DO YOU SPEAK DIGITAL?

DTR GEN 3 Product Training
February 2011

MOTOROLA *SOLUTIONS*

AGENDA

- **DTR 650™ GEN 3**
- **DTR 650™ Radio Programming**
- **DTR 650™ Specifications**

DTR 650™ DESIGN

FIRMWARE Version: R5E.06.00
CODEPLUG Version: CP03.10.0E

Whip Antenna for extended coverage

Rubber Overmold Grip

Audio Jack
Uses XTN/CLS audio accessories

Volume Controls

Option Keys
Use to select display options

Push-To-Talk Button

Menu Key

Home Key
Use to exit the current menu and return to the idle screen & cancel Private hang-time

Navigation Keys
Use to select members in scroll list or scroll through menu settings

Power Button
Press to turn on, Press and hold to turn off

Accessory Connector
Use to connect non-audio accessories or for plug-in charging

Microphone

NEW GEN3 FEATURES

- **NEW RADIO FEATURES**
  - Whip Antenna standard for improved coverage
  - Private Reply with a Group Call
  - Voice VibraCall
- **NEW PROGRAMMING FEATURES**
  - Talk Permit Tone (TPT) independent volume control (earpiece)
  - Disable Radio PTT when connected to accessory with remote PTT
  - OTA Fleet Cloning
  - Option to disable the front panel of radio programming
  - Backward Compatible with old firmware Radio

NEW FEATURE BRIEF

Whip Antenna standard

- 20% more coverage than stubby

Private Reply with a Group Call

- Respond via private call to person who initiated the group call

Voice VibraCall

- Vibration alert when any communication is received

Talk Permit Tone (TPT) independent volume control

- The volume of the TPT can be reduced in the for end user comfort with audio accessories

Disable Radio PTT when connected to accessory with remote PTT

- Prevents unwanted PTT activations

NEW FEATURE BRIEF

OTA Fleet Cloning

- Send complete revised codeplug to other units in the fleet.

- Simplifies adding or replacing units in the field.

- Removes need of individually programming each code plug through the CPS Program.

Option to disable the front panel of radio programming

- Increases fleet security

Backward Compatible with old firmware Radio

- Fielded radios can be upgraded to Gen 3 software using a flash cable and software package

OUT OF BOX FEATURES

- **Public Group Call with Private-call Reply**
- **Private-call reception**
- **VibraCall® vibration alert.**
- **Short Messaging Service (SMS) Texting Messaging reception and origination (preset or via keypad accessory)**
- **Unit Numeric Caller ID**
- **Clock / Date**
- **900 MHz ISM Band No License Required**
  - 500 frequencies divided in 10 zones of 50 each
- **Indoor Range up to 325,000 ft² or 25 Floors**
- **Battery Life of 14.5 hours** (up to 19 Hours with 1500 mAh battery)
- **Frequency Hopping Spread Spectrum (FHSS) Technology**
- **Ambient noise adjustment**
- **Loud and Clear, Right Up to the Edge of Coverage**
- **No Monthly Fees or Per-Minute Charges**

PROGRAMMABLE FEATURES

- **Caller ID Alias**
- **Contact list**
- **Private Groups**
- **Private-call origination, reception, return**
- **Public Group Scan**
- **Quick access Scroll List**
- **Call Forwarding**
- **150 Group/private Contact list**
- **Over the Air Fleet Management**
  - Unit to Unit Configuration Cloning
  - Remote Disable/Enable
  - Remote Monitor
  - Time Update
- **Radio Configuration (codeplug) security password**
- **Disable Front Panel Programming**

CALL TYPES

- **While analog radio have only one call type, DTR 650™ radios have four:**

TYPE	EXAMPLE
PUBLIC GROUP	One- to- many
PRIVATE GROUP	One- to- many (Increased privacy)
PRIVATE	One- to- one
DATA	SMS, Alert…

- All call types rely upon the 11 digit unit ID assigned at the factory to a unit or by the user to a group
- A User or Group name (alias) can be created for each contact ID

