

Key trends in spectrum management for emerging technologies,

Budva, Montenegro, 28-29 September 2023

Ibis Group – founded in 1996



Platinum Business Partner



ORACLE

Partner



- Radio Planning & GEO
 - Spectrum management
 - Radio monitoring
 - Video & Broadband QoS/QoE
 - Mobile QoS & Benchmark
 - Timing and Synchronisation
 - Intelligence Visibility & QoE
 - LI
- Test & Measurement:
 - Fiber, PON, Transport, Core
 - CATV, Copper, WiFi
 - Mobile, RF, MW, EMF, EMC



25 employees

- Integration
- Automation
- Cloud Transformation
- Data and Analytics
- PHP, Java,- Python, Scala
- IT Operations Management
- IT Service Management
- Big data



75 employees

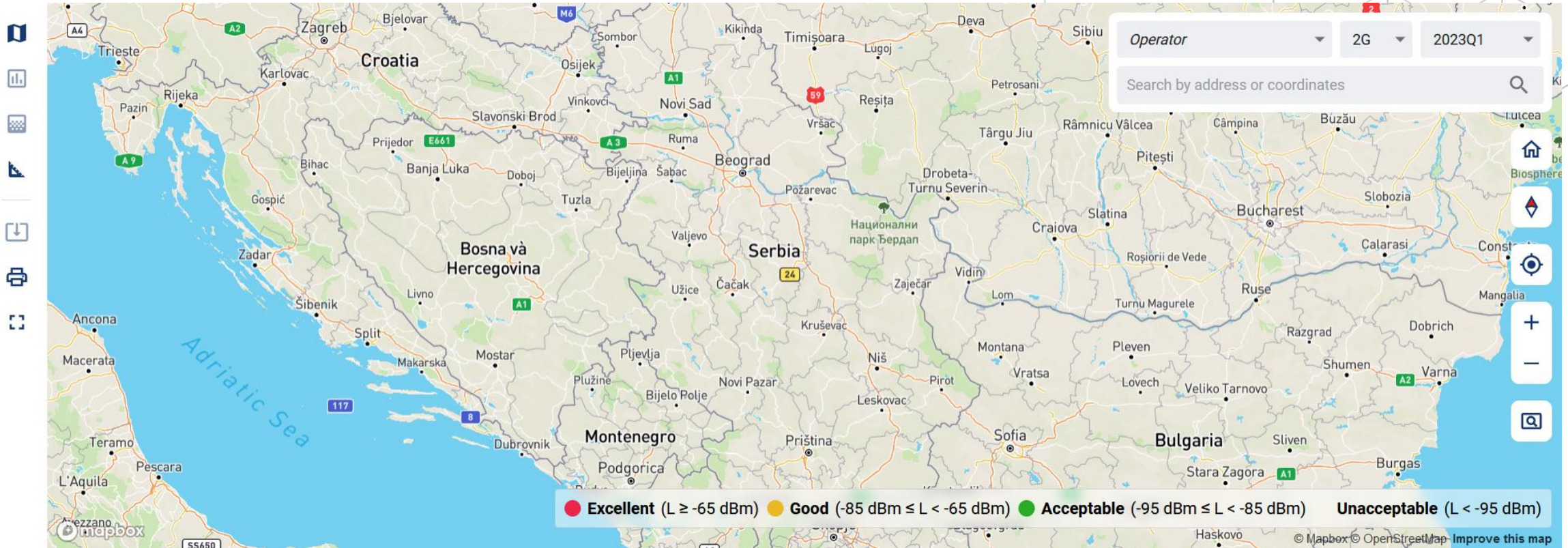


Agenda

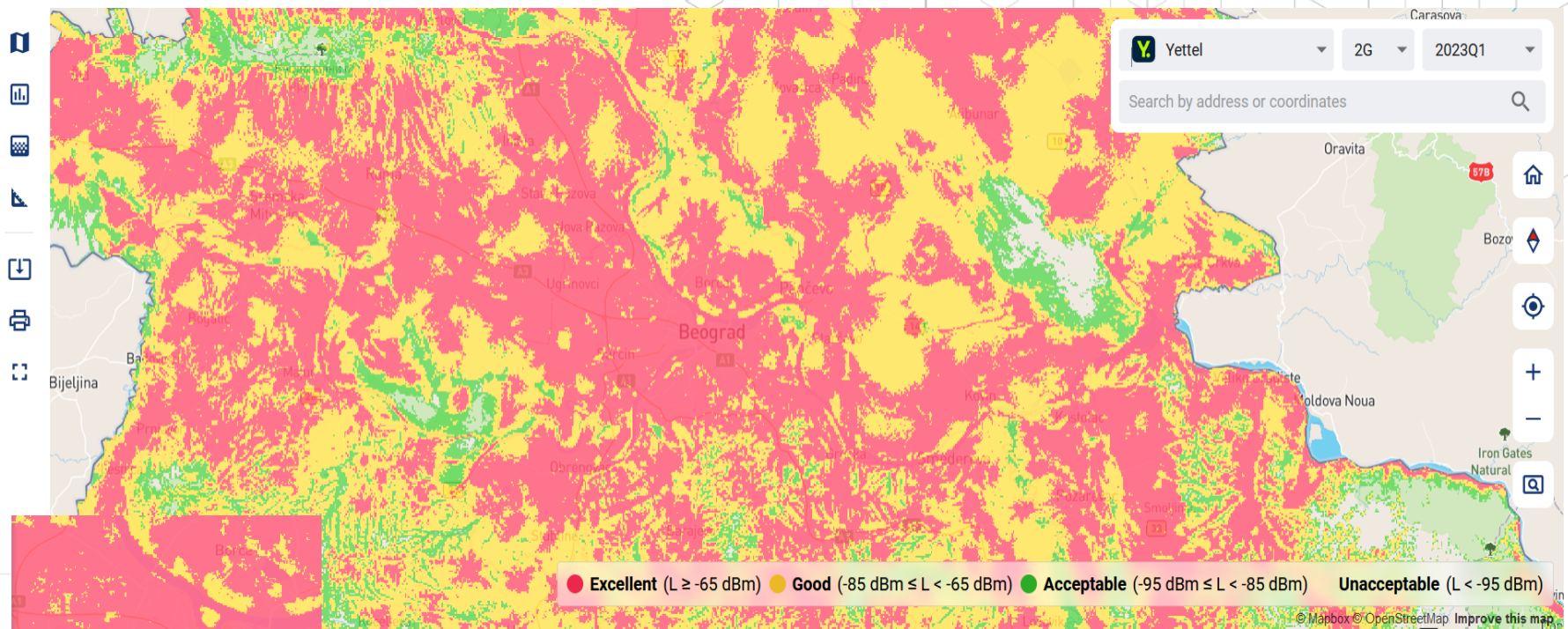
Successful projects

- Coverage web portal
- Propagation model optimization

Coverage map portal



Coverage map portal - comparison



Comparison

Operator		
A1 Srbija	-32.77 dBm	● Excellent
Telekom Srbija	-20.95 dBm	● Excellent
Yettel	-29.17 dBm	● Excellent

Coverage ×

● -29.17 dBm

COMPARE

Coverage map portal - statistics

Statistics

TELEKOM SRBIJA

Zone
Serbia

LOCATION NO. (TOTAL)
3051

2G	2457
Other	594

BTS NO.
2616

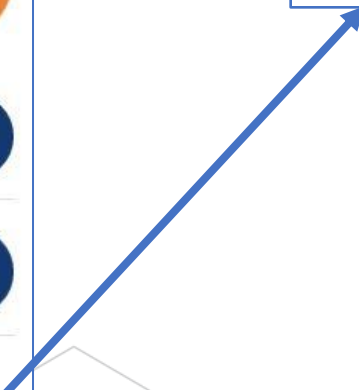
