

**Appendix K**

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**HVAC Sound Level Information**

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Item	Outdoor model		MXZ-4B36NA			
	Indoor type		Non-Duct (09+09+09+09)		Duct (09+09+09+09)	
Capacity	Cooling *1	Btu/h	35,400		34,400	
	Heating 47 *1	Btu/h	208 V	36,000	208 V	34,400
			230 V	36,000	230 V	34,400
Power consumption	Heating 17 *2	Btu/h	24,600		25,400	
	Cooling *1	W	3,760		3,940	
	Heating 47 *1	W	208 V	3,020	208 V	3,100
230 V			3,020	230 V	3,100	
	Heating 17 *2	W	3,340		3,450	
EER	Cooling		9.40		8.70	
SEER	Cooling		18.0		15.0	
HSPF IV (V)	Heating		9.3 (7.2)		9.0(7.0)	
COP	Heating		3.50		3.25	
External finish			Munsell 3.0Y 7.8/1.1			
Power supply	V, phase, Hz		208/230, 1, 60			
Max. fuse size (time delay)	A		20			
Min. circuit ampacity	A		19			
Fan motor	F.L.A		0.93			
Compressor	Model		TNB220FMCH			
	Winding resistance (at 68°F) Ω		U-V 0.61 V-W 0.61 W-U 0.61			
	R.L.A		14.4			
	L.R.A		15			
Refrigerant control				LEV		
Sound level		dB(A)		54/57		
Defrost method		Reverse cycle				
Dimensions	W	in.	35-7/16			
	D	in.	12-19/32			
	H	in.	35-7/16			
Weight		lb.		153		
Remote controller		Wireless type				
Control voltage (by built-in transformer)		12-24 V DC				
Refrigerant piping		Not supplied (optional parts)				
Valve size	Liquid	in.	1/4			
	Gas	in.	A: 1/2 B,C,D: 3/8			
Connection method	Indoor		Flared			
	Outdoor		Flared			
Refrigerant charge (R410A)		lb.		8 lb. 13 oz.		
Refrigeration oil (Model)		oz.		29.4 (NEO22)		

NOTE : Test conditions are based on ARI 210/240.

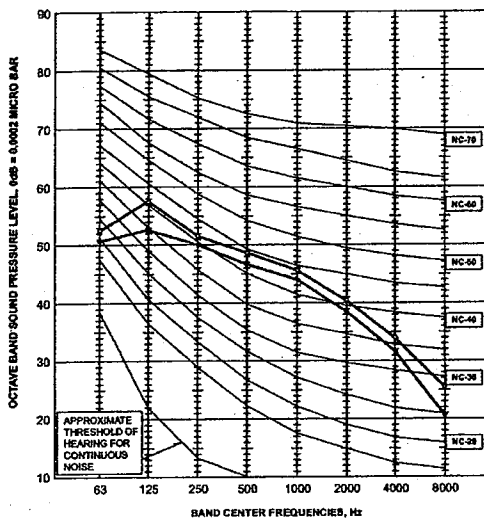
Unit: °F

Mode	Test	Indoor air condition		Outdoor air condition	
		Dry bulb	Wet bulb	Dry bulb	Wet bulb
Cooling	*1: "A" Cooling steady state at rated compressor speed	80	67	95	(75)
	"B-2" Cooling steady state at rated compressor speed	80	67	82	(65)
	"B-1" Cooling steady state at minimum compressor speed	80	67	82	(65)
	Low ambient cooling steady state at minimum compressor speed	80	67	67	(53.5)
	Intermediate cooling steady state at intermediate compressor speed	80	67	87	(69)
Heating	*1: Standard rating-heating at rated compressor speed	70	60	47	43
	*2: Low temperature heating at maximum compressor speed	70	60	17	15
	Maximum temperature heating at minimum compressor speed	70	60	62	56.5
	High temperature heating at minimum compressor speed	70	60	47	43
	Frost accumulation at rated compressor speed	70	60	35	33
	Frost accumulation at intermediate compressor speed	70	60	35	33

# 4 NOISE CRITERIA CURVES

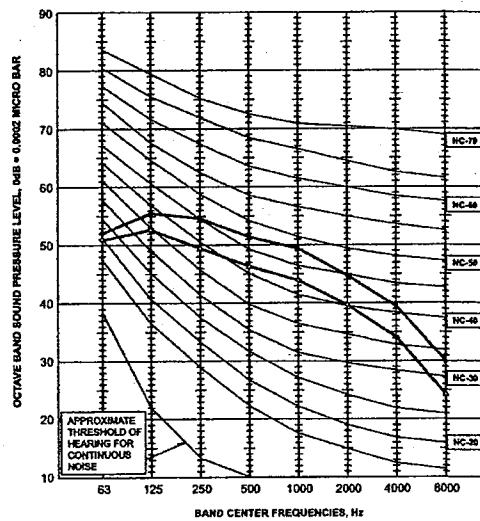
**MXZ-2B20NA**

FAN SPEED	FUNCTION	SPL(dB <sub>A</sub> )	LINE
High	Cooling	49	●—●
High	Heating	51	○—○



