MMS Golden Rules

Panel Data Delivery 2

2026-09-22

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Updates

Version	Paragraph	Update	Date
v1		Document created	2026-09-22

1 Introduction

1.1 Deliveries

From viewing day 2027-01-01, MMS will provide two different panel data sets that can be used for analysis in external tools:

MMS Panel Data Delivery 1

- Contains audio-matched viewing (live and catch-up), allocated to linear TV channels.
- Includes viewing on TV-screen only.
- Based solely on panel measurement using people meters.
- Intended to be combined with as-run logs for broadcast programs and ads.
- Can be used for both "As broadcast" and "As viewed" type of analyses, but are mainly intended for "As broadcast".
- Replaces the ORPI RV3 and RP3 data deliveries that are available up to and including viewing day 2026-12-31.

MMS Panel Data Delivery 2

- Contains all audio-matched live and catch-up viewing on linear TV channels from MMS Panel Data Delivery 1, together with viewing allocated to streaming services, measured using multiple data sources and measurement techniques.
- Includes viewing on both TV-screen and digital devices.
- A hybrid dataset that combines panel measurement with modelled data in a larger expanded panel.
- Intended for "As viewed" type of analysis.
- Replaces the AAM (Online video), Cross-platform (Total video) and Video-In-Home data deliveries that are available up to and including viewing day 2026-12-31.

This document describes the rules and definitions for calculating audience metrics from **MMS Panel Data Delivery 2**, for viewing data from 2027-01-01 onwards.

The document will replace the MMS Golden Rules for AAM Panel data and MMS Golden Rules for Total video which applies to viewing data up to and including 2026-12-31.

Reach calculations cannot be performed across the transition date 2026-12-31/2027-01-01, as the data sources from 2027-01-01 onwards are based on a completely new panel source together with a completely new calibration model for tagged online streaming. There is no linkage between the old and new data sources.

The rules and definitions of **MMS Panel Data Delivery 1** is described in a separate document.

1.2 Measurement set-up

The MMS Video Panel is a single source panel where viewing is measured cross-platform on both TV-screen and on digital devices.

Platform=”Broadcast” is measured by people meters and viewing is allocated to TV channels through audio matching. It includes viewing from distributor platforms on all reference-banded channels.

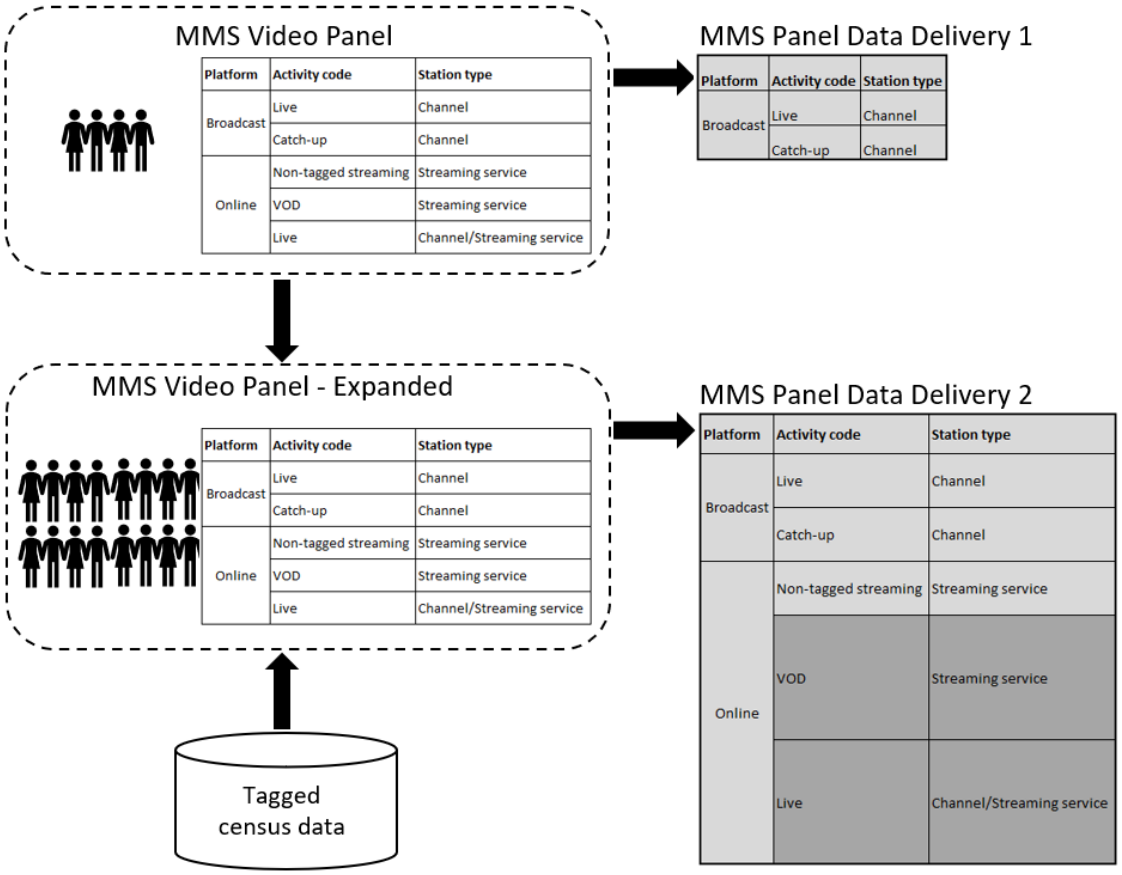
The viewing can be either **activity_code**=”Live” or “Catch-up” (for up to 28 days after the live broadcast). All this viewing is included in both MMS Panel Data Delivery 1 and 2.

Platform=”Online” is only included in MMS Panel Data Delivery 2 and is measured differently depending on the streaming service.

Services that are not actively part of the MMS census measurement will be measured by a router meter at service level. The viewing from these services will always have **activity_code**=”Non-tagged streaming”.

