

By Tecnoroll BMB  
[www.tecnoroll.it](http://www.tecnoroll.it)

**Digital  
FM-MPX-RDS  
Modulator**

**FLEXMod**

**FLEXMod**

**FM/DAB/DVB/ATSC  
Ref.design V2.0**

A NEW APPROACH TO RADIO BROADCASTING

**FLEXMod**  
**FM series**

## The FM (r)evolution.



Widespread technologies like FM modulation and broadcasting have been rethought to achieve the highest level of efficiency, integration and resource optimization thanks to our FLEXMod System on Chip (SoC).

Embedded in a single FLEXMod unit is a comprehensive radio broadcasting environment allowing significant cost reductions while maintaining top-level performances.

All the hardware and software features have been designed internally by Tecnoroll, and their interfaces are therefore highly optimised.

This amazing level of integration allows us to focus also on the development of those exclusive solutions that give the system its tangible added value.

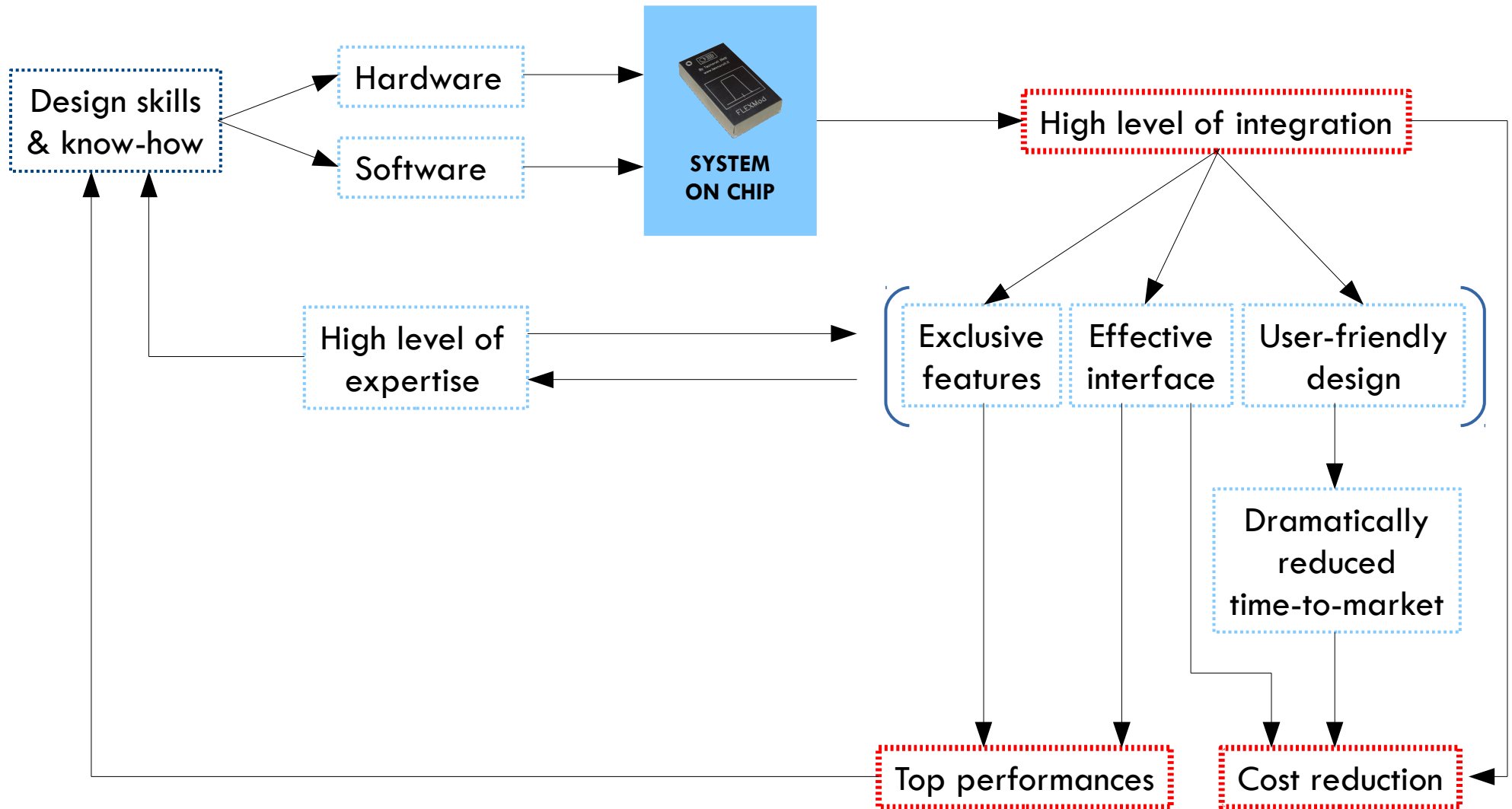


Our FLEXMod FM module was not designed with the main goal of passing the approval tests only, but rather with the focus on providing an enhanced sound quality, giving broadcasters the chance to offer the best listening experience to the end user.

Added value to your projects. Every day.



How Tecnoroll develops new problem-solving solutions for your top-performance equipment:



# The FLEXMod RADIO family roadmap



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## FLEXMod FM011

FM/AM modulator with embedded MPX and RDS coders

## FLEXMod FM111

FM/AM modulator with embedded ASI demux, MPEG2 decoder, MPX and RDS coders

## FLEXMod FM211

FM-MULTICARRIER modulator for emergency alert and rescue vehicles

## FLEXMod FM121

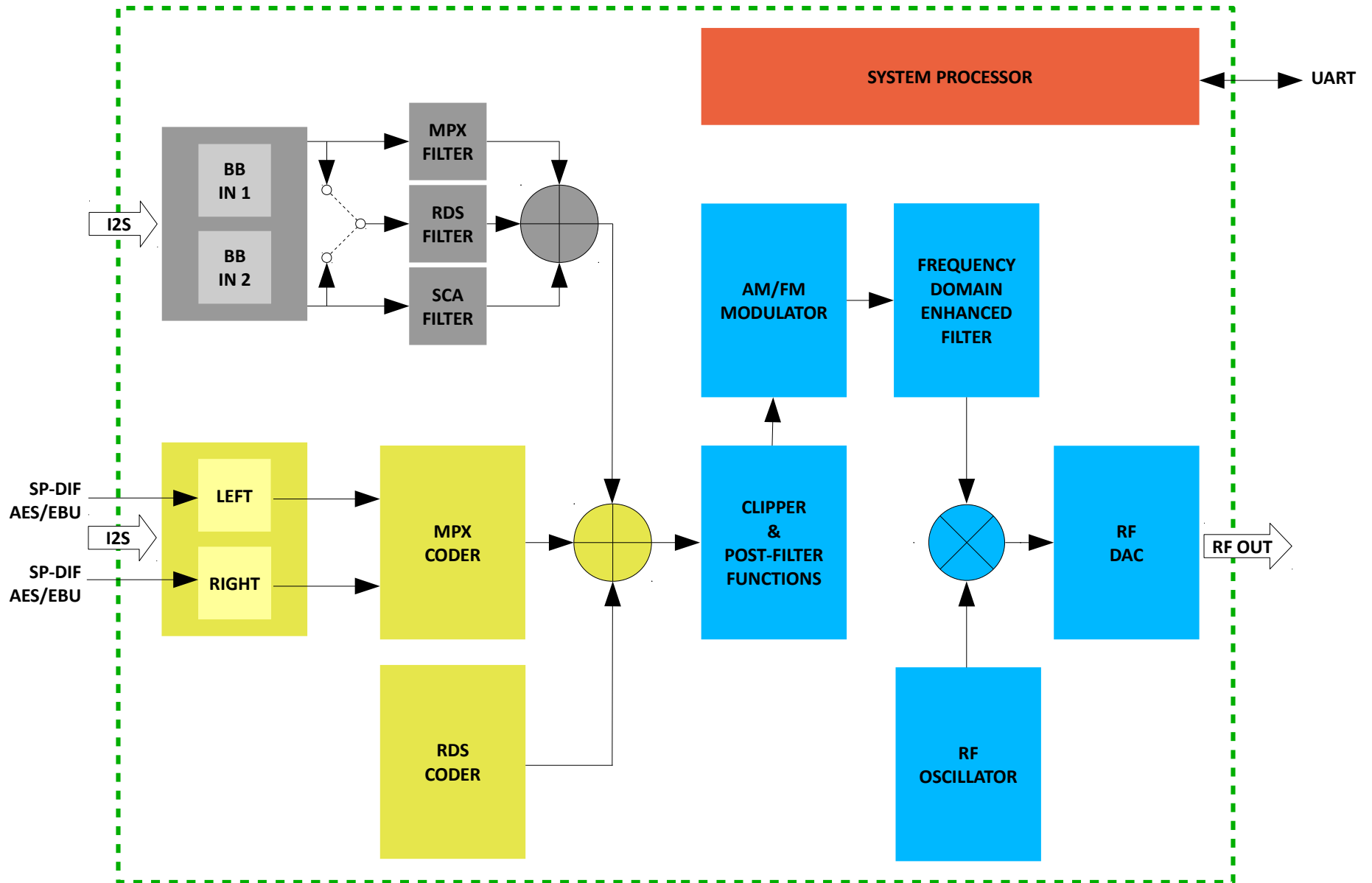
Ethernet FM/AM modulator with embedded demux, MPEG2 decoder, MPX and RDS coders

