



Summary of Results

External Quality Assessment for Food Microbiology European Food Microbiology Legislation Scheme

Distribution Number: EFL47
Sample Numbers: EFL139, EFL140, EFL141

Distribution Date:	January 2019
Results Due:	8 February 2019
Report Date:	1 March 2019
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This Scheme provides external quality assessment samples for laboratories that examine foods products in accordance with European legislation specified in Regulation (EC) 2073/2005 Microbiological Criteria for Foodstuffs associated with Regulation (EC) 852/2004 and subsequent amendments

If you require further information about the scheme please refer to:

Scheme Guide: <https://www.gov.uk/government/publications/food-and-water-proficiency-testing-schemes-scheme-guide>

Guide to Scoring:

<https://www.gov.uk/government/publications/food-and-water-proficiency-testing-schemes-scoring-systems-and-statistics>

FEPTU Quality Control:

To demonstrate stability of the sample, a minimum of six LENTICULE® discs, selected randomly from a batch, are examined throughout the distribution period, either for enumeration or for pathogen detection.

FEPTU results are determined using methods based on ISO methods and are included in the 'intended results' letters which provide guidance for participants regarding the assigned values.

Intended results letters are posted on the website immediately after every distribution; electronic notification of their availability is sent to all participants.

If you experience difficulties with any of the examinations please refer to section 7.0 of the Scheme Guide

<https://www.gov.uk/government/publications/food-and-water-proficiency-testing-schemes-scheme-guide>

All participants are reminded that reporting an incorrect or incomplete identification of pathogens from food samples could have serious public health implications. Similarly, the levels of micro-organisms reported in the sample may affect the subsequent outcome for the product.

Participants are reminded that the purpose of scoring is to draw attention to incorrect or outlying results. Results as summarised in the performance assessment sheet included in this report, provide a more effective indication of on-going problems with food microbiology examinations.

Please contact FEPTU staff for advice and information:

Repeat samples	Carmen Collins or Kermin Daruwalla	Tel: +44 (0)20 8327 7119
Data analysis	Manchan Rajkumar or Nita Patel	Fax: +44 (0)20 8200 8264
Microbiological advice	Nita Patel or Zak Prior	E-mail: foodeqa@phe.gov.uk
General comments and complaints	Nita Patel or Zak Prior	FEPTU Website
Scheme Consultant	Melody Greenwood, Nicola Elviss and Caroline Willis	
Scheme Co-ordinator	Nita Patel	

Accreditation: The European Food Microbiology Legislation Scheme is accredited by the United Kingdom Accreditation Service (UKAS) to ISO/IEC 17043:2010



Total number of participants sent distribution EFL47	21
Number of laboratories not returning a result for EFL47	1
Number of laboratories not examining any of the samples in EFL47	2

Sample: EFL139

Sample Details: Carcasses of broilers. Carcasses sampled after chilling

Sample Request: Test to determine whether this sample complies with the relevant criteria stipulated in Commission Regulation (EC) No. 2073/2005 as amended

Applicable food categories 2.1.5, 1.28 and 2.1.9

Sample Conclusion: Unsatisfactory. The batch does not comply with the legislation

Contents: *Salmonella* Enteritidis 1,9,12:g,m: – (17 per disc) (wild strain)
Campylobacter jejuni (1.1 x 10²) (wild strain)
Klebsiella pneumoniae (1.2 x 10⁴) (wild strain)
Micrococcus luteus (4.0 x 10²) (wild strain)

All levels are presented as colony forming units (cfu) per g/ml reconstituted sample unless otherwise stated

Required examinations: *Salmonella* spp. *Salmonella* Typhimurium/*Salmonella* Enteritidis and *Campylobacter* spp.

Examination 1- *Salmonella* spp.:

Examination	Expected Result	Your result	Your score
Applicable food category	2.1.5		
Name of examination	<i>Salmonella</i> spp.		
Stipulated method*	ISO 6579*		
Amount of sample examined	25g		
No. of samples from a batch required for compliance	50		
Expected range	Detected		
Limits for compliance	Absence in 25g; c=5		
Conclusion about this examination from result obtained	Your conclusion has been scored in relation to your reported result		
* The most recent edition of the standard should be used		Total score out of	

Comments on Performance:

Number of participants correctly reporting detected for <i>Salmonella</i> spp. as part of food category 2.1.5	18
Number of participants correctly using ISO 6579	16
Number of participants using an alternative method	2

Sample: EFL139 (continued)

Examination 2 - *Salmonella* Typhimurium and *Salmonella* Enteritidis:

