

# Network Communication

## 1. Purpose

This Standard mandates the requirements for communications in the Sydney Trains Network.

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## 2. Scope

This Standard applies to organisations whose workers undertake communications in the Sydney Trains Network.

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## 3. General

All communications in the Sydney Trains Network must:

- be in English
- be clear, brief and unambiguous
- be relevant to the task at hand
- not include slang, or jargon
- use standard terms, phrases and abbreviations where appropriate
- be directed to the relevant person who can act upon the communication
- represent the good practice communication behaviours identified in this standard

# Network Communication

## Responsibilities

Organisations are responsible for:

- identifying activities that involve communications which affect the safe and efficient operation of the railway
  - developing and implementing procedures and instructions to enable Qualified Workers to comply with the protocols and requirements of this Standard
  - ensuring that workers undertaking safety-critical communications are competent to do so
  - monitoring communications to make sure that they meet the requirements of this Standard
  - taking action to manage non-compliance with communication protocols.
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## 4. Safety-critical communication

Safety-critical communication is any communication, spoken or written, that if not delivered, or incorrectly delivered, or not delivered promptly, there is reasonable likelihood of a safety incident occurring. Safety-critical communication includes, but not limited to, communication for:

- work in the rail corridor
  - rail traffic movements
  - conditions affecting the safe operation of the Network.
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# Network Communications

## 5. Spoken communications

Spoken communications include, but are not limited to communications:

- by landline telephone
- by mobile phone
- by two-way radio
- by signal-post telephone
- by in-cab train radios
- face to face

### **Spoken communication protocols**

The content of spoken safety-critical communications must be confirmed by repeating the message back to the sender.

The receiver must not act on the communication until the sender confirms that the message has been repeated correctly.

Organisations must make sure that workers undertaking spoken communications in the Sydney Trains Network adhere to the requirements and protocols contained in the Sydney Trains Network Rules and Network Procedures:

- *NGE 204 Network communication*
- *NGE 230 Communications equipment*
- *NPR 721 Spoken and written communication*

## Network Communication

### Relaying communications

If it is not possible for a sender to communicate directly with an intended receiver, Qualified Workers may relay the content.

The content of the communication must be relayed exactly as received, and using the protocols in *NGE 204 Network communication* and *NPR 721 Spoken and written communication*.

### Lead communicator

During spoken communications, one person shall take responsibility to lead the communication.

The lead communicator has responsibility to control the exchange of information to make sure all parties:

- clearly understand the information exchanged
- do not act on the information until confirmed that it is clearly understood
- comply with communication protocols and apply good practice communication behaviours
- communicate in a calm and respectful manner

The lead communicator on the Sydney Trains Network will be the:

- Electric Systems Operator (ESO), or
- the Network Controller (NC), when not communicating with the ESO, or
- the Signaller, when not communicating with the NC or ESO.

In all other instances, the lead communicator will be the person who initiates the communication.

## Network Communications

### Recording spoken communications

If spoken communications recording equipment is provided, it must be used to record communications.

The recordings must be kept for at least one year.

### 6. Written communications

Written communications are made using paper or electronic media. These include but are not limited to:

- Network Forms and authorities
- forms for the maintenance, commissioning or withdrawal of rollingstock or infrastructure
- written work instructions or directions
- transmitted text messages.

Sydney Trains and other organisations must have instructions or procedures in place to make sure that workers undertaking written communications in the Sydney Trains Network adhere to the requirements in the following Network Rules and Procedures:

- *NGE 204 Network communication*
- *NPR 721 Spoken and written communication*

Unless otherwise specified, records of written communications must be kept for at least 90 days.

# Network Communication

## 7. Monitoring communications

### General

Organisations whose workers undertake communications in the Sydney Trains Network must have a documented process in place to monitor and review communications.

