



10 October 2018

Dear Sir/Madam,

**Proposal to install an nbn™ Fixed Wireless Facility at 655b Main Arm Road, Main Arm NSW 2482 (Lot 2 on DP627031)**

I am writing to advise you that **nbn** is proposing to establish a radio network base station at the above location to provide access to high-quality, Fixed Wireless broadband services to parts of Main Arm

**About the National Broadband Network**

The **nbn**™ network is an upgrade to Australia's existing telecommunications network. It's designed to provide Australians with access to fast, affordable and reliable internet and landline phone services as quickly and as cost effectively as possible.

**nbn** plans to upgrade the current telecommunications network in the most cost-efficient way using best-fit technology and taking into consideration existing infrastructure. As part of the Fixed Wireless component of the network, **nbn** is proposing to establish a series of radio network base stations designed to provide access to high quality wireless broadband services to people in the rural and rural / urban fringe areas, including Main Arm.

The Fixed Wireless network uses cellular technology to transmit signals to and from a small antenna fixed on the outside of a home or business, which is pointed directly towards the fixed wireless facility. The fixed number and set location of users within the Fixed Wireless footprint is designed to help make data speeds and access to the broadband predictable and reliable.

**About the Infrastructure Proposed for 655b Main Arm Road, Main Arm NSW 2482 (Lot 2 on DP627031)**

Specifically, **nbn** proposes to install two (2) panel antennas and one (1) radio communications dish antenna onto a proposed 45m lattice tower. Associated equipment housing will be established adjacent to the tower.

This proposed communications facility is classified as Exempt and Complying Development under *State Environmental Planning Policy (Infrastructure) 2007*. Under these provisions, the proposal does not require planning approval from the Byron Shire Council, however **nbn** has written separately to the Council seeking comment.

The estimated radiofrequency signal strength, or Environmental Electromagnetic Energy (EME) levels from the proposed site are calculated in accordance with the ARPANSA prediction report methodology, and are represented as a percentage of the standard based on maximum cumulative levels. Attached is a copy of the EME report for this proposed site.

You will note that the proposal is consistent with other like facilities that operate many hundreds and sometimes thousands of times below the allowable standard. If you would like further information on the topic of EME, we recommend you visit <http://www.who.int/peh-emf/en/> and <http://www.arpana.gov.au/> .



## **Information Session – Tuesday 30<sup>th</sup> October 2018 at Main Arm**

**nbn** is pleased to host an Information Session for local residents and community stakeholders to provide more detailed information regarding the proposed new facility and the **nbn**<sup>™</sup> fixed wireless service. The Information Session will be held **Tuesday 30<sup>th</sup> October from 3pm to 6pm, at the Kohinur Hall at 1297 Main Arm Road, Main Arm NSW 2482.**

There is no need to make an appointment. Please drop by at any time.

### **Making a Submission or Inquiry**

The plans for this proposal and the environmental compliance report are attached for your reference.

**nbn** has engaged Ericsson as the equipment vendor and project manager to establish the infrastructure required to facilitate the Fixed Wireless component of the National Broadband Network.

Ericsson has in turn engaged Visionstream to undertake preliminary environmental, design and site acquisition investigations in relation to the establishment of the required fixed wireless facility infrastructure.

Should you wish to provide comments in relation to this proposal, your response is requested by **Wednesday 7<sup>th</sup> November 2018**. If you wish to discuss any aspect of the above, please do not hesitate to call 1300 745 210, email to [nbnwirelessnsw@visionstream.com.au](mailto:nbnwirelessnsw@visionstream.com.au) or post to PO Box 5452, West End QLD 4101.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Klouda', is positioned above the printed name.

