

REPORT
ON THE 14TH JOINT CROSS-BORDER
EMC MARKET SURVEILLANCE CAMPAIGN
(2021-22)

USB HUBS

November 2022



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A. EXECUTIVE SUMMARY

During the 48th web-meeting of the EMC Administrative Cooperation Working Group (EMC ADCO) on 11-13 November 2020, seven possible targets for the Market surveillance campaign 2021/22 were proposed: 1) beauty machines, 2) battery chargers, 3) beamers (video projectors), 4) computer accessories (USB Hub, USB Chargers) pond pumps, 6) car station chargers, and 7) ozoners / disinfectors.

It was decided, that the selection of the final object for the EMC MSC 14 campaign in 2021 would be agreed by e-mail voting. 19 MSAs voted and the target for 14th EMC market surveillance Campaign was chosen to be USB hubs.

The MSC-EMC-14 was carried out according to the **Code of Practice** on the 14th joint cross-border market surveillance campaign.

A USB hub is a device that expands a single Universal Serial Bus (USB) port into several so that there are more ports available to connect devices to a host system, similar to a power strip. All devices connected through a USB hub share the bandwidth and power available to that hub.

USB hubs increase the number of USB devices that can connect to a computer without having to add additional hardware. Additionally, USB hubs can be useful with devices like laptops that can't physically add more USB ports. The difference between **powered** and **non-powered** USB hubs is that the former draws its power from an electrical outlet while the latter draws its power from the computer connection.

In addition to data, USB is also a power source for devices which don't always use a data connection. For example, a cell phone connected to a computer with a USB cable can both interface with the computer and charge its battery. A cell phone that's connected to a wall outlet charger by USB is only using the connection as a power source.

USB hubs are devices that connect to a computer's USB port to add additional ports to increase the number of devices that can be connected to the computer. However, there's a limitation when using USB hubs: all the devices have to share bandwidth and power supply from the computer's USB port. The bandwidth and power from the computer's port is the same no matter how many devices are connected.

Not all USB devices are created equal: some require more power than others. USB hubs work fine with low-powered devices like mice and keyboards, but they may not be able to operate high-powered devices like webcams and flash drives. Devices may fail to work or produce error messages if the hub doesn't have sufficient power.

The multi-USB wall chargers, the devices that not support data communications but are **exclusively intended for charging devices are not considered as USB hubs according to the definition and were excluded from this campaign.**

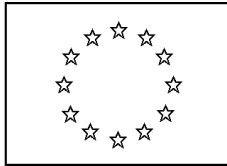


Fig.1. Examples of USB hubs.

This report provides an overview of the findings and makes recommendations on next steps and future actions.

The primary purpose of the campaign is to assess the compliance of the equipment under test ('EUT'), samples taken from the European market, with the essential requirements and also with the formal requirements of the EMC Directive 2014/30/EU.

Administrative compliance

The results of the administrative assessment of 78 EUT showed:

- 66% of EUT were considered administratively compliant.
- 90% of EUT had the correct CE marking.
- Declarations of Conformity (DoC) were available for 64 EUT; and 44 of them were compliant.
- From the requested 29 Technical Documentation ('TD'), 8 were found to be compliant (28%).



**EMC ADMINISTRATIVE
CO-OPERATION WORKING GROUP**

14th EMC Market Surveillance Campaign 2021-22



Technical compliance with harmonised standards

For the purposes of this campaign, technical compliance is to be understood as compliant with an applicable harmonised standard.

The results of the technical assessment of USB hubs showed that no issues were found for 63% of 78 tested EUT for disturbance emissions.

Summary of Results

Fourteen national Market Surveillance Authorities ('MSA'), all of them EMC ADCO members, participated in the campaign. 78 types of products were assessed between the 1st July 2021 and the 31th March 2022. In general, the level of compliance with the administrative and technical requirements was considered as low. Overall, 47 % of the Equipment Under Test ('EUT') were assessed as compliant.

Based on this campaign EMC ADCO has formulated conclusions and recommendations which can be found in Chapter D of this report.



B. ELEMENTS OF THE CAMPAIGN

1. Reasons for the campaign

At the 48th EMC Administrative Cooperation Working Group (EMC ADCO) meeting (WebEx Conference), possible targets for the Campaign were proposed. It was decided to carry out voting by e-mail. Following the voting results, it was decided that the fourteenth joint cross-border EMC market surveillance campaign would assess the compliance of USB hubs.

The primary purpose of the campaign is to assess the compliance of the equipment under test ('EUT'), samples taken from the European market, with the essential requirements of the EMC Directive 2014/30/EU (for apparatus placed on the market from 20 April 2016).