Services that are measured through tagged census data will go through a modelling process where the panel data is enriched with long-tail programs and ads not observed by the video panel, and the audience levels will be calibrated to be in line with the tagged census traffic data. The calibrated viewing can have either **activity_code=**”Live” or “VOD”.

To make the calibration modelling possible, there will be an expansion of the MMS Video Panel resulting in a much larger panel size in MMS Panel Data Delivery 2. All viewing with **platform**=Broadcast or **activity_code**=non-tagged streaming will remain unaffected of this expansion, meaning that the results for Broadcast viewing will be identical in Delivery 1 and 2.



Platform	Activity code	Station type
Broadcast	Live	Channel
	Catch-up	Channel
Online	Non-tagged streaming	Streaming service
	VOD	Streaming service
	Live	Channel/Streaming service

Platform	Activity code	Station type
Broadcast	Live	Channel
	Catch-up	Channel

Platform	Activity code	Station type
Broadcast	Live	Channel
	Catch-up	Channel
Online	Non-tagged streaming	Streaming service
	VOD	Streaming service
	Live	Channel/Streaming service

All viewing cannot be measured at program and ad level.

Platform	Activity code	Station type	Measurement type	Program level?	Ad level?
Broadcast	Live	Channel	Audio matching.	Yes If as-run logs are provided by the Media company.	Yes If as-run logs are provided by the Media company.
	Catch-up	Channel	Audio matching.	Yes If as-run logs are provided by the Media company.	Yes If as-run logs are provided by the Media company.
Online	Non-tagged streaming	Streaming service	Streaming meter (+ partly audio matching)	Partly Only if broadcast within the latest 28 days on a channel belonging to the same Media company.	TBC
	VOD	Streaming service	Census tagging. Panel data is calibrated towards census by modelling.	Yes If metadata is provided by the Media company.	Yes If metadata is provided by the Media company.
	Live	Channel/ Streaming service	Census tagging. Panel data is calibrated towards census by modelling.	Partly Yes, when viewing on Live VOD and if metadata is provided by the Media company. No, when viewing on simulcast channel (reported on channel level only).	Yes If metadata is provided by the Media company.

Broadcast viewing is allocated to programs and ads by applying as-run log files to audio-matched channel level data. This can be done for those channels which as-run logs are provided to MMS by the Media companies.

Non-tagged streaming is only measured at service level by the router meter. However, there are exceptions where non-tagged streaming can be identified also at program level. It is possible to identify the program through audio matching in case the streamed program that has been broadcasted within the latest 28 days on a channel that:

- Belongs to the same Media company as the streaming service.
- Is providing as-run logs to MMS.

This type of viewing will be included at the program level reporting and be allocated as non-tagged streaming to the streaming service.

Tagged VOD streaming is always measured at program or ad level in census measurement. This viewing is always included in the reporting of programs/ads as long as the Media companies have provided valid metadata.

Tagged Live streaming includes two different types of viewing:

- "Live VOD". This is streaming of a specific program that is available at the time of the broadcast. The categorization as "Live" is based on information provided in the tagged census measurement by the Media company. This viewing is included at program level just like the regular VOD.
- "Simulcast". This is streaming of a simulcast channel provided by the Media company. This viewing is reported only at channel level, and is not included at program level. Viewing during ad breaks will be included at ad level in case they are served as Digital Ad Insertion (DAI).

1.3 Measurement deduplication

No duplication exists between platforms in the MMS Panel Data Delivery 2. One measured viewing session will always only be allocated to one specific platform and activity type in the panel data. If simultaneous streaming and audio matching are detected, the streaming will take priority and the viewing is allocated to the streaming service.

This is a difference compared to the measurement set-up until 2026-12-31 where the TAM measurement includes all audio-matched viewing regardless of the source for the viewing.

1.4 Limitations of the model

Tagged streaming services are modelled to align with the census measurement across a defined set of parameters and aggregation levels. This means that analysis across dimensions not specifically controlled by the calibration model may be less reliable or inaccurate.

MMS has decided not to impose limitations on the data delivery for tagged services. This means it is currently possible to analyze a tagged service with the same flexibility as a non-tagged service or a broadcast channel, even in cases where this may not be methodologically supported.

MMS will provide separate documentation with official recommendations on which types of analysis are methodologically supported for the different types of viewing. This documentation will also cover the quality and reliability of the different demographic variables available in the panel.

2 Data sources

2.1 Daily panel data

The daily **MMS Panel Data Delivery 2** consists of the following datasets:

Data file	Description
DEM_XP_PAN	Contains information about the panelists in the expanded MMS Video panel. The file includes one record for each individual panel member (including guest viewers) and contains daily weights, sociodemographic variables, and other relevant panelist information.
DEM_XP_ES	Contains information about respondents of the Establishment survey. The file structure is equivalent to the DEM_XP_PAN, to provide universe targets for all target groups available in the MMS Video panel.
SWO_XP_CH	Contains the measured viewing records for each panelist on channel/streaming service level. The file includes one record for each viewing session and panelist. A viewing session is defined as a continuous unbroken viewing on a specific channel/streaming service.
SWO_XP_PROG	Contains the measured viewing records for each panelist at program level. Each record represents a continuous unbroken viewing session on a specific program.
SWO_XP_AD	Contains the measured viewing records for each panelist at ad level. Each record represents a continuous unbroken viewing session on a specific ad.
METADATA_XP_CONTENT	Contains information about all programs available in the corresponding SWO_XP_PROG file. Each record represents a specific program.
METADATA_XP_AD	Contains information about all ads available in the corresponding SWO_XP_AD file. Each record represents a specific ad.
ASRUN_XP_CONTENT	Contains information about all programs broadcast on a TV channel that have been viewed according to the corresponding SWO_XP_PROG. Each record represents a specific linear broadcast, and multiple records can map to the same content in METADATA_XP_CONTENT.
ASRUN_XP_AD	Contains information about all ads broadcast on a TV channel that have been viewed according to the corresponding SWO_XP_AD. Each record represents a specific linear broadcast, and multiple records can map to the same ad in METADATA_XP_AD.
STATION_XP	Contains a mapping list between station_id and channels/streaming services.

