

## ENGINEERING DATA BOOK



### INDOOR UNIT / OUTDOOR UNIT

RAS-09EKCV-UL / RAS-09EACV-UL

RAS-12EKCV-UL / RAS-12EACV-UL

RAS-15EKCV-UL / RAS-15EACV-UL

RAS-17EKCV-UL / RAS-17EACV-UL

RAS-22EKCV-UL / RAS-22EACV-UL

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## Product lineup

|                                                                                   |               |                                                                                    |               |               |               |               |                                                                                     |
|-----------------------------------------------------------------------------------|---------------|------------------------------------------------------------------------------------|---------------|---------------|---------------|---------------|-------------------------------------------------------------------------------------|
| High wall                                                                         | Size          | 9                                                                                  | 12            | 15            | 17            | 22            |  |
|                                                                                   | Outdoor unit  |  |               |               |               |               |                                                                                     |
|                                                                                   | Model name    | RAS-09EACV-UL                                                                      | RAS-12EACV-UL | RAS-15EACV-UL | RAS-17EACV-UL | RAS-22EACV-UL | ASM-OPTIONAL-RC                                                                     |
|  | RAS-09EKCV-UL | ●                                                                                  | -             | -             | -             | -             | °F Display<br>(WC-TA06NE)<br>1111855003                                             |
|                                                                                   | RAS-12EKCV-UL | -                                                                                  | ●             | -             | -             | -             |                                                                                     |
|  | RAS-15EKCV-UL | -                                                                                  | -             | ●             | -             | -             | or<br><br>°C Display<br>(WC-TA07NE)<br>1111855004                                   |
|                                                                                   | RAS-17EKCV-UL | -                                                                                  | -             | -             | ●             | -             |                                                                                     |
|                                                                                   | RAS-22EKCV-UL | -                                                                                  | -             | -             | -             | ●             |                                                                                     |

## Specifications

| System          | Size                                                     |          | 9                  | 12                 | 15                 | 17                 | 22                  |
|-----------------|----------------------------------------------------------|----------|--------------------|--------------------|--------------------|--------------------|---------------------|
|                 | Outdoor Model                                            |          | RAS-09EKCV-UL      | RAS-12EKCV-UL      | RAS-15EKCV-UL      | RAS-17EKCV-UL      | RAS-22EKCV-UL       |
| Performance     | Indoor Model                                             |          | RAS-09EACV-UL      | RAS-12EACV-UL      | RAS-15EACV-UL      | RAS-17EACV-UL      | RAS-22EACV-UL       |
|                 | Cooling Rated Capacity                                   | Btu/h    | 9000               | 12000              | 15000              | 16200              | 21400               |
| Performance     | Cooling Range Capacity                                   |          | 3750 - 10580       | 2750 - 13950       | 2750 - 17050       | 3750 - 20450       | 4100 - 22500        |
|                 | EER                                                      | Btu/W.h  | 13.00              | 12.60              | 13.00              | 12.60              | 8.30                |
|                 | SEER                                                     | Btu/W.h  | 20                 | 23                 | 20                 | 19                 | 15.5                |
| Controls        | Wireless (°C, °F, Convertible)                           |          | Standards          | Standards          | Standards          | Standards          | Standards           |
|                 | Wired (°C, °F, Convertible)                              |          | Optional           | Optional           | Optional           | Optional           | Optional            |
| Operating Range | Outdoor Min - Max DB                                     | °F       | 0~115              | 0~115              | 0~115              | 0~115              | 0~115               |
|                 | Indoor Min - Max DB                                      | °F       | 70~90              | 70~90              | 70~90              | 70~90              | 70~90               |
| Piping          | Min. Piping Length                                       | ft (m)   | 6.6 (2)            | 6.6 (2)            | 6.6 (2)            | 6.6 (2)            | 6.6 (2)             |
|                 | Standard Piping Length                                   | ft (m)   | 16 (5)             | 16 (5)             | 25 (7.5)           | 25 (7.5)           | 25 (7.5)            |
|                 | Max. Piping Length with no additional refrigerant charge | ft (m)   | 50 (15)            | 50 (15)            | 50 (15)            | 50 (15)            | 50 (15)             |
|                 | Max. Piping Length                                       | ft (m)   | 66 (20)            | 66 (20)            | 66 (20)            | 66 (20)            | 66 (20)             |
|                 | Gas Pipe (size/connection type)                          | in       | 3/8                | 3/8                | 1/2                | 1/2                | 1/2                 |
|                 | Liquid Pipe (size/connection type)                       | in       | 1/4                | 1/4                | 1/4                | 1/4                | 1/4                 |
| Electrical      | Voltage                                                  | V-Ph-Hz  | 208/230-1-60       | 208/230-1-60       | 208/230-1-60       | 208/230-1-60       | 208/230-1-60        |
|                 | Power Consumption                                        | W        | 690 (250 - 820)    | 950 (150 - 1250)   | 1150 (160 - 1720)  | 1285 (190 - 2010)  | 2570 (210 - 2720)   |
|                 | Running Current                                          | A @208V  | 3.68 (1.50 - 4.15) | 4.81 (1.03 - 6.26) | 5.75 (1.04 - 8.40) | 6.45 (1.23 - 9.90) | 12.8 (1.38 - 13.40) |
|                 |                                                          | A @230V  | 3.33 (1.36 - 3.75) | 4.35 (0.93 - 5.66) | 5.20 (0.94 - 7.60) | 5.80 (1.12 - 8.90) | 11.5 (1.25 - 12.10) |
|                 | MCA                                                      | A        | 10                 | 13                 | 13                 | 13                 | 15                  |
| Outdoor         | MOPA                                                     | A        | 15                 | 20                 | 20                 | 20                 | 25                  |
|                 | Dimensions                                               |          |                    |                    |                    |                    |                     |
|                 | Height                                                   | in (mm)  | 21-11/16 (550)     | 21-11/16 (550)     | 21-11/16 (550)     | 21-11/16 (550)     | 21-11/16 (550)      |
|                 | Width                                                    | in (mm)  | 30-11/16 (780)     | 30-11/16 (780)     | 30-11/16 (780)     | 30-11/16 (780)     | 30-11/16 (780)      |
|                 | Length                                                   | in (mm)  | 11-7/16 (290)      | 11-7/16 (290)      | 11-7/16 (290)      | 11-7/16 (290)      | 11-7/16 (290)       |
|                 | Weight -Gross/Net                                        | lbs (kg) | 88 (40)/82 (37)    | 95 (43)/88 (40)    | 98 (44)/91 (41)    | 98 (44)/91 (41)    | 100 (45)/93 (42)    |
| Indoor          | Sound Pressure                                           | dBa      | 47                 | 50                 | 51                 | 52                 | 53                  |
|                 | Dimensions                                               |          |                    |                    |                    |                    |                     |
|                 | Width                                                    | in (mm)  | 10-25/32 (275)     | 10-25/32 (275)     | 12-19/32 (320)     | 12-19/32 (320)     | 12-19/32 (320)      |
|                 | Height                                                   | in (mm)  | 31-1/8 (790)       | 31-1/8 (790)       | 41-5/16 (1050)     | 41-5/16 (1050)     | 41-5/16 (1050)      |
|                 | Length                                                   | in (mm)  | 8-1/16 (205)       | 8-1/16 (205)       | 8-15/16 (228)      | 8-15/16 (228)      | 8-15/16 (228)       |
|                 | Weight -Gross/Net                                        | lbs (kg) | 25 (11)/20 (9)     | 25 (11)/20 (9)     | 35 (16)/29 (13)    | 35 (16)/29 (13)    | 35 (16)/29 (13)     |
|                 | Sound Pressure at Different Speeds                       | dBa      | 39/36/34/30/27     | 45/42/40/35/30     | 44/41/38/35/32     | 47/44/41/38/35     | 47/44/41/38/35      |
| Indoor          | Air flow (H/M/L)                                         | CFM      | 303/244/177        | 406/304/219        | 562/445/346        | 636/505/388        | 636/505/388         |

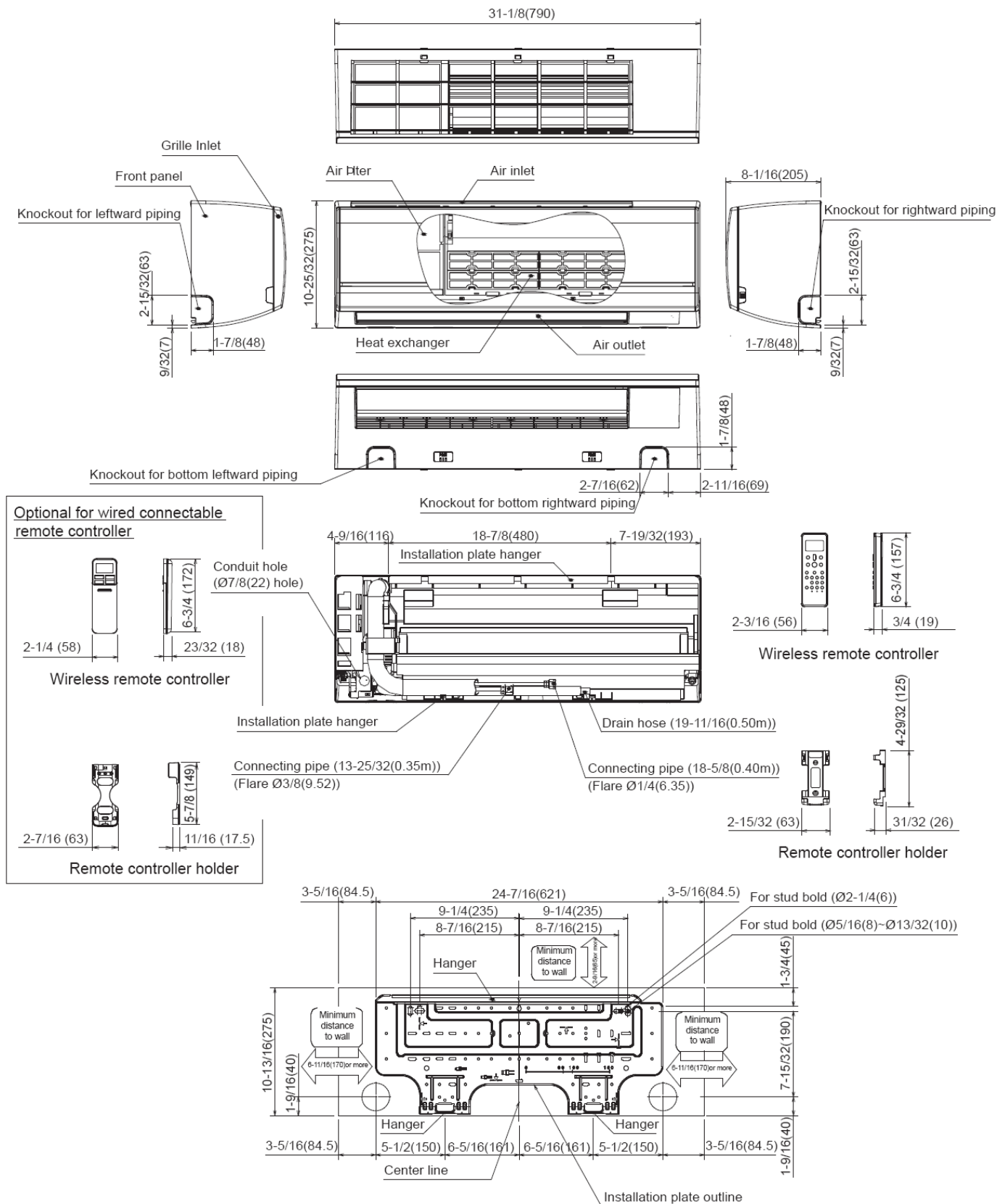
\* The specification may be subject to change without notice for purpose of improvement.

**Rated conditions** Cooling: Indoor air temperature 80°F DB / 67°F WB, Outdoor air temperature 95°F DB

## Dimensions of Indoor and outdoor units

Indoor units: RAS-09EKCV-UL, RAS-12EKCV-UL

Unit : Inch (mm)





Technical drawing of the 1000 Series Water Filter Housing, showing front and rear views with dimensions in inches and millimeters.

**Unit : Inch (mm)**

**Front View (Detail-B):**

- Overall Width: 4-15/16 (125)
- Overall Height: 12-19/32 (320)
- Top Flange Thickness: 3-3/8 (86)
- Bottom Flange Thickness: 4-9/16 (116)
- Top Flange Radius: R19/32 (R15)
- Top Flange Hole: Ø1/4 (Ø6) Hole
- Top Flange Hole Spacing: 1-27/64 (36)
- Top Flange Hole Diameter: Ø7/16x9/16 Oval-Hole (Ø11x14) Oval-Hole
- Top Flange Hole Position: 1-31/32 (50)
- Top Flange Hole Diameter: Ø11/16 (30)
- Top Flange Hole Position: 23-5/8 (600)

**Rear View (Detail-A):**

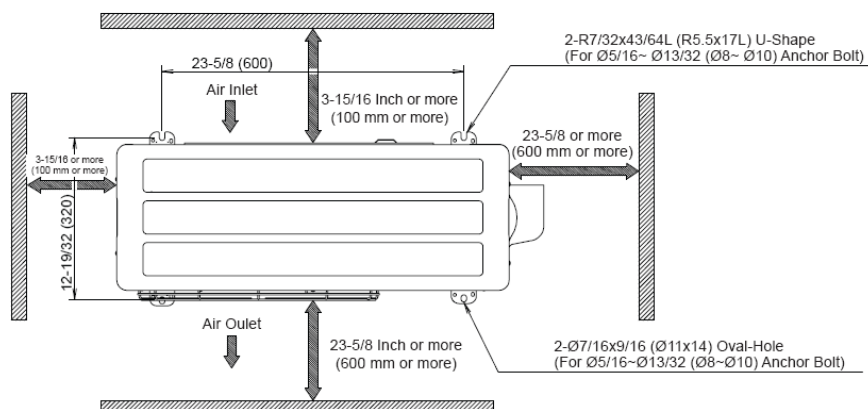
- Overall Width: 4-15/16 (125)
- Overall Height: 12-19/32 (320)
- Top Flange Thickness: 3-3/8 (86)
- Bottom Flange Thickness: 4-9/16 (116)
- Top Flange Radius: R19/32 (R15)
- Top Flange Hole: Ø1/4 (Ø6) Hole
- Top Flange Hole Spacing: 1-27/64 (36)
- Top Flange Hole Diameter: Ø7/16x9/16 Oval-Hole (Ø11x14) Oval-Hole
- Top Flange Hole Position: 1-31/32 (50)
- Top Flange Hole Diameter: Ø11/16 (30)
- Top Flange Hole Position: 23-5/8 (600)

**Detail-A (Rear Leg):**

- Overall Width: 4-15/16 (125)
- Overall Height: 12-19/32 (320)
- Top Flange Thickness: 3-3/8 (86)
- Bottom Flange Thickness: 4-9/16 (116)
- Top Flange Radius: R19/32 (R15)
- Top Flange Hole: Ø1/4 (Ø6) Hole
- Top Flange Hole Spacing: 1-27/64 (36)
- Top Flange Hole Diameter: Ø7/16x9/16 Oval-Hole (Ø11x14) Oval-Hole
- Top Flange Hole Position: 1-31/32 (50)
- Top Flange Hole Diameter: Ø11/16 (30)
- Top Flange Hole Position: 23-5/8 (600)

**Detail-B (Front Leg):**

- Overall Width: 4-15/16 (125)
- Overall Height: 12-19/32 (320)
- Top Flange Thickness: 3-3/8 (86)
- Bottom Flange Thickness: 4-9/16 (116)
- Top Flange Radius: R19/32 (R15)
- Top Flange Hole: Ø1/4 (Ø6) Hole
- Top Flange Hole Spacing: 1-27/64 (36)
- Top Flange Hole Diameter: Ø7/16x9/16 Oval-Hole (Ø11x14) Oval-Hole
- Top Flange Hole Position: 1-31/32 (50)
- Top Flange Hole Diameter: Ø11/16 (30)
- Top Flange Hole Position: 23-5/8 (600)



## Part load performance

Single Split Type

Indoor: RAS-09EKCV-UL

Outdoor: RAS-09EACV-UL

|         | Cooling   |     |
|---------|-----------|-----|
|         | Q (Btu/h) | W   |
| Minimum | 3750      | 250 |
| Rating  | 9000      | 690 |

## Cooling

| OD temp.<br>(°F) |           | Load (%)    |             |             |             |             |             |             |             |             |             |
|------------------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                  |           | 100         | 90          | 80          | 70          | 60          | 50          | 40          | 30          | 20          | 10          |
| 115              | Q (Btu/h) | 7730        | 6957        | 6184        | 5411        | 4638        | 3865        | 3221        | 3221        | 3221        | 3221        |
|                  | W         | 799         | 711         | 624         | 537         | 450         | 362         | 289         | 289         | 289         | 289         |
| 105              | Q (Btu/h) | 8365        | 7528        | 6692        | 5855        | 5019        | 4182        | 3485        | 3485        | 3485        | 3485        |
|                  | W         | 744         | 663         | 582         | 500         | 419         | 338         | 270         | 270         | 270         | 270         |
| 95               | Q (Btu/h) | <b>9000</b> | <b>8100</b> | <b>7200</b> | <b>6300</b> | <b>5400</b> | <b>4500</b> | <b>3750</b> | <b>3750</b> | <b>3750</b> | <b>3750</b> |
|                  | W         | <b>690</b>  | <b>615</b>  | <b>539</b>  | <b>464</b>  | <b>388</b>  | <b>313</b>  | <b>250</b>  | <b>250</b>  | <b>250</b>  | <b>250</b>  |
| 87               | Q (Btu/h) | 9520        | 8568        | 7616        | 6664        | 5712        | 4760        | 3967        | 3967        | 3967        | 3967        |
|                  | W         | 646         | 575         | 504         | 434         | 363         | 293         | 234         | 234         | 234         | 234         |
| 82               | Q (Btu/h) | 9809        | 8828        | 7847        | 6866        | 5885        | 4904        | 4087        | 4087        | 4087        | 4087        |
|                  | W         | 621         | 553         | 485         | 417         | 349         | 281         | 225         | 225         | 225         | 225         |
| 75               | Q (Btu/h) | 10271       | 9243        | 8216        | 7189        | 6162        | 5135        | 4279        | 4279        | 4279        | 4279        |
|                  | W         | 581         | 518         | 454         | 391         | 327         | 264         | 211         | 211         | 211         | 211         |
| 65               | Q (Btu/h) | 10906       | 9815        | 8725        | 7634        | 6543        | 5453        | 4544        | 4544        | 4544        | 4544        |
|                  | W         | 527         | 469         | 412         | 354         | 296         | 239         | 191         | 191         | 191         | 191         |
| 55               | Q (Btu/h) | 11541       | 10387       | 9233        | 8079        | 6925        | 5771        | 4809        | 4809        | 4809        | 4809        |
|                  | W         | 472         | 421         | 369         | 317         | 266         | 214         | 171         | 171         | 171         | 171         |
| 45               | Q (Btu/h) | 12234       | 11011       | 9787        | 8564        | 7340        | 6117        | 5098        | 5098        | 5098        | 5098        |
|                  | W         | 413         | 368         | 323         | 278         | 232         | 187         | 150         | 150         | 150         | 150         |
| 35               | Q (Btu/h) | 12869       | 11582       | 10295       | 9008        | 7722        | 6435        | 5362        | 5362        | 5362        | 5362        |
|                  | W         | 359         | 319         | 280         | 241         | 202         | 163         | 130         | 130         | 130         | 130         |
| 25               | Q (Btu/h) | 13505       | 12154       | 10804       | 9453        | 8103        | 6752        | 5627        | 5627        | 5627        | 5627        |
|                  | W         | 304         | 271         | 238         | 204         | 171         | 138         | 110         | 110         | 110         | 110         |
| 15               | Q (Btu/h) | 14140       | 12726       | 11312       | 9898        | 8484        | 7070        | 5892        | 5892        | 5892        | 5892        |
|                  | W         | 250         | 223         | 195         | 168         | 141         | 113         | 91          | 91          | 91          | 91          |
| 0                | Q (Btu/h) | 15122       | 13609       | 12097       | 10585       | 9073        | 7561        | 6301        | 6301        | 6301        | 6301        |
|                  | W         | 166         | 148         | 130         | 111         | 93          | 75          | 60          | 60          | 60          | 60          |

## Part load performance

Single Split Type

Indoor: RAS-12EKCV-UL

Outdoor: RAS-12EACV-UL

|         | Cooling   |     |
|---------|-----------|-----|
|         | Q (Btu/h) | W   |
| Minimum | 2750      | 150 |
| Rating  | 12000     | 950 |

