OVERVIEW REPORT (2023) ON THE APPLICATION OF

COMMISSION IMPLEMENTING REGULATION (EU) 2020/1070

of 20 July 2020

on specifying the characteristics of small-area wireless access points pursuant to Article 57 paragraph 2 of Directive (EU) 2018/1972 of the European Parliament and the Council establishing the European Electronic Communications Code

as amended by
COMMISSION IMPLEMENTING REGULATION (EU) 2024/2000 of 24 July 2024

1. Reporting Obligation of Member States

Pursuant to Article 4 of the 2020 Implementing Regulation[1] (hereinafter referred to as the 'Regulation'), as amended by the 2024 Amending Regulation[2], Member States have a reporting obligation regarding the application of this Regulation.

This obligation, which began at the end of 2021, reads as follows:

"Article 4

Member States shall regularly monitor and report to the Commission on the application of this Regulation and in particular on the application of Article 3(1), including on the technologies used by the small-area wireless access points deployed, the first time by 31 December 2021, subsequently, annually until 31 December 2023. As of 1 January 2024, Member States shall report to the Commission every 2 years, the first time by 31 March 2026. The relevant reports shall each cover a period of 2 calendar years and shall be submitted to the Commission by 31 March of the year following the end of the reporting period."

The related Article 3(1) of the Regulation (EU) 2020/1070 reads as follows:

"1. Small-area wireless access points referred to in the second subparagraph of Article 57(1) of Directive (EU) 2018/1972 shall comply with the requirements of the European standard laid down in point B of the Annex to this Regulation and shall either:

(a) be fully and safely integrated in their supporting structure and therefore invisible to the general public; or

(b) meet the conditions set out in point A of the Annex to this Regulation."

The Annex to the 2020 Regulation has been replaced by the text set out in the Annex to the 2024 Amending Regulation.

[1] Commission Implementing Regulation (EU) 2020/1070 of 20 July 2020 on specifying the characteristics of small-area wireless access points pursuant to Article 57 paragraph 2 of Directive (EU) 2018/1972 of the European Parliament and the Council establishing the European Electronic Communications Code, OJ L 234, 21.7.2020, pp. 11–15.

[2] Commission Implementing Regulation (EU) 2024/2000 of 24 July 2024 amending Implementing Regulation (EU) 2020/1070 to rationalise reporting on its application and to enable the usage of active antenna systems, OJ L, 2024/2000, 25.7.2024.

2. Background

To facilitate the reporting process, the Commission services have provided via the COCOM Committee to the Member States relevant guidance as well as a template (an Excel table) – see both documents embedded – to fill in and submit to the Commission services, along with any additional qualitative information in a separate document.


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The main objective of the annual reporting exercise had been the collection of quantitative information to assess the market impact of the Regulation. The requested information concerns primarily the number and characteristics of indoor and outdoor small-area wireless access points (SAWAPs or "small cells") deployed under the Regulation, i.e. from August 2020 onwards. In this regard, information on the technical and physical characteristics of SAWAPs in accordance with the Annex of the Regulation (such as the visual impact, the power class – E0, E2 or E10 – as well as the technology and radio frequency used) is of particular relevance.

In the wider market context of the Regulation, it is considered important that the Member States also report qualitatively on solutions concerning the visual coherence of SAWAPs as well as the type of operators deploying them (Mobile Network Operators (MNOs), neutral hosts, public authorities, including local, regional and national authorities, or others). Member States may also provide further relevant data outside the scope of the Regulation such as in relation to the types of locations for deployment.

3. Amendment of the Commission Implementing Regulation (EU) 2020/1070

The Commission Implementing Regulation (EU) 2020/1070 was amended by the Commission Implementing Regulation (EU) 2024/2000 of 24 July 2024. This amendment has two main objectives. First, it supports the introduction of the usage of Active Antenna Systems (AAS)[3] to facilitate the deployment of high-performance wireless networks, in particular in high-frequency (mm-wave) bands. Second, it rationalises the reporting obligations of Member States, reducing administrative burden while ensuring effective monitoring of deployment trends.

In 2022, the European standard EN 62232[4] was updated to allow the use of AAS, including in small-area wireless access points, while ensuring that base-station installations comply with the recommended limits in Council Recommendation 1999/519/EC[5] on human exposure to electromagnetic fields. To reflect this updated standard, the scope of the amended Regulation now also covers SAWAPs equipped with AAS.

[3] An active antenna is an antenna that contains active electronic elements (such as signal processing units) as opposed to traditional passive antennas, which consist of passive elements such as metal rods, capacitors and inductors.
[4] https://webstore.iec.ch/publication/6493
[5] 1999/519/EC: Council Recommendation of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz), OJ L 199, 30.7.1999, p. 59.

