



3D Laser Scanner

AcuteLas Series

Just enjoy simplicity, accuracy, and efficiency



PART 1. Getting Started with AcuteLas SPL



00:33

SOUTH

What models we have?



	SPL-180	SPL-370	SPL-620	SPL-1500
Scan Range	Max.180m	Max.370m	Max.620m	Max.1500m
Scan Rate	50,000,000pts/sec	50,000,000pts/sec	120,000,000pts/sec	200,000,000pts/sec
Accuracy	5mm@100m	5mm@100m	5mm@100m	3mm@100m
Dual-Axis	-	±10°	±15°	±15°
Ingress protection	IP54	IP54	IP64	IP64
Remote Control	√	√	√	√
Compass	√	√	√	√
GNSS	√	√	√	√



PART 2. Key features of AcuteLas SPL series

1. Fastest and smallest Pulse TLS



Leica

13.05kg
Max.1000m



SPL-1500

6kg
Max.1500m



Riegl

9.8kg
Max.2500m

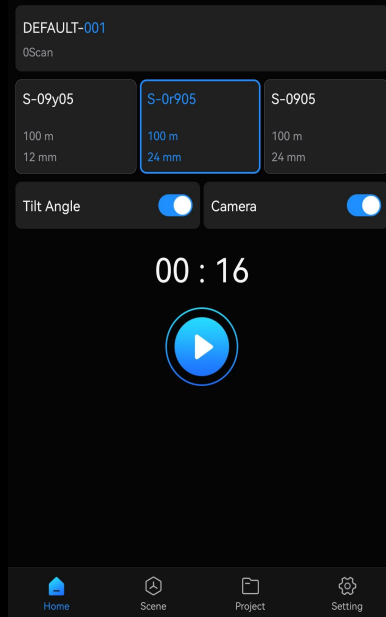


Maptec

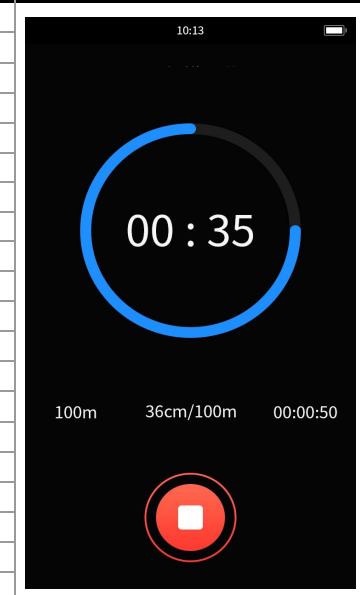
9.4kg
Max.1200m

1 SCAN 16s ONLY!

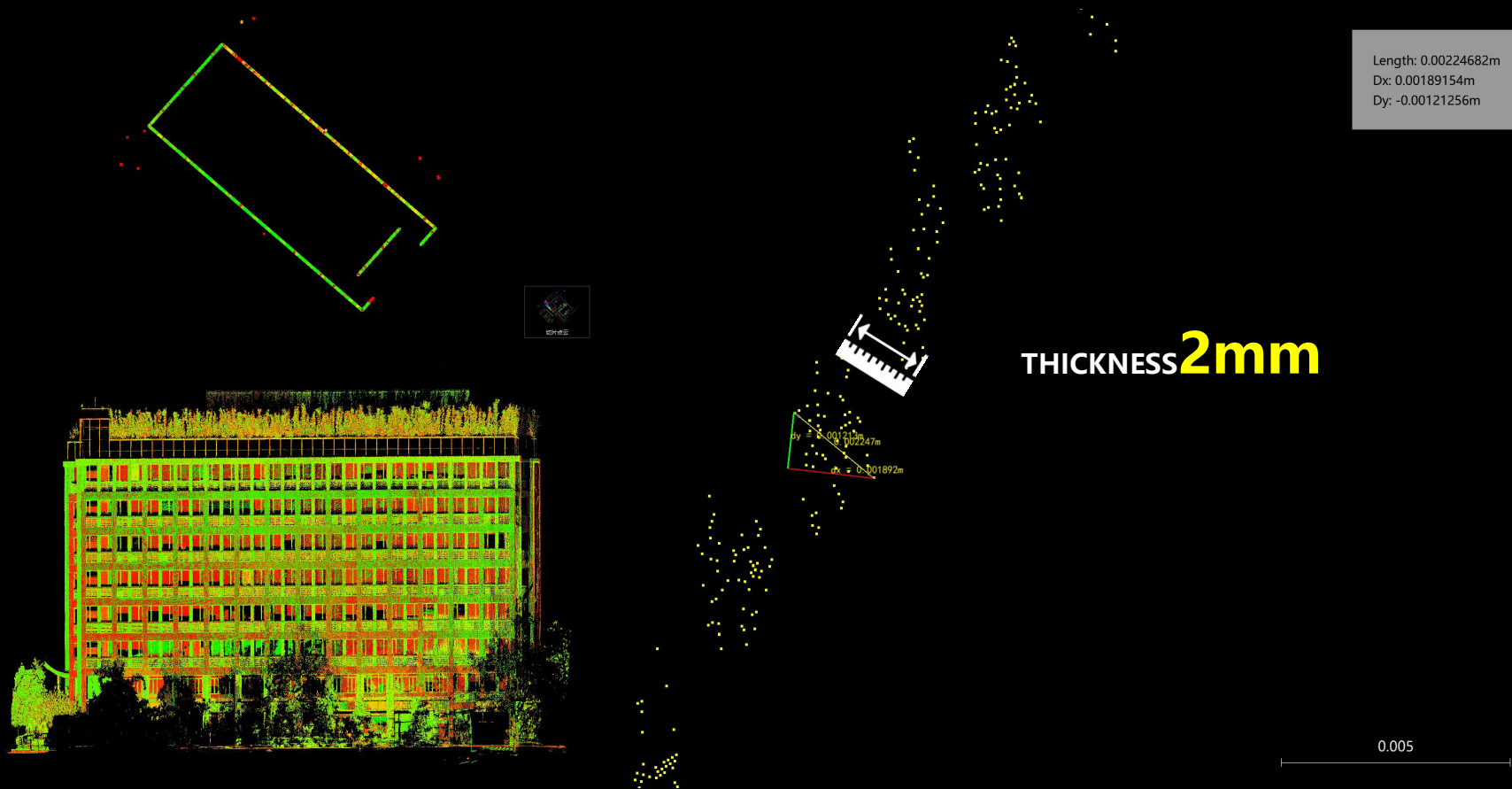
SCAN SPEED 100% increased!