PUBLIC GROUP CALL

- **Digital One-to-Many Calling**
  - All other DTR Series™ radios on the same group ID and channel hear communications, similar to analog radio operation.
  - The receiving radio displays the transmitting radio name or ID and group.
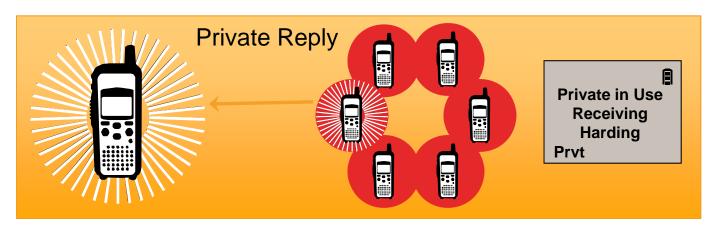
Talkgrp in Use
Marketing
(Harding)

PUBLIC GROUP CALL

- **Group Call with Private Reply**
  - All other DTR Series™ radios on the same group ID and channel hear communications, similar to analog radio operation.
  - The receiving radio displays the transmitting radio name or ID and group.

Talkgrp in Use
Marketing
(Harding)
Prvt

Private Reply

Private in Use
Receiving
Harding
Prvt

PRIVATE GROUP CALL

- **Digital One-to-Some Calling with Increased Privacy**
  - Communicate with specific group members, by forming a Private Group from members of your contact list.

Talkgrp in Use
Receiving
Managers
(Harding)

Private Reply

Private in Use
Receiving
Harding
Prvt

PRIVATE CALL

- **Digital One-to-One Calling**
  - Allows you to call and talk privately with a specific radio.
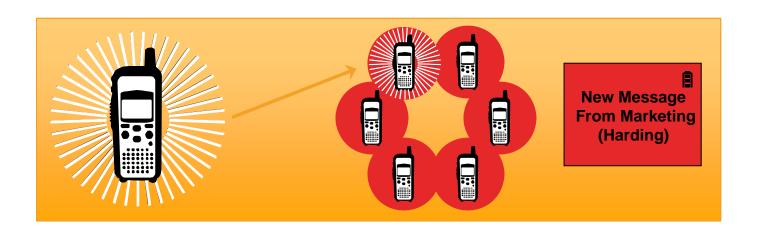 - DTR Series™ radios always scan their Channel for Private Calls

**Private in Use
Receiving
Harding**

DATA CALL

- **Enhanced Communications**
  - Allows you to send an alert to a single unit, a text message to an individual or group, or add a contact to a radio over-the-air (OTA).
  - Data features expand the definition of two-way radio.

New Message
From Marketing
(Harding)

AGENDA

- DTR 650™ GEN 3
- DTR 650™ Radio Programming
- DTR 650™ Specifications

TRAINING OBJECTIVES

- **Programming a fleet of 6 DTR radios**
- **Replace damaged/lost units in the fleet**
- **Master Unit Configuration**
- **Add additional units to the master configuration**
- **Send ID over the air**
- **Assign Units to Manager Mode**
- **Create Private Groups**
- **Programming Master Unit**
- **Programming fleet trough cloning**
- **Detail Reports of Fleet and Unit**

INITIAL STEPS

- **Charge unit batteries.**
- **Install the DTR CPS to your computer**
- **Connect cable(0105950U15) to serial port**

NOTE:

If your computer doesn't have a COM port, you must use a USB serial cable. Belkin USB/serial (F5U409-CU) adapter or Radio Shack USB-to-serial cable is recommended.

CONNECT UNIT

NOTA:

To program the fleet, you only need to connect one unit to the computer. To more efficiently program other units, use the cloning cable.

INITIATE CPS

CPS INITIAL SCREEN

Click on Read in order to read Unit information

CPS INITIAL SCREEN

Your Computer screen will show the following window

UNIT INFORMATION

1The Unit Information is read from here

2) Click on the name/ number of the read unit

UNIT NAME

Change the name of the Unit to:
DEMO 1 Manager
Or to a name of your choosing

UNIT NAME

The screen of your computer will show the name you choose.

NOTE:
The Unit name can be up to 20 characters

ADDITIONAL UNITS

To add additional units click on "Privates"

ADDITIONAL UNITS

Click on:
"Add Privates"

NOTE:

To add additional units to the fleet, it is not necessary to disconnect active unit. The programming of the ID is effective over the air.

