

GENERAL INFORMATION AND INSTRUCTIONS FOR THE APPLICATION TO USE RADIO FREQUENCY SPECTRUM

(Revised on October 17, 2001)

General

- (i) **Application forms that are incomplete or contain incorrect/inadequate information will not be entertained or processed.**
- (ii) The Microsoft Office Excel 97 file or workbook (*ARmwAF.xls*) consists of three (3) work sheets indicated at the bottom left region of the screen as "Admin.", "Terrestrial" and "Satellite". Each of these sheets contains the administrative and technical requirements for the application to use radio frequency spectrum and should be completed as applicable i.e. -
- Admin.: Administrative Requirements - **Compulsory**.
 - Terrestrial: To be completed for all terrestrial, aeronautical and maritime type services i.e. excluding any satellite operations.
 - Satellite: To be completed for all satellite operations i.e. excluding the services mentioned under the previous bullet point.

Notes and examples appearing in the centre or middle column (B) of the Excel worksheets are provided for information purposes and may be deleted when entering data.

In the case where not enough space is provided for the input of information, these may be separately attached to the form providing that clear reference is made to the particular Section and Item number. Applicants not having the necessary computer facilities to complete the application forms electronically, or applicants who prefer to complete these forms by hand, may request copies of the forms that do not contain any comments or examples typed in the middle or information column (B) from the Authority (ICASA). In such cases it is advised that applicants use the "electronic" version as reference. Forms thus requested will be forwarded by facsimile or posted via the Post Office mailing system unless collected personally.

- (iii) Each application to use radio frequencies will be considered as an application to use or utilise a specific/particular frequency between two radio communication points, stations or sites namely Site-A and Site-B regardless of the type of service provided. It is important to note that the Authority (ICASA) needs to
- (a) In most cases, and especially in shared bands, radio frequency co-ordinate new proposed frequencies with existing users/operations;
 - (b) Assign and record individual frequencies and associated technical details in our databases if the application proves successful and
 - (c) Based on the recorded assignments, ultimately issue a formal spectrum licence for the particular frequencies to be utilised.
- (iv) Should requests for frequencies/licences be E-mailed to the Authority (ICASA), no frequencies or licenses will be assigned, finalised, issued or authorities granted unless an original signed hardcopy of the prescribed form has been received by the Licensing division (Radiocommunications Licensing). When printing/creating hardcopies please make the necessary page/set-up adjustments where required so as to fully include the signature part on each page.
- (v) Descriptions, diagrams or sketches of proposed systems, networks or operations may be attached for explanatory purposes only. Values/parameters listed as such will not be accepted. A cover letter explaining exactly what is required or envisaged must be included with the application.
- (vi) The Authority (ICASA) cannot consider any frequency assignment without full knowledge, understanding and technical details of the proposed service/s, operation, technology and equipment. In the case where no approved National standard, frequency band plan and guideline exists, applications will normally not be entertained until such standards, plans or guidelines have been established and formalised. Applications for the use of radio frequency spectrum on a temporary basis (three (3) calendar months maximum) for test, demonstration and experimental purposes will however be considered on a case-by-case basis

