

**Corporate Network Solutions
Business Networks Systems Division**

**Technical
Information
Bulletin**

TITLE:

PN-30PRTA COMBINED ISDN CARD

SYSTEM APPLICATION:

NEAX 2000 IVS / RETROFIT SYSTEM

SOFTWARE VERSION APPLICATION:

SC-2834 IXS BSC B2 V3.00

ATTACHMENTS:

Doc-Reg ID:

<http://www.kbase.cns.nec.com.au/>

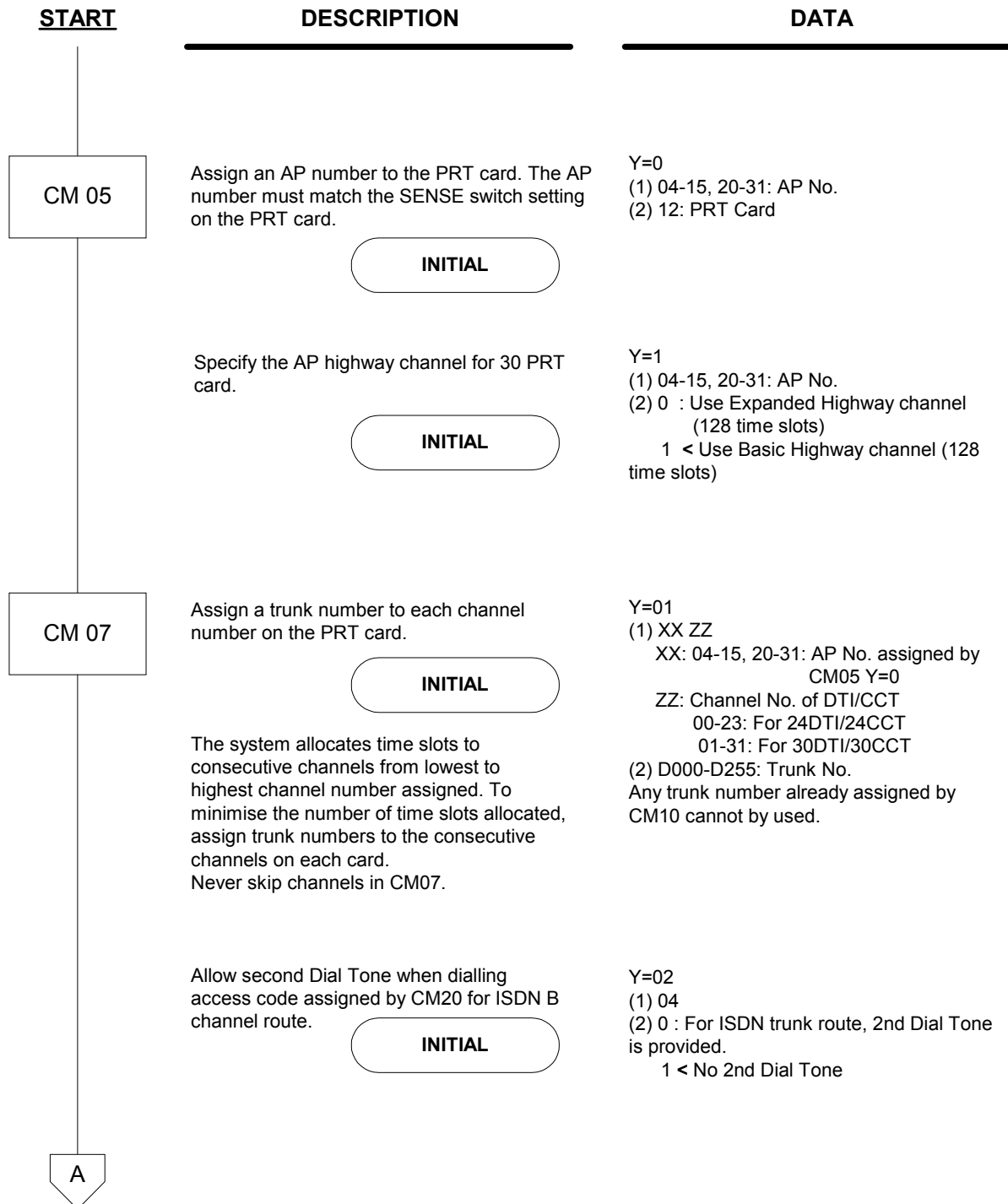
1.0 INTRODUCTION

