

Procedure for Qualification of Geolocation Databases

May 2021

1. Purpose

This document outlines the procedure to be followed by geolocation database providers for qualification to operate in Kenya. The qualification for operation is subject to approval by the Communications Authority of Kenya. The database providers shall ensure appropriate protection of licensed radio systems and services within or adjacent to the specified frequency bands to manage the operation of white space devices. This document also indicates administrative and operational requirements that the databases must meet to maintain their qualification status.

2. Mandate

The Communications Authority of Kenya (the Authority) is the regulatory authority for the ICT industry in Kenya with responsibilities in telecommunications, e-commerce, broadcasting, postal & courier services and cybersecurity. The Authority is responsible for managing the country's numbering and frequency spectrum resources as well as safeguarding the interests of consumers of ICT services.

The increasing use of wireless technologies, and opportunities for development that these technologies provide, highlight the importance of radio-frequency spectrum management processes. Increased demand requires that spectrum be used efficiently and that effective spectrum management processes and systems are implemented to facilitate the deployment of radio systems and ensure minimum interference.

Under article 3 of the Kenya Information and Communications (Radio Communications and Frequency Spectrum) Regulations, 2010, the Authority is required to:

- a) Promote and support the orderly development and efficient operation of radio communication systems and services to meet the country's socio-economic, security and cultural needs;
 - b) Ensure proper planning and management of the spectrum resource under the Act, Government policy objectives and international agreements;
 - c) Promote the efficient use of frequency spectrum resource through the adoption of technological advances and efficient spectrum allocation and management technology based on operational requirements and technical viability;
 - d) Ensure the equitable and fair allocation and assignment of spectrum to benefit the maximum number of users.
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3. Policy

In the context of the use of TV White Spaces (TVWS) under a dynamic spectrum access (DSA) framework, qualified providers who operate geolocation databases (GDBs), in partnership with duly licensed network operators, will ensure effective sharing of the radio spectrum with licensed users.

The Authority will qualify the geolocation database(s) following requirements outlined in this procedure, and, as part of these requirements, qualified providers will enter into an agreement with the Authority, to effectively manage the databases. Such databases will be accessed by licensed network operators to identify frequencies available for use in specific geographical areas.

4. Background

In May 2021, the Authority released a Dynamic Spectrum Access Framework for Authorisation of the Use of TV White Spaces following a series of public consultations and regulatory approvals related to the use of white space devices in the UHF TV band 470 – 694 MHz.

The framework permits the introduction of lightly-licensed white space devices (WSDs) in the UHF TV band and provides a detailed methodology for the technical calculations for the availability of TV White Spaces and protection of DTT reception. The white space devices (WSDs) are designed to

operate using unassigned TV band channels on a non-protected and non-interference basis to licensed broadcasters in the UHF TV band.

The framework outlines specific considerations for the protection of licensed radio systems through the use of secondary geolocation databases developed and operated by private-sector administrators. Such geolocation databases will inform WSDs which UHF channels are available for use at a specific location. The database would also be used to register the locations of fixed white space devices, protected locations and the operating channels of the licensed incumbent DTT services.

Under the framework, any eligible geolocation database provider may seek qualification of their database by the Authority, provided their database meets the specified technical and operational requirements.

5. Definitions

Available Channel

A range of frequencies available for secondary use by a white space device (WSD).

Dynamic Spectrum Access

A technique by which a radio system actively adapts to the local radio spectrum environment to opportunistically identify and then access available channels at specific locations without affecting the existing services.

Geolocation Capability

The ability of a WSD to determine its geographic coordinates within a required level of accuracy.

Personal/Portable White Space Device

A WSD that transmits and/or receives radiocommunication signals while stationary or in motion at unspecified fixed points.

White Space (WS)

A part of the spectrum that is available but unused for radiocommunication by radio systems, at a specific time and in a given geographic area.

