



**OPERATION MANUAL
FOR
PICO-BTS
IN 800MHZ BAND**

Version 1.0

December, 1999



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Glossary

| | |
|-------|---|
| AC | Alternate Current |
| ACC | Analog Common Circuit, replaced by BAC |
| ACCA | Analog Common Card Assembly |
| ACE | Access Channel Element |
| ACRP | Adjacent Channel Power Rejection |
| ADC | Analog To Digital |
| AGC | Automatic Gain Controller |
| ANT | Antenna |
| BAC | Baseband Analog Circuit, replacing ACC |
| BBU | Base Band Unit |
| BCP | BTS Control Processor |
| BCM | BTS Configuration Management |
| BCOX | BTS Call Control Execution |
| BDAX | BCP Data Access Execution |
| BDC | Baseband Digital Card |
| BDIAX | BTS Diagnostic Execution |
| BDTU | BTS Diagnostic & Test Unit |
| BFMX | BTS Fault Management Execution |
| BIH | Backhaul Interface Handler - Software |
| BIU | Backhaul Interface Unit |
| BMEA | BCP Measurement |
| BLINK | BTS Link |
| BPF | Band Pass Filter |
| BPLX | BCP Processor Loader Execution |
| BRAX | BTS Resource Allocation Execution |
| BRMX | BTS Resource Management Execution |
| BS | Base Station |
| BSC | Base Station Controller |
| BSHX | BTS Status Handler Execution |
| BSM | Base Station Manager |
| BTS | Base Transceiver System |
| BW | Band Width |
| CAI | Common Air Interface |
| CCC | Channel Card Common, replaced by CEC |
| CCP | Call Control Processor |
| CDIAX | CCP Diagnostic Execution |
| CDMA | Code Division Multiple Access |
| CDMX | Configuration Data Management Execution |
| CE | Channel Element |
| CEC | Channel Element Controller, replacing CCC |
| CFMX | CCP Fault Management Execution |
| CMEA | CCP Measurement |
| CPLX | CCP Processor Loader Execution |
| CRAX | CCP Resource Allocation Execution |
| CSHX | CCP Status Handler Execution |
| CSM | Cell Site Modem |
| DAC | Digital to Analog Converter |
| DC | Direct Current |
| DCS | Digital Cellular System |
| DD | Detailed Design |
| DDS | Direct Digital Synthesis |
| DM | Diagnostic Monitor |
| DU | Digital Unit |

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| | |
|-------|-------------------------------------|
| EMI | Electrical Magnetic Interference |
| FA | Frequency Allocation |
| FIFO | First-In-First-Out |
| FPGA | Field Programmable GateArray |
| GPIO | General Purpose Input / Output |
| GPS | Global Positioning System |
| HDLC | High Level Data Link Control |
| HLD | High Level Design |
| I | In-Phase |
| IF | Intermediate Frequency |
| IMC | Inter Module Communication |
| IMCB | Inter Module Communication Bus |
| IMCH | Inter Module Communication Handler |
| IPC | Inter Processor Communication |
| LCIN | Local CCP Interconnection Network |
| LED | Light Emitting Diode |
| LNA | Low Noise Amplifier |
| LO1 | Local Oscillator 1 |
| LO2 | Local Oscillator 2 |
| LPA | Linear Power Amplifier |
| LPF | Low Pass Filter |
| MFP | Multi-Function Peripheral |
| MLNK | MSC Link |
| MMI | Man Machine Interface |
| MRB | Monitor/Report Block |
| MS | Mobile Station |
| MSC | Mobile Switching Center |
| MSPS | Mega Sample Per Second |
| MTBF | Mean Time Between Failures |
| MUX | Multiplexer |
| MVIP | Multiple Vendor Integrated Protocol |
| OC | Overload Controller |
| OPAID | Operation AID |
| PA | Power Amplifier |
| PCI | Peripheral Communication Interface |
| PCE | Paging Channel Element |
| PCS | Personal Communication System |
| PN | Pseudo-Noise Sequence |
| PLD | Program Load Data |
| PLL | Phase Lock Loop |
| PLX | Process Loading Execution |
| PP2S/ | Pulse Per Two Second |
| PSCE | Pilot_Sync Channel Element |
| PSU | Power Subsystem Unit |
| PSU | Power Subsystem Unit |
| Q | Quadrature-Phase |
| RF | Radio Frequency |
| RFC | Radio Frequency Controller |
| RFFE | RF Front End |
| RFU | Radio Frequency Unit |
| ROM | Read Only Memory |
| RxFE | Receiver Front End |
| RxIF | Receiver IF |
| SCC | Serial Communication Controller |
| SIP | Selector Interface Processor |



| | | | |
|-------|---|-----------|-------------|
| SNR | Signal To Noise Ratio | | |
| SRAM | Static Read Only Memory | | |
| SVE | Selector Vocoder Element | | |
| SVP | Selector Vocoder Processor | | |
| TBD | To Be Determined | | |
| T_BLK | Test Block | | |
| TCE | Traffic Channel Element | | |
| TDM | Time Division Multiplexing | | |
| TFC | Time & Frequency Controller | | |
| TxIF | Transmitter IF | | |
| TxFE | Transmitter Front End | | |
| TFU | Time and Frequency Unit | | |
| TSB | Transcoder Selector Bank | | |
| UART | Universal Asynchronous Receiver Transmitter | | |
| XCVC | Radio | Frequency | Transceiver |



1. Preface

This is the operating manual for Pico Base Transceiver Station (HD-PIC800) for CDMA Digital Cellular System (DCS).

Getting started covers the outside and inside views and functional description. In particular, Inside view shows the location of the each board.

Specifications describes all functional, performance, electrical, physical, environmental and reliability specification of the PICO-BTS.

Start Up and *Basic Operation* section explains from installation to aging process, which is needed for basic operation before BMENU.

BMENU section is for advanced use to manage Call Processing and Call Resource Management in Hyundai BTS.

Maintenance section describes some advice for managing PICO-BTS.

2. Safety

2.1 General Safety Summary

Carefully review following safety precautions when operate PICO-BTS to prevent injury and damage to PICO-BTS and the equipment, which are connected to PICO-BTS.

- Proper Power Source
Strictly, follow the power requirements in this manual.
- Temperature:
Do not expose to extremely hot or cold environment.
PICO BTS should be operated between -30°C and +50°C
- Explosive Atmosphere
Keep PICO-BTS away from explosive material
- Safe Install
Only qualified person has to install PICO-BTS to prevent fall off, injury, damage or possible disaster.
- Suspected Failures
If you are suspicious of any mal function stop operating PICO-BTS and contact customer service.
- Modification
Do not modify any component of PICO-BTS
- Electric Shock
Be careful to touch PICO-BTS to avoid electric shock

2.2 Certification and Compliance

1. IS-95A, Mobile Station - Base Station Compatibility Requirements for 800MHz Code Division Multiple Access (CDMA) Digital Cellular System (DCS).
2. The specifications of PICO BTS equipment shall comply with IS-95A and IS-97.
3. EIA/TIA IS-634, MSC-BS Interface for Public Wireless Communications Systems.
4. PN-3539 to be published as IS-634 revision A, Ballot Version. April 20, 1997.
5. NEMA 4X
6. ANSI 6241 Class B
7. FCC part 2 for USA
8. FCC part 15 for USA
9. FCC part 68 for USA
10. FCC ICES-003 for Canada
11. FCC part 22 in DCS band
12. TA-NWT-000487 R-127
13. TA-NWT-000063 R98
14. EIA/TIA IS-125, Recommended Minimum Performance Standard for Digital Cellular Wideband Spread

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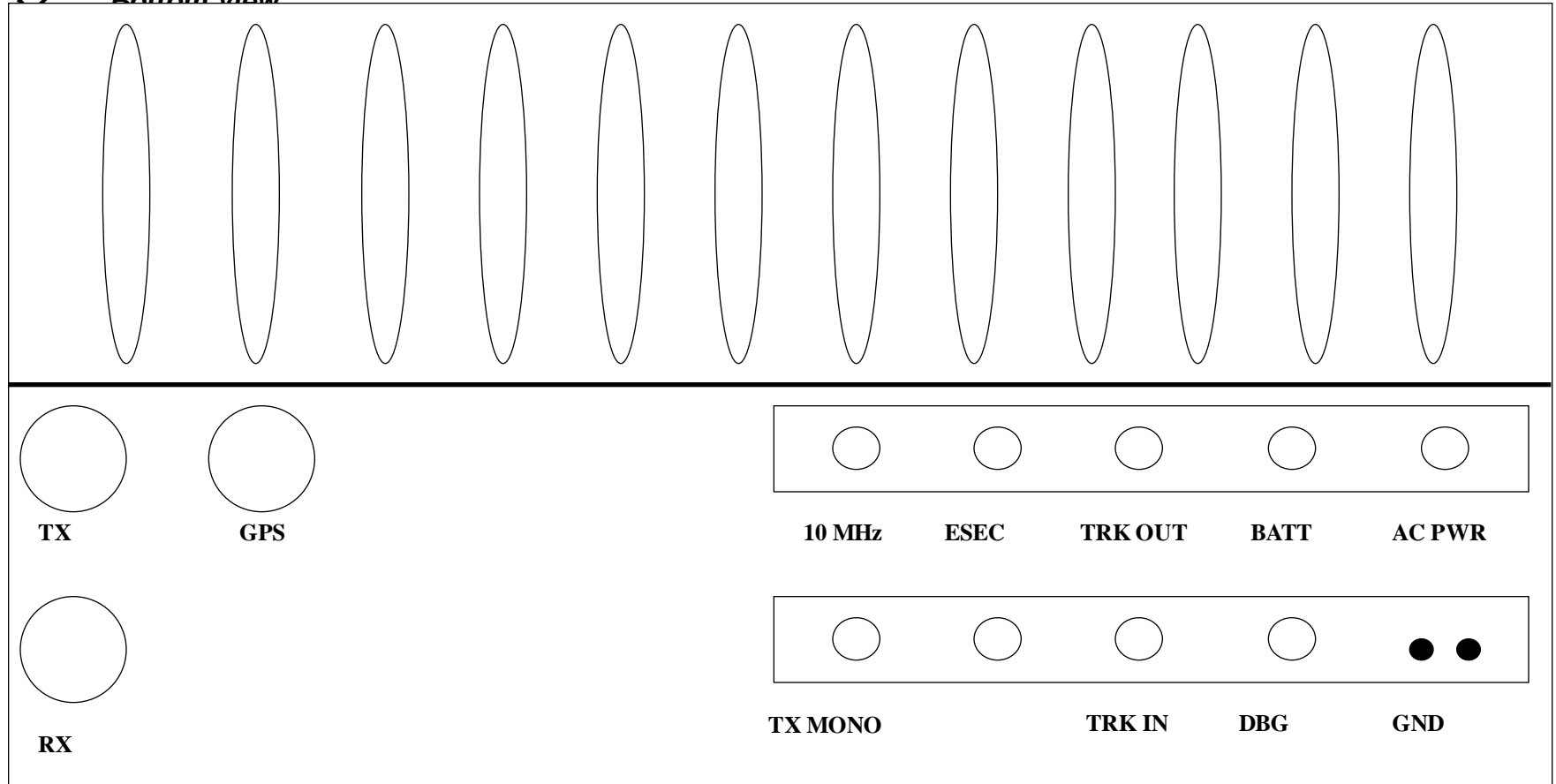
- Spectrum Speech Service Option 1.
- 15. EIA/TIA IS-126A, Mobile Station Loopback Service Option Standard