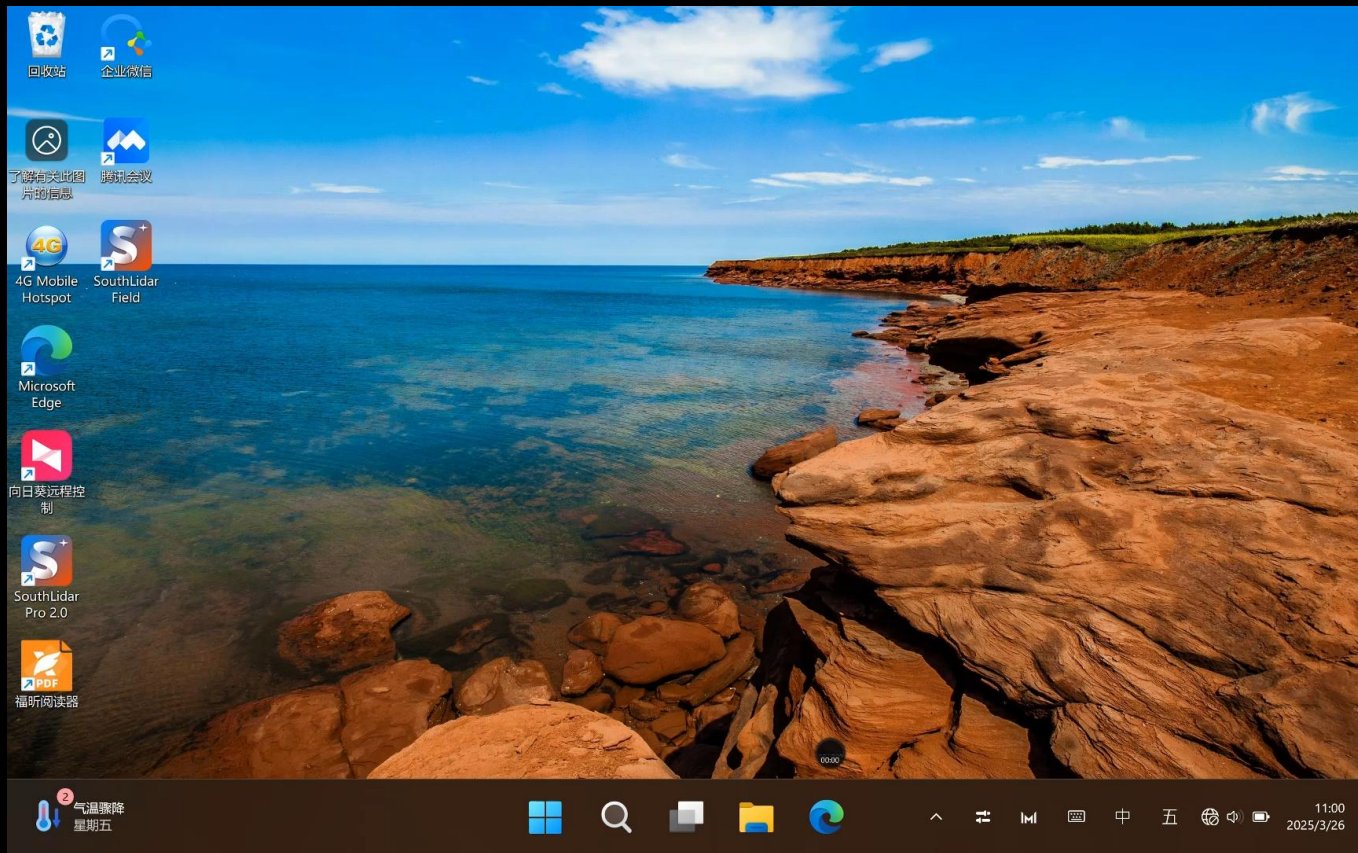
Scan range	Point Interval / Resolution	Scan Time
100m	3mm@10m	4: 28
	6mm@10m	1: 07
	12mm@10m	0: 33
	24mm@10m	0: 16
300m	3mm@10m	8: 56
	6mm@10m	2: 14
	12mm@10m	0: 33
	24mm@10m	0: 16
600m	3mm@10m	17: 52
	6mm@10m	4: 28
	12mm@10m	1: 07
	24mm@10m	0: 16
1000m	3mm@10m	29: 48
	6mm@10m	8: 56
	12mm@10m	2: 14
	24mm@10m	0: 33
1500m	3mm@10m	44: 42
	6mm@10m	17: 52
	12mm@10m	4: 28
	24mm@10m	1: 07



2.NOISE is one of the way for proving accuracy



3. Customized SDK-Remote control by PAD and real-time automatic registration



4. Accuracy similar to total station

Test 1 @ Guangzhou HQ

more than 100+ checkpoints

Accuracy 2~4mm



RMS similar to total station



Accuracy Similar to Leica

Test 3 @ Hong Kong 2024/08
RTC360 vs SPL-1500 vs BLK360



1st to Finish Was SPL-1500



SPL-1500, 6mm@10m
73sec



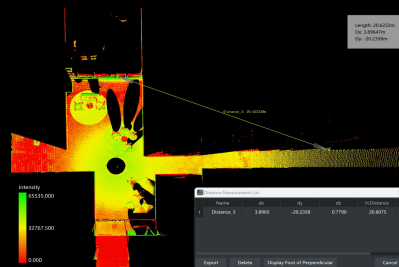
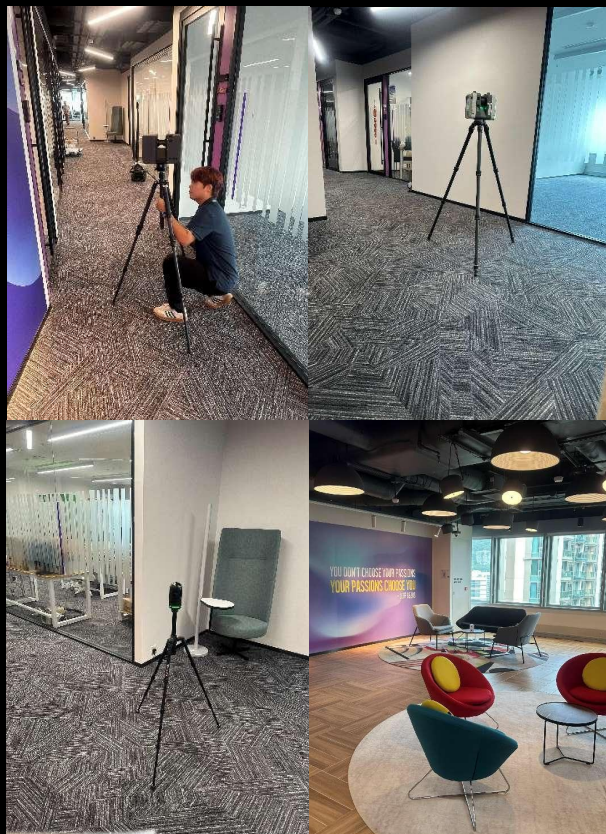
BLK360, 6mm@10m
97sec



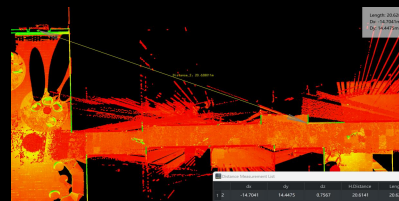
RTC360, 6mm@10m
162sec

A total of 9 scans were scanned, SPL is 1st to completed the task.

