



SURECALL CELL SIGNAL TESTER
OPERATING MANUAL
Revised for GX-450

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INTRODUCTION

FEATURES & SPECS

The CM-Meter-01 RF signal meter by Cellphone-Mate provides accurate information of radio frequency signals. The device can receive the RF signal from air an installed outdoor antenna or connects directly to the field antenna.

This device works with LTE, Cellular, PCS and AWS bands. The purpose of the RF Signal meter is to assist in the installation of a Signal Booster, specifically for mapping the frequency environment, pointing directional antennas, and maximizing signal booster coverage.

Features

- Five bands: 700 & 800 & 1900 & 2100MHz-(LTE, Cellular, PCS and AWS)
- High Receiving Sensitivity -110dBm
- Three selectable modes
- Controllable backlight for dark environments
- Rechargeable design with four AAA batteries
- Long working time (2.5 - 3.5 hours)
- Easy to carry

Frequency	Downlink: 728 -746/746-757/869-894/1930-1990/2110-2155MHz
Input Impedance	50 ohm
Max. Gain Shown	-40dBm
Standard Supported	LTE Verizon/LTE AT&T/Cellular/PCS/AWS
Receive Sensitivity	-110dBm
Tolerance	<3dB
AC Power Transformer	Input AC110V, 60Hz; Output: DC5V
DC Power	4 AAA Rechargeable Batteries
Power Consumption	<1.5Watts
RF connector	SMA Female
Cable	RG174
Working Time	Stanby: 3.5 hours / Active: 2.5 hours
Dimensions	6.3*3.3*1.3 inch
Weight	205g

INTRODUCTION

CELL SIGNAL OVERVIEW

Cell signal in Canada is provided over large range of frequencies. As a general rule, lower frequencies are able to service larger rural areas while higher frequencies service areas of higher population density. So for most users checking the lower frequency signals is the information you are looking for. These are the lowest frequencies used by the major players.

There are essentially 2 national networks for LTE. Telus/Bell and Rogers.

- TELUS/BELL use Band 17, 13 which is 734 – 746 MHz and 746 – 756 MHz
- ROGERS use Band 12, 13 which is 729 – 746 MHz and 746 – 756 MHz
- SASKTEL use Band 13 which is 746 – 756 MHz

Test the Bands

- For Band 17 select LTE AT&T
- For Band 12 select LTE AT&T
- For Band 13 select LTE VERIZON

It's important to note that these are the frequencies in rural area's, if your near a large population center, LTE service your receiving will be on a much higher frequency. For example:

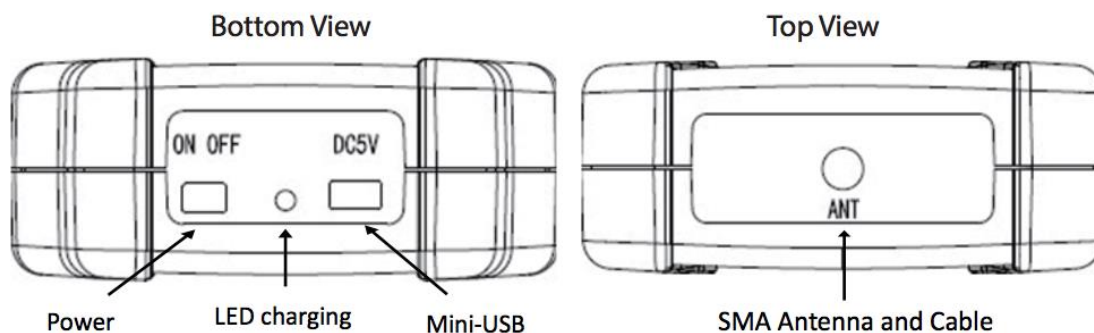
BELL/TELUS have repurposed some of these bands for LTE, what block to test depends on provider/ location. Typically Block B or D is what you are looking for. Some of these frequencies may not be used at all in rural area's. Band 4 is also used by ROGERS in some areas.

- Band 5 which is 869 – 894 MHz Test CLR 800
- Band 2 which is 1930 – 1990 MHz Test PCS 1900
- Band 4 which is 2110 – 2155 MHz Test AWS 2100

SETUP

POWER & CHARGING

The power switch is used to turn on/off the device. The power supply interface is a mini USB interface. You can plug the AC power supply or any power source marked DC5V into it. Make sure that the power source can provide over 1 amp of current. The charging light is a green LED. When it is plugged in and the power switch is OFF, the LED will continue to blink while it is being charged. If the AAA batteries are fully charged, the LED will blink once. When the charging is finished, the LED will stay lit.

