



DAB network design

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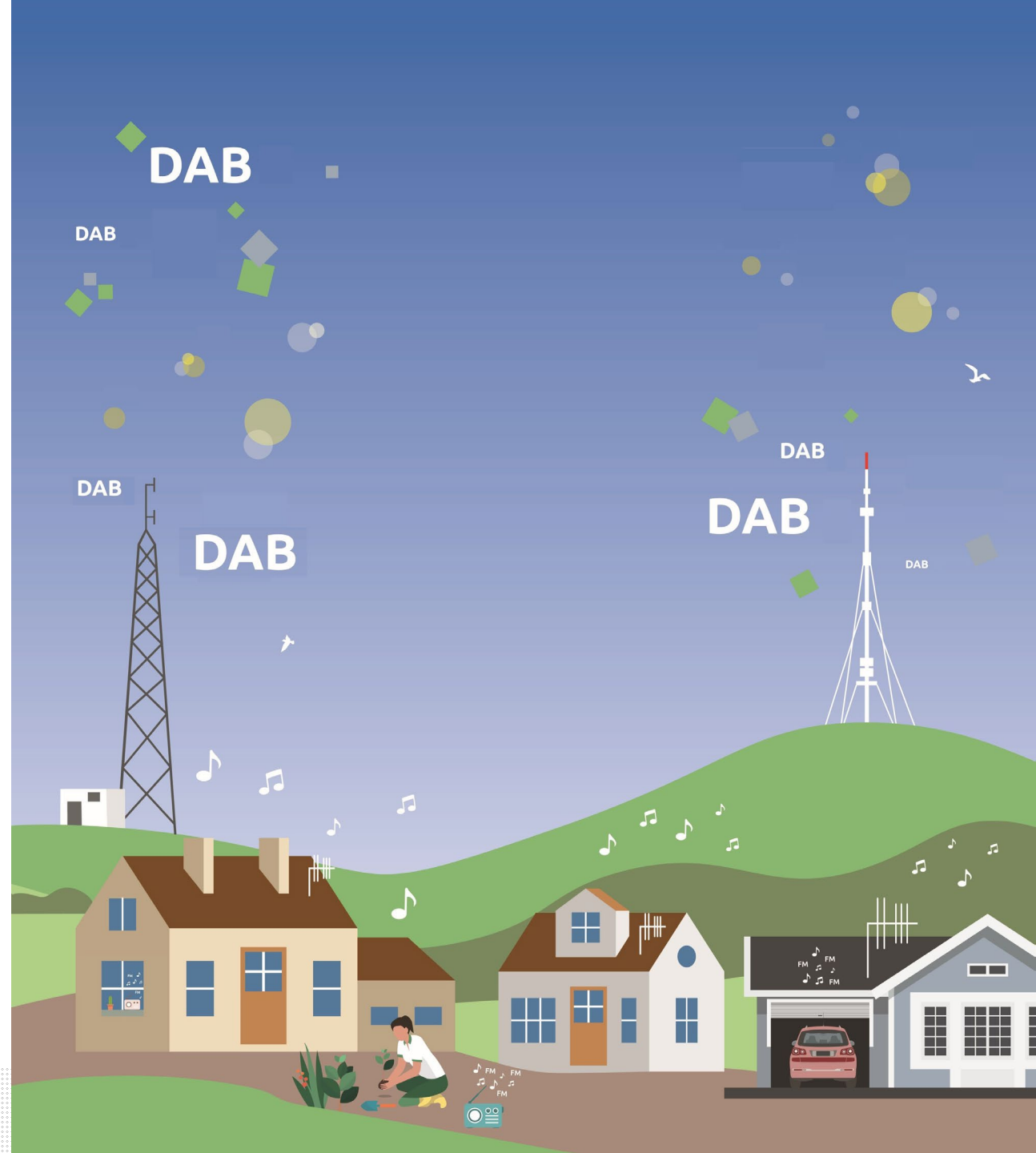
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01 Coverage Requirements and field strength reference levels

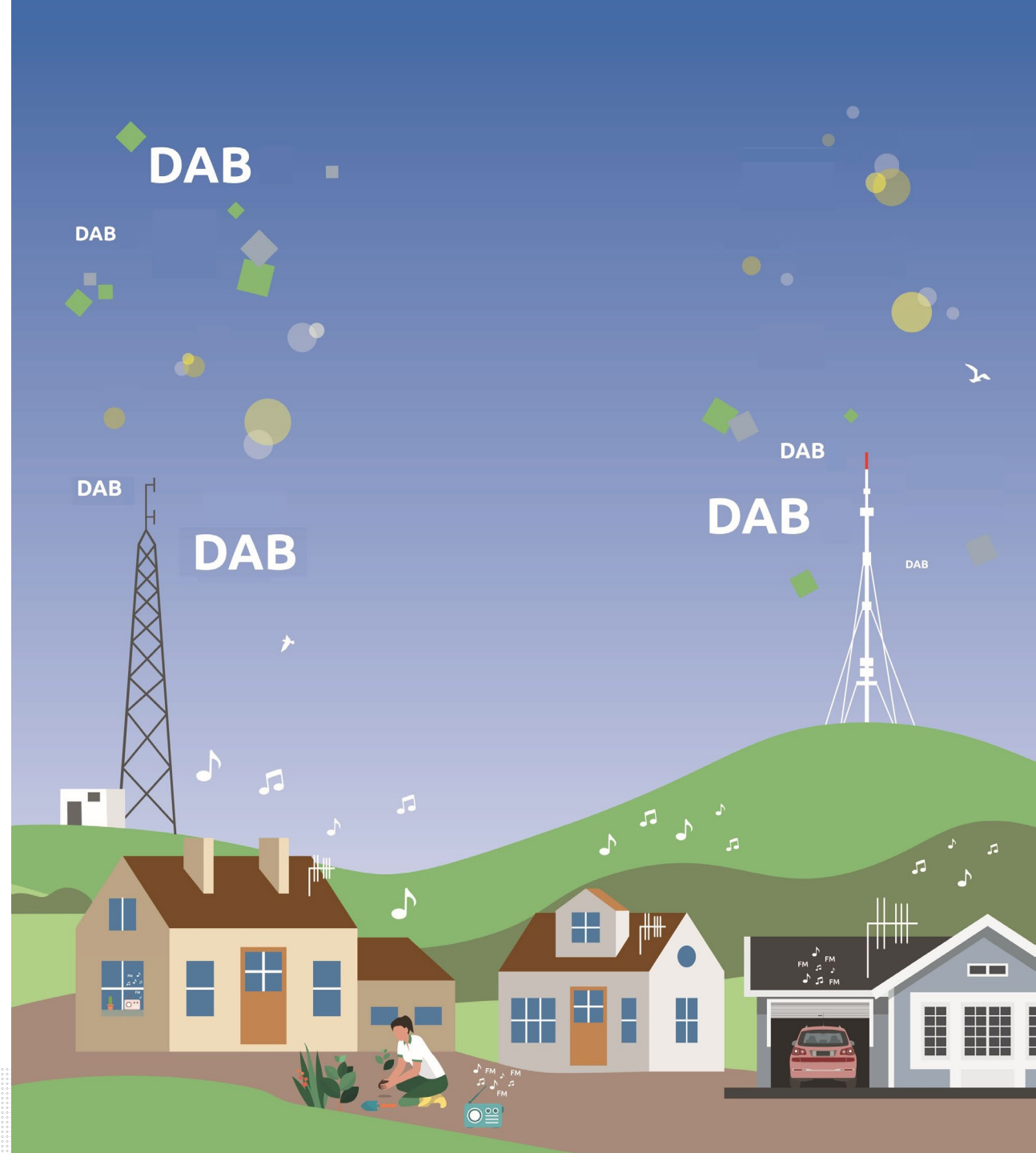
02 When to use MFN vs. SFN





01 Coverage Requirements and field strength reference levels

02 When to use MFN vs. SFN



Coverage - Field strength

Coverage requirements: starting point



Which type of area to be covered ?



