

# **Users' Manual**

## **GSM900/1800 RF solution**

### **Inbuilding Repeater**

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<b>WTW</b>	File Name <b>TU-GSM900/1800R-000</b>	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)
	GSM900, GSM1800 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	RF	

### 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

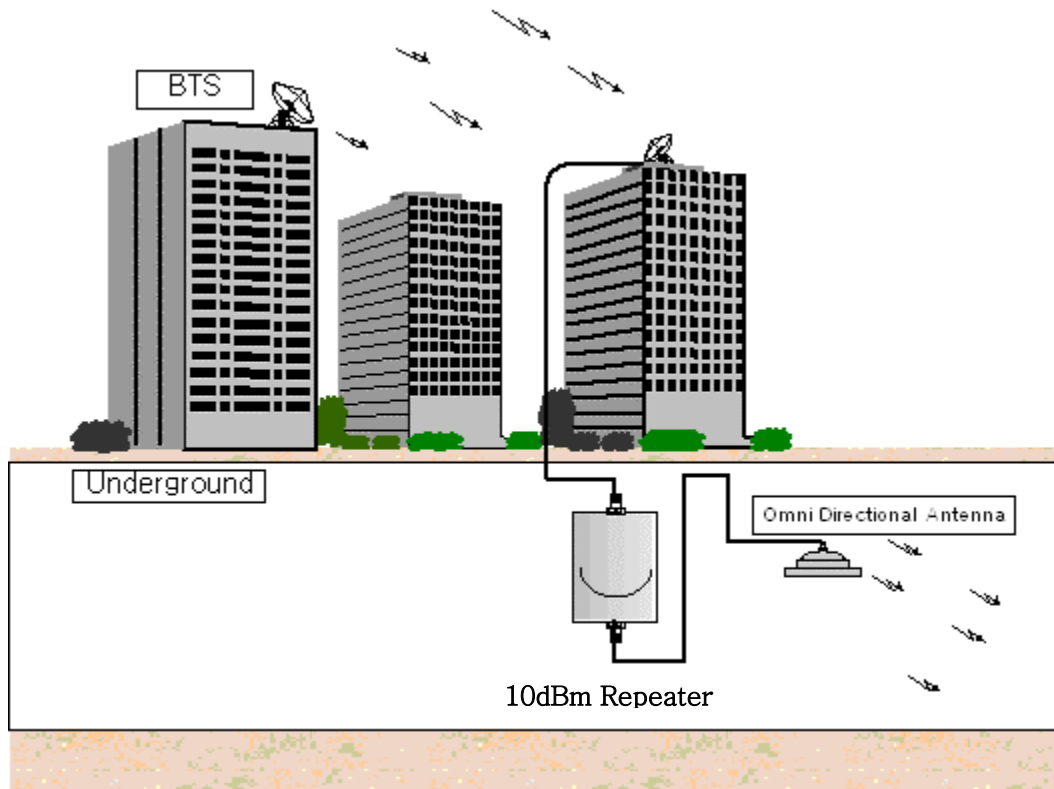
- Program verification available upon request

