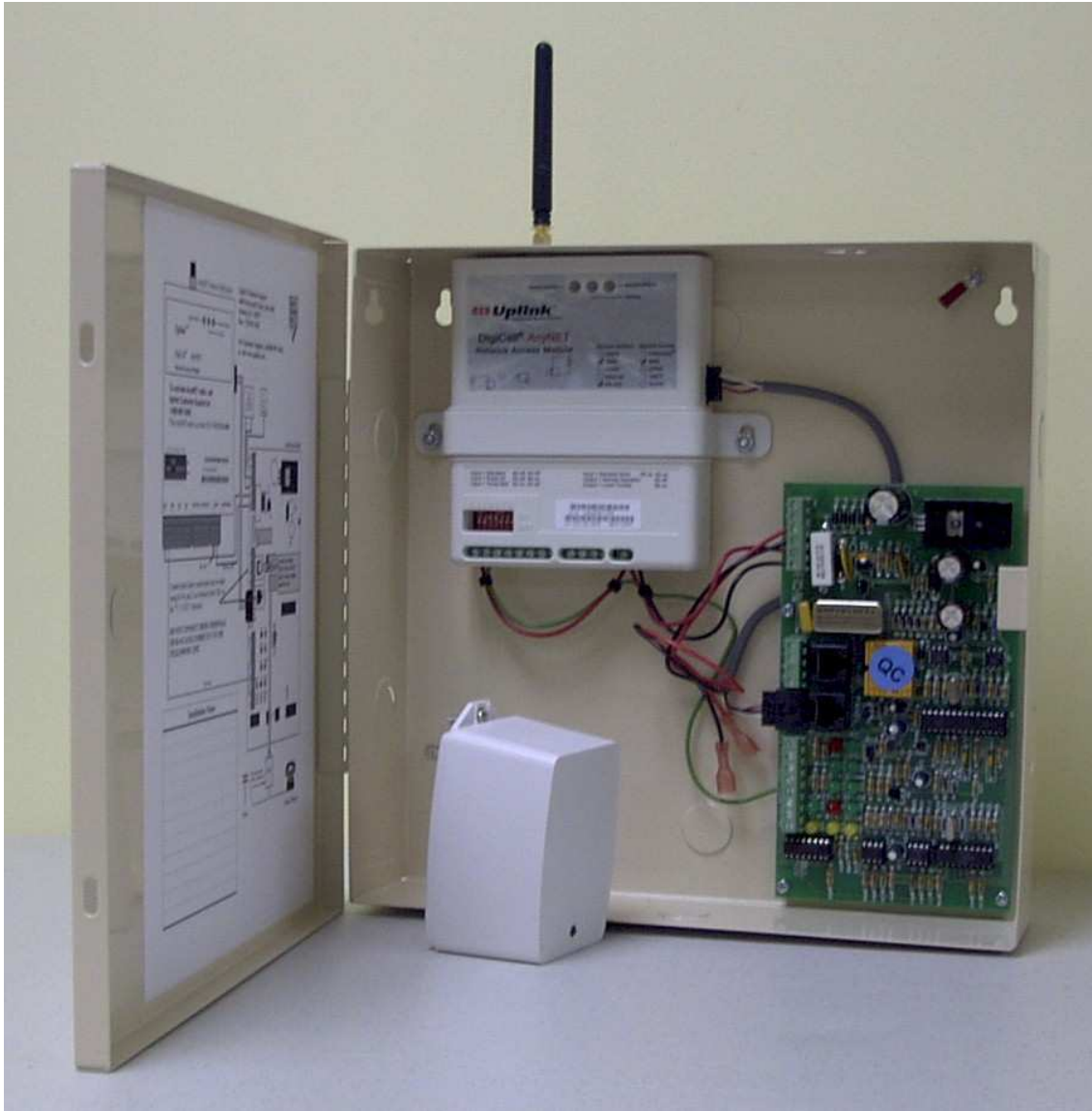


# GSM-900 Contact ID Cellular Backup System Installation Manual



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## Introduction

The GSM-900 cellular backup system provides wireless transmission of the **Contact ID** alarm format. The system uses Uplink's AnyNET technology to provide **full data** reporting to the central station. When a phone line is compromised, the GSM-900 system intercepts the alarm signals and wirelessly transmits the data via the AnyNET radio. "Full data" means the zone / area / user information that is normally transmitted via the telephone dialer will still be transmitted.

