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Non-EE2: Slice based Rice parameter selection for transform skip residual coding

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Introduction & Proposed Modification

- In TSRC, the remainder of the absolute levels are binarized using fixed Rice parameter “1”
- In VVC v2, a slice-based Rice parameter selection scheme is applied to the TSRC to improve the high bit-depth coding efficiency
- In this proposal, the same slice-based Rice parameter mechanism in the VVC is used to improve the coding efficiency
- Allowed values of the Rice parameters are { 0, 1, 2, 3, 4, 5, 6, 7 }



Simulation Results

	All Intra Main 10				
	Y	U	V	EncT	DecT
Class F	-0.07%	-0.22%	-0.09%	100.2%	99.0%
Class TGM	-0.22%	-0.20%	-0.25%	100.2%	99.2%

	Random Access Main 10				
	Y	U	V	EncT	DecT
Class F	-0.08%	0.03%	0.03%	99.9%	99.1%
Class TGM	-0.08%	-0.09%	-0.08%	100.3%	100.0%

	Low delay Main 10				
	Y	U	V	EncT	DecT
Class F	-0.16%*	-0.08%*	-0.52%*	99.3%	98.5%
Class TGM	-0.10%*	-0.07%*	-0.14%*	100.2%	97.2%

**missing rate point is copied from anchor*



Conclusion

- A slice based Rice parameter selection scheme for the TSRC is proposed
- Significant gains on screen content sequences with negligible encoding/decoding impacts
- Recommended to study the proposed method into EE
- **Thanks to OPPO for the crosschecking!**

