



National Measurement Office

Market Surveillance: MID and NAWI Directive
Trim Reference: E1105/0001

Annual Report on Market Surveillance activities relating to Non-automatic Weighing Instruments and Measuring Instruments

For the Year 2011 – 2012, these activities covered Measuring Systems for the Continuous and Dynamic Measurement of Quantities of Liquids other than Water, being Retail Forecourt Fuel Measuring Instruments dispensing petrol and diesel fuel under Annex MI-005 of the Measuring Instruments Directive, and Non-Automatic Weighing Instruments.

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1. Executive Summary

Directive 2009/23/EEC relating to non-automatic weighing instruments (NAWI) and Directive 2004/22/EC, relating to measuring instruments (MID) each require that Member States shall take all reasonable steps necessary to ensure that instruments placed on the market shall meet the requirements of the directives. In support of this, NMO consequently decided to focus the attention of the 2011/2012 project on 3 specific areas. These were:-

- Retail Forecourt Fuel Measuring Instruments dispensing petrol and diesel fuel, being Measuring Systems for the Continuous and Dynamic Measurement of Quantities of Liquids other than Water under Annex MI-005 of the Measuring Instruments Directive and
- Class II non-automatic weighing instruments.
- A follow up of the CECIP report on non-automatic weighing instruments.

This project continued with the centrally controlled project methodology NMO has adopted, in order to achieve increased consistency of approach and financial control. This framework also gives benefit to overall reporting and data control.

The first project was on Retail Forecourt Fuel Measuring Instruments.

This project resulted in 5 main conclusions:-

1. No significant non-compliance issues were found in respect of individual dispensers.
2. It was apparent from examination of records that on initial installation, a number of forecourt systems with newly installed MID dispensers had been rendered non-compliant in respect of the compatibility of connected Point of Sale (POS) systems, which were subject to UK Type Approval Certificates. These matters had subsequently been addressed.
3. It was noted that some forecourt operators, fuel companies and installers displayed an apparent ignorance of the significance of Declarations of Conformity. This led to difficulties in obtaining copies of some such Declarations.
4. In some instances, copies of Declarations of Conformity related to the EMC, Machinery and Explosives Atmospheres requirements, but not the Measuring Instruments Directive.
5. For a complete MID compliant forecourt system, a Declaration of Conformity must be made for the entire system as well as individual dispensers.

The second project was on Class II non-automatic weighing instruments (NAWIs), which are used for weighing precious stones and metals.

As part of the 2010/2011 Market Surveillance Project, Local Weights and Measures Authorities had tested eighteen Class II NAWIs at a range of premises and these had been found to weigh accurately, and to be correctly marked.

The purpose of this year's project was to investigate documentary evidence to determine whether the instruments selected had been properly and correctly placed on the market.

Seven particular instruments that had been included in the 2010/2011 Market Surveillance Project were selected for further investigation of the documentation that should demonstrate their compliance. This involved contacting directly two manufacturers within the European Union, and two sellers in the United Kingdom. In the latter case, it was not possible to identify a formal United Kingdom Distributor for the instruments in question.

This project resulted in one main conclusion:-

1. A number of inadequacies were found in some of the Declarations of Conformity which were supplied. These included reference to previous legislative requirements for LV and EMC requirements, typographical errors in legislative references and not always a clear reference to the CE mark applied denoting compliance with the NAWI Directive.

As an overall conclusion in respect of both of the first two projects, there is concern with regard to the documentation relating to the Declaration of Conformity:-

1. Not all parties involved in the supply, installation and use of measuring instruments were aware of the significance of Declarations of Conformity
2. Not all Declarations of Conformity were accurate or complete and some did not include all applicable Directives within their scope. This was particularly concerning when compliance with the Measuring Instruments Directive, or the Non-automatic Weighing Instruments Directive was not referenced.

There is also concern, in respect of Retail Fuel Forecourt Measuring Instruments with regard to the subsequent connection to correctly installed MID compliant measuring instruments of non-MID compliant POS equipment, which complied with UK Type Approval Certificates. This issue has been addressed by specific NMO Guidance, and amendments made to certain national Type Approval Certificates. Sites visited demonstrated that this guidance has been complied with.

Whilst it may be argued that some of the documentary problems found were due to ignorance of requirements by certain parties, or inadequate care in the preparation of Declarations of Conformity, the requirement for a manufacturer to draw up a Declaration of Conformity for an instrument is important in demonstrating compliance of that new instrument.

