

**M. Flom Associates, Inc. - Global Compliance Center**

3356 North San Marcos Place, Suite 107, Chandler, Arizona 85225-7176

www.mflom.com general@mflom.com (480) 926-3100, FAX: 926-3598

Date: September 19, 2002

TIMCO ENGINEERING
via Electronic Filing

Attention: Authorization & Evaluation Division

Applicant: E. F. Johnson Company
Equipment: 242-7240
FCC ID: ATH2427240
FCC Rules: 2.1043, 2.1093, 2.933, 90, 90.210
CLASS II PERMISSIVE CHANGE

Gentlemen:

On behalf of the Applicant, enclosed pertinent documentation in support of a CLASS II PERMISSIVE CHANGE to the above referenced equipment:

- a) Application Form 731
- b) VISA Charge form
- c) Copy of Original Grant
- d) Test Report
- e) Expository Statement
- f) SAR Report by Celltech Research Inc.

We trust the same is in order. Should you need any further information, kindly contact the writer who is authorized to act as agent.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'M. Flom P. Eng.', with a horizontal line drawn underneath the signature.

Morton Flom, P. Eng.

enclosure(s)
cc: Applicant
MF/cva



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T R A N S M I T T E R C E R T I F I C A T I O N

of

FCC ID: ATH2427240

MODEL: 242-7240

to

FEDERAL COMMUNICATIONS COMMISSION

Rule Part(s) 90, 90.210

DATE OF REPORT: September 19, 2002

ON THE BEHALF OF THE APPLICANT:

E. F. Johnson Company

AT THE REQUEST OF:

P.O. 161968

E. F. Johnson Company,
299 Johnson Ave.
Waseca, MN 56093-0514

Attention of:

(507) 835-6579; FAX: -6666
John Oblak, Director, Radio Products
Development
E-mail: joblak@efjohnson.com

SUPERVISED BY:

A handwritten signature in black ink that reads 'M. Flom P. Eng.' The signature is written in a cursive, flowing style.

Morton Flom, P. Eng.

THE APPLICANT HAS BEEN CAUTIONED AS TO THE FOLLOWING:

15.21 INFORMATION TO USER.

The users manual or instruction manual for an intentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

15.27(a) SPECIAL ACCESSORIES.

Equipment marketed to a consumer must be capable of complying with the necessary regulations in the configuration in which the equipment is marketed. Where special accessories, such as shielded cables and/or special connectors are required to enable an unintentional or intentional radiator to comply with the emission limits in this part, the equipment must be marketed with, i.e. shipped and sold with, those special accessories. However, in lieu of shipping or packaging the special accessories with the unintentional or intentional radiator, the responsible party may employ other methods of ensuring that the special accessories are provided to the consumer, without additional charge.

Information detailing any alternative method used to supply the special accessories for a grant of equipment authorization or retained in the verification records, as appropriate. The party responsible for the equipment, as detailed in § 2.909 of this chapter, shall ensure that these special accessories are provided with the equipment. The instruction manual for such devices shall include appropriate instructions on the first page of text concerned with the installation of the device that these special accessories must be used with the device. It is the responsibility of the user to use the needed special accessories supplied with the equipment.

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Required information per ISO/IEC Guide 25-1990, paragraph 13.2:

a)

TEST REPORT

- b) Laboratory: M. Flom Associates, Inc.
(FCC: 31040/SIT) 3356 N. San Marcos Place, Suite 107
(Canada: IC 2044) Chandler, AZ 85225
- c) Report Number: d0290049
- d) Client: E. F. Johnson Company,
299 Johnson Ave.
Waseca, MN 56093-0514
- e) Identification: 242-7240
FCC ID: ATH2427240
EUT Description: UHF FM Handheld Transceiver Held-to-face
- f) EUT Condition: Not required unless specified in individual tests.
- g) Report Date: September 19, 2002
EUT Received: August 28, 2002
- h, j, k): As indicated in individual tests.
- i) Sampling method: No sampling procedure used.
- l) Uncertainty: In accordance with MFA internal quality manual.
- m) Supervised by:
- 
Morton Flom, P. Eng.
- n) Results: The results presented in this report relate only to the item tested.
- o) Reproduction: This report must not be reproduced, except in full, without written permission from this laboratory.

