

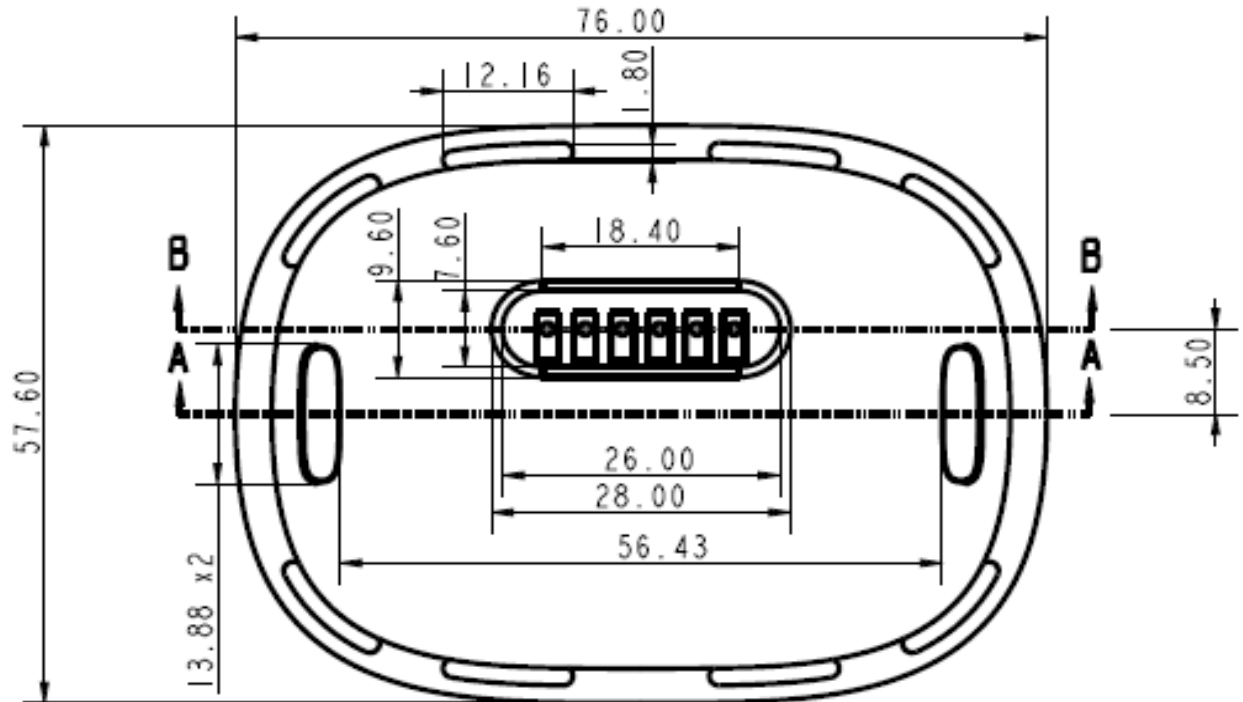
VIVE Ultimate Tracker
Pogo Pin
Developer Guidelines
Ver. 1.1

Version Control

Version Number	Version Date	Version Reason
1.0	2023.8.16	Initial public version for VIVE Ultimate Tracker
1.1	2024.1.15	Remark Radio Frequency design guideline

Introduction

This document describes the development guidelines for VR accessory makers and content developers. It contains information on how to design Pogo Pin to fit with VIVE Ultimate Tracker



Interface

GPIO Pin Absolute Maximum Rating

Symbol	Parameter	Min	Max	Unit
V _I	Input voltage	- 0.3	4	V
V _{ESD}	Electrostatic discharge voltage , Human Body Model	--	4000	V

GPIO Pin Electrical Characteristics (Supply voltage VDD = 3.3 V)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
V _{OH}	High-level output voltage	I _{OH} = -4mA	VDD - 0.9	2.8	VDD	V
		I _{OH} = -16mA	VDD - 1.4	2.3	VDD	V
V _{OL}	Low-level output voltage	I _{OL} = 4mA	--	0.2	0.4	V
		I _{OL} = 16mA	--	0.7	0.9	V
V _{IH}	High-level output current	--	0.7*VDD	--	VDD+0.3	V
V _{IL}	Low-level output current	--	--	--	0.7	V
I _{OH}	High-level input current	--	--	--	-16	mA
I _{OL}	Low-level output current	--	--	--	16	mA
I _{IH}	High-level input current	--	-1	--	1	uA
I _{IL}	Low-level input current	--	-1	--	1	uA

