



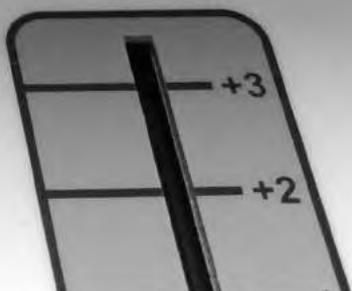
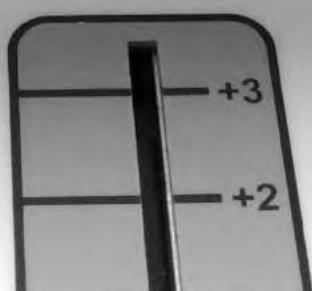
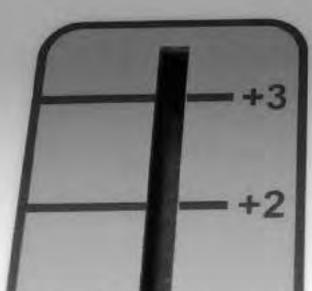
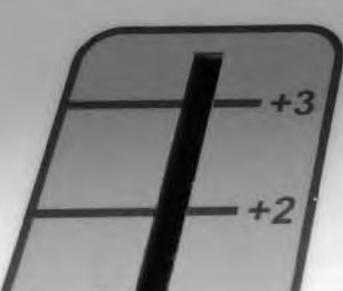
LEFT

OVER
LOAD

PHASE
FAULT



RIGHT



Lofty 88.9
Radio with altitude

Technical (Part A)

B32 Appendix 16
November 2019

Appendix 16.1

Please provide the following information:

- > **details of transmission infrastructure, including proposed transmitter site and effective radiated power (ERP), studio location and need for studio-to-transmitter link (STL) and availability of transmission backup**

Lofty notes that SL1180024 lists ACMA Site ID 23171 (viz. Hills Radio's current TX site as the nominal location for the transmitter (TX) site. Whilst we have no issue with relocating our TX infrastructure to Hills Radio's erstwhile TX site, Lofty believes that our current site (ACMA Site ID 305178) offers several major advantages over Site ID 23171, as illustrated below:

Attribute	ACMA Site ID 305178	ACMA Site ID 23171
Location	Cleggett Farm, Cleggett Road LITTLEHAMPTON SA 5250	RAA District Council Site, Old Mount Barker Road ECHUNGA SA 5153
Nominal Co-ordinates	-35.049606°, 138.85328°	-35.101159°, 138.813272°
Percentage population coverage > 110 dBµV/m ¹	8.21%	12.47%
STL distance line of sight from Lofty's Studio	1.99km	5.62km
STL distance by road (travel time) from Lofty's studio	3.3km (7 min)	6.5km (9 min)
On-site technical support at TX site	Yes	No

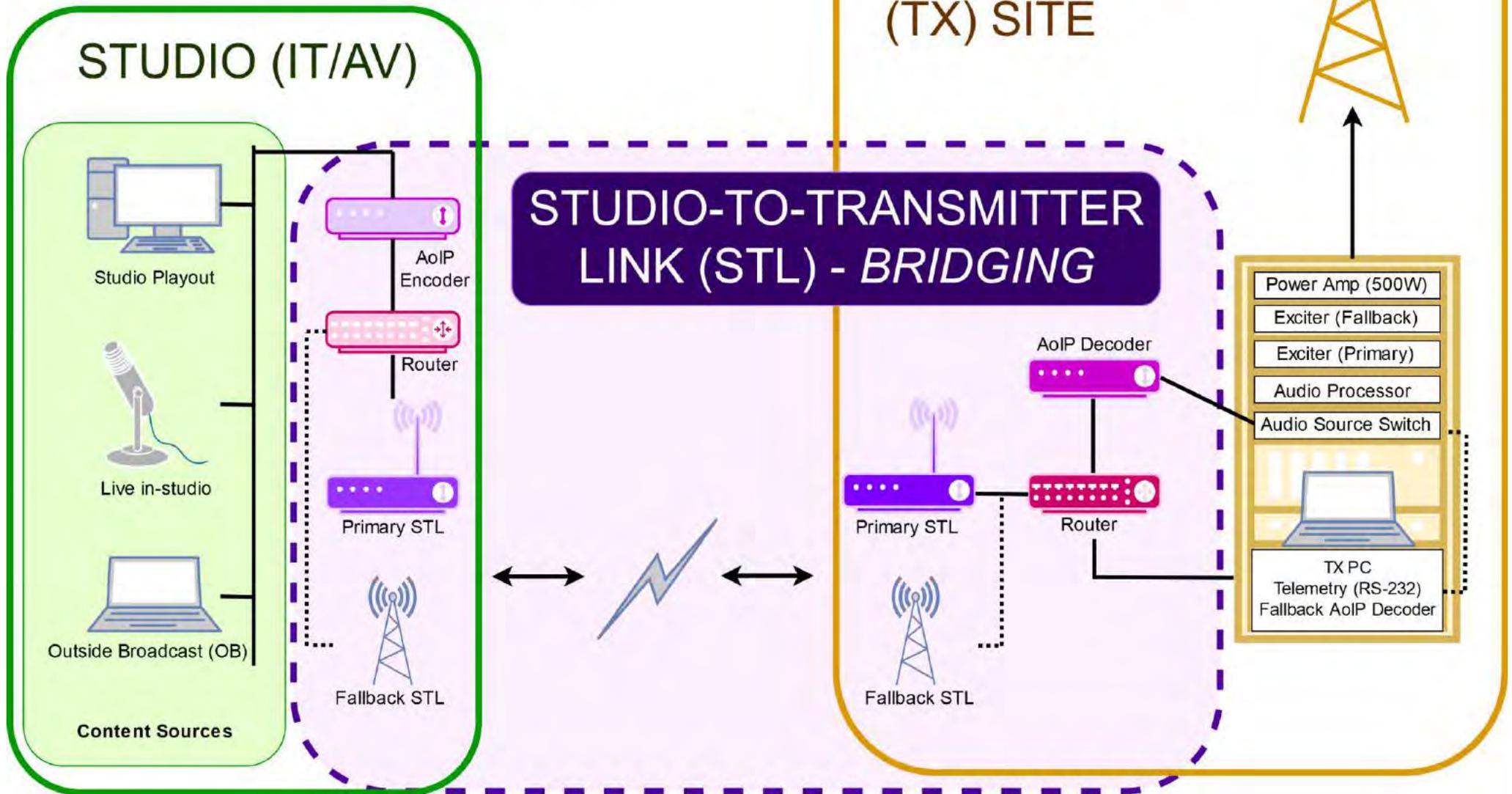
On this basis, we respectfully submit two (2) B12 forms: one for ACMA Site ID 305178 (preferred), one for ACMA Site ID 23171 (nominated on SL1180024).

Effective Radiated Power (ERP) of 500W.

Please refer to Technology Blue Paper (TBP) 1.0.2 for more detailed analysis and comparison of both sites.

¹ Both sites exceed Section 21.(2) of the Broadcast Services (Technical Planning) Guidelines 2017 viz. field strength > 110 dBµV/m to > 1% of the licence area's population, however Site ID 305178 is significantly closer to meeting Section 21.(2) than Site ID 23171.

