

DUAL REPEATER

Users' Manual

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	File Name TU-G9U21-1065I	Item <i>Technical Note</i>	Ver 1.0
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1. System Specification

GSM900	CONDITIONS	
	Up Link (REV)	Down Link(FWD)
Frequency	890~915MHz	935~960MHz
Input Power	-55dBm ~ -25dBm / 1Tone	
Output Power	+10dBm±2dB/1Tone	
Max Gain	65dB(±2dB)	
Flatness	4dB(P-P)	
VSWR	2.5(Max)	
Delay	Under 7us	
ALC @ (-55 ~ -25dBm)	10dBm(±2dB/1Tone)	10dBm(±2dB/1Tone)
IMD(@2Tone, 7dBm)	-45dBc Over	-45dBc Over

UMTS	CONDITIONS	
	Up Link (REV)	Down Link(FWD)
Frequency	1920~1980MHz	2110~2170MHz
Input Power	-55dBm ~ -25dBm / 1Tone	
Output Power	+10dBm±2dB/1Tone	
Max Gain	65dB(±2dB)	
Flatness	4dB(P-P)	
VSWR	2.5(Max)	
Delay	Under 7us	
ALC @ (-55 ~ -25dBm)	10dBm(±2dB/1Tone)	10dBm(±2dB/1Tone)
IMD(@2Tone, 7dBm)	-45dBc Over	-45dBc Over

GSM900/UMTS	CONDITIONS
Impedance	50ohm
RF Connector Type	N Female
Shut Down	ON
Internal Repeat system	IF

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2. Mechanical Specification

Characteristic	Unit(mm)	Remark
Size	270 * 191 * 63.4	D * W * H

3. Alarm Specification

Characteristic	Specification	Remark
Over Power (Uplink, Downlink)	external Input signal over -25dBm	System Auto Shutdown

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

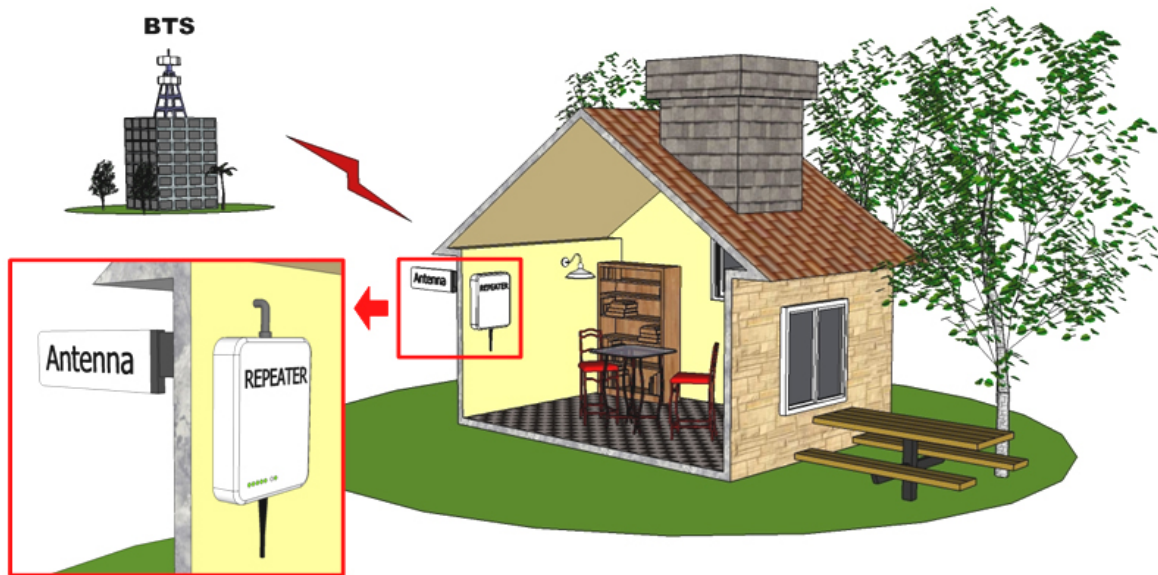
- Program verification available upon request

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 -55dBm to -25dBm .(30dB range)



