Technical Specification Group Services and System Aspects
Meeting #10, Bangkok, Thailand, 11-14 December 2000

TSGS#10(00)0573

Source: **TSG-SA WG4**

Title: **CRs to TS 06.54**

Document for: **Approval**

Agenda Item: **7.4.3**

The following CRs were agreed at SA WG4 meetings #13 and/or #14 and are presented to TSG SA #10 for approval.

Spec	CR	Rev	Phase	Subject	Cat	Ver	WG	Meeting	S3 doc
06.54	A007		Ph 2	Correction to the test vectors of the alternative EFR version	F	4.1.0	S4	S4-14	S4-000671
06.54	A008		R96	Correction to the test vectors of the alternative EFR version	A	5.2.0	S4	S4-14	S4-000672
06.51	A009		R97	Correction to the test vectors of the alternative EFR version	A	6.1.0	S4	S4-14	S4-000673
06.51	A010		R98	Correction to the test vectors of the alternative EFR version	A	7.1.0	S4	S4-14	S4-000674
06.51	A011		R99	Correction to the test vectors of the alternative EFR version	A	8.1.0	S4	S4-14	S4-000675

3GPP TSG-SA WG4 Meeting #14
Bath, UK, 27 Nov – 1 Dec 2000

Tdoc S4 (00)0671

CR-Form-v3

CHANGE REQUEST

⌘ **06.54** **CR** **A007** ⌘ rev **-** ⌘ Current version: **4.1.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Corrections to the test vectors of the alternative EFR version
Source:	⌘	TSG-SA WG4
Work item code:	⌘	Alternative EFR implementation
Date:	⌘	11-Dec-2000
Category:	⌘	**F**
Release:	⌘	2

Use one of the following categories:
- ***F*** *(essential correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(Addition of feature),*
- ***C*** *(Functional modification of feature)*
- ***D*** *(Editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	• test vectors of VAD option 1 were used to test VAD option 2 • test vectors were stored in UNIX byte format, PC byte format should be used • more information on the used encoder input vectors should be added
Summary of change:	⌘	• correct input sequences used for VAD option 2 • test vectors stored in PC byte format (this is the standard format for test sequences) • input sequences (*.inp) added to the zip-file • more information on input vectors added (to section 10)
Consequences if not approved:	⌘	Test coverage of VAD option 2 will not be guaranteed. Manufacturers might be confused by unexpected byte format.

Clauses affected:	⌘	Section 10 + test vectors of alternative EFR version (zip-file)		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

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Table 9: Location and size of compressed 8 bit PCM DTX test sequences

			size		bytes
Disk No.	**File Name**	**No. of Frames**	***.INP**	***.COD**	***.OUT**
5-8/8	DTX01-X	710	113 600	349 320	113 600
5-8/8	DTX02-X	933	149 280	459 036	149 280
5-8/8	DTX03-X	156	24 960	76 752	24 960
5-8/8	DTX04-X	245	39 200	120 540	39 200
5-8/8	DTX05-X	56	8 960	27 552	8 960
5-8/8	DTX06-X	771	123 360	379 332	123 360
5-8/8	DTX07-X	1188	190 080	584 496	190 080

In addition to the test sequences above, special input (seqsyncX.inp) and output (syncxxxX.cod) sequences for frame synchronization are provided. The X again stands for A and μ law compressed PCM. The synchronization procedure is described in clause 8.

Table 10: Location, size and justification of compressed 8 bit PCM test sequences

Disk No.	**Purpose of Sequence**	**Name of Sequence**	**No. of Frames**	**Size in Bytes**	**Justification**
5-8/8	Frame Synchronisation (input)	SEQSYNCX.INP	4	640	-
5-8/8	Frame Synchronisation (output)	SYNC000X.COD	1	492	Right
5-8/8		SYNC001X.COD	1	492	Right
5-8/8		SYNC002X.COD	1	492	Right
"		"	"	"	"
"		"	"	"	"
"		"	"	"	"
5-8/8		SYNC159X.COD	1	492	Right

