LSR
a Laird Business
ACCREDITED
TESTING CERT #1255.01
W66 N220 Commerce Court ● Cedarburg, WI 53012
Phone: 262.375.4400 ● Fax: 262.375.4248
www.Laird Technologies, Inc..com

TEST REPORT #: 316393 A
Job #: C-2631

Compliance Testing of:

Cor 5C

Test Date(s):

1/5/17	1/9/17	1/27/17	2/21/17	2/23/17	2/27/17	3/10/17
1/6/17	1/26/17	2/20/17	2/22/17	2/24/17	2/28/17	

Prepared For:

United Technology Electronic Controls, Inc.
Attention: Gregg Householder
3650 W 200 N
Huntington, IN 46750

This Test Report is issued under the Authority of:
Michael Hintzke, EMC Engineer III

Signature: Date: 3/22/17

Test Report Reviewed by:	Project Engineer:
Adam Alger, Quality Systems Engineer	Michael Hintzke, EMC Engineer III
Signature: Date: 3/22/17	Signature: Date: 3/22/17

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EXHIBIT 1 LAIRD TECHNOLOGIES, INC.

1.1 Laird Technologies, Inc. Test Facility

Laird Technologies, Inc. is accredited by A2LA (American Association for Laboratory Accreditation) as conforming to ISO/IEC 17025, 2005 “General Requirements for the Competence of Calibration and Testing Laboratories”.

The Laird Technologies, Inc. scope of accreditation includes all test methods listed herein, unless otherwise noted. Accreditation status can be verified at A2LA’s web site: www.a2la2.org.

1.2 Location of Testing

All testing was performed at the following location utilizing the facilities listed below, unless otherwise noted.

Laird Technologies, Inc.
W66 N220 Commerce Court
Cedarburg, Wisconsin, 53012 USA,

List of Facilities Located at Laird Technologies, Inc.:

Semi-Anechoic Chamber

1.3 Laird Technologies, Inc. Test Lab in Review

As an EMC Testing Laboratory, our Accreditation and Assessments are recognized through the following:

TESTING CERT #1255.01

A2LA – American Association for Laboratory Accreditation

Accreditation based on ISO/IEC 17025: 2005 with Electrical (EMC) Scope of Accreditation
A2LA Certificate Number: 1255.01

Federal Communications Commission (FCC) – USA

Listing of two 3 Meter Semi-Anechoic Chambers based on Title 47 CFR – Part 2.948
FCC Registration Number: 90756

Industrie Canada Industry Canada

Industry Canada

On file, 3 Meter Semi-Anechoic Chamber based on RSS-GEN – Issue 4
File Number: IC 3088A-2
On file, 3 Meter Semi-Anechoic Chamber based on RSS-GEN – Issue 4
File Number: IC 3088A-3

EXHIBIT 2 INTRODUCTION

2.1 Client Information

Manufacturer Name:	United Technology Electronic Controls, Inc.
Address:	3650 W 200 N Huntington, IN 46750
Contact Name:	Gregg Householder
E-mail:	gregg.householder@uthvac.com

2.2 Equipment Under Test (EUT) Information

Product Name:	Cor 5c
Model Number:	TSTWHA01
Serial Number:	Engineering Sample
FCC ID	2AK6N-TSTWHA01
IC ID	703A-TSTWHA01

2.3 Product Description

The Côr 5 series thermostat is available as a Non-Wi-Fi model (Côr 5) or a Wi-Fi model (Côr 5C). The Côr 5C thermostat model is a Wi-Fi connected device and can be remotely controlled by the free mobile app* (Android or iOS compatible devices).

