

## **APPENDIX C:     ANTENNA SPECIFICATIONS**

Please refer to the following pages for specifications of the new antenna.



E. F. JOHNSON COMPANY  
WASECA, MN

A 501-0105-009/012

# PROCUREMENT SPECIFICATION

A  
501-0105-009/012

Approvals

TITLE Handheld Antennas, SMA Connector  
896-940 MHz (-009, -011)  
806-866 MHz (-010, -012)

*W.B. Stewing*  
May 3, 1989

*AAW*

 CRITICAL TO APPLICATION  
 SELECTED PARAMETER

5-3-89

## REVISIONS

COMPLETELY REVISED PAGES 2 AND 4; ADDED  
-009, 011 TO 896-940 MHz AND -010, 012  
TO 806-866 MHz ON COVER PAGE; DELETED  
PAGE 4 AND RENUMBERED; PART NO. WAS  
501-0105-007/008.

|                                                                                                                                          |         |     |                          |            |       |         |
|------------------------------------------------------------------------------------------------------------------------------------------|---------|-----|--------------------------|------------|-------|---------|
| 1                                                                                                                                        | 9-25-89 | JEH | <i>Tom</i><br><i>AAW</i> | <i>AAW</i> | 97147 | 9/25/89 |
| Completely revised per. ECO #97259.                                                                                                      |         |     |                          |            |       |         |
| 2                                                                                                                                        | 3-1-90  | LLW | <i>WJA</i>               | <i>AAW</i> | 97259 | 3/5/90  |
| Page 4, 7.1 length was 6.7. "Coaxial elevated feed" was "Ground plane" and "Ground independent" was "Elevated feed" - all in two places. |         |     |                          |            |       |         |
| 3                                                                                                                                        | 6-12-90 | DWH | <i>WJA</i><br><i>AAW</i> | <i>AAW</i> | 97337 | 6/14/90 |
| Appendix 'A' P/N -012 TUNED LENGTH WAS 4.6.                                                                                              |         |     |                          |            |       |         |
| 4                                                                                                                                        | 7-31-90 | LLW | <i>WJA</i>               | <i>AAW</i> | 97372 | 8/1/90  |
| Deleted -007 & -008 from print.                                                                                                          |         |     |                          |            |       |         |
| 5                                                                                                                                        | 3-13-91 | LLW | <i>WGS</i>               | <i>AAW</i> | 97511 | 3/13/91 |
| Appendix 'A' -010 & -009 EXES was EXU in Model number.                                                                                   |         |     |                          |            |       |         |
| 6                                                                                                                                        | 3-21-91 | LLW | <i>WJS</i>               | <i>AAW</i> | 97520 | 3/22/91 |

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STORAGE:

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*m*

## 1.0 Scope

### 1.1 Scope

This document is the primary procurement document and is the only engineering authorized technical specification for 800 MHz & 900 MHz flexible antennas with SMA connector.

## 2.0 Procurement Requirements

2.1 Parts must be procured from an engineering approved source, specified by the Approved Vendor(s) Listing (AVL).

2.2 No product changes are permitted without prior approval. Requested changes (even though not affecting specifications or characteristics) must be submitted to Purchasing in writing, in a timely manner. Supplier may be held financially accountable for nonconformity.

2.3 Strict conformation to this technical specification is mandatory and absolute.

## 3.0 Applied Documents

3.1 General Requirements: SMA Connector per MIL-C-39012.

## 4.0 Requirements

### 4.1 Electrical

|                                                                              | <u>501-0105-009/011</u>              | <u>501-0105-010/012</u>              |
|------------------------------------------------------------------------------|--------------------------------------|--------------------------------------|
| 4.1.1 Frequency Range:                                                       | 896-941 MHz                          | 806-866 MHz                          |
| 4.1.2 Transmit Frequency:                                                    | 896-941 MHz                          | 806-866 MHz                          |
| 4.1.3 Receive Frequency:                                                     | 935-941 MHz                          | 851-866 MHz                          |
| 4.1.4 Impedance: Nominal                                                     | 50 Ohms                              | 50 Ohms                              |
| 4.1.5 Power Rating (Minimum):                                                | 5 Watts                              | 5 Watts                              |
| 4.1.6 VSWR: Maximum at Resonance<br>(As tested on a correlated ground plane) | 1.5:1                                | 1.5:1                                |
| 4.1.7 VSWR: Maximum at Band Edge<br>(as tested on a correlated ground plane) | 2.5:1 at 896 MHz<br>3.0:1 at 941 MHz | 2.5:1 at 806 MHz<br>3.0:1 at 866 MHz |
| 4.1.8 Gain (Nominal)                                                         | -009 2.5 dB<br>-011 Unity            | -010 2.5 dB<br>-012 Unity            |

4.2 Dimensional: Appendix A.

4.3 Physical: See Materials; Appendix A.

4.3.1 Mounting Base: 1/4" x 36 - 2ASMA. SMA connector to meet industry standards, ref: MIL-C-39012. (E.F. Johnson 142-0371-006 or equivalent.)