ADDITIONAL UNITS

Click on:
"Read Private
ID from Radio"

After clicking
follow the
instructions
shown on the
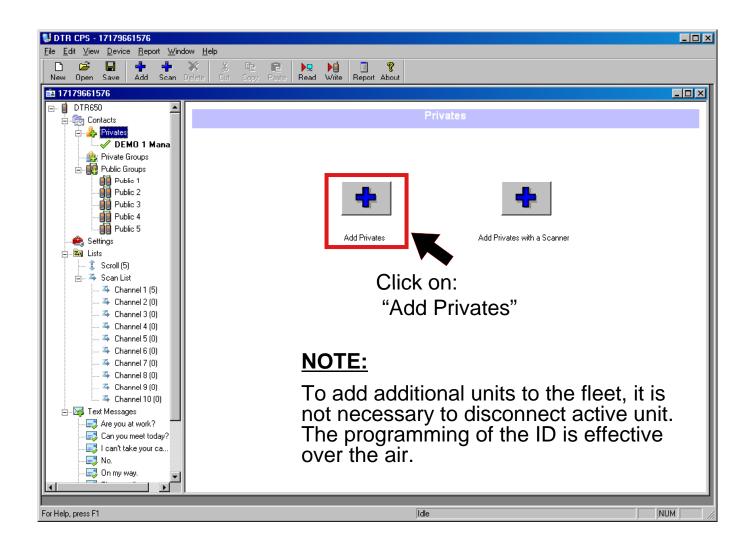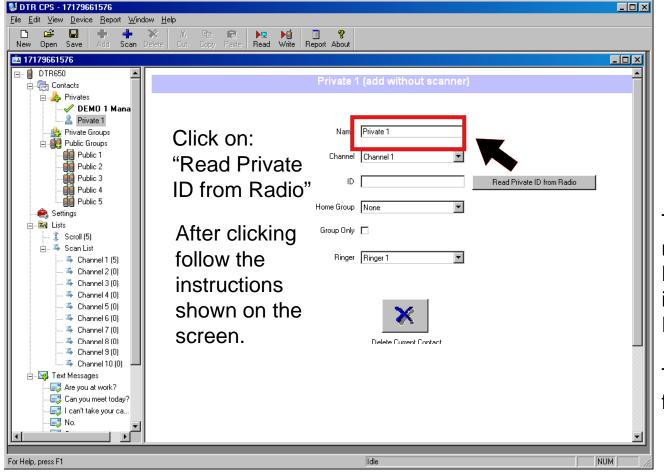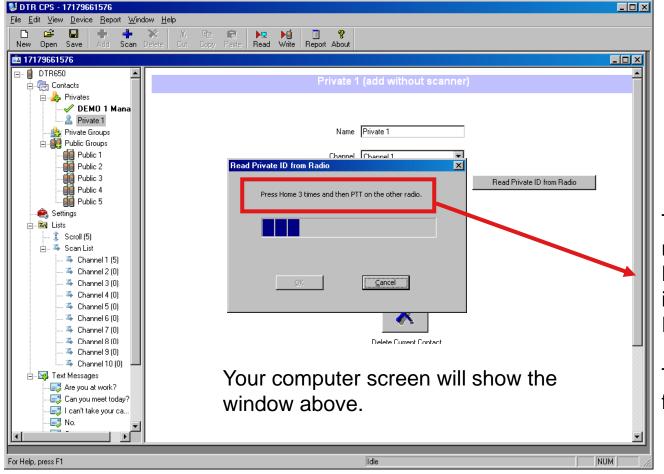screen.

(2)

(1)

To send the unique ID of the
next Unit rapidly press(1) the
Home button 3 times and
immediately press (2) the
PTT button

The screen will show the
following:

ADDITIONAL UNITS

To send the unique ID of the next Unit rapidly press(1) the Home button 3 times and immediately press (2) the PTT button

