

Appendix 3F(ii)
Wireless Infrastructure Standard

1. **Introduction**

This standard describes the requirements for deploying wireless technologies related to data and voice devices in the Authority region. There are 3 main goals of this document: first to protect the Authority's information assets; secondly, to protect the privacy of the individual user; and thirdly, to ensure infrastructure is deployed to ensure the highest possible availability to the end user.

2. **Scope**

This standard covers 802.11 based wireless data communication devices currently in use on Authority sites or planned for use within the next 12 months. The technical details included in this standard are based on the requirements as published by the relevant vendors. The standard for infrastructure is structured to ensure wireless networks are able to support data and voice technologies for the foreseeable future.

3. **Equipment Standards**

The Authority utilises Cisco Lightweight Access points and Wireless Lan Controllers. All equipment must be according to the Authorities wireless standard at the time of procurement.

4. **Infrastructure standard**

4.1. **802.11b/g radios**

New sites will have complete 802.11 2.4Ghz infrastructure internal and external and will adhere to the following standards of service:

- 4.1.1. Signal strength : site RSSI for 802.11b data services will not fall below -70dB at any point at the site between 3 feet and 7 feet from the surface of the floor in the intended coverage area. Site RSSI for 802.11g data services will not fall below -65dB at any point at the site between 3 feet and 7 feet from the surface of the floor in the intended coverage area. Signal strength will not exceed -30dBm in any area it is reasonable that staff will be occupying for extended periods of time.
- 4.1.2. Noise Floor : the site will not have a 2.4Ghz noise floor above -70dB in any area that 802.11b/g wireless devices will be used. Noise floor measurements are to be verified prior to infrastructure deployment.
- 4.1.3. Channel separation : site channel separation will exceed -20dB in 75% or greater of the site.
- 4.1.4. Channel plan : the site will be configured on a 3 channel plan for b/g coverage, with consideration being taken for the channels used by interfering devices such as microwave ovens.

4.2. **802.11a radios**

New sites will have complete 802.11a 5Ghz infrastructure and will adhere to the following standards of service:

- 4.2.1. Signal strength : RSSI for data services will not fall below -60dB at any point at the site between 3 feet and 7 feet from the surface of the floor in the intended coverage area. Signal strength will not exceed -30dBm in any area it is reasonable that staff will be occupying for extended periods of time.

- 4.2.2. Noise Floor : the site will have a 5Ghz noise floor below -80dB in any area that wireless devices will be used. Noise floor measurements are to be verified prior to infrastructure deployment.
- 4.2.3. Channel separation : site co-channel separation will exceed -20dB in 95% or more of the site.
- 4.2.4. Channel plan : the site will be configured on an 8 channel plan for 802.11a coverage, with consideration being taken for the channels used by interfering devices such as industrial cleaners, radar or electric motors.

4.3. 802.11n radios

New sites will have complete 802.11n 5Ghz infrastructure and will adhere to the following standards of service;

- 4.3.1. Signal strength : RSSI for data services will not fall below -65dB at any point at the site between 3 feet and 7 feet from the surface of the floor. Signal strength will not exceed -25dBm in any area it is reasonable that staff will be occupying for extended periods of time.
- 4.3.2. Noise Floor : the site will have a 5Ghz noise floor below -70dB in any area that wireless devices will be used. Noise floor measurements are to be verified prior to infrastructure deployment.
- 4.3.3. Channel separation : site co-channel separation will exceed -30dB in 80% or more of the site.
- 4.3.4. Channel plan : the site will be configured on a 5Ghz channel plan for 802.11n coverage, with consideration being taken for the channels used by interfering devices such as industrial cleaners, radar or electric motors. 2.4Ghz 802.11n will not be used.

4.4. Physical Installation

All wireless access points shall be flush mount to the ceiling or attached to the ceiling tile using approved mounts. All cabling will be in compliance with Appendix 3F(i) [Cable Infrastructure Standard] and will support PoE to the access point.

5. Required Documentation

- 5.1. All wireless LAN deployments must be fully documented.
- 5.2. Project Co will be responsible to document the following components:
 - 5.2.1. Site floor plans with access point locations and cable numbers; and
 - 5.2.2. Site floor plans with noise floor, data rate and signal strength overlays, preferably completed using Ekahau site survey tool, completed prior to site go-live, as a baseline.
- 5.3. Project Co intends to document the following components:
 - 5.3.1. List of neighbours and rogue activity for at least 1 full week prior to go-live;

- 5.3.2. Cisco wireless management tool configuration files – complete – and configuration report from same. Cisco wireless management tool must have floor plans imported and enable device location;

6. **Wireless Encryption and Authentication**

All infrastructure must comply with Appendix 3F(iii) [Wireless Data Communications Policy].

7. **Infrastructure, Break/Fix and Lifecycle Replacement**

Project Co will comply with IMIT change management practices. Project Co will be responsible for replacing infrastructure components that are physically attached to walls, floors, and ceilings. Note: all changes will need to be coordinated and communicated through the Authority IMIT department.

8. **Configuration/Coverage**

The wireless network coverage will be agreed with the Authority and will be sufficient to support the Authority's use of staff-to-staff communication tool (currently Vocera) or the Authority's use of RFID as determined by the Authority.

9. **Suitability**

It is understood that wireless is subject to outside interference which may affect the availability of wireless services, but it is Project Co's responsibility to discover these issues prior to go-live. Issues discovered after go-live which are external in nature will be evaluated by an independent 3rd party and the Authority and Project Co will work together to find resolution. If it is determined by the 3rd party that the issues existed prior to go-live, Project Co will resolve the issue or compensate the Authority accordingly for the services or areas affected. If environmental issues are found to exist which are beyond the control of either the Authority or Project Co, the issues will be documented as exceptions to the standard and signed off by both the Authority and Project Co.

10. **Definitions**

Term	Definition
Cell	An area surrounding a single access point
Client	Any device associating to the wireless or wired network
Go-live	The date in which a system is being used in a production environment and is considered complete
Encryption	A method by which data transferred between two entities is deemed illegible by an intercepting body or individual