



Report No. 12124
Date: 11/14/03

ARCHDIOCESE OF NEW YORK BUILDING COMMISSION

Energy Consumption Reduction Pilot Program

TEST RESULTS FOR: COMMERCIAL CHILLED WATER AIR CONDITIONER & COMMERCIAL WALK-IN REFRIGERATOR

Located at:

1011 FIRST AVENUE
NEW YORK, NY 10022

A Confidential Report
Prepared by
Intellidyne LLC

EXECUTIVE SUMMARY

The following is a summary of the Energy Saving Performance of the *IntelliCon*[®]-CAC control which was installed on one (1) 30 ton commercial chilled water air conditioner and one *IntelliCon*[®]-RU which was installed on the Walk-in Refrigerator in the school kitchen. These systems operate on a 24 hours per day, 7 days per week basis at the 1011 First Avenue, New York facility.

During the testing period at this particular location, the *IntelliCon*[®]-CAC delivered an electric consumption reduction of **14.73%** on the 30 ton commercial chiller with no degradation of the temperature maintenance. It is important to note that there was a **14.73%** reduction in consumption (savings) without Cooling Degree-Day compensation (even though it was nearly 20% warmer on the ON days). Also, the Chiller was not running on 9/16/03 from approx. 10AM till 5AM the next day. If this Off-Time was taken into consideration the savings would have been higher. Temperature maintenance was consistent as depicted on the included Histogram and Probability charts. The Usage factor is within normal limits for this application which ensures maximum savings.

Also during the test, the *IntelliCon*[®]-RU delivered an electric consumption reduction of **10.03%** on the walk-in refrigerator with no degradation of the temperature maintenance. The Refrigeration Compressor is not within the normal utilization factors of between 40% - 80%. The resultant 19% usage factor on the "Off" days leads us to conclude that it is either under-utilized or oversized. This Low usage factor contributes to the small savings result since it is Off so much more than it is On. The savings results also do not take into account the fact that it was more than 10% warmer on the On days. If cooling degree-days were compensated for; the results would have been in excess of 12%. Temperature maintenance was consistent as depicted on the included Histogram and Probability charts.

The attached report contains documentation supporting the summary results and further elucidates the length of the test as well as documenting the overall temperature performance and predictability of the temperature range of each unit after the *IntelliCon*[®] affect.

The analysis of the data collected concludes that the *IntelliCon*[®] unit has substantially reduced energy consumption beyond the minimum 10% that is guaranteed while providing predictable temperature performance which is consistent with the temperatures that are maintained without the use of the *IntelliCon*[®] technology.

These results further document the financial benefit resulting from the implementation of the *IntelliCon*[®] Energy Saving Control. While the test was performed on cooling and refrigeration, the performance of the *IntelliCon*[®] heating products consistently achieve equal to or greater savings than those demonstrated during this pilot program. All *IntelliCon*[®] Energy Saving Controls continually monitor the system to detect load changes. In cases where the load is less than the system maximum output the control delays the start of the system to lower the energy output to match the reduced load. This process is varied dynamically from cycle to cycle.

- **Guaranteed Energy Consumption Reductions**
- **Consistent Temperature Performance**
- **15 Year Replacement Warranty**
- **Low Upfront costs and High ROI**

Intellidyne is confident you will agree that the application of *IntelliCon*[®] technology is an excellent business decision which can deliver real and meaningful operating cost reductions year in and year out.



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

Test Report

Report No. 12124-1

Date: 08/11/03

Customer:

Diocese of New York

Test Site Location:

Diocese of New York
 1011 First Ave
 New York, NY

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

Type of Equipment:

Carrier
 M/N: 30HWP035-D-610BC, S/N: 2102Q01601
 Chiller, 30 Ton, 1 Semi Herm. Comp w/ 2 elec. Unloaders
 460vac., 38 Compressor Amps., 3 Phase
 ACTUAL: 472vac @ AMPS: 24.8 amps. (33% load)
 Usage / Setpoint: 24/7 as needed / 45 Deg. F
 Location: 8th floor MER

Test Start Date: 09/11/03
 Test End Date: 09/30/03
 No. of Days in Test: 20

COMPRESSOR RUN-TIME:

in HRS. in MIN.