Katherine Klouda  
Town Planner

### **Enclosed Attachments**

- |    |   |         |
|----|---|---------|
| A. | Plans of the proposal                     | 7 pages |
| B. | Environmental EME Report (ARPANSA Format) | 3 pages |

DATE OF ISSUE	
23.04.18	1
23.04.18	2

## GENERAL

2MUL-51-02-MAIN-T1	COVER SHEET	01	02			
2MUL-51-02-MAIN-C1	SITE SPECIFIC NOTES	01	02			
2MUL-51-02-MAIN-C2	OVERALL SITE PLAN	01	02			
2MUL-51-02-MAIN-C3	SITE SETOUT PLAN	01	02			
2MUL-51-02-MAIN-C4	SITE ELEVATION	01	02			
2MUL-51-02-MAIN-C5	ALLOTMENT PLAN	01	02			

## ELECTRICAL

[illegible]

## RF AND TX CONFIGURATIONS AND EME EXCLUSION ZONES

[illegible]

## STRUCTURAL

[illegible]

## CIVIL

[illegible]

# TOWER DESIGN

[illegible]

LEASE

[illegible]

## DISTRIBUTION

ERICSSON	MORGAN BROWN	E	E						
VISIONSTREAM	SOE TUT	E	E						

LEGEND> E (Email); F (Fax); M (Mail); H (Hand); C (Courier)

**SITE No: 2MUL-51-02-MAIN**  
**MAIN ARM**



655B MAIN ARM ROAD  
MAIN ARM  
NSW 2482

RFNSA SITE No: 2482007



## PROJECT SUMMARY

NBN GREENFIELD  
NBN 45m LATTICE TOWER  
NBN OUTDOOR CABINET ON CONCRETE SLAB

Client:											
Client:											
Project:	<p><b>NATIONAL BROADBAND NETWORK</b></p> <p>SITE No: 2MWL-51-02-MAIN</p> <p><b>MAIN ARM</b></p> <p>655B MAIN ARM ROAD</p> <p>MAIN ARM</p> <p>NSW 2482</p>										
	<p><b>PRELIMINARY</b></p>										
	<table><tr><td><b>22 2315 18 ERICSSON REVIEW</b></td><td><b>23 2315 18 PRELIMINARY</b></td><td><b>24 2315 18 PRELIMINARY</b></td><td><b>25 2315 18 PRELIMINARY</b></td></tr><tr><td>Rev. Date</td><td>Rev. Date</td><td>Rev. Date</td><td>Rev. Date</td></tr></table>			<b>22 2315 18 ERICSSON REVIEW</b>	<b>23 2315 18 PRELIMINARY</b>	<b>24 2315 18 PRELIMINARY</b>	<b>25 2315 18 PRELIMINARY</b>	Rev. Date	Rev. Date	Rev. Date	Rev. Date
<b>22 2315 18 ERICSSON REVIEW</b>	<b>23 2315 18 PRELIMINARY</b>	<b>24 2315 18 PRELIMINARY</b>	<b>25 2315 18 PRELIMINARY</b>								
Rev. Date	Rev. Date	Rev. Date	Rev. Date								
	<p><b>visionstream</b></p> <p><b>VISIONSTREAM PTY LTD</b></p> <p>20 Corporate Drive</p> <p>Heatherdon, VIC 3202</p> <p>Tel: (03) 9258 5700 Fax: (03) 9553 7481</p> <p><a href="http://www.visionstream.com.au">www.visionstream.com.au</a></p>										
	<table><tr><td><b>DRAFTED BY:</b></td><td><b>AK</b></td></tr><tr><td><b>CHECKED BY:</b></td><td><b>RS</b></td></tr><tr><td><b>APPROVED BY:</b></td><td><b>ST</b></td></tr></table>			<b>DRAFTED BY:</b>	<b>AK</b>	<b>CHECKED BY:</b>	<b>RS</b>	<b>APPROVED BY:</b>	<b>ST</b>		
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<b>CHECKED BY:</b>	<b>RS</b>										
<b>APPROVED BY:</b>	<b>ST</b>										
Drawing Title	<p><b>COVER SHEET</b></p>										
Drawing No.	Revision										
2MWL-51-02-MAIN-T1	02										

