Firmware Release: DDXX21XX.XXX - Date Nov. 1999
Previous Version: DDXX19XX.XXX

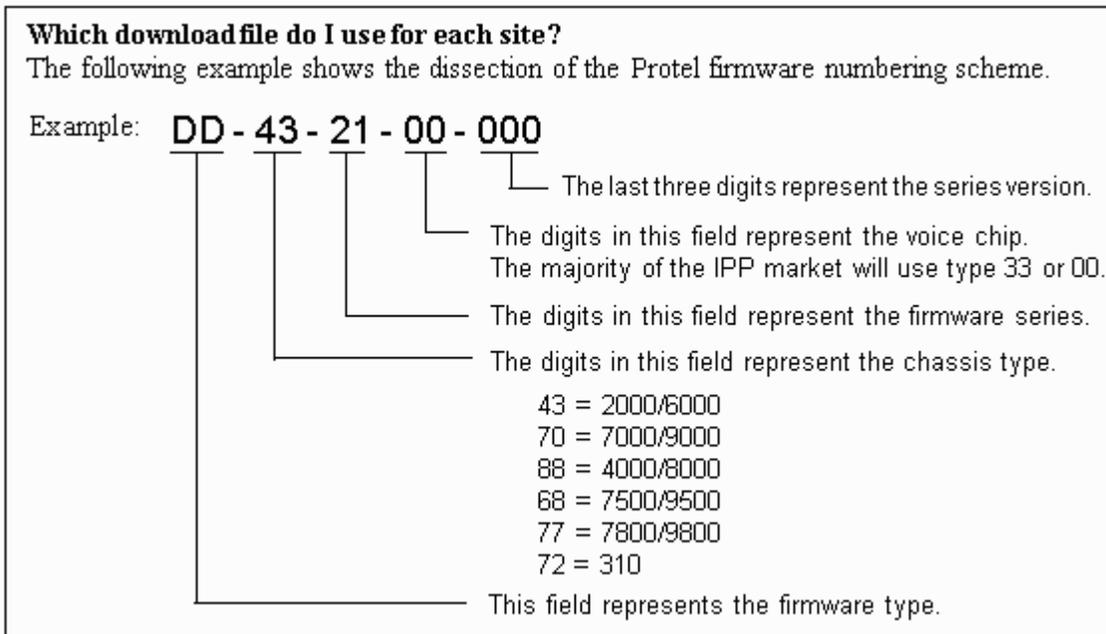This new release of firmware includes the features and enhancements listed on the following pages of this bulletin.

Which download file do I use for each site?

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The following example shows the dissection of the Protel firmware numbering scheme.

Example: DD - 43 - 21 - 00 - 000

— The last three digits represent the series version.

— The digits in this field represent the voice chip. The majority of the IPP market will use type 33 or 00.

— The digits in this field represent the firmware series.

— The digits in this field represent the chassis type.

    43 = 2000/6000
    70 = 7000/9000
    88 = 4000/8000
    68 = 7500/9500
    77 = 7800/9800
    72 = 310

— This field represents the firmware type.

Answer Recognition
Improvements have been made to the operation of answer recognition routines to prevent false tripping as a result of line noise during open loop periods.

Area Codes

- Area code 877 has been added to cost band 104 and will be processed as a toll free number.

- The default area code tables have been updated to reflect new assigned area codes.

Battery Operation

- Battery charge routines that are initiated due to a failed *#67 battery test are not interrupted when the phone is brought to the off hook condition.

- If the battery charge routine is interrupted by a call attempt the phone will re-enter the charge routine after the call is completed.

- The battery charge time has been increased from three minutes to six minutes.

Escrow Relay

The coin present contacts are no longer checked when determining whether to fire the escrow relay for a collect or refund operation. This allows the phone to operate with certain escrow relays that do not have a coin present flag. The operation of the coin present contacts are still needed after firing the escrow relay to determine that the relay has cleared the coins.

B1 Line Operation

When operating on a B-1 line, the phone will recognize if tip and ring are reversed. If the loop is reversed, two beeps will be heard in the handset approximately 7 seconds after coming off hook, when no digits are dialed.

Y2K Compliance

- Modifications have been made to properly adjust for leap year occurring in the year 2000.

- Clock routines have been updated and verified for Y2K compliance.

CDR

- The Peg Count now includes all capture digits. When enabled, each call that includes capture digits occupies two call record positions. Including capture digits within the peg count can prevent available CDR memory from being prematurely depleted.

- A new option has been added that provides increased flexibility in peg count reporting. Option 1A8 provides the ability to reset the peg counter that records the number of completed calls only after all Call Detail Records have been uploaded to the management system from the phone. This option can remain off if CDR is not being retrieved from the phone. To reset the peg counter only after all CDR has been retrieved by the management system, set option 1A8 within the Options and Registers Menu to "ON".

Store & Forward

- When utilizing Store & Forward, custom voice brands are now sounded after the bong tone to identify the billing party.

- Improvements have been made to the operation of the NDC validation protocol for on-line validation of Store & Forward calls when using 1-800 dial up access.

