



Report No. 12131  
Date: 7/21/04

# Electricity Reduction Pilot Program

CONDUCTED AT

**I PARK**

LOCATED IN

**Lake Success, NY**

TEST RESULTS  
FOR  
COMMERCIAL AIR CONDITIONING

A Confidential Report  
*Prepared by*  
**Intellidyne LLC**

## EXECUTIVE SUMMARY

The attached report summarizes the Energy Saving Performance of the IntelliCon® “CAC” energy saving control applied to a Carrier 50 ton packaged commercial air conditioning system. The CAC Control was installed on June 29<sup>th</sup>, 2004 on a Carrier model 48EJE 054 Series 600E roof top package unit at the I Park Business Park, 1111 Marcus Ave in Lake Success, New York.

During the test period, data was collected on the following environmental factors: Solar (Lumens per square foot), Outside air temperature (converted to cooling degree days) and indoor air temperature within the space being conditioned. Additionally data was collected on the compressor run-time (in hours).

The test data was collected during the period beginning at mid-night (12:00:01 AM) on June 30 and ran through mid-night (11:59:59 PM) on July 13<sup>th</sup>. Using alternating days we have seven days of data with the IntelliCon Control in the circuit and seven days of data with the IntelliCon control out of the circuit. The chart below reflects the “on” (in circuit) and off (out of circuit) days.

<u>Date</u>	<u>On Day</u>	<u>Off Day</u>
June 30 Wednesday		X
July 1 Thursday	X	
July 2 Friday		X
July 3 Saturday	X	
July 4 Sunday		X
July 5 Monday	X	
July 6 Tuesday		X
July 7 Wednesday	X	
July 8 Thursday		X
July 9 Friday	X	
July 10 Saturday		X
July 11 Sunday	X	
July 12 Monday		X
July 13 Tuesday	X	

The test data results are summarized below with detailed charts attached.

**Solar Load** was 8.55% greater for the on days: 237 L/sq ft (on days)  
219 L/sq ft (off days)

**Cooling Degree Days** were 5.3% less for on days: 24 CDD (on days)  
25 CDD (off Days)

**Compressor run time for the system was reduced by 13.69% when the IntelliCon CAC control was in the circuit.**

**Indoor temperature:** Over all the temperature in the space was improved (cooler) on the days when the IntelliCon “CAC” control was in the circuit. (See indoor temperature probability chart)

**In summary, based on the results from this test and using \$.08 per KWH for the cost of electricity, we have estimated the annual savings with the IntelliCon CAC controls installed on both compressors, to be \$1367.00. These savings will provide a pay back period of just over 7 months and a recurring annual return on investment of over 160%.**



90 Pratt Oval  
 Glen Cove, NY 11542  
 Phone:516-676-0777  
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# Test Report

Report No. 12131

Date: 07/21/04

**Customer:**

Henick-Lane Service  
 44-22 Ninth Street  
 Long Island City, NY 11101  
 Attn: Timothy Guarnieri

**Test Site Location:**

I Park  
 1111 Marcus Ave.  
 Lake Success, NY 11042

Test Type:  HEATING  AIR CONDITIONING  REFRIGERATION  OTHER: \_\_\_\_\_  
 Product Tested:  HW  LCH  LCS  CHW  CHS  AC  CAC  RU  OTHER: \_\_\_\_\_

**Type of Equipment:**

Manu.: Carrier  
 Model: 48EJE 054 series 600E  
 Capacity: Total of 50 Tons (1 - 30 Ton & 1 - 20 Ton compressors)  
 Actual Volts, Amps, Phase: Comp #1: 476, 38<sub>avg</sub>, 3Ø  
 Actual Volts, Amps, Phase: Comp #2: 476, 25<sub>avg</sub>, 3Ø  
 Setpoint: 70° F from 5 am - 7 pm 75° F from 7 pm - 5 am  
 Area Served: Common Hall

Test Start Date: 06/30/04  
 Test End Date: 07/13/04  
 No. of Days in Test: 14

**COMPRESSOR RUN-TIME:**  in HRS.  in MIN.  
 IntelliCon ON-DAYS: 173:45:46  
 IntelliCon OFF-DAYS: 201:19:45  
 RUN-TIME was reduced by: 13.69%

