



RIEGL's dedicated instruments for high efficiency airborne laser scanning

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RIEGL

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- new exterior design



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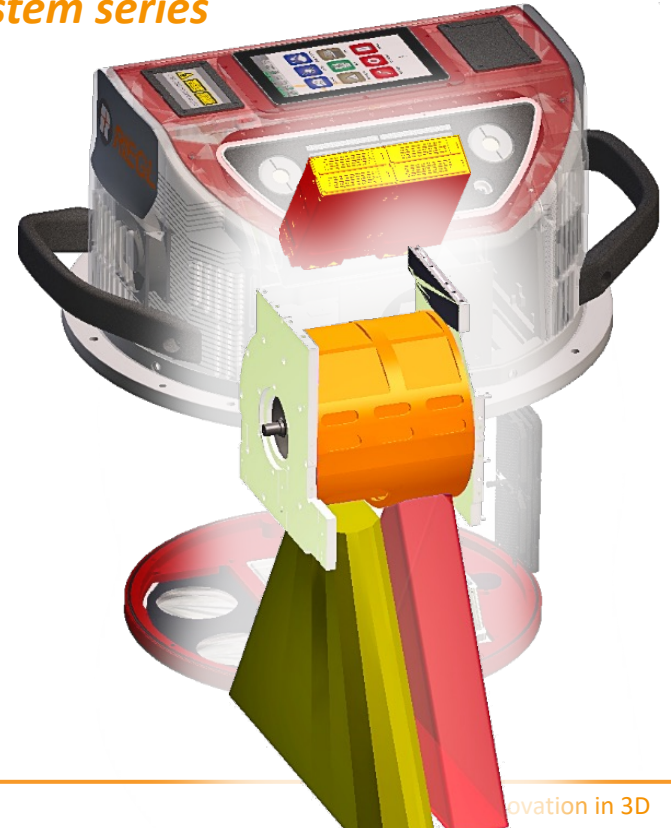
