



TUNISIA'S GLOBAL VISION FOR DIGITAL RADIO Initial DAB+ steps

Haj Ammar Kamel
The National Broadcast Network Operator in Tunisia- ONT
Director of Commercial Affairs

ABU-ASBU-WorldDAB Technical Workshop
18-20 July, 2023



TUNISIA'S GLOBAL VISION FOR DIGITAL RADIO



1- Digitization stages in Tunisia



2- FM landscape occupation



3- Why DAB+ ? Benefits ?



4- Tunisian Trial Period and decisions



5- Tunisian DAB+ ensemble



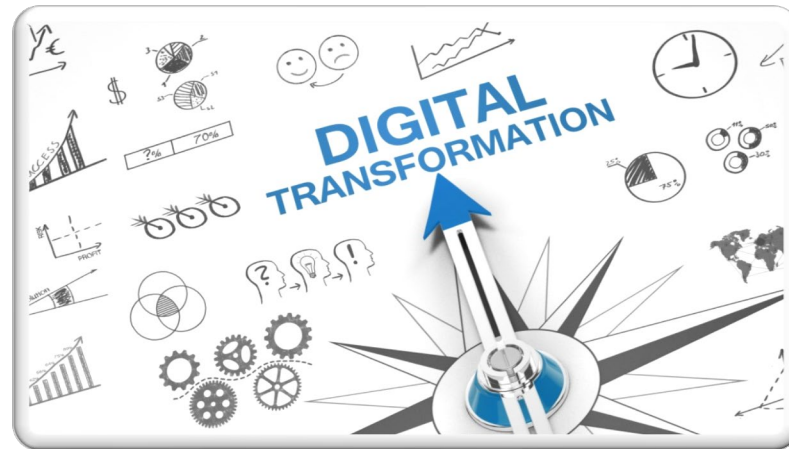
6- Conclusion & Recommendations



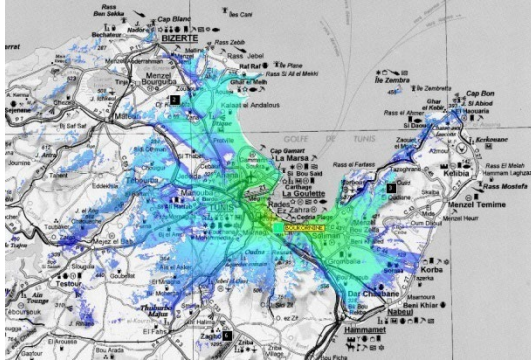
TUNISIA'S GLOBAL VISION FOR DIGITAL RADIO



