LG
Life's Good

MULTI V™

CEILING CASSETTE INDOOR UNIT ENGINEERING MANUAL

One-Way Ceiling Cassettes
7,500 to 24,200 Btu/h

Two-Way Ceiling Cassettes
19,100 to 24,200 Btu/h

Four-Way Ceiling Cassettes
5,500 to 48,100 Btu/h

PROPRIETARY DATA NOTICE

This document, as well as all reports, illustrations, data, information, and other materials are the property of LG Electronics U.S.A., Inc., and are disclosed by LG Electronics U.S.A., Inc. only in confidence.
This document is for design purposes only.

A summary list of safety precautions is on page 3.

To access additional technical documentation such as submittals, outdoor unit engineering manuals, installation, service, product data performance, general best practice, and building ventilation manuals, as well as white papers, catalogs, LATS software programs, and more, log in to www.lghvac.com.

MULTI V™

TABLE OF CONTENTS

TABLE OF SYMBOLS

⚠ **DANGER**	*This symbol indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.*
⚠ **WARNING**	*This symbol indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.*
⚠ **CAUTION**	*This symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.*
⚠ **NOTE**	*This symbol indicates situations that may result in equipment or property damage accidents only.*
Note:	*This symbol indicates information related to the current procedure.*
	*This symbol indicates an action that should not be performed.*

UNIT NOMENCLATURE

ARN	U	07	3	TA	A	4

Family
ARN = Multi V Indoor Unit (Refrigerant R410A)

Type
U = DC Inverter Heat Pump

Indoor Unit Nominal Capacity

05 = 5,000 Btu/h	18 = 18,000 Btu/h	42 = 42,000 Btu/h
07 = 7,000 Btu/h	24 = 24,000 Btu/h	48 = 48,000 Btu/h
09 = 9,000 Btu/h	28 = 28,000 Btu/h	54 = 54,000 Btu/h
12 = 12,000 Btu/h	30 = 30,000 Btu/h	76 = 76,000 Btu/h
15 = 15,000 Btu/h	36 = 36,000 Btu/h	96 = 96,000 Btu/h

Electrical Ratings
3 = 208–230V/60Hz/1Ph

Model

B8 = Ducted (high static)	NJ = Vertical/Horizontal Air Handling Unit	TM = 4-Way Ceiling Cassette
CE = Floor Standing (small frame)	NK = Vertical/Horizontal Air Handling Unit	TN = 4-Way Ceiling Cassette
CF = Floor Standing (large frame)	SF = Wall Mounted / Art Cool™ Gallery	TQ = 4-Way Ceiling Cassette
L1 = Ducted (low static)	SJ = Wall Mounted / Art Cool Mirror	TR = 4-Way Ceiling Cassette
L2 = Ducted (low static)	SK = Wall Mounted / Art Cool Mirror	
L3 = Ducted (low static)	SV = Wall Mounted / Standard	
M1 = Ducted (mid static)	TT = 1-Way Ceiling Cassette	
M2 = Ducted (mid / high static)	TU = 1-Way Ceiling Cassette	
M3 = Ducted (mid / high static)	TS = 2-Way Ceiling Cassette	

Feature
A, C, D, L, R = Standard
G = Low Static
U = Uncased

Generation
2 = Second
4 = Fourth
A = Second, Revision A

LG AIR CONDITIONER TECHNICAL SOLUTION (LATS)

LG Air Conditioner Technical Solution (LATS) Software

A properly designed and installed refrigerant piping system is critical to the optimal performance of LG air-conditioning systems. To assist engineers, LG offers, free of charge, LG Air Conditioner Technical Solution (LATS) software—a total design solution for LG air conditioning systems.

Note:

To reduce the risk of designing an improper applied system or one that will not operate correctly, LG requires that LATS software be used on all projects.

Formats

LATS is available to LG customers in two user interfaces: LATS HVAC and LATS REVIT. Both LATS formats are available through www.myLGHVAC.com, or contact an LG Sales Representative.

LATS HVAC is a Windows®-based application that aids engineers in designing LG Variable Refrigerant Flow (VRF), Multi F / Multi F MAX, Single-Zone, and Energy Recovery Ventilator (ERV) systems.

**Windows® is a registered mark of Microsoft® Corporation.*

LATS Revit integrates the LG LATS program with Revit® software**. It permits engineers to layout and validate Multi V VRF systems directly into Revit drawings.

***Revit® is a registered mark of Autodesk, Inc.*

Features

All LG product design criteria have been loaded into the program, making LATS simple to use: double click or drag and drop the component choices. Build systems in Tree Mode where the refrigerant system can be viewed. Switch to a Schematic diagram to see the electrical and communications wiring.

LATS software permits the user to input region data, indoor and outdoor design temperatures, modify humidity default values, zoning, specify type and size of outdoor units and indoor units, and input air flow and external static pressure (ESP) for ducted indoor units.

The program can also do the following:

- Import building loads from a separate Excel file.
- Present options for outdoor unit auto selection.
- Automatically calculate component capacity based on design conditions for the chosen region.
- Verify if the height differences between the various system components are within system limits.
- Provide the correct size of each refrigerant piping segment and LG Y-Branches and Headers.
- Adjust overall piping system length when elbows are added.
- Check for component piping limitations and flag if any parameters are broken.
- Factor operation and capacity for defrost operation.
- Calculate refrigerant charge, noting any additional trim charge.
- Suggest accessories for indoor units and outdoor units.
- Run system simulation.

Note:

Features depend on which LATS program is being used, and the type of system being designed.

LG AIR CONDITIONER TECHNICAL SOLUTION (LATS)

MULTI V™

LATS Generates a Complete Project Report

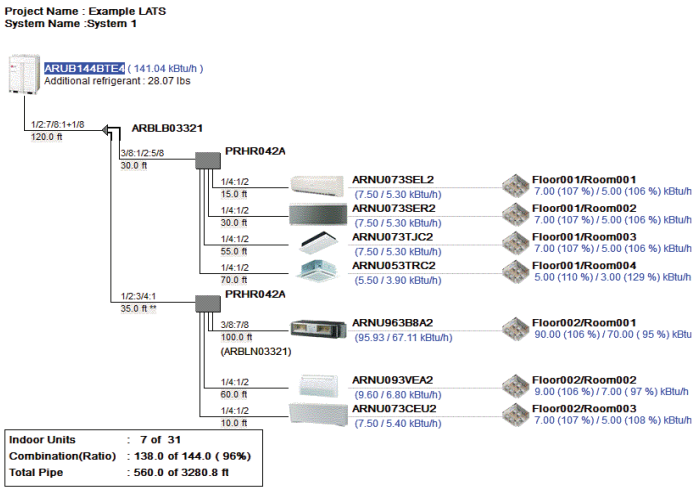
LATS software also generates a report containing project design parameters, cooling and heating design data, system component performance, and capacity data. The report includes system combination ratio and refrigerant charge calculations; and provides detailed bill of material, including outdoor units, indoor units, control devices, accessories, refrigerant pipe sizes segregated by building, by system, by pipe size, and by pipe segments. LATS can generate an Excel GERP report that can imported into the LG SOPS pricing and ordering system.

Proper Design to Install Procedure

LG encourages a two report design-to-install-procedure. After the design engineer determines building / zone loads and other details, the engineer opens the LATS program and inputs the project's information. When the design is complete, the "Auto Piping" and "System Check" functions must be used to verify piping sizes, limitations, and if any design errors are present. If errors are found, engineers must adjust the design, and run Auto Piping and System Check again. When the design passes the checks, then the engineer prints out a project "Shop Drawing" (LATS Tree Diagram) and provides it to the installing contractor. The contractor must follow the LATS Tree Diagram when building the piping system, but oftentimes the design changes on the building site:

- Architect has changed location and/or purpose of room(s).
- Outdoor unit cannot be placed where originally intended.
- Structural elements prevent routing the piping as planned.
- Air conditioning system conflicts with other building systems (plumbing, gas lines, etc.).

Figure 1: Example of a LATS Tree Diagram.



The contractor must mark any deviation from the design on the Shop Drawing, including as-built straight lines and elbows. This "Mark Up" drawing must be returned to the design engineer or Rep, who must input contractor changes into the LATS file. (Copy the original LATS software file, save and rename as a separate file, and modify all piping lengths by double-clicking on each length and editing information.) Like the shop drawing, the Auto Piping and System Check must also be run on this new "As Built" drawing. The design engineer or Rep must then provide the final As Built file to the contractor. The Mark Up version must be compared to the As Built version for:

- Differences in pipe diameter(s). If incorrect diameters have been installed, the piping must be changed out. If pipe diameters have changed, check to see if Y-Branches will also need to be changed.
- Changes to outdoor unit and indoor unit capacities. Capacities changes may impact line length changes.
- Additional refrigerant charge quantity ("Trim Charge"). Trim charge will change if piping lengths and diameters change. The As Built version must reflect installed piping lengths to ensure correct trim charge.

All documents submitted by the contractor, as well as the Shop Drawing and the As Built Drawing files must be provided for commissioning purposes. Model and serial numbers for all system components must also be submitted. If the steps previously detailed are not followed, and all documents are not provided to the commissioning agent, the project runs the risk of not being commissioned and voiding any limited warranty LG offers on the equipment.

Note:

Any field changes, such as re-routing, shortening or lengthening a pipe segment, adding or eliminating elbows and/or fittings, re-sizing, adding, or eliminating indoor units, changing the mounting height, or moving the location of a device or fitting during installation must be done with caution and ALWAYS VERIFIED in LATS SOFTWARE BEFORE supplies are purchased or installed. Doing so will lead to a more profitable installation, reduce the potential for rework, and will reduce the potential for multiple visits to the job site to complete the system commissioning.

LG

MULTI V

REFRIGERANT CHARGE WORKSHEET

Multi V 5 System R410A Refrigerant Charge Calculator (lbs.)

System Tag or ID:	Job Name: _____
	Project Manager: _____ Date: _____

Line #	Description			Chassis I.D.	Size	Quantity	CF (Ref.)[1]	Total (lbs.)
1	Linear feet of 1/4" liquid line tubing[2]			—	—		0.015	
2	Linear feet of 3/8" liquid line tubing[2]			—	—		0.041	
3	Linear feet of 1/2" liquid line tubing[2]			—	—		0.079	
4	Linear feet of 5/8" liquid line tubing[2]			—	—		0.116	
5	Linear feet of 3/4" liquid line tubing[2]			—	—		0.179	
6	Linear feet of 7/8" liquid line tubing[2]			—	—		0.238	
7	Linear feet of 1" liquid line tubing[2]			—	—		0.323	
8	Standard + Art Cool Mirror			SJ, SK	5k to 15k		0.53	
9	Standard + Art Cool Mirror			SJ, SK	18k to 24k		0.62	
10	Standard			SV	30k to 36k		1.01	
11	Art Cool Gallery			SF	9k to 12k		0.22	
12	1-Way Cassette			TU	7k to 12k		0.44	
13	1-Way Cassette			TT	18k to 24k		0.64	
14	2-Way Cassette			TS	18k to 24k		0.75	
15	4-Way 2' x 2' Cassette			TR	5k to 7k		0.40	
16	4-Way 2' x 2' Cassette			TR	9k to 12k		0.55	
17	4-Way 2' x 2' Cassette			TQ	15k to 18k		0.71	
18	4-Way 3' x 3' Cassette			TA	7k to 48k		1.5	
19	Mid Static Ducted			M1	7k to 24k		0.57	
20	High Static Ducted			M2	7k to 24k		0.77	
21	High Static Ducted			M2	28k to 42k		1.15	
22	High Static Ducted			M3	28k to 54k		1.35	
23	High Static Ducted			B8	36k to 96k		2.20	
24	Low Static Ducted, Low Static Ducted Bottom Return			L1	5k to 9k		0.31	
25	Low Static Ducted, Low Static Ducted Bottom Return			L2	12k to 18k		0.42	
26	Low Static Ducted, Low Static Ducted Bottom Return			L3	21k to 24k		0.55	
27	Vertical / Horizontal Air Handling Unit			NJ	12k to 30k		1.04	
28	Vertical / Horizontal Air Handling Unit			NJ	36k		1.57	
29	Vertical / Horizontal Air Handling Unit			NK	42k to 54k		2.00	
30	Floor Standing			CE (U)	7k to 15k		0.37	
31	Floor Standing			CF (U)	18k to 24k		0.82	
32	HRU: PRHR022A/023A, 032A/033A, 042A/043A			—	—		1.1	
33	HRU: PRHR063A, 083A			—	—		2.2	
34	**ADDITIONAL Refrigerant Charge Required** (Sum of lines 1 – 33)							
35	Outdoor Unit Factory Refrigerant Charge	35A	ARUM072*TE5		72k		14.3	
		35B	ARUM096*TE5		96k		23.2	
		35C	ARUM121*TE5		121k		23.2	
		35D	ARUM144*TE5		144k		26.5	
		35E	ARUM168*TE5		168k		26.5	
		35F	ARUM192*TE5		192k		30.9	
		35G	ARUM216*TE5		216k		37.5	
		35H	ARUM241*TE5		241k		37.5	
36	**Total ODU FACTORY Refrigerant Charge** (Sum of factory refrigerant charges for all ODUs in the system, lines 35A -35H)							
37	**TOTAL SYSTEM CHARGE** Sum of Additional Refrigerant Charge Required (line 34) and Total ODU Factory Refrigerant Charge (line 35)							

[1]CF (Ref.) = Correction Factor for Refrigerant Charge. [2]For refrigerant charge purposes, consider only the liquid line; ignore the vapor line(s).

REFRIGERANT CHARGE WORKSHEET

MULTI V™

Water 5 System R410A Refrigerant Charge Calculator (lbs.)

System Tag or ID:	Job Name: _____ Project Manager: _____ Date: _____

Line #	Description	Chassis I.D.	Size	Quantity	CF (Ref.)[1]	Total (lbs.)
1	Linear feet of 1/4" liquid line tubing[2]	—	—		0.015	
2	Linear feet of 3/8" liquid line tubing[2]	—	—		0.041	
3	Linear feet of 1/2" liquid line tubing[2]	—	—		0.079	
4	Linear feet of 5/8" liquid line tubing[2]	—	—		0.116	
5	Linear feet of 3/4" liquid line tubing[2]	—	—		0.179	
6	Linear feet of 7/8" liquid line tubing[2]	—	—		0.238	
7	Linear feet of 1" liquid line tubing[2]	—	—		0.323	
8	Standard + Art Cool Mirror	SJ, SK	5k to 15k		0.53	
9	Standard + Art Cool Mirror	SJ, SK	18k to 24k		0.62	
10	Standard	SV	30k to 36k		1.01	
11	Art Cool Gallery	SF	9k to 12k		0.22	
12	1-Way Cassette	TU	7k to 12k		0.44	
13	1-Way Cassette	TT	18k to 24k		0.64	
14	2-Way Cassette	TS	18k to 24k		0.75	
15	4-Way 2' x 2' Cassette	TR	5k to 7k		0.40	
16	4-Way 2' x 2' Cassette	TR	9k to 12k		0.55	
17	4-Way 2' x 2' Cassette	TQ	15k to 18k		0.71	
18	4-Way 3' x 3' Cassette	TA	7k to 48k		1.5	
19	Mid Static Ducted	M1	7k to 24k		0.57	
20	High Static Ducted	M2	7k to 24k		0.77	
21	High Static Ducted	M2	28k to 42k		1.15	
22	High Static Ducted	M3	28k to 54k		1.35	
23	High Static Ducted	B8	36k to 96k		2.20	
24	Low Static Ducted, Low Static Ducted Bottom Return	L1	5k to 9k		0.31	
25	Low Static Ducted, Low Static Ducted Bottom Return	L2	12k to 18k		0.42	
26	Low Static Ducted, Low Static Ducted Bottom Return	L3	21k to 24k		0.55	
27	Vertical / Horizontal Air Handling Unit	NJ	12k to 30k		1.04	
28	Vertical / Horizontal Air Handling Unit	NJ	36k		1.57	
29	Vertical / Horizontal Air Handling Unit	NK	42k to 54k		2.00	
30	Floor Standing	CE (U)	7k to 15k		0.37	
31	Floor Standing	CF (U)	18k to 24k		0.82	
32	HRU: PRHR022A/023A, 032A/033A, 042A/043A	—	—		1.1	
33	HRU: PRHR063A, 083A	—	—		2.2	
34	**ADDITIONAL Refrigerant Charge Required** (Sum of lines 1 – 33)					
35	Water-Source Unit Factory Refrigerant Charge	ARWM072BAS5, ARWM096BAS5, ARWM121BAS5, ARWM144BAS5			7.7	
		ARWM072DAS5, ARWM096DAS5, ARWM121DAS5, ARWM144DAS5			7.7	
		ARWM168DAS5, ARWM192DAS5 9.9			9.9	
36	**Total WSU FACTORY Refrigerant Charge** (Sum of factory refrigerant charges for all WSUs in the system)					
37	**TOTAL SYSTEM CHARGE** Sum of Additional Refrigerant Charge Required (line 34) and Total WSU Factory Refrigerant Charge (line 36)					

[1]CF (Ref.) = Correction Factor for Refrigerant Charge. [2]For refrigerant charge purposes, consider only the liquid line; ignore the vapor line(s).

LG

MULTI V™

REFRIGERANT CHARGE WORKSHEET

Multi V S System R410A Refrigerant Charge Calculator (lbs.)

System Tag or ID:	Job Name: _____
	Project Manager: _____ Date: _____

Line #	Description		Chassis I.D.	Size	Quantity	CF (Ref.)[1]	Total (lbs.)
1	Linear feet of 1/4" liquid line tubing[2]		—	—		0.015	
2	Linear feet of 3/8" liquid line tubing[2]		—	—		0.041	
3	Linear feet of 1/2" liquid line tubing[2]		—	—		0.079	
4	Linear feet of 5/8" liquid line tubing[2]		—	—		0.116	
5	Linear feet of 3/4" liquid line tubing[2]		—	—		0.179	
6	Linear feet of 7/8" liquid line tubing[2]		—	—		0.238	
7	Linear feet of 1" liquid line tubing[2]		—	—		0.323	
8	Standard + Art Cool Mirror		SJ, SK	5k to 15k		0.53	
9	Standard + Art Cool Mirror		SJ, SK	18k to 24k		0.62	
10	Standard		SV	30k to 36k		1.01	
11	Art Cool Gallery		SF	9k to 12k		0.22	
12	1-Way Cassette		TU	7k to 12k		0.44	
13	1-Way Cassette		TT	18k to 24k		0.64	
14	2-Way Cassette		TS	18k to 24k		0.75	
15	4-Way 2' x 2' Cassette		TR	5k to 7k		0.40	
16	4-Way 2' x 2' Cassette		TR	9k to 12k		0.55	
17	4-Way 2' x 2' Cassette		TQ	15k to 18k		0.71	
18	4-Way 3' x 3' Cassette		TA	7k to 48k		1.5	
19	Mid Static Ducted		M1	7k to 24k		0.57	
20	High Static Ducted		M2	7k to 24k		0.77	
21	High Static Ducted		M2	28k to 42k		1.15	
22	High Static Ducted		M3	28k to 54k		1.35	
23	High Static Ducted		B8	36k to 96k		2.20	
24	Low Static Ducted, Low Static Ducted Bottom Return		L1	5k to 9k		0.31	
25	Low Static Ducted, Low Static Ducted Bottom Return		L2	12k to 18k		0.42	
26	Low Static Ducted, Low Static Ducted Bottom Return		L3	21k to 24k		0.55	
27	Vertical / Horizontal Air Handling Unit		NJ	12k to 30k		1.04	
28	Vertical / Horizontal Air Handling Unit		NJ	36k		1.57	
29	Vertical / Horizontal Air Handling Unit		NK	42k to 54k		2.00	
30	Floor Standing		CE (U)	7k to 15k		0.37	
31	Floor Standing		CF (U)	18k to 24k		0.82	
32	HRU: PRHR022A/023A, 032A/033A, 042A/043A		—	—		1.1	
33	HRU: PRHR063A, 083A		—	—		2.2	
34	**ADDITIONAL Refrigerant Charge Required** (Sum of lines 1 – 33)						
35	Total Outdoor Unit Factory Refrigerant Charge (Choose One)	35A	ARUN024GSS4			0	
		35B	ARUN038GSS4			0	
		35C	ARUN048GSS4			0	
		35D	ARUN053GSS4			0	
		35E	ARUN060GSS4			0	
		35F	ARUB060GSS4			0	
36	**TOTAL SYSTEM CHARGE** Sum of Additional Refrigerant Charge Required (line 34) and Total ODU Factory Refrigerant Charge (from line 35A to 35F)						

[1]CF (Ref.) = Correction Factor for Refrigerant Charge. [2]For refrigerant charge purposes, consider only the liquid line; ignore the vapor line(s).

ONE-WAY CEILING CASSETTE

ONE-WAY CEILING CASSETTE

Mechanical Specifications

Casing
The case is designed to mount recessed in the ceiling and has a surface-mounted concentric panel on the bottom of the unit. The unit case is manufactured with coated metal. Cold surfaces are covered with a coated polystyrene insulating material. The case is provided with metal ears designed to support the unit weight on four corners. Ears have pre-punched holes designed to accept field-supplied all-thread rod hangers.

Ventilation Air
The case has a factory designated cutout for the connection of a field-supplied outside air duct and flange.

Architectural Filter/Panel
The ceiling cassette assembly is provided with an off-white ABS polymeric resin architectural panel with a tapered trim edge and a hinged, spring clip (screw-less) return air filter-panel door.

Fan Assembly and Control
The indoor unit has a single, direct-drive, cross-flow tangential Sirocco fan made of high strength ABS GP-2305 polymeric resin. The fan motor is a Brushless Digitally Controlled (BLDC) design with permanently lubricated and sealed ball bearings. The fan motor includes thermal, overcurrent and low RPM protection. The fan / motor assembly is mounted on vibration attenuating rubber grommets. The fan impeller is statically and dynamically balanced. The fan speed is controlled using a microprocessor-based control algorithm that provides a high fan speed in cooling thermal ON and low fan speed in cooling thermal OFF, high fan speed in heating thermal ON and fan off in heating thermal OFF. The fan speeds can be field adjusted between low, medium, and high speeds. The fan speed algorithm provides a field-selectable fixed-speed or auto-speed setting that adjusts the fan speed to simulate natural airflow.

Air Filter
Return air is filtered with a removable, washable filter.

Airflow Guide Vanes
The architectural panel has a single directional slot diffuser with an oscillating motorized guide vane designed to change the angle airflow is discharged. The discharge range of motion is 40º in an up/down direction with the capability of locking the vanes in a field adjusted fixed position.

Microprocessor Controls
The unit is provided with an integrated microprocessor controller capable of performing functions necessary to operate the system without the use of a wall-mounted controller. A temperature thermistor is factory-mounted in the return air stream. All unit operation parameters, excluding the operation schedule, are stored in non-volatile memory resident on the unit microprocessor.

Operating schedules are stored in select models of the optional, wall-mounted, local, or central controller. The field-supplied communication cable between the indoor unit(s) and outdoor unit is to be a minimum of 18 AWG, 2 conductor, twisted, stranded, and shielded cable (RS-485), terminated via screw terminals on the control boards. The microprocessor control provides the following functions: auto addressing, self-diagnostics, auto restart following power restoration, test run, and will operate the indoor unit using one of five operating modes:

1. Auto Changeover (Heat Recovery only)
2. Heating
3. Cooling
4. Dry
5. Fan Only

For Heat Recovery systems the Auto Changeover setting automatically switches control of the indoor unit between Cooling and Heating modes based on space temperature conditions.

For Heat Pump systems, heated or cooled air delivery is dependent upon outdoor unit operating mode.

In Heating mode, the microprocessor control will activate indoor unit operation when the indoor room temperature falls below set-point temperature. At which point, a signal is sent to the outdoor unit to begin the heating cycle. The indoor unit fan operation is delayed until coil pipe temperature reaches 76ºF. Significant airflow is generated when pipe temperature reaches 80°F. The unit is equipped with an infrared receiver designed to communicate with an LG wireless remote controller. In lieu of wireless remote or factory return air thermistor, screw terminals on the microprocessor circuit board accommodate various models of wall-mounted local controllers and/or a wall-mounted remote temperature sensor. The unit microprocessor is capable of accepting space temperature readings concurrently or individually from either:

1. Wall-mounted wired controller(s)
2. Factory mounted return air thermistor or the optional wall-mounted wired remote temperature sensor

ONE-WAY CEILING CASSETTE

Mechanical Specifications

A single indoor unit has the capability of being controlled by up to two local wired controllers. The microprocessor controls space temperature using the value provided by the temperature sensor sensing a space temperature that is farthest away from the temperature set-point. The microprocessor control provides a cooling or heating mode test cycle that operates the unit for 18 minutes without regard to the space temperature. If the system is provided with an optional wall-mounted local or central controller, displayed diagnostic codes are specific, alpha-numeric, and provide the service technician with a reason for the code displayed.

Indoor units are Wi-Fi compatible with the addition of an LG Wi-Fi module accessory, and can be controlled by LG's ThinQ™ app on a smart device. A field-supplied Wi-Fi network and smart device are required. The ThinQ app is free, and is available for Android™ and iOS. (Android is a trademark of Google LLC.)

Condensate Lift/Pump

The indoor unit comes with a factory installed and wired condensate lift/pump capable of providing a maximum 27-9/16 inch lift from the bottom surface of the unit. The lift pump comes with a safety switch that shuts off the indoor unit if condensate rises too high in the drain pan.

Condensate Drain Pan

The condensate drain pan is constructed of EPS (expandable polystyrene resin).

Coil

The indoor unit coil is constructed with grooved design copper tubes with slit coil fins, two (2) rows, twenty-one (21) fins per inch.

Controls Features

- Auto changeover (Heat Recovery only)
- Auto operation / auto restart
- External on / off control
- Dual thermistor control
- Dual setpoint control
- Filter life display
- Multiple auxiliary heater applications
- Group control
- High ceiling
- Hot start
- Self diagnostics
- Timer (on / off)
- Weekly schedule
- Auto direction/swing (up/down)
- Fan speed control
- Jet cool (fast cooling)
- Wi-Fi compatible
- Auto fan
- Leak detection

**To enable Generation 4 features, outdoor unit DIP Switch No. 3 must be set to ON. Please refer to the Multi V 5, Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.*

ONE-WAY CEILING CASSETTE

General Data

Table 1: One-Way Ceiling Cassette (TU Frames) Indoor Unit General Data.

Model No.	ARNU073TUD4	ARNU093TUD4	ARNU123TUD4
Cooling Mode Performance			
Capacity (Btu/h)	7,500	9,600	12,300
Max Power Input[1] (W)	40	40	40
L/M/H Power Input at Factory Default (W)	16 / 18 / 20	18 / 20 / 22	20 / 22 / 24
Heating Mode Performance			
Capacity (Btu/h)	8,500	10,900	13,600
Max Power Input[1] (W)	40	40	40
L/M/H Power Input at Factory Default (W)	16 / 18 / 20	18 / 20 / 22	20 / 22 / 24
Entering Mixed Air			
Cooling Max (°F WB)	76	76	76
Heating Min (°F DB)	59	59	59
Unit Data			
Refrigerant Type[2]	R410A	R410A	R410A
Refrigerant Control	EEV	EEV	EEV
Sound Pressure[3] dB(A) (H/M/L)	32 / 29 / 25	35 / 34 / 32	38 / 35 / 32
Sound Power[4] dB(A) (H)	50	53	57
Net Unit Weight (lbs.)	33	33	33
Shipping Weight (lbs.)	40	40	40
Panel Weight (lbs)	10	10	10
Panel Shipping Weight (lbs)	16	16	16
Communication Cable[5] (No. x AWG)	2 x 18	2 x 18	2 x 18
Fan			
Type	Cross Flow	Cross Flow	Cross Flow
Quantity	1	1	1
Motor/Drive	Brushless Digitally Controlled / Direct		
Airflow Rate H/M/L (CFM)	290 / 258 / 226	325 / 304 / 290	353 / 325 / 290
Piping			
Liquid Line (in., O.D.)	1/4 Flare	1/4 Flare	1/4 Flare
Vapor Line (in., O.D.)	1/2 Flare	1/2 Flare	1/2 Flare
Condensate Line (in., I.D.)	1	1	1

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes. See page 15 for detailed electrical data.

This unit comes with a dry nitrogen charge.

All capacities are net with a combination ratio between 95-105%.

Rated capacity is certified under AHRI Standard 1230. Ratings are subject to change without notice. Current certified ratings are available at www.ahridirectory.org.

Low ambient performance with LGRED° heat techlology is included in Multi V 5 air source units produced after February 2019.

[1]Max power input is rated at maximum setting value.

[2]Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

[3]Sound Pressure levels are tested in an anechoic chamber under ISO Standard 3745.

[4]Sound Power levels are tested in a reverberation room under ISO Standard 3741.

[5]Communication cable between Main ODU to IDUs / HRUs to be 18 AWG, 2-conductor, twisted, stranded, shielded. Ensure the communication cable shield is properly grounded to the Main ODU chassis only. ⃠ Do not ground the ODU to IDUs / HRUs communication cable at any other point. Wiring must comply with all applicable local and national codes.

ONE-WAY CEILING CASSETTE

General Data

Table 2: One-Way Ceiling Cassette (TT Frames) Indoor Unit General Data.

Model No.	ARNU183TTD4	ARNU243TTD4
Cooling Mode Performance		
Capacity (Btu/h)	19,100	24,200
Max Power Input[1] (W)	70	70
L/M/H Power Input at Factory Default (W)	24 / 28 /38	26 / 33 / 51
Heating Mode Performance		
Capacity (Btu/h)	21,500	24,200
Max Power Input[1] (W)	70	70
L/M/H Power Input at Factory Default (W)	24 / 28 /38	26 / 33 / 51
Entering Mixed Air		
Cooling Max (°F WB)	76	76
Heating Min (°F DB)	59	59
Unit Data		
Refrigerant Type[2]	R410A	R410A
Refrigerant Control	EEV	EEV
Sound Pressure[3] dB(A) (H/M/L)	40 / 37 / 35	43 / 40 / 36
Sound Power[4] dB(A) (H)	59	62
Net Unit Weight (lbs.)	42	42
Shipping Weight (lbs.)	49	49
Panel Weight (lbs)	13	13
Panel Shipping Weight (lbs)	20	20
Communication Cable[4] (No. x AWG)	2 x 18	2 x 18
Fan		
Type	Cross Flow	Cross Flow
Quantity	1	1
Motor/Drive	Brushless Digitally Controlled / Direct	
Airflow Rate H/M/L (CFM)	470 / 427 / 385	515 / 470 / 406
Piping		
Liquid Line (in., O.D.)	1/4 Flare	3/8 Flare
Vapor Line (in., O.D.)	1/2 Flare	5/8 Flare
Condensate Line (in., I.D.)	1	1

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes. See page 15 for detailed electrical data.

This unit comes with a dry nitrogen charge.

All capacities are net with a combination ratio between 95-105%.

Rated capacity is certified under AHRI Standard 1230. Ratings are subject to change without notice. Current certified ratings are available at www.ahridirectory.org.

Low ambient performance with LGRED° heat techlology is included in Multi V 5 air source units produced after February 2019.

[1]Max power input is rated at maximum setting value.

[2]Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

[3]Sound Pressure levels are tested in an anechoic chamber under ISO Standard 3745.

[4]Sound Power levels are tested in a reverberation room under ISO Standard 3741.

[5]Communication cable between Main ODU to IDUs / HRUs to be 18 AWG, 2-conductor, twisted, stranded, shielded. Ensure the communication cable shield is properly grounded to the Main ODU chassis only. ⃠ Do not ground the ODU to IDUs / HRUs communication cable at any other point. Wiring must comply with all applicable local and national codes.

ONE-WAY CEILING CASSETTE

Electrical Data

Table 3: One-Way Ceiling Cassette Indoor Unit Electrical Data.

Model Number	Voltage Range	MCA	MOP	Rated Amps (A)	Power Supply			Power Input (W)		
					Hz	Volts	Phase	Max Cooling	Max Heating	L/M/H at Factory Default
TU Frames										
ARNU073TUD4	187-253	0.23	15	0.18	60	208-230	1	40	40	16 / 18 / 20
ARNU093TUD4		0.23		0.18				40	40	18 / 20 / 22
ARNU123TUD4		0.23		0.18				40	40	20 / 22 / 24
TT Frames										
ARNU183TTD4	187-253	0.38	15	0.30	60	208-230	1	70	70	24 / 28 /38
ARNU243TTD4		0.38		0.30				70	70	26 / 33 / 51

MCA : Minimum Circuit Ampacity.

MOP : Maximum Overcurrent Protection.

Units are suitable for use on an electrical system where voltage supplied to unit terminals is within the listed range limits.

Select wire size based on the larger MCA value.

Instead of fuse, use circuit breaker.

Max. power input is rated at maximum setting value

ONE-WAY CEILING CASSETTE

External Dimensions

TU Frame with PT-UAHW0 Panel

Figure 3: ARNU073TUD4, ARNU093TUD4, ARNU123TUD4 Dimensions (PT-UAHW0 Panel).

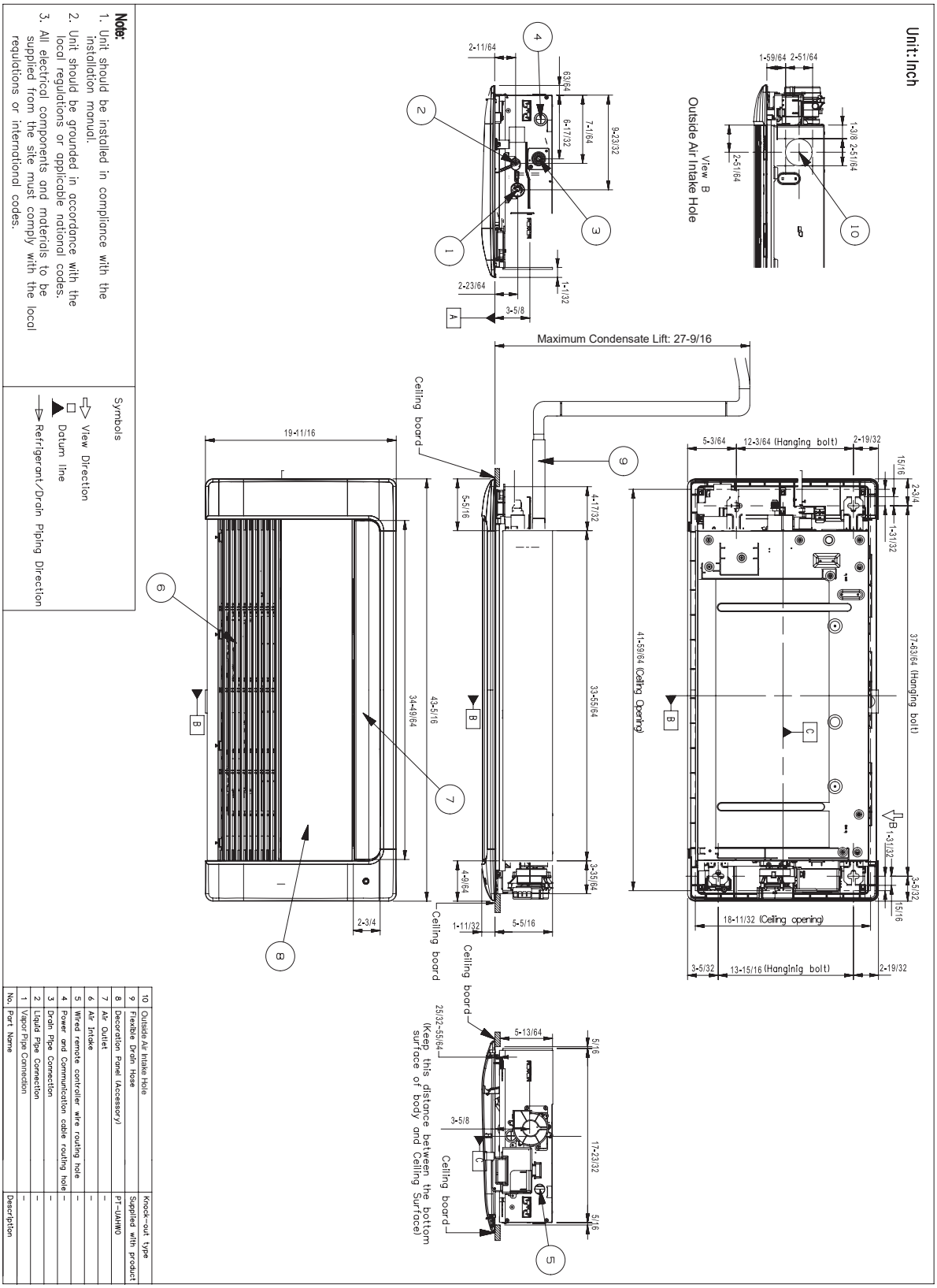
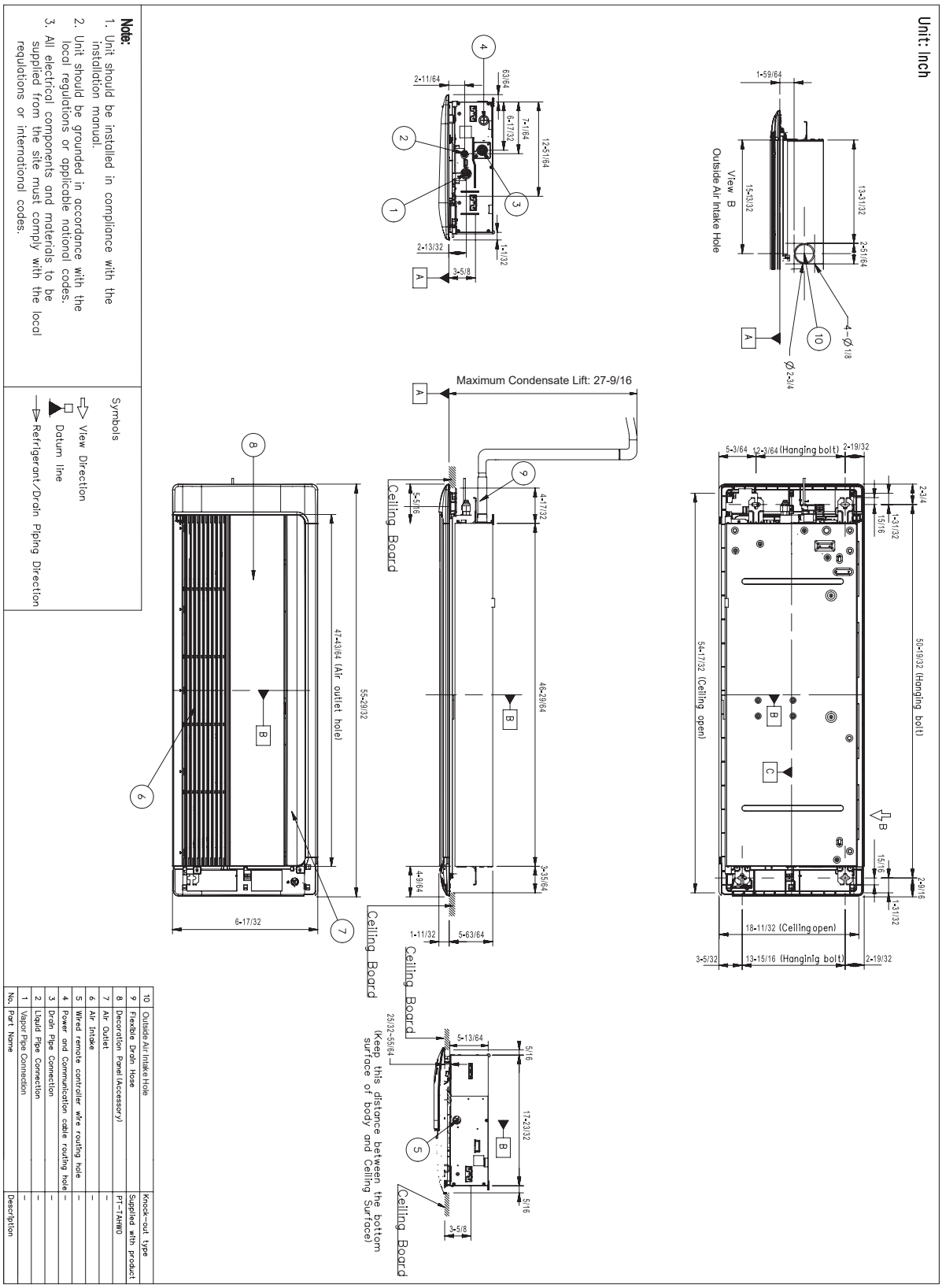


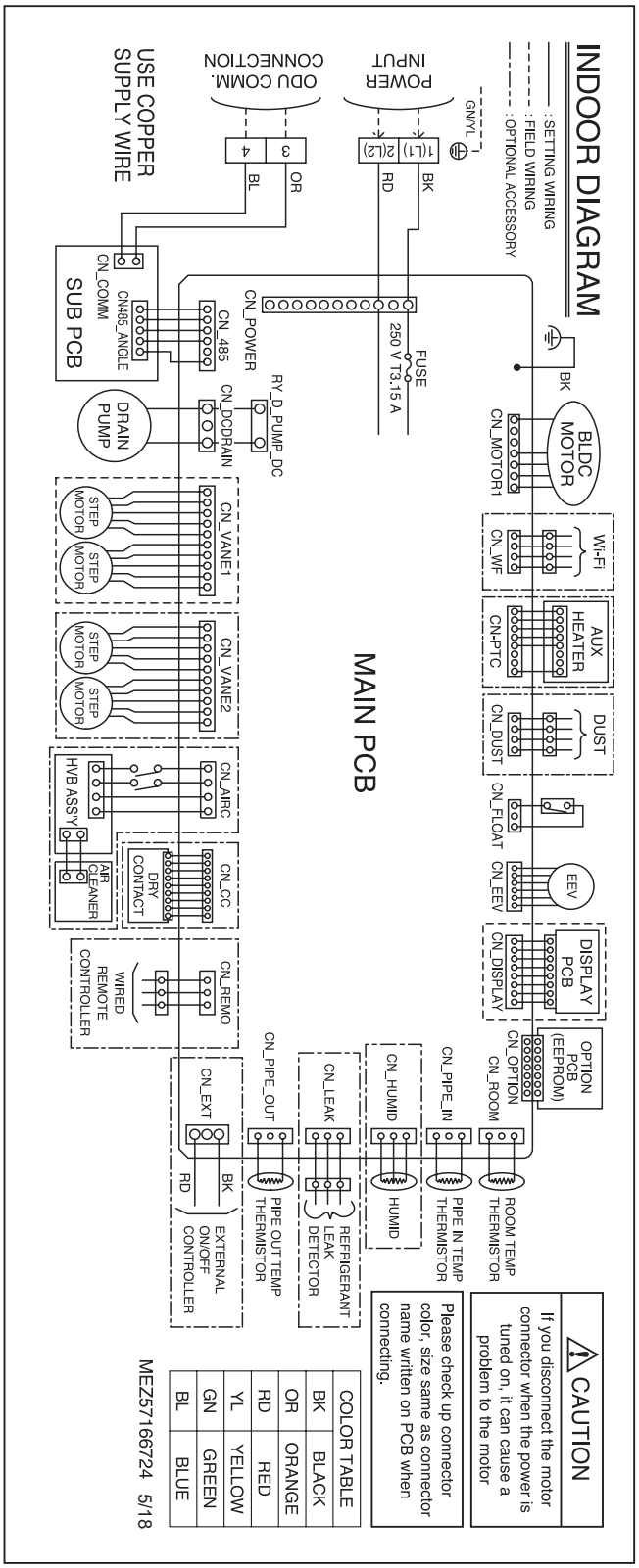
Figure 4: ARNU183TTD4, ARNU243TTD4 Dimensions (PT-TAHW0 Panel).



ONE-WAY CEILING CASSETTE

Electrical Wiring Diagram
TU and TT Frames

Figure 5: TU, TT Frame Wiring Diagram.



*If a Third-Party Dry Contact and an LG internal heater or an LG Auxiliary Heater Kit is installed, supplemental heat capability cannot be controlled by the Third-Party Thermostat.

ONE-WAY CEILING CASSETTE

Electrical Wiring Diagram
TU and TT Frames

Table 4: TU, TT Frame Wiring Diagram Legend.

Terminal	Purpose	Function
CN_MOTOR1	Fan motor output	Motor output of BLDC
CN_WF	Wi-Fi module	Wi-Fi module connection
CN-PTC	Auxiliary heater	Auxiliary heater connection
CN_DUST	N/A	N/A
CN_FLOAT	Float switch input	Float switch sensing
CN_EEV	EEV output	EEV control output
CN_DISPLAY	Display	Display of indoor status
CN_OPTION	Option PCB (EEPROM)	Option PCB connection
CN_ROOM	Room sensor	Room air thermistor
CN_PIPE_IN	Suction pipe sensor	Pipe in thermistor
CN_HUMID	N/A	N/A
CN_LEAK	Leak sensor	Leak sensor connection
CN_PIPE_OUT	Discharge pipe sensor	Pipe out thermistor
CN_EXT	External on/off controller	External on/off cotnroller connection
CN_REMO	Remote controller	Remote control connection
CN_CC	Dry Contact	Connection to Dry Contact (Optional)
CN_AIRC	Air cleaner	Air cleaner control
CN_VANE2	Step Motor	Step motor output
CN_VANE1	Step Motor	Step motor output
CN_DCDRAIN	Drain pump output	AC output for drain pump
CN_485	Communication	Connection between indoor and outdoor units
CN_COMM	Communication	Connection on Sub PCB between indoor and outdoor units
CN_POWER	AC Power supply	AC power line input for indoor controller

*If a Third-Party Dry Contact and an LG internal heater or an LG Auxiliary Heater Kit is installed, supplemental heat capability cannot be controlled by the Third-Party Thermostat.

Table 5: TU, TT Frame DIP Switch Settings.

DIP Switch Setting		Off	On	Remarks
SW3	GROUP CONTROL	Main	Sub	Group control setting using 7-Day Programmable Controller; selects Main / Sub on each indoor unit
SW4	DRY CONTACT MODE	Variable	Auto	Sets operation mode for optional Dry Contact accessory 1. Variable: Auto or Manual Mode can be set through 7-Day Programmable Controller or Wireless Remote Controller (factory default setting is Auto if there is no setting) 2. Auto: For Dry Contact, it is always Auto mode

***For Gen 4 Multi V one-way ceiling cassette indoor units, DIP switches 1, 2, 5 through 8 must be set to OFF. These DIP switches are used for other models.**

****To enable Generation 4 features, outdoor unit DIP switch no. 3 must be set to ON. Please refer to the Multi V 5, Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.**

ONE-WAY CEILING CASSETTE

Refrigerant Flow Diagram

TU and TT Frames

Figure 6: TU, TT Frame Piping Diagram.

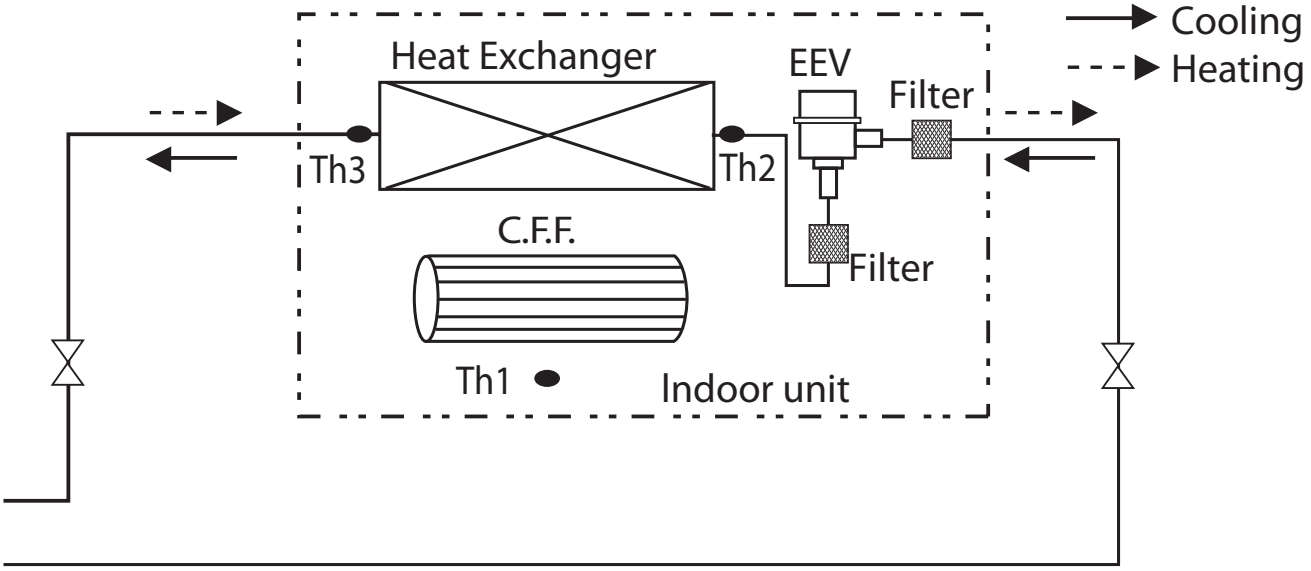


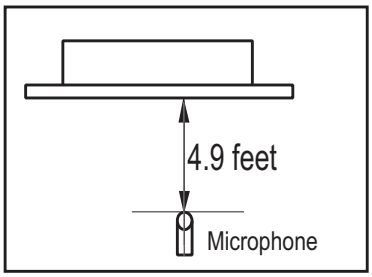
Table 6: TU, TT Frame Refrigerant Pipe Connection Port Diameters.

Model	Liquid (inch)	Gas (inch)
TU Frames		
ARNU073TUD4	1/4	1/2
ARNU093TUD4		
ARNU123TUD4		
TT Frames		
ARNU183TTD4	1/4	1/2
ARNU243TTD4	3/8	5/8

Table 7: TU, TT Frame Thermistors.

