

Summary of Results

External Quality Assessment of Water Microbiology Recreational and Surface Water Scheme

Distribution Number: S122

Sample Numbers: S122A, S122B

Distribution Date:	February 2025
Results Due:	21 March 2025
Report Date:	26 March 2025
Samples prepared and quality control tested by:	Divya George Afifa Halim Nafeesa Hussain Sabine Naujokat Zak Prior Jake Videlefsky
Data analysed by:	Joanna Donn Nita Patel
Report compiled by:	Joanna Donn Nita Patel
Authorised by:	Nita Patel

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UK Health Security Agency
Food and Environmental Proficiency Testing Unit (FEPTU)
61 Colindale Avenue
London
NW9 5EQ
Tel: +44 (0)20 8327 7119
Fax:

For further information on the scheme please refer to:

Scheme Guide: <https://www.feptu.org.uk/schemes/scheme-guide/>

Guide to Scoring and Statistics: <https://www.feptu.org.uk/schemes/scoring/>

General guidance for z-scores:

Participants' enumeration results are converted into z-scores using the following formula:

$$Z = \frac{(X_i - X_{pt})}{\sigma_{pt}}$$

X_i = participants' result expressed (expressed as a log₁₀ value)
 X_{pt} = assigned value (participants' consensus median (expressed as a log₁₀ value)
 σ_{pt} = the fixed standard deviation for the examination (calculated by FEPTU)

The σ_{pt} -value expresses the acceptable difference between the individual participant's result and the participants' consensus median. The σ_{pt} -value used for calculating z-scores for all parameters in the Recreational and Surface Water Scheme is 0.35. A guide to interpreting z-scores follows, although laboratories must interpret their scores in the context of their own laboratory situation.

z = -1.99 to +1.99 **satisfactory**
z = -2 to -2.99 or +2 to +2.99 **questionable**
z = < -3.00 or > + 3.00 **unsatisfactory**

It is usually recommended that z-scores exceeding +/-2 are investigated to establish the possible cause. As a general rule, UKHSA recommends that all questionable and unsatisfactory results are investigated.

FEPTU Quality Control: To demonstrate homogeneity of the sample, a minimum of 10 LENTICULE® discs, selected randomly from a batch, are tested in duplicate for parameters requiring enumeration.

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

UKHSA uses methods stipulated in the Microbiology of Recreational and Environmental Waters (2000) and the DWI's series of documents: The Microbiology of Drinking Water (2002) - Methods for the Examination of Waters and Associated Materials.

The FEPTU results are used for guidance in the preliminary intended results notification, letters are posted on the website immediately after every distribution; electronic notification of their availability is sent to all participants.

Refer to section 19.0 of the Scheme Guide if you have experienced difficulties with any of the examinations.

<https://www.feptu.org.uk/schemes/scheme-guide/>

Participants are reminded that reporting an incorrect or false negative results for water samples could have serious public health implications.

Please contact FEPTU staff for advice and information:

Repeat samples	Carmen Gomes or Kermin Daruwalla	Tel: +44 (0)20 8327 7119
Data Analysis	Nita Patel	Fax:
Microbiological advice	Nita Patel or Zak Prior	Email: foodeqa@ukhsa.gov.uk
General comments and complaints	Nita Patel or Zak Prior	FEPTU's website
Scheme consultants	Stephen Bullock	
Scheme Co-ordinator	Nita Patel	

Accreditation: UKHSA Water EQA Scheme for Recreational and Surface Water is accredited by the United Kingdom Accreditation Service (UKAS) to ISO/IEC 17043:2010.



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Sample: S122A

A water sample from bathing beach (marine)

Contents: *Escherichia coli* (1.3x10²) (wild strain), *Enterococcus faecium* (1.1x10²) (wild strain), *Staphylococcus saprophyticus* (1.5x10³ per disc) (wild strain)

Expected Results:

All counts are expressed as colony forming units (cfu) per 100mL.
The fixed standard deviation value (*Opt* value) used for calculation of the z-scores is **0.35** for all parameters.