5-8/8	Frame Synchronisation (output)	SYNC000X.COD	1	492	Right
5-8/8		SYNC001X.COD	1	492	Right
5-8/8		SYNC002X.COD	1	492	Right
"		"	"	"	"
"		"	"	"	"
"		"	"	"	"
5-8/8		SYNC159X.COD	1	492	Right

10 Alternative Enhanced Full Rate implementation using the Adaptive Multi Rate 12.2 kbit/s mode

The 12.2 kbit/s mode of the Adaptive Multi Rate speech coder described in TS 26.071 is functionally equivalent to the GSM Enhanced Full Rate speech coder. An alternative implementation of the Enhanced Full Rate speech service based on the 12.2 kbit/s mode of the Adaptive Multi Rate coder is allowed. Alternative implementations shall implement the functionality specified in TS 26.071 for the 12.2 kbit/s mode, with the ~~exception~~difference that the DTX transmission format from ~~(~~GSM 06.81~~) and,~~ the comfort noise generation from ~~(~~GSM 06.62~~)~~ and the decoder homing frame from GSM 06.60 shall be used.

The test sequences are derived from the corresponding AMR test sequences. The ~~-~~modifications that were made and the use of the respective sequences are described below. ~~-~~The input sequences are identical to the AMR test input sequences *.inp.

Speech codec test sequences

- ~~t_efr:~~ with DTX disabled

  t00.inp ... t22.inp (encoder input, from TS 26.074)

  t00_efr.cod ... t22_efr.cod (encoder output)

  t00_efr.dec ... t22_efr.dec (decoder input)

t00_efr.out ... t22_efr.out (decoder output)

- ~~dtx_efr:~~ with DTX enabled, VAD option 1

  Dtx1.inp ... Dtx4.inp (encoder input, from TS 26.074)

  D~~d~~tx1_efr.cod ... D~~d~~tx4_efr.cod (encoder output)

  D~~d~~tx1_efr.dec ... D~~d~~tx4_efr.dec (decoder input)

  D~~d~~tx1_efr.out ... D~~d~~tx4_efr.out (decoder output)

- ~~————~~with DTX enabled, VAD option 2

  Dt21.inp .... Dt24.inp (encoder input, from TS 26.074)

  D~~dtx~~21_efr~~2~~.cod ... D~~dtx~~24_efr~~2~~.cod (encoder output)

  D~~dtx~~21_efr~~2~~.dec ... D~~dtx~~24_efr~~2~~.dec (decoder input)

  D~~dtx~~21_efr~~2~~.out ... D~~dtx~~24_efr~~2~~.out (decoder output)

The format of the *.cod files is identical to the GSM_EFR *.cod file format (244 Data Bits, VadFlag, SpFlag equaling 246 Words per 20ms frame). The format of the *.dec files is identical to the GSM_EFR *.dec file format, that is (Bfi, 244 Data Bits, Sid, Taf equaling 247 Words per frame (20ms).

In summary, the differences to the AMR Mode MR122 test sequences are:

- DTX handling (VadFlag and SpFlag instead of TxType; different SID frames)
- Decoder homing frame (Decoder homing frame for GSM_EFR is different than for AMR MR122).

3GPP TSG-SA WG4 Meeting #14
Bath, UK, 27 Nov – 1 Dec 2000

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CHANGE REQUEST

⌘ **06.54** **CR** **A008** ⌘ rev **-** ⌘ Current version: **5.2.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM [ ] ME/UE [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	Corrections to the test vectors of the alternative EFR version
Source:	⌘	TSG-SA WG4
Work item code:	⌘	Alternative EFR implementation
Date:	⌘	11-Dec-2000
Category:	⌘	**A**
Release:	⌘	R96

Use one of the following categories:
- ***F*** *(essential correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(Addition of feature),*
- ***C*** *(Functional modification of feature)*
- ***D*** *(Editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
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R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change: ⌘
- test vectors of VAD option 1 were used to test VAD option 2
- test vectors were stored in UNIX byte format, PC byte format should be used
- more information on the used encoder input vectors should be added

Summary of change: ⌘
- correct input sequences used for VAD option 2
- test vectors stored in PC byte format (this is the standard format for test sequences)
- input sequences (*.inp) added to the zip-file
- more information on input vectors added (to section 10)

Consequences if not approved: ⌘ Test coverage of VAD option 2 will not be guaranteed. Manufacturers might be confused by unexpected byte format.

