



ITU Workshop on the Future of TV for Americas

Brazilian TV 3.0 Project: Status and Spectrum Requirements



Paulo Eduardo dos Reis Cardoso

Bogotá, Nov 17, 2023

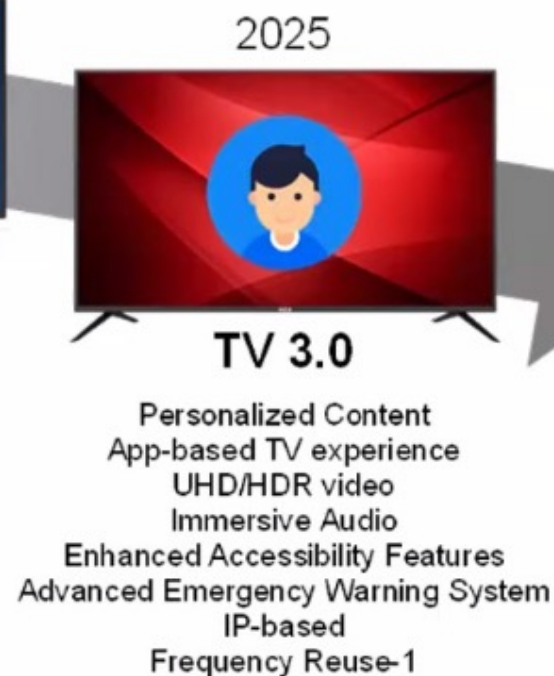
Brazilian TV 3.0 Project

FORUM
SBTVD

BRAZILIAN DIGITAL
TERRESTRIAL TV
FORUM

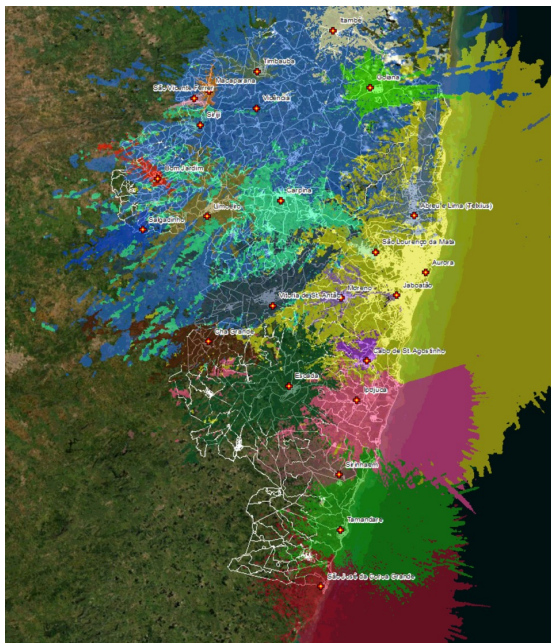


Terrestrial TV Evolution in Brazil

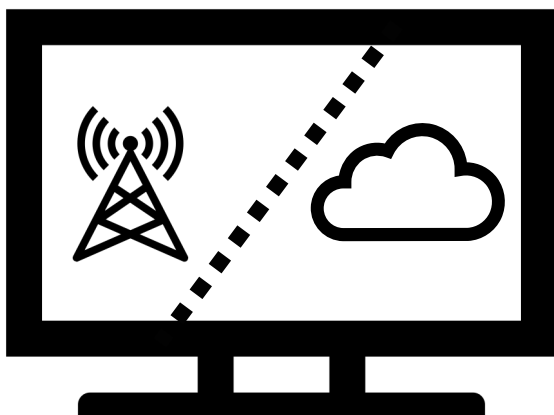


TV 3.0

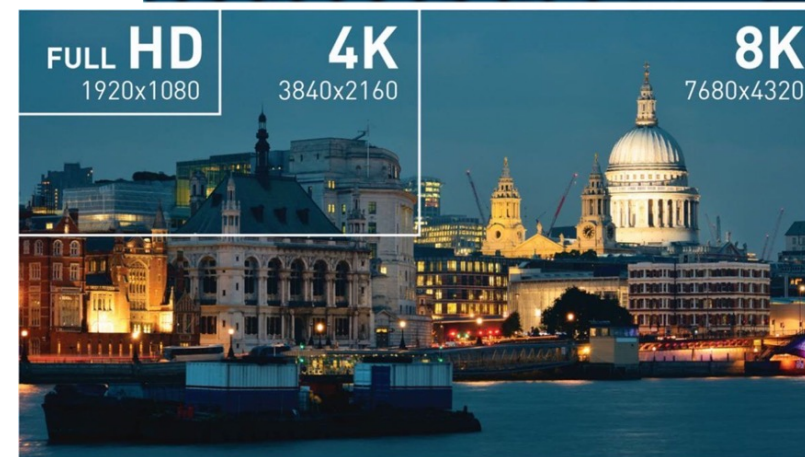
Key Requirements



Geographic
segmentation, with
frequency reuse-1



Broadcast-Broadband
Merger and Harmonization
the best of both worlds:
reach and personalization



Immersive and Customizable
Audiovisual Content for consumption
on any device, at any time



App-based TV

The full list of requirements is available at:

<https://forumsbtvd.org.br/wp-content/uploads/2020/07/SBTVDTV-3-0-CfP.pdf>

TV 3.0 Project - Phases

Phase 1 (2020)

Call for Proposals



Phase 2 (2021)