Call Restriction

- A Multiple *Call Restriction by Time of Day* windows have been added. Up to three individual *Call Restriction by Time of Day* windows may now be established.

- The ability to enable or disable the *Call Restriction by Time of Day* feature, the *Capture Digits* feature and the collection of **Call Detail Records** (CDR) for specific cost bands has been added. This feature utilizes the SAC field within the Cost bands (see the cart below for proper setting of the SAC field).

  To enable the *Capture Digits* feature for specific cost bands, it is necessary to set the "Capture digits after 1-800 / 1-950 calls" option to "NO". This option is located within the Options and Registers menu.

  To enable the *Call Restriction by Time of Day* feature for specific cost bands, it is necessary to set the *Call Restriction by Time of Day* option to "NO". This option is located within the Options and Registers menu. If *Call Restriction by Time of Day* is set to "YES", then the *drug restrict* feature will automatically apply to all cost bands.

SAC Field Value	Call Restrict be Time of Day	Collect CDR	Capture Digits
0	Disabled	Enabled	Disabled
1	Disabled	Enabled	Enabled
2	Disabled	Disabled	Disabled
3	Disabled	Disabled	Disabled
4	Enabled	Enabled	Disabled
5	Enabled	Enabled	Enabled
6	Enabled	Disabled	Disabled
7	Enabled	Disabled	Disabled

- A new feature has been added that allows the phone to function in a restricted mode of operation. During the restricted mode of operation, when the *Call Restriction by Time of Day* feature is set to 'YES', all calls are restricted during the programmed window. Also, the definitions for keypad activity after call cut-through are changed when operating in the restricted mode, as follows:

Keypad Setting	1	2	3	4	5	6	7	8

Number of Digits	0	2	4	6	2	4	6	100
Initial Time-Out	0	45	45	45	45	45	45	255
Inter-Digit Time-Out	0	45	45	45	120	120	120	255

Setting option 1B7 in the Options and Registers Menu to "ON" enables the restricted mode of operation.

- If a cost band is directed to a route and the route is not programmed, the phone will prompt "Error 25" and then restrict the call.

LEC Access

- Option 1B1 has been added to allow user dialed *0 to have multiple functions. If option 1B1 is set to "OFF" the phone will route user dialed *0 to the LEC. If Option 1B1 is set to "ON" user dialed *0 will provide a rate quote for the last completed Store& Forward call.

Modem Operation

- The default setting for product equipped with the 1200 baud FSK modem is now set to 1200 baud FSK on (1861). Previously, the default setting was 300 baud FSK.

DTMF Level

- A new feature has been added that allows the transmit level of the DTMF tones that are sent to the line to be lowered by 6dB. Setting option 1A2, within the Options and Registers Menu, to "ON" causes the DTMF tones sent to the line to be 6dB lower than normal. This option should only be set to "ON" if the normal setting is too high for the central office.

Local Calls

- The default value for local calls has been changed from 25 cents to 35 cents.

Coin Mechanism

- When using an ECS II, if a coin mech error, coin track failure, or a coin gate failure condition exists, the phone will allow non-coin calls. Previously, all calls were restricted when these failures occurred.

- Improvements have been made in the ability to detect the presence of the ECS II.

- The coin present contacts of the escrow relay are checked prior to requesting a coin deposit. If a coin appears to be present, and there is no coin deposit registered (as would be the case if a coin were deposited while on-hook), The phone will perform a coin refund before prompting for the required coin deposit.

Flags

- The operation of the Cash Box Volume Full ($V) flag has been modified to prevent random repeated attempts to report to the management system.

- If the *#67 battery charge test fails, the phone immediately enters the battery charge routine. Previously, the phone would go into the battery charge routine only if the phone was placed on hook immediately after failing the battery charge test. If the *#67 battery charge test fails twice consecutively, the Low Battery (LB) flag will be set.

- Improvements have been made to the operation of the Time Report (TR) feature. Previously, the Time Report flag would not be set if the scheduled time to report occurred on the first day of a new month that has a greater number of days than the previous month.

- A new reporting flag was added for Non Card CDR Limit Reached (NF). This flag is set if the maximum number of Call Detail Records that the phone can store (125) has been reached. Once the phone reaches 125 CDR's it will begin to overwrite the oldest call record with each new call. The NF flag will report one time and will not reset until CDR's have been uploaded to the management software.

- A new flag, ASIC Clock (AC), has been added. This new flag indicates an error in setting the clock within the phone.

- The firmware has been modified to eliminate the Bad Ground (BG) flag if it is set when the phone is in the B-1 mode of operation. The Bad Ground flag does not apply in the B-1 mode of operation.

- The operation of the Box Missing (BM), Box Removed (BR), and Handset Off Hook (HO) flags have been modified. These flags now report when initially set and remain set within the phone until the condition is cleared (coin box is returned, handset placed on hook).

- The operation of the Defective Escrow (DE) flag has been modified. The management software will not reset the DE flag. Previously, after a successful communication with the management software the DE flag would be reset regardless of the fact that the error condition may still exist at the phone.