# SITE LOCATION



REPRODUCED WITH PERMISSION FROM GOOGLE EARTH PRO

## SITE CO-ORDINATES

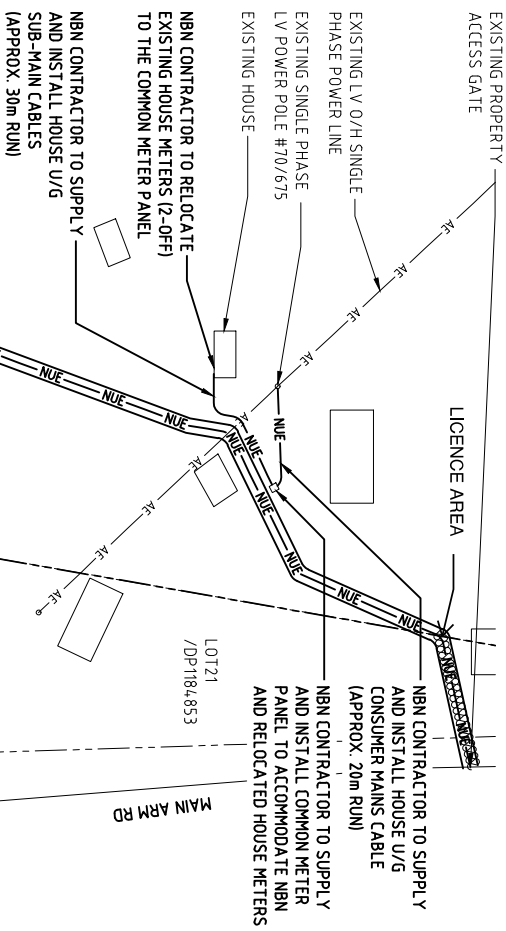
LATTICE TOWER LOCATION	
DATUM: MAGSDA 94)	ZONE: 56
EASTING	542 999
NORTHING	6 844 575
LATITUDE	-28.524,86°
LONGITUDE	153.6394,8°

DBYD Job No. 13867195  
Enquiry Date: 14/03/2018  
CONTRACTOR TO REVALIDATE  
AT TIME OF CONSTRUCTION!

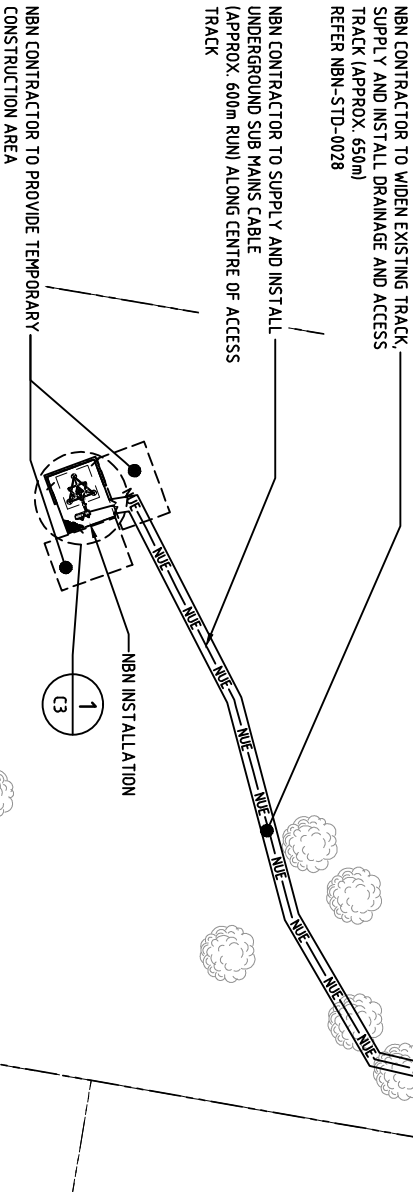
PUBLIC UTILITIES LEGEND  
NO SERVICES IN VICINITY

LEGEND	
NUE	NBN UNDERGROUND POWER
AE	OVERHEAD POWER LINE
UE	UNDERGROUND POWER
---	PROPERTY BOUNDARY
---	NBN COMPOUND SECURITY FENCE

ACCESS TRACK UPGRADE MATRIX			
TRACK SECTION	NBN OPTIONS	NBN SPEC	DISTANCE (m)
SECTION 1	NEW GRAVEL	3	650



- NOTES:
- ALL UNDERGROUND SERVICES SHOWN INDICATIVE ONLY.
  - NBN POWER ROUTE AND ACCESS TRACK/ROUTE ARE SHOWN INDICATIVELY ONLY.