Parameter	<i>Escherichia coli</i>	Enterococci	<i>Salmonella</i> spp.
FEPTU median	1.21x10 ² (2.08 log ₁₀)	1.06x10 ² (2.03 log ₁₀)	Not Detected in
No. results returned	36	35	17
Assigned value (Participants median all)	1.54x10 ² (2.19 log ₁₀)	1.00x10 ² (2 log ₁₀)	N/A
Uncertainty of assigned value*	0.02	0.03	N/A
Participants mean (all results)	1.51x10 ² (2.18 log ₁₀)	1.00x10 ² (2 log ₁₀)	N/A
Expected Range	49 - 4.87x10 ²	32 - 3.16x10 ²	N/A
Standard deviation**	0.12	0.15	N/A
No of outlying counts	0	3	N/A
False positives	N/A	N/A	1
False negatives	0	0	N/A
Your result			
Score for performance assessment			
Z-score			

* $U(X_{pt})$ is based on results transformed to a log₁₀ scale
** Robust S^* based on median absolute deviation about the participants' median (*MADe*)

Total sent samples	40
Not examined	4
Non returns	0
Late returns	0

Sample: S122B

A water sample from bathing beach (marine)

Contents: *Escherichia coli* (31) (wild strain), *Salmonella* Anatum 3,{10}{15}{15,34};e,h;1,6;[z=4] (50 per disc) (wild strain), *Enterococcus faecalis* (87) (wild strain), *Burkholderia multivorans* (1.0x10³) (wild strain)

Expected Results:

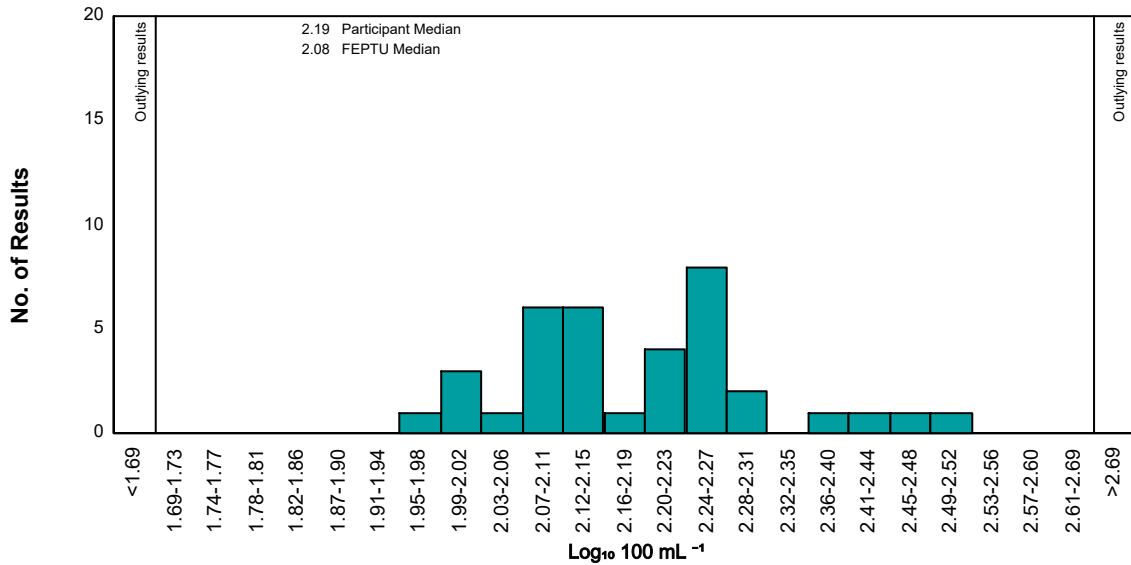
All counts are expressed as colony forming units (cfu) per 100mL.
The fixed standard deviation value (*Opt* value) used for calculation of the z-scores is **0.35** for all parameters.

Parameter	<i>Escherichia coli</i>	Enterococci	<i>Salmonella</i> spp.
FEPTU median	33	85 (1.93 log ₁₀)	Detected in 1L
No. results returned	36	35	17
Assigned value (Participants median all)	50	92 (1.96 log ₁₀)	N/A
Uncertainty of assigned value*	0.03	0.01	N/A
Participants mean (all results)	50	92 (1.96 log ₁₀)	N/A
Expected Range	16 - 157	29 - 2.91x10 ²	N/A
Standard deviation**	0.15	0.08	N/A
No of outlying counts	2	0	N/A
False positives	N/A	N/A	N/A
False negatives	0	0	1
Your result			
Score for performance assessment			
Z-score			

* $U(X_{opt})$ is based on results transformed to a log₁₀ scale
** Robust S^* based on median absolute deviation about the participants' median (*MADe*)

