

Interactive Spectrum Management Tool

W ELECTRICAL ENGINEERING
UNIVERSITY of WASHINGTON

Fizza Aslam, Daniel Tran

Faculty Mentor: Sumit Roy, Industry Mentor: Ahmad Armand

In-cooperation with T-Mobile USA, Inc



Introduction

As 5G begins to become a reality, an important part of that is finding space in the band spectrum to facilitate its development. This web tool aims to provide an easy way to visualize potential 5G bands, as dictated by the FCC. That way, operators can more easily know what is available and where in the United States those bands are located.

Tools

- HTML/CSS
- JavaScript w/ jQuery
- MAMP/WAMP server
- PHP
- MySQL
- GeoJSON

Website

The FCC has given rulings that state which bands have 5G potential. This tool allows for two search paths to see current licensees that lie within those bands and their usage.

Band Search

This search option allows for a user to select for certain frequencies and radio services. Results can be rendered in a map format or in a table view, which is exportable.

Map Search

This search provides predefined regions, states and counties, to search for bands that are located within those regions. Results can be rendered as a table.

Bands of Interest

- 1427-1518 MHz
- 3700-4200 MHz
- 6425-7125 MHz
- 24.25-24.45 GHz
- 24.75-25.25 GHz
- 27.5-28.35 GHz
- 31.8-33.4 GHz
- 37-38.6 GHz

Demo Photos

Fig. 1 Band Query Page

Fig. 3 Band Table Results

Radio_Service: CF - Common Carrier Fixed Point to Point Microwave			
Upper frequency: 27.5			
lower frequency: 28.35			
Licensee status: Licensed			
Federal/non-Federal/both: Non-Federal			
Division Duplex: TDD			
usage: FIXED-SATELLITE (Earth-to-space) MOBILE			
3GPP association:			
link:			
Export to xls Export to csv Export to txt			
Call sign	Licensee name	Location	state
KEB35	Verizon New Jersey Inc.	New Jersey	New Jersey
KGB72	Verizon Maryland LLC	Maryland	Maryland
KGC79	Verizon Washington DC Inc.	Washington DC	Washington DC
KIL20	BellSouth Telecommunications, LLC		
KME49	Pacific Bell Telephone Company d/b/a AT&T California		
KQG58	OHIO BELL TELEPHONE COMPANY	Ohio	Ohio
KQH74	Michigan Bell Telephone Company	Michigan	Michigan
KSA96	ILLINOIS BELL TELEPHONE COMPANY	Illinois	Illinois
KSE73	Wisconsin Bell Telephone Company	Wisconsin	Wisconsin
KVH83	Hawaiian Telcom, Inc.,	Hawaii	Hawaii
KYJ33	Frontier Southwest Incorporated	United States	United States