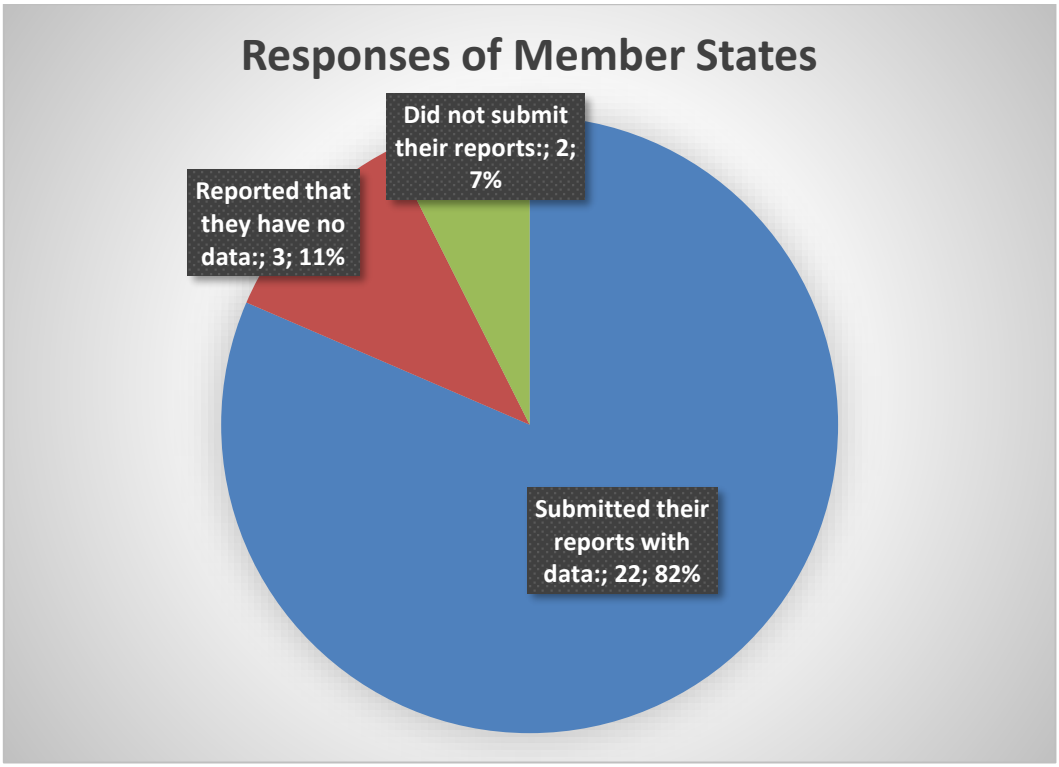
Regarding the second amendment, and in line with the principles of better regulation—particularly the objective of reducing administrative burden—the periodicity of the reporting obligation for Member States has been extended from one to two years.

4. Reporting period

January 2023 – December 2023

5. Responses of Member States

For the (third) reporting period January 2023 – December 2023, 22 Member States have submitted their reports with relevant data, 3 Member States have stated that they do not have yet any data available and 2 Member States have not submitted any report.



6. Results / Key Conclusions

The following table summarises the status of installed SAWAPs under the scope of the Regulation for each reporting Member State:

RANKING	MEMBER STATE	E10[6]	E2/E0	TOTAL NUMBER OF SAWAPs PER MEMBER STATE
1	ITALY	2298	7810	10108
2	FRANCE	7774	874	8648
3	BELGIUM	5037	2574	7611
4	GERMANY	7152	0	7152
5	SWEDEN	3140	0	3140
6	CZECHIA	1652	257	1909
7	BULGARIA	278	1050	1328
8	CYPRUS	0	1176	1176
9	SPAIN	80	450	530
10	CROATIA	58	391	449
11	POLAND	146	219	365
12	IRELAND	206	49	255
13	SLOVAKIA	1	246	247
14	LATVIA	13	233	246
15	MALTA	44	202	246
16	HUNGARY	0	212	212
17	PORTUGAL	138	50	188
18	LITHUANIA	1	139	140
19	NETHERLANDS	123	0	123
20	FINLAND	0	90	90
21	GREECE	11	0	11
22	ESTONIA	6	0	6

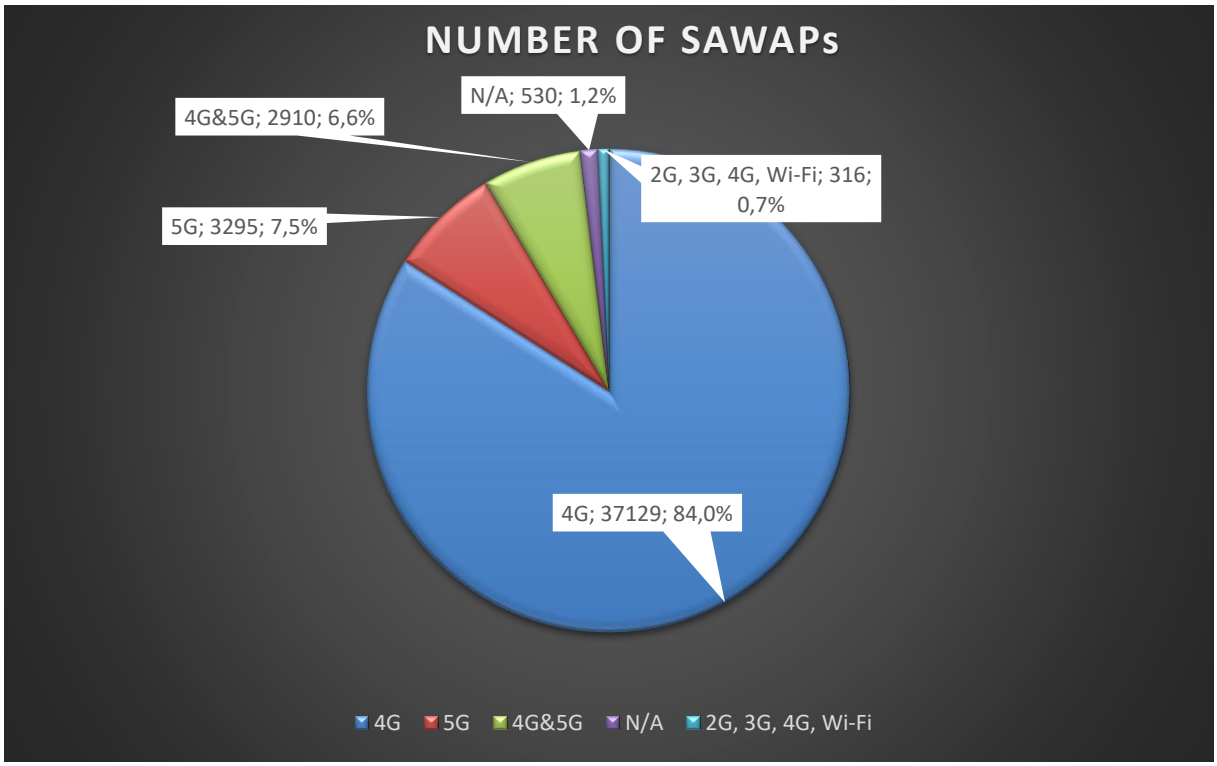
RANKING	MEMBER STATE	4G	4G & 5G	5G	2G, 3G, 4G, Wi-Fi	UNSPECIFIED TECHNOLOGY
1	FRANCE	8648				
2	ITALY	8633	1466	9		
3	BELGIUM	7611				
4	GERMANY	7152				
5	CZECHIA	1840		69		
6	BULGARIA	1328				
7	CROATIA	449				
8	LATVIA	244	2			
9	CYPRUS	242	934			
10	MALTA	202	44			