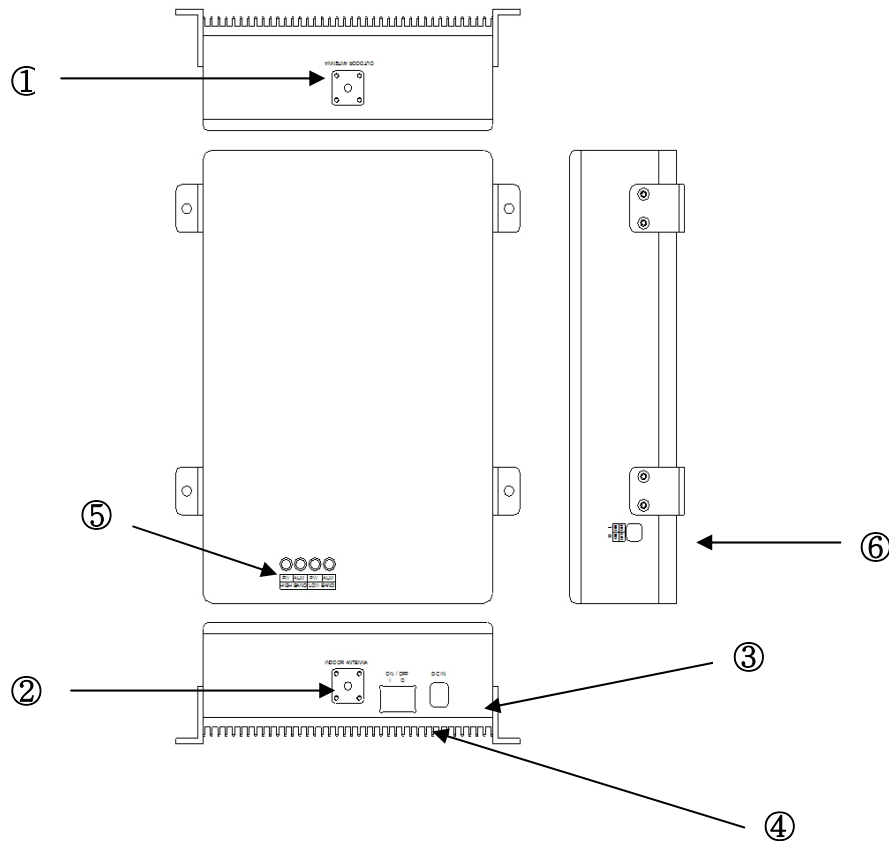
6. System Operation




- The TU-G9U21-1065I “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 GSM900 band and UMTS, 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.



□ **External Constitution**



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

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➤ **POWER SUPPLY**

Characteristic	Specification	Remark
Input	AC 100~240V	
Output	DC 12V, 5A	

7. System Installation

□ **Contents**

1. REPEATER 1SET
2. AC/DC ADAPTER 1SET
3. DONOR ANT 1SET(OPTION)
4. SERVICE ANT 1SET(OPTION)
5. DONOR ANT CABLE 1SET(OPTION)
6. SERVICE ANT CABLE 1SET(OPTION)
7. 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 repeater bracket at the wall.

(Refer image A)



File Name

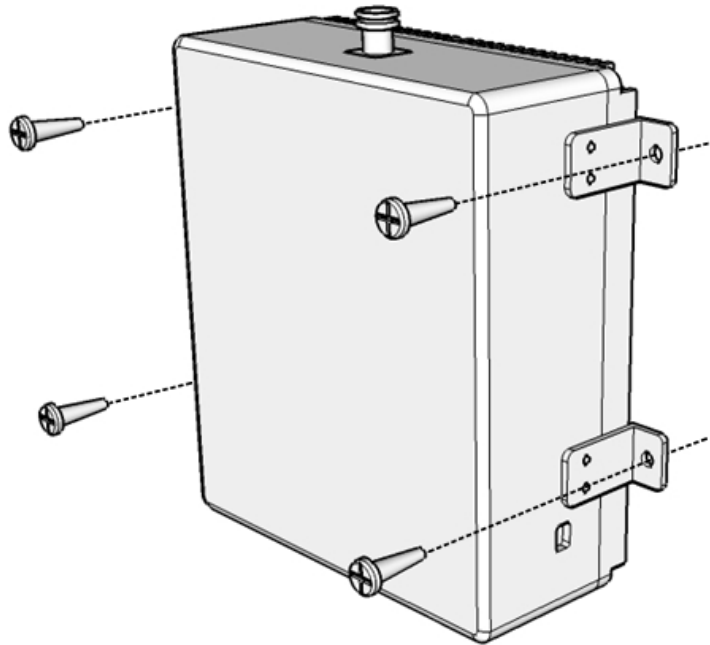
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<Image A. Repeater Bracket Placement>

3. Check the Receiving Signal by DONOR CABLE and connect to repeater's DONOR ANT PORT (Input Signal Receive Range $-25\sim-55\text{dBm}$)
4. Install the service antenna at the appropriate place and connect the cable with the repeater.
5. Connect the adaptor to the repeater and check the POWER LED power on status.
6. 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.)

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

H PW LED ON/H ALM LED OFF/L PW LED ON/L ARM LED OFF

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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

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.

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.

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AC Adaptor Spec.

Input

No	ITEM	SPECIFICATION
1	Rated input Voltage	AC100V ~ 240V
	Vibration input Voltage Range	AC90V ~ 264V
2	Frequency Rated	50~60Hz
	Frequency Vibration	47~63Hz
3	Input Rated Current	1.5A RMS Max
	Inrush Current	No damage at 240V AC cold start <0.25mA
4	Leakage current	87%Min (Average V Compliant)
5	Efficiency	<0.3W Max(CEC level V Compliant)
6	Input power(no load)	<0.5W CEC Compliant

Output

NO	ITEM	SPECIFICATION
1	Output Voltage	12VDC \pm 5%
2	Output max. current	5A
3	Output min. current	0A
4	Line regulation	\pm 1%
5	Output Voltage protection	18V Max (Output shut down)
6	Short circuit protection	Output shut down and auto restart
7	Output temperature protection	There shall be no ignition or smoke and deformation of case
8	Ripple Voltage	150mV (p-p)(100V~240V AC Input)(1)

(1).Measuring is done by 20MHz bandwidth oscilloscope and terminated each output with a 10uf aluminum electrolytic capacitor and 0.1uf ceramic capacitor



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□ Dimension