The GSM-900 system consists of an Interface Module (including an integrated power supply & line fault detector) and an Uplink DigiCell® AnyNET radio, all integrated into a quality metal enclosure. The serial link between the Interface Module and the AnyNET radio is fully supervised. A communications timeout or restoral is reported to the backend and can be set to report to a Central Station. Test transmissions include the status of the AnyNET radio, including Received Signal Strength (RSSI). The GSM-900 system is installed between the alarm panel and the RJ31X jack.

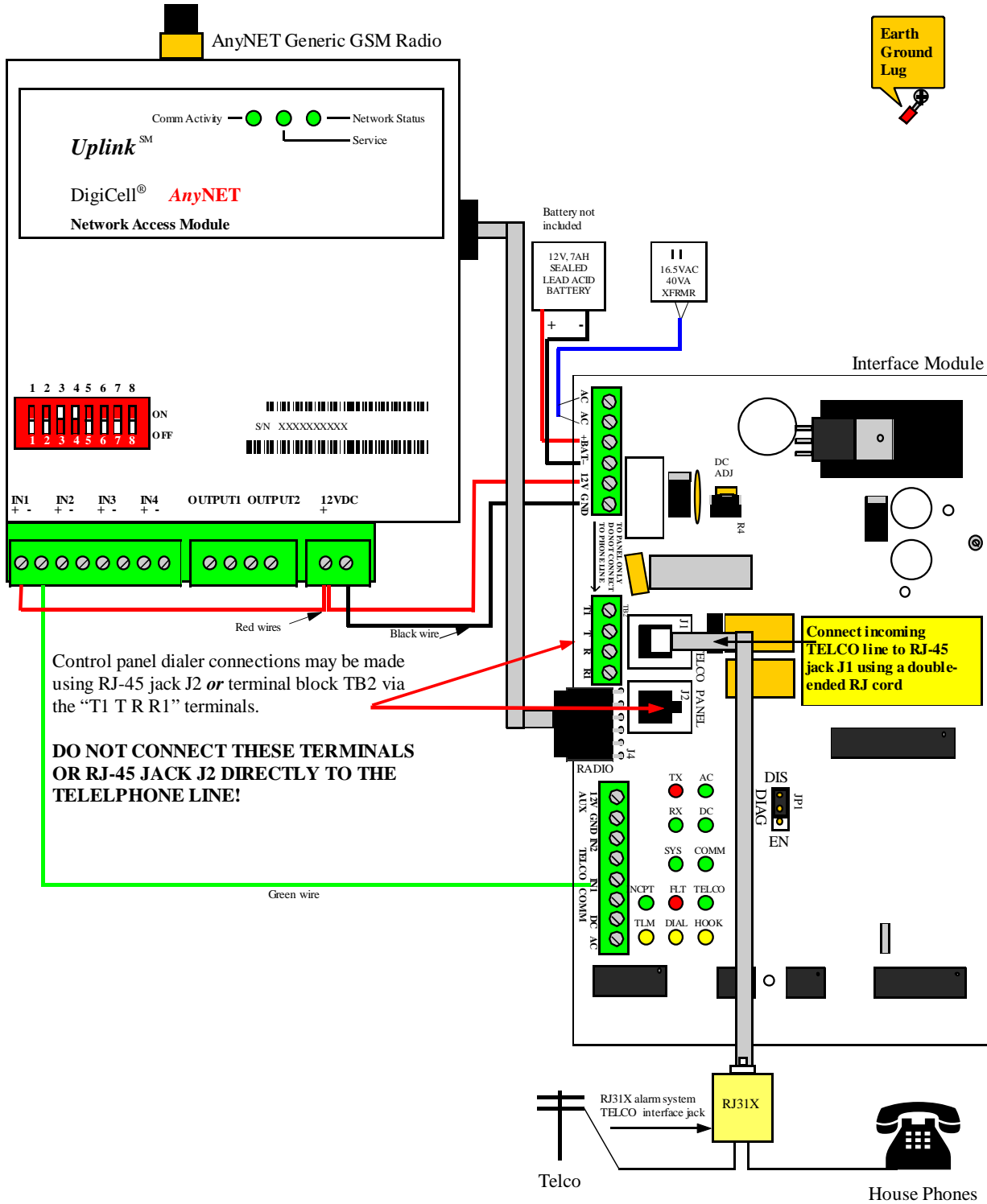
## 1.0 Parts Needed to Complete this Installation

