47	45	43	40
1800	44	53	44	37	33	28	26	25	49	55	49	40	35	33	31	28	52	58	52	43	38	36	34	31	57	63	56	49	43	41	39	36	61	67	60	54	48	46	44	41
2100	41	55	48	38	34	29	26	25	46	57	50	41	36	33	32	29	49	60	53	44	39	36	35	32	55	65	57	50	44	41	40	37	59	69	61	55	49	46	45	42
2400	41	52	49	39	35	30	27	25	46	55	51	43	37	34	32	30	49	58	54	46	40	37	35	33	55	63	58	52	45	42	40	38	59	67	62	56	50	47	45	43
3000	41	48	51	41	36	31	27	25	46	51	53	46	38	34	32	30	49	54	56	49	41	37	35	33	55	60	61	55	47	42	40	38	59	64	65	59	52	47	45	43
3600	41	44	53	44	37	33	28	26	46	49	55	49	40	35	33	31	49	52	58	52	43	38	36	34	55	57	63	56	49	43	41	39	59	61	67	60	54	48	46	44
4200	41	41	55	48	38	34	29	26	46	46	57	50	41	36	33	32	49	49	60	53	44	39	36	35	55	55	65	57	50	44	41	40	59	59	69	61	55	49	46	45
4800	41	41	52	49	39	35	30	27	46	46	55	51	43	37	34	32	49	49	58	54	46	40	37	35	55	55	63	58	52	45	42	40	59	59	67	62	56	50	47	45

SUBTRACT E CORRECTION VALUES FOR SIZE SE LECTED

Size 15	<u>OCTAVE BAND</u>	1	2	3	4	5	6	7	8
	E CORRECTION	9	4	1	0	0	0	0	0

SIZE 18-24																																								
	VP/SP = .015								VP/SP = .030								VP/SP = .060								VP/SP = .120								VP/SP = .250							
RPM	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
500	39	36	34	33	30	26	22	18	43	39	34	32	29	25	21	17	46	42	37	35	32	28	24	20	51	48	41	40	38	34	30	26	57	54	47	46	44	40	36	32
600	41	37	34	33	31	27	23	19	45	40	35	32	30	26	22	18	48	43	38	35	33	29	25	21	53	49	43	40	38	35	31	27	59	55	49	46	44	41	37	33
700	42	39	35	34	32	28	24	20	46	42	36	33	31	27	23	19	49	44	39	36	34	30	26	22	54	50	45	40	39	36	32	28	60	56	51	46	45	42	38	34
800	44	40	35	34	33	29	25	21	47	43	37	33	32	28	24	20	51	45	40	36	35	31	27	23	55	51	46	40	40	37	33	29	61	57	52	46	46	43	39	35
1000	44	39	36	34	33	30	26	22	47	43	39	34	32	29	25	21	51	46	42	37	35	32	28	24	55	51	48	41	40	38	34	30	61	57	54	47	46	44	40	36
1200	43	41	37	34	33	31	27	23	46	45	40	35	32	30	26	22	49	48	43	38	35	33	29	25	54	53	49	43	40	38	35	31	60	59	55	49	46	44	41	37
1500	41	43	39	35	34	32	28	24	44	47	42	37	33	31	27	23	46	50	44	40	36	34	30	26	52	55	50	46	40	39	36	32	58	61	56	52	46	45	42	38
1800	40	45	37	35	34	33	29	25	43	48	42	38	33	32	28	24	45	52	44	41	36	35	31	27	51	56	50	47	40	40	37	33	57	62	56	53	46	46	43	39
2100	40	44	39	36	34	33	30	26	43	47	44	39	34	32	29	25	45	50	46	42	37	35	32	28	51	55	52	48	42	40	38	34	57	61	58	54	48	46	44	40
2400	40	43	41	37	34	33	31	27	43	46	45	40	35	32	30	26	45	49	48	43	38	35	33	29	51	54	53	49	43	40	38	35	57	60	59	55	49	46	44	41
3000	40	41	43	39	35	34	32	28	43	44	47	42	37	33	31	27	45	46	50	44	40	36	34	30	51	52	55	50	46	40	39	36	57	58	61	56	52	46	45	42
3600	40	40	45	37	35	34	33	29	43	43	48	42	38	33	32	28	45	45	52	44	41	36	35	31	51	51	56	50	47	40	40	37	57	57	62	56	53	46	46	43

SUBTRACT E CORRECTION VALUES FOR SIZE SE LECTED

	<u>OCTAVE BAND</u>	1	2	3	4	5	6	7	8
Size 18	ECORRECTION	7	3	1	0	0	0	0	0
20		7	3	1	0	0	0	0	0
22		6	2	1	0	0	0	0	0
24		5	2	0	0	0	0	0	0

