INFORMATION AND COMMUNICATION TECHNOLOGIES AUTHORITY (ICTA)

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APPLICATION FORM FOR A TELEMETRY, COMMAND AND RANGING (TCR) SATELLITE EARTH STATION LICENCE (RA 17)

Please complete in BLOCK letters.
Application made on behalf of a body corporate should be signed by a person duly authorised by the body corporate.
Payment by cheque should be made to the order of the Information and Communication Technologies Authority.

INFORMATION
You are kindly informed that the determination of this application by the ICT Authority may be subject to successful coordination as per the provisions of Article 9 of the ITU Radio Regulations. Kindly note that the maximum duration for the coordination procedure is four months.

SECTION 1: PARTICULARS OF APPLICANT	
1.1 Company Name:- (or partnership, sole trader, individual)	1.2. Trading Name:-
1.3. (a) Registered address --- --- --- ---	(b) Business address (for correspondence) --- --- --- ---
1.4 Details of contact person for official communication	
(a) Name:-	(d) Mobile No.:-
(b) Designation:-	(e) Fax No.:-
(c) Day time Tel. No.:-	(f) Email:-

SECTION 2: LICENCE AND SERVICE DETAILS

Please fill in and tick the boxes as appropriate

2.1 Please specify the purpose for which you are setting up a TCR Earth Station

_____

_____

2.2 Please specify whether you are setting a TCR Earth Station under any particular licence.

☐ NO ☐ YES (If in the affirmative, please quote the type and licence number)

_____

2.3 Type of licence under this present application

☐ New licence, Operation start date _____

☐ Amendment to existing licence

☐ Temporary licence, from _____ to _____

SECTION 3: TYPE APPROVAL

Please indicate whether any radiocommunication and telecommunication equipment which is intended to be used for the proposed TCR Earth Station have been type approved by this Authority:

- ☐ Yes (Please attach copy of type approval certificate issued by ICT Authority)
- ☐ No

In case the answer is No, please submit the following information together with your request for type approval:

1. A copy of the equipment brochure detailing all technical specifications
2. The type approval certificates obtained in the country of origin, if available.
3. Test reports or Certificates of compliance with international standards issued by accredited independent test houses and laboratories having tested or type approved the equipment.
4. Certificates of compliance with international standards issued by the manufacturer (optional)

SECTION 4: TCR EARTH STATION DETAILS

Name of TCR Earth Station _____

Address of TCR Earth Station _____

_____

Geographical coordinates:

Longitude								Latitude							
Degrees		E/W		Min		Sec		Degrees		N/S		Min		Sec	

Operating Angles:

Azimuth								Elevation			
From (Degrees)				To (Degrees)				(Degrees)			
										*	

EIRP _____ dBW

Horizontal Elevation diagram attached, see Figure No: _____

Height of ground above mean sea level: _____m

Height at the base of the aerial system above mean sea level: _____m

Height of centre of antenna above mean sea level: _____m

Height at highest point of aerial system above mean sea level: _____m

Associated Space Station (if applicable)_____

Nominal orbital longitude (if geostationary)

Degrees						E/W	
			*				

SECTION 5: ANTENNA DETAILS

5.1 Type of antenna (e.g. Cassegrain/Gregorian etc) _____

5.2 Diameter of dish _____ m

5.3 Characteristics Of Transmitting Antenna

Maximum Isotropic gain

dBi			
		*	

Beamwidth

Degrees					

Polarisation _____

Antenna radiation pattern (give reference pattern or provide diagram as attachment) _____

5.4 Characteristics Of Receiving Antenna

Maximum Isotropic gain (dBi) * Beamwidth (Degrees)

Polarisation _____

Antenna radiation pattern (give reference pattern or provide diagram as attachment) _____

Maximum aggregated bandwidth _____

Maximum aggregated data rate/Bit rate _____

SECTION 6: TRANSMITTING

6.1 Satellite Receiving Beam Designation (if applicable)_____

6.2 Characteristics common to the following list of assigned frequencies

C4a. Class of Station	C4b. Nature of Service	C6. Polarisation Type	C6. Polarisation If linear, provide angle in degrees	C3a. Assigned Frequency Band (kHz)	C8g. Maximum Aggregate Power +/- dBW
			.		.

