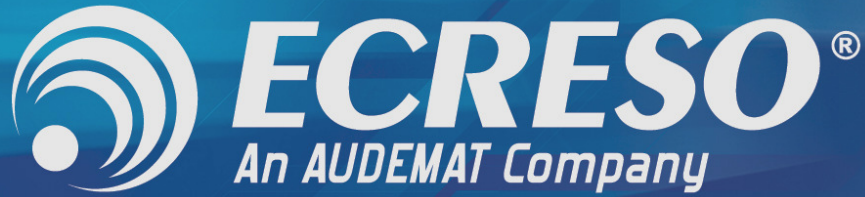




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ECRESO
DVB Transmitters



Major strengths

- ▲ Modular offering
- ▲ Transmitter features
- ▲ Gap filler and Transposer features
- ▲ EMAA Zecho
- ▲ 1+1 configuration



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MODULAR OFFERING

EMAA Modular range



EMAA Transmitter
Transmitter
MFN / SFN

Software upgrade with USB key



EMAA Transposer
Transposer (IF)
MFN



EMAA SFN
Gap filler
SFN



EMAA Retransmitter
MFN



EMAA Zecho
Gap filler
Iso frequency

EMAA product range

▲ EMAA common features :

- ModulCast family from Teamcast technologies
- ECRESO power amplifiers
- Power classes : 8 models available
 - Low power in 3 U size :
 - 0,5 Watts
 - 5-10 Watts
 - Medium power in 4 U size :
 - 20 Watts
 - 35 Watts
 - 50 Watts
 - 100 Watts
 - 200 Watts



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EMAA TRANSMITTER

EMAA Modular range



Software upgrade with USB key



EMAA Transposer
Transposer (IF)
MFN



EMAA SFN
Gap filler
SFN

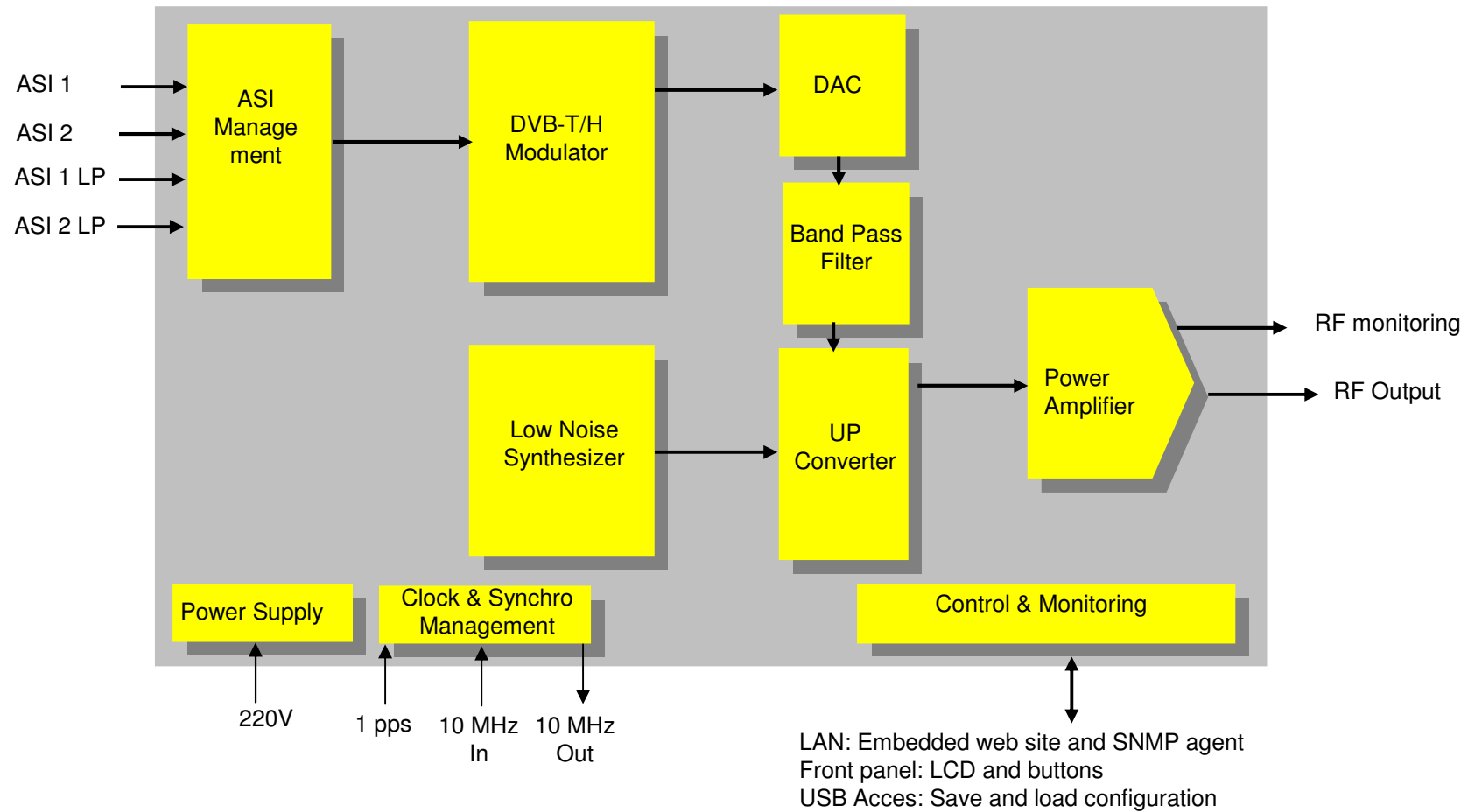


EMAA Retransmitter
MFN



EMAA Zecho
Gap filler
Iso frequency

EMAA Transmitter block diagram



Transmitter features

▲ Features :

- DVB-T/H SFN/MFN
- 5,6,7,8 MHz in the same unit
- Digital modulation
- Digital output signal processing
- Hierarchical and non hierarchical
- Seamless switching SFN Mode
- MIP Processing
- Bite rate adaptation
- External or internal synchronization
- Linear and non linear pre correction
- 1+1 configuration available

▲ Control :

- Local control: front panel
- USB functionalities
 - Save and load set up
 - Save and load precorrection
- Web control
- SNMP agent
- Tool kit
 - Non linear precorrection
 - Linear precorrection
 - Event log
 - Printing
- Calibrator : Automatic non linear precorrection

