# 510(k) SUBSTANTIAL EQUIVALENCE DETERMINATION
# DECISION SUMMARY
ASSAY ONLY

## I Background Information:

### A 510(k) Number

K242653

### B Applicant

Thermo Fisher Scientific

### C Proprietary and Established Names

The Sensititre 18-24 hour MIC or Breakpoint Susceptibility System with Linezolid in the dilution range of 0.25-32 µg/mL

### D Regulatory Information

| Product Code(s) | Classification | Regulation Section | Panel |
|---|---|---|---|
| JWY | Class II | 21 CFR 866.1640 - Antimicrobial Susceptibility Test Powder | MI - Microbiology |
| LLT | Class II | 21 CFR 866.1640 - Antimicrobial Susceptibility Test Powder | MI - Microbiology |
| LRG | Class II | 21 CFR 866.1640 - Antimicrobial susceptibility test powder | MI - Microbiology |

## II Submission/Device Overview:

### A Purpose for Submission:

To obtain substantial equivalence determination for The Sensititre 18-24 hour MIC or Breakpoint Susceptibility System with Linezolid in the dilution range of 0.25-32 µg/mL with updated FDA-recognized breakpoints for *Staphylococcus* spp. and *Enterococcus* spp.

### B Measurand:

Linezolid in the dilution range of 0.25 to 32 µg/mL

**C Type of Test:**

Quantitative antimicrobial susceptibility test (AST) growth-based detection

## III Intended Use/Indications for Use:

**A Intended Use(s):**
The Sensititre MIC and Breakpoint Susceptibility system is an *in vitro* diagnostic product for clinical susceptibility testing of non-fastidious Gram negative isolates, comprising of Enterobacteriaceae, *Pseudomonas aeruginosa*, and other non-Enterobacteriaceae and of non fastidious Gram positive isolates, comprising of *Staphylococcus* spp., *Enterococcus* spp., and beta-haemolytic streptococci other than *S. pneumoniae*.

**B Indication(s) for Use:**
The Sensititre 18-24 hour MIC or Breakpoint Susceptibility System is an *in vitro* diagnostic product for clinical susceptibility testing of non-fastidious isolates.

This 510(k) is for linezolid in the dilution range of 0.25-32 µg/mL for testing non-fastidious gram-positive isolates on The Sensititre 18-24 hour MIC or Breakpoint Susceptibility System.

Linezolid has been shown to be active both clinically and *in vitro* against the following organisms according to the FDA drug label:

*Enterococcus faecium* (vancomycin-resistant isolates only)

*Staphylococcus aureus* (including methicillin-resistant isolates)

Linezolid has been shown to be active *in vitro* only against the following organisms according to the FDA drug label:

*Enterococcus faecalis* (including vancomycin-resistant isolates)

*Enterococcus faecium* (vancomycin-susceptible isolates)

*Staphylococcus epidermidis* (including methicillin-resistant isolates)

*Staphylococcus haemolyticus*

**C Special Conditions for Use Statement(s):**
Rx - For Prescription Use Only

The following limitation was applied to linezolid testing in the device labeling:

> *Studies of the following drugs were performed with the AIM Autoinoculator and read using the ARIS HiQ/OptiRead and Vizion. The use of an alternative inoculation system or alternative read methods has not been evaluated.*

Due to the insufficient number of resistant *Staphylococcus* spp. and *Enterococcus* spp. isolates evaluated, the following limitation was applied to linezolid testing in the device labeling:

*The ability of the Sensititre system to detect resistance or non-susceptibility to antimicrobics as shown below is unknown because an insufficient number of resistant or non-susceptible strains were available at the time of comparative testing. If such a strain is observed, it should be submitted to a reference laboratory.*

### D Special Instrument Requirements:

Sensititre AIM for device inoculation
Sensititre Vizion digital viewing device
Sensititre ARIS HiQ/OptiRead automated plate reader

## IV Device/System Characteristics:

### A Device Description:

The Sensititre 18-24 hour MIC or Breakpoint Susceptibility Plate System is an antimicrobial susceptibility test. Each plate is dosed with antimicrobial agents at appropriate dilutions. It is a micro-version of the classic broth dilution method and can provide both qualitative and quantitative susceptibility results. After inoculation, plates are sealed with an adhesive seal, incubated at 34-36°C for 18-24 hours and examined for bacterial growth.