1. Two RJ cords (8-pin, double-ended). A single-ended cord or 4-wire telephone cable may be used for a panel that uses screw terminals in place of a telephone jack. If using telephone cable, connect the wires to terminal block TB2 making sure to connect T1, T, R, and R1 to the corresponding terminals on the control panel.
2. A 12V, 7Ah sealed lead acid battery.
3. An RJ31X telephone interface jack.
4. Zip cord (2 conductor lamp cord) for wiring the included AC transformer.
5. Ground stake (or other suitable Earth Ground) and 18 AWG wire for TELCO transient protection.

## 2.0 Activation and Installation

1. The AnyNET radio must first be activated by calling Uplink Customer Support at **888-987-5465**.
2. Insert the radio antenna through the rubber grommet in the top of the metal system enclosure. Hand-tighten the gold SMA connector in a clockwise direction. Do not over-tighten.
3. Once activated, place the enclosure in an area where the antenna is free from any metal objects or obstructions. Ensure the antenna is above ground level.
4. Plug one end of a double-ended RJ cord into the premises RJ31X jack (see Figure 1). Plug the other end into J1 of the Interface Module.
5. Plug one end of the second double-ended RJ cord into the alarm panel's telephone jack, or wire the flying leads of a single-ended RJ cord to the panel's telephone terminals. Plug the other end into the Interface Module jack J2 (labeled "PANEL"). If using telephone cable instead of an RJ cord, connect the wires to terminal block TB2 making sure to connect T1, T, R, and R1 to the corresponding terminals on the control panel. **Note: "T" and "R" may be labeled as "TIP" and "RING" on some panels.**
6. An Earth Ground lug is located on the upper right corner of the enclosure (see Figure 1). For TELCO transient protection, connect this lug to a suitable Earth Ground using 18 AWG wire.
7. Using good quality zip cord, connect the included 16.5VAC, 40VA transformer to the AC terminals of the Interface Module (see Figure 1). Do not plug the transformer into an AC socket at this time.
8. Connect the black battery wire to the negative terminal of a 7Ah battery (see Figure 1). Do not connect the red wire at this time.

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**Figure 1 – GSM-900 Wiring**

9. Since the GSM-900 system only supports the Contact ID dialer format, there are no switch settings on the Interface Module for selecting formats.

10. The AnyNET radio DIP switch should not be changed. Switch positions 3 and 4 should be “ON”; all other positions should be “OFF”.
11. The Interface Module mini-jumper JP1 (DIAG) should only be changed at the request of a Stealth Labs or Uplink support technician. JP1 can be used to enable status and dialer diagnostic messages when set to the EN position. Since these messages increase radio data traffic, JP1 should be left set to the DIS position to disable diagnostic messages.
12. Once all telephone and power wiring is complete, apply 16.5VAC by plugging the transformer into an un-switched AC outlet. Connect the red battery wire to the backup battery (the black wire should have already been connected in Step 8).