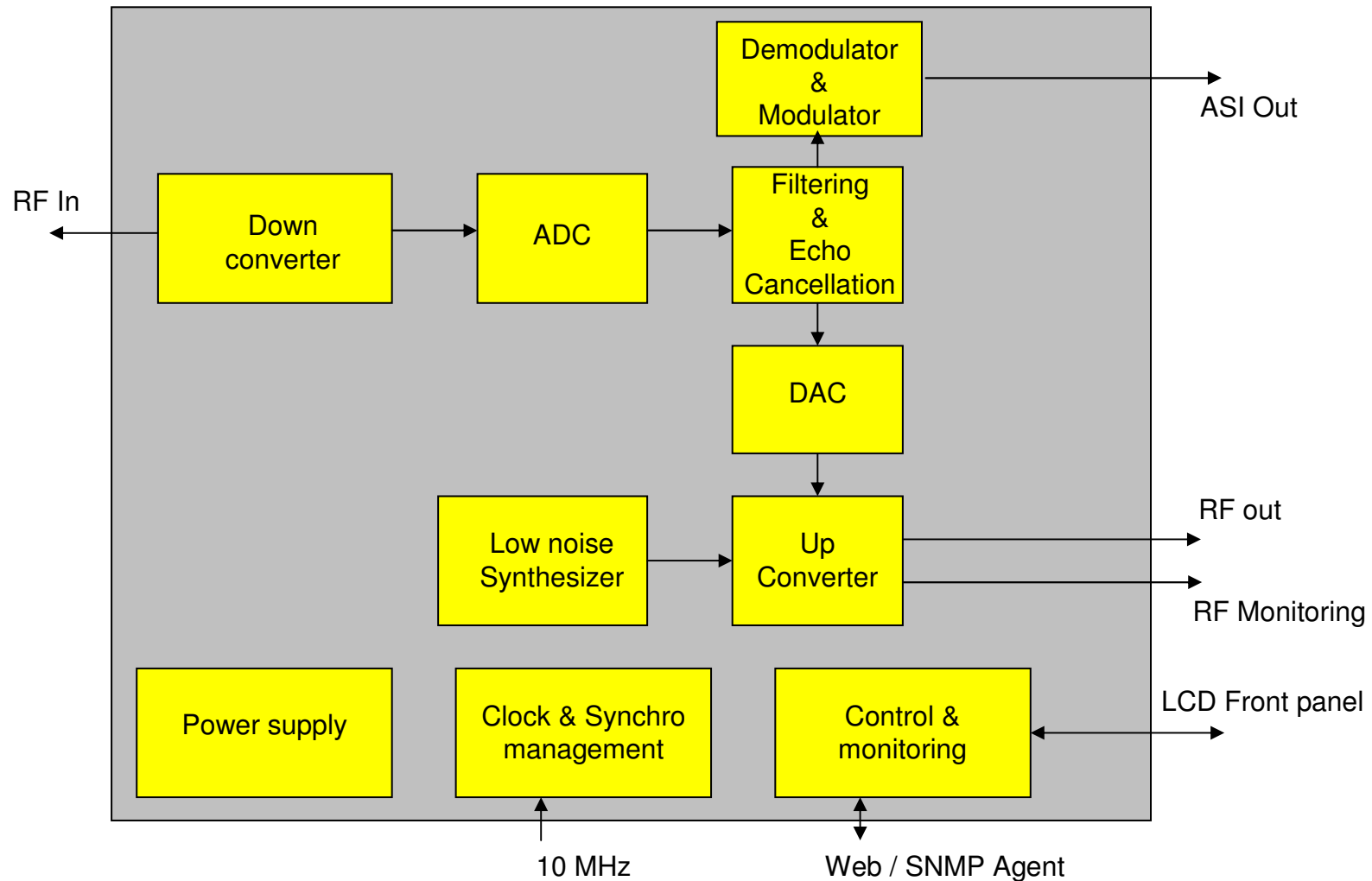


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EMAA GAP FILLER & TRANSPOSER

EMAA Reconfigurable Gapfiller block diagram



EMAA Modular range



EMAA Transmitter
Transmitter
MFN / SFN



EMAA Transposer
Transposer (IF)
MFN



EMAA SFN
Gap filler
SFN



EMAA Retransmitter
MFN



EMAA Zecho
Gap filler
Iso frequency

Software upgrade with USB key



EMAA Transposer features

▲ Features :

- DVB-T/H
- 8 MHz standard (5, 6, 7 on request)
- Reception level : -72 to -42 dB
- Digital signal processing
- DVB-T/H or non DVB-T standard
- Output power 0.5 to 200W
- Digital input/output filter filter
- MER > 33 dB (input -57dBm/38dB)
- 1+1 configuration available

▲ Control :

- Local control: front panel
- USB functionalities
 - Load and save set up
 - Load and save precorrection
- Web control
- SNMP agent
- Tool kit
 - Linear precorrection
 - Event log
 - Printing

EMAA Modular range



EMAA Transmitter
Transmitter
MFN / SFN



EMAA Transposer
Transposer (IF)
MFN

Software upgrade with USB key



EMAA SFN
Gap filler
SFN



EMAA Retransmitter
MFN



EMAA Zecho
Gap filler
Iso frequency

EMAA Gapfiller SFN features

▲ Features :

- DVB-T/H SFN
- 8 MHz standard (5, 6, 7 on request)
- Reception level : -72 to -42 dBm
- Digital signal processing
- DVB-T/H or non DVB-T standard
- Output power 0.5 to 200W
- Digital input/output filter filter
- Gain/Isolation ratio 0 dB max (10dB)
- Absolute delay < 7 μ s
- Cancellation width 10 μ s
- First echo rejection 26dB min.
- MER > 33 dB (input -57dBm/38dB)
- 1+1 configuration available

▲ Control :

- Local control: front panel
- USB functionalities
 - Load and save set up
 - Load and save precorrection
- Web control
- SNMP agent
- Tool kit
 - Linear precorrection
 - Event log
 - Printing

EMAA Modular range



EMAA Transmitter
Transmitter
MFN / SFN



EMAA Transposer
Transposer (IF)
MFN



EMAA SFN
Gap filler
SFN



EMAA Retransmitter
MFN



EMAA Zecho
Gap filler
Iso frequency

Software upgrade with USB key



EMAA Retransmitter features

▲ Features :

- DVB-T/ H
- 8 MHz standard (5, 6, 7 on request)
- Digital signal processing
- Digital modulation
- Output power from 0.5W to 200W
- Bite rate adaptation
- Reception level : -72 to -42 dB
- Shaping filter
- MER > 38 dB
- Secondary SFN capabilities
- MIP Processing
- External or internal synchronization
- 1+1 configuration available

▲ Control :

- Local control: front panel
- USB functionalities
 - Load and save set up
 - Load and save precorrection
- Web control
- SNMP agent
- Tool kit
 - Linear precorrection
 - Event log
 - Printing