- (vii) No permanent frequency assignment will be considered without the equipment being type approved or authorised by the Authority (ICASA). To obtain equipment type approval certification, original or certified true copies of Test Reports that reflect the results from tests performed in accordance with the approved and appropriate National/International standard must be obtained from accredited test laboratories and must be submitted to the Authority (ICASA) for evaluation and approval. These test reports must be in English. Type approval certification or authorisation by overseas companies or other Authorities and administrations will not be accepted.
- (viii) An official notice of equipment type approval may be issued to a local or overseas manufacturer or to a company authorised by the manufacturer for the distribution and sale of its equipment. However, the distributor must be a South African registered company. In this respect a certified true copy of the South African Company registration certificate must be submitted with each application for equipment type approval.
- (ix) During the assessment of applications terrestrial system characteristics such as path-length, frequency/s, antenna pattern and effective isotropic radiated power (EIRP), amongst others, will be carefully examined. In general, the principle that the shorter the hop-length or transmission path the higher the frequency, will be applied. Due consideration will be given to the EIRP value, propagation aspects and system capacity in all cases. The use of high performance antennas is strongly recommended in order to maximise spectrum re-use, sharing and efficiency.
- (x) From a technical point of view, and provided that full and complete equipment and service information, details, parameters etc. have been submitted, a minimum period of three weeks should be allowed for the processing of applications and/or radio frequency co-ordination with existing users where applicable. All applications, requests or queries received will be processed on a “first come first served” basis.
- (xi) Test, experimental or demonstration licenses shall be considered for a maximum period of three (3) calendar months only. Requests for extensions of test, experimental or demonstration licenses will be treated as new applications and the Authority (ICASA) reserves the right not to approve these requests or extensions.
- (xii) Properly completed and signed applications must be submitted to -

Head of Department
Radiocommunications Licensing
I.C.A.S.A.
Private Bag X 10002
Sandton, 2146

E-Mail address for Services/Operations > 1000 MHz:

mhope@icasa.org.za

info@icasa.org.za

Note that all correspondence, including e-mail and fax messages etc., should be directed to the above-mentioned address and not to the Microwave or General Radio technical sections or personnel unless so advised. It is further suggested that in the case of any uncertainty regarding the proper completion of application forms, the Authority (ICASA) please be approached or contacted for guidance.

Technical

Note 1 (Antenna Pattern)

A clear and legible copy/original of antenna pattern diagrams must be submitted with, or attached to, the application form. For terrestrial fixed services the diagram/s should depict or indicate the co- and cross- polar pattern of the antenna over a 180° range/azimuth (VH, HV, VV and HH respectively). Fixed Service antennas in the range 1 - 40 GHz should at least meet the ETS specifications EN 300 631-1 V1.1.1 or pr ETS 300 833 for class two (2) antennas.

Note 2 (Service Area [km. Radius])

In the case of applications or requests for a licence to provide mobile, transportable or aeronautical type services involving a fixed terrestrial site e.g. GSM, RPV's etc. and regardless whether it is required for testing, experimental or demonstration purposes only, the proposed service area in terms of the kilometre radius around the relevant site must be specified or indicated.

Note 3 (Class of Station)

In terms of the International Telecommunications Union (ITU) Regulations, the following examples of "Station Classes" are provided for information purposes. For a more detailed list please refer to Appendix 1.

- AL - Aeronautical radionavigation land station.
- AT - Amateur station.
- BT - Broadcasting station, television.
- FX - Fixed station
- FB - Base station
- EX - experimental station
- MO - Mobile station
- CP - Station open to public correspondence.
- CR - Station open to limited public correspondence.
- CV - Station open exclusively to correspondence of a private agency.
- etc.....

Note 4 (Maximum and Minimum EIRP)

This item refers to the maximum and minimum radiated power and is derived from the transmitter power, fixed/feeder losses between the transmitter and the antenna and the gain of the antenna. In the case of satellite operations, the EIRP for each carrier type envisaged must be specified. The minimum EIRP value for satisfactory overall system performance should be selected at all times.

Note 5 (Number of Stations/Units)

The maximum number of units/stations that will be considered for test, demonstration or experimental purposes is 100. (Also see General,(xi) above).

Note 6 (Pathlength or Service Area (km.))

This item applies to terrestrial services and refers to the distance or pathlength in kilometre between the antennae of Site-A and Site-B. In the case of mobiles etc. it refers to the furthest point from Site-A where the mobile units will be utilised or deployed. For fixed services, the distance is calculated from the antennae co-ordinates specified in degrees, minutes and seconds.

Note 7 (Name of ITU Registered Space Station/Network)

This item refers to the name of the satellite or space station as registered with the International Telecommunications Union (ITU) as well as the Commercial name of the satellite. Space station names, orbital positions and technical details submitted or provided will be verified against information contained in the "Space Network List" published by the ITU on a quarterly basis as well as the relevant ITU weekly circulars received by the Authority (ICASA).

