Joint Action 2015 GPSD

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Final Technical Report, Power Tools 2, Handheld electrical circular saws

Covering the period 20 April 2016 - 1 June 2018

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PROSAFE
Joint Actions
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List of Abbreviations

AdCo/ADCO	Administrative Cooperation Group of market surveillance authorities
ANEC	The European consumer voice in Standardisation
CE	Conformité Européenne
CHAFEA	The Consumers, Health, Agriculture and Food Executive Agency
DIY	Do It Yourself
EPTA	The European Power Tool Association
EU	The European Union
EuroSafe	European Association for Injury Protection and Safety Promotion
FTP	File Transfer Protocol
ftp	fail to pass
GPSD	The General Product Safety Directive 2001/95/EU
ISO	International Organization for Standardization
ICSMS	The internet-supported information and communication system for the pan-European market surveillance.
JA2015	Joint Action 2015 (Joint Market Surveillance Action 2015, GA no. 705038, coordinated by PROSAFE
MS	Member State
MSA	Market Surveillance Authority
n.a.	not applicable
PROSAFE	The Product Safety Forum of Europe
PRC	The People's Republic of China
RAG	Risk Assessment Guidelines
RAPEX	The Rapid Alert System for Dangerous Non-food Products
SIQ	The Slovenian Institute for Quality and Metrology
TARIC	TARif Intégré Communautaire - Integrated Tariff of the European Communities
TAXUD	Directorate-General "Taxation and Customs Union"
WP	Work Package

Executive Summary

This report presents the activities undertaken and the results achieved by the Product Activity "Power Tools 2 - Handheld Electrical circular Saws" that formed part of the Joint Market Surveillance Action on GPSD Products – JA2015. The Joint Action was co-financed by the European Union (EU) under Grant Agreement No. 705038.

The ten participating Market Surveillance Authorities (MSAs) involved in this Activity were from Belgium, Bulgaria, the Czech Republic, France, Germany (Baden Württemberg), Germany (Bavaria), Latvia, Luxembourg, Malta and Portugal. Turkey participated as a collaborating partner outside the financial scheme. PROSAFE coordinated the project.

The Product Activity aimed at:

- Ensuring that handheld electrical circular saws on the EU market were safe and carried the appropriate marking, warnings and instructions;
- Developing best practices and exchanging experience by carrying out market surveillance activities on handheld electrical circular saws offered for rent to consumers in "Do It Yourself" (DIY) markets;
- Developing risk assessment templates for handheld electrical circular saws;
- Identifying non-compliant and unsafe handheld electrical circular saws on the marketplace and taking corrective action against them;
- Gaining experiences with improvement of future product activities and follow-up.

Within the activity, **100** saws were sampled at different economic operators in the ten participating countries, **20** of them were sampled from on-line traders. The samples, potentially dangerous products, were sent for testing and examination at an accredited laboratory, which was selected through a public tendering procedure.

Criteria for the testing and examination programme were defined by the clauses in two harmonised standards, a general one on safety for all power tools and a specific one regarding the safety of handheld electrical circular saws.

Testing results showed that half of the saws passed without any non-conformity being revealed. Half of the rest (i.e. one quarter of the saws) had a few non-conformities mostly based on one or two clauses in the standard. Lacking instruction and safety warnings appeared to be the most common one. A number of saws had other non-conformities like mechanical hazards, inadequate mechanical strength, overheating and endurance. The risks presented by these non-conformities were assessed and the result showed that a couple of products presented serious risks (risk of electrocution due to broken enclosures), some presented high risks (due to deficient protection guards), some presented medium risks due to overheating during normal operation, and some presented low risks due to lacking markings, instructions or safety warnings.

The stakeholders were informed, the concerned economic operators were visited, and appropriate enforcement measures have been taken. Comments to the harmonised standards have been sent to the relevant Technical Committee and ADCO Machinery.

The Joint Actions provide added value in many different ways. With so many Member States (MS) working together, the product-specific surveillance activities reflect a truly pan-European survey of the marketplace. The Commission's generous funding ensures that the number of samples tested greatly exceeds the number that individual MS could afford. Moreover, the Joint Actions deliver economies of scale driving down unit test costs, thus helping to stretch the limited resources even further. The product activities within the Joint Actions also provide a platform for sharing expertise and the spread of best practice. Member States also discuss their risk assessments promoting a more consistent approach. Overall, the Joint Actions make a significant contribution to achieving a high level of consumer protection and a level playing field for all economic operators throughout Europe.

Caution!

The results are based on products that were sampled from the markets in the participating countries by experienced market surveillance inspectors that were looking for non-compliant and potentially unsafe products. As in any routine market surveillance activity, the results represent the targeted efforts that authorities undertake to identify unsafe products. They do not give a statistically valid picture of the market situation. The samples were tested at accredited laboratories. The test focused on those safety requirements that have the largest impact on consumer safety.

1 Introduction

The Joint Action 2015 is an umbrella project co-funded by the European Union under the Grant Agreement No. 705038-JA2015-GSPD in which the full project description can be found.

The project participants are Market Surveillance Authorities from the European Member States that cooperate under PROSAFE's coordination. One of the Work Packages (WP) of this Action (WP11) focuses on the Power Tools 2 Activity: Handheld electrical circular saws.

This is the final technical report of the activity and contains the following chapters:

Chapter 1 of the report sets out the basic facts about the Power Tools 2 activity - participants, key staff, main objectives and sample volume. The main phases and the timeline of the activity are described, new accident data is introduced and the priority setting within Power Tools is summarised.

Chapter 2 of the report explains the setting-up of the activity, including selection of a laboratory for testing and examination of the handheld electrical circular saw samples and indications how and where the sampling was carried out by the MSAs participating in the activity.

Chapter 3 summarises the set-up of test criteria and a test programme to carry out by the selected laboratory. The results of testing and examinations are then presented and analysed. Market surveillance officials executed additional checks on the declarations of conformity.

Chapter 4 of the report presents the way the participating authorities assessed the risks associated with non-conformities found and describes the follow-up measures taken with respect to the economic operators responsible for placing those non-compliant products on the market. RAPEX notifications and ICSMS registration passes.

Chapter 5 of the report mentions the several liaisons maintained during the activity and appointments made.

Chapter 6 sets out observations made on evaluation of the tendering, sampling procedures, testing and lessons learned in the activity phases. The importance of involving stakeholders is stressed and a follow-up suggestion is done.

1.1 Participating Authorities

The activity was carried out by ten MSAs from nine Member States — see Table 1. Turkey participated as an observer. The applicant body that also took an overall responsibility for the Joint Action was PROSAFE.

Country	Acronym	Market surveillance authority
Belgium	FPS ECONOMY	FEDERALE OVERHEIDSDIENST ECONOMIE, KMO, MIDDENSTAND EN ENERGIE
Bulgaria	SAMTS	STATE AGENCY FOR METROLOGICAL AND TECHNICAL SURVEILLANCE
Czech Republic	CTI	CZECH TRADE INSPECTION
France	DGCCRF	MINISTERE DE L"ECONOMIE, DES FINANCES ET DE L"INDUSTRIE
Germany (Baden Württemberg)	MEBW	MINISTERIUM FUR UMWELT, KLIMA UND ENERGIEWIRTSCHAFT
Germany (Bavaria)	ROGA	REGIERUNG VON OBERBAYERN - GEWERBEAUFSICHTSAMT
Latvia	CRPC	CONSUMER RIGHTS PROTECTION CENTRE
Luxembourg	ILNAS	INSTITUTE LUXENBOURGEOIS DE LA NORMALISATION, DE L"ACCREDITION, DE LA SECURITE ET QUALITE DES PRODUITS ET SERVICES
Malta	MCCAA	MALTA COMPETITION AND CONSUMER AFFAIRS AUTHORITY
Portugal	ASAE	AUTORIDADE SEGURANCA ALIMENTARE ECONOMICA

Table 1 - The 10 participating Market Surveillance Authorities from 9 Member States

1.2 Overview of Key Staff in the Activity

Initially, the assigned Activity Leader was Sophie Fabre from France (DGCCRF), who was then replaced by Charles Tanti from Malta (MCCAA) during the final stage of the project.

The Activity Coordinator was the PROSAFE Consultant, Berend Kamerling.

1.3 Main Objectives

The main objectives of this activity were:

- To ensure that handheld electrical circular saws on the EU market were safe and carried the appropriate markings, warnings and instructions;
- To develop best practices and exchange experience by carrying out market surveillance activities for handheld electrical circular saws offered for rent to consumers in DIY markets;
- To develop risk assessment templates for handheld electrical circular saws;
- To identify non-compliant and unsafe handheld electrical circular saws on the marketplace and take corrective action against them;
- To gain experiences with improvement of future product activities and follow up.

1.4 The volume of the Activity

The Grant Agreement envisaged the sampling of 100 saws, including 20 samples from online traders and 80 samples from the premises of economic operators.

It was possible to test all 100 samples within the given test budget. A laboratory was selected for the testing. The testing included the examination of markings, safety warnings and the instructions in the manual. The check of the marking and the examination of the declaration of conformity were done by the market surveillance officials during the sampling phase.

1.5 The phases of the Activity

The core activities fell in three phases:

PHASE 1 – Preparation stage, starting in April 2016 (M1) – (*around 5 months, M1-M6)*: Preparations involved an action for finalising the detailed activity plan, preparing guidance to the participating authorities in the form of checklists, sampling schemes and other related guidance. Additionally, this phase involved the setup of the test criteria and the opening of a call for tenders for test laboratories.

