



NVLAP ACCREDITED  
NARTE Certified Engineer  
Professional Engineer

Federal communications Commission  
Equipment Approval Services, P.O. Box 358315  
Pittsburgh, PA 15251-5315  
Attention: Authorization & Evaluation Division

December 8, 2000

Re: Application for Certification of Johnson Controls Transmitter under 47CFR 15.231.  
FCC ID: **CB2VWHL3**

Gentlemen:

On behalf of the applicant, Johnson Controls Interiors, LLC, please find attached the submittal materials for certification of the JCI Universal Garage Door Opener, Model CB2VWHL3 This generation of their Homelink® series is capable of learning the current garage door transmit frequencies from 288MHz through 420MHz with pulse modulation, using duty cycles from 30 through 80 percent.

Pursuant to 47CRF 0.459, Johnson Controls Interiors requests that these listed exhibits be held confidential.

|            |                                  |
|------------|----------------------------------|
| Exhibit G  | Theory/Description of Operation, |
| Exhibit H: | Circuit Block Diagrams           |
| Exhibit I: | Schematics                       |
| Exhibit J: | Bill of Material, Parts List     |

Johnson Controls Interiors has invested considerable resources into developing this Homelink® series. Having the listed exhibits available to 'competition' would negate the advantage achieved in developing this product. Since their Homelink® series transmitters will be a major product line for Johnson Controls Interiors, not protecting the details of the design will result in a financial hardship for the company.

The complete List of the Exhibits in this submittal package appears on Page 2 of this cover letter.

Your prompt consideration of this application for product certification will be greatly appreciated. Should you have any questions regarding the content of this report, kindly contact me.

Sincerely,

Ted Chaffee,  
Technical Lab Manager  
Narte Certified Engineer, #EMC-002025-NE  
tel/fax: 616. 424.7014  
email: tchaffee@ahde.com, or ahd@locallink.net

# Table of Contents

Form 731, form 159 with payment

|   |   |             |    |
|---|---|-------------|----|
| EXHIBIT A: Cover Letter / Table of Contents                         |   | Total Pages | 2  |
| EXHIBIT B: Statements of Attestation [2.911(d)]                     |   | Total Pages | 3  |
| Attesting to Accuracy of Data                                       | Exhibit B, File "EXB_p1DataAttst.jpg"                     |             |    |
| Public Notice 22504   | Exhibit B, File "EXB_p1DataAttst.jpg"                     |             |    |
| Power of Attorney   | Exhibit B, File "EXB_p2PowrOAttrny.jpg"                   |             |    |
| AHD Accreditation   | Exhibit B, File "EXB_p3NVLAPCert.jpg"                     |             |    |
| EXHIBIT C: Description of Product [2.1033(b6)]                      |   | Total Pages | 1  |
| EXHIBIT E: Product photos - Printed Circuit Board [2.1033(b7)]      |   |             |    |
|   | Two photos  | Total Pages | 2  |
| EXHIBIT F: ID Label / Location [2.925,2.926,2.1033(b2,7),15.19(a3)] |   | Total Pages | 3  |
| EXHIBIT G: Description of Operation [2.1033(b4)]                    |   | Total Pages | 1  |
| EXHIBIT H: Circuit Block Diagram [2.1033(b5)]                       |   | Total Pages | 1  |
| EXHIBIT I: Schematics [2.1033(b5)]                                  |   | Total Pages | 1  |
| Exhibit I, File "EXI_TXSchem.pdf"                                   | Exhibit I, File "EXI_INSchem.pdf"                         |             |    |
| EXHIBIT J: Parts List/Tune-up Information [2.1033(b5)]              |   | Total Pages | 2  |
| Exhibit J, File "EXJ_TXParts.pdf"                                   | Exhibit J, File "EXJ_INParts.pdf"                         |             |    |
| EXHIBIT K: Report of Measurements [2.1033(b6)]                      |   | Total Pages | 33 |
| Detailed Table of Contents  | Exhibit K, Part 1 of 2, Page 2<br>and Part 2 of 2, Page 1 |             |    |
| Manufacturer/Applicant [2.1033(b1)]                                 | Exhibit K, Part 1 of 2, Page 4                            |             |    |
| Measurement/Test Facility & Equipment                               | Exhibit K, Part 1 of 2, Page 4                            |             |    |
| Configuration/Setup [2.1033(b8)]                                    | Exhibit K, Part 1 of 2, Page 5                            |             |    |
| Test Standards / Methods Used [2.1033(b6)]                          | Exhibit K, Part 1 of 2, Page 6                            |             |    |
| Test Methodology [2.1033(b6)]                                       | Exhibit K, Part 1 of 2, Page 6                            |             |    |
| Test Data [2.1033(b6)]  | Exhibit K, Part 2 of 2                                    |             |    |
| Summary of Results  | Exhibit K, Part 2 of 2, Page 2                            |             |    |
| Level vs Supply Voltage [15.31(e)]                                  | Exhibit K, Part 2 of 2, Page 5                            |             |    |
| Occupied Bandwidth  | Exhibit K, Part 2 of 2, Page 6                            |             |    |
| Radiated Field Strength [15.231(b)]                                 | Exhibit K, Part 2 of 2, Page 8                            |             |    |
| EXHIBIT L: Setup photos [2.1033(b8)]                                | Five photos   | Total Pages | 3  |
| EXHIBIT M: RF Exposure Information [2.1093(c)]                      |   | Total Pages | 1  |
| EXHIBIT N: User's Manual  |   | Total Pages | 4  |