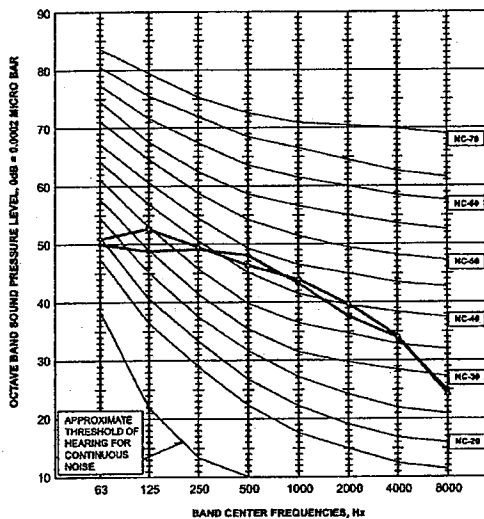
**MXZ-3B24NA**

FAN SPEED	FUNCTION	SPL(dB <sub>A</sub> )	LINE
High	Cooling	54	●—●
High	Heating	49	○—○



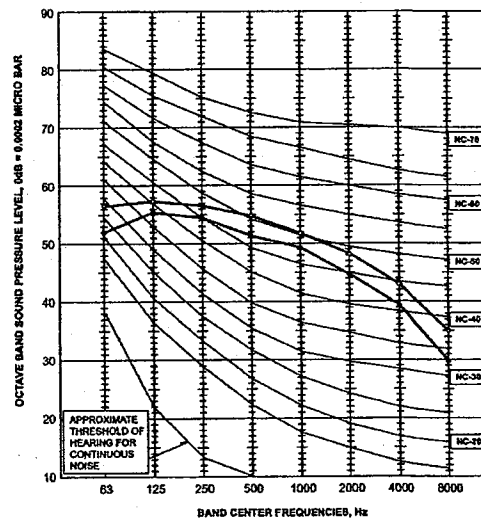
**MXZ-3B30NA**

FAN SPEED	FUNCTION	SPL(dB <sub>A</sub> )	LINE
High	Cooling	49	●—●
High	Heating	49	○—○