### 3.0 Operation and Troubleshooting

The GSM-900 cellular backup system employs several LEDs to indicate operational status and aid in troubleshooting. These LEDs are described in the following sections.

#### 3.1 AnyNET Radio Module

The AnyNET radio module has 3 green LED indicators, described in Table 1.

**Table 1: AnyNET Radio LED indications**

<b>Comm Activity</b>	
Intermittent Blink	Active (internal device communications only)

<b>Service</b>	
OFF	No GSM service
Slow Blink	Service and signal less than -111 dBm (not recommended)
Fast Blink	Service and signal between -109 dBm and -53 dBm (good)
ON	Service and signal greater than -51 dBm (best)

<b>Network Status</b>	
ON	GSM and GPRS networks available
Slow Blink	Only one network available
Fast Blink	No network available
<b>NOTE</b>	If the unit continues with a fast blink after 3 or more minutes, call Uplink customer support at 1-888-987-5465 to check network availability in your area.

**IMPORTANT!** Read the safety guidelines in section 5.2 prior to using your AnyNET Radio Module. Failure to follow these rules and guidelines may be dangerous and/or illegal.

See Section 4.0 for information on obtaining technical support for the AnyNET radio.

#### 3.2 Interface Module

The Interface Module has 12 LED indicators, described in Table 2.

**Table 2: Interface Module Status LED Indicators**

<b>TX (red)</b>	
Brief blink (~every 5 Secs)	Replied to poll or transmitted data to radio.
Rapid flash - alternates with RX LED	No data received from radio in more than 30 seconds or SMS service not available.
ON SOLID; SYS, AC & DC LEDs off	Low voltage shutdown; battery level less than 9.5V.
<b>RX (green)</b>	
Brief blink (~every 5 Secs)	Received poll from radio.
Rapid flash - alternates with TX LED	No data received from radio in more than 30 seconds or SMS service not available.
<b>AC (green)</b>	
<b>Note: Also indicates state of AC output</b>	
ON	AC power is present.
OFF	No AC power is present.
<b>DC (green)</b>	
<b>Note: Also indicates state of DC output</b>	
ON	DC level is above 11.2V.
OFF	DC level is below 11.2V.
<b>SYS (green)</b>	
FLASHING	Heartbeat. System CPU is operational.
OFF	System has failed or is in low voltage shutdown mode.
<b>COMM (green)</b>	
<b>Note: Also indicates state of COMM output</b>	
ON	Radio serial communications link is normal.
OFF	Radio serial communications link is not operational.
<b>INCPT (green)</b>	
ON	No phone line; Dialer Intercept Mode enabled.
OFF	Dialer Intercept Mode disabled.
<b>FLT (red)</b>	
ON	LINE FAULT - no phone line detected.
OFF	Phone line is normal or an intercepted dial is in progress.
FLASHING (alternates with DIAL LED)	Dialer error – dialer off hook; no report sent or the dialed report failed.
<b>TELCO (green)</b>	
<b>Note: Also indicates state of TELCO output</b>	
ON	Phone line is normal.
OFF	No phone line.

**Table 2 (continued): Interface Module Status LED Indicators**

<b>TLM (yellow)</b>	
5 Sec ON, 5 Sec OFF	Telephone Line Monitor - Indicates line is being tested.
<b>DIAL (yellow)</b>	
ON	Dialer is actively dialing in intercept mode (radio report).
OFF	No dial is being intercepted.
FLASHING (alternates with FLT LED)	Dialer error – dialer off hook; no report sent or dialed report failed
PULSING (FLT LED is off)	Dialer is pulse dialing a phone number.
<b>HOOK (yellow)</b>	
ON	Dialer or a house phone is off-hook (in use).
OFF	Phone line is idle.