More details about each data source will be found in the following sections.

2.2 DEM_XP_PAN

The daily DEM_XP_PAN is similar to the DEM_PAN from Panel Data Delivery 1 but will be larger and include more unique panelists. This is due to a part of the MMS modelling, where the MMS Video panel will be expanded. Each panelist from the MMS Video panel has been expanded into several "replicas" and their weights will be adjusted accordingly.

There is no mapping between panelists in DEM_PAN and DEM_XP_PAN. Each unique combination of **household_number** and **individual_number** in DEM_XP_PAN should be treated as an individual panelist.

The matching key between DEM_XP_PAN and the three different SWO files is the combination of **household_number** + **individual_number** within each **viewing_date.**

2.3 DEM_XP_ES

DEM_XP_ES contains results derived from The Establishment Survey (ES) and is the source of universe targets for all target groups available in the MMS Video panel.

The universe targets are updated twice a year, at beginning of January and July (MMS months as defined in 3.13) . DEM_XP_ES will be delivered daily, but the results will remain constant for all viewing days within the corresponding universe period.

Each combination of **household_number** + **individual_number** represent an individual respondent from the ES. There is no connection between respondents in DEM_XP_ES and panelists in DEM_XP_PAN.

The content in DEM_XP_ES is identical to the DEM_ES file in MMS Panel Data Delivery 1.

2.4 SWO_XP_CH

SWO_XP_CH is used for reporting on channel/streaming service level or total Media company level. SWO_XP_CH will include all channels and streaming services measured by MMS, regardless of the measurement technique.

Each record in SWO_XP_CH represents an unbroken viewing session on a specific **station_id** which maps to a channel or a streaming service in STATION_XP.

Each daily SWO_XP_CH includes all viewing within that specific **viewing_date**. The viewing belongs to either **platform**="Broadcast" or **platform**="Online", where metrics calculated for "Broadcast" will be identical with the same calculations performed on Delivery 1.

There is no mapping between SWO_XP_CH and the METADATA_XP and ASRUN_XP files. However, it is possible for **platform**="Broadcast" to apply the BC_Content_As-run/BC_Ad_As-run from Delivery 1 in the same way as described for SWO_BC in the MMS Golden Rules for Panel Data Delivery 1. This makes it possible to perform full "As broadcast"-reporting also based on SWO_XP_CH.

2.5 SWO_XP_PROG

SWO_XP_PROG is used for reporting on program level. The file contains viewing sessions at specific programs, which means that one viewing session from SWO_XP_CH could be broken down into multiple viewing sessions on different programs in SWO_XP_PROG.

Each daily SWO_XP_PROG includes all viewing within that specific **viewing_date**. The viewing belongs to either **platform**="Broadcast" or **platform**="Online".

All viewing sessions regardless the **platform** will have a **content_id** mapping to the program in METADATA_XP_CONTENT. Viewing sessions measured by audio matching will also have a

content_broadcast_id mapping to a specific linear broadcast of the program in ASRUN_XP_CONTENT.

SWO_XP_PROG will include the following type of viewing:

- Live and Catch-up viewing on TV channels that provides as-run logs of broadcast programs to MMS.
- VOD and Live viewing on streaming services measured by census tagging. Only viewing on programs for which the Media company has provided metadata for will be included.
- Non-tagged streaming on streaming services for programs that has been broadcast on a channel belonging to the same Media company within the latest 28 days.

2.6 SWO_XP_AD

SWO_XP_AD is used for reporting on ad level. The file contains viewing sessions on specific ads, which means that one viewing session from SWO_XP_CH could be broken down into multiple viewing sessions on different ads in SWO_XP_AD.

Each daily SWO_XP_AD includes all viewing within that specific **viewing_date**. The viewing belongs to either **platform**="Broadcast" or **platform**="Online".

All viewing sessions regardless the **platform** will have an **ad_id** mapping to the ad in METADATA_XP_AD. Viewing sessions measured by audio matching will also have an **ad_broadcast_id** mapping to a specific linear broadcast of the ad in ASRUN_XP_AD.

SWO_XP_AD will include the following type of viewing:

- Live and Catch-up viewing on TV channels that provides as-run logs of broadcast ads to MMS.
- VOD and Live viewing on streaming services measured by census tagging. Only viewing on ads for which the Media company has provided metadata for will be included.
- **TBC:** Non-tagged streaming on streaming services for ads that has been broadcast on a channel belonging to the same Media company within the latest 28 days.

2.7 METADATA_XP_CONTENT

TBA

2.8 METADATA_XP_AD

TBA

2.9 ASRUN_XP_CONTENT

TBA

2.10 ASRUN_XP_AD

TBA

3 Components and definitions

3.1 Universe

The universe size is a necessary input in all metrics.

This is calculated by summarizing the weights in DEM_XP_ES for each respondent belonging to the selected target group (M), and the universe period corresponding to the viewing day (D):

$$Universe_{M,D} = \sum_{r=1}^{R} w_r$$

Where:
R= Total number of respondents in target group *M*.
w= **weight** for respondent *r* according to DEM_XP_ES.

One unique respondent is defined by the combination of **household_number** and **individual_number** in DEM_XP_ES.

3.2 Sum of weights of possible panel viewers

The sum of weights of possible panel viewers is a necessary input in all metrics.

This is calculated by summarizing the weights in DEM_XP_PAN for each panel-member belonging to the selected target group (M) and the viewing day (D). Guest viewers are to be excluded.

$$Sum\ of\ weights_{M,D} = \begin{cases} \sum_{p=1}^{P} w_p, & viewer_type = 1 \\ 0, & viewer_type = 2 \end{cases}$$

Where:
P= Total number of panel-members (guests excluded) in target group *M*.
w= **weight** for panel-member *p* according to DEM_XP_PAN.

One unique panelist is defined by the combination of **household_number** and **individual_number** in DEM_XP_PAN.