**ANTENNA USE & INSTALLATION**

The included antenna is used to pick up an outside RF wireless signal to determine its strengths and weaknesses of each band to determine an ideal location to install outside antennas, for example. To attach, screw antenna jack clockwise at top of meter. Antenna Interface uses the included high gain antenna with SMA cable connector to gauge the best outside RF wireless signal for installing or adjusting a directional outside antenna.

Step 1: Attach the SMA end of the antenna jack on the top of the signal meter.

WARNING: Attaching the cable connectors from the meter to a cellular amplifier can permanently damage your signal meter. If you wish to measure signal from the meter to amplifier, contact tech support at support@cellphone-mate.com to find out how.

OPERATING

UNDERSTANDING THE SCREENS

There are four lines of information available to users:

- The top line displays detecting mode (see table below) and battery life
- The second line displays band
- The third line displays detecting block in Mode-I, detecting frequency in Mode-II and detecting bands frequency range in Mode III

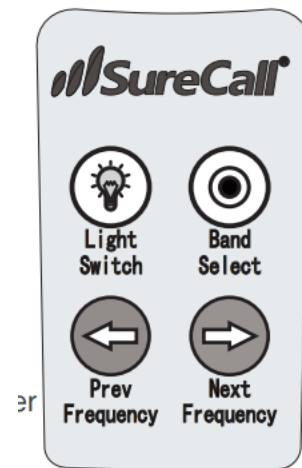
What is good signal

Good Signal	Signal greater than -85 dBm
Marginal Signal	Signal between -85 and -100 dBm
Bad Signal	Signal less than -100 dBm

UNDERSTANDING THE KEYPAD

There are four keys for user actions (see keypad example above) The Light Switch button has two functions:

1. To turn the backlight ON or OFF, press quickly once.
2. To change the detection mode, press the button for a longer period of time. Below is a list of what the three modes represent



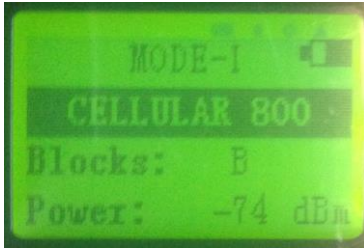
Mode-I	Detects the power strength of one frequency block
Mode-II	Detects the power strength of one frequency point with 5MHz band
Mode-III	Detects the total frequency power strength of one band

Blocks	CELLULAR 800(MHz)	PCS 1900(MHz)	AWS 2100(MHz)
A	869 ~880	1930 ~1945	2110 ~2120
B	880 ~890	1950 ~1965	2120 ~2130
C		1975 ~1990	2130 ~2135
D		1945 ~1950	2135 ~2140
E		1965 ~1970	2140 ~2145
F		1970 ~1975	2145 ~2155
G		1990 ~1995	

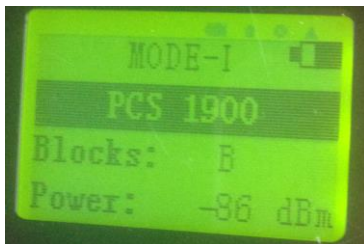
3G Testing

TELUS/BELL/SASKTEL

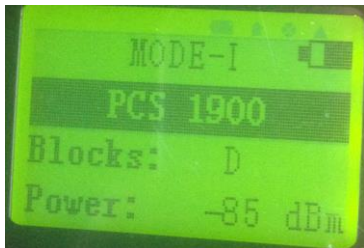
You will want to check three frequencies and bands when testing 3G network strength in a given area. JDM-150 only operates in 3G, GX-450 can run 3G or LTE. Signals greater than -85 dBm is a good signal. Signals less than -100 dBm are poor signals. These frequencies are also used for LTE coverage, so this is currently the most insightful numbers for both JDM-150 and GX-450 Modems

**CELLULAR 800 – Block “B”**

- 5) Press band select twice
- 6) Push next frequency once

**PCS 1900 – Block “B”**

- 3) Press band select three times
- 4) Push next frequency once

**PCS 1900 – Block “D”**

- 1) Press band select three times
- 2) Push next frequency three times

Between all three of these bands you should be able to understand better what the cell signal is like in a given area. Still the best way to test proper cell reception is with a full RTK system hooked to a PPN modem and booster. The quality of the signal received is available from the GX-450 Admintool. Contact PPN if you have any questions about getting setup with the new GX-450 admin tool located in the order tool area of the PPN website.