

Assessment of inadequate reception of broadcasting services (out-of-area reception)



Instructions for completion

- Please print clearly. Illegible, unclear or incomplete application forms may delay processing.
- This form should be used when a commercial or community broadcasting licensee is seeking permission to broadcast or retransmit its television or radio broadcasting service into another nominated licence area pursuant to clause 7(2A)(d), 8(3)(d) or 9(2A)(d) of Schedule 2 to the *Broadcasting Services Act 1992* (the **Act**). This is referred to as 'out-of-area reception'.
- In relation to commercial television broadcasting services, this form should only be used to apply for permission to broadcast a television service into another licence area if access to the Viewer Access Satellite Service (VAST) is not available to viewers in that licence area.
- Access to digital commercial television services delivered on VAST becomes available six months before analog television is switched off in an area. Viewers in areas where access to VAST is available should apply to access VAST on the *mySwitch* website <http://myswitch.digitalready.gov.au> rather than requesting out-of-area reception. Information about accessing VAST is available by calling the VAST administrator RBA Holdings Pty Ltd (RBA) on 1300 993 376.
- Special provision in this form has been made for viewers in areas where access to VAST is not yet available and who live at an address where *mySwitch* predicts 'no coverage' or 'no transmitter'. The only sections of this application that need to be completed for these viewers are:
 - Section 1: Applicant broadcaster details,
 - Section 3: Proposed service details, and
 - Section 5: Viewer/listener declaration.
- The ACMA will not accept applications directly from antenna installers/technicians or viewers/listeners. Individuals seeking out-of-area reception must contact the broadcasting licensee who would provide the out-of-area service.
- Please read the explanatory notes before completing this form. Importantly, these notes provide information about arrangements for viewers without adequate reception during the period of transition to digital-only television.
- For all applications other than those being made on the basis of *mySwitch* predictions, the statutory declaration which is part of this form **must** be completed and submitted with the application.
- Giving false or misleading information is a serious offence.
- A separate form is required for each service.

Disclosure of personal details

As part of the approval procedure, the ACMA may disclose the business details of the broadcaster making the application to the licensed broadcaster of the nominated licence area. Any objections to this disclosure should be included in this application.

The name, address and unique approval number of viewers who are the subject of an approval given to an applicant broadcaster will be disclosed to RBA, the administrator of the scheme that governs access to VAST. This information is provided to RBA to facilitate the transition of viewers without adequate reception to VAST. *Please note:* Viewers who are the subject of an out-of-area approval will need to apply to RBA for access to VAST to be enabled.

Definitions:

- The term 'applicant broadcaster' in this form means the commercial or community broadcasting licensee who is seeking permission to broadcast its service outside its designated licence area.
- The term 'licensed broadcaster' in this form means a commercial or community broadcasting licensee who is licensed to provide a broadcast service in the licence area nominated within this form.
- If you need any more information about the definitions, please contact the ACMA.

mySwitch

The Digital Switchover Taskforce within the Department of Broadband Communications and the Digital Economy has developed a website called *mySwitch* to, among other things, assist viewers check the quality of their television reception and find out when their analog television signal will be switched off. In addition, applications to access VAST can be made using *mySwitch*.

When to send this form

An applicant broadcaster is requested to submit the application at least 6–8 weeks before the proposed commencement of the service.

Where to send this form

Viewers/listeners and antenna installers/technicians should send one copy of the completed form to each of the commercial broadcasters whose services are proposed to be transmitted out-of-area. Address details are on the final page of this form.

Viewers who are the subject of an 'out-of-area' approval given to an applicant broadcaster pursuant to clause 7(2A)(d) of Schedule 2 to the Act are entitled to access the VAST service. Viewers only need to send this form to one of the broadcasters listed on the final page of this form if they intend to only access the VAST service.

The applicant broadcaster will then send this form to the ACMA for consideration.

Further information

Please telephone the Radiocommunications Licensing & Telecommunications Deployment Section (RLTDS) on 1300 850 115 or email lais@acma.gov.au.

Please note if reception of either analog or digital local television services is deemed adequate, the ACMA may not grant approval for out-of-area reception.