3.3 Target groups

All available sociodemographics in DEM_XP_PAN and DEM_XP_ES can be used to build target groups and analyze viewing from SWO_XP_CH, SWO_XP_PROG and SWO_XP_AD.

However, the quality of the available variables varies with regard to representativeness, reliability, completeness, and update frequency. Variables that are controlled through panel recruitment and/or weighting generally provide the highest quality for target group analysis. Other variables may be less reliable due to skewed distributions, incomplete reporting, or less frequent updates within the panel.

In addition, viewing from census tagged services (i.e **activity_code**="Live" and "VOD" in combination with **platform**="Online") is calibrated towards census through a modelling process. This calibration is being performed within a defined set of target-groups (gender x age-groups), and analysis across other target-groups may be less reliable.

As described in section 1.4, MMS will provide recommendations for different kinds of analysis in a separate documentation and categorize the available variables in DEM_XP_PAN according to their expected quality and suitability for target group analysis.

Regardless of the variables used, all target groups should always be calculated in the same way. Calculations should always be performed on the complete selected target group, and not by doing partial calculations on any underlying target modules.

3.4 Guest viewers

Guest viewers inherit certain sociodemographic information from the panel household they are visiting. Refer to the DEM_XP_PAN file specification for details on which variables are available or not for guests. The variables that are not available will have value "99" for all guest viewers in DEM_XP_PAN.

The guest viewer ID (the combination of **household_number** and **individual_number** in DEM_XP_PAN) is unique only within a specific viewing day. Over time, viewing associated with the same guest viewer ID may therefore originate from different individuals.

As a result, guest viewers must be treated differently from regular panel members in reach and frequency calculations. The specific methodology is described in section 5.5.

Guest viewers should also always be excluded from the sum of weights of possible panel viewers, as described in section 3.2.

Guest viewers are identified by **viewer_type=**2 in DEM_XP_PAN.

3.5 Platforms

All the SWO_XP files include viewing on both **platform**="Broadcast" and **platform**="Online".

Audience metrics can be calculated either separately for each platform, or cross-platform as a total.

3.6 Activity codes

The SWO_XP_CH file includes four different types of viewing activities:

Activity code	Description
Live	If Platform="Broadcast": Viewing that occurs with a maximum delay of 3 minutes from the original broadcast If Platform="Online": Viewing on a simulcast channel or viewing on a VOD content that is available for streaming at the same time
Catch-up	Exists only for Platform="Broadcast. Viewing that takes place after the original broadcast, either later on the same day or within 28 days following the broadcast.
VOD	Exists only for Platform="Online" and covers all streaming on tagged streaming services that are not classified as "Live" in census. Includes all streaming regardless of when the content was first published.
Non-tagged streaming	Exists only for Platform="Online" and covers all streaming on non-tagged streaming services.

Activity_code="Live" exists on both platforms and can be used for reporting of a channel or media house total "Live" viewing. Please note however that the definition of "Live" is different depending on the platform. While audio-matched Broadcast viewing will allow a maximum of 3 minutes delay from the original broadcast, the "Live" form platform="Online" will rely solely on the classification of the viewing in the tagged census data.

For example it could be possible to start a "Live-VOD" content from the beginning when it's already been ongoing for an hour, and that viewing could still be classified as activity_code="Live".

It may also be possible to jump back in a simulcast stream, and there is currently no way to determine when, in relation to the broadcast, the viewing actually took place.

3.7 Station Id:s

The **station_id** field in SWO_XP files contains the code of the TV channel or streaming service to which the viewing has been allocated. It can be mapped to STATION_XP which contains the name of the station, together with a mapping between stations and Media companies.

Stations of type "streaming" will always only be allocated viewing from **platform**="Online". Simulcast channels will have the same **station_id** as they have in the broadcast measurement. That means that stations of type "channel" can be allocated viewing from both platforms if the channel is also measured as a simulcast channel by a tagged Media Company.

3.8 Total viewing

Total broadcast channel viewing is defined as the sum of viewing for **platform=**"Broadcast" across all available station_id:s in SWO_XP_CH.

Total online streaming is defined as the sum of viewing for **platform**="Online" across all available station_id:s in SWO_XP_CH. Note that this will equal the "total viewing on measured services" rather than a complete market total, as both the tagged and non-tagged streaming measurement is being done on a limited set of streaming services.

SWO_XP_PROG and SWO_XP_AD cannot be summarized to derived total viewing, as they only include those viewing sessions that can be allocated to specific programs/ads.

3.9 Device types

All the SWO_XP files include viewing measured from both TV screens and digital devices. Viewing on **platform=**"Broadcast" can only take place on **device_type**="TV", while online streaming can be done on all device types.

Audience metrics can be calculated by each device type separately or in total, both within a platform or as cross-platform.

There will however be limitations for when breakdown on device level for tagged streaming services are supported from a methodological perspective. This will be described in separate documentation, as mentioned in section 1.4.

3.10 Reporting slots

The lowest reporting level in the audio-matching measurement system is minute.

A viewing session for **platform**="Broadcast" refers to uninterrupted viewing by the same panel member on the same channel.

A viewing session can only be attributed to one single channel. If viewing occurs on more than one channel within the same minute, the entire minute is allocated to the channel with the longest viewing duration during that minute.

If viewing is split equally between two channels within a minute, the minute is allocated to the channel viewed latest within the minute. The resulting channel is then reported to the viewing session in the SWO_XP_CH file.

However, due to deduplication between the Broadcast measurement and Online measurement there will occur cases where the Broadcast viewing session has been reduced with a number of seconds that will be allocated to a measured Online content instead. This means that the duration of a viewing statement in the SWO_XP files can be less than 60 seconds, which is a difference compared to the TAM data that is valid up to and including 2026-12-31.

Online streaming is measured in seconds.

Regardless of the **platform** it is always the exact length of the viewing session *in seconds* that should be used in all calculations, without any rounding to whole minutes.

The minimum slot length to be reported on for broadcast and non-tagged streaming is minute level.

