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 29th, 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 13th. 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.

Date	**On Day**	**Off Day**
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)

<u>Compressor run time</u> for the system was reduced by 13.69% when the IntelliCon CAC control was in the circuit.

<u>Indoor temperature;</u> 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%.

INTELLIDYNE
"Smart ways to save energy"

90 Pratt Oval
Glen Cove, NY 11542
Phone:516-676-0777
Fax: 516-676-2640

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_{avg},3ø
Actual Volts, Amps, Phase: Comp #2: 476, 25_{avg},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

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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

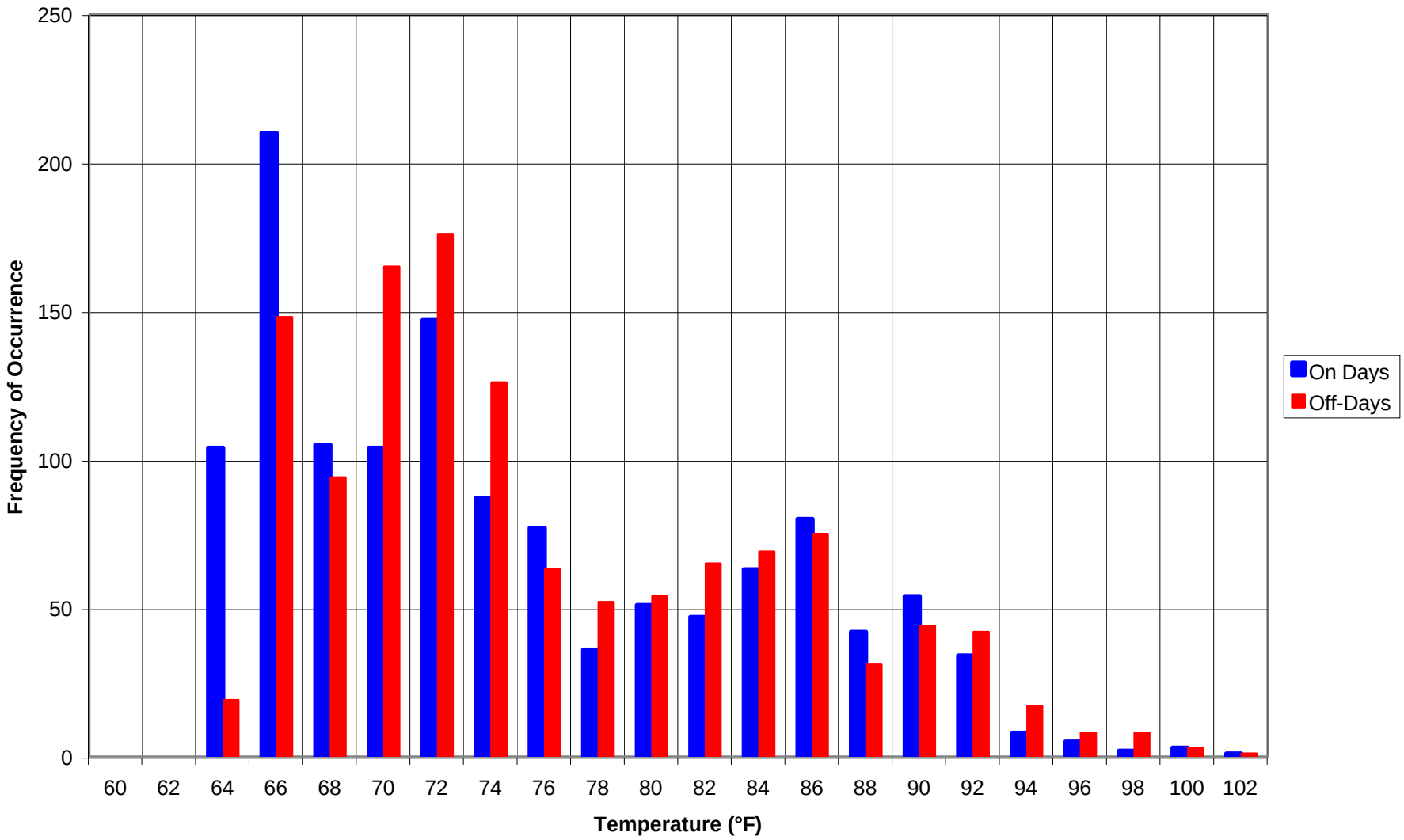
SOLAR LOAD COMPENSATION: (Lumens/Sq. Ft.)