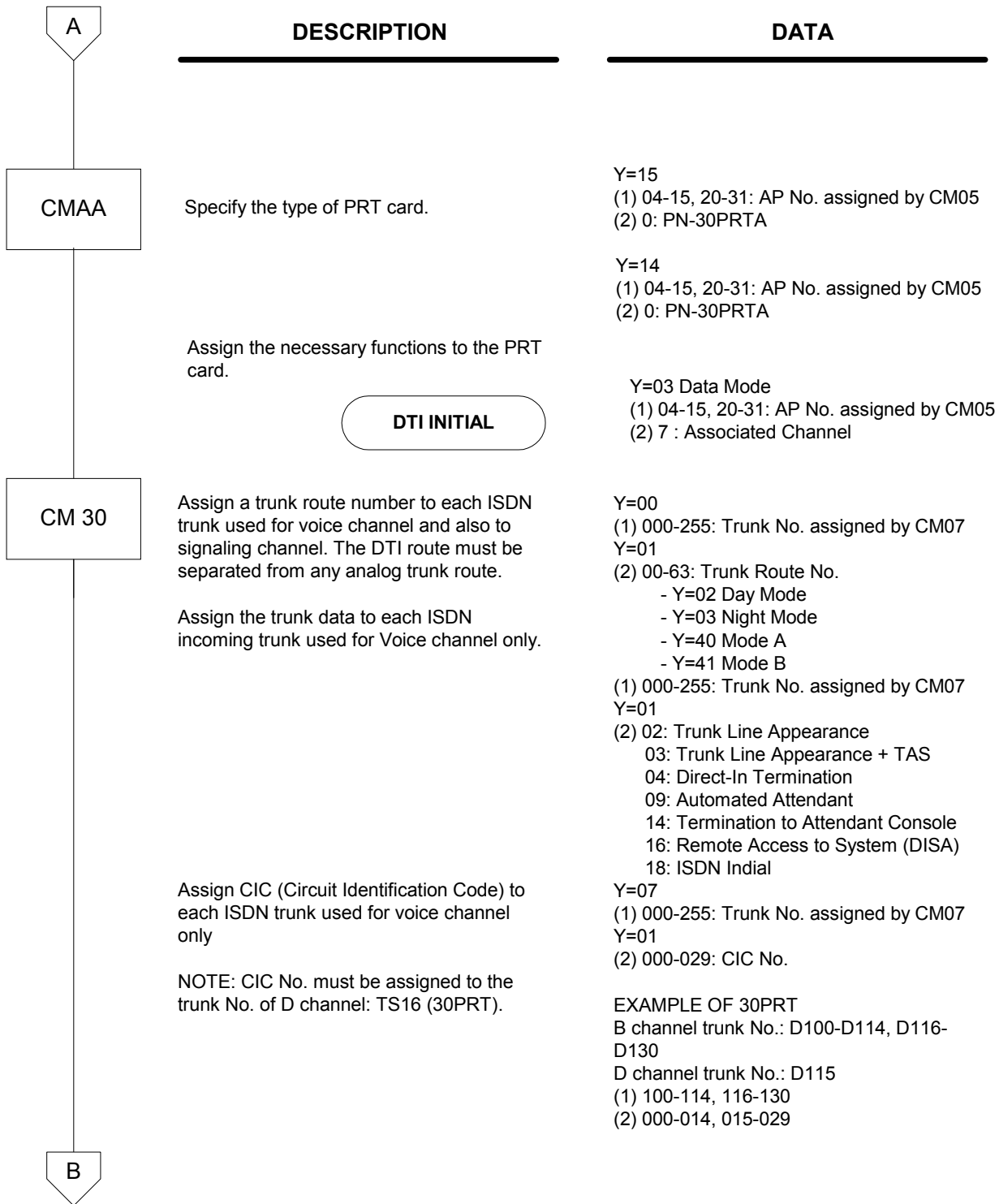
The PN-30PRTA-A card is a primary rate ISDN card with an in-built D-channel handler. This single card replaces the existing PN-30DTC and PN-SC01 card combinations on current systems. This card requires 32 AP timeslots.

NOTE: This card does not support ETSI QSIG. For QSIG installations the PN-30DTC and PN-SC01 will continue to be used.