IntelliCon ON-DAYS: 147:07:22

IntelliCon OFF-DAYS: 172:31:47

RUN-TIME was reduced by: 14.73%

COMPRESSOR USAGE FACTOR:

IntelliCon On-Days: 61%

IntelliCon Off-Days: 72%

COOLING DEGREE-DAYS (FOR TEST PERIOD)

IntelliCon ON-DAYS: 71

It was 19.8% Warmer on the On-Days.

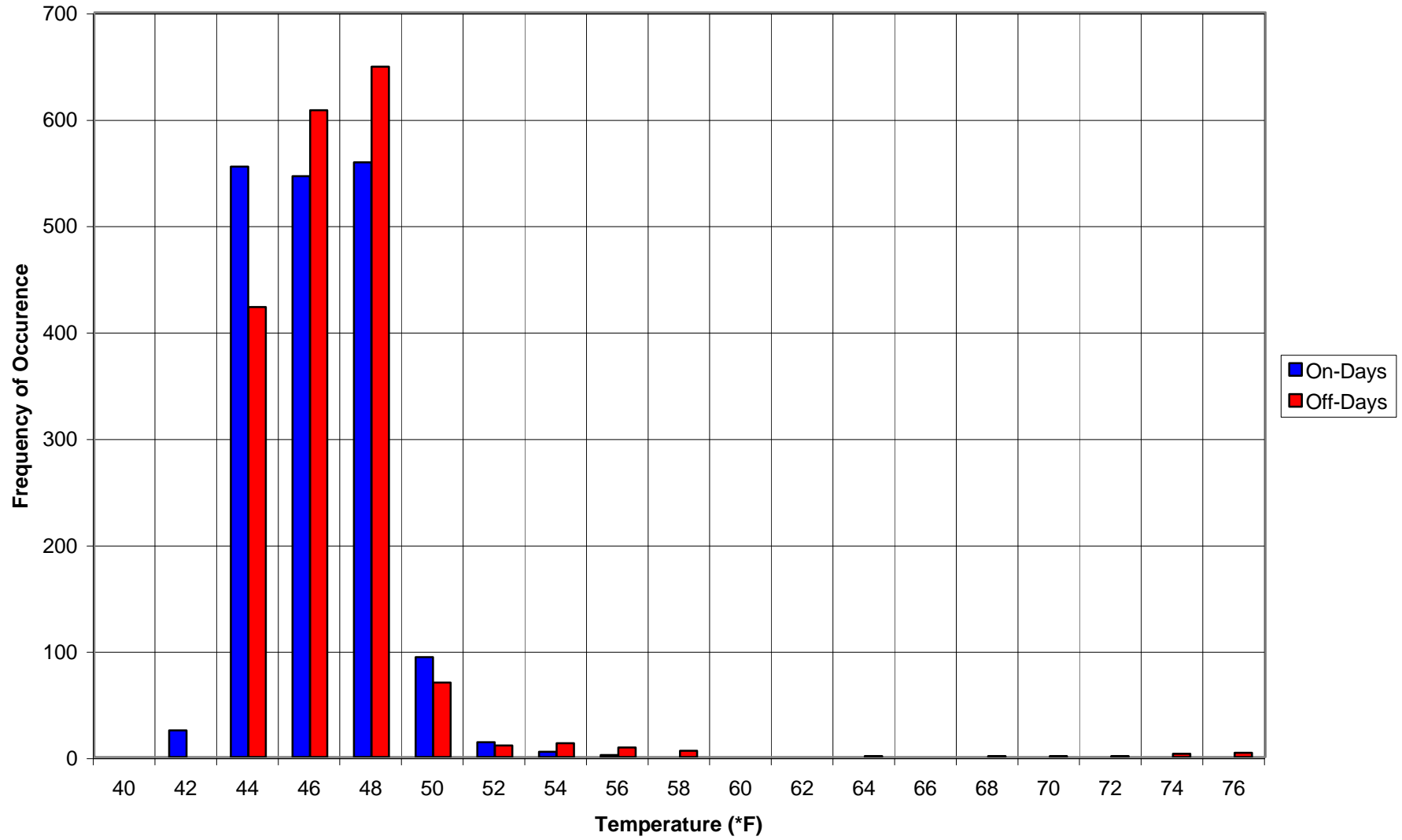
IntelliCon OFF-DAYS: 60

Total Degree-Days: 131

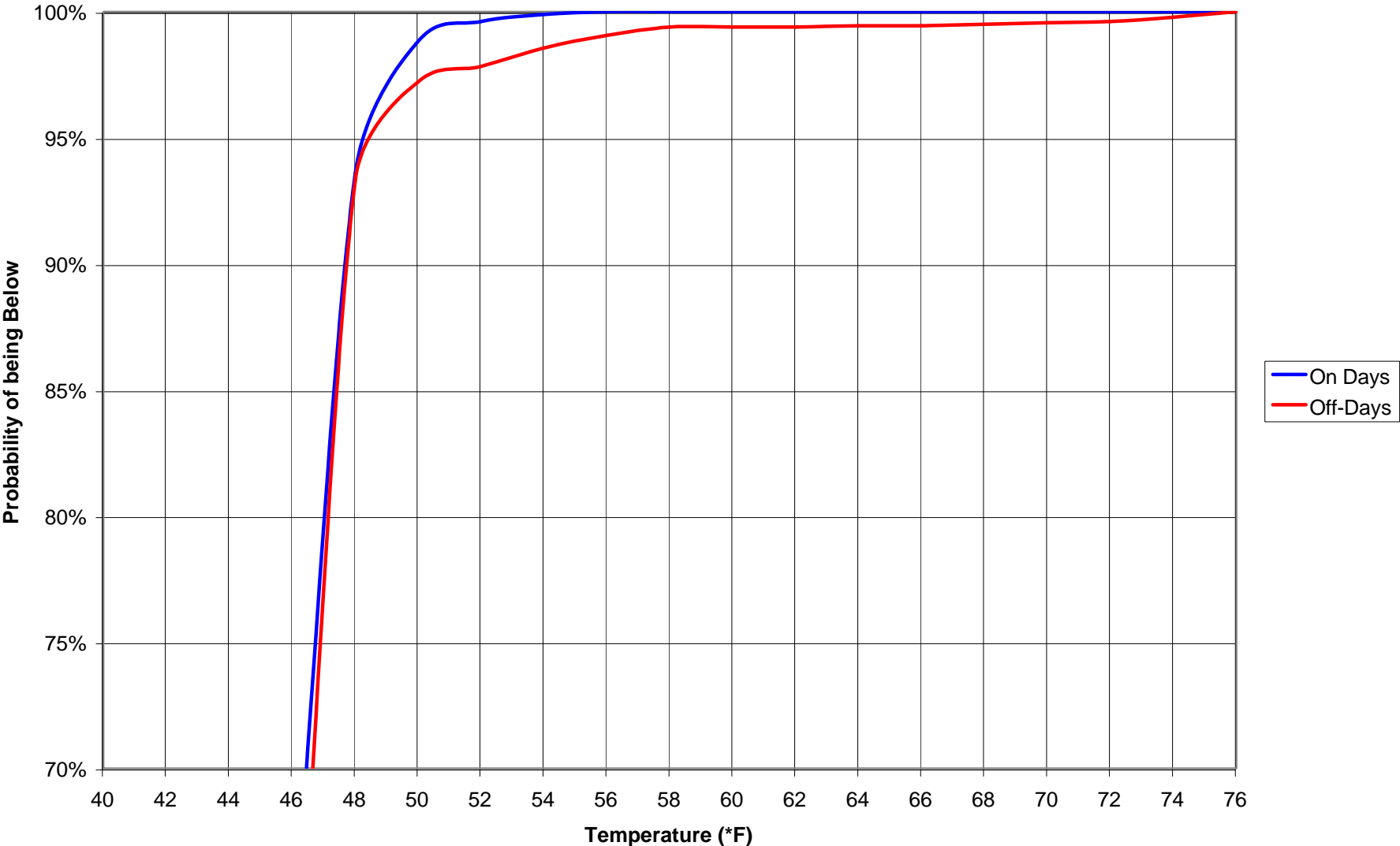
Savings = 14.73%

COMMENTS: There was a 14.73% reduction in consumption (savings) without Cooling Degree-Day compensation (even though it was nearly 20% warmer on the ON days). Also, the Chiller was not running on 9/16/03 from approx. 10AM till 5AM the next day. If this Off-Time was taken into consideration the savings would have been higher. Temperature maintenance was consistent as depicted on the included Histogram and Probability charts. The Usage factor is within normal limits for this application which ensures maximum savings.