## Cooling

| OD temp.<br>(°F) |                  | Load (%)     |              |             |             |             |             |             |             |             |             |
|------------------|------------------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                  |                  | 100          | 90           | 80          | 70          | 60          | 50          | 40          | 30          | 20          | 10          |
| 115              | Q (Btu/h)        | 10306        | 9275         | 8245        | 7214        | 6184        | 5153        | 4122        | 3092        | 2362        | 2362        |
|                  | W                | 1100         | 980          | 859         | 739         | 619         | 499         | 379         | 259         | 174         | 174         |
| 105              | Q (Btu/h)        | 11153        | 10038        | 8922        | 7807        | 6692        | 5577        | 4461        | 3346        | 2556        | 2556        |
|                  | W                | 1025         | 913          | 801         | 689         | 577         | 465         | 353         | 241         | 162         | 162         |
| <b>95</b>        | <b>Q (Btu/h)</b> | <b>12000</b> | <b>10800</b> | <b>9600</b> | <b>8400</b> | <b>7200</b> | <b>6000</b> | <b>4800</b> | <b>3600</b> | <b>2750</b> | <b>2750</b> |
|                  | <b>W</b>         | <b>950</b>   | <b>846</b>   | <b>742</b>  | <b>639</b>  | <b>535</b>  | <b>431</b>  | <b>327</b>  | <b>224</b>  | <b>150</b>  | <b>150</b>  |
| 87               | Q (Btu/h)        | 12693        | 11424        | 10154       | 8885        | 7616        | 6347        | 5077        | 3808        | 2909        | 2909        |
|                  | W                | 889          | 792          | 695         | 597         | 500         | 403         | 306         | 209         | 140         | 140         |
| 82               | Q (Btu/h)        | 13078        | 11770        | 10462       | 9155        | 7847        | 6539        | 5231        | 3923        | 2997        | 2997        |
|                  | W                | 855          | 761          | 668         | 575         | 481         | 388         | 294         | 201         | 135         | 135         |
| 75               | Q (Btu/h)        | 13694        | 12325        | 10955       | 9586        | 8216        | 6847        | 5478        | 4108        | 3138        | 3138        |
|                  | W                | 800          | 713          | 625         | 538         | 451         | 363         | 276         | 188         | 126         | 126         |
| 65               | Q (Btu/h)        | 14541        | 13087        | 11633       | 10179       | 8725        | 7271        | 5816        | 4362        | 3332        | 3332        |
|                  | W                | 725          | 646          | 567         | 488         | 408         | 329         | 250         | 171         | 115         | 115         |
| 55               | Q (Btu/h)        | 15388        | 13849        | 12310       | 10772       | 9233        | 7694        | 6155        | 4616        | 3526        | 3526        |
|                  | W                | 650          | 579          | 508         | 437         | 366         | 295         | 224         | 153         | 103         | 103         |
| 45               | Q (Btu/h)        | 16312        | 14681        | 13050       | 11418       | 9787        | 8156        | 6525        | 4894        | 3738        | 3738        |
|                  | W                | 569          | 507          | 444         | 382         | 320         | 258         | 196         | 134         | 90          | 90          |
| 35               | Q (Btu/h)        | 17159        | 15443        | 13727       | 12011       | 10295       | 8580        | 6864        | 5148        | 3932        | 3932        |
|                  | W                | 494          | 440          | 386         | 332         | 278         | 224         | 170         | 116         | 78          | 78          |
| 25               | Q (Btu/h)        | 18006        | 16205        | 14405       | 12604       | 10804       | 9003        | 7202        | 5402        | 4126        | 4126        |
|                  | W                | 419          | 373          | 327         | 282         | 236         | 190         | 144         | 99          | 66          | 66          |
| 15               | Q (Btu/h)        | 18853        | 16968        | 15082       | 13197       | 11312       | 9427        | 7541        | 5656        | 4320        | 4320        |
|                  | W                | 344          | 306          | 269         | 231         | 194         | 156         | 119         | 81          | 54          | 54          |
| 0                | Q (Btu/h)        | 20162        | 18146        | 16130       | 14113       | 12097       | 10081       | 8065        | 6049        | 4620        | 4620        |
|                  | W                | 228          | 203          | 178         | 153         | 129         | 104         | 79          | 54          | 36          | 36          |

## Part load performance

Single Split Type

Indoor: RAS-15EKCV-UL

Outdoor: RAS-15EACV-UL

|         | Cooling   |      |
|---------|-----------|------|
|         | Q (Btu/h) | W    |
| Minimum | 2750      | 160  |
| Rating  | 15000     | 1150 |

## Cooling

| OD temp.<br>(°F) |           | Load (%) |       |       |       |       |       |       |      |      |      |
|------------------|-----------|----------|-------|-------|-------|-------|-------|-------|------|------|------|
|                  |           | 100      | 90    | 80    | 70    | 60    | 50    | 40    | 30   | 20   | 10   |
| 115              | Q (Btu/h) | 12883    | 11594 | 10306 | 9018  | 7730  | 6441  | 5153  | 3865 | 2577 | 2362 |
|                  | W         | 1331     | 1191  | 1051  | 910   | 770   | 630   | 489   | 349  | 209  | 185  |
| 105              | Q (Btu/h) | 13941    | 12547 | 11153 | 9759  | 8365  | 6971  | 5577  | 4182 | 2788 | 2556 |
|                  | W         | 1241     | 1110  | 979   | 848   | 718   | 587   | 456   | 325  | 194  | 173  |
| 95               | Q (Btu/h) | 15000    | 13500 | 12000 | 10500 | 9000  | 7500  | 6000  | 4500 | 3000 | 2750 |
|                  | W         | 1150     | 1029  | 908   | 786   | 665   | 544   | 423   | 301  | 180  | 160  |
| 87               | Q (Btu/h) | 15866    | 14280 | 12693 | 11106 | 9520  | 7933  | 6347  | 4760 | 3173 | 2909 |
|                  | W         | 1076     | 962   | 849   | 736   | 622   | 509   | 395   | 282  | 169  | 150  |
| 82               | Q (Btu/h) | 16348    | 14713 | 13078 | 11443 | 9809  | 8174  | 6539  | 4904 | 3270 | 2997 |
|                  | W         | 1035     | 926   | 816   | 707   | 598   | 489   | 380   | 271  | 162  | 144  |
| 75               | Q (Btu/h) | 17118    | 15406 | 13694 | 11982 | 10271 | 8559  | 6847  | 5135 | 3424 | 3138 |
|                  | W         | 969      | 867   | 764   | 662   | 560   | 458   | 356   | 254  | 152  | 135  |
| 65               | Q (Btu/h) | 18176    | 16359 | 14541 | 12723 | 10906 | 9088  | 7271  | 5453 | 3635 | 3332 |
|                  | W         | 878      | 785   | 693   | 600   | 508   | 415   | 323   | 230  | 138  | 122  |
| 55               | Q (Btu/h) | 19235    | 17312 | 15388 | 13465 | 11541 | 9618  | 7694  | 5771 | 3847 | 3526 |
|                  | W         | 787      | 704   | 621   | 538   | 455   | 372   | 289   | 206  | 123  | 110  |
| 45               | Q (Btu/h) | 20390    | 18351 | 16312 | 14273 | 12234 | 10195 | 8156  | 6117 | 4078 | 3738 |
|                  | W         | 688      | 616   | 543   | 471   | 398   | 326   | 253   | 180  | 108  | 96   |
| 35               | Q (Btu/h) | 21449    | 19304 | 17159 | 15014 | 12869 | 10724 | 8580  | 6435 | 4290 | 3932 |
|                  | W         | 598      | 535   | 472   | 409   | 346   | 283   | 220   | 157  | 94   | 83   |
| 25               | Q (Btu/h) | 22508    | 20257 | 18006 | 15755 | 13505 | 11254 | 9003  | 6752 | 4502 | 4126 |
|                  | W         | 507      | 454   | 400   | 347   | 293   | 240   | 186   | 133  | 79   | 71   |
| 15               | Q (Btu/h) | 23566    | 21210 | 18853 | 16496 | 14140 | 11783 | 9427  | 7070 | 4713 | 4320 |
|                  | W         | 416      | 373   | 329   | 285   | 241   | 197   | 153   | 109  | 65   | 58   |
| 0                | Q (Btu/h) | 25203    | 22682 | 20162 | 17642 | 15122 | 12601 | 10081 | 7561 | 5041 | 4620 |
|                  | W         | 276      | 247   | 218   | 189   | 160   | 131   | 102   | 72   | 43   | 38   |

## Part load performance

Single Split Type

Indoor: RAS-17EKCV-UL

Outdoor: RAS-17EACV-UL

|         | Cooling   |      |
|---------|-----------|------|
|         | Q (Btu/h) | W    |
| Minimum | 3750      | 190  |
| Rating  | 16200     | 1285 |

## Cooling

| OD temp.<br>(°F) |           | Load (%) |       |       |       |       |       |       |      |      |      |
|------------------|-----------|----------|-------|-------|-------|-------|-------|-------|------|------|------|
|                  |           | 100      | 90    | 80    | 70    | 60    | 50    | 40    | 30   | 20   | 10   |
| 115              | Q (Btu/h) | 13913    | 12522 | 11130 | 9739  | 8348  | 6957  | 5565  | 4174 | 3221 | 3221 |
|                  | W         | 1488     | 1323  | 1158  | 993   | 828   | 663   | 498   | 333  | 220  | 220  |
| 105              | Q (Btu/h) | 15057    | 13551 | 12045 | 10540 | 9034  | 7528  | 6023  | 4517 | 3485 | 3485 |
|                  | W         | 1386     | 1233  | 1079  | 925   | 771   | 618   | 464   | 310  | 205  | 205  |
| 95               | Q (Btu/h) | 16200    | 14580 | 12960 | 11340 | 9720  | 8100  | 6480  | 4860 | 3750 | 3750 |
|                  | W         | 1285     | 1143  | 1000  | 858   | 715   | 573   | 430   | 288  | 190  | 190  |
| 87               | Q (Btu/h) | 17136    | 15422 | 13708 | 11995 | 10281 | 8568  | 6854  | 5141 | 3967 | 3967 |
|                  | W         | 1202     | 1069  | 936   | 802   | 669   | 536   | 402   | 269  | 178  | 178  |
| 82               | Q (Btu/h) | 17655    | 15890 | 14124 | 12359 | 10593 | 8828  | 7062  | 5297 | 4087 | 4087 |
|                  | W         | 1156     | 1028  | 900   | 772   | 643   | 515   | 387   | 259  | 171  | 171  |
| 75               | Q (Btu/h) | 18487    | 16638 | 14790 | 12941 | 11092 | 9243  | 7395  | 5546 | 4279 | 4279 |
|                  | W         | 1082     | 962   | 842   | 722   | 602   | 482   | 362   | 242  | 160  | 160  |
| 65               | Q (Btu/h) | 19630    | 17667 | 15704 | 13741 | 11778 | 9815  | 7852  | 5889 | 4544 | 4544 |
|                  | W         | 981      | 872   | 764   | 655   | 546   | 437   | 328   | 220  | 145  | 145  |
| 55               | Q (Btu/h) | 20774    | 18696 | 16619 | 14542 | 12464 | 10387 | 8310  | 6232 | 4809 | 4809 |
|                  | W         | 880      | 782   | 685   | 587   | 490   | 392   | 294   | 197  | 130  | 130  |
| 45               | Q (Btu/h) | 22021    | 19819 | 17617 | 15415 | 13213 | 11011 | 8808  | 6606 | 5098 | 5098 |
|                  | W         | 769      | 684   | 599   | 513   | 428   | 343   | 257   | 172  | 114  | 114  |
| 35               | Q (Btu/h) | 23165    | 20848 | 18532 | 16215 | 13899 | 11582 | 9266  | 6949 | 5362 | 5362 |
|                  | W         | 668      | 594   | 520   | 446   | 372   | 298   | 224   | 150  | 99   | 99   |
| 25               | Q (Btu/h) | 24308    | 21877 | 19446 | 17016 | 14585 | 12154 | 9723  | 7292 | 5627 | 5627 |
|                  | W         | 567      | 504   | 441   | 378   | 315   | 253   | 190   | 127  | 84   | 84   |
| 15               | Q (Btu/h) | 25452    | 22906 | 20361 | 17816 | 15271 | 12726 | 10181 | 7635 | 5892 | 5892 |
|                  | W         | 465      | 414   | 362   | 311   | 259   | 207   | 156   | 104  | 69   | 69   |
| 0                | Q (Btu/h) | 27219    | 24497 | 21775 | 19053 | 16331 | 13609 | 10887 | 8166 | 6301 | 6301 |
|                  | W         | 309      | 275   | 240   | 206   | 172   | 138   | 103   | 69   | 46   | 46   |

## Part load performance

Single Split Type

Indoor: RAS-22EKCV-UL

Outdoor: RAS-22EACV-UL

|         | Cooling   |      |
|---------|-----------|------|
|         | Q (Btu/h) | W    |
| Minimum | 4100      | 210  |
| Rating  | 21400     | 2570 |

## Cooling

| OD temp.<br>(°F) |           | Load (%)     |              |              |              |              |              |             |             |             |             |
|------------------|-----------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|-------------|-------------|-------------|
|                  |           | 100          | 90           | 80           | 70           | 60           | 50           | 40          | 30          | 20          | 10          |
| 115              | Q (Btu/h) | 10549        | 9494         | 8439         | 7384         | 6330         | 5275         | 4220        | 3165        | 2110        | 2021        |
|                  | W         | 1908         | 1691         | 1474         | 1257         | 1041         | 824          | 607         | 391         | 174         | 156         |
| 105              | Q (Btu/h) | 17227        | 15504        | 13781        | 12059        | 10336        | 8613         | 6891        | 5168        | 3445        | 3300        |
|                  | W         | 2409         | 2136         | 1862         | 1588         | 1315         | 1041         | 767         | 494         | 220         | 197         |
| 95               | Q (Btu/h) | <b>21400</b> | <b>19260</b> | <b>17120</b> | <b>14980</b> | <b>12840</b> | <b>10700</b> | <b>8560</b> | <b>6420</b> | <b>4280</b> | <b>4100</b> |
|                  | W         | <b>2570</b>  | <b>2278</b>  | <b>1986</b>  | <b>1694</b>  | <b>1402</b>  | <b>1110</b>  | <b>818</b>  | <b>526</b>  | <b>235</b>  | <b>210</b>  |
| 87               | Q (Btu/h) | 22636        | 20372        | 18109        | 15845        | 13582        | 11318        | 9054        | 6791        | 4527        | 4337        |
|                  | W         | 2404         | 2131         | 1858         | 1585         | 1312         | 1039         | 766         | 493         | 219         | 196         |
| 82               | Q (Btu/h) | 23322        | 20990        | 18658        | 16326        | 13993        | 11661        | 9329        | 6997        | 4664        | 4468        |
|                  | W         | 2312         | 2050         | 1787         | 1524         | 1262         | 999          | 736         | 474         | 211         | 189         |
| 75               | Q (Btu/h) | 24421        | 21979        | 19537        | 17095        | 14653        | 12210        | 9768        | 7326        | 4884        | 4679        |
|                  | W         | 2165         | 1919         | 1673         | 1427         | 1181         | 935          | 689         | 443         | 198         | 177         |
| 65               | Q (Btu/h) | 25931        | 23338        | 20745        | 18152        | 15559        | 12966        | 10373       | 7779        | 5186        | 4968        |
|                  | W         | 1962         | 1739         | 1516         | 1294         | 1071         | 848          | 625         | 402         | 179         | 160         |
| 55               | Q (Btu/h) | 27442        | 24698        | 21954        | 19209        | 16465        | 13721        | 10977       | 8233        | 5488        | 5258        |
|                  | W         | 1760         | 1560         | 1360         | 1160         | 960          | 760          | 560         | 360         | 161         | 144         |
| 45               | Q (Btu/h) | 29090        | 26181        | 23272        | 20363        | 17454        | 14545        | 11636       | 8727        | 5818        | 5573        |
|                  | W         | 1539         | 1364         | 1189         | 1014         | 839          | 665          | 490         | 315         | 140         | 126         |
| 35               | Q (Btu/h) | 30600        | 27540        | 24480        | 21420        | 18360        | 15300        | 12240       | 9180        | 6120        | 5863        |
|                  | W         | 1336         | 1184         | 1032         | 881          | 729          | 577          | 425         | 274         | 122         | 109         |
| 25               | Q (Btu/h) | 32111        | 28900        | 25689        | 22477        | 19266        | 16055        | 12844       | 9633        | 6422        | 6152        |
|                  | W         | 1133         | 1005         | 876          | 747          | 618          | 490          | 361         | 232         | 103         | 93          |
| 15               | Q (Btu/h) | 33621        | 30259        | 26897        | 23535        | 20173        | 16811        | 13448       | 10086       | 6724        | 6441        |
|                  | W         | 931          | 825          | 719          | 614          | 508          | 402          | 296         | 191         | 85          | 76          |
| 0                | Q (Btu/h) | 35956        | 32360        | 28764        | 25169        | 21573        | 17978        | 14382       | 10787       | 7191        | 6889        |
|                  | W         | 618          | 547          | 477          | 407          | 337          | 267          | 197         | 127         | 56          | 50          |

## Sensible capacity table

## Trend of Total &amp; Sensible Heat Capacity / Indoor Air &amp; Outdoor Air Temperature.

Product models: RAS-09EKCVCV-UL / RAS-09EACVCV-UL

## Standard condition

|         |                       |
|---------|-----------------------|
| Indoor  | 80.0°F DB / 67.0°F WB |
| Outdoor | 95.0°F DB / 75.0°F WB |

## Specification of product at standard condition.

|                              |            |
|------------------------------|------------|
| Total Cooling Capacity (TC)  | 9000 Btu/h |
| Sensible Heat Capacity (SHC) | 6990 Btu/h |
| Air flow volume              | 303 CFM    |

|                           | Indoor coil air temperature |       |                        |       |                        |       |                        |       |                        |       |                        |       |                        |       |                        |       |     |
|---------------------------|-----------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|-----|
| Outdoor<br>coil air temp. | 68.0°F DB<br>57.0°F WB      |       | 73.0°F DB<br>61.0°F WB |       | 75.0°F DB<br>63.0°F WB |       | 79.0°F DB<br>64.0°F WB |       | 80.0°F DB<br>67.0°F WB |       | 82.0°F DB<br>68.0°F WB |       | 86.0°F DB<br>72.0°F WB |       | 90.0°F DB<br>75.0°F WB |       |     |
|                           | °F DB                       | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC |
| 0                         | 12421                       | 10402 | 13717                  | 11079 | 14042                  | 11313 | 14689                  | 11776 | 15122                  | 11744 | 15554                  | 11727 | 16472                  | 11594 | 17228                  | 11346 |     |
| 5                         | 12136                       | 10164 | 13402                  | 10825 | 13720                  | 11054 | 14352                  | 11506 | 14775                  | 11475 | 15198                  | 11458 | 16094                  | 11328 | 16833                  | 11086 |     |
| 10                        | 11852                       | 9925  | 13088                  | 10571 | 13398                  | 10795 | 14016                  | 11236 | 14429                  | 11206 | 14841                  | 11190 | 15717                  | 11063 | 16438                  | 10826 |     |
| 15                        | 11614                       | 9727  | 12826                  | 10359 | 13130                  | 10579 | 13735                  | 11011 | 14140                  | 10982 | 14544                  | 10966 | 15402                  | 10841 | 16109                  | 10609 |     |
| 20                        | 11330                       | 9488  | 12512                  | 10105 | 12808                  | 10319 | 13399                  | 10741 | 13793                  | 10713 | 14188                  | 10696 | 15025                  | 10576 | 15715                  | 10349 |     |
| 25                        | 11093                       | 9290  | 12250                  | 9894  | 12540                  | 10103 | 13118                  | 10516 | 13505                  | 10488 | 13891                  | 10473 | 14710                  | 10354 | 15386                  | 10132 |     |
| 30                        | 10808                       | 9051  | 11936                  | 9640  | 12219                  | 9844  | 12782                  | 10247 | 13158                  | 10219 | 13534                  | 10204 | 14333                  | 10089 | 14991                  | 9873  |     |
| 35                        | 10571                       | 8853  | 11674                  | 9428  | 11950                  | 9628  | 12501                  | 10022 | 12869                  | 9995  | 13237                  | 9980  | 14018                  | 9867  | 14662                  | 9656  |     |
| 40                        | 10286                       | 8614  | 11359                  | 9175  | 11629                  | 9369  | 12165                  | 9752  | 12523                  | 9726  | 12881                  | 9712  | 13641                  | 9601  | 14267                  | 9396  |     |
| 45                        | 10049                       | 8416  | 11097                  | 8963  | 11360                  | 9153  | 11884                  | 9527  | 12234                  | 9502  | 12584                  | 9488  | 13326                  | 9380  | 13938                  | 9179  |     |
| 50                        | 9764                        | 8177  | 10783                  | 8709  | 11039                  | 8894  | 11548                  | 9257  | 11888                  | 9233  | 12227                  | 9219  | 12949                  | 9114  | 13543                  | 8919  |     |
| 55                        | 9480                        | 7939  | 10469                  | 8455  | 10717                  | 8634  | 11211                  | 8987  | 11541                  | 8964  | 11871                  | 8950  | 12572                  | 8849  | 13149                  | 8659  |     |
| 60                        | 9243                        | 7740  | 10207                  | 8244  | 10449                  | 8418  | 10930                  | 8763  | 11252                  | 8739  | 11574                  | 8726  | 12257                  | 8627  | 12820                  | 8443  |     |
| 65                        | 8958                        | 7502  | 9893                   | 7990  | 10127                  | 8159  | 10594                  | 8493  | 10906                  | 8470  | 11218                  | 8458  | 11880                  | 8362  | 12425                  | 8183  |     |
| 70                        | 8721                        | 7303  | 9631                   | 7778  | 9859                   | 7943  | 10313                  | 8268  | 10617                  | 8246  | 10921                  | 8234  | 11565                  | 8140  | 12096                  | 7966  |     |
| 75                        | 8436                        | 7065  | 9316                   | 7525  | 9537                   | 7684  | 9977                   | 7998  | 10271                  | 7977  | 10564                  | 7965  | 11188                  | 7875  | 11701                  | 7706  |     |
| 80                        | 8199                        | 6866  | 9054                   | 7313  | 9269                   | 7468  | 9696                   | 7773  | 9982                   | 7752  | 10267                  | 7741  | 10873                  | 7653  | 11372                  | 7489  |     |
| 82                        | 8057                        | 6747  | 8897                   | 7186  | 9108                   | 7338  | 9528                   | 7638  | 9809                   | 7618  | 10089                  | 7607  | 10684                  | 7520  | 11175                  | 7359  |     |
| 85                        | 7914                        | 6628  | 8740                   | 7059  | 8947                   | 7209  | 9360                   | 7503  | 9635                   | 7483  | 9911                   | 7472  | 10496                  | 7388  | 10977                  | 7229  |     |
| 87                        | 7820                        | 6549  | 8635                   | 6974  | 8840                   | 7122  | 9247                   | 7413  | 9520                   | 7394  | 9792                   | 7383  | 10370                  | 7299  | 10846                  | 7143  |     |
| 90                        | 7677                        | 6429  | 8478                   | 6848  | 8679                   | 6993  | 9079                   | 7278  | 9347                   | 7259  | 9614                   | 7248  | 10181                  | 7166  | 10648                  | 7013  |     |
| 95                        | 7393                        | 6191  | 8164                   | 6594  | 8357                   | 6733  | 8743                   | 7009  | 9000                   | 6990  | 9257                   | 6980  | 9804                   | 6900  | 10254                  | 6753  |     |
| 100                       | 7108                        | 5953  | 7850                   | 6340  | 8036                   | 6474  | 8406                   | 6739  | 8654                   | 6721  | 8901                   | 6711  | 9426                   | 6635  | 9859                   | 6493  |     |
| 105                       | 6871                        | 5754  | 7588                   | 6128  | 7768                   | 6258  | 8126                   | 6514  | 8365                   | 6497  | 8604                   | 6487  | 9112                   | 6413  | 9530                   | 6276  |     |
| 110                       | 6586                        | 5516  | 7273                   | 5874  | 7446                   | 5999  | 7789                   | 6244  | 8018                   | 6228  | 8248                   | 6218  | 8734                   | 6148  | 9135                   | 6016  |     |
| 115                       | 6349                        | 5317  | 7011                   | 5663  | 7178                   | 5783  | 7508                   | 6019  | 7730                   | 6003  | 7951                   | 5994  | 8420                   | 5926  | 8806                   | 5799  |     |

