

Verification of Fuel Dispenser

APLMF GUIDE 4

First edition

November 2016 (APLMF Guide 4)

Contents

- 1. Introduction**
- 2. Test Procedures**
- 3. Summary of Economy Reports presented at the training course**
- 4. Survey results on adopting the test procedures**
- 5. Appendix**
 - a. Survey Responses**

Introduction

MEDEA is a four year project managed by Physikalisch Technische Bundesanstalt (PTB) and funded by the German Federal Ministry for Economic Development and Cooperation (BMZ) which aims to foster and further develop the capabilities of the Asia Pacific Metrology Programme (APMP) and the Asia Pacific Legal Metrology Forum (APLMF) to support developing economies in the Asia-Pacific region.

The project commenced in 2014 and this work package intends to deliver 11 training courses over 4 years to developing economies participating in the MEDEA program who have provided the required data towards the Regional capability Survey. A component of this project is to develop a Guide Document on each topic which will outline the test procedures suggested during each training event. All economies have had the opportunity to participate in a survey to validate the test procedure.

Guide 4 examines the test procedures presented at two verification of fuel dispensers courses delivered in Pattaya City, Thailand on the 15-19 June 2015 and 11-13 July 2016.

This guide document has been developed to act as a single point of information for this topic and includes:

- Test procedures
- Summary of economy reports presented at the training courses
- Survey results on adopting the test procedures

The intention is that these test procedures will be used for the development of an e-learning module which will be made available through the web portal.

Test Procedures

Test Name	Procedures Description
VISUAL INSPECTION	<ul style="list-style-type: none"> • Visually inspect the fuel dispenser for compliance with its certificate(s) of approval • Inspect the fuel dispenser for compliance with any relevant regulations/environmental factors/mode of use.
CHECKING FACILITY FOR ELECTRONIC INDICATORS	<p>Visually check the entire electronic display by:</p> <ul style="list-style-type: none"> • displaying all the elements; • blanking all the elements; and • displaying zeros. <p>This test can be carried out in conjunction with the test for zero setting using an electronic reset mechanism</p>
ZERO SETTING FOR MECHANICAL RESET MECHANISM ZERO SETTING FOR ELECTRONIC RESET MECHANISM	<ul style="list-style-type: none"> • Determine whether zero setting is mechanical or electronic and conduct the appropriate test. • Remove the delivery nozzle from its hang-up position. • If a previous sale remains on the indicator move the starting lever to the ON position and ensure that the pump motor does not start or the dispenser is not activated. If the pump motor does start or the dispenser is activated then the interlock mechanism is faulty. • Reset the indicator/s to zero and check that the volume indicator/s is/are zero within 0.5 Emin and the price indicator/s is/are zero within Emin unit price 0.5. • Move the starting lever slowly and gently towards the ON position until the motor starts (or the dispenser is activated) and then slowly and gently towards the OFF position until the motor stops (or the dispenser is deactivated). • Move the starting lever slowly and gently towards the ON position and check that the interlock has engaged and prevents the motor from starting or being activated. • Return the starting lever to the OFF position. • Remove the nozzle from its hang-up position and ensure that the display test is performed and the price and volume displays are on zero before any delivery of product is possible. • Carefully return the nozzle to its hang up position and ensure that when the nozzle is then removed no further deliveries are possible without the segment test being initiated and the indications returning to zero.
PRICE COMPUTING	<ul style="list-style-type: none"> • Reset the dispenser to zero. • Make a delivery of a convenient volume. • Calculate the total price (rounded to two decimal places) from the unit price and volume indicated. • Compare this calculated price with all price displays.

NOZZLE CUT-OFF	<ul style="list-style-type: none"> Where the hose is fitted with an automatic cut-off nozzle, make a delivery at normal flow rate Allow the sensing port of the nozzle to come in contact with liquid or froth. Ensure the nozzle cuts off. <p>Repeat above steps twice more.</p>
INTERLOCK HOSES SHARING A COMMON INDICATOR INTERLOCK HOSES SHARING A COMMON PUMPING UNIT	<ul style="list-style-type: none"> Determine whether the hoses have a common indicator or whether they share a pumping unit, and conduct the appropriate test. Select and authorise any hose that shares a common indicator with the hose(s) being tested. Check that the price and volume indications for the hose selected reset to zero, and for dispensers: <ul style="list-style-type: none"> (a) with separate unit price display: the unit price display for the type of fuel selected is transferred to the main indication; (b) without separate unit price display: the unit price display for the hose selected is displayed and all other unit price displays disappear until the delivery has been completed. Check that all other hoses sharing the same indicator are disabled by removing the other nozzles from their hang up position and confirming that they do not authorise. Select and authorise any hose that shares the common pumping unit with the hose being tested. While the pumping unit is operating, attempt to make a delivery from the hose being tested without allowing the dispenser to be actuated where it will initiate the zero setting sequence. Check that it is not possible to make a delivery from the hose being tested.
PRE-SET INDICATIONS	<ul style="list-style-type: none"> Reset the dispenser to zero. Enter a suitable pre-set value using the pre-set facility. Make sure the pre-set amount appears on the display. Commence a delivery into the container with the nozzle fully open allowing the pre-set facility to slow down and complete the delivery automatically. Check that the price/volume indication on the display corresponds to the pre-set amount and for self-serve remains on the display or is stored in memory until the transaction is finalised.
MAXIMUM FLOW RATE HOSES SHARING A COMMON PUMPING UNIT	<ul style="list-style-type: none"> For all hoses, commence and time a delivery at the maximum achievable flow rate. Stop the delivery after at least 10 seconds. Note the indication on the dispenser and calculate the flow rate. Select and authorise a number of hoses connected to the same pumping unit. With all hoses operating at the maximum achievable flow rate, time the delivery for one of the hoses. Stop the delivery after at least 10 s and calculate the flow rate. <p>NOTE: Only performed at initial verification, or when any site changes occur.</p>
ACCURACY	<ul style="list-style-type: none"> Condition the standard volume measure Make a delivery at maximum achievable flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). Calculate and record the relative error (of indication) (EFD). Repeat the steps above twice more. Make one more delivery at minimum flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). Calculate and record the relative error (of indication) (EFD).

ACCURACY OF PRE-SET	<ul style="list-style-type: none"> ● Condition the standard volume measure ● Enter and record a suitable pre-set value using the pre-set facility. This pre-set value should deliver close to the value of the reference standard measure being used. ● Make a delivery at maximum achievable flow rate until the delivery stops. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). ● Calculate and record the relative error (of indication) (EFD).
GAS ELIMINATION	<ul style="list-style-type: none"> ● For systems fitted with a gas elimination device, calculate and record the average error (EAV) of the three runs at maximum achievable flow rate recorded during the accuracy test ● Condition the standard volume measure. ● If sealed, remove seal from the test valve. ● Commence a delivery at the maximum achievable flow rate. During the delivery slowly open the air/gas test valve, causing the flow to decrease noticeably or to stop. ● Close the test valve, and complete the delivery. ● Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). ● Calculate and record the relative error (of indication) (EFD). ● Determine the error difference (ED) for the gas elimination device.
ANTI-DRAIN / HOSE DILATION WITHOUT A HOSE REEL WITH A HOSE REEL	<ul style="list-style-type: none"> ● Conduct the appropriate test (hose either provided without a hose reel or with a hose reel). ● Condition a suitable standard volume measure, e.g. graduated measuring cylinder. ● Start the delivery to allow the hose to pressurise. ● Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. ● Deactivate the dispenser by manually operating the nozzle hang-up flap or by inserting a dummy nozzle into the holster. Do not hang up the nozzle. ● Whilst holding the nozzle down, drain for 5 s. ● Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. ● Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. ● Fully uncoil hose from its reel. ● Condition a suitable standard volume measure, e.g. graduated measuring cylinder. ● Start the delivery to allow the hose to pressurise. ● Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. ● Deactivate the dispenser by manually operating the nozzle hang-up flap and do not hang up the nozzle. ● Fully coil the hose back on its reel. ● Whilst holding the nozzle down, drain for 5 s. ● Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. ● Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired.

Summary of Economy Reports presented at the training course

Pattaya City, Thailand 15-19 June 2015

Economy	Legislation	SI	MPE used	Inspector of 3 rd pty	Verification periods	OIML compliant	Type approval	Issues	Other
Bangladesh	YES	YES	0.6% (-0.3 + 1.2)	inspectors	1 Y	YES	YES	HR Education, old equipment, funding	
Bhutan	YES	YES	±0.5%	inspectors	1Y	YES	NO	Lack of public awareness, funding	more training and equipment
Cambodia	YES	YES	±0.5% initial, ±1% subsequent	municipal and provincial staff	1Y	YES	Manufacturer	HR, equipment, primary, secondary for WB or working standards, WB unit, Public awareness, Law enforcement, software, budget	more training and equipment
China	YES	YES	±0.3% (0.15% repeatability)	Inspectors	6 month	YES	YES	Software for cheating, compulsory	
India	YES	YES	Emin or ±0.5% whichever is >	Inspectors	1Y	YES	YES	Software, OIML Toll free #	
Indonesia	YES	YES	±0.5%	Inspectors	1Y	YES	YES (not all tests)	electronic disturbance, influence factors, need facilities	

Economy	Legislation	SI	MPE used	Inspector of 3 rd pty	Verification periods	OIML compliant	Type approval	Issues	Other
Malaysia	YES	YES	±0.5%	Private company Metrology Corporation of Malaysia Verification officers	1Y	YES	YES	capacity building for new inspectors	
Mongolia	YES	YES	±0.25%	Inspectors	6 months	YES	NO		
Papua-New Guinea	YES	YES	±0.5%	Inspectors	1 Y	YES	NO	HR, Budget, Basic equipment	Do not calibrate
Philippines	YES	YES	±0.5%	3rd PARTY with inspectors observing and marking	2 months	only accuracy test	NO	LGU lack knowledge to verify, equipment not compliant	
Sri Lanka	YES	YES	±0.5%	inspectors	1 Y	YES	YES	mobile calibration unit, HR	
Thailand	YES	YES	±0.5%	inspectors/manufacturers with license	2 Y (inspector) 60 days (repairer)	YES	NO	Low # weights and measures officers	
Viet Nam	YES	YES	±0.3%	verifiers who are certified and licensed	1Y	YES	YES	absence of regulation for repairers	
Australia	yes	yes	±0.3%	3RD PARTY	None	YES	YES		

Obtained at Pattaya City, Thailand 11-13 July 2016

Economy	Legislation	SI	MPE used %	Inspector of 3rd pty	Verification periods	OIML compliant	Type approval	Issues
Bangladesh	Yes	Yes	0.3	Inspector	1 Year	Yes	Yes	Lack of resources
Bhutan	Yes	Yes	0.5	Inspector	1 Year	Yes	Yes	No legal metrology system
Cambodia	Yes	Yes	0.5 Initial 1.0 subsequent	Inspector	1 Year	Yes	Yes	Resources including budget Public awareness
Indonesia	Yes	Yes	0.5	Regional responsibility	1 Year	Not fully adopted	Yes	
Malaysia	Yes	Yes	0.5	Verification officers – Licensee	Periodic 1 Year	Yes	Yes	
Mongolia	Yes	Yes	0.5	Inspector	6 Months	Unsure	Yes	

Economy	Legislation	SI	MPE used %	Inspector of 3rd pty	Verification periods	OIML compliant	Type approval	Issues
Nepal	Yes	Yes (no legal req)	+0.5 -0.25	Inspector	1 Year	No	No	Tampering Lack of training
Philippines	Yes	Yes	0.5	Local government NML	2 Months	Not yet working towards	No	
Papua New Guinea (NIST)	Yes (ICCC is regulator)	Yes	Price only	Inspector (ICCC)	1 Year	Yes	No	Conflict between regulators
Sri Lanka	Yes	Yes	+0.5 -0.25	Inspector	2 Years	Yes usually	Yes	Lack of resources and knowledge
Thailand	Yes	Yes	Variable Up to 2L 5mL	Inspector or licensee	1 Year	Yes	No	
Vietnam	Yes	Yes	0.3	Inspector or licenced verifiers		Yes	Yes	No regulation regarding maintenance

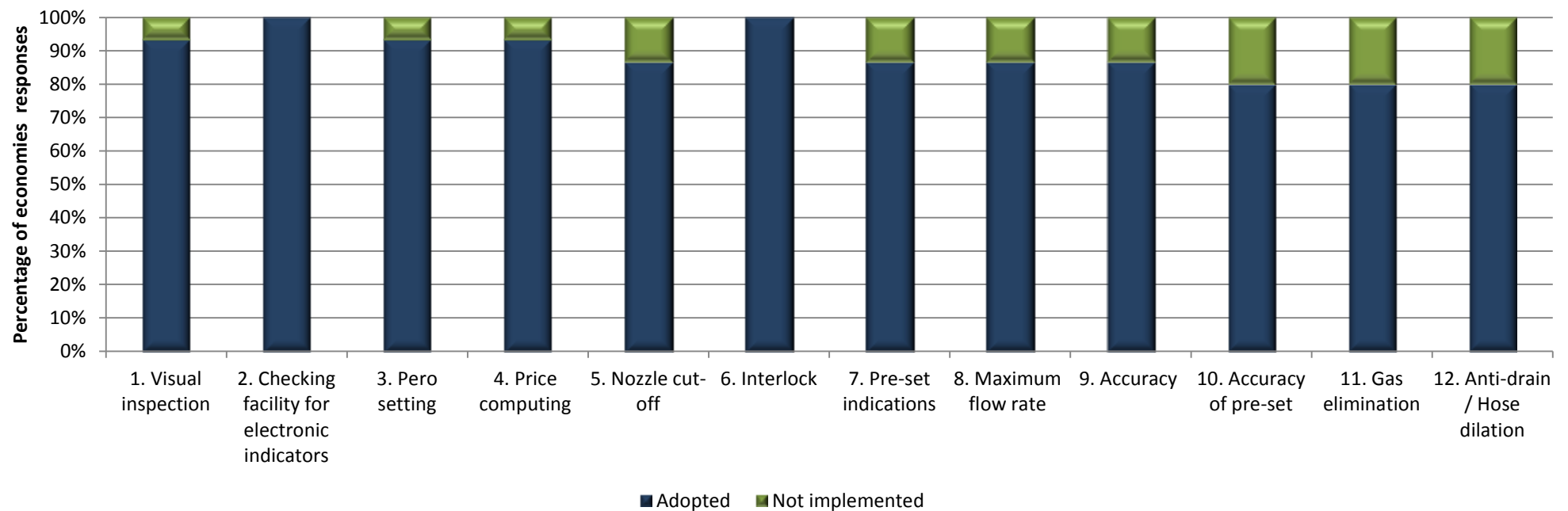
Survey results on adopting the test procedures

Economies
not
responded, 4



Economies
Responded,
15

APLMF proposed fuel dispenser test procedures



Test Name	Total economies surveyed	Adopted	Not implemented	Economies not responded
1. Visual inspection	19	14	1	4
2. Checking facility for electronic indicators	19	15	0	4
3. Pero setting	19	14	1	4
4. Price computing	19	14	1	4
5. Nozzle cut-off	19	13	2	4
6. Interlock	19	15	0	4
7. Pre-set indications	19	13	2	4
8. Maximum flow rate	19	13	2	4
9. Accuracy	19	13	2	4
10. Accuracy of pre-set	19	12	3	4
11. Gas elimination	19	12	3	4
12. Anti-drain / Hose dilation	19	12	3	4

Economies responded

Australia, Cambodia, Canada, Hong Kong China, Indonesia, Japan, DPR of Korea, Malaysia, Mongolia, New Zealand, Papua New Guinea, Singapore, Chinese Taipei, Thailand, Vietnam

Appendix

Survey Responses collected from:

- Australia
- Cambodia
- Canada
- Hong Kong, China
- Indonesia
- Japan
- DPR of Korea
- Malaysia
- Mongolia
- New Zealand
- Papua New Guinea
- Singapore
- Chinese Taipei
- Thailand
- Vietnam



APLMF Survey on the test procedures for the verification of fuel dispensers

Economy Name: Australia

Name of person completing the survey: Darryl Hines

Organisation responsible: National Measurement Institute, Legal Metrology Branch

Please complete this survey to indicate if you agree or disagree that each test procedure described should be included in the APLMF standard.