PHASE 2 – Implementation stage - *(around 10 months, M6-M16)*: Adjudication of the laboratory contract: This phase involved the actual inspections, sampling and testing of the handheld electrical circular saws. Sampling activities were held from late September 2016 to the end of February 2017. Checklists were utilised to help zoom in on circular saws which already showed signs of non-compliances. In total, 100 samples were sent for testing.

PHASE 3 – Final Results & Follow-up - (*around 10 months, M16-M26)*: This phase puts emphasis on the enforcement measures and follow-up action taken by the respective MSAs. Furthermore, it involved the presentation of the project results to stakeholders and participants, discussions on the non-compliances found, a risk assessment and the actual implementation statistics, and the drafting of this Final Technical Report.

Besides the six main project meetings, PROSAFE organised periodic workshops and seminars as part of the activities involving all the Work Packages within JA2015. The Activity Leader and/or Activity Coordinator took part in these workshops in order to update the rest of the participants and also serve as means of sharing best practices between various other product-specific activities comprised within JA2015, including a Risk Assessment Seminar organised by PROSAFE.

1.6 Timeline for the Activity

Month	M*	Main activities	Meetings	Deliverable
Apr 2016	M1	Introduction and presentation of Joint Action 2015	Launch event	
May 2016				
Jun 2016	M3	Kick-off activities: Undertake a market analysis to uncover the nature of the market and the risks posed by the product group. The analysis includes factors, such as number of actors on the marketplace, their sizes and maturity, the relative share of import and manufacturing, number of products on the market, annual sales, on-line share, injury statistics, research data, results from previous activities and knowledge of emerging hazards. Establish an outline plan of activities.	Kick-off with stake-holders/ planning meeting	D11.2
Jul 2016				
Aug 2016		Document: Planning of activities (Gantt chart)		D11.1
Sep 2016	M6	Detailed approach to market surveillance activities, develop tools for sampling: • Guideline to Member States on how to exchange sampling information, sampling scheme. Memo to Member States on which products to sample how and where, on-line target set; • Checklist/guideline capturing the best practices for doing sampling for market surveillance.	1st project meeting	D11.2
Oct 2016				
Nov 2016		Document: Tools for market surveillance		D11.3
Dec 2016	M9	Discuss sampling progress, inventory of suitable laboratories, ideas on risk assessment and realistic scenarios, development of test criteria for most effective MS activities and follow up. Call for tender sent to a number of known accredited laboratories and published on PROSAFE's website.	2nd project meeting	D11.2
Jan 2017				
Feb 2017	M11	Selection of a laboratory. Contract agreed with the selected laboratory. Discuss laboratory issues and sample supply procedure to a laboratory of choice.	3rd project meeting	D11.2
Mar 2017				
Apr 2017		Document: Organisation of laboratory testing		D11.4
May 2017		Sample testing by selected laboratory during the months May, June, July, and August.		
Jun 2017				
Jul 2017	M16	Visit test laboratory for demonstration of tests and for receiving and discussing available test results. Analyse non-conformities. Exchange of views from test reports. Development of risk assessments based on identified non-conformities. Discussion of follow-up activities to economic operators thereafter.	4th project meeting day One 4th project meeting day two	D11.2
Aug 2017				
Sept 2017				
Oct 2017				
Nov 2017				
Dec 2017	M21	Presentation of results to stakeholders (open session). Exchange of info on follow-up activities to date and discuss dissemination of results in MS's (closed session).	5th-final project meeting	D11.2
Jan 2018				

Feb 2018		Document: Statistics on market surveillance activities		D11.5
Mar 2018				
Apr 2018	M25	Presentation of Activity results at a conference-workshop to MSAs participating in JA2015 and stakeholders.	JA2015-Final Conference	
May 2018	M26	Final reporting Activity Power Tools 2		D11.6

Legend: Mxx* = Activity month no. connected to the anterior calendar month
D11.x = Deliverable number from Work package WP11

Table 2: Timeline for the Power Tools 2 Activity

1.7 Hazards and priority setting power tools

An accident analysis based on French Hospital Emergency Departments data for circular saws for the period 2012-2014 presented the following results:

- 481 accidents with circular saws out of 335,566 domestic accidents (1,4 per mille);
- The number of accidents remains rather stable number over the three years (166, 165 and 150 accidents per year respectively);
- 41% of the patients returned home after Emergency Hospital treatment, 34% had to go to their doctor afterwards for further treatment, 25% needed hospitalisation;
- Accidents caused by a circular saw seemed to involve rather substantial medical care;
- 85% of the accidents were related to DIY activities, and 15% to other domestic activities;
- The accidents were distributed across the days of the week with 19% occurring on Saturdays, 16% on Sundays, and the remaining 65% spread over the five workdays;
- Most of the victims had an age between 50 and 65 years;
- The inflicted body parts can be seen in Figure 2.

The French accident data showed, just like the Dutch and English accident data below, that the use of electrical circular saws is an inherently risky activity. Figure 2 clearly shows that accidents involving the use of circular saws may result in lacerations, cuts and severe injuries, particularly on fingers, hands, thighs, and eyes.

Unfortunately, the data does not allow distinguishing between bench circular saws and handheld circular saws. However, it is likely that the share of finger accidents for bench circular saws is much higher than for handheld circular saw due to the different positioning of the hands while using the saw.

The dangerous zone of a saw is around the saw edge. A two-hand control as required for handheld electrical circular saws means that the user has both hands above the baseplate, while the saw edge is below the baseplate. This is not the case for a bench circular saw, where both the user's hands and the saw edge are above the baseplate. Or in other words, for the bench circular saw, "wood and danger" are in the same area as the user's hands, whereas "wood and danger" for the handheld circular saw are under the baseplate while the user's hands are on the opposite side.

Reducing the number of accidents involving circular saws depends to a large extent on measures that the user has to take such as adhering to the safety warnings and instructions from the instruction manual and wearing personal protective equipment like safety goggles (see Figure 1). Especially inexperienced DIY consumers must read warnings and instructions carefully, because they lack professional skills and they do not get instruction and supervision like professional users would do as part of their employer's obligation.

Figure 1: EN ISO 7010 symbols, which must be printed on the tool mark plate

The applicable EU legislation [3] requires that the manufacturer reduces hazards by applying appropriate design choices and construction measures in line with the requirements in the harmonised European standards. For handheld electrical circular saws, these standards are EN 60745-1:2009 [4] and EN 60745-2-5:2010 [5].

The background document [6] explains the reasons why it was decided to focus on electrical handheld circular saws:

- Accident data are available (from the Dutch and English Hospital Emergency Departments);
- The high number of RAPEX notifications over the last five years;
- Experiences from previous activities undertaken by participating MSAs;
- Harmonised standards are available for this product;
- Professional power tools migrate into the consumer market.

The priority setting exercise for power tools that was undertaken before Joint Action 2014 suggested the following ranking of power tools:

1. Electric handheld tools;
2. Electric transportable tools;
3. Electric garden tools.

The top-3 tools within the category electric handheld tools were:

1. Angle grinders;
2. Circular saws;
3. Impact drills.

Consequently, it was decided to target handheld electric angle grinders in Joint Action 2014 (Power Tools 1), handheld electrical circular saws in Joint Action 2015 (Power Tools 2) and impact drills in Joint Action 2016 (Power Tools 3).

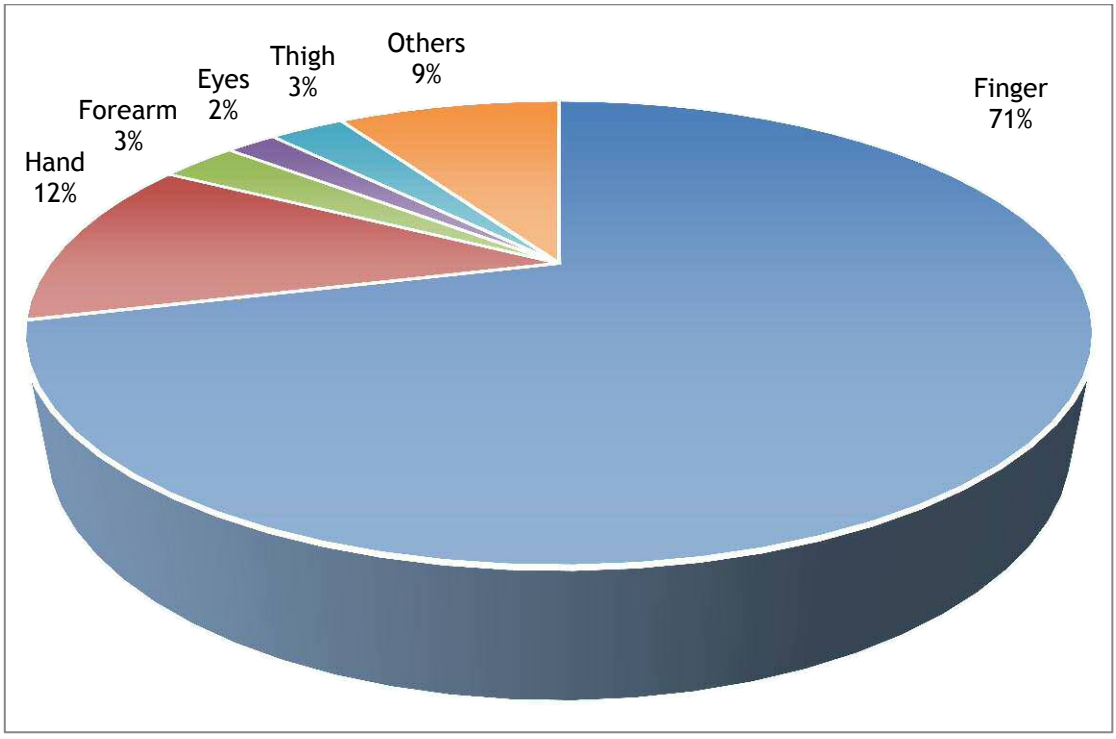

Figure 2: Inflicted body part in accidents with circular saw (based on 481 accidents in 2012-2014)

2 Setting up the Product Activity

2.1 Tendering Process for Test Laboratories

The call for tender was published on the PROSAFE website in the first week of October 2016.

