

Bluon Conversion Results



LOCATION + EQUIPMENT

Location: 6301 South West Shore Boulevard | Tampa, FL | 33618
Converted By: Jim Bergmann on 10/16/19
HVAC Unit: 5 Ton Goodman® Split System

EFFICIENCY

Rated Unit Efficiency: 13 SEER

	Bluon TdX 20 (R-458A)	R-22
Total Power (kW)	4.79	5.50
Energy Efficiency (EER)	12.9	7.4
Compressor Amps	15.6	18.3
Compressor Power (kW)	3.69	4.40

CAPACITY

Nominal Cooling Capacity: 5 Tons

	Bluon TdX 20 (R-458A)	R-22
Expected Capacity Normalized for conditions (Tons)	4.5	4.9
Measured Capacity (Tons)	5.2 (116% of expected)	3.4 (70% of expected)
Sensible (Tons) Temp. Reduction	3.2 (103% of expected)	1.4 (83% of expected)
Latent (Tons) Moisture Reduction	2.0 (145% of expected)	2.0 (63% of expected)

DIRECT UNIT DATA (via digital sensors)

	TdX 20 (R-458A)	R-22
Low Pressure (PSIG/°F)	58.3 / 40.8	82.3 / 48.9
High Pressure (PSIG/°F)	207.2 / 109.1	290.8 / 128.4
Suction Line Temp. (°F)	58.2	72.4
Liquid Line Temp. (°F)	86.6	92.2
Discharge Line Temp. (°F)	--	--
Outdoor Air Temp. (°F)	81.4	78.5
Superheat (°F)	12.8	23.5
Subcooling (°F)	17.8	36.1
Return Dry Bulb (°F)	72.2	79.1
Return % Relative Humidity	61.3	79.8
Return Wet Bulb (°F)	63.2	74.3
Supply Dry Bulb (°F)	55.0	65.6
Supply % Relative Humidity	85.8	90.7
Supply Wet Bulb (°F)	52.6	63.8

RETROFIT SUMMARY

A 5 Ton Goodman® Split System was retrofitted from R-22 to R-458A [Bluon TdX 20]. The unit was chosen because it hadn't shown any obvious problems and was operating similarly to other units on the property. The unit was comprehensively baselined, before being converted to Bluon TdX 20 [R-458A]. All of the digital sensors used to measure the before and after performance remained in their exact location throughout the baselining and retrofit process – thus providing a precise comparison.

Other than the obvious, and substantial increase in cooling capacity + performance, the most interesting aspect of the test results was that Bluon was able to reduce the power consumption of the compressor by over 16% without reducing the unit's compression ratio.