Radio Frequency Radiation Assessment

AMP Capital

NAB House
255 George Street
Sydney NSW

April 2018

RISKTECH

Radio Frequency Radiation Assessment Report

Report For	AMP Capital
Address	NAB House 255 George Street, Sydney NSW
Prepared By	Matthew Hyde, Consultant (RiskTech Pty Ltd)
Date of Inspection	3 April 2018
Conferred With	Derek Reed & Dean Lewis, Facilities Managers

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Document Revision Record

File Name	Prepared By	Reviewed By	Issue No.	Issue Date
AMP Noise 255 George St, Sydney NSW Apr18	Matthew Hyde Consultant	Bernard Day General Manager	1	2/05/18

Contents

1. Executive Summary

Scope

RiskTech Pty Limited were engaged by AMP Capital to undertake an assessment of the radio frequency radiation (RFR) hazards at NAB House located at 255 George Street, Sydney NSW. The assessment was carried out by Matthew Hyde, Consultant of RiskTech on 3 April 2018.

Key Findings

- Potential radio frequency antennas were observed on the roof level of the NAB House Building. RiskTech was advised this antenna has been installed recently (March 2018).
- Access to the potential radio frequency antennas on the roof level was secured against unauthorised access at the time of inspection.
- RFR signage was not present at the entrance to the roof level for the recently installed equipment. No exclusion zones have been marked on the roof in front of the antennas (unknown if this is required).
- Radio Frequency equipment has been installed throughout the building. These areas were secured against unauthorised access.
- Electromagnetic Energy (EME) Site Safety Documentation such as a Limited Site Compliance Certificate, Environmental EME Report and Limited EME Guide was available for the NAB House, 255 George Street, Sydney NSW (NSA Site No:6000020).
- A Limited EME Guide was available for review dated 15/2/2018. The Limited EME guide states that there is a third-party antenna located on the site which has been registered on ACMA (203442), however is not included in this EME Guide and no safety information has been provided.
- The Site Limited Compliance Certificate states that the site includes both mobile telecommunications equipment configured as a mobile base station and other frequency transmitting equipment, some of which is unable to be identified and therefore has not been included in the compliance assessment.

Key Recommendations

- Consider engaging a suitable qualified AMTA RF Assessor to attend the site to identify the third party carrier equipment, collect the required information and take EME measurements of the equipment. Once the assessment has been undertaken, obtain an updated full unconditional copy of the EME Guide. Refer to **Appendix 4** for list of AMTA accredited RF Assessors.
- Ensure a full unconditional compliance certificate is issued for the site following the RF assessment.

2. Introduction

RiskTech Pty Limited were engaged by AMP Capital to undertake an assessment of the radio frequency radiation (RFR) hazards at NAB House located at 255 George Street, Sydney NSW.

The assessment was carried out by Matthew Hyde, Consultant of RiskTech on 3 April 2018.

2.1 Site Description

Site Address	255 George Street, Sydney NSW
Construction Date	1985
Site Type	Commercial
Levels	30 Levels + Roof Level/Plant Room + 3 Basement Levels Car Park
Description	The site consists of a 30 Level commercial building located on George Street in Sydney's CBD. Plant rooms are located on Level 16 & 31. A total of 3 undercover parking levels is provided in the basement of the building. A café is located on the Ground Level in the lobby.

Site Location: 255 George Street, Sydney NSW

Image courtesy Sixmaps 2018

2.2 Scope

The assessment was undertaken using the following methodology:

- A walk-through inspection of common areas of the site to:
  - Identify RFR equipment such as mobile phone base station antennas, radio and television broadcast transmitters and radar systems present on site;
  - Evaluate the controls in place on site;
  - Confirm if a site radiation folder(s) such as the Electromagnetic Energy (EME) Guide or Radio Communications Site Management Book (RCSMB) is present; &
  - Confirm if radiation areas are appropriately signposted and secured against unauthorised access.
- Preparation of the report including a list of observations and recommendations aimed at controlling areas of concern, or suggested improvements to the existing systems.

It is noted that this is a qualitative report only and no radiation measurements were taken. The telecommunications carriers that own and control the installations are responsible for providing detailed RFR field assessment reports.

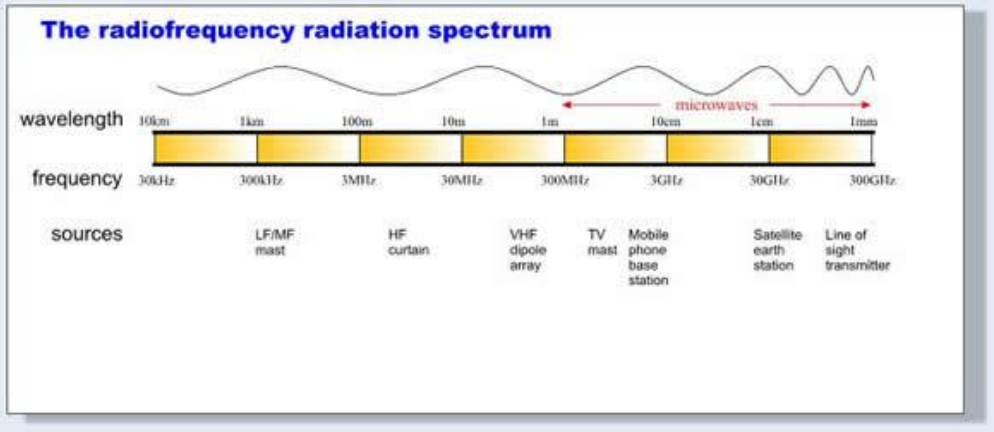
3. Background Information

3.1 Radio Frequency Radiation

What is Radiofrequency Radiation

Radiofrequency (RF) electromagnetic radiation (EMR) is the transfer of energy by radio waves. RF EMR lies in the frequency range between 3 kilohertz (kHz) to 300 gigahertz (GHz). Mobile phones are low-powered radiofrequency transmitters, operating at frequencies between 450 and 2700 MHz. FM radio and television broadcasting operate at frequencies around 100 MHz and 300 to 400 MHz respectively.

RF EMR is non-ionising radiation, meaning that it has insufficient energy to break chemical bonds or remove electrons (ionisation).



Sources of Radiofrequency Radiation

RF EMR is produced by both natural and artificial sources. Natural sources like the sun, the earth and the ionosphere all emit low level RF fields. Artificial sources of RF EMR are mainly used for telecommunications purposes such as mobile phone base stations. Mobile phones communicate by transmitting radio waves through a network of fixed antennas called base stations.

Radio and television broadcasting, mobile phones, pagers, cordless phones, police and fire department radios, point-to-point links and satellite communications all produce RF EMR. Other sources of RF fields include microwave ovens, radar, industrial heaters and sealers, and various medical applications.

Radiofrequency Radiation Exposure

RF EMR exposures from mobile phone base stations range from 0.002% to 2% of the levels of international exposure guidelines depending on various factors such as proximity to the antenna and the surrounding environment. RF exposure from telecommunications facilities is generally less than from radio or television broadcasting transmitters.

Relatively high levels of exposure to RF fields can occur to workers in the broadcasting, transport and communications industries when they work in close proximity to RF transmitting antennas and radar systems. Some industrial processes that use RF fields to heat materials can produce high exposure to workers.

Health Effects of RFR Exposure from Mobile Phone Base Station Antennas

Current research indicates that there are no established health effects from low exposure to RF EME from mobile phone base station antennas. ARPANSA concluded that "*no adverse health effects are expected from continuous exposure to the RF EME emitted by antennas on mobile phone base stations*". (ARPANSA Fact Sheet dated August 2016 – **Appendix 2**).

RFR Exposure from Mobile Phone Base Station Antennas

In 2002 ARPANSA published the standard: Radiation Protection Standard - Maximum Exposure Levels to Radiofrequency Fields - 3 kHz to 300 GHz. The ARPANSA RF Standard sets limits for human exposure to RF EMR in the frequency range 3 kHz to 300 GHz. The Standard also includes requirements for protection of the general public and the management of risk in occupational exposure, together with additional information on measurement and assessment of compliance.

RF EME exposure to the public from mobile base stations is typically hundreds of times below the ARPANSA RF Standard limits.

3.2 Radio Frequency National Site Archive

The Australian Mobile Telecommunications Association (AMTA) is the industry body representing Australia's mobile telecommunications industry. The AMTA host the Radio Frequency National Site Archive (RFNSA), which outlines information about selected mobile phone towers.

The AMTA Radio Frequency Safety Program (RFSP) is developed by AMTA and the Mobile Carriers to gather, record and share information so that all parties involved can have visibility of the site's compliance. The information is stored on the National Site Archive database (RFNSA) website which includes information for the management of EME compliance for any site including (but not limited to):

- National Association of Testing Authorities (NATA) accredited Independent RF Assessors;
- Standard EME Site Safety Documents:
    - Site Compliance Certificate;
    - EME Guide, which will replace the RCSMB over time;
    - EME Safe Work Information; &
    - Site Compliance Report.
- Standard Site Signage.
- All EME levels are disclosed to the site owner and/or manager for management of WHS on their sites.

3.3 EME Guide & RCSMB

The EME Guide and RCSMB are designed to help anyone who is required to work near radio telecommunications equipment installed on this property and to do so safely. They describe areas that should not be accessed (exclusion zones), and provides details of the equipment installed at the site and the operator of the equipment. The facility manager, building manager or carrier will provide a login to access the EME Guide or RCSMB.

3.4 Safety Requirements

The following safety requirements should be considered when working near antennas (source: www.MobileSiteSafety.com.au website):

- Personnel must be appropriately trained;
- Provision of safety briefing/ induction;
- Do not work directly in front of or around RF transmitter antennas;
- Observe safety signage;
- View online site safety documentation;
- Refer to Electromagnetic Energy Guide (EME Guides will replace RCSMBs over time);
- Check site EME Exclusion Zone drawings noting any exclusion zones;
- Check for site updates - see Caution Sheets for any warnings of site changes;
- Use of safe work method statement; &
- Use of a personal RF monitor.

3.5 Safety Signage

- Radiation Safety signage should be installed at the entrance to the areas housing the RF equipment on site.

