

REPORT
ON THE 8TH JOINT CROSS-BORDER
EMC MARKET SURVEILLANCE CAMPAIGN
(2016-2017)

INDUCTION COOKING APPLIANCES (PLATES)

September 2017



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A. EXECUTIVE SUMMARY

As the result of discussions at the 38th EMC Administrative Cooperation Working Group (EMC ADCO) meeting in Vilnius, and after impact assessment procedure, it was decided to choose wireless chargers for the target of the next EMC market surveillance campaign from the five proposed suitable product groups (discussed targets, in order of importance: 1. Wireless inductive chargers; 2. Induction cooking appliances (plates); 3. Electrical toys; 4. Printers; 5. PLC products). The appropriate draft of Code of Practice for wireless inductive chargers was made for the 39th EMC ADCO meeting in Paris. Considering that these products usually have data communication function, which exists between the charger and the charge receiving device, such products consequently fall into the scope of R&TTE Directive or EMC (wireless charger part) and R&TTE (communication part) Directives, it was intended to have joint EMC/R&TTE Market surveillance campaign.

However, during the 51th meeting in Nice R&TTE ADCO decided to have 8th R&TTE market Surveillance campaign on Radio-controlled toys instead. Following this decision, and as result of discussions at the 39th EMC ADCO meeting it was agreed that the 8th joint cross-border EMC market surveillance campaign should assess the compliance of induction cooking appliances (plates).

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 of the EMC Directives 2004/108/EC or 2014/30/EU.

This campaign has several goals, which include:

- to determine the administrative and technical compliance levels of induction cooking appliances (plates) available within the EU market;
- to apply the measures of new EMC Directive 2014/30/EU (including safeguard procedure) for induction cooking appliances placed on the market from 20 April 2016.
- to take appropriate compliance actions to rectify non-compliances;
- to propose further actions;
- to improve cooperation and information exchange between MSA's;
- to increase knowledge of the induction cooking appliances industry;
- to improve the knowledge of manufacturers; importers; distributors; and economic operators of their obligations under the EMC Directive;
- use the new ICSMS DRPI and become familiar with it.

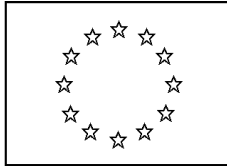
Ten national Market Surveillance Authorities ('MSA') EMC ADCO members participated in the campaign. 49 products were assessed between the 1st July 2016 and the 28th February 2017. In general, the level of compliance with the administrative and technical requirements was considered as low. Overall, about a half of the Equipment Under Test ('EUT') were assessed as compliant (51%).

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

Administrative compliance

The results of the administrative assessment of EUT showed:

- 71% of EUT were considered administratively compliant.
- All EUT had the CE marking, 47 EUT (96%) were assessed as meeting the correct CE formatting requirements.



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- Declarations of Conformity (DoC) were available for 47 EUT; from those available five were non-compliant. Overall, 89% of assessed DoC were compliant.
- From the requested 31 Technical Documentation ('TD'), 28 were supplied. Of those, 21 were found to be compliant (75% overall compliance).

Technical compliance with harmonised standards

For the purposes of this campaign, technical compliance is to be understood as compliance with an applicable harmonised standard¹.

The results of the technical assessment of induction cooking appliances (plates) showed that a third of 48 EUT tested were non-compliant (i.e. 69% overall compliance to harmonised standards).

¹ 'harmonised standard' means a European standard adopted on the basis of a request made by the Commission for the application of Union harmonisation legislation (Regulation (EU) No 1025/2012).



B. ELEMENTS OF THE CAMPAIGN

1. Reasons for the campaign

As a result of discussions at the 39th EMC ADCO meeting it was agreed that the 8th joint cross-border EMC market surveillance campaign should assess the compliance of induction cooking appliances (plates) intended to be used by consumers. The harmonized standard EN 55014-1 (or EN 55011) refer to induction cooking appliances for domestic and commercial use (i.e. intended for induction cooking, either in residential or commercial environments). For the purpose of this campaign, the MSA assessed the compliance of the induction cooking appliances only for domestic use. For this reason, only cooking appliances with 1 to 4 cooking zones were checked. Induction cooking appliances (plates) intended to be used by consumers are already widely used throughout Europe and the market is growing continuously.

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 Directives 2004/108/EC or 2014/30/EU. Administrative compliance was checked against the CE marking, Declaration of Conformity, and the relevant parts of the technical documentation of the acquired EUT. 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 standard². Immunity aspects were assessed on a voluntary basis.

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. The present document constitutes the report of the campaign.

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 tests.

Ten European countries participated in the campaign: Cyprus, Finland, Germany, Hungary, Lithuania, Luxembourg, Netherlands, Romania, Slovenia and Switzerland.