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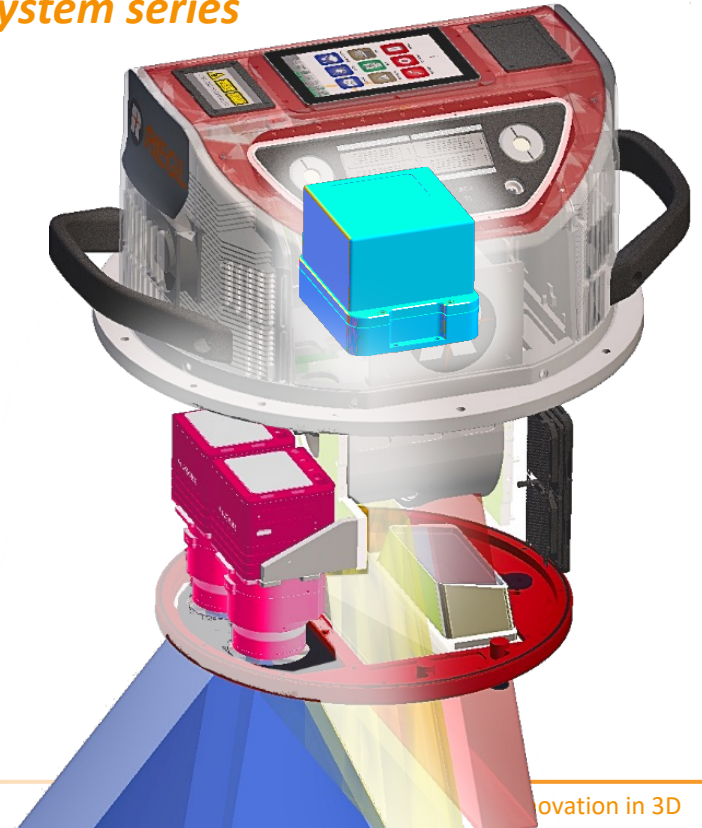
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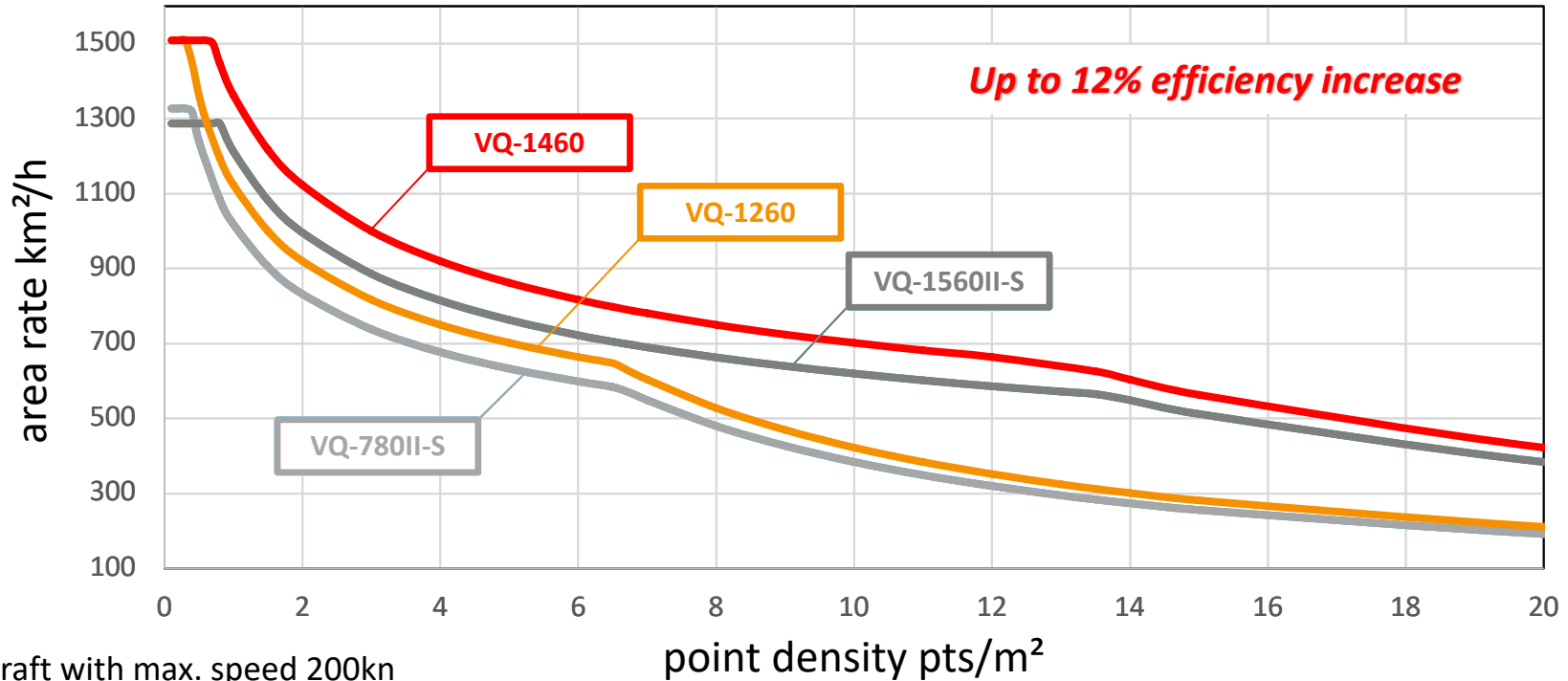
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Product highlights - VQ-1260 and VQ-1460