### B Principle of Operation:

The Sensititre 18-24 hour MIC Susceptibility plates are multi-well plastic microtiter plates that contain doubled dilutions of antibacterial agents. Each plate includes antimicrobial agents at appropriate dilutions. Results can be read using the digital viewing device (Vizion) or by use of an automated plate reader (ARIS HiQ/OptiRead).

The Sensititre Vizion digital viewing device allows the panel image to be displayed on a touch screen directly from a video camera and allows the user to visually determine MIC results. The Sensititre OptiRead utilizes fluorescence technology to read the microbroth dilution plates after 18 to 24 hours incubation. The technology involves the detection of bacterial growth by monitoring the activity of specific surface enzymes produced by the test organism. Growth is determined by generating a fluorescent product from a fluorogenic substrate. The non-fluorescent substrate is prepared by conjugating a fluorescent compound to the specific enzyme substrates with a bond which prevents fluorescence. The enzymatic action of the bacterial surface enzymes on the bound non-fluorescent substrate cleaves the bond releasing fluorescence. The amount of fluorescence detected is directly related to the activity of bacterial growth. The MIC is determined by observing the lowest dilution of antimicrobial agent that inhibits growth of the organism. The non-fluorescent (fluorogenic) substrate can be added to the inoculum broth which is dispensed into the test plate at the same time as the test organism, or the plates can be prepared with the substrate already added to each micro-well.

Sensititre 18-24 hour MIC plates can either be read automatically on an ARIS HiQ/OptiRead using fluorescence or by visual reading of growth on the Vizion digital viewing device.

## V Substantial Equivalence Information:

### A Predicate Device Name(s):
The Sensititre 18-24 Hour MIC or Breakpoint Susceptibility System with Lefamulin in the dilution range of 0.008-16 µg/mL

### B Predicate 510(k) Number(s):
K192729

### C Comparison with Predicate(s):

| **Device & Predicate Device(s):** | Device: K242653 | Predicate: K192729 |
|---|---|---|
| Device Trade Name | The Sensititre 18-24 Hour MIC or Breakpoint Susceptibility System with Linezolid in the dilution range of 0.25-32 µg/mL | The Sensititre 18-24 Hour MIC or Breakpoint Susceptibility System with Lefamulin in the dilution range of 0.008-16 µg/mL |
| **General Device Characteristic Similarities** | | |
| Intended Use | The Sensititre 18-24 Hour MIC or Breakpoint Susceptibility System is an *in vitro* diagnostic product for clinical susceptibility testing of non-fastidious bacterial isolates. | Same |
| Test Panel | Each 96 well plate is precision dosed with selected antimicrobial agents and substrate for the fluorescent reads, then dried. The bacterial suspension in the appropriate broth is used to rehydrate the plate. | Same |
| Incubation | 18-24 hours | Same |
| Read Method | Results can be read using fluorescence with the ARIS HiQ/OptiRead or by visual reading of growth with the Vizion. | Same |
| **General Device Characteristic Differences** | | |
| Antibiotic and Dilution Range | Linezolid<br>0.25–32 µg/mL | Lefamulin<br>0.008-16 µg/mL |
| Test Organisms | *Enterococcus faecium*<br>*Staphylococcus aureus*<br>*Enterococcus faecalis*<br>*Enterococcus faecium*<br>*Staphylococcus epidermidis*<br>*Staphylococcus haemolyticus* | *Staphylococcus aureus*<br>(methicillin-susceptible isolates) |

## VI Standards/Guidance Documents Referenced:

CLSI M07, "Methods for Dilution Antimicrobial Susceptibility Tests for Bacteria That Grow Aerobically; Approved Standard - Eleventh Edition", (January 2018)

CLSI M100, "Performance Standards for Antimicrobial Susceptibility Testing; 33rd Edition", (March 2023)

Guidance for Industry and FDA: Class II Special Controls Guidance Document: Antimicrobial Susceptibility Test (AST) Systems, August 28, 2009

