



# MMS Golden Rules

## Official calculation methodology - technical approach Including time shift viewing and new format RV3

Version 2009-10-15 13:00

MMS Golden Rules are intended for

- Heavy users of people meter output
- Software developers
- Owners of software
- Anyone who wants to understand exactly how Swedish television viewing figures are calculated and all about Swedish definitions

For any questions, please contact MMS IT Manager.

### Update log

2009-10-15	F9	New file specification RV3 daily viewing including time shifted viewing
2009-09-07	D6	Definitions of the total television viewing
2009-07-17	C	Example 2 MMS usage of NBD
	App1	Appendix 1 NBD program code and live exe
2009-06-15	D6	Definitions of the total television viewing
2009-06-13	F	Time shifted viewing
2009-06-10	A10	Usage of NBD nearly but not exactly as BARB

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## A. Method in general and standard target groups – class 1

### 1. Official rawdata on individual basis

This data is the source for calculations of measures of viewing. ORPI, as it is abbreviated, consists of two different parts; RV containing the viewing sequences and RP containing information about the panel of possible viewers.

### 2. The objects of measurement.

The object of measurement could be a specific tv-programme, a commercial spot or block or a time-period like quarter or hour. It could also be a whole schedule of programs or spots.

### 3. Weighted variables, SLIV-structure

The individual weights are based upon a weighting-scheme where the following variables are involved: age/sex(ALDKON), family-situation (FAMLIV) and degree of urbanisation (URBAN).

SLIV is a structure for storing aggregated data into a number of target modules corresponding to the different values of each weighted variable. See an example of a SLIV-structure at [mms.se](http://mms.se) – tekniska beskrivningar – universumtal – universumtal per målmodul – utalsliv071.xls

### 3.5 Four control variables, two panel parts and one universe

Four variables, education, family situation, amount of viewing and amount of channels, control the Swedish people meter panel. The panel consists of two parts named panel part 2 and panel part 3 (pay and nopay), each a matrix with 18 cells. Together, 36 cells, these panel parts form the one and only total universe. The panel members are marked in the variable “panel” to which panel part they belong.

### 4. Accumulation and computation are to be performed on module-level and per panel

The accumulation and computation are performed on target-module level and per panel, i.e. into two separate SLIV-structures, one for the pay panel and one for the nopay panel. After having computed the absolute values for these two panels (see procedures below) the panels are to be combined into a total universe.

The absolute, un-rounded, values of the target-modules in question then are combined into the target-groups wanted. Relative figures for the target-groups are computed by dividing the absolute values of the target-groups by the corresponding universe-sizes.

The absolute and relative figures are then rounded according to the rules below.

### 5. Sum of weights of the possible panel-viewers

The value of the target-module and panel in question is computed by summing the weights in the ORPI-RP-file. Guests are to be excluded.

### 6. Rating

Each viewing in the ORPI-RV-file is compared to the slot being measured and each actual target-module and panel accumulators A are updated by a formula: (number of matching minutes \* weight of panel-member).

When all viewing is processed relative ratings R<sub>r</sub> are calculated in the following manner:

$R_r = (A / (\text{length of the object of measuring in minutes})) / (\text{sum of weights of possible panel-viewers for current module and panel})$ . Then absolute values R<sub>a</sub> are calculated as

$R_a = R_r * (\text{universe-size of current module and panel})$ .

### 7. Average viewing-time

Each viewing in the ORPI-RV-file is compared to the slot being measured and each actual target-module and panel accumulators A are updated by a formula: (number of matching minutes \* weight of panel-member).

When all viewing is processed average viewing-time T is calculated in the following manner:

$T = (A / (\text{sum of weights of possible panel-viewers for current module and panel}))$ .

## 8. Share

Each viewing in the ORPI-RV-file is compared to the slot in a specific channel being measured and each actual target-module and panel accumulators A are updated by a formula: (number of matching minutes \* weight of panel-member). At the same time the total viewing in all channels (82-video and 75-games not included) are accumulated into At.