Example RF hazard warning signage

3.6 Limitations/Areas Not Accessed

- The assessment is limited to those physical aspects that could be observed during the assessment of common areas of the site.
- No detailed testing or no radiation measurements were undertaken.
- We have generally used and relied upon information supplied as being regarded as authoritative and reliable. Review of reports and certification documentation is limited to those that were present on site at the time of the assessment or available in the public domain (eg; RFNSA website).

4. Findings

4.1 Site Observations

- Potential radio frequency antennas were observed on the roof level of the NAB House Building. RiskTech was advised this antenna has been installed recently.
- Access to the potential radio frequency antennas on the roof level was secured against unauthorised access at the time of inspection.
- No RFR signage was present at the entrance to the roof level for the recently installed equipment. No exclusion zones have been marked on the roof in front of the antennas (unknown if required).
- Radio Frequency equipment has been installed throughout the building. These areas were secured against unauthorised access.

4.2 EME Site Safety Documentation Search & Review

4.2.1 Site Compliance Certificate

- A search of the RFNSA web site identified a Limited Site Compliance Certificate for NAB House, 255 George Street, Sydney NSW (NSA Site No: 2000060), which was prepared by Catalyst One Pty Ltd (Limited Site Compliance Report No: 05 dated 15/2/2018). Refer to **Appendix 1**.
- The Site Limited Compliance Certificate states that the site includes both mobile telecommunications equipment configured as a mobile base station and other frequency transmitting equipment, some of which is unable to be identified and therefore has not been included in the compliance assessment.
- The Limited Site Compliance Certificate states that '*the mobile telecommunications equipment installed and its configuration as a mobile base station has been assessed and has been deemed to comply with the ACMA Licence Conditions (Apparatus Licence) Determination 2015.*
- Furthermore, the Limited Site Compliance Certificate for NAB House, 255 George Street, Sydney NSW also states that '*access control, RF warning signage (if required) and safe work procedures are in place as detailed in the accompanying Electromagnetic Energy Guide (EME Guide)*'.

4.2.2 Environmental EME Report

- A search of the RFNSA web site identified an Environmental EME Report for the NAB House, 255 George Street, Sydney NSW (RFNSA Site No. 6000020), which was dated 18/5/2012. Refer to **Appendix 1**.
- The Environmental EME Report provides a summary of the Calculated RF EME Levels around the antennas at the site. The EME report states that the '*RF EME levels have been estimated from the existing and proposed antennas at NAB HOUSE, 255 GEORGE ST - Structure 2. Side of building Sydney NSW 2000. The maximum cumulative EME level at 1.5 m above ground level is estimated to be 0.025 % of the ARPANSA public exposure limits.*
- The Environmental EME Report notes no existing radio systems are installed on the site, however does note that proposed radio systems and carriers for the site include Optus, Vodafone & Telstra.

4.2.3 *EME Guide*

- A Limited EME Guide (Issue No: 05) dated 15/2/2018, was available for review at the time of the assessment. The Limited EME Guide states that there is a third-party antenna located on the site which has been registered on ACMA (203442), however is not included in this EME Guide.
- The Limited EME Guide shows equipment installed within the basement levels and other levels throughout the building. The Limited EME Guide states the following:
  - The EME exposures do not exceed the general public limits in the, In Building Coverage (IBC) / Distributed Antenna System (DAS) at this site. No access control procedures are required at this site.
  - Transmitting power at this site is quite low that no RF Hazards exists. Even at very low levels, non-ionising radiation has the potential to adversely affect the operation of Bio-medical devices. Persons with such devices must ensure all transmitters are powered-off before working in close proximity to transmitting antennas or around the building ceiling.

4.3 Photographs

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Potential radio frequency radiation equipment recently installed on the roof level</td><td>No RFR hazard warning signage at the roof level entrance (unknown if required)</td></tr>
</table>

5. Recommendations

5.1.1 Mandatory Recommendations

- Nil

5.1.2 Control Recommendations

- Consider engaging a suitable qualified AMTA RF Assessor to attend the site to identify the third party carrier equipment, collect the required information and take EME measurements of the equipment. Once the assessment has been undertaken, obtain an updated full unconditional copy of the EME Guide. Refer to **Appendix 4** for list of AMTA accredited RF Assessors.
- Ensure a full unconditional compliance certificate is issued for the site following the RF assessment.

(Note: AMTA provide a login access for facility manager/owners or carrier subcontractor of antennas. **Refer to Appendix 3 RFNSA Login Access Form**. Download the current document from www.rfnsa.com.au, which is the best way to ensure you have the most up to date documentation).

- Consider installing warning signage and exclusion zones (if required) to warn contractors accessing the roof area of the potential hazards associated with the antennas. Refer to **section 3.5** safety signage.

6. Abbreviations and Acronyms

ACMA	Australian Communications and Media Authority
AMTA	Australian Mobile Telecommunications Association
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
EME	Electromagnetic Energy
EMR	Electromagnetic Radiation
LCD	Licence Condition Determination
NATA	National Association of Testing Authorities
RCSMB	Radio Communications Site Management Book
RFR	Radio Frequency Radiation
RFNSA	Radio Frequency National Site Archive
RFSP	Radio Frequency Safety Program

7. References

1. Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), August 2016, *ARPANSA Fact Sheet - Mobile Phone Base Stations and Health*, www.arpansa.gov.au
2. ARPANSA (2002), *Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields - 3 kHz to 300 GHz (2002)*, http://www.arpansa.gov.au/Publications/Codes/rps3.cfm.
3. ARPANSA (nd), Mobile phone base stations and EME, http://www.arpansa.gov.au/pubs/aboutus/collaboration/js_mobilebasestations.pdf .
4. Mobile Carrier Forum (MCF), MCF Fact Sheets – Working Safely Near Antennas, https://www.mobilesitesafety.com.au/Content/MCFFactSheetWorkingSafelyatSites.pdf .
5. MCF, MCF Fact Sheets – Radio Communications Site Management Book, https://www.mobilesitesafety.com.au/Content/MCFFactSheetWorkingSafelyatSites.
6. MCF, MCF Fact Sheets – Reading the Australian Radiation Protection and Nuclear Safety Agency EME Report, https://www.mobilesitesafety.com.au/Content/ReadingARPANSAEMEReport.pdf .
7. World Health Organisation (WHO), May 2006, Fact Sheet No.304 - Electromagnetic fields and public health: Base stations and wireless technologies, http://www.who.int/mediacentre/factsheets/fs304/en.
8. WHO, October 2014, Electromagnetic fields and public health: mobile phones, Fact sheet No.193, http://www.int/mediacentre/factssheets/fs193/en.

Appendix 1 EME Site Safety Documents

This document is marked *Limited* as some of the systems at this site cannot be identified

LIMITED

EME Guide

for Site Safety

RFNSA Site No: 2000060
Document Issue No: 5
Document Issue Date: 15/02/2018

Address:
NAB HOUSE, 255 GEORGE ST
SYDNEY NSW 2000

This evaluation <u>does not consider all</u> of the systems operating at this Radiocommunications facility. The mobile carriers equipment however, has been evaluated against the applicable Australian Standard.

This Report was prepared by: Catalyst O.N.E Pty Ltd

An Important Message to people accessing this building or structure

There are radiocommunications antennas operating on this building or structure. The antennas on this building or structure produce a form of energy known as electromagnetic energy (EME).

You should not access Exclusion Zones, which are areas close to the antennas.

The Radiocommunications facility cited below is unable to be declared COMPLIANT with the Australian Standard applicable.

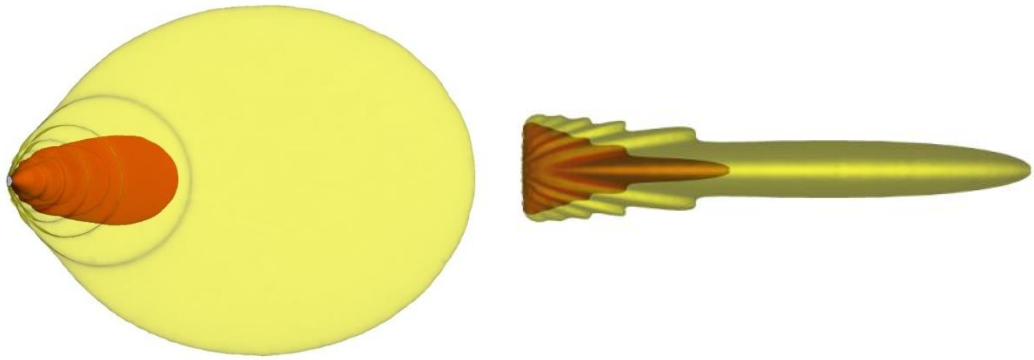
Visitors to this site shall note that EME Safe Work Procedures apply

DO NOT STAND IN FRONT OF ANTENNAS
and
DO NOT Access Red & Yellow Exclusion Zones

This document will show Exclusion Zones around the antennas, don't enter these areas. The latest version of this EME Guide is accessible at www.rfnsa.com.au or from the mobile carrier or building owner.

Exclusion zones are defined by the Australian EME Standard "ARPANSA Radiation Protection Standard - Maximum Exposure Levels to Radiofrequency Fields (RPS3)."

Make sure you view all the Exclusion Zone drawings so you get a complete understanding of the site.



Red Zone = Exclusion Zone. No access without confirmed transmitter power reduction or transmitter shutdown.

Yellow Zone = Exclusion Zone. Limited access to specially trained personnel (RF Workers).

White Zone = General access

Note - This EME Guide replaces the Radio Communications Site Management Book (RCSMB).

1. Be aware of these access controls on site

If you need to access this site contact the site owner, manager or the Carriers and Radio Service Operators occupying the site.

Access Control Procedures at Site

- The EME exposures do not exceed the general public limits in the In Building Coverage (IBC) / Distributed Antenna System (DAS) at this site. No access control procedures are required at this site.

- Transmitting power at this site is quite low that no RF Hazards exists. Even at very low levels, non-ionising radiation has the potential to adversely affect the operation of Bio-medical devices. Persons with such devices must ensure all transmitters are powered-off before working in close proximity to transmitting antennas or around the building ceiling.