IN LET SPE CIFIC SOUND POWER LEVELS IN DECI BELS RE FERRED TO 10^{-12} WATTS (L_{wki})

SIZE 27																																												
	VP/SP = .015								VP/SP = .030								VP/SP = .060								VP/SP = .120								VP/SP = .250											
RPM	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8				
300	41	32	27	25	21	19	17	15	43	33	28	26	22	20	18	16	48	39	33	31	27	25	23	21	53	44	39	37	33	29	25	21	59	50	45	43	39	35	31	27				
400	42	35	28	26	22	20	18	16	44	36	29	27	23	21	19	17	49	42	35	32	28	26	24	22	54	47	41	38	34	30	26	22	60	53	47	44	40	36	32	28				
500	44	38	30	26	24	21	19	17	44	40	31	27	25	22	20	18	50	46	37	33	30	27	25	23	54	51	42	39	36	32	28	24	60	57	48	45	42	38	34	30				
600	47	41	32	27	25	21	19	17	47	43	33	28	26	22	20	18	52	48	39	33	31	27	25	23	56	53	44	39	37	33	29	25	62	59	50	46	43	39	35	31				
700	50	43	33	27	26	22	20	18	50	46	34	28	27	23	21	19	55	51	40	34	32	28	26	24	59	56	46	40	38	34	30	26	65	62	51	46	44	40	36	32				
800	50	42	35	28	26	22	20	18	51	43	36	29	27	23	21	19	56	49	42	35	32	28	26	24	60	53	47	41	38	34	30	26	66	59	53	47	44	40	36	32				
1000	48	44	38	30	26	24	21	19	49	44	40	31	27	25	22	20	54	50	46	37	33	30	27	25	58	54	51	42	39	36	32	28	64	60	57	48	45	42	38	34				
1200	46	47	41	32	27	25	21	19	47	47	43	33	28	26	22	20	52	53	48	39	33	31	27	25	57	57	53	44	39	37	33	29	63	63	59	50	46	43	39	35				
1500	43	51	44	34	27	26	22	20	45	51	47	35	28	27	23	21	50	56	52	41	34	32	28	26	55	60	57	46	40	38	34	30	61	66	63	52	46	44	40	36				
1800	43	49	42	37	29	26	23	21	45	49	42	38	30	27	24	22	50	54	48	44	36	33	29	27	55	59	52	49	42	39	35	31	61	65	58	55	48	45	41	37				
2100	43	47	45	39	30	26	24	21	45	48	45	41	31	27	25	22	50	53	51	46	37	33	30	27	55	58	55	51	43	39	36	32	61	64	61	57	49	45	42	38				
2400	43	46	47	41	32	27	25	21	45	47	47	43	33	28	26	22	50	52	53	48	39	33	31	27	55	57	57	53	44	39	37	33	61	63	63	59	50	46	43	39				

SUBTRACT E COR RECTION VALUES FOR SIZE SE LECTED

	OCTAVE BAND	1	2	3	4	5	6	7	8
Size 27	E CORRECTION	5	2	0	0	0	0	0	0

SIZE 30 - 33																																															
-2133	VP/SP = .015								VP/SP = .030								VP/SP = .060								VP/SP = .120								VP/SP = .250														
RPM	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8							
300	44	31	26	23	20	17	14	11	45	33	27	25	22	19	16	13	50	37	31	29	27	23	18	13	56	42	36	33	32	28	22	16	61	47	41	39	38	34	27	20							
400	51	35	27	24	22	18	15	12	52	37	29	25	24	20	17	14	58	40	33	29	28	25	20	15	64	45	37	34	32	31	25	19	69	51	43	39	39	37	30	23							
500	52	39	29	25	23	19	16	13	53	41	31	26	24	21	18	15	58	45	35	30	28	26	21	16	63	51	39	35	33	31	27	21	71	56	46	40	39	38	32	25							
600	52	44	31	26	23	20	17	14	53	45	33	27	25	22	19	16	58	50	37	31	29	27	23	18	64	56	42	36	33	32	28	22	71	61	47	41	39	38	34	27							
700	52	48	33	26	23	21	17	14	53	49	35	28	25	23	19	16	58	54	38	32	29	27	24	19	64	60	44	36	33	32	29	23	71	65	49	42	39	38	35	28							
800	52	51	35	27	24	22	18	15	53	52	37	29	25	24	20	17	59	58	40	33	29	28	25	20	66	64	45	37	34	32	31	25	70	69	51	43	39	39	37	30							
1000	52	52	39	29	25	23	19	16	53	53	41	31	26	24	21	18	59	58	45	35	30	28	26	21	66	63	51	39	35	33	31	27	70	71	56	46	40	39	38	32							
1200	52	52	44	31	26	23	20	17	53	53	45	33	27	25	22	19	59	58	50	37	31	29	27	23	66	64	56	42	36	33	32	28	70	71	61	47	41	39	38	34							
1500	52	52	49	34	27	24	21	18	53	53	51	36	28	25	23	20	59	59	56	39	32	29	28	24	66	66	62	46	37	34	32	30	70	70	67	50	42	39	39	36							
1800	52	52	52	37	28	24	22	18	53	53	53	39	30	25	24	20	59	59	57	42	34	29	28	25	66	66	62	48	38	34	32	31	70	70	72	53	44	39	39	37							
2100	52	52	52	41	30	25	23	19	53	53	53	42	32	26	24	21	59	59	58	46	35	30	28	26	66	66	63	52	40	35	33	31	70	70	71	57	46	40	39	38							
2400	52	52	52	44	31	26	23	20	53	53	53	45	33	27	25	22	59	59	58	50	37	31	29	27	66	66	64	56	42	36	33	32	70	70	71	61	47	41	39	38							