It is also possible to report tagged streaming on daypart level, but it's not methodologically supported as the calibration modelling is being performed at viewing date level. Recommendation for analysis of tagged streaming will be described in separate documentation, as mentioned in section 1.4.

3.11 Reporting programs

TBA

3.12 Reporting ads

TBA

3.13 Day, week and month

A television day starts at 02:00 and ends including the minute 25:59. Consequently, viewing between 00:00 and 01:59 is allocated to the previous television day rather than the current calendar day.

The SWO_XP files for a given day always corresponds to the television day.

A television week starts with a Monday and is always 7 days long.

A television month (also referred to as an "MMS month") can consist of either 4 or 5 television weeks.

In case a television week overlaps two calendar months, the entire week is allocated to the television month containing most of the week's days.

A television year always consists of 12 complete television months (January to December), which can cover either 52 or 53 television weeks.

3.14 Reach criteria

Reach calculations can be combined with a reach criterion that specifies the minimum viewing duration required for a viewing session to be included.

A reach criterion is considered fulfilled when the duration of the viewing statement in each SWO_XP is equal to or greater than the specified threshold.

The MMS standard reach criterion from viewing date 2027-01-01 will be:

	Platform="Broadcast"	**Platform="Online"**
Channel/Service	15 seconds	15 seconds
Programs	15 seconds	15 seconds OR 50% of content_length_seconds
Ads	5 seconds	25% of film_length_seconds

Each SWO_XP file will include a pre-applied **standard_reach_criteria** field based on the above definitions for each platform and reporting level, that can be used to filter on directly.

3.15 Panel day

A "panel day" is a concept used when calculating reach and frequency across multiple viewing days.

Because the panel sample and panel weights may vary from day to day, a consistent sample must be maintained throughout the entire analysis period. This is achieved by selecting the panel sample from a single day as the basis for the calculation.

This selected day is referred to as the *panel day*.

From viewing day 2027-01-01 onwards, the MMS standard is to always use the **first day** of the analysis period as the panel day regardless of the platform.

3.16 Location

All SWO_XP files contains the parameter **location** that is flagging whether the viewing happened in-home or out of home.

Viewing with **activity_code**="Non-tagged streaming" are only measured when the digital device is connected to the household wi-fi router.

Tagged streaming that is measured through census also include viewing on digital devices outside the home wi-fi network.

The default reporting option should include all available viewing regardless of location, but it should always be possible to include only **location**="In-home" in the analysis, to enable comparisons between tagged and non-tagged streaming services on equal terms.

Viewing for **platform**="Broadcast" will always be flagged as "in-home".

4 Report types

4.1 As broadcast vs As viewed

Platform=”Broadcast” can be reported from two different perspectives, **As broadcast** and **As viewed.**

The As broadcast perspective reports viewing in relation to the original broadcast, rather than the date and time when the viewing actually took place.

To calculate As broadcast viewing, all viewing sessions associated with a specific **broadcast_date** and a specific broadcast slot are selected and aggregated over a defined consolidation period. The consolidation period may range from 0 to 28 viewing days after the original broadcast.

Consolidation	**Definition**
Live	activity_code="Live" (viewing_date=broadcast_date)
OV/Overnights (Live+T0)	activity_code="Live" + activity_code="Catch-up" where viewing_date=broadcast_date
KO_X (Live+T0+…+TX-1)	activity_code="Live" + activity_code="Catch-up" where viewing_date-broadcast_date<X (Highest possible value of X is 28)

The standard consolidation period when reporting As broadcast is KO_8 (Live+T0+…+T7)

The metrics are then calculated for the selected viewing sessions across the period of X number of viewing days, following the steps described in section 5.

The main idea is that As broadcast reporting should be based on MMS Panel Data Delivery 1, but it is fully possible to report this also from Delivery 2. However, it’s only applicable for platform=”Broadcast” as the concept of a broadcast schedule doesn’t exist for video-on-demand streaming services.

This means that **platform**=”Online”, and consequently also Cross-platform, can only be reported from an As viewed perspective, where all viewing is always reported to the actual date and time when the audience watched the content.

	Platform		
	Broadcast	**Online**	**Cross-platform**
As broadcast	X		
As viewed	X	X	X

The standard when reporting As viewed is to include all viewing available for each viewing day in the selected period.

In terms of calculation, the difference between As broadcast and As viewed can be described as a difference in the selection of viewing sessions.

- In As viewed viewing is included based on **viewing_date**, **start_time** and **end_time** over a selected viewing period of X viewing days.
- In As broadcast viewing is includedbased on **broadcast_date**, **broadcast_start_time** and **broadcast_end_time** over a period of X viewing days depending on the selected consolidation period.

All metrics are the calculated as described in section 5.

5 Calculation of metrics – Channel/Service level

This section describes calculations of metrics for Channel/Service level reporting based on SWO_XP_CH. Unless otherwise specified, all metrics should be calculated in the same way regardless of the platform or whether the calculation is done cross-platform.

5.1 Average viewing time

Average viewing time is the viewing time in average per individual in the target population.

The first step is the accumulator (*A)* of weighted viewing time per viewing day *d* which after universe-adjustment gives the sum of viewing time in step 2.

The sum of viewing time is then rounded and divided with the universe target in step 3.

The final metric could be reported in either seconds or minutes, but the standard is minutes.

Calculation within a viewing day		
Calculation step		**Calculation**
1	$A_{m,d}$	$\sum_{v=1}^{V}(t_v * w_p)$
2	$Sum\ of\ viewing\ time_{m,d}$	$\left(A_{m,d} * \frac{U_{m,d}}{W_{m,d}}\right)$
3	$Average\ viewing\ time_{m,d}$	$(\frac{round(Sum\ of\ viewing\ time_{m,d})}{U_{m,d}})/60$

Where:
V= Total number of viewing statements *v* in SWO_XP_CH-file.
t= Number of seconds for viewing statement *v* that matches the slot being measured.
w= Weight for panelist *p* according to DEM_XP_PAN-file.
U= The universe size of the target-group *M* as described in 3.1.
W= The sum of weights of possible panel-viewers in target-group *M* as described in 3.2.