2. EME Safe Work Procedures to be followed at this site

1. Be appropriately trained
2. Receive a safety briefing from Site Manager
3. Do not stand in front of antennas
4. Observe safety signs
5. Ensure you view the current version of this EME Guide (www.rfnsa.com.au)
6. Check site drawings & antenna exclusion zones
7. Check for site updates - see caution sheets
8. Use a safe work method statement
9. Use a personal RF monitor
10. Questions - ask for help

3. Carriers and Radio Service Operators on site

Carrier	Antenna	Contact No
Vodafone	B3-1, B3-2, B2-1, B2-2, B1-1, B1-2, GR-1, GR-2, GR-3, GR-4, 1-1, 1-2, 2-1, 2-2, 3-1, 3-2, 4-1, 4-2, 5-1, 5-2, 6-1, 6-2, 7-1, 7-2, 8-1, 8-2, 9-1, 9-2, 10-1, 10-2, 11-1, 11-2, 12-1, 12-2, 13-1, 13-2, 15-1, 15-2, 16-1, 17-1, 17-2, 18-1, 18-2, 19-1, 19-2, 20-1, 20-2, 21-1, 21-2, 22-1, 22-2, 23-1, 23-2, 24-1, 24-2, 25-1, 25-2, 26-1, 26-2, 27-1, 27-2, 29-1, 29-2, 30-1, 30-2, 30-3	1800 683 683
Optus	Share IBC System	1800 505 777
Telstra	Share IBC System	0418 707 000

4. Site owner or manager contact details

Name	Role	Company	Contact Details
DEAN LEWIS	OPERATIONS MANAGER	AMP	+61 423 290 084 DEAN.LEWIS@AMPCAPITAL.COM

Please Note: The site owner or manager contact information is current at the Issue Date but may change without notice to the Mobile Carriers or Radio Service Operators occupying the site.

Important Information about this EME Guide

Site safety information including exclusion zone diagrams in this EME Guide have an “Issue date” incorporated on each page and are correct for that date.

To ensure that you have the most current site safety information available, check the on-line version of this EME Guide using the RFNSA number reference found on the front cover.

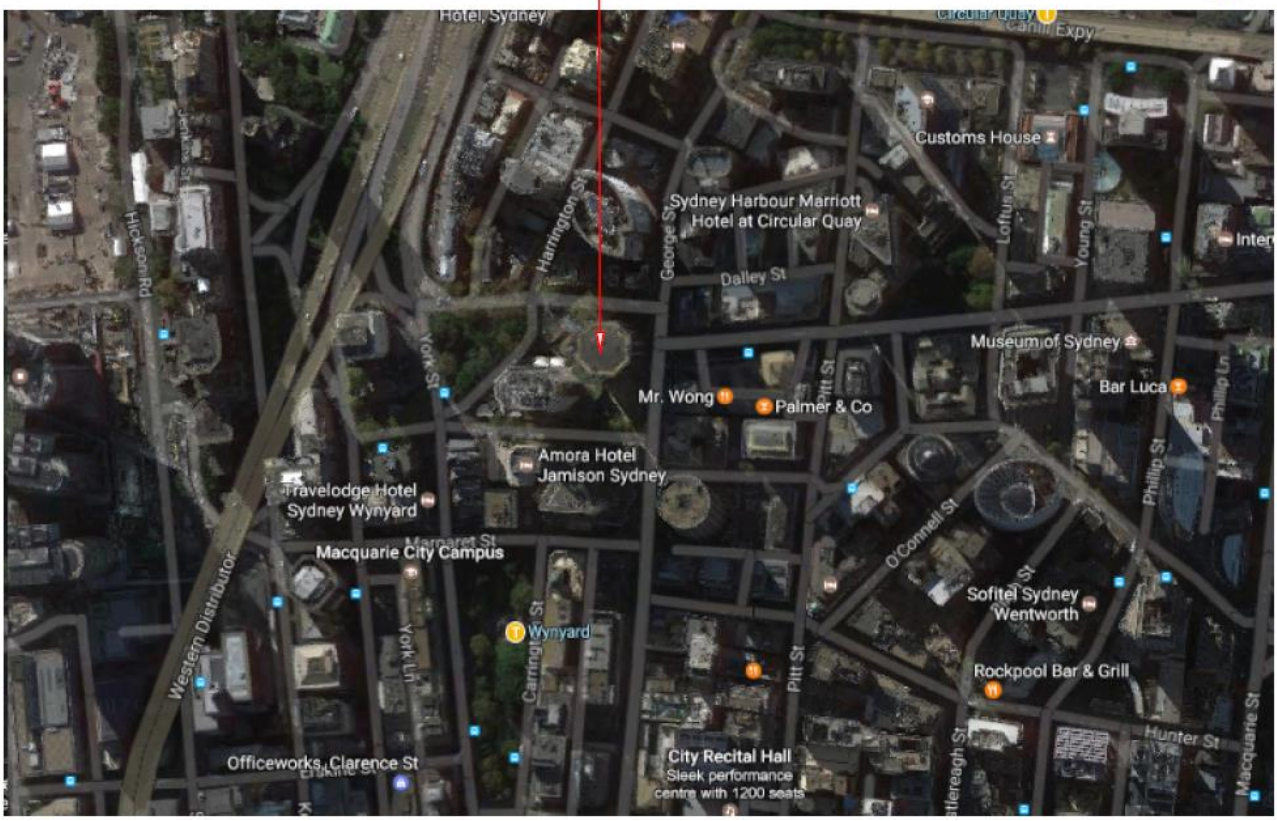
On-line Site Information

MCF National Site Archive www.rfnsa.com.au

Mobile Site Safety www.mobilesitesafety.com

Section 1: Site Layout

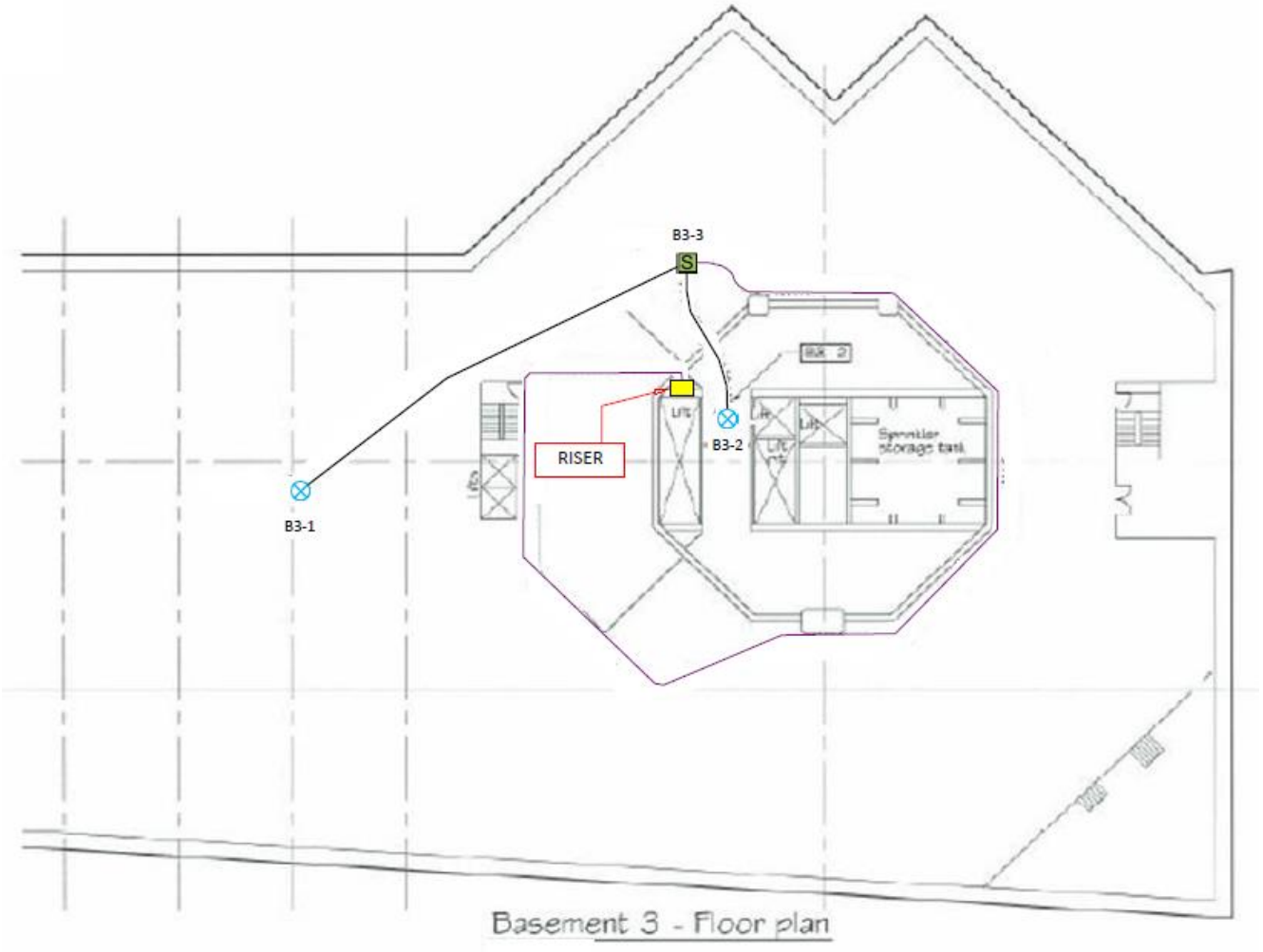
NAB HOUSE, SYDNEY NSW 2000



Section 2: Antenna Layout Plan
BASEMENT 3

Note:

1. Labels refer to antenna reference (refer to Section 3 of EME Guide for details).
2. Use of colour on this page is for equipment identification purposed and does not represent an RF hazard. EME levels resulting from the coverage antennas do not exceed general public limit.