When all the viewing is processed the share-values Sr are calculated in the following manner:

$$S_r = (A * 100 / A_t).$$

## 9. Reach single slot

This measure refers to the amount of viewers watching at least X continuous minutes in the slot being measured and for each actual target-module and panel the weights are accumulated into accumulators A for all those viewers that fulfil the reach-criteria. Each viewer can be counted only once.

When all viewing is processed relative reaches REr are calculated in the following manner:

REr = (A / (sum of weights of possible panel-viewers for current module and panel)). Then absolute values REa are calculated as

$$REa = REr * (\text{universe-size of current module and panel}).$$

## 10. Reach and frequency on schedules of slots over time

Information from the ORPI:RP-file, including the weights, belonging to the panel-day, is read into a panel-table. Guests are not included.

All needed ORPI:RV-files are processed. For each panel-member in the panel-table there is a counter showing the number of hits in the slot-schedule according to the reach-criteria.

Beside the panel-table there is a frequency-table containing reach-accumulators, RF1 - RFn, corresponding to those panel-members who have viewed exactly 1 slot, exactly 2 slots, exactly 3 slots... exactly n slots.

When all viewing is processed the weight for each panel-member is accumulated into one of the RF1 - RFn accumulators in the frequency-table, the one that corresponds to the number of hits.

After that, relative reaches RFr1 - RFrn are calculated in the following manner:

RErn = (RFn / (sum of weights of possible panel-viewers for current module and panel)). Then absolute values RFa1 - RFan are calculated as

$$RFan = RFrn * (\text{universe-size of current module and panel}).$$

The frequency-table is finally adjusted using the Negative Binomial Distribution (NBD). MMS has used the same procedure since 1998. This procedure, closely but not exactly, follows the one described in Television Audience Measurement reference manual from BARB. MMS makes NBD programme code and live demo-exe available in appendix 1. Also look into C: example2.

## 11. Precision in published figures

Relative figures: one decimal, absolute figures: in steps by 5000.

## 12. A published value is the sum of its parts before rounding

When creating target-groups out of target-modules the values before rounding are used.

## B. Free target groups – class 2

### 1. Definition of a free target group

A target group is classified as “free” if at least one of the variables included in the target group is a free class 2 variable. These free variables are not weighted. Therefore, there is a difference between “sum of weights possible viewers” for a certain target group and the corresponding base figure calculated from the RB3-file.

### 2. Differences when calculating free target groups compared to standard target groups

Calculations are to be performed panelpart by panelpart, just like standard groups. But, in this free case, there are no modules to act upon, just the complete target group.

Instead of “universe figure” in the standard case, a base for the free target group is to be calculated from the appropriate base file RB3, consisting of information from an establishment survey on respondent level.

Just like standard groups, relative figures (%) are to be calculated using “sum of weights possible viewers” in the RP3 panel file as a base. Then, when calculating the corresponding absolute value (000), a base from the RB3-file should be used.

## C. Examples

### Example 1

#### Calculate rating

Weight one decimal

Panelmember A            male, 29, weight=45123, panel=2, slivmodule=6  
Panelmember B            female, 25, weight=32134, panel=3, slivmodule=20

Universefigures (000)    panel, slivmodul (2,6) = 156, (3,20) = 151,  
Date: January 2007        All 25-29, modules 6 and 20 = 548

Sum of weights  
possible viewers            (2,6) = 1559978, (3,23) = 1510018

Viewing sequence 1-1000 not specified in this example  
Viewing sequence 1001    member=A, channel=1, start=19:28, length=15  
Viewing sequence 1002    member=A, channel=15, start=19:45, length=5  
Viewing sequence 1003    member=A, channel=1, start=19:55, length=20  
Viewing sequence 1004    member=B, channel=1, start=19:20, length=20  
End viewing