6.3 Emissions common to the Assigned Frequencies listed below

C7a. Designation of emission	C8a1/C8b1.* Max. Peak Power +/- dBW	C8a2/C8b2.* Max. Power Density +/- dBW/Hz	C8c1. Minimum Peak Power +/- dBW	C8c1. Minimum Power Density +/- dBW/Hz
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If maximum peak power and maximum power density values are of type C8b, check this box ☐.

Provide reason for minimum peak power and minimum power density (C8c) values being absent as attachment No._____.

More emissions on attachment No_____.

6.4 List of Assigned Frequencies having the above common characteristics

C2a. Assigned Frequency k/M/GHz

C2a. Assigned Frequency k/M/GHz

More on attachment No_____.

SECTION 7: MODULATION CHARACTERISTICS

7.1 For any types of modulation please indicate where applicable the characteristics of energy dispersal

7.2 **FM** For a carrier frequency modulated by a frequency division multi-channel telephone baseband (FDM FM) or by a signal that can be represented by a multi-channel telephony baseband.

What are the lowest and highest frequencies of the baseband and the rms frequency deviations of the test zone as a function of baseband frequency?

Lowest _____ Highest _____ Deviations _____

7.3 **TV** For a carrier frequency modulated by a television signal.

What are the standards of the television signal (including the standard used for colour) and the frequency deviation for the reference frequency of the pre-emphasis characteristic?

Signal standard _____ Colour standard _____ Frequency deviations _____

Please indicate where applicable the characteristics of the multiplexing of the video signal with the sound signal(s) or other signals

7.4 **PM** For a carrier phase-shift modulated by a signal
Please indicate the bit rate and the number of phases

Bit rate_____ Number of phases_____

For all types of modulation, please provide such particulars as may be useful for an interference study, i.e. coordination.

_____

_____

SECTION 8: RECEIVING

8.1 Satellite Transmitting Beam Designation (if applicable)_____

8.2 Characteristics common to the following list of assigned frequencies

C4a. Class of Station	C4b. Nature of Service	C6. Polarisation Type	C6. Polarisation If linear, provide angle in degrees	C3a. Assigned Frequency Band (kHz)	C5b. Receiving System Noise Temperature kelvins
			.		

8.3 Emissions received by the assigned frequencies listed below

C7a. Designation of emission	C8e. C/N Objective (total-clear sky) dB
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More emissions on attachment No_____.

8.4 List of assigned frequencies having the above common characteristics

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C2a. Assigned Frequency k/M/GHz	C2a. Assigned Frequency k/M/GHz
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More on attachment No_____.

DECLARATION

I agree to comply with any terms, conditions or restrictions which the Information and Communication Technologies Authority may impose and to be bound by the laws and regulations in force.

Company's stamp

Applicant's signature: ……...……...…

Signatory's name: ……..……...…

Date: …….....

FOR OFFICE USE

Amount received:……. Licence Registration No:……

Special comments:……

……...

……...

Date approved: …….. Signature: …….....

For Director of Engineering/Licensing
(Information & Communication Technologies Authority)

Guidance Notes regarding application for a Telemetry, Command and Ranging (TCR) Earth Station Licence (RA17)

Notes:

1. There may be insufficient space on the application form to answer particular questions, in such cases the appropriate section should be photocopied and added to the form.
2. The processing of the application may be delayed if any of the details given on the form are not complete or correct.
3. The determination of this application by the ICT Authority is subject to successful coordination as per the provisions of Article 9 of the ITU Radio Regulations. Kindly note that the maximum duration for the coordination procedure is four months.