White Space Device (WSD)

A radio equipment that operates in the white space frequency bands

TV White Space Device (TVWS device)

A WSD designed to operate on an unlicensed basis on available channels in the Digital Terrestrial Television broadcasting band 470- 694 MHz.

Geolocation Database (GDB)

A third-party database recognised by the Authority that maintains records of all licensed services and systems approved to operate in a specified frequency band available for WSDs. The GDB identifies available frequencies at a specific time and geographic location and provides lists of these frequencies to WSDs in response to queries.

6. Related Documents

1. Dynamic Spectrum Access Framework for Authorization of the Use of White Space Devices, 2021: [URL](#)
2. The Data Protection Act, 2019: [URL](#)
3. The Access to Information Act, 2016: [URL](#)
4. The Kenya Information and Communications (Compliance Monitoring, Inspections and Enforcement) Regulations, 2010: [URL](#)
5. The Kenya Information and Communications (Radio Communications and Frequency Spectrum) Regulations, 2010: [URL](#)
6. The Kenya Information and Communications (Fair Competition and Equality Of Treatment) Regulations, 2010: [URL](#)
7. The Kenya Information and Communications Act, 1998: [URL](#)
8. The Internet Engineering Task Force, Protocol to Access White Space Databases (IETF PAWS RFC 7545): [URL](#)

7. Eligibility

Any geolocation database operator is eligible to apply for the qualification of their database by the Authority. The applicants must demonstrate that their database meets the requirements defined in the procedures for the qualification of databases.

To be eligible for qualification, the geolocation database provider must provide a “Regulator Portal” and grant access to the Authority’s representatives. Additionally, the main elements of each database essential to the operational control of spectrum access and interference must be available for assessment by the Authority during the database evaluation and testing phase. The Authority will assess, on a case-by-case basis, whether the essential elements of the database are operating effectively.

The Authority shall continually review the framework to determine any changes to the qualification criteria and may introduce a requirement for licensing as the dynamic spectrum access ecosystem develops.

8. Database Approval Process

There are three key phases to the database approval process: the application; the evaluation and testing of the database; and the qualification of the database. The applicant will need the Authority’s approval before commercial authorisation and listing on the Authority’s website (listing server). The following sections describe the process.

8.1 Geolocation Database Provider Application

The Authority welcomes applications from geolocation database providers who wish to provide geolocation database service in Kenya. All applications received will be assessed on a first-come, first-served basis. Such applications should be directed to the point of contact indicated in section 15 of this document.

8.1.1 Application Receipt

To be considered for qualification status, applicants must, at a minimum, submit all required information listed in Annex I.

A key information item will be the demonstration of sufficient technical expertise to establish and administer a geolocation database following the requirements outlined in the '*Dynamic Spectrum Access Framework for Authorisation of the Use of White Space Devices*. [URL](#),'

Applicants are encouraged to consult with the Authority before applying, to ensure that all required information has been sufficiently addressed.

8.1.2 Application Review

The Authority will only evaluate complete applications. Should insufficient information be provided, or other problems arise due to missing or inconsistent information, the applicant will be contacted to provide clarification or supplementary information.

The Authority will review submitted information against the application requirements of this document and the framework. Only applicants that meet the requirements of both documents will be eligible to become a qualified geolocation database provider.

As part of the application review process, and for data verification purposes, the database provider will be required to allow a review of the implementation of the coexistence calculations specified in the framework, for a minimum 30-day period, before formal granting of qualification status by the Authority.

8.2 Database Evaluation and Testing Phase

During the development process of the geolocation database, access to the Authority's licensing information on Digital Terrestrial Television stations is required. This information will be provided by the contact listed in section 15.

The Authority shall evaluate each database to ensure that it complies with the requirements set out in the framework and additional criteria in Annex I of this procedure.

8.3 Database Administrator Qualification Phase

Once the evaluation and testing of the database have been completed and approved by the Authority, the next stage will be to qualify the database.