The viewing time across a period of *d1+d2+…+dn* viewing days is calculated by summarizing the total viewing time across the complete period, and then divide it by the universe target valid on the first day, *d1*, of the period.

Calculation across multiple viewing days		
Calculation step		**Calculation**
1	$Sum\ of\ viewing\ time_{m,(d1+d2+\cdots+dn)}$	$\sum_{d=1}^{n} round(Sum\ of\ viewing\ time_{m,d})$
2	$Average\ viewing\ time_{m,(d1+d2+\cdots+dn)}$	$(\frac{Sum\ of\ viewing\ time_{m,(d1+d2+\cdots+dn)}}{U_{m,d1}})/60$

5.2 Rating/TRP

Rating is defined as the average number of viewers per time unit across a specific time slot. Rating is a non-unique measure of the program's average audience size, where the intensity of viewing time has been considered.

The first two steps are equal to the calculation of total viewing time, where the accumulator (A) of weighted viewing time is calculated in step 1 and universe-adjusted into sum of viewing time in step 2.

Sum of viewing time is then divided with the length of the slot being measured, and then rounded into integer in order to get the absolute rating.

The absolute rating from step 3 can be divided with the universe target to get the relative rating within the selected target group.

Calculation within a viewing day		
Calculation step		**Calculation**
1	$\boldsymbol{A_{m,d}}$	$\sum_{v=1}^{V}(t_v * w_p)$
2	$\boldsymbol{Sum\ of\ viewing\ time_{m,d}}$	$\left(A_{m,d} * \frac{U_{m,d}}{W_{m,d}}\right)$
3	$\boldsymbol{Absolute\ rating_{m,d}}$	$round\left(\frac{Sum\ of\ viewing\ time_{m,d}}{L}\right)$
4	$\boldsymbol{Relative\ rating_{m,d}}$	$\frac{Absolute\ rating_{m,d}}{U_{m,d}}$

Where:
V= Total number of viewing statements v in SWO_XP_CH-file.
t= Number of seconds for viewing statement v that matches the slot being measured.
w= Weight for panelist p according to DEM_XP_PAN-file.
U= The universe size of the target-group M as described in 3.1.
W= The sum of weights of possible panel-viewers in target-group M as described in 3.2.
L= Length of the measured slot in seconds.

The absolute rating for period d1+d2+…+dn is just equal to the sum of absolute rating for each day d as calculated above.

The relative rating is then obtained by dividing the summarized absolute rating across the period with the universe target valid on the first day, *d1*, of the period.

Calculation across multiple viewing days		
Calculation step		**Calculation**
1	$\boldsymbol{Absolute\ rating_{m,(d1+d2+\cdots+dn)}}$	$\sum_{d=1}^{n}(Absolute\ rating_{\boldsymbol{m,d}})$
2	$\boldsymbol{Relative\ rating_{m,(d1+d2+\cdots+dn)}}$	$\frac{Absolute\ rating_{\boldsymbol{m,(d1+d2+\cdots+dn)}}}{U_{m,d1}}$

5.3 Share – within one viewing day

Share is the calculation of a specific station's share of the total viewing time for all channels and/or services during a specific slot.

$$Share_{m,c} = \frac{Sum\ of\ viewing\ time_{m,c}}{Sum\ of\ viewing\ time_{m,T}}$$

Like the other time-based metrics rating and average viewing time, it's based on the sum of viewing time in seconds. This is being calculated both for the station to be measured (*c),* and in total for *all* channels/services (*T)* included in SWO_XP_CH for the platform being measured.

The share for channel/service *c* is then calculated as the ratio between the two sums.

Calculation within a viewing day		
Calculation step		**Calculation**
1	$\boldsymbol{A_{m,d,c}}$	$\sum_{v=1}^{V}(t_v * w_p)$
2	$\boldsymbol{Sum\ of\ viewing\ time_{m,d,c}}$	$round\left(A_{m,d} * \frac{U_{m,d}}{W_{m,d}}\right)$
3	$\boldsymbol{Sum\ of\ viewing\ time_{m,d,T}}$	$\sum_{c=1}^{C} Sum\ of\ viewing\ time_{\boldsymbol{m,d,c}}$
4	$\boldsymbol{Share_{m,d,c}}$	$\frac{Sum\ of\ viewing\ time_{m,d,c}}{Sum\ of\ viewing\ time_{m,d,T}}$

Where:
C= Denotes the specific station being measured.
T= Denotes the total across all stations included in SWO_XP_CH.
V= Total number of viewing statements *v* in SWO_XP_CH.
t= Number of seconds for viewing statement *v* that matches the slot being measured.
w= Weight for panelist *p* according to DEM_XP_PAN-file.
U= The universe size of the target-group *M* as described in 3.1.
W= The sum of weights of possible panel-viewers in target-group *M* as described in 3.2.

The rounded sum of viewing time for each day *d* is summarized into the total sum of viewing time for period d1+d2+…+dn. This is being done for both the specific station *c*, and for the total viewing time across all stations *T.*

These two sums are divided to get the share for station *c* across the complete period of d1+d2+…+dn.

Calculation across multiple viewing days		
Calculation step		**Calculation**
1	$\boldsymbol{Sum\ of\ viewing\ time_{m,(d1+d2+\cdots+dn),c}}$	$\sum_{d=1}^{n} Sum\ of\ viewing\ time_{\boldsymbol{m,d,c}}$
2	$\boldsymbol{Share_{m,(d1+d2+\cdots+dn),c}}$	$\frac{Sum\ of\ viewing\ time_{m,(d1+d2+\cdots+dn),c}}{Sum\ of\ viewing\ time_{m,(d1+d2+\cdots+dn),T}}$

5.4 Reach – within one viewing day

This metric calculates the number of unique individuals that has been reached during a specific slot. Each viewer shall only be counted once, regardless of the number of times the panelist has watched during the slot being measured.