Examination	Expected Result	Your result	Your score
Applicable food category	1.28		
Name of examination	<i>Salmonella</i> Typhimurium and <i>Salmonella</i> Enteritidis		
Stipulated method*	ISO 6579*		
Amount of sample examined	-		
No. of samples from a batch required for compliance	5		
Expected range	Detected		
Limits for compliance	Absence in 25g; c=0		
Conclusion about this examination from result obtained	Your conclusion has been scored in relation to your reported result		

* The most recent edition of the standard should be used

Total score out of

Comments on Performance:

Number of participants correctly reporting detected for <i>Salmonella</i> Typhimurium and <i>Salmonella</i> Enteritidis as part of food category 1.28	1
Number of participants stating that examination 1.28 is required but did not undertake the test	4
Number of participants stating correctly that ISO 6579 would be used	3
Number of participants using an alternative method	1
Number of participants not indicating that <i>Salmonella</i> Typhimurium and <i>Salmonella</i> Enteritidis test is required for compliance	13

Sample specific comment

Although the sampling point specified in 1.28 is on the market during their shelf life, the broilers sampled after chilling will be placed on the market. Serotyping of strains to ensure the absence of *S. Typhimurium* and *S. Enteritidis* is therefore necessary to ensure compliance with the requirements of 1.28 as stipulated in footnote 10. On this occasion bonus points have still been awarded.

Sample: EFL139 (continued)

Examination 3 – *Campylobacter* spp.:

Examination	Expected Result	Your result	Your score
Applicable food category	2.1.9		
Name of examination	<i>Campylobacter</i> spp.		
Stipulated method*	ISO 10272-2*		
Amount of sample examined	-		
No. of samples from a batch required for compliance	50		
Expected range	3 – 1.6 x 10 ²		
Limits for compliance	m=1 x 10 ³ ; M=1 x 10 ³ c=20		
Conclusion about this examination from result obtained	Your conclusion has been scored in relation to your reported result		
* The most recent edition of the standard should be used		Total score out of	

Number of participants reporting an enumeration value for <i>Campylobacter</i> spp. as part of food category 2.1.9	7
Number of participants stating that examination 2.1.9 is required but did not undertake the test	8
Number of participants stating correctly that ISO 10272-2 would be used	14

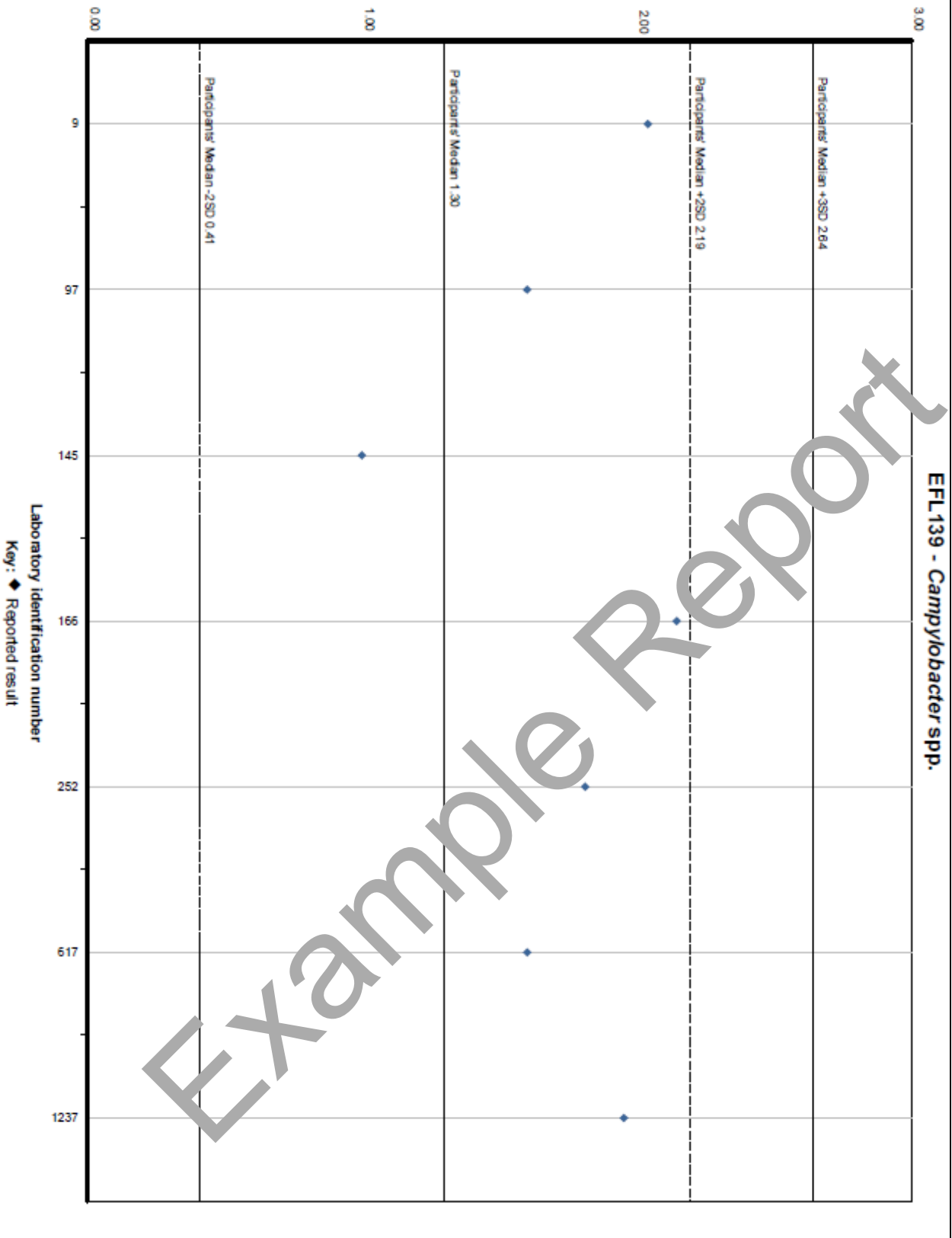
Number of participants not indicating that <i>Campylobacter</i> spp. test is required for compliance	3
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Assigned value (participants' median)	20 cfu g ⁻¹ (1.30 log ₁₀)
Uncertainty of assigned value ($U(X)$ log ₁₀ cfu g ⁻¹)	0.39
Participants mean	20 cfu g ⁻¹ (1.30 log ₁₀)
Standard deviation of participants results **	0.48 log ₁₀ cfu g ⁻¹
FEPTU QC median	98 cfu g ⁻¹ (1.99 log ₁₀)