[6] Standard EN 62232:2022 applies to all type of base stations divided into five installation classes corresponding to different limits of their equivalent isotropical radiated power (EIRP) of a few milliwatt (Class E0), 2 Watt (Class E2), 10 Watt (Class E10), 100 Watt (Class E100) and above 100 Watt (Class E+) respectively. The small-area wireless access points should be low power equipment, so the Regulation should only apply to the installation classes E0, E2 and E10 of the Table 2 of clause 6.2.5 of EN 62232:2022.

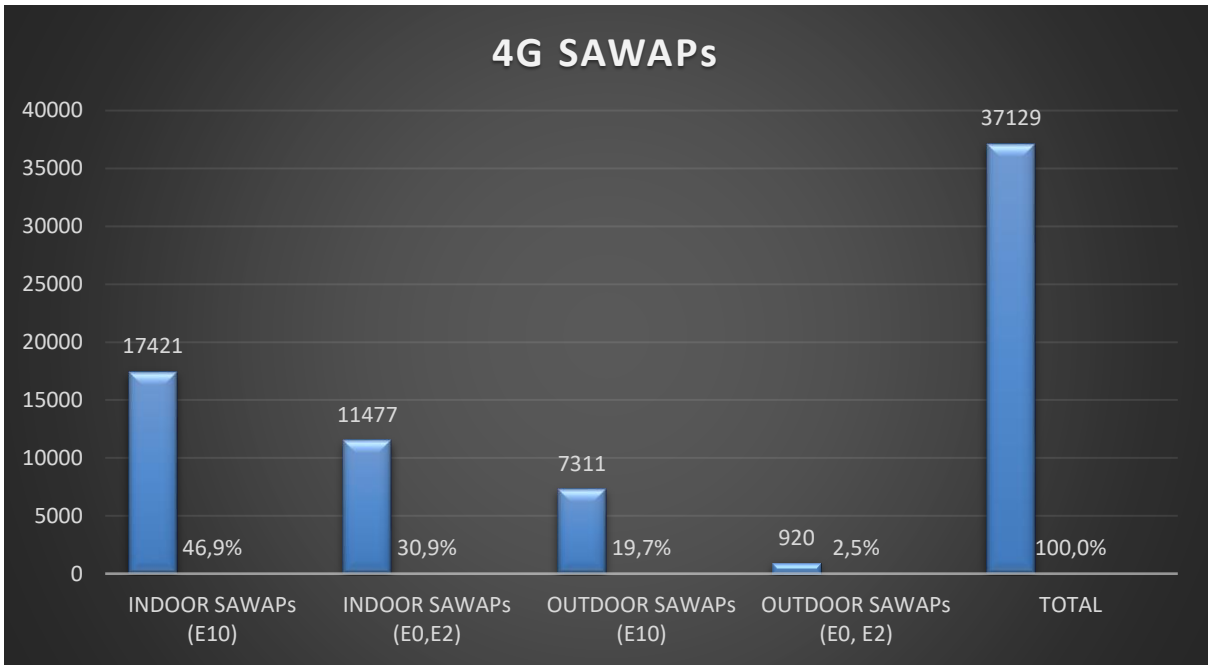
11	POLAND	201			164	
12	PORTUGAL	188				
13	HUNGARY	134	1	77		
14	IRELAND	128	116		11	
15	NETHERLANDS	123				
16	ESTONIA	6				
17	SLOVAKIA		246		1	
18	FINLAND		90			
19	GREECE		11			
20	SWEDEN			3140		
21	LITHUANIA				140	
22	SPAIN					530

The following conclusions can be drawn based on the available reports:

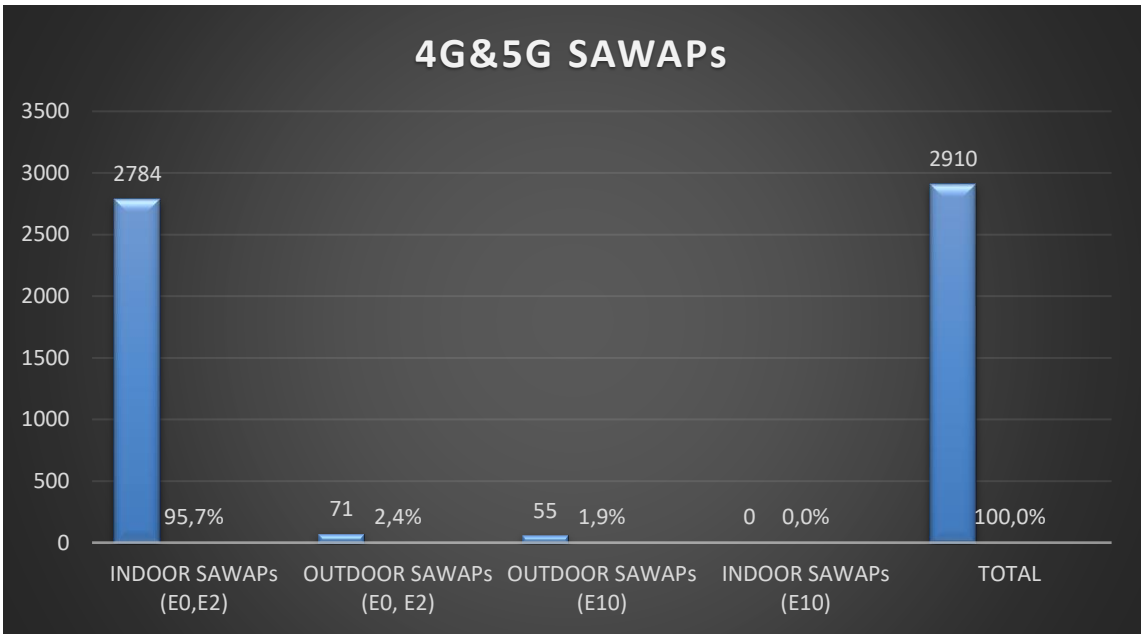
- The total number of installed SAWAPs is 44 180. The vast majority, 37 129 (84%) support 4G connectivity. 3 295 (7.5%) SAWAPs support 5G connectivity. 2 910 (6.6%) SAWAPs support both 4G & 5G. The technologies of 530 (1.2%) SAWAPs have not been specified. Finally, 316 (0.7%) SAWAPs support 2G, 3G, 4G and Wi-Fi.



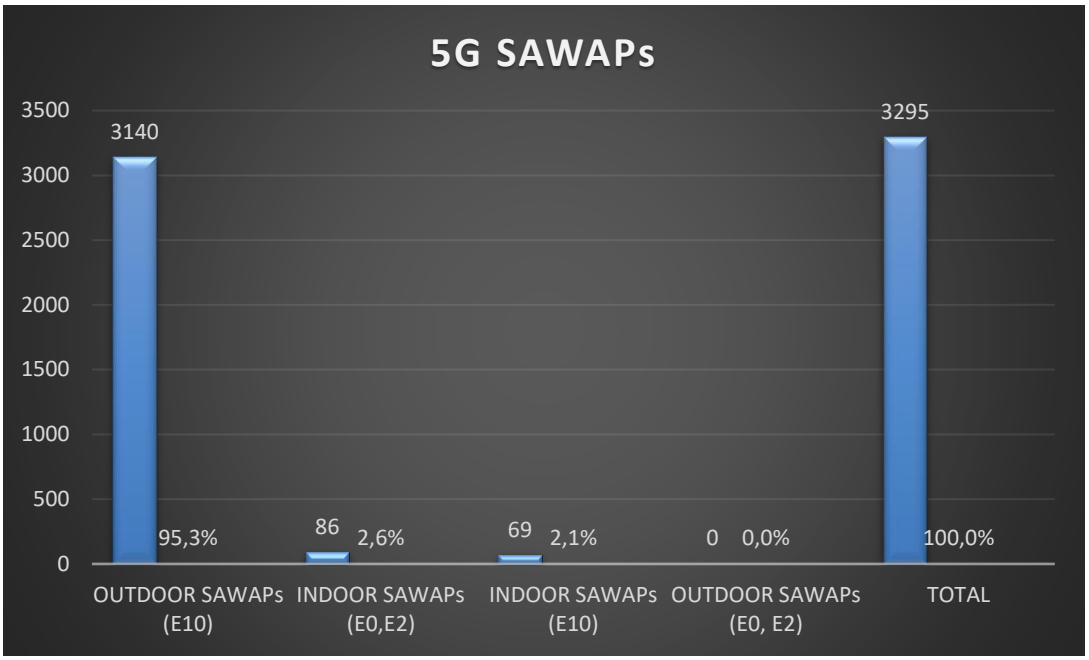
- As regards 4G SAWAPs, 46.9% of the installed ones are indoor / Class E10, 30.9% are indoor / Class E0 & E2, 19.7% are outdoor / Class E10, and 2.5% are outdoor / Class E0 & E2.