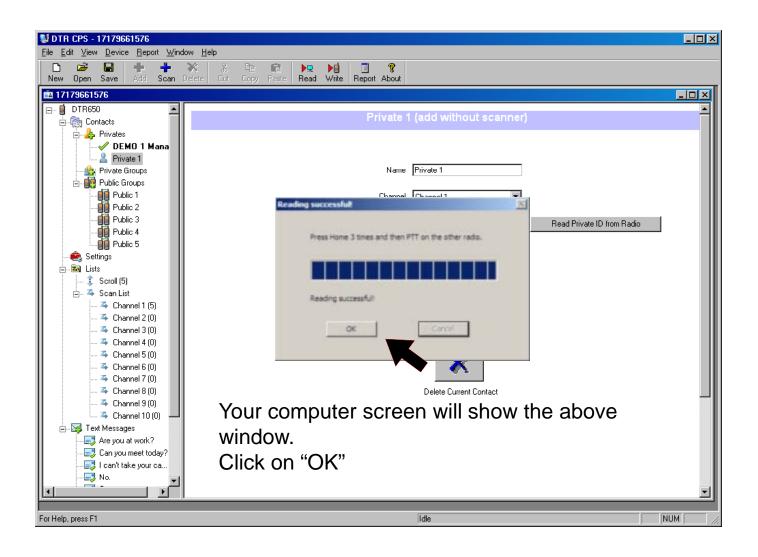Your computer screen will show the window above.

The screen will show the following:

ADDITIONAL UNITS

Your computer screen will show the above window.
Click on "OK"

ADDITIONAL UNITS

The unique ID of the unit was read successfully.

ADDITIONAL UNITS

Change the name of Demo 2
to the name of your choosing

ADDITIONAL UNITS

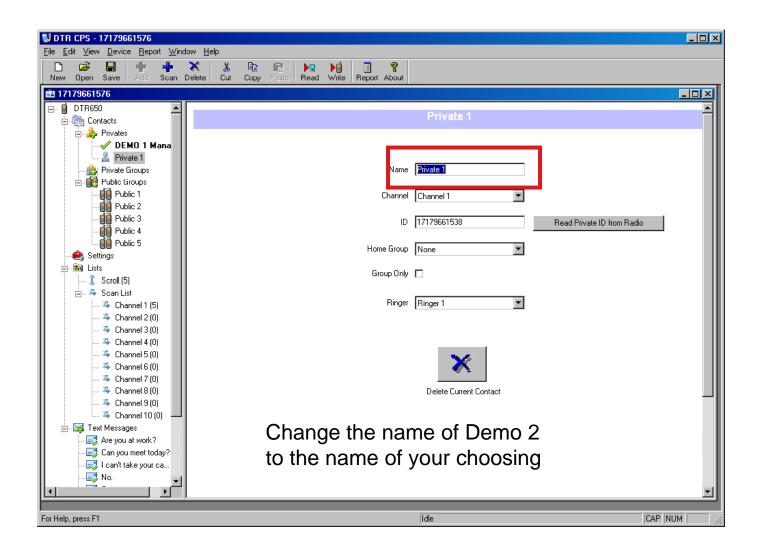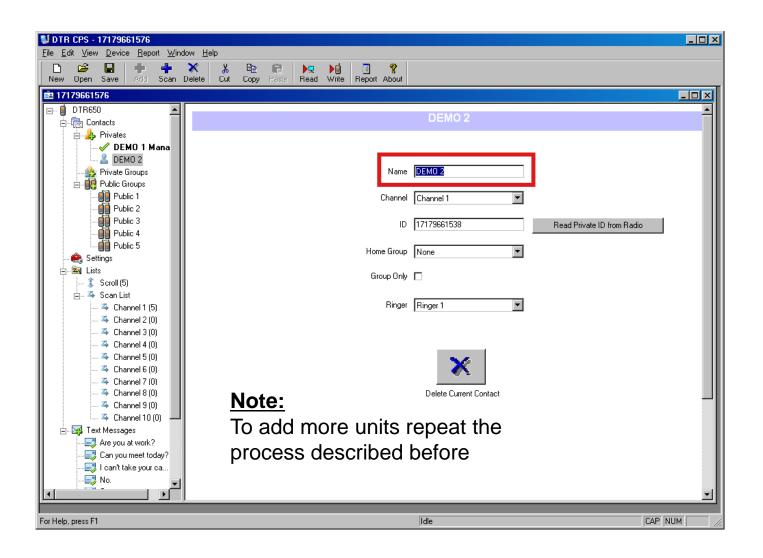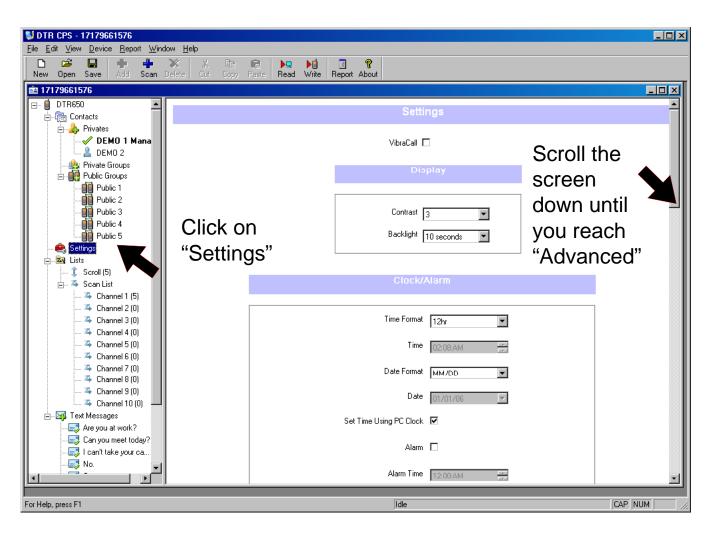**Note:**
To add more units repeat the process described before