Clauses affected: ⌘ Section 10 + test vectors of alternative EFR version (zip-file)

Other specs affected: ⌘
- [ ] Other core specifications ⌘
- [ ] Test specifications
- [ ] O&M Specifications

Other comments: ⌘

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5-8/8		SYNC001X.COD	1	492	Right
5-8/8		SYNC002X.COD	1	492	Right
"		"	"	"	"
"		"	"	"	"
"		"	"	"	"
5-8/8		SYNC159X.COD	1	492	Right

5-8/8	Frame Synchronisation (output)	SYNC000X.COD	1	492	Right
5-8/8		SYNC001X.COD	1	492	Right
5-8/8		SYNC002X.COD	1	492	Right
"		"	"	"	"
"		"	"	"	"
"		"	"	"	"
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10 Alternative Enhanced Full Rate implementation using the Adaptive Multi Rate 12.2 kbit/s mode

The 12.2 kbit/s mode of the Adaptive Multi Rate speech coder described in TS 26.071 is functionally equivalent to the GSM Enhanced Full Rate speech coder. An alternative implementation of the Enhanced Full Rate speech service based on the 12.2 kbit/s mode of the Adaptive Multi Rate coder is allowed. Alternative implementations shall implement the functionality specified in TS 26.071 for the 12.2 kbit/s mode, with the ~~exception~~difference that the DTX transmission format from ~~(~~GSM 06.81~~) and,~~ the comfort noise generation from ~~(~~GSM 06.62~~)~~ and the decoder homing frame from GSM 06.60 shall be used.

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  t00_efr.dec ... t22_efr.dec (decoder input)

t00_efr.out ... t22_efr.out (decoder output)

- ~~dtx_efr:~~ with DTX enabled, VAD option 1

  Dtx1.inp ... Dtx4.inp (encoder input, from TS 26.074)

  D~~d~~tx1_efr.cod ... D~~d~~tx4_efr.cod (encoder output)

  D~~d~~tx1_efr.dec ... D~~d~~tx4_efr.dec (decoder input)

  D~~d~~tx1_efr.out ... D~~d~~tx4_efr.out (decoder output)

- ~~———~~with DTX enabled, VAD option 2

  Dt21.inp .... Dt24.inp (encoder input, from TS 26.074)

  D~~dtx~~21_efr~~2~~.cod ... D~~dtx~~24_efr~~2~~.cod (encoder output)

  D~~dtx~~21_efr~~2~~.dec ... D~~dtx~~24_efr~~2~~.dec (decoder input)

  D~~dtx~~21_efr~~2~~.out ... D~~dtx~~24_efr~~2~~.out (decoder output)

The format of the *.cod files is identical to the GSM_EFR *.cod file format (244 Data Bits, VadFlag, SpFlag equaling 246 Words per 20ms frame). The format of the *.dec files is identical to the GSM_EFR *.dec file format, that is (Bfi, 244 Data Bits, Sid, Taf equaling 247 Words per frame (20ms).

In summary, the differences to the AMR Mode MR122 test sequences are:

- DTX handling (VadFlag and SpFlag instead of TxType; different SID frames)
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3GPP TSG-SA WG4 Meeting #14
Bath, UK, 27 Nov – 1 Dec 2000

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CHANGE REQUEST

⌘ **06.54** **CR** **A009** ⌘ rev **-** ⌘ Current version: **6.1.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Corrections to the test vectors of the alternative EFR version
Source:	⌘	TSG-SA WG4
Work item code:	⌘	Alternative EFR implementation
Date:	⌘	11-Dec-2000
Category:	⌘	**A**
Release:	⌘	R97

Use one of the following categories:
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Reason for change: ⌘
- test vectors of VAD option 1 were used to test VAD option 2
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Summary of change: ⌘
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Consequences if not approved: ⌘ Test coverage of VAD option 2 will not be guaranteed. Manufacturers might be confused by unexpected byte format.