Please send the completed survey to Secretariat@aplmf.org by: 4 July 2016

Only tick (✓) one box per test

Survey

Test No.	Test Name	Procedures Description	Agree	Disagree
1.	Visual inspection	<ul style="list-style-type: none">Visually inspect the fuel dispenser for compliance with its certificate(s) of approvalInspect the fuel dispenser for compliance with any relevant regulations/environmental factors/mode of use.	✓	
2.	Checking facility for electronic indicators	<p>Visually check the entire electronic display by:</p> <ul style="list-style-type: none">displaying all the elements;blanking all the elements; anddisplaying zeros. <p>This test can be carried out in conjunction with the test for zero setting using an electronic reset mechanism</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
3.	ZERO SETTING FOR MECHANICAL RESET MECHANISM ZERO SETTING FOR ELECTRONIC RESET MECHANISM	<ul style="list-style-type: none"> • Determine whether zero setting is mechanical or electronic and conduct the appropriate test. • Remove the delivery nozzle from its hang-up position. • If a previous sale remains on the indicator move the starting lever to the ON position and ensure that the pump motor does not start or the dispenser is not activated. If the pump motor does start or the dispenser is activated then the interlock mechanism is faulty. • Reset the indicator/s to zero and check that the volume indicator/s is/are zero within 0.5 Emin and the price indicator/s is/are zero within Emin unit price 0.5. • Move the starting lever slowly and gently towards the ON position until the motor starts (or the dispenser is activated) and then slowly and gently towards the OFF position until the motor stops (or the dispenser is deactivated). • Move the starting lever slowly and gently towards the ON position and check that the interlock has engaged and prevents the motor from starting or being activated. • Return the starting lever to the OFF position. <ul style="list-style-type: none"> • Remove the nozzle from its hang-up position and ensure that the display test is performed and the price and volume displays are on zero before any delivery of product is possible. • Carefully return the nozzle to its hang up position and ensure that when the nozzle is then removed no further deliveries are possible without the segment test being initiated and the indications returning to zero. 	✓	
4.	PRICE COMPUTING	<ul style="list-style-type: none"> • Reset the dispenser to zero. • Make a delivery of a convenient volume. • Calculate the total price (rounded to two decimal places) from the unit price and volume indicated. • Compare this calculated price with all price displays. 	✓	
5.	NOZZLE CUT-OFF	<ul style="list-style-type: none"> • Where the hose is fitted with an automatic cut-off nozzle, make a delivery at normal flow rate • Allow the sensing port of the nozzle to come in contact with liquid or froth. • Ensure the nozzle cuts off. <p>Repeat above steps twice more.</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
6.	<p>INTERLOCK</p> <p>HOSES SHARING A COMMON INDICATOR</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p>	<ul style="list-style-type: none"> Determine whether the hoses have a common indicator or whether they share a pumping unit, and conduct the appropriate test. Select and authorise any hose that shares a common indicator with the hose(s) being tested. Check that the price and volume indications for the hose selected reset to zero, and for dispensers: <p>(a) with separate unit price display: the unit price display for the type of fuel selected is transferred to the main indication;</p> <p>(b) without separate unit price display: the unit price display for the hose selected is displayed and all other unit price displays disappear until the delivery has been completed.</p> Check that all other hoses sharing the same indicator are disabled by removing the other nozzles from their hang up position and confirming that they do not authorise. Select and authorise any hose that shares the common pumping unit with the hose being tested. While the pumping unit is operating, attempt to make a delivery from the hose being tested without allowing the dispenser to be actuated where it will initiate the zero setting sequence. Check that it is not possible to make a delivery from the hose being tested. 	✓	
7.	PRE-SET INDICATIONS	<ul style="list-style-type: none"> Reset the dispenser to zero. Enter a suitable pre-set value using the pre-set facility. Make sure the pre-set amount appears on the display. Commence a delivery into the container with the nozzle fully open allowing the pre-set facility to slow down and complete the delivery automatically. Check that the price/volume indication on the display corresponds to the pre-set amount and for self-serve remains on the display or is stored in memory until the transaction is finalised. 	✓	
8.	<p>MAXIMUM FLOW RATE</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p> <p>Only performed at initial verification, or when any site changes occur.</p>	<ul style="list-style-type: none"> For all hoses, commence and time a delivery at the maximum achievable flow rate. Stop the delivery after at least 10 seconds. Note the indication on the dispenser and calculate the flow rate. Select and authorise a number of hoses connected to the same pumping unit. With all hoses operating at the maximum achievable flow rate, time the delivery for one of the hoses. Stop the delivery after at least 10 s and calculate the flow rate. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
9.	ACCURACY	<ul style="list-style-type: none"> • Condition the standard volume measure • Make a delivery at maximum achievable flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Repeat the steps above twice more. • Make one more delivery at minimum flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
10.	ACCURACY OF PRE-SET	<ul style="list-style-type: none"> • Condition the standard volume measure • Enter and record a suitable pre-set value using the pre-set facility. This pre-set value should deliver close to the value of the reference standard measure being used. • Make a delivery at maximum achievable flow rate until the delivery stops. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
11.	GAS ELIMINATION	<ul style="list-style-type: none"> • For systems fitted with a gas elimination device, calculate and record the average error (EAV) of the three runs at maximum achievable flow rate recorded during the accuracy test • Condition the standard volume measure. • If sealed, remove seal from the test valve. • Commence a delivery at the maximum achievable flow rate. During the delivery slowly open the air/gas test valve, causing the flow to decrease noticeably or to stop. • Close the test valve, and complete the delivery. • Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Determine the error difference (ED) for the gas elimination device. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
12.	ANTI-DRAIN / HOSE DILATION WITHOUT A HOSE REEL	<ul style="list-style-type: none"> ● Conduct the appropriate test (hose either provided without a hose reel or with a hose reel). ● Condition a suitable standard volume measure, e.g. graduated measuring cylinder. ● Start the delivery to allow the hose to pressurise. ● Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. ● Deactivate the dispenser by manually operating the nozzle hang-up flap or by inserting a dummy nozzle into the holster. Do not hang up the nozzle. ● Whilst holding the nozzle down, drain for 5 s. ● Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. ● Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 	✓	
	WITH A HOSE REEL	<ul style="list-style-type: none"> ● Fully uncoil hose from its reel. ● Condition a suitable standard volume measure, e.g. graduated measuring cylinder. ● Start the delivery to allow the hose to pressurise. ● Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. ● Deactivate the dispenser by manually operating the nozzle hang-up flap and do not hang up the nozzle. ● Fully coil the hose back on its reel. ● Whilst holding the nozzle down, drain for 5 s. ● Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. ● Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 		

Please also indicate if your economy currently aligns with the test procedures above.

Do your economies test procedures currently align with the test procedures described above	Yes	No
	✓	

Please note that the following tests/steps are currently used in Australia in addition to the requirements specified above.

Test 12- The following steps have not been included

- Record the volume of drained fuel indicated by the standard volume measure.*
- Determine whether the dispenser has passed or failed.*



APLMF Survey on the test procedures for the verification of fuel dispensers

Economy Name: National Metrology Center (NMC), Cambodia

Name of person completing the survey: NGI Polineavith

Organisation responsible: Legal and Industrial metrology department

Please complete this survey to indicate if you agree or disagree that each test procedure described should be included in the APLMF standard.

Please send the completed survey to Secretariat@aplmf.org by: 4 July 2016

Only tick (✓) one box per test

Survey

Test No.	Test Name	Procedures Description	Agree	Disagree
1.	Visual inspection	<ul style="list-style-type: none">Visually inspect the fuel dispenser for compliance with its certificate(s) of approvalInspect the fuel dispenser for compliance with any relevant regulations/environmental factors/mode of use.	✓	
2.	Checking facility for electronic indicators	<p>Visually check the entire electronic display by:</p> <ul style="list-style-type: none">displaying all the elements;blanking all the elements; anddisplaying zeros. <p>This test can be carried out in conjunction with the test for zero setting using an electronic reset mechanism</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
3.	ZERO SETTING FOR MECHANICAL RESET MECHANISM ZERO SETTING FOR ELECTRONIC RESET MECHANISM	<ul style="list-style-type: none"> • Determine whether zero setting is mechanical or electronic and conduct the appropriate test. • Remove the delivery nozzle from its hang-up position. • If a previous sale remains on the indicator move the starting lever to the ON position and ensure that the pump motor does not start or the dispenser is not activated. If the pump motor does start or the dispenser is activated then the interlock mechanism is faulty. • Reset the indicator/s to zero and check that the volume indicator/s is/are zero within 0.5 Emin and the price indicator/s is/are zero within Emin unit price 0.5. • Move the starting lever slowly and gently towards the ON position until the motor starts (or the dispenser is activated) and then slowly and gently towards the OFF position until the motor stops (or the dispenser is deactivated). • Move the starting lever slowly and gently towards the ON position and check that the interlock has engaged and prevents the motor from starting or being activated. • Return the starting lever to the OFF position. <ul style="list-style-type: none"> • Remove the nozzle from its hang-up position and ensure that the display test is performed and the price and volume displays are on zero before any delivery of product is possible. • Carefully return the nozzle to its hang up position and ensure that when the nozzle is then removed no further deliveries are possible without the segment test being initiated and the indications returning to zero. 	✓	
4.	PRICE COMPUTING	<ul style="list-style-type: none"> • Reset the dispenser to zero. • Make a delivery of a convenient volume. • Calculate the total price (rounded to two decimal places) from the unit price and volume indicated. • Compare this calculated price with all price displays. 	✓	
5.	NOZZLE CUT-OFF	<ul style="list-style-type: none"> • Where the hose is fitted with an automatic cut-off nozzle, make a delivery at normal flow rate • Allow the sensing port of the nozzle to come in contact with liquid or froth. • Ensure the nozzle cuts off. <p>Repeat above steps twice more.</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
6.	<p>INTERLOCK</p> <p>HOSES SHARING A COMMON INDICATOR</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p>	<ul style="list-style-type: none"> Determine whether the hoses have a common indicator or whether they share a pumping unit, and conduct the appropriate test. Select and authorise any hose that shares a common indicator with the hose(s) being tested. Check that the price and volume indications for the hose selected reset to zero, and for dispensers: <p>(a) with separate unit price display: the unit price display for the type of fuel selected is transferred to the main indication;</p> <p>(b) without separate unit price display: the unit price display for the hose selected is displayed and all other unit price displays disappear until the delivery has been completed.</p> Check that all other hoses sharing the same indicator are disabled by removing the other nozzles from their hang up position and confirming that they do not authorise. Select and authorise any hose that shares the common pumping unit with the hose being tested. While the pumping unit is operating, attempt to make a delivery from the hose being tested without allowing the dispenser to be actuated where it will initiate the zero setting sequence. Check that it is not possible to make a delivery from the hose being tested. 	✓	
7.	PRE-SET INDICATIONS	<ul style="list-style-type: none"> Reset the dispenser to zero. Enter a suitable pre-set value using the pre-set facility. Make sure the pre-set amount appears on the display. Commence a delivery into the container with the nozzle fully open allowing the pre-set facility to slow down and complete the delivery automatically. Check that the price/volume indication on the display corresponds to the pre-set amount and for self-serve remains on the display or is stored in memory until the transaction is finalised. 	✓	
8.	<p>MAXIMUM FLOW RATE</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p> <p>Only performed at initial verification, or when any site changes occur.</p>	<ul style="list-style-type: none"> For all hoses, commence and time a delivery at the maximum achievable flow rate. Stop the delivery after at least 10 seconds. Note the indication on the dispenser and calculate the flow rate. Select and authorise a number of hoses connected to the same pumping unit. With all hoses operating at the maximum achievable flow rate, time the delivery for one of the hoses. Stop the delivery after at least 10 s and calculate the flow rate. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
9.	ACCURACY	<ul style="list-style-type: none"> • Condition the standard volume measure • Make a delivery at maximum achievable flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Repeat the steps above twice more. • Make one more delivery at minimum flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
10.	ACCURACY OF PRE-SET	<ul style="list-style-type: none"> • Condition the standard volume measure • Enter and record a suitable pre-set value using the pre-set facility. This pre-set value should deliver close to the value of the reference standard measure being used. • Make a delivery at maximum achievable flow rate until the delivery stops. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
11.	GAS ELIMINATION	<ul style="list-style-type: none"> • For systems fitted with a gas elimination device, calculate and record the average error (EAV) of the three runs at maximum achievable flow rate recorded during the accuracy test • Condition the standard volume measure. • If sealed, remove seal from the test valve. • Commence a delivery at the maximum achievable flow rate. During the delivery slowly open the air/gas test valve, causing the flow to decrease noticeably or to stop. • Close the test valve, and complete the delivery. • Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Determine the error difference (ED) for the gas elimination device. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
12.	ANTI-DRAIN / HOSE DILATION WITHOUT A HOSE REEL	<ul style="list-style-type: none"> Conduct the appropriate test (hose either provided without a hose reel or with a hose reel). Condition a suitable standard volume measure, e.g. graduated measuring cylinder. Start the delivery to allow the hose to pressurise. Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. Deactivate the dispenser by manually operating the nozzle hang-up flap or by inserting a dummy nozzle into the holster. Do not hang up the nozzle. Whilst holding the nozzle down, drain for 5 s. Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 	✓	
	WITH A HOSE REEL	<ul style="list-style-type: none"> Fully uncoil hose from its reel. Condition a suitable standard volume measure, e.g. graduated measuring cylinder. Start the delivery to allow the hose to pressurise. Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. Deactivate the dispenser by manually operating the nozzle hang-up flap and do not hang up the nozzle. Fully coil the hose back on its reel. Whilst holding the nozzle down, drain for 5 s. Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 		

Please also indicate if your economy currently aligns with the test procedures above.

Do your economies test procedures currently align with the test procedures described above	Yes	No
	✓	
If your procedures do not align with these test procedures please explain why not for each test procedure in here		



Legal Metrology

ACCURATE MEASUREMENT, GOOD BUSINESS, FAIR TRADE AND SAFETY

APLMF Survey on the test procedures for the verification of fuel dispensers

Economy Name: Canada

Name of person completing the survey: Luciano Burtini

Organisation responsible: Measurement Canada

Please complete this survey to indicate if you agree or disagree that each test procedure described should be included in the APLMF standard.

