

Media delivery over 5G Broadcast

The 3GPP-based broadcast delivery system bridging OTT streaming and broadcasting

3GPP

ETSI



About the project

The documents the 5G Broadcast project rests on

ETSI TS 103 720

Technical Specification

5G Broadcast System for linear TV and radio: the functions, reference points and receiver categories.

3GPP TR 36.976

Technical Report

The overall description of LTE-based 5G broadcast.

3GPP TS 26.346

Technical Specification

MBMS protocols and codecs. The MBMS application programming interface and URL are in 3GPP TS 26.347.

FIND OUT MORE

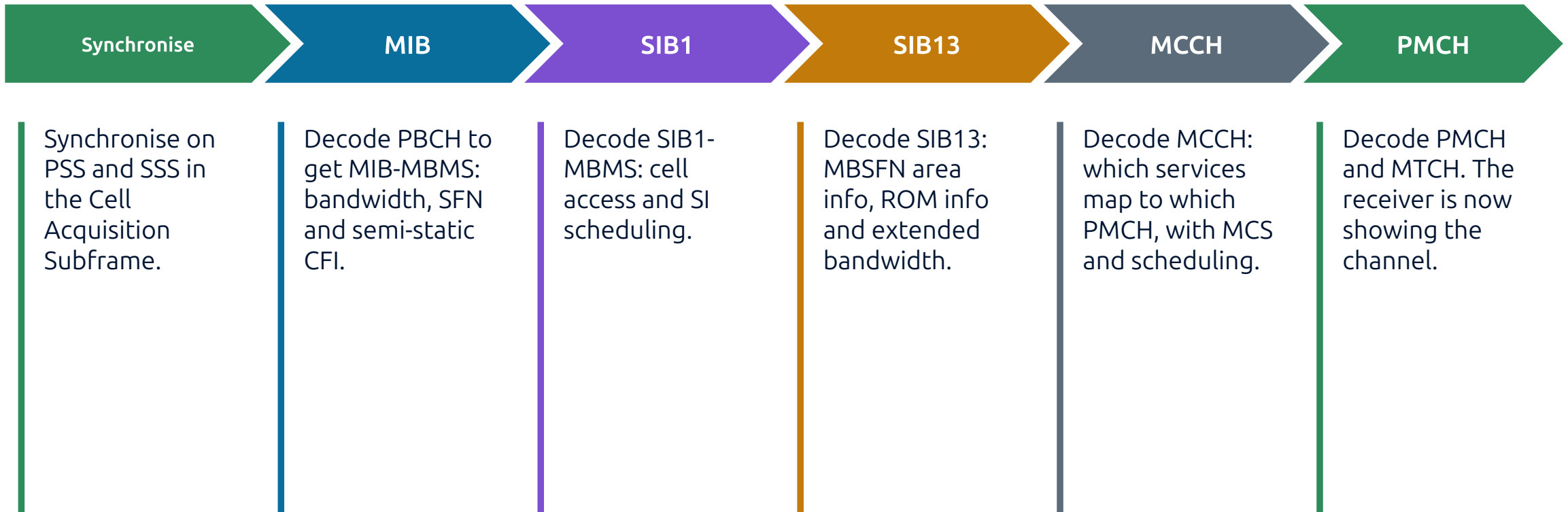
Technical Analysis

Specifications

Reference Tools

How a receiver tunes in

From nothing to a channel on screen, in the order the receiver acquires the signal



There is no SIM, no return channel and no prior connection to the network: the receiver bootstraps itself.

Features by release

What each 3GPP release added to LTE-based 5G Broadcast; ETSI TS 103 720 V1.2.1 profiles Releases 14 to 17

Release 14 the eN-GBR baseline

MBMS-dedicated cell

1.25 kHz numerology

Cell Acquisition Subframe

256-QAM on PMCH

MIB-MBMS and SIB1-MBMS

Shorter MCCH periods

Release 16 LTE-based 5G Terrestrial Broadcast

2.5 kHz and 0.37 kHz numerologies

PDCCH Format 4

PBCH repetition

MBSFN area info

Semi-static CFI

Receive-Only Mode

Releases 17 and 18 bandwidths (17), UHF bands (18)

6, 7 and 8 MHz PMCH bandwidths (17)

Band 107 (18)

Band 108 (18)