## OVERALL SITE PLAN

SCALE 1:1000



Client:  
Project:  
National Broadband Network  
Site No: 2MUL-51-02-MAIN  
MAIN ARM  
655B MAIN ARM ROAD  
MAIN ARM  
NSW 2482

PRELIMINARY

02	23.05.18	ERISSON REVIEW	DV
01	23.04.18	PRELIMINARY	CM
Rev	Date	Revision Details	CAD

VISIONSTREAM PTY LTD  
20 Corporate Drive  
Melbourne VIC 3000  
Tel: (03) 9238 5700 Fax: (03) 9563 7481  
www.visionstream.com.au

DRAFTED BY:	AK
CHECKED BY:	RS
APPROVED BY:	ST
Drawing Title:	OVERALL SITE PLAN

Drawing No:	2MUL-51-02-MAIN-C2
Revision:	02



CAD File: \\corp.ventia.com.au\\VPL\_CorpData\\Mulgrave\\National\\Ericsson NBN Wireless\\16.0 SAED\\NSW\_Grafton (T8+)+1.0 All Sites\\Main Arm 2GRZ-2MUL-5102\\6.0 Design (Prime)\\6.15 AutoCAD\\2MUL-51-02-MAIN-AA\_Rev02.dwg Date: Wednesday, 23 May 2018 4:41:11 PM Login: dvidic

▼ EL 45.7m  
€ NBN RRU (4-0FF)  
▼ EL 45.0m  
€ NBN PANEL ANTENNA (2-0FF)  
TOP OF LATTICE TOWER

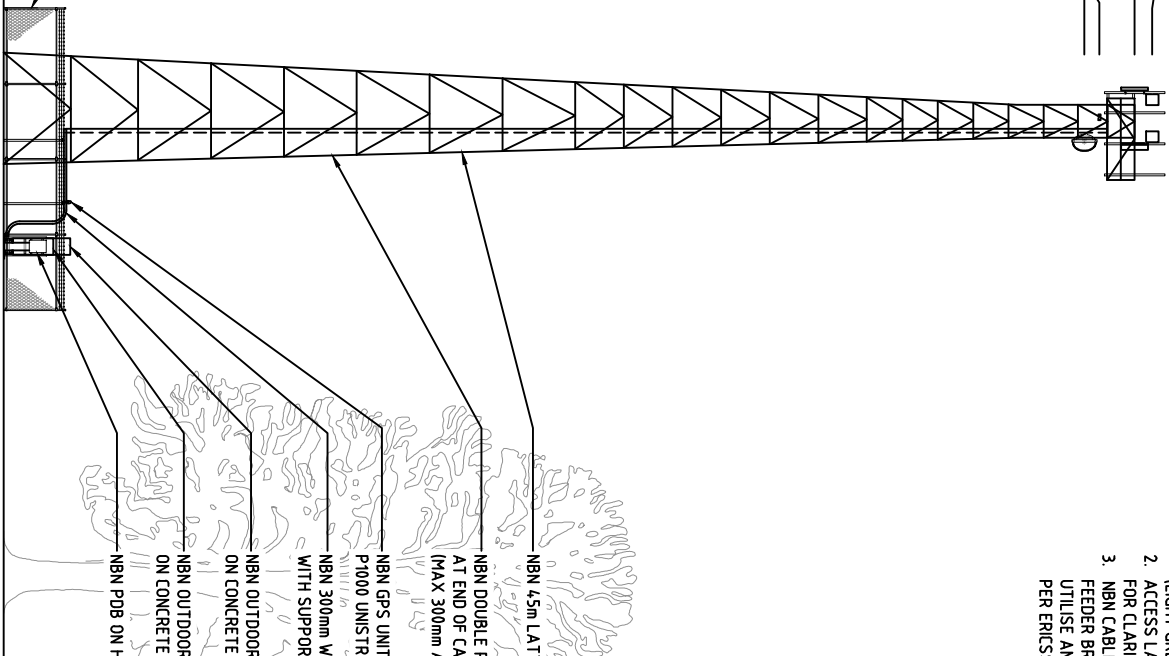
▼ EL 43.6m  
€ NBN CANISTER MOUNTED TO STEEL WORK  
WITH SS ADJUSTABLE HOSE CLAMP