Please send the completed survey to Secretariat@aplmf.org by: 4 July 2016

Only tick (✓) one box per test

Survey

Test No.	Test Name	Procedures Description	Agree	Disagree
1.	Visual inspection	<ul style="list-style-type: none">• Visually inspect the fuel dispenser for compliance with its certificate(s) of approval• Inspect the fuel dispenser for compliance with any relevant regulations/environmental factors/mode of use.	✓	
2.	Checking facility for electronic indicators	<p>Visually check the entire electronic display by:</p> <ul style="list-style-type: none">• displaying all the elements;• blanking all the elements; and• displaying zeros. <p>This test can be carried out in conjunction with the test for zero setting using an electronic reset mechanism</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
3.	ZERO SETTING FOR MECHANICAL RESET MECHANISM ZERO SETTING FOR ELECTRONIC RESET MECHANISM	<ul style="list-style-type: none"> • Determine whether zero setting is mechanical or electronic and conduct the appropriate test. • Remove the delivery nozzle from its hang-up position. • If a previous sale remains on the indicator move the starting lever to the ON position and ensure that the pump motor does not start or the dispenser is not activated. If the pump motor does start or the dispenser is activated then the interlock mechanism is faulty. • Reset the indicator/s to zero and check that the volume indicator/s is/are zero within 0.5 Emin and the price indicator/s is/are zero within Emin unit price 0.5. • Move the starting lever slowly and gently towards the ON position until the motor starts (or the dispenser is activated) and then slowly and gently towards the OFF position until the motor stops (or the dispenser is deactivated). • Move the starting lever slowly and gently towards the ON position and check that the interlock has engaged and prevents the motor from starting or being activated. • Return the starting lever to the OFF position. <ul style="list-style-type: none"> • Remove the nozzle from its hang-up position and ensure that the display test is performed and the price and volume displays are on zero before any delivery of product is possible. • Carefully return the nozzle to its hang up position and ensure that when the nozzle is then removed no further deliveries are possible without the segment test being initiated and the indications returning to zero. 	✓	
4.	PRICE COMPUTING	<ul style="list-style-type: none"> • Reset the dispenser to zero. • Make a delivery of a convenient volume. • Calculate the total price (rounded to two decimal places) from the unit price and volume indicated. • Compare this calculated price with all price displays. 	✓	
5.	NOZZLE CUT-OFF	<ul style="list-style-type: none"> • Where the hose is fitted with an automatic cut-off nozzle, make a delivery at normal flow rate • Allow the sensing port of the nozzle to come in contact with liquid or froth. • Ensure the nozzle cuts off. Repeat above steps twice more. 		✓

Test No.	Test Name	Procedures Description	Agree	Disagree
6.	<p>INTERLOCK</p> <p>HOSES SHARING A COMMON INDICATOR</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p>	<ul style="list-style-type: none"> Determine whether the hoses have a common indicator or whether they share a pumping unit, and conduct the appropriate test. Select and authorise any hose that shares a common indicator with the hose(s) being tested. Check that the price and volume indications for the hose selected reset to zero, and for dispensers: <p>(a) with separate unit price display: the unit price display for the type of fuel selected is transferred to the main indication;</p> <p>(b) without separate unit price display: the unit price display for the hose selected is displayed and all other unit price displays disappear until the delivery has been completed.</p> Check that all other hoses sharing the same indicator are disabled by removing the other nozzles from their hang up position and confirming that they do not authorise. Select and authorise any hose that shares the common pumping unit with the hose being tested. While the pumping unit is operating, attempt to make a delivery from the hose being tested without allowing the dispenser to be actuated where it will initiate the zero setting sequence. Check that it is not possible to make a delivery from the hose being tested. 	✓	
7.	PRE-SET INDICATIONS	<ul style="list-style-type: none"> Reset the dispenser to zero. Enter a suitable pre-set value using the pre-set facility. Make sure the pre-set amount appears on the display. Commence a delivery into the container with the nozzle fully open allowing the pre-set facility to slow down and complete the delivery automatically. Check that the price/volume indication on the display corresponds to the pre-set amount and for self-serve remains on the display or is stored in memory until the transaction is finalised. 		✓
8.	<p>MAXIMUM FLOW RATE</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p> <p>Only performed at initial verification, or when any site changes occur.</p>	<ul style="list-style-type: none"> For all hoses, commence and time a delivery at the maximum achievable flow rate. Stop the delivery after at least 10 seconds. Note the indication on the dispenser and calculate the flow rate. Select and authorise a number of hoses connected to the same pumping unit. With all hoses operating at the maximum achievable flow rate, time the delivery for one of the hoses. Stop the delivery after at least 10 s and calculate the flow rate. 		✓

Test No.	Test Name	Procedures Description	Agree	Disagree
9.	ACCURACY	<ul style="list-style-type: none"> • Condition the standard volume measure • Make a delivery at maximum achievable flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Repeat the steps above twice more. • Make one more delivery at minimum flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
10.	ACCURACY OF PRE-SET	<ul style="list-style-type: none"> • Condition the standard volume measure • Enter and record a suitable pre-set value using the pre-set facility. This pre-set value should deliver close to the value of the reference standard measure being used. • Make a delivery at maximum achievable flow rate until the delivery stops. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 		✓
11.	GAS ELIMINATION	<ul style="list-style-type: none"> • For systems fitted with a gas elimination device, calculate and record the average error (EAV) of the three runs at maximum achievable flow rate recorded during the accuracy test • Condition the standard volume measure. • If sealed, remove seal from the test valve. • Commence a delivery at the maximum achievable flow rate. During the delivery slowly open the air/gas test valve, causing the flow to decrease noticeably or to stop. • Close the test valve, and complete the delivery. • Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Determine the error difference (ED) for the gas elimination device. 		✓

Test No.	Test Name	Procedures Description	Agree	Disagree
12.	ANTI-DRAIN / HOSE DILATION WITHOUT A HOSE REEL	<ul style="list-style-type: none"> ● Conduct the appropriate test (hose either provided without a hose reel or with a hose reel). ● Condition a suitable standard volume measure, e.g. graduated measuring cylinder. ● Start the delivery to allow the hose to pressurise. ● Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. ● Deactivate the dispenser by manually operating the nozzle hang-up flap or by inserting a dummy nozzle into the holster. Do not hang up the nozzle. ● Whilst holding the nozzle down, drain for 5 s. ● Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. ● Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 	✓	
	WITH A HOSE REEL	<ul style="list-style-type: none"> ● Fully uncoil hose from its reel. ● Condition a suitable standard volume measure, e.g. graduated measuring cylinder. ● Start the delivery to allow the hose to pressurise. ● Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. ● Deactivate the dispenser by manually operating the nozzle hang-up flap and do not hang up the nozzle. ● Fully coil the hose back on its reel. ● Whilst holding the nozzle down, drain for 5 s. ● Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. ● Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 		

Please also indicate if your economy currently aligns with the test procedures above.

Do your economies test procedures currently align with the test procedures described above	Yes	No
		√
<p><i>If your procedures do not align with these test procedures please explain why not for each test procedure in here</i></p> <p><i>Canada uses the same or similar tests in many cases. For some tests, usually those indicated with a disagree check mark, we are either inconsistent in our test procedure or we forego this testing altogether. For example, preset (7, 10) accuracy testing is not conducted in Canada. As long as the delivered quantity is accurate within prescribed limits, the dispenser is verified. Additionally, loading a single pump by starting all connected meters is not a practical test. (8) It is not always obvious which meters are fed from a common pump, and fully loading a system has many practical problems as well. Nozzle cut-off test (5) is considered a safety issue and is not addressed by measurement legislation in Canada. The vapour elimination test (11) is a test of the vapour eliminator, not the meter and is best left as a field test. Artificially introducing air into a measurement system may not be representative of real world operating conditions and in some cases, vapour eliminators are not mandatory if other means to prevent vapour have been employed.</i></p>		



Legal Metrology

ACCURATE MEASUREMENT, GOOD BUSINESS, FAIR TRADE AND SAFETY

APLMF Survey on the test procedures for the verification of fuel dispensers

Economy Name: Hong Kong, China

Name of person completing the survey: Mr. TSE Siu Fai

Organisation /Responsible: Customs and Excise Department / Enforcement of the Weights and Measures Legislation

Please complete this survey to indicate if you agree or disagree that each test procedure described should be included in the APLMF standard.

Please send the completed survey to Secretariat@aplmf.org by: 4 July 2016

Only tick (✓) one box per test

Survey

Test No.	Test Name	Procedures Description	Agree	Disagree
1.	Visual inspection	<ul style="list-style-type: none">• Visually inspect the fuel dispenser for compliance with its certificate(s) of approval• Inspect the fuel dispenser for compliance with any relevant regulations/environmental factors/mode of use.	✓	
2.	Checking facility for electronic indicators	<p>Visually check the entire electronic display by:</p> <ul style="list-style-type: none">• displaying all the elements;• blanking all the elements; and• displaying zeros. <p>This test can be carried out in conjunction with the test for zero setting using an electronic reset mechanism</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
3.	ZERO SETTING FOR MECHANICAL RESET MECHANISM ZERO SETTING FOR ELECTRONIC RESET MECHANISM	<ul style="list-style-type: none"> • Determine whether zero setting is mechanical or electronic and conduct the appropriate test. • Remove the delivery nozzle from its hang-up position. • If a previous sale remains on the indicator move the starting lever to the ON position and ensure that the pump motor does not start or the dispenser is not activated. If the pump motor does start or the dispenser is activated then the interlock mechanism is faulty. • Reset the indicator/s to zero and check that the volume indicator/s is/are zero within 0.5 Emin and the price indicator/s is/are zero within Emin unit price 0.5. • Move the starting lever slowly and gently towards the ON position until the motor starts (or the dispenser is activated) and then slowly and gently towards the OFF position until the motor stops (or the dispenser is deactivated). • Move the starting lever slowly and gently towards the ON position and check that the interlock has engaged and prevents the motor from starting or being activated. • Return the starting lever to the OFF position. <ul style="list-style-type: none"> • Remove the nozzle from its hang-up position and ensure that the display test is performed and the price and volume displays are on zero before any delivery of product is possible. • Carefully return the nozzle to its hang up position and ensure that when the nozzle is then removed no further deliveries are possible without the segment test being initiated and the indications returning to zero. 	✓	
4.	PRICE COMPUTING	<ul style="list-style-type: none"> • Reset the dispenser to zero. • Make a delivery of a convenient volume. • Calculate the total price (rounded to two decimal places) from the unit price and volume indicated. • Compare this calculated price with all price displays. 	✓	
5.	NOZZLE CUT-OFF	<ul style="list-style-type: none"> • Where the hose is fitted with an automatic cut-off nozzle, make a delivery at normal flow rate • Allow the sensing port of the nozzle to come in contact with liquid or froth. • Ensure the nozzle cuts off. <p>Repeat above steps twice more.</p>	✓	

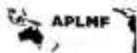
Test No.	Test Name	Procedures Description	Agree	Disagree
6.	<p>INTERLOCK</p> <p>HOSES SHARING A COMMON INDICATOR</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p>	<ul style="list-style-type: none"> Determine whether the hoses have a common indicator or whether they share a pumping unit, and conduct the appropriate test. Select and authorise any hose that shares a common indicator with the hose(s) being tested. Check that the price and volume indications for the hose selected reset to zero, and for dispensers: <p>(a) with separate unit price display: the unit price display for the type of fuel selected is transferred to the main indication;</p> <p>(b) without separate unit price display: the unit price display for the hose selected is displayed and all other unit price displays disappear until the delivery has been completed.</p> Check that all other hoses sharing the same indicator are disabled by removing the other nozzles from their hang up position and confirming that they do not authorise. Select and authorise any hose that shares the common pumping unit with the hose being tested. While the pumping unit is operating, attempt to make a delivery from the hose being tested without allowing the dispenser to be actuated where it will initiate the zero setting sequence. Check that it is not possible to make a delivery from the hose being tested. 	✓	
7.	PRE-SET INDICATIONS	<ul style="list-style-type: none"> Reset the dispenser to zero. Enter a suitable pre-set value using the pre-set facility. Make sure the pre-set amount appears on the display. Commence a delivery into the container with the nozzle fully open allowing the pre-set facility to slow down and complete the delivery automatically. Check that the price/volume indication on the display corresponds to the pre-set amount and for self-serve remains on the display or is stored in memory until the transaction is finalised. 	✓	
8.	<p>MAXIMUM FLOW RATE</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p> <p>Only performed at initial verification, or when any site changes occur.</p>	<ul style="list-style-type: none"> For all hoses, commence and time a delivery at the maximum achievable flow rate. Stop the delivery after at least 10 seconds. Note the indication on the dispenser and calculate the flow rate. Select and authorise a number of hoses connected to the same pumping unit. With all hoses operating at the maximum achievable flow rate, time the delivery for one of the hoses. Stop the delivery after at least 10 s and calculate the flow rate. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
9.	ACCURACY	<ul style="list-style-type: none"> • Condition the standard volume measure • Make a delivery at maximum achievable flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Repeat the steps above twice more. • Make one more delivery at minimum flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
10.	ACCURACY OF PRE-SET	<ul style="list-style-type: none"> • Condition the standard volume measure • Enter and record a suitable pre-set value using the pre-set facility. This pre-set value should deliver close to the value of the reference standard measure being used. • Make a delivery at maximum achievable flow rate until the delivery stops. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
11.	GAS ELIMINATION	<ul style="list-style-type: none"> • For systems fitted with a gas elimination device, calculate and record the average error (EAV) of the three runs at maximum achievable flow rate recorded during the accuracy test • Condition the standard volume measure. • If sealed, remove seal from the test valve. • Commence a delivery at the maximum achievable flow rate. During the delivery slowly open the air/gas test valve, causing the flow to decrease noticeably or to stop. • Close the test valve, and complete the delivery. • Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Determine the error difference (ED) for the gas elimination device. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
12.	ANTI-DRAIN / HOSE DILATION WITHOUT A HOSE REEL	<ul style="list-style-type: none"> Conduct the appropriate test (hose either provided without a hose reel or with a hose reel). Condition a suitable standard volume measure, e.g. graduated measuring cylinder. Start the delivery to allow the hose to pressurise. Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. Deactivate the dispenser by manually operating the nozzle hang-up flap or by inserting a dummy nozzle into the holster. Do not hang up the nozzle. Whilst holding the nozzle down, drain for 5 s. Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 	✓	
	WITH A HOSE REEL	<ul style="list-style-type: none"> Fully uncoil hose from its reel. Condition a suitable standard volume measure, e.g. graduated measuring cylinder. Start the delivery to allow the hose to pressurise. Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. Deactivate the dispenser by manually operating the nozzle hang-up flap and do not hang up the nozzle. Fully coil the hose back on its reel. Whilst holding the nozzle down, drain for 5 s. Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 		

Please also indicate if your economy currently aligns with the test procedures above.

Do your economies test procedures currently align with the test procedures described above	Yes	No
	✓	
<i>If your procedures do not align with these test procedures please explain why not for each test procedure in here</i>		



APLMF Survey on the test procedures for the verification of fuel dispensers

Economy Name: Indonesia

Name of person completing the survey: Agnar Beyhan

Organisation responsible: Directorate of Metrology, Ministry of Trade

Please complete this survey to indicate if you agree or disagree that each test procedure described should be included in the APLMF standard.