Which receiver type to listen DAB ?



Receiver type

❖ Fixed reception

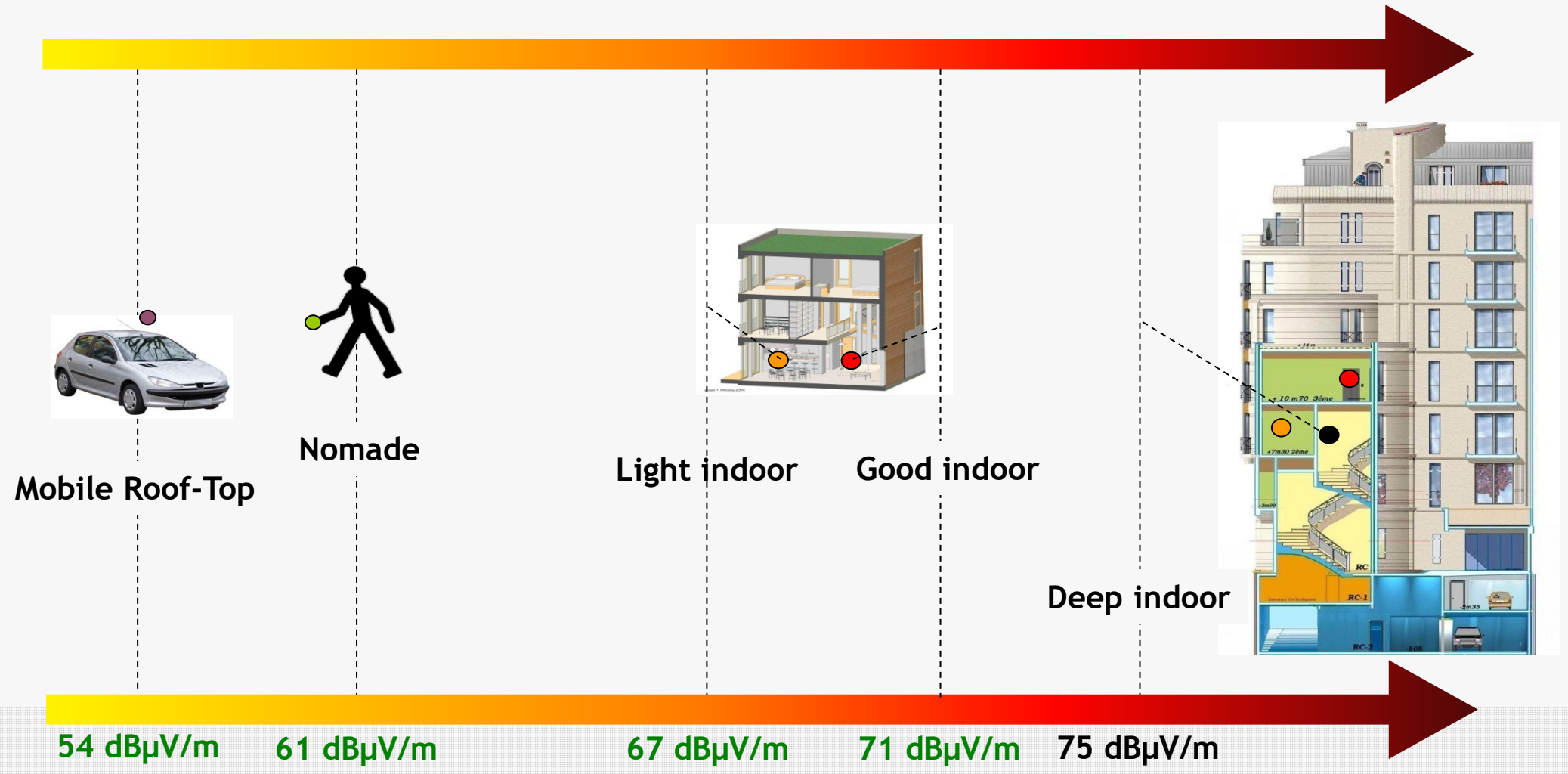
❖ Hand-held for mobile reception

❖ Mobile reception

❖ Portable reception



EBU reference



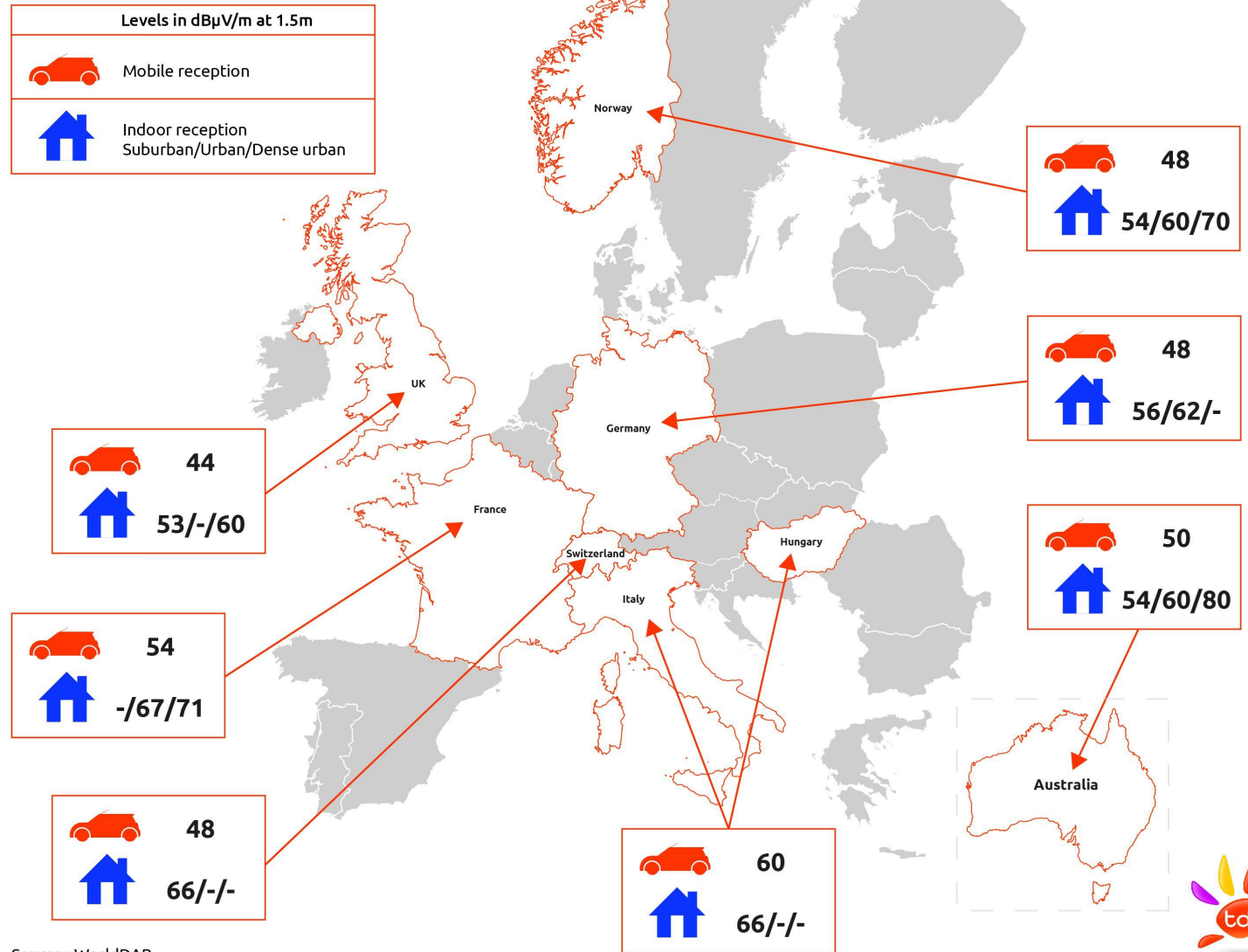
Coverage area

VHF propagation affected by time and location

- Outdoor reception
- Indoor reception - Suburban
- Indoor reception - Urban
- Indoor Reception - Dense urban