This campaign has several goals, which include:

1. to determine the administrative and technical compliance levels of USB hubs available on the European market;
2. to apply appropriate measures (including safeguard procedure) for non-compliant USB hubs
3. to propose further actions;
4. to improve cooperation and information exchange between MSA's;
5. to increase knowledge of the USB hubs industry;
6. to improve the knowledge of manufacturers; importers; distributors (economic operator) of their obligations under the EMC Directive.

2. Scope of the campaign

The primary purpose of the campaign was to assess the compliance of samples taken from the market with the provisions of the EMC Directive 2014/30/EU. Administrative compliance was checked against the CE marking, Declaration of Conformity, traceability requirements and user manual (including language requirements). Technical documentation of the acquired EUT were assessed on voluntary basis. For the purposes of this campaign, it was decided to assess compliance with the EMC essential requirements (i.e. generated electromagnetic disturbances of EUT) by testing against a relevant harmonised standard¹.

The campaign was also intended to provide MSA with the opportunity to participate in EMC market surveillance, to improve the exchange of information and to raise economic operator and consumer's awareness of the need for conformity with the requirements of the EMC Directive.

It was agreed that following the analysis of the results of the campaign, a report would be prepared and presented to the EMC Working Party for subsequent publication by the Commission <http://ec.europa.eu/>. The present document constitutes the report of the campaign.

¹ EUT were assessed against harmonised standards as stated in the DoC (if available). See chapter 7 for the applicable standards.



3. Participation in the campaign

Participation in the campaign was voluntary, and was open to all members of EMC ADCO. Each MSA was responsible for the costs of obtaining the EUT and electromagnetic compatibility tests.

14 European countries participated in the campaign: Croatia, Cyprus, Czech Republic, Finland, Germany, Hungary, Ireland, Lithuania, Luxembourg, Netherlands, Poland, Romania, Spain and Switzerland.

4. Timing

The campaign commenced on the 1st July 2021. The information gathering, testing and data reporting phases of the campaign took nine months, ending on the 31st of March 2022. Within that period, MSA carried out their activities on their own. During the last months all results of technical and administrative assessment were collected and the final report of this joint action was prepared.

5. Sampling

The aim was to obtain the broadest possible view of the investigated product group in the European marketplace. Therefore, a quasi-random sampling was performed over the whole price range, and from all origins (national, EEA, and imported from third countries). However, to avoid double sampling, participating MSA were encouraged to upload details of their selections into ICSMS as early in the course of campaign as possible.

The number of selected EUT were recommended 5 different individual types for each participating MSA, but MS were free to select any number of EUT for this campaign. Selections may include products purchased on the internet (from eBay, Amazon, Aliexpress, wish etc.). In order to maximise the value of this campaign and increase knowledge of the marketplace the aim is to select products from the broadest range possible.

6. Documents

A **Code of Practice** on the 14th joint cross-border market surveillance campaign was drawn up to provide guidance and a common understanding of the purpose of the campaign and to ensure, as far as possible, the adoption of harmonised practices during the carrying out of the campaign. The results of the assessment of each EUT were uploaded to ICSMS (the campaign criterion **MSC-EMC-14**).



7. Tests performed

For the purposes of the campaign, it was agreed to assess compliance to the EMC essential requirements by measuring against the harmonised standards according to the DoC issued by the manufacturer. If DoC was not available for the EUT, then the assessment for the RF emissions was done against actual harmonised standards.

Actual situation of HS for conducted and radiated emissions tests:

Harmonised standards under 2014/30/EU directive applicable for this Campaign (actual situation as for 7 April 2021 of harmonised standards published in the Official Journal):

7.1. For RF disturbance emissions (conducted and radiated) tests:

- Date of start of presumption of conformity - 04/11/2020 (OJ L 366 - 04/11/2020):

EN 55032:2015

EN 55032:2015/A11:2020.

- Date of start of presumption of conformity - 20/04/2016 (OJ C 293 - 12/08/2016)

Date of the end of presumption of conformity - 04/05/2022 (OJ L 366 - 04/11/2020)

EN 55032:2012,

EN 55032:2012/AC:2013.