Chilled -Water Temperature Histogram



Chilled -Water Temperature Probabilities





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

Test Report

Report No. 12124-2

Date: 08/11/03

Customer:

Diocese of New York

Test Site Location:

Diocese of New York
 1011 First Ave
 New York, NY

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

Type of Equipment:

Copeland
 M/N: PW1-0200-TAC, S/N: N/A
 Walk-In Refrigerator, 2 HP, Semi Hermetic Compressor
 Volts, Amps., Phase: 208/230vac., 5.9 Compressor Amps., 3 P
 ACTUAL VOLTS / AMPS: 213vac / 5.1 amps
 Usage / Setpoint: 24/7 / 40degs. F
 Location: School basement kitchen

Test Start Date: 09/11/03
 Test End Date: 09/26/03
 No. of Days in Test: 16

COMPRESSOR RUN-TIME:

in HRS. in MIN.

IntelliCon ON-DAYS: 32:20:36

IntelliCon OFF-DAYS: 35:35:17

RUN-TIME was reduced by: 10.03%

COMPRESSOR USAGE FACTOR:

IntelliCon On-Days: 17%

IntelliCon Off-Days: 19%

COOLING DEGREE-DAYS (FOR TEST PERIOD)

IntelliCon ON-DAYS: 60

It was 10.2% Warmer on the On-Days.