BASEMENT 2

Note:

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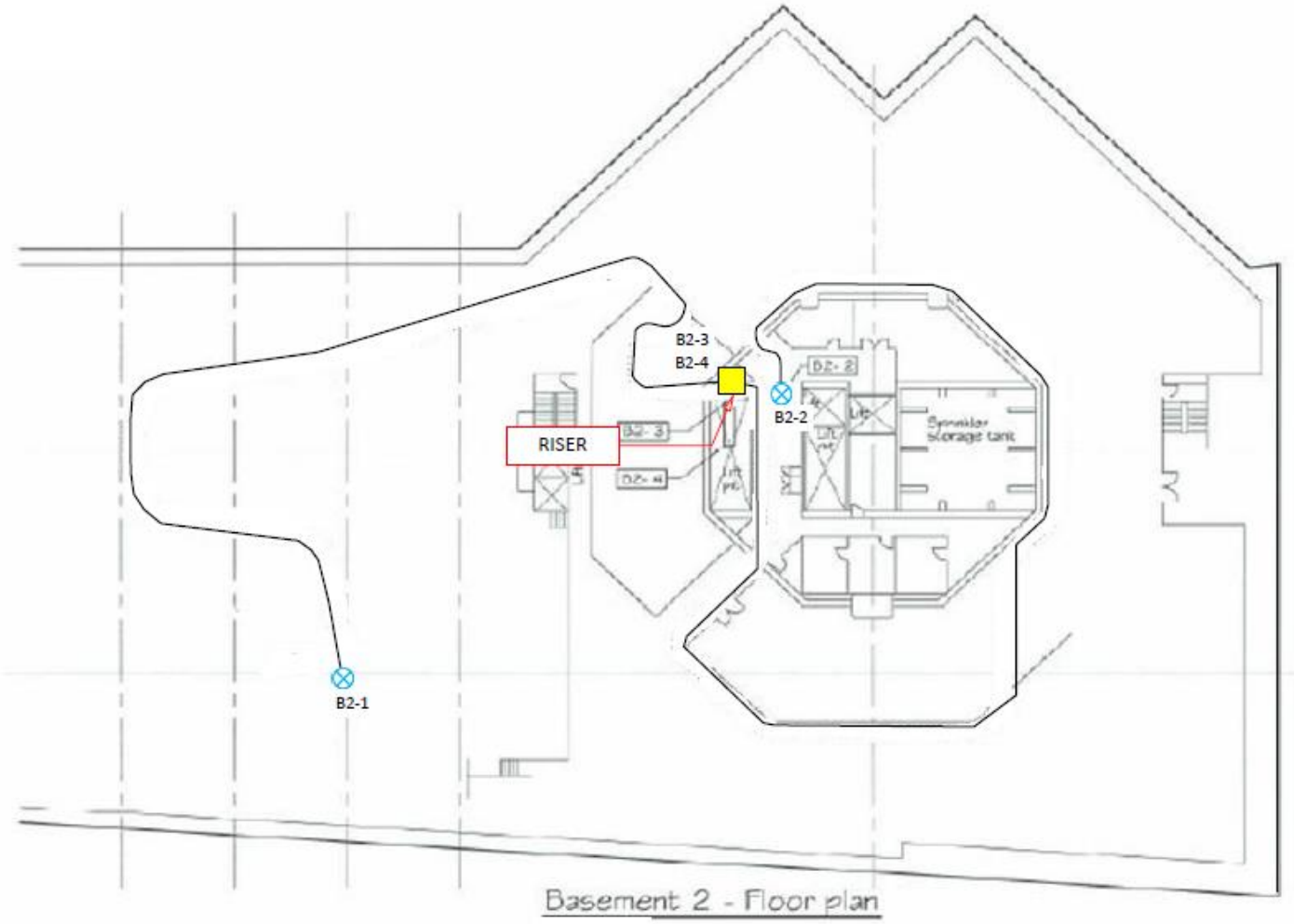
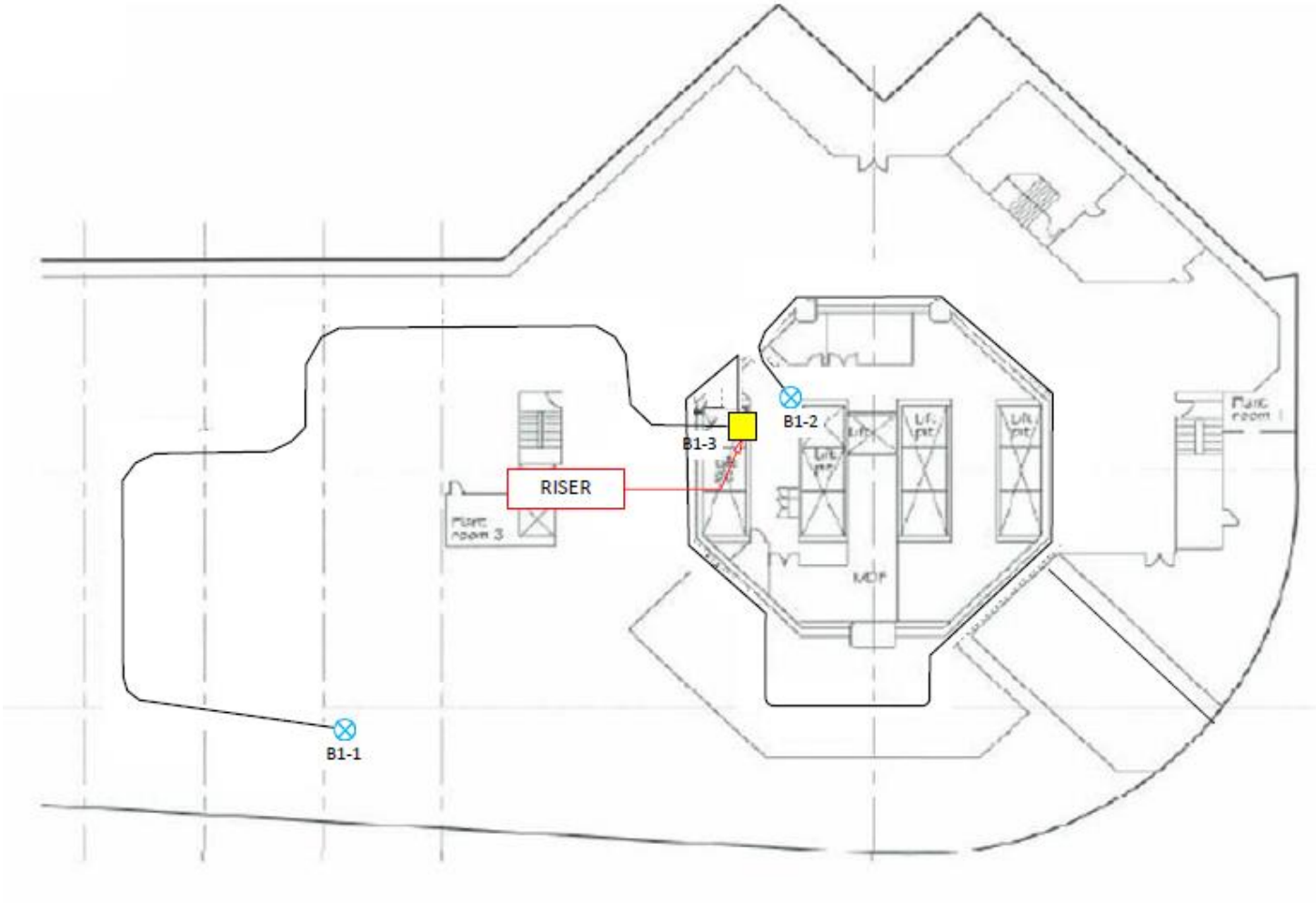


BASEMENT 1

Note:

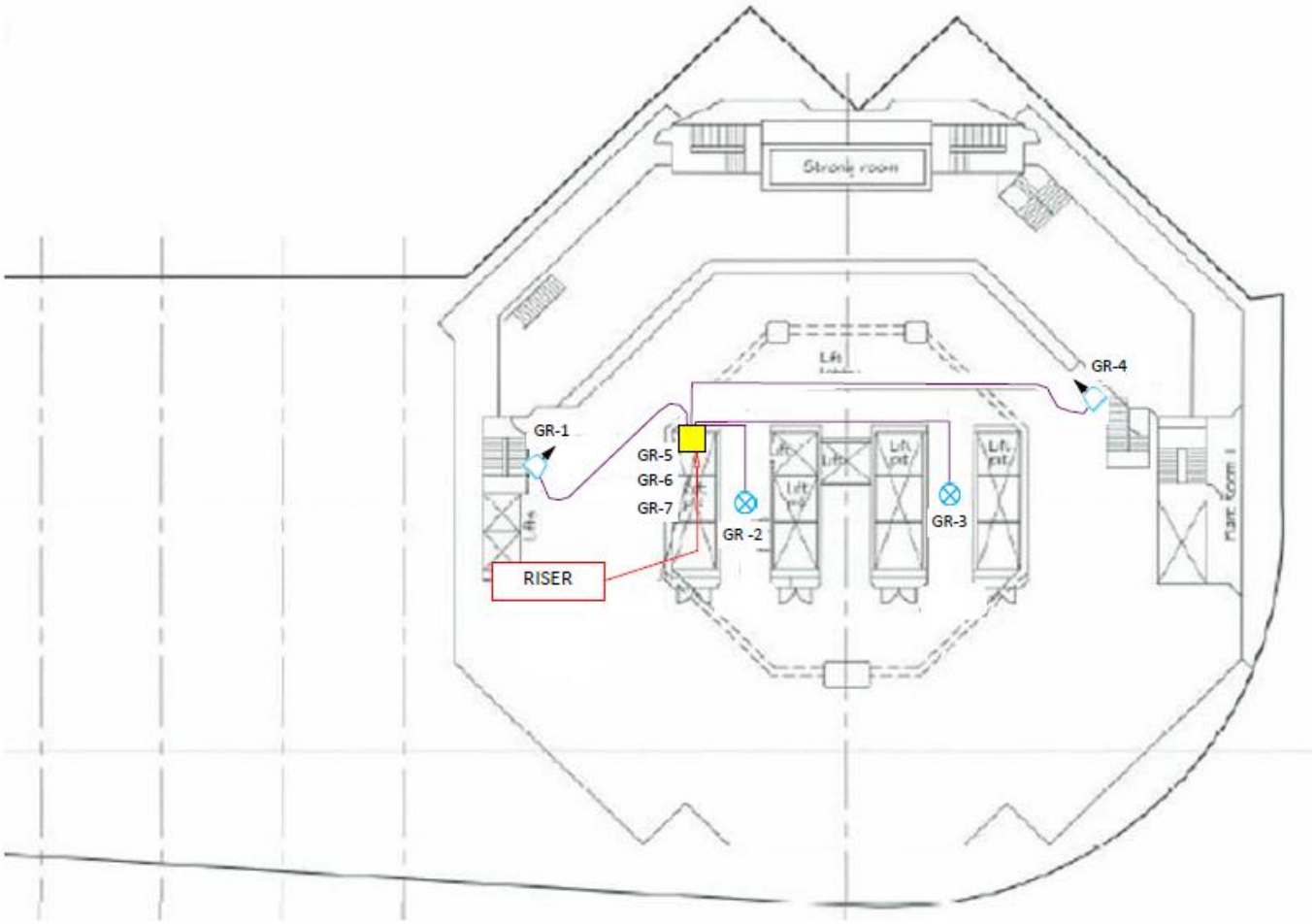
1. Labels refer to antenna reference (refer to Section 3 of EME Guide for details).
2. Use of colour on this page is for equipment identification purposed and does not represent an RF hazard. EME levels resulting from the coverage antennas do not exceed general public limit.