Fig. 2 Band Map Results

Interactive 5G Spectrum Tool

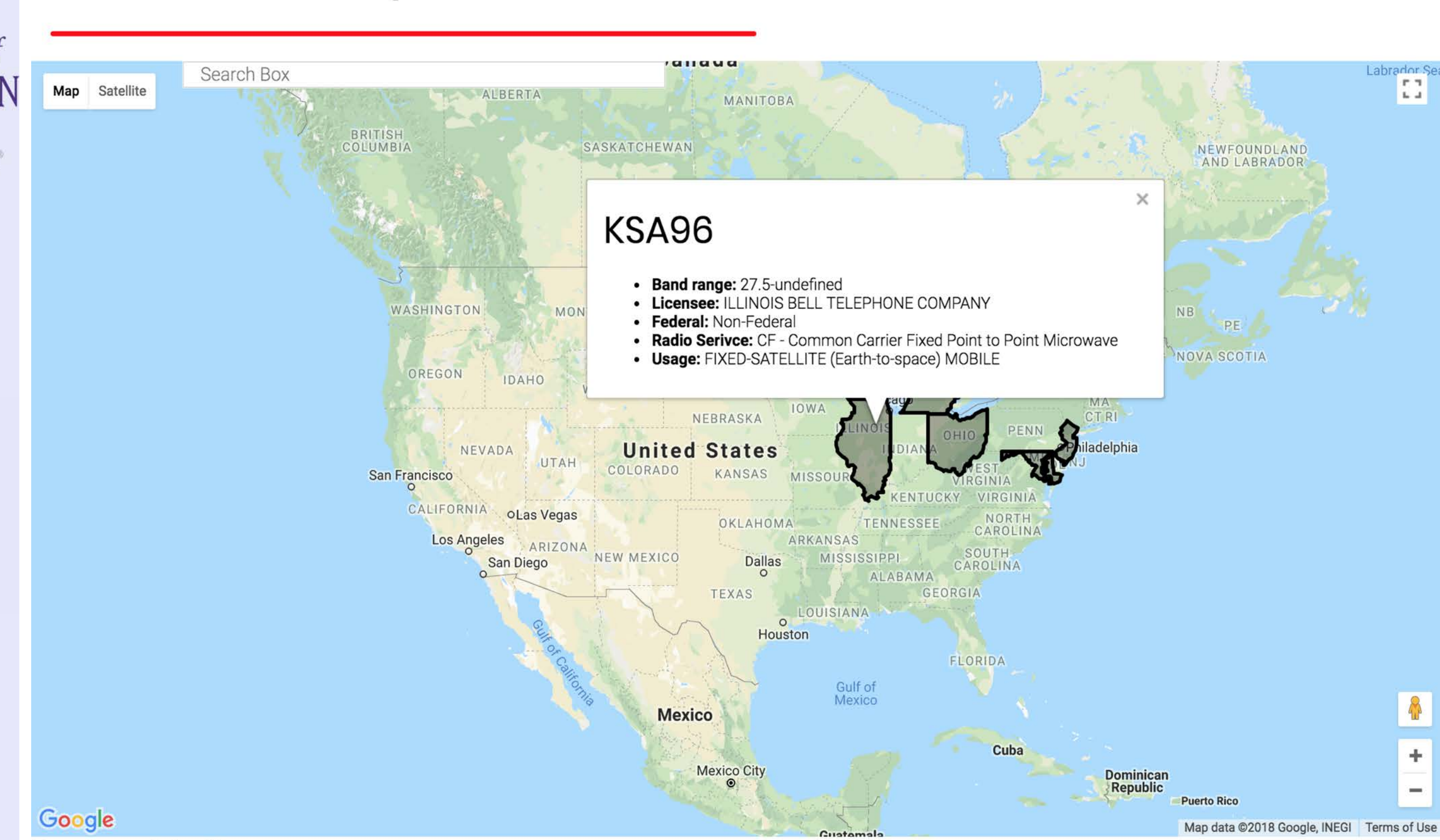
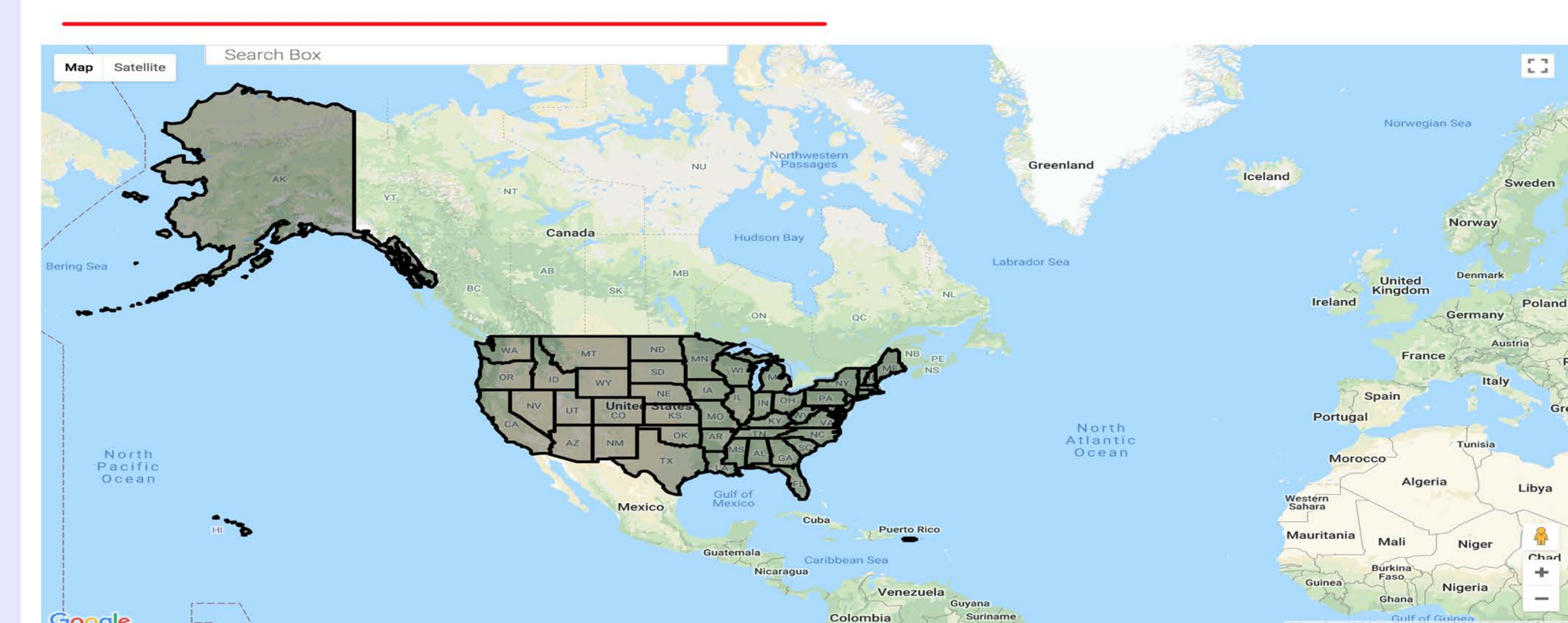
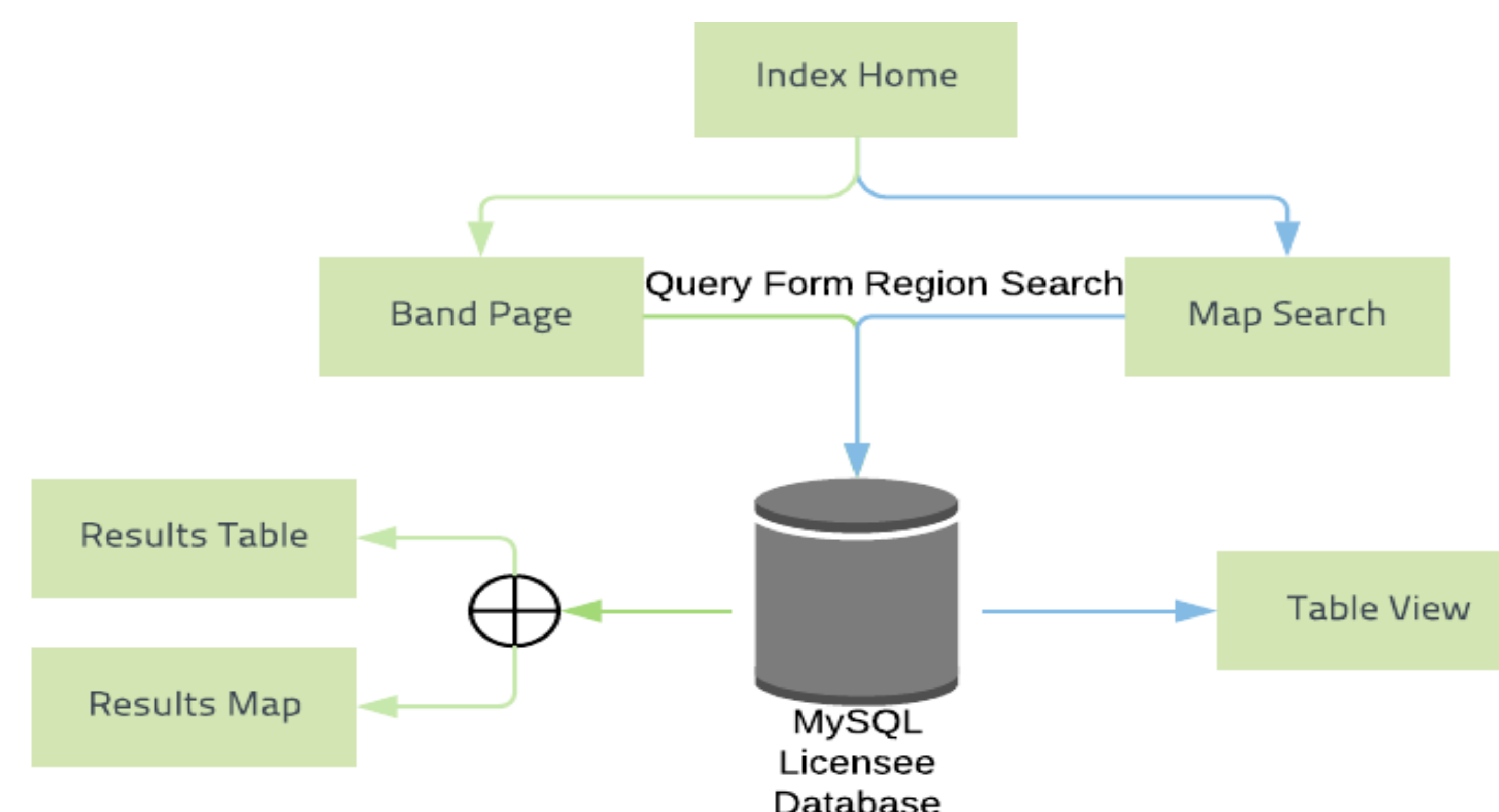


Fig. 4 Map Search Page

Interactive 5G Spectrum Tool



Website Flow Chart



Future Development

- Incorporate more bands into tool
- Incorporate more usage
- Keep database continuously updated
- UI/UX improvement
- Speed
- Allow for abstract search regions.