3. Getting Started

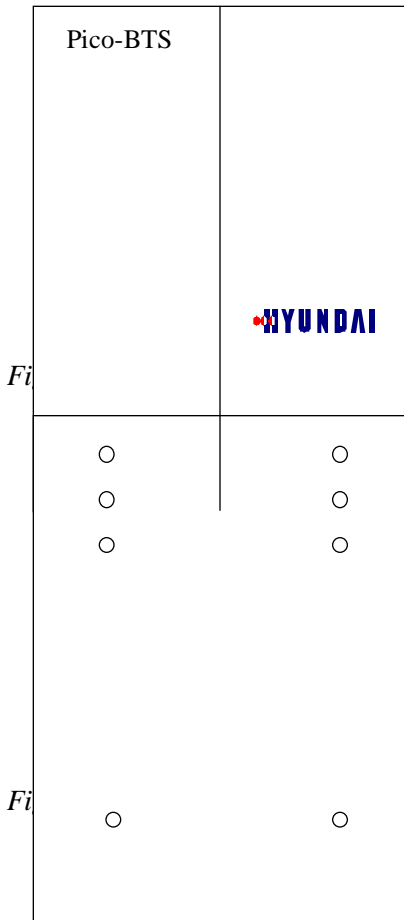
3.1 *Product description*

The Pico BTS provides the interface between the CDMA DCS mobile stations and the Base Station Controller (BSC) to form a Picocell. Picocells are used to enhance the coverage by covering the “dead spot” caused by shadowing in traditional “macrocell” based cellular networks. Also Picocells can be used to increase the capacity of the network as small underlay cells, providing more channels for traffic in dense urban areas with high volume of low speed traffic, such as malls, airports, train and subway stations, hotels, and office building areas.

2.2 Bottom View

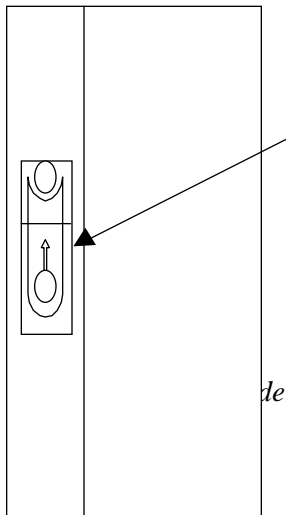


3.3 Front and Rear Views

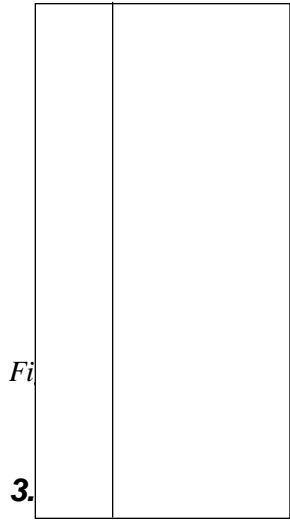


Back side has 8 installation holes

3.4 Side Views

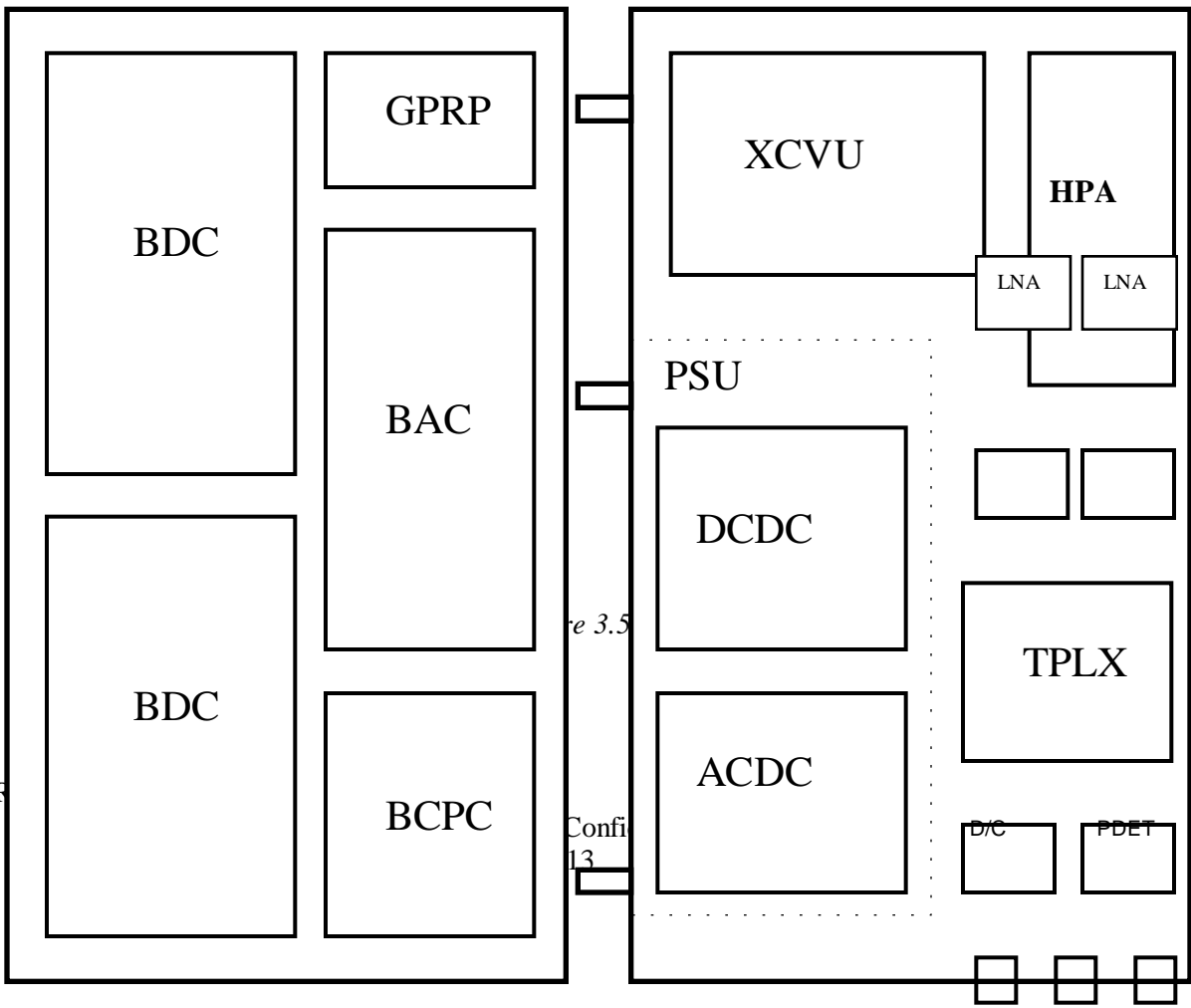


To open the equipment lift up the cover and you will find a key hole.



BBU

RFU



4. SPECIFICATIONS

The system requirements for the Pico BTS are described in this chapter.

4.1 Functional Specifications

4.1.1 Οπερατινγ Φρεθυενγψ

The Pico BTS operates at frequencies specified in the following table.

Table 4.1.1-1 DCS Operating Frequency

| Items | | Specifications | Comments |
|---|---------|----------------|--|
| Frequency * | B-Block | Transmit | 880 - 890 MHz |
| | | Receive | 835 - 845 MHz |
| Frequency Assignment (FA) | | 1 | Maximum 1FA/Omni |
| Sector | | 1 | Maximum 1FA/1Sector(Omni) |
| Channel Elements | | 32 | 2 Channel cards |
| Number of Channel Elements/Card | | 16 | CSM |
| Number of Trunks for BSC | | 1 T1 (or 1 E1) | The other 1 T1 (or 1 E1) is used for daisy-chain of Pico-BTSS. |
| RF Output (at room temperature) | | 8 Watts | Maximum at the antenna port |
| RF Output (over all temperature range) ** | | 10 Watts | Maximum at the antenna port |

* For the other frequency blocks in 800MHz cellular band, it needs to replace only the duplexer/receive filter (triplexer) with another triplexer for those blocks.

** In higher or lower temperature than room temperature, the transmit RF power may be greater than 8 Watts. So maximum power at the antenna port should be defined as **10 Watts**.

4.1.2 Ιντερφάχε Σπεχιφιχάτιον

4.1.2.1 Air Interface

The Pico BTS air interface shall comply with IS-95A.

4.1.2.2 Equipment Specification

The PICO BTS equipment itself shall comply with IS-97.

4.1.2.3 Backhaul (A-bis) Interface

The interface between the Pico BTS and the BSC, i.e., A-bis interface, shall comply with Hyundai's CDMA DCS BSC-BTS interface.

4.2 Performance Specification

4.2.1 Συστημ Δελαψ

The total round-trip delay for the voice path, including the delay in the BSC, is less than 220 ms. A suggested delay budget for the reverse link path and the forward link path is as follows:

Table 4.2.1-1 Base Station Delay Budget

| Reverse Link | Delay (ms) | Forward Link | Delay (ms) |
|--------------------|------------|----------------|------------|
| Mobile Station | 51 | Mobile Station | 18 |
| Air Link | 20 | Air Link | 20 |
| Digital Unit | 18 | Digital Unit | 2 |
| Backhaul/Switching | 6 | CIN | 8 |
| TSB | 1 | TSB | 1 |
| Vocoder | 3 | Vocoder | 49 |
| Total | 99 | Total | 98 |

4.2.2 Χαπαχιτυ

The Pico BTS is capable of physically supporting up to 32 channel elements, including all of the overhead channels.

4.3 Electrical Performance

4.3.1 Τρανσμιτερ ΡΦ Πωερ

The Pico BTS shall have much less RF output power than the BTS for macro-cell. The maximum CDMA power does not exceed **10 watts** at the antenna port on the enclosure over all temperature range.

4.3.2 Ελεχτριχ Πωερ

4.3.2.1 Primary Power

The primary power source (or mains) for the Pico BTS is the commercial power which can be acquired very easily. The nominal voltage may be 120VAC, 60Hz, single phase. The power subsystem in the Pico BTS is capable of converting this commercial AC power into DC power with nominal voltage of +48V. The +48 DC is then converted into lower voltages such as +5V, +12V, -12V, +3.3V and +7.5V to be used in each subsystem.

The AC input ranges and the maximum power source requirement are as follows:

Table 4.3.2-1 Primary Power AC Input Voltage Range Requirement

| Nominal Voltage | Voltage Range | Frequency Range | Phases |
|-----------------|----------------|-----------------|--------|
| 120VAC | 108 to 132 VAC | 54 to 66 Hz | single |
| 220VAC | 198 to 242 VAC | 54 to 66Hz | single |

Table 4.3.2-2 Maximum Primary Power Output Requirement

| Voltage | Current | Comments |
|----------|----------|----------------------|
| DC +48 V | Max 10 A | For RF power 8 watts |

4.3.2.2 Battery Backup Power (Optional)

The Pico BTS shall have battery backup to cope with AC power failure. The battery shall be monitored during normal operation, and charged if necessary. The Optional backup battery is provided with an external compartment.