Total sent samples	40
Not examined	4
Non returns	0
Late returns	0

S122A: *Escherichia coli*



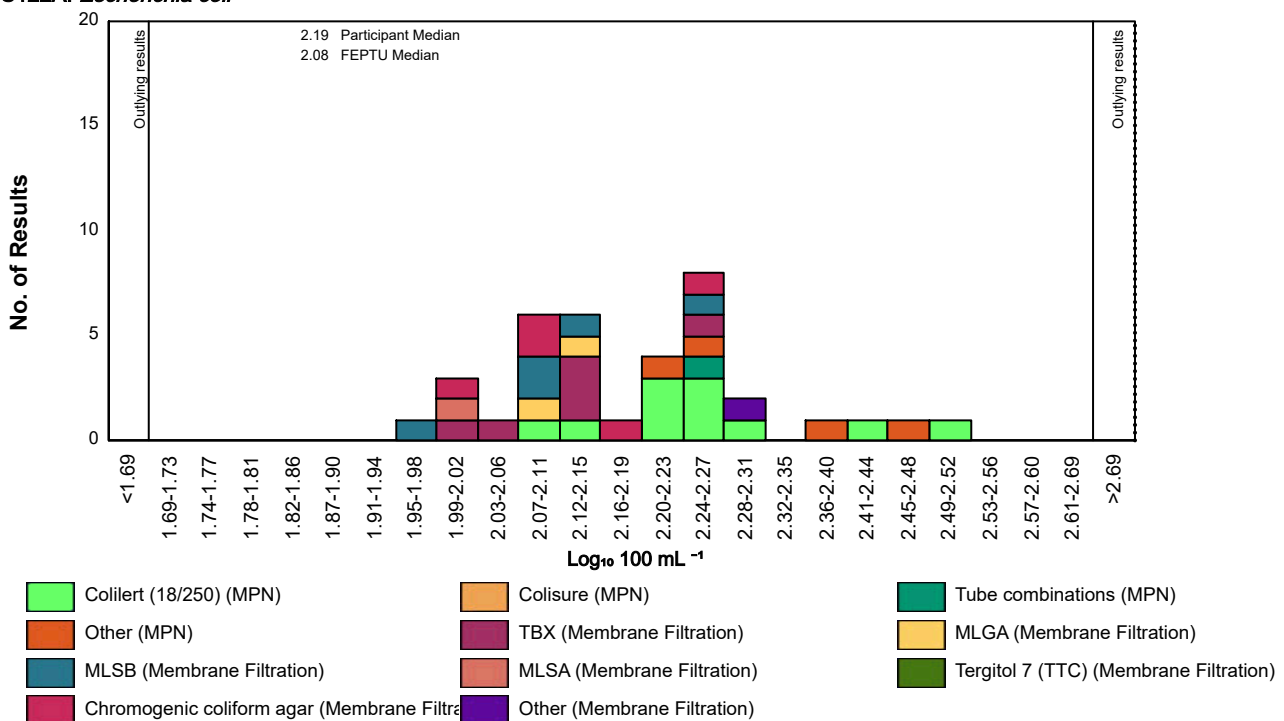
Method based presentation

S122A : *Escherichia coli*

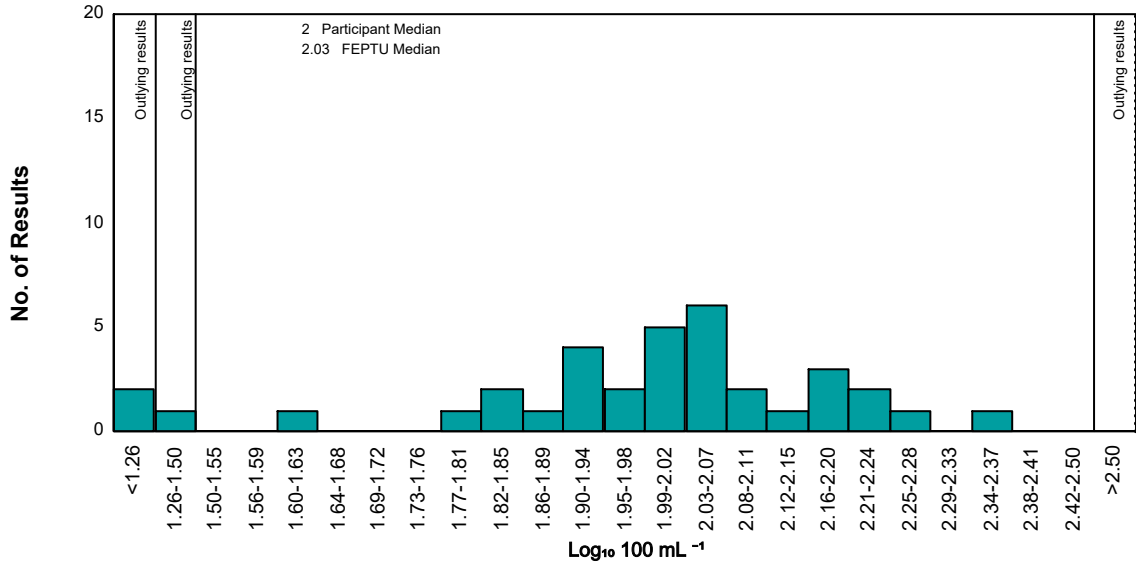
FEPTU Method: Chromogenic coliform
agar

Method	Number of Results	Excluded Results	Percentage of the total	Median	Robust S* (Log ₁₀)	Range Reported
Colilert (18/250)	11	0	30	179	0.09	122 - 317
Colisure	0	0	0			-
Tube combinations	1	0	2			-
Other (MPN)	4	0	11			-
TBX	6	0	16			-
MLGA	2	0	5			-
MLSB	5	0	13			-