GROUND LEVEL

Note:

1. Labels refer to antenna reference (refer to Section 3 of EME Guide for details).
2. Use of colour on this page is for equipment identification purposed and does not represent an RF hazard. EME levels resulting from the coverage antennas do not exceed general public limit.



LEVEL 1

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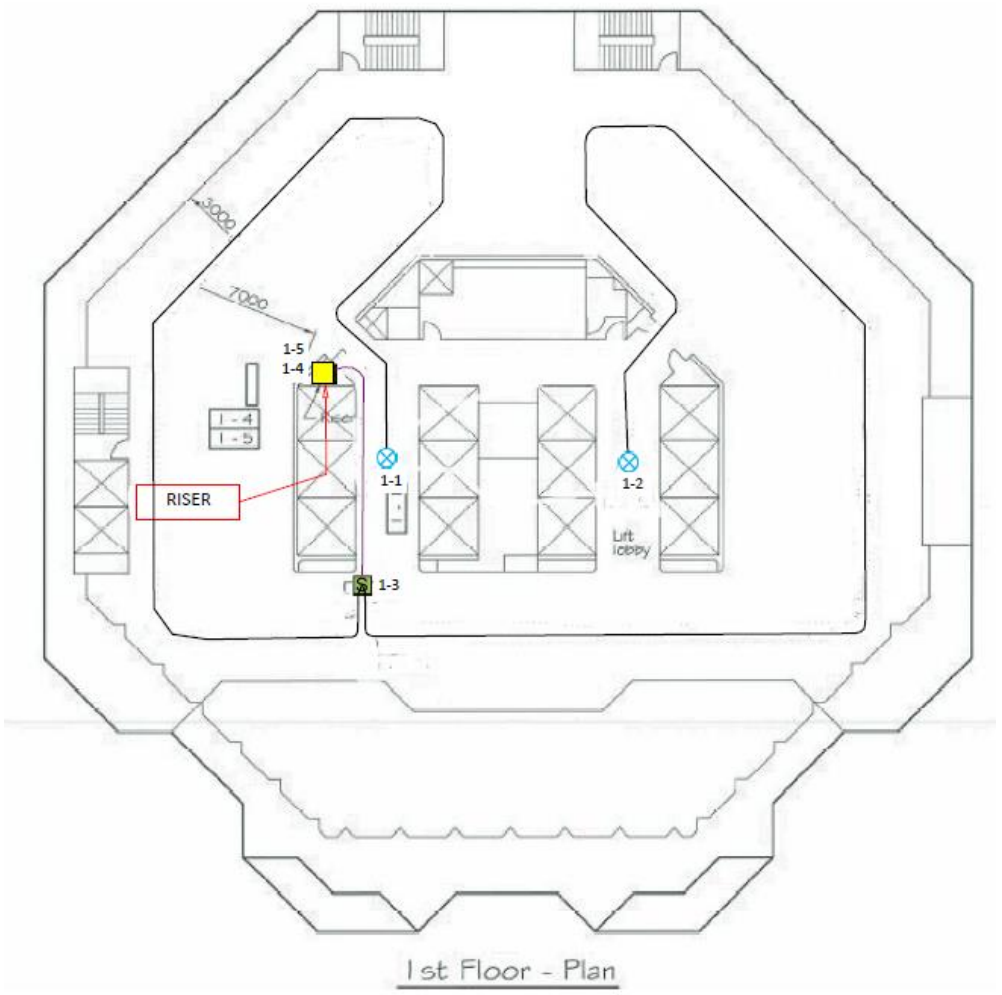

LEVEL 2

Note:

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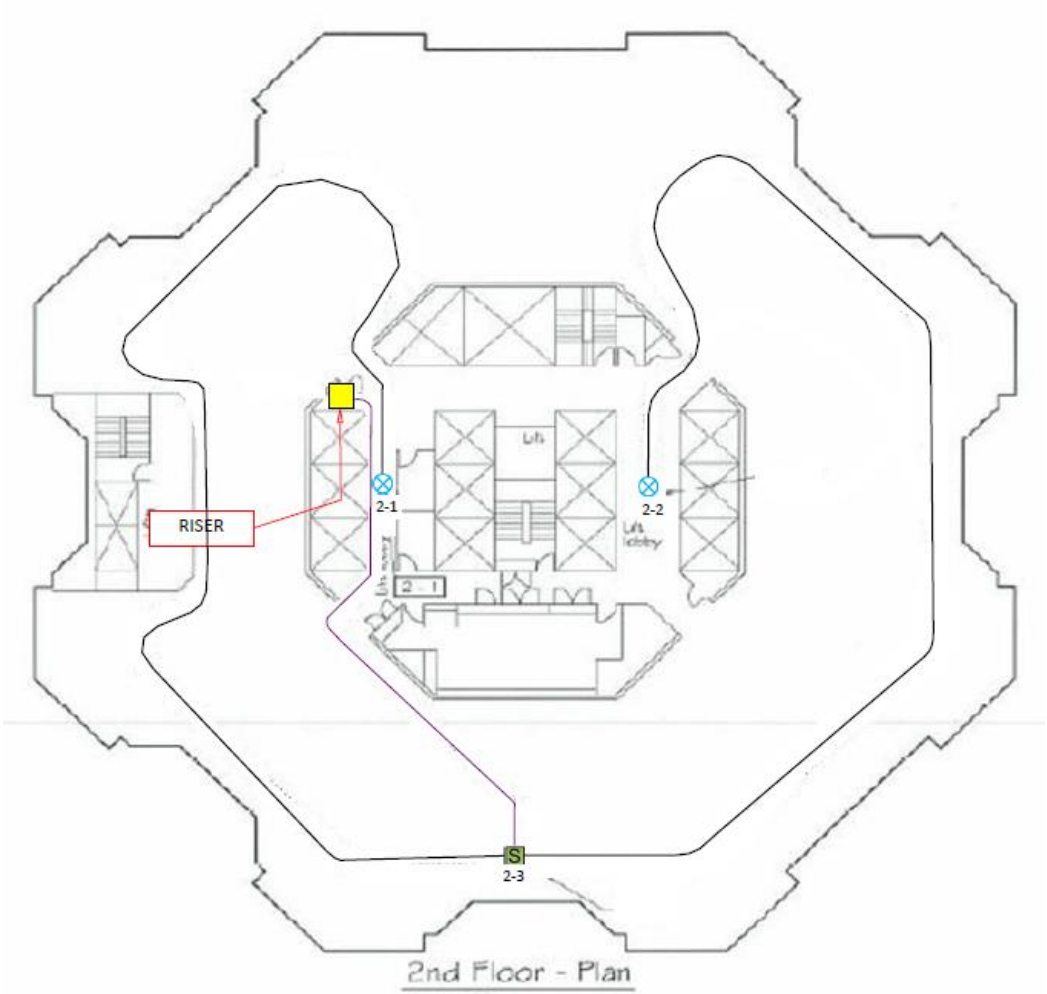
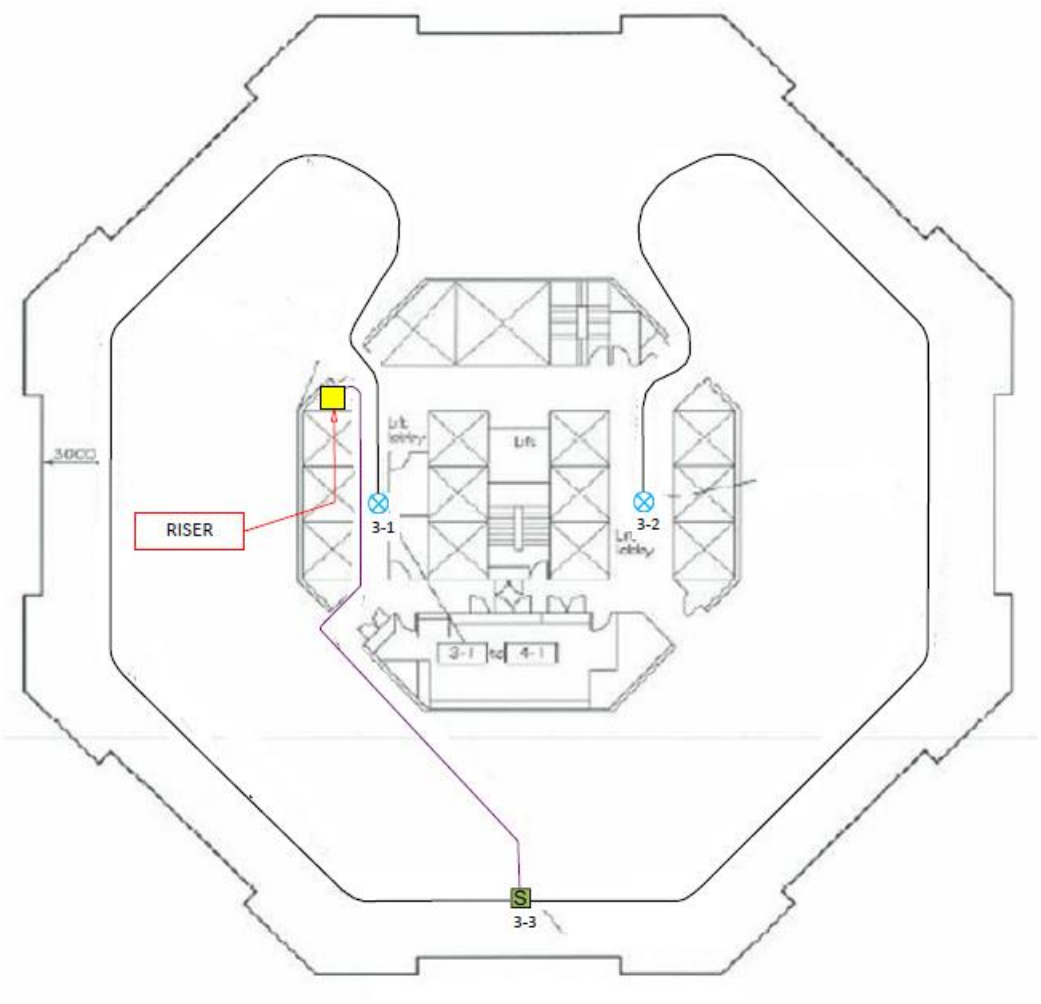