Table 4.3.2-3 Battery Power Requirement

| Configuration | DC Current/Power | Comments |
|-------------------------|------------------|----------------------|
| Nominal RF Power 5 watt | 5 Amps/240 VA | up to 4 Hours backup |

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| | | |
|-------------------|----------------|----------------------|
| Optional RF Power | 10 Amps/480 VA | up to 4 Hours backup |
|-------------------|----------------|----------------------|

4.4 Physical Specifications

Table 4.4-1 Physical Specifications

| Configuration | Specifications |
|-------------------|---|
| Size (Maximum) | depth: 12 inches height: 32 inches width: 22 inches |
| Weight (Maximum) | 120 pounds |
| Mounting Location | pad, pole, wall, or vault |

4.5 Environmental Specifications

The Pico BTS will meet the extended environmental specifications in rugged outdoor conditions. The following table summarizes the environmental specifications:

Table 4.5-1 Environmental Specifications

| Configuration | Specifications | Comments |
|---|--|---|
| Environmental Sealing | NEMA 4X | |
| Lightning Protection | ANSI 6241 Class B | |
| Acoustic Performance | BELLCORE GR-487 | 60 dBA @ 5 feet |
| Seismic Performance | BELLCORE GR-63 | |
| Random Vibration | BELLCORE GR-63 | |
| Sinusoidal Vibration | BELLCORE GR-63 | |
| Shock | BELLCORE GR-63 | |
| EMI | FCC 15.J. -6dB BELLCORE TR-NWT-1089 | FCC part 15 for USA FCC ICES-003 for Canada FCC part 22 in DCS band |
| Intrusion Resistance | BELLCORE GR-487 | |
| Shotgun Resistance | BELLCORE GR-487 | |
| Climatic Environment | | |
| Internal Heat Load | 300 watts max. | |
| Ambient Air Temp (outdoor) | +50 ⁰ C max. -30 ⁰ C min. | |
| Solar Load | 70W/sq. ft | |
| Ambient Humidity Continuous Operation: | BELLCORE TA-NWT-000487 R-127 BELLCORE TA-NWT-000063 R98 | 5% - 95 % (Bellcore) Coating 10% ~ 95% |
| Shipping and Storage: | | |
| Altitude and Rest | BELLCORE GR-487 | Meters max. |

4.6 Reliability Specifications

4.6.1 MTBΦ

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System down-time shall be no more than 10 minutes per year on the average, assuming a 2hour repair (replacing) time for any failure.

4.6.2 Βαττερψ Βαχκυπ τιμε

The battery shall provide DC power until the cause of AC power is cleared. The nominal value of this time period for backup battery operation shall be no greater than 4 hours.

4.6.3 Θυαλιτυψ Ματεριαλσ

The aluminum used for the Pico BTS enclosure may be machined from aluminum 6082 in accordance with standard QQ-A-2501/II TEMP T6.

4.6.4 Γρουνδινγ Ρεθυιρεμεντσ

The specification for grounding and electric safety shall comply with the requirement described in TR-NWT-001089.

4.6.5 Αλαρμ Ρεθυιρεμεντσ

The Pico BTS shall require alarms for the new hardware equipment, status display information, and control capability to monitor the system performance as follows:

- AC power failure
- DC power failure
- Malfunction of major control processors
- High internal temperature
- Low internal temperature
- Battery failure

5. Start Up

5.1 Installation

- Due to the property of the micro cell serving in a small area of dense population, the system can be installed virtually anywhere as needed.
- System can be mounted on the PICO-BTS STAND or sturdy object such as outside wall, rooftop, pole or inside the building using rear side hole.

Warning: PICO-BTS has to be installed by qualified personnel.

Manufacturer does not responsible for any injury or damage, which is caused by inappropriate installation.

- The BTS shall be able to endure a wide range of environmental conditions such as high temperature, high humidity, strong sunlight, heavy rain, and severe cold weather conditions.

6. Basic Operation

Before you running the system GPS signal has to be locked and aging process has to be done.

6.1 Power On

- Plug in to power supply, which is conforms to section 4.3.2.
- LED will show power is on

Table 6.1-1 LED on GPRP Board when power on

| | Green | Yellow 1 | Yellow 2 | Green | Red |
|---------------|--------------|-----------------|-----------------|--------------|------------|
| Status | On | On | Blinking | Blinking | Off |

6.2 GPS Locking

- Connect GPS antenna to GPS port on bottom of the machine.
- Install GPS antenna where GPS signal can reach from satellite.

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- If GPS Antenna is properly connected you will see the following signal from LED.

Table 6.2-1 LED on GPRP Board before GPS locking

| | Green | Yellow 1 | Yellow 2 | Green | Red |
|---------------|--------------|-----------------|-----------------|--------------|------------|
| Status | On | On | Off | Off | Off |

- When sufficient satellite signal is received by GPS Antenna will lock.
- It takes about 15minutes. This time varies depend on the location of the GPS Antenna and satellite.
- When GPS locked you will see the following LED on the GPRP Board

Table 6.2-2 LED on GPRP Board after GPS locking

| | Green | Yellow 1 | Yellow 2 | Green | Red |
|---------------|--------------|-----------------|-----------------|--------------|------------|
| Status | On | On | Off | On | Off |

6.3 Aging

- Aging takes about 1 hour after GPS locking.
- When Aging is finished you will see the following LED.

Table 6.3-1 LED on GPRP Board

| | Green | Yellow 1 | Yellow 2 | Green | Red |
|---------------|--------------|-----------------|-----------------|--------------|------------|
| Status | On | Off | Off | On | Off |

If the Red LED is turn on during the operation there is possible timing problem.

When you have problem with timing you have to go over the GPS Locking and Aging procedures. Once Aging is finished PICO-BTS is managed by BMENU, which is explained following section.

6.4 Downloading

Operator can download the data using BSAM or BSM.
BSAM method

7. BMENU

BMENU is an integrated menu of commands related to Call Processing and Call Resource Management in Hyundai BTS. BMENU is used by manufacturing personnel to test hardware and performance. Also BMENU is used by software personnel to test software. Service providers may initially use BMENU for performance testing. This following section describes how to use the BMENU for Hyundai Pico BTS.

7.1 BMENU Setup

BMENU is accessed through a terminal attached to the RS232 port of BCP card in BTS (Hyundai Pico BTS will be referred as BTS henceforth in this document). The RS232 port of BCP is connected to the Debug Port outside BTS. Hence a terminal can be attached to the Debug Port of BTS.

The following are two ways to attach a terminal.

- Connect the Debug Port of BTS to a serial port of IBM PC compatible via RS232 cable. Use applications like HyperTerminal for the terminal.

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- Connect the Debug Port of BTS to a dump terminal via RS232 cable.

7.1.1 Τερμινάλ Χονφίγυρατιον

If HyperTerminal is used as the terminal of BCP, it needs to use the configuration shown in Table 7.1.1-1 in addition to any other configuration required.

Table 7.1.1-1 HyperTerminal Configuration for BCP Terminal

| PARAMETER | VALUE |
|--------------------|--------------------------------|
| Bits per second | 9600 |
| Data bits | 8 |
| Stop bits | 1 |
| Parity | None |
| Flow control | None |
| Terminal emulation | VT100 |
| Character set | ASCII |
| ASCII sending | Send line ends with line feeds |

Ταβλε 7.1.1-1

The RS232 cable used must be either crossed cable or NULL modem needs to be inserted.

7.1.2 Νοτατιοναλ Χονπεντιονσ

This manual uses the notational conventions shown in Table 7.1.2-1 Notational Conventions (unless otherwise noted).

| NAME | USAGE |
|---|---|
| Courier New Font | Represents the messages displayed by BMENU or other software on the terminal. |
| Courier New Font Bold | Represents the user input that should be entered exactly as shown. |
| <i>Courier New Font Bold and Italic</i> | Represents the user input that may be replaced by another valid value. |

Ταβλε 7.1.2-1 Νοτατιοναλ Χονπεντιονσ

7.2 **BMENU Invocation**

BMENU is invoked by inputting the command “bmenu” in BCP console prompt on the terminal. BMENU will display the following main menu upon invocation.

```

NewBCP >bmenu

##### BMENU #####
0.Quit(BMENU exit)
1.Test Call
2.Display Message
3.Call State Flow
4.RF Characteristic Test
5.Change Local Parameters
6.Resource Status
7.Utility For CDMA System

Select MENU No ---->

```

The remaining sections of this manual describe usage of the menu items shown above.

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The following are some general tips on using BMENU.

The user selects an item in a menu by inputting the number preceding the item.

All menus provide an item with number “0” for navigating to the next higher level menu.

The item “0” in the main menu is used to exit BMENU.

Many menus provide a special item with letter “T” for navigating to the main menu of BMENU. This item can be selected by inputting letter “T”

Other BCP console commands can not be executed while within BMENU.

7.3 TEST CALL

TEST CALL menu is invoked by selecting option “1.Test Call” in the main menu. It is shown below.

```
Select MENU No ---->
1
===== TEST CALL =====
0.Goto TOP MENU
1.Configuration
2.Triggering (Start/Stop)
3.Result Report (Completed & Processing)
4.MARKOV([MS]->BTS->BSC) Mode(default-OFF) : ON

Select MENU No ---->
```

TEST CALL menu is used to trigger Test Call from the terminal. The varieties of Test Call are Markov Call, Loop Back Call and Auto Markov Call. Test Call is used to check the path between BTS and the personal station without the involvement of higher level entities like BSC, MSC, and BSM. Test Call is also used to measure FER.

7.3.1 TEST ΧΑΛΛ ΧΟΝΦΙΓΥΡΑΤΙΟΝ μενυ

TEST CALL CONFIGURATION menu is invoked by selecting option “1.Configuration” in TEST CALL menu. It is shown below.

```
Select MENU No ---->
1
===== TEST CALL CONFIGURATION =====
T.Goto TOP MENU
0.Goto TEST CALL MENU
1.Input IMSI
2.Input Slot Mode
3.Input Slot Cycle Index
4.Input SERVICE OPTION
5.Display CONFIGURATION

Select MENU No ---->
```

TEST CALL CONFIGURATION menu is used to configure Test Call.