▼ EL 43.0m  
€ NBN Ø900 PARABOLIC ANTENNA  
TO MYOCUM

▼ EL 25.0m (APPROX)  
EXISTING TREES

▼ EL 00.0m  
GROUND LEVEL

NBN COMPOUND SECURITY FENCE  
(12m x 10m x 2.4m H)  
WITH 3m WIDE DOUBLE ACCESS GATES



- NOTES:
1. NEW PANEL ANTENNAS TO BE FACTORY COLOUR (LIGHT GREY).
  2. ACCESS LADDER AND FALL ARREST OMITTED FOR CLARITY.
  3. NBN CABLE FEEDER TO RUN VIA CENTRALLY MOUNTED FEEDER BRACKET.
- UTILISE ANGLE ADAPTER AND SNAP-IN HANGERS AS PER ERICSSON SPECIFICATION.



Project:  
NATIONAL BROADBAND  
NETWORK  
SITE No: 2MUL-51-02-MAIN  
MAIN ARM  
655B MAIN ARM ROAD  
MAIN ARM  
NSW 2482

PRELIMINARY

02	23.05.18	ERICSSON REVIEW	DV
01	23.04.18	PRELIMINARY	ON
Rev	Date	Revision Details	CAD

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Melbourne VIC 3000  
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DRAFTED BY: AK  
CHECKED BY: RS  
APPROVED BY: ST  
Drawing Title:  
**SITE ELEVATION**

Drawing No:	Revision
2MUL-51-02-MAIN-C4	02





# ALLOTMENT PLAN

SCALE N.T.S.

Client:



Client:



Client:

Project:

NATIONAL BROADBAND NETWORK  
SITE No: 2MUL-51-02-MAIN  
MAIN ARM  
655B MAIN ARM ROAD  
MAIN ARM  
NSW 2482

PRELIMINARY

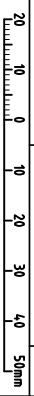
02 23.15.18 ERICSSON REVIEW	DV
01 23.04.18 PRELIMINARY	ON
Rev Date Revision Details	CAD



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DRAFTED BY: AK  
CHECKED BY: RS  
APPROVED BY: ST  
Drawing Title:  
ALLOTMENT PLAN







Drawing No:	Revision
2MUL-51-02-MAIN-C5	02



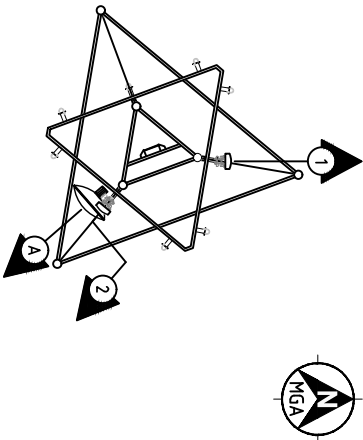
A3



# NBN ANTENNA CONFIGURATION - 2300MHz

		RF ANTENNA DETAIL						MAIN FEEDER DETAIL				RRU DETAIL				RF TAIL	RET CABLE							
SECTOR	SYMBOL	TYPE	DIMENSION (HxWxD)	ℓ HEIGHT	AZIMUTH (TN)	ELEC TILT (NOTE 1)		MECH TILT	TYPE	QTY	OVERALL LENGTH	CANISTER HEIGHT	CANISTER TO RRU LENGTH		TYPE	ANTENNA PORT	ℓ HEIGHT	LOCATION	LENGTH	LENGTH				
						P1 & P2	P3 & P4																	
1		ARGUS LLPX310R	1077x300x115	45.0m	0°	4°	4°	0°	H&S HYBRID MKII % ø27.5m	1	60.0m	4.36m	4.0m	RRUS61	1 & 2	45.7m	BEHIND ANTENNA	15m		2.0m				
2		ARGUS LLPX310R	1077x300x115	45.0m	130°	7°	7°	0°			60.0m	4.36m	4.0m	RRUS61	3 & 4	45.7m	BEHIND ANTENNA	15m		2.0m				
													4.0m	RRUS61	1 & 2	45.7m	BEHIND ANTENNA	15m						
TX ANTENNA DETAIL																					MAIN FEEDER DETAIL			
SECTOR	SYMBOL	TYPE	DIMENSION	ℓ HEIGHT	AZIMUTH (TN)	DESTINATION	QTY	TYPE	QTY	OVERALL LENGTH														
A		PARABOLIC	ø900	43.0m	139°	MYOCUM	2	LDF1-50	2	51.0m														
GPS		KRE 101 2182/1	ø69x96	2.5m				LDF1-50	1	5.0m														

- NOTES:
- SUBJECT TO CHANGE.
  - RRUS NOT SHOWN FOR CLARITY.



