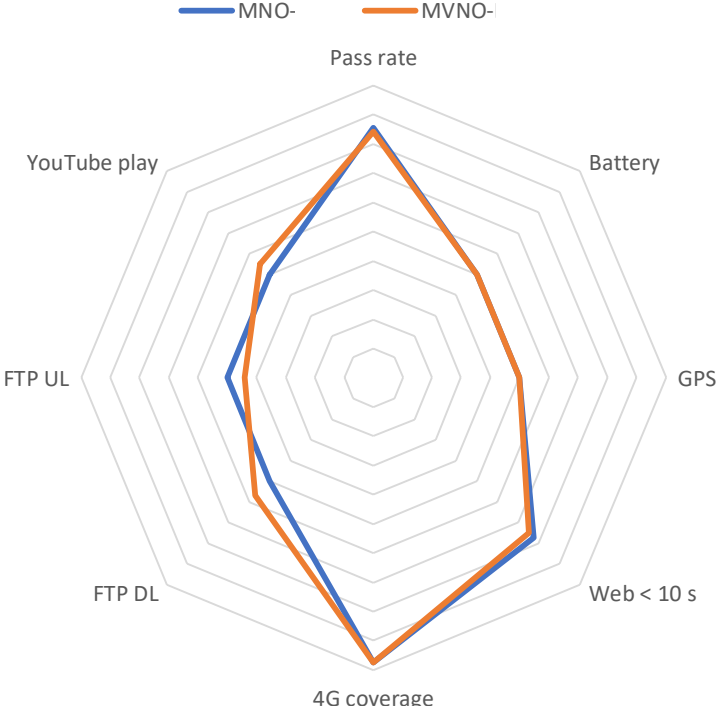


Case 1 Marginal Difference

DATE	AREA	NETWORKS	PACKAGE PRICE
4 th of May 2019	Rennes, France	MNO : MCC MNC: 208-10	MNO : 15 €/month
		MVNO : MCC MNC: 208-10	MVNO : 10 €/month

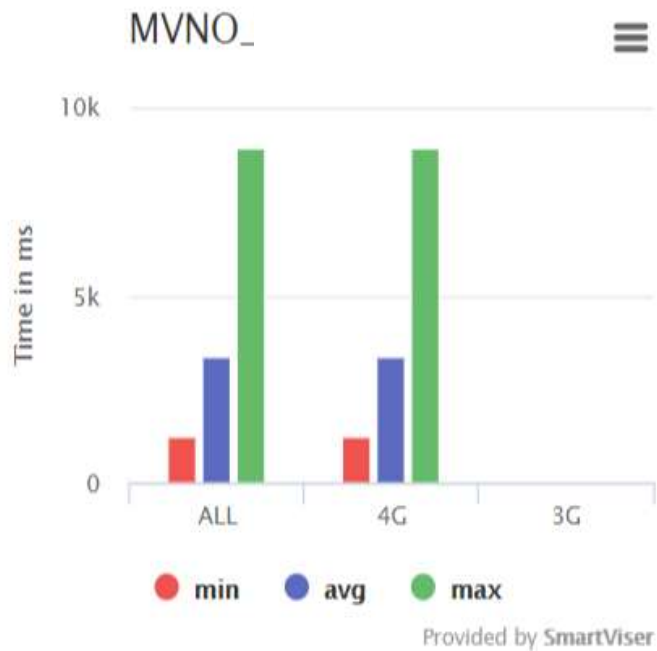
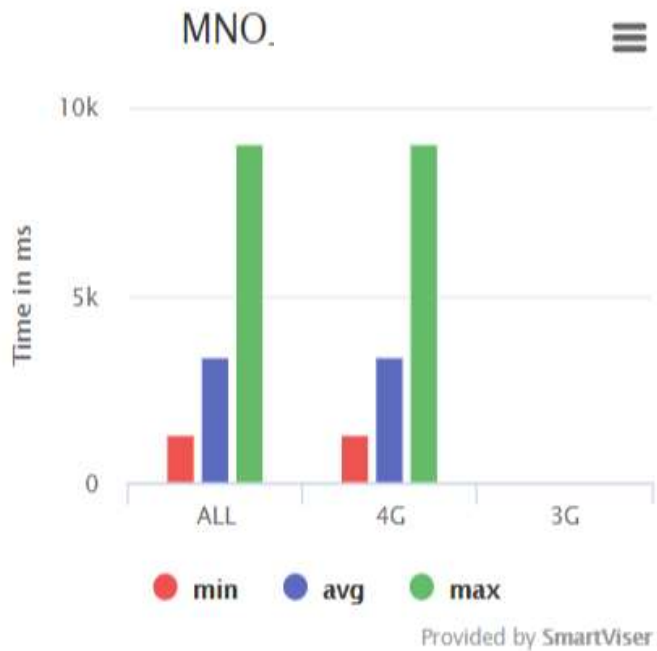
A general overview MNO versus MVNO is done on the key KPIs.