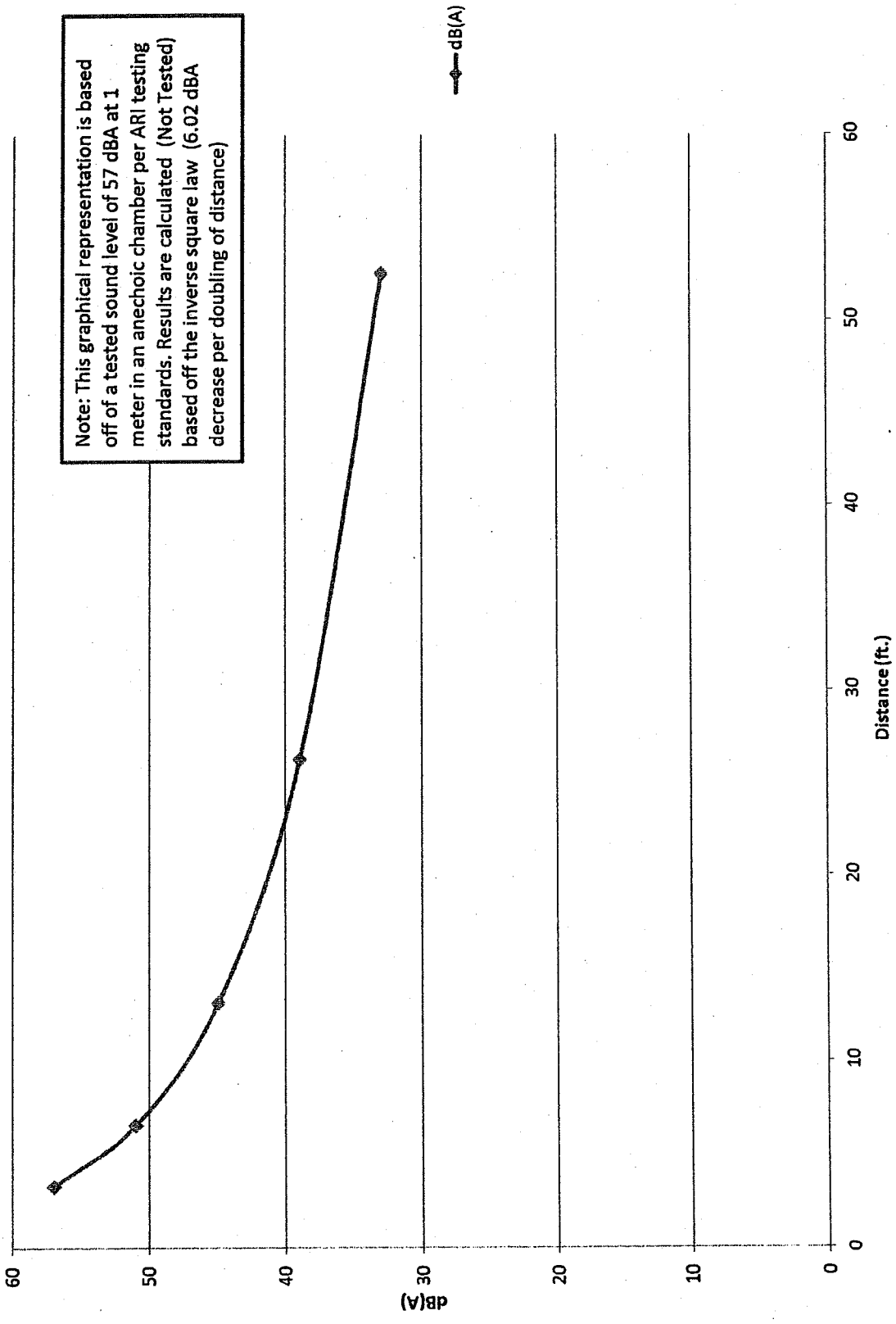
**MXZ-4B36NA**

FAN SPEED	FUNCTION	SPL(dB <sub>A</sub> )	LINE
High	Cooling	54	●—●
High	Heating	57	○—○



# MXZ-4B36NA Sound Level in Heating Mode

Note: This graphical representation is based off of a tested sound level of 57 dBA at 1 meter in an anechoic chamber per ARI testing standards. Results are calculated (Not Tested) based off the inverse square law (6.02 dBA decrease per doubling of distance)



—◆— dB(A)

# UNITS W/DISTANCE (THE CLOSEST HORIZONTAL DISTANCE)	WORST CASE EQUIVALENT OF ONE UNIT WITH INCREASE DB @ SAME DISTANCE SOUND PRESSURE LEVEL (WITH NO LOSSES)	WORST CASE (IF UNITS WERE STACKED) APPROXIMATION EQUIVALENT OF SINGLE DB SOURCE (@ 3 FT)	$SPL = SPL_1 - 20 \text{ LOG}_{10} (R_2/R_1)$ WORST CASE EQUIVALENT SOUND PRESSURE LEVELS @ PROPERTY LINE	ATTENUATION OF SOUND PRESSURE AS A RESULT OF ATMOSPHERIC ABSORPTION CONSERVATIVE VALUE - 1.2 DB PER 100 FT (VARIES WITH FREQ., TEMP., HUMIDITY)	MAXIMUM SOUND PRESSURE LEVELS NOT ACCOUNTING FOR: UNIT DUTY CYCLE, NOR FACADE ARTICULATION, NOR GRADIENT OBSTRUCTIONS, NOR UNIT ENCLOSURE DAMPENING.
5 @ 335'	→ + 14 DB	= 71 DB	$71 - 20 \text{ LOG}_{10} (335/3) = 30 \text{ DB}$ →	- 4.0 DB →	26 DB + 4
6 @ 276'	→ + 15.6 DB	= 72.6 DB	$72.6 - 20 \text{ LOG}_{10} (276/3) = 33.3 \text{ DB}$ →	- 3.3 DB →	30 DB 34 DB
6 @ 244'	→ + 15.6 DB	= 72.6 DB	$72.6 - 20 \text{ LOG}_{10} (244/3) = 34.8 \text{ DB}$ →	- 2.9 DB →	31.9 DB + 5 DB 39
6 @ 200'	→ + 15.6 DB	= 72.6 DB	$72.6 - 20 \text{ LOG}_{10} (200/3) = 36.1 \text{ DB}$ →	- 2.4 DB →	33.7 DB + 4 DB 43
5 @ 170'	→ + 14 DB	= 71 DB	$71 - 20 \text{ LOG}_{10} (170/3) = 35.9 \text{ DB}$ →	- 2.0 DB →	33.9 DB + 3.5 DB 46.5
11 @ 132'	→ + 20.9 DB	= 77.9 DB	$77.9 - \text{LOG}_{10} (132/3) = 45.0 \text{ DB}$ →	- 1.6 DB →	43.4 DB + 4.5 DB 51
6 @ 80'	→ + 15.6 DB	= 72.6 DB	$72.6 - \text{LOG}_{10} (80/3) = 44.1 \text{ DB}$ →	- 1.0 DB →	43.1 DB + 3.5 DB 54.5
5 @ 62'	→ + 14 DB	= 71 DB	$71 - 20 \text{ LOG}_{10} (62/3) = 44.7 \text{ DB}$ →	- 0.7 DB →	44 DB + 2 DB = 56.5 DB

TOTAL SOUND PRESSURE LEVEL EQUIVALENT  
 ↑  
 SPL =  
 ↑  
 FACADE ARTICULATION SOUND PRESSURE LEVEL OF SINGLE SOURCE  
 ↑  
 20 LOG(n)  
 # OF SOURCES

**UNIT DUTY CYCLE (-25%)**  
 3 DB

**FACADE ARTICULATION (-12.5%)**  
 - 1.5 DB

**GRADIENT OBSTRUCTION (-12.5%)**  
 - 1.5 DB

**ENCLOSURE DAMPENING (-33%)**  
 - 4 DB

**= 46.5 DB**

**\*\* THEREFORE THE CALCULATED SOUND PRESSURE LEVEL AT THE PROPERTY LINE WILL BE 46.5 DB. \*\***