Testing and Evaluation

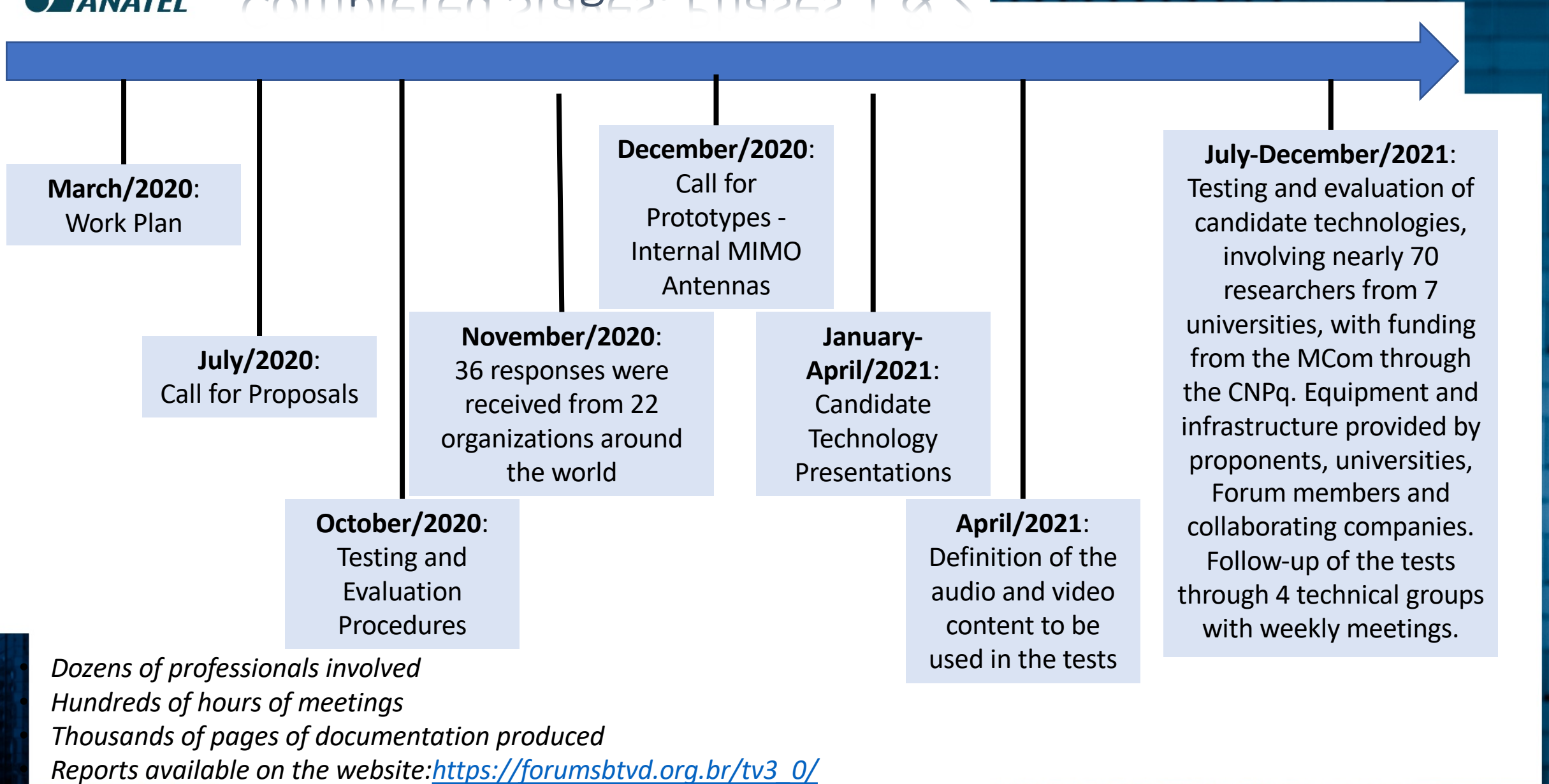


Phase 3 (2022-2024)

Complementary Tests
Research & Development
Standardization
Demos



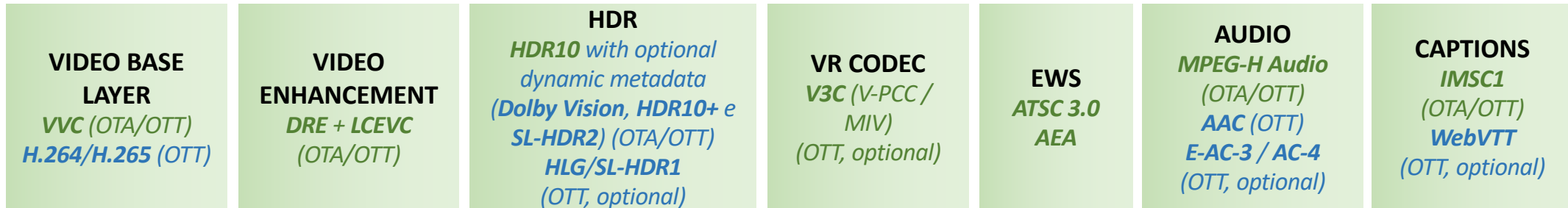
Completed Stages: Phases 1 & 2



Selected Technologies

APPLICATION CODING

DTV Play with adaptations and extensions



TRANSPORT LAYER

based on ROUTE/DASH (with adaptations and extensions) (OTA/OTT)
optional HLS (OTT) streaming support