Please send the completed survey to Secretariat@aplmpf.org by: 4 July 2016

Only tick (✓) one box per test

Survey

Test No.	Test Name	Procedures Description	Agree	Disagree
1.	Visual inspection	<ul style="list-style-type: none">Visually inspect the fuel dispenser for compliance with its certificate(s) of approvalInspect the fuel dispenser for compliance with any relevant regulations/environmental factors/mode of use.	✓	
2.	Checking facility for electronic indicators	<p>Visually check the entire electronic display by:</p> <ul style="list-style-type: none">displaying all the elements;blanking all the elements; anddisplaying zeros. <p>This test can be carried out in conjunction with the test for zero setting using an electronic reset mechanism</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
3.	ZERO SETTING FOR MECHANICAL RESET MECHANISM	<ul style="list-style-type: none"> Determine whether zero setting is mechanical or electronic and conduct the appropriate test. Remove the delivery nozzle from its hang-up position. If a previous sale remains on the indicator move the starting lever to the ON position and ensure that the pump motor does not start or the dispenser is not activated. If the pump motor does start or the dispenser is activated then the interlock mechanism is faulty. Reset the indicator/s to zero and check that the volume indicator/s is/are zero within 0.5 Emin and the price indicator/s is/are zero within Emin unit price 0.5. Move the starting lever slowly and gently towards the ON position until the motor starts (or the dispenser is activated) and then slowly and gently towards the OFF position until the motor stops (or the dispenser is deactivated). Move the starting lever slowly and gently towards the ON position and check that the interlock has engaged and prevents the motor from starting or being activated. Return the starting lever to the OFF position. 	✓	
	ZERO SETTING FOR ELECTRONIC RESET MECHANISM	<ul style="list-style-type: none"> Remove the nozzle from its hang-up position and ensure that the display test is performed and the price and volume displays are on zero before any delivery of product is possible. Carefully return the nozzle to its hang up position and ensure that when the nozzle is then removed no further deliveries are possible without the segment test being initiated and the indications returning to zero. 	✓	✓
4.	PRICE COMPUTING	<ul style="list-style-type: none"> Reset the dispenser to zero. Make a delivery of a convenient volume. Calculate the total price (rounded to two decimal places) from the unit price and volume indicated. Compare this calculated price with all price displays. 	✓	
5.	NOZZLE CUT-OFF	<ul style="list-style-type: none"> Where the hose is fitted with an automatic cut-off nozzle, make a delivery at normal flow rate Allow the sensing port of the nozzle to come in contact with liquid or froth. Ensure the nozzle cuts off. <p>Repeat above steps twice more.</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
6.	INTERLOCK	<ul style="list-style-type: none"> Determine whether the hoses have a common indicator or whether they share a pumping unit, and conduct the appropriate test. Select and authorise any hose that shares a common indicator with the hose(s) being tested. Check that the price and volume indications for the hose selected reset to zero, and for dispensers: <ul style="list-style-type: none"> (a) with separate unit price display: the unit price display for the type of fuel selected is transferred to the main indication; (b) without separate unit price display: the unit price display for the hose selected is displayed and all other unit price displays disappear until the delivery has been completed. Check that all other hoses sharing the same indicator are disabled by removing the other nozzles from their hang up position and confirming that they do not authorise. 	✓	
	HOSES SHARING A COMMON PUMPING UNIT	<ul style="list-style-type: none"> Select and authorise any hose that shares the common pumping unit with the hose being tested. While the pumping unit is operating, attempt to make a delivery from the hose being tested without allowing the dispenser to be actuated where it will initiate the zero setting sequence. Check that it is not possible to make a delivery from the hose being tested. 	✓	✓
7.	PRE-SET INDICATIONS	<ul style="list-style-type: none"> Reset the dispenser to zero. Enter a suitable pre-set value using the pre-set facility. Make sure the pre-set amount appears on the display. Commence a delivery into the container with the nozzle fully open allowing the pre-set facility to slow down and complete the delivery automatically. Check that the price/volume indication on the display corresponds to the pre-set amount and for self-serve remains on the display or is stored in memory until the transaction is finalised. 	✓	
8.	MAXIMUM FLOW RATE HOSES SHARING A COMMON PUMPING UNIT Only performed at initial verification, or when any site changes occur.	<ul style="list-style-type: none"> For all hoses, commence and time a delivery at the maximum achievable flow rate. Stop the delivery after at least 10 seconds. Note the indication on the dispenser and calculate the flow rate. Select and authorise a number of hoses connected to the same pumping unit. With all hoses operating at the maximum achievable flow rate, time the delivery for one of the hoses. Stop the delivery after at least 10 s and calculate the flow rate. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
9.	ACCURACY	<ul style="list-style-type: none"> Condition the standard volume measure Make a delivery at maximum achievable flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). Calculate and record the relative error (of indication) (EFD). Repeat the steps above twice more. Make one more delivery at minimum flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). Calculate and record the relative error (of indication) (EFD). 	✓	
10.	ACCURACY OF PRE-SET	<ul style="list-style-type: none"> Condition the standard volume measure Enter and record a suitable pre-set value using the pre-set facility. This pre-set value should deliver close to the value of the reference standard measure being used. Make a delivery at maximum achievable flow rate until the delivery stops. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). Calculate and record the relative error (of indication) (EFD). 		✓
11.	GAS ELIMINATION	<ul style="list-style-type: none"> For systems fitted with a gas elimination device, calculate and record the average error (EAV) of the three runs at maximum achievable flow rate recorded during the accuracy test Condition the standard volume measure. If sealed, remove seal from the test valve. Commence a delivery at the maximum achievable flow rate. During the delivery slowly open the air/gas test valve, causing the flow to decrease noticeably or to stop. Close the test valve, and complete the delivery. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). Calculate and record the relative error (of indication) (EFD). Determine the error difference (ED) for the gas elimination device. 	✓	

Note :

Point 10. The value is used as the standard value are the parameters that we set, not volume indicated by the reference

Point 11. This procedure has not been applied

Point 12. This procedure has not been applied

Test No.	Test Name	Procedures Description	Agree	Disagree
12.	ANTI-DRAIN / HOSE DILATION WITHOUT A HOSE REEL	<ul style="list-style-type: none"> Conduct the appropriate test (hose either provided without a hose reel or with a hose reel). Condition a suitable standard volume measure, e.g. graduated measuring cylinder. Start the delivery to allow the hose to pressurise. Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. Deactivate the dispenser by manually operating the nozzle hang-up flap or by inserting a dummy nozzle into the holster. Do not hang up the nozzle. Whilst holding the nozzle down, drain for 5 s. Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 	✓	
	WITH A HOSE REEL	<ul style="list-style-type: none"> Fully uncoil hose from its reel. Condition a suitable standard volume measure, e.g. graduated measuring cylinder. Start the delivery to allow the hose to pressurise. Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. Deactivate the dispenser by manually operating the nozzle hang-up flap and do not hang up the nozzle. Fully coil the hose back on its reel. Whilst holding the nozzle down, drain for 5 s. Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 	✓	/

Please also indicate if your economy currently aligns with the test procedures above.

Do your economies test procedures currently align with the test procedures described above

Yes	No
✓	

If your procedures do not align with these test procedures please explain why not for each test procedure in here



APLMF Survey on the test procedures for the verification of fuel dispensers

Economy Name: JAPAN

Name of person completing the survey: Tsuyoshi Matsumoto

Organisation responsible: NMIJ (National Metrology Institute of Japan)

Please complete this survey to indicate if you agree or disagree that each test procedure described should be included in the APLMF standard.

Please send the completed survey to Secretariat@aplmf.org by: 4 July 2016

Only tick (✓) one box per test

Survey

Test No.	Test Name	Procedures Description	Agree	Disagree
1.	Visual inspection	<ul style="list-style-type: none"> Visually inspect the fuel dispenser for compliance with its certificate(s) of approval Inspect the fuel dispenser for compliance with any relevant regulations/environmental factors/mode of use. 	✓ (partly) We check only metrological performance.	
2.	Checking facility for electronic indicators	Visually check the entire electronic display by: <ul style="list-style-type: none"> displaying all the elements; blanking all the elements; and displaying zeros. This test can be carried out in conjunction with the test for zero setting using an electronic reset mechanism	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
3.	ZERO SETTING	<ul style="list-style-type: none"> Determine whether zero setting is mechanical or electronic and conduct the appropriate test. Remove the delivery nozzle from its hang-up position. If a previous sale remains on the indicator move the starting lever to the ON position and ensure that the pump motor does not start or the dispenser is not activated. If the pump motor does start or the dispenser is activated then the interlock mechanism is faulty. Reset the indicator/s to zero and check that the volume indicator/s is/are zero within 0.5 Emin and the price indicator/s is/are zero within Emin unit price 0.5. Move the starting lever slowly and gently towards the ON position until the motor starts (or the dispenser is activated) and then slowly and gently towards the OFF position until the motor stops (or the dispenser is deactivated). Move the starting lever slowly and gently towards the ON position and check that the interlock has engaged and prevents the motor from starting or being activated. Return the starting lever to the OFF position. 	✓ (partly) However, some procedures are specified differently in a JIS (Japan Industrial Standard). Some tests are performed in type approval test.	
	FOR MECHANICAL RESET MECHANISM			
	ZERO SETTING			
4.	FOR ELECTRONIC RESET MECHANISM	<ul style="list-style-type: none"> Remove the nozzle from its hang-up position and ensure that the display test is performed and the price and volume displays are on zero before any delivery of product is possible. Carefully return the nozzle to its hang up position and ensure that when the nozzle is then removed no further deliveries are possible without the segment test being initiated and the indications returning to zero. 	✓ (partly) We check price computing in subsequent verification. Some procedures are specified differently in JIS.	
	PRICE COMPUTING			

Test No.	Test Name	Procedures Description	Agree	Disagree
5.	NOZZLE CUT-OFF	<ul style="list-style-type: none"> Where the hose is fitted with an automatic cut-off nozzle, make a delivery at normal flow rate Allow the sensing port of the nozzle to come in contact with liquid or froth. Ensure the nozzle cuts off. <p>Repeat above steps twice more.</p>	✓ (partly) Some procedures are specified differently in JIS.	
6.	INTERLOCK HOSES SHARING A COMMON INDICATOR HOSES SHARING A COMMON PUMPING UNIT	<ul style="list-style-type: none"> Determine whether the hoses have a common indicator or whether they share a pumping unit, and conduct the appropriate test. Select and authorise any hose that shares a common indicator with the hose(s) being tested. Check that the price and volume indications for the hose selected reset to zero, and for dispensers: <ul style="list-style-type: none"> (a) with separate unit price display: the unit price display for the type of fuel selected is transferred to the main indication; (b) without separate unit price display: the unit price display for the hose selected is displayed and all other unit price displays disappear until the delivery has been completed. Check that all other hoses sharing the same indicator are disabled by removing the other nozzles from their hang up position and confirming that they do not authorise. Select and authorise any hose that shares the common pumping unit with the hose being tested. While the pumping unit is operating, attempt to make a delivery from the hose being tested without allowing the dispenser to be actuated where it will initiate the zero setting sequence. Check that it is not possible to make a delivery from the hose being tested. 	✓ (partly) We check these items in subsequent verification. Some procedures are specified differently in JIS. Also some tests are performed in type approval test.	
7.	PRE-SET INDICATIONS	<ul style="list-style-type: none"> Reset the dispenser to zero. Enter a suitable pre-set value using the pre-set facility. Make sure the pre-set amount appears on the display. Commence a delivery into the container with the nozzle fully open allowing the pre-set facility to slow down and complete the delivery automatically. Check that the price/volume indication on the display corresponds to the pre-set amount and for self-serve remains on the display or is stored in memory until the transaction is finalised. 	✓ (partly) Some procedures are specified differently in JIS.	

Test No.	Test Name	Procedures Description	Agree	Disagree
8.	MAXIMUM FLOW RATE HOSES SHARING A COMMON PUMPING UNIT Only performed at initial verification, or when any site changes occur.	<ul style="list-style-type: none"> For all hoses, commence and time a delivery at the maximum achievable flow rate. Stop the delivery after at least 10 seconds. Note the indication on the dispenser and calculate the flow rate. Select and authorise a number of hoses connected to the same pumping unit. With all hoses operating at the maximum achievable flow rate, time the delivery for one of the hoses. Stop the delivery after at least 10 s and calculate the flow rate. 	✓ (partly) Some procedures are specified differently in JIS.	
9.	ACCURACY	<ul style="list-style-type: none"> Condition the standard volume measure Make a delivery at maximum achievable flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). Calculate and record the relative error (of indication) (EFD). Repeat the steps above twice more. Make one more delivery at minimum flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). Calculate and record the relative error (of indication) (EFD). 	✓ (partly) Some procedures are specified differently in JIS. Also some tests are performed in type approval test.	
10.	ACCURACY OF PRE-SET	<ul style="list-style-type: none"> Condition the standard volume measure Enter and record a suitable pre-set value using the pre-set facility. This pre-set value should deliver close to the value of the reference standard measure being used. Make a delivery at maximum achievable flow rate until the delivery stops. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). Calculate and record the relative error (of indication) (EFD). 	✓ (partly) Some procedures are specified differently in JIS. Also some tests are performed in type approval test.	

Test No.	Test Name	Procedures Description	Agree	Disagree
11.	GAS ELIMINATION	<ul style="list-style-type: none"> • For systems fitted with a gas elimination device, calculate and record the average error (EAV) of the three runs at maximum achievable flow rate recorded during the accuracy test • Condition the standard volume measure. • If sealed, remove seal from the test valve. • Commence a delivery at the maximum achievable flow rate. During the delivery slowly open the air/gas test valve, causing the flow to decrease noticeably or to stop. • Close the test valve, and complete the delivery. • Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Determine the error difference (ED) for the gas elimination device. 	✓ (partly) Some procedures are specified differently in JIS. Also some tests are performed in type approval test.	

Test No.	Test Name	Procedures Description	Agree	Disagree
12.	ANTI-DRAIN / HOSE DILATION WITHOUT A HOSE REEL	<ul style="list-style-type: none"> ● Conduct the appropriate test (hose either provided without a hose reel or with a hose reel). ● Condition a suitable standard volume measure, e.g. graduated measuring cylinder. ● Start the delivery to allow the hose to pressurise. ● Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. ● Deactivate the dispenser by manually operating the nozzle hang-up flap or by inserting a dummy nozzle into the holster. Do not hang up the nozzle. ● Whilst holding the nozzle down, drain for 5 s. ● Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. ● Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 	✓ (partly) Some procedures are specified differently in JIS. Also some tests are performed in type approval test.	
	WITH A HOSE REEL	<ul style="list-style-type: none"> ● Fully uncoil hose from its reel. ● Condition a suitable standard volume measure, e.g. graduated measuring cylinder. ● Start the delivery to allow the hose to pressurise. ● Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. ● Deactivate the dispenser by manually operating the nozzle hang-up flap and do not hang up the nozzle. ● Fully coil the hose back on its reel. ● Whilst holding the nozzle down, drain for 5 s. ● Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. ● Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 		

Please also indicate if your economy currently aligns with the test procedures above.

	Yes	No
Do your economies test procedures currently align with the test procedures described above	✓ Partly yes. However, some procedures are specified differently in JIS.	
<p><i>If your procedures do not align with these test procedures please explain why not for each test procedure in here</i></p> <p><i>It is probably due to a historical reason in Japan. Our technical standards and regulations specified in JIS are not fully compliant with those in OIML R 117.</i></p>		



APLMF Survey on the test procedures for the verification of fuel dispensers

Economy Name: SCQM, DPR of Korea

Name of person completing the survey: Choi Yong Chol

Organisation responsible: Central Insutitute of Metrology

Please complete this survey to indicate if you agree or disagree that each test procedure described should be included in the APLMF standard.