Program to measure        name=Rapport, start=19:30, length=30, channel=1

Processing viewing sequences 1-1000

In this example we pretend all modules now  $Acc\_A(p,m) = 500\ 000\ 0$

Processing viewing sequence 1001

Overlapping-time=13

Panel 2, module 6             $Acc\_A(2,6) + 13 * 45123$     558 659 9

Processing viewing sequence 1002  
Overlapping-time=0

Processing viewing sequence 1003  
Overlapping-time=5

Panel 2, module 6            Acc\_A(2,6) +5\*45123    581 221 4

Processing viewing sequence 1004  
Overlapping-time=10

Panel 3, module 20        Acc\_A(3,20) +10\*32134   532 134 0

Calculating rating

Module 2,6

$$Rr(2,6) = \text{Acc\_A}(2,6) / \text{program\_length} / \text{sum\_of\_weights}(2,6) * 100$$

$$Rr(2,6) = 5812214 / 30 / 1559978 * 100 = 12,419436 \%$$

$$Ra(2,6) = Rr * \text{Univers}(2,6) * 1000 / 100$$

$$Ra(2,6) = 12,419436 * 156 * 1000 / 100 = 19374,32$$

Module 3,20

$$Rr(3,20) = 5321340 / 30 / 1510018 * 100 = 11,746747 \%$$

$$Ra(3,20) = 11,746747 * 151 * 1000 / 100 = 17737,59$$

Module 2,20 and 3,6 pretended to have Ra =18888,88

Target group 25-29 total universe

$$\text{Rating}(000) = \text{Rounded}(Ra(2,6) + Ra(3,20) + Ra(2,20) + Ra(3,6))$$

$$\text{Rating}(000) = 19374,32 + 17737,59 + 18888,88 + 18888,88 = 74889,67 = 75$$

$$\text{Rating}\% = 74889,67 / 548 / 1000 * 100 = 13,666 = 13,7 \%$$

Universe figures and module specification january 2007

Modul #	Meaning	Tot	Pay
1	<b>Male 3-6</b>	190	130
2	<b>Male 7-11</b>	273	195
3	<b>Male 12-14</b>	198	145
4	<b>Male 15-19</b>	296	211
5	<b>Male 20-24</b>	267	140
6	<b>Male 25-29</b>	279	156
7	<b>Male 30-34</b>	312	198
8	<b>Male 35-39</b>	334	226
9	<b>Male 40-44</b>	315	221
10	<b>Male 45-49</b>	298	210
11	<b>Male 50-54</b>	296	209
12	<b>Male 55-59</b>	324	198
13	<b>Male 60-69</b>	472	274
14	<b>Male 70+</b>	472	188
15	<b>Female 3-6</b>	180	114
16	<b>Female 7-11</b>	260	187
17	<b>Female 12-14</b>	187	125
18	<b>Female 15-19</b>	281	192
19	<b>Female 20-24</b>	257	124
20	<b>Female 25-29</b>	269	118
21	<b>Female 30-34</b>	302	162
22	<b>Female 35-39</b>	319	212
23	<b>Female 40-44</b>	303	205

24	<b>Female 45-49</b>	290	186
25	<b>Female 50-54</b>	290	182
26	<b>Female 55-59</b>	320	179
27	<b>Female 60-69</b>	479	226
28	<b>Female 70+</b>	676	201
	Summa	8739	5114

**Example 2**  
**MMS using NBD adjustment**

Weekly reach TV4.

7 full days (1440 minutes long) Monday 2009-06-01 up to and including Sunday 2009-06-07.

Panel day: Thursday 2009-06-04.

Target group: all 3+.

Universe size in thousands (000): **8864**.

Reach criterion for a hit: at least 15 continuing minutes.

Definition of weekly reach: one or more hits; reach 1+.

Calculating NBD input parameters true and raw rating:

Day/slot	True rating, absolute values *	True rating, absolute values, accumulated	True panel	Raw rating, absolute values **	Raw rating, absolute values, accumulated	Raw panel no guests
1/6	126317	126317	20090601	120364	120364	20090604
2/6	172795	299112	20090602	164414	284778	20090604
3/6	163904	463016	20090603	155894	440672	20090604
4/6	158427	621443	20090604	152319	592991	20090604
5/6	234452	855895	20090605	223817	816808	20090604
6/6	189890	1045785	20090606	177835	994643	20090604
7/6	168445	<b>1214230</b>	20090607	155502	<b>1150145</b>	20090604
Total	1214230			1150145		

\* True rating means standard rating from panels, including guests, corresponding to each separate day.