EMAA Modular range



EMAA Transmitter
Transmitter
MFN / SFN

Software upgrade with USB key



EMAA Transposer
Transposer (IF)
MFN



EMAA SFN
Gap filler
SFN



EMAA Retransmitter
MFN



EMAA Zecho
Gap filler
Iso frequency

EMAA Isofrequency Gapfiller : ZECHO

▲ Features :

- DVB-T/H isofrequency not SFN
- 8 MHz standard (5, 6, 7 on request)
- Digital signal processing
- Output power from 0.5W to 200W
- Reception level : -72 to -42 dB
- Shaping filter
- Output filter (linear effect)
- Gain/Isolation ratio 0 dB max (-2dB)
- ZECHO process capable to cancel completely all echoes (including the antenna coupling)
- MER > 38 dB
- 1+1 configuration available

▲ Control :

- Local control: front panel
- USB functionalities
 - Load and save set up
 - Load and save precorrection
- Web control
- SNMP agent
- Tool kit
 - Linear precorrection
 - Event log
 - Printing

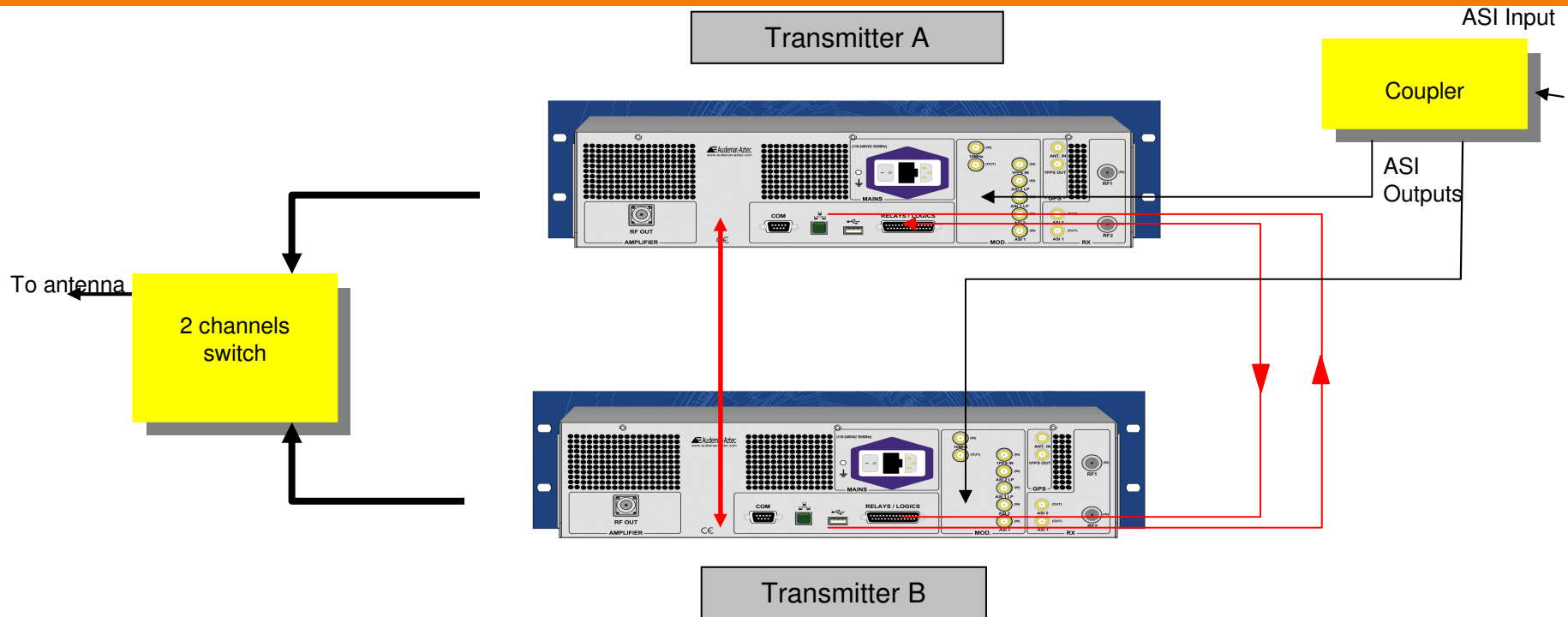


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1+1 CONFIGURATION

1+1 mode with no additional module

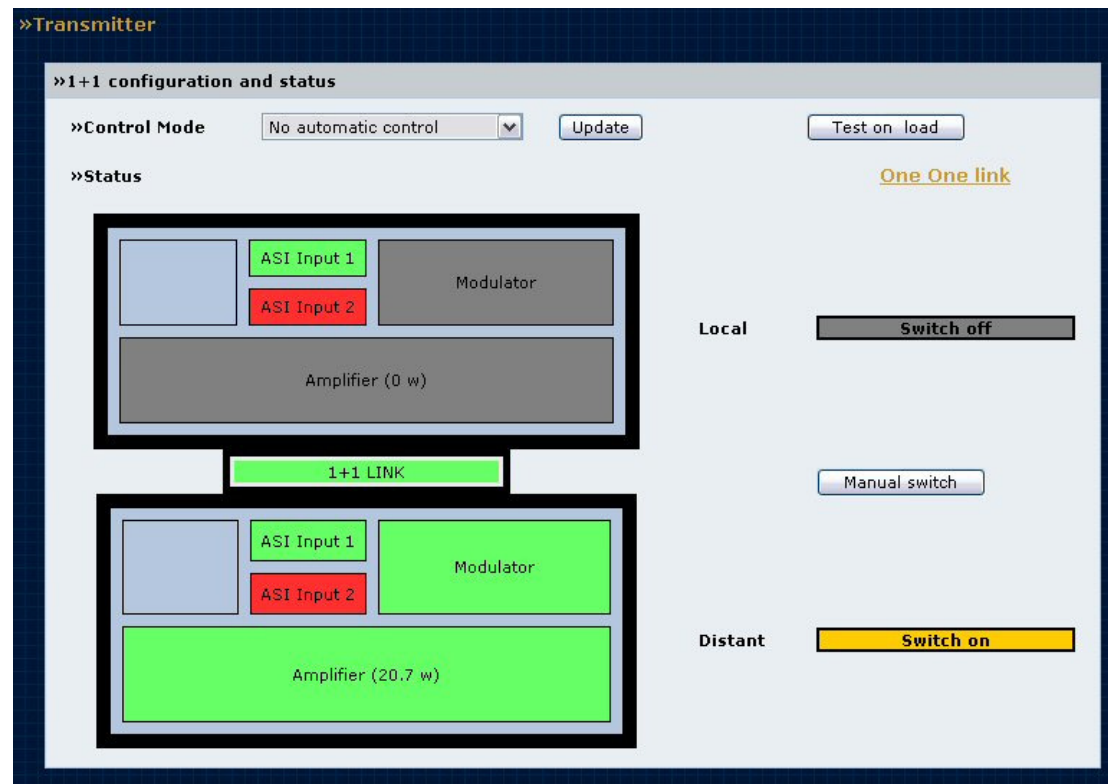


Transmitter B monitors transmitter A :
Relay output A = logical input B

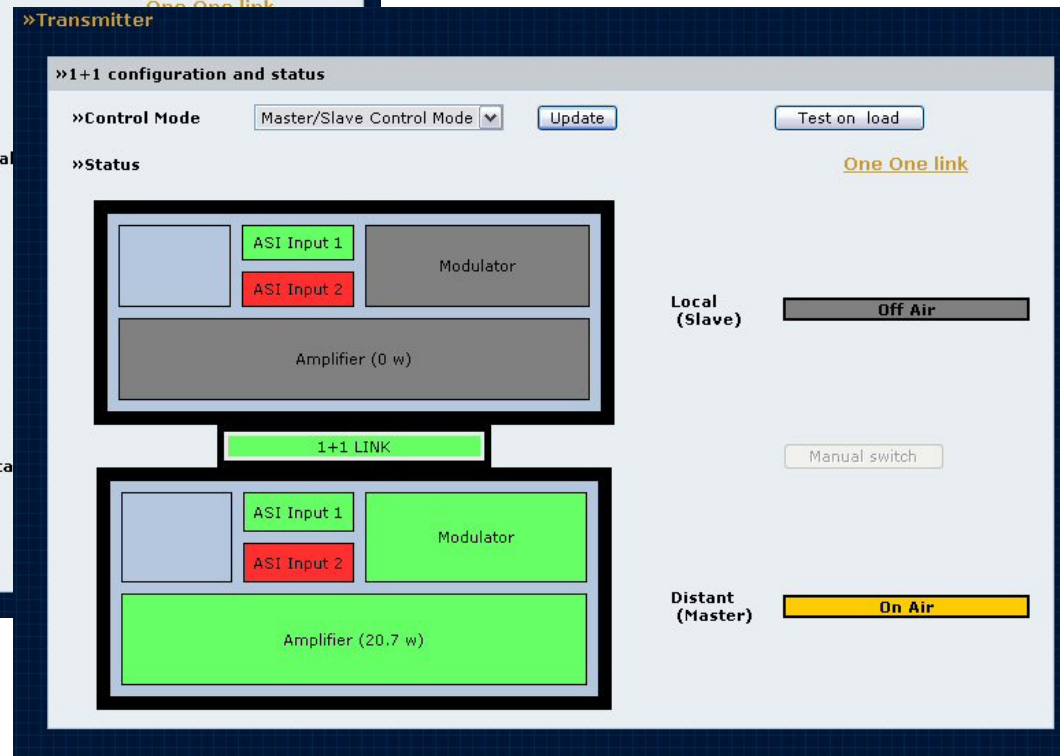
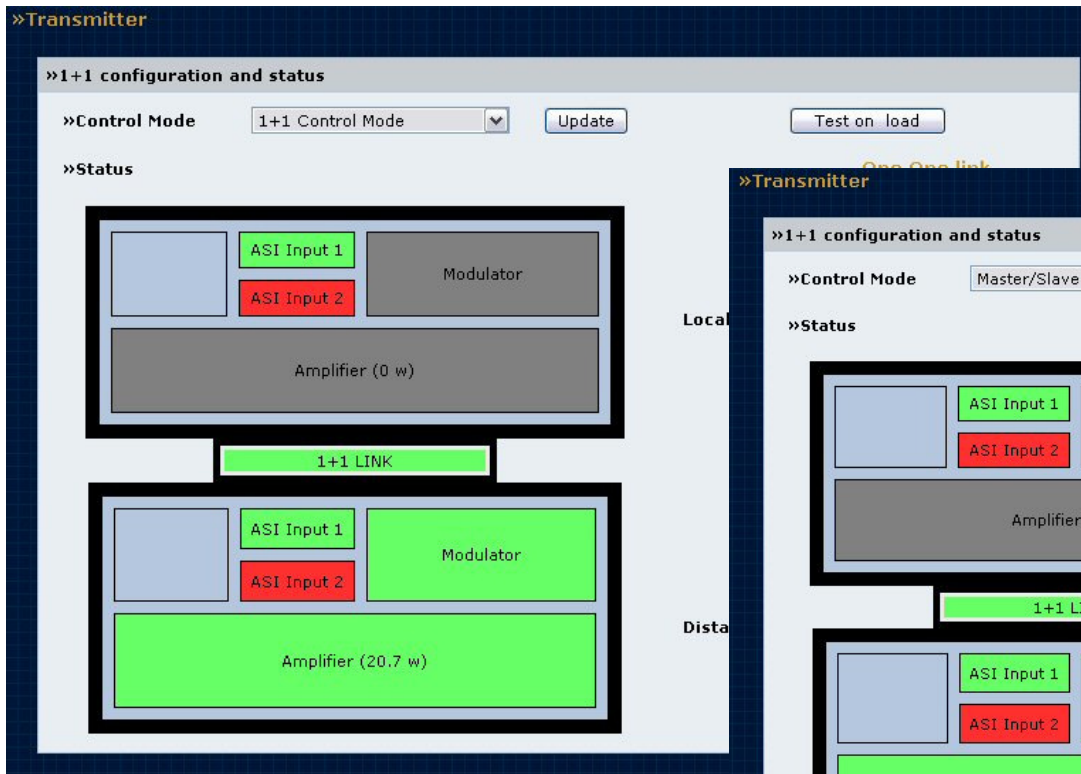
Transmitter A monitors transmitterB :
Relay output B = logical input A