The working group had prepared a list of laboratories with the capability and accreditation to test electrical handheld circular saws. The PROSAFE database of known laboratories was used for this purpose. The laboratories on this list were also invited by e-mail to react to the call for tender.

The most important requirements set out in the call for tender were *(i)* accreditation, *(ii)* experience with testing, and *(iii)* examination of power tools and ability to report the results in a clear way. The candidate laboratories were invited to propose a compliance test and examination programme for market surveillance purpose and to suggest the minimum number of samples required in such a programme.

The deadline for submitting of quotations was 1 December 2016. Nine responses were received to the call for tender. Out of these, one laboratory was located outside the EU and another laboratory decided to withdraw. Thus, seven valid quotations were analysed.

Six quotations were above the allocated budget and only one within. This laboratory had submitted a bid with a good value for money, and it was accredited for the specified standard series EN 60745 [4] and [5]. Moreover, the laboratory, the "Slovenian Institute for Quality and Metrology (SIQ)" fulfilled the requirements for accreditation, skilled staff and relevant experience. Moreover, the laboratory was able to do all the testing using only one single sample per product by applying a smart test sequence and skipping some less relevant tests. Finally, the Activity Coordinator and most of the participants had good experiences with the laboratory from previous Joint Actions. Therefore, the Project Group decided to accept this offer at the third project meeting and PROSAFE was able to put SIQ under contract.

2.2 Selecting Products, Sampling

2.2.1 Sampling decisions

The ten participants decided to sample 100 electric handheld circular saws as foreseen in the Grant Agreement and to split them evenly among the participating authorities noting that the small countries, Malta and Luxembourg, would take one sample less (i.e. 9) and the bigger countries, France and Germany (Baden Württemberg), would take one extra sample (i.e. 11).

At the Kick-off meeting, the participants decided to focus the sampling on models that were available in the common DIY consumer market without excluding the professional shops. This decision was supported by stakeholders, such as the European Power Tool Association (EPTA) and ANEC. The group also decided to try to source at least 10% of the samples from on-line trades. This approach reflects concerns about the safety of these products as they have migrated from the professional market to the less experienced consumer-DIY market.

To prevent duplicate sampling of brands, models or types, a simple system was applied and appeared to be successful: the participants emailed some key parameters for each sample to the Activity Coordinator, who collected them and maintained the list. If a participant was about to sample a product that had already been sampled, the participant was asked to select another sample. This was only necessary in a few cases and caused no problems.

2.2.2 Sample price classes

Figure 3 shows the distribution of the samples over different price classes in intervals of 40 Euro. The two cheapest price classes appear to be the biggest with 36% and 29% share. Together they cover 2/3 of the samples. However, the more expensive classes, ranging up till more than 220 euro, are also represented. It is interesting to note the big number of less known brands available in the market (e.g. Figure 4).

It is important to note that the price for a tool can vary from Member State to Member State.

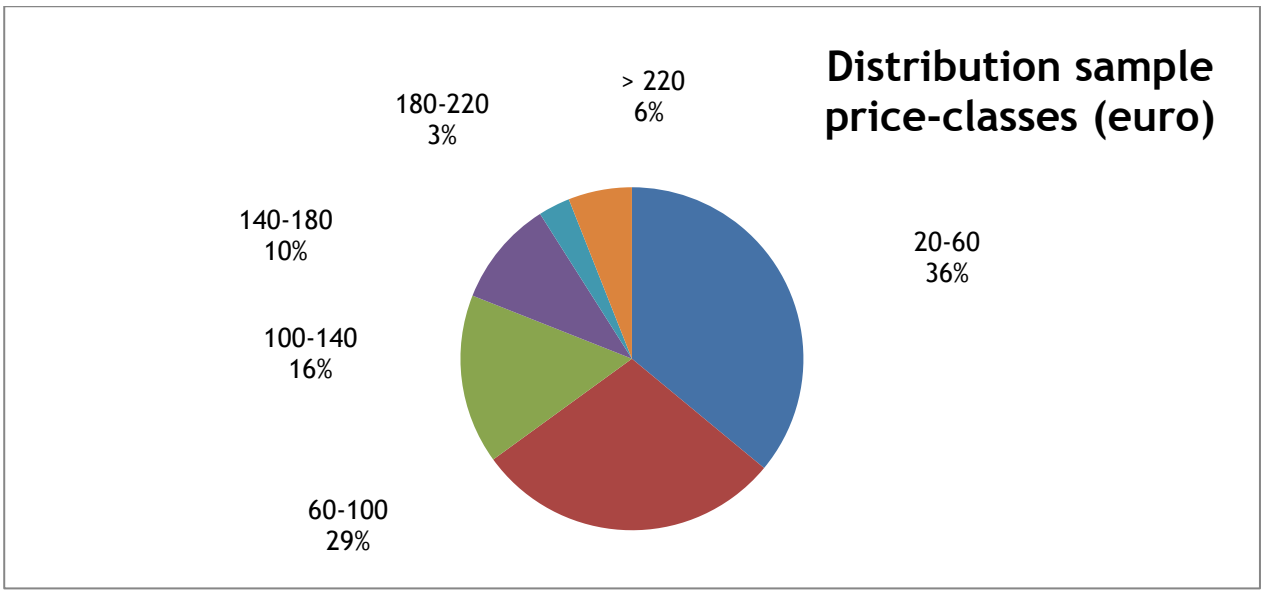

Figure 3: Distribution of the samples over different price classes.

It must be noted that sampling in a market surveillance context generally never gives a representative picture of the EU market. It rather aims at detecting dangerous and/or unsafe products.

Figure 4: Example of a handheld electrical circular saw in the cheaper price classes with accessories.

2.2.3 Sample gathering

The Activity Coordinator drafted a checklist for the samples to compile the main characteristics of all samples in a harmonised way. It included a photo and instructions.

Figure 5 shows how the 100 samples were divided over different categories of economic operators. Most of the samples (66 %) came from retailers. Out of these, 53% were acquired from shops, whereas 13% were purchased from online traders. Wholesalers supplied 23% of the samples, 16% of them were collected in stores and 7% ordered from online traders. The remaining 11% were sourced from manufacturers.

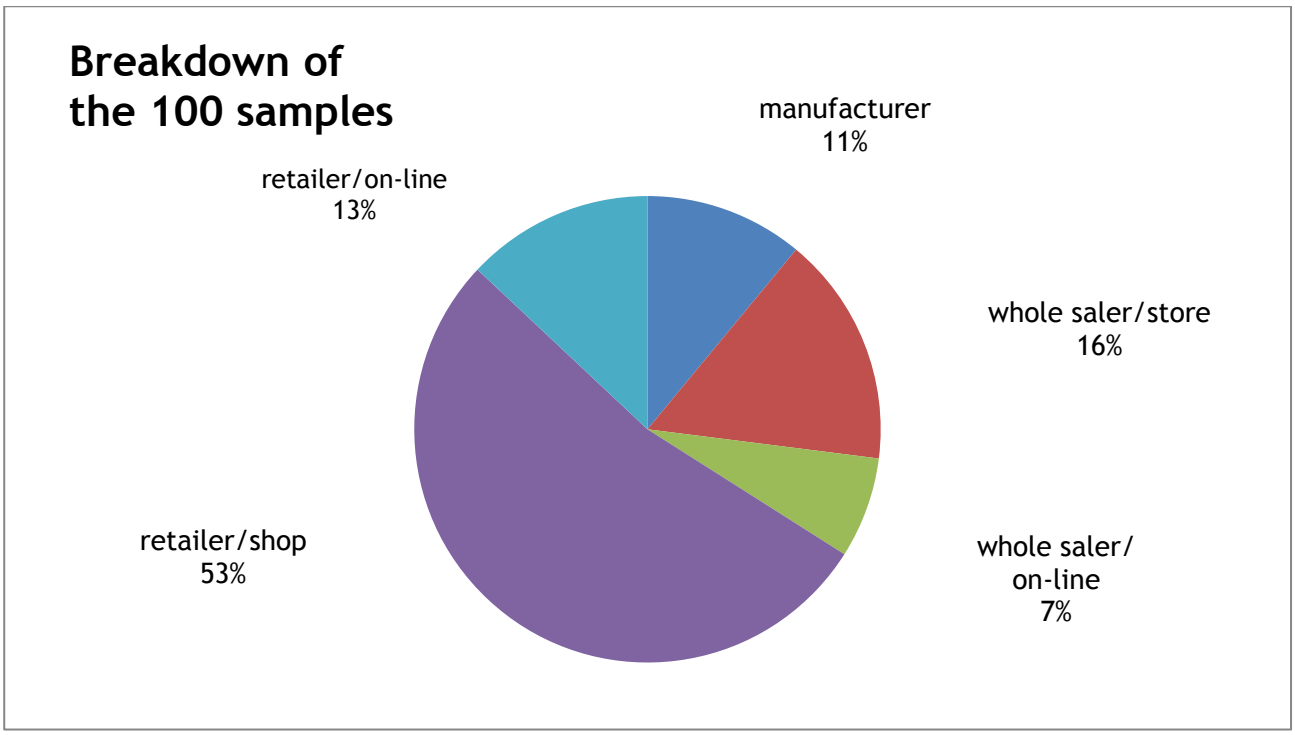

Figure 5: The source of the 100 samples

Five of the participating MSAs, namely Germany (Bavaria), Germany (Baden Württemberg), Bulgaria, the Czech Republic and Latvia, managed to acquire 20 samples in total from online traders. Moreover, all the participating MSAs undertook some online "desktop research" to support the selection process among the many different brands on the market, even though the sampling subsequently was done at the premises of the economic operator.