The third project was the follow up to the CECIP report. Market intelligence that was gained from the confidential CECIP report was used to target market surveillance of NAWIs purchased over the internet. Four out of the five scales (one was no longer available) that were tested in the UK were purchased over the internet and were subjected to type approval testing in accordance with EN45501. All instruments passed the standard verification tests and the markings on the instruments were found to be compliant. Our results using an accredited testing laboratory revealed non-compliance in two instruments that failed the type approval emc testing, one failing the bursts test and one the RFI tests.

The outcome of the 2011 / 2012 market surveillance projects will be to continue to build upon the principal of central control of such projects, with delivery of subject specific investigation being undertaken by contracted Local Weights and Measures Authorities and individuals. Understanding of the operation of the market place will continue to be developed and special emphasis will be placed upon changes in trade practice and the practical introduction of instruments which incorporate new technologies

NMO will continue to focus projects on potentially problematic areas that have been identified using information received from the trading standards and business communities, and will utilise a risk based approach by reference to the WELMEC WG5 risk assessment model.

The central control of the projects will ensure high levels of consistency in reporting and data submission.

2. Introduction & Background

The Secretary of State has a statutory duty on behalf of the United Kingdom, under the Non-automatic Weighing Instruments (NAWI) Directive and Measuring Instruments Directive (MID), to ensure that instruments that are subject to legal metrological control are neither placed on the market in the United Kingdom nor put into use unless they comply with the applicable provisions of the Directives. This duty may be undertaken by an inspectional process.

The Directive 2004/22/EEC creates an obligation for Member States to carry out market surveillance. Market surveillance considers compliance of instruments with the essential requirements of the Directives that apply to them when they are first placed on the market, or put into service. In the UK, market surveillance is conducted by the National Measurement Office (NMO) and is supported by project work which is commissioned out to Local Weights and Measures Authorities (LWMA).

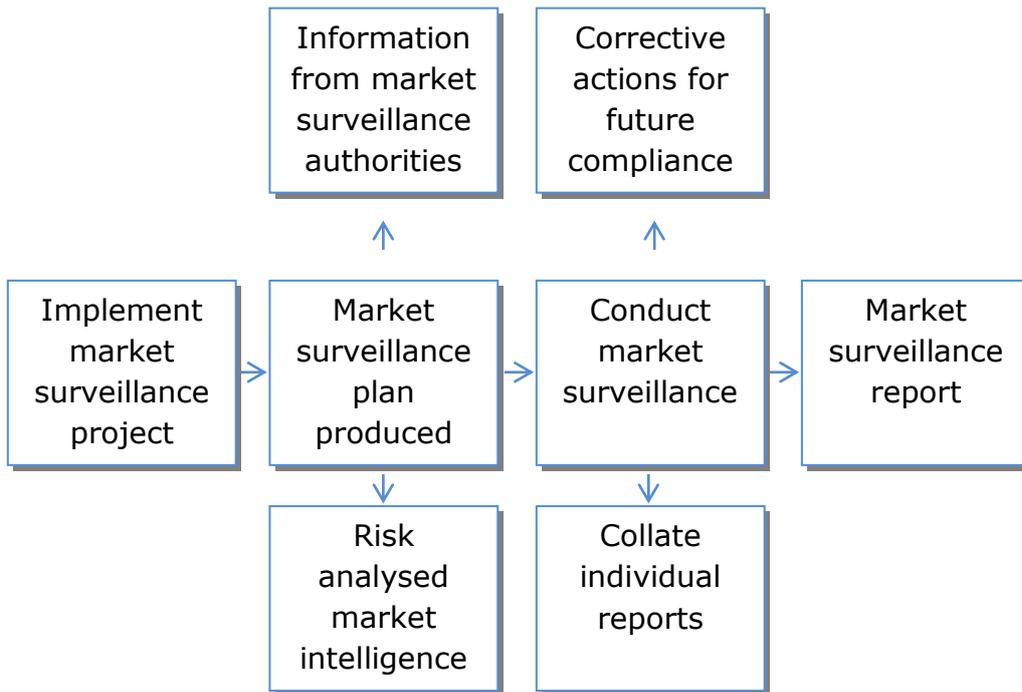
Market surveillance is an essential tool in the underpinning of the concept of New Approach Directives. The principles are outlined in the "Guide to the implementation of Directives based on the New Approach and the Global Approach". This guide is referred to colloquially as the "Blue Guide" as a result of the colour of the cover. It is also detailed in EU regulation 2005/765/EC Regulation Accreditation and Market Surveillance (RAMS). Market surveillance is expected to be carried between the point in time at which the instrument is placed on the market and put into use. NMO has taken the practical view that market surveillance may be more beneficial and give results that truly reflect the market place if conducted as soon after the instrument is in-situ but within the first 6 months of use. For example, a forecourt petrol dispenser with the wrong software or no visible evidence of conformity assessment is likely to be incorrect when first placed on the market, which then becomes a market surveillance issue.

