40VMC005-015
Compact 4-Way Cassette Indoor Unit for Variable Refrigerant Flow (VRF) Systems

Engineering Data Book

Catalog No. 19-40VMC001-03 Printed in U.S.A. Form 40VMC-3ED Pg 1 9-19 Replaces: 40VMC-2ED

TABLE OF CONTENTS

COMPACT 4-WAY CASSETTE BASIC INFORMATION

Specifications

Table 1 —Data Table

MODEL			40VMC005---3	40VMC007---3	40VMC009---3
Power supply		V/Ph/Hz	208/230-1-60		
Cooling capacity *1		Btu/h	5,070	7,100	9,130
Heating capacity *1		Btu/h	6,000	8,000	10,000
MCA		A	0.38		
MOCP		A	15		
Panel / Grille			40VMC001----		
Filter			Installed in Panel / Grille		
Dimensions (H x W x D)		in.	10-1/4 x 24-3/4 x 22-7/16		
Dimensions for Panel / Grille (H x W x D)		in.	2 x 25-1/2 x 25-1/2		
Unit Net Weight		lbs	40.0		
Panel Net Weight		lbs	5.5		
Heat Exchanger			Inner Groove Copper Tube and Hydrophilic Aluminum fin		
Blower / Motor	Fan Type		Centrifugal		
	Motor Type		DC motor		
	Air Flow Rate (H/M/L)	CFM	300/241/241	306/282/229	
	Sound Pressure Level (H/M/L)*2	dBA	38.5/32.9/32.9	40.4/38.5/34.7	
	Motor Output	W	37		
Min. External Static Pressure (Factory setting)		in. WG	0		
Max. External Static Pressure		in. WG	0.04		
Piping connections	Gas (Low) Pressure	in.	1/2		
	Liquid (High) Pressure	in.	1/4		
	Condensate	in.	1		
Condensate Lift		in.	23-5/8		
Refrigerant Control			Electronic Expansion Valve		
Connectable Outdoor Unit			38VMH – Heat Pump 38VMR – Heat Recovery 38VMH-1P – Single Phase Heat Pump		
Wiring	Power Wiring	AWG	Sized per NEC and Local Codes based on Nameplate Electrical Data		
	Control Wiring	AWG	2-core shielded twisted pair cable 18AWG		

NOTES:

*1 Rated per AHRI (Air Conditioning, Heating, and Refrigeration Institute) 1230 Standard
Cooling: Indoor 80°F (27°C) db / 67°F (20°C) wb; Outdoor 95°F (35°C) db
Heating: Indoor 70°F (21°C) db; Outdoor 47°F (8°C) db / 43°F (6°C) wb

*2 These values are measured in anechoic chamber at a distance of 4.6 feet below the unit.

Table 2 —Data Table

MODEL			40VMC012---3	40VMC015---3
Power supply		V/Ph/Hz	208/230-1-60	
Cooling capacity *1		Btu/h	12,170	15,210
Heating capacity *1		Btu/h	13,000	17,000
MCA		A	0.53	
MOCP		A	15	
Panel / Grille			40VMC001----	
Filter			Installed in Panel / Grille	
Dimensions (H x W x D)		in.	10-1/4 x 24-3/4 x 22-7/16	
Dimensions of Panel / Grille (H x W x D)		in.	2 x 25-1/2 x 25-1/2	
Unit Net Weight		lbs	43	
Panel Net Weight		lbs	5.5	
Heat Exchanger			Inner Groove Copper Tube and Hydrophilic Aluminum fin	
Blower / Motor	Fan Type		Centrifugal	
	Motor Type		DC motor	
	Air Flow Rate (H/M/L)	CFM	359/306/253	
	Sound Pressure Level (H/M/L)*2	dBA	45.5/42.3/38.1	
	Motor Output	W	37	
Min. External Static Pressure (Factory setting)		in. WG	0	
Max. External Static Pressure		in. WG	0.04	
Piping connections	Gas (Low) Pressure	in.	1/2	
	Liquid (High) Pressure	in.	1/4	
	Condensate	in.	1	
Condensate Lift		in.	23-5/8	
Refrigerant Control			Electronic Expansion Valve	
Connectable Outdoor Unit			38VMH – Heat Pump 38VMR – Heat Recovery 38VMH-1P – Single Phase Heat Pump	
Wiring	Power Wiring	AWG	Sized per NEC and Local Codes based on Nameplate Electrical Data	
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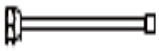
*2 These values are measured in anechoic chamber at a distance of 4.6 feet below the unit.

Accessories

Table 3 —Table of Accessories

NAME	QUANTITY	OUTLINE	USAGE
Construction cover board	1		Used to cover the fan motor
Field wiring guide for conduit	1		
Insulation	2		For covering the coil stub outs
Insulation	1		For covering the condensate drain
Clamp	1		For connecting the drain
Tie rope	5		For insulation
Condensate connection	1		For connecting drain
PQE connection wire	2		To connect outdoor unit, indoor unit, and sub MDC
Copper Nut	1		Connect piping
Conduit	1		For routing power cable
Connection Wire	1		For occupancy sensor
Copper pipe for gas side	1		For connecting refrigerant pipe
Copper pipe for liquid side	1		For connecting refrigerant pipe
No beep harness	1		Prevent beeping noise

Legend:

MDC – Multiport Distribution Controller

PIPING DIAGRAM

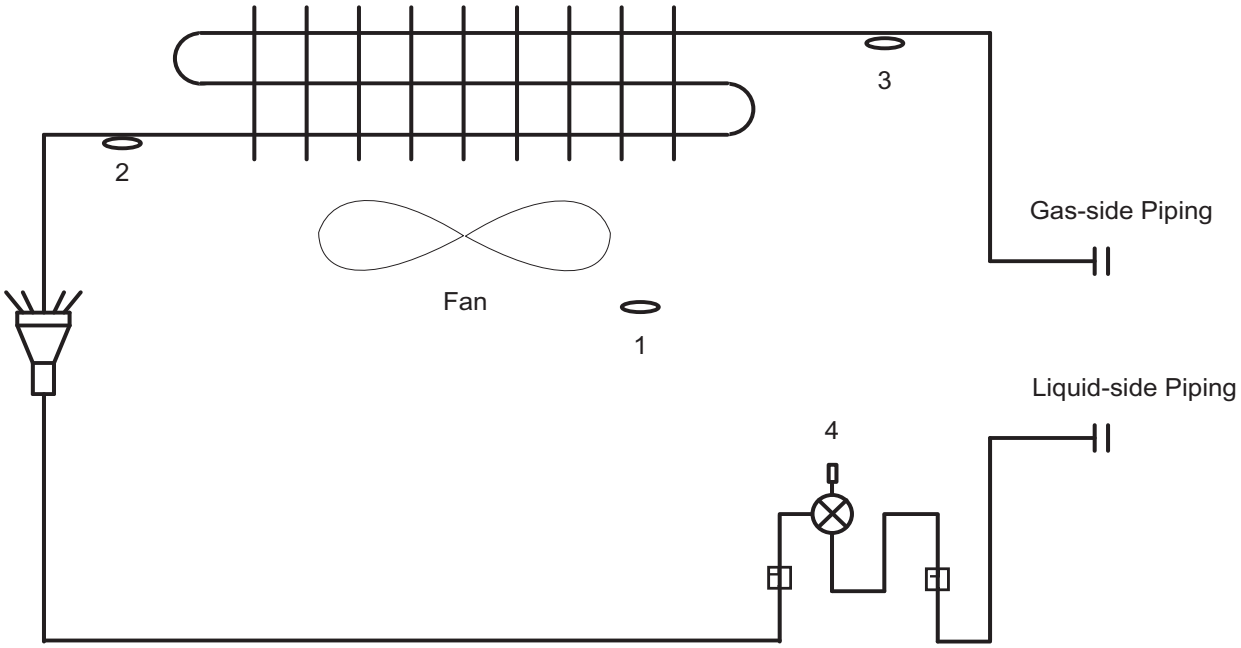


Fig. 1 —Piping

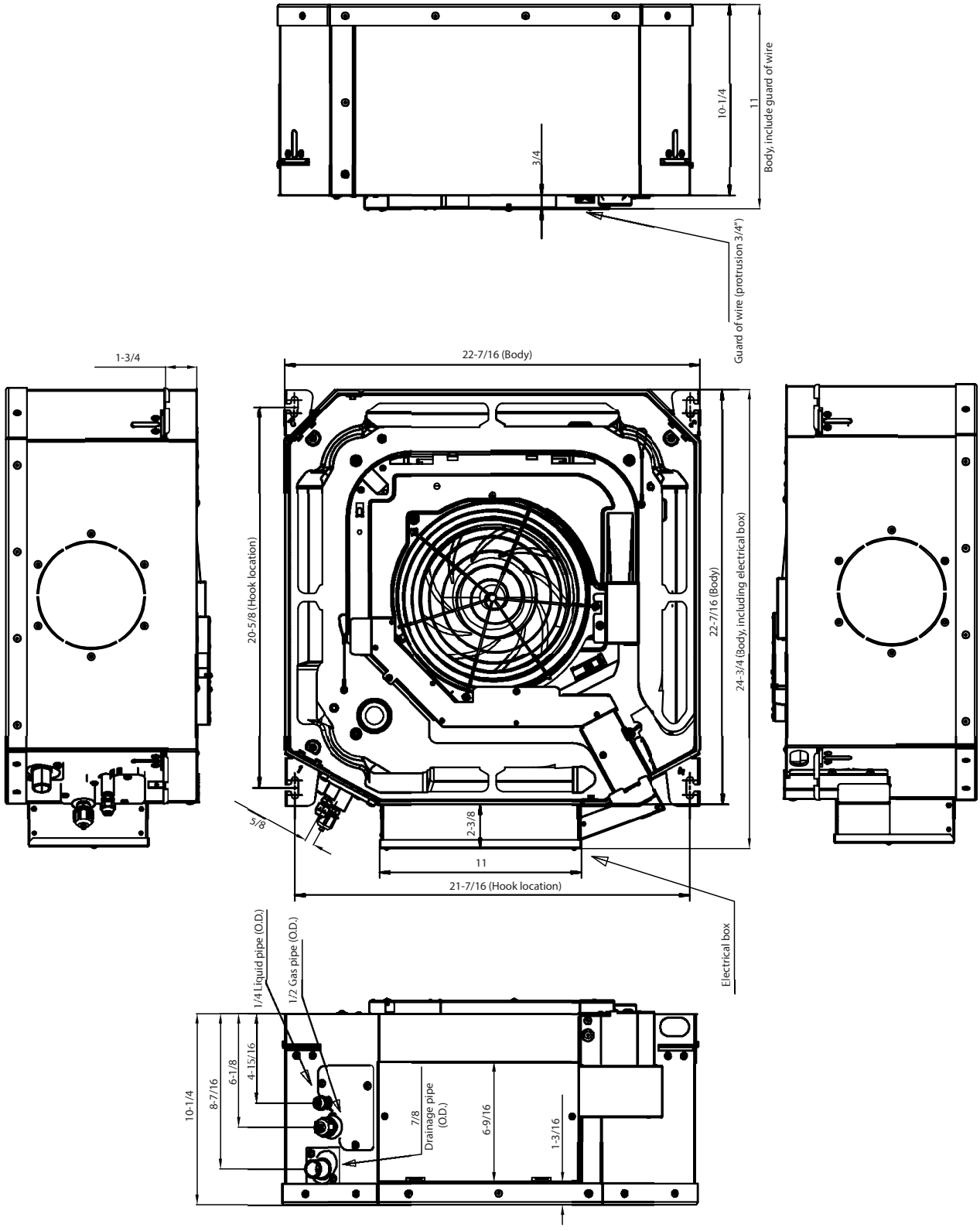
Table 4 —Piping

NUMBER	SYMBOL	NAME
1	T1	Room temperature sensor
2	T2A	Inlet pipe temperature sensor
3	T2B	Outlet pipe temperature sensor
4	EEV	Electronic expansion valve

Table 5 —Gas/Liquid Line Sizes

MODEL	GAS	LIQUID
40VMC005/007/009/012/015----3	1/2	1/4

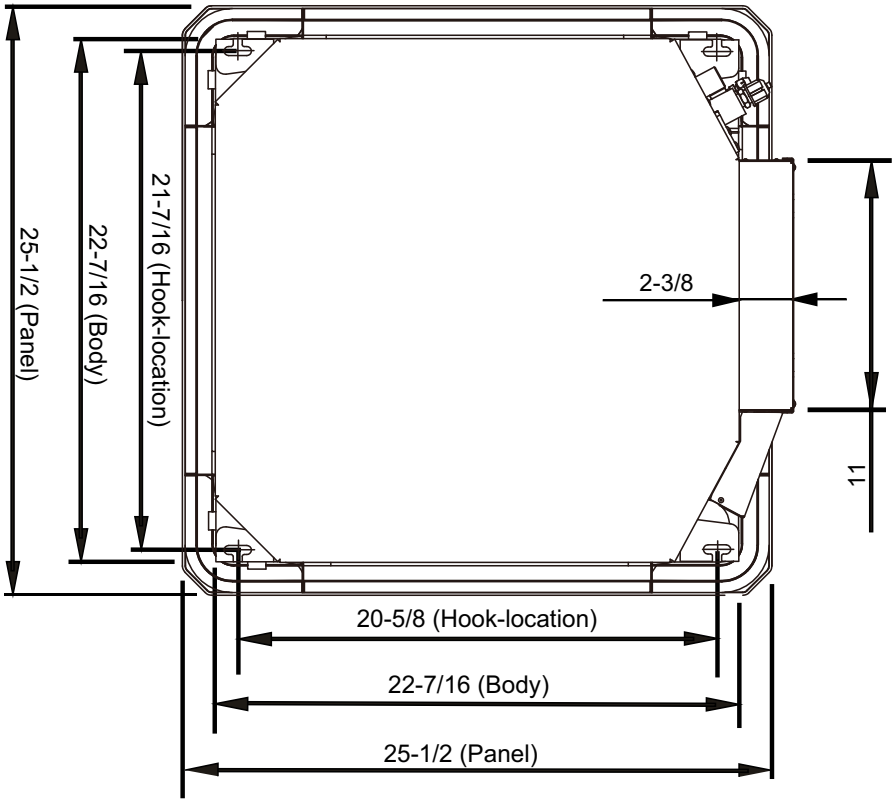
DIMENSIONS

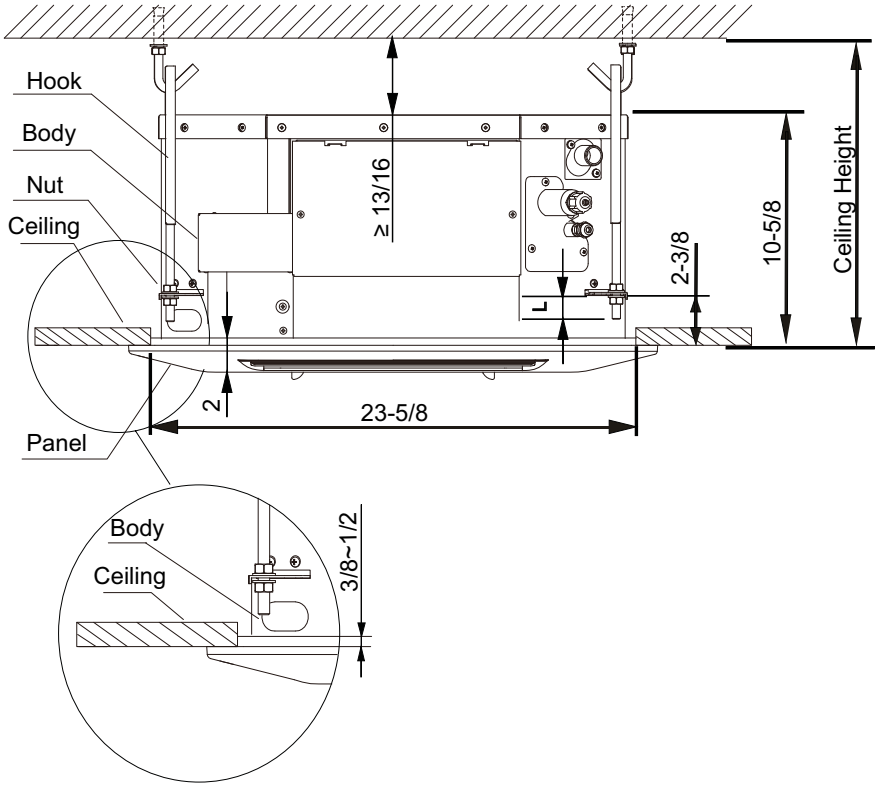


NOTE: All dimensions are shown in inches.

Fig. 2 —40VMC005/007/009/012/015---3

DIMENSIONS (CONT.)





40VMC UNIT SIZE	DIMENSION (in.)
	L
015	1-13/16 ~ 1-1/2

NOTE: All dimensions shown in inches.

NOTE: All dimensions are shown in inches.