Thermistor	Description
TH1	Return air thermistor
TH2	Pipe in thermistor
TH3	Pipe out thermistor

Figure 7: Sound Pressure Measurement Location.



- Measurements are taken 4.9 ft away from the front of the unit.
- Sound pressure levels are measured in dB(A) with a tolerance of ±3.
- Sound pressure levels are tested in an anechoic chamber under ISO Standard 3745.

Operating Conditions:

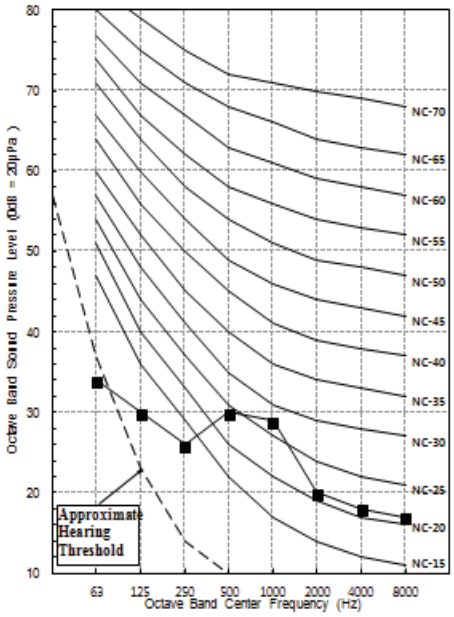
- Power source: 220V/60 Hz
- Sound level will vary depending on a range of factors including the construction (acoustic absorption coefficient) of a particular room in which the unit was installed.

Table 8: One-Way Ceiling Cassette Indoor Unit Sound Pressure Levels.

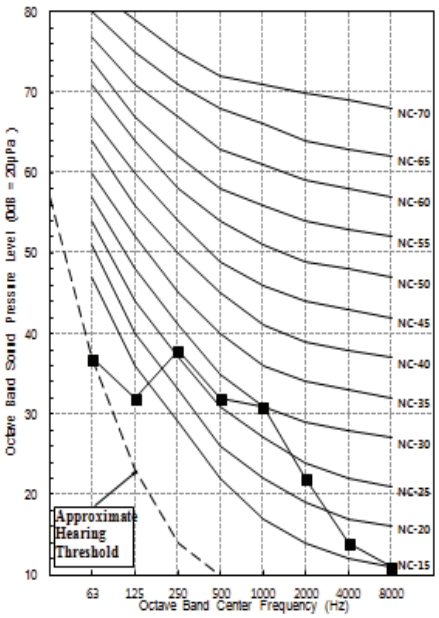
Model	Sound Levels dB(A)		
	High Fan Speed	Medium Fan Speed	Low Fan Speed
TU Frames			
ARNU073TUD4	32.0	29.0	25.0
ARNU093TUD4	35.0	34.0	32.0
ARNU123TUD4	38.0	35.0	32.0
TT Frames			
ARNU183TTD4	40.0	37.0	35.0
ARNU243TTD4	43.0	40.0	36.0

Figure 8: ARNU073TUD4, ARNU093TUD4, and ARNU123TUD4 Sound Pressure Level Diagrams.

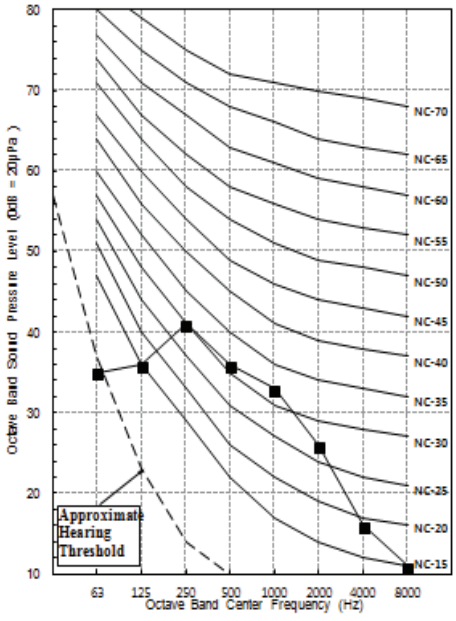
ARNU073TUD4



ARNU093TUD4



ARNU123TUD4



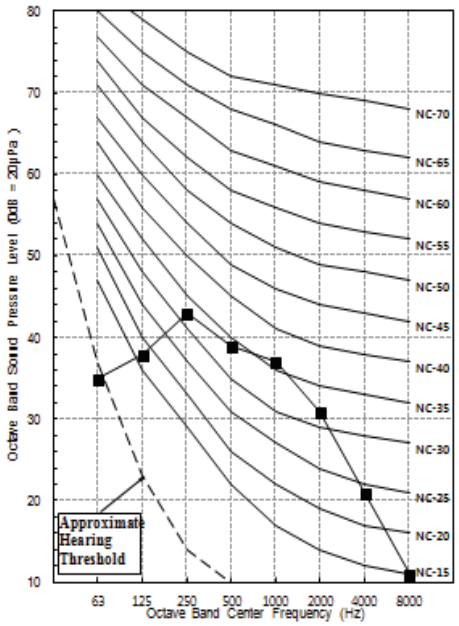
ONE-WAY CEILING CASSETTE

Acoustic Data

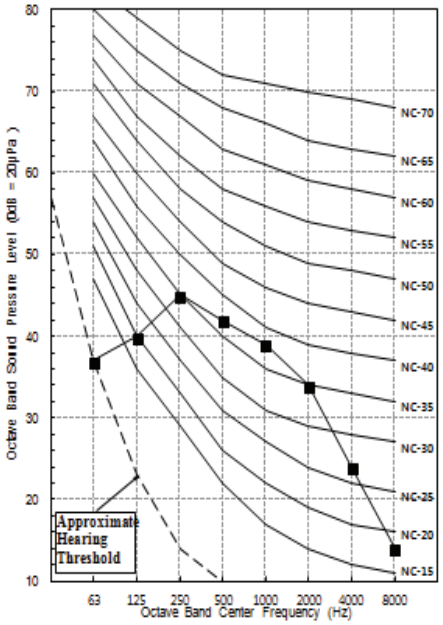
Sound Pressure Levels

Figure 9: ARNU183TTD4 and ARNU243TTD4 Sound Pressure Level Diagrams.

ARNU183TTD4



ARNU243TTD4



ONE-WAY CEILING CASSETTE

Acoustic Data

Sound Power Levels

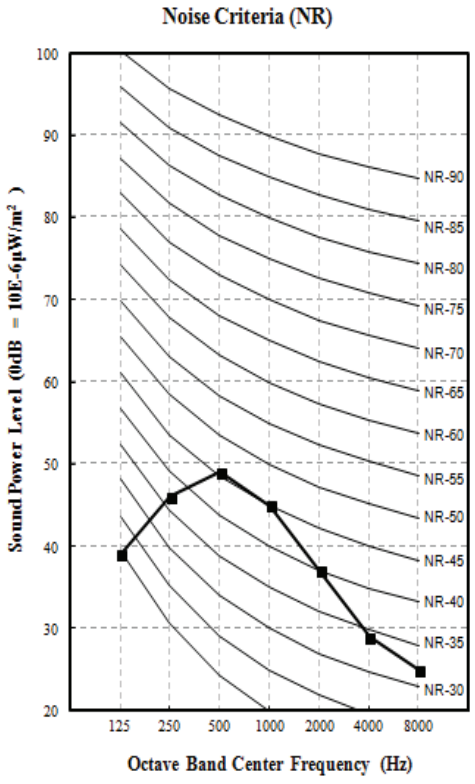
Table 9: One-Way Ceiling Cassette Indoor Unit Sound Power Levels.

Model	Sound Power Levels dB(A)
	High Fan Speed
TU Frames	
ARNU073TUD4	50.0
ARNU093TUD4	53.0
ARNU123TUD4	57.0
TT Frames	
ARNU183TTD4	59.0
ARNU243TTD4	62.0

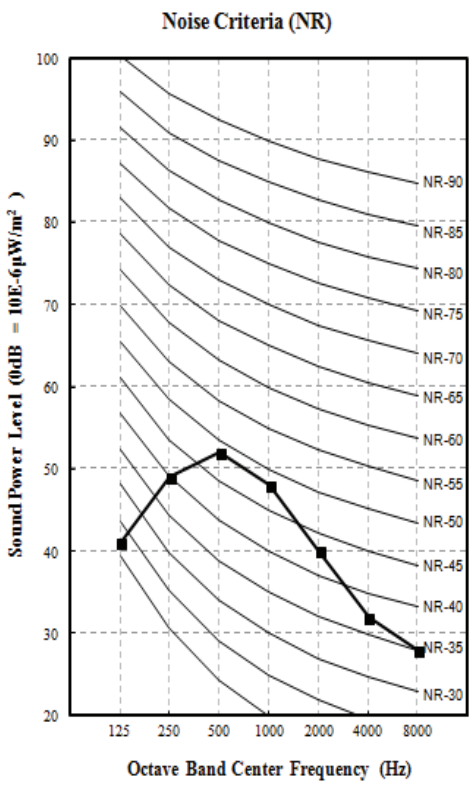
- Data is valid under diffuse field conditions.
- Data is valid under nominal operating conditions.
- Sound power level is measured using rated conditions and tested in a reverberation chamber under ISO Standard 3741.
- Sound level will vary depending on a range of factors such as construction (acoustic absorption coefficient) of particular area in which the equipment is installed.
- Reference acoustic intensity: 0dB = 10E-6μW/m^2.

Figure 10: ARNU073TUD4, ARNU093TUD4, and ARNU123TUD4 Sound Power Level Diagrams.

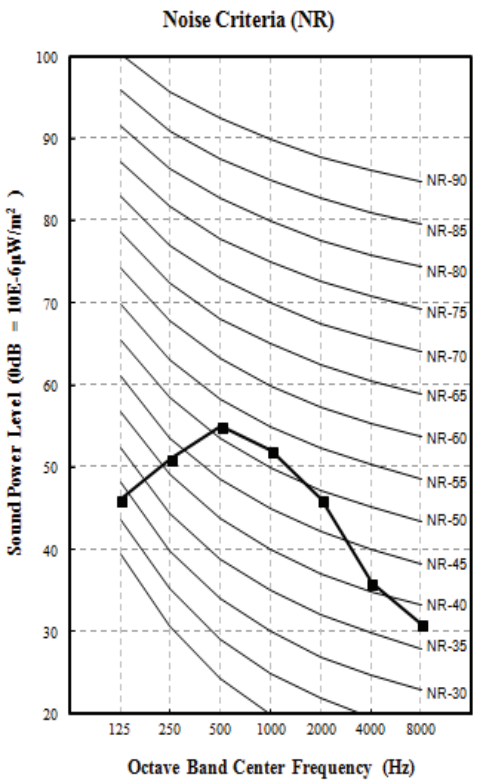
ARNU073TUD4



ARNU093TUD4



ARNU123TUD4



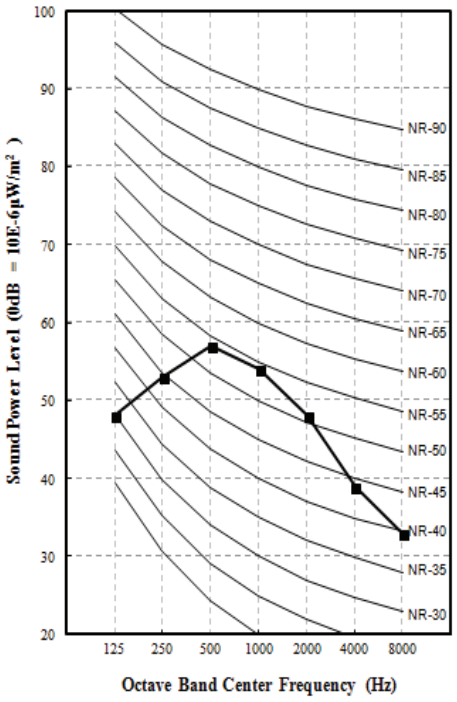
ONE-WAY CEILING CASSETTE

Acoustic Data

Sound Power Levels

Figure 11: ARNU183TTD4 and ARNU243TTD4 Sound Power Level Diagrams.

ARNU183TTD4



ARNU243TTD4

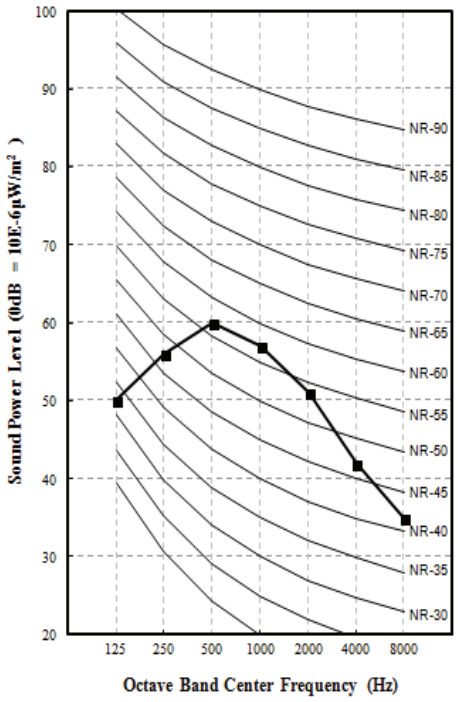
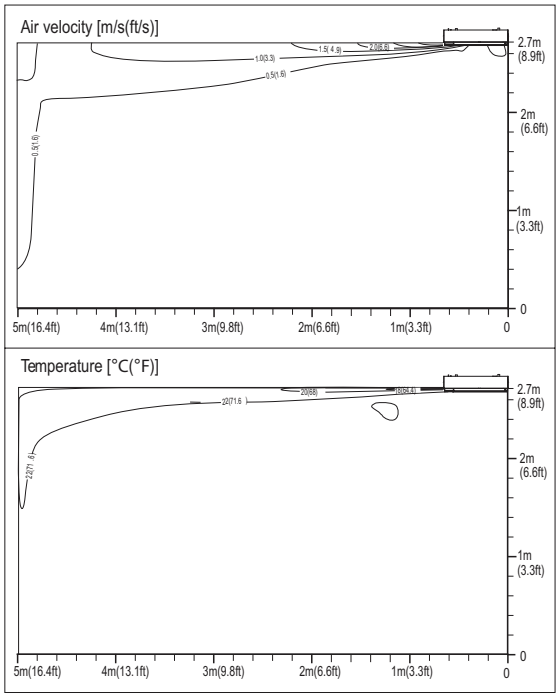


Figure 12: ARNU073TUD4.

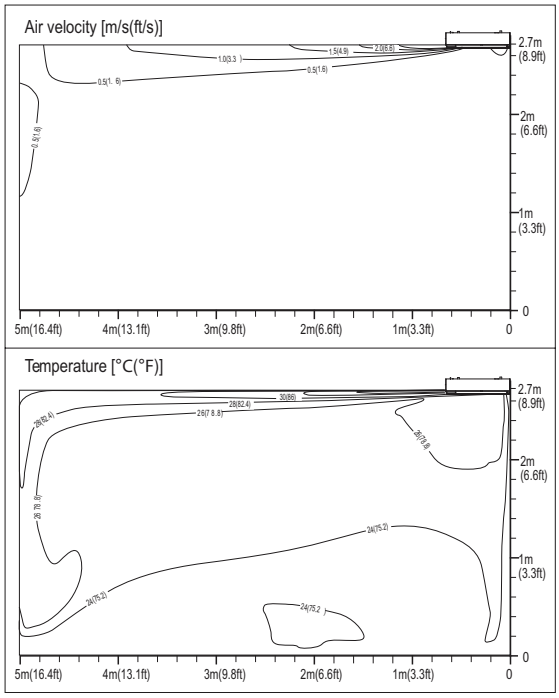
Cooling

Discharge angle: 20°



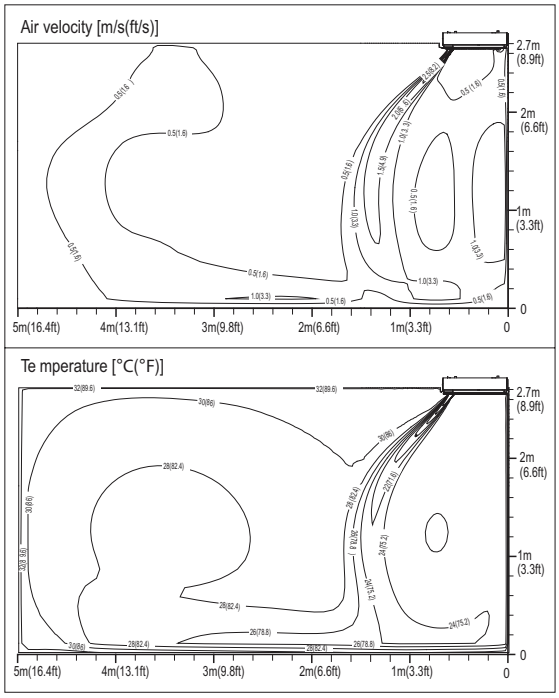
Heating

Discharge angle: 20°



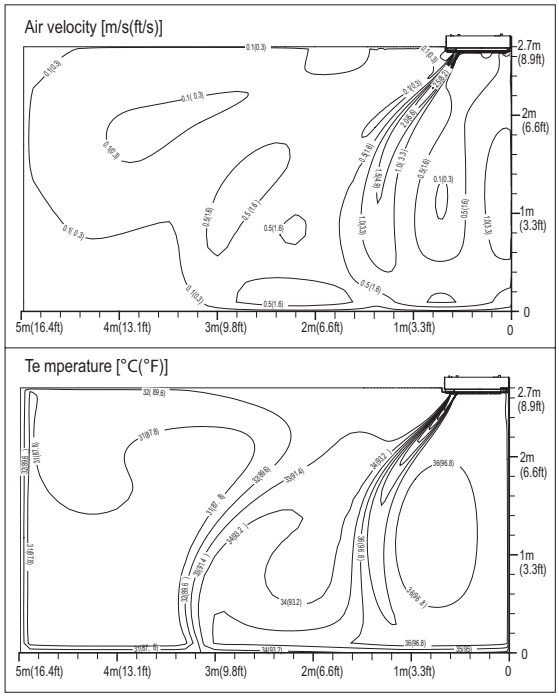
Cooling

Discharge angle: 50°



Heating

Discharge angle: 60°



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

ONE-WAY CEILING CASSETTE

Air Velocity / Temperature Distribution

ARNU073TUD4, ARNU093TUD4

Figure 13: ARNU073TUD4, continued.

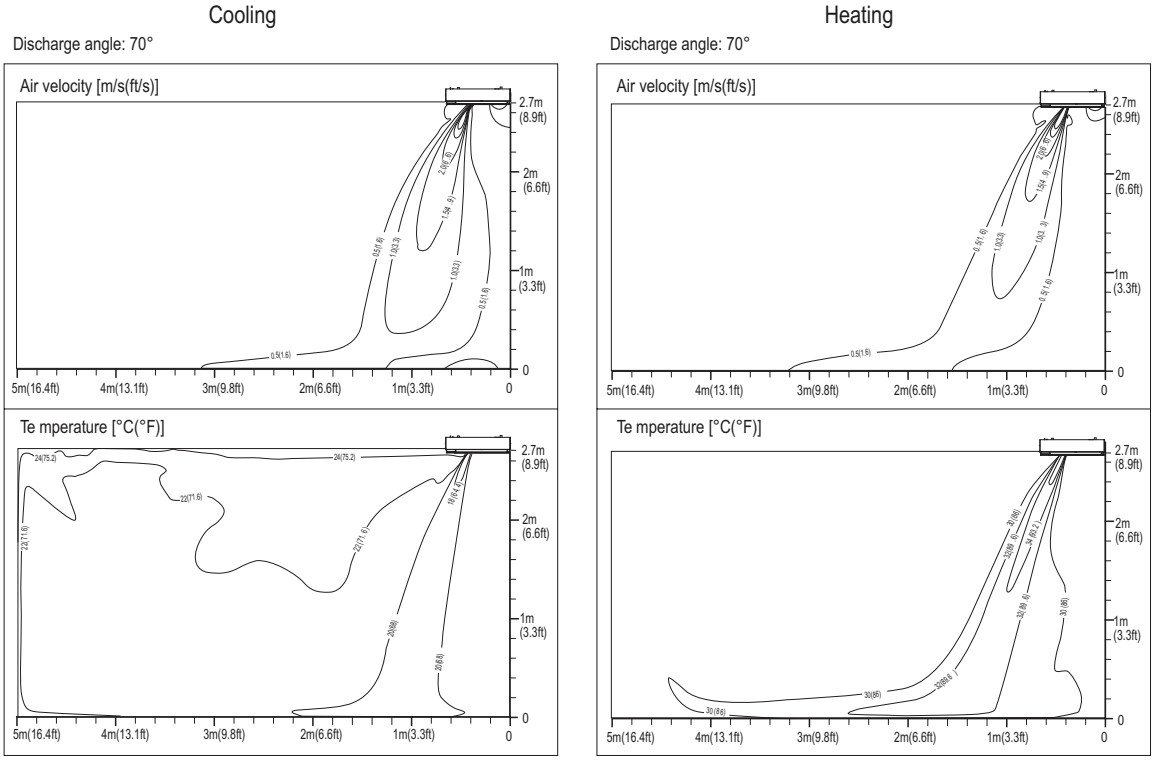
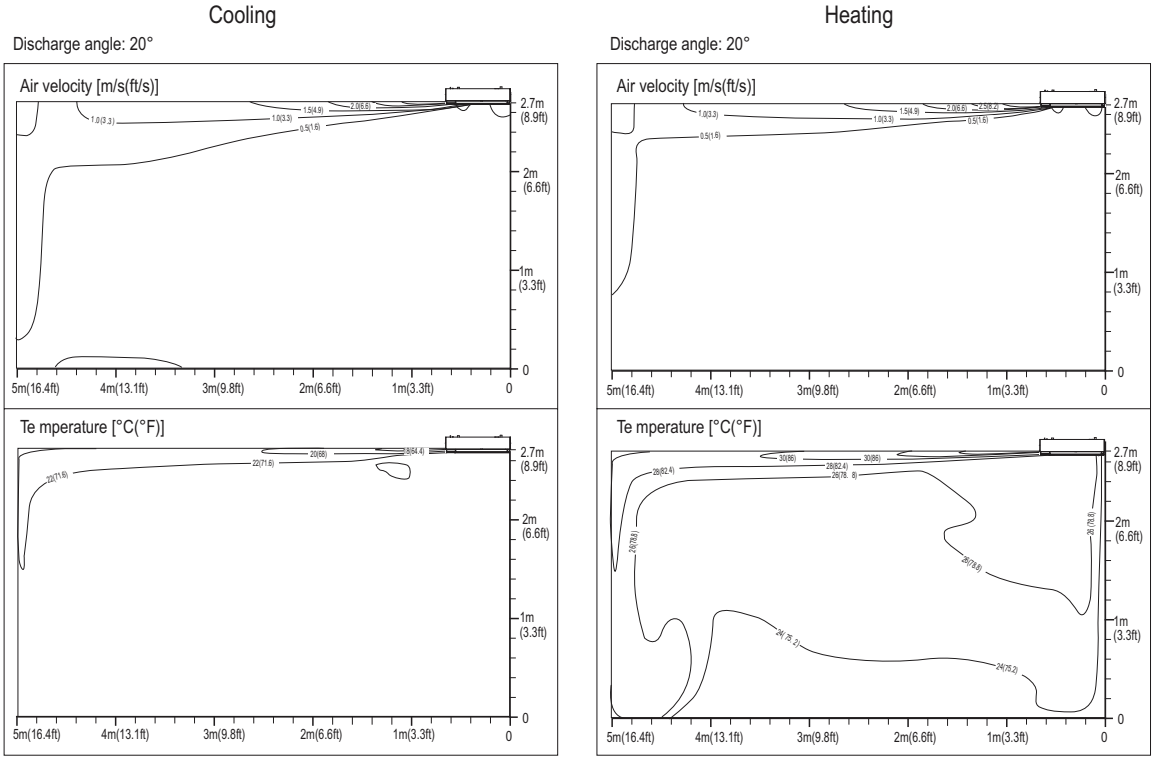


Figure 14: ARNU093TUD4.

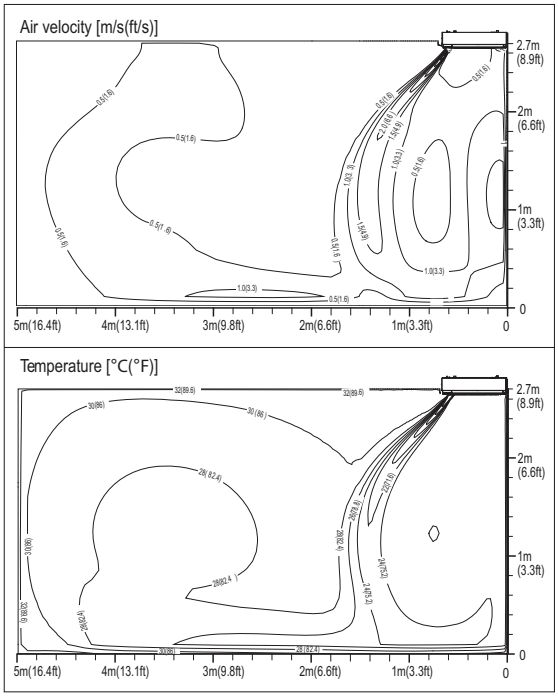


The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

Figure 15: ARNU093TUD4, continued.

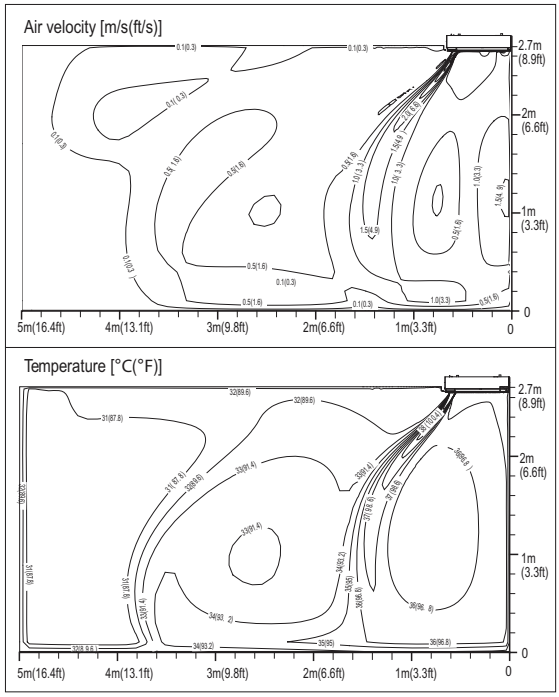
Cooling

Discharge angle: 50°



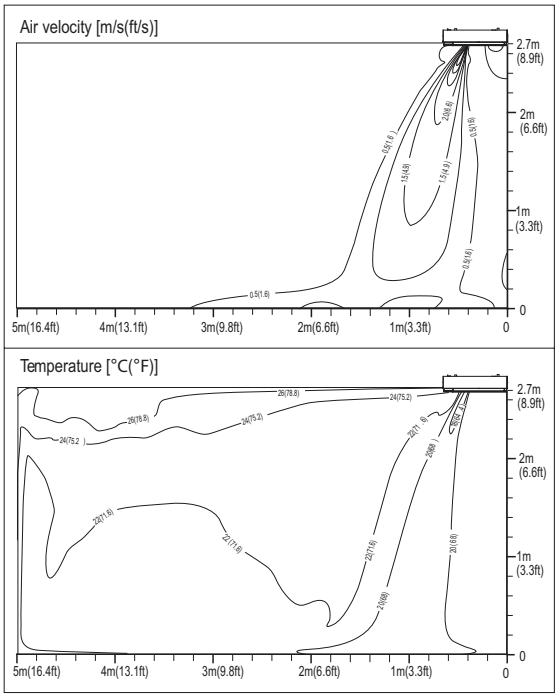
Heating

Discharge angle: 60°



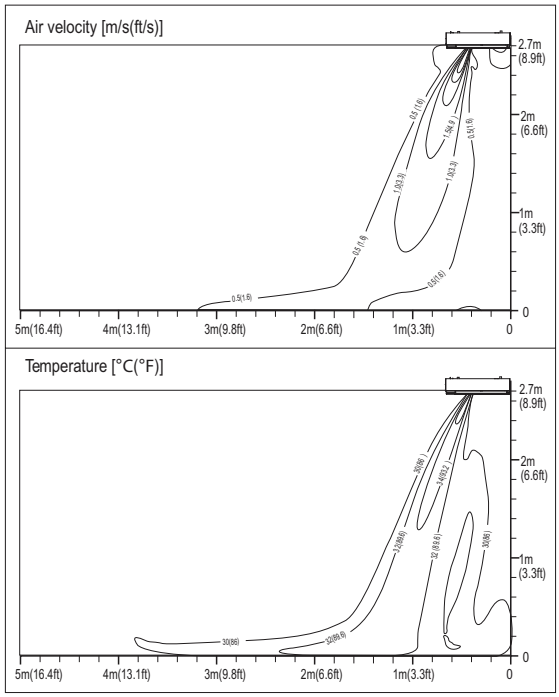
Cooling

Discharge angle: 70°



Heating

Discharge angle: 70°



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

ONE-WAY CEILING CASSETTE

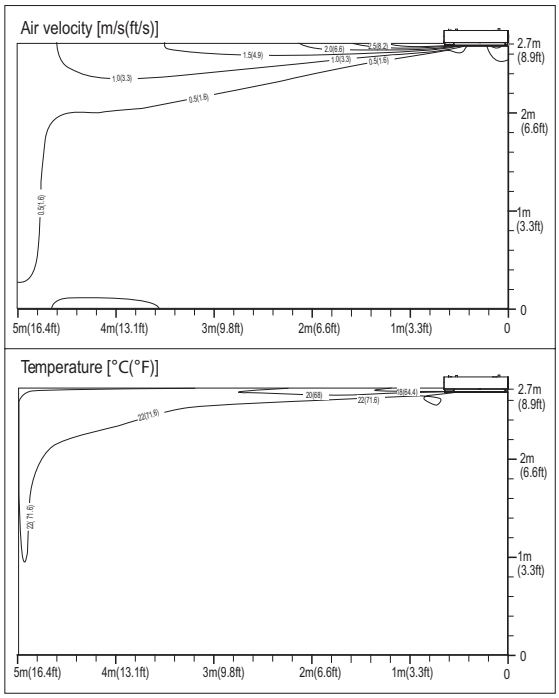
Air Velocity / Temperature Distribution

ARNU123TUD4

Figure 16: ARNU123TUD4.

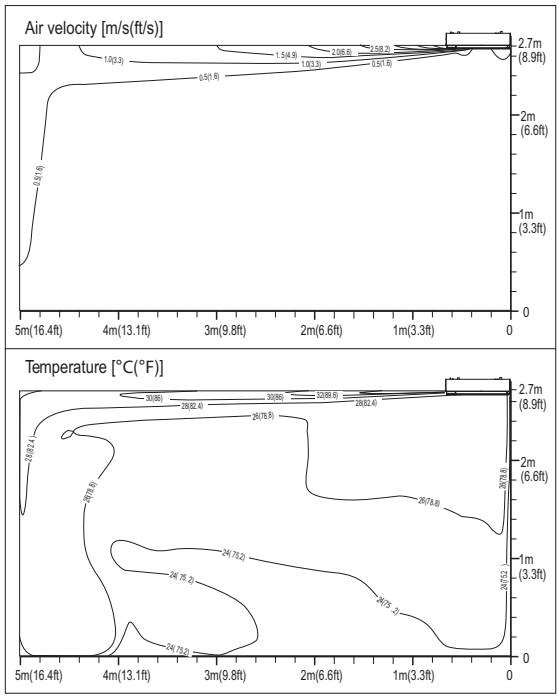
Cooling

Discharge angle: 20°



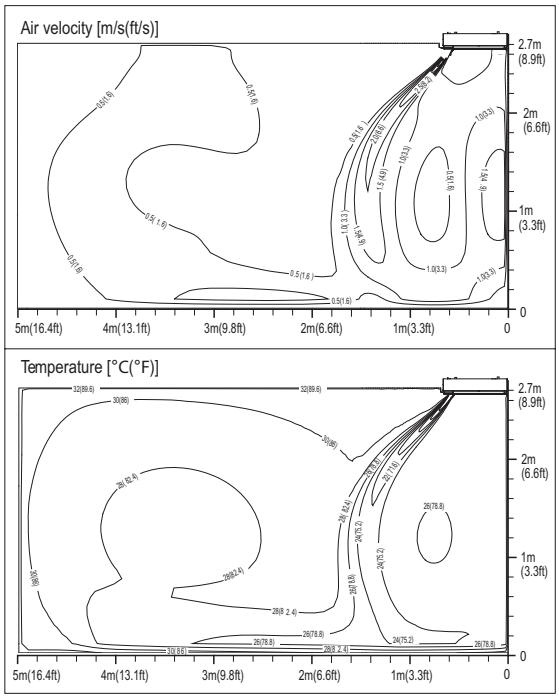
Heating

Discharge angle: 20°



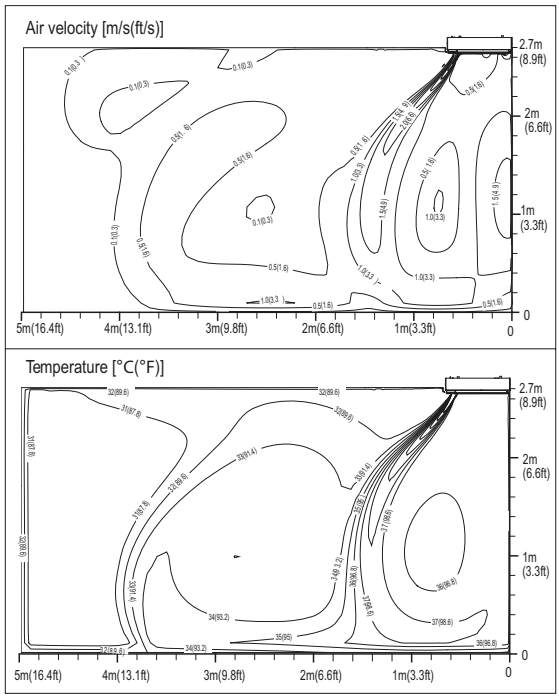
Cooling

Discharge angle: 50°



Heating

Discharge angle: 60°



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

Figure 17: ARNU123TUD4, continued.

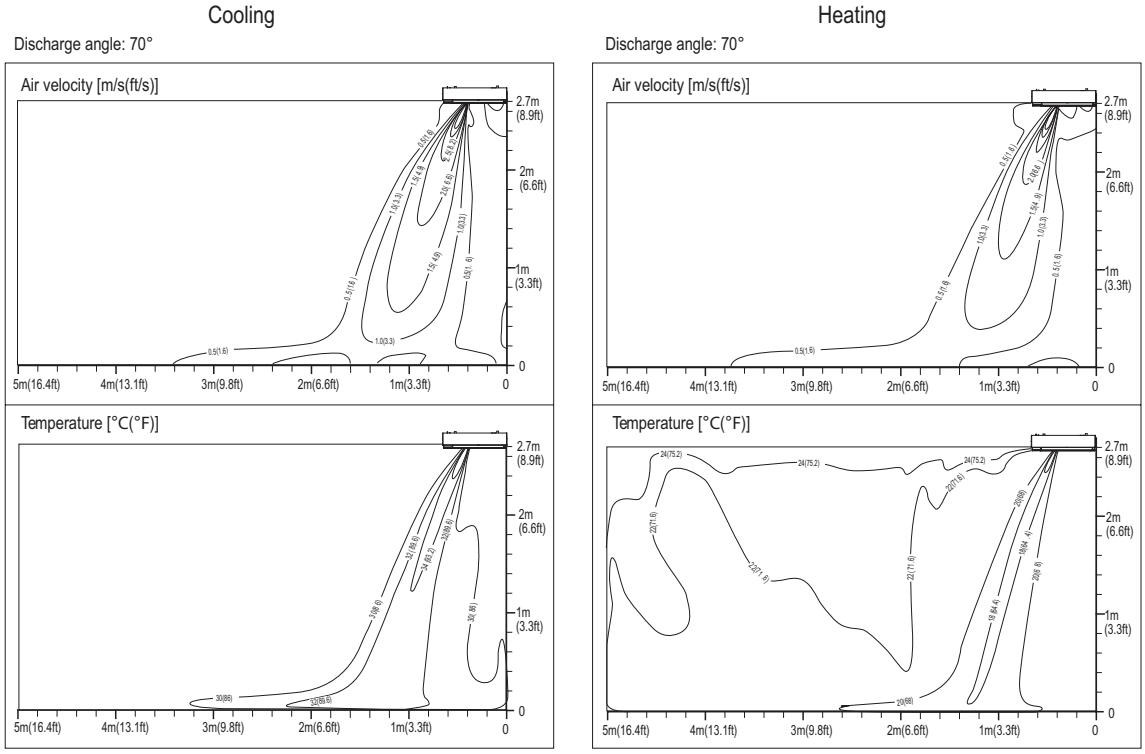
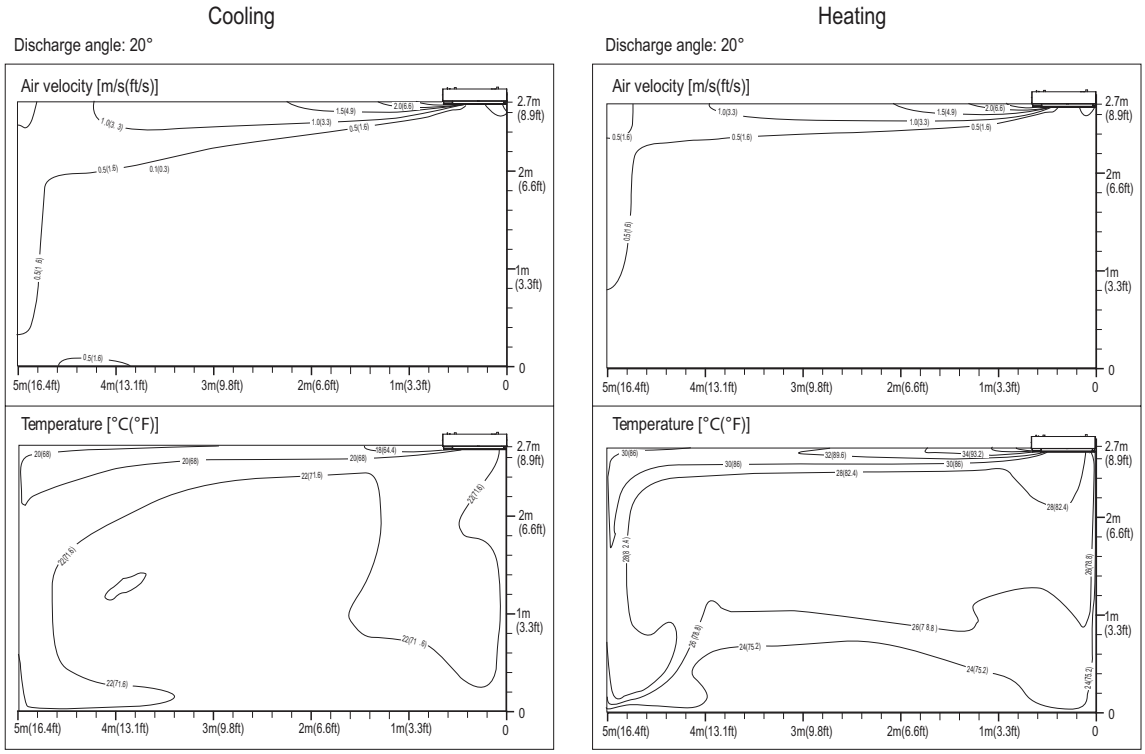


Figure 18: ARNU183TTD4.



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

ONE-WAY CEILING CASSETTE

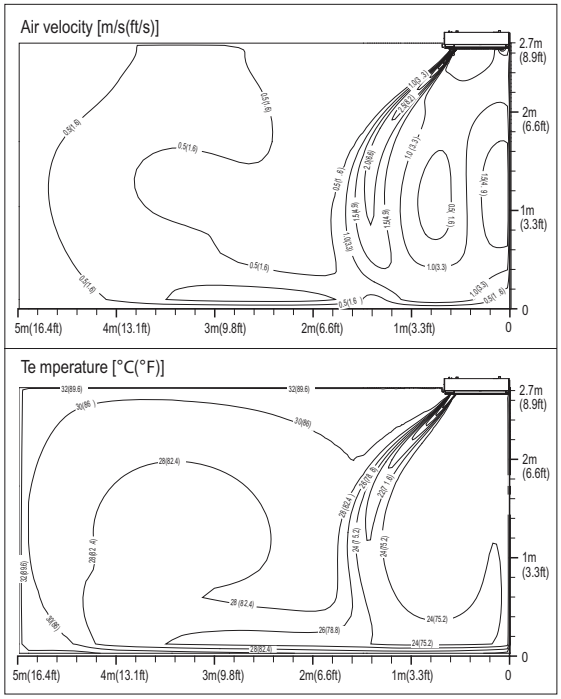
Air Velocity / Temperature Distribution

ARNU183TTD4

Figure 19: ARNU183TTD4, continued.

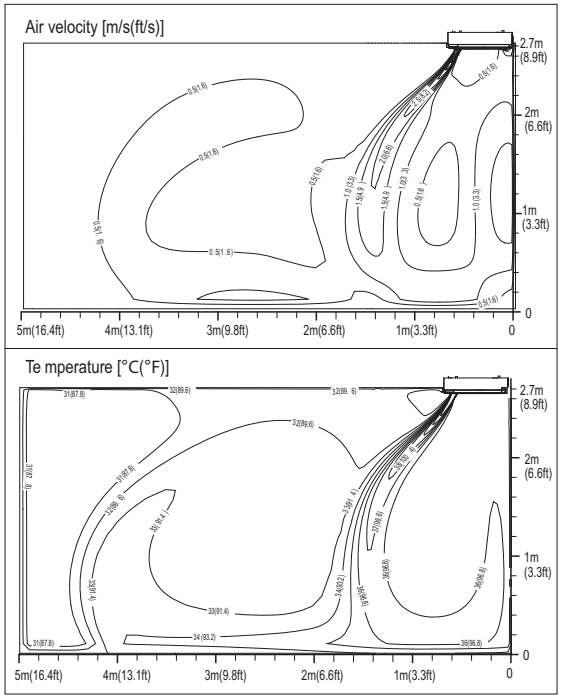
Cooling

Discharge angle: 50°



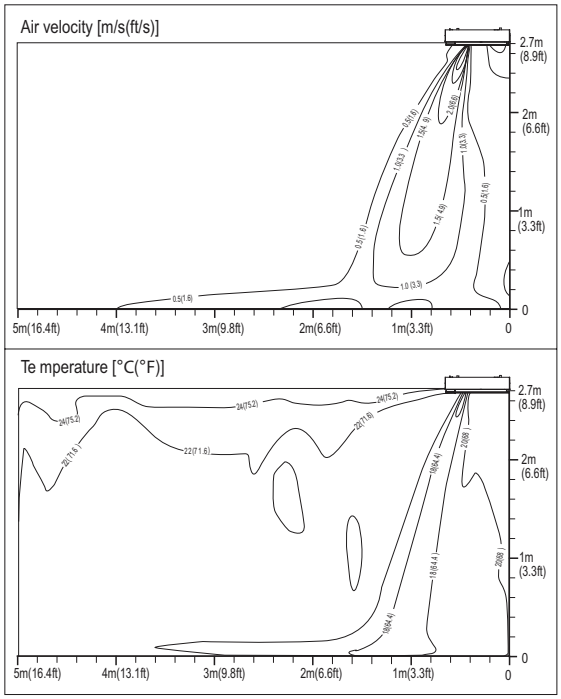
Heating

Discharge angle: 60°



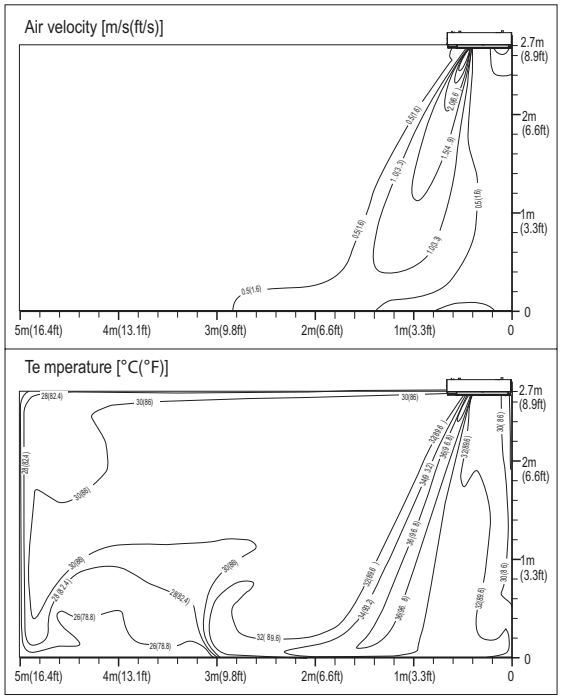
Cooling

Discharge angle: 70°



Heating

Discharge angle: 70°



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

ONE-WAY CEILING CASSETTE

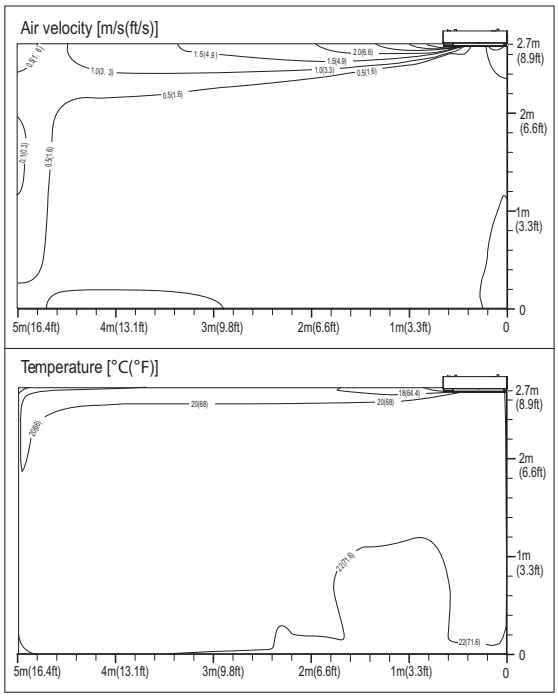
Air Velocity / Temperature Distribution

ARNU243TTD4

Figure 20: ARNU243TTD4.

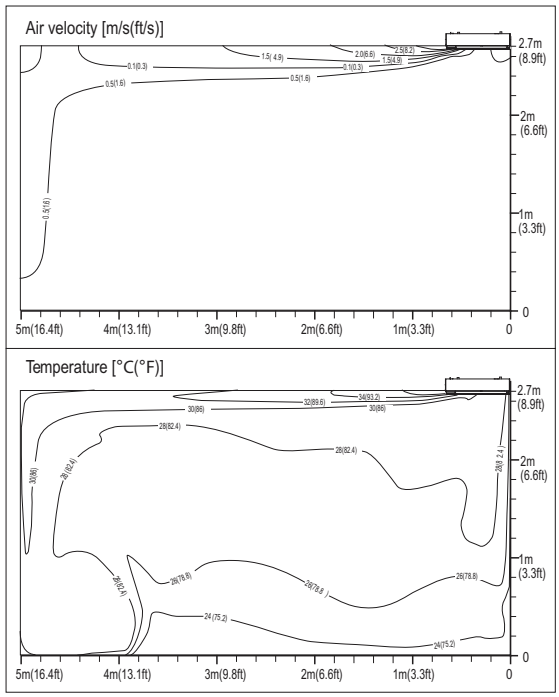
Cooling

Discharge angle: 20°



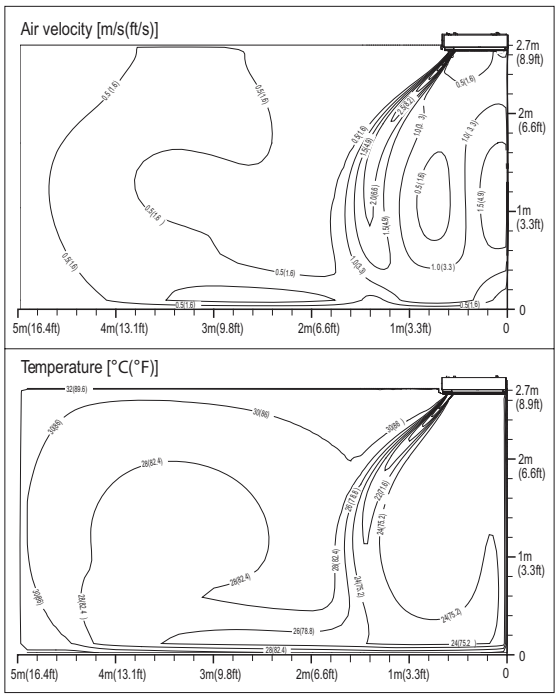
Heating

Discharge angle: 20°



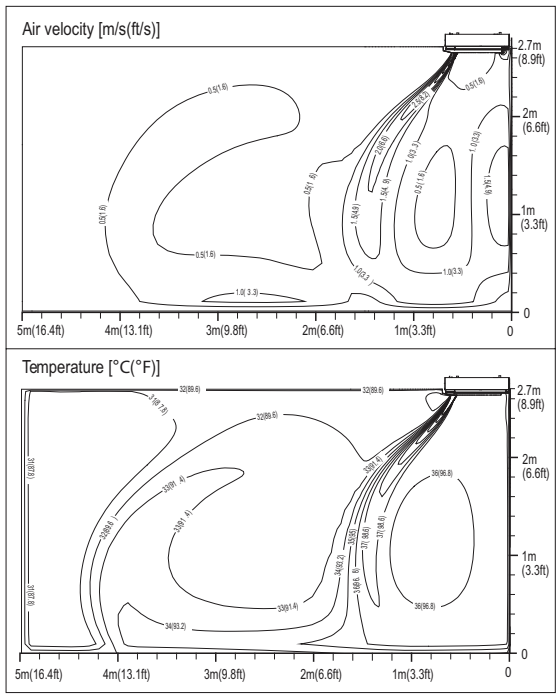
Cooling

Discharge angle: 50°



Heating

Discharge angle: 60°



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

ONE-WAY CEILING CASSETTE

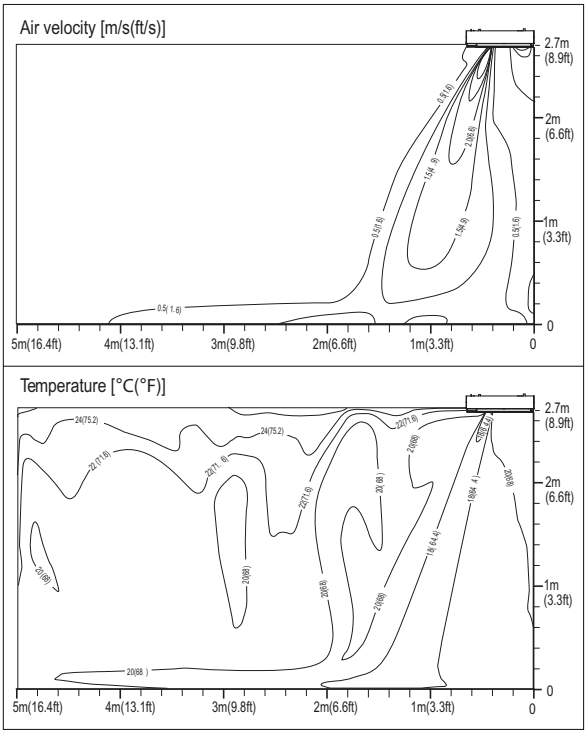
Air Velocity / Temperature Distribution

ARNU243TTD4

Figure 21: ARNU243TTD4, continued.