800 MHz	0
900 MHz	2457
1800 MHz	159
2100 MHz	0

TERRITORY COVERAGE 2G
92.49%

POPULATION COVERAGE 2G
99.35%

EXPORT
COVERAGE-SERBIA % COVERAGE-MUNICIPALITIES %
WAN OVERVIEW

EXPORT
COVERAGE-SERBIA % COVERAGE-MUNICIPALITIES %
WAN OVERVIEW



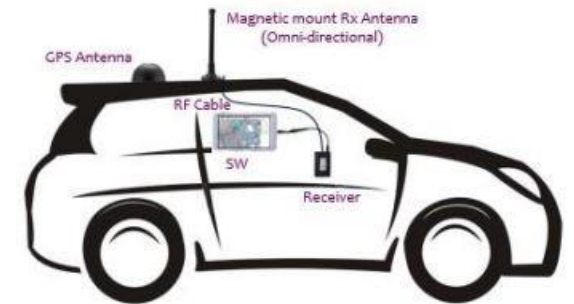
Propagation model optimization

Propagation model optimization for following frequencies:

- 800 MHz
- 900 MHz
- 1800 MHz
- 2100 MHz



Typical Transmitter Setup



Typical Receiver Setup

Propagation model optimization

Ibis Activities:

- provide an antenna system and transmitter with a power of 20W or greater
- carry out the selection of locations within the proposed zones of interest
- define routes
- define the conditions for the implementation of measurements
- perform measurements and collect measurement data
- process the measurement data

Customer Activities:

- suggest 30 zones of interest
- defines the frequencies for which the test measurements are performed so that the zones in which the measurements are performed are free of interference



❖ It is important to encourage healthy competition in every way

❖ High resolution maps and optimized propagation model are key to precise and transparent coverage information



Thank you