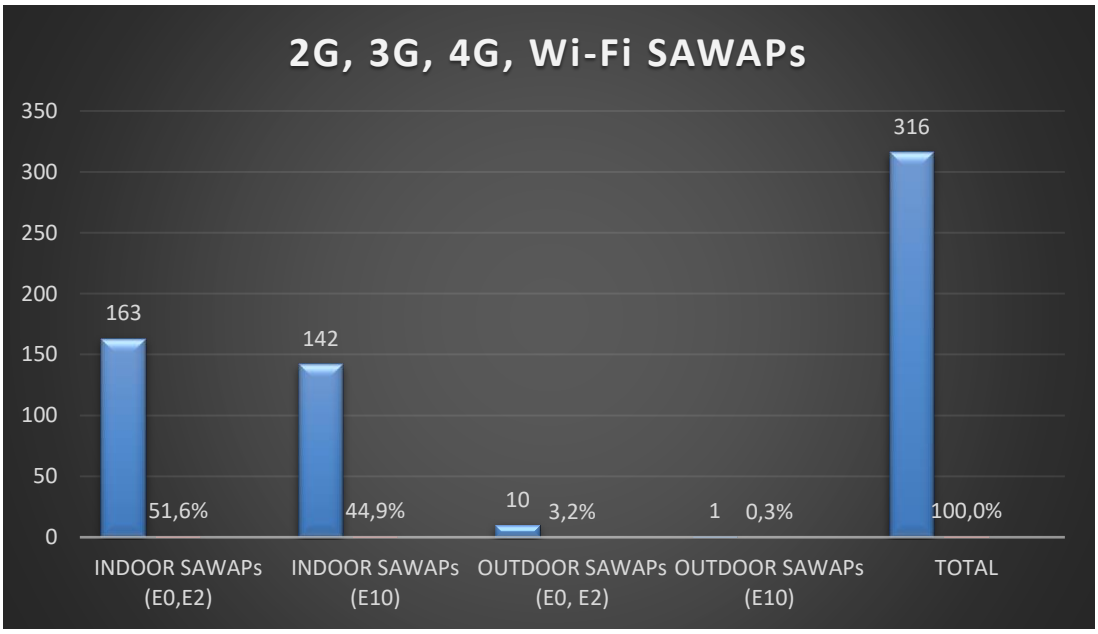
- As for 4G & 5G SAWAPs, 95.7% of them are indoor / Class E0 & E2, 2.4% are outdoor/ Class E0 & E2 and 1.9% are outdoor / Class E10.



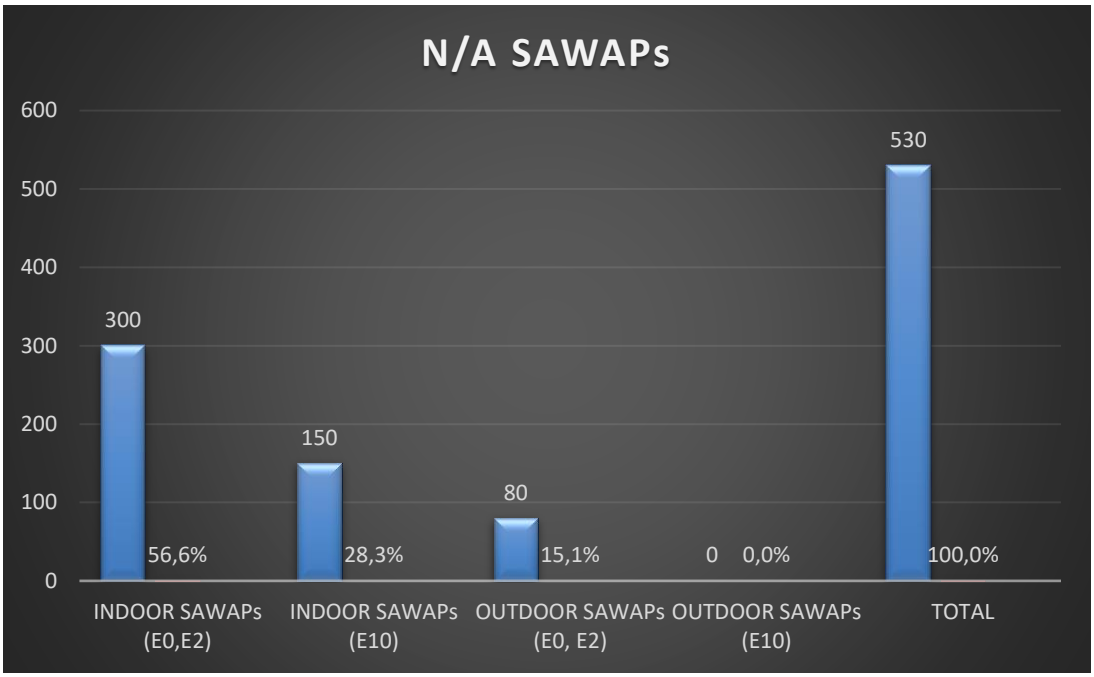
- Regarding 5G SAWAPs, 95.3% of them are outdoor / Class E10, 2.6% are indoor / Class E0 & E2 and 2.1% are indoor / Class E10.



- Regarding 2G, 3G, 4G, Wi-Fi SAWAPs, 51.6% of them are indoor / Class E0 & E2, 44.9% are indoor / Class E10, 3.2% are outdoor / Class E0 & E2 and 0.3% are outdoor/ Class E10.



- Regarding the SAWAPs of unspecified technology, 56.6% of them are indoor / Class E0 & E2, 28.3% are indoor / Class E10 and 15.1% are outdoor / Class E0 & E2.