** Robust S* based on median absolute deviation about the participants' median (MADe)

	Your result	Your score
Overall batch conclusion		
Bonus score		

log₁₀ cfu g⁻¹



Sample: EFL140

Sample Details: Ground lean pork mince. Sampled at the end of the manufacturing process

Sample Request: Test to determine whether this sample complies with the relevant criteria stipulated in Commission Regulation (EC) No. 2073/2005 as amended

Applicable food category 2.1.6

Sample Conclusion: The batch does not comply with the legislation

Contents: *Escherichia coli* (1.2×10^3) (wild strain)
Bacillus subtilis (2.4×10^3) (wild strain)
Pseudomonas fluorescens (1.9×10^5) (wild strain)
Staphylococcus saprophyticus (1.1×10^3) (wild strain)

All levels are presented as colony forming units (cfu) per g/ml reconstituted sample unless otherwise stated

Required examinations: Aerobic colony count and *Escherichia coli*

Examination 1- Aerobic colony count:

Examination	Expected Result	Your result	Your score
Applicable food category	2.1.6		
Name of examination	Aerobic colony count		
Stipulated method*	ISO 4833*		
Amount of sample examined	-		
No. of samples from a batch required for compliance	5		
Expected range	$2.8 \times 10^4 - 2.8 \times 10^5$		
Limits for compliance	$m=5 \times 10^5$; $M=5 \times 10^6$; $c=2$		
Conclusion about this examination from result obtained	Your conclusion has been scored in relation to your reported result		
* The most recent edition of the standard should be used		Total score out of	

Comments on Performance:

Number of participants reporting an enumeration value for Aerobic colony count as part of food category 2.1.6	18
Number of participants correctly using ISO 4833-1	14
Number of participants correctly using ISO 4833-2	4
Assigned value (participants' median)	8.8×10^4 cfu g ⁻¹ (4.94 log ₁₀)
Uncertainty of assigned value ($U(X_{pt}) = \log_{10}$ cfu g ⁻¹)	0.10
Number of outlying counts	2 (1 low/1 high)
Participants mean	8.9×10^4 cfu g ⁻¹ (4.95 log ₁₀)
Standard deviation of participants results **	0.23 log ₁₀ cfu g ⁻¹
FEPTU QC median	1.4×10^5 cfu g ⁻¹ (5.15 log ₁₀)

** Robust S* based on median absolute deviation about the participants' median (MADe)

Sample: EFL140 (continued)