MANAGER MODE

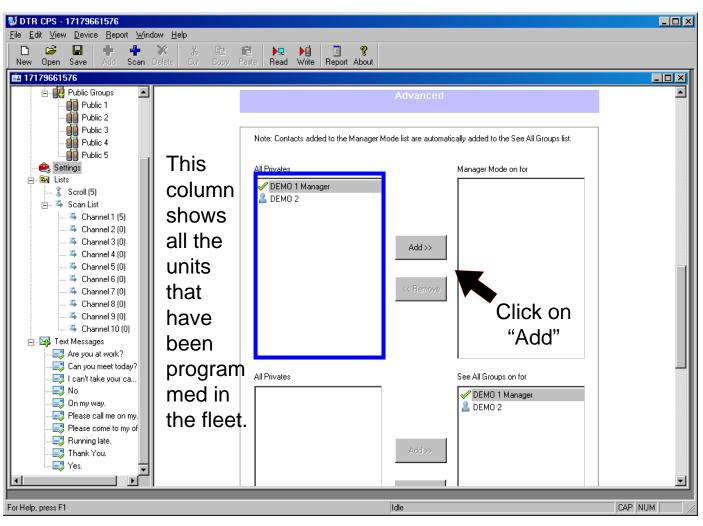Manager Mode allows advanced functions to manage the fleet, such as:

Deactivation of Units
Remote Monitoring
Time Synchronization

MANAGER MODE

Choose the units in which the Manager Mode will be activated in the left column

NOTE:
Manager Mode can be activated in every unit you wish. To remain in control of the fleet it is recommended to limit the number units with these capabilities.
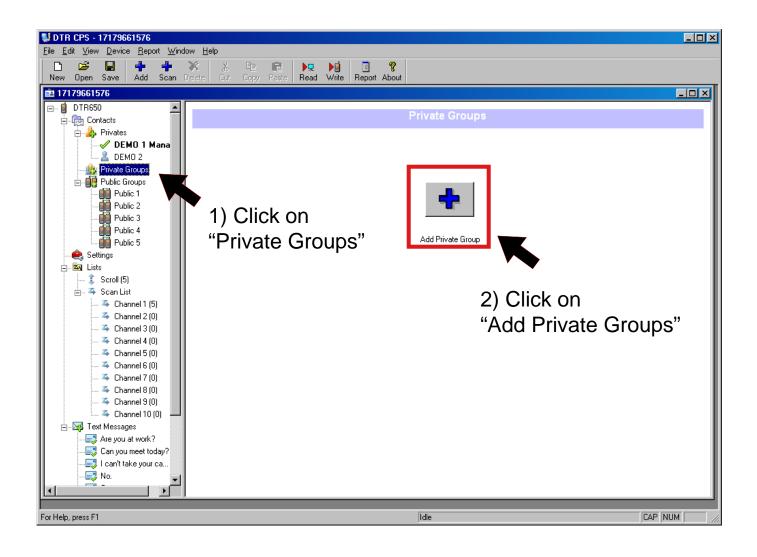
MANAGER MODE

Units with Manager Mode activated will be listed on the Right Column

PRIVATE GROUPS

1) Click on "Private Groups"

2) Click on "Add Private Groups"