1+1 mode

- ▲ 1+1 Web site control
- ▲ No additional control unit needed



1+1 mode





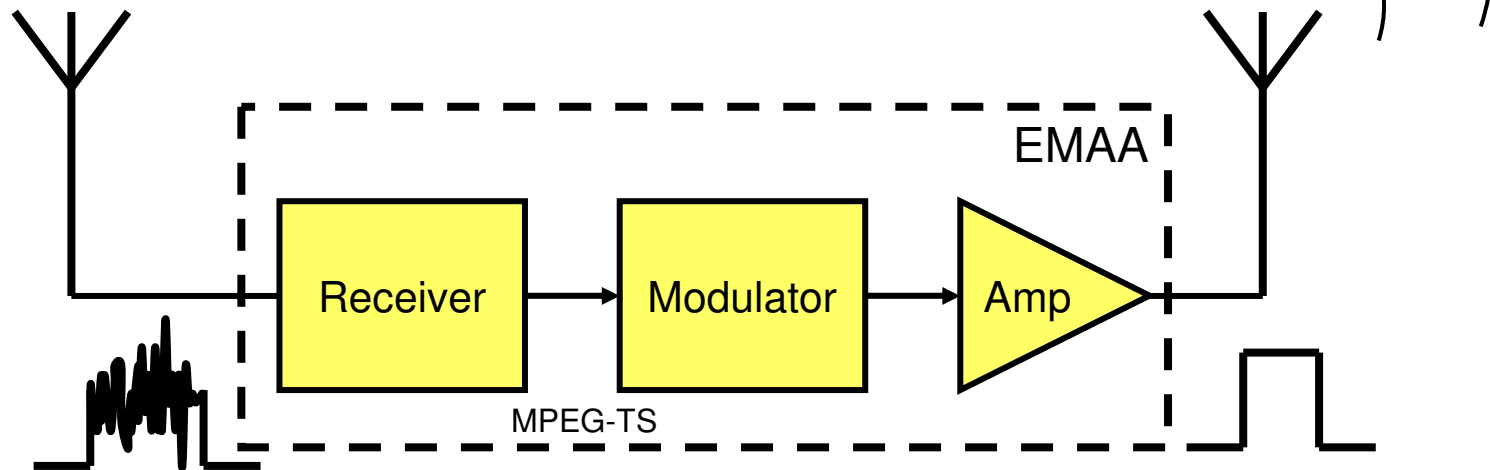
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EMAA ZECHO