OTA PHYSICAL LAYER

More testing is needed

BROADBAND INTERFACE

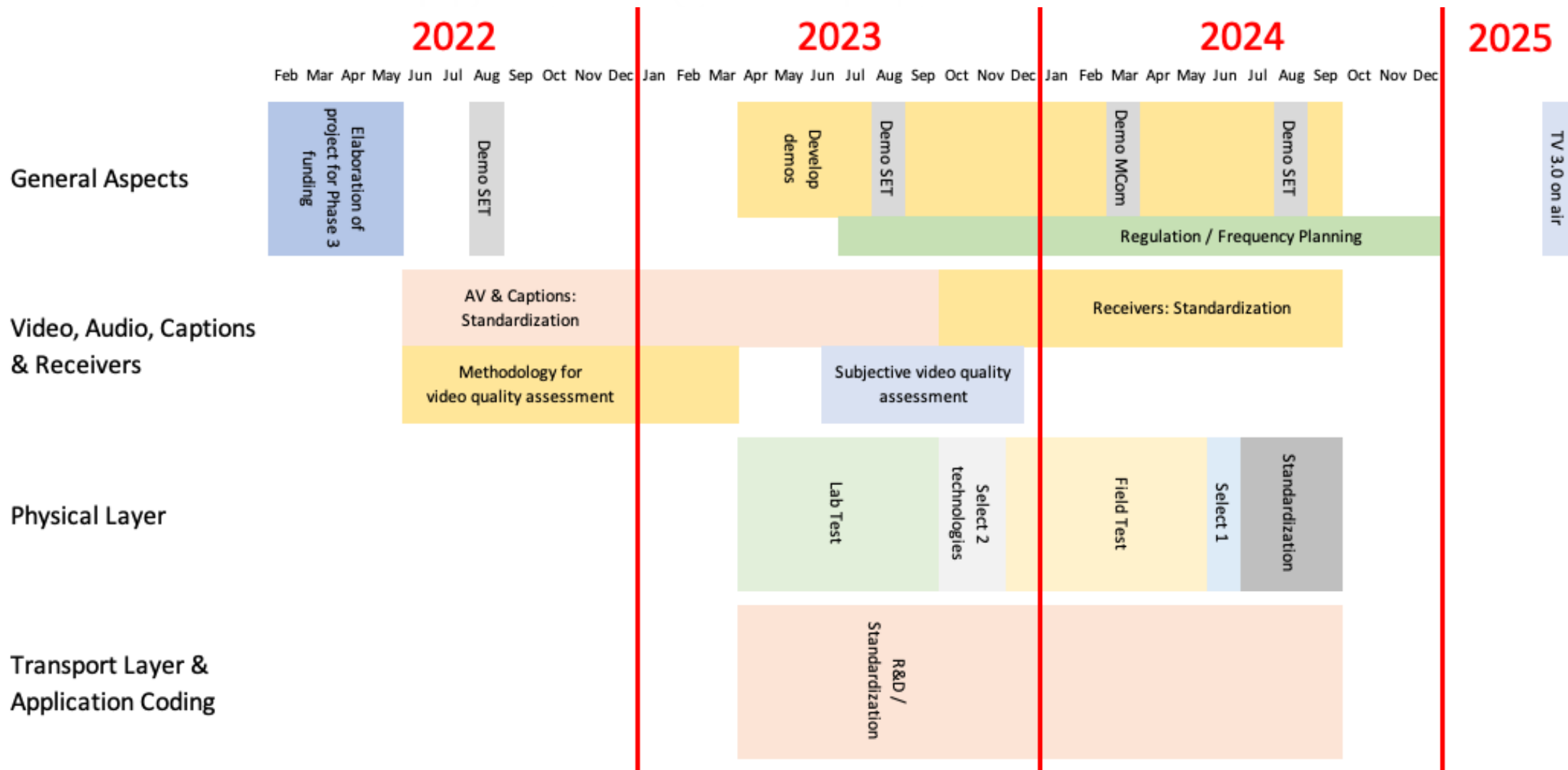
Any technology available in the receiver

Technology Not Selected
 Selected Technology
 Selected base technology, with extensions under development

Core Technology

Complementary technology

Phase 3 (2022-2024) and Project Completion









TV 3.0 on air

Physical Layer Technologies Selected for Field Testing



Decision on Sep 25, 2023

These candidate technologies proved to be better suited to the specific requirements of the TV 3.0 Project

Technology	Proponents
Advanced ISDB-T	 
ATSC 3.0	 
	 

Video Coding Quality Assessment

- Subjective evaluation of the quality of real-time video encoding using the technologies selected for TV 3.0, to **determine the minimum bitrate needed to ensure higher quality than the maximum quality possible with TV 2.5.**



