

REPORT ITU-R M.2134

**Requirements related to technical performance
for IMT-Advanced radio interface(s)**

(2008)

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1 Introduction

International Mobile Telecommunications-Advanced (IMT-Advanced) systems are mobile systems that include the new capabilities of IMT that go beyond those of IMT-2000. Such systems provide access to a wide range of telecommunication services including advanced mobile services, supported by mobile and fixed networks, which are increasingly packet-based.

IMT-Advanced systems support low to high mobility applications and a wide range of data rates in accordance with user and service demands in multiple user environments. IMT-Advanced also has capabilities for high-quality multimedia applications within a wide range of services and platforms providing a significant improvement in performance and quality of service.

The key features of IMT-Advanced are:

- a high degree of commonality of functionality worldwide while retaining the flexibility to support a wide range of services and applications in a cost efficient manner;
- compatibility of services within IMT and with fixed networks;
- capability of interworking with other radio access systems;
- high-quality mobile services;
- user equipment suitable for worldwide use;
- user-friendly applications, services and equipment;
- worldwide roaming capability;
- enhanced peak data rates to support advanced services and applications (100 Mbit/s for high and 1 Gbit/s for low mobility were established as targets for research)¹.

These features enable IMT-Advanced to address evolving user needs.

The capabilities of IMT-Advanced systems are being continuously enhanced in line with user trends and technology developments.

2 Scope and purpose

This Report describes requirements related to technical performance for IMT-Advanced candidate radio interfaces. These requirements are used in the development of Report ITU-R M.2135.

This Report also provides the necessary background information about the individual requirements and the justification for the items and values chosen. Provision of such background information is needed for a broader understanding of the requirements.

This Report is based on the ongoing development activities from external research and technology organizations.

¹ Data rates sourced from Recommendation ITU-R M.1645.

3 Related ITU-R texts

Recommendation ITU-R M.1224

Recommendation ITU-R M.1645

Recommendation ITU-R M.1768

Recommendation ITU-R M.1822

Report ITU-R M.2038

Report ITU-R M.2072

Report ITU-R M.2074

Report ITU-R M.2078

Report ITU-R M.2079

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4 Minimum requirements

IMT-Advanced can be considered from multiple perspectives, including the users, manufacturers, application developers, network operators, and service and content providers as noted in § 4.2.2 in Recommendation ITU-R M.1645 – Framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000. Therefore, it is recognized that the technologies for IMT-Advanced can be applied in a variety of deployment scenarios and can support a range of environments, different service capabilities, and technology options. Consideration of every variation to encompass all situations is therefore not possible; nonetheless the work of the ITU-R has been to determine a representative view of IMT-Advanced consistent with the process defined in Resolution ITU-R 57 – Principles for the process of development of IMT-Advanced and the requirements defined in this Report.

The requirements presented in this document are for the purpose of consistent definition, specification, and evaluation of the candidate RITs or SRITs for IMT-Advanced in ITU-R in conjunction with the development of Recommendations and Reports, such as the framework and key characteristics and the detailed specifications of IMT-Advanced. The intent of these requirements is to ensure that IMT-Advanced technologies are able to fulfil the objectives of IMT-Advanced and to set a specific level of minimum performance that each proposed technology needs to achieve in order to be considered by ITU-R for IMT-Advanced.

These requirements are not intended to restrict the full range of capabilities or performance that candidate technologies for IMT-Advanced might achieve, nor is it intended to describe how the IMT-Advanced technologies might perform in actual deployments under operating conditions that could be different from those presented in ITU-R Recommendations and Reports on IMT-Advanced.

Requirements are to be evaluated according to the criteria defined in Report ITU-R M.2135 – Requirements, evaluation criteria, and submission templates for the development of IMT-Advanced.

NOTE 1 – The values herein are for a radio interface technology (RIT) or a set of radio interface technologies (SRIT).