Please send the completed survey to Secretariat@aplmf.org by: 4 July 2016

Only tick (✓) one box per test

Survey

Test No.	Test Name	Procedures Description	Agree	Disagree
1.	Visual inspection	<ul style="list-style-type: none"> Visually inspect the fuel dispenser for compliance with its certificate(s) of approval Inspect the fuel dispenser for compliance with any relevant regulations/environmental factors/mode of use. 	✓	
2.	Checking facility for electronic indicators	<p>Visually check the entire electronic display by:</p> <ul style="list-style-type: none"> displaying all the elements; blanking all the elements; and displaying zeros. <p>This test can be carried out in conjunction with the test for zero setting using an electronic reset mechanism</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
3.	ZERO SETTING FOR MECHANICAL RESET MECHANISM ZERO SETTING FOR ELECTRONIC RESET MECHANISM	<ul style="list-style-type: none"> • Determine whether zero setting is mechanical or electronic and conduct the appropriate test. • Remove the delivery nozzle from its hang-up position. • If a previous sale remains on the indicator move the starting lever to the ON position and ensure that the pump motor does not start or the dispenser is not activated. If the pump motor does start or the dispenser is activated then the interlock mechanism is faulty. • Reset the indicator/s to zero and check that the volume indicator/s is/are zero within 0.5 Emin and the price indicator/s is/are zero within Emin unit price 0.5. • Move the starting lever slowly and gently towards the ON position until the motor starts (or the dispenser is activated) and then slowly and gently towards the OFF position until the motor stops (or the dispenser is deactivated). • Move the starting lever slowly and gently towards the ON position and check that the interlock has engaged and prevents the motor from starting or being activated. • Return the starting lever to the OFF position. <ul style="list-style-type: none"> • Remove the nozzle from its hang-up position and ensure that the display test is performed and the price and volume displays are on zero before any delivery of product is possible. • Carefully return the nozzle to its hang up position and ensure that when the nozzle is then removed no further deliveries are possible without the segment test being initiated and the indications returning to zero. 	✓	
4.	PRICE COMPUTING	<ul style="list-style-type: none"> • Reset the dispenser to zero. • Make a delivery of a convenient volume. • Calculate the total price (rounded to two decimal places) from the unit price and volume indicated. • Compare this calculated price with all price displays. 	✓	
5.	NOZZLE CUT-OFF	<ul style="list-style-type: none"> • Where the hose is fitted with an automatic cut-off nozzle, make a delivery at normal flow rate • Allow the sensing port of the nozzle to come in contact with liquid or froth. • Ensure the nozzle cuts off. <p>Repeat above steps twice more.</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
6.	<p>INTERLOCK</p> <p>HOSES SHARING A COMMON INDICATOR</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p>	<ul style="list-style-type: none"> Determine whether the hoses have a common indicator or whether they share a pumping unit, and conduct the appropriate test. Select and authorise any hose that shares a common indicator with the hose(s) being tested. Check that the price and volume indications for the hose selected reset to zero, and for dispensers: <p>(a) with separate unit price display: the unit price display for the type of fuel selected is transferred to the main indication;</p> <p>(b) without separate unit price display: the unit price display for the hose selected is displayed and all other unit price displays disappear until the delivery has been completed.</p> Check that all other hoses sharing the same indicator are disabled by removing the other nozzles from their hang up position and confirming that they do not authorise. Select and authorise any hose that shares the common pumping unit with the hose being tested. While the pumping unit is operating, attempt to make a delivery from the hose being tested without allowing the dispenser to be actuated where it will initiate the zero setting sequence. Check that it is not possible to make a delivery from the hose being tested. 	✓	
7.	PRE-SET INDICATIONS	<ul style="list-style-type: none"> Reset the dispenser to zero. Enter a suitable pre-set value using the pre-set facility. Make sure the pre-set amount appears on the display. Commence a delivery into the container with the nozzle fully open allowing the pre-set facility to slow down and complete the delivery automatically. Check that the price/volume indication on the display corresponds to the pre-set amount and for self-serve remains on the display or is stored in memory until the transaction is finalised. 	✓	
8.	<p>MAXIMUM FLOW RATE</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p> <p>Only performed at initial verification, or when any site changes occur.</p>	<ul style="list-style-type: none"> For all hoses, commence and time a delivery at the maximum achievable flow rate. Stop the delivery after at least 10 seconds. Note the indication on the dispenser and calculate the flow rate. Select and authorise a number of hoses connected to the same pumping unit. With all hoses operating at the maximum achievable flow rate, time the delivery for one of the hoses. Stop the delivery after at least 10 s and calculate the flow rate. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
9.	ACCURACY	<ul style="list-style-type: none"> • Condition the standard volume measure • Make a delivery at maximum achievable flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Repeat the steps above twice more. • Make one more delivery at minimum flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
10.	ACCURACY OF PRE-SET	<ul style="list-style-type: none"> • Condition the standard volume measure • Enter and record a suitable pre-set value using the pre-set facility. This pre-set value should deliver close to the value of the reference standard measure being used. • Make a delivery at maximum achievable flow rate until the delivery stops. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
11.	GAS ELIMINATION	<ul style="list-style-type: none"> • For systems fitted with a gas elimination device, calculate and record the average error (EAV) of the three runs at maximum achievable flow rate recorded during the accuracy test • Condition the standard volume measure. • If sealed, remove seal from the test valve. • Commence a delivery at the maximum achievable flow rate. During the delivery slowly open the air/gas test valve, causing the flow to decrease noticeably or to stop. • Close the test valve, and complete the delivery. • Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Determine the error difference (ED) for the gas elimination device. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
12.	ANTI-DRAIN / HOSE DILATION WITHOUT A HOSE REEL	<ul style="list-style-type: none"> Conduct the appropriate test (hose either provided without a hose reel or with a hose reel). Condition a suitable standard volume measure, e.g. graduated measuring cylinder. Start the delivery to allow the hose to pressurise. Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. Deactivate the dispenser by manually operating the nozzle hang-up flap or by inserting a dummy nozzle into the holster. Do not hang up the nozzle. Whilst holding the nozzle down, drain for 5 s. Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 	✓	
	WITH A HOSE REEL	<ul style="list-style-type: none"> Fully uncoil hose from its reel. Condition a suitable standard volume measure, e.g. graduated measuring cylinder. Start the delivery to allow the hose to pressurise. Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. Deactivate the dispenser by manually operating the nozzle hang-up flap and do not hang up the nozzle. Fully coil the hose back on its reel. Whilst holding the nozzle down, drain for 5 s. Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 		

Please also indicate if your economy currently aligns with the test procedures above.

Do your economies test procedures currently align with the test procedures described above	Yes	No
	✓	
<i>If your procedures do not align with these test procedures please explain why not for each test procedure in here</i>		



APLMF Survey on the test procedures for the verification of fuel dispensers

Economy Name: MALAYSIA

Name of person completing the survey: LEE CHUNG KIONG

Organisation responsible: METROLOGY CORPORATION (M) SDN BHD

Please complete this survey to indicate if you agree or disagree that each test procedure described should be included in the APLMF standard.

Please send the completed survey to Secretariat@aplmf.org by: 4 July 2016

Only tick (✓) one box per test

Survey

Test No.	Test Name	Procedures Description	Agree	Disagree
1.	Visual inspection	<ul style="list-style-type: none"> Visually inspect the fuel dispenser for compliance with its certificate(s) of approval Inspect the fuel dispenser for compliance with any relevant regulations/environmental factors/mode of use. 	✓	
2.	Checking facility for electronic indicators	<p>Visually check the entire electronic display by:</p> <ul style="list-style-type: none"> displaying all the elements; blanking all the elements; and displaying zeros. <p>This test can be carried out in conjunction with the test for zero setting using an electronic reset mechanism</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
3.	ZERO SETTING FOR MECHANICAL RESET MECHANISM ZERO SETTING FOR ELECTRONIC RESET MECHANISM	<ul style="list-style-type: none"> • Determine whether zero setting is mechanical or electronic and conduct the appropriate test. • Remove the delivery nozzle from its hang-up position. • If a previous sale remains on the indicator move the starting lever to the ON position and ensure that the pump motor does not start or the dispenser is not activated. If the pump motor does start or the dispenser is activated then the interlock mechanism is faulty. • Reset the indicator/s to zero and check that the volume indicator/s is/are zero within 0.5 Emin and the price indicator/s is/are zero within Emin unit price 0.5. • Move the starting lever slowly and gently towards the ON position until the motor starts (or the dispenser is activated) and then slowly and gently towards the OFF position until the motor stops (or the dispenser is deactivated). • Move the starting lever slowly and gently towards the ON position and check that the interlock has engaged and prevents the motor from starting or being activated. • Return the starting lever to the OFF position. <ul style="list-style-type: none"> • Remove the nozzle from its hang-up position and ensure that the display test is performed and the price and volume displays are on zero before any delivery of product is possible. • Carefully return the nozzle to its hang up position and ensure that when the nozzle is then removed no further deliveries are possible without the segment test being initiated and the indications returning to zero. 	✓	
4.	PRICE COMPUTING	<ul style="list-style-type: none"> • Reset the dispenser to zero. • Make a delivery of a convenient volume. • Calculate the total price (rounded to two decimal places) from the unit price and volume indicated. • Compare this calculated price with all price displays. 	✓	
5.	NOZZLE CUT-OFF	<ul style="list-style-type: none"> • Where the hose is fitted with an automatic cut-off nozzle, make a delivery at normal flow rate • Allow the sensing port of the nozzle to come in contact with liquid or froth. • Ensure the nozzle cuts off. <p>Repeat above steps twice more.</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
6.	<p>INTERLOCK</p> <p>HOSES SHARING A COMMON INDICATOR</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p>	<ul style="list-style-type: none"> Determine whether the hoses have a common indicator or whether they share a pumping unit, and conduct the appropriate test. Select and authorise any hose that shares a common indicator with the hose(s) being tested. Check that the price and volume indications for the hose selected reset to zero, and for dispensers: <p>(a) with separate unit price display: the unit price display for the type of fuel selected is transferred to the main indication;</p> <p>(b) without separate unit price display: the unit price display for the hose selected is displayed and all other unit price displays disappear until the delivery has been completed.</p> Check that all other hoses sharing the same indicator are disabled by removing the other nozzles from their hang up position and confirming that they do not authorise. Select and authorise any hose that shares the common pumping unit with the hose being tested. While the pumping unit is operating, attempt to make a delivery from the hose being tested without allowing the dispenser to be actuated where it will initiate the zero setting sequence. Check that it is not possible to make a delivery from the hose being tested. 	✓	
7.	PRE-SET INDICATIONS	<ul style="list-style-type: none"> Reset the dispenser to zero. Enter a suitable pre-set value using the pre-set facility. Make sure the pre-set amount appears on the display. Commence a delivery into the container with the nozzle fully open allowing the pre-set facility to slow down and complete the delivery automatically. Check that the price/volume indication on the display corresponds to the pre-set amount and for self-serve remains on the display or is stored in memory until the transaction is finalised. 	✓	
8.	<p>MAXIMUM FLOW RATE</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p> <p>Only performed at initial verification, or when any site changes occur.</p>	<ul style="list-style-type: none"> For all hoses, commence and time a delivery at the maximum achievable flow rate. Stop the delivery after at least 10 seconds. Note the indication on the dispenser and calculate the flow rate. Select and authorise a number of hoses connected to the same pumping unit. With all hoses operating at the maximum achievable flow rate, time the delivery for one of the hoses. Stop the delivery after at least 10 s and calculate the flow rate. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
9.	ACCURACY	<ul style="list-style-type: none"> • Condition the standard volume measure • Make a delivery at maximum achievable flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Repeat the steps above twice more. • Make one more delivery at minimum flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
10.	ACCURACY OF PRE-SET	<ul style="list-style-type: none"> • Condition the standard volume measure • Enter and record a suitable pre-set value using the pre-set facility. This pre-set value should deliver close to the value of the reference standard measure being used. • Make a delivery at maximum achievable flow rate until the delivery stops. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
11.	GAS ELIMINATION	<ul style="list-style-type: none"> • For systems fitted with a gas elimination device, calculate and record the average error (EAV) of the three runs at maximum achievable flow rate recorded during the accuracy test • Condition the standard volume measure. • If sealed, remove seal from the test valve. • Commence a delivery at the maximum achievable flow rate. During the delivery slowly open the air/gas test valve, causing the flow to decrease noticeably or to stop. • Close the test valve, and complete the delivery. • Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Determine the error difference (ED) for the gas elimination device. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
12.	ANTI-DRAIN / HOSE DILATION WITHOUT A HOSE REEL	<ul style="list-style-type: none"> • Conduct the appropriate test (hose either provided without a hose reel or with a hose reel). • Condition a suitable standard volume measure, e.g. graduated measuring cylinder. • Start the delivery to allow the hose to pressurise. • Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. • Deactivate the dispenser by manually operating the nozzle hang-up flap or by inserting a dummy nozzle into the holster. Do not hang up the nozzle. • Whilst holding the nozzle down, drain for 5 s. • Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. • Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 	✓	
	WITH A HOSE REEL	<ul style="list-style-type: none"> • Fully uncoil hose from its reel. • Condition a suitable standard volume measure, e.g. graduated measuring cylinder. • Start the delivery to allow the hose to pressurise. • Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. • Deactivate the dispenser by manually operating the nozzle hang-up flap and do not hang up the nozzle. • Fully coil the hose back on its reel. • Whilst holding the nozzle down, drain for 5 s. • Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. • Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 		

Please also indicate if your economy currently aligns with the test procedures above.

Do your economies test procedures currently align with the test procedures described above	Yes	No
	✓	
<i>If your procedures do not align with these test procedures please explain why not for each test procedure in here</i>		



APLMF Survey on the test procedures for the verification of fuel dispensers

Economy Name: MONGOLIA

Name of person completing the survey: Myasuren Norov /Verification officer of Volume and flow –rate verification laboratory of Measuring instruments verification department of MASM/

Organisation responsible: Mongolian Agency for Standardization and Metrology (MASM)

Please complete this survey to indicate if you agree or disagree that each test procedure described should be included in the APLMF standard.

Please send the completed survey to Secretariat@aplmf.org by: 4 July 2016

Only tick (✓) one box per test

Survey

Test No.	Test Name	Procedures Description	Agree	Disagree
1.	Visual inspection	<ul style="list-style-type: none"> Visually inspect the fuel dispenser for compliance with its certificate(s) of approval Inspect the fuel dispenser for compliance with any relevant regulations/environmental factors/mode of use. 	✓	
2.	Checking facility for electronic indicators	<p>Visually check the entire electronic display by:</p> <ul style="list-style-type: none"> displaying all the elements; blanking all the elements; and displaying zeros. <p>This test can be carried out in conjunction with the test for zero setting using an electronic reset mechanism</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
3.	ZERO SETTING FOR MECHANICAL RESET MECHANISM ZERO SETTING FOR ELECTRONIC RESET MECHANISM	<ul style="list-style-type: none"> • Determine whether zero setting is mechanical or electronic and conduct the appropriate test. • Remove the delivery nozzle from its hang-up position. • If a previous sale remains on the indicator move the starting lever to the ON position and ensure that the pump motor does not start or the dispenser is not activated. If the pump motor does start or the dispenser is activated then the interlock mechanism is faulty. • Reset the indicator/s to zero and check that the volume indicator/s is/are zero within 0.5 Emin and the price indicator/s is/are zero within Emin unit price 0.5. • Move the starting lever slowly and gently towards the ON position until the motor starts (or the dispenser is activated) and then slowly and gently towards the OFF position until the motor stops (or the dispenser is deactivated). • Move the starting lever slowly and gently towards the ON position and check that the interlock has engaged and prevents the motor from starting or being activated. • Return the starting lever to the OFF position. <ul style="list-style-type: none"> • Remove the nozzle from its hang-up position and ensure that the display test is performed and the price and volume displays are on zero before any delivery of product is possible. • Carefully return the nozzle to its hang up position and ensure that when the nozzle is then removed no further deliveries are possible without the segment test being initiated and the indications returning to zero. 	✓	
4.	PRICE COMPUTING	<ul style="list-style-type: none"> • Reset the dispenser to zero. • Make a delivery of a convenient volume. • Calculate the total price (rounded to two decimal places) from the unit price and volume indicated. • Compare this calculated price with all price displays. 	✓	
5.	NOZZLE CUT-OFF	<ul style="list-style-type: none"> • Where the hose is fitted with an automatic cut-off nozzle, make a delivery at normal flow rate • Allow the sensing port of the nozzle to come in contact with liquid or froth. • Ensure the nozzle cuts off. <p>Repeat above steps twice more.</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
6.	<p>INTERLOCK</p> <p>HOSES SHARING A COMMON INDICATOR</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p>	<ul style="list-style-type: none"> Determine whether the hoses have a common indicator or whether they share a pumping unit, and conduct the appropriate test. Select and authorise any hose that shares a common indicator with the hose(s) being tested. Check that the price and volume indications for the hose selected reset to zero, and for dispensers: <p>(a) with separate unit price display: the unit price display for the type of fuel selected is transferred to the main indication;</p> <p>(b) without separate unit price display: the unit price display for the hose selected is displayed and all other unit price displays disappear until the delivery has been completed.</p> Check that all other hoses sharing the same indicator are disabled by removing the other nozzles from their hang up position and confirming that they do not authorise. Select and authorise any hose that shares the common pumping unit with the hose being tested. While the pumping unit is operating, attempt to make a delivery from the hose being tested without allowing the dispenser to be actuated where it will initiate the zero setting sequence. Check that it is not possible to make a delivery from the hose being tested. 	✓	
7.	PRE-SET INDICATIONS	<ul style="list-style-type: none"> Reset the dispenser to zero. Enter a suitable pre-set value using the pre-set facility. Make sure the pre-set amount appears on the display. Commence a delivery into the container with the nozzle fully open allowing the pre-set facility to slow down and complete the delivery automatically. Check that the price/volume indication on the display corresponds to the pre-set amount and for self-serve remains on the display or is stored in memory until the transaction is finalised. 	✓	
8.	<p>MAXIMUM FLOW RATE</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p> <p>Only performed at initial verification, or when any site changes occur.</p>	<ul style="list-style-type: none"> For all hoses, commence and time a delivery at the maximum achievable flow rate. Stop the delivery after at least 10 seconds. Note the indication on the dispenser and calculate the flow rate. Select and authorise a number of hoses connected to the same pumping unit. With all hoses operating at the maximum achievable flow rate, time the delivery for one of the hoses. Stop the delivery after at least 10 s and calculate the flow rate. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
9.	ACCURACY	<ul style="list-style-type: none"> • Condition the standard volume measure • Make a delivery at maximum achievable flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Repeat the steps above twice more. • Make one more delivery at minimum flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
10.	ACCURACY OF PRE-SET	<ul style="list-style-type: none"> • Condition the standard volume measure • Enter and record a suitable pre-set value using the pre-set facility. This pre-set value should deliver close to the value of the reference standard measure being used. • Make a delivery at maximum achievable flow rate until the delivery stops. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
11.	GAS ELIMINATION	<ul style="list-style-type: none"> • For systems fitted with a gas elimination device, calculate and record the average error (EAV) of the three runs at maximum achievable flow rate recorded during the accuracy test • Condition the standard volume measure. • If sealed, remove seal from the test valve. • Commence a delivery at the maximum achievable flow rate. During the delivery slowly open the air/gas test valve, causing the flow to decrease noticeably or to stop. • Close the test valve, and complete the delivery. • Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Determine the error difference (ED) for the gas elimination device. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
12.	ANTI-DRAIN / HOSE DILATION WITHOUT A HOSE REEL	<ul style="list-style-type: none"> Conduct the appropriate test (hose either provided without a hose reel or with a hose reel). Condition a suitable standard volume measure, e.g. graduated measuring cylinder. Start the delivery to allow the hose to pressurise. Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. Deactivate the dispenser by manually operating the nozzle hang-up flap or by inserting a dummy nozzle into the holster. Do not hang up the nozzle. Whilst holding the nozzle down, drain for 5 s. Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 		✓
	WITH A HOSE REEL	<ul style="list-style-type: none"> Fully uncoil hose from its reel. Condition a suitable standard volume measure, e.g. graduated measuring cylinder. Start the delivery to allow the hose to pressurise. Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. Deactivate the dispenser by manually operating the nozzle hang-up flap and do not hang up the nozzle. Fully coil the hose back on its reel. Whilst holding the nozzle down, drain for 5 s. Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 		