7.3.1.1 Menu Item: Input IMSI

Menu item “1.Input IMSI” of TEST CALL CONFIGURATION menu is used to input the IMSI_S of the personal station in decimal. The length of IMSI_S is ten digits. The following example illustrates the usage of this menu item.

```
Select MENU No ---->
1
IMSI_S (e.g. enter 2095473005 for 209-547-3005)>
2095473005
```

7.3.1.2 Menu Item: Input Slot Mode

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Menu item “2.Input Slot Mode” of TEST CALL CONFIGURATION menu is used to input the Slot Mode. Valid values of Slot Mode are 0 and 1. If incorrect value is inputted for Slot Mode, the default value of 1 will be used for Slot Mode. The following example illustrates the usage of this menu item.

```
Select MENU No ---->
2
Slot Mode (0 or 1 (Default value is 1)) >
1
```

7.3.1.3 Menu Item: Input Slot Cycle Index

Menu item “3.Input Slot Cycle Index” of TEST CALL CONFIGURATION menu is used to input the Slot Cycle Index in hexadecimal. Valid values of Slot Cycle Index are in the range 0 to FF. If incorrect value is inputted for Slot Cycle Index, the default value of 0 will be used for Slot Cycle Index. The following example illustrates the usage of this menu item.

```
Select MENU No ---->
3
SLOT CYCLE INDEX in Hex(Default Value is 0) >
0
```

7.3.1.4 Menu Item: Input SERVICE OPTION

Menu item “4.Input SERVICE OPTION” of TEST CALL CONFIGURATION menu is used to input the Service Option. The following examples illustrate the usage of this menu item.

Example 1: This example illustrates the selection of Service Option for a Markov Call. First the type of Test Call is selected as Markov. Then Rate Set (8K or 13K) is selected. Finally Data Rate (1/8 or 1/4 or 1/2 or Full or Variable) is selected.

```
Select MENU No ---->
4
<<< SERVICE OPTION >>>
1 : MARKOV
2 : LOOP BACK
3 : AUTO MARKOV CALL

Select SERVICE OPTION No ---->
1
Service Option 8K(0) 13K(1) >
0
<<< Rate of MARKOV >>>
1 : 1/8      RATE
2 : 1/4      RATE
3 : 1/2      RATE
4 : FULL     RATE
5 : Variable RATE

Select RATE No ----> 1
```

Example 2: This example illustrates the selection of Service Option for a Loop Back Call. First the type of Test Call is selected as Loop Back. Then Rate Set (8K or 13K) is selected.

```
Select MENU No ---->
4
<<< SERVICE OPTION >>>
1 : MARKOV
2 : LOOP BACK
3 : AUTO MARKOV CALL
```

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```
Select SERVICE OPTION No ---->
2
Service Option 8K(0) 13K(1) >
0
```

Example 3: This example illustrates the selection of Service Option for an Auto Markov Call. First the type of Test Call is selected as Auto Markov. Then Rate Set (8K or 13K) is selected. Then Data Rate (1/8 or 1/4 or 1/2 or Full or Variable) is selected. Finally the number of calls to be made and duration between calls are inputted

```
Select MENU No ---->
4
<<< SERVICE OPTION >>>
1 : MARKOV
2 : LOOP BACK
3 : AUTO MARKOV CALL

Select SERVICE OPTION No ---->
3

Service Option 8K(0) 13K(1) >
0
<<< Rate of MARKOV >>>
1 : 1/8      RATE
2 : 1/4      RATE
3 : 1/2      RATE
4 : FULL     RATE
5 : Variable RATE

Select RATE No ---->
2
<<< Input Call count & Wait time >>>
EQUIP & NORMAL TCE Number (14)
Input Call count (0 ... 14) >>
10
Input Wait time in sec (Minimum 5sec) (5 ... 65535) >>
5
```

7.3.1.5 Menu Item: Display CONFIGURATION

Menu item "5.Display CONFIGURATION" of TEST CALL CONFIGURATION menu is used to view the current configuration of Test Call. The following examples illustrate the usage of this menu item.

Example 1: In this example, the configuration of a Markov Call is displayed.

```
Select MENU No ---->
5
<<< DISPLAY TEST CONFIGURATION >>>
MIN           : 209-547-3005
SCM           : 6a
Slot Cycle Index : 0
service_option : MARKOV (0x8002)
MARKOV RATE    : 1/8 RATE
AUTO CALL FLAG OFF
```

Example 2: In this example, the configuration of a Loop Back Call is displayed.

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```

Select MENU No ---->
5
<<< DISPLAY TEST CONFIGURATION >>>
MIN           : 209-547-3005
SCM           : 6a
Slot Cycle Index : 0
service_option : LOOP BACK(0x2)

```

Example 3: In this example, the configuration of an Auto Markov Call is displayed.

```

Select MENU No ---->
5
<<< DISPLAY TEST CONFIGURATION >>>
MIN           : 209-547-3005
SCM           : 6a
Slot Cycle Index : 0
service_option : AUTO MARKOV CALL (0x8002)
MARKOV RATE   : 1/4 RATE
AUTO CALL FLAG ON & Selected Data Review
-----
CDMA_IDX      : 0
CALL COUNT    : 10
WAIT TIME     : 5 SEC

```

7.3.2 Μενυ Ιτεμ: Τριγγωρινω (Σταρτ/Στοπ)

Menu item “2.Triggering (Start/Stop)” of TEST CALL menu is used to start or stop Test Call from the terminal. The current configuration of Test Call is used for triggering Test Call. The following examples illustrate the usage of this menu item.

Example 1: In this example, Markov Call or Loop Back Call is started. The option Start (value 1) is selected.

```

Select MENU No ---->
2
<<< Triggering (Start(1) / Stop(0)) >>>
1
[BCOX BMENU] TEST CALL Started !

```

Example 2: In this example, an Auto Markov Call is started. By selecting FREE option for TCE, the selection of TCE for each call is left to the BTS.

```

Select MENU No ---->
2
<<< Triggering (Start(1) / Stop(0)) >>>
1
You can fix a TCE : (FIX(1) / FREE(any key)) >>

[BCOX BMENU] AUTO CALL Started : 10 Call(s) !

```

Example 3: In this example, an Auto Markov Call is started. The TCE used is determined by the user by choosing FIX option for TCE. TCE is identified by inputting values of shelf, slot of BDC, and subnode of TCE in BDC.

```

Select MENU No ---->
2
<<< Triggering (Start(1) / Stop(0)) >>>
1
You can fix a TCE : (FIX(1) / FREE(any key)) >>

```

```

1
  SHELF >>
0
  SLOT >>
4
  SUBNODE >>
5
Shelf : 0, Slot : 4, Subnode : 5 Please verify ( OK(1) / NOT_OK(0) ) >>
1
[BCOX BMENU] AUTO CALL Started : 2 Call(s) !

```

Example 4: In this example, Markov Call or Loop Back Call is stopped. The option Stop (value 0) is selected. The identifier of the call to stopped can be found using item “3.Call State Flow” in the main menu.

```

Select MENU No ---->
2
<<< Triggering (Start(1) / Stop(0)) >>>
0
Input TEST CALL Id >>>
99

```

Example 5: In this example, Auto Markov Call is stopped.

```

Select MENU No ---->
2
<<< Triggering (Start(1) / Stop(0)) >>>
0

[BCOX BMENU] TEST CALL stopped
[BCOX BMENU] Remaining Call count is (10)

```

7.3.3 Μενυ Ιτεμ: Ρεσουλτ Ρεπορτ (Χομπλετεδ & Προχεσσιγγ)

Menu item “3.Result Report (Completed & Processing)” of TEST CALL menu is used to display results from Test Call.

Note: This menu item is not fully implemented now.

7.3.4 Μενυ Ιτεμ: ΜΑΡΚΟς([ΜΣ]->ΒΤΣ->ΒΣΧ) Μοδε(δεφουλτ-ΟΦΦ)

Menu item “4.MARKOV([MS]->BTS->BSC) Mode(default-OFF)” of TEST CALL menu is used to set or reset Markov Mode. Markov Mode decides the involvement of higher level entities like BSC in a Markov Call triggered from a personal station. Markov Mode should be set to OFF when triggering a Markov Call from a personal station. Markov Mode does not affect Test Call. The following example illustrates the usage of this menu item.

```

===== TEST CALL =====
0.Goto TOP MENU
1.Configuration
2.Triggering (Start/Stop)
3.Result Report (Completed & Processing)
4.MARKOV([MS]->BTS->BSC) Mode(default-OFF) : ON

Select MENU No ---->
4

===== TEST CALL =====
0.Goto TOP MENU
1.Configuration
2.Triggering (Start/Stop)

```

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```

3.Result Report (Completed & Processing)
4.MARKOV([MS]->BTS->BSC) Mode(default-OFF) : OFF

Select MENU No ---->
4
===== TEST CALL =====
0.Goto TOP MENU
1.Configuration
2.Triggering (Start/Stop)
3.Result Report (Completed & Processing)
4.MARKOV([MS]->BTS->BSC) Mode(default-OFF) : ON

Select MENU No ---->

```

7.4 DISPLAY MESSAGE

DISPLAY MESSAGE menu is invoked by selecting option “2.Display Message” in the main menu. It is shown below.

```

Select MENU No ---->
2
===== DISPLAY MESSAGE =====
0.Goto TOP MENU
1.Related with Device Configuration
  (TFC,ACC,CCC,PSYN,PSA,ACH,PCH,TCH,RFC)
2.Related with Call Control(CCP,ACH,PCH,TCH)

Select MENU No ---->

```

DISPLAY MESSAGE menu is used to turn on and off the displaying of Call Processing messages and Configuration messages.

7.4.1 ΔΕΞΙΧΕ ΧΟΝΦΙΓΥΡΑΤΙΟΝ ΜΕΣΣΑΓΕ ΔΙΣΠΛΑΨ μενυ

DEVICE CONFIGURATION MESSAGE DISPLAY menu is invoked by selecting option “1.Related with Device Configuration (TFC, ACC, CCC, PSYN, PSA, ACH, PCH, TCH, RFC)” in DISPLAY MESSAGE menu. It is shown below.

```

Select MENU No ---->
1
===== DEVICE CONFIGURATION MESSAGE DISPLAY =====
T.Goto TOP MENU
0.Goto DISPLAY MESSAGE
1.TX Message
2.RX Message

Select MENU No ---->

```

DEVICE CONFIGURATION MESSAGE DISPLAY menu is used to turn on and off the displaying of Configuration messages.

7.4.1.1 DEVICE CONFIGURATION TX MESSAGE DISPLAY MASK menu

DEVICE CONFIGURATION TX MESSAGE DISPLAY MASK menu is invoked by selecting option “1.TX Message” in DEVICE CONFIGURATION MESSAGE DISPLAY menu. It is shown below.

```

Select MENU No ---->
1

```

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```

===== DEVICE CONFIGURATION TX MESSAGE DISPLAY MASK =====
T.Goto TOP MENU
0.Goto DEVICE CONFIGURATION MESSAGE DISPLAY
1.All OFF Message
2.All ON Message
3.Tx BSM Message      : OFF
4.Tx CCP Message      : OFF
5.Tx Other BCP Message : OFF
6.Tx CCC Message      : OFF
7.Tx TCE Message      : OFF
8.Tx PCE Message      : OFF
9.Tx PSA Message      : OFF
10.Tx ACE Message     : OFF
11.Tx PSYN Message    : OFF
12.Tx TFC Message     : OFF
13.Tx TCC Message     : OFF

Select MENU No ---->

```

DEVICE CONFIGURATION TX MESSAGE DISPLAY MASK menu is used to turn on or off the displaying of Configuration messages transmitted from BCP to other devices.