Cooling

Discharge angle: 70°



Heating

Discharge angle: 70°

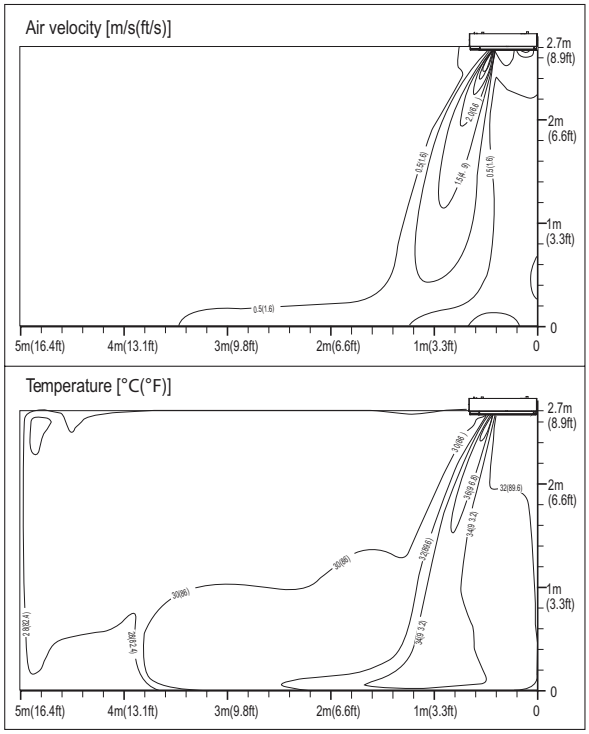


Figure 22: TU Frame Outside Air Ventilation.

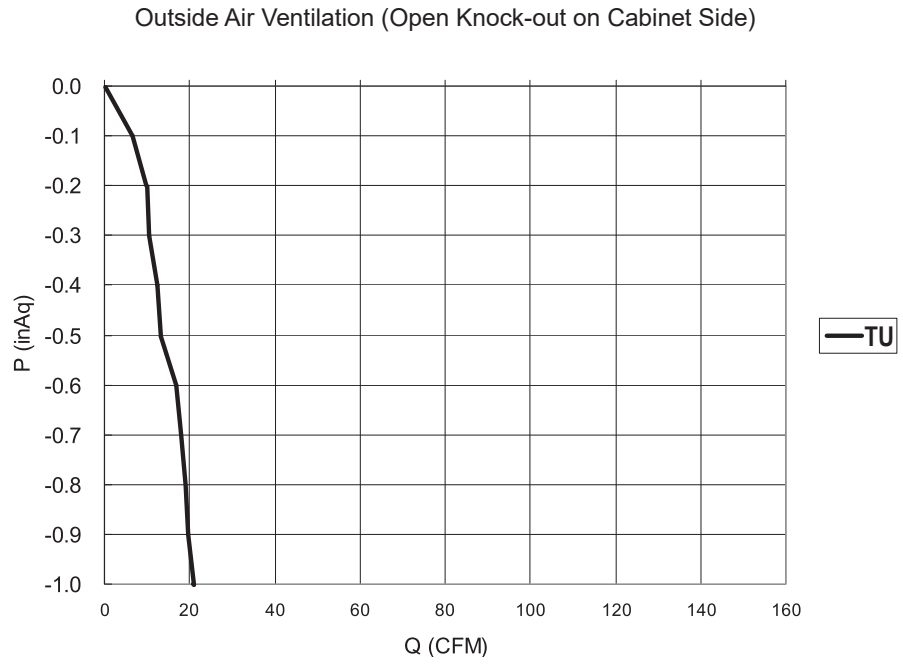
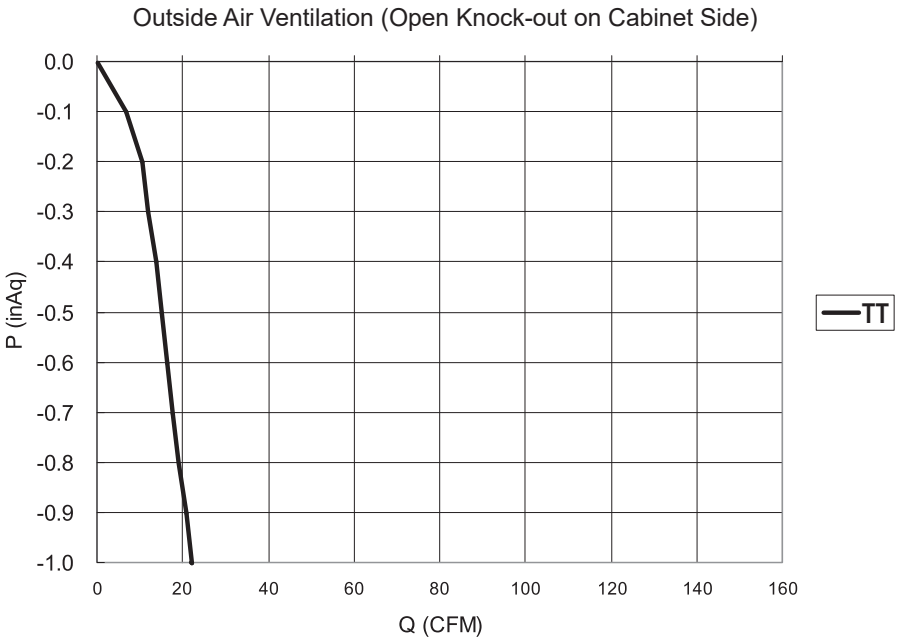


Figure 23: TT Frame Outside Air Ventilation.



ONE-WAY CEILING CASSETTE

Cooling and Heating Capacity Tables

Table 10: One-Way Cassette Cooling Capacity Table.

Model No. / Capacity Index	Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / WB)													
		68 / 57		73 / 61		79 / 64		80 / 67		85 / 70		88 / 73		91 / 76	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
ARNU073TUD4 / 7.5	95	4.9	4.2	6	4.8	6.8	5.2	7.5	5.5	8	5.7	8.2	5.4	8.3	5.1
ARNU093TUD4 / 9.6	95	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.3	7.2	10.5	6.8	10.6	6.4
ARNU123TUD4 / 12.3	95	8.1	6.8	9.8	7.9	11.1	8.4	12.3	8.9	13.2	9.3	13.4	8.8	13.6	8.3
ARNU183TTD4 / 19.1	95	12.6	10.2	15.3	11.7	17.2	12.5	19.1	13.3	20.5	13.8	20.9	13.1	21.2	12.4
ARNU243TTD4 / 24.2	95	15.9	13	19.4	14.6	21.8	15.9	24.2	16.0	25.9	17.4	26.4	16.8	26.8	15.8

TC: Total Capacity (MBh); SHC: Sensible Heat Capacity (MBh).

The System Combination Ratio must be between 50–130%.

Rated capacity is certified under AHRI Standard 1230. Ratings are subject to change without notice. Current certified ratings are available at www.ahridirectory.org.

For outdoor unit performance data, see the respective outdoor unit performance data manuals on www.lghvac.com.

Low ambient performance with LGRED° heat techlology is included in Multi V 5 air source units produced after February 2019.

Table 11: One-Way Cassette Heating Capacity Table.

Model No. / Capacity Index	Outdoor Air Temp.		Indoor Air Temperature (°F DB)							
			59	61	64	67	70	73	76	80
	°F DB	°F WB	TC	TC	TC	TC	TC	TC	TC	TC
ARNU073TUD4 / 7.5	47	43	9.5	9.4	9.4	8.9	8.5	8.3	7.8	7.4
ARNU093TUD4 / 9.6	47	43	12.2	12.1	12.0	11.5	10.9	10.6	10.0	9.5
ARNU123TUD4 / 12.3	47	43	15.2	15.1	15.0	14.3	13.6	13.2	12.5	11.9
ARNU183TTD4 / 19.1	47	43	24.1	23.9	23.7	22.6	21.5	20.9	19.8	18.8
ARNU243TTD4 / 24.2	47	43	27.1	26.9	26.6	25.4	24.2	23.5	22.3	21.2

TC: Total Capacity (MBh).

The System Combination Ratio must be between 50–130%.

Rated capacity is certified under AHRI Standard 1230. Ratings are subject to change without notice. Current certified ratings are available at www.ahridirectory.org.

For ODU performance data, see the respective ODU performance data manuals on www.lghvac.com.

Low ambient performance with LGRED° heat techlology is included in Multi V 5 air source units produced after February 2019.

Table 12: Accessories for One-Way Ceiling-Cassette Indoor Units.

Accessory	Model Number
One-Way Ceiling Cassette Panel (One Required)[1]	PT-UAHW0 (For 7 to 12MBh One-Way TU Indoor Units) PT-TAHW0 (For 18 and 24MBh One-Way TT Indoor Units)
Auxiliary Heater Kit[1,2]	PRARH1 (For Both TU and TT One-Way Indoor Units)
Wi-Fi Module[1]	PWFMDD200 (For Both TU and TT One-Way Indoor Units)

1For use with all one-way ceiling-cassette indoor units.

[2]If a Third-Party Dry Contact and an LG internal heater or an LG Auxiliary Heater Kit is installed, supplemental heat capability cannot be controlled by the Third-Party Thermostat.

All accessories are sold separately.

TWO-WAY CEILING CASSETTE

TWO-WAY CEILING CASSETTE

Mechanical Specifications

Casing
The case is designed to mount recessed in the ceiling and has a surface-mounted concentric panel on the bottom of the unit. The unit case is manufactured with coated metal, and cold surfaces are covered with a coated polystyrene insulating material. The case is provided with metal ears designed to support the unit weight on four corners. Ears have pre-punched holes designed to accept field-supplied, all-thread rod hangers.

Ventilation Air
The case has a factory designated cutout for the connection of a field supplied outside air duct.

Architectural Filter/Panel
The ceiling cassette assembly is provided with an off-white ABS polymeric resin architectural panel with a tapered trim edge and a hinged, spring clip (screw-less) return air filter-panel door.

Fan Assembly and Control
The indoor unit has a single, direct-drive, turbo fan. The fan wheel is made of high strength ABS HT-700 polymeric resin. The fan motor is a Brushless Digitally-Controlled (BLDC) design with permanently lubricated and sealed ball bearings. The fan motor includes thermal, overcurrent and low RPM protection. The fan / motor assembly is mounted on vibration attenuating rubber grommets. The fan impeller is statically and dynamically balanced. The fan speed is controlled using a microprocessor-based direct digital control algorithm that provides a high fan speed in cooling thermal ON and low fan speed in cooling thermal OFF, high fan speed in heating thermal ON and fan off in heating thermal OFF. The fan speeds can be field adjusted between low, medium, and high speeds. The fan speed algorithm provides a field selectable, fixed-speed or auto-speed setting that adjusts the fan speed to simulate natural airflow.

Air Filter
Return air is filtered with a removable, washable filter.

Airflow Guide Vanes
The architectural panel has two parallel directional slot diffusers each equipped with oscillating motorized guide vanes designed to change the angle airflow is discharged. Discharge range of motion is 40º in an up/down direction. The control algorithm provides the capability of locking guide vanes in a field adjusted fixed position.

Microprocessor Controls


The unit is provided with an integrated microprocessor controller capable of performing functions necessary to operate the system without the use of a wall-mounted controller. A temperature thermistor is factory-mounted in the return air stream. All unit operation parameters, excluding the units operating schedule, are stored in non-volatile memory resident on the unit microprocessor. Operating schedules are stored in select models of the optional, wall-mounted, local, or central controller. The field-supplied communication cable between the indoor unit(s) and outdoor unit is to be a minimum of 18 AWG, 2 conductor, twisted, stranded, and shielded cable (RS 485), terminated via screw terminals on the control boards. The microprocessor control provides the following functions: auto addressing, self-diagnostics, auto restart following power restoration, test run, and will operate the indoor unit using one of five operating modes:

1. Auto Changeover (Heat Recovery only)
2. Heating
3. Cooling
4. Dry
5. Fan Only

For Heat Recovery systems the Auto Changeover setting automatically switches control of the indoor unit between Cooling and Heating modes based on space temperature conditions.

For Heat Pump systems, heated or cooled air delivery is dependent upon outdoor unit operating mode.

In Heating mode, the microprocessor control will activate indoor unit operation when the indoor room temperature falls below set-point temperature. At which point, a signal is sent to the outdoor unit to begin the heating cycle. The indoor unit fan operation is delayed until coil pipe temperature reaches 76°F. Significant airflow is generated when pipe temperature reaches 80°F. The unit is equipped with an infrared receiver designed to communicate with an LG wireless remote controller. In lieu of wireless remote or factory return air thermistor, screw terminals on the microprocessor circuit board accommodate various models of wall-mounted local controllers and or wall-mounted temperature sensors. The unit microprocessor is capable of accepting space temperature readings concurrently or individually from either:

1. Wall-mounted wired controller(s)
2. Factory mounted return air thermistor or the optional wall mounted wired remote temperature sensor.

TWO-WAY CEILING CASSETTE

Mechanical Specifications

A single indoor unit has the capability of being controlled by up to two local wired controllers. The microprocessor controls space temperature using the value provided by the temperature sensor sensing a space temperature that is farthest away from the temperature set-point. The microprocessor control provides a cooling or heating mode test cycle that operates the unit for 18 minutes without regard to space temperature. If the system is provided with an optional wall-mounted or central controller, displayed diagnostic codes are specific, alpha numeric, and provide the service technician with the reason for the code displayed.

Indoor units are Wi-Fi compatible with the addition of an LG Wi-Fi module accessory, and can be controlled by LG's ThinQ™ app on a smart device. A field-supplied Wi-Fi network and smart device are required. The ThinQ app is free, and is available for Android™ and iOS. (Android is a trademark of Google LLC.)

Condensate Lift/Pump

The indoor unit is provided with a factory installed and wired condensate lift/pump capable of providing a maximum 27-9/16 inch lift from the bottom surface of the unit. The lift pump comes with a safety switch that will shut off the indoor unit if condensate rises too high in the drain pan.

Condensate Drain Pan

The condensate drain pan is constructed of EPS (expandable polystyrene resin).

Coil

The indoor unit coil is constructed with grooved design copper tubes with slit coil fins, two (2) rows, twenty (20) fins per inch.

Controls Features

- Auto changeover (Heat Recovery only)
- Auto operation
- Auto restart
- External on/off control
- Dual thermistor control
- Dual set-point control
- Filter life display
- Multiple auxiliary heater applications
- Group control
- High ceiling
- Hot start
- Self diagnostics
- Timer (on / off)
- Weekly schedule
- Auto direction / swing (up /down)
- Fan speed control
- Jet cool (fast cooling)
- Auto fan
- Leak detection
- Wi-Fi compatible

**To enable Generation 4 features, outdoor unit DIP Switch No. 3 must be set to ON. Please refer to the Multi V 5, Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.*

TWO-WAY CEILING CASSETTE

General Data / Electrical Data

Table 13: Two-Way Ceiling Cassette (TS Frames) Indoor Unit General Data.

Model No.	ARNU183TSA4	ARNU243TSA4
Cooling Mode Performance		
Capacity (Btu/h)	19,100	24,200
Max Power Input[1] (W)	70	70
L/M/H Power Input at Factory Default (W)	24 / 29 / 34	25 / 30 / 40
Heating Mode Performance		
Capacity (Btu/h)	21,500	27,300
Max Power Input[1] (W)	70	70
L/M/H Power Input at Factory Default (W)	24 / 29 / 34	25 / 30 / 40
Entering Mixed Air		
Cooling Max (°F WB)	76	76
Heating Min (°F DB)	59	59
Unit Data		
Refrigerant Type[2]	R410A	R410A
Refrigerant Control	EEV	EEV
Sound Pressure[3] dB(A) (H/M/L)	35 / 33 / 31	40 / 37 / 33
Sound Power[4] dB(A) (H)	44	48
Net Unit Weight (lbs.)	39.9	39.9
Shipping Weight (lbs.)	49.6	49.6
Panel Weight (lbs)	10.3	10.3
Panel Shipping Weight (lbs)	14.3	14.3
Communication Cable[5] (No. x AWG)	2 x 18	2 x 18
Fan		
Type	Turbo Fan	Turbo Fan
Quantity	1	1
Motor/Drive	Brushless Digitally Controlled / Direct	
Airflow Rate H/M/L (CFM)	417 / 381 / 348	512 / 438 / 364
Piping		
Liquid Line (in., O.D.)	1/4 Flare	3/8 Flare
Vapor Line (in., O.D.)	1/2 Flare	5/8 Flare
Condensate Line (in., I.D.)	1	1

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes. See below for detailed electrical data.

This unit comes with a dry nitrogen charge.

All capacities are net with a combination ratio between 95-105%.

Rated capacity is certified under AHRI Standard 1230. Ratings are subject to change without notice. Current certified ratings are available at www.ahridirectory.org.

Low ambient performance with LGRED° heat techlology is included in Multi V 5 air source units produced after February 2019.

[1]Max power Input is rated at maximum setting value.

[2]Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

[3]Sound Pressure levels are tested in an anechoic chamber under ISO Standard 3745.

[4]Sound Power levels are tested in a reverberation room under ISO Standard 3741.

[5]Communication cable between Main ODU to IDUs / HRUs to be 18 AWG, 2-conductor, twisted, stranded, shielded. Ensure the communication cable shield is properly grounded to the Main ODU chassis only. ⃠ Do not ground the ODU to IDUs / HRUs communication cable at any other point. Wiring must comply with all applicable local and national codes.

Table 14: Two-Way Ceiling Cassette Indoor Unit Electrical Data.

Model Number	Voltage Range	MCA	MOP	Rated Amps (A)	Power Supply			Power Input (W)		
					Hz	Volts	Phase	Max. Cooling	Max. Heating	L/M/H at Factory Default
ARNU183TSA4	187-253	0.84	15	0.30	60	208-230	1	70	70	24 / 29 / 34
ARNU243TSA4				0.30						25 / 30 / 40

MCA : Minimum Circuit Ampacity.

MOP : Maximum Overcurrent Protection.

Units are suitable for use on an electrical system where voltage supplied to unit terminals is within the listed range limits.

Select wire size based on the larger MCA value.

Instead of fuse, use circuit breaker.

TWO-WAY CEILING CASSETTE

External Dimensions

TS Frame

Figure 24: ARNU183TSA4, ARNU243TSA4 Dimensions.

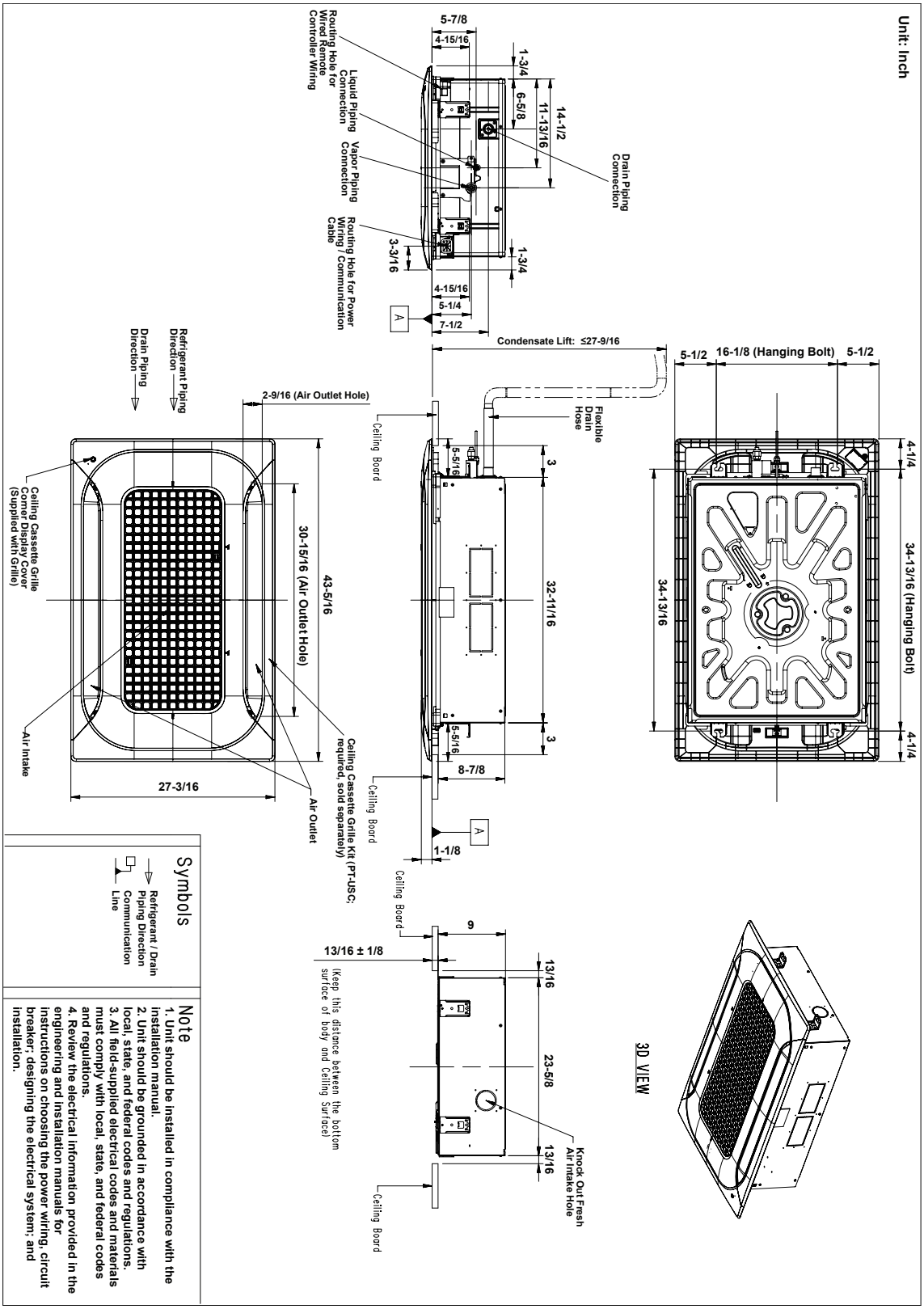
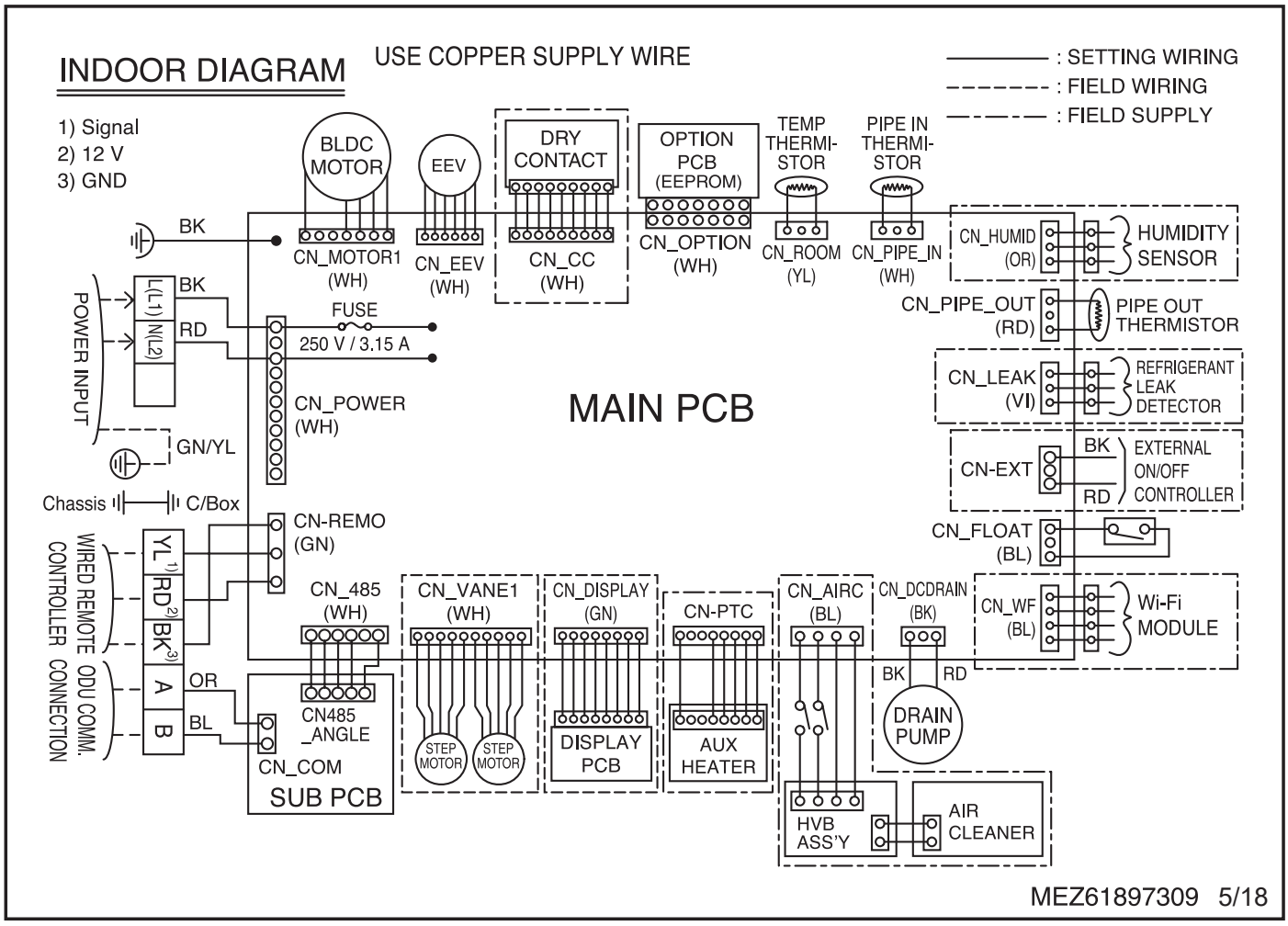


Figure 25: ARNU183TSA4, ARNU243TSA4 Wiring Diagram.



*If a Third-Party Dry Contact and an LG internal heater or an LG Auxiliary Heater Kit is installed, supplemental heat capability cannot be controlled by the Third-Party Thermostat.

TWO-WAY CEILING CASSETTE

Electrical Wiring Diagram

TS Frame

Table 15: TS Frame Wiring Diagram Legend.

Terminal	Purpose	Function
CN-MOTOR1	Fan motor output	Motor output of BLDC
CN-EEV	EEV Output	EEV Control output
CN-CC	Dry Contact	Dry Contact
CN-OPTION	Option PCB (EEPROM)	Option PCB connection
CN-ROOM	Room sensor	Room air thermistor
CN-PIPE_IN	Suction pipe sensor	Pipe in thermistor
CN-HUMID	N/A	N/A
CN-PIPE_OUT	Discharge pipe sensor	Pipe out thermistor
CN-LEAK	Leak sensor	Leak sensor connection
CN_EXT	External on/off controller	External on/off controller connection
CN-FLOAT	Float switch input	Float switch sensing
CN_WF	Wi-Fi module	Wi-Fi module connection
CN_DCDRAIN	Drain pump output	AC output for drain pump
CN-AIRC	Air cleaner	Air cleaner control
CN-PTC	Auxiliary heater	Auxiliary heater connection
CN-DISPLAY	Display	Display of indoor status
CN-VANE1	Step Motor	Step motor output
CN-485	Communication	Connection between indoor and outdoor units
CN-COM	Communication	Connection on Sub PCB between indoor and outdoor units
CN-REMO	Remote controller	Remote control line
CN-POWER	AC Power supply	AC Power line input for indoor controller

*If a Third-Party Dry Contact and an LG internal heater or an LG Auxiliary Heater Kit is installed, supplemental heat capability cannot be controlled by the Third-Party Thermostat.

Table 16: TS Frame DIP Switch Settings.

DIP Switch Setting		Off	On	Remarks
SW3	GROUP CONTROL	Main	Sub	Group control setting using 7-Day Programmable Controller; selects Main / Sub on each indoor unit
SW4	DRY CONTACT MODE	Variable	Auto	Sets operation mode for optional Dry Contact accessory 1. Variable: Auto or Manual Mode can be set through 7-Day Programmable Controller or Wireless Remote Controller (factory default setting is Auto if there is no setting) 2. Auto: For Dry Contact, it is always Auto mode

***For Gen 4 Multi V two-way ceiling cassette indoor units, DIP switches 1, 2, 5 through 8 must be set to OFF. These DIP switches are used for other models.**

****To enable Generation 4 features, outdoor unit DIP switch no. 3 must be set to ON. Please refer to the Multi V 5, Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.**

Figure 26: TS Piping Diagram.

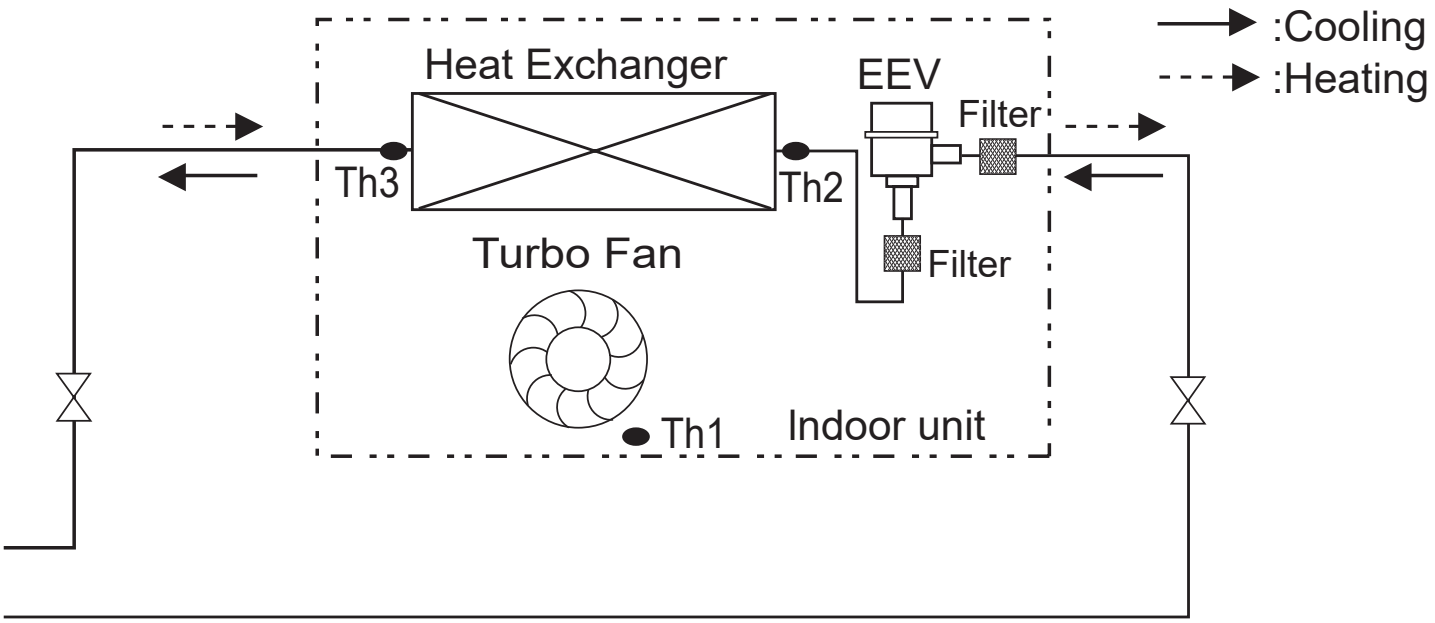


Table 17: TS Frame Refrigerant Pipe Connection Port Diameters.

Model	Liquid (inch)	Gas (inch)
ARNU183TSA4	1/4	1/2
ARNU243TSA4	3/8	5/8

Table 18: TS Frame Thermistors.

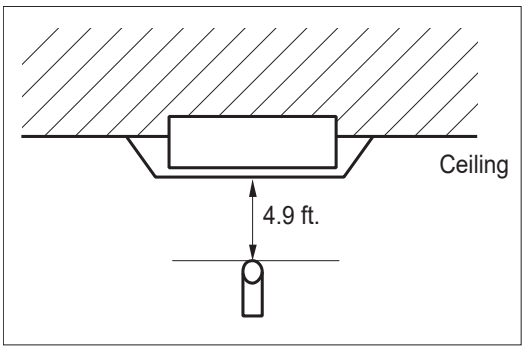
Thermistor	Description
TH1	Return air thermistor
TH2	Pipe in thermistor
TH3	Pipe out thermistor

TWO-WAY CEILING CASSETTE

Acoustic Data

Sound Pressure Levels

Figure 27: Sound Pressure Measurement Location.



- Measurements are taken 4.9 ft. away from the front of the unit.
- Data is valid under nominal operating conditions.
- Sound pressure levels are measured in dB(A) with a tolerance of ±3.
- Sound pressure levels are tested in an anechoic chamber under ISO Standard 3745.
- Reference acoustic pressure: 0dB = 20μPa.

Operating Conditions:

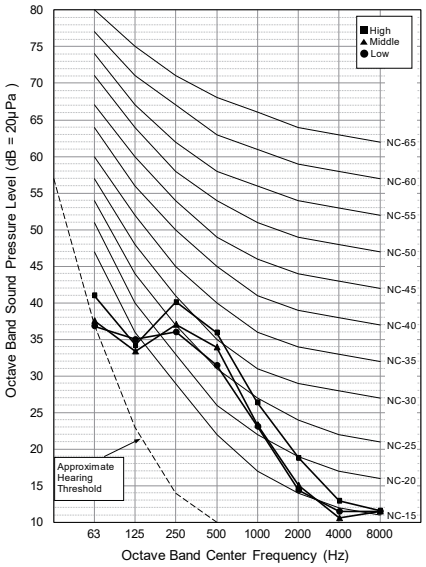
- Power source: 220V/60 Hz
- Sound level will vary depending on a range of factors including the construction (acoustic absorption coefficient) of a particular room in which the unit was installed.

Table 19: Two-Way Ceiling Cassette Indoor Unit Sound Pressure Levels.

Model	Sound Levels dB(A)		
	High Fan Speed	Medium Fan Speed	Low Fan Speed
ARNU183TSA4	35.0	33.0	31.0
ARNU243TSA4	40.0	37.0	33.0

Figure 28: ARNU183TSA4 and ARNU243TSA4 Sound Pressure Level Diagrams.

ARNU183TSA4



ARNU243TSA4

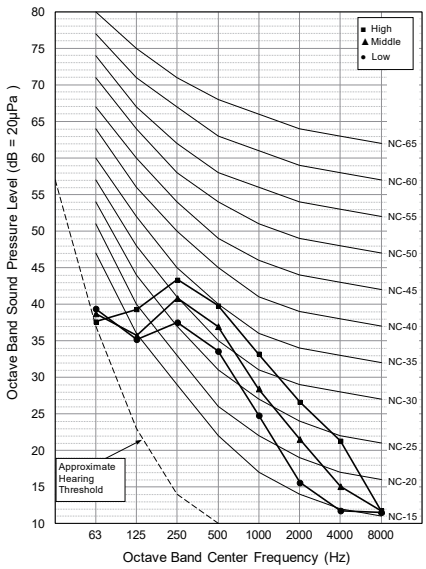


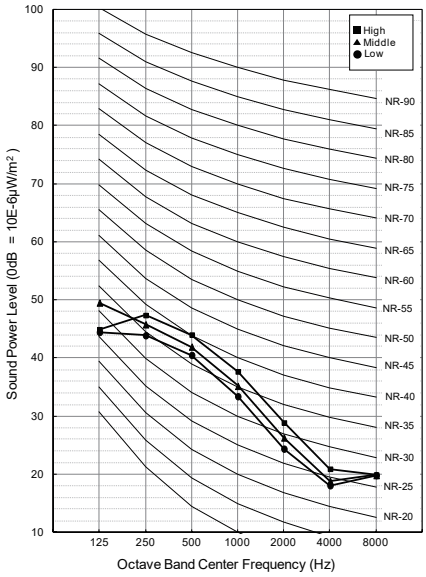
Table 20: Two-Way Ceiling Cassette Indoor Unit Sound Power Levels.

Model	Sound Levels dB(A)
	High Fan Speed
ARNU183TSA4	44.0
ARNU243TSA4	48.0

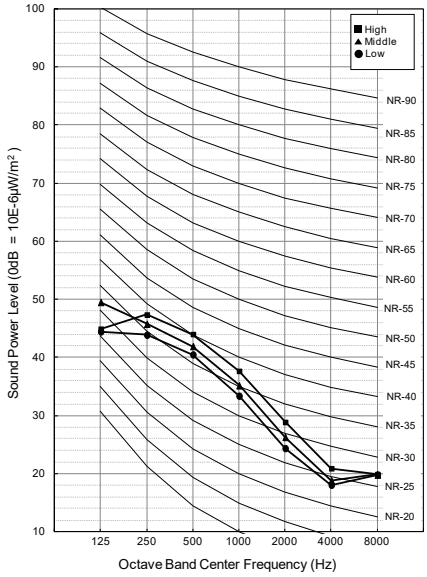
- Data is valid under diffuse field conditions.
- Data is valid under nominal operating conditions.
- Sound power level is measured using rated conditions and tested in a reverberation chamber under ISO Standard 3741.
- Sound level will vary depending on a range of factors such as construction (acoustic absorption coefficient) of particular area in which the equipment is installed.
- Reference acoustic intensity: 0dB = 10E-6μW/m^2

Figure 29: ARNU183TSA4 and ARNU243TSA4 Sound Power Level Diagrams.

ARNU183TSA4



ARNU243TSA4



TWO-WAY CEILING CASSETTE

MULTI V

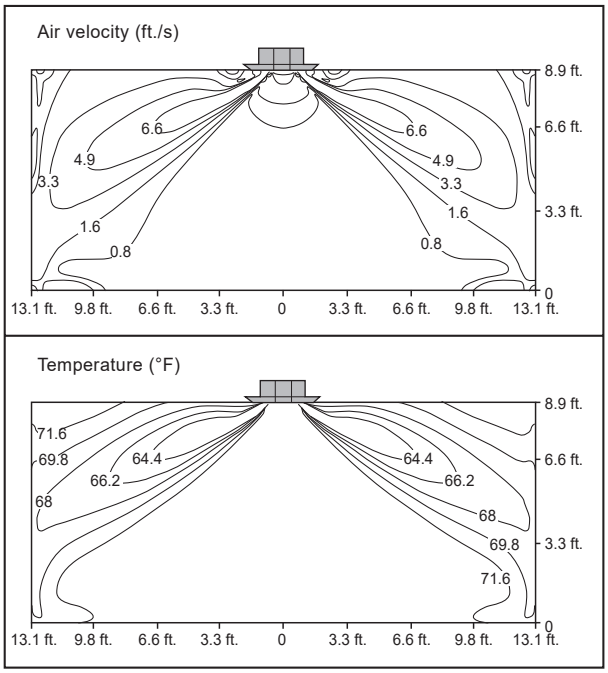
Air Velocity / Temperature Distribution

ARNU183TSA4

ARNU183TSA4

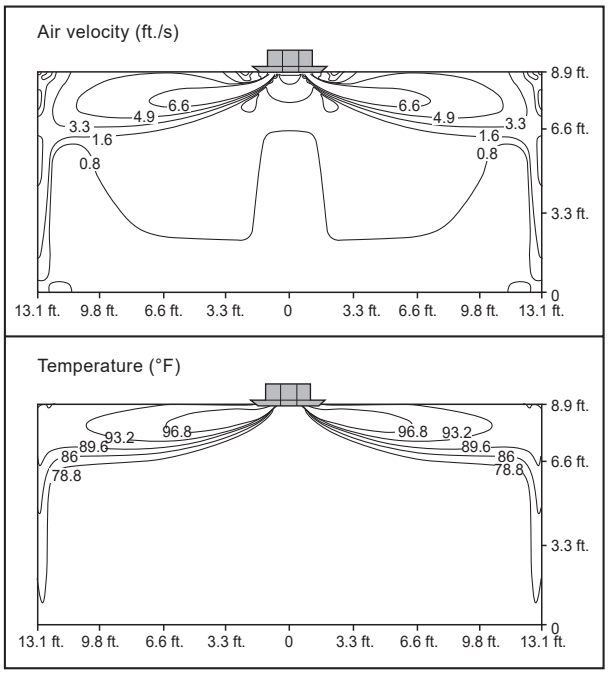
Cooling

Discharge angle: 35°



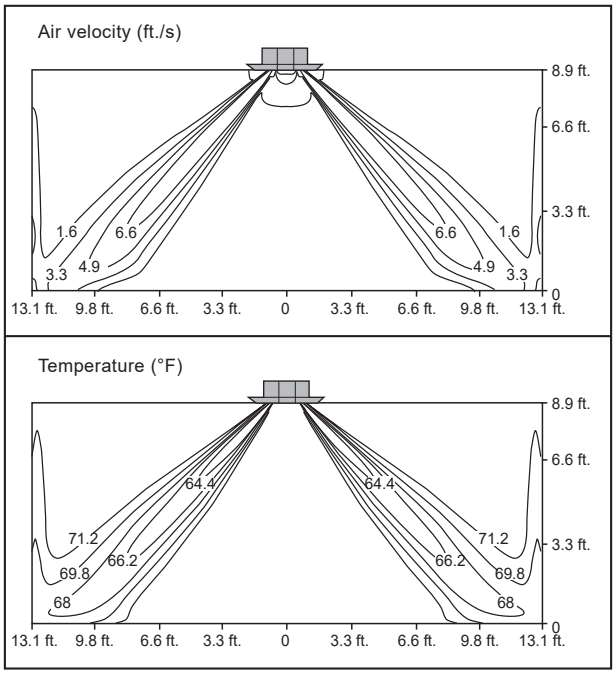
Heating

Discharge angle: 35°



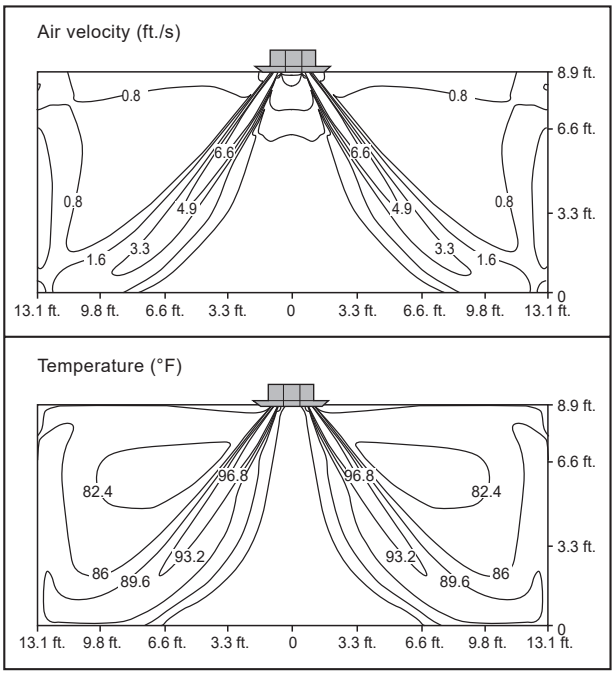
Cooling

Discharge angle: 40°



Heating

Discharge angle: 50°



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

LG

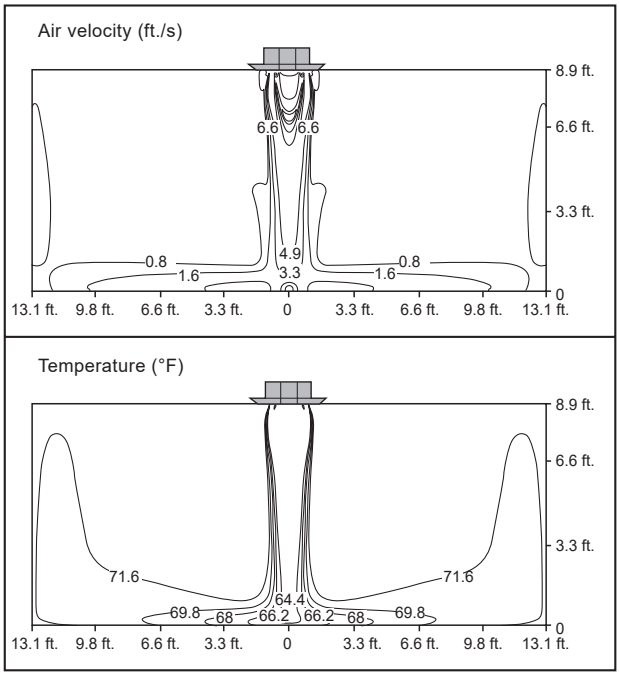
TWO-WAY CEILING CASSETTE

Air Velocity / Temperature Distribution

ARNU183TSA4

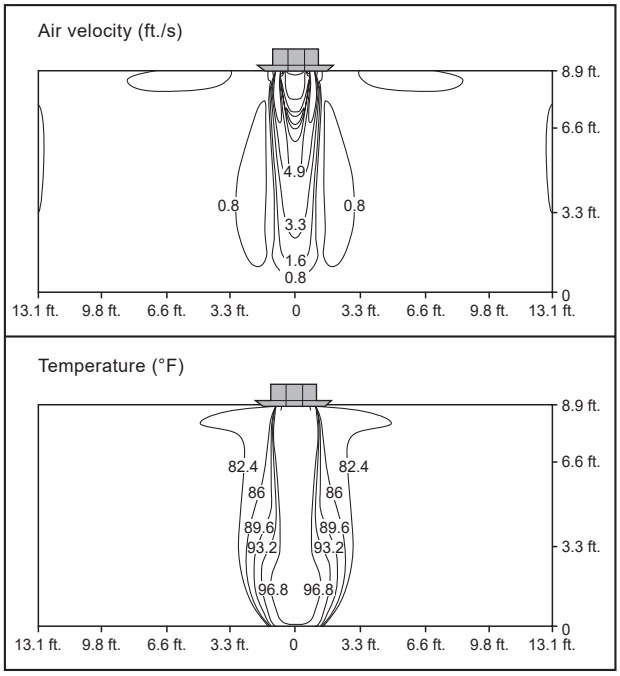
Cooling

Discharge angle: 80°



Heating

Discharge angle: 80°



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

TWO-WAY CEILING CASSETTE

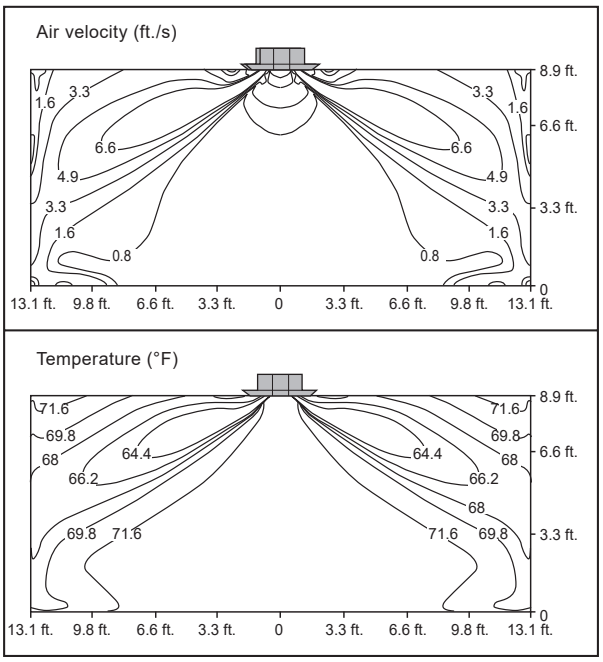
Air Velocity / Temperature Distribution

ARNU243TSA4

ARNU243TSA4

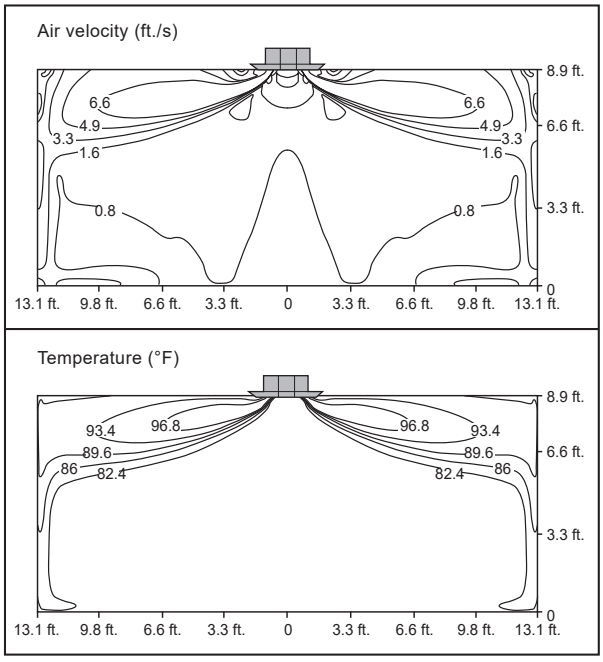
Cooling

Discharge angle: 35°



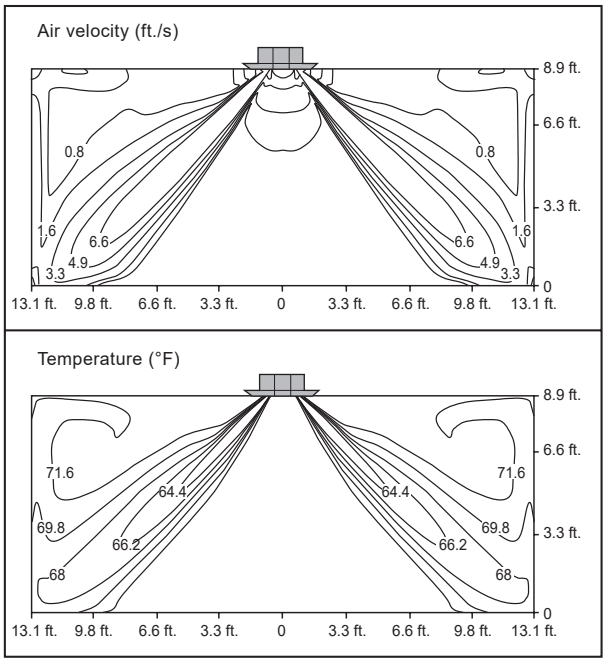
Heating

Discharge angle: 35°



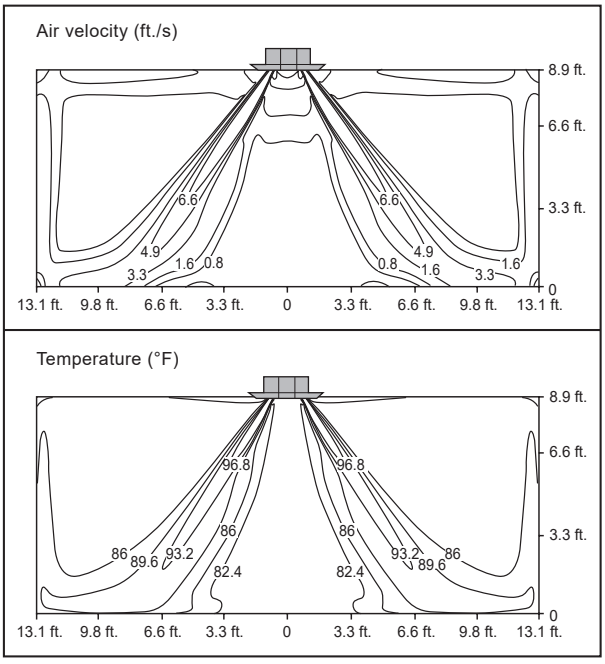
Cooling

Discharge angle: 40°



Heating

Discharge angle: 50°



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

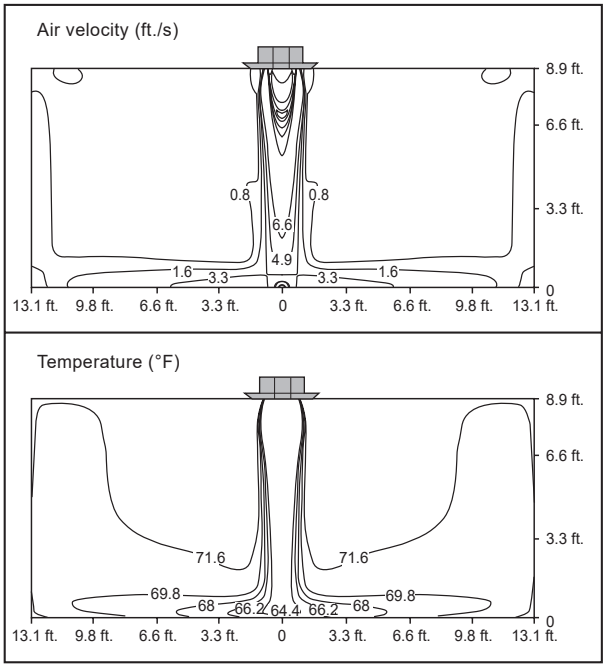
TWO-WAY CEILING CASSETTE

Air Velocity / Temperature Distribution

ARNU243TSA4

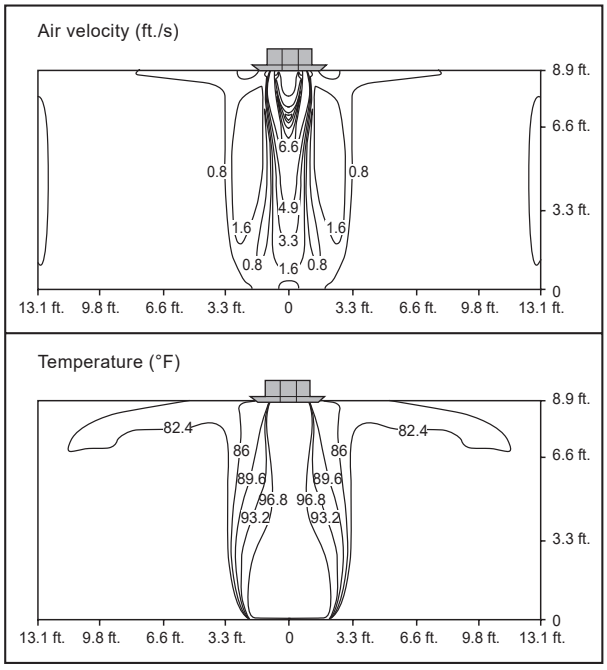
Cooling

Discharge angle: 80°



Heating

Discharge angle: 80°



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

TWO-WAY CEILING CASSETTE

Cooling and Heating Capacity Tables

Table 21: Two-Way Cassette Cooling Capacity Table.