ACMA USE ONLY

Application number

Regional

Approved

Metropolitan

Not approved

Site number

THIS SECTION TO BE COMPLETED BY APPLICANT BROADCASTER

Section 1: Applicant broadcaster details

Business name

Business postal address/registered office

<input type="text"/>
POSTCODE

Contact person for this application

SURNAME
GIVEN NAMES
TITLE

Contact details of contact person

TELEPHONE ()
FACSIMILE ()
MOBILE
EMAIL

Signature of applicant broadcaster

SIGNATURE
DATE

Section 2: Nominated site details

Contracting technician/company

Telephone number

TELEPHONE ()
FACSIMILE ()

Site location/address

<input type="text"/>
POSTCODE

Nearest town/centre

Section 3: Proposed service details

Service to be transmitted:

- Imparja
- Seven Central
- GWN
- WIN
- Other

Please state name or call sign: _____

THIS SECTION TO BE COMPLETED BY BROADCAST ENGINEER/ANTENNA TECHNICIAN/ELECTRONIC TECHNICIAN
 (Complete only if *mySwitch* coverage prediction for television services is other than 'no coverage' or 'no transmitter')

Section 6: Assessment of analog reception quality

Television and FM radio reception to be measured using a dedicated antenna 10 metres above ground level.

Analog services

Area served/Licence area			
Services licensed in the area	Local service 1	Local service 2	Local service 3
Callsign			
Channel (TV only)			
Frequency			
Main transmission site			
Measured terminal voltage in dBµV (Analog/PAL)			
Antenna brand/model used for test			
Antenna gain			
Calculated field strength in dBµV/m (Analog/PAL)			
ITU picture quality Grade (Analog TV only)*			
Short description of analog reception in words and of likely reasons for the lack of adequate reception			
Masthead amplifier brand/model (if used)			
Masthead gain			
Field strength meter make/model used			
Cable type used for test			
Cable length and loss			

*Reference: ITU Picture Quality Scale for Analog reception assessment

ITU Grade Picture Quality Impairment

ITU Grade	Picture quality	Impairment
5	Excellent	Imperceptible
4	Good	Perceptible
3	Fair	Slightly annoying
2	Poor	Annoying
1	Bad	Very annoying

Section 7: Assessment of digital reception quality**Digital services**

<i>Services licensed in the area</i>	Local service 1	Local service 2	Local service 3
Callsign			
Channel (TV only)			
Frequency			
Main transmission site			
Measured terminal voltage in dB μ V			
Calculated field strength in dB μ V/m			
Short description of digital reception in words and of likely reasons for the lack of adequate reception			
Field strength meter make/model used			

Statutory declaration

I,

OF

Name of the person making the declaration

Address

POSTCODE

Occupation

Telephone

do solemnly and sincerely declare that

1. I am qualified as a

- broadcast engineer
- an antenna technician
- an electronics technician

2. I conducted an assessment of reception quality on behalf of

Name of applicant broadcaster

at the following location

POSTCODE

3. The details in Sections 6 and 7 of the attached form 'Assessment of Inadequate Reception of Broadcasting Services' are true and correct.

And I make this solemn declaration by virtue of the *Statutory Declarations Act 1959*, and subject to the penalties provided by that Act for the making of false statements in statutory declarations, conscientiously believing the statements contained in this declaration to be true in every particular.

Signature of the person making the declaration

SIGNATURE

DATE

Declared at _____ the _____ day of _____

Before me, _____

SIGNATURE

FULL NAME

TITLE

The following information relates to the provision of a statutory declaration only and not to the viewer/listener declaration under section 5 of this form.

A statutory declaration under the *Statutory Declarations Act 1959* may be made before:

(1) a person who is currently licensed or registered under a law in force in a State or Territory to practise in one of the following occupations:

Chiropractor	Dentist	Legal practitioner
Medical practitioner	Nurse	Optometrist
Patent attorney	Pharmacist	Physiotherapist
Psychologist	Trade marks attorney	Veterinary surgeon

(2) a person who is enrolled on the roll of the Supreme Court of a State or Territory, or the High Court of Australia, as a legal practitioner (however described); or

(3) a person who is in the following list:

Agent of the Australian Postal Corporation who is in charge of an office supplying postal services to the public
Australian Consular Officer or Australian Diplomatic Officer (within the meaning of the *Consular Fees Act 1955*)

Bailiff

Bank officer with five or more continuous years of service

Building society officer with five or more years of continuous service

Chief executive officer of a Commonwealth court

Clerk of a court

Commissioner for Affidavits

Commissioner for Declarations

Credit union officer with five or more years of continuous service

Employee of the Australian Trade Commission who is:

- (a) in a country or place outside Australia; and
- (b) authorised under paragraph 3 (d) of the *Consular Fees Act 1955*; and
- (c) exercising his or her function in that place

Employee of the Commonwealth who is:

- (a) in a country or place outside Australia; and
- (b) authorised under paragraph 3 (c) of the *Consular Fees Act 1955*; and
- (c) exercising his or her function in that place

Fellow of the National Tax Accountants' Association

Finance company officer with five or more years of continuous service

Holder of a statutory office not specified in another item in this list

Judge of a court

Justice of the Peace

Magistrate

Marriage celebrant registered under Subdivision C of Division 1 of Part IV of the *Marriage Act 1961*

Master of a court

Member of Chartered Secretaries Australia

Member of Engineers Australia, other than at the grade of student

Member of the Association of Taxation and Management Accountants

Member of the Australasian Institute of Mining and Metallurgy

Member of the Australian Defence Force who is:

- (a) an officer; or
- (b) a non-commissioned officer within the meaning of the *Defence Force Discipline Act 1982* with 5 or more years of continuous service; or
- (c) a warrant officer within the meaning of that Act

Member of the Institute of Chartered Accountants in Australia, the Australian Society of Certified Practising Accountants or the National Institute of Accountants

Member of:

- (a) the Parliament of the Commonwealth; or
- (b) the Parliament of a State; or
- (c) a Territory legislature; or
- (d) a local government authority of a State or Territory

Minister of religion registered under Subdivision A of Division 1 of Part IV of the *Marriage Act 1961*

Notary public

Permanent employee of the Australian Postal Corporation with five or more years of continuous service who is employed in an office supplying postal services to the public

Permanent employee of:

- (a) the Commonwealth or a Commonwealth authority; or
- (b) a State or Territory or a State or Territory authority; or
- (c) a local government authority;

with five or more years of continuous service who is not specified in another item in this list

Person before whom a statutory declaration may be made under the law of the State or Territory in which the declaration is made

Police officer

Registrar, or Deputy Registrar, of a court

Senior Executive Service employee of:

- (a) the Commonwealth or a Commonwealth authority; or
- (b) a State or Territory or a State or Territory authority

Sheriff

Sheriff's officer

Teacher employed on a full-time basis at a school or tertiary education institution.

Policy guidelines for out-of-area reception of television or radio services

Legislative background

In accordance with Schedule 2 to the *Broadcasting Services Act 1992* (the Act), a commercial or community broadcasting licensee may transmit its service outside of its licence area under certain conditions. In relation to clauses 7(2A)(d), 8(3)(d) and 9(2A)(d) of Schedule 2 to the Act, these conditions are:

- (i) that a person in another licence area is not receiving adequate reception of a service within that other licence area;
- (ii) the out-of-area service is provided to that person only to the extent necessary to ensure adequate reception of that service by that person; and
- (iii) the ACMA has given permission in writing.

This is referred to in these guidelines as out-of-area reception.

Arrangements during the transition to digital only television

A scheme has been established under Part 9C of the Act for viewers — in remote areas or who do not have adequate reception of commercial television services — to access digital commercial television broadcasting services via a satellite service. This satellite service is known as the Viewer Access Satellite Service (VAST).¹

Except for remote areas of Australia, VAST becomes available for access in an area six months before analog television services in that area are switched-off. However, under section 130ZB(3) of the Act, if an applicant licensee is given out-of-area permission under paragraph 7(2A)(d) of Schedule 2 to the Act in relation to a person who is in the VAST licence area, that person should be able to access VAST without having to wait until six months before their area switches over to digital-only television.

Please note: The ACMA does not intend to process out-of-area applications in relation to areas where access to VAST has become available because viewers who do not have adequate television reception in these areas will have access to VAST through one of the conditional access schemes administered by RBA Holdings Pty Ltd (RBA).

The Digital Switchover Taskforce within the Department of Broadband Communications and the Digital Economy has developed a website called *mySwitch* to assist viewers to check the quality of their reception and find out when their analog signal will be switched-off (among other things).

Information about applying for VAST access can be found on the *mySwitch* website, the ACMA website, or by calling the VAST administrator RBA on 1300 993 376.