## FLEXMod DAB021

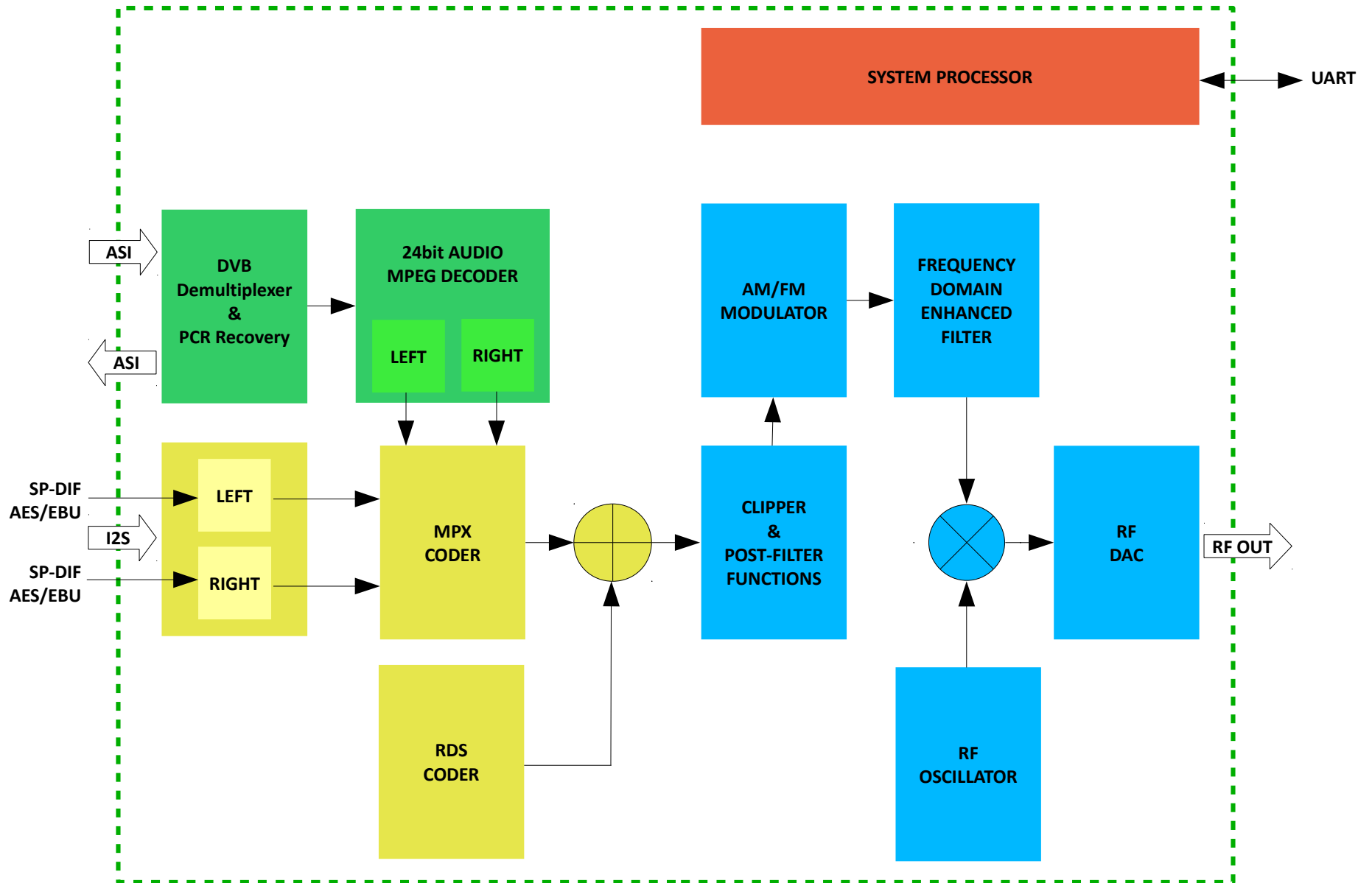
DAB modulator



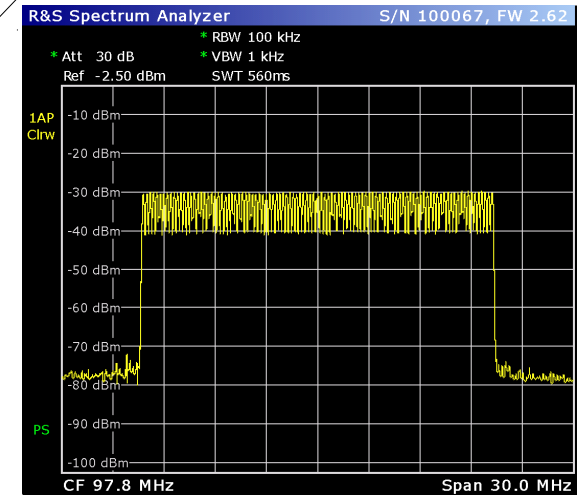
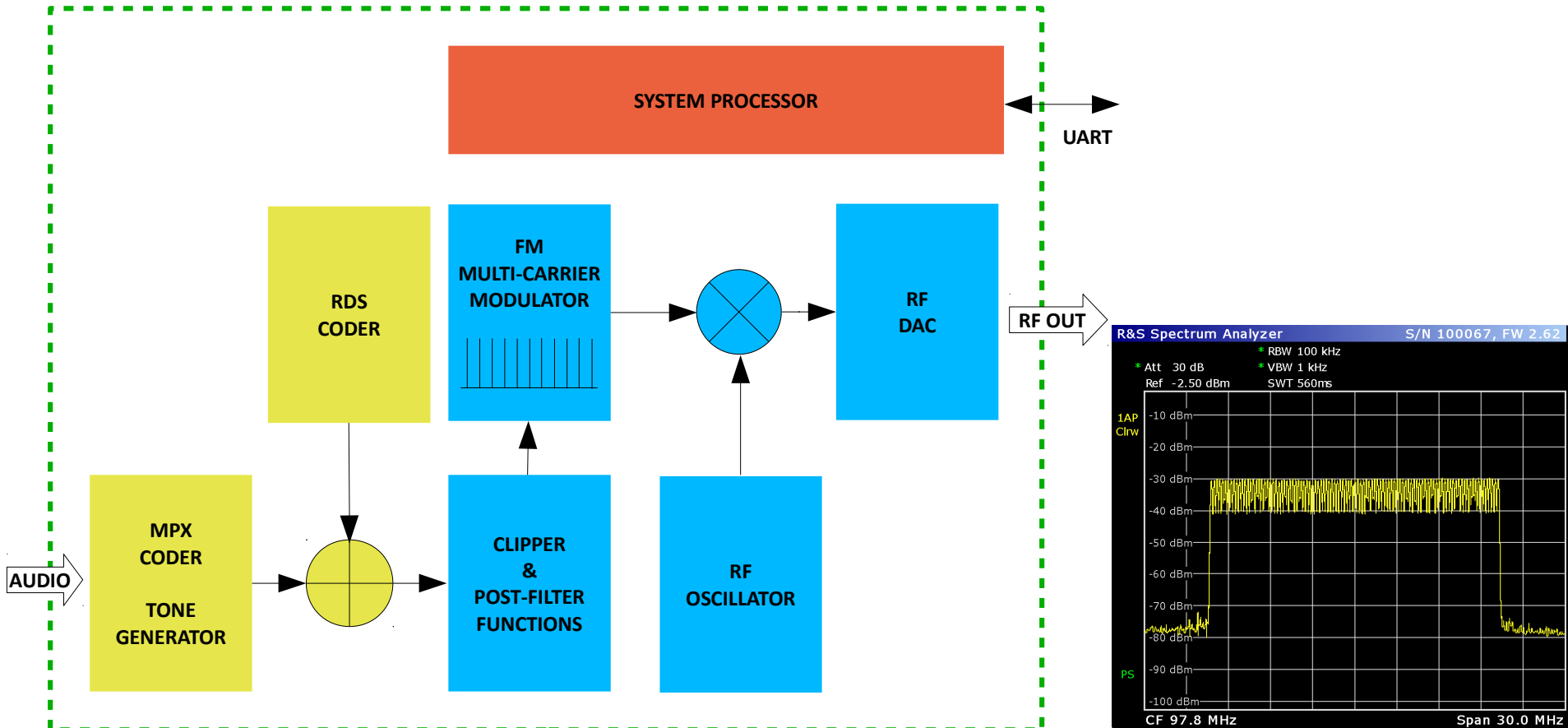
# FLEXMod FM011 Modules - Block diagram



# FLEXMod FM111 Modules - Block diagram



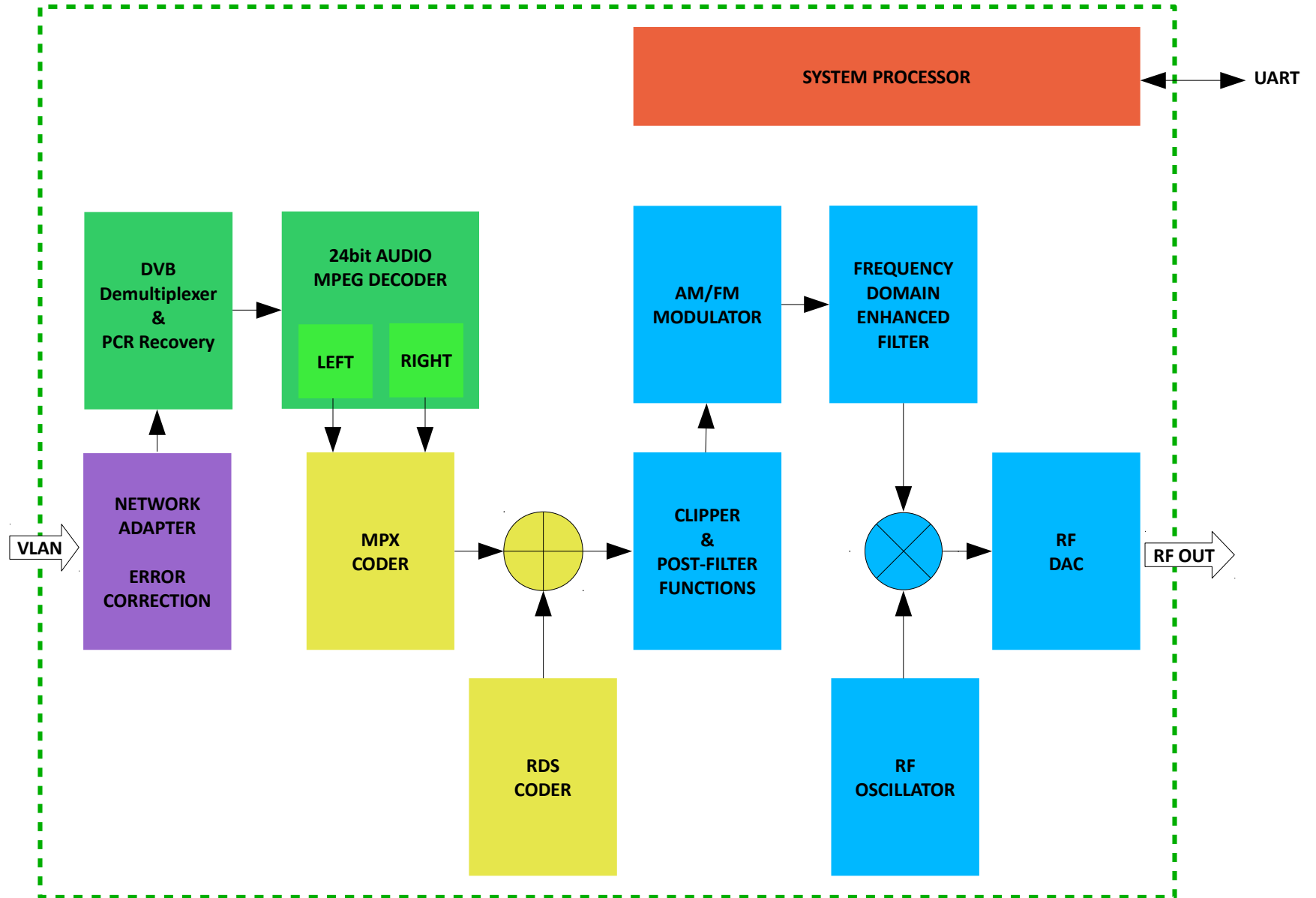
# FM211 - All-channel FM TX for emergency alerts