7.4.1.2 DEVICE CONFIGURATION RX MESSAGE DISPLAY MASK menu

DEVICE CONFIGURATION RX MESSAGE DISPLAY MASK menu is invoked by selecting option “2.RX Message” in DEVICE CONFIGURATION MESSAGE DISPLAY menu. It is shown below.

```

Select MENU No ---->
2
===== DEVICE CONFIGURATION RX MESSAGE DISPLAY MASK =====
T.Goto TOP MENU
0.Goto DEVICE CONFIGURATION MESSAGE DISPLAY
1.All OFF Message
2.All ON Message
3.Rx BSM Message      : OFF
4.Rx CCP Message      : OFF
5.Rx Other BCP Message : OFF
6.Rx CCC Message      : OFF
7.Rx TCE Message      : OFF
8.Rx PCE Message      : OFF
9.Rx PSA Message      : OFF
10.Rx ACE Message     : OFF
11.Rx PSYN Message    : OFF
12.Rx TFC Message     : OFF
13.Rx TCC Message     : OFF

Select MENU No ---->

```

DEVICE CONFIGURATION RX MESSAGE DISPLAY MASK menu is used to turn on or off the displaying of Configuration messages received in BCP from other devices.

7.4.2 ΧΑΛΛ ΧΟΝΤΡΟΛ ΜΕΣΣΑΓΓΕ ΔΙΣΠΛΑΨ μενυ

CALL CONTROL MESSAGE DISPLAY menu is invoked by selecting option “2.Related with Call Control(CCP,ACH,PCH,TCH)” in DISPLAY MESSAGE menu. It is shown below.

```

Select MENU No ---->
2

```



```
===== CALL CONTROL MESSAGE DISPLAY =====
T.Goto TOP MENU
0.Goto DISPLAY MESSAGE
1.TX CCP Message
2.RX CCP Message
3.TX TCE Message
4.RX TCE Message
5.TX PCE Message
6.RX PCE Message
7.RX ACE Message

Select MENU No ---->
```

CALL CONTROL MESSAGE DISPLAY menu is used to turn on and off the displaying of Call Processing messages.

7.4.2.1 TX CCP MESSAGE DISPLAY MASK menu

TX CCP MESSAGE DISPLAY MASK menu is invoked by selecting option “1.TX CCP Message” in CALL CONTROL MESSAGE DISPLAY menu. It is shown below.

```
Select MENU No ---->
1
===== TX CCP MESSAGE DISPLAY MASK =====
T.Goto TOP MENU
0.Goto CALL CONTROL MESSAGE DISPLAY
1.All OFF Message
2.All ON Message
3.Tx Mobile Registration Message : OFF
4.Tx Handoff Channel Allocation Response Message : OFF
5.Tx Release Message : OFF
6.Tx Mobile Origination Message : OFF
7.Tx Page Response Message : OFF
8.Tx Mobile Power Control Fail Message : OFF
9.Tx Channel Assignment Completion Message : OFF
10.Tx Undefined Message : OFF

Select MENU No ---->
```

TX CCP MESSAGE DISPLAY MASK menu is used to turn on and off the displaying of Call Processing messages sent to CCP from BCP.

7.4.2.2 RX CCP MESSAGE DISPLAY MASK menu

RX CCP MESSAGE DISPLAY MASK menu is invoked by selecting option “2.RX CCP Message” in CALL CONTROL MESSAGE DISPLAY menu. It is shown below.

```
Select MENU No ---->
2
===== RX CCP MESSAGE DISPLAY MASK =====
T.Goto TOP MENU
0.Goto CALL CONTROL MESSAGE DISPLAY
1.All OFF Message
2.All ON Message
3.Rx Mobile Page Message : OFF
4.Rx Mobile Order Message : OFF
5.Rx Mobile Release Message : OFF
```

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```
6.Rx Handoff Channel Allocation Request Message : OFF
7.Rx Handoff Channel Free Message                : OFF
8.Rx Mobile Origination Acknowledgement Message : OFF
9.Rx Page Response Acknowledgement Message      : OFF
10.Rx Channel Assignment Request Message        : OFF
```

Select MENU No ---->

RX CCP MESSAGE DISPLAY MASK menu is used to turn on and off the displaying of Call Processing messages received by BCP from CCP.

7.4.2.3 TX TRAFFIC CHANNEL ELEMENT (TCE) MESSAGE DISPLAY MASK menu

TX TRAFFIC CHANNEL ELEMENT MESSAGE DISPLAY MASK menu is invoked by selecting option "3.TX TCE Message" in CALL CONTROL MESSAGE DISPLAY menu. It is shown below.

Select MENU No ---->

```
3
===== TX TRAFFIC CHANNEL ELEMENT (TCE) MESSAGE DISPLAY MASK =====
T.Goto TOP MENU
0.Goto CALL CONTROL MESSAGE DISPLAY
1.All OFF Message
2.All ON Message
3.Tx Mobile Station Assignment Message : OFF
4.Tx Call Release Message              : OFF
5.Tx Undefined Message                 : OFF
```

Select MENU No ---->

TX TRAFFIC CHANNEL ELEMENT MESSAGE DISPLAY MASK menu is used to turn on and off the displaying of Call Processing messages sent to Traffic Channel Element from BCP.

7.4.2.4 RX TRAFFIC CHANNEL ELEMENT (TCE) MESSAGE DISPLAY MASK menu

RX TRAFFIC CHANNEL ELEMENT MESSAGE DISPLAY MASK menu is invoked by selecting option "4.RX TCE Message" in CALL CONTROL MESSAGE DISPLAY menu. It is shown below.

Select MENU No ---->

```
4
===== RX TRAFFIC CHANNEL ELEMENT (TCE) MESSAGE DISPLAY MASK =====
T.Goto TOP MENU
0.Goto CALL CONTROL MESSAGE DISPLAY
1.All OFF Message
2.All ON Message
3.Rx Call Status Message                : OFF
4.Rx Softer Handoff Request Message     : OFF
5.Rx Call Release Message               : OFF
6.Rx Handoff Complete Message           : OFF
7.Rx Forward Link Power Control Report Message : OFF
8.Rx Error Message                     : OFF
9.Rx Softer Handoff Swap Message        : OFF
```

Select MENU No ---->

RX TRAFFIC CHANNEL ELEMENT MESSAGE DISPLAY MASK menu is used to turn on and off the displaying of Call Processing messages received by BCP from Traffic Channel Element.

7.4.2.5 TX PAGING CHANNEL ELEMENT (PCE) MESSAGE DISPLAY MASK menu

TX PAGING CHANNEL ELEMENT MESSAGE DISPLAY MASK menu is invoked by selecting option

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“5.TX PCE Message” in CALL CONTROL MESSAGE DISPLAY menu. It is shown below.

```
Select MENU No ---->
5
===== TX PAGING CHANNEL ELEMENT (PCE) MESSAGE DISPLAY MASK =====
T.Goto TOP MENU
0.Goto CALL CONTROL MESSAGE DISPLAY
1.All OFF Message
2.All ON Message
3.Tx General Page Message           : OFF
4.Tx Order Message                  : OFF
5.Tx Channel Assignment Message     : OFF
6.Tx Data Burst Message              : OFF
7.Tx Authentication Challenge Message : OFF
8.Tx SSD Update Message              : OFF
9.Tx Feature Notification Message    : OFF
10.Tx Status Request Message         : OFF
11.Tx Service Redirection Message   : OFF
12.Tx Global Service Redirection Message : OFF
13.Tx TMSI Assignment Message       : OFF
14.Tx Undefined Message              : OFF

Select MENU No ---->
```

TX PAGING CHANNEL ELEMENT MESSAGE DISPLAY MASK menu is used to turn on and off the displaying of Call Processing messages sent to Paging Channel Element from BCP.

7.4.2.6 RX PAGING CHANNEL ELEMENT (PCE) MESSAGE DISPLAY MASK menu

RX PAGING CHANNEL ELEMENT MESSAGE DISPLAY MASK menu is invoked by selecting option “6.RX PCE Message” in CALL CONTROL MESSAGE DISPLAY menu. It is shown below.

```
Select MENU No ---->
6
===== RX PAGING CHANNEL ELEMENT (PCE) MESSAGE DISPLAY MASK =====
T.Goto TOP MENU
0.Goto CALL CONTROL MESSAGE DISPLAY
1.All OFF Message
2.All ON Message
3.Rx Tx OTA Message : OFF

Select MENU No ---->
```

RX PAGING CHANNEL ELEMENT MESSAGE DISPLAY MASK menu is used to turn on and off the displaying of Call Processing messages received by BCP from Paging Channel Element.

7.4.2.7 RX ACCESS CHANNEL ELEMENT (ACE) MESSAGE DISPLAY MASK menu

RX ACCESS CHANNEL ELEMENT MESSAGE DISPLAY MASK menu is invoked by selecting option “7.RX ACE Message” in CALL CONTROL MESSAGE DISPLAY menu. It is shown below.

```
Select MENU No ---->
7
===== RX ACCESS CHANNEL ELEMENT (ACE) MESSAGE DISPLAY MASK =====
T.Goto TOP MENU
```

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```

0.Goto CALL CONTROL MESSAGE DISPLAY
1.All OFF Message
2.All ON Message
3.Rx Registration Message           : OFF
4.Rx Order Message                 : OFF
5.Rx Origination Message           : OFF
6.Rx Page Response Message         : OFF
7.Rx Data Burst Message            : OFF
8.Rx Authentication Challenge Response Message : OFF
9.Rx Status Response Message       : OFF
10.Rx TMSI Assignment Completion Message : OFF

Select MENU No ---->

```

RX ACCESS CHANNEL ELEMENT MESSAGE DISPLAY MASK menu is used to turn on and off the displaying of Call Processing messages received by BCP from Access Channel Element.

7.5 CALL STATE FLOW

CALL STATE FLOW menu is invoked by selecting option “3.Call State Flow” in the main menu. It is shown below.

```

Select MENU No ---->
3
===== CALL STATE FLOW =====
0.Goto TOP MENU
1.Call Flow Display
2.Processing Call State Display

Select MENU No ---->

```

CALL STATE FLOW menu is used to turn on and off the displaying of Call Processing steps. This menu is also used to display information about currently active calls.

7.5.1 ΧΑΛΛ ΦΛΟΩ ΔΙΣΠΛΑΨ μενυ

CALL FLOW DISPLAY menu is invoked by selecting option “1.Call Flow Display” in CALL STATE FLOW menu. It is shown below.

```

Select MENU No ---->
1
===== CALL FLOW DISPLAY =====
T.Goto TOP MENU
0.Goto CALL STATE FLOW
1.Mobile Trace
2.Initial Call Flow           : OFF
3.Registration Call Flow      : OFF
4.Hand Off Call Flow          : OFF
5.Channel Allocation Data     : OFF
6.Debug Data                  : OFF
7.Channel Dup Flow            : OFF

Select MENU No ---->

```

CALL FLOW DISPLAY menu is used to turn on and off the displaying of Call Processing steps. The menu item numbered 1 is used to turn on and off the displaying of Call Processing steps involved in Call Origination and Call Termination. Menu Items 2 through 7 can be used to turn on and off displaying of additional Call Processing steps.

