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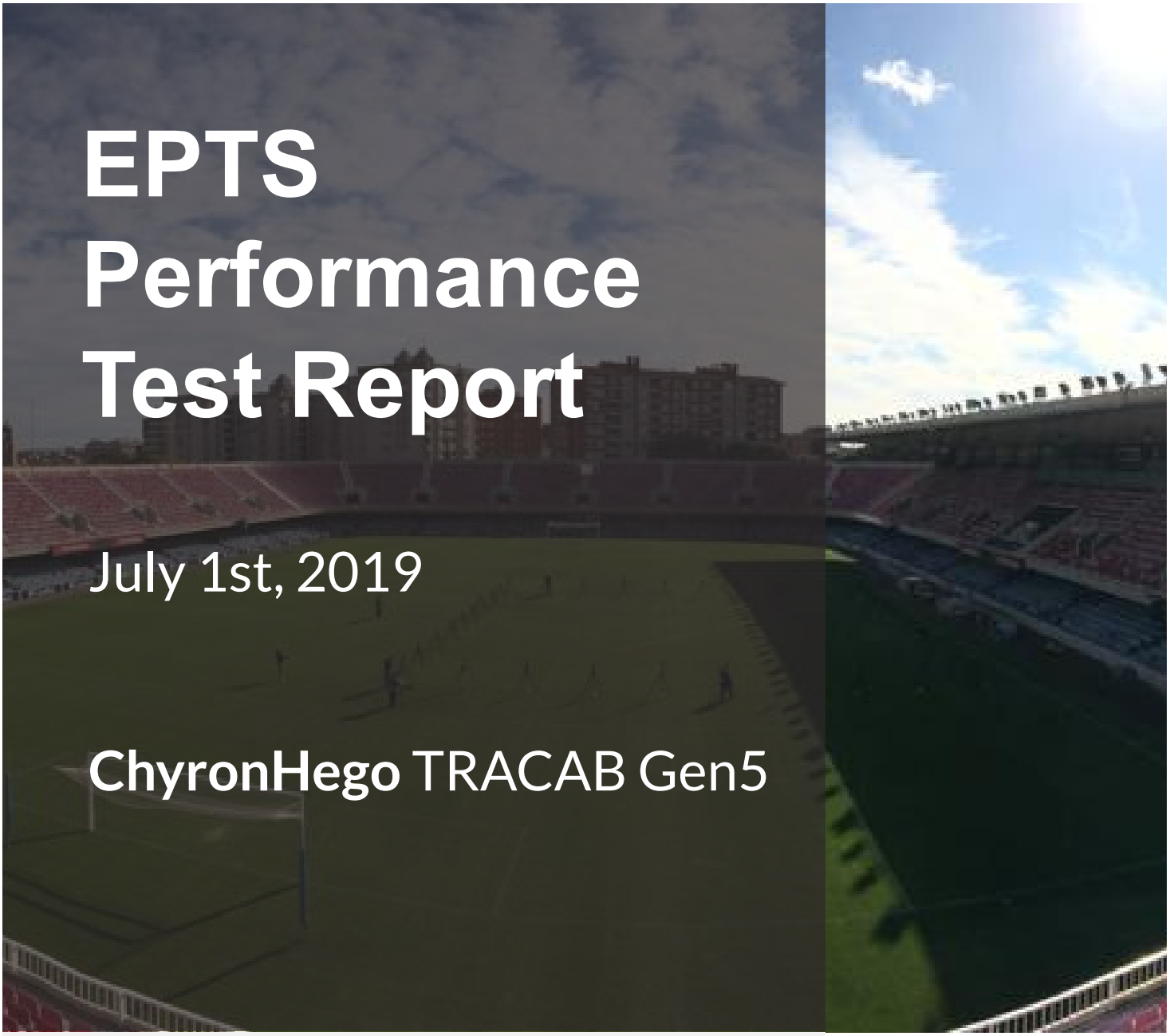
Track



EPTS Performance Test Report

July 1st, 2019

ChyronHego TRACAB Gen5

This report details the performance test carried out in accordance with the test protocol for Electronic & Performance Tracking Systems

FIFA®

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ChyronHego TRACAB Gen5

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Product details

Manufacturer	ChyronHego
Product Name	TRACAB Gen5
Serial number	
Firmware version	
EPTS Type	Optical

Test details

Date	22nd November 2018
Location	Barcelona Mini Estadi
Submission deadline met	1 hour post testing
Number of cameras	16
Certification Expiry Date	21/10/2021
Age of participants	Under 13

Fulfilment of test requirements

Test block	Capture & Submission
Circuit	√
2 v 2 Game	√
3 v 3 Game	√
5 v 5 Game	√

Complete Pitch Coverage

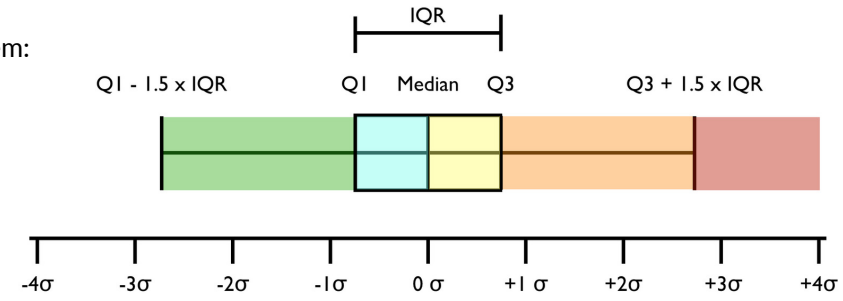
Data processing

Process	Comments
Data export	No issues noted - csv file format provided for each player. Incomplete pitch coverage noted
Time stamp	Consistent 25 Hz time stamp provided. Linear interpolated to 50 Hz, then smoothed using 5-point moving average and downsampled to 10 Hz
File matching	Files matched using cross-correlation method
Other	Note: no full-field data provided - data confined to Vicon capture space