KPI	MNO	MVNO
Pass rate	85.53 %	84.21 %
Battery	11 % (50%)	11 % (50%)
GPS	7.57 m (50 %)	7.56 m (50 %)
Web < 10 s	77,5 %	75 %
4G coverage	97,4 %	97,4 %
FTP DL	8.148 Mb/s (50%)	9.215 Mb/s (57 %)
FTP UL	6.801 Mb/s (50%)	5.990 Mb/s (44 %)
YouTube	2270 ms (50 %)	2003 ms (55 %)

Case 1 Marginal Difference

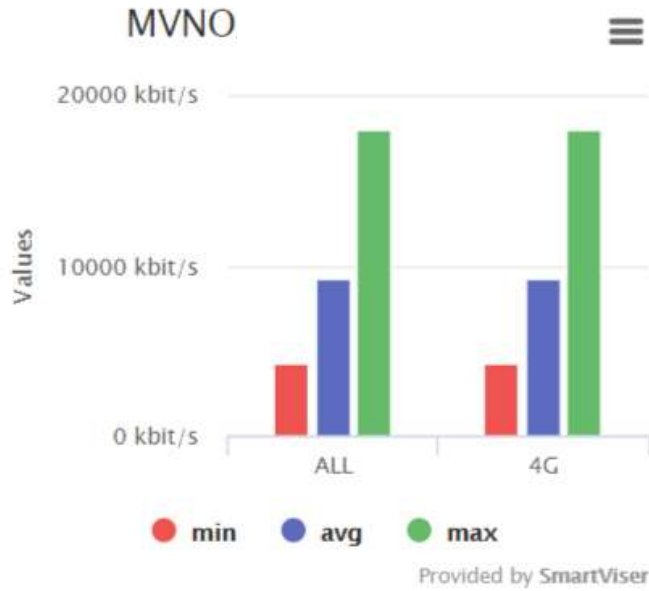
Web loading time summary



KPI	MNO	MVNO	Result
Loading < 10 s	77,5 %	75 %	100 %
Loading average 4G	3 351 ms	3 368 ms	>
Loading min 4G	1 310 ms	1 238 ms	<
Loading max 4G	9 075 ms	8 907 ms	<
Loading average 3G	NA	NA	-
Loading min 3G	NA	NA	-
Loading max 3G	NA	NA	-