### 3.3 System Power-up

The Interface Module powers up in “Radio Fail” mode, as indicated by the rapidly flashing RX and TX LEDs. The Interface Module will not attempt to intercept a dial report until radio communications have been established. This prevents the module from intercepting a dialer report that cannot be forwarded via the radio link. Upon receipt of valid data from the radio, the Interface Module will begin normal operations. If the radio fails to communicate for more than 30 seconds or if SMS service fails, the Interface Module will flash the TX and RX LEDs as an indication of no communication. The COMM output will switch off (float) to locally indicate COMM trouble (see Section 3.6, *Interface Module Outputs*). Conversely, if the Interface Module fails to communicate, the radio will transmit the trouble condition to the backend system.

### 3.4 Fallback Mode

When the Interface Module is connected to a working phone line, the system will enter Fallback Mode and the green TELCO LED will be illuminated. In Fallback Mode, the telephone line is connected to the control panel and house phones (assuming the control panel dialer is not active). With AC connected, All green LED indicators should be on except for INCPT (SYS should be blinking and RX should blink every 5 seconds or so).

### 3.5 Intercept Mode

If the Interface Module does not detect a phone line, the system will attempt to enter Intercept Mode. The red FLT LED will be illuminated as an indication of the TELCO line fault. If the radio is working and system power is normal, the Interface Module will capture the dialer’s phone connections and illuminate the green INCPT LED. If the INCPT LED is off, the unit is not in Intercept Mode and no dial reports will be intercepted. During Intercept Mode, the control panel is connected to the Interface Module phone simulator circuitry and the house phones are connected to the “dead”

incoming phone line. The Interface Module will supply 12V DC to the control panel dialer's Tip and Ring lines. This voltage should satisfy the panel's telephone line monitor so its dialer will continue to send reports. When the dialer seizes the phone line, the Interface Module will generate a pseudo-dial tone and wait for the dialer to begin dialing a phone number, either through DTMF tones or pulse (rotary) dialing. When the phone number dialing ceases, the Interface Module will wait for the next radio poll and then send a Contact ID handshake sequence to the dialer. Any Contact ID dialer reports transmitted by the panel will then be intercepted. The dialer data is sent to the central station via the AnyNET radio and the Uplink backend system.

To use the GSM-900 as the primary means of communication, simply leave J1 disconnected from the incoming telephone line. Connect the control panel dialer to the Interface Module as normal via J2 or terminal block TB2.

### **3.6 Interface Module Outputs**

The Interface Module has several optional outputs available on terminal block TB3. These outputs may be used for local enunciation of system events, as follows:

**AC** – AC power is present

**DC** – DC level is above 11.2V

**TELCO** – The telephone line is normal

**COMM** – The serial communications link with the radio is normal

These outputs are open-collector type and are active-low when conditions are *normal*, making them suitable as fail-safe relay triggers. Active-low means the outputs create a connection to ground when AC is present, DC is good, TELCO line is good, or COMM link is good. When the conditions are *faulted* (no AC, low DC level, bad TELCO, or no COMM), the connection to ground is switched off.

These outputs may be used to trigger a relay module, light a remote LED, or even trigger a control panel zone. Please note that these outputs are for low current devices only (100mA or less). Also note that the 12V AUX terminal should not be used to power any devices over 100mA.

To trigger a 12V relay, connect the relay "+" terminal to the Interface Module's 12V AUX terminal. Connect the relay "-" terminal to the selected output terminal (TELCO, COMM, DC, or AC).

To trigger a powered (sensitive) relay module, connect the relay module's power to the 12V AUX and GND terminals. Connect the relay trigger to the selected output terminal. Be sure to configure the relay module for a negative trigger.

To trigger a zone on a control panel, **connect a common ground wire** between one of the panel's ground terminals and the Interface Module's GND terminal. Connect the selected Interface Module output terminal to the appropriate control panel zone terminal.