Power Input

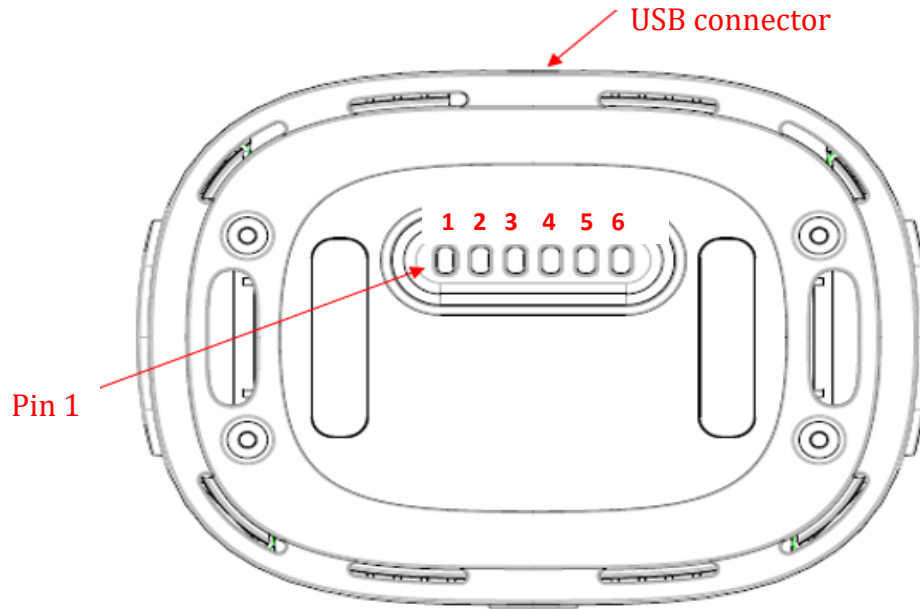
	Voltage requirement	Input current max.
Pogo Pin 3	5V+/-5%	1 A

Pin Assignment

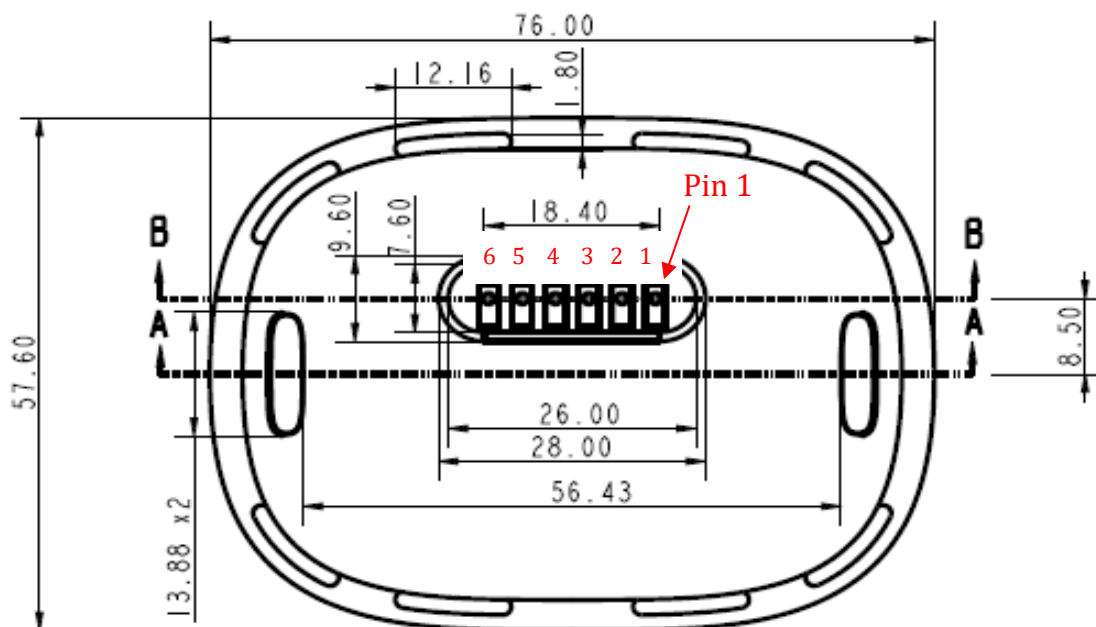
Pin no.	Type	Description
1	Digital output	General purpose output pin
2	GND	Ground
3	Digital/Power input	1. General purpose input pin: Internal pull up resistor to VDD, Active -low (Grip button) 2. Power input pin
4	Digital input	General purpose input pin: Internal pull up resistor to VDD, Active -low (Trigger button)
5	Digital input	General purpose input pin: Internal pull up resistor to VDD, Active -low (Trackpad button)
6	Digital input	General purpose input pin: Internal pull up resistor to VDD, Active -low (Menu button)