8.3.1 Execution of Geolocation Database Qualification Agreement

Following successful evaluation and testing, the Authority shall then arrange the execution of a qualification agreement in a format outlined in Annex II.

8.3.2 Letter of Qualification

Upon successful completion of the application phase, evaluation and testing, and execution of the qualification agreement, the Authority shall issue a letter of qualification to the successful geolocation database provider(s). A sample letter of qualification is provided as Annex III.

9. Website Listing

A list of all qualified geolocation databases will be made available on the Authority's listing server [URL](#) developed in accordance with the PAWS protocol, [URL](#).

10. Information Disclosure

Applicants may indicate that information submitted in support of their qualification application is to be considered confidential or proprietary.

11. Disclaimer

The Authority's qualification of a geolocation database does not imply or suggest promotion or recommendation of the services offered by the geolocation database provider.

Further, the qualification of a geolocation database does not in any way imply or suggest that the database provider is an agent or representative of the Authority. As such the provider is restricted from using the Authority's name, brand, logo or emblem, to market a geolocation database solution.

12. Retaining Qualification Status

To maintain its qualification status, a geolocation database shall, on an ongoing basis, meet all requirements of the terms and conditions of the executed 'Geolocation Database Qualification Authorisation' by the Authority, and all other related technical and operational requirements as indicated by the Authority, including compliance interference resolution procedures.

12.1 Revocation of Qualification / Disqualification

The Authority may revoke the qualification of a geolocation database and the respective provider in scenarios of non-compliance with the qualification agreement's terms, conditions, technical or operational requirements. A geolocation database provider shall inform the Authority, in writing, of any significant changes that may affect its continued compliance with the terms and conditions of the agreement, related technical or operational requirements, or its ability to carry out activities for which it was originally qualified.

Qualification status may be revoked upon any event terminating the Agreement. The Communications Authority of Kenya has the mandate under the '*The Kenya Information and Communications Act, 1998*' [URL](#), as amended, to manage the radio frequency spectrum, and in future may reallocate or reassign frequencies available for any radiocommunication service.

The geolocation database provider should note that the Authority may terminate the Agreement following such changes, or for other reasons, with 30 calendar days' notice.

12.2 Interference Resolution

In cases of harmful interference to authorised radio systems or services suspected to be caused by a WSD, the radio user experiencing such interference should report the problem to the Authority.

The procedure for investigating suspected harmful interference to authorised radiocommunication systems is detailed in the Authority's '*Procedure for Licensing the Use of Radio Frequencies and Resolution of Harmful Interference.*' [URL](#)

After confirming that the source of interference is a particular WSD, the Authority may issue to the operator of the device, a notice to cease or modify the operation of this device immediately.

Should the operator of the interference-causing WSD fail to comply with this notice and/or is found to be non-compliant with technical requirements outlined in the framework, the Authority will require the WSD owner to immediately cease operation of the device.

In this case, the Authority may also require the geolocation database provider, upon receipt of a written request from the Authority, to cease providing available channels to the interference-causing device.

The Authority will require the database provider to take appropriate corrective action to resolve interference concerns linked to the following:

- operating problems or deficiencies of a qualified geolocation database; and/or
- a qualified geolocation database's failure to meet technical or operational requirements as set out in the framework.

Further, the Authority may disable the interfering device from the regulator portal to be provided by the GDB,

It should be noted that failure to comply with the Authority's interference mitigation requests may result in the revocation of a geolocation database provider's qualification status.

13. Auditing Procedure

The Authority may audit geolocation database operations at any time to ensure compliance with the Kenyan regulatory framework, prescribed conditions for qualification of the database and technical or operational requirements. Qualified geolocation database providers shall provide the Authority with all the requested information and/or documentation as required for completion of any such audit within 14 calendar days of the date of the initial request.

Where it is determined by the Authority that a geolocation database is not in compliance, immediate corrective action must be taken by the database provider to the satisfaction of the Authority to maintain qualified status. Failure to take required corrective action, within the period specified by the Authority, may result in the Authority's suspension or revocation of qualified status.