MLSA	1	0	2			-
Tergitol 7 (TTC)	0	0	0			-
Chromogenic coliform agar	5	0	13			-
Other (Membrane filtration)	1	0	2			-

S122A: *Escherichia coli*



S122A: Enterococci



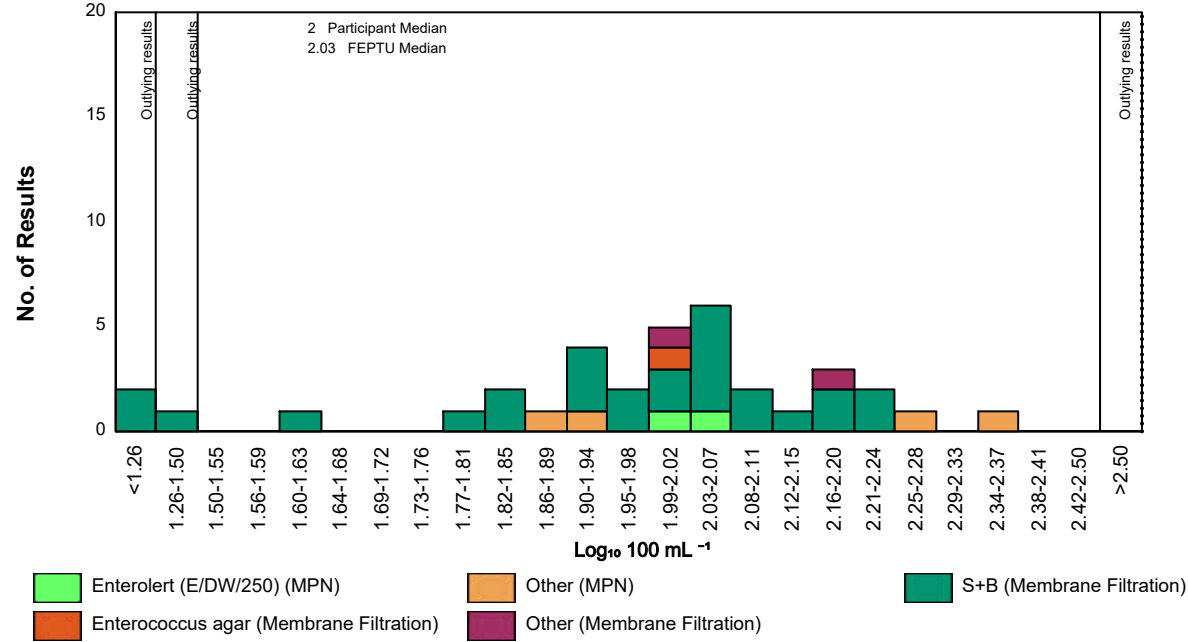
Method based presentation

S122A : Enterococci

FEPTU Method: S+B

Method	Number of Results	Excluded Results	Percentage of the total	Median	Robust S* (Log ₁₀)	Range Reported
Enterolert (E/DW/250)	2	0	5			-
Other (MPN)	4	0	11			-
S+B	26	0	74	99	0.16	2 - 173
Enterococcus agar	1	0	2			-
Other (Membrane filtration)	2	0	5			-