Date: 30.APR.2014 17:13:31

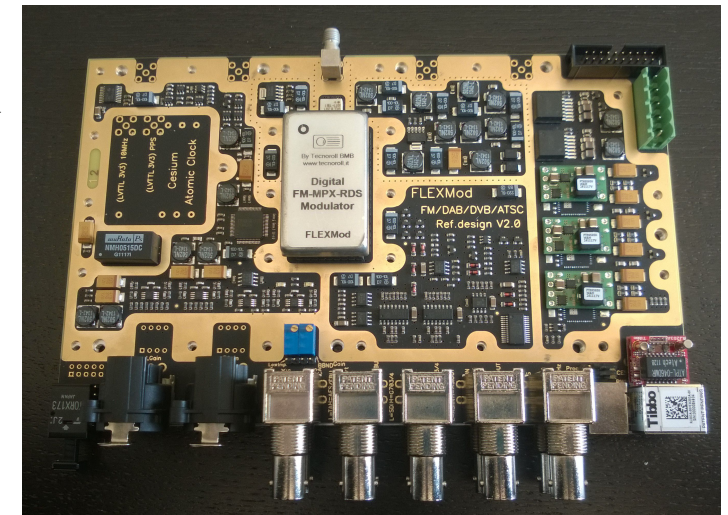
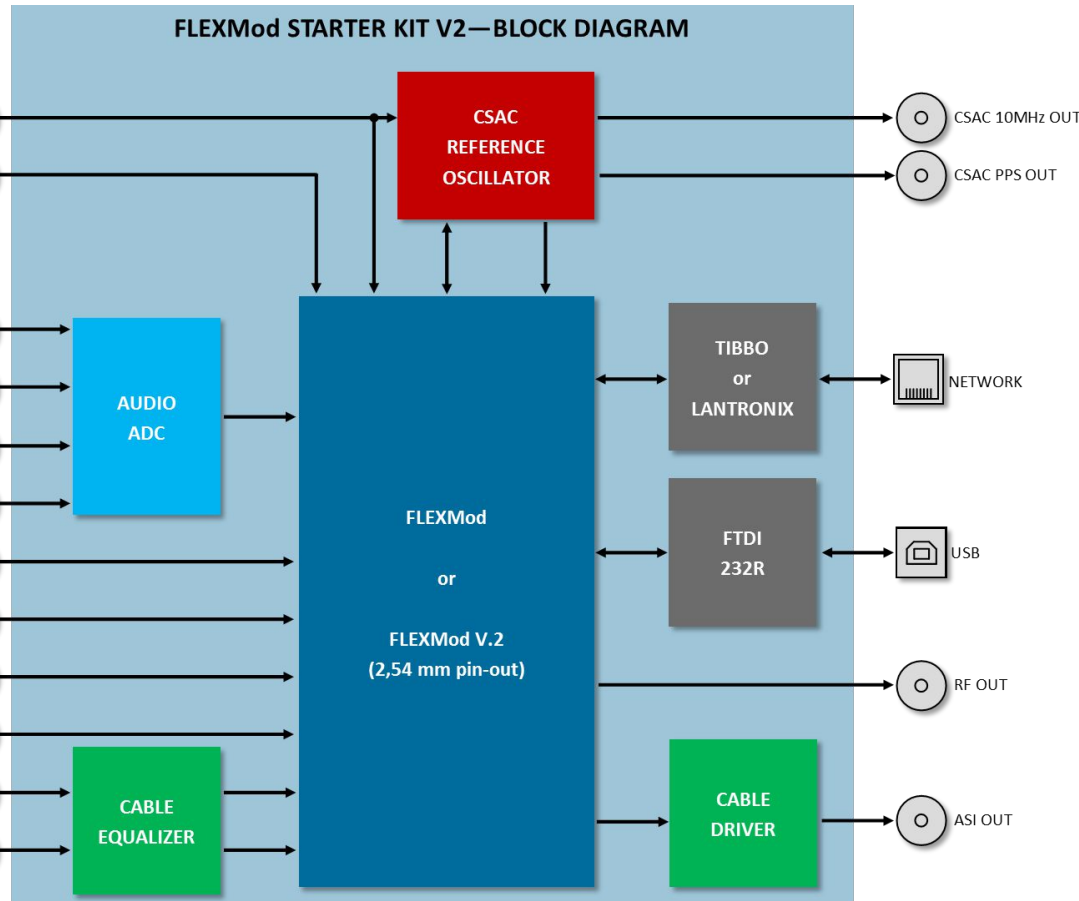
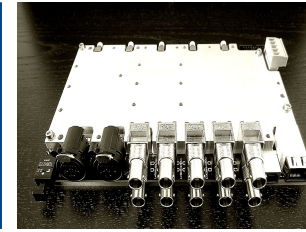
Special application for emergency alerts: the system transmits an alert tone or an audio and RDS message on all FM channels simultaneously. For example, it can transmit an alert message about an approaching ambulance or train, or a warning message in case of a problem in a road tunnel. The module uses the RDS Traffic Alert to automatically switch from CD/MP3 player to FM Radio.

# FLEXMod FM121 Modules - Block diagram





# FLEXMod FM Starter Kit

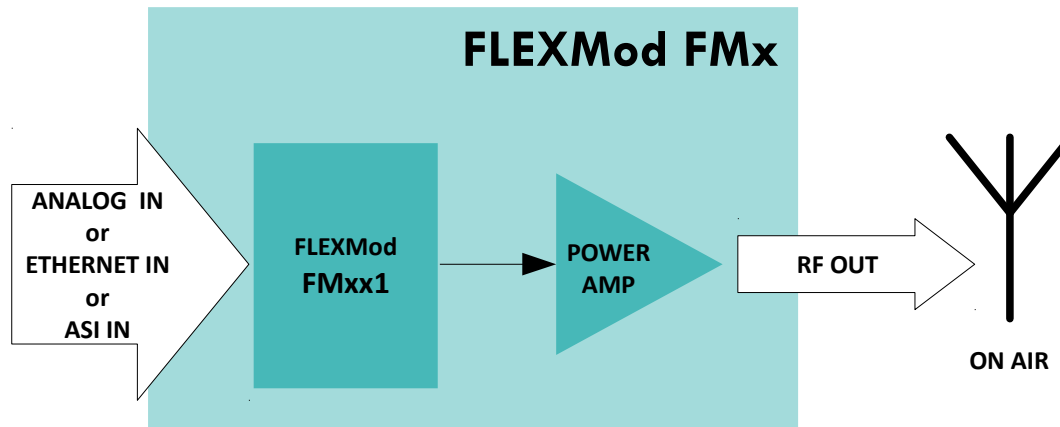


The starter kit enables the user to immediately exploit the full potential of the FLEXMod modules. The STK can be used as a reference design for custom projects. Also available for DVB applications.