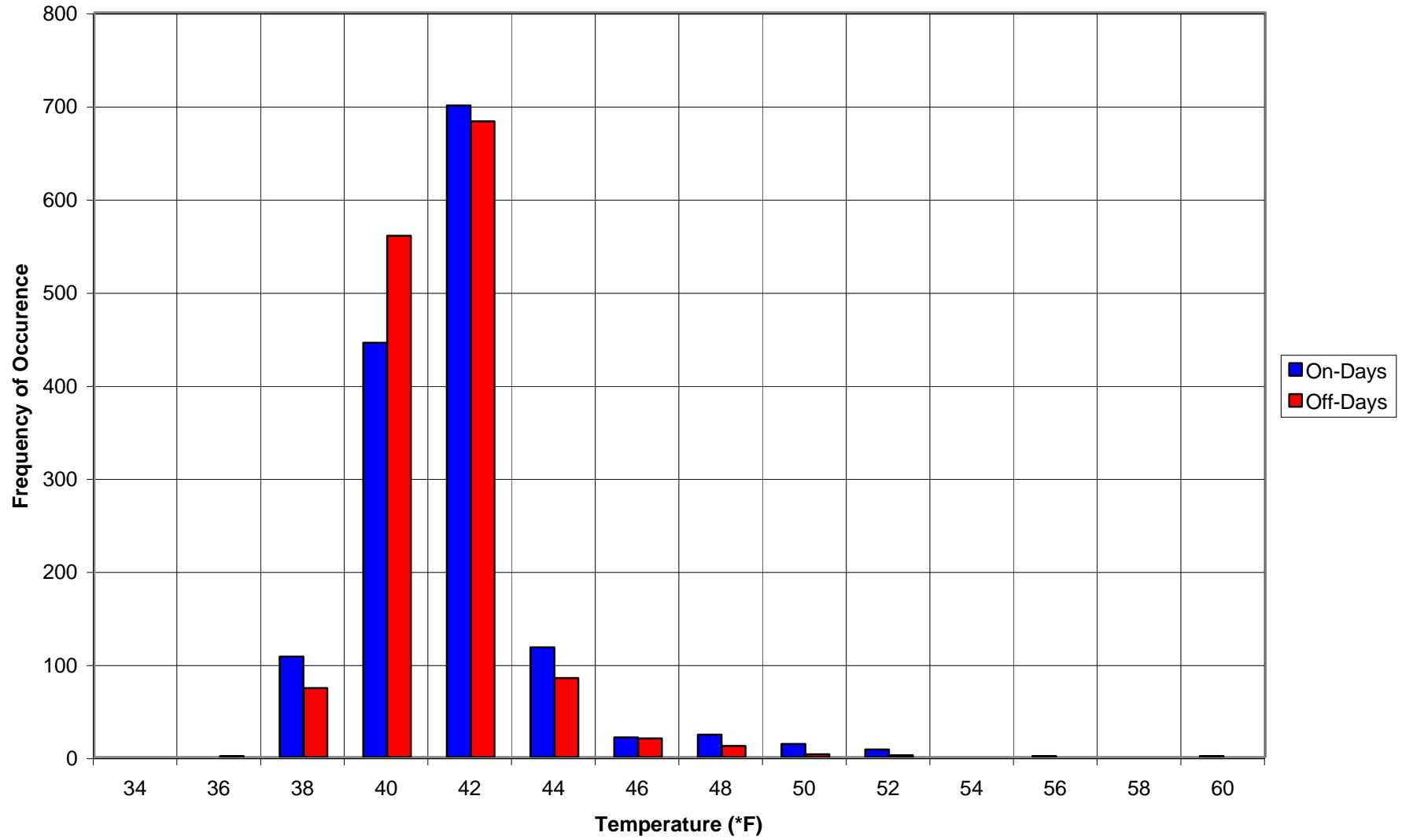
IntelliCon OFF-DAYS: 54

Total Degree-Days: 114

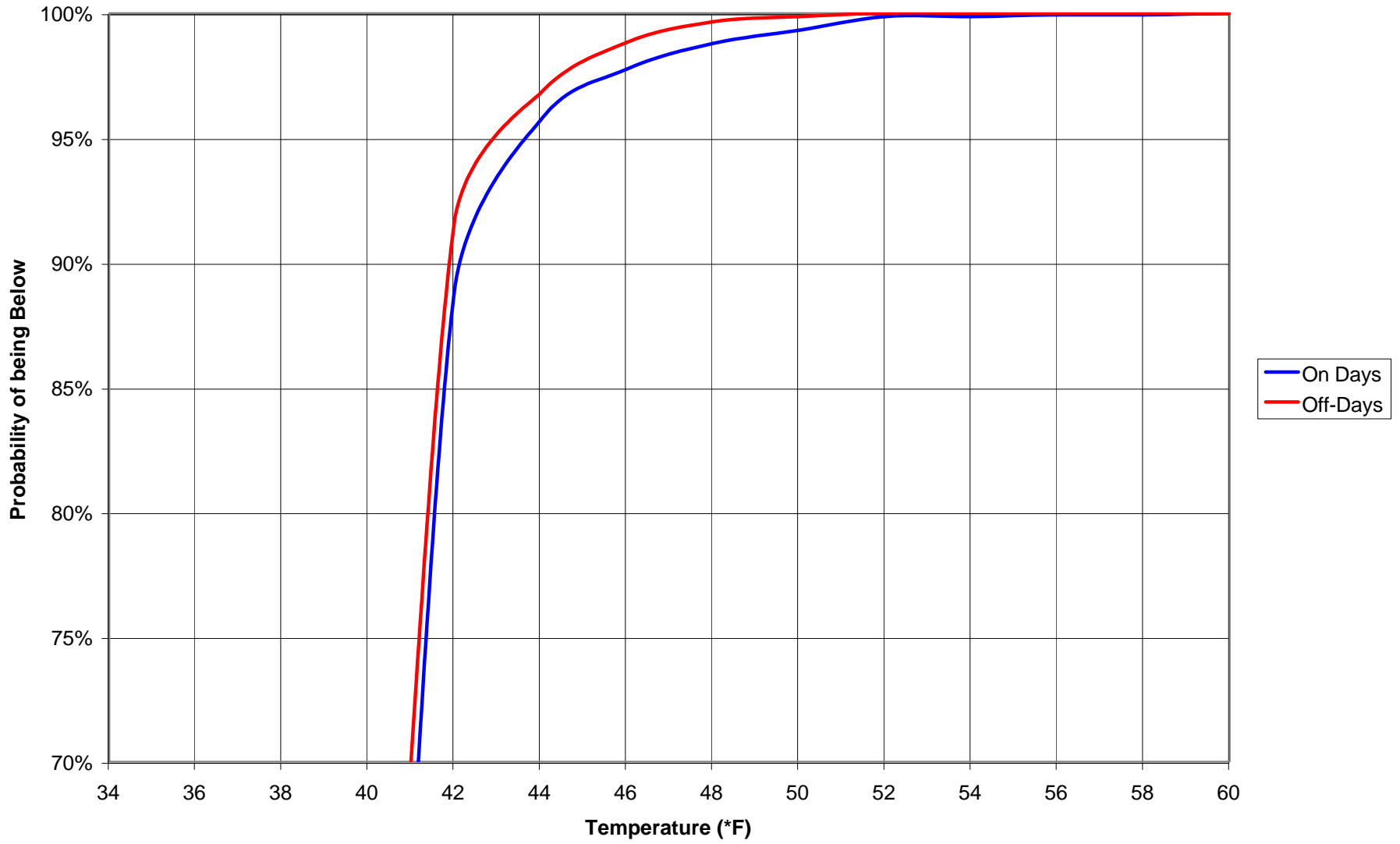
Savings = 10.03%

COMMENTS: The Refrigeration Compressor is not within the normal utilization factors of between 40% - 80%. The resultant 19% usage factor on the "Off" days leads us to conclude that it is either under-utilized or oversized. This Low usage factor contributes to the small savings result since it is Off so much more than it is On. The savings results also do not take into account the fact that it was more than 10% warmer on the On days. If cooling degree-days were compensated for; the results would have been in excess of 12%. Temperature maintenance was consistent as depicted on the included Histogram and Probability charts.