S122A: Enterococci



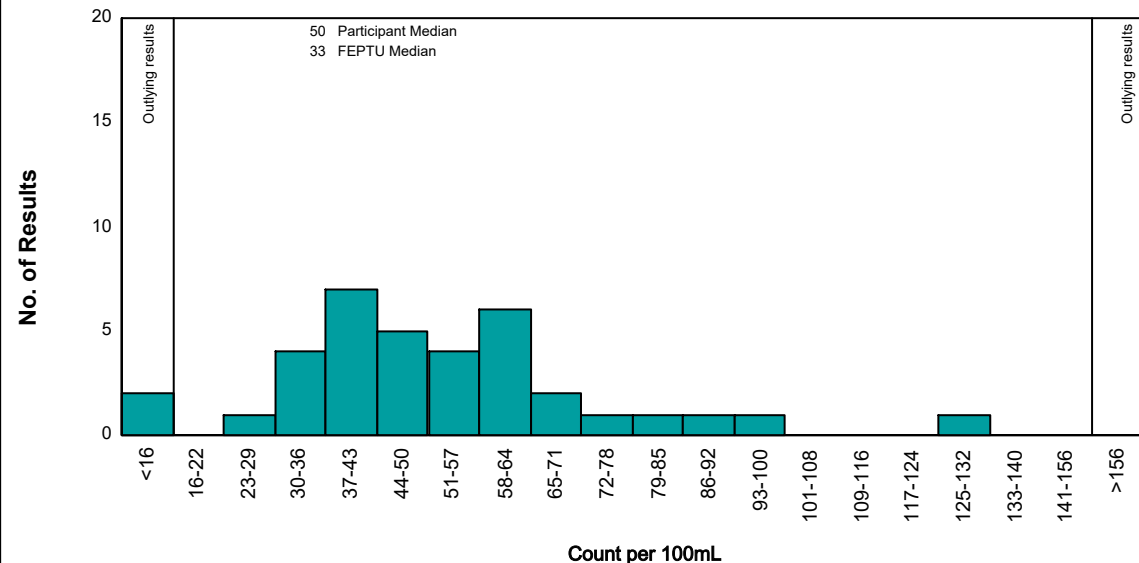
Method based presentation

S122A : *Salmonella* spp.

FEPTU Method: Enrichment XLD

Method	No. Participants Detected	No. Participants Not Detected
VIDAS	0	0
PCR	0	1
Other	0	1
ISO 19250:2010	0	5
Enrichment XLD	0	7
Enrichment BGA	0	1
Enrichment other	1	1

