

Users' Manual

3G/UMTS IF solution

Inbuilding Repeater

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| WTW | File Name TU-IMT2000I-000 | Item <i>Technical Note</i> | Ver 1.0 |
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1. System Specification

| TU-IMT2000I-001 | CONDITIONS | |
|------------------------|-------------------------------------|-----------------|
| Frequency | Up Link (REV) | Down Link(FWD) |
| | 3G/ UMTS frequency bands | |
| Input Power | -60dBm ~ -30dBm / 1Tone | |
| Output Power | +10dBm±2dB/1Tone | |
| Max Gain | 70dB±2dB | |
| Flatness | 4dB(P-P) | |
| VSWR | 1.7(Max) | |
| Delay | Under 5us | |
| ALC @ (-60 ~ -30dBm) | 10dBm±2dB/1Tone | 10dBm±2dB/1Tone |
| IMD(@2Tone, 7dBm) | -45dBc Over | -45dBc Over |
| Impedance | 50ohm | |
| Supply Power | DC 9V/3.5A from AC 100~240V Adaptor | |
| RF Connector Type | SMA Female | |
| ALC | ON | |
| Level Meter | ON | |
| Internal Repeat system | IF | |

2. Mechanical Specification

| Characteristic | Unit(mm) | Remark |
|----------------|------------------|-----------|
| Size | 227 * 158 * 33.5 | D * W * H |

3. Alarm Specification

| Characteristic | Specification | Remark |
|-------------------------------|--------------------------------------|----------------------|
| Over Power (Uplink, Downlink) | external Input signal over -30dBm | System Auto Shutdown |

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4. System Auto Shut Down Algorithm

| Oscillation detect level | At external input signal over -30dBm |
|--------------------------|---|
| Re-check Algorithm | |
| Time | Action |
| 0~1sec | Upon detection, check for the status for 1 sec |
| 2~60sec | Shutdown |
| 61~62sec | Shutdown status clear, check for the status for 1sec |
| 63~122sec | Shutdown |
| 123~124sec | Shutdown status clear, check for the status for 1 sec |
| After | Repeat |

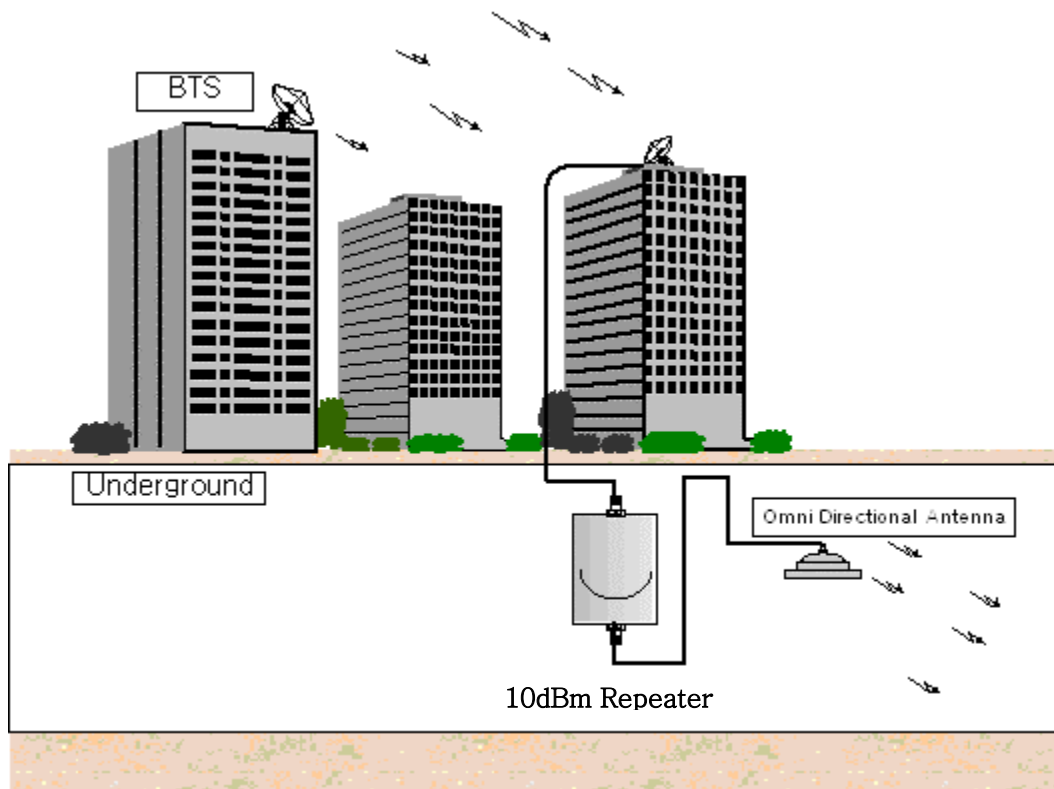
- Program verification available upon request