2.0 PROGRAMMING

2.1 DIGITAL TRUNK DATA ASSIGNMENT





| B | DESCRIPTION | DATA |
|------|--|---|
| CM35 | Assign trunk route data to the trunk route number assigned by CM30 Y=00. | Y=00 Kind of Trunk Route (1) 00-63: B channel Trunk Route No. (2) 00: ISDN Trunk |
| | NOTE 1 : This data should be assigned to the B channel trunk route. For D channel trunk route, no data setting is required. | (1) 00-63: D channel Trunk Route No. (2) 15 < Not used |
| | NOTE 2 : This data should be assigned to both B channel trunk route and D channel trunk route. | Y=02 Call Direction (1) 00-63: B channel Trunk Route No. (2) 3 < Bothway Trunk NOTE 1 |
| | | Y=04 Answer Signal from distant office (1) 00-63: B channel Trunk Route No. (2) 2: Answer signal arrives (ISDN Trunk) |
| | | (1) 00-63: D channel Trunk Route No. (2) 7 < Not used |
| | | Y=05 Release signal from distant office (1) 00-63: B channel Trunk Route No. (2) 1 < Release signal arrives NOTE 1 |
| | | Y=09 Incoming Connection Signaling (1) 00-63: B channel Trunk Route No. (2) 08 : ISDN |
| | | (1) 00-63: D channel Trunk Route No. (2) 15< Not Used |
| | | Y=11 Toll Restriction (1) 00-63: B channel Trunk Route No. (2) 0 : To provide NOTE 1 3 < Not Provided |
| CMAA | NOTE 3 : This data is required for correct implementation of MCT. | Y=06 (ISDN Protocol Type) (1) Sense Switch (2) 22: Telstra (ETSI) ,29: Optus (ETSI) NOTE 3 |
| CM06 | | Y=08 (D Channel) (1) Trunk Number (2) Sense Switch |
| C | | |

C

DESCRIPTION

DATA

CM35

NOTE 1: This data should be assigned to the B channel trunk route. For D channel trunk route, no data setting is required.

Y=12
Number of digits to be received on DID.
(1) 00-63: B channel Trunk Route No.
(2) 0: 1 digit
 1: 2 digits
 2: 3 digits
 3 < 4 digits

NOTE: If CM35 Y=143 is set to "1" for Event Based CCIS, the number of digits received on DID must be assigned.

Y=14 SMDR for outgoing call
(1) 00-63: B channel Trunk Route No.
(2) 0 : Not provided
 1 < To provide NOTE 1

Y=15 Kind of Call Termination Indicator
Key/Lamp on ATT
(1) 00-63: B Channel Trunk Route No.
(2) 00-07: C.O. Incoming Call 0-7 NOTE 1

Y=16
Hooking Signal Sending to outside
(1) 00-63: B channel Trunk Route No.
(2) 0: Not sending NOTE 1

Y=18 Digit conversion on DID call
(1) 00-63: B channel Trunk Route No.
(2) 0: To provide
 1< Not provided

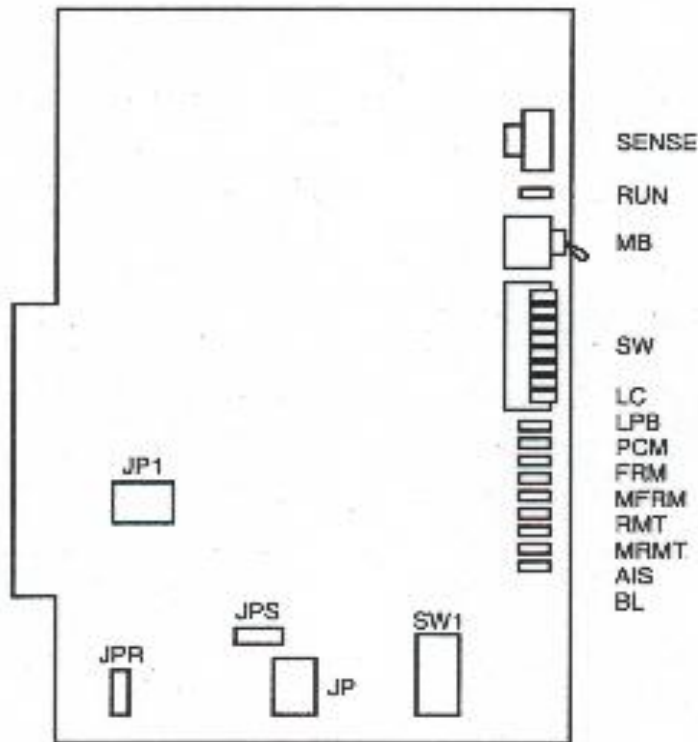
Y=19
(1) 00-63: B Channel Trunk Route No.
(2) 0-3: Programmable PAD (see CM42)
 4-7 < Fixed PAD NOTE1