LEVEL 3 – 13 and 15

Note:

1. Labels refer to antenna reference (refer to Section 3 of EME Guide for details).
2. Use of colour on this page is for equipment identification purposed and does not represent an RF hazard. EME levels resulting from the coverage antennas do not exceed general public limit.



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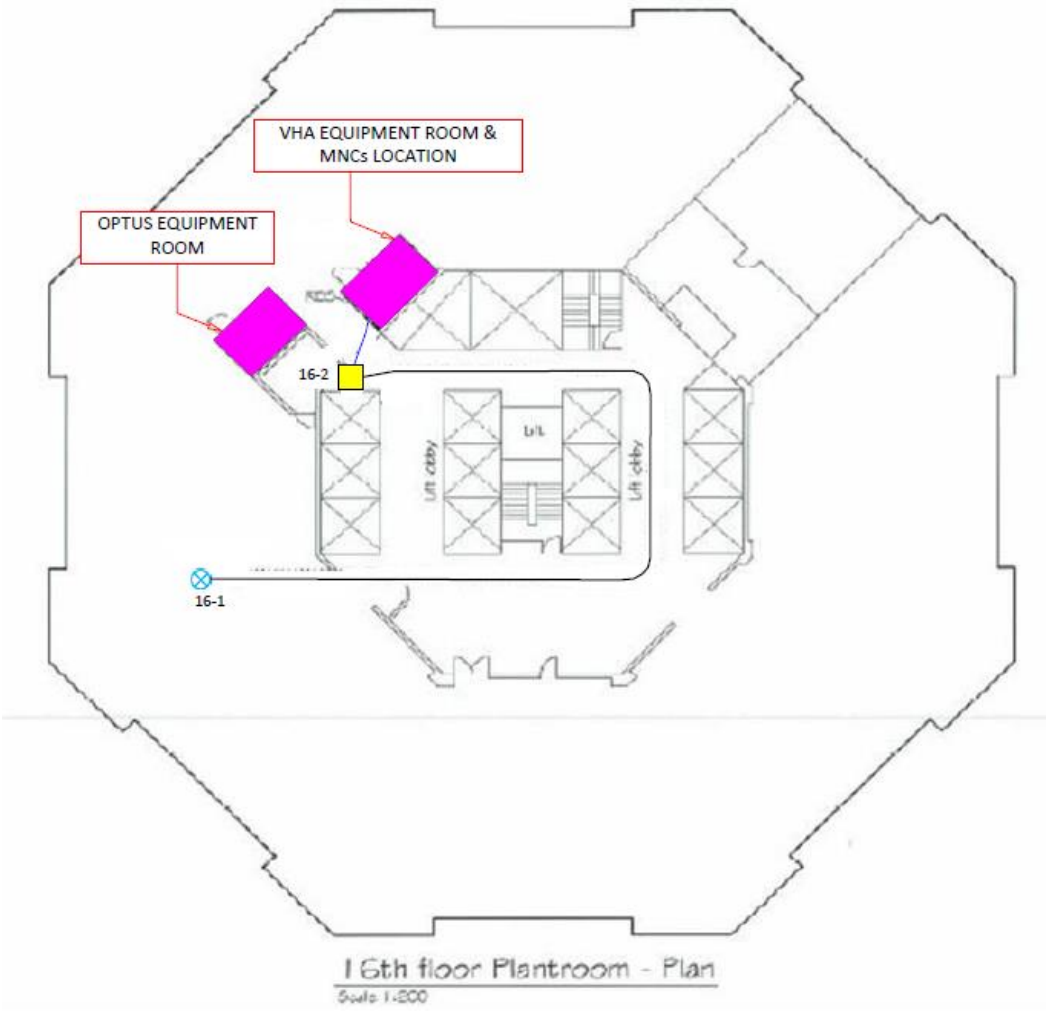
LEVEL 16

Note:

1. Labels refer to antenna reference (refer to Section 3 of EME Guide for details).
2. Use of colour on this page is for equipment identification purposed and does not represent an RF hazard. EME levels resulting from the coverage antennas do not exceed general public limit.



LEVEL 17 – 27 and 29

Note:

1. Labels refer to antenna reference (refer to Section 3 of EME Guide for details).
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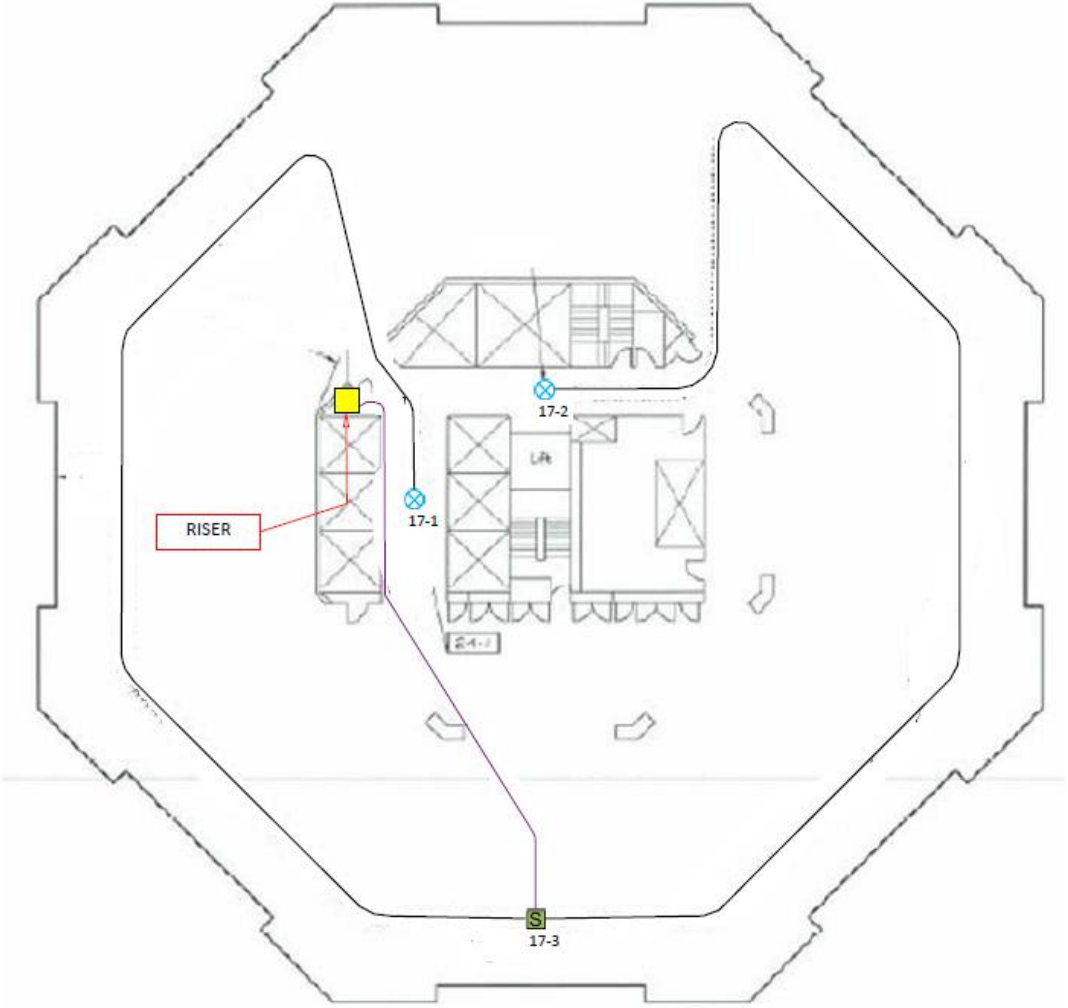