Licence areas

A licence area is the area within which a licensee is entitled to provide a service. All commercial and community broadcasting services have designated licence areas. National services do not have designated licence areas.

Who can apply

Commercial television, commercial radio, and community radio broadcasting licensees may seek permission from the ACMA to broadcast their services outside their licence areas.

In these guidelines, the term 'applicant broadcaster' means the commercial or community broadcasting licensee who is seeking permission to broadcast its service outside its designated licence area. The term 'licensed broadcaster' means a commercial or community broadcasting licensee who is licensed to provide a broadcast service in the other licence area.

¹ VAST also delivers national services (ABC and SBS) and viewers can access these services whether or not they have adequate reception of the relevant commercial services.

Approval procedure

Permission for out-of-area reception is only granted for genuine cases in which people do not receive adequate reception of local planned broadcasting services. The application form requests information that will assist the ACMA to examine each application for this purpose.

In relation to the reception of television services, the ACMA requires that analog and digital television signals be tested to establish eligibility for out-of-area reception. Where an adequate digital signal is shown to be available, the ACMA is likely to find there is adequate reception of the local services. The availability of an adequate digital signal is likely to prevent permission being granted for out-of-area reception.

Completing the application form

- a) The *mySwitch* website developed by the Digital Switchover Taskforce is available for viewers to check the predicted coverage for their residential address. If the *mySwitch* prediction for a viewer's address is 'no coverage' or 'no transmitter', it is not necessary to complete Section 6 or Section 7 of this form. This leaves Sections 1, 3 and 5 as the only sections that need to be completed for applications relating to these viewers.
- b) The affected viewer/listener will complete Section 5 and sign and date. If the viewer's application is being made on the basis of a *mySwitch* prediction of 'no coverage' or 'no transmitter', the viewer will also need a person to witness the provision of their name and address details. The contact telephone number of the witness may be used for audit purposes.
- c) For all other applications, the broadcast engineer/antenna technician or electronics technician engaged by the affected viewer/listener will undertake a technical assessment of the level of reception at the site by performing a measurement of field strength and reception quality (at 10 metres above ground level, using a dedicated antenna)², complete Sections 6 and 7, and the attached **statutory declaration** (see attached form). The following needs to be completed:
 - (i) (analog television only) an assessment of analog reception quality against the International Telecommunications Union (ITU-R) five-point picture quality (PQ) scale;³
 - (ii) a description of the reception for the affected channels (for example 'Channel 9: severe ghosting and no sound');
 - (iii) the likely reason for the lack of adequate reception;
 - (iv) the equipment and techniques used in taking the signal measurements;
 - (v) confirmation that an adequate digital service is or is not presently available at the location nominated; and
 - (vi) a description of the digital reception.
- d) The applicant broadcaster will complete Section 1, 2 and 3 of the form.

Assessing the application

The following procedure will apply for out-of-area reception applications:

- a) The applicant broadcaster will submit to the ACMA the application for permission to broadcast its service outside its licence area to a nominated location.
- b) The ACMA will assess the applicant broadcaster's application. The ACMA will then notify the licensed broadcaster or broadcasters of the application and allow the licensed broadcaster or broadcasters 28 days to register any objections to the ACMA granting permission including any evidence that adequate digital reception is, or will shortly be, provided at the location nominated.
- c) If the ACMA has consulted a licensed broadcaster in relation to a location and then receives a second application for the same location which contains the same evidence of reception quality at that location and there are no other relevant changes in circumstances affecting reception at that location, the ACMA will not consult the licensed broadcaster/s again on the issue of reception quality at that location before deciding whether to grant permission. However, the ACMA will have regard to any objections previously received concerning reception quality at that location when considering the second application.
- d) The ACMA will consider any objections before making a decision to give or not to give permission.
- e) The ACMA will inform, in writing:
 - (i) the applicant broadcaster who applied to provide the service;
 - (ii) the licensed broadcaster(s); and
 - (iii) the viewer.of its decision.
- f) Reasons for the ACMA's decision will be provided with the decision.

² A level below the minimum field strength in dB μ V/m, as defined in clause 60 and 84 of ACMA's Technical Planning Guidelines and Part 5C of ACMA's Technical Planning Parameters, will be considered as 'not receiving adequate reception'.

³ A rating below '3' will be considered as 'not receiving adequate reception'.