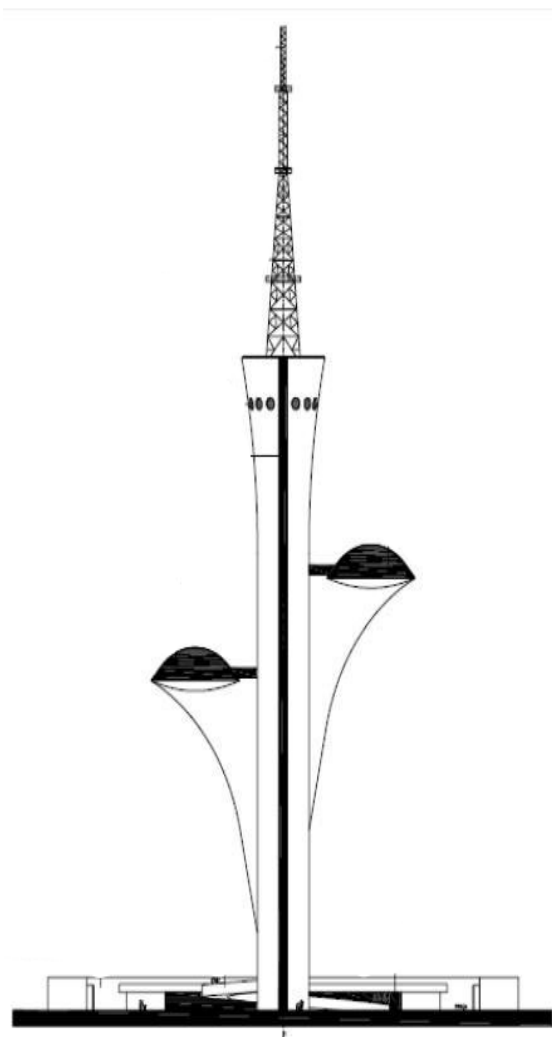
International Dissemination TV 3.0

Brazilian next-generation Digital Terrestrial Television

- ITU-R SG6 - Broadcasting service
 - R19-SG06-C-0050 – 2S/2020 - Call for Proposals – Phase 1
 - R19-SG06-C-0095 – 1S/2021 - Testing and Evaluation / Call for Prototypes – Phase 2
 - R19-SG06-C-0159 – 2S/2021 - Phase 1 and 2 Responses