² EUT were assessed against harmonised standards displayed in the DoC (if available). If DoC is not available for the EUT or the manufacturer has used for RF emission a different standard than EN 55014-1 or EN 55011, then the assessment for the RF emissions should be done against EN 55014-1:2006 + A1:2009 + A2:2011 (or EN 55011:2009 + A1:2010), and EN 61000-3-2:2014 harmonised standards



4. Timing

The campaign commenced on the 1st July 2016. The information gathering, testing and data reporting phases of the campaign were of six months duration, ending on the 31st of December 2016. Within that period, MSA carried out their actions to their own timescales. During the last 2 months (January-February, 2017) all results of testing and administrative assessment were collected together and the final report of the 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.

Selected EUT can fall under EMC and LVD Directives. The number of selected EUT is recommended between 5 and 10 of different individual types for each participating MSA. Selections may include products purchased on the internet (from eBay, Amazon, 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 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 recorded on a common electronic data input form for EMC (EMC DIF V4.0).

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 a DoC was not available for the product, or the manufacturer has used a harmonised standard different than EN 55014-1 or EN 55011 (the technical requirements for induction cooking appliances in both standards are the same), then the assessment for the RF emissions should be done against EN 55014-1:2006 + A1:2009 + A2:2011 (or EN 55011:2009 + A1:2010), and EN 61000-3-2:2014 harmonised standards.

Actual situation for conducted and radiated emissions test:

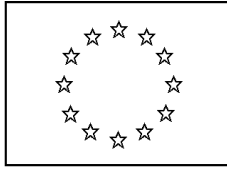
EN 55014-1:2006 + A1:2009 + A2:2011 *Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission.*³

or

EN 55011:2009 + A1:201 *Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement*⁴

³ At the start of the campaign the new edition of EN 55014-1:2017 standard was not available.

⁴ EN 55011:2016 edition excludes induction cooking appliances from the scope, therefore could not be applied for testing.



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EN 55011:2009 could be used until 2013-07-01

EN 55011:2007 + A2:2007 could appear in DoC for products placed on the market before 2012-09-01

EN 55011:1998 + A1:1999 + A2:2002 could appear in DoC for products placed on the market before 2009-11-01.

Actual situation for harmonic current emissions test:

EN 61000-3-2:2014 *Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)*

EN 61000-3-2:2006 + A1:2009 + A2:2009 could be used until 2017-06-30

EN 61000-3-2:2006 could appear in DoC for products placed on the market before 2012-07-01

EN 61000-3-2:2000 + A2:2005 could appear in DoC for products placed on the market before 2009-02-01

MSA should assess:

- 1) Terminal disturbance voltages in the frequency range 9 kHz to 30 MHz (Annex B (normative) of EN 55014-1:2006 + A1:2009 + A2:2011, or Table 8 of EN 55011:2009 + A1:2010);
- 2) Radiated disturbances (magnetic field strength) in the frequency range 9 kHz to 30 MHz (Annex B (normative) of EN 55014-1:2006 + A1:2009 + A2:2011, or Table 13 of EN 55011:2009 + A1:2010);
- 3) Radiated disturbances in the frequency range 30 MHz to 1 000 MHz (Annex B (normative) of EN 55014-1:2006 + A1:2009 + A2:2011, or Table 11 of EN 55011:2009 + A1:2010).
- 4) Harmonic current emissions, according to EN 61000-3-2.

To assist in achieving the maximum consistency of results between different testing laboratories and to simplify reporting procedures, products should be tested to the full and exact testing procedures of the appropriate parts of the relevant harmonised standards.



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 a forty-nine (49) products were selected and evaluated, as follows

Table 1: Number and origin of products		
Country of origin	Number of evaluated induction cooking appliances	Level of compliance of assessed administrative and technical requirements during the campaign: number (%)
China	22	9 (41 %)
EU / Switzerland, Turkey	18	11 (61 %)
Unknown	9	5 (56 %)
All origins	49	22 (48 %)

Conclusion: induction cooking appliances were made mainly in EU (37 %) and China (45 %). The level of overall compliance of products that were of European origin was higher.

2. Administrative compliance

The EUT were assessed for the presence and format of CE marking, the availability and compliance of the DoC, and technical documentation.

Table 2: Compliance with administrative requirements		
Number checked	Number compliant	Compliant (%)
49	35	71

2.1 CE marking

All assessed EUT were CE marked, from them one did not fulfil the layout requirements, and one did not fulfil CE mark height requirement.

Table 3: Compliance with CE marking requirements				
Number assessed	Not fulfil CE mark requirements	Missing CE mark	Number of compliant CE mark	Overall CE marking compliance (%)
49	2	0	47	96



2.2 EC Declarations of Conformity (DoC)

MSA assessed 46 EUT against the DoC requirements. From 49 requested DoC 47 were made available. From those 47 available, 42 DoC were found compliant.

All DoC were issued in EU (or in Switzerland, Turkey).