## Trend of Total &amp; Sensible Heat Capacity / Indoor Air &amp; Outdoor Air Temperature.

Product models: RAS-12EKCVCV-UL / RAS-12EACVCV-UL

## Standard condition

|         |                       |
|---------|-----------------------|
| Indoor  | 80.0°F DB / 67.0°F WB |
| Outdoor | 95.0°F DB / 75.0°F WB |

## Specification of product at standard condition.

|                              |             |
|------------------------------|-------------|
| Total Cooling Capacity (TC)  | 12000 Btu/h |
| Sensible Heat Capacity (SHC) | 9216 Btu/h  |
| Air flow volume              | 406 CFM     |

|                           | Indoor coil air temperature |       |                        |       |                        |       |                        |       |                        |       |                        |       |                        |       |                        |       |
|---------------------------|-----------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|
| Outdoor<br>coil air temp. | 68.0°F DB<br>57.0°F WB      |       | 73.0°F DB<br>61.0°F WB |       | 75.0°F DB<br>63.0°F WB |       | 79.0°F DB<br>64.0°F WB |       | 80.0°F DB<br>67.0°F WB |       | 82.0°F DB<br>68.0°F WB |       | 86.0°F DB<br>72.0°F WB |       | 90.0°F DB<br>75.0°F WB |       |
|                           | °F DB                       | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    |       |
| 0                         | 16561                       | 13726 | 18289                  | 14613 | 18722                  | 14922 | 19585                  | 15531 | 20162                  | 15484 | 20739                  | 15457 | 21962                  | 15268 | 22971                  | 14929 |
| 5                         | 16182                       | 13411 | 17870                  | 14278 | 18293                  | 14580 | 19137                  | 15175 | 19700                  | 15130 | 20263                  | 15102 | 21459                  | 14918 | 22444                  | 14586 |
| 10                        | 15802                       | 13097 | 17451                  | 13943 | 17864                  | 14238 | 18688                  | 14819 | 19238                  | 14775 | 19788                  | 14748 | 20956                  | 14569 | 21918                  | 14244 |
| 15                        | 15486                       | 12835 | 17102                  | 13664 | 17507                  | 13953 | 18314                  | 14523 | 18853                  | 14479 | 19392                  | 14453 | 20537                  | 14277 | 21479                  | 13959 |
| 20                        | 15106                       | 12520 | 16682                  | 13329 | 17078                  | 13611 | 17865                  | 14167 | 18391                  | 14124 | 18917                  | 14099 | 20033                  | 13927 | 20953                  | 13617 |
| 25                        | 14790                       | 12258 | 16333                  | 13050 | 16720                  | 13326 | 17491                  | 13870 | 18006                  | 13829 | 18521                  | 13804 | 19614                  | 13636 | 20514                  | 13332 |
| 30                        | 14411                       | 11944 | 15914                  | 12715 | 16291                  | 12984 | 17042                  | 13514 | 17544                  | 13474 | 18046                  | 13450 | 19111                  | 13286 | 19988                  | 12990 |
| 35                        | 14094                       | 11681 | 15565                  | 12436 | 15934                  | 12699 | 16668                  | 13218 | 17159                  | 13178 | 17650                  | 13154 | 18691                  | 12994 | 19549                  | 12705 |
| 40                        | 13715                       | 11367 | 15146                  | 12102 | 15505                  | 12357 | 16219                  | 12862 | 16697                  | 12823 | 17175                  | 12800 | 18188                  | 12644 | 19023                  | 12363 |
| 45                        | 13399                       | 11105 | 14797                  | 11822 | 15147                  | 12072 | 15845                  | 12565 | 16312                  | 12528 | 16779                  | 12505 | 17769                  | 12353 | 18584                  | 12078 |
| 50                        | 13019                       | 10790 | 14378                  | 11488 | 14718                  | 11730 | 15397                  | 12210 | 15850                  | 12173 | 16303                  | 12151 | 17265                  | 12003 | 18058                  | 11736 |
| 55                        | 12640                       | 10426 | 13958                  | 11153 | 14289                  | 11389 | 14948                  | 11854 | 15388                  | 11818 | 15828                  | 11797 | 16762                  | 11653 | 17532                  | 11394 |
| 60                        | 12323                       | 10214 | 13609                  | 10874 | 13932                  | 11104 | 14574                  | 11557 | 15003                  | 11522 | 15432                  | 11502 | 16343                  | 11361 | 17093                  | 11109 |
| 65                        | 11944                       | 9899  | 13190                  | 10539 | 13503                  | 10762 | 14125                  | 11201 | 14541                  | 11167 | 14957                  | 11147 | 15840                  | 11012 | 16567                  | 10767 |
| 70                        | 11628                       | 9637  | 12841                  | 10260 | 13145                  | 10477 | 13751                  | 10905 | 14156                  | 10872 | 14561                  | 10852 | 15420                  | 10720 | 16128                  | 10482 |
| 75                        | 11248                       | 9323  | 12422                  | 9925  | 12716                  | 10135 | 13302                  | 10549 | 13694                  | 10517 | 14086                  | 10498 | 14917                  | 10370 | 15602                  | 10139 |
| 80                        | 10932                       | 9060  | 12073                  | 9646  | 12359                  | 9850  | 12928                  | 10252 | 13309                  | 10221 | 13690                  | 10203 | 14497                  | 10079 | 15163                  | 9854  |
| 82                        | 10742                       | 8903  | 11863                  | 9479  | 12144                  | 9679  | 12704                  | 10074 | 13078                  | 10044 | 13452                  | 10026 | 14246                  | 9904  | 14900                  | 9683  |
| 85                        | 10553                       | 8746  | 11654                  | 9311  | 11930                  | 9508  | 12480                  | 9896  | 12847                  | 9866  | 13214                  | 9849  | 13994                  | 9729  | 14637                  | 9512  |
| 87                        | 10426                       | 8641  | 11514                  | 9200  | 11787                  | 9394  | 12330                  | 9778  | 12693                  | 9748  | 13056                  | 9731  | 13826                  | 9612  | 14461                  | 9398  |
| 90                        | 10236                       | 8484  | 11304                  | 9032  | 11572                  | 9223  | 12106                  | 9600  | 12462                  | 9571  | 12818                  | 9554  | 13575                  | 9437  | 14198                  | 9227  |
| 95                        | 9857                        | 8169  | 10885                  | 8697  | 11143                  | 8881  | 11657                  | 9244  | 12000                  | 9216  | 12343                  | 9199  | 13072                  | 9087  | 13672                  | 8885  |
| 100                       | 9477                        | 7855  | 10466                  | 8362  | 10714                  | 8539  | 11208                  | 8888  | 11538                  | 8861  | 11868                  | 8845  | 12568                  | 8738  | 13145                  | 8543  |
| 105                       | 9161                        | 7593  | 10117                  | 8083  | 10357                  | 8254  | 10834                  | 8591  | 11153                  | 8566  | 11472                  | 8550  | 12149                  | 8446  | 12707                  | 8258  |
| 110                       | 8782                        | 7278  | 9698                   | 7749  | 9928                   | 7912  | 10385                  | 8235  | 10691                  | 8211  | 10997                  | 8196  | 11646                  | 8096  | 12180                  | 7916  |
| 115                       | 8465                        | 7016  | 9349                   | 7470  | 9570                   | 7627  | 10011                  | 7939  | 10306                  | 7915  | 10601                  | 7901  | 11226                  | 7805  | 11742                  | 7631  |

## Sensible capacity table

## Trend of Total &amp; Sensible Heat Capacity / Indoor Air &amp; Outdoor Air Temperature.

Product models: RAS-15EKCV-UL / RAS-15EACV-UL

Standard condition

|         |                       |
|---------|-----------------------|
| Indoor  | 80.0°F DB / 67.0°F WB |
| Outdoor | 95.0°F DB / 75.0°F WB |

Specification of product at standard condition.

|                              |             |
|------------------------------|-------------|
| Total Cooling Capacity (TC)  | 15000 Btu/h |
| Sensible Heat Capacity (SHC) | 12510 Btu/h |
| Air flow volume              | 562 CFM     |

|                           | Indoor coil air temperature |       |                        |       |                        |       |                        |       |                        |       |                        |       |                        |       |                        |       |       |
|---------------------------|-----------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|-------|
| Outdoor<br>coil air temp. | 68.0°F DB<br>57.0°F WB      |       | 73.0°F DB<br>61.0°F WB |       | 75.0°F DB<br>63.0°F WB |       | 79.0°F DB<br>64.0°F WB |       | 80.0°F DB<br>67.0°F WB |       | 82.0°F DB<br>68.0°F WB |       | 86.0°F DB<br>72.0°F WB |       | 90.0°F DB<br>75.0°F WB |       |       |
|                           | °F DB                       | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC   |
| 0                         | 20701                       | 18524 | 22861                  | 19775 | 23403                  | 20197 | 24482                  | 21030 | 25203                  | 21019 | 25923                  | 21032 | 27453                  | 20897 | 28713                  | 20556 | 20556 |
| 5                         | 20227                       | 18099 | 22337                  | 19322 | 22867                  | 19734 | 23921                  | 20548 | 24625                  | 20537 | 25329                  | 20550 | 26824                  | 20418 | 28055                  | 20085 | 20085 |
| 10                        | 19753                       | 17675 | 21813                  | 18869 | 22331                  | 19271 | 23360                  | 20066 | 24048                  | 20056 | 24735                  | 20068 | 26195                  | 19940 | 27397                  | 19614 | 19614 |
| 15                        | 19357                       | 17321 | 21377                  | 18491 | 21884                  | 18886 | 22892                  | 19664 | 23566                  | 19654 | 24240                  | 19666 | 25671                  | 19541 | 26849                  | 19221 | 19221 |
| 20                        | 18883                       | 16896 | 20853                  | 18038 | 21347                  | 18423 | 22331                  | 19183 | 22989                  | 19173 | 23646                  | 19184 | 25042                  | 19062 | 26191                  | 18750 | 18750 |
| 25                        | 18488                       | 16543 | 20417                  | 17660 | 20900                  | 18037 | 21864                  | 18781 | 22508                  | 18771 | 23151                  | 18783 | 24517                  | 18663 | 25643                  | 18358 | 18358 |
| 30                        | 18013                       | 16118 | 19893                  | 17207 | 20364                  | 17574 | 21303                  | 18299 | 21930                  | 18290 | 22557                  | 18301 | 23888                  | 18184 | 24985                  | 17887 | 17887 |
| 35                        | 17618                       | 15765 | 19456                  | 16830 | 19917                  | 17189 | 20835                  | 17898 | 21449                  | 17888 | 22062                  | 17899 | 23364                  | 17785 | 24437                  | 17494 | 17494 |
| 40                        | 17144                       | 15340 | 18932                  | 16376 | 19381                  | 16726 | 20274                  | 17416 | 20871                  | 17407 | 21468                  | 17417 | 22735                  | 17306 | 23779                  | 17023 | 17023 |
| 45                        | 16748                       | 14986 | 18496                  | 15999 | 18934                  | 16340 | 19807                  | 17014 | 20390                  | 17005 | 20973                  | 17017 | 22211                  | 16907 | 23230                  | 16631 | 16631 |
| 50                        | 16274                       | 14562 | 17972                  | 15546 | 18398                  | 15877 | 19246                  | 16532 | 19813                  | 16524 | 20379                  | 16534 | 21582                  | 16428 | 22572                  | 16160 | 16160 |
| 55                        | 15800                       | 14138 | 17448                  | 15093 | 17862                  | 15415 | 18685                  | 16050 | 19235                  | 16042 | 19785                  | 16052 | 20953                  | 15949 | 21914                  | 15689 | 15689 |
| 60                        | 15404                       | 13784 | 17012                  | 14715 | 17415                  | 15029 | 18217                  | 15649 | 18754                  | 15641 | 19290                  | 15650 | 20428                  | 15550 | 21366                  | 15296 | 15296 |
| 65                        | 14930                       | 13359 | 16488                  | 14262 | 16878                  | 14566 | 17656                  | 15167 | 18176                  | 15159 | 18696                  | 15168 | 19799                  | 15071 | 20708                  | 14825 | 14825 |
| 70                        | 14535                       | 13006 | 16051                  | 13884 | 16432                  | 14180 | 17189                  | 14765 | 17695                  | 14758 | 18201                  | 14767 | 19275                  | 14672 | 20160                  | 14432 | 14432 |
| 75                        | 14060                       | 12581 | 15527                  | 13431 | 15895                  | 13718 | 16628                  | 14283 | 17118                  | 14276 | 17607                  | 14285 | 18646                  | 14193 | 19502                  | 13961 | 13961 |
| 80                        | 13665                       | 12227 | 15091                  | 13053 | 15448                  | 13332 | 16160                  | 13882 | 16636                  | 13875 | 17112                  | 13883 | 18122                  | 13794 | 18954                  | 13569 | 13569 |
| 82                        | 13428                       | 12015 | 14829                  | 12827 | 15180                  | 13101 | 15880                  | 13641 | 16348                  | 13634 | 16815                  | 13642 | 17807                  | 13555 | 18625                  | 13333 | 13333 |
| 85                        | 13191                       | 11803 | 14567                  | 12600 | 14912                  | 12869 | 15599                  | 13400 | 16059                  | 13393 | 16518                  | 13401 | 17493                  | 13316 | 18296                  | 13098 | 13098 |
| 87                        | 13033                       | 11662 | 14392                  | 12449 | 14733                  | 12715 | 15412                  | 13239 | 15866                  | 13232 | 16320                  | 13240 | 17283                  | 13156 | 18076                  | 12941 | 12941 |
| 90                        | 12795                       | 11449 | 14130                  | 12223 | 14465                  | 12484 | 15132                  | 12998 | 15578                  | 12992 | 16023                  | 12999 | 16969                  | 12916 | 17747                  | 12705 | 12705 |
| 95                        | 12321                       | 11025 | 13607                  | 11770 | 13929                  | 12021 | 14571                  | 12516 | 15000                  | 12510 | 15429                  | 12518 | 16340                  | 12438 | 17090                  | 12234 | 12234 |
| 100                       | 11847                       | 10600 | 13083                  | 11316 | 13393                  | 11558 | 14010                  | 12035 | 14423                  | 12028 | 14835                  | 12036 | 15710                  | 11959 | 16432                  | 11763 | 11763 |
| 105                       | 11451                       | 10247 | 12646                  | 10939 | 12946                  | 11172 | 13543                  | 11633 | 13941                  | 11627 | 14340                  | 11634 | 15186                  | 11560 | 15883                  | 11371 | 11371 |
| 110                       | 10927                       | 9822  | 12122                  | 10486 | 12410                  | 10709 | 12982                  | 11151 | 13364                  | 11145 | 13746                  | 11152 | 14557                  | 11081 | 15225                  | 10900 | 10900 |
| 115                       | 10582                       | 9468  | 11686                  | 10108 | 11963                  | 10324 | 12514                  | 10750 | 12883                  | 10744 | 13251                  | 10750 | 14033                  | 10682 | 14677                  | 10507 | 10507 |

## Trend of Total &amp; Sensible Heat Capacity / Indoor Air &amp; Outdoor Air Temperature.

Product models: RAS-17EKCV-UL / RAS-17EACV-UL

Standard condition

|         |                       |
|---------|-----------------------|
| Indoor  | 80.0°F DB / 67.0°F WB |
| Outdoor | 95.0°F DB / 75.0°F WB |

Specification of product at standard condition.

|                              |             |
|------------------------------|-------------|
| Total Cooling Capacity (TC)  | 16200 Btu/h |
| Sensible Heat Capacity (SHC) | 13580 Btu/h |
| Air flow volume              | 636 CFM     |

|                           | Indoor coil air temperature |       |                        |       |                        |       |                        |       |                        |       |                        |       |                        |       |                        |       |       |
|---------------------------|-----------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|-------|
| Outdoor<br>coil air temp. | 68.0°F DB<br>57.0°F WB      |       | 73.0°F DB<br>61.0°F WB |       | 75.0°F DB<br>63.0°F WB |       | 79.0°F DB<br>64.0°F WB |       | 80.0°F DB<br>67.0°F WB |       | 82.0°F DB<br>68.0°F WB |       | 86.0°F DB<br>72.0°F WB |       | 90.0°F DB<br>75.0°F WB |       |       |
|                           | °F DB                       | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC                    | TC    | SHC   |
| 0                         |                             | 22357 | 20101                  | 24690 | 21462                  | 25275 | 21921                  | 26440 | 22825                  | 27219 | 22817                  | 27997 | 22834                  | 29649 | 22696                  | 31010 | 22333 |
| 5                         |                             | 21845 | 19640                  | 24124 | 20971                  | 24696 | 21418                  | 25834 | 22302                  | 26595 | 22294                  | 27356 | 22310                  | 28970 | 22176                  | 30300 | 21821 |
| 10                        |                             | 21333 | 19180                  | 23559 | 20479                  | 24117 | 20916                  | 25229 | 21779                  | 25971 | 21771                  | 26714 | 21787                  | 28291 | 21656                  | 29589 | 21309 |
| 15                        |                             | 20906 | 18796                  | 23087 | 20069                  | 23634 | 20497                  | 24724 | 21343                  | 25452 | 21335                  | 26179 | 21351                  | 27724 | 21222                  | 28997 | 20883 |
| 20                        |                             | 20394 | 18335                  | 22521 | 19577                  | 23055 | 19995                  | 24118 | 20820                  | 24828 | 20812                  | 25538 | 20828                  | 27045 | 20702                  | 28286 | 20371 |
| 25                        |                             | 19967 | 17951                  | 22050 | 19167                  | 22573 | 19576                  | 23613 | 20384                  | 24308 | 20377                  | 25003 | 20392                  | 26479 | 20269                  | 27694 | 19945 |
| 30                        |                             | 19454 | 17491                  | 21484 | 18676                  | 21993 | 19074                  | 23007 | 19861                  | 23684 | 19854                  | 24362 | 19869                  | 25799 | 19749                  | 26984 | 19433 |
| 35                        |                             | 19027 | 17107                  | 21013 | 18266                  | 21511 | 18656                  | 22502 | 19425                  | 23165 | 19418                  | 23827 | 19433                  | 25233 | 19315                  | 26391 | 19006 |
| 40                        |                             | 18515 | 16646                  | 20447 | 17774                  | 20932 | 18153                  | 21896 | 18902                  | 22541 | 18895                  | 23186 | 18910                  | 24554 | 18795                  | 25681 | 18495 |
| 45                        |                             | 18088 | 16263                  | 19975 | 17364                  | 20449 | 17735                  | 21391 | 18467                  | 22021 | 18460                  | 22651 | 18474                  | 23988 | 18362                  | 25089 | 18068 |
| 50                        |                             | 17576 | 15802                  | 19410 | 16872                  | 19870 | 17232                  | 20786 | 17944                  | 21398 | 17937                  | 22009 | 17950                  | 23308 | 17842                  | 24378 | 17556 |
| 55                        |                             | 17064 | 15341                  | 18844 | 16380                  | 19291 | 16730                  | 20180 | 17421                  | 20774 | 17414                  | 21368 | 17427                  | 22629 | 17322                  | 23668 | 17045 |
| 60                        |                             | 16637 | 14958                  | 18372 | 15971                  | 18808 | 16312                  | 19675 | 16985                  | 20254 | 16978                  | 20833 | 16991                  | 22063 | 16888                  | 23075 | 16618 |
| 65                        |                             | 16124 | 14497                  | 17807 | 15479                  | 18229 | 15809                  | 19069 | 16462                  | 19630 | 16456                  | 20192 | 16468                  | 21383 | 16368                  | 22365 | 16107 |
| 70                        |                             | 15697 | 14113                  | 17335 | 15069                  | 17746 | 15391                  | 18564 | 16026                  | 19111 | 16020                  | 19657 | 16032                  | 20817 | 15935                  | 21773 | 15680 |
| 75                        |                             | 15185 | 13653                  | 16769 | 14577                  | 17167 | 14888                  | 17958 | 15503                  | 18487 | 15497                  | 19016 | 15509                  | 20138 | 15415                  | 21062 | 15168 |
| 80                        |                             | 14758 | 13269                  | 16298 | 14167                  | 16684 | 14470                  | 17453 | 15067                  | 17967 | 15061                  | 18481 | 15073                  | 19572 | 14982                  | 20470 | 14742 |
| 82                        |                             | 14502 | 13038                  | 16015 | 13921                  | 16395 | 14219                  | 17150 | 14805                  | 17655 | 14800                  | 18160 | 14811                  | 19232 | 14721                  | 20115 | 14486 |
| 85                        |                             | 14246 | 12808                  | 15732 | 13676                  | 16105 | 13968                  | 16847 | 14544                  | 17343 | 14539                  | 17839 | 14549                  | 18892 | 14461                  | 19759 | 14230 |
| 87                        |                             | 14075 | 12655                  | 15544 | 13512                  | 15912 | 13800                  | 16645 | 14370                  | 17136 | 14364                  | 17626 | 14375                  | 18666 | 14288                  | 19523 | 14060 |
| 90                        |                             | 13819 | 12424                  | 15261 | 13266                  | 15622 | 13549                  | 16343 | 14108                  | 16824 | 14103                  | 17305 | 14113                  | 18326 | 14028                  | 19167 | 13804 |
| 95                        |                             | 13307 | 11964                  | 14695 | 12774                  | 15043 | 13047                  | 15737 | 13585                  | 16200 | 13580                  | 16663 | 13590                  | 17647 | 13508                  | 18457 | 13292 |
| 100                       |                             | 12794 | 11503                  | 14129 | 12282                  | 14464 | 12544                  | 15131 | 13062                  | 15576 | 13057                  | 16022 | 13067                  | 16967 | 12988                  | 17746 | 12780 |
| 105                       |                             | 12367 | 11119                  | 13658 | 11872                  | 13982 | 12126                  | 14626 | 12626                  | 15057 | 12621                  | 15487 | 12631                  | 16401 | 12555                  | 17154 | 12354 |
| 110                       |                             | 11855 | 10659                  | 13092 | 11381                  | 13402 | 11623                  | 14020 | 12103                  | 14433 | 12099                  | 14846 | 12108                  | 15722 | 12035                  | 16443 | 11842 |
| 115                       |                             | 11428 | 10275                  | 12621 | 10971                  | 12920 | 11205                  | 13515 | 11667                  | 13913 | 11663                  | 14311 | 11672                  | 15156 | 11601                  | 15851 | 11414 |