 - R19-SG06-C-0210 – 1S/2022 - Phase 2 Results / Phase 3 launch
 - R19-SG06-C-0249 – 2S/2022 - Phase 3 follow-up
 - R19-SG06-C-0297 – 1S/2023 - TV 3.0 trials on the FIFA World Cup 2022
 - R19-SG06-C-0352 – 2S/2023 - Presidential Decree No. 11,484 / Phase 3 follow-up
- CITEL and Mercosul

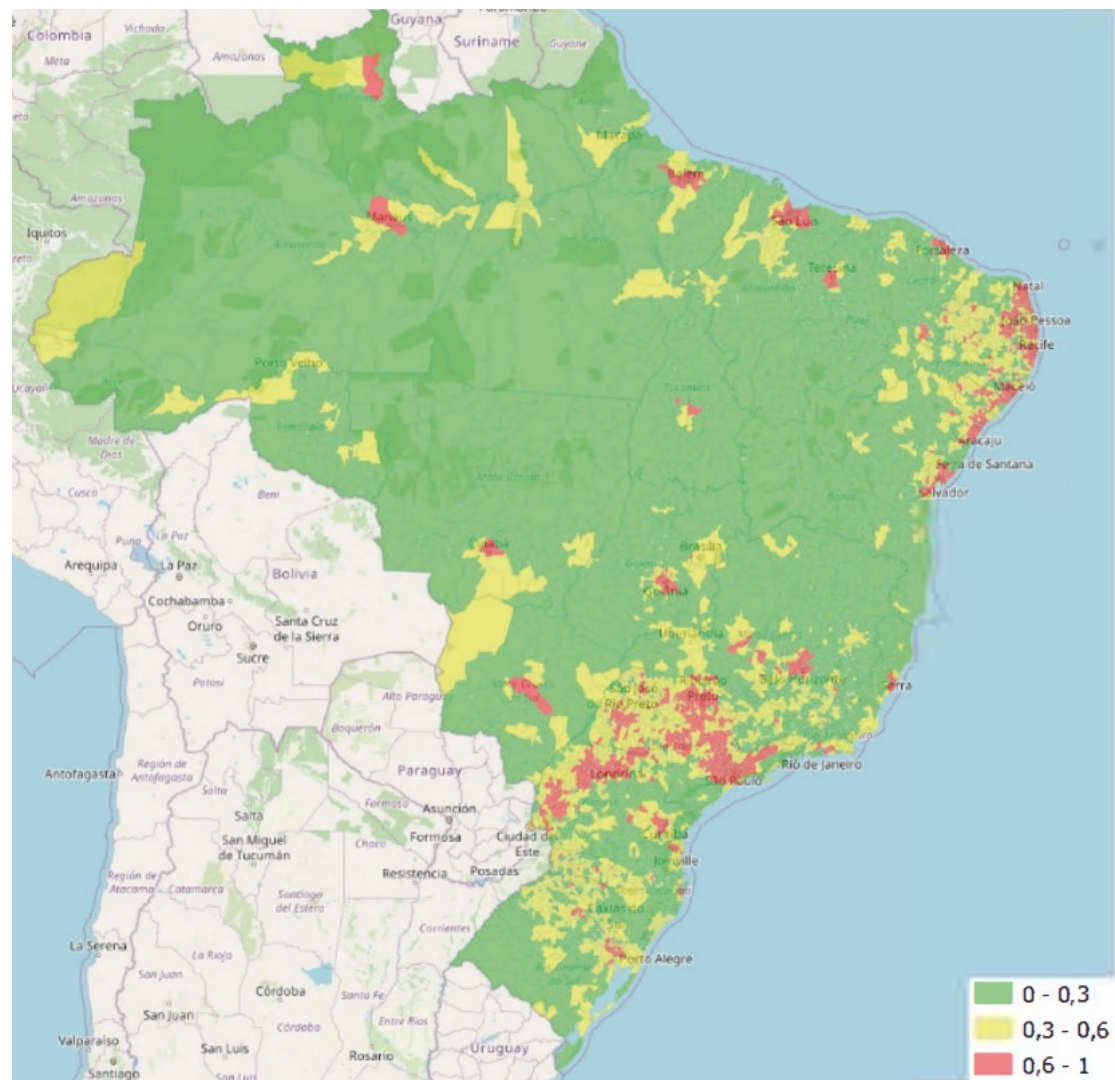
Spectrum Requirements for TV 3.0 in Brazil





