REPUBLIC OF TURKEY

EGE UNIVERSITY

FACULTY OF ENGINEERING

Department of Electrical and Electronics Engineering

NUMBER: B.30.2.EGE.0.17.13.00/507 **Bornova-İZMİR**

SUBJECT: Technical Analysis Report **27/08/2009**

Firm Demandant of Expertise: ELEKTRAL Elektromekanik San. Ve Tic. A.Ş.

Address: İzmir Atatürk Org. Sanayi Böl. M.K. Atatürk Blv. 23 Çiğli 35620 İZMİR

Telephone: 0232 376 73 00

RELEVANCE: The demand specified by ELEKTRAL Elektromekanik San. Ve Tic. A.Ş. in their related request concerning the testing of WTMD's compliance to meet the standarts of ECAC (European Civil Aviation Conference) Doc. 30 Standart 2, TSA and NIJ; and function, sensitivity and security tests.

EXPERTISE

The Elektral brand ThruScan sX-i model Walk-Through Metal Detector (Chassis No. 10082601) provided by ELEKTRAL Elektromekanik San. Ve Tic. A.Ş. has been tested according to the standards specified in the relevance, and the related report (original text of which consists of 36[Thirty-six] pages) is presented in Appendix 1. Consequential to the tests, the metal detector of the firm has been indicated to successfully meet the requirements and procedures of ECAC (European Civil Aviation Conference) Doc. 30 Standart 2. During the testing process, NILECJ 06-01-0602, NIJ and TSA test bags and kits, and ECAC Standard2 OPINEL brand NO.10 jackknife (also a Dft test piece) provided by the firm have been used.

Clean tester passage test, orientation test (metal passage in x-y-z coordinations), combination test (of different metals and their related discrimination), fuse test, interference test, automatic self-adjustment test (to various environments), error indication test, remote control features, modular changes, and dead-zone test have been conducted and investigated during the testing process, and the device was indicated to pass all the aforementioned parametres successfully.

Seperately, independently of the aforementioned tests, the device has reports (Appxs 2, 3, 4, 5, 6) on electrical safety, noise, response to environmental conditions and health and safety requirements.

Assoc. Prof. Dr. Aydoğan SAVRAN Assoc. Prof. Dr. Musa ALCI Expert Adil Yılma

APPENDIX 1

ECAC DOC No:30 AND ITS PROVISIONS		Explanation	Result
SECTION 13 **TECHNICAL SPECIFICATIONS OF SECURITY EQUIPMENTS** **ICAO ANNEX 17** **13.1 Metal Detection Equipment** These requirements and metal detection equipment guidelines are applicable to any equipment using an electromagnetic field designed to detect, on a person, weapons and other metal items that may be used to commit an act of unlawful interference against civil aviation For the screening of persons, metal detectors are used: • while persons walk through the portal structure (Walk-Through Metal Detector – WTMD) • when persons stop at a checkpoint to be screened by an operator using a hand-held device (Hand-Held Metal Detector – HHMD) Walk-through metal detectors used in passenger screening at airports should fulfil the following requirements:			
(a) Security **(i)** equipment should be capable of detecting small items of different metals, with a higher sensitivity for ferrous metals in all foreseeable conditions.		✓	✓
(ii)equipment should be capable of detecting metal objects independentently of their orientation and location inside the frame.		✓	✓
(iii)the sensitivity of the equipment should be as uniform as possible inside the whole frame and should remain stable and be checked periodically.		✓	✓

(b) Operating requirements The functioning of the equipment should not be affected by its environment.		✓	✓
(c) Alarm indication Metal detection should be indicated automatically, leaving nothing to the operator's discretion (go/no go indicator system).		✓	✓
(d) Controls **(i)**equipment should be capable of being adjusted to meet all specified detection requirements, as well as the volume of the audible alarm.		✓	✓
(ii)controls for adjustment of detection levels should be designed to prevent unauthorised access. The settings should be clearly indicated.		✓	✓
(e) Calibration Calibration procedures should not be made available to unauthorised persons.		✓	✓
ECAC DOC No:30 AND ITS PROVISIONS			
13.1.1 General Principles **1)** WTMD should be able to detect and to indicate by means of an alarm at least specified metallic items, both individually and in combination.		✓	✓
2)The detection by WTMD should beindependent of the orientation and position of the metallic item.		✓	✓
3) WTMD should be firmly fixed to a solid base.		✓	✓

4) WTMD should have a visual indicator to show that the equipment is in operation.		✓	✓
5)The means for adjusting the detection settings of WTMD should be protected andaccesible only to authorised persons.		✓	✓
6) WTMD should give both a visual alarm and an audible alarm when it detects metallic items as referred to in point 13.1.2. Both types of alarm should be noticeable at a range of 2 metres.		✓	✓
7) The visual alarm should indicate the strength of the signal detected by WTMD.		✓	✓
8)The performance of WTMD should not be affected by sources of interference.		✓	✓
13.1.3 Additional requirements for WTMD **(i)**generate an audible and/or visual signal on a percentage of persons passing through the WTMD who did not cause an alarm as referred to in point 13.1.1.1. It should be possible to set the percentage; and		✓	✓
(ii)count the number of screened persons, excluding any person passing through the WTMD in the opposite direction; and		✓	✓
(iii) count the number of alarms; and		✓	✓
(iv) calculate the numberof alarms as a percentage of the number of screened persons.		✓	✓

13.1.5 Functional and other requirements for WTMD **13.1.5.1 Functional requirements** **(a) Detection capability** • The WTMD should be capable of reliably and consistently detecting ferrous and nonferrous metal.		✓	✓
• The appropriate authority should specify the range of items to be detected.		✓	✓
• The location, orientation and speed of any metal object passing through the WTMD should not influence the detection ability.		✓	✓
• The electromagnetic field inside the WTMD should be as uniform as possible.		✓	✓
(b) Discrimination The WTMD should be capable of discriminating between different metals and their alloys.		✓	✓
ECAC DOC No:30 AND ITS PROVISIONS			
(c) Alarm indication; The WTMD should have both audible and visual alarm indication. Alarm should be indicated before or when the person screened walks out of the device. Alarm duration should be adjustable.		✓	✓
• **Audible Alarm:** Audible alarm should be adjustable in tone and audio volume so that the operator can hear it in a busy operational environment.		✓	✓
• **Visual Alarm:** The visual alarm should be clearly visible to the operator. The visual alarm should provide information on the amount of detected material.		✓	✓
• **Additional Alarm (optional):** It should be possible to generate an alarm for a specified percentage of persons who are not carrying metal items. This additional alarm may be indicated in a different tone.		✓	✓

• **Threat location (optional):** The WTMD should be capble of indication the location of the metal which generated the alarm.		✓	✓
• **Remote alarm indication (optional):** The WTMD should be capable of indicating the alarm at a remote location.		✓	✓
13.1.5.2 Operational requirements • The WTMD should be easy to operate with clear alarm and failure indication.		✓	✓
• The WTMD should perform self-testing when switched on and shall not require any further adjustment by the operator.		✓	✓
• An approved operational test piece should be supplied by the manufacturer. Frequency / methods of testing should be determined by the appropriate authority.		✓	✓
(a) Sensitivity settings • The senitivity of the WTMD should be adaptable to the threat level.		✓	✓
• The adjustment of the WTMD's performance (selectable settings) should only be possible by authorised staff.		✓	✓
• If performance can be adjusted or mantained by remote control or in a computer network, effective measures for preventing unauthorised access.		✓	✓
(b) Operator Controls; Only those controls required to operate the WTMD (Power On / Off) should be accessible to the operator.		✓	✓
(c) Self-checking routine • The WTMD shall have continuous self-checking of key parameters that will cause an alarm that will require acknowledgement by the operator when a malfunction is detected.		✓	✓