The reach calculation can be combined with a reach criterion stating that the panelist needs to have viewed for at least X continuous seconds (or Y% of the program/ad length) to be included. When calculating reach cross-platform it is possible to apply different reach criteria per each platform. The MMS standard reach criterion for Channel/Service reporting is defined in section 3.14.

The weights of all unique panelists are summarized into the sum of weighted viewers in step 1.

In step 2 this is universe-adjusted and then rounded into the absolute number of reached individuals.

The relative reach is calculated by dividing the absolute reach from step 2 with the universe target.

Calculation within a viewing day		
Calculation step		**Calculation**
1	$\boldsymbol{Weighted\ viewers_{m,d}}$	$\sum_{p=1}^{P} w_p * D_{p,v}$ $D_{p,v} = \begin{cases} 1, & if\ v_i = v_1\ and\ t \geq c_{platform} \\ 0, & else \end{cases}$
2	$\boldsymbol{Absolute\ reach_{m,d}}$	$round\left(Weighted\ viewers_{m,d} * \frac{U_{m,d}}{W_{m,d}}\right)$
3	$\boldsymbol{Relative\ reach_{m,d}}$	$\frac{Absolute\ reach_{m,d}}{U_{m,d}}$

Where:
P= Total number of panel-members (guests included) in selected target-group *m.*
w= Weight for panelist *p* according to DEM_XP_PAN file*.*
v= Viewing statement for panelist *p* in SWO_XP_CH that matches the selection criteria.
t= Length in seconds for viewing statement *v.*
c= Selected reach criterion for the *platform* of viewing statement *v.*
U= The universe size of the target-group *M* as described in 3.1.
W= The sum of weights of possible panel-viewers (guests excluded) in target-group *M* as described in 3.2.
D= A 'dummy'-variable that indicates if the panel-members viewing statement ***v*** should be considered in the reach calculation or not. Each individual panelist should only be counted once.

5.5 Reach and frequency – across multiple viewing days

This section describes the calculation of unique viewers and frequency distribution over a period across multiple viewing days.

The calculation of reach across multiple days is more complex and involves several more steps compared to when reach is calculated for a single slot within one viewing day (5.4).

Panel-day

In this kind of calculation, a certain *panel-day* should be used, as described in section 3. 15. The official standard is to use the **first day** of the selected period as the panel-day.

Example: The selected period for the analysis is 20270101-20270107. In this case 20270101 will be used as the panel-day.

The base for the calculation is the set of all possible panelists, including the guest viewers, and their weights, from DEM_XP_PAN belonging to the panel-day. Only this set of panelists and their viewing during the selected period are to be considered in the reach calculation. Any viewing made by a panelist not belonging to the panel-day should not be part of the calculation.

To correct for differences between the reporting samples for each specific day and the used sample belonging to the panel-day, MMS will use the negative binomial distribution (NBD) to model the final frequency distribution.

Panelists that belong to the selected target group on the panel-day should be included in the calculation of "raw rating" and the frequency distribution F_i across the complete period, even if their sociodemographic information happens to change during the period.

Guest viewers

Viewing from guest viewers should *only* be included on the panel-day. Any viewing during other days of the period belonging to guest viewers should be discarded from the calculation.

That means that guests will only contribute with viewing on the first day of the period, and be accounted for as "one time viewers" in terms of frequency of viewed days.

Reach criterion

The calculation of reach across multiple days can be combined with a reach criterion in a similar way as for reach single slot.
The calculation of the frequency distribution F_i should then be limited to the set of viewing statements where the viewing length is equal to or longer than the specified reach criterion.

Calculation of input parameters

The first step is to calculate the input parameters "true" and "raw" rating needed for the NBD modelling.

The "true" rating equals the sum of absolute rating across the complete period for the specific slot S being measured. It is calculated as described in section 5.2.

The "raw" rating is calculated in a similar way, but with one important difference. Only viewing statements belonging to panelists included in the reporting sample of the panel-day (*d1*) should be considered. As described on previous page, the viewing from guest viewers is only included in the raw rating for day *d1*.

The weights from panel-day *d1* is used for all days d1+d2+…+dn when calculating the raw rating.

Calculation step		Calculation
1	$True_{S,(\boldsymbol{d1+d2+\cdots+dn})}$	$\sum_{d=1}^{n} Absolute\ rating_{S,d}$
2	$Raw_{S,(\boldsymbol{d1+d2+\cdots+dn})}$	$\sum_{d=1}^{n} Absolut\ raw\ rating_{S,d}$

Calculation of input frequency distribution

The input frequency distribution is calculated by counting the number of viewed slots during the period, for each panelist belonging to the DEM_XP_PAN reporting panel sample for panel-day d1.

For "as viewed" reporting, the frequency distribution should always be defined as the number of unique viewing days during the selected period.

For "as broadcast" reporting, it is possible to define the frequency distribution either in terms of viewing days during the selected period, or as number of unique time slots, depending on the reporting purpose.

Viewing from guest viewers should only be accounted for during panel-day d1.

The frequency vector is calculated by summarizing the weights for all panelists who have viewed exactly 1, exactly 2,…, exactly n number of viewing days/time slots.

Calculation step		Calculation
1	$\boldsymbol{F_i}$	$\sum_{p=1}^{P} pw_p$ for $i = 1,2,3,\ldots,n$

Where:
P= Total number of possible panelists (guests included) belonging to the panel-day, according to DEM_XP_PAN.
pw= Weight for panelist p at the panel-day
i= Number of viewed viewing days/time slots within the period. Only viewing from the panel-day should be included for the guests.

The absolute frequency vector $\boldsymbol{F_i}$ is converted into the relative frequency distribution $\boldsymbol{Fr_i}$ by dividing each element of the frequency vector with the universe target of the selected target group *m*:

Calculation step		Calculation
1	$\boldsymbol{Fr_i}$	$Fr_i = \frac{F_i}{U_m}$ $for\ i = 1,2,3,\dots,n$

Then derive the share of individuals watching exactly 0 viewing days/time slots during the period by summarizing all elements of $\boldsymbol{Fr_i}$, and subtract this from 1:

Calculation step		Calculation
1	$\boldsymbol{Fr_0}$	$Fr_0 = 1 - \sum_{i=1}^{n} Fr_i$

Special case rule: If $\sum_{i=1}^{n} Fr_i > 1$, let element $Fr_0 = 0$.

