Ezy MIC™ STRIPS

MIC Determination Strips

HiMediaLaboratories™

www.himedialabs.com

HIMEDIA®

For life is precious

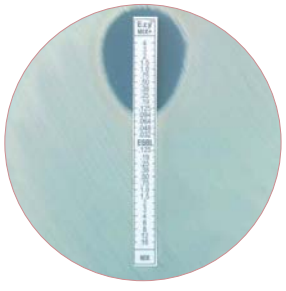
HiMedia's **Panel of β-Lactamase Detection** Ezy MIC™ Strips

Ezy MIC™ STRIPS

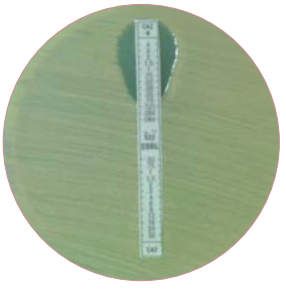
MIC Determination Strips

Includes Detection of

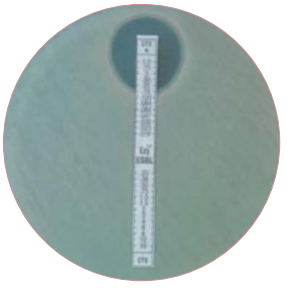
➥ Extended Spectrum beta Lactamase (ESBL) producer



EM079A
Triple ESBL Detection Ezy MIC™ Strip



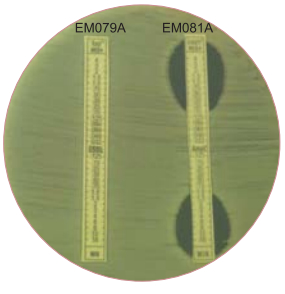
EM098
Ceftazidime / Ceftazidime + Clavulanic acid
Ezy MIC™ Strip



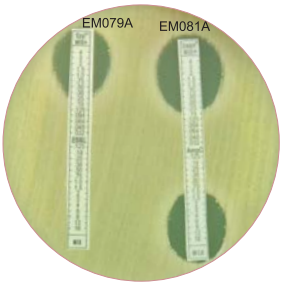
EM099
Cefotaxime / Cefotaxime + Clavulanic acid
Ezy MIC™ Strip

Tested against ESBL positive Strain

➥ AmpC & ESBL producer



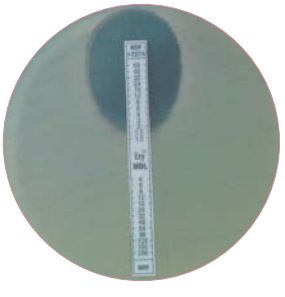
AmpC Positive Strain



ESBL & AmpC Positive Strain

Tested with EM079A -Triple ESBL Detection Ezy MIC™ Strip
EM081A -ESBL & AMPc Detection Ezy MIC™ Strip

➥ Metalo beta lactamase (MBL) producer



EM092
Meropenem with & without EDTA Ezy MIC™ Strip

Tested against MBL positive Strain

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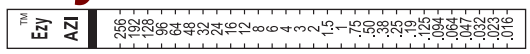
Ezy MIC™ STRIPS



Antimicrobial Susceptibility Testing

The MIC is the lowest concentration of an antimicrobial agent that visually inhibits growth of a microorganism under defined experimental conditions.

MIC testing is a very valuable quantitative assay tool for evaluating the pathogenic microorganism's degree of susceptibility and to detect the specific resistance mechanism. Today clinical microbiology laboratories can provide MIC testing services and in many cases exact values for determining the therapy for individual patient. Selection of the most effective antimicrobial agent and dosing regimen for serious infection will help in eliminating the pathogens and minimize resistance selection and decrease mortality. HiMedia has already adopted this system in the form of HiComb™ (MD), which is based on innovative disc diffusion and gradient-based technique, essentially with a wide choice of antibiotics.

HiMedia™ now brings to you the Ezy MIC™ Strips, the patient-sensitive test for selection of most appropriate antimicrobial agent and its dose.

Ezy MIC™ STRIPS

Antimicrobial Susceptibility Testing

For In Vitro Diagnostic Use

Introduction

Antimicrobial susceptibility testing (AST) of bacterial and fungal isolates is a common and important technique in most clinical laboratories. The results of these tests are used for selection of the most appropriate antimicrobial agent(s) for treatment against the infectious organisms. The agar disc diffusion test is the most convenient and widely used method for routine antimicrobial susceptibility testing. However, in the last few decades bacteria have emerged with new forms of virulence and new patterns of resistance to antimicrobial agents leading to various resistant strains. Hence it has become necessary to find the MIC of a drug, so as to control the irrational use of antibiotics and further in controlling spread of these strains and better alternate therapy.

Why MIC?

The minimum inhibitory concentration (MIC) is the lowest concentration of the antimicrobial agent required to inhibit growth of a microorganism under defined conditions. It gives us an insight into factors far exceeding the role of antimicrobial susceptibility disc, thus helping us to determine the clinical outcome more precisely.

MIC values lower than the breakpoints are interpreted as susceptible results and those higher as resistant for treatment guidance. MIC breakpoint values are vital in categorizing susceptibility group for *in vitro* antimicrobial susceptibility testing and clinical interpretation. Understanding the concept of MIC and its relations to the interpretive breakpoint is one of the major hassles to microbiologist and clinicians. Since the pharmacokinetics of antimicrobial agents can be different, two agents with the same MIC value for an organism may have totally different interpretations because they have different breakpoints. MIC testing is a very valuable quantitative assay tool for evaluating the pathogenic microorganism degree of susceptibility and to detect the specific resistance mechanism.

Limitations of Disc Diffusion AST

Antibiotic susceptibility using discs have been often shown to be unreliable in a number of situations including the testing of beta-lactams with non-fermenting Gram-negative bacilli and *Haemophilus influenza*, glycopeptide with Enterococci and Staphylococci. In the case of vancomycin, the antimicrobial susceptibility testing using disc diffusion test does not differentiate vancomycin-susceptible isolates of *S.aureus* from Vancomycin intermediate isolates, nor does the test differentiates among Vancomycin–susceptible, intermediate, and resistant isolates of coagulase-negative staphylococci, all of which may give similar size zones of inhibition hence there is global consensus that a fully quantitative MIC method is needed while reporting vancomycin susceptibility results. In the face of evolving multi drug resistant strains, it has been recently demonstrated that this emerging form of resistance cannot be accurately detected by most currently used methods. With emerging resistance patterns, clinicians require information on the presence of low level and/or hetero-resistance. The inadequacies of qualitative methods have been well recognized and clinical microbiology laboratories cannot rely on a single susceptibility testing method to detect these emerging resistance phenotypes and also provide discrete MIC data that can be specifically used to fine-tune individual patient therapy.

What are Ezy MIC™ Strips ?

Ezy MIC™ Strips is a quantitative technique for determining the antimicrobial susceptibility of a wide range of aerobic and fastidious organisms. The system comprises a predefined antibiotic gradient which is coated on a paper strip used to determine the Minimum Inhibitory Concentration (MIC), in µg/mL, of different antimicrobial agents against variety of microorganisms when tested on appropriate agar media under specific incubation conditions.

Ezy MIC™ Strips can help you to,

- Determine the MIC of fastidious, slow-growing or nutritionally deficient micro-organisms, or for a specific type of patient or infection.
- Confirm/detect a specific resistant phenotype e.g. ESBL, MBL, AmpC, MRSA, HLAR or VISA/hVISA.
- Detect low levels of resistance.
- Test an antimicrobial not performed in routine use or a new, recently introduced antimicrobial agent.
- It provides high medical value to critical care cases to, refine or guide treatment decisions. Also helps in determining the choice and dosage of antimicrobials in patients with sterile site infections (e.g. endocarditic), severe nosocomial infections, chronic infections (e.g. cystic fibrosis) and immunosuppressed patients.
- Promote antibiotic stewardship.

Underlying Principles

The Ezy MIC™ Strip gradient technology is based on a combination of the concepts of dilution and diffusion principles for susceptibility testing. As with other dilution methods, Ezy MIC™ Strip directly quantifies antimicrobial susceptibility in terms of discrete MIC values. However, in using a predefined, stable and continuous antibiotic concentration gradient Ezy MIC™ Strip MIC values can be more precise and reproducible than results obtained from conventional procedures based on discontinuous two-fold serial dilutions.

Although it appears like a modified disc diffusion test, due to its similarity in method of inoculum preparation, choice of test agar media and

incubation conditions, Ezy MIC™ Strip is not a diffusion method and differs totally in concept from conventional disc methods. The Ezy MIC™ Strip antimicrobial concentration gradient is preformed, predefined and stable, and is not dependent on diffusion.

Ezy MIC™ Strip is a thin, inert and porous paper strip coated with antibiotic. Both sides of the strip are likewise printed with the MIC reading scale in µg/ml and the two or three-letter symbol printed on the top of the strip helps in easy identification of the antibiotic. A predefined exponential gradient of antibiotic, dried and stabilized, is immobilized on either sides of the strip with the concentration maximum at one end and minimum at the other. The gradient covers a continuous concentration range across 15 two-fold dilutions of a conventional MIC method.

← Ezy MIC™ strips

When an Ezy MIC™ Strip is applied to an inoculated agar surface, there is gradual but effective transfer of the preformed antibiotic gradient from the strip into the agar medium. A stable, continuous and exponential gradient of antibiotic concentrations is formed directly underneath the strip. After incubation under appropriate conditions, whereby bacterial growth becomes visible, a symmetrical inhibition ellipse centered along the strip is seen. The MIC value is read from the scale in terms of µg/mL where the ellipse edge intersects the strip.

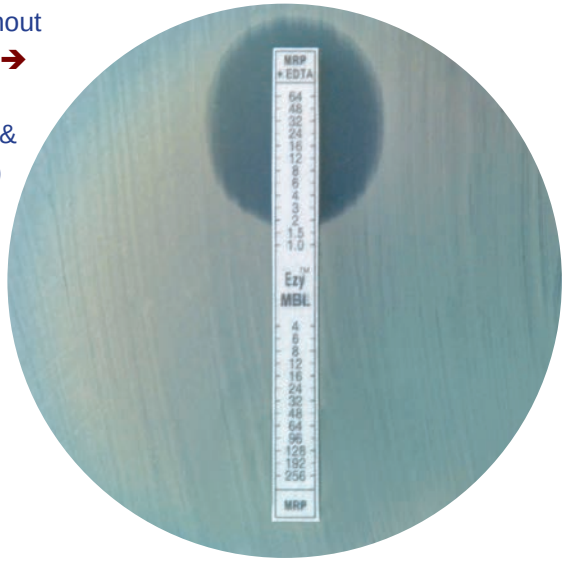
To obtain reproducible MICs from a gradient based system, the stability of the gradient must be maintained throughout the critical period when the position of the growth/inhibition edge for a particular bacterium/antibiotic combination is determined. Due to the stability and precision of the Ezy MIC™ Strip predefined gradient, MIC values have been shown to be reproducible and equivalent to those of the CLSI reference dilution procedures.

Advantages of Ezy MIC™ Strips

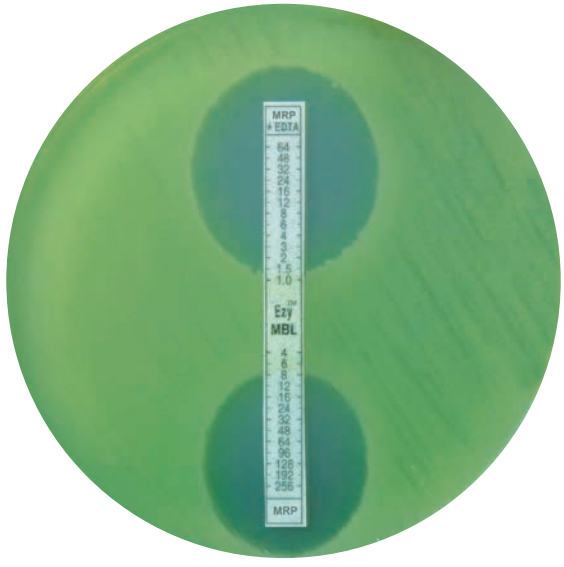
Ezy MIC™ Strip exhibits several advantages over conventional plastic MIC strip.

1) Ezy MIC™ Strip is made up of porous biodegradable paper material unlike plastic non-porous material used for other marketed strips.
2) Unlike for other strips, Ezy MIC™ Strip has MIC values printed on both sides identically and therefore MIC values can be read without opening the lid of the plate as most commonly translucent medium such as Mueller Hinton Agar is employed.
3) The antimicrobial agent is evenly distributed on either side of the Ezy MIC™ Strip and hence it can be placed by any side on the agar surface.
4) Once placed, Ezy MIC™ Strip is adsorbed within 60 seconds and firmly adheres to the agar surface.
5) Unlike with plastic material, it does not form air bubbles underneath and hence there is no need to press the strip once placed.
6) Ezy MIC™ Strip can be very easily, conveniently and accurately placed on the agar surface with the aid of specially developed and simple to use applicator.

Ezy MIC™ Meropenem with & without EDTA Ezy MIC™ Strip → (EM092) tested with MBL positive strain (1) & MBL negative strain (2)



MBL Producing Clinical Isolate
(MBL Positive Strain)

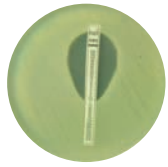
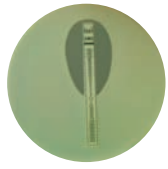
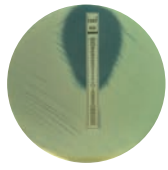
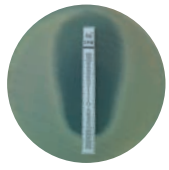


Ps. aeruginosa ATCC 27853
(MBL Negative Strain)

Ezy MIC™ STRIPS

Range of Ezy MIC™ Strips

HiMedia provides an assorted range of Ezy MIC™ Strips for testing of antibacterial as well as antifungal agents. The range also includes strips that would be handy in detection of MRSA Strains, HLAR Strains, ESBL producers, AmpC producers and MBL producers.