IntelliCon ON-DAYS: 237

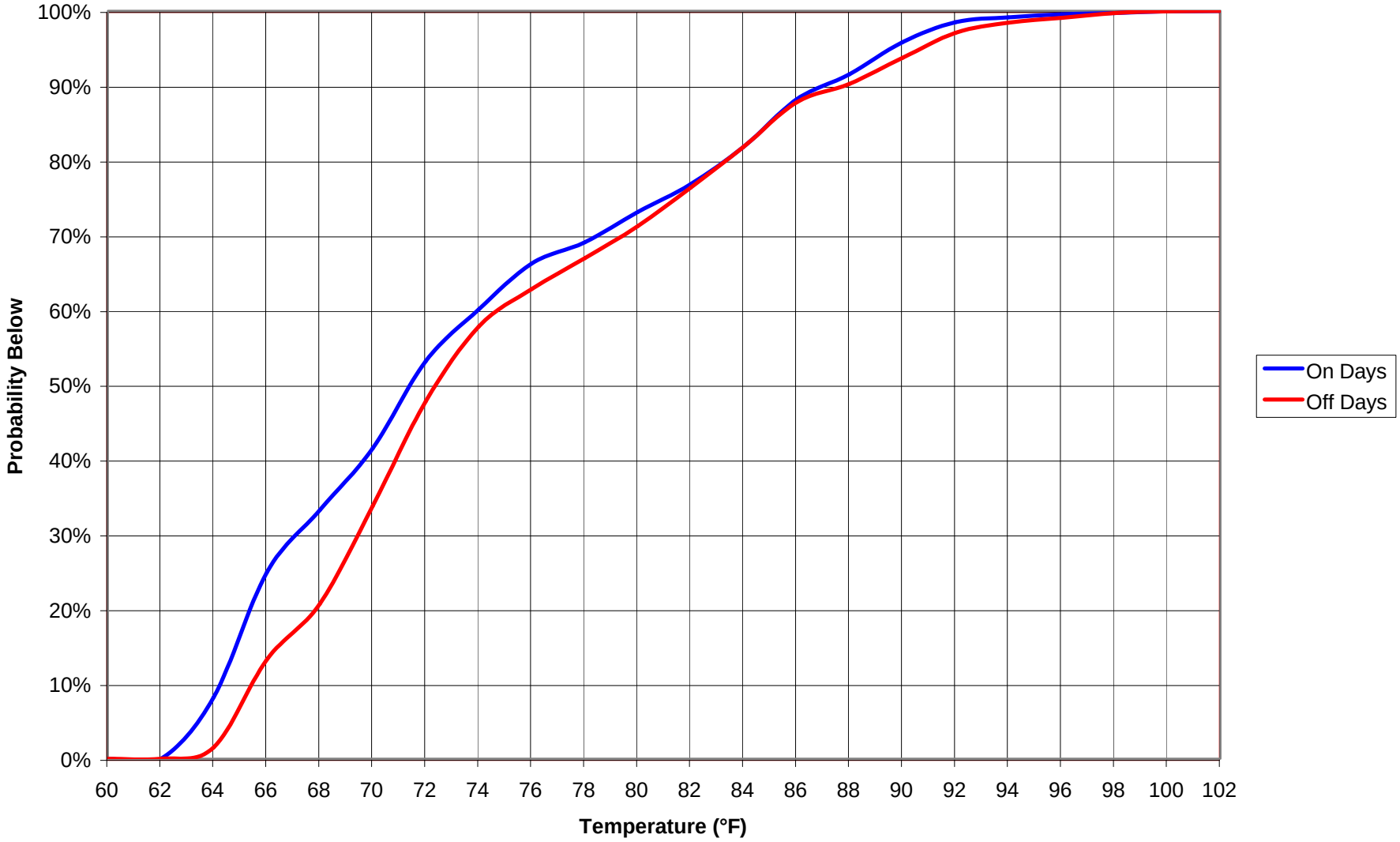
IntelliCon OFF-DAYS: 219 **It was** **8.55%** **Sunnier on the On-Days.**