42.595 CHANNELS (14/11/2023)

Service	Channels	Granted
TVD	20.876	16.642
TV (analog)	9.875	9.274
FM	8.087	4.597
RTRFM	975	205
OM	2.088	928
OT	624	65
OC	70	56
Low Power FM	5.570	5.107



Spectrum index I per Brazilian municipality.

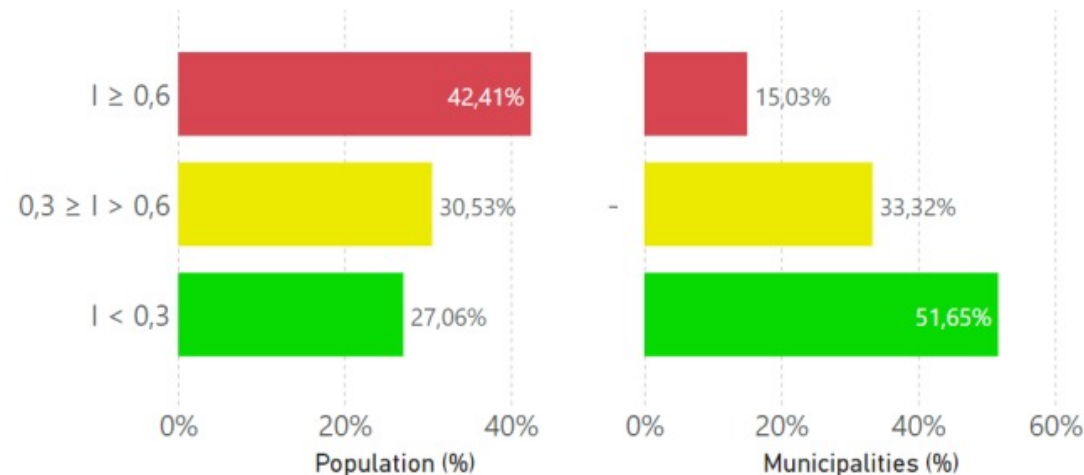


Figure 4.8: Spectrum index I in terms of percentual population and municipalities.

Soares, T. A.; Cardoso, P. E. R ; Dias, U. S.; 2022.
 Spectrum Availability for the Deployment of TV 3.0.
 SET INTERNATIONAL JOURNAL OF BROADCAST ENGINEERING
<http://dx.doi.org/10.18580/setijbe.2022.2>

Strategies

- Reserve High-VHF Band (Channels 7 to 13) for the transition to TV 3.0
- Re-plan current DTT channels in some areas to free continuous spectrum portions
- Update regulation to allow multi-programming
- Promote installation of shared infrastructure
- Promote the production of TV sets with ISDB-Tb and TV 3.0 receiving capability as soon as the system technology has been defined

Soares, T. A.; Cardoso, P. E. R ; Dias, U. S.; 2022.
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Strategies

- **Reserve High-VHF Band** (Channels 7 to 13) for the transition to TV 3.0
 - 7 "national" channels for TV 3.0
- [Ministerial Ordinance n° 10.693](#) Oct 05, 2023: New band for TV 3.0
 - estimate 10 more channels -> "national"
- N "national" UHF channels