Model No. / Capacity Index	Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / WB)													
		68 / 57		73 / 61		79 / 64		80 / 67		85 / 70		88 / 73		91 / 76	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
ARNU183TSA4 / 19.1	95	12.7	10.2	15.3	11.7	17.2	12.6	19.1	12.9	20.5	13.9	20.9	13.3	21.2	12.5
ARNU243TSA4 / 24.2	95	15.9	12.9	19.4	14.6	21.8	15.8	24.2	16.2	25.9	17.4	26.4	16.7	26.8	15.8

TC: Total Capacity (MBh); SHC: Sensible Heat Capacity (MBh).

Cooling range with the Low Ambient Baffle Kit (sold separately) installed on the outdoor unit(s) is -9.9°F to +122°F, and is achieved only when all indoor units are operating in cooling mode. Does not impact heat recovery system synchronous operating range.

The System Combination Ratio must be between 50–130%.

Rated capacity is certified under AHRI Standard 1230. Ratings are subject to change without notice. Current certified ratings are available at www.ahridirectory.org.

For outdoor unit performance data, see the respective outdoor unit performance data manuals on www.lghvac.com.

Low ambient performance with LGRED° heat techlology is included in Multi V 5 air source units produced after February 2019.

Table 22: Two-Way Cassette Heating Capacity Table.

Model No. / Capacity Index	Outdoor Air Temp.		Indoor Air Temperature (°F DB)							
			59	61	64	67	70	73	76	80
	°F DB	°F WB	TC	TC	TC	TC	TC	TC	TC	TC
ARNU183TSA4 / 19.1	47	43	24.1	23.9	23.7	22.6	21.5	20.9	19.8	18.8
ARNU243TSA4 / 24.2	47	43	30.6	30.3	30.0	28.7	27.3	26.5	25.1	23.9

TC: Total Capacity (MBh).

The System Combination Ratio must be between 50–130%.

Rated capacity is certified under AHRI Standard 1230. Ratings are subject to change without notice. Current certified ratings are available at www.ahridirectory.org.

For outdoor unit performance data, see the respective outdoor unit performance data manuals on www.lghvac.com.

Low ambient performance with LGRED° heat techlology is included in Multi V 5 air source units produced after February 2019.

TWO-WAY CEILING CASSETTE

Optional Accessories

Table 23: Optional Accessories for Two-Way Ceiling Cassette Indoor Units.

Accessory	Model Number
Two-Way Ceiling Cassette Panel (One Required)	PT-USC
Ventilation Flange	PTVK430
Auxiliary Heater Kit[1]	PRARH1
Wi-Fi Module	PWFMDD200

All accessories are sold separately.

[1]If a Third-Party Dry Contact and an LG internal heater or an LG Auxiliary Heater Kit is installed, supplemental heat capability cannot be controlled by the Third-Party Thermostat.

FOUR-WAY CEILING CASSETTE

2' x 2' Frame

3' x 3' Frame

FOUR-WAY CEILING CASSETTE

Mechanical Specifications

Casing
The case is designed to mount recessed in the ceiling and has a surface-mounted concentric panel on the bottom of the unit. The unit case is manufactured with coated metal. Cold surfaces are covered with a coated polystyrene insulating material. The case is provided with metal ears designed to support the unit weight on four corners. Ears have pre-punched holes designed to accept field-supplied all-thread rod hangers.

Ventilation Air
TQ, TR Frame
The case has a factory designated cutout for the connection of a field-supplied outside air duct. An optional flange kit is available from LG.

TA Frame
The case has a factory designated cutout for the connection of a field-supplied outside air duct. LG offers two flange kits.

Supply Air Branch Duct Connections
Factory designated cutouts are marked on the unit case. Branch ducts provide the designer with the ability to duct up to 1/2 the unit airflow capacity to adjacent spaces. The adjacent space must be in the room where the ceiling cassette is installed. It cannot be branched to another room.

Architectural Filter/Panel
The ceiling cassette assembly is provided with a white ABS polymeric resin architectural panel equipped with a tapered trim edge and a hinged, spring clip (screwless) return air filter-panel door.

TA Frame
The unit case allows access to hanger rods and the inspection of piping through corner access panels on the architectural panel. The optional auto-elevating panel kit is designed to provide motorized ascent/descent of the return air panel/pre-filter assembly a distance of up to 12 feet allowing easy access to remove and clean the filter.

The kit consists of two lifting mechanisms comprised of an electric motor driven winch with four (4) braided steel lifting cables. The winch kit is mounted behind the panel and is not visible during normal unit operation. The auto-elevating return air panel appearance and finish matches that of the architectural panel on similar indoor unit models equipped with the standard hinged filter panels. The auto-elevating panel control algorithm accepts up, down, and stop control commands from either a wall-mounted or the lift remote controller. The algorithm does not permit the lowering of the panel while the indoor unit fan is operating. The pair of winch controllers work in unison to keep the return air panel level during lift and descent operations and will automatically stop the descent of the return air panel/filter if contact is made with any obstacle.

Fan Assembly and Control
The indoor unit has a single, direct-drive, turbo fan. The fan wheel is made of high strength ABS HT-700 polymeric resin. The fan motor is a Brushless Digitally-Controlled (BLDC) design with permanently lubricated and sealed ball bearings. The fan motor includes thermal, overcurrent and low RPM protection. The fan/motor assembly is mounted on vibration attenuating rubber grommets. The fan impeller is statically and dynamically balanced. The fan speed is controlled using a microprocessor-based, direct digital control algorithm that provides a high fan speed in cooling thermal ON and low fan speed in cooling thermal OFF, high fan speed in heating thermal ON and fan off in heating thermal OFF. The fan speeds can be field adjusted between low, medium, and high speeds. The fan speed algorithm provides a field selectable, fixed-speed or auto-speed setting that adjusts the fan speed to simulate natural airflow.

Air Filter
Return air is filtered with a removable, washable, MERV 6 rated prefilter. An optional Premium Panel accessory with the PTAHMP0 Air Purification Kit is also available.

Airflow Guide Vanes
The architectural panel has four-directional slot diffusers each equipped with independent dual-vane oscillating motorized guide vanes (3'x3' cassette only) designed to change the angle airflow is discharged. Discharge range of motion is 10° to 85° in an up/down direction. A control algorithm provides the capability of locking each guide vane independently in a field adjusted fixed position. Guide vanes provide airflow in all directions. The ends of each vane are tapered to provide airflow to the space in the direction of the four corners of the architectural panel.

Microprocessor Controls
The unit is provided with an integrated microprocessor controller capable of performing functions necessary to operate the system without the use of a wall-mounted controller. A temperature thermistor is factory-mounted in the return air stream. All unit operation parameters, excluding the unit operating schedule, are stored in non-volatile memory resident on the unit microprocessor. Operating schedules are stored in select models of the optional, wall-mounted, local, or central controller. The field-supplied communication cable

between the indoor unit(s) and outdoor unit is to be a minimum of 18 AWG, 2 conductor, twisted, stranded, and shielded cable (RS-485), terminated via screw terminals on the control boards. The microprocessor control algorithms provide the following functions: auto addressing, self-diagnostics, auto restart following power restoration, test run, and will operate the indoor unit using one of five operating modes:

1. Auto Changeover (Heat Recovery only)
2. Heating
3. Cooling
4. Dry
5. Fan Only

For Heat Recovery systems the Auto Changeover setting automatically switches control of the indoor unit between cooling and heating modes based on space temperature conditions.

For Heat Pump systems, heated or cooled air delivery is dependent upon outdoor unit operating mode.

In Heating mode, the microprocessor control will activate indoor unit operation when the indoor room temperature falls below setpoint temperature. At which point, a signal is sent to the outdoor unit to begin the heating cycle. The indoor unit fan operation is delayed until coil pipe temperature reaches 76°F. Significant airflow is generated when pipe temperature reaches 80°F. The unit is equipped with an infrared receiver designed to communicate with an LG wireless remote controller. In lieu of wireless remote or factory return air thermistor, screw terminals on the microprocessor circuit board accommodate various models of wall-mounted local controllers and/or a wall-mounted remote temperature sensor. The unit microprocessor is capable of accepting space temperature readings concurrently or individually from either:

1. Wall-mounted wired controller(s)
2. Factory mounted return air thermistor or the optional wall-mounted wired remote temperature sensor.

A single indoor unit has the capability of being controlled by up to two local wired controllers. The microprocessor controls space temperature using the value provided by the temperature sensor sensing a space temperature that is farthest away from the temperature set-point. The microprocessor control provides a cooling or heating mode test cycle that operates the unit for 18 minutes without regard to the space temperature. If the system is provided with an optional wall-mounted, local, or central controller, displayed diagnostic codes are specific, alpha numeric, and provide the service technician with the reason for the code displayed.

The indoor units are Wi-Fi compatible with the addition of an LG Wi-Fi module accessory, and can be controlled by LG's ThinQ™ app on a smart device. A field-supplied Wi-Fi network and smart device are required. The ThinQ app is free, and is available for Android™ and iOS. (Android is a trademark of Google LLC.)

Condensate Lift/Pump

The indoor unit is provided with a factory installed and wired condensate lift/pump capable of providing a maximum 27-9/16 inch lift from the bottom surface of the unit. The lift pump comes with a safety switch that shuts off the indoor unit if condensate rises too high in the drain pan.

Condensate Drain Pan

The condensate drain pan is constructed of EPS (expandable polystyrene resin).

Coil

The indoor unit coil is constructed with grooved design copper tubes with slit coil fins, three (3) rows, 18 columns, and 22 fins per inch.

Controls Features

- Auto changeover (Heat Recovery only)
- Auto operation
- Auto restart
- External on/off control
- Dual thermistor control
- Dual set-point control
- Filter life display
- Multiple auxiliary heater applications
- Group control
- High ceiling
- Hot start
- Self diagnostics
- Timer (on / off)
- Weekly schedule
- Multiple fan operation settings
- Various programmable airflow modes
- Fan speed control
- Power cool (fast cooling)
- Wi-Fi compatible
- Auto fan
- Leak detection

**To enable Generation 4 features, outdoor unit DIP Switch No. 3 must be set to ON. Please refer to the Multi V 5, Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.*

FOUR-WAY CEILING CASSETTE

General Data

Table 24: Four-Way Ceiling Cassette (2' x 2' TR and TQ Frames) Indoor Unit General Data.

Model No.	ARNU053TRD4	ARNU073TRD4	ARNU093TRD4	ARNU123TRD4	ARNU153TQD4	ARNU183TQD4
Cooling Mode Performance						
Capacity (Btu/h)	5,500	7,500	9,600	12,300	15,400	19,100
Max. Power Input[1] (W)	30	30	30	30	30	30
L/M/H Power at Factory Default (W)	11 / 12 / 13	11 / 12 / 13	12 / 13 / 14	13 / 15 / 17	18 / 21 / 24	19 / 22 /25
Heating Mode Performance						
Capacity (Btu/h)	6,100	8,500	10,900	13,600	17,100	21,500
Max Power Input[1] (W)	30	30	30	30	30	30
L/M/H Power at Factory Default (W)	11 / 12 / 13	11 / 12 / 13	12 / 13 / 14	13 / 15 / 17	18 / 21 / 24	19 / 22 / 25
Entering Mixed Air						
Cooling Max. (°F WB)	76	76	76	76	76	76
Heating Min. (°F DB)	59	59	59	59	59	59
Unit Data						
Refrigerant Type[2]	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant Control	EEV	EEV	EEV	EEV	EEV	EEV
Sound Pressure[3] dB(A) (H/M/L)	29 / 27 / 26	29 / 27 / 26	30 / 29 / 27	32 / 30 / 27	36 / 34 / 32	37 / 35 / 34
Sound Power[4] dB(A) (H)	46	46	47	48	51	52
Net Unit Weight (lbs.)	29	29	32	32	35	35
Shipping Weight (lbs.)	34	34	38	38	40	40
Panel Weight (lbs)	6.3	6.3	6.3	6.3	6.3	6.3
Panel Shipping Weight (lbs)	8.6	8.6	8.6	8.6	8.6	8.6
Communication Cable[5] (No. x AWG)	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18
Fan						
Type	Turbo	Turbo	Turbo	Turbo	Turbo	Turbo
Quantity	1	1	1	1	1	1
Motor/Drive	Brushless Digitally Controlled / Direct					
Airflow Rate H/M/L (CFM)	265 / 247 / 212	265 / 247 / 212	283 / 265 / 251	307 / 283 / 247	388 / 353 / 328	396 / 388 / 353
Piping						
Liquid Line (in., O.D.)	1/4 Flare	1/4 Flare	1/4 Flare	1/4 Flare	1/4 Flare	1/4 Flare
Vapor Line (in., O.D.)	1/2 Flare	1/2 Flare	1/2 Flare	1/2 Flare	1/2 Flare	1/2 Flare
Condensate Line (in., I.D.)	1	1	1	1	1	1

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes. See page 58 for detailed electrical data.

This unit comes with a dry nitrogen charge.

All capacities are net with a combination ratio between 95-105%.

Rated capacity is certified under AHRI Standard 1230. Ratings are subject to change without notice. Current certified ratings are available at www.ahridirectory.org.

Low ambient performance with LGRED° heat technology is included in Multi V 5 air source units produced after February 2019.

[1]Max power Input is rated at maximum setting value.

[2]Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

[3]Sound Pressure levels are tested in an anechoic chamber under ISO Standard 3745.

[4]Sound Power levels are tested in a reverberation room under ISO Standard 3741.

[5]Communication cable between Main ODU to IDUs / HRUs to be 18 AWG, 2-conductor, twisted, stranded, shielded. Ensure the communication cable shield is properly grounded to the Main ODU chassis only. ⃠ Do not ground the ODU to IDUs / HRUs communication cable at any other point. Wiring must comply with all applicable local and national codes.

FOUR-WAY CEILING CASSETTE

General Data

Table 25: Four-Way Ceiling Cassette (3' x 3' TA Frames) Indoor Unit General Data.

Model No.	ARNU073TAA4	ARNU093TAA4	ARNU123TAA4	ARNU153TAA4	ARNU183TAA4
Cooling Mode Performance					
Capacity (Btu/h)	7,500	9,600	12,300	15,400	19,100
Max. Power Input[1] (W)	79	79	79	79	79
L/M/H Power Input at Factory Default (W)	10.9 / 16.1 / 23.3	10.9 / 17.6 / 24.7	13.3 / 19.2 / 26.1	14.8 / 20.4 / 28.5	16.1 / 23.3 / 31.1
Heating Mode Performance					
Capacity (Btu/h)	8,500	10,900	13,600	17,100	21,500
Max Power Input[1] (W)	79	79	79	79	79
L/M/H Power Input at Factory Default (W)	10.9 / 16.1 / 23.3	10.9 / 17.6 / 24.7	13.3 / 19.2 / 26.1	14.8 / 20.4 / 28.5	16.1 / 23.3 / 31.1
Entering Mixed Air					
Cooling Max (°F WB)	76	76	76	76	76
Heating Min (°F DB)	59	59	59	59	59
Unit Data					
Refrigerant Type[2]	R410A	R410A	R410A	R410A	R410A
Refrigerant Control	EEV	EEV	EEV	EEV	EEV
Sound Pressure[3] dB(A) (H/M/L/LL)	30 / 27.5 / 24 / 22	31 / 28 / 24 / 22	31.5 / 29 / 25 / 23	32 / 29.5 / 26.5 / 24	33 / 30 / 27.5 / 25
Sound Power[4] dB(A) (H/M/L)	41 / 38 / 36	42 / 39 / 36	42 / 40 / 37	43 / 40 / 38	44 / 41 / 38
Net Unit Weight (lbs.)	59.5	59.5	59.5	59.5	59.5
Shipping Weight (lbs.)	71.7	71.7	71.7	71.7	71.7
Panel Weight (lbs)	15.7	15.7	15.7	15.7	15.7
Panel Shipping Weight (lbs)	20.5	20.5	20.5	20.5	20.5
Communication Cable[5] (No. x AWG)	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18
Fan					
Type	Full 3D Turbo Fan	Full 3D Turbo Fan	Full 3D Turbo Fan	Full 3D Turbo Fan	Full 3D Turbo Fan
Quantity	1	1	1	1	1
Motor/Drive	Brushless Digitally Controlled / Direct				
Airflow Rate H/M/L/LL (CFM)	653 / 556 / 468 / 397	670 / 576 / 468 / 397	687 / 599 / 515 / 426	711 / 615 / 547 / 468	735 / 653 / 556 / 483
Piping					
Liquid Line (in., O.D.)	3/8 Flare	3/8 Flare	3/8 Flare	3/8 Flare	3/8 Flare
Vapor Line (in., O.D.)	5/8 Flare	5/8 Flare	5/8 Flare	5/8 Flare	5/8 Flare
Condensate Line (in., I.D.)	1	1	1	1	1

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes. See page 58 for detailed electrical data.

This unit comes with a dry nitrogen charge.

All capacities are net with a combination ratio between 95-105%.

Rated capacity is certified under AHRI Standard 1230. Ratings are subject to change without notice. Current certified ratings are available at www.ahridirectory.org.

Low ambient performance with LGRED° heat technology is included in Multi V 5 air source units produced after February 2019.

[1]Max power Input is rated at maximum setting value.

[2]Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

[3]Sound Pressure levels are tested in an anechoic chamber under ISO Standard 3745.

[4]Sound Power levels are tested in a reverberation room under ISO Standard 3741.

[5]Communication cable between Main ODU to IDUs / HRUs to be 18 AWG, 2-conductor, twisted, stranded, shielded. Ensure the communication cable shield is properly grounded to the Main ODU chassis only. ⃠ Do not ground the ODU to IDUs / HRUs communication cable at any other point. Wiring must comply with all applicable local and national codes.

FOUR-WAY CEILING CASSETTE

General Data

Table 26: Four-Way Ceiling Cassette (3' x 3' TA Frames) Indoor Unit General Data, continued.

Model No.	ARNU243TAA4	ARNU283TAA4	ARNU363TAA4	ARNU423TAA4	ARNU483TAA4
Cooling Mode Performance					
Capacity (Btu/h)	24,200	28,000	36,200	42,000	48,100
Max. Power Input[1] (W)	199	199	199	199	199
L/M/H Power Input at Factory Default (W)	24.7 / 31.1 / 40.0	26.1 / 35.2 / 45.5	31.1 / 43.4 / 64.7	43.4 / 64.7 / 85.8	53.1 / 66.8 / 100
Heating Mode Performance					
Capacity (Btu/h)	27,300	31,500	40,600	43,800	51,200
Max Power Input[1] (W)	199	199	199	199	199
L/M/H Power Input at Factory Default (W)	24.7 / 31.1 / 40.0	26.1 / 35.2 / 45.5	31.1 / 43.4 / 64.7	43.4 / 64.7 / 85.8	53.1 / 66.8 / 100
Entering Mixed Air					
Cooling Max (°F WB)	76	76	76	76	76
Heating Min (°F DB)	59	59	59	59	59
Unit Data					
Refrigerant Type[2]	R410A	R410A	R410A	R410A	R410A
Refrigerant Control	EEV	EEV	EEV	EEV	EEV
Sound Pressure[3] dB(A) (H/M/L/LL)	36.5 / 33.5 / 31 / 28	37.5 / 35 / 31.5 / 29	40 / 37 / 33 / 30	43.5 / 40 / 37 / 34	45 / 41 / 39 / 37
Sound Power[4] dB(A) (H/M/L)	47 / 45 / 42	48 / 46 / 42	51 / 48 / 44	54 / 51 / 48	56 / 52 / 50
Net Unit Weight (lbs.)	59.5	59.5	59.5	59.5	59.5
Shipping Weight (lbs.)	71.7	71.7	71.7	71.7	71.7
Panel Weight (lbs)	15.7	15.7	15.7	15.7	15.7
Panel Shipping Weight (lbs)	20.5	20.5	20.5	20.5	20.5
Communication Cable[5] (No. x AWG)	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18
Fan					
Type	Full 3D Turbo Fan	Full 3D Turbo Fan	Full 3D Turbo Fan	Full 3D Turbo Fan	Full 3D Turbo Fan
Quantity	1	1	1	1	1
Motor/Drive	Brushless Digitally Controlled / Direct				
Airflow Rate H/M/L/LL (CFM)	813 / 742 / 670 / 576	855 / 771 / 687 / 599	988 / 838 / 735 / 653	1,091 / 988 / 838 / 751	1,158 / 1,000 / 908 / 838
Piping					
Liquid Line (in., O.D.)	3/8 Flare	3/8 Flare	3/8 Flare	3/8 Flare	3/8 Flare
Vapor Line (in., O.D.)	5/8 Flare	5/8 Flare	5/8 Flare	5/8 Flare	5/8 Flare
Condensate Line (in., I.D.)	1	1	1	1	1

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes. See page 58 for detailed electrical data.

This unit comes with a dry nitrogen charge.

All capacities are net with a combination ratio between 95-105%.

Rated capacity is certified under AHRI Standard 1230. Ratings are subject to change without notice. Current certified ratings are available at www.ahridirectory.org.

Low ambient performance with LGRED° heat technology is included in Multi V 5 air source units produced after February 2019.

[1]Max power Input is rated at maximum setting value.

[2]Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

[3]Sound Pressure levels are tested in an anechoic chamber under ISO Standard 3745.

[4]Sound Power levels are tested in a reverberation room under ISO Standard 3741.

[5]Communication cable between Main ODU to IDUs / HRUs to be 18 AWG, 2-conductor, twisted, stranded, shielded. Ensure the communication cable shield is properly grounded to the Main ODU chassis only. ⃠ Do not ground the ODU to IDUs / HRUs communication cable at any other point. Wiring must comply with all applicable local and national codes.

FOUR-WAY CEILING CASSETTE

Electrical Data

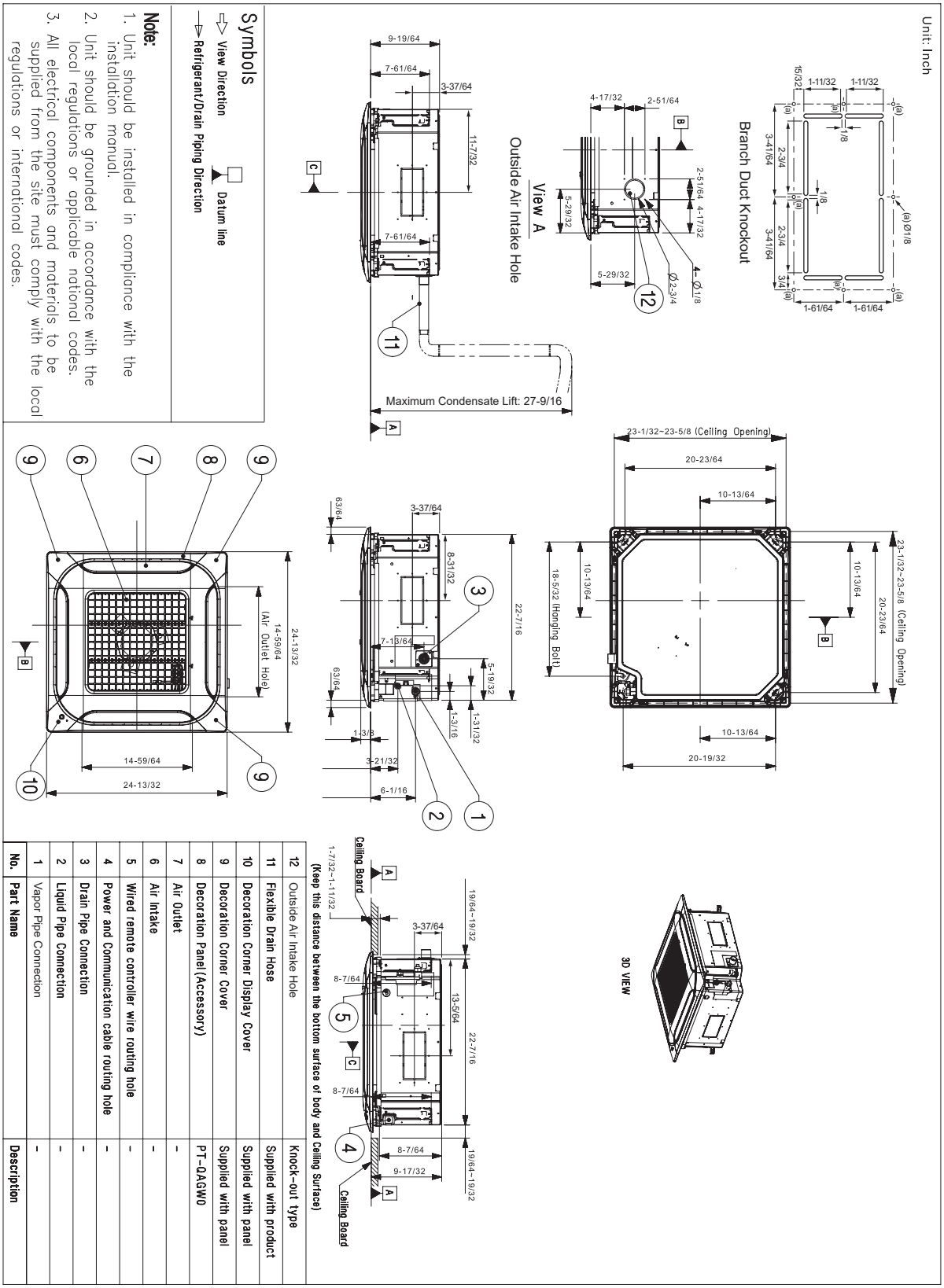
Table 27: Four-Way Ceiling Cassette (2' x 2' and 3' x 3' Frames) Indoor Unit Electrical Data.

Model	Voltage Range	MCA	MOP	Rated Amps (A)	Power Supply			Power Input (W)		
					Hz	Volts	Phase	Max. Cooling	Max. Heating	L / M / H at Factory Default
2' x 2' Frames										
ARNU053TRD4	187-253	0.25	15	0.2	60	208-230	1	30	30	11 / 12 / 13
ARNU073TRD4		0.25		0.2				30	30	11 / 12 / 13
ARNU093TRD4		0.25		0.2				30	30	12 / 13 / 14
ARNU123TRD4		0.25		0.2				30	30	13 / 15 / 17
ARNU153TQD4		0.25		0.2				30	30	18 / 21 / 24
ARNU183TQD4		0.25		0.2				30	30	19 / 22 / 25
3' x 3' Frames										
ARNU073TAA4	187-253	2.09	15	1.67	60	208-230	1	79	79	10.9 / 16.1 / 23.3
ARNU093TAA4		2.09		1.67				79	79	10.9 / 17.6 / 24.7
ARNU123TAA4		2.09		1.67				79	79	13.3 / 19.2 / 26.1
ARNU153TAA4		2.09		1.67				79	79	14.8 / 20.4 / 28.5
ARNU183TAA4		2.09		1.67				79	79	16.1 / 23.3 / 31.1
ARNU243TAA4		2.09		1.67				199	199	24.7 / 31.1 / 40.0
ARNU283TAA4		2.09		1.67				199	199	26.1 / 35.2 / 45.5
ARNU363TAA4		2.09		1.67				199	199	31.1 / 43.4 / 64.7
ARNU423TAA4		2.09		1.67				199	199	43.4 / 64.7 / 85.8
ARNU483TAA4		2.09		1.67				199	199	53.1 / 66.8 / 100

MCA : Minimum Circuit Ampacity.
MOP : Maximum Overcurrent Protection.

Units are suitable for use on an electrical system where voltage supplied to unit terminals is within the listed range limits.
Select wire size based on the larger MCA value.
Instead of a fuse, use the circuit breaker.

Figure 30: ARNU053TRD4, ARNU073TRD4, ARNU093TRD4, ARNU123TRD4 Dimensions.



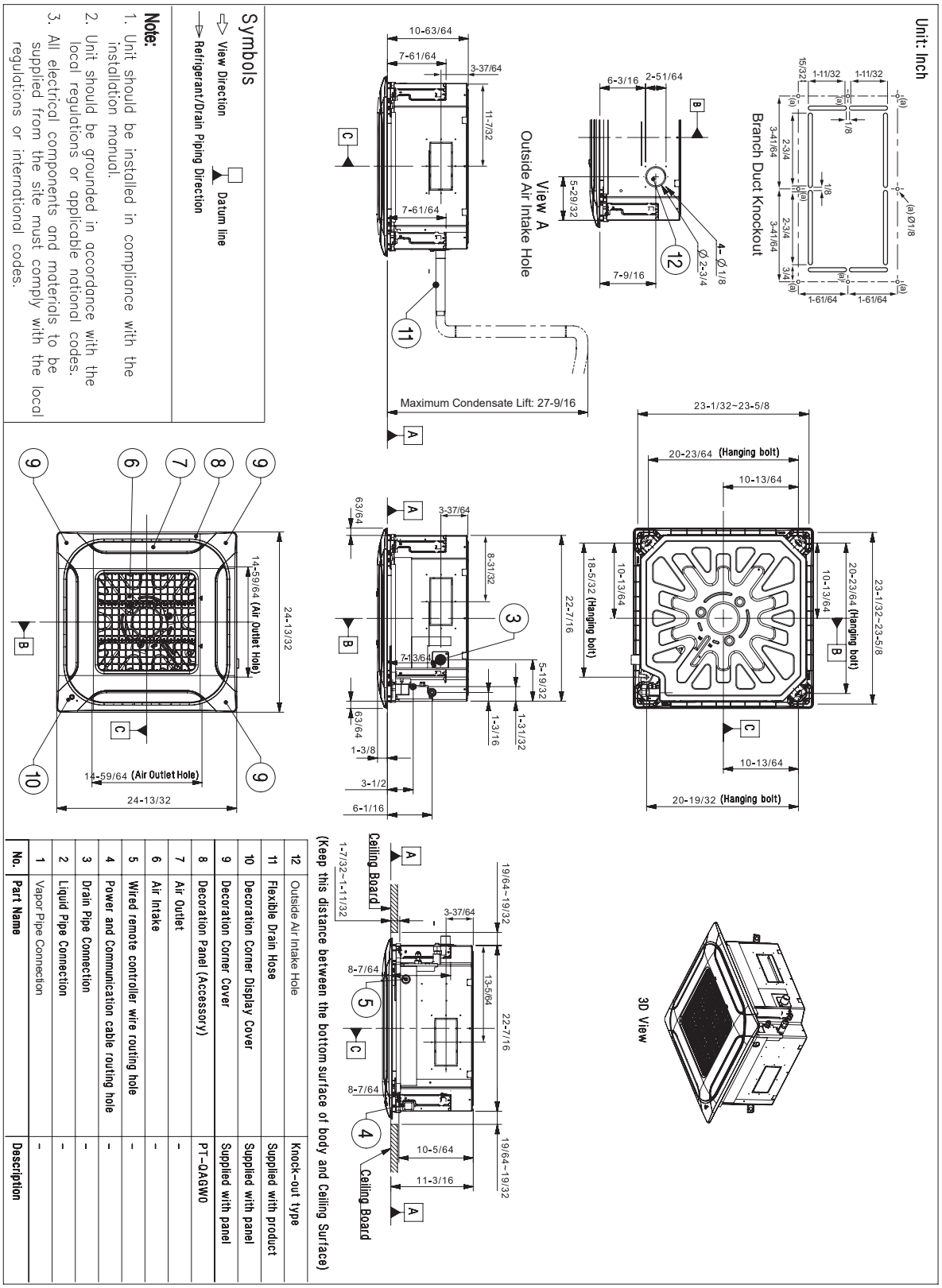
No.	Part Name	Description
12	Outside Air Intake Hole	Knock-out type
11	Flexible Drain Hose	Supplied with product
10	Decoration Corner Display Cover	Supplied with panel
9	Decoration Corner Cover	Supplied with panel
8	Decoration Panel(Accessory)	PT-QAGW0
7	Air Outlet	-
6	Air Intake	-
5	Wired remote controller wire routing hole	-
4	Power and Communication cable routing hole	-
3	Drain Pipe Connection	-
2	Liquid Pipe Connection	-
1	Vapor Pipe Connection	-

FOUR-WAY CEILING CASSETTE

External Dimensions

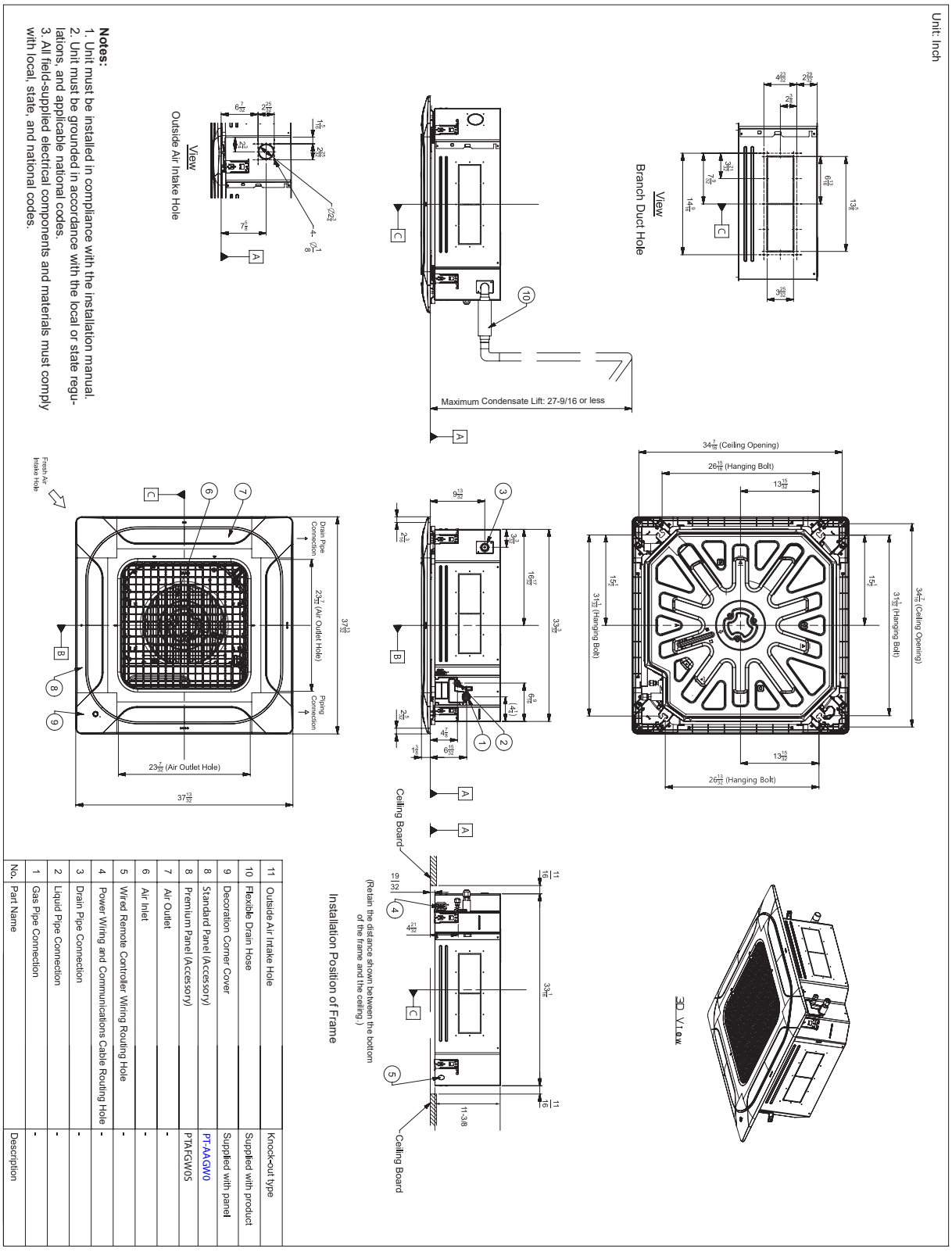
TQ Frames

Figure 31: ARNU153TQD4, ARNU183TQD4 Dimensions.



No.	Part Name	Description
1	Vapor Pipe Connection	-
2	Liquid Pipe Connection	-
3	Drain Pipe Connection	-
4	Power and Communication cable routing hole	-
5	Wired remote controller wire routing hole	-
6	Air Intake	-
7	Air Outlet	-
8	Decoration Panel (Accessory)	PT-QAGW0
9	Decoration Corner Cover	Supplied with panel
10	Decoration Corner Display Cover	Supplied with panel
11	Flexible Drain Hose	Supplied with product
12	Outside Air Intake Hole	Knock-out type

Figure 32: ARNU073TAA4, ARNU093TAA4, ARNU123TAA4, ARNU153TAA4, ARNU183TAA4, ARNU243TAA4, ARNU283TAA4, ARNU363TAA4, ARNU423TAA4, and ARNU483TAA4 Dimensions.



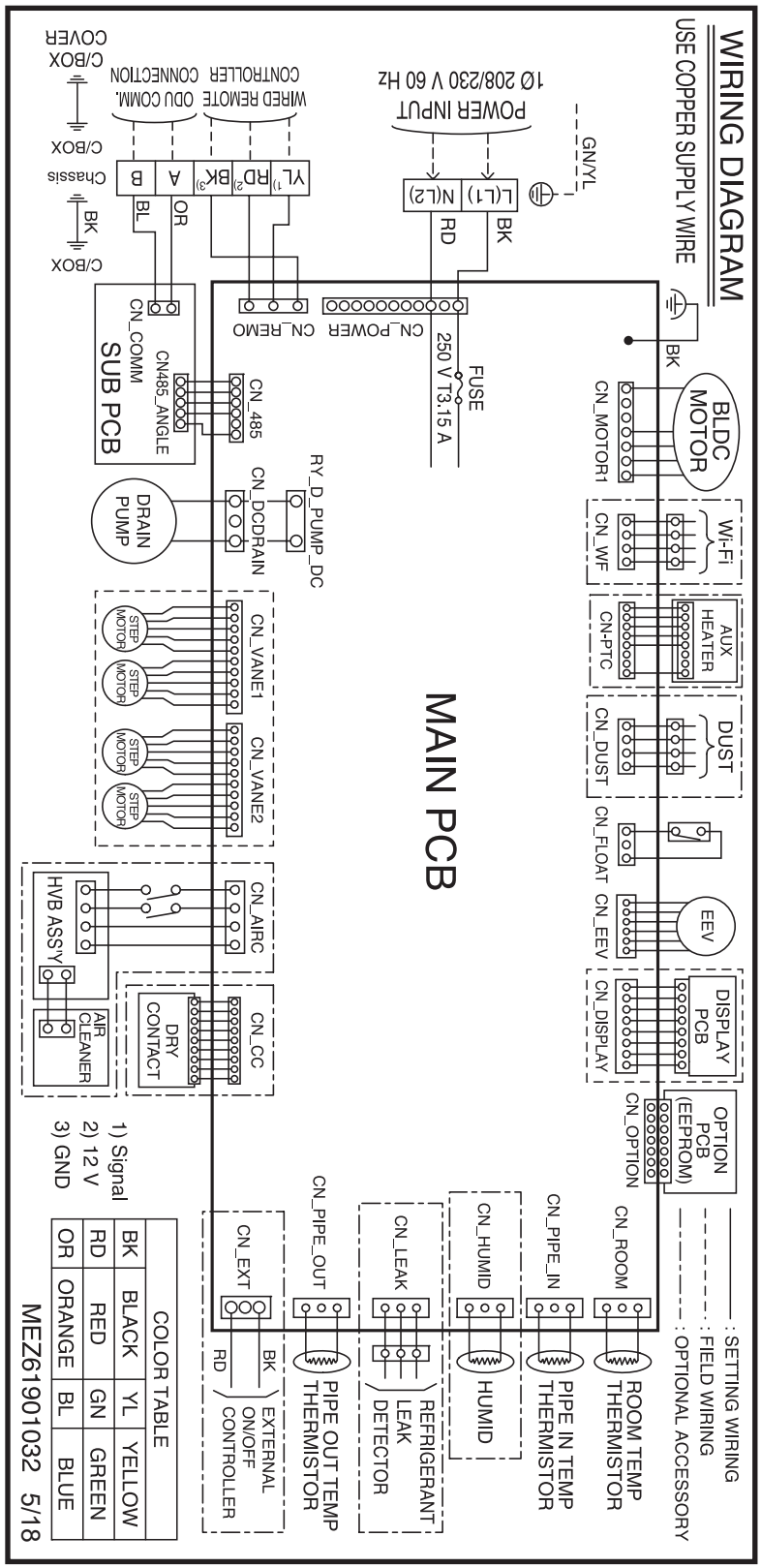
No.	Part Name	Description
1	Gas Pipe Connection	-
2	Liquid Pipe Connection	-
3	Drain Pipe Connection	-
4	Power Wiring and Communications Cable Routing Hole	-
5	Wired Remote Controller Wiring Routing Hole	-
6	Air Inlet	-
7	Air Outlet	-
8	Premium Panel (Accessory)	PTA-FGW0S
8	Standard Panel (Accessory)	PT-AAGW0
9	Decoration Corner Cover	Supplied with panel
10	Flexible Drain Hose	Supplied with product
11	Outside Air Intake Hole	Knock-out type

FOUR-WAY CEILING CASSETTE

Electrical Wiring Diagram

TR and TQ Frames

Figure 33: ARNU053TRD4, ARNU073TRD4, ARNU093TRD4, ARNU123TRD4, ARNU153TQD4, ARNU183TQD4 Wiring Diagram.



*If a Third-Party Dry Contact and an LG internal heater or an LG Auxiliary Heater Kit is installed, supplemental heat capability cannot be controlled by the Third-Party Thermostat.

FOUR-WAY CEILING CASSETTE

Electrical Wiring Diagram
TR and TQ Frames

Table 28: TR / TQ Frame Wiring Diagram Legend.

Terminal	Purpose	Function
CN_MOTOR1	Fan motor output	Motor output of BLDC
CN_WF	Wi-Fi module	Wi-Fi module connection
CN-PTC	Auxiliary heater	Auxiliary heater connection
CN_DUST	N/A	N/A
CN_FLOAT	Float switch input	Float switch sensing
CN_EEV	EEV output	EEV control output
CN_DISPLAY	Display	Display of indoor status
CN_OPTION	Option PCB (EEPROM)	Option PCB connection
CN_ROOM	Room sensor	Room air thermistor
CN_PIPE_IN	Suction pipe sensor	Pipe in thermistor
CN_HUMID	N/A	N/A
CN_LEAK	Leak sensor	Leak sensor connection
CN_PIPE_OUT	Discharge pipe sensor	Pipe out thermistor
CN_EXT	External on/off controller	External on/off controller connection
CN_CC	Dry Contact	Connection to Dry Contact (Optional)
CN_AIRC	Air cleaner	Air cleaner control
CN_VANE2	Step Motor	Step motor output
CN_VANE1	Step Motor	Step motor output
CN_DCDRAIN	Drain pump output	AC output for drain pump
CN_485	Communication	Connection between indoor and outdoor units
CN_COMM	Communication	Connection on Sub PCB between indoor and outdoor units
CN_REMO	Remote controller	Remote control connection
CN_POWER	AC Power supply	AC power line input for indoor controller

*If a Third-Party Dry Contact and an LG internal heater or an LG Auxiliary Heater Kit is installed, supplemental heat capability cannot be controlled by the Third-Party Thermostat.

Table 29: TR / TQ Frame DIP Switch Settings.

