Generator FAT · Witnessed at the assembler's test bay · PRC

Generator FAT witness report

Sinospect Industrial Company Limited.
Sinospect sources, quality-controls and delivers industrial equipment from China.

Fictional worked example. The project, identifiers, readings and findings are invented to show how a generator witness report is set out; no client job is reproduced.

Equipment under test
Two 500 kVA (400 kWe) prime diesel generating sets, 400/230 V, 50 Hz, 0.8 PF, soundproof canopy · Set A S/N [Identifier] · Set B S/N [Identifier]

Assembler
[Assembler] · [Factory location]

Prepared for
[Client company]

Order & test basis
[PO reference] · set datasheet rev. B · FAT programme rev. 2, approved by the buyer · ISO 8528-6 test methods; limits from the order annex

Report reference
SAMPLE-GFAT

Test dates & location
[Day 1] and [Day 2] · assembler's test bay, [Factory location]

Prepared by
Sinospect witnessing engineer · [Date]

Reviewed & issued by
Sinospect quality desk · [Date]

Recommendation of record

Set A: release with conditions · Set B: hold

Both sets carried full prime load for 60 minutes and the 110% step. Set B's radiator is rated for 40 °C ambient against 50 °C on the datasheet (NC-01, Major): it closes by a replacement and a witnessed re-run before packing. Two Minor findings close before shipment. The buyer keeps the release decision.

Three recorded states

- Released: every programme item passed as witnessed
- **Release with conditions: findings listed, each with its owner and closure evidence**
- **Hold: the failing item stated, with the re-test that closes it**

§	Report section	State
01	Identity against the order: rating plates, engine number, alternator, controller, radiator	**1 Major · 2 Minor**
02	Test conditions, load bank, instruments and attendance	**Recorded**
03	Load steps 25% to 110%, readings per set	**Recorded**
04	Transient response, protections and shutdowns	**Within contract values**
05	Findings register and release conditions	**1 Major · 2 Minor**

01 Identity against the order

Each row compares the order's datasheet with what the plate or the part shows, read and photographed on Day 1 before either set was started. The engine number is read on the dataplate and on the block.

Item	Datasheet rev. B	Set A as found	Set B as found	Result
Set rating plate	500 kVA / 400 kWe prime, 0.8 PF, 400/230 V, 50 Hz	As datasheet	As datasheet	**Pass**
Engine model and number	[Engine make] [Engine model], 1,500 rpm	Model as ordered; plate and block number match	Model as ordered; plate and block number match	**Pass**
Alternator	[Alternator make] [Alternator model], 500 kVA, class H insulation, IP23	As datasheet; serial recorded	As datasheet; serial recorded	**Pass**
Controller	[Controller model], English display, remote start, RS485	As datasheet	As datasheet	**Pass**
Radiator	Rated for 50 °C ambient	Plate: 50 °C ambient	Plate: 40 °C ambient	**Fail · NC-01**
Canopy	Soundproof canopy, lockable doors with seals	Seal missing on the control-panel door	As datasheet	**Minor · NC-02**
Document pack	Set test record, alternator routine test report, manuals, wiring diagram	Alternator test report missing	Alternator test report missing	**Minor · NC-03**

A radiator rated for 40 °C ambient can pass a factory test run at a cooler ambient and still overheat on a site at 50 °C. The datasheet value decides, not the test-bay result: see NC-01 and the coolant readings in section 03.

02 Test conditions and basis of witnessing

Condition	Recorded	Attendance	Recorded
Load bank	Resistive, 0–600 kW in 5 kW steps, at 1.0 PF. At 1.0 PF the alternator carries about 80% of its rated current at full kW; a reactive test at 0.8 PF was not in the programme	Sinospect	Witnessing engineer on both days, every item in person
Instruments	Assembler's power analyser, calibration certificate dated within 12 months and sighted; Sinospect's clamp meter and IR thermometer for cross-checks	Assembler	Test-bay supervisor, electrician, controller technician
Ambient	29–31 °C, sea level; fuel to the engine maker's grade	Buyer	Not present; readings and findings in this report
Set state	Complete sets in canopies, coolant and oil filled, batteries fitted, run in by the assembler before the visit	Basis	Readings taken by the witness; the assembler's own test sheets compared, not relied upon

03 Load steps, readings per set

Each step held until temperatures were stable, 60 minutes at 100% and 60 minutes at 110% as the programme states. Readings at the end of each step, from the analyser and the controller.