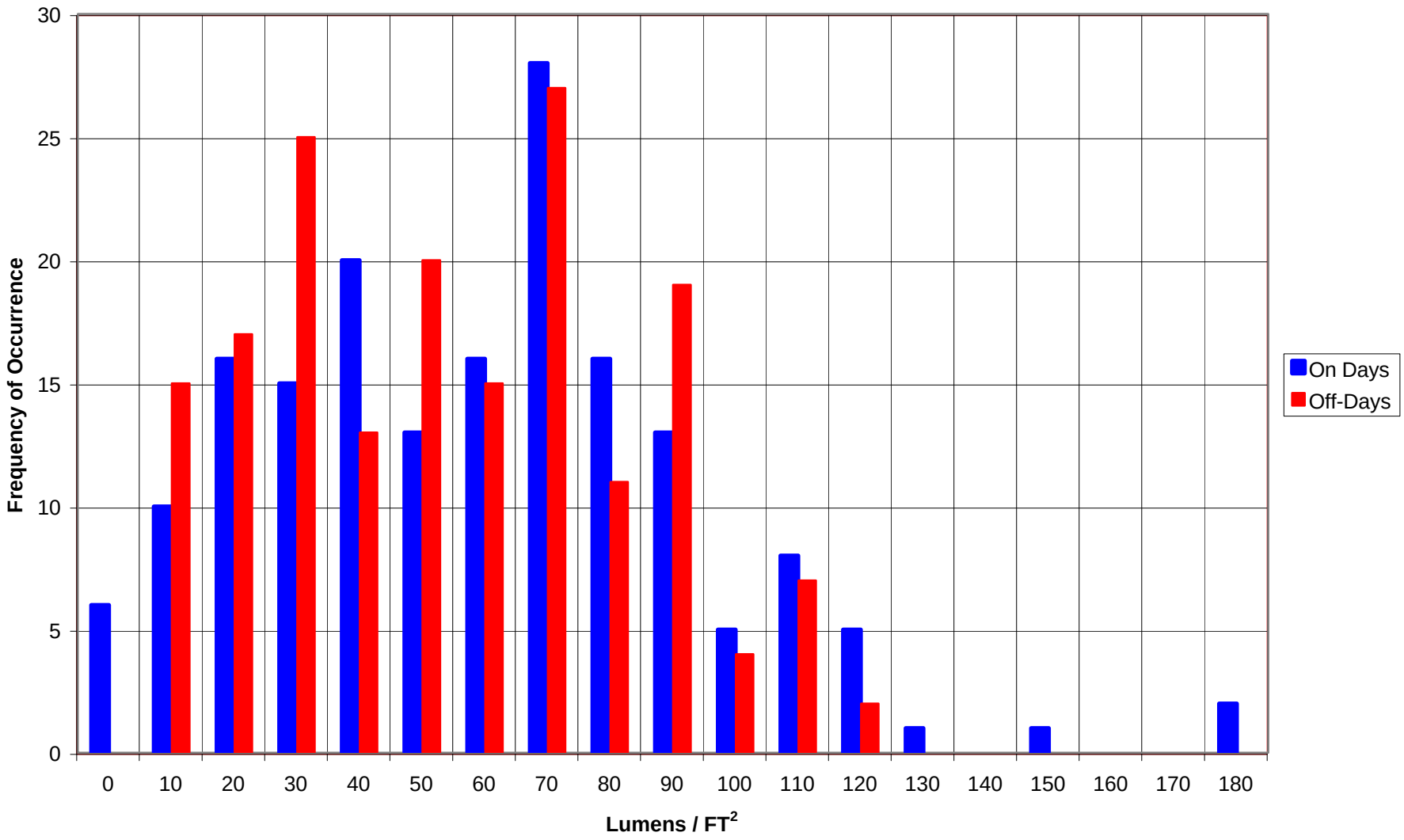
Savings = 13.69%

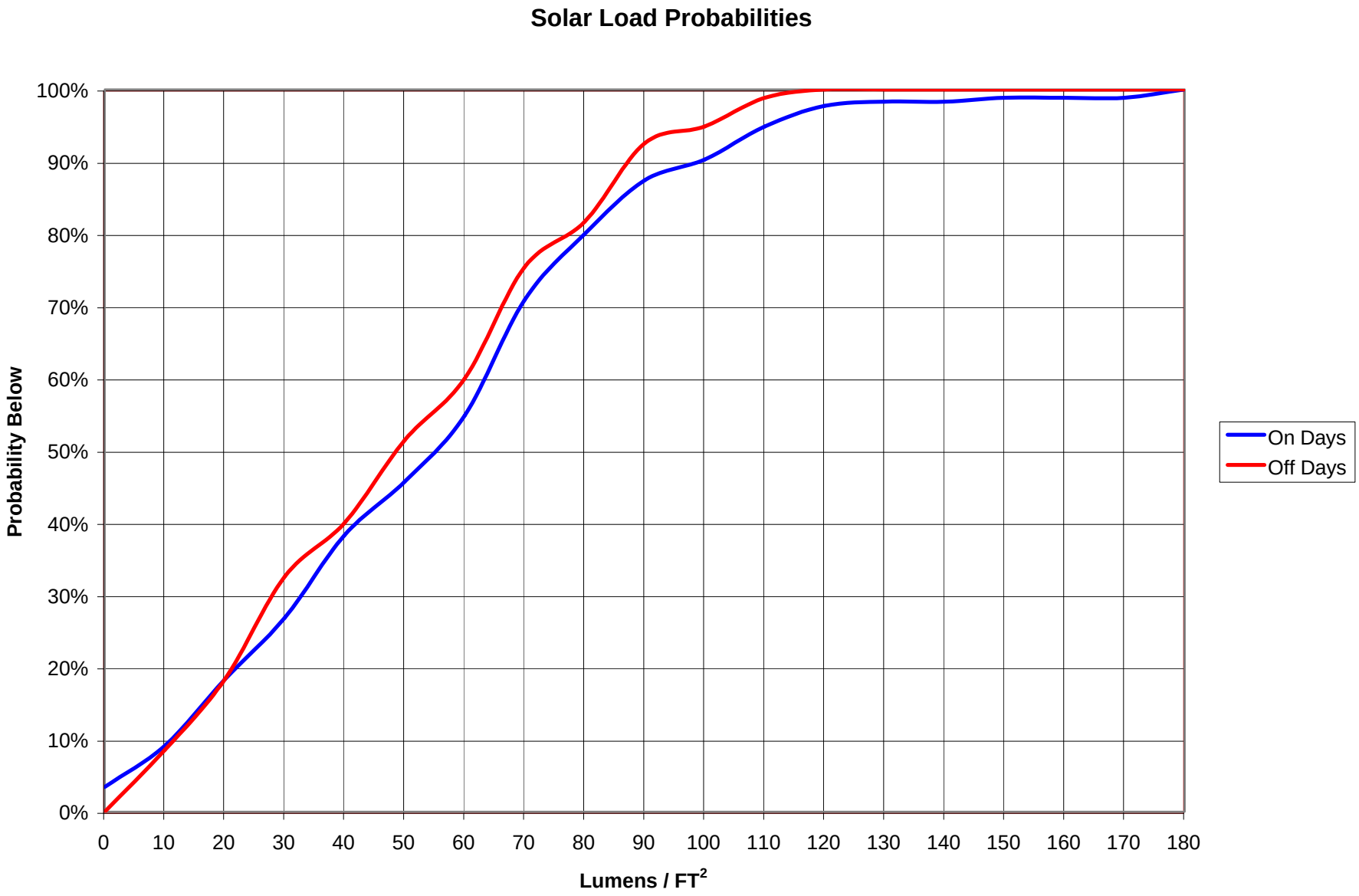
COMMENTS: The equipment tested contained two (2) compressors, both of which had IntelliCons installed on them. As such, the consumption of both compressors are combined and treated as one for the purpose of this analysis. The actual run-time for compressor # 1 was ˜ 102.3 Hrs on the "On" days and for ˜ 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.

