LESOTHO
COMMUNICATIONS
AUTHORITY

USAGE GUIDELINES FOR THE 70/80 GHz BAND IN LESOTHO

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1. Acronyms

ATPC	Automatic Transmitter Power Control
dBi	decibel isotropic (power)
dBW	decibel Watts
E.I.R.P.	Effective Isotropic Radiated Power
EESS	Earth Exploration Satellite Services
FS	Fixed Services
Gi	Isotropic antenna gain
ITU	International Telecommunications Union
PSD	Power Spectral Density

2. Introduction

These guidelines are for the licensing of the E-Band (71-76 and 81-86 GHz) for Point-to-Point Applications, using a "Light Licensing Model"[1] . Adoption of the Light Licensing Model means using a less stringent licensing criteria which will ensure that the spectrum licences issued for these bands are available at a relatively low cost to licensed service providers with minimal regulatory intervention. The highly directional pencil beam characteristics of the band will permit systems to be engineered in close proximity without causing harmful interference.

The revised licensing manner of this band will provide socio-economic benefits through the enhancement of more capacity for short-range backhaul links to support high capacity last mile connectivity for broadband.

3. Objectives

The main objectives are to ensure:

3.1. interference-free operation by all users of the Band,

3.2. optimal utilization of the band, and

[1] In "light licensing" the responsibly for interference analysis rests with the licensee (links are protected on a "first come, first served" basis). This self-coordination aspect significantly reduces time for rollout of services.

3.3. that the usage rights and obligations of the licensees are set.

4. Conditions

4.1. An applicant must possess a valid licence for Network Services (Data services & MVNO), Network Infrastructure (Facilities), Unified Licence, Private Networks, Broadcasting (Sound and Television), and Short-term activities to be eligible for the E-band spectrum assignment.

4.2. The spectrum assignment in this band shall still be on a "first-come-first-serve" basis.

4.3. The band can be used for backhaul and last mile application.

4.4. All 70/80GHz links to be deployed must be registered with the Authority. The registration details shall include the location, date of authorisation and date of commission. The date of commission should be submitted within 14 days of the authorization.

4.5. All equipment to be deployed must be type approved by the Authority.

4.6. The spectrum fees shall be in accordance with the Lesotho Communications Authority (Licensing Classification and Fees) Rules, 2018.

4.7. The 70/80 GHz is a shared band. Therefore, a Licensee must take reasonable steps as necessary to ensure that harmful interference is not caused to existing links.

5. Technical Specifications for the use of 70/80 GHz Band.

The Technical Specifications below shall apply:

5.1. Channel Plan

Frequency Band	Channel plan	Channel Bandwidths
70 GHz (71.125 – 75.825 GHz)	ITU R F.2006	250 MHz
80 GHz (81.125 – 85.875 GHz)	ITU R F.2006	250 MHz

5.2. Technical Limits:

a)	Maximum power limit	5 dBW
b)	Maximum E.I.R.P	55 dBW
c)	ATPC	Optional

d)	Transmitter Maximum PSD	–15 BW/MHz Offset (0 – 20% of aggregated Channels)
e)	Minimum Antenna Gain	38 dBi

f) The Maximum Equivalent Isotropic Radiated Power (E.I.R.P) of the station with Antenna Gain (Gi) is defined by the rules):

i. E.I.R.P ≤ +55 [dBW] for Gi ≥ 55 dBi.

ii. E.I.R.P ≤ +55 – (55 – Gi) [dBW] for 55 dBi > (Gi) ≥ 45 dBi.

iii. E.I.R.P ≤ +55 – 2(45 – Gi) [dBW] for 45 dBi > Gi ≥ 38 dBi

g) The output Power Spectral Density, at Antenna port, falling outside the edges of the band 71-76 GHz or below the lower edge of the band 81 – 86 GHz shall be further limited to a maximum of –55 dBW/MHz.

h) For the protection of passive services, in particular the EESS passive, the unwanted emissions of FS systems shall respect, at the antenna port, the limit mask provided by –41 dBW/100 MHz at 86 GHz and reducing to –55 dBW/100 MHz at 87 GHz.

i) For colocation of services, a minimum antenna vertical separation distance of 1.5 m to 2 m should be maintained as an interference mitigation measure.

6. Interference Management

This is a light licensing band. Which means that:

6.1. Licensees shall be expected to coordinate and resolve interference problems among themselves. However, where such interference issues cannot be resolved, they can be referred to the Authority.

6.2. In the event of an interference dispute, the Authority shall give priority to the link commissioned first.

7. Unforeseen Policy Issues in the use of Radio Spectrum

The Authority may amend these guidelines where it is deemed necessary to do so.