MMS Panel Data Delivery 1

Step by step calculation examples

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Updates

Version	Paragraph	Update	Date
v1		Document created	2026-06-24
v1.1		Adjusted viewing time slot in example 2	2026-09-03
v2		Added examples 5-9 for ads and program	2026-09-09
v2.1		Corrected W and U/W to the viewing day's values in the daily tables of examples 6 and 9	2026-10-28

Introduction

This document contains step by step calculation examples with results, based on the test data files:

- DEM_PAN, DEM_ES and SWO_BC
- Test data period: 2026-04-08 to 2026-04-20

The purpose is to demonstrate how the calculation rules are applied in practice, and can serve as a source of comparison when implementing the calculations in external systems.

Please note that the test data is only meant to be used for technical implementation. It is not possible to draw any conclusions from the audience levels.

The test data comes from the panel build up phase, where the panel is still incomplete, unbalanced and not yet properly weighted.

The test data is also produced by systems still under development, which might lead to inconsistencies in data that will not appear in production status.

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Example 1



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Example 1

Reporting type:”As viewed” – Daily per each viewing day
Activity type: All viewing (Live + All Catch-up)
Channel: SVT 1 (station_id=1)
Target group: A3-99
Viewing period: 20260408-20260416
Vieving time slot: 02:00:00-25:59:59
Metrics: Average viewing time, rating and reach.

This example calculates the daily viewing on channel SVT1, regardless of what time the content was originally broadcast.

Example 1: Average viewing time

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	$Average\ viewing\ time_{m,d}$	$\frac{round(Sum\ of\ viewing\ time_{m,d})}{U_{m,d}}$

viewing_date	W	U	A	U/W	Sum of viewing time	Average viewing time
20260408	10172457,3	10271528,97	2715344256	1,0097392	2741789557	**4,44885**
20260409	10171599,7	10271528,97	2348521224	1,0098243	2371593899	**3,84817**
20260410	10172944,3	10271528,97	2749155714	1,0096909	2775797422	**4,50403**
20260411	10175028,5	10271528,97	2612098848	1,009484	2636872122	**4,27861**
20260412	10173184,1	10271528,97	2708509032	1,0096671	2734692375	**4,43733**
20260413	10173152,1	10271528,97	2039919420	1,0096702	2059645940	**3,342**
20260414	10173238,3	10271528,97	1936100640	1,0096617	1954806643	**3,17189**
20260415	10173870,3	10271528,97	1698971436	1,009599	1715279811	**2,78323**
20260416	10174130,9	10271528,97	2155080162	1,0095731	2175710981	**3,53033**

Example 1: Rating

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	$Absolute\ rating_{m,d}$	$round\left(\frac{Sum\ of\ viewing\ time_{m,d}}{L}\right)$
4	$Relative\ rating_{m,d}$	$\frac{Absolute\ rating_{m,d}}{U_{m,d}}$

viewing_date	W	U	A	Sum of viewing time	L	Absolute rating	Relative rating
20260408	10172457,3	10271528,97	2715344256	2741789557	86400	**31734**	**0,003089511**
20260409	10171599,7	10271528,97	2348521224	2371593899	86400	**27449**	**0,002672338**
20260410	10172944,3	10271528,97	2749155714	2775797422	86400	**32127**	**0,003127772**
20260411	10175028,5	10271528,97	2612098848	2636872122	86400	**30519**	**0,002971223**
20260412	10173184,1	10271528,97	2708509032	2734692375	86400	**31652**	**0,003081528**
20260413	10173152,1	10271528,97	2039919420	2059645940	86400	**23838**	**0,002320784**
20260414	10173238,3	10271528,97	1936100640	1954806643	86400	**22625**	**0,002202691**
20260415	10173870,3	10271528,97	1698971436	1715279811	86400	**19853**	**0,001932818**
20260416	10174130,9	10271528,97	2155080162	2175710981	86400	**25182**	**0,002451631**

Example 1: Reach

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

viewing_date	W	U	U/W	Weighted viewers	Absolute reach	Relative reach
20260408	10172457,3	10271528,97	1,00973921	1264827,2	**1277146**	**0,124338451**
20260409	10171599,7	10271528,97	1,00982434	1061078,4	**1071503**	**0,10431777**
20260410	10172944,3	10271528,97	1,00969087	1264251,4	**1276503**	**0,124275851**
20260411	10175028,5	10271528,97	1,00948405	1101170,9	**1111614**	**0,108222836**
20260412	10173184,1	10271528,97	1,00966707	1403101,7	**1416666**	**0,137921628**
20260413	10173152,1	10271528,97	1,00967024	1041961,3	**1052037**	**0,102422629**
20260414	10173238,3	10271528,97	1,00966169	964688,4	**974009**	**0,094826097**
20260415	10173870,3	10271528,97	1,00959897	919721	**928549**	**0,090400271**
20260416	10174130,9	10271528,97	1,00957311	903717,5	**912369**	**0,088825043**

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Example 2



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Example 2

Reporting type:”As viewed” – accumulated per multiple viewing days
Activity type: All viewing (Live + All Catch-up)
Channel: TV4 (station_id=29)
Target group: A15-44
Viewing period: 20260408-20260416
Viewing time slot: 13:00:00-13:39:59
Metrics: Average viewing time, rating, and reach.

This example calculates the total audience that have watched during the selected timeslot across the complete viewing period.