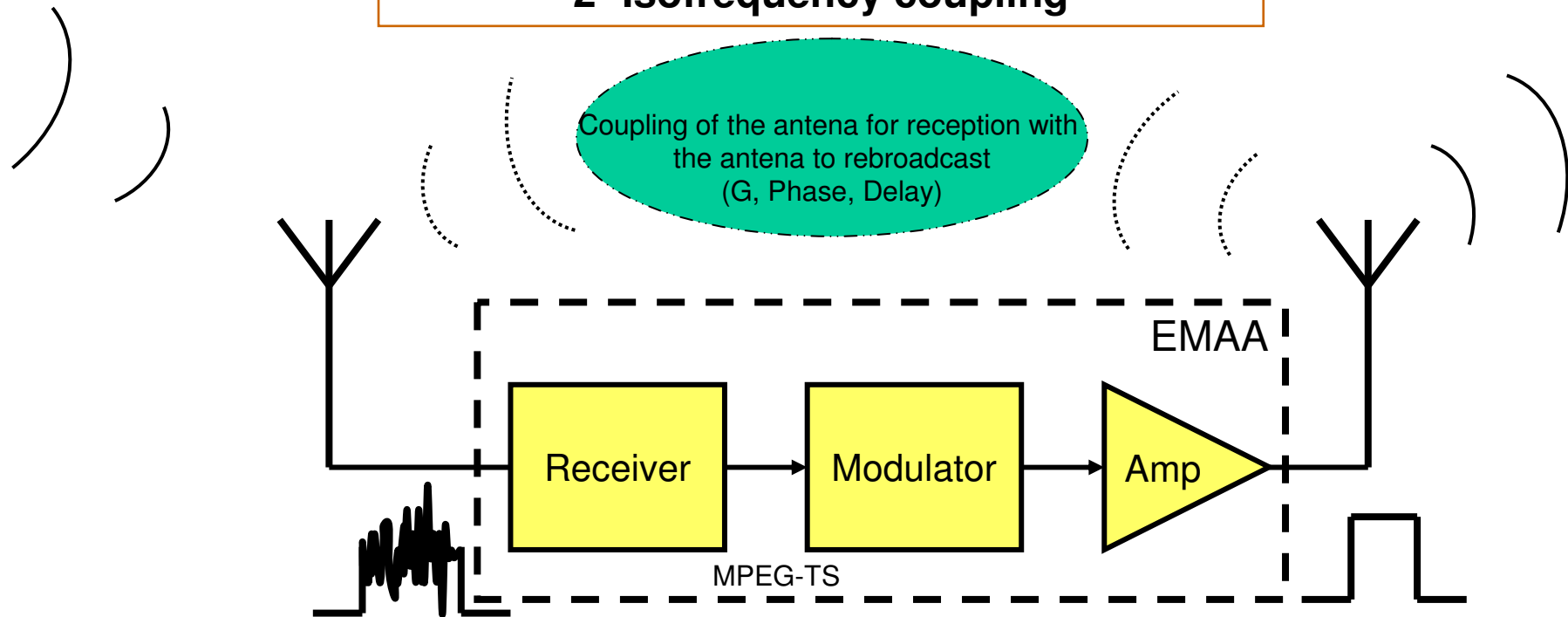
Zecho principle

**SFN ZECHO retransmitter principles
1- Retransmitter**



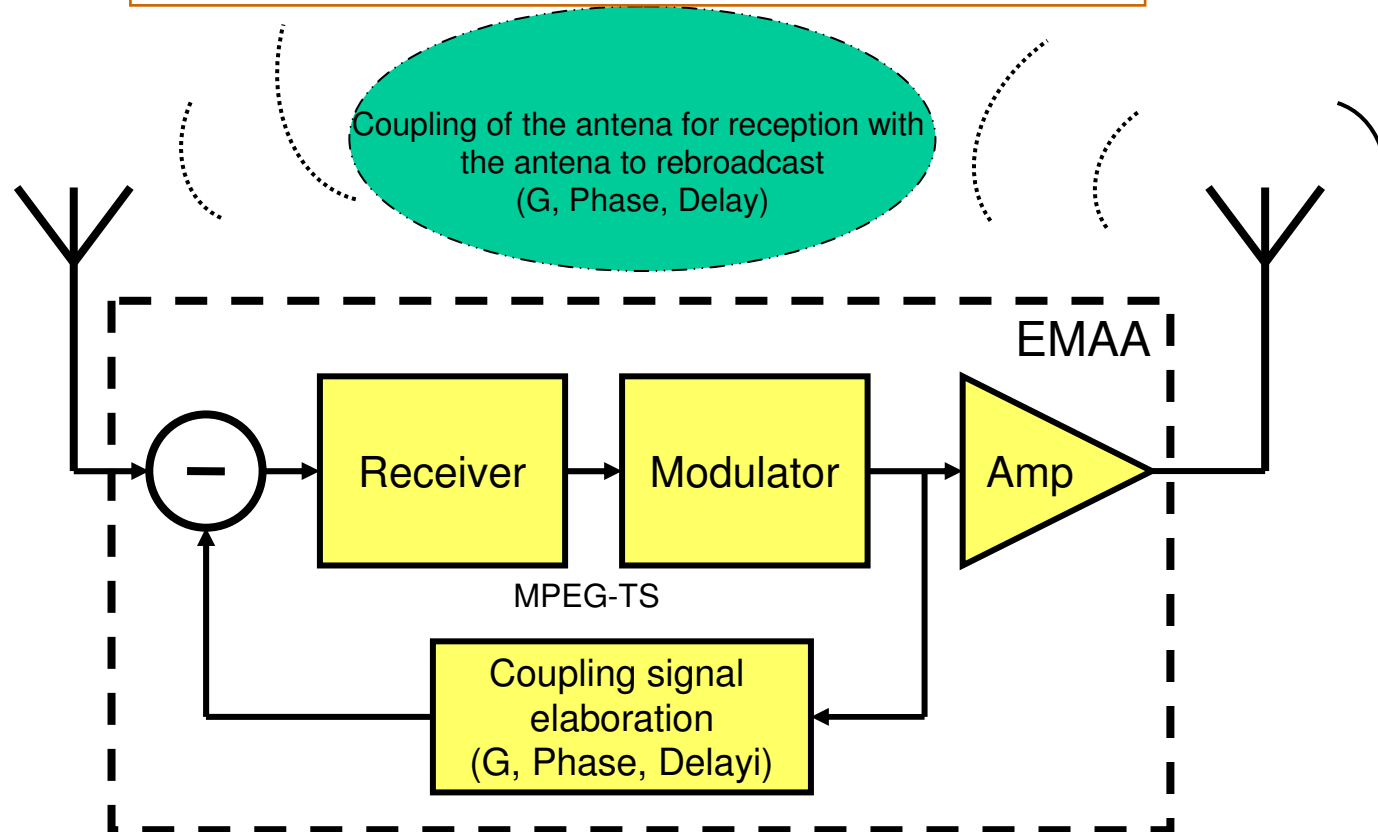
Zecho principle

SFN ZECHO retransmitter principles 2- Isofrequency coupling



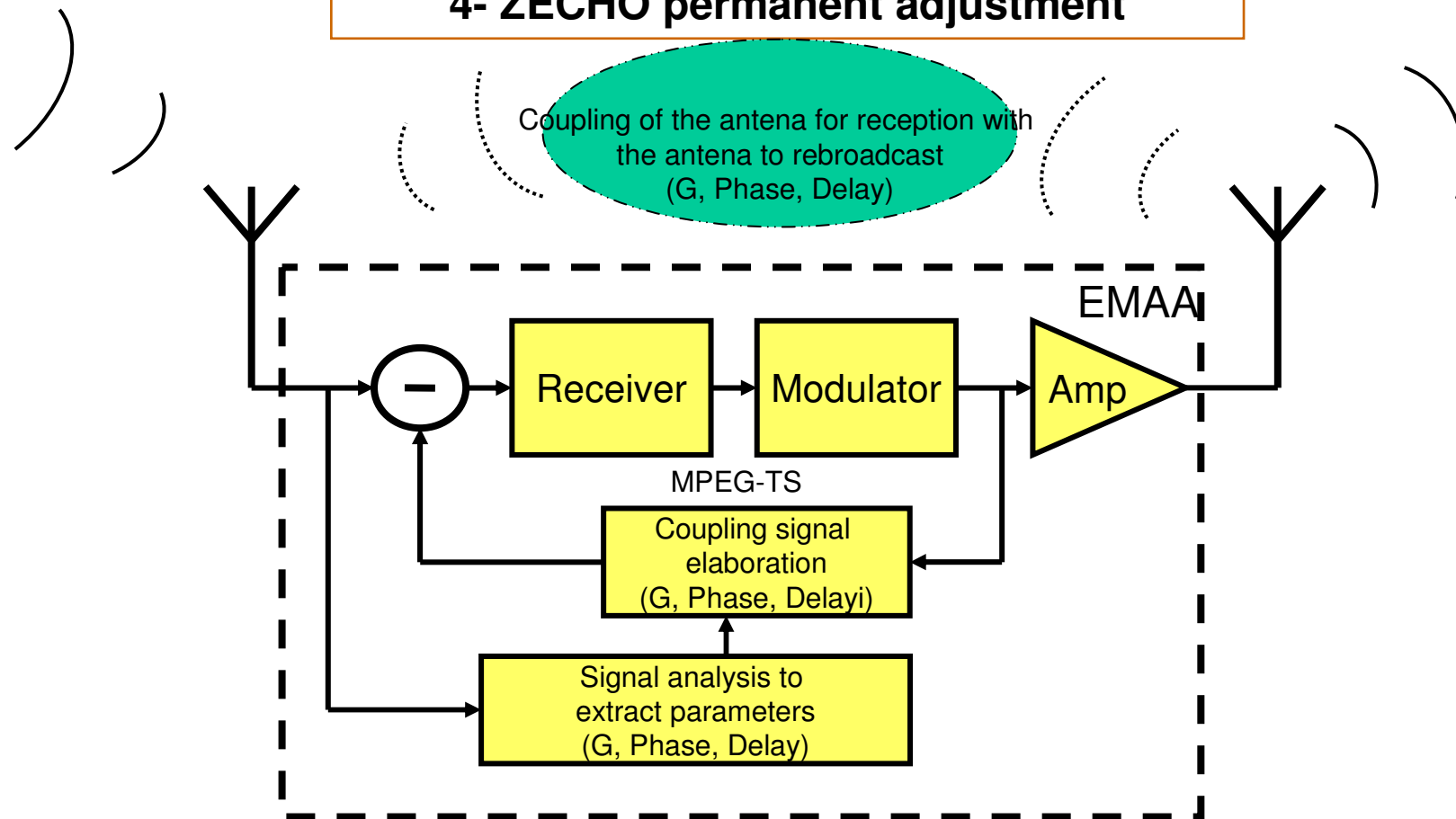
Zecho principle

SFN ZECHO retransmitter principles 3- ZECHO principle

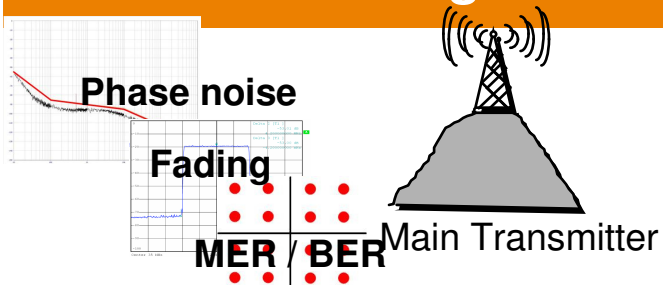


Zecho principle