For each type of location, % of location needs to be fixed : 70% to 99%

DAB Coverage Levels

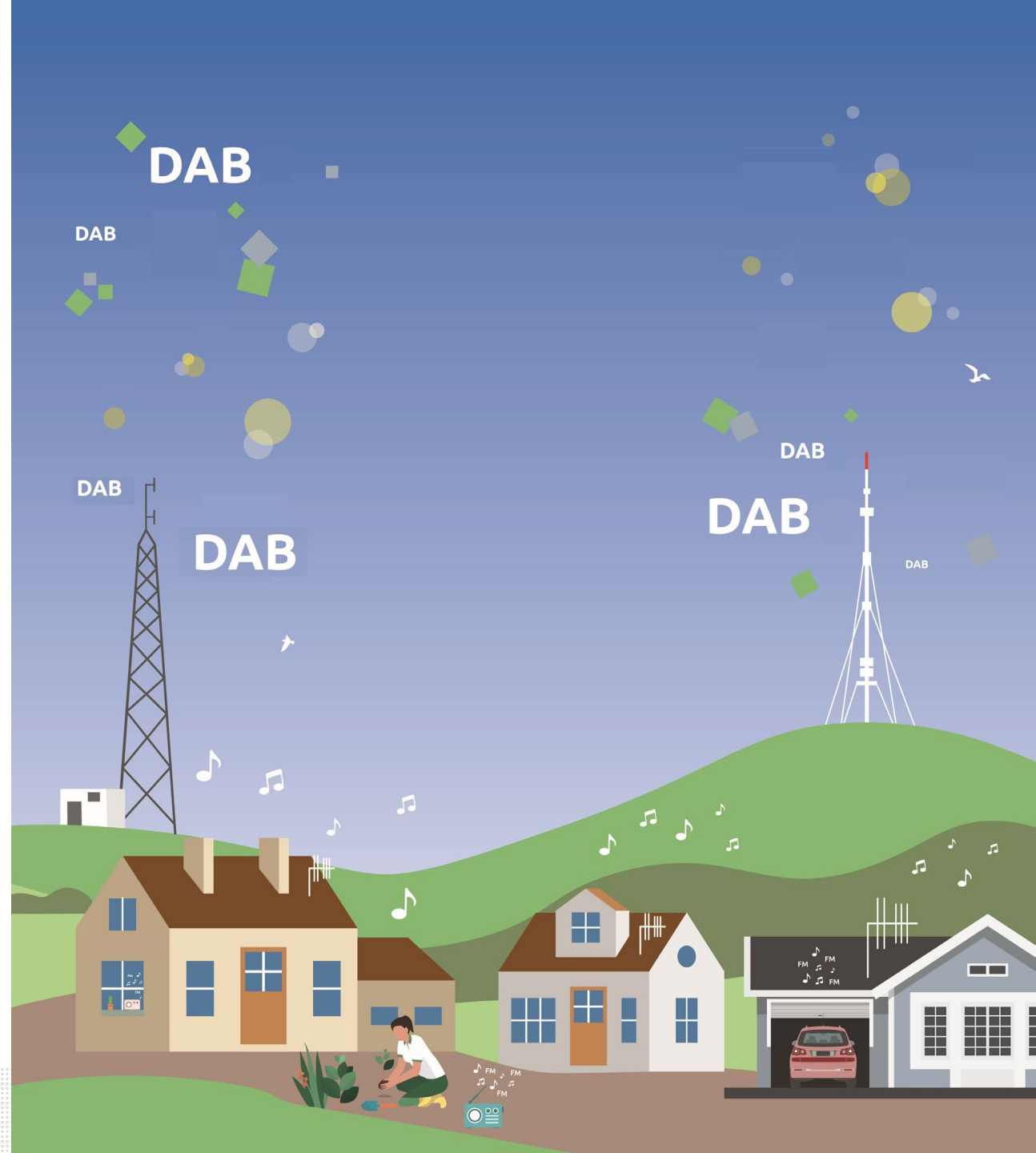


Source : WorldDAB



01 Coverage Requirements and field strength reference levels

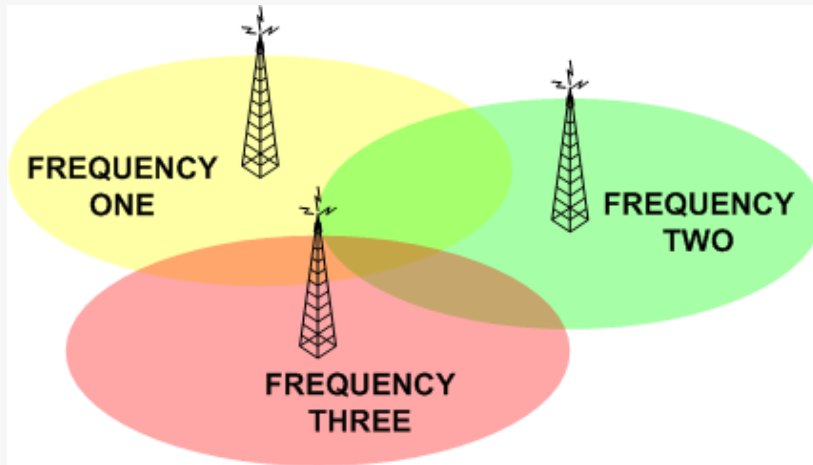
02 When to use MFN vs. SFN



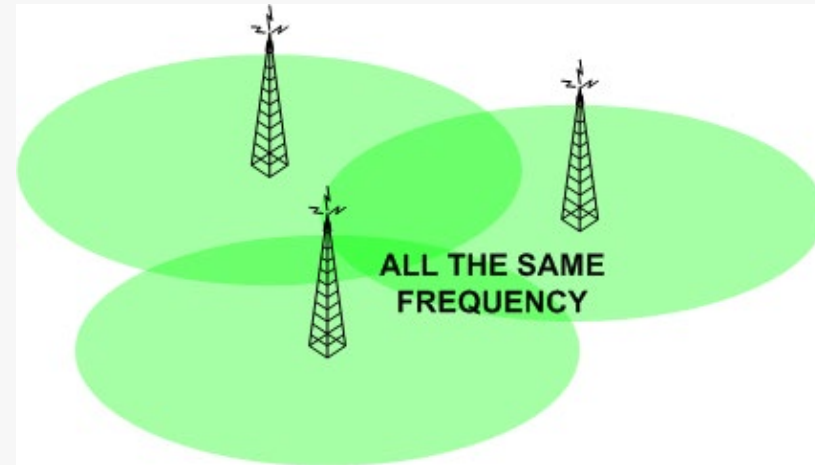