Fig. 3 —40VMC005/007/009/012/015---3

WIRING DIAGRAM

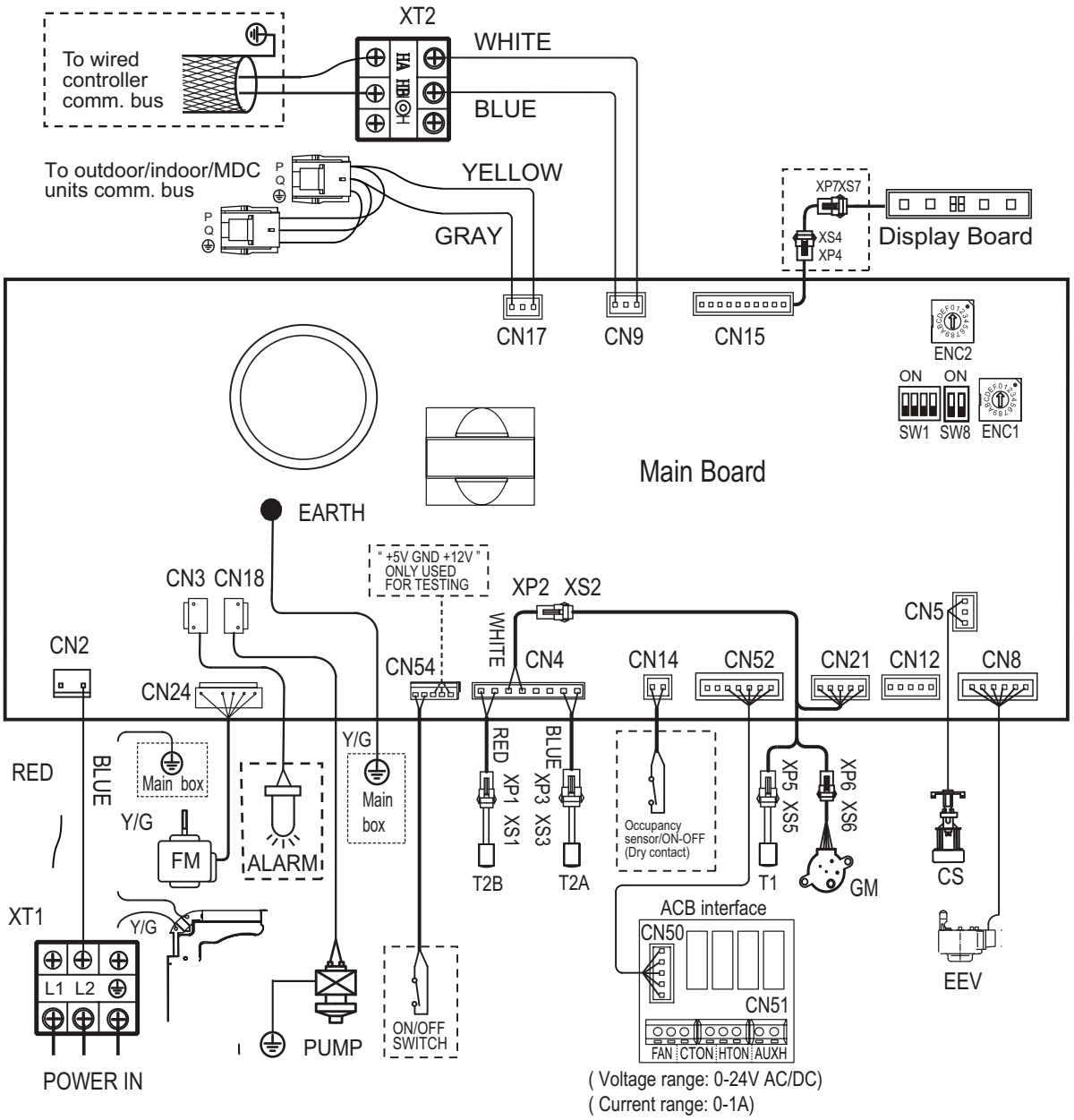


Fig. 4 —40VMC005/007/009/012/015---3

Legend

ACB	—	Auxiliary Control Board	T1	—	Inlet Air Temperature
AUXH	—	Output For Auxiliary Heat	T2A	—	Coil Temperature
CS	—	Condensate Switch	T2B	—	Evap. Outlet Temperature in Cooling Mode
CTON	—	Output for Cooling Operation	XP1-9	—	Plug
EEV	—	Electronic Expansion Valve	XS1-9	—	Jack
FAN	—	DC Indoor Fan	XT1-2	—	Terminal Block
FM	—	Indoor Fan Motor	XP7	—	Connector
GM	—	Louver Motor	XS7	—	Connector
HTON	—	Output For Heating Operation	XP4	—	Connector
MDC	—	Multiport Distribution Controller	XS4	—	Connector
PUMP	—	Pump Motor	---------	—	Optional Component or Field Wiring

Wiring Diagram Definitions and Settings (40VMC005 to 015---3)

Table 6 —Code / Title

CODE	TITLE
FM	Indoor Fan Motor
T1	Room Temperature Sensor
T2A	Inlet Pipe Temperature Sensor
T2B	Outlet Pipe Temperature Sensor
ALARM	Warning Lamp
EEV	Electronic Expansion Valve
XP1-6	Connectors
XS1-6	
XT1-2	Terminal
PUMP	Pump Motor
CS	Condensate Switch
GM	Swing Motor

Table 7 —SW1 Definition

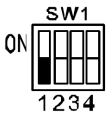
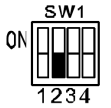
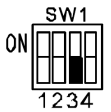
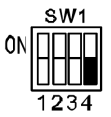
	0 means auto addressing mode (Default)
	1 means factory test mode
	0 means normal mode (Default)
	1 means factory self-checking mode (Reserved)
	Reserved
	0 means standard indoor unit (Default)
	1 means main indoor unit (must be addressed #63)

Table 8 —ENC1 / ENC2

 ENC1	Reserved	 ENC2	Reserved

Table 9 —J1 Definition

	Without jumper J1 for auto restart function
	With jumper J1 for manual restart function

Table 10 —SW8 Definition

	Reserved
	Reserved

Table 11 —0/1 Definition

	Means 0
	Means 1

Table 12 —Error Code / Content

dd	Heating / Cooling Conflict
E1	Communication Error with Outdoor Unit
E2	Temperature Sensor (T1) Error
E4	Temperature Sensor (T2B) Error
E5	Temperature Sensor (T2A) Error
E6	DC Fan Error
E7	EEPROM Error (Data Storage)
UU	MDC Error in Auto System-Check Mode
E9	Communication Error with Wired Controller
Eb	EEV Error
EC	Indoor Fan Error in Auto System-Check Mode
Ed	Outdoor Unit Error
EE	Condensate Error
FE	No Address when Powered On for the First Time

ELECTRICAL CHARACTERISTICS

Table 13 —Electrical Characteristics

MODEL	POWER SUPPLY					IFM	
	Hz	VOLTS	VOLTAGE RANGE	MCA	MOCP	kW	FLA
40VMC005---3	60	208/230V	Max.253V Min.187V	0.38	15	0.37	0.30
40VMC007---3				0.38	15	0.37	0.30
40VMC009---3				0.38	15	0.37	0.30
40VMC012---3				0.53	15	0.37	0.42
40VMC015---3				0.53	15	0.37	0.42

Symbols:
MCA: Minimum Circuit Amps (A)
MOCP: Maximum Overcurrent Protection (A)
kW: Fan Motor Rated Output (kW)
FLA: Full Load Amps (A)
IFM: Indoor Fan Motor