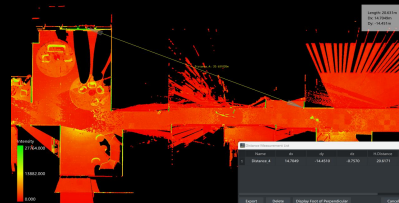
RESULT: Accuracy 2~4mm



SPL-1500: 20.6**282**m

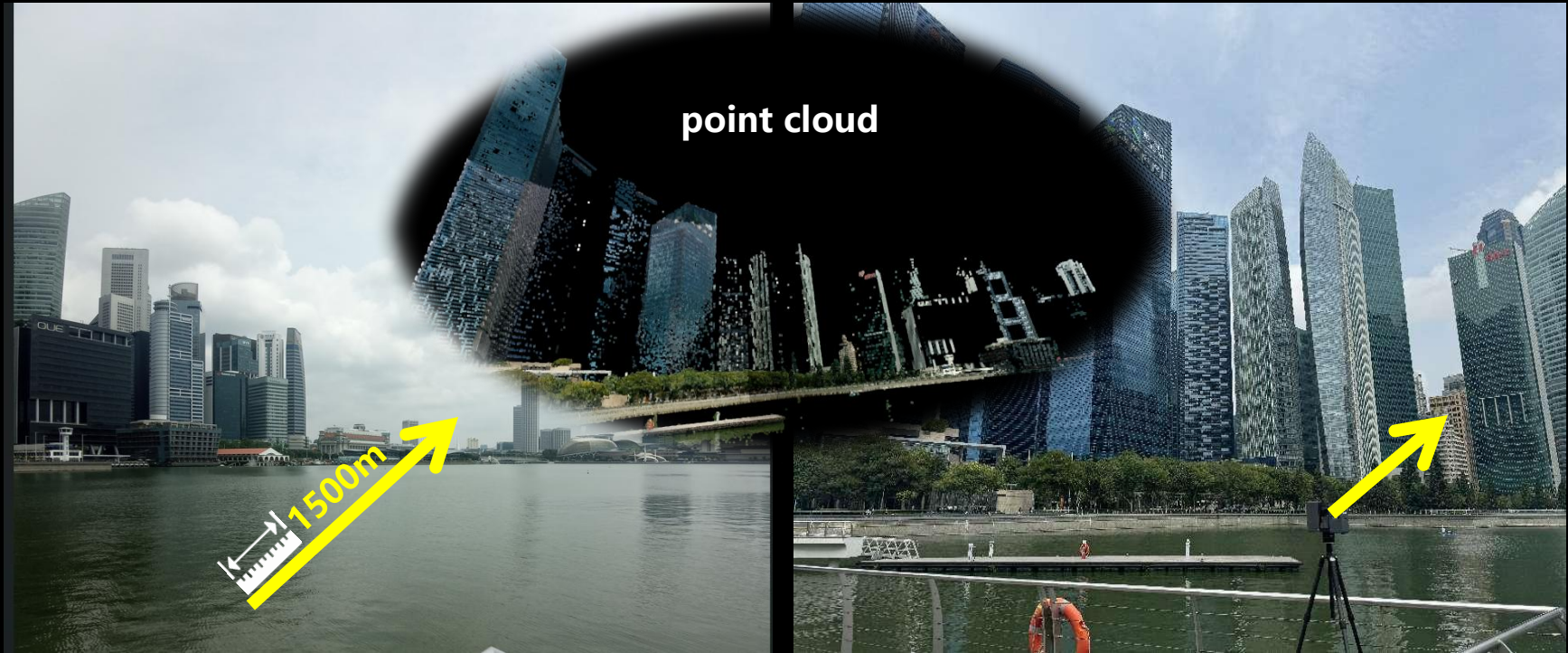


RTC360: 20.6**307**m



BLK360: 20.6**328**m

5.SPL-1500 Known as 1500m max. in scan range



SINGAPORE 2024/08

Actual Performance up to 1476.84m

SINGAPORE 2024/08
point interval is 1.8m@1500m

Length: 1478m
Dx: 714.153m
Dy: -1292.69m

Distance_1: 1478.000921m

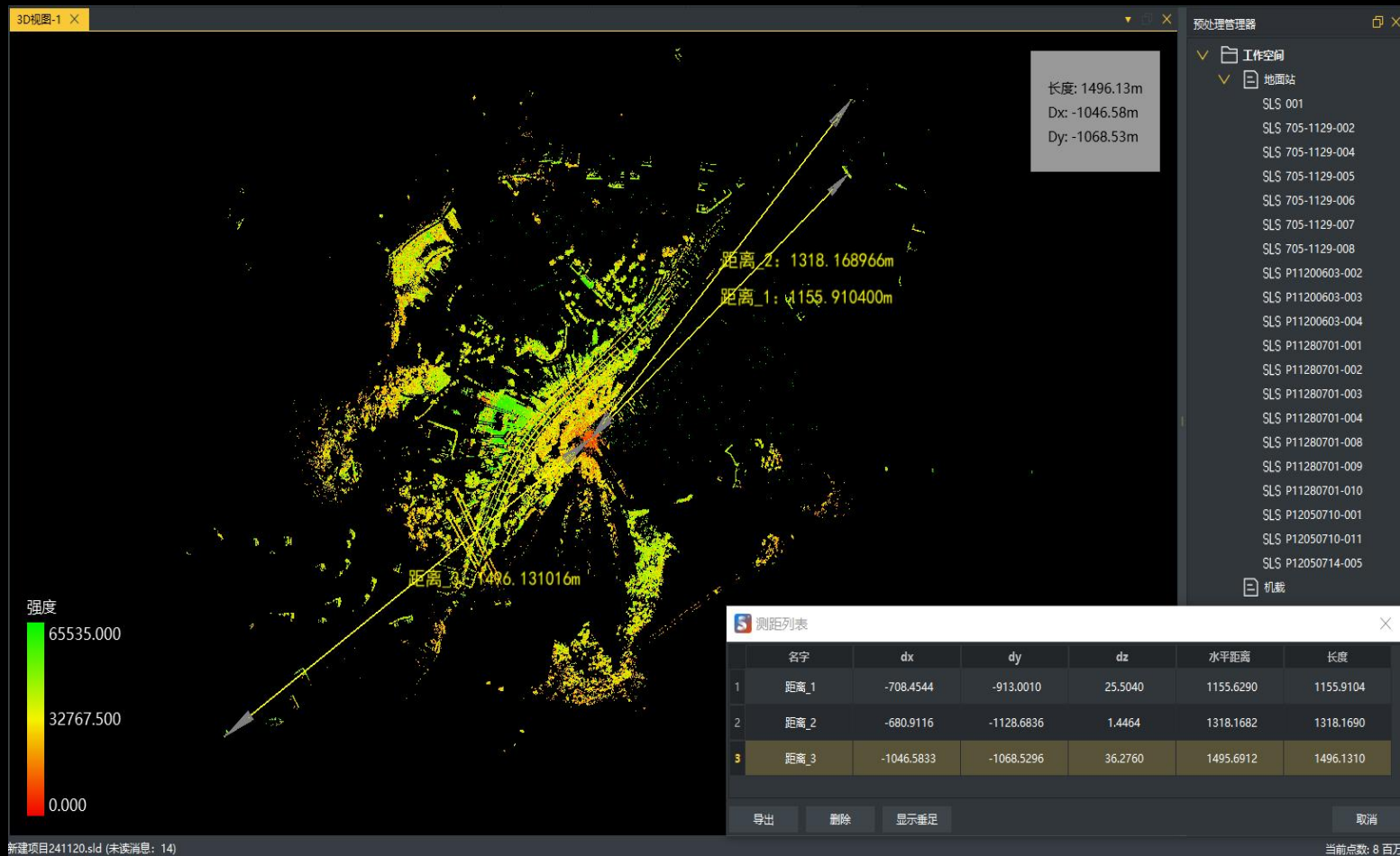
Distance Measurement List					
	Name	dx	dy	dz	H.Distance
1	Distance_1	714.1529	-1292.6911	58.4985	1476.8428
Export Delete Display Foot of Perpendicular Cancel					



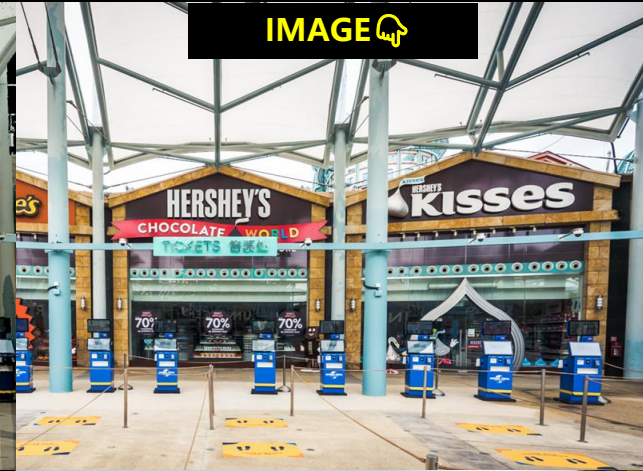
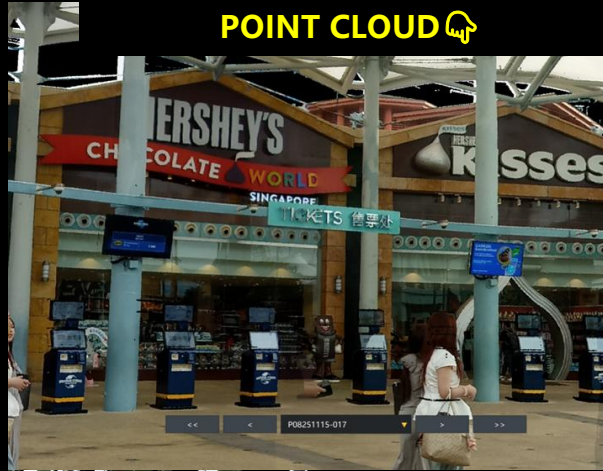
Length: 1.83741m
Dx: -0.000000m
Dy: 0.000000m