• Any automatic re-calibration should not interfere with system use.		✓	✓
• If the test or re-calibration fails, an appropriate display should provide the operator with failure indication.		✓	✓
• The WTMD should have continuous self-checking of key parameters.		✓	✓
ECAC DOC No:30 AND ITS PROVISIONS			
(d) Insensitivity to interference • Equipment used at an airport security checkpoint, including mobile phones, wireless devices etc., should not cause disturbance to the WTMD's operation.		✓	✓
• The WTMD should not affect the performance of either the airport or security equipment.		✓	✓
• The WTMD should meet relevant EMC/EMI regulations.		✓	✓
(e) Statistica data of operation The WTMD should be capable of accumulating statistical data, e.g.: • time of operation		✓	✓
• passenger counts		✓	✓
• alarm counts (seperated into real and additional alarms).		✓	✓
(f) Optimum siting The manufacturer should provide information on the optimum siting of the WTMD.		✓	✓

13.1.5.3 Mechanical and electrical requirements **(a) General** • The WTMD should be self-contained with a smooth surface, sturdy and not easily tipped.		✓	✓
• The floor area should be clear of obstacles.		✓	✓
• The WTMD should be capable of being fixed to the floor or other structure.		✓	✓
(b) Physical dimensions Internal dimensions: The internal dimension should be appropriate for the purpose of screening persons, e.g.: • Width: min. 70 cm		✓	✓
• Height: min. 200 cm		✓	✓
• Depth: max. 65 cm.		✓	✓
External dimensions: The external dimension should be as small as possible. Various options in outside design should be available for integrating the WTMD into the airport infrastructure.		✓	✓
(c) Susceptibility to vibration The WTMD should not be susceptible to false alarms caused by mechanical vibration.		✓	✓
(d) Environmental requirements • The WTMD should be water resistant and shall be provided with protection for the panels so that the floor could be washed with water without damaging the panels themselves.		✓	✓
• The WTMD should be provided with protection against heat, dust and humidity.		✓	✓

(e) Electrical requirements The WTMD should be compatible with the local power supply and operate correctly at a voltage/frequency fluctation of +/- 10%.		✓	✓
ECAC DOC No:30 AND ITS PROVISIONS			
13.1.5.4 Health and safety requirements **(a) General** The WTMD should comply with relevant health and safety legislation.		✓	✓
(b) Mechanical safety • The WTMD should not have any tripping hazards, such as ramps or external wires.		✓	✓
• The WTMD should be free of sharp corners and protrusions which could cause injuries or damage to clothing.		✓	✓
(c) Electrical safety The WTMD should be free of potential electric shock hazards during operation.		✓	✓
(d) Non-interference with technical medical aids • The WTMD should not have a detrimental effect on technical medical aids such as hearing aids, pacemakers, defibrillators, etc.		✓	✓
• Evidence that this has been establised by a competent authority should be provided by the manufacturer.		✓	✓
(e) Non-interference with electronic equipment The WTMD should not interfere with electrical or electronic devices and magnetic storage media.		✓	✓

13.1.5.5 Maintenance and service • The WTMD should be designed for ease of maintenance.		✓	✓
• It should also have battery back-up with automatic intervention in the event of power blackout and battery operation signalling.		✓	✓
• Instructions for installation, operation, maintenance, trouble-shooting, list of essential spare parts and equipment guarantees and warranties should be provided by the manufacturer.		✓	✓

METAL DETECTOR	ELEKTRAL ELEKTROMEKANİK SAN. VE TİC. A.Ş.
	Elektral ThruScan SX-t
	10082601
Property Tag Number (if applicable)	10082601
Security Level Name	Various
Facility Name	Ege University, Department of Electrical and Electronics Engineering
Location	Bornova / İZMİR
Date	2010 | 08 | 27

☐ **STANDARD 1**	**PASS** □	**FAIL** □
	The verification has been completed successfully. Each section gave a positive result.	The verification has not been completed. One or more of the sections gave a negative result.
☒ **STANDARD 2**	**PASS** ☒	**FAIL** □
	The verification has been completed successfully. Each section gave a positive result.	The verification has not been completed. One or more of the sections gave a negative result.
☐ **STANDARD 3**	**PASS** □	**FAIL** □
	The verification has been completed successfully. Each section gave a positive result.	The verification has not been completed. One or more of the sections gave a negative result.

Test conductor:

Elektral Elektromekanik San. Ve Tic. A.Ş.

Dr. Erdem DİNÇSOY

Test Attestant:

Assoc. Prof.Dr. Aydoğan SAVRAN

Assoc. Prof.Dr. Musa ALCI

Expert Adil YILMAZ

VERIFICATION OF THE CALIBRATION

1) Foreword

This procedure shows the operations to be performed to verify the calibration of Walk-Through Metal Detectors, according to the actual Security Standards.
This procedure must be performed after the positive result of all the technical measurements done at the installation, which certify that the Walk-Through Metal Detector is operative in the working area. (Site Acceptance Test).
The calibration setting must be the one proposed by the manufacturer as the best to meet the requirements of the Security Standard.

2) Kit Composition

Table 1 – Part List of the 3-Standard Kit

Ref	Item	Q.ty
1	K6 Reference Test Sample	1
2	K8 Reference Test Sample	1
3	K10SS Reference Test Sample	1
4	K10 Reference Test Sample	1
5	K12SS Reference Test Sample	1
6	K12 Reference Test Sample	1
7	GD22 Reference Test Sample	1
8	GD32 Reference Test Sample	1
9	Carrying Case	1
10	Instructions for use and Verification Module (this sheet)	3
11	Holder for the ankle position	1
12	Test Piece certificates	1

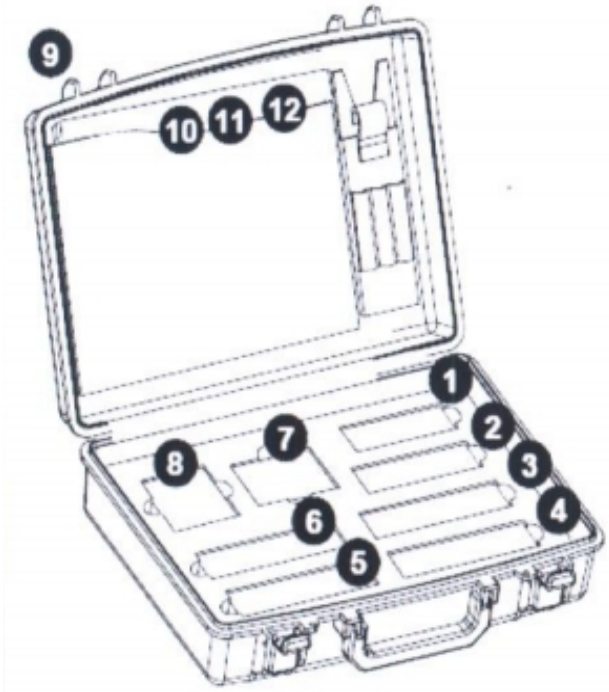
Table 2 – Part List of the 2-Standard Kit

Ref	Item	Q.ty
4	K10 Reference Test Sample	1
5	K12SS Reference Test Sample	1
6	K12 Reference Test Sample	1
7	GD22 Reference Test Sample	1
8	GD32 Reference Test Sample	1
9	Carrying Case	1
10	Instructions for use and Verification Module (this sheet)	1
11	Holder for the ankle position	1
12	Test Piece certificates	1