Example 2: Average viewing time

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	$Average\ viewing\ time_{m,(d1+d2+\cdots+dn)}$	$\frac{Sum\ of\ viewing\ time_{m,(d1+d2+\cdots+dn)}}{U_{m,d1}}$

viewing_date	W	U	U/W	A	Sum of viewing time
20260408	3956709,1	4011343,774	1,0138081	81076992	82196512,02
20260409	3956367,7	4011343,774	1,0138956	73292244	74310683,17
20260410	3956873,7	4011343,774	1,0137659	110727444	112251711
20260411	3957522,1	4011343,774	1,0135998	29798472	30203726,5
20260412	3956944,4	4011343,774	1,0137478	41695956	42269184,65
20260413	3956718,3	4011343,774	1,0138058	23494584	23818944,41
20260414	3956950,4	4011343,774	1,0137463	56599128	57377155,83
20260415	3957107,6	4011343,774	1,013706	33647424	34108596,08
20260416	3957165,2	4011343,774	1,0136913	49883394	50566360,47

viewing_dates	U	Sum of viewing time	Average viewing time
20260408-20260416	4011343,77	507102874	**2,106953441**

Example 2: Rating

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

viewing_date	W	U	U/W	A	Sum of viewing time	rating
20260408	3956709,1	4011343,774	1,0138081	81076992	82196512,02	34249
20260409	3956367,7	4011343,774	1,0138956	73292244	74310683,17	30963
20260410	3956873,7	4011343,774	1,0137659	110727444	112251711	46772
20260411	3957522,1	4011343,774	1,0135998	29798472	30203726,5	12585
20260412	3956944,4	4011343,774	1,0137478	41695956	42269184,65	17612
20260413	3956718,3	4011343,774	1,0138058	23494584	23818944,41	9925
20260414	3956950,4	4011343,774	1,0137463	56599128	57377155,83	23907
20260415	3957107,6	4011343,774	1,013706	33647424	34108596,08	14212
20260416	3957165,2	4011343,774	1,0136913	49883394	50566360,47	21069

viewing_dates	U	rating	rating_rel
20260408-20260416	4011343,77	**211294**	**0,052674119**

Example 2: Reach (across multiple viewing days)

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

iteration	From_date	To_date	true	raw
1	20260408	20260408	34249	34249
2	20260408	20260409	65212	64501
3	20260408	20260410	111984	110912
4	20260408	20260411	124569	120505
5	20260408	20260412	142181	135418
6	20260408	20260413	152106	145662
7	20260408	20260414	176013	170064
8	20260408	20260415	190225	185388
9	20260408	20260416	211294	207048

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Example 2: Reach (across multiple viewing days)

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

iteration	From_date	To_date	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	$\sum F_i$
1	20260408	20260408	42857,1									42857,1
2	20260408	20260409	32866,1	21219,6								54085,7
3	20260408	20260410	48289,2	12216,4	19575,8							80081,4
4	20260408	20260411	53945,3	18354,9	19575,8	0						91876
5	20260408	20260412	40680	33792,9	17046,7	8624,6	0					100144,2
6	20260408	20260413	43619,1	33792,9	12883	4163,7	8624,6	0				103083,3
7	20260408	20260414	63837,1	31550,2	15125,7	2519,9	3167,1	7101,3	0			123301,3
8	20260408	20260415	59146,1	37161,9	15125,7	2519,9	1523,3	1643,8	7101,3	0		124222
9	20260408	20260416	71754,4	38082,6	15125,7	2519,9	0	1523,3	1643,8	7101,3	0	137751

Example 2: Reach (across multiple viewing days)

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

iteration	From_date	To_date	Fr_1	Fr_2	Fr_3	Fr_4	Fr_5	Fr_6	Fr_7	Fr_8	Fr_9	$\sum Fr_i$
1	20260408	20260408	0,010683976									0,010683976
2	20260408	20260409	0,008193289	0,005289898								0,013483187
3	20260408	20260410	0,01203816	0,003045463	0,00488011							0,019963734
4	20260408	20260411	0,013448187	0,004575748	0,00488011	0						0,022904045
5	20260408	20260412	0,01014124	0,008424334	0,004249623	0,002150053	0					0,02496525
6	20260408	20260413	0,010873937	0,008424334	0,003211642	0,001037981	0,002150053	0				0,025697947
7	20260408	20260414	0,015914143	0,007865245	0,003770731	0,000628193	0,000789536	0,001770305	0			0,030738153
8	20260408	20260415	0,01474471	0,009264202	0,003770731	0,000628193	0,000379748	0,000409788	0,001770305	0		0,030967677
9	20260408	20260416	0,017887871	0,009493726	0,003770731	0,000628193	0	0,000379748	0,000409788	0,001770305	0	0,034340363

Example 2: Reach (across multiple viewing days)

Steg		Beräkning
1	Fr_0	$Fr_0 = 1 - \sum_{i=1}^{n} Fr_i$

iteration	From_date	To_date	Fr_0	Fr_1	Fr_2	Fr_3	Fr_4	Fr_5	Fr_6	Fr_7	Fr_8	Fr_9	$\sum Fr_i$
1	20260408	20260408	0,989316024	0,010683976									1
2	20260408	20260409	0,986516813	0,008193289	0,005289898								1
3	20260408	20260410	0,980036266	0,01203816	0,003045463	0,00488011							1
4	20260408	20260411	0,977095955	0,013448187	0,004575748	0,00488011	0						1
5	20260408	20260412	0,97503475	0,01014124	0,008424334	0,004249623	0,002150053	0					1
6	20260408	20260413	0,974302053	0,010873937	0,008424334	0,003211642	0,001037981	0,002150053	0				1
7	20260408	20260414	0,969261847	0,015914143	0,007865245	0,003770731	0,000628193	0,000789536	0,001770305	0			1
8	20260408	20260415	0,969032323	0,01474471	0,009264202	0,003770731	0,000628193	0,000379748	0,000409788	0,001770305	0		1
9	20260408	20260416	0,965659637	0,017887871	0,009493726	0,003770731	0,000628193	0	0,000379748	0,000409788	0,001770305	0	1

Example 2: Reach (across multiple viewing days)

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

iteration	From_date	To_date	RawR
1	20260408	20260408	0,008538037
2	20260408	20260409	0,016079649
3	20260408	20260410	0,027649587
4	20260408	20260411	0,030041055
5	20260408	20260412	0,033758762
6	20260408	20260413	0,03631252
7	20260408	20260414	0,042395768
8	20260408	20260415	0,046215934
9	20260408	20260416	0,051615621

Example 2: Reach (across multiple viewing days)

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

Where:

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

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

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

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

iteration	From_date	To_date	k	a	b	p_true	p_raw
1	20260408	20260408	120,0000000000	0,0000711503	0,0000711503	0,0000711452	0,0000711452
2	20260408	20260409	0,0411839533	0,3904348114	0,3947386075	0,2830197755	0,2808005152
3	20260408	20260410	0,0335411384	0,8243485050	0,8323160973	0,4542426378	0,4518591172
4	20260408	20260411	0,0464620866	0,6465713756	0,6683768282	0,4006150271	0,3926774054
5	20260408	20260412	0,0457286635	0,7382407327	0,7751097020	0,4366545353	0,4247056917
6	20260408	20260413	0,0411722347	0,8819662083	0,9209838674	0,4794334211	0,4686408313
7	20260408	20260414	0,0534925043	0,7925553041	0,8202796402	0,4506338598	0,4421371560
8	20260408	20260415	0,0433480360	1,0661598180	1,0939772336	0,5224398890	0,5160103341
9	20260408	20260416	0,0475227038	1,0861255131	1,1083990387	0,5257064808	0,5206424572

Example 2: Reach (across multiple viewing days)

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

Where:

Γ( )= Gamma function.

iteration	From_date	To_date	$\widehat{Fr_0}$	$\widehat{Fr_1}$	$\widehat{Fr_2}$	$\widehat{Fr_3}$	$\widehat{Fr_4}$	$\widehat{Fr_5}$	$\widehat{Fr_6}$	$\widehat{Fr_7}$	$\widehat{Fr_8}$	$\widehat{Fr_9}$	$\sum\widehat{Fr}$
1	20260408	20260408	0,989316024	0,010683976									1,000000000
2	20260408	20260409	0,986391257	0,008281991	0,005316148								0,999989397
3	20260408	20260410	0,979893027	0,012114328	0,003081638	0,004896852							0,999985846
4	20260408	20260411	0,976498881	0,013797425	0,004722992	0,004940181	0,000024260						0,999983739
5	20260408	20260412	0,974099375	0,010655326	0,008660013	0,004354062	0,002195857	0,000019991					0,999984624
6	20260408	20260413	0,973479241	0,011290631	0,008633958	0,003313700	0,001087182	0,002173663	0,000011300				0,999989677
7	20260408	20260414	0,968466407	0,016335508	0,008067863	0,003864281	0,000670855	0,000808878	0,001779045	0,000003941			0,999996777
8	20260408	20260415	0,968470722	0,015002069	0,009407046	0,003847113	0,000668586	0,000400999	0,000420936	0,001776142	0,000003052		0,999996666
9	20260408	20260416	0,965172383	0,018108090	0,009617734	0,003837744	0,000663966	0,000018988	0,000389794	0,000415092	0,001773101	0,000001473	0,999998366

Example 2: Reach (across multiple viewing days)

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	$\widehat{Fr}_n + \left(1 - \sum_{i=0}^{n} \widehat{Fr}_i\right)$

iteration	From_date	To_date	$\widehat{Fr}_0$	$\widehat{Fr}_1$	$\widehat{Fr}_2$	$\widehat{Fr}_3$	$\widehat{Fr}_4$	$\widehat{Fr}_5$	$\widehat{Fr}_6$	$\widehat{Fr}_7$	$\widehat{Fr}_8$	$\widehat{Fr}_9$	$\sum \widehat{Fr}$
1	20260408	20260408	0,989316024	0,010683976									1
2	20260408	20260409	0,986391257	0,008281991	0,005326751								1
3	20260408	20260410	0,979893027	0,012114328	0,003081638	0,004911007							1
4	20260408	20260411	0,976498881	0,013797425	0,004722992	0,004940181	0,000040521						1
5	20260408	20260412	0,974099375	0,010655326	0,008660013	0,004354062	0,002195857	0,000035367					1
6	20260408	20260413	0,973479241	0,011290631	0,008633958	0,003313700	0,001087182	0,002173663	0,000021624				1
7	20260408	20260414	0,968466407	0,016335508	0,008067863	0,003864281	0,000670855	0,000808878	0,001779045	0,000007164			1
8	20260408	20260415	0,968470722	0,015002069	0,009407046	0,003847113	0,000668586	0,000400999	0,000420936	0,001776142	0,000006387		1
9	20260408	20260416	0,965172383	0,018108090	0,009617734	0,003837744	0,000663966	0,000018988	0,000389794	0,000415092	0,001773101	0,000003108	1

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Example 2: Reach (across multiple viewing days)

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

iteration	From_date	To_date	$\widehat{F_1}$	$\widehat{F_2}$	$\widehat{F_3}$	$\widehat{F_4}$	$\widehat{F_5}$	$\widehat{F_6}$	$\widehat{F_7}$	$\widehat{F_8}$	$\widehat{F_9}$	$Absolute\ reac$
1	20260408	20260408	43448,87555									43448,87555
2	20260408	20260409	33680,64654	21662,47416								55343,12071
3	20260408	20260410	49265,73591	12532,19877	19971,75228							81769,68696
4	20260408	20260411	56110,43993	19207,1461	20090,3983	164,7881095						95572,77245
5	20260408	20260412	43332,36556	35217,95924	17706,80649	8929,962801	143,8274854					105330,9216
6	20260408	20260413	45915,98158	35111,99971	13475,93396	4421,280722	8839,706544	87,93815585				107852,8407
7	20260408	20260414	66432,14723	32809,84261	15714,9997	2728,187708	3289,49006	7234,898854	29,13306131			128238,6992
8	20260408	20260415	61009,40697	38255,94197	15645,18166	2718,961977	1630,757169	1711,833527	7223,093196	25,9734112		128221,1499
9	20260408	20260416	73640,76366	39112,75445	15607,07859	2700,172437	77,21950367	1585,190034	1688,069773	7210,729259	12,63745337	141634,6152

Example 2: Reach (across multiple viewing days)