Table 4: Compliance with DoC requirements				
Number of EUT assessed	DoC available	DoC available (%)	DoC compliant	Overall DoC compliance (%)
49	47	96	42	89

Table 5: Compliance rate of the DoC requirements	
Requirements for DoC	Compliance rate for 47 DoC (%)
Reference to EMCD	98
Identification of the apparatus	100
Name and address of the manufacturer	100
Dated reference to the specifications	94
Date of declaration	100
Identity of the person empowered to bind the manufacturer	98
Signature of the person empowered to bind the manufacturer	100

2.3 Technical documentation (TD)

MSA requested TD for 31 of the 49 EUT, however 28 were supplied. Of those 21 were found to be compliant.

Table 6: Compliance with TD requirements				
Number assessed	TD available	TD available (%)	TD compliant	Overall TD compliance (%)
31	28	90	21	75



3. Compliance with harmonised standards

3.1 Emissions requirements

The measured result was compared directly with the limit in the harmonised standard without taking into account the measurement uncertainty. A failure was recorded if any emission exceeded a certain limit when measured with the appropriate detector.

48 EUT were assessed for the emissions of:

- Terminal disturbance voltages in the frequency range 9 kHz to 30 MHz;
- Radiated disturbances (magnetic field strength) in the frequency range 9 kHz to 30 MHz;
- Radiated disturbances in the frequency range 30 MHz to 1 000 MHz;
- Harmonic Current Emissions.

The technical compliance rate of the products tested for emissions was as follows:

Table 7: Compliance with the emissions requirements		
Number tested	Number compliant	% compliant
48	33	69

3.2 Immunity requirements

Immunity tests were performed on voluntary basis. 10 EUT were checked against immunity requirements, and one of them was found non-compliant (the same EUT was found non-compliant also to the emissions requirements).

4. Other evaluations

DoC compliance vs. compliance with emissions requirements

EUT with a correct DoC had a similar rate of technical compliance than those with not correct DoC.

Table 8: DoC compliance vs. compliance with emissions requirements			
DoC	Number of DoC	Number of emissions compliant products	Emissions compliant products (%)
Not available	2	2	100
Available-not correct	5	3*	60
Available- correct	42	28	67

* Compliance with harmonised standards for one product not checked.

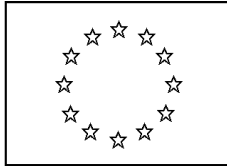


5. Overview of compliance

Table 9 summarises the overall compliance of EUT in terms of emissions against harmonised standards, overall administrative, CE marking and Declaration of Conformity requirements.

Table 9: Overview of compliance					
Number assessed	Overall compliance (%)	Emissions * (%)	Administrative (assessed formal requirements)		
			Overall adm. (%)	CE Marking (%)	DoC (%)
49	51	69	71	96	89

* Note: technical assessment was made on 48 EUT.



D. CONCLUSIONS AND RECOMMENDATIONS

1. Conclusions

- Induction cooking appliances were made mainly in EU (37 %) and China (45 %). The level of overall compliance of products that were of European origin was higher (61% of compliant product against 41%).
- Approximately two-thirds (69 %) of the EUT met the disturbance emissions compliance tests.
- Approximately a two-thirds (71 %) of the EUT met the administrative requirements (as assessed).
- All assessed EUT were CE marked (two EUT were incorrectly formatted).
- 89 % of the DoC provided were correct. This represents quite high percentage of correct DoC.
- About half (51 %) of the EUT were assessed as overall compliant. This is the best percentage of the overall compliance, comparing it with overall compliance findings at the previous EMC market surveillance campaigns 1st to 7th.
- The EUT represented a large sample of the products available on the market and it is clear that much remains to be done by manufacturers in terms of compliance.
- The impact assessment for the 8th EMC market surveillance campaign has proven its justification.
- The use of ICSMS for sampling EUT was very helpful.
- Some MSA had difficulties to fill in the EMC DIF. The correct completion of the EMC DIF remains a target for alignment of cooperation between MSA.
- The resource in conducting this type of campaign is significant. Activities including preparation (eg. drafting its Code of practice), coordination, tests and analysis of the results and the drafting of the report are carried out by EMC ADCO members supplemental to their national activities.

2. Recommendations

It is recommended that:

- The results of the campaign should be publicised widely throughout Europe and the other countries where the products originate. Publicity should target all economic operators in the area of induction cooking industry.
- MSA should take the results of this campaign into consideration when making their multi annual plan as stated in the Regulation (EC) 765/2008.
- The results of the optional measurements (study) of this campaign should be forwarded to the European Standardisation bodies in order to take into account in the development of the future standards for the induction cooking appliances.
- MSA who did not participate should be encouraged to join in future campaigns. Regulation (EC) 765/2008 promotes in article 25 this type of cooperation and actions between MSA.
- A similar campaign should be considered on the same basis after a certain period to assess the effect on the market.
- MSA shall increase the use ICSMS in the future campaigns for sampling and exchange of information.