

## QA4LiDAR v1.4.5 for ArcGIS 10.4

## Contract Number:

Project Title: Balranald

Project Directory: D:\QA4LiDAR\_TestData\BalranaldTown0912

## Compliance:

- PASS** - Data is compliant and satisfies QA measure, no further action necessary.
- FAIL** - Data is non-compliant and does NOT satisfy QA measure. Resupply required.
- CPASS** - Conditional Pass as the data is not compliant and does NOT satisfy the QA measure, but is very close to satisfying the measure or the problem can be rectified without resupply.
- PENDING** - The compliance and QA check has not been completed.
- N/A** - The check is not applicable.

### Presence & Reading

#### Delivery Completeness, Spatial File Corruption, File Naming, Shapefile Attributes & Horizontal Coordinate System

Check	File Type	Compliance	Problem	Number of Failed Files
Corruption	.las	<b>PASS</b>		0 / 30
Corruption	.shp	<b>PASS</b>		0 / 6
Corruption	.asc	<b>PASS</b>		0 / 90
Corruption	.ecw	<b>PASS</b>		0 / 3
NEDF Filenaming	.ecw	<b>FAIL</b>	Incorrect format	3 / 3
NEDF Filenaming	.las	<b>PASS</b>		0 / 30
NEDF Filenaming	.asc	<b>FAIL</b>	Incorrect format	90 / 90
Delivery Elements		<b>PASS</b>		0 / 8
Tile Index Origin		<b>PASS</b>		0 / 1
Classified LAS ORT Tile Delivery	.las	<b>PASS</b>		0 / 30
DEM Tile Delivery		<b>PASS</b>		0 / 90
Intensity Imagery Mosaic Delivery		<b>PASS</b>		0 / 1
Requested Horizontal Coordinate System		<b>FAIL</b>	Incorrect HCS	92 / 123
Requested Dataset Attributes		<b>FAIL</b>	Not found	2 / 3
LAS Validation	.las	<b>FAIL</b>	CRS	30 / 30
Tile Size		<b>PASS</b>		0 / 120
LAS version and PDRF	.las	<b>FAIL</b>	Incorrect	30 / 30

QA4LiDAR Report

Supplier certification & comparison of QA4LiDAR Report Form to QA4LiDAR Tender Form

Form Element	Compliance	Specified	Reported	Additional Corrections
Form Required Elements	PASS	10 elements	10 elements	N/A
Geoid Model	PASS	AUSGeoid09	AUSGeoid09	Correction: No Shift
Environmental Conditions	PASS	No	No	N/A
Maximum Scan Angle	PASS	≤30° Total FOV	≤30° Total FOV	N/A
Horizontal Coordinate System	PASS	GDA94 MGA Z54	GDA94 MGA Z54	N/A
Vertical Reference System	FAIL	Mean Sea Level 2015	Australian Height Datum, Mean Sea Level 1992	N/A
Absolute Vertical Accuracy @ 95% CI	PASS	30cm	29cm	N/A
Relative Vertical Accuracy @ 95% CI	PASS	10cm	10cm	N/A
Classification Level	PASS	L2	L2	N/A
Minimum Bathymetry Coverage	FAIL	75%	70%	N/A
Minimum Bathymetry Soundings	PASS	100	100	N/A

Supplier Certification	Compliance
Supplier certified	FAIL

Classification Statistics

Point classification requirements for ORT, ellipsoidal and unclassified swath LAS