3	$Relative\ reach_{m,(d1+d2+\cdots+dn)}$	$\frac{Absolute\ reach_{m,(d1+d2+\cdots+dn)}}{U_{m,d1}}$

iteration	From_date	To_date	$\widehat{F_1}$		$\widehat{F_2}$	$\widehat{F_3}$	$\widehat{F_4}$	$\widehat{F_5}$	$\widehat{F_6}$	$\widehat{F_7}$	$\widehat{F_8}$	$Relative\ reach$
1	20260408	20260408	0,01083150									0,01083150
2	20260408	20260409	0,00839635	0,00540030								0,01379665
3	20260408	20260410	0,01228160	0,00312419	0,00497882							0,02038461
4	20260408	20260411	0,01398794	0,00478821	0,00500840	0,00004108						0,02382562
5	20260408	20260412	0,01080246	0,00877959	0,00441418	0,00222618	0,00003586					0,02625826
6	20260408	20260413	0,01144653	0,00875318	0,00335946	0,00110219	0,00220368	0,00002192				0,02688696
7	20260408	20260414	0,01656107	0,00817926	0,00391764	0,00068012	0,00082005	0,00180361	0,00000726			0,03196901
8	20260408	20260415	0,01520922	0,00953694	0,00390023	0,00067782	0,00040654	0,00042675	0,00180067	0,00000647		0,03196464
9	20260408	20260416	0,01835813	0,00975054	0,00389074	0,00067313	0,00001925	0,00039518	0,00042082	0,00179758	0,00000315	0,03530852

Example 3

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Example 3

Reporting type:”As broadcasted” – accumulated per multiple viewing days
Activity type: OV (Live + Catch up within the same day)
Channel: TV4 (station_id=29)
Target group: A3-99
Broadcast date: 20260408
Broadcast time slot: 20:00:00-21:59:59
Viewing period: 20260408
Metrics: Average viewing time, rating and reach.

This example calculates the audience that watched the content broadcast between 20:00:00-21:59:59 on TV4, either LIVE during the broadcast or sometime after within the same viewing day.

Example 3: Average viewing time

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	$Average\ viewing\ time_{m,d}$	$\frac{round(Sum\ of\ viewing\ time_{m,d})}{U_{m,d}}$

broadcast_date	viewing_date from	viewing_date_to	W	U	U/W	A	Sum of viewing time	Average viewing time
20260408	20260408	20260408	10172457,3	10271529	1,009739207	3431136546	3464553096	5,62161

Example 3: Rating

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	$Absolute\ rating_{m,d}$	$round\left(\frac{Sum\ of\ viewing\ time_{m,d}}{L}\right)$
4	$Relative\ rating_{m,d}$	$\frac{Absolute\ rating_{m,d}}{U_{m,d}}$

broadcast_date	viewing_date from	viewing_date_to	W	U	U/W	A	Sum of viewing time	Absolute Rating	Relative Rating
20260408	20260408	20260408	10172457,3	10271529	1,009739207	3431136546	3464553096	**481188**	**0,046846774**

Example 3: Reach

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

broadcast_date	viewing_date from	viewing_date_to	W	U	U/W	Weighted viewers	Absolute reach	Relative reach
20260408	20260408	20260408	10172457,3	10271529	1,009739207	1151408,3	1162622	0,113188796

Example 4



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Example 4

Reporting type:”As broadcasted” – accumulated per multiple viewing days
Activity type: KO8 (Live + Catch up within the same day+7 days)
Channel: TV4 (station_id=29)
Target group: K20-99
Broadcast date: 20260408
Broadcast time slot: 02:00:00-25:59:59
Viewing period: 20260408-20260415
Metrics: Average viewing time, rating and reach.

This example calculates the audience that watched content broadcast at TV4 on 20260408, within the following 7 days after broadcast date.

Example 4: Average viewing time

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	$Average\ viewing\ time_{m,(d1+d2+\cdots+dn)}$	$\frac{Sum\ of\ viewing\ time_{m,(d1+d2+\cdots+dn)}}{U_{m,d1}}$

viewing_date	W	U	U/W	A	Sum of viewing time
20260408	4043128	4092834,752	1,01229413	9760079820	9880071536
20260409	4042469,8	4092834,752	1,01245896	198061728	200529370,3
20260410	4043248,6	4092834,752	1,01226394	84811752	85851878,1
20260411	4044541,2	4092834,752	1,01194043	133688718	135285018,5
20260412	4043777,4	4092834,752	1,01213157	103761564	105020354,2
20260413	4043753,1	4092834,752	1,01213765	14354292	14528519,34
20260414	4043846,4	4092834,752	1,0121143	5373174	5438266,22
20260415	4044034,8	4092834,752	1,01206714	3503940	3546222,55

viewing_dates	U	Sum of viewing time	Average viewing time
20260408-20260415	4092834,752	10430271164	**42,4737**

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Example 4: Rating

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

viewing_date	W	U	U/W	A	Sum of viewing time	rating
20260408	4043128	4092834,752	1,01229413	9760079820	9880071536	114353
20260409	4042469,8	4092834,752	1,01245896	198061728	200529370,3	2321
20260410	4043248,6	4092834,752	1,01226394	84811752	85851878,1	994
20260411	4044541,2	4092834,752	1,01194043	133688718	135285018,5	1566
20260412	4043777,4	4092834,752	1,01213157	103761564	105020354,2	1216
20260413	4043753,1	4092834,752	1,01213765	14354292	14528519,34	168
20260414	4043846,4	4092834,752	1,0121143	5373174	5438266,22	63
20260415	4044034,8	4092834,752	1,01206714	3503940	3546222,55	41

viewing_dates	U	Absolute rating	Relative rating
20260408-20260415	4092834,752	120722	0,0295

Example 4: Reach (across multiple viewing days)

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

iteration	From_date	To_date	true	raw
1	20260408	20260408	114353	114353
2	20260408	20260409	116674	116622
3	20260408	20260410	117668	117639
4	20260408	20260411	119234	119188
5	20260408	20260412	120450	120391
6	20260408	20260413	120618	120408
7	20260408	20260414	120681	120466
8	20260408	20260415	120722	120498

Example 4: Reach (across multiple viewing days)

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

iteration	From_date	To_date	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	$\sum F_i$
1	20260408	20260408	1301779								1301779
2	20260408	20260409	1284446	85595,5							1370042
3	20260408	20260410	1263112	122868	6111						1392091
4	20260408	20260411	1290884	116710	21180,3	2088,2					1430862
5	20260408	20260412	1267374	138745	27918,9	2461,4	2088,2				1438587
6	20260408	20260413	1263876	148668	25399	4436,7	2632,8	0			1445012
7	20260408	20260414	1260100	158109	25399	4436,7	2632,8	0	0		1450678
8	20260408	20260415	1258661	158430	26604,9	6123,5	2632,8	0	0	0	1452453