Product	Symbol	Range in µg		Code	Pack
Amikacin A unique MIC determination paper strip which is coated with Amikacin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**AMK**	0.016 - 256 mcg/ml		EM001-10ST EM001-30ST EM001-60ST EM001-90ST EM001-120ST EM001-150ST	10ST 30ST 60ST 90ST 120ST 150ST
Amoxyclav (2:1) A unique MIC determination paper strip which is coated with Amoxyclav on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**AMC***	0.016 - 256 mcg/ml		EM003-10ST EM003-30ST EM003-60ST EM003-90ST EM003-120ST EM003-150ST	10ST 30ST 60ST 90ST 120ST 150ST
Ampicillin A unique MIC determination paper strip which is coated with Ampicillin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**AMP***	0.016 - 256 mcg/ml		EM068-10ST EM068-30ST EM068-60ST EM068-90ST EM068-120ST EM068-150ST	10ST 30ST 60ST 90ST 120ST 150ST
Azithromycin A unique MIC determination paper strip which is coated with Azithromycin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**AZI**	0.016 - 256 mcg/ml		EM004-10ST EM004-30ST EM004-60ST EM004-90ST EM004-120ST EM004-150ST	10ST 30ST 60ST 90ST 120ST 150ST
Cefepime A unique MIC determination paper strip which is coated with Cefepime on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**CPM***	0.016-256 mcg/ml		EM070-10ST EM070-30ST EM070-60ST EM070-90ST EM070-120ST EM070-150ST	10ST 30ST 60ST 90ST 120ST 150ST
Cefepime/ Tazobactam (2:1) A unique MIC determination paper strip which is coated with Cefepime/ Tazobactam on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**CPT***	0.016 - 256mcg/ml		EM093-10ST EM093-30ST EM093-60ST EM093-90ST EM093-120ST EM093-150ST	10ST 30ST 60ST 90ST 120ST 150ST

Customer specific ranges of antibiotic other than the ones available can be designed as per the requirements. Assortment of various antibiotics can also be made available.
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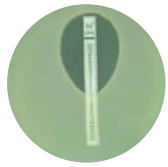
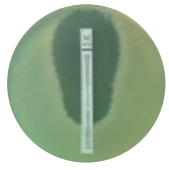
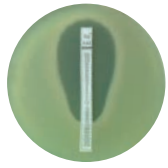
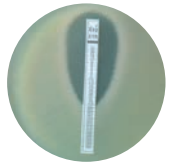
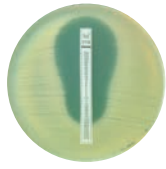
Product	Symbol	Range in µg		Code	Pack
Cefoperazone/ Sulbactam (2:1)	**CPS***	0.016-256mcg/ml		EM094-10ST EM094-30ST EM094-60ST EM094-90ST EM094-120ST EM094-150ST	10ST 30ST 60ST 90ST 120ST 150ST
A unique MIC determination paper strip which is coated with Cefoperazone/ Sulbactam on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Cefotaxime	**CTX***	0.002-32 mcg/ml		EM100-10ST EM100-30ST EM100-60ST EM100-90ST EM100-120ST EM100-150ST	10ST 30ST 60ST 90ST 120ST 150ST
A unique MIC determination paper strip which is coated with Cefotaxime on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Cefotaxime	**CTX***	0.016-256 mcg/ml		EM064-10ST EM064-30ST EM064-60ST EM064-90ST EM064-120ST EM064-150ST	10ST 30ST 60ST 90ST 120ST 150ST
A unique MIC determination paper strip which is coated with Cefotaxime on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Cefoxitin	**FOX***	0.016-256 mcg/ml		EM101-10ST EM101-30ST EM101-60ST EM101-90ST EM101-120ST EM101-150ST	10ST 30ST 60ST 90ST 120ST 150ST
A unique MIC determination paper strip which is coated with Cefoxitin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Ceftazidime	**CAZ***	0.016 - 256 mcg/ml		EM012-10ST EM012-30ST EM012-60ST EM012-90ST EM012-120ST EM012-150ST	10ST 30ST 60ST 90ST 120ST 150ST
A unique MIC determination paper strip which is coated with Ceftazidime on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Ceftriaxone	**CTR***	0.002-32 mcg/ml		EM013-10ST EM013-30ST EM013-60ST EM013-90ST EM013-120ST EM013-150ST	10ST 30ST 60ST 90ST 120ST 150ST
A unique MIC determination paper strip which is coated with Ceftriaxone on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Ceftriaxone	**CTR***	0.016 - 256 mcg/ml		EM066-10ST EM066-30ST EM066-60ST EM066-90ST EM066-120ST EM066-150ST	10ST 30ST 60ST 90ST 120ST 150ST
A unique MIC determination paper strip which is coated with Ceftriaxone on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					

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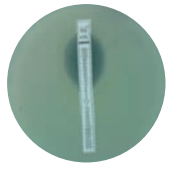
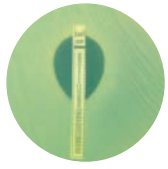
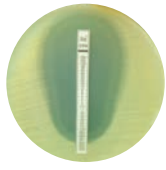
Product	Symbol	Range in µg		Code	Pack
Ceftriaxone/ sulbactam (2:1)	**CTS***	0.016-256mcg/ml		EM097-10ST EM097-30ST EM097-60ST EM097-90ST EM097-120ST EM097-150ST	10ST 30ST 60ST 90ST 120ST 150ST
A unique MIC determination paper strip which is coated with Ceftriaxone/ sulbactam on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Cefuroxime	**CXM***	0.016-256 mcg/ml		EM102-10ST EM102-30ST EM102-60ST EM102-90ST EM102-120ST EM102-150ST	10ST 30ST 60ST 90ST 120ST 150ST
A unique MIC determination paper strip which is coated with Cefuroxime on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Chloramphenicol	**CHL**	0.016 - 256 mcg/ml		EM016-10ST EM016-30ST EM016-60ST EM016-90ST EM016-120ST EM016-150ST	10ST 30ST 60ST 90ST 120ST 150ST
A unique MIC determination paper strip which is coated with Chloramphenicol on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Ciprofloxacin	**CIP**	0.002 - 32 mcg/ml		EM017-10ST EM017-30ST EM017-60ST EM017-90ST EM017-120ST EM017-150ST	10ST 30ST 60ST 90ST 120ST 150ST
A unique MIC determination paper strip which is coated with Ciprofloxacin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Ciprofloxacin	**CPH**	0.016 - 256 mcg/ml		EM082-10ST EM082-30ST EM082-60ST EM082-90ST EM082-120ST EM082-150ST	10ST 30ST 60ST 90ST 120ST 150ST
A unique MIC determination paper strip which is coated with high concentrations of Ciprofloxacin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Clindamycin	**CLI**	0.016-256 mcg/ml		EM019-10ST EM019-30ST EM019-60ST EM019-90ST EM019-120ST EM019-150ST	10ST 30ST 60ST 90ST 120ST 150ST
A unique MIC determination paper strip which is coated with Clindamycin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					

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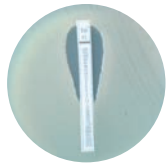
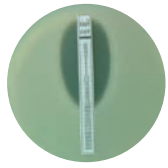
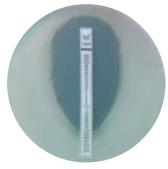
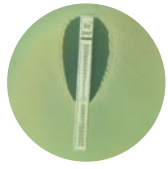
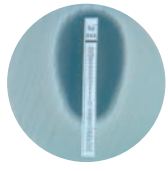
Product	Symbol	Range in µg		Code	Pack
Colistin	**CL**	0.016 - 256 mcg/ml		EM020-10ST	10ST
				EM020-30ST	30ST
				EM020-60ST	60ST
				EM020-90ST	90ST
				EM020-120ST	120ST
				EM020-150ST	150ST
A unique MIC determination paper strip which is coated with Colistin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Co-Trimoxazole (1:19)	**COT**	0.002 - 32 mcg/ml		EM021-10ST	10ST
				EM021-30ST	30ST
				EM021-60ST	60ST
				EM021-90ST	90ST
				EM021-120ST	120ST
				EM021-150ST	150ST
A unique MIC determination paper strip which is coated with Co-Trimoxazole on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Co-Trimoxazole (1:19)	**TSH**	0.016 - 256 mcg/ml		EM083-10ST	10ST
				EM083-30ST	30ST
				EM083-60ST	60ST
				EM083-90ST	90ST
				EM083-120ST	120ST
				EM083-150ST	150ST
A unique MIC determination paper strip which is coated with high concentrations of Co-Trimoxazole on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Daptomycin	**DAP**	0.016-256mcg/ml		EM088-10ST	10ST
				EM088-30ST	30ST
				EM088-60ST	60ST
				EM088-90ST	90ST
				EM088-120ST	120ST
				EM088-150ST	150ST
A unique MIC determination paper strip which is coated with Daptomycin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Doripenem	**DOR***	0.002-32 mcg/ml		EM090-10ST	10ST
				EM090-30ST	30ST
				EM090-60ST	60ST
				EM090-90ST	90ST
				EM090-120ST	120ST
				EM090-150ST	150ST
A unique MIC determination paper strip which is coated with Doripenem on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Doxycycline	**DOX**	0.016-256 mcg/ml		EM103-10ST	10ST
				EM103-30ST	30ST
				EM103-60ST	60ST
				EM103-90ST	90ST
				EM103-120ST	120ST
				EM103-150ST	150ST
A unique MIC determination paper strip which is coated with Doripenem on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					

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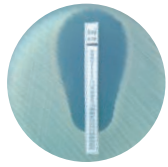
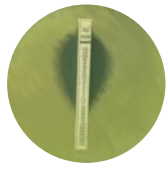
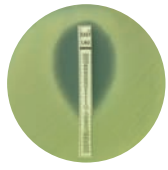
Ezy MIC™ STRIPS

Product	Symbol	Range in µg		Code	Pack
Ertapenem A unique MIC determination paper strip which is coated with Ertapenem on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**ETP***	0.002-32 mcg/ml		EM085-10ST EM085-30ST EM085-60ST EM085-90ST EM085-120ST EM085-150ST	10ST 30ST 60ST 90ST 120ST 150ST
Erythromycin A unique MIC determination paper strip which is coated with Erythromycin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**ERY**	0.016-256mcg/ml		EM022-10ST EM022-30ST EM022-60ST EM022-90ST EM022-120ST EM022-150ST	10ST 30ST 60ST 90ST 120ST 150ST
Faropenem A unique MIC determination paper strip which is coated with Faropenem on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**FAR***	0.002-32 mcg/ml		EM091-10ST EM091-30ST EM091-60ST EM091-90ST EM091-120ST EM091-150ST	10ST 30ST 60ST 90ST 120ST 150ST
Gentamicin A unique MIC determination paper strip which is coated with Gentamicin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**GEN**	0.016 - 256 mcg/ml		EM025-10ST EM025-30ST EM025-60ST EM025-90ST EM025-120ST EM025-150ST	10ST 30ST 60ST 90ST 120ST 150ST
Gentamicin **For HLAR detection** : A unique MIC determination paper strip which is coated with high concentrations of Gentamicin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**HLG**	0.064 - 1024 mcg/ml		EM061-10ST EM061-30ST EM061-60ST EM061-90ST EM061-120ST EM061-150ST	10ST 30ST 60ST 90ST 120ST 150ST
Linezolid A unique MIC determination paper strip which is coated with Linezolid on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**LNZ**	0.016 - 256 mcg/ml		EM029-10ST EM029-30ST EM029-60ST EM029-90ST EM029-120ST EM029-150ST	10ST 30ST 60ST 90ST 120ST 150ST

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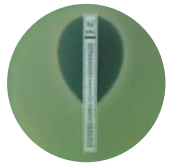
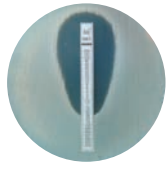
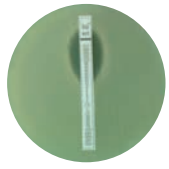
Ezy MIC™ STRIPS

Product	Symbol	Range in µg		Code	Pack
Meropenem A unique MIC determination paper strip which is coated with Meropenem on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**MRP***	0.002 - 32 mcg/ml		EM080-10ST EM080-30ST EM080-60ST EM080-90ST EM080-120ST EM080-150ST	10ST 30ST 60ST 90ST 120ST 150ST
Nalidixic acid A unique MIC determination paper strip which is coated with Nalidixic acid on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**NAL**	0.016 - 256 mcg/ml		EM035-10ST EM035-30ST EM035-60ST EM035-90ST EM035-120ST EM035-150ST	10ST 30ST 60ST 90ST 120ST 150ST
Netilmicin A unique MIC determination paper strip which is coated with Netilmicin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**NET**	0.016-256mcg/ml		EM095-10ST EM095-30ST EM095-60ST EM095-90ST EM095-120ST EM095-150ST	10ST 30ST 60ST 90ST 120ST 150ST
Nitrofurantoin A unique MIC determination paper strip which is coated with Nitrofurantoin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**NIT**	0.032-512 mcg/ml		EM037-10ST EM037-30ST EM037-60ST EM037-90ST EM037-120ST EM037-150ST	10ST 30ST 60ST 90ST 120ST 150ST
Oxacillin A unique MIC determination paper strip which is coated with Oxacillin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**OXA***	0.016 - 256 mcg/ml		EM065-10ST EM065-30ST EM065-60ST EM065-90ST EM065-120ST EM065-150ST	10ST 30ST 60ST 90ST 120ST 150ST
Penicillin A unique MIC determination paper strip which is coated with Penicillin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.	**PEN***	0.002-32mcg/ml		EM084-10ST EM084-30ST EM084-60ST EM084-90ST EM084-120ST EM084-150ST	10ST 30ST 60ST 90ST 120ST 150ST

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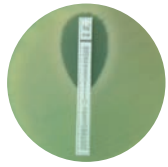
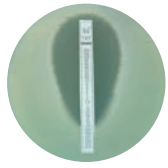
Ezy MIC™ STRIPS

Product	Symbol	Range in µg		Code	Pack
Piperacillin	**PIP***	0.016-256 mcg/ml		EM041-10ST	10ST
A unique MIC determination paper strip which is coated with Piperacillin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.				EM041-30ST	30ST
				EM041-60ST	60ST
				EM041-90ST	90ST
				EM041-120ST	120ST
				EM041-150ST	150ST
Piperacillin/Tazobactam	**PTZ***	0.016 - 256 mcg/ml		EM042-10ST	10ST
A unique MIC determination paper strip which is coated with Piperacillin / Tazobactam on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.				EM042-30ST	30ST
				EM042-60ST	60ST
				EM042-90ST	90ST
				EM042-120ST	120ST
				EM042-150ST	150ST
Teicoplanin	**TEI**	0.016 - 256 mcg/ml		EM055-10ST	10ST
A unique MIC determination paper strip which is coated with Teicoplanin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.				EM055-30ST	30ST
				EM055-60ST	60ST
				EM055-90ST	90ST
				EM055-120ST	120ST
				EM055-150ST	150ST
Tetracycline	**TET**	0.016-256 mcg/ml		EM056-10ST	10ST
A unique MIC determination paper strip which is coated with Tetracycline on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.				EM056-30ST	30ST
				EM056-60ST	60ST
				EM056-90ST	90ST
				EM056-120ST	120ST
				EM056-150ST	150ST
Tigecycline	**TGC**	0.016-256mcg/ml		EM089-10ST	10ST
A unique MIC determination paper strip which is coated with Tigecycline on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.				EM089-30ST	30ST
				EM089-60ST	60ST
				EM089-90ST	90ST
				EM089-120ST	120ST
				EM089-150ST	150ST
Vancomycin	**VAN**	0.016 - 256 mcg/ml		EM060-10ST	10ST
A unique MIC determination paper strip which is coated with Vancomycin on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.				EM060-30ST	30ST
				EM060-60ST	60ST
				EM060-90ST	90ST
				EM060-120ST	120ST
				EM060-150ST	150ST

