

FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

SEP 1 1994

IN REPLY REFER TO:

31030/EQU/4-2-4
1300B4

Mr. Valdis V. Liepa
University of Michigan
Radiation Laboratory
NASA/Center for Space Terahertz Technology
3228 EECS Building
Ann Arbor, MI 48109-2122

Dear Mr. Liepa:

This is in reply to your facsimile transmission of August 2, 1994, regarding the labelling of a low power communication device that will be marketed within the U.S. and Canada. You request approval to combine the labels for both countries, permitting a single label to be employed. As indicated, this combined label would read as follows:

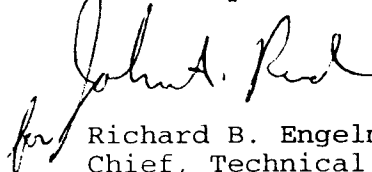
"This device complies with Part 15 of the FCC Rules and with RSS-210 of the Industry Canada. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation."

According to Section 15.19(a) of our rules, a low power communications device operating under Part 15 must be labelled with the specific statement contained in paragraph (a)(3). The only difference between the statement required under our rules and your proposed statement is the addition in the first sentence of the phrase "... and with RSS-210 of the Industry Canada."

I note that Kwai Lum of Industry Canada, in a facsimile to you on August 3, 1994, has already given permission to use this combined label. I also agree that the use of this combined label, as shown above, is acceptable under our regulations. This label conveys the desired information and is essentially identical to our requirement. As expressed by Mr. Lum, text denoting compliance with the standards for both countries was not stated in our rules as "it would be too presumptuous [to assume] that all products are for both markets."

I trust that the above responds to your inquiry. Additional questions should be directed to John Reed, 1300B4, at the address on the letterhead or at (202) 653-7313.

Sincerely,



Richard B. Engelman
Chief, Technical Standards Branch
Office of Engineering and Technology



POWER OF ATTORNEY

Application for FCC Certification

The undersigned authorized representative of Johnson Controls Interiors L.L.C. appoints Valdis V. Liepa whose address is The University of Michigan, Department of Electrical Engineering and Computer Science, Ann Arbor, Michigan 48109-2122, as its agent and representative to transact all business for Johnson Controls Interiors L.L.C. in all matters pertaining to the Federal Communications Commission certification for our products. This appointment is valid for a period of one year, commencing with the date of this authorization.

Anti-Drug Abuse Certification:

Johnson Controls Interiors L.L.C., is not subject to denial of federal benefits, that includes FCC benefits, pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.

A handwritten signature in cursive script, reading "David A. Blaker".

David A. Blaker, Electronics Project Engineer
Johnson Controls Interiors L.L.C.

Phone: (616) 394-8013

Fax: (616) 394-6100

Date: 11/1/99

FISH & RICHARDSON P.C.

FISH RICHARDSON & NEAVE
BOSTON
(617-542-5070)

601 THIRTEENTH STREET, N.W.
WASHINGTON, D.C. 20005

FREDERICK P. FISH
(1855-1930)

TELEPHONE: 202/783-5070
FAX: 202/783-2331

W.K. RICHARDSON
(1898-1951)

BOSTON
617/542-5070

HOUSTON
713/629-5070

SILICON VALLEY
415/322-5070

TWIN CITIES
612/335-5070

SOUTHERN CALIFORNIA
619/678-5070

June 1, 1995

Our File: 05238/002001

BY FACSIMILE
(301) 344-2050

Mr. Edward Gibbons
Equipment Authorization Branch
FCC Laboratories
7435 Oakland Mills Road
Columbia, MD 21046

DRAFT

ANSI C63.4 Test Procedures for
Universal Garage Door Opener

Dear Ed:

This is to follow up our telephone conversation on May 12, 1995, regarding the appropriate test procedures for a "universal" garage door opener (UGDO) currently under development by Prince Corporation of Holland, Michigan. Like the earlier version of the UGDO (see my letters to you of July 20, 1992 and April 13, 1993), Prince's new model is designed solely for installation in motor vehicles.

By way of background, the UGDO is capable of learning the frequency and coding scheme (duty cycle) of most garage door openers on the market. The new model is designed to operate between 220 and 440 MHz and uses a single variable oscillator to learn/receive as well as to transmit.^{1/} The frequency and duty cycle information are stored in one of three "memory banks." The UGDO is programmed to "ignore" door openers in the restricted bands per Section 15.205 of the Commission's rules.

^{1/} A VCO used to transmit is also used to learn/receive via a mixing circuit when a manual switch is held by the user. The device is programmed to search first for known door opener frequencies before going through the band on a single step basis. Ordinarily, it takes approximately 20 seconds to "lock in" and record the frequency. Under worst case conditions, however, the device could require 90 seconds to learn. All transmissions cease immediately as soon as the manual switch is released.

Mr. Edward Gibbons
June 1, 1995
Page 2

The UGDO is designed to adjust its power output dynamically, based on the duty cycle and frequency of the "learned" device. First, the UGDO detects the duty cycle of the learned device in the same "worst case" manner as prescribed under Commission rules. This duty cycle is then sorted into one of 32 ranges and a digital attenuator adjusts the output power of the device accordingly. If the UGDO detects a device with a duty cycle above 75%, the UGDO will not operate.