MFN vs. SFN

DAB VHF network can be design with SFN and/or MFN Network

MFN: Multiple Frequency Network

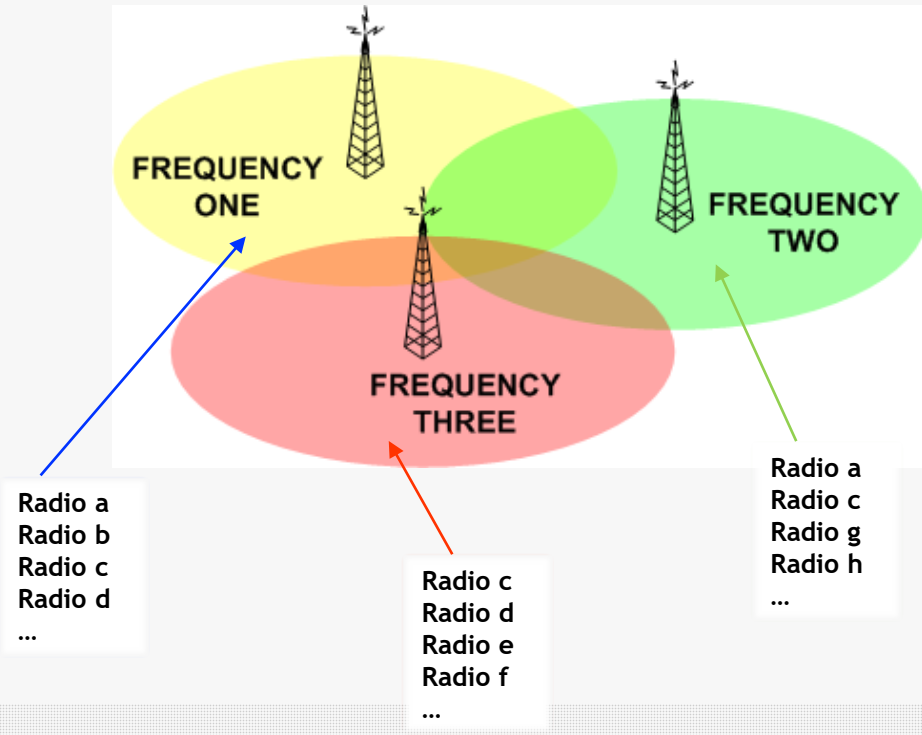


SFN: Single Frequency Network

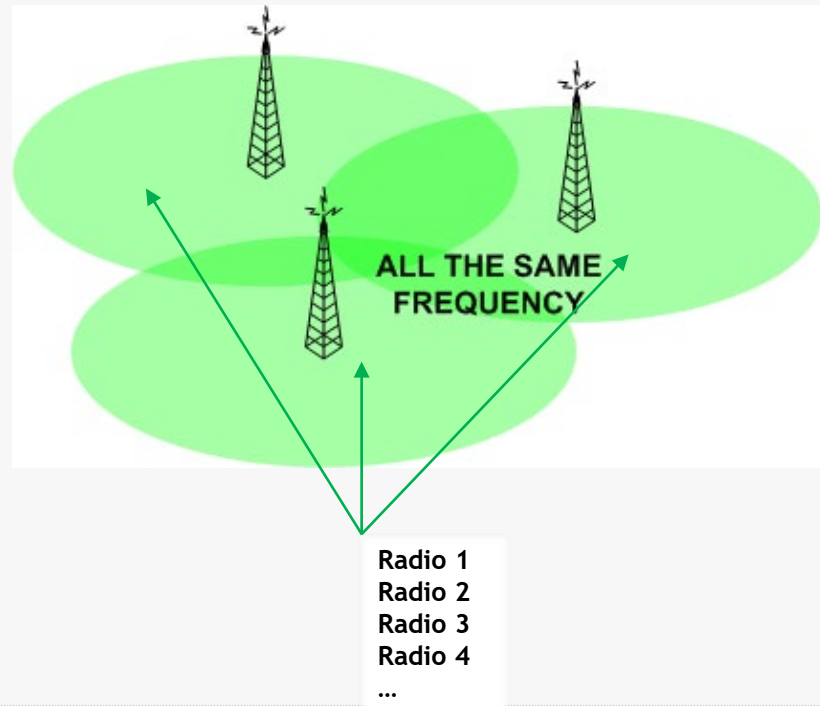


MFN vs. SFN: business case

MFN: several multiplex (different services)