Release 19 PMCH Phase 2, CAS muting, new bands; not in V1.2.1

Time interleaving

Frequency interleaving

PMCH cyclic shift

Extended MCH scheduling periods

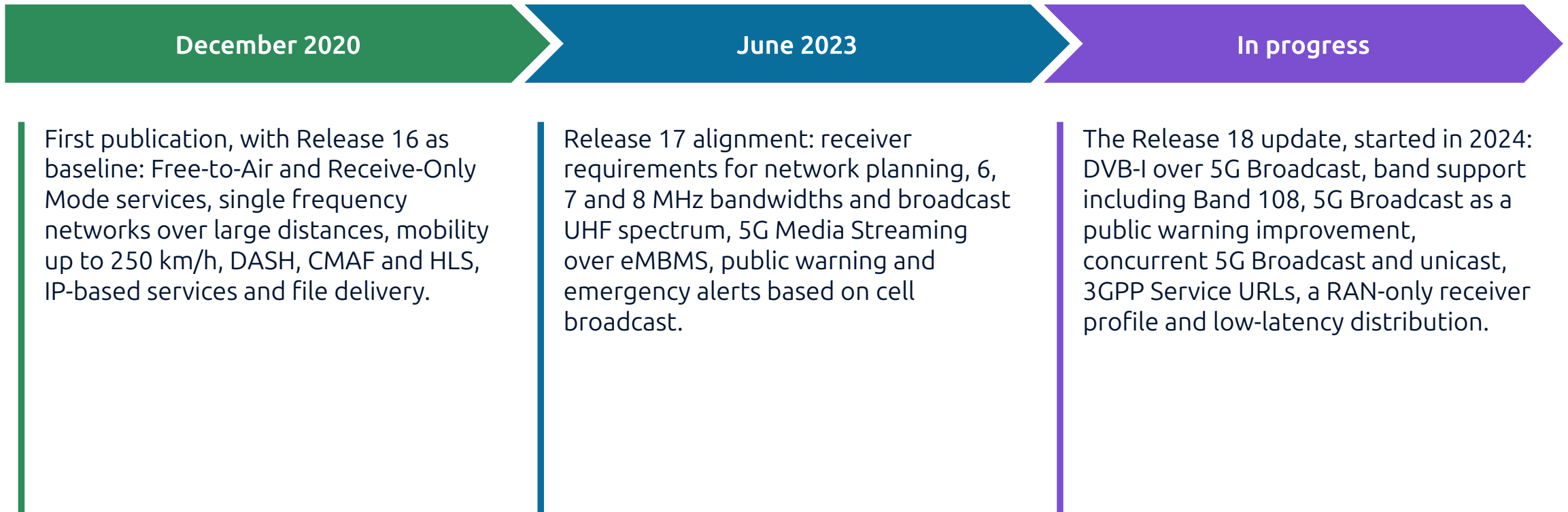
CAS muting

Bands 112 and 113

The UHF bands are receive-only (downlink-only). Release 20 (work plan of 28 September 2026): Band 246 (satellite) bandwidths, unverified.

How the specification grew

5G-MAG has maintained ETSI TS 103 720 since 2021, with changes agreed among members



Receiver categories

Four categories in ETSI TS 103 720; the fourth, the Emergency Alerts Receiver, has no Feature Value

Base receiver

Feature value 27

The minimum profile, aimed at fixed indoor reception. The 1.25 kHz numerology is mandatory; other subcarrier spacings are optional.

Main receiver

Feature value 28

Supports all five numerologies: 15, 7.5, 2.5, 1.25 and 0.37 kHz. The target for mobile and portable devices.

5GMS receiver

Feature value 30

Meets all the receiver requirements plus the 5G Media Streaming requirements, for 5GMS over LTE-based 5G Broadcast.

[FIND OUT MORE](#)

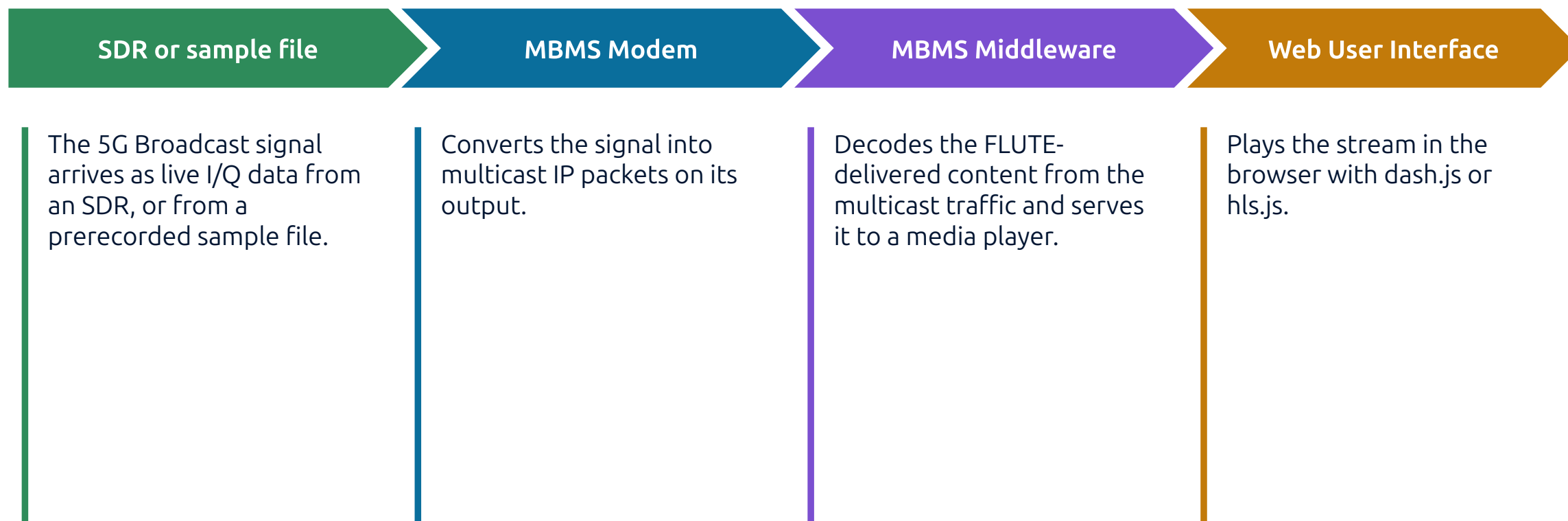
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The receiver chain

