![Trimble]

Co-located transmitters

SP90m/MPS865 GNSS receiver

13 February 2020

1. Revision History

Date	Changes	Author
February 13, 2020	Creation	J-C Bremaud

2. Purpose

This document provides the technical description of co-located radio transmitters of the Spectra Geospatial SP90m (P/N 120241-60), and the Trimble MPS865 (P/N 120242-60) GNSS receivers.

3. Co-located transmission

The SP85 unit has several use cases described in the following table:

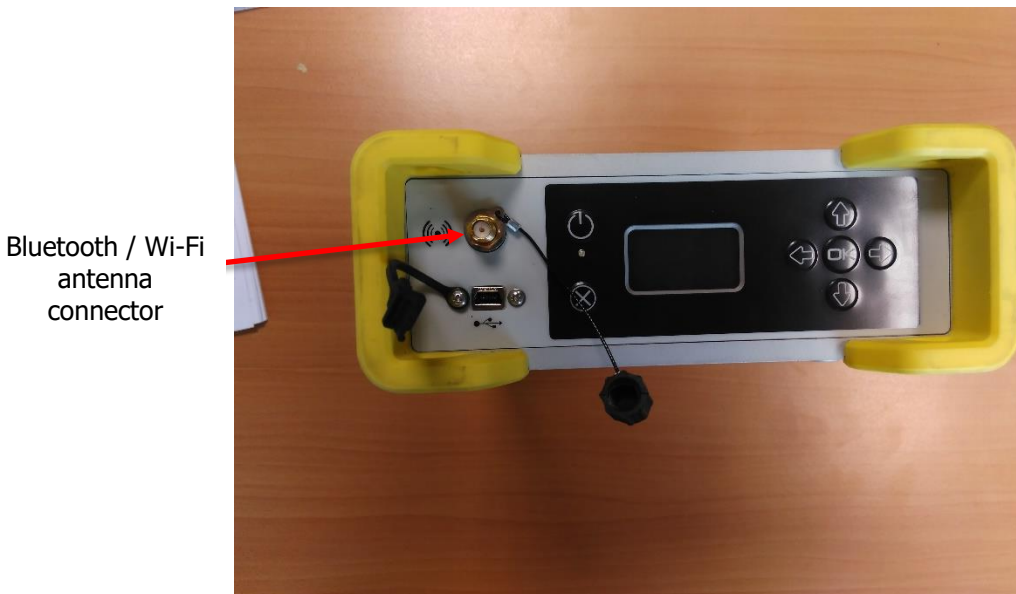| Use cases	Bluetooth (2.4GHz)	UHF 400 Land Mobile radio	Cellular 2G/3G/4G	Wi-Fi (2.45GHz)
Field use case #1	Yes	Yes		
Field use case #2	Yes		Yes	
Office use	Yes			Yes

