



Automatic Fire Alarm System Agreement

Guideline No. 6

Inspection of AFASP Monitoring Centres and Monitored Alarm Installations (Part A)

Reliability of Monitoring Services (Part B)

Issued under Automatic Fire Alarm System Services Agreement

Field Operations Division

PART A – Inspection of AFASP Monitoring Centres and Monitored Sites

1. Purpose

The purpose of this document is to set out the inspection and reliability reporting activities that the AFASP and Fire and Rescue NSW (FRNSW) will undertake to ensure the AFA monitoring services comply with all relevant Regulatory Requirements.

The parties acknowledge and agree that the inspections and reliability reports are not intended to and do not form any kind of accreditation process and the successful completion of any inspection or reporting activity under this Guideline does not necessarily mean or provide evidence that the AFA systems or services comply with any particular Regulatory Requirements. The inspection and reporting activities contained in this Guideline are for the use only of the AFASP to which the activities relate and FRNSW and are not to be disclosed to any other party or used for any other purpose.

2. Inspection Scope

Assessment is against AS1670.3 (as amended from time to time) and AS4428.6 (as amended from time to time) (as applicable to the monitoring network architecture only) and only where specified under the BCA and includes the following:

a) Investigation is made of:

- The AFASP's monitoring centre.
- The use of the carrier network(s) connecting the monitoring centre to an ASE.
- The connection of the ASE to the carrier network.
- The timing of transmissions from the monitoring centre to the FRNSW Communication Centre.

b) Inspection includes:

- Compliance with the relevant standard(s).
- Any issues which might be a cause for concern in relation to safety.

c) Inspection excludes:

- Items outside the control of the AFASP
- Installation of batteries

3. Inspection Methodology

The Inspection is in three phases:

a) Inspection of Monitoring Centre:

- Discussion of system architecture and examination of any documentation on system
- Inspection of Control Room and operator consoles

- Inspection of Computing and Communication Equipment
- Inspection of Backup Power systems
- Examination of sample records to demonstrate complete record keeping
- Review of procedures followed by operators
- Discussion of matters arising

Note: Where the software or hardware used in the monitoring centre is unchanged since the previous inspection and was previously found to be satisfactory, certain detailed checks will be limited to confirming that nothing material had changed.

b) Inspection of Monitored Alarm Installations at two or more sites:

- Physical inspection of ASE and connections.
- Timing tests. Timing tests are carried out by raising events at the ASE and timing until local and remote indications of detection. Remote indications are identified by the control room operator and reported by telephone. Timing measurements are also taken to the time to raise an alarm from the ASE to the FRNSW control room. (see below)
- Not all measurements taken are required by standards, but may be relevant in the future.

c) Inspection of records and statistics:

- Each AFASP is asked to provide information on reliability derived from their records.
- Reliability calculations are checked.

4. Calculations and Measurements

Item	Procedure	Notes
Alarm Propagation and Processing Times	Measurements are only taken based on one alarm site generating events at a time. An assessment of the computing and communications capacity of the systems is undertaken to ensure that multiple simultaneous events can be handled within the required time. Measurements are also taken of the time to produce a local indication, time for an alarm to propagate to FRNSW and the time to record the cancelling of the alarm.	<i>Measurement based on multiple simultaneous events would require substantial work to create a test set up for the purpose. It is not thought that this is justified unless there is as reason to suspect a problem.</i>
Loss of communication path	Each ASE path is disconnected at the ASE and timing taken to remote and local indications.	
Test, fault and isolate signals	A variety of signals are generated/cancelled from the ASE according to type and the detection at the monitoring centre timed. For clarity, these timings are not included in the results but are available.	<i>There is no time requirement for these signals in the standard, but timings are taken to ensure that delays are not unreasonable. A delay of less than 2 minutes are treated as acceptable for the test.</i>

Overall Reliability	AFASPs must provide statistical data showing the overall reliability of the monitoring network is 99.95% in accordance with Part B of this Guideline.	
Individual Reliability	AFASPs must provide data which show if any individual ASE was out of communication for more than 1% of the time in accordance with Part B of this Guideline.	
Reliability of link to FRNSW	AFASPs are requested to provide data which show that the connection to FRNSW is 99.95% available.	

5. Outcomes include the information set out below

Description

Sites

Item	Address	Date of Inspection	Present

Comments

Previous Issues

Inspection Results

Detailed results as per AS1670.3(as amended from time to time):

Clause	Details	Value: Worse Ave	Pass/ Fail	Notes
2.1	Demonstrate alarm propagation and processing time ≤ 20 s for:			
	(a) 30 simultaneous alarms			
	(b) 5 sequential alarms from separate monitored sites			
	Single alarm detection at monitoring centre			
	Single Alarm Detection at FDC			
	<i>Single alarm cancel detection at monitoring centre</i>			
2.2.1	Demonstrate the indication of loss of each telecommunication path at the monitored site within 90 s			
	<i>Detection of reconnection at monitored site</i>			
2.2.2	Demonstrate, by records, that the average network reliability is not less than 0.9995			
	Demonstrate, by records, that the individual network reliability is not less than 0.99			
2.2.2 Appendix	Number of sites not complying			
2.3.1	There is no single point of failure preventing alarm propagation			

