

REVISION			
RE	DESCRIPTION	DATE	APPROVE
-	ERN-SRB/406-08	021211	J. KOTYK

SH 1

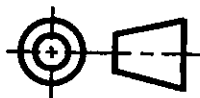
DWG NO. Y1-02-1056

N/A	A3-03-1032	SRB, MODEL 406
-NO.	NEXT ASSY	USED ON
APPLICATION		

ALL SHEETS ARE THE SAME REVISION STATUS

DO NOT SCALE DRAWING.
UNLESS OTHERWISE SPECIFIED:
DIM. ARE IN INCHES
TOLERANCES:
.XX .XXX ANGLE
± - ± - ± -

THIRD ANGLE



CONTRACT NO. N/A	
DFTG S. ANDREWS	DATE 030220
CHKR C. MIDDLETON	DATE 021209
ME C. HUGHES	QA J. LOVIN
EE C. HUGHES	MFG C. HEILBRON
LOG M. GIBBINS	PRCM K. McCUNN
REL M. GIBBINS	CMPNT M. GIBBINS
PROJ C. HUGHES	MATL D. PRZYDZIAL



12889 INGENUITY DRIVE
ORLANDO, FL 32826-

TITLE
Procedure, Programming,
SRB, Model 406

SIZE A	CAGE CODE 55827	DWG NO. Y1-02-1056	REV -
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SCALE NONE	WEIGHT	SHEET 1 OF 15
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1.0 PURPOSE

Provide instructions for loading code and configuring for a newly manufactured Survival Rescue Beacon (SRB) 406MHz, P/N P3-03-0041.

2.0 REFERENCES

Commercial Documents:

Cospas-Sarsat document C/S T.001
"Specification for Cospas-Sarsat 406 MHz Distress Beacons"

Cospas-Sarsat document C/S G.005
"Guidelines on 406 MHz Beacon Coding, Registration and Type Approval".

DME Corporation Documents:

Version Description Document (VDD) for the SRB-406 Control Software
9350001 Rev 4
31 July 2002

Beacon Programmer User's Manual
9350005 Rev -
September 2002

DME Corporation Drawing:

Digital Data, Firmware,
68HC908, SRB-406 BCN
Dwg No. S2-04-0009

Test Procedure, Acceptance
SRB-406 BCN
Dwg No.Y1-02-1023

3.0 DEFINITIONS

N/A

4.0 RESPONSIBILITY

The assigned Test Engineer will be responsible for the loading of software and configuring the beacon prior to testing the SRB Model 406 as specified in this procedure.

