GENERAL NOTICES • ALGEMENE KENNISGEWINGS

INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

NOTICE 95 OF 2020

I C A S A

THE ELECTRONIC COMMUNICATIONS ACT 2005, (ACT NO. 36 OF 2005)

NOTICE INVITING COMMENTS REGARDING THE DRAFT FRAMEWORK TO QUALIFY TO OPERATE A SECONDARY GEO-LOCATION SPECTRUM DATABASE

1. The Independent Communications Authority of South Africa ("the Authority"), hereby publishes the **Draft Framework to Qualify to Operate a Secondary Geo-Location Spectrum Database for public consultation** in terms of sections 4, read with sections 32 (1), and 33 of the Electronic Communications Act (Act No. 36 of 2005), read with the regulations on the Use of Television White Spaces, published in Government Gazette number 41512 (Notice 147 of 2018).

2. The goal of the framework is to implement regulation 16 of the regulations on the Use of Television White Spaces published in Government Gazette 41512 (Notices Notice 147 of 2018).

3. Interested persons are hereby invited to submit written representations, including an electronic version of the representation in Microsoft Word, of their views on the **Draft Framework to Qualify to Operate a Secondary Geo-Location Spectrum for public consultation** by no later than 16h00 on Friday 06 March 2020. The Authority may conduct public hearings.

4. Written representations or enquiries may be directed to:

1

The Independent Communications Authority of South Africa (ICASA)

350 Witch-Hazel Avenue

Eco Point Business Park

Eco Park

Centurion

or

Private Bag X10

Highveld Park

0169

Attention:

Ms Pumla Ntshalintshali

e-mail: pntshalintshali@icasa.org.za

5.   All written representations submitted to the Authority pursuant to this notice shall be made available for inspection by interested persons from 10 March 2020 at the ICASA Library or website and copies of such representations and documents will be obtainable on payment of a fee.

6.   Where persons making representations require that their representation, or part thereof, be treated confidentially, then an application in terms of section 4D of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000) must be lodged with the Authority outlining reasons why such information should be treated as confidential in line with the provisions of section 4D (4) (a) to (e). Such an application must be submitted simultaneously with the representation on the draft framework. Respondents are requested to separate any confidential material into a clearly marked confidential annexure. If, however, the request for confidentiality is refused, the person making the request will be allowed to withdraw the representation or document in question.

7.   The guidelines for confidentiality request are contained in Government Gazette Number 41839 (Notice 849 of 2018).

2

_____

DR. KEABETSWE MODIMOENG

ACTING CHAIRPERSON

Independent Communications Authority of South Africa

Draft Framework to Qualify to Operate a Secondary Geo-Location Spectrum Database

4

Table of Contents

5

1. Definitions

In this qualification framework, unless the context otherwise indicates, a word or expression to which meaning has been assigned in the Act, the meaning is so assigned:

"**Qualification assessment"** means the technical examination the applicants will undergo with the Authority to qualify them as the S-GLSD service providers;

"**Qualification material"** means the necessary materials and information for completing the qualification assessment provided by the Authority to the candidate S-GLSD service providers after the successful completion of the self-declaration phase;

"Qualification period" means the period prescribed by the Authority under this qualification framework of which the respective candidate S-GLSD service provider is required to complete the qualification assessment;

"R-GLSD" is a Reference Geo-Location Spectrum Database operated by the Authority, that performs baseline calculations for the countrywide TVWS availability maps and generates operational parameters for WSDs, for setting regulatory limits;

"S-GLSD" means the Secondary Geo-Location Spectrum Database operated by qualified service provider designated by the Authority to provide GLSD services to end users;

"S-GLSD service provider" means a qualified or designated third-party organisation that provides S-GLSD services;

"S-GLSD services" means the provision of Operational Parameters (OPs) in response to requests from the WSDs;

"TVWS Algorithm" means the technical methodology, rules and procedure prescribed by the Authority to be implemented by candidate S-GLSD service providers in their calculation engines to be used in availing TVWS while protecting incumbents;

6

"Applicant" means interested parties who have applied to be Secondary Geolocation Spectrum Database.

2. Introduction

On 23 March 2018, the Authority published in the Government Gazette No. 41512 (Notice No. 147) the Regulations on the use of Television White Spaces (" the Regulations"). Regulation 16(1)(f) and 16(2) prescribe that all operations of TVWS based wireless networks will be controlled by qualified S-GLSD providers; while the Authority will monitor the operations of S-GLSD service providers through a R-GLSD.