Distance Measurement List					
	Name	dx	dy	dz	H.Distance
1	Distance_1	-0.0000	0.0017	-1.8573	0.0208
Export Delete Display Foot of Perpendicular Cancel					

Test in Guangzhou 1495m



6. Photorealistic Effect Achieved by Colorization



PART 3. AcuteLas Studio Getting Started Tutorial



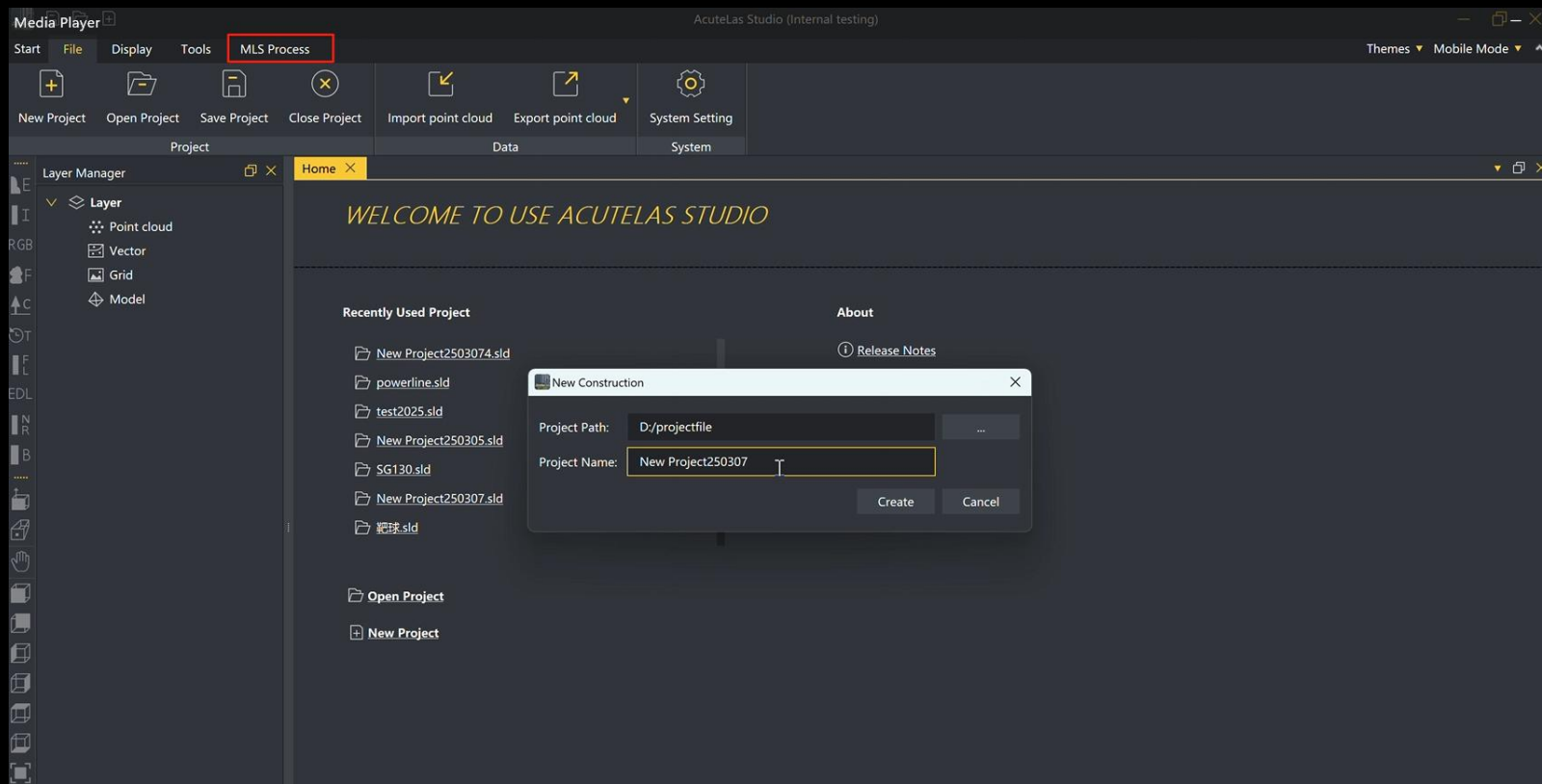
3.1 AcuteLas Studio Series **Terrestrial Laser Scanner** data Processing

The screenshot displays the AcuteLas Studio software interface. The main window has a menu bar (Start, File, Display, Tools, TLS Process) and a toolbar with various processing tools. The 'TLS Process' menu is active, showing options like ImportSLS, ImportSLPProject, Setting, SLS Transformation, Station Map, Target Recognition, Auto Register, Station Correct, Adjustment, SiteRoam, Quality Report, Prick Tool, and Manual Splice. The 'Import Data' sub-menu is open, showing 'Import Data' and 'Registration'. The 'Layer Manager' on the left shows a 'Layer' with 'Point cloud', 'Vector', 'Grid', and 'Model' options. The 'Data Conversion' dialog box is open, showing a table of conversion progress for three files.

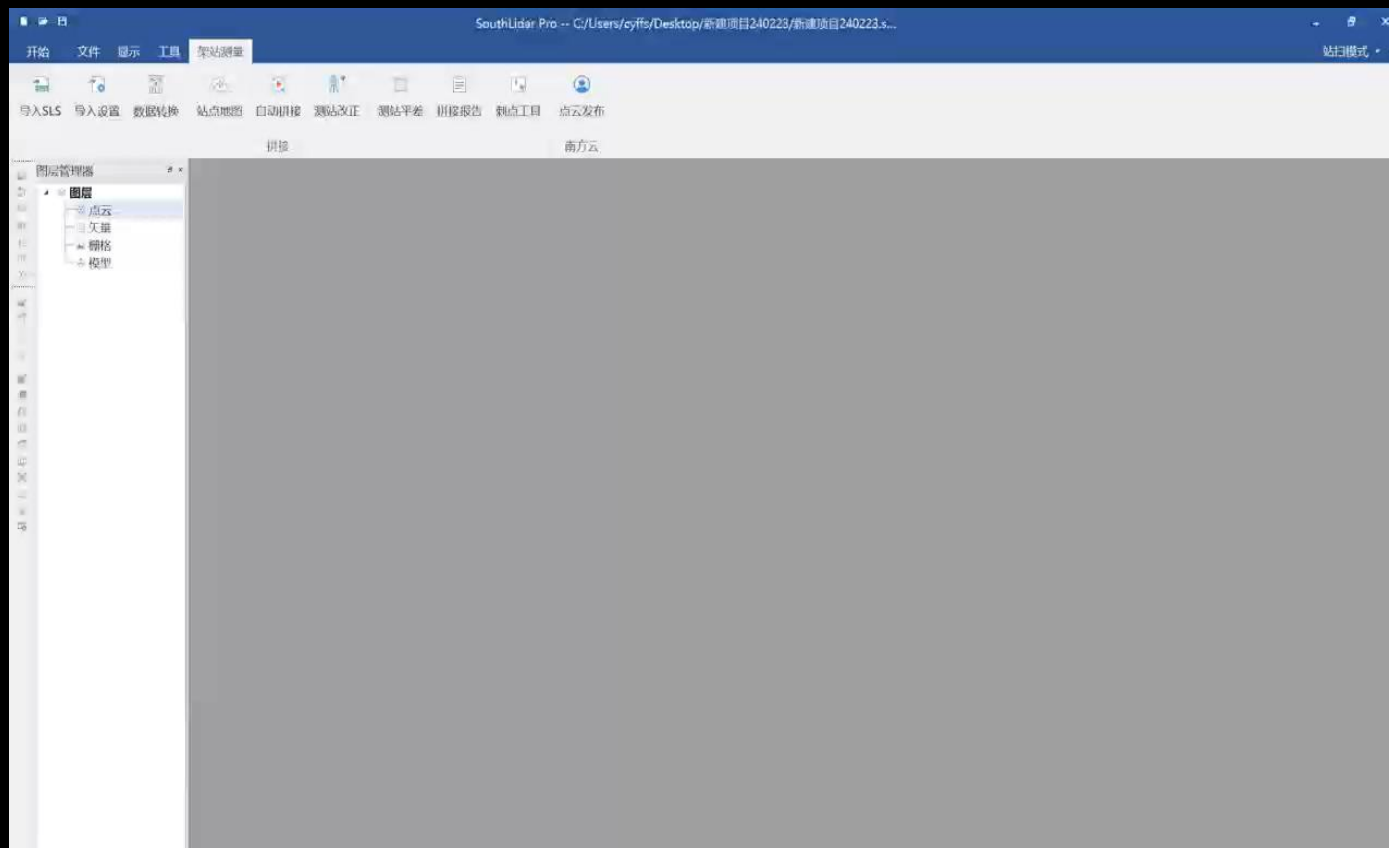
	Raw Data SLS	After Conversion	Current State	Conversion Progress	Modify Parameter
☒	20250415-001	20250415-001.slas	Coloring	5%	Parameter Setting
☒	20250415-002	20250415-002.slas	Coloring	5%	Parameter Setting
☒	20250415-003	20250415-003.slas	Unfinished	0%	Parameter Setting