Example 4: Reach (across multiple viewing days)

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

iteration	From_date	To_date	Fr_1	Fr_2	Fr_3	Fr_4	Fr_5	Fr_6	Fr_7	Fr_8	$\sum Fr_i$
1	20260408	20260408	0,318062927								0,318062927
2	20260408	20260409	0,313827989	0,0209135							0,334741489
3	20260408	20260410	0,308615465	0,030020293	0,001493097						0,340128856
4	20260408	20260411	0,315400958	0,028515639	0,005174971	0,000510209					0,349601776
5	20260408	20260412	0,309656675	0,033899536	0,006821409	0,000601392	0,000510209				0,351489221
6	20260408	20260413	0,308802035	0,036323919	0,006205723	0,001084016	0,000643271	0			0,353058965
7	20260408	20260414	0,307879569	0,038630707	0,006205723	0,001084016	0,000643271	0	0		0,354443286
8	20260408	20260415	0,307527979	0,038709137	0,00650036	0,001496151	0,000643271	0	0	0	0,354876898

Example 4: Reach (across multiple viewing days)

Steg		Beräkning
1	Fr_0	$Fr_0 = 1 - \sum_{i=1}^{n} Fr_i$

iteration	From_date	To_date	Fr_0	Fr_1	Fr_2	Fr_3	Fr_4	Fr_5	Fr_6	Fr_7	Fr_8	$\sum Fr_i$
1	20260408	20260408	0,681937073	0,318062927								1
2	20260408	20260409	0,665258511	0,313827989	0,0209135							1
3	20260408	20260410	0,659871144	0,308615465	0,030020293	0,001493097						1
4	20260408	20260411	0,650398224	0,315400958	0,028515639	0,005174971	0,000510209					1
5	20260408	20260412	0,648510779	0,309656675	0,033899536	0,006821409	0,000601392	0,000510209				1
6	20260408	20260413	0,646941035	0,308802035	0,036323919	0,006205723	0,001084016	0,000643271	0			1
7	20260408	20260414	0,645556714	0,307879569	0,038630707	0,006205723	0,001084016	0,000643271	0	0		1
8	20260408	20260415	0,645123102	0,307527979	0,038709137	0,00650036	0,001496151	0,000643271	0	0	0	1

Example 4: Reach (across multiple viewing days)

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

iteration	From_date	To_date	RawR
1	20260408	20260408	0,0279398
2	20260408	20260409	0,02849419
3	20260408	20260410	0,02874267
4	20260408	20260411	0,02912114
5	20260408	20260412	0,02941506
6	20260408	20260413	0,02941922
7	20260408	20260414	0,02943339
8	20260408	20260415	0,02944121

Example 4: Reach (across multiple viewing days)

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

Where:

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

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

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

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

iteration	From_date	To_date	k	a	b	p_true	p_raw
1	20260408	20260408	120	0,000232832	0,000232832	0,000232778	0,000232778
2	20260408	20260409	120	0,000237452	0,000237557	0,000237501	0,000237395
3	20260408	20260410	120	0,000239522	0,000239581	0,000239524	0,000239465
4	20260408	20260411	120	0,000242676	0,00024277	0,000242711	0,000242617
5	20260408	20260412	120	0,000245126	0,000245246	0,000245186	0,000245065
6	20260408	20260413	120	0,00024516	0,000245588	0,000245527	0,0002451
7	20260408	20260414	120	0,000245278	0,000245716	0,000245656	0,000245218
8	20260408	20260415	120	0,000245343	0,000245799	0,000245739	0,000245283

Example 4: Reach (across multiple viewing days)

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

Where:

Γ( )= Gamma function.

iteration	From_date	To_date	$\widehat{Fr_0}$	$\widehat{Fr_1}$	$\widehat{Fr_2}$	$\widehat{Fr_3}$	$\widehat{Fr_4}$	$\widehat{Fr_5}$	$\widehat{Fr_6}$	$\widehat{Fr_7}$	$\widehat{Fr_8}$	$\sum\widehat{Fr}$
1	20260408	20260408	0,68193707	0,31806293								1,00000000
2	20260408	20260409	0,66524617	0,31383998	0,02091385							0,99999999
3	20260408	20260410	0,65986426	0,30862215	0,03002049	0,00149310						1,00000000
4	20260408	20260411	0,65038731	0,31541155	0,02851596	0,00517498	0,00051021					1,00000000
5	20260408	20260412	0,64849678	0,30967025	0,03389995	0,00682142	0,00060139	0,00051021				1,00000000
6	20260408	20260413	0,64689123	0,30885036	0,03632538	0,00620575	0,00108402	0,00064327	0,00000000			1,00000000
7	20260408	20260414	0,64550572	0,30792905	0,03863220	0,00620575	0,00108402	0,00064327	0,00000000	0,00000000		1,00000000
8	20260408	20260415	0,64506997	0,30757953	0,03871069	0,00650038	0,00149615	0,00064327	0,00000000	0,00000000	0,00000000	1,00000000

Example 4: Reach (across multiple viewing days)

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	$\widehat{Fr}_n + \left(1 - \sum_{i=0}^{n} \widehat{Fr}_i\right)$

iteration	From_date	To_date	$\widehat{Fr}_0$	$\widehat{Fr}_1$	$\widehat{Fr}_2$	$\widehat{Fr}_3$	$\widehat{Fr}_4$	$\widehat{Fr}_5$	$\widehat{Fr}_6$	$\widehat{Fr}_7$	$\widehat{Fr}_8$	$\sum \widehat{Fr}$
1	20260408	20260408	0,68193707	0,31806293								1,00000000
2	20260408	20260409	0,66524617	0,31383998	0,02091385							1,00000000
3	20260408	20260410	0,65986426	0,30862215	0,03002049	0,00149310						1,00000000
4	20260408	20260411	0,65038731	0,31541155	0,02851596	0,00517498	0,00051021					1,00000000
5	20260408	20260412	0,64849678	0,30967025	0,03389995	0,00682142	0,00060139	0,00051021				1,00000000
6	20260408	20260413	0,64689123	0,30885036	0,03632538	0,00620575	0,00108402	0,00064327	0,00000000			1,00000000
7	20260408	20260414	0,64550572	0,30792905	0,03863220	0,00620575	0,00108402	0,00064327	0,00000000	0,00000000		1,00000000
8	20260408	20260415	0,64506997	0,30757953	0,03871069	0,00650038	0,00149615	0,00064327	0,00000000	0,00000000	0,00000000	1,00000000