PRIVATE GROUPS

PRIVATE GROUPS

NOTE:
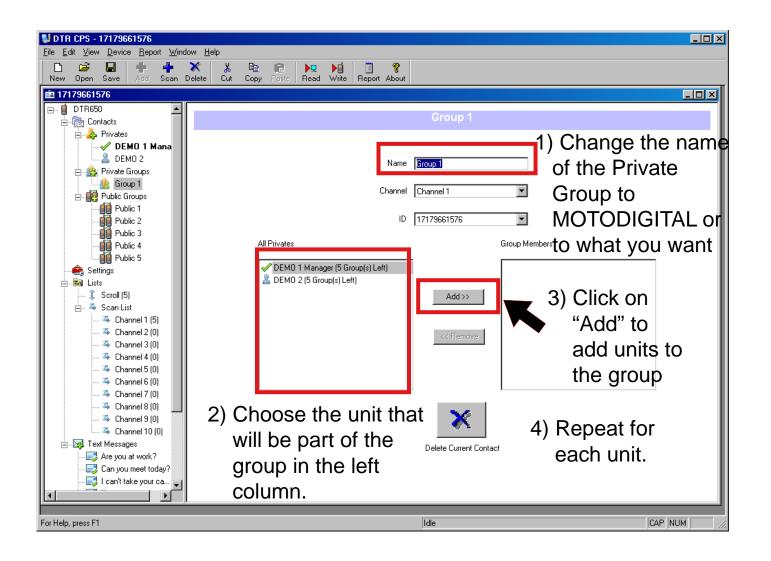To achieve a fully private communication, it is necessary that the ID assigned to the private group is the ID of one of the units that are part of the group.

For example, the id for Group 1should match the radio ID of either Demo 1 or Demo 2 radio or any other group member .

2) Assign an ID to the Private group

1) Units that are programmed in the private group are listed in the right column

PRIVATE GROUPS

NOTE:
To create additional private groups click on "Add Private Groups" and repeat the process.

PRIVATE GROUPS

The new group is displayed in the margin.

MASTER PROGRAMMING

2) Click on "Write"

1) After the configuration of the fleet, continue to program the Master Unit

MASTER PROGRAMMING

MASTER PROGRAMMING

OVER THE AIR FLEET PROGRAMMING
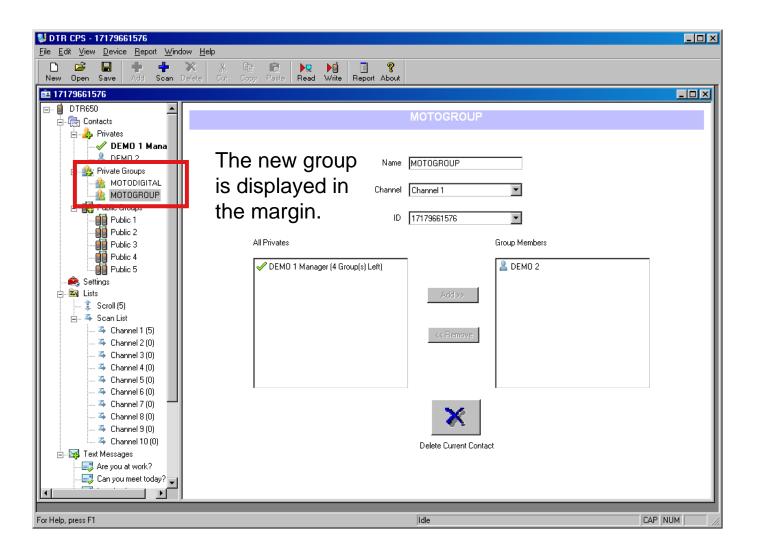
**Master Unit
DEMO 1 Manager**

To enter cloning mode run the following steps in the order listed:

I.   Keep pressed (a) HOME and at the same time press 3 times (b) the PTT button.
II.   Immediately press (c) the left
III. button; followed by (d) Up Arrow; then (e) the right button.
IV.   Again keep pressed HOME (a) and press three time the PTT button (b).