At the bottom of the dialog, there is a 'Select all' button, a checked checkbox for 'Enter the sitemap', and 'Start Conversion' and 'Close' buttons.

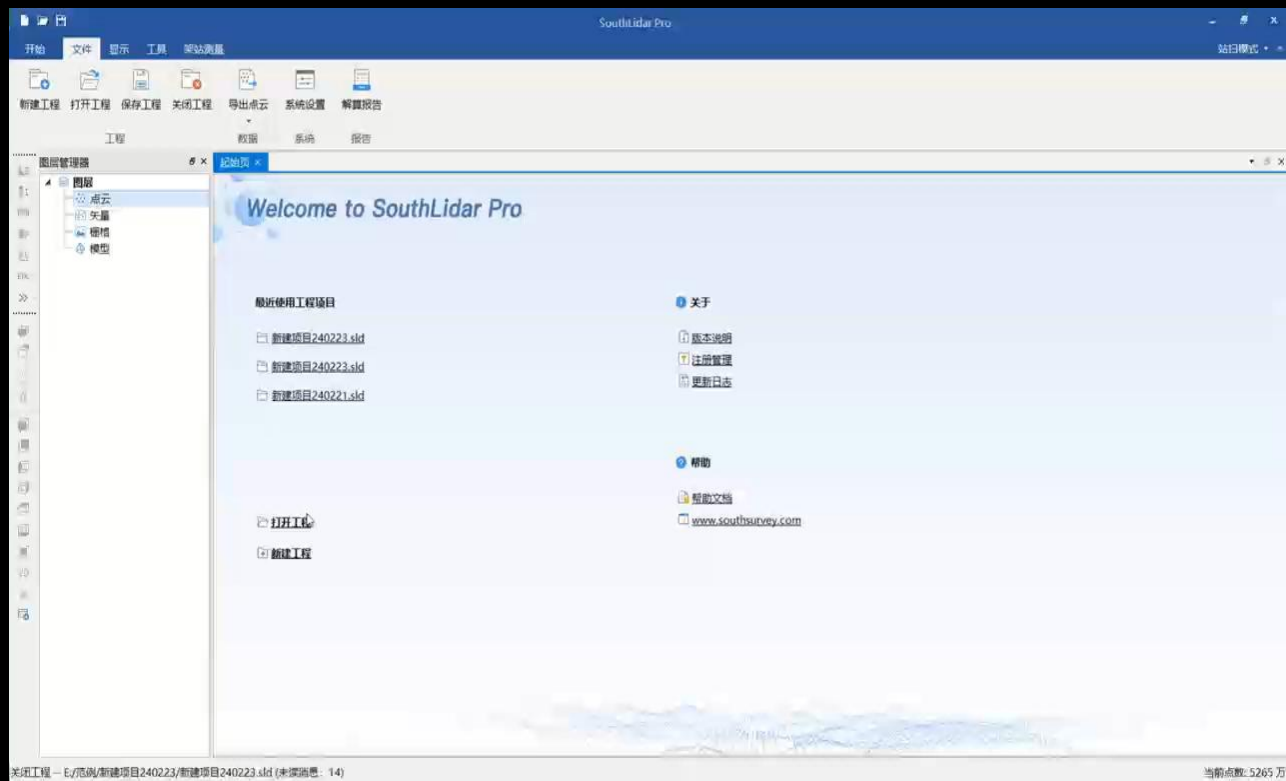
3.2 AcuteLas Studio Series **Mobile Mapping System** data Processing