- Date of start of presumption of conformity - 20/04/2016 (OJ C 173 - 13/05/2016)

- Date of the end of presumption of conformity - 05/03/2017 OJ C 293 - 12/08/2016)

EN 55022:2010,

EN 55022:2010/AC:2011

7.2. For harmonic emissions tests:

- Date of start of presumption of conformity - 20/04/2016 (OJ C 173 - 13/05/2016):

EN 61000-3-2:2014

- Date of start of presumption of conformity - 20/04/2016 (OJ C 173 - 13/05/2016) Date of the end of presumption of conformity - 30/06/2017 (OJ C 173 - 13/05/2016):

EN 61000-3-2:2006

EN 61000-3-2:2006/A1:2009

EN 61000-3-2:2006/A2:2009



7.3 For voltage fluctuations and flicker tests:

- Date of start of presumption of conformity - 20/04/2016 (OJ C 173 - 13/05/2016):

EN 61000-3-3:2013

- 6.3.3.2 Date of start of presumption of conformity - 20/04/2016 (OJ C 173 - 13/05/2016),
Date of the end of presumption of conformity - 18/06/2016 (OJ C 173 - 13/05/2016):

EN 61000-3-3:2008

For the purposes of the Campaign it is agreed to assess compliance with the EMC essential requirements (only emission, immunity aspects could be assessed on voluntary basis) by measuring against the appropriate standards according to the DoC issued by the manufacturer.

If DoC is not available for the EUT, then the assessment for the RF emissions has been done against actual applicable harmonised standards under 2014/30/EU directive.

Measurements were performed on the relevant ports (port - physical interface through which electromagnetic energy enters or leaves the EUT) of the EUT according to the appropriate tables given in Annex A of EN 55032 **for class B equipment**.

MSA assessed:

1. Conducted emissions from the AC mains power ports (EN 55032) / conducted disturbance at the mains ports (EN 55022) in the frequency range 150 kHz to 30 MHz;
2. Asymmetric mode conducted emissions from wired network ports (EN 55032) / conducted common mode (asymmetric mode) disturbance at telecommunication ports (EN 55022) in the frequency range 150 kHz to 30 MHz;
3. Radiated emissions (EN 55032) / radiated disturbance (EN 55022) in the frequency range 30 MHz to 1000 MHz
4. Radiated emissions (EN 55032) / radiated disturbance (EN 55022) in the frequency range 1000 MHz to 6000 MHz

8. Administrative requirements

8.1. Checking the CE mark

The EUT were checked for the presence and correctness of the CE mark.

8.2. Declarations of Conformity

MSA shall seek to obtain a copy of the DoC for the EUT assessed. The results of the assessment and all standards used by the manufacturer were filled in ICSMS.

8.3. Technical Documentation

Technical documentation was assessed on a voluntary basis. The relevant parts of the technical documentation of the acquired EUT were requested from the responsible economic operators.



C. RESULTS

1. Number and origin of products

MSA had to report on the country where EUT has been manufactured; the information “Made in” present either on the EUT itself, on its packaging or on the accompanying documents and finally from the DoC (where available). The “country of origin” therefore refers not generally to the economic operator who is responsible for placing the product on the EU market.

A total of number of 78 products were selected and assessed, as follows:

Table 1 – Number and origin of products		
Country of origin	Number of evaluated USB hubs	Compliance rate of administrative and technical requirements: number and (%)
China	46	20 (43 %)
EU	10	7 (70%)
Other countries	4	3 (75%)
No information	18	7 (39%)
All origins	78	37 (47%)

NOTE: Country of origin is not necessary the same as the location country of the legal manufacturer selling products under his brand name (e.g. Designed in Australia. Made in China).

Conclusion: The USB hubs were made mainly in China (59%). There was a considerable number of cases where no information was available about the country of origin (23%).

Highest percentage of overall compliant products were made in EU and in other countries (Taiwan and UK).

There was wide range of prices of 78 USB hubs investigated in this Campaign, starting from 1,82 € to 189,99 €. In an effort to see if there were any correlation between high price and high level of compliance a comparison was made. There were no correlation found.



2. Administrative compliance

The EUT were assessed for the presence and format of CE marking, the availability and compliance of the DoC, User manual language, traceability (issues of non-compliance were found only with manufacturer name and address), and (on a voluntary basis) the technical documentation.

Table 2 – Overall compliance with administrative requirements		
Number checked	Number compliant	Compliant (%)
70	46	66

2.1 CE marking

60 EUT were affixed with CE marking according to requirements. 7 EUT were found not compliant (no CE marking, too small CE mark), and 11 EUT were not checked.

Table 3 – Compliance with CE requirements		
Number assessed	CE compliant	Overall CE compliance (%)
67	60	90

2.2 EC Declarations of Conformity (DoC)

MSA assessed 77 EUT against the DoC requirements. DoC for 13 EUT were not made available. From 64 DoC available, 44 DoC has no issues found.

Table 4 – Compliance with DoC requirements				
Number of EUT assessed	DoC available	DoC not made available	DoC with no issues found	Overall DoC compliance (%) *
77	64	13	44	57

* overall compliance of DoC (not made available = non compliant).