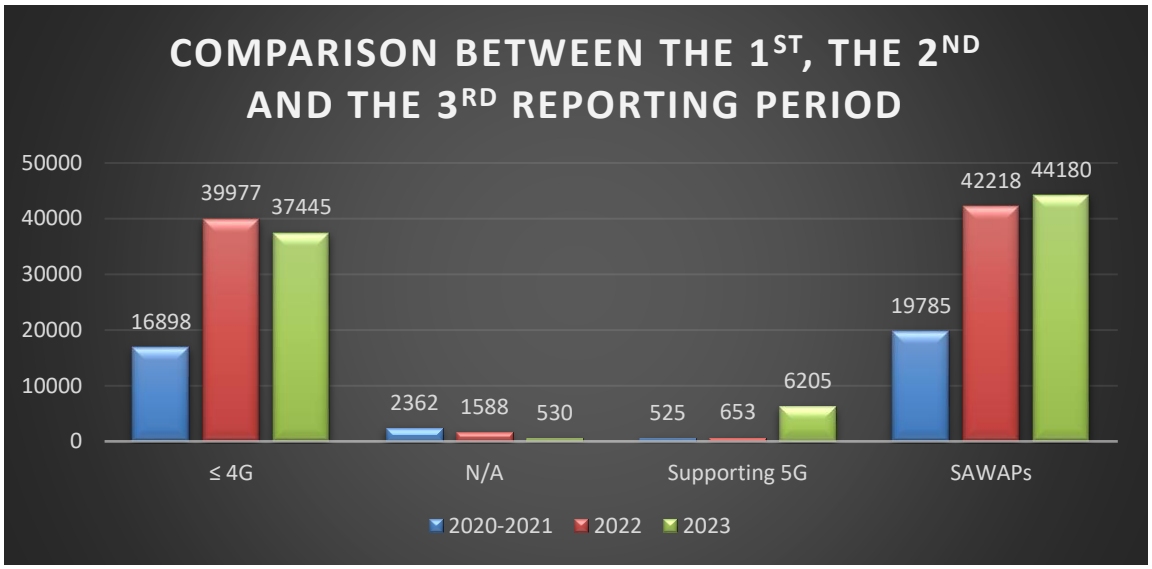
- The main EU-harmonised spectrum used is between 1 GHz and 6 GHz (e.g. 1 800 MHz, 2 100 MHz, 2 600 MHz, 3 500 MHz). Visual coherence[7] appears in about 89%[8] of the reported installations, while the major type of operators deploying SAWAPs is MNOs. In this reporting period, minimal data was provided for certain qualitative indicators, such as solutions for visual coherence and location types (e.g. public buildings, street furniture, and large indoor spaces). Some Member States reported that typical indoor SAWAP placement locations include public buildings, business centres, shopping malls, metro stations, hospitals, and logistics or production halls. For outdoor SAWAP placement locations, examples mentioned were stadiums, street furniture in high-footfall locations, petrol stations, public infrastructure, and commercial buildings.

7. Comparison between the first (August 2020 – December 2021), the second (January 2022 – December 2022) and the third reporting period (January 2023 – December 2023)[9]

Comparing the SAWAPs deployment between the reporting periods, it can be observed that in 2023 a total of 1 962 additional SAWAPs (increase by 4.6%) were installed compared to 2022. Overall, there was a decrease of the number of SAWAPs of 2G and 3G and of unspecified technology and an increase for those of 4G and 5G.

[7] The requirement for visual coherence of SAWAPs is substantiated in Article 3(1)(a) and paragraph A.4 of the Annex to the Regulation, and also referred to in the Commission services' guidance.
[8] Percentage of installed SAWAPs with minimal visual impact, i.e. invisible or fully integrated or visually consistent.
[9] The data for the first reporting period differs from the overview report published in October 2022, as in the meantime several Member States provided the missing information.

Specifically, there were 2 532 fewer SAWAPs ≤ 4G[10] (decrease by 6.3%), 1 058 fewer of unspecified technology SAWAPs (decrease by 66.6%) and 5 552 more SAWAPs supporting 5G[11] (increase by 850.2%) installed in 2023 compared to 2022.

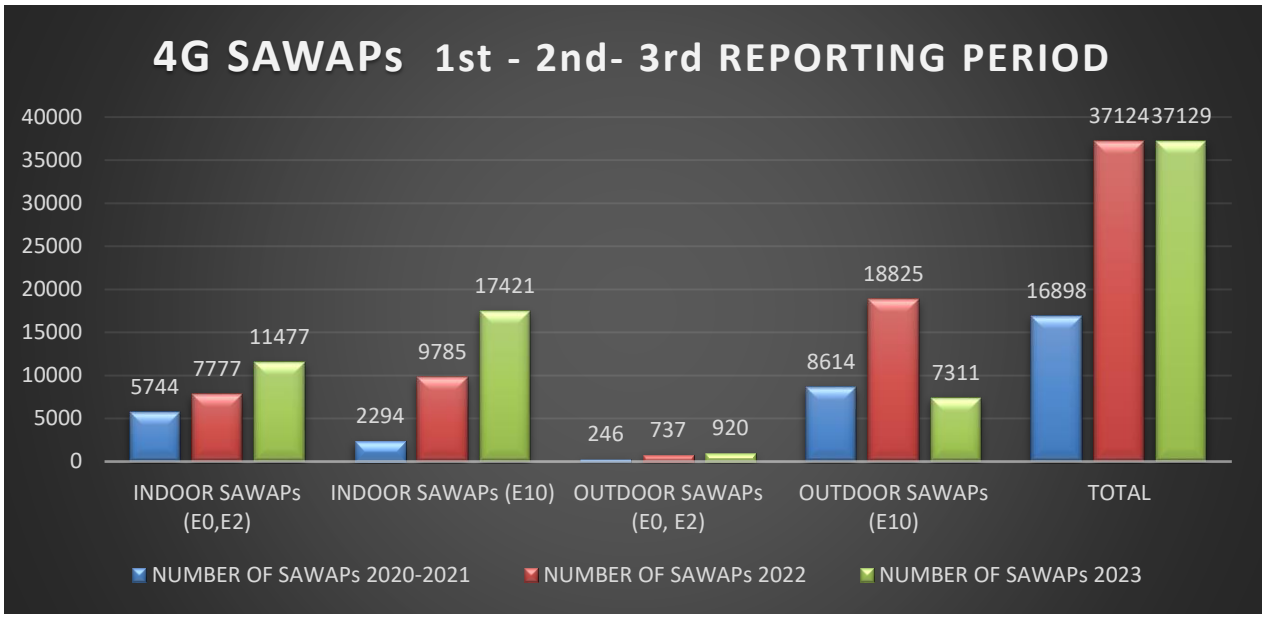


In comparison to the previous reporting period, in 2023 a total of 5 more 4G SAWAPs were installed (a negligible change compared to 2022).