NOTE: For details of PAD data, refer to the Command Manual.

D

3.0 CIRCUIT CARD


3.1 Layout


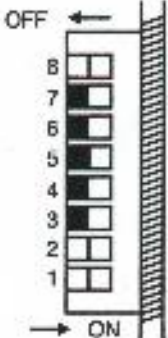
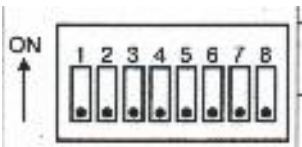




3.2 Lamp Indications


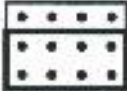
| LAMP NAME | COLOR | FUNCTION |
|-----------|-------|--|
| RUN | Green | Flashes at 120 IPM when this card is operating normally. |
| LC | Green | Remains lit when communications are functioning normally on the D channel data link. |
| LPB | - | Not Used. |
| PCM | Red | Remains lit when detecting PCM signal loss. |
| FRM | Red | Remains lit when detecting Frame alignment signal loss. |
| MFRM | Red | Remains lit when detecting Multi-Frame Alignment signal loss on time slot 16. |
| RMT | Red | Remains lit when receiving the alarm from a distant office because Frame Alignment signal loss has been detected at the distant office. |
| MRMT | Red | Remains lit when receiving the alarm from a distant office because Multi-Frame Alignment signal loss has been detected at the distant office. |
| AIS | Red | Remains lit when indicating that the pattern of consecutive "1" is being received. The distant office transmits this signal for a loop back test. |
| BL | Red | B channel status ON : More than 10 channels are busy OFF : All channels are idle Flash (60 IPM) : Only one channel is busy Flash (120 IPM) : 2 to 10 channels are busy |

3.3 Switch Settings

| SWITCH NAME | SWITCH NUMBER | SETTING POSITION | FUNCTION |
|---|--|--|----------|
| SENSE (Rotary SW)  | 4-F CM05 AP No. SW-8: On 04 05 06 07 08 09 10 11 12 13 14 15 SW-8: Off 20 21 22 23 24 25 26 27 28 29 30 31 SW No. 4 5 6 7 8 9 A B C D E F | Set the switch to match the AP number (04-31) to be set by | |
| | 0-3 | Not Used | |

| | | | | |
|---|---|--------|---|---|
| MB (Toggle SW)  | | UP | For make-busy | |
| | | DOWN | For normal operation | |
| SW (Piano Key SW)  | 1 | ON | Source clock signal from network is sent to the PLO 0 input on the MP card. | |
| | | NOTE 1 | OFF | Source clock signal from network is not sent to the PLO 0 input on MP card. |
| | 2 | ON | Source clock signal from network is sent to PLO 1 input on the MP card. | |
| | | NOTE 1 | OFF | Source clock signal from network is not sent to PLO 1 input on the MP card. |
| | 3 | ON | Remote loop-back | |
| | | OFF | For normal operation | |
| | 4 | ON | Local loop-back (AIS send) | |
| | | OFF | For normal operation. | |
| | 5 | ON | Transmission line cable : Coaxial cable (75 ohms) | |
| | | OFF | For normal operation. | |
| | 6 | OFF | Not used (Always set to OFF). | |
| | 7 | OFF | | |
| | 8 | ON | AP No. 04-15 | |
| | | OFF | AP No. 20-31 | |
| | SW1 (Dip SW)  | 1 | OFF | Always set to OFF. |
| | | 2 | OFF | Always set to OFF. |
| 3 | | OFF | Always set to OFF. | |
| 4 | | OFF | Always set to OFF. | |
| 5 | | OFF | Always set to OFF. | |
| 6 | | OFF | Always set to OFF. | |
| 7 | | OFF | Always set to OFF. | |
| 8 | | OFF | Always set to OFF. | |