## Sensible capacity table

## Trend of Total &amp; Sensible Heat Capacity / Indoor Air &amp; Outdoor Air Temperature.

Product models: RAS-22EKCV-UL / RAS-22EACV-UL

Standard condition

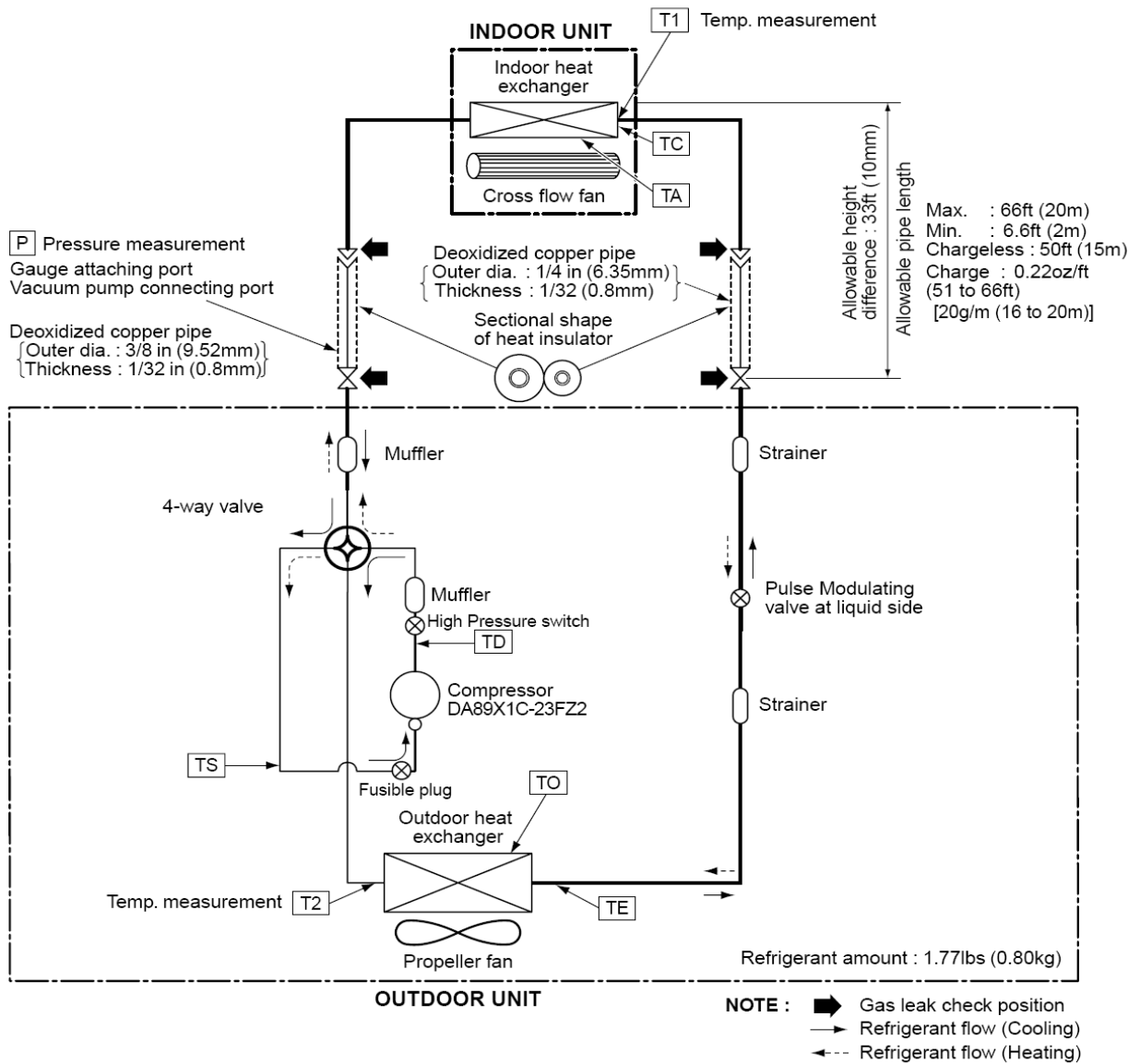
|         |                       |
|---------|-----------------------|
| Indoor  | 80.0°F DB / 67.0°F WB |
| Outdoor | 95.0°F DB / 75.0°F WB |

Specification of product at standard condition.

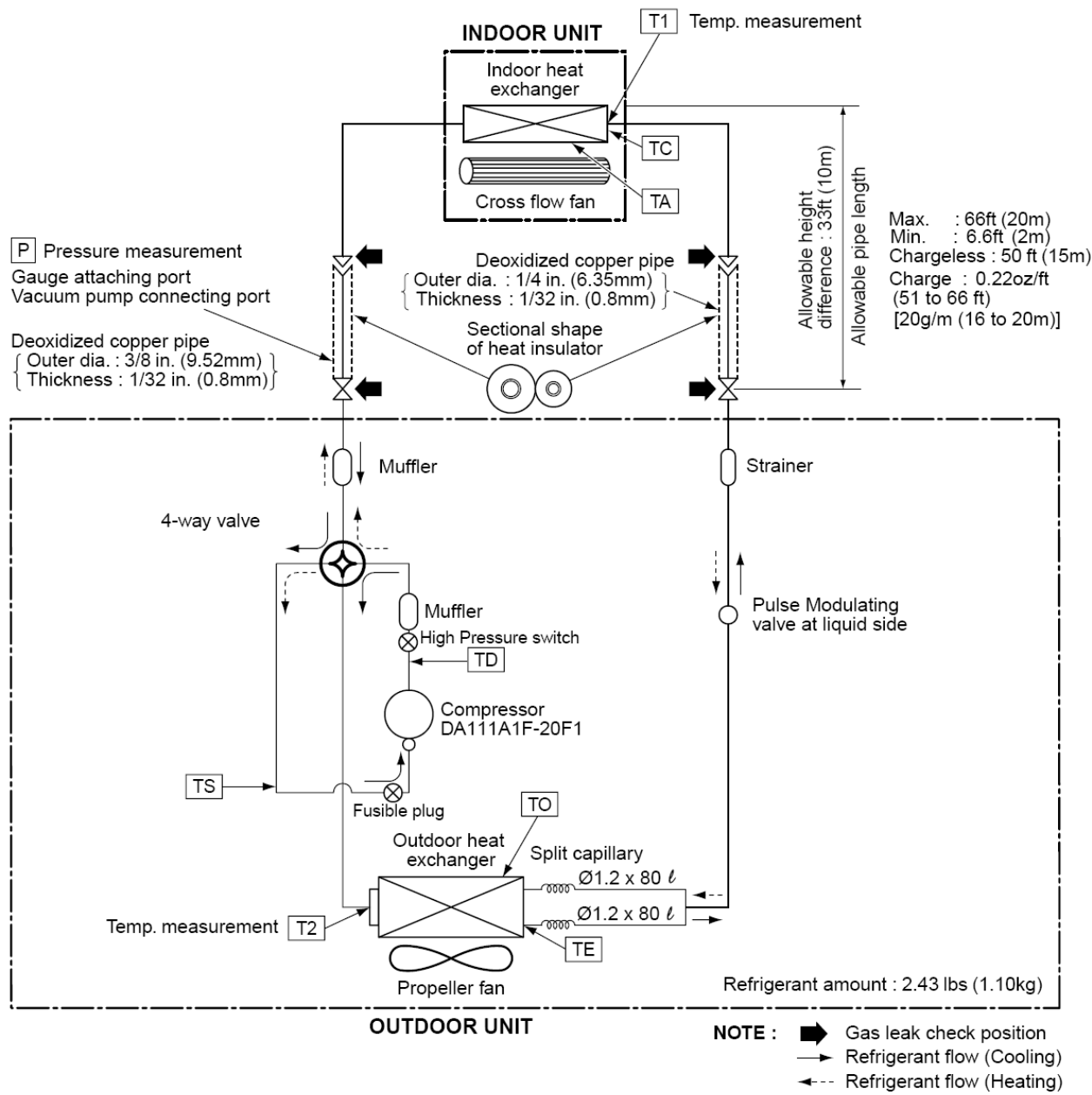
|                              |             |
|------------------------------|-------------|
| Total Cooling Capacity (TC)  | 21400 Btu/h |
| Sensible Heat Capacity (SHC) | 15800 Btu/h |
| Air flow volume              | 636 CFM     |

| Outdoor<br>coil air temp.<br>°F DB | Indoor coil air temperature |       |                        |       |                        |       |                        |       |                        |       |                        |       |                        |       |                        |       |
|------------------------------------|-----------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|
|                                    | 68.0°F DB<br>57.0°F WB      |       | 73.0°F DB<br>61.0°F WB |       | 75.0°F DB<br>63.0°F WB |       | 79.0°F DB<br>64.0°F WB |       | 80.0°F DB<br>67.0°F WB |       | 82.0°F DB<br>68.0°F WB |       | 86.0°F DB<br>72.0°F WB |       | 90.0°F DB<br>75.0°F WB |       |
|                                    | TC                          | SHC   | TC                     | SHC   | TC                     | SHC   | TC                     | SHC   | TC                     | SHC   | TC                     | SHC   | TC                     | SHC   | TC                     | SHC   |
| 0                                  | 29534                       | 23601 | 32615                  | 25092 | 33388                  | 25619 | 34927                  | 26661 | 35956                  | 26547 | 36984                  | 26466 | 39166                  | 26066 | 40964                  | 25407 |
| 5                                  | 28857                       | 23060 | 31868                  | 24517 | 32623                  | 25032 | 34127                  | 26050 | 35132                  | 25938 | 36136                  | 25860 | 38269                  | 25469 | 40026                  | 24825 |
| 10                                 | 28180                       | 22519 | 31121                  | 23942 | 31858                  | 24445 | 33327                  | 25439 | 34308                  | 25330 | 35289                  | 25253 | 37371                  | 24871 | 39087                  | 24242 |
| 15                                 | 27616                       | 22069 | 30498                  | 23462 | 31221                  | 23956 | 32660                  | 24930 | 33621                  | 24823 | 34583                  | 24748 | 36624                  | 24374 | 38305                  | 23757 |
| 20                                 | 26940                       | 21528 | 29750                  | 22888 | 30456                  | 23369 | 31859                  | 24319 | 32797                  | 24215 | 33735                  | 24142 | 35726                  | 23776 | 37366                  | 23175 |
| 25                                 | 26376                       | 21077 | 29128                  | 22408 | 29818                  | 22880 | 31192                  | 23810 | 32111                  | 23708 | 33029                  | 23636 | 34978                  | 23279 | 36584                  | 22690 |
| 30                                 | 25699                       | 20537 | 28380                  | 21833 | 29053                  | 22293 | 30392                  | 23199 | 31287                  | 23100 | 32182                  | 23030 | 34081                  | 22681 | 35645                  | 22108 |
| 35                                 | 25135                       | 20086 | 27757                  | 21354 | 28415                  | 21804 | 29725                  | 22690 | 30600                  | 22593 | 31475                  | 22524 | 33333                  | 22184 | 34863                  | 21623 |
| 40                                 | 24458                       | 19545 | 27010                  | 20779 | 27650                  | 21217 | 28925                  | 22079 | 29776                  | 21984 | 30628                  | 21918 | 32435                  | 21586 | 33924                  | 21040 |
| 45                                 | 23894                       | 19094 | 26387                  | 20300 | 27013                  | 20727 | 28258                  | 21570 | 29090                  | 21477 | 29922                  | 21412 | 31687                  | 21089 | 33142                  | 20555 |
| 50                                 | 23218                       | 18554 | 25640                  | 19725 | 26248                  | 20140 | 27457                  | 20959 | 28266                  | 20869 | 29074                  | 20806 | 30790                  | 20491 | 32203                  | 19973 |
| 55                                 | 22541                       | 18013 | 24893                  | 19150 | 25483                  | 19553 | 26657                  | 20348 | 27442                  | 20261 | 28227                  | 20200 | 29892                  | 19894 | 31265                  | 19391 |
| 60                                 | 21977                       | 17562 | 24270                  | 18671 | 24845                  | 19064 | 25990                  | 19839 | 26755                  | 19754 | 27521                  | 19694 | 29145                  | 19396 | 30482                  | 18906 |
| 65                                 | 21300                       | 17021 | 23522                  | 18096 | 24080                  | 18477 | 25190                  | 19228 | 25931                  | 19146 | 26673                  | 19088 | 28247                  | 18799 | 29544                  | 18324 |
| 70                                 | 20736                       | 16571 | 22900                  | 17617 | 23442                  | 17988 | 24523                  | 18719 | 25245                  | 18639 | 25967                  | 18582 | 27499                  | 18301 | 28761                  | 17838 |
| 75                                 | 20059                       | 16030 | 22152                  | 17042 | 22677                  | 17401 | 23723                  | 18108 | 24421                  | 18030 | 25119                  | 17976 | 26602                  | 17704 | 27823                  | 17256 |
| 80                                 | 19495                       | 15579 | 21529                  | 16563 | 22040                  | 16911 | 23056                  | 17599 | 23734                  | 17524 | 24413                  | 17471 | 25854                  | 17206 | 27041                  | 16771 |
| 82                                 | 19157                       | 15309 | 21156                  | 16276 | 21657                  | 16618 | 22655                  | 17293 | 23322                  | 17219 | 23989                  | 17167 | 25405                  | 16908 | 26571                  | 16480 |
| 85                                 | 18819                       | 15038 | 20782                  | 15988 | 21275                  | 16324 | 22255                  | 16988 | 22910                  | 16915 | 23566                  | 16864 | 24956                  | 16609 | 26102                  | 16189 |
| 87                                 | 18593                       | 14858 | 20533                  | 15796 | 21020                  | 16129 | 21988                  | 16784 | 22636                  | 16712 | 23283                  | 16662 | 24657                  | 16410 | 25789                  | 15995 |
| 90                                 | 18255                       | 14588 | 20159                  | 15509 | 20637                  | 15835 | 21588                  | 16479 | 22224                  | 16408 | 22860                  | 16359 | 24208                  | 16111 | 25320                  | 15704 |
| 95                                 | 17578                       | 14047 | 19412                  | 14934 | 19872                  | 15248 | 20788                  | 15868 | 21400                  | 15800 | 22012                  | 15752 | 23311                  | 15514 | 24381                  | 15122 |
| 100                                | 16881                       | 13490 | 18643                  | 14342 | 19085                  | 14644 | 19964                  | 15239 | 20552                  | 15174 | 21140                  | 15128 | 22387                  | 14899 | 23415                  | 14522 |
| 105                                | 14150                       | 11308 | 15627                  | 12022 | 15997                  | 12275 | 16734                  | 12774 | 17227                  | 12719 | 17720                  | 12681 | 18765                  | 12489 | 19627                  | 12173 |
| 110                                | 12807                       | 10235 | 14144                  | 10881 | 14479                  | 11110 | 15146                  | 11561 | 15592                  | 11512 | 16038                  | 11477 | 16984                  | 11303 | 17764                  | 11018 |
| 115                                | 8665                        | 6924  | 9569                   | 7362  | 9796                   | 7516  | 10247                  | 7822  | 10549                  | 7789  | 10851                  | 7765  | 11491                  | 7647  | 12018                  | 7454  |

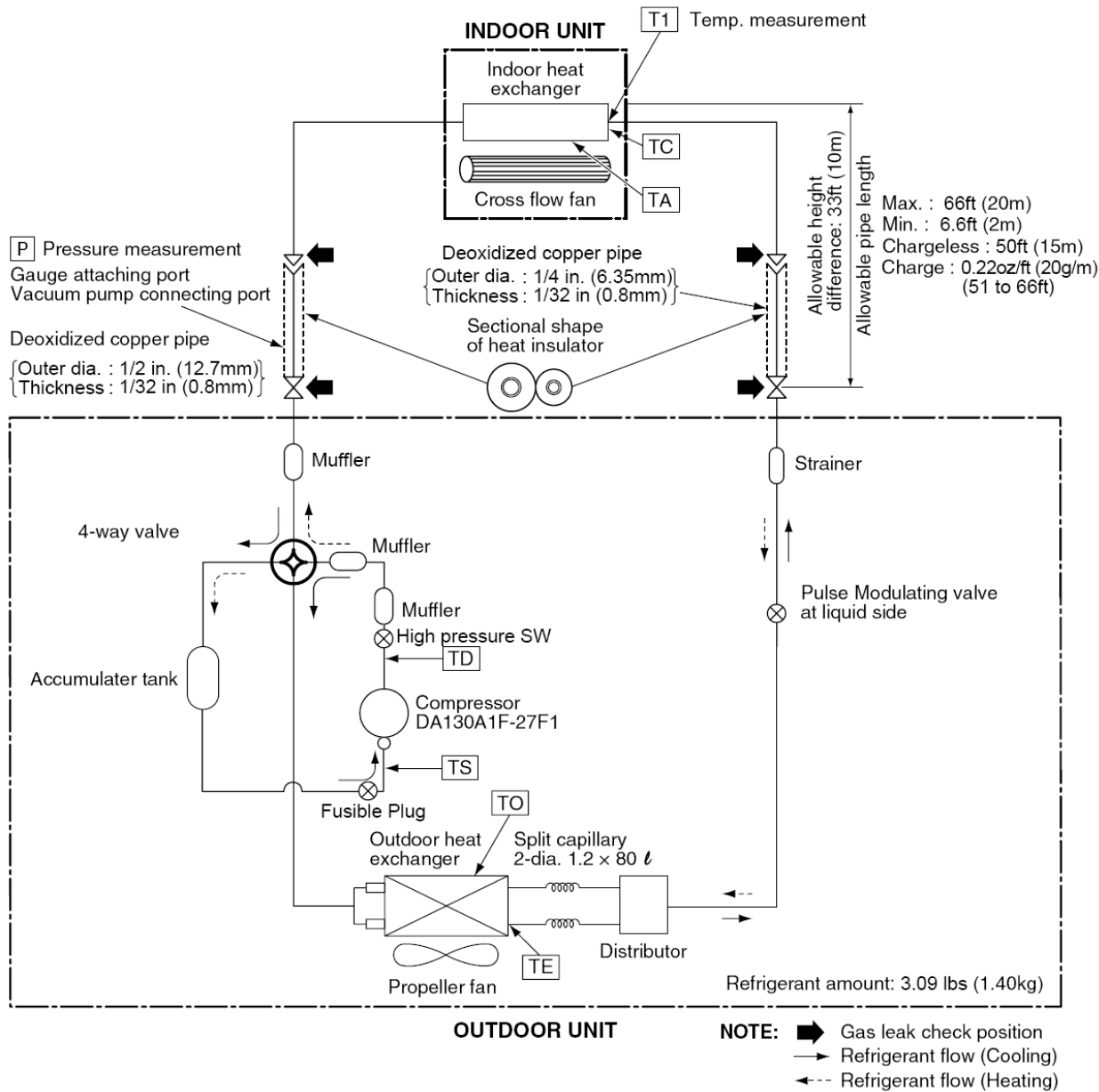
Refrigerant cycle diagram: RAS-09EKCV-UL / RAS-09EACV-UL



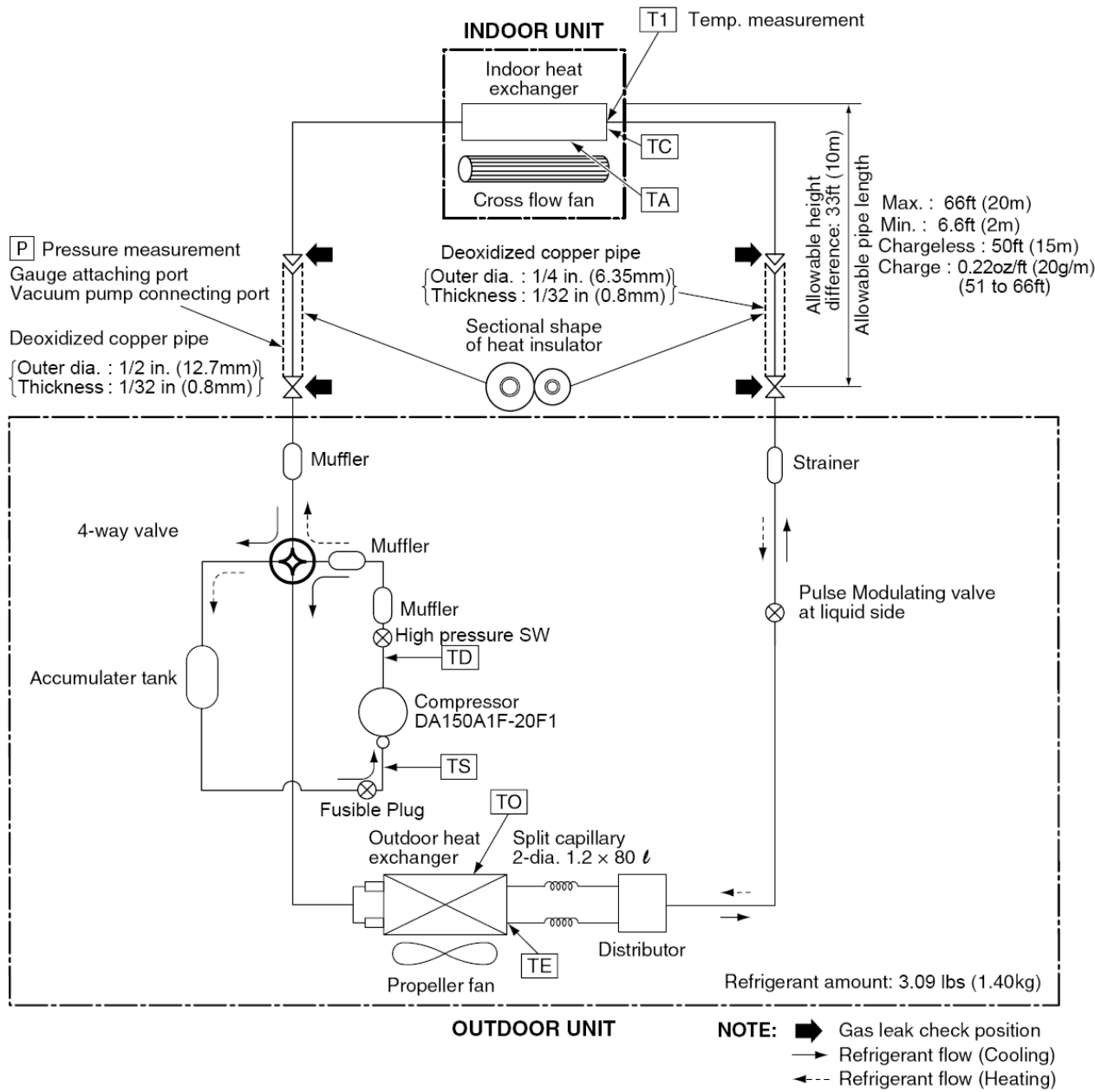
Refrigerant cycle diagram: RAS-12EKCV-UL / RAS-12EACV-UL