Example 4: Reach (across multiple viewing days)

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

iteration	From_date	To_date	$\widehat{F_1}$	$\widehat{F_2}$	$\widehat{F_3}$	$\widehat{F_4}$	$\widehat{F_5}$	$\widehat{F_6}$	$\widehat{F_7}$	$\widehat{F_8}$	$Absolute\ reach$
1	20260408	20260408	1317783,244								1317783,244
2	20260408	20260409	1300286,929	86649,29198							1386936,221
3	20260408	20260410	1278668,659	124379,4711	6186,141518						1409234,272
4	20260408	20260411	1306798,189	118145,9538	21440,71288	2113,872803					1448498,729
5	20260408	20260412	1283011,119	140452,6459	28262,16412	2491,661035	2113,87261				1456331,463
6	20260408	20260413	1279614,194	150501,5755	25711,34942	4491,246293	2665,167999	0,0000000			1462983,533
7	20260408	20260414	1275797,039	160059,0947	25711,35167	4491,246316	2665,168	0,0000000	0,0000000		1468723,899
8	20260408	20260415	1274348,925	160384,3017	26932,08111	6198,784099	2665,168	0,0000000	0,0000000	0,0000000	**1470529,26**

Example 4: Reach (across multiple viewing days)

3	$Relative\ reach_{m,(d1+d2+\cdots+dn)}$	$\frac{Absolute\ reach_{m,(d1+d2+\cdots+dn)}}{U_{m,d1}}$

iteration	From_date	To_date	$\widehat{F_1}$	$\widehat{F_2}$	$\widehat{F_3}$	$\widehat{F_4}$	$\widehat{F_5}$	$\widehat{F_6}$	$\widehat{F_7}$	$\widehat{F_8}$	$Relative\ reach$
1	20260408	20260408	0,3219732								0,3219732
2	20260408	20260409	0,3176984	0,0211710							0,3388693
3	20260408	20260410	0,3124164	0,0303896	0,0015115						0,3443174
4	20260408	20260411	0,3192893	0,0288665	0,0052386	0,0005165					0,3539109
5	20260408	20260412	0,3134774	0,0343167	0,0069053	0,0006088	0,0005165				0,3558246
6	20260408	20260413	0,3126474	0,0367720	0,0062820	0,0010973	0,0006512	0,0000000			0,3574499
7	20260408	20260414	0,3117148	0,0391071	0,0062820	0,0010973	0,0006512	0,0000000	0,0000000		0,3588525
8	20260408	20260415	0,3113610	0,0391866	0,0065803	0,0015145	0,0006512	0,0000000	0,0000000	0,0000000	**0,3592936**

Example 5

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Example 5

Reporting type:”As broadcast” – per each spot during the broadcast date
Activity type: Live
Channel: TV4 (station_id=29)
Target group: A3-99
Broadcast date: 20260412
Viewing period: 20260412
Reach criteria: 60 sek
Metrics: Average viewing time, rating, and reach.

This example calculates the audience that has watched each spot LIVE during the broadcast date. As the example only covers LIVE viewing, the calculations are performed over only one viewing day.

Each spot that according to the as-run log has started within the same minute (between MM:00-MM:59) will receive the rating calculated for that minute.

Only the spot for filmcode ”51AUTV1518” with starttime 02:31:05 will be shown as an example in this document. See attached excel file for the complete results for each spot.

Example 5: Average viewing time

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	$Average\ viewing\ time_{m,d}$	$\frac{round(Sum\ of\ viewing\ time_{m,d})}{U_{m,d}}$

tvday	station_id	filmcode	spot_start_time	viewing_date	W	U	u_w	A	sum_viewing_time	avg_time
20260412	29	51AUTV1518	02:31:05	20260412	10173184,1	10271528,97	1,009667069	830994	839027,2761	0,00136

Example 5: Rating

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	$Absolute\ rating_{m,d}$	$round\left(\frac{Sum\ of\ viewing\ time_{m,d}}{L}\right)$
4	$Relative\ rating_{m,d}$	$\frac{Absolute\ rating_{m,d}}{U_{m,d}}$

tvday	station_id	filmcode	spot_start_time	viewing_date	W	U	u_w	A	sum_viewing_time	L	rating	rating_rel
20260412	29	51AUTV1518	02:31:05	20260412	10173184,1	10271528,97	1,009667069	830994	839027,2761	60	13984	0,001361433

Example 5: Reach

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

tvday	station_id	filmcode	spot_start_time	viewing_date	W	U	u_w	weighted_viewers	reach	reach_rel
20260412	29	51AUTV1518	02:31:05	20260412	10173184,1	10271528,97	1,009667069	13849,9	13984	0,001361433

Example 6

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Example 6

Reporting type:”As broadcast” – per each spot during the broadcast date
Activity type: KO8 (LIVE + Catch up viewing from day T0-T7)
Channel: TV4 (station_id=29)
Target group: A3-99
Broadcast date: 20260412
Viewing period: 20260412-20260419
Reach criteria: 60 sek
Metrics: Average viewing time, rating, and reach.

This example calculates the audience that has watched each spot LIVE or within the following 7 viewing days after broadcast date. As the example only covers KO8 viewing, the calculations are performed over a period of 8 viewing days.

Each spot that according to the as-run log has started within the same minute (between MM:00-MM:59) will receive the rating calculated for that minute.

Only the spot for filmcode ”51AUTV1518” with starttime 02:31:05 will be shown as an example in this document. See attached excel file for the complete results for each spot.