As regards the types, there were 3 700 more indoor 4G SAWAPs of Class E0 & E2 (increase by 47.6%), 7 636 more indoor 4G SAWAPs of Class E10 (increase by 78.0%), and 183 more outdoor 4G SAWAPs of Class E0 & E2 (increase by 24.8%), while there were 11 514 fewer outdoor 4G SAWAPs of Class E10 (decrease by 61.2%) compared to 2022.

Across the three reporting periods, total installations more than doubled from 16 898 in the 1st to 37 124 in the 2nd (+119.7%), and then remained practically stable in 2023. The trend shows a continued expansion of indoor SAWAPs, both Class E0&E2 and E10, offset by a reduction in outdoor Class E10 installations.

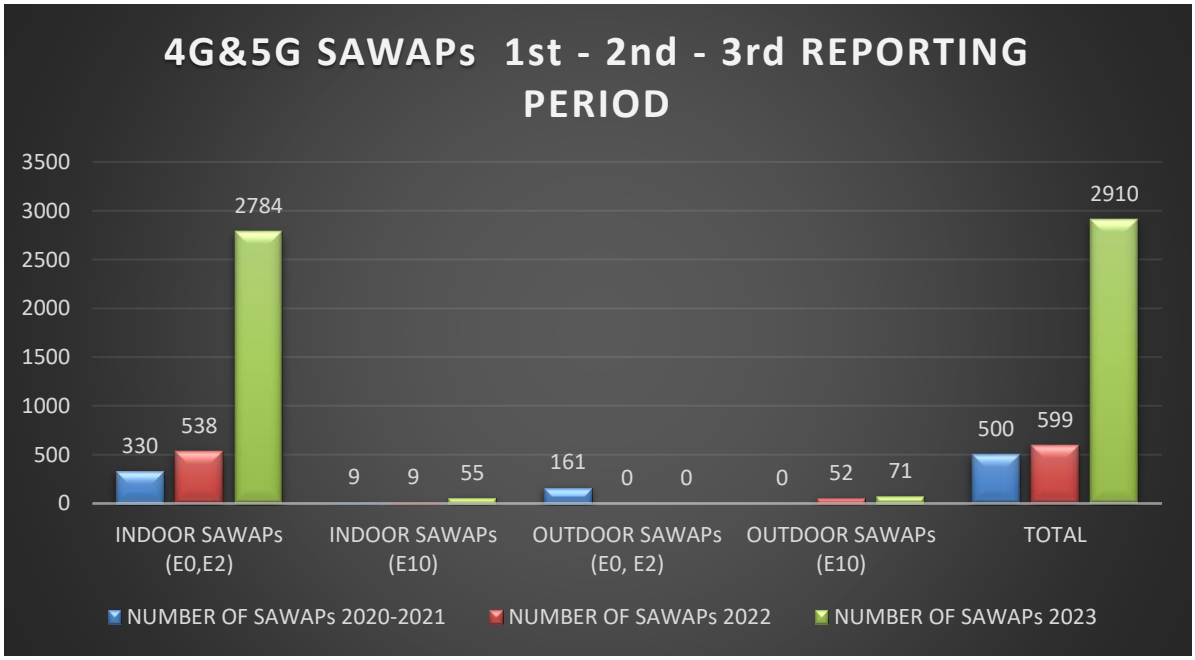
[10] 2G, 3G, 4G, Wi-Fi SAWAPs and 4G SAWAPs.
[11] 4G & 5G SAWAPs and 5G SAWAPs.



In comparison to the previous reporting period, in 2023 2 311 more 4G&5G SAWAPs (increase by 385.8%) were installed:

2 246 more 4G&5G indoor SAWAPs / Class E0 & E2 (increase by 417.5%), 46 more 4G&5G indoor SAWAPs / Class E10 (increase by 511.1%), no 4G&5G outdoor SAWAPs / Class E0 & E2 and 19 more 4G&5G outdoor SAWAPs / Class E10 (increase by 36.5%).

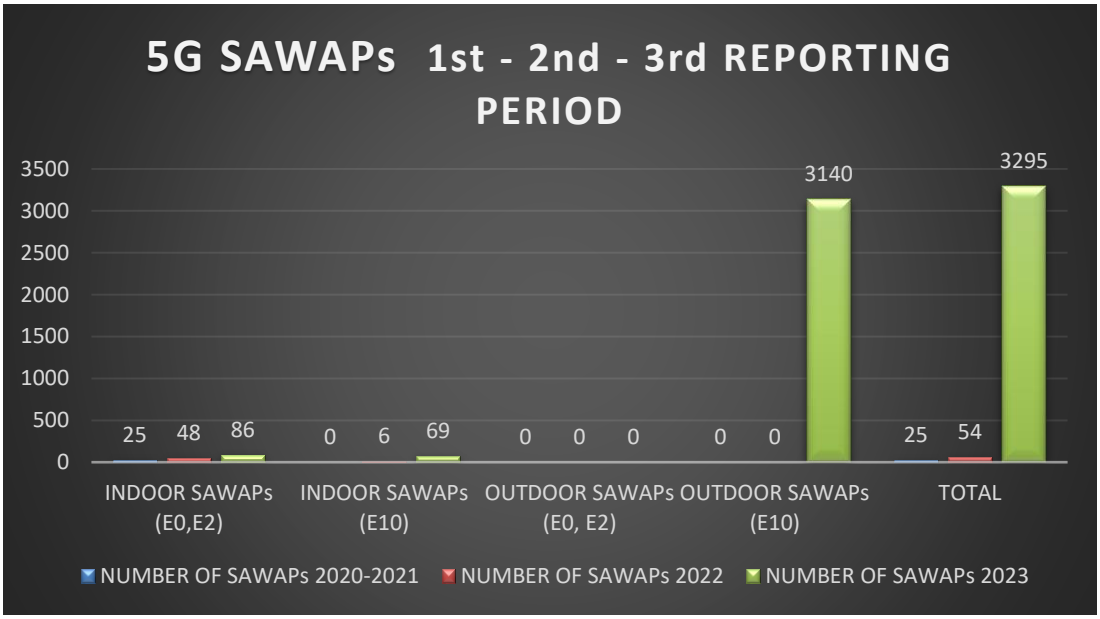
Across the three reporting periods, total installations increased steadily from 500 in the 1st to 599 in the 2nd (increase by 19.8%), before surging to 2 910 in 2023. Growth was mainly driven by a sharp rise in indoor Class E0 & E2 installations.