Case 1 Marginal Difference

FTP

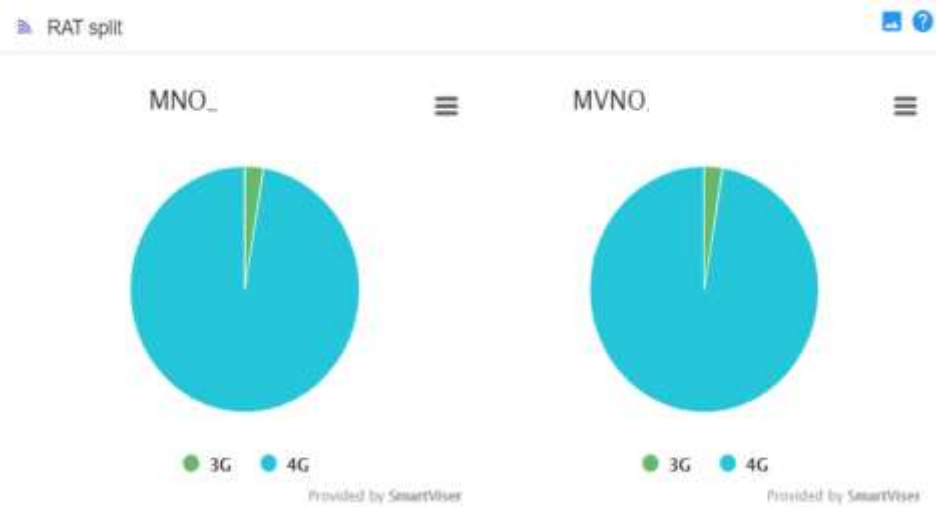


KPI	MNO	MVNO	Result
Download < 30 s	100 %	100 %	100 %
Download average 4G	8 148 kbps	9 215 kbps	>
Download min 4G	5 166 kbps	4 274 kbps	<
Download max 4G	13 651 kbps	17 972 kbps	>
Download average 3G	NA	NA	-
Download min 3G	NA	NA	-
Download max 3G	NA	NA	-

Case 1 Marginal Difference

Streaming

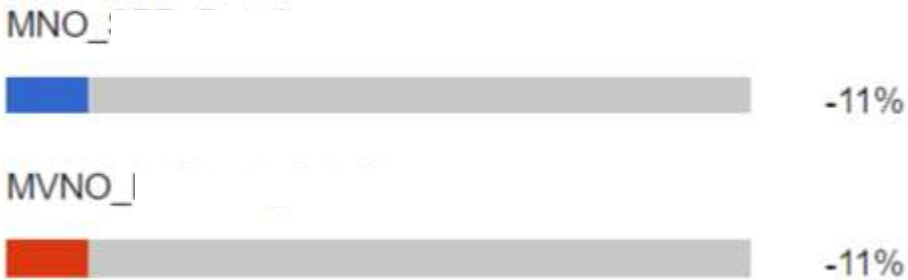
KPI	MNO	MVNO	Result
Video records	all	all	NA
Nb of buffering	0	0	=
Access time average 4G	2 270 ms	2 003 ms	W
Access time min 4G	1 781 ms	1 869 ms	<
Access time max 4G	4 961 ms	2 449 ms	>
Access time 3G	NA	NA	-
Access time min 3G	NA	NA	-
Access time max 3G	NA	NA	-