SFN: Same multiplex, same services

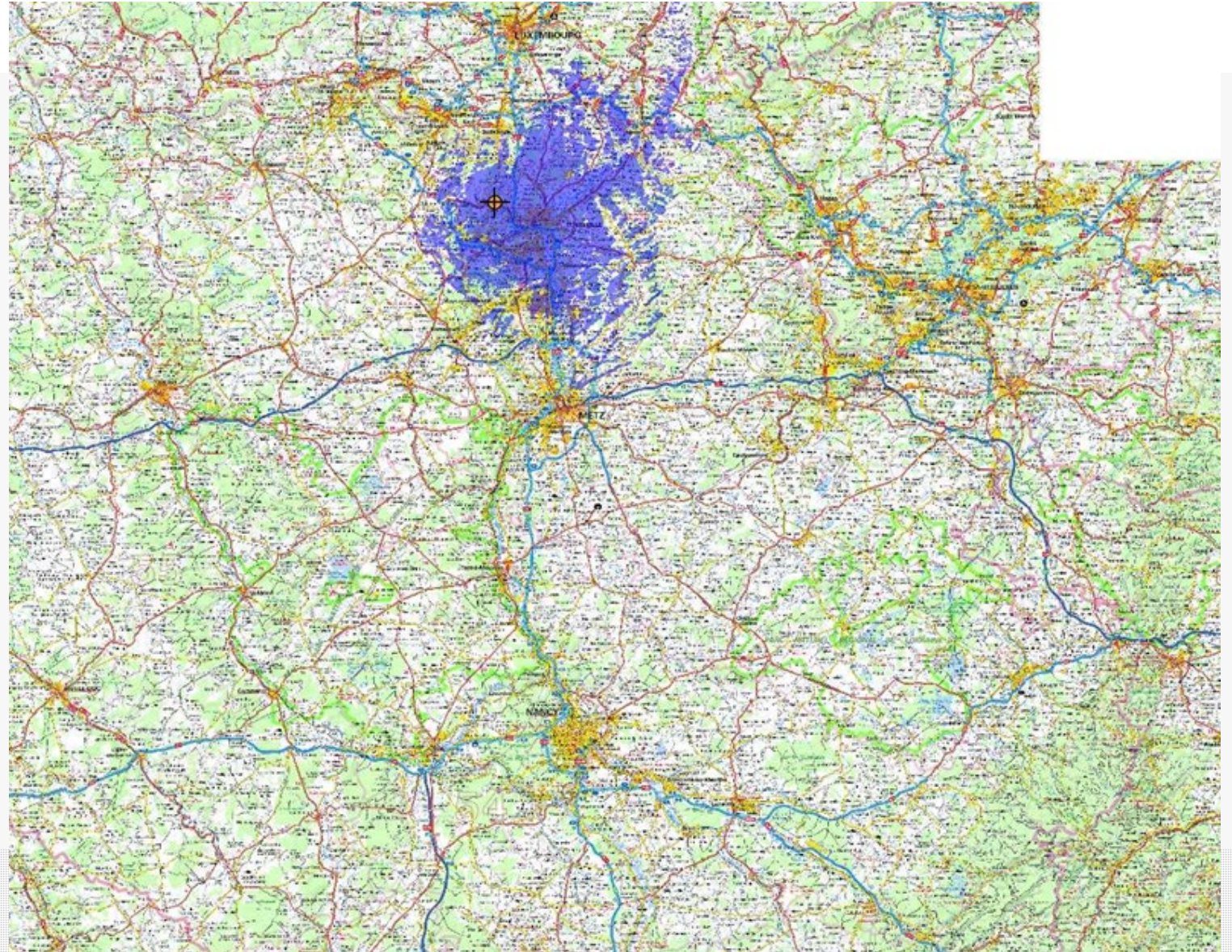


MFN vs. SFN: First use case

3 large cities, 60km distance each : **MFN option**

Thionville

13 programs

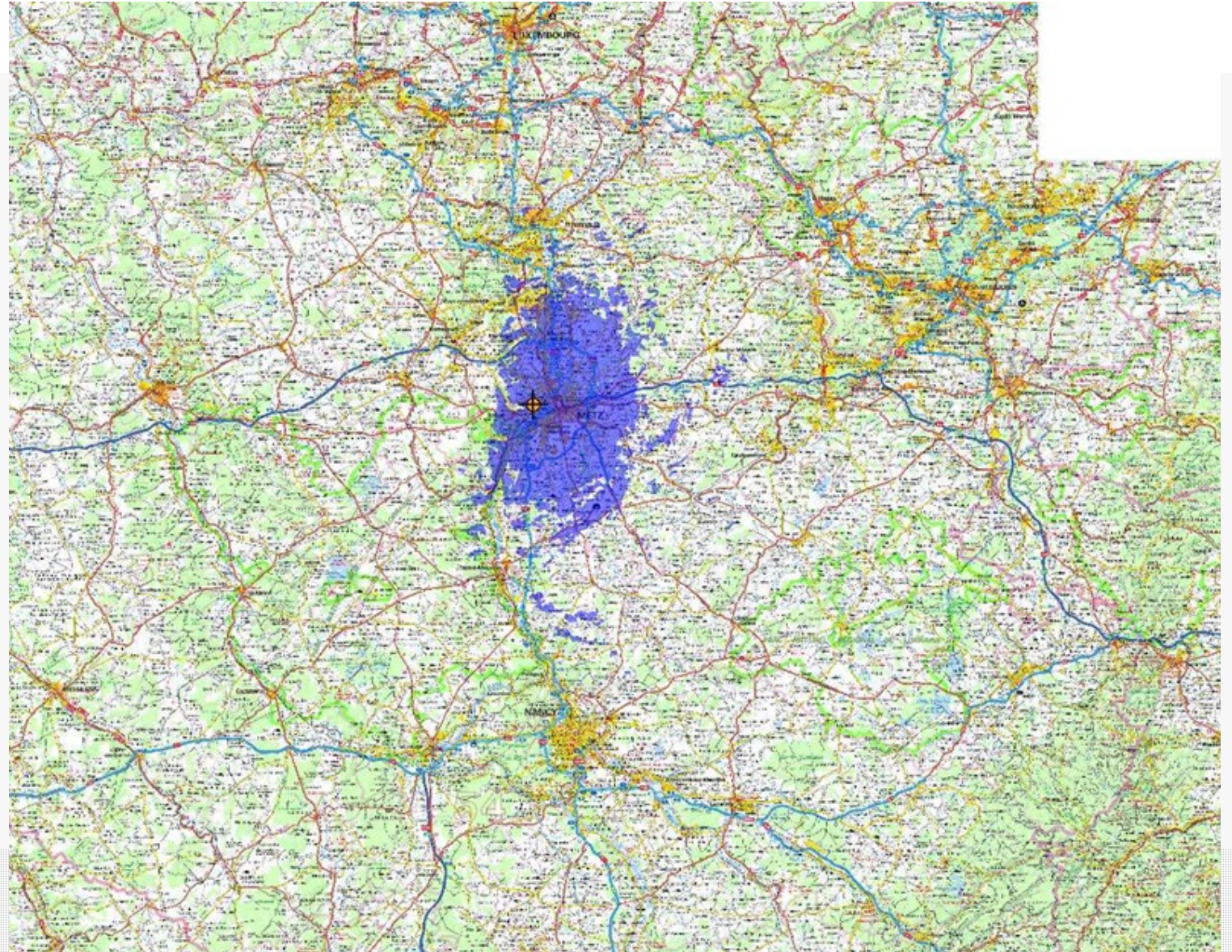


MFN vs. SFN: First use case

3 large cities, 60km distance each : **MFN option**