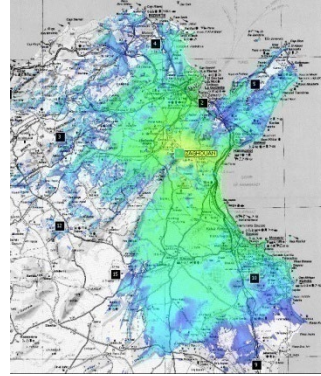
1- Digitization stages in Tunisia



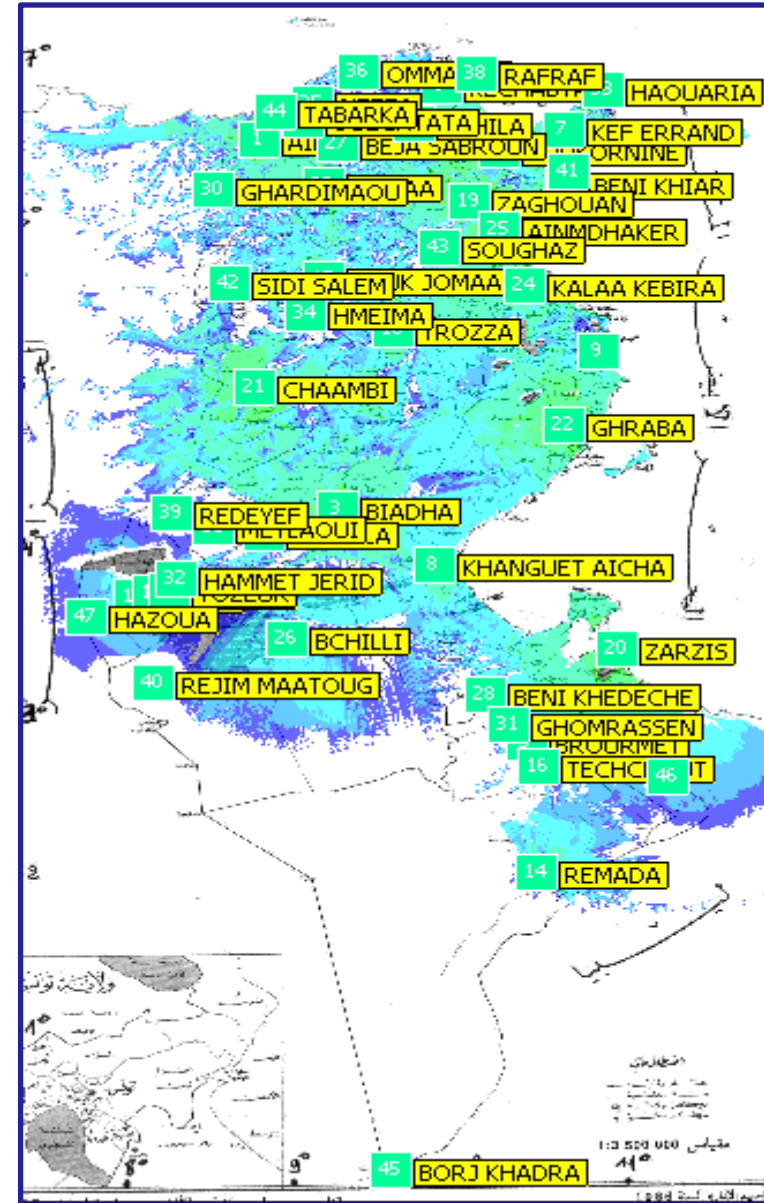
Station Boukornine



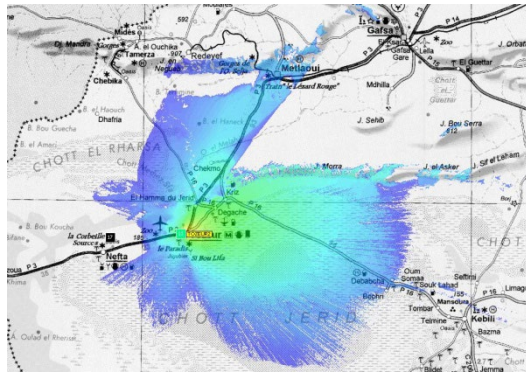
Station Zaghouan



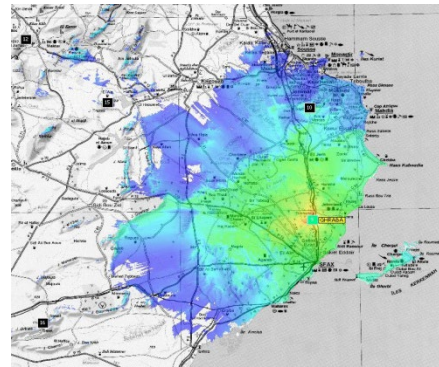
DVB-T Coverage : 98%



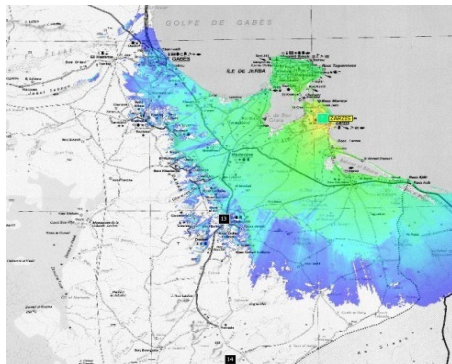
Station Trozza



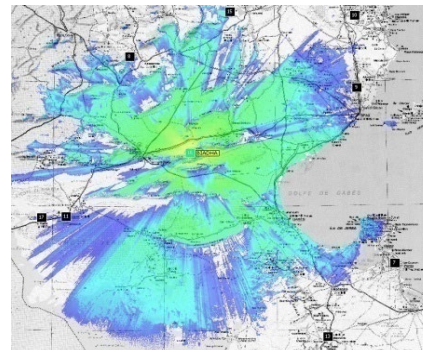
Station Ghraba



Station Zarzis



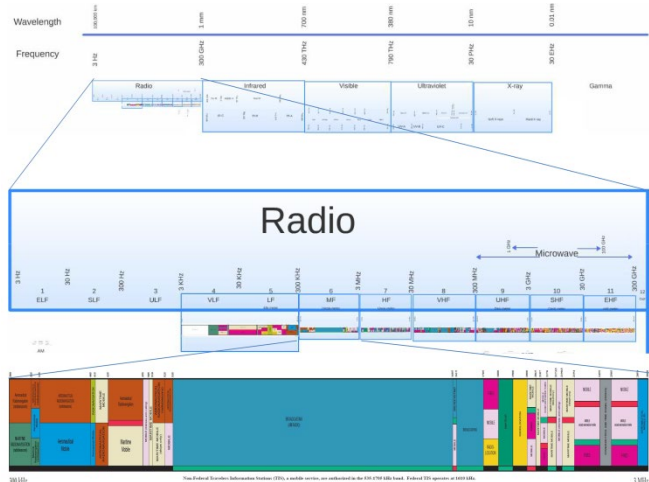
Station Biadha



DAB+ PROGRESS REPORT IN TUNISIA



2- FM Landscape Occupation



In many markets, FM spectrum is full – difficult to innovate



- **Overloaded airwaves**
- **No capacity for new services / poor audio quality**
- **Difficult to innovate**
- **Long term decline**

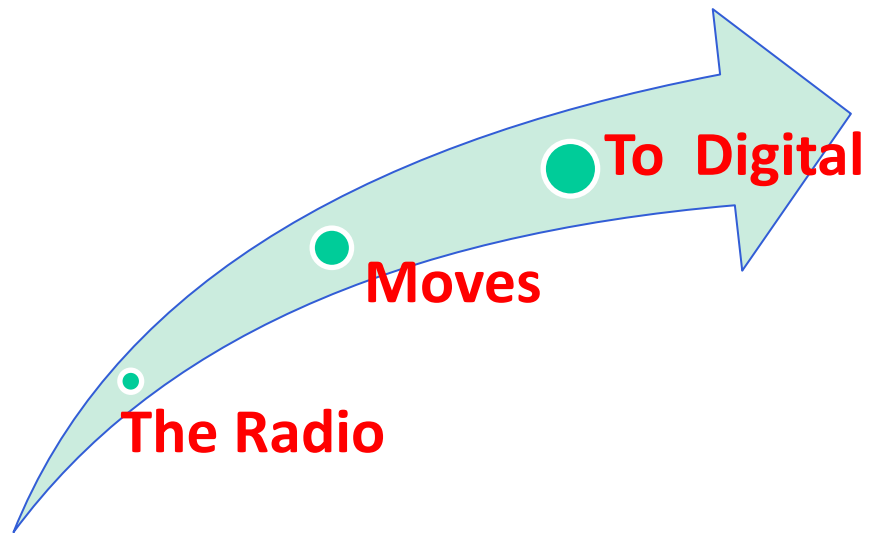


TUNISIA'S GLOBAL VISION FOR DIGITAL RADIO



3- Why DAB+ ?





❖ for more programs

❖ for a better reception

❖ for a better sound

❖ for wide broadcasting area



DAB PROGRESS REPORT IN TUNISIA



5- Tunisian Trial Period and decisions



DAB-Tunisian Experimental Platform (2008-2018)



- ❑ **DAB+ trial in 2008**
- ❑ **500W transmitter in Boukornine, 12 C**
- ❑ **DAB allotments assigned in Channels 10 and 12**
- ❑ **Field strength 68db μ V/m for portable & indoor reception**
- ❑ **One Multiplex of 12 programs/bitrate 96 kbps & one TV program**

- ❑ **In 2010: adjunction of two other transmitters in Kef Errand and Zaghouan working in SFN configuration (channel 12C)**



VHF band (174-230MHz) national plan enables the transmission of 5 to 7 multiplexes

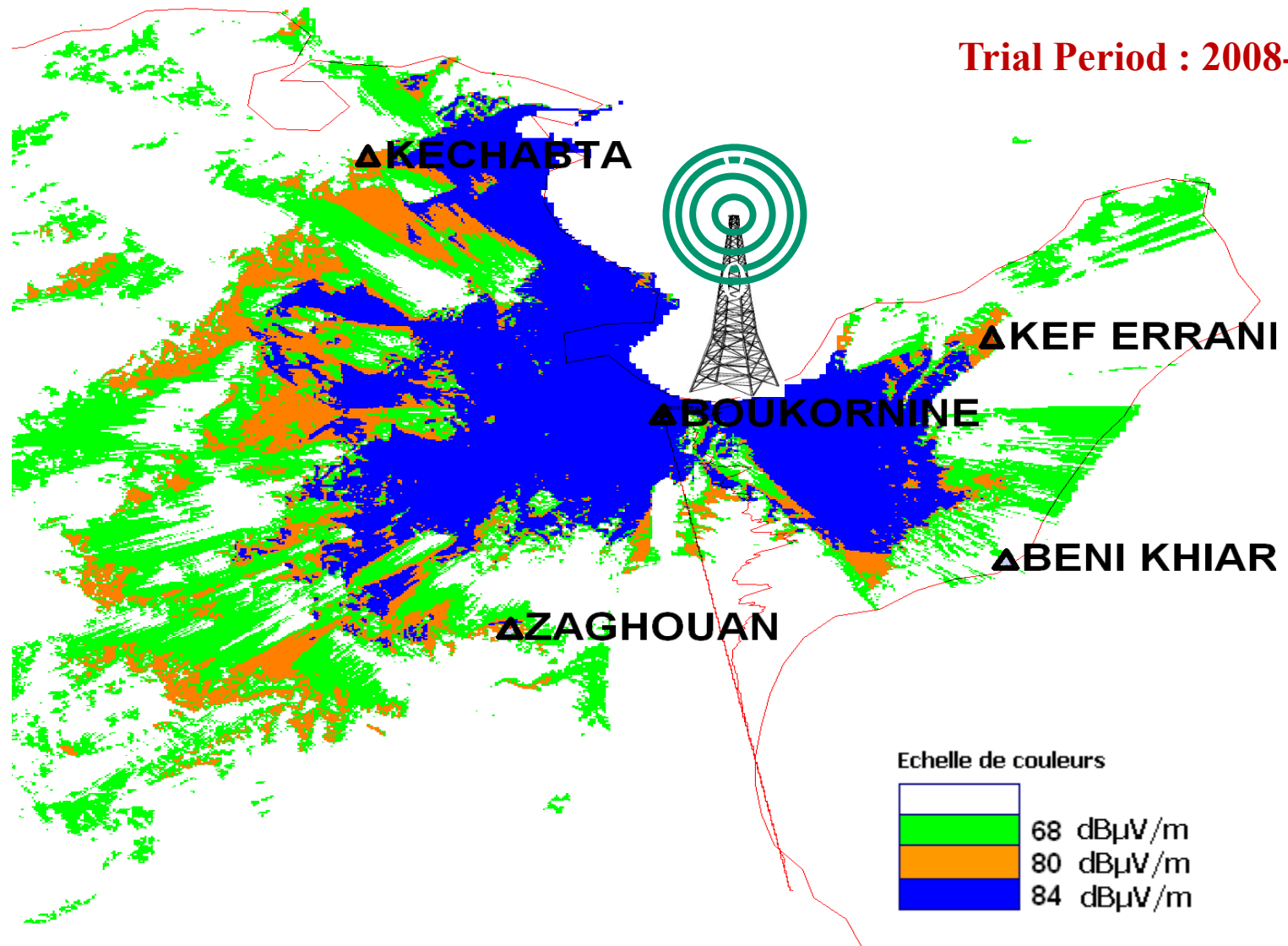
- ◆ **140 radio programs with national coverage**