Refrigerant cycle diagram: RAS-15EKCVCV-UL / RAS-15EACVCV-UL  
RAS-17EKCVCV-UL / RAS-17EACVCV-UL

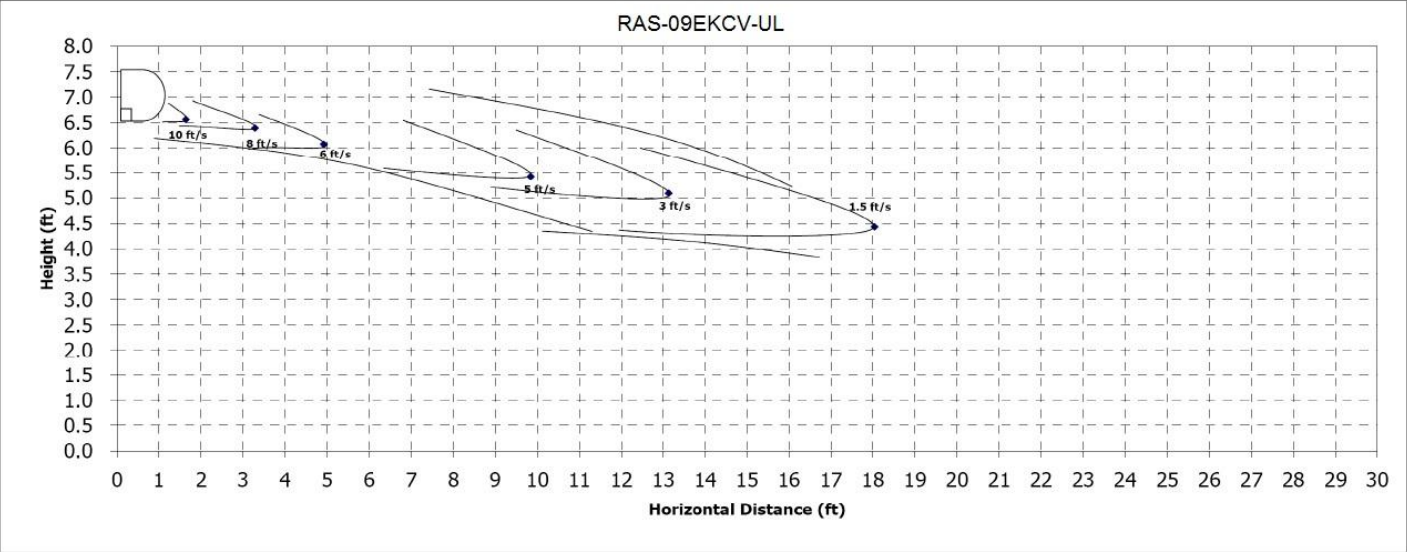


# Refrigerant cycle diagram: RAS-22EKCV-UL / RAS-22EACV-UL

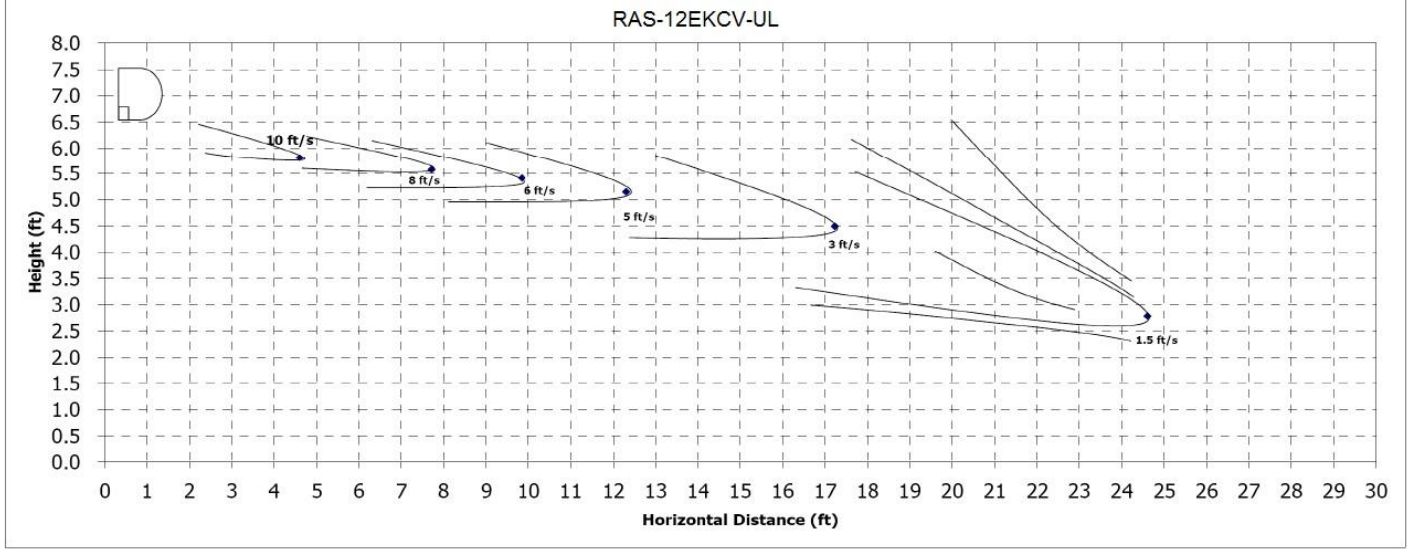


Air throw chart

Cooling

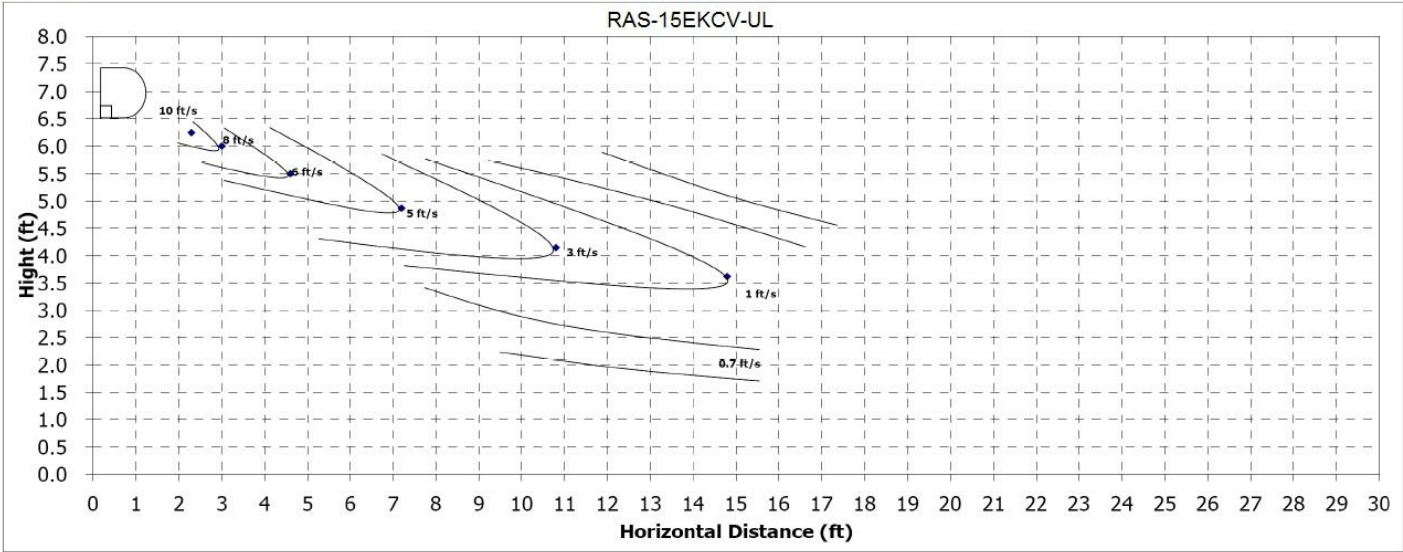


Cooling

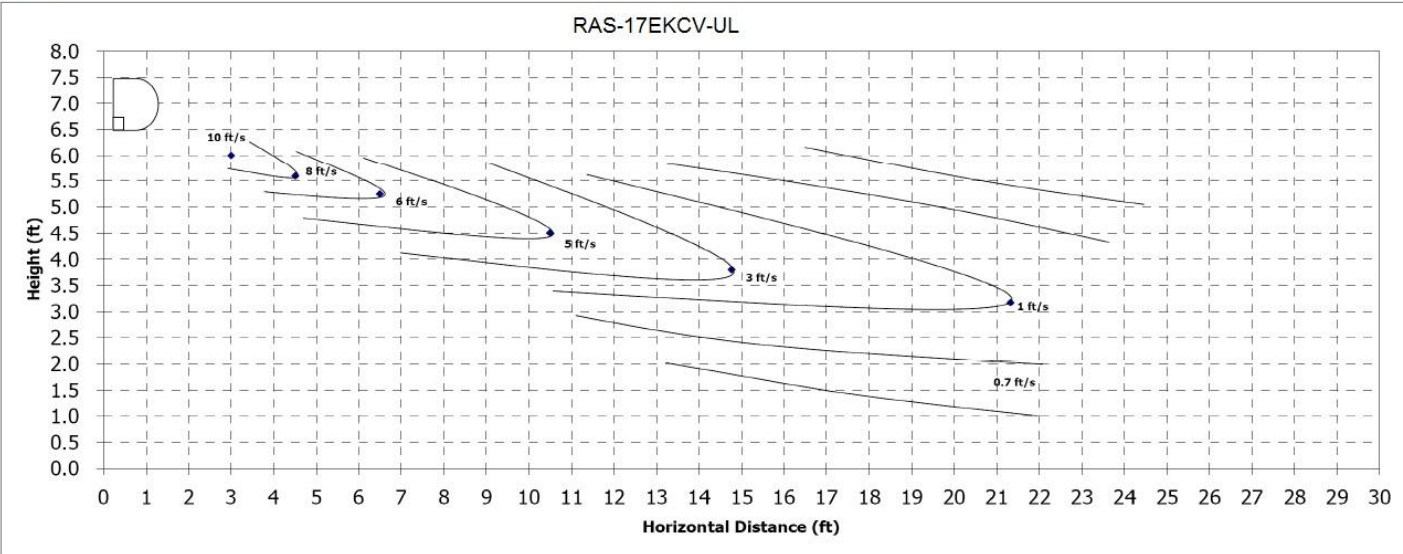


Air throw chart

Cooling

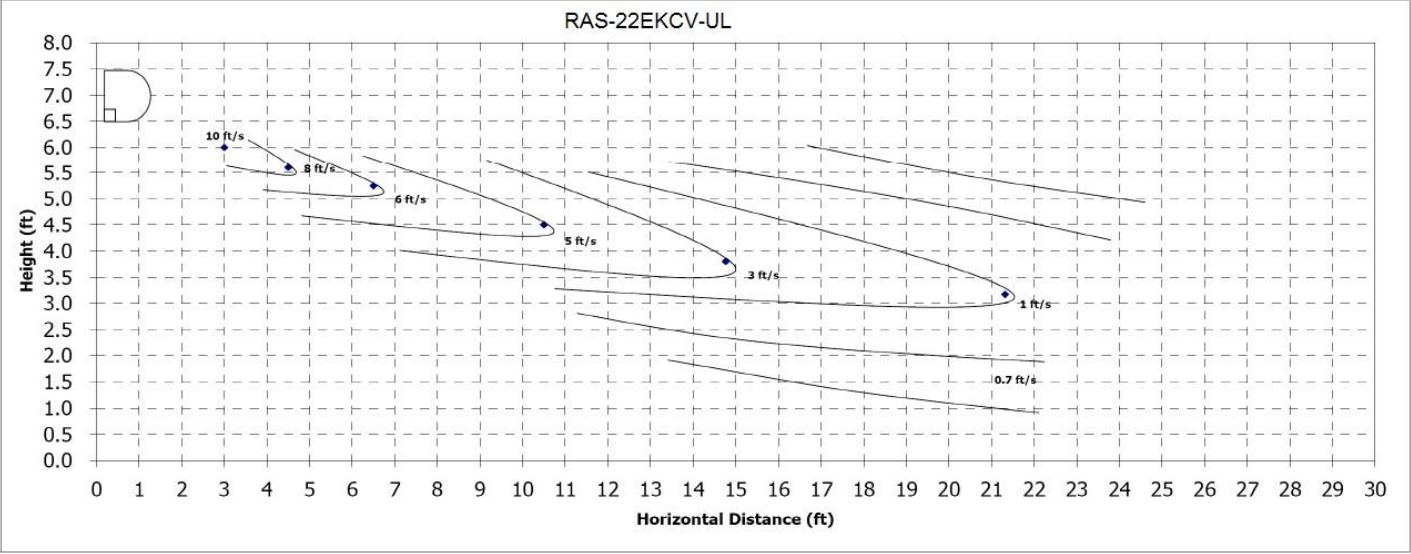


Cooling



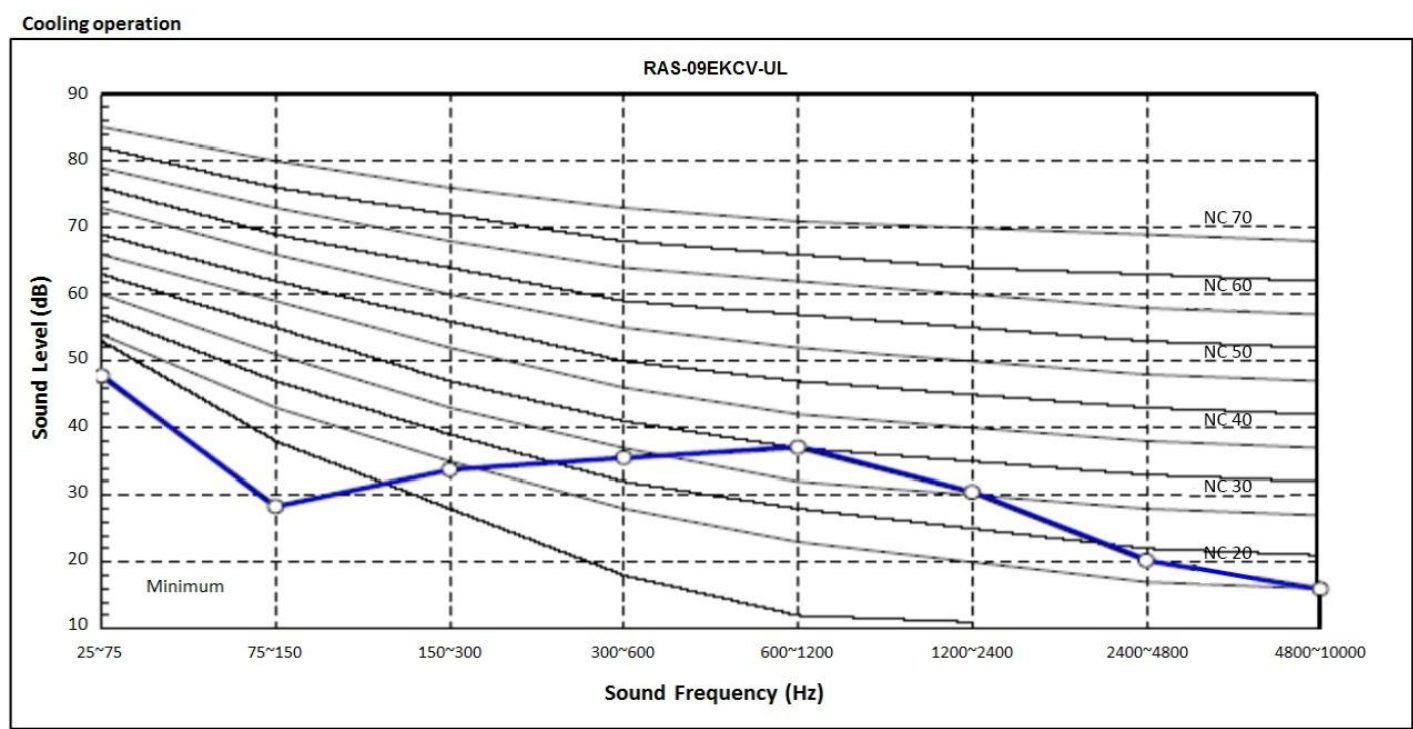
Air throw chart

Cooling

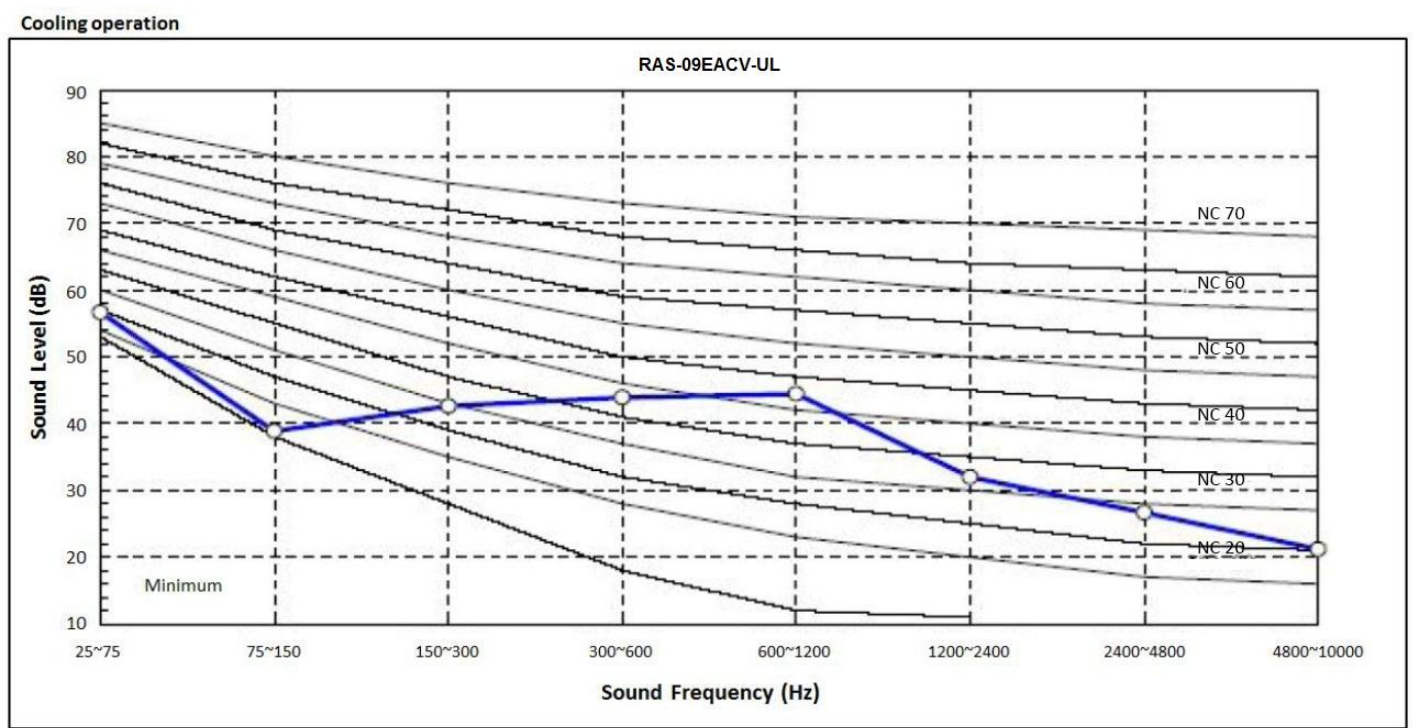


Indoor and outdoor sound characteristic

RAS-09EKCV-UL

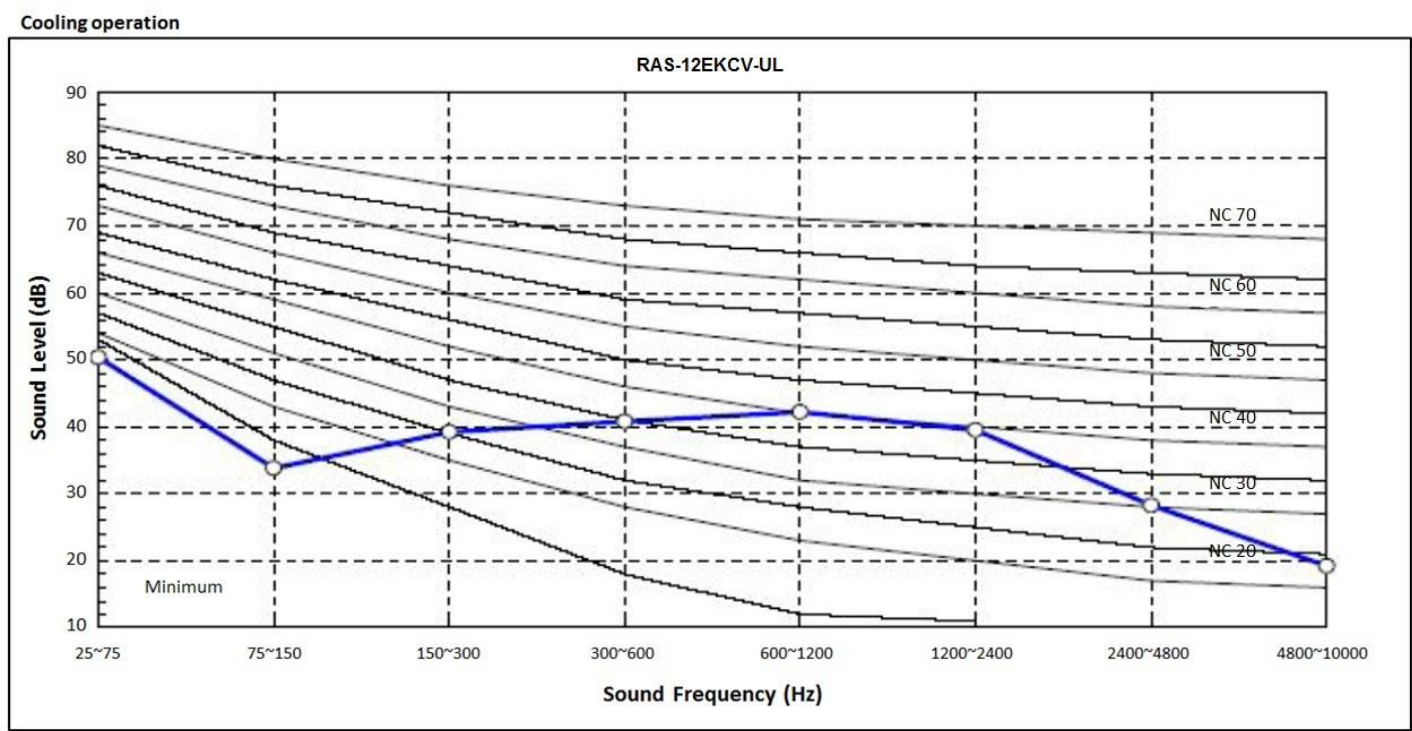


RAS-09EACV-UL