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EXPOSITORY STATEMENT
PERMISSIVE CHANGE

APPLICANT: E. F. Johnson Company

FCC ID: ATH2427240

The applicant has made design changes/improvements to the originally FCC approved equipment.

1. The Applicant has received certification of the referenced unit by date of Grant 04/24/2001. A copy of the grant is attached.
2. The Applicant now wishes to offer purchasers the option of a speaker microphone. A SAR test was conducted for this purpose and is attached herewith.
3. In addition, the results of the new requirement i.e. EIA/TIA 603A Substitution Method has been included here since it was not a requirement in the original filing.
4. Data contained herein confirms that a Permissive Change to the unit has been affected and that the performance of the unit is at or better than the levels originally reported to the Commission.

PAGE NO. 3 of 7.

LIST OF GENERAL INFORMATION REQUIRED FOR CERTIFICATIONIN ACCORDANCE WITH FCC RULES AND REGULATIONS,
VOLUME II, PART 2 AND TO

90, 90.210

Sub-part 2.1033

(c)(1): NAME AND ADDRESS OF APPLICANT:E. F. Johnson Company
299 Johnson Ave.
Waseca, MN 56093-0514MANUFACTURER:

Applicant

(c)(2): FCC ID: ATH2427240MODEL NO: 242-7240(c)(3): INSTRUCTION MANUAL(S):

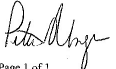
PLEASE SEE ATTACHED EXHIBITS

(c)(4): TYPE OF EMISSION: 16K0F3E, 11K0F3E(c)(5): FREQUENCY RANGE, MHz: 430 to 470(c)(6): POWER RATING, Watts: 1 to 4
x Switchable ___ Variable ___ N/A(c)(7): MAXIMUM POWER RATING, Watts:DUT RESULTS: Passes x Fails _____

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M. Flom Associates, Inc. is accredited by the American Association for Laboratory Accreditation (A2LA) as shown in the scope below.