| SWITCH NAME | SWITCH NUMBER | SETTING POSITION | FUNCTION |
|--|---------------|------------------|--|
| JPS (Jumper Pin)  | | RIGHT | Balanced transmission (For twisted pair cable). |
| | | LEFT | TA is grounded on the transmission line (For coaxial cable). |
| JPR (Jumper Pin)  | | UP | Balanced Transmission (For twisted pair cable) |
| | | DOWN | RA is grounded on the transmission line (For coaxial cable). |
| JP (Jumper Pin) | | RIGHT | Line impedance: 75 Ohms (For coaxial cable). |

| | | | |
|--|--|------|---|
|  | | LEFT | Line impedance: 120 Ohms (For twisted pair cable). |
| JP1 (Jumper Pin)  | | DOWN | Always set to DOWN. |

NOTE1: Set SW-1 and SW-2 as follows:

| CONDITIONS | PRT0 | | PRT1 | | PRT2 | | | | PRT7 | | REMARKS |
|-------------------------------------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|---|
| | SW -1 | SW -2 | SW -1 | SW -2 | SW -1 | SW --2 | SW -1 | SW -2 | SW -1 | SW -2 | |
| When one PRT is provided. | ON | OFF | - | - | - | - | - | - | - | - | MP card will receive the clock signal from PRT0 at its PLO0 input |
| When more than one PRT is provided. | ON | OFF | OFF | ON | OFF | OFF | OFF | OFF | OFF | OFF | MP card will receive the clock signal from PRT0 at its PLO0 input, under normal conditions. Should a clock failure occur with PRT0, MP card will automatically switch to the PLO1 input which gets clock from PRT1. |

4.0 PROGRAMMING EXAMPLE

| CMD | 1 ST Data | 2 nd Data | Description |
|------|----------------------|----------------------|--------------------------------|
| AA14 | 10 (Sense) | 0 | PN-30PRTA |
| AA15 | 10 (Sense) | 0 | PN-30PRTA |
| 050 | 10 (Sense) | 12 | PN-30PRTA |
| 051 | 10 (Sense) | 1 | Basic Highway (128 Time Slots) |
| 410 | 50 | 03 | Timing Start 3 Seconds |
| 0701 | 1001 | D200 | B Channel 1 |
| 0701 | 1002 | D201 | B Channel 2 |
| 0701 | 1003 | D202 | B Channel 3 |
| 0701 | 1004 | D203 | B Channel 4 |

| | | | |
|------|------|------|------------------------|
| 0701 | 1005 | D204 | B Channel 5 |
| 0701 | 1006 | D205 | B Channel 6 |
| 0701 | 1007 | D206 | B Channel 7 |
| 0701 | 1008 | D207 | B Channel 8 |
| 0701 | 1009 | D208 | B Channel 9 |
| 0701 | 1010 | D209 | B Channel 10 |
| 0701 | 1011 | D210 | B Channel 11 |
| 0701 | 1012 | D211 | B Channel 12 |
| 0701 | 1013 | D212 | B Channel 13 |
| 0701 | 1014 | D213 | B Channel 14 |
| 0701 | 1015 | D214 | B Channel 15 |
| 0701 | 1016 | D215 | Signalling Channel |
| 0701 | 1017 | D216 | B Channel 16 |
| 0701 | 1018 | D217 | B Channel 17 |
| 0701 | 1019 | D218 | B Channel 18 |
| 0701 | 1020 | D219 | B Channel 19 |
| 0701 | 1021 | D220 | B Channel 20 |
| 0701 | 1022 | D221 | B Channel 21 |
| 0701 | 1023 | D222 | B Channel 22 |
| 0701 | 1024 | D223 | B Channel 23 |
| 0701 | 1025 | D224 | B Channel 24 |
| 0701 | 1026 | D225 | B Channel 25 |
| 0701 | 1027 | D226 | B Channel 26 |
| 0701 | 1028 | D227 | B Channel 27 |
| 0701 | 1029 | D228 | B Channel 28 |
| 0701 | 1030 | D229 | B Channel 29 |
| 0701 | 1031 | D230 | B Channel 30 |
| 3000 | 200 | 10 | Trunk Route Allocation |
| 3000 | 201 | 10 | Trunk Route Allocation |
| 3000 | 202 | 10 | Trunk Route Allocation |
| 3000 | 203 | 10 | Trunk Route Allocation |
| 3000 | 204 | 10 | Trunk Route Allocation |
| 3000 | 205 | 10 | Trunk Route Allocation |
| 3000 | 206 | 10 | Trunk Route Allocation |
| 3000 | 207 | 10 | Trunk Route Allocation |
| 3000 | 208 | 10 | Trunk Route Allocation |
| 3000 | 209 | 10 | Trunk Route Allocation |
| 3000 | 210 | 10 | Trunk Route Allocation |
| 3000 | 211 | 10 | Trunk Route Allocation |
| 3000 | 212 | 10 | Trunk Route Allocation |