# FLEXMod FMx - OEM Exciter



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## Main features

Full-OEM design

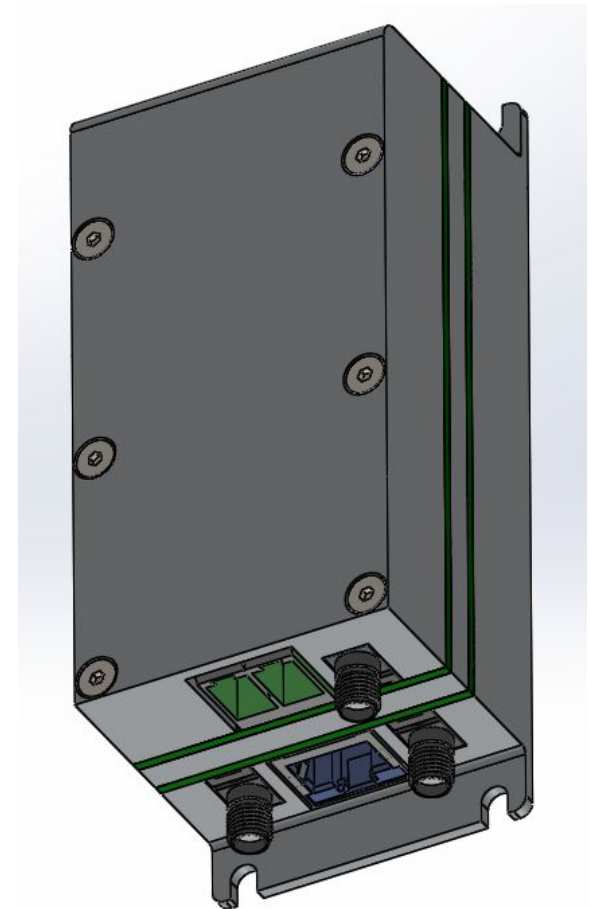
High versatility (compatible also with DVB applications like DVB-T/S/C modulators, etc.)

Easy to use and install

RF output from 0dBm (standard version) up to 15W with optional power amplifier modules (coming soon)

Space-saving unit

Time-to-market dramatically reduced



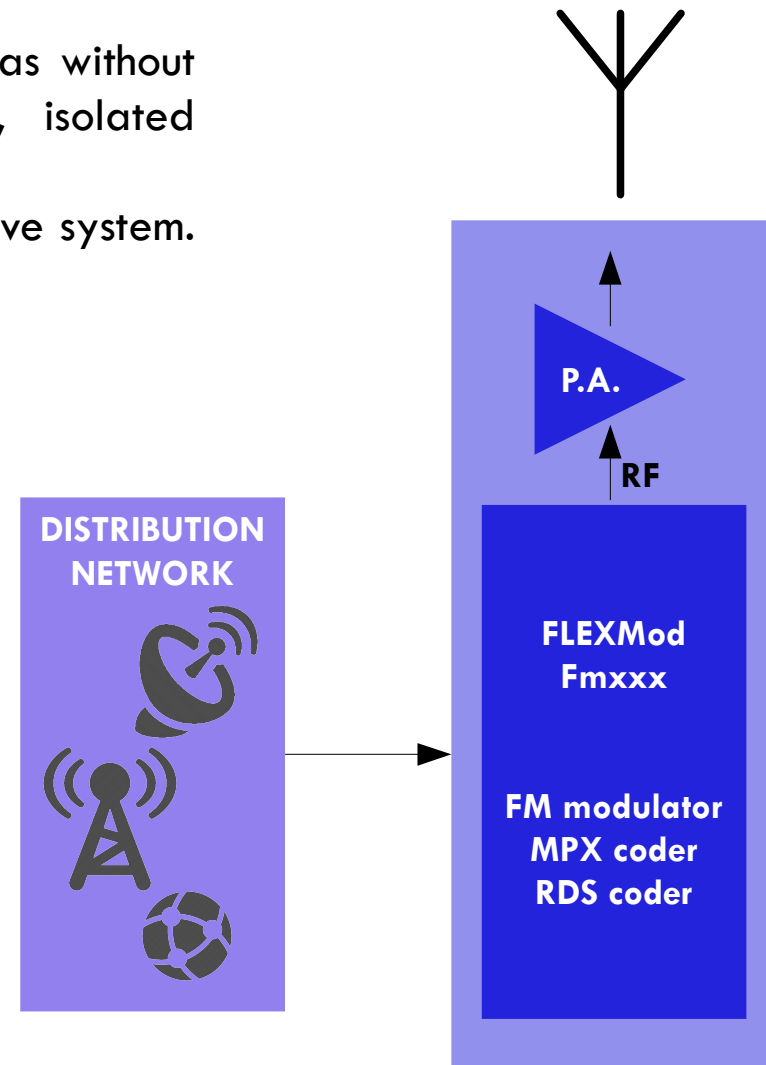
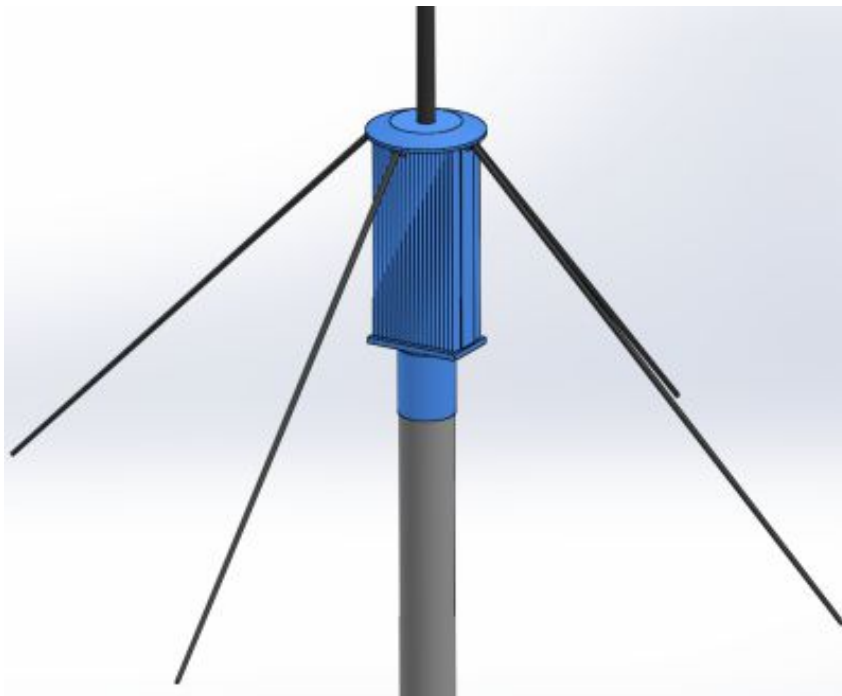
# FLEXMod FMx - TX example



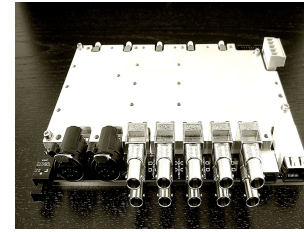
## MAST-MOUNTED VERSION

Very cost-effective system to cover small areas without large infrastructures (small towns, villages, isolated locations, etc.).