Regulation 16(2) of the Regulations provides that the Authority, may designate entities to operate secondary GLSD after undergoing a technical assessment to ensure that they are capable to perform the functions as stipulated in regulation 16(3).

It is on this basis that the Authority seeks to establish the framework to Qualify entities or organisations wishing to operate Secondary Geo-Location Spectrum Databases ("the Framework"). This will be technical procedure for approving entities wishing to operate secondary GLSDs as contemplated in regulation 16(1)(e) of the TVWS Regulations.

3. Objective

The objective of the Framework is to describe the qualification process that the Authority intends to follow when assessing whether operators that wish to operate the Secondary Geolocation Spectrum Databases (S-GLSDs) can meet the set qualification criteria required to provide S-GLSD services in South Africa in compliant with the Regulations.

4. Aspects of the Qualification Framework

The Authority will conduct the qualification assessment in a phased approach covering key aspects of the Regulations. Failing to meet the specific requirements of a phase in each timeframe, will disqualify a S-GLSD provider from proceeding

7

to the subsequent phase. The key aspects and phases of the qualification assessment are outlined in the following sections.

4.1 Self-declaration

This is the initial application phase wherein organisations that have applied to become S-GLSD providers will undergo a process of due diligence. The applicant must provide documentary evidence in support of their applications that includes but not limited to the following:

a. identification:
   - Name, address, identification number, telephone number and E-mail address of applicant. If the applicant is a South African citizen, a copy of the identity document shall be submitted to the Authority. If the applicant is a foreigner a copy of the passport as well as proof of status shall be submitted to the Authority.
   - In the case of companies: A copy of the Company's registration certificate; and the name and address of directors and/ or principal executives;

b. key personnel and governing structures of their respective organisations;

c. their ability to establish, operate and maintain the S-GLSD system, including stating whether the S-GLSD will be hosted locally or abroad (i.e. Company Website, documentary proof of involvement in the field of ICT);

d. Executive Summary of Business plan:
   - Fundamental assumptions for the business plan with financial forecasts for a minimum period of three years.
   - A market analysis of the services contemplated to be offered through the S-GLSD applied for, including forecast demand.
   - Description of products and services to be offered through the S_GLSD applied for.
   - Description of pricing strategy for products and services to be offered through the S-GLSD license applied for.

e. compliance to the Broad-Based Black Economic Empowerment Amendment Act, 2013 (Act No. 46 of 2013) with 30% (thirty

8

percent) equity ownership and a minimum level 4 compliance in terms of the Information and Communications Technology (ICT) sector code for black economic empowerment ("BEE") in terms of Section 9(1) of the Broad-Based Black Economic Empowerment ("BBBEE") Act 53 of 2003 as amended;

f. their approach in handling sensitive information, including compliance to the Protection of Personal Information Act, 2013 (i.e. documentary proof showing compliance with at least one of the following: King IV Code of Good Governance on IT, ISO/IEC 27002, ISO/IEC 38500, COBIT[1] 5, or CGICTPF[2]) and;

g. their approach in ensuring acceptable level of service availability (i.e. at least a 99.5% of uptime at the end of each calendar month) and reliability (i.e. a plan for a failover solution) including plan(s) for data backup.

4.2 Qualification Materials

The Authority will furnish the applicants with the required material to support their implementation of the regulations. This is the development of the S-GLSD. The said material shall include but not limited to the following:

a. Documents describing the communication protocol between the R-GLSD and the S-GLSD, including the URL of the R-GLSD;

b. documents describing the PAWS RFC 7545 [3]Rule set for ICASA;

c. documents describing the TVWS Algorithm;

d. dummy datasets containing technical information of incumbent analogue and digital television transmitters;

e. information about the polygons under the Karoo Central Astronomy Advantage Areas;

f. dummy datasets containing technical information of Type Approved White Space Devices;

g. information about digital terrain datasets and clutter and;

h. information about the bordering countries.

---

[1] Control Objective for Information and Related Technologies
[2] Corporate Governance of Information and Communications Technology Policy Framework
[3] open standard defined by the Internet Engineering Task force (IETF) to be used by WSDs to access the secondary GLSDs in the Request for Comments (RFC) 7545

9

4.3   Simulated Tests

This phase entails the applicants under assessment to operate as if they were operating live; the Authority will repetitively perform tests, remotely over the Internet Protocol, using the R-GLSD interfaces, to ascertain if components of the respective S-GLSD comply with the regulations covering the following major aspects:

       a. implementation of the communication protocols, interfaces and storage;
       b. calculation engine implementation of the TVWS algorithm and;
       c. implementation of the S-GLSD security.

