Division / Business Unit: Corporate Services & Safety
Function: Signalling
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Signal Maintenance Latitude

ESM-26-03

Note: To be withdrawn when clauses 2.3, 3.1 & 3.4 are updated and transferred to other documents.

Applicability

ARTC Network Wide SMS

Publication Requirement

Internal / External

Primary Source

SMS 15

Document Status

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1.5	13 Aug 18	Standards	Standards	Manager Standards	General Manager Technical Standards 14/08/2018

Amendment Record

Amendment Version #	Date Reviewed	Clause	Description of Amendment
1.0	28 April 09		First issue. Supersedes NSW Standard SMS 15 v1.2 in part
1.1	07 Oct 09		Disclaimer updated as per Risk & Safety Committee 14/09/2009
1.2	13 Aug 10	All	Issued as final.
1.3	24 Feb 14	2.3	Updated responsibility for monitoring compliance from 'Compliance Manager' to 'Compliance Engineer or Signalling & Compliance Manager Hunter Valley'.
1.4	25 Jul 18	3.2	Added clause 3.2 'Safety Critical Tasks' and rebranded document.
1.5	13 Aug 18	Cover	Added note re: future withdrawal of document.

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1 Introduction

1.1 Purpose

This procedure specifies requirements for the application of a Latitude period for the performance of signalling maintenance activities.

1.2 Scope

This procedure covers all ARTC jurisdictions. It details the application of two different levels of Latitude and the conditions for their application.

1.3 Responsibilities

The Signal Engineer/Manager is responsible for the application of this procedure within a given maintenance region.

The signal Work Group Leader/Manager is responsible for managing the process for each application of the Latitude.

1.4 Reference Documents

The following documents support this procedure:

- Maintenance Service Schedules.

2 General

The maintenance of signalling equipment is managed in accordance with a maintenance plan. This plan details the frequency for the performance of each type of maintenance service. This is specified as the period between each maintenance service. For an item of equipment, there may be different maintenance services each with its own maintenance frequency.

The system for managing the maintenance will issue maintenance work orders for the activities to be completed in a forthcoming period, usually a month.

Generally, it is desirable for efficiency reasons, that the different maintenance activities are coordinated. For example a base level maintenance activity may be scheduled every 3 months and a second maintenance may be at 12 month intervals. When the 3 month maintenance and the 12 month maintenance are to be completed within the same period, they should be done at the same maintenance visit.

2.1 Periodicity

The period between the maintenance services is based on experience with the equipment to achieve the following:

- Prevention of failures of the equipment;
- Renewal of consumables in the equipment if applicable;
- Prevention of wear and tear of the equipment;
- Adjustment of the equipment tolerances within limits;
- Prevention of any issues with the equipment that may lead to safety risks or hazards.

As such, the maintenance frequency is not an absolute value for every piece of equipment in service. It is an optimum value that will provide the required service and reliability outcome across all of the items of that type currently in use.

It is permissible under managed situations to extend the period of the maintenance for an individual item of equipment. This shall be done on an exception basis and not as a regular situation for the item of equipment.

This extension of time for an individual maintenance service activity is the Latitude or Tolerance for the performance of the maintenance activity. For example, a maintenance activity due every 90 days may have a Latitude of 15 days in which to perform the service.

2.2 Maintenance Period Reference Date

The planning of maintenance activities may be undertaken in two ways. Method A is based on the maintenance frequency and the activities are planned over an extended period. For example, a three monthly service is planned as four services activities in months 1, 4, 7, 10 of a year. The maintenance work order is issued at the start of each of these months. Completion of the maintenance within the above monthly period will fully meet the requirements of the maintenance performance. This provides some flexibility to manage maintenance visits within the month to optimise travel arrangements and to coincide with other maintenance activities at the location.

Method B for a maintenance activity with a three month periodicity, would require that it is completed within 91 days of the previous maintenance. This limits the flexibility in planning the activity within a given month.

The maintenance frequency is not an absolute value but is an optimum value. In both method A and method B it is acceptable to calculate future maintenance dates on the basis that the activity is completed within a given period of the nominal completion date. For example, this may be at the end of a month for a three monthly service. Similarly, it could be at the end of a week for a monthly service or within 48 hours or 96 hours for a weekly maintenance service.

Thus the maintenance due dates are based on either the date of the previous maintenance action plus the maintenance period or fixed time based on the maintenance period.

2.3 Compliance

Compliance is achieved if maintenance is completed by the due date plus Signal Maintenance Engineer latitude, provided that the necessary assessment of the asset condition, risks and any necessary risk mitigation is documented.

Monitoring of compliance with the intent of the periodicities contained in the TMP is to be assessed by the Maintenance Engineer and Compliance Engineer or Signalling & Compliance Manager Hunter Valley.

This process requires that a comparison of the maintenance due date with the actual completed date looking for exceptions outside the maintenance due date plus Signal Workgroup Leader latitude.

The exception report is to be checked off against the approval for use of the signal maintenance latitude for each event.

3 Latitude

The due date for the performance of the maintenance may be extended under managed situations and provided that there are no known issues that may increase the safety risk, then the extension is permitted. The amount of time of the extension is dependent on the base time for the performance of the maintenance activity and the depth of the review of the condition of the asset.