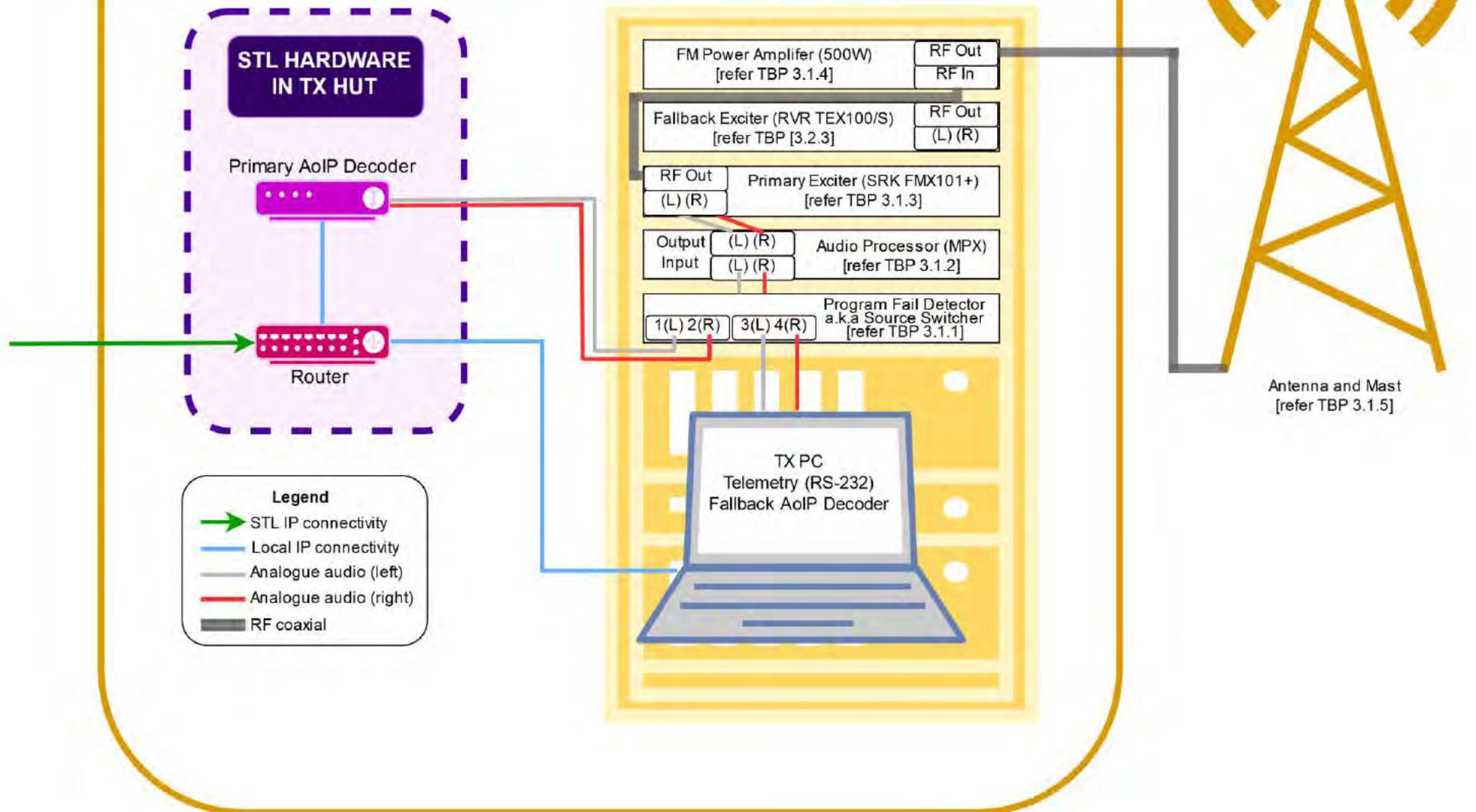
5LCM (Lofty) TX CHAIN



5LCM (Lofty) TX RACK IN DETAIL

TRANSMITTER (TX) HUT

Primary TX chain shown; assumed all components in primary TX chain are fully functional.
Actual TX chain may vary should one or more primary components fail.





TECHNOLOGY BLUE PAPER 1.0.2

Description	Broadcast Services (Technical Planning) Guidelines 2017
Type	Overview
Version/Date	V1.0 1 October 2019
Maintained By	Technology & Facilities

INTRODUCTION

As the holder of broadcasting licences issued by the Australian Communications and Media Authority (ACMA), Lofty is obligated to operate its broadcasting service pursuant to the Broadcasting Services Act (Cth.) 1992 (the Act).

Section 33 of the Act gives ACMA the power to develop technical planning guidelines for the use of broadcasting services bands as a means of delivery.

The Broadcast Services (Technical Planning) Guidelines 2017 (the Guidelines) is the instrument to which Section 33 refers.

APPLICATION

The Guidelines set specifications pertaining to the delivery of broadcasting services in Australia.

This TBP describes how the Guidelines are applied in terms of Lofty's broadcasting service and/or apparatus licence, as well as identifying key considerations for Lofty in maintaining ongoing compliance relating to several key sections of the Guidelines.

FEATURES

The pertinent sections of the Guidelines referred to in this TBP are:

11	Minimum coverage criterion
16	Interference to other services – broadcasting services and datacasting services
21.(2)	Maximum field strength within the licence area (FM radio band, digital radio, television and data casting services)
22.(6)-22.(10)	Radiated signal characteristics (FM radio band)

OPERATIONS

Lofty operates its transmission (TX) equipment in the terms set out in its apparatus licence, with transmissions radiating from ACMA Site ID 305178.

Where an interference event is alleged, Lofty shall conduct a full investigation into its occurrence and install appropriate mitigation systems (including but not limited to devices and/or procedures) to ensure said interference issue shall not recur.

Reporting as a result of investigation into an interference event is to be lodged with ACMA as soon as practicable.

MAINTENANCE

Lofty undertakes regular field strength testing activities under the guidance of the South Australian Community Broadcasting Association (SACBA).

TX apparatus settings are checked and tested on a monthly basis, with said settings recorded in the maintenance log located at the TX site.

Real time spectrum analysis is undertaken to ensure compliance with frequency deviation, with specific apparatus installed and operated in-situ at Lofty's studio, located circa 2km from Lofty's TX, for this purpose.

SPECIFICATIONS *Minimum coverage criterion*

Appendix A shows a map of Mount Barker RA1 with an overlay of Lofty's coverage contained therein. This modelling suggests that Lofty's transmission meets the specifications contained within Section 11.

Interference to other services

As a responsible licensee of broadcasting spectrum, Lofty has zero tolerance for interference to other services. As such, we endeavour to resolve such claims as swiftly as possible.

Any report of Lofty's alleged interference with other services is to be treated as a Category 4 fault as defined in TBP 1.0.3 Fault Recording and Categorisation.

Maximum field strength

Lofty notes that its current apparatus, as licenced, operates outside of Section 21.(2), viz. > 1% of population receives Lofty's transmissions on 88.9 MHz with field strength exceeding 110 dB μ V/m as per coverage plot Appendix A. On this basis, Lofty has taken this as tacit approval by ACMA to exceed Section 21.(2) as licenced.

It should be noted that as at the time of writing, the other TCBL holder operating on 88.9MHz also operates outside of Section 21.(2), and does so in excess of Lofty based on both actual population and by percentage of population.

<i>Field strength modelling</i>	<i>Total population coverage ≥ 54 dBμV/m</i>	<i>Total population coverage > 110 dBμV/m</i>	<i>Percentage population coverage > 110 dBμV/m</i>
Based on Longley Rice modelling techniques.			
ACMA Site ID 305178 (Lofty 88.9)	30,404	2,495	8.21%
ACMA Site ID 23171 (Hills Radio)	71,685	8,941	12.47%

Field strength models for ACMA Site IDs 305178 and 23171 are attached as Appendices B and C respectively.

Radiated signal characteristics

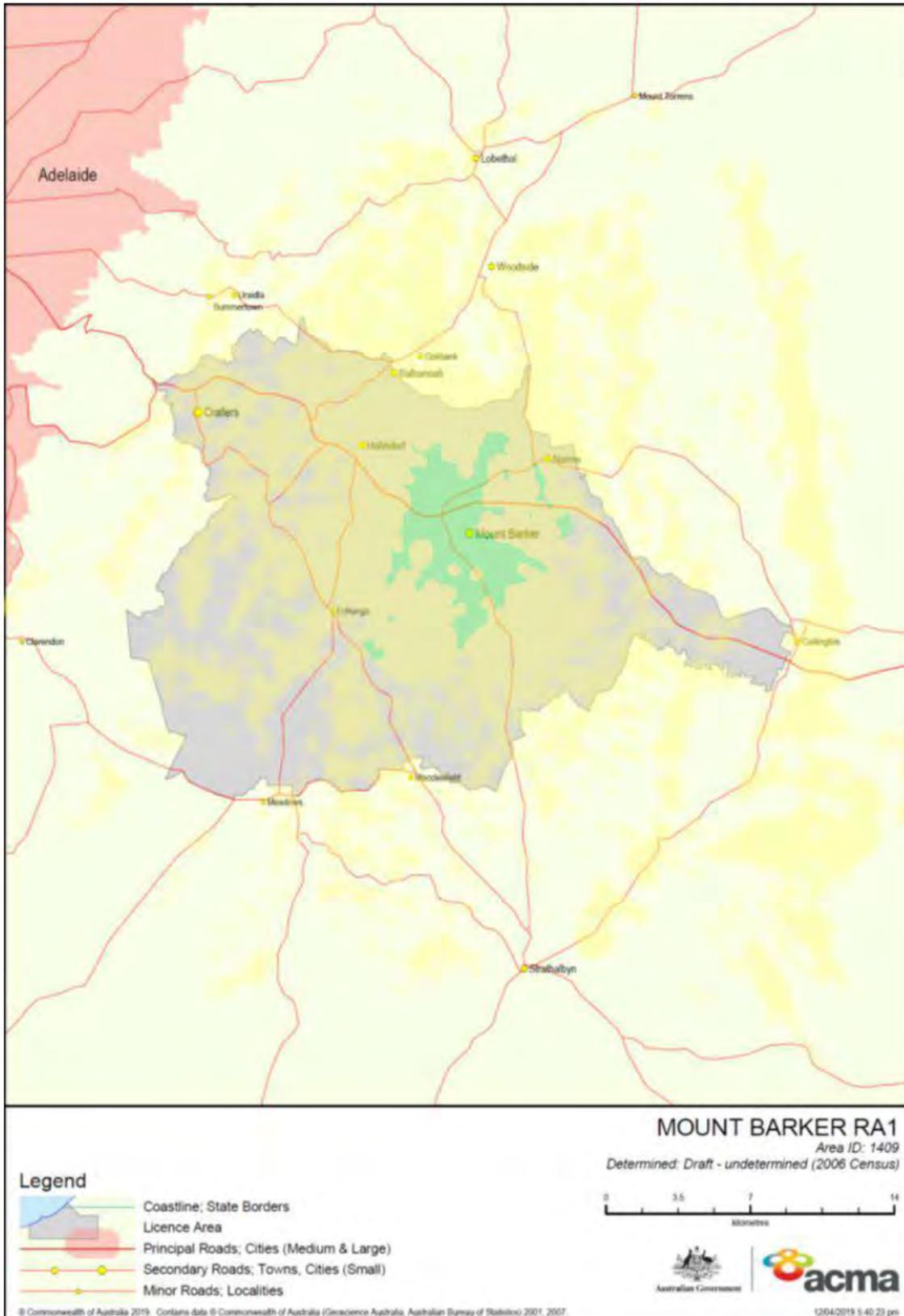
Radiated signal characteristics, specifically frequency deviation, is measured and logged via built-in telemetry contained within our TX hardware.