5. System Auto Level Control Algorithm

ALC(Automatic Level Control) operates at 1dB step to maintain the output level of 10dBm when the input signal is from -60dBm to -30dBm.(30dB range)

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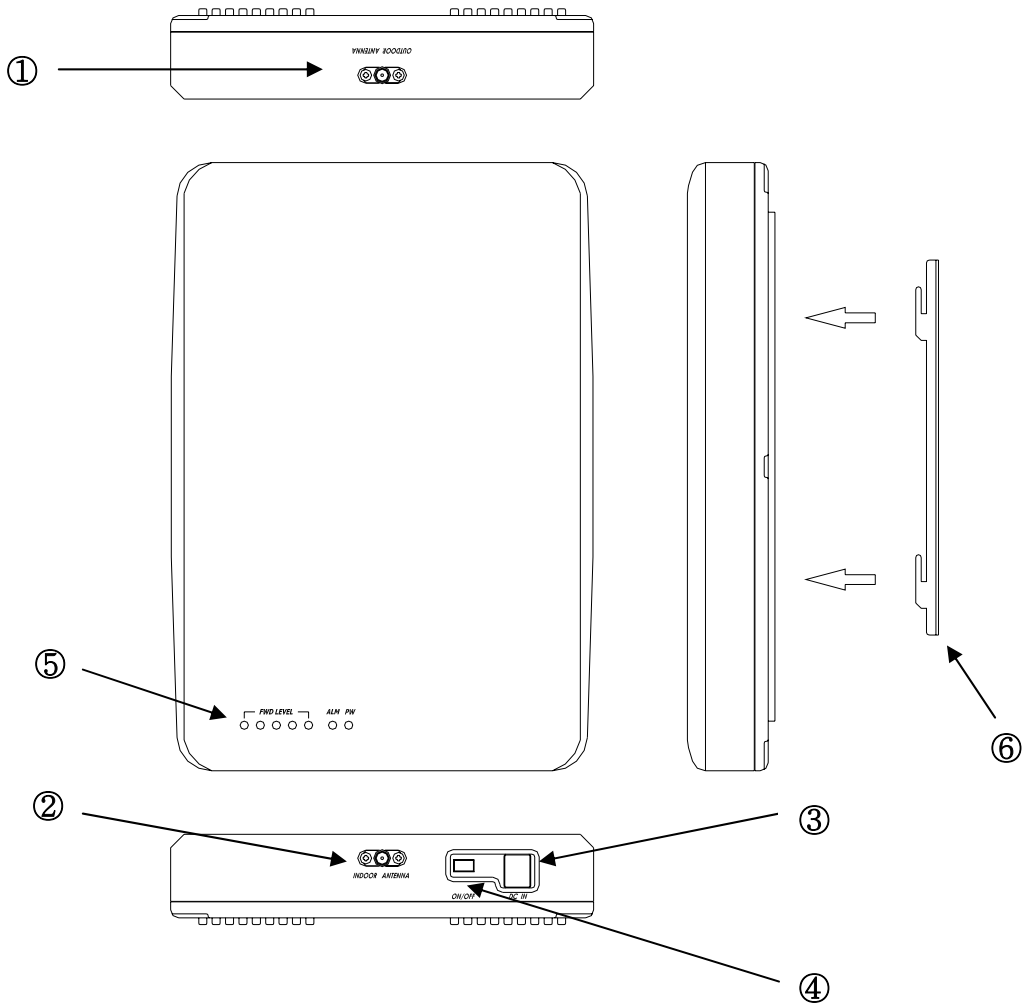
6. System Operation



- The TU-IMT2000I-000 “over the air” Repeater is designed for indoor operation to increase signal strength in small and medium sized areas such as offices, shops and basement car parks in the UMTS band, with frequencies that are programmable to the specific requirements of each site. It is small, lightweight, and easy to install. Simply plug it in, and the coverage will be immediately extended. The uplink and downlink gain of the repeater can be adjusted by ALC.

