

Security Level:

# IVAS FD BWE issue report

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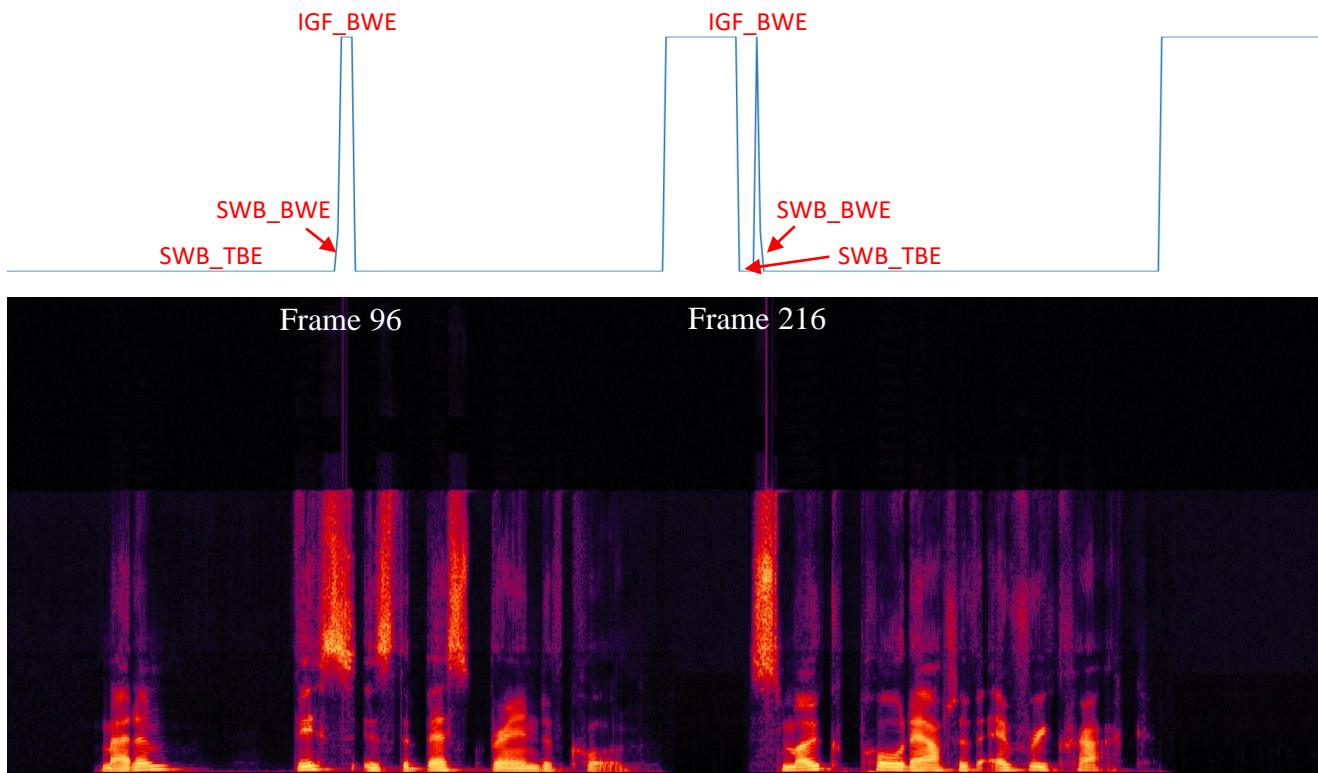
2023/10

HUAWEI TECHNOLOGIES CO., LTD.



# Description

- An old SWB BWE issue in the P800-6 selection test was reported
  - ❑ artifacts were observed in ISM 1 mode under 13.2 kbps
  - ❑ issue was confirmed in speech and caused by SWB TBE->BWE switching
    - Frame 96: SWB\_TBE (ACELP\_CORE) -> SWB\_BWE (ACELP\_CORE) -> IGF\_BWE (TCX\_20\_CORE )
    - Frame 216: SWB\_TBE (ACELP\_CORE) -> IGF\_BWE (TCX\_20\_CORE ) -> SWB\_BWE (ACELP\_CORE)