7.5.1.1 CALL ID TRACE menu

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CALL ID TRACE menu is invoked by selecting option “1.Mobile Trace” in CALL FLOW DISPLAY menu. It is shown below.

```
Select MENU No ---->
1
===== CALL ID TRACE =====
0.Goto CALL FLOW DISPLAY
1.ALL CALL FLOW DISPLAY(OFF/ON) : OFF
2.MOBILE(imsi_s1) TRACE : DISABLE

Select MENU No ---->
```

CALL ID TRACE menu is used to turn on and off the displaying of Call Processing steps for a particular personal station or all personal stations.

7.5.1.1.1 Menu Item: ALL CALL FLOW DISPLAY(OFF/ON)

Menu item “1.ALL CALL FLOW DISPLAY(OFF/ON)” of CALL ID TRACE menu is used to turn on and off the displaying of Call Processing steps for all personal stations. It is also used to turn off the displaying of Call Processing steps for a particular personal station. The following example illustrates the usage of this menu item to turn on and off the displaying of Call Processing steps for all personal stations.

```
Select MENU No ---->
1
===== CALL ID TRACE =====
0.Goto CALL FLOW DISPLAY
1.ALL CALL FLOW DISPLAY(OFF/ON) : ON
2.MOBILE(imsi_s1) TRACE : DISABLE

Select MENU No ---->
1
===== CALL ID TRACE =====
0.Goto CALL FLOW DISPLAY
1.ALL CALL FLOW DISPLAY(OFF/ON) : OFF
2.MOBILE(imsi_s1) TRACE : DISABLE

Select MENU No ---->
```

7.5.1.1.2 Menu Item: MOBILE(imsi_s1) TRACE

Menu item “2.MOBILE(imsi_s1) TRACE” of CALL ID TRACE menu is used to turn on displaying of Call Processing steps for a particular personal station. Menu item “1.ALL CALL FLOW DISPLAY(OFF/ON)” of CALL ID TRACE menu is used to turn off the displaying of Call Processing steps for a particular personal station. The following example illustrates the usage of these menu items to turn on and off the displaying of Call Processing steps for a particular personal station.

```
Select MENU No ---->
2

Input IMSI

IMSI_S (e.g. enter 2095473005 for 209-547-3005)>
2095473005
===== CALL ID TRACE =====
0.Goto CALL FLOW DISPLAY
1.ALL CALL FLOW DISPLAY(OFF/ON) : DISABLE
2.MOBILE(imsi_s1) TRACE : 547-3005
```

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```

Select MENU No ---->
1
===== CALL ID TRACE =====
0.Goto CALL FLOW DISPLAY
1.ALL CALL FLOW DISPLAY(OFF/ON) : OFF
2.MOBILE(imsi_s1) TRACE : DISABLE

Select MENU No ---->

```

7.5.2 Μενυ Ιτεμ: Προχεςσινγ Χαλλ Στατε Δισπλავ

Menu item “2.Processing Call State Display” of CALL STATE FLOW menu is used to display information about currently active calls. This menu item is usually used to find the Call Id of an active call. The following example illustrates the usage of this menu item.

```

Select MENU No ---->
2

Do you want call information?[y/n]
Y

=====
=====
===== CALL DATA BASE =====
-----
CALL_TYPE ,CALL_ID, ESN , TEL_NO ,LINK,OFFSET,TCE_ADDR,SECTOR(walsh),
ORIG_CALL , 0103, a00a0004, 547-3004, 0 , 11 ,01000047, 0(21) ,
MARKOV_CALL, 0104, a00a0005, 547-3005, 0 , 12 ,01000048, 0(22) ,
CALL/FA(775) : ch_idx(0),total(2),alpha(2),beta(0),gamma(0),softer(0)
Total calls in BTS : 2

```

7.6 RF CHARACTERISTICS

RF CHARACTERISTICS menu is invoked by selecting option “4.RF Characteristic Test” in the main menu. It is shown below.

```

Select MENU No ---->
4

===== RF CHARACTERISTICS =====

0.Goto Main Menu
1.RF TEST CALL Start
2.RF TEST CALL Release

Select MENU No ---->

```

RF CHARACTERISTICS menu is used to test RF characteristics by making RF Test Calls without a personal station. Tx power for RF Test Calls can be assigned as if the call is in real service. RF Test Calls can be used to measure Tx output spurious characteristics and total output power.

7.6.1 Μενυ Ιτεμ: ΡΦ ΤΕΣΤ ΧΑΛΛ ΣΤΑΡΤ

Menu item “1.RF TEST CALL Start” of RF CHARACTERISTICS menu is used to make RF Test Calls. Information about RF Test Calls made can viewed using CALL STATE FLOW menu. The following examples illustrate the usage of this menu item.



Example 1: In this example, 13 RF Test Calls are made. The parameters inputted are CDMA channel index (in prompt CDMA), sector, Traffic Channel Gain and Service Option. The number of calls to be made is then inputted. BMENU then makes specified number of calls.

```
Select MENU No ---->
1
  CDMA (0, 1, 2, 3)>
0
  SECTOR (Alpha:0, Beta:1, Gamma:2)>
0
  TC GAIN (Normal 65: MAX:125)>
65
  Service Option( 8K(0x8002):0, 13K(0x801F):1 )>
0
CDMA(0),SECTOR(0),TC GAIN(65) usable_calls(13) S_Opt(8002)
  Change Parameters (0:exit, 1:continue, 2:change)?
1
  Select Mode (STEP_BY_STEP(1), CALLS(any key))?

[BCOX BMENU] Selected CALLS MODE
  Number of Calls (Maximum : 13)>
13
```

Example 2: In this example, 2 RF Test Calls are made. STEP_BY_STEP mode is selected so that BMENU will prompt for the next call after making a call.

```
Select MENU No ---->
1
  CDMA (0, 1, 2, 3)>
0
  SECTOR (Alpha:0, Beta:1, Gamma:2)>
0
  TC GAIN (Normal 65: MAX:125)>
65
  Service Option( 8K(0x8002):0, 13K(0x801F):1 )>
0
  CDMA(0),SECTOR(0),TC GAIN(65) usable_calls(12) S_Opt(8002)
  Change Parameters (0:exit, 1:continue, 2:change)?
1

  Select Mode (STEP_BY_STEP(1), CALLS(any key))?
1
[BCOX BMENU] Selected STEP_BY_STEP MODE
[BCOX] lib_alloc return code for RF TEST (1)
[BCOX BMENU] SETUP TEST CALL call_id(99) cdma_idx(0) sector(0),

BMENU] Do you want keep pre-call(y/n)?
Y

BMENU] Continue Call setup(y/n)?
Y

[BCOX] lib_alloc return code for RF TEST (1)
[BCOX BMENU] SETUP TEST CALL call_id(100) cdma_idx(0) sector(0),
```

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```
BMENU] Do you want keep pre-call(y/n)?  
Y  
BMENU] Continue Call setup(y/n)?  
n  
[BCOX BMENU] Stop Test call
```

7.6.2 Μενυ Ιτεμ: ΡΦ ΤΕΣΤ ΧΑΛΛ Ρελεασε

Menu item “2.RF TEST CALL Release” of RF CHARACTERISTICS menu is used to release RF Test Calls. The following examples illustrate the usage of this menu item.

Example 1: In this example, all RF Test Calls are released.

```
Select MENU No ---->  
2  
Release All Test Call (y/n)>  
Y  
Release RF Test Call (ALL)  
Change Call id (0:exit, 1:continue, 2:change)?  
1
```

Example 2: In this example, a RF Test Call with call id 73 is released. The identifier of the call to stopped can be found using item “3.Call State Flow” in the main menu.

```
Select MENU No ---->  
2  
Release All Test Call (y/n)>  
n  
Release RF Test Call. Input Call Id>  
73  
Release call id(73)  
Change Call id (0:exit, 1:continue, 2:change)?  
1
```

7.7 LOCAL PARAMETER

LOCAL PARAMETER menu is invoked by selecting option “5.Change Local Parameters” in the main menu. It is shown below.

```
Select MENU No ---->  
5  
  
===== LOCAL PARAMETER =====  
0.Goto TOP MENU  
1.Display Current Local Parameter  
2.Change Local Parameter  
  
Select MENU No ---->
```

LOCAL PARAMETER menu is used to display and change value of local parameters.

7.7.1 ΔΙΣΠΛΑΨ ΛΟΧΑΛ ΠΑΡΑΜΕΤΕΡ μενυ

DISPLAY LOCAL PARAMETER menu is invoked by selecting option “1.Display Current Local Parameter” in LOCAL PARAMETER menu. It is shown below.

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```
Select MENU No ---->
```

```
1
```

```
===== DISPLAY LOCAL PARAMETER =====
```

```
T.Goto TOP MENU
```

```
0.Goto LOCAL PARAMETER
```

```
1.Display Pilot, Sync and Paging Channel Gains
```

```
2.Display RFC Tx Gain
```

```
Select MENU No ---->
```

DISPLAY LOCAL PARAMETER menu is used to display value of local parameters.

7.7.1.1 Menu Item: Display Pilot, Sync and Paging Channel Gains

Menu item “1.Display Pilot, Sync and Paging Channel Gains” of DISPLAY LOCAL PARAMETER menu is used to display the Pilot Channel Gain, Sync Channel Gain, Paging Channel Gain, and Traffic Channel Gain. The following example illustrates the usage of this menu item.

```
Select MENU No ---->
```

```
1
```

```
cdma(0), sector(0)] PILOT(108,108), SYNC(34,34), PG_0(65,65),
PG_1(65,65), PG_2(65,65)
tc_gain(50)
```

7.7.1.2 Menu Item: Display RFC Tx Gain

Menu item “2.Display RFC Tx Gain” of DISPLAY LOCAL PARAMETER menu is used to display the RFC TX gain. The following example illustrates the usage of this menu item.

```
Select MENU No ---->
```

```
2
```

```
[cdma(0), sector(0)] Tx Attenuation(0,0)
```

7.7.2 CHANGE LOCAL PARAMETER μενυ

CHANGE LOCAL PARAMETER menu is invoked by selecting option “2.Change Local Parameter” in LOCAL PARAMETER menu. It is shown below.

```
Select MENU No ---->
```

```
2
```

```
===== CHANGE LOCAL PARAMETER =====
```

```
T.Goto TOP MENU
```

```
0.Goto LOCAL PARAMETER
```

```
1.Change Pilot Channel Gain
```

```
2.Change Sync Channel Gain
```

```
3.Change Paging Channel Gain
```

```
4.Change Traffic Channel Gain
```

```
5.Change RFC Gain
```

```
Select MENU No ---->
```

CHANGE LOCAL PARAMETER menu is used to change value of local parameters.

7.7.2.1 Menu Item: Change Pilot Channel Gain

Menu item “1.Change Pilot Channel Gain” of CHANGE LOCAL PARAMETER menu is used to change the Pilot Channel Gain. The following example illustrates the usage of this menu item.