VERIFICATION OF THE CALIBRATION

Tablo 3. İlgili Güvenlik Standardı İçin Kullanılacak Test Parçaları

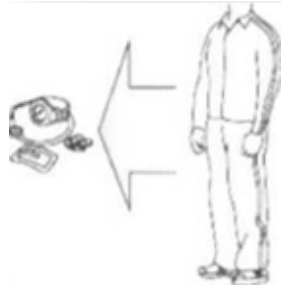
Referans Test Parçası	Standart 1	Standart 2	Standart 3
K6			•
K8			•
K10SS			•
K10		•	
K12SS		•	
K12	•		
GD22	•	•	•
GD32		•	•

Drawing	Ref	Description
	**1**	K6 Test Piece
	2	K8 Test Piece
	3	K10SS Test Piece
	4	K10 Test Piece
	5	K12Test Piece
	6	K12SS Test Piece
	7	GD22 Test Piece
	8	GD32 Test Piece
	9	Carrying Case
	10	Instructions for use and Verification Module (3 pieces)
	11	Holder for the ankle position
	12	Test Piece certificates

VERIFICATION OF THE CALIBRATION

3. The “Clean Tester”

In order to verify the detection capabilities of the metal detector on the Reference Test Samples, without any influence by other metallic personal objects, the following tests shall be performed by an operator without wearing metallic parts, even the ones usually enclosed on clothes and accessories. This operator will be the “Clean Tester”.



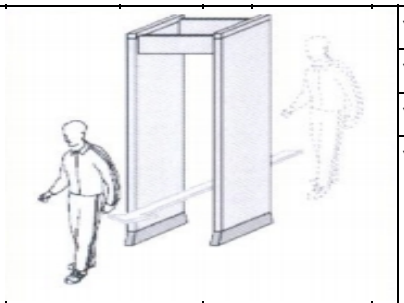
Therefore, the Clean Tester will wear a tracksuit, gym shoes and he/she must remove any personal metallic objects (glasses, watch, rings, necklaces, bracelets...) before starting the tests.

4. Test Procedure

4.1 Clean Tester

This test is performed by the Clean Tester.

Carry out four transits, two in one direction and two in the opposing direction, walking at a normal speed. Ensure that the Metal Detector will show a signal lower than the 20% (typical) and never higher than the 40% of the alarm threshold (maximum acceptable).

STEP 1		
4.1 Verification by means of the “Clean Tester”		
Is the signal measured during all passages always lower than the 40% of the alarm threshold? 	YES ✓	NO
	YES ✓	NO
	YES ✓	NO
	YES ✓	NO
Overall result: The signal measured during all passages is always lower than the 40% of the alarm threshold.	YES ✓	NO

The human body did not trigger the alarm.

VERIFICATION OF THE CALIBRATION

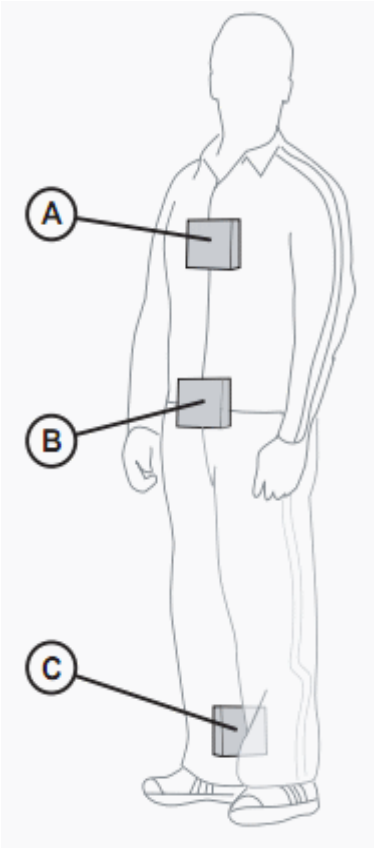
4.2 Walk-Through Detection Verification by means of the Reference Test Samples

The following procedure is performed by the Clean Tester.

Each Reference Test Sample is identified with its own name and with the transit orientations numbered from 1 to 6.

Wear each Reference Test Sample and perform, for each location (see picture on the right) and for each orientation (see table below), four transits, two in one direction and two in the opposite one, verifying that for every transit an alarm is triggered.

In case of no detection, increase the sensitivity by modifying the appropriate parameters globally and/or for the corresponding zone of the transit, if possible.



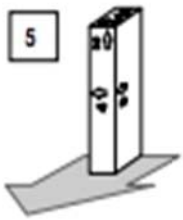
Position	Description
A	Test piece at the centre of the chest
B	Test piece at the center of the waist
C	Test piece at right ankle, lower side of test piece at ankle bone.

VERIFICATION OF THE CALIBRATION

STEP 2-A

4.2 Walk-Through Detection Verification

Carry out four (4) transits through the Metal Detector, two in one direction and two in the opposite direction, verifying that for each transit an alarm will be generated.
Respect the orientation indicated in the figure during the test piece transit.
Position the sample with the indicated **number** upside, and the associated arrow in the transit direction.

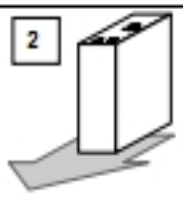
Orientation	Position	Standard 1 K12 Test Sample		Standard 2 K10 Test Sample		Standard 3 K6 Test Sample	
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐

VERIFICATION OF THE CALIBRATION

STEP 2-B

4.2 Walk-Through Detection Verification

Carry out four (4) transits through the Metal Detector, two in one direction and two in the opposite direction, verifying that for each transit an alarm will be generated.
Respect the orientation indicated in the figure during the test piece transit.
Position the sample with the indicated **number** upside, and the associated arrow in the transit direction.

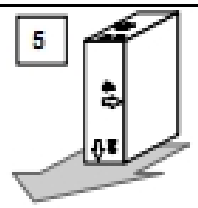
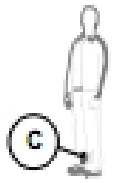
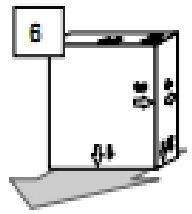
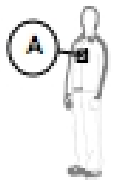
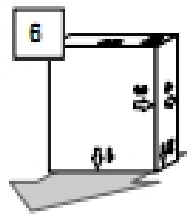
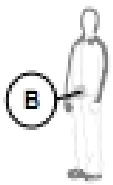
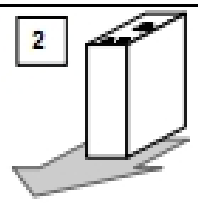
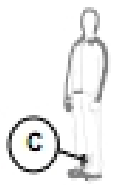
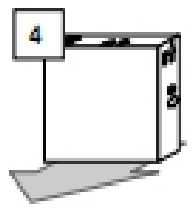
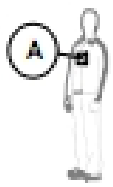
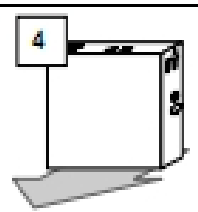
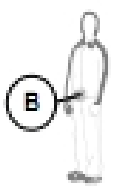
Orientation	Position	Standard 1 GD22 Test Sample	Standard 2 K12SS Test Sample	Standard 3 K8 Test Sample
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐		
		YES ☐ NO ☐		
		YES ☐ NO ☐		
		YES ☐ NO ☐		
		YES ☐ NO ☐		
		YES ☐ NO ☐		
		YES ☐ NO ☐		
		YES ☐ NO ☐		
		YES ☐ NO ☐		
		YES ☐ NO ☐		
		YES ☐ NO ☐		
		YES ☐ NO ☐		

ERIFICATION OF THE CALIBRATION

STEP 2-C

4.2 Walk-Through Detection Verification

Carry out four (4) transits through the Metal Detector, two in one direction and two in the opposite direction, verifying that for each transit an alarm will be generated.
Respect the orientation indicated in the figure during the test piece transit.
Position the sample with the indicated number upside,
and the associated arrow in the transit direction.