SUBTRACT E COR RECTION VALUES FOR SIZE SE LECTED

	OCTAVE BAND	1	2	3	4	5	6	7	8
Size 30	E CORRECTION	4	1	0	0	0	0	0	0
33		4	1	0	0	0	0	0	0

IN LET SPE CIFIC SOUND POWER LEVELS IN DECI BELS RE FERRED TO 10^{-12} WATTS (L_{wki})

SIZE 37-73																																								
	VP/SP = .015								VP/SP = .030								VP/SP = .060								VP/SP = .120								VP/SP = .250							
RPM	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
200	33	29	25	21	18	16	14	12	35	30	26	22	19	17	15	13	37	32	28	24	22	21	20	19	43	38	33	30	28	26	24	22	49	44	40	37	35	33	31	29
300	38	32	28	23	20	17	15	13	40	33	29	25	21	18	16	14	42	35	31	26	23	21	20	19	48	41	36	32	29	27	25	23	54	46	43	39	36	34	32	30
400	44	33	29	25	21	18	16	14	46	35	30	26	22	19	17	15	49	37	32	28	24	22	21	20	56	43	38	33	30	28	26	24	61	49	44	40	37	35	33	31
500	48	35	31	27	22	19	17	15	50	37	32	28	24	20	18	16	52	39	34	30	25	22	21	20	57	45	40	35	31	29	27	25	62	51	45	42	38	36	34	32
600	48	38	32	28	23	20	17	15	50	40	33	29	25	21	18	16	52	42	35	31	26	23	21	20	56	48	41	36	32	29	27	25	61	54	46	43	39	36	34	32
700	46	41	33	29	24	20	18	16	48	43	34	30	26	22	19	17	51	46	36	32	27	23	21	20	56	53	42	37	33	30	28	26	61	53	47	43	40	37	35	33
800	45	44	33	29	25	21	18	16	47	46	35	30	26	22	19	17	49	49	37	32	28	24	22	21	55	56	43	38	33	30	28	26	60	61	49	44	40	37	35	33
1000	42	48	35	31	27	22	19	17	44	50	37	32	28	24	20	18	47	52	39	34	30	25	22	21	54	57	45	40	35	31	29	27	59	62	51	45	42	38	36	34
1200	42	48	38	32	28	23	20	17	44	50	40	33	29	25	21	18	47	52	42	35	31	26	23	21	54	56	48	41	36	32	29	27	59	61	54	46	43	39	36	34
1500	42	45	43	33	29	25	21	18	44	47	45	35	30	26	22	19	47	50	48	37	32	28	24	22	54	55	54	43	38	33	30	28	59	60	60	48	44	40	37	35
1800	42	43	46	34	30	26	21	19	44	45	48	36	31	27	23	20	47	48	51	38	33	29	24	22	54	55	57	44	39	34	31	29	59	60	62	50	44	41	38	36

SUB TRACT E COR RECTION VALUES FOR SIZE SE LECTED

	OCTAVE BAND	1	2	3	4	5	6	7	8
Size 37	ECORRECTION	3	1	0	0	0	0	0	0
40		3	1	0	0	0	0	0	0
45		2	0	0	0	0	0	0	0
49		2	0	0	0	0	0	0	0
54 through 73	1	0	0	0	0	0	0	0	



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