3.3 Support **more than 200 stations** TLS data automatically registration

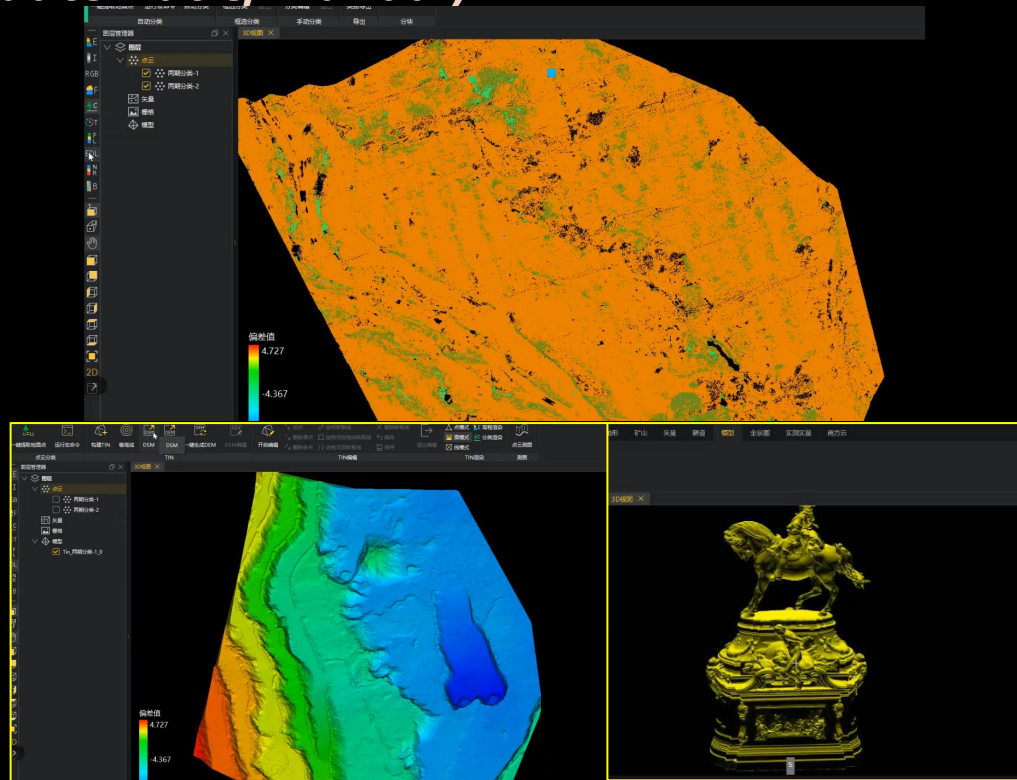


3.4 Support more than different format TLS data automatically registration (LAS and E57 for example)



3.5 Explore AcuteLAS Studio for More Functions

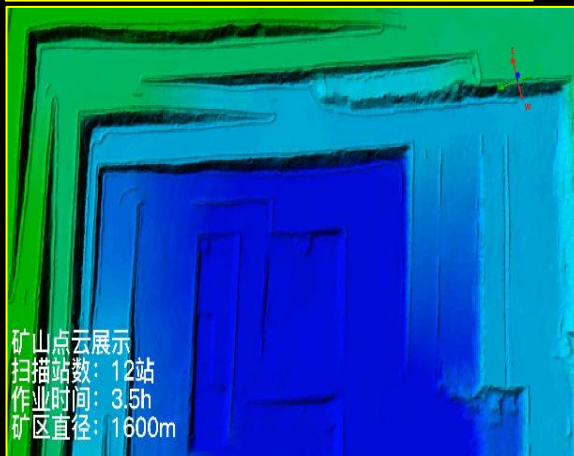
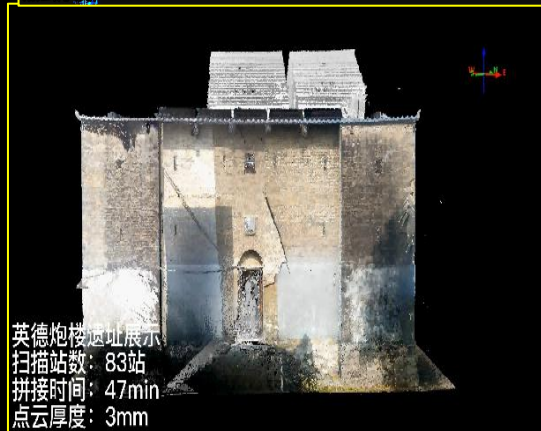
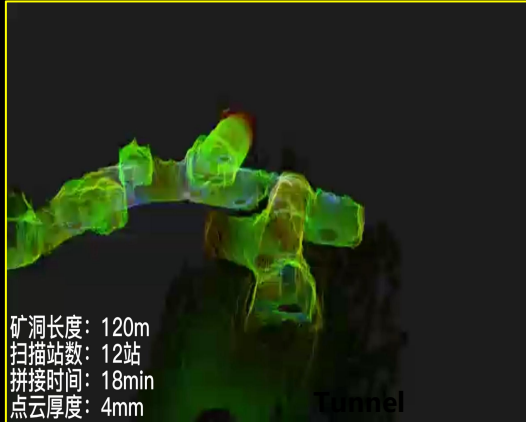
- ① 3D measurement(point, area size, line distance measurement)
- ② Point cloud **classification**(automatic, manual)
- ③ **Contour line** generation
- ④ DEM/DSM generation
- ⑤ Vector map generation
- ⑥ Tunnel data analysis
- ⑦ **3D Mesh** Generation
- ⑧ **Volume** calculation



PART 4. Case studies



Project-based Feedback to Push Improvements



1. Building Elevational Surveying

2023.12.11 @GuangDong

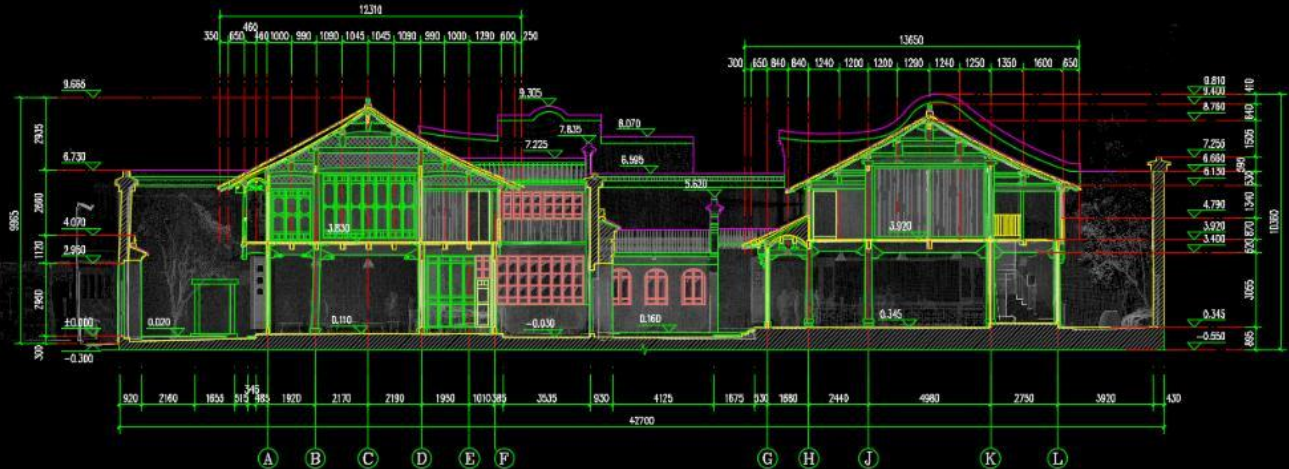
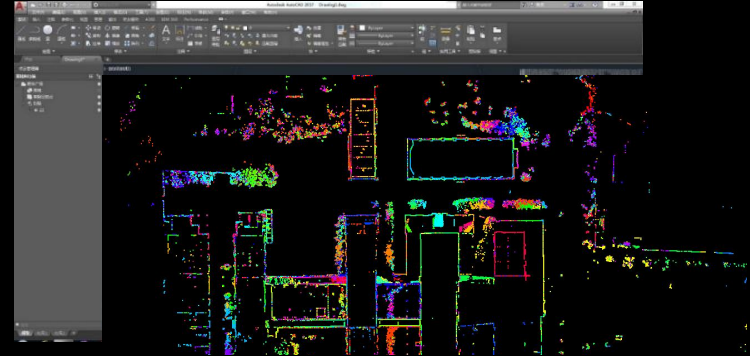
Ancient building group

75 scans in total

59 min (Auto-registration)