Planning Tool "SIMPAR"



Trial Period : 2008-2018



DAB-Tunisian Experimental Platform (2008-2018)



6- Tunisian DAB+ ensemble



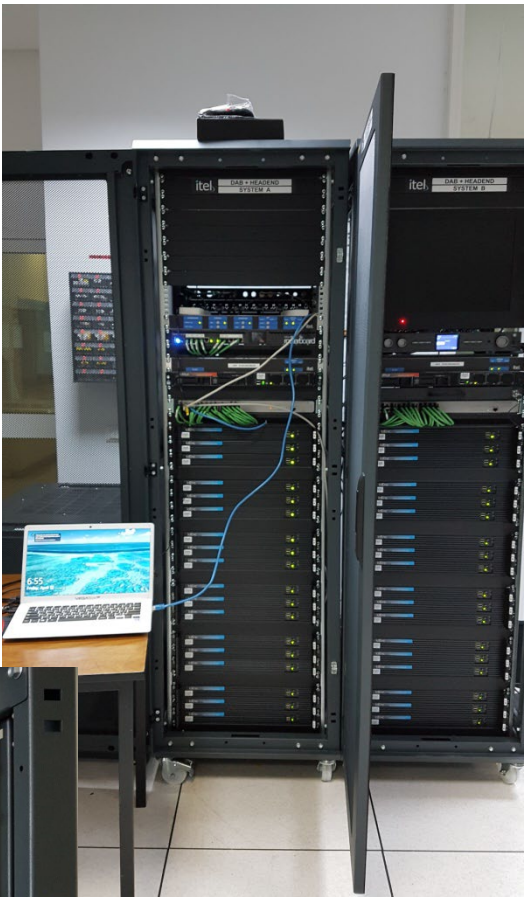
ONT's DAB+ Project

1+1 DAB Head End

DAB+ Platform 2019



The Head End is composed of 36 encoders in (1+1) configuration
 → Broadcast of 18 Audio programs (AES mode)