Orientation	Position	Standard 1 GD32 Test Sample		Standard 2 GD32 Test Sample		Standard 3 K10SS Test Sample	
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐		
		YES ☐	NO ☐	YES ☒	NO ☐		
		YES ☐	NO ☐	YES ☒	NO ☐		
		YES ☐	NO ☐	YES ☒	NO ☐		
		YES ☐	NO ☐	YES ☒	NO ☐		
		YES ☐	NO ☐	YES ☒	NO ☐		
		YES ☐	NO ☐	YES ☒	NO ☐		
		YES ☐	NO ☐	YES ☒	NO ☐		
		YES ☐	NO ☐	YES ☒	NO ☐		
		YES ☐	NO ☐	YES ☒	NO ☐		
		YES ☐	NO ☐	YES ☒	NO ☐		
		YES ☐	NO ☐	YES ☒	NO ☐		

VERIFICATION OF THE CALIBRATION

STEP 2 - Overall result						
4.2 Walk-Through Detection Verification.						
The Metal Detector generated an alarm for each and every transit, orientation, position and Reference Samples specified.	☐ Standard 1		☒ Standard 2		☐ Standard 3	
	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐

VERIFICATION OF THE CALIBRATION

4.3 Pass-Through Detection Verification by means of the Reference Test Samples

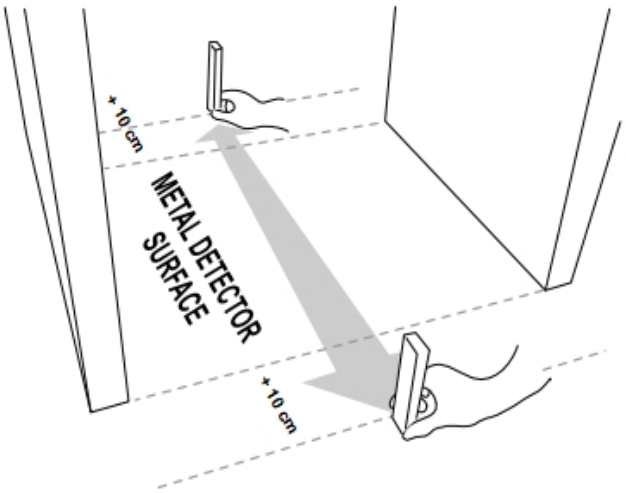
For the two smallest Reference Test Samples, and for each one of the 6 indicated orientations, perform two transits forward and two transits backward:

- at the floor level
- at 40cm
- at 80cm
- at 1,2m
- and at 1,6m

in the center of the gate.

For each and every transit the Metal Detector shall trigger an alarm.

In case of no detection, increase the sensitivity by modifying the appropriate parameters globally and/or for the corresponding zone of the transit, if possible.

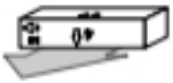
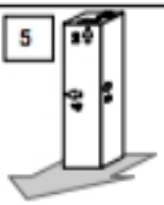


VERIFICATION OF THE CALIBRATION

STEP 3-A

4.3 Pass-Through Detection Verification by means of the Reference Test Samples.

Carry out four (4) transits of each Test Sample through the Metal Detector, two in one direction and two in the opposite direction, verifying that for each transit an alarm will be generated.
Respect the orientation indicated in the figure during the test piece transit.
Position the sample with the indicated **number** upside, and the associated arrow in the transit direction.

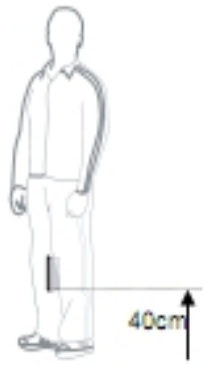
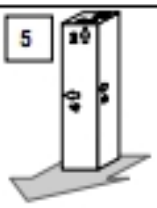
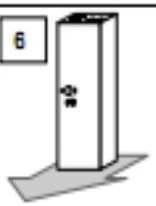
Position	Orientation	Standard 1 GD22 Test Sample		Standard 2 K10 Test Sample		Standard 3 K8 Test Sample	
 In the middle of the gate, at floor level.	1 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	2 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	3 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☒
	4 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☒
	5 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☒
	6 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐

VERIFICATION OF THE CALIBRATION

STEP 3-A

4.3 Pass-Through Detection Verification by means of the Reference Test Samples.

Carry out four (4) transits of each Test Sample through the Metal Detector, two in one direction and two in the opposite direction, verifying that for each transit an alarm will be generated.
Respect the orientation indicated in the figure during the test piece transit.
Position the sample with the indicated **number** upside,
and the associated arrow in the transit direction.

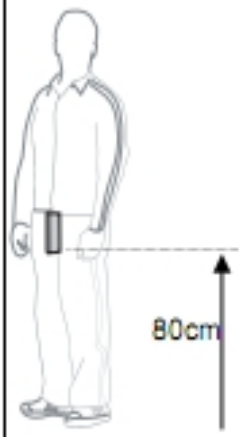
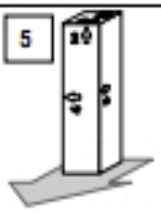
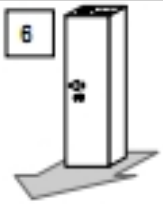
Position	Orientation	Standard 1 GD22 Test Sample		Standard 2 K10 Test Sample		Standard 3 K8 Test Sample	
 In the middle of the gate, at 0,4 m from ground. 	1 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	2 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	3 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☒
	4 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☒
	5 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☒
	6 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐

VERIFICATION OF THE CALIBRATION

STEP 3-A

4.3 Pass-Through Detection Verification by means of the Reference Test Samples.

Carry out four (4) transits of each Test Sample through the Metal Detector, two in one direction and two in the opposite direction, verifying that for each transit an alarm will be generated.
Respect the orientation indicated in the figure during the test piece transit.
Position the sample with the indicated **number** upside,
and the associated arrow in the transit direction.

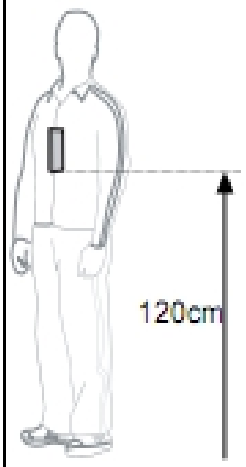
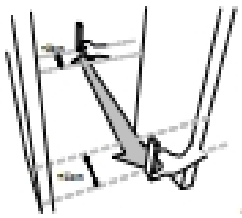
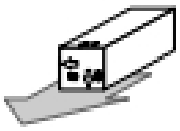
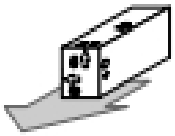
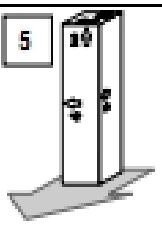
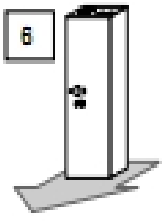
Position	Orientation	Standard 1 GD22 Test Sample	Standard 2 K10 Test Sample	Standard 3 K8 Test Sample
 In the middle of the gate, at 0,8 m from ground. 	1 	YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
	2 	YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
	3 	YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
	4 	YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
	5 	YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
	6 	YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☐ NO ☐	YES ☐ NO ☐

VERIFICATION OF THE CALIBRATION

STEP 3-A

4.3 Pass-Through Detection Verification by means of the Reference Test Samples.

Carry out four (4) transits of each Test Sample through the Metal Detector, two in one direction and two in the opposite direction, verifying that for each transit an alarm will be generated.
Respect the orientation indicated in the figure during the test piece transit.
Position the sample with the indicated number upside,
and the associated arrow in the transit direction.