## VII Performance Characteristics (if/when applicable):

### A Analytical Performance:

1. Precision/Reproducibility:
   A reproducibility study of The Sensititre 18-24 hour MIC or Breakpoint Susceptibility System with Linezolid was performed at three sites using a panel of fourteen (14) isolates from indicated species (4 *S. aureus* (MSSA), 4 *S. aureus* (MRSA), 1 *S. epidermidis* (MSSE), 1 *S. haemolyticus*, 1 *E. faecium* (VSE), 1 *E. faecium* (VRE), 1 *E. faecalis* (VSE), and 1 *E. faecalis* (VRE)). In addition, one isolate was tested from *S. lugdunensis* that does not have FDA-recognized STIC breakpoints and is not intended for testing with the device. All isolates were tested in triplicate over three days with each read method (i.e., automatically with the ARIS HiQ/OptiRead and visually with the Vizion). The Sensititre AIM autoinoculator was used for Sensititre plate inoculation. The mode MIC value was determined, and the reproducibility of the 14 isolates was calculated based on MIC values falling within ±1 doubling dilution of the mode MIC value. The reproducibility studies for both the ARIS HiQ/OptiRead and Vizion read methods demonstrated acceptable performance of ≥95%.

2. Linearity:

   Not applicable.

3. Analytical Specificity/Interference:

   Not applicable.

4. Assay Reportable Range:

   Not applicable.

5. Traceability, Stability, Expected Values (Controls, Calibrators, or Methods):
   The CLSI-recommended quality control (QC) strains *E. faecalis* ATCC 29212 and *S. aureus* ATCC 29213 were tested at three sites. The QC strains were tested a minimum of 20 times per site and read automatically with the ARIS HiQ/OptiRead and visually with the Vizion. The QC strains were also tested with the reference method. The results demonstrate that The

Sensititre 18-24 hour MIC or Breakpoint Susceptibility System with Linezolid produced quality control results in the recommended range >95% of the time (**Table 1**).

**Table 1**. Quality Control Results for *E. faecalis* and *S. aureus* with Linezolid with the Reference Method, ARIS HiQ/OptiRead, and Vizion

| QC Organism | Expected Range (µg/mL) | Concentration (µg/mL) | Reference | ARIS HiQ/OptiRead | Vizion |
|---|---|---|---|---|---|
| *E. faecalis* ATCC 29212 | 1-4 µg/mL | ≤0.5 | 1 | 2 | 0 |
| | | 1 | 37 | 80 | 0 |
| | | 2 | 44 | 19 | 99 |
| | | 4 | 0 | 0 | 2 |
| | | ≥8 | 0 | 0 | 0 |
| *S. aureus* ATCC 29213 | 1-4 µg/mL | ≤0.5 | 1 | 0 | 0 |
| | | 1 | 5 | 19 | 0 |
| | | 2 | 75 | 82 | 87 |
| | | 4 | 0 | 0 | 12 |
| | | ≥8 | 0 | 0 | 0 |

**Inoculum Density**: Inoculum density checks were performed for all QC, reproducibility, challenge, and clinical isolates tested.

**Purity Checks**: Purity checks were performed for all QC, reproducibility, challenge, and clinical isolates tested. Only results from pure cultures were reported.

**Growth Failure:** There was one growth failure for *S. aureus*, and one growth failure for *E. faecalis*.

**ARIS HiQ/OptiRead (No fluorescence):** There was one invalid for *S. epidermidis,* one invalid for *S. lugdunensis*, one invalid for *E. faecalis*, and ten invalids for *E. faecium*.

To address the high invalid rate for *E. faecium*, the following general caution statement was included in the device labeling:

> *The Autoread method is designed such that an auto read result is considered invalid when an isolate fails to produce adequate fluorescence in the positive control at the time of reading. If this occurs, it is recommended that the user manually confirm all results using a visual method. Prior to reporting any results, ensure that adequate growth is present in all control wells. If growth is not present in one or more control wells, the sample should be repeated.*

6. Detection Limit:

Not applicable.

7. Assay Cut-Off:

Not applicable.

## B Comparison Studies:

1. Method Comparison with Predicate Device:

Testing of The Sensititre 18-24 hour MIC or Breakpoint Susceptibility System with Linezolid was performed at three external sites. Results were compared to those obtained with the CLSI broth microdilution reference method. Sensititre panels were inoculated using only the AIM Autoinoculator and results were read automatically by the ARIS HiQ/OptiRead and visually by the Vizion. Reference panels were inoculated according to recommendations in the CLSI M07 document and results were read manually using a mirrored reader.

