

# Zoom 90 Bluetooth Range with Pixel 4a

Date: 16 November 2020, Mark Silver ms@igage.com

What is the Bluetooth range from a Pixel 4a phone to a GeoMax Zoom 90 robot?

The Pixel 4a phone:



is a low cost Android smartphone retailing for around \$350 US. It has a large 3140 mAh LiPo battery with USB 2.0 fast charging. The Pixel 4a has a 5.0 Bluetooth specification:

Bluetooth 5.0, A2DP, LE, aptX HD

Bluetooth 5 implies 2X speed and 4X the distance of previous generations. (See [https://www.bluetooth.com/wp-content/uploads/2019/03/Bluetooth\\_5-FINAL.pdf](https://www.bluetooth.com/wp-content/uploads/2019/03/Bluetooth_5-FINAL.pdf))

The Zoom 90 has a ZRT82 'Long-Range Bluetooth' handle:



What is the range between these two devices in a real-world test?

I set my robot on a rise pointing east.



Once setup and locked on the prism, the Pixel 4a was disconnected from the robot both were transported to approximately 2,500-foot distance while maintaining lock.

Communication was attempted at approximately 100-foot intervals until the connection was made at 2,050 feet. Repeated connections and disconnections were then made,



and distance measured:



2:43 [icons] LTE [battery]

**TPS Survey** [sun] [microphone] [battery] [refresh]

E	1564.677ft	[H]	2052.843ft
N	-1255.178ft	[H]	-46.413ft
Z	5120.735ft	[H]	2053.806ft

HA:148°45'27.9699" VA:91°45'11.7917"  
SD:2053.806ft >

2D  
DU

160ft

Point > 104

Code >

360° (23.1 mm)  
H 16.470ft [compass] Point

So, in an open environment, the Pixel 4a is usable at 2,000 feet (600 meters) from the robot. This is nearly twice the range that I expect from the Surveyor 2 (1,200 ft), Mini-2 (1,200 ft) and RT4 (1,000 ft) and should be satisfactory for most robotic applications.