A market surveillance report on a particular instrument should contain the following information:

1. CE marking and its affixing
2. The availability of the CE declaration of conformity
3. The information accompanying the product
4. The correct choice of conformity assessment procedures
5. Details of whether the essential requirements of the NAWI and MID are met.

3. Methodology

Market surveillance is a critical element of New Approach Directives, which not only gives confidence in the level of product conformity, but also helps to ensure that correct procedures are followed. MID places emphasis on market surveillance which requires increased cooperation among Member States. The activities undertaken should confirm that the conformity assessment procedures are working and, if this is found not to be the case, to identify problems quickly to ensure consumers are protected. The NMO process for implementing the market surveillance project consists of planning, investigation and a corrective action stage.



Having determined the areas for the 2011/2012 market surveillance project, NMO identified local authorities who were suitably competent and had the equipment and resources in their area to carry out market surveillance on:

- Retail Forecourt Liquid Fuel Measuring Instruments
- Class II Non-automatic Weighing Instruments

4. Measuring Systems for the Continuous and Dynamic Measurement of Quantities of Liquids other than Water

The Market Surveillance project focussed on Retail Forecourt Fuel Measuring Instruments for dispensing diesel and petrol fuel.

Background

- a) Retail Forecourt Fuel Measuring Instruments have been controlled for many years by the Weights and Measures Act and subordinate legislation.
- b) Approval of dispensers and associated peripheral equipment such as POS systems and card acceptors has been within the National Type Approval framework
- c) As the design and function of peripheral equipment has become more complex, sophisticated interfaces have been developed with 'back office' management systems.
- d) The advent of MID compliant dispensers has introduced new requirements for peripheral equipment in that this too must be MID compliant. The wishes of some retailers to retain

existing POS systems that are compatible with their back office systems have necessitated Type Approval Certification being obtained for such system combinations.

- e) In addition to point d) above, the replacement of individual national approved dispensers on existing forecourts with MID compliant dispensers has also necessitated national Type Approval Certification being obtained for 'mixed' national and MID forecourts.

National Guidance was issued by NMO on the subject of national / MID Type Approval compatibility and the need for compliance of each MID instrument that was placed on the market and first put into use. This was exacerbated by the 'modular' concept of a modern fuel forecourt, especially in respect of Point of Sale (POS) systems. It was, however, felt that there was still not a uniform level of understanding in respect of 'mixed' national /MID fuel forecourts, of the need for compliance of all instruments and associated peripheral equipment (MID and national).

Further National Guidance was therefore issued, and this has resulted in compliance being achieved with respect to 'mixed' national/MID fuel forecourts.

The distinction between "placing on the market" and "putting into use" of the instrument was therefore very important, since the final outcome should always be that of a fully compliant forecourt system being put into use.

"Placing on the market" means making available for the first time in the Community an instrument intended for an end user, whether for reward or free of charge.

"Putting into use" means the first use of an instrument intended for the end user for the purpose for which it was intended.

Method

Eighteen separate retail fuel forecourts were visited by staff from ten different Local Weights and Measures Authorities (LWMA).

- All MID dispensers inspected had been through the Module B+D conformity Process
- No significant overall non-compliance issues were found with the dispensers themselves
- Individual issues found included what was felt to be an excess length of sealing wire that might, in the Inspector's opinion, have made it possible to make an unauthorised adjustment, and a manufacturer's sealing sticker, marked 'void if removed' which had fallen off and which was found within a headwork casing, leaving the respective component unsealed.
- Examination of records showed that some MID compliant dispensers had been initially connected to national POS systems (and sometimes with national dispensers in the same forecourt system), which were not fully type approved for such connections. Amendment to national Type Approval Certificates and re-verifications where appropriate had remediated this situation.

