CLINICAL AND LABORATORY STANDARDS INSTITUTE®

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Process to Submit Disk Content (Potency) Data for Joint CLSI-EUCAST Working Group Review and Approval

This document describes the process to submit disk content (potency) data to the joint CLSI-EUCAST working group for review and approval.

A CLSI supplement for global application.

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Process to Submit Disk Content (Potency) Data for Joint CLSI-EUCAST Working Group Review and Approval

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Abstract

Clinical and Laboratory Standards Institute document M23S2—*Process to Submit Disk Content (Potency) Data for Joint CLSI-EUCAST Working Group Review and Approval* describes the process to submit disk content (potency) data to the joint CLSI-EUCAST working group for review and approval.

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NOTE: The content in this document is identical to the content in "Process to Submit Disk Content (Potency) Data for Joint CLSI-EUCAST Working Group Review and Approval. EUCAST SOP 12.0, 2021. http://www.eucast.org."

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EUCAST EUROPEAN COMMITTEE ON ANTIMICROBIAL SUSCEPTIBILITY TESTING
European Society of Clinical Microbiology and Infectious Diseases

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Foreword

The disk diffusion antimicrobial susceptibility test has been widely used around the world for decades and was first standardized in 1966.[1] In the 1970s, CLSI (then the National Committee for Clinical Laboratory Standards) published additional guidance for disk diffusion testing. In Europe, different variants of the disk diffusion method were used in different countries until 2009, when the European Committee on Antimicrobial Susceptibility Testing (EUCAST) provided a standardized disk diffusion method calibrated to the harmonized European minimal inhibitory concentration breakpoints. The disk diffusion test is based on incorporating a standard amount of an antimicrobial agent into a filter paper disk. Because it is relatively easy to perform and uses standard microbiology laboratory equipment, the disk diffusion test is used in many types of laboratories, including those in low-resource settings.

The disk content (potency) recommended for new antimicrobial agents has sometimes varied among organizations that set criteria (eg, breakpoints) for interpreting results of disk diffusion testing. Subsequently, pharmaceutical manufacturers have performed testing with two different disk contents (potencies) for generating data to present to breakpoint-setting organizations. This burdensome situation was caused in part by a lack of harmonized recommendations for selecting optimal disk contents (potencies). To correct this issue and improve efficiency for pharmaceutical manufacturers, disk manufacturers, researchers, and other organizations, CLSI and EUCAST initiated a joint venture to develop standardized recommendations for disk content (potency) selection. Their recommendations are presented in this document, in CLSI document M23S,[2] and in EUCAST SOP 11.0.[3] (The content in CLSI document M23S[2] and EUCAST SOP 11.0[3] is identical.)

Contact information: clsi.org/m23-supplement-question

CLSI
www.clsi.org

EUCAST
www.EUCAST.org

NOTE: The content of this document is supported by the CLSI consensus process and does not necessarily reflect the views of any single individual or organization.

KEY WORDS

Data submission **Disk content** **Disk potency**

Chapter 1

Introduction

This chapter includes:

- Document's scope and applicable exclusions
- Terminology information, including:
  - Terms and definitions used in the document
  - Abbreviations and acronyms used in the document

Process to Submit Disk Content (Potency) Data for Joint CLSI-EUCAST Working Group Review and Approval

1 Introduction

1.1 Scope

This document is intended for pharmaceutical manufacturers involved in the development of antimicrobial agents and tests to support evaluation of antimicrobial agent activity. It is also intended for manufacturers of antimicrobial disks and any independent laboratory that supports the development of these disks. This document describes the process to submit disk content (potency) data to the joint CLSI-EUCAST working group for review and approval. It does not explain the steps needed to perform the standardized disk diffusion test, nor does it define the criteria (breakpoints) used to interpret zone diameters of inhibition into interpretive categories. These steps are described elsewhere (see CLSI documents M02[4] and M07[5]).[6,7] The process for selecting the optimal content (potency) of antimicrobial agent to be added to filter paper disks to obtain reliable results with the standardized disk diffusion test is covered in CLSI document M23S.[2] In some cases, the breakpoints defined by breakpoint-setting organizations for a single agent may differ even when the same disk content (potency) is used.