 THE AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION ACCREDITED LABORATORY A2LA has accredited M. FLOM ASSOCIATES, INC. Chandler, AZ for technical competence in the field of Electrical (EMC) Testing The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration Laboratories" and any additional program requirements in the identified field of testing. Testing and calibration laboratories that comply with this International Standard also operate in accordance with ISO 9001 or ISO 9002. Presented this 2nd day of March, 2001.  President For the Accreditation Council Certificate Number 1008.01 Valid to December 31, 2002 For tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical (EMC) Scope of Accreditation	 American Association for Laboratory Accreditation SCOPE OF ACCREDITATION TO ISO/IEC 17025-1999 M. FLOM ASSOCIATES, INC. Electronic Testing Laboratory 3356 North San Marcos Place, Suite 107 Chandler, AZ 85225 Morton Flom Phone: 480 926 3100 ELECTRICAL (EMC) Valid to: December 31, 2002 Certificate Number: 1008-01 In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following electromagnetic compatibility tests: <table border="1"> <thead> <tr> <th>Tests</th> <th>Standard(s)</th> </tr> </thead> <tbody> <tr> <td>RF Emissions</td> <td>FCC Part 15 (Subparts B and C) using ANSI C63.4-2000, CISPR 11; CISPR 13; CISPR 14; CISPR 22; EN 55011; EN 55013; EN 55014; EN 55022; EN 50081-1; EN 50081-2; ICES-003; AS/NZS 1044; AS/NZS 1053; AS/NZS 3548; AS/NZS 4251.1; CNS 13438</td> </tr> <tr> <td>Harmonic Currents</td> <td>EN 61000-3-2</td> </tr> <tr> <td>Fluctuation and Flicker</td> <td>EN 61000-3-3</td> </tr> <tr> <td>RF Immunity</td> <td>EN: 50082-1, 50082-2, 55024; AS/NZS 4251.1</td> </tr> <tr> <td>Electrostatic Discharge (ESD)</td> <td>EN 61000-4-2</td> </tr> <tr> <td>Radiated Susceptibility</td> <td>EN 61000-4-3; ENV 50140; ENV 50204; IEC 1000-4-3; IEC 801-3</td> </tr> <tr> <td>EFT</td> <td>EN 61000-4-4; IEC 1000-4-4; IEC 801-4</td> </tr> <tr> <td>Surge</td> <td>EN 61000-4-5; ENV 50142; IEC 1000-4-5; IEC 801-5</td> </tr> <tr> <td>Voltage Dips, Short Interruptions, and Line Voltage Variations</td> <td>EN 61000-4-11</td> </tr> <tr> <td>47 CFR (FCC)</td> <td>Parts: 2, 18, 21, 22, 23, 24, 25, 26, 27, 74, 80, 87, 90, 95, 97, 101 (excluding SAR Testing)</td> </tr> <tr> <td>Power Frequency Magnetic Field Immunity</td> <td>EN 61000-4-8</td> </tr> <tr> <td>Immunity to Conducted Disturbances</td> <td>EN 61000-4-6</td> </tr> </tbody> </table> (A2LA Cert. No. 1008.01) 08/01/02 5301 Buckeystown Pike, Suite 350 • Frederick, MD 21704-8373 • Phone: 301-644 3248 • Fax: 301-662 2974  Page 1 of 1	Tests	Standard(s)	RF Emissions	FCC Part 15 (Subparts B and C) using ANSI C63.4-2000, CISPR 11; CISPR 13; CISPR 14; CISPR 22; EN 55011; EN 55013; EN 55014; EN 55022; EN 50081-1; EN 50081-2; ICES-003; AS/NZS 1044; AS/NZS 1053; AS/NZS 3548; AS/NZS 4251.1; CNS 13438	Harmonic Currents	EN 61000-3-2	Fluctuation and Flicker	EN 61000-3-3	RF Immunity	EN: 50082-1, 50082-2, 55024; AS/NZS 4251.1	Electrostatic Discharge (ESD)	EN 61000-4-2	Radiated Susceptibility	EN 61000-4-3; ENV 50140; ENV 50204; IEC 1000-4-3; IEC 801-3	EFT	EN 61000-4-4; IEC 1000-4-4; IEC 801-4	Surge	EN 61000-4-5; ENV 50142; IEC 1000-4-5; IEC 801-5	Voltage Dips, Short Interruptions, and Line Voltage Variations	EN 61000-4-11	47 CFR (FCC)	Parts: 2, 18, 21, 22, 23, 24, 25, 26, 27, 74, 80, 87, 90, 95, 97, 101 (excluding SAR Testing)	Power Frequency Magnetic Field Immunity	EN 61000-4-8	Immunity to Conducted Disturbances	EN 61000-4-6
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"This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this report have been determined in accordance with the laboratory's terms of accreditation unless stated otherwise in the report."

Should this report contain any data for tests for which we are not accredited, or which have been undertaken by a subcontractor that is not A2LA accredited, such data would not covered by this laboratory's A2LA accreditation.

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Sub-part

2.1033(c)(14):

TEST AND MEASUREMENT DATA

All tests and measurement data shown were performed in accordance with FCC Rules and Regulations, Volume II; Part 2, Sub-part J, Sections 2.947, 2.1033(c), 2.1041, 2.1046, 2.1047, 2.1079, 2.1051, 2.1053, 2.1055, 2.1057 and the following individual Parts:

- _____ 21 - Domestic Public Fixed Radio Services
- _____ 22 - Public Mobile Services
- _____ 22 Subpart H - Cellular Radiotelephone Service
- _____ 22.901(d) - Alternative technologies and auxiliary services
- _____ 23 - International Fixed Public Radiocommunication services
- _____ 24 - Personal Communications Services
- _____ 74 Subpart H - Low Power Auxiliary Stations
- _____ 80 - Stations in the Maritime Services
- _____ 80 Subpart E - General Technical Standards
- _____ 80 Subpart F - Equipment Authorization for Compulsory Ships
- _____ 80 Subpart K - Private Coast Stations and Marine Utility Stations
- _____ 80 Subpart S - Compulsory Radiotelephone Installations for Small Passenger Boats
- _____ 80 Subpart T - Radiotelephone Installation Required for Vessels on the Great Lakes
- _____ 80 Subpart U - Radiotelephone Installations Required by the Bridge-to-Bridge Act
- _____ 80 Subpart V - Emergency Position Indicating Radiobeacons (EPIRB'S)
- _____ 80 Subpart W - Global Maritime Distress and Safety System (GMDSS)
- _____ 80 Subpart X - Voluntary Radio Installations
- _____ 87 - Aviation Services
- x 90 - Private Land Mobile Radio Services
- _____ 94 - Private Operational-Fixed Microwave Service
- _____ 95 Subpart A - General Mobile Radio Service (GMRS)
- _____ 95 Subpart C - Radio Control (R/C) Radio Service
- _____ 95 Subpart D - Citizens Band (CB) Radio Service
- _____ 95 Subpart E - Family Radio Service
- _____ 95 Subpart F - Interactive Video and Data Service (IVDS)
- _____ 97 - Amateur Radio Service
- _____ 101 - Fixed Microwave Services