Metz

13 Programs

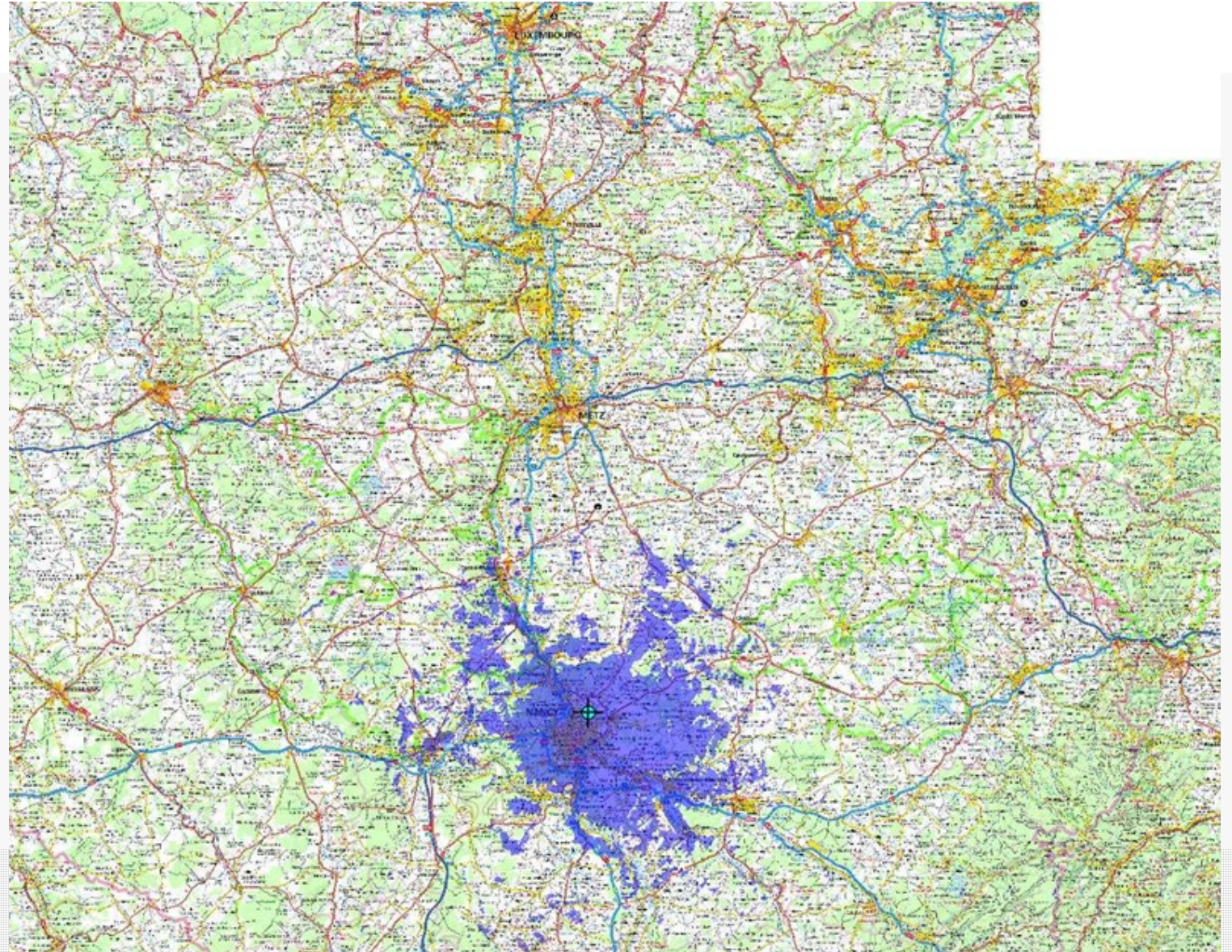


MFN vs. SFN: First use case

3 large cities, 60km distance each : **MFN option**

Nancy

13 Programs

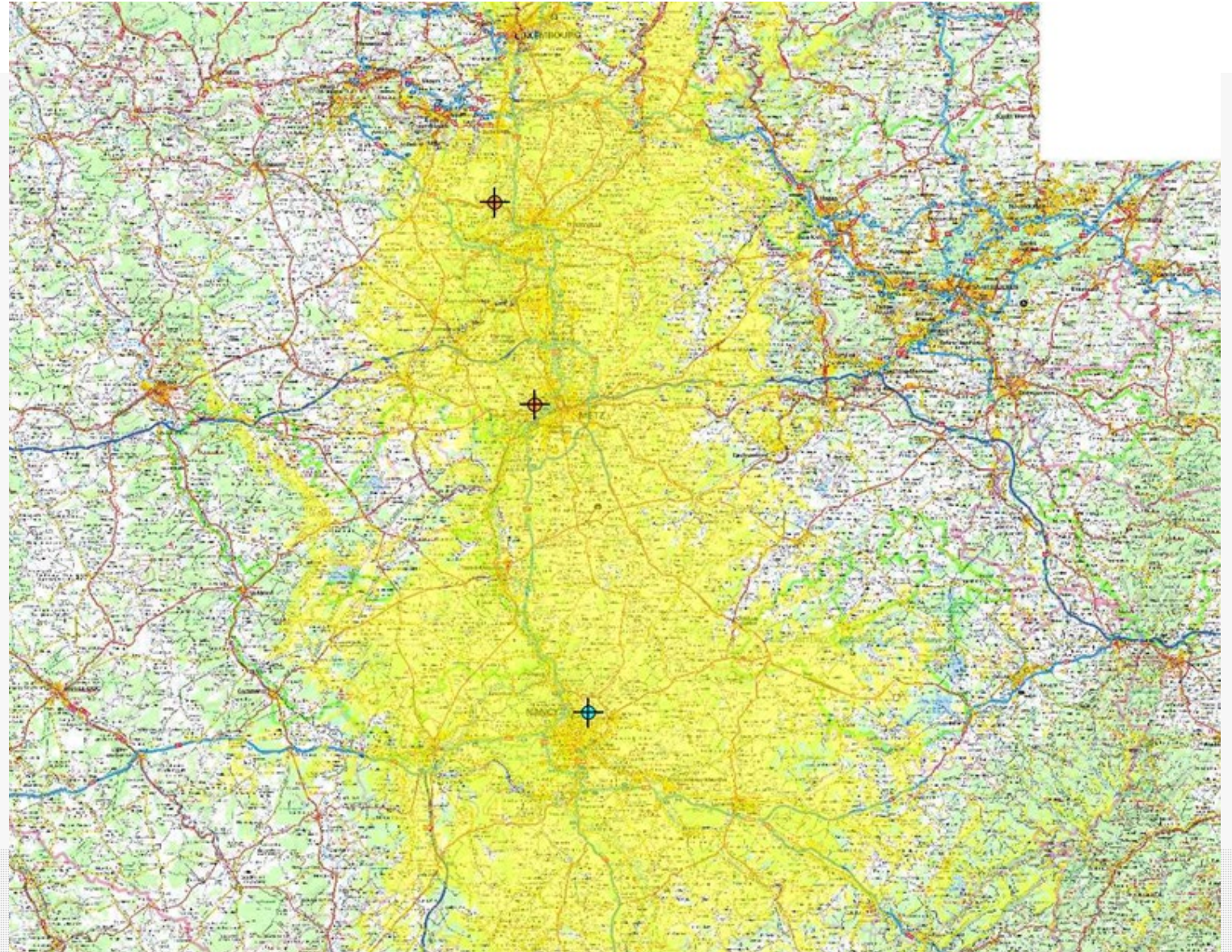


MFN vs. SFN: First use case

3 large cities, 60km distance each : **SFN option**