- g) If the ACMA approves the application, a unique approval number will be generated for use by the viewer if they wish to request the VAST scheme administrator (RBA) to give them access to VAST.
- h) The ACMA will provide RBA with the name, address and unique approval number of each viewer who becomes the subject of an out-of-area approval under paragraph 7(2A)(d) of Schedule 2 of the Act.

Appeal procedures

Decisions of the ACMA under clauses 7(2A), 8(3) and 9(2A) of Schedule 2 to the Act are reviewable by the Administrative Appeals Tribunal (AAT). An application to the AAT for the review of a decision may be made by:

- a licensed broadcaster in relation to a decision of ACMA granting permission for out-of-area transmission; or
- the applicant broadcaster in relation to a decision of the ACMA refusing permission for out-of-area transmission.

For more information

ACMA contact number: 1300 850 115

Email: lais@acma.gov.au

www.acma.gov.au

Frequently asked questions

Q1. Why is a technical assessment of the broadcasting service reception quality required?

In accordance with Schedule 2 to the *Broadcasting Services Act 1992* (the Act), a commercial or community broadcasting licensee may transmit its service outside of its licence area under certain conditions.⁴ In relation to clauses 7(2A)(d), 8(3)(d) and 9(2A)(d) of Schedule 2 to the Act, these conditions are:

- that a person in another licence area is not receiving adequate reception of a service within that licence area;
- the out-of-area service is provided to that person only to the extent necessary to ensure adequate reception of that service by that person; and
- the ACMA must have given permission in writing.

Services affected by these provisions include commercial television, commercial radio, and community radio broadcasting services.

The ACMA therefore requires a technical assessment of whether the reception of broadcasting services provided in the relevant licence area is inadequate in order to consider whether or not to approve the transmission of a broadcasting service outside of its licence area.

Please note: A technical assessment is not required if *mySwitch* predicts 'no coverage' or 'no transmitter' at the residential address of the viewer.

Q2. How can I assess whether the reception of a broadcasting service is inadequate?

The level and quality of the broadcasting services at the viewer's/listener's premises needs to be assessed using a suitable antenna, cable and measuring receiver. The reception assessment, measurement results and factors used in the calculation of the received field strength need to be recorded by the broadcast engineer/antenna technician or electronics technician engaged by the affected viewer/listener and then forwarded by the applicant broadcaster to the ACMA using the *Assessment of inadequate reception of broadcasting services* form.

Q3. How do I measure the field strength at a customer's premises?

The field strength of a television or FM radio service is measured using a typical consumer antenna, of known gain, suitable for reception of the service being measured. The antenna is raised to a 10 metre height and rotated for the best reception.

The field strength is either read directly from a field strength meter, into which the antenna gain and system losses have been entered as an antenna calibration factor (often known as the k-factor), or calculated from the measured terminal voltage and system gains and losses. A spectrum analyser can be used to measure the terminal voltage as the peak sync tip voltage of the vision carrier of the television service.

Q4. Why should I measure the field strength at an antenna height of 10 metres when few people have antennas of this height?

An internationally agreed height of 10 metres is used for measuring field strengths. Measurements at this height are statistically repeatable. The majority of viewers get adequate pictures with lower antenna heights, however, some viewers may require an antenna at a height of 10 metres to obtain adequate reception.

⁴ The complete Broadcasting Services Act is available online at: ComLaw-Broadcasting Services Act 1992.

Q5. What is an adequate analog quality of service?

The ACMA specifies a minimum acceptable grade of service by defining a minimum median field strength in the absence of interference from other services, ghosting, man-made noise or other sources. The minimum median field strength is the field strength exceeded at 50 per cent of locations, 50 per cent of the time, in an area of approximately 200 metres by 200 metres.

For the purposes of assessing the reception quality of broadcasting services for permission for out-of-area reception, the ACMA accepts that measured field strengths below the value listed in the following table are inadequate.