- **efficiency increase by > 12 %** over VQ-780II-S and VQ-1560II-S
- **measurement ranges up to 5400 m** @ 270 kHz VQ-1260, @ 540 kHz VQ-1460
- extremely fast: **2.2 MHz** VQ-1260, **4.4 MHz** VQ-1460, up to 1900m AGL
1.47MHz, 2.93MHz eff. measurement rate
- **high point density** and **linear point spacing** like e.g. VQ-580II-S, VQ-780II-S
- optimum separation of emitter and receiver path - **atmospheric clutter suppression**
- **full waveform recording** and **online waveform processing**
- integrated **data recorder (up to 4 x 16 TB)** and integrated high-grade **IMU/GNSS system**
- integrated **drying unit**
- up to two integrated **150 MPix RGB, NIR or thermal cameras**
- fits **gyro-stabilized mounts** (GSM 3000/4000)
- **modular design** enables future upgrades

Performance charts ¹⁾ – VQ-1260 and VQ-1460



Performance examples – high point densities

min. pts/m ²	VQ-780II-S	VQ-1260	VQ-1460	VQ-1560II (-S)
10	378 km ² /h 140kn, 1578m AGL	416 km ² /h 140kn, 1736m AGL	505 km ² /h 140kn, 2100m AGL	481 km ² /h 140kn, 2070m AGL
20	189 km ² /h 101kn, 1100m AGL	208 km ² /h 108kn, 1230m AGL	415 km ² /h 140kn, 1730m AGL	378 km ² /h 140kn, 1630m AGL
30	126 km ² /h 106kn, 690m AGL	139 km ² /h 109kn, 741m AGL	277 km ² /h 140 kn, 1160m AGL	252 km ² /h 138 kn, 1100m AGL
40	95 km ² /h 92kn, 600m AGL	104 km ² /h 127kn, 480m AGL	208 km ² /h 120kn, 1010m AGL	189 km ² /h 103kn, 1100m AGL
80		52 km ² /h 109kn, 280m AGL	104 km ² /h 130kn, 470m AGL	

20% sidelap, vis = 23km, ρ_{\min} = 20%, max. aircraft speed = 140kn , +/- 5deg roll margin

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RIEGL®

RIPARAMETER 2.5.0.g60464f5c x64

RIPARAMETER



INPUT/OUTPUT

SETTINGS

Scanner Type



VQ-1460 [Preliminary]

Project Requirements

Project Type: **Wide Area Mapping**

Uniform Point Pattern: **ON**

Point Density: **Min.** **2 x 20.0** pts/m²

Sidelap Per Side: **0.0** %

Terrain

Min. Altitude (AMSL): **0.00** ft **0.00** m

Terrain Variation: **0.00** ft **0.00** m

Flight Height Constraints

Min. Height (AGL): **0.00** ft **0.00** m

Max. Height (AGL): **0.00** ft **0.00** m

Max. Altitude (AMSL): **0.00** ft **0.00** m

Laser Safety: **Observe ENOHD**

Surface / Target / Atmosphere

Min. Reflectance: **40.0** %

Target Type: **Topography**

Object Diameter: **0.1** m

Visibility: **40km Very Clear**

Aircraft

Select Aircraft: **Cessna T206H STATIONAIR**

Min. Speed: **69.98** kn **129.60** km/h

Max. Speed: **139.96** kn **259.20** km/h

Max. Altitude (AMSL): **26000.00** ft **7924.80** m

Result Qualifier

SUCCESS

Scanner Settings

PRR: **2 x 2182** kHz

Laser Power: **50.0** %

Scan Rate: **451** ips Angular Step Width: **0.00930** °

FOV: **60.00** °

Flight Parameters

Flying Height AGL: **2398** ft **731** m

Flying Height AMSL: **2398** ft **731** m

Aircraft Speed: **140** kn **259** km/h **71.9** m/s

Scan Pattern

Swath Width: **844** m Lat. Strip Separation: **844** m

Overlap Per Side: **0** m Sidelap Per Side: **0** %

Line Distance: **0.159** m

	Min.	Avg.	Max.
Interlaced Point Distance:	0.119 m	0.131 m	0.158 m
Point Density:	2 x 19.8 pts/m ²	2 x 24.0 pts/m ²	2 x 26.4 pts/m ²
Footprint Diameter:	0.168 m	0.177 m	0.194 m