4.4   Implementation of the Communication Protocols, Interfaces and Storage

4.4.1   Protocol to Access White-Space (PAWS) databases, RFC 7545

The Authority shall furnish applicants with a list of test scenarios and a document describing specific variations in the sections of the baseline PAWS RFC 7545 required to be implemented to comply with the regulation 10 of the Regulations. This protocol enables a bidirectional exchange of data between S-GLSDs and WSDs. The applicants are expected to implement this communication protocol and satisfactorily demonstrate to the Authority the following:

       a. correctly acknowledging, or rejecting of the initialisation requests from WSDs;
       b. correctly allowing, or rejecting of the registration requests from WSDs;
       c. correctly providing, or denying of the provision of Operational Parameters (OPs) requests from WSDs and;
       d. correctly acknowledging or rejecting of the notification's requests with respect to the spectrum usage from WSDs.

4.4.2   Communication Protocol between R-GLSD and S-GLSDs

The Authority shall furnish candidate S-GLSD providers with a list of test scenarios and a document describing the structure of the Application Programming Interface (API) for the communication protocol that enables a bidirectional exchange of data between the R-GLSD and the S-GLSDs. Candidate S-GLSD providers are expected

10

to implement the PAWS communication protocol as stated in the regulations and satisfactorily demonstrate to the Authority the following:

a. correct fetching of the protected incumbent datasets from the R-GLSD in each interval or upon receiving a notification request thereof;

b. correct fetching of the White Space Device (WSD) Type Approval datasets from the R-GLSD in each interval or upon receiving a notification request thereof;

c. to correctly, provide TVWS availability information in each point/ or multiple points of interest upon receiving an instruction request from the R-GLSD;

d. blocking the usage of specific TVWS channels in each area of interest upon receiving an instruction request from the R-GLSD;

e. to provide the information about WSDs in their respective S-GLSDS upon receiving request from the R-GLSD and;

f. to act and respond in a timely manner when instructed by the Authority to remove certain information from their S-GLSDs or to update the Algorithm.

4.4.3 Storage

The candidate S-GLSD service provider is expected to provide enough storage (minimum of 2 Tera Bytes) to maintain up-to-date technical information and all incumbent datasets in the 470 MHz to 694 MHz band to allow post calculation auditing by the Authority.

4.5 Implementation of the TVWS Algorithm and Calculation Engine

The Authority shall furnish candidate S-GLSD providers with a list of test scenarios and a document describing the TVWS Algorithm and details of protected incumbents. The candidate S-GLSD providers are expected to implement the Algorithm in their calculation engines and satisfactorily demonstrate to the Authority the following:

a. correctly and consistently, identification and protection of incumbent analogue and TV broadcasting services;

b. correctly and consistently, identification and protection of the Radio Astronomy services;

c. correctly and consistently, identification and protection of the

11

polygons under the Karoo Central Astronomy Advantage Areas;

d. correctly and consistently, identification and protection of areas along the bordering countries and;

e. correctly and consistently, provisioning of TVWS availability results at any point/or multiple points of interests in the republic within the accuracy as determined by thresholds given by the Authority.

4.6   Implementation of the S-GLSD security

The Authority expects that candidate S-GLSD service providers will implement robust and secure end-to-end communication in their respective systems and be able to demonstrate the following to the satisfaction of the Authority:

a. a secure data exchange in the communication protocol between R-GLSD and S-GLSDs;

b. a secure data exchange in the communication protocol between S-GLSDs and WSDs and;

c. provisioning of OPs only to the Type Approved and authorised WSDs.

5. Qualification Period

Upon a successful completion of the self-declaration phase by the applicant; the Authority will grant the respective applicants a maximum period of 90 calendar days to complete the subsequent phases of the qualification assessment. The applicant is expected to complete the qualification process within the above stipulated timeframe, failing to do so will result in getting disqualified. It is within the Authority's discretion to evaluate requests to provide a qualification time extension on the case by case basis. Figures 1 and 2, describe the qualification schedule and details involved in different phases of the qualification assessment of S-GLSD service providers.