Accuracy: <1cm

Result: Vector map



2.Tunnel Surveying

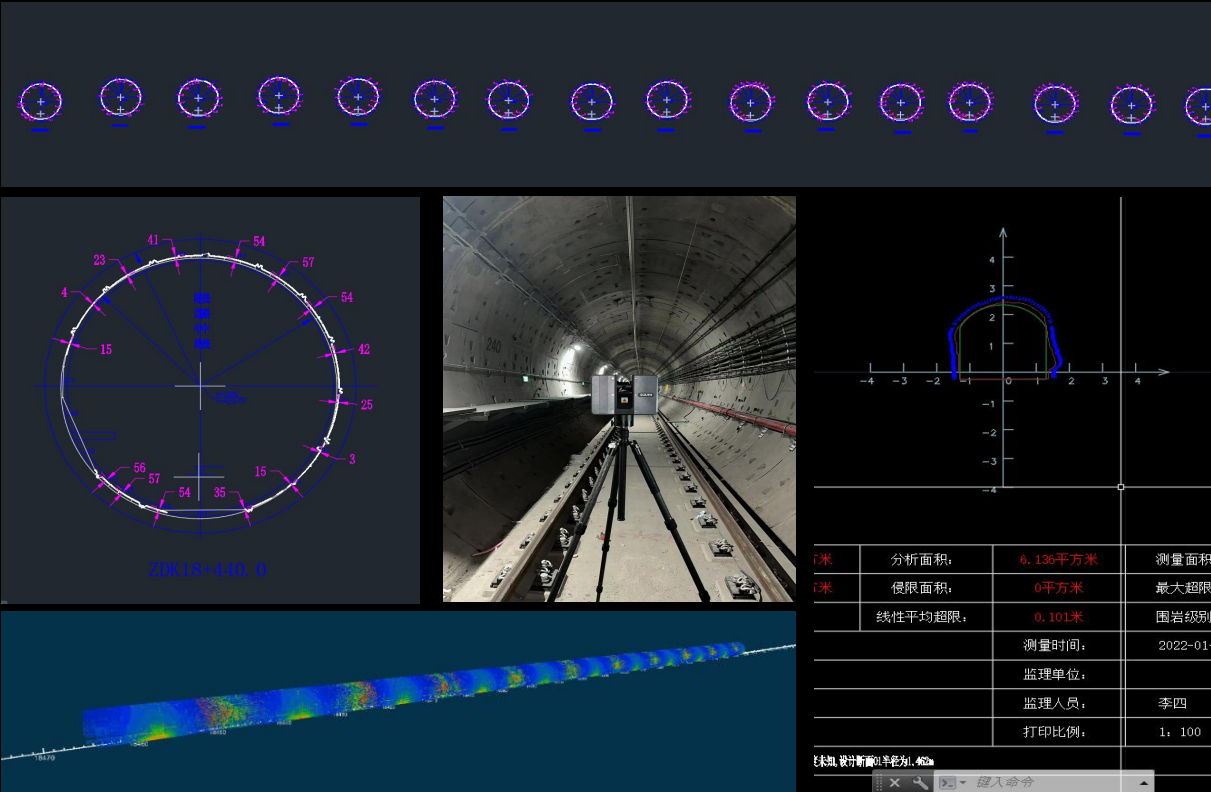
2024.3.26 @HuNan

Tunnel group

161 scans in total

Section-convergence analysis

Accuracy: <9mm



The following are the pictures of SPL-620 in the tunnel:



Over-break and under-break analysis platform

DK45+151.1~DK45+345.5

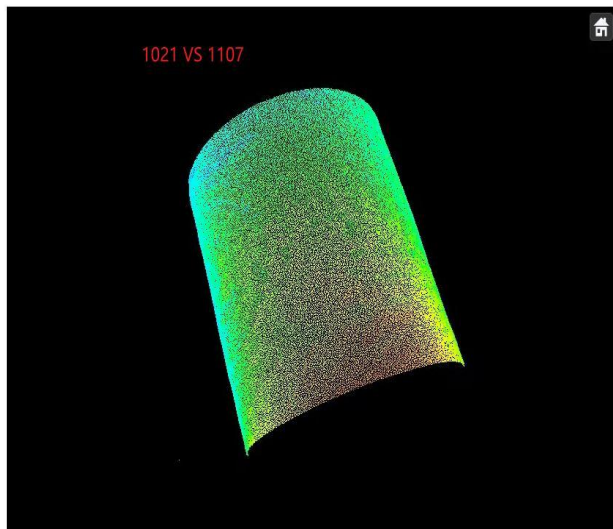
DK45+192.5 ~ DK45+193.5

DK45+193.5 ~ DK45+194.5

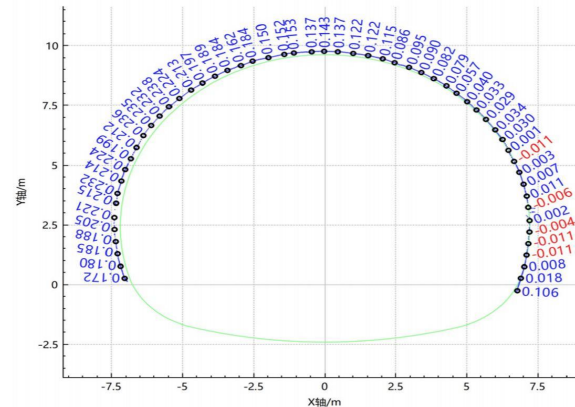
DK45+194.5 ~ DK45+195.5

DK45+195.5 ~ DK45+196.5

DK45+196.5 ~ DK45+197.5



Section: DK45+194.5



Design area(m ²)	125.309		Measuring area(m ²)	121.927	
Overbreak(m ²)	2.986		Underbreak(m ²)	6.369	
Average overbreak(m)	0.133	Min.overbreak(m)	0.001	Max.overbreak(m)	0.238
Average underbreak(m)	-0.009	Min.underbreak(m)	-0.011	Max.underbreak(m)	-0.004