Secondary measurements are taken via a spectrum analysis unit installed at Lofty's studio. This unit consists of dedicated personal computer (PC) repurposed as an in-situ field strength testing and spectrum analyser, fitted with a software-defined radio (SDR) for this purpose.

In addition, Lofty undertakes spot checks with the assistance of field strength measuring equipment supplied by the South Australian Community Broadcasting Association (SACBA) on a semi-annual basis. Said equipment is also used to recalibrate the SDR contained in Lofty's in-situ spectrum analyser.

Where a significant deviation from the Guidelines has been found, Lofty shall engage an external consultant to undertake additional testing and provide advice on remedial action.

APPENDIX A – 5LCM (Lofty 88.9) field signal strength on 88.9Mhz within Mount Barker RA1

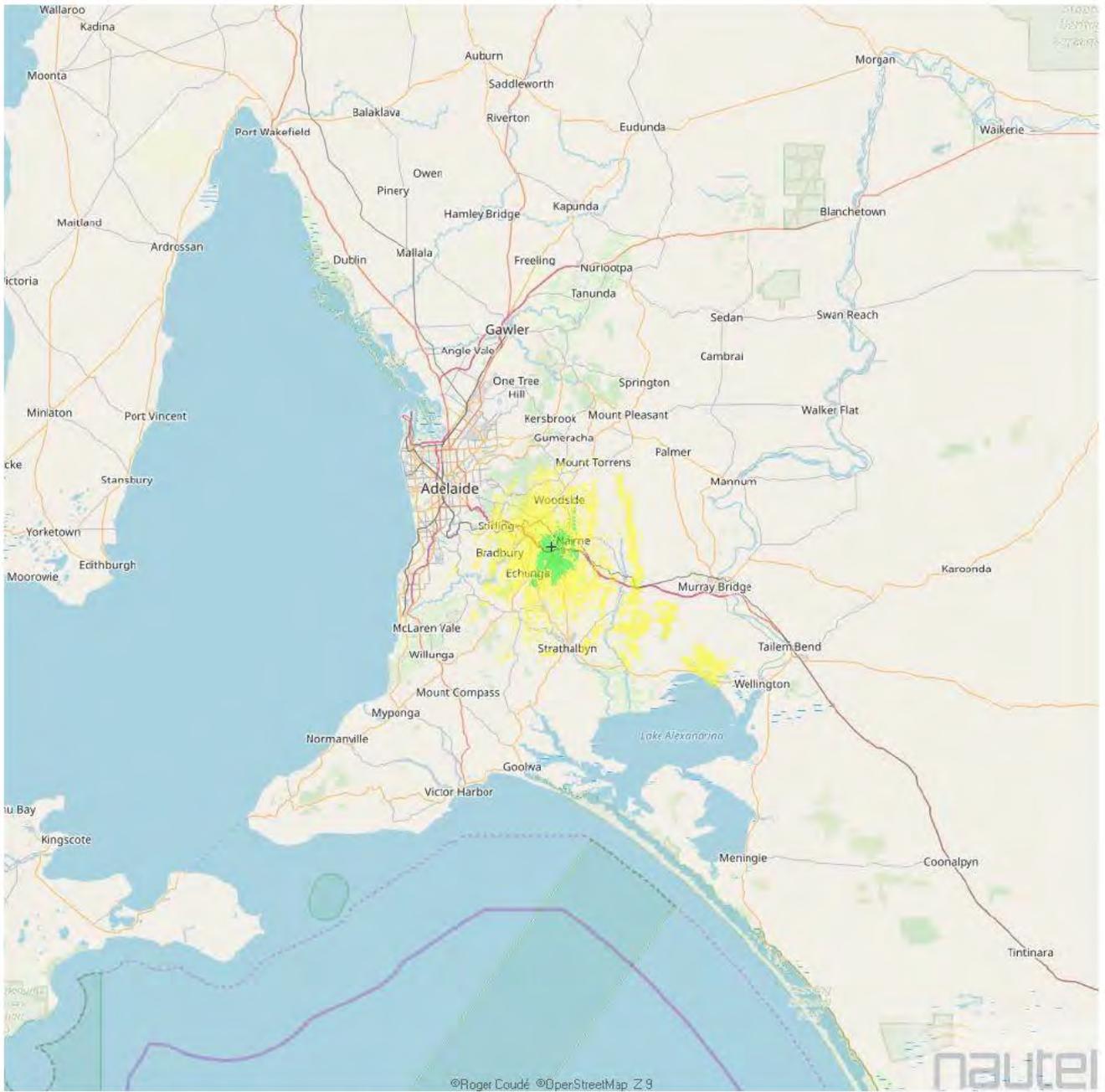


	Field strength > 110 dB μ V/m
	Field strength \geq 54 dB μ V/m

APPENDIX B – 5LCM (Lofty 88.9) radiated field strength on 88.9 MHz [ACMA Site ID 305178]



Description	Cleggett's Farm 500W 54/110 Single Sidemount Dipole
TX	0.5 KW
RX	Custom
Frequency	88.9 MHz
Base Name	Cleggett's Farm
Latitude	-35.04960600 °
Longitude	138.85328000 °
Latitude	35° 02' 58.58"S
Longitude	138° 51' 11.81"E
UTM (WGS84)	54H E304211 S6119349
Elevation	425.7 m
Base Ant. Height	15 m
Base Ant. Gain	0.0 dBi
Mobile Ant. Height	10.0 m
Tx Power	500.00000 W
Tx Line Loss	0.3 dB
Weak signal field	54.0 dB μ V/m
Strong signal field	110.0 dB μ V/m
Weak signal covered area	836 km ²
Strong signal covered area	71 km ²
Weak signal population reached	30404 pop
Strong signal population reached	2495 pop
Landcover used	Yes
Two rays method used	No
User ID	lofty
Radio coverage ID	NAUTEL836A4E019F0_1
Generated on	10/29/2019 9:09:39 PM

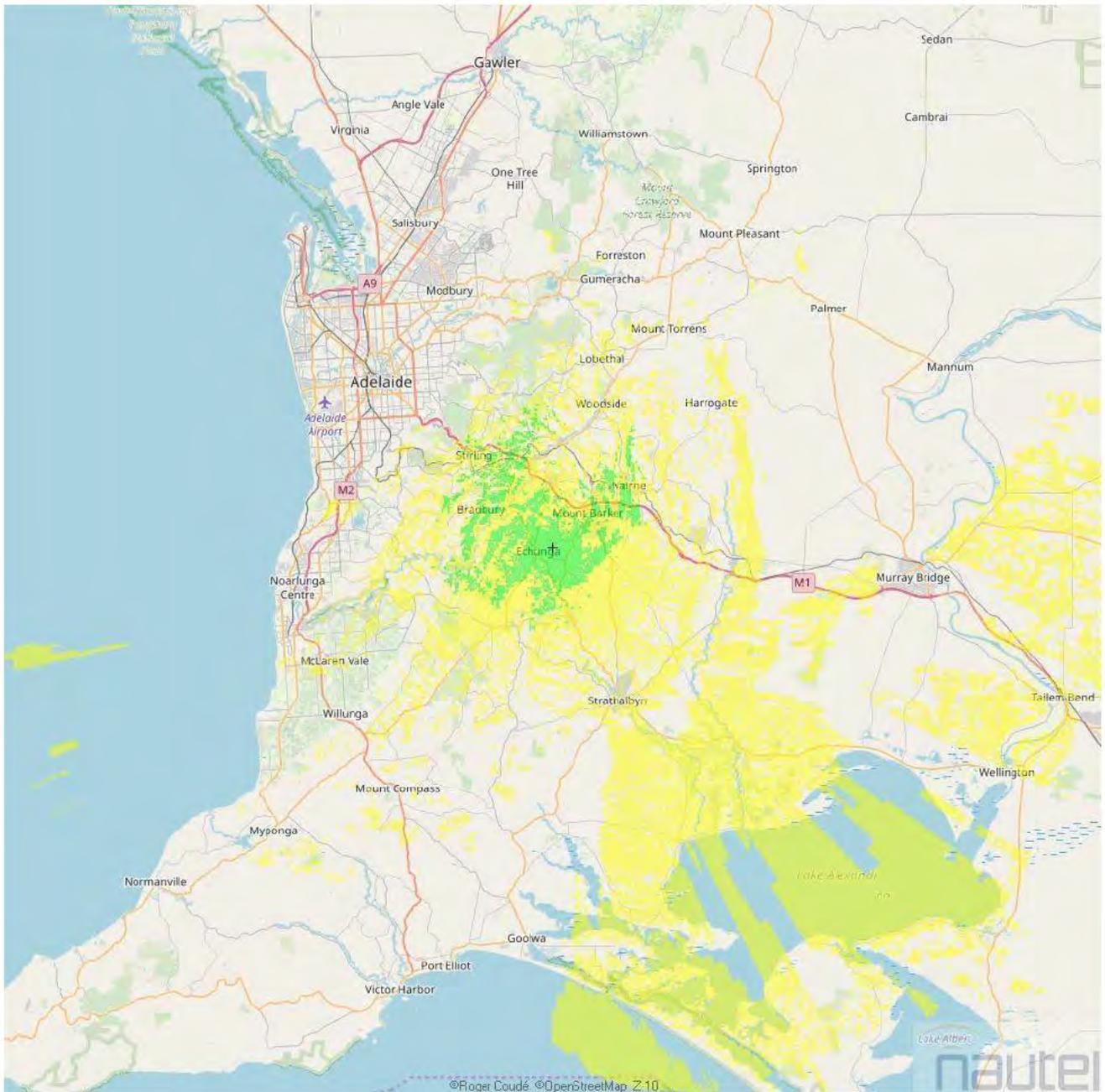


	Field strength > 110 dBµV/m
	Field strength ≥ 54 dBµV/m

APPENDIX C – Hills Radio’s radiated field strength on 88.9 MHz [ACMA Site ID 23171]