Band	Channel or frequency	Minimum medium analog field strength	Minimum median digital field strength
AM radio	Every 9 kHz from 531 kHz to 1602 kHz	0.5 mV/m (54 dB μ V/m) ⁵	N/A
FM radio	Every 200 kHz from 88.1 kHz to 107.9 kHz	54 dB μ V/m	N/A
TV—Band I	0, 1, 2	50 dB μ V/m	44 dB μ V/m
TV—Band II	3, 4, 5	50 dB μ V/m	44 dB μ V/m
TV—Band III	5A, 6, 7, 8, 9, 9A, 10, 11,12	50 dB μ V/m	44 dB μ V/m
TV—Band IV	28–35	62 dB μ V/m	50 dB μ V/m
TV—Band V	36–69	67 dB μ V/m	54 dB μ V/m

The minimum median field strength is a statistical target value that will provide an acceptable grade of service when received with a notional receiver environment in the absence of interference, ghosting and man-made noise. Therefore, reception may be considered inadequate at field strengths higher than those listed in the above table where interference from other services, ghosting, man-made noise or other sources is present.

Q6. Do I need to fill in all the information?

The ACMA will return applications that do not contain all the information requested to the applicant broadcaster. The information requested in this application is required so that the ACMA can ascertain, as required by the legislation, whether reception is inadequate. The more information that can be provided on the quality of reception, and why it is considered inadequate, the better.

⁵ For AM services this is the protected field strength in the presence of man-made radio noise alone.

Q7. What do the fields in the application form mean?

The following table gives a description of fields in the application form.

Proforma fields	Definition
Applicant	This part is to provide details of the applicant broadcaster.
Nominated site details	The name of the transmission site, eg. Mt Alexander.
Services proposed for reception	The relevant services to be received if permission is given, for example, Imparja and Central Seven.
Satellite Receiving Equipment	This part is optional to complete as the viewer or listener may choose not to purchase the necessary equipment until permission is given to receive an out-of-area service.
Viewer/listener declaration	This part is to provide details of the viewer or listener and precise physical location. For applications based on <i>mySwitch</i> predictions of 'no coverage' or 'no transmitter' the viewer is required to complete a witnessed declaration of their name and address, including the name and contact telephone number of the witness to the declaration.
Broadcasting licence area(s)	The licence area within which the viewer or listener resides, for example, Sydney TV1 licence area.
Services licensed in the area	The services which the viewer or listener is entitled to receive, but not including national services.
Commercial terrestrial broadcast service	The callsign or operator and channel of the service being measured, for example, WIN32.
Channel and Frequency (TV) or Frequency (radio)	The television channel and vision carrier being measured or the radiofrequency being measured.
Measured terminal voltage in dB μ V (Analog /PAL & digital)	Measured terminal voltage forms the basis for calculating field strength (see Q8).
Antenna used—Brand, model and gain	Brand, model and gain of antenna used to measure and assess the service reception. This allows the ACMA to determine whether an appropriate antenna has been used. For television, the estimated antenna gain with respect to a dipole at the frequency being measured is 2.1 dB less than the antenna gain with respect to an isotropic radiator, dBi. The gain can be measured, although not easily, or estimated from manufacturers' specifications.
Calculated Field Strength in dB μ V/m (Analog/PAL & Digital)	The field strength is independent of the reception environment and relates to the planned coverage. See question Q8 for the formula used to calculate the analog field strength. The field strength alone does not indicate whether coverage is inadequate for analog or digital.
ITU Picture Quality Grade (analog PAL television only)	See question Q9.
Short description of analog reception in words (eg 'No picture', 'Severe ghosting', 'inaudible') and likely reason ('behind hill', 'impulse noise', 'dense vegetation')* [For AM Radio: please provide description of day and night time reception]	The more information that can be provided on the quality of reception, and why reception is considered inadequate, the better.
Masthead amplifier (if used)—Brand, model, gain	The minimum median field strength is defined for a notional receiver installation which does not include a masthead amplifier. If an amplifier is used to make the measurement then details of the amplifier are required. Amplifier gain can be measured by measuring the difference between terminal voltage at the measurement frequency with the amplifier in and out of circuit.
Field strength meter—Make and model	Make and model of instrument used to measure the field strength or terminal voltage. This includes spectrum analysers. This allows the ACMA to determine whether an appropriate measuring device has been used.
Cable used—Type, length and loss	Type, length and loss in the length of cable used to measure and assess the service reception. This allows the ACMA to determine whether an appropriate cable has been used. The loss for the length used should preferably be measured, but can be calculated from the cable specifications.
Short description of digital reception in words if available (for example, signal drop outs, artefacts, poor bit error rate)	The more information that can be provided on the quality of reception, and why reception is considered inadequate, the better.

Q8. What is the formula for calculating analog field strength?