**COMPRESSOR USAGE FACTOR:**  
 IntelliCon On-Days: 52%  
 IntelliCon Off-Days: 60%

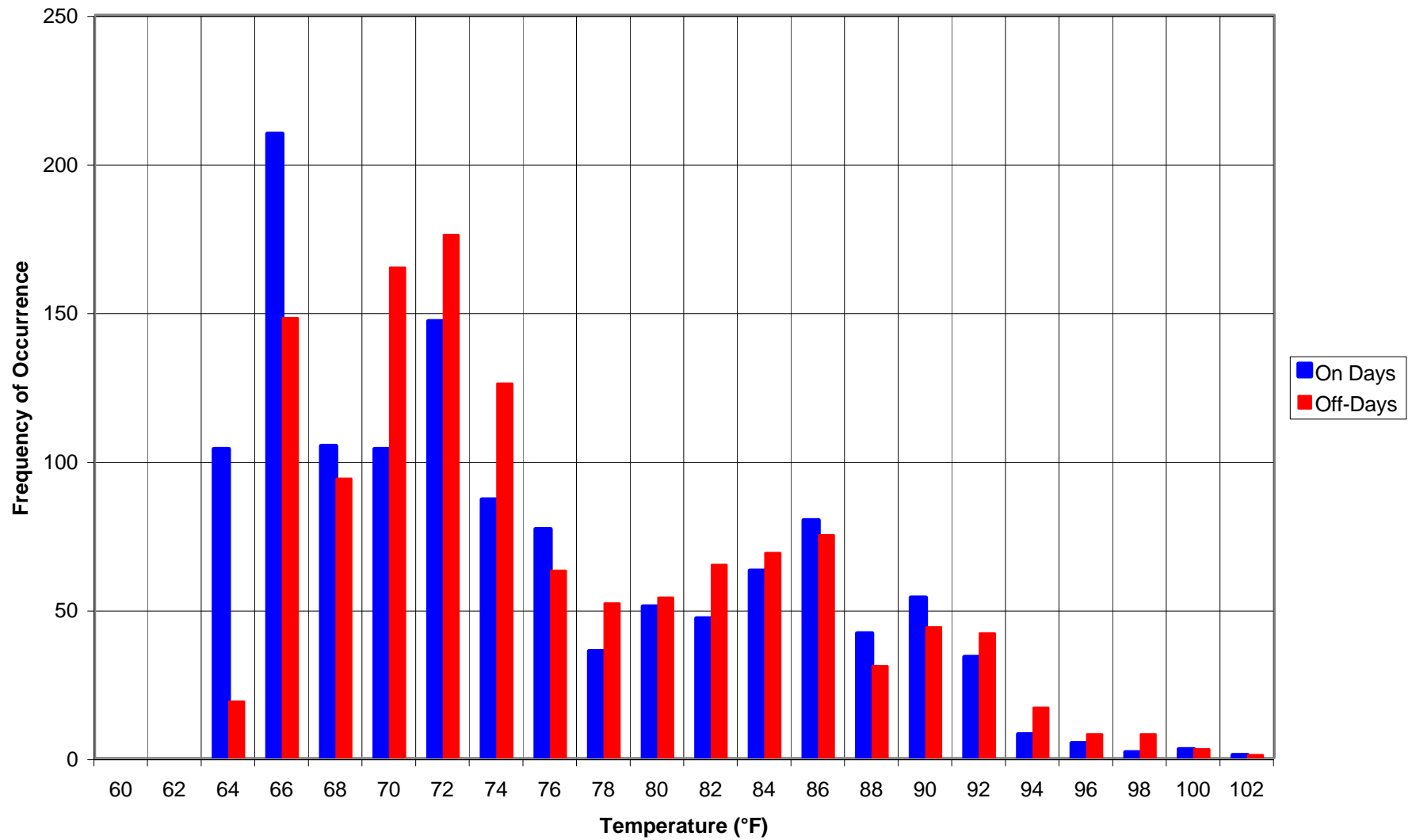
**COOLING DEGREE-DAYS (FOR TEST PERIOD)**  
 IntelliCon ON-DAYS: 24 It was 5.3% Cooler on the ON-Days.  
 IntelliCon OFF-DAYS: 25  
 Total Degree-Days: 49

**SOLAR LOAD COMPENSATION: (Lumens/Sq. Ft.)**  
 IntelliCon ON-DAYS: 237  
 IntelliCon OFF-DAYS: 219 It was 8.55% Sunnier on the On-Days.