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SCALE NONE		WEIGHT	SHEET 2

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SH

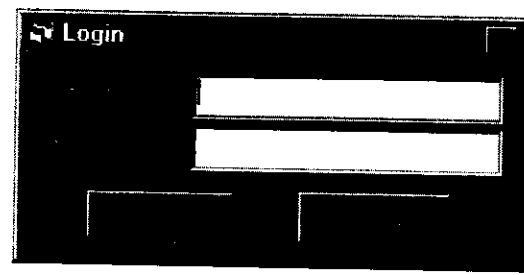
3

5.0 INSTRUCTIONS

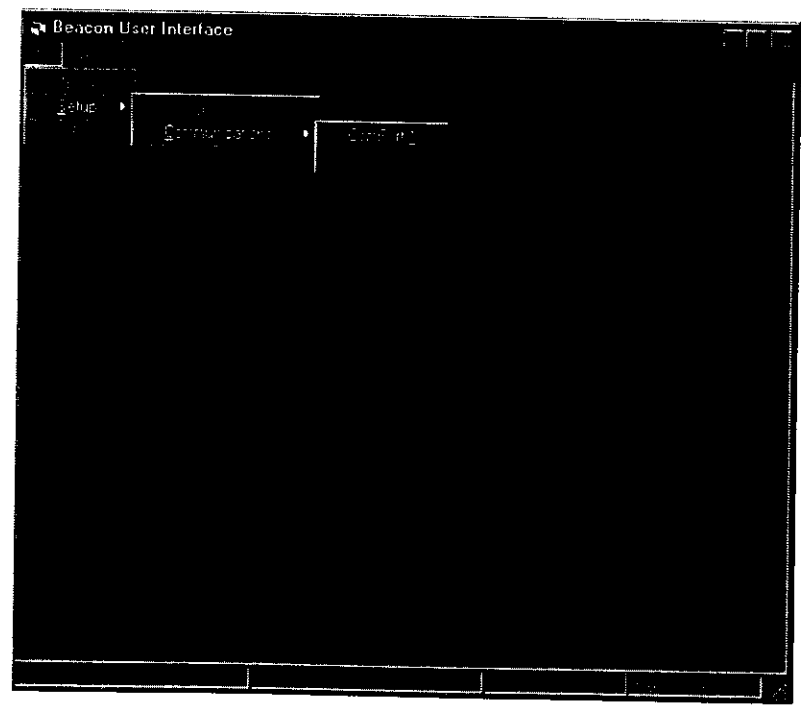
5.1 Programming Procedure

5.1.1 Setup

Start the Beacon User Interface Program and type your user name and password. If you do not have a password leave it blank and click OK. The software will not allow programming of the Beacon without a password. Refer to the Beacon Programmer User Manual for user login setup.

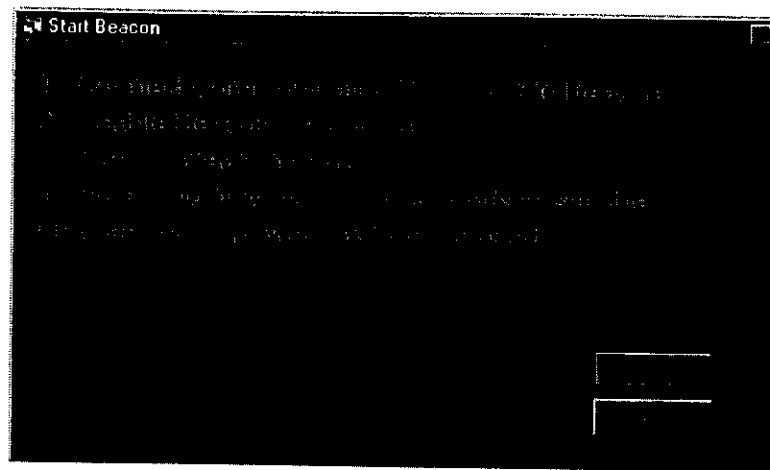


Select the appropriate communication port by selecting **File->Setup->Communication**

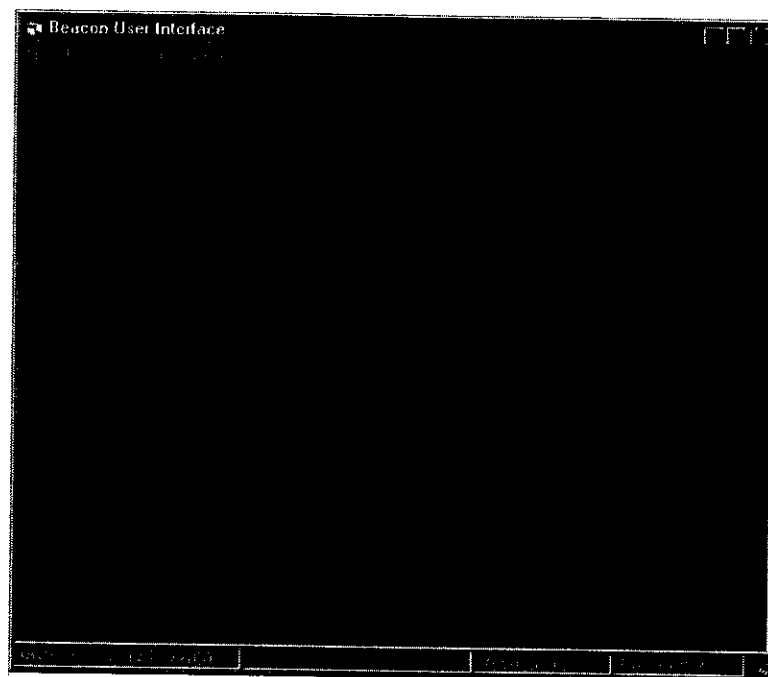


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Once the Communication Port and power has been applied, and the beacon test mode was selected you have 30 seconds to click the **Start** button in order for the beacon to enter programming/debug Mode.



Once the program is communicating with the beacon, the beacon type and the software version loaded are displayed at the bottom of the Main menu.