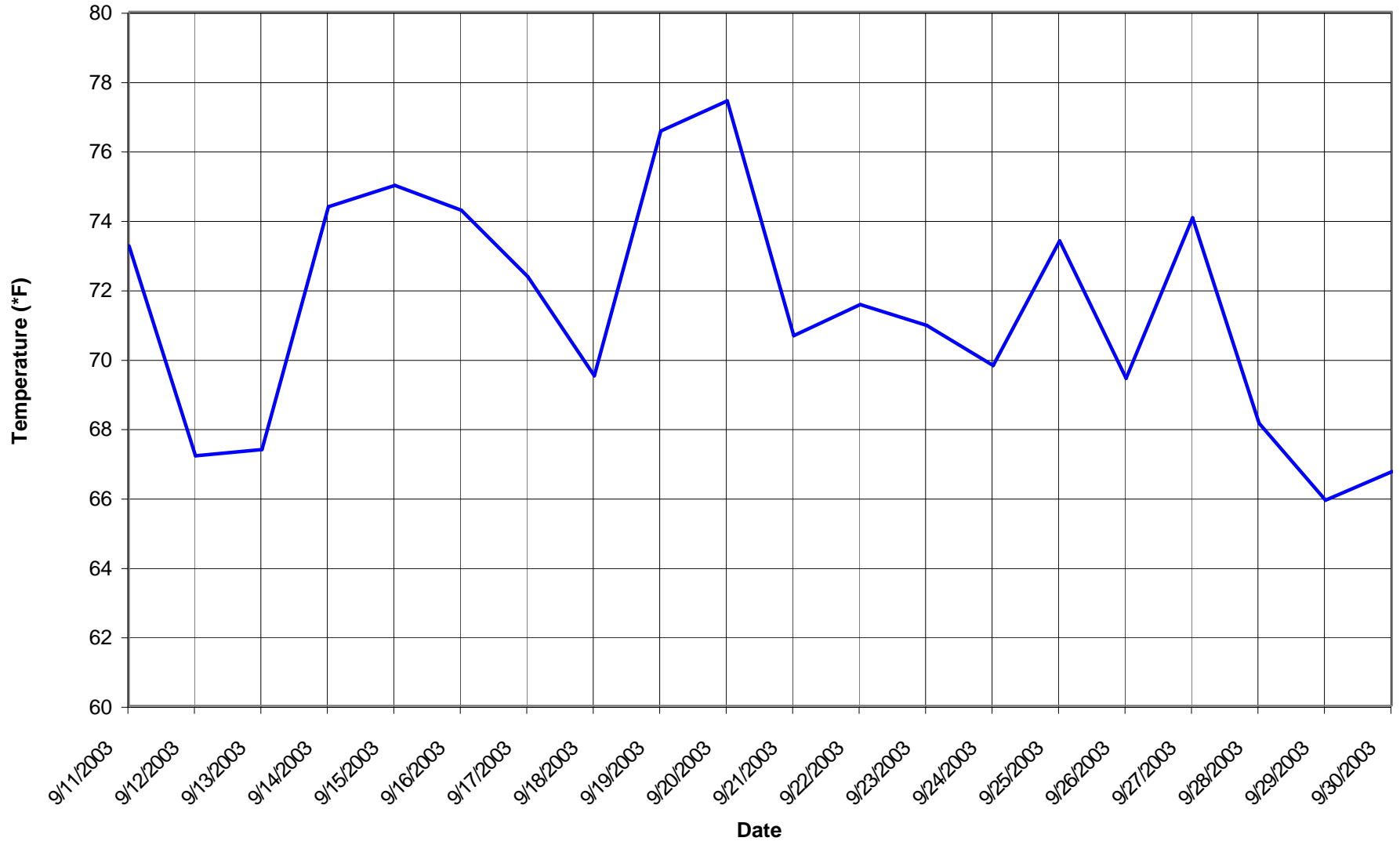
Refrigerator Temperature Histogram



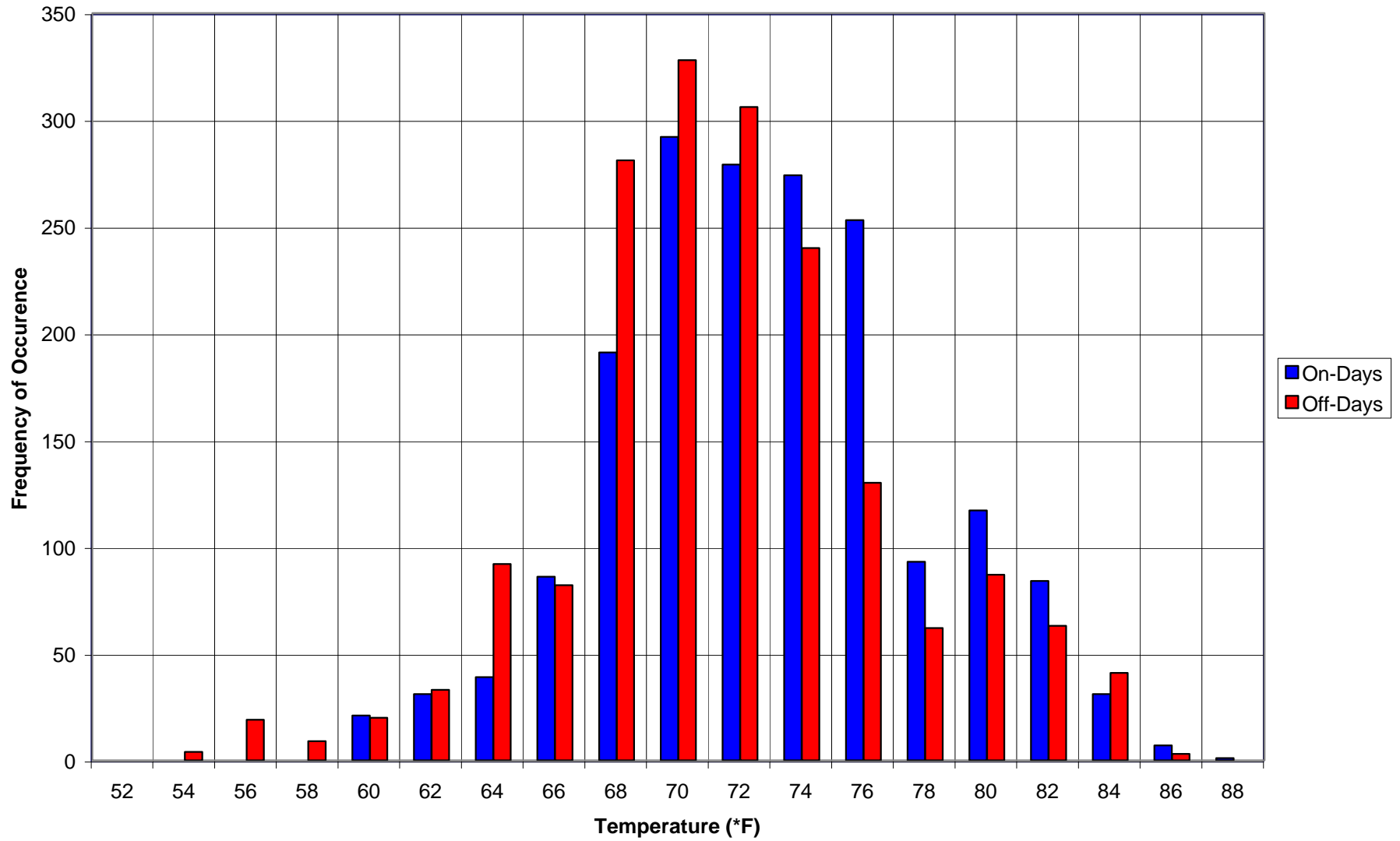
Refrigerator Temperature Probabilities