No inoculation system other than the AIM Autoinoculator and no read method other than ARIS HiQ/OptiRead and Vizion was used in the comparative study. To address the inoculation method and read method limitation, the following limitation was applied to linezolid testing in the device labeling:

*Studies of the following drugs were performed with the AIM Autoinoculator and read using the ARIS HiQ/OptiRead and Vizion. The use of an alternative inoculation system or alternative read methods has not been evaluated".*

The testing conditions for the reference method consisted of the following:

- Media: per CLSI M07 guidelines for *Staphylococcus* spp. and *Enterococcus* spp.
- Inoculum: Inoculated per CLSI M07 guidelines
- Incubation: 34-36°C in a non-$CO_2$ incubator for 18 to 24 hours

Inoculation and incubation procedure fo*r Staphylococcus* spp. and *Enterococcus* spp.

- Media: cation-adjusted Mueller-Hinton broth with TES buffer (CAMHBT)
- Inoculum: A suspension approximating a 0.5 McFarland standard was prepared in 5 mL sterile water. Ten (10) µL of the standardized suspension was transferred to 11 mL CAMHBT. Susceptibility plates were inoculated with 50 µL of the final organism suspension using the Sensititre AIM Autoinoculator.
- Incubation: 34-36°C in a non-$CO_2$ incubator for 18 to 24 hours.

A total of 583 clinical isolates comprised of 480 *Staphylococcus* spp. isolates (indicated species: 333 *S. aureus*, 76 *S. epidermidis*, 11 *S. haemolyticus*; non-indicated species: 10 *S. hominis*, 26 *S. lugdunensis*, 24 *S. saprophyticus*) and 103 *Enterococcus* spp. isolates (66 *E. faecalis* and 37 *E. faecium*) as well as 150 challenge isolates comprised of 125 *Staphylococcus* spp. isolates (indicated species: 100 *S. aureus*, 7 *S. epidermidis*, 4 *S. haemolyticus*; non-indicated species: 3 *S. hominis*, 6 *S. lugdunensis*, 5 *S. saprophyticus*) and 25 *Enterococcus* spp. isolates (19 *E. faecalis* and 6 *E. faecium*) were evaluated and the results were provided in **Table 2**.

For *Staphylococcus* spp. read using the ARIS HiQ/OptiRead, the combined clinical and challenge results (605 isolates) were acceptable at 95.7% and 99.7% for EA and CA, respectively. There was one major error (1/603 = 0.17%) and one very major error (1/2 = 50%) (**Table 2**). A footnote to address the very major error rate for *S. aureus* is included below. When evaluating results by individual species, *S. epidermidis* had an EA of 81.9% (68/83). The low EA of *S. epidermidis* is likely due to the high trending observed with this species as noted in the

Trending analysis section below. To address the low EA for *S. epidermidis*, the following footnote was included in the device labeling:

*Staphylococcus epidermidis had an EA of 81.9% (68/83).*

*S. saprophyticus*, a non-indicated species, had an EA of 82.8% (24/29); however, this species is not indicated for use with linezolid.
For *Enterococcus* spp. read using the ARIS HiQ/OptiRead, the combined clinical and challenge results (128 isolates) were acceptable at 97.7% and 96.1% for EA and CA, respectively. There were five minor errors, no major errors, and no very major errors (**Table 2**). When evaluating results by individual species, *E. faecium* had a CA of 88.4% and five minor errors; however, a CA of <90% was considered acceptable since all of the categorical errors were minor and the EA of the evaluable results was good (93.0%).