- In a number of instances, Declarations of Conformity demonstrated compliance with other applicable legislation but did not demonstrate compliance with the MID. Some difficulties were experienced in finding staff at garages who were au fait with requirements. Difficulties in obtaining copies of some conformity documentation were also experienced, including one instance where the dispenser installer was unable to provide appropriate documentation.
- Declarations of Conformity that were seen appeared to apply to individual dispensers, and did not reference complete forecourt systems, including POS systems. This may however have been because systems inspected incorporated an element of nationally controlled equipment, including POS systems.

Recommendations in respect of Retail Forecourt Fuel Measuring Instruments

- 1) The significance of Declarations of Conformity needs to be recognised by all involved parties as being of great importance, especially as instruments get older, and alterations are made.
- 2) It is essential that Declarations of Conformity should clearly cover all pertinent legislation.
- 3) It should be noted that whilst Declarations of Conformity should cover all individual dispensers, there should also be a Declaration of Conformity for entire MID systems, including POS systems, where this is appropriate.
- 4) The installer should make sure that Declarations of Conformity are complete and that the user is either given them, or made aware that they are kept in the headwork of the individual instruments (as is often the case), or other appropriate location.
- 5) The user should be aware of the significance of Declarations of Conformity when the instruments are new and an installation is completed.
- 6) Appropriate parties should be continue to be aware that sealing and securing of significant components needs to be effective and stickers need to be properly applied so they do not fall off.
- 7) Appropriate parties should continue to be aware that CE, M and Notified Body numbers must not be covered by national re-verification marks, and should be inviolate.
- 8) Installers must remember that compliance with Type Approval Certificates is essential and while this may be complicated if a forecourt system is made up of both MID and nationally approved instruments, it is mandatory. In order to assist business, NMO Guidance explains this clearly.

5. Class II NAWI'S

As part of the 2010/2011 Market Surveillance Project, Local Authorities had tested eighteen Class II NAWIs at a range of premises. All of the eighteen instruments tested had been found to weigh accurately, and to be correctly marked.

The purpose of this year's project was to investigate documentary evidence to determine whether the instruments selected had been properly and correctly placed on the market.

Seven particular instruments that had been included in the 2010/2011 Market Surveillance Project were selected for further investigation of the documentation that should demonstrate their compliance.

In respect of three instruments, two manufacturers within the European Union were contacted directly and in respect of the remaining four instruments, two sellers in the United Kingdom were contacted. In the latter case, it was not possible to identify a formal UK Distributor for the instruments in question.

One United Kingdom manufacturer indicated that the model of instrument that was selected for Market Surveillance was no longer produced and so another model of instrument which is in common use was selected, from the same manufacturer.

All companies contacted provided information as requested, but some provided much more comprehensive information than others, and some companies required follow up contact in order to obtain the requested information.

It appeared, however, that the quality and breadth of information held by manufacturers and sellers may not be as complete and detailed as might be considered necessary.

In all instances, the Type Approval Certificates and the Declaration of Conformity were forthcoming.

In two instances when pointed out that previous applicable legislation was referred to, the correct up to date information was subsequently provided

The Checklist which is provided in WELMEC Guide 2.3, regarding the security and identification of software, was requested and was not supplied by any of the businesses contacted.

Summary of Information on the 7 Declarations of Conformity for the Instruments in the Project

Manufacturer	7 in total
CE Mark	5 yes 2 not shown
States 'Non-automatic Weighing Instrument'	5 yes 2 stated 'electronic balance'
Class Mark (in oval)	1 yes 6 did not state the Class
Type / Model	5 yes 2 were generic to a model series
Number of TAC	5 yes 2 not shown
States 'Corresponds to 90/384/EC'	7 yes
Lists additional applicable Directives	5 yes 2 were provided on a separate Declaration of Conformity for EMC and LV Directives
States 'Only valid with a Certificate of Conformity issued by a Notified Body'	4 yes 2 not stated 1 stated 'verification is carried out by..... (the manufacturer). The Declaration of Conformity is only valid if certain requirements are met which are clearly stated'
Signed and dated	7 yes

In addition to this:-

- Only one Declaration of Conformity stated the Class of the Instrument to which it referred.
- Five Declarations of Conformity referred to previously applicable requirements for LV and EMC, and not the current Directives

- Two Declarations of Conformity for supplied power adaptors were not dated and had typographical errors in the actual standard number quoted
- Two Declarations of Conformity related the CE mark to LV and EMC and not the NAWI Directive
- One Declaration of Conformity bore a model number which did not clearly relate to the instrument in question
- One instrument had an Operating Manual which bore a statement to the effect that the Green M meant that initial verification had already been performed on the instrument, which might not necessarily have been correct, depending on the supply of a particular instrument

Recommendations in respect of Class II Non-automatic weighing instruments

- 1) Intelligence should continue to be gathered on the performance and compliance of NAWI.
- 2) Attention should continue to be directed towards the applicability and accuracy of Declarations of Conformity

6. Follow up of the CECIP report.

Market intelligence that was gained from the confidential CECIP report was used to target market surveillance of NAWIs purchased over the internet. Four out of the five scales (one was no longer available) that were tested in the UK were purchased over the internet and were subjected to type approval testing in accordance with EN45501.