Clause	Details	Value: Worse Ave	Pass/ Fail	Notes
2.3.2.1	Demonstrate automatic time stamping and recording of data			
2.3.2.1(a)	Demonstrate that alarm, fault and isolate signals from CIE can be received and processed			
2.3.2.1(b)	Demonstrate that test signals for alarm, fault and isolate from CIE can be received and processed			
2.3.2.1(c)	Demonstrate that network faults can be received and processed.			
2.3.2.1	Demonstrate that clocks are synchronized to within 1 min			
2.3.2.2	Demonstrate by records that the reliability of the indicating and logging equipment is not less than 0.9995			
2.3.3	Demonstrate the time and date reference of the voice recording equipment			
2.3.3	Demonstrate the systems and capacity in place to retain [voice] records for ≥ 30 d			
2.3.4	Demonstrate the operation of at least two telephone systems, one radio based			
2.3.5	Confirm the existence of two clocks			
2.3.5	Confirm the visibility of the clock			
2.3.5	Confirm the clock has a digital display ≥ 50 mm			
2.3.5	Confirm that clocks are synchronized to within 1 min of the time standard			
2.3.6	Demonstrate that ancillary equipment does not impair the operation of the system			
2.3.7	Demonstrate that stand-by lighting allows the maintenance of normal operation			
2.3.8	Demonstrate that systems and capacity are in place to ensure the retention of records for ≥ 7 y			
2.3.8 (a)	Demonstrate the retention and date stamping of alarm, fault, isolates, and test records			
2.3.8 (b)	Demonstrate the retention and date stamping of telecommunications link failure records			
2.3.8 (c)	Demonstrate the retention and date stamping of monitoring equipment fault records			
2.3.8 (d)	Demonstrate the retention and date stamping of operator action records			
2.3.8 (e)	Demonstrate the retention and date stamping of indicating and logging equipment action records			
2.4.1 (a)	Demonstrate that monitoring centre is capable of supplying a no-break supply for 36 h to the indicating and logging equipment			
2.4.1 (b)	Demonstrate that monitoring centre is capable of supplying a no-break supply for 36 h to the voice recording equipment			
2.4.1 (c)	Demonstrate that monitoring centre is capable of supplying a no-break supply for 36 h to the telephones			
2.4.1 (d)	Demonstrate that monitoring centre is capable of supplying a no-break supply for 36 h to the clocks			
2.4.1 (e)	Demonstrate that monitoring centre is capable of supplying a no-break supply for 36 h to the lighting			
2.4.1 (f)	Demonstrate that monitoring centre is capable of supplying a no-break supply for 36 h to the equipment used to ensure the operation of the required telecommunications links			
2.4.2	Demonstrate that other loads do not impair the operation of the monitoring centre equipment.			
2.4.4	Demonstrate that the power source components are secured against unauthorized access			

Clause	Details	Value: Worse Ave	Pass/ Fail	Notes
2.5 (a)	Demonstrate the alarm transmission time to FRNSW Communication Centre is < 5 s			
2.5 (b)	Demonstrate, by engineering calculation or measurements, that availability of the connection between the monitoring center and FDC is ≥ 0.9995			
2.5 (c)	Demonstrate the protocol acceptance by FRNSW Communication Centre			
2.5 (d)	Demonstrate the agreed procedure for communication with the FRNSW Communication Centre in the event of a connection failure			

Notes:**Conclusions****Comments**

PART B – Reliability of Monitoring Services

- a) The AFASP should provide to FRNSW statistical information based on the previous six months of operation. This information is required on a three monthly basis so that the reports will overlap in content.
- b) The AFASP must measure the reliability of monitoring of all ASEs and provide a list of all ASEs which do not meet the minimum required 99% reliability. The following information is required for each such ASE:
 - i. The AFA reference number(s) of the ASE
 - ii. The location (address) of the ASE
 - iii. The measured reliability to four digit accuracy
 - iv. A detailed report explaining why the ASE did not meet the reliability requirements.
- c) An individual listing of ASEs that meet the 99% reliability requirement is NOT to be provided, but a count of such ASEs is.
- d) The AFASP must provide the average reliability of monitoring across all ASEs to six digit accuracy. This should be above 99.95%. ASEs that do not individually meet the 99% requirement may be excluded from this calculation. If this reliability requirement is not met, a detailed report explaining why the reliability has not been achieved must be provided.
- e) Where a new, or substantially upgraded, monitoring centre has been in operation for less than twelve months, a statement to that effect can be provided instead of statistical data.

Example:

AFASP xxx

Overall monitoring reliability 99.97% across 5231 ASEs individually meeting 99% reliability.

Exceptions:

Number(s)	Location	Reliability	Reason
17534/A3455	27 Back of Beyond, Nowhere, NSW 1234	98.73%	Remote location with only PSTN services available*. PSTN out of action for 111 hours due to carrier failure between time/date and time/date. Actions taken etc.

* Note: this does not implicitly condone such an arrangement.