3 241 more 5G SAWAPs (increase by 6 001.9%) were installed in 2023 compared to 2022.

38 more indoor / Class E0 & E2 (increase by 79.2%), 63 more indoor / Class E10 (increase by 1 050.0%), no 5G outdoor / Class E0 & E2, and 3 140 5G outdoor / Class E10 (no installations in 2022 and 2021).

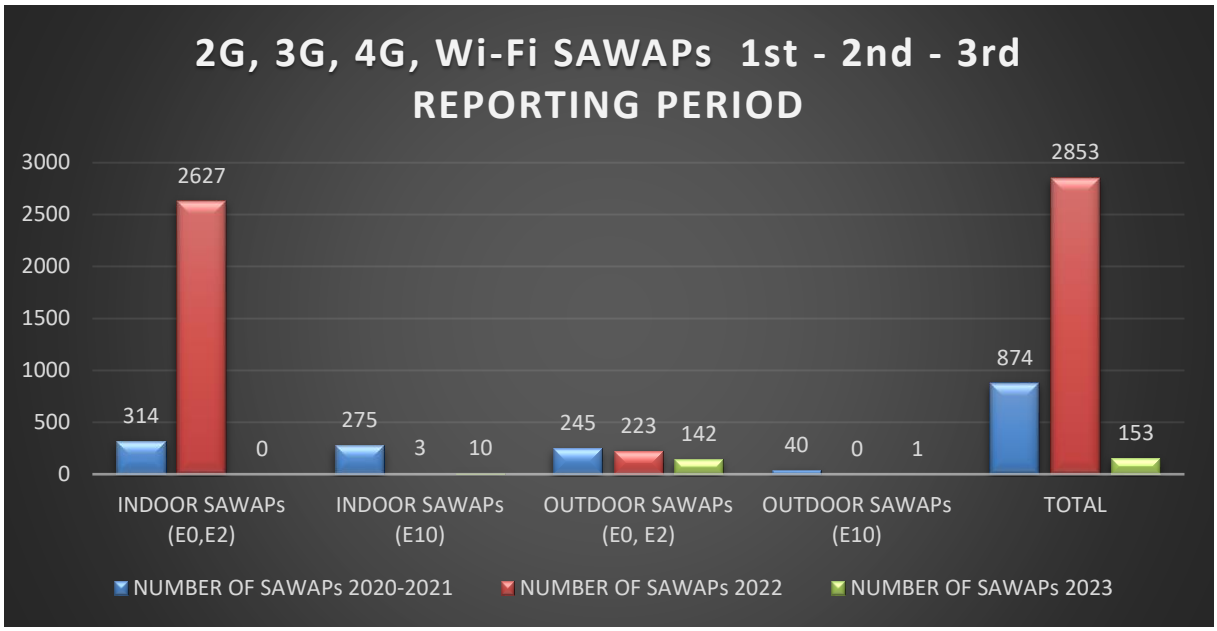
Across the three reporting periods, total installations increased from 25 in the 1st to 54 in the 2nd (increase by 116%), and then surged to 3 295 in 2023, mainly driven by outdoor Class E10 installations in 2023.



In comparison to the previous reporting period, in 2023 2 700 fewer 2G, 3G, 4G, Wi-Fi SAWAPs were installed (a decrease of 94.6%):

2 627 fewer indoor SAWAPs / Class E0 & E2 (decrease by 100%), 7 more indoor SAWAPs / Class E10 (increase by 233.3%), 81 fewer outdoor SAWAPs / Class E0 & E2 (decrease by 36.3%), and 1 outdoor SAWAP / Class E10 (from zero in 2022).

Overall, installations rose sharply from 874 in the 1st reporting period to 2 853 in the 2nd (increase by 226.4%), before dropping to 153 in the 3rd.



In comparison to the previous reporting period, in 2023 1 058 fewer unspecified technology SAWAPs were installed (a decrease of 66.6 %): 300 indoor SAWAPs / Class E0 & E2 (none installed in the previous period), 239 fewer indoor SAWAPs / Class E10 (decrease by 74.9 %), 1 117 fewer outdoor SAWAPs / Class E0 & E2 (decrease by 88.1 %) and no outdoor SAWAPs / Class E10 (decrease by 100 %).

Total installations declined from 2 362 in the first reporting period to 530 in the third (decrease by 77.6%), with activity shifting away from outdoor E10 and outdoor E0/E2 categories, and the emergence of indoor E0/E2 installations in 2023.