With regard to the availability of the products, it was found that the online traders in general offer the same brands as can be found at the physical shops.

In total, 11% of the samples came directly from European manufacturers. Some of these designed and produced the saws themselves, but many of them have their products manufactured in the Far East under their own brand names. This can easily be detected from the marking plate on the tool that often displays "PRC (The People Republic of China)". The share of samples that were marked with "made in PRC" was determined to be 45%.

3 Testing

3.1 The Test Program

The purpose of testing in a market surveillance context is to check if the product fails to meet the relevant regulations, not to certify the product. The products tested, handheld electrical circular saws, are machinery as defined in the Machinery Directive 2006/42/EC [3]. One implication of this EU directive is that the tool has to fulfil the essential health and safety requirements described in Annex I of the Directive.

A manufacturer can demonstrate that he fulfils these requirements by complying with the clauses of the harmonised standard(s) developed for that product or product group insofar as they cover the requirements of Annex I. A product is non-compliant when it fails to meet these clauses.

The relevant standards for these types of products are often divided in a general part (Part 1) and a specific part (Part 2). Part 1 describes requirements and tests that apply in general to a whole group of power tools. Today there are 23 different Part 2's for this family of standards, each of them describing

additional requirements and tests specific for the particular type of tool. For the handheld electrical circular saw the applicable standards are EN IEC 60745-1:2009 [4] and EN IEC 60745-2-5:2010 [5].

The Slovenian Institute for Quality and Metrology (SIQ) was selected and contracted for the testing and examination of the 100 samples according to these two standards.

The contract describes the following tasks:

- Examination of marking, warnings and instructions in accordance with the requirements in the standards including the description of omitted items;
- Testing of the samples according to the aforementioned standards. For budgetary reasons some of the less relevant chapters were excluded. Table 3 and Table 4 gives an overview of the clauses that were included in the test program;
- Reporting the test results for each sample with a description and photos of the identified non-conformities;
- Providing an overall sheet with an overview of the samples and the identified non-conformities and other test results.

Clause	Description	Clause	Description
6	Environmental requirements	20	Mechanical strength
8	Marking and instructions	21	Construction
9	Protection against access to live parts	22	Internal wiring
10	Starting	23	Components
11	Input and current	24	Supply connection and external flexible cables and cords
12	Heating	25	Terminals for external conductors
13	Leakage current	26	Provision for earthing
14	Moisture resistance	27	Screws and connections
15	Electric strength	28	Creepage, clearances distances and distances through insulation
16	Overload protection of transformers and associated	29	Resistance to heat, fire and tracking
17	Endurance	30	Resistance to rusting
18	Abnormal operation	31	Radiation, toxicity and similar hazards
19	Mechanical hazards		

Table 3: The EN IEC 60745 chapters with test criteria both from part 1 and part 2-5

Clause	Description and justification for excluding from testing
6	Noise and vibration: Noise and vibrations are phenomena that may have health effects in long-term exposure scenarios that are less relevant for DIY-consumers. Moreover, information about levels for noise and vibration must be given under clause 8 "Marking and instructions" with an instruction to use personal protective equipment.
17	Endurance: "Extended use" in the meaning of the standard is never reached by common DIY consumers, so the 50.000 test cycles prescribed by the standard were reduced to 5.000 cycles to reflect a more normal DIY use. Furthermore, dust blockage can be expected in heavy professional use in various materials, not in sparse DIY-use, mainly in wood.
30	Rusting (due to outdoor exposure) has no strong relation to consumer safety.
31	Radiation, toxicity and similar hazards are not applicable

Table 4: The clauses from EN IEC 60745 that were excluded from or limited in the test program

The reasoning behind the exclusion or limiting of certain clauses is that MSAs are not interested in acquiring the tests that are necessary for a certificate. Instead, the authorities are interested in detecting safety-critical non-conformities that are relevant for DIY consumer safety. Moreover, the available test

budget only covered the most essential standard tests and only those tests requiring one sample—for example, the dust blockage test in various materials requires more samples.

When the tests were concluded, the laboratory would prepare a test report for each sample. This report included the test results and an indication whether the saw passed or failed. It also indicated which ones of the (sub-)clauses of the standard that were not met and provided descriptions of the non-conformities. Additionally, photos of all non-conformities were provided together with comments and other relevant information. All participants got access to an FTP (File Transfer Protocol) account of the laboratory's server so they could follow the progress of the tests during the whole period and download all test reports.

Finally, a visit to the laboratory at the end of July gave the participants the opportunity to see several test demonstrations and to discuss the results with the experts at the laboratory.

The last tests were finalised at the end of August 2017.

3.2 Analysis examinations and tests

The joint test and examination programme identified non-conformities in 65 of the 100 sampled saws. This figure is broken down on the relevant clauses in the standard in Figure 6. The figure shows that errors in "marking and instruction" account for 62% of the non-conformities thereby being the most common cause.

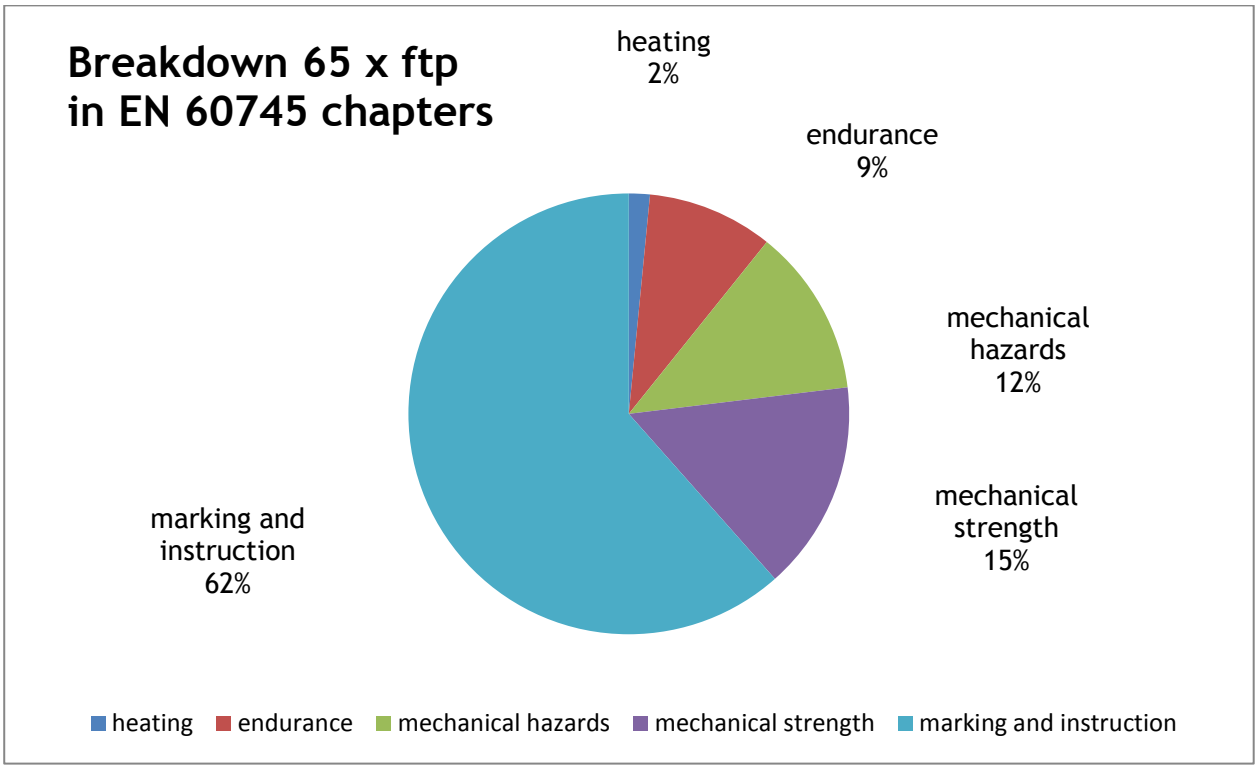

Figure 6: Overview of non-compliances identified in the 100 samples regarding safety requirements from EN 60745.