DIP Switch Setting		Off	On	Remarks
SW3	GROUP CONTROL	Main	Sub	Group control setting using 7-Day Programmable Controller; selects Main / Sub on each indoor unit
SW4	DRY CONTACT MODE	Variable	Auto	Sets operation mode for optional Dry Contact accessory 1. Variable: Auto or Manual Mode can be set through 7-Day Programmable Controller or Wireless Remote Controller (factory default setting is Auto if there is no setting) 2. Auto: For Dry Contact, it is always Auto mode
SW7	VENTILATOR INTERLOCK	Off	On	Selects ventilator interlock function for four-way ceiling cassette indoor units. 1. On: Automatic (vent relay will be turned on after ten [10] seconds of indoor unit operation 2. Off: Manual (ventilator needs to be set through the controller)

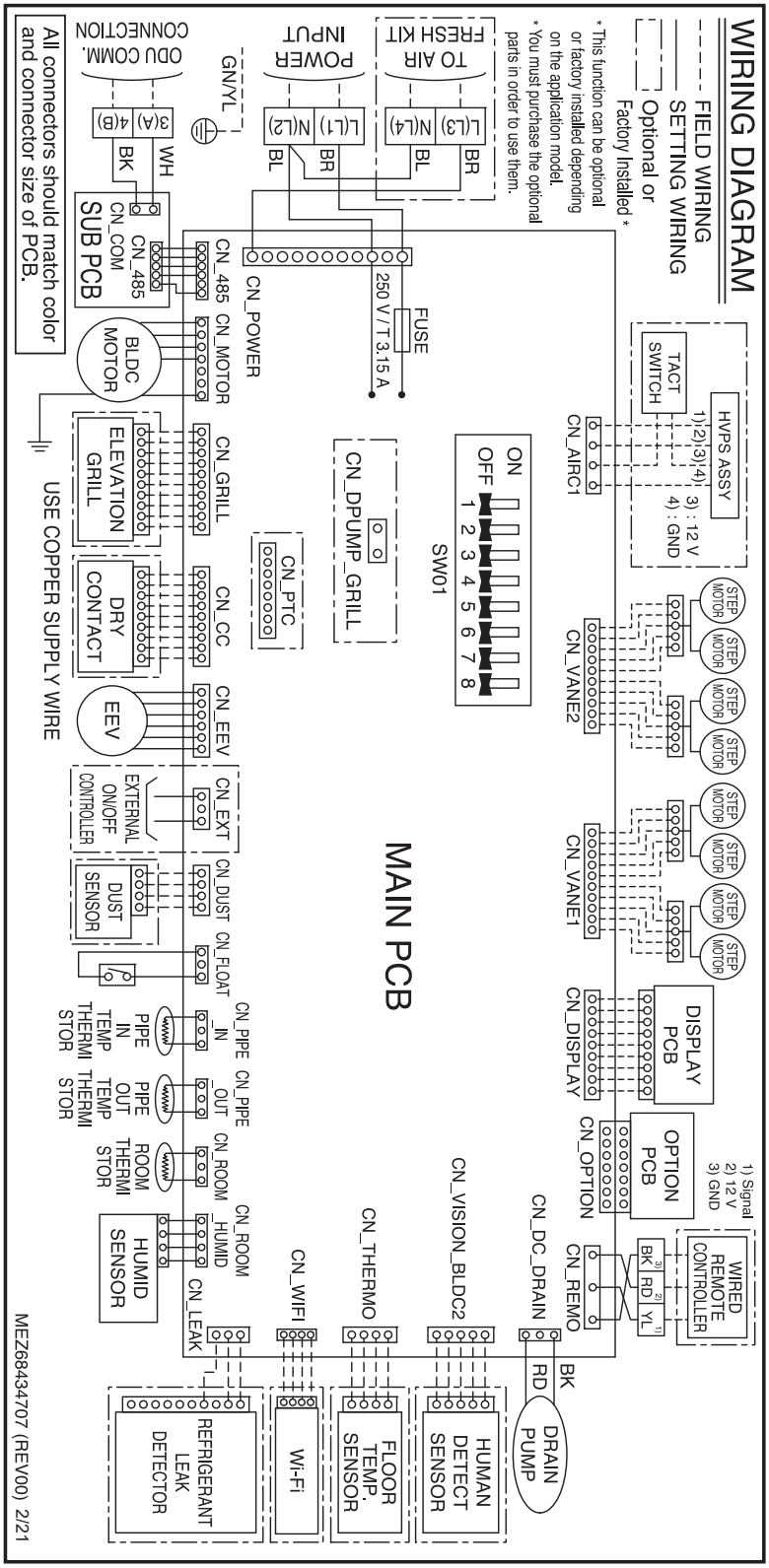
***For Gen 4 Multi V four-way ceiling cassette indoor units, DIP switches 1, 2, 5, 6, and 8 must be set to OFF. These DIP switches are used for other models.**
****To enable Generation 4 features, outdoor unit DIP switch no. 3 must be set to ON. Please refer to the Multi V 5, Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.**

FOUR-WAY CEILING CASSETTE

Electrical Wiring Diagram

TA Frames

Figure 34: ARNU073TAA4, ARNU093TAA4, ARNU123TAA4, ARNU153TAA4, ARNU183TAA4, ARNU243TAA4, ARNU283TAA4, ARNU363TAA4, ARNU423TAA4, and ARNU483TAA4 Wiring Diagram.



*If a Third-Party Dry Contact and an LG internal heater or an LG Auxiliary Heater Kit is installed, supplemental heat capability cannot be controlled by the Third-Party Thermostat.

FOUR-WAY CEILING CASSETTE

Electrical Wiring Diagram

TA Frames

Table 30: TA Frame Wiring Diagram Legend.

Terminal	Purpose	Function
CN_485	Communication	Connection between indoor and outdoor units
CN_MOTOR	Fan motor output	Motor output of BLDC
CN_GRILL	Elevation panel	Elevation panel connection
CN_PTC	Auxiliary heater	Auxiliary heater connection
CN_CC	Dry contact	Dry Contact connection
CN_EEV	EEV Output	EEV control output
CN_EXT	External on/off controller	External on/off controller connection
CN_DUST	PM 1.0 sensor	PM 1.0 sensor connection
CN_FLOAT	Float switch input	Float switch sensing
CN_PIPE_IN	Suction pipe sensor	Pipe in thermistor
CN_PIPE_OUT	Discharge pipe sensor	Pipe out thermistor
CN_ROOM	Room sensor	Room air thermistor
CN_ROOM_HUMID	N/A	N/A
CN_LEAK	Leak sensor	Leak sensor connection
CN_WIFI	Wi-Fi module	Wi-Fi module connection
CN_THERMO	Floor temperature sensor	Floor temperature sensor connection
CN_VISION_BLDC2	Human detection sensor	Human detection sensor connection
CN_DC_DRAIN	Drain pump output	AC output for drain pump
CN_REMO	Wired remote controller	Wired remote control connection
CN_OPTION	Optional PCB EEPROM	Option PCB connection
CN_DISPLAY	Display	Display of indoor status
CN_VANE1	Step motor	Step motor output
CN_VANE2	Step motor	Step motor output
CN_AIRC1	Air cleaner	Air cleaner control
CN_POWER	AC Power supply	AC Power line

*If a Third-Party Dry Contact and an LG internal heater or an LG Auxiliary Heater Kit is installed, supplemental heat capability cannot be controlled by the Third-Party Thermostat.

Table 31: TA Frame DIP Switch Settings.

DIP Switch Setting		Off	On	Remarks
SW3	GROUP CONTROL	Main	Sub	Group control setting using 7-Day Programmable Controller; selects Main / Sub on each indoor unit
SW4	DRY CONTACT MODE	Variable	Auto	Sets operation mode for optional Dry Contact accessory 1. Variable: Auto or Manual Mode can be set through 7-Day Programmable Controller or Wireless Remote Controller (factory default setting is Auto if there is no setting) 2. Auto: For Dry Contact, it is always Auto mode
SW7	VENTILATOR INTERLOCK	Off	On	Selects ventilator interlock function for four-way ceiling cassette indoor units. 1. On: Automatic (vent relay will be turned on after ten [10] seconds of indoor unit operation 2. Off: Manual (ventilator needs to be set through the controller)

***For Gen 4 Multi V four-way ceiling cassette indoor units, DIP switches 1, 2, 5, 6, and 8 must be set to OFF. These DIP switches are used for other models.**

****To enable Generation 4 features, outdoor unit DIP switch no. 3 must be set to ON. Please refer to the Multi V 5, Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.**

FOUR-WAY CEILING CASSETTE

Refrigerant Flow Diagram

TR, TQ, TA Frames

Figure 35: TR, TQ, TA Frame Piping Diagram.

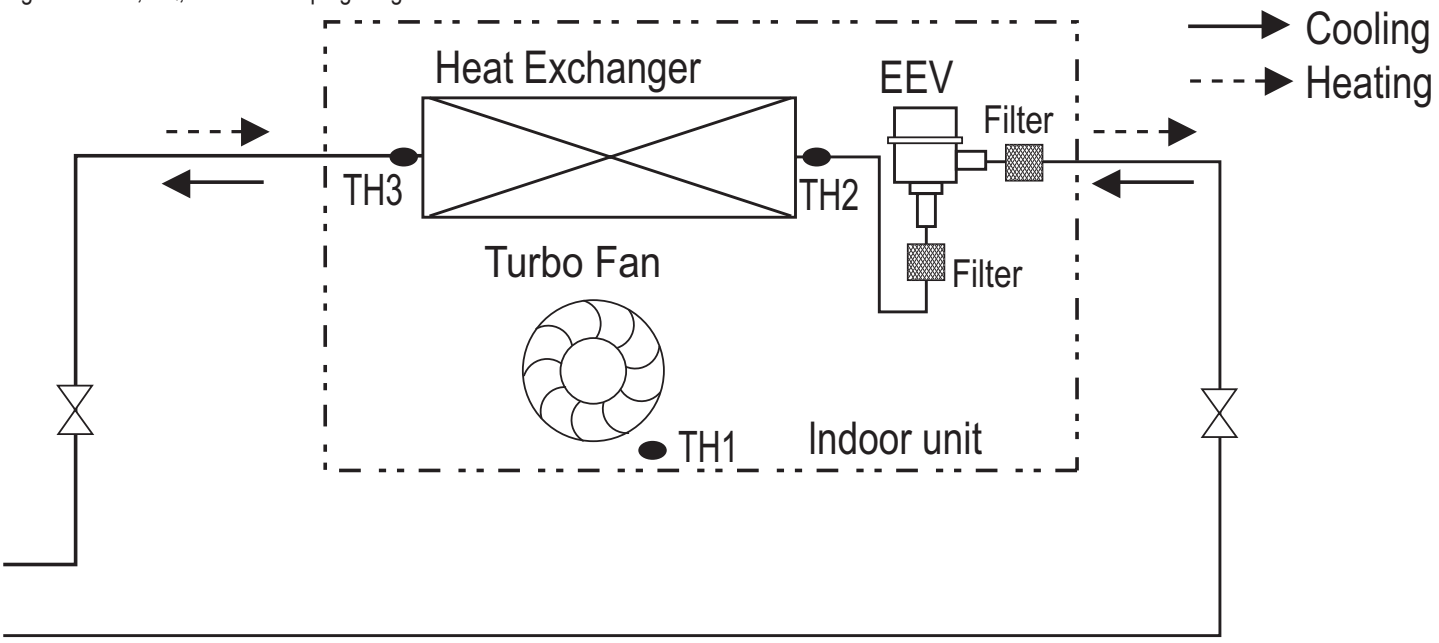


Table 32: TR, TQ, TA Frame Refrigerant Pipe Connection Port Diameters.

Model	Liquid (inch)	Vapor (inch)
2′ x 2′ Frames		
ARNU053TRD4	1/4 Flare	1/2 Flare
ARNU073TRD4		
ARNU093TRD4		
ARNU123TRD4		
ARNU153TQD4		
ARNU183TQD4		
3′ x 3′ Frames		
ARNU073TAA4	3/8 Flare	5/8 Flare
ARNU093TAA4		
ARNU123TAA4		
ARNU153TAA4		
ARNU183TAA4		
ARNU243TAA4		
ARNU283TAA4		
ARNU363TAA4		
ARNU423TAA4		
ARNU483TAA4		

Table 33: TR, TQ, TA Frame Thermistors.

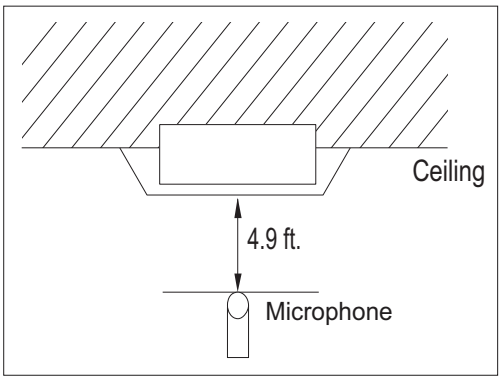
Thermistor	Description
TH1	Return air thermistor
TH2	Pipe in thermistor
TH3	Pipe out thermistor

FOUR-WAY CEILING CASSETTE

Acoustic Data

Sound Pressure Levels

Figure 36: Sound Pressure Measurement Location.



- Measurements are taken 4.9 ft away from the front of the unit.
- Sound pressure levels are measured in dB(A) with a tolerance of ±3.
- Sound pressure levels are tested in an anechoic chamber under ISO Standard 3745.

Operating Conditions:

- Power source: 220V/60 Hz
- Sound level will vary depending on a range of factors including the construction (acoustic absorption coefficient) of a particular room in which the unit was installed.

Table 34: 2' x 2' Four-Way Ceiling Cassette Indoor Unit Sound Pressure Levels.

Model	Sound Pressure Levels dB(A)		
	High Fan Speed	Medium Fan Speed	Low Fan Speed
ARNU053TRD4	29.0	27.0	26.0
ARNU073TRD4	29.0	27.0	26.0
ARNU093TRD4	30.0	29.0	27.0
ARNU123TRD4	32.0	30.0	27.0
ARNU153TQD4	36.0	34.0	32.0
ARNU183TQD4	37.0	35.0	34.0

Table 35: 3' x 3' Four-Way Ceiling Cassette Indoor Unit Sound Pressure Levels.

Model	Sound Pressure Levels dB(A)			
	High Fan Speed	Medium Fan Speed	Low Fan Speed	Low-Low Fan Speed
ARNU073TAA4	30.0	27.5	24.0	22.0
ARNU093TAA4	31.0	28.0	24.0	22.0
ARNU123TAA4	31.5	29.0	25.0	23.0
ARNU153TAA4	32.0	29.5	26.5	24.0
ARNU183TAA4	33.0	30.0	27.5	25.0
ARNU243TAA4	36.5	33.5	31.0	28.0
ARNU283TAA4	37.5	35.0	31.5	29.0
ARNU363TAA4	40.0	37.0	33.0	30.0
ARNU423TAA4	43.5	40.0	37.0	34.0
ARNU483TAA4	45.0	41.0	39.0	37.0

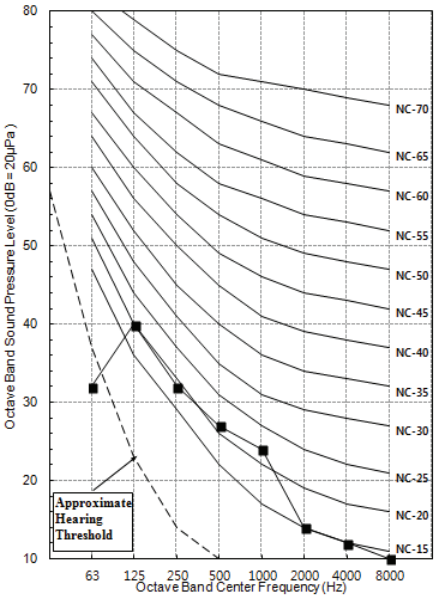
FOUR-WAY CEILING CASSETTE

Acoustic Data

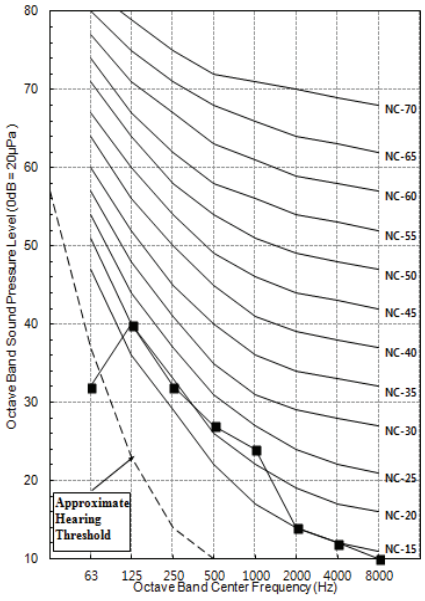
Sound Pressure Levels

Figure 37: ARNU053TRD4, ARNU073TRD4, and ARNU093TRD4 Sound Pressure Level Diagrams.

ARNU053TRD4



ARNU073TRD4



ARNU093TRD4

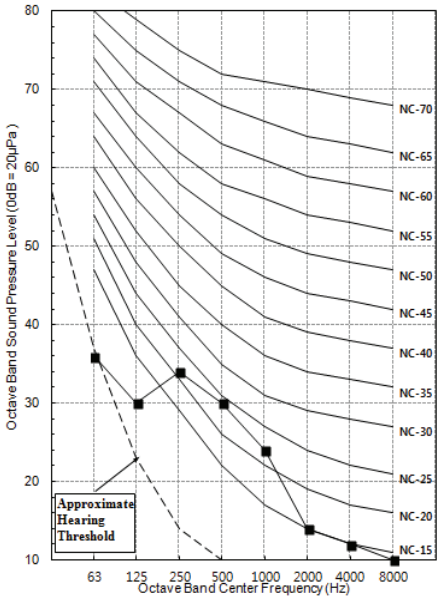
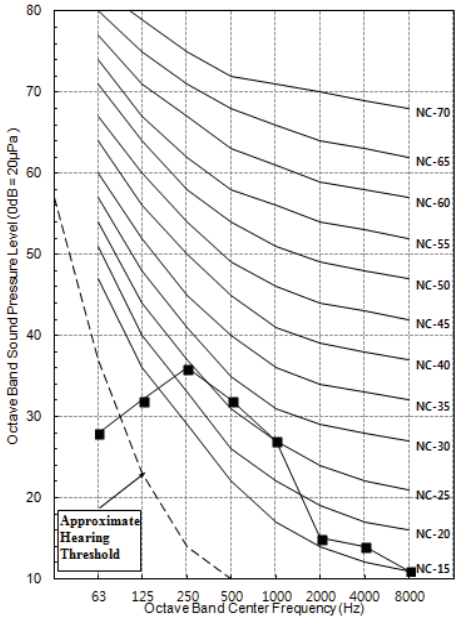
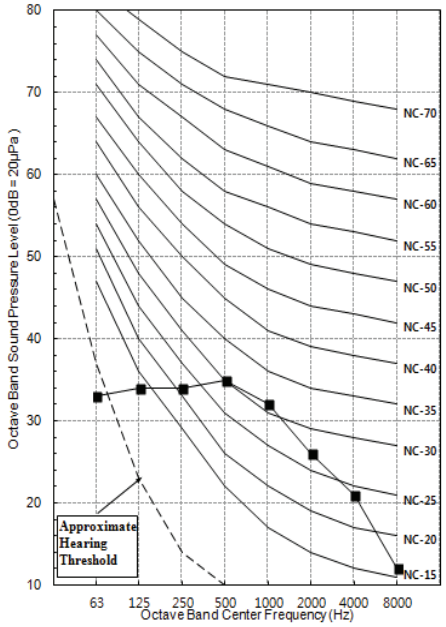


Figure 38: ARNU123TRD4, ARNU153TQD4, and ARNU183TQD4 Sound Pressure Level Diagrams.

ARNU123TRD4



ARNU153TQD4



ARNU183TQD4

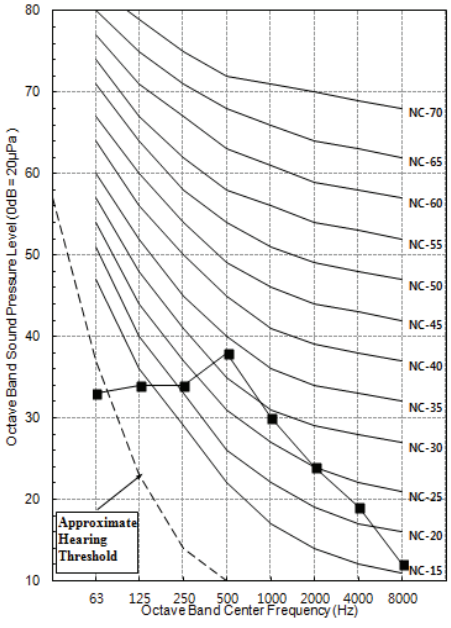
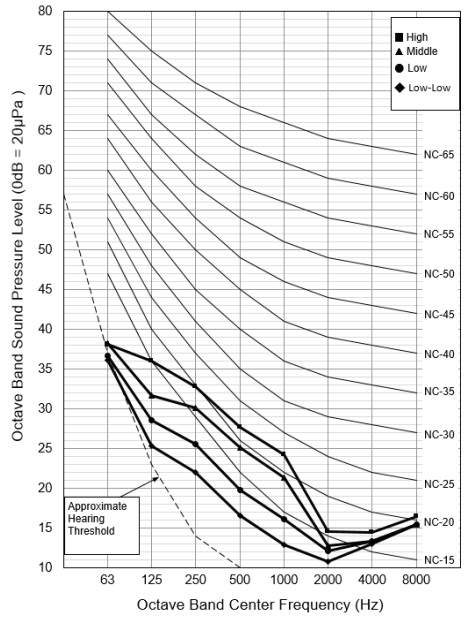
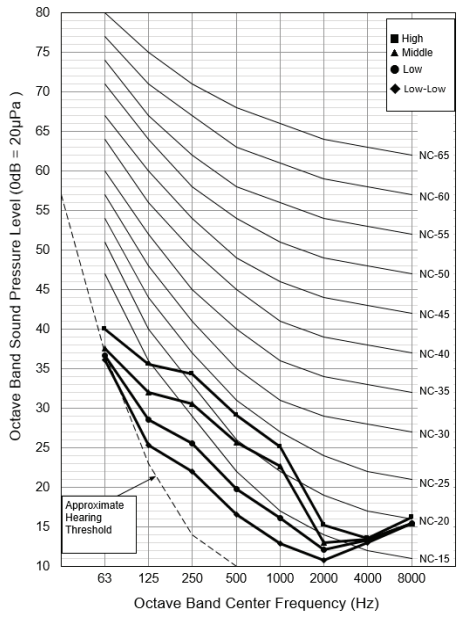


Figure 39: ARNU073TAA4, ARNU093TAA4, and ARNU123TAA4 Sound Pressure Level Diagrams.

ARNU073TAA4



ARNU093TAA4



ARNU123TAA4

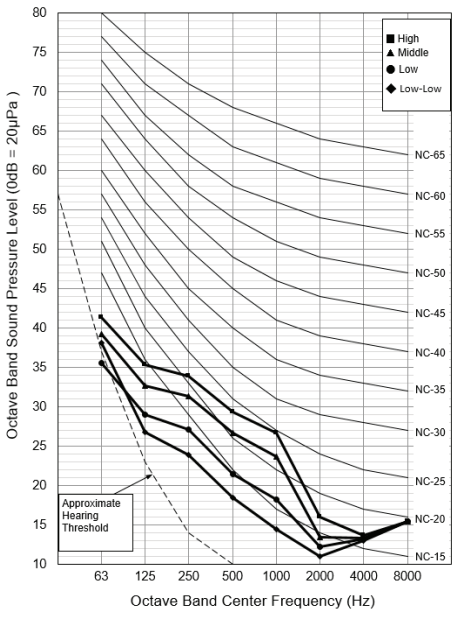
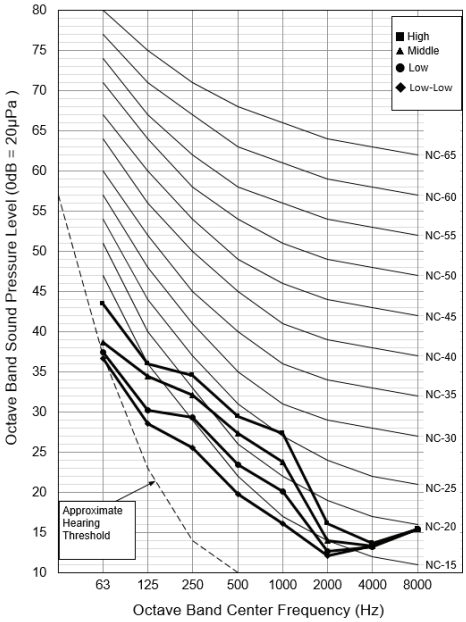
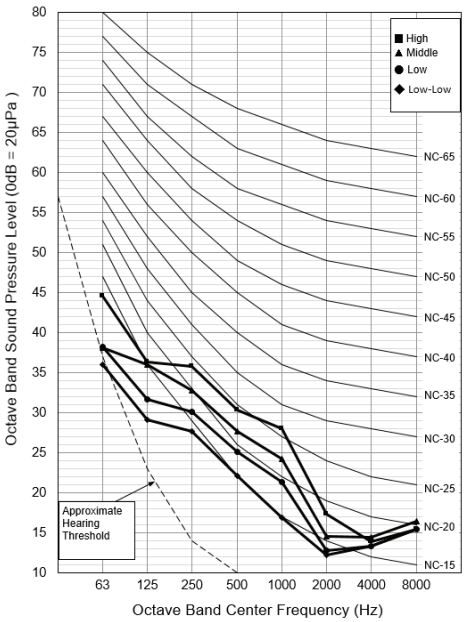


Figure 40: ARNU153TAA4, ARNU183TAA4, and ARNU243TAA4 Sound Pressure Level Diagrams.

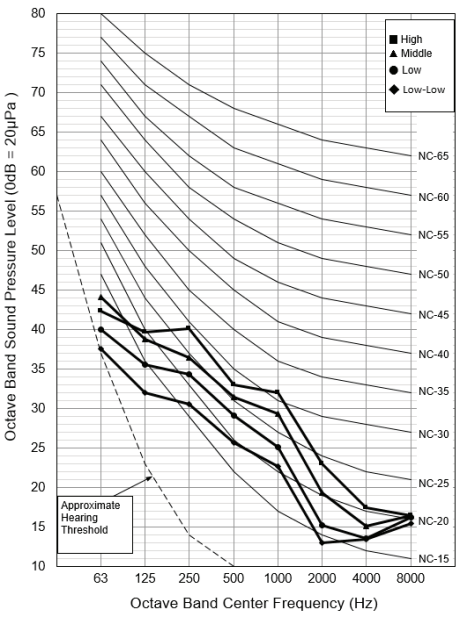
ARNU153TAA4



ARNU183TAA4



ARNU243TAA4



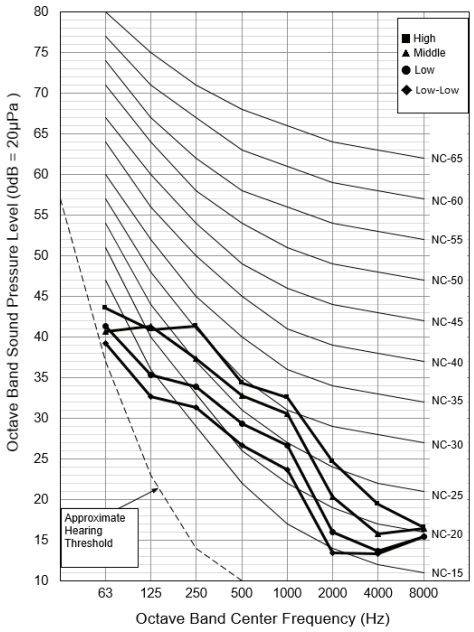
FOUR-WAY CEILING CASSETTE

Acoustic Data

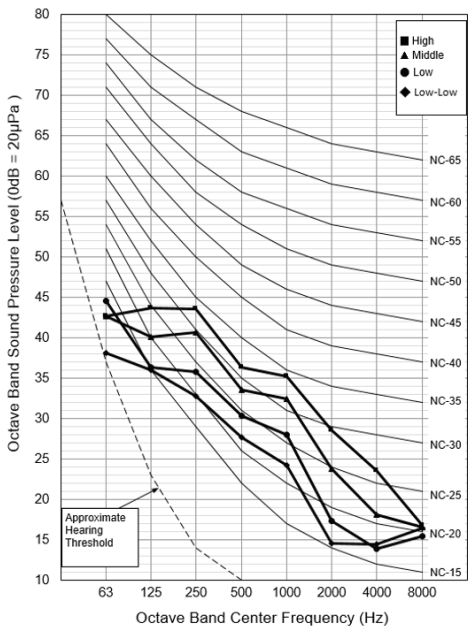
Sound Pressure Levels

Figure 41: ARNU283TAA4, ARNU363TAA4, and ARNU423TAA4 Sound Pressure Level Diagrams.

ARNU283TAA4



ARNU363TAA4



ARNU423TAA4

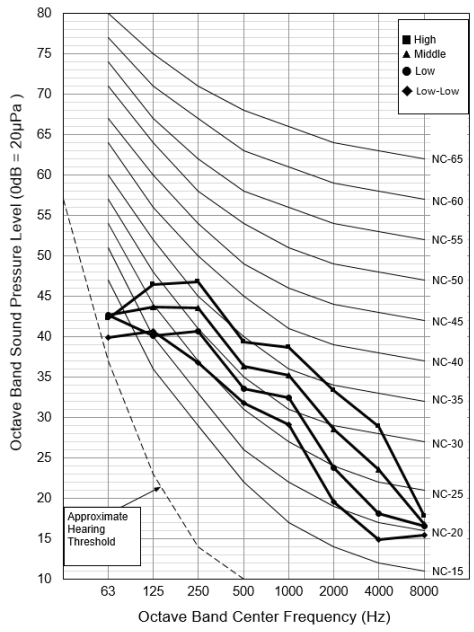


Figure 42: ARNU483TAA4 Sound Pressure Level Diagram.

ARNU483TAA4

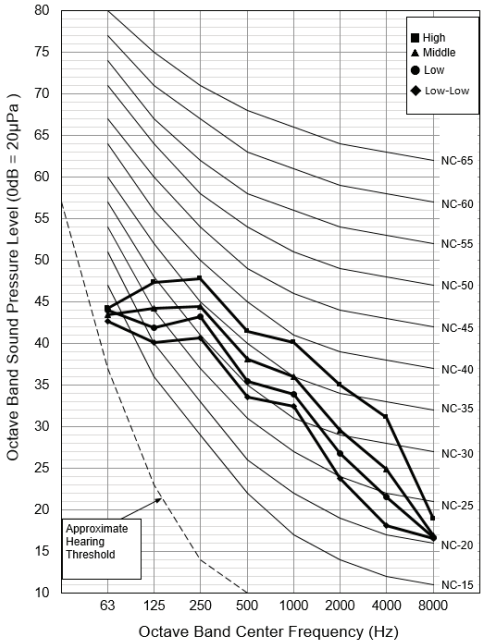


Table 36: 2' x 2' Four-Way Ceiling Cassette Indoor Unit Sound Power Levels.

Model	Sound Power Levels dB(A)
	High Fan Speed
ARNU053TRD4	46.0
ARNU073TRD4	46.0
ARNU093TRD4	47.0
ARNU123TRD4	48.0
ARNU153TQD4	51.0
ARNU183TQD4	52.0

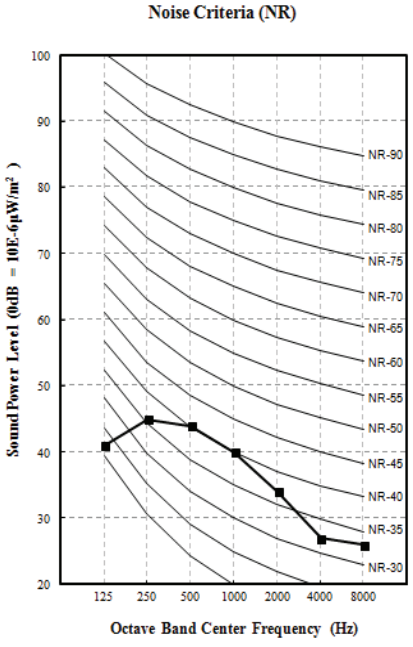
- Data is valid under diffuse field conditions.
- Data is valid under nominal operating conditions.
- Sound power level is measured using rated conditions and tested in a reverberation chamber under ISO Standard 3741.
- Sound level will vary depending on a range of factors such as construction (acoustic absorption coefficient) of particular area in which the equipment is installed.
- Reference acoustic intensity: 0dB = 10E-6μW/m^2

Table 37: 3' x 3' Four-Way Ceiling Cassette Indoor Unit Sound Power Levels.

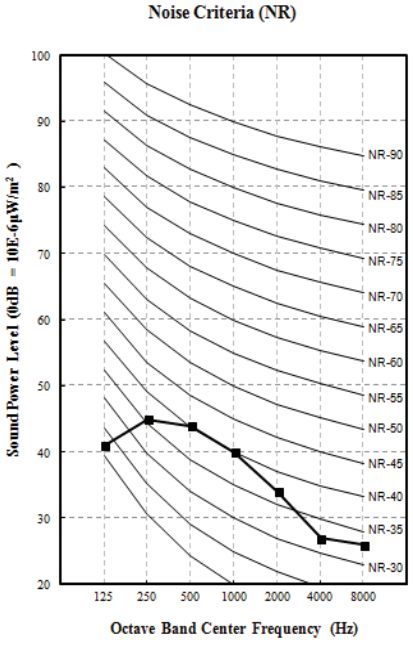
Model	Sound Power Levels dB(A)		
	High Fan Speed	Medium Fan Speed	Low Fan Speed
ARNU073TAA4	41.0	38.0	36.0
ARNU093TAA4	42.0	39.0	36.0
ARNU123TAA4	42.0	40.0	37.0
ARNU153TAA4	43.0	40.0	38.0
ARNU183TAA4	44.0	41.0	38.0
ARNU243TAA4	47.0	45.0	42.0
ARNU283TAA4	48.0	46.0	42.0
ARNU363TAA4	51.0	48.0	44.0
ARNU423TAA4	54.0	51.0	48.0
ARNU483TAA4	56.0	52.0	50.0

Figure 43: ARNU053TRD4, ARNU073TRD4, and ARNU093TRD4 Sound Power Level Diagrams.

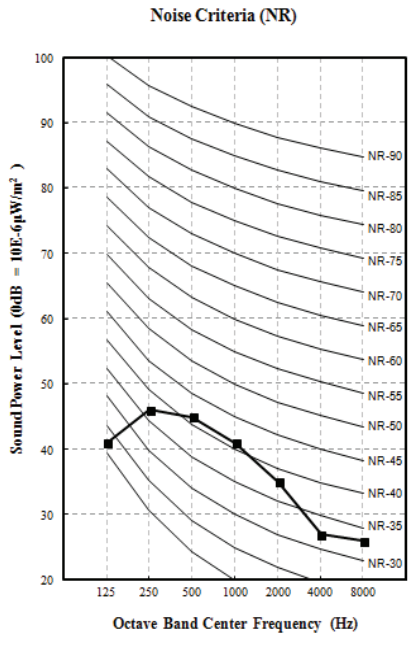
ARNU053TRD4



ARNU073TRD4



ARNU093TRD4



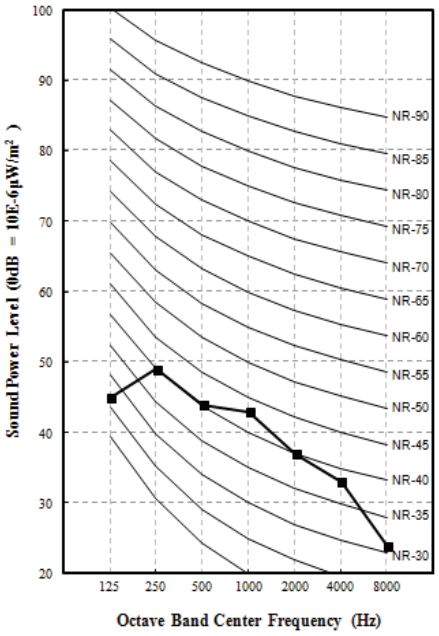
FOUR-WAY CEILING CASSETTE

Acoustic Data

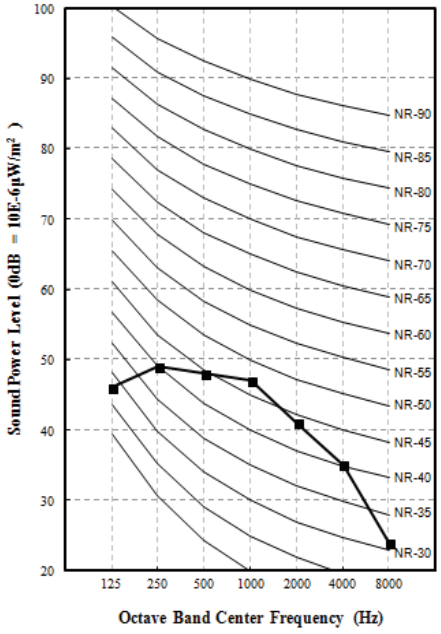
Sound Power Levels

Figure 44: ARNU123TRD4, ARNU153TQD4, and ARNU183TQD4 Sound Power Level Diagrams.

ARNU123TRD4



ARNU153TQD4



ARNU183TQD4

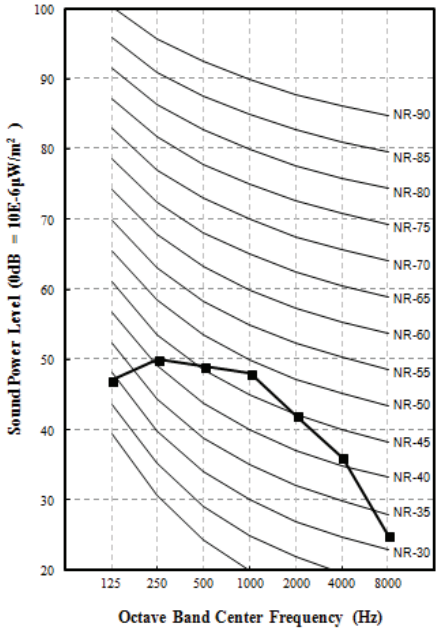
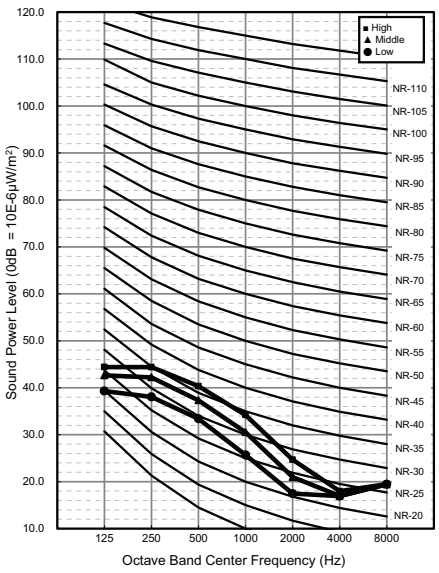
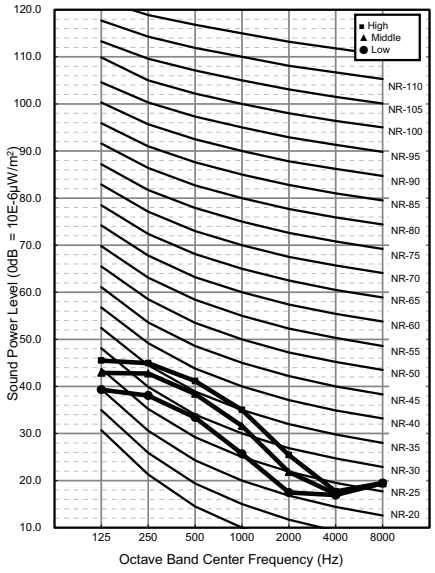


Figure 45: ARNU073TAA4, ARNU093TAA4, and ARNU123TAA4 Sound Power Level Diagrams.

ARNU073TAA4



ARNU093TAA4



ARNU123TAA4

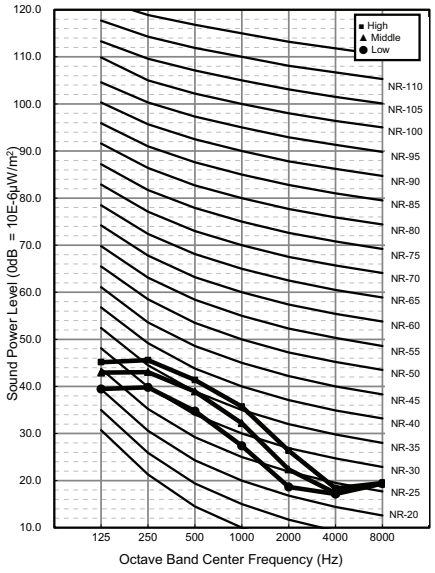
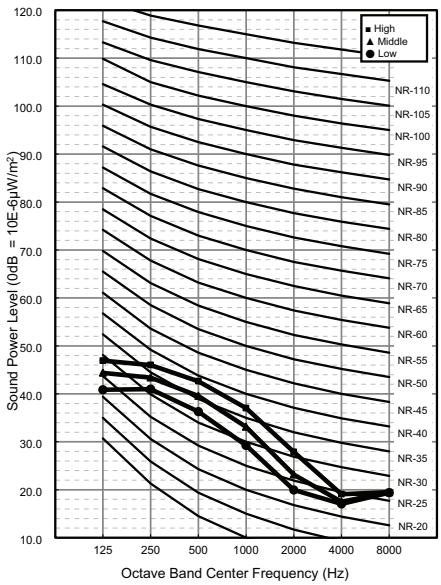
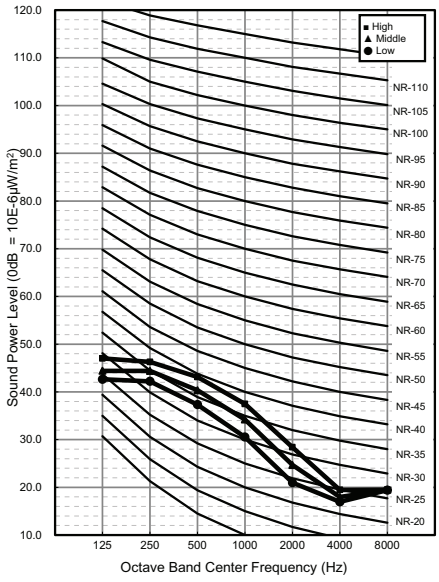


Figure 46: ARNU153TAA4, ARNU183TAA4, and ARNU243TAA4 Sound Power Level Diagrams.

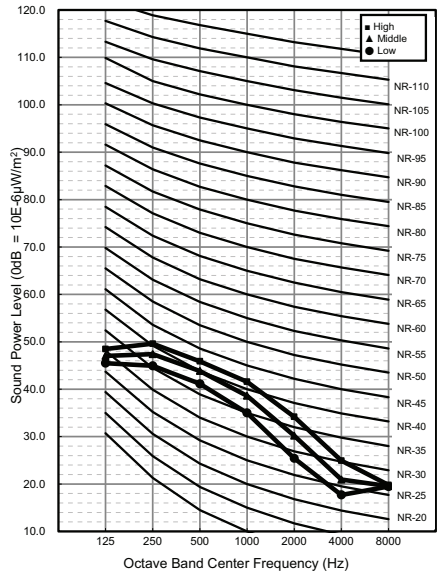
ARNU153TAA4



ARNU183TAA4



ARNU243TAA4



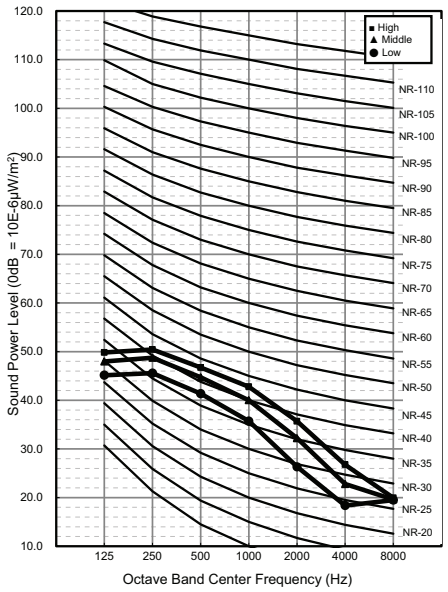
FOUR-WAY CEILING CASSETTE

Acoustic Data

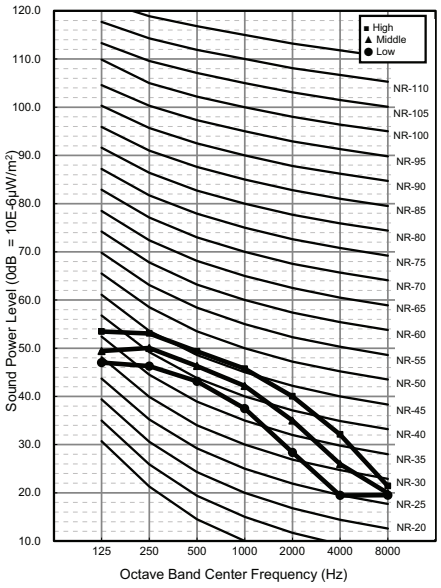
Sound Power Levels

Figure 47: ARNU283TAA4, ARNU36TAA4, and ARNU423TAA4 Sound Power Level Diagram.

ARNU283TAA4



ARNU363TAA4



ARNU423TAA4

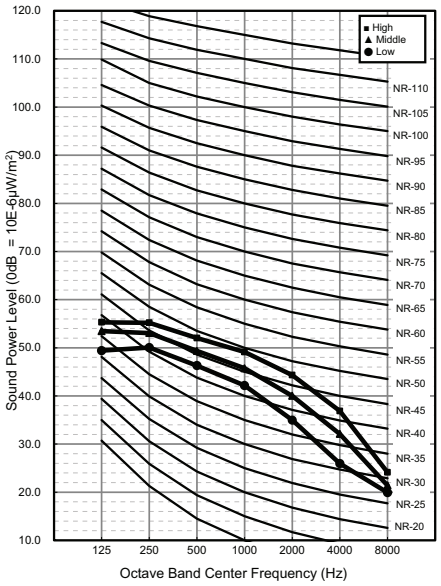


Figure 48: ARNU423TAA4 Sound Power Level Diagram.

ARNU483TAA4

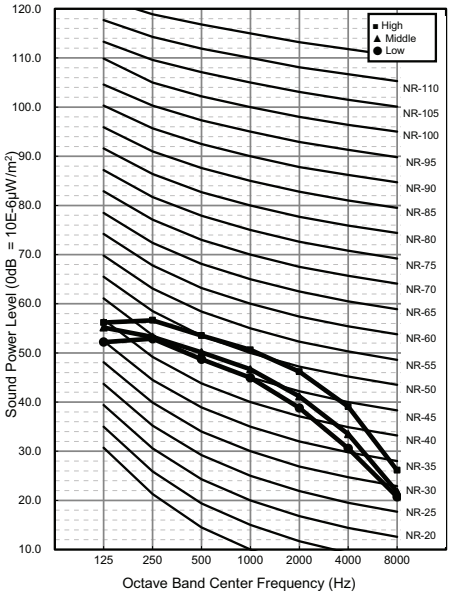
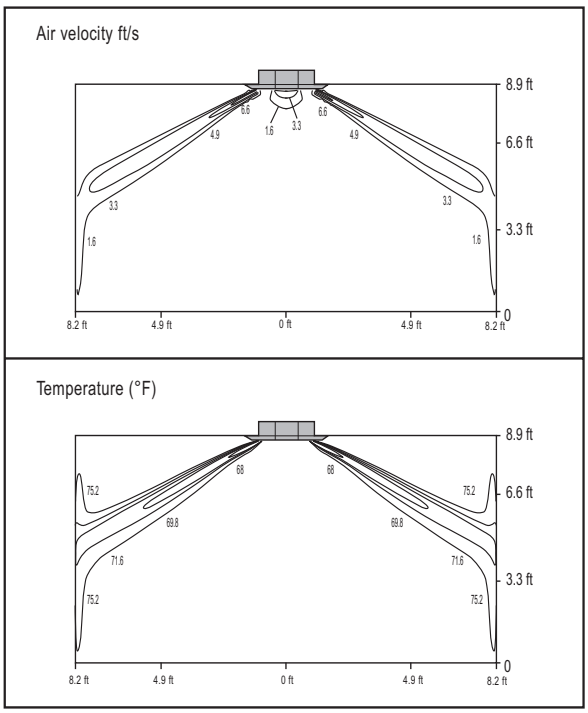


Figure 49: ARNU053TRD4.