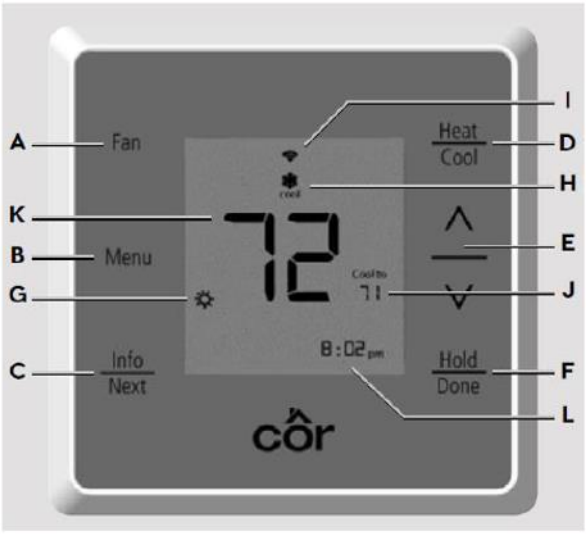
The Côr 5 Series Thermostat has no need for batteries to store user-configured settings in memory. During AC power loss, its internal memory saves settings for an unlimited time, and the clock continues to run for at least 12 hours.

Both thermostat models provide 7-day, 5/2-day and 1-day programmable control. The Côr 5 series models provide temperature control only This Product is a wall-mounted, low-voltage HVAC control which is powered by 24VAC.

The Côr thermostat has programmable configuration capability providing different heating and cooling setpoints associated with time periods which are user selectable as either 2 or 4 periods per day. Programming can be done for 7 days per week (individually), 5/2 days per week (holding week days and weekends separate), or 1 day (every day follows same 2 or 4 period schedule). These thermostats can also be configured as non-programmable thermostats. When operating in non-programmable mode, the Côr Thermostat will maintain temperature control at the fixed temperature set on the display.

The Côr 5 Series Thermostats can be configured for AC or HP, 1 or 2-speed 4 compressor, and for Hybrid Heat installations.

The following figure shows the Côr 5 series thermostat.



A. Fan (On or Auto)
B. View Menu options (Schedule, Alerts, Settings, Wi-Fi®)
C. Info/Next (toggle between various status screens)
D. Change equipment mode (heat, cool, etc.)
E. Manual temperature adjustment or navigate through menu options
F. Hold/Done

ON-SCREEN INDICATORS
G. Weather
H. Active equipment mode
I. Wi-Fi signal strength
J. Temperature set point
K. Indoor temperature
L. Information button scrolls through display options for text box (time, etc.)

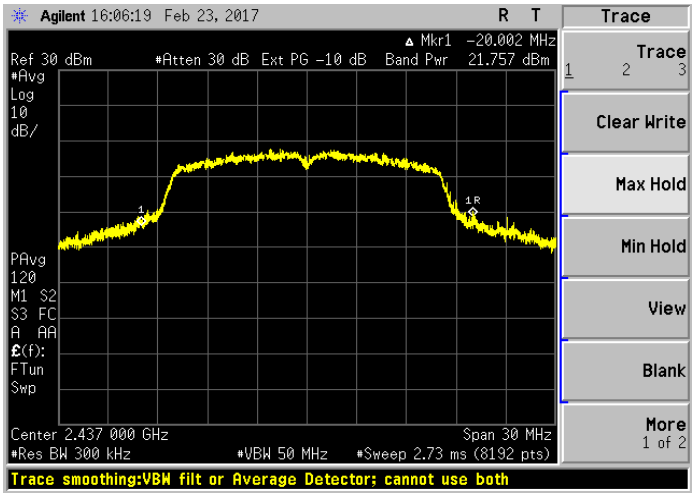
EXHIBIT 3 Maximum EIRP

3.1 Measurement Procedure

ANSI C63.10-2013 Section 11.9.2.2.4 & 11.9.2.2.6

3.2 Test Data

802.11 Standard	Data Rate (MBPS)	Channel	Conducted (average) Output Power (dBm)	Duty Cycle Correction (dB)	Maximum Conducted (average) Output Power (dBm)	Power Limit (dBm)	Power margin (dB)
b	1 (DBPSK)	1	11.6	1.49	13.1	30.0	16.4
		6	13.1	1.49	14.6	30.0	15.9
		11	13.0	1.49	14.5	30.0	17.0
b	11 (8QPSK)	1	10.6	3.29	13.9	30.0	13.4
		6	11.9	3.29	15.2	30.0	18.1
		11	11.4	3.29	14.7	30.0	18.6
g	6 (BPSK)	1	17.8	-	17.8	30.0	12.2
		6	21.8	-	21.8	30.0	8.2
		11	17.6	-	17.6	30.0	12.4
g	54 (64QAM)	1	15.5	-	15.5	30.0	14.5
		6	18.1	-	18.1	30.0	11.9
		11	15.7	-	15.7	30.0	14.3
n	MCS0 (BPSK)	1	17.4	-	17.4	30.0	12.6
		6	21.5	-	21.5	30.0	8.5
		11	17.3	-	17.3	30.0	12.7
n	MCS7 (64QAM)	1	15.4	-	15.4	30.0	14.6
		6	16.7	-	16.7	30.0	13.3
		11	15.5	-	15.5	30.0	14.5