3.1 · Set A

Step	kW	V L–L	A	Hz	Oil bar	Cool. °C	Exh. °C
25%	100.4	401	145	50.06	4.6	74	245
50%	200.8	400	290	50.03	4.5	79	330
75%	300.6	400	434	50.01	4.4	83	410
100%, 60 min	400.2	399	579	49.98	4.3	86	478
110%, 60 min	440.5	398	639	49.96	4.3	88	512

3.2 · Set B

Step	kW	V L–L	A	Hz	Oil bar	Cool. °C	Exh. °C
25%	100.2	401	144	50.05	4.6	76	248
50%	200.5	400	289	50.02	4.5	82	334
75%	300.9	400	434	50.00	4.4	88	415
100%, 60 min	400.6	399	580	49.97	4.3	93	483
110%, 60 min	440.1	398	638	49.95	4.3	97	518

Steady-state voltage stayed within 398–401 V and frequency within 49.95–50.06 Hz on both sets, inside the order's ±1% voltage and ±0.5% frequency bands. At full prime load the coolant ran 55 K above the 31 °C ambient on Set A and 62 K on Set B. Both sets completed the load run at the test bay; that does not show Set B meets the 50 °C ambient the order requires, and its radiator plate says it does not (NC-01).

04 Transient response, protections and shutdowns

4.1 · Transients, Set A / Set B

Test	Contract value	Set A	Set B
0 → 50% load: frequency dip	≥ −10%	−6.4%	−6.7%
Frequency recovery	≤ 5 s	2.8 s	3.0 s
0 → 50% load: voltage dip	≥ −20%	−13.5%	−14.1%
Voltage recovery	≤ 4 s	1.6 s	1.7 s
100% → 0 load: frequency rise	≤ +12%	+7.1%	+7.4%
100% → 0 load: voltage rise	≤ +25%	+11.8%	+12.3%

4.2 · Protections, both sets

Protection	Method	Result
Overspeed shutdown	Controller test, trip at 1,725 rpm	**Pass**
Low oil pressure	Sender simulated, engine running	**Pass**
High coolant temperature	Sender simulated, alarm then shutdown	**Pass**
Emergency stop	Canopy button and panel button	**Pass**
Insulation, alternator	500 V DC, stator to earth, > 500 MΩ	**Pass**

The contract values are the order annex's, written for this fictional order. A real report takes them from the buyer's contract or the ISO 8528-5 performance class it names.

05 Findings register and release conditions

NC-01 **Set B radiator rated for 40 °C ambient; the datasheet requires 50 °C** — **Major**

Requirement	Set datasheet rev. B: cooling system rated for 50 °C ambient	**Evidence**	Radiator plate photographed on Day 1; coolant 62 K above ambient at full prime load, against 55 K on Set A (3.2)
Assembler response	A radiator of the same series rated for 50 °C ambient to be fitted; drawing and plate photograph to be sent before fitting.		
Owner	Assembler production	**Closure point**	**Before packing**

NC-02 **Set A canopy: seal missing on the control-panel door** — **Minor**

Evidence	Door photographed open and closed on Day 1	**Owner**	Assembler production
Closure point	Before shipment, by photograph		

NC-03 **Alternator routine test report missing from both document packs** — **Minor**

Evidence	Document pack checked against the order list on Day 1	**Owner**	Assembler quality
Closure point	Before shipment, by copy to Sinospect		

C1 **Set B held until NC-01 closes by a witnessed re-run.** After the 50 °C radiator is fitted: 60 minutes at 100% and the 110% step, with coolant temperature and ambient recorded, Sinospect attending or by live video if the buyer accepts it.

C2 **NC-02 and NC-03 closed before shipment.** Photograph of the fitted door seal; the alternator maker's routine test report for each serial number.

– Method, basis and limits

Basis of witnessing

FAT programme rev. 2 as approved by the buyer, every item witnessed in person over two days. Readings are the witness's own, compared with the assembler's sheets.

Classification

Major: closes before packing, for performance, safety or the ordered configuration. Minor: closes before shipment. Observations carry no closure obligation.

Not covered

Site performance with rectifiers, drives or large motors, emissions or type certification, and the reactive 0.8 PF test, which was not in the programme.

This record covers the sets and tests presented at the assembler's test bay on the test dates. The buyer keeps final acceptance.

Sample: a fictional worked example. The equipment, identifiers, dates, readings and findings are invented to show the report's structure.