AIR THROW CHARTS

40VMC005---3

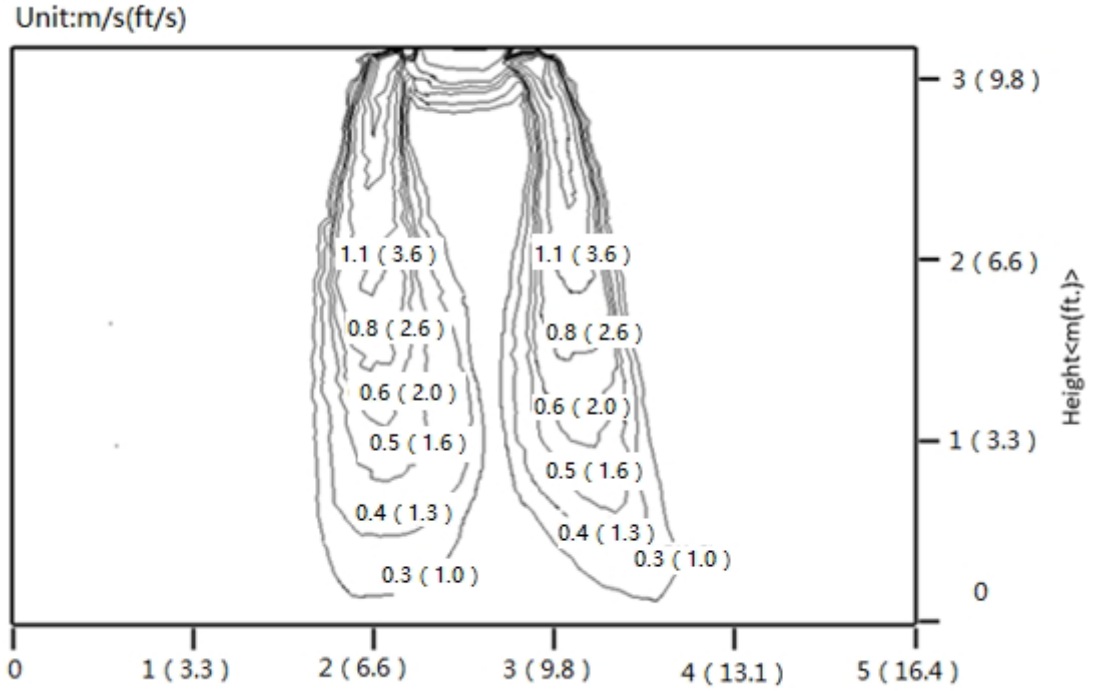


Fig. 5 —Cooling Mode with 60° Swing

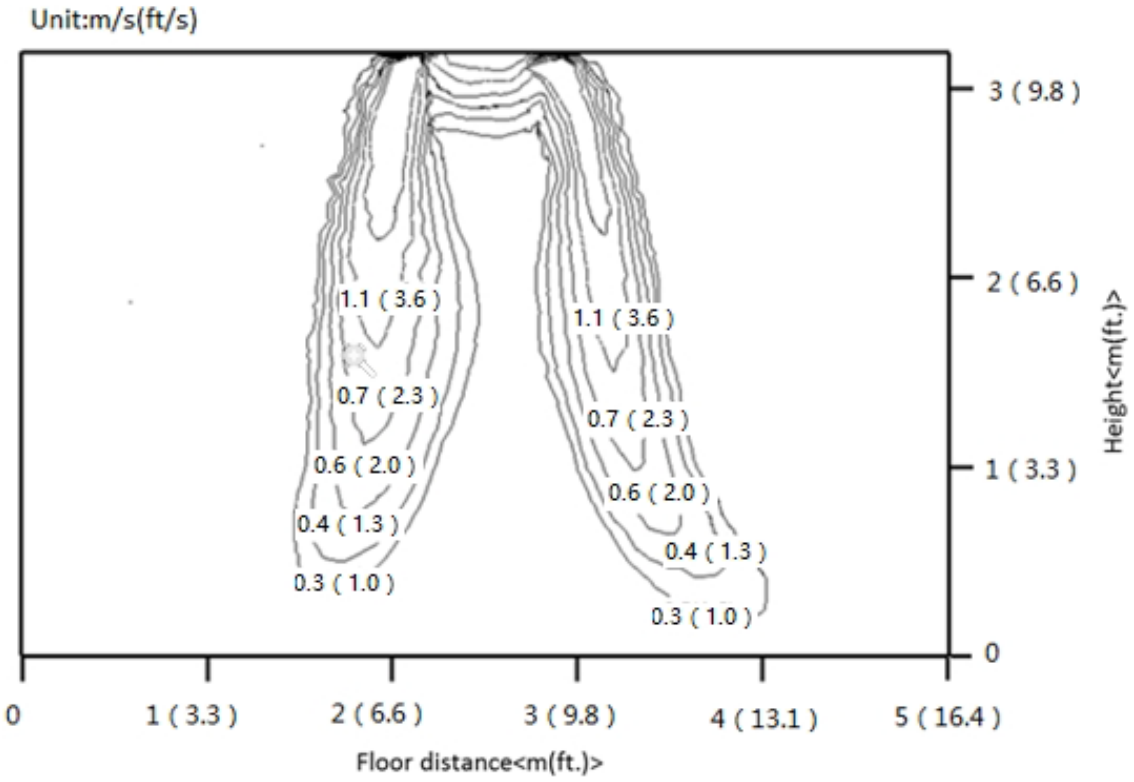


Fig. 6 —Heating Mode with 60° Swing

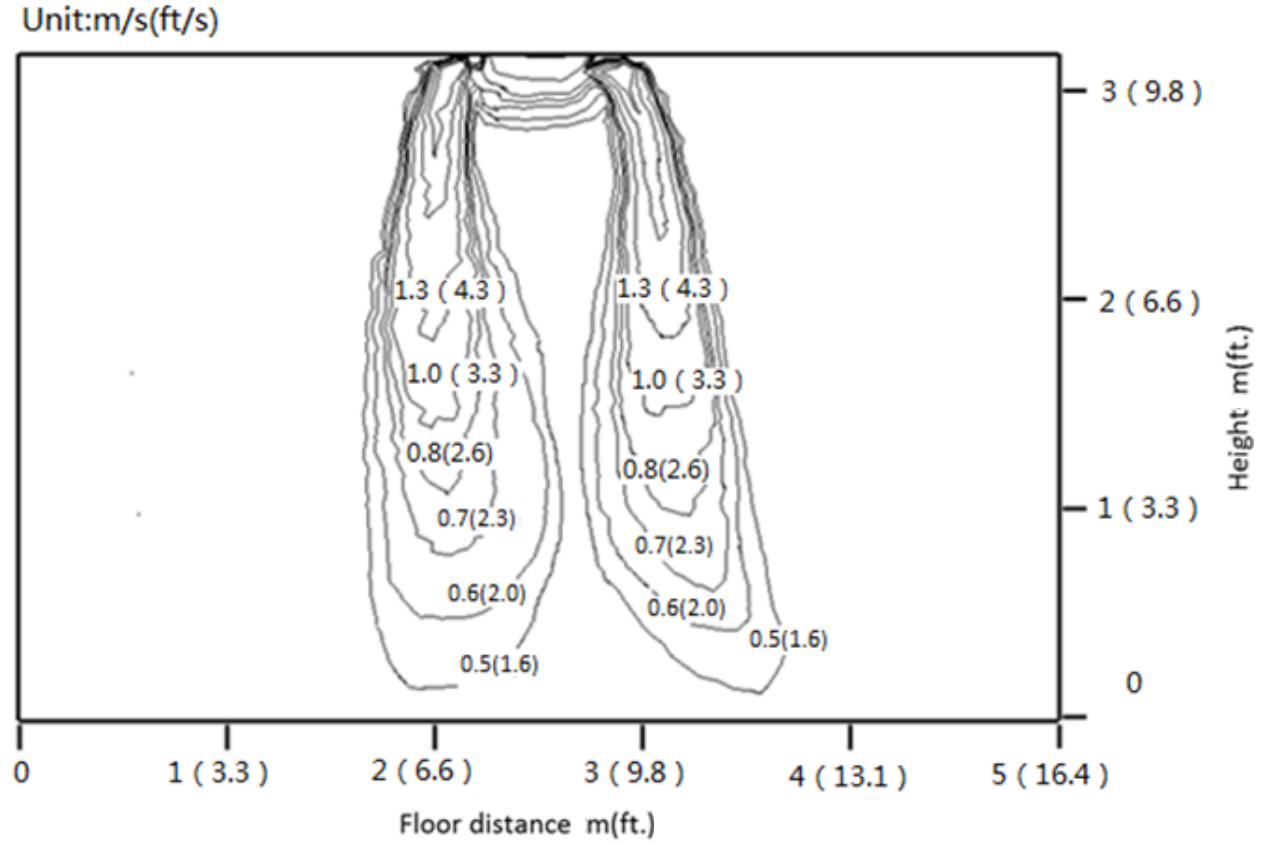


Fig. 7 —Cooling Mode with 60° Swing

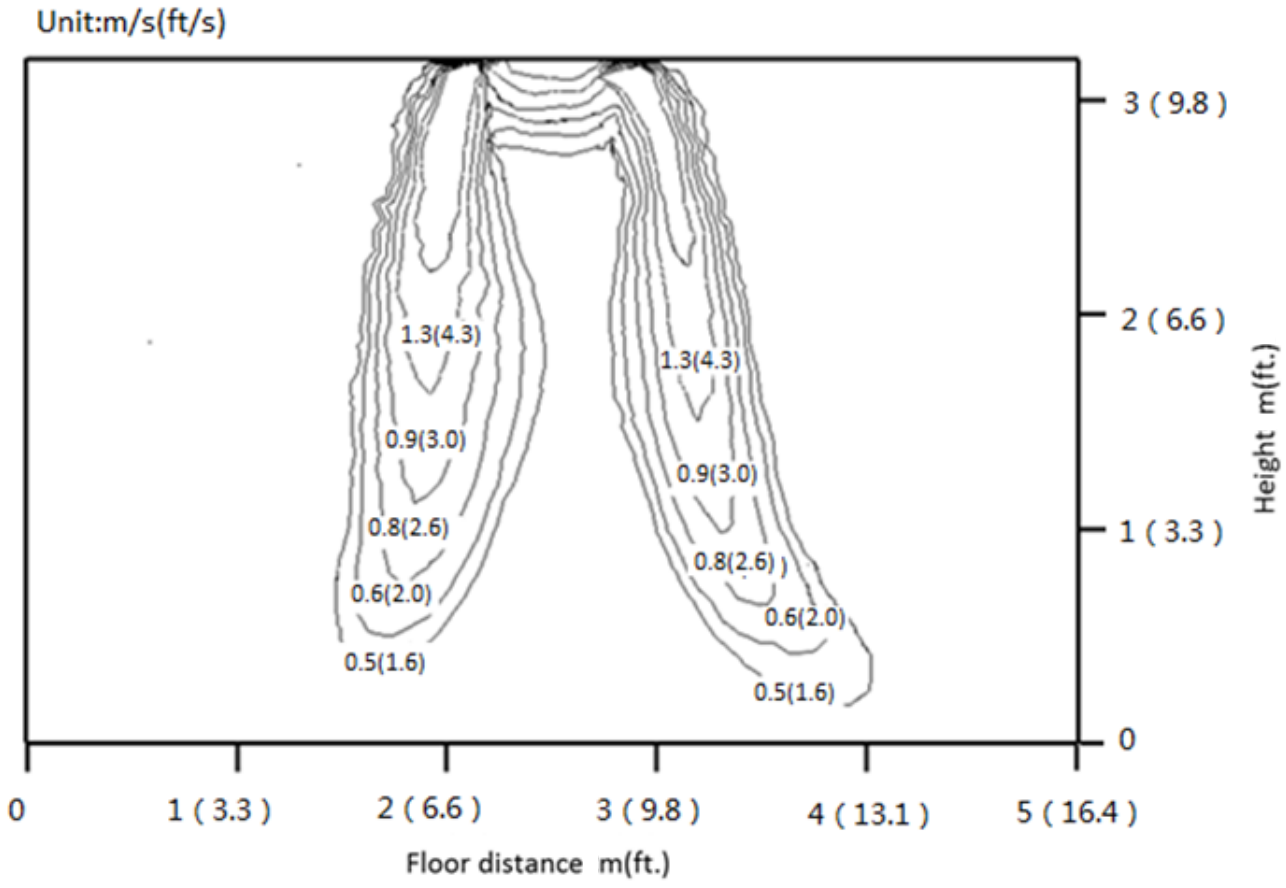


Fig. 8 —Heating Mode with 60° Swing