**Table 2**. Linezolid Performance of *Staphylococcus* spp. and *Enterococcus* spp. Read by ARIS HiQ/OptiRead.

| | **Tot** | **No. EA** | **EA %** | **Eval EA Tot** | **No. Eval EA** | **Eval EA %** | **No. CA** | **CA %** | **No. R** | **No. S** | **min** | **major** | **vmj** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Staphylococcus* spp. [≤4 (S), ≥8 (R)]** | | | | | | | | | | | | | |
| Clinical | 480 | 458 | 95.4 | 479 | 457 | 95.4 | 479 | 99.8 | 2 | 478 | NA | 0 | 1 |
| Challenge | 125 | 121 | 96.8 | 125 | 121 | 96.8 | 124 | 99.2 | 0 | 125 | NA | 1 | 0 |
| Combined | 605 | 579 | 95.7 | 604 | 578 | 95.7 | 603 | 99.7 | 2 | 603 | NA | 1 | 1 |
| ***Enterococcus* spp. [≤2 (S), I (4), ≥8 (R)]** | | | | | | | | | | | | | |
| Clinical | 103 | 100 | 97.1 | 103 | 100 | 97.1 | 98 | 95.1 | 0 | 98 | 5 | 0 | 0 |
| Challenge | 25 | 25 | 100 | 25 | 25 | 100 | 25 | 100 | 0 | 25 | 0 | 0 | 0 |
| Combined | 128 | 125 | 97.7 | 128 | 125 | 97.7 | 123 | 96.1 | 0 | 123 | 5 | 0 | 0 |

NA - not applicable
EA – Essential Agreement
CA – Categorical Agreement
S – Susceptible
Maj – Major Discrepancies
EVAL – Evaluable MICs
R – Resistant
min – Minor Discrepancies
vmj – Very Major Discrepancies

Essential agreement (EA) occurs when the result of the reference method and that of the Sensititre panel are within plus or minus one serial two-fold dilution of the antibiotic. Evaluable results are those that are on scale for both the reference method and the Sensititre panel or those in which an off-scale result is at least two doubling dilutions from the on-scale result. Category agreement (CA) occurs when the interpretation of the result of the reference method agrees exactly with the interpretation of the Sensititre panel.

A total of 596 clinical isolates comprised of 482 *Staphylococcus* spp. isolates (indicated species: 334 *S. aureus*, 76 *S. epidermidis*, 11 *S. haemolyticus*; non-indicated species: 10 *S. hominis*, 27 *S. lugdunensis*, 24 *S. saprophyticus*) and 114 *Enterococcus* spp. isolates (67 *E. faecalis* and 47 *E. faecium*) as well as 150 challenge isolates comprised of 125 *Staphylococcus* spp. isolates (indicated species: 100 *S. aureus*, 7 *S. epidermidis*, 4 *S. haemolyticus*; non-indicated species: 3 *S. hominis*, 6 *S. lugdunensis*, 5 *S. saprophyticus*) and 25 *Enterococcus* spp. isolates (19 *E. faecalis* and 6 *E. faecium*) were evaluated, and the results were provided in **Table 3**. For *Staphylococcus* spp. read using the digital viewing device (Vizion), the combined clinical and challenge results (607 isolates) was acceptable at 96.4% and 99.7% for EA and CA respectively. There were one major error (1/607 = 0.2%) and one very major error (1/2 = 50%) (**Table 3**). For *S. aureus*, there was one very major error using both the ARIS HiQ/OptiRead and the Vizion. Due to the lack of

resistant isolates evaluated, the very major error is considered random, and the following performance footnote will be added to the device labeling:

> *The one very major error observed was considered a random error due to the limited number of resistant isolates tested for S. aureus.*

For *Enterococcus* spp. read using the digital viewing device (Vizion), the combined clinical and challenge results (139 isolates) were acceptable at 99.3% and 98.6% for EA and CA respectively. There were two minor errors, no major errors and no very major errors.
Due to the insufficient number of resistant *Staphylococcus* spp. and *Enterococcus* spp. isolates evaluated, the following limitation was applied to linezolid testing in the device labeling:

> *The ability of Sensititre system to detect resistance or non-susceptibility to antimicrobics as shown below is unknown because an insufficient number of resistant or non-susceptible strains were available at the time of comparative testing. If such a strain is observed, it should be submitted to a reference laboratory.*