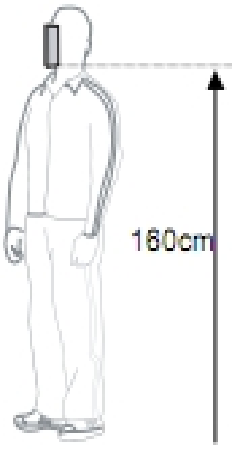
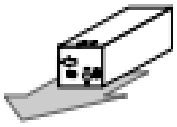
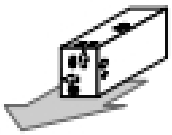
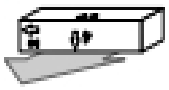
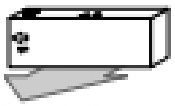
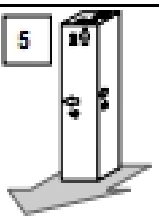
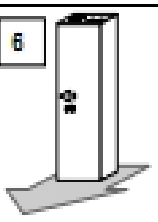
Position	Orientation	Standard 1 GD22 Test Sample		Standard 2 K10 Test Sample		Standard 3 K8 Test Sample	
 In the middle of the gate, at 1,2 m from ground. 	1 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	2 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	3 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☒
	4 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☒
	5 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☒
	6 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐

VERIFICATION OF THE CALIBRATION

STEP 3-A

4.3 Pass-Through Detection Verification by means of the Reference Test Samples.

Carry out four (4) transits of each Test Sample through the Metal Detector, two in one direction and two in the opposite direction, verifying that for each transit an alarm will be generated.
Respect the orientation indicated in the figure during the test piece transit.
Position the sample with the indicated **number** upside,
and the associated arrow in the transit direction.

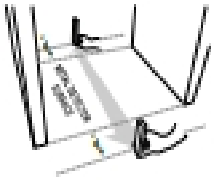
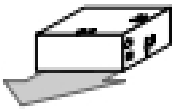
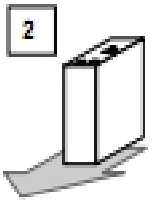
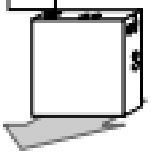
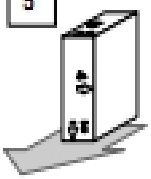
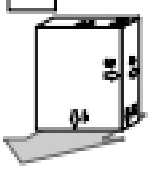
Position	Orientation	Standard 1 GD22 Test Sample		Standard 2 K10 Test Sample		Standard 3 K8 Test Sample	
 In the middle of the gate, at 1,6 m from ground. 	1 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	2 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	3 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	4 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	5 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	6 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐

VERIFICATION OF THE CALIBRATION

STEP 3-B

4.3 Pass-Through Detection Verification by means of the Reference Test Samples.

Carry out four (4) transits of each Test Sample through the Metal Detector, two in one direction and two in the opposite direction, verifying that for each transit an alarm will be generated.
Respect the orientation indicated in the figure during the test piece transit.
Position the sample with the indicated **number** upside,
and the associated arrow in the transit direction.

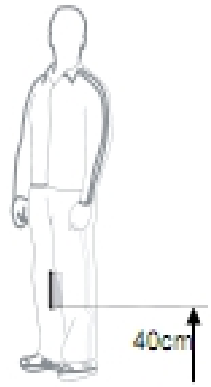
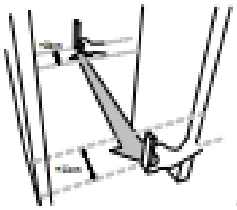
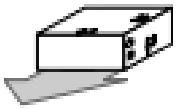
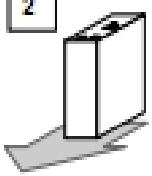
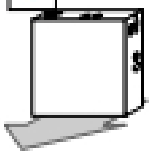
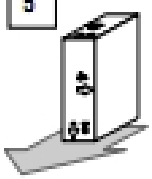
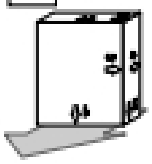
Position	Orientation	Standard 1 GD32 Test Sample		Standard 2 GD32 Test Sample		Standard 3 GD32 Test Sample	
 In the middle of the gate, at floor level.	1 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	2 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	3 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	4 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	5 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	6 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐

VERIFICATION OF THE CALIBRATION

STEP 3-B

4.3 Pass-Through Detection Verification by means of the Reference Test Samples.

Carry out four (4) transits of each Test Sample through the Metal Detector, two in one direction and two in the opposite direction, verifying that for each transit an alarm will be generated.
Respect the orientation indicated in the figure during the test piece transit.
Position the sample with the indicated **number** upside,
and the associated arrow in the transit direction.

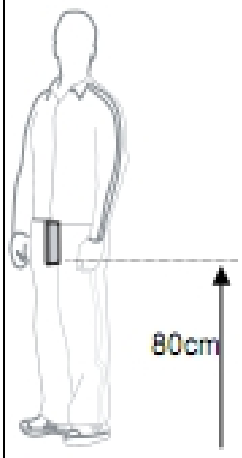
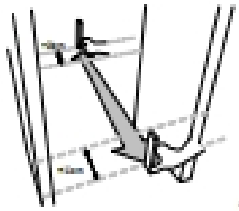
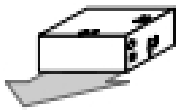
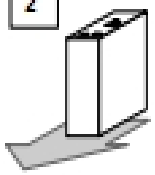
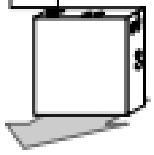
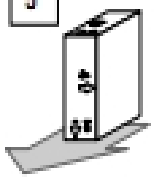
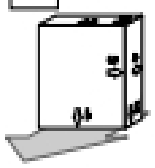
Position	Orientation	Standard 1 GD32 Test Sample		Standard 2 GD32 Test Sample		Standard 3 GD32 Test Sample	
 In the middle of the gate, at 0,4 m from ground. 	1 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	2 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	3 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	4 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	5 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	6 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐

VERIFICATION OF THE CALIBRATION

STEP 3-B

4.3 Pass-Through Detection Verification by means of the Reference Test Samples.

Carry out four (4) transits of each Test Sample through the Metal Detector, two in one direction and two in the opposite direction, verifying that for each transit an alarm will be generated.
Respect the orientation indicated in the figure during the test piece transit.
Position the sample with the indicated number upside,
and the associated arrow in the transit direction.