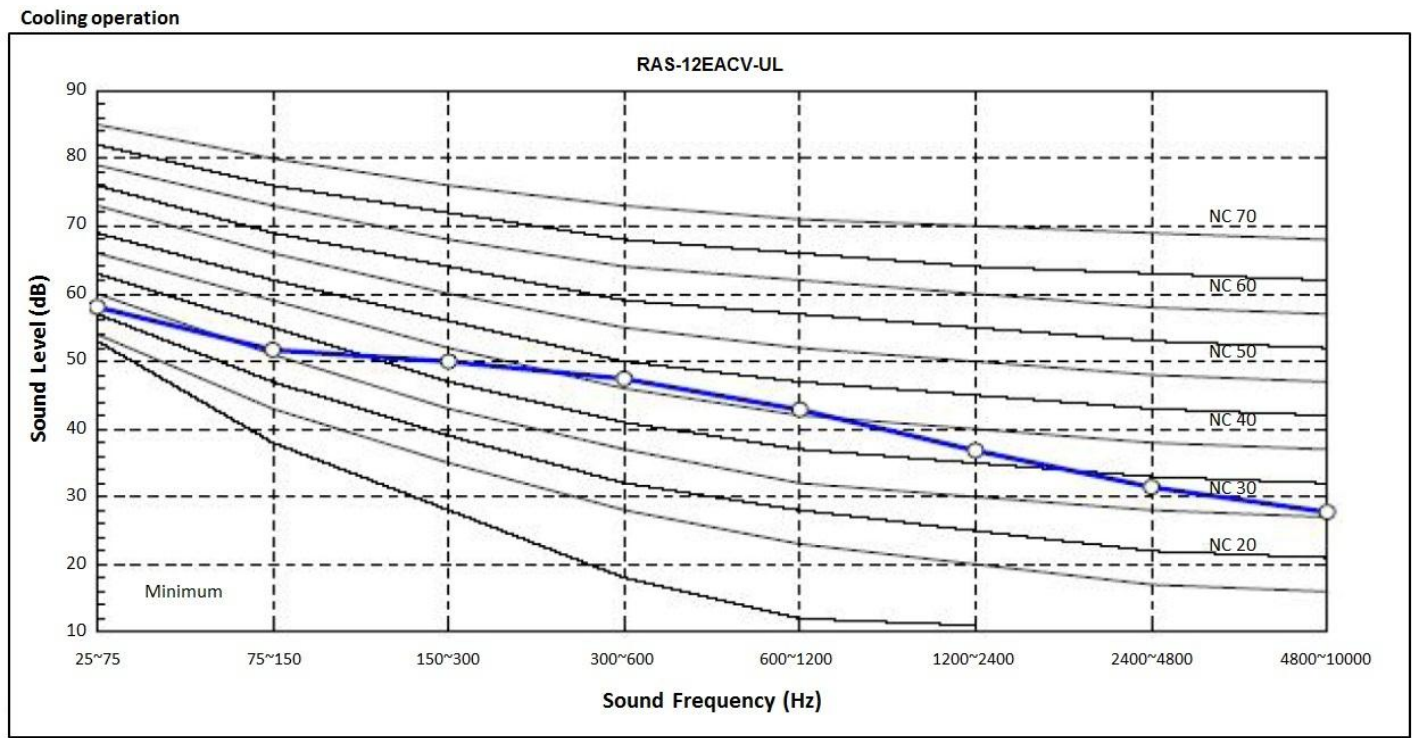


Indoor and outdoor sound characteristic

RAS-12EKCV-UL

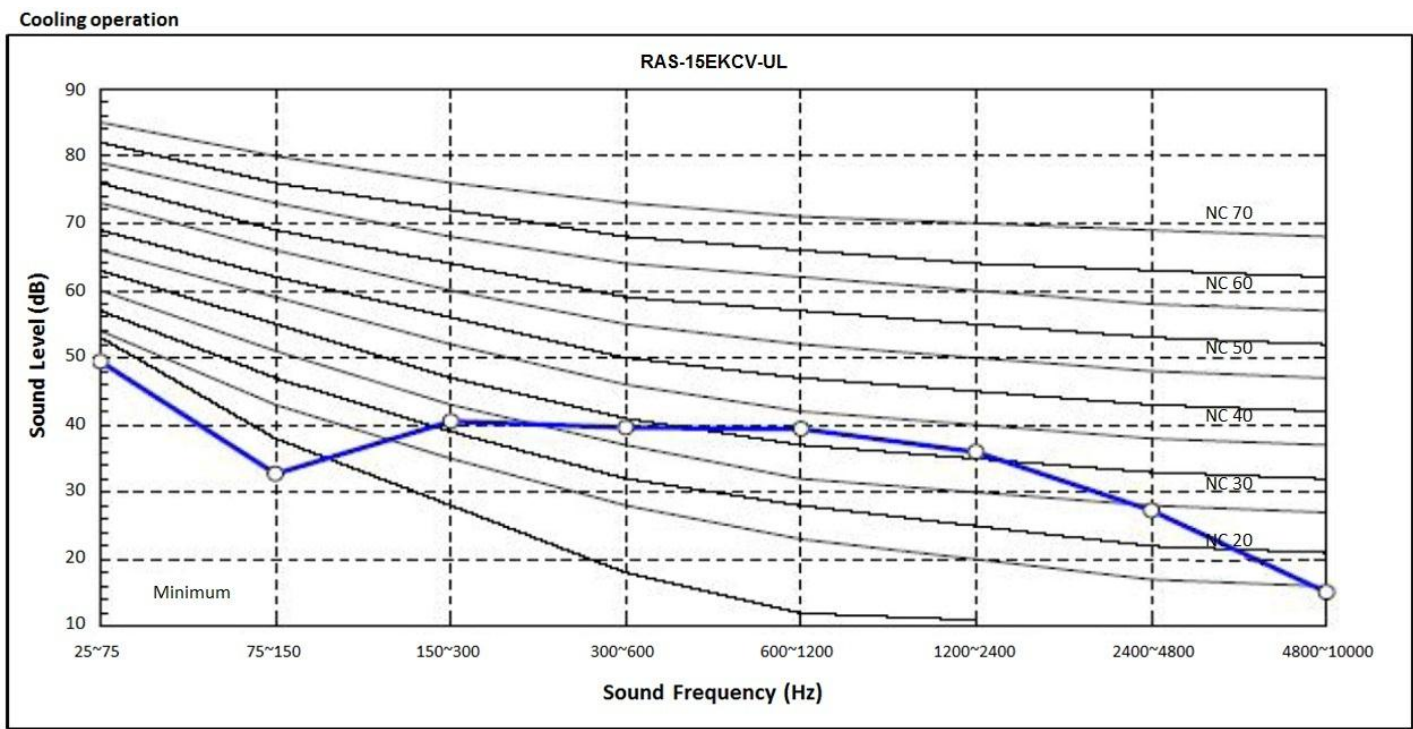


RAS-12EACV-UL

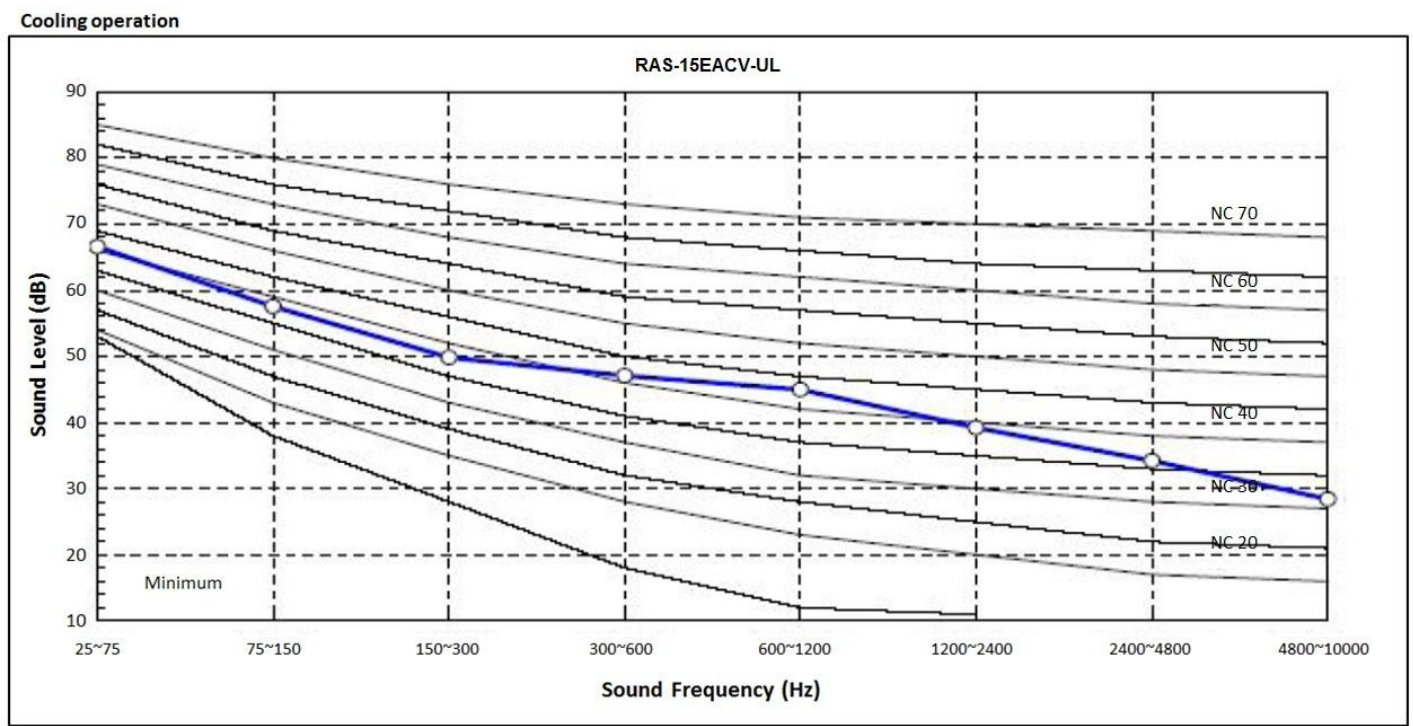


Indoor and outdoor sound characteristic

RAS-15EKCV-UL

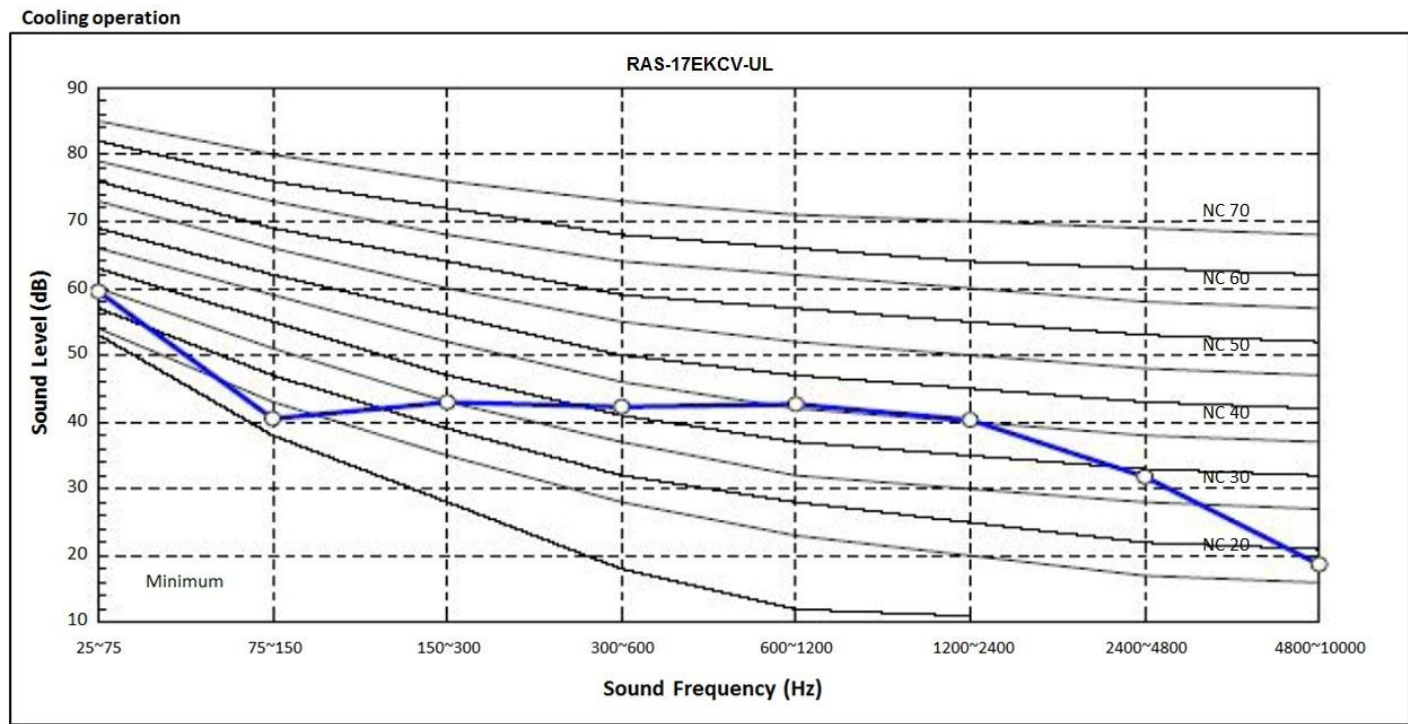


RAS-15EACV-UL

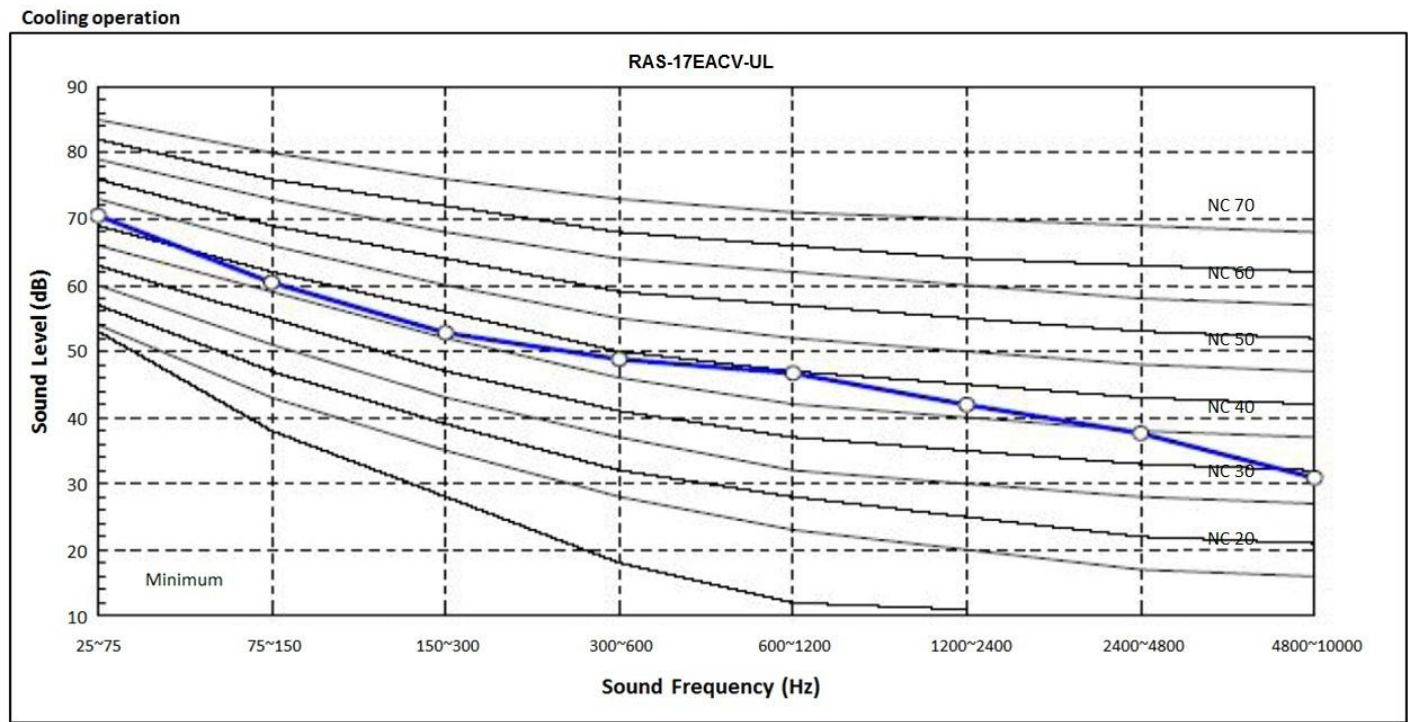


Indoor and outdoor sound characteristic

RAS-17EKCV-UL

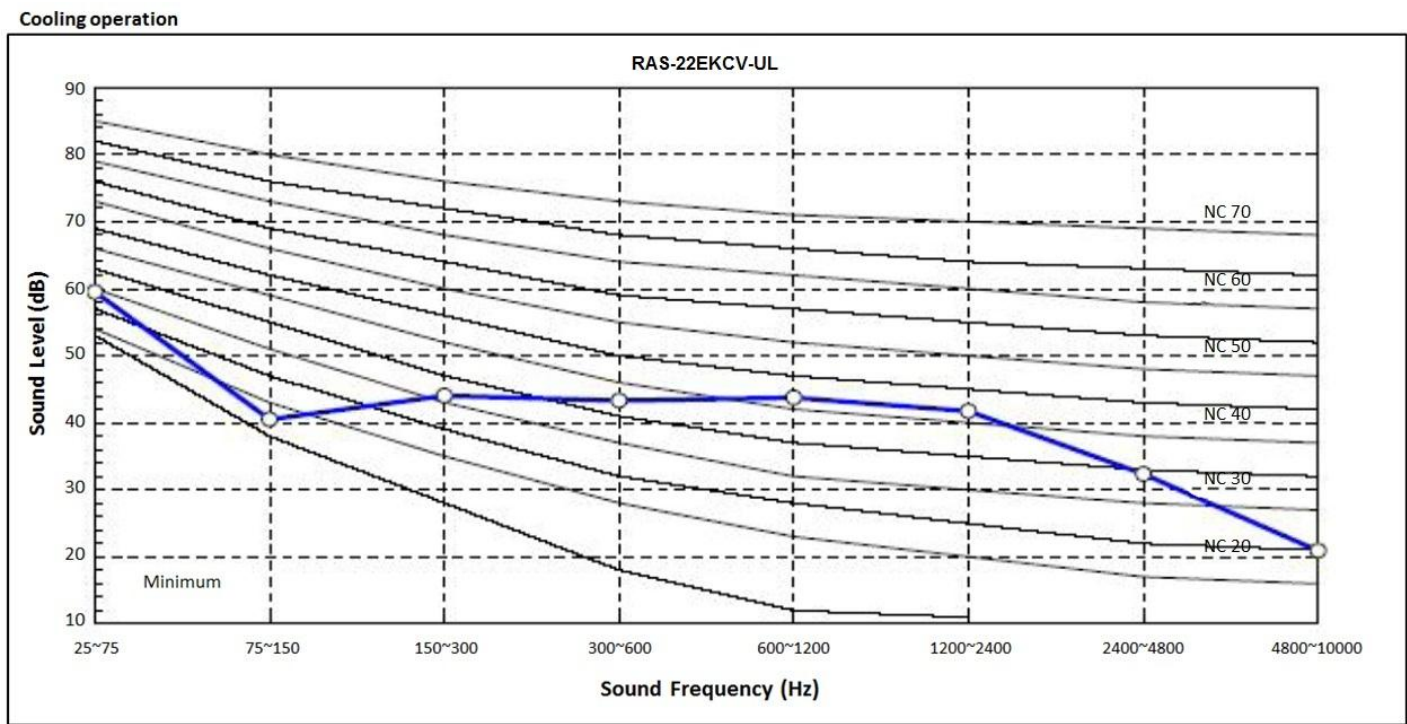


RAS-17EACV-UL

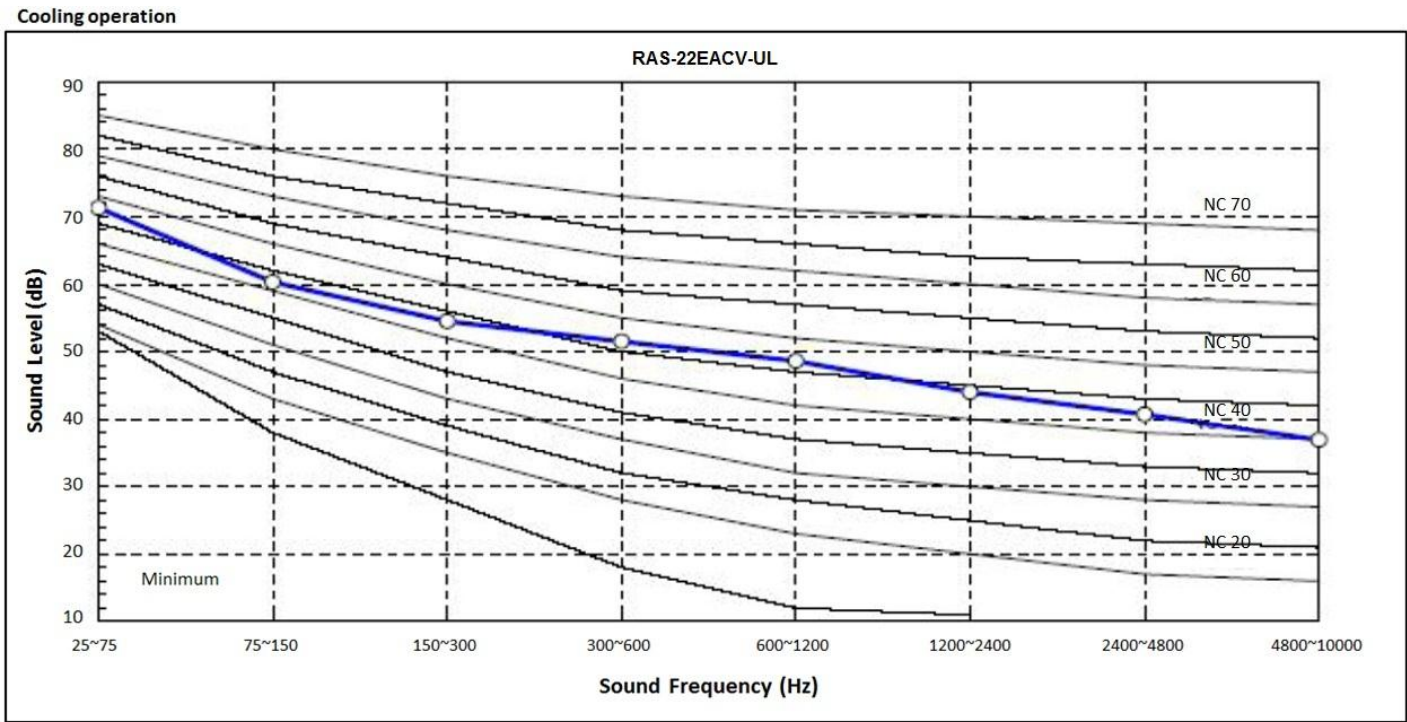


Indoor and outdoor sound characteristic

RAS-22EKCV-UL



RAS-22EACV-UL



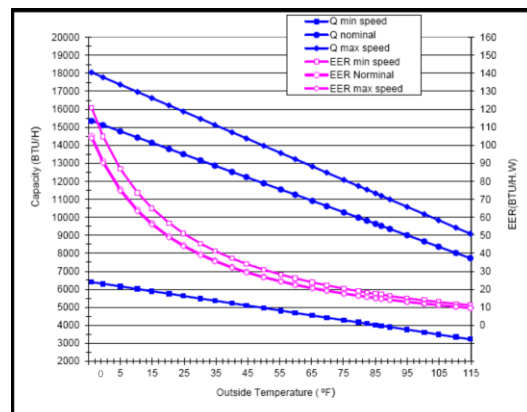
## Performance characteristic: RAS-09EKCV-UL / RAS-09EACV-UL