A geolocation database that has been disqualified and revoked by the Authority will be removed from the Authority's listing server of qualified geolocation databases.

14. Requalification

If after a previously qualified geolocation database has had its qualification status revoked, a geolocation database provider who may wish to reapply for qualification shall submit, a formal application must be submitted to the Authority following the qualification procedure.

15. Contact Information

All application submissions and/or enquiries concerning application procedures and requirements should be directed to the office of:

The Director
Frequency Spectrum Management
Communications Authority of Kenya
CA Centre, Waiyaki Way
P.O. Box 14448 – 00800
Nairobi, Kenya

E: info@ca.go.ke; fsm@ca.go.ke
T: +254703042458, +254703042458

Annex I—Application for Geolocation Database Evaluation and Testing

A. Database Provider/Applicant Information

The applicant shall provide;

1. The name, physical and postal address of the applicant, as well as appropriate contact names as required in the application form to be availed by the Authority.
2. The certificate of Incorporation and Tax Registration Certificate for the applicant from the domicile country.
3. A business plan for the provision of geolocation database service in Kenya. The plan should indicate anticipated milestone dates for database development (if any), and the expected date for bringing the proposed database(s) into full operation. The business plan shall be considered confidential between the applicant and the Authority, in order to protect the commercial interest of the applicant.

B. Database Information

1. The applicants shall submit a test plan, including specific test cases intended to demonstrate how the geolocation database will meet the requirements outlined in the 'Framework for Authorisation of the Use of White Space Devices'. The test plan shall be reviewed by the Authority to determine suitability.
2. The Authority shall develop an independent test plan to verify the accuracy of the protection calculations. Additionally, applicants can provide additional tests to exhibit their compliance with the rules.
3. The applicant shall demonstrate to the Authority that the geolocation database meets the requirements specified in the framework (especially the coexistence calculations) by completing all the test cases included in the test plan.
4. To the extent possible, applicants are expected to adopt the IETF Protocol to Access White Space Databases (RFC 7545) and support interoperability and necessary data exchange between other qualified geolocation databases.
5. The applicants shall provide diagrams illustrating the architecture of the geolocation database system, and a detailed description of how each function operates and interacts with other

functions. Applicants shall also identify each element in the database architecture that is essential to operational and interference control.

6. The applicant shall describe the methods (e.g. interfaces, protocols) that will be used by the white space device (WSD) to communicate with the database and the procedures, which the provider will use to verify that such a WSD can communicate properly with the database.
 7. The applicant must include a description of the security methods that will be used to protect against unauthorised parties accessing or altering database information or otherwise corrupting the operation of the database system in the performance of its intended functions.
 8. If the applicant will not be performing all database functions, it must provide information on all other entities performing these functions, and their business relationship to the applicant. In particular, the applicant must address how the Authority will be assured that all requirements of qualified database administration are satisfied when functions are divided among multiple entities, including a description of how registered WSD data will be transferred among various entities and other databases, and the expected schedule of such data transfers.
 9. The Authority is not bound to accept any application for qualification of a geolocation database and may reject any application based on any of the requirements stated herewith or determined to be crucial in the course of the evaluation.
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Annex II - Geolocation Database Qualification

Geolocation Database Qualification Agreement, Terms and Conditions

For the Authority to qualify a geolocation database to operate in Kenya, the applicant must submit information as indicated in annexes I of this procedure. If the application is accepted by the Authority and the subsequent evaluation proves successful, the applicant will then be required to sign an agreement with the Authority before the database can be qualified/approved.

Below is a sample of the text proposed to be included in a geolocation database qualification agreement, denoting typical requirements, terms and conditions.

Sample Geolocation Database Qualification Agreement

This agreement is between the Authority and [Geolocation Database Provider] hereafter referred to as the database provider.

The database provider's representative certifies that he/she has the authority of the database provider and agrees, for valid consideration, to abide by all terms and conditions hereafter.