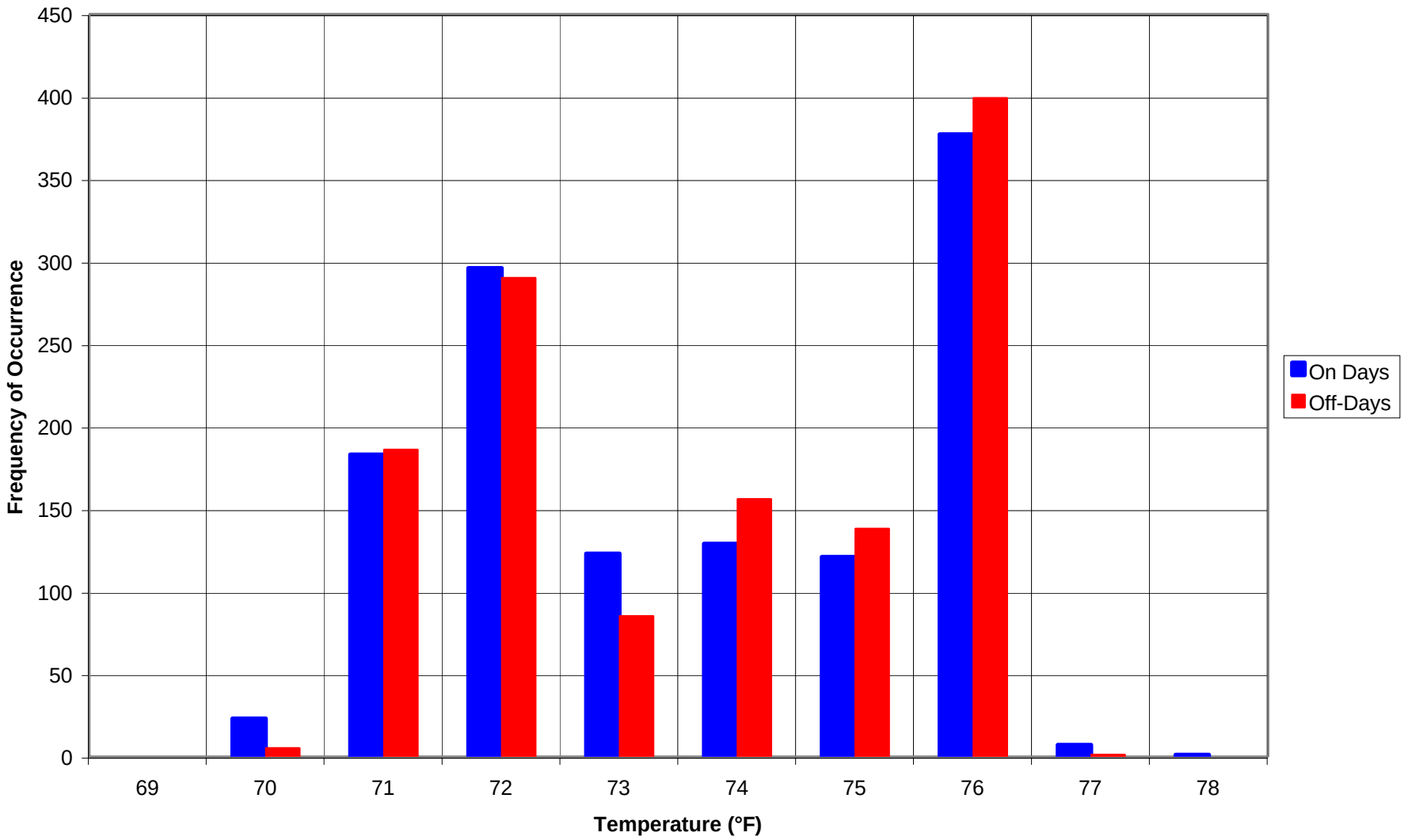

Outside Air Temperature Histogram
250
200
150
100
50
0
Frequency of Occurrence
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
Temperature (°F)
On Days
Off-Days