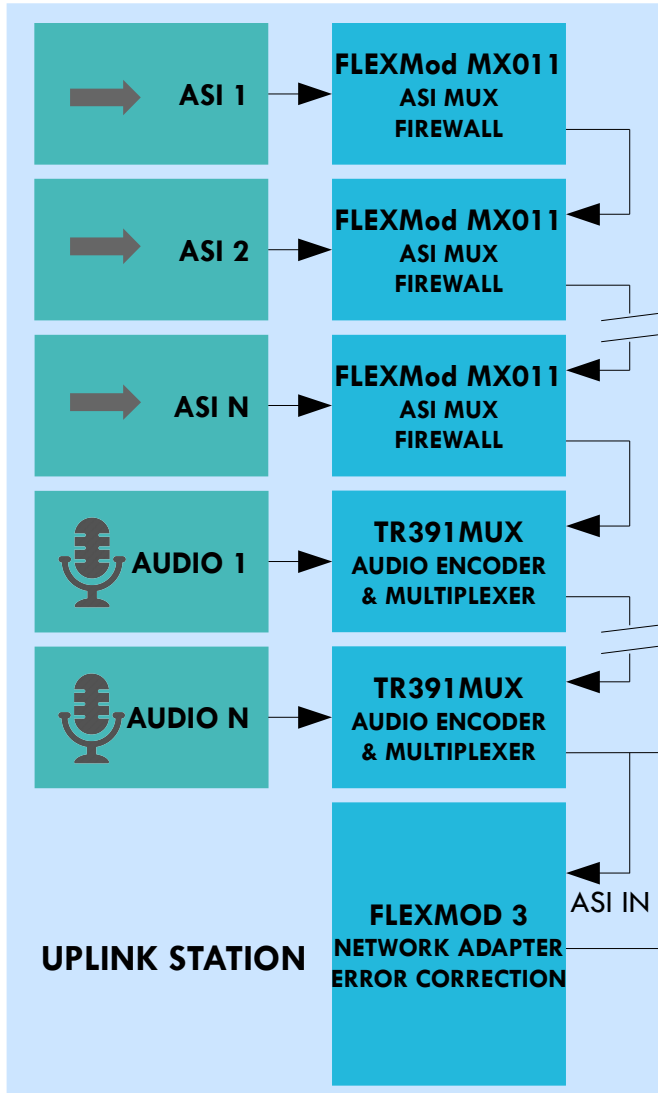
The mast-mounted transmitter is a comprehensive system. No additional rack is required.



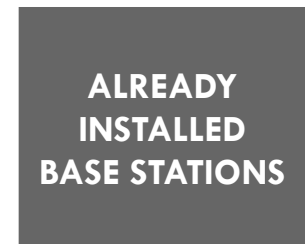
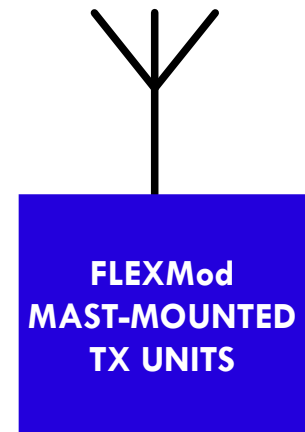
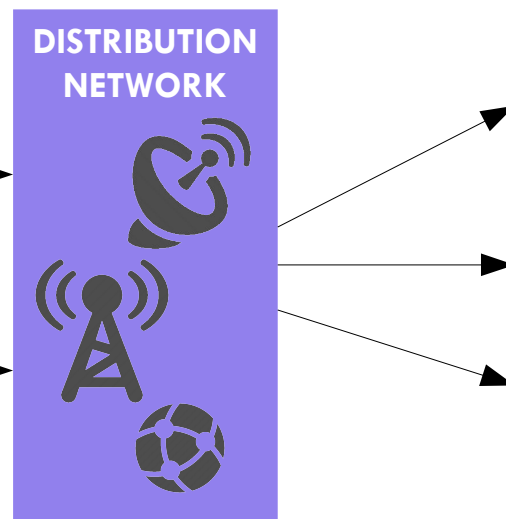
# FLEXMod FM uplink and TX platform



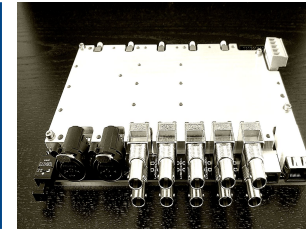
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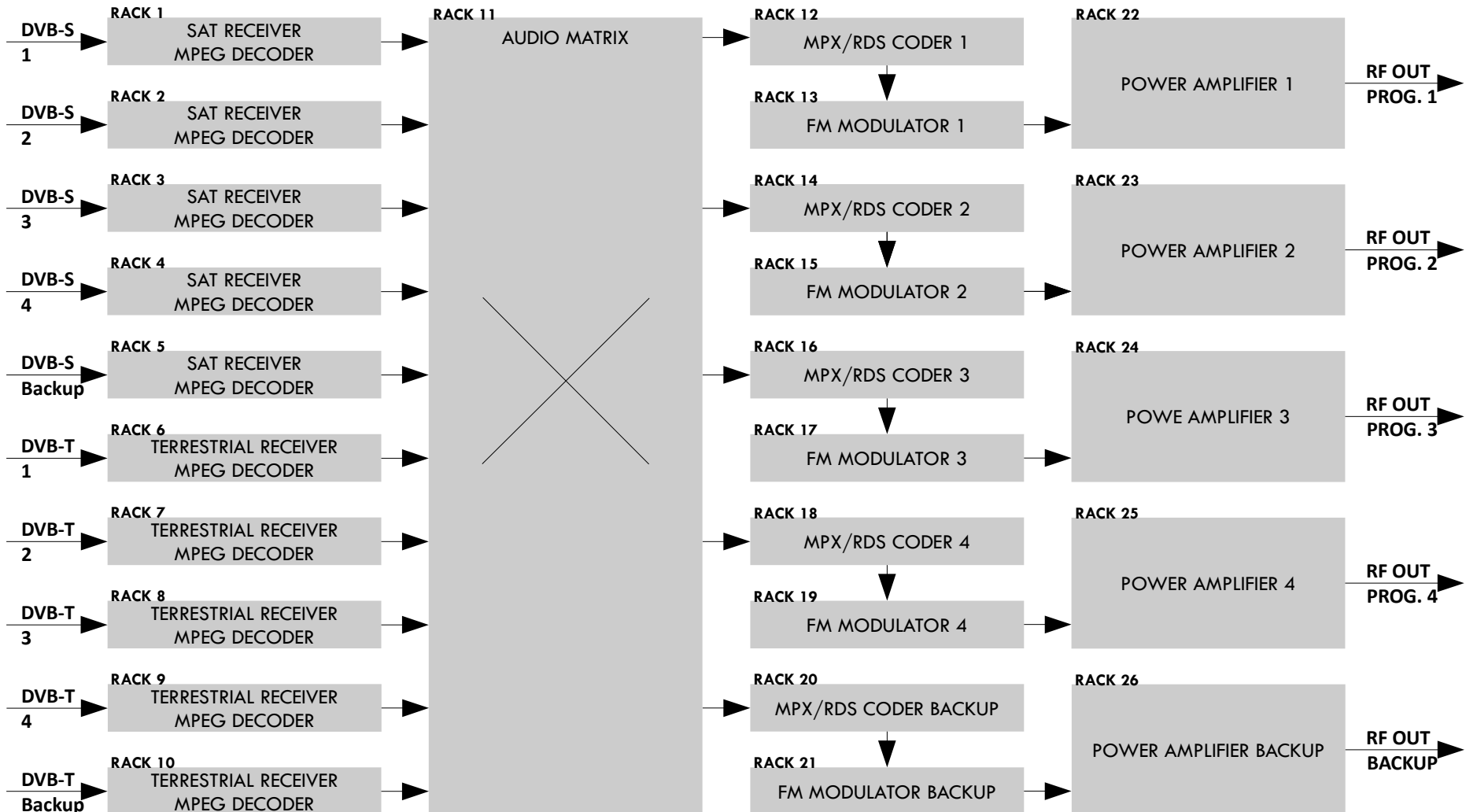
Example of a complete encoding and broadcasting system using Tecnoroll modules to dramatically cut distribution costs.