\*\* Raw rating means rating for each day from panel-day panel only, no guest included.

MMS NBD adjustment input parameters in this example 2:

True rating, absolute value, accumulated	<b>1214230</b>
Raw rating, absolute value, accumulated	<b>1150145</b>
Target universe size in thousands (000) all 3+ 2009-06-04	<b>8864</b>

Frequency distributions in absolute values before and after NBD adjustment.

Please look into program code MmsNbdDemo.CPP and run MmsNbdDemo.exe in appendix 1.

Number of hits	Before NBD	After NBD
1 exactly	1647114	<b>1695718</b>
2 exactly	1280594	<b>1287575</b>
3 exactly	851366	<b>851843</b>
4 exactly	718879	<b>718900</b>
5 exactly	475109	<b>475110</b>
6 exactly	366988	<b>366988</b>
7 exactly	264532	<b>264532</b>

## **D. Definitions and standards**

### 1. Programmes

The television channels define the broadcasted programs in as-run-program-log-files following common guidelines. Sometimes sport events are divided into parts. A part is still considered to be a complete program. There is just one level.

In MMS people meter system, the program start times are rounded down to the nearest minute if the seconds are between 00 - 29 and rounded up to the next minute if the seconds are 30-59. The ending times are rounded in the same way.

MMS calculate the duration of a program in minutes as being the difference between the start time of the program rounded as above and the end time of the program, again rounded. Commercial breaks inside a program are included in the program lengths and in the viewing figures.

### 2. Spots

A commercial spot is linked to its start minute's rating.

A commercial block consists of an unbroken sequence of adjacent commercial spots.

### 3. Reporting minutes

The lowest reporting level is "minute".

A viewing sequence is an unbroken viewing, same panelmember, same channel.

If there are more than one viewing sequence during a minute, the longest sequence's channel will win the complete minute, if it's a draw, the most recent sequence's channel will win the minute.

Mam = minute after midnight is a zerobased numbering of minutes, starting at 00.00.

### 4. Day, week and month

A television day starts at 02.00 (mam 120) and ends including the minute 25.59 (mam 1559).

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

A television month consists of 4 or sometimes 5 television weeks.

A television year consists of 52 or sometimes 53 television weeks.

Monday – Thursday are week days.

Weekend is Friday - Sunday.

### 5. Reach criteria

The reach criterion standard is

- program                    3 coherent minutes same channel
- day/daypart                5 coherent minutes same channel
- week                        15 coherent minutes same channel
- week niche chan        1 minute

## 6 . Total television definitions over time

### 6.1 Viewing up to and including 2005-08-21

Total television viewing is defined as the sum of viewing on all channels being measured and reported in the viewing file RV, with following exclusions:

Source Number *	Source Name
75	Game
82	VCR

\*According to MMS Station Master

### 6.2 Viewing from 2005-08-22 up to and including 2009-09-27

Total television viewing is defined as the sum of viewing on all channels being measured and reported in the viewing file RV, with following exclusions:

Source Number *	Source Name
75	Game
82	VCR
86	DVD
146	Pay per view
240	Interactive channel
241	EPG
135	Radio

\*According to MMS Station Master

### 6.3 Viewing from 2009-09-28 when UNITAM meters for the first time are active in the panel households.

Total television now is defined as the sum of viewing on all channels being present in the reference library. Please note that channels can be removed from the reference library and new channels can be included in the reference library over time. Please note that channel/source-number 240 and 241 now have changed meaning. The following exclusions in the viewing file RV must be made when calculating the total television viewing (same numbers as 6.2 above):

Source Number *	Source Name
75	Game
82	VCR
86	DVD
146	Pay per view
240	Consumption of time shifted television, not yet attributed **
241	Other channels/usage/sources, not included in the total television viewing
135	Radio

\*According to MMS list of reference recorded channels

\*\*Only the backwards attributed viewing shall be counted into the total television viewing, not the viewing at the consumption moment

## **E. Free target groups – class 3 – “interest variables”**

### 1. Definition of a free target group class 3

A target group is classified as “free class 3” if at least one of the variables included in the target group is a free class 3 variable. These free variables exist in the panel only, not in the base survey.

