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(3GPP TR 45.914 version 13.0.0 Release 13)

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Foreword

This Technical Report has been produced by the 3rd Generation Partnership Project (3GPP).

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Introduction

Recently, the GSM network is seeing its greatest expansion due to the increased demand for mobile voice services in emerging markets. Furthermore, most of these emerging markets have densely populated cities and limited radio spectrum. Thus the increase of voice capacity in the circuit switched domain in an evolutionary manner is a key issue for operators in these markets.

To help operators in these scenarios to alleviate the strain on their networks, new techniques are required to improve the voice capacity on the basis of reusing existing network equipment and radio resource. These have been investigated during the MUROS feasibility study and candidate solutions proposed in this feasibility study are based on multiplexing two or more users onto one time slot without degrading the speech quality. These solutions are unlike the speech codec approach to increase network capacity by increasing speech compression, e.g. multiplexing two GSM-HR mobiles onto one time slot but rather to maintain the same speech encoding by multiplexing four GSM-HR mobiles onto one time slot.

The Technical Report is structured in the following way:

Chapter 1 elaborates the scope of the MUROS feasibility study.

Chapter 2 and 3 contain usual elements like References, Definitions, Symobols and Abbreviations.

Chapter 4 lists the defined performance and compatibility objectives for MUROS.

Chapter 5 depicts the common working assumptions for the performance evaluation of MUROS candidate solutions.

Chapter 6 to 9 contain the four candidate solutions for MUROS, in particular:

- the candidate solution 'Speech Capacity Enhancement using DARP' in Chapter 6
- the candidate solution 'Orthogonal Sub Channels for Circuit Switched Voice Capacity Evolution' in Chapter 7
- the candidate solution 'Adaptive symbol constellation' in Chapter 8
- the candidate solution 'Higher Order Modulations for MUROS' in Chapter 9

Chapter 10 lists the proposed candidates for the new set of training sequences.