The database provider agrees that, in acting under this Agreement, it will use commercially reasonable efforts to ensure that its geolocation database(s) will be available at all times. The database shall only be utilised by duly licensed network facilities providers and any other operators as determined by the authority in the framework.

Only duly type-approved white space devices will be connected to the database to indicate available frequency channels available for use at specific geographic locations for specified durations and the allowable maximum transmit powers.

[Signature]

**Director General
Communications Authority of Kenya
CA Centre, Waiyaki Way
P.O. Box 14448 – 00800
Nairobi, Kenya**

[Signature]

**[CEO/Director]
[Geolocation Database Provider]**

Geolocation Database Qualification Agreement Terms and Conditions

1. The database provider certifies that all information submitted to the Authority concerning its qualification application to be accurate and complete, and that it will promptly (but in no event later than 30 calendar days) notify the Authority if the provider becomes aware of any material change in the submitted information. It shall be a breach of this Agreement to knowingly provide inaccurate information or to fail to disclose a material change to the Authority.
2. Any requests for information by the Authority or notices under this agreement may be sent to [mailing address /email address] via standard mail or email as appropriate, to the above address.
3. Any information that the database provider is required to provide to the Authority may be sent via standard mail or email, as appropriate, to the following address:

The Director, Frequency Spectrum Management
Communications Authority of Kenya
CA Centre, Waiyaki Way
P.O. Box 14448 – 00800, Nairobi, Kenya
E: info@ca.go.ke; fsm@ca.go.ke

4. Information provided according to this Agreement may be exchanged either by standard mail or by email. Both parties shall notify each other of any relevant change in addresses of offices, delegated individuals or other contact information.
5. The parties agree that the laws of the Republic of Kenya shall apply to this Agreement.
6. The database provider shall not promote its qualification status to provide database administrative services beyond the scope of this Agreement, nor indicate that it is an agent or representative of the Communications Authority of Kenya.
7. The database provider shall negotiate with network facilities providers to determine commercial tariffs for the provision of geolocation database service to white space devices operated by duly licensed operators. The tariffs shall be filed with the Authority before the provision of services.
8. The database provider agrees that it will comply on an ongoing basis with all eligibility, technical and operational requirements, as set out in this document and the ***'Dynamic Spectrum Access Framework for Authorisation of the Use of White Space Devices [URL](#),'*** as amended from time to time.
9. The database provider shall keep abreast of all relevant regulations, policies, procedures, requirements, standards and specifications and amendments thereto related to the operation of

WSDs and geolocation databases in Kenya. This may include participation in evaluation tests, e-meetings, or conferences convened as deemed necessary by the Authority to facilitate or address geolocation database issues. To facilitate this objective, the Authority will host a website where qualified geolocation databases may follow developments related to operational and technical issues.

10. The database provider shall permit regulatory examination of licensed radio system coverage maps and frequencies identified in its database as white space at particular locations, to allow for detection and correction of errors upon request by the Authority.
11. The database provider shall avail to the Authority, all technical information related to location and parameters of operation; this requirement excludes customer personal contact information but includes location information of fixed WSDs.
12. The database provider shall not compromise the privacy of users of its WSD registration services. Whenever the database provider collects, uses or discloses personal information in the course of commercial activity, including transfer for third party processing, it must comply with the relevant portions of the (Kenya) Data Protection Act, 2019: [URL](#), or substantially similar applicable legislation.
13. Unless otherwise stated in this Agreement, the database provider is not required to disclose any information that it may collect to support additional services.
14. The Authority may audit or investigate compliance with terms and conditions of this Agreement at any time, and the database provider shall be required to provide any information or documentation as required, within 30 calendar days of the request.
15. The database provider agrees to cooperate with the Authority in any review or audit of its geolocation database operations and to provide any information that the Authority may request to ensure compliance.
16. The database provider will address all complaints forwarded by the Authority regarding potential non-compliance with terms of qualification, will implement corrective action(s) and will report back to the Authority within 30 calendar days. Failure to reply in a satisfactory and timely manner will be considered by The Authority as a potential breach of this agreement and may lead to disqualification.