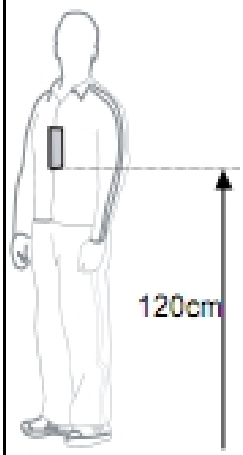
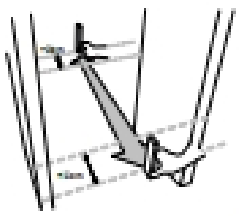
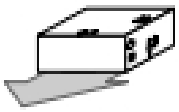
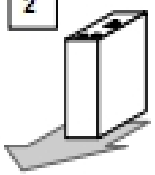
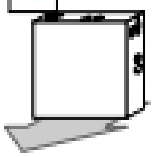
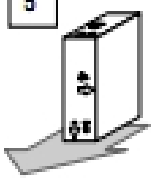
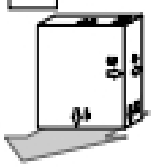
Position	Orientation	Standard 1 GD32 Test Sample	Standard 2 GD32 Test Sample	Standard 3 GD32 Test Sample
 In the middle of the gate, at 0,8 m from ground. 	1 	YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
	2 	YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
	3 	YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
	4 	YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
	5 	YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
	6 	YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐
		YES ☐ NO ☐	YES ☒ NO ☐	YES ☐ NO ☐

VERIFICATION OF THE CALIBRATION

STEP 3-B

4.3 Pass-Through Detection Verification by means of the Reference Test Samples.

Carry out four (4) transits of each Test Sample through the Metal Detector, two in one direction and two in the opposite direction, verifying that for each transit an alarm will be generated.
Respect the orientation indicated in the figure during the test piece transit.
Position the sample with the indicated number upside,
and the associated arrow in the transit direction.

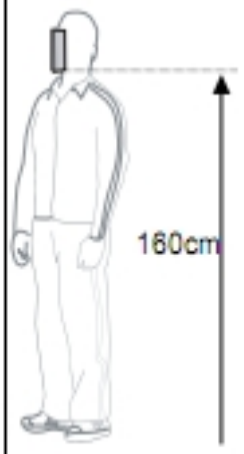
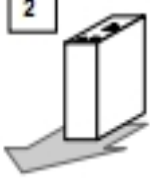
Position	Orientation	Standard 1 GD32 Test Sample		Standard 2 GD32 Test Sample		Standard 3 GD32 Test Sample	
 In the middle of the gate, at 1,2 m from ground. 	1 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	2 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	3 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	4 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	5 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	6 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐

VERIFICATION OF THE CALIBRATION

STEP 3-B

4.3 Pass-Through Detection Verification by means of the Reference Test Samples.

Carry out four (4) transits of each Test Sample through the Metal Detector, two in one direction and two in the opposite direction, verifying that for each transit an alarm will be generated.
Respect the orientation indicated in the figure during the test piece transit.
Position the sample with the indicated **number** upside,
and the associated arrow in the transit direction.

Position	Orientation	Standard 1 GD32 Test Sample		Standard 2 GD32 Test Sample		Standard 3 GD32 Test Sample	
 In the middle of the gate, at 1,6 m from ground. 	1 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	2 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	3 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	4 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	5 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
	6 	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐
		YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐

VERIFICATION OF THE CALIBRATION

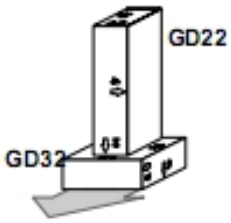
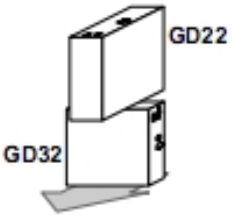
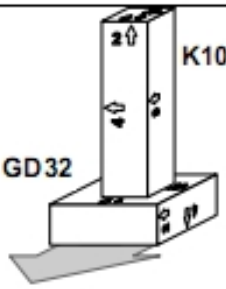
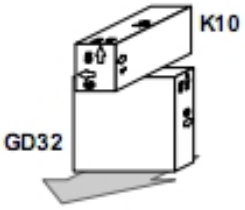
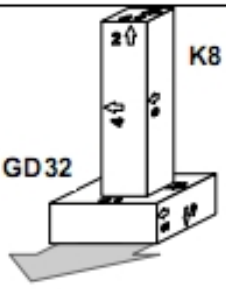
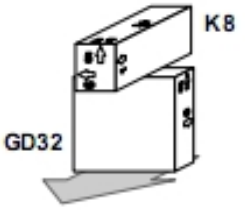
STEP 3 - Overall result						
4.3 Pass-Through Detection Verification by means of the Reference Test Sample.						
The Metal Detector generated an alarm for each and every transit, orientation, position and Reference Samples specified.	☐ Standard 1		☒ Standard 2		☐ Standard 3	
	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐

VERIFICATION OF THE CALIBRATION

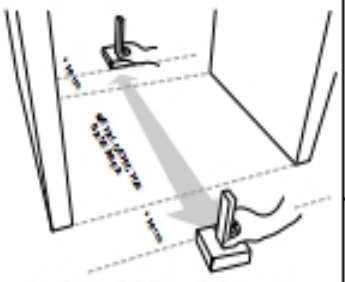
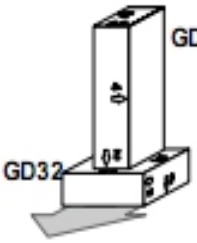
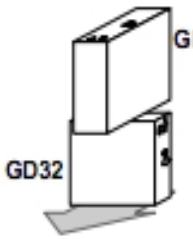
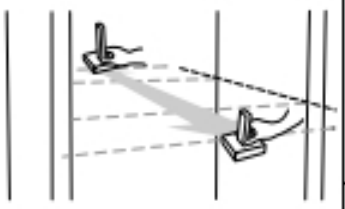
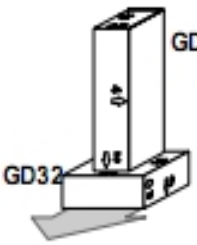
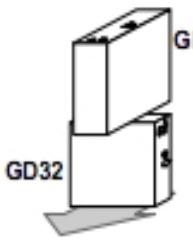
4.4 Verification of Combination Effects

The absence of this detrimental effect can be verified by passing through the smallest objects on the two combination coupling. Transit the assembled items at floor level and at 0,8 meters from the floor.

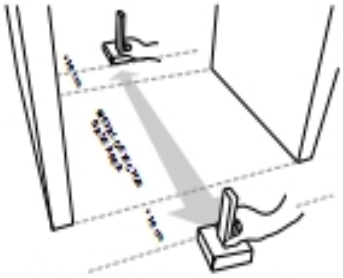
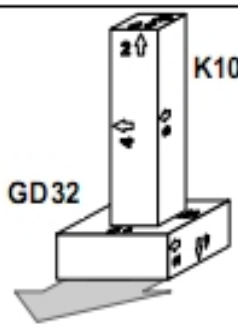
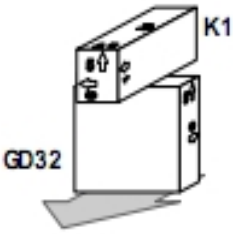
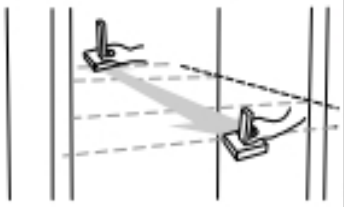
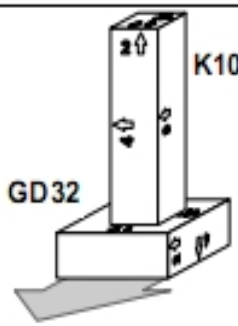
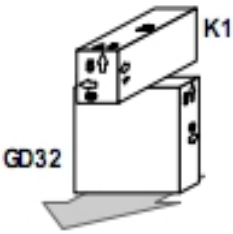
Combination of test samples