**Table 3**. Linezolid Performance of *Staphylococcus* spp. and *Enterococcus* spp. Read by Vizion

| | Tot | No. EA | EA % | Eval EA Tot | No. Eval EA | Eval EA % | No. CA | CA % | No. R | No. S | min | major | vmj |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Staphylococcus* spp. [≤4 (S), ≥8 (R)]** | | | | | | | | | | | | | |
| Clinical | 482 | 460 | 95.4 | 482 | 460 | 95.4 | 480 | 99.6 | 2 | 480 | NA | 1 | 1 |
| Challenge | 125 | 125 | 100 | 125 | 125 | 100 | 125 | 100 | 0 | 125 | NA | 0 | 0 |
| Combined | 607 | 585 | 96.4 | 607 | 585 | 96.4 | 605 | 99.7 | 2 | 605 | NA | 1 | 1 |
| ***Enterococcus* spp. [≤2 (S), I (4), ≥8 (R)]** | | | | | | | | | | | | | |
| Clinical | 114 | 113 | 99.1 | 114 | 113 | 99.1 | 112 | 98.2 | 0 | 106 | 2 | 0 | 0 |
| Challenge | 25 | 25 | 100 | 25 | 25 | 100 | 25 | 100 | 0 | 25 | 0 | 0 | 0 |
| Combined | 139 | 138 | 99.3 | 139 | 138 | 99.3 | 137 | 98.6 | 0 | 131 | 2 | 0 | 0 |

NA – Not applicable
EA – Essential Agreement
CA – Categorical Agreement
S – Susceptible
Maj – Major Discrepancies
EVAL – Evaluable MICs
R – Resistant
min – Minor Discrepancies
vmj – Very Major Discrepancies

Essential agreement (EA) occurs when the result of the reference method and that of the Sensititre panel are within plus or minus one serial two-fold dilution of the antibiotic. Evaluable results are those that are on scale for both the reference method and the Sensititre panel or those in which an off-scale result is at least two doubling dilutions from the on-scale result. Category agreement (CA) occurs when the interpretation of the result of the reference method agrees exactly with the interpretation of the Sensititre panel.

## MIC Trending

A trending analysis was conducted using the combined data (clinical and challenge) obtained for both the ARIS HiQ/OptiRead and the Vizion for *Staphylococcus* spp. and *Enterococcus* spp. This trending calculation takes into account MIC values that are determined to be one or more doubling dilutions lower or higher than the reference method irrespective of whether the device MIC values are on-scale or not. Results that are not clearly at least one dilution lower at least one dilution higher or in exact agreement with the CLSI reference method are not considered in the trending analysis.

Species for which the difference between the percentage of isolates with higher vs. lower readings was > 30% and for which the confidence interval was determined to be statistically significant were considered to show evidence of trending. Trending that shows higher or lower MIC values compared to the reference is addressed in the labeling.

Evaluation of results for *Staphylococcus* spp. and *Enterococcus* spp. with linezolid using the ARIS HiQ/OptiRead and Vizion are summarized in **Table 4**. A trend toward higher MIC values was observed for *S. epidermidis* and *S. haemolyticus* using the ARIS HiQ/OptiRead and higher MIC values was observed for *E. faecalis* and *S. epidermidis* using Vizion when compared to the CLSI broth microdilution reference method.

To address the MIC trending, the sponsor included the following footnotes in the performance table in the device labeling:

For ARIS HiQ/OptiRead:

*Linezolid MIC values tended to be in exact agreement or at least one doubling dilution higher when testing S. epidermidis and S. haemolyticus with the ARIS HiQ/OptiRead compared to the CLSI broth microdilution reference method.*

For Vizion:

*Linezolid MIC values tended to be in exact agreement or at least one doubling dilution higher when testing E. faecalis and S. epidermidis and with the Vizion compared to the CLSI broth microdilution reference method.*

**Table 4.** Linezolid Trending Analysis for *Staphylococcus* spp. and *Enterococcus* spp. with ARIS HiQ/OptiRead and Vizion