Description	RAA District Council Site ECHUNGA SA 5153 (500W)
TX	0.5 KW
RX	Custom
Frequency	88.9 MHz
Base Name	ACMA Site ID 23171
Latitude	-35.10115158 °
Longitude	138.81337698 °
Latitude	35° 06' 04.15"S
Longitude	138° 48' 48.16"E
UTM (WGS84)	54H E300696 S6113552
Elevation	462.5 m
Base Ant. Height	30 m
Base Ant. Gain	3.2 dBi
Mobile Ant. Height	1.0 m
Tx Power	500.00000 W
Tx Line Loss	0.3 dB
Weak signal field	54.0 dBμV/m
Strong signal field	110.0 dBμV/m
Weak signal covered area	2568 km ²
Strong signal covered area	152 km ²
Weak signal population reached	71685 pop
Strong signal population reached	8941 pop
Landcover used	Yes
Two rays method used	No
User ID	lofty
Radio coverage ID	NAUTELA1DFD335D150_0
Generated on	10/29/2019 9:10:18 PM





TECHNOLOGY BLUE PAPER 2.1.3

Description	Primary Studio to Transmitter Link (STL) hardware
Type	Bridging
Version/Date	V1.0 1 October 2019
Maintained By	Technology & Facilities

INTRODUCTION

The Ubiquiti Nanobeam NBE-5AC-16 airMax® ac Bridge (Nanobeam) is the backbone of Lofty's primary studio to transmitter link (STL).

The Nanobeam transmits and receives via 5GHz spectrum using the IEEE 802.11ac networking standard.

APPLICATION

A Nanobeam unit is installed on the roof of Lofty's studio, with another installed at Lofty's TX site. The unit installed at the TX site has direct line of sight to Lofty's studio, with said LOS visible to the naked eye.

The link distance is approximately 2.4km.

Appendix A contains a satellite map showing line of sight between the Nanobeam units located at Lofty's studio and TX site.

FEATURES

Bidirectional connectivity at over 450 megabits per second (Mbps).

Comprehensive on-board management and diagnostic tools via web interface.

Built-in ESD (surge) protection.

Proven reliability in demanding outdoor environments.

Technical support is readily available either online or by contacting other community radio stations that have deployed Nanobeams in either their primary or secondary STLs.

Recommended by the South Australian Community Broadcasting Association (SACBA) for STL over AoIP applications.

Theoretical maximum range of over 15km.

OPERATIONS

Please refer to TX chain diagram (TBP 2.0.1 Appendix A) and STL & TX Site diagram legend (TBP 2.0.1 Appendix B).

MAINTENANCE

Nanobeam vital signs viz. ping monitored via remote network management console (PRTG).

Devices are periodically checked and tested to ensure reliable connectivity.

Lofty holds two spare pre-configured Nanobeam units on hand for rapid deployment in the event of one of the installed Nanobeam units failing.

Spare RF shielded heavy-duty Cat5e ethernet cables are also on hand for rapid deployment in the event of failure.

A hard copy of the Ubiquiti Nanobeam NBE-5AC-16 airMax® ac Bridge manual is kept at the TX site, with an additional copy kept at Lofty's studio. A PDF soft copy version is stored on Lofty's shared Google Drive.

SPECIFICATIONS Refer Appendices B and C.

APPENDIX A – Nanobeam (primary STL) line of sight

Studio: 20 Stephen Street MOUNT BARKER SA 5251

TX site: Cleggett Road LITTLEHAMPTON SA 5250

Land Services Group

The Property Location Browser is available on the Land Services Group Website : www.sa.gov.au/land-services

Lofty to Cleggett's

Lofty STL @ Nitschke's, Cleggett's STL on pole

Date created:

October 26, 2018



Government of South Australia

Department of Planning,
Transport and Infrastructure



Disclaimer: The information provided above, is not represented to be accurate, current or complete at the time of printing this report. The Government of South Australia accepts no liability for the use of this data, or any reliance placed on it.

Lofty STL @ Nitschke's, Cleggett's STL on pole

Figure 2.1.3[a.i] Line of sight (LOS) between Lofty studio and TX site

TBP 2.1.3 - Primary Studio to Transmitter Link (STL) hardware

Correct as at 3/11/2019 5:58 PM. Printed version of this document is uncontrolled.

Land Services Group

The Property Location Browser is available on the Land Services Group Website: www.sa.gov.au/landservices

Date created:
October 26, 2018

Lofty to Cleggett's

Zoom at Lofty End



Disclaimer: The information provided above, is not represented to be accurate, current or complete at the time of printing this report. The Government of South Australia accepts no liability for the use of this data, or any reliance placed on it.

Figure 2.1.3[a].ii Nanobeam mounted on roof of Lofty's studio in Mount Barker CBD

Land Services Group

The Property Location Browser is available on the Land Services Group Website: www.sa.gov.au/landservices

Date created:
October 26, 2018

Lofty to Cleggett's

Zoom at Cleggett's End



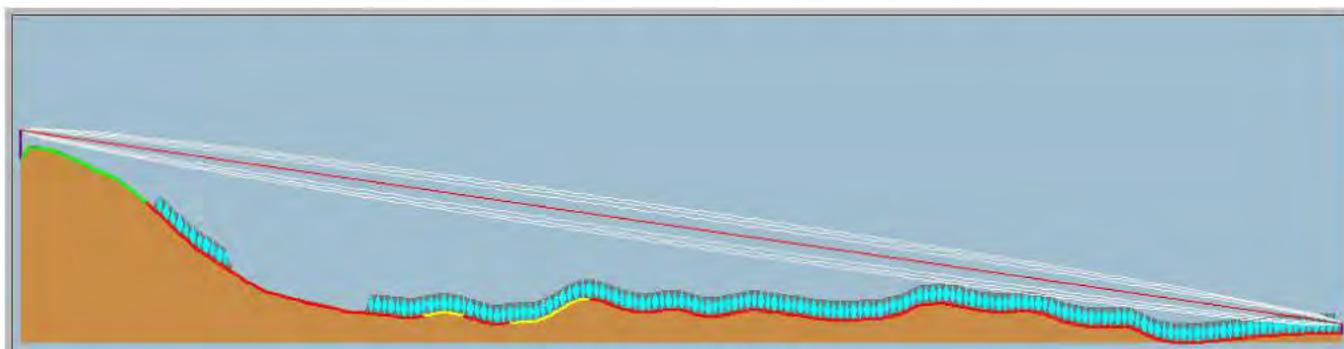
Disclaimer: The information provided above, is not represented to be accurate, current or complete at the time of printing this report. The Government of South Australia accepts no liability for the use of this data, or any reliance placed on it.

Figure 2.1.3[a].iii Clear studio-TX site LOS achieved by mounting Nanobeam c. 30m E of TX hut

TBP 2.1.3 - Primary Studio to Transmitter Link (STL) hardware

Correct as at 3/11/2019 5:58 PM. Printed version of this document is uncontrolled.