These 109 variables are the result from a form containing 109 questions and answers once given to the entire panel and then to every new panel household. The survey is renewed every third year.

Once a week there is an updated PS-file containing the answers for the complete panel. The file specification is given at mms.se.

### 2. Differences when calculating free target groups – class 3- compared to standard target groups

Calculations are to be performed panelpart by panelpart, just like standard groups.

But, in this free case, there are no modules to act upon, just the complete target group.

Instead of “**universe figure**” in the standard case, or a **base calculated from the base survey** file in the free class 2 case, a base for the free target group – class 3 - is to be calculated by **summing the weights of possible viewers** current target group in the RP3 panel file.

### 3. Multiple surveys same panel member

Use the latest one only.

## F. Time shifted viewing

### 1. The nine viewing components

Code	Viewing component
L	Live
T0	Vosdal (viewing on same day as live)
T1	Time shifted 1 day after the live day
T2	Time shifted 2 days after the live day
T3	Time shifted 3 days after the live day
T4	Time shifted 4 days after the live day
T5	Time shifted 5 days after the live day
T6	Time shifted 6 days after the live day
T7	Time shifted 7 days after the live day

### 2. Currency

An early, **preliminary version** of viewing figures is called **overnight (OV)**. This version includes live viewing and time shifted viewing consumed same day as live.  $OV = L + T0$ . This OV version is, of course, available the day following live day. The final version of viewing figures is called **consolidated (KO)**. This **final version** includes live viewing and attributed time shifted viewing consumed the same day as live and consumed the following 7 days after the live day.  $KO = L+T0+T1+T2+T3+T4+T5+T6+T7$ . This final KO version is available 8 days after live day and 7 days after OV.

#### Example 1 “looking forward”

Where do the nine components come from?

Focus on a newly consolidated day, Sunday 23 in May 2010, looking forward 7 days.

The consolidated day 23 contains L and T0 from itself, T1 from May 24, T2 from May25...

----->----->----->----->----->----->----->----->

<i>Components</i>	L + T0	T1	T2	T3	T4	T5	T6	T7
<i>Days</i>	<b>Sun 23</b>	Mon 24	Tue 25	Wed 26	Thu 27	Fri 28	Sat 29	Sun 30

Example 2 “looking backwards” with focus on latest reported day.

A week in May 2010, ”today” is Monday 31, looking backwards 8 days.

Latest reported day is yesterday, Sunday 30.

Sunday 30 contains live viewing and time shifted Viewing On Same Day As Live.

Time shifted viewing on Sunday 30 also attribute the previous 7 days.

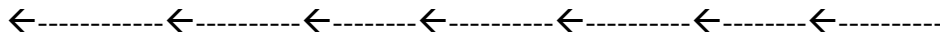
Viewing figures for “yesterday”, Sunday 30, contains **OV** (L + T0).

Viewing figures for Sunday 23 are now consolidated, **KO** (L+T0+T1+T2+T3+T4+T5+T6+T7).

Analyses can be made of the growing time shifted viewing during the period Mon 24 to Sat 29.

Example: Friday 28 contains L from Friday 28, T0 from Friday 28, T1 from Saturday 29 and T2 from Sunday 30.

Please note that L, T0... are codes relative to the current day.



Day	Sun 23	Mon 24	Tue 25	Wed 26	Thu 27	Fri 28	Sat 29	Sun 30	Mon 31
<i>Currency Status</i>	<b>KO</b>	<b>OV</b>	<b>OV</b>	<b>OV</b>	<b>OV</b>	<b>OV</b>	<b>OV</b>	<b>OV</b>	<b>Process- ing day</b>
<i>Currency contains</i>	L T0-T7	L T0	L T0	L T0	L T0	L T0	L T0	L T0	
<i>Analyses Possible</i>	L T0-T7	L T0-T6	L T0-T5	L T0-T4	L T0-T3	L T0-T2	L T0-T1	L T0	
<i>Viewing days involved</i>	23-30	24-30	25-30	26-30	27-30	28-30	29-30	30	