Note: Bluetooth and Wi-Fi are realized using a combo module using the same RF chain between Bluetooth, and Wi-Fi. Time sharing is performed between the two functions on the same antenna.
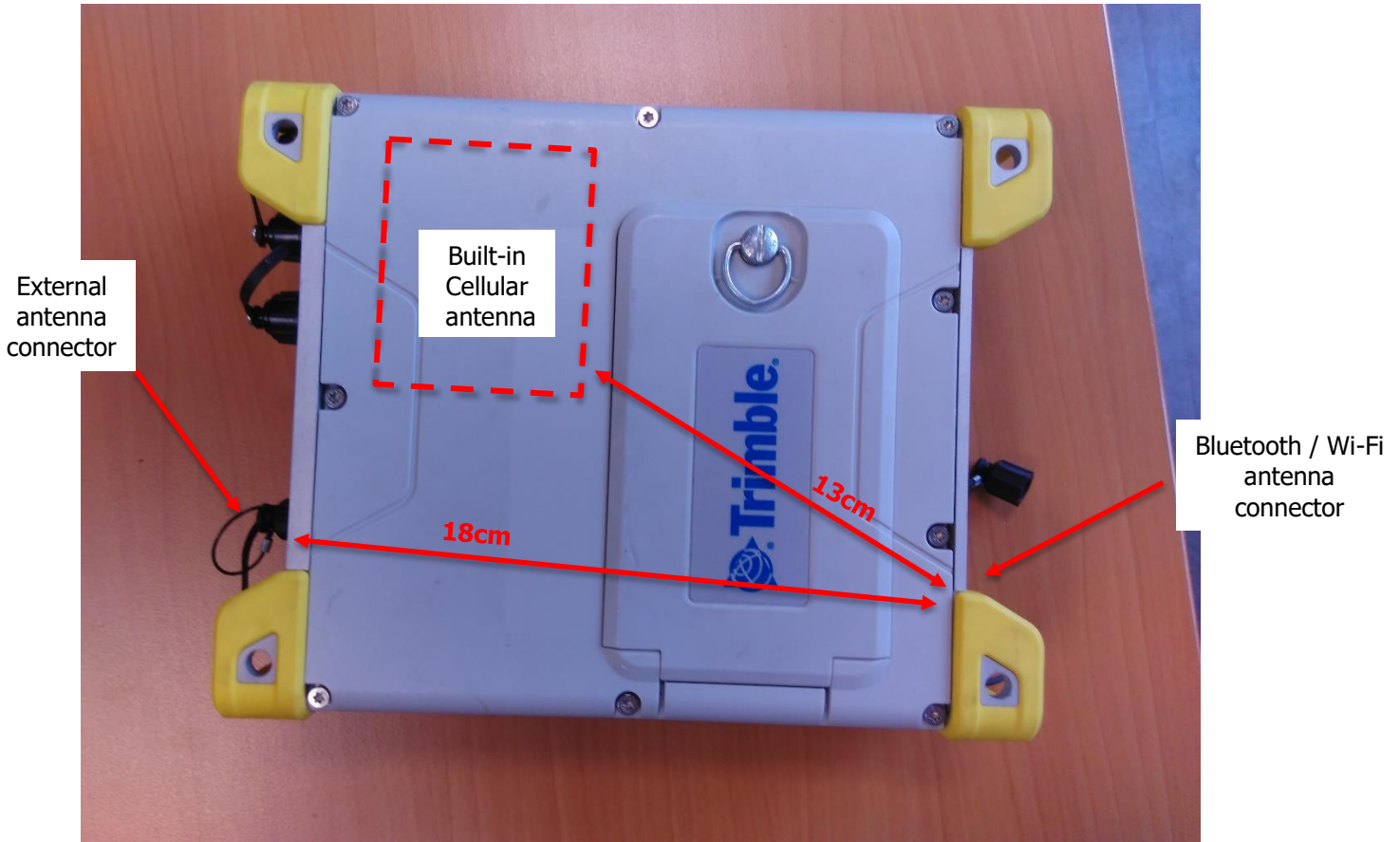
4. Distance between antennas

For SP90m and MPS865 products, antenna distances are similar.
Following pictures indicates distance between antennas for MPS865, but exactly same pictures apply for SP90m.

Use case #2:
The Bluetooth antenna may transmit at the same time than cellular modem using internal (built-in) antenna **or** external antenna provided with the GNSS receiver unit.

Bluetooth / Wi-Fi antenna connector

External antenna connector

Built-in Cellular antenna

Bluetooth / Wi-Fi antenna connector

13cm

18cm

Built-in
Cellular
antenna

Use case #1:
The Bluetooth antenna may transmit at the same time than UHF radio transmitter when the GNSS receiver is used as a UHF base GNSS station.
In that case, for improving the range of UHF radio, the UHF radio is setup on a top of a tripod as described in the following picture.

The tripod supporting the UHF antenna will be located at a distance higher than 45 cm, as mentioned in the user guide of the SP90m and MPS865 GNSS receivers.

Office use:
When used at the office, Bluetooth and Wi-Fi may be used simultaneously, but in that case since Bluetooth and Wi-Fi are managed by the same wireless module in a time-sharing manner both transmitters are not working at the same time. Co-located transmitters don't have to be considered for this use case.