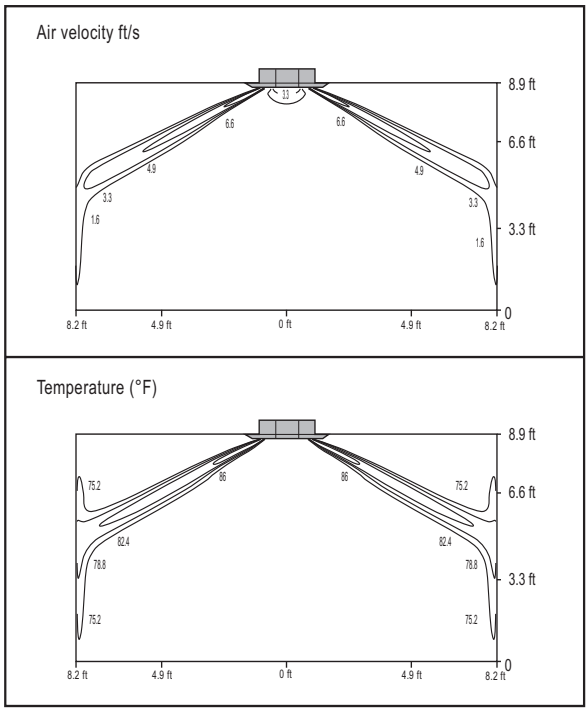
Cooling

Discharge angle: 20°



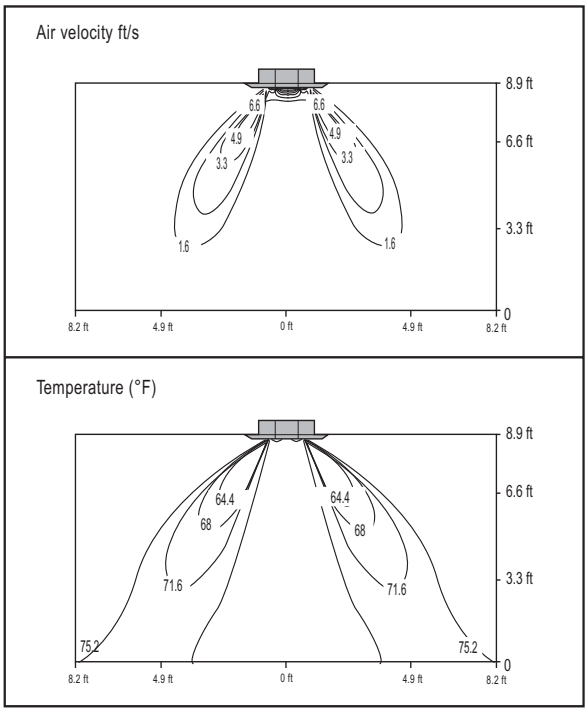
Heating

Discharge angle: 20°



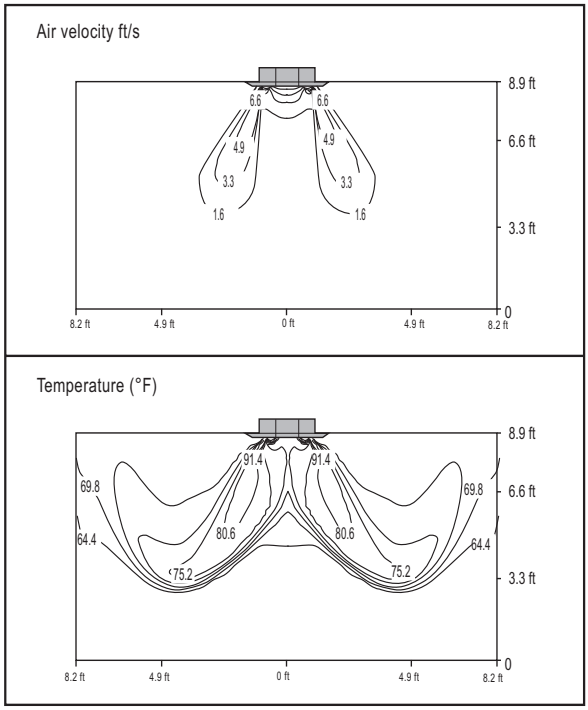
Cooling

Discharge angle: 40°



Heating

Discharge angle: 50°



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

FOUR-WAY CEILING CASSETTE

Air Velocity / Temperature Distribution

ARNU053TRD4, ARNU073TRD4

Figure 50: ARNU053TRD4, continued.

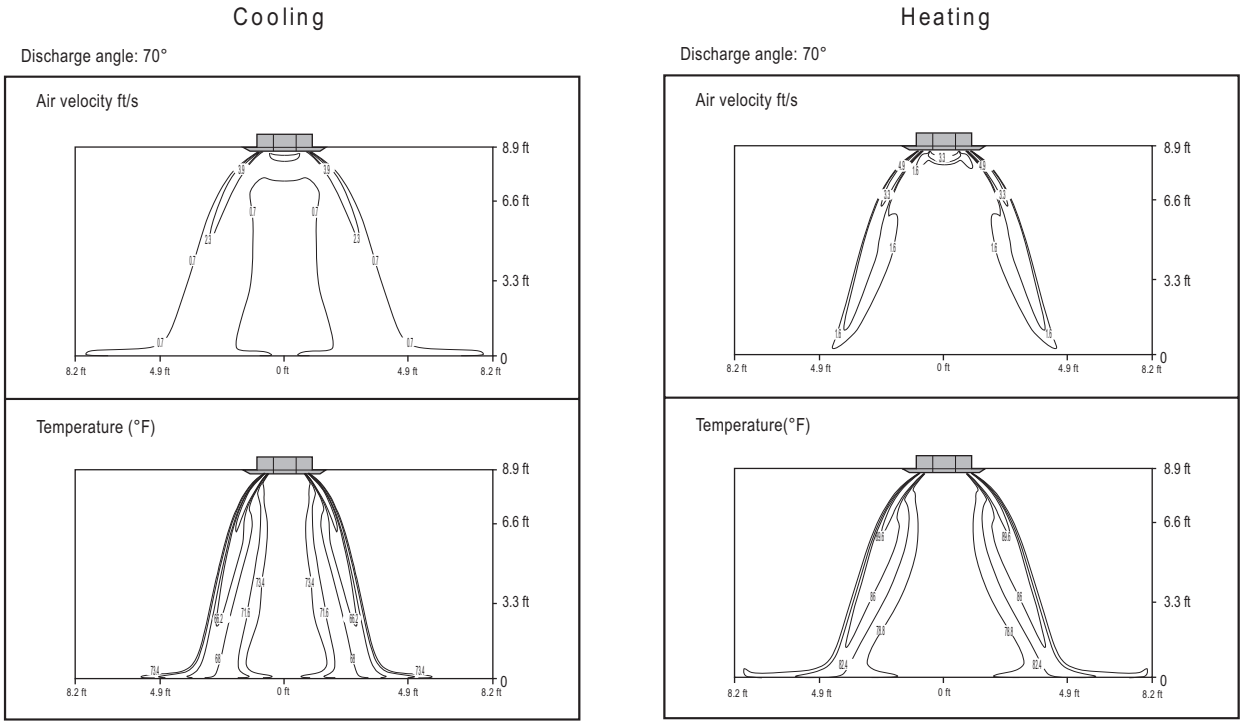
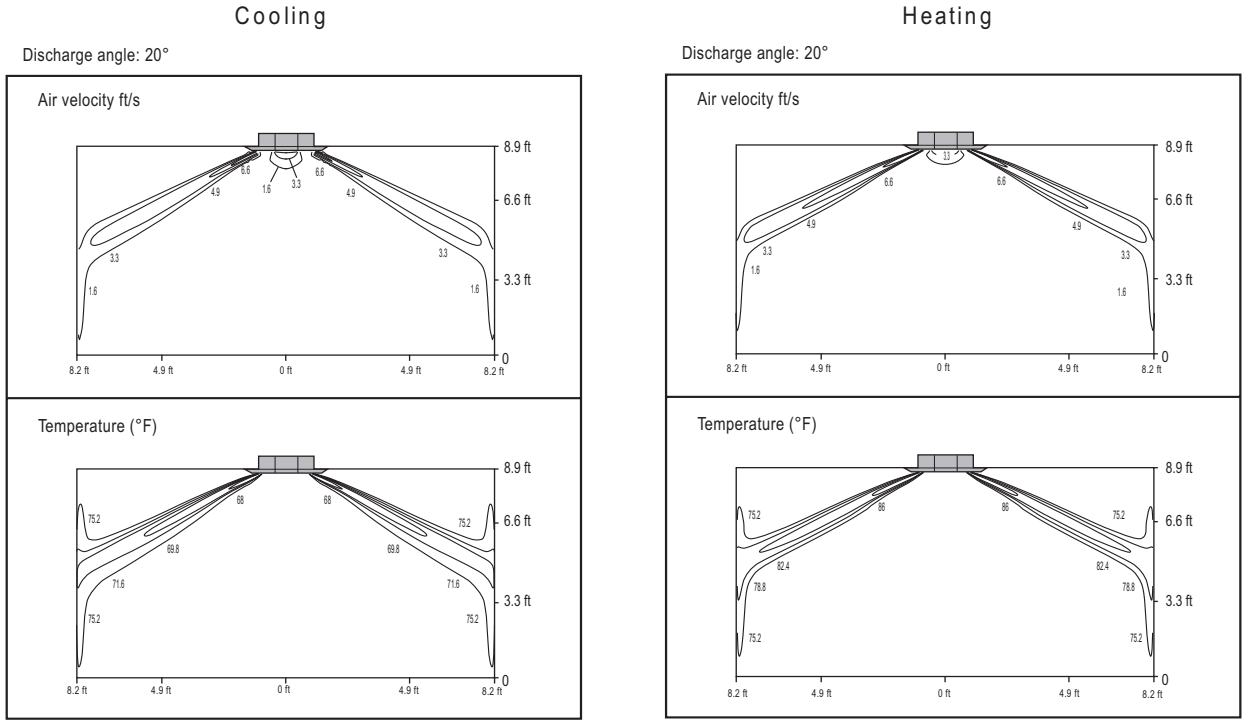


Figure 51: ARNU073TRD4.



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

FOUR-WAY CEILING CASSETTE

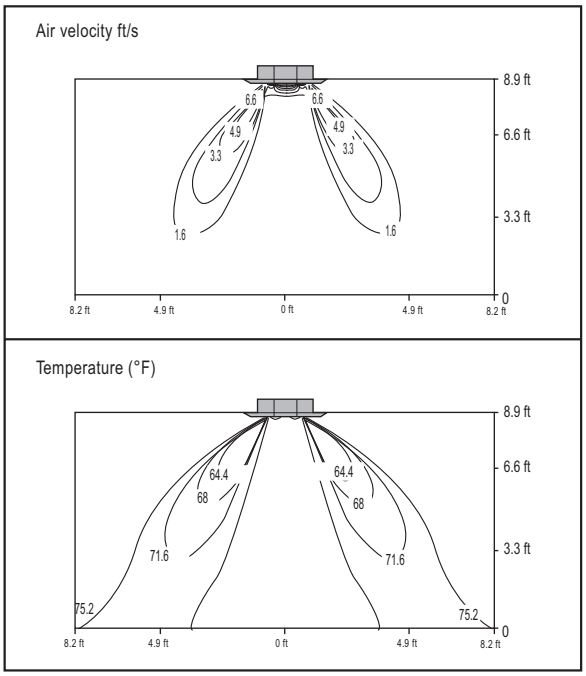
Air Velocity / Temperature Distribution

ARNU073TRD4

Figure 52: ARNU073TRD4, continued.

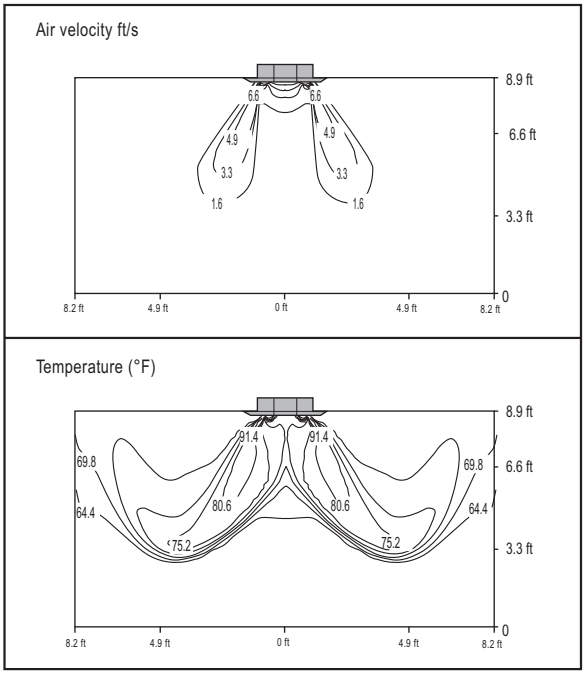
Cooling

Discharge angle: 40°



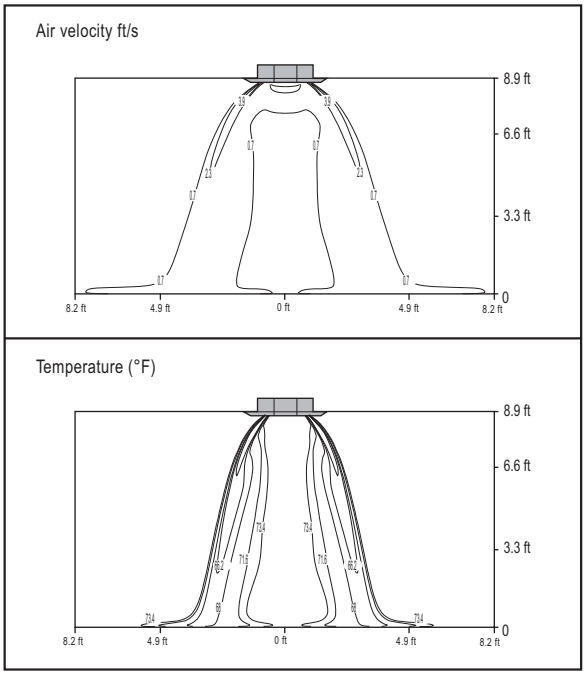
Heating

Discharge angle: 50°



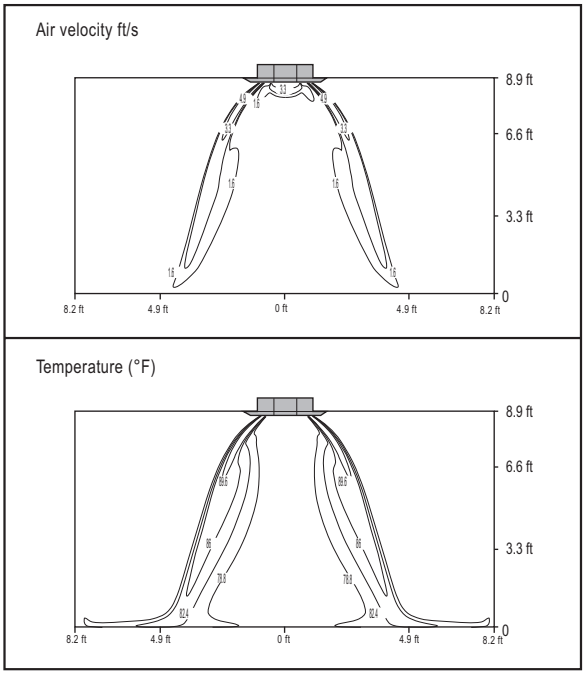
Cooling

Discharge angle: 70°



Heating

Discharge angle: 70°



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

FOUR-WAY CEILING CASSETTE

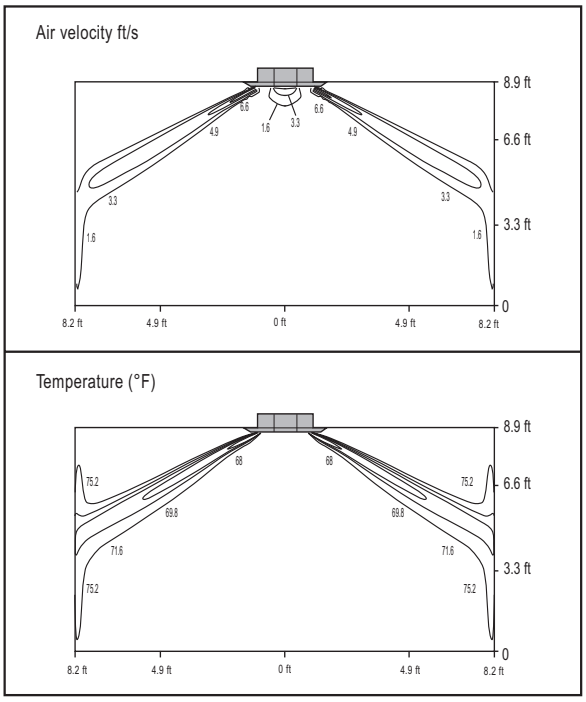
Air Velocity / Temperature Distribution

ARNU093TRD4

Figure 53: ARNU093TRD4.

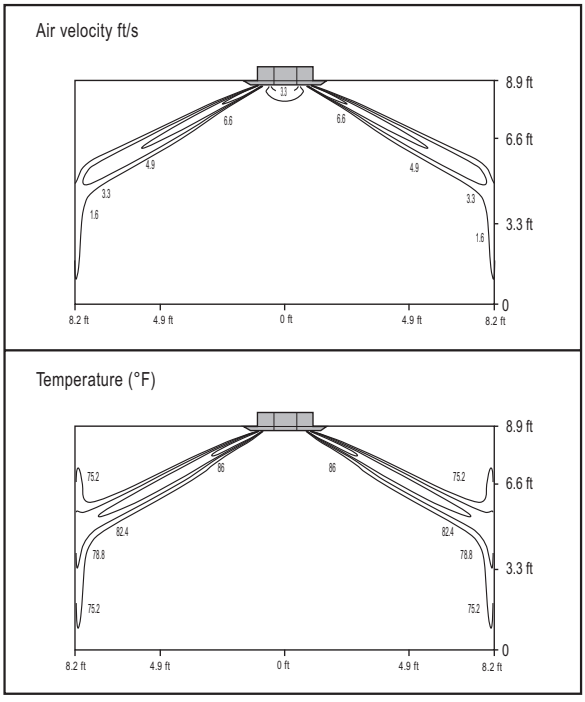
Cooling

Discharge angle: 20°



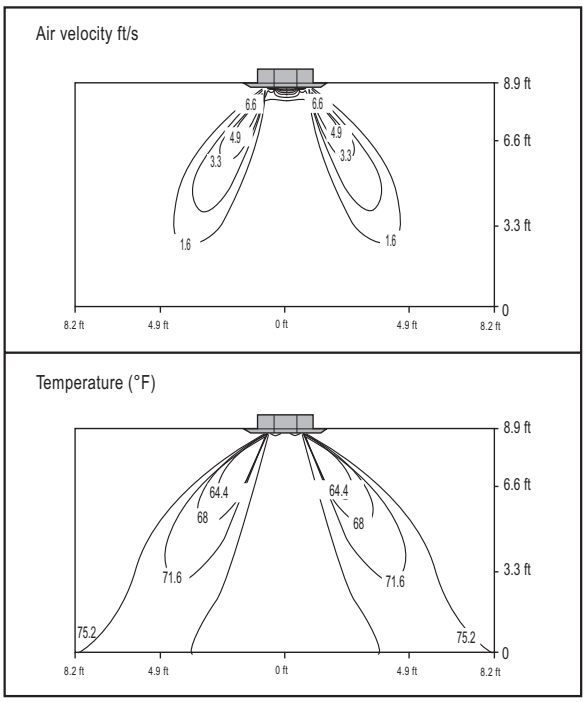
Heating

Discharge angle: 20°



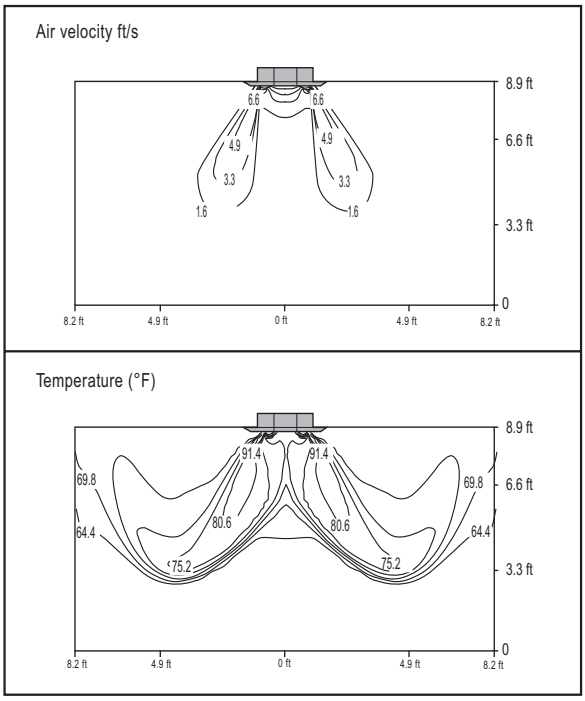
Cooling

Discharge angle: 40°



Heating

Discharge angle: 50°

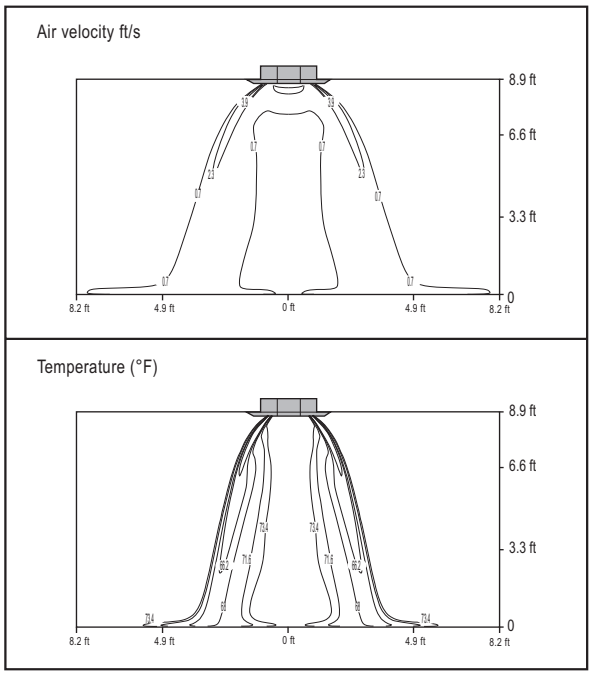


The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

Figure 54: ARNU093TRD4, continued.

Cooling

Discharge angle: 70°



Heating

Discharge angle: 70°

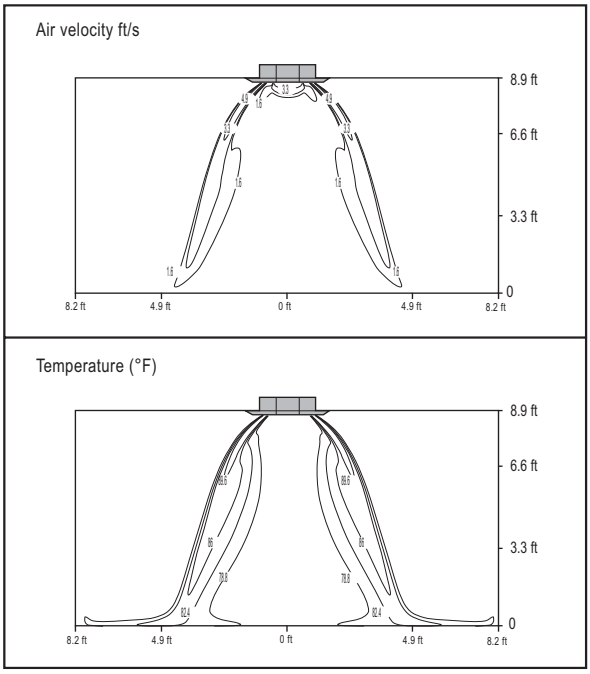
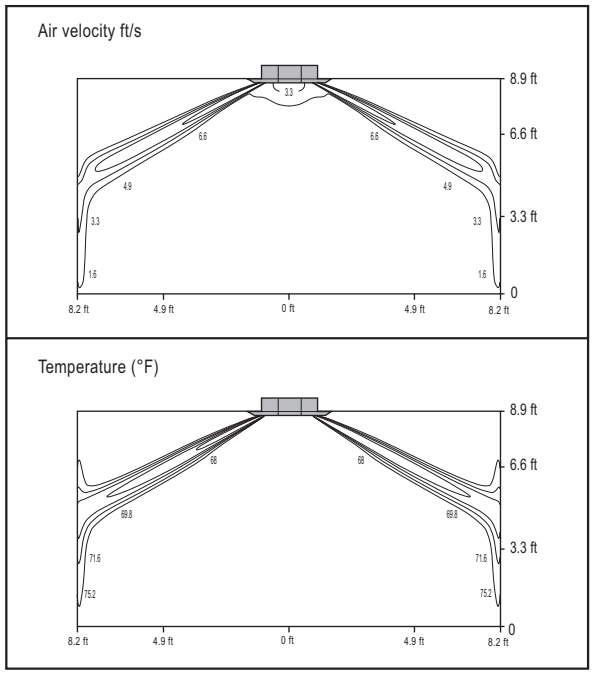


Figure 55: ARNU123TRD4.

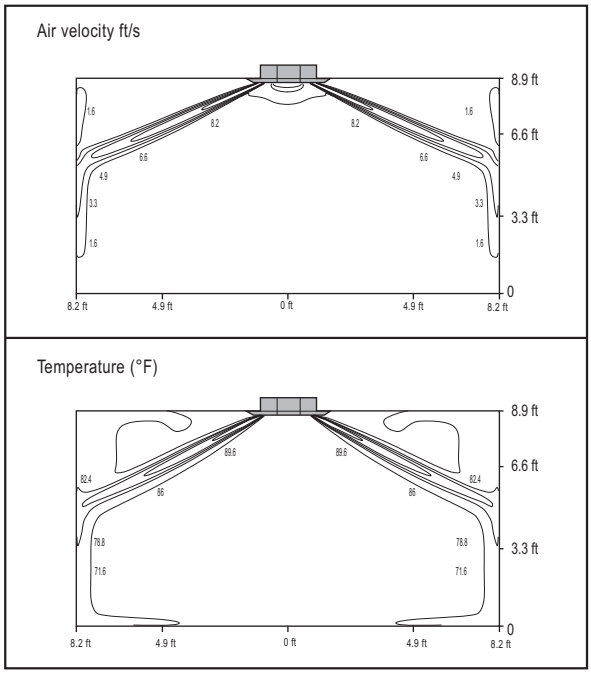
Cooling

Discharge angle: 20°



Heating

Discharge angle: 20°



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

FOUR-WAY CEILING CASSETTE

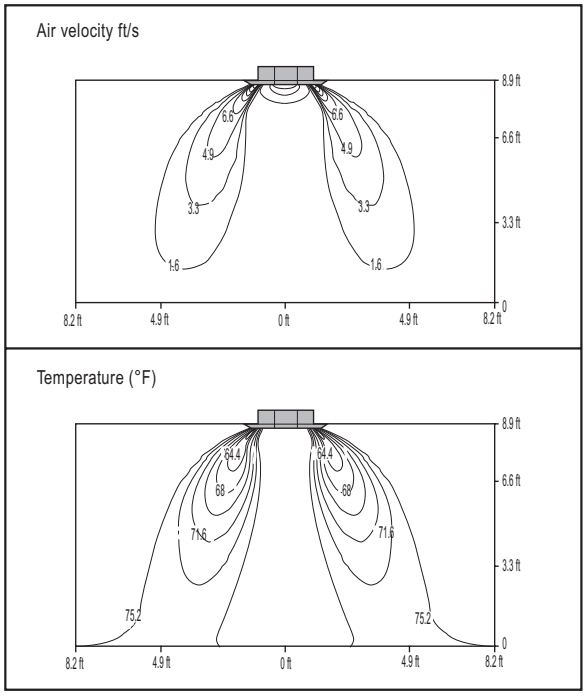
Air Velocity / Temperature Distribution

ARNU123TRD4

Figure 56: ARNU123TRD4, continued.

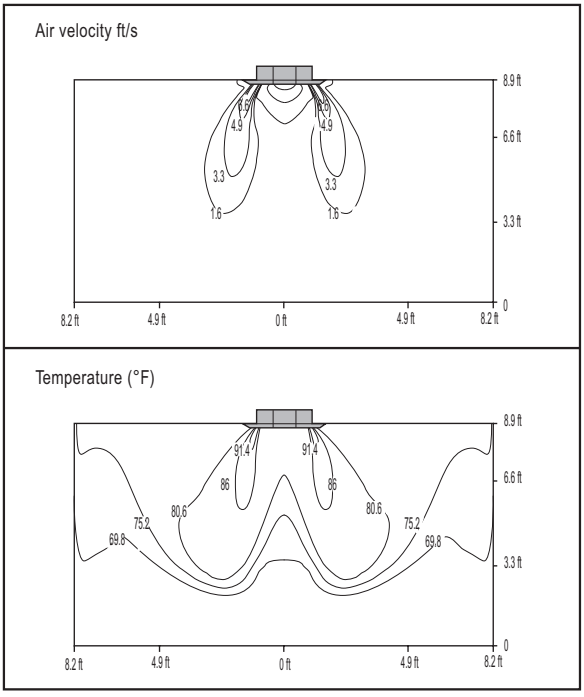
Cooling

Discharge angle: 40°



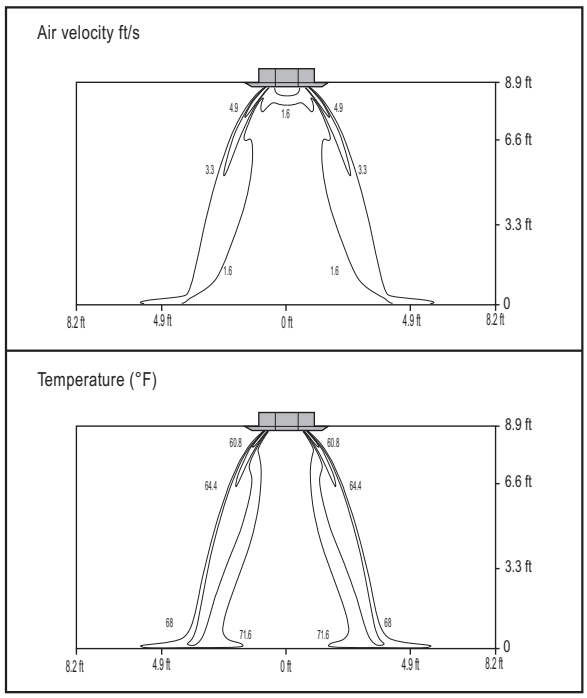
Heating

Discharge angle: 50°



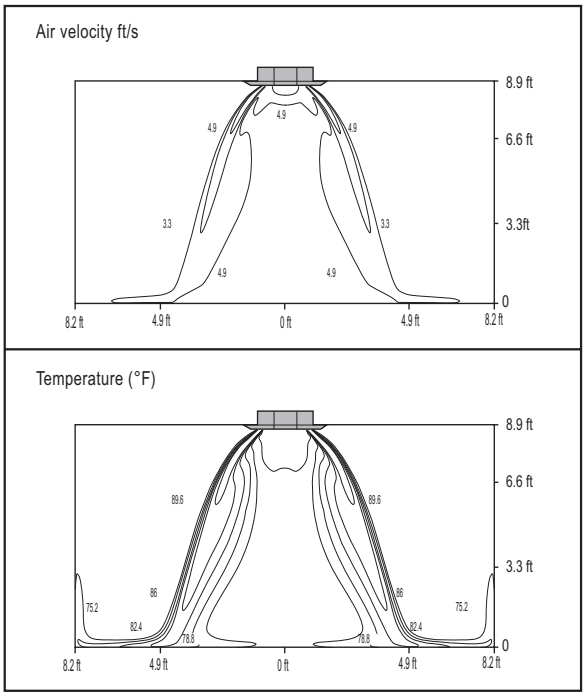
Cooling

Discharge angle: 70°



Heating

Discharge angle: 70°



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

FOUR-WAY CEILING CASSETTE

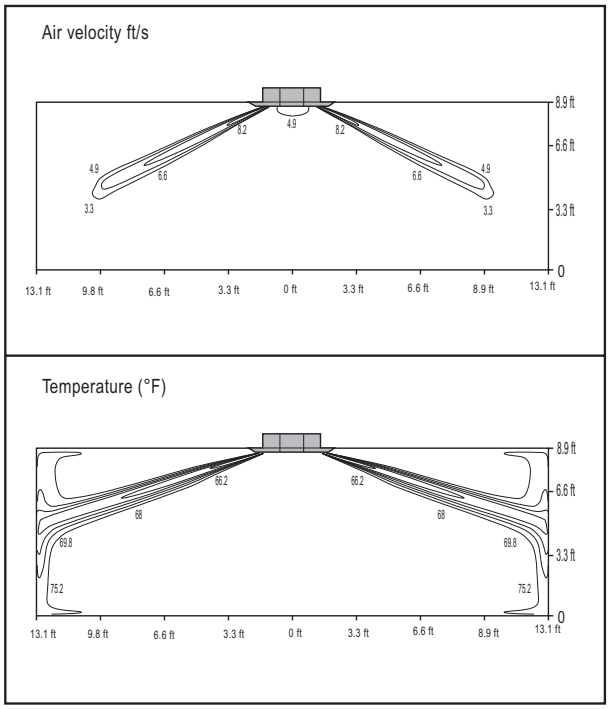
Air Velocity / Temperature Distribution

ARNU153TQD4

Figure 57: ARNU153TQD4.

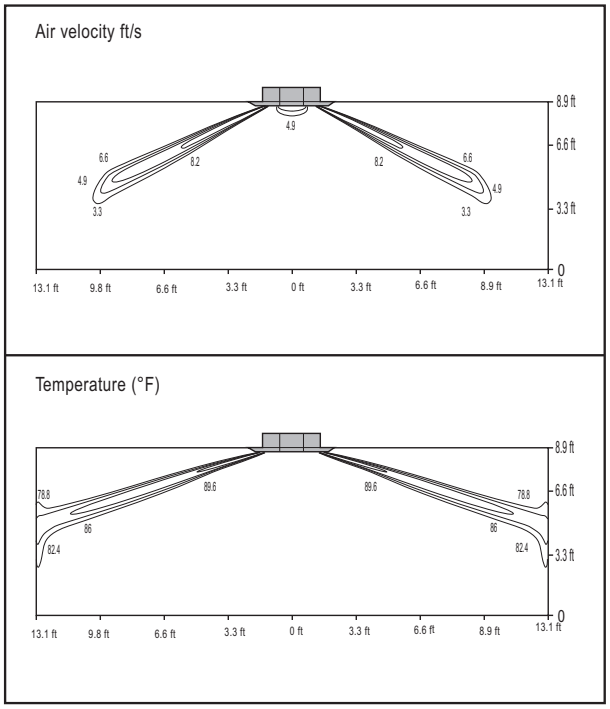
Cooling

Discharge angle: 20°



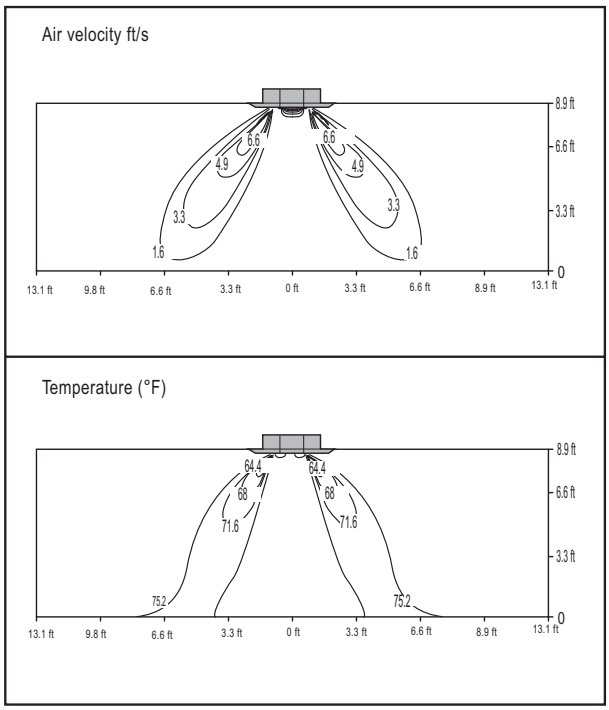
Heating

Discharge angle: 20°



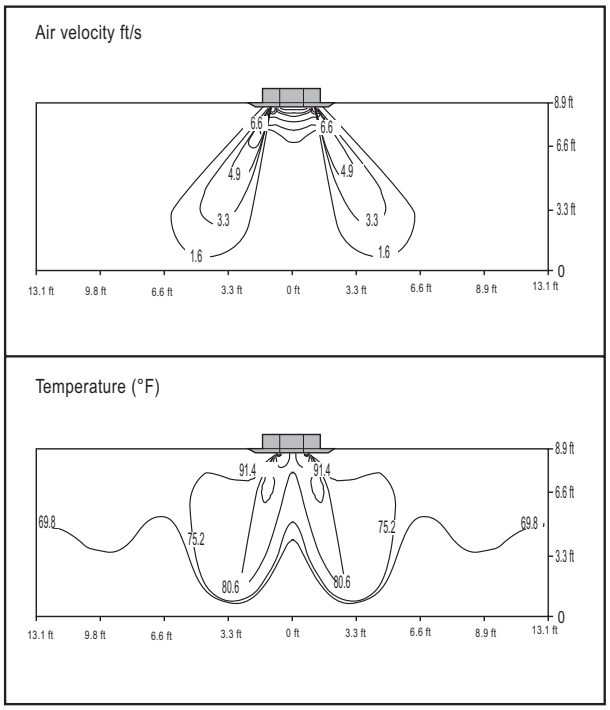
Cooling

Discharge angle: 40°



Heating

Discharge angle: 50°



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

FOUR-WAY CEILING CASSETTE

Air Velocity / Temperature Distribution

ARNU153TQD4, ARNU183TQD4

Figure 58: ARNU153TQD4, continued.

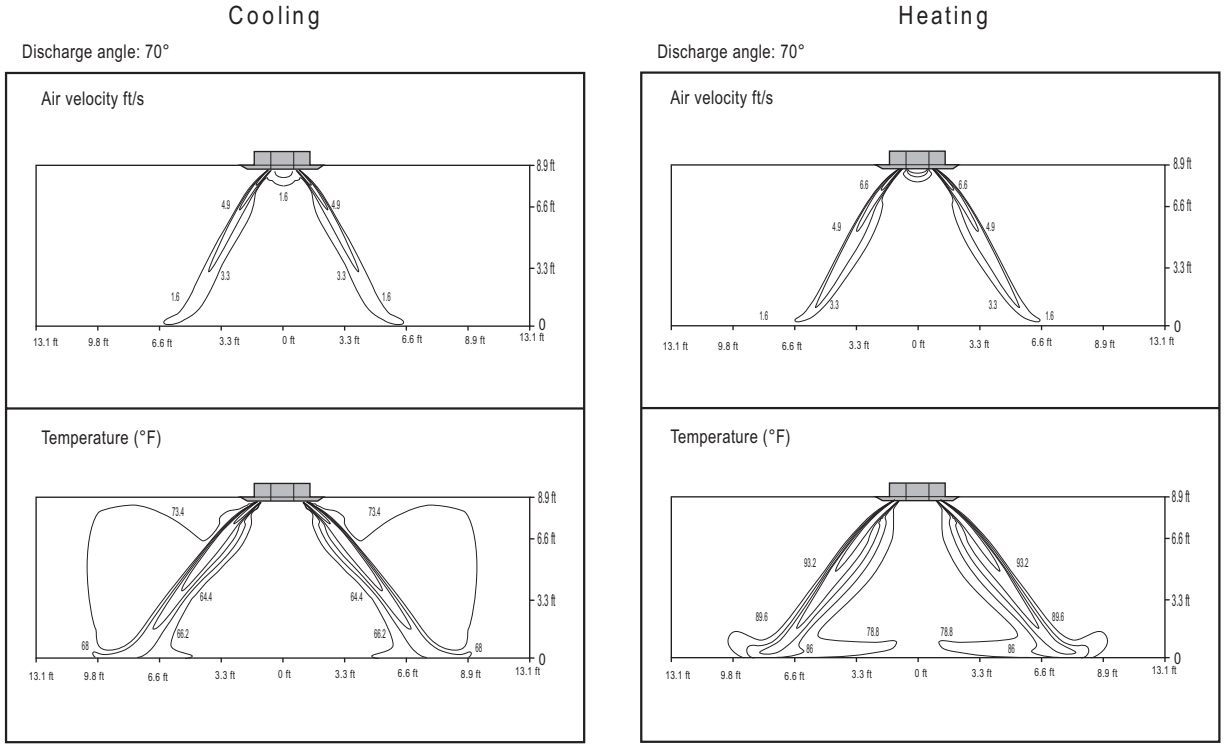
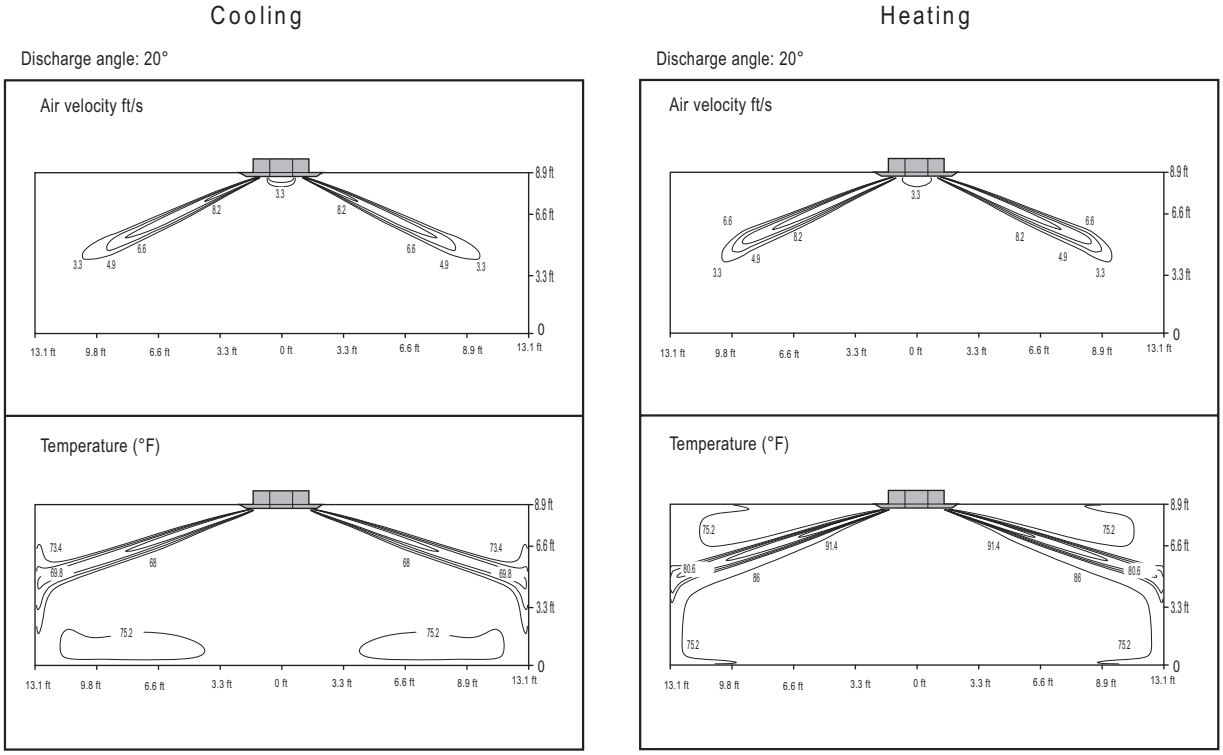


Figure 59: ARNU183TQD4.



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

FOUR-WAY CEILING CASSETTE

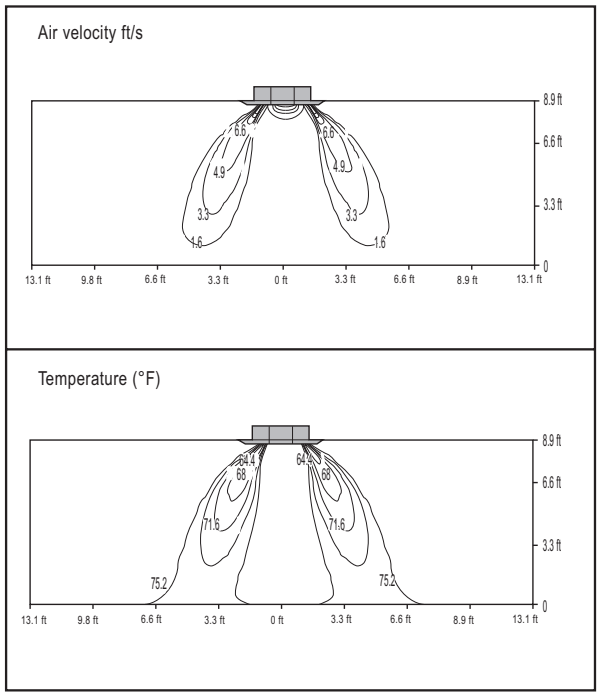
Air Velocity / Temperature Distribution

ARNU183TQD4

Figure 60: ARNU183TQD4, continued.

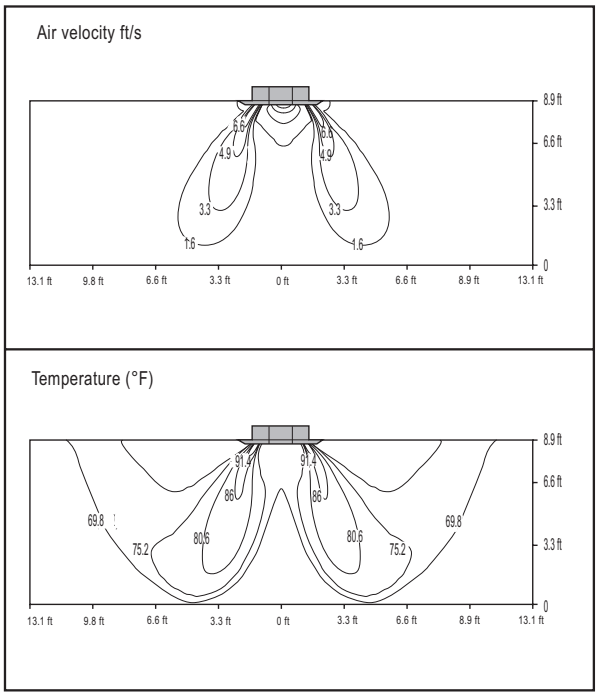
Cooling

Discharge angle: 40°



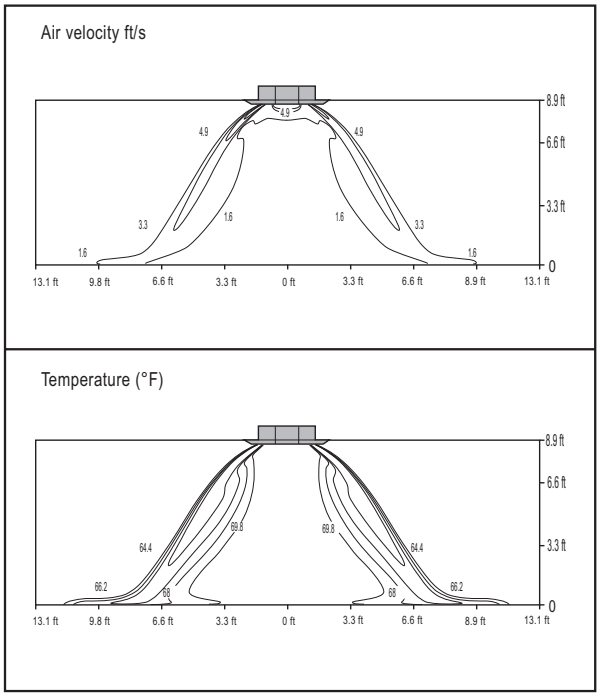
Heating

Discharge angle: 50°



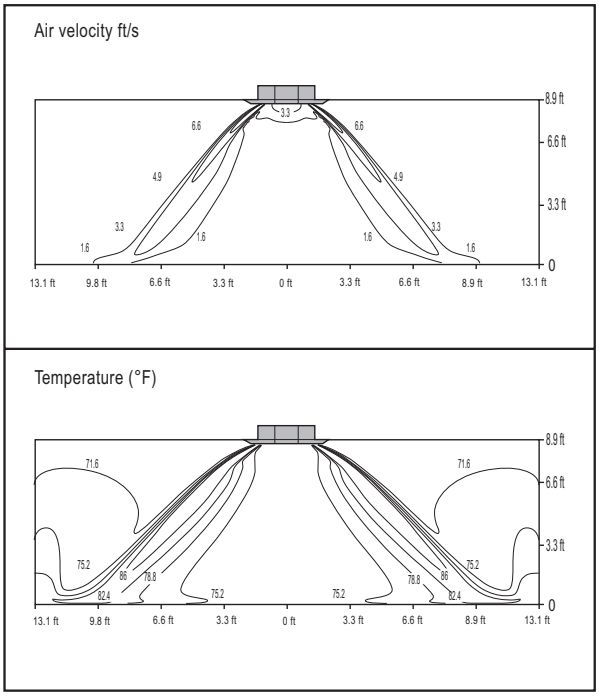
Cooling

Discharge angle: 70°



Heating

Discharge angle: 70°



The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.

FOUR-WAY CEILING CASSETTE

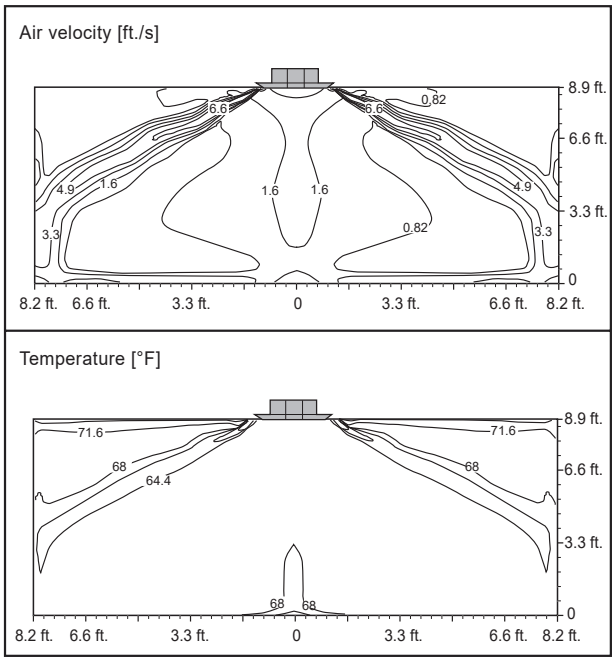
Air Velocity / Temperature Distribution

ARNU073TAA4, ARNU093TAA4

Figure 61: ARNU073TAA4.