```
Select MENU No ---->
```

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```
1
Pilot Channel Gain(Current 108:MAX:125)>
108

CDMA(0), SECTOR(0), PILOT GAIN(108)
Change Parameters (0:exit, 1:continue, 2:change)?
1
```

7.7.2.2 Menu Item: Change Sync Channel Gain

Menu item “2.Change Sync Channel Gain” of CHANGE LOCAL PARAMETER menu is used to change the Sync Channel Gain. The following example illustrates the usage of this menu item.

```
Select MENU No ---->
2
Sync Channel Gain(Current 34:MAX:125)>
34

CDMA(0), SECTOR(0), SYNC GAIN(34)
Change Parameters (0:exit, 1:continue, 2:change)?
1
```

7.7.2.3 Menu Item: Change Paging Channel Gain

Menu item “3.Change Paging Channel Gain” of CHANGE LOCAL PARAMETER menu is used to change the Paging Channel Gain. The following example illustrates the usage of this menu item.

```
Select MENU No ---->
3
Paging Channel ID(MAX:3)>
0

Paging Channel Gain(Current 65:MAX:125)>
65
CDMA(0),SECTOR(0),PC_ID(0),PAGE GAIN(65)
Change Parameters (0:exit, 1:continue, 2:change)?
1
```

7.7.2.4 Menu Item: Change Traffic Channel Gain

Menu item “4.Change Traffic Channel Gain” of CHANGE LOCAL PARAMETER menu is used to change the Traffic Channel Gain. The following example illustrates the usage of this menu item.

```
Select MENU No ---->
4

TCE CH GAIN(Current 50:MAX:125)>
50

CDMA(0),SECTOR(0),TCE GAIN(50)
Change Parameters (0:exit, 1:continue, 2:change)?
1
```

7.7.2.5 Menu Item: Change RFC Gain

Menu item “5.Change RFC Gain” of CHANGE LOCAL PARAMETER menu is used to change the RFC Gain. . The following example illustrates the usage of this menu item.



```

Select MENU No ---->
5

RFC GAIN(Current 0(MAX:0 - MIN:127))>
0

CDMA(0),SECTOR(0),RFC ATTEN(0)
Change Parameters (0:exit, 1:continue, 2:change)?
1

```

7.8 RESOURCE STATUS

RESOURCE STATUS menu is invoked by selecting option “6.Resource Status” in the main menu. It is shown below.

```

Select MENU No ---->
6

===== RESOURCE STATUS =====
0.Goto TOP MENU
1.Display Carrier(BLINK) data
2.Display Channel Card data
3.Display Walsh Code
4.Display Power bank
5.Display Using TCE

Select MENU No ---->

```

RESOURCE STATUS menu is used to display the status of Call Resources.

7.8.1 Μενυ Ιτεμ: Δισπλάσ Χαρριερ(BLINK) δατα

Menu item “1.Display Carrier(BLINK) data” of RESOURCE STATUS menu is used to display status of BLINK. The following example illustrates the usage of this menu item.

```

Select MENU No ---->
1
CARRIER(id)>>block, cur_stat, user_per_offset, use_cnt
                (frameoffset), use,use_cnt
-----

CARRIER(0)>>  M_UBLK,  NORMAL,6,  1
                (00),IDLE,0,(01),IDLE,0,(02),IDLE,0,(03),IDLE,1
                (04),IDLE,0,(05),IDLE,0,(06),IDLE,0,(07),IDLE,0
                (08),IDLE,0,(09),IDLE,0,(10),IDLE,0,(11),IDLE,0
                (12),IDLE,0,(13),IDLE,0,(14),IDLE,0,(15),IDLE,0

```

7.8.2 ΔΙΣΠΛΑΨ ΧΗΑΝΝΕΛ ΧΑΡΔ ΔΑΤΑ μενυ

DISPLAY CHANNEL CARD DATA menu is invoked by selecting option “2.Display Channel Card data” in RESOURCE STATUS menu. It is shown below.

```

Select MENU No ---->
2

```

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```

===== DISPLAY CHANNEL CARD DATA =====
T.Goto TOP MENU
0.Goto RESOURCE STATUS
1.Display Channel Card
2.Display Pilot and Sync Channel
3.Display Paging Channel
4.Display Access Channel
5.Display Traffic Channel
6.Display Error Rate of Traffic Channel

Select MENU No ---->

```

DISPLAY CHANNEL CARD DATA menu is used to display the status of channel cards.

7.8.2.1 Menu Item: Display Channel Card

Menu item “1.Display Channel Card” of DISPLAY CHANNEL CARD DATA menu is used to display Channel Card data. The following example illustrates the usage of this menu item.

```

Select MENU No ---->
1
CDMA >> block,cdma_id,cdma_num,cdma_kind,rstr_tce,alloc_tce
          M_UBLK,      0,      775,   COMMON,    014,      001
-----
[Du, Slot, Ch_Card_id]   Block,      Status,   Hina_address
[00,  3,      03]   M_UBLK,   ABNORMAL,  01000030
[00,  4,      04]   M_UBLK,   NORMAL,    01000040
-----

```

7.8.2.2 Menu Item: Display Pilot and Sync Channel

Menu item “2.Display Pilot and Sync Channel” of DISPLAY CHANNEL CARD DATA menu is used to display the status of Pilot Channel and Sync Channel. The following example illustrates the usage of this menu item.

```

Select MENU No ---->
2
CDMA >> block,cdma_id,cdma_num,cdma_kind,rstr_tce,alloc_tce
OFA >> M_UBLK,      0,      775,   COMMON,    014,      001
-----
[du,sl,su, id] ch_type, block, status, w_a, w_b, w_g, address
[ 0, 4, 2, 0]   PSA, M_UBLK, NORMAL,(0,32), xx, xx,BUSY 01000041

Do you want other CDMA_CH's information ? (y/n) --> Yes

Other CDMA_CH is Not Equiped !!!

```

7.8.2.3 Menu Item: Display Paging Channel

Menu item “3.Display Paging Channel” of DISPLAY CHANNEL CARD DATA menu is used to display the status of Paging Channel. The following example illustrates the usage of this menu item.

```

Select MENU No ---->

```

3

```

CDMA >> block,cdma_id,cdma_num,cdma_kind,rstr_tce,alloc_tce
OFA >> M_UBLK,      0,      775,   COMMON,    014,    001
-----
[du,sl,su, id] ch_type,  block,  status,  w_a,  w_b,  w_g,  address
[ 0, 4, 1,  0]   PCE, M_UBLK,  NORMAL,   1,   xx,   xx, 01000040

Do you want other CDMA_CH's information ? (y/n) --> Yes

Other CDMA_CH is Not Equiped !!!

```

7.8.2.4 Menu Item: Display Access Channel

Menu item "4.Display Access Channel" of DISPLAY CHANNEL CARD DATA menu is used to display the status of Access Channel. The following example illustrates the usage of this menu item.

Select MENU No ---->

4

```

CDMA >> block,cdma_id,cdma_num,cdma_kind,rstr_tce,alloc_tce
OFA >> M_UBLK,      0,      775,   COMMON,    014,    001
-----
[sh,sl,su, id] ch_type,  block,  status,  w_a,  w_b,  w_g,  address
[ 0, 4, 2,  0]   PSA, M_UBLK,  NORMAL,  xx,   xx,   xx, 01000041

Do you want other CDMA_CH's information ? (y/n) --> Yes

Other CDMA_CH is Not Equiped !!!

```

7.8.2.5 Menu Item: Display Traffic Channel

Menu item "5.Display Traffic Channel" of DISPLAY CHANNEL CARD DATA menu is used to display the status of Traffic Channel. The following example illustrates the usage of this menu item.

Select MENU No ---->

5

```

If you want (EQUIP & (NORMAL & ABNORMAL), input '0'
If you want (EQUIP & NORMAL)                , input '1'
If you want (EQUIP & ABNORMAL)              , input '2'
Select STATUS(0,1,2) >

```

0

```

CDMA >> block,cdma_id,cdma_num,cdma_kind,rstr_tce,alloc_tce
      M_UBLK,      0,      775,   COMMON,    014,    001
-----
[du,sl,su, id] block,  status,  use, carr,frame,  w_a,  w_b,  w_g,  address
[ 0, 3, 1, 72] M_UBLK,ABNORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000030
[ 0, 3, 2, 73] M_UBLK,ABNORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000031
[ 0, 3, 3, 74] M_UBLK,ABNORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000032
[ 0, 3, 4, 75] M_UBLK,ABNORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000033
[ 0, 3, 5, 76] M_UBLK,ABNORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000034
[ 0, 3, 6, 77] M_UBLK,ABNORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000035
[ 0, 3, 7, 78] M_UBLK,ABNORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000036
[ 0, 3, 8, 79] M_UBLK,ABNORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000037
[ 0, 3, 9, 80] M_UBLK,ABNORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000038
[ 0, 3,10, 81] M_UBLK,ABNORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000039
[ 0, 3,11, 82] M_UBLK,ABNORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 0100003a
[ 0, 3,12, 83] M_UBLK,ABNORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 0100003b
[ 0, 3,13, 84] M_UBLK,ABNORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 0100003c

```

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```
[ 0, 3,14, 85] M_UBLK,ABNORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 0100003d
[ 0, 3,15, 86] M_UBLK,ABNORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 0100003e
[ 0, 3,16, 87] M_UBLK,ABNORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 0100003f

Do you want other TCE information ? (y/n) -->
y
Other TCE Information Display

[ 0, 4, 3, 98] M_UBLK,  NORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000042
[ 0, 4, 4, 99] M_UBLK,  NORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000043
[ 0, 4, 5,100] M_UBLK,  NORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000044
[ 0, 4, 6,101] M_UBLK,  NORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000045
[ 0, 4, 7,102] M_UBLK,  NORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000046
[ 0, 4, 8,103] M_UBLK,  NORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000047
[ 0, 4, 9,104] M_UBLK,  NORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000048
[ 0, 4,10,105] M_UBLK,  NORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 01000049
[ 0, 4,11,106] M_UBLK,  NORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 0100004a
[ 0, 4,12,107] M_UBLK,  NORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 0100004b
[ 0, 4,13,108] M_UBLK,  NORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 0100004c
[ 0, 4,14,109] M_UBLK,  NORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 0100004d
[ 0, 4,15,110] M_UBLK,  NORMAL, IDLE,  xx,  xx,  xx,  xx,  xx, 0100004e
[ 0, 4,16,111] M_UBLK,  NORMAL, BUSY,  0,   3,  15,  xx,  xx, 0100004f
```