From the radio signal to a media player, as the Reference Tools receive it



IMPLEMENT

Repositories: transmitter and receiver

Transmitter, modem, middleware and web interface, from the descriptions of the repositories

REPOSITORY	WHAT IT IS	COVERS	LATEST RELEASE
rt-mbms-tx	a standalone 5G Broadcast transmitter	Transmitter	v1.0.0 21 Jun 2023 GitHub
rt-mbms-tx-for-qrd-and-crd	an MBMS-enabled eNodeB extended as a transmitter for QRD and CRD devices	Transmitter QRD and CRD devices	ea-1.0.0 5 Sep 2024 GitHub
rt-mbms-modem	converts an SDR or sample-file signal into multicast IP packets	Modem SDR input Sample files	v1.2.1 30 Jun 2022 GitHub
rt-mbms-mw	decodes FLUTE content from the Modem and serves it from a web cache	Middleware Web cache	v0.10.0 8 Dec 2022 GitHub
rt-mbms-mw-android	an implementation of the MBMS Middleware for Android	Middleware Android	1.0.0 5 Sep 2024 GitHub
rt-wui	a web interface that controls the Modem and Middleware and plays HLS	Web interface HLS playback	v0.1.0 8 Dec 2022 GitHub

FIND OUT MORE

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released

no release yet

Repositories: core, applications and tools

The BM-SC, the Gateway, the Client, the applications and the tools, from the repository descriptions

REPOSITORY	WHAT IT IS	COVERS	LATEST RELEASE
rt-mbms-bmsc	the BM-SC: ingests content, announces it and delivers it with FLUTE	BM-SC	none yet GitHub
rt-mbms-gw	takes content from the BM-SC and delivers it onto the broadcast bearer	MBMS Gateway	none yet GitHub
rt-mbms-client	reads the announcement, reassembles FLUTE objects, republishes HLS or DASH	MBMS Client	none yet GitHub
rt-mbms-application	a web app that plays the MBMS Client output and shows radio state	MBMS-Aware Application	none yet GitHub
rt-mbms-application-provider	a provider portal that provisions services and sessions on the BM-SC	Application Provider	none yet GitHub
rt-libflute	FLUTE version 1, which carries files over the broadcast bearer	FLUTE	0.12.4 1 Sep 2026 GitHub
rt-mbms-examples	examples that use other 5G-MAG repositories, such as FLUTE ffmpeg	ExamplesFLUTE ffmpeg	1.1.0 5 Nov 2024 GitHub

FIND OUT MORE

Technical Analysis

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released

no release yet

Repositories in the architecture

[illegible]

- 1 **rt-mbms-application**
- 2 **rt-mbms-application-provider**
- 3 **rt-mbms-bmsc**
- 4 **rt-mbms-client**
used by 1
- 5 **rt-mbms-modem**
used by 1
- 6 **rt-mbms-tx**
used by 3, 7
- 7 **rt-mbms-gw**
- 8 **rt-libflute**
dependency, used by 3, 4
- 9 **rt-common-shared**
auxiliary library, used by 4

More information at 5g-mag.com/tech/5g-broadcast

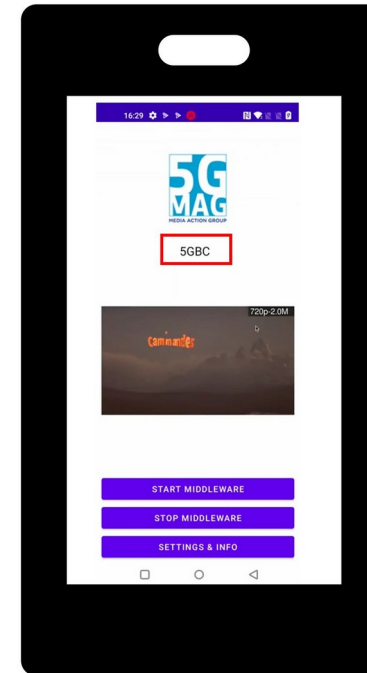
IMPLEMENT

See it and try it

A test setup with an SDR and phones, and the middleware app playing a live stream



SDR and phones, test setup



Middleware app

From the Reference Tools tutorials: seamless switching between broadcast and unicast on Android, and SDR playback.

Latest updates and roadmap

Status on 23 October 2026



MERGED SINCE V1.0.0 61 pull requests in 8 repositories

See it. Try it. Contribute.

Raise an issue, send a pull request or join the monthly public call.

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