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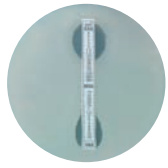
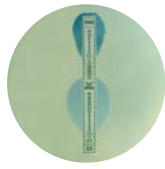
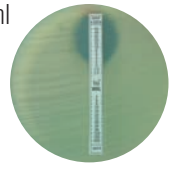
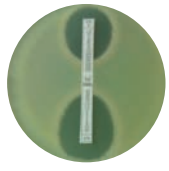
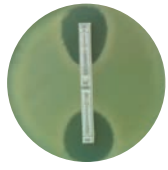
Ezy MIC™ STRIPS

Product	Symbol	Range in µg		Code	Pack
Dual Ezy™ MIC Strips					
Oxacilin - Vancomycin	**OXA / VAN***	Oxacillin : 0.064 - 8 mcg/ml Vancomycin : 0.19 -16 mcg/ml		EM063-10ST EM063-30ST EM063-60ST EM063-90ST EM063-120ST EM063-150ST	10ST 30ST 60ST 90ST 120ST 150ST
For MRSA detection : MIC strip which is coated with two different antibiotics on a single strip in a concentration gradient manner. The upper half has Oxacillin with a highest concentration tapering downwards , whereas lower half is similarly coated with Vancomycin concentration gradient in reverse direction					
Vancomycin - Cefoxitin	**VAN / CX***	Cefoxitin: 0.5 - 64 mcg/m Vancomycin : 0.19 -16 mcg/ml		EM077-10ST EM077-30ST EM077-60ST EM077-90ST EM077-120ST EM077-150ST	10ST 30ST 60ST 90ST 120ST 150ST
For MRSA detection : MIC strip which is coated with two different antibiotics on a single strip in a concentration gradient manner. The upper half has Vancomycin with a highest concentration tapering downwards, whereas lower half is similarly coated with Cefoxtin concentration gradient.					
Meropenem with & without EDTA	**MRP+EDTA / MRP***	Meropenem+EDTA : 1 - 64 mcg/ml Meropenem : 4 - 256 mcg/ml		EM092-10ST EM092-30ST EM092-60ST EM092-90ST EM092-120ST EM092-150ST	10ST 30ST 60ST 90ST 120ST 150ST
For MBL detection : MIC strip which is coated with Meropenem + EDTA and Meropenem on a single strip in a concentration gradient manner. The upper half has Meropenem + EDTA with a highest concentration tapering downwards, whereas lower half is similarly coated with Meropenem with a concentration gradient in reverse direction.					
Multi Ezy™ MIC Strips					
Cefotaxime / Cefotaxime + Clavulanic acid	**CTX+/ CTX ***	CTX+ : Cefotaxime with Clavulanic acid: 0.016 - 1 CTX : Cefotaxime : 0.25-16		EM099-10ST EM099-30ST EM099-60ST EM099-90ST EM099-120ST EM099-150ST	10ST 30ST 60ST 90ST 120ST 150ST
For ESBL detection : MIC strip which is coated with Cefotaxime with & without Clavulanic acid on a single strip in a concentration gradient manner. The upper half has Cefotaxime + Clavulanic acid with highest concentration tapering downwards, whereas lower half is similarly coated with Cefotaxime with a concentration gradient in reverse direction.					
Ceftazidime / Ceftazidime + Clavulanic acid	**CAZ + / CAZ ***	CAZ+ : Ceftazidime with Clavulanic acid: 0.064 - 4 CAZ : Ceftazidime : 0.5 - 32		EM098-10ST EM098-30ST EM098-60ST EM098-90ST EM098-120ST EM098-150ST	10ST 30ST 60ST 90ST 120ST 150ST
For ESBL detection : MIC strip which is coated with Ceftazidime with & without Clavulanic acid on a single strip in a concentration gradient manner. The upper half has Ceftazidime + Clavulanic acid with highest concentration tapering downwards, whereas lower half is similarly coated with Ceftazidime with a concentration gradient in reverse direction.					

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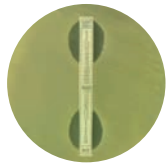
Ezy MIC™ STRIPS

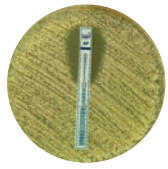
Product	Symbol	Range in µg		Code	Pack
Triple ESBL detection Strip	**MIX + / MIX ***	MIX+ : Ceftazidime, Cefotaxime, Cefepime mixture with Clavulanic acid & Tazobactam: 0.032- 4 MIX : Ceftazidime, Cefotaxime & Cefepime mixture : 0.125-16		EM079A-10ST EM079A-30ST EM079A-60ST EM079A-90ST EM079A-120ST EM079A-150ST	10ST 30ST 60ST 90ST 120ST 150ST

For ESBL detection : MIC strip which is coated with mixture of 3 different antibiotics with & without clavulanic acid & Tazobactamon a single strip in a concentration gradient manner. The upper half has Ceftazidime, Cefotaxime & Cefepime Mixture + Clavulanic acid & Tazobactam with highest concentration tapering downwards, whereas lower half is similarly coated with Ceftazidime, Cefotaxime & Cefepime Mixture with a concentration gradient in reverse direction.

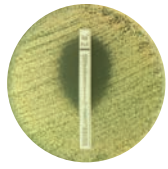
ESBL & AMPc Detection Strip	**MIX + / MIX***	MIX+ : Ceftazidime, Cefotaxime, Cefepime & Cloxacillin mixture with Clavulanic acid & Tazobactam: 0.032- 4 MIX : Ceftazidime, Cefotaxime, Cefepime & Cloxacillin mixture : 0.125-16		EM081A-10ST EM081A-30ST EM081A-60ST EM081A-90ST EM081A-120ST EM081A-150ST	10ST 30ST 60ST 90ST 120ST 150ST

For ESBL & AmpC detection : MIC strip which is coated with mixture of 4 different antibiotics with & without clavulanic acid & Tazobactam on a single strip in a concentration gradient manner. The upper half has Ceftazidime, Cefotaxime Cefepime & Cloxacillin Mixture + Clavulanic acid & Tazobactam with highest concentration tapering downwards, whereas lower half is similarly coated with Ceftazidime, Cefotaxime, Cefepime & Cloxacillin Mixture with a concentration gradient in reverse direction.

Antifungal Ezy™ MIC Strips

Amphotericin-B	**AP**	0.002 - 32 mcg/ml		EM071-10ST EM071-30ST EM071-60ST EM071-90ST EM071-120ST EM071-150ST	10ST 30ST 60ST 90ST 120ST 150ST

A unique MIC determination paper strip which is coated with Amphotericin-B on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.

Fluconazole	**FLC**	0.016 - 256 mcg/ml		EM072-10ST EM072-30ST EM072-60ST EM072-90ST EM072-120ST EM072-150ST	10ST 30ST 60ST 90ST 120ST 150ST

A unique MIC determination paper strip which is coated with Fluconazole on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.

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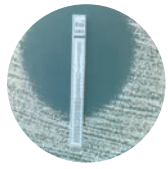
Ezy MIC™ STRIPS

Product	Symbol	Range in µg		Code	Pack
Itraconazole	**ITR**	0.002-32mcg/ml		EM073-10ST	10ST
				EM073-30ST	30ST
				EM073-60ST	60ST
				EM073-90ST	90ST
				EM073-120ST	120ST
				EM073-150ST	150ST
A unique MIC determination paper strip which is coated with Itraconazole on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Ketoconazole	**KET**	0.002-32mcg/ml		EM074-10ST	10ST
				EM074-30ST	30ST
				EM074-60ST	60ST
				EM074-90ST	90ST
				EM074-120ST	120ST
				EM074-150ST	150ST
A unique MIC determination paper strip which is coated with Ketoconazole on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					
Voriconazole	**VRC**	0.002-32mcg/ml		EM086-10ST	10ST
				EM086-30ST	30ST
				EM086-60ST	60ST
				EM086-90ST	90ST
				EM086-120ST	120ST
				EM086-150ST	150ST
A unique MIC determination paper strip which is coated with Voriconazole on a single strip in a concentration gradient manner, capable of showing MIC's in the range of predefined gradient.					

Packing

Each Pack contains following material packed in air-tight plastic container with a desiccator capsule.

1) Ezy MIC™ strips (10/30/60/90/120/150 Strips per pack)
2) Applicator sticks
3) Package insert

EM-10ST

10 strips per pack

EM-30ST

30 strips per pack

EM-60ST

2 x 30 strips per pack

EM-90ST

3 x 30 strips per pack

EM-120ST

4 x 30 strips per pack

EM-150ST

5 x 30 strips per pack

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Storage

All packages must be stored as specified on the product label, until the given expiry date. Products can always be stored lower than the maximum temperature specified.

Ezy MIC™ Strip left over from an opened package must be kept dry. Ideally, strips should be removed from the container in AC room where humidity is controlled and is at minimum level. Moisture should be prevented from penetrating into or forming within the package or storage container.

Handling

Before using the Ezy MIC™ Strip gradient strips from an unopened package, visually inspect to ensure the package is intact. Do not use the Ezy MIC™ Strips if the package has been damaged.

Allow the original package or storage container to reach room temperature before opening (+4˚C for approx. 30 minutes and -20˚C for approx. 60 minutes). Ensure that moisture condensing on the outer surface has evaporated completely before opening the package.

Precautions And Warnings

- Ezy MIC™ Strip is intended for *in vitro* diagnostic use only
- Although based on a simple procedure, Ezy MIC™ Strip should only be used by at least semi-trained personnel
- Ezy MIC™ Strip should be used strictly according to the procedures described herein
- Aseptic procedures and precautions against microbiological hazards should be used when handling bacterial specimens

Procedures

Materials provided

- 10/30/60/120/150 Ezy MIC™ Strip of one antibiotic
- 1 package insert
- Applicator Sticks

Materials required but not provided

- Agar plates (90/100 mm or 150 mm) with the appropriate susceptibility test media (Table 1)
- Inoculum suspension media (Table 1)
- Cotton Swabs (sterile, non-toxic and not too tightly spun), test tubes
- 0.5 and 1 McFarland turbidity standards
- Incubator (35 ± 2˚C), anaerobic jar or chamber or CO2 enriched chamber (Table 1)
- Quality control organisms

Guidelines for preparation medium for antibacterial agents

Prepare the medium of choice from dehydrated powder according to the directions specified on the label. Cool the sterilized molten medium to 45-50˚C and pour in sterile, dry Petri plates on a leveled surface, to a depth of 4 ± 0.2mm and allow to solidify. Few droplets appearing on the surface of the medium following cooling do not matter. Hence, once poured, Petri plates containing media should not be dried on laminar flow and can be used immediately for swabbing.

Preparation of Inoculum for bacterial strains

Use only pure cultures. Confirm by Gram-staining before starting susceptibility test. Transfer 4-5 similar colonies with a wire, needle or loop to 5 ml Tryptone Soya Broth (M011) and incubate at 35-37˚C for 2-8 hours until light to moderate turbidity develops. Compare the inoculum turbidity with that of standard 0.5 McFarland (prepared by mixing 0.5 ml of 1.175% barium chloride and 99.5 ml of 0.36N sulfuric acid). Dilute the inoculum or incubate further as necessary to attain comparative turbidity. Alternatively, the inoculum can be standardized by other appropriate optical method (0.08 - 0.13 OD turbid suspension at 625 nm).

Also direct colony suspension method can be used. Prepare a direct colony suspension, from 18-24 hour old non-selective media agar plate in broth or saline. Adjust the turbidity to that of standard 0.5 McFarland .This method is recommended for testing fastidious organisms like *Haemophilus spp., Neisseria spp*, Streptococci and for testing Staphylococci for potential Methicillin or Oxacillin resistance.

Guidelines for preparation of the medium for antifungal agents

Prepare Mueller Hinton Agar, Modified (as per CLSI for antifungal) (M1825) from dehydrated powder according to the directions specified on the label. Alternately, prepare Mueller Hinton Agar with added 2% Glucose + 0.5 mcg/ml Methylene Blue Dye (this could be added pre or post sterilization). Cool the sterilized molten medium to 45-50˚C and pour in sterile, dry petri plates on a leveled surface, to a depth of 4 ± 0.2mm and allow solidifying. Few droplets appearing on the surface of the medium following cooling do not matter. Hence, once poured, Petri plates containing media should not be dried on laminar flow and can be used immediately for swabbing.

Preparation of Inoculum for fungal strains

1. Inoculum is prepared by picking five distinct colonies of approximately 1mm from 24 hours old culture grown on Sabouraud Dextrose Agar (M063) and incubated at 35 ± 2˚C. Colonies are suspended in 5ml of sterile 0.85% Saline

2. Vortex the resulting suspension and adjust the turbidity to yield 1 x 10^6 - 5 x 10^6 cells /ml (i.e. 0.5 McFarland standard)

Test procedure

1. Dip a sterile non-toxic cotton swab on a wooden applicator into the standardized inoculum and rotate the soaked swab firmly against the upper inside wall of the tube to express excess fluid. Remove more fluid when streaking a 90 mm plate and less for a 150 mm plate. Streak the entire agar surface of the plate with the swab three times, turning the plate at 60˚ angle between each streaking. Do not allow excess moisture to be absorbed in the medium as adequate moisture on the agar surface is very much desirable.
2. Open the package and handle the Ezy MIC™ Strip as described under HANDLING.
3. Place the strips using the applicator as shown in Figures 2a to 2g.
4. A template can be used to optimally position Ezy MIC™ Strip in an equidistant pattern on an agar plate. Five Ezy MIC™ Strip can be placed on a 150 mm agar plate (Figure 1a). For single MICs, one or two strips can be used on a 90 mm agar plate (Figure 1b). For organisms expected to be highly susceptible, use fewer strips per 150 mm plate and only one on a 90 mm plate.
5. One placed Ezy MIC™ strip should not be repositioned or adjusted. Within 60 seconds, Ezy MIC™ strip will be adsorbed and will firmly adhere to the agar surface.
6. Ensure that the whole strip is in complete contact with the agar surface. Incubate the agar plates in an inverted position after drying for approximately 10 to 15 minutes under appropriate conditions.