7.8.2.6 Menu Item: Display Error Rate of Traffic Channel

Menu item “6.Display Error Rate of Traffic Channel” of DISPLAY CHANNEL CARD DATA menu is used to display the error rate of Traffic Channel. The following example illustrates the usage of this menu item.

```
Select MENU No ---->
6

If you want (EQUIP & (NORMAL & ABNORMAL), input '0'
If you want (EQUIP & NORMAL) , input '1'
If you want (EQUIP & ABNORMAL) , input '2'
Select STATUS(0,1,2) >
0

[du,sl,su, id] status, alloc_cnt, abnor_cnt, suc_rate,ms_ack,bs_ack,reset
[ 0, 3, 1, 72]ABNORMAL, 0, 0, 100 per, 0, 0, 0
[ 0, 3, 2, 73]ABNORMAL, 0, 0, 100 per, 0, 0, 0
[ 0, 3, 3, 74]ABNORMAL, 0, 0, 100 per, 0, 0, 0
[ 0, 3, 4, 75]ABNORMAL, 0, 0, 100 per, 0, 0, 0
[ 0, 3, 5, 76]ABNORMAL, 0, 0, 100 per, 0, 0, 0
[ 0, 3, 6, 77]ABNORMAL, 0, 0, 100 per, 0, 0, 0
[ 0, 3, 7, 78]ABNORMAL, 0, 0, 100 per, 0, 0, 0
[ 0, 3, 8, 79]ABNORMAL, 0, 0, 100 per, 0, 0, 0
[ 0, 3, 9, 80]ABNORMAL, 0, 0, 100 per, 0, 0, 0
[ 0, 3, 10, 81]ABNORMAL, 0, 0, 100 per, 0, 0, 0
[ 0, 3, 11, 82]ABNORMAL, 0, 0, 100 per, 0, 0, 0
[ 0, 3, 12, 83]ABNORMAL, 0, 0, 100 per, 0, 0, 0
[ 0, 3, 13, 84]ABNORMAL, 0, 0, 100 per, 0, 0, 0
[ 0, 3, 14, 85]ABNORMAL, 0, 0, 100 per, 0, 0, 0
[ 0, 3, 15, 86]ABNORMAL, 0, 0, 100 per, 0, 0, 0
[ 0, 3, 16, 87]ABNORMAL, 0, 0, 100 per, 0, 0, 0
Do you want other TCE information ? (y/n) -->
y
Other TCE Information Display
```



```
[ 0, 4, 3, 98] NORMAL,      2,      0, 100 per,  0,  0,  0
[ 0, 4, 4, 99] NORMAL,      2,      0, 100 per,  0,  0,  0
[ 0, 4, 5,100] NORMAL,      2,      0, 100 per,  0,  0,  0
[ 0, 4, 6,101] NORMAL,      2,      0, 100 per,  0,  0,  0
[ 0, 4, 7,102] NORMAL,      2,      0, 100 per,  0,  0,  0
[ 0, 4, 8,103] NORMAL,      1,      0, 100 per,  0,  0,  0
[ 0, 4, 9,104] NORMAL,      1,      0, 100 per,  0,  0,  0
[ 0, 4,10,105] NORMAL,      1,      0, 100 per,  0,  0,  0
[ 0, 4,11,106] NORMAL,      1,      0, 100 per,  0,  0,  0
[ 0, 4,12,107] NORMAL,      1,      0, 100 per,  0,  0,  0
[ 0, 4,13,108] NORMAL,      1,      0, 100 per,  0,  0,  0
[ 0, 4,14,109] NORMAL,      1,      0, 100 per,  0,  0,  0
[ 0, 4,15,110] NORMAL,      1,      0, 100 per,  0,  0,  0
[ 0, 4,16,111] NORMAL,      1,      0, 100 per,  0,  0,  0
END DISPLAY !!!
Clear Error_Rate DB ? (y/n) -->
n
```

7.8.3 Μενυ Ιτεμ: Δισπλავ Ωαλση Χοδε

Menu item “3.Display Walsh Code” of RESOURCE STATUS menu is used to display the Walsh Code used. The following example illustrates the usage of this menu item.

```
Select MENU No ---->
3
Walsh(cdma,sector,walsh)>>use_flag, ch_type,alloc_pwr

Walsh(  0,      0,      0)>>  BUSY,  PILOT,      108
Walsh(  0,      0,      1)>>  BUSY,   PCE,       065
Walsh(  0,      0,     15)>>  BUSY,   TCE,       050
Walsh(  0,      0,     32)>>  BUSY,  SYNC,       034

Do you want other CDMA_CH's information ? (y/n) -->  Yes

Other CDMA_CH is Not Equiped !!!
```

7.8.4 Μενυ Ιτεμ: Δισπλავ Ποωερ βανκ

Menu item “4.Display Power bank” of RESOURCE STATUS menu is used to display the Power Bank data. The following example illustrates the usage of this menu item.

```
Select MENU No ---->
4

##### 0 FA #####

SECTOR >>  block,  bank,  tc_t,pilot,sync,pc_t,shr_ths,unshr_th,shr_cnt,ush_cnt
-----
Alpha >>  M_UBLK,007871,000050,  108, 034,0065,  00000,  00000,  16777216,
7065048

Do you want other CDMA_CH's information ? (y/n) -->  YES

Other CDMA_CH is Not Equiped !!!
```

7.8.5 Μενυ Ιτεμ: Δισπλავ Υσινγ TXE

Menu item “5.Display Using TCE” of RESOURCE STATUS menu is used to display the status of TCEs in use. The following example illustrates the usage of this menu item.

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```

Select MENU No ---->
5

CDMA >>  block,cdma_id,cdma_num,cdma_kind,rstr_tce,alloc_tce
M_UBLK,      0,      775,    COMMON,    014,    001
-----
[du,s1,su, id] block, status, use, carr,frame, w_a, w_b, w_g, address
[ 0, 4,16,111] M_UBLK, NORMAL, BUSY,    0,    3,  15,  xx,  xx, 0100004f

Call(1) in CDMA(0): ALPHA(1),BETA(0),GAMMA(0),SFTR_ADD(0)

Do you want other CDMA_CH's information ? (y/n) -->
y
Other CDMA_CH is Not Equiped !!!

```

7.9 CDMA Utility

CDMA Utility menu is invoked by selecting option “7.Utility For CDMA System” in the main menu. It is shown below.

```

Select MENU No ---->
7

===== CDMA Utility =====
0.Goto Main Menu
1.Phone Number --> MIN
2.MIN --> Phone Number
3.Hash Randomize

Select MENU No ---->

```

CDMA Utility menu provides some useful utilities.

7.9.1 Μενυ Ιτεμ: Πηγove Νομβερ --> MIN

Menu item “1.Phone Number --> MIN” of CDMA Utility menu is used to convert IMSI_S in decimal to IMSI_S1 and IMSI_S2. The following example illustrates the usage of this menu item.

```

Select MENU No ---->
1
Input MIN

IMSI_S (e.g. enter 2095473005 for 209-547-3005)>
2095473005
IMSI_S1 = 6d0fe2h
IMSI_S2 = 0c6h

```

7.9.2 Μενυ Ιτεμ: MIN --> Πηγove Νομβερ

Menu item “2.MIN --> Phone Number” of CDMA Utility menu is used to convert IMSI_S1 and IMSI_S2 in hexadecimal to IMSI_S in decimal. The following example illustrates the usage of this menu item.

```

Select MENU No ---->
2
Input MIN1 in Hex (e.g. 2eebe6)
MIN1>
6d0fe2
Input MIN2 in Hex (e.g. 384)
MIN2>
0c6
MIN1 = 6d0fe2h
MIN2 = 0c6h

```

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Phone Number = 209-547-3005

7.9.3 Ηαση Ρανδομιζε μενυ

Hash Randomize menu is invoked by selecting option “3.Hash Randomize” in CDMA Utility menu. It is shown below.

```
Select MENU No ---->
3
===== Hash Randomize =====
T.Goto TOP MENU
0.Goto Main Menu
1.Random CDMA Channel Index
2.Random Paging Channel Number
3.Random Paging Slot
4.Random Access Channel PN

Select MENU No ---->
```

Hash Randomize menu is used to execute some hash functions.

7.9.3.1 Menu Item: Random CDMA Channel Index

Menu item “1.Random CDMA Channel Index” of CDMA Utility menu is used to view CDMA Channel Index and FA selected. The following example illustrates the usage of this menu item.

```
Select MENU No ---->
1
<<< Input Parameters For Random CDMA >>>

Input IMSI

IMSI_S (e.g. enter 2095473005 for 209-547-3005)>
2095473005
Inputted Parameters >> CDMA(1), imsi_s1(6d0fe2h), imsi_s2(0c6h)
Selected CDMA >> CDMA_IDX(0) : FA(775)
```

7.9.3.2 Menu Item: Random Paging Channel Number

Menu item “2.Random Paging Channel Number” of CDMA Utility menu is used to view Paging Channel number selected. The following example illustrates the usage of this menu item.

```
Select MENU No ---->
2
<<< Input Parameters For Random PAGE >>>
Input Equipped Paging Channel Number(1,2,...,6,7) =
1
Input IMSI
IMSI_S (e.g. enter 2095473005 for 209-547-3005)>
2095473005
Inputted Parameters >> PAGE(1), imsi_s1(6d0fe2h), imsi_s2(0c6h)
Selected PAGE >> Paging Channel Number(1)
```

7.9.3.3 Menu Item: Random Paging Slot

Menu item “3.Random Paging Slot” of CDMA Utility menu is used to view the hash number and Paging Slot
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Number selected. The following example illustrates the usage of this menu item.

```
Select MENU No ---->
3

<<< Input Parameters For Random Paging Slot >>>
Input IMSI

IMSI_S (e.g. enter 2095473005 for 209-547-3005)>
2095473005

Input SLOT_CYCLE_INDEX(0 ... 7) >
0

Inputted Parameters >> imsi_s1(6d0fe2h), imsi_s2(0c6h), Slot Cycle
Index(0)
Selected Paging Slot >> Hash Number(5efh), Paging Slot Number(15)
```

7.9.3.4 Menu Item: Random Access Channel PN

Menu item "4.Random Access Channel PN" of CDMA Utility menu is used to view the Access Channel PN selected. The following example illustrates the usage of this menu item.

```
Select MENU No ---->

4

<<< Input Parameters For Random Access Channel PN >>>
Input PROBE_PN_RAN (0 ... 9) =
5
Input IMSI

IMSI_S (e.g. enter 2095473005 for 209-547-3005)>
2095473005

Inputted Parameters >> PROBE_PN_RAN(5), imsi_s1(6d0fe2h), imsi_s2(0c6h)
Selected Access Channel PN >> (11)
```

8. Maintenance Advice

8.1 Operation/Configuration Management

The Pico BTS is able to manage the data related to the operation and configuration of its subsystems. Some examples are as follows:

- Initial loading
- Radio resource management
- hardware configuration data management
- CDMA parameter management

8.2 Performance Management

The Pico BTS is able to collect and analyze data related to the performance of the system, and send them to the appropriate higher level entity for management. Some examples are as follows:

- Call processing related parameters statistics collection
- Radio performance related parameters statistics collection
- Periodic reporting

8.3 Maintenance Management

The Pico BTS is able to perform the detection, isolation, and restoration of elements operating abnormally. Some examples follow.

- Fault detection and management
- Alarm generation and processing
- Periodic test of maintenance/diagnosis
- Status management