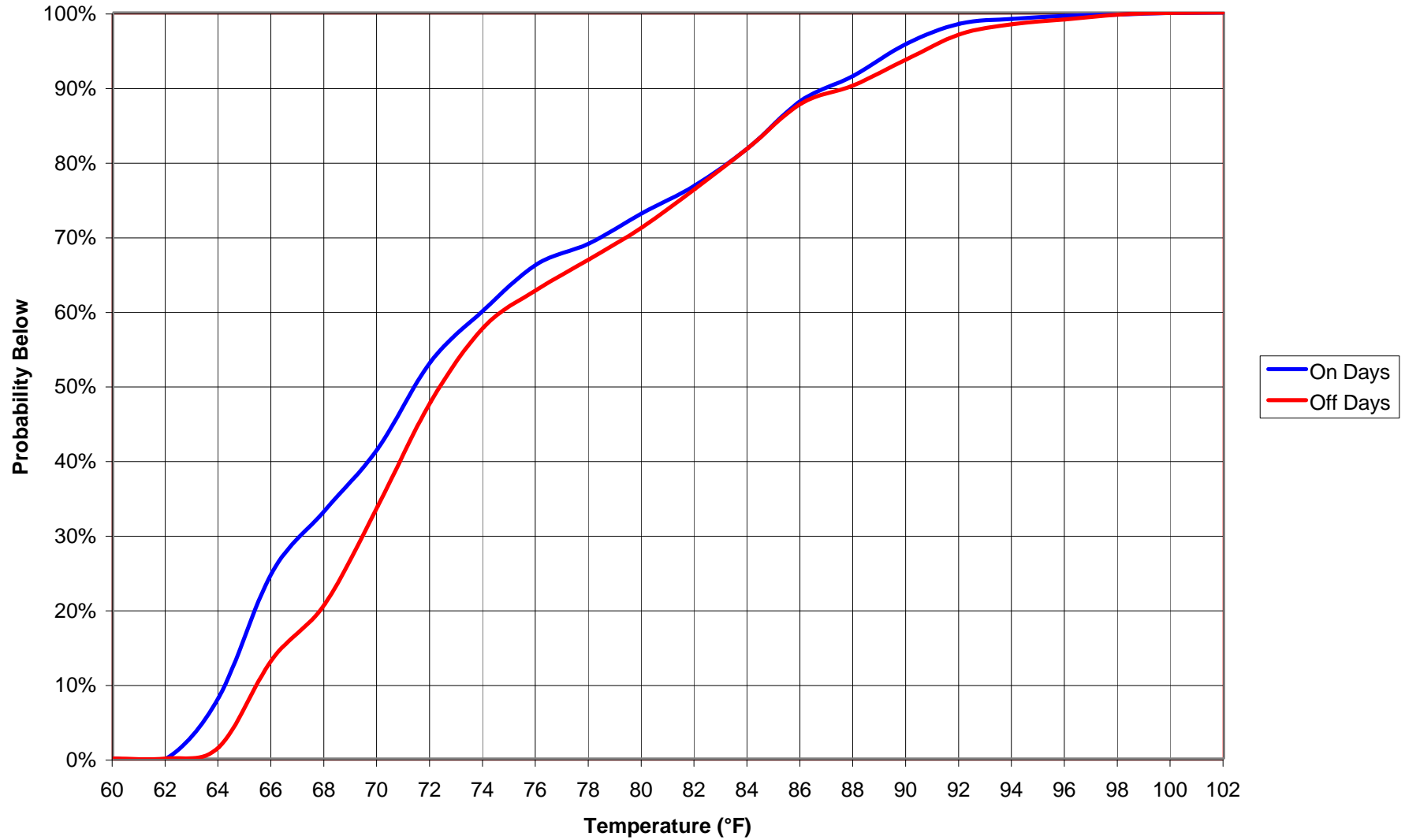
**Savings = 13.69%**

**COMMENTS:** The equipment tested contained two (2) compressors, both of which had IntelliCons installed on them. As such, the consumption of both compressors are combined and treated as one for the purpose of this analysis. The actual run-time for compressor # 1 was ~ 102.3 Hrs on the "On" days and for ~ 116.2 Hrs. on the "Off" days. Compressor #2 ran for ~ 71.5 Hrs. on the "On" days and for ~ 85.2 Hrs. on the "Off" days. The Solar load (greater on the "On" days) negated the impact of the Cooling Degree-Days and thus neither was used to normalize the compressor run-time data. Thermostat settings indicated setpoints of 70° day / 75° night, testing revealed 72° day / 76° night.