#### 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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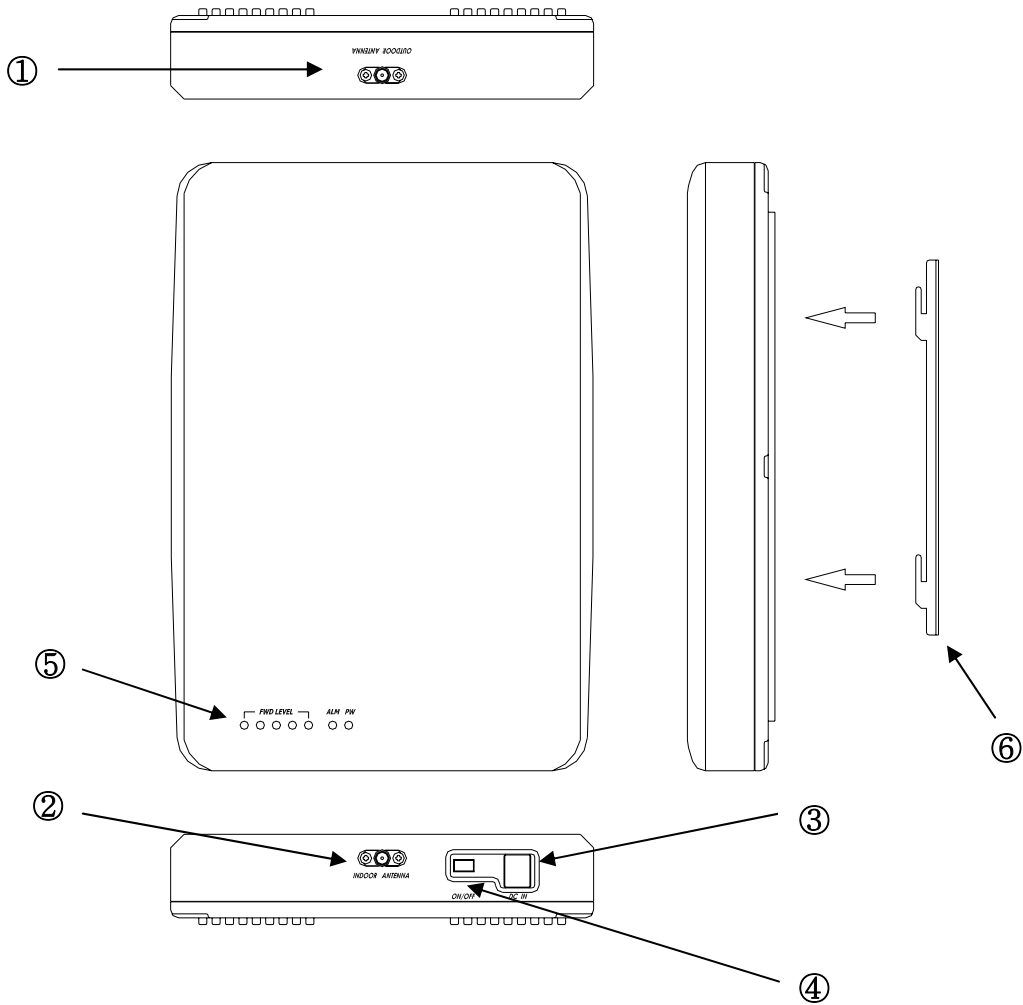
## 6. System Operation



- The TU-GSM900/1800R-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.

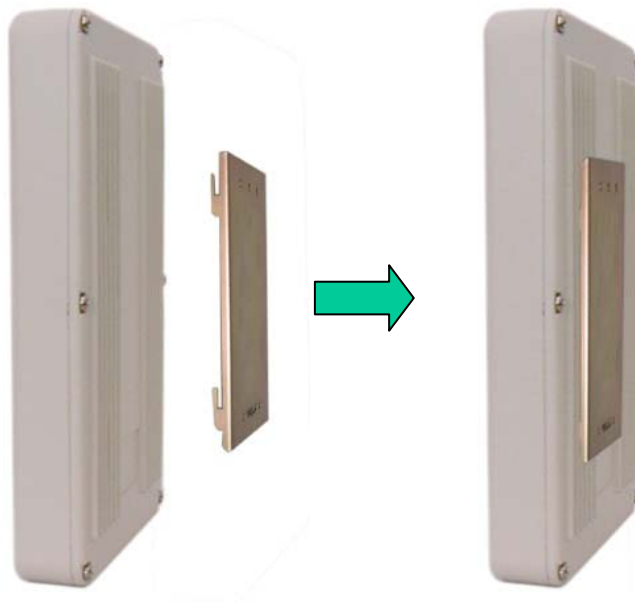
(Refer image A)

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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~-60dBm)
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.