Please also indicate if your economy currently aligns with the test procedures above.

Do your economies test procedures currently align with the test procedures described above	Yes	No
	✓	
If your procedures do not align with these test procedures please explain why not for each test procedure in here		



APLMF Survey on the test procedures for the verification of fuel dispensers

Economy Name: __New Zealand__

Name of person completing the survey: __Kevin Gudmundsson__

Organisation responsible: __Ministry of Business, Innovation and Employment__

Please complete this survey to indicate if you agree or disagree that each test procedure described should be included in the APLMF standard.

Please send the completed survey to Secretariat@aplmf.org by: __4 July 2016__

Only tick (✓) one box per test

Survey

Test No.	Test Name	Procedures Description	Agree	Disagree
1.	Visual inspection	<ul style="list-style-type: none"> Visually inspect the fuel dispenser for compliance with its certificate(s) of approval Inspect the fuel dispenser for compliance with any relevant regulations/environmental factors/mode of use. 	✓	
2.	Checking facility for electronic indicators	<p>Visually check the entire electronic display by:</p> <ul style="list-style-type: none"> displaying all the elements; blanking all the elements; and displaying zeros. <p>This test can be carried out in conjunction with the test for zero setting using an electronic reset mechanism</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
3.	ZERO SETTING FOR MECHANICAL RESET MECHANISM ZERO SETTING FOR ELECTRONIC RESET MECHANISM	<ul style="list-style-type: none"> • Determine whether zero setting is mechanical or electronic and conduct the appropriate test. • Remove the delivery nozzle from its hang-up position. • If a previous sale remains on the indicator move the starting lever to the ON position and ensure that the pump motor does not start or the dispenser is not activated. If the pump motor does start or the dispenser is activated then the interlock mechanism is faulty. • Reset the indicator/s to zero and check that the volume indicator/s is/are zero within 0.5 Emin and the price indicator/s is/are zero within Emin unit price 0.5. • Move the starting lever slowly and gently towards the ON position until the motor starts (or the dispenser is activated) and then slowly and gently towards the OFF position until the motor stops (or the dispenser is deactivated). • Move the starting lever slowly and gently towards the ON position and check that the interlock has engaged and prevents the motor from starting or being activated. • Return the starting lever to the OFF position. <ul style="list-style-type: none"> • Remove the nozzle from its hang-up position and ensure that the display test is performed and the price and volume displays are on zero before any delivery of product is possible. • Carefully return the nozzle to its hang up position and ensure that when the nozzle is then removed no further deliveries are possible without the segment test being initiated and the indications returning to zero. 	✓	
4.	PRICE COMPUTING	<ul style="list-style-type: none"> • Reset the dispenser to zero. • Make a delivery of a convenient volume. • Calculate the total price (rounded to two decimal places) from the unit price and volume indicated. • Compare this calculated price with all price displays. 	✓	
5.	NOZZLE CUT-OFF	<ul style="list-style-type: none"> • Where the hose is fitted with an automatic cut-off nozzle, make a delivery at normal flow rate • Allow the sensing port of the nozzle to come in contact with liquid or froth. • Ensure the nozzle cuts off. <p>Repeat above steps twice more.</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
6.	<p>INTERLOCK</p> <p>HOSES SHARING A COMMON INDICATOR</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p>	<ul style="list-style-type: none"> Determine whether the hoses have a common indicator or whether they share a pumping unit, and conduct the appropriate test. Select and authorise any hose that shares a common indicator with the hose(s) being tested. Check that the price and volume indications for the hose selected reset to zero, and for dispensers: <p>(a) with separate unit price display: the unit price display for the type of fuel selected is transferred to the main indication;</p> <p>(b) without separate unit price display: the unit price display for the hose selected is displayed and all other unit price displays disappear until the delivery has been completed.</p> Check that all other hoses sharing the same indicator are disabled by removing the other nozzles from their hang up position and confirming that they do not authorise. Select and authorise any hose that shares the common pumping unit with the hose being tested. While the pumping unit is operating, attempt to make a delivery from the hose being tested without allowing the dispenser to be actuated where it will initiate the zero setting sequence. Check that it is not possible to make a delivery from the hose being tested. 	✓	
7.	PRE-SET INDICATIONS	<ul style="list-style-type: none"> Reset the dispenser to zero. Enter a suitable pre-set value using the pre-set facility. Make sure the pre-set amount appears on the display. Commence a delivery into the container with the nozzle fully open allowing the pre-set facility to slow down and complete the delivery automatically. Check that the price/volume indication on the display corresponds to the pre-set amount and for self-serve remains on the display or is stored in memory until the transaction is finalised. 	✓	
8.	<p>MAXIMUM FLOW RATE</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p> <p>Only performed at initial verification, or when any site changes occur.</p>	<ul style="list-style-type: none"> For all hoses, commence and time a delivery at the maximum achievable flow rate. Stop the delivery after at least 10 seconds. Note the indication on the dispenser and calculate the flow rate. Select and authorise a number of hoses connected to the same pumping unit. With all hoses operating at the maximum achievable flow rate, time the delivery for one of the hoses. Stop the delivery after at least 10 s and calculate the flow rate. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
9.	ACCURACY	<ul style="list-style-type: none"> • Condition the standard volume measure • Make a delivery at maximum achievable flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Repeat the steps above twice more. • Make one more delivery at minimum flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
10.	ACCURACY OF PRE-SET	<ul style="list-style-type: none"> • Condition the standard volume measure • Enter and record a suitable pre-set value using the pre-set facility. This pre-set value should deliver close to the value of the reference standard measure being used. • Make a delivery at maximum achievable flow rate until the delivery stops. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
11.	GAS ELIMINATION	<ul style="list-style-type: none"> • For systems fitted with a gas elimination device, calculate and record the average error (EAV) of the three runs at maximum achievable flow rate recorded during the accuracy test • Condition the standard volume measure. • If sealed, remove seal from the test valve. • Commence a delivery at the maximum achievable flow rate. During the delivery slowly open the air/gas test valve, causing the flow to decrease noticeably or to stop. • Close the test valve, and complete the delivery. • Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Determine the error difference (ED) for the gas elimination device. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
12.	ANTI-DRAIN / HOSE DILATION WITHOUT A HOSE REEL	<ul style="list-style-type: none"> Conduct the appropriate test (hose either provided without a hose reel or with a hose reel). Condition a suitable standard volume measure, e.g. graduated measuring cylinder. Start the delivery to allow the hose to pressurise. Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. Deactivate the dispenser by manually operating the nozzle hang-up flap or by inserting a dummy nozzle into the holster. Do not hang up the nozzle. Whilst holding the nozzle down, drain for 5 s. Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 	✓	
	WITH A HOSE REEL	<ul style="list-style-type: none"> Fully uncoil hose from its reel. Condition a suitable standard volume measure, e.g. graduated measuring cylinder. Start the delivery to allow the hose to pressurise. Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. Deactivate the dispenser by manually operating the nozzle hang-up flap and do not hang up the nozzle. Fully coil the hose back on its reel. Whilst holding the nozzle down, drain for 5 s. Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 		

Please also indicate if your economy currently aligns with the test procedures above.

Do your economies test procedures currently align with the test procedures described above	Yes	No
	✓	
<i>If your procedures do not align with these test procedures please explain why not for each test procedure in here</i>		



APLMF Survey on the test procedures for the verification of fuel dispensers

Economy Name: Papua New Guinea

Name of person completing the survey: Bill Boiu

Organisation responsible: Independent Consumer Competition Commission

Please complete this survey to indicate if you agree or disagree that each test procedure described should be included in the APLMF standard.

Please send the completed survey to Secretariat@aplmf.org by: 4 July 2016

Only tick (✓) one box per test

Survey

Test No.	Test Name	Procedures Description	Agree	Disagree
1.	Visual inspection	<ul style="list-style-type: none"> Visually inspect the fuel dispenser for compliance with its certificate(s) of approval Inspect the fuel dispenser for compliance with any relevant regulations/environmental factors/mode of use. 	✓	
2.	Checking facility for electronic indicators	<p>Visually check the entire electronic display by:</p> <ul style="list-style-type: none"> displaying all the elements; blanking all the elements; and displaying zeros. <p>This test can be carried out in conjunction with the test for zero setting using an electronic reset mechanism</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
3.	ZERO SETTING FOR MECHANICAL RESET MECHANISM ZERO SETTING FOR ELECTRONIC RESET MECHANISM	<ul style="list-style-type: none"> • Determine whether zero setting is mechanical or electronic and conduct the appropriate test. • Remove the delivery nozzle from its hang-up position. • If a previous sale remains on the indicator move the starting lever to the ON position and ensure that the pump motor does not start or the dispenser is not activated. If the pump motor does start or the dispenser is activated then the interlock mechanism is faulty. • Reset the indicator/s to zero and check that the volume indicator/s is/are zero within 0.5 Emin and the price indicator/s is/are zero within Emin unit price 0.5. • Move the starting lever slowly and gently towards the ON position until the motor starts (or the dispenser is activated) and then slowly and gently towards the OFF position until the motor stops (or the dispenser is deactivated). • Move the starting lever slowly and gently towards the ON position and check that the interlock has engaged and prevents the motor from starting or being activated. • Return the starting lever to the OFF position. <ul style="list-style-type: none"> • Remove the nozzle from its hang-up position and ensure that the display test is performed and the price and volume displays are on zero before any delivery of product is possible. • Carefully return the nozzle to its hang up position and ensure that when the nozzle is then removed no further deliveries are possible without the segment test being initiated and the indications returning to zero. 	✓	
4.	PRICE COMPUTING	<ul style="list-style-type: none"> • Reset the dispenser to zero. • Make a delivery of a convenient volume. • Calculate the total price (rounded to two decimal places) from the unit price and volume indicated. • Compare this calculated price with all price displays. 	✓	
5.	NOZZLE CUT-OFF	<ul style="list-style-type: none"> • Where the hose is fitted with an automatic cut-off nozzle, make a delivery at normal flow rate • Allow the sensing port of the nozzle to come in contact with liquid or froth. • Ensure the nozzle cuts off. <p>Repeat above steps twice more.</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
6.	<p>INTERLOCK</p> <p>HOSES SHARING A COMMON INDICATOR</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p>	<ul style="list-style-type: none"> Determine whether the hoses have a common indicator or whether they share a pumping unit, and conduct the appropriate test. Select and authorise any hose that shares a common indicator with the hose(s) being tested. Check that the price and volume indications for the hose selected reset to zero, and for dispensers: <p>(a) with separate unit price display: the unit price display for the type of fuel selected is transferred to the main indication;</p> <p>(b) without separate unit price display: the unit price display for the hose selected is displayed and all other unit price displays disappear until the delivery has been completed.</p> Check that all other hoses sharing the same indicator are disabled by removing the other nozzles from their hang up position and confirming that they do not authorise. Select and authorise any hose that shares the common pumping unit with the hose being tested. While the pumping unit is operating, attempt to make a delivery from the hose being tested without allowing the dispenser to be actuated where it will initiate the zero setting sequence. Check that it is not possible to make a delivery from the hose being tested. 	✓	
7.	PRE-SET INDICATIONS	<ul style="list-style-type: none"> Reset the dispenser to zero. Enter a suitable pre-set value using the pre-set facility. Make sure the pre-set amount appears on the display. Commence a delivery into the container with the nozzle fully open allowing the pre-set facility to slow down and complete the delivery automatically. Check that the price/volume indication on the display corresponds to the pre-set amount and for self-serve remains on the display or is stored in memory until the transaction is finalised. 	✓	
8.	<p>MAXIMUM FLOW RATE</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p> <p>Only performed at initial verification, or when any site changes occur.</p>	<ul style="list-style-type: none"> For all hoses, commence and time a delivery at the maximum achievable flow rate. Stop the delivery after at least 10 seconds. Note the indication on the dispenser and calculate the flow rate. Select and authorise a number of hoses connected to the same pumping unit. With all hoses operating at the maximum achievable flow rate, time the delivery for one of the hoses. Stop the delivery after at least 10 s and calculate the flow rate. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
9.	ACCURACY	<ul style="list-style-type: none"> • Condition the standard volume measure • Make a delivery at maximum achievable flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Repeat the steps above twice more. • Make one more delivery at minimum flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
10.	ACCURACY OF PRE-SET	<ul style="list-style-type: none"> • Condition the standard volume measure • Enter and record a suitable pre-set value using the pre-set facility. This pre-set value should deliver close to the value of the reference standard measure being used. • Make a delivery at maximum achievable flow rate until the delivery stops. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
11.	GAS ELIMINATION	<ul style="list-style-type: none"> • For systems fitted with a gas elimination device, calculate and record the average error (EAV) of the three runs at maximum achievable flow rate recorded during the accuracy test • Condition the standard volume measure. • If sealed, remove seal from the test valve. • Commence a delivery at the maximum achievable flow rate. During the delivery slowly open the air/gas test valve, causing the flow to decrease noticeably or to stop. • Close the test valve, and complete the delivery. • Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Determine the error difference (ED) for the gas elimination device. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
12.	ANTI-DRAIN / HOSE DILATION WITHOUT A HOSE REEL	<ul style="list-style-type: none"> Conduct the appropriate test (hose either provided without a hose reel or with a hose reel). Condition a suitable standard volume measure, e.g. graduated measuring cylinder. Start the delivery to allow the hose to pressurise. Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. Deactivate the dispenser by manually operating the nozzle hang-up flap or by inserting a dummy nozzle into the holster. Do not hang up the nozzle. Whilst holding the nozzle down, drain for 5 s. Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 	✓	
	WITH A HOSE REEL	<ul style="list-style-type: none"> Fully uncoil hose from its reel. Condition a suitable standard volume measure, e.g. graduated measuring cylinder. Start the delivery to allow the hose to pressurise. Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. Deactivate the dispenser by manually operating the nozzle hang-up flap and do not hang up the nozzle. Fully coil the hose back on its reel. Whilst holding the nozzle down, drain for 5 s. Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 		

Please also indicate if your economy currently aligns with the test procedures above.