| CMD | 1 st Data | 2 nd Data | Description |
|------|----------------------|----------------------|------------------------|
| 3000 | 213 | 10 | Trunk Route Allocation |
| 3000 | 214 | 10 | Trunk Route Allocation |
| 3000 | 215 | 24 | Trunk Route Allocation |
| 3000 | 216 | 10 | Trunk Route Allocation |
| 3000 | 217 | 10 | Trunk Route Allocation |
| 3000 | 218 | 10 | Trunk Route Allocation |
| 3000 | 219 | 10 | Trunk Route Allocation |
| 3000 | 220 | 10 | Trunk Route Allocation |
| 3000 | 221 | 10 | Trunk Route Allocation |
| 3000 | 223 | 10 | Trunk Route Allocation |
| 3000 | 224 | 10 | Trunk Route Allocation |

| | | | |
|------|-----|----|------------------------|
| 3000 | 225 | 10 | Trunk Route Allocation |
| 3000 | 226 | 10 | Trunk Route Allocation |
| 3000 | 227 | 10 | Trunk Route Allocation |
| 3000 | 228 | 10 | Trunk Route Allocation |
| 3000 | 229 | 10 | Trunk Route Allocation |
| 3000 | 230 | 10 | Trunk Route Allocation |
| 3002 | 200 | 18 | ISDN Indial (Day) |
| 3002 | 201 | 18 | ISDN Indial (Day) |
| 3002 | 202 | 18 | ISDN Indial (Day) |
| 3002 | 203 | 18 | ISDN Indial (Day) |
| 3002 | 204 | 18 | ISDN Indial (Day) |
| 3002 | 205 | 18 | ISDN Indial (Day) |
| 3002 | 206 | 18 | ISDN Indial (Day) |
| 3002 | 207 | 18 | ISDN Indial (Day) |
| 3002 | 208 | 18 | ISDN Indial (Day) |
| 3002 | 209 | 18 | ISDN Indial (Day) |
| 3002 | 210 | 18 | ISDN Indial (Day) |
| 3002 | 211 | 18 | ISDN Indial (Day) |
| 3002 | 212 | 18 | ISDN Indial (Day) |
| 3002 | 213 | 18 | ISDN Indial (Day) |
| 3002 | 214 | 18 | ISDN Indial (Day) |
| 3002 | 215 | 31 | Signalling Channel |
| 3002 | 216 | 18 | ISDN Indial (Day) |
| 3002 | 217 | 18 | ISDN Indial (Day) |
| 3002 | 218 | 18 | ISDN Indial (Day) |
| 3002 | 219 | 18 | ISDN Indial (Day) |
| 3002 | 220 | 18 | ISDN Indial (Day) |
| 3002 | 221 | 18 | ISDN Indial (Day) |
| 3002 | 222 | 18 | ISDN Indial (Day) |
| 3002 | 223 | 18 | ISDN Indial (Day) |
| 3002 | 224 | 18 | ISDN Indial (Day) |
| 3002 | 225 | 18 | ISDN Indial (Day) |
| 3002 | 226 | 18 | ISDN Indial (Day) |
| 3002 | 227 | 18 | ISDN Indial (Day) |
| 3002 | 228 | 18 | ISDN Indial (Day) |
| 3002 | 229 | 18 | ISDN Indial (Day) |
| 3002 | 230 | 18 | ISDN Indial (Day) |