SECTION 4: EARTH STATION DETAILS	
Name of the TCR Earth Station	Indicate the name by which the TCR Earth Station will be known.
Horizon Elevation Diagram	Enter a Figure number of the diagram indicating the horizon elevation angle for each azimuth around the earth station; the horizon elevation angle is the angle viewed from the centre of the earth station antenna between the horizontal plane and a ray that grazes the visible physical horizon in the direction concerned.
Operating Angles	Enter the planned range of operating azimuthal angles. These angles are to be calculated for the nominal orbital longitude, taking into account the tolerances.
Associated Space Station	Indicate the name of the associated space station, as applicable, with which communication is to be established as registered with the IFRB.
Nominal Orbital Longitude	Enter the nominal longitude of the orbital position of that of the satellite expressed in decimal degrees E (the value should not exceed 180 Degrees).

SECTION 5: ANTENNA DETAILS	
Type of Antenna	ie Cassegrain/Gregorian etc.
Maximum Isotropic Gain	Enter the gain (Gi: see RRS1.160a) of the antenna in the direction of maximum radiation, expressed in dBi.
Beamwidth	Enter the total beamwidth at the mean half-power points of the main lobe, expressed in decimal degrees. Describe in detail in attachment if not symmetrical.
Radiation Pattern	If a reference radiation pattern cannot be indicated by one of the symbols below, or the measured radiation diagram of the antenna is available, give the relevant information in an attachment. If an attachment is provided, enter a figure number identifying its presence. Indicate the reference radiation pattern, preferably by means of the

	following symbols or similar symbols not exceeding 12 characters.

Symbol	Description of the Radiation Pattern
REC-465 Current	version of ITU-R Recommendation 465: "Reference earth station radiation pattern for use in coordination and interference assessment in frequency range from 2 to about 30 GHz."
REC-580 Current	version of ITU-R Recommendation 580: "Radiation diagrams for use as design objectives for antennas of earth stations operating with geostationary satellites."
AP28	Point 4, Annex II of Appendix S7. Note: This radiation diagram is identical to that in Annex III to Appendix S8.
29-25LOG(FI)	Represents a reference radiation pattern similar to that in ITU-R Rec.465 with side lobe radiation reduced by 3dB.
27-25LOG(FI)	As above with side lobe radiation reduced by 5dB.

SECTION 6: TRANSMITTING DETAILS	
Satellite Receiving Beam Designation	Enter the receiving beam designation by a symbol consisting of up to four characters. For practical reasons, there are different approaches for the designation of the beam, it may consist of: (a) number such as 1, 2, 3, etc., which refer to the number of the figure representing the corresponding antenna gain contour published in the relevant Special Section; or (b) number such as 195, which identify a beam having a maximum gain of 19.5dB; or (c) a symbol of up to three letters (or a letter and a figure), which is used to represent the abbreviated beam name, such as G for global, NWQ for North West Quadrant, WH for West Hemisphere, Z1 for Zone 1, O for Omnidirectional. For steerable beams, the last character shall always be the letter "R".
Class of station / Nature of service	Indicate the appropriate class of station and the nature of service using the symbols given in Tables Nos. 6A1 and 6B1 respectively of the Preface to the IFL, the SRS and the WIC. Up to four pairs of values can be provided.
Polarisation	Enter the symbol for the type of polarisation in the first box (see symbols for the type of polarisation in Table No. 9D1 of the Preface to the IFL, the SRS and the WIC). In the case of linear polarisation (symbol "L"), indicate in the second box the angle (in degrees) measured counter-clockwise in a plane normal to the beam axis from the equational plane to the electric vector of the waves as seen from the satellite.
Assigned frequency band	Enter the bandwidth of the assigned frequency band as defined in RR.S1. 147 expressed in kHz. The assigned frequency band should in no case exceed the bandwidth of a single satellite transponder.