The monitoring and review process must ensure that:

- the monitoring of communications is risk-based, with a focus on communications identified as safety-critical
- conducted at time intervals relevant to the risks associated with the Directorate's or Organisation's activities
- that the sample sizes of monitored communications are statistically representative
- a structured monitoring tool is used to monitor the communications utilising the *Communications behavioural standards* in this document
- if deficiencies in performance are found, improvement measures and action plans are put in place
- feedback processes are in place to highlight good communications
- results are made available to the appropriate areas within Sydney Trains upon request, for the purposes of performance assessment or incident investigation.

## Network Communications

### **Risk-based monitoring**

The process for monitoring communications must be focused on communications that have been identified as safety-critical.

It should target activities associated with those hazards rated as having the highest level of direct risk in the Sydney Trains Safety Risk Register, or the equivalent register for other organisations whose workers undertake communications on the Sydney Trains Network.

Examples of activities needing communications monitoring, based on their level of risk.

## Network Communication

<b>Hazard</b>	<b>Activities/Communications</b>	<b>Participants</b>
Worker in path of train	<ul style="list-style-type: none"> <li>• Planning and implementing:                             <ul style="list-style-type: none"> <li>– work on track authorities</li> <li>– work on track methods</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Protection Officer</li> <li>• Possession Protection Officer</li> <li>• Signaller</li> <li>• Network Controller</li> </ul>
Derailment	<ul style="list-style-type: none"> <li>• Shunting</li> <li>• Passing signals at STOP</li> </ul>	<ul style="list-style-type: none"> <li>• Drivers</li> <li>• Guards</li> <li>• Shunters</li> <li>• Signallers</li> </ul>
Collision between rail traffic	<ul style="list-style-type: none"> <li>• Shunting</li> <li>• Passing signals at STOP</li> <li>• Special working:                             <ul style="list-style-type: none"> <li>– Special Proceed Authority (SPA)</li> <li>– Pilot Staff Working (PSW)</li> <li>– Manual Block Working</li> </ul> </li> <li>• Work trains and track vehicles:                             <ul style="list-style-type: none"> <li>– in a Local Possession Authority (LPA), or</li> <li>– in a Track Occupancy Authority (TOA)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Drivers</li> <li>• Track Vehicle Operators</li> <li>• Signallers</li> <li>• Shunters</li> <li>• Protections Officers</li> </ul>
Road/rail vehicle collision	<ul style="list-style-type: none"> <li>• Condition Affecting the Network (CAN) warnings</li> <li>• Special working</li> </ul>	<ul style="list-style-type: none"> <li>• Driver</li> <li>• Signaller</li> <li>• Network Controller</li> <li>• Handsignaller</li> </ul>



# Network Communications

## Communications behavioural standards

Workers who undertake communications in the Sydney Trains Network must exercise good practice communication behaviours to meet the performance expectations of this standard.

The following table contains good and poor practice behaviours, arranged by key communication element.

They are intended to support the identification of desirable communication behaviours and provide a model by which communication behaviours can be consistently monitored.

Key communication element	Communication behaviours	
	Good practice	Poor practice
Opening a conversation	Identifies themselves, and their role, and location if required, and confirms who they are talking to	Does not identify themselves or confirm who they are talking to
	Identifies the purpose of the conversation early on	Does not clearly establish the purpose of the conversation
Structuring communications	Provides key information in a planned and logical order	Does not give information in the right order, or overloads receiver
	Repeats back critical information	Does not repeat back critical information
	Leads and refocuses the conversation if it goes off topic	Gets distracted and allows the conversation to go off topic
	Asks relevant questions to confirm a shared understanding has been reached	Assumes shared understanding without confirming or questioning
	Restarts a communication from the beginning if it is interrupted	Continues after an interruption, assuming the earlier part was correctly understood

## Network Communication

Key communication element	Communication behaviours	
	Good practice	Poor practice
Speaking professionally	Controls tempo using short, simple sentences	Uses inappropriate tempo, speaking too fast or too slowly
	Uses clear descriptors and standard spoken terms including the phonetic alphabet	Speaks casually or uses slang when giving or receiving information
	Speaks confidently and calmly, and treats others with respect	Is offensive, aggressive, or obstructive
	Confirms accurate read back and repeats a message if there are errors	Does not correct inaccurate read back
Ending conversation	Makes sure that other parties have no further questions before ending the communication	Ends the conversation abruptly without clearly summarising and clarifying the communication

### 8. Network radio communication systems

Three radio systems are used in NSW for rail operations. These are:

- Digital Train Radio System (DTRS)
- National Train Communication System (NTCS)
- Local radio WB (without brake van)

Each of these systems provides a specific functionality to address the different communication needs across the Sydney Trains Network.