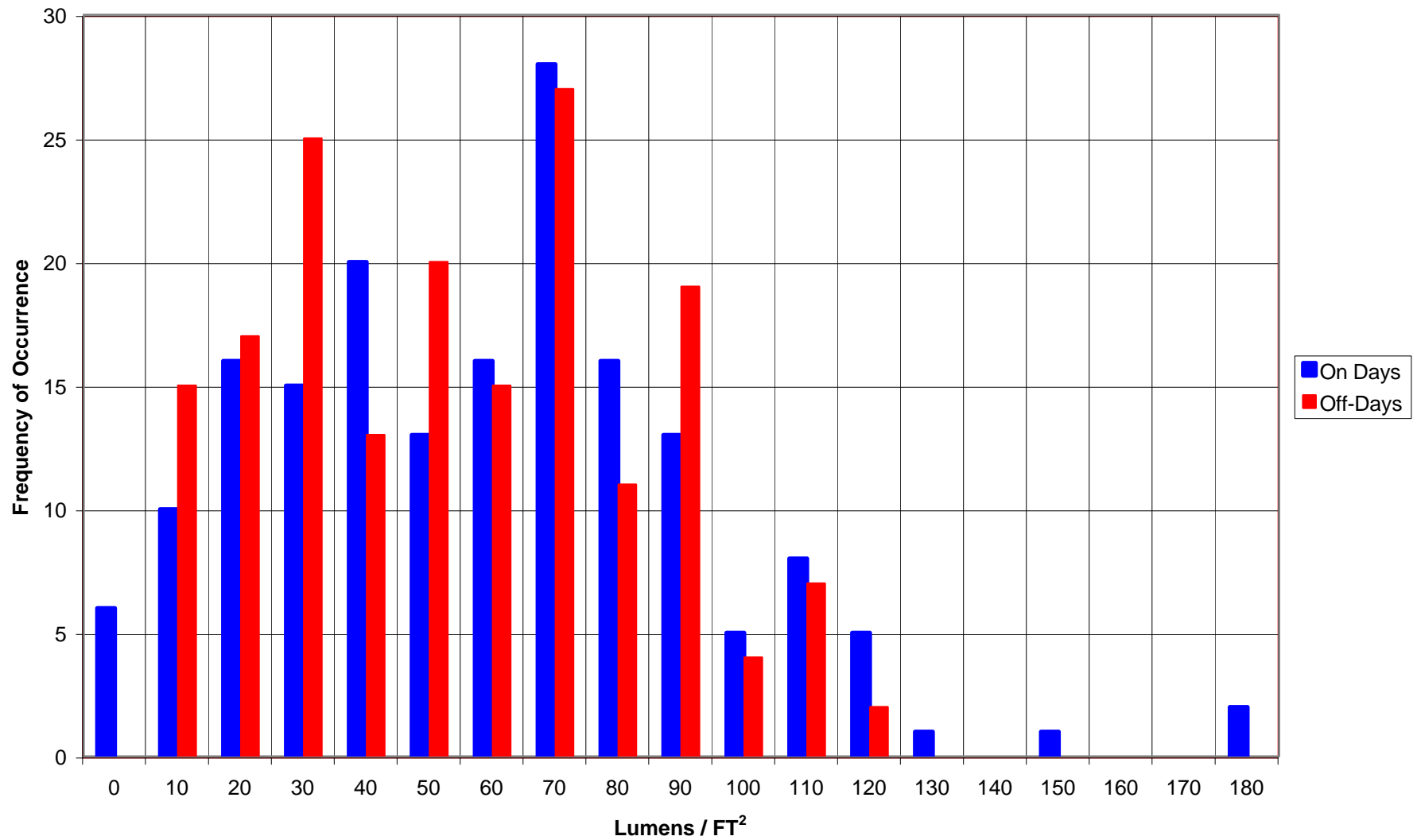
### Outside Air Temperature Histogram



