

DRM Receivers

An update

Additional information available also on the
DRM website: www.drm.org – Products page

As of March 2021

DRM Receivers for Cars

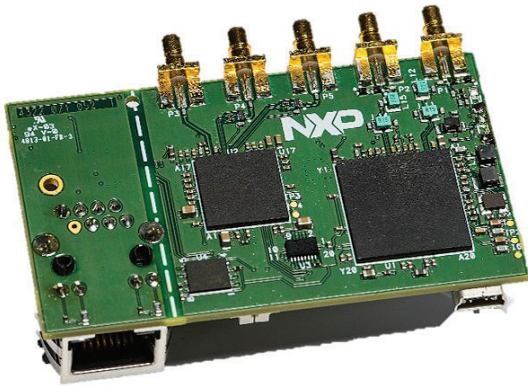
The automobile receiver industry in India is already on board and has invested millions of dollars in the development of DRM digital radio capable receivers. The roll-out of DRM equipped cars is growing quickly by the month reaching over **2.5 million by now** (Jan 2021)

Car manufacturers which have so far incorporated DRM digital receivers in their models in India are Hyundai, Maruti-Suzuki, Mahindra, GM Motors and lately Toyota. Many more international car brands are planning or are in the process to fit DRM digital receivers in their vehicles. OEMs use chips from various manufacturers, such as NXP, Silabs and others.



NXP (www.nxp.com), the number one in automotive infotainment systems and the global market and innovation leader for car radio solutions¹ has showcased a new DRM solution for OEMs during the New Delhi BES Conference and Expo 2020.





The company has added FM band support to DRM, Journaline data forwarding, and the xHE-AAC audio codec for music and speech.

In addition, NXP demonstrated dual tuners and a cost-effective single tuner on DRM platforms shown here. These tuners also support the traditional analogue frequencies.

Entry platform (DRM in AM and FM band):

Atomic2 (TEF6659) + Saturn (SAF36xx)

- Low cost and low footprint radio tuner platform
- Basic analogue and digital audio interface

Mid-end platform (DRM in AM and FM band):

HERO (TEF6638) + Saturn (SAF36xx)

- Single tuner, scanning antenna diversity radio platform
- Audio processing and routing
- Analogue and digital audio interfaces

High-end platform (DRM in AM and FM band):

DiRaNa3 (SAF775x) + Saturn (SAF36xx)

- High performance dual tuner platform
- Advanced audio processing and routing
- Analogue and digital audio interfaces



Gospell (www.gospell.com) in China have recently developed DRM car solutions for both DRM in AM and FM:

- The OEM device GR-5018CW.
- The aftermarket device GR-502 BCW. This unit will enable the cars already on the road to get DRM digital reception.

GR501, After Market



GR502, OEM



The two models have the following DRM features:

- Double DIN in-dash car stereo
- 2GB RAM + 32GB ROM
- Quad core
- DRM designed for AM band and FM band
- Journaline support
- DRM Slideshow support
- AM/FM radio
- Bluetooth music / Handsfree calling / Wi-Fi
- Navigation / backup camera
- USB/SD player
- Internal 4x25w amplifier



Inntot Technologies (www.inntot.com) based in India has an SDR based automotive receiver solution for DRM digital radios. Inntot is working with some of the major automotive tier-1 companies to launch the DRM receiver through OEMs. The Inntot solution meets all the DRM RF performance requirements for the automotive industry and has been field tested in several cities and rural areas in India.



Standalone Receivers



Gospell Digital Technology Co Ltd. – China (www.gospell.com) first developed the DRM standalone Receiver GR 216.

Recently, three more advanced portable radios: GR-224, GR-226 and GR-228 have come onto the market.



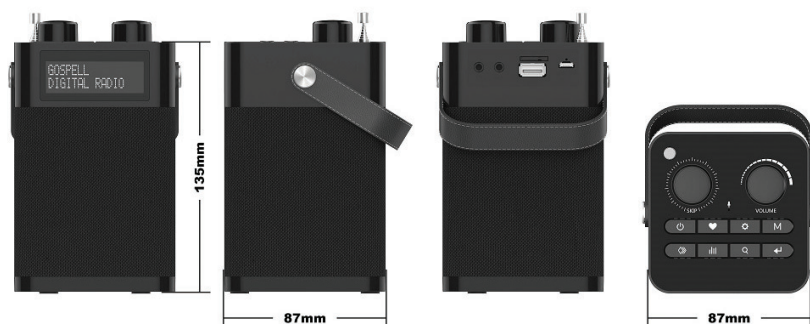
GR-224BP Portable DRM/AM/FM Radio

(DRM/AM/FM | Bluetooth |
USB/TF player | AUX in)



GR-226BP Portable DRM/AM/FM Radio

DRM/AM/FM | Bluetooth |
USB/TF player | AUX in)



GR-228BP Portable DRM/AM/FM Radio

(DRM/AM/FM | Bluetooth |
USB/TF player | AUX in |
Stereo speaker)



All these Gossell receiver models have the following features:

- DRM digital radio and AM/FM radio
- DRM+ ready
- xHE-AAC audio
- Bluetooth stream music and hands-free calling
- USB & SD card player
- Journaline and scrolling text message
- Emergency warning reception
- FM RDS station name display
- 60 station memory pre-sets
- Auto scan tuning
- Aux in
- Operates on internal battery or AC adapter

The company is waiting for substantial orders. The price per unit will be reduced based on volume produced.