For more details on medium to be used, inoculum preparation and incubation for various organisms refer to Table 1

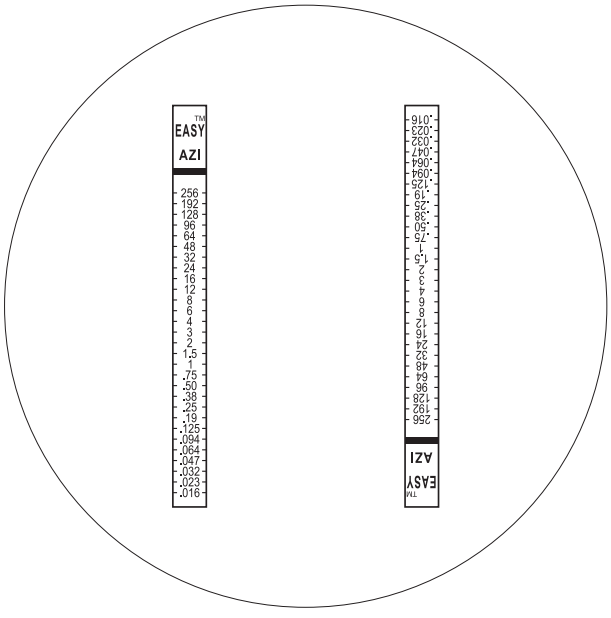


Figure 1b. Template for 2 strips per 90 mm plate

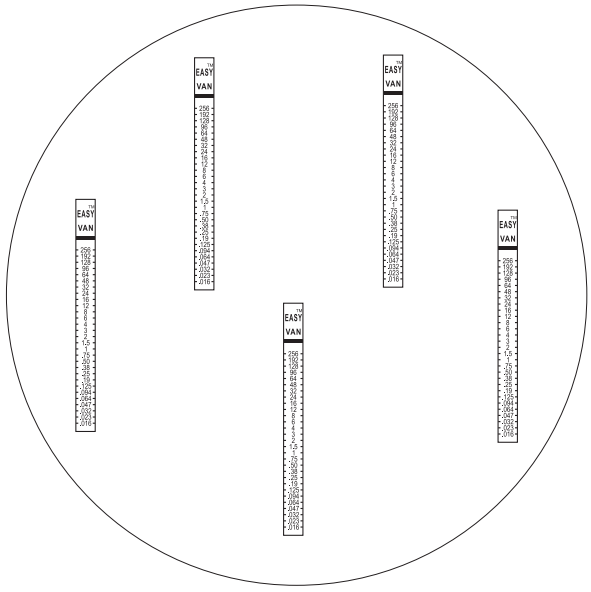


Figure 1a. Template for 5 strips per 150 mm plate

Notes:

1. When the inoculum and inoculation are optimal, an even confluent growth will be obtained.
2. McFarland turbidity standards do not guarantee correct number of viable cells in the suspension. Perform colony counts regularly to verify that the inoculum procedure gives the correct number of viable cells in cfu/ml. Please refer to the QUALITY CONTROL section.
3. While testing Oxacillin Ezy MIC™ Strip Mueller Hinton Agar + 2% NaCl is to be used
4. Use the direct colony suspension method using overnight growth when testing *Staphylococcus spp.* with Oxacillin.
5. When testing Azithromycin with *S. pneumoniae* incubate the plate under ambient conditions. Incubation in CO_2 will affect the activity of Azithromycin and MIC values, making interpretive and quality control criteria for ambient incubation non-valid.
6. Use well defined and high quality medium that supports good growth. The brand chosen should have good batch-to-batch reproducibility to ensure that accurate and reliable MIC values are obtained.
7. For Trimethoprim and Trimethoprim/Sulfamethoxazole, ensure that the brand and batch of agar has a low thymine/thymidine content to minimize antagonism of the activity of Trimethoprim and sulphonamides.
8. The inherent calcium content in Mueller Hinton agar may vary between brands and batch to batch. Perform quality control of agar plates on a batch to batch basis to qualify it for use.
9. The inherent manganese content in Mueller Hinton agar may vary between brands and batch to batch. Perform quality control of agar plates on a batch to batch basis to qualify it for use, particularly for testing of Tigecycline.

Figure 2 : Procedure for application of Ezy MIC™ Strips using the applicator sticks

Figure 2a : Remove the Ezy MIC™ strips from its container after reaching room temperature.

Figure 2b : Remove the outer foil & open the lid

Figure 2c : Hold the applicator stick with its narrow tip.

Figure 2f : Place the strip at the desired position on an adequately moist, pre swabbed plate.

Figure 2e : Lift the applicator stick. The strip will adhere to the base of the stick.

Figure 2d : Hold the applicator stick at it's center & place the broad sticky end gently at the center of the Ezy MIC™ Strip.

Figure 2g : Gently rotate the applicator stick clockwise, with this action the applicator will detach from the strip.

Figure 2h : Do not press the Ezy MIC™ Strip. It will be adsorbed within 60 seconds.

Figure 2i : Replace the pack back into the container & store as recommended.

10. Ensure the agar plate is incubated for the recommended period before reading, especially for delayed expression of resistance and slow growing and fastidious organisms.

Interpretation Of Results

Reading the MIC

- After the required incubation period (Table 1), and only when an even lawn of growth is distinctly visible, read the MIC value where the edge of the inhibition ellipse intersects the side of the strip
- If the ellipse intersects the strip in between 2 dilutions, read the MIC as the value which is nearest to the zone
- Do not read the plate if the culture appears mixed or if the lawn of growth is too light or too heavy; repeat the test
- With Ezy MIC™ Strips the MIC endpoints are usually clear-cut although different growth/inhibition patterns may be seen. Refer the result reading guide for few such illustrations.

Important Reading Observations

- For bactericidal drugs e.g. ß-lactams, always read the MIC at the point of complete inhibition of all growth, including hazes, microcolonies and isolated colonies. Tilt the plate and/ or use a magnifying glass to carefully examine endpoints, especially for Pneumococci, Streptococci, Enterococci, *Fusobacteria, Acinetobacter* and *Stenotrophomonas* species.(fig. 3.1)
- For bacteriostatic drugs e.g. Trimethoprim / Sulfamethoxazole and Linezolid read trailing endpoints at 80% inhibition, i.e. the first point of significant inhibition as judged by the naked eye. (fig. 3.2)
- Excessively wet plates prior to inoculation or unevenly streaked surfaces may give non-confluent intersections. Repeat the test if MIC endpoints are difficult to read.(fig. 3.3 & fig. 3.4)
- When macrocolonies are present within the ellipse for bactericidal agents, read all macrocolonies within 1-3 mm from the strip (fig. 3.11).
- When growth occurs along the entire strip i.e. no inhibition ellipse is seen, report the MIC as ≥ the highest value on the MIC scale (fig. 3.5).
- When the inhibition ellipse is below the strip (does not intersect the strip), report the MIC < the lowest value on the MIC scale. (fig. 3.6)
- If inhibition ellipses for Clindamycin or Chloramphenicol "dip" at the endpoint, extrapolate the MIC at the initial indentation, i.e. 0.5-1 dilution above the intersection.
- For Quinupristin / Dalfopristin hazy and trailing growth for Staphylococci and Enterococci should be read 90% inhibition as judged by the naked eye. Read isolated macrocolonies in the inhibition ellipse at complete inhibition.
- Sometimes inhibition ellipses can be slim. Read the actual intersection at the strip and not growth "hugging" the side of the strip. (fig. 3.7)

Interpretation

- Interpret the MIC breakpoints as per the interpretative criteria provided by CLSI guidelines and/or FDA guidelines
- Being a fully quantitative MIC method, Ezy MIC™ Strip enables the laboratory to report the exact MIC value together with the interpretive category. Ezy MIC™ Strip generates MIC values from a continuous scale and can give results in-between conventional two-fold dilutions i.e. half dilutions. For a MIC value which falls between standard two-fold dilutions, the value must be rounded up to the next upper two-fold value before categorization. (fig. 3.8)

For Example: Benzylpenicillin MIC (µg/mL) breakpoints for *Streptococcus pneumoniae* are:

S	I	R
≤0.06	0.12-1	≥ 2

If the MIC reading is 1 µg/ml, it is reported as Intermediate (I) while a MIC of 1.5 is rounded up to 2 µg/ml and the category reported is resistant (R). However, MIC value between 1.0 and 1.5 should be reported as 1.0 and hence is to be categorized as Intermediate (I)

- MIC results for a quality control (QC) strain that fall a half dilution below the lower QC limit should be rounded up to the next upper two-fold value before establishing QC compliance. However, MIC results that are a half dilution above the upper limit show non-QC compliance

Quality Control

- In antimicrobial susceptibility testing, QC includes the procedures to monitor the performance of the strips to ensure reliable results. This is achieved by the testing of standard QC strains against the antibiotics using the above mentioned procedures

The major goals of the QC procedures are to monitor the following:

1) The precision and accuracy of the strips.
2) The performance of the reagents used in the tests.
3) The performance of the persons carrying out the procedures.

- The reagents and test procedure are considered satisfactory if MIC values obtained fall within the quality control specifications provided on each Ezy MIC™ Strip product supplement and as summarized in Table 2
- Do not report patient results when quality control results are outside the stated QC ranges. Frequency of quality control testing should be established by the individual laboratory. Guidelines are provided in CLSI Antimicrobial Susceptibility Testing documents
- Perform regular colony counts to verify the density of the inoculum suspension in terms of cfu/ml of viable cells as McFarland turbidity standards do not guarantee the correct number of viable cells in cfu/ml. For example, dilute the inoculum suspension 1:1000 and subculture 10µl onto the recommended agar (Table 1). An acceptable inoculum should give approximately 100 to 500 colonies, i.e. 1to5 x 10^8 cfu/ml.

Performance Characteristics

Ezy MIC™ Strip is considered to be in essential agreement (EA) with the CLSI method when MIC values from both procedures show an EA of ≥ 90% within ±1 dilution.

Important Observations

1. Indications for use (performance data) for various organism groups according to the specified recommendations are shown on each Ezy MIC™ Strip product supplement.

2. Occasionally, certain antibiotic/bacterium combinations may give unusual results. In these cases, judgment of the MIC endpoint may be difficult for inexperienced personnel. However, individuals can be trained through regular use of quality control strains, Ezy MIC™ Strip reading guides and comparisons with experienced personnel to correctly assess MIC endpoints.

3. Being agar based, Ezy MIC™ Strip has been shown to correlate best with the reference agar dilution. Correlations have been shown with the reference broth microdilution whenever an agar dilution reference is absent.

4. As with all AST data, Ezy MIC™ Strip results are *in vitro* values only and may provide an indication of the organism's potential *in vivo* susceptibility. The use of results to guide therapy selection must be the sole decision and responsibility of the attending physician who should base judgment on the particular medical history and knowledge of the patient, pharmacokinetics/ pharmacodynamics of the antibiotic and clinical experience in treating infections caused by the particular bacterial pathogen with the antibiotic, dose and dosing regimen being considered.

5. For details of specific interpretive limitations and/or limitations on the clinical use of an antibiotic in various therapeutic situations, please refer to the tables and footnotes of MIC interpretive standards in the latest CLSI AST documents for dilution procedures (M7-A, M11-A and M100-S series)

Warranty And Disclaimer

Express Limited Warranty And Disclaimer

HiMedia expressly warrants that Ezy MIC™ Strip will determine the MIC of the antimicrobial agent on each test strip, if the procedures, precautions and limitations indicated in this package insert are strictly complied with. If the test strip does not do so, HiMedia shall refund the cost of the product or replace the defective test strips.

HiMedia makes no other warranties, expressed or implied, including the implied warranty of merchantability or fitness for particular purpose.

Any change or modification of the product instructions may affect results. HiMedia shall not be liable for any damages resulting from product tampering, variance in transportation, stated storage, handling, testing procedures, precautions and other instructions of the most recently revised version of the package insert.

HiMedia and Ezy MIC™ Strip are used pending and/or registered trademarks belonging to HiMedia.

References

1. Clinical and Laboratory Standards Institute (formerly NCCLS), 2012, Performance Standards for Antimicrobial Susceptibility Testing; Twentieth Informational Supplement (M100 - S22), Villanova, PA.

2. Class II Special Controls Guidance Document: Antimicrobial Susceptibility Test (AST) Systems; Guidance for Industry and FDA. Food and Drug Administration, Division of Microbiology Devices, March 2007.

3. Clinical and Laboratory Standards Institute (formerly NCCLS), 2010, Methods for Dilution Antimicrobial Susceptibility Tests for Bacteria That Grow Aerobically; Approved Standard-Eighth Edition (M07-A8), Villanova, PA.

4. Clinical and Laboratory Standards Institute (formerly NCCLS), 2010, Methods for Antimicrobial Susceptibility Testing of Anaerobic Bacteria; Approved Standard-Seventh Edition (M11-A7), Villanova, PA.

Determination of MIC using Ezy MIC™ strips depends on various factors

Medium used

Mueller Hinton Agar is recommended for determination of MIC of various antibacterials in case of aerobes. The quality of the medium plays a major role in determining the exact MIC, for example, in case of aminoglycosides and quinolones, MIC's increase above the acceptable range with higher concentration of Ca^{++} and Mg^{++} content and vice-versa. MIC of macrolides, penicillin's and quinoles are obtained on higher side if the pH of the medium is more towards acidic side, whereas Tetracycline's show lower MICs with acidic pH. MIC of Carbapenem's goes higher if concentration of Zn^{++} is on higher side.

It is therefore necessary that MHA medium used for susceptibility testing has acceptable range of Ca^{++} i.e. 20-25 mg/L and Mg^{++} i.e. 10-12.5 mg/L. The acceptable range for pH is 7.2-7.4.

MHA Plates

As Ezy MIC™ strips are made of high quality absorbent paper, proper water content in MHA plate is essential for adherence of strips to the medium surface.We therefore recommend freshly in-house prepared MHA plates or properly stored ready prepared plates wherein moisture content is retained for optimum performance.

Reference strains

CLSI (Clinical and Laboratory Standards Institute) recommends use of ATCC strains for validation of MIC determination system such as Ezy MIC™ strips. The values are expected to fall within the acceptable range.