Mobile reception

13 Programs

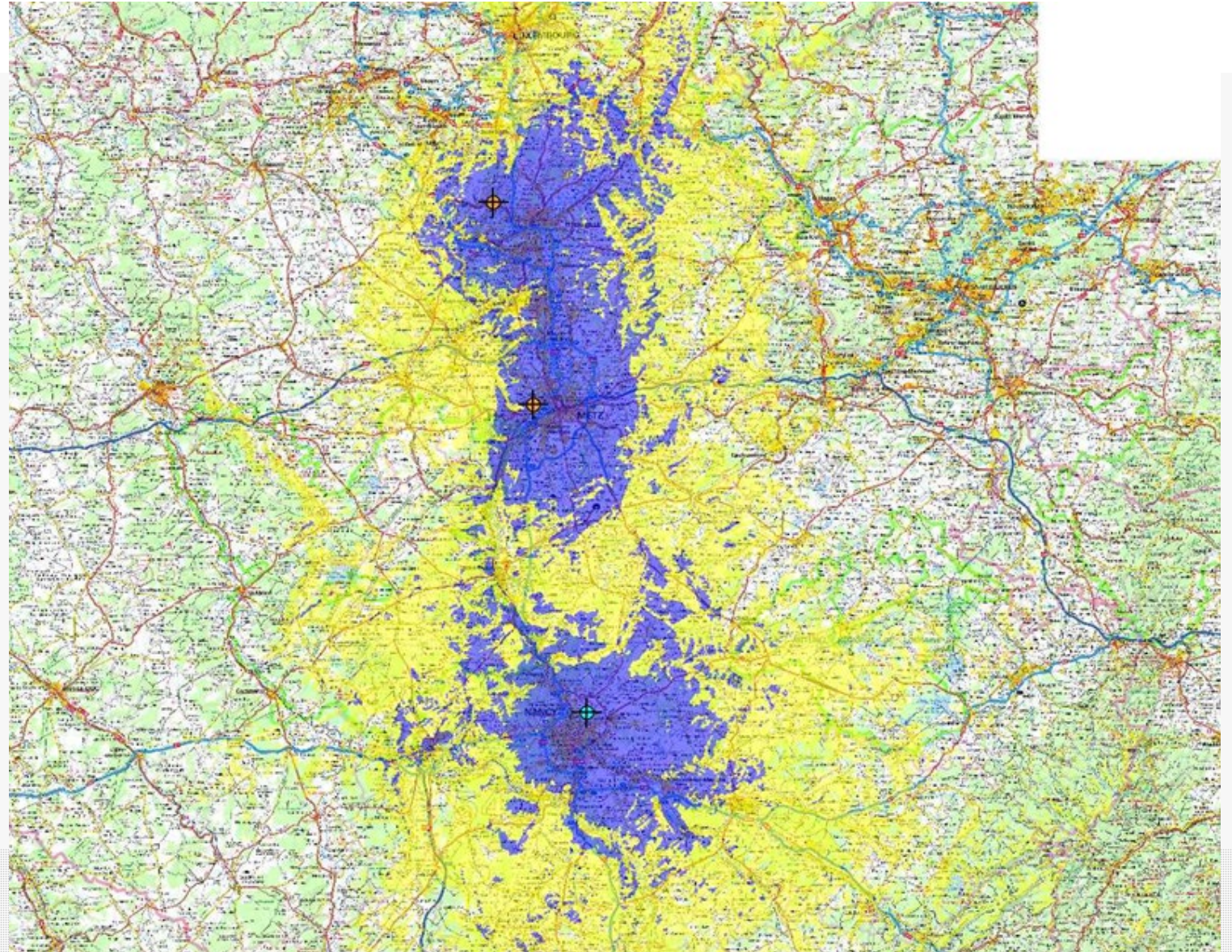


MFN vs. SFN: First use case

3 large cities, 60km distance each : **SFN option**

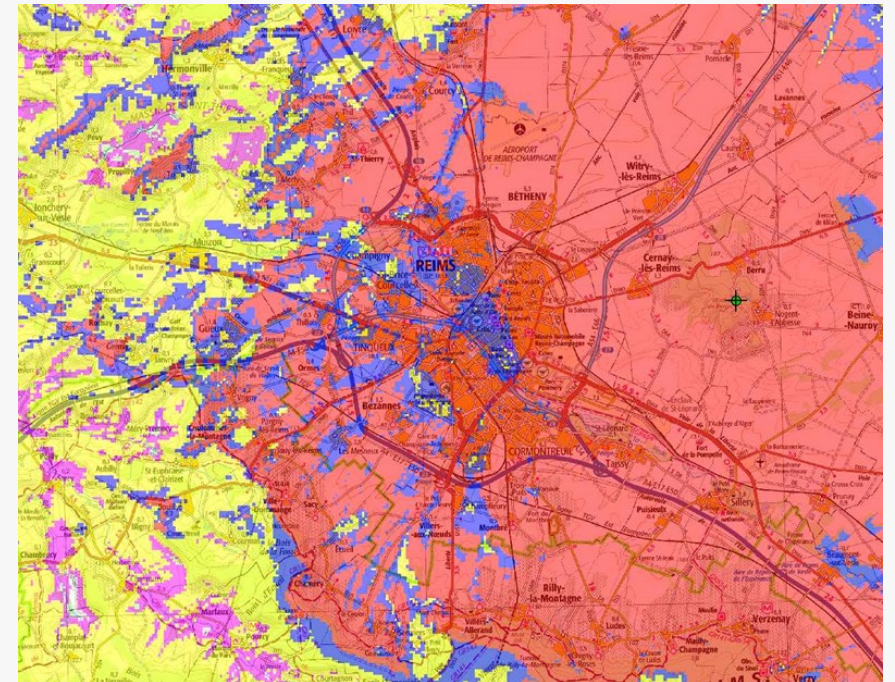
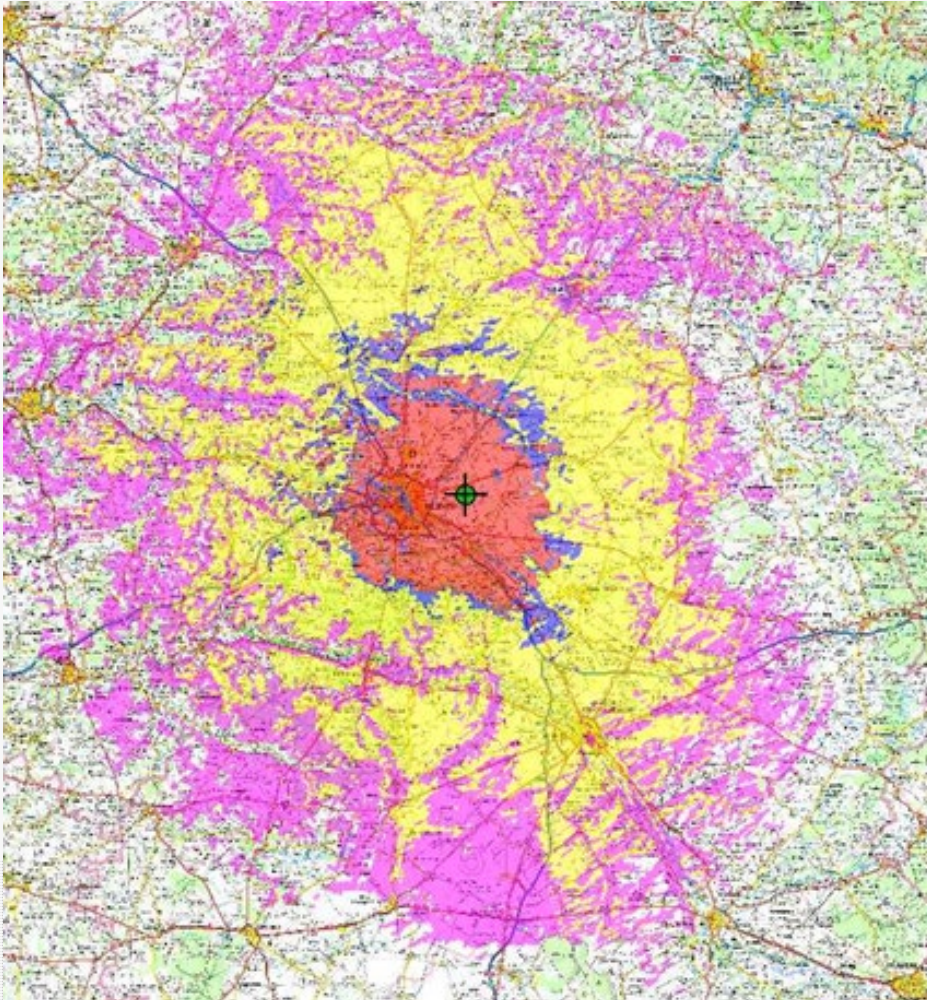
Indoor + Mobile reception