Note 8 (Carrier type)

Carrier type refers to the designation or purpose of each individual or specific carrier frequency within the spectrum or bandwidth applied for. Examples in the case of satellite operations are:

- TT & C (Normal)
- TT & C (Emergency)
- AFC
- System control
- Voice, data and/or communications control
- Telemetry
- etc....

Note 9 (Frequencies)

Exact frequencies or frequency band-limits required or envisaged must be indicated. Reference to frequency bands such as Ku Band, C Band, L Band etc. will not be accepted. In the case of more than one satellite or satellite transponder being utilised (e.g. where satellite capacity is leased or allocated on an event-by-event basis), each carrier frequency that may possibly be used must be indicated or specified.

Note 10 (Satellite Frequency/Transponder Plans)

Satellite frequency or Transponder plans refer to diagrams or layouts indicating all finally co-ordinated carrier frequencies, frequency edges/limits for each "Block of Spectrum" or transponder as well as the antenna polarisations to be used. These plans may be obtained from, or provided by, the satellite space segment provider or operator.

Note 11 (Block Number)

Block Number refers to the designation, identification or reference number of the particular satellite space segment, transponder or "Block of Spectrum" available or to be utilised.

Note 12 (Minimum Receive Carrier Sensitivity Level - Terrestrial)

Under this item the carrier sensitivity level in terms of both the Carrier-to-Interference (C/I) and Threshold-to-Interference for 1 dB degradation (T/I) ratios must be provided for 10^{-3} and 10^{-6} objectives and for both co- and adjacent channel interference.

Note 13 (Minimum Link Budget Fade Margin - Terrestrial)

When applying for frequencies ≥ 10 GHz, the minimum Fade Margin envisaged or calculated must be provided for each direction of transmission in the case of terrestrial point-to-point operations.

Note 14 (Transmitting Details)

Depending on the outcome of the radio co-ordination results or process, the applicant may be requested to provide Transmitter Spectrum Masks for both Site-A and Site-B amongst other details as required.

Note 15 (Manufacturers Equipment Name and Model Number)

Since equipment Type Approval is obligatory, the Name and Model number specified under this item will be verified against the ICASA list of type approvals or the list of equipment manufactured and type approved in accordance with International/Global standards or MoU agreements (Memorandum of Understanding) e.g. in the case of GSM equipment.

Note 16 (Transmission Path and Signature)

Transmission path and receiving equipment signature curve (width and depth) details will amongst others be used to evaluate the general link design/performance and efficient usage of spectrum as far as fixed terrestrial point-to-point microwave operations are concerned.

Additional Notes

- Transmitted bandwidth refers to the actual bandwidth of the transmitted signal and not to the base band value or channel arrangement or raster value of the frequency band plan.
- Telecommunication equipment must be operated or deployed in conformance with existing National policies, regulations, guidelines, and standards and in accordance with the particular license conditions.
- Additional orbital details and information in terms of space services or networks may be required and requested from applicants where applicable. This will, amongst others, include the relevant ITU-R weekly circular documentation number/s.
- In the case of possible radio interference being identified by either the Authority (ICASA) or existing licensed users, it will be required of the existing licensed users and/or potential new users to negotiate directly amongst themselves to resolve the matter and come to a mutual agreement if possible. Each of the licensed users involved will furthermore officially inform the Authority (ICASA) of any agreement or decision reached and of any change to the technical parameters of the systems involved. Assistance by the Authority in this regard will be provided where possible.
- The Authority (ICASA) reserves the right to at any time change, add, delete or in any way modify the content and/or format of both this document as well as the spreadsheet application forms at its own discretion and without prior notice. Applicants are therefore advised to please confirm the validity of both these documents prior to any submission being made to the Authority (ICASA). For reference purposes revision dates are indicated on the first page of each application form.