## Product specification :

| Condition                                            |         | Capacity (BTU/H) | Power (W) | EER or COP(BTU/H.W) |
|------------------------------------------------------|---------|------------------|-----------|---------------------|
| Cooling<br>In : 80°Cdb/67°CWb<br>Out : 95°Cdb/75°CWb | Min     | 3750             | 250       | 15.00               |
|                                                      | Nominal | 9000             | 690       | 13.04               |
|                                                      | Max     | 10580            | 820       | 12.90               |

## Cooling performance characteristic :

| Outside Temp<br>(°F) | Minimum capacity    |              |                  | Nominal capacity    |              |                  | Maximum capacity    |              |                  |
|----------------------|---------------------|--------------|------------------|---------------------|--------------|------------------|---------------------|--------------|------------------|
|                      | Capacity<br>(BTU/H) | Power<br>(W) | EER<br>(BTU/H.W) | Capacity<br>(BTU/H) | Power<br>(W) | EER<br>(BTU/H.W) | Capacity<br>(BTU/H) | Power<br>(W) | EER<br>(BTU/H.W) |
| 0                    | 6301                | 60           | 104.86           | 15122               | 166          | 91.19            | 17776               | 197          | 90.20            |
| 5                    | 6156                | 71           | 86.91            | 14775               | 196          | 75.58            | 17369               | 232          | 74.76            |
| 10                   | 6012                | 82           | 73.69            | 14429               | 225          | 64.08            | 16962               | 268          | 63.39            |
| 15                   | 5892                | 91           | 65.07            | 14140               | 250          | 56.58            | 16622               | 297          | 55.97            |
| 20                   | 5747                | 101          | 56.74            | 13793               | 280          | 49.34            | 16215               | 332          | 48.80            |
| 25                   | 5627                | 110          | 51.04            | 13505               | 304          | 44.38            | 15875               | 362          | 43.90            |
| 30                   | 5483                | 121          | 45.31            | 13158               | 334          | 39.40            | 15468               | 397          | 38.97            |
| 35                   | 5362                | 130          | 41.26            | 12869               | 359          | 35.88            | 15129               | 426          | 35.49            |
| 40                   | 5218                | 141          | 37.08            | 12523               | 388          | 32.25            | 14721               | 462          | 31.90            |
| 45                   | 5098                | 150          | 34.06            | 12234               | 413          | 29.62            | 14382               | 491          | 29.30            |
| 50                   | 4953                | 160          | 30.88            | 11888               | 443          | 26.85            | 13974               | 526          | 26.56            |
| 55                   | 4809                | 171          | 28.09            | 11541               | 472          | 24.43            | 13567               | 561          | 24.17            |
| 60                   | 4688                | 180          | 26.03            | 11252               | 497          | 22.63            | 13228               | 591          | 22.39            |
| 65                   | 4544                | 191          | 23.81            | 10906               | 527          | 20.70            | 12820               | 626          | 20.48            |
| 70                   | 4424                | 200          | 22.14            | 10617               | 552          | 19.25            | 12481               | 655          | 19.04            |
| 75                   | 4279                | 211          | 20.32            | 10271               | 581          | 17.67            | 12074               | 691          | 17.48            |
| 80                   | 4159                | 220          | 18.94            | 9982                | 606          | 16.47            | 11734               | 720          | 16.30            |
| 82                   | 4087                | 225          | 18.17            | 9809                | 621          | 15.80            | 11530               | 738          | 15.63            |
| 85                   | 4015                | 230          | 17.43            | 9635                | 636          | 15.16            | 11327               | 755          | 15.00            |
| 87                   | 3967                | 234          | 16.96            | 9521                | 646          | 14.75            | 11191               | 767          | 14.59            |
| 90                   | 3894                | 239          | 16.28            | 9347                | 660          | 14.15            | 10987               | 785          | 14.00            |
| 95                   | 3750                | 250          | 15.00            | 9000                | 690          | 13.04            | 10580               | 820          | 12.90            |
| 100                  | 3606                | 261          | 13.83            | 8654                | 720          | 12.02            | 10173               | 855          | 11.89            |
| 105                  | 3485                | 270          | 12.92            | 8365                | 744          | 11.24            | 9833                | 885          | 11.12            |
| 110                  | 3341                | 280          | 11.91            | 8018                | 774          | 10.36            | 9426                | 920          | 10.25            |
| 115                  | 3221                | 289          | 11.13            | 7730                | 799          | 9.68             | 9086                | 949          | 9.57             |



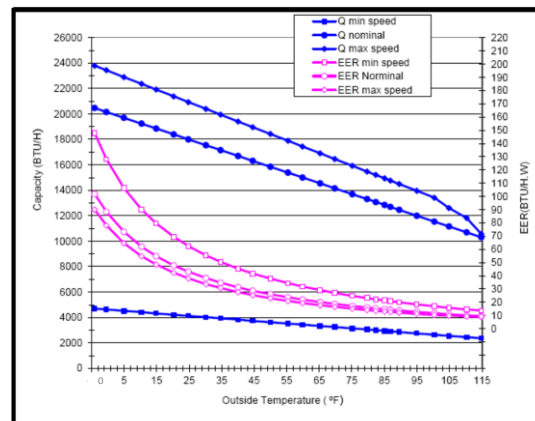
## Performance characteristic: RAS-12EKCV-UL / RAS-12EACV-UL

## Product specification :

| Condition                                            |         | Capacity (BTU/H) | Power (W) | EER or COP(BTU/H.W) |
|------------------------------------------------------|---------|------------------|-----------|---------------------|
| Cooling<br>In : 80°Cdb/67°CWb<br>Out : 95°Cdb/75°CWb | Min     | 2750             | 150       | 18.33               |
|                                                      | Nominal | 12000            | 950       | 12.63               |
|                                                      | Max     | 13950            | 1250      | 11.16               |

## Cooling performance characteristic :

| Outside Temp<br>(°F) | Minimum capacity    |              |                  | Nominal capacity    |              |                  | Maximum capacity    |              |                  |
|----------------------|---------------------|--------------|------------------|---------------------|--------------|------------------|---------------------|--------------|------------------|
|                      | Capacity<br>(BTU/H) | Power<br>(W) | EER<br>(BTU/H.W) | Capacity<br>(BTU/H) | Power<br>(W) | EER<br>(BTU/H.W) | Capacity<br>(BTU/H) | Power<br>(W) | EER<br>(BTU/H.W) |
| 0                    | 4620                | 36           | 128.17           | 20162               | 228          | 88.31            | 23438               | 300          | 78.02            |
| 5                    | 4515                | 43           | 106.23           | 19700               | 269          | 73.19            | 22901               | 354          | 64.66            |
| 10                   | 4409                | 49           | 90.07            | 19238               | 310          | 62.05            | 22364               | 408          | 54.83            |
| 15                   | 4320                | 54           | 79.53            | 18853               | 344          | 54.80            | 21917               | 453          | 48.41            |
| 20                   | 4215                | 61           | 69.35            | 18391               | 385          | 47.78            | 21380               | 506          | 42.21            |
| 25                   | 4126                | 66           | 62.38            | 18006               | 419          | 42.98            | 20932               | 551          | 37.97            |
| 30                   | 4021                | 73           | 55.38            | 17544               | 460          | 38.16            | 20395               | 605          | 33.71            |
| 35                   | 3932                | 78           | 50.43            | 17159               | 494          | 34.75            | 19947               | 650          | 30.70            |
| 40                   | 3826                | 84           | 45.32            | 16697               | 535          | 31.23            | 19410               | 704          | 27.59            |
| 45                   | 3738                | 90           | 41.63            | 16312               | 569          | 28.68            | 18963               | 748          | 25.34            |
| 50                   | 3632                | 96           | 37.74            | 15850               | 610          | 26.00            | 18426               | 802          | 22.97            |
| 55                   | 3526                | 103          | 34.34            | 15388               | 650          | 23.66            | 17889               | 856          | 20.90            |
| 60                   | 3438                | 108          | 31.81            | 15003               | 684          | 21.92            | 17441               | 901          | 19.37            |
| 65                   | 3332                | 115          | 29.10            | 14541               | 725          | 20.05            | 16904               | 954          | 17.71            |
| 70                   | 3244                | 120          | 27.06            | 14156               | 759          | 18.64            | 16456               | 999          | 16.47            |
| 75                   | 3138                | 126          | 24.84            | 13694               | 800          | 17.11            | 15919               | 1053         | 15.12            |
| 80                   | 3050                | 132          | 23.15            | 13309               | 834          | 15.95            | 15472               | 1098         | 14.09            |
| 82                   | 2997                | 135          | 22.21            | 13078               | 855          | 15.30            | 15203               | 1125         | 13.52            |
| 85                   | 2944                | 138          | 21.31            | 12847               | 875          | 14.68            | 14935               | 1151         | 12.97            |
| 87                   | 2909                | 140          | 20.73            | 12693               | 889          | 14.28            | 14756               | 1169         | 12.62            |
| 90                   | 2856                | 144          | 19.89            | 12462               | 909          | 13.71            | 14487               | 1196         | 12.11            |
| 95                   | 2750                | 150          | 18.33            | 12000               | 950          | 12.63            | 13950               | 1250         | 11.16            |
| 100                  | 2644                | 156          | 16.90            | 11538               | 991          | 11.64            | 13413               | 1304         | 10.29            |
| 105                  | 2556                | 162          | 15.79            | 11153               | 1025         | 10.88            | 12608               | 1285         | 9.81             |
| 110                  | 2450                | 168          | 14.56            | 10691               | 1066         | 10.03            | 11822               | 1285         | 9.20             |
| 115                  | 2362                | 174          | 13.60            | 10306               | 1100         | 9.37             | 10555               | 1151         | 9.17             |



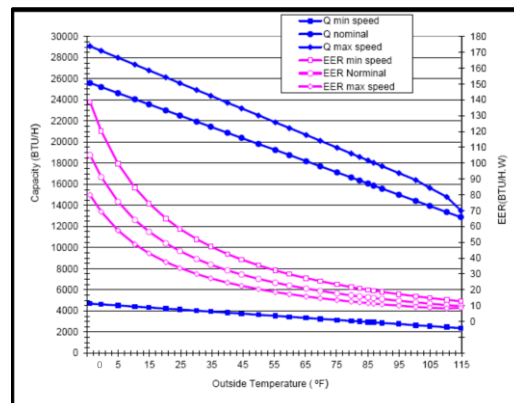
## Performance characteristic: RAS-15EKCV-UL / RAS-15EACV-UL

## Product specification :

| Condition           | Capacity (BTU/H) | Power (W) | EER or COP(BTU/H.W) |
|---------------------|------------------|-----------|---------------------|
| Cooling             | Min              | 2750      | 160                 |
| In : 80°Cdb/67°CWb  | Nominal          | 15000     | 1150                |
| Out : 95°Cdb/75°CWb | Max              | 17050     | 1720                |
|                     |                  |           | 9.91                |

## Cooling performance characteristic :

| Outside Temp<br>(°F) | Minimum capacity    |              |                  | Nominal capacity    |              |                  | Maximum capacity    |              |                  |
|----------------------|---------------------|--------------|------------------|---------------------|--------------|------------------|---------------------|--------------|------------------|
|                      | Capacity<br>(BTU/H) | Power<br>(W) | EER<br>(BTU/H.W) | Capacity<br>(BTU/H) | Power<br>(W) | EER<br>(BTU/H.W) | Capacity<br>(BTU/H) | Power<br>(W) | EER<br>(BTU/H.W) |
| 0                    | 4620                | 38           | 120.16           | 25203               | 276          | 91.19            | 28647               | 413          | 69.30            |
| 5                    | 4515                | 45           | 99.59            | 24625               | 326          | 75.58            | 27990               | 487          | 57.44            |
| 10                   | 4409                | 52           | 84.44            | 24048               | 375          | 64.08            | 27334               | 561          | 48.70            |
| 15                   | 4320                | 58           | 74.56            | 23566               | 416          | 56.58            | 26787               | 623          | 43.00            |
| 20                   | 4215                | 65           | 65.01            | 22989               | 466          | 49.34            | 26131               | 697          | 37.50            |
| 25                   | 4126                | 71           | 58.48            | 22508               | 507          | 44.38            | 25584               | 759          | 33.73            |
| 30                   | 4021                | 77           | 51.92            | 21930               | 557          | 39.40            | 24927               | 832          | 29.94            |
| 35                   | 3932                | 83           | 47.28            | 21449               | 598          | 35.88            | 24380               | 894          | 27.27            |
| 40                   | 3826                | 90           | 42.49            | 20871               | 647          | 32.25            | 23724               | 968          | 24.51            |
| 45                   | 3738                | 96           | 39.03            | 20390               | 688          | 29.62            | 23177               | 1030         | 22.51            |
| 50                   | 3632                | 103          | 35.38            | 19813               | 738          | 26.85            | 22520               | 1104         | 20.40            |
| 55                   | 3526                | 110          | 32.19            | 19235               | 787          | 24.43            | 21864               | 1178         | 18.57            |
| 60                   | 3438                | 115          | 29.82            | 18754               | 829          | 22.63            | 21317               | 1239         | 17.20            |
| 65                   | 3332                | 122          | 27.28            | 18176               | 878          | 20.70            | 20660               | 1313         | 15.73            |
| 70                   | 3244                | 128          | 25.37            | 17695               | 919          | 19.25            | 20113               | 1375         | 14.63            |
| 75                   | 3138                | 135          | 23.29            | 17118               | 969          | 17.67            | 19457               | 1449         | 13.43            |
| 80                   | 3050                | 141          | 21.71            | 16636               | 1010         | 16.47            | 18910               | 1510         | 12.52            |
| 82                   | 2997                | 144          | 20.82            | 16348               | 1035         | 15.80            | 18582               | 1547         | 12.01            |
| 85                   | 2944                | 147          | 19.98            | 16059               | 1059         | 15.16            | 18253               | 1584         | 11.52            |
| 87                   | 2909                | 150          | 19.43            | 15866               | 1076         | 14.75            | 18035               | 1609         | 11.21            |
| 90                   | 2856                | 153          | 18.65            | 15578               | 1101         | 14.15            | 17706               | 1646         | 10.76            |
| 95                   | 2750                | 160          | 17.19            | 15000               | 1150         | 13.04            | 17050               | 1720         | 9.91             |
| 100                  | 2644                | 167          | 15.84            | 14423               | 1199         | 12.02            | 16394               | 1794         | 9.14             |
| 105                  | 2556                | 173          | 14.81            | 13941               | 1241         | 11.24            | 15652               | 1793         | 8.73             |
| 110                  | 2450                | 179          | 13.65            | 13364               | 1290         | 10.36            | 14800               | 1793         | 8.25             |
| 115                  | 2362                | 185          | 12.75            | 12883               | 1331         | 9.68             | 13495               | 1561         | 8.65             |



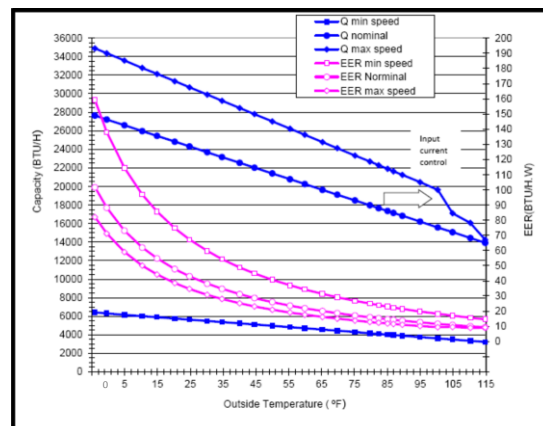
## Performance characteristic: RAS-17EKCV-UL / RAS-17EACV-UL

## Product specification :

| Condition           | Capacity (BTU/H) | Power (W) | EER or COP(BTU/H.W) |
|---------------------|------------------|-----------|---------------------|
| Cooling             | Min              | 3750      | 190                 |
| In : 80°Cdb/67°CWb  | Nominal          | 16200     | 1285                |
| Out : 95°Cdb/75°CWb | Max              | 20450     | 2010                |
|                     |                  |           | 10.17               |

## Cooling performance characteristic :

| Outside Temp<br>(°F) | Minimum capacity    |              |                  | Nominal capacity    |              |                  | Maximum capacity    |              |                  |
|----------------------|---------------------|--------------|------------------|---------------------|--------------|------------------|---------------------|--------------|------------------|
|                      | Capacity<br>(BTU/H) | Power<br>(W) | EER<br>(BTU/H.W) | Capacity<br>(BTU/H) | Power<br>(W) | EER<br>(BTU/H.W) | Capacity<br>(BTU/H) | Power<br>(W) | EER<br>(BTU/H.W) |
| 0                    | 6301                | 46           | 137.98           | 27219               | 309          | 88.14            | 34359               | 483          | 71.13            |
| 5                    | 6156                | 54           | 114.36           | 26595               | 364          | 73.05            | 33572               | 570          | 58.95            |
| 10                   | 6012                | 62           | 96.96            | 25971               | 419          | 61.93            | 32785               | 656          | 49.98            |
| 15                   | 5892                | 69           | 85.62            | 25452               | 465          | 54.69            | 32129               | 728          | 44.14            |
| 20                   | 5747                | 77           | 74.66            | 24828               | 521          | 47.69            | 31341               | 814          | 38.48            |
| 25                   | 5627                | 84           | 67.15            | 24308               | 567          | 42.90            | 30685               | 886          | 34.62            |
| 30                   | 5483                | 92           | 59.62            | 23684               | 622          | 38.08            | 29898               | 973          | 30.73            |
| 35                   | 5362                | 99           | 54.29            | 23165               | 668          | 34.68            | 29242               | 1045         | 27.99            |
| 40                   | 5218                | 107          | 48.79            | 22541               | 723          | 31.17            | 28454               | 1131         | 25.15            |
| 45                   | 5098                | 114          | 44.81            | 22021               | 769          | 28.63            | 27798               | 1203         | 23.10            |
| 50                   | 4953                | 122          | 40.63            | 21398               | 825          | 25.95            | 27011               | 1290         | 20.94            |
| 55                   | 4809                | 130          | 36.97            | 20774               | 880          | 23.61            | 26224               | 1376         | 19.06            |
| 60                   | 4688                | 137          | 34.25            | 20254               | 926          | 21.88            | 25568               | 1448         | 17.65            |
| 65                   | 4544                | 145          | 31.32            | 19630               | 981          | 20.01            | 24780               | 1535         | 16.15            |
| 70                   | 4424                | 152          | 29.13            | 19111               | 1027         | 18.61            | 24124               | 1607         | 15.02            |
| 75                   | 4279                | 160          | 26.74            | 18487               | 1082         | 17.08            | 23337               | 1693         | 13.78            |
| 80                   | 4159                | 167          | 24.93            | 17967               | 1128         | 15.92            | 22681               | 1765         | 12.85            |
| 82                   | 4087                | 171          | 23.91            | 17655               | 1156         | 15.27            | 22287               | 1808         | 12.32            |
| 85                   | 4015                | 175          | 22.94            | 17343               | 1184         | 14.65            | 21893               | 1852         | 11.82            |
| 87                   | 3967                | 178          | 22.32            | 17136               | 1202         | 14.25            | 21631               | 1880         | 11.50            |
| 90                   | 3894                | 182          | 21.42            | 16824               | 1230         | 13.68            | 21237               | 1924         | 11.04            |
| 95                   | 3750                | 190          | 19.74            | 16200               | 1285         | 12.61            | 20450               | 2010         | 10.17            |
| 100                  | 3606                | 198          | 18.19            | 15576               | 1340         | 11.62            | 19633               | 2091         | 9.39             |
| 105                  | 3485                | 205          | 17.00            | 15057               | 1386         | 10.86            | 17110               | 1793         | 9.54             |
| 110                  | 3341                | 213          | 15.67            | 14433               | 1442         | 10.01            | 16068               | 1793         | 8.96             |
| 115                  | 3221                | 220          | 14.64            | 13913               | 1488         | 9.35             | 14233               | 1561         | 9.12             |



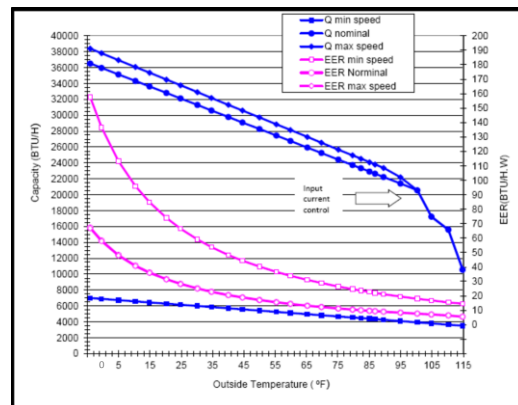
## Performance characteristic: RAS-22EKCV-UL / RAS-22EACV-UL

