INTERNATIONAL TELECOMMUNICATION UNION

ITU-T G.729 Implementers Guide

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

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SERIES G: TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

Digital terminal equipments – Coding of analogue signals by methods other than PCM

Implementers' Guide for G.729 Annexes B, F, G, I and C+

(Coding of speech at 8 kbit/s using CS-ACELP)

Implementers Guide for Recommendation G.729

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SUMMARY

Implementors' Guide for Recommendation G.729

This document contains the Implementers' Guide for ITU-T Recommendation G.729 and its Annexes B, F, G, I and C+ that corrects defects reported at SG 16’s meeting 15-25 October 2002.

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Implementers' Guide for G.729 Annexes B, F, G, I and C+

Description of the needed changes

As described in COM16-D244, the problem is caused by the lack of safe initialization of LSFs indices, and the search for the SID optimal indices may terminate abnormally, resulting in a possible crash of the simulation program. The problem was identified on G.729 Annex I, but it is applicable also for Annexes B, F, G, and C+.

Modifications to fixed-point C source codes in G.729 Annexes B, F, G, I and C+

In the file qsidlsf.c, in the routine New_ML_Search_1 at line 195, and in the routine New_ML_Search_2 at line 264, add two lines, changing both blocks of identical code from:

```
for (q=0; q<K; q++){
  for (p=0; p<J; p++)
    for (m=0; m<MQ; m++)
      if (sub(sum[p*MQ+m], min[q]) < 0){
         min[q] = sum[p*MQ+m];
         min_indx_p[q] = p;
         min_indx_m[q] = m;
      }
  sum[min_indx_p[q]*MQ+min_indx_m[q]] = MAX_16;
}
```

to the new code:

```
for (q=0; q<K; q++){
  min_indx_p[q] = 0;
  min_indx_p[q] = 0;
  for (p=0; p<J; p++)
    for (m=0; m<MQ; m++)
      if (sub(sum[p*MQ+m], min[q]) < 0){
         min[q] = sum[p*MQ+m];
         min_indx_p[q] = p;
         min_indx_m[q] = m;
      }
  sum[min_indx_p[q]*MQ+min_indx_m[q]] = MAX_16;
}
```

Note: for Annex C+, the constant FLT_MAX_G729 should be used, instead of the constant MAX_16.

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