40VMC009---3

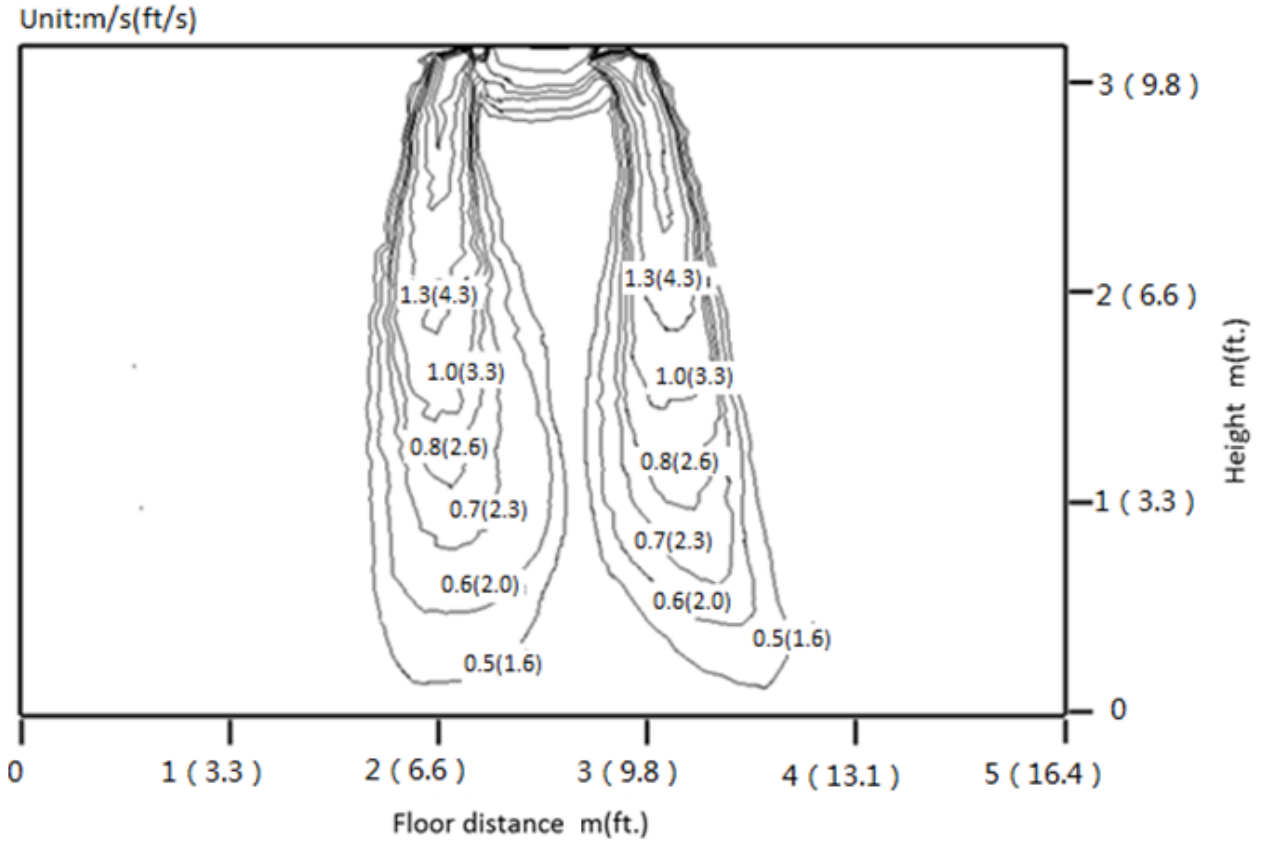


Fig. 9 —Cooling Mode with 60° Swing

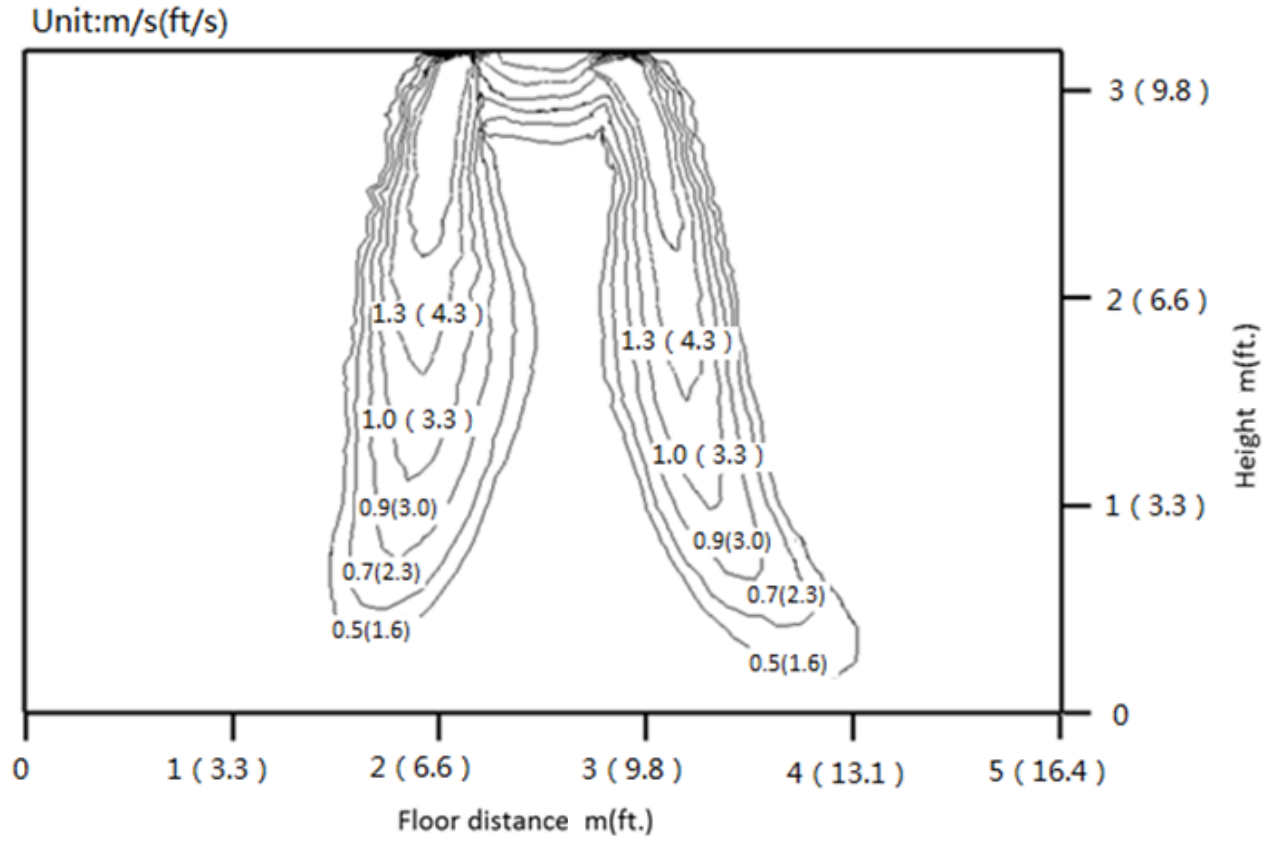


Fig. 10 —Heating Mode with 60° Swing

40VMC012---3

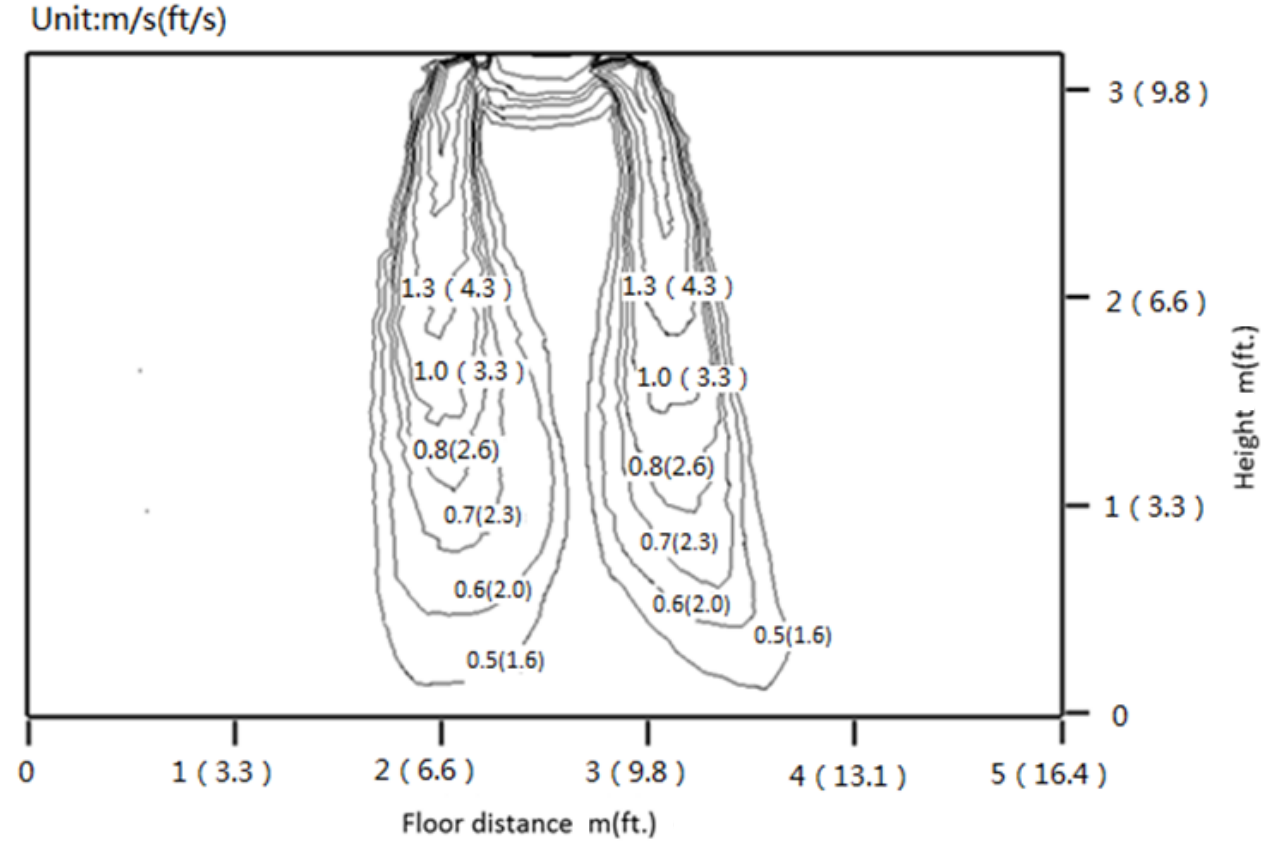


Fig. 11 —Cooling Mode with 60° Swing

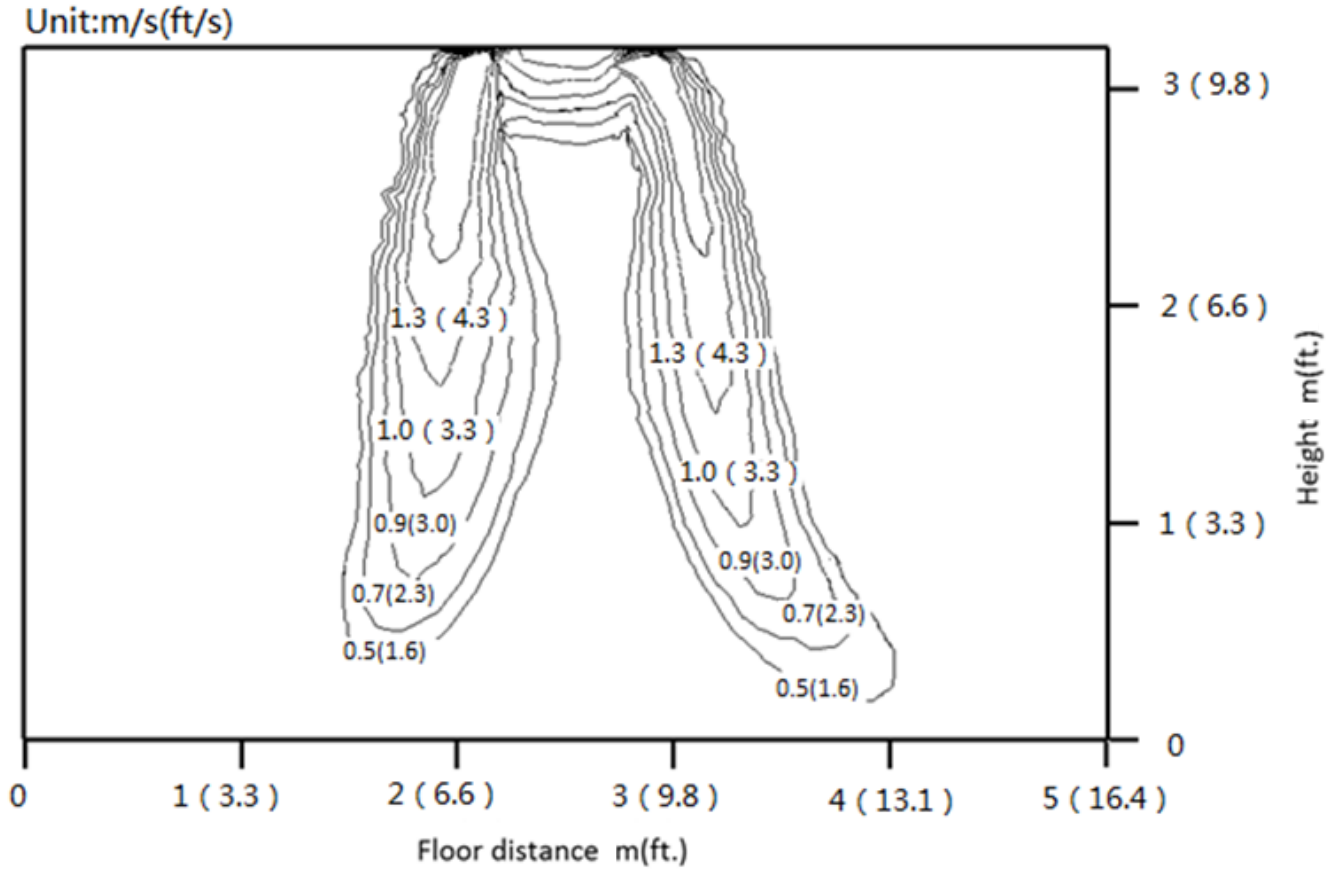