## Product specification :

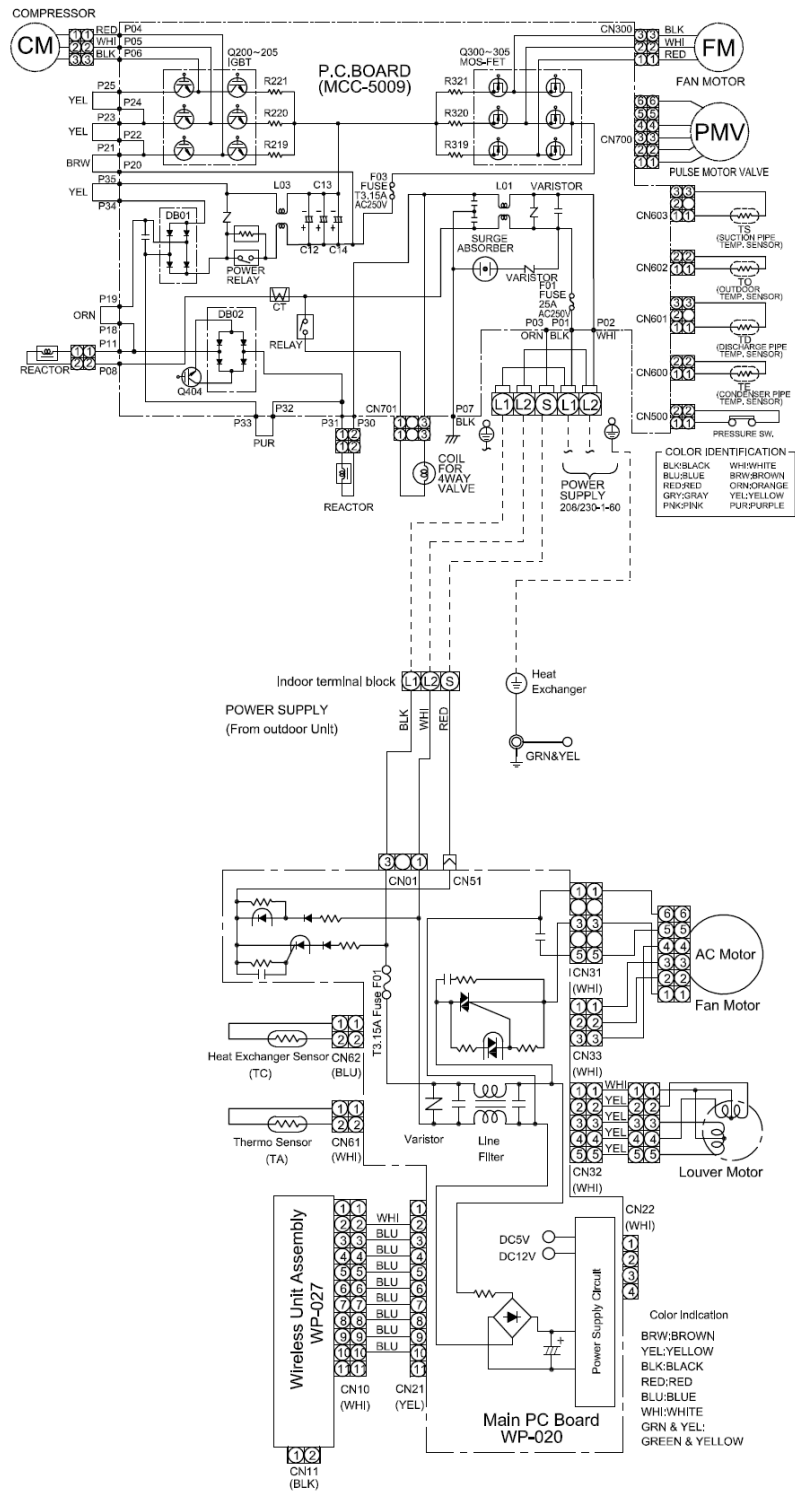
| Condition                                            |         | Capacity (BTU/H) | Power (W) | EER or COP(BTU/H.W) |
|------------------------------------------------------|---------|------------------|-----------|---------------------|
| Cooling<br>In : 80°CDB/67°CWB<br>Out : 95°CDB/75°CWB | Min     | 4100             | 210       | 19.52               |
|                                                      | Nominal | 21400            | 2570      | 8.33                |
|                                                      | Max     | 22500            | 2720      | 8.27                |

## Cooling performance characteristic :

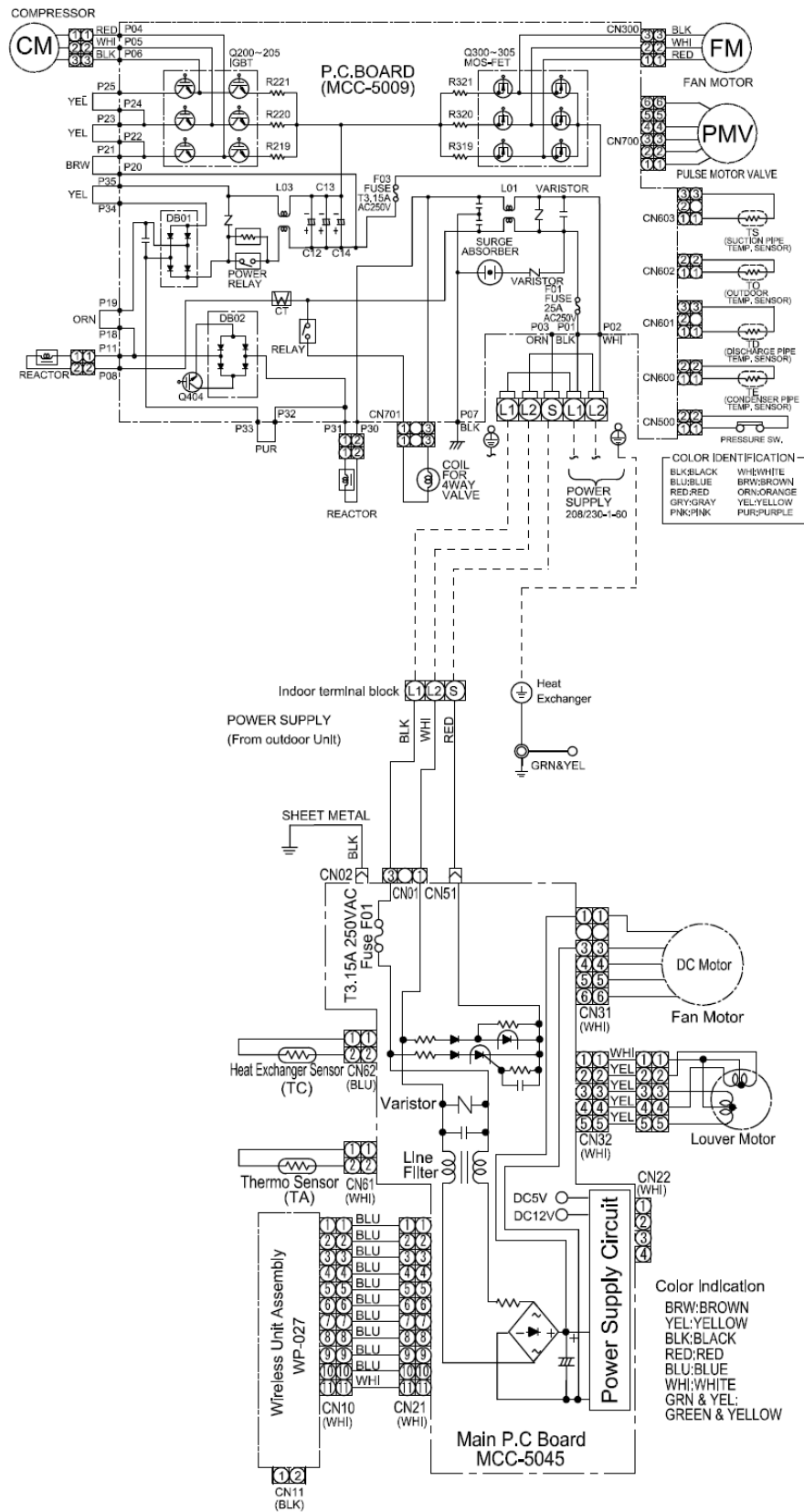
| Outside<br>Temp<br>(°F) | Minimum capacity    |              |                  | Nominal capacity    |              |                  | Maximum capacity    |              |                  |
|-------------------------|---------------------|--------------|------------------|---------------------|--------------|------------------|---------------------|--------------|------------------|
|                         | Capacity<br>(BTU/H) | Power<br>(W) | EER<br>(BTU/H.W) | Capacity<br>(BTU/H) | Power<br>(W) | EER<br>(BTU/H.W) | Capacity<br>(BTU/H) | Power<br>(W) | EER<br>(BTU/H.W) |
| 0                       | 6889                | 50           | 136.49           | 35956               | 618          | 58.21            | 37804               | 654          | 57.83            |
| 5                       | 6731                | 60           | 113.12           | 35132               | 728          | 48.25            | 36938               | 771          | 47.93            |
| 10                      | 6573                | 69           | 95.91            | 34308               | 839          | 40.91            | 36071               | 888          | 40.64            |
| 15                      | 6441                | 76           | 84.69            | 33621               | 931          | 36.12            | 35349               | 985          | 35.88            |
| 20                      | 6284                | 85           | 73.85            | 32797               | 1041         | 31.50            | 34483               | 1102         | 31.29            |
| 25                      | 6152                | 93           | 66.43            | 32111               | 1133         | 28.33            | 33761               | 1200         | 28.15            |
| 30                      | 5994                | 102          | 58.97            | 31287               | 1244         | 25.15            | 32895               | 1316         | 24.99            |
| 35                      | 5863                | 109          | 53.70            | 30600               | 1336         | 22.90            | 32173               | 1414         | 22.75            |
| 40                      | 5705                | 118          | 48.27            | 29776               | 1446         | 20.59            | 31307               | 1531         | 20.45            |
| 45                      | 5573                | 126          | 44.33            | 29090               | 1539         | 18.91            | 30585               | 1628         | 18.78            |
| 50                      | 5415                | 135          | 40.19            | 28266               | 1649         | 17.14            | 29719               | 1745         | 17.03            |
| 55                      | 5258                | 144          | 36.57            | 27442               | 1760         | 15.60            | 28853               | 1862         | 15.49            |
| 60                      | 5126                | 151          | 33.88            | 26755               | 1852         | 14.45            | 28131               | 1960         | 14.35            |
| 65                      | 4968                | 160          | 30.99            | 25931               | 1962         | 13.22            | 27264               | 2077         | 13.13            |
| 70                      | 4837                | 168          | 28.81            | 25245               | 2054         | 12.29            | 26543               | 2174         | 12.21            |
| 75                      | 4679                | 177          | 26.45            | 24421               | 2165         | 11.28            | 25676               | 2291         | 11.21            |
| 80                      | 4547                | 184          | 24.66            | 23734               | 2257         | 10.52            | 24954               | 2389         | 10.45            |
| 82                      | 4468                | 189          | 23.65            | 23322               | 2312         | 10.09            | 24521               | 2447         | 10.02            |
| 85                      | 4389                | 193          | 22.69            | 22910               | 2367         | 9.68             | 24088               | 2506         | 9.61             |
| 87                      | 4337                | 196          | 22.08            | 22636               | 2404         | 9.41             | 23799               | 2545         | 9.35             |
| 90                      | 4258                | 201          | 21.19            | 22224               | 2459         | 9.04             | 23366               | 2603         | 8.98             |
| 95                      | 4100                | 210          | 19.52            | 21400               | 2570         | 8.33             | 22186               | 2677         | 8.29             |
| 100                     | 3942                | 219          | 18.00            | 20552               | 2677         | 7.68             | 20552               | 2677         | 7.68             |
| 105                     | 3811                | 227          | 16.82            | 17227               | 2409         | 7.15             | 17227               | 2409         | 7.15             |
| 110                     | 3653                | 236          | 15.51            | 15592               | 2409         | 6.47             | 15592               | 2409         | 6.47             |
| 115                     | 3521                | 243          | 14.48            | 10549               | 1908         | 5.53             | 10549               | 1908         | 5.53             |



# Wiring diagrams: RAS-09EKCV-UL / RAS-09EACV-UL



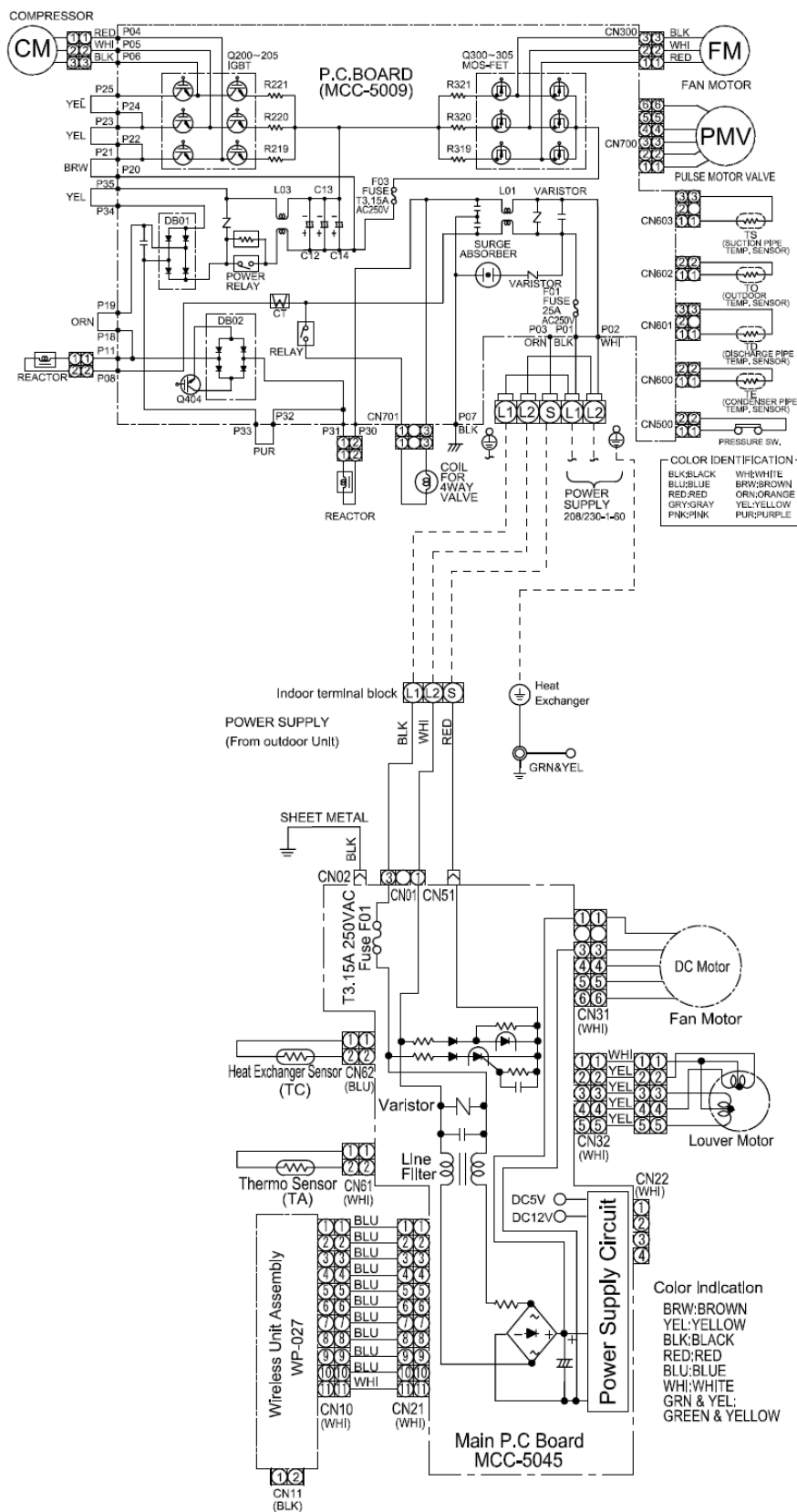
## Wiring diagrams: RAS-12EKCVC-UL / RAS-12EACVC-UL



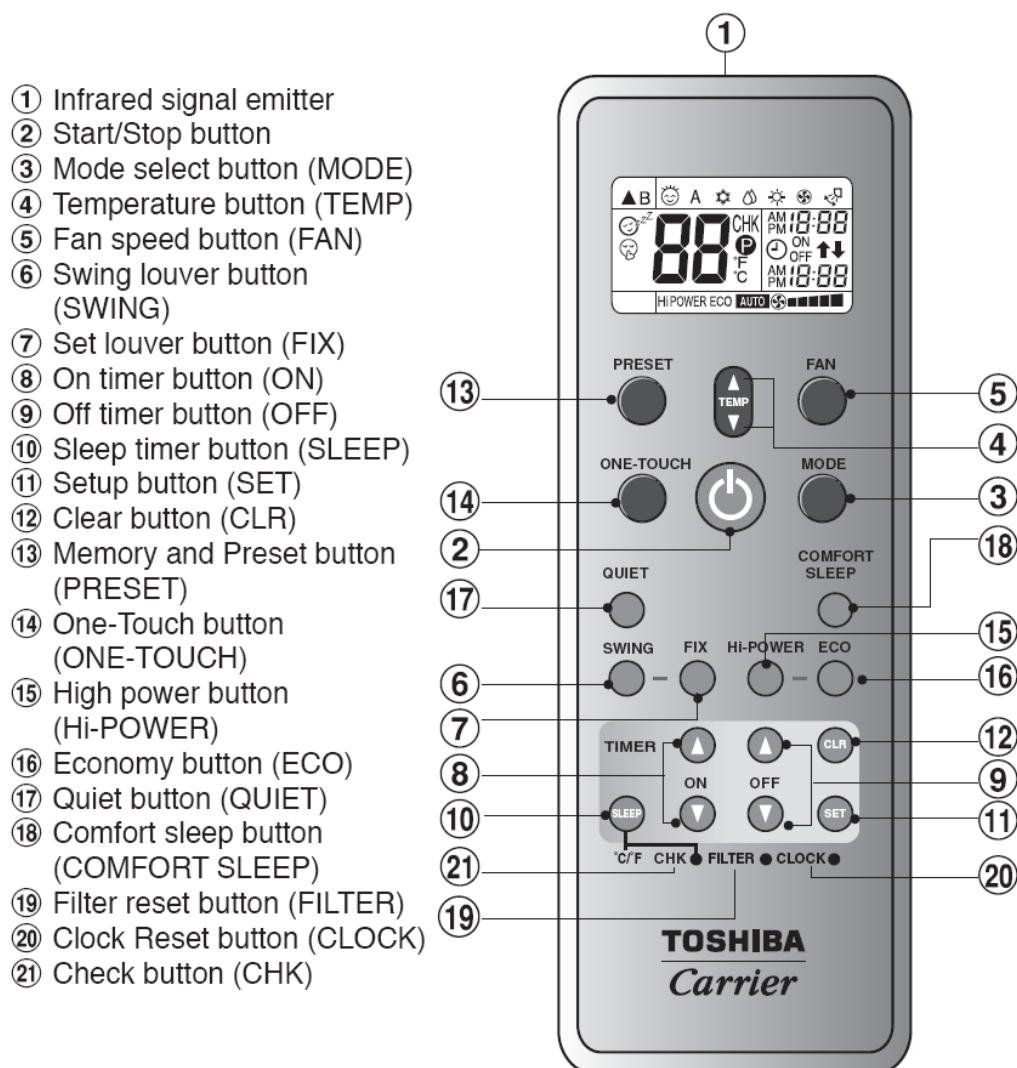
Wiring diagrams: RAS-15EKCVCV-UL / RAS-15EACVCV-UL

RAS-17EKCVCV-UL / RAS-17EACVCV-UL

RAS-22EKCVCV-UL / RAS-22EACVCV-UL



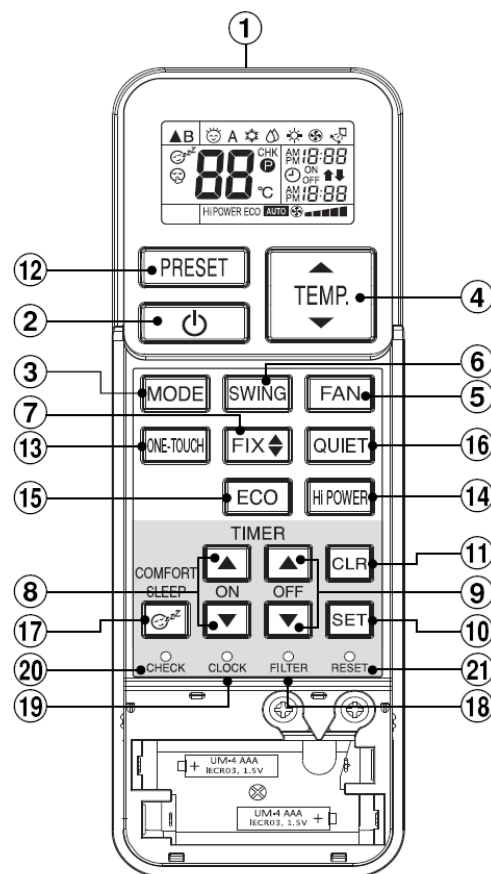
## Standard wireless remote controller



**Optional** wired connectable remote controller

Model name: ASM-OPTIONAL-RC (WC-TA06NE) 1111855003 → °F Display  
 ASM-OPTIONAL-RC (WC-TA07NE) 1111855004 → °C Display

- ① Infrared signal emitter
- ② Start/Stop button
- ③ Mode select button (MODE)
- ④ Temperature button (TEMP)
- ⑤ Fan speed button (FAN)
- ⑥ Swing louver button (SWING)
- ⑦ Set louver button (FIX)
- ⑧ On timer button (ON)
- ⑨ Off timer button (OFF)
- ⑩ Setup button (SET)
- ⑪ Clear button (CLR)
- ⑫ Memory and Preset button (PRESET)
- ⑬ One-Touch button (ONE-TOUCH)
- ⑭ High power button (Hi-POWER)
- ⑮ Economy button (ECO)
- ⑯ Quiet button (QUIET)
- ⑰ Comfort sleep button (COMFORT SLEEP)
- ⑱ Filter reset button (FILTER)
- ⑲ Set clock button (CLOCK)
- ⑳ Check button (CHECK)
- ㉑ Reset button (RESET)



**TOSHIBA**  

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*Carrier*