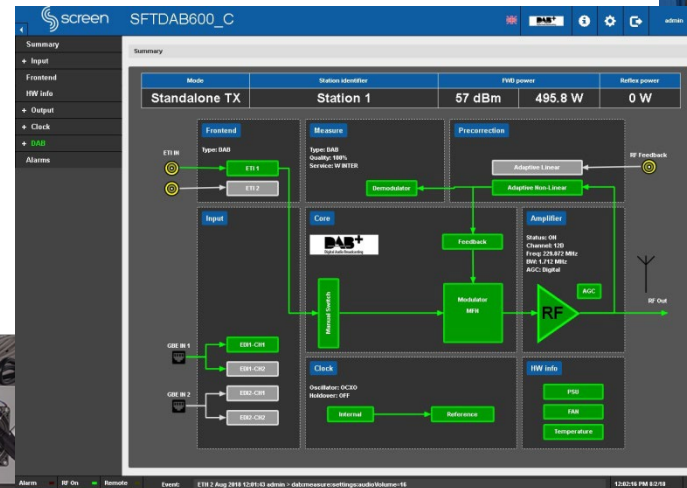


DAB+ ONT Project

1st phase: 2019

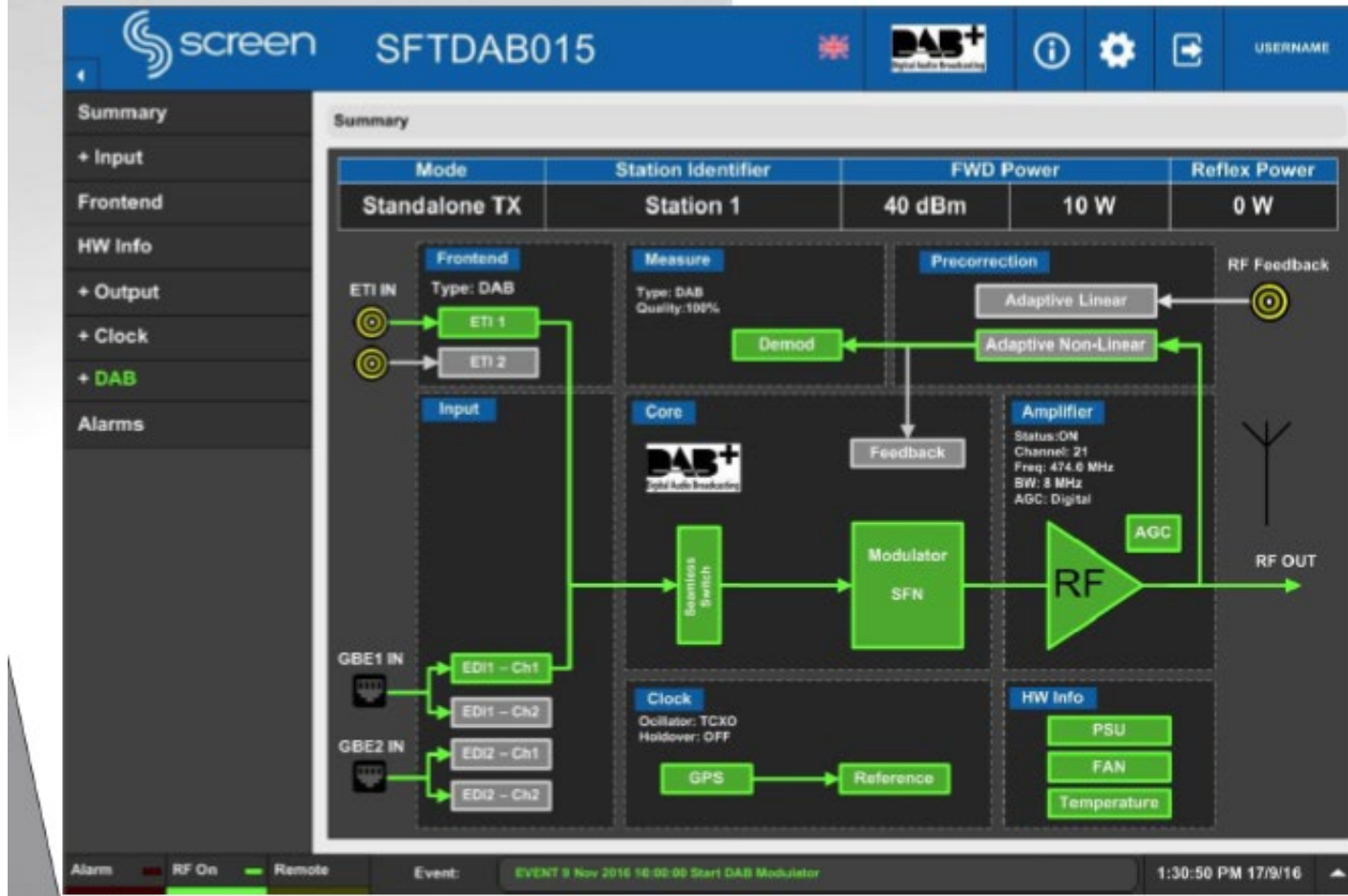
1st Phase

Four transmitters are installed in Zaghouan, Boukornine (capital state tunis), Kchabta (Bizerte) and Kef errand (cap bon).