### Weight and demographic to be used when attributing time shifted viewing

If a time shifting panel member is found among possible viewers the live day, the panel member's weight and demographic this live day shall be used. Otherwise the panel member's weight and demographic from the time shift day shall be used. In this case the weight shall **not** be added into the sum of possible viewers the live day and the panel member shall be treated in the same way as a "guest" and cannot participate in a R&F study over time. In a case of multiple time shift days for this single panel member, the weight from the closest one to the live day shall be used for all time shift days. When a guest is time shifting outside the live day, T1 – T7, the weight and the demographic from the time shift consumption day shall be used. This kind of guest shall be treated as a standard guest at a live day and shall of course not be added to the sum of possible viewers.

### Exampel

The purpose of this example is to show

- Time shifting panel member not present among possible viewers at live day (3)
- Time shifting guest viewer outside vosdal (4)

### Possible viewers 2010-05-23 version 1

Hh nr	Ind nr	Type	Weight	Gender	Age	Name	Note
12345	1	Norm(1)	6000	male	6	Peter	
12345	2	Norm(1)	4000	female	8	Lisa	
12345	18	Guest(2)	5000	female	7	Lisafriend	
12345	3	Norm(1)	2000	male	35	Papa	
Sum weight possible viewers			12000				According to rule A5, guest #18, is not included in the sum

Viewing statements 2010-05-23 including attributed time shifted viewing ones.

Please note that these example statements are processed and edited. This processing is NOT performed in the daily raw data viewing file RVT as delivered from MMS to clients.

The original daily viewing raw data does not contain attributed time shifted statements adjacent to the live statements at a certain live day. These attributed statements instead are present in the file from the consumption day.

Hh nr	Ind nr	Start Time	Length	Chan	Component	Note
12345	1	08.01	40	TV4	Live	
12345	2	08.05	30	TV4	Live	
12345	18	08.01	40	TV4	Live	Standard guest
12345	3	19.00	28	TV4	Live	
12345	1	08.15	10	TV4	T3	Consumption 2010-05-26
12345	2	08.17	8	TV4	T3	Consumption 2010-05-26
12345	1	08.15	11	TV4	T3	Consumption 2010-05-26
12345	2	08.15	12	TV4	T3	Consumption 2010-05-26
12345	2	08.15	13	TV4	T3	Consumption 2010-05-26
12345	4	20.00	30	TV4	T5	Consumption 2010-05-28 Not present among possible viewers live day
12345	4	20.00	58	TV4	T7	Consumption 2010-05-30 Not present among possible viewers live day
12345	118	20.00	58	TV4	T7	Consumption 2010-05-30 Time shifting guest outside vosdal

Updated possible viewers 2010-05-23 version 2, including time shifting viewers not present in version 1

Hh nr	Ind nr	Type	Weight	Gender	Age	Name	Note	Inserted
12345	1	Norm(1)	6000	male	6	Peter		
12345	2	Norm(1)	4000	female	8	Lisa		
12345	18	Guest(2)	5000	female	7	Lisafriend		
12345	3	Norm(1)	2000	male	35	Papa		
12345	4	TSnorm(3)	3000	female	62	Karen	Weight/demo from 2010-05-28	Yes
12345	118*	TSguest(4)	8000	female	66	Karenfriend	Weight/demo from 2010-05-30	Yes
Sum weight possible viewers			12000				According to rule A5, guest 12345:18, is not included in the sum. According to rule F3 12345:1 and 12345:118 are not included in the sum	

\*TSguest 12345:118 from 2010-05-30 (original number 12345:18) is renumbered in order to avoid conflict with standard live guest 12345:118, two different individuals

Possible viewers 2010-05-28/30

Hh nr	Ind nr	Type	Weight	Gender	Age	Name	Note	Weight/demo inserted into 2010-05-23
12345	4	Norm(1)	3000	female	62	Karen	2010-05-28	Yes
12345	4	Norm(1)	1000	female	63	Karen	2010-05-30	
12345	18	Guest(2)	8000	female	66	Karenfriend	2010-05-30	Yes

### 3. Rating and average viewing time.

All time shifted viewing from a single panel member shall be attributed to the corresponding live broadcasted period **including all** repeated time shift viewing **at the same** live period by the **same panel member**. For example children watching the same favourite programme over and over again by means of time shifted viewing.