| Read Method | Organisms | Total Evaluable for Trending | ≥ 1 Dilution lower No. (%) | Exact No. (%) | ≥ 1 Dilution Higher No. (%) | Percent Difference (95% CI) | Trending Noted |
|---|---|---|---|---|---|---|---|
| ARIS HiQ/ OptiRead | *Enterococcus faecalis* | 85 | 32 (37.7) | 45 (52.9) | 8 (9.4) | -28% (-40% to -16%) | No |
| | *Enterococcus faecium* | 43 | 15 (34.9) | 23 (51.1) | 5 (11.6) | -23% (-40% to -5%) | No |
| | *Staphylococcus aureus* | 434 | 36 (8.3) | 321 (74.0) | 77 (17.7) | 9% (5% to 14%) | No |
| | *Staphylococcus epidermidis* | 83 | 1 (1.2) | 14 (16.9) | 68 (81.9) | 81% (70% to 88%) | Yes, high |
| | *Staphylococcus haemolyticus* | 15 | 1 (6.7) | 8 (53.3) | 6 (40.0) | 33% (3% to 58%) | Yes, high |
| Vizion | *Enterococcus faecalis* | 86 | 0 (0) | 43 (50.0) | 43 (50.0) | 50% (39% to 60%) | Yes, high |
| | *Enterococcus faecium* | 53 | 4 (7.6) | 38 (71.7) | 11 (20.8) | 13% (0% to 27%) | No |
| | *Staphylococcus aureus* | 434 | 21 (4.8) | 287 (66.1) | 126 (29.0) | 24% (19% to 29%) | No |
| | *Staphylococcus epidermidis* | 83 | 6 (7.2) | 29 (34.9) | 48 (57.8) | 51% (37% to 61%) | Yes, high |
| | *Staphylococcus haemolyticus* | 15 | 4 (26.7) | 10 (66.7) | 1 (6.7) | -20% (-46% to 8%) | No |

**Testing/Reporting MICs for Non-indicated Species.**
For this review, the interpretive criteria are applied to the organisms/organism groups according to the FDA STIC website. As required under 511A(2)(2)(B) of the Federal Food, Drug and Cosmetic Act, the following statement is included in the Warnings and Precautions section of the device labeling to address testing and reporting of non-indicated species:

> *The safety and efficacy of antimicrobial drugs, for which antimicrobial susceptibility is tested by this AST device, may or may not have been established in adequate and well controlled clinical trials for treating clinical infections due to microorganisms outside of those found in the indications and usage in the drug label. The clinical significance of susceptibility information in those instances is unknown. The approved labeling for specific antimicrobial drugs provides the uses for which the antimicrobial drug is approved.*

2. Matrix Comparison:

Not applicable.

## C Clinical Studies:

1. Clinical Sensitivity:

Not applicable.

2. Clinical Specificity:

Not applicable.

3. Other Clinical Supportive Data (When 1. and 2. Are Not Applicable):

Not applicable.

**D Clinical Cut-Off:**

Not applicable.

**E Expected Values/Reference Range:**

**Table 5**. FDA-Recognized Interpretive Criteria for Linezolid

| Organisms | Minimum Inhibitory Concentrations (µg/mL)[a] | | |
|---|---|---|---|
| | Susceptible | Intermediate | Resistant |
| *Staphylococcus* spp. | ≤4 | - | ≥8 |
| *Enterococcus* spp. | ≤2 | 4 | ≥8 |

[a] According to the FDA STIC webpage

**VIII Proposed Labeling:**

The labeling supports the finding of substantial equivalence for this device.

**IX Conclusion:**

The submitted information in this premarket notification is complete and supports a substantial equivalence decision.

To support the implementation of changes to FDA-recognized susceptibility test interpretive criteria (i.e., breakpoints), this submission incorporated by reference a breakpoint change protocol that was reviewed and accepted by FDA in submission K231994 cleared on August 25, 2023. This referenced protocol addresses future revisions to device labeling in response to breakpoint changes that are recognized on the FDA STIC webpage (https://www.fda.gov/drugs/development-resources/fda-recognized-antimicrobial-susceptibility-test-interpretive-criteria). The referenced protocol outlined the specific procedures and acceptance criteria that Thermo Fisher Scientific intends to use to evaluate The Sensititre 18-24 hour MIC or Breakpoint Susceptibility System with Linezolid when revised breakpoints for Linezolid are published on the FDA STIC webpage. The breakpoint change protocol included with the submission indicated that if specific criteria are met, Thermo Fisher Scientific will update the Linezolid device label to include (1) the new breakpoints, (2) an updated performance section after re-evaluation of data in this premarket notification with the new breakpoints, and (3) any new limitations as determined by their evaluation.