Design of Pogo Pins

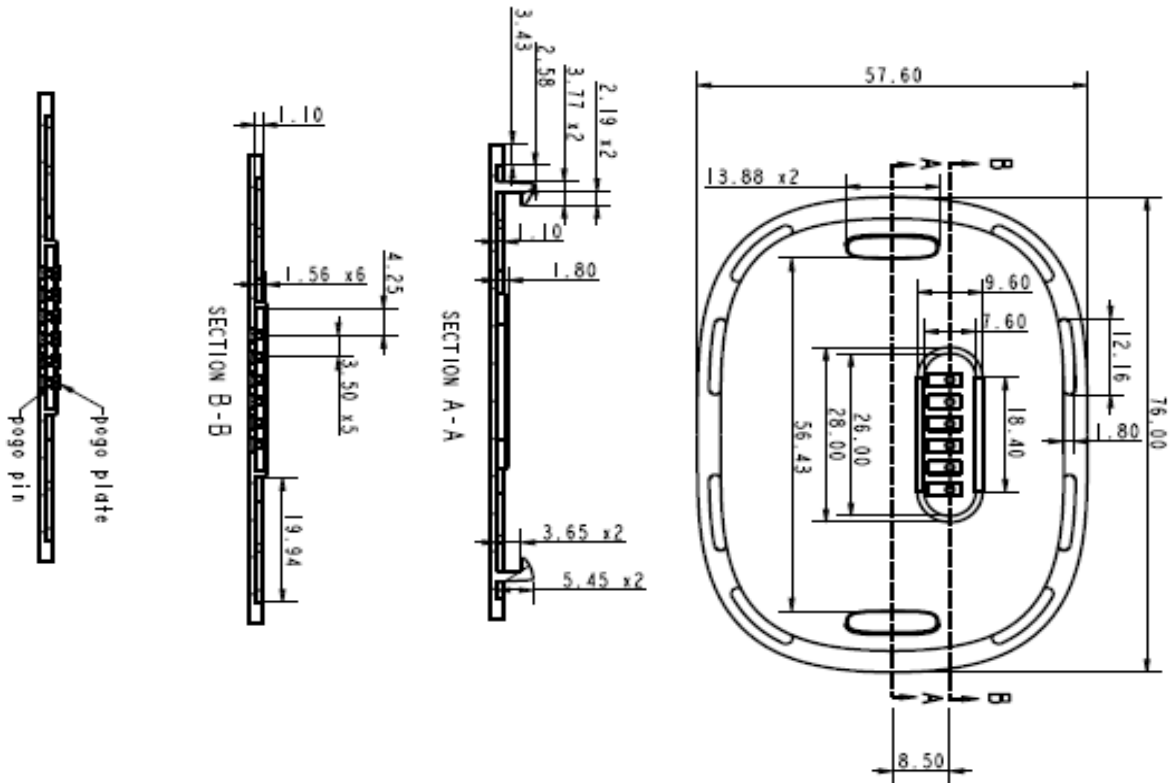
a. Pin definition (On VIVE Ultimate Tracker), Bottom view



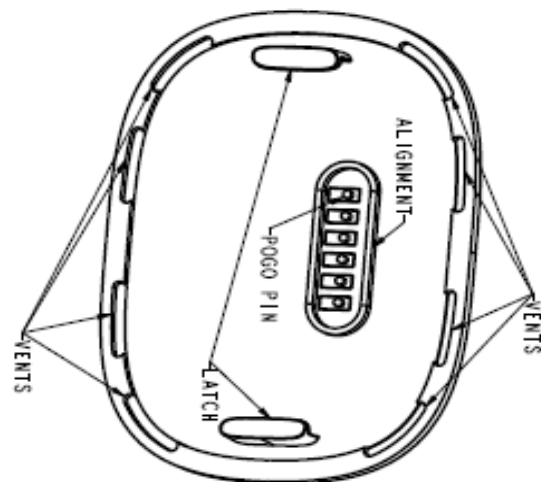
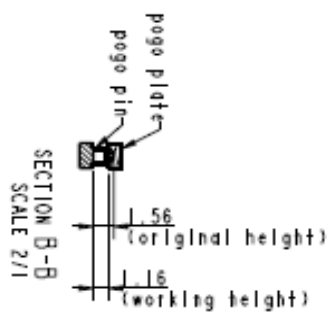
b. Pin definition (on Pogo Pin Cradle), Top view



Mechanical Design



POGO PIN CONTACT RESISTANCE:
30mΩ (Max) initial when measured at 20mV (Max) open circuit at 100 mA.
Contact Current Rating:
1.8A (Min)
Contact force > 80 gf (10.4mm compression)



Radio frequency (RF)

To establish a stable wireless connection between the VIVE Ultimate Tracker and the dongle, the OTA performance of VIVE Ultimate Tracker cannot downgrade to more than 3dB when an accessory is attached to the VIVE Ultimate Tracker. The following are recommendations for better RF performance. The figure below illustrates the “keep out” area where only nonmetallic parts of the accessory should be inside (spherical radius=30mm and the center is antenna feed point).