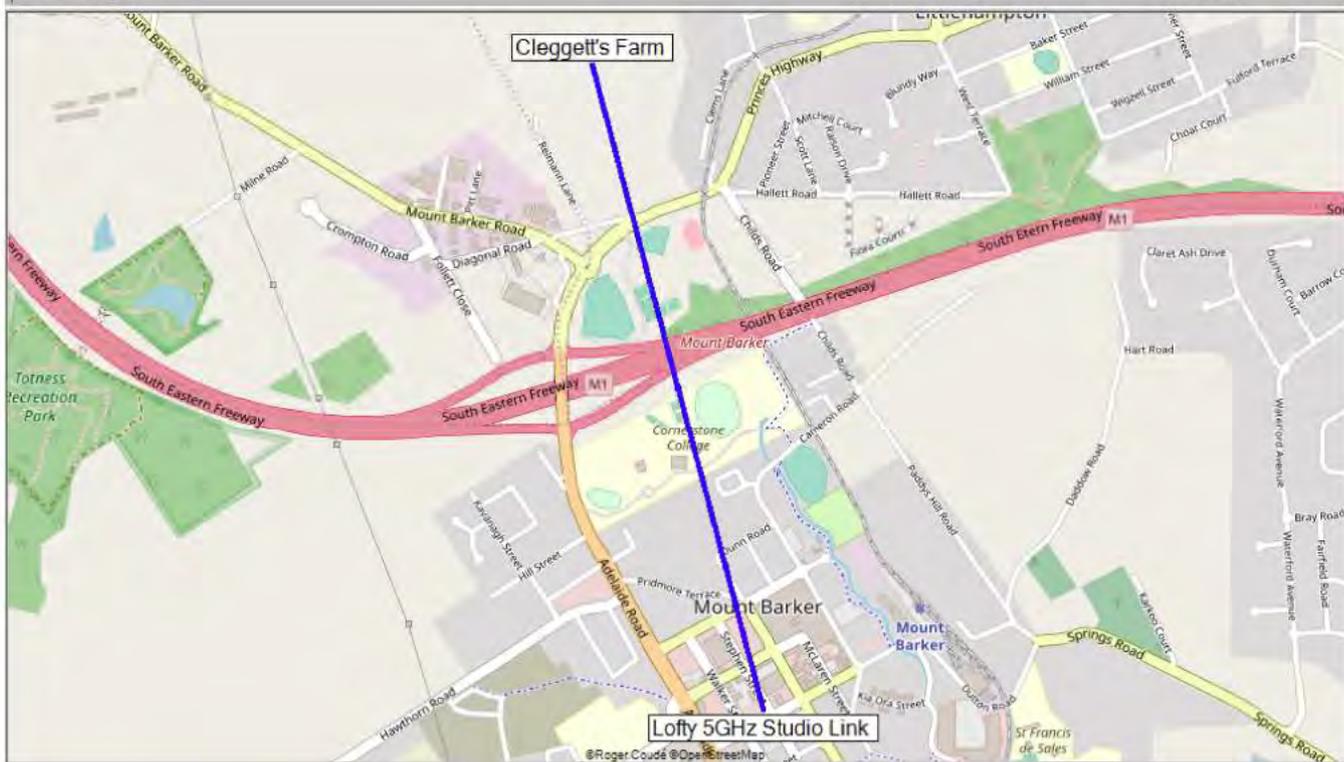
STL via 5GHz AoIP – Lofty Studio to Cleggett Farm (ACMA Site ID 305178)



Lofty-Cleggetts AoIP 5GHz****

Cleggett's Farm (1)		(2) Lofty 5GHz Studio Link	
Latitude	-35.049606 °	Latitude	-35.066951 °
Longitude	138.853280 °	Longitude	138.858854 °
Ground elevation	420.0 m	Ground elevation	331.9 m
Antenna height	15.0 m	Antenna height	5.0 m
Azimuth	165.26 TN 157.08 MG °	Azimuth	345.26 TN 337.07 MG °
Tilt	-2.82 °	Tilt	2.81 °
Radio system		Propagation	
TX power	37.78 dBm	Free space loss	112.39 dB
TX line loss	0.00 dB	Obstruction loss	0.00 dB
TX antenna gain	16.00 dBi	Forest loss	0.00 dB
RX antenna gain	16.00 dBi	Urban loss	4.77 dB
RX line loss	0.00 dB	Statistical loss	31.20 dB
RX sensitivity	-67.00 dBm	Total path loss	148.36 dB

Performance	
Distance	1.994 km
Precision	10.0 m
Frequency	5000.000 MHz
Equivalent Isotropically Radiated Power	238.864 W
System gain	136.78 dB
Required reliability	99.000 %
Received Signal	-78.57 dBm
Received Signal	26.38 μV
Fade Margin	-11.57 dB



STL via 5GHz AoIP – Lofty Studio to ACMA Site ID 23171

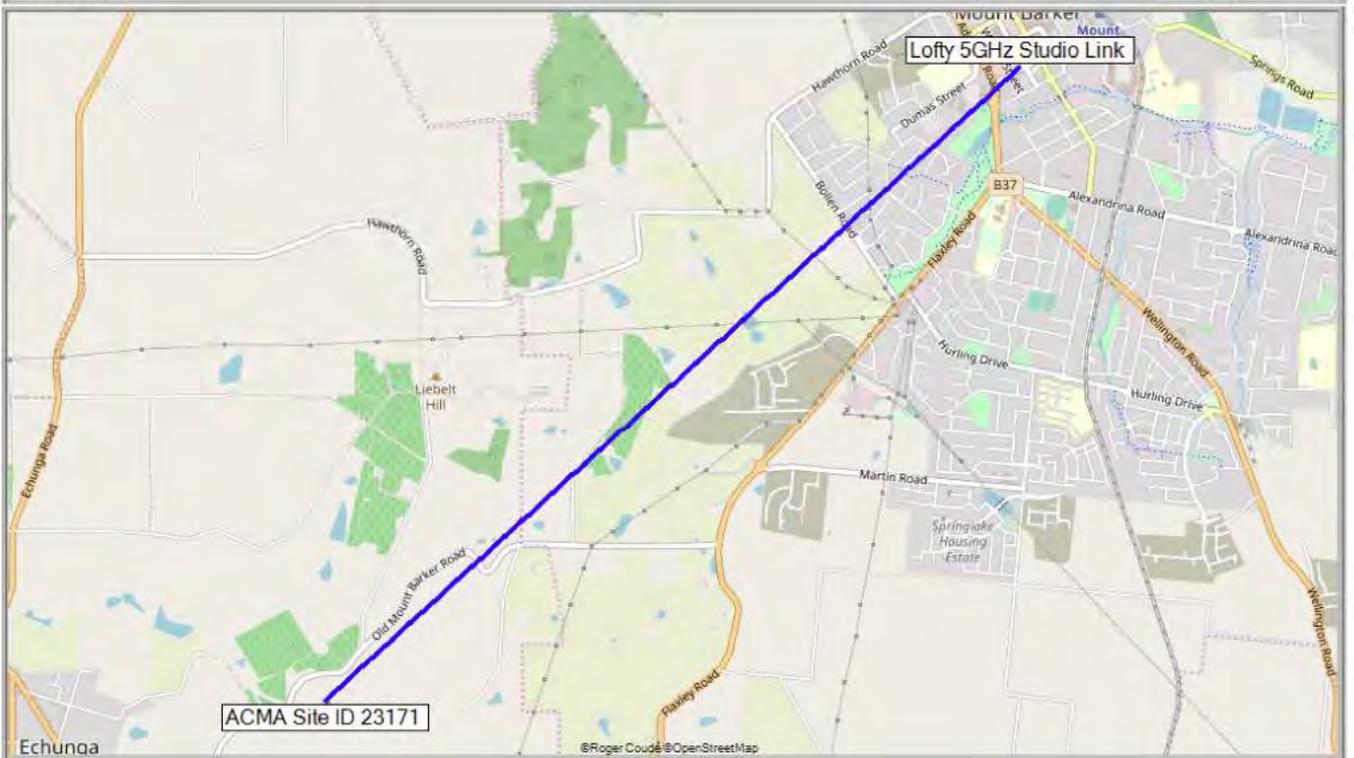


Lofty-23171 (direct)

Lofty 5GHz Studio Link (1)		(2) ACMA Site ID 23171	
Latitude	-35.066951 °	Latitude	-35.101152 °
Longitude	138.858854 °	Longitude	138.813377 °
Ground elevation	331.9 m	Ground elevation	462.5 m
Antenna height	10.0 m	Antenna height	1.0 m
Azimuth	227.40 TN 219.21 MG °	Azimuth	47.43 TN 39.25 MG °
Tilt	1.21 °	Tilt	-1.26 °
Radio system		Propagation	
TX power	37.78 dBm	Free space loss	121.38 dB
TX line loss	0.00 dB	Obstruction loss	0.00 dB
TX antenna gain	16.00 dBi	Forest loss	0.00 dB
RX antenna gain	16.00 dBi	Urban loss	5.16 dB
RX line loss	0.00 dB	Statistical loss	30.91 dB
RX sensitivity	-87.00 dBm	Total path loss	157.45 dB