However, if ATCC reference strains are not maintained and subcultured as per the recommended method, it can adversely affect the performance of Ezy MIC™ strips. It is therefore necessary to ensure that these strains are homogenous and does not have resistant or sensitive subpopulation within, which often arises on repeated subculturing. A culture which is pure may also harbour heterogeneous subpopulation. It is interesting to note that such subpopulation may not show morphological variation and also may alter response to a particular or a group of antibiotics as mode of action are different for different classes of antibiotics. For example *K.pneumoniae* ATCC 700603 shows resistance to beta-lactam class of antibiotics due to presence of plasmid. However, spontaneous loss of this plasmid renders strain sensitive.

Ezy MIC™ strips storage

The basic property of paper is to absorb moisture from surrounding atmosphere which adversely affects performance of antibiotics particularly beta-lactams. Therefore, it should be ensured that these beta-lactam antibiotic strips are received in cold chain and container is immediately transferred to recommended temperature (-20˚C) or below. Before using, the container must be brought to room temperature having maximum dry condition which is created if air condition system is on for long time. After use, the lid should be tightly closed and Ezy MIC™ plastic box is put in outer screw cap box before keeping back in to the cold condition.

Interpretation of results

Ezy MIC™ strips are easy to read by any technician. However, basic knowledge has to be imparted. Reading instruction chart with photographic illustration is provided. One is advised to get familiar with various situations that may arise. For example, if resistant colonies appear within the zone of inhibition then observe position of such colonies. The highest value where the colony is closer towards the strip is the correct MIC value to be interpreted. Similarly for bacteriostatic antibiotics, MIC is to be read at 80 % inhibition (ie. ½ to 1 fold lower MIC' s than that observed at 100% inhibition) and for bactericidal antibiotics at 100 % inhibition point.

Antifungal testing

Though CLSI recommends microbroth and macro broth MIC determination method for testing antifungal agents, Ezy MIC™ strips for antifungal are designed and standardised to give same reference strain values as per the ATCC criteria while using solid " methylene blue glucose agar" which is CLSI recommended for antifungal disc diffusion testing on solid media. This does away the need to use cumbersome and expensive RPMI medium.

At HiMedia Quality Control Labs, quality of Ezy MIC™ strip is ensured by rigid testing and ensuring equal performance in terms of comparable MIC values.

Table 1. Recommended media, inoculum and incubation for various organisms[3],[4]

Organism group	Medium	Inoculum			Incubation	
		Suspension	Turbidity eqvivalent to	Temperature	Atmosphere	Period
Aerobes (Bacteria)	Mueller Hinton Agar	0.85 % NaCl	0.5 or 1.0 (if mucoid) McFarland standard	35˚C ± 2˚C	Ambient	16-20 hours
MRSA/MRSE	Mueller Hinton Agar + 2% NaCl	0.85 % NaCl	0.5 McFarland standard	35˚C ± 2˚C	Ambient	24 hours MRSA 48 hours MRSE
Anaerobes *Brucella* spp	Blood Brucella Agar	Brucella broth or Mueller Hinton broth	1.0 McFarland standard	35˚C ± 2˚C	85% N_2/ 5-10%CO_2/ 10% H_2	24 to72 hours depending on the species
Haemophilus species	Haemophilus Test Agar (HTM)	Mueller Hinton or HTM broth	0.5 or 1.0 (if mucoid) McFarland standard	35˚C ± 2˚C	5% CO_2	20-24 hours
S.pneumoniae, Streptococcus species. Beta haemolytic group, *Streptococcus* speices Viridans group	Mueller Hinton Agar + 5% sheep blood	Mueller Hinton broth	0.5 or 1.0 (if mucoid) McFarland standard	35˚C ± 2˚C	5% CO_2	20-24 hours
Neisseria gonorrhoeae	GC-agar base + defined supplement	Mueller Hinton broth	0.5 McFarland standard	35˚C ± 2˚C	5% CO_2	20-24 hours
Fungal cultures	Mueller Hinton Agar with added 2% Glucose + 0.5 mcg/ml Methylene Blue Dye or Mueller Hinton Agar, Modified, (as per CLSI for Antifungal) (M1825)	0.85 % NaCl	0.5 McFarland standard	35˚C ± 2˚C	Ambient	24-48 hours

Table 2: Summary of Ezy MIC™ Strip interpretative Criteria & Quality Control Ranges

Code	Name	Symbol	Range (mcg/ml)	Interpretative criteria for	Interpretative criteria			Quality Control limits(mcg/ml)	
					≤ S	I	≥R	Organism (ATCC)	Standard Range
EM001	Amikacin	AMK	0.016 - 256	*Enterobacteriaceae*, *Acinetobacter*, spp, *P.aeruginosa*, other non-*Enterobacteriaceae*, *Staphylococcus* spp	16	32	64	*S.aureus* ATCC 29213 *E.coli* ATCC 25922 *P.aeruginosa* ATCC 27853	1 - 4 0.5 - 4 1 - 4
EM003	Amoxyclav (2 : 1)	AMC	0.016 - 256	*Enterobacteriaceae**	8	16	32	*E.coli* ATCC 25922 *E.coli* ATCC 35218	2 - 8 4 - 16
				Haemophilus spp, *Staphylococcus** spp	4	-	8	*S.aureus* ATCC 29213 *E.faecalis* ATCC 29212 *H.influeanzae* ATCC 49247	0.12 - 0.5 0.25 - 1 2 - 16
				S.pneumoniae (non-meningitis)*	2	4	8	*S.pneumoniae* ATCC 49619	0.032 - 0.12
				Anaerobes*	4	8	16	*B.fragilis* ATCC 25285	0.25 - 1
EM068	Ampicillin	AMP	0.016-256	*Enterobacteriaceae*	8	16	32	*E.coli* ATCC 25922 *E.coli* ATCC 35218	2 - 8 >32.0
				Staphylococcus spp	0.25	-	0.5	*S.aureus* ATCC 29213	0.5 - 2
				Enterococcus spp	8	-	16	*E.faecalis* ATCC 29212	0.5 - 2
				Haemophilus spp	1	2	4	*H.influeanzae* ATCC 49247	2 - 8
				Streptococcus spps. Beta haemolytic group	0.25	-	-	*S.pneumoniae* ATCC 49619	0.06 - 0.25
				Anaerobes	0.5	1	2	*B.fragilis* ATCC 25285	16 - 64
				Streptococcus spps. Viridians group	0.25	0.5-4	8		
				N.meningitidis	0.12	0.25-1	2	-	-
EM004	Azithromycin	AZI	0.016-256	*Staphylococcus* spp	2	4	8	*S.aureus* ATCC 29213	0.5 - 2
				Haemophilus spp.(+ CO_2)	4	-	-	*H.influeanzae* ATCC 49247 (+ CO_2)	1 - 4
				Haemophilus spp.(- CO_2)	8	-	-	*H.influeanzae* ATCC 49247 (-CO_2)	4 - 16
				S.pneumoniae, Streptococcus spp. Beta haemolytic group, *Streptococcus* spp. Viridans group (+ CO_2)	0.5	1	2	*S.pneumoniae* ATCC 49619 (+CO_2)	0.5 - 2
				S.pneumoniae (- CO_2)	4	8	16	*S.pneumoniae* ATCC 49619 (-CO_2)	0.064 - 0.25
				N.meningitidis	2	-	-	-	-

* = Not as per CLSI guidelines

Code	Name	Symbol	Range (mcg/ml)	Interpretative criteria for	Interpretative criteria			Quality Control limits(mcg/ml)	
					≤ S	I	≥R	Organism (ATCC)	Standard Range
EM070	Cefepime	CPM	0.016-256	*Enterobacteriaceae*, other non- *Enterobacteriaceae*, *Acinetobacter* spp, *P.aeruginosa*, *Staphylococcus* spp	8	16	32	*S.aureus* ATCC 29213 *E.coli* ATCC 25922 *P.aeruginosa* ATCC 27853	1 - 4 0.015 - 0.12 0.5 - 4
EM093	Cefepime/Tazobactam [a]	CPT	0.016-256						
				N.gonorhoeae	0.5	-	-	-	-
				Haemophilus spp	2	-	-	*H.influeanzae* ATCC 49247	0.5 - 2
				Streptococcus spps. Beta haemolytic group	0.5	-	-	*S.pneumoniae* ATCC 49619	0.03 - 0.25
				S.pneumoniae (meningitis)	0.5	1	2	-	-
				S.pneumoniae (non meningitis), *Streptococcus* spps. Viridans group	1	2	4	-	-
EM094	Cefoperazone/ Sulbactam [b]	CPS	0.016-256	*Enterobacteriaceae*, other non-*Enterobacteriaceae*, *Staphylococcus* spp, Anaerobes	16	32	64	*S.aureus* ATCC 29213 *E.coli* ATCC 25922 *P.aeruginosa* ATCC 27853 *E.coli* ATCC 35218	1 - 4 0.12 - 0.5 2 - 8 0.25 - 1
EM100	Cefotaxime	CTX	0.002-32	*Enterobacteriaceae*	1	2	4	*E.coli* ATCC 25922 *P.aeruginosa* ATCC 27853	0.03 - 012 8 - 32
EM064	Cefotaxime	CTX	0.016-256						
				Other non-*Enterobacteriaceae*, *Acinetobacter* spp, *Staphylococcus* spp	8	16-32	64	*S.aureus* ATCC 29213	1 - 4
				Haemophilus spp	2	-	-	*H.influeanzae* ATCC 49247	0.12 - 0.5
				Streptococcus spp. Beta haemolytic group, *N.gonorhoeae*	0.5	-	-	*S.pneumoniae* ATCC 49619 *N.gonorhoeae* ATCC 49226	0.03 - 0.12 0.015 - 0.06
				S.pneumoniae (meningitis)	0.5	1	2		
				Streptococcus spp. *Viridans group*, *S.pneumoniae* (Nonmeningitis)	1	2	4		
				N.meningitidis	0.12	-	-		
				Anaerobes	16	32	64	*B.fragilis* ATCC 25285	8 - 32

Code	Name	Symbol	Range (mcg/ml)	Interpretative criteria for	Interpretative criteria			Quality Control limits(mcg/ml)	
					≤ S	I	≥R	Organism (ATCC)	Standard Range
EM101	Cefoxitin	FOX	0.016-256	*Enterobacteriaceae*	8	16	32	*E.coli* ATCC 25922	2 - 8
				S.aureus and *S.lugdunensis*	4		8	*S.aureus* ATCC 29213	1 - 4
				N.gonorhoeae	2	4	8	*N.gonorhoeae* ATCC 49226	0.5 - 2
				Anaerobes	16	32	64	*B.fragilis* ATCC 25285	4 - 16
EM012	Ceftazidime	CAZ	0.016-256	*Enterobacteriaceae*,	4	8	16	*E.coli* ATCC 25922	0.064 - 0.5
				Staphylococcus, other non-*Enterobacteriaceae*, *Acinetobacter, P.aeruginosa, S.maltophila, B.cepacia*	8	16	32	*S.aureus* ATCC 29213 *P.aeruginosa* ATCC 27853	4 - 16 1 - 4
				Haemophilus spp	2	-	-	*H.influeanzae* ATCC 49247	0.125 - 1
				N.gonorhoeae	0.5	-	-	-	-
EM013	Ceftriaxone	CTR	0.002-32	*Enterobacteriaceae*	1	2	4	*E.coli* ATCC 25922 *E.coli* ATCC 35218 [d]	0.03 - 0.12 0.06 - 0.25
EM066	Ceftriaxone	CTR	0.016-256	*Staphylococcus* spp, other non-Enterobacteriaceae, *Acinetobacter* spp	8	16-32	64	*S.aureus* ATCC 29213 *P.aeruginosa* ATCC 27853	1 - 8 8 - 64
EM097	Ceftriaxone/Sulbactam [c]	CTS	0.016-256	*Haemophilus* spp	2	-	-	*H.influeanzae* ATCC 49247	0.06 - 0.25
				N.gonorhoeae	0.25	-	-	-	-
				N.meningitidis	0.12	-	-	-	-
				Anaerobes	16	32	64	-	-
				Streptococcus spp. Beta haemolytic group	0.5	-	-	*S.pneumoniae* ATCC 49619	0.03 - 0.12
				S.pneumoniae (meningitis)	0.5	1	2	-	-
				S.pneumoniae (non meningitis), *Streptococcus* spp. Viridans group	1	2	4	-	-
EM102	Cefuroxime	CXM	0.016-256	*Enterobacteriaceae*, *Staphylococcus* (Parenteral)	8	16	32	*E.coli* ATCC 25922	2 - 8
				Enterobacteriaceae, *Staphylococcus* spp (Oral)	4	8-16	32	*S.aureus* ATCC 29213	0.5 - 2
				Haemophilus spp (Parenteral & Oral)	4	8	16	*H.influeanzae* ATCC 49247	0.25 - 1
				N.gonorhoeae	1	2	4	*N.gonorhoeae* ATCC 49226	0.25 - 1
				S.pneumoniae (Parenteral)	0.5	1	2	*S.pneumoniae* ATCC 49619	0.25 - 1
				S.pneumoniae (Oral)	1	2	4	-	-

Code	Name	Symbol	Range (mcg/ml)	Interpretative criteria for	Interpretative criteria			Quality Control limits(mcg/ml)	
					≤ S	I	≥R	Organism (ATCC)	Standard Range
EM016	Chloramphenicol	CHL	0.016-256	*Enterobacteriaceae, Enterococcus,Staphylococcus, S.maltophila, B.cepacia, V.cholerae*, other non-*Enterobacteriaceae*, Anaerobes	8	16	32	*S.aureus* ATCC 29213 *E.coli* ATCC 25922 *E.faecalis* ATCC 29212	2 - 16 2 - 8 4 - 16
				Haemophilus spp, *N.meningitidis*	2	4	8	*H.influeanzae* ATCC 49247	0.25 - 1
				Streptococcus spp. Beta haemolytic group, *Streptococcus* spp. Viridans group	4	8	16	*S.pneumoniae* ATCC 49619	2 - 8
				S.pneumoniae	4	-	8		
EM017 EM082	Ciprofloxacin Ciprofloxacin[e]	CIP CPH	0.002-32 0.016-256	*Enterobacteriaceae*, other than S.Typhi and extraintestinal *Salmonella* spp, *Enterococcus*, *Staphylococcus*, other non-*Enterobacteriaceae*, *Acinetobacter, P.aeruginosa*	1	2	4	*S.aureus* ATCC 29213 *E.faecalis* ATCC 29212 *E.coli* ATCC 25922 *P.aeruginosa* ATCC 27853	0.125 - 0.5 0.25 - 2 0.004 - 0.015 0.25 - 1
				For S.Typhi and extraintestinal *Salmonella* spp.	0.06	0.12-0.5	1		
				Haemophilus spp	1	-	-	*H.influeanzae* ATCC 49247	0.004 - 0.03
				N.gonorhoeae	0.06	0.12-0.5	1	*N.gonorhoeae* ATCC 49226	0.001 - 0.008
				N.meningitdis	0.03	0.06	0.12		
EM019	Clindamycin	CLI	0.016-256	*Staphylococcus* spp	0.5	1-2	4	*S.aureus* ATCC 29213 *E.faecalis* ATCC 29212	0.06 - 0.25 4 - 16
				Streptococcus spps. Beta haemolytic group, *Streptococcus* spps. Viridans group	0.25	0.5	1	*S.pneumoniae* ATCC 49619	0.03 - 0.12
				Anaerobes	2	4	8	*B.fragilis* ATCC 25285	0.5 - 2
EM020	Colistin	CL	0.016-256	*Escherichia*	-	-	-	*E.coli* ATCC 25922	0.25 - 2
				Acientobacter	2	-	4		
				P.aeruginosa, other non-*Enterobacteriaceae*	2	4	8	*P.aeruginosa* ATCC 27853	0.5 - 4
EM021	Co-Trimoxazole (1: 19)	COT	0.002-32	*Enterobacteriaceae**	2	-	4	*E.coli* ATCC 25922	0.064 - 0.25
EM083	Co-Trimoxazole (1: 19)	TSH	0.016-256	*Haemophilus* spp *, *S.pneumoniae**	0.5	1-2	4	*H.influeanzae* ATCC 49247 *S.pneumoniae* ATCC 49619	0.032 - 0.25 0.125 - 1.0