Fig. 12 —Heating Mode with 60° Swing

40VMC015---3

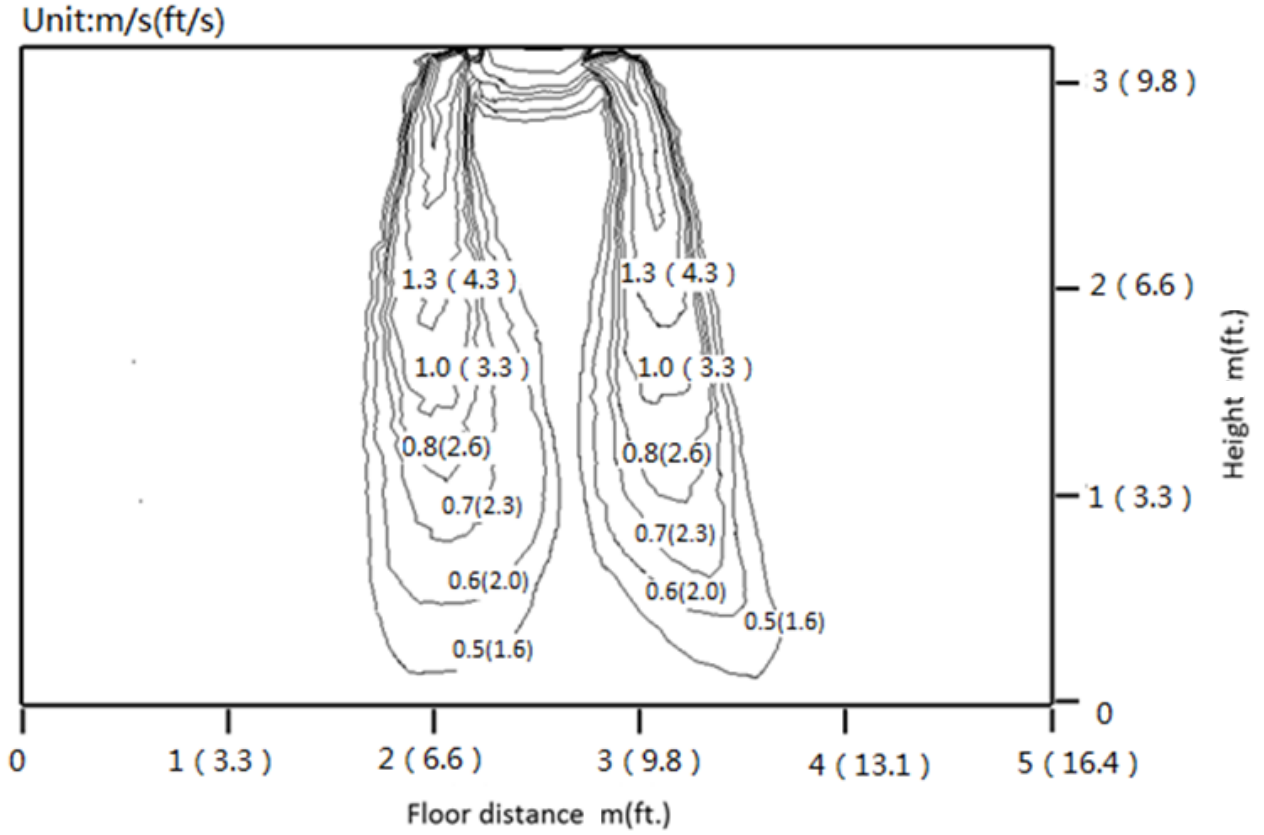


Fig. 13 —Cooling Mode with 60° Swing

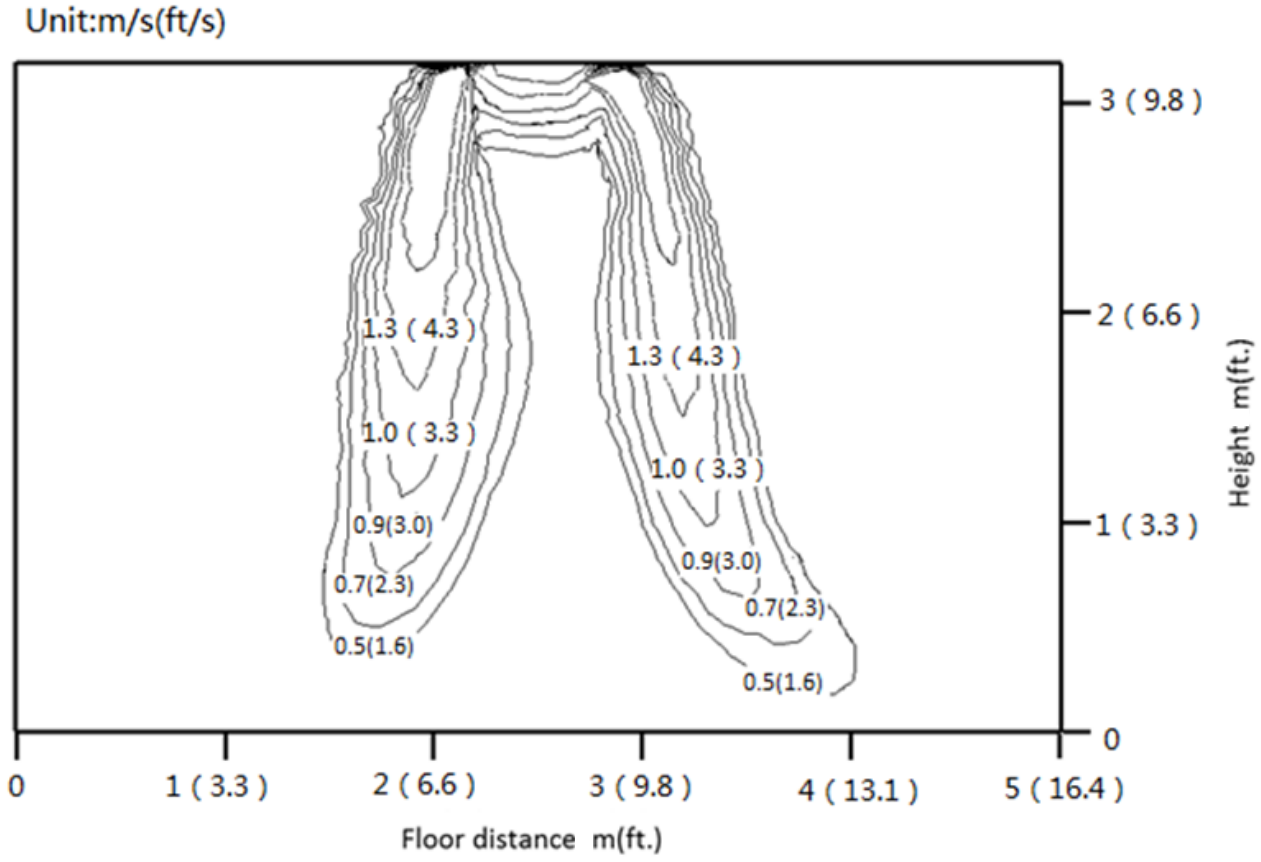


Fig. 14 —Heating Mode with 60° Swing

SOUND DATA

Sound Pressure Levels

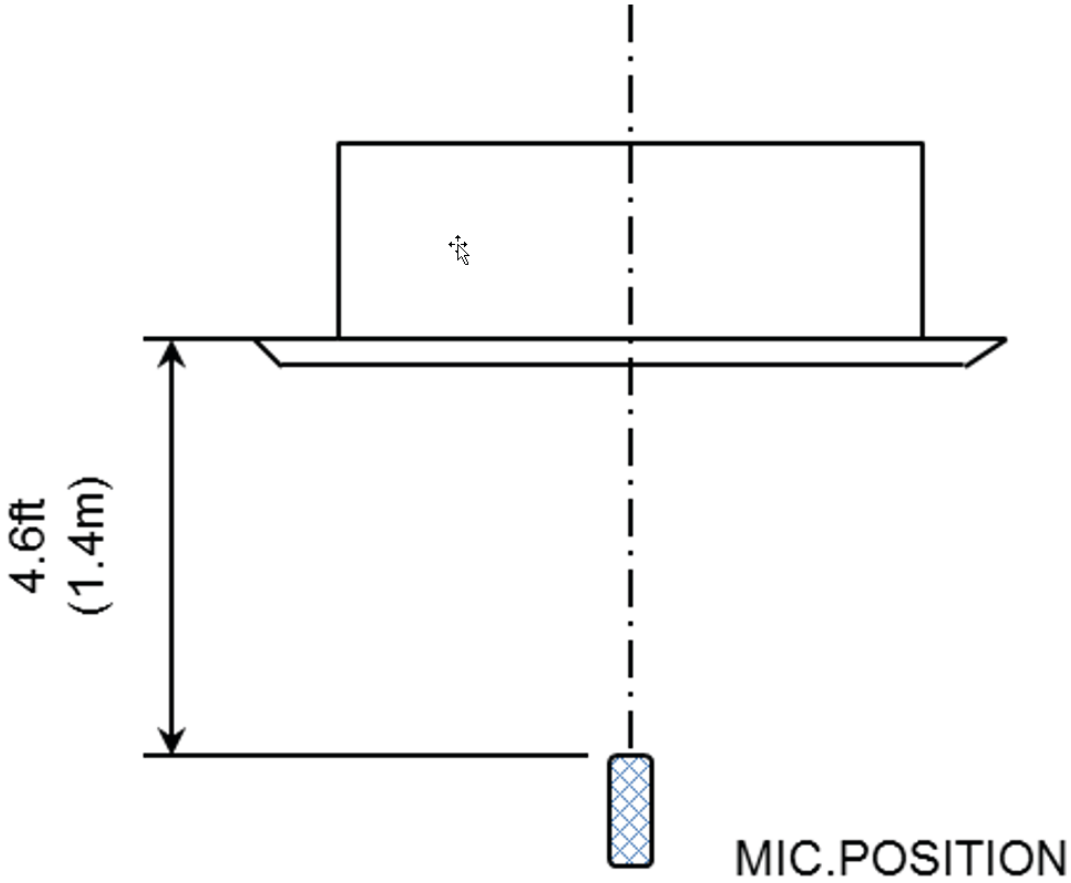


Fig. 15 —Overall Sound Levels

Table 14 —Cooling Mode

MODEL	H	M	L
40VMC005---3	38.2	34.3	34.3
40VMC007---3	40.1	38.2	34.3
40VMC009---3	40.1	38.2	34.3
40VMC012---3	45.5	42.1	38.1
40VMC015---3	45.5	42.1	38.1

Table 15 —Heating Mode

MODEL	H	M	L
40VMC005---3	38.5	34.7	34.7
40VMC007---3	40.4	38.5	34.7
40VMC009---3	40.4	38.5	34.7
40VMC012---3	45.4	42.3	37.6
40VMC015---3	45.4	42.3	37.6