OVER THE AIR FLEET PROGRAMMING

```
┌─── Clone Menu ───┐
 │  Duplicate Rad…
 │  Remote Add C…
 │  Remote Delet…
Select          Exit
```

```
┌─ Remote Add C…
 │  Add: All
 │  To: All
Change          Prgm
```

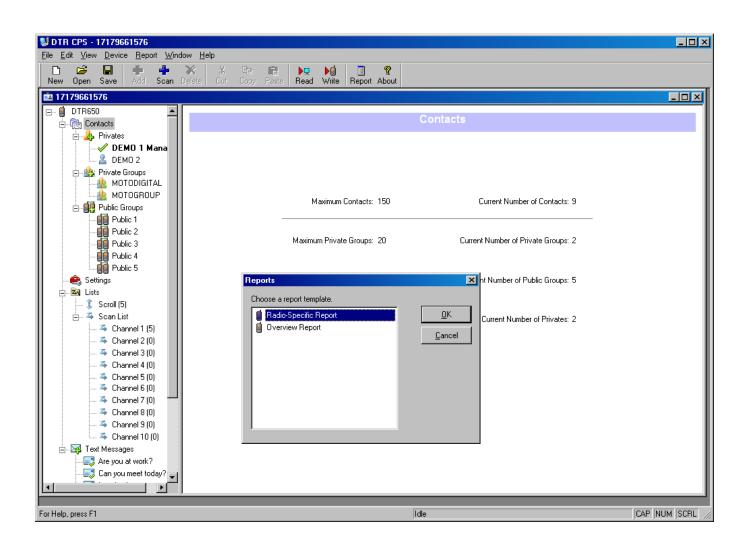# OVER THE AIR FLEET PROGRAMMING

Press Go to
Add:All
To:All
Over the Air

Go   Back

The process will repeat until all units are completed and the fleet is programmed.

UNIT REPORTS

UNIT REPORTS

UNIT REPORTS

UNIT REPORTS

Report

MOTOROLA

Private Groups
MOTODIGITAL (Channel 1)
  Group Members
    DEMO 1 Manager   DEMO 2
MOTOGROUP (Channel 1)
  Group Members
    DEMO 2

Public Groups
Public 1 (Channel 1)
  Receive List
    DEMO 1 Manager   DEMO 2
Public 2 (Channel 1)
  Receive List
    DEMO 1 Manager   DEMO 2
Public 3 (Channel 1)
  Receive List
    DEMO 1 Manager   DEMO 2
Public 4 (Channel 1)
  Receive List
    DEMO 1 Manager   DEMO 2
Public 5 (Channel 1)
  Receive List
    DEMO 1 Manager   DEMO 2

[Print Preview] [Print] [Save As...] [Close]

AGENDA

- **DTR 650™ Defined**
- **DTR 650™ Radio Programming**
- **DTR 650™ Specifications**

DTR 650™ SPECIFICATIONS

GENERAL SPECIFICATIONS

Frequency	900 MHz ISM FHSS
Contact List Capacity	100 (Shared Group/Private)
Default Programming	5 Public Groups
Power Supply	3.8V ± 0.4V
Dimensions	132.3mm H x 57.2mm W x 35.4mm D (5.2" H x 2.3" W x 1.4" D)
Weight:	
with 1200 mAH Li-Ion Battery	200.2g (7.1oz.)
with 1500 mAH Li-Ion Battery	205.7g (7.3oz.)
Average Battery Life @ 5-5-90 Duty Cycle:	
with 1200 mAH Li-Ion Battery	14.5 Hrs.
with 1500 mAH Li-Ion Battery	19 Hrs.
FCC Designation	AZ489FT5842
IC Designation	109U-89FT5842

RECEIVER SPECIFICATIONS

Sensitivity: (3% BER Sensitivity)	-125 dBm
Frequency Stability: (-30º C to +60º C)	± 0.0005% (± 5PPM)
Spur Rejection	55 dB
Blocking Immunity:	
Interferer from ±500 KHz to ±1 MHz	75 dB
Interferer from ±1MHz to ±15 MHz	80 dB
Audio Output @ < 5% Distortion	1W

TRANSMITTER SPECIFICATIONS

RF Output	1W
Channel Spacing	50 kHz
Frequency Stability: (-30º C to +60º C)	± 0.0005% (± 5PPM)
Spurs/Harmonics	500 uV/m (3m)
Audio Response: (from 6 dB/oct.Premphasis, 300 to 30000 Hz)	+1, -3 dB
Audio Distortion @ 1000 Hz, 60% Rated Max. Dev.	<3%
TX ACCPR	-50 dBc
FCC Modulation	8-level FSK 900 MHz ISM FHSS

THANK YOU