3. Open-pit mining scan

2024.4.9 @Neimenggu

2 scans in total

Model name: SPL-1500

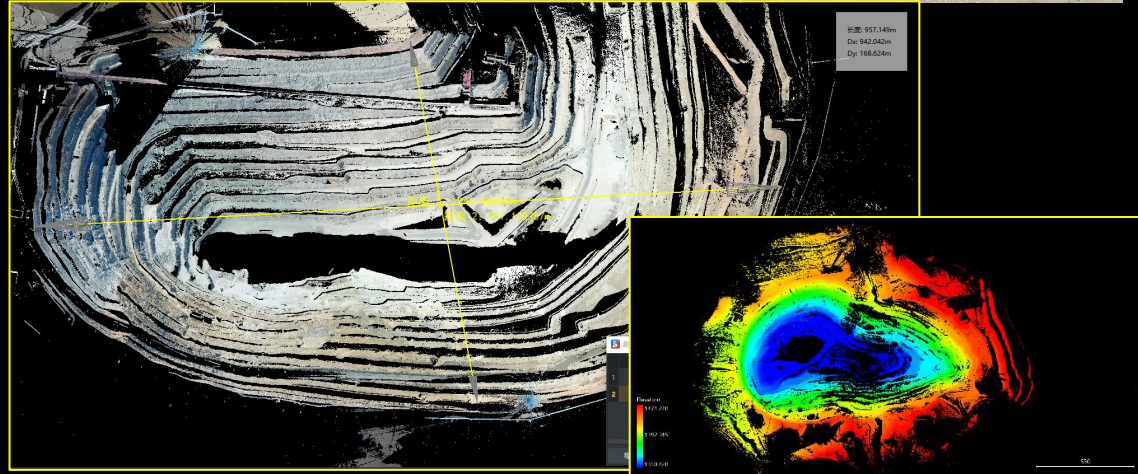
Absolute Accuracy: 2 cm

Single station scanning

range: 1.2 km

Area size: 1.76 sq.km

Results: **Point cloud and DEM**



4. SCAN-TO-BIM

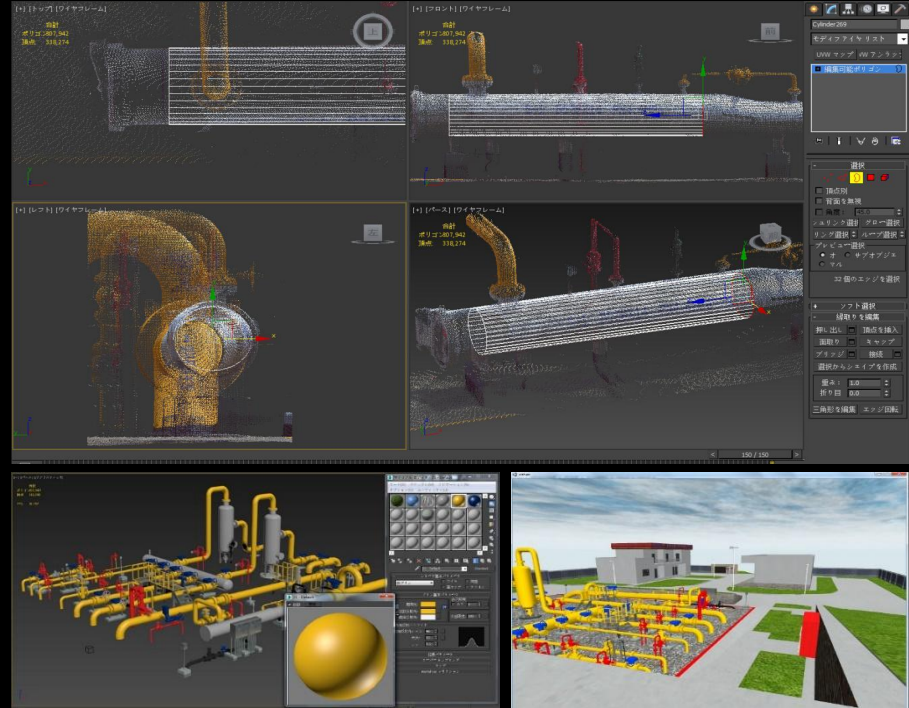
2024.7.8 @GuangDong

45 scans in total

Type: BIM of Gas plant

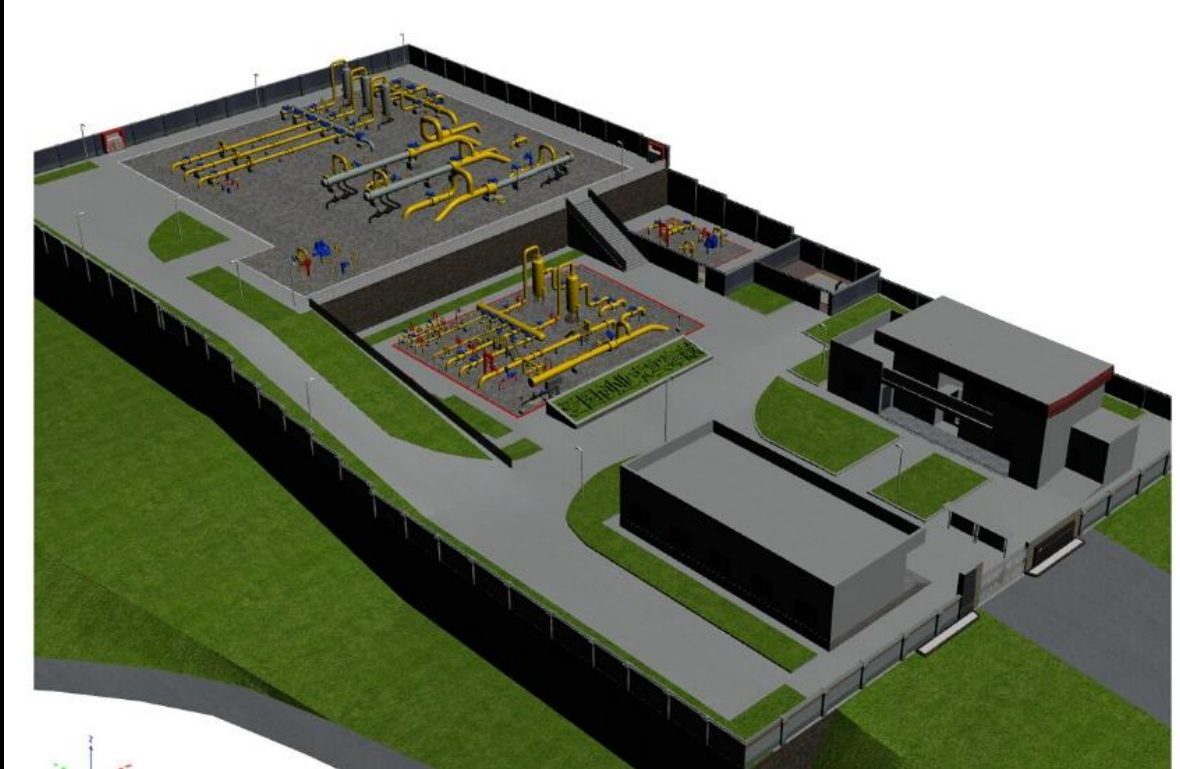
Accuracy: < 1cm

Result: 3D Model to BIM

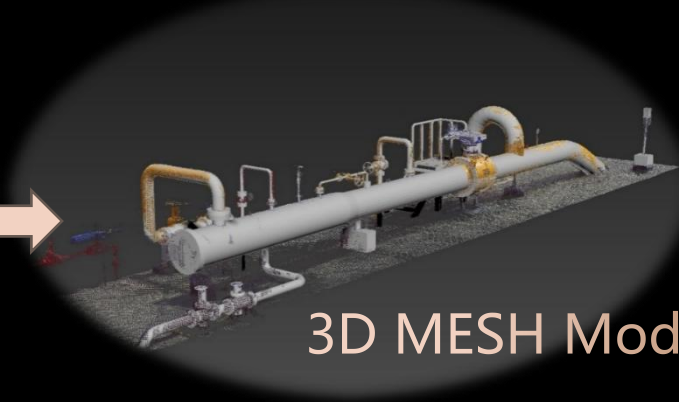
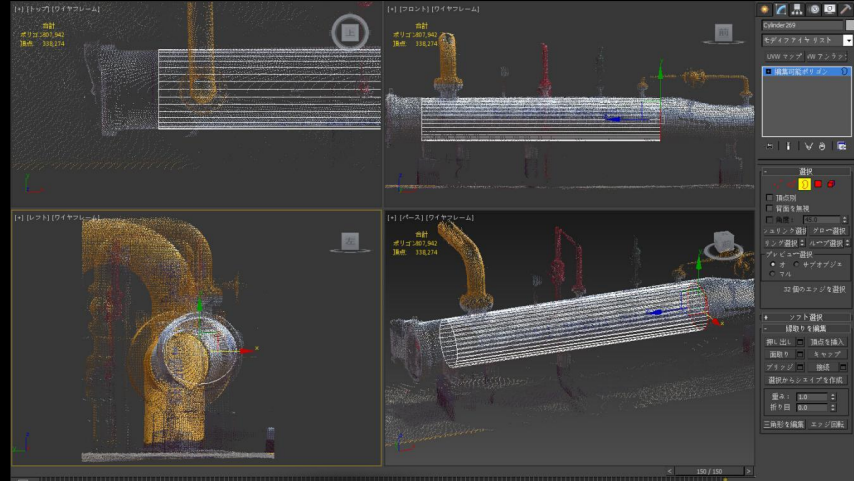


5. BIM in the gas industry

The gas department needs to use the BIM platform to model the pipeline in detail for subsequent equipment upgrades, maintenance and management.

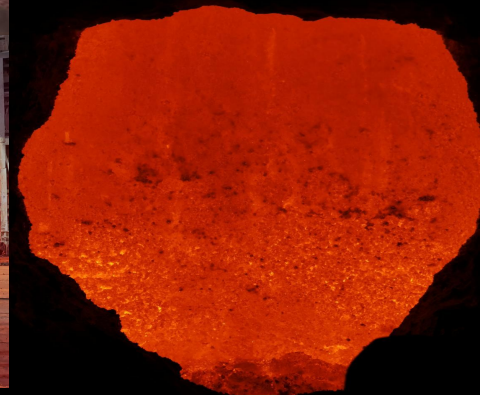
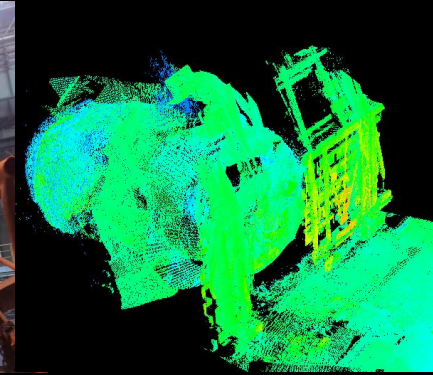


Gas Pipeline Design and Modeling



6. Monitoring-Case 1

1. Project : 2021~now
2. Project name: Steel Factory Monitoring usage
3. Project Requirements: Steel ball positioning scanning
4. Duration time of a single station: < 15 secs
5. High temperature resistance : 1700°C
6. Instrument: SPL-1500
7. Scan stations: 8 stations
6. Results: Point cloud of the Steel ball



HONOR 30 5G
Matrix Camera

HONOR 30 5G
Matrix Camera

7. Monitoring-Case 2

1. Project : 2022~now
2. Project name: Steel Factory volume calc
3. Project Requirements: several times scan per day
4. Duration time of a single station: <1 min
5. Instrument: SPL-1500
6. Scan stations: single station
7. Results: Volume calculation





THANK YOU!