4.3.2 Flex section must withstand 10000 cycles minimum of a 60 degree flex without changing electrical characteristics.

4.3.3 Antenna to remain flexible over entire operating temperature range.

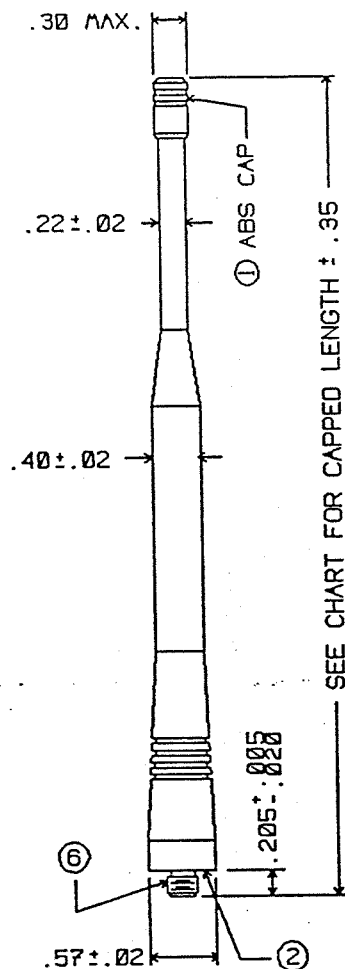
4.3.4 Testing conducted in accordance with A-003-0501-005/006 testing specifications.

4.4 Environmental

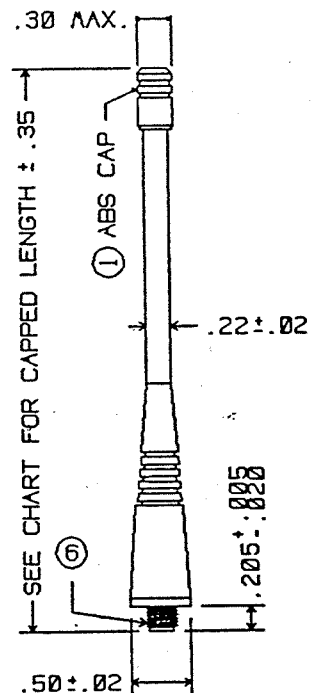
4.4.1 Operating Temperature: -30°C to +60°C

4.4.2 Storage Temperature: -40°C to +85°C

WP/CAE49/0105-009.1-.2



EXES-SFJ  
FIGURE 2



EXC-SFJ  
FIGURE 3

NOTE:

- ① SOLVENT BOND CAP.
- ② SOLVENT BONDED SHEATH MUST MEET 5 IN. LB. TORQUE TEST.
3. ENTIRE ANTENNA TO BE COVERED WITH BLACK, HIGH IMPACT, ABRASION RESISTANT POLYURETHANE COATING.
4. MOLD MARKS OR OTHER VISUAL BLEMISHES MUST BE NEATLY TRIMMED.
5. CAP COLOR CODE GROOVES TO BE MARKED AS INDICATED.
- ⑥ 1/4-36 UNS-2A FEMALE SMA CONNECTOR.

APPENDIX A

| MODEL NUMBER | FREQUENCY CODE | FREQUENCY RANGE | EFJ PART NO. | TUNED LENGTH ± .35 | CAP COLOR CODE | FIGURE | DESCRIPTION                   |
|--------------|----------------|-----------------|--------------|--------------------|----------------|--------|-------------------------------|
| EXES-806-SFJ | 806MHZ         | 806-866MHZ      | 501-0105-010 | 7.1                | NONE           | 2      | 1/4 WAVE, GROUND INDEPENDENT  |
| EXES-902-SFJ | 902MHZ         | 896-940MHZ      | 501-0105-009 | 7.1                | GREEN          | 2      | 1/4 WAVE, GROUND INDEPENDENT, |
| EXC-806-SFJ  | 806MHZ         | 806-866MHZ      | 501-0105-012 | 4.1                | NONE           | 3      | 1/4 WAVE, STUB                |
| EXC-902-SFJ  | 902MHZ         | 896-940MHZ      | 501-0105-011 | 3.6                | GREEN          | 3      | 1/4 WAVE, STUB                |