ARK-X – SFT600 DAB

GRAPHICAL USER INTERFACE



DAB+ Platform 2019



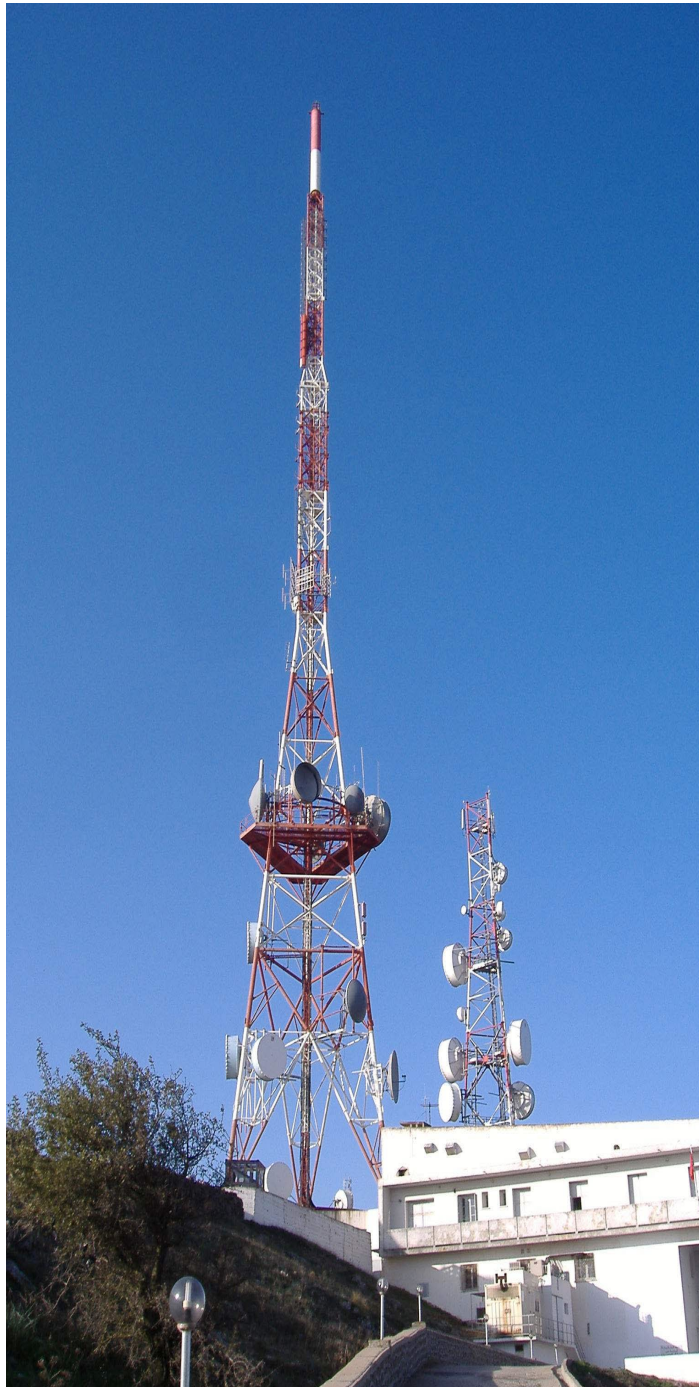
Boukornine



DAB+ Platform 2019



Zaghouan



CNCT HeadEnd





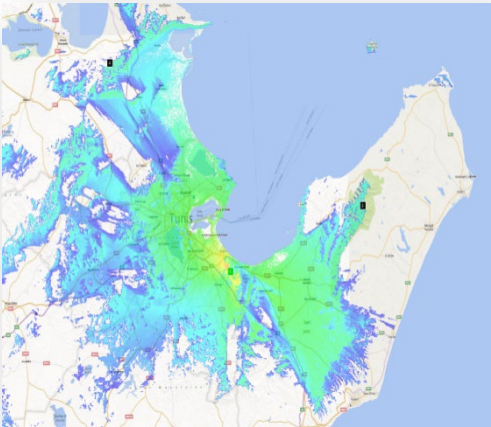
Kef-Errand Station



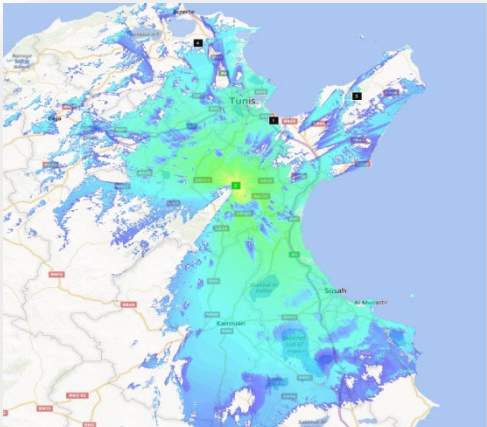
Kchabta Station

PHASE 1 : DAB+ Coverage : 51 %

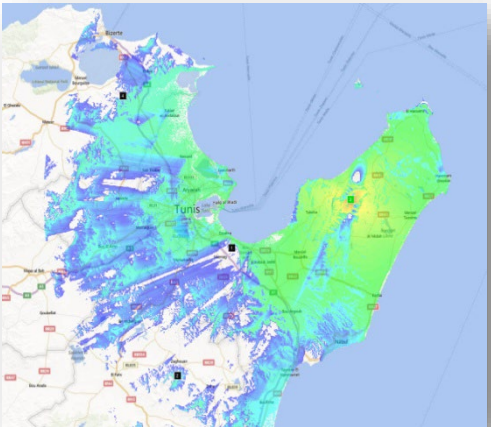
Boukornine Station



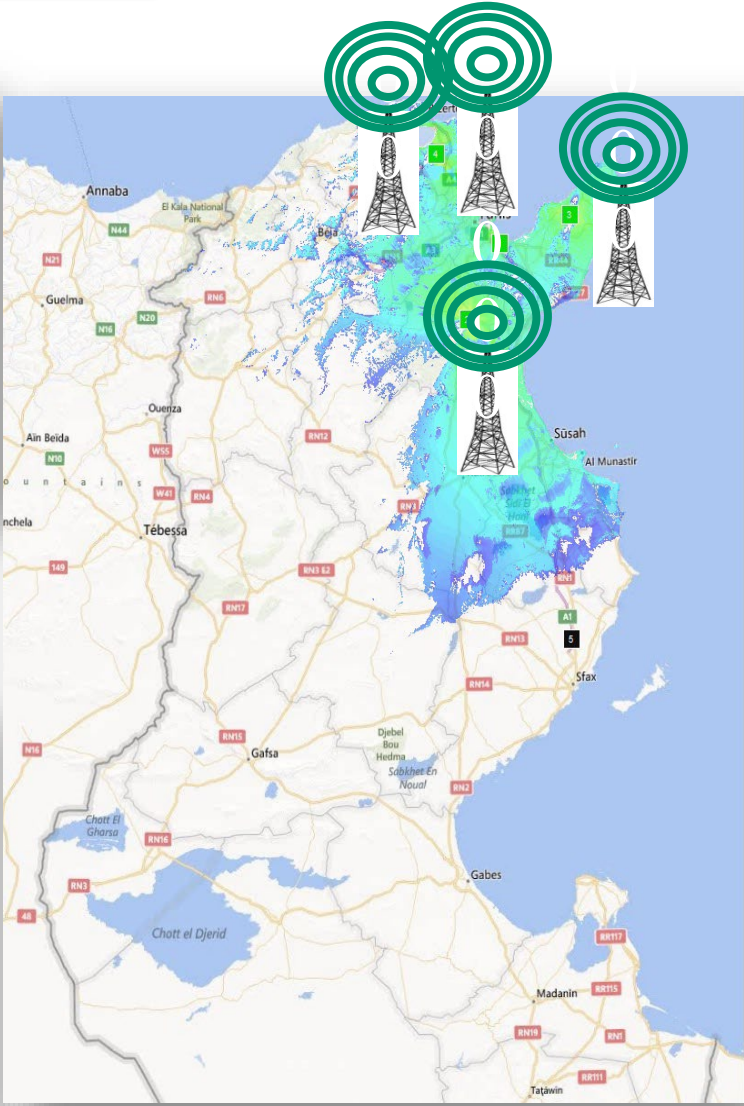
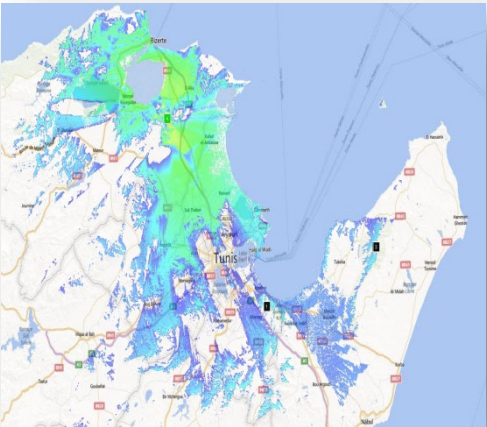
Zaghouan Station



Kef Errand Station



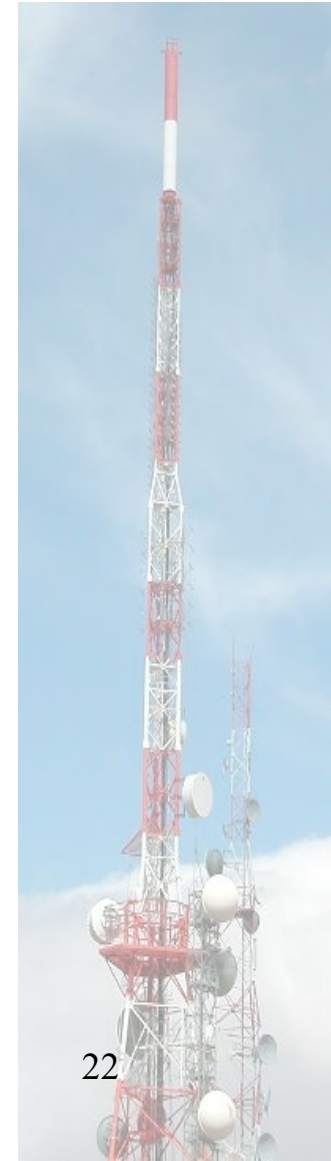
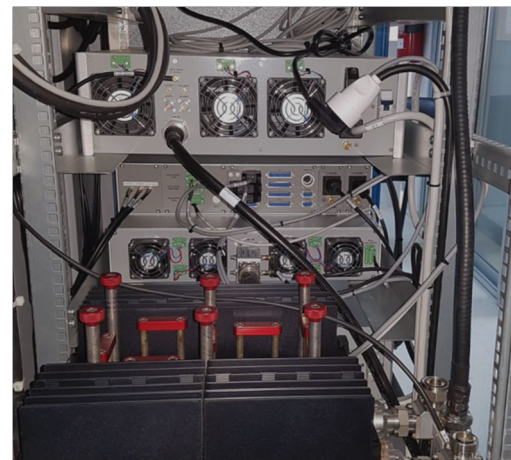
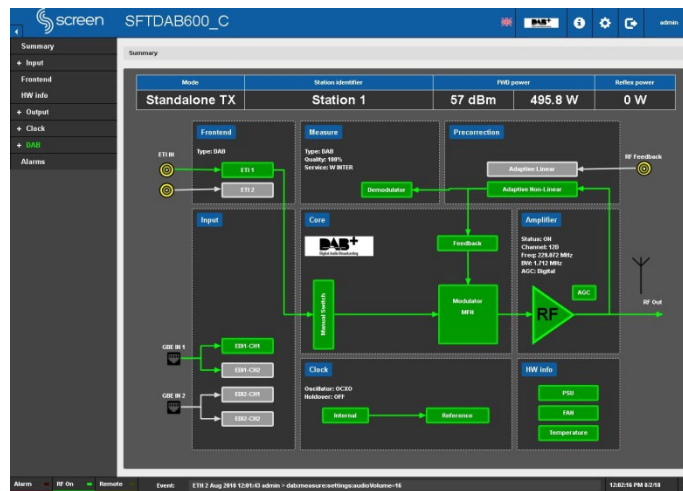
Kchabta Station