ANTENNA SETOUT PLAN  
SCALE 1:100



ERICSSON

Project:  
NATIONAL BROADBAND  
NETWORK  
SITE No: 2MUL-51-02-MAIN  
MAIN ARM  
655B MAIN ARM ROAD  
MAIN ARM  
NSW 2482

PRELIMINARY



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Drawing Title:  
NBN ANTENNA  
CONFIGURATION  
& SETOUT PLAN

Drawing No:  
2MUL-51-02-MAIN-A1

20 10 0 10 20 30 40 50mm





## **Environmental EME Report**

### **Main Arm, 655b Main Arm Road, MAIN ARM NSW 2482**

**This report provides a summary of Calculated RF EME Levels around the wireless base station**

**Date 23/3/2018**

**RFNSA Site No. 2482007**

## **Introduction**

The purpose of this report is to provide calculations of EME levels from the existing facilities at the site and any proposed additional facilities.

This report provides a summary of levels of radiofrequency (RF) electromagnetic energy (EME) around the wireless base station at Main Arm, 655b Main Arm Road MAIN ARM NSW 2482. These levels have been calculated by Ericsson using methodology developed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).

The maximum EME level calculated for the proposed systems at this site is 0.084% of the public exposure limit.

## **The ARPANSA Standard**

ARPANSA, an Australian Government agency in the Health and Ageing portfolio, has established a Radiation Protection Standard specifying limits for general public exposure to RF transmissions at frequencies used by wireless base stations. The Australian Communications and Media Authority (ACMA) mandates the exposure limits of the ARPANSA Standard.

## **How the EME is calculated in this report**

The procedure used for these calculations is documented in the ARPANSA Technical Report "Radio Frequency EME Exposure Levels - Prediction Methodologies" which is available at <http://www.arpansa.gov.au>.

RF EME values are calculated at 1.5m above ground at various distances from the base station, assuming level ground.

The estimate is based on worst-case scenario, including:

- wireless base station transmitters for mobile and broadband data operating at maximum power
- simultaneous telephone calls and data transmission
- an unobstructed line of sight view to the antennas.

In practice, exposures are usually lower because:

- the presence of buildings, trees and other features of the environment reduces signal strength
- the base station automatically adjusts transmit power to the minimum required.

Maximum EME levels are estimated in 360° circular bands out to 500m from the base station.

These levels are cumulative and take into account emissions from all wireless base station antennas at this site.

The EME levels are presented in three different units:

- volts per metre (V/m) – the electric field component of the RF wave
- milliwatts per square metre (mW/m<sup>2</sup>) – the power density (or rate of flow of RF energy per unit area)
- percentage (%) of the ARPANSA Standard public exposure limit (the public exposure limit = 100%).

## **Results**

The maximum EME level calculated for the proposed systems at this site is 1.78 V/m; equivalent to 8.41 mW/m<sup>2</sup> or 0.084% of the public exposure limit.

## Radio Systems at the Site

There are currently no existing radio systems for this site.

It is proposed that this base station will have equipment for transmitting the following services:

Carrier	Radio Systems
NBN Co	LTE2300 (proposed)

## Calculated EME Levels

This table provides calculations of RF EME at different distances from the base station for emissions from existing equipment alone and for emissions from existing equipment and proposed equipment combined.

Distance from the antennas at Main Arm, 655b Main Arm Road in 360° circular bands	Maximum Cumulative EME Level at 1.5m above ground – all carriers at this site					
	Existing Equipment			Proposed Equipment		
	Electric Field V/m	Power Density mW/m <sup>2</sup>	% ARPANSA exposure limits	Electric Field V/m	Power Density mW/m <sup>2</sup>	% ARPANSA exposure limits
0m to 50m				0.61	0.99	0.0099%
50m to 100m				0.61	0.99	0.0099%
100m to 200m				1.36	4.9	0.049%
200m to 300m				1.78	8.41	0.084%
300m to 400m				1.7	7.69	0.077%
400m to 500m				1.33	4.67	0.047%
<b>Maximum EME level</b>				1.78	8.41	0.084
				274.1 m from the antennas at Main Arm, 655b Main Arm Road		

## Calculated EME levels at other areas of interest

This table contains calculations of the maximum EME levels at selected areas of interest that have been identified through the consultation requirements of the Communications Alliance Ltd Deployment Code C564:2011 or via any other means. The calculations are performed over the indicated height range and include all existing and any proposed radio systems for this site.