7 (174 MHz) (216 MHz) 13

7 "national" VHF channels

10 new "national" channels

14 (470 MHz)

14 + X 51 - N

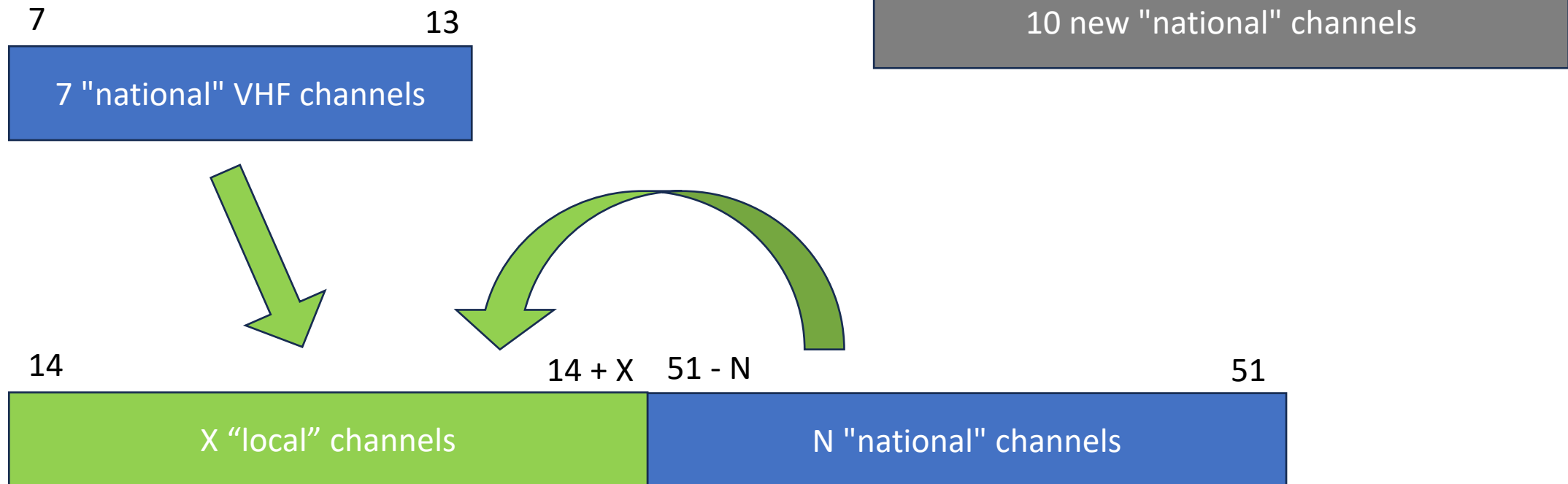
(698 MHz) 51

X "local" channels

N "national" channels

Strategies

- **Re-plan current DTT channels** in some areas to free up continuum portions



Strategies

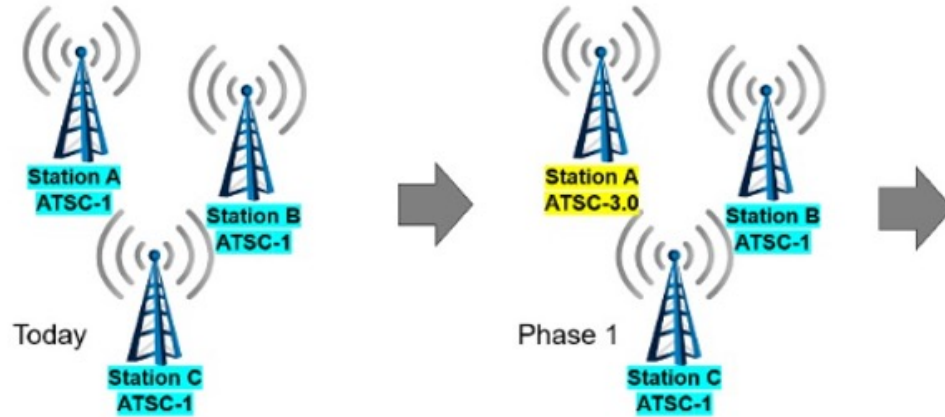
- Update regulation to allow **multi-programming**