17. The database provider shall permit the Authority to access detailed logs of WSD queries and responses contained in its database, for evaluation and enforcement. Upon formal written request from the Authority, the database provider may also be required to implement interference mitigation measures, including ceasing to provide available frequencies to particular white space devices within a specified area for a specified duration.
18. The database provider shall permit the Authority to examine WSD registration information to allow for the detection and correction of errors, arising from an inadvertent entry of incorrect data or as a result of a deliberate entry of false data.
19. The Authority shall audit geolocation database operations at any time to ensure compliance with the dynamic spectrum access framework, prescribed conditions for qualification of the database and technical or operational requirements. Qualified geolocation database providers shall provide the Authority with all the requested information and/or documentation as required for completion of any such audit within 14 calendar days of the date of the initial request.
20. Where it is determined by the Authority that a geolocation database is not in compliance, immediate corrective action must be taken by the database provider to the satisfaction of the Authority to maintain qualified status. Failure to take required corrective action, within the period specified by the Authority, may result in the suspension or revocation of qualified status.
21. A geolocation database that has been disqualified and revoked by the Authority will be removed from the Authority's web list of qualified geolocation databases.
22. In addition to any other reporting requirements, the database provider will provide the Authority, by 30th June of each year, with a report and statistical information regarding overall database performance, operational issues, developments, client complaints, efforts at resolution and incidents of WSDs causing harmful interference to authorised radio frequency services. This report shall address the above-noted matters for the previous year and will be provided in a suitable format to the Authority for assessment.
23. Where it is determined by The Authority that a database provider is not in compliance with the terms and conditions of this Agreement, the database provider shall take immediate corrective action, to the satisfaction of the Authority, to maintain qualification status. Failure to take such corrective action may result in the Authority's suspension or revocation of qualification status.

24. Without prejudice to any other remedies available at law, in the event of any breach of this Agreement by the database provider, the Authority may take any or all of the following actions:
- a) provide notice of the breach and a timeline within which the breach shall be remedied;
 - b) require that the database provider provide a separately enforceable undertaking to do or refrain from doing something under this Agreement;
 - c) declare that this Agreement is terminated with or without the consent of the database provider; and
 - d) revoke the qualification of the database provider.
25. A database provider whose qualification status has been revoked will be removed from the Authority's web-listing server for qualified geolocation databases.
26. The database provider and the Authority may terminate this Agreement upon joint consent or upon provision of 30 calendar days advance notice. Also, the Authority may terminate this Agreement at any time upon confirmation of breach of conditions or terms of this Agreement by the database provider, following paragraph 21(c) above.
27. The database provider shall use its best efforts to comply with all terms of this Agreement.
28. This Agreement may be amended in writing upon the consent of both parties.
29. The invalidity or unenforceability of any provision of this Agreement shall not affect the validity and enforceability of any other provision of this Agreement, which shall remain in full force and effect.

Annex III — Sample Geolocation Database Qualification Letter

Date:

Our Ref:

Name:

Title:

Company/Organization:

Postal Address & Postal Code:

Physical Address:

City & Country:

TO WHOM IT MAY CONCERN:

This certifies that [qualified geolocation database provider's name] is qualified by the Authority to operate a geolocation database in Kenya.

This qualification is in accordance with the *'Dynamic Spectrum Access Framework for Authorization of the Use of White Space Devices'* and is subject to the conditions outlined in the *'Procedure for Qualification of Geolocation Databases'*.

The qualification is valid for 3 years, from [signing date] to [end date], and is subject to renewal as prescribed by the Authority. The list of all qualified geolocation databases is available on the Authority's website at [URL](#).

Thank you for your cooperation on this matter

Signature

For: Director General