Examination 2- *Escherichia coli*:

Examination	Expected Result	Your result	Your score
Applicable food category	2.1.6		
Name of examination	<i>Escherichia coli</i>		
Stipulated method*	ISO 16649-1 or 2*		
Amount of sample examined	-		
No. of samples from a batch required for compliance	5		
Expected range	$3.3 \times 10^2 - 3.3 \times 10^3$		
Limits for compliance	m=50; M=500; c=2		
Conclusion about this examination from result obtained	Your conclusion has been scored in relation to your reported result		
* The most recent edition of the standard should be used		Total score out of	

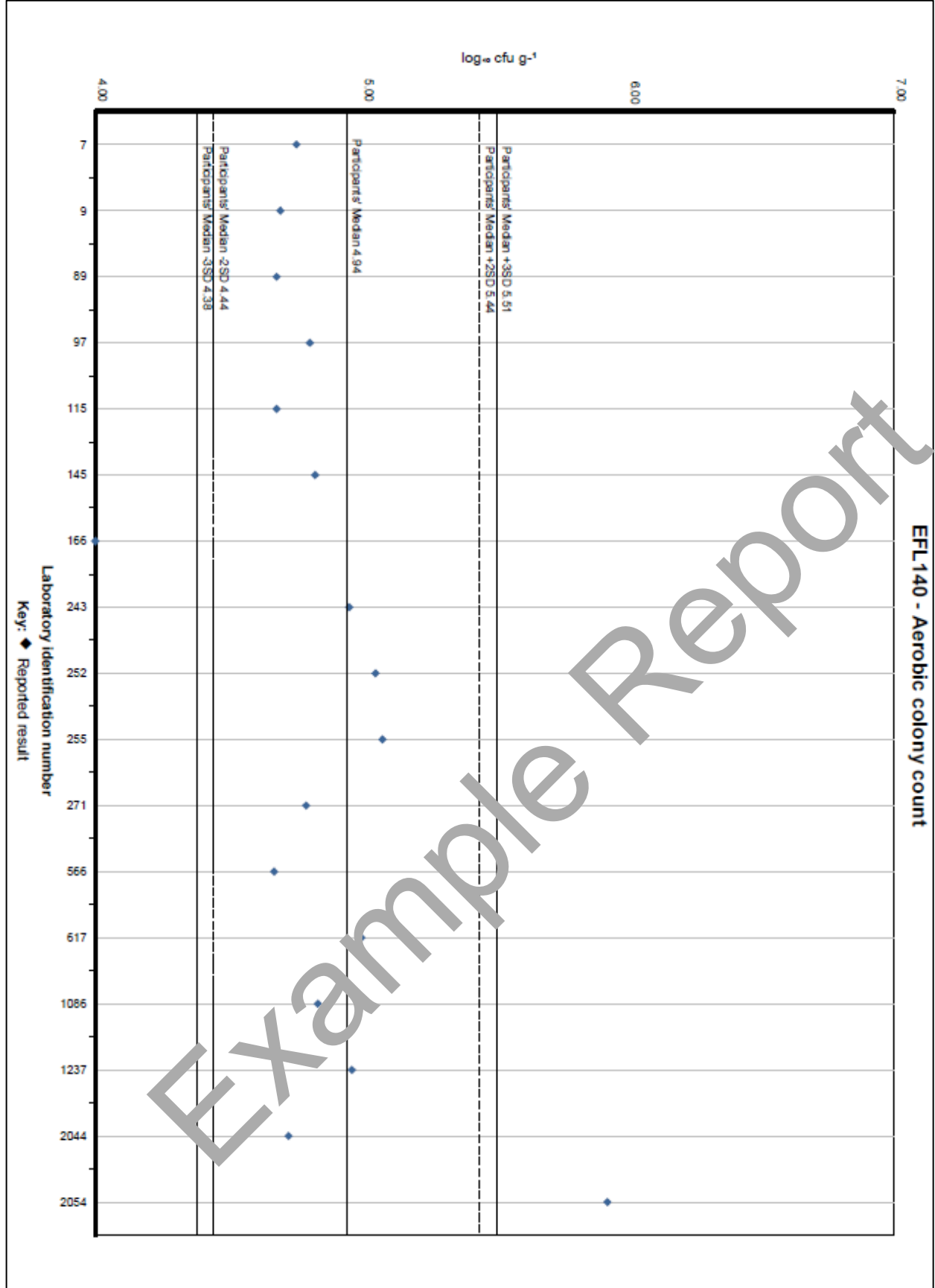
Comments on Performance:

Number of participants reporting an enumeration value for <i>Escherichia coli</i> as part of food category 2.1.6	18
Number of participants correctly using ISO 16649-1	7
Number of participants correctly using ISO 16649-2	8
Number of participants correctly using ISO 16649-1 or 2	2
Number of participants using an alternative method	1

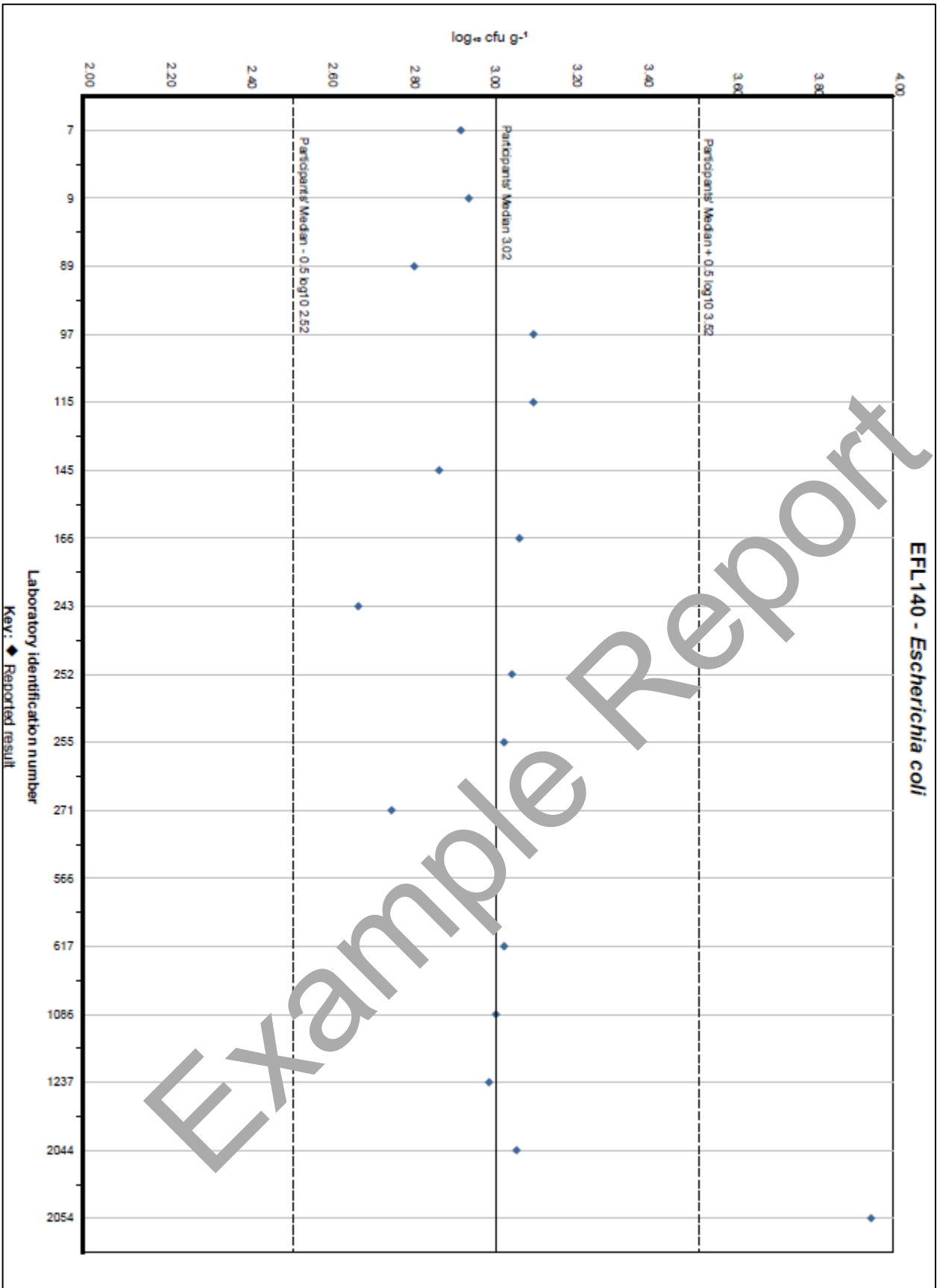
Assigned value (participants' median)	$1.1 \times 10^3 \text{ cfu g}^{-1}$ (3.02 log ₁₀)
Uncertainty of assigned value ($U(X_{pt}) = 10 \text{ cfu g}^{-1}$)	0.04
Number of outlying counts	1 high
Participants mean	$1.1 \times 10^3 \text{ cfu g}^{-1}$ (3.02 log ₁₀)
Standard deviation of participants results **	$0.13 \text{ log}_{10} \text{ cfu g}^{-1}$
FEPTU QC median	$9.6 \times 10^2 \text{ cfu g}^{-1}$ (2.98 log ₁₀)