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LEVEL 30

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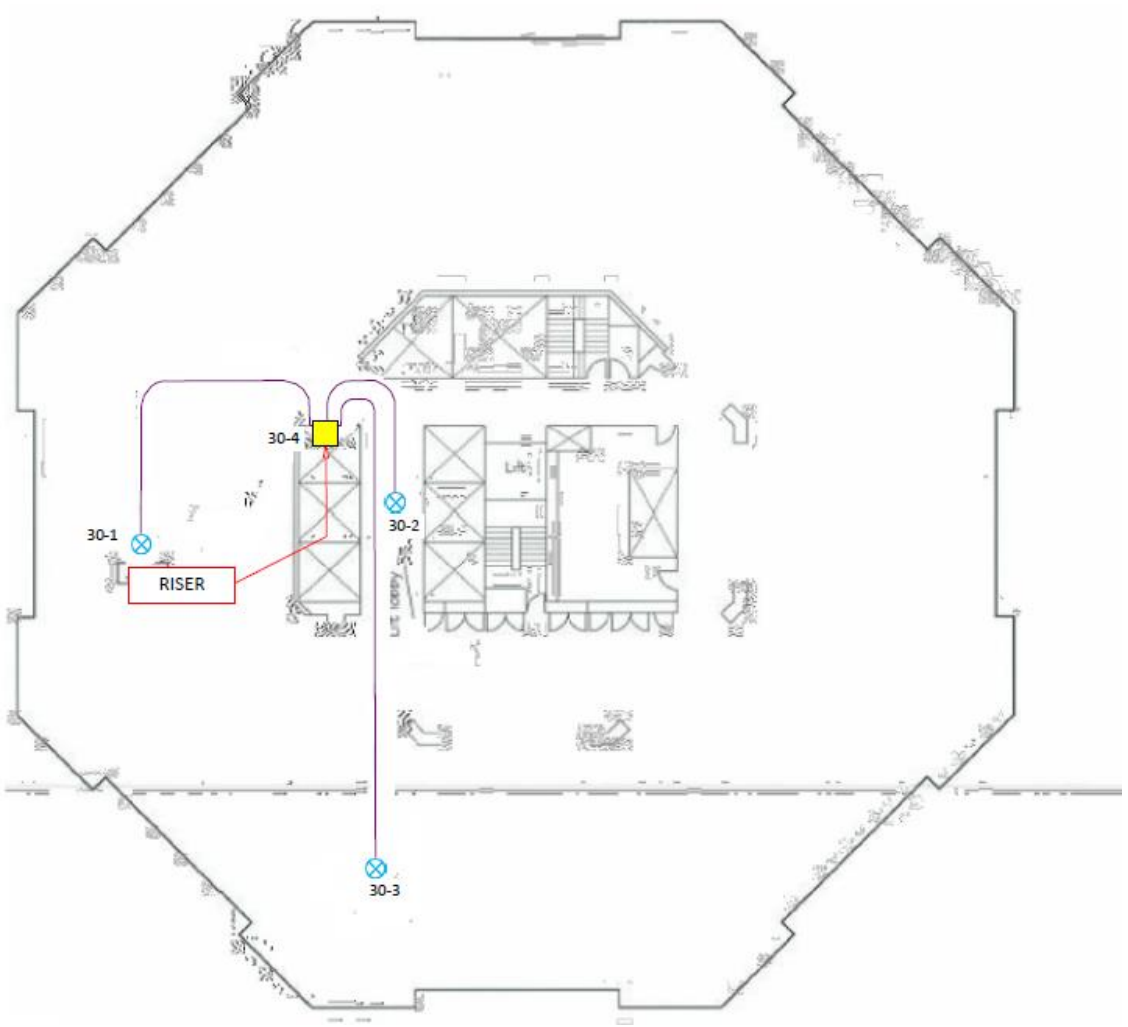


Section 3: Equipment Installed at this Site

Equipment List

Diagram Ref	Make/Model	Antenna Type	System/Function	Max Power Into Antenna(Watts)
B3-1, B3-2, B2-1, B2-2, B1-1, B1-2, GR-2, GR-3, 1-1, 1-2, 2-1, 2-2, 3-1, 3-2, 4-1, 4-2, 5-1, 5-2, 6-1, 6-2, 7-1, 7-2, 8-1, 8-2, 9-1, 9-2, 10-1, 10-2, 11-1, 11-2, 12-1, 12-2, 13-1, 13-2, 15-1, 15-2, 16-1, 17-1, 17-2, 18-1, 18-2, 19-1, 19-2, 20-1, 20-2, 21-1, 21-2, 22-1, 22-2, 23-1, 23-2, 24-1, 24-2, 25-1, 25-2, 26-1, 26-2, 27-1, 27-2, 29-1, 29-2, 30-1, 30-2, 30-3	RFI/RFS AO8818DC00-28T0	Omni	**Optus** LTE1800, WCDMA2100, WCDMA900 **Telstra** LTE1800, WCDMA850 **Vodafone** LTE1800, LTE850, WCDMA900	0.08
GR-1, GR-4	CommScope CNLPA3055F	Panel	**Optus** LTE1800, WCDMA2100, WCDMA900 **Telstra** LTE1800, WCDMA850 **Vodafone** LTE1800, LTE850, WCDMA900	0.04

Section 4: Site Specific Documents

There is a third-party antenna, found that have been registered on ACMA (203442), are not included in this EME Guide.

Assignment and Application Details	
Licence Number	1971711/1
Freq. Assign. ID	0000982460
EFL ID	1123102
System ID	644218
Former Device ID	8396607-8452286
Client	Amp Capital Investors Limited
Site	NAB House 255 George Street SYDNEY NSW 2000
Station Name	Amp Capital Inv SYDNEY 504.5375
Coverage	Sub-Local
Hours of Operation	00:00-23:59
Status	Granted
Device Type	Transmitter
Date Authorised	19/Nov/2013
Special Conditions	An efficient cavity filter must be fitted between the transmitter and the antenna. An efficient cavity filter must be fitted between the receiver and the antenna.
	NOTE: There may be additional text attached to the licence associated with this assignment.
Transmitter Details	
Emission Center Frequency	504.5375 MHz
Bandwidth	12.5 kHz
Emission Designator	10K1F3E
Antenna	Dipole-D, COD4, RF INDUSTRIES
Antenna Height (AGL)	0 m
Antenna Polarisation	Linear Vertical
Antenna Azimuth	
Antenna Tilt	
Antenna Multi Mode	N
Transmitter Power	5 W pY
Feeder Loss	0 dB
EIRP	8.3 W
Device Details	
Mode	Duplex
Callsign	VKK648
Supplimental Device	N
Class of Station	FB - Base station
Nature of Service	CV - Station open exclusively to correspondence of a private agency

LIMITED COMPLIANCE CERTIFICATE

RFNSA Site No: 2000060

Site Address: NAB HOUSE, 255 GEORGE ST SYDNEY NSW 2000

Issued in accordance with the Radiocommunications Licence Conditions (Apparatus Licence) Determination 2015.

RF Human Exposure Limits

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) has produced a standard for exposure to Radio Frequency (RF) transmissions – ARPANSA Radiation Protection Standard 2002 Maximum Exposure Levels to Radio Frequency Fields – 3 kHz to 300 GHz (RPS3).

The Australian Communications and Media Authority (ACMA) has made the Radiocommunications Licence Conditions (Apparatus Licence) Determination 2015 that requires that the general public is not exposed to RF transmission levels exceeding the general public limits specified in the ARPANSA Standard (RPS3).

State and Commonwealth Occupational Health & Safety laws require compliance with the limits and obligations set out in the ARPANSA standard (RPS3).

Limited Compliance Statement

This site includes both mobile telecommunications equipment configured as a mobile base station and other radio frequency transmitting equipment, some of which is unable to be identified and therefore, has not been included in this compliance assessment.

As this certificate relates to the included transmitters in a limited compliance assessment of the site, the total EME levels at that site may exceed that shown in the related limited EME assessment documentation.

Mobile Telecommunications Equipment

The mobile telecommunications equipment installed at this site and its configuration as a mobile base station, has been assessed in accordance with the ARPANSA RPS3 reference limits, and has been deemed to comply with the ACMA Licence Conditions (Apparatus Licence) Determination 2015.

Other Radio Frequency Transmitting Equipment

All identified radio communications services are included in the related compliance documents listed below. The unidentified radio frequency transmitting equipment at this site is to be referred back to the Facility Manager or the licensee of the equipment for confirmation of conformity with the ACMA Licence Conditions (Apparatus Licence) Determination 2015.

Access Controls, RF Warning Signs and Safe Work Procedures

Access Control, RF warning signs (if required) and Safe Working Procedures are in place as detailed in the Related Documents listed below.

Compliance Certificate No:

Accreditation No

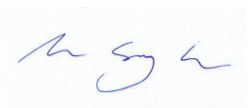
19390

Approved Signatory

Name: Min Lee

Designation: EME Design Manager

Company: Catalyst ONE Pty Ltd

Signature 

Date: 15/02/2018

Related Documents:		
	Site Compliance Report	Ref No 05
	EME Guide for Site Safety	Ref No 05

Summary of Estimated RF EME Levels around the Proposed Mobile Phone Base Station at NAB HOUSE, 255 GEORGE ST - Structure 2. Side of building, Sydney NSW 2000

Introduction: Date 18/5/2012 **NSA Site No (2000060)**

This report summarises the estimated maximum cumulative radiofrequency (RF) electromagnetic energy (EME) levels at ground level emitted from the existing Mobile Phone Base Station antennas at NAB HOUSE, 255 GEORGE ST - Structure 2. Side of building Sydney NSW 2000 . Maximum EME levels are estimated in 360° circular bands out to 500m from the base station. The procedures for making the estimates have been developed by the Australian Radiation Protection And Nuclear Safety Agency (ARPANSA)[1]. These are documented in the ARPANSA Technical Report; "Radio Frequency EME Exposure Levels - Prediction Methodologies" which is available at http://www.arpansa.gov.au

EME Health Standard

ARPANSA, an Australian Government agency in the Health and Ageing portfolio has established a Radiation Protection Standard[2] specifying limits for continuous exposure of the general public to RF transmissions at frequencies used by mobile phone base stations. Further information can be gained from the ARPANSA web site.

The Australian Communications and Media Authority (ACMA)[3] mandates exposure limits for continuous exposure of the general public to RF EME from mobile phone base stations. Further information can be found at the ACMA website http://emr.acma.gov.au

Existing Site Radio Systems There are currently no existing radio systems for this site.