MTA Details

MTA Zone Width: **69.0** m **Show list of MTA zone transitions**

	Min.	Max.
MTA Zones Used:	11	13

Productivity

Net Area Rate: **218** km²/h

Typ. Data Rate: **2 x 94.3** GB/h

Max. Data Rate: **2 x 194** GB/h

Laser Safety Information

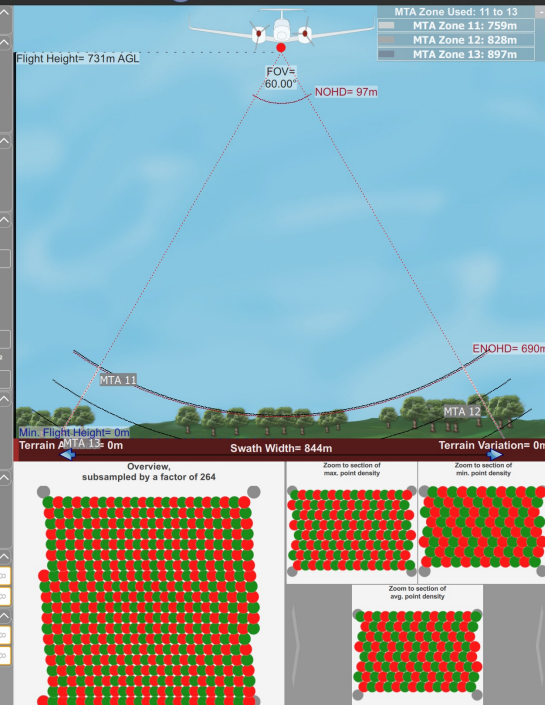
Total NOHD: **97.3** m **13%** **50%** **100%**

Total ENOHD: **690** m **94%**

Auxiliary Limits

Max. Meas. Range: **892** m **39%** **100%**

Scanrate-Range-Prod.: **402182** m³/s **24%** **50%** **100%**



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Solution found

*The new universal wing pod **VQX-1***

System components:

- airborne laser scanners: **VUX-120²³**, **new VUX-160**, **VUX-240**,
VQ-480II, **new VQ-580II-S**
- bathymetry laser scanner: **VQ-840-G**
- IMU/GNSS: **VUX-SYS AP60**
- cameras: up to **3 x PhaseOne iXM100**
- **operator laptop** in cabin for system control and scan data storage
- **one single power supply cable** from aircraft power bus
- **one single LAN cable**, up to three USB cables



Pre-sales check list

Checklist - Riegl VQX-1 Pod

1. AIRPLANE

Type:

Model:

S/N.:

Registration

Confirm that the specific model is covered by the Approved model list (Doc No.: 020-AML-STC) and as shown below: [ok]

2. AIRPLANE DATA

Provide the following information:

- Airplane weighing report: [ok]
- Equipment list [ok]
- List of Modifications/ STCs/ SB [ok]
- Voltage of electric system: [14V or 28VDC]
- Amperage / Type of generator: / [Amps / TYPE]

MODEL	ORIGINAL TCDS NO
172, 172A, 172B, 172C, 172D, 172E, 172F, 172G, 172H, 172I, 172K, 172L, 172M, 172N, 172P, 172Q,	3A12
172R, 172S	3A12
F172D, F172E, F172F, F172G, F172H, F172K, F172L, F172M, F172N, F172P	A4EU
FR172E, FR172F, FR172G, FR172H, FR172J, FR172K	A18EU

3. PROVISIONS / SYSTEMS:

3.1 Electric provisions

- Is the airplane already equipped with an electric bus dedicated to operate sensor equipment / mission systems? [Y/N]
 - o If **YES**, what is the maximum approved power output? [Amps]
 - o If **NO**, fill out the table below or provide an actual equipment list ¹⁾:

¹⁾ **NOTE:** With the STC the installation of a 15Amps or 25Amps electric AUX Bus is possible (In order to supply the VQX pods with electric power. In order to determine the available electric power provide a detailed equipment list **OR** fill out the table below :

Group	Equipment	Type	Electric power consumption ²⁾
			[Amps]
Radios	COM #1		
	COM #2		
	COM #3		
	NAV #1		
	NAV #2		
	NAV #3		
	GPS #1		
	GPS #2		
	GPS #3		
	XPDR #1		
	XPDR #2		
	ADF		
	DME		
	Audiopanel		
	ELT		
CO Detector			
AP	Autopilot computer		
	Roll servo		