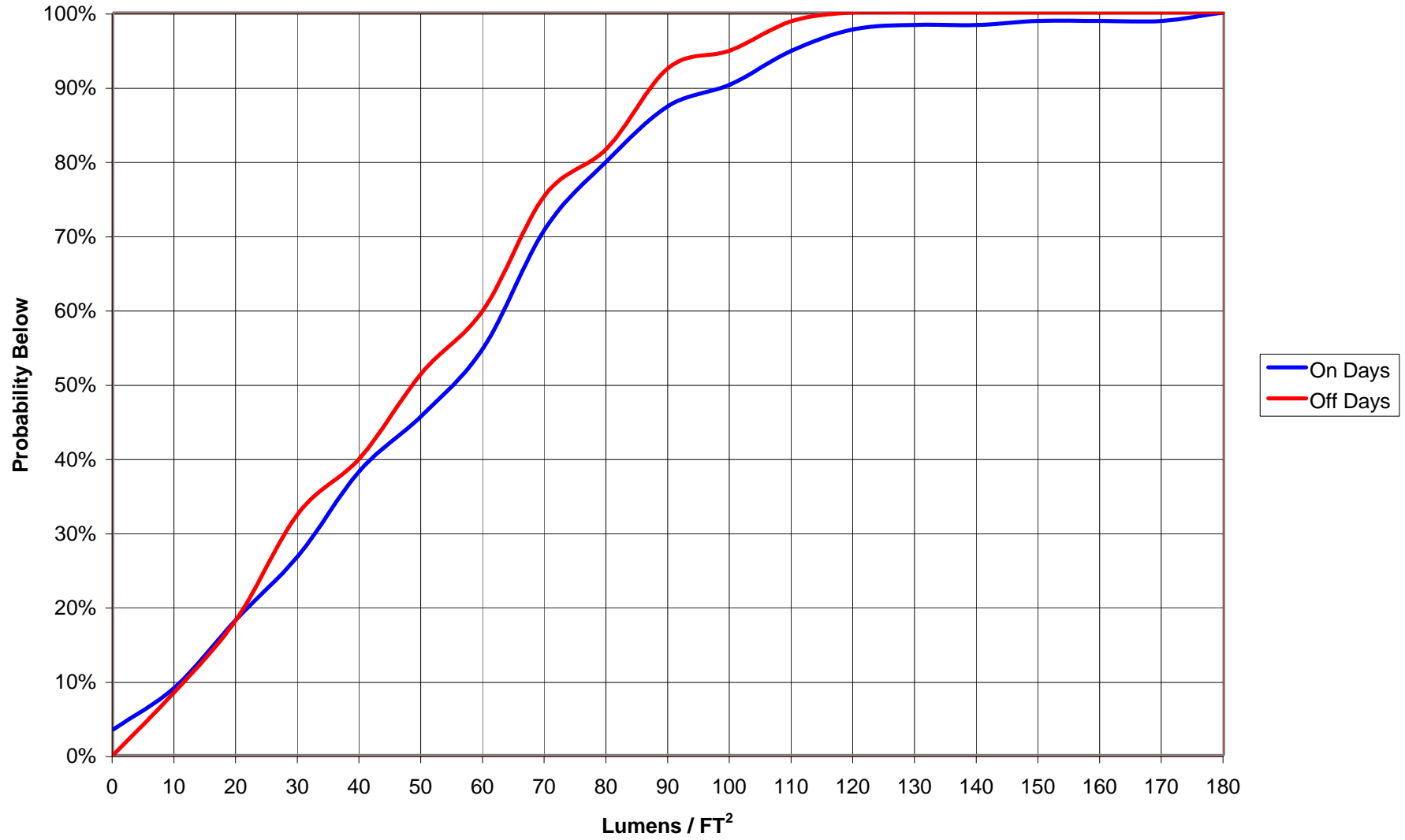
### Outside Air Temperature Probabilities