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□ **External Constitution**



- 1 - Outdoor Antenna Cable Link Port : SMA-Female
- 2 - Indoor Antenna Cable Link Port : SMA-Female
- 3 - DC Input Terminal (Jack)
- 4 - DC Power ON/OFF S/W
- 5 - Status Display LED : POWER, ALARM, FWD LEVEL
- 6 - BRACKET

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➤ **POWER SUPPLY**

| Characteristic | Specification | Remark |
|----------------|---------------|--------|
| Input | AC 100~240V | |
| Output | DC 9V, 3.5A | |

7. System Installation

□ **Contents**

1. REPEATER 1SET
2. BRACKET 1SET
3. AC/DC ADAPTER 1SET
4. DONOR ANT 1SET(OPTION)
5. SERVICE ANT 1SET(OPTION)
6. DONOR ANT CABLE 1SET(OPTION)
7. SERVICE ANT CABLE 1SET(OPTION)
8. SCREWS

□ **Installation Process**

This is one of the most important process in repeater installation, as how to install the antenna decides performance of this equipment.

1. Decide a place to install the outdoor antenna considering the cable length of the donor antenna.
2. Attach the antenna bracket at the wall.

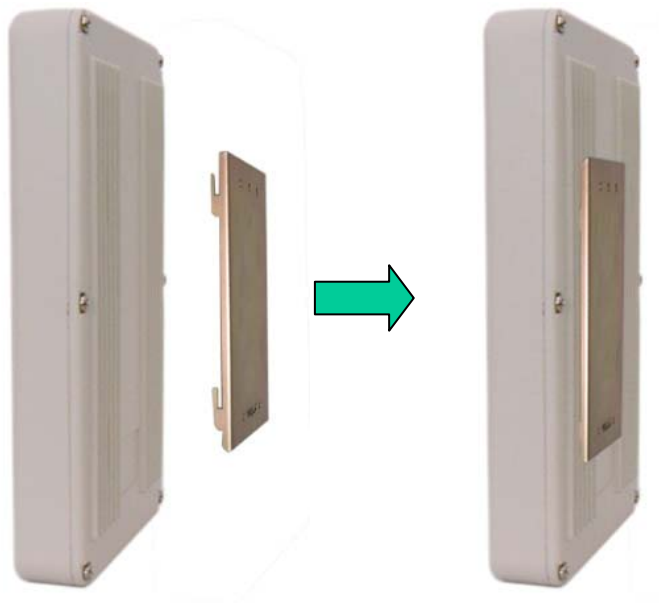
(Refer image A)

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<Image A. Repeater Bracket and Direction of attachment>

3. Place the bracket to the repeater. Refer Image B.



<Image B. Repeater Bracket Placement>

4. Check the Receiving Signal by DONOR CABLE and connect to repeater's DONOR ANT PORT (Input Signal Receive Range $-30\sim-60\text{dBm}$)
5. Install the service antenna at the appropriate place and connect the cable with the repeater.
6. Connect the adaptor to the repeater and check the POWER LED power on status.

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7. After 10 seconds, check of ALARM LED is ON. (When ALARM LED is on, it means the system has been shutdown as external input signal strength is too strong. Please refer the Trouble Shooting below and check the system status.)

8. At normal operation, the LED status indicates as below;

ALARM LED OFF/ POWER LED, FWD LEVEL LED ON

Operation Instruction

-Upon confirmation of electric power (100~240V/AC), insert AC cable to power supply, then using DC cable, insert power cable to DC power input terminal, which is set on the bottom of the equipment

□ LED Configuration

- Power : DC Power is normal -Green LED ON
- Alarm : FEW,REV over power, When Shut Down- Red LED ON
- FWD Level : FWD(Down Link) Indicates output Level-Green LED ON/OFF
-

| No. of LEDs at ON status | Condition (Input Signal Level) |
|--------------------------|----------------------------------|
| 0 | Less than -80dBm |
| 1 | -80~-76dBm |
| 2 | -75~-71dBm |
| 3 | -70~-66dBm |
| 4 | -65~-61dBm |
| 5 | -30~-60dBm |

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8. Trouble shooting

When Power LED (GREEN) off

- 1) Check the AC Power.
- 2) IF AC power is OK, Check the DC Power by checking Power Supply.

When Alarm LED (RED) ON

- 1) Check the Isolation between Donor ANT. and Service ANT.

When no LED blinks at FWD LEVEL LED

Check the FWD Input Power level whether it is in normal range.

9. Handling Procedures

- Please avoid using the other Power Supply besides included ones.
- Prohibited to use other frequencies antennas.
- Please refrain from installing the equipments reach of children.