Cooling

Discharge angle: Outside - 30°, Inside - 67°



Heating

Discharge angle: Outside - 36°, Inside - 70°

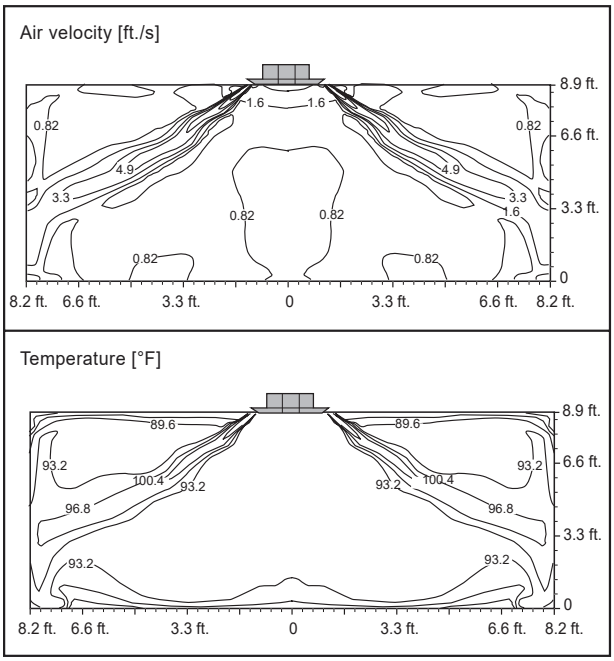
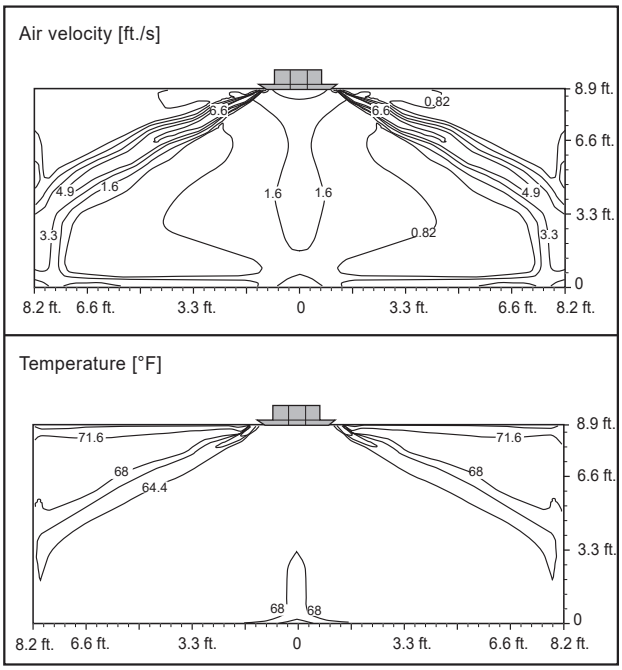


Figure 62: ARNU093TAA4.

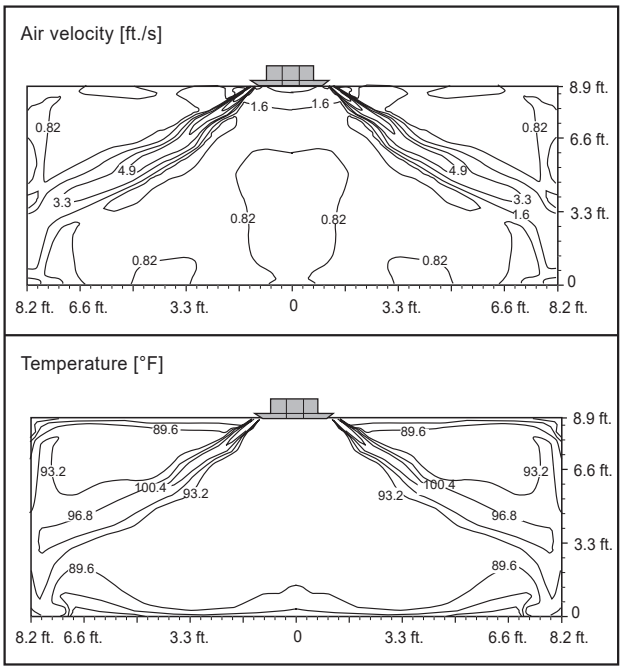
Cooling

Discharge angle: Outside - 30°, Inside - 67°



Heating

Discharge angle: Outside - 36°, Inside - 70°



- The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.
- Airflow step is 'High'. Air discharge angle is fixed as indicated angle.
- Indoor airflow distribution under actual installation or operating conditions depends on ambient temperature, ceiling height, product installation direction / location, and other obstacles, etc.

FOUR-WAY CEILING CASSETTE

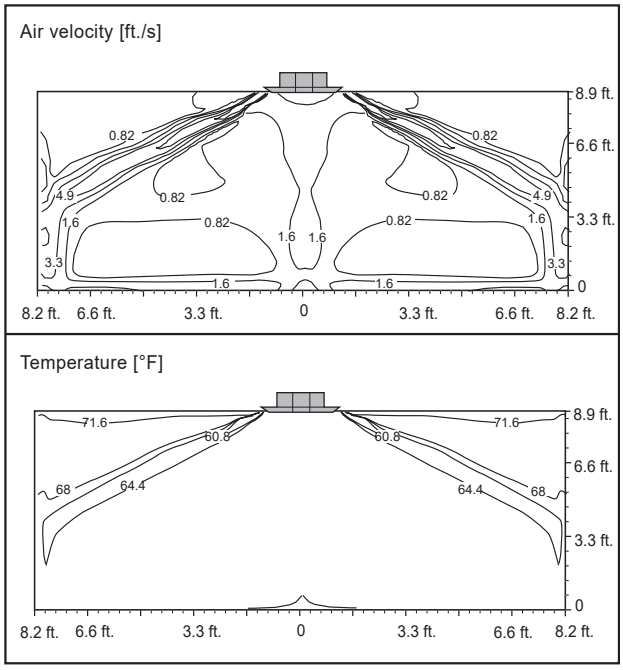
Air Velocity / Temperature Distribution

ARNU123TAA4, ARNU153TAA4

Figure 63: ARNU123TAA4.

Cooling

Discharge angle: Outside - 30°, Inside - 67°



Heating

Discharge angle: Outside - 36°, Inside - 70°

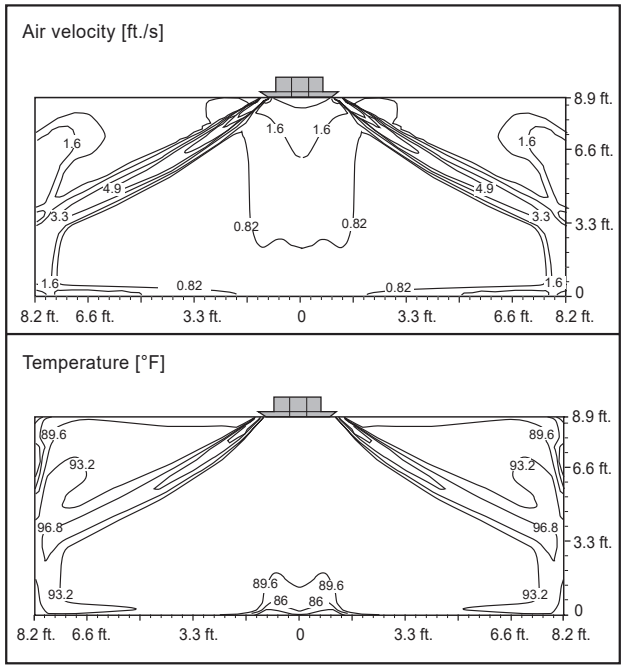
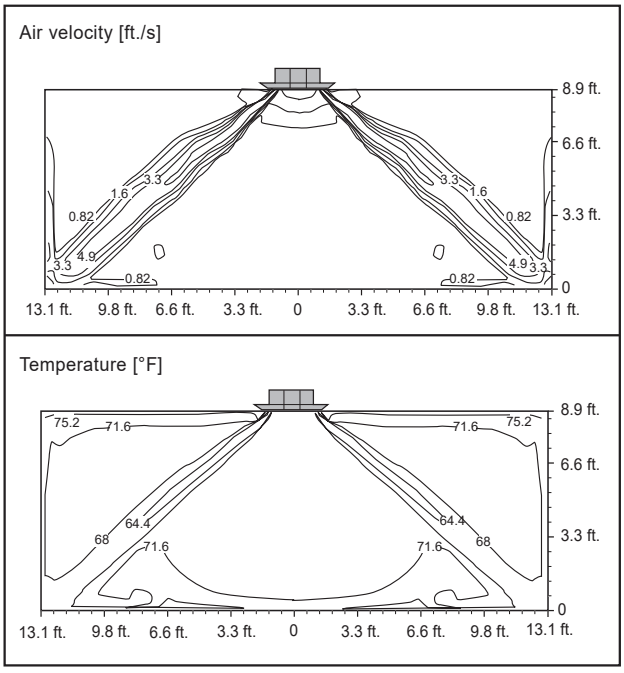


Figure 64: ARNU153TAA4.

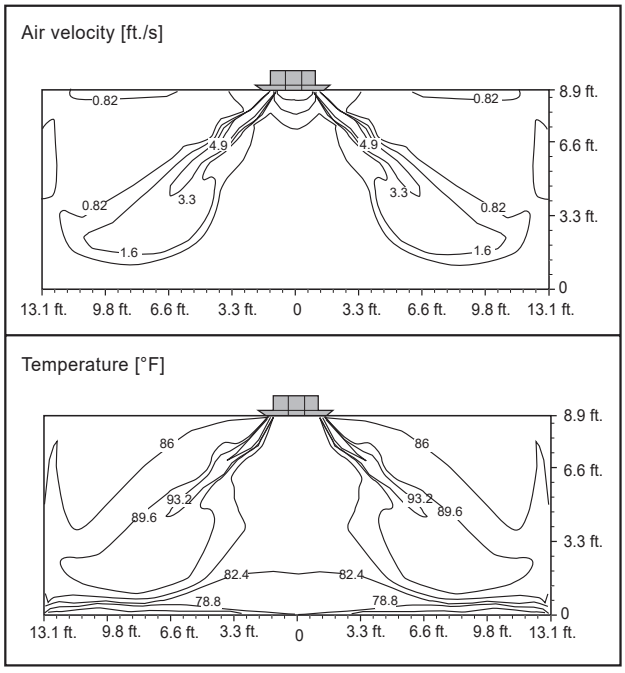
Cooling

Discharge angle: Outside - 30°, Inside - 67°



Heating

Discharge angle: Outside - 36°, Inside - 70°



- The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.
- Airflow step is 'High'. Air discharge angle is fixed as indicated angle.
- Indoor airflow distribution under actual installation or operating conditions depends on ambient temperature, ceiling height, product installation direction / location, and other obstacles, etc.

FOUR-WAY CEILING CASSETTE

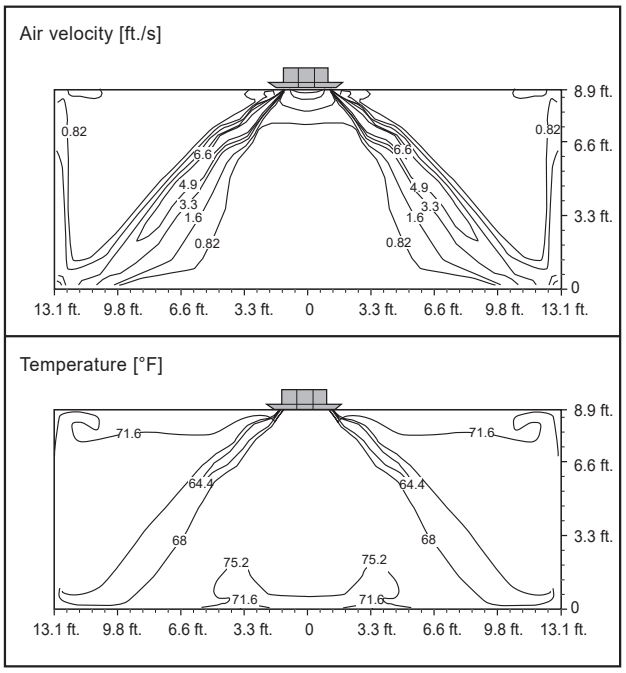
Air Velocity / Temperature Distribution

ARNU183TAA4, ARNU243TAA4

Figure 65: ARNU183TAA4.

Cooling

Discharge angle: Outside - 30°, Inside - 67°



Heating

Discharge angle: Outside - 36°, Inside - 70°

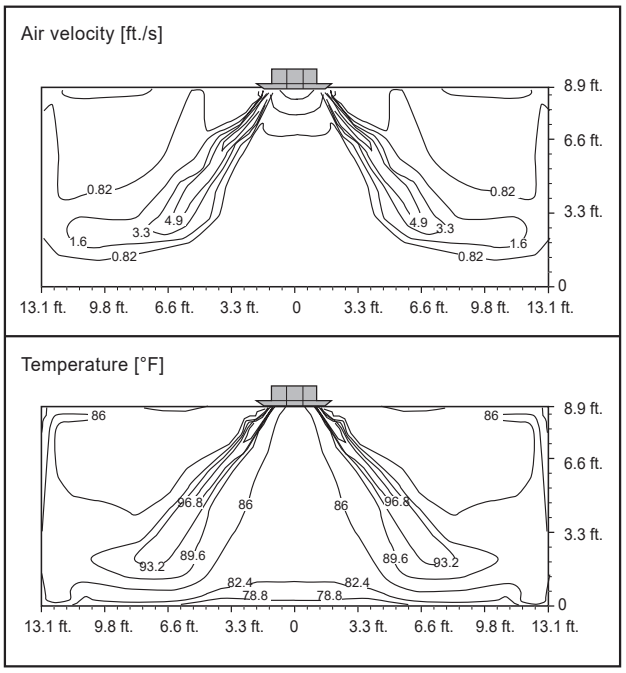
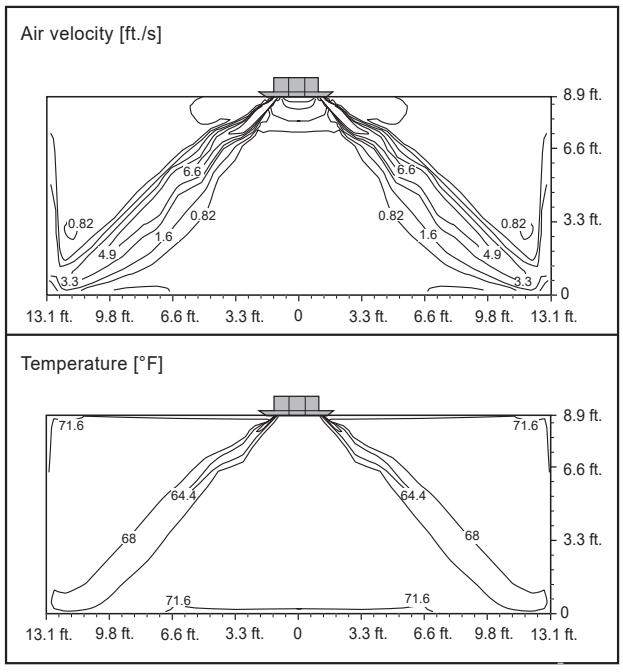


Figure 66: ARNU243TAA4.

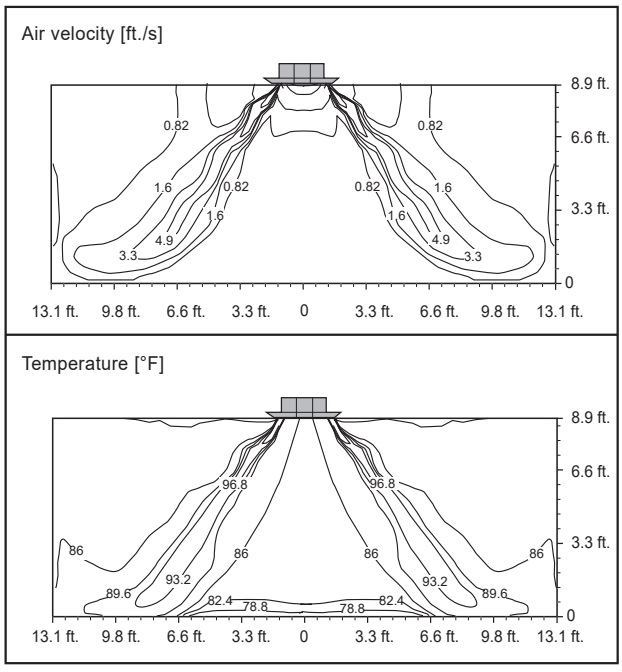
Cooling

Discharge angle: Outside - 30°, Inside - 67°



Heating

Discharge angle: Outside - 36°, Inside - 70°



- The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.
- Airflow step is 'High'. Air discharge angle is fixed as indicated angle.
- Indoor airflow distribution under actual installation or operating conditions depends on ambient temperature, ceiling height, product installation direction / location, and other obstacles, etc.

FOUR-WAY CEILING CASSETTE

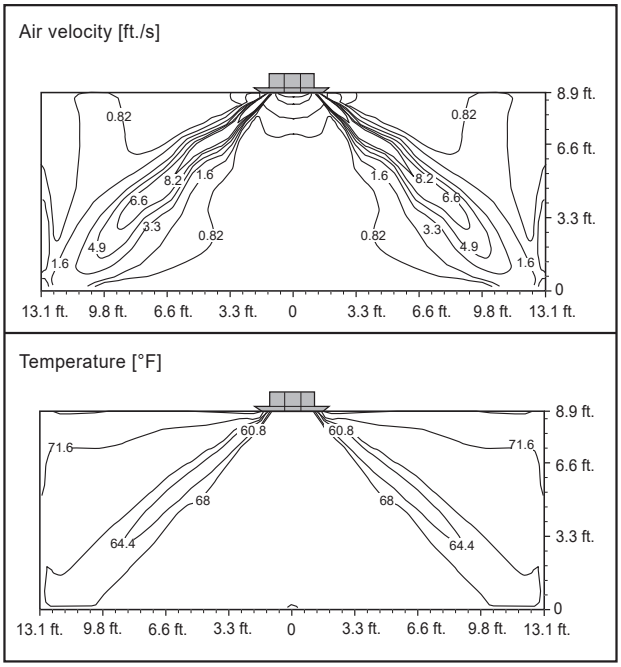
Air Velocity / Temperature Distribution

ARNU283TAA4, ARNU363TAA4

Figure 67: ARNU283TAA4.

Cooling

Discharge angle: Outside - 30°, Inside - 67°



Heating

Discharge angle: Outside - 36°, Inside - 70°

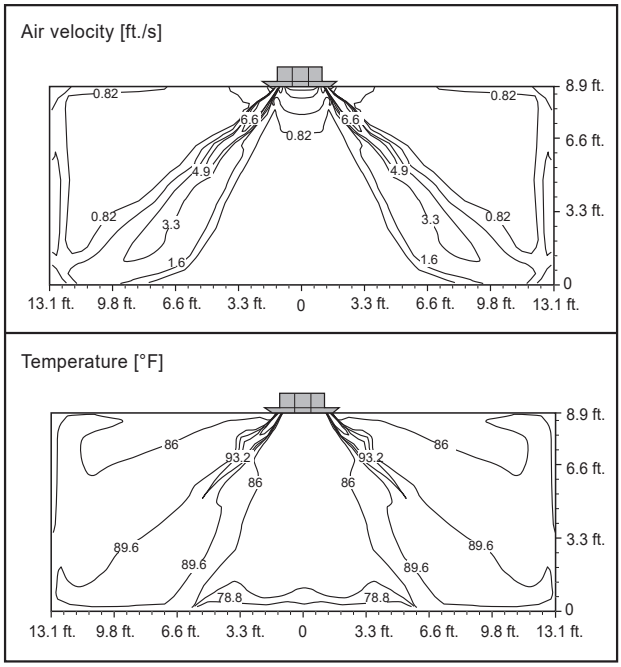
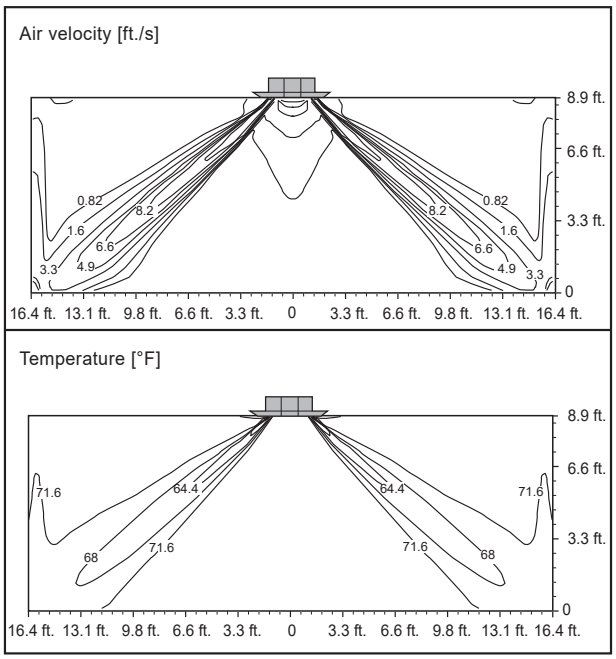


Figure 68: ARNU363TAA4.

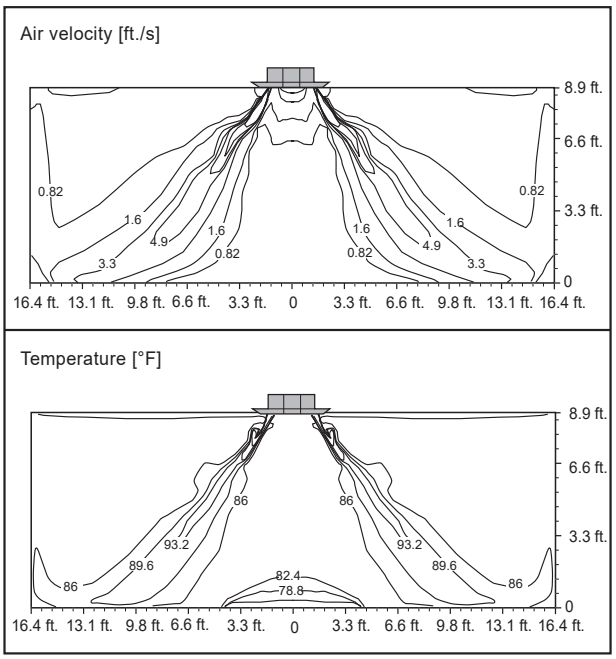
Cooling

Discharge angle: Outside - 30°, Inside - 67°



Heating

Discharge angle: Outside - 36°, Inside - 70°



- The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.
- Airflow step is 'High'. Air discharge angle is fixed as indicated angle.
- Indoor airflow distribution under actual installation or operating conditions depends on ambient temperature, ceiling height, product installation direction / location, and other obstacles, etc.

FOUR-WAY CEILING CASSETTE

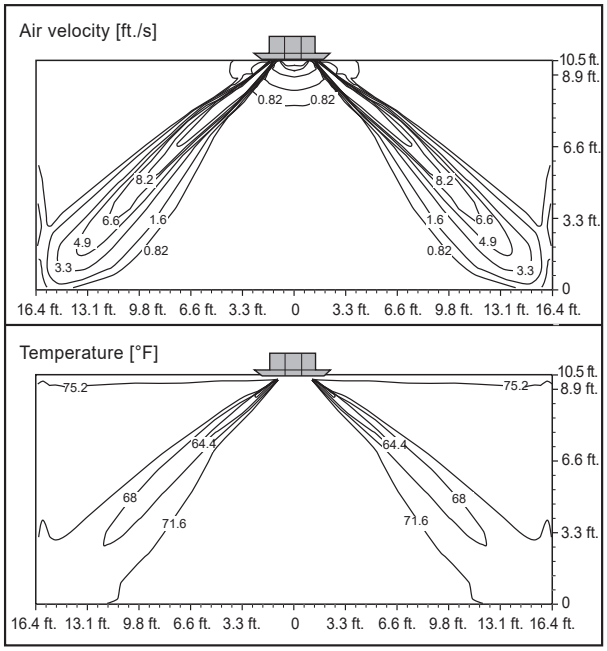
Air Velocity / Temperature Distribution

ARNU423TAA4, ARNU483TAA4

Figure 69: ARNU423TAA4.

Cooling

Discharge angle: Outside - 30°, Inside - 67°



Heating

Discharge angle: Outside - 36°, Inside - 70°

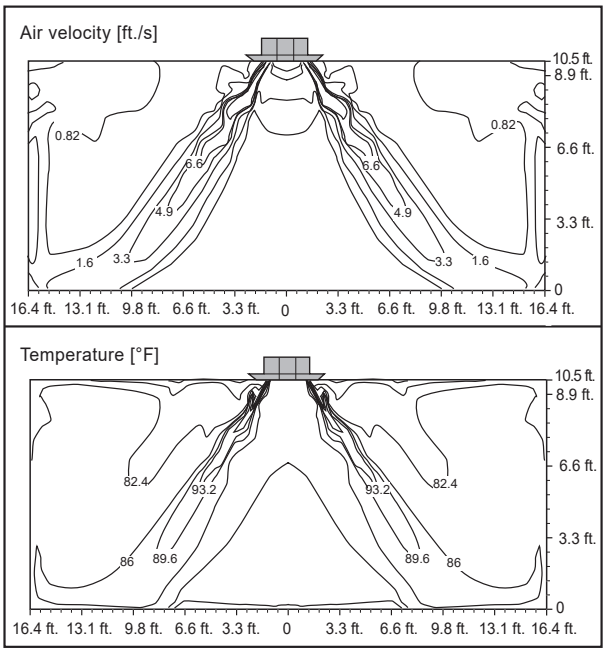
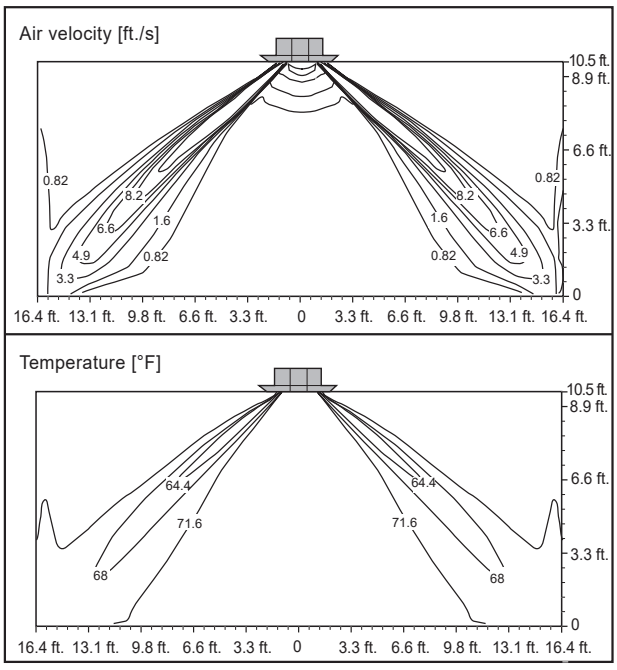


Figure 70: ARNU483TAA4.

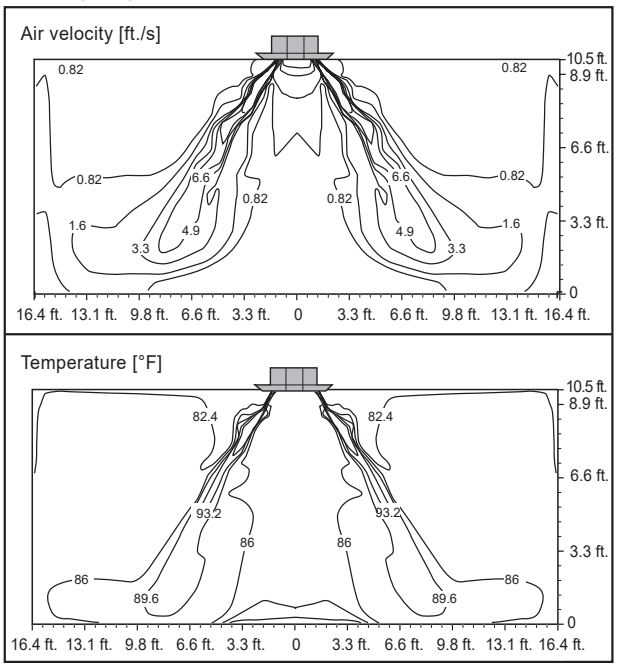
Cooling

Discharge angle: Outside - 30°, Inside - 67°



Heating

Discharge angle: Outside - 36°, Inside - 70°



- The standard setup height is 8.9 ft. The charts above show the measurement distribution at the ceiling height of 8.9 ft with a high fan operating mode.
- Airflow step is 'High'. Air discharge angle is fixed as indicated angle.
- Indoor airflow distribution under actual installation or operating conditions depends on ambient temperature, ceiling height, product installation direction / location, and other obstacles, etc.

Figure 71: TR Frame Outside Air Ventilation.

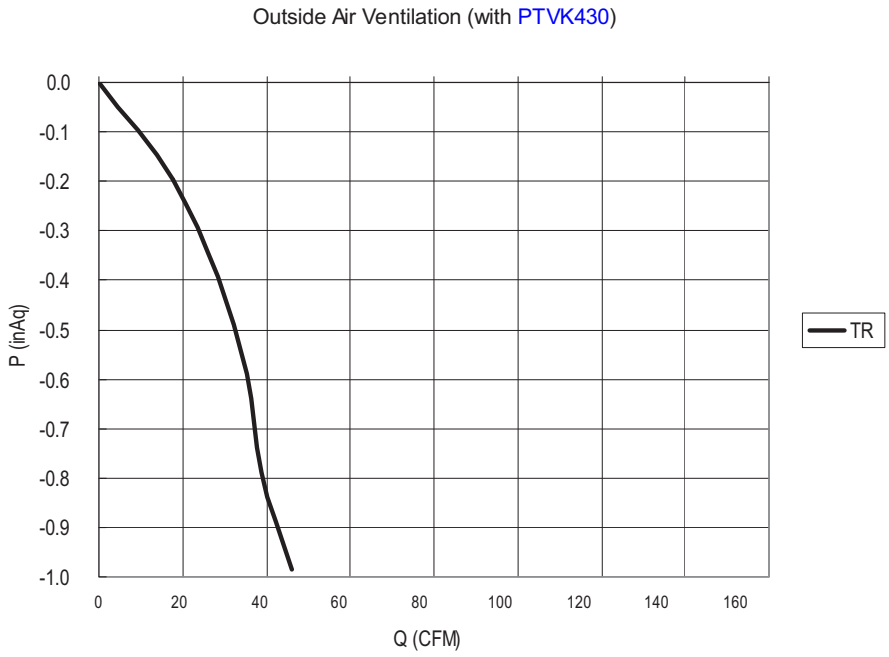


Figure 72: TQ Frame Outside Air Ventilation.

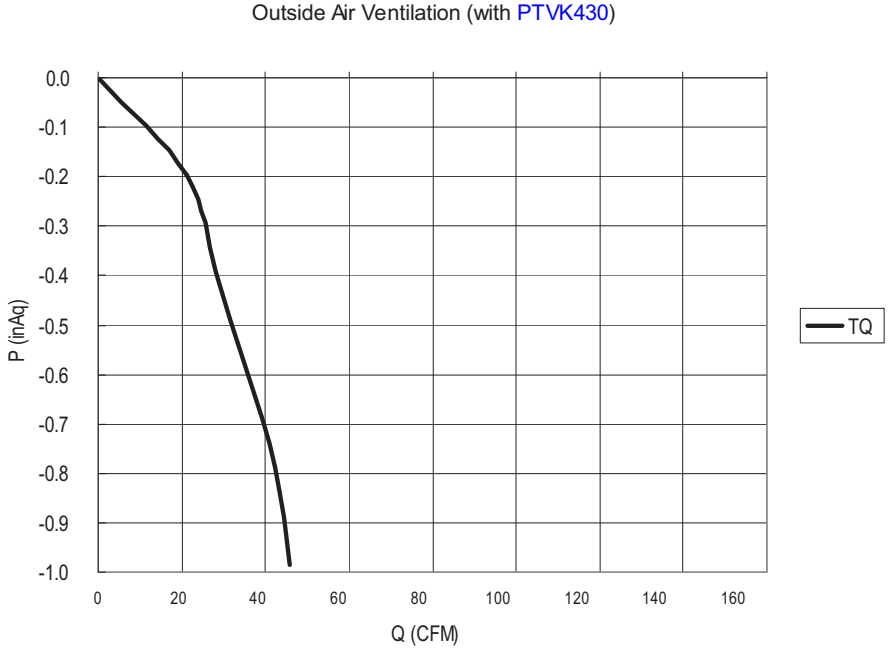


Figure 73: TA Frame Outside Air Ventilation with PTVK430 Accessory.

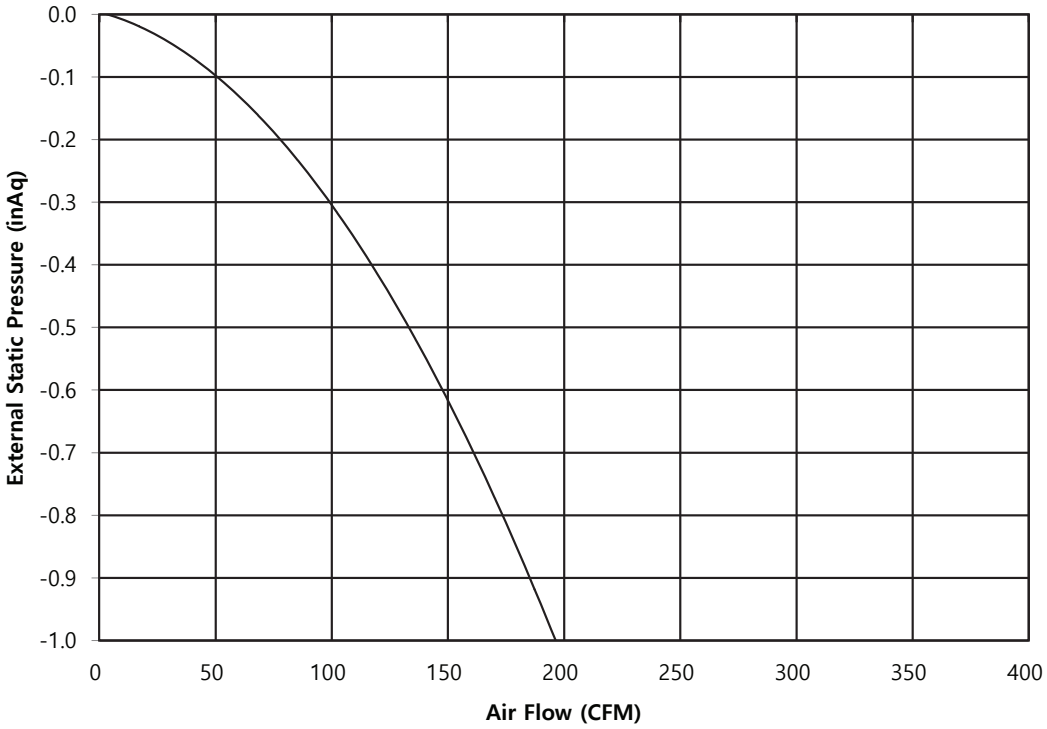
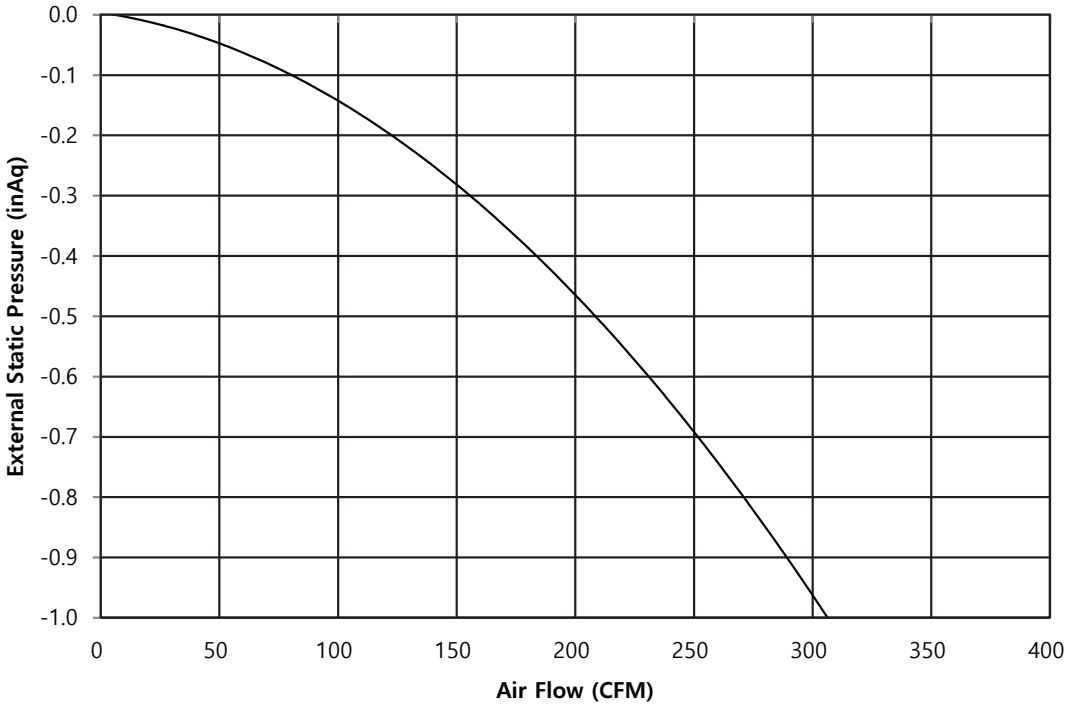


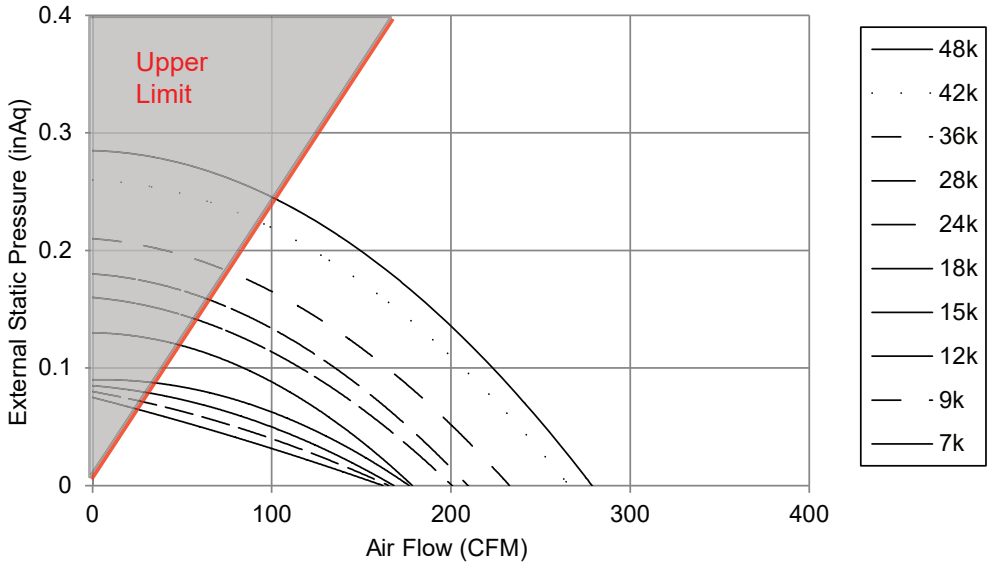
Figure 74: TA Frame Outside Air PTVK420 Ventilation Kit with PTVK420 Flange.



LG

Figure 75: Four-Way TAA Cassette Indoor Unit Branch Option P-Q Curves.

Four-Way Ceiling Cassette – 7~48k Btu
Side Branch Duct, Option 1



Four-Way Ceiling Cassette – 7~48k Btu
Side Branch Duct, Option 2

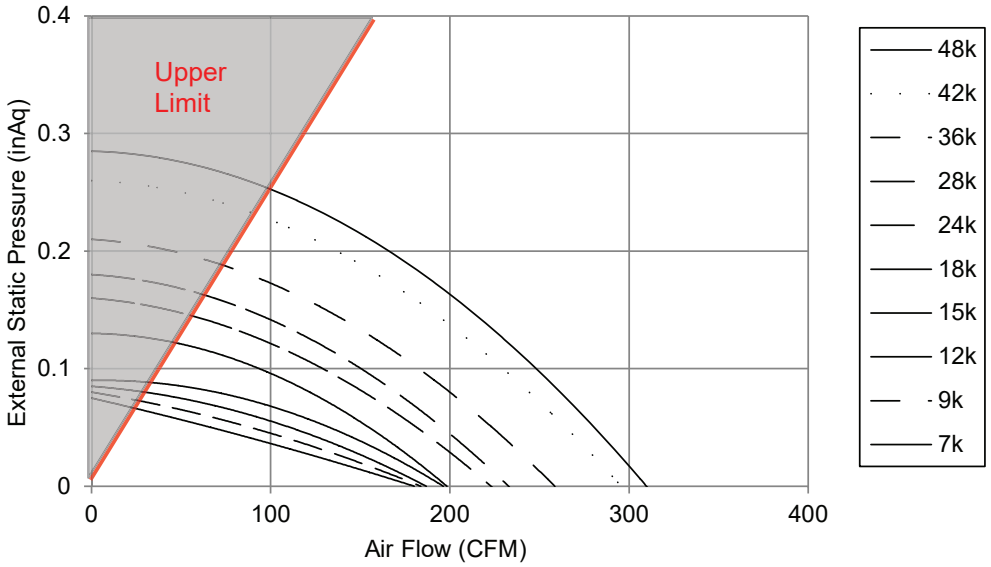


Figure 76: Four-Way TAA Cassette Indoor Unit Branch Duct Options.

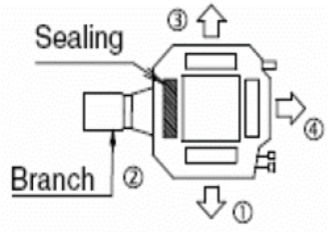
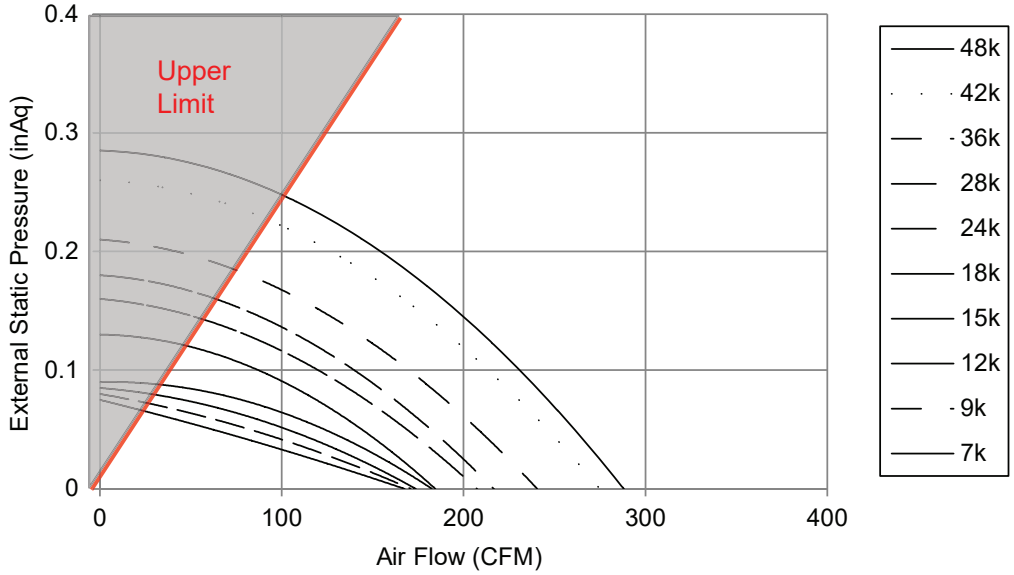
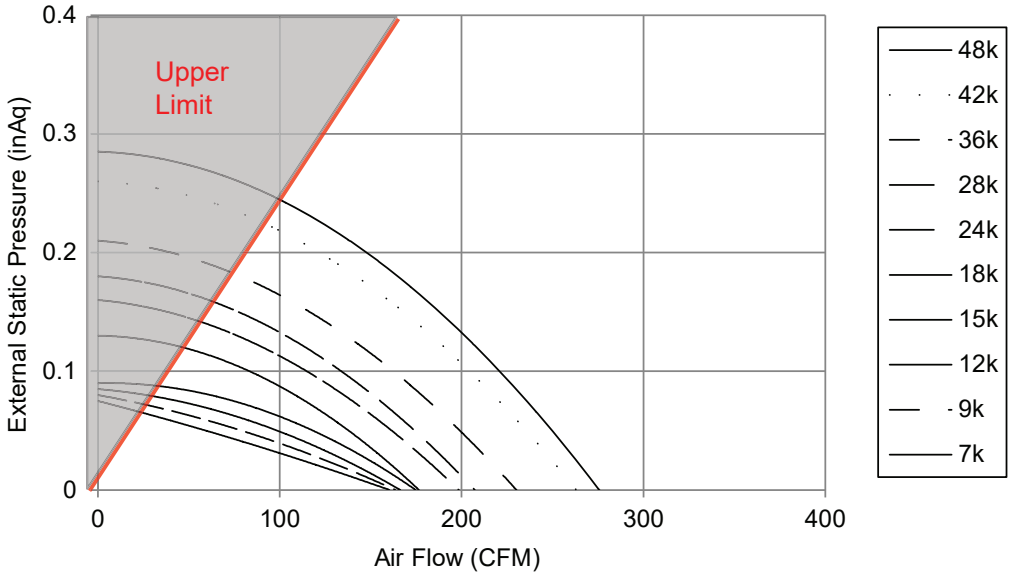


Figure 77: Four-Way TAA Cassette Indoor Unit Branch Option P-Q Curves, continued.

Four-Way Ceiling Cassette – 7~48k Btu
Side Branch Duct, Option 3



Four-Way Ceiling Cassette – 7~48k Btu
Side Branch Duct, Option 4



FOUR-WAY CEILING CASSETTE

Cooling Capacity Table

Table 38: Four-Way Ceiling Cassette Cooling Capacity Table.

Model No. / Capacity Index	Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / WB)													
		68 / 57		73 / 61		79 / 64		80 / 67		85 / 70		88 / 73		91 / 76	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
2x2 Four-Way Ceiling Cassette Indoor Units															
ARNU053TRD4 / 5.5	95	3.6	3	4.4	3.4	5	3.7	5.5	3.9	5.9	4.1	6	3.9	6.1	3.6
ARNU073TRD4 / 7.5	95	4.9	4.1	6	4.8	6.8	5.1	7.5	5.4	8	5.6	8.2	5.3	8.3	5.0
ARNU093TRD4 / 9.6	95	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.3	7.2	10.5	6.8	10.6	6.4
ARNU123TRD4 / 12.3	95	8.1	6.8	9.8	7.9	11.1	8.4	12.3	8.8	13.2	9.3	13.4	8.8	13.6	8.3
ARNU153TQD4 / 15.4	95	10.1	8.5	12.3	9.8	13.9	10.4	15.4	11.1	16.5	11.5	16.8	11.0	17.1	10.4
ARNU183TQD4 / 19.1	95	12.6	10.2	15.3	11.4	17.2	13.0	19.1	12.6	20.5	13.6	20.9	13.3	21.2	12.9
3x3 Four-Way Ceiling Cassette Indoor Units															
ARNU073TAA4 / 7.5	95	4.9	4.3	6.0	4.9	6.8	5.3	7.5	5.6	8.0	5.8	8.2	5.5	8.3	5.2
ARNU093TAA4 / 9.6	95	6.3	5.4	7.7	6.3	8.6	6.7	9.6	7.1	10.3	7.4	10.5	7.0	10.6	6.6
ARNU123TAA4 / 12.3	95	8.1	7.0	9.8	8.0	11.1	8.5	12.3	9.1	13.2	9.5	13.4	9.0	13.6	8.5
ARNU153TAA4 / 15.4	95	10.1	8.7	12.3	10.1	13.9	10.7	15.4	11.4	16.5	11.8	16.8	11.3	17.1	10.6
ARNU183TAA4 / 19.1	95	12.6	11.7	15.3	13.5	17.2	14.4	19.1	15.3	20.5	15.9	20.9	15.1	21.2	14.3
ARNU243TAA4 / 24.2	95	15.9	15.0	19.4	17.3	21.8	18.4	24.2	19.6	25.9	20.4	26.4	19.4	26.8	18.3
ARNU283TAA4 / 28.0	95	18.4	16.3	22.4	18.8	25.2	20.0	28.0	21.3	30.0	22.1	30.6	21.1	31.0	19.9
ARNU363TAA4 / 36.2	95	23.8	20.5	29.0	23.6	32.6	25.1	36.2	26.8	38.8	27.8	39.5	26.5	40.1	25.0
ARNU423TAA4 / 42.0	95	27.7	23.1	33.6	26.6	37.8	28.3	42.0	30.2	45.0	31.4	45.9	29.9	46.6	28.2
ARNU483TAA4 / 48.1	95	31.7	26.4	38.5	30.5	43.3	32.4	48.1	33.5	51.5	35.9	52.5	34.2	53.3	32.3

TC: Total Capacity (MBh); SHC: Sensible Heat Capacity (MBh).

The System Combination Ratio must be between 50–130%.

Rated capacity is certified under AHRI Standard 1230. Ratings are subject to change without notice. Current certified ratings are available at www.ahridirectory.org.

For outdoor unit performance data, see the respective outdoor unit performance data manuals on www.lghvac.com.

Low ambient performance with LGRED° heat technology is included in Multi V 5 air source units produced after February 2019.

FOUR-WAY CEILING CASSETTE

Heating Capacity Table

Table 39: Four-Way Ceiling Cassette Heating Capacity Table.