Since these are active-low, normally-on outputs, you may want to use the output as the zone's negative terminal (for a Normally-Closed loop). Connect one end of the zone's end-of-line resistor to the zone input and solder a wire to the other end of the resistor. Connect that wire to the Interface Module output. When the output switches off, the NC zone will be opened.

The Interface Module output **IN2** may be optionally connected to the AnyNET radio's IN2 "-" terminal in order to report TELCO Line Faults to the central station via the radio. IN2 pulls low when the TELCO line is bad. This inverted logic was needed due to existing legacy products. The radio's IN2 "+" terminal must be connected to +12V DC using a short jumper wire. Input 2 must be configured via the Edit Unit Settings page at [www.NumerexSolutions.com](http://www.NumerexSolutions.com) before any Line Fault reports will be transmitted to the central station. There is an application note on the Stealth Labs website with details on how to configure the AnyNET backend system for line fault reporting. Go to the Downloads page at [www.StealthLabs.com](http://www.StealthLabs.com) and look for **GSM1650LineFaultReportingAppNote.pdf**.

## 4.0 Support Information

**Technical issues with the AnyNET radio should be directed to:**

Uplink Technical Support  
1600 Parkwood Circle, Suite 500  
Atlanta, GA 30339  
Fax: 770-693-3501

For Customer Support, call 888-987-5465, or visit [www.uplink.com](http://www.uplink.com). Be sure to mention that this version of the AnyNET radio is product ID # **19-25136-040**.

**Technical issues with the GSM 900 Interface Module should be directed to:**

Stealth Laboratories, LLC  
26 5th Street SE  
Hickory, NC 28601

For Customer Service, call 800-360-4146 ext. 23  
For Technical Support, call 800-360-4146 ext 25, or visit [www.stealthlabs.com/support](http://www.stealthlabs.com/support)

## **5.0 Warranty & Compliance Information**

### ***5.1 Warranty Information & Liability Waiver***

#### **The Company's Products Are Subject To The Following Limited Warranty:**

The company's products are warranted against defects in materials and workmanship for a period of one (1) year following the date of purchase, under normal use and service. The company's obligation under this limited warranty is limited to repairing or replacing with reconditioned parts, at its option, any product proven to be defective in materials or workmanship under normal use and service. The company shall have no obligation if its products are altered or improperly repaired by any party other than the company. Except as set forth herein, the company's products are delivered without warranty of any kind, whether express or implied, including any warranty of merchantability and any warranty that the company's products are fit for any particular purpose. In no event shall company be liable for actions of third parties which may affect the performance of its products or other factors outside the company's control which may require installation of additional equipment or affect the performance of the products.

### ***5.2 FCC & Industry Canada Regulatory Compliance***

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced technician for help.

#### **FCC RF Exposure Information**

In August 1996 the Federal Communications Commission (FCC) of the United States with its action in Report and Order FCC 96-326 adopted an updated safety standard for human

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exposure to radio frequency electromagnetic energy emitted by FCC regulated transmitters. Those guidelines are consistent with the safety standard previously set by both U.S. and international standards bodies. The design of this module complies with the FCC guidelines and these international standards. For more information about RF exposure, please visit the FCC website at [www.fcc.gov](http://www.fcc.gov). THE TERM “IC:” BEFORE THE CERTIFICATION/REGISTRATION NUMBER ONLY SIGNIFIES THAT THE INDUSTRY CANADA TECHNICAL SPECIFICATIONS WERE MET.

THE EXTERNAL ANTENNAS USED FOR THIS MODULE MUST PROVIDE A SEPARATION DISTANCE OF AT LEAST 20 CM FROM ALL PERSONS AND MUST NOT BE CO-LOCATED OR OPERATING IN CONJUNCTION WITH ANY OTHER ANTENNA OR TRANSMITTER.

**WARNING:** Unauthorized antennas, modifications, or attachments could impair call quality, damage the Module, or result in violation of FCC regulations. Do not use the Module with a damaged antenna. Please contact your local authorized dealer for antenna replacement.