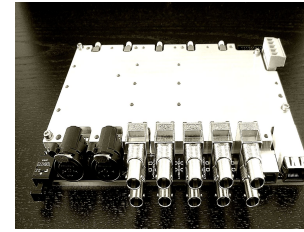
# Optimizing resources



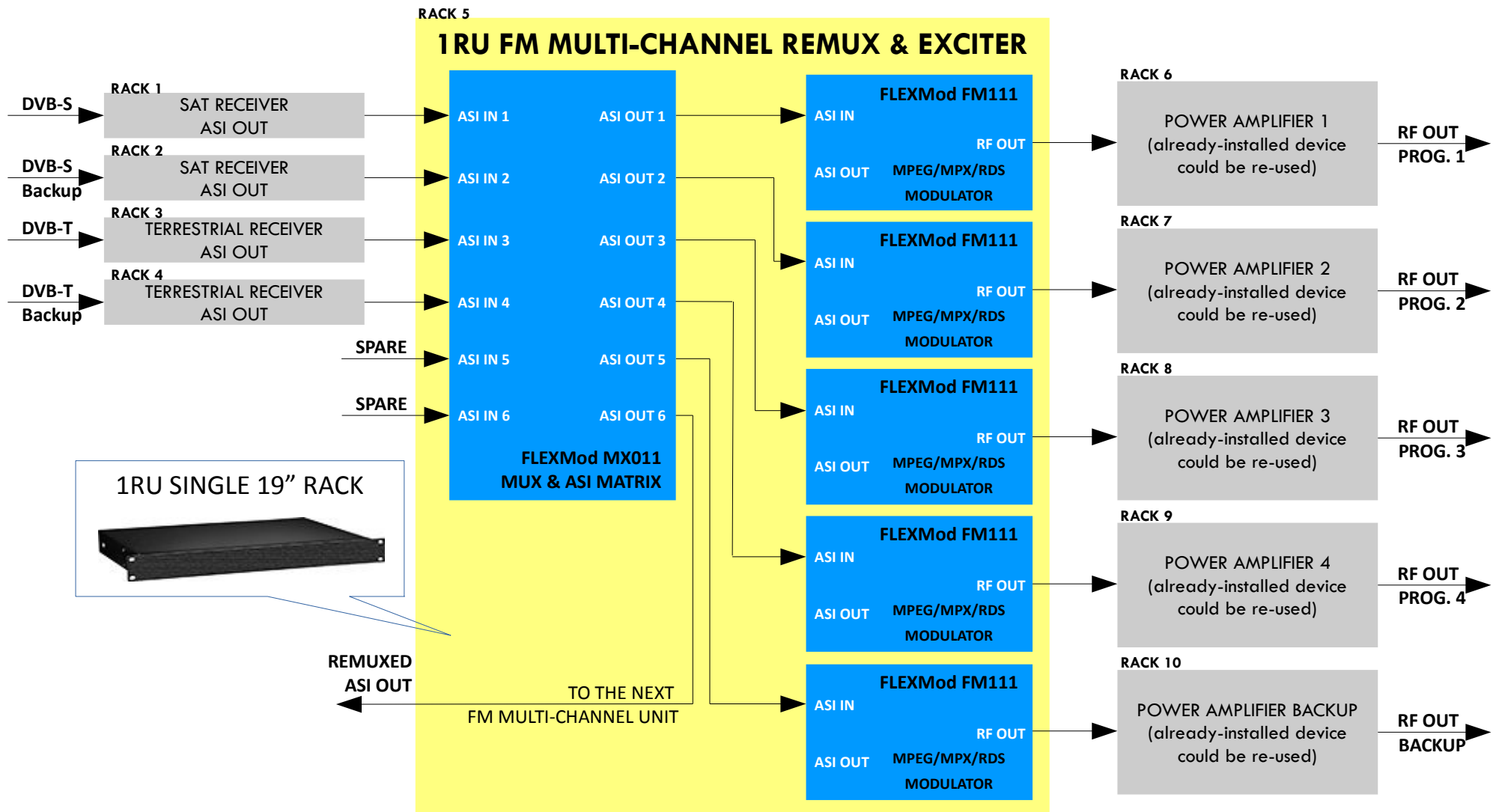
## EXAMPLE OF A “TRADITIONAL” 4 CHANNEL BROADCASTING SYSTEM (approximately 26 DEVICES)