Add element Fr_0 to the frequency vector Fr to make it cover i= 0,1,2,…,n number of active viewing days/time slots.

Special case rule: In case vector Fr begins with one or more elements where $Fr_i = 0$, these should be removed from the frequency vector before applying the probability model in the following steps.

Example: Assume the following relative frequency distribution:
Exactly 0 slots: 0
Exactly 1 slot: 0
Exactly 2 slots: 0.5
Exactly 3 slots: 0.4
Exactly 4 slots: 0
Exactly 5 slots: 0.1
Since the distribution begins with two elements with value 0, these two elements should be removed from the frequency vector. The remaining Fr_i will then cover the counts i= 2,3,4,5.

Estimate the NBD parameters

Calculate the relative version of the input parameter *Raw,* by dividing it with the universe target of the relevant target-group on the panel-day d1.

Calculation step		Calculation
1	$RawR_{S,(\boldsymbol{d1+d2+\cdots+dn})}$	$\frac{Raw_{S,(\boldsymbol{d1+d2+\cdots+dn})}}{U_{m,d1}}$

Based on element Fr_0 and $RawR$ can the first NBD parameter k be estimated as:

Calculation step		Calculation
1	$\boldsymbol{k}$	$k = abs\left[-\frac{RawR * ln(Fr_0)}{ln(Fr_0) - RawR * W_{-1}[\frac{Fr_0^{(\frac{1}{RawR})} * ln(Fr_0)}{RawR}]}\right]$

Where:

W$_{-1}$[ ]= The Lambert W function (using the secondary branch).

Special case rule: If $k > 120$, let $k = 120$.

Then the following NBD parameters a and b can be solved for as:

Calculation step		Calculation
1	$\boldsymbol{a}$	$\frac{\frac{Raw}{k}}{U_{m,d1}}$
2	$\boldsymbol{b}$	$a * \frac{True}{Raw}$

Where:
Raw: The input parameter of raw absolute rating
True: The input parameter of true absolute rating
U: The universe target for target group m valid on panel-day d1.

With a and b the NBD probabilities *p_raw* and *p_true* can be calculated as:

Calculation step		Calculation
1	***p_raw***	$\frac{a}{(a+1)}$
2	***p_true***	$\frac{b}{(b+1)}$

Adjust the frequency distribution

With all needed NBD parameters, each element of the frequency distribution Fr will be adjusted by using the function of the negative binomial distribution:

Calculation step		Calculation
1	$\widehat{Fr}_i$	$\frac{\Gamma(k+i)}{\mathrm{i!}\,\Gamma(\mathrm{k})}[(p_true)^i(1-p_true)^k-(p_raw)^i(1-p_raw)^k]+Fr_i$

Where:

Γ( )= Gamma function.

Final adjustment

The next step is to adjust the sum of the adjusted frequency distribution $\widehat{Fr}$ to equal 1 (=100% of the universe).

In case the sum of $\widehat{Fr}_i \neq 1$, the difference should be added by adjusting the last, n^{th}, element of the frequency distribution:

Calculation step		Calculation
1	**Sum of adjusted frequency vector**	$\sum_{i=0}^{n}\widehat{Fr}_i$
2	**Adjust $\widehat{Fr}_n$ in case the sum ≠1**	$\widehat{Fr}_n+\left(1-\sum_{i=0}^{n}\widehat{Fr}_i\right)$

Special case rule: In case any elements of the frequency distribution were removed due to the special case rule described above under "Calculation of input frequency distribution", these should now be included again (with their values of 0) to make the full adjusted frequency distribution $\widehat{Fr}_i$ cover the complete number of *i*=0,1,2,…,n viewing days/time slots.

Reach calculation

The absolute adjusted frequency distribution is calculated by factoring each element of the relative frequency distribution $\widehat{Fr}$ with the universe target valid on the panel-day d1, and adjust it with the ratio of universe targets and sum of panel weight.

This is being done for the elements $i = 1,2, \dots, n$, i.e the share of individuals who have watched at least one of the viewing days/time slots within the selected period.

The absolute number of reach viewers is then obtained by summarizing the absolute frequency vector $\hat{F}_i$.

Finally, the relative reach can be calculated by dividing the absolute reach with the universe target from the panel day.

Calculation step		Calculation
1	$\hat{F}_i$	$\widehat{Fr}_i * U_{m,d1} * (U_{m,d1}/W_{m,d1})$
2	$\boldsymbol{Absolute\ reach_{m,(d1+d2+\cdots+dn)}}$	$round(\sum_{i=1}^{n} \hat{F}_i)$
3	$\boldsymbol{Relative\ reach_{m,(d1+d2+\cdots+dn)}}$	$\frac{Absolute\ reach_{,m,(d1+d2+\cdots+dn)}}{U_{m,d1}}$

Cumulative reach over time

The reach calculation can be used to display the growth of additional viewers day by day (or slot by slot) for the selection of slots.

All above steps including calculation of input parameters, estimating NBD parameters and final reach calculations needs to be done in an iterative way adding each new viewing day/time slot one at a time as s1, s1+s2,s1+s2+s3 etc. up until the complete number of viewing days/time slots of the selection.

The panel-day is chosen on the complete selected period and should be used for each specific iteration within the period.

5.6 Sum of impressions

TBA

6 Calculation of metrics – Program level

TBA

6.1 Average viewing time

6.2 Rating/TRP

6.3 Reach – within one viewing day

6.4 Reach and frequency – across multiple viewing days

6.5 Sum of impressions

7 Calculation of metrics – Ad level

TBA

7.1 Average viewing time

7.2 Rating/TRP

7.3 Reach – within one viewing day

7.4 Reach and frequency – across multiple viewing days

7.5 Sum of impressions

7.6 Completion rate