For each range, the output power of the UGDO is adjusted, based on the highest duty cycle in the range. Thus, for example, a transmitter whose duty cycle is in the middle of a range would have its power adjusted as if it were operating at the top of the range. In this way, the UGDO will always be trained to operate at power levels that are below the limits prescribed in the Commission rules. A second output power adjustment is then performed by the UGDO, based on the frequency of the learned unit. This adjustment is to correspond with the interpolated field strength limits set forth in Section 15.231 of the rules.

During our discussion, you agreed that the test procedures for the new UGDO would follow the same "3 sample" scheme which we had devised for the initial UGDO, as follows:

1. Sample 1, preset to transmit (CW) at 220 MHz, 330 MHz and 440 MHz, all set to operate at the highest duty cycle (estimated to be 72%);
2. Sample 2, preset to transmit (CW) at 220 MHz at the lowest duty cycle, 330 MHz at a 50% duty cycle and 440 MHz also at the lowest duty cycle; and
3. Sample 3, preset at the highest duty cycle and supplied with door opener using a low duty cycle for the purpose of demonstrating the UGDO's learn capability and dynamic output adjustment.

We also discussed a needed modification in the original test procedures. Specifically, you agreed that it would be permissible for Prince to use a 2 wire "harness" connected to the device, with the UGDO located in the center of the turntable. The wiring harness would be run approximately 1/2 meter to the longest edge of the turntable and then straight down to the battery. This test configuration will simplify testing for

Mr. Edward Gibbons
June 1, 1995
Page 3

Prince by providing repeatable results that reflect actual operating conditions.

I trust the foregoing accurately sets forth the elements of our discussion. Prince would appreciate it, therefore, if you could indicate your agreement by written response. Thank you in advance for your prompt attention to these issues.

Very truly yours,

Terry G. Mahn

/bab

cc: Prince Corporation

45761.W11

FEDERAL COMMUNICATIONS COMMISSION



Customer Service Branch
7435 Oakland Mills Road, Columbia, MD 21046
Phone: (301) 725-1585, ext 229 Fax (301) 344-2050
FROM: Ed Gibbons DATE: June 13, 1995
TO: Mr. Terry G. Mahn / Fish & Richardson
PAGES: One
REFERENCE: Your fax dated 6/9/95
FAX NUMBER: 202-783-2331

Dear Terry,

I have reviewed the information in your fax regarding the proposed test procedure for the new universal garage door opener (UGDO) currently under development by Prince Corporation. The "three sample" test scheme you describe is satisfactory with the following caveat. The proposal to place the UGDO in the center of the test table, and to drape the 2-wire harness across the table and down to the power supply (without cable manipulation) is acceptable as long as the harness does not contain an antenna.

As stated in Section 13.1.4.1 of measurement procedure C63.4-1992, "If the EUT is equipped with or uses an adjustable antenna, the EUT antenna shall be manipulated through typical positions and lengths during preliminary testing to maximize emission levels." Applying this requirement to the subject device, if the harness contains an antenna, it will be necessary to manipulate the harness position to maximize the radiated emission levels. Such manipulation may be performed with the power supply (battery) placed below the test table. No tests will be required with the battery on the table.

If the selected harness length is not sufficient to permit cable manipulation with the UGDO placed in the center of the table, the harness length should be increased for this test. Alternatively, the UGDO may be moved around on the table, i.e., moved toward the edge of the table to provide enough slack in the cable for "some" manipulation. We can discuss this issue further if you desire.

If you have any additional questions, please do not hesitate to contact me.

BTB
JUN 13 1995

Re: Certification of JCI Transmitter
Model: LHCMTC
FCC ID: CB2LHCMTCHL3
CANADA: to be provided

PRODUCT INFORMATION

The product for which the certification is pursued has been designed by:

Johnson Controls, Inc.
Automotive Systems Group
915 E. 32nd Street
Holland, MI 49423

Contact:
Dan Brzezinski
Project Engineer
Tel: (616) 394-2985 Fax: (616) 394-8499

The product will be manufactured by:

Jabil Circuits, Inc.
1700 Atlantic Blvd.
Auburn Hills, MI 48326

Contact:
Carl Shearer
Electronics Manufacturing Engineer

The product will be marketed and serviced by:

Automobile Dealers
and
Johnson Controls, Inc.

Re: Certification of JCI Transmitter
Model: LHCMTC
FCC ID: CB2LHCMTCHL3
CANADA: to be provided

REQUEST FOR CONFIDENTIALITY

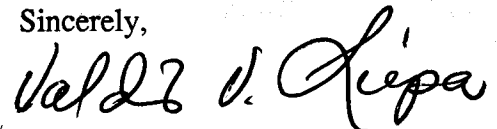
Pursuant to 47 CRF 0.459, Johnson Controls, Inc. requests that a part of the subject application be held confidential. This includes Exhibits

and (5) Schematics
 (10) Parts List/Tune-up Information

JCI has spent years in developing this product and it is one of the major product lines for the company. Having the subject information easily available to "competition" would negate the advantage they have achieved by developing this product. Not protecting the details of the design will definitely result in a financial hardship.

If there are any questions regarding this request, please contact me at the above address or call 647-647-1792, (lab) 734-483-4211, fax 647-647-2106 or e-mail liepa@umich.edu.

Sincerely,



Valdis V. Liepa
Research Scientist
University of Michigan