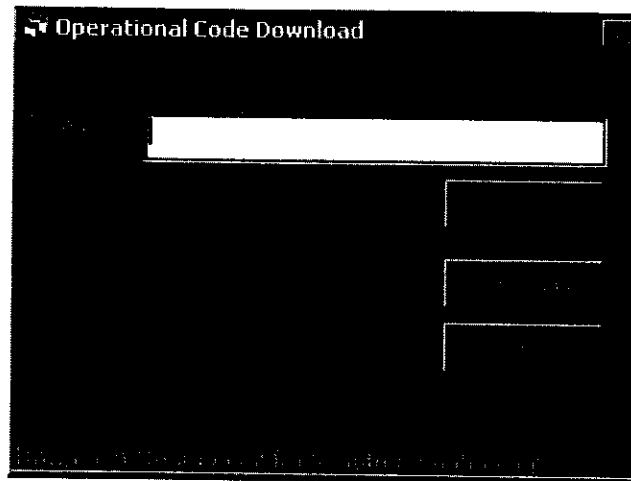


NOTE: If you get a serial communication error(s) or if *No Beacon connected* is displayed instead of the software version, turn off power to the beacon and ensure that all the cables are connected and select: **File -> Reload** from the Main Menu. Reapply power to the beacon and follow the steps described above.

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5.2 Operational Code Download

If this is a newly manufactured beacon with no code installed, the software will prompt you to download the operational code before any other functionality can be accessed. If a previous version of software already exists and you want to re-program the beacon then the Download Menu can be accessed via **Program->Download** from the Main menu.



Browse for the file specified by S2-04-0009 then click **Download**. When download has completed, the downloaded software version will be displayed in the status bar.

WARNING! - Once downloading has begun don't remove power or stop the process until it has completed as the code could become corrupted, requiring the processor to be replaced.

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5.3 406 Digital Message Programming

5.3.1 Setup

The digital message encoded in the 406MHz transmission is defined in Cospas-Sarsat document C/S G.005 ". It is represented by a string of 15 hex characters and has to be unique for every beacon. The following procedure instructs the Test Engineer on how to set up and program the unique message.

View the Message Protocol Form:

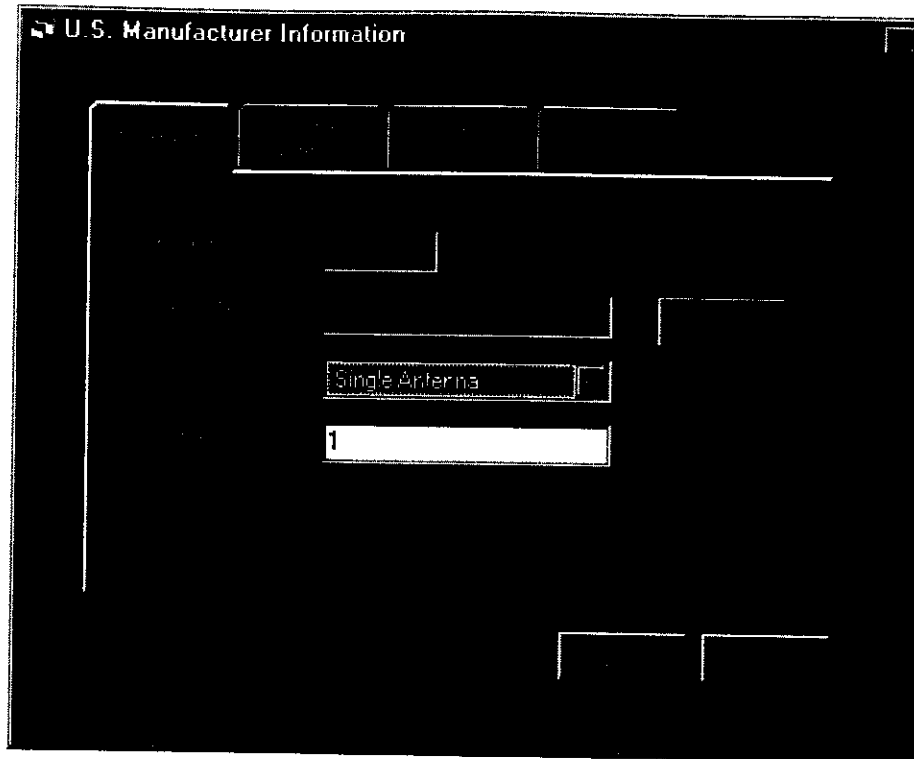
Program->Message Setup

Choose the **Manufacturer's Serial Number** as the User Protocol and Click on **Setup**.