S122B: *Escherichia coli*



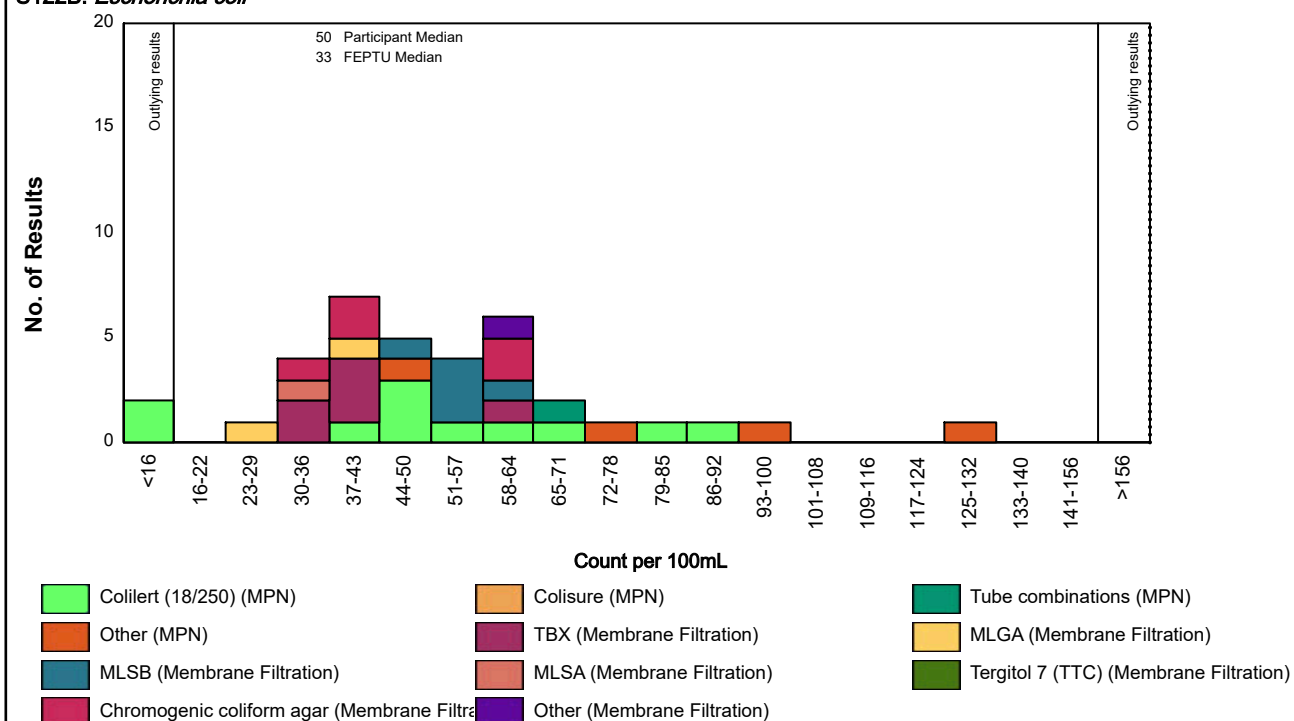
Method based presentation

S122B : *Escherichia coli*

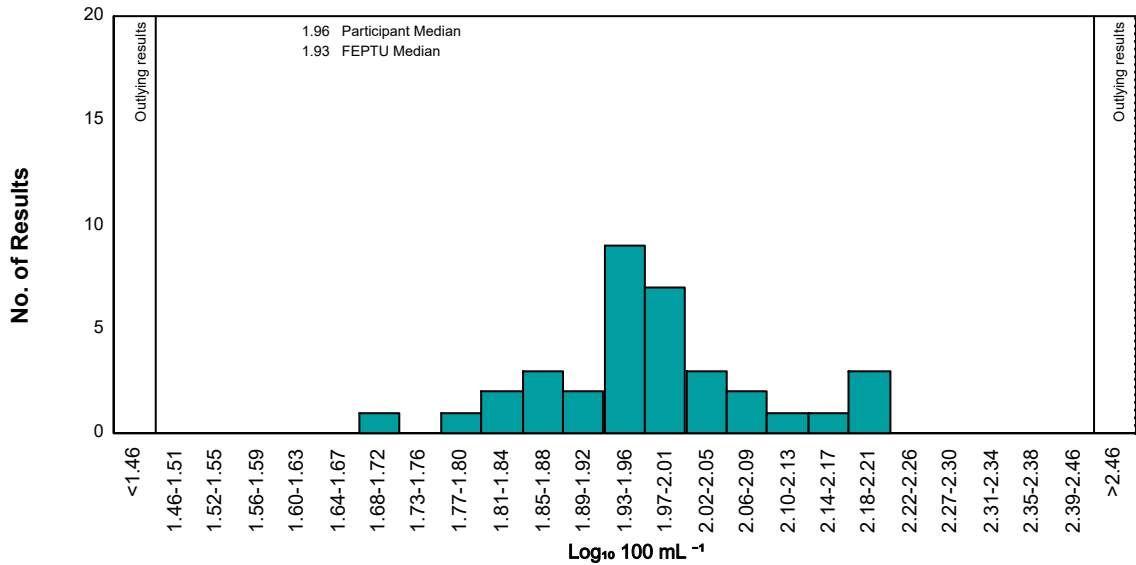
FEPTU Method: Chromogenic coliform
agar

Method	Number of Results	Excluded Results	Percentage of the total	Median	Robust S* (Log ₁₀)	Range Reported
Colilert (18/250)	11	0	30	50	0.17	7 - 86
Colisure	0	0	0			-
Tube combinations	1	0	2			-
Other (MPN)	4	0	11			-
TBX	6	0	16			-
MLGA	2	0	5			-
MLSB	5	0	13			-
MLSA	1	0	2			-
Tergitol 7 (TTC)	0	0	0			-
Chromogenic coliform agar	5	0	13			-
Other (Membrane filtration)	1	0	2			-