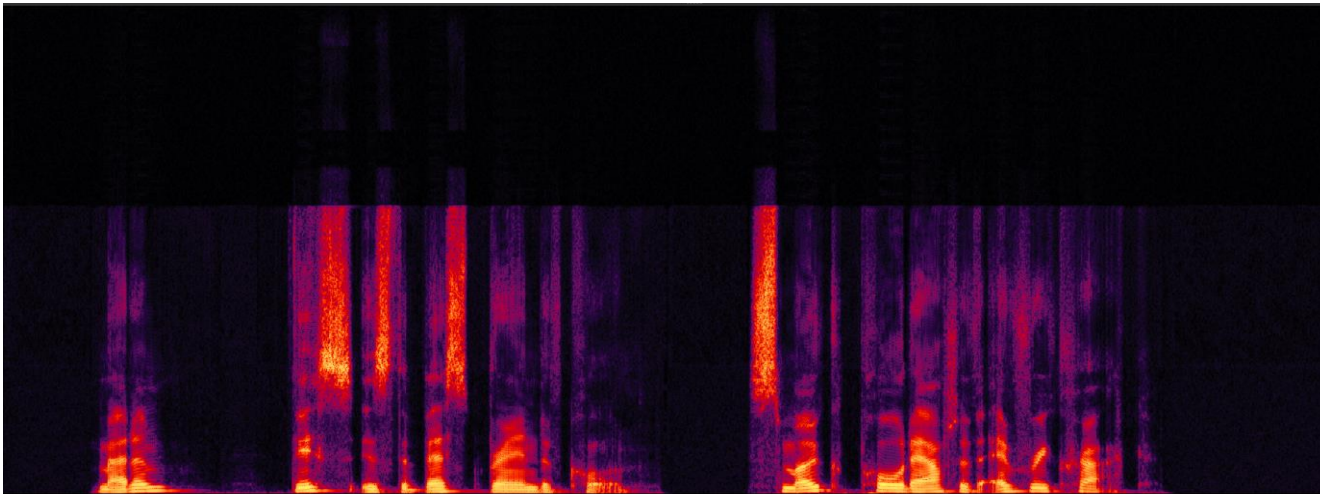
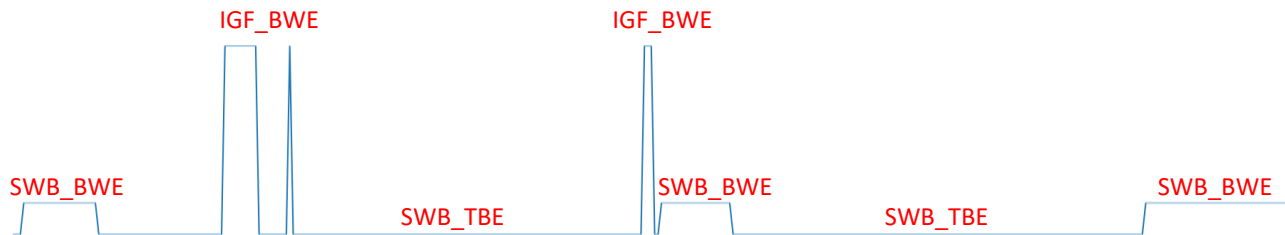


./IVAS\_cod -max\_band SWB -ISM 1 cp06a3s02.wav.0.csv 13200 48 cp06a3s02.wav bit

./IVAS\_dec mono 48 bit syn.wav

# Analysis

- First we did an experiment on EVS mono coding, no problem was observed
  - speech selected **SWB\_TBE (ACELP\_CORE)**
  - background (audio and inactive) selected **SWB\_BWE (ACELP\_CORE)** and **IGF\_BWE (TCX\_20\_CORE)**

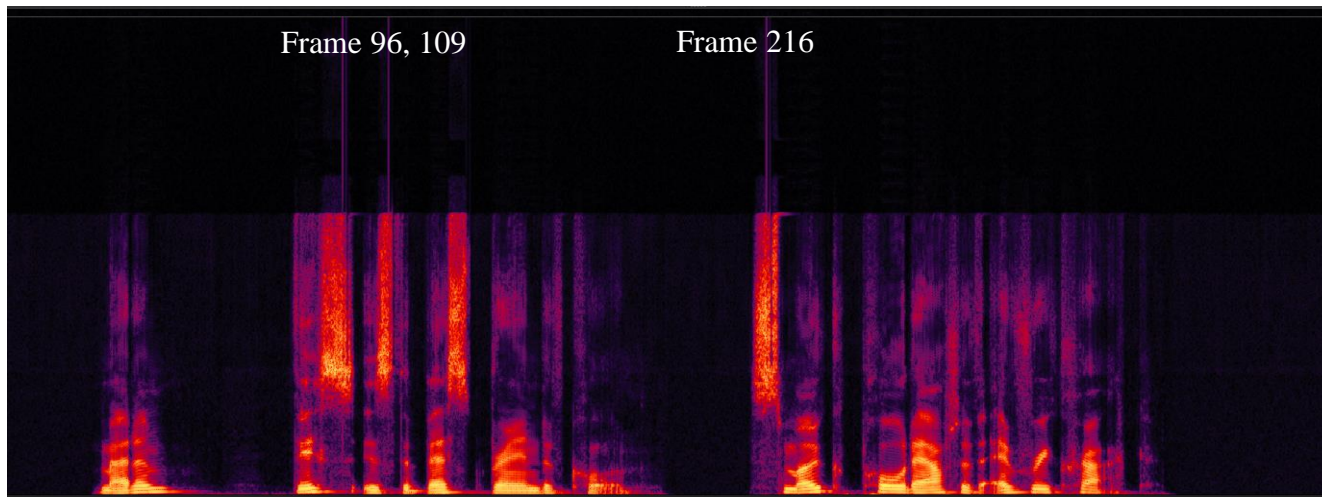


./IVAS\_cod -max\_band SWB 13200 48 cp06a3s02.wav bit

./IVAS\_dec 48 bit syn.wav

# Analysis

- Second we manually set some frames to SWB\_TBE -> SWB\_BWE switching on EVS mono coding, problem was observed
  - ❑ similar artifacts as ISM1 mode on frame 96, 109, 216
  - ❑ these frames are normal with SWB\_TBE and no switching in previous experiment



./IVAS\_cod -max\_band SWB 13200 48 cp06a3s02.wav bit

./IVAS\_dec 48 bit syn.wav

# Analysis

- Observations

- ❑ Click issue confirmed in ISM 1@13.2kbps in speech region
- ❑ Different coding mode selections between EVS mono and ISM 1
- ❑ No issues observed on EVS mode

- Suggestions

- ❑ Not change the BWE behavior in EVS
- ❑ Adjust the ISM coding mode selection, try to use ACELP\_CORE SWB\_TBE in speech region the same as in EVS
- ❑ Huawei is not familiar with ISM mode selection. It's better to expend the investigation to more PC companies.

# Thank you

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