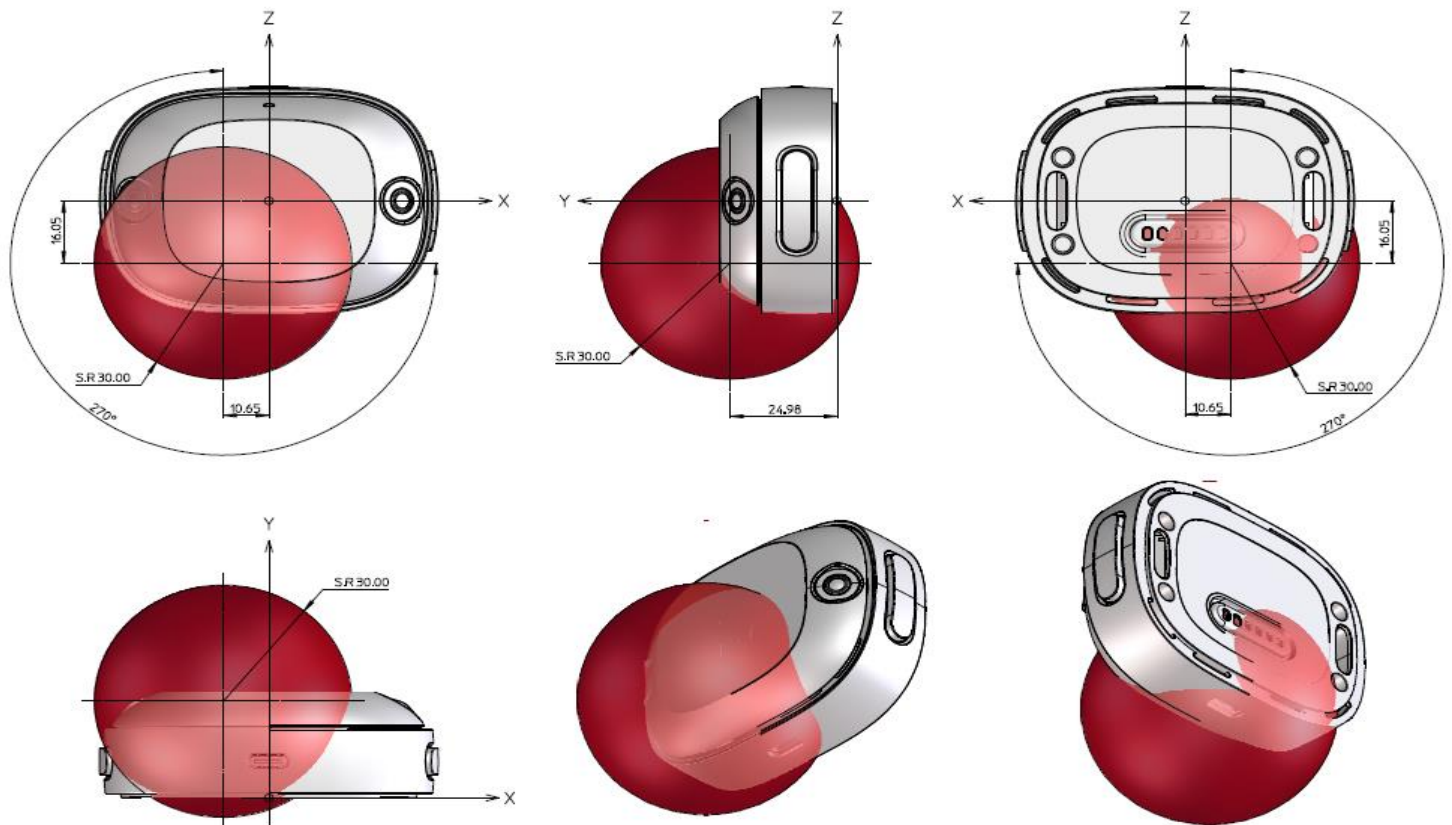


Figure: Restricted Area of Antenna

Except for essential parts, such as the 1/4" screw, electric connection pad (which connects with the Pogo pin), and related circuits of the electric connection pad, metal parts of the accessory should keep at least 30mm distance away from the antenna to avoid OTA performance reduction when the accessory is attached to VIVE Ultimate Tracker.