* = Not as per CLSI guidelines

Code	Name	Symbol	Range (mcg/ml)	Interpretative criteria for	Interpretative criteria			Quality Control limits(mcg/ml)	
					≤ S	I	≥R	Organism (ATCC)	Standard Range
EM088	Daptomycin	DAP	0.016-256	*Staphylococcus* spp	1	-	-	*S.aureus* ATCC 29213	0.12 - 1
				Enterococcus spp	4	-	-	*E.faecalis* ATCC 29212	1 - 4
				Streptococcus spp. Beta haemolytic group, *Streptococcus* spp. Viridans group	1	-	-	*S.pneumoniae* ATCC 49619	0.06 - 0.5
EM090	Doripenem	DOR	0.002-32	*Enterobacteriaceae*	1	2	4	*E.coli* ATCC 25922	0.015 - 0.06
				P.aeruginosa	2	4	8	*P.aeruginosa* ATCC 27853	0.12 - 0.5
				Staphylococcus	0.5	-	-	*S.aureus* ATCC 29213 *E.faecalis* ATCC 29212	0.015 - 0.6 1 - 4
				Haemophilus spp, *S.pneumoniae, Streptococcus* spp. Viridans group	1	-	-	*H.influeanzae* ATCC 49766	0.06 - 0.25
				Streptococcus spp. Beta haemolytic group	0.12	-	-	*S.pneumoniae* ATCC 49619	0.03 - 0.12
				Anaerobes	2	4	8	*B.fragilis* ATCC 25285	0.12 - 0.5
EM103	Doxycycline	DOX	0.016-256	*Enterobacteriaceae*, Other non-*Enterobacteriaceae*, *Acientobacter* spp, *Staphylococcus* spp, *Enterococcus* spp	4	8	16	*S.aureus* ATCC 29213 *E.faecalis* ATCC 29212 *E.coli* ATCC 25922	0.12 - 0.5 2 - 8 0.5 - 2
				S.pneumoniae[f], *Streptococcus* spps. Beta haemolytic group[f], *Streptococcus* spp. Viridans group[f], *Haemophilus* spp[f]	2	4	8	*S.pneumoniae* ATCC 49619	0.015 - 0.12
EM085	Ertapenem	ETP	0.002-32	*Enterobacteriaceae*	0.5	1	2	*E.coli* ATCC 25922 *P.aeruginosa* ATCC 27853	0.004 - 0.015 2 - 8
				Staphylococcus spp	2	4	8	*S.aureus* ATCC 29213 *E.faecalis* ATCC 29212	0.06 - 0.25 4 - 16
				Haemophilus spp	0.5	-	-	*H.influeanzae* ATCC 49766	0.015 - 0.06
				S.pneumoniae	1	2	4	*S.pneumoniae* ATCC 49619	0.03 - 0.25
				Streptococcus spp. Beta haemolytic group, *Streptococcus* spp. Viridans group	1	-	-		
				Anaerobes	4	8	16		

Code	Name	Symbol	Range (mcg/ml)	Interpretative criteria for	Interpretative criteria			Quality Control limits(mcg/ml)	
					≤ S	I	≥R	Organism (ATCC)	Standard Range
EM022	Erythromycin	ERY	0.016-256	*Staphylococcus* spp, *Enterococcus* spp	0.5	1-4	8	*S.aureus* ATCC 29213	0.25 - 1
				S.pneumoniae, *Streptococcus* spps. Beta haemolytic group, *Streptococcus* spps. Viridans group	0.25	0.5	1	*S.pneumoniae* ATCC 49619	0.03 - 0.12
EM091	Faropenem	FAR	0.002-32	not avialable	-	-	-	*S.aureus* ATCC 29213 *E.coli* ATCC 25922 *S.pneumoniae* ATCC 49619 *H.influenzae* ATCC 49766	0.03 - 0.12 0.25 - 1 0.03 - 0.25 0.12 - 0.5
EM025	Gentamicin	GEN	0.016-256	*Enterobacteriaceae*,other non-*Enterobacteriaceae*, *Acinetobacter, P.aeruginosa, Staphylococcus* spp	4	8	16	*S.aureus* ATCC 29213 *E.faecalis* ATCC 29212 *E.coli* ATCC 25922 *P.aeruginosa* ATCC 27853	0.12 - 1 4 - 16 0.25 - 1 0.5 - 2
EM061	Gentamicin	HLG	0.064-1024	*Enterococcus* spp	≤500#	-	>500 #	*E.faecalis* ATCC 51299	> 500
EM029	Linezolid	LNZ	0.016-256	*Staphylococcus* spp	4	-	8	*S.aureus* ATCC 29213	1 - 4
				Enterococcus spp	2	4	8	*E.faecalis* ATCC 29212	1 - 4
				S.pneumoniae, Streptococcus spp. Beta haemolytic group, *Streptococcus* spp. Viridans group	2	-	-	*S.pneumoniae* ATCC 49619	0.25 - 2
EM080	Meropenem	MRP	0.002-32	*Enterobacteriaceae*	1	2	4	*E.coli* ATCC 25922	0.008 - 0.06
				P.aeruginosa	2	4	8	*P.aeruginosa* ATCC 27853	0.25 - 1
				Acinetobacter, B.cepecia, other non-*Enterobacteriaceae*, Anaerobes, *Staphylococcus* spp	4	8	16	*S.aureus* ATCC 29213 *E.faecalis* ATCC 29212	0.03 - 0.12 2 - 8
				Haemophilus, Streptococcus spp. Beta haemolytic group, *Streptococcus* spp. Viridans group	0.5	-	-	*H.influeanzae* ATCC 49766	0.03 - 0.12
				S.pneumoniae	0.25	0.5	1	*S.pneumoniae* ATCC 49619	0.06 - 0.25
				N.meningitidis	0.25	-	-		
EM035	Nalidixic Acid	NAL	0.016-256	*Enterobacteriaceae*	16	-	32	*E.coli* ATCC 25922	1 - 4
EM095	Netilmicin	NET	0.016-256	*Enterobacteriaceae*, *P.aeruginosa, Acientobacter,* other *non-Enterobacteriaceae, Staphylococcus* spp	8	16	32	*S.aureus* ATCC 29213 *E.faecalis* ATCC 29212 *E.coli* ATCC 25922 *P.aeruginosa* ATCC 27853	≤0.25 4 - 16 ≤0.5 - 1 0.5 - 8

Code	Name	Symbol	Range (mcg/ml)	Interpretative criteria for	Interpretative criteria			Quality Control limits(mcg/ml)	
					≤ S	I	≥R	Organism (ATCC)	Standard Range
EM037	Nitrofurantoin	NIT	0.032-512	*Enterobacteriaceae*, *Staphylococcus* spp, *Enterococcus* spp	32	64	128	*S.aureus* ATCC 29213 *E.faecalis* ATCC 29212 *E.coli* ATCC 25922 *S.pneumoniae* ATCC 49619	8 - 32 4 - 16 4 - 16 4 - 16
EM065	Oxacillin	OXA	0.016-256	*S.aureus* and *S.lugdunensis*	2	-	4	*S.aureus* ATCC 29213 *E.faecalis* ATCC 29212	0.12 - 0.5 8 - 32
				Coagulase-negative Staphylococci except *S.lugdunensis*	0.25	-	0.5	*S.aureus* ATCC 43300	16 - 64
EM084	Penicillin	PEN	0.002-32	*Staphylococcus*	0.12	-	0.25	*S.aureus* ATCC 29213	0.25 - 2
				Enterococcus	8	-	16	*E.faecalis* ATCC 29212	1 - 4
				S.pneumoniae (meningitis)	0.06	-	0.12	*S.pneumoniae* ATCC 49619	0.25 - 1
				S.pneumoniae (non-meningitis)	2	4	8		
				Streptococcus spp. Beta haemolytic group	0.12	-	-		
				Streptococcus spp. Viridians group	0.12	0.25-2	4		
				N.gonnorhoea	0.06	0.12-1	2		
				N.meningitidis	0.06	0.12-0.25	0.5		
				Anaerobes	0.5	1	2		
EM041	Piperacillin	PIP	0.016-256	*Enterobacteriaceae*, other non-*Enterobacteriaceae*, *P.aeruginosa* *Acinetobacter* spp	16	32-64	128	*S.aureus* ATCC 29213 *E.faecalis* ATCC 29212 *E.coli* ATCC 25922 *P.aeruginosa* ATCC 27853 *E.coli* ATCC 35218	1 - 4 1 - 4 1 - 4 1 - 8 >64
				Anaerobes	32	64	128		
EM042	Piperacillin/ Tazobactam*	PIT	0.016-256	*Enterobacteriaceae*,other non-*Enterobacteriaceae*, *P.aeruginosa* *Acinetobacter* spp	16	32-64	128	*E.coli* ATCC 25922 *E.coli* ATCC 35218 *P.aeruginosa* ATCC 27853	1 - 4 0.5 - 2 1 - 8
				Staphylococcus spp	8	-	16	*S.aureus* ATCC 29213 *E.faecalis* ATCC 29212	0.25 - 2 1 - 4
				Haemophilus spp	1	-	2	*H.influeanzae* ATCC 49247	0.064 - 0.5
				Anaerobes	32	64	128		
EM055	Teicoplanin	TEI	0.016-256	*Staphylococcus* spp, *Enterococcus* spp	8	16	32	*S.aureus* ATCC 29213 *E.faecalis* ATCC 29212	0.25 - 1 0.25 - 1

Code	Name	Symbol	Range (mcg/ml)	Interpretative criteria for	Interpretative criteria			Quality Control limits(mcg/ml)	
					≤ S	I	≥R	Organism (ATCC)	Standard Range
EM056	Tetracycline	TET	0.016-256	*Enterobacteriaceae*, Other non-*Enterobacteriaceae*, *Acientobacter* spp, *Staphylococcus* spp, Enterococcus spp	4	8	16	*S.aureus* ATCC 29213 *E.faecalis* ATCC 29212 *E.coli* ATCC 25922 *P.aeruginosa* ATCC 27853	0.12 - 1 8 - 32 0.5 - 2 8 - 32
				Haemophilus spp	2	4	8	*H.influeanzae* ATCC 49247	4 - 32
				S.pneumoniae, Streptococcus spp. Beta haemolytic group, *Streptococcus* spp. Viridans group	2	4	8	*S.pneumoniae* ATCC 49619	0.06 - 0.5
				N.gonnorhoea	0.25	0.5-1	2	*N.gonorhoeae* ATCC 49226	0.25 - 1
				Anaerobes	4	8	16		
EM089	Tigecycline	TGC	0.016-256	not available	-	-	-	*S.aureus* ATCC 29213 *E.faecalis* ATCC 29212 *E.coli* ATCC 25922 *S.pneumoniae* ATCC 49619 *H.influenzae* ATCC 49247	0.03 - 0.25 0.03 - 0.12 0.03 - 0.25 0.015 - 0.12 0.06 - 0.5
EM060	Vancomycin	VAN	0.016-256	*Staphylococcus* spp	2	4-8	16	*S.aureus* ATCC 29213	0.5 - 2
				Enterococcus, Coagulase-negative Staphylococci	4	8-16	32	*E.faecalis* ATCC 29212	1 - 4
				S.pneumoniae, Streptococcus spp. Beta haemolytic group, *Streptococcus* spp. Viridans group	1	-	-	*S.pneumoniae* ATCC 49619	0.125 - 0.5
EM063	Oxacillin-Vancomycin*	OXA / VAN	OXA : 0.064-8 VAN : 0.19 -16	For interpretive criteria refer EM065 for Oxacillin & EM060 for Vancomycin. However using,Oxacillin - Vancomycin Ezy MIC™ Strip, MIC determination of Vancomycin for *Enterococcus* can not be established since highest concentration is 8.0 mcg/ml.					
EM077	Vancomycin -Cefoxitin*	VAN/ CX	VAN : 0.19-16 CX : 0.5-64	**For Cefoxitin** *Enterobacteriaceae*	8	16	32	*E.coli* ATCC 25922	2 - 8
				S.aureus and *S.lugdunensis*	4	-	8	*S.aureus* ATCC 29213	1 - 4
				For interpretive criteria of Vancomycin refer EM060 . However using, Vancomycin-Cefoxitin Ezy MIC™ Strip, MIC determination of Vancomycin for *Enterococcus* can not be established since highest concentration is 8.0 mcg/ml.					

* = Not as per CLSI guidelines

[a] = Interpretative criteria and Quality Control limits are that of Cefepime

[b] = Interpretative criteria and Quality Control limits are that of Cefoperazone except for that obtained for *E.coli* ATCC 35218

[c] = Interpretative criteria and Quality Control limits are that of Ceftriaxone except for that obtained for *E.coli* ATCC 35218

[d] = Quality control limit for *E.coli* 35218 is applicable to EM097 only

[e] = EM082 strips cannot be used for testing of standard ATCC strains of *E.coli, H.influenaze* and *N.gonorhoeae*

[f]= Interpretative criteria and Quality Control limits are that of Tetracycline, As per CLSI, organism that are susceptible for Tetracycline are also considered susceptible to Doxycycline

Resistant (R): Gentamicin is not synergistic with cell wall active agents like Ampicillin, Penicillin &Vancomycin & hence resistant to synergism. Report as HLAR.