Clauses affected: ⌘ Section 10 + test vectors of alternative EFR version (zip-file)

Other specs affected: ⌘
- ☐ Other core specifications
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⌘

Other comments: ⌘

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"		"	"	"	"
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  D~~d~~tx1_efr.out ... D~~d~~tx4_efr.out (decoder output)

- ~~————~~with DTX enabled, VAD option 2

  Dt21.inp .... Dt24.inp (encoder input, from TS 26.074)

  D~~dtx~~21_efr~~2~~.cod ... D~~dtx~~24_efr~~2~~.cod (encoder output)

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The format of the *.cod files is identical to the GSM_EFR *.cod file format (244 Data Bits, VadFlag, SpFlag equaling 246 Words per 20ms frame). The format of the *.dec files is identical to the GSM_EFR *.dec file format, that is (Bfi, 244 Data Bits, Sid, Taf equaling 247 Words per frame (20ms).

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3GPP TSG-SA WG4 Meeting #14
Bath, UK, 27 Nov – 1 Dec 2000

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CHANGE REQUEST

⌘ **06.54** **CR** **A010** ⌘ rev **-** ⌘ Current version: **7.1.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

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Source:	⌘	TSG-SA WG4
Work item code:	⌘	Alternative EFR implementation
Date:	⌘	11-Dec-2000
Category:	⌘	**A**
Release:	⌘	R98

Use one of the following categories:
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Clauses affected: ⌘ Section 10 + test vectors of alternative EFR version (zip-file)

Other specs affected: ⌘
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- ☐ Test specifications
- ☐ O&M Specifications

⌘

Other comments: ⌘

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Table 9: Location and size of compressed 8 bit PCM DTX test sequences

			size		bytes
Disk No.	**File Name**	**No. of Frames**	***.INP**	***.COD**	***.OUT**
5-8/8	DTX01-X	710	113 600	349 320	113 600
5-8/8	DTX02-X	933	149 280	459 036	149 280
5-8/8	DTX03-X	156	24 960	76 752	24 960
5-8/8	DTX04-X	245	39 200	120 540	39 200
5-8/8	DTX05-X	56	8 960	27 552	8 960
5-8/8	DTX06-X	771	123 360	379 332	123 360
5-8/8	DTX07-X	1188	190 080	584 496	190 080

In addition to the test sequences above, special input (seqsyncX.inp) and output (syncxxxX.cod) sequences for frame synchronization are provided. The X again stands for A and μ law compressed PCM. The synchronization procedure is described in clause 8.

Table 10: Location, size and justification of compressed 8 bit PCM test sequences

Disk No.	**Purpose of Sequence**	**Name of Sequence**	**No. of Frames**	**Size in Bytes**	**Justification**
5-8/8	Frame Synchronisation (input)	SEQSYNCX.INP	4	640	-
5-8/8	Frame Synchronisation (output)	SYNC000X.COD	1	492	Right
5-8/8		SYNC001X.COD	1	492	Right
5-8/8		SYNC002X.COD	1	492	Right
"		"	"	"	"
"		"	"	"	"
"		"	"	"	"
5-8/8		SYNC159X.COD	1	492	Right

5-8/8	Frame Synchronisation (output)	SYNC000X.COD	1	492	Right
5-8/8		SYNC001X.COD	1	492	Right
5-8/8		SYNC002X.COD	1	492	Right
"		"	"	"	"
"		"	"	"	"
"		"	"	"	"
5-8/8		SYNC159X.COD	1	492	Right

10 Alternative Enhanced Full Rate implementation using the Adaptive Multi Rate 12.2 kbit/s mode

The 12.2 kbit/s mode of the Adaptive Multi Rate speech coder described in TS 26.071 is functionally equivalent to the GSM Enhanced Full Rate speech coder. An alternative implementation of the Enhanced Full Rate speech service based on the 12.2 kbit/s mode of the Adaptive Multi Rate coder is allowed. Alternative implementations shall implement the functionality specified in TS 26.071 for the 12.2 kbit/s mode, with the ~~exception~~difference that the DTX transmission format from ~~(~~GSM 06.81~~) and,~~ the comfort noise generation from ~~(~~GSM 06.62~~)~~ and the decoder homing frame from GSM 06.60 shall be used.