5.3.1.1 U.S. Manufacturer's Serial Number

Indicates that a beacon's serial number is contained in the message, which allows DME to assign a unique serial production number for each beacon.

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SCALE	NONE	WEIGHT	SHEET 6



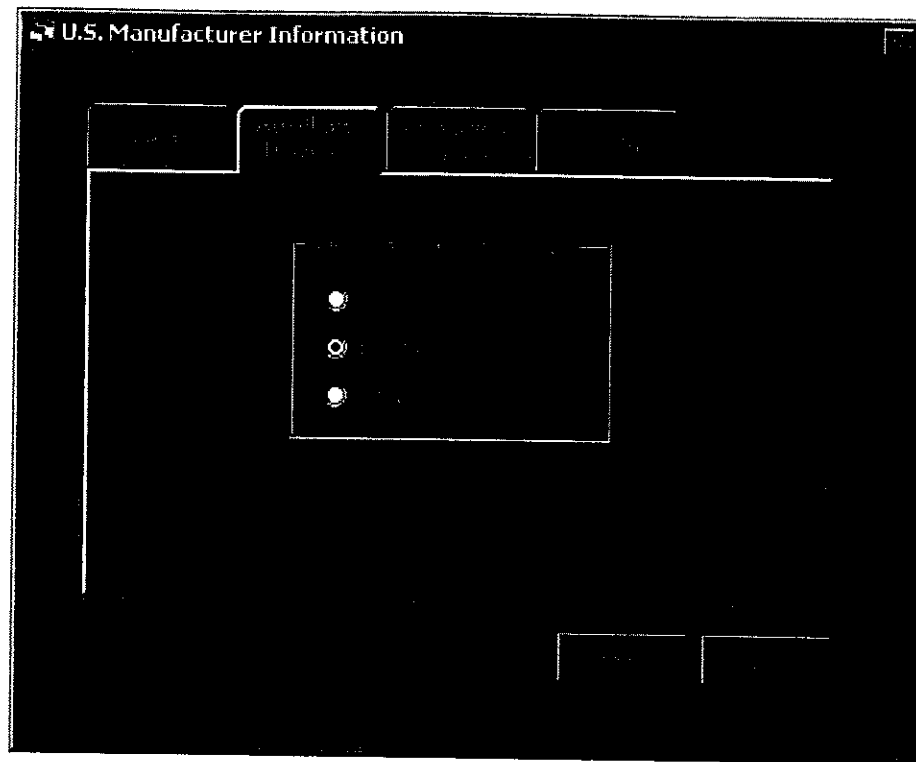
- Block Number** – U.S. Manufacturer's ID number; fixed (31) for DME Corporation.
- Sequence Number** – U.S. Manufacturer's Sequence Number (1-4095)
- Model Number** – U.S. Manufacturer's Model (Select one)
- Single Antenna (1)
 - Dual Antenna (2)
 - Other (3)
- Production Number** – U.S. Manufacturer's Production Run Number (1-255)

Choose the **Model** type (Single or Dual antenna) as specified by the work order directions.

Click **New** to retrieve the next unique sequence number of the database.

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5.3.1.2 Auxiliary Devices



Aux. Radio Location Device(s) – Specifies any additional radio-locating devices used on the beacon.

NOTE: If other auxiliary radio-locating device is used in addition to 121.5MHz, the code for 121.5MHz should be used.

Select **121.5MHz** radial button to indicate the SRB-406 has a 121.5MHz auxiliary device.

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U.S. Manufacturer Information

File Edit Format Help

OK Cancel

Leave all Emergency codes blank for the SRB-406.

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SCALE NONE		WEIGHT	SHEET 9

5.3.1.4 Country of Origin

The screenshot shows a software window titled "U.S. Manufacturer Information". It has a tabbed interface with four tabs: "Country", "Manufacturer", "Product", and "Part". The "Country" tab is currently selected. Within this tab, there are two input fields. The first field, labeled "Country", contains the text "United States of America". The second field, labeled "Country Code", contains the number "366". At the bottom of the window, there are two buttons: "OK" and "Cancel".