Maximum aggregate power	Enter the maximum aggregate power (dBW) of all carriers supplied to the input of the antenna. This information applies only to the case of a receiving satellite antenna beam operating with a transmitting associated earth station.
Designation of emission	Indicate the necessary bandwidth (RR.S1.152) and class of emission (RR.S1.139) in accordance with Article 4 and Appendix 6; see also IFRB Circular-letters No. 457 of 2 June 1980 and No. 511 of 8 July 1982.
Maximum peak power	Enter the appropriate sign (+ or -) and the maximum value of the total peak envelope power (RR .S1.157), expressed in dBW, supplied to the input of the antenna for each corresponding emission. Note: If the maximum values of peak envelope power are being provided for individual carriers, they should be of type C8a1. If the notification does not concern individual carriers (e.g. as in spread spectrum applications) provide a general designation of emission (item C7a) and total peak power values of type C8b1.
Maximum power density	Enter the appropriate sign (+ or -) followed by the value of the maximum power density per Hertz (expressed in dBW/ Hz) supplied to the input of the antenna averaged over the worst 4 kHz band for carriers below 15 GHz, or averaged over the worst 1 MHz band for carriers above 15 GHz. For narrow band carriers with a necessary bandwidth (RR.S1.152) less than the reference bandwidth, the peak power should be averaged over the reference bandwidth (4 kHz or 1 MHz) to obtain this value of maximum power density. Note: If the values of maximum power density are being provided for individual carriers, they should be of type C8a2. If the notification does not concern individual carriers (e.g. as in spread spectrum applications) provide a general designation of emission (item C7a) and maximum power density values of type 8b2.
Minimum peak power	Enter the appropriate sign (+ or -) and the minimum value of the peak envelope power (RR.S1.157), expressed in dBW, supplied to the input of the antenna for each corresponding emission (carrier type).
Minimum power density	Enter the appropriate sign (+ or -) followed by the value of the minimum power density per Hertz (expressed in dBW/Hz) supplied to the input of the antenna for each corresponding emission (carrier type) averaged over the worst 4 kHz band for carriers below 15 GHz, or averaged over the worst 1 MHz band for carriers above 15 GHz . For narrow band carriers with a necessary bandwidth (RR .S1.152) less than the reference bandwidth, the peak power should be averaged over the reference bandwidth (4 kHz or 1 M Hz) to obtain this value of minimum power density.
Assigned frequency	Enter the assigned frequency as defined in RR.S1.148 expressed in kHz up to 28 000 kHz inclusive, in MHz above 28 000 kHz to 10 500

	MHz inclusive, and in GHz above 10 500 MHz, and enter the letter k, M or G, as appropriate.

SECTION 7: RECEIVING DETAILS	
Satellite Transmitting Beam Designation	Enter the transmitting beam designation by a symbol consisting of up to ten characters (as for Satellite Receiving Beam Designation in Sec 6).
Class of station / Nature of service	Same as for 'Class of station / Nature of service' in Sec 6.
Polarisation	Same as for 'Polarisation' in Sec 6.
Assigned frequency band	Same as for 'Assigned frequency band' in Sec 6.
Receiving system noise temperature	Enter the total receiving system noise temperature expressed in kelvins, referred to the output of the space station receiving antenna.
Designation of Emission	Is made up of three parts, Bandwidth (four characters), Emission (three characters) & Description of Emission (two characters). This makes a nine character emission code. See Guide to Class of Emissions RA97. e.g. 30M0F8FHN is 30M0 = 30MHz, F = Frequency modulated, 8 = Composite system with one or more channels containing analogue information, F = Television (video), H = Sound of broadcasting quality (stereophonic or quadrophonic), N = No multiplexing employed. Indicate the necessary bandwidth (RR.S1.152) and class of emission (RR.S1.139) in accordance with Article 4 and Appendix 6; see also IFRB Circular-letters No. 457 of 2 June 1980 and No. 511 of 8 July 1982.
C/N objective (total-clear sky)	Enter the required carrier to noise ratio, in decibels, for the overall link for each carrier when clear sky propagation conditions apply.
Assigned frequency	Enter the assigned frequency as defined in RR.S1.148 expressed in kHz up to 28 000 kHz inclusive, in MHz above 28 000 kHz to 10 500 MHz inclusive, and in GHz above 10 500 MHz, and enter the letter k, M or G, as appropriate.