



*A radio-frequency camera*

The RadioFinder is a device that detects electromagnetic (EM) radiation. The RadioFinder creates a map of the EM emission of cellphones (1.8 GHz) and WiFi/Bluetooth devices (2.4 GHz) and overlays it on a video image. The device can be customized for other frequency bands (GSM, 5.8 GHz, radar, military, etc).

**Characteristics:** The RadioFinder localizes a radiation source with a 3 degree error, that equals to 1 meter of lateral error if the source is 20 meter away. The RadioFinder can detect cell phones 1 km away in free space and 40 meters through buildings\*.

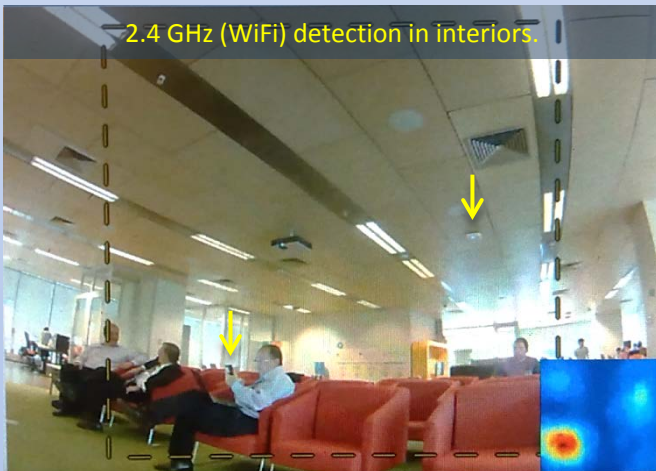
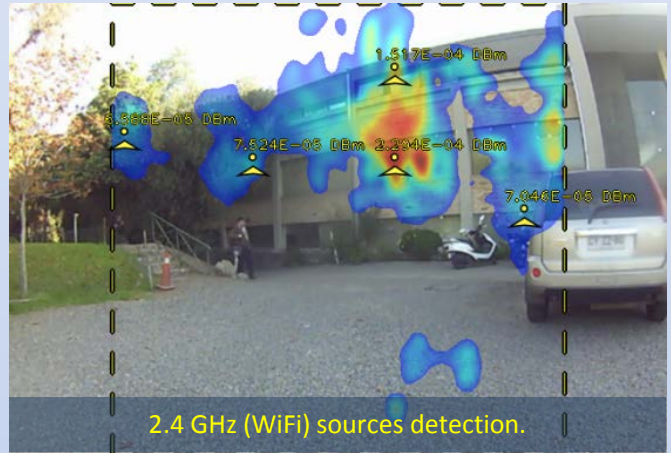
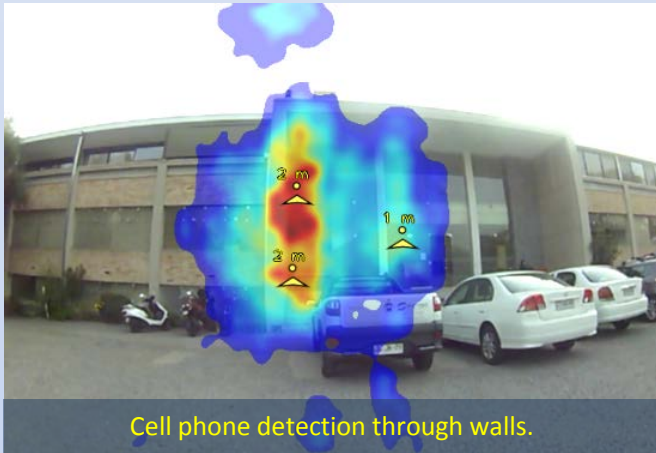
\* Depending on the walls material

Parameter	Conditions	Value
Input Voltage		5 V
Input Current		1.4 A
Battery Life	Portable battery 16 Ah	6 Hours
Weight	Without tripod	3.5 Kg
Operating temperature	Ambient temperature min / max	+0 C / +40 C
Field of view	Radio Image (Elevation x azimuth)	60° x 70°
Refresh rate	Radio Image, without accumulation	1 sec
Position accuracy	Angular error of RF source markers	3°
Dynamic Range		68 dB
Sensibility	BW = 80 MHz	- 86 dBm
Maximum detectable distance in free space	Bluetooth	600 m
	Wi-Fi	800 m
	Cell phone transmitting at mid power	500 m
	Cell phone transmitting at maximum power	1000 m
	Custom made beacon at 2.4 GHz	1000 m
Detection time <sup>1</sup>	Continuum source	1 seg
	Pulse source (Bluetooth beacon <sup>2</sup> )	15 seg
	Cell phone with call in progress	15 seg
	Cell phone in stand-by state	~10 min

<sup>1</sup> Time that the device must accumulate radio images to identify RF sources with a ~3° error.

<sup>2</sup> A smartphone can be used as a beacon for quick location using an app.

**Applications:** Search and rescue of trapped persons in collapsed buildings, avalanches, or low visibility zones. Illegal cell phone location in prisons and other installations. GPS jammers location. Useful for planning and inspection of cell phone networks and other communications services, homeland security and defense.

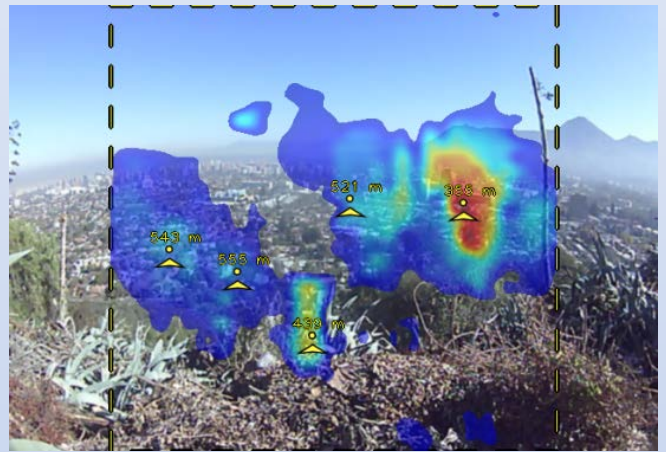
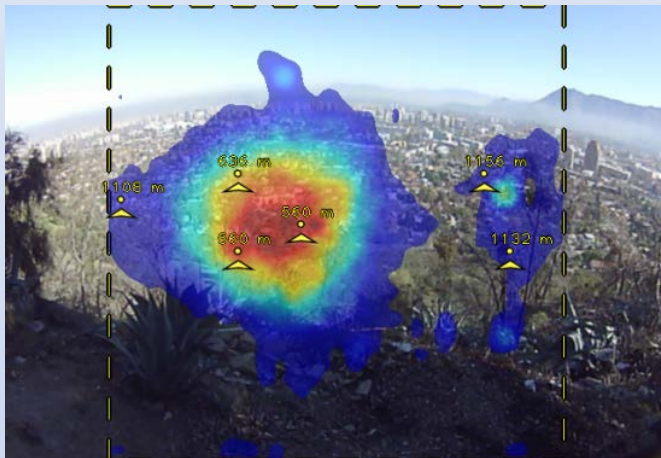


## Software y connectivity

- The Radiofinder has a touch screen that allows to select the frequency of operation and the data display mode: PIP (picture in picture) or overlay image (full screen). It can also display the RF sources location by markers.
- The Radiofinder has an Ethernet (LAN) port that allows to monitor and control it remotely. This feature permits the device to work in closed surveillance circuits (CCTV). The images can also be downloaded to a USB memory device.



## Cell phone detection at long distance (~500m)



## Cell phone detection in a building 80m away