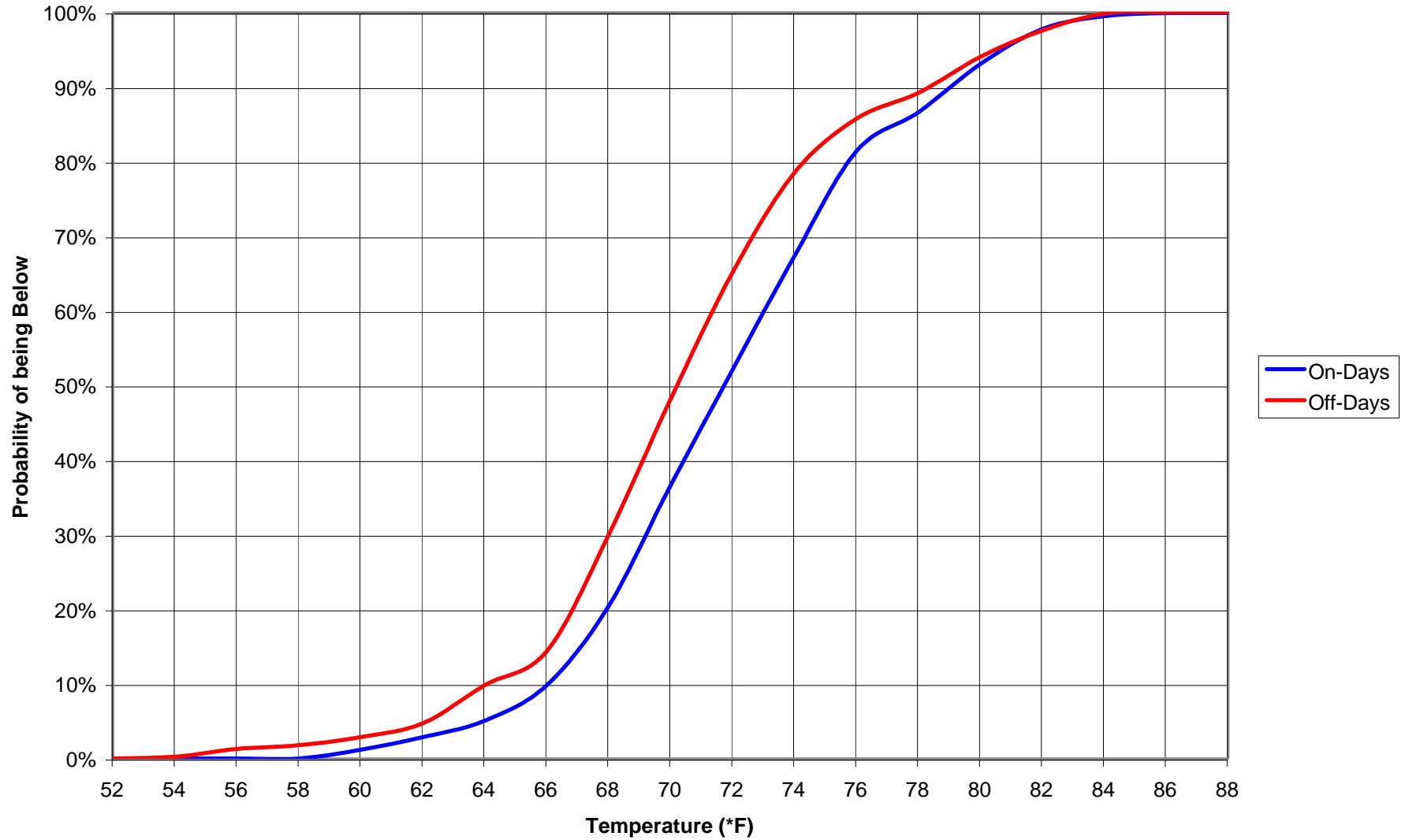
Average Outside Air Temperature



Outside Air Temperature Histogram



Outside Air Temperature Probabilities



Solar Load Probabilities