ONT's DAB+ Project

2nd phase: 2020

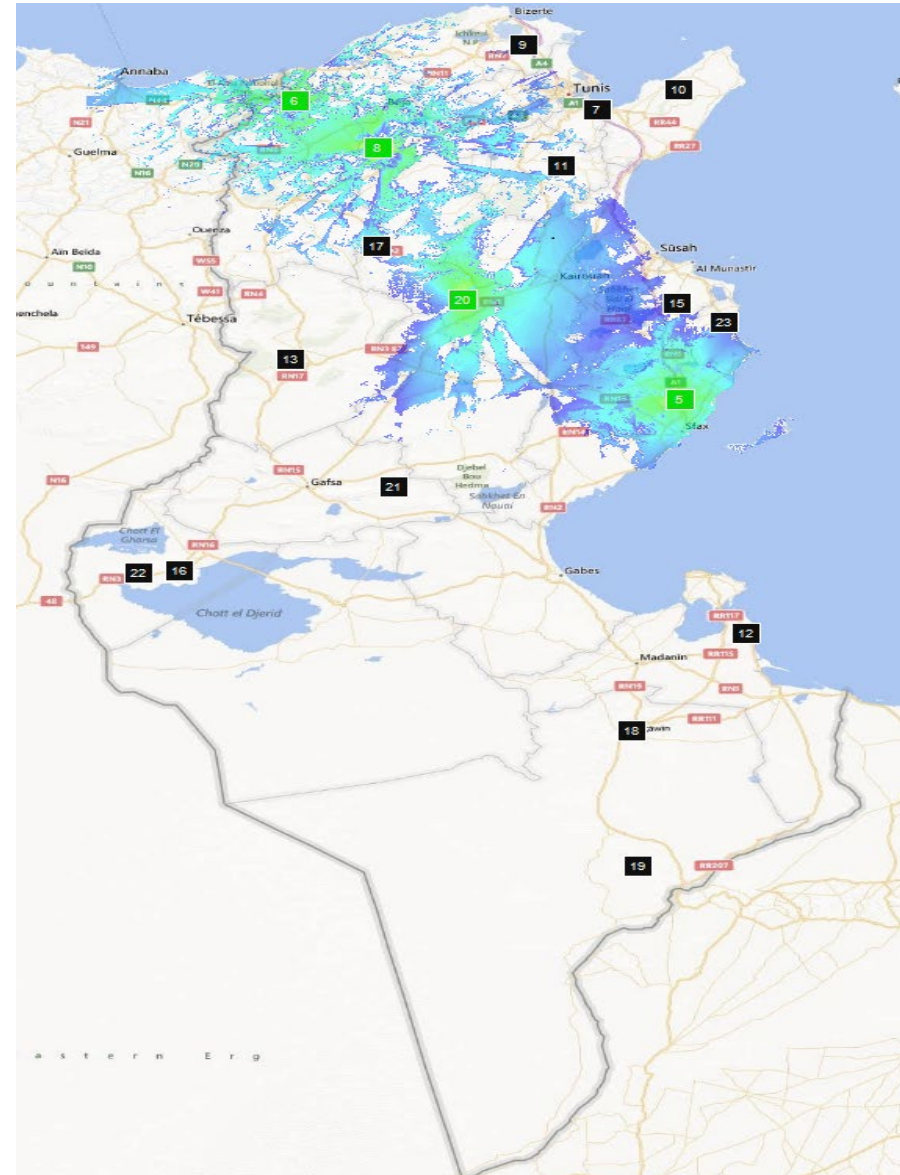
Four new sites will be installed in the following stations : Ain drahem, Goraa (beja), Trozza (Kairouan) et Ghraba (sfax).



2nd Phase: 2020

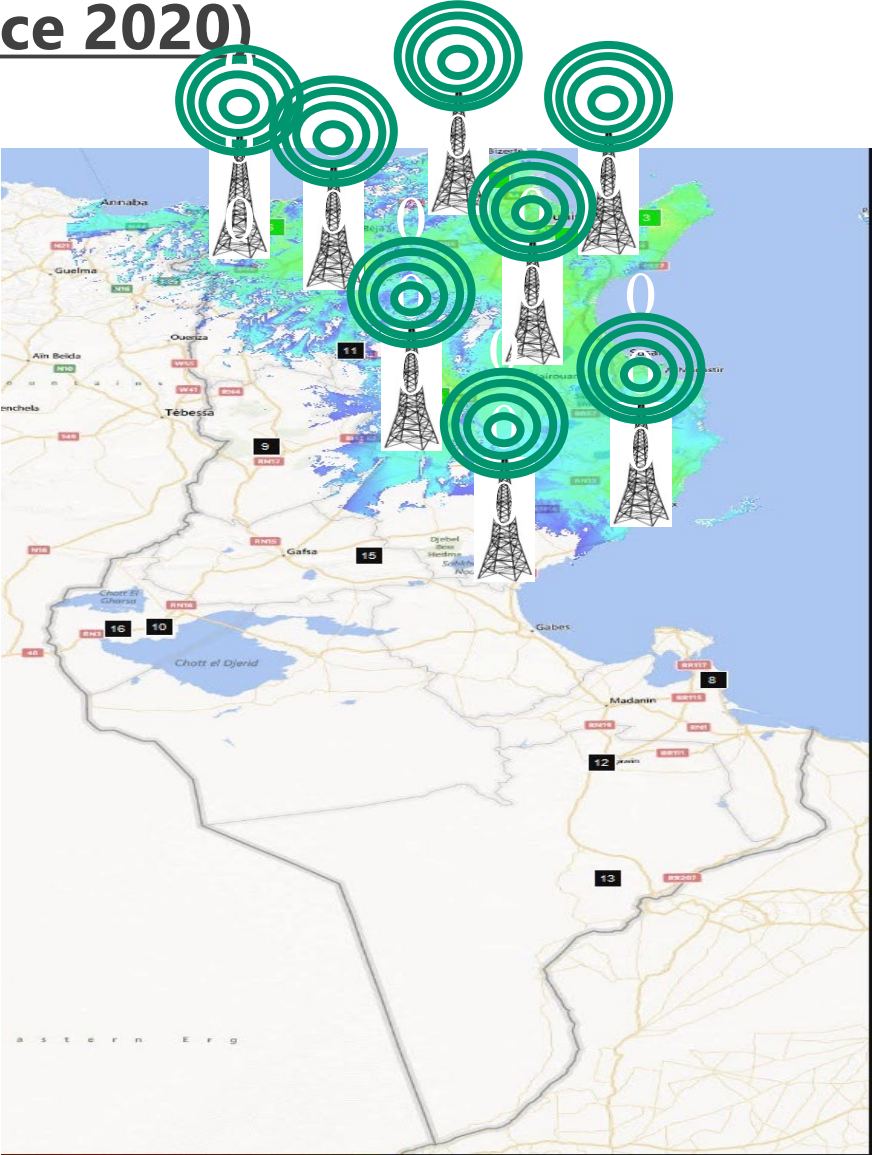
DAB+ extended coverage

Four new sites will insure
a coverage of **24%**
of Tunisian population



DAB+ Coverage in Tunisia (since 2020)

The two phases reach
75% of tunisian
population



GLOBAL TUNISIA' VISION FOR DIGITAL RADIO

6- Recommendations



DAB+ Rollout Progress

2019

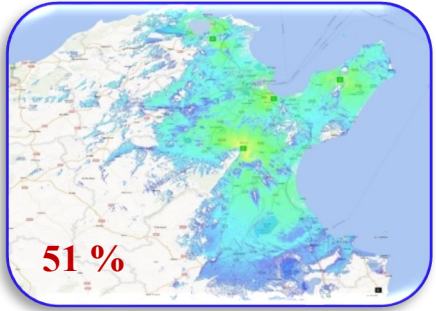
- Deployment of 4 transmitters
- MUX of 18 programs
- 51 %population Coverage