Susceptible (S): Gentamicin is synergistic with cell wall active agents like Ampicillin, Penicillin & Vancomycin.

Phenotypic Determination Ezy MIC™ Strips

Interpretive Criteria for MBL detection

Code	Name	Symbol	Range(mcg/ml)	Report	Formula	Interpretative criteria	Quality Control limits (mcg/ml)	
							Organism (ATCC)	Standard
EM092	Meropenem with & without EDTA	MRP + EDTA/ MRP	MRP + EDTA: 1-64 MRP : 4- 256	**MBL positive strain**	$\frac{MRP}{MRP+EDTA} = >8$ or $\frac{MRP}{MRP+EDTA} = \frac{\geq 256}{<64}$ or $\frac{MRP}{MRP+EDTA} = \frac{\geq 256}{<1}$	"When the ratio of the value obtained for Meropenem (MRP) : the value of Meropenem + EDTA (MRP+EDTA) is more than 8 or If zone is observed on the side coated with Meropenem + EDTA & no zone is observed on the opposite the side coated with Meropenem, interpret the culture as MBL positive."	S. maltophila ATCC 13636	Ratio > 8
				MBL negative strain	$\frac{MRP}{MRP+EDTA} = \leq 8$	When the ratio of the value obtained for Meropenem (MRP) : the value of Meropenem + EDTA (MRP+EDTA) is less than or equal to 8	P.aeruginosa ATCC 27853	Ratio ≤ 8
				MBL (non-determinative)	$\frac{MRP}{MRP+EDTA} = \frac{\geq 256}{>64}$ or $\frac{MRP}{MRP+EDTA} = \frac{\leq 4}{<1}$	When no zone of inhibition is obtained on either side. In such cases resistance may be due to mechanisms other than MBL production. These have to be further investigated before reporting or If the zones obtained are below the lowest concentration on both the sides, the strain has to be tested with concentrations below the lowest concentration on the strips before reaching to any conclusion.	-	-

Interpretive Criteria for ESBL detection

Code	Name	Symbol	Range(mcg/ml)	Report	Formula	Interpretative criteria	Quality Control limits (mcg/ml)	
							Organism (ATCC)	Standard
EM099	Cefotaxime/ Cefotaxime + Clavulanic acid	CTX+ / CTX	CTX+ : Cefotaxime with Clavulanic acid : 0.016-1	**ESBL positive strain**	$\frac{CTX}{CTX+} = > 8$	When the ratio of the value obtained for CTX : the value of CTX in combination with Clavulanic acid (CTX+) is more than 8 or No zone is obtained for CTX and Zone obtained in CTX+	*K.pneumoniae* ATCC 700603	Ratio > 8
			CTX : Cefotaxime : 0.25-16	**ESBL negative strain**	$\frac{CTX}{CTX+} = \leq 8$	When Ratio of the value obtained for CTX : the value of CTX in combination with Clavulanic acid (CTX+) is less than or equal to 8	*E.coli* ATCC 25922	Ratio ≤ 8
				ESBL (non-conclusive)		When no zone of inhibition is obtained on either side. In such cases resistance may be due to mechanisms other than ESBL production. These have to be further investigated before reporting.		
EM098	Ceftazidime/ Ceftazidime + Clavulanic acid	CAZ+ / CAZ	CAZ+ : Ceftazidime with Clavulanic acid : 0.064-4	**ESBL positive strain**	$\frac{CAZ}{CAZ+} = > 8$	When the ratio of the value obtained for CAZ : the value of CAZ in combination with Clavulanic acid (CAZ+) is more than 8 or No zone is obtained for CAZ and Zone obtained in CAZ+	*K.pneumoniae* ATCC 700603	Ratio > 8
			CAZ: Ceftazidime : 0.5-32	**ESBL negative strain**	$\frac{CAZ}{CAZ+} = \leq 8$	When Ratio of the value obtained for CAZ : the value of CAZ in combination with Clavulanic acid (CAZ+) is less than or equal to 8	*E.coli* ATCC 25922	Ratio ≤ 8
				ESBL (non-conclusive)		When no zone of inhibition is obtained on either side. In such cases resistance may be due to mechanisms other than ESBL production. These have to be further investigated before reporting.		
EM079A	Triple ESBL detection Ezy MIC™ Strip	MIX+/ MIX	Ceftazidime, Cefotaxime & Cefepime Mix: 0.125-16	**ESBL positive strain**	$\frac{MIX}{MIX+} = > 8$	When the ratio of the value obtained for MIX : the value of MIX in combination with Clavulanic acid & Tazobactam (MIX+) is more than 8 or No zone is obtained for MIX and Zone obtained in MIX+	*K.pneumoniae* ATCC 700603	Ratio > 8
			Ceftazidime, Cefotaxime & Cefepime Mix + Clavulanic acid & Tazobactam: 0.032- 4	**ESBL negative strain**	$\frac{MIX}{MIX+} = \leq 8$	When Ratio of the value obtained for MIX : the value of MIX in combination with Clavulanic acid & Tazobactam (MIX+) is less than or equal to 8.	*E.coli* ATCC 25922	Ratio ≤ 8
				ESBL (non-conclusive)	-	"When no zone of inhibition is obtained on either side. In such cases resistance may be due to mechanisms other than ESBL production. These have to be further investigated before reporting."	-	-

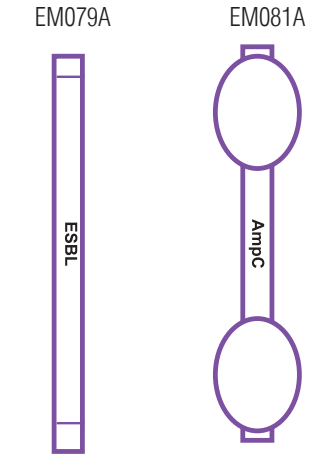
Interpretive Criteria for AmpC detection

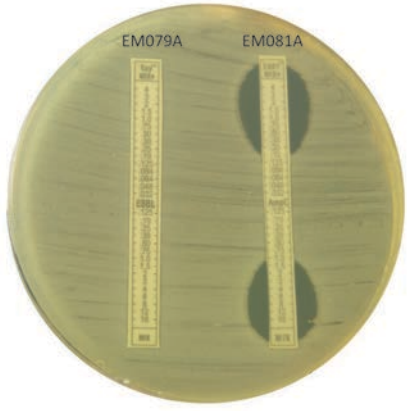
Code	Name	Symbol	Range(mcg/ml)	Report	Formula	Interpretative criteria
EM081A	ESBL & AmpC detection Ezy MIC™ Strip	MIX+/ MIX	Ceftazidime, Cefotaxime, Cefepime & Cloxacillin Mix: 0.125-16	ESBL+AmpC positive strain	$\frac{MIX}{MIX+} = > 8$	When the ratio of the value obtained for MIX : the value of MIX in combination with Clavulanic acid & Tazobactam (MIX+) is more than 8 or No zone is obtained for MIX and Zone obtained in MIX+
			Ceftazidime, Cefotaxime, Cefepime & Cloxacillin Mix + Clavulanic acid & Tazobactam: 0.032- 4	AmpC positive but ESBL negative strain	$\frac{MIX}{MIX+} = \leq 8$	When Ratio of the value obtained for MIX : the value of MIX in combination with Clavulanic acid & Tazobactam (MIX+) is less than or equal to 8.
				ESBL+AmpC (non-conclusive)	-	"When no zone of inhibition is obtained on either side. In such cases resistance may be due to mechanisms other than ESBL production. These have to be further investigated before reporting."

Interpretation:

Following illustrations and examples will help you in interpreting your results when EM079 & EM081 are simultaneously tested.

Case - 1





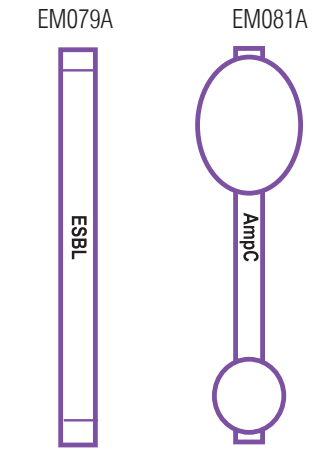
E. coli isolate
(Interpreted as AmpC +ve)

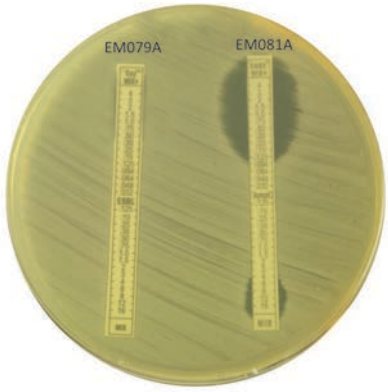
EM079 : No zone obtained on both the side.

EM081 : Equal zone upper and lower side (ratio < 8.0)

Interpretation : AmpC +ve
(Only AmpC present & ESBL -ve)

Case - 2





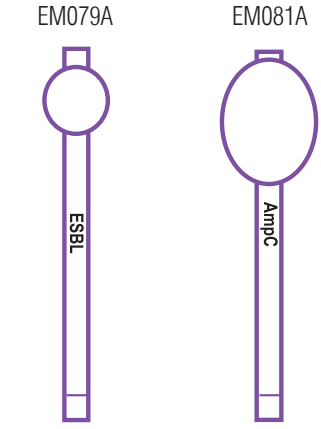
E. coli isolate
(Interpreted as Amp C +ve & ESBL+ve)

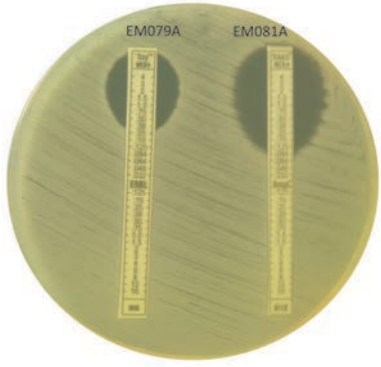
EM079A : No zone obtained on both the side.

EM081A: Zone for 'Mix+' greater than zone for 'Mix' (Ratio of Mix+: Mix >8).

Interpretation: Amp C +ve & ESBL+ve (ESBL under expressed, AmpC over expressed)

Case - 3





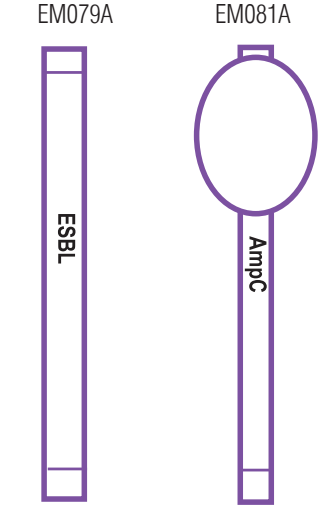
E. coli isolate
(Interpreted as Amp C +ve & ESBL+ve)

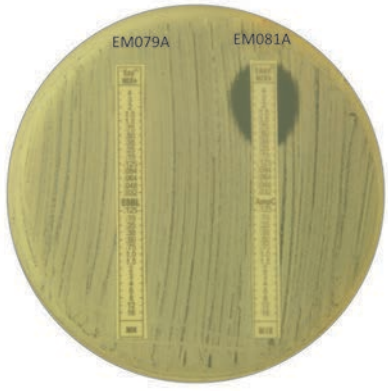
EM079A : zone obtained on 'Mix+' side whereas no zone seen on 'Mix' side.

EM081A : Zone observed on 'Mix+' side larger than zone on 'Mix+' side of EM079A whereas no zone seen on 'Mix' side.

Interpretation: AmpC +ve & ESBL +ve (Hyper produced ESBL, Low levels AmpC).

Case - 4





E. coli isolate
(Interpreted as Amp C +ve & ESBL+ve)

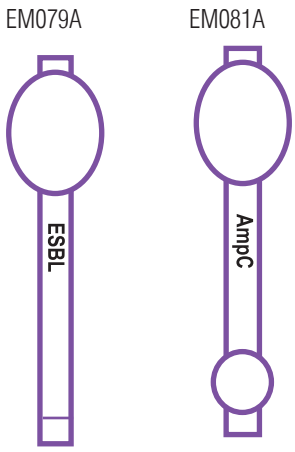
EM079A : No zone obtained on both the side

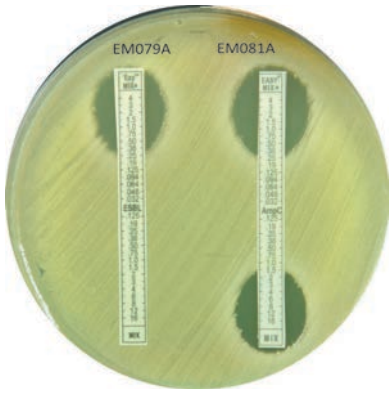
EM081A : Zone obtained on 'Mix+' side whereas no zone seen on 'Mix' side.

Interpretation: AmpC +ve & ESBL +ve

(ESBL is under expressed and hence no zone is obtained with EM079A however, when EM081A is tested, Clavulanic acid & cloxacillin act synergistically & hence a zone obtained only on 'Mix+' side of EM081A & no zone is obtained on 'Mix' side as only cloxacillin is not enough to inactivate AmpC)

Case - 5





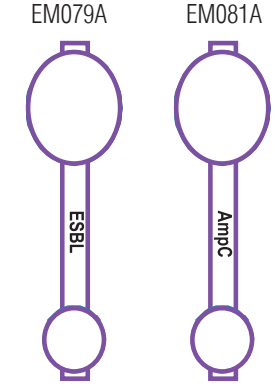
Klebsiella isolate
(Interpreted as ESBL+ve & Amp C +ve)

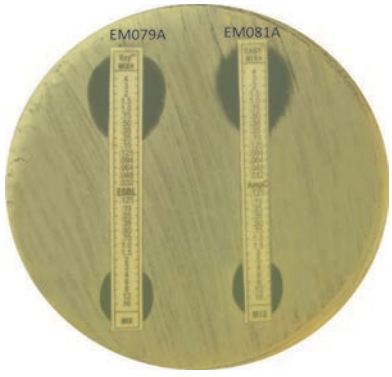
EM079A : Zone obtained on 'Mix+' side whereas no zone seen on 'Mix' side.

EM081A: Zone obtained on 'Mix+' side similar to zone obtained with EM079A and a small or similar zone obtained on 'Mix' side.

Interpretation: ESBL +ve & AmpC +ve.

