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**Title: Inclusion of a VAD/DTX experiment in the AMR/NS minimum performance specification**

**Source: Nokia**

## 1. SCOPE OF DOCUMENT

This document proposes the inclusion of a VAD/DTX experiment in the test plan to be accompanying the Noise Suppression for AMR (AMR/NS) standard.

## 2. IMPORTANCE OF A VAD/DTX EXPERIMENT IN THE AMR/NS TEST PLAN

The AMR/NS standard is going to consist of a minimum performance specification that shall comprise a requirement on the effect of the AMR/NS solutions on the voice activity factor (VAF) of the AMR narrow-band (NB) speech codec. The current form of this requirement states that an AMR/NS solution shall not increase the VAF in either clean or noisy speech in conjunction with VAD/DTX. The requirement does not deal with the performance of the VAD function of the AMR NB speech codec in classifying frames as speech or noise, but merely states that the overall VAF figure shall not increase. In principle, this could be achieved with the expense of increased speech clipping by the VAD/DTX function, due to the effect of the AMR/NS solution.

It is therefore felt that a complementary test should be included in the test plan that shall accompany the AMR/NS standard to ensure that speech clipping is not increased by the AMR/NS solutions in conjunction with VAD/DTX. Hence, Nokia propose that an experiment where VAD/DTX shall be active should be included in the test plan. This experiment shall include sub-experiments that deal with both clean speech and noisy speech, the background noise conditions including at least

- car noise @ 6 dB SNR
- street noise @ 9 dB SNR
- babble noise @ 9 dB SNR.

If it would turn out to be more practical, this experiment could be split in more than one experiment. It is suggested that applicable test methodologies include paired comparison test (PCT), ACR and CCR.

It is also noted that it might not be necessary to assign separate experiments for this purpose, but it could be possible to run a sub-set of conditions with the VAD/DTX active in the tests otherwise specified.

## 3. CONCLUSION

It is proposed that the AMR/NS specification shall include a subjective test to assess the performance of the AMR/NS solutions in conjunction with VAD/DTX in both clean and noisy speech, to ensure that speech clipping is not increased.