Example 6: Average viewing time

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	$Average\ viewing\ time_{m,(d1+d2+\cdots+dn)}$	$\frac{Sum\ of\ viewing\ time_{m,(d1+d2+\cdots+dn)}}{U_{m,d1}}$

viewing_date	W	U	u_w	A	sum_viewing_time
20260412	10173184,1	10271528,97	1,009667069	830994	839027,2761
20260418	10173988,9	10271528,97	1,0095872	128430	129661,2841

viewing_dates	U	sum_viewing_time	avg_time
20260412-20260419	10271528,97	968688	**0,0015718**

Example 6: Rating

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

viewing_date	W	U	u_w	A	sum_viewing_time	rating
20260412	10173184,1	10271528,97	1,009667069	830994	839027,2761	13984
20260418	10173988,9	10271528,97	1,0095872	128430	129661,2841	2161

viewing_dates	U	rating
20260412-20260419	10271528,97	**16145**

Example 6: Reach (across multiple viewing days)

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

iteration	from_date	to_date	true	raw
1	20260412	20260412	13984	13984
2	20260412	20260413	13984	13984
3	20260412	20260414	13984	13984
4	20260412	20260415	13984	13984
5	20260412	20260416	13984	13984
6	20260412	20260417	13984	13984
7	20260412	20260418	16145	16311
8	20260412	20260419	16145	16311

Example 6: Reach (across multiple viewing days)

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

iteration	From_date	To_date	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	$\sum F_i$
1	20260412	20260412	13849,9								13849,9
2	20260412	20260413	13849,9	0							13849,9
3	20260412	20260414	13849,9	0	0						13849,9
4	20260412	20260415	13849,9	0	0	0					13849,9
5	20260412	20260416	13849,9	0	0	0	0				13849,9
6	20260412	20260417	13849,9	0	0	0	0	0			13849,9
7	20260412	20260418	16154,8	0	0	0	0	0	0		16154,8
8	20260412	20260419	16154,8	0	0	0	0	0	0	0	16154,8

Example 6: Reach (across multiple viewing days)

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

iteration	From_date	To_date	$\widehat{F_1}$	$\widehat{F_2}$	$\widehat{F_3}$	$\widehat{F_4}$	$\widehat{F_5}$	$\widehat{F_6}$	$\widehat{F_7}$	$\widehat{F_8}$	$Absolute\ reach$
1	20260412	20260412	13984								**13984**
2	20260412	20260413	13984	0							**13984**
3	20260412	20260414	13984	0	0						**13984**
4	20260412	20260415	13984	0	0	0					**13984**
5	20260412	20260416	13984	0	0	0	0				**13984**
6	20260412	20260417	13984	0	0	0	0	0			**13984**
7	20260412	20260418	16150	-3	0	0	0	0	0		**16147**
8	20260412	20260419	16150	-3	0	0	0	0	0	0	**16147**

Example 7

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Example 7

Reporting type:"As viewed" – viewing per each *filmcode and viewing day*
Activity type: All viewing (Live + All Catch-up)
Channel: TV4 (station_id=29)
Target group: A3-99
Viewing period: 20260412-20260419
Reach criteria: 60 sek
Metrics: Average viewing time, rating, and reach.

This example calculates the total audience that has watched each filmcode per viewing day, regardless of when it was broadcast.

The filmcode is identified by applying the as-run logs for specific spots, but then the calculations are performed on the total amount of viewing at filmcode level.

Only the filmcode "51AUTV1518" will be shown as an example in this document. See attached excel file for the complete results for each filmcode.

Example 7: Average viewing time

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	$Average\ viewing\ time_{m,d}$	$\frac{round(Sum\ of\ viewing\ time_{m,d})}{U_{m,d}}$

filmcode	viewing_date	W	U	u_w	A	sum_viewing_time	avg_time
51AUTV1518	20260412	10173184,1	10271528,97	1,009667069	13206972	13334644,71	0,02164
51AUTV1518	20260413	10173152,1	10271528,97	1,009670245	47869062	48331967,54	0,07842
51AUTV1518	20260414	10173238,3	10271528,97	1,00966169	11523732	11635070,72	0,01888
51AUTV1518	20260415	10173870,3	10271528,97	1,009598969	37544646	37905035,91	0,06151
51AUTV1518	20260416	10174130,9	10271528,97	1,00957311	10808496	10911966,92	0,01771
51AUTV1518	20260417	10174766,3	10271528,97	1,009510063	51441318	51930528,18	0,08426
51AUTV1518	20260418	10173988,9	10271528,97	1,0095872	5715582	5770378,43	0,00936
51AUTV1518	20260419	10174247,1	10271528,97	1,009561579	31788324	32092270,58	0,05207

Example 7: Rating

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	$Absolute\ rating_{m,d}$	$round\left(\frac{Sum\ of\ viewing\ time_{m,d}}{L}\right)$
4	$Relative\ rating_{m,d}$	$\frac{Absolute\ rating_{m,d}}{U_{m,d}}$

filmcode	viewing_date	W	U	u_w	A	sum_viewing_time	L	rating	rating_rel
51AUTV1518	20260412	10173184,1	10271528,97	1,009667069	13206972	13334644,71	60	222244	0,021636896
51AUTV1518	20260413	10173152,1	10271528,97	1,009670245	47869062	48331967,54	60	805533	0,078423865
51AUTV1518	20260414	10173238,3	10271528,97	1,00966169	11523732	11635070,72	60	193918	0,018879176
51AUTV1518	20260415	10173870,3	10271528,97	1,009598969	37544646	37905035,91	60	631751	0,061505059
51AUTV1518	20260416	10174130,9	10271528,97	1,00957311	10808496	10911966,92	60	181866	0,017705835
51AUTV1518	20260417	10174766,3	10271528,97	1,009510063	51441318	51930528,18	60	865509	0,084262918
51AUTV1518	20260418	10173988,9	10271528,97	1,0095872	5715582	5770378,43	60	96173	0,009363066
51AUTV1518	20260419	10174247,1	10271528,97	1,009561579	31788324	32092270,58	60	534871	0,052073163