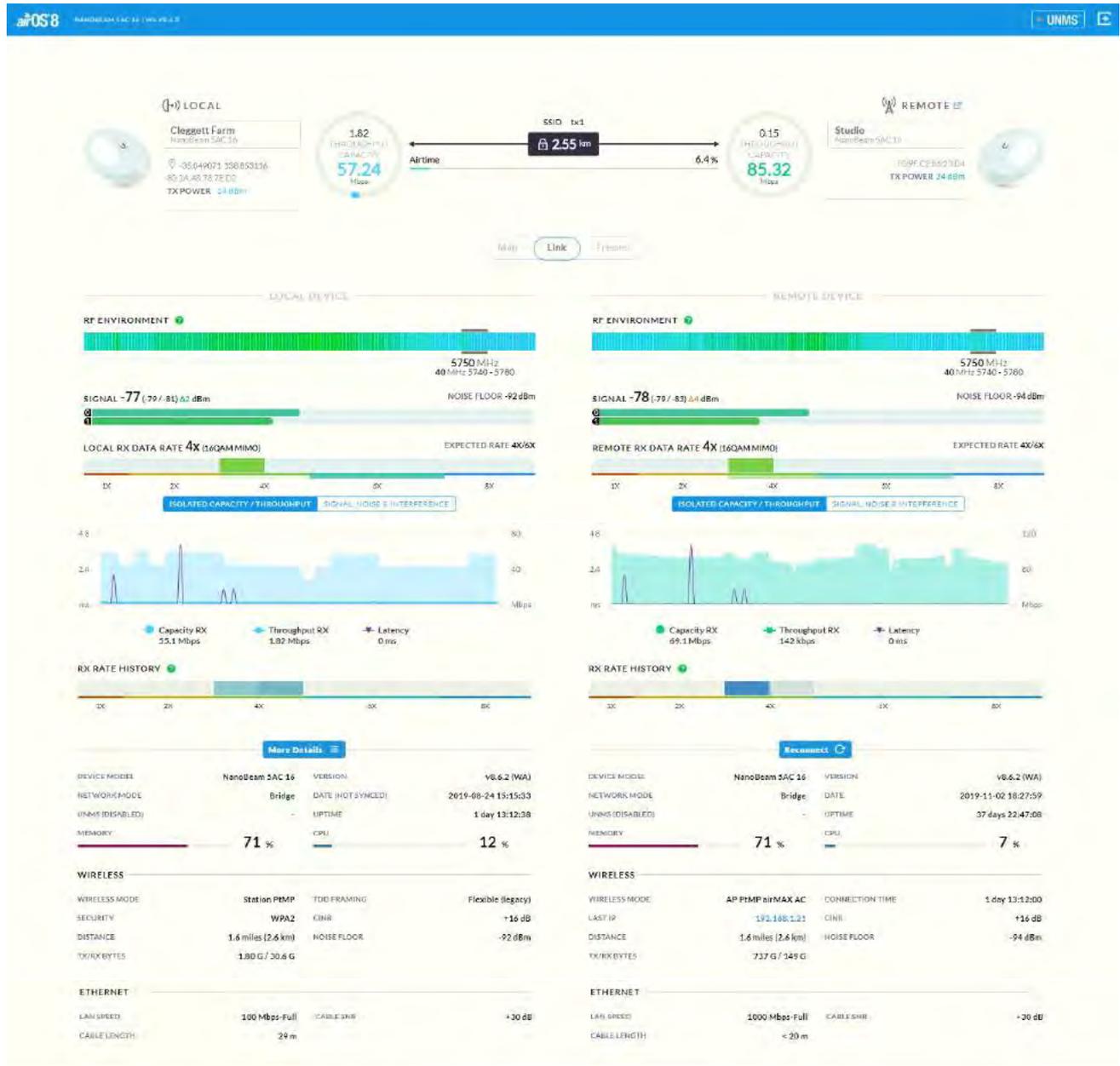
Performance

Distance	5.620 km
Precision	10.0 m
Frequency	5000.000 MHz
Equivalent Isotropically Radiated Power	238.864 W
System gain	156.78 dB
Required reliability	99.000 %
Received Signal	-87.67 dBm
Received Signal	9.26 µV
Fade Margin	-0.67 dB



APPENDIX B – Ubiquiti Nanobeam NBE-5AC-16 airMax® ac Bridge Site Survey

Real time primary STL status as recorded at TX site, 2 November 2019 18:27.





TECHNOLOGY BLUE PAPER 1.0.4

Description	Redundancy (Fallback)
Type	Overview
Version/Date	V1.0 1 October 2019
Maintained By	Technology & Facilities

INTRODUCTION

In order to provide a service with high levels of reliability and technical quality, a competent broadcast licence holder needs to have a Plan B for every component that makes up the broadcast chain.

Lofty's Plan B is to ensure that every component in this chain has *redundancy*.

TechTerms defines redundancy as "... duplicate devices that are used for backup purposes. The goal of redundancy is to prevent or recover from the failure of a specific component or system"¹.

Synonyms include *fallback* and *failover*. Lofty uses the term *fallback* to describe the components that make up its redundancy.

A desirable outcome is to minimise (if not eliminate) the use of fallback systems and/or components. Lofty is proactive in this regard by using its fault logs to identify proactive maintenance opportunities when a potential primary system and/or component is identified.

Fallback reliance is also minimised via Lofty's infrastructure, consisting of quality components underpinned by sound engineering principles.

APPLICATION

This TBP specifies Lofty's minimum fallback requirements at a systemic level. Fallback requirements for individual components are documented in their own respective TBPs.

FEATURES

Fallback may either be automated, semi-automated or manual.

Some systems and/or components have more than one fallback.

Use of fallback systems and/or components are documented in Lofty's fault log.

OPERATIONS

When fallback is triggered, the Technology & Facilities Sub-committee may receive notification via e-mail or SMS, depending on which primary system and/or component has failed.

Where possible, failover is triggered automatically. Where full automation is not possible, semi-automatic fallback may be engaged.

In some instances, such as physical hardware failure, manual fallback is the only available option. In terms of TBP 1.0.3 (Fault recording and categorisation), manual fallback is deemed to be a Level 4 (Critical) fault.

¹ <https://techterms.com/definition/redundancy>

MAINTENANCE

All fallback events are recorded in Lofty's fault log, with the following default fault categories to be applied:

<i>Fallback type</i>	<i>Fault category</i>
Automatic	Level 2 (Moderate)
Semi-Automatic	Level 3 (Major)
Manual	Level 4 (Critical)

The root cause of each fallback event is to be investigated, with proactive maintenance to be scheduled as soon as practicable.

Where fallback has been triggered by primary hardware failure, use of its fallback equivalent is to be kept to a minimum.

Replacement primary hardware is to be sourced in terms of Lofty's relevant procurement policies.

Fault logs are to be kept for a minimum of seven (7) years.

Copies of Lofty's fault log shall be provided to the regulator upon request.

SPECIFICATIONS *Fallback systems and components*

Tech. Cat	Component or system	Location	Fallback type
IT	PC hardware	All sites	Manual
IT/Bridging	PC software	All sites	Automatic, semi-auto or manual depending on fault
IT/Bridging	Network hardware	All sites	Manual
IT/Bridging	Network routing (LAN, WAN, STL)	All sites	Automatic
Bridging	AoIP encoder	Studio	Manual
Bridging	AoIP decoder	TX	Automatic
TX	Program Fail detector	TX	Automatic (re: AoIP failover); Manual (re: hardware failure)
TX	DSP/MPX	TX	Manual
TX	Exciter	TX	Manual
TX	Power Amp	TX	Manual
TX	Antenna	TX	Manual
All	230V 10A AC	All sites	Automatic
All	Physical damage or obstruction to Lofty's facilities	All sites	Broadcast Continuity Plan (BCP) refer TBP 1.0.6

Appendix 16.2

- > *details of operational and maintenance plans to ensure the licence will meet technical specifications*

Lofty's technology is documented in a series of Technology Blue Papers (TBPs). Each TBP contains clear descriptions of either a system of technologies or an individual component. Operational and maintenance considerations for each system/technology is contained within its respective TBP.

B32 Appendix 16 request for information	TBP(s)	TBP Series > Name
Details of transmission infrastructure	1.0.1	Overview > Introduction
	1.0.2	Overview > Technical Planning Guidelines
Studio location	1.4	3 (Participation)
Studio-to-transmitter link (STL)	2.0.1	Bridging > Studio to Transmitter Link (STL)
	2.1.x	Bridging > Primary components
	2.2.x	Bridging > Secondary components
Transmission backup (fallback)	1.0.4	Overview > Redundancy (fallback)
	2.2.x	Bridging > Secondary components
	3.2.x	TX > Secondary components
Operational and maintenance plans	1.0.5	Overview > Maintenance

TBP Series 1 (Overview), 2 (Bridging) and 3 (TX) are attached. Series 1 (Overview) provides a summary of key considerations relating to Lofty's broadcasting capabilities, with Series 2 (Bridging) and 3 (TX) describing the complete TX chain in detail.

TBP Series 1, 2 and 3 can be found in Appendix 16 (Part B). As Lofty's TBP library is comprehensive (running to some 84 pages or thereabouts), each TBP and relevant appendices have been bookmarked for easier navigation.



TECHNOLOGY BLUE PAPER 1.0.3

Description	Fault recording and categorisation
Type	Overview
Version/Date	V1.0 1 October 2019
Maintained By	Technology & Facilities

INTRODUCTION Despite Lofty's best endeavours to minimise potential faults, technology failures will occur with from time to time.

This TBP outlines how and why Lofty logs and categorises faults.

APPLICATION This TBP applies to any fault found within any of Lofty's technology categories viz. transmission (TX), information technology (IT), audio/visual (AV) or any combination of same (Bridging).

FEATURES Faults are logged by date and severity; the latter as defined in Specifications. The central fault log is the one "source of truth" for all faults logged with Lofty. Designed to capture every fault that develops with Lofty's technology, irrespective of whether or not on-air broadcasting service is affected. The central fault log is a valuable tool that enables Lofty's Technology & Facilities Sub-committee to make effective maintenance plans, as well as providing visibility of potential points of failure to be addressed via proactive maintenance

OPERATIONS Faults are logged in Lofty's central fault log, an electronic-based log located in a shared folder within Lofty's IT network, accessible to all Lofty members/volunteers.