Do your economies test procedures currently align with the test procedures described above	Yes	No
	✓	
<i>If your procedures do not align with these test procedures please explain why not for each test procedure in here</i>		



APLMF Survey on the test procedures for the verification of fuel dispensers

Economy Name: Singapore

Name of person completing the survey: Andrew Yap

Organisation responsible: SPRING Singapore

Please complete this survey to indicate if you agree or disagree that each test procedure described should be included in the APLMF standard.

Please send the completed survey to Secretariat@aplmf.org by: 4 July 2016

Only tick (✓) one box per test

Survey

Test No.	Test Name	Procedures Description	Agree	Disagree
1.	Visual inspection	<ul style="list-style-type: none"> Visually inspect the fuel dispenser for compliance with its certificate(s) of approval Inspect the fuel dispenser for compliance with any relevant regulations/environmental factors/mode of use. 	✓	
2.	Checking facility for electronic indicators	<p>Visually check the entire electronic display by:</p> <ul style="list-style-type: none"> displaying all the elements; blanking all the elements; and displaying zeros. <p>This test can be carried out in conjunction with the test for zero setting using an electronic reset mechanism</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
3.	ZERO SETTING FOR MECHANICAL RESET MECHANISM ZERO SETTING FOR ELECTRONIC RESET MECHANISM	<ul style="list-style-type: none"> • Determine whether zero setting is mechanical or electronic and conduct the appropriate test. • Remove the delivery nozzle from its hang-up position. • If a previous sale remains on the indicator move the starting lever to the ON position and ensure that the pump motor does not start or the dispenser is not activated. If the pump motor does start or the dispenser is activated then the interlock mechanism is faulty. • Reset the indicator/s to zero and check that the volume indicator/s is/are zero within 0.5 Emin and the price indicator/s is/are zero within Emin unit price 0.5. • Move the starting lever slowly and gently towards the ON position until the motor starts (or the dispenser is activated) and then slowly and gently towards the OFF position until the motor stops (or the dispenser is deactivated). • Move the starting lever slowly and gently towards the ON position and check that the interlock has engaged and prevents the motor from starting or being activated. • Return the starting lever to the OFF position. <ul style="list-style-type: none"> • Remove the nozzle from its hang-up position and ensure that the display test is performed and the price and volume displays are on zero before any delivery of product is possible. • Carefully return the nozzle to its hang up position and ensure that when the nozzle is then removed no further deliveries are possible without the segment test being initiated and the indications returning to zero. 	✓	
4.	PRICE COMPUTING	<ul style="list-style-type: none"> • Reset the dispenser to zero. • Make a delivery of a convenient volume. • Calculate the total price (rounded to two decimal places) from the unit price and volume indicated. • Compare this calculated price with all price displays. 	✓	
5.	NOZZLE CUT-OFF	<ul style="list-style-type: none"> • Where the hose is fitted with an automatic cut-off nozzle, make a delivery at normal flow rate • Allow the sensing port of the nozzle to come in contact with liquid or froth. • Ensure the nozzle cuts off. <p>Repeat above steps twice more.</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
6.	<p>INTERLOCK</p> <p>HOSES SHARING A COMMON INDICATOR</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p>	<ul style="list-style-type: none"> Determine whether the hoses have a common indicator or whether they share a pumping unit, and conduct the appropriate test. Select and authorise any hose that shares a common indicator with the hose(s) being tested. Check that the price and volume indications for the hose selected reset to zero, and for dispensers: <p>(a) with separate unit price display: the unit price display for the type of fuel selected is transferred to the main indication;</p> <p>(b) without separate unit price display: the unit price display for the hose selected is displayed and all other unit price displays disappear until the delivery has been completed.</p> Check that all other hoses sharing the same indicator are disabled by removing the other nozzles from their hang up position and confirming that they do not authorise. Select and authorise any hose that shares the common pumping unit with the hose being tested. While the pumping unit is operating, attempt to make a delivery from the hose being tested without allowing the dispenser to be actuated where it will initiate the zero setting sequence. Check that it is not possible to make a delivery from the hose being tested. 	✓	
7.	PRE-SET INDICATIONS	<ul style="list-style-type: none"> Reset the dispenser to zero. Enter a suitable pre-set value using the pre-set facility. Make sure the pre-set amount appears on the display. Commence a delivery into the container with the nozzle fully open allowing the pre-set facility to slow down and complete the delivery automatically. Check that the price/volume indication on the display corresponds to the pre-set amount and for self-serve remains on the display or is stored in memory until the transaction is finalised. 	✓	
8.	<p>MAXIMUM FLOW RATE</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p> <p>Only performed at initial verification, or when any site changes occur.</p>	<ul style="list-style-type: none"> For all hoses, commence and time a delivery at the maximum achievable flow rate. Stop the delivery after at least 10 seconds. Note the indication on the dispenser and calculate the flow rate. Select and authorise a number of hoses connected to the same pumping unit. With all hoses operating at the maximum achievable flow rate, time the delivery for one of the hoses. Stop the delivery after at least 10 s and calculate the flow rate. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
9.	ACCURACY	<ul style="list-style-type: none"> • Condition the standard volume measure • Make a delivery at maximum achievable flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Repeat the steps above twice more. • Make one more delivery at minimum flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
10.	ACCURACY OF PRE-SET	<ul style="list-style-type: none"> • Condition the standard volume measure • Enter and record a suitable pre-set value using the pre-set facility. This pre-set value should deliver close to the value of the reference standard measure being used. • Make a delivery at maximum achievable flow rate until the delivery stops. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
11.	GAS ELIMINATION	<ul style="list-style-type: none"> • For systems fitted with a gas elimination device, calculate and record the average error (EAV) of the three runs at maximum achievable flow rate recorded during the accuracy test • Condition the standard volume measure. • If sealed, remove seal from the test valve. • Commence a delivery at the maximum achievable flow rate. During the delivery slowly open the air/gas test valve, causing the flow to decrease noticeably or to stop. • Close the test valve, and complete the delivery. • Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Determine the error difference (ED) for the gas elimination device. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
12.	ANTI-DRAIN / HOSE DILATION WITHOUT A HOSE REEL	<ul style="list-style-type: none"> • Conduct the appropriate test (hose either provided without a hose reel or with a hose reel). • Condition a suitable standard volume measure, e.g. graduated measuring cylinder. • Start the delivery to allow the hose to pressurise. • Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. • Deactivate the dispenser by manually operating the nozzle hang-up flap or by inserting a dummy nozzle into the holster. Do not hang up the nozzle. • Whilst holding the nozzle down, drain for 5 s. • Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. • Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 	✓	
	WITH A HOSE REEL	<ul style="list-style-type: none"> • Fully uncoil hose from its reel. • Condition a suitable standard volume measure, e.g. graduated measuring cylinder. • Start the delivery to allow the hose to pressurise. • Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. • Deactivate the dispenser by manually operating the nozzle hang-up flap and do not hang up the nozzle. • Fully coil the hose back on its reel. • Whilst holding the nozzle down, drain for 5 s. • Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. • Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 		

Please also indicate if your economy currently aligns with the test procedures above.

Do your economies test procedures currently align with the test procedures described above	Yes	No
	✓	
<i>If your procedures do not align with these test procedures please explain why not for each test procedure in here</i>		



APLMF Survey on the test procedures for the verification of fuel dispensers

Economy Name: Chinese Taipei

Name of person completing the survey: Jin-Hai Yang

Organisation responsible: Bureau of Standards, Metrology and Inspection

Please complete this survey to indicate if you agree or disagree that each test procedure described should be included in the APLMF standard.

Please send the completed survey to Secretariat@aplmf.org by: 4 July 2016

Only tick (✓) one box per test

Survey

Test No.	Test Name	Procedures Description	Agree	Disagree
1.	Visual inspection	<ul style="list-style-type: none"> Visually inspect the fuel dispenser for compliance with its certificate(s) of approval Inspect the fuel dispenser for compliance with any relevant regulations/environmental factors/mode of use. 		✓
2.	Checking facility for electronic indicators	<p>Visually check the entire electronic display by:</p> <ul style="list-style-type: none"> displaying all the elements; blanking all the elements; and displaying zeros. <p>This test can be carried out in conjunction with the test for zero setting using an electronic reset mechanism</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
3.	ZERO SETTING FOR MECHANICAL RESET MECHANISM ZERO SETTING FOR ELECTRONIC RESET MECHANISM	<ul style="list-style-type: none"> • Determine whether zero setting is mechanical or electronic and conduct the appropriate test. • Remove the delivery nozzle from its hang-up position. • If a previous sale remains on the indicator move the starting lever to the ON position and ensure that the pump motor does not start or the dispenser is not activated. If the pump motor does start or the dispenser is activated then the interlock mechanism is faulty. • Reset the indicator/s to zero and check that the volume indicator/s is/are zero within 0.5 Emin and the price indicator/s is/are zero within Emin unit price 0.5. • Move the starting lever slowly and gently towards the ON position until the motor starts (or the dispenser is activated) and then slowly and gently towards the OFF position until the motor stops (or the dispenser is deactivated). • Move the starting lever slowly and gently towards the ON position and check that the interlock has engaged and prevents the motor from starting or being activated. • Return the starting lever to the OFF position. <ul style="list-style-type: none"> • Remove the nozzle from its hang-up position and ensure that the display test is performed and the price and volume displays are on zero before any delivery of product is possible. • Carefully return the nozzle to its hang up position and ensure that when the nozzle is then removed no further deliveries are possible without the segment test being initiated and the indications returning to zero. 		✓
4.	PRICE COMPUTING	<ul style="list-style-type: none"> • Reset the dispenser to zero. • Make a delivery of a convenient volume. • Calculate the total price (rounded to two decimal places) from the unit price and volume indicated. • Compare this calculated price with all price displays. 		✓
5.	NOZZLE CUT-OFF	<ul style="list-style-type: none"> • Where the hose is fitted with an automatic cut-off nozzle, make a delivery at normal flow rate • Allow the sensing port of the nozzle to come in contact with liquid or froth. • Ensure the nozzle cuts off. <p>Repeat above steps twice more.</p>		✓

Test No.	Test Name	Procedures Description	Agree	Disagree
6.	<p>INTERLOCK</p> <p>HOSES SHARING A COMMON INDICATOR</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p>	<ul style="list-style-type: none"> Determine whether the hoses have a common indicator or whether they share a pumping unit, and conduct the appropriate test. Select and authorise any hose that shares a common indicator with the hose(s) being tested. Check that the price and volume indications for the hose selected reset to zero, and for dispensers: <p>(a) with separate unit price display: the unit price display for the type of fuel selected is transferred to the main indication;</p> <p>(b) without separate unit price display: the unit price display for the hose selected is displayed and all other unit price displays disappear until the delivery has been completed.</p> Check that all other hoses sharing the same indicator are disabled by removing the other nozzles from their hang up position and confirming that they do not authorise. Select and authorise any hose that shares the common pumping unit with the hose being tested. While the pumping unit is operating, attempt to make a delivery from the hose being tested without allowing the dispenser to be actuated where it will initiate the zero setting sequence. Check that it is not possible to make a delivery from the hose being tested. 	✓	
7.	PRE-SET INDICATIONS	<ul style="list-style-type: none"> Reset the dispenser to zero. Enter a suitable pre-set value using the pre-set facility. Make sure the pre-set amount appears on the display. Commence a delivery into the container with the nozzle fully open allowing the pre-set facility to slow down and complete the delivery automatically. Check that the price/volume indication on the display corresponds to the pre-set amount and for self-serve remains on the display or is stored in memory until the transaction is finalised. 		✓
8.	<p>MAXIMUM FLOW RATE</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p> <p>Only performed at initial verification, or when any site changes occur.</p>	<ul style="list-style-type: none"> For all hoses, commence and time a delivery at the maximum achievable flow rate. Stop the delivery after at least 10 seconds. Note the indication on the dispenser and calculate the flow rate. Select and authorise a number of hoses connected to the same pumping unit. With all hoses operating at the maximum achievable flow rate, time the delivery for one of the hoses. Stop the delivery after at least 10 s and calculate the flow rate. 		✓

Test No.	Test Name	Procedures Description	Agree	Disagree
9.	ACCURACY	<ul style="list-style-type: none"> • Condition the standard volume measure • Make a delivery at maximum achievable flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Repeat the steps above twice more. • Make one more delivery at minimum flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 		✓
10.	ACCURACY OF PRE-SET	<ul style="list-style-type: none"> • Condition the standard volume measure • Enter and record a suitable pre-set value using the pre-set facility. This pre-set value should deliver close to the value of the reference standard measure being used. • Make a delivery at maximum achievable flow rate until the delivery stops. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 		✓
11.	GAS ELIMINATION	<ul style="list-style-type: none"> • For systems fitted with a gas elimination device, calculate and record the average error (EAV) of the three runs at maximum achievable flow rate recorded during the accuracy test • Condition the standard volume measure. • If sealed, remove seal from the test valve. • Commence a delivery at the maximum achievable flow rate. During the delivery slowly open the air/gas test valve, causing the flow to decrease noticeably or to stop. • Close the test valve, and complete the delivery. • Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Determine the error difference (ED) for the gas elimination device. 		✓

Test No.	Test Name	Procedures Description	Agree	Disagree
12.	ANTI-DRAIN / HOSE DILATION WITHOUT A HOSE REEL	<ul style="list-style-type: none"> ● Conduct the appropriate test (hose either provided without a hose reel or with a hose reel). ● Condition a suitable standard volume measure, e.g. graduated measuring cylinder. ● Start the delivery to allow the hose to pressurise. ● Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. ● Deactivate the dispenser by manually operating the nozzle hang-up flap or by inserting a dummy nozzle into the holster. Do not hang up the nozzle. ● Whilst holding the nozzle down, drain for 5 s. ● Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. ● Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 		✓
	WITH A HOSE REEL	<ul style="list-style-type: none"> ● Fully uncoil hose from its reel. ● Condition a suitable standard volume measure, e.g. graduated measuring cylinder. ● Start the delivery to allow the hose to pressurise. ● Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. ● Deactivate the dispenser by manually operating the nozzle hang-up flap and do not hang up the nozzle. ● Fully coil the hose back on its reel. ● Whilst holding the nozzle down, drain for 5 s. ● Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. ● Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 		

Please also indicate if your economy currently aligns with the test procedures above.