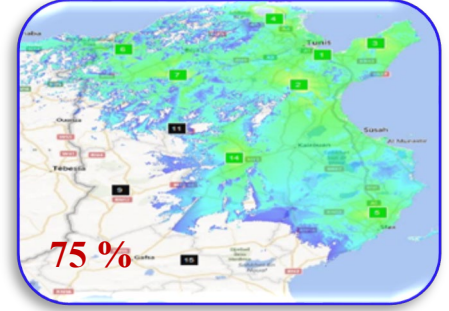
2020-2024

- National Coverage
- Up to 5 multiplexes

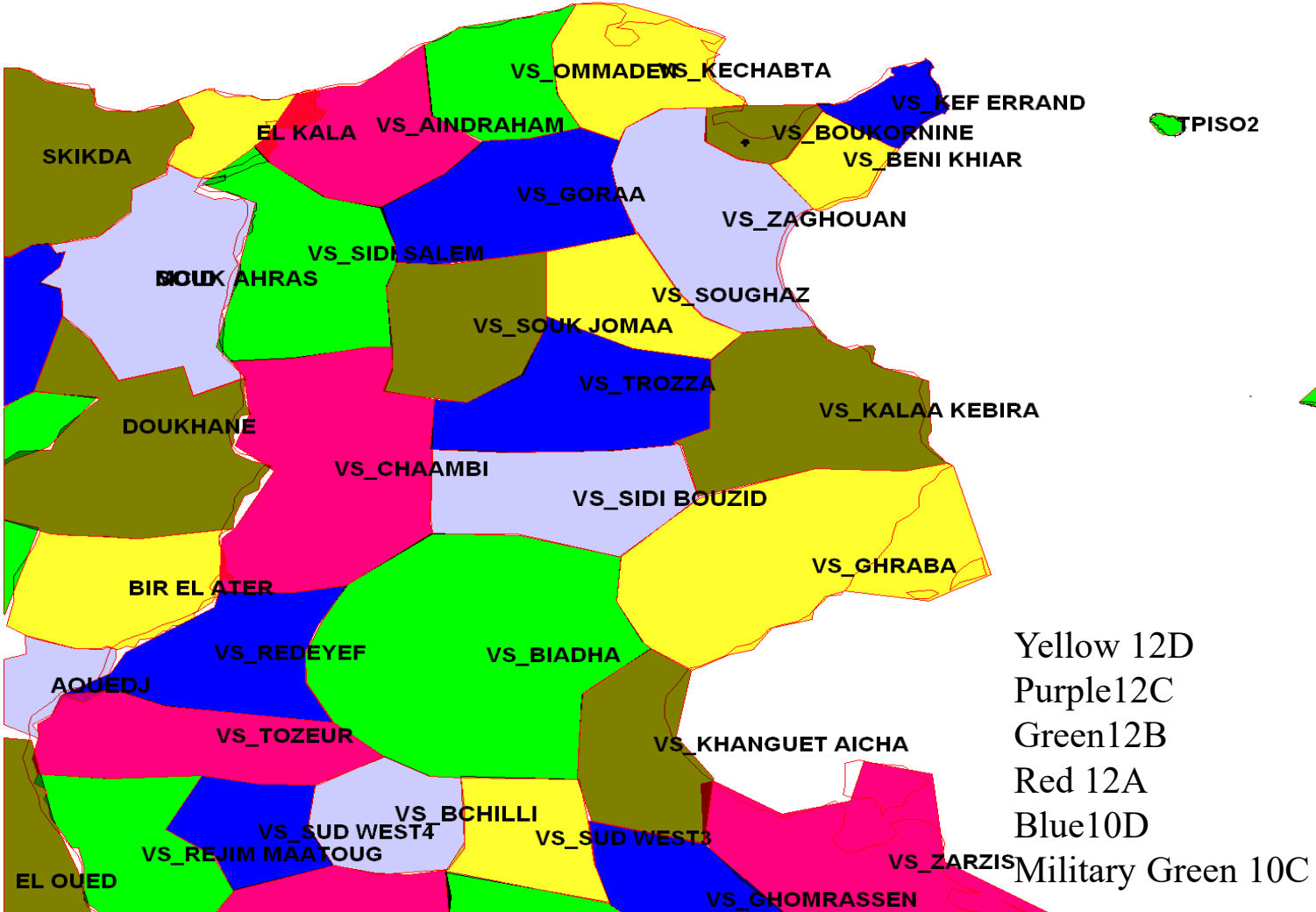
2019



2020



Frequency allotment for DAB+ according to RRC 06



Tunisia DAB+ Rollout Progress



PHASE 0:

- Tests, trial period (2008-2018)

PHASE 1:

- June 2019 (51 %)

PHASE 2:

- T4 2020 (75 %)

PHASE 3:

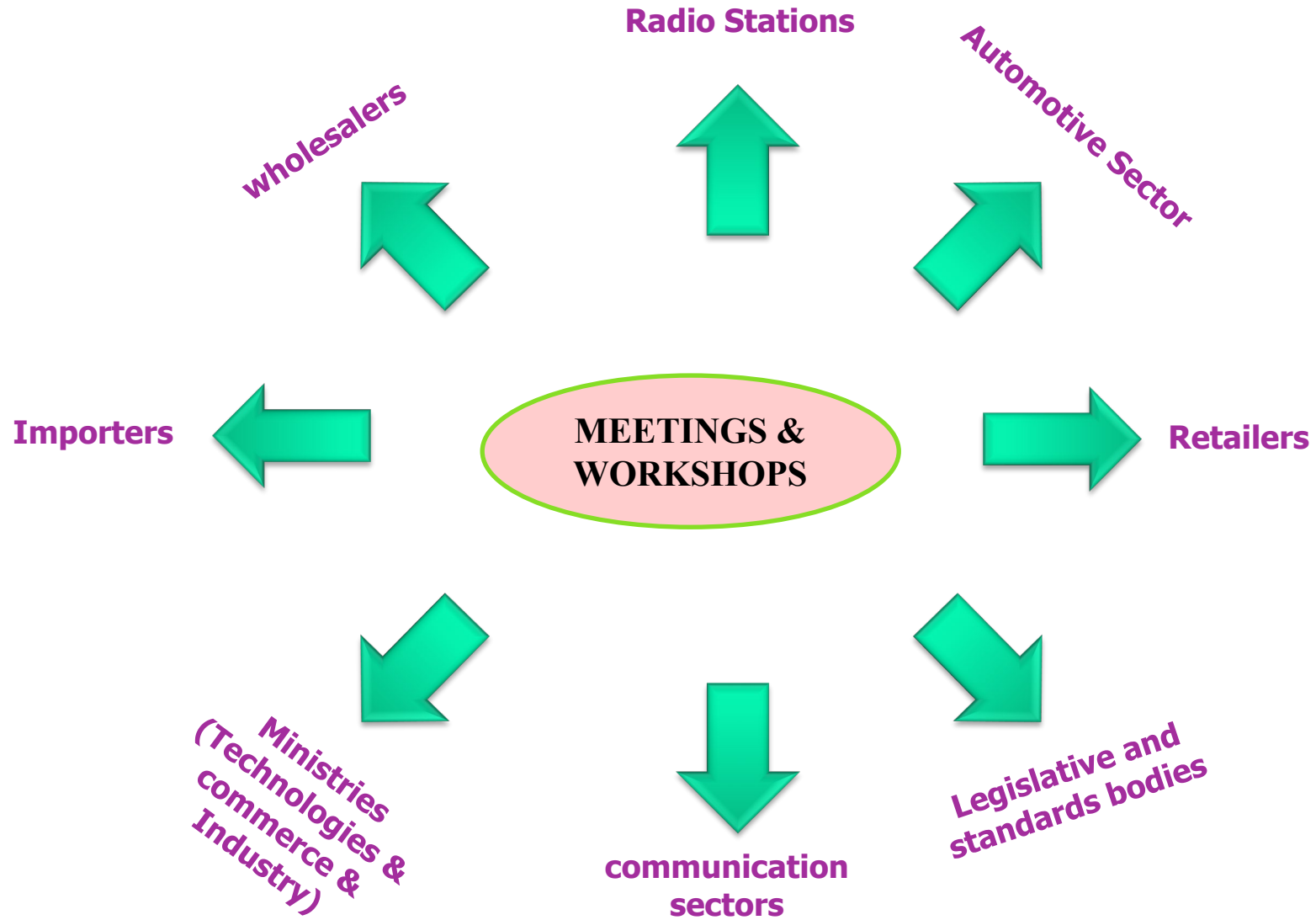
- T3 2023 (90 %)