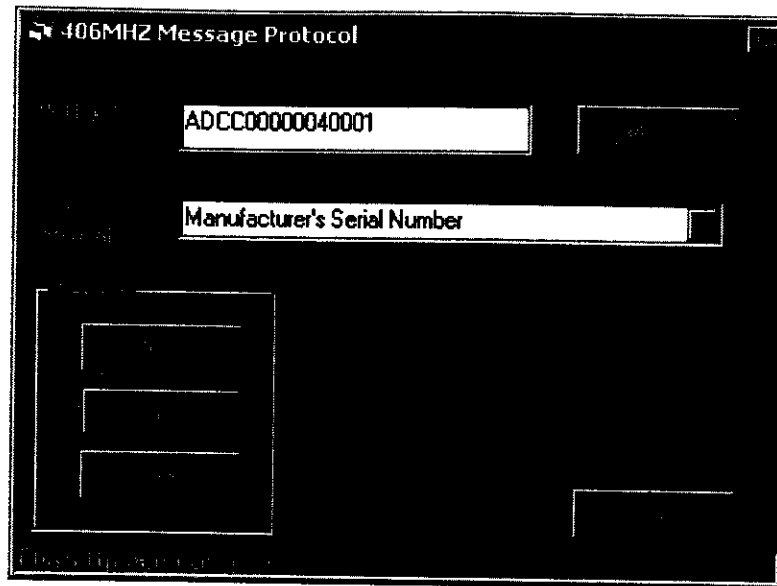
The Country Code is part of every beacon identification data. This code is the 3-digit decimal number allocated to each country/territory by the International Telecommunication Union (ITU) and listed as Maritime identification Digits in Appendix 43 of the ITU Radio regulations. The country code indicates the administration maintaining the beacon registration database. If the appropriate registration database exists, the country code should always match the flag of the vessel or aircraft.

Country of Origin: United States of America
Country Code; 366

Once the above form is completed click **OK**, the Hex ID (on the previous form) is then re-calculated and the user has the ability to program the beacon with the new digital message.

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5.3.2 Update



Click on **Write** to update the beacon's firmware with the unique Hex ID and ensure that *Flash Update Complete* is displayed in the status bar on completion.

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5.4 Part and Serial Number Programming

After programming the 406 digital message, the Assembly's Part and Serial numbers should be programmed into the controller. The part and serial numbers are used to track any hardware or software discrepancies with the DME Beacons. The Part/Serial Number form can be accessed on the main menu:

Program->Part and Serial Number

Enter **P3-03-0041-001** as the SRB-406 Assembly Part Number.
Enter the Assembly Part Number as specified in the Work Order.

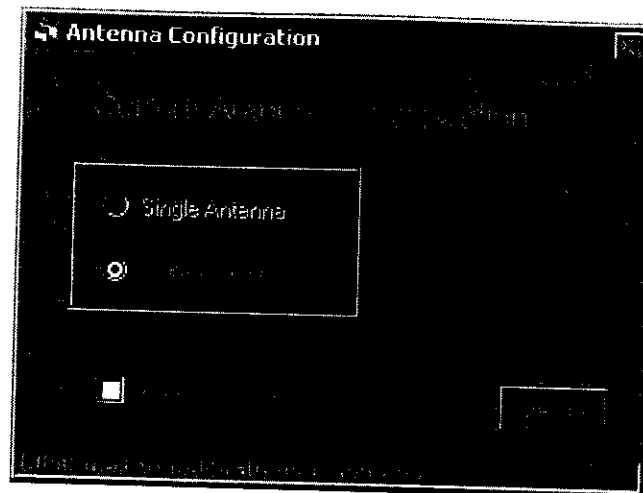
Click **Write** to update the Beacon with the new values.