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STANDARD TEST CONDITIONS
and
ENGINEERING PRACTICES

Except as noted herein, the following conditions and procedures were observed during the testing:

In accordance with ANSI C63.4-1992/2000 Draft, section 6.1.9, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40°C (50° to 104 °F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst case measurements.

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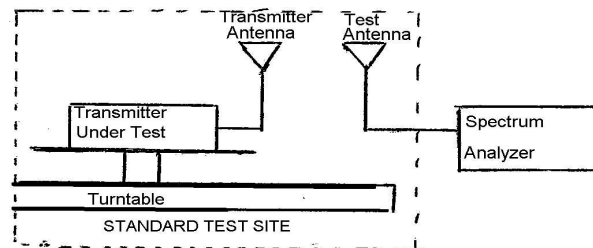
NAME OF TEST: ERP Carrier Power (Radiated)

SPECIFICATION: TIA/EIA 603A (Substitution Method)

2.2.17.1 Definition: The average radiated power of a licensed device is the equivalent power required, when delivered to a half-wave dipole or horn antenna, to produce at a distant point the same average received power as produced by the licensed device.

2.2.17.2 Method of Measurement:

a) Connect the equipment as illustrated. Place the transmitter to be tested on the turntable in the standard test site.



b) Raise and lower the test antenna from 1m to 6 m with the transmitter facing the antenna and record the highest received signal in dB as LVL.

c) Repeat step b) for seven additional readings at 45° interval positions of the turntable.

d) Replace the transmitter under test with a half-wave or horn vertically polarized antenna. The center of the antenna should be at the same location as the transmitter under test. Connect the antenna to a signal generator with a known output power and record the path loss in dB or LOSS.

e) Calculate the average radiated output power from the readings in step c) and d) by the following:

$$\text{average radiated power} = 10 \log_{10} \Sigma 10(\text{LVL} - \text{LOSS})/10 \text{ (dBm)}$$

	430.013 MHz		RESULTS 450.0 MHz		469.988 MHz	
	LVL, dbm	Path Loss, db	LVL, dbm	Path Loss, db	LVL, dbm	Path Loss, db
0°	38.0	-1.4	38.1	-1.2	36.9	-1.3
45°	37.2	-1.4	39.6	-1.2	36.1	-1.3
90°	38.9	-1.4	39.8	-1.2	35.8	-1.3
135°	39.6	-1.4	38.5	-1.2	37.3	-1.3
180°	38.0	-1.4	39.9	-1.2	36.4	-1.3
225°	37.4	-1.4	39.0	-1.2	36.8	-1.3
270°	39.7	-1.4	36.9	-1.2	37.5	-1.3
315°	39.0	-1.4	38.2	-1.2	35.6	-1.3

	430.013 MHz	450.0 MHz	469.988 MHz
Av. Radiated Power:	37.0 dbm	37.55 dbm	35.25 dbm
END OF TEST REPORT			

TESTIMONIAL
AND
STATEMENT OF CERTIFICATION

THIS IS TO CERTIFY THAT:

1. THAT the application was prepared either by, or under the direct supervision of, the undersigned.
2. THAT the technical data supplied with the application was taken under my direction and supervision.
3. THAT the data was obtained on representative units, randomly selected.
4. THAT, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct.

CERTIFYING ENGINEER:


Morton Flom, P. Eng.