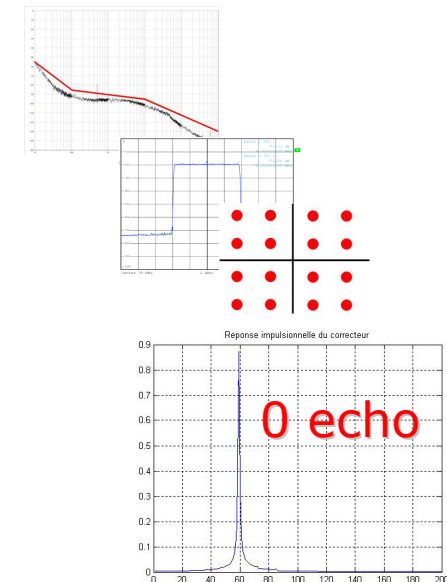
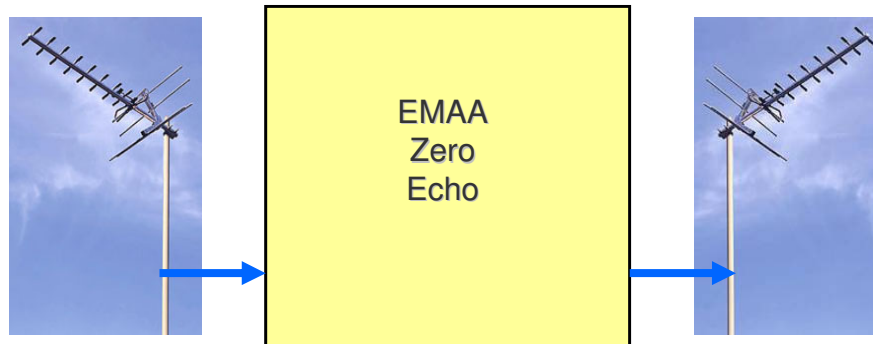
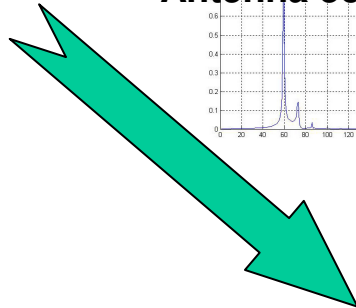
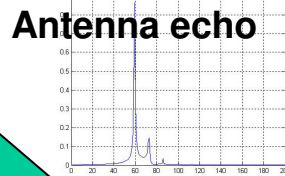
SFN ZECHO retransmitter principles 4- ZECHO permanent adjustment



Zecho advantages

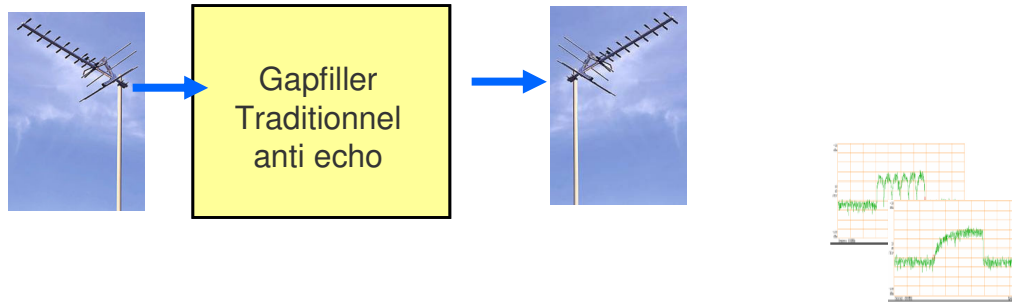
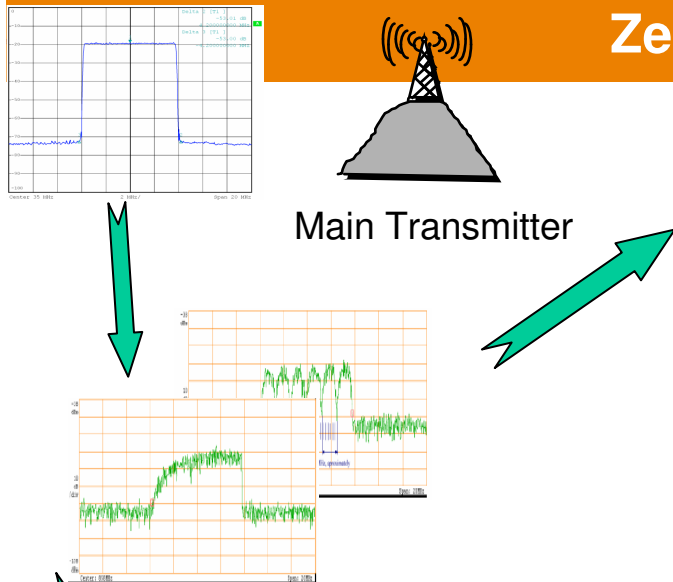


EMAA Zecho regenerates the original signal:
the broadcast area is significantly optimized