** Robust S* based on median absolute deviation about the participants' median (MADe)

	Your result	Your score
Overall batch conclusion		
Bonus score		



EFL 140 - *Escherichia coli*



Sample: EFL141

Sample Details: Freshly made beef carpaggio, made with raw beef tenderloin, oil, lemon juice, salt and pepper. Product placed on the market during shelf-life

Sample Request: Test to determine whether this sample complies with the relevant criteria stipulated in Commission Regulation (EC) No. 2073/2005 as amended

Applicable food categories 1.2 and 1.4/1.8

Sample Conclusion: The batch does not comply with the legislation

Contents: *Listeria monocytogenes* (1.2×10^2) (wild strain)
Pseudomonas fluorescens (3.0×10^3) (wild strain)
Staphylococcus capitis (8.5×10^2) (wild strain)

All levels are presented as colony forming units (cfu) per g/ml reconstituted sample unless otherwise stated

Required examinations *Listeria monocytogenes* and *Salmonella* spp.

Examination 1- *Listeria monocytogenes*:

Examination	Expected Result	Your result	Your score
Applicable food category	1.2		
Name of examination	<i>Listeria monocytogenes</i>		
Stipulated method*	ISO 11290-2*		
Amount of sample examined	-		
No. of samples from a batch required for compliance	5		
Expected range	$38 - 3.8 \times 10^2$		
Limits for compliance	m=100; M=100; c=0		
Conclusion about this examination from result obtained	Your conclusion has been scored in relation to your reported result		
		Total score out of	

* The most recent edition of the standard should be used

Comments on Performance:

Number of participants reporting an enumeration value for <i>Listeria monocytogenes</i> as part of food category 1.2	13
Number of participants reporting incorrectly detected for <i>Listeria monocytogenes</i> as part of food category 1.2	2
Number of participants reporting an enumeration value for <i>Listeria monocytogenes</i> as part of incorrect food category 1.3	3
Number of participants correctly using ISO 11290-2	16
Number of participants incorrectly using ISO 11290-1	1
Number of participants using an alternative method	1
Assigned value (participants' median)	1.2×10^2 cfu g ⁻¹ (2.08 log ₁₀)
Uncertainty of assigned value ($U(X_{pt}) = \log_{10}$ cfu g ⁻¹)	0.06
Number of outlying counts	1 high
Participants mean	1.1×10^2 cfu g ⁻¹ (2.03 log ₁₀)
Standard deviation of participants results **	0.17 log ₁₀ cfu g ⁻¹
FEPTU QC median	1.3×10^2 cfu g ⁻¹ (2.13 log ₁₀)

** Robust S^{*} based on median absolute deviation about the participants' median (MADe)

Sample: EFL141 (continued)