The field strength formula for a television or FM radio service is:

$$E = V + K$$

Where **E** is the field strength in dBµV/m;

V is the terminal voltage or peak sync tip voltage of the vision carrier in dBµV; and

K is the antenna factor for the channel being measured.

The antenna factor, **K**, is frequency dependant and incorporates all the gains and losses in the system.

$$K = F - Ga - Gd + Lc - Z - C$$

Where **F** is the measurement frequency in dB relative to 1 MHz, i.e. $F = 20\log[f \text{ (MHz)}]$;

Ga is amplifier gain in dB, if an amplifier is in circuit;

Gd is antenna gain in dB relative to a dipole, this is 2.1 dB less than the gain relative to an isotropic radiator, Gi;

Lc is cable loss in dB; and

Z is the system impedance in dB, typically $Z = 10.\log(75) = 18.8$; and

C is a constant, 14.9 dB, which corrects for the units used and converts the voltage to field strength.

For example, assume a channel 9 service with no amplifier, 3 dB cable loss and 10 dB antenna gain, the antenna factor **K** would be:

$$K = 20.\log(196.25) - 0 - 10 + 3 - 18.8 - 14.9$$

$$K = 5.2 \text{ dB}$$

Q9. What is the ITU Picture quality scale?

The International Telecommunications Union (formerly known as the CCIR) defined a scale for assessing picture quality as defined below.

ITU Grade Picture Quality Impairment

ITU Grade	Picture quality	Impairment
5	Excellent	Imperceptible
4	Good	Perceptible
3	Fair	Slightly annoying
2	Poor	Annoying
1	Bad	Very annoying

Q10. How do I assess picture quality?

Where possible, picture quality should be assessed on a television receiver connected to the same antenna and cable used to measure field strength. When assessing picture quality it is important to establish reasonable viewing conditions—for example, not having the sun or other light sources shining directly on the screen. For consistency, an attempt should be made to use similar viewing conditions at each test site. A typical viewing distance for picture evaluation is five times the height of the screen.

The ACMA produces a booklet *Better television and radio reception* which is useful in identifying and describing typical interference problems. The booklet is available by calling the ACMA on 1300 850 115 or online on the ACMA website at www.acma.gov.au.

Q11. How can I assess whether the reception of a digital broadcasting service is adequate?

The level and quality of the broadcasting services at the customer’s premises needs to be assessed using a suitable digital set-top box. The reception assessment needs to be noted and forwarded by the applicant broadcaster to the ACMA on the *Assessment of adequate reception of digital broadcasting services* proforma.

Contact information: Addresses of commercial satellite broadcasters

The following information can also be found on the ACMA website at www.acma.gov.au/WEB/STANDARD/pc=PC_90075

For residents of central and eastern states only:

Send ACMA B58 forms to Imparja and Seven Central. Do not send forms to the ACMA.

Imparja Television Pty Ltd

PO Box 52

ALICE SPRINGS NT 0871

Phone: (08) 8950 1411 or 1300 301 683

Fax: (08) 8953 0322

Website: www.imparja.com.au

Imparja Television provides programming from the Channel Nine Network. For more details on the programming available please contact the broadcaster.

Southern Cross Television Central

PO Box 1016

TOWNSVILLE QLD 4810

Phone: (07) 4726 2097

Fax: (07) 4726 2109

Email: southerncrosscentral@macsc.com.au

Website: www.southerncrosscentral.com.au

Southern Cross Television Central provides programming from the Channel Seven Network. For more details on the programming available, please contact the broadcaster.

For residents of western Australian only:

Send ACMA B58 forms to GWN and WIN. Do not send forms to ACMA.

Golden West Network Pty Ltd (GWN Television)

PO Box 112

BUNBURY WA 6231

Phone: (08) 9721 4466

Fax: (08) 9792 2932

Website: www.gwn.com.au

GWN Television provides programming from the Channel Seven Network. For more details on the programming available, please contact the broadcaster.

WIN Television

PO Box 1010

MIRRABOOKA WA 6914

Phone: (08) 9345 5990

Fax: (08) 9345 9991

Website: www.wintv.com.au

WIN Television provides programming from the Channel Nine and Ten Networks. For more details on the programming available, please contact the broadcaster.

Please note: Viewers intending to only access the VAST digital service only need to send this form to one of the relevant broadcasters listed above.