End

APPENDIX 1
Station Symbols/Classes

AL	Aeronautical radionavigation land station.
AM	Aeronautical radionavigation mobile station.
AT	Amateur station
AX	Aeronautical fixed station
BC	Broadcasting station, sound
BT	Broadcasting station, television
C	Continuous operation during hours shown
CA	Cargo ship
CO	Station open to official correspondence exclusively
CP	Station open to public correspondence
CR	Station open to limited public correspondence
CV	Station open exclusively to correspondence of a private agency
EA	Space station in the amateur-satellite service
EB	Space station in the broadcasting-satellite service (sound broadcasting)
EC	Space station in the fixed-satellite service
ED	Space telecommand space station.
EF	Space station in the radiodetermination-satellite service
EG	Space station in the maritime mobile-satellite service
EH	Space research space station
EI	Space station in the mobile-satellite service
EJ	Space station in the aeronautical mobile-satellite
EK	Space tracking space station
EM	Meteorological-satellite space station
EN	Space station in the radionavigation-satellite service
EO	Space station in the aeronautical radionavigation-satellite service
EQ	Space station in the maritime radionavigation-satellite service
ER	Space telemetering space station

EU	Space station in the land mobile -satellite service
EV	Space station in the broadcasting-satellite service (television)
EX	Experimental station
FA	Aeronautical station
FB	Base station
FC	Coast station
FD	Aeronautical station in the aeronautical mobile (R) service
FG	Aeronautical station in the aeronautical mobile (OR) service
FL	Land station
FP	Port station
FR	Receiving
FS	Land station established solely for the safety of life
FX	Fixed station
GS	Station on board a warship or a military or naval aircraft
H	Schedule operation
H8	8-hour service provided by a ship station of the third category
H16	16-hour service provided by a ship station of the second category
H24	Continuous service throughout the twenty-four hours
HJ	Day service
HN	Night service
HT	Transition period service
HX	Intermittent service throughout the twenty-four hours, or station having no specific working hours.
I	Intermittent operation during the time indicated
LR	Radiolocation land station
MA	Aircraft station
ME	Space station
ML	Land mobile station
MO	Mobile station

MR	Radionavigation mobile station
MS	Ship station
ND	Non-directional antenna
NL	Maritime radionavigation land station
NR	Radionavigation mobile station
OD	Oceanographic data station
OE	Oceanographic data interrogating station
OT	Station open exclusively to operational traffic of the service concerned
PA	Passenger Ship
RA	Radio astronomy station
RC	Non-directional radiobeacon
RD	Directional radiobeacon
RG	Non-directional-finding station
RM	Maritime radionavigation mobile station
RN	Radionavigation land station
RT	Revolving radiobeacon
SM	Meteorological aids station
SS	Standard frequency and time signal station
TA	Space operation earth station in the amateur-satellite service
TB	Aeronautical earth station
TC	Earth station in the fixed-satellite service
TD	Space telecommand earth station
TE	Satellite EPIRB in the mobile-satellite service
TF	Fixed earth station in the radiodetermination-satellite service
TG	Ship earth station
TH	Earth station in the space research service
TI	Aircraft earth station
TJ	Space tracking earth station
TK	Space tracking earth station

TL	Mobile earth station in the radiodetermination-satellite service
TM	Earth station in the meteorological-satellite service
TN	Fixed earth station in the radionavigation-satellite service
TO	Mobile earth station in the aeronautical radionavigation-satellite service.
TP	Receiving earth station
TQ	Mobile earth station in the maritime radionavigation-satellite service
TR	Space telemetering earth station
TS	Television, sound channel
TT	Earth station in the space operation service
TU	Land mobile earth station
TV	Television, vision channel
TX	Fixed earth station in the maritime radionavigation-satellite service
TY	Base earth station
TZ	Fixed earth station in the aeronautical radionavigation-satellite service.
UA	Mobile earth station
UM	Mobile earth station in the radionavigation-satellite service
VA	Land earth station

(The symbols may be modified as the situation requires)