3.2 Maximum EIRP (adjusted for tune-up tolerance)

Conducted (Average) Output Power	21.8 dBm
Antenna Gain	1.9 dBi
Tune-up Tolerance	±1.5 dBm

Maximum EIPR (adjusted for tune-up tolerance) = 25.2 dBm

EXHIBIT 4 MPE Calculations

4.1 FCC Compliance

The following MPE calculations are based on a measured conducted RF power of +21.8 dBm as presented to the antenna plus 1.5 dBm for the tune-up tolerance. The peak gain of this antenna is +1.9 dBi.

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density
P = power input to the antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

Maximum peak output power (adjusted for tune-up tolerance) at antenna input terminal:	23.30 (dBm)
Maximum peak output power (adjusted for tune-up tolerance) at antenna input terminal:	213.796 (mW)
Antenna gain(typical):	1.9 (dBi)
Maximum antenna gain:	1.549 (numeric)
Prediction distance:	20 (cm)
Prediction frequency:	2437 (MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1 (mW/cm^2)
Power density at prediction frequency:	0.065876 (mW/cm^2)

Note: The tune-up tolerance was declared by the manufacturer to be ±1.5 dB

4.2 RSS-102 Compliance

The following calculations are based on a measured conducted RF power of +21.8 dBm as presented to the antenna plus 1.5 dBm for the tune-up tolerance. The peak gain of this antenna is +1.9 dBi.

4.2.1 Exemption Limit for Routine Evaluation – RF Exposure Evaluation

$$1.31 \cdot 10^{-2} * f^{0..6834}\,(W) = 0.02619 * 2437^{0.6834} = 2.7\,W$$

Time-averaged maximum e.i.r.p of the EUT = 331.13 mW = 0.331 W

$$\mathbf{0.331\,W < 2.7\,W}$$

4.2.2 MPE Calculation

$$0.02619 * f^{0..6834}\,(^{W}/_{m^2}) = 0.02619 * 2437^{0.6834} = 5.4\ ^{W}/_{m^2}$$

Power Density = $0.065876\ ^{mW}/_{cm^2}$= $0.65876\ ^{W}/_{m^2}$

$$\mathbf{0.065876\ ^{W}/_{m^2} < 5.4\ ^{W}/_{m^2}}$$

APPENDIX A UNCERTAINTY STATEMENT

Table of Expanded Uncertainty Values, (K=2) for Specified Measurements

Measurement Type	Configuration	Uncertainty Values
Radiated Emissions	Biconical Antenna	5.0 dB
Radiated Emissions	Log Periodic Antenna	5.3 dB
Radiated Emissions	Horn Antenna	4.7 dB
AC Line Conducted Emissions	AMN	3.4 dB
Telecom Conducted Emissions	AAN	4.9 dB
Disturbance Power (Emissions)	Absorbing Clamp	4.1 dB
Radiated Immunity	3 Volts/Meter	2.2 dB
Conducted Immunity	CDN/EM/BCI	2.4/3.5/3.4 dB
EFT Burst / Surge	Peak pulse voltage	164 volts
ESD Immunity	15 kV level	1377 Volts

Parameter	ETSI U.C.+/-	U.C.+/-
Radio Frequency, from F0	$1x10^{-7}$	$0.55x10^{-7}$
Occupied Channel Bandwidth	5 %	2 %
RF conducted Power (PM)	1.5 dB	1.2 dB
RF conducted emissions (SA)	3.0 dB	1.7 dB
All emissions, radiated	6.0 dB	5.3 dB
Temperature	1° C	0.65° C
Humidity	5 %	2.9 %
Supply voltages	3 %	1 %