PHASE 4:

- T2 2024 (99 %)

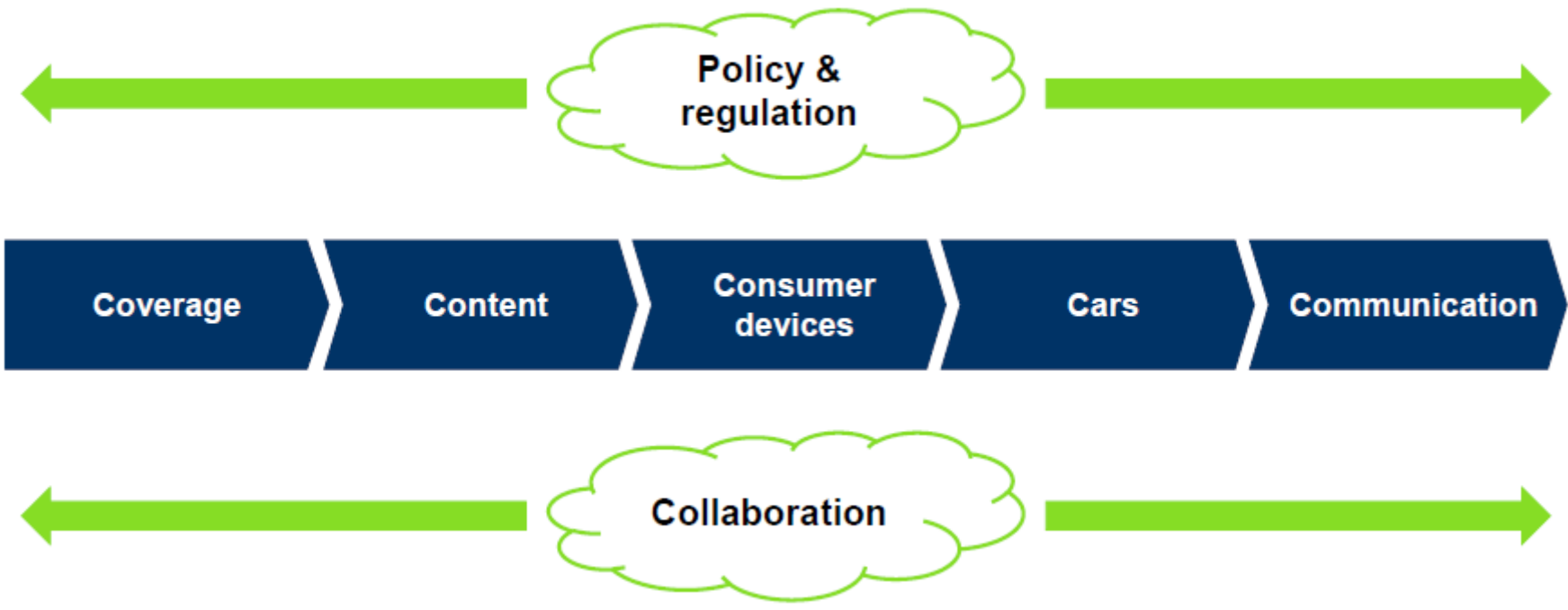


Collaboration Is the Key For The Successful Roll Out Of DAB+



Key to success is political vision and industry collaboration

The Five Cs



Conclusion



1

- **Conduct tests and experimentations**

2

- **Set the legal and legislative framework for integrating the specifications of receivers whether manufactured locally or imported.**

3

Set a timetable for the integration of this service into the reception equipment. It is advisable to start with cars and other vehicles

4

Form a national committee composed of legislative bodies from radio and communication sectors, bodies responsible for standards, in order to develop a national road map for its implementation

5

2024 : all devices sold to consumers or provided by the automotive industry have to be digitally DAB+ (regulated by LAW- B2B & B2C)



ACTION PLAN FOR DAB+ DSO



➤ Invite the broadcasting organizations that have started the service to respect the following steps :



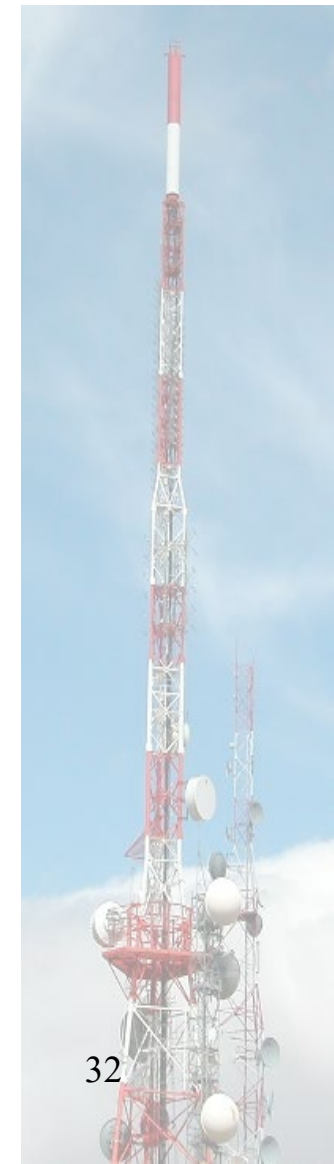
Put Flashes on various media to inform the audience of the benefits of digital audio broadcasting



Use this service to broadcast archival programs from the national heritage as well as specialized programs.



Invite manufacturers of radio receivers to organize exhibitions to advertise their products and to provide various quantities and models.



SHORT TERM DAB+ ACTIONS PLAN

- 1 ➡ Creation of a National committee to keep pace with the process of transition to digital radio broadcasting
- 2 ➡ Coordination with the Tunisian customs services to create new references for receivers
- 3 ➡ All new cars must have to be capable of receiving digital radio starting from 2024
- 4 ➡ Coordination with concerned Ministries to adopt tax exemptions on receivers
- 5 ➡ Setting a timetable for the gradual transition to digital radio broadcasting
- 6 ➡ Value-added services for data transmission via DAB+ digital radio receivers





THANK YOU

kamel@telediffusion.net.tn