## Network Communications

### DTRS

The DTRS covers the Sydney Trains electrified rail network, which is bounded by Kiama, Macarthur, Leppington, Bowenfels, Richmond, Woodville Junction, Newcastle Interchange, Bondi Junction, Cronulla Carlingford and Port Kembla.

The types of DTRS equipment are summarised in the table below.

DTRS radio type	Used by	Can initiate rail emergency call (REC)	Can communicate with
In-cab	Drivers and Guards	Yes	<ul style="list-style-type: none"> <li>• Radio terminal users for normal operations</li> <li>• All DTRS equipment for REC calls</li> </ul>
Hand-portable	Trackside workers	Yes	<ul style="list-style-type: none"> <li>• Radio terminal users for normal operations</li> <li>• Other hand portables for group calls</li> <li>• All DTRS equipment for REC calls</li> </ul>
Radio terminal (DICORA)	Signallers Network Controllers Mechanical Controllers TCLO TCAC	Yes  No  No No No	Any DTRS type

## Network Communication

### *DTRS in-cab radios*

DTRS in-cab radios are used by Drivers and Guards for communications with:

- Signallers
- Network Controllers
- Mechanical Control
- other trains (REC call and group calls only)
- TCLO
- TCAC.

### *DTRS hand-portable radios*

DTRS hand-portable radios are used by trackside workers for communications with:

- other trackside workers
- Signallers
- Network Controllers
- Mechanical Control
- TCLO
- TCAC.



### **WARNING**

DTRS hand-portable radios must not be used to direct shunting movements.

### *DTRS Terminal (DICORA)*

DTRS Terminals are used by Signallers, Network Controllers, Mechanical Control, TCLO and TCAC to communicate with trains and trackside workers.

## Network Communications

### NTCS

The NTCS is designed primarily for use by interstate locomotives and diesel passenger trains for communications with Network Controllers for the Australian Rail Track Corporation (ARTC) interstate network and the John Holland Group (JHG) country network. It is also the primary communication system for all trains between Kiama and Bomaderry.

Freight locomotives can use the NTCS when operating on the Sydney Metropolitan Freight Network (MFN) and will interface with the DTRS system for REC calls.

If fitted with an additional GSM-R module, the NTCS system:

- is interoperable with Sydney Train's DTRS, allowing Drivers of trains fitted with ICE radios to communicate with Signallers on the DTRS network
- provides additional coverage within the Sydney Trains Network where there are NTCS coverage gaps
- provides additional emergency call functionality.

### Local (WB) radio

Local or WB radio provides open-channel communications on the 450.050 MHz frequency using a continuous tone-controlled squelch signalling (CTCSS) tone identifier.

The WB radio is used for communication between:

- trains if both are fitted with WB radio
- trains and Signallers where DTRS communication is unavailable
- trains and ground staff with hand-portable WB radios.

# Network Communication

## 9. Communication equipment

Trains operating in the Sydney Train Network are fitted with the equipment listed in the table below.

User	Equipment	Network
Sydney Trains and NSW Trains electric fleets	DTRS in-cab radio	DTRS
NSW Trains diesel fleet	ICE radio with GSM-R module	DTRS and NTCS
	WB Radio	WB
Third party Operators	ICE radio with GSM-R module*	DTRS and NTCS
	WB radio	WB

\* The requirement for third party operators to have ICE radio with GSM-R module is specified in RSU 100

## 10. Effective date

26 February 2019