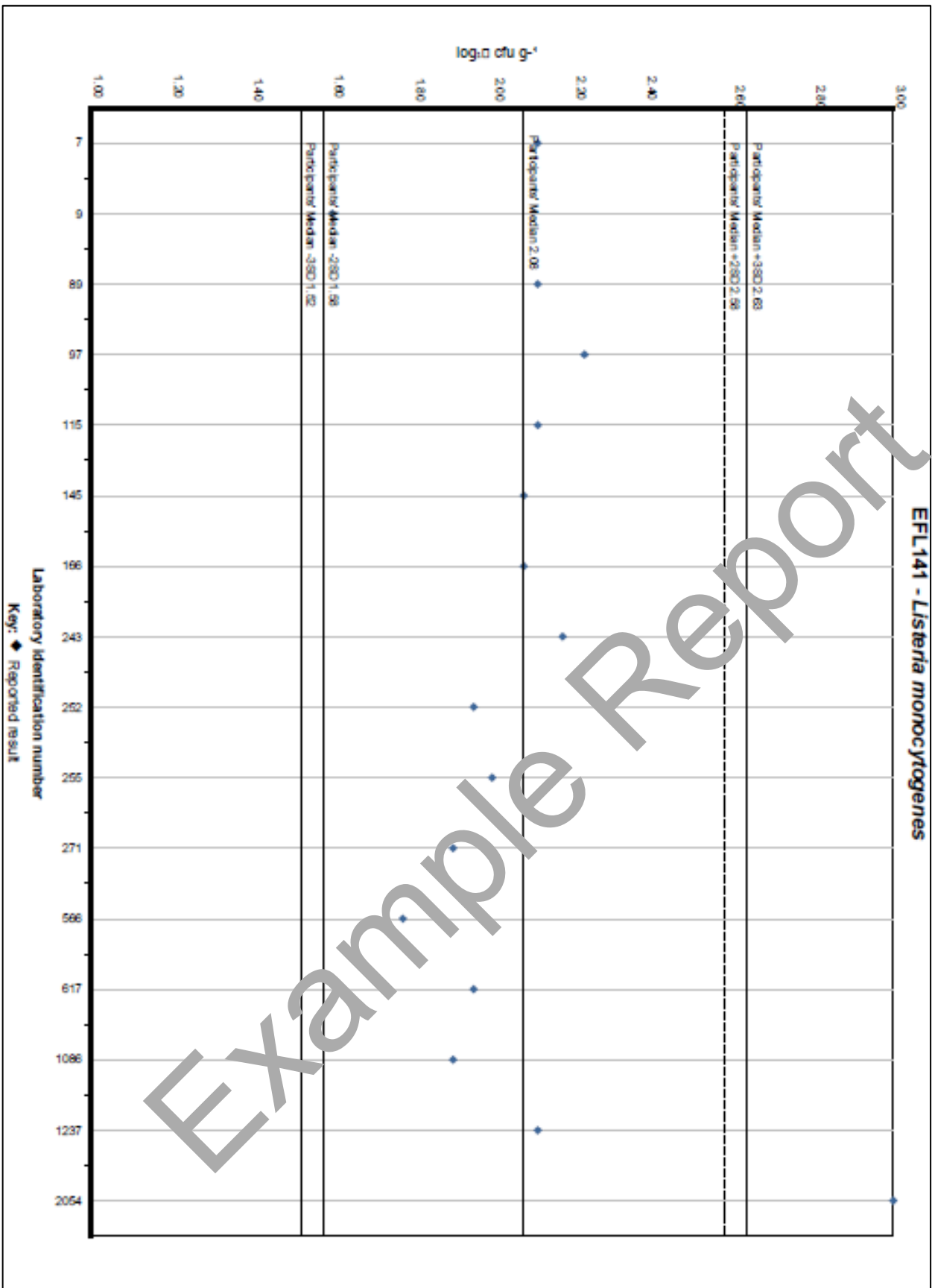
Examination 2- *Salmonella* spp.:

Examination	Expected Result	Your result	Your score
Applicable food category	1.4/1.8		
Name of examination	<i>Salmonella</i> spp.		
Stipulated method*	ISO 6579*		
Amount of sample examined	25g		
No. of samples from a batch required for compliance	5		
Expected range	Not detected		
Limits for compliance	Absence in 25g; c=0		
Conclusion about this examination from result obtained	Your conclusion has been scored in relation to your reported result		
* The most recent edition of the standard should be used		Total score out of	

Comments on Performance:

Number of participants correctly reporting not detected for <i>Salmonella</i> spp. as part of food category 1.4/1.8	18
Number of participants correctly using ISO 6579	16
Number of participants using an alternative method	2

	Your result	Your score
Overall batch conclusion		
Bonus score		



Performance Assessment Sheet

Distribution	Sample	Examination	Your score	Your %
EFL47	EFL139	<i>Salmonella</i> spp.		
	EFL139	<i>Salmonella</i> Typhimurium/ <i>Salmonella</i> Enteritidis		
	EFL139	<i>Campylobacter</i> spp.		
	EFL139	Overall Batch Conclusion Score		
	EFL139	Bonus Score		
	EFL140	<i>Escherichia coli</i>		
	EFL140	Aerobic colony count		
	EFL140	Overall Batch Conclusion Score		
	EFL140	Bonus Score		
	EFL141	<i>Listeria monocytogenes</i>		
	EFL141	<i>Salmonella</i> spp.		
	EFL141	Overall Batch Conclusion Score		
	EFL141	Bonus Score		
EFL46	EFL136	<i>Listeria monocytogenes</i>		
	EFL136	<i>Enterobacteriaceae</i>		
	EFL136	Overall Batch Conclusion Score		
	EFL136	Bonus Score		
	EFL137	<i>Listeria monocytogenes</i>		
	EFL137	<i>Salmonella</i> spp.		
	EFL137	Overall Batch Conclusion Score		
	EFL137	Bonus Score		
	EFL138	<i>Escherichia coli</i>		
	EFL138	Coagulase-positive staphylococci		
	EFL138	Overall Batch Conclusion Score		
	EFL138	Bonus Score		
EFL45	EFL133	<i>Listeria monocytogenes</i>		
	EFL133	Overall Batch Conclusion Score		
	EFL133	Bonus Score		
	EFL134	<i>Listeria monocytogenes</i>		
	EFL134	<i>Escherichia coli</i>		
	EFL134	Coagulase positive staphylococci		
	EFL134	Overall Batch Conclusion Score		
	EFL134	Bonus Score		
	EFL135	<i>Listeria monocytogenes</i>		
	EFL135	<i>Salmonella</i> spp.		
	EFL135	Overall Batch Conclusion Score		
	EFL135	Bonus Score		