Case - 6





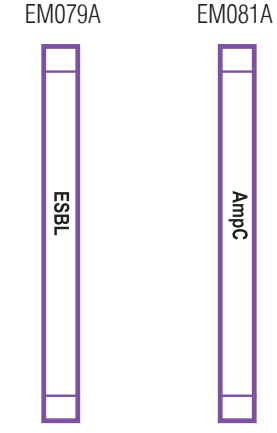
E. coli isolate
(Interpreted as Only ESBL+ve)

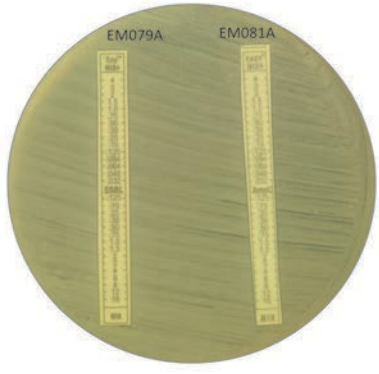
EM079A : Ratio of zone obtained on 'Mix+' : Ratio of zone obtained on 'Mix' is >8 (ESBL +ve)

EM081A : If tested with EM081A &if replicate zones observed on EM081A, do not interprete as AmpC +ve & conclude as only ESBL +ve as Cloxacillin has no role to play.

Interpretation: Only ESBL +ve False AmpC positive

Case - 7





E. coli isolate
(Interpreted Non conclusive)

EM079A : No zone on either side of the strip

EM081A : No zone on either side of the strip.

Interpretation: Non Conclusive.

(Has to be further investigated for other mechanisms of resistance such as MBL production or porine deficiency etc.)

Antifungal Ezy MIC™ Strips

Code	Name	Symbol	Range (mcg/ml)	Interpretative criteria for	Interpretative criteria			Quality Control limits(mcg/ml)	
					≤ S	S-DD*	≥R	Organism (ATCC)	Standard Range
EM071	Amphotericin B	AP	0.002-32	Not Available	Not Available			*C.albicans* ATCC 90028 *C.albicans* ATCC 24433 *C.parapsilosis* ATCC 22019 *C. parapsilosis* ATCC 90018 *C.tropicalis* ATCC 750 *C. krusei* ATCC 6258**	0.5 - 2 0.25-1 0.25-1 0.5-2 0.5-2 0.25-2
EM072	Fluconazole	FLC	0.016-256	*Candida* spp #	8	16-32	64	*C.albicans* ATCC 90028 *C.albicans* ATCC 24433 *C.parapsilosis* ATCC 22019[a] *C. parapsilosis* ATCC 90018 *C.tropicalis* ATCC 750 *C. krusei* ATCC 6258** *C.albicans* ATCC 10231[a]	0.25-1 0.25-1 1-8 0.25-1 1-4 16-64 0.5-8
EM073	Itraconazole	ITR	0.002-32	*Candida* spp ##	0.12	0.25-0.5	1	*C.parapsilosis* ATCC 22019 *C. krusei* ATCC 6258**	0.06-0.5 0.12-1
EM074	Ketoconazole	KET	0.002-32	Not Available	Not Available			*C.parapsilosis* ATCC 22019 *C. krusei* ATCC 6258**	0.03-0.25 0.12-1
EM086	Voriconazole	VRC	0.002-32	*Candida* spp.	1	2	4	*C.parapsilosis* ATCC 22019 *C. krusei* ATCC 6258**	0.016-0.12 0.06-0.5

* S-DD - Susceptible - Dose Dependent.

: Isolates of *C.krusei* are assumed to be intrinsically resistant to Fluconazole. The results of Fluconazole susceptibility testing should not be interpreted using this criterion for this species

: For Itraconazole, the data are based entirely on experience with mucosal infections, and data supporting breakpoints for invasive infections due to *Candida* spps. is not available

a : Limits may not match with CLSI guidelines

** *C.krusei* ATCC 6258 is now known as *Issatchenkia orientalis* ATCC 6258

Antifungal Product Range of EZY MIC™ Strip

Range of Ezy MIC™ Product

Code	Product	Symbol	Range in µg
EM001	Amikacin	AMK	0.016 - 256 mcg/ml
EM003	Amoxyclav	AMC*	0.016 - 256 mcg/ml
EM068	Ampicillin	AMP*	0.016 - 256 mcg/ml
EM004	Azithromycin	AZI	0.016 - 256 mcg/ml
EM070	Cefepime	CPM*	0.016-256 mcg/ml
EM093	Cefepime/Tazobactam	CPT*	0.016 - 256mcg/ml
EM094	Cefoperazone/Sulbactam	CPS*	0.016-256mcg/ml
EM100	Cefotaxime	CTX*	0.002-32 mcg/ml
EM064	Cefotaxime	CTX*	0.016-256 mcg/ml
EM101	Cefoxitin	FOX*	0.016-256 mcg/ml
EM012	Ceftazidime	CAZ*	0.016 - 256 mcg/ml
EM013	Ceftriaxone	CTR*	0.002-32 mcg/ml
EM066	Ceftriaxone	CTR*	0.016 - 256 mcg/ml
EM097	Ceftriaxone/ sulbactam	CTS*	0.016-256mcg/ml
EM102	Cefuroxime	CXM*	0.016-256 mcg/ml
EM016	Chloramphenicol	CHL	0.016 - 256 mcg/ml
EM017	Ciprofloxacin	CIP	0.002 - 32 mcg/ml
EM082	Ciprofloxacin	CPH	0.016 - 256 mcg/ml
EM019	Clindamycin	CLI	0.016-256 mcg/ml
EM020	Colistin	CL	0.016 - 256 mcg/ml
EM021	Co-Trimoxazole	COT	0.002 - 32 mcg/ml
EM083	Co-Trimoxazole	TSH	0.016 - 256 mcg/ml
EM088	Daptomycin	DAP	0.016-256mcg/ml
EM090	Doripenem	DOR*	0.002-32 mcg/ml
EM103	Doxycycline	DOX	0.016-256 mcg/ml
EM085	Ertapenem	ETP*	0.002-32 mcg/ml
EM022	Erythromycin	ERY	0.016-256mcg/ml
EM091	Faropenem	FAR*	0.002-32 mcg/ml
EM025	Gentamicin	GEN	0.016 - 256 mcg/ml
EM061	Gentamicin	HLG	0.064 - 1024 mcg/ml
EM029	Linezolid	LNZ	0.016 - 256 mcg/ml

Customer specific ranges of antibiotic other than the ones available can be designed as per the requirements. Assortment of various antibiotics can also be made available.
All products to be stored between 2 to 8°C. For prolonged use, store below -20°C. * Store below -20°C only.

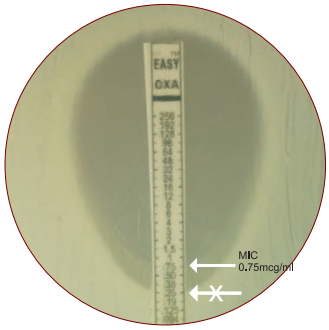
Range of Ezy MIC™ Product

Code	Product	Symbol	Range in µg
EM080	Meropenem	MRP*	0.002 - 32 mcg/ml
EM035	Nalidixic acid	NAL	0.016 - 256 mcg/ml
EM095	Netilmicin	NET	0.016-256mcg/ml
EM037	Nitrofurantoin	NIT	0.032-512 mcg/ml
EM065	Oxacillin	OXA*	0.016 - 256 mcg/ml
EM084	Penicillin	PEN*	0.002-32mcg/ml
EM041	Piperacillin	PIP*	0.016-256 mcg/ml
EM042	Piperacillin/Tazobactam	PTZ*	0.016 - 256 mcg/ml
EM055	Teicoplanin	TEI	0.016 - 256 mcg/ml
EM056	Tetracycline	TET	0.016-256 mcg/ml
EM089	Tigecycline	TGC	0.016-256mcg/ml
EM060	Vancomycin	VAN	0.016 - 256 mcg/ml
EM063	Oxacilin -Vancomycin	OXA / VAN*	Oxacillin : 0.064 - 8 mcg/ml Vancomycin : 0.19 -16 mcg/ml
EM077	Vancomycin -Cefoxitin	VAN / CX*	Cefoxitin: 0.5 - 64 mcg/m Vancomycin : 0.19 -16 mcg/ml
EM092	Meropenem with & without EDTA	MRP+EDTA / MRP*	Meropenem+EDTA : 1 - 64 mcg/ml Meropenem : 4 - 256 mcg/ml
EM099	Cefotaxime / Cefotaxime + Clavulanic acid	CTX+/ CTX*	CTX+ : Cefotaxime with Clavulanic acid: 0.016 - 1 CTX : Cefotaxime : 0.25-16
EM098	Ceftazidime / Ceftazidime + Clavulanic acid	CAZ + / CAZ*	CAZ+ : Ceftazidime with Clavulanic acid: 0.064 - 4 CAZ : Ceftazidime : 0.5 - 32
EM079A	Triple ESBL detection Strip	MIX + / MIX*	Ceftazidime, Cefotaxime & Cefepime Mix : 0.125-16 Mix + Clavulanic acid & Tazobactam: 0.032- 4
EM081A	ESBL & AMPc Detection Strip	MIX + / MIX*	Ceftazidime, Cefotaxime, Cefepime & Cloxacillin Mix : 0.125-16 Mix + Clavulanic acid & Tazobactam: 0.032- 4
EM071	Amphotericin-B	AP	0.002 - 32 mcg/ml
EM072	Fluconazole	FLC	0.016 - 256 mcg/ml
EM073	Itraconazole	ITR	0.002-32mcg/ml
EM074	Ketoconazole	KET	0.002-32mcg/ml
EM086	Voriconazole	VRC	0.002-32mcg/ml

Customer specific ranges of antibiotic other than the ones available can be designed as per the requirements. Assortment of various antibiotics can also be made available.
All products to be stored between 2 to 8°C. For prolonged use, store below -20°C. * Store below -20°C only.

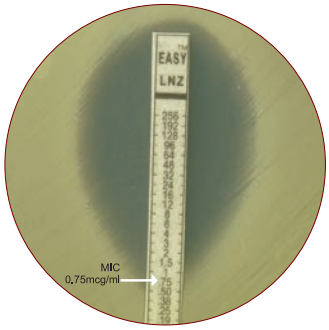
READING OBSERVATIONS

Fig. 3.1



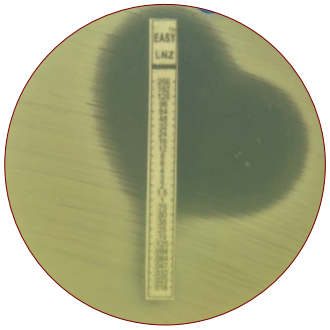
For bactericidal drugs read at the point of complete inhibition.

Fig. 3.2



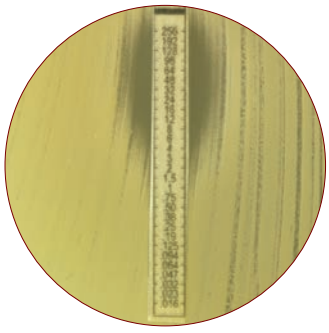
For bacteriostatic drugs read at 80% inhibition.

Fig. 3.3



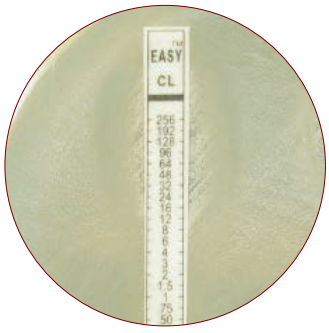
Excessively wet plates prior to inoculation may give distorted zones.

Fig. 3.4



Unevenly swabbed surfaces may give non-confluent intersections

Fig. 3.5

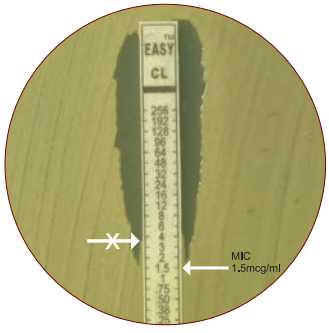


Growth occurs along the entire strip, MIC ⩾ 256mcg/ml.

Fig. 3.6

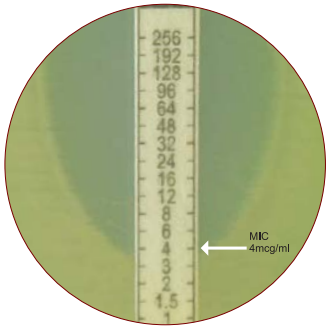
When the ellipse does not intersect the strip, MIC < 0.002mcg/ml

Fig. 3.7



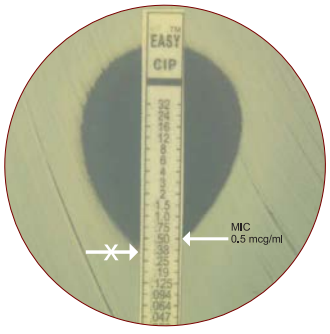
Ignore the growth "hugging" the side of the strip. Read at actual intersection

Fig. 3.8



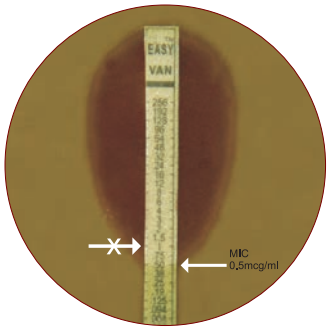
Intersection in between the dilutions, read the higher value

Fig. 3.9



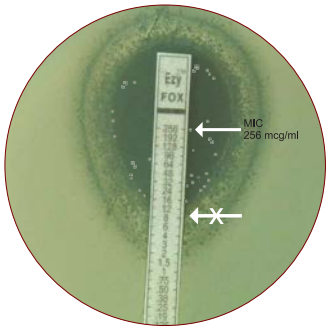
Uneven zone. Read the higher value

Fig. 3.10



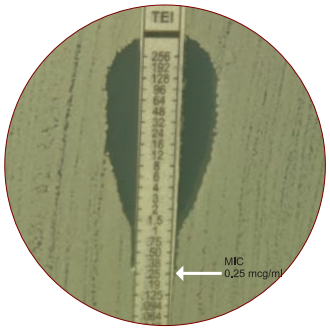
Ignore haemolysis. Read at the point of complete inhibition

Fig. 3.11



Isolated microcolonies within ellipse, read MIC at a point where no colonies observed close to strip

Fig. 3.12



For thin zones, read at the bottom of zone

Production facility and R & D Centre

Production facility

R & D Centre

ISO 9001-2008 CERTIFIED

WHO GMP CERTIFIED

ISO 13485-2003 CERTIFIED

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