13 Programs



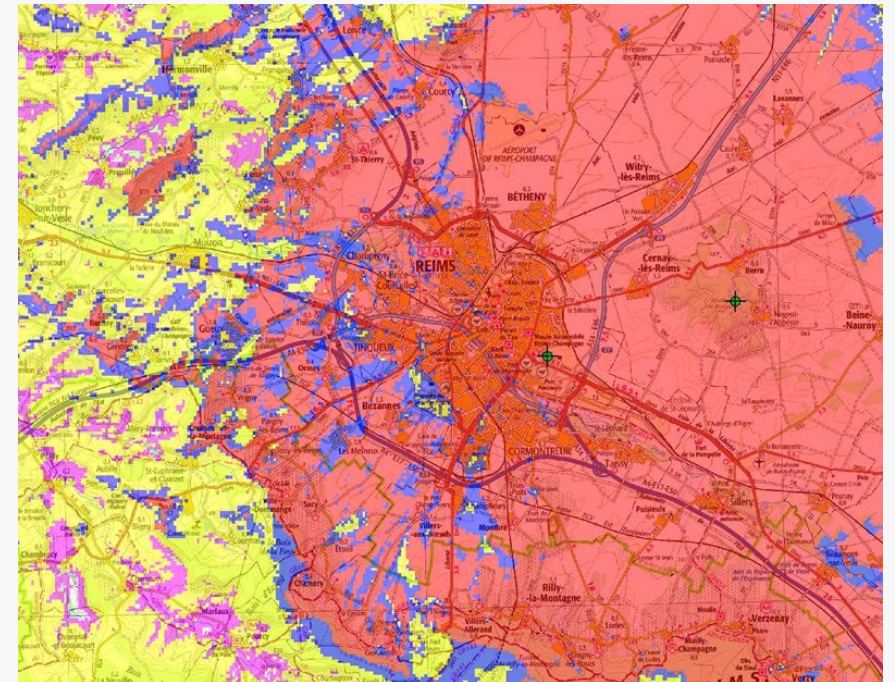
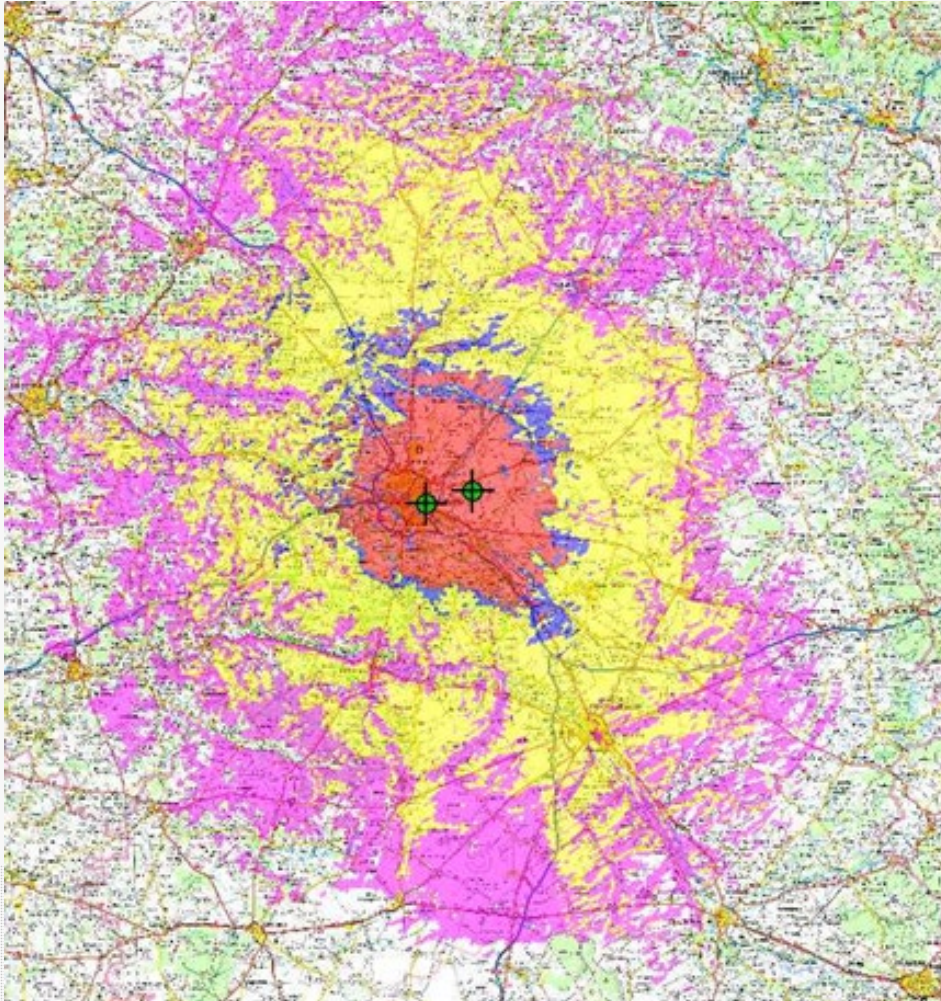
MFN vs. SFN: Second use case

SFN: an opportunity to extend or enforce the indoor coverage : Reims



MFN vs. SFN: complementary coverage

SFN: an opportunity to extend or enforce the indoor coverage : Reims



MFN vs. SFN: Guideline

SFN : Single Frequency Network ->

Multiplex must be same (same services, radio) on SFN zone

High spectral efficiency for large network

Easy licensing process on the SFN zone

Opportunity to improve the indoor coverage

Technical network adjustment and monitoring to avoid interference

> for national networks

MFN : Multiple Frequency Network ->

Multiple multiplex (multiples service, : can be modified for each frequency

Compliant with international coordination

Easy to design and to manage

> for local and regional networks



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