Table 5 – Compliance rate of the DoC requirements	
Requirements for DoC	Compliance rate for 64 available DoC (%)
Reference to EMCD	96
Identification of the apparatus	100
Name and address of the manufacturer	92
Dated reference to the specifications	96
Signature of the person empowered to bind the manufacturer	98

2.3 User Manual language

50 EUT were checked according to requirements of User Manual language. 15 EUT User Manuals were found non-compliant. 28 EUT User Manuals were not checked.

Table 6 – Compliance with User Manual language requirements		
Number assessed	Compliant Manual	Overall Manual compliance (%)
50	35	70

2.4 Technical documentation (TD)

On voluntary basis MSA requested TD for 29 of the 78 EUT. Of those 8 were found to be compliant.

Table 7 – Compliance with TD requirements		
Number assessed	TD compliant	Overall TD compliance (%)
29	8	28



2.5 Traceability Requirements

Manufacturers shall ensure that products which they have placed on the market bear a type, batch or serial number or other element allowing its identification. Manufacturers and importers (if manufacturer is not established in the EU) shall indicate, on the product, their name, registered trade name or registered trade mark and the postal address at which they can be contacted.

Requirement of traceability	Number checked	Number compliant	Compliance (%)
Identification requirements (type designation)	65	62	94
Name and address of the manufacturer	64	52	81
Name and address of the importer (if needed)	45	35	78

3. Compliance with harmonised standards

3.1 Emission requirements

The measured result was compared directly with the limit in the harmonised standard without taking into account the measurement uncertainty

78 EUT were assessed for the emissions and the “no issues found” rate of the products assessed for emissions was as follows:

Number tested	No issues found	% no issues found
78	49	63

4. Other evaluations

4.1 DoC compliance vs. compliance with disturbance emissions requirements

EUT with a not correct DoC had approximately the same level of compliance than those which are not made available. It can be considered, that an available and correct DoC leads to a much higher non issues found rate.

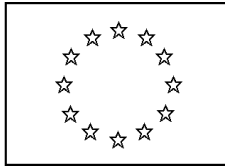


Table 10 – DoC compliance vs. compliance with disturbance emissions requirements			
DoC	Number of DoC	Number of products were no issues found for emission	The level of compliance to disturbance emission (%)
DoC – available but not correct	20	6	30
DoC – not made available	13	5	38
DoC – available and correct	44	37	84

Those USB hubs for which DoC were not made available or not correct, were mostly found non-compliant against disturbance emission requirements of harmonised standards.

5. Overview of findings

Table 11 summarises the overall compliance of EUT in terms of the emission to the limits of harmonised standards, also overall administrative, CE marking and EU Declaration of Conformity requirements.

Table 11 – Overview								
Campaign	Number of MSA participating	Number assessed EUT types	Overall no issues found (%)	No issues found with Compliance emission limits of HS (%)	No issues found with assessed administrative (formal) requirements			
					Overall administrative no issues found (%) *	CE Marking (%)	TD %	DoC (%) **
MSC-14	14	78	47	63	66	90	28	57

* overall administrative no issues found = DoC + CE + traceability + TD

** overall no issues found of DoC (not made available = non-compliant).



D. CONCLUSIONS AND RECOMMENDATIONS

1. Conclusions

- In general, the level of compliance with the administrative and technical requirements was considered as low. Overall, 47 % of the Equipment Under Test ('EUT') were assessed as compliant.
- Results of USB hubs disturbance emissions tests showed, that about one out of three technically assessed USB hubs (37%) exceed the limits of the applied harmonised standard.
- Overall non-compliance with administrative requirements is 34% (including the presence of CE marking, the availability and compliance of the DoC, language of user manual, traceability, and technical documentation).
- 7 USB hubs have no CE mark or have a too small CE mark.
- 57 % of the DoC were correct. In 13 cases DoC were not made available to authorities and in 20 cases DoC were not correct.
- Those USB hubs for which DoC were not available or not correct, were found mostly non-compliant against disturbance emission requirements of harmonised standards.
- It can be considered, that an available and correct DoC leads to a much higher non issues found rate.
- The EUT represented a respectable number of the products available on the market and it is clear that improvements need to be done by manufacturers in terms of compliance.
- Sentence on price range and no issues found → no correlation
- The use of ICSMS for sampling EUT was very helpful.

2. Recommendations

It is recommended that:

- The results of the campaign should be publicised widely throughout Europe. Publicity should target all economic operators in the area of IT and USB hubs industry.
- MSA should take the results of this campaign into consideration when making their plans as stated in the Regulation (EU) 2019/1020 of the European Parliament and of the Council of 20 June 2019 on market surveillance and compliance of products.
- MSA who did not participate should be encouraged to join in future campaigns. Regulation (EU) 2019/1020 in Chapter VI and other articles promotes this type of cooperation and actions between MSA.
- MSA shall continue to use ICSMS in the future campaigns for sampling and exchange of information.