NOTE: Units are in dBA

NC Curves

NOTES:

External Static Pressure: 0 in. (0 Pa)

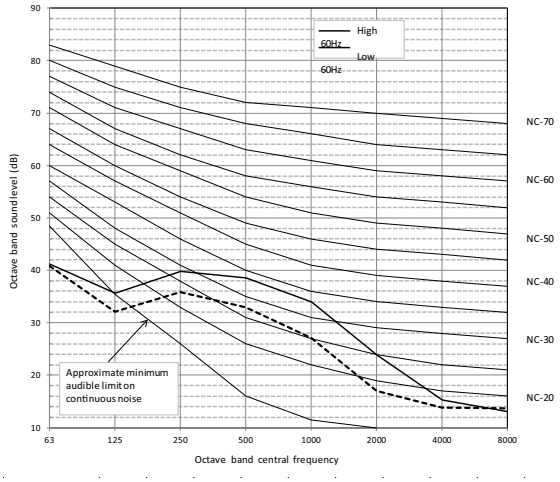


Fig. 16 —40VMC005---3

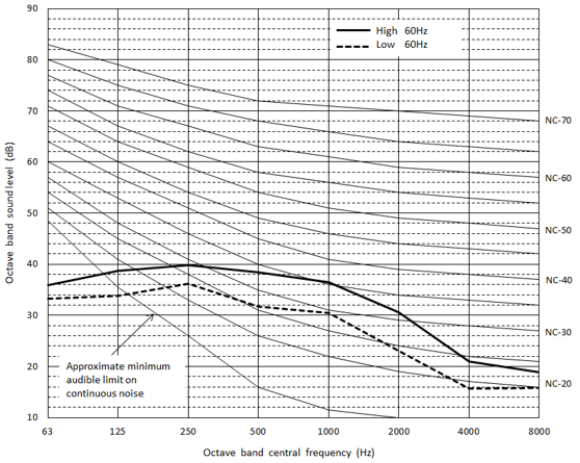


Fig. 17 —40VMC007---3

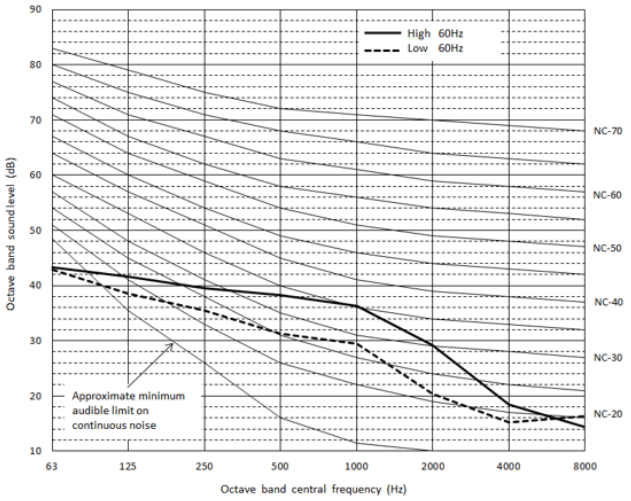


Fig. 18 —40VMC009---3

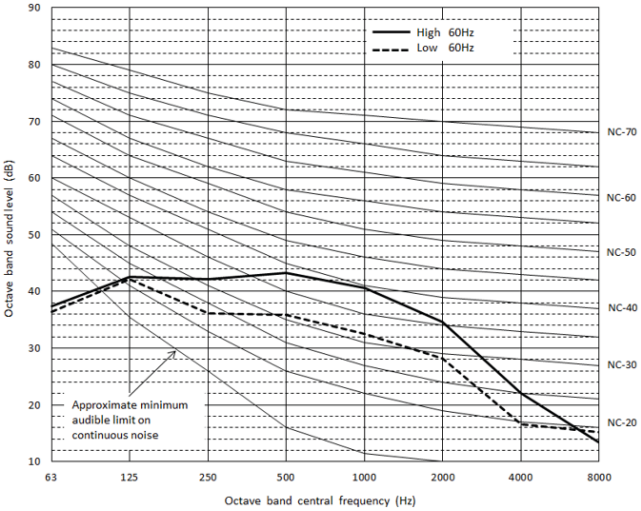


Fig. 19 —40VMC012---3

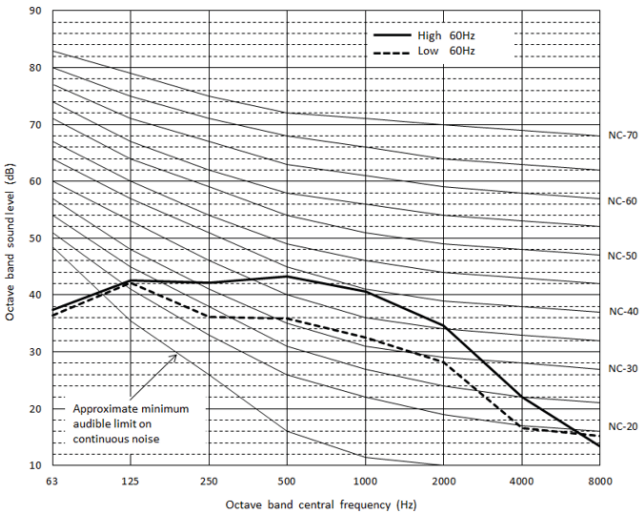


Fig. 20 —40VMC015---3

CAPACITY DATA TABLES

Table 16 —Cooling Capacity

Indoor Unit Entering Air Conditions:		Cooling Capacity indication									
		5K		7K		9K		12K		15K	
drybulb(°F)	wetbulb(°F)	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
70	58	3.14	3.14	4.4	4.4	5.65	5.16	7.54	6.47	9.42	7.44
70	62	3.97	3.08	5.55	3.89	7.14	4.63	9.52	5.95	11.9	7.15
70	67	5	2.14	7	2.98	9	3.85	12	5.15	15	6.6
70	72	/	/	/	/	/	/	/	/	/	/
70	76	/	/	/	/	/	/	/	/	/	/
75	58	3.16	3.14	4.43	4.40	5.69	5.65	7.59	7.54	9.49	8.89
75	62	4.00	3.97	5.59	5.14	7.19	5.87	9.59	7.40	11.98	8.60
75	67	5.04	3.29	7.05	4.22	9.06	5.09	12.08	6.60	15.11	8.04
75	72	5.41	2.04	7.58	2.87	9.74	3.72	12.99	5.00	16.24	6.42
75	76	/	/	/	/	/	/	/	/	/	/
80	58	3.18	3.14	4.46	4.40	5.73	5.65	7.65	7.54	9.55	9.42
80	62	4.03	3.97	5.63	5.55	7.24	7.12	9.65	8.86	12.07	10.05
80	67	5.07	4.45	7.10	5.47	9.13	6.33	12.17	8.05	15.21	9.49
80	72	5.45	3.20	7.63	4.11	9.81	4.97	13.08	6.45	16.35	7.87
80	76	5.74	2.18	8.04	3.00	10.34	3.84	13.79	5.13	17.23	6.52
85	58	3.21	3.14	4.49	4.40	5.77	5.65	7.70	7.54	9.62	9.42
85	62	4.05	3.97	5.67	5.55	7.29	7.14	9.72	9.52	12.15	11.90
85	67	5.11	5.00	7.15	6.72	9.19	7.58	12.25	9.51	15.32	10.95
85	72	5.49	4.36	7.69	5.36	9.88	6.21	13.17	7.90	16.47	9.32
85	76	5.78	3.35	8.10	4.25	10.41	5.09	13.89	6.58	17.35	7.96
90	58	3.23	3.14	4.52	4.40	5.81	5.65	7.75	7.54	9.69	9.42
90	62	4.08	3.97	5.71	5.55	7.34	7.14	9.79	9.52	12.24	11.90
90	67	5.14	5.00	7.20	7.00	9.25	9.00	12.34	12.00	15.42	15.00
90	72	5.52	5.23	7.74	6.61	9.95	7.46	13.26	9.36	16.58	10.77
90	76	5.82	4.51	8.15	5.50	10.49	6.34	13.98	8.03	17.47	9.42

Rated Condition: Evaporation temperature is 42.8°F with high speed airflow.

Table 17 —Heating Capacity

Model	Capacity indication	Heating Indoor air temp.							
		61°DB	64°DB	67°DB	70°DB	73°DB	75°DB	77°DB	80°DB
		TC	TC	TC	TC	TC	TC	TC	TC
Compact cassette	5	5.30	5.20	5.10	5.00	4.67	4.44	4.22	3.88
	7	8.48	8.32	8.16	8.00	7.46	7.11	6.75	6.21
	9	10.60	10.40	10.20	10.00	9.33	8.88	8.44	7.77
	12	13.78	13.52	13.26	13.00	12.13	11.55	10.97	10.10
	15	18.02	17.68	17.34	17.00	15.86	15.10	14.34	13.21

Rated Condition: Evaporation temperature is 42.8°F with high speed airflow.

TC = Total capacity; KBTU/h

SC = Sensible capacity; KBTU/h