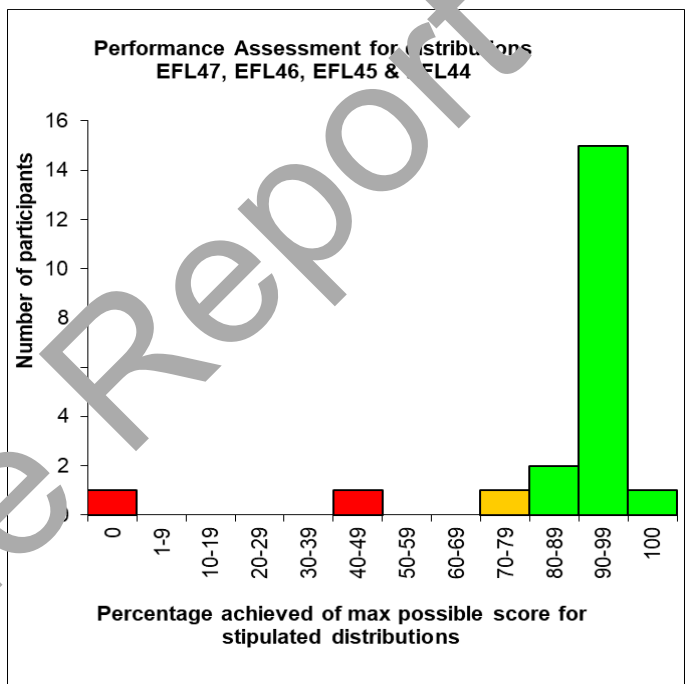
EFL44	EFL130	<i>Listeria monocytogenes</i>		
	EFL130	Overall Batch Conclusion Score		
	EFL130	Bonus Score		
	EFL131	<i>Listeria monocytogenes</i>		
	EFL131	<i>Enterobacteriaceae</i>		
	EFL131	Overall Batch Conclusion Score		
	EFL131	Bonus Score		
	EFL132	<i>Listeria monocytogenes</i>		
	EFL132	<i>Salmonella</i> spp.		
	EFL132	Overall Batch Conclusion Score		
	EFL132	Bonus Score		

Performance Assessment Comment:

Participants are reminded that to take advantage of the performance assessment overtime tool provided in the reports they need to take part in more than one distribution a year.

Performance assessments are designed to identify laboratories with on-going problems with their examinations and are undertaken after every distribution. Scores are allocated to results reported for every sample to help assess participants' performance.

Cumulative scores are calculated for every participant, for all examination types, for the current and previous three distributions. Participants' cumulative scores for each of the examination types are compared with the maximum possible scores after every distribution.



Performance Assessment Comment:

Laboratories that achieve <70% of the maximum possible score are likely to be experiencing significant problems with their tests and are advised to

- refer to the relevant sample reports for specific comments
- refer to the website guidance documents:

<https://www.gov.uk/government/collections/external-quality-assessment-ega-and-proficiency-testing-pt-for-food-water-and-environmental-microbiology>

- contact the organisers for advice.

General comment:

Participants are reminded that decisions on appropriate testing should be based on fact, not assumptions.

Please refer to pages 13 and 14 of the guide to scoring document for more information.

<https://www.gov.uk/government/publications/food-and-water-proficiency-testing-schemes-scoring-systems-and-statistics>

It is important that when entering your results all fields where a score is applied are correctly completed.

Participants are reminded that if you do not carry out a test that is required for compliance with the legislation to at least complete the applicable food category or the name of the examination. This will demonstrate your understanding of the legislation requirements and for your laboratory to be awarded the bonus scores.

If you do not return a result for a distribution, you will not be able to view all the participants' results data in your individualised report. Therefore, we will post generic reports on the website, which will be available for 12 months after the distribution has closed, so you can access the missing data.

End of report.

Example Report