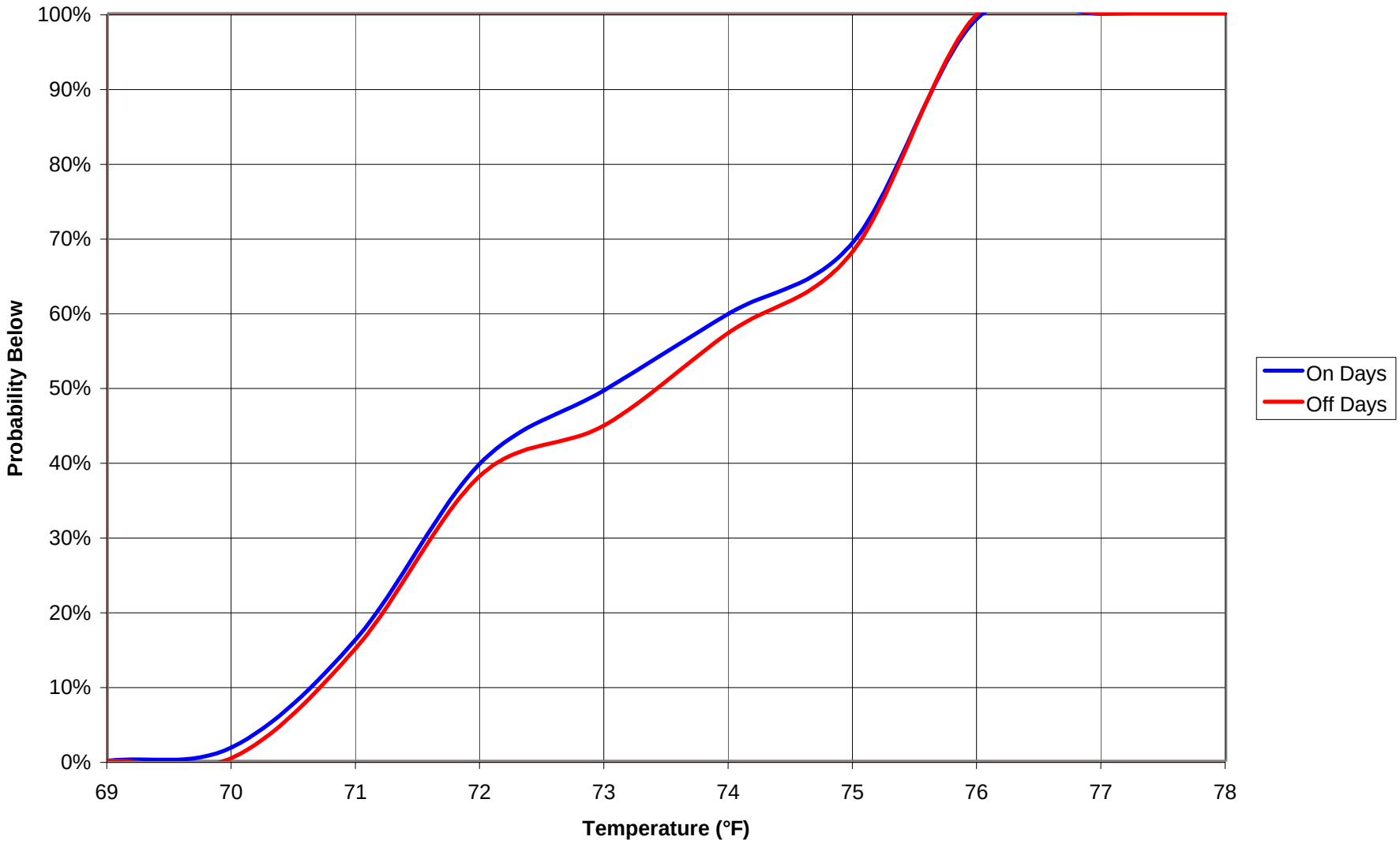
Outside Air Temperature Probabilities




Solar Load Histogram
Frequency of Occurrence
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
Lumens / FT2
On Days
Off-Days


Solar Load Probabilities
Probability Below
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
Lumens / FT2
On Days
Off Days


Space Temperature Histogram
Frequency of Occurrence
450
400
350
300
250
200
150
100
50
0
69
70
71
72
73
74
75
76
77
78
Temperature (°F)
On Days
Off-Days


Space Temperature Probabilities
Probability Below
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
69
70
71
72
73
74
75
76
77
78
Temperature (°F)
On Days
Off Days