Figure 7 below shows the number of failed clauses per sample.

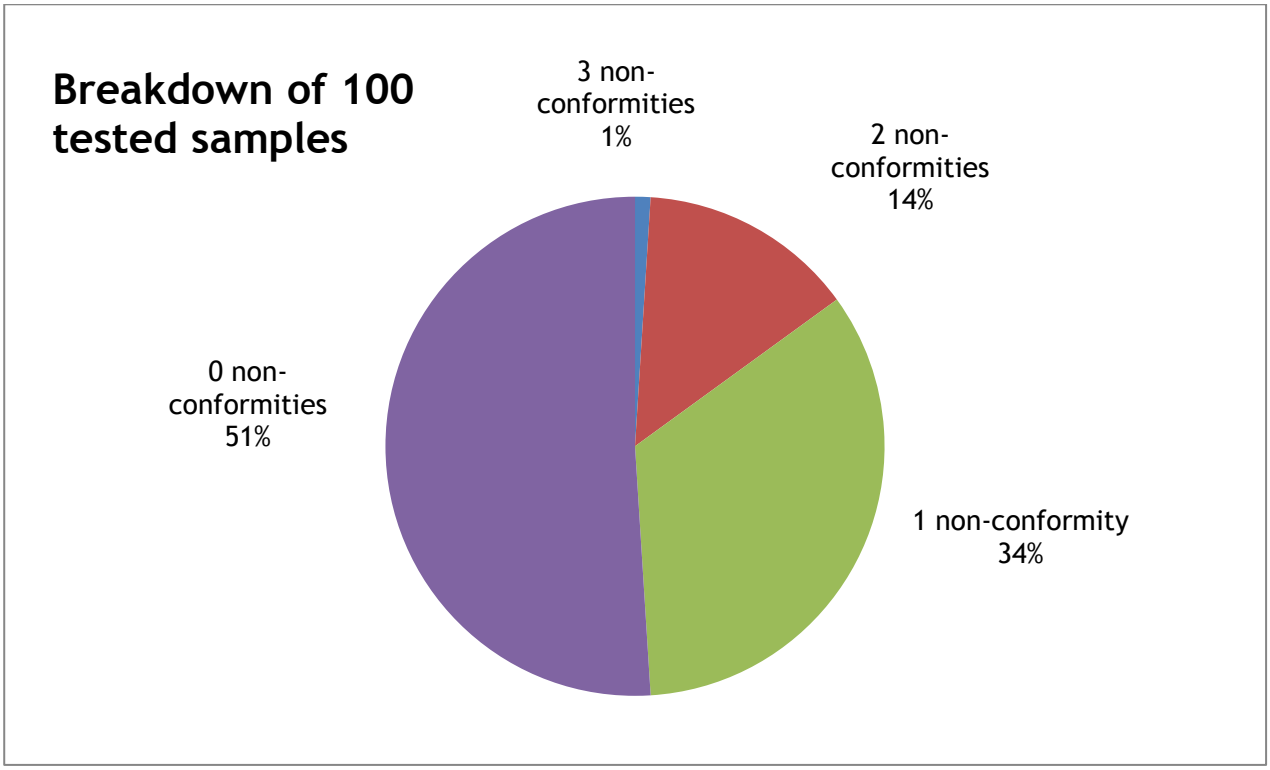

Figure 7: The share of saws that passed all tests, failed to comply with one clause, two clauses and three clauses.

The results revealed that 51 of the 100 samples (51%) passed all the selected tests meaning that no non-conformities were found. The remaining 49 samples failed to meet the requirements in one, two or three clauses in the standard (only one saw failed on three clauses). These 49 samples will be referred to as non-compliant samples in the following.

Figure 8 below presents the same overview in a histogram - (ftp = "fail to pass").

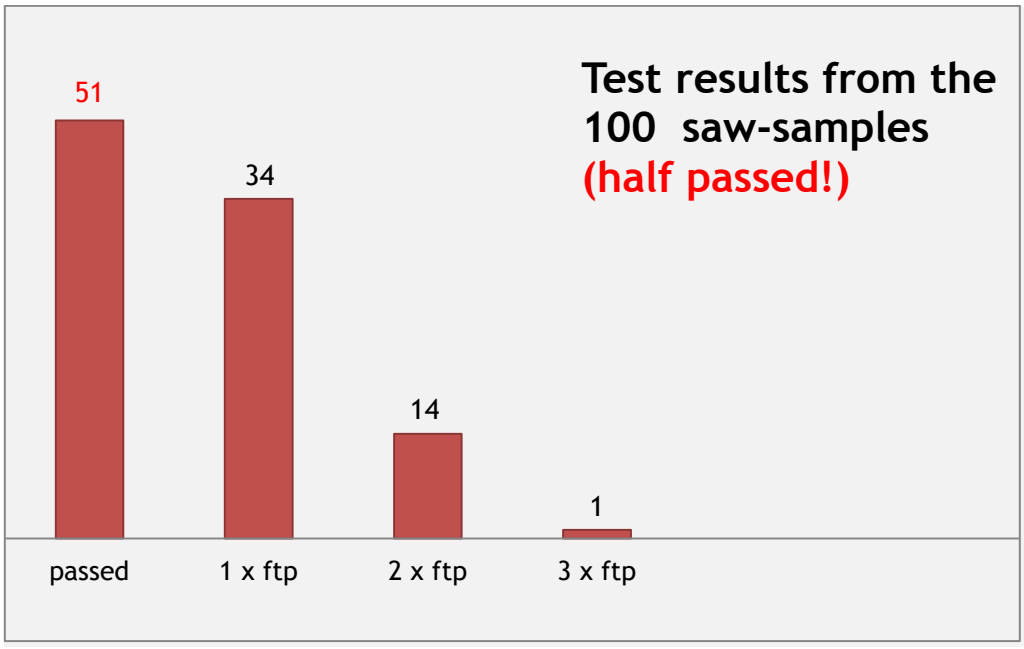

Figure 8: The number of samples that failed in one, two or three clauses in the standard.

Table 5 below provides an overview of the clauses of the standard that the saws failed to meet. The table also shows the number of samples that did not pass the clauses (last column).

Furthermore, Table 5 shows the distinction between non-conformities related to administrative requirements (i.e. markings, warnings and instructions) and technical requirements. Non-conformities linked to administrative requirements appear to be the most common ones with errors in "markings on the tool plate" (19 samples) and "instructions" (21 samples) on top. All in all, this type of non-conformity accounts for 62% of the identified non-conformities.

Failure to meet the technical requirements accounts for 25 cases. The most frequent non-conformity is failure to meet the "Mechanical strength" requirement in the drop test. Ten of the saws fail on this requirement with various outcomes. The related risk levels will be discussed in Chapter 4.

No.	Clause	Adm./Tech.	Failing items
8.1	Markings (on tool plate)	Adm.	19
8.12	Instructions (+ Safety warnings)	Adm.	21
12	Heating (temperature rise)	Tech.	1
17.2 17.101.1	Endurance	Tech.	6
19.101 19.102 19.104	Mechanical hazards	Tech.	8
20.3	Mechanical strength	Tech.	10
	Total:		**65**

Table 5: Overview of clauses in the standard the products failed to meet.

A product may fail to meet several clauses, as can be seen in Figure 7 and 8. The table 5 also indicates whether a requirement is of administrative or technical nature.

Table 6 shows how the administrative and technical non-conformities are divided over the 49 non-compliant samples. The table shows that 31 out of 49 samples (63%) failed to meet the administrative requirements, and that this type of non-conformities was the only one for 25 of the samples (51%). In total, only 18 samples failed to meet the technical requirements, whereas 6 samples failed to meet administrative and technical requirements.

Non-compliant samples	Admin. requirements	Tech. requirements
25	Yes	No
18	No	Yes
6	Yes	Yes
49		

Table 6 - Number of non-compliant sample that failed to meet the administrative requirements and/or the technical requirements.

It is important to note that regarding the administrative requirements, the related clause in the standard may comprise several missing items or severe errors in the prescribed items from both of the two EN 60745 standards.

The following non-conformities to clause 8.1 "Marking" were found to be the most frequent ones:

- Year of manufacture missing on the marking plate;
- Wrong indication of the sign “read instruction manual”, the sign M002 from the ISO 7010 standard must be used;
- Missing designation of the tool;
- No mentioning of the rated tool input, in watts or rated current, in amperes;
- The rated no-load speed of the tool output spindle missing;
- The blade diameter or the blade diameter range is not indicated on the tool;
- Name and the address of the manufacturer or the responsible agent not indicated.

Regarding clause 8.12 "Instructions", the following errors were often found:

- Poor translation of the instructions;
- Missing, incomplete or erroneous operating instructions;
- Missing safety warnings compared to requirements in EN 60745, Part 1 and 2, in particular:

Part 1 — General requirements:

- Work area safety (3 non-compliant samples);
- Electrical safety (6 non-compliant samples);
- Personal safety (7 non-compliant samples);
- Power tool use and care (4 non-compliant samples).

Part 2 — Particular requirements for circular saws:

- Cutting procedures (8 non-compliant samples);
- Kickback causes (3 non-compliant samples);
- Kickback related safety warnings (7 non-compliant samples);
- Instructions for specific types of circular saws.