Model No. / Capacity Index	Outdoor Air Temp.		Indoor Air Temperature (°F DB)							
			59	61	64	67	70	73	76	80
	°F DB	°F WB	TC	TC	TC	TC	TC	TC	TC	TC
2x2 Four-Way Ceiling Cassette Indoor Units										
ARNU053TRD4 / 5.5	47	43	6.8	6.8	6.7	6.4	6.1	5.9	5.6	5.3
ARNU073TRD4 / 7.5	47	43	9.5	9.4	9.4	8.9	8.5	8.3	7.8	7.4
ARNU093TRD4 / 9.6	47	43	12.2	12.1	12.0	11.5	10.9	10.6	10.0	9.5
ARNU123TRD4 / 12.3	47	43	15.2	15.1	15.0	14.3	13.6	13.2	12.5	11.9
ARNU153TQD4 / 15.4	47	43	19.2	19.0	18.8	18.0	17.1	16.6	15.7	15.0
ARNU183TQD4 / 19.1	47	43	24.1	23.9	23.7	22.6	21.5	20.9	19.8	18.8
3x3 Four-Way Ceiling Cassette Indoor Units										
ARNU073TAA4 / 7.5	47	43	9.5	9.4	9.4	8.9	8.5	8.3	7.8	7.4
ARNU093TAA4 / 9.6	47	43	12.2	12.1	12.0	11.5	10.9	10.6	10.0	9.5
ARNU123TAA4 / 12.3	47	43	15.2	15.1	15.0	14.3	13.6	13.2	12.5	11.9
ARNU153TAA4 / 15.4	47	43	19.2	19.0	18.8	18.0	17.1	16.6	15.7	15.0
ARNU183TAA4 / 19.1	47	43	24.1	23.9	23.7	22.6	21.5	20.9	19.8	18.8
ARNU243TAA4 / 24.2	47	43	30.6	30.3	30.0	28.7	27.3	26.5	25.1	23.9
ARNU283TAA4 / 28.0	47	43	35.3	35.0	34.7	33.1	31.5	30.6	29.0	27.6
ARNU363TAA4 / 36.2	47	43	45.5	45.1	44.7	42.6	40.6	39.4	37.4	35.5
ARNU423TAA4 / 42.0	47	43	49.1	48.6	48.2	46.0	43.8	42.5	40.3	38.3
ARNU483TAA4 / 48.1	47	43	57.3	56.8	56.3	53.8	51.2	49.7	47.1	44.8

TC: Total Capacity (MBh).

The System Combination Ratio must be between 50–130%.

Rated capacity is certified under AHRI Standard 1230. Ratings are subject to change without notice. Current certified ratings are available at www.ahridirectory.org.

For outdoor unit performance data, see the respective outdoor unit performance data manuals on www.lghvac.com.

Low ambient performance with LGRED° heat technology is included in Multi V 5 air source units produced after February 2019.

FOUR-WAY CEILING CASSETTE

Optional Accessories

Table 40: Optional Accessories for Four-Way Ceiling Cassette Indoor Units (Sold Separately).

Accessory	Model Number
24-13/32" x 24-13/32" (2' x 2') Four-Way Ceiling Cassette Panel — White (One Required) For Use with 2' x 2' TR and TQ Four-Way Ceiling Cassette Indoor Units	PT-QAGW0
Standard Panel — White (One Required) For Use with 3' x 3' TA Four-Way Ceiling Cassette Indoor Units	PT-AAGW0
Premium Panel (Includes Panel PT-AFGW0 + Air Purification Kit PTAHMP0) For Use with 3' x 3' TA Four-Way Ceiling Cassette Indoor Units	PT-AFGW0S
Air Purification Kit (Only Available with Premium Panel PTAFGW0S) For Use with 3' x 3' TA Four-Way Ceiling Cassette Indoor Units	PTAHMP0
Floor Temperature Sensor For Use with 3' x 3' TA Four-Way Ceiling Cassette Indoor Units	PTFSMA0
Human Detection Sensor For Use with 3' x 3' TA Four-Way Ceiling Cassette Indoor Units	PTVSAA0
Cassette Decorative Cover For Use with 3' x 3' TA Four-Way Ceiling Cassette Indoor Units	PTDCA
Ventilation Kit For Use with 3' x 3' TA Four-Way Ceiling Cassette Indoor Units	PTVK410 + PTVK420
Ventilation Flange For Use With All Four-Way Ceiling Cassette Indoor Units	PTVK430
Auxiliary Heater Kit[1] For Use With All Four-Way Ceiling Cassette Indoor Units	PRARH1
Wi-Fi Module For Use With All Four-Way Ceiling Cassette Indoor Units	PWFMDD200

[1]If a Third-Party Dry Contact and an LG internal heater or an LG Auxiliary Heater Kit is installed, supplemental heat capability cannot be controlled by the Third-Party Thermostat.

APPLICATION GUIDELINES

Selecting the Best Location

Do's

- Place the unit where air circulation will not be blocked.
- Place the unit where drainage can be obtained easily and to minimize the length of the condensate drain piping.
- Place the unit where noise prevention is taken into consideration.
- Ensure there is sufficient space from the ceiling and floor.
- Ensure there is sufficient maintenance space.
- Locate the indoor unit in a location where it can be easily connected to the outdoor unit / heat recovery unit.

Do Not's

- *Avoid installing the unit near high-frequency generators.*
- *Do not install the unit near a doorway.*
- *The unit must not be installed near a heat or steam source, or where considerable amounts of oil, iron powder, or flour are used. (These materials may generate condensate, cause a reduction in heat exchanger efficiency, or the drain pump to malfunction. If this is a potential problem, install a ventilation fan large enough to vent out these materials.)*

WARNING

The unit must not be installed where sulfuric acid and flammable or corrosive gases are generated, vented into, or stored. There is risk of fire, explosion, and physical injury or death.

Figure 78: Selecting the Best Location / Minimum Clearance Requirements — One-, Two-, and Four-Way Ceiling-Cassette Indoor Units.

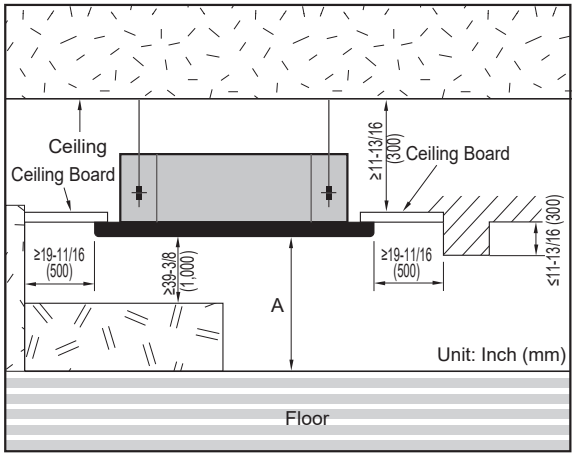


Table 41: One-, Two-, and Four-Way Ceiling-Cassette Indoor Unit Height Clearances.

Model, Capacity	A (Inches)
1 Way	70-55/64 < A ≤ 129-59/64
2 Way	70-55/64 < A ≤ 129-59/64
4 Way, 5,500 to 34,000 Btu/h	78-47/64 < A ≤ 141-47/64
4 Way, 34,000 to 49,000 Btu/h	98-7/16 < A ≤ 157-1/2

The unit may be damaged, may malfunction, and / or will not operate as designed if installed in any of the conditions listed.

NOTE

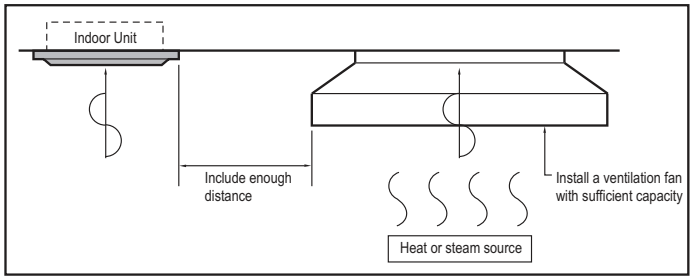
- *Indoor units (IDUs) should not be placed in an environment where the IDUs may be exposed to harmful volatile organic compounds (VOCs) or in environments where there is improper air make up or supply or inadequate ventilation. If there are concerns about VOCs in the environment where the indoor units are installed, proper air make up or supply and/or adequate ventilation should be provided. Additionally, in buildings where the indoor units will be exposed to VOCs, consider a third party factory-applied epoxy coating to the fan coils for each indoor unit where the entire coil is dipped, not sprayed.*
- *If the unit is installed near a body of water, the installation parts are at risk of corroding. Appropriate anti-corrosion methods must be taken for the unit and all installation parts.*

Installing in an Area Exposed to Unconditioned Air

In some installation applications, areas (floors, walls) in some rooms may be exposed to unconditioned air (room may be above or next to an unheated garage or storeroom). To countermeasure:

- Verify that carpet is or will be installed (carpet may increase the temperature by three [3] degrees).
- Add insulation between the floor joists.
- Install radiant heat or another type of heating system to the floor.

Figure 79: Installing Near a Heat or Steam Source.



General Mounting

The ceiling must be strong and solid enough to protect the unit from vibration. All ceiling-cassette indoor units include a pattern to help determine the size necessary for the opening in the false ceiling (paper pattern dimensions match those for the ceiling opening dimensions), and where the hanging bolts and refrigerant / drain piping are placed.

Figure 80: Ceiling Opening / Hanging Bolt Locations for One-Way Ceiling Cassette Indoor Units.

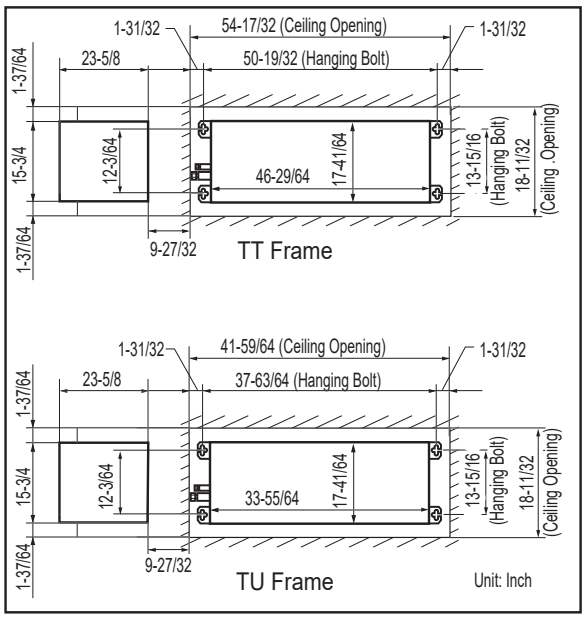


Figure 81: Ceiling Opening / Hanging Bolt Locations for Two-Way Ceiling Cassette Indoor Units.

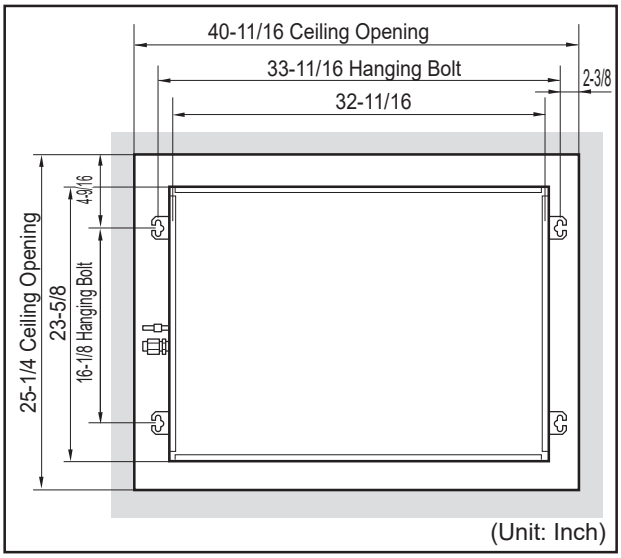
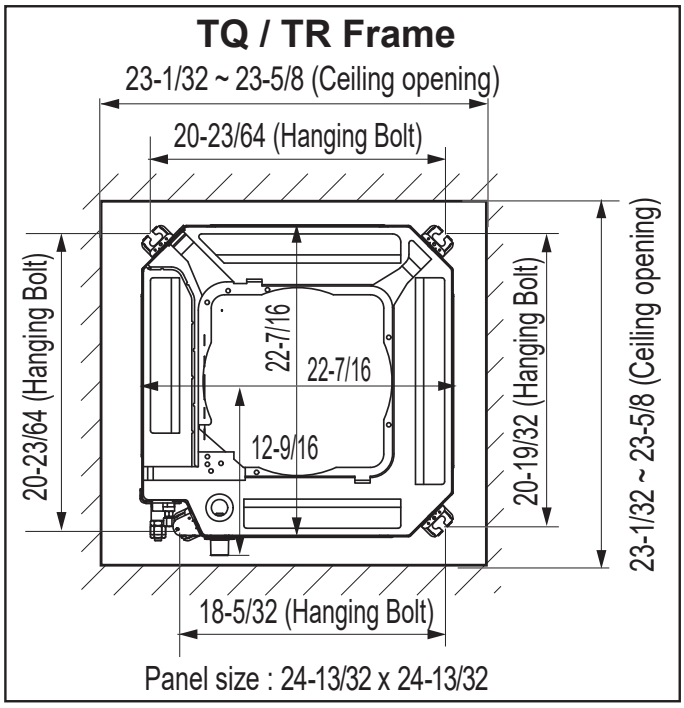
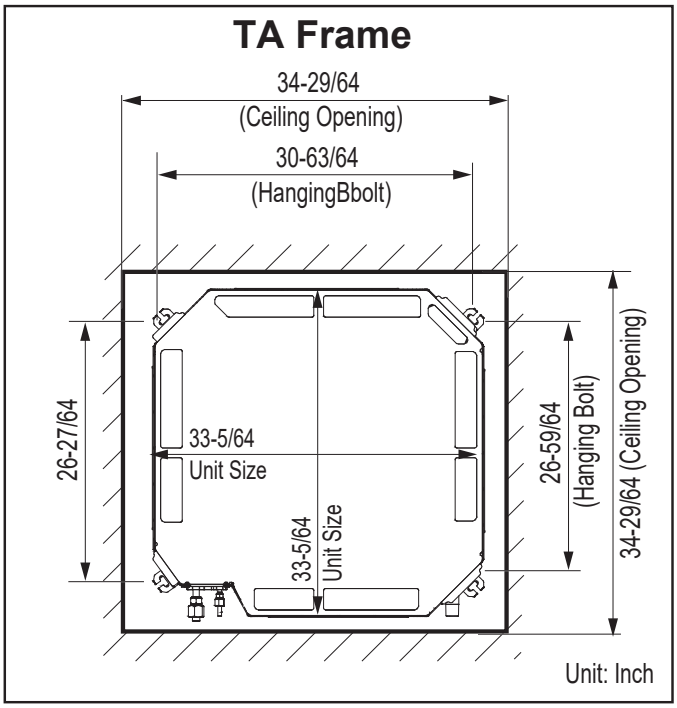


Figure 82: Ceiling Opening / Hanging Bolt Locations for Four-Way Ceiling Cassette Indoor Units.





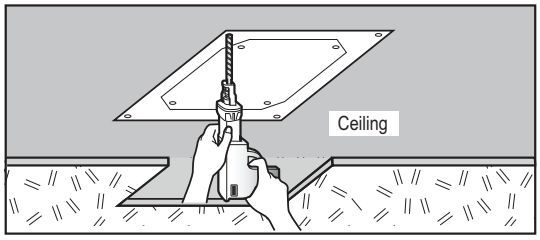
General Mounting Procedure

1. Using the included paper pattern, select and mark the area where the hanging bolts, refrigerant and condensate piping will be placed. The hanging bolts must be slightly tilted to the direction of the drain hose.
2. Drill the holes.
3. Install the unit horizontally using a level gauge.

⚠WARNING

⃠ Do not damage power wiring during installation. There is risk of electric shock, which may result in physical injury or death.

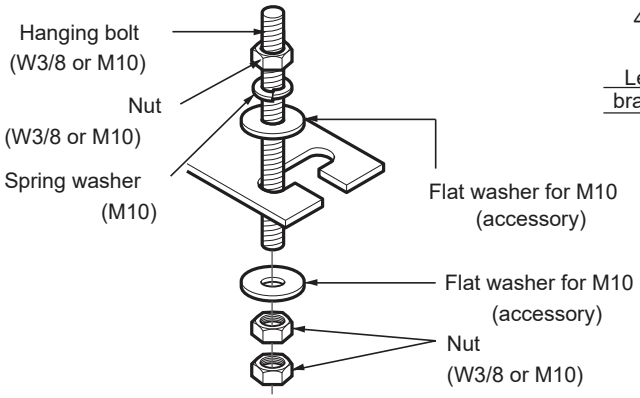
Figure 83: Using the Paper Pattern / Drilling Holes for the Bolts, Refrigerant and Condensate Piping.

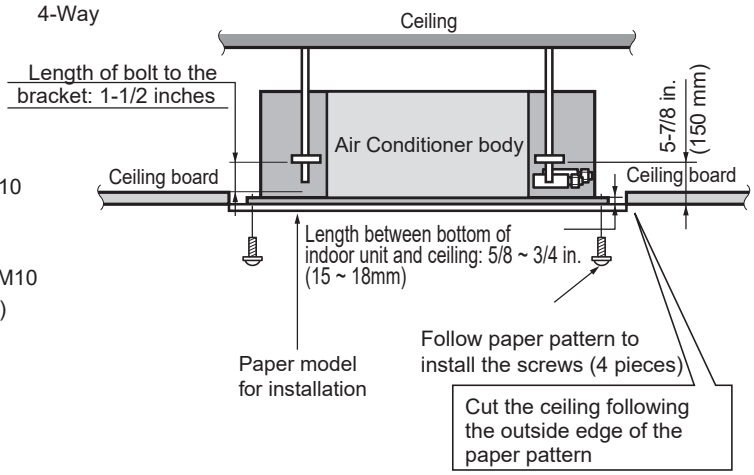


⚠NOTE

⃠ Do not damage power wiring during installation. There is a risk of equipment malfunction, which may result in property damage.

Figure 84: Hanging Bolt Installation.



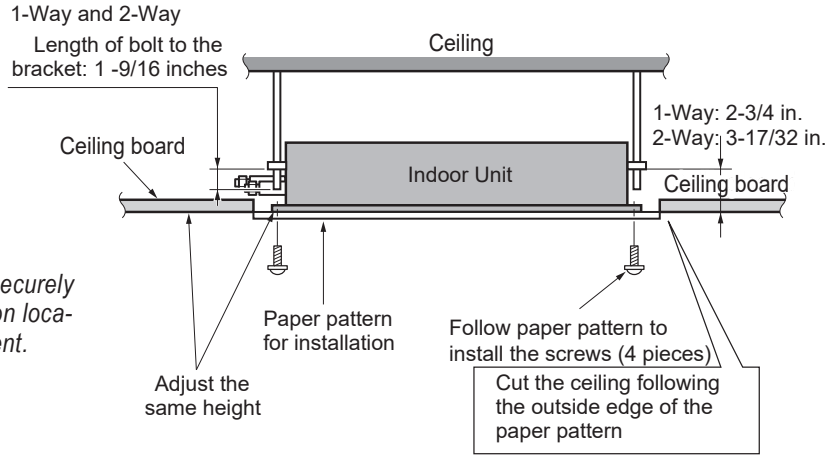


The following parts are field supplied:

- Hanging bolt - W-3/8” or 1/2”
- Nut - W-3/8” or M10
- Spring washer - M10

Included with the indoor unit:

- Flat washer - M10



⚠WARNING

The threaded rod hangers (bolts) and hardware must be securely tightened to prevent the unit from falling from its installation location. There is a risk of personal injury from falling equipment.

General Drain Piping Information

All ceiling-cassette indoor units generate water during cooling operation, therefore, properly handling this condensation must be considered.

Ceiling-cassette indoor units include factory-installed drain pumps. Depending on the location of the indoor unit, condensation can be drained directly to the outside of the building, or a common indoor unit drainage piping system can be installed.

Flexible Drain Hose

Note:

All condensate piping is to be installed per applicable local codes. Avoid any contact with building sewer lines and vent lines.

Ceiling-cassette indoor units include a factory-provided flexible drain hose (with two clamps) to connect the indoor unit to the drain piping / drain piping system. If necessary, the drain hose can be extended. When the bottom surface of the indoor unit is at an elevation below the receiving drain line connection, install an inverted trap at the top of the condensate pump discharge riser before connection to the drain pipe.

When the receiving drain line is mounted horizontal, connect the inverted trap to the top half of the pipe. The connection point of the inverted trap to the drain pipe must always be to the top half of the pipe and must never be over 45° either side of the upper most point of the horizontal drain line.

If connecting to a vertical drain line, connect the IDU condensate pump discharge line using a Y-45 fitting with the double end of the Y-45 fitting facing up. When connecting to a vertical drain line include an inverted trap at the top of the IDU condensate pump discharge riser before connection to the Y-45 fitting.

Drain Piping

- Drain piping must have down slope (1/50 to 1/100).
- Any holes through the ceilings, walls, etc., must be large enough to accommodate the drain piping and insulation.
- The outside diameter of the drain connection on the indoor unit is 1-1/4 inches.
- Drain piping material is polyvinyl chloride pipe (1 inch).

⃠ *To prevent reversal flow, do not install with an up / down slope.*

Drain Leak Test

A leak test must be performed 24 hours after the drainage system has been installed.

Drain Pipe Insulation

Install field supplied polyethylene foam insulation 5/16 inch thick or greater on the flexible drain pipe and position snugly against the indoor unit.

Figure 86: Ceiling-Cassette Indoor Unit Drain Pump to Drain Piping System.

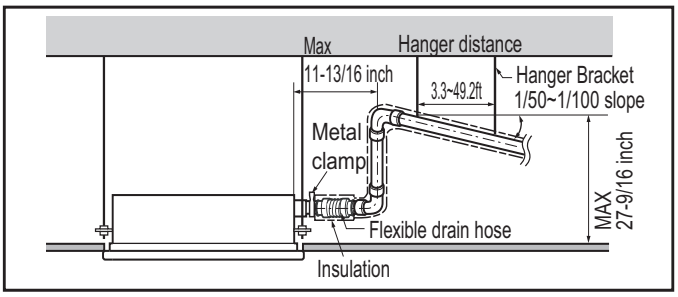
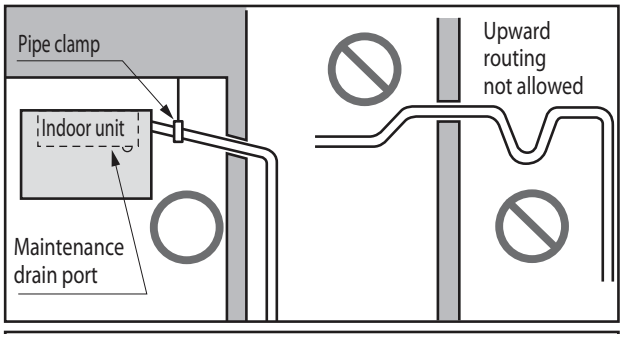


Figure 87: Flexible Drain Hose Connection.

Table 42: Ceiling-Cassette Indoor Unit Drainage Specifications.

Indoor Unit	Drain Type	Drain Pipe Dia. (ID, in.)
One-Way Ceiling Cassette	27-9/16 in. (700 mm) Max. Lift Drain Pump, Factory Installed	Ø1
Two-Way Ceiling Cassette		
Four-Way Ceiling Cassette		

Figure 85: Drain Piping Slope.



LG

Note:
Ensure the indoor unit, refrigerant piping, drain piping, and power wiring / communication cables are properly supported with anchor bolts and clamp hangers positioned at 3.3 to 4.9 foot intervals.

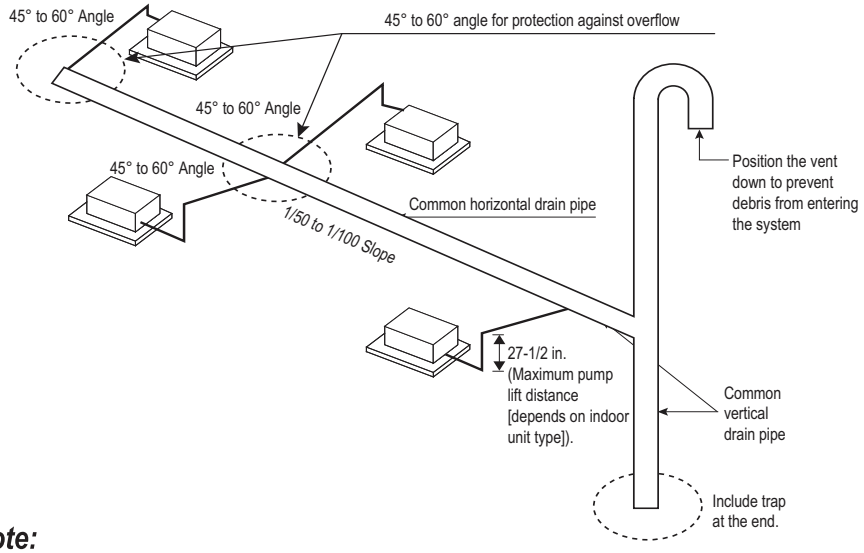
Common Indoor Unit Drainage System

It is usual work practice to connect individual indoor unit drain pipes to one common indoor unit drainage system.

The diameter of the common vertical drain pipe must be as large as necessary. The diameter of the horizontal pipe must be the same or larger than the vertical drain pipe. To avoid property damage in the event of the primary drain becoming clogged, and to optimize drain system performance, it may be prudent to install a secondary drain line.

Design the drain system to plan for winter operation (condensate line may freeze up if condensate does not properly drain away). Drain all generated condensate from the external condensate pan to an appropriate area. Install a trap in the condensate lines as near to the indoor unit coil as possible. To prevent overflow, the outlet of each trap must be positioned below its connection to the condensate pan. All traps must be primed, insulated, and leak tested.

Figure 88: Example of a Common Indoor Unit Drainage System.



Note:
- *It is recommended that a dedicated drain pipe be installed for the air conditioning system. If the indoor unit drainage system is shared with a rainwater drain, waste water, or any other type of building drain system, back flow, leaks, ice may form, or noxious odors may infiltrate the air conditioning system.*
- *Install a trap if the drain access to the outside faces an undesirable location (i.e., sewer), otherwise, noxious odors may infiltrate the air conditioning system.*

Connecting the Power Wiring / Communication Cable

⚠ DANGER

High voltage electricity is required to operate this system. Adhere to the National Electrical Codes and these instructions when wiring. Always ground the unit following local, state, and National Electrical Codes. Read the safety summary at the beginning of this manual.
- *Secure all field wiring connections with appropriate wire strain relief. Improperly securing wires will create undue stress on equipment power lugs. Inadequate connections will generate heat, cause a fire and physical injury or death.*
- *Properly tighten all power connections. Loose wiring will overheat at connection points, causing a fire, physical injury or death.*

⚠ NOTE

Connect the indoor unit input power cable but ⃠ do not apply power to the indoor unit until authorized to do so by the system commissioning agent. Inappropriate power connection can result in equipment damage and will void the LG limited liability warranty.

Note:
- *When connecting the communications bus between the outdoor unit, indoor unit(s), and heat recovery unit(s), it does not matter what physical path or route the wire takes. The installer can use discretion when choosing the order the components are connected to the communications bus, but must maintain the daisy chain and polarity configuration.*
- *Failure to follow any of these power and communications wiring guidelines or instructions will cause communications errors and unit malfunction.*

APPLICATION GUIDELINES

Wiring Guidelines

⃠ Do Not's

- *Never use wire caps and never splice communications cables.*
- *Never connect zone controllers or other central controllers or LG building management system gateways to the indoor unit / outdoor unit communications cable.*

Connection Procedure

Indoor unit installation best practices are to connect control wiring (low voltage) and then connect power wiring (high voltage). ⃠ Do not apply power to the indoor unit or any Multi V system component until authorized to do so by the system commissioning agent.

1. Ensure the input power is disconnected and there is no power on the power input cable.

2. Remove the knock-out plugs from the control box. Remember the communications cable and the power cable must enter the control box through different knockouts.

3. Field-install a plastic or rubber grommet in the knockout holes to prevent wire chaffing.

4. If using conduit, connect the conduit to the control box using field-provided fittings and industry best-practice procedures.

5. Separately route the power wiring and communications cables to the unit's terminal block (see figures on the following pages). ⃠ Do not route the communications cable near the power cable. Two-way and four-way cassettes feature wiring and cable paths on opposites side of the indoor unit. Provide at least three (3) to four (4) inches of slack cable at each indoor unit.

Note:

Power wiring is field supplied. Wire size is selected based on the larger MCA value, and must comply with the applicable local and national codes.

6. Connect the power wiring to the terminal block connections. Ensure the screws securely connect the wire to the terminals and are not loose.
   - For One-Way Cassettes: Terminal Block 1(L1) and 2(L2) connections.
   - For Two-Way and Four-Way Cassettes: Terminal Block L(L1) and N(L2) connections.

7. Connect the field-provided communications cable to the 3(A) and 4(B) or A and B terminal block connections. Polarity matters on the outdoor unit to indoor unit / heat recovery unit communications bus, and must be maintained throughout the entire system. Be sure to connect 3(A) or A terminals to A terminals, and 4(B) or B terminals to B terminals. Refer to the next pages for indoor unit wiring connections, the Outdoor Unit Installation Manual for information regarding the outdoor unit and heat recovery unit wiring connections, or review the wiring diagrams on the applicable units.

Note:

- *Cross connecting the 3(A) and 4(B) or A and B terminals will cause communications errors and system malfunction.*
- *Field-provided communication cable between Main ODU to IDUs / HRUs to be 18 AWG, 2-conductor, twisted, stranded, shielded. Ensure the communication cable shield is properly grounded to the Main outdoor unit chassis only. ⃠ Do not ground the outdoor unit to indoor units / heat recovery units communication cable at any other point. Wiring must comply with all applicable local and national codes.*

8. If a remote controller is to be installed, connect the remote controller's cable to the indoor unit's remote controller connection. Controller connections depend on type of indoor unit being installed. Some indoor units use terminal block connections; other indoor units use Molex connections. See the wiring diagram for each specific indoor unit.

9. Connect any additional cables required for the installation such as those for the decoration panels.

One-Way Cassette TT, TU Frames

Figure 90: Typical TT, TU Frame Wiring / Cable Routing.

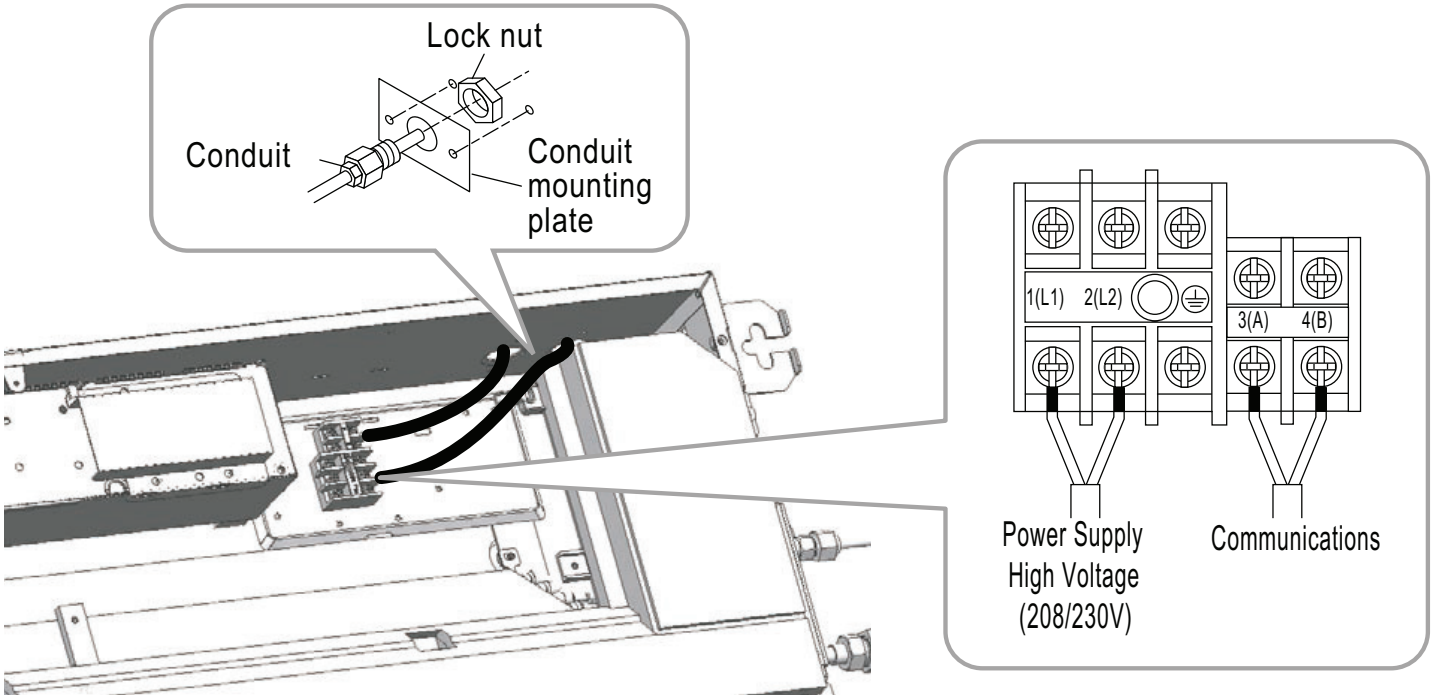
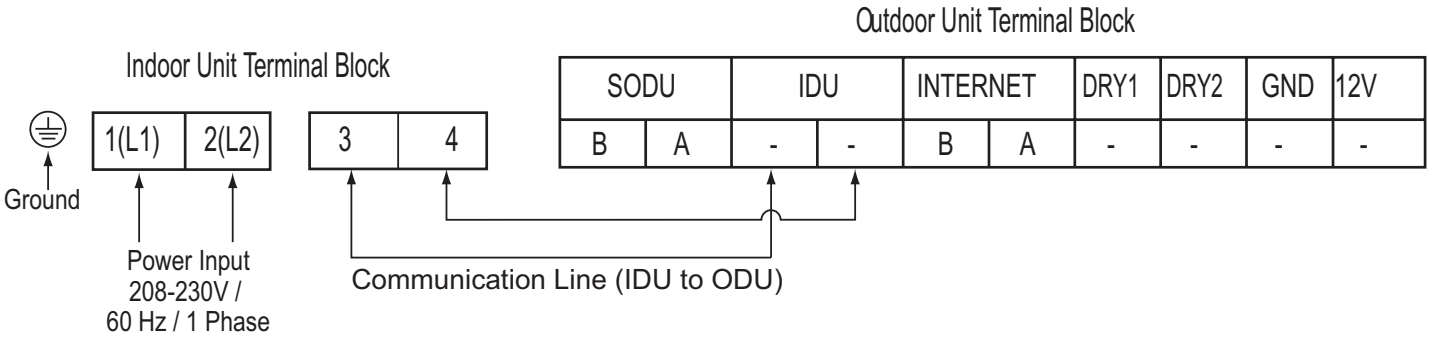


Figure 89: TT, TU Frame Wiring / Cable Connections.



Two-Way Cassette TS Frame

Figure 91: Typical TS Frame Wiring / Cable Routing.

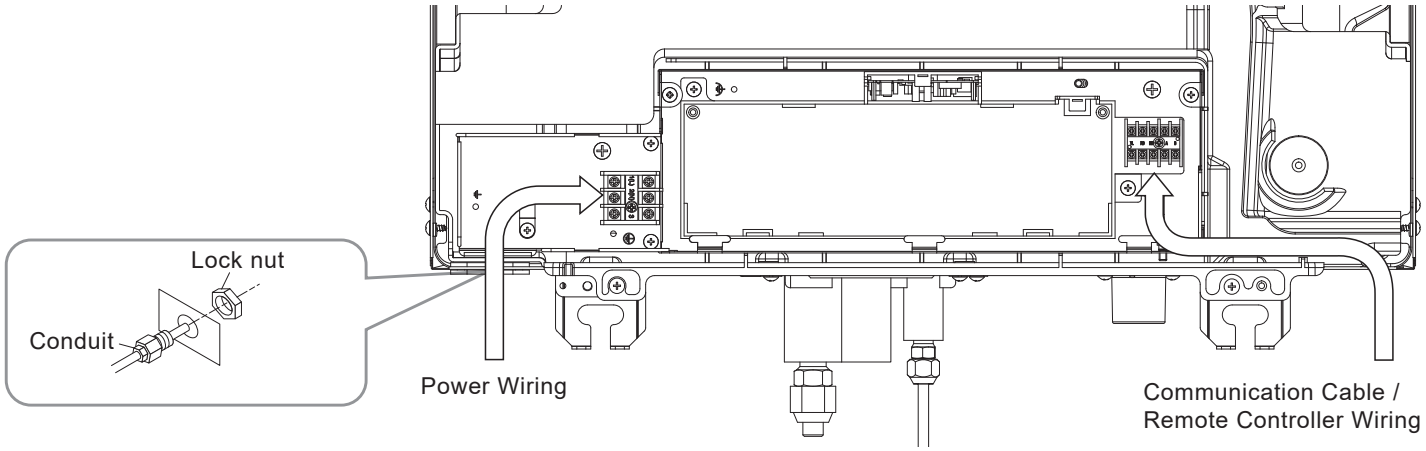
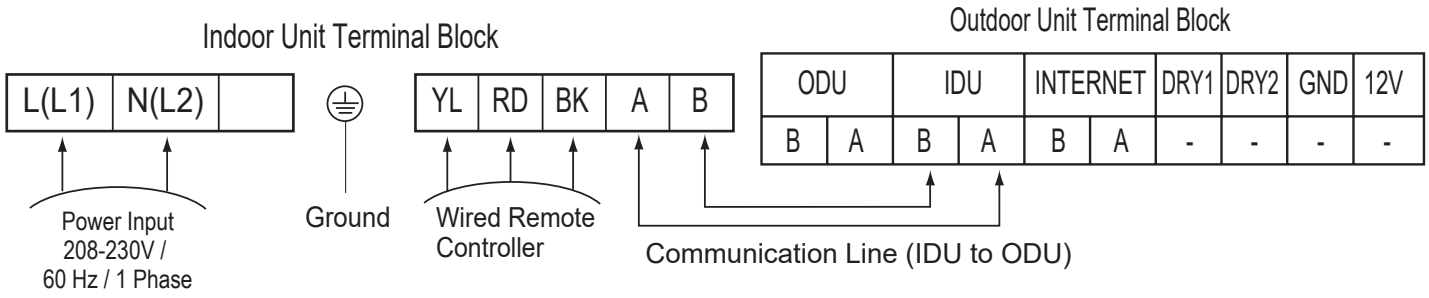


Figure 92: TS Frame Wiring / Cable Connections.



Four-Way Cassette TR, TQ, TA Frames

Figure 93: TR / TQ Frame Four-Way Cassette Wiring / Cable Routing.

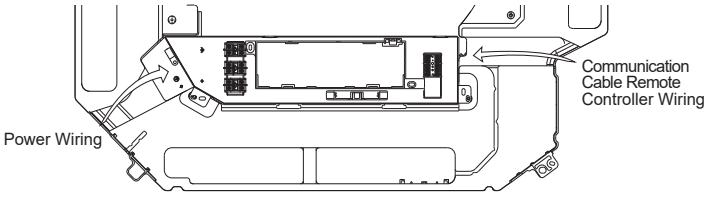


Figure 94: TA Frame Four-Way Cassette Wiring / Cable Routing.

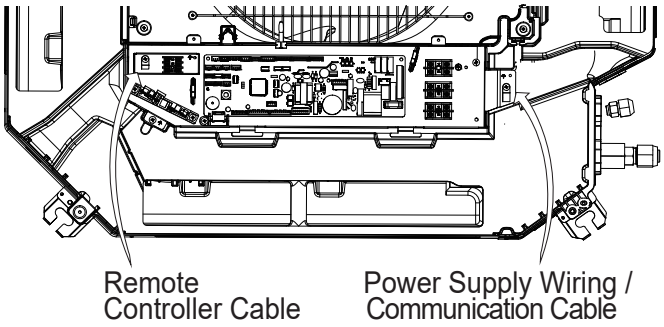


Figure 95: TQ / TR Frame Four-Way Cassette Wiring / Cable Routing, Side View.

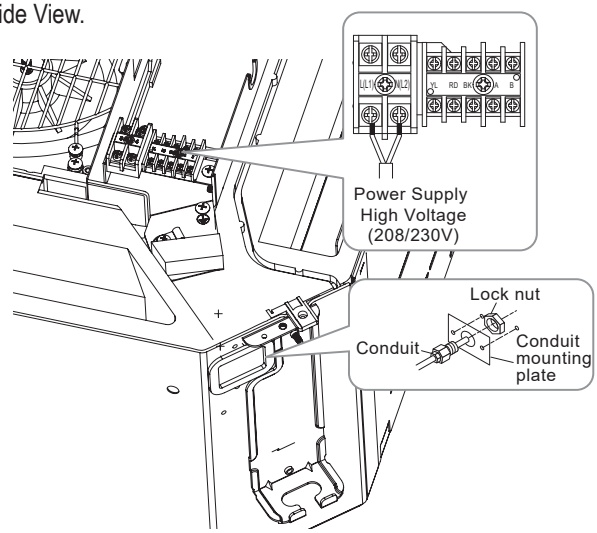


Figure 96: TA Frame Four-Way Cassette Wiring / Cable Routing, Side View.

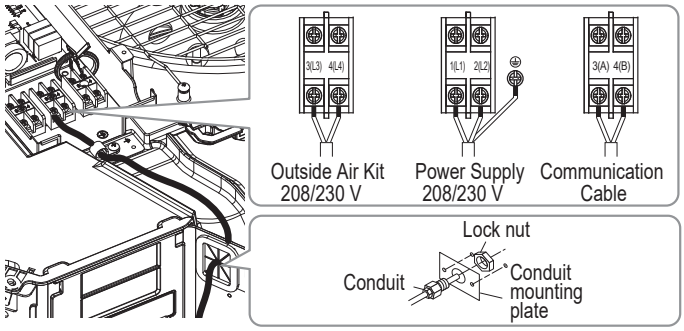
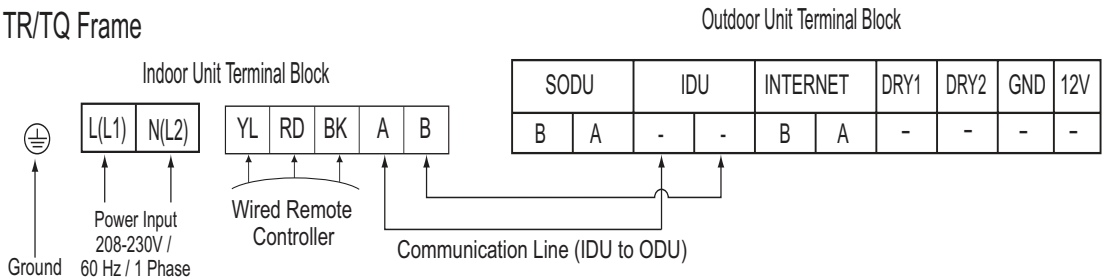
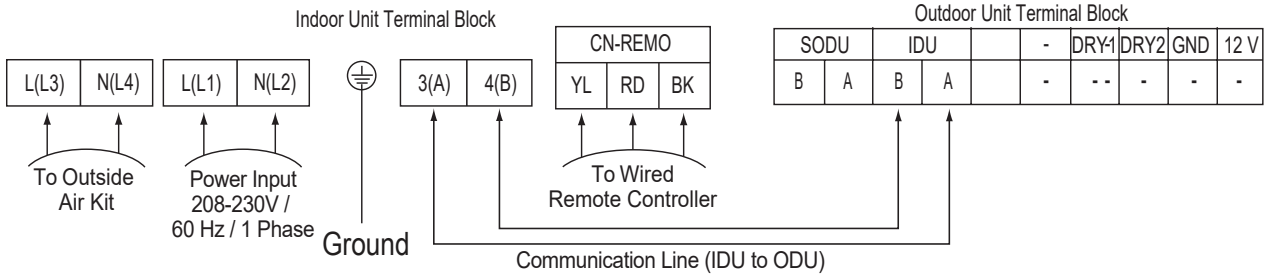


Figure 97: Four-Way Ceiling-Cassette Wiring / Cable Connections.

TR/TQ Frame



TA Frame



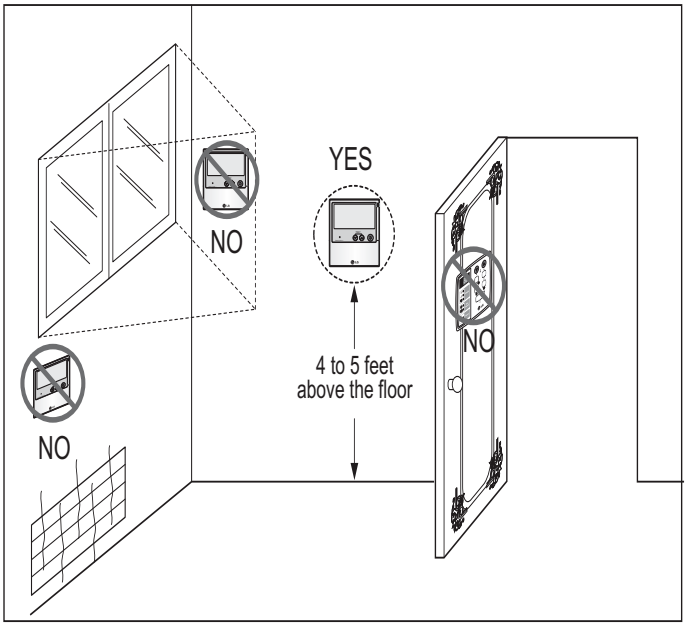
Wired Controller Placement

Wired controllers include a sensor to detect room temperature. To maintain comfort levels in the conditioned space, the wired controller must be installed in a location away from direct sunlight, high humidity, and where it could be directly exposed to cold air. Controller must be installed four (4) to five (5) feet above the floor where its display can be read easily, in an area with good air circulation, and where it can detect an average room temperature.

Do not install the wired controller near or in:

- *Drafts or dead spots behind doors and in corners*
- *Hot or cold air from ducts*
- *Radiant heat from the sun or appliances*
- *Concealed pipes and chimneys*
- *An area where temperatures are uncontrolled, such as an outside wall*

Figure 98: Proper Location for the Wired Controller.



Optional WiFi Control

WiFi control is an option for ceiling cassette indoor units. WiFi control requires the optional WiFi module PWFMDD200 and the ThinQ app on a compatible device such as a smartphone. Install the WiFi module by connecting it to the CN_WF / CN_WiFi connector on the indoor unit motherboard. Refer to the ThinQ manual for operation details.

ACRONYMS

Table 43: Acronym Table.

ABS	Acrylonitrile Butadiene Styrene	IDU	Indoor Unit
AC	Air Conditioner/Alternate Current	kW	Kilowatts
ACP	Advanced Control Platform	in Aq	inches water
AHU	Air Handling Unit	ISO	International Standards Organization
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning	LATS	LG Air Conditioning Technical Solution software
ASTM	American Society for Testing and Materials	LED	Light Emitting Diode
AWG	American Wire Gauge	LEED	Leadership in Energy and Environmental Design
AWHP	Air-to-Air Water Heat Pump	MBh	Thousands BTUs per hour
BLDC	Brushless Digitally-Controlled	MCA	Minimum Circuit Ampacity
BTL	BACnet® Testing Laboratories	mm	Millimeter
Btu/h	British Thermal Unit per Hour	MOP	Maximum Overcurrent Protection
CAA	Clean Air Act	OD	Outside Diameter
CFM	Cubic Feet per Minute	ODU	Outdoor Unit
CFR	Code of Federal Regulations	PI	Power Input
DB	Dry Bulb	PTAC	Packaged Terminal Air Conditioner
dB(A)	Decibels with “A” frequency weighting	SHC	Sensible Heat Capacity
DPST	Double-Pole Single Throw	SMACNA	Sheet Metal & Air Conditioning Contractors’ National Association
DX	Direct expansion	RPM	Revolutions per Minute
EEV	Electric Expansion valve	TC	Total Capacity
EPDM	Ethylene Propylene Diene M-Class Rubber	USD	United States Dollar
EMF	Electromagnetic Field	UL	Underwriters Laboratories
ESP	External Static Pressure	V	Voltage
ETL	Electric Testing Laboratories	VAV	Variable Air Volume
GND	Ground	VRF	Variable Refrigerant Flow
H/M/L	High/Medium/Low	W	Watts
HVAC	Heating, Ventilating and Air Conditioning	WB	Wet Bulb
Hz	Hertz	wg	Water Gauge
ID	Inside Diameter		

Inverter

162279

US

LG Electronics, U.S.A., Inc.
Air Conditioning Technologies
4300 North Point Parkway
Alpharetta, Georgia 30022
www.lghvac.com

EM_MultiV_CeilingCassette_wTA_IndoorUnits_02_24
Supersedes: EM_MultiV_CeilingCassette_wTA_IndoorUnits_11_23
EM_MultiV_CeilingCassette_wTA_IndoorUnits_10_23
EM_MultiV_CeilingCassette_wTA_IndoorUnits_2_22
EM_MultiV_CeilingCassette_wTA_IndoorUnits_8_21
EM_MultiV_CeilingCassette_IndoorUnits_6_20
EM_MultiV_CeilingCassette_IndoorUnits_12_19
EM_MultiV_CeilingCassette_IndoorUnits_6_18
EM_MultiV_CeilingCassette_IndoorUnits_8_17
EM_MultiV_CeilingCassette_IndoorUnits_8_16
EM_MultiV_CeilingCassette_IndoorUnits_4_16