KPI	MNO	MVNO	Result
4G coverage	97.4 %	97.4 %	=
Nb of network lost	0	0	0

Case 1 Marginal Difference

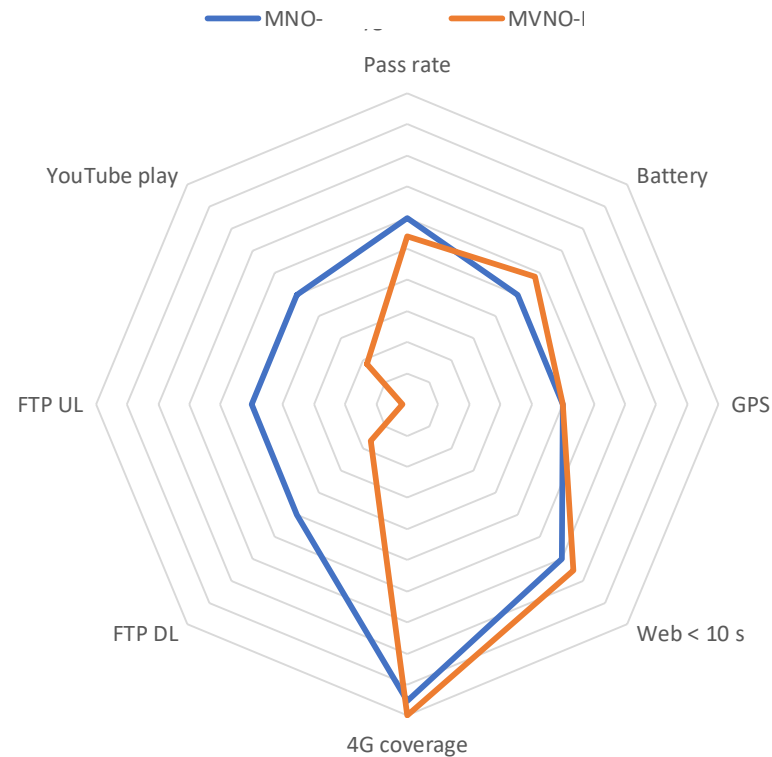
🕒 Battery



GPS

KPI	MNO	MVNO	Result
GPS accuracy average	7.57 m	7.56 m	=

DATE	AREA	NETWORKS	PACKAGE PRICE
4 th of May 2019	Rennes, France	MNO : MCC MNC: 208-20 MVNO : MCC MNC: 208-20	MNO : 23 €/month MVNO : 16 €/month



KPI	MNO	MVNO
Pass rate	59.74 %	53.93 %
Battery	13 % (50%)	12 % (58%)
GPS	7.6 m (50 %)	7.59 m (50 %)
Web < 10 s	70 %	75 %
4G coverage	95,2 %	100 %
FTP DL	13.451 Mb/s (50%)	4.448 Mb/s (16,5 %)
FTP UL	13.068 Mb/s (50%)	0.410 Mb/s (1,5 %)
YouTube	8398 ms (50 %)	22965 ms (18,3 %)

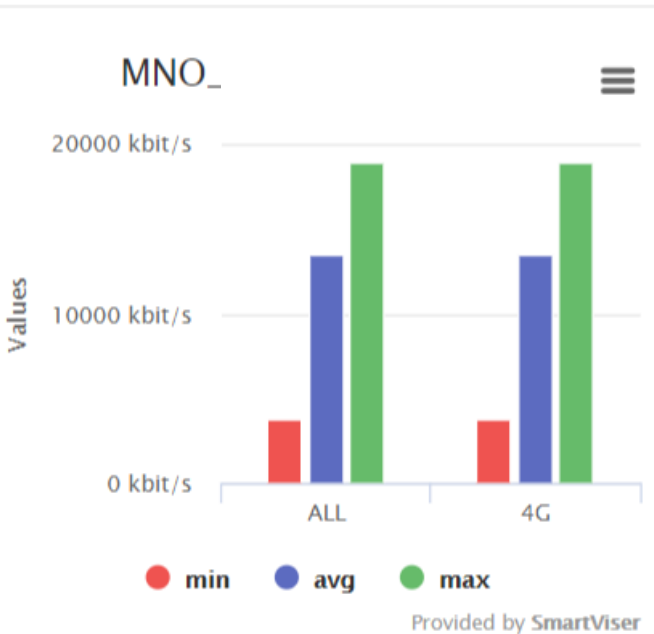
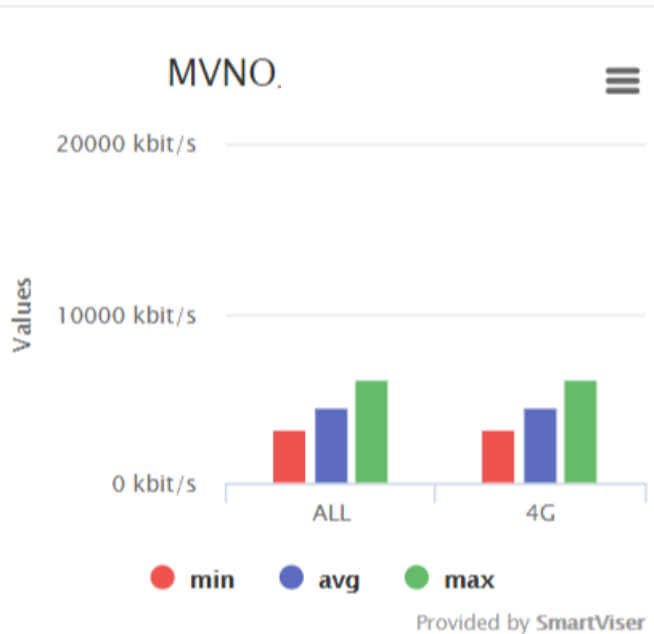
Web loading time summary