Missing warnings and instructions prescribed in EN 60745 Part 2 are considered to be the most critical administrative non-conformities. They are mentioned in full in Annex A.

3.3 Additional Inspections

3.3.1 Declaration of conformity

Besides the test programme undertaken by the laboratory, the market surveillance officials did an inspection of the CE marking and the declaration of conformity for all the samples.

A checklist had been drawn up to support the sampling process. It was primarily intended as a tool to capture various characteristics about the samples and the related economic operators, but it also contained a part with the requirements to the declaration of conformity to be filled in by the market surveillance officials during the sampling process. These requirements are defined in the Machinery Directive 2006/42/EC annex II-1A [3].

The results of this check are presented in Table 7. The two right-most columns indicate the number of samples that do not conform to the particular requirement (“n.a.” stands for "not applicable").

Item no.	Requirement The declaration of conformity shall include …	Missing	Partly missing
1	… business name and full address of the manufacturer and, where appropriate, his authorised representative.	-	4
2	… name and address of the person authorised to compile the technical file, who must be established in the Community.	19	3
3	… description and identification of the machinery, including generic denomination, function, model, type, serial number and commercial name.	3	23
4	… a sentence expressly declaring that the machinery fulfils all the relevant provisions of this Directive and where appropriate, a similar sentence declaring the conformity with other Directives and/or relevant provisions with which the machinery complies. These references must be those of the texts published in the Official Journal of the European Union.	3	6
5	… where appropriate, the name, address and identification number of the notified body which carried out the EC type-examination referred to in Annex IX and the number of the EC type-examination certificate.	n.a	n.a
6	… where appropriate, the name, address and identification number of the notified body which approved the full quality assurance system referred to in Annex X.	n.a	n.a
7	… where appropriate, a reference to the harmonised standards used, as referred to in Article 7(2).	1	-
8	… where appropriate, the reference to other technical standards and specifications used.	n.a	n.a
9	… the place and date of the declaration.	3	4
10	… the identity and signature of the person empowered to draw up the declaration on behalf of the manufacturer or his authorised representative.	2	3

Table 7 - Requirements declaration of conformity and results from sample-document examination

The following observations were made from the examination of the declarations of conformity:

- None of the 100 declarations fully complied with all requirements;
- In 19 declarations the name and address of the person authorised to compile the technical file was missing or was incomplete (item 2);
- In 23 declarations the description and identification of the tool was missing or was incomplete (item 3);
- The relevant standards (EN IEC 60745-1 and -2-5) had been referenced correctly, which suffices to give presumption of conformity with the essential health and safety requirements of the Machinery Directive, Annex I (item 7 and 8).

If item 2, "Name and address of the person authorised to compile the technical file" is missing or is incomplete, this is considered to be the most critical non-compliance because it makes it impossible for the market surveillance authority to access the technical file. If the required information under item 9 and 10 is also missing or incomplete, it becomes impossible to trace the responsible person, which is an important goal for market surveillance. Economic operators are obliged to assist the authorities in the traceability process to complete these various items in the declaration of conformity.

3.3.2 Price class and non-conformities

During the sampling phase, the prices of the samples were noted in the checklist to enable the development of the distribution of samples in price classes (please refer to Chapter 2.2 and Figure 3). Investigations were carried out to try to establish a correlation between price and safety (i.e. number or severity of non-conformities found during testing and examination).

Such a correlation could not be established.

3.4 Results

The conclusions from the test programme and the additional investigations can be summarised as follows:

- 51 of the 100 samples taken from the market passed all the tests and examinations (51%);
- Regarding the 49 non-compliant samples, 48 of them failed to pass one or two clauses from the standard. One sample failed on three clauses;
- 25 of the 49 non-compliant samples (approximately half of the non-compliant samples) showed a substantial number of non-conformities in the administrative clauses (i.e. the clauses on warnings and instructions). In particular, 18 of the samples (37%) failed to meet some of the technical requirements, and the remaining 6 samples (12%) failed to meet both administrative and technical requirements;
- It is surprising that number of samples that fail to meet the requirements for safety warnings and instructions is as high as it is, because the standards (Part 1 and 2) prescribe what exactly is required and provide the exact wording;
- The market plate is normally present on the tool, but often incomplete. Again, this is surprising because the standards prescribe the obligatory information clearly;
- The most predominant non-conformity to the technical requirements is the drop test clause (mechanical strengths). Ten of the 49 non-compliant samples fail on this clause;
- None of the declarations of conformity for the 100 samples provided all the required information. The most common non-conformity appeared to be lacking name and address of the person authorised to compile the technical file and must be established in the Community (19% of the cases).

4 Risk Assessment & Action Taken

Once the test results were available, risk assessment was carried out to determine the risk that the identified non-conformities would pose to consumers. This in turn determines the measures to be taken to follow-up with the economic operator. Risk assessment is an essential step in market surveillance because it justifies the severity of the applied measures.

4.1 Risk Assessment

Each of the MSAs participating in the Power Tools 2 Activity carried out an assessment of the risks associated with the non-conformities detected on the saws they had sampled. The methodology described in the Commission's RAPEX Guidelines and the related on-line tool was used.

Risk assessments for a given non-conformity may differ because of difference in injury scenarios, estimated probabilities and type and severity of the anticipated injury. These parameters depend upon the specificities of the sample and the circumstances.

The purpose of the risk assessment exercise is to ensure that the follow-up actions agreed by the authorities are proportionate to the risk posed by the product and in accordance with the EU legislation.

The product and the application of the product may vary from one country to another. Nevertheless, during the Power Tools 2 Activity, the following steps were taken to facilitate a risk assessment approach with a converging outcome:

a. Develop risk assessment templates;

   The participants prepared and discussed risk assessment templates for electrical handheld electrical saws using supporting tools prepared by the Risk Assessment Group. Two participants were also members of the Risk Assessment Group and were able to bring in useful experiences regarding templates, scenario development and estimation of probabilities.

Injury scenarios have been described for the most common non-conformities. Risk assessors can use these by estimating the probability of each steps and the most likely injury and injury severity to determine the risk level.

b. Discussion of the outcome of testing and examination;

Prior to the receipt of the formal test reports, input for the risk assessment was provided by the SIQ laboratory staff in the discussion of the test results and examination of the tested samples at the premises of the test laboratory. Afterwards, several examples of risk assessments with scenarios for specific clauses were developed by the participants in the 3rd and 4th project meeting.

c. Comparison of assigned risk levels;

The risk assessments carried out by the participating authorities were circulated in the group, and the risk level assigned by the authorities to each of the most frequently occurring non-conformities was recorded in a table. The participants then analysed the cases where differing risk levels were assigned to the same non-conformity. In most cases, the discussions removed these differences.

The group found that the most problematic step in the risk assessment process is the estimation of probabilities.

Table 8 presents the risk levels assigned by the participating authorities to the non-conformities found on electrical handheld circular saws. Risk levels that are marked with an asterisk (*) were assigned by the majority of the participating MSAs. A product may fail on several clauses (see Figure 7 and Figure 8). The table also indicates whether a requirement is of administrative or technical nature.

d. Evaluation of risks posed by identified non-conformities;

Table 8 shows that the risks associated with the non-conformities that were found in the testing differ. These risk assessments are based on an analysis of one non-conformity. However, Figure 7 and Figure 8 showed that most of the tested saws had more than one non-conformity, so one would have to do a risk assessment for each of these. This would presumably lead to several risk levels. Risk levels do not add up as such and therefore the participants agreed on the principle of the "leading highest risk level" — the highest risk level determines the risk level for the product and thereby the "severity" that the MSAs shall apply in the enforcement activities.

Apart from that, even the risk assessment of a single non-conformity may end up in several different risk levels if it is carried out by different people as can be seen in Table 8.

No.	Clause	Adm./Tech.	Failing items	Risk Level
8.1	Markings on tool plate	**Adm.**	19	low*
8.12	Instructions (safety warnings and instructions in the instruction manual)	Adm.	21	low*, medium
12	Heating (extreme temperature rise after operation at rated load)	Tech.	1	medium
17.2	Endurance test (2 x 24 hours switch cycles at rated voltage +/-10%)	Tech.	2	medium*
17.101	Endurance of lower guard and spring	Tech.	4	high*
19.101	Mechanical hazards (blade covering, viewing aperture)	Tech.	3	low*
19.102	Mechanical hazards, adjustment items (riving knife distance)	Tech.	2	low*
19.104	Mechanical hazards, construction blade mounting (clamping area blade flanges)	Tech.	3	low*
20.3	Mechanical strength, strength under drop test	Tech.	10	low, medium, high*, serious
	Total		65	

Table 8 - Clauses in the standard the products failed to meet together with the risk posed by this non-conformity