Results of the testing

2010 to 2011

Test	Instrument	
	Scale 1	Scale 2
Static temperatures	PASS	PASS
Temperature effect on no load	PASS	PASS
Short time power reductions	PASS	PASS
Electrical Bursts	FAIL (I/O)	PASS
Electrostatic Discharges	PASS	PASS
RFI (3 V/m)	PASS	PASS

2011 to 2012

Test	Instrument	
	Scale 3	Scale 4
Static temperatures	Pass	Pass
Temperature effect on no load	Pass	Pass
Short time power reductions	Pass	Pass
Electrical Bursts	Pass	Pass
Electrostatic Discharges	Pass	Pass
RFI	Pass	Fail

All instruments passed the standard verification tests and the markings on the instruments were found to be compliant. Our results using an accredited testing laboratory revealed non-compliance in two instruments that failed the type approval emc testing, one failing the bursts test and one the RFI tests.

Letters about the non-compliance were sent to both of the manufacturers concerned and one has looked into the problem, admitted there was a fault and has rectified the problem and one has removed these instruments from the market.

7. WELMEC WG5 Risk assessment

In May 2011, WELMEC Working Group 5 published WELMEC 5.5 entitled 'A Risk Assessment Guide for Market Surveillance: Weighing and Measuring Instruments'

This document assists in the targeting and planning of market surveillance activities and the relationship between probability of non-compliance, and the subsequent level of impact of non-compliance.

The rationale behind this Guide is twofold:-

- a. It assists in addressing the need for selective and focussed market surveillance which recognises the need to use scarce resources in an effective way.
- b. Regulation (EC) No 765 / 2008 of the European Parliament and Council requires Market Surveillance Authorities to take account of principles of risk assessment, complaints and other information.

This WELMEC Guide recognises a number of pertinent factors which should be addressed in order to determine a risk score. These factors will include assessment of the type of measuring instrument in question, its use and age etc.

It is a useful additional tool for planning the future market surveillance programme, and will be supported by our intelligence processes, both within the United Kingdom, and across the European Union.

8. Conclusions and Implications

Market surveillance is an obligation which is the responsibility of each Member State. It can be an effective tool for determining compliance in particular sectors in each individual Member State, and when effectively focussed, can highlight specific problems or developments which could be either local, or EU wide in their implication. Whilst it is an obligation, it should continue to be positively embraced as a tool for ensuring consistency across the Single Market.

The compliance of forecourt fuel measuring systems was high in respect of actual performance, but in a number of instances, problems had been identified with the compliance of connected POS systems, or other nationally approved equipment and these had been addressed by reference to the NMO Guidance.

Declarations of Conformity, and associated supporting documentary evidence for Class II non-automatic weighing instruments previously tested was available, when requested, but was not necessarily complete or up to date.

The changes in technology and modifications to forecourt systems in particular are likely to continue to be rapid, and so the availability and accuracy of complete Conformity Assessment documentation will be of increasing importance, especially as installed equipment gets older.

9. Recommendations

- 1) Future market surveillance projects are organised by the NMO using market surveillance officers authorised by them
- 2) Such projects should continue to be focussed so that specific outcomes may be obtained and valid intelligence determined so that future work can be effectively directed. The WELMEC 'Risk Assessment Guide for Market Surveillance: Weighing and Measuring Instruments' is a valuable tool in assisting this process.
- 3) The specific recommendations of this report are that:-
 - Declarations of Conformity should be complete and accurate and cover all pertinent applicable requirements. All involved parties in the supply, installation and use of instruments should have ready access to them and be aware of their significance.
 - All measuring instrument systems must be in full accordance with a Type Approval Certificate in respect of all components and functions.
 - Where appropriate, a complex measuring system that is fully MID compliant, such as a fuel forecourt system, should have a Declaration of Conformity clearly applying to the entire system as well as to individual dispensers. The responsibility for this should be clearly determined for each installation.