The VQX-1 – Supplemental Type Certificate

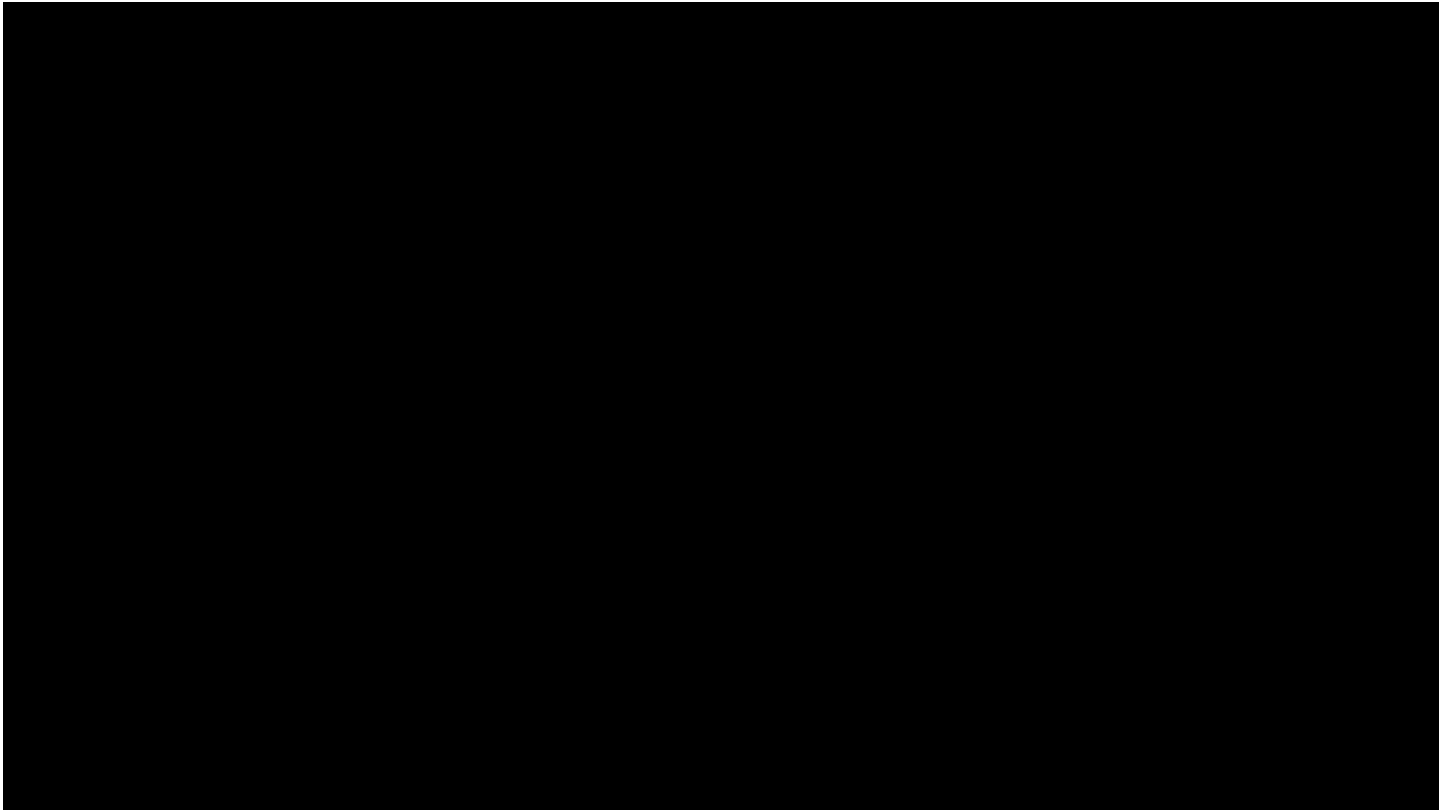
CESSNA MODEL	ORIGINAL TCDS NO
172, 172A, 172B, 172C, 172D, 172E, 172F, 172G, 172H, 172I, 172K, 172L, 172M, 172N, 172P, 172Q,	3A12
172R, 172S	3A12
F172D, F172E, F172F, F172G, F172H, F172K, F172L, F172M, F172N, F172P	A4EU
FR172E, FR172F, FR172G, FR172H, FR172J, FR172K (S/N FR17200631 and on)	A18EU
182, 182A, 182B, 182C, 182D, 182E, 182F, 182G, 182H, 182J, 182K, 182L, 182M, 182N, 182P, 182Q, T182, R182, TR182, 182R	3A13
182S, 182T, T182T	3A13
F182P, F182Q	A42EU
206, U206, P206, U206A, P206A/B, TU206A/B, TP206A/B, U206B, P206C/D/E, TP206C/D/E, U206C/D/E/F, TU206C/D/E/F, U206G, TU206G,	A4CE
206H, T206H	EASA.IM.A.053



The STC covers over 120.000 aircrafts world wide



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*Thank you
for your kind attention!*