Analysis interpretation

Measure	Definition
Root mean square difference (RMSD)	A commonly used measure of accuracy based on the sample standard deviation (σ) of the differences between the manufacturer and Vicon system. A large sample of RMSD values from GPS, LPS & Optical manufacturers comparisons were used to set the ranking criteria.
Data points	Varies depending on the quality of Vicon capture, as only the highest quality data is used for compared with Vicon comparative purposes.

Rating system:



Legend:
Well-above industry standard
Above industry standard
At industry standard
Below industry standard
Well-below industry standard

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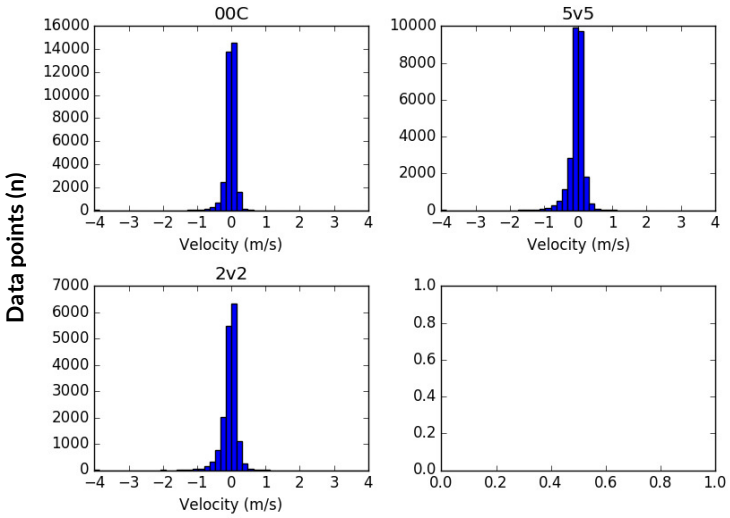
Rating by FIFA Velocity Band

	0-7 km/h	7-15 km/h	15-20 km/h	20-25 km/h	25+ km/h
Velocity RMSD (m/s)					N/A*
Position RMSD (m)					N/A*

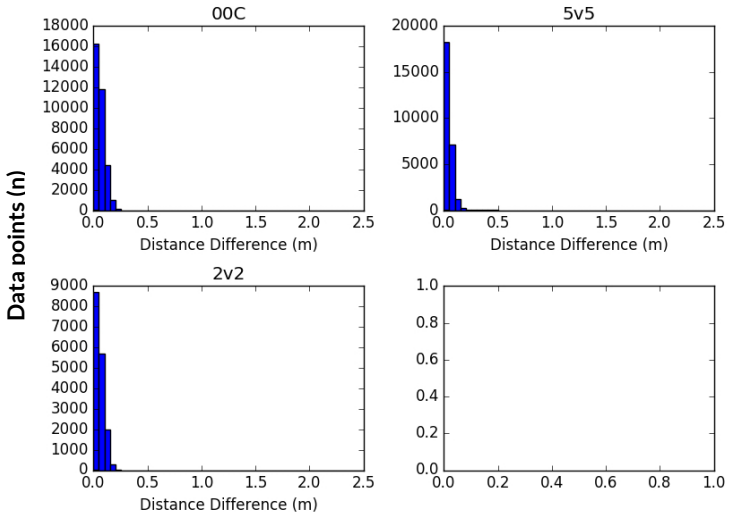
Legend	Well-above	Above	Standard	Below	Well-below

*N/A : No comparison available due to velocities not being achieved by participants

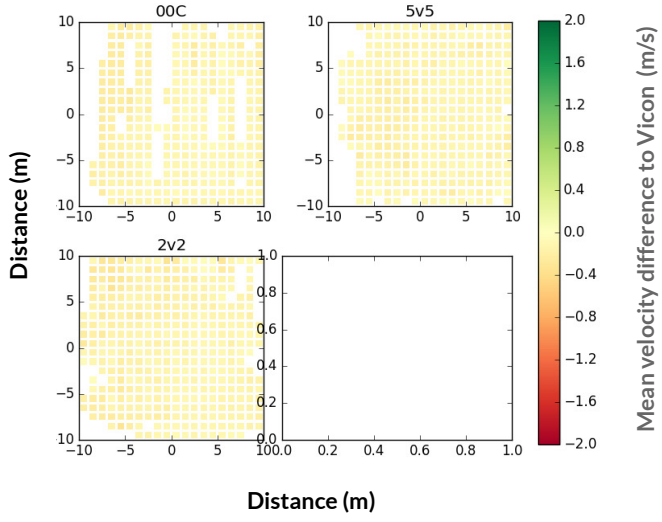
Histogram of Velocity Differences (m/s)



Histogram of Position Differences (m)



Mean velocity difference to Vicon (m/s)



Mean position difference to Vicon (m)