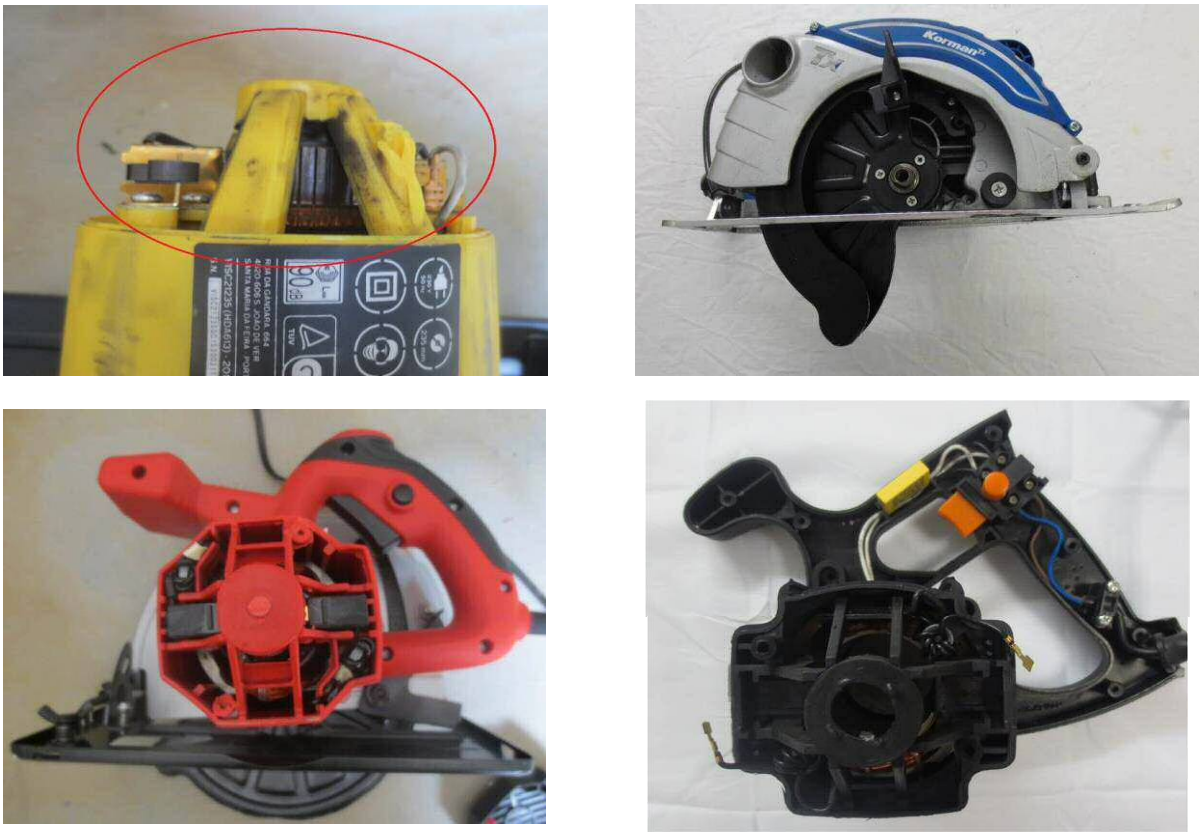

Figure 9: Different outcomes of the drop test (clause 20.3)

The recorded non-conformities to clause 20.3 (10 samples) give good examples of how you can arrive at different risk levels. The test prescribes that the saw should be dropped three times from a height of one meter to a concrete floor each time starting in a new orientation. The saw must be adjusted to the maximum depth. The test sample shall withstand these three falls without breaking.

Figure 9 shows four different outcomes from the drop test:

1. Top left photo — The housing of the saw is damaged and part of the protection cap has broken off so the coal brushes and the commutator are exposed. Inside of the red circle in the photo, you can see where the brass coal brush holders (left) with a metal spring and the threaded metal electric connection clip (right) are. It means that the user can touch live parts and get an electrical shock. This situation is transferred into an injury scenario that yields "serious risk".
2. Top right photo — The lower guard has been damaged in the drop test so closing is hindered and closing time has increased and become unpredictable. The question is whether a user will continue to use the saw after picking it up from the floor even though it has a dangerous and inadequately closing lower guard.
3. Bottom left photo — The enclosure cap has broken off and live parts are accessible but not immediately touchable because the coal brush holders are not metallic and they are better protected in the housing. The sample did however fail the electric strength test afterwards. This outcome was assessed to present a medium risk to the consumer. Cases where the drop test resulted in cracks of the housing uncritical place(s) were assessed as a low risk.
4. Bottom right picture gives a view inside the dismounted handle on a saw — The double-pole switch can be seen. A double-pole switch will completely disconnect the saw from the mains during the drop test because of the automatic release feature. This means that none of the electrical parts are live when the user picks up the saw after the fall and no risk remains. Unfortunately, most brands use single-pole switches.

e. Evaluation of risks from non-conformities with administrative requirements.

Use of power tools is dangerous because they must be powerful to cut wood or metal, and they are often several times more powerful than manually driven handheld tools. Therefore, clause 8 of the safety standards [4] and [5] prescribe that extended text are to be included in the instructions to provide explanations, instructions and safety warnings.

The laboratory examined all samples for presence and completeness of these warnings and instructions. These items normally contribute to lowering the risks with the tool because it is anticipated that the user reads and understands them. This, however, means that if the user does not read the instructions and the safety warnings and does not act accordingly, then risky situations can occur potentially ending in severe accidents; unskilled use of power tools is very hazardous.

As an example, Part 2 of the standard [5] includes extensive information about the kickback phenomena, please see Chapter 3.2. An injury that involves kickback could be:

- The (unskilled) user is sawing to cut a board in to halves;
- The saw blade pinches because of misalignment. The user is sawing half a meter from his body without realising the risk of a kickback because he has not read the instructions on this.
- The saw lifts uncontrolled out of the work piece and is thrown towards the user with the usual circumferential speed of 50 m/sec;
- The saw blade reaches user's body within 0,01 sec meaning that the lower guard does not close. The standard allows a maximum closing time of 0,3 sec.;
- The actual trajectory and orientation of the saw will determine whether the blade or another part of the saw hits the user. If it is the rotating saw blade it can cause severe thigh lacerations.

The Activity group developed a rating system to classify these administrative non-conformities.

4.2 Action and Measures taken

The risk level is an important input when deciding on an appropriate measure. For products with several non-conformities, the non-conformity with the highest risk level will be "leading" in the assessment.

Market surveillance officials contacted economic operators to discuss the test reports and the non-conformities that had been identified in the tests. The majority of the cases were concluded with the economic operator voluntary taking the measures that were proposed by the authority. Table 9 gives an overview of the measures taken. It shows that action was taken in 29 cases (two with serious risk, three with high risk, three with medium risk and 21 with low risk).

The remaining 20 cases were finalised in other ways, for instance because manufacturing of that product had stopped or because the economic operator proved the authority was wrong by producing new tests or measurements. Cases in this group are marked in the table with an asterisk (*).

The measures mentioned in the table are in accordance with Regulation EC 765/2008 [7]. Measures may be taken voluntarily or be imposed by the authority. They are defined as follows:

Sales ban:	The product is prohibited from sale permanently or until certain conditions are met.
Withdrawal:	The distribution, display and the offer of a product which is dangerous to consumers is stopped.
Recall:	Any means aimed at achieving a return of a product that has already been supplied or made available to consumers.

Overview of follow-up actions	Risk level	Cases
A. Voluntary measures		
A1 Sales ban and/or withdrawal from the market	Medium	2
A2 Sales ban and/or withdrawal from the market and recall from consumers	High	1
A3 Product information voluntary completed by economic operator	Low	17
A4 Others (manufacturing had stopped, manufacturer provided evidence that the authority was wrong, etc.)	High* Medium*	2* 2*
B. Mandatory market surveillance measures imposed		
B1 Sales ban and/or withdrawal from the market	Serious High	1 2
B2 Sales ban and/or withdrawal from the market and recall from consumers	Serious High*	1 1*
B3 Product information mandatory completed by economic operator	Low Medium	4 1
C. Other outcomes		
C1 Minor non-conformities solved together with the economic operators	Low*	11*
C2 Manufacturing had stopped	High* Medium*	1* 3
Total		49

Table 9 - Overview of measures taken against non-compliant saws.

N.B. Please see text for explanation of cases marked by an asterisk (*)

Table 9 also lists the measure "Product information to complete". It covers the cases where information was missing in part or complete from the marking of the tool, the safety warnings or the instructions in the manual. These cases were closed by the economic operator correcting the information. The risk for the majority of these cases is low.

The heading "Other outcomes" include:

- Cases with very minor non-conformities like omission of one piece of information from the marking on the tool practically without risk for the user, e.g. rated number of revolutions per minute, rated voltage, rated power or year of manufacture;
- Cases with mechanical hazards according to clause 19.101, 19.102 and 19.104 (see Table 8) with low risk where the discussion with the economic operators prompted a re-test of the product or where the economic operator took measures;
- Cases where the manufacturing and sales of the product have stopped, perhaps because an old model was sampled. In these cases, measures were only taken for items on stock;
- A single case was subjected to lengthy court procedures and was still open at the time of reporting.

4.3 RAPEX and ICSMS

Table 10 shows the statistics for RAPEX notifications and registrations in ICSMS.

Regarding the eight RAPEX notifications in Table 10, the procedure in Regulation EC 765/2008 [7] and in the RAPEX guideline [8] is followed.

Overview of follow-up actions	Risk level	Cases
D. Notification to RAPEX		
D1 Notification to RAPEX – serious risk (GPSD, Art. 12)	Serious	2
D2 Notification to RAPEX – less than serious risk (GPSD, Art.11)	High Medium	3 3
E. Registration in ICSMS		
E1 Cases registered in ICSMS		42

Table 10: Statistics for RAPEX notifications and ICSMS registration

The two cases posing a serious risk to consumer are both related to saws that fail in the drop test (clause 20.3). The housing broke thereby exposing live parts.