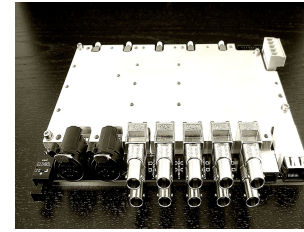
# Optimizing resources



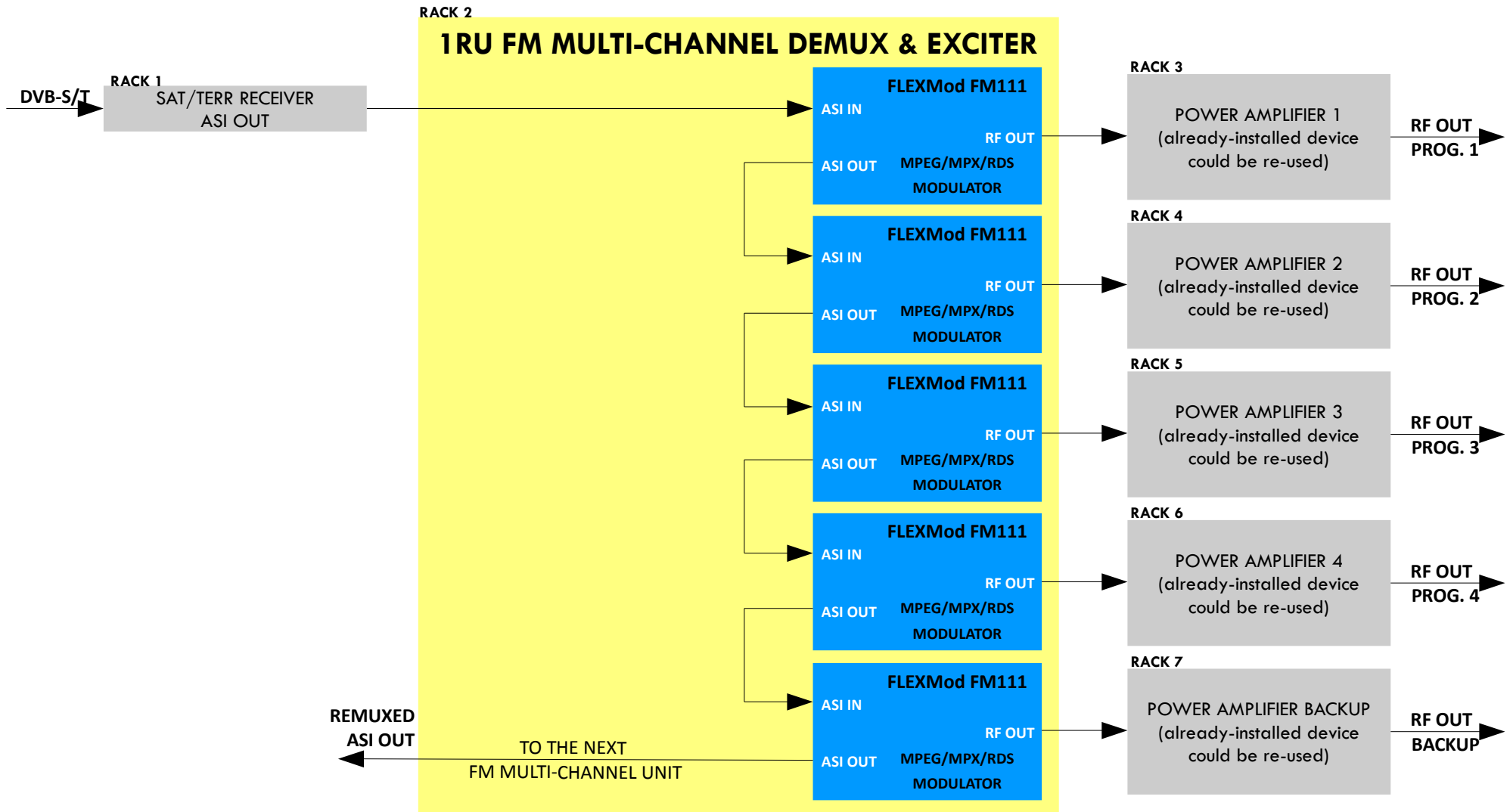
## SAME SYSTEM AS ABOVE, USING FLEXMOD MODULES (approx. 10 DEVICES)



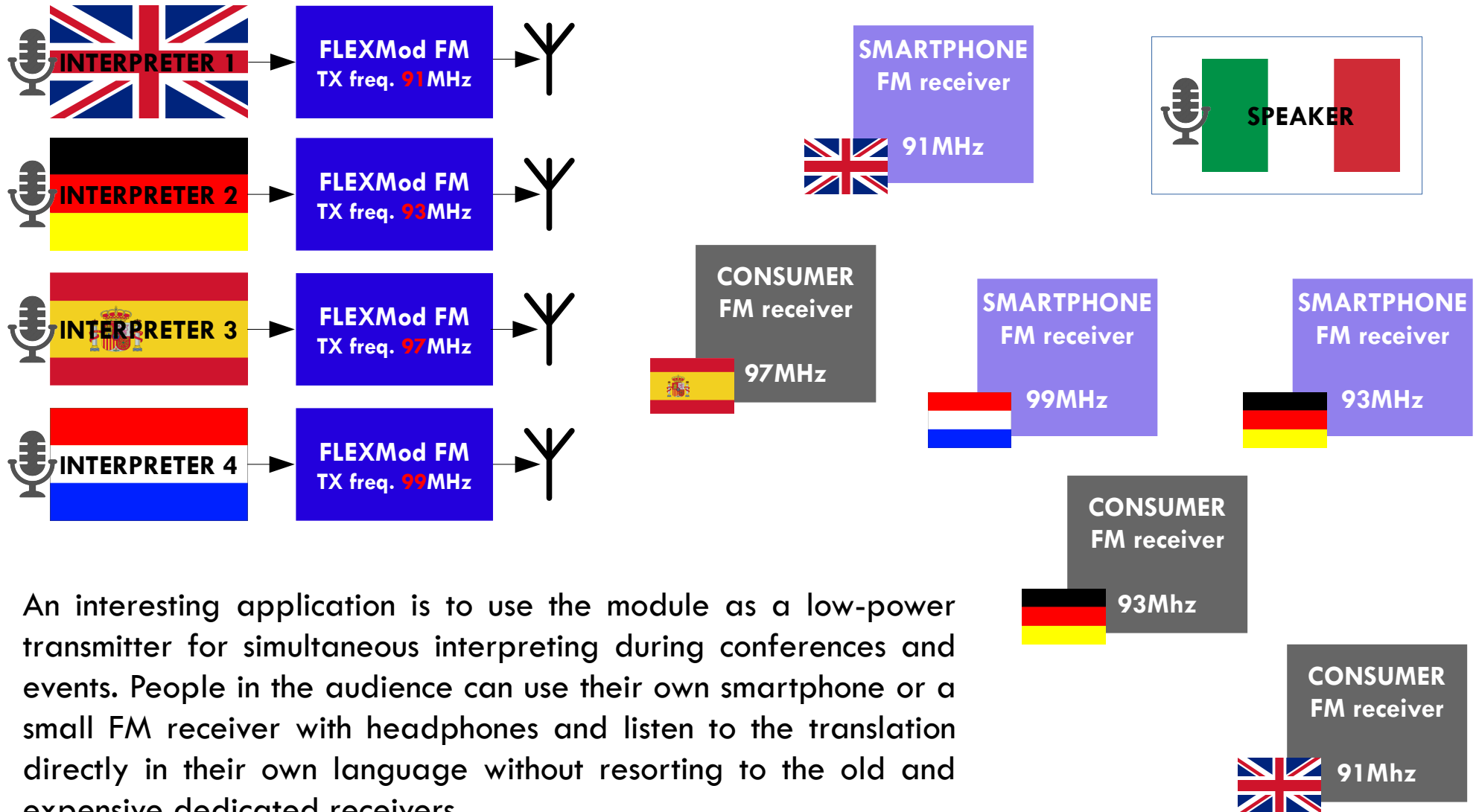
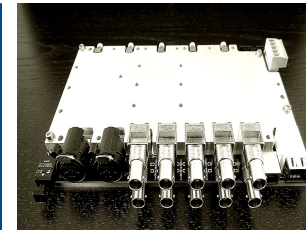
# Optimizing resources



## BASIC FM MULTI-CHANNEL TX EXCITER



# Simultaneous interpreting application



An interesting application is to use the module as a low-power transmitter for simultaneous interpreting during conferences and events. People in the audience can use their own smartphone or a small FM receiver with headphones and listen to the translation directly in their own language without resorting to the old and expensive dedicated receivers.





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