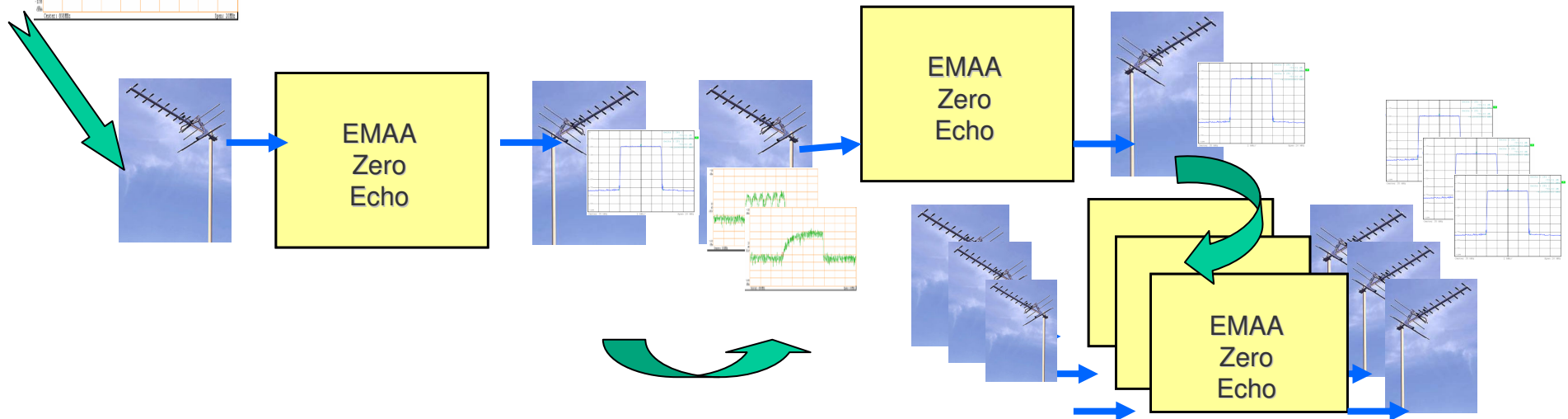


Zecho advantages

Gapfillers usually can not be cascaded



EMAA Zecho can be cascaded ad infinitum



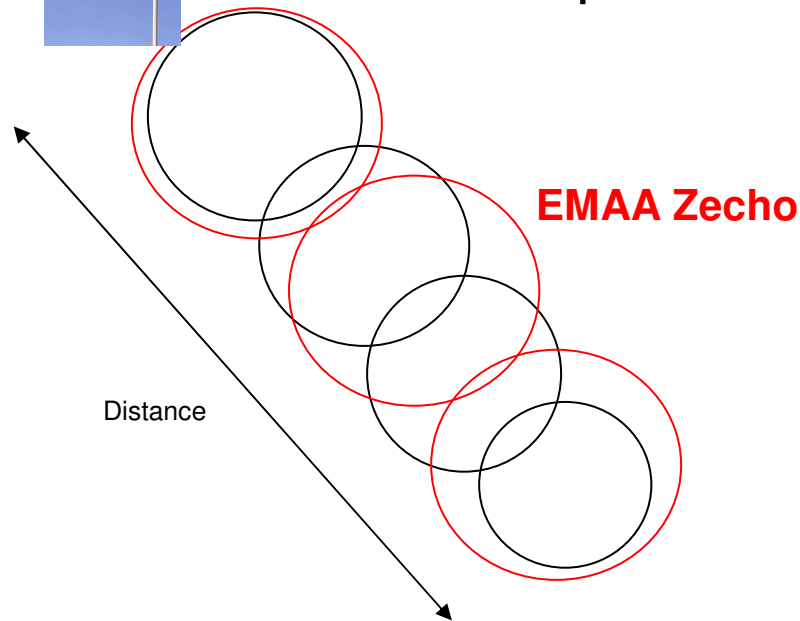
Zecho advantages



Main Transmitter



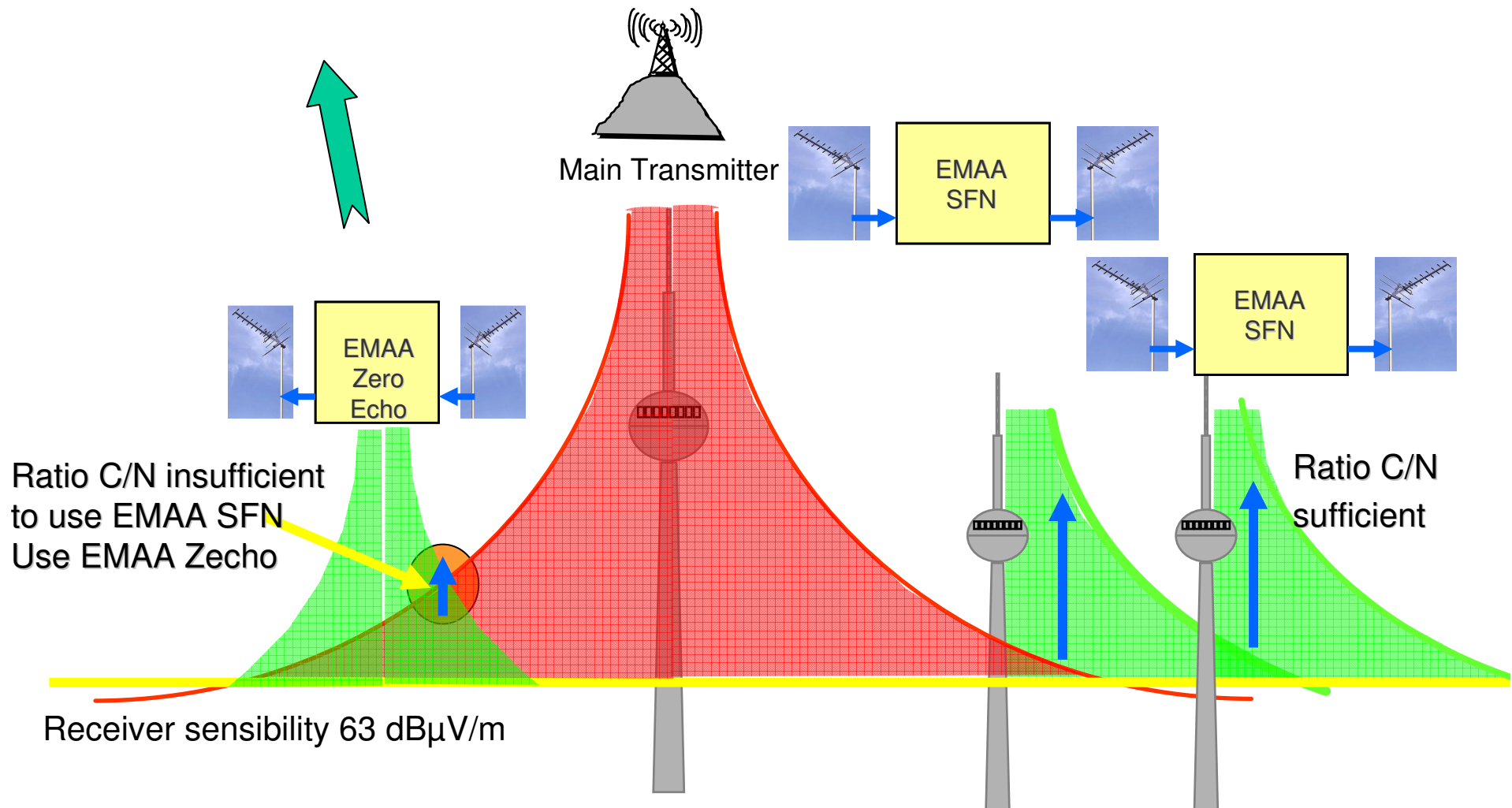
Traditional Gap filler



EMAA Zecho

- ▲ An average of 30% additional coverage will be obtained compared with traditional gap fillers
- ▲ No limitation in the cascading of EMAA Zecho retransmitters

Zecho deployment: EMAA Zecho or EMAA SFN for Isofrequency





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CONCLUSION

Conclusion

- ▲ Modular offering from 500 mW up to 300 W
- ▲ 4 in 1 configuration for retransmitting
- ▲ Cost effective 1+1 configuration
- ▲ Signal regeneration for Iso frequency networks
- ▲ Teamcast inside modules



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Any questions ?



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