KPI	MNO	MVNO	Result
Loading < 10 s	70 %	75 %	100 %
Loading average 4G	3 155 ms	3 510 ms	<
Loading min 4G	1 199 ms	1 310 ms	<
Loading max 4G	8 571 ms	9 304 ms	<
Loading average 3G	NA	NA	-
Loading min 3G	NA	NA	-
Loading max 3G	NA	NA	-

Case 2 Big Gap in Data

FTP



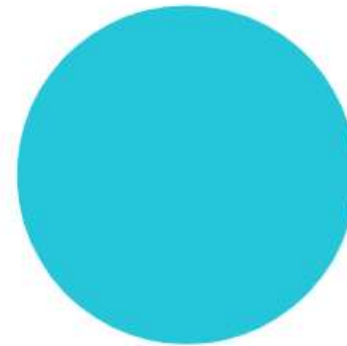
KPI	MNO	MVNO	Result
Download < 30 s	44,5 %	33,33 %	100 %
Download average 4G	13 451 kbps	4 448 kbps	<
Download min 4G	3 766 kbps	3 210 kbps	<
Download max 4G	18 954 kbps	6 212 kbps	<
Download average 3G	NA	NA	-
Download min 3G	NA	NA	-
Download max 3G	NA	NA	-

Streaming

KPI	MNO	MVNO	Result
Video records	4/9	1/9	NA
Nb of buffering	0	0	=
Access time average 4G	8 398 ms	22 965 ms	<
Access time min 4G	2 958 ms	22 965 ms	<
Access time max 4G	24 070 ms	22 965 ms	>
Access time 3G	NA	NA	-
Access time min 3G	NA	NA	-
Access time max 3G	NA	NA	-

RAT split

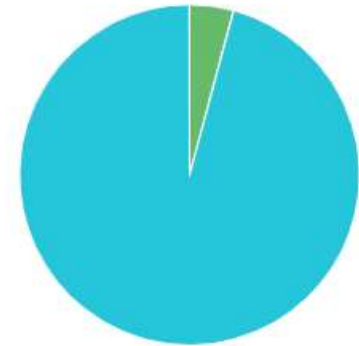
MVNO_



4G

Provided by SmartViser

MNO_

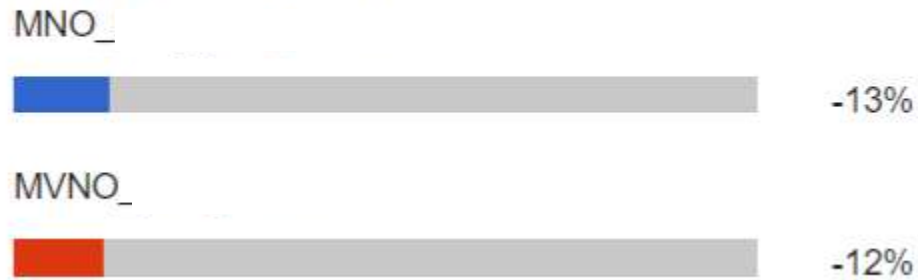


3G 4G

Provided by SmartViser

KPI	MNO	MVNO	Result
4G coverage	95,2 %	100 %	>
Nb of network lost	0	0	0

🕒 Battery



GPS

KPI	MNO	MVNO	Result
GPS accuracy average	7.6 m	7.59 m	=