| CMD | 1 st Data | 2 nd Data | Description |
|------|----------------------|----------------------|---------------------|
| 3003 | 200 | 18 | ISDN Indial (Night) |
| 3003 | 201 | 18 | ISDN Indial (Night) |
| 3003 | 202 | 18 | ISDN Indial (Night) |
| 3003 | 203 | 18 | ISDN Indial (Night) |
| 3003 | 204 | 18 | ISDN Indial (Night) |
| 3003 | 205 | 18 | ISDN Indial (Night) |
| 3003 | 206 | 18 | ISDN Indial (Night) |
| 3003 | 207 | 18 | ISDN Indial (Night) |
| 3003 | 208 | 18 | ISDN Indial (Night) |
| 3003 | 209 | 18 | ISDN Indial (Night) |
| 3003 | 210 | 18 | ISDN Indial (Night) |

| | | | |
|------|-----|-----|-----------------------------------|
| 3003 | 211 | 18 | ISDN Indial (Night) |
| 3003 | 212 | 18 | ISDN Indial (Night) |
| 3003 | 213 | 18 | ISDN Indial (Night) |
| 3003 | 214 | 18 | ISDN Indial (Night) |
| 3003 | 215 | 31 | Signalling Channel |
| 3003 | 216 | 18 | ISDN Indial (Night) |
| 3003 | 217 | 18 | ISDN Indial (Night) |
| 3003 | 218 | 18 | ISDN Indial (Night) |
| 3003 | 219 | 18 | ISDN Indial (Night) |
| 3003 | 220 | 18 | ISDN Indial (Night) |
| 3003 | 221 | 18 | ISDN Indial (Night) |
| 3003 | 222 | 18 | ISDN Indial (Night) |
| 3003 | 223 | 18 | ISDN Indial (Night) |
| 3003 | 224 | 18 | ISDN Indial (Night) |
| 3003 | 225 | 18 | ISDN Indial (Night) |
| 3003 | 226 | 18 | ISDN Indial (Night) |
| 3003 | 227 | 18 | ISDN Indial (Night) |
| 3003 | 228 | 18 | ISDN Indial (Night) |
| 3003 | 229 | 18 | ISDN Indial (Night) |
| 3003 | 230 | 18 | ISDN Indial (Night) |
| 3007 | 200 | 000 | Assignment of CIC Numbers for PRI |
| 3007 | 201 | 001 | Assignment of CIC Numbers for PRI |
| 3007 | 202 | 002 | Assignment of CIC Numbers for PRI |
| 3007 | 203 | 003 | Assignment of CIC Numbers for PRI |
| 3007 | 204 | 004 | Assignment of CIC Numbers for PRI |
| 3007 | 205 | 005 | Assignment of CIC Numbers for PRI |
| 3007 | 206 | 006 | Assignment of CIC Numbers for PRI |
| 3007 | 207 | 007 | Assignment of CIC Numbers for PRI |
| 3007 | 208 | 008 | Assignment of CIC Numbers for PRI |
| 3007 | 209 | 009 | Assignment of CIC Numbers for PRI |
| 3007 | 210 | 010 | Assignment of CIC Numbers for PRI |
| 3007 | 211 | 011 | Assignment of CIC Numbers for PRI |
| 3007 | 212 | 012 | Assignment of CIC Numbers for PRI |
| 3007 | 213 | 013 | Assignment of CIC Numbers for PRI |
| 3007 | 214 | 014 | Assignment of CIC Numbers for PRI |
| 3007 | 216 | 015 | Assignment of CIC Numbers for PRI |
| 3007 | 217 | 016 | Assignment of CIC Numbers for PRI |
| 3007 | 218 | 017 | Assignment of CIC Numbers for PRI |
| 3007 | 219 | 018 | Assignment of CIC Numbers for PRI |
| 3007 | 220 | 019 | Assignment of CIC Numbers for PRI |

| CMD | 1 st Data | 2 nd Data | Description |
|------|----------------------|----------------------|-----------------------------------|
| 3007 | 221 | 020 | Assignment of CIC Numbers for PRI |
| 3007 | 222 | 021 | Assignment of CIC Numbers for PRI |
| 3007 | 223 | 022 | Assignment of CIC Numbers for PRI |
| 3007 | 224 | 023 | Assignment of CIC Numbers for PRI |
| 3007 | 225 | 024 | Assignment of CIC Numbers for PRI |
| 3007 | 226 | 025 | Assignment of CIC Numbers for PRI |
| 3007 | 227 | 026 | Assignment of CIC Numbers for PRI |
| 3007 | 228 | 027 | Assignment of CIC Numbers for PRI |
| 3007 | 229 | 028 | Assignment of CIC Numbers for PRI |
| 3007 | 230 | 029 | Assignment of CIC Numbers for PRI |