### Solar Load Histogram

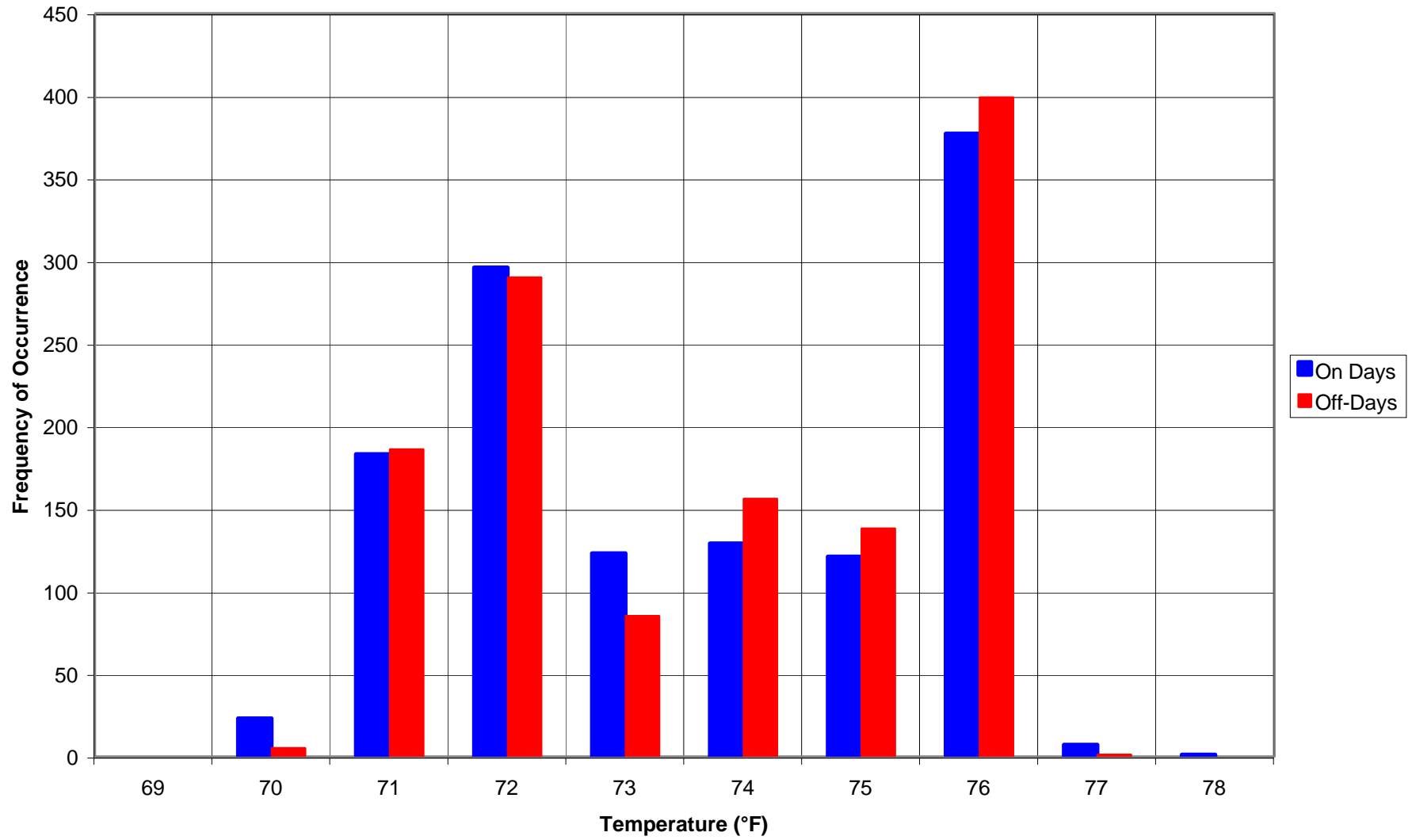


### Solar Load Probabilities





# Space Temperature Histogram



### Space Temperature Probabilities