Proposed Site Radio Systems

Optus / WCDMA2100 (proposed)			

Table of Predicted EME Levels – Proposed

Distance from the antennas at NAB HOUSE, 255 GEORGE ST - Structure 2. Side of building in 360° circular bands	Maximum Cumulative EME Level – All carriers at this site (% of ARPANSA exposure limits[2]) Public exposure limit = 100%
0m to 50m	0.00088%
50m to 100m	0.0019%
100m to 200m	0.0018%
200m to 300m	0.013%
300m to 400m	0.025%
400m to 500m	0.025%

Maximum EME level	
384.22 m, from the antennas at NAB HOUSE, 255 GEORGE ST - Structure 2. Side of building	0.025%

Note: Estimation for the maximum level of RF EME at 1.5m above the ground from the existing and proposed antennas assuming level ground. The estimated levels have been calculated on the maximum mobile phone call capacity anticipated for this site. This estimation does not include possible radio signal attenuation due to buildings and the general environment. The actual EME levels will generally be significantly less than predicted due to path losses and the base station automatically minimising transmitter power to only serve established phone calls[5]. Where applicable, particular locations of interest in the area surrounding the base station, including topographical variations, are assessed in Appendix A "Other areas of Interest" table on the last page.

Summary – Proposed Radio Systems

RF EME levels have been estimated from the existing and proposed antennas at **NAB HOUSE, 255 GEORGE ST - Structure 2. Side of building** Sydney NSW 2000 . The maximum cumulative EME level at 1.5 m above ground level is estimated to be **0.025** % of the ARPANSA public exposure limits.

Reference Notes:

1. The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) is a Federal Government agency incorporated under the Health and Ageing portfolio. ARPANSA is charged with responsibility for protecting the health and safety of people, and the environment, from the harmful effects of radiation (ionising and non-ionising).

2. Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), 2002, 'Radiation Protection Standard: Maximum Exposure Levels to Radiofrequency Fields — 3 kHz to 300 GHz', Radiation Protection Series Publication No. 3, ARPANSA, Yallambie Australia.
[Printed version: ISBN 0-642-79400-6 ISSN 1445-9760]
[Web version: ISBN 0-642-79402-2 ISSN 1445-9760]

3. The Australian Communications and Media Authority (ACMA) is responsible for the regulation of broadcasting, radiocommunications, telecommunications and online content. Information on EME is available at http://emr.acma.gov.au/

4. The EME predictions in this report assume a near worst-case scenario including:
- base station transmitters operating at maximum power (no automatic power reduction)
- simultaneous telephone calls on all channels
- an unobstructed line of sight view to the antennas.
In practice a worst-case scenario is rarely the case. There are often trees and buildings in the immediate vicinity, and cellular networks automatically adjust transmit power to suit the actual telephone traffic. The level of EME may also be affected where significant landscape features are present and predicted EME levels might not be the absolute maximum at all locations.

5. Further explanation of this report may be found in "Understanding the ARPANSA Environmental EME Report" and other documents on the ARPANSA web site, http://www.arpansa.gov.au

Appendix A

Table of Other Areas of Interest

Additional Locations	Height / Scan relative to location ground level	Maximum Cumulative EME Level All Carriers at this site (% of ARPANSA exposure limits[2]) Public exposure limit = 100%
Sydney Cove Child Care	0m to 3m	0.0000051%

Note: Estimation for the maximum EME levels at selected areas of interest over a height range relative to the specific ground level at the area of interest. This table includes any existing and proposed radio systems.

Estimation Notes / Assumptions – Other Areas of Interest
Variable ground topography has been included in the assessment of the "Other Areas of Interest" as per ARPANSA methodology
Insert other data / notes as required

Appendix 2 ARPANSA Fact Sheet

Australian Government
Australian Radiation Protection and Nuclear Safety Agency

Fact Sheet

Mobile Phone Base Stations and Health

Based on current research there are no established health effects that can be attributed to the low RF EME exposure from mobile phone base station antennas.

Introduction

There are mobile phone base station antennas on towers and buildings throughout Australia's populated areas. These antennas are part of the mobile phone network and they emit low level radiofrequency (RF) electromagnetic energy (EME). This fact sheet provides information about concern of adverse health effects arising from exposure to RF EME from base station antennas.

How does the mobile phone network operate?

When a call is made from a mobile phone, RF signals are transmitted between its antenna and the antenna at a nearby base station. The phone call is then routed through the phone network to the destination phone. Base station antennas must be elevated and located clear of physical obstruction to ensure wide coverage.

In an area of increasing mobile phone use the number of additional base stations needed to maintain service quality increases, even in areas where mobile network coverage already exists. If this is not done the mobile network will not operate properly and, as a result, mobile phone users may not be able to connect to their network.

Are base stations regulated in Australia?

The RF EME emissions from mobile phone base stations and other communications installations are regulated by the Australian Communications and Media Authority (ACMA). The ACMA's regulatory arrangements require base stations to comply with the exposure limits in the ARPANSA RF Standard. The ARPANSA Standard is designed to protect people of all ages and health status against all known adverse health effects from exposure to RF EME. The ARPANSA Standard is based on scientific research that shows the levels at which harmful effects occur and it sets limits, based on international guidelines, well below these harmful levels.

The ACMA also requires base stations to comply with an industry code of practice which requires telecommunications carriers to inform and consult with the local community when planning, installing or upgrading base stations.

How much RF EME are people exposed to from base stations?

The maximum levels of exposure of RF EME from base stations may be calculated from details of the equipment installed. These calculations are made available in the ARPANSA EME reports provided by the telecommunications companies on the Radio Frequency National Site Archive website, www.rfnsa.com.au. The base station sites may be located by searching by postcode or town.

EME exposure to the public from base stations is typically hundreds of times below the limits of the ARPANSA RF Standard.

619 Lower Plenty Road, Yallambie VIC 3085
Telephone: +61 3 9433 2211
Fax: + 61 3 9432 1835

Do base stations cause any health effects?

Health authorities around the world, including ARPANSA and the World Health Organization, have examined the scientific evidence regarding possible health effects from base stations. Current research indicates that there are no established health effects from the low exposure to the RF EME from mobile phone base station antennas.

How about people who work very close to base station antennas?

Workers accessing rooftops and towers that house base station antennas must consult with building and facility management before entering the site. A guide to working safely near mobile phone base stations is available at https://www.radioworksafe.com.au/.

Conclusion

No adverse health effects are expected from continuous exposure to the RF EME emitted by the antennas on mobile phone base stations.

ARPANSA will continue to review the research into potential health effects of RF EME emissions from mobile phone base stations and other sources in order to provide accurate and up-to-date advice.

Useful Links

ARPANSA fact sheet on RF EME
www.arpansa.gov.au/RadiationProtection/basics/rf.cfm

The ARPANSA RF Standard
www.arpansa.gov.au/Publications/codes/rps3.cfm

WHO fact sheet on base stations
www.who.int/peh-emf/publications/facts/fs304/en/

AMTA information on Australian base stations
www.rfnsa.com.au
www.mobilesitesafety.com.au

Appendix 3 RFNSA Login Access Form

AMTA RF SAFETY COMPLIANCE PROGRAM

Details required for RFNSA access for Radiocommunications Facility Manager/ Owner or Carrier Subcontractor

Your Details (person requiring access to the RFNSA)

Contact Name:

Contact Number:

Contact Email Address:

Company Name (if applicable)

Prime Contact Name:

Prime Contact Number:

Prime Contact Email Address:

Do you have multiple staff requiring access? ☐ Yes ☐ No

Are You / Your Company:

☐ Property Owner / Facility Manager

☐ Carrier Sub-Contractor

☐ Other Please Specify

Site Details: (eg location and address of facility
If more than one location please provide further details)

Company Name (if applicable)

Contract Manager Name:

Contract Manager Number:

Carrier Contact Name:

Carrier Contact Number:

Return Completed Form to: rfnsasupport@amta.org.au

Appendix 4 AMTA Accredited RF Assessors

AMTA RF Safety Compliance Program

Approved Site RF Assessors List – October 2017

Company	Address	Phone	Fax/Mobile	Contact/email/web
Aurecon Australasia Pty Ltd	Aurecon Centre Level 8, 850 Collins Street Docklands VIC 3008	+61 3 9975 3221	+61 3 9975 3444	Ning Yu eme.assessment@aurecongroup.com www.aurecongroup.com
Catalyst ONE Pty Ltd	Suite 3, Level 10, 1 Chandos Street St Leonards NSW 2065	+61 2 9439 1999	+61 2 8905 9063	Min Lee mlee@catalystone.com.au www.catalystone.com.au
Corearth Australia Pty Ltd	Level 1, 40 McDougall Street Milton QLD 4064	+61 7 3666 5333	+61 7 3666 5366	Craig Wrightson sales@corearth.com www.corearth.com
EMC Technologies Pty Ltd	176 Harrick Road Keilor Park VIC 3042	+61 3 9365 1000	+61 3 9331 7455	Stephen Phillips steve@emctech.com.au www.emctech.com.au
Huawei Technologies (Australia) Pty Ltd	Level 6, Tower B 799 Pacific Highway, Chatswood NSW 2067	+61 2 9928 3888	+61 2 9411 8533	Nan Zhang infoeme@huawei.com www.hauwei.com
Kordia Solutions Pty Ltd	Unit 1D/400 Nudgee Road Hendra QLD 4014	+61 7 3907 1454	+61 7 3267 7321	Akos Jonyer Akos.Jonyer@kordia.com.au http://www.kordia.com.au/product/eme-compliance/
RADHAZ Consulting Pty Ltd	4/357 Collins Street Melbourne VIC 3000	+61 3 9937 6500	+61 3 9937 6144	Johnny Lim jobrequest@radhaz.com.au www.radhaz.com.au
Telstra EME	Telstra EME Level 3, 70 Collins Street Hobart TAS 7000	+61 3 6212 8144		John Parker ! EME SFW National@team.telstra.com
Total Radiation Solutions Pty Ltd	PO Box 680 Claremont WA 6190	+61 8 9381 7199	+61 8 9381 7166	Phill Knipe phill@t-r-s.com.au www.t-r-s.com.au
Visionstream Pty Ltd	1/31 Commercial Drive Shailer Park, QLD, 4128	+61 7 3827 5700		David Grindrod David.Grindrod@visionstream.com.au www.visionstream.com.au
WaveForm Global Pty Ltd	Unit B, 106 Robinson Road Virginia QLD 4014	+61 7 3266 3783	+61 406 176 492	Austin Cabanas austin.cabanas@waveformglobal.com.au www.waveformglobal.com.au