Example 7: Reach

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

filmcode	viewing_date	W	U	u_w	weighted_viewers	reach	reach_rel
51AUTV1518	20260412	10173184,1	10271528,97	1,009667069	203455,4	205422	0,019999165
51AUTV1518	20260413	10173152,1	10271528,97	1,009670245	409843,2	413806	0,040286699
51AUTV1518	20260414	10173238,3	10271528,97	1,00966169	192062,2	193918	0,018879176
51AUTV1518	20260415	10173870,3	10271528,97	1,009598969	430837,1	434973	0,042347444
51AUTV1518	20260416	10174130,9	10271528,97	1,00957311	143245,9	144617	0,014079403
51AUTV1518	20260417	10174766,3	10271528,97	1,009510063	525787,4	530788	0,051675656
51AUTV1518	20260418	10173988,9	10271528,97	1,0095872	93238,9	94133	0,009164458
51AUTV1518	20260419	10174247,1	10271528,97	1,009561579	517196,7	522142	0,050833912

Example 8



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Example 8

Reporting type:”As broadcast” – per each program during the broadcast date
Activity type: Live
Channel: SVT1 (station_id=1)
Target group: M14-59
Broadcast date: 20260412
Viewing period: 20260412
Reach criteria: 60 sek
Metrics: Average viewing time, rating, and reach.

This example calculates the audience that has watched each broadcast program LIVE during the broadcast date. As the example only covers LIVE viewing, the calculations are performed over only one viewing day.

Only the program ”HUNDARNA” start time 21:00 will be shown as an example in this document. See attached excel file for the complete results for each programme.

Example 8: Average viewing time

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	$Average\ viewing\ time_{m,d}$	$\frac{round(Sum\ of\ viewing\ time_{m,d})}{U_{m,d}}$

ContentBroadcastId	ProgramTitle	StartTime	viewing_date	W	U	u_w	A	sum_viewing_time	avg_time
31053788	HUNDARNA	21:00	20260412	3120354,7	3134494,179	1,004531369	6843828	6874839,911	0,03655

Example 8: Rating

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	$Absolute\ rating_{m,d}$	$round\left(\frac{Sum\ of\ viewing\ time_{m,d}}{L}\right)$
4	$Relative\ rating_{m,d}$	$\frac{Absolute\ rating_{m,d}}{U_{m,d}}$

ProgramTitle	StartTime	viewing_date	W	U	u_w	A	sum_viewing_time	L	rating	rating_rel
HUNDARNA	21:00	20260412	3120354,7	3134494,179	1,004531369	6843828	6874839,911	2640	2604	0,000830756

Example 8: Reach

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

ProgramTitle	StartTime	viewing_date	W	U	u_w	weighted_viewers	reach	reach_rel
HUNDARNA	21:00	20260412	3120354,7	3134494,179	1,004531369	42251,8	42443	0,013540622

Example 9

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Example 9

Reporting type:”As broadcast” – per each program during the broadcast date
Activity type: KO8 (LIVE + Catch up viewing from day T0-T7)
Channel: SVT1 (station_id=1)
Target group:M14-59
Broadcast date: 20260412
Viewing period: 20260412-20260419
Reach criteria: 60 sek
Metrics: Average viewing time, rating, and reach.

This example calculates the audience that has watched each program LIVE or within the following 7 viewing days after broadcast date.
As the example covers KO8 viewing, the calculations are performed over a period of 8 viewing days.

Example 9: Average viewing time

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	$Average\ viewing\ time_{m,(d1+d2+\cdots+dn)}$	$\frac{Sum\ of\ viewing\ time_{m,(d1+d2+\cdots+dn)}}{U_{m,d1}}$

viewing_date	W	U	u_w	A	sum_viewing_time
20260412	3120354,7	3134494,179	1,004531369	6962046	6993593,601
20260414	3119416,8	3134494,179	1,004833397	6539016	6570621,659
20260419	3127395	3134494,179	1,002269998	9185400	9206250,836

viewing_dates	U	sum_viewing_time	avg_time
20260412-20260419	3134494,179	22770467	0,12107465

Example 9: Rating

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

viewing_date	W	U	u_w	A	sum_viewing_time	rating
20260412	3120354,7	3134494,179	1,004531369	6962046	6993593,601	2649
20260414	3119416,8	3134494,179	1,004833397	6539016	6570621,659	2489
20260419	3127395	3134494,179	1,002269998	9185400	9206250,836	3487

viewing_dates	U	rating
20260412-20260419	3134494,179	8625

Example 9: Reach (across multiple viewing days)

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

iteration	from_date	to_date	true	raw
1	20260412	20260412	2649	2649
2	20260412	20260413	2649	2649
3	20260412	20260414	5138	5148
4	20260412	20260415	5138	5148
5	20260412	20260416	5138	5148
6	20260412	20260417	5138	5148
7	20260412	20260418	5138	5148
8	20260412	20260419	8625	9184

Example 9: Reach (across multiple viewing days)

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

iteration	From_date	To_date	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	$\sum F_i$
1	20260412	20260412	42251,8								42251,8
2	20260412	20260413	42251,8	0							42251,8
3	20260412	20260414	44738,7	0	0						44738,7
4	20260412	20260415	44738,7	0	0	0					44738,7
5	20260412	20260416	44738,7	0	0	0	0				44738,7
6	20260412	20260417	44738,7	0	0	0	0	0			44738,7
7	20260412	20260418	44738,7	0	0	0	0	0	0		44738,7
8	20260412	20260419	48957,5	0	0	0	0	0	0	0	48957,5

Example 9: Reach (across multiple viewing days)

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

iteration	From_date	To_date	$\widehat{F_1}$	$\widehat{F_2}$	$\widehat{F_3}$	$\widehat{F_4}$	$\widehat{F_5}$	$\widehat{F_6}$	$\widehat{F_7}$	$\widehat{F_8}$	$Absolute\ reach$
1	20260412	20260412	42443								42443
2	20260412	20260413	42443	0							42443
3	20260412	20260414	44931	0	0						44931
4	20260412	20260415	44931	0	0	0					44931
5	20260412	20260416	44931	0	0	0	0				44931
6	20260412	20260417	44931	0	0	0	0	0			44931
7	20260412	20260418	44931	0	0	0	0	0	0		44931
8	20260412	20260419	48621	-2	0	0	0	0	0	0	48619