Supplementary fault logs, in paper form, are kept in each studio and at the TX site. Each of these paper-based supplementary fault logs relate to faults occurring at each site.

Each fault is assigned a category based on severity of its impact on Lofty's ability to deliver a reliable and compliant broadcasting service.

MAINTENANCE All supplementary fault logs are transcribed into the central fault log.

Fault logs are to be kept for a minimum of seven (7) years.

Copies of Lofty's fault log shall be provided to the regulator, being ACMA and/or their successor(s) where applicable, upon request.

SPECIFICATIONS *Fault Categories*

1 – Minor	<ul style="list-style-type: none"> • A fault with low or very low impact on Lofty’s ability to provide an effective broadcasting service. • These faults may even be fixed almost immediately after first being discovered. • Listener is unaware that fault has occurred. • Refers only to internal IT or AV technology failures that pose minor inconvenience to users. • Resolution of fault usually rolled into Lofty’s standard maintenance schedule.
2 – Moderate	<ul style="list-style-type: none"> • A fault with low-moderate impact on Lofty’s ability to provide an effective broadcasting service, or has a moderate-high impact on non-broadcast related technology. • Some listeners may be aware of said fault. • Resolution of fault takes priority over standard scheduled maintenance. • Any fault deemed to be a minor fault but has an impact on TX and/or Bridging technology is considered a Level 2 Moderate fault by default.
3 – Major	<ul style="list-style-type: none"> • A fault with moderate-high impact on Lofty’s ability to provide an effective broadcasting service. • Whilst a major fault may not prevent Lofty’s ability to broadcast, said fault has an adverse effect on the quality of the broadcast e.g. degraded signal quality. • Fault is noticeable to most listeners. • May impede a presenter/producer’s ability to effectively broadcast their program. • Lofty to dedicate all available resources to rectifying fault as soon as possible.
4 - Critical	<ul style="list-style-type: none"> • A fault that either prevents Lofty from providing an effective broadcasting service or places Lofty in imminent danger of breaching one or more of its broadcasting licence conditions. • Listeners are to be informed of said faults via service advisories posted on Lofty’s social media and/or website. • Lofty to dedicate all available resources to rectifying fault as soon as possible. • Once resolved, Lofty shall undertake a formal investigation into how the fault occurred, as well as formulating mitigation strategies to avoid a repeat. • Lofty to report all Level 4 Critical faults to the regulator for compliance purposes.



TECHNOLOGY BLUE PAPER 1.0.5

Description	Maintenance overview and categorisation
Type	Overview
Version/Date	V1.0 1 October 2019
Maintained By	Technology & Facilities

INTRODUCTION To ensure maximum reliability of its facilities and systems, Lofty undertakes regular maintenance activities. Said activities can be divided into three categories: proactive, reactive and ad-hoc.

APPLICATION Applies to all of Lofty's technology systems and/or components.

FEATURES Proactive maintenance is carried out before a fault occurs. This is designed to minimise downtime across Lofty's systems and/or components, thus allowing Lofty to deliver a reliable broadcasting service of high technical quality.

Reactive maintenance is carried out in response to a fault raised in Lofty's fault log, and is prioritised based on its severity as categorised (TBP 1.0.3).

Ad-hoc maintenance occurs when prompted, as is generally minor or below minor in terms of overall impact to Lofty's systems.

OPERATIONS Proactive maintenance is carried out based on a set time interval depending on the technology in use and how it is applied. Such proactive maintenance activities are usually documented as procedures.

Reactive maintenance activities are scheduled based on the severity of its' underlying fault. Generally speaking, Level 1 (Minor) or Level 2 (Moderate) faults will be addressed during its' system/component next scheduled maintenance window.

Ad-hoc maintenance is usually triggered by a prompt issued by the component seeking to be maintained e.g. software updates. There is usually no set interval for these prompts. Ad-hoc maintenance may be delayed until the next proactive maintenance window at the discretion of the Technology & Facilities Sub-committee and/or its delegate(s).

Level 3 (Major) faults are addressed as soon as practicable.

A Level 4 (Critical) fault is not considered to be maintenance. A fault of this nature is a significant event that requires immediate attention.

Where a Level 3 or Level 4 fault develops during a proactive maintenance window, fault rectification is given maximum priority. In this circumstance, the interrupted proactive maintenance window may either be postponed or cancelled, depending on the nature of the proactive maintenance in question along with when its next maintenance window is scheduled.

MAINTENANCE A maintenance log is kept for each component and/or system subject to proactive maintenance. Said maintenance log may be in paper or electronic format.

Reactive maintenance triggered by a fault is to be recorded in Lofty's central fault log, with reference to its assigned fault number.

Other ad-hoc maintenance activities are usually omitted from Lofty's central fault log, as (a) it's not a fault per se and (b) in the case of system software and/or firmware updates, said system usually retains its own event log.

A hard copy of each component's respective manual shall be stored with or adjacent to said component. Where said component is located at a site other than Lofty's main studio, a second hard copy is kept in Lofty's central technical library.

Where available, a soft copy of each component's respective manual is to be stored in PDF format on Lofty's shared Google Drive.

SPECIFICATIONS Refer to procedures for proactive maintenance schedules.

Component-based maintenance specifications may also be found in said component's TBP.

Appendix 16.3

- > *the technical skills and expertise that will be available to the applicant to provide a service that complies with technical specifications*

Internal	
Geoff Cleggett, VK5ZAE [REDACTED]	<p>Amateur Apparatus Licence (Advanced) 224766/1</p> <ul style="list-style-type: none"> - Amateur licence holder for over 40 years - Significant experience in repairing radio transceivers and broadcast transmitters to component level - Strong practical working knowledge of analogue RF communications across amateur and VHF bands, including FM broadcast band <p>[REDACTED] [REDACTED]</p> <p><i>Lofty's TX hut is located on the Cleggett family farm viz. Geoff is effectively an on-site manager for our TX infrastructure.</i></p>
Tony Sander, Dip.IT (Networks)	<p>IT Technician</p> <ul style="list-style-type: none"> - Self-employed 2002-2006 - Experience in designing, implementing and administering local area networks (LAN) - Advanced Microsoft Windows 7/10 knowledge - Intermediate Linux knowledge - Built Lofty's IT and bridging networks <p><i>Tony has full access to all Lofty systems via remote access (laptop, tablet, smartphone) to manage all studio, STL and TX components where required.</i></p>
External	
Chris Doe, RFWorks	<p>Technical Engineer</p> <ul style="list-style-type: none"> - over 20 years' experience in the project management and installation of RF communications across the disciplines of analogue and digital radio communications, radio and television broadcasting. - Repair of radio transceivers and broadcast transmitters to component level. - Repair of antenna systems. <p><i>Chris is currently engaged by Lofty on an ad-hoc basis, in conjunction with service providers as arranged by SACBA.</i></p>
Tim Borgas, SACBA	<p>Technical Officer</p> <ul style="list-style-type: none"> - Former Technical Officer at Three D Radio (5DDD) - Over 25 years' experience in analogue RF communications (specifically FM broadcasting) - Member of SACBA Board <p><i>Tim has been SACBA's Technical Officer for many years, and has excellent working relationships with suppliers including equipment and maintenance service providers.</i></p>

Appendix 16.4

- > ***copies of letters from individuals and/or organisations detailing their agreement to provide technical advice and support***
- > ***copies of agreements and/or contracts with providers of technical and transmission equipment***

The bulk of Lofty's TX equipment has been supplied by the South Australian Community Broadcasting Association (SACBA) on a long-term basis. SACBA has agreed to allow Lofty use of said equipment until such time as Lofty is in a position to purchase its own. Further information about the timeframes in which Lofty expects to commence replacement of SACBA equipment is contained in our Business Plan (refer Appendix 14).

A confirmation of SACBA's commitment to ensure Lofty's primary TX equipment is supported, as well as a copy of Lofty's asset register showing both owned and borrowed assets, is contained within Appendix 16.



Dear Tony,

This letter is to confirm SACBA's comprehensive ongoing support for Lofty Community Media Incorporated (Lofty) as a TCBL and as a permanent community broadcaster, should it eventually be awarded the permanent license for Mount Barker.

This support consists of ongoing:

1. technical advice, including RF, audio, IT, HVAC and energy efficiency
2. access to equipment from the SACBA Equipment Bank for long term use
3. board induction and governance training opportunities
4. training opportunities to make announcers aware of their obligations under the BSA, the Codes of Practice and broadcast law
5. assistance at AGMs to act as returning officer if requested
6. assistance with conflict resolution if required

In return we expect that Lofty will:

1. be open and honest in their dealings with SACBA
2. comply with the Equipment Bank Terms And Conditions below
3. apply for CBF equipment grants as soon as it becomes eligible
4. hold a temporary or permanent community broadcasting license
5. comply with the Broadcasting Services Act
6. comply with the Codes Of Practice
7. operate Lofty in an independent, open, inclusive and democratic manner
8. make information about Lofty available to SACBA when requested
9. remain a member of SACBA

For the avoidance of doubt and to fully explain why SACBA has provided so much assistance and equipment to Lofty we emphasise that we have no desire to control Lofty, but we do expect Lofty to be an excellent community broadcaster that complies with all its obligations.