This extension of time is the Latitude for the performance of the maintenance activity. This time may also be referred to as the Tolerance for performance in some documentation.

There are various reasons why the extension of time is required. These include: temporary unavailability of staff, diversion of staff following a major incident, other priority project work, and imminent change to the infrastructure/equipment.

3.1 Latitude for Various Maintenance Frequencies

The following Latitudes apply for each maintenance activity. These are based on the periodicity of the maintenance activity. These Latitude values may be applied with the maintenance management systems for the maintenance planning and issuing of maintenance work orders.

There are two levels of maintenance Latitude:

- Work Group Leader/Manager Latitude;
- Signal Engineer/Manager Latitude.

Different conditions apply for the application of each of these Latitudes

Table 2.1: LATITUDES FOR SIGNALLING MAINTENANCE

SCHEDULED MAINTENANCE PERIOD	**SAFETY CRITICAL**		**NON-SAFETY CRITICAL**	
	SIGNAL WORKGROUP LEADER	**SIGNAL MAINTENANCE ENGINEER**	**SIGNAL WORKGROUP LEADER**	**SIGNAL MAINTENANCE ENGINEER**
30 days	7 days	14 days	14 days	28 days
60 days	14 days	28 days	21 days	35 days
90 days	21 days	35 days	28 days	42 days
120 days	21 days	35 days	28 days	42 days
180 days	21 days	42 days	28 days	56 days
365 days	42 days	84 days	56 days	98 days
730 days	42 days	84 days	56 days	112 day
1460 days	42 days	84 days	84 days	180 day
4 years <	84 days	180day	84 days	OC

3.2 Safety Critical Tasks

Safety Critical Task is defined in ESM-26-01 section 4.1 which is the first standard in the group for Signals Maintenance Plans. This definition is also suitable for the updated Signal Technical Maintenance Plan.

Non-Safety Critical are those scheduled maintenance services that are performed to ensure that the signalling equipment will be maintained in good condition, will not deteriorate in a manner that would decrease the equipment service life and ensure that the equipment continues to operate and not have right-side failures (failures that do not have a direct safety impact).

The equipment / maintenance service that is safety critical should not have its status changed by an individual person or signal engineer. It should only have its status changed by means of an engineering standards change for uniform operation and documented to the same level as for changes to a standards document.

3.3 Work Group Latitude

When the maintenance activity cannot be completed by the due date the Work Group Leader / Manager shall assess the situation. If the Latitude conditions are met for the application of the Work Group Latitude then the maintenance activity may be scheduled to be completed within the Latitude period. If the Latitude conditions are not met then the equipment shall be booked out of use until the maintenance activity can be performed.

The assessment of the Latitude conditions shall be performed prior to the due date for the performance of the maintenance activity.

The Work Group Leader / Manager shall review the signal asset and confirm that it is in good condition and that it is reasonable to extend the maintenance period on this occasion.

The Work Group Leader / Manager shall keep a record that the signal equipment condition has been assessed and the Work Group Latitude is approved. This may be a written notation on the Maintenance Work Order. Alternative record methods may be applied by the Work Group Leader / Manager. These records shall be available for review by the Signal Engineer or by Risk & Compliance Auditors.

3.4 Signal Engineer / Manager Latitude

When the maintenance activity cannot be completed within the due date plus the Work Group Latitude, then the Signal Engineer / Manager shall assess the situation. If the Latitude conditions are met for the application of the Signal Engineer Latitude then the maintenance activity may be scheduled to be completed within the Latitude period. If the Latitude conditions are not met then the equipment shall be booked out of use until the maintenance activity can be performed.

The assessment of the Latitude conditions shall be performed prior to the due date plus the work Group Latitude for the performance of the maintenance activity.

The Signal Engineer / Manager shall review the signal asset for the following requirements:

- confirm that the signal equipment is in good condition
- confirm that there have not been recent failures associated with the equipment;
- confirm that there are no outstanding issues with the equipment.

If the Signal Engineer / Manager confirms that the signal equipment satisfies these requirements and that it is reasonable to extend the maintenance period on this occasion.

The Signal Engineer / Manager shall keep a record that the signal equipment condition has been assessed and the Signal Engineer's Latitude is approved. This may be a written notation on the Maintenance Work Order. Alternative record methods may be applied by the Signal Engineer /

Manager. These records shall be available for review by the corridor managers or by Risk & Compliance Auditors.

4 Records, Reports and Reviews

Where Latitude has been applied to the maintenance activities, then a record shall be kept of the approval of the Latitude.

4.1 Maintenance Latitude Records

As detailed in 3.2 a written record shall be kept of the Work Group Leader / Manager decision on the application of Latitude. There shall be a separate record for each application of the Latitude.

As detailed in 3.3 a written record shall be kept of the Signal Engineer / Manager decision on the application of Latitude. There shall be a separate record for each application of the Latitude.

4.2 Signal Engineers/Managers Review

The Signal Engineer / Manager shall undertake a six monthly review of the application of the Work Group Leader / Manager application of latitude. This shall review the record keeping, the reasons for the application of Latitude and the overall impact of the application of the Latitude.