Standard	Combinations	
Standard 1		
Standard 2		
Standard 3		

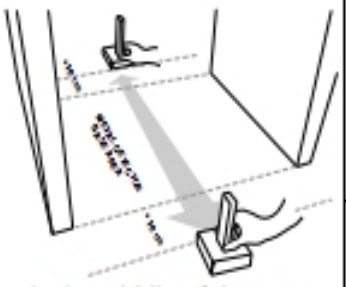
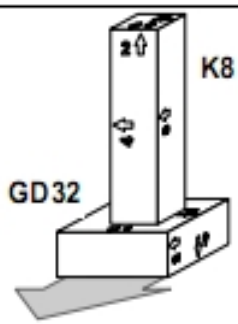
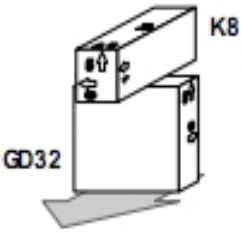
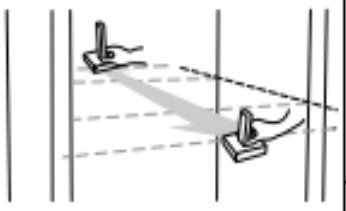
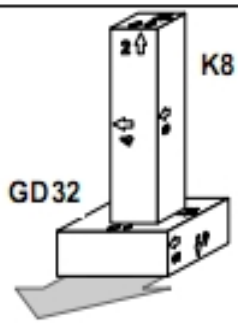
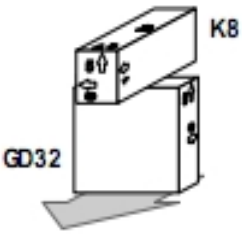
VERIFICATION OF THE CALIBRATION

STEP 4				
4.4 Verification of Combination Effects.				
Position	**Orientation**		**Standard 1**	
 In the middle of the gate, at floor level.		Position the sample GD32 with the number **1** upside, and the associated arrow in the transit direction and the sample GD22 on top of GD32, with the number **5** upside, and the associated arrow in the transit direction, as shown in the picture.	YES ☐	NO ☐
			YES ☐	NO ☐
			YES ☐	NO ☐
			YES ☐	NO ☐
		Position the sample GD32 with the number **4** upside, and the associated arrow in the transit direction and the sample GD22 on top of GD32, with the number **2** upside, and the associated arrow in the transit direction, as shown in the picture.	YES ☐	NO ☐
			YES ☐	NO ☐
			YES ☐	NO ☐
			YES ☐	NO ☐
 In the middle of the gate, at 0,8 m from ground.		Position the sample GD32 with the number **1** upside, and the associated arrow in the transit direction and the sample GD22 on top of GD32, with the number **5** upside, and the associated arrow in the transit direction, as shown in the picture.	YES ☐	NO ☐
			YES ☐	NO ☐
			YES ☐	NO ☐
			YES ☐	NO ☐
		Position the sample GD32 with the number **4** upside, and the associated arrow in the transit direction and the sample GD22 on top of GD32, with the number **2** upside, and the associated arrow in the transit direction, as shown in the picture.	YES ☐	NO ☐
			YES ☐	NO ☐
			YES ☐	NO ☐
			YES ☐	NO ☐

VERIFICATION OF THE CALIBRATION

STEP 4				
4.4 Verification of Combination Effects.				
Position	Orientation		Standard 2	
 In the middle of the gate, at floor level.		Position the sample GD32 with the number **1** upside, and the associated arrow in the transit direction and the sample K10 on top of GD32, with the number **5** upside, and the associated arrow in the transit direction, as shown in the picture	YES [X]	NO [ ]
			YES [X]	NO [ ]
			YES [X]	NO [ ]
			YES [X]	NO [ ]
		Position the sample GD32 with the number **4** upside, and the associated arrow in the transit direction and the sample K10 on top of GD32, with the number **2** upside, and the associated arrow in the transit direction, as shown in the picture	YES [X]	NO [ ]
			YES [X]	NO [ ]
			YES [X]	NO [ ]
			YES [X]	NO [ ]
 In the middle of the gate, at 0,8 m from ground.		Position the sample GD32 with the number **1** upside, and the associated arrow in the transit direction and the sample K10 on top of GD32, with the number **5** upside, and the associated arrow in the transit direction, as shown in the picture	YES [X]	NO [ ]
			YES [X]	NO [ ]
			YES [X]	NO [ ]
			YES [X]	NO [ ]
		Position the sample GD32 with the number **4** upside, and the associated arrow in the transit direction and the sample K10 on top of GD32, with the number **2** upside, and the associated arrow in the transit direction, as shown in the picture	YES [X]	NO [ ]
			YES [X]	NO [ ]
			YES [X]	NO [ ]
			YES [X]	NO [ ]

VERIFICATION OF THE CALIBRATION

STEP 4				
4.4 Verification of Combination Effects.				
Position	Orientation		Standard 3	
 In the middle of the gate, at floor level.		Position the sample GD32 with the number **1** upside, and the associated arrow in the transit direction and the sample K8 on top of GD32, with the number **5** upside, and the associated arrow in the transit direction, as shown in the picture	YES ☐	NO ☐
			YES ☐	NO ☐
			YES ☐	NO ☐
			YES ☐	NO ☐
		Position the sample GD32 with the number **4** upside, and the associated arrow in the transit direction and the sample K8 on top of GD32, with the number **2** upside, and the associated arrow in the transit direction, as shown in the picture	YES ☐	NO ☐
			YES ☐	NO ☐
			YES ☐	NO ☐
			YES ☐	NO ☐
 In the middle of the gate, at 0,8 m from ground.		Position the sample GD32 with the number **1** upside, and the associated arrow in the transit direction and the sample K8 on top of GD32, with the number **5** upside, and the associated arrow in the transit direction, as shown in the picture	YES ☐	NO ☐
			YES ☐	NO ☐
			YES ☐	NO ☐
			YES ☐	NO ☐
		Position the sample GD32 with the number **4** upside, and the associated arrow in the transit direction and the sample K8 on top of GD32, with the number **2** upside, and the associated arrow in the transit direction, as shown in the picture	YES ☐	NO ☐
			YES ☐	NO ☐
			YES ☐	NO ☐
			YES ☐	NO ☐

VERIFICATION OF THE CALIBRATION

STEP 4 - Overall result						
4.4 Verification of Combination Effects.						
The Metal Detector generated an alarm for each and every transit, orientation, position and Reference Samples specified.	☐ Standard 1		☒ Standard 2		☐ Standard 3	
	YES ☐	NO ☐	YES ☒	NO ☐	YES ☐	NO ☐

4.5 Working parameter changes

Note possible parameter changes performed during the tests.

Parametre name	Starting value	Final value
Sensitivity	30	07
Audio Volume	08	00
Random Alarm Level	22	07

5. CONCLUSIONS

The installation can be validated when the procedure ends with

- Successful “Clean Tester” step
- 100% of detection, for each indicated location and orientation, of the Reference Test Samples, both by themselves and coupled.

2.1 Objective

The objective of this report is to verify that ***ThruScan SX-i and ThruScan SX-WP*** WTMDs meet the standarts of ***ACGIH-302(1996), “Sub-radiofrequency (30kHz and below) Magnetic Fields”*** specified in the ***2.5.2.1. “Impact Resistence”*** and ***2.1.3. “Exposure”*** sections of ***(NILECJ) Standard-0601.01 standard***.