SACBA is doing these things in order to put a stop the egregious behavior that has plagued most TCBLs in South Australia over the past decade. The dishonesty, self-interest and inappropriate behavior by some people within these TCBLs has significantly damaged the brand of community radio and has literally torn some communities apart. It has resulted in police involvement, arrests, civil and criminal court proceedings and it has to stop. Therefore SACBA developed the Intensive Assistance Plan in order to thwart these inappropriate behaviors.

The Intensive Assistance Plan recognises that TCBL startups are in a “Catch 22” situation - they require at least twenty thousand dollars worth of equipment to get on the air, yet they are rarely in a position to raise these funds easily and are ineligible for CBF financial support until they have been broadcasting for the equivalent of two years full time. This places huge financial pressure on TCBLs when they can least afford it.

It also leaves them open to abuse by carpetbaggers who hope to benefit personally by offering to assist the station with equipment or a loan, which is often repaid by that person selling the sponsorship on commission, sometimes at a very high rate. This has the effect of addicting the station to a high cost business model that requires large sponsorship sales that inevitably impact on the selection of programs and adversely affects community participation. This normally leads to disaffected ex-members of that TCBL forming their own TCBL and dividing the community further.

It also makes it much harder for SACBA to assist these TCBLs, due to them using non-standard, overly complex and expensive equipment, rather than simple, effective equipment that can be duplicated by the SACBA Equipment Bank in the event of any breakdowns.

By providing, free of charge, all of the basic equipment Lofty needs to get through its formative years, SACBA hopes to avoid those problems experienced by other TCBLs over the past decade. By the time Lofty is eligible for CBF grants it will appreciate that running a low cost station provides the maximum chance of community participation and the least risk of abuse, in all its forms.

Be assured that whilst SACBA has made a significant investment in the future of Lofty, we will not hesitate to remove all support should Lofty not meet the expectations outlined above. SACBA wants community broadcasters who excel at being good community broadcasters and who encourage full community participation.

We should also point out that should Hills Radio eventually decide to take up our offer of SACBA membership, we will support them just as we would support any SACBA member station. Whilst it is without question that Hills Radio’s previous behavior and constitution make them ineligible for SACBA membership and an unsuitable entity to eventually hold a permanent community broadcasting license, should they make significant changes and become compliant, we would gladly welcome them into membership of SACBA. We had a similar experience with the Willunga Basin TCBLs of Tribe FM and Triple Z. In that instance, having both bitterly opposed TCBLs engaged in open individual discussion with SACBA as an independent advisor has brought them closer together and made them better community broadcasters.

We wish Lofty all the best and our continued support for excellent community broadcasting in Mount Barker.

Regards,



Tim Borgas
Station Assistance Program
SA Community Broadcasters Association Inc.

1 November 2019

Asset no	Date acquired	Description	Location	Serial No
1	05-06-17	Dell Optiplex 960 Desktop PC	Rack	
2	05-06-17	Dell Optiplex 960 Desktop PC	Rack	
3	04-10-18	Dell Latitude E6430 Laptop	Studio 1	
4	04-10-18	Dell Latitude E6430 Laptop	Rack	
5	04-10-18	ZOSI NVR CCTV System	Rack	u659mt472beczv9111a
6	04-10-18	HP Compaq L2105tm 21.5" LCD touchscreen monitor	Studio 1	4CU10500JC
7	04-10-18	Elan Source Switcher	Spare	
8	04-10-18	Elan Source Switcher	TX Hut	
9	04-10-18	Mackie 1204VLZ 12 channel mixer	Studio 2	D183355
10	04-10-18	Mackie 1204VLZ 12 channel mixer	Spare	
11	31-10-18	Technicolor TG789v2 Router	Rack	
12	31-10-18	Mackie CR4 4" powered studio monitor speakers	Studio 1	N/A
13	31-10-18	Neewer NW700 Microphone and arm	Studio 1	N/A
14	31-10-18	Neewer NW700 Microphone and arm	Studio 1	N/A
15	31-10-18	Neewer NW700 Microphone and arm	Studio 1	N/A
16	31-10-18	Monitor Arm	Studio 1	N/A
17	31-10-18	Desk	Studio 1	N/A
18	31-10-18	2 drawer pedestal with 4RU capacity	Studio 1	N/A
19	31-10-18	Miscellaneous used chairs	Studio 1	N/A
20	31-10-18	Office desk	Office	N/A
21	31-10-18	Studio 2 cupboard	Studio 2	N/A
21	31-10-18	Studio 2 credenza	Studio 2	N/A
22	31-10-18	Marantz PMD-570 1RU digital recorder	Studio 2	A102051000826
23	31-10-18	2 seater green sofa	Office	N/A
24	31-10-18	Whiteboard	Studio 1	N/A
25	31-10-18	Whiteboard	Studio 1	N/A
26	31-10-18	Whiteboard	Studio 2	N/A
27	31-10-18	Custom 20RU wooden rack	Rack	N/A
28	31-10-18	Custom 20RU wooden rack	TX Hut	N/A
29	31-10-18	Samsung N210 netbook PC	Rack	2qc393dz400041p
30	31-10-18	Lenovo X201 laptop PC	TX Hut	
31	31-10-18	Lenovo X201 laptop PC	In storage	
32	31-10-18	Logitech K400 combo wireless keyboard and trackpad	Studio 1	
33	31-10-18	Microwave	Kitchen	
34	31-10-18	Siemens Gigaset VOIP phone	In storage	
35	31-10-18	Siemens Gigaset VOIP phone	In storage	
36	31-10-18	HP L1706 17" LCD monitor	Rack	
37	31-10-18	HP L1740 17" LCD monitor	In storage	
38	31-10-18	HP L1706 17" LCD monitor	In storage	cnd7180cjz
39	31-10-18	HP L1706 17" LCD monitor	In storage	cnd7162n5n
40	31-10-18	V7 S2001-AA 20" LCD monitor	In storage	xzc1q9b71fa0057
41	31-10-18	Viewmaster 15" LCD monitor	In storage	
42	31-10-18	Behringer UCA222 USB audio interface	Rack	
43	31-10-18	Samsung SyncMaster 151s 15" LCD monitor	Rack	
44	31-10-18	Square IKEA-style cupboard	Kitchen	N/A
45	01-12-18	FM/DAB+ portable radio	Rack	
46	01-12-18	FM/DAB+ portable radio	TX Hut	
47	01-12-18	TP-Link router	TX Hut	
48	01-12-18	Aeotec USB Z-Wave automation controller	TX Hut	
49	01-12-18	Aeotec Z-Wave smart mains switch	TX Hut	
50	01-01-19	5 x acoustic panels ex Three D Radio	In storage	N/A
51	01-02-19	Printer (tbc)	Office	
52	01-03-19	Samsung 22" LCD monitor	Office	
53	01-03-19	Logitech wireless keyboard and mouse	Office	
54	01-08-19	Acer desktop PC	Office	
55	01-08-19	StarTech USB sound card/codec	Studio 1	
56	19-08-19	Thor Technologies A12BF RFI/surge protect powerboard	Studio 1	
57	01-09-19	Dovado Pro AC router	TX Hut	
58	01-09-19	Aeotec USB Z-Wave automation controller	TX Hut	
58	01-09-19	Aeotec Z-Wave smart mains switch	TX Hut	

Lofty Community Media Incorporated (SLCM) Asset Register - borrowed assets - 24-11-19

Date borrowed	Lender	Description	Location	Serial No	Due date
10-08-18	SACBA	SRK 100W Exciter	TX Hut		TBC
10-08-18	SACBA	SRK 500W Power Amp	TX Hut		TBC
10-08-18	SACBA	Deva RX-91 IP Audio receiver	TX Hut		TBC
10-08-18	SACBA	Deva TX-90 IP Audio transmitter	Studio 2		TBC
10-08-18	SACBA	Deva TX-91 IP Audio transmitter	Rack		TBC
10-08-18	SACBA	Elan Merlin 8 Desk	Studio 1	N/A	TBC
10-08-18	SACBA	Numark CDP77USB CD Player	Studio 1	(21)N31612271114205	TBC
10-08-18	SACBA	Sennheiser headset	Studio 1	N/A	TBC
31-10-18	T Sander	TEAC Stereo (Studio 2)	Studio 2		TBC
31-10-18	T Sander	Marantz PMD-660 solid state recorder	Studio 2		TBC
10-08-18	SACBA	60 x foam acoustic tiles	Studio 1,2	N/A	TBC
01-01-19	Y Farquhar	Vintage radio	Office	N/A	TBC
01-01-19	Y Farquhar	Wall art	Office	N/A	TBC
10-08-18	SACBA	BW Broadcast DSPX-FM sound processor	Rack		TBC
10-08-18	SACBA	Ubiquiti Nanobeam	Studio		TBC
10-08-18	SACBA	Ubiquiti Nanobeam	TX Hut		TBC
10-08-18	SACBA	Ubiquiti Nanobeam	Storage		TBC
10-08-18	SACBA	Ubiquiti Nanobeam	Storage		TBC
10-08-18	SACBA	Sennheiser headset	Storage		TBC
10-08-18	SACBA	Ubiquiti 5 port switch	Storage		TBC
01-01-19	A Thorne	Miscellaneous CDs and magazines	Studio 2	N/A	TBC