| | | | |
|------|-----|------|------------------------------|
| 3034 | 200 | 00 | Assign Local Office Code No. |
| 3034 | 201 | 00 | Assign Local Office Code No. |
| 3034 | 202 | 00 | Assign Local Office Code No. |
| 3034 | 203 | 00 | Assign Local Office Code No. |
| 3034 | 204 | 00 | Assign Local Office Code No. |
| 3034 | 205 | 00 | Assign Local Office Code No. |
| 3034 | 206 | 00 | Assign Local Office Code No. |
| 3034 | 207 | 00 | Assign Local Office Code No. |
| 3034 | 208 | 00 | Assign Local Office Code No. |
| 3034 | 209 | 00 | Assign Local Office Code No. |
| 3034 | 210 | 00 | Assign Local Office Code No. |
| 3034 | 211 | 00 | Assign Local Office Code No. |
| 3034 | 212 | 00 | Assign Local Office Code No. |
| 3034 | 213 | 00 | Assign Local Office Code No. |
| 3034 | 214 | 00 | Assign Local Office Code No. |
| 3034 | 215 | 00 | Assign Local Office Code No. |
| 3034 | 216 | 00 | Assign Local Office Code No. |
| 3034 | 217 | 00 | Assign Local Office Code No. |
| 3034 | 218 | 00 | Assign Local Office Code No. |
| 3034 | 219 | 00 | Assign Local Office Code No. |
| 3034 | 220 | 00 | Assign Local Office Code No. |
| 3034 | 221 | 00 | Assign Local Office Code No. |
| 3034 | 222 | 00 | Assign Local Office Code No. |
| 3034 | 223 | 00 | Assign Local Office Code No. |
| 3034 | 224 | 00 | Assign Local Office Code No. |
| 3034 | 225 | 00 | Assign Local Office Code No. |
| 3034 | 226 | 00 | Assign Local Office Code No. |
| 3034 | 227 | 00 | Assign Local Office Code No. |
| 3034 | 228 | 00 | Assign Local Office Code No. |
| 3034 | 229 | 00 | Assign Local Office Code No. |
| 3034 | 230 | 00 | Assign Local Office Code No. |
| 3501 | 10 | 4 | Dialling Signal Type DTMF |
| 3501 | 24 | 4 | Dialling Signal Type DTMF |
| 3502 | 10 | 3 | Bothway Trunk |
| 3502 | 24 | 3 | Bothway Trunk |
| 3503 | 10 | 10 | Use Trunk Name |
| 773 | 10 | ISDN | Trunk Name |
| 3504 | 10 | 2 | Answer Signal Arrives |
| 3504 | 24 | 2 | Answer Signal Arrives |
| 3505 | 10 | 1 | Release Signal Arrives |
| 3505 | 24 | 1 | Release Signal Arrives |

| CMD | 1 st Data | 2 nd Data | Description |
|------|----------------------|----------------------|---|
| 3509 | 10 | 08 | I/C Connection Signalling ISDN/Q931 |
| 3509 | 24 | 08 | I/C Connection Signalling ISDN/Q931 |
| 3512 | 10 | 2 | No. of DID Digits to be analysed (3) |
| 3518 | 10 | 1 | Digit Conversion not to be provided |
| 3589 | 10 | 0 | CRC error check |
| 3590 | 10 | 3 | DTI Route for Primary Rate Access |
| 3590 | 24 | 3 | DTI Route for Primary Rate Access |
| 3500 | 10 | 00 | ISDN Trunk Route |
| AA06 | 10 | 22 | Protocol (TPH=17, ETSI=22{Telstra}, ETSI=29{Optus}) |

| | | | |
|------|----|-----|--|
| 3593 | 10 | 00 | Assign D channel handler to route |
| 3593 | 24 | 00 | Assign D channel handler to route |
| A900 | 0 | 215 | Assign D channel handler to signalling trunk |
| 0608 | 0 | 10 | D channel |