Example “everything counts”, rating and viewing time

Broadcasted programme: title=“Good morning children”, channel=TV4, date=2010-05-23, start=08.01, length=55

Viewing statements (schematic data)

Hhnr	Ind nr	Name	Weight	Date consump	Start time	Len	Live chan	Type	Corresp live date	Time	Len	Chan
12345	1	Peter6year	6000	2010-05-23	08.01	40	Tv4	Live				
12345	2	Lisa8year	4000	2010-05-23	08.05	30	Tv4	Live				
12345	1	Peter6year	7000	2010-05-26	18.10	10		TS	2010-05-23	08.15	10	TV4
12345	2	Lisa8year	5000	2010-05-26	18.12	8		TS	2010-05-23	08.17	8	TV4
12345	1	Peter6year	7000	2010-05-26	18.20	11		TS	2010-05-23	08.15	11	TV4
12345	2	Lisa8year	5000	2010-05-26	18.20	12		TS	2010-05-23	08.15	12	TV4
12345	2	Lisa8year	5000	2010-05-26	18.42	13		TS	2010-05-23	08.15	13	TV4

Live viewing at “Good morning children”:

Peter: 40 \* 6000 = 240000 viewing minutes

Lisa: 30 \* 4000 = 120000 viewing minutes

Total live: 360000 viewing minutes

Time shifted viewing attributed to live program “Good morning children”:

Please note that the weights from the live day are used when calculating time shifted viewing.

Peter: 10 \* 6000 = 60000

11 \* 6000 = 66000

Lisa: 8 \* 4000 = 32000

12 \* 4000 = 48000

13 \* 4000 = 52000

Total of attributed viewing minutes = 258000 (component T3)

Total live and time shifted viewing minutes from household 12345 = 360000 + 240000 = 600000.

Rating absolute value = 600000 / 55 = 10900 viewers (simplified calculation)

The calculations above are described in detail in A6.

### 5. Share.

Share by default shall include time shift viewing.

An alternative version of the share measure can be used excluding all time shifted viewing. In this case it must be clearly labelled “live share”.

## 6. Reach .

Reach on a single slot is still a unique measure. A panel member is to be counted only once regardless of the number of hits live and the number of hits time shift as long as the sum of hits live and time shifted is greater than zero. A hit stands for a viewing that fulfils the reach criterion at hand, for example 3 consecutive minutes on a program.

Example “still unique”, reach single slot

Broadcasted programme: title=”Good morning children”, channel=TV4, date=2010-05-23, start=08.01, length=55

Viewing statements (schematic data)

Hhnr	Ind nr	Name	Weight	Date consump	Start time	Len	Live chan	Type	Corresp live date	Time	Len	Chan
12345	1	Peter6year	6000	2010-05-23	08.01	40	Tv4	Live				
12345	2	Lisa8year	4000	2010-05-23	08.05	30	Tv4	Live				
12345	1	Peter6year	7000	2010-05-26	18.10	10		TS	2010-05-23	08.15	10	TV4
12345	2	Lisa8year	5000	2010-05-26	18.12	8		TS	2010-05-23	08.17	8	TV4
12345	1	Peter6year	7000	2010-05-26	18.20	11		TS	2010-05-23	08.15	11	TV4
12345	2	Lisa8year	5000	2010-05-26	18.20	12		TS	2010-05-23	08.15	12	TV4
12345	2	Lisa8year	5000	2010-05-26	18.42	13		TS	2010-05-23	08.15	13	TV4

Unique reach 3 consecutive minutes on program “Good morning children”:

Peter 6000 viewers

Lisa 4000 viewers

Total reach 10000 viewers (simplified calculation)

The calculations above are fully described in A9.