5.5 Antenna Configuration

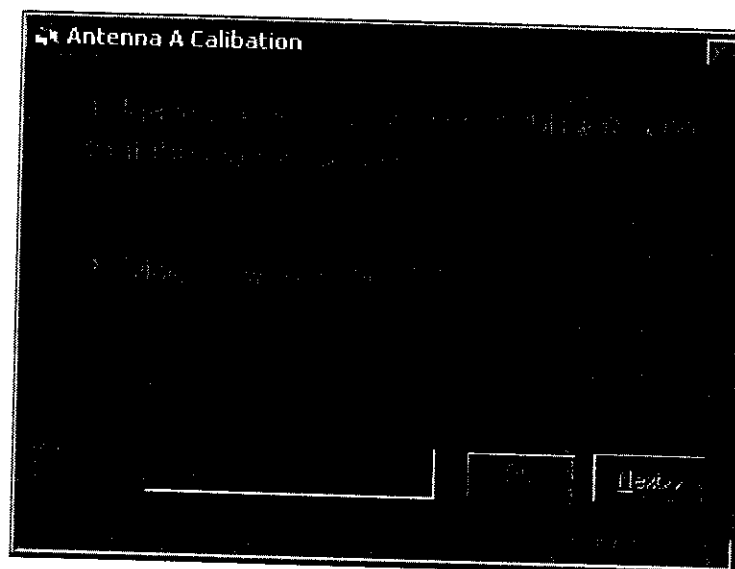
The SRB Beacon can be configured as either a Single or Dual Antenna Type. The Beacon type is determined from the digital message entered in the section: *406 Digital Message Programming*. For a Single Antenna type, the software is pre-configured and no further calibration is necessary. For Dual Antenna types, calibration for the SRB-406 determines the point where the power is to be re-directed to the either of the two available antennas. The calibration values are then used to determine which of the two antennas (located on top and bottom of the beacon) is pointing up and should be radiating.

Choose **Program->Calibration Factors ->Antenna**

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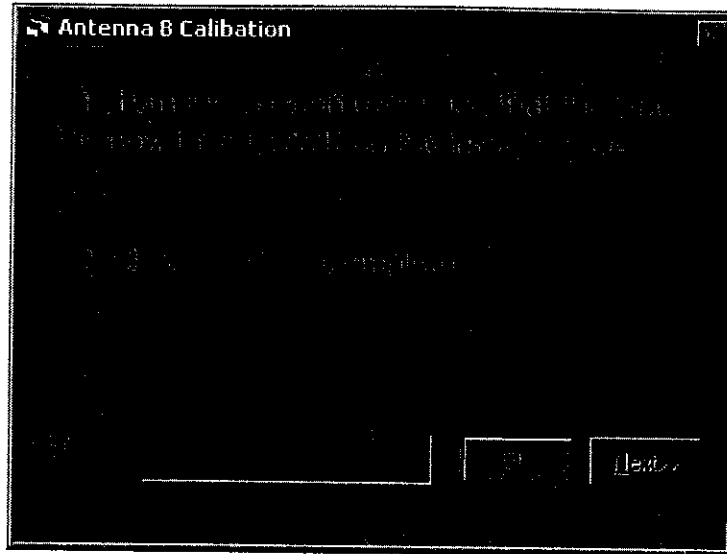


The calibration process is started by clicking **Next**.

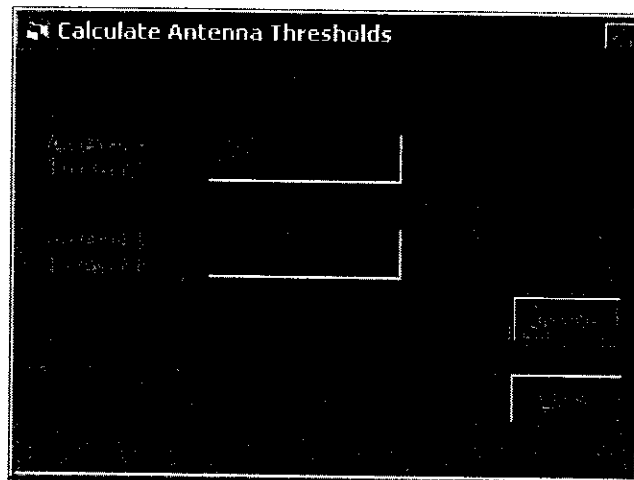


Place the beacon on a level surface with the label face up. Click **OK** to measure the tilt for Antenna A. Click **Next** to calibrate Antenna B

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Turn the beacon over such that the label is now face down on the level surface. Click **OK** to now measure the tilt for Antenna B. Then click **Next** to calculate the Antenna threshold values for the beacon.



Click Update to write the threshold values to FLASH. If *Invalid Threshold Level* is displayed in the status bar, repeat the procedure again making sure the directions were followed. If the calibration still fails, there may be a problem with that beacon.

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5.6 Programming Complete

Exit the Beacon Programmer, turn off power to beacon and disconnect all cables.

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