1.2 Terminology

CLSI, as a global leader in standardization, is firmly committed to achieving global harmonization whenever possible. Harmonization is a process of recognizing, understanding, and explaining differences while taking steps to achieve worldwide uniformity. CLSI recognizes that medical conventions in the global metrological community have evolved differently in different countries and regions and that legally required use of terms, regional usage, and different consensus timelines are all important considerations in the harmonization process. CLSI recognizes its important role in these efforts, and its consensus process focuses on harmonization of terms to facilitate the global application of standards and guidelines.

1.2.1 Definitions

For purposes of this document, the term and definition listed below apply. Consult CLSI's Harmonized Terminology Database at https://htd.clsi.org for related terms and definitions.

disk content (potency) – the concentration of antimicrobial agent added to 6-mm filter paper disks to determine *in vitro* antimicrobial susceptibility testing results following a standardized disk diffusion method; equivalent to disk load, disk mass, disk strength, and disk charge.

1.2.2 Abbreviations and Acronyms

EUCAST European Committee on Antimicrobial Susceptibility Testing

WG working group

Chapter 3

Supplemental Information

This chapter includes:

- References
- Appendix
- The Quality Management System Approach
- Related CLSI Reference Materials

Appendix. (Continued)

#	Information to Include	Comments
Phase 2 Details (Continued)		
24	Details of media used for testing fastidious organisms, as applicable	
25	Total numbers of isolates and number per species (30 isolates per species or 60 isolates per group) • WT (optimal zone diameter, 15-35 mm; at least 50% of isolates) • NWT (resistance mechanisms)	
26	QC strains tested (minimum 3 days; antimicrobial agent/organism zone variation ≤ 3 mm)	
27	Commercial disks and QC strains used for initial QC check of MHA	
28	Commercial control disk used for each run	
29	MICs predetermined or tested in parallel with disks (Include dates for performance of MIC, if previous results used.)	
30	MIC method and panel source	
31	Zone characteristics (ie, noteworthy observations) **NOTE:** If zones are difficult to distinguish, two different readers should measure a subset of tests.	
32	• Raw data in spreadsheet software • Test results in scattergrams and histograms (see examples in Figures 1A and 1B and Appendix C in CLSI document M23S[1] or EUCAST SOP 11.0[2])	

Materials and Reagents **(Please summarize the following here or in the final report.)**			
Item	**Manufacturer**	**Lot #**	**Expiration Date**
Antimicrobial stock solution concentration =_____ µg/mL			
Antimicrobial powder			
Solvent: _____			
Diluent: _____			
Filter paper disks (6 mm)			
Control disk: _____			
MHA phase 1			
MHA phase 2 (1)			
MHA phase 2 (2)			
MIC panels			

Related CLSI Reference Materials[a]

M02 **Performance Standards for Antimicrobial Disk Susceptibility Tests. 13th ed., 2018.** This standard covers the current recommended methods for disk susceptibility testing and criteria for quality control testing.

M07 **Methods for Dilution Antimicrobial Susceptibility Tests for Bacteria That Grow Aerobically. 11th ed., 2018.** This standard covers reference methods for determining minimal inhibitory concentrations of aerobic bacteria by broth macrodilution, broth microdilution, and agar dilution.

M23S **Procedure for Optimizing Disk Contents (Potencies) for Disk Diffusion Testing of Antimicrobial Agents Using Harmonized CLSI and EUCAST Criteria. 1st ed., 2020.** This document describes the necessary technical steps for establishing the optimal disk content (potency) for single antimicrobial agents without the addition of enhancing or inhibiting substances.

[a] CLSI documents are continually reviewed and revised through the CLSI consensus process; therefore, readers should refer to the most current editions.

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