The test sequences are derived from the corresponding AMR test sequences. The ~~-~~modifications that were made and the use of the respective sequences are described below. ~~-~~The input sequences are identical to the AMR test input sequences *.inp.

Speech codec test sequences

- ~~t_efr:~~ with DTX disabled

  t00.inp ... t22.inp (encoder input, from TS 26.074)

  t00_efr.cod ... t22_efr.cod (encoder output)

  t00_efr.dec ... t22_efr.dec (decoder input)

t00_efr.out ... t22_efr.out (decoder output)

- ~~dtx_efr:~~ with DTX enabled, VAD option 1

  Dtx1.inp ... Dtx4.inp (encoder input, from TS 26.074)

  D~~d~~tx1_efr.cod ... D~~d~~tx4_efr.cod (encoder output)

  D~~d~~tx1_efr.dec ... D~~d~~tx4_efr.dec (decoder input)

  D~~d~~tx1_efr.out ... D~~d~~tx4_efr.out (decoder output)

- ~~———~~with DTX enabled, VAD option 2

  Dt21.inp .... Dt24.inp (encoder input, from TS 26.074)

  D~~dtx~~21_efr~~2~~.cod ... D~~dtx~~24_efr~~2~~.cod (encoder output)

  D~~dtx~~21_efr~~2~~.dec ... D~~dtx~~24_efr~~2~~.dec (decoder input)

  D~~dtx~~21_efr~~2~~.out ... D~~dtx~~24_efr~~2~~.out (decoder output)

The format of the *.cod files is identical to the GSM_EFR *.cod file format (244 Data Bits, VadFlag, SpFlag equaling 246 Words per 20ms frame). The format of the *.dec files is identical to the GSM_EFR *.dec file format, that is (Bfi, 244 Data Bits, Sid, Taf equaling 247 Words per frame (20ms).

In summary, the differences to the AMR Mode MR122 test sequences are:

- DTX handling (VadFlag and SpFlag instead of TxType; different SID frames)
- Decoder homing frame (Decoder homing frame for GSM_EFR is different than for AMR MR122).

3GPP TSG-SA WG4 Meeting #14
Bath, UK, 27 Nov – 1 Dec 2000

Tdoc S4 (00)0675

CR-Form-v3

CHANGE REQUEST

⌘ **06.54** **CR** **A011** ⌘ rev **-** ⌘ Current version: **8.1.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Corrections to the test vectors of the alternative EFR version
Source:	⌘	TSG-SA WG4
Work item code:	⌘	Alternative EFR implementation
Date:	⌘	11-Dec-2000
Category:	⌘	**A**
Release:	⌘	R99

Use one of the following categories:
F *(essential correction)*
A *(corresponds to a correction in an earlier release)*
B *(Addition of feature),*
C *(Functional modification of feature)*
D *(Editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	• test vectors of VAD option 1 were used to test VAD option 2 • test vectors were stored in UNIX byte format, PC byte format should be used • more information on the used encoder input vectors should be added
Summary of change:	⌘	• correct input sequences used for VAD option 2 • test vectors stored in PC byte format (this is the standard format for test sequences) • input sequences (*.inp) added to the zip-file • more information on input vectors added (to section 10)
Consequences if not approved:	⌘	Test coverage of VAD option 2 will not be guaranteed. Manufacturers might be confused by unexpected byte format.

Clauses affected:	⌘	Section 10 + test vectors of alternative EFR version (zip-file)
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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"		"	"	"	"
"		"	"	"	"
5-8/8		SYNC159X.COD	1	492	Right

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5-8/8		SYNC001X.COD	1	492	Right
5-8/8		SYNC002X.COD	1	492	Right
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  D~~d~~tx1_efr.dec ... D~~d~~tx4_efr.dec (decoder input)

  D~~d~~tx1_efr.out ... D~~d~~tx4_efr.out (decoder output)

- ~~————~~with DTX enabled, VAD option 2

  Dt21.inp .... Dt24.inp (encoder input, from TS 26.074)

  D~~dtx~~21_efr~~2~~.cod ... D~~dtx~~24_efr~~2~~.cod (encoder output)

  D~~dtx~~21_efr~~2~~.dec ... D~~dtx~~24_efr~~2~~.dec (decoder input)

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