2.2 Contents

This report includes test results of ***ThruScan SX-i and ThruScan SX-WP*** WTMDs on ***RESISTANCE TO ENVIRONMENTAL CONDITIONS BASIC TEST METHODS-SECTION 2*** and ***ACGIH-302(1996), “Sub-radiofrequency (30kHz and below) Magnetic Fields”***

2.3 Units and Abbreviations

The units used in tests or measurements:

Symbol	Explanation
A	Ampere
V	Volt
mV	milliVolt
kHz	Kilohertz
MHz	Megahertz
Cs	Cross Sectional Area

V_{pp}	Peak-to-peak voltage
N	Number of turn
f	Frequency
B_{pp}	Peak-to-peak Magnetic Field
H_{pp}	Peak-to-peak Magnetic Field Intensity
H	Effective Magnetic Field Intensity
E	Electric Field Power
S	Power Intensity
Wb	Weber
TSE	Turkish Standard Institution
IEC	International Electrotechnical Commision

International Standartds and their Turkish Standard Institution equivalents;

Uluslar Arası Standart	**TSE Karşılığı**
IEC60068-2-31 *(EN 60068-2-31)*	*TS 2205 EN 60068-2-31/Nisan 2000*
IEC60068-2-32 *(EN 60068-2-32)*	*TS 2206 EN 60068-2-32/Şubat 2000*
IEEE C95.1-1991 Point 4.12, ve IEEE C95.1-1999 Point 4.12	*Used for indication of Magnetic Field above 2 Gauss* *Measured 0.73 A/m presently.*
NILECJ-STD-0602.00 *Section 4.1 1*	*Potential hazard to human health was tested.*
(NILECJ) 0601.00 1-5	*Sensitivity levels were indicated in TSE Test Report*

FCC Class B Standards	TS EN 61000-6-1: 2007-01, TS EN 61000-6-3: 2007-07: 2007-01, TS EN 61000-4-3 tests are included
IEC Standards for Safety Requirements for Electronic Measuring Apparatus	TS EN 61000-6-1: 2007-01, TS EN 61000-6-3: 2007-07: 2007-01, TS EN 61000-4-3 tests are included
Occupational and Safety Health Administration "Radiation Protection Guide" CFR 1910.97 section2.	*TS EN 61000-6-1/2007* *(IEC 61000-4-3)*

3. Free Fall Test

3.1 Tested Products

Test Date	27/05/2009
Tested Products	*ThruScan SX-i, ThruScan SX-WP, sX*
Quantities	*ThruScan SX-i* :1 *ThruScan SX-WP* :1
Serial Numbers:	*ThruScan SX-i* :09092304 *ThruScan SX-WP* :09012425

3.2 Standards

TS 2206 EN 60068-2-32/Şubat 2000

3.3 Test Procedure

3.3.1 Definition of Free Fall Test Procedure

Product Contidion	Packaged
Floor	Concrete
Fall Distance	1000 mm
Fall Count of Products	Each product was dropped twice, on 4 surfaces of it.
Total Fall Count	16

3.3.2 Test Result

After the Free Fall test, any loss of sensitivity in ***ThruScan SX-i*** and ***ThruScan SX-WP*** WTMDs was not detected according to tests in accordance with ***2.3 "Detection Performance Criteria"*** of the standard ***(NILECJ) Standard-0601.01***. Little cracks occured on the side panels of the device, which would not affect the performance of the device.

4. Drop and Overturning Test

4.1 Tested Products

Test Date	27/05/2009
Tested Products	*ThruScan SX-i, ThruScan SX-WP, sX*
Quantities	*ThruScan SX-i* :1 *ThruScan SX-WP* :1
Serial Numbers:	*ThruScan SX-i* :09092304 *ThruScan SX-WP* :09012425

4.2 Standards

TS 2205 EN 60068-2-31/April 2000

4.3 Test Procedure

4.3.1 Definition of Drop Test Procedure

Product Condition	Packaged
Floor	Concrete
Drop Height On Each Surface	100 mm
Drop Angle On Each Corner	The angle between the bottom of the product and the test floor is 30^0
Drop Count	Each product was dropped twice, on 4 of its surfaces

4.3.2 Definition of Overturning Test Procedure

Product Condition	Packaged
Floor	Concrete
Drop Count	Each product was tipped over onto 4 surfaces of it.

4.3.3 Test Result

After the Drop and Overturning tests, any loss of sensitivity in ***ThruScan SX-i*** and ***ThruScan SX-WP*** WTMDs was not detected according to tests in accordance with ***2.3 "Detection Performance Criteria"*** of the standard ***(NILECJ) Standard-0601.01***. Any mechanical damage did not occur.

5. Temperature Resistance Test

The tests conducted by our laboratory gave the results below:

- The tested WTMDs were indicated to work in temperature levels between -15°C and +60°C and in %95 relative humidity with no failure in functions.
- The tested WTMDs can be stored in temperature levels between -20°C and +70°C and in %95 relative humidity.

6. Magnetic Field Strength – Electric Field Strength Measurements of ThruScan SX-i and ThruScan SX-WP

The measurement of Magnetic Field Strength was conducted in accordance with the criteria specified in the standard ***ACGIH-302 (1996) and IEEE C95.1-1991 Section 4.12***, and was conducted as indicated below.

The magnetic field strength the WTMD generated was measured with the help of the voltage this field induced on a coil that was drawn near to it. The symbols used in the formula are;

V_{pp} : The peak-to-peak value of the voltage induced between two ends of the coil.

N : Number of turn of the coil.

Cs : Cross Sectional Area exposed to the magnetic field strength.

f : Operational frequency of the WTMD (1.67 kHz)

The WTMD induced a peak-to-peak voltage of 31mV on a coil with 56 number of turns, 0.02m^2 area and a distance of 5 cm from the surface of detection.

$$V_{pp} = 2 \times \pi \times f \times B_{pp} \times N \times Cs$$

$$B_{pp} = \frac{31 \times 10^{-3} V}{2 \times \pi \times 1670 Hz \times 56 \times 0.02 m^2}$$

$$B_{pp} = 2.63 \times 10^{-6} Wb$$

$$H_{pp} = \frac{B_{pp}}{\mu_0} = \frac{2.63 \times 10^{-6}}{4\pi \times 10^{-7}} = 2.09 \left(\frac{A}{m} \right)$$

$$H = 2.09 \times \frac{1}{2 \times \sqrt{2}} = 0.73 \left(\frac{A}{m} \right)$$

The normal operational frequency of the device was measured to be 1.67 kHz, thus the issues specified in the point IEEE C95.1-1991 Standardının Section 4.12. are not binding for the device.

The Magnetic Field Strength resulted consequential to the measured value was ***0,73 A/m***, far below the ***Maximum Allowed Magnetic Field Strength*** specified in ***ACGIH–0302 (1996), Sub-Radio Frequency (30 kHz and below) Magnetic Fields"*** and ***IEEE C95.1-1991 Section 4.12.*** The magnetic field strength the device was found to generate was measured to be ***0,026 Gauss.***

7. Evaluation of the Test Results

Consequential to the tests, ***ThruScan SX-i*** and ***ThruScan SX-WP*** WTMDs were found to meet, with no functional losses, the Resistance to Environmental Conditions standards of;

IEC60068-2-31 (TS 2205 EN 60068-2-31/April 2000)

IEC60068-2-32 (TS 2206 EN 60068-2-32/February 2000)

that ***(NILECJ) Standart-0601.01*** refers to.

ThruScan SX-i and ***ThruScan SX-WP*** WTMDs were found to meet the health and safety criteria sought in ***(NILECJ) Standart-0601.00 1-5*** and ***NILECJ-STD-0602.00 Section 4.1 1.***

ThruScan SX-i and ***ThruScan SX-WP*** WTMDs meet the related safety criteria specified in ***VDE 0848 Part 4/A3***

ThruScan SX-i and ***ThruScan SX-WP*** WTMDs also conform to the ***Occupational and Safety Health Administration, Radiation Protection Guide CFR 1910.97 section2*** and ***FCC Class B Standards.***