	Yes	No
Do your economies test procedures currently align with the test procedures described above		<input checked="" type="checkbox"/>
<p><i>If your procedures do not align with these test procedures please explain why not for each test procedure in here</i></p> <p><i>Test No. 1. We do not expect our verifiers familiar with all regulations other than metrological regulations. So we do not inspect the fuel dispensers to see if they are meet the requirements other than metrological requirements.</i></p> <p><i>Test No. 3. We do check the zero setting. However, we do not set such detail requirements.</i></p> <p><i>Test No. 4. We do not check the correctness of the indication of price.</i></p> <p><i>Test No. 5. We do not check the mechanism issue.</i></p> <p><i>Test No. 7. When implementing the verification on pre-set, we implement the verification procedure with higher flow-rate and lower flow-rate but maximum flow-rate or minimum flow-rate.</i></p> <p><i>Test No.8. When implementing verification, we implement the verification procedure with higher flow-rate and lower flow-rate but maximum flow-rate or minimum flow-rate.</i></p> <p><i>Test No. 9. Ditto.</i></p> <p><i>Test No. 10. Ditto.</i></p> <p><i>Test No. 11. Please refer to Test no. 5.</i></p> <p><i>Test No. 12. Ditto.</i></p>		



APLMF Survey on the test procedures for the verification of fuel dispensers

Economy Name: Thailand

Name of person completing the survey: Miss Penpak Boonchum

Organisation responsible: Bureau of Weights and Measures, DIT, Ministry of Commerce

Please complete this survey to indicate if you agree or disagree that each test procedure described should be included in the APLMF standard.

Please send the completed survey to Secretariat@aplmf.org by: 4 July 2016

Only tick (✓) one box per test

Survey

Test No.	Test Name	Procedures Description	Agree	Disagree
1.	Visual inspection	<ul style="list-style-type: none"> Visually inspect the fuel dispenser for compliance with its certificate(s) of approval Inspect the fuel dispenser for compliance with any relevant regulations/environmental factors/mode of use. 	✓	
2.	Checking facility for electronic indicators	<p>Visually check the entire electronic display by:</p> <ul style="list-style-type: none"> displaying all the elements; blanking all the elements; and displaying zeros. <p>This test can be carried out in conjunction with the test for zero setting using an electronic reset mechanism</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
3.	ZERO SETTING FOR MECHANICAL RESET MECHANISM ZERO SETTING FOR ELECTRONIC RESET MECHANISM	<ul style="list-style-type: none"> • Determine whether zero setting is mechanical or electronic and conduct the appropriate test. • Remove the delivery nozzle from its hang-up position. • If a previous sale remains on the indicator move the starting lever to the ON position and ensure that the pump motor does not start or the dispenser is not activated. If the pump motor does start or the dispenser is activated then the interlock mechanism is faulty. • Reset the indicator/s to zero and check that the volume indicator/s is/are zero within 0.5 Emin and the price indicator/s is/are zero within Emin unit price 0.5. • Move the starting lever slowly and gently towards the ON position until the motor starts (or the dispenser is activated) and then slowly and gently towards the OFF position until the motor stops (or the dispenser is deactivated). • Move the starting lever slowly and gently towards the ON position and check that the interlock has engaged and prevents the motor from starting or being activated. • Return the starting lever to the OFF position. <ul style="list-style-type: none"> • Remove the nozzle from its hang-up position and ensure that the display test is performed and the price and volume displays are on zero before any delivery of product is possible. • Carefully return the nozzle to its hang up position and ensure that when the nozzle is then removed no further deliveries are possible without the segment test being initiated and the indications returning to zero. 	✓	
4.	PRICE COMPUTING	<ul style="list-style-type: none"> • Reset the dispenser to zero. • Make a delivery of a convenient volume. • Calculate the total price (rounded to two decimal places) from the unit price and volume indicated. • Compare this calculated price with all price displays. 	✓	
5.	NOZZLE CUT-OFF	<ul style="list-style-type: none"> • Where the hose is fitted with an automatic cut-off nozzle, make a delivery at normal flow rate • Allow the sensing port of the nozzle to come in contact with liquid or froth. • Ensure the nozzle cuts off. <p>Repeat above steps twice more.</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
6.	<p>INTERLOCK</p> <p>HOSES SHARING A COMMON INDICATOR</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p>	<ul style="list-style-type: none"> Determine whether the hoses have a common indicator or whether they share a pumping unit, and conduct the appropriate test. Select and authorise any hose that shares a common indicator with the hose(s) being tested. Check that the price and volume indications for the hose selected reset to zero, and for dispensers: <p>(a) with separate unit price display: the unit price display for the type of fuel selected is transferred to the main indication;</p> <p>(b) without separate unit price display: the unit price display for the hose selected is displayed and all other unit price displays disappear until the delivery has been completed.</p> Check that all other hoses sharing the same indicator are disabled by removing the other nozzles from their hang up position and confirming that they do not authorise. Select and authorise any hose that shares the common pumping unit with the hose being tested. While the pumping unit is operating, attempt to make a delivery from the hose being tested without allowing the dispenser to be actuated where it will initiate the zero setting sequence. Check that it is not possible to make a delivery from the hose being tested. 	✓	
7.	PRE-SET INDICATIONS	<ul style="list-style-type: none"> Reset the dispenser to zero. Enter a suitable pre-set value using the pre-set facility. Make sure the pre-set amount appears on the display. Commence a delivery into the container with the nozzle fully open allowing the pre-set facility to slow down and complete the delivery automatically. Check that the price/volume indication on the display corresponds to the pre-set amount and for self-serve remains on the display or is stored in memory until the transaction is finalised. 	✓	
8.	<p>MAXIMUM FLOW RATE</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p> <p>Only performed at initial verification, or when any site changes occur.</p>	<ul style="list-style-type: none"> For all hoses, commence and time a delivery at the maximum achievable flow rate. Stop the delivery after at least 10 seconds. Note the indication on the dispenser and calculate the flow rate. Select and authorise a number of hoses connected to the same pumping unit. With all hoses operating at the maximum achievable flow rate, time the delivery for one of the hoses. Stop the delivery after at least 10 s and calculate the flow rate. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
9.	ACCURACY	<ul style="list-style-type: none"> • Condition the standard volume measure • Make a delivery at maximum achievable flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Repeat the steps above twice more. • Make one more delivery at minimum flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
10.	ACCURACY OF PRE-SET	<ul style="list-style-type: none"> • Condition the standard volume measure • Enter and record a suitable pre-set value using the pre-set facility. This pre-set value should deliver close to the value of the reference standard measure being used. • Make a delivery at maximum achievable flow rate until the delivery stops. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
11.	GAS ELIMINATION	<ul style="list-style-type: none"> • For systems fitted with a gas elimination device, calculate and record the average error (EAV) of the three runs at maximum achievable flow rate recorded during the accuracy test • Condition the standard volume measure. • If sealed, remove seal from the test valve. • Commence a delivery at the maximum achievable flow rate. During the delivery slowly open the air/gas test valve, causing the flow to decrease noticeably or to stop. • Close the test valve, and complete the delivery. • Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Determine the error difference (ED) for the gas elimination device. 		✓

Test No.	Test Name	Procedures Description	Agree	Disagree
12.	ANTI-DRAIN / HOSE DILATION WITHOUT A HOSE REEL	<ul style="list-style-type: none"> Conduct the appropriate test (hose either provided without a hose reel or with a hose reel). Condition a suitable standard volume measure, e.g. graduated measuring cylinder. Start the delivery to allow the hose to pressurise. Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. Deactivate the dispenser by manually operating the nozzle hang-up flap or by inserting a dummy nozzle into the holster. Do not hang up the nozzle. Whilst holding the nozzle down, drain for 5 s. Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 		✓
	WITH A HOSE REEL	<ul style="list-style-type: none"> Fully uncoil hose from its reel. Condition a suitable standard volume measure, e.g. graduated measuring cylinder. Start the delivery to allow the hose to pressurise. Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. Deactivate the dispenser by manually operating the nozzle hang-up flap and do not hang up the nozzle. Fully coil the hose back on its reel. Whilst holding the nozzle down, drain for 5 s. Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 		

Please also indicate if your economy currently aligns with the test procedures above.

Do your economies test procedures currently align with the test procedures described above	Yes	No
	✓	
If your procedures do not align with these test procedures please explain why not for each test procedure in here		



APLMF Survey on the test procedures for the verification of fuel dispensers

Economy Name: _____ VIETNAM _____

Name of person completing the survey: ___Mrs. TRAN Thuy Ha_____

Organisation responsible: DIRECTORATE FOR STANDARDS, METROLOGY AND QUALITY (STAMEQ)___

Please complete this survey to indicate if you agree or disagree that each test procedure described should be included in the APLMF standard.

Please send the completed survey to Secretariat@aplmf.org by: 4 July 2016

Only tick (✓) one box per test

Survey

Test No.	Test Name	Procedures Description	Agree	Disagree
1.	Visual inspection	<ul style="list-style-type: none"> Visually inspect the fuel dispenser for compliance with its certificate(s) of approval Inspect the fuel dispenser for compliance with any relevant regulations/environmental factors/mode of use. 	✓	
2.	Checking facility for electronic indicators	<p>Visually check the entire electronic display by:</p> <ul style="list-style-type: none"> displaying all the elements; blanking all the elements; and displaying zeros. <p>This test can be carried out in conjunction with the test for zero setting using an electronic reset mechanism</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
3.	ZERO SETTING FOR MECHANICAL RESET MECHANISM ZERO SETTING FOR ELECTRONIC RESET MECHANISM	<ul style="list-style-type: none"> • Determine whether zero setting is mechanical or electronic and conduct the appropriate test. • Remove the delivery nozzle from its hang-up position. • If a previous sale remains on the indicator move the starting lever to the ON position and ensure that the pump motor does not start or the dispenser is not activated. If the pump motor does start or the dispenser is activated then the interlock mechanism is faulty. • Reset the indicator/s to zero and check that the volume indicator/s is/are zero within 0.5 Emin and the price indicator/s is/are zero within Emin unit price 0.5. • Move the starting lever slowly and gently towards the ON position until the motor starts (or the dispenser is activated) and then slowly and gently towards the OFF position until the motor stops (or the dispenser is deactivated). • Move the starting lever slowly and gently towards the ON position and check that the interlock has engaged and prevents the motor from starting or being activated. • Return the starting lever to the OFF position. <ul style="list-style-type: none"> • Remove the nozzle from its hang-up position and ensure that the display test is performed and the price and volume displays are on zero before any delivery of product is possible. • Carefully return the nozzle to its hang up position and ensure that when the nozzle is then removed no further deliveries are possible without the segment test being initiated and the indications returning to zero. 	✓	
4.	PRICE COMPUTING	<ul style="list-style-type: none"> • Reset the dispenser to zero. • Make a delivery of a convenient volume. • Calculate the total price (rounded to two decimal places) from the unit price and volume indicated. • Compare this calculated price with all price displays. 	✓	
5.	NOZZLE CUT-OFF	<ul style="list-style-type: none"> • Where the hose is fitted with an automatic cut-off nozzle, make a delivery at normal flow rate • Allow the sensing port of the nozzle to come in contact with liquid or froth. • Ensure the nozzle cuts off. <p>Repeat above steps twice more.</p>	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
6.	<p>INTERLOCK</p> <p>HOSES SHARING A COMMON INDICATOR</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p>	<ul style="list-style-type: none"> Determine whether the hoses have a common indicator or whether they share a pumping unit, and conduct the appropriate test. Select and authorise any hose that shares a common indicator with the hose(s) being tested. Check that the price and volume indications for the hose selected reset to zero, and for dispensers: <p>(a) with separate unit price display: the unit price display for the type of fuel selected is transferred to the main indication;</p> <p>(b) without separate unit price display: the unit price display for the hose selected is displayed and all other unit price displays disappear until the delivery has been completed.</p> Check that all other hoses sharing the same indicator are disabled by removing the other nozzles from their hang up position and confirming that they do not authorise. Select and authorise any hose that shares the common pumping unit with the hose being tested. While the pumping unit is operating, attempt to make a delivery from the hose being tested without allowing the dispenser to be actuated where it will initiate the zero setting sequence. Check that it is not possible to make a delivery from the hose being tested. 	✓	
7.	PRE-SET INDICATIONS	<ul style="list-style-type: none"> Reset the dispenser to zero. Enter a suitable pre-set value using the pre-set facility. Make sure the pre-set amount appears on the display. Commence a delivery into the container with the nozzle fully open allowing the pre-set facility to slow down and complete the delivery automatically. Check that the price/volume indication on the display corresponds to the pre-set amount and for self-serve remains on the display or is stored in memory until the transaction is finalised. 	✓	
8.	<p>MAXIMUM FLOW RATE</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p> <p>Only performed at initial verification, or when any site changes occur.</p>	<ul style="list-style-type: none"> For all hoses, commence and time a delivery at the maximum achievable flow rate. Stop the delivery after at least 10 seconds. Note the indication on the dispenser and calculate the flow rate. Select and authorise a number of hoses connected to the same pumping unit. With all hoses operating at the maximum achievable flow rate, time the delivery for one of the hoses. Stop the delivery after at least 10 s and calculate the flow rate. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
9.	ACCURACY	<ul style="list-style-type: none"> • Condition the standard volume measure • Make a delivery at maximum achievable flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Repeat the steps above twice more. • Make one more delivery at minimum flow rate. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 		✓
10.	ACCURACY OF PRE-SET	<ul style="list-style-type: none"> • Condition the standard volume measure • Enter and record a suitable pre-set value using the pre-set facility. This pre-set value should deliver close to the value of the reference standard measure being used. • Make a delivery at maximum achievable flow rate until the delivery stops. Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). 	✓	
11.	GAS ELIMINATION	<ul style="list-style-type: none"> • For systems fitted with a gas elimination device, calculate and record the average error (EAV) of the three runs at maximum achievable flow rate recorded during the accuracy test • Condition the standard volume measure. • If sealed, remove seal from the test valve. • Commence a delivery at the maximum achievable flow rate. During the delivery slowly open the air/gas test valve, causing the flow to decrease noticeably or to stop. • Close the test valve, and complete the delivery. • Record the volume indicated by the fuel dispenser (VFD) and the volume indicated by the reference standard measure (VREF). • Calculate and record the relative error (of indication) (EFD). • Determine the error difference (ED) for the gas elimination device. 	✓	

Test No.	Test Name	Procedures Description	Agree	Disagree
12.	ANTI-DRAIN / HOSE DILATION WITHOUT A HOSE REEL	<ul style="list-style-type: none"> ● Conduct the appropriate test (hose either provided without a hose reel or with a hose reel). ● Condition a suitable standard volume measure, e.g. graduated measuring cylinder. ● Start the delivery to allow the hose to pressurise. ● Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. ● Deactivate the dispenser by manually operating the nozzle hang-up flap or by inserting a dummy nozzle into the holster. Do not hang up the nozzle. ● Whilst holding the nozzle down, drain for 5 s. ● Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. ● Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 	✓	
	WITH A HOSE REEL	<ul style="list-style-type: none"> ● Fully uncoil hose from its reel. ● Condition a suitable standard volume measure, e.g. graduated measuring cylinder. ● Start the delivery to allow the hose to pressurise. ● Stop the delivery suddenly by immersing the hose nozzle into the delivered liquid or by suddenly releasing the trigger of the nozzle. ● Deactivate the dispenser by manually operating the nozzle hang-up flap and do not hang up the nozzle. ● Fully coil the hose back on its reel. ● Whilst holding the nozzle down, drain for 5 s. ● Open the nozzle and allow the pressure in the hose to reduce whilst draining the nozzle into the small standard volume measure. ● Close the nozzle when the flow stops, or after 30 s. If the nozzle still drips after 30 s the nozzle should be repaired. 		

Please also indicate if your economy currently aligns with the test procedures above.

Do your economies test procedures currently align with the test procedures described above	Yes	No
		✓
<p><i>If your procedures do not align with these test procedures please explain why not for each test procedure in here</i></p>		
<p>6. INTERLOCK</p> <p>HOSES SHARING A COMMON INDICATOR</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p> <p>Our verification procedure currently does not have this test</p> <p>8. MAXIMUM FLOW RATE</p> <p>HOSES SHARING A COMMON PUMPING UNIT</p> <p>Our verification procedure currently does not have this test</p> <p>9. ACCURACY</p> <p><i>We conduct accuracy test at maximum achievable flow rate twice.</i></p> <p><i>We conduct accuracy test at minimum flow rate twice.</i></p>		