Additional Locations		Height / Scan relative to location ground level	Maximum Cumulative EME Level All Carriers at this site Existing and Proposed Equipment		
			Electric Field V/m	Power Density mW/m <sup>2</sup>	% of ARPANSA exposure limits
1	No locations identified				

## RF EME Exposure Standard

The calculated EME levels in this report have been expressed as percentages of the ARPANSA RF Standard and this table shows the actual RF EME limits used for the frequency bands available. At frequencies below 2000 MHz the limits vary across the band and the limit has been determined at the Assessment Frequency indicated. The four exposure limit figures quoted are equivalent values expressed in different units – volts per metre (V/m), watts per square metre (W/m<sup>2</sup>), microwatts per square centimetre (μW/cm<sup>2</sup>) and milliwatts per square metre (mW/m<sup>2</sup>). Note: 1 W/m<sup>2</sup> = 100 μW/cm<sup>2</sup> = 1000 mW/m<sup>2</sup>.

Radio Systems	Frequency Band	Assessment Frequency	ARPANSA Exposure Limit (100% of Standard)
LTE 700	758 – 803 MHz	750 MHz	37.6 V/m = 3.75 W/m <sup>2</sup> = 375 μW/cm <sup>2</sup> = 3750 mW/m <sup>2</sup>
WCDMA850	870 – 890 MHz	900 MHz	41.1 V/m = 4.50 W/m <sup>2</sup> = 450 μW/cm <sup>2</sup> = 4500 mW/m <sup>2</sup>
GSM900, LTE900, WCDMA900	935 – 960 MHz	900 MHz	41.1 V/m = 4.50 W/m <sup>2</sup> = 450 μW/cm <sup>2</sup> = 4500 mW/m <sup>2</sup>
GSM1800, LTE1800	1805 – 1880 MHz	1800 MHz	58.1 V/m = 9.00 W/m <sup>2</sup> = 900 μW/cm <sup>2</sup> = 9000 mW/m <sup>2</sup>
LTE2100, WCDMA2100	2110 – 2170 MHz	2100 MHz	61.4 V/m = 10.00 W/m <sup>2</sup> = 1000 μW/cm <sup>2</sup> = 10000 mW/m <sup>2</sup>
LTE2300	2302 – 2400 MHz	2300 MHz	61.4 V/m = 10.00 W/m <sup>2</sup> = 1000 μW/cm <sup>2</sup> = 10000 mW/m <sup>2</sup>
LTE2600	2620 – 2690 MHz	2600 MHz	61.4 V/m = 10.00 W/m <sup>2</sup> = 1000 μW/cm <sup>2</sup> = 10000 mW/m <sup>2</sup>
LTE3500	3425 – 3575 MHz	3500 MHz	61.4 V/m = 10.00 W/m <sup>2</sup> = 1000 μW/cm <sup>2</sup> = 10000 mW/m <sup>2</sup>

## Further Information

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).

Information about RF EME can be accessed at the ARPANSA website, <http://www.arpansa.gov.au>, including:

- Further explanation of this report in the document “Understanding the ARPANSA Environmental EME Report”
- The procedure used for the calculations in this report is documented in the ARPANSA Technical Report; “Radio Frequency EME Exposure Levels - Prediction Methodologies”
- the current RF EME exposure standard  
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]

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>

The Communications Alliance Ltd Industry Code C564:2011 ‘Mobile Phone Base Station Deployment’ is available from the Communications Alliance Ltd website, <http://commsalliance.com.au>.

Contact details for the Carriers (mobile phone companies) present at this site and the most recent version of this document are available online at the Radio Frequency National Site Archive, <http://www.rfnsa.com.au>.