## 7. Reach & Frequency

All hits on a certain slot in a series being measured shall be taken into account, also repeated ones from a single panel member on this certain slot. These hits can result from a live viewing and from a number of attributed time shifted viewings. Computerized application and tools ought to have an alternative way of showing a gradually growing frequency distribution based on only unique hits from single panel members live and time shifted viewing or from just live viewing. Still the final results shall include all hits.





9. Format description raw data viewing file – time shift version

RV3 preliminary format version 2009-10-15 13:00.

Please note that the time shifted viewing statements represents the consumption time. This RV3 file does NOT include the attribution of the time shifted statements back to live broadcasted time and date.

Column #	Content	Format
1	Household number	Six digits
2	Individual number	1-99
3	Date of viewing	Yyyymmdd
4	TV set number	1-9
5	Teletext	0=no, 1=yes
6	Channel/source/usage	<p>001-9999 as in “Reported channels present in the Reference Library”</p> <p><b>Please note, relevant to both UNITAM and TVM5, the following none-tv sources, not to be counted into the total television:</b></p> <p>86 DVD playback  75 Game  146 Pay per view  135 Radio  82 VCR playback  240 Interactiv channel  241 EPG  702 Banner not present in ref library</p> <p><b>Additonal UNITAM sources not to be counted into the total television</b></p> <p>701 Time Shift Consumption details in new col 12-15  703 Unreferenced in UNITAM matching live viewing  704 Unreferenced in UNITAM matching time shifted viewing</p> <p>Example of “Unreferenced “ 703</p> <ul style="list-style-type: none"> <li>- Channels not present in the reference library</li> </ul> <p>Examples of “Unreferenced” 704</p> <ul style="list-style-type: none"> <li>- Old time shift 8+</li> <li>- Channels not present in the reference library</li> </ul> <p>“Other channels/usage/sources”  (former 241) = 702 + 703</p>
7	Start minute viewing	Mam (minute after midnight) 120-1559 (02.00-25.59)

8	Length of viewing	Number of minutes 1-1440
9	Measuring method	1=tv5, 2=Eurometer, 3=Unitam
10	Type of viewing	1=Live, 2=Time shifted viewing
11	Corresponding live channel if time shift viewing	0001-9999 as in "Reported channels present in the Reference Library"
12	Corresponding live broadcasting date (if type of viewing = 2)	Yyyymmdd, at the most 7 days earlier
13	Corresponding live broadcasting start minute (if type of viewing=2)	Mam 120-1559
14	Corresponding length of viewing	Number of minutes 1-1440

# Appendixes

## Appendix 1.

### MMS\_Golden\_Rules\_NBD\_Appendix1.ZIP

MMS NBD adjustment demo; program code and live demo application exe (windows):

MmsNbdDemo.cpp source code, exactly the one used by MMS

MmsNbdDemo.exe executable demo program

MmsNbdDemoInput.txt input to demo program

MmsNbdDemoOutput.txt output from demo program

Place the input file and the exe file together in a folder.

The output file will appear in the same folder.

You can edit the input file and use your own figures.

Register up to 999 rows in the freq distribution.

Space indented rows are treated like remarks.

### Input according to C: example 2, MmsNbdDemoInput.txt:

7 full days (slots), tv4, monday 090601 - sunday 090607.

reach criterion 15 min, all 3+, panelday thursday 090604

1214230 Rating true abs accum

1150145 Rating raw abs accum

8864 Target group universe size in (000)

999 Always 999

Frequence dist

1647114 exactly 1 slot

1280594 exactly 2 slots

851366 exactly 3 slots

718879 exactly 4 slots

475109 exactly 5 slots

366988 exactly 6 slots

264532 exactly 7 slots

### Output from MMS NBD demo.exe, MmsNbdDemoOutput.exe

MMS NBD demo 2009-07-09 08:25:59

Rating abs accum true 1214230

Rating abs accum raw 1150145

Max number of freq 999

Target universe size 8864

Frequency distribution

Amount	After	Before	Diff
1	1695718	1647114	48604
2	1287575	1280594	6981
3	851843	851366	477
4	718900	718879	21
5	475110	475109	1
6	366988	366988	0

7

264532

264532

0