14

14 + X

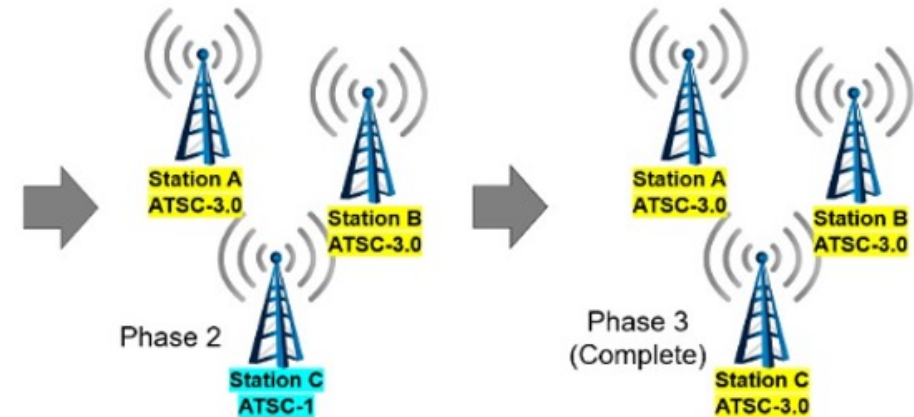
X “local” channels

3.0 “Lighthouse” Concept



Proprietary and confidential | 37

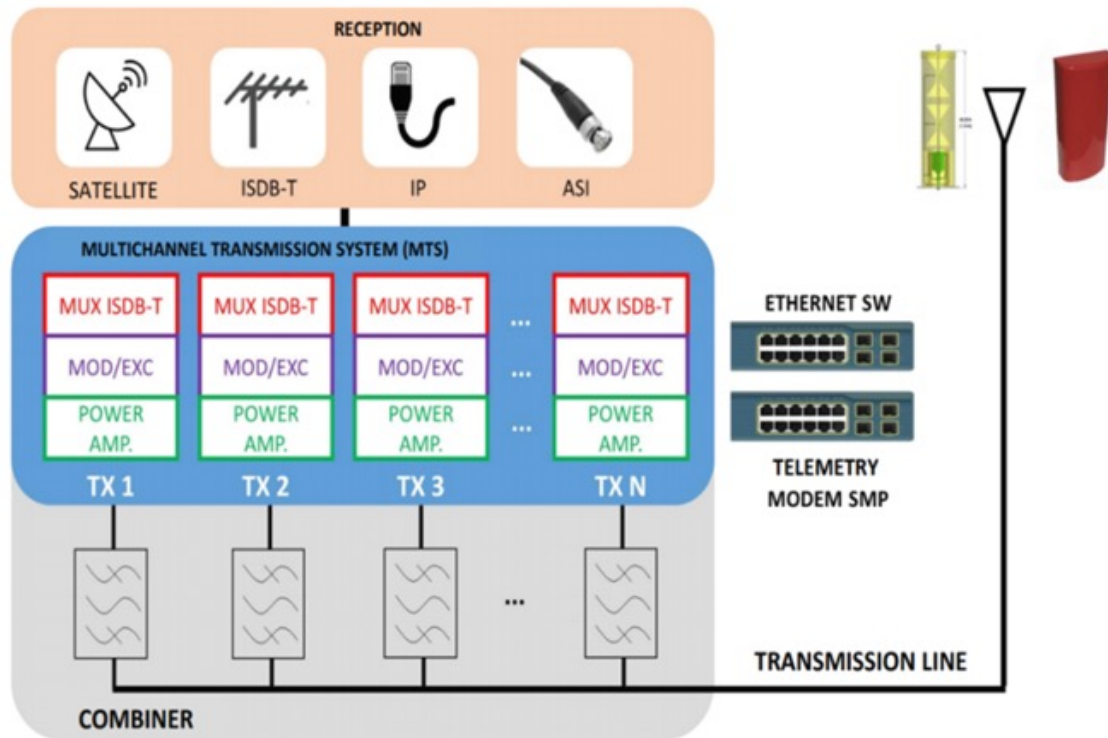
3.0 “Lighthouse” Concept



Proprietary and confidential | 38

Strategies

- Promote installation of **shared infrastructure**



14

14 + X

X "local" channels

Crowded spectrum

Less individual flexibility



Thank you

Paulo Eduardo dos Reis Cardoso
perc@anatel.gov.br