12

| Phases	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Due-diligence Confirmed													
ICASA to provide Qualification material	■												
Database Development		■	■	■	■	■							
Simulated Tests													
Implementation of the communcation protocols, interfaces and storage							■	■					
Calculation engine implementation of TVWS algorithm									■	■			
Implementation of the S-GLSD security											■	■	
Qualification Decision												■	■

Figure 1. Qualification timeline
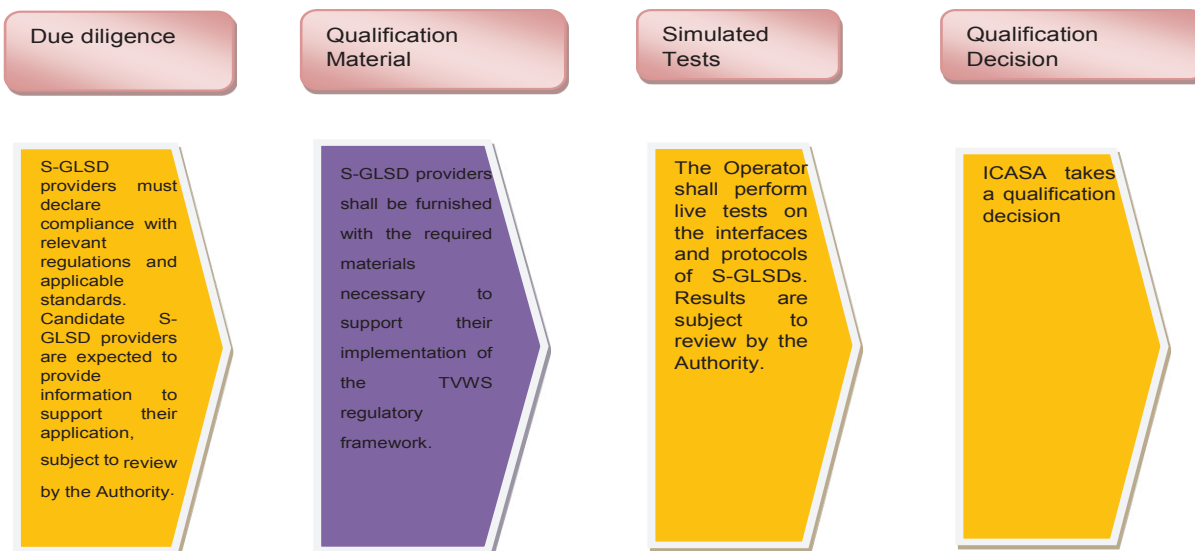
Figure 2: Overview of S-GLSD qualification process

All phases of the qualification involve a continuous interaction between the Authority and the candidate S-GLSD service provider. The candidate provider will be supplied with relevant requests for information by the Authority, to which it will provide feedback or results after processing, thereafter. The Authority will review the results provided by the candidate and decide. Each phase involves a decision which will either qualify or disqualify the respective provider.

At the end of this qualification period, the Authority will furnish candidate S-GLSD service providers that have successfully qualified to move on to the next phase of the assessment with the real TV band incumbents and Type Approval datasets required for live operation.

13

6. White Label[4] Provision of S-GLSD Services

The Authority will allow third-party organisations that are interested to become S-GLSD service providers through white label reseller service agreements with qualified S-GLSD service provider organisations. The candidate third-party S-GLSD service providers are expected to provide the following information to the satisfaction of the Authority:

    a. all the information required under section 5 (self-declaration) and;

    b. supporting reseller contractual document/or letter of offer provided by a qualified S-GLSD service provider.

7. Qualification Decision

Upon successful completion of all the qualification assessments, the applicant will be issued with a qualification letter by the Authority confirming their status. The webservices URL of the respective qualified S-GLSD provider will be listed under the Authority's R-GLSD web portal so that it can be publicly discovered by Type Approved authorized WSDs.

8. Communication

All organisations interested to become candidate S-GLSD service provider are required to nominate knowledgeable personnel(s) for the purposes of be a point of contact with the Authority during the qualification period, this information shall be shared with the Authority at the due diligence phase. All communication with the Authority shall be via the following email address:

Ms Pumla Ntshalintshali
Email: PNtshalintshali@icasa.org.za
https://tvwhitespaces.icasa.org.za

---

[4] means a concept that involves the production of goods or services by one company and the use, or reselling of these goods and services by another company under its own brand.

14