S122B: *Escherichia coli*



S122B: Enterococci



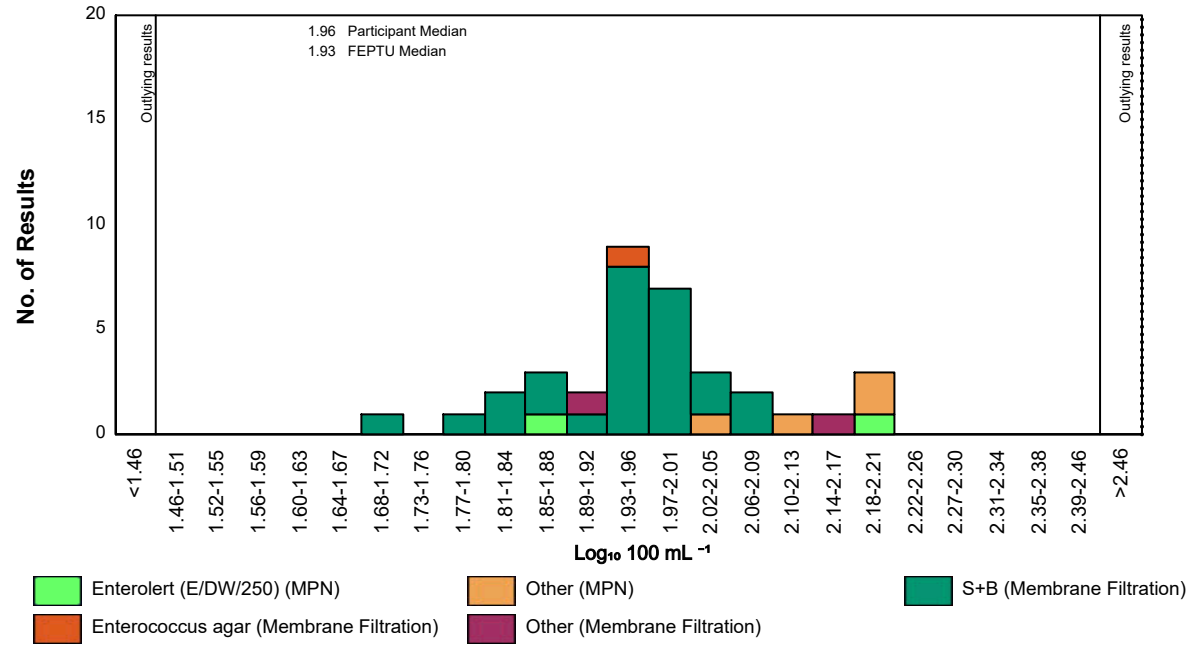
Method based presentation

S122B : Enterococci

FEPTU Method: S+B

Method	Number of Results	Excluded Results	Percentage of the total	Median	Robust S* (Log ₁₀)	Range Reported
Enterolert (E/DW/250)	2	0	5			-
Other (MPN)	4	0	11			-
S+B	26	0	74	91	0.05	50 - 120
Enterococcus agar	1	0	2			-
Other (Membrane filtration)	2	0	5			-

S122B: Enterococci



Method based presentation

S122B : *Salmonella* spp.

FEPTU Method: Enrichment XLD

Method	No. Participants Detected	No. Participants Not Detected
VIDAS	0	0
PCR	1	0
Other	1	0
ISO 19250:2010	5	0
Enrichment XLD	6	1
Enrichment BGA	1	0
Enrichment other	2	0

General comments

Method based presentation of enumeration results:

Participants are advised if less than 10 laboratories report a result for a method, no data are shown for the Median, Robust SD and the Range Reported in the 'Method based presentation' tables. Numbers shown in the 'Excluded Results' column are laboratories that reported a censored value.

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. Please contact us if you require this information on foodeqa@ukhsa.gov.uk.

New website

We are pleased to announce the launch of our new website: <https://www.feptu.org.uk/>. Please refer to this website to obtain the latest information for your proficiency testing.

Information of importance

To understand more about the proficiency testing schemes, please use the following links for information on:

1. Report format explained: [Annotated report](#)
2. Performance rating: [Performance-over-time](#) and [Scheme guide](#) (section 16.0)
3. Scoring and statistics used: [Scoring information and stats](#)
4. Homogeneity and stability: [Scheme guide](#) (section 9.0)
5. Complaints and appeal process: [Scheme guide](#) (section 20.0 and 21.0)

For further information about the operation of the service including confidentiality and terms of participation, please refer to the Scheme Guide: [Scheme guide](#)

End of report