Required/Unwanted	Compliance	ORT Point Class	Point Count	% Points	Z Min	Z Max
Unwanted	PASS	0 - Created, never classified	0	0%	0.00m	0.00m
Ignored	N/A	1 - Unclassified	3890	< 0.01%	64.62m	68.32m
Required	PASS	2 - Ground	89737090	48.91%	55.91m	71.28m
Ignored	N/A	3 - Low Vegetation	10107710	5.51%	56.22m	71.34m
Ignored	N/A	4 - Medium Vegetation	4423111	2.41%	56.77m	72.86m
Ignored	N/A	5 - High Vegetation	15988949	8.71%	56.25m	134.43m
Ignored	N/A	6 - Building	258671	0.14%	60.91m	106.73m
Ignored	N/A	7 - Low Point (noise)	6614	< 0.01%	-174.93m	268.16m
Ignored	N/A	8 - Reserved	7	< 0.01%	60.96m	61.17m
Ignored	N/A	9 - Water	264641	0.14%	59.96m	69.44m
Required	PASS	10 - Rail	4442	< 0.01%	62.22m	70.13m
Required	FAIL	11 - Road Surface	0	0%	0.00m	0.00m
Unwanted	FAIL	12 - Reserved	62691340	34.17%	54.72m	259.13m
Required	FAIL	13 - Wire - Guard (Shield)	0	0%	0.00m	0.00m
Required	FAIL	14 - Wire - Conductor (Phase)	0	0%	0.00m	0.00m
Required	FAIL	15 - Transmission Tower	0	0%	0.00m	0.00m
Required	FAIL	16 - Wire-structure Connector (e.g Insulator)	0	0%	0.00m	0.00m
Required	FAIL	17 - Bridge Deck	0	0%	0.00m	0.00m
Required	FAIL	18 - High Noise	0	0%	0.00m	0.00m
Required	FAIL	19 - Reserved	0	0%	0.00m	0.00m

LAS Type	Compliance	Point Count
ORT	PASS	183486465

Survey Control

Accuracy of Survey Control

Check	Compliance	FVA Checkpoints Found (Minimum Required)	Ground Control Points Found (Minimum Required)	Survey Control Rating (1-5)
Density (ICSM)	<b>FAIL</b>	7 (5)	2 (3)	1 (Poor)
Distribution (QA4LiDAR)	<b>N/A</b>	N/A	N/A	2 (Weak)

Delivery Element	Method	Orthometric Connection
Provider GC	GPS Levelling	dghdgfhs
Provider FVA CP	RTK	gnjhgfcn
Provider SVA CP		

Density / Resolution

Point Density & DEM Resolution

Delivery Element	Compliance	All Point Density	Ground Point Density	Required NPS	Pseudo Pulse Density	Number of Failed Flight Lines
Classified Points (ORT)	<b>FAIL</b>	1.62	0.82	2	1.56	10 / 10

Delivery Element	Compliance	Required Resolution	Found Resolution(s)	Failed Tiles
DEM	<b>FAIL</b>	1m	10m, 1m, 5m	60 / 90

Delivery Element	Compliance	Required Minimum Soundings	Required Minimum % of Tiles	% Results
Classified Points (ORT)	<b>N/A</b>	N/A	N/A	

Flight Lines

Relative Vertical Accuracy, Scan Angles and Flight Line Coverage

Delivery Element	Compliance	Required Relative Vertical Accuracy	Relative Vertical Accuracy Results
Classified Points (ORT)	<b>N/A</b>	≤ ±10cm 95% CI	Relative Vertical Accuracy check cannot run because there is <2% flightline overlap.

Delivery Element	Compliance	Maximum Scan Angle	Number of Failed Tiles
Classified Points (ORT)	<b>FAIL</b>	≤30°	28/30

Vertical

Absolute Vertical Accuracy @ 95% CI

Delivery Element	Survey Control	Compliance	Acceptability Rating	Acceptable FVA CheckPoints Count	Required Absolute Vertical Accuracy	Absolute Vertical Accuracy Results
DEM	provider-cp	<b>PASS</b>	Poor	7	30cm	7.73cm
DEM	provider-gc	<b>PASS</b>	Poor	2	30cm	3.34cm
ORT LAS	provider-cp	<b>PASS</b>	Poor	7	30cm	7.87cm
ORT LAS	provider-gc	<b>PASS</b>	Poor	2	30cm	3.79cm

Visual Checks (DEM)

Extent & Horizontal Coordinate System

Are the data extents valid?	Details
PENDING	

Are there internal voids?	Details
PENDING	

DEM Error Type	Compliance	Number of Errors
Relative Vertical Accuracy Error	PASS	
Classification Error	PASS	
Interpolation Error	PASS	
Systematic Error	PASS	
Follow Up Error	PASS	
Other Error	PASS	

\* : The compliance value has been changed by the user and is different to the value originally assigned by QA4LiDAR.