The three high risk cases are either related to non-conformities in the endurance test (clause 19.101) or the drop test (clause 20.3). The samples that failed in the endurance test failed because the lower protection guarding failed during the 5.000 test cycles: the lower protection guard broke off or the spring operating the guard broke. The sample that failed the drop test failed because the lower protection guard was damaged.

The three medium risk cases are related to non-conformities, such as insufficient upper guard covering of the blade cutting edge zone (clause 19.101) or complete lack of all safety warnings in the instruction manual.

During this activity, the MSAs registered 42 cases in the market surveillance information exchange system ICSMS.

5 Liaisons

5.1 Involvement of customs

Cooperation with customs is useful in assisting in the sampling of products. Customs can further help in retrieving the addresses of EU importers at the sampling stage, while the whole trade chain becomes visible by involving them.

At the beginning of the activity it was discussed to request all the participating MS to identify ten importers, who were used to trade circular saws (registered by customs under TARIC code 84672230). This idea, however, turned out to be less useful. As a result, the participants did a quick survey to explore the status of the cooperation between MSAs and customs in the different countries.

The results of this survey can be seen below:

BE:	Good cooperation with monthly meetings. The MSA has already received the requested addresses and will follow up.
BG:	It appeared to be necessary to issue a formal request to customs to request the information.
CZ:	Occasionally collaborate with customs.
FR:	Permanent collaboration.
DE:	Two MSAs: Cooperation with customs is not very well developed and it differs from one region to another. The MSAs are organised in regions. Coordination with customs is centralised.
LU:	A mutual data base on market surveillance issues exists and is functioning.

LV:	Customs have a project on circular saws running simultaneously with the Joint Action. The MSA has supplied the checklist to customs.
MT:	Market Surveillance is notified and called whenever customs find any imports of power tools.
PT:	Regular contacts exist.

As can be seen, cooperation and collaboration seemed to be at rather different stages in the different MS. The Activity Leader distributed the list of contact persons of the TAXUD working group to facilitate the cooperation.

5.2 Other liaisons

5.2.1 Stakeholders

The European Commission participated in a number of the project meetings.

The final project meeting which took place in December 2017 featured an open session for stakeholders. It was used for presentations and discussions of the results of the Activity. Stakeholders like the Director General of the European Power Tool Association (EPTA), the chairman of the Standard Committee IEC/TC116 (responsible for the standard EN 60745), the ANEC representative and the Commission representative of DG JUST all attended this meeting.

5.2.2 ADCO Machinery

Strong liaison with the ADCO Machinery was established and further strengthened as the Chair of the ADCO group and four Activity participants all were ADCO members.

The ADCO Chair presented the progress in the Joint Action at each ADCO meeting during the Activity.

Moreover, the ADCO group endorsed that the Activity Coordinator contacted the Chair of IEC/TC116 to suggest a modification of clause 19.101.3 of the standard EN 60745-2-5 to include the words "shall automatically retract" so that also gravity-driven retraction mechanisms for closing the guards be allowed. The experience from the Activity was that a number of (battery-driven) plunge type circular saws were found on the market and found to be designed in a safe way.

The full text of clause 19.101.3 including the proposed change is:

> *"**19.101.3** Saws using a guarding system as shown in Figure 104 shall be equipped with an upper guard into which any specified blade **shall automatically retract** when not in use and the time required for the blade to retract into upper guard shall be in accordance with 19.102.2.*
> *The upper guard shall lock the blade automatically in the closed position, when the movement of the base plate is not obstructed by the work piece."*

6 Evaluation

6.1 Lessons Learned

6.1.1 Internal

The Joint Actions provide an added value in many different ways. With so many Member States working together, the product WPs reflect a truly pan-European survey of the marketplace. The Commission's generous funding ensures that the number of samples tested greatly exceeds the number that individual Member States could afford. Moreover, the Joint Actions deliver economies of scale driving down unit test costs helping to stretch the limited resources even further. The product Work Packages within the Joint Actions also provide a platform for sharing expertise and the spread of best practice. The MSAs also discuss their risk assessments promoting a more consistent approach. Overall, the Joint Actions make a significant contribution to achieving a high level of consumer protection and a level playing field for all economic operators throughout Europe.

Some of the most obvious lessons learned by the participants of this activity relate to gaining more experience with the feasibility of the standards and test methods applicable to the handheld electrical circular saws. Regarding the application of the European Standard EN 60745-1 with the general safety requirements [4] and EN 60745-2-5 with the specific safety requirements for handheld electrical circular saws [5], the participants made a number of useful observations:

- The standard foresees more than one sample be tested for the critical clauses. However, the working group gained good experience with testing only one sample per model by applying an intelligent sequence of the required tests and an intelligent undertaking of the individual tests. As an example, the drop test requires three samples to drop from three different orientations. It is, however, foreseeable which orientation will lead to the worst damages when the saw has a heavy electric engine so one sample would suffice to test this;
- It is possible to carry out most of the non-destructive tests before the potentially destructive drop test is undertaken;
- It is also important to understand that testing and examination in a market surveillance context differ from testing for the purpose of product certification. Market surveillance testing aims at checking if the product is unsafe. Product certification testing aims at proving that the product is safe. This difference allows the laboratory to skip less relevant (and expensive) tests when the testing is for market surveillance purposes.

Again, the tendering process was found to be very beneficial. Pooling all the testing gave an economy of scale that lead to very competitive quotes from the laboratories. This meant that the laboratory of choice could have performed additional tests for the allocated budget within the given timeframe. However, this did not happen as extra samples could not be acquired and delivered before the given deadline.

6.1.2 Other lessons learned

It is important to recall that the Machinery Directive does not exclude unskilled users like consumers and DIY users from its definition of an "operator". On the contrary, the directive says: *"Where a machine (e.g. power tool) may be used by a consumer, that is to say, a non-professional operator, the manufacturer should take account of this in the design and construction"*. Therefore, the economic operators must be made aware of the importance of the required instructions and safety warnings in the instruction manual so to reduce the remaining risks for non-professional operators. This is particularly important for popular electric handheld tools like the circular saws, where professional products have migrated during the last decades into the consumer market. Given the high number of products with missing or incomplete warnings or instructions found in this (limited) activity, further surveillance activities seems to be desirable.

It is recommended that European organisations representing businesses, manufacturers, importers and traders are encouraged to participate in Joint Actions. The participating MSAs found it important to maintain a healthy dialogue between all stakeholders to help identify and prevent possible future safety

issues and establish practical solutions. This seems particularly relevant for the power tools product group, where the economic operators need to be more aware of the hazards and risks associated with the products that are migrating from the professional sector to the ordinary consumer.

6.2 Suggestion for follow up

In Chapter 3.4 the results from testing and examinations of 100 samples are given. Half of the samples (51) passed all tests and examinations, while half of the remaining 49 samples (25) failed. There were several reasons behind the failing products. The most important one appeared to be a lack of essential information in the instruction for use, e.g. safety warnings and instructions for safe use of the product (63% of all the non-conformities). It is surprising that so much essential and conditional information for safe use of the product does not reach the consumer, and it is the working group's impression that this is a general problem especially for these potentially hazardous products. It implies that the information pre-condition for safe working as required by the Machinery Directive is not guaranteed and it may be the cause of the high accident rate in Hospital Emergency Departments. Decision no. 768/2008/EC [9] obliges all economic operators in the supply chain to provide or to check that such product documentation is actually delivered with the product.

Therefore, the group suggests to organise a follow-up activity towards economic operators. It should verify that the economic operators actually undertake the measures imposed on them, but it should also broaden the check to brands and models that were not checked by the Joint Action. This activity does not have to cover the complete documentation; it can focus on some specific essential requirements like the cutting procedures (clause 8.12.1.101.1 a-h) and safety warnings (clause 8.12.1.101.2 a-g) as listed in Annex A of this report.

It is thought-provoking that the latter of the above clauses says: *"Kickback is the result of saw misuse and/or incorrect operating procedures or conditions and can be avoided by taking proper precautions as given below in a-g".*

Overall, the objective is to convince the economic operators to eliminate this shortcoming in a systematic way.

Bibliography

All references in the text are stated with a number in brackets, e.g. [5]. The full list of references is given below:

1. Grant Agreement No. 705038-JA2015-GSPD
2. Directive 2001/95/EC of the European Parliament and of the Council of 3 December 2001 on general product safety
3. Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery.
4. EN 60745-1:2009, Handheld motor-operated electric tools – Safety - Part 1: General requirements (*)
5. EN 60745-2-5:2010, Handheld motor-operated electric tools – Safety - Part 2-5: Particular requirements for circular saws (*)
6. PROSAFE - Priority setting for Product Activity Power Tools JA2014, 2 March 2016
7. Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products.
8. "Commission Decision 2010/15/EU of 16 December 2009 laying down guidelines for the management of the Community Rapid Information System "RAPEX" established under Article 12 and of the notification procedure established under Article 11 of Directive 2001/95/EC (the General Product Safety Directive)" Published in the Official Journal of the European Union L22/1
9. Decision no. 768/2008/EC of the European Parliament and of the Council

(*) All standards can be obtained from the national standardisation bodies if nothing else is stated. An overview of these bodies can be found on the website of the European Committee for Standardisation, CEN at www.cen.eu.

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