A new Gossell receiver (in the GR220 series) is currently under development and should be available soon:

GR-220P Pocket DRM/AM/FM Pocket Radio



GR-220P Features

- Full band DRM (MW/SW VHF-II) and AM/FM stereo reception
- DRM xHE-AAC audio decoding
- DRM Journaline* and scrolling text message
- DRM emergency warning reception
- DRM alternative frequency switching
- DRM expert mode for reception status inspection
- FM RDS station name display
- 60 station memory presets
- 1kHz step tuning allows fast and precise station reception
- Station auto seeking and store
- Rechargeable battery
- Automatic time set
- Operates on internal battery or AC adapter

Gospell has an Indian distributor called **Antriksh Digital Solutions**, which can be accessed via their website <http://www.antrikshdigital.com/#> (Section 'DRM Products')

Antriksh
Digital Solution LLP

The Gospell receivers are also available on the **Alibaba** website:

- <https://tinyurl.com/yav4ycfb>
- <https://tinyurl.com/y77dxowy>
- <https://tinyurl.com/ya9usob4>
- <https://tinyurl.com/yaa3kdyr>

Gospell can be contacted at: huangbs@gospell.com (China)
deepak@antrikshdigital.com (india)



Starwave (www.starwaves.com) is a German/Swiss company which has come up with a series of DRM receivers using all frequency bands (analogue AM and FM, as well as DRM in AM and FM bands) in various sizes and at different levels of complexity and prices. Apart from DRM digital functionality, the radios also feature the traditional analogue AM bands (MW and SW). These receivers are:

- **Standalone W24BT radio**
- **Small radio for after-market cars** (Tuk-Tuk radio)
- **Pocket radio W5BTBoombox V66** (available soon)
- **Standalone radio W41** (available soon)
- **Standalone radio W42** (one speaker, available soon)



The two currently available receivers are illustrated below:

Standalone W24BT radio



S-India CarBox – DRM Digital Car Receiver (Tuk-Tuk radio for aftermarket cars)



Features

- Ready to use existing car radio & antenna
- DRM in the AM, SW and FM Band
- Also plays analogue AM, FM and SW
- High quality automotive tuner
- Journaline
- DRM Emergency Warning Functionality (EWF)
- It also works as a standalone version with integrated audio and amplifier available
- Frequency and station name can be scrolled on the LED display
- It comes with IR remote control

All the existing receivers and those in development support all DRM frequencies (AM and FM), using the latest xHE-AAC audio codec for music and speech, Journaline advanced text and the DRM Emergency Warning Functionality (EWF).

In addition, all Starwave receivers support the analogue AM and FM bands.

The company's website is: <http://starwaves.com/>

The Starwaves receivers are available:

- on the **Alibaba** website, as follows:
 - a. For the **portable W24BT** radio: <https://tinyurl.com/ya3kab2s>
 - b. For the **S "India CarBox – DRM Digital Car Receiver"**: <https://tinyurl.com/yatnfvbt>
- on the **TradeIndia** website for the **portable W24BT** radio: <https://tinyurl.com/yjq2cejo>
- on the **Amazon** website for the **portable W24BT** radio: <https://tinyurl.com/yf2j4vlo>

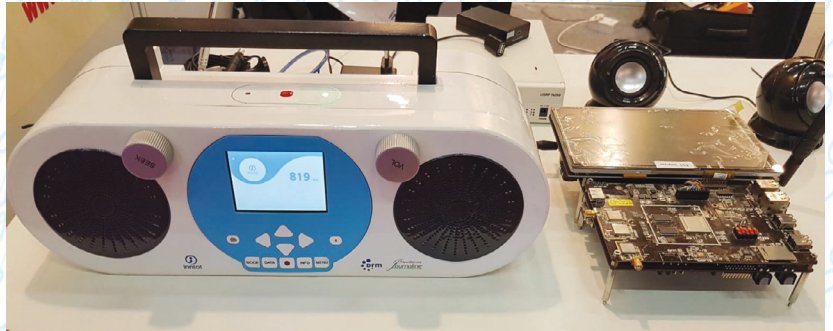
Starwaves can be contacted at: sales@starwaves.com

Other manufacturers currently planning, developing or upgrading their standalone DRM receiver solutions are:

a. Inntot Technologies Pvt Ltd, India (for AM and FM)

Inntot Technologies is developing software-based DRM receiver solutions for the automotive infotainment, the consumer segment as well as for mobile phones.

The desktop radio is based on a generic processor and meets all the specifications for the Minimum Receiver Requirements for mediumwave (MW). The receiver supports all frequency bands (AM and FM), the xHE-AAC audio codec, Journaline, Slideshow feature, Service and Programme information, as well as the DRM EWF emergency alert feature. The design has been field tested in number of cities and rural areas in India and is currently being tested in Japan.



The company's website is: <https://www.inntot.com/>
Inntot can be contacted at: info@inntot.com

- b. **Nedis** (Netherlands) with a desktop receiver tuning in all DRM as well as analogue bands.
- c. **Cambridge Consultants** (UK) with a small, low-power and low-cost (under \$20) DRM desktop receiver for both DRM in AM and FM, as well as analogue frequencies.
- d. **RF2Digital** (South Korea) are in advanced development of their SDR solution for the automotive industry.
